

HONDA

SERVICE MANUAL



88-94

TRX300

FOURTRAX®

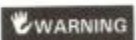
88,90-94

TRX300FW

FOURTRAX®

4X4

IMPORTANT SAFETY NOTICE



WARNING *Indicates a strong possibility of severe personal injury or death if instructions are not followed.*

CAUTION: *Indicates a possibility of personal injury or equipment damage if instructions are not followed.*

NOTE: Gives helpful information.

Detailed descriptions of standard workshop procedures, safety principles and service operations are not included. It is important to note that this manual contains some warnings and cautions against some specific service methods which could cause **PERSONAL INJURY** to service personnel or could damage a vehicle or render it unsafe. Please understand that those warnings could not cover all conceivable ways in which service, whether or not recommended by Honda might be done or of the possibly hazardous consequences of each conceivable way, nor could Honda investigate all such ways. Anyone using service procedures or tools, whether or not recommended by Honda *must satisfy himself thoroughly* that neither personal safety nor vehicle safety will be jeopardized by the service method or tools selected.

HOW TO USE THIS MANUAL

Sections 1 through 3 apply to the complete FOURTRAX, while sections 4 through 21 describe parts of the FOURTRAX, grouped according to location.

Find the section you want on this page, then turn to the table of contents on page 1 of that section.

Most sections start with an assembly or system illustration, service information and troubleshooting for the section. The subsequent pages give detailed procedures.

If you don't know the source of the trouble, go to section 22, Troubleshooting.

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HONDA MOTOR CO., LTD.
Service Publications Office

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1. GENERAL INFORMATION

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GENERAL SAFETY

WARNING

If the engine must be running to do some work, make sure the area is well-ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and lead to death.

WARNING

The battery generates hydrogen gas which can be highly explosive. Do not smoke or allow flames or sparks near the battery, especially while charging it.

WARNING

- Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake or clutch assemblies.*
- Use an OSHA-approved vacuum cleaner or alternate method approved by OSHA designed to minimize the hazard caused by airborne asbestos fibers.*

WARNING

Gasoline is extremely flammable and is explosive under certain conditions. Do not smoke or allow flames or sparks in your work area or where gasoline is stored.

WARNING

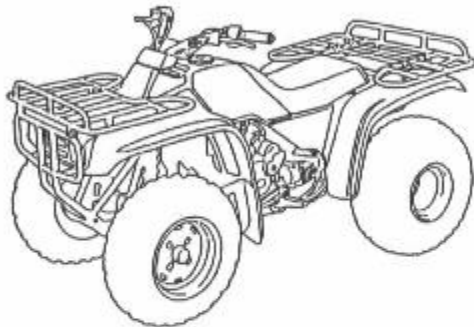
The battery electrolyte contains sulfuric acid. Protect your eyes, skin and clothing. In case of contact, flush thoroughly with water and call a doctor if electrolyte gets in your eyes.

SERVICE RULES

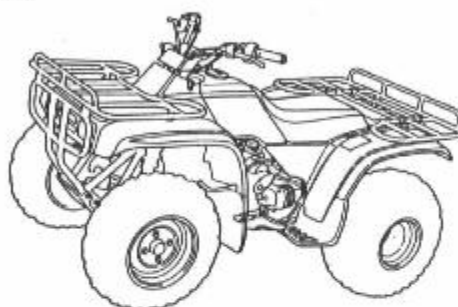
1. Use genuine HONDA or HONDA-recommended parts and lubricants or their equivalents. Parts that don't meet HONDA's design specifications may cause damage to the vehicle.
2. Use the special tools designed for this product to avoid damage and incorrect assembly.
3. Use only metric tools when servicing the vehicle. Metric bolts, nuts and screws are not interchangeable with English fasteners.
4. Install new gaskets, O-rings, cotter pins, and lock plates when reassembling.
5. When tightening bolts or nuts, begin with the larger-diameter or inner bolt first. Then tighten to the specified torque diagonally in 1-7 steps, unless a particular sequence is specified.
6. Clean parts in non-flammable or high flash point solvent upon disassembly.
7. Lubricate any sliding surfaces before reassembly.
8. After reassembly, check all parts for proper installation and operation.

MODEL IDENTIFICATION

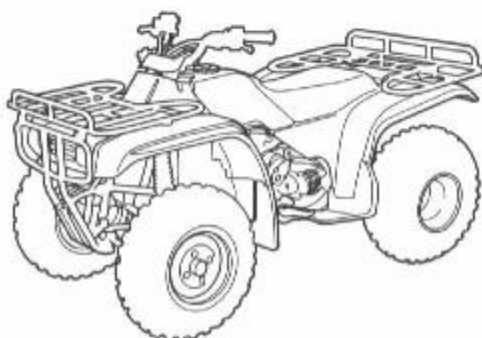
TRX300 '88-'89:



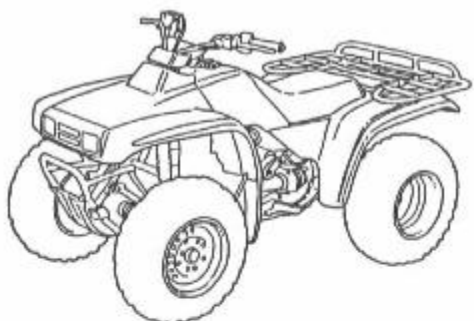
'90-'92:



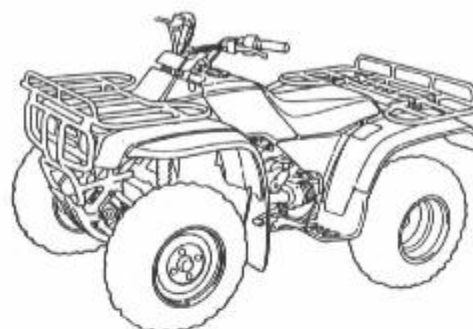
After '92:



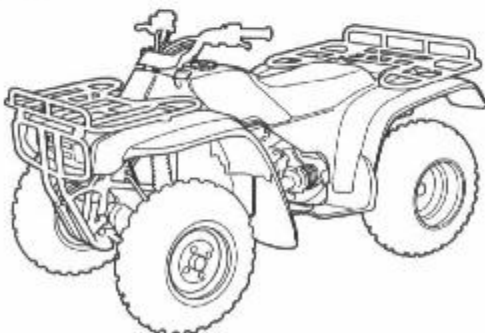
TRX300FW '88:

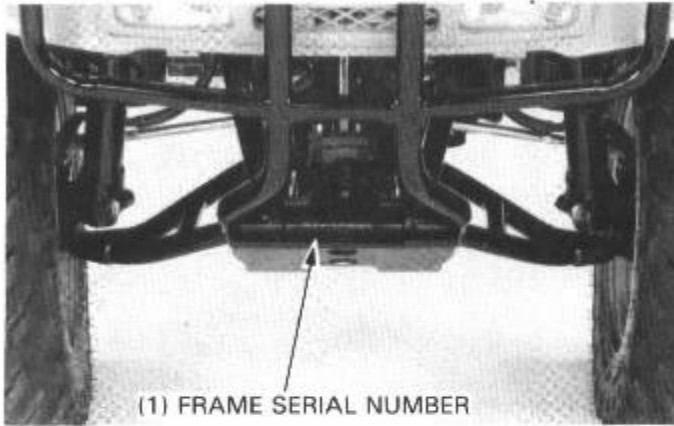


'90-'92:



After '92:





- (1) The frame serial number is stamped on the front of the frame.



- (2) The engine serial number is stamped on the upper side of the right crankcase.



- (3) The carburetor identification number is on the left side of the carburetor body.

SPECIFICATIONS

I : TRX300FW

DIMENSIONS	Overall length		'88—'90:	1,905 mm (75.0 in)	[1,895 mm (74.6 in)]
			After '90:	1,910 mm (75.2 in)	[1,910 mm (75.2 in)]
	Overall width		'88—'90:	1,115 mm (43.9 in)	[1,065 mm (41.9 in)]
			'91—'92:	1,125 mm (44.3 in)	[1,110 mm (43.7 in)]
			After '92:	1,115 mm (43.9 in)	[1,110 mm (43.7 in)]
	Overall height		'88—'90:	1,055 mm (41.5 in)	[1,100 mm (43.3 in)]
			'91—'92:	1,075 mm (42.3 in)	[1,085 mm (42.7 in)]
			After '92:	1,088 mm (42.8 in)	[1,085 mm (42.7 in)]
	Wheelbase		'88—'90:	1,245 mm (49.0 in)	[1,235 mm (48.6 in)]
			'91—'92:	1,250 mm (49.2 in)	[1,235 mm (48.6 in)]
			After '92:	1,239 mm (48.8 in)	[1,238 mm (48.7 in)]
	Seat height		'88—'90:	765 mm (30.1 in)	[800 mm (31.5 in)]
			'91—'92:	780 mm (30.7 in)	[790 mm (31.1 in)]
			After '92:	783 mm (30.8 in)	[780 mm (30.7 in)]
Foot peg height		'88—'90:	290 mm (11.4 in)	[315 mm (12.4 in)]	
		'91—'92:	300 mm (11.8 in)	[305 mm (12.0 in)]	
		After '92:	305 mm (12.0 in)	[305 mm (12.0 in)]	
Ground clearance			160 mm (6.3 in)	[160 mm (6.3 in)]	
Dry weight		'88:	199 kg (439 lb)	[215 kg (474 lb)]	
		'89—'90:	211.5 kg (466 lb)	[230 kg (507 lb)]	
		'91—'92:	216 kg (476 lb)	[236 kg (520 lb)]	
		After '92:	221 kg (487 lb)	[239 kg (527 lb)]	
FRAME	Type			Double cradle	
	Rim size	Front		11 x 6.5 AT	
		Rear		9 x 9.0 AT [11 x 7.5 AT]	
	Suspension travel	Front		Axle travel 130 mm (5.1 in)	
		Rear		Axle travel 130 mm (5.1 in)	
	Front tire size, pressure			AT 23 x 8-11 ★★, 2.9 psi (0.20 kg/cm ² , 20 kPa)	
				[AT 23 x 8-11 ★★, 4.4 psi (0.30 kg/cm ² , 30 kPa)]	
	Rear tire size, pressure		'89—'91:	AT 25 x 12-9 ★, 2.9 psi (0.20 kg/cm ² , 20 kPa)	
				[AT 24 x 9-11 ★, 2.9 psi (0.20 kg/cm ² , 20 kPa)]	
			After '91:	AT 25 x 11-9 ★, 2.9 psi (0.20 kg/cm ² , 20 kPa)	
				[AT 24 x 9-11 ★, 2.9 psi (0.20 kg/cm ² , 20 kPa)]	
	Front brake			Hydraulic operated leading/trailing shoe	
	Rear brake			Cable operated leading/trailing shoe	
	Fuel tank capacity			12.5 liters (3.3 US gal, 2.8 Imp gal)	
	Fuel reserve capacity			2.5 liters (0.7 US gal, 0.6 Imp gal)	
	Toe-in		'88—'92:	2 mm (0.08 in)	
			After '92:	5 mm (0.2 in)	
	Caster angle		'88—'92:	5°	
			After '92:	7°	
	[Toe-in		'88—'90:	8 mm (0.3 in)]	
			['91—'92:	0 mm]	
			[After '92:	4 mm 0.2 in]	
	[Caster angle		'88—'90:	2°]	
		['91—'92:	2.25°]		
		[After '92:	2.2°]		
Camber angle		'88—'92:	0.5°		
			[0°]		
		After '92:	0.2°		
			[0°]		
Trail length		'88—'92:	25.0 mm (0.98 in)		
		After '92:	33.0 mm (1.26 in)		
Tread	Front	'88—'92:	795 mm (31.3 in)		
			[840 mm (33.1 in)]		
		After '92:	793 mm (31.2 in)		
	Rear		840 mm (33.1 in)		
			[840 mm (33.1 in)]		

ENGINE	<p>Type Cylinder arrangement Bore x stroke Displacement Compression ratio Valve train Oil capacity</p> <p>Lubrication system Cylinder compression Intake valve Opens '88-'90: After '90: Closes '88-'90: After '90: Exhaust valve Opens '88-'90: After '90: Closes '88-'90: After '90: Valve clearance Intake (Cold) Exhaust</p>	<p>Gasoline, air-cooled 4-stroke Single cylinder inclined 20° from vertical 74.0 x 65.5 mm (2.91 x 2.58 in) 281.7 cc (17.2 cu-in) 9.0 : 1 Overhead camshaft, chain driven 2.5 lit (2.6 US qt, 2.2 Imp qt) at disassembly 2.2 lit (2.3 US qt, 1.9 Imp qt) after draining Forced pressure and wet sump 1,250–1,450 kPa (12.5–14.5 kg/cm², 178–206 psi)</p> <p>8° BTDC 11° BTDC 35° ABDC 32° ABDC 40° BBDC 43° BBDC 5° ATDC 2° ATDC</p> <p>at 1 mm lift</p> <p>0.15 mm (0.006 in) 0.15 mm (0.006 in)</p>
CARBURETOR	<p>Type Identification number '88-'90: '91: '92: After '92: Throttle bore Main jet '88-'90: After '90: Slow jet '88-'90: After '90: Starter jet '88-'90: '91: '92: After '92: Pilot screw initial opening Jet needle Float level Idle speed '88-'90: After '90:</p>	<p>Vacuum piston (VE) VE90A VE90C VE90D VE90E 32 mm (1.3 in) #120 #125 #42 #40 #85 #80 #90 #85 see page 4-14 3rd groove from the top 18.5 mm (0.73 in) 1,500 ± 100 rpm 1,400 ± 100 rpm</p>
DRIVE TRAIN	<p>Clutch Transmission Primary reduction Gear ratio S/L I II III IV Reverse Final reduction Front Rear Gearshift pattern [Front differential oil capacity '88: [After '88: [Front gear case oil capacity Rear final drive oil capacity</p>	<p>Wet multi-plate, automatic centrifugal 5-speed constant mesh with reverse 2.407 (65/27) 4.083 (49/12) 2.389 (43/18) 1.609 (37/23) 1.179 (33/28) 0.848 (28/33) 5.397 (34/12 x 40/21) 5.554 (19/13 x 38/10) 1.462 (19/13) x 3.889 (35/9) Left foot operated return system, Forward: N–S/L–1–2–3–4 Reverse: N–R 100 cc (3.4 oz) at disassembly [90 cc (3.0 oz) after draining] 200 cc (6.8 oz) at disassembly [190 cc (6.4 oz) after draining] 200 cc (6.8 oz) at disassembly [190 cc (6.4 oz) after draining] 100 cc (3.4 oz) at disassembly 90 cc (3.0 oz) after draining</p>

ELECTRICAL	Ignition	Initial Full advance Capacity	DC-CDI	
	Ignition timing		13° BTDC at idle	
	Alternator		31° BTDC at 4,500 ± 100 rpm	
	Battery		0.22 kW/5,000 rpm	
	Spark plugs		12 V—12 AH	
			NGK	NIPPONDENSO
		Standard	DPR8EA-9	X24EPR-U9
		For cold climate (Below 5°C/41°F)	DPR7EA-9	X22EPR-U9
		For extended high speed riding	DPR9EA-9	X27EPR-U9
	Spark plug gap	0.8—0.9 mm (0.031—0.035 in)		
	Headlight	12 V 25/25 W x 2		
	Taillight	12 V 5 W		
	Neutral indicator	12 V 3.4 W		
	Reverse indicator	12 V 3.4 W		
	Oil temperature indicator	12 V 3.4 W		

TORQUE VALUES

ENGINE

Item	Q'ty	Thread Dia. (mm)	Torque			Remarks
			N•m	kg-m	ft-lb	
Engine oil drain bolt	1	12	25	2.5	18	NOTE 2
Oil filter cover bolt	3	6	10	1.0	7	
Clutch adjusting screw lock nut	1	8	22	2.2	16	
Valve adjusting lock nut	2	6	17	1.7	12	
Spark plug	1	12	18	1.8	13	
Insulator band screw	1	5	4	0.4	2.9	
Carburetor cover screw	1	5	3.5	0.35	2.5	
Cylinder head cover (6 mm SH bolt)	3	6	10	1.0	7	
(6 mm flange bolt)	10	6	12	1.2	9	
Cylinder head (cap nut)	4	10	40	4.0	29	
(socket bolt)	3	8	25	2.5	18	NOTE 1/3/4 NOTE 1/3
Cam sprocket bolt	2	7	20	2.0	14	
Cam chain tensioner lifter (mounting bolt)	2	6	10	1.0	7	
(sealing bolt)	1	6	10	1.0	7	
Oil pipe bolt (BLACK)	1	7	12	1.2	9	
Oil path pipe bolt	2	7	12	1.2	9	
Cylinder mounting bolt	2	6	10	1.0	7	
Centrifugal clutch lock nut	1	20	120	12.0	87	
Change clutch lock nut	1	18	110	11.0	80	
Clutch spring bolt	4	6	12	1.2	9	NOTE 1
Reverse/neutral rotor bolt	1	6	12	1.2	9	
Right crankcase cover bolt	12	6	10	1.0	7	
Kick starter ratchet guide	2	6	12	1.2	9	
Starter reduction gear cover bolt	5	6	10	1.0	7	
Pulse generator screw	2	5	6	0.6	4	
Pulse generator socket bolt	2	5	6	0.6	4	
Alternator stator bolt	3	6	10	1.0	7	
Starter clutch Torx bolt	6	6	16	1.6	12	
Flywheel bolt	1	12	110	11.0	80	NOTE 1 NOTE 1
Gearshift return spring pin	1	8	22	2.2	16	
Left crankcase cover bolt	9	6	10	1.0	7	
Side shaft cover bolt (TRX300FW)	4	6	10	1.0	7	
OUTPUT GEAR						
Output shaft bearing holder bolt	3	8	23	2.3	17	
Countershaft bearing lock nut	1	64	100	10.0	72	
Output shaft bearing outer race lock nut	1	60	100	10.0	72	
Output shaft bearing inner race lock nut	1	28	75	7.5	54	
Output gear case mounting bolt	3	8	32	3.2	23	NOTE 1 NOTE 1
Crankcase bolt	13	6	10	1.0	7	
Bearing set plate bolt	2	6	12	1.2	9	
Cam chain guide holder bolt	1	6	12	1.2	9	
Neutral switch	1	10	13	1.3	9	
Reverse switch	1	10	13	1.3	9	
Oil temperature sensor	1	12	18	1.8	13	

GENERAL INFORMATION

FRAME

Item	Q'ty	Thread Dia. (mm)	Torque			Remarks
			N·m	kg-m	ft-lb	
Engine bracket bolt (front) ('88-'92:)	4	10	55	5.5	40	
(After '92:)	4	10	75	7.5	54	
Engine bracket nut (upper) ('88-'92:)	2	10	55	5.5	40	
(After '92:)	2	10	75	7.5	54	
Engine mounting nut (front and upper) ('88-'92:)	2	10	55	5.5	40	
(After '92:)	2	10	75	7.5	54	
Engine mounting nut (rear/upper and rear/lower)	2	10	75	7.5	54	
Gearshift pedal bolt	1	6	16	1.6	12	
Footpeg bolt	8	8	33	3.3	24	
Fuel valve	1	18	28	2.8	20	
Exhaust muffler mounting bolt	3	10	55	5.5	40	
Exhaust pipe protector bolt ('88-'92:)	3	6	10	1.0	7	NOTE 1
(After '92:)	3	6	18	1.8	13	NOTE 1
DC consent	—	8	16	1.6	12	
FRONT						
Handlebar upper holder bolt	4	8	27	2.7	20	
Handlebar switch housing screw	2	5	2	0.2	1.4	
Master cylinder holder	2	6	12	1.2	9	
Handlebar grip end bolt	2	6	10	1.0	7	
Throttle case cover ('88-'92:)	2	4	4	0.4	2.9	
(After '92:)	2	4	3	0.3	2.5	
Handle lever pivot bolt	1	6	1.0	0.10	0.7	
Handle lever pivot bolt lock nut	1	6	6	0.6	4.3	
Wheel nut	8	10	65	6.5	47	
Wheel hub mounting bolt (TRX300FW)	4	6	10	1.0	7	
Front arm mounting nut ('88-'92:)	4 [8]	10	45	4.5	33	NOTE 5
(After '92:)	8	8	31	3.1	22	NOTE 5
Front arm ball joint nut ('88-'92: TRX300)	2	12	50-60	5.0-6.0	36-43	
('88-'92: TRX300FW)	4	12	30-36	3.0-3.6	22-26	
(After '92:)	4	12	30-36	3.0-3.6	22-26	
Tie-rod ball joint nut	4	12	55	5.5	40	NOTE 5
Tie-rod lock nut	4	12	55	5.5	40	
Steering shaft upper holder bolt	2	8	33	3.3	24	
Steering shaft nut ('88-'92: TRX300)	1	14	70	7.0	51	
Steering shaft nut (TRX300FW/After '92: TRX300))	1	14	100-120	10.0-12.0	72-87	NOTE 6
Handlebar lower holder nut	2	10	40	4.0	29	NOTE 5
Shock absorber ball joint ('88-'92: TRX300)	2	12	38	3.8	27	
Shock absorber upper nut (('88-'92: TRX300)	2	35	55	5.5	40	
Shock absorber lower pinch bolt (('88-'92: TRX300)	2	10	55	5.5	40	
Shock absorber mounting bolt (('88-'92: TRX300FW)	4	10	25	2.5	18	NOTE 5
(After '92:)	4	10	31	3.1	22	NOTE 5
Master cylinder cover screw	2	4	2	0.2	1.4	
Brake hose bolt ('88-'90:)	1 [3]	10	30	3.0	22	
('91-'92:)	1 [3]	10	35	3.5	25	
(After '92:)	3 [4]	10	35	3.5	25	
Wheel cylinder bolt (TRX300)	4	6	8	0.8	6	
Adjuster bolt (TRX300)	4	6	8	0.8	6	
Front brake panel bolt ('88-'92:)	8	8	30	3.0	22	NOTE 5
(After '92:)	8	8	29	2.9	21	NOTE 5
Brake hose joint nut ('88-'92: TRX300)	2	10	14	1.4	10	
Brake hose joint ('88-'92: TRX300)	2	10	35	3.5	25	
Axle nut (TRX300)	2	14	60-80	6.0-8.0	43-58	
(After '92: TRX300)	2	18	80-100	8.0-10.0	58-72	NOTE 6
(TRX300FW)	2	16	80-100	8.0-10.0	58-72	
Wheel cylinder assy. 6 mm bolt (TRX300FW)	4	6	8	0.8	6	
8 mm bolt (TRX300FW)	4	8	17	1.7	12	
Brake pipe joint nut	2	10	14	1.4	10	NOTE 2
Brake hose/breather tube clamp bolt ('88-'92:)	2	8 [6]	22 [12]	2.2 [1.2]	16 [9]	
(After '92:)	4	6	12	1.2	9	
Brake bleeder valve (After '92:)	2	8	6	0.6	4.3	

FRAME (Cont'd)

I J: TRX300FW

Item	Q'ty	Thread Dia. (mm)	Torque			Remarks	
			N·m	kg·m	ft·lb		
REAR							
Wheel nut	8	10	65	6.5	47	NOTE 1	
Axle housing bolt ('88—'92:)	4	10	50	5.0	36		
(After '92:)	4	10	45	4.5	33		
Axle lock nut (inner)	2	32	40	4.0	29		
(outer)	2	32	130	13.0	94		
Axle nut ('88—'92:)	2	18	100—200	10.0—12.0	72—87		
(After '92:)	2	18	140—160	14.0—16.0	101—116		
Brake panel drain bolt	1	12	25	2.5	18		
Brake panel nut	4	10	35	3.5	25		
Shock absorber mount nut ('88—'92: upper)	1	10	45	4.5	33		
(('88—'92: lower)	1	10	35	3.5	25		
(After '92: upper/lower)	2	10	45	4.5	33		
Swingarm left pivot bolt	1	30	115	11.5	83	NOTE 5	
Swingarm right pivot bolt	1	30	4	0.4	3		
Swingarm right pivot lock nut	1	30	115	11.5	83		
Trailer hitch bolt	5	10	75	7.5	54		
NOTE 1							
FRONT DIFFERENTIAL (TRX300FW)							
Oil filler cap	1	30	12	1.2	9	NOTE 3	
Mounting bolt ('88—'92: 10 mm)	2	10	45	4.5	33		
(('88—'92: 8 mm)	3	8	20	2.0	14		
Mounting bolt (After '92: 10 mm)	4	10	45	4.5	33		
(After '92: 8 mm)	2	8	22	2.2	16		
Cap bolt (Torx)	6	8	33	3.3	24		
Ring gear bolt	6	8	50	5.0	36		
Pinion bearing lock nut	1	60	100	10.0	72		
Pinion joint nut	1	16	110	11.0	80		
Drain bolt	1	8	12	1.2	9		
Cover bolt (10 mm)	2	10	48	4.8	35		
(8 mm)	6	8	26	2.6	19		
FRONT GEAR CASE (TRX300FW)							
Oil filler cap	1	30	12	1.2	9	NOTE 1	
Mounting bolt (8 mm)	3	8	25	2.5	18		
(6 mm)	4	6	12	1.2	9		
Drain bolt	1	8	22	2.2	16		
Cover bolt	9	6	12	1.2	9		
FINAL DRIVE							
Oil filler cap	1	30	12	1.2	9		NOTE 5
Joint nut	4	10	45	4.5	33		
Cover bolt (10 mm)	2	10	48	4.8	35		
(8 mm)	6	8	26	2.6	19		
Pinion bearing lock nut	1	60	100	10.0	72		
Pinion joint nut	1	16	110	11.0	80		
Drain bolt	1	8	12	1.2	9		
NOTE 1							
NOTE 3							
NOTE 1							

NOTE 1: Apply locking agent to the threads.

2: Apply oil to the flange and threads.

3: Stake.

4: Left-hand threads.

5: Re-use strictly prohibited.

6: Apply grease to the flange and threads.

Torque specifications listed above are for the most important tightening points. If a torque specification is not listed, follow the standards given below.

STANDARD TORQUE VALUES

Item	Torque N·m (kg-m, ft-lb)	Item	Torque N·m (kg-m, ft-lb)
5 mm bolt, nut	5 (0.5, 3.6)	5 mm screw	4 (0.4, 2.9)
6 mm bolt, nut	10 (1.0, 7)	6 mm screw, 6 mm flange bolt with 8 mm head	9 (0.9, 6.5)
8 mm bolt, nut	22 (2.2, 16)	6 mm flange bolt, nut	12 (1.2, 9)
10 mm bolt, nut	35 (3.5, 25)	8 mm flange bolt, nut	27 (2.7, 20)
12 mm bolt, nut	55 (5.5, 40)	10 mm flange bolt, nut	40 (4.0, 29)

TOOLS

SPECIAL

DESCRIPTION	TOOL NUMBER	ALTERNATE TOOL	REF. SEC.
Dowel pin puller set	07936—MA70000	(Not available in U.S.A.)	6
—sliding shaft	07936—MA70100		6
—remover weight	07741—0010201	or 07936—3710200	6
Valve guide reamer, 5.510 mm	07984—2000001	or 07984—200000B	6
Bearing remover, 17 mm	07936—3710300		8, 13, 14
Remover handle	07936—3710100		8, 13, 14
Remover weight	07741—0010201	or 07936—3710200	8, 13, 14
Bearing remover, 15 mm	07936—KC10000	(Not available in U.S.A.)	10
—remover, 15 mm	07936—KC10500		10
—remover head, 15 mm	07936—KC10200	(Not available in U.S.A.)	10
—remover shaft, 15 mm	07936—KC10100	(Not available in U.S.A.)	10
—remover weight	07741—0010201	or 07936—3710200	10
Clutch holder	07GMB—HA70100		8
Clutch center holder	07923—KE10000	or 07HGB—001000A (U.S.A. only)	8
Attachment, 28 x 30 mm	07946—1870100		8
Universal bearing puller	07931—4630000	or 07631—0010000 or equivalent commercially available in U.S.A.	10
		(Not available in U.S.A.)	10
Crankcase assembly tool set	07965—VM00000		10
—assembly collar	07965—VM00100		10
—shaft puller	07965—VM00200	or 07931—ME4000A (U.S.A. only)	10
—threaded adaptor	07965—VM00300	or 07931—KF00200 (U.S.A. only)	10
Shaft holder	07924—ME50000		10
Lock nut wrench, 36 x 48 mm	07916—MB00001	or 07916—MB00000 and 07916—HA2020A (U.S.A. only)	10
		or 07916—ME50000 and 07916—HA0010A (U.S.A. only)	10, 14, 15
Lock nut wrench, 34 x 44 mm	07916—ME50001		
Attachment	07946—HA00001		10
* Ball joint puller (NOTE 1)	07934—5510000	or equivalent commercially available in U.S.A.	11
		or 07941—6920003	11, 14
Ball joint puller (NOTE 2)	07MAC—SL00200		11
* Ball joint remover (NOTE 2)	07JMF—HC50100		11
Driver (NOTE 2)	07949—3710001		11
Attachment (NOTE 2)	07945—3330300		11
Compressor adapter (NOTE 2)	07967—KC10100		12
Snap ring pliers	07914—3230001		12
Oil seal driver	07965—MC70100		12
Tire breaker attachment	07GMF—HC50100	(Not available in U.S.A.)	11, 13
Base	07959—MB10000		13
Swingarm lock nut wrench	07908—4690001	or KS—HBA—08—469 (U.S.A. only)	13
Differential inspection tool (NOTE 2)	07KMK—HC50101		14
Shaft puller	07931—ME40000	or 07931—ME4000A (U.S.A. only)	14, 15
Pinion gear driver	07945—HA00000	(Not available in U.S.A.)	14, 15
		or 07746—0030100	
Lock nut wrench, 41 mm	07916—9580200	or 07916—958020A (U.S.A. only)	15
Lock nut wrench attachment, 41 mm	07916—9580400	or 07916—958010A (U.S.A. only)	15
Pinion holder	07924—HA00001	or 07924—HA00000 (modified) **	14, 15
Inspect adaptor (C1)	07508—0012500	(Not available in U.S.A.)	17

: The tools marked "" are new for this model.

**Must be modified pinion holder (4) holes. Increase holes to 10.5 mm (0.41 in).

COMMON

DESCRIPTION	TOOL NUMBER	ALTERNATE TOOL	REF. SEC.
Float level gauge	07401-0010000		4
Valve guide remover, 5.5 mm	07742-0010000		6
Valve spring compressor	07757-0010000		6
Driver	07749-0010000		8, 9, 10, 12, 13, 14, 15
Attachment, 42 x 47 mm	07746-0010300		8, 10, 11, 12
Pilot, 17 mm	07746-0040400		8, 11, 14
Lock nut wrench, 17 x 27 mm	07716-0020300	or equivalent commercially available in U.S.A.	8
Extension bar	07716-0020500		8
Attachment, 24 x 26 mm	07746-0010700		9
Flywheel holder	07725-0040000	or strap wrench commercially available in U.S.A.	9
Rotor puller	07733-0020001	or 07933-3950000	9
Torx driver bit	07703-0010200	or equivalent commercially available in U.S.A.	9
Attachment, 72 x 75 mm	07746-0010600		10
Driver C	07746-0030100		10
Attachment, 30 mm I.D.	07746-0030300		10
Pilot, 22 mm	07746-0041000		10
Attachment, 37 x 40 mm	07746-0010200		10, 11, 13, 14
Pilot, 20 mm	07746-0040500		10, 11, 12
Pilot, 30 mm (NOTE 2)	07746-0040700		11
Shock absorber compressor	07GME-0010000		11, 13
— Compressor screw assembly	07GME-0010100		11, 13
Bearing remover head, 15 mm (NOTE 1)	07746-0050400	or equivalent commercially available in U.S.A.	12
Bearing remover shaft (NOTE 1)	07746-0050100		12
Bearing remover head, 20 mm (NOTE 1)	07746-0050600		12
Attachment, 32 x 35 mm	07746-0010100		10, 12
Pilot, 15 mm	07746-0040300		10, 12
Attachment, 62 x 68 mm	07746-0010500		12, 15
Pilot, 35 mm	07746-0040800		12
Tire breaker set	07772-0050001	or universal bead breaker	11, 13
— breaker arm compressor	07772-0050101	GN-AH-958-BB1	11, 13
— breaker arm	07772-0050200		11, 13
Socket bit, 17 mm	07703-0020500	or equivalent commercially available in U.S.A.	13
Attachment, 52 x 55 mm	07746-0010400		10, 14, 15
Pilot, 28 mm	07746-0041100		10, 14
Inner driver	07746-0020100		14, 15
Attachment, 20 mm I.D. (NOTE 2)	07746-0020400		14
Digital multimeter	07411-0020000	or KS-AHM-32-003 (U.S.A. only)	17, 18, 19, 20
or Circuit tester (SANWA)	07308-0020000		17, 18, 19, 20
or Circuit tester (KOWA)	TH-5H		17, 18, 19, 20
Christie battery charger	MC1012/2	(U.S.A. only)	18
Battery tester	07GMJ-0010000	(U.S.A. only)	18

NOTE 1: TRX300 only

2: TRX300FW only

VALVE SEAT CUTTER

Valve seat cutters are commercially available in U.S.A. Therefore these cutters are not required in U.S.A.

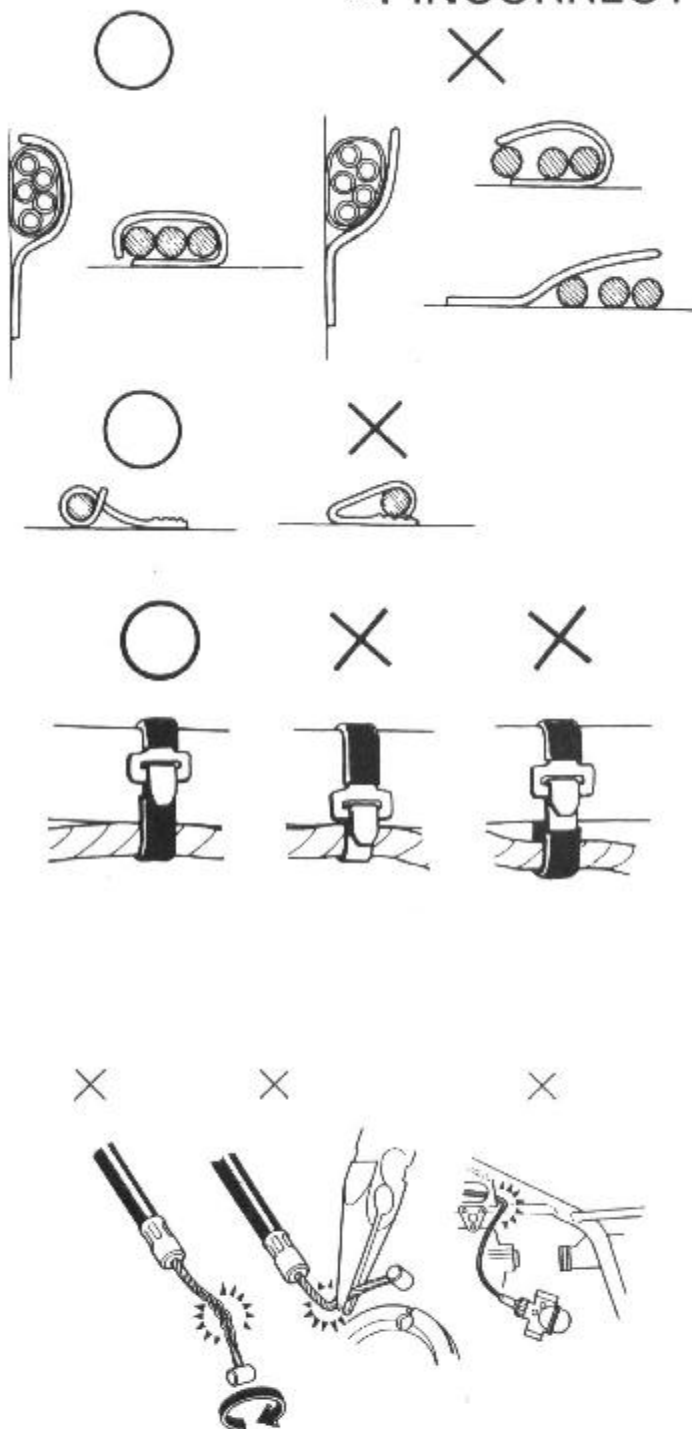
DESCRIPTION	TOOL NUMBER	REF. SEC.
Valve seat cutter, 35 mm (IN 45)	07780-0010400	6
Valve seat cutter, 29 mm (EX 45)	07780-0010300	6
Valve flat cutter, 35 mm (IN 32)	07780-0012300	6
Valve flat cutter, 30 mm (EX 32)	07780-0012200	6
Valve interior cutter, 37.5 mm (IN 60)	07780-0014100	6
Valve interior cutter, 30 mm (EX 60)	07780-0014000	6
Valve seat cutter holder	07781-0010101	6

CABLE & HARNESS ROUTING

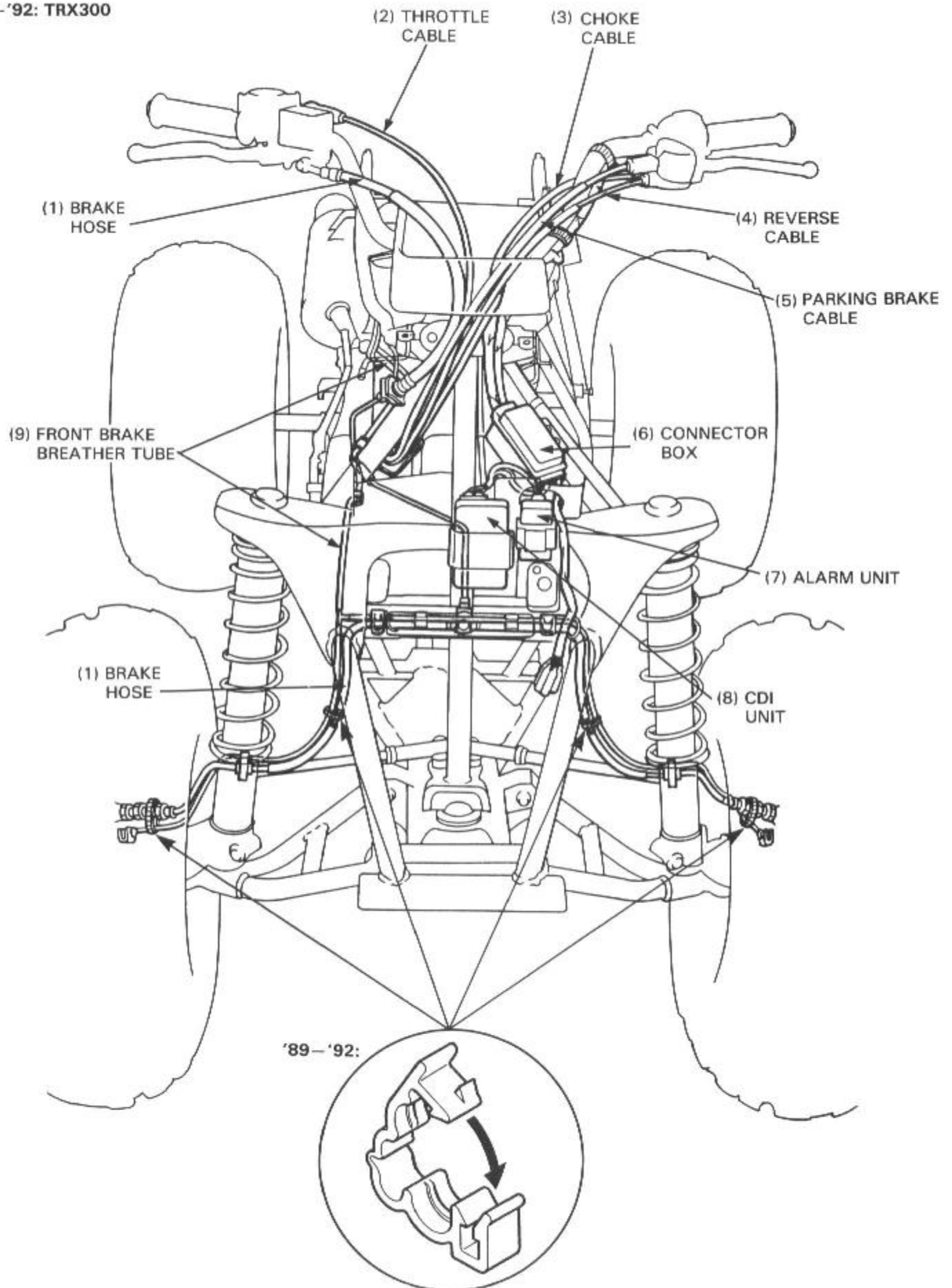
Note the following when routing cables and wire harnesses:

- A loose wire, harness or cable can be a safety hazard. After clamping, check each wire to be sure it is secure.
- Do not squeeze a wire against a weld or end of its clamp.
- Secure wires and wire harnesses to the frame with their respective wire bands at the designated locations. Tighten the bands so that only the insulated surfaces contact the wires or wire harnesses.
- Leave a little slack when routing harnesses. Avoid pulling the harness too tight or leaving excessive slack.
- Protect wires and harnesses with electrical tape or tubes if they contact a sharp edge or corner. Clean the attaching surface thoroughly before applying tape.
- Do not use a wire or harness with a broken insulator. Repair by wrapping them with protective tape or replace them.
- Route wire harnesses to avoid sharp edges or corners. Also avoid the projected ends of bolts and screws.
- Keep wire harnesses away from the exhaust pipe and other hot parts.
- Be sure grommets are seated in their grooves properly.
- After clamping, check each harness to be certain that it is not interfering with any moving or sliding parts.
- Wire harnesses routed along the handlebars should not be pulled taut, have excessive slack, be pinched by or interfere with adjacent parts in all steering positions.
- After routing, check that the wire harnesses are not twisted or kinked.
- Do not bend or twist control cables. Damaged control cables will not operate smoothly and may stick or bind.

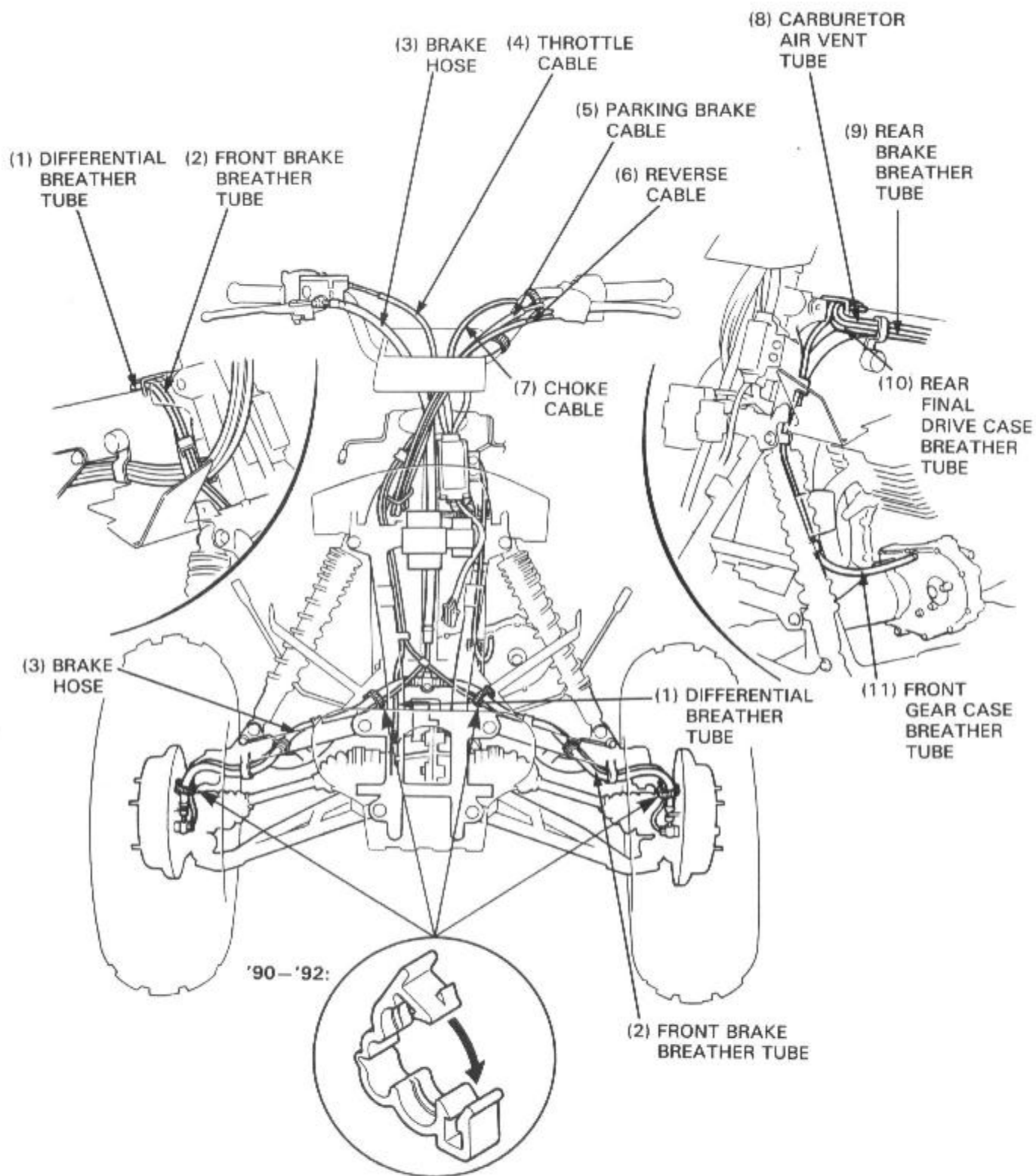
○: CORRECT
×: INCORRECT

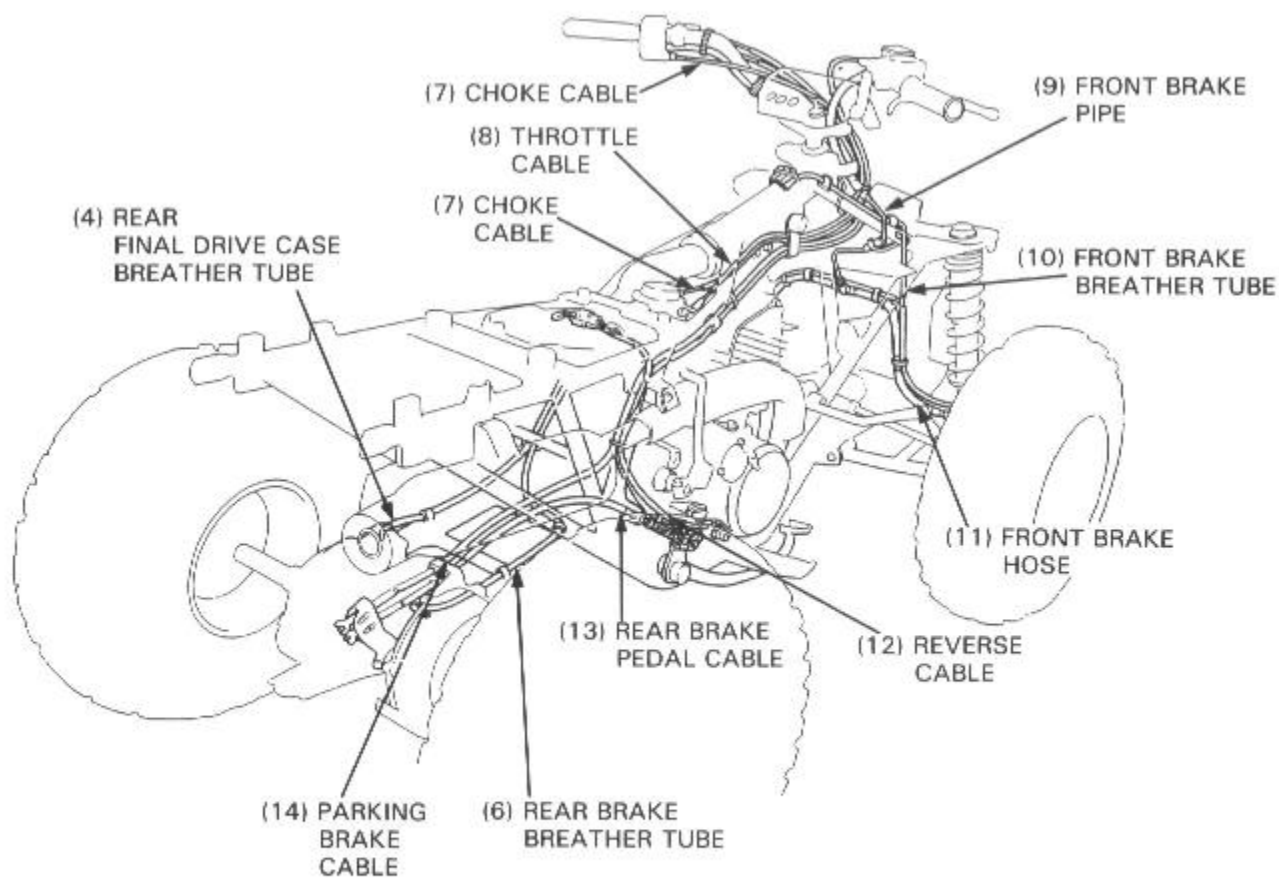
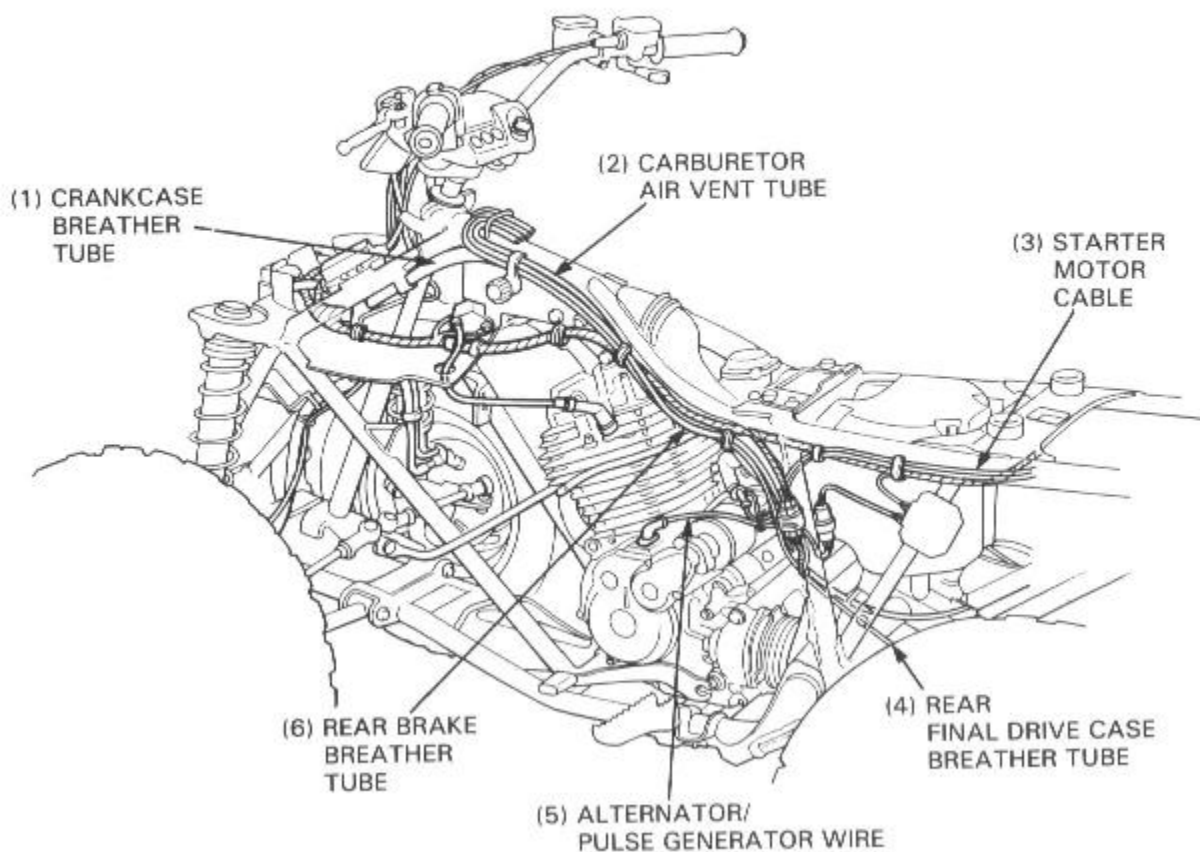


'88-'92: TRX300

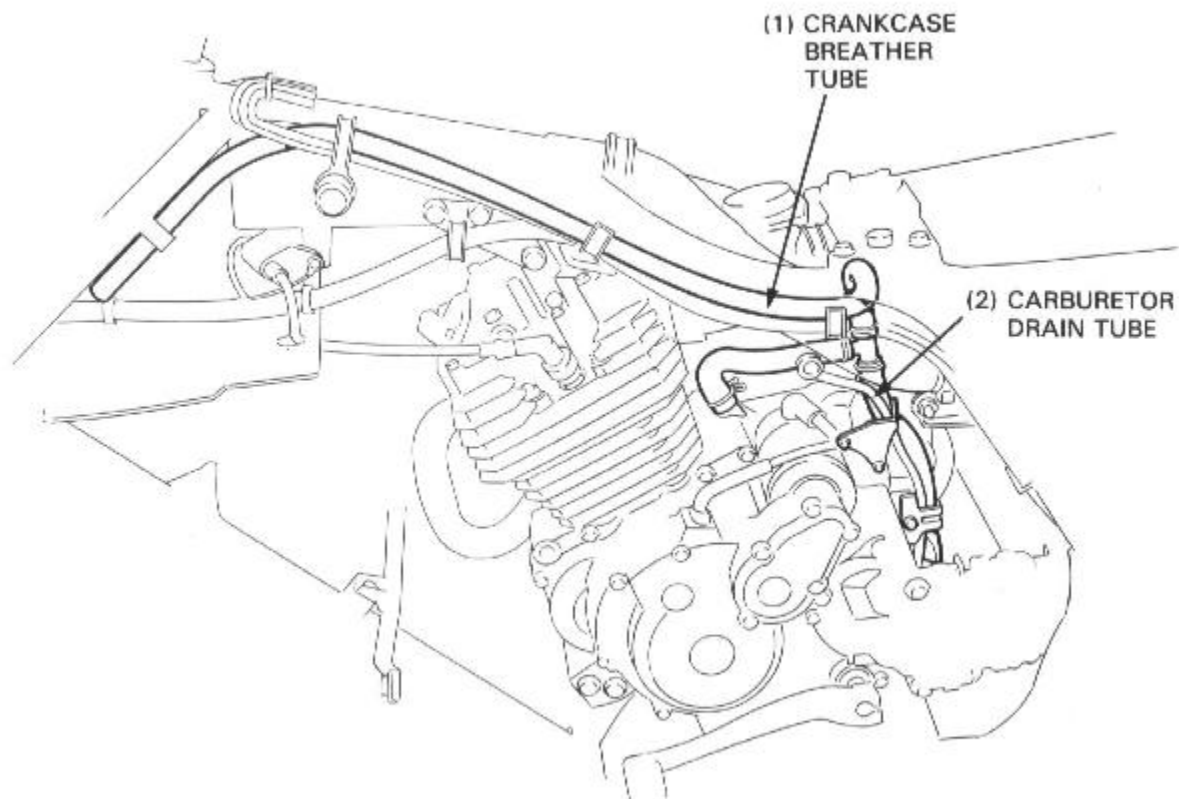


'88, '90—'92: TRX300FW

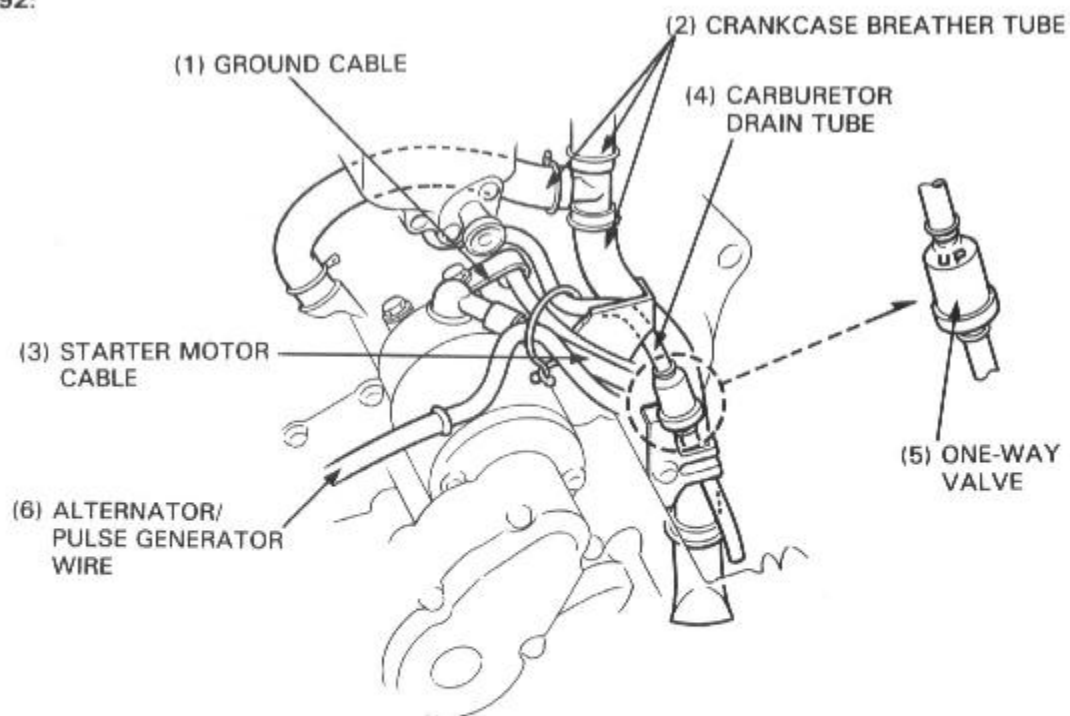




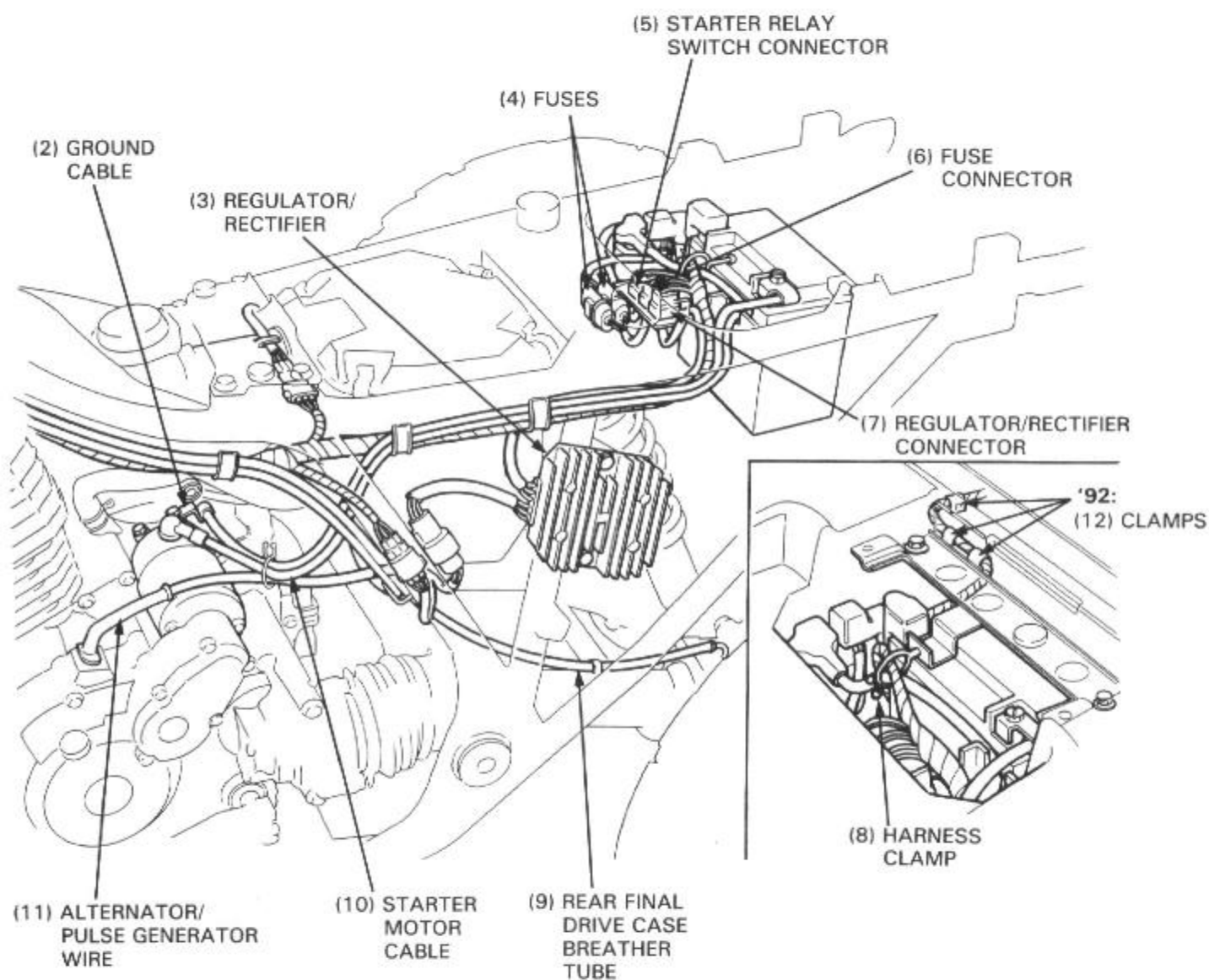
'88:



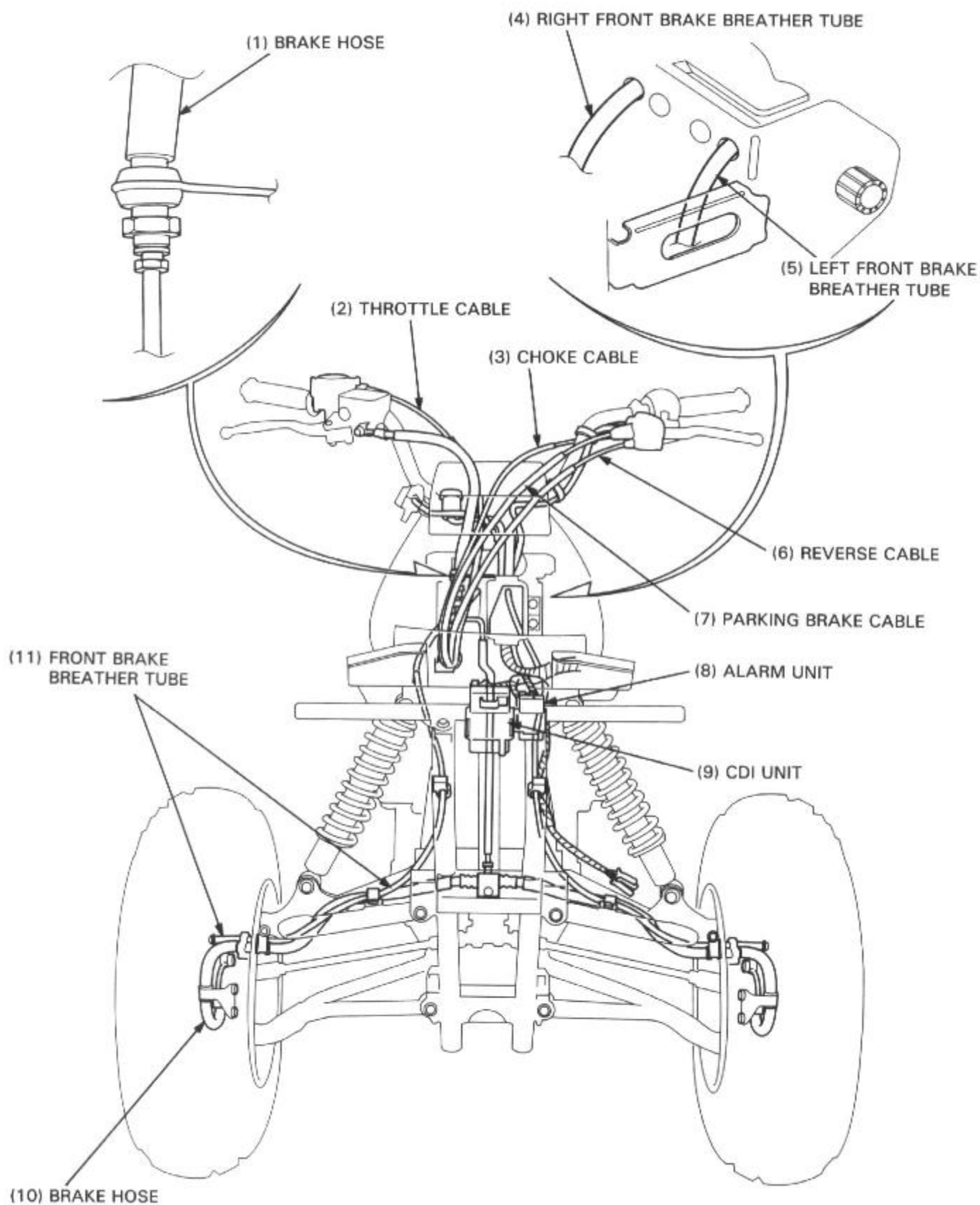
'89-'92:

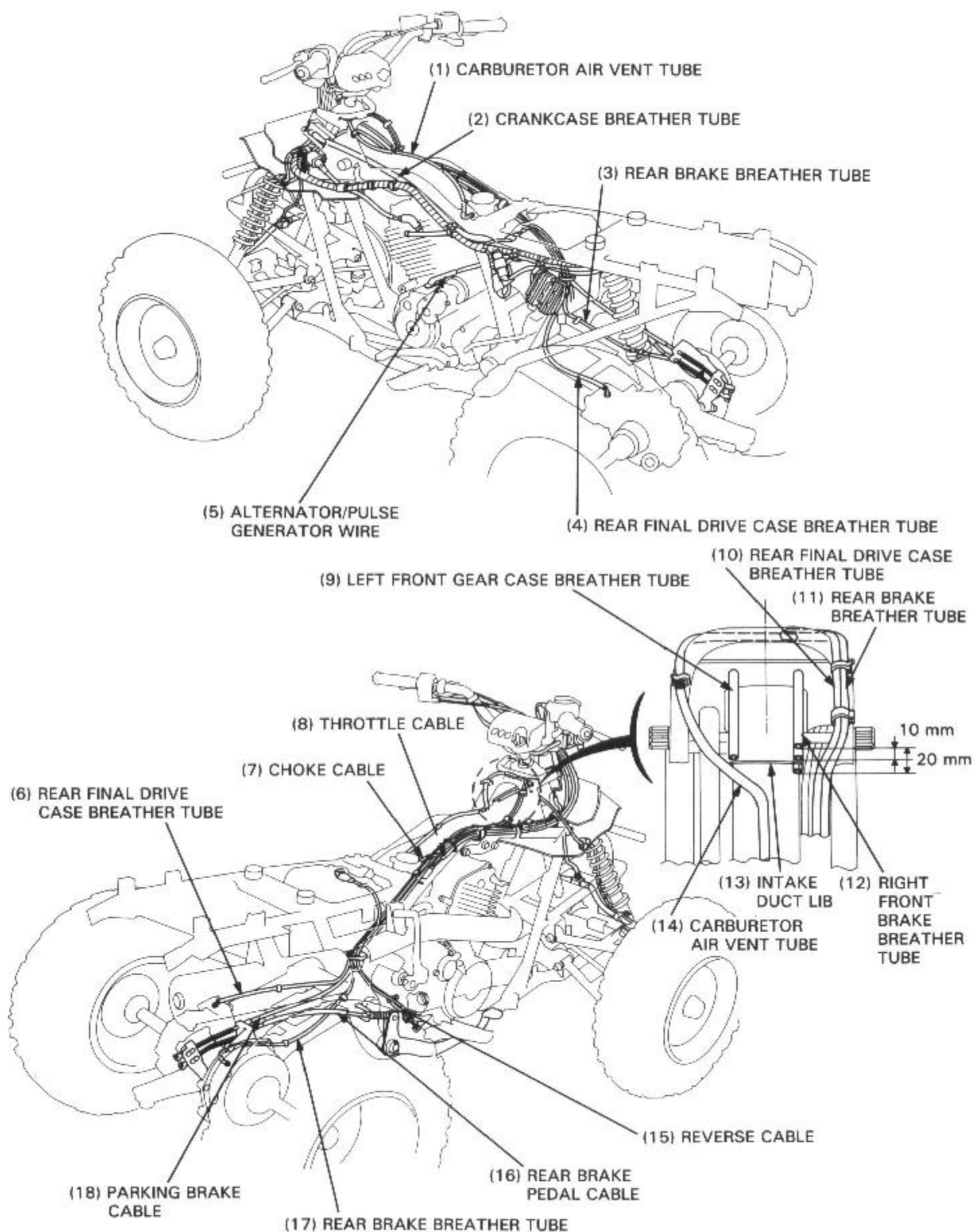


'88-'92:

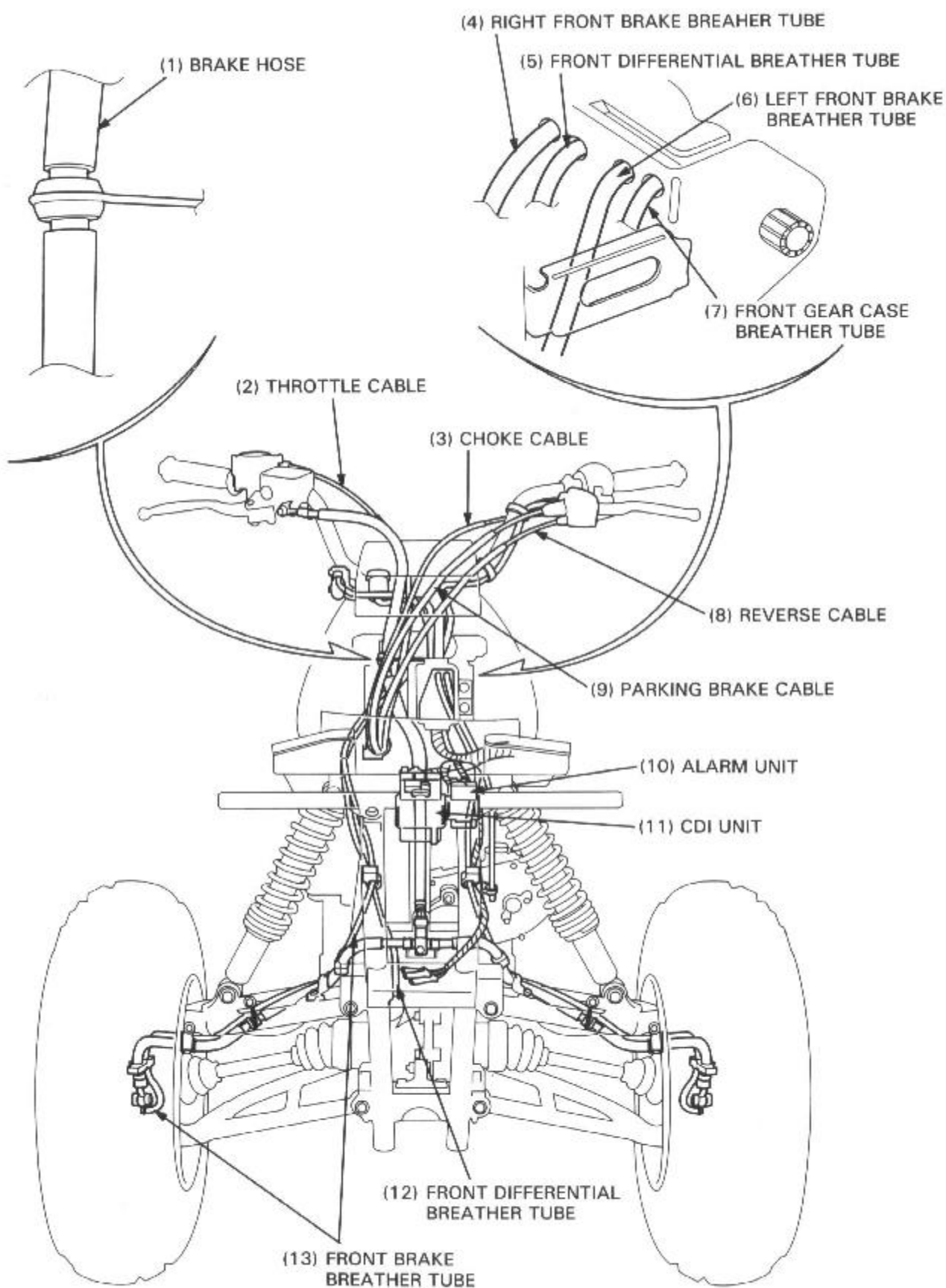


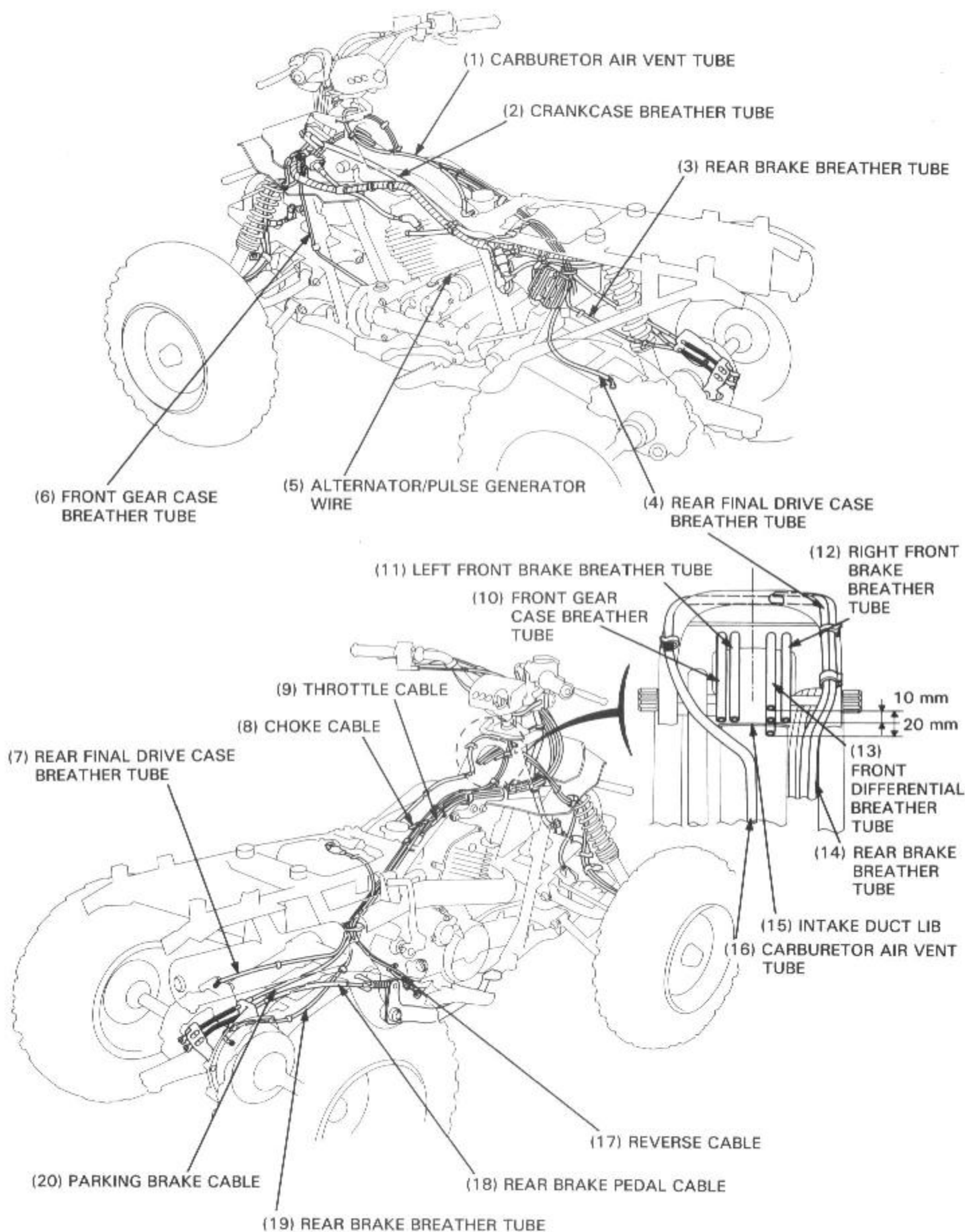
After '92: TRX300



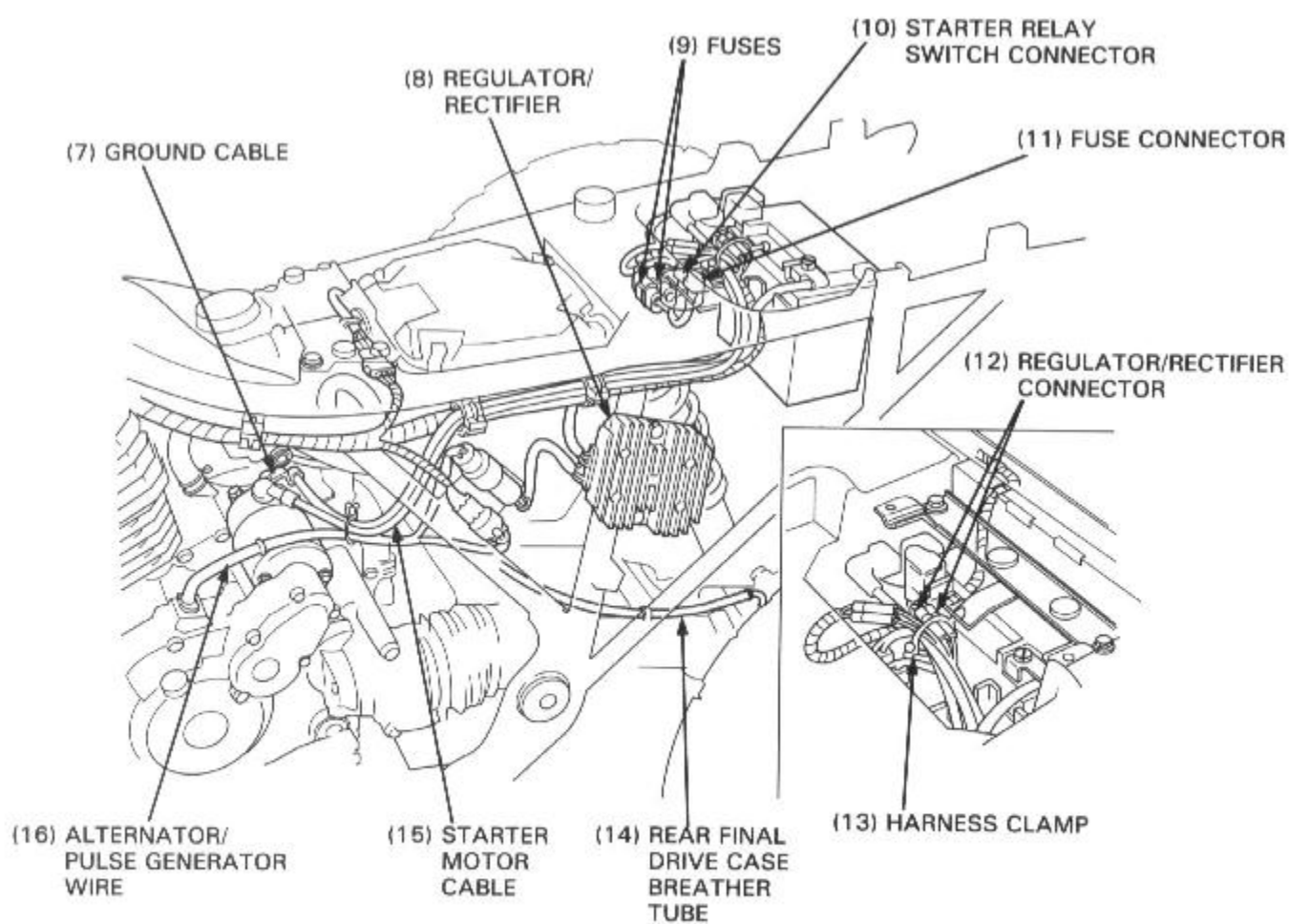
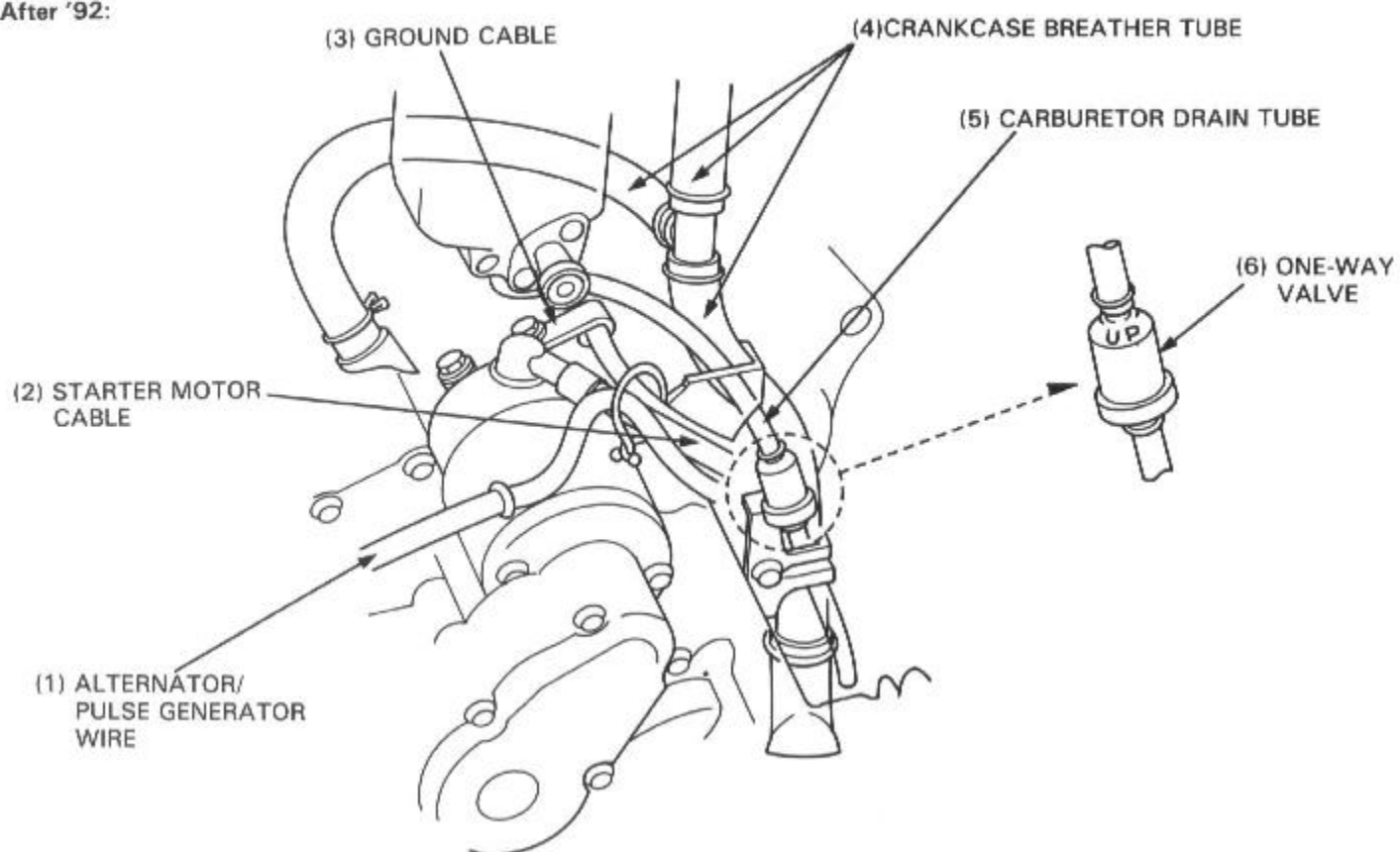


After '92: TRX300FW



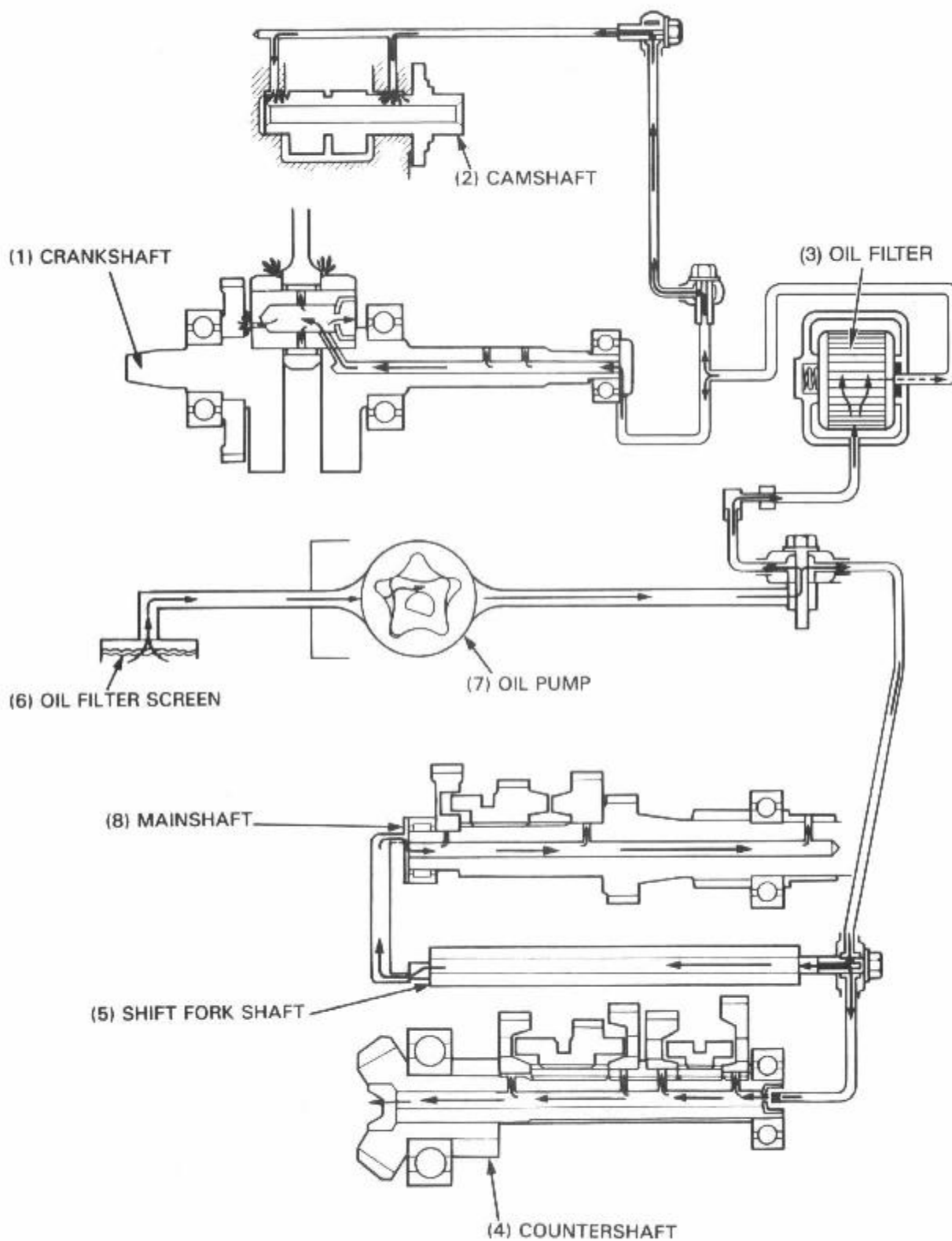


After '92:



MEMO

LUBRICATION DIAGRAM



SERVICE INFORMATION	2-1	FRONT DIFFERENTIAL (TRX300FW)/ REAR FINAL DRIVE OIL	2-4
TROUBLESHOOTING	2-2	FRONT GEAR CASE OIL (TRX300FW)	2-5
ENGINE OIL LEVEL	2-3	LUBRICATION POINTS	2-6
ENGINE OIL & FILTER CHANGE	2-3		
OIL FILTER SCREEN	2-4		

SERVICE INFORMATION

GENERAL

WARNING

- If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and lead to death.

CAUTION

- Used engine oil may cause skin cancer if repeatedly left in contact with the skin for prolonged periods. Although this is unlikely unless you handle used oil on a daily basis, it is still advisable to thoroughly wash your hands with soap and water as soon as possible after handling used oil.

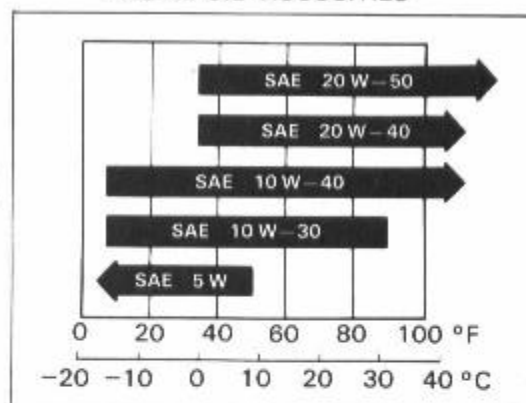
- Section 8 shows how to service the oil pump.

SPECIFICATIONS

Engine Oil Capacity	2.5 lit (2.6 US qt, 2.2 Imp qt) at disassembly
	2.25 lit (2.38 US qt, 1.98 Imp qt) at oil and filter change
	2.2 lit (2.3 US qt, 1.9 Imp qt) after draining
Engine Oil Recommendation	Use Honda GN4 4-stroke oil or equivalent.
	API Service Classification: SF or SG
	Viscosity: SAE 10 W-40

Other viscosities shown in the chart may be used when the average temperature in your riding area is within the indicated range.

ENGINE OIL VISCOSITIES



Front Differential (TRX300FW)

Oil capacity	'88: 100 cc (3.4 oz) at disassembly
	90 cc (3.0 oz) after draining
After '88:	200 cc (6.8 oz) at disassembly
	190 cc (6.4 oz) after draining
Oil recommendation	Hypoid gear oil, SAE #80

Rear Final Drive

Oil capacity	100 cc (3.4 oz) at disassembly
	90 cc (3.0 oz) after draining
Oil recommendation	Hypoid gear oil, SAE #80

Front Gear Case (TRX300FW)

Oil capacity	200 cc (6.8 oz) at disassembly
	190 cc (6.4 oz) after draining
Oil recommendation	Use Honda GN4 4-stroke oil or equivalent.
	API Service Classification: SF or SG
	Viscosity: SAE 10 W-40

LUBRICATION

TORQUE VALUES

Engine oil drain bolt	25 N•m (2.5 kg-m, 18 ft-lb)
Oil filter cover	10 N•m (1.0 kg-m, 7 ft-lb) — Apply oil
Differential/final drive/gear case oil filler cap	12 N•m (1.2 kg-m, 9 ft-lb)
Differential/final drive oil drain bolt	12 N•m (1.2 kg-m, 9 ft-lb)
Front gear case drain bolt	22 N•m (2.2 kg-m, 16 ft-lb)

TROUBLESHOOTING

Engine oil level too low — high oil consumption

- External oil leaks
- Worn piston rings
- Oil not changed often enough
- Faulty head gasket

Engine oil contamination

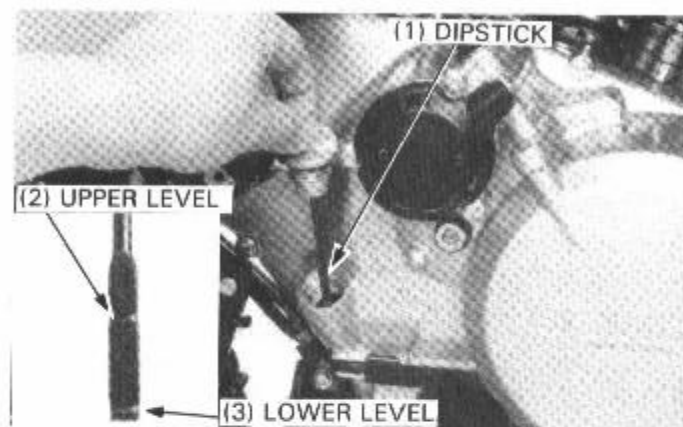
- Oil or filter not changed often enough
- Head gasket faulty
- Worn piston rings

ENGINE OIL LEVEL

Place the vehicle on level ground.

Check the oil level using the oil filler cap/dipstick by placing it into the filler hole without screwing it in.

If the oil level is below or near the lower level line on the dipstick, add the recommended oil (page 2-1) up to the upper level line.



ENGINE OIL & FILTER CHANGE

WARNING

- *If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and lead to death.*

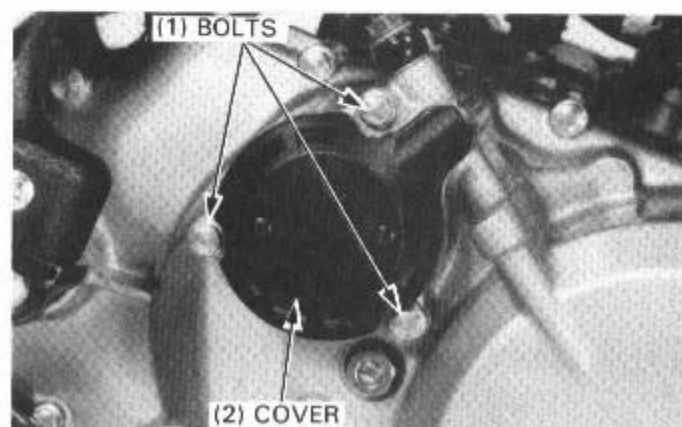
NOTE

- Change the engine oil with the engine warm and the vehicle on level ground to assure complete draining.

Remove the three bolts attaching the oil filter cover, oil filter and spring. Discard the oil filter.

CAUTION

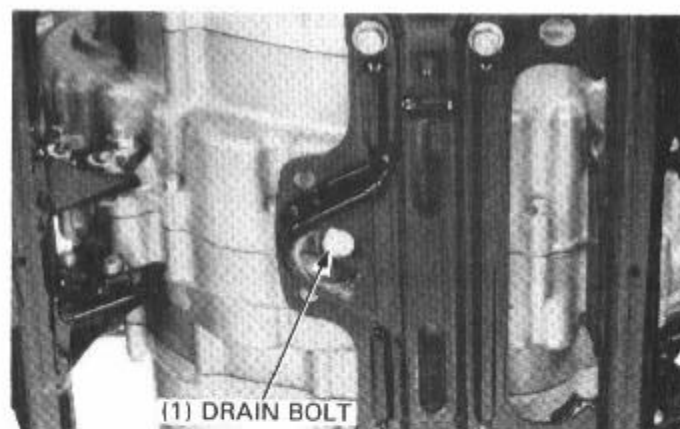
- *Used engine oil may cause skin cancer if repeatedly left in contact with the skin for prolonged periods. Although this is unlikely unless you handle used oil on a daily basis, it is still advisable to thoroughly wash your hands with soap and water as soon as possible after handling used oil.*



Remove the oil filler cap and drain bolt.

Drain the oil completely.

Check that the sealing washer on the drain bolt is in good condition and install the drain bolt.



TORQUE: 25 N·m (2.5 kg-m, 18 ft-lb)

Install the oil filter spring to the right crankcase cover.

Make sure that the O-rings are in good condition.

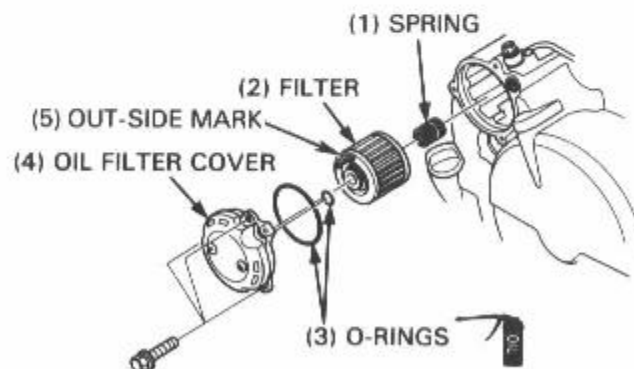
Install a new oil filter with its OUT-SIDE mark facing out.

CAUTION

- *Installing the oil filter backwards will result in severe engine damage.*

Apply oil to the cover bolt threads and O-rings.

Install the oil filter cover and tighten the cover bolts to the specified torque.



TORQUE: 10 N·m (1.0 kg-m, 7 ft-lb)

LUBRICATION

Fill the crankcase with the recommended oil.

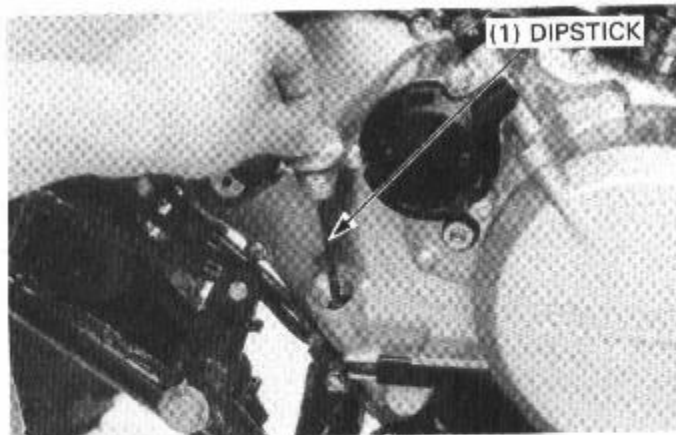
OIL CAPACITY:

2.5 lit (2.6 US qt, 2.2 Imp qt) at disassembly
2.25 lit (2.38 US qt, 1.98 Imp qt) at oil and filter change
2.2 lit (2.3 US qt, 1.9 Imp qt) after draining

Install the oil filler cap/dipstick.

Start the engine and let it idle for 2 to 3 minutes.

Stop the engine and check that the oil level is at the upper level line on the dipstick. Make sure there are no oil leaks.



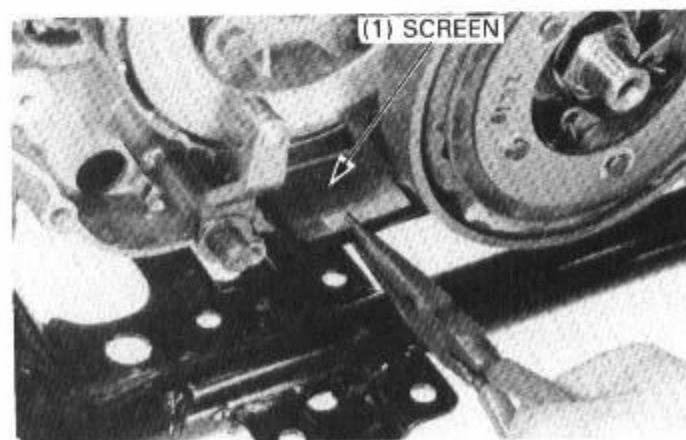
OIL FILTER SCREEN

Remove the right crankcase cover (page 8-3).

Remove the oil filter screen and clean it.

Install the oil filter screen.

Install the right crankcase cover (page 8-23).



FRONT DIFFERENTIAL (TRX300FW)/ REAR FINAL DRIVE OIL

OIL CHANGE

Front differential only: Use a suitable oil guide under the drain bolt to prevent oil spilling on the frame.

Remove the oil filler cap and the drain bolt to drain all oil from the gear case.

Check that the drain bolt sealing washer is in good condition. Tighten the drain bolt to the specified torque.

TORQUE: 12 N·m (1.2 kg-m, 9 ft-lb)

Fill with the recommended oil to the standard level.

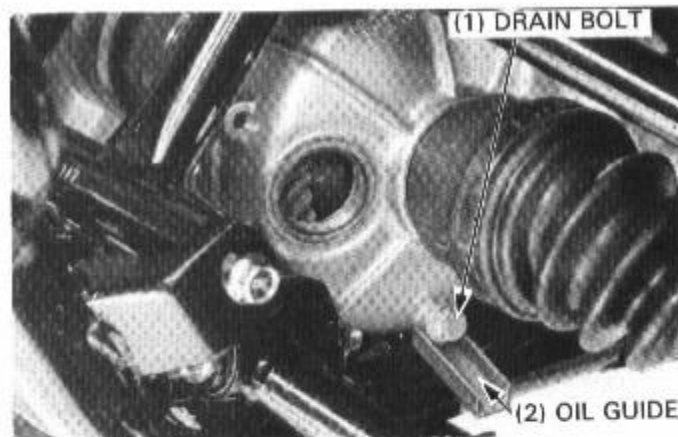
OIL CAPACITY:

FRONT DIFFERENTIAL:

'88: 100 cc (3.4 oz) at disassembly
90 cc (3.0 oz) after draining.
After '88: 200 cc (6.8 oz) at disassembly
190 cc (6.4 oz) after draining.

REAR FINAL DRIVE: 100 cc (3.4 oz) at disassembly
90 cc (3.0 oz) after draining

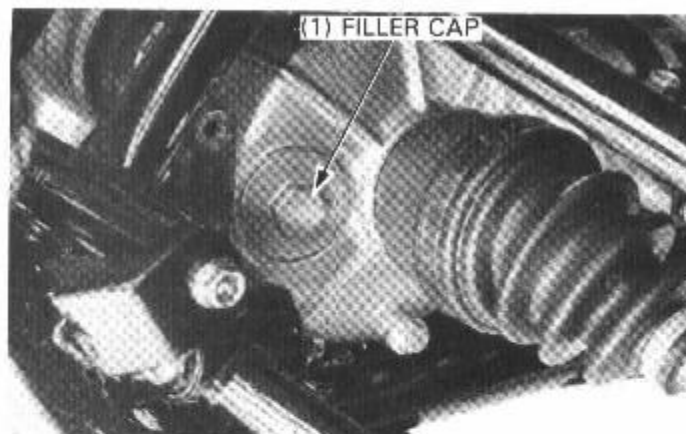
RECOMMENDED OIL: Hypoid gear oil SAE #80



Install the filler cap.

TORQUE: 12 N·m (1.2 kg-m, 9 ft-lb)

Front differential only: Remove the oil guide.



FRONT GEAR CASE OIL (TRX300FW)

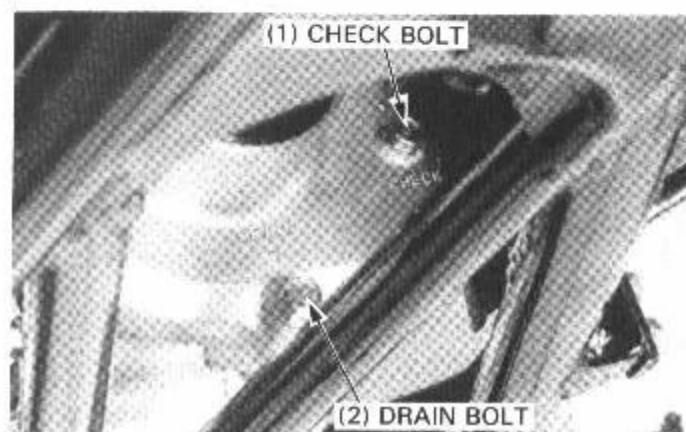
LEVEL CHECK

Place the vehicle on level ground.

Remove the oil check bolt and check that the oil flows out of the check bolt hole.

If there is no oil flow, remove the filler cap and add oil slowly through the oil filler hole until the oil starts to flow out of the check hole.

Stop adding oil and install the oil check bolt and the filler cap.



OIL CHANGE

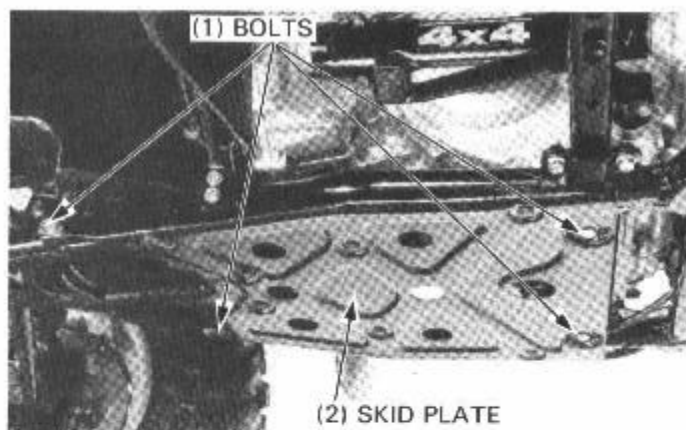
Remove the skid plate ('86-'92:).

Remove the oil filler cap and the drain bolt.
Drain the oil completely.

Check that the drain bolt sealing washer is in good condition and install the drain bolt.

TORQUE: 22 N·m (2.2 kg-m, 16 ft-lb)

Remove the check bolt and fill the gear case with the recommended oil.



**OIL CAPACITY: 200 cc (6.8 oz) at disassembly
190 cc (6.4 oz) after draining**

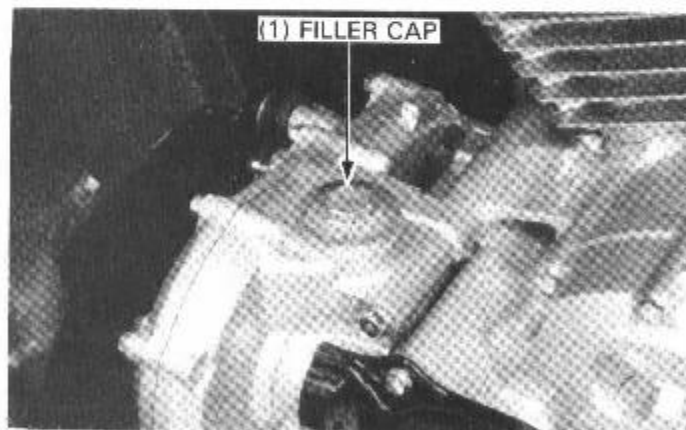
**RECOMMENDED OIL: Honda GN4 4-stroke oil or equivalent
API Service Classification: SF or SG
Viscosity: SAE 10 W-40**

NOTE

- Use this specified capacity only as a guide: Always add oil until it flows out of the oil check bolt hole, allow it to stop flowing out, then reinstall the oil check bolt.

Reinstall the oil filler cap.

TORQUE: 12 N·m (1.2 kg-m, 9 ft-lb)



LUBRICATION POINTS

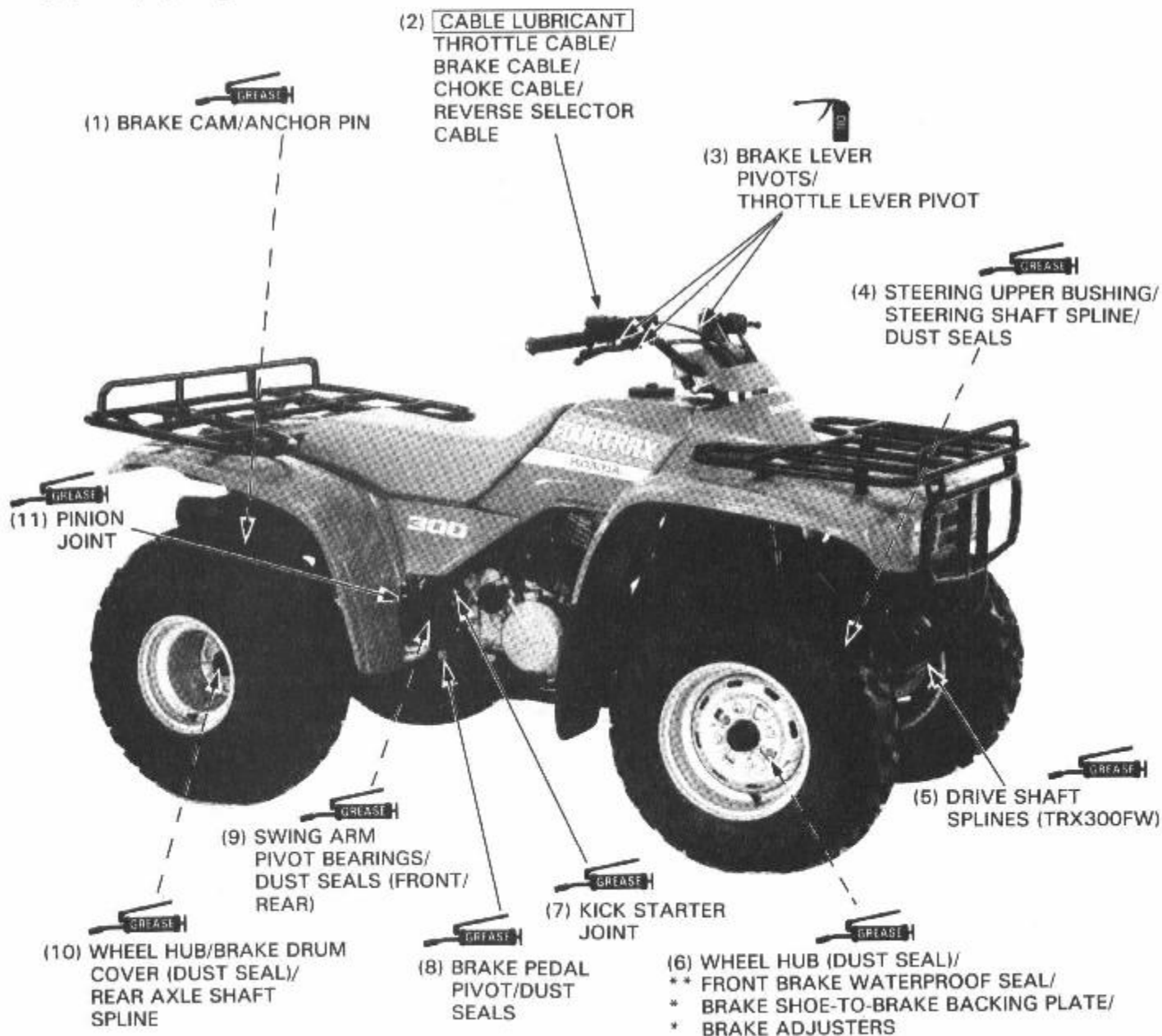
Use general purpose grease when no other specification is given. Apply oil or grease to any 2 sliding surfaces and cables not shown here.

CONTROL CABLES

Periodically, disconnect the throttle, choke, rear brake and reverse selector cables at their upper ends. Thoroughly lubricate the cables and their pivot points with a commercially available cable lubricant or light weight oil.

* Apply silicone grease.

** Apply multipurpose grease NLGI No. 3 (page 12-20, 12-23).



SERVICE INFORMATION	3-1	BRAKE SHOE WEAR	3-12
MAINTENANCE SCHEDULE	3-3	BRAKE SYSTEM	3-13
FUEL LINE	3-7	REVERSE LOCK SYSTEM	3-14
FUEL STRAINER SCREEN	3-7	SKID PLATES	3-15
THROTTLE OPERATION	3-7	CLUTCH SYSTEM	3-15
CARBURETOR CHOKE	3-8	SUSPENSION	3-15
AIR CLEANER ELEMENT	3-8	SPARK ARRESTER CLEANING	3-16
AIR CLEANER CASE DRAIN TUBE	3-9	WHEELS/TIRES	3-17
SPARK PLUG	3-9	STEERING SHAFT HOLDER BEARING	3-17
VALVE CLEARANCE	3-10	STEERING SYSTEM	3-17
CARBURETOR IDLE SPEED	3-11	HEADLIGHT AIM	3-18
CYLINDER COMPRESSION	3-12	NUTS, BOLTS, FASTENERS	3-18
BRAKE FLUID	3-12		

SERVICE INFORMATION

GENERAL

WARNING

- Support the vehicle in an upright position on level ground before starting any work.
- If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and lead to death.

Engine oil and filter	See page 2-3
Front differential (TRX300FW)/	See page 2-4
Rear final drive oil	
Front gear case oil (TRX300FW)	See page 2-5

SPECIFICATIONS

Air cleaner element oil recommendation	Use Honda Foam Filter Oil or an equivalent
Spark plug gap:	0.8–0.9 mm (0.031–0.035 in)

Spark plug:

	Standard	For Extended high speed riding	For Cold climate (below 5°C/41°F)
NGK	DPR8EA-9	DPR9EA-9	DPR7EA-9
NIPPONDENSO	X24EPR-U9	X27EPR-U9	X22EPR-U9

Valve clearance:	0.15 mm (0.006 in)
Idle speed:	'88–'90: 1,500 ± 100 rpm After '90: 1,400 ± 100 rpm
Cylinder compression:	1,250–1,450 kPa (12.5–14.5 kg/cm ² , 178–206 psi)
Throttle lever free play:	3–8 mm (1/8–5/16 in)
Front brake lever free play:	25–30 mm (1–1-1/4 in)
Rear (parking) brake lever free play:	15–20 mm (5/8–3/4 in)
Rear brake pedal free play:	15–20 mm (5/8–3/4 in)
Reverse selector lever free play:	2–4 mm (1/16–1/8 in)

MAINTENANCE

Tire size:

		Front	Rear
TRX300		AT23 x 8-11 ★ ★	'88—'91: AT25 x 12-9 ★
			After '91: AT25 x 11-9 ★
TRX300FW		AT23 x 8-11 ★ ★	AT24 x 9-11 ★

Tire pressure:

		Standard	Minimum	Maximum
TRX300 (Front/Rear)		2.9 psi (0.20 kg/cm ² , 20 kPa)	2.5 psi (0.17 kg/cm ² , 17 kPa)	3.3 psi (0.23 kg/cm ² , 23 kPa)
TRX300FW	Front	4.4 psi (0.30 kg/cm ² , 30 kPa)	3.8 psi (0.26 kg/cm ² , 26 kPa)	5.0 psi (0.34 kg/cm ² , 34 kPa)
	Rear	2.9 psi (0.20 kg/cm ² , 20 kPa)	2.5 psi (0.17 kg/cm ² , 17 kPa)	3.3 psi (0.23 kg/cm ² , 23 kPa)

Toe-in:

TRX300 '88—'92: 2 mm (0.08 in)
After '92: 5 mm (0.2 in)
TRX300FW '88—'90: 8 mm (0.3 in)
'91—'92: 0 mm
After '92: 4 mm (0.2 in)

TORQUE VALUES

Clutch adjusting screw lock nut	22 N·m (2.2 kg-m, 16 ft-lb)
Valve adjusting lock nut	17 N·m (1.7 kg-m, 12 ft-lb)
Spark plug	18 N·m (1.8 kg-m, 13 ft-lb)
Tie rod lock nut	55 N·m (5.5 kg-m, 40 ft-lb)

MAINTENANCE SCHEDULES

- The maintenance intervals shown in the following schedule are based upon average riding conditions. Vehicles subjected to severe use, or ridden in unusually dusty areas, require more frequent servicing.

Perform the Pre-ride Inspection in the Owner's Manual at each scheduled maintenance period.

'88—'89:

I: Inspect and Clean, Adjust, Lubricate or Replace, if necessary C: Clean R: Replace A: Adjust L: Lubricate			INITIAL SERVICE PERIOD (First week of operation)	REGULAR SERVICE PERIOD (Every 30 operating days)	Refer to page
		EVERY			
*	FUEL LINE	YEAR I			3-7
*	FUEL STRAINER SCREEN	YEAR C			3-7
*	THROTTLE OPERATION		I	I	3-7
*	CARBURETOR CHOKE			I	3-8
	AIR CLEANER	NOTE 1		C	3-8
	AIR CLEANER CASE DRAIN TUBE	NOTE 2		I	3-9
	SPARK PLUG			I	3-9
*	VALVE CLEARANCE		I	I	3-10
	ENGINE OIL		R	R	2-3
	ENGINE OIL FILTER		R	R	2-3
*	CARBURETOR-IDLE SPEED		I	I	3-11
	FINAL DRIVE OIL	2 YEARS R			2-4
	BRAKE FLUID	2 YEARS R		I	3-12
*	BRAKE SHOE WEAR	YEAR I NOTE 2			3-12
	BRAKE SYSTEM		I	I	3-13
*	REVERSE LOCK SYSTEM		I	I	3-14
	SKID PLATES			I	3-15
*	CLUTCH SYSTEM		I	I	3-15
*	SUSPENSION			I	3-15
*	SPARK ARRESTER	NOTE 3		C	3-16
*	NUTS, BOLTS, FASTENERS		I	I	3-18
**	WHEELS/TIRES		I	I	3-17
**	STEERING SHAFT HOLDER BEARINGS	YEAR I			3-17
**	STEERING SYSTEM	YEAR I			3-17

* Should be serviced by an authorized Honda dealer, unless the owner has proper tools and service data and is mechanically qualified.

** In the interest of safety, we recommend these items be serviced only by an authorized Honda dealer.

NOTES: 1. Service more frequently when riding in dusty areas, sand or snow.

2. Service more frequently after riding in very wet or muddy conditions.

3. U.S.A. only.

MAINTENANCE

Perform the Pre-ride Inspection in the Owner's Manual at each scheduled maintenance period.

'90—'91:

I: Inspect and Clean, Adjust, Lubricate or Replace, if necessary C: Clean R: Replace A: Adjust L: Lubricate			INITIAL SERVICE PERIOD (First week of operation)	REGULAR SERVICE PERIOD (Every 30 operating days)	Refer to page
		EVERY			
*	FUEL LINE	YEAR I			3-7
*	FUEL STRAINER SCREEN	YEAR C			3-7
*	THROTTLE OPERATION		I	I	3-7
*	CARBURETOR CHOKE			I	3-8
	AIR CLEANER	NOTE 1		C	3-8
	AIR CLEANER CASE DRAIN TUBE	NOTE 2		I	3-9
	SPARK PLUG			I	3-9
*	VALVE CLEARANCE		I	I	3-10
	ENGINE OIL		R	R	2-3
	ENGINE OIL FILTER		R	R	2-3
*	CARBURETOR-IDLE SPEED		I	I	3-11
	FINAL DRIVE OIL	YEAR I 2 YEARS R			2-4
*	BRAKE FLUID	NOTE 3		I	3-12
*	BRAKE SHOE WEAR	YEAR I NOTE 2			3-12
	BRAKE SYSTEM		I	I	3-13
*	REVERSE LOCK SYSTEM		I	I	3-14
	SKID PLATES			I	3-15
*	CLUTCH SYSTEM		I	I	3-15
*	SUSPENSION			I	3-15
*	SPARK ARRESTER	NOTE 4		C	3-16
*	NUTS, BOLTS, FASTENERS		I	I	3-18
**	WHEELS/TIRES		I	I	3-17
**	STEERING SHAFT HOLDER BEARINGS	YEAR I			3-17
**	STEERING SYSTEM	YEAR I			3-17

* Should be serviced by an authorized Honda dealer, unless the owner has proper tools and service data and is mechanically qualified.

** In the interest of safety, we recommend these items be serviced only by an authorized Honda dealer.

NOTES: 1. Service more frequently when riding in dusty areas, sand or snow.
2. Service more frequently after riding in very wet or muddy conditions.
3. Replace every 2 years. Replacement requires mechanical skill.
4. U.S.A. only.

Perform the Pre-ride Inspection in the Owner's Manual at each scheduled maintenance period.

After '92: TRX300

I: Inspect and Clean, Adjust, Lubricate or Replace, if necessary C: Clean R: Replace A: Adjust L: Lubricate			INITIAL SERVICE PERIOD (First week of operation)	REGULAR SERVICE PERIOD (Every 30 operating days)	Refer to page
		EVERY			
*	FUEL LINE	YEAR I			3-7
*	FUEL STRAINER SCREEN	YEAR C			3-7
*	THROTTLE OPERATION		I	I	3-7
*	CARBURETOR CHOKE			I	3-8
	AIR CLEANER	NOTE 1		C	3-8
	AIR CLEANER CASE DRAIN TUBE	NOTE 2		I	3-9
	SPARK PLUG			I	3-9
*	VALVE CLEARANCE		I	I	3-10
	ENGINE OIL		R	R	2-3
	ENGINE OIL FILTER		R	R	2-3
*	CARBURETOR IDLE SPEED		I	I	3-11
	FINAL DRIVE OIL	YEAR I 2 YEARS R			2-4
*	BRAKE FLUID	NOTE 3		I	3-12
*	BRAKE SHOE WEAR	YEAR I NOTE 2			3-12
	BRAKE SYSTEM		I	I	3-13
*	REVERSE LOCK SYSTEM		I	I	3-14
	SKID PLATES			I	3-15
*	CLUTCH SYSTEM		I	I	3-15
*	SUSPENSION			I	3-15
*	SPARK ARRESTER			C	3-16
*	NUTS, BOLTS, FASTENERS		I	I	3-18
**	WHEELS/TIRES		I	I	3-17
**	STEERING SHAFT HOLDER BEARINGS	YEAR I			3-17
**	STEERING SYSTEM	YEAR I			3-17

* Should be serviced by an authorized Honda dealer, unless the owner has proper tools and service data and is mechanically qualified.

** In the interest of safety, we recommend these items be serviced only by an authorized Honda dealer.

- NOTES: 1. Service more frequently when riding in dusty areas, sand or snow.
2. Service more frequently after riding in very wet or muddy conditions.
3. Replace every 2 years. Replacement requires mechanical skill.

MAINTENANCE

Perform the Pre-ride Inspection in the Owner's Manual at each scheduled maintenance period.

After '92: TRX300FW

I: Inspect and Clean, Adjust, Lubricate or Replace, if necessary C: Clean R: Replace A: Adjust L: Lubricate			INITIAL SERVICE PERIOD (First week of operation)	REGULAR SERVICE PERIOD (Every 30 operating days)	Refer to page
		EVERY			
*	FUEL LINE	YEAR I			3-7
*	FUEL STRAINER SCREEN	YEAR C			3-7
*	THROTTLE OPERATION		I	I	3-7
*	CARBURETOR CHOKE			I	3-8
	AIR CLEANER	NOTE 1		C	3-8
	AIR CLEANER CASE DRAIN TUBE	NOTE 2		I	3-9
	SPARK PLUG			I	3-9
*	VALVE CLEARANCE		I	I	3-10
	ENGINE OIL		R	R	2-3
	ENGINE OIL FILTER		R	R	2-3
*	CARBURETOR-IDLE SPEED		I	I	3-11
	FINAL DRIVE OIL AND FRONT DIFFERENTIAL OIL	YEAR I 2 YEARS R			2-4
*	BRAKE FLUID	NOTE 3		I	3-12
*	BRAKE SHOE WEAR	YEAR I NOTE 2			3-12
	BRAKE SYSTEM		I	I	3-13
*	REVERSE LOCK SYSTEM		I	I	3-14
	SKID PLATES			I	3-15
*	CLUTCH SYSTEM		I	I	3-15
*	SUSPENSION			I	3-15
*	SPARK ARRESTER			C	3-16
*	NUTS, BOLTS, FASTENERS		I	I	3-18
**	WHEELS/TIRES		I	I	3-17
**	STEERING SHAFT HOLDER BEARINGS	YEAR I			3-17
**	STEERING SYSTEM	YEAR I			3-17

* Should be serviced by an authorized Honda dealer, unless the owner has proper tools and service data and is mechanically qualified.

** In the interest of safety, we recommend these items be serviced only by an authorized Honda dealer.

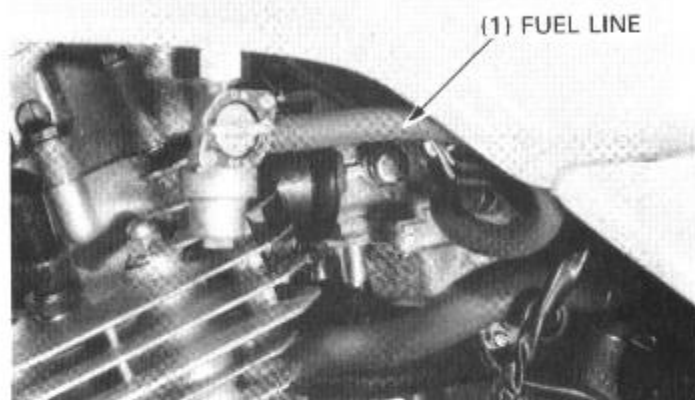
NOTES: 1. Service more frequently when riding in dusty areas, sand or snow.

2. Service more frequently after riding in very wet or muddy conditions.

3. Replace every 2 years. Replacement requires mechanical skill.

FUEL LINE

Check the fuel line.
Replace it if it shows signs of deterioration, damage or leaks.



FUEL STRAINER SCREEN

Turn the fuel valve OFF.

Remove the fuel cup, O-ring and filter screen, and drain the gasoline into a suitable container.

WARNING

- Gasoline is extremely flammable and is explosive under certain conditions. Work in a well ventilated area with the engine stopped. Do not smoke or allow flames or sparks in your working area or where gasoline is stored.
- Wipe up spilled gasoline at once.

Wash the cup and filter screen in clean non-flammable or high flash point solvent.

Reinstall the screen.

Install a new O-ring into the fuel valve body.

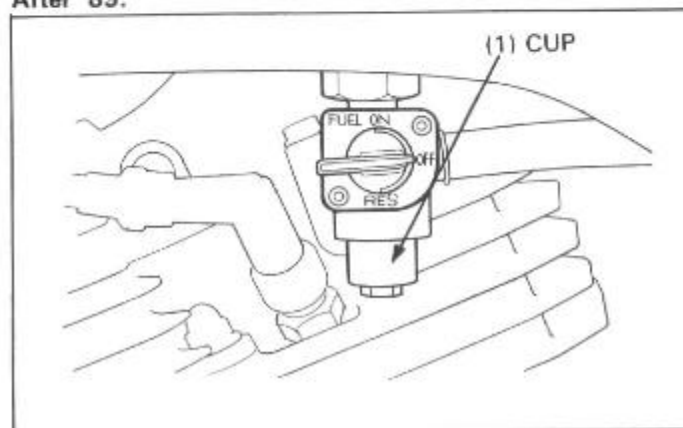
Reinstall the fuel cup, making sure the new O-ring is in place. Hand tighten the fuel cup securely.

NOTE

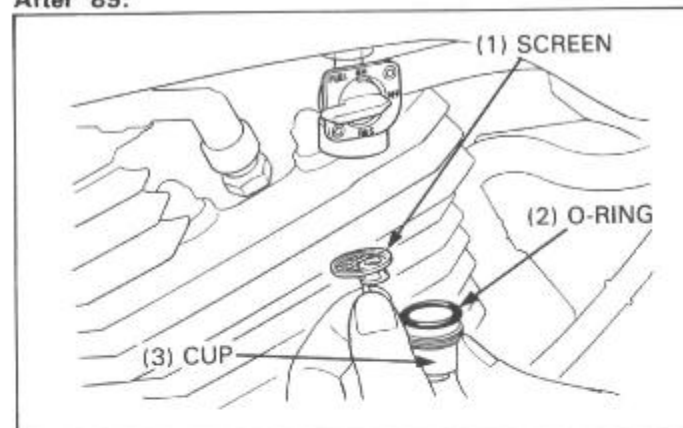
- Do not overtighten the fuel cup. Damage to the O-ring and fuel leakage may result.

After installing, turn the fuel valve ON and check that there are no fuel leaks.

After '89:



After '89:



THROTTLE OPERATION

Check for smooth throttle lever operation with complete opening and automatic closing in all steering positions. Make sure there is no deterioration, damage or kinking in the throttle cable. Replace any damaged parts.

Disconnect the throttle cable at the upper end.

Thoroughly lubricate the cable and pivot point with a commercially available cable lubricant.

Install the throttle cable in the reverse order of removal.

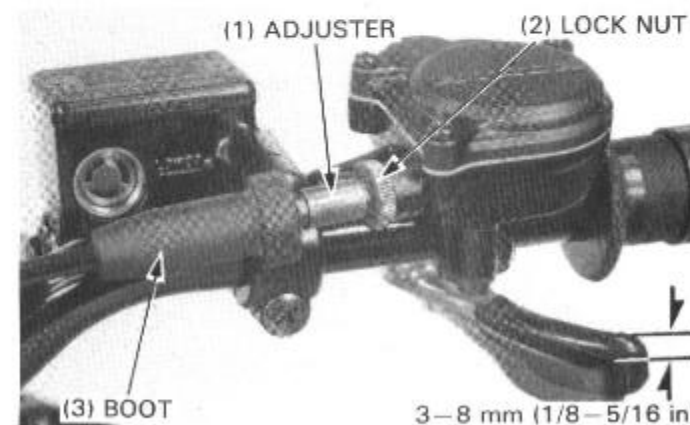
Make sure the throttle lever free play is 3–8 mm (1/8–5/16 in) at the tip of the throttle lever.

Minor adjustments can be made at the upper adjuster:

Slide the rubber boot off the cable adjuster.

Loosen the lock nut and adjust the throttle cable free play by turning the cable adjuster.

Tighten the lock nut and install the rubber boot securely.

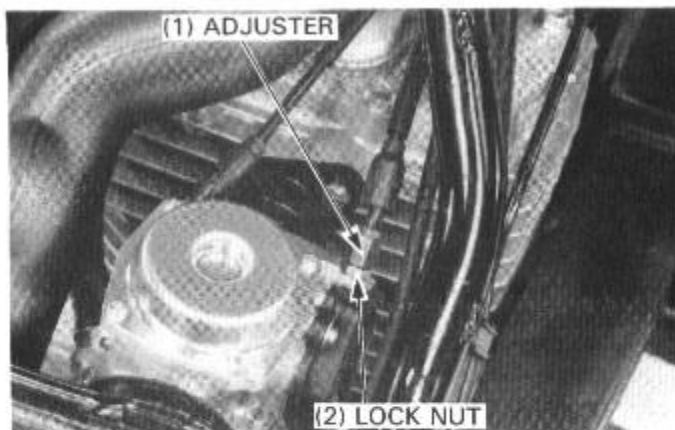


MAINTENANCE

Major adjustments are made with the lower adjuster:

Remove the fuel tank (page 4-3).

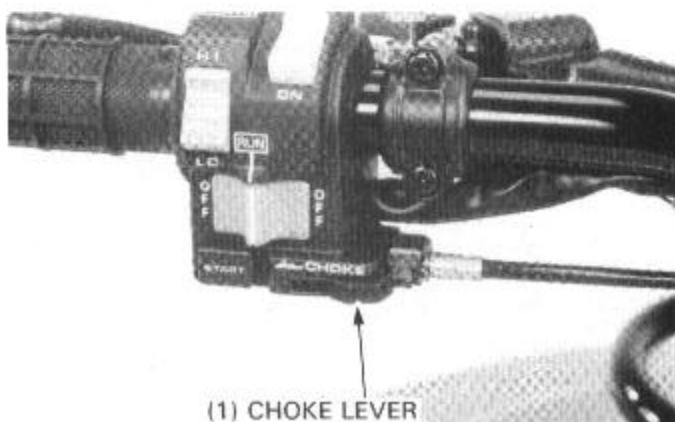
Adjust by loosening the lock nut and turning the adjuster. Tighten the lock nut and recheck throttle operation. Install the fuel tank and check throttle free play again.



CARBURETOR CHOKE

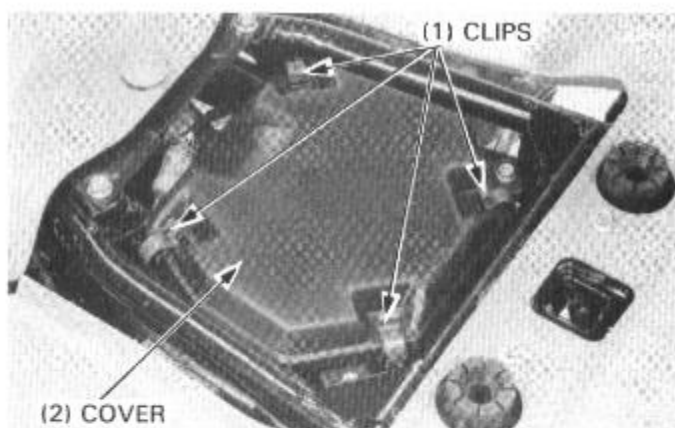
The choke system uses a fuel enrichment circuit controlled by a starter valve. The starter valve opens the enrichment circuit via a cable when the choke lever on the handlebar is moved to the left.

Check for smooth choke lever operation and lubricate the choke cable if required.



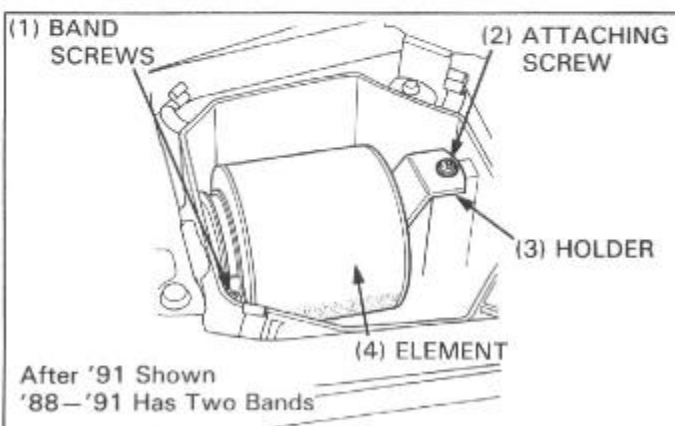
AIR CLEANER ELEMENT

Remove the seat by pulling the seat latch lever. Release the retaining clips from the air cleaner case cover, and remove the cover.



Loosen the air cleaner element band screw. Remove the element holder attaching screw and remove the air cleaner element assembly from the case.

Remove the element holder by turning it counterclockwise. Remove the element band and separate the element from the element core.

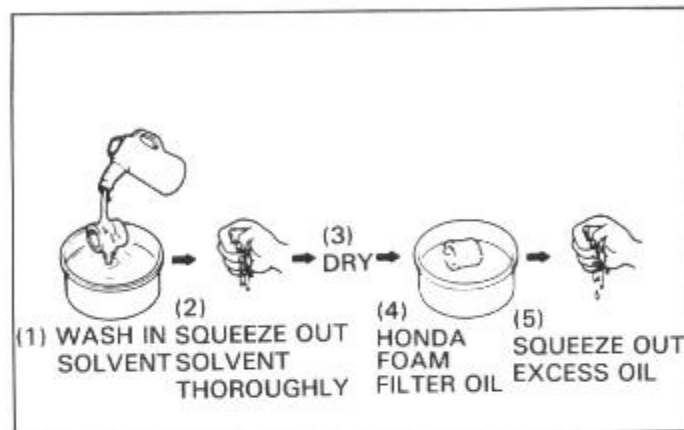


Wash the element in non-flammable or high flash point solvent, squeeze out the solvent thoroughly, and allow the element to dry.

Soak the element in 21–26 cc (0.7–0.9 oz) Honda Foam Filter Oil or an equivalent oil (page 2-1) and squeeze out the excess oil thoroughly.

Place the element onto the core and replace the element band and holder.

Install the element in the air cleaner case.
Install the air cleaner case cover and clips.
Install the seat.



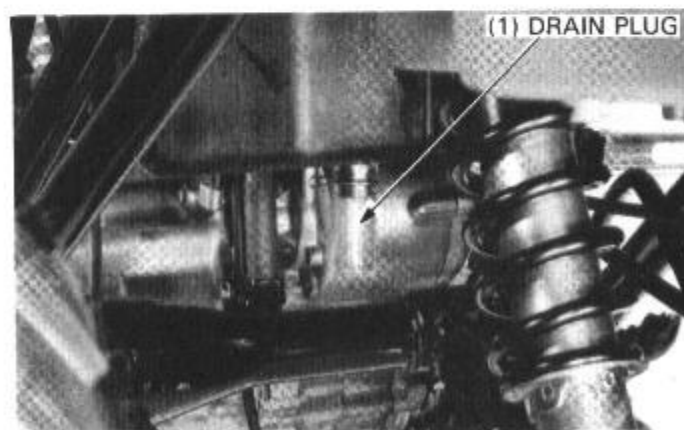
AIR CLEANER CASE DRAIN TUBE

Remove the drain plug from the air cleaner case to empty any deposits.

Install the drain plug.

NOTE

- Service more frequently when riding in very wet or muddy areas.



SPARK PLUG

Disconnect the spark plug cap and remove the spark plug. Visually inspect the spark plug electrodes for wear. The center electrode should have square edges and the side electrode should have a constant thickness. Discard the spark plug if there is apparent wear or if the insulator is cracked or chipped. Measure the gap with a wire-type feeler gauge and adjust if necessary by carefully bending the side electrode.

SPARK PLUG GAP:

0.8–0.9 mm (0.031–0.035 in)

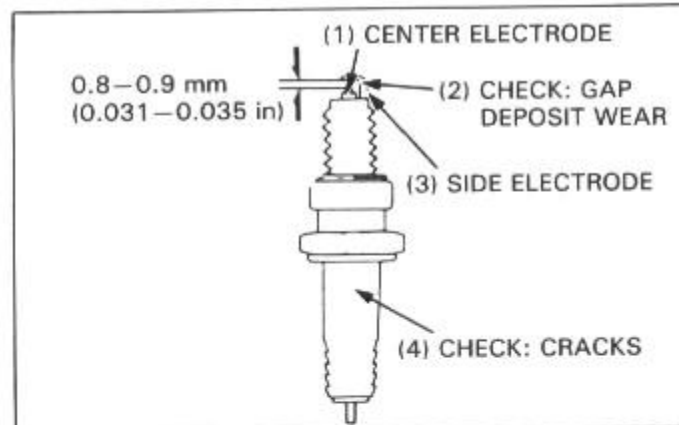
RECOMMENDED REPLACEMENT PLUG:

NGK: DPR8EA-9 (DPR7EA-9, DPR9EA-9)

NIPPONDENSO: X24EPR-U9 (X22EPR-U9, X27EPR-U9)

With the sealing washer attached, thread the spark plug in by hand to prevent cross-threading. Tighten the spark plug to the specified torque.

TORQUE: 18 N·m (1.8 kg-m, 13 ft-lb)



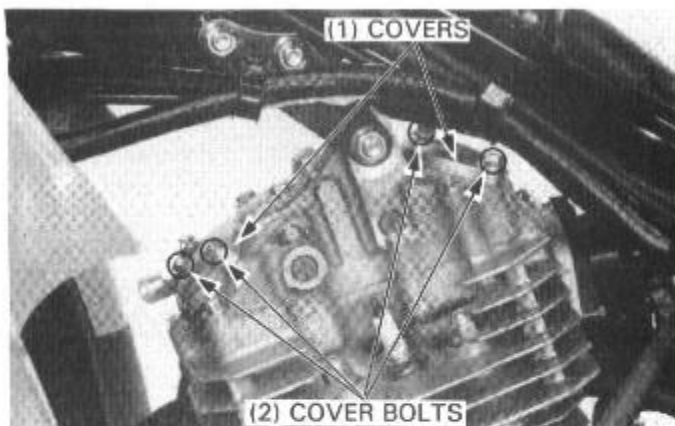
VALVE CLEARANCE

NOTE

- Inspect and adjust the valve clearance while the engine is cold (below 35°C/95°F).

Remove the fuel tank (page 4-3).

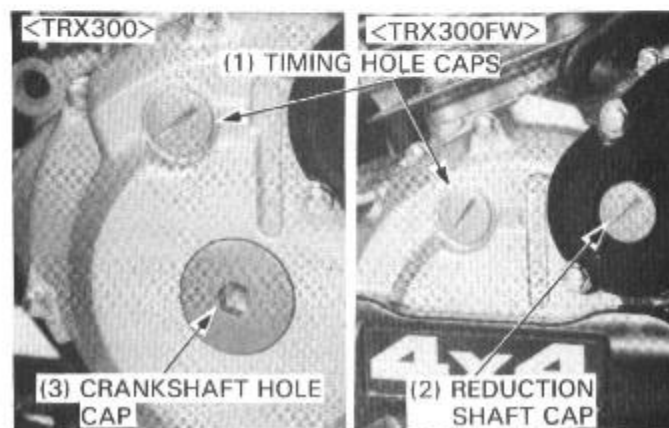
Remove the intake and exhaust valve adjusting hole covers.



Remove the timing hole cap.

TRX300: Remove the crankshaft hole cap.

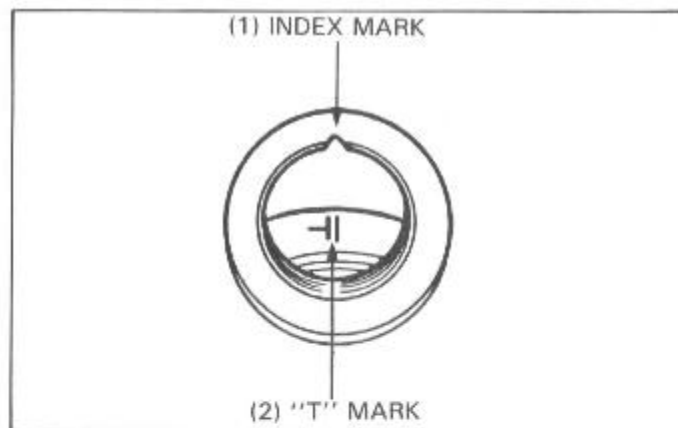
TRX300FW: Remove the reduction shaft cap.



TRX300: Rotate the crankshaft clockwise.

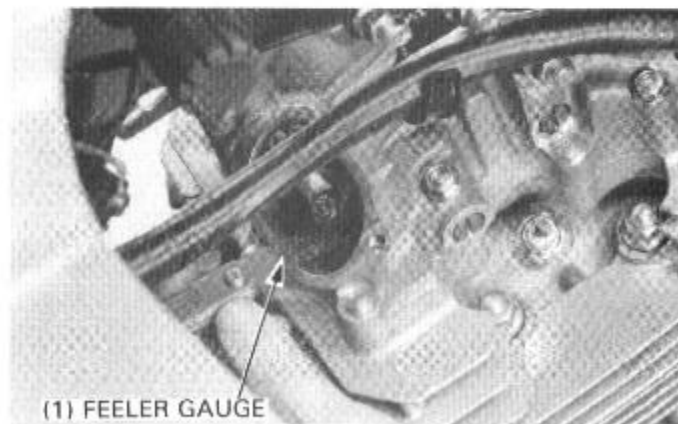
TRX300FW: Rotate the starter reduction shaft counter-clockwise.

Align the "T" mark on the rotor with the index mark. The piston must be at TDC on the compression stroke.



Inspect the intake and exhaust valve clearances by inserting a feeler gauge between the adjusting screw and valve stem.

VALVE CLEARANCE: 0.15 mm (0.006 in)



Adjust by loosening the lock nut and turning the adjusting screw until there is a slight drag on the feeler gauge.

NOTE

- To turn the intake valve adjusting screw, insert the screwdriver through the frame plate hole.

Hold the adjusting screw and tighten the lock nut.

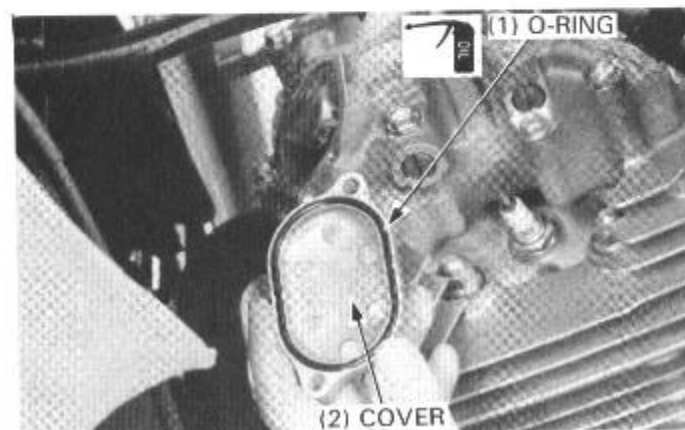
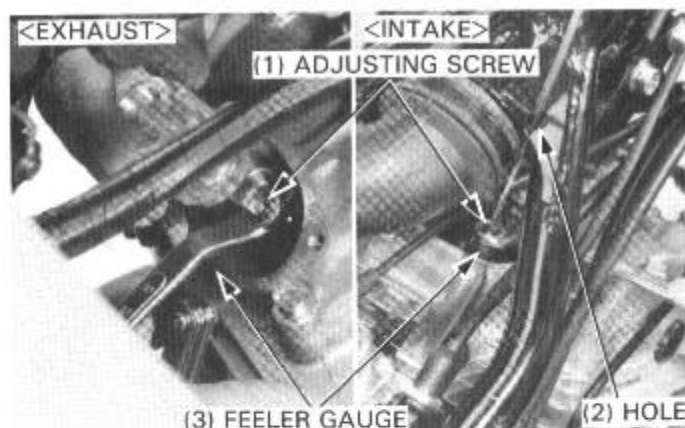
TORQUE: 17 N·m (1.7 kg-m, 12 ft-lb)

Recheck the valve clearance.

Inspect the condition of the O-rings and replace any that are worn or damaged.
Install the valve adjusting hole covers.

Install the following:

- crankshaft hole cap (TRX300)
- reduction shaft cap (TRX300FW)
- timing hole cap
- fuel tank (page 4-3)



CARBURETOR IDLE SPEED

WARNING

- If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and lead to death.

NOTE

- Inspect and adjust the idle speed after all other engine maintenance items have been performed and are within specifications.
- The engine must be warm for accurate idle speed inspection and adjustment.



Warm up the engine for about ten minutes.

Turn the throttle stop screw as required to obtain the specified idle speed.

IDLE SPEED:

'88—'90: 1,500 ± 100 rpm
After '90: 1,400 ± 100 rpm

CYLINDER COMPRESSION

WARNING

- If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and lead to death.

Warm up the engine.

Stop the engine and remove the spark plug.

Install a compression gauge.

Open the throttle all the way and crank the engine with the starter motor until the gauge reading stops rising.

NOTE

- The maximum reading is usually reached within 4–7 seconds.

COMPRESSION PRESSURE:

1,250–1,450 kPa (12.5–14.5 kg/cm², 178–206 psi)

Low compression can be caused by:

- Blown cylinder head gasket
- Improper valve adjustment
- Valve leakage
- Worn piston ring or cylinder

High compression can be caused by:

- Carbon deposits in combustion chamber or on piston head

BRAKE FLUID

Check that the brake fluid reservoir is full. If the level is near the lower level mark, fill the reservoir up to the upper level mark.

Check the entire system for leaks if the level is low.

CAUTION

- When adding brake fluid, be sure the reservoir is level before the cap is removed, or brake fluid may spill out.
- Use only DOT 3 or 4 brake fluid from a sealed container.
- Avoid spilling fluid on painted, plastic, or rubber parts. Place a shop towel over these parts whenever the system is serviced.
- Never allow contamination (dirt, water, etc.) to enter the brake fluid reservoir.

BRAKE SHOE WEAR

FRONT BRAKE

Remove the brake shoe lining inspection hole cap and inspect the lining thickness.

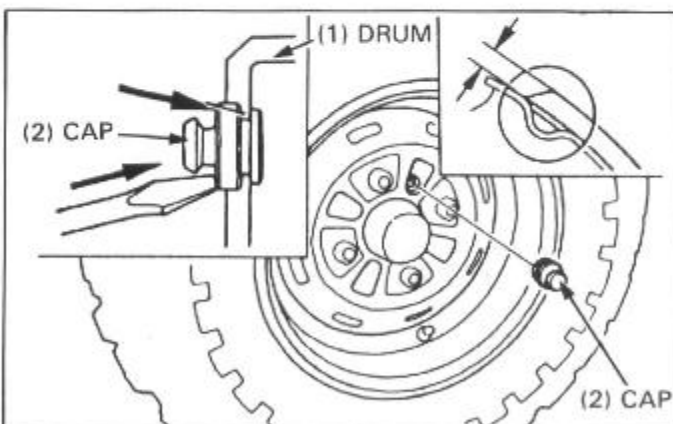
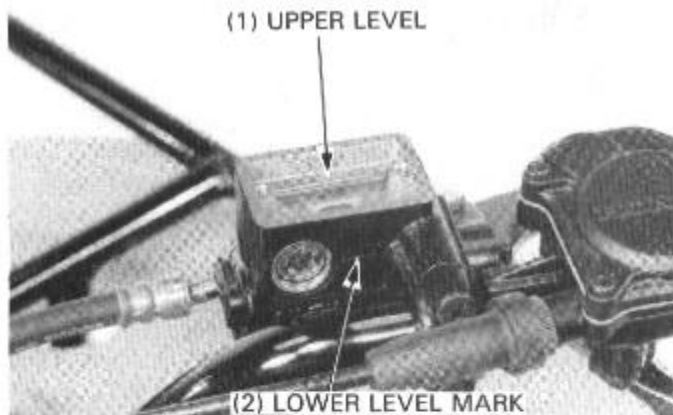
Lining thickness:

STANDARD: 4.0 mm (0.16 in)

SERVICE LIMIT: 1.0 mm (0.04 in)

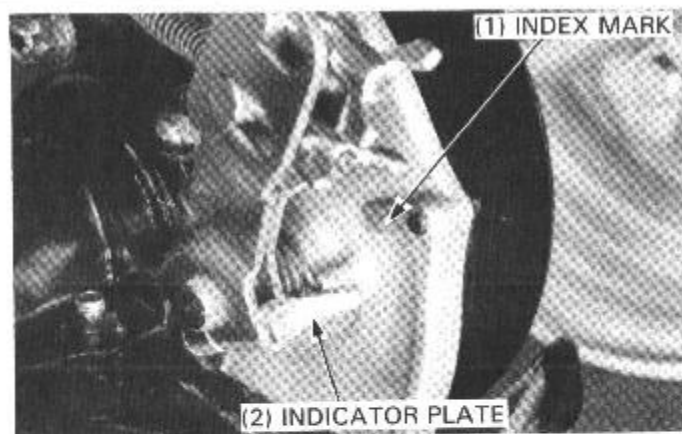
NOTE

- If either lining is worn beyond the limit, both brake shoes must be replaced.



REAR BRAKE

Replace the brake shoes if the indicator plate aligns with the brake panel index mark when the rear brake lever or pedal is applied.



BRAKE SYSTEM

FRONT BRAKE

Measure the distance the brake lever moves before the brake starts to take hold.

Free play, measured at the tip of the front brake lever, should be within standard.

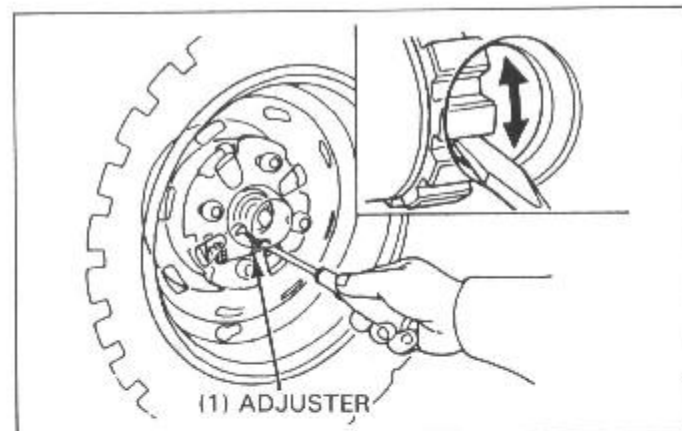
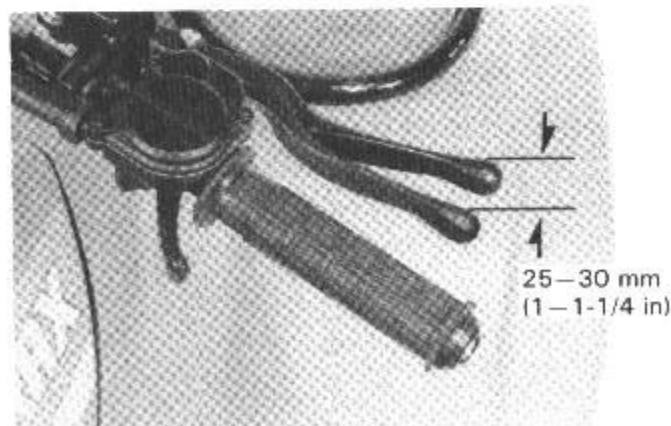
FREE PLAY: 25–30 mm (1–1-1/4 in)

If the brake lever free play is excessive and the brake linings are not worn beyond the recommended limit, adjust the brake shoe lining-to-drum clearance.

Turn the brake shoe adjuster up with a screwdriver until the shoes lock, then back off three stops.

Recheck the brake lever free play. If free play is still excessive after adjusting the brake lining clearance, there is probably air in the brake system and it must be bled out (section 12).

After checking, install the inspection hole cap securely in the drum while pushing the cap with screwdriver.



REAR BRAKE

Check the cable, brake lever and brake pedal for loose connections, excessive play or other damage. Replace or repair if necessary.

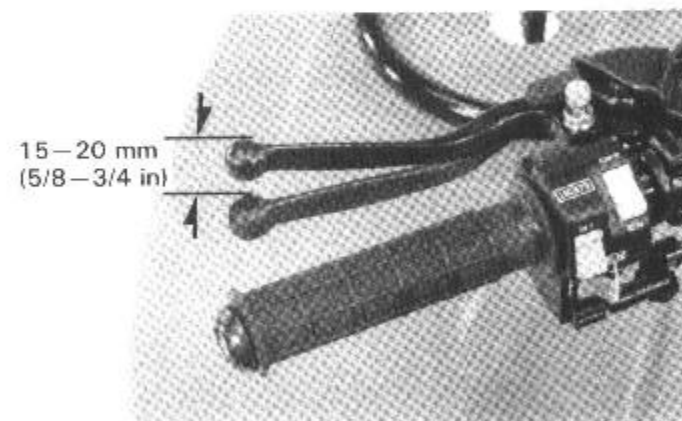
Disconnect the brake cables at the brake lever or pedal ends.

Thoroughly lubricate the cables and their pivot points with a commercially available cable lubricant.

Install the cables.

Measure the rear (parking) brake lever free play at the end of the brake lever.

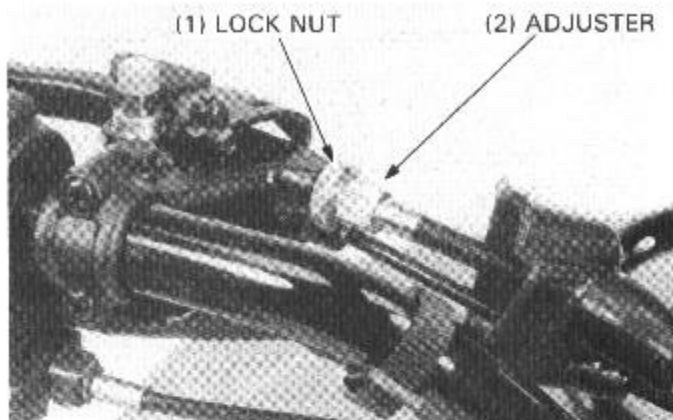
REAR BRAKE LEVER FREE PLAY: 15–20 mm (5/8–3/4 in)



MAINTENANCE

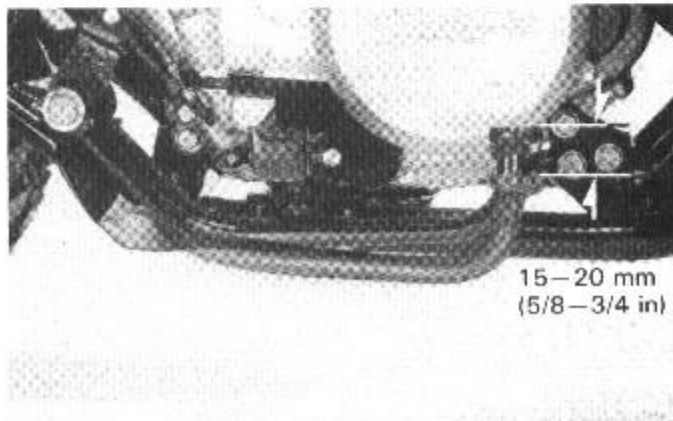
Minor adjustments can be made with the upper adjuster. Slide the rubber cover off the adjuster, loosen the lock nut and adjust.

Major adjustments should be made with the lower adjusting nut at the rear brake arm.



Measure the brake pedal free play at the end of the brake pedal and adjust as required.

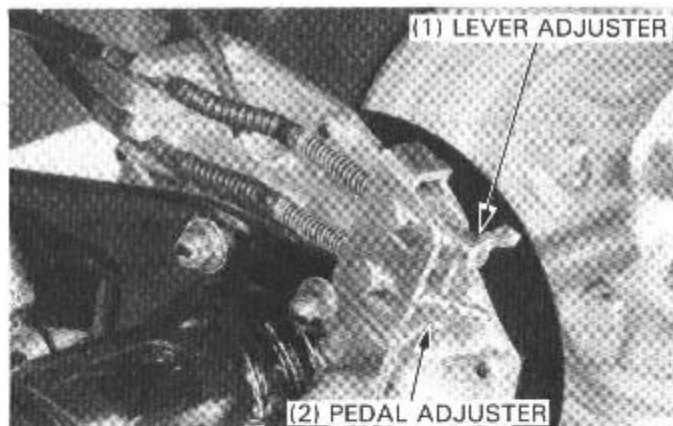
BRAKE PEDAL FREE PLAY: 15–20 mm (5/8–3/4 in)



Adjust the rear brake lever and pedal free play by turning the adjusting nuts at the lower end of the cables.

NOTE

- Make sure the cut-out of each adjusting nut is seated on the brake arm pin.

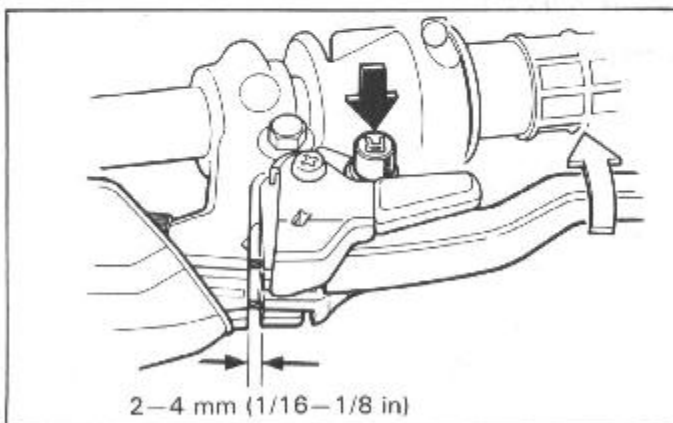


REVERSE LOCK SYSTEM

Check the reverse selector cable and lever for a loose connection, excessive play or other damage. Replace or repair if necessary.

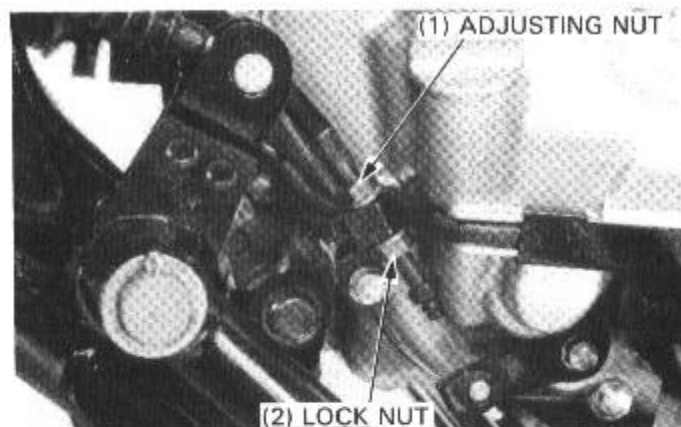
Measure the reverse selector lever free play at the lever end near the cable.

FREE PLAY: 2–4 mm (1/16–1/8 in)



Adjust by loosening the lock nut and turning the adjusting nut.

Tighten the lock nut securely.



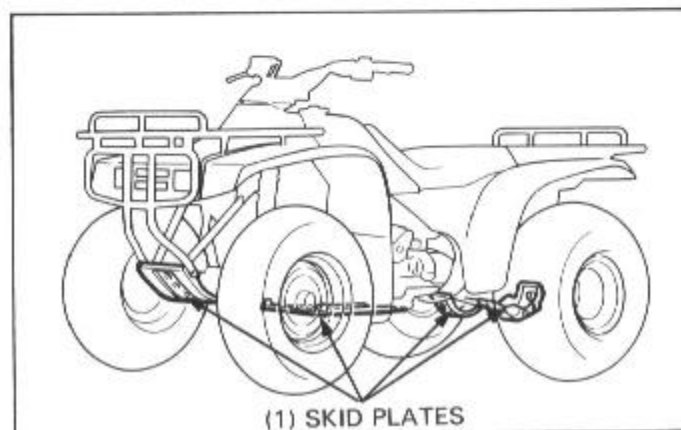
SKID PLATES

The skid plates protect the engine, rear final gear case and rear brake panel from rocks.

Check the plates for cracks, damage or looseness at intervals shown in the Maintenance Schedule.

Replace the plates if they are cracked or damaged.

If the plate bolts are loose, tighten them.



CLUTCH SYSTEM

WARNING

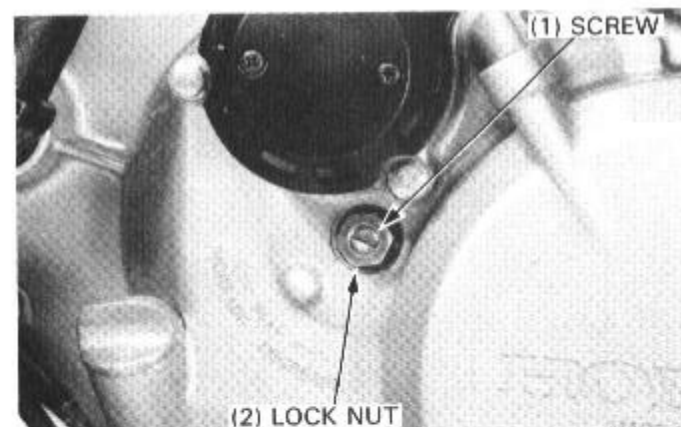
- If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and lead to death.*

Loosen the clutch adjusting screw lock nut.

Slowly turn the adjusting screw counterclockwise until resistance is felt. Then turn the adjusting screw clockwise 1/4 turn, and tighten the lock nut.

TORQUE: 22 N·m (2.2 kg-m, 16 ft-lb)

After adjustment, start the engine and check for proper clutch operation.



SUSPENSION

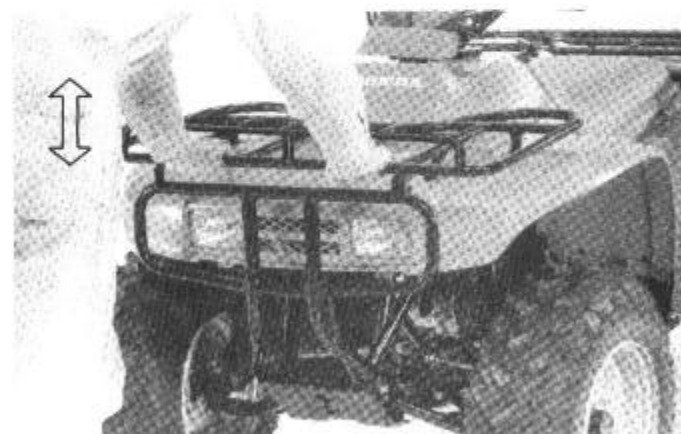
WARNING

- Do not ride a vehicle with faulty suspension. Loose, worn or damaged suspension parts impair vehicle stability and control.*

Check the action of the front/rear shock absorber by compressing them several times.

Check the entire shock absorber assembly for leaks or damage. Replace damaged components which cannot be repaired.

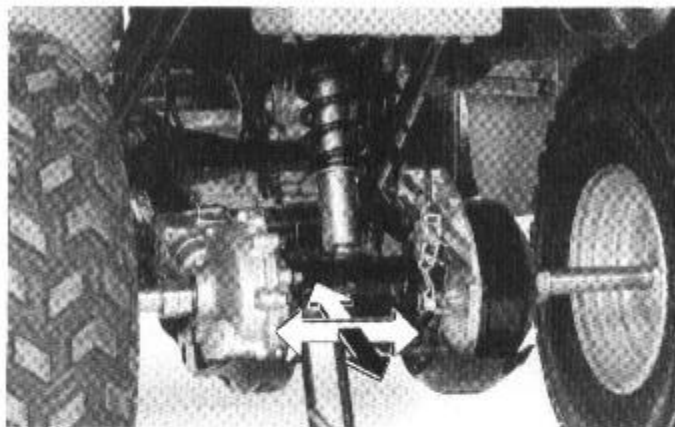
Tighten all nuts and bolts.



SWINGARM BEARINGS

Raise the rear wheels off the ground by placing a jack or block under the engine.

Move the rear axle sideways using moderate force to see if the wheel and swingarm bearings are worn.
Replace the bearings if there is any play.



SPARK ARRESTER CLEANING

WARNING

- *If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and lead to death.*
- *Do not touch exhaust components while the exhaust system is hot.*
- *Perform this operation in a well-ventilated area, free from fire hazards.*
- *Use adequate eye protection.*

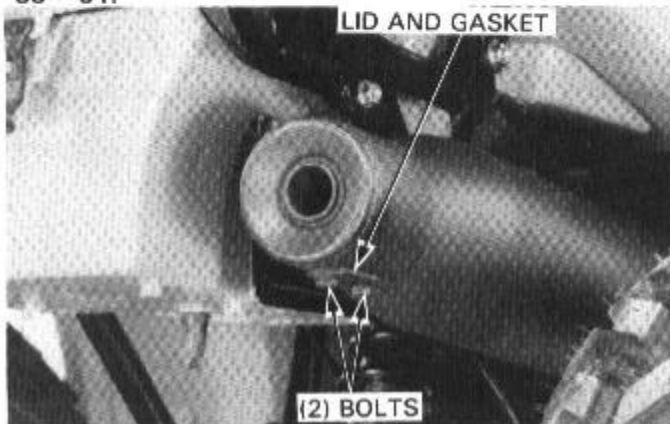
'88—'91:

Remove the muffler lid and gasket.

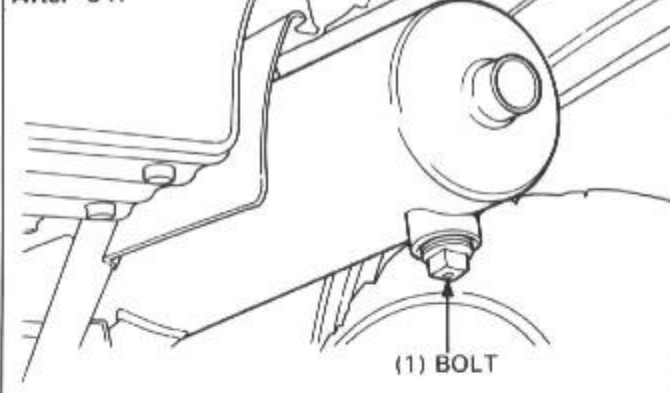
After '91:

Remove the bolt.

'88—'91:



After '91:



Block the end of the muffler with a shop towel.
Start the engine with the transmission in neutral, and purge accumulated carbon from the muffler by momentarily revving up the engine several times.
Stop the engine and allow the exhaust system to cool.

Make sure that the muffler lid bolts and gasket are in good condition. Replace the bolts and gasket if necessary.
Install the gasket and muffler lid, and tighten the bolts securely.

After '91:

Install the bolt securely.



WHEELS/TIRES

Check the tires for cuts, embedded nails, or other damage.
Check the tire pressure.
Adjust accordingly.
Tire pressure:

unit: psi (kg/cm², kPa)

	TRX300 (Front/Rear)	TRX300FW	
		Front	Rear
Standard	2.9 (0.20, 20)	4.4 (0.30, 30)	2.9 (0.20, 20)
Minimum	2.5 (0.17, 17)	3.8 (0.26, 26)	2.5 (0.17, 17)
Maximum	3.3 (0.23, 23)	5.0 (0.34, 34)	3.3 (0.23, 23)
With Cargo		'88-'90: 5.0 (0.34, 34) After '90: 4.4 (0.30, 30)	3.6 (0.25, 25)

NOTE

- Tire pressure should be checked when the tires are COLD.

Raise the wheels off the ground and check the hub or knuckle and axle bearings for excessive play or abnormal noise.

Replace any faulty parts (sections 11 and 13).



STEERING SHAFT HOLDER BEARING

NOTE

- Make sure the cables do not interfere with the rotation of the handlebar.

Raise the front wheels off the ground and make sure that the handlebar rotates freely.

If the handlebar moves unevenly, binds or has horizontal movement, check the steering shaft holder bushing and steering bearing, and replace them if necessary (page 11-17).

'88-'89:

(1) BUSHING



(2) BEARING

STEERING SYSTEM

TOE-IN

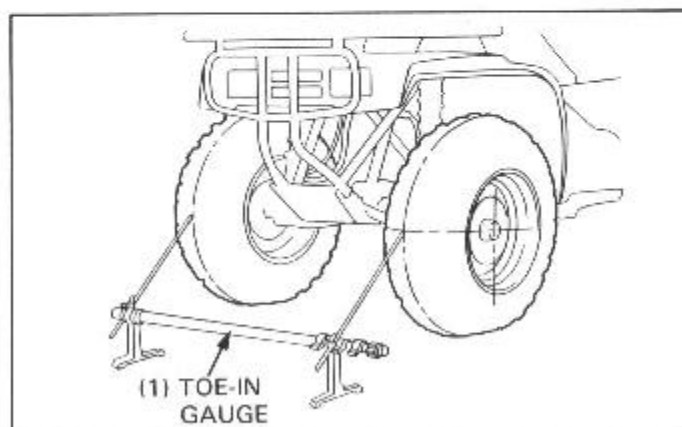
Remove the front fender (page 16-1).

Place the vehicle on level ground with the front wheels facing straight ahead.

Mark the centers of the tires with chalk to indicate the axle center height.

Align the toe-in gauge with the marks on the tires as shown. Check the readings on the gauge scales.

Slowly move the vehicle back until the wheels have turned 180° so the marks on the tires are aligned with the gauge height on the rear side.



(1) TOE-IN
GAUGE

MAINTENANCE

Measure the toe-in on the rear part of the tires at the same points.

TOE-IN:

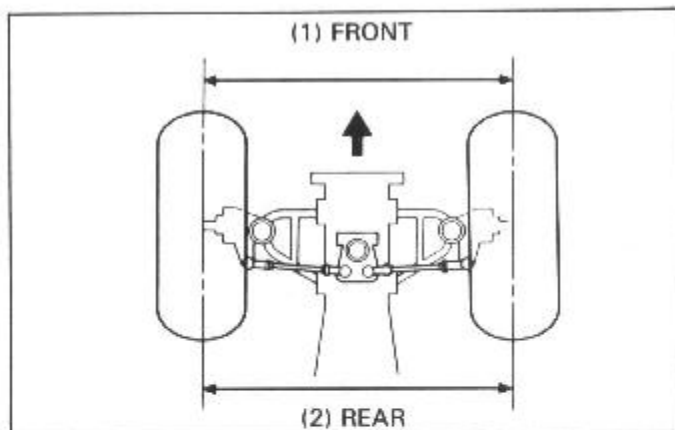
TRX300: '88-'92: 2 mm (0.08 in)

After '92: 5 mm (0.2 in)

TRX300FW: '88-'90: 8 mm (0.3 in)

'91-'92: 0 mm

After '92: 4 mm (0.2 in)

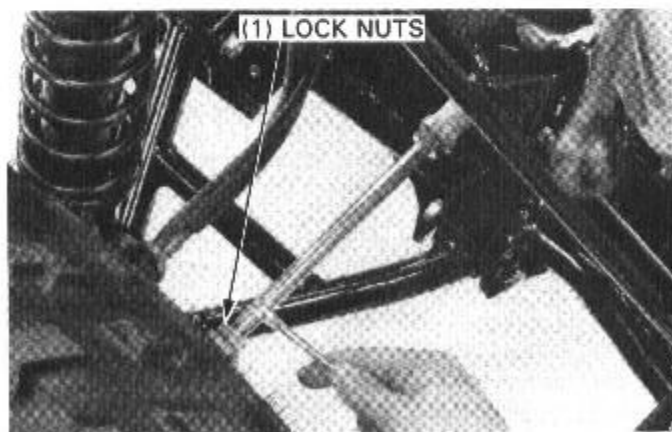


When the toe-in is out of specification, adjust it by changing the length of the tie-rods equally by turning the tie-rod while holding the ball joint.

Tighten the lock nuts.

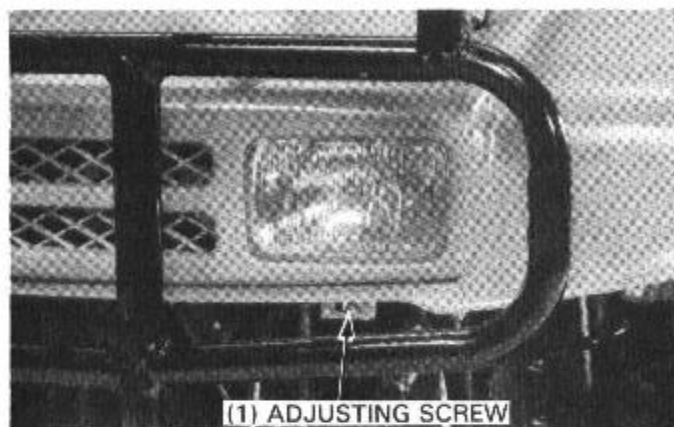
TORQUE: 55 N·m (5.5 kg-m, 40 ft-lb)

After finally tightening the lock nuts, make sure the ball joints operate properly by rotating the tie-rods.



HEADLIGHT AIM

Adjust the vertical beam by turning each adjusting screw on the headlight cover.



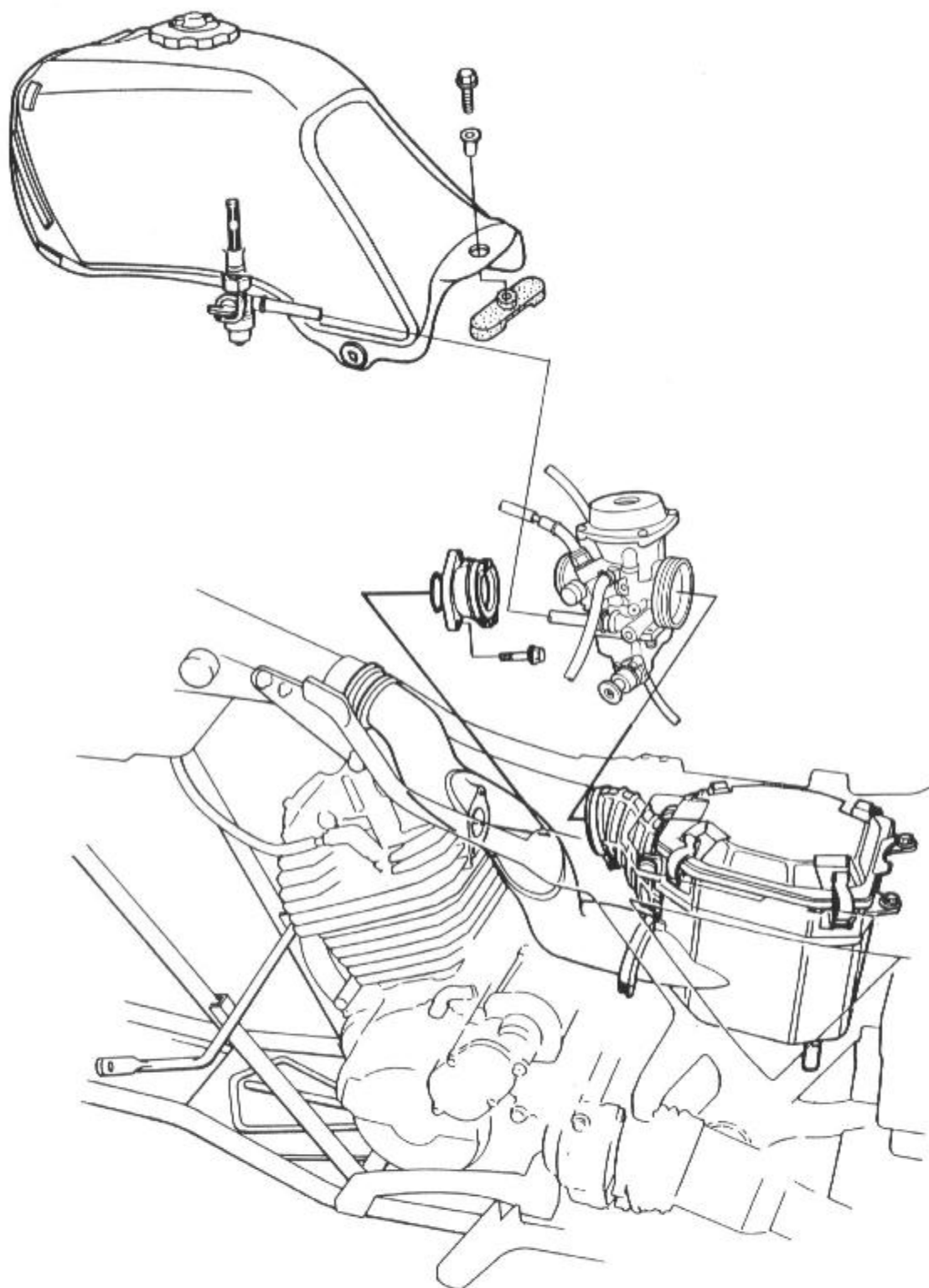
NUTS, BOLTS, FASTENERS

Tighten bolts, nuts and fasteners at the regular intervals shown in the Maintenance Schedule (page 3-3 thru 6).

Check that all chassis nuts and bolts are tightened to their correct torque values (pages 1-7 thru 1-9). Check that all cotter pins and safety clips are in place.

Check the rear axle nut torque (page 15-16) at Initial Service and after each 30 days of operation.

MEMO



SERVICE INFORMATION	4-1	CARBURETOR DISASSEMBLY	4-6
TROUBLESHOOTING	4-2	CARBURETOR ASSEMBLY	4-10
FUEL TANK	4-3	CARBURETOR INSTALLATION	4-13
AIR CLEANER CASE	4-4	PILOT SCREW ADJUSTMENT	4-14
CARBURETOR REMOVAL	4-5	HIGH ALTITUDE ADJUSTMENT	4-15

SERVICE INFORMATION

GENERAL

WARNING

- Gasoline is extremely flammable and is explosive under certain conditions. Work in a well ventilated area with the engine stopped. Do not smoke or allow flames or sparks in the work area or where gasoline is stored.
- If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and lead to death.

CAUTION

- Do not bend or twist control cables. Damaged control cables will not operate smoothly and may stick or bind.

NOTE

- If the vehicle is to be stored for more than one month, drain the float chamber. Fuel left in the float chamber may cause clogged jets resulting in hard starting or poor driveability complaints.
- When disassembling fuel system parts, note the locations of the O-rings. Replace them with new O-rings during re-assembly.
- The carburetor float chamber has a drain screw that can be loosened to drain gasoline.

SPECIFICATIONS

Fuel tank capacity 12.5 lit (3.3 US gal, 2.7 Imp. gal)

Fuel reserve capacity 2.5 lit (0.7 US gal, 0.5 Imp. gal)

Carburetor

Identification mark	'88—'90	VE90A
	'91	VE90C
	'92	VE90D
	After '92	VE90E
Type		Vacuum piston (VE)
Throttle bore		32 mm (1.3 in)
Float level		18.5 mm (0.73 in)
Pilot screw initial opening		See page 4-14.
Idle speed	'88—'90	1,500 ± 100 rpm
	After '90	1,400 ± 100 rpm
Main jet	'88—'90	#120
	After '90	#125
Slow jet	'88—'90	#42
	After '90	#40
Starter jet	'88—'90	#85
	'91—'92	#90
	After '92	#85
Throttle lever free play		3—8 mm (1/8—5/16 in)
Jet needle		3rd groove from the top

TORQUE VALUES

Fuel valve lock nut	28 N·m (2.8 kg-m, 20 ft-lb)
Insulator band screw	4 N·m (0.4 kg-m, 2.9 ft-lb)
Carburetor cover screw	3.5 N·m (0.35 kg-m, 2.5 ft-lb)

TOOL

Common

Float level gauge	07401—0010000
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TROUBLESHOOTING

Engine cranks but won't start

- No fuel to carburetor
- Engine flooded with fuel
- No spark at plug (ignition system faulty)
- Clogged air cleaner
- Intake air leak
- Improper choke operation
- Improper throttle operation

Engine idles roughly, runs poorly or stalls

- Improper choke operation
- Ignition malfunction
- Fuel contaminated
- Intake air leak
- Incorrect idle speed
- Incorrect pilot screw adjustment
- Low cylinder compression
- By-starter valve stuck open
- Damaged by-starter valve seat
- Rich mixture
- Lean mixture
- Clogged carburetor

Misfiring during acceleration

- Ignition system faulty
- Lean mixture

Afterburn during deceleration

- Ignition system faulty
- Lean mixture

Poor performance (driveability) and poor fuel economy

- Fuel system clogged
- Ignition system faulty
- Air cleaner clogged

Afterfiring

- Ignition malfunction
- Carburetor malfunction
- Lean mixture
- Rich mixture

Lean mixture

- Clogged fuel jets
- Faulty float valve
- Float level too low
- Blocked fuel tank cap vent hole
- Clogged fuel strainer screen
- Restricted fuel line
- Clogged air vent tube
- Intake air leak
- Vacuum piston stuck closed

Rich mixture

- Clogged air cleaner
- Worn jet needle or needle jet
- Faulty float valve
- Float level too high
- By-starter valve stuck open
- Damaged by-starter valve seat
- Clogged air jet

Incorrect fast idle speed

- Incorrect choke cable free play
- By-starter valve stuck or damage

FUEL TANK

REMOVAL

Remove the seat and right side cover.
Turn the fuel valve OFF and disconnect the fuel line.
Remove the fuel tank mounting bolt and fuel tank.

WARNING

- *Gasoline is extremely flammable and is explosive under certain conditions. Work in a well ventilated area with the engine stopped. Do not smoke or allow flames or sparks in your working area or where gasoline is stored.*
- *Wipe up spilled gasoline at once.*

Use a drain pan and check that fuel flows freely out of the fuel valve by turning the fuel valve ON.

If flow is restricted, clean the fuel strainer screen (page 3-5).

Drain fuel from the fuel tank into a suitable container.
Remove the fuel valve by loosening the valve nut.
Remove and clean the strainer.

INSTALLATION

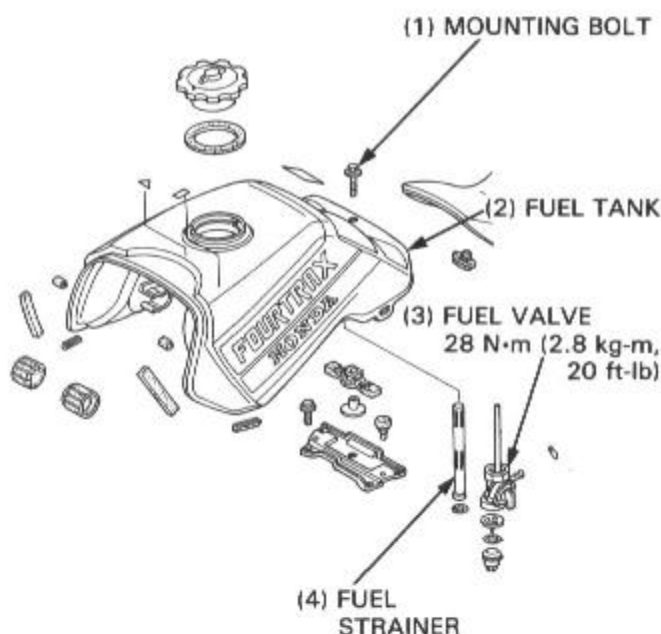
Install the strainer and valve and tighten the fuel valve lock nut to the specified torque.

TORQUE: 28 N·m (2.8 kg-m, 20 ft-lb)

Fill the fuel tank, turn the fuel valve ON and check for leaks.
Check the vent hole in the fuel cap for blockage.
Install the fuel tank by sliding its front hooks into the rubber cushions on the frame and tighten the fuel tank mounting bolts.

Connect the fuel line to the fuel valve.

Turn the fuel valve ON and make sure that there are no fuel leaks.

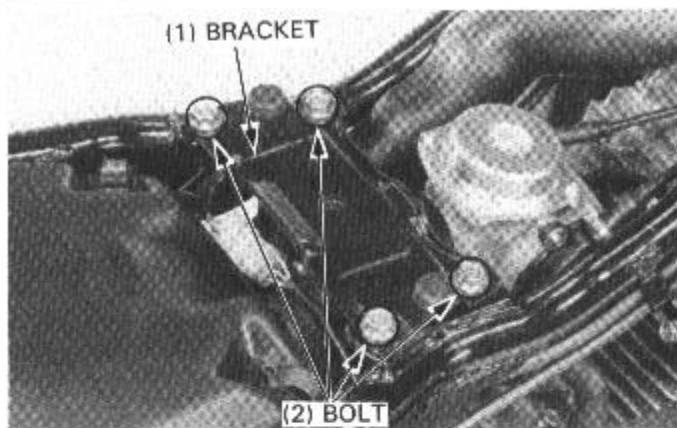


AIR CLEANER CASE

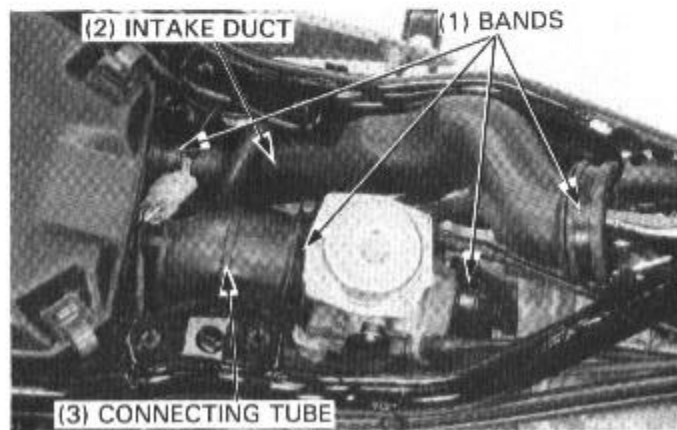
REMOVAL

Remove the fuel tank (page 4-3).

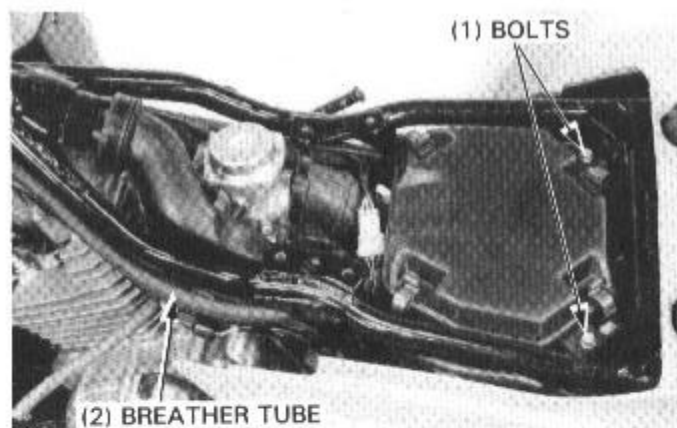
Remove the fuel tank bracket.



Loosen the air cleaner intake duct and connecting tube bands. Free the intake duct and connecting tube from the frame and carburetor.



Remove the air cleaner case mounting bolts. Free the crankcase breather tube from the clamp.

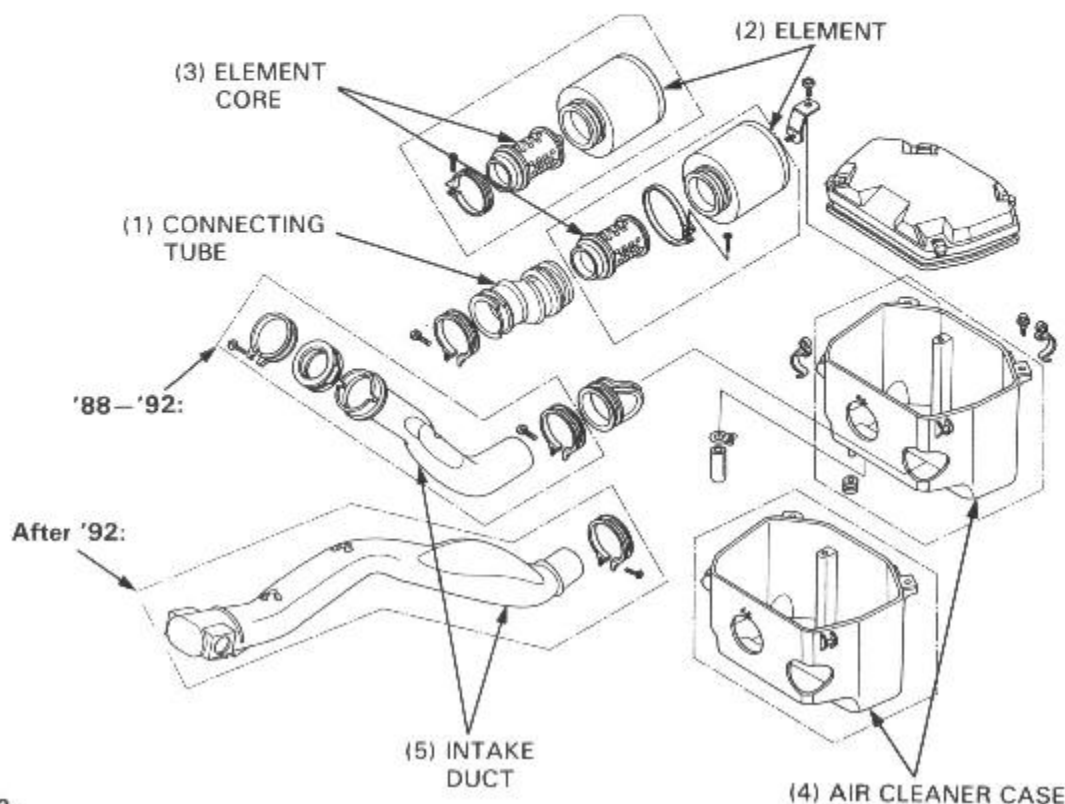


Remove the air cleaner case by pulling upward to clear the frame pipes.



INSTALLATION

Install the air cleaner case in the reverse order of removal.

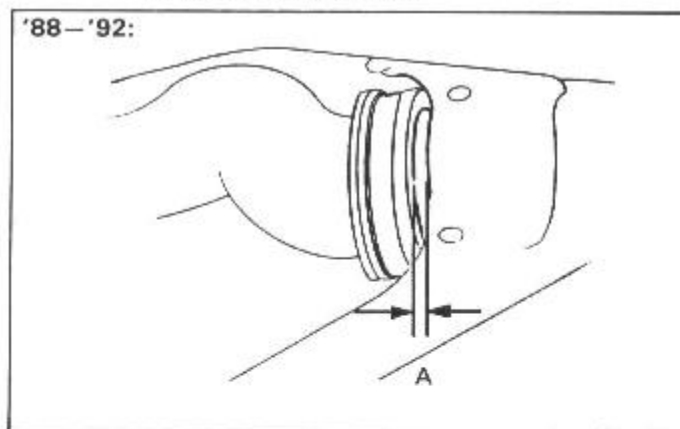


'88-'92:
NOTE

- Set the distance "A" between the intake duct and welded bracket end.

DISTANCE A: 1–3 mm (0.04–0.12 in)

'88-'92:



CARBURETOR REMOVAL

Remove the fuel tank (page 4-3).

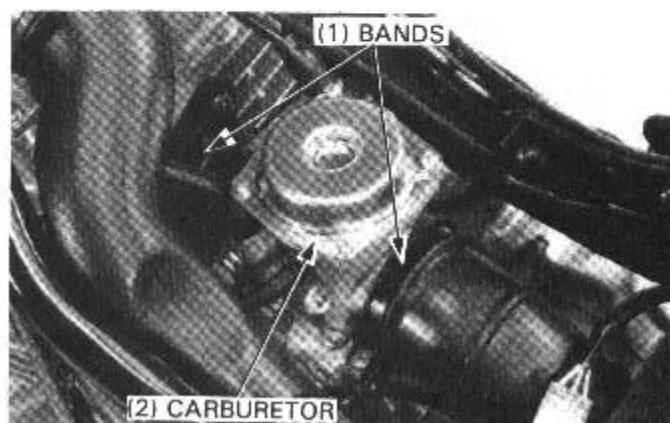
Remove the fuel tank bracket (page 4-4).

Loosen the connecting tube and insulator bands.

Pull the carburetor upward.

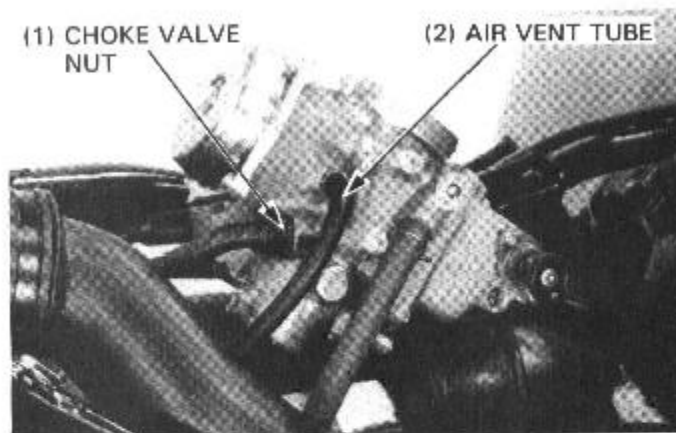
CAUTION

- Do not let dirt and dust enter the engine through the intake port, or the engine may be damaged.

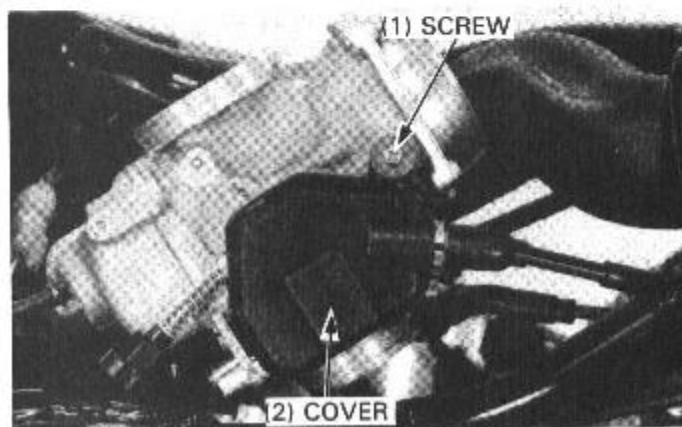


FUEL SYSTEM

Loosen the choke valve nut and remove the choke valve from the carburetor, then disconnect the air vent tube.



Remove the carburetor cover screw and the cover.



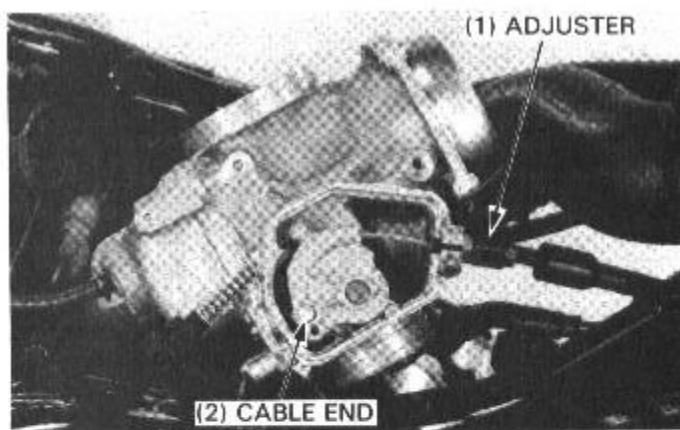
Disconnect the throttle cable end from the throttle drum.

Remove the throttle cable from the carburetor body by removing the adjuster.

CAUTION

- *Do not kink or twist the throttle cable. It will not operate smoothly and may stick if it is kinked or twisted.*

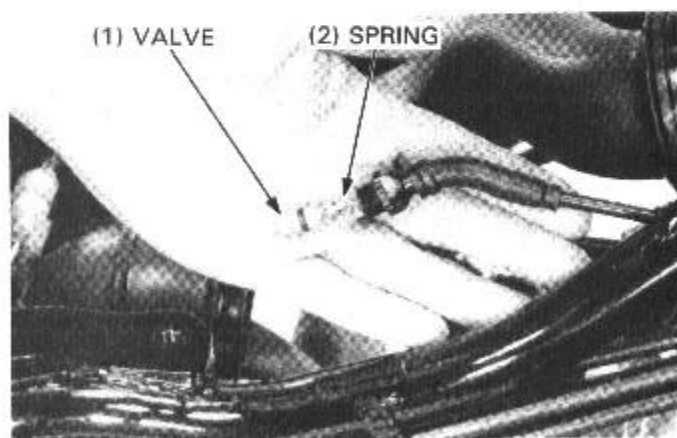
Remove the carburetor from the frame.



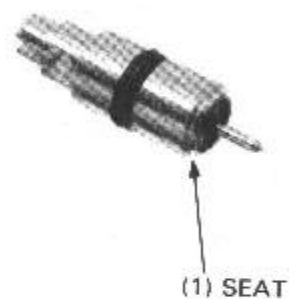
CARBURETOR DISASSEMBLY

CHOKE VALVE

Disconnect the choke cable end from the choke valve and remove the valve spring.

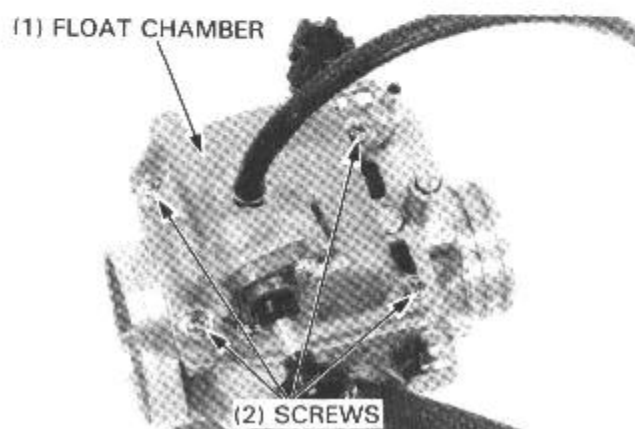


Check the valve for nicks, grooves or other damage.
Check the valve seat for wear.



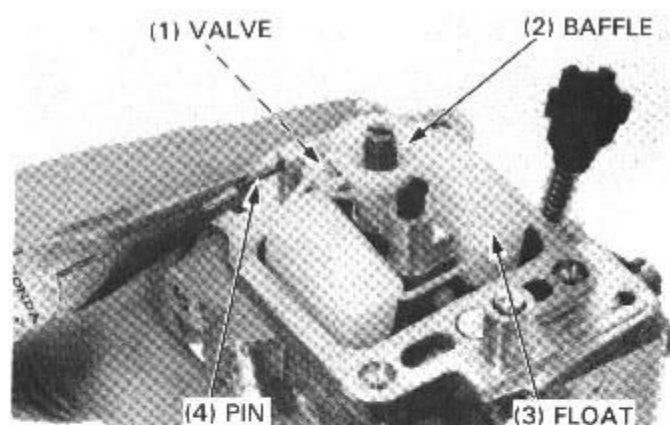
FLOAT AND JETS

Remove the four screws and the float chamber.



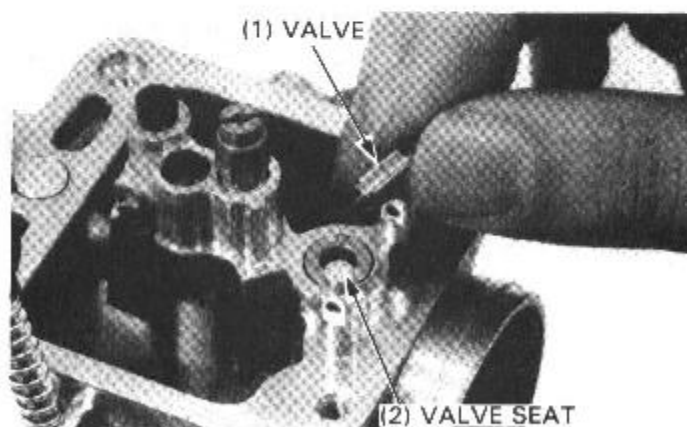
Remove the following:

- baffle
- float pin
- float
- float valve



Inspect the float valve for grooves and nicks, and replace if necessary.

Inspect the operation of the float valve.



FUEL SYSTEM

Remove the following:

- main jet
- needle jet holder
- needle jet
- slow jet.
- plug
- starter jet

Turn the pilot screw in and record the number of turns before it seats lightly. Use this as a reference for reinstallation.

CAUTION

- *Damage to the pilot screw seat will occur if the pilot screw is tightened against the seat.*

Remove the pilot screw.

Inspect the pilot screw and each jet and replace them if they are worn or damaged.

Blow open all jets with compressed air.

PRIMER KNOB

Remove the screws and the primer knob.

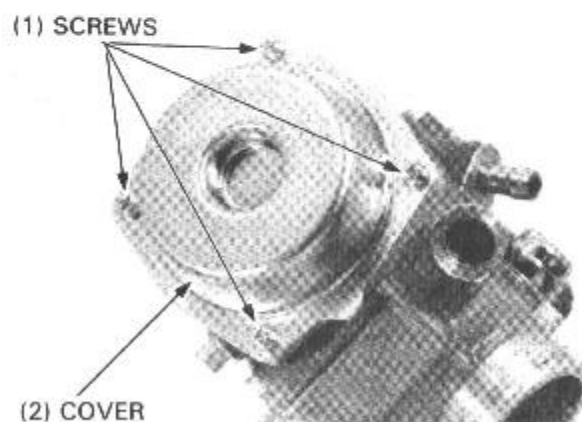
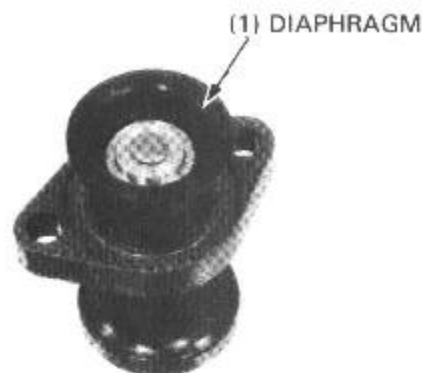
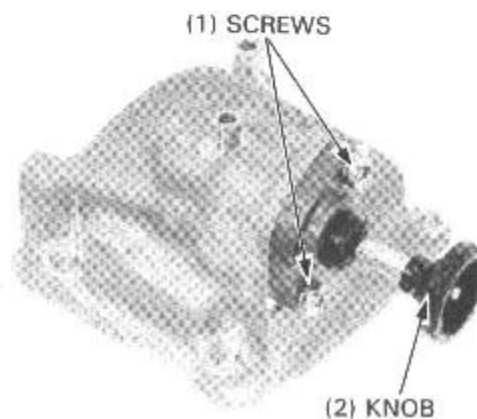
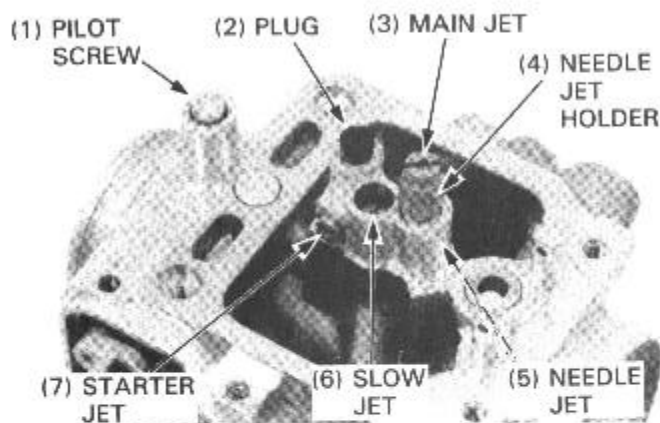
Check the diaphragm for tears or other damage.

DIAPHRAGM/VACUUM PISTON

NOTE

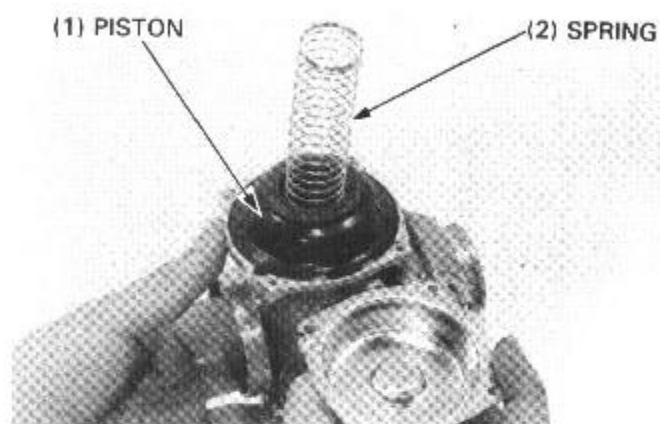
- The diaphragm/vacuum piston can be removed without removing the float chamber.

Remove the vacuum chamber cover by removing the four screws.

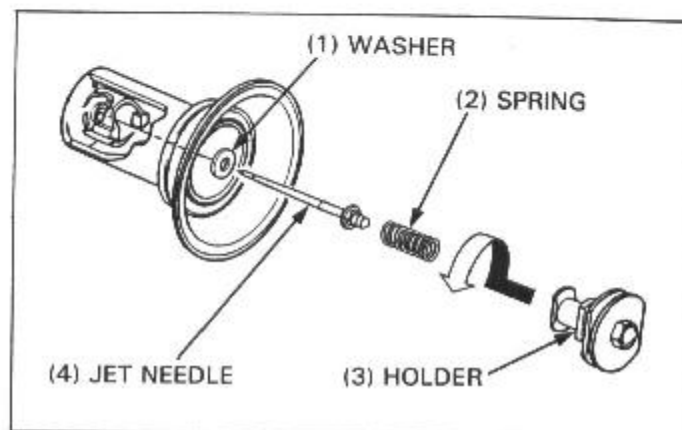


Remove the compression spring and diaphragm/vacuum piston.

Inspect the vacuum piston for wear, nicks, or other damage. Make sure the piston moves up and down freely in the chamber.

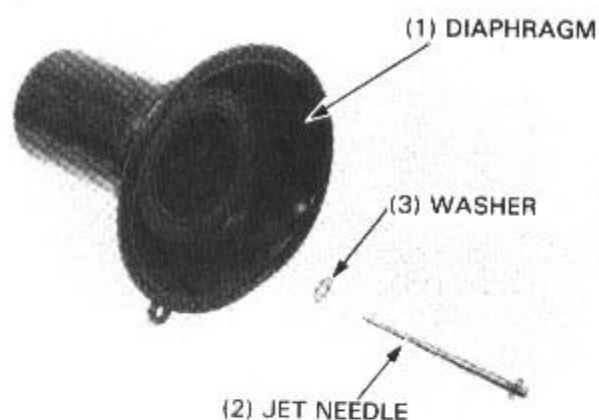


Push the jet needle holder down and turn it counterclockwise 90 degrees with an 8 mm socket. Then remove the needle holder, jet needle and washer from the diaphragm/vacuum piston.

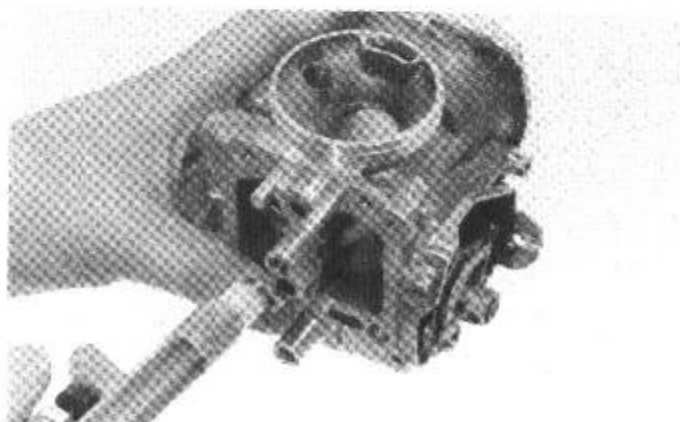


Inspect the jet needle for excessive wear at the tip or other damage.

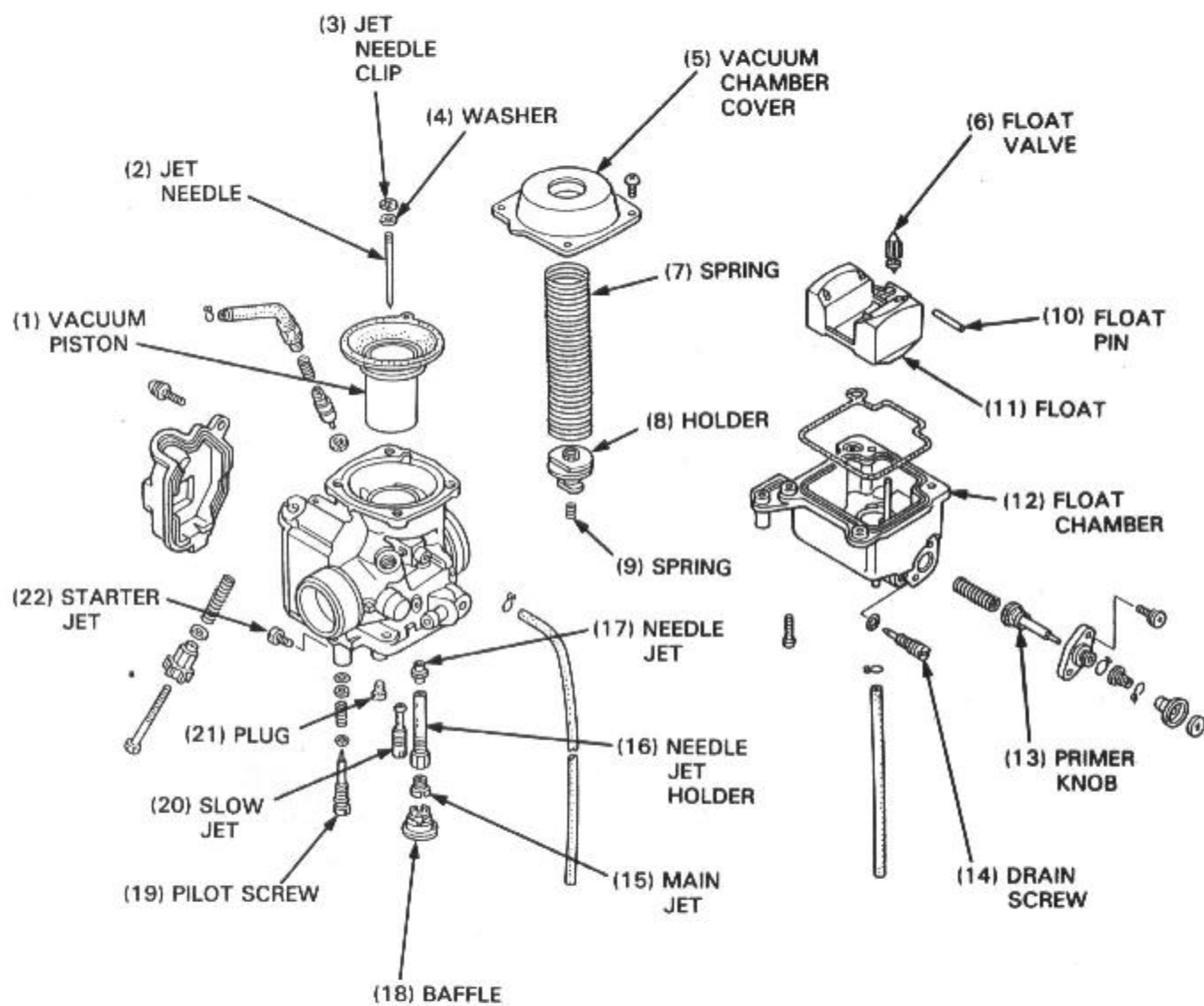
Check for a torn diaphragm or other deterioration.



Blow open all carburetor body openings with compressed air.



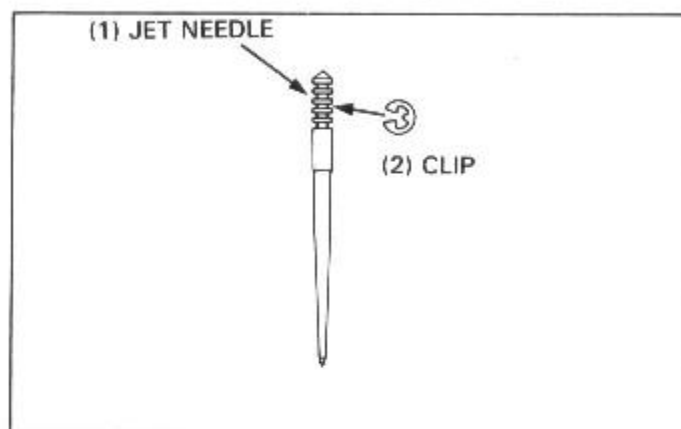
CARBURETOR ASSEMBLY



DIAPHRAGM/VACUUM PISTON

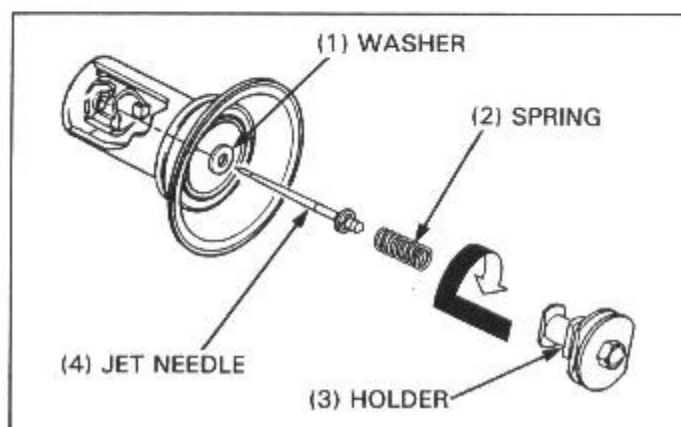
Install the needle clip on the jet needle.

STANDARD SETTING: 3rd groove from the top



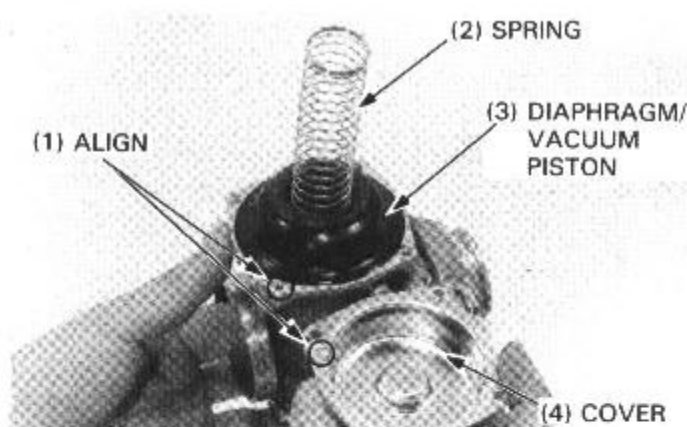
Install the washer, jet needle, spring and jet needle holder to the vacuum piston.

Push the jet needle holder in and turn it 90 degrees clockwise.



Install the diaphragm/piston in the vacuum chamber, aligning the diaphragm tab with the groove of the carburetor. Hold the vacuum piston up to almost full open so the diaphragm is not pinched by the chamber cover.

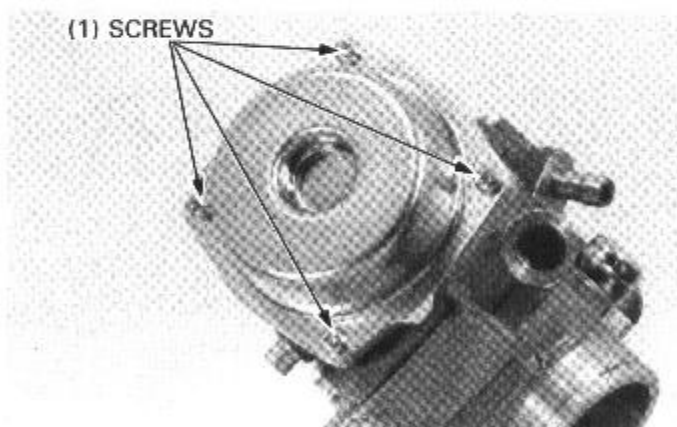
Install the chamber cover with the spring, aligning its tab with the hole in the carburetor, and secure with at least two screws before releasing the vacuum piston.



Install the remaining vacuum chamber cover screws.

CAUTION

- *Do not pinch the diaphragm under the chamber cover.*



FUEL SYSTEM

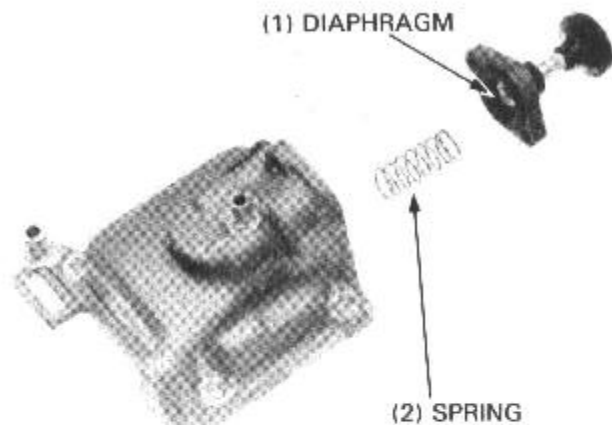
PRIMER KNOB

Install the primer knob with the spring into the float chamber.

Tighten the screws securely.

CAUTION

- *Do not pinch the diaphragm when installing the screws.*



FLOAT AND JETS

Install the following:

- starter jet
- plug
- slow jet
- needle jet, needle jet holder
- main jet

CAUTION

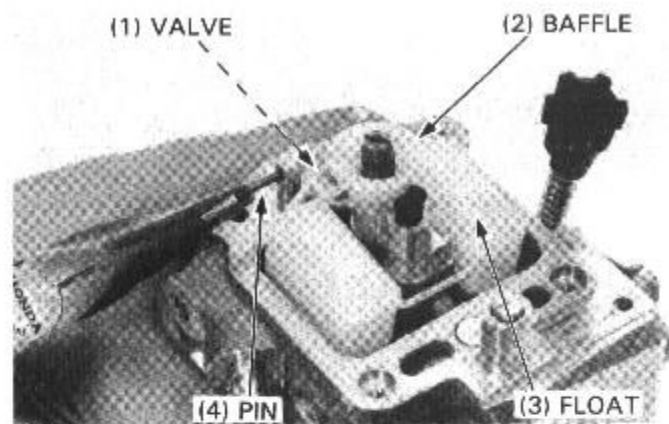
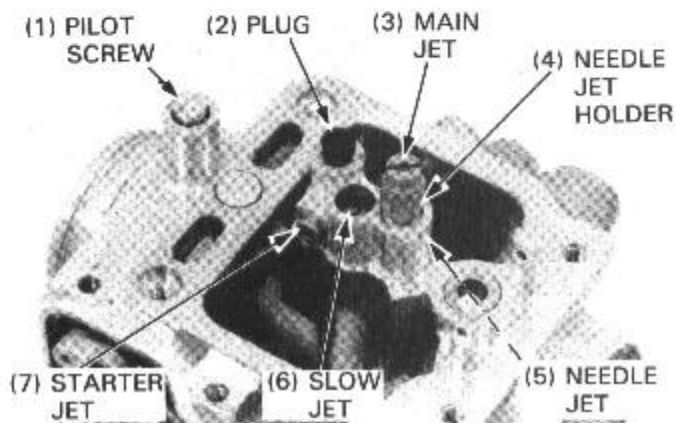
- *Handle all jets with care. They can easily be scored or scratched.*

Install the pilot screw and return it to its original position as noted during removal.

Perform pilot screw adjustment if a new pilot screw is installed (page 4-14).

Install the float and float valve in the carburetor body, then install the float arm pin through the body and float.

Install the baffle.



FLOAT LEVEL INSPECTION

With the float valve seated and the float arm just touching the valve, measure the float level with the float level gauge as shown.

SPECIFICATION: 18.5 mm (0.73 in)

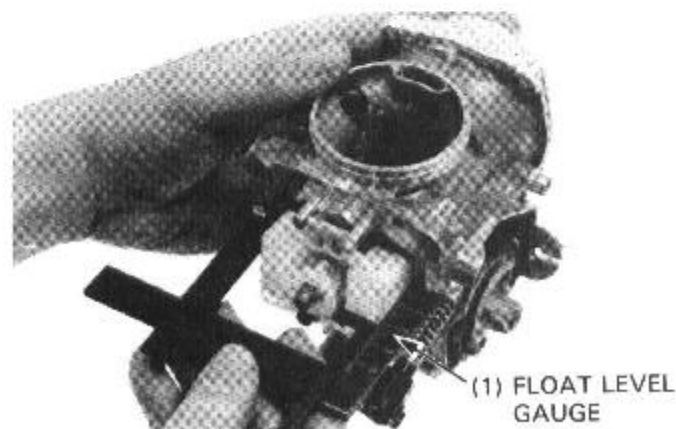
TOOL:

Float level gauge

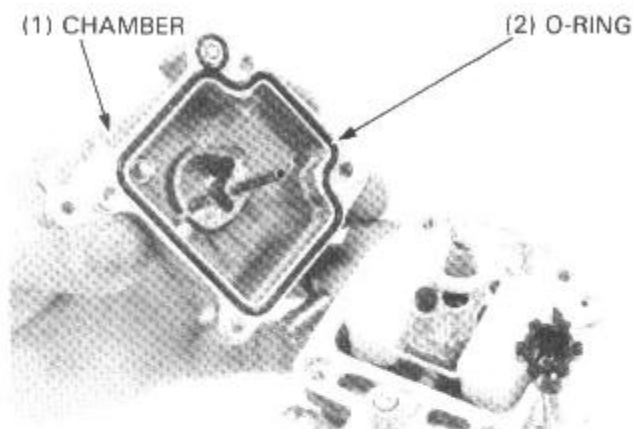
07401-0010000

The float cannot be adjusted.

Replace the float assembly if the float level is out of specification.



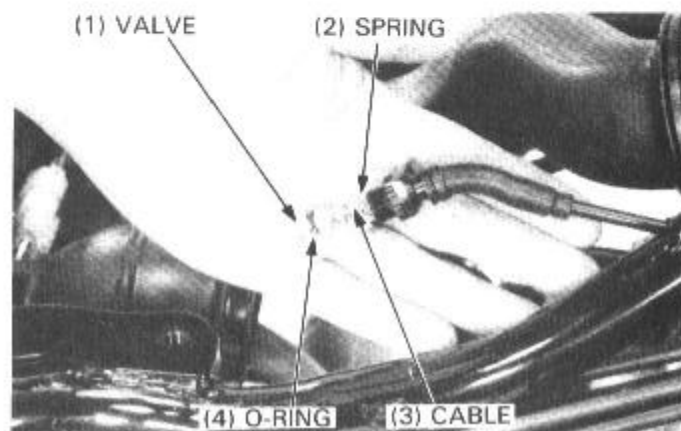
Install a new O-ring in the float chamber.
 Install the float chamber, aligning the overflow tube with the hole in the baffle as shown.
 Install the four float chamber screws.



CHOKE VALVE

Install a new O-ring onto the choke valve.
 Install the spring over the choke cable and connect the cable end to the choke valve.

Move the choke lever all the way to the right and left and make sure the choke valve operates properly.



CARBURETOR INSTALLATION

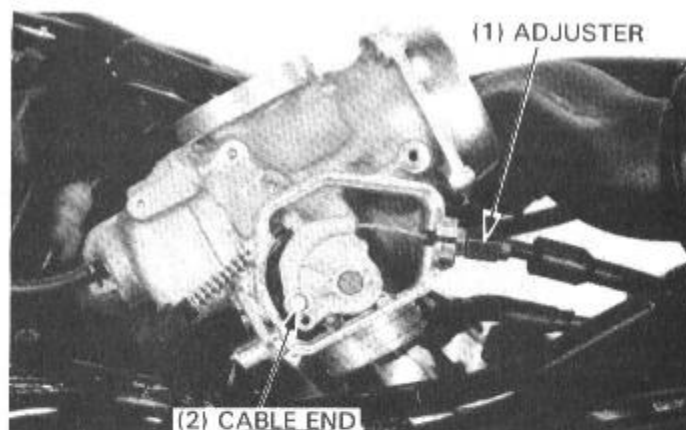
Install the throttle cable adjuster to the carburetor body.
 Connect the throttle cable end to the throttle drum.

CAUTION

- Do not kink or twist the throttle cable. It will not operate smoothly and may stick if it is kinked or twisted.

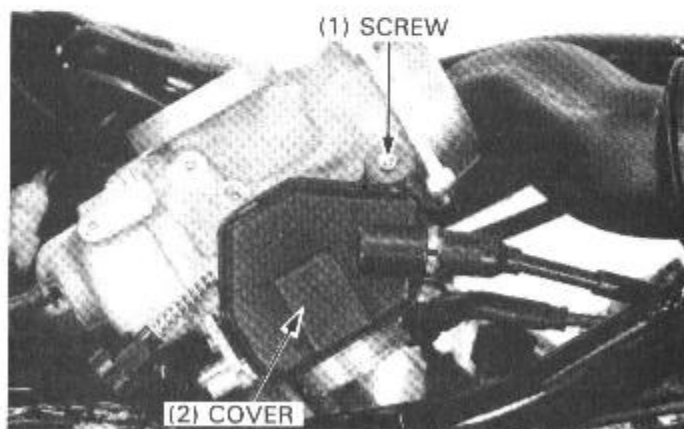
NOTE

- Apply grease to the throttle cable end.



Install the carburetor cover.

TORQUE: 3.5 N·m (0.35 kg-m, 2.5 ft-lb)



FUEL SYSTEM

Install the choke valve and tighten the valve nut.

Connect the air vent tube to the carburetor.

Install the carburetor by aligning its intake pipe boss with the insulator groove.

NOTE

- Set the pin of the insulator band in the groove of the insulator and install the band.

Tighten the insulator band screw to the specified torque.

TORQUE: 4 N·m (0.4 kg-m, 2.9 ft-lb)

Install the carburetor connecting tube and tighten the tube band.

Route the drain tube correctly (page 1-15).

Adjust the throttle lever free play (page 3-7).

Install the fuel tank bracket (page 4-4) and fuel tank (page 4-3).

PILOT SCREW ADJUSTMENT

WARNING

- *If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and lead to death.*

NOTE

- The pilot screw is factory pre-set. Adjustment is not necessary unless the carburetor is overhauled or a new pilot screw is installed.

Turn the pilot screw clockwise until it seats lightly and back it out 1-3/4 turns ('92: 1-5/8 turns; After '92: 2-1/4 turns).

CAUTION

- *Damage to the pilot screw seat will occur if the pilot screw is tightened against the seat.*

This is an initial setting prior to the final pilot screw adjustment.

Warm the engine up to operating temperature.

Stop the engine and connect a tachometer according to the tachometer manufacturer's instructions.

Start the engine and adjust the idle speed with the throttle stop screw.

IDLE SPEED:

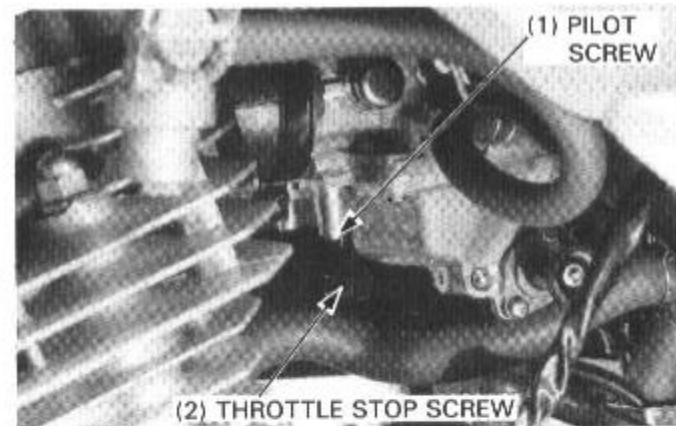
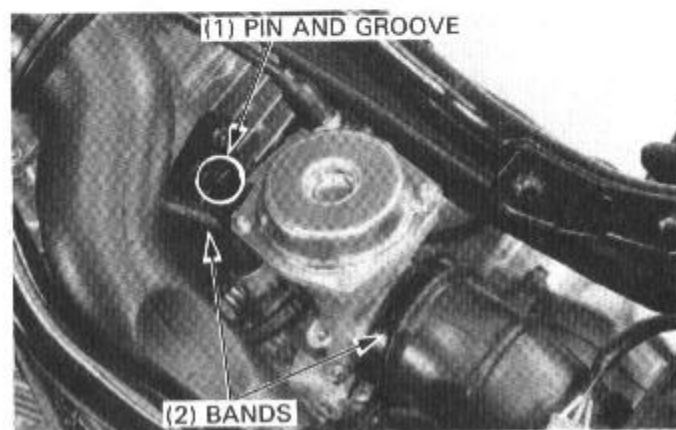
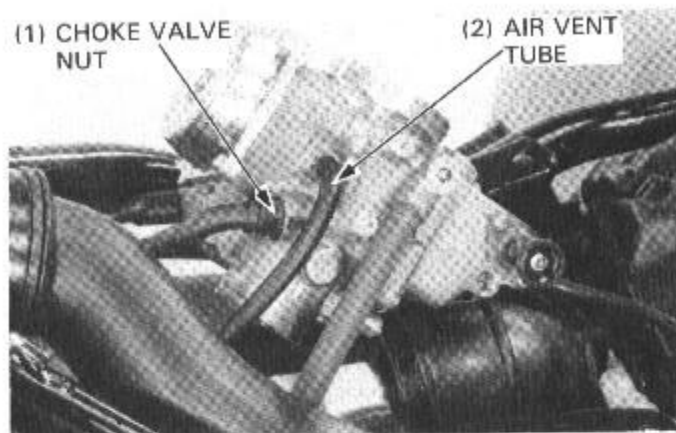
'88-'90: 1,500 ± 100 rpm

After '90: 1,400 ± 100 rpm

Turn the pilot screw clockwise until you hear the engine miss or decrease in speed, then turn counterclockwise until the engine again misses or decreases in speed.

Center the pilot screw exactly between these two extreme positions.

If idle speed changes after adjusting the pilot screw, readjust the throttle stop screw.



HIGH ALTITUDE ADJUSTMENT

SPECIFICATIONS

		Below 5,000 ft (1,500 m)	Between 3,000–8,000 ft (1,000–2,500 m)
Main jet	'88–'90	#120	#115
	After '90	#125	#120
Pilot screw opening		Factory preset	'88–'90: 1/2 turn in '91: 3/4 turn in '92: 1/2 turn in After '92: 3/4 turn in

The carburetor must be adjusted for high altitude riding (between 3,000–8,000 ft/1,000–2,500 m).

STANDARD SETTING: Below 5,000 ft (1,500 m)

HIGH ALTITUDE SETTING: Between 3,000–8,000 ft
(1,000–2,500 m)

The high altitude carburetor adjustment is performed as follows:

Remove the carburetor (page 4-5) and float chamber.

Replace the standard main jet with the high altitude type.

High Altitude Main Jets:

'88–'90: #115

After '90: #120

Assemble and install the carburetor.

Turn-in the pilot screw the specified number of turns from the initial setting.

High Altitude Pilot Screw Opening:

'88–'90: 1/2 turn in

'91: 3/4 turn in

'92: 1/2 turn in

After '92: 3/4 turn in

Start the engine and adjust the idle speed at high altitude to ensure proper high altitude operation.

WARNING

- If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and lead to death.

CAUTION

- Sustained operation below 5,000 feet (1,500 m) with the high altitude settings may cause engine overheating and engine damage. Install the standard main jet and screw out the pilot screw the specified number of turns, when riding below 5,000 feet (1,500 m).

Standard Main Jet:

'88–'90: #120

After '90: #125

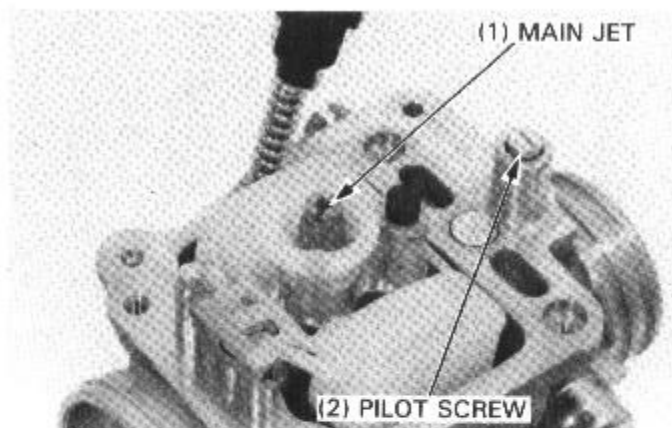
Pilot Screw Change From High To Low Altitude:

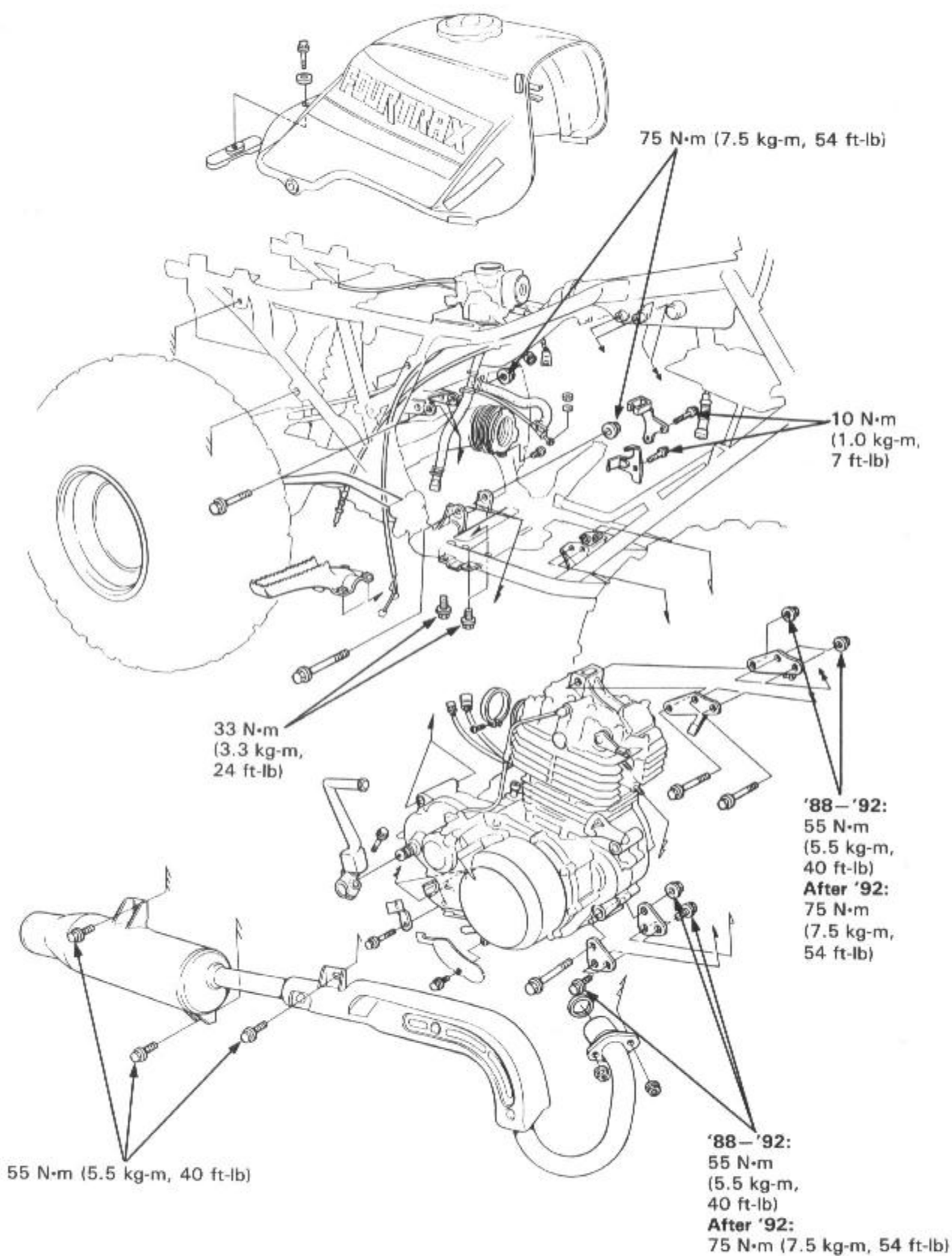
'88–'90: 1/2 turn out

'91: 3/4 turn out

'92: 1/2 turn out

After '92: 3/4 turn out

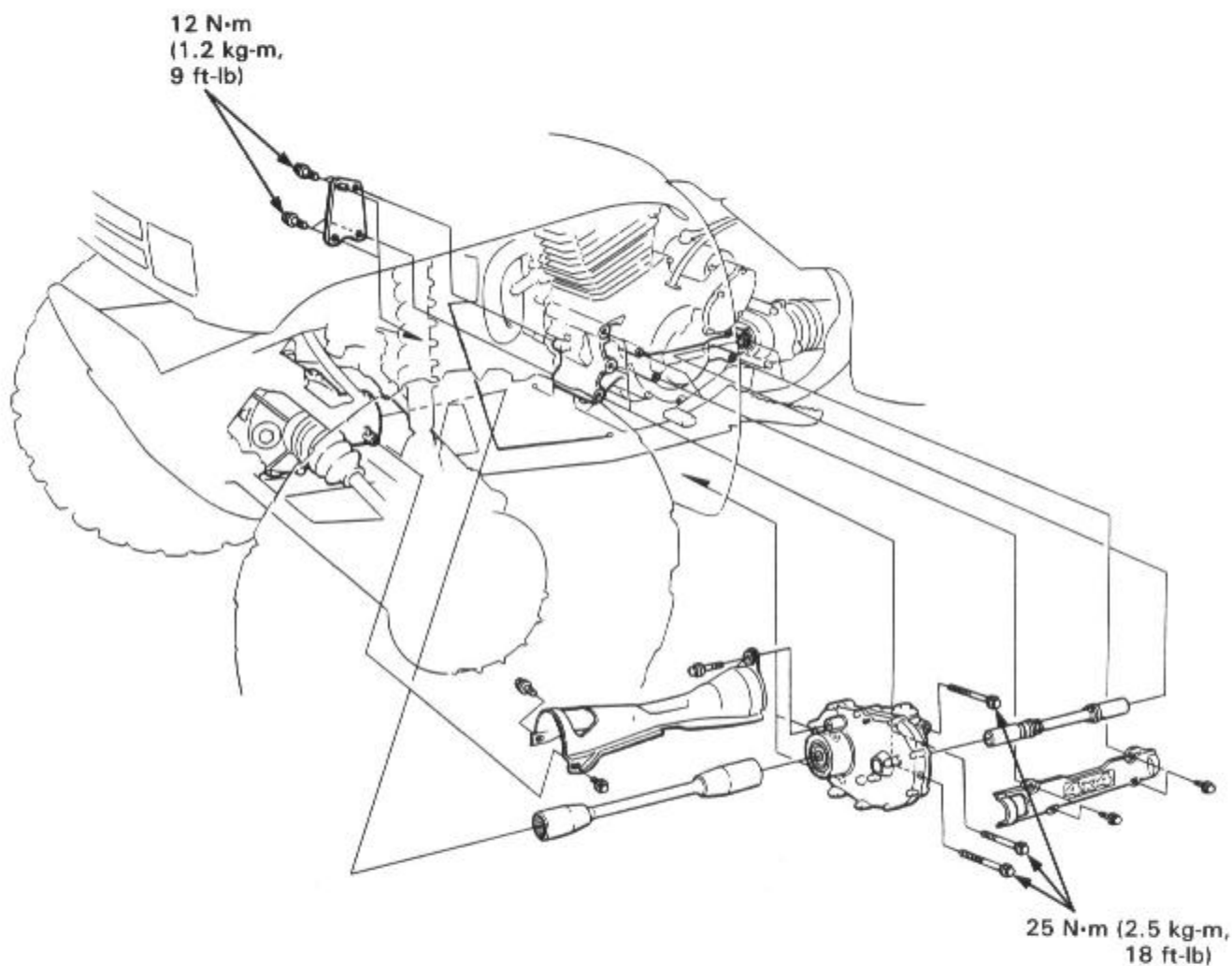




5. ENGINE REMOVAL/INSTALLATION

TRX300FW

5



SERVICE INFORMATION**ENGINE REMOVAL****5-2****ENGINE INSTALLATION****5-3****5-4****SERVICE INFORMATION****GENERAL**

- A floor jack or other adjustable support is required to support the engine.
- The following parts or components require engine removal for servicing.

Crankshaft/balancer	Section 10
Transmission	Section 10
Output gear	Section 10

SPECIFICATIONS

Engine oil capacity	2.5 lit (2.6 US qt, 2.2 Imp qt) at disassembly 2.2 lit (2.3 US qt, 1.9 Imp qt) after draining
Front gear case oil capacity (TRX300FW)	190 cc (6.4 oz) after draining

TORQUE VALUES

Engine bracket bolt (front)	55 N·m (5.5 kg-m, 40 ft-lb)
Engine bracket nut (upper)	55 N·m (5.5 kg-m, 40 ft-lb)
Engine mounting nut (front and upper)	55 N·m (5.5 kg-m, 40 ft-lb)
Engine mounting nut (rear/upper and rear/lower)	75 N·m (7.5 kg-m, 54 ft-lb)
Crankcase bolt	10 N·m (1.0 kg-m, 7 ft-lb)
Gearshift pedal bolt	16 N·m (1.6 kg-m, 12 ft-lb)
Foot peg bolt	33 N·m (3.3 kg-m, 24 ft-lb)
Exhaust muffler mounting bolt	55 N·m (5.5 kg-m, 40 ft-lb)

TRX300FW:

Front gear case mounting bolt (8 mm)	25 N·m (2.5 kg-m, 18 ft-lb)
(6 mm)	12 N·m (1.2 kg-m, 9 ft-lb)

ENGINE REMOVAL

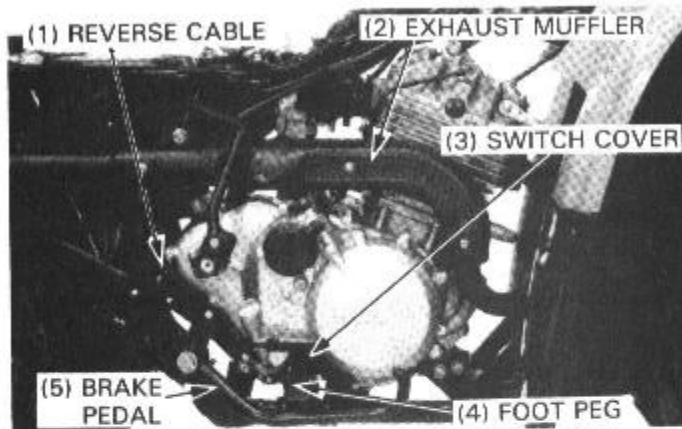
Drain the engine oil (page 2-3).

Drain the front gear case oil (page 2-5). (TRX300FW)

Disconnect the battery negative cable from the battery (page 18-4).

Remove the following:

- fuel tank (page 4-3).
- exhaust muffler (page 16-8).
- right foot peg.
- neutral/reverse switch cover and connectors.
- reverse cable.
- brake pedal (page 12-29).

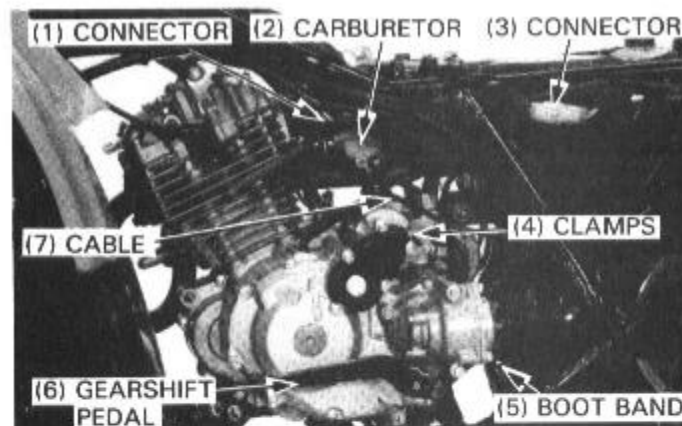


TRX300FW

- front drive side shaft cover and shaft (page 14-25).
- front gear case (page 14-25).



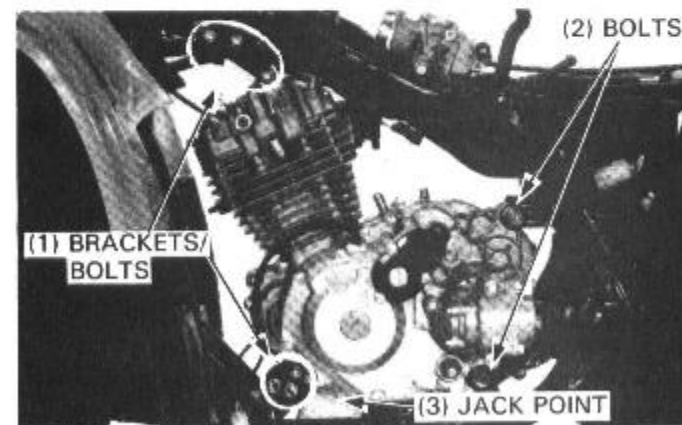
- carburetor (The throttle and choke cables do not have to be removed).
- gearshift pedal.
- spark plug wire.
- swing arm boot band (loosen).
- breather tube clamps.
- crankcase breather tube.
- starter motor cable.
- alternator and pulse generator connectors.



Support the engine with a floor jack or other adjustable support at the position shown.

- engine mounting bolts (front and upper).
- engine bracket bolts and brackets (front and upper).
- engine mounting bolts (rear/upper and rear/lower).

Remove the engine from the right side while disconnecting the drive shaft universal joint from the engine.



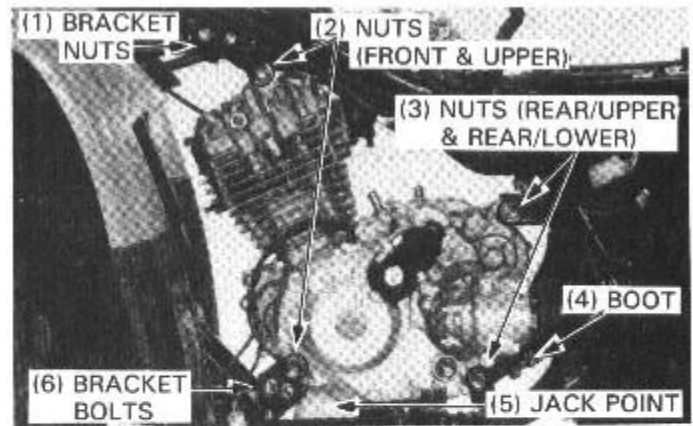
ENGINE INSTALLATION

Apply molybdenum disulfide grease to the drive shaft splines. Install the engine from the right side while connecting the drive shaft universal joint into the output shaft. Support the engine with a floor jack or other adjustable support at the position shown.

Install the following:

- engine brackets and engine bracket bolts (upper: from the right side).
- engine mounting bolts from the right side.

Tighten all bolts to the specified torques.



TORQUE:

Engine bracket bolt (front):

'88—'92: 55 N·m (5.5 kg-m, 40 ft-lb)

After '92: 75 N·m (7.5 kg-m, 54 ft-lb)

Engine bracket nut (upper):

'88—'92: 55 N·m (5.5 kg-m, 40 ft-lb)

After '92: 75 N·m (7.5 kg-m, 54 ft-lb)

Engine mounting nut (front and upper):

'88—'92: 55 N·m (5.5 kg-m, 40 ft-lb)

After '92: 75 N·m (7.5 kg-m, 54 ft-lb)

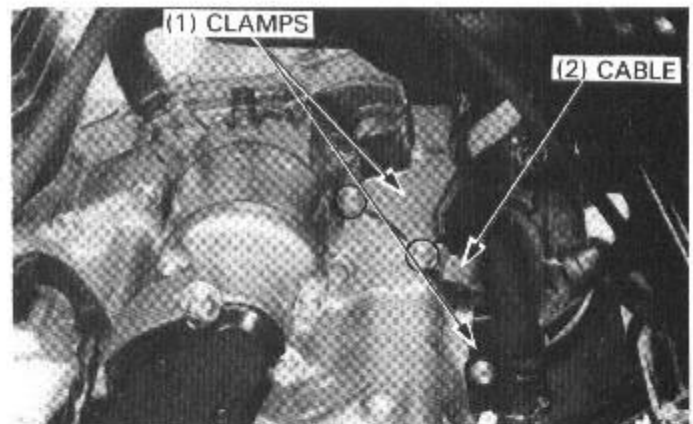
Engine mounting nut (rear/upper and rear/lower):

'88—'92: 75 N·m (7.5 kg-m, 54 ft-lb)

After '92: 75 N·m (7.5 kg-m, 54 ft-lb)

- breather tube clamps with the battery ground cable.

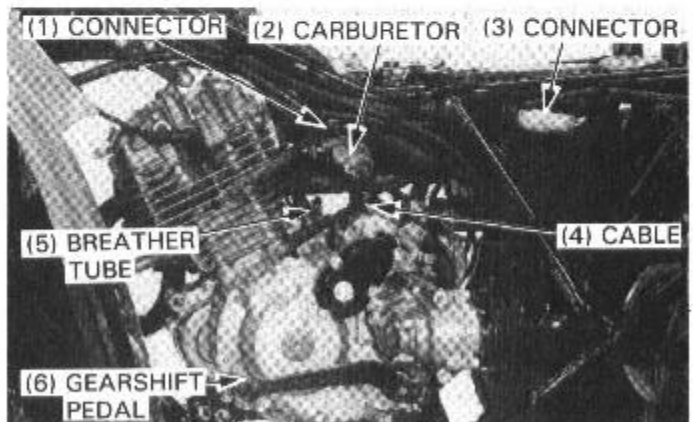
TORQUE: 10 N·m (1.0 kg-m, 7 ft-lb)



- carburetor (page 4-13).
- gearshift pedal.

TORQUE: 16 N·m (1.6 kg-m, 12 ft-lb)

- spark plug wire.
- crankcase breather tube.
- starter motor cable.
- alternator and pulse generator connectors.



- brake pedal (page 12-30).
- right foot peg.

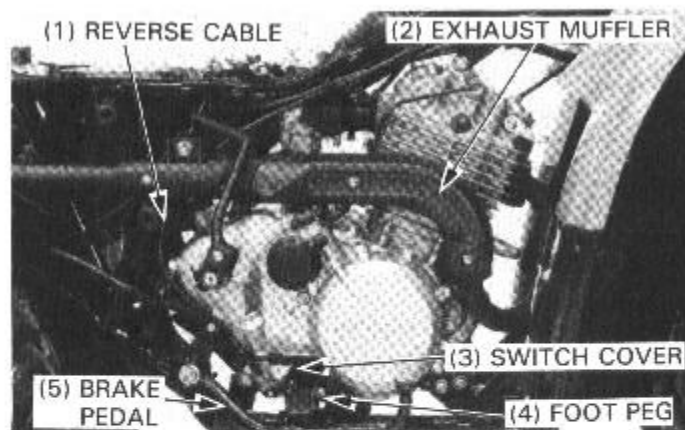
TORQUE: 33 N·m (3.3 kg-m, 24 ft-lb)

- neutral/reverse switch cover and connectors.
- reverse cable.
- exhaust muffler (page 16-8).

TORQUE:

Exhaust muffler mounting bolt 55 N·m (5.5 kg-m, 40 ft-lb)

- fuel tank (page 4-3).



TRX300FW

- front gear case (page 14-25).
- front drive side shaft and cover (page 14-25).

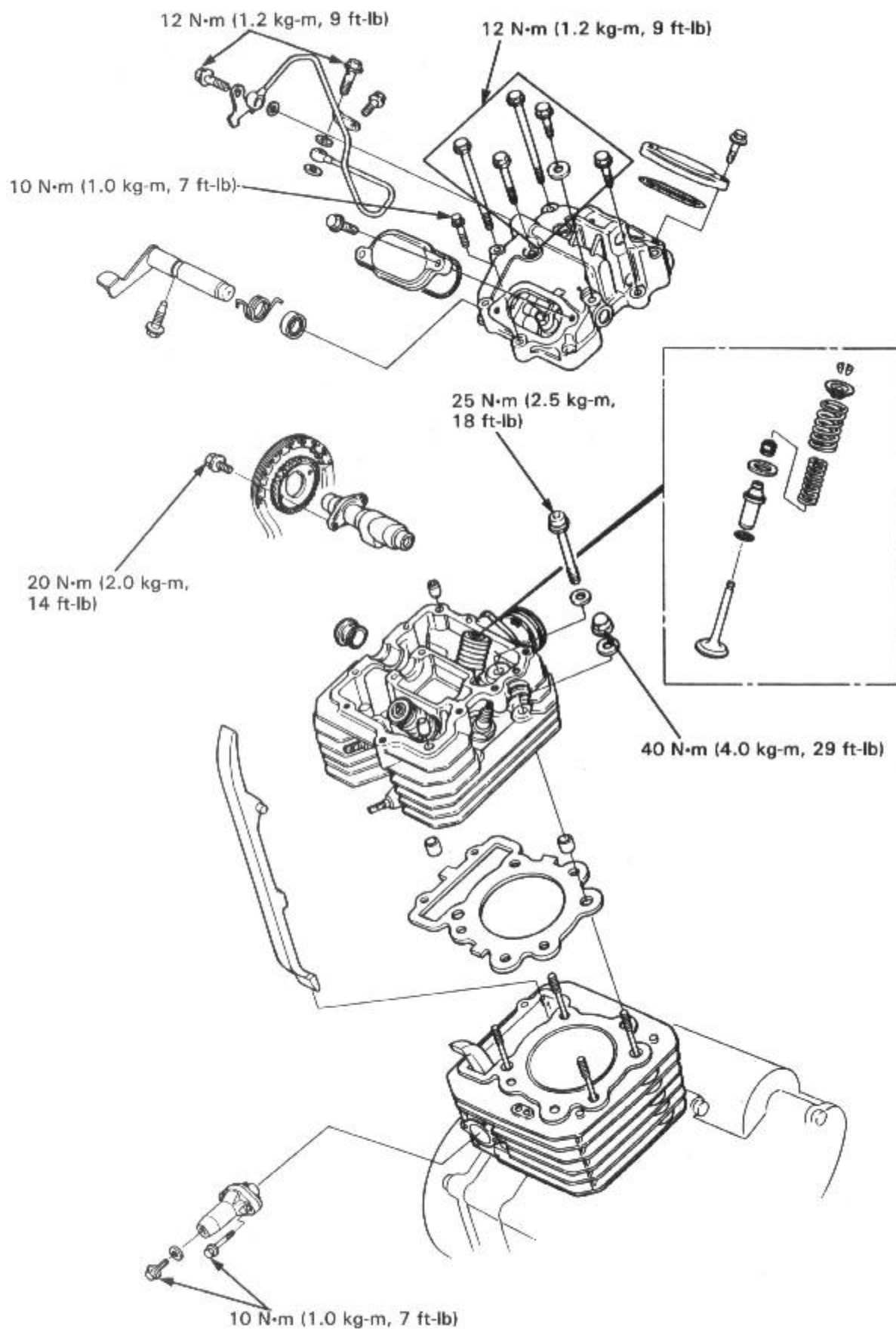


NOTE

- Route the wires and cables properly (page 1-12).
- Fill the crankcase to the proper level with the recommended oil (page 2-2).
- Fill the front gear case to the proper level with the recommended oil (page 2-5). (TRX300FW)
- Perform the following inspections and adjustments:
 - throttle operation (page 3-7).
 - reverse selector cable (page 3-14).

WARNING

- *Connect the neutral and reverse switch wires properly. If these wire connections are interchanged, the neutral indicator will come on with the transmission in reverse and the vehicle will reverse unexpectedly.*



SERVICE INFORMATION	6-1	VALVE SEAT INSPECTION/REFACING	6-10
TROUBLESHOOTING	6-2	CYLINDER HEAD ASSEMBLY	6-13
CYLINDER HEAD COVER REMOVAL	6-3	CYLINDER HEAD INSTALLATION	6-14
CAMSHAFT/CAM CHAIN TENSIONER LIFTER REMOVAL	6-5	CAMSHAFT/CAM CHAIN TENSIONER LIFTER INSTALLATION	6-14
CYLINDER HEAD REMOVAL	6-6	CYLINDER HEAD COVER ASSEMBLY/INSTALLATION	6-17
VALVE GUIDE REPLACEMENT	6-9		

SERVICE INFORMATION

GENERAL

- This section covers cylinder head, valves, camshaft, rocker arm and cam chain tensioner lifter service. These services can be performed with the engine installed in the frame.
- Camshaft lubrication oil is fed to the cylinder head through an oil path pipe. Be sure this pipe is not clogged before installation.
- Before assembly, apply molybdenum disulfide grease to the camshaft journal bearings and rocker arm shafts to provide initial lubrication.
- Pour clean engine oil into the oil pockets in the cylinder head during assembly to lubricate the camshaft lobes.

SPECIFICATIONS

Unit: mm (in)

ITEM				STANDARD	SERVICE LIMIT
Cylinder compression				1,250—1,450 kPa (12.5—14.5 kg/cm ² , 178—206 psi)	—
Camshaft	Cam lobe height	IN	'88—'90:	36.133—36.143 (1.4226—1.4229)	35.963 (1.4159)
			After '90:	35.309—35.469 (1.3901—1.3964)	35.139 (1.3834)
		EX	'88—'90:	36.003—36.013 (1.4174—1.4178)	35.833 (1.4107)
			After '90:	35.176—35.336 (1.3849—1.3912)	35.006 (1.3782)
	Journal O.D.	R	23.954—23.975 (0.9431—0.9439)	23.90 (0.941)	
		C	23.934—23.955 (0.9423—0.9431)	23.88 (0.940)	
		L	19.954—19.975 (0.7856—0.7864)	19.90 (0.783)	
	Bearing I.D.	R	24.000—24.021 (0.9449—0.9457)	24.05 (0.947)	
		C	24.000—24.021 (0.9449—0.9457)	24.05 (0.947)	
		L	20.000—20.021 (0.7874—0.7882)	20.05 (0.789)	
	Oil clearance	R	0.025—0.067 (0.0010—0.0026)	0.10 (0.004)	
		C	0.045—0.087 (0.0018—0.0034)	0.12 (0.005)	
		L	0.025—0.067 (0.0010—0.0026)	0.10 (0.004)	
Cylinder head warpage				—	0.10 (0.004)
Rocker arm	I.D.		12.000—12.018 (0.4724—0.4731)	12.05 (0.474)	
	Shaft O.D.		11.966—11.984 (0.4711—0.4718)	11.92 (0.469)	
	Arm-to-shaft clearance		0.016—0.052 (0.0006—0.0020)	0.08 (0.003)	
Valve spring	Free length	Inner	38.31 (1.508)	35.3 (1.39)	
		Outer	46.83 (1.844)	43.8 (1.72)	
	Preload	Inner	8.72 ± 0.8 kg/31.6 mm (19.224 ± 1.76 lb/1.24 in)	—	
		Outer	19.59 ± 1.5 kg/35.1 mm (43.188 ± 3.31 lb/1.38 in)	—	

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Valve, valve guide	Stem O.D.	IN	5.475—5.490 (0.2156—0.2161)	5.45 (0.215)
		EX	5.455—5.470 (0.2148—0.2154)	5.43 (0.214)
	Guide I.D.	IN	5.500—5.512 (0.2165—0.2170)	5.525 (0.2177)
		EX	5.500—5.512 (0.2165—0.2170)	5.525 (0.2177)
	Stem-to-guide clearance	IN	0.010—0.037 (0.0004—0.0015)	0.12 (0.005)
		EX	0.030—0.057 (0.0012—0.0022)	0.14 (0.006)
Valve seat width			1.2 (0.05)	1.5 (0.06)

TORQUE VALUES

Cylinder head cover (6 mm SH bolt)	10 N·m (1.0 kg-m, 7 ft-lb)
(6 mm flange bolt)	12 N·m (1.2 kg-m, 9 ft-lb)
Cylinder head (cap nut)	40 N·m (4.0 kg-m, 29 ft-lb)
(socket bolt)	25 N·m (2.5 kg-m, 18 ft-lb)
Cam sprocket bolt	20 N·m (2.0 kg-m, 14 ft-lb)
Cam chain tensioner lifter (mounting bolt)	10 N·m (1.0 kg-m, 7 ft-lb)
(sealing bolt)	10 N·m (1.0 kg-m, 7 ft-lb)
Oil path pipe bolt	12 N·m (1.2 kg-m, 9 ft-lb)
Carburetor insulator band screw	4 N·m (0.4 kg-m, 2.9 ft-lb)

TOOLS

Special

Dowel pin puller shaft	07936—MA70100
Remover weight	07741—0010201 or 07936—3710200 (U.S.A. only)
Valve guide reamer, 5.510 mm	07984—2000001 or 07984—200000C (U.S.A. only)

Common

Valve guide remover, 5.5 mm	07742—0010100
Valve spring compressor	07757—0010000
Valve seat cutters—these are commercially available in U.S.A.	

TROUBLESHOOTING

Engine top-end problems usually affect engine performance. These problems can be diagnosed by a compression test or by tracing engine noises to the top-end with a sounding rod stethoscope.

Low compression

- Valves:
 - Incorrect valve adjustment
 - Burned or bent valve
 - Incorrect valve timing
 - Weak valve spring
- Cylinder head:
 - Leaking or damaged head gasket
 - Warped or cracked cylinder head
- Cylinder and piston (Section 7)

High compression

- Excessive carbon build-up on piston crown or on combustion chamber

Excessive noise

- Incorrect valve adjustment
- Sticking valve or broken valve spring
- Damaged or worn rocker arm or camshaft
- Worn or damaged cam chain
- Worn or damaged cam chain tensioner
- Worn cam sprocket teeth

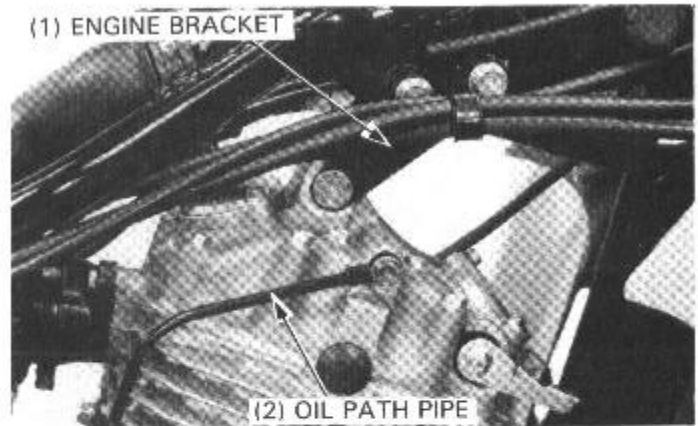
Poor idling

- Compression too low

CYLINDER HEAD COVER REMOVAL

Remove the following:

- fuel tank (page 4-3).
- oil path pipe (page 8-3).
- upper engine brackets (page 5-3).



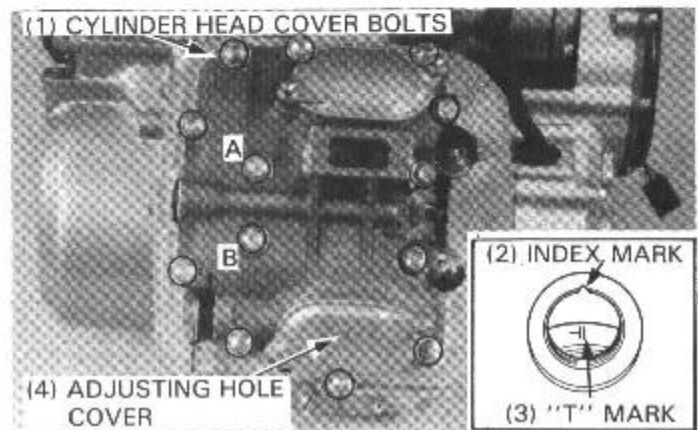
Remove the valve adjusting hole covers.

Align the "T" mark on the flywheel with the index mark on the left crankcase cover by turning the crankshaft clockwise (TRX300FW: Turn the starter reduction shaft counterclockwise). Make sure the piston is at TDC on the compression stroke (page 3-12).

Loosen the cylinder head cover bolts in 2 or 3 steps in a criss-cross pattern and remove the cylinder head cover.

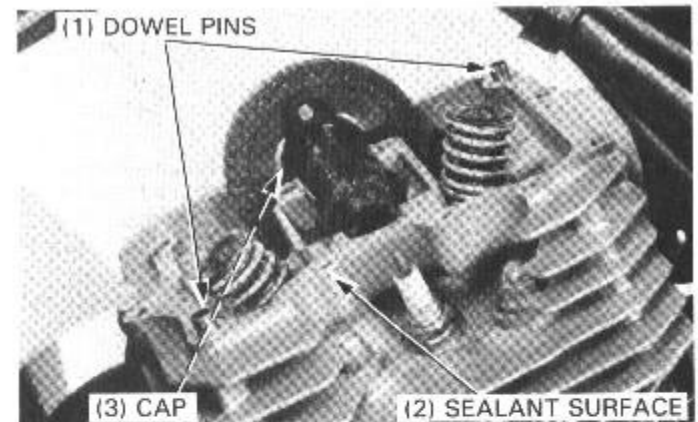
NOTE

- Remove the cylinder head cover bolts A and B together with the cylinder head cover.



Remove the dowel pins and the camshaft side cap.

Clean off any sealant material from the head cover and cylinder head.



DISASSEMBLY

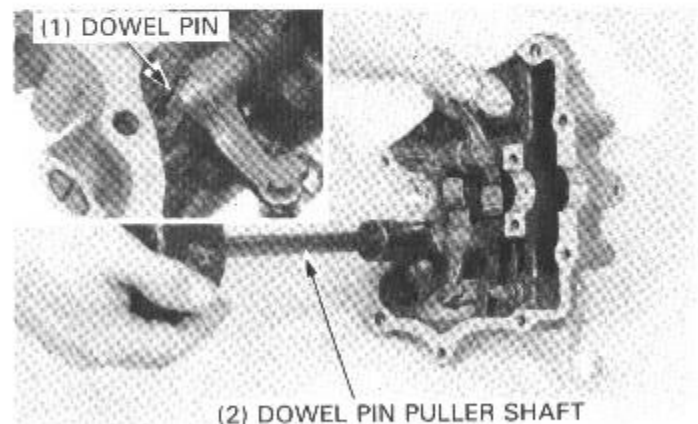
Remove the dowel pins with the special tools.

TOOLS:

Dowel pin puller shaft

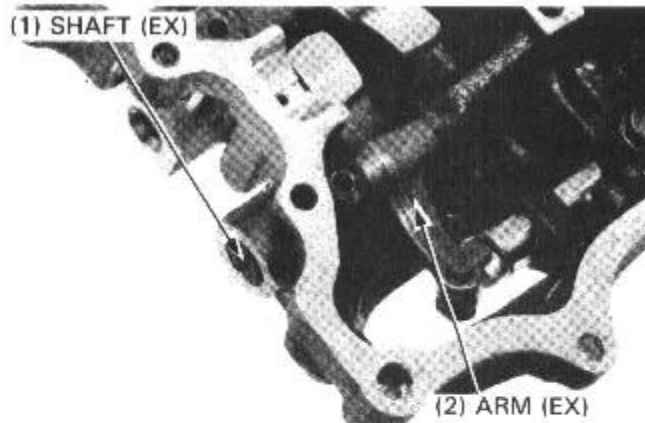
Remover weight

07936—MA70100
(Not available in U.S.A.)
07741—0010201 or
07936—3710200
(U.S.A. only)

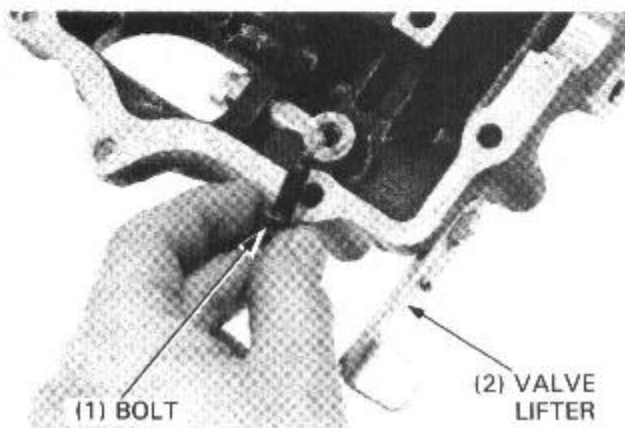


CYLINDER HEAD/VALVES

Remove the rocker arm shafts and rocker arms (IN/EX) from the cylinder head cover.



Remove the bolt and valve lifter.



INSPECTION

Inspect the rocker arm slipper surfaces for excessive wear. Check the O-rings of the rocker arm shafts for damage or fatigue.

Inspect the rocker arms and shafts for wear or damage.

NOTE

- If the rocker arms require servicing or replacement, inspect the cam lobes for scoring, chipping or flat spots.

Measure the I.D. of each rocker arm.

SERVICE LIMIT: 12.05 mm (0.474 in)

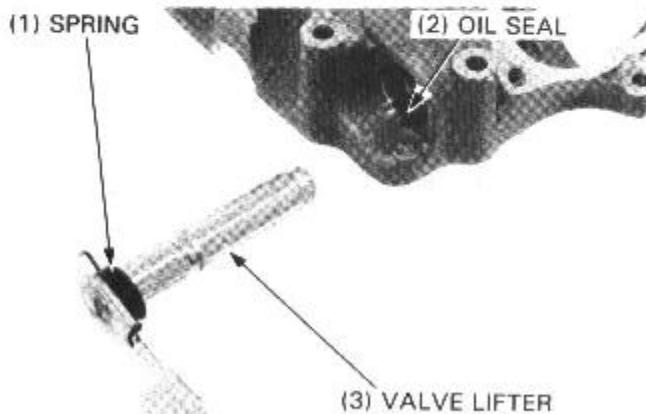
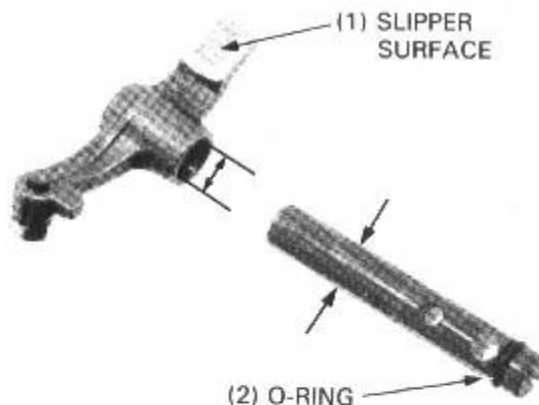
Measure the O.D. of each rocker arm shaft.

SERVICE LIMIT: 11.92 mm (0.469 in)

Calculate the rocker arm-to-shaft clearance.

SERVICE LIMIT: 0.08 mm (0.003 in)

Inspect the valve lifter, spring and oil seal for wear or damage.



CAMSHAFT/CAM CHAIN TENSIONER LIFTER REMOVAL

REMOVAL

Remove the cam chain tensioner lifter by removing the two mounting bolts.

NOTE

- Temporarily loosen the sealing bolt to ease removal.

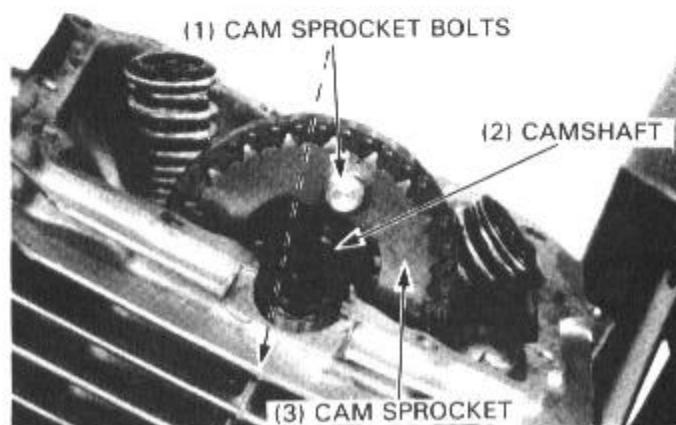
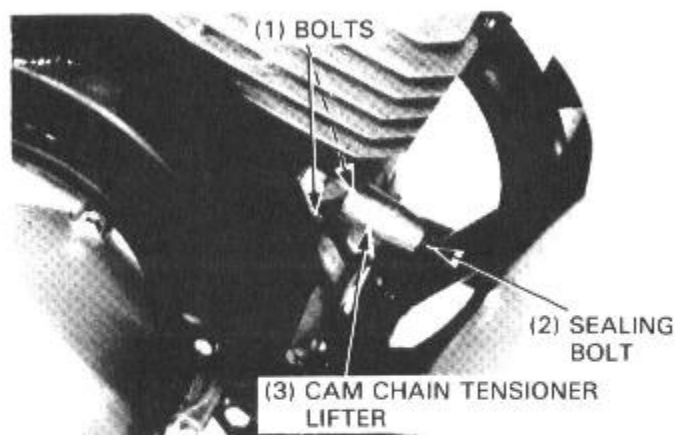
Remove one cam sprocket bolt.

Turn the crankshaft clockwise (TRX300FW: Turn the starter reduction shaft counterclockwise) and remove another cam sprocket bolt.

NOTE

- Do not let the bolts fall into the crankcase.

Remove the camshaft and cam sprocket, and suspend the cam chain with a piece of wire to prevent it from falling into the crankcase.



INSPECTION

Using a micrometer, measure the height of each cam lobe and inspect it for wear or damage.

SERVICE LIMITS:

'88—'90:

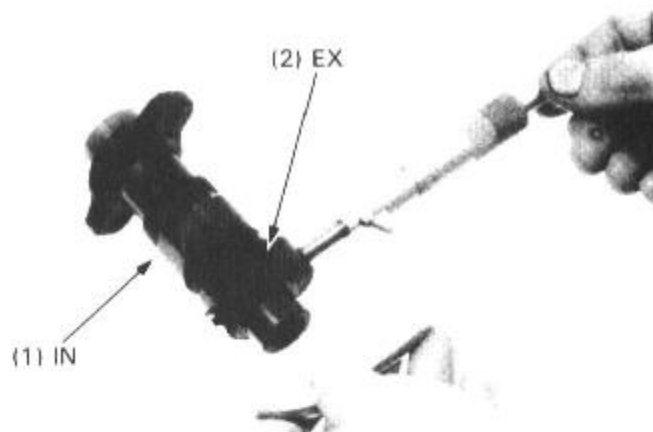
IN: 35.963 mm (1.4159 in)

EX: 35.833 mm (1.4107 in)

After '90:

IN: 35.139 mm (1.3834 in)

EX: 35.006 mm (1.3782 in)



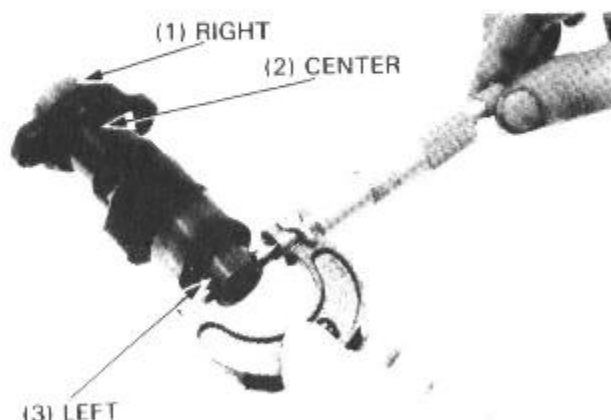
Measure the camshaft journal O.D.

SERVICE LIMITS:

Left: 19.90 mm (0.783 in)

Right: 23.90 mm (0.941 in)

Center: 23.88 mm (0.940 in)



CYLINDER HEAD/VALVES

Install the cylinder head cover and tighten the head cover bolts in 2 or 3 steps in a criss-cross pattern.

TORQUES:

6 mm SH bolt: 10 N·m (1.0 kg-m, 7 ft-lb)

6 mm flange bolt: 12 N·m (1.2 kg-m, 9 ft-lb)

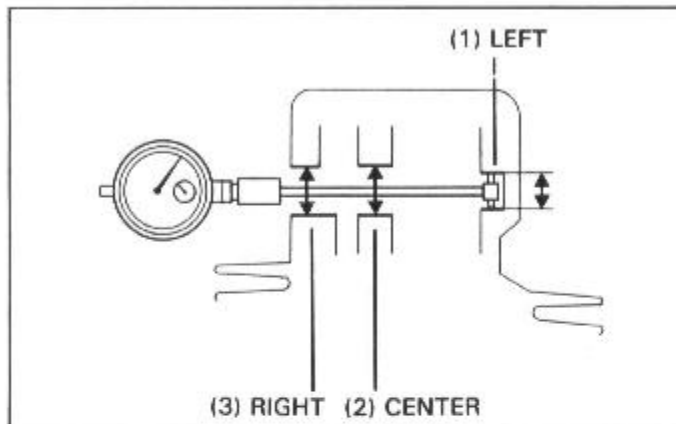
Measure the camshaft journal bearing I.D. as shown position.

SERVICE LIMITS:

Left: 20.05 mm (0.789 in)

Right: 24.05 mm (0.947 in)

Center: 24.05 mm (0.947 in)



Calculate the camshaft-to-bearing clearance.

SERVICE LIMITS:

Left: 0.10 mm (0.004 in)

Right: 0.10 mm (0.004 in)

Center: 0.12 mm (0.005 in)

Remove the cam chain tensioner lifter sealing bolt.

Discard the gasket.

Check the lifter operation:

- the tensioner shaft should not go into the body unless it is pushed.
- when it is turned clockwise with a screwdriver, the tensioner shaft should be pulled into the body. The shaft should spring out of the body as soon as the screwdriver is released.



CYLINDER HEAD REMOVAL

REMOVAL

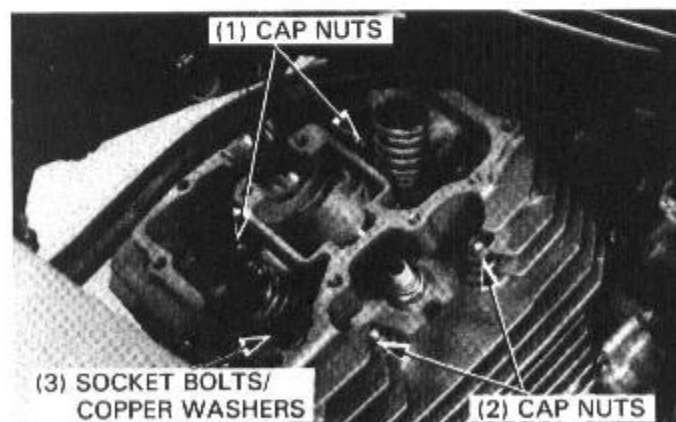
Remove the following:

- exhaust muffler (page 16-7).
- cylinder head cover (page 6-3).
- camshaft/cam chain tensioner lifter (page 6-5).

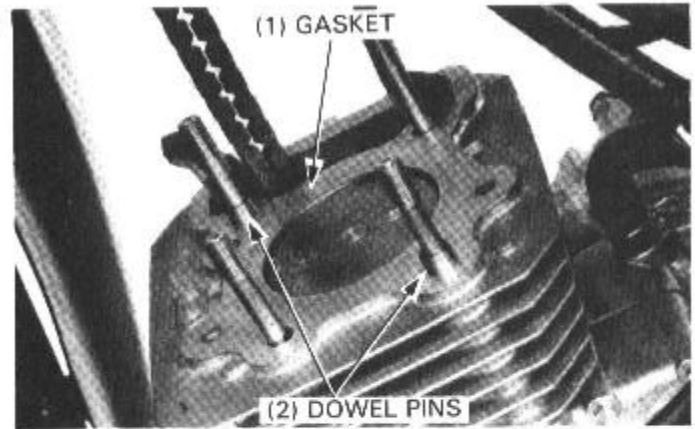
Loosen the carburetor insulator band.

Remove the cylinder head socket bolts/copper washers and cap nuts in 2 or 3 steps in a criss-cross pattern.

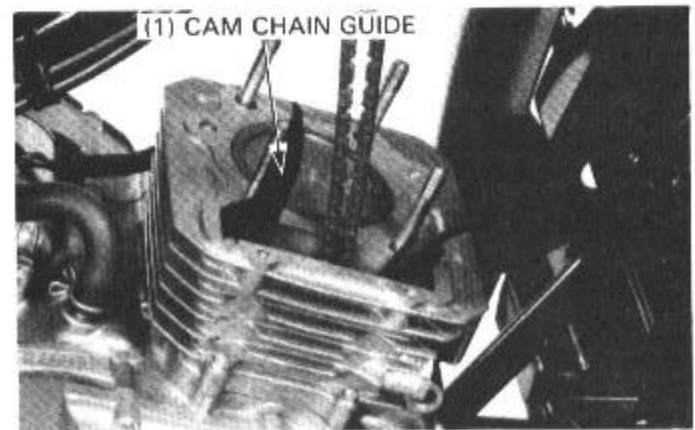
Remove the cylinder head.



Remove the cylinder head gasket and dowel pins.

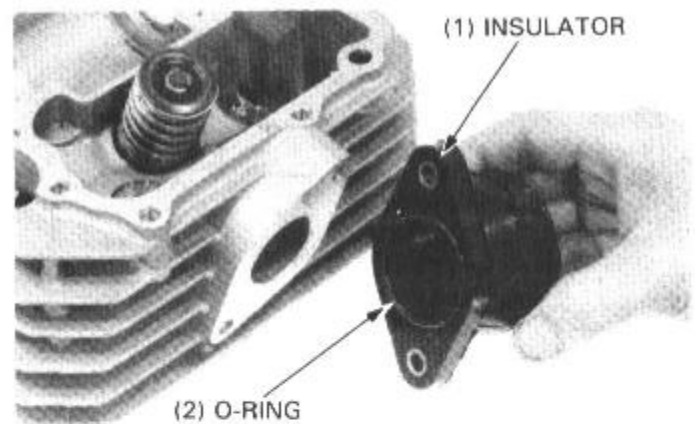


Remove the cam chain guide.



DISASSEMBLY

Remove the carburetor insulator and O-ring from the cylinder head.



Remove the valve spring cotters, retainers, springs and valves with the valve spring compressor.

TOOL:

Valve spring compressor 07757-0010000

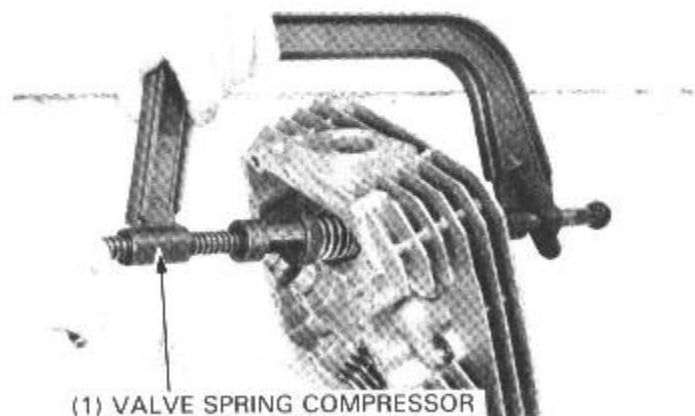
CAUTION

- To prevent loss of tension, do not compress the valve springs more than necessary to remove the cotters.

NOTE

- Mark all parts during disassembly so they can be placed back in their original locations.

Remove the valve stem seals and valve spring seats.

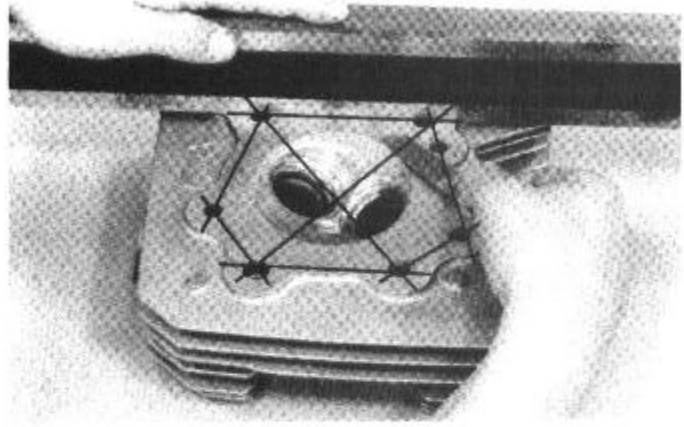


INSPECTION

• CYLINDER HEAD

Remove carbon deposits from the combustion chamber. Check the spark plug hole and valve areas for cracks. Check the cylinder head for warpage with a straight edge and feeler gauge.

SERVICE LIMIT: 0.10 mm (0.004 in)



Check the cam chain guide for excessive wear or damage.



(1) CAM CHAIN GUIDE

• VALVE SPRING FREE LENGTH

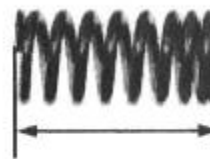
Measure the free length of the inner and outer valve springs.

SERVICE LIMITS:

Inner: 35.3 mm (1.39 in)

Outer: 43.8 mm (1.72 in)

Replace the springs if they are shorter than the service limits.



• VALVE STEM-TO-GUIDE CLEARANCE

Inspect each valve for bending, burning or abnormal stem wear.

Check valve movement in the guide, measure and record each valve stem O.D.

SERVICE LIMITS:

IN: 5.45 mm (0.215 in)

EX: 5.43 mm (0.214 in)



NOTE

- Ream the guides to remove any carbon deposits before checking clearances.
- Insert the reamer from the top of the head and also always rotate the reamer in the same direction.

TOOL:

Valve guide reamer, 5.510 mm 07984-2000001 or
07984-200000C
(U.S.A. only)

Measure and record each valve guide I.D.

SERVICE LIMIT (IN/EX): 5.525 mm (0.2177 in)

Subtract each valve stem O.D. from the corresponding guide I.D. to obtain the stem-to-guide clearance.

SERVICE LIMITS:

IN: 0.12 mm (0.005 in)

EX: 0.14 mm (0.006 in)

If the stem-to-guide clearance exceeds the service limits, determine if a new guide with standard dimensions would bring the clearance within tolerance. If so, replace any guides as necessary and ream to fit.

If the stem-to-guide clearance exceeds the service limits with new guides also, replace the valves and guides.

NOTE

- Reface the valve seats whenever the valve guides are replaced (page 6-10).

VALVE GUIDE REPLACEMENT

Chill the replacement valve guides in the freezer section of a refrigerator for about an hour.

Heat the cylinder head to 100–150°C (212–300°F) with a hot plate or oven.

WARNING

- *To avoid burns, wear heavy gloves when handling the heated cylinder head.*

CAUTION

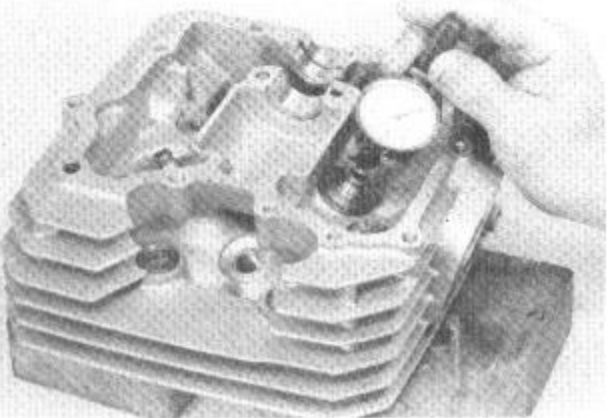
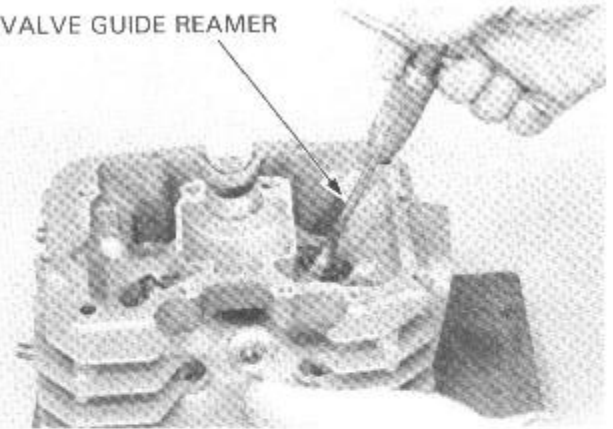
- *Do not use a torch to heat the cylinder head; it may cause warping.*

Support the cylinder head and drive out the old guides from the combustion chamber side of the cylinder head.

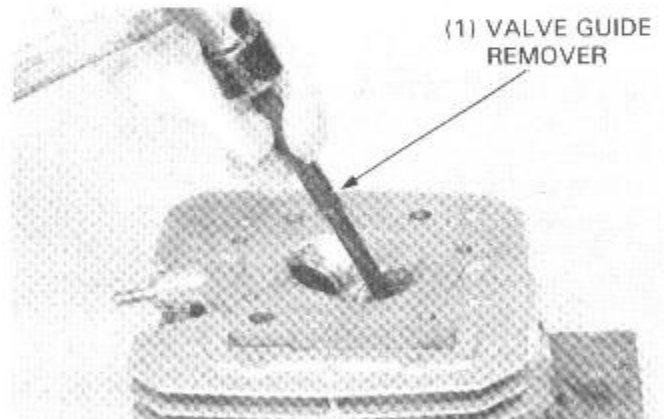
TOOL:

Valve guide remover, 5.5 mm 07742-0010100

(1) VALVE GUIDE REAMER



(1) VALVE GUIDE REMOVER

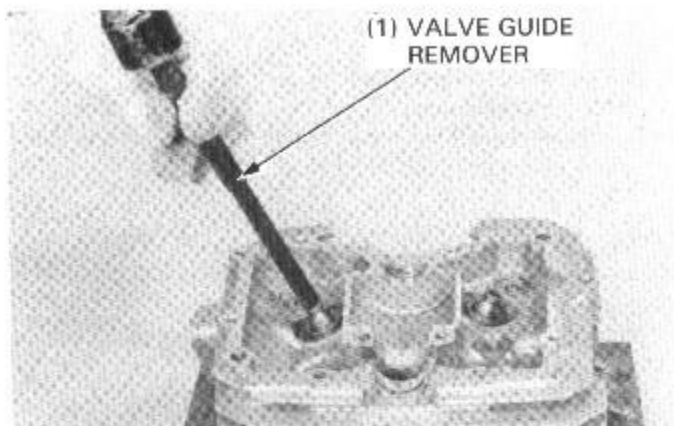


CYLINDER HEAD/VALVES

Place a new O-ring on the new valve guide. Drive in the guide from the top of the head.

TOOL:

Valve guide remover, 5.5 mm 07742-0010100

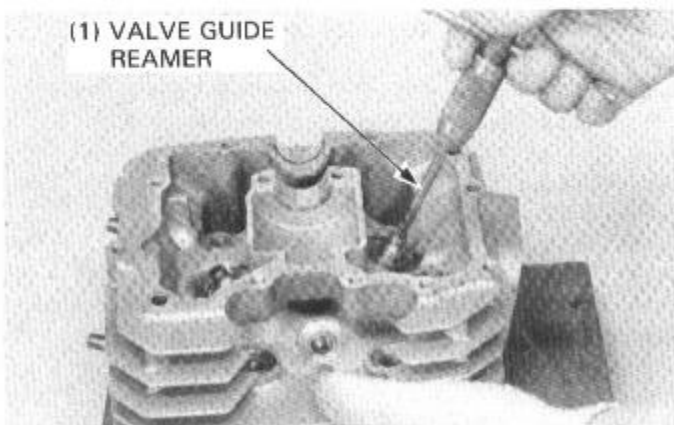


Inspect the valve guide for damage.

Ream the new valve guide after installation.

TOOL:

Valve guide reamer, 5.510 mm 07984-2000001 or
07984-200000C
(U.S.A. only)



NOTE

- Insert the reamer from the top of the head and also always rotate the reamer in the same direction.

Clean the cylinder head thoroughly to remove any metal particles.

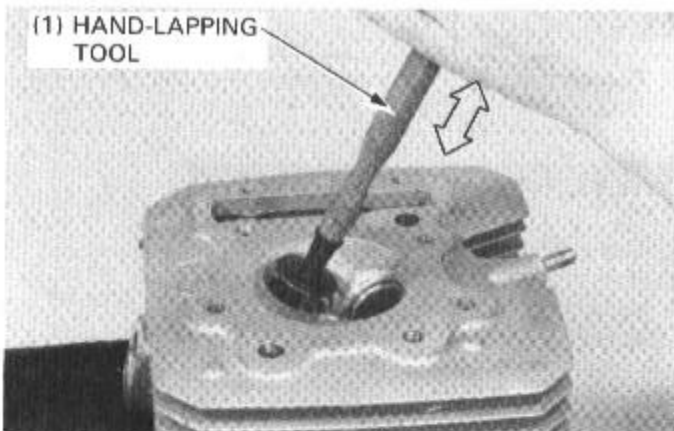
Reface the valve seat (see below).

VALVE SEAT INSPECTION/REFACING

Clean the intake and exhaust valves thoroughly to remove carbon deposits.

Apply a light coating of Prussian Blue to the valve seats. Lap the valves and seats using a rubber hose or other hand-lapping tool.

Remove and inspect the valves.



CAUTION

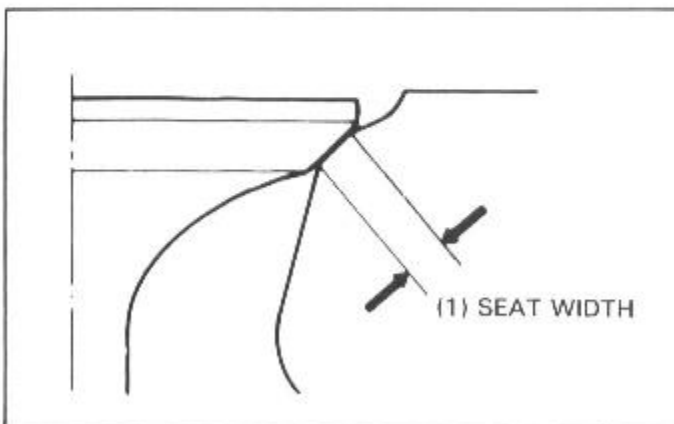
- The valves cannot be ground. If a valve face is burned or badly worn or if it contacts the seat unevenly, replace the valve.

Inspect the width of each valve seat.

STANDARD: 1.2 mm (0.05 in)

SERVICE LIMIT: 1.5 mm (0.06 in)

If the seat is too wide, too narrow or has low spots, the seat must be ground.

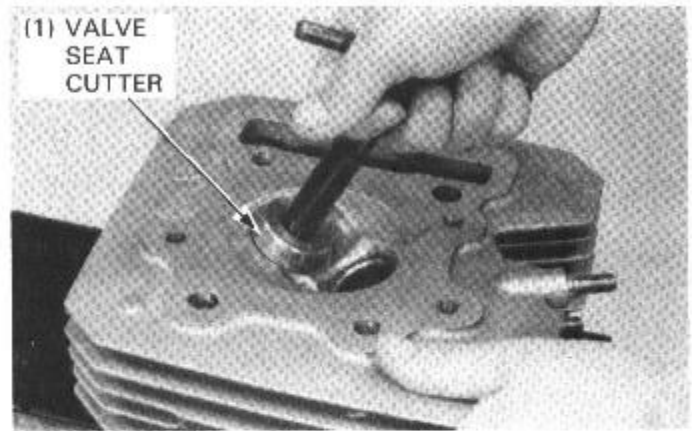


VALVE SEAT CUTTERS

Valve Seat Cutters, a grinder or equivalent valve seat refacing equipment are recommended to correct a worn valve seat.

NOTE

- Follow the refacer manufacturer's operating instructions.

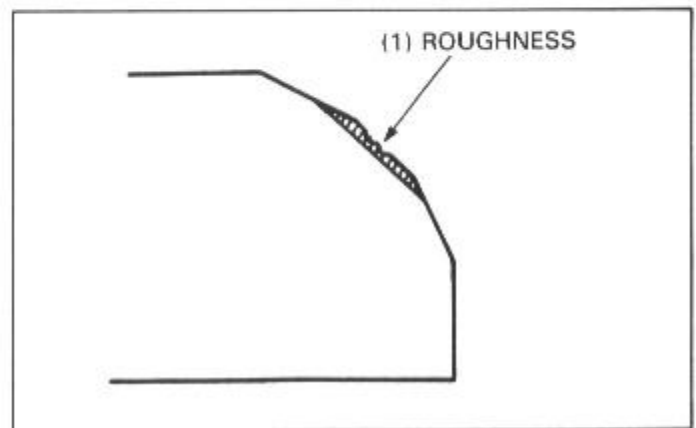


VALVE SEAT REFACING

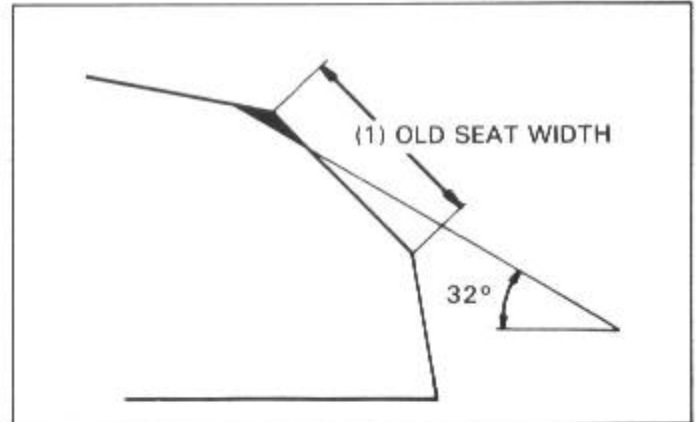
Use a 45 degrees cutter to remove any roughness or irregularities from the seat.

NOTE

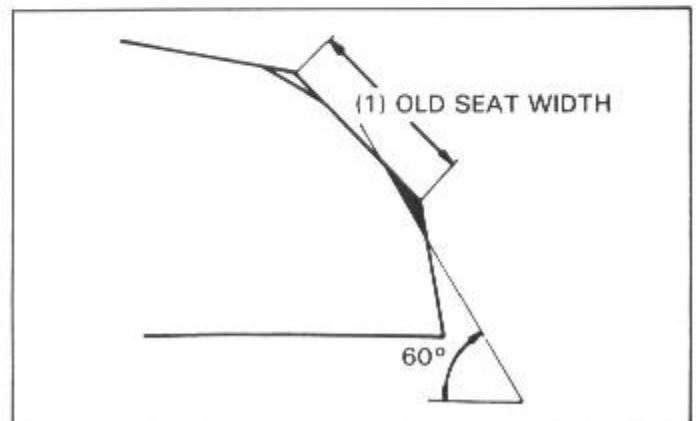
- Reface the seat with a 45 degrees cutter whenever a valve guide is replaced.



Use a 32 degrees cutter to remove the top 1/4 of the existing valve seat material.



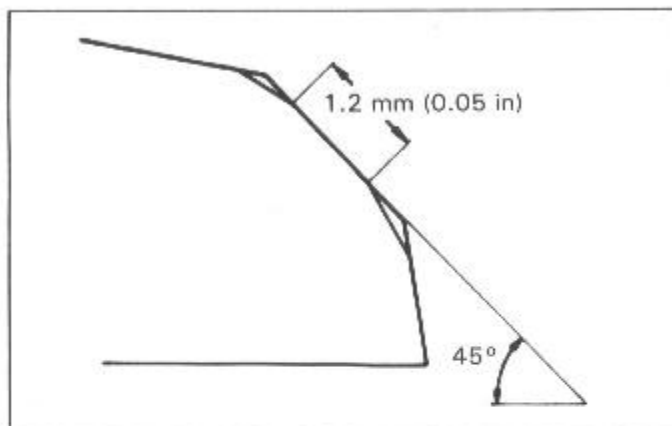
Use a 60 degrees cutter to remove the bottom 1/4 of the old seat. Remove the cutter and inspect the area you have refaced.



CYLINDER HEAD/VALVES

Install a 45 degrees finish cutter and cut the seat to the proper width. Make sure that all pitting and irregularities are removed.

Refinish if necessary.

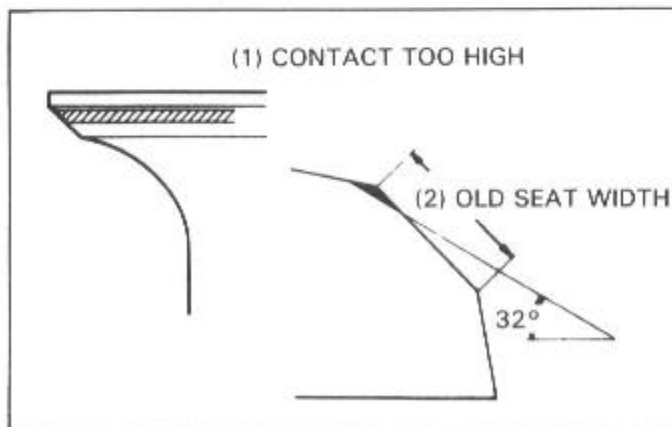


Apply a thin coating of Prussian Blue to the valve seat. Press the valve through the valve guide and onto the seat to make a clear pattern.

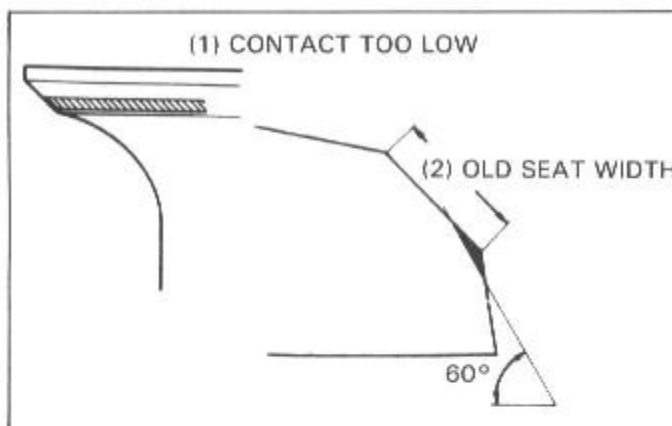
NOTE

- The location of the valve seat in relation to the valve face is very important for good sealing.

If the contact area is too high on the valve, the seat must be lowered using a 32 degrees flat cutter.



If the contact area is too low on the valve, the seat must be raised using a 60 degrees inner cutter.



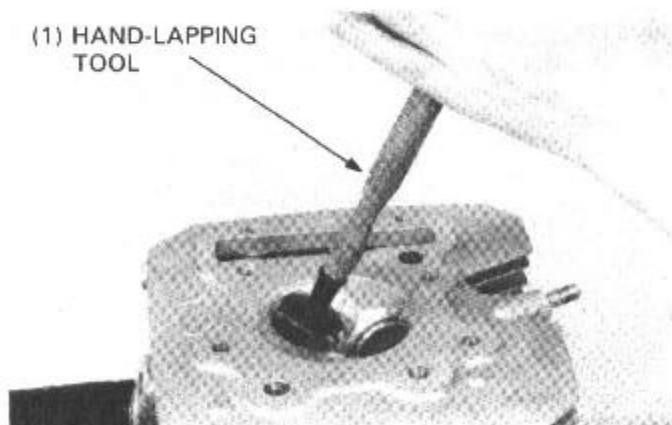
Refinish the seat to specifications, using a 45 degrees finish cutter.

After cutting the seat, apply lapping compound to the valve face, and lap the valve using light pressure.

After lapping, wash all residual compound off the cylinder head and valve.

NOTE

- Do not allow lapping compound to enter the guides.



CYLINDER HEAD ASSEMBLY

Install the valve spring seat and a new stem seal.

Lubricate the valve stems with molybdenum disulfide grease and insert the valve into the valve guide.

To avoid damage to the stem seal, turn the valve slowly when inserting.

Install the valve springs with the tightly wound coils facing the cylinder head.

Install the valve spring retainers and cotters.

TOOL:

Valve spring compressor

07757-0010000

CAUTION

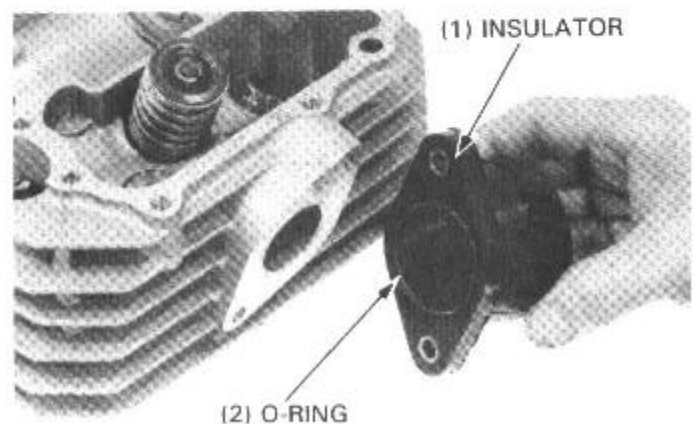
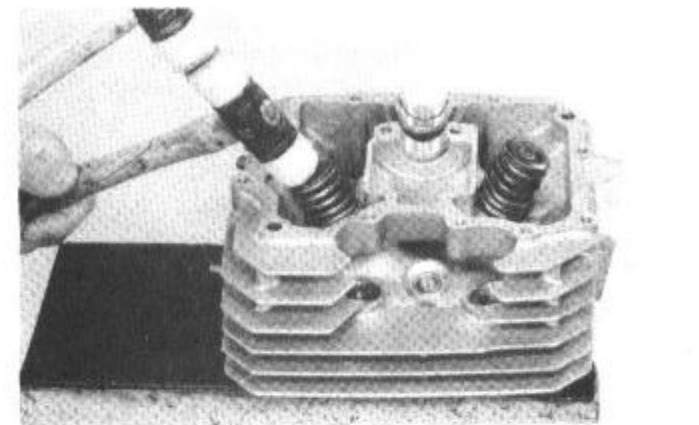
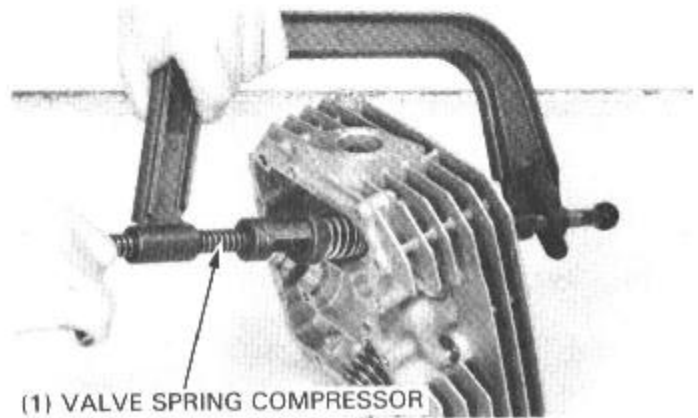
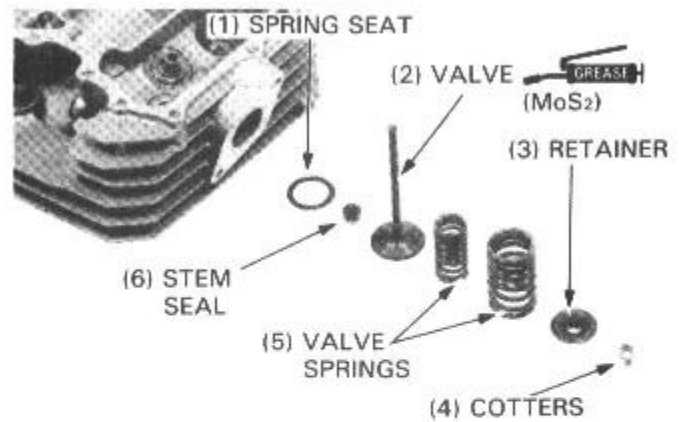
- To prevent loss of tension, do not compress the valve spring more than necessary.

Tap the valve stems gently with a plastic hammer to seat the cotters firmly.

CAUTION

- Support the cylinder head above the work bench surface to prevent possible valve damage.

Install a new O-ring in the carburetor insulator groove and install the insulator with two bolts.

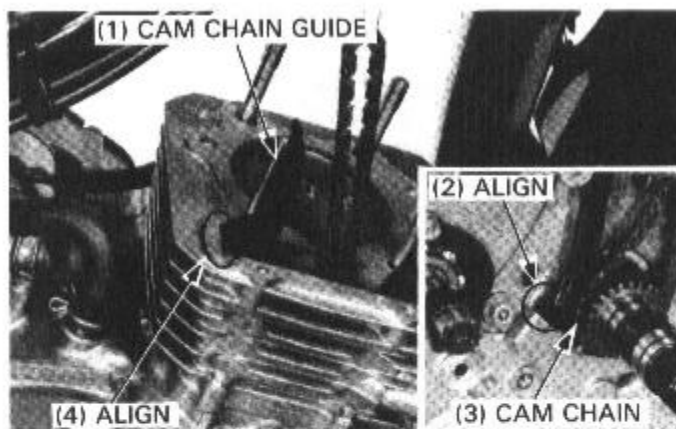


CYLINDER HEAD INSTALLATION

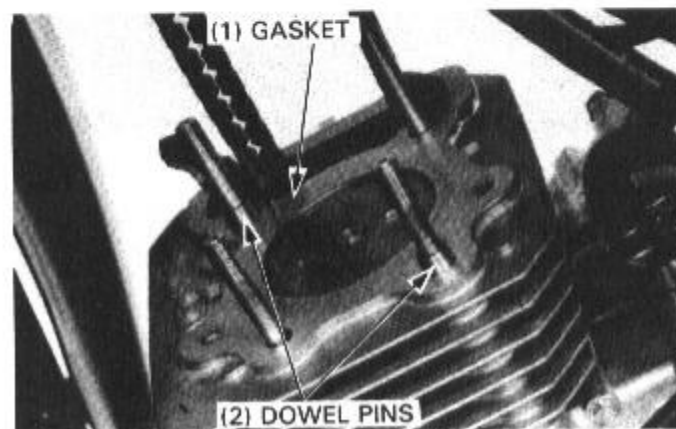
Place the bottom end of the cam chain guide into the groove in the right crankcase, and its bosses in the grooves in the cylinder upper surface.

NOTE

- Make sure that the cam chain is properly installed on the crankshaft drive gear as shown.



Install the dowel pins and a new cylinder head gasket.



Install the cylinder head, and tighten the cylinder head cap nuts (4, 5, 6 and 7) and socket bolts/copper washers (1, 2 and 3) in the sequence shown in 2 or 3 steps.

TORQUES:

Cap nut: 40 N·m (4.0 kg-m, 29 ft-lb)

Socket bolt: 25 N·m (2.5 kg-m, 18 ft-lb)

Tighten the carburetor insulator band screw to specified torque.

TORQUE: 4 N·m (0.4 kg-m, 2.9 ft-lb)

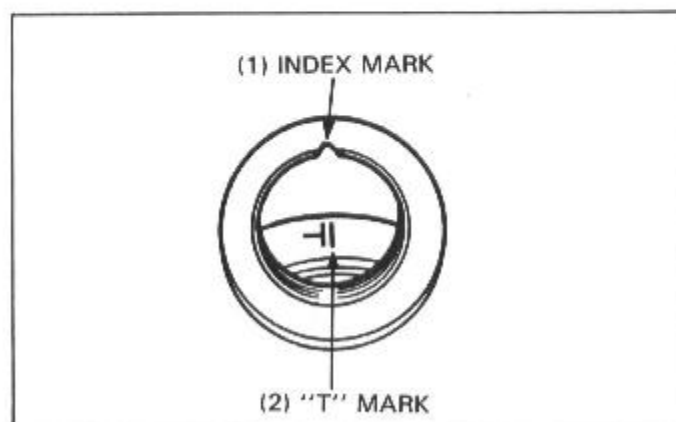
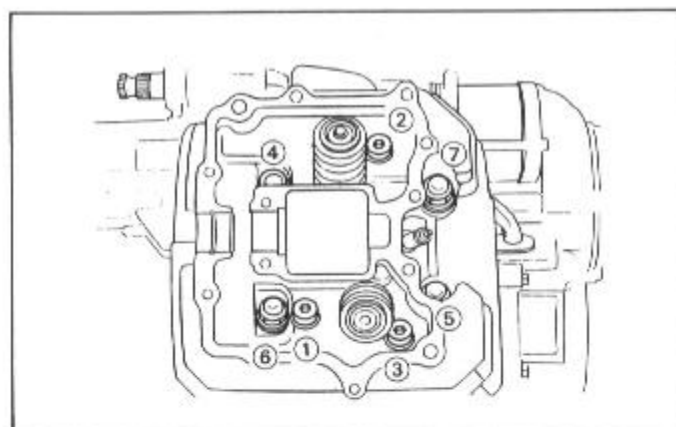
Install the following:

- camshaft/cam chain tensioner lifter.
- cylinder head cover (page 6-19).
- exhaust muffler (page 16-8).

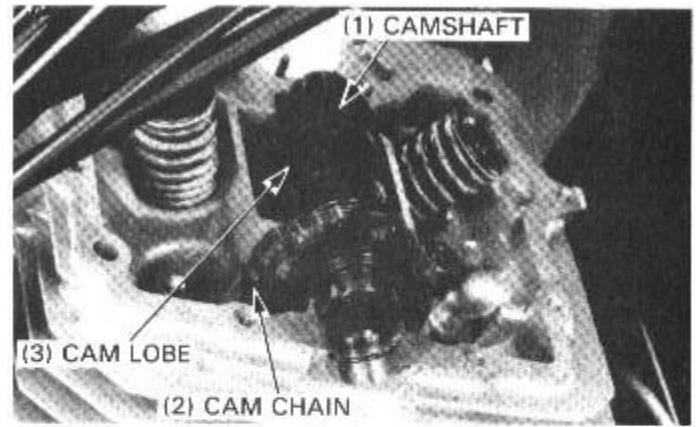
CAMSHAFT/CAM CHAIN TENSIONER LIFTER INSTALLATION

CAMSHAFT INSTALLATION

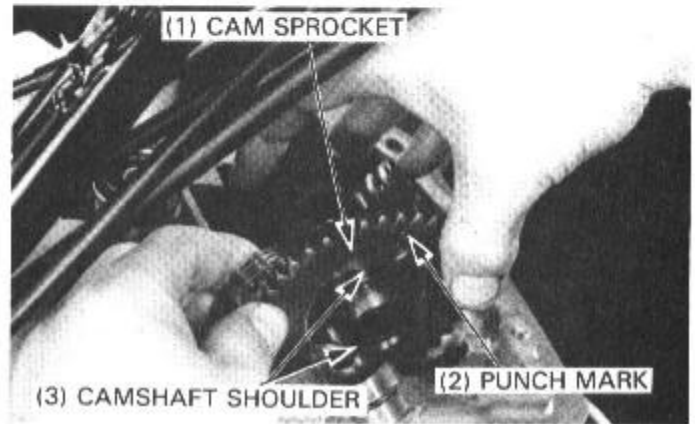
Align the "T" mark on the flywheel with the index mark on the left crankcase cover by turning the crankshaft clockwise (TRX300FW: Turn the starter reduction shaft counterclockwise).



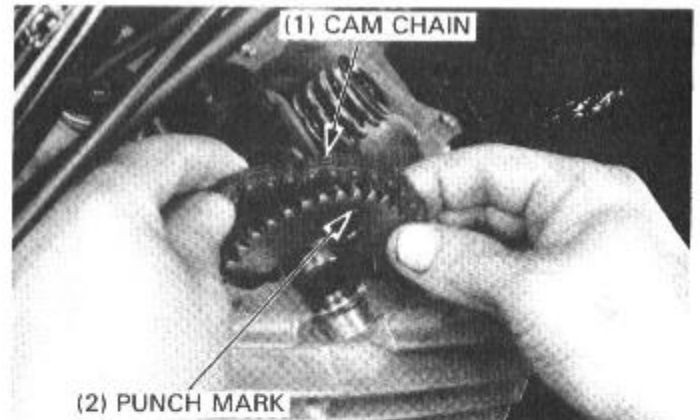
Apply molybdenum disulfide grease to the camshaft journals of the cylinder head.
 Apply oil to the cam lobes.
 Install the camshaft in the cylinder head, positioning the cam lobes down.
 Install the cam chain over the camshaft as shown.



Raise the camshaft and install the cam sprocket onto the shoulder of the camshaft with its punch mark facing to the right, and reset the camshaft in the cylinder head.



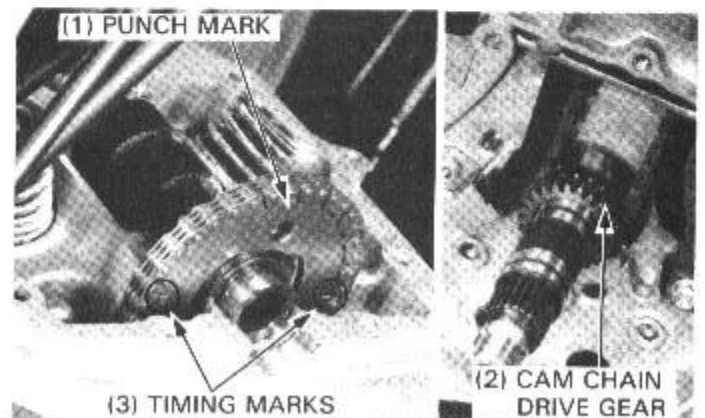
Pull the sprocket slightly forward off the shoulder and install the cam chain while rotating the sprocket until the punch mark is at the top.



Before positioning the sprocket on the camshaft holder, align the timing marks on the cam sprocket with the upper surface of the cylinder head.
 Do not rotate the crankshaft.
 Reinstall the cam sprocket onto the shoulder of the camshaft.

NOTE

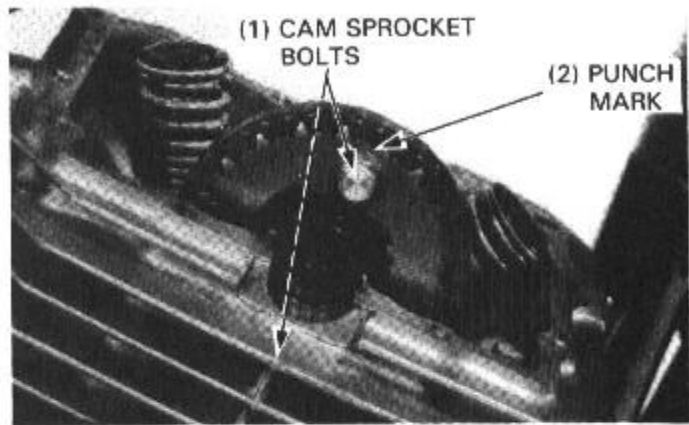
- If it is difficult to reinstall the cam sprocket, make sure the cam chain is set properly on the crankshaft cam chain drive gear.



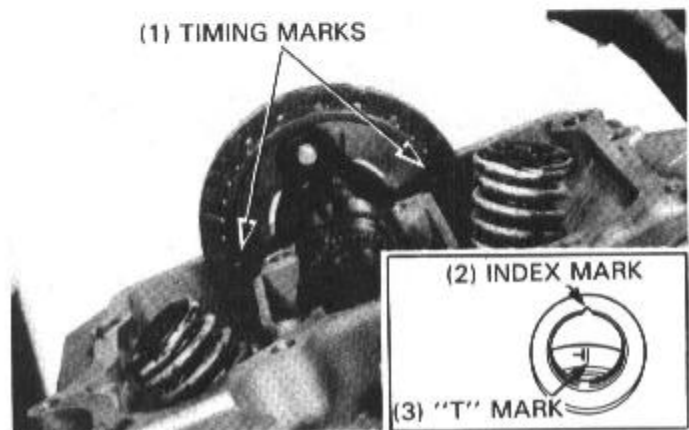
CYLINDER HEAD/VALVES

Apply locking agent to the threads of the cam sprocket bolts. Tighten the cam sprocket bolt on the punch mark side first, then turn the crankshaft and tighten the remaining sprocket bolt to the same torque.

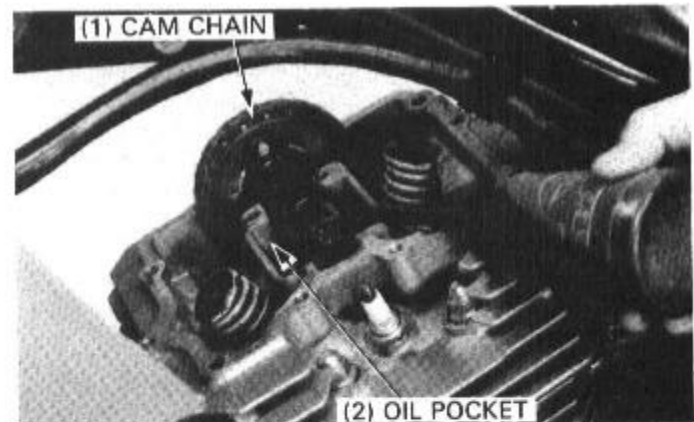
TORQUE: 20 N·m (2.0 kg-m, 14 ft-lb)



Realign the "T" mark with index mark and recheck the cam sprocket timing marks.



Fill the oil pocket in the cylinder head fresh oil. Apply oil to the cam chain.

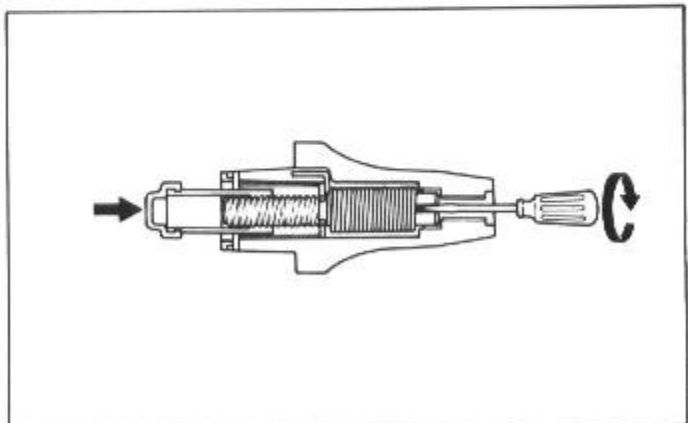


CAM CHAIN TENSIONER LIFTER INSTALLATION

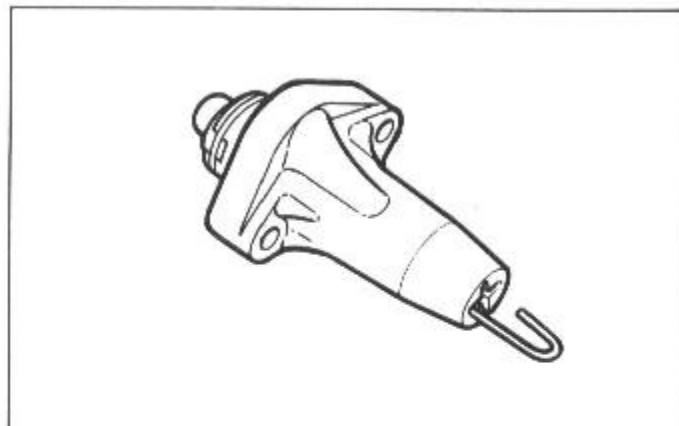
Turn the tensioner shaft clockwise with a small screwdriver to retract the tensioner, and hold it in the fully retracted position.

NOTE

- The tensioner will be forced out by the spring when it is released.



Wedge the tensioner shaft with a piece of hard wire as shown to hold the tensioner.



Install a new gasket on the cam chain tensioner lifter. Install the cam chain tensioner lifter with its groove facing up. Tighten the cam chain tensioner lifter mounting bolts.

TORQUE: 10 N·m (1.0 kg-m, 7 ft-lb)

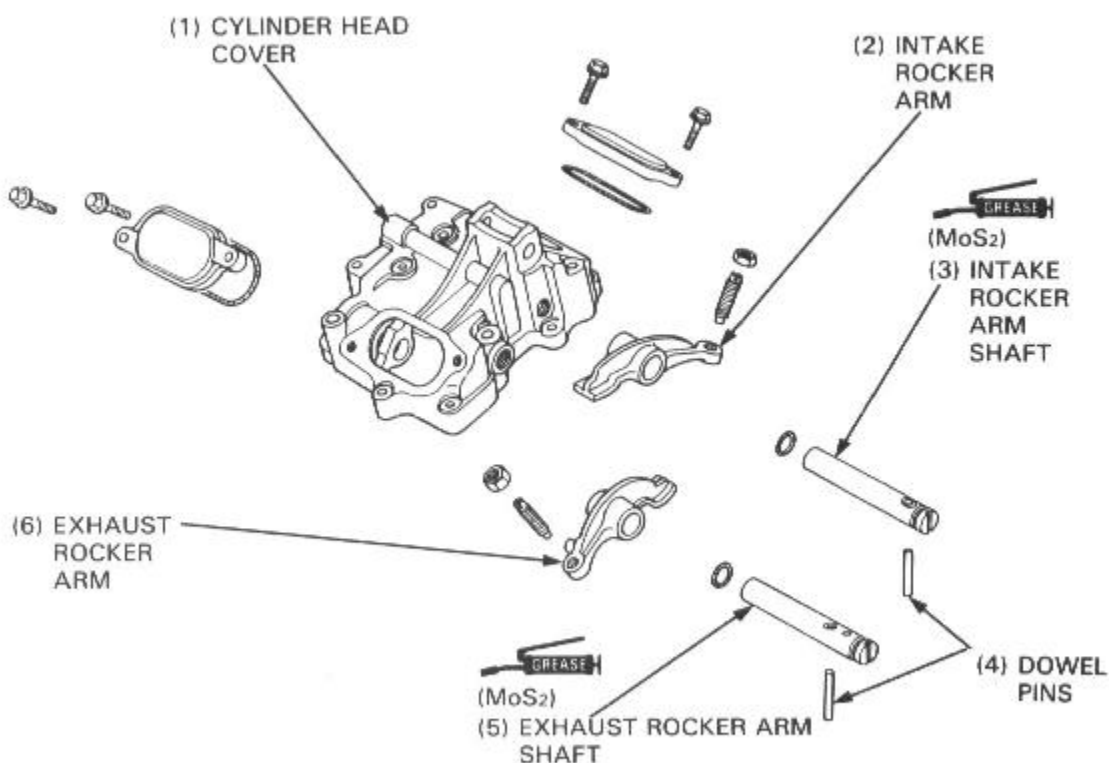
Remove the wire holder piece from the tensioner lifter. Install and tighten the bolt with a new gasket to the tensioner. Tighten the bolt to the specified torque.

TORQUE: 10 N·m (1.0 kg-m, 7 ft-lb)



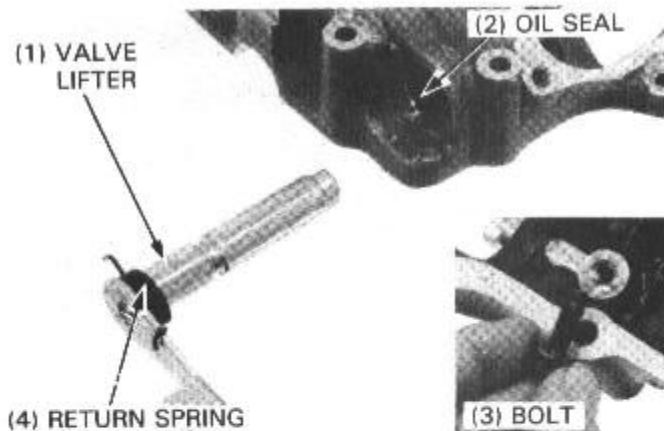
CYLINDER HEAD COVER ASSEMBLY/INSTALLATION

ASSEMBLY



CYLINDER HEAD/VALVES

Install the oil seal, return spring, valve lifter and valve lifter bolt.



Note that intake rocker arm has an "I" mark on its side as shown.



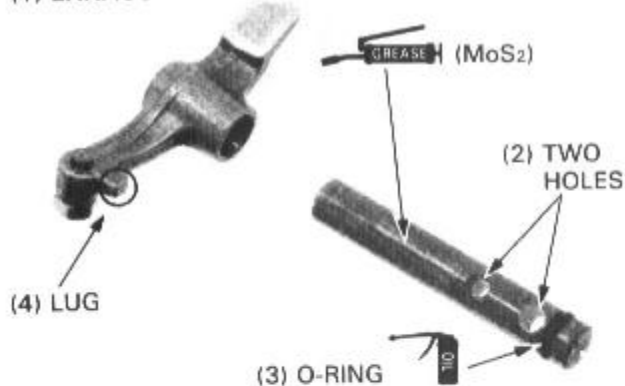
Carefully identify the exhaust side parts:

- The rocker arm has the decompression lug as shown.
- The rocker arm shaft has two holes as shown.

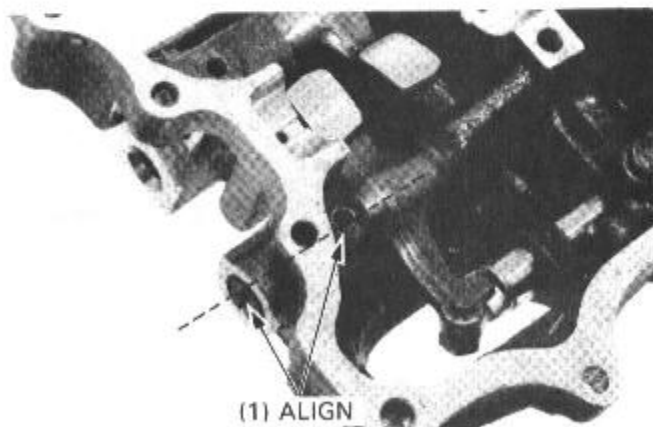
Apply oil to O-rings of the rocker arm shafts.

Apply molybdenum disulfide grease to the rocker arm shafts.

(1) EXHAUST ARM AND SHAFT



Install the rocker arms and shafts, aligning the grooves on the shafts with the head cover mounting holes.

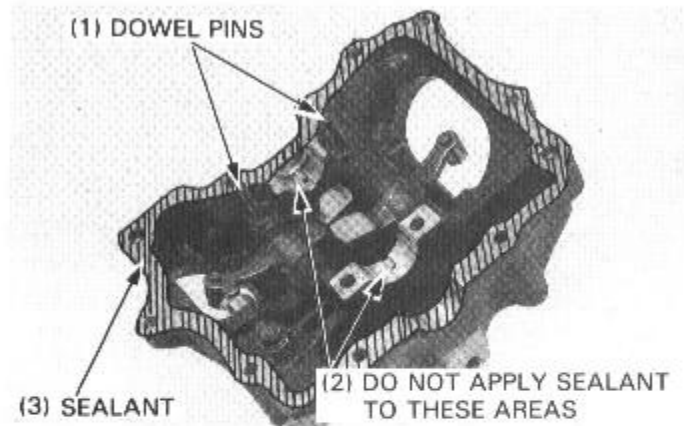


Insert new dowel pins in the head cover.

Apply liquid sealant to the mating surfaces of the cylinder head cover.

CAUTION

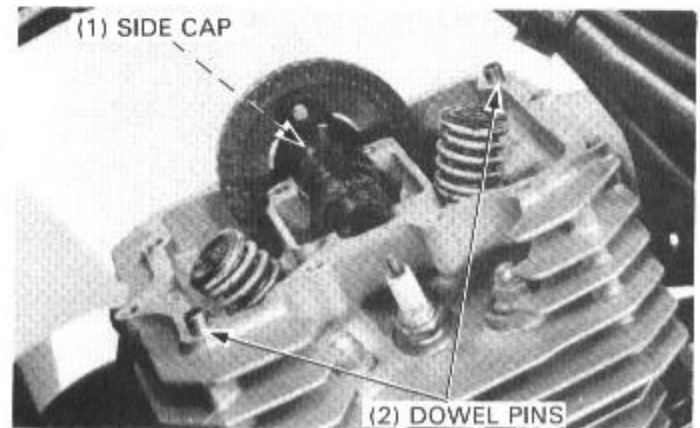
- *Do not apply sealant to the camshaft journals.*



INSTALLATION

Install the dowel pins and the camshaft side cap on the cylinder head.

Position the camshaft so that both cam lobes face down as shown by rotating the crankshaft.



Install the cylinder head cover bolts A and B onto the cylinder head cover.

Install the cylinder head cover.

NOTE

- Install a new copper washer on the flange bolt that is designated by the "▼" mark.

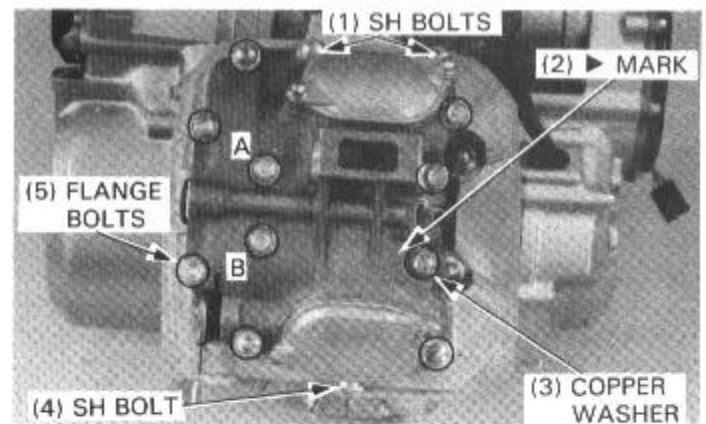
Tighten the cover bolts in 2 or 3 steps in a criss-cross pattern, starting with the center bolt.

TORQUES:

6 mm flange bolt: 12 N·m (1.2 kg-m, 9 ft-lb)

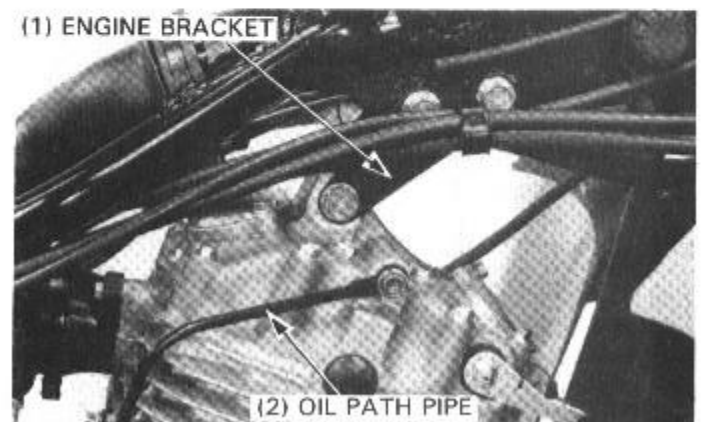
6 mm SH bolt: 10 N·m (1.0 kg-m, 7 ft-lb)

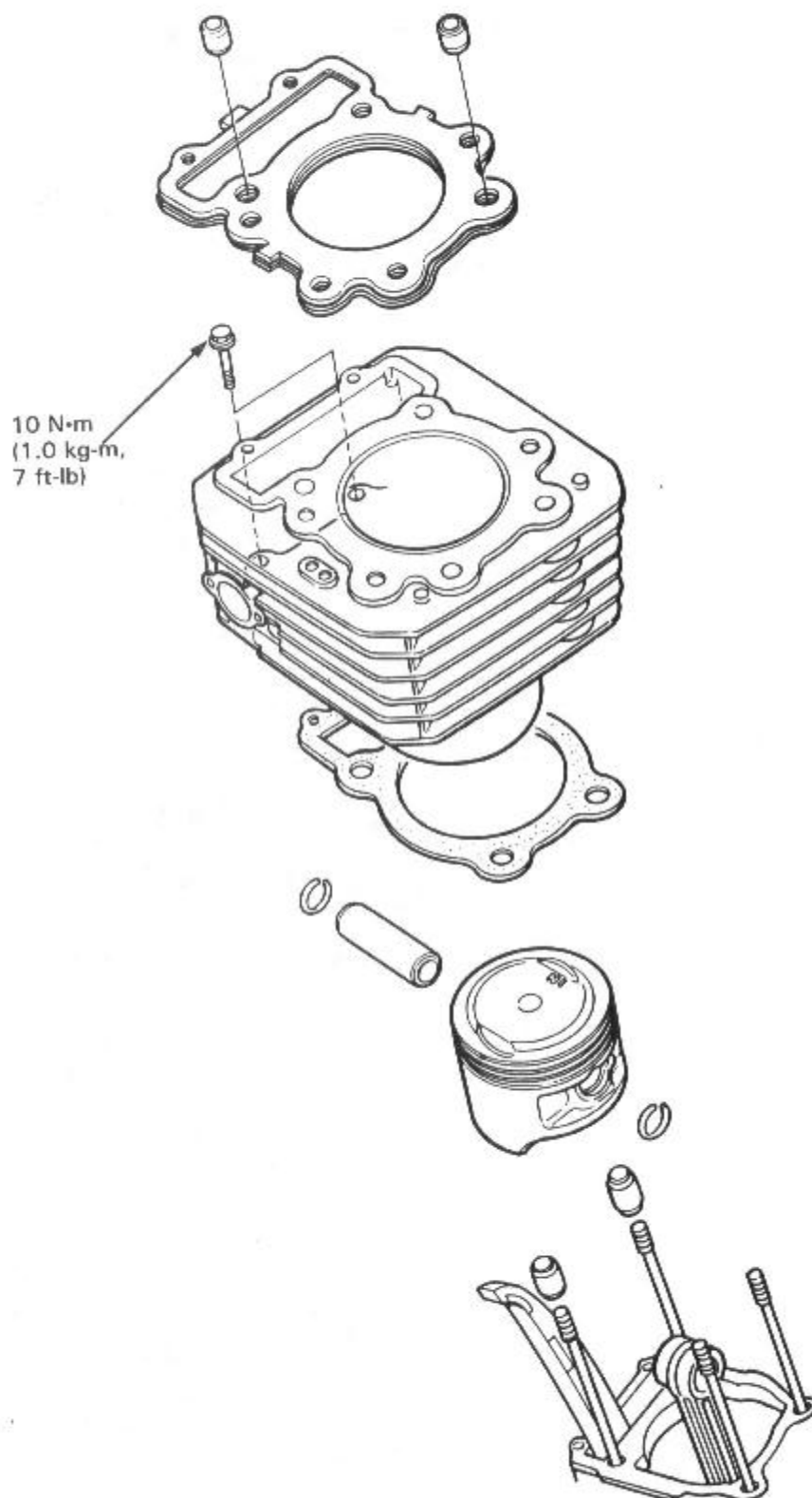
Adjust the valve clearance (page 3-10).



Install the following:

- valve adjusting hole covers.
- engine brackets (upper) (page 5-4).
- oil path pipe (page 8-25).
- fuel tank (page 4-3).





SERVICE INFORMATION	7-1	PISTON	7-3
TROUBLESHOOTING	7-1	PISTON/CYLINDER INSTALLATION	7-5
CYLINDER	7-2		

SERVICE INFORMATION

SPECIFICATIONS

Unit: mm (in)

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Cylinder	I.D.		74.000—74.010 (2.9134—2.9138)	74.10 (2.917)
	Taper		—	0.10 (0.004)
	Out of round		—	0.10 (0.004)
	Warpage across top		—	0.10 (0.004)
Piston, piston pin, piston rings	Piston O.D.		73.960—73.985 (2.9118—2.9128)	73.90 (2.909)
	Piston pin bore		17.002—17.008 (0.6694—0.6696)	17.04 (0.671)
	Piston pin O.D.		16.994—17.000 (0.6691—0.6693)	16.96 (0.668)
	Piston-to-pin clearance		0.002—0.014 (0.0001—0.0006)	0.02 (0.001)
	Piston ring-to-ring groove clearance	TOP	0.02—0.05 (0.001—0.002)	0.09 (0.004)
		SECOND	0.015—0.045 (0.0006—0.0018)	0.09 (0.004)
	Piston ring end gap	TOP	0.15—0.30 (0.006—0.012)	0.5 (0.02)
		SECOND	0.25—0.40 (0.010—0.016)	0.6 (0.02)
		OIL	0.2—0.7 (0.01—0.03)	—
Cylinder-to-piston clearance			0.015—0.050 (0.0006—0.0020)	0.10 (0.004)
Connecting rod small end I.D.			17.016—17.034 (0.6699—0.6706)	17.10 (0.673)

TORQUE VALUE

Cylinder mounting bolt 10 N·m (1.0 kg·m, 7 ft·lb)

TROUBLESHOOTING

Low or unstable compression

- Worn cylinder or piston rings
- Cylinder head and valves (Section 6)

Excessive smoke

- Worn cylinder, piston or piston rings
- Improper installation of piston rings
- Scored or scratched piston or cylinder wall

Overheating

- Excessive carbon build-up on the piston head or combustion chamber wall

Knocking or abnormal noise

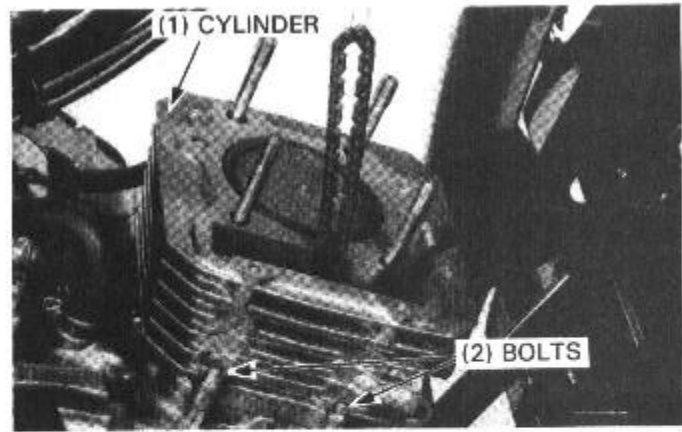
- Worn piston and cylinder
- Excessive carbon build-up

CYLINDER

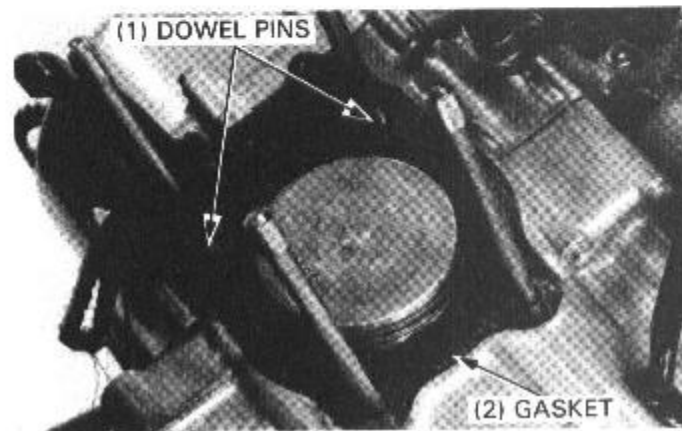
REMOVAL

Remove the cylinder head (page 6-6).

Remove the cylinder mounting bolts and cylinder.



Remove the cylinder gasket and dowel pins.



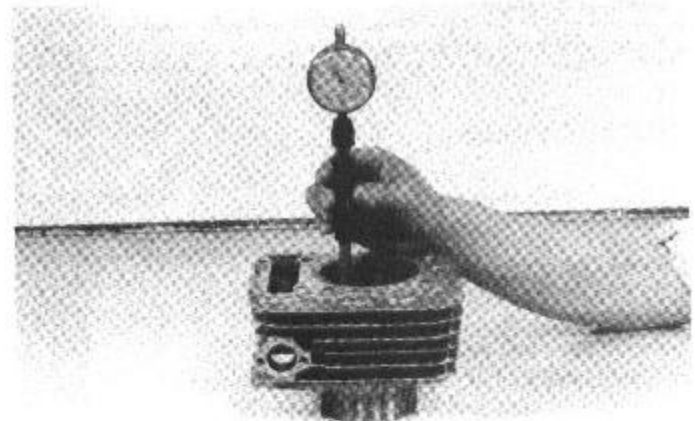
INSPECTION

Inspect the cylinder bore for wear or damage.
Measure the cylinder I.D. in X and Y axis at three levels.
Take the maximum reading to determine the cylinder wear.

SERVICE LIMIT: 74.10 mm (2.917 in)

Calculate the piston-to-cylinder clearance. Take the maximum reading to determine the clearance.
Refer to page 7-4 for measurement of the piston O.D.

SERVICE LIMIT: 0.10 mm (0.004 in)



Calculate the taper and out of round at three levels in X and Y axis. Take the maximum reading to determine them.

SERVICE LIMITS:

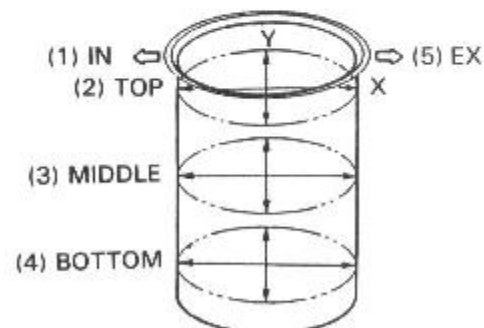
Taper: 0.10 mm (0.004 in)

Out of round: 0.10 mm (0.004 in)

The cylinder must be rebored and an oversize piston fitted if the service limits are exceeded.

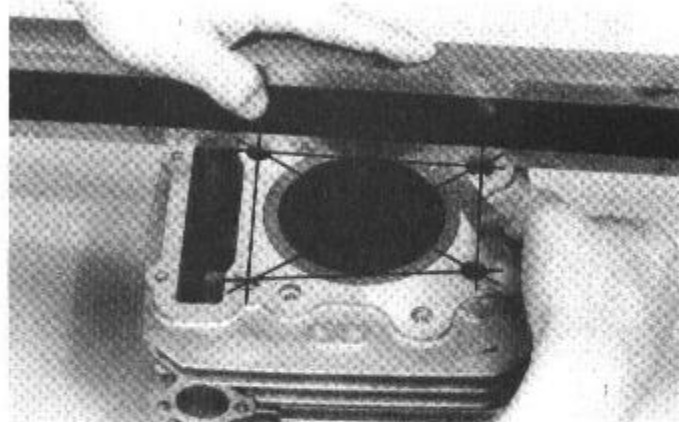
The following oversize pistons are available:
0.25 mm (0.010 in), 0.50 mm (0.020 in),
0.75 mm (0.030 in) and 1.00 mm (0.040 in)

The piston to cylinder clearance for the oversize piston must be: 0.015–0.050 mm (0.0006–0.0020 in).



Inspect the top of the cylinder for warpage.

SERVICE LIMIT: 0.10 mm (0.004 in)



PISTON

REMOVAL

Remove the piston pin clip with pliers.

NOTE

- Do not let the clips fall into the crankcase.

Press the piston pin out of the piston and remove the piston.

CAUTION

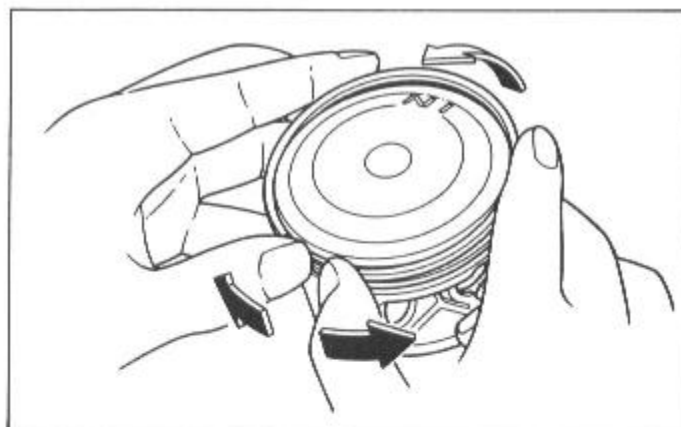
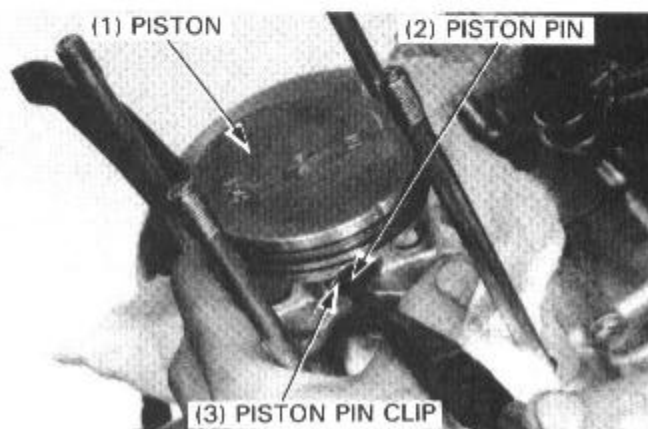
- *Always support the piston when pressing out the piston pin to prevent damage to the big-end bearing.*

INSPECTION

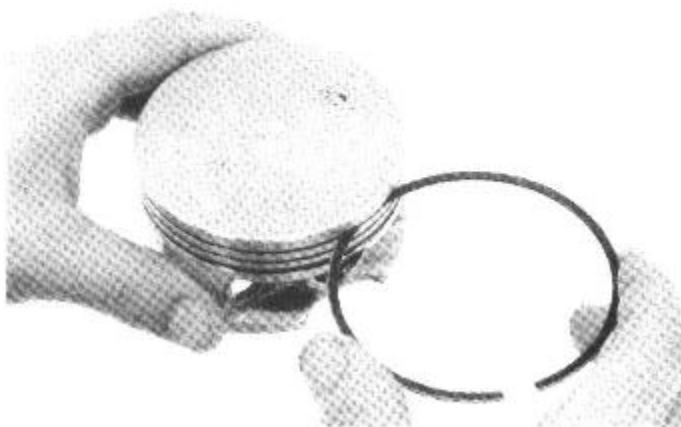
Remove the piston rings.

NOTE

- Do not damage the piston rings during removal.



Remove any carbon deposits from the piston ring grooves, using an old piston ring as shown.



CYLINDER/PISTON

Temporarily install the piston rings to their proper position with the mark facing up.

Measure the piston ring-to-groove clearance with the rings pushed into the grooves.

SERVICE LIMITS:

Top: 0.09 mm (0.004 in)

Second: 0.09 mm (0.004 in)

Inspect the piston for wear or damage.



Insert each piston ring squarely into the bottom of the cylinder and measure the ring end gap.

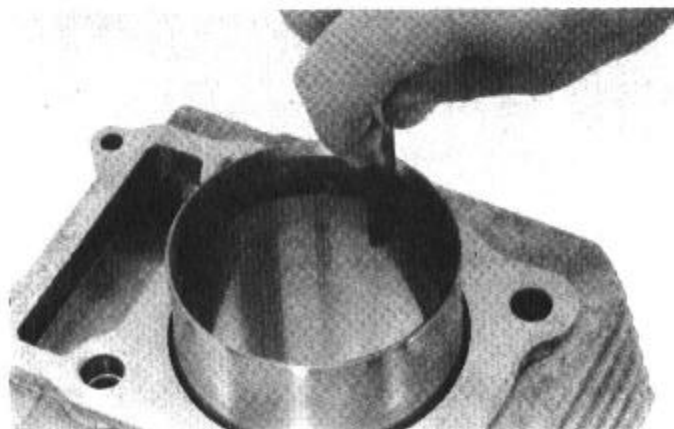
NOTE

- Push the rings into the cylinder with the top of the piston to be sure they are squarely in the cylinder.

SERVICE LIMITS:

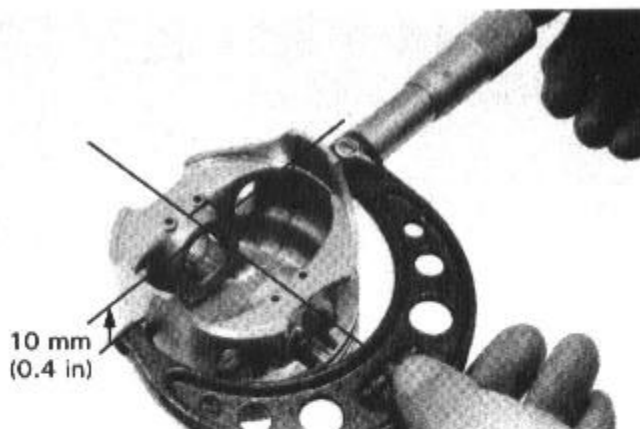
Top: 0.5 mm (0.02 in)

Second: 0.6 mm (0.02 in)



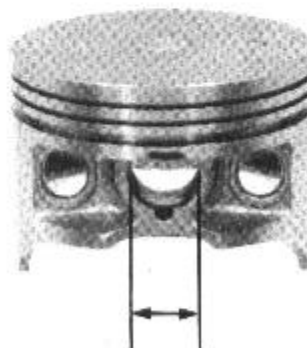
Measure the diameter of the piston at 10 mm (0.4 in) from the bottom and 90 degrees to the piston pin hole.

SERVICE LIMIT: 73.90 mm (2.909 in)



Measure the piston pin bore.

SERVICE LIMIT: 17.04 mm (0.671 in)

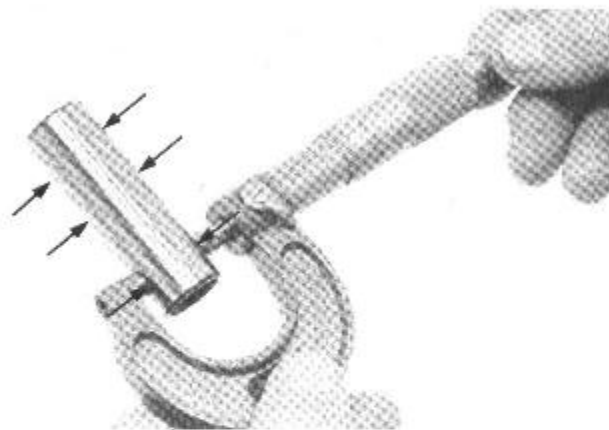


Measure the O.D. of the piston pin.

SERVICE LIMIT: 16.96 mm (0.668 in)

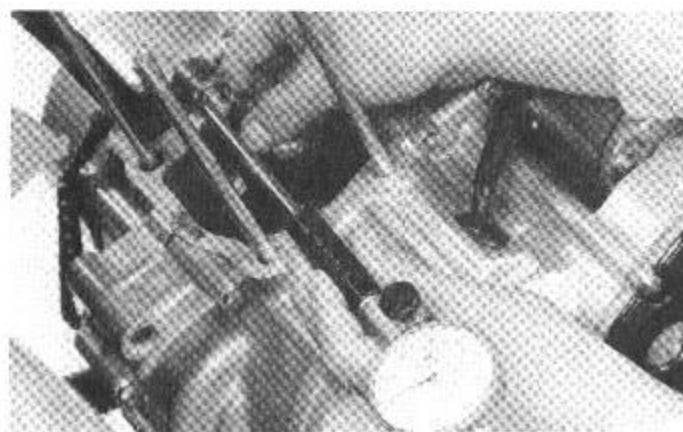
Calculate the piston-to-piston pin clearance.

SERVICE LIMIT: 0.02 mm (0.001 in)



Measure the connecting rod small end I.D.

SERVICE LIMIT: 17.10 mm (0.673 in)



PISTON/CYLINDER INSTALLATION

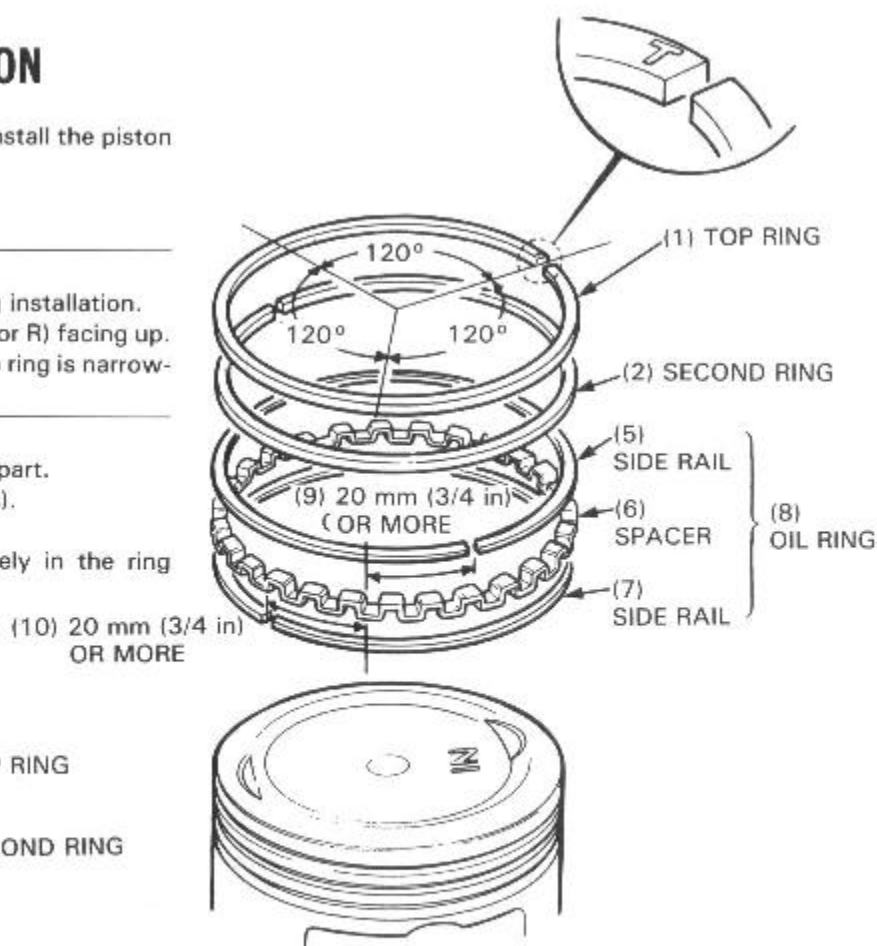
Clean the piston ring grooves thoroughly and install the piston rings.

NOTE

- Apply oil to the piston rings.
- Avoid piston and piston ring damage during installation.
- Install the piston rings with the markings (T or R) facing up.
- Do not mix the top and second rings; the top ring is narrower than the second ring in width.

Space the piston ring end gaps 120 degrees apart. Do not align the gaps in the oil rings (side rails).

After installation, the rings should rotate freely in the ring grooves.



(3) TOP RING

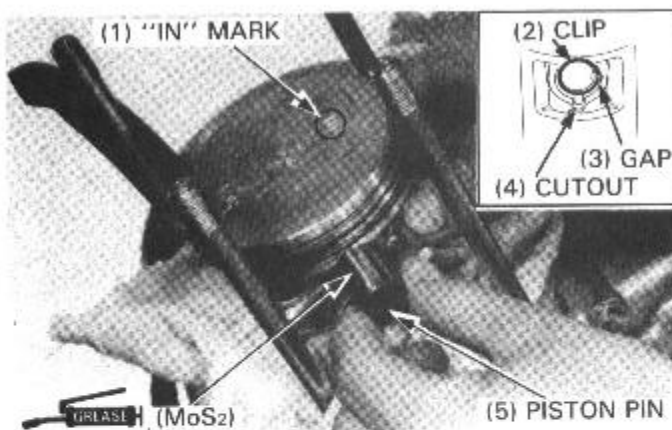
(4) SECOND RING

CYLINDER/PISTON

Apply molybdenum disulfide grease to the outer surface of the piston pin.
Install the piston and piston pin, using new piston pin clips.

NOTE

- Position the piston "IN" mark on the intake valve side.
- Do not align the piston pin clip end gap with the piston cut-out.
- Do not let the clips fall into the crankcase.

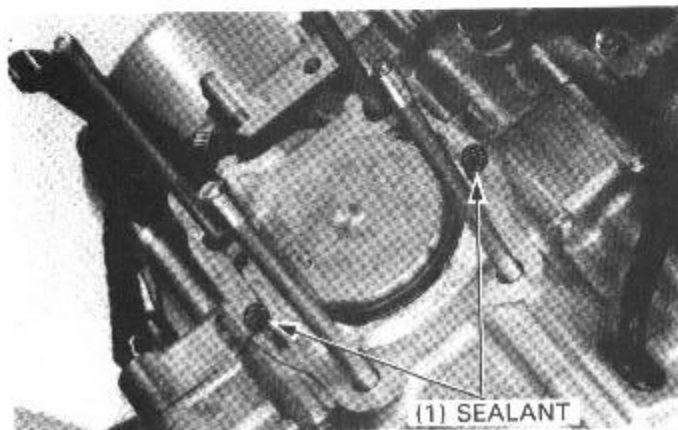


Clean off any gasket material from the cylinder base and crankcase upper surfaces.

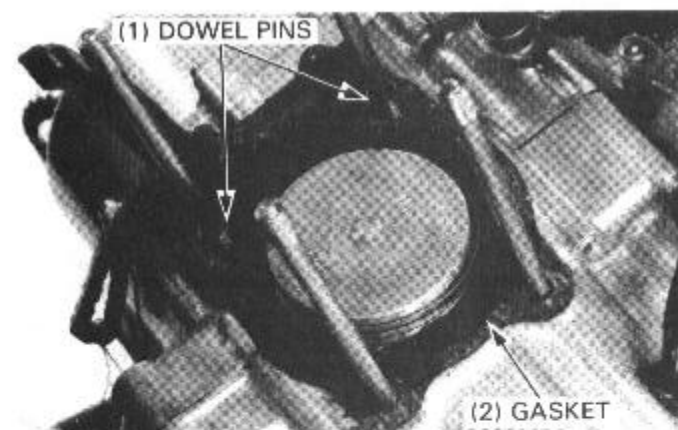
NOTE

- Be careful not to damage the gasket surface.

Apply liquid sealant to the crankcase joints.



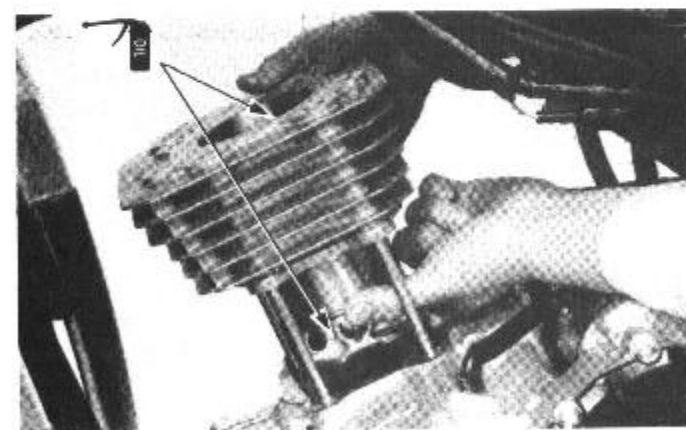
Install a new gasket and dowel pins.



Coat the cylinder bore and piston with engine oil and install the cylinder.

NOTE

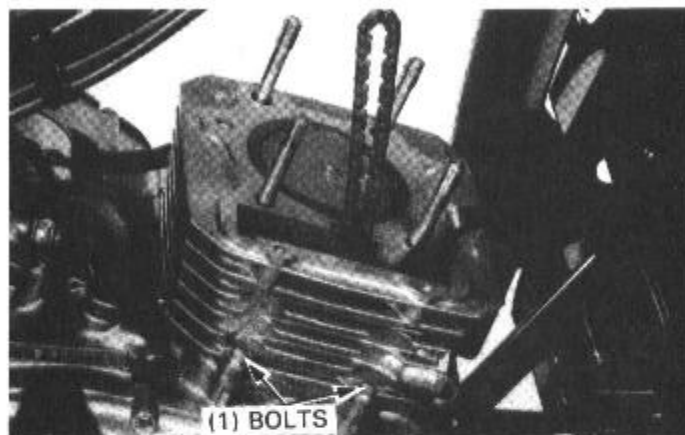
- Avoid piston ring damage during installation.
- Do not let the cam chain fall into the crankcase.

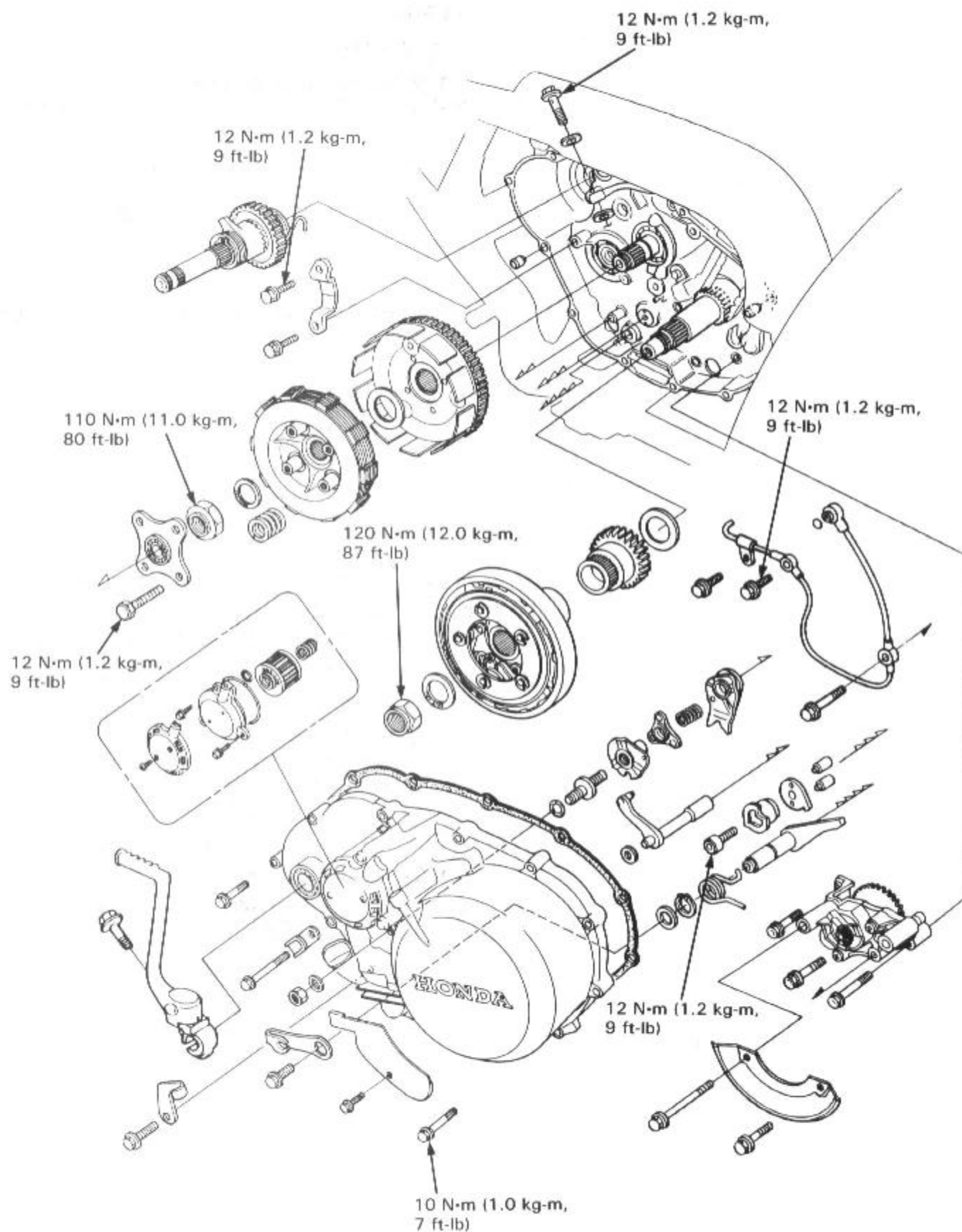


Tighten the cylinder mounting bolts.

TORQUE: 10 N·m (1.0 kg-m, 7 ft-lb)

Install the cylinder head (page 6-14).





8. CLUTCH/OIL PUMP/KICK STARTER

SERVICE INFORMATION	8-1	REVERSE LOCK MECHANISM	8-17
TROUBLESHOOTING	8-2	OIL PUMP	8-18
RIGHT CRANKCASE COVER REMOVAL	8-3	KICK STARTER	8-21
CENTRIFUGAL CLUTCH/PRIMARY DRIVE GEAR	8-4	RIGHT CRANKCASE COVER INSTALLATION	8-23
CHANGE CLUTCH	8-12		

SERVICE INFORMATION

GENERAL

- This section covers removal and installation of the centrifugal clutch, change clutch, oil pump and kick starter. These parts can be serviced with the engine installed in the frame.

SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Change clutch	Spring free length	32.1 (1.26)	31.0 (1.22)
	Disc thickness	2.62—2.78 (0.103—0.109)	2.3 (0.09)
	Disc warpage	—	0.20 (0.008)
	Plate warpage	—	0.20 (0.008)
	Clutch outer guide O.D.	27.959—27.980 (1.1007—1.1016)	27.92 (1.099)
	Clutch outer guide I.D.	22.000—22.021 (0.8661—0.8670)	22.05 (0.868)
	Mainshaft O.D. (outer guide)	21.972—21.993 (0.8650—0.8659)	21.93 (0.863)
Centrifugal clutch	Drum I.D.	140.0 (5.51)	140.2 (5.52)
	Weight lining thickness	3.0 (0.12)	2.0 (0.08)
	Clutch spring height	3.1 (0.12)	2.95 (0.116)
	Clutch weight spring free length	21.6 (0.85)	22.5 (0.89)
Kick starter	Shaft O.D.	23.959—23.980 (0.9433—0.9441)	23.90 (0.941)
	Pinion gear I.D.	24.000—24.021 (0.9449—0.9457)	24.10 (0.949)
Primary drive gear	Crankshaft O.D.	26.959—26.980 (1.0614—1.0622)	26.93 (1.060)
	Gear I.D.	27.000—27.021 (1.0630—1.0638)	27.05 (1.065)
Oil pump	Body clearance	0.15—0.21 (0.006—0.008)	0.25 (0.010)
	Tip clearance	0.15 (0.006) MAX	0.20 (0.008)
	Side clearance	0.02—0.08 (0.001—0.003)	0.10 (0.004)

TORQUE VALUES

Centrifugal clutch lock nut	120 N·m (12.0 kg-m, 87 ft-lb) — Apply locking agent/Stake/Left-hand threads
Change clutch lock nut	110 N·m (11.0 kg-m, 80 ft-lb) — Apply locking agent/Stake
Clutch spring bolt	12 N·m (1.2 kg-m, 9 ft-lb)
Reverse/neutral rotor bolt	12 N·m (1.2 kg-m, 9 ft-lb) — Apply locking agent
Oil pipe bolt (BLACK)	12 N·m (1.2 kg-m, 9 ft-lb)
Right crankcase cover bolt	10 N·m (1.0 kg-m, 7 ft-lb)
Right foot peg bolt	33 N·m (3.3 kg-m, 24 ft-lb)
Oil path pipe bolt	12 N·m (1.2 kg-m, 9 ft-lb)
Kick starter ratchet guide bolt	12 N·m (1.2 kg-m, 9 ft-lb)

TOOLS

Special

Bearing remover, 17 mm	07936—3710300
Remover handle	07936—3710100
Remover weight	07741—0010201 or 07936—3710200
Clutch holder	07GMB—HA70100
Clutch center holder	07923—KE10000 or 07HGB—001000A (U.S.A. Only)
Attachment, 28 x 30 mm	07946—1870100

Common

Driver	07749—0010000
Attachment, 42 x 47 mm	07746—0010300
Pilot, 17 mm	07746—0040400
Lock nut wrench, 17 x 27 mm	07716—0020300
Extension bar	07716—0020500 } or equivalent commercially available in U.S.A.

TROUBLESHOOTING

Faulty clutch operation can usually be corrected by adjusting the clutch.

Clutch slips when accelerating

- Faulty clutch lifter
- Discs/plates worn
- Weak springs

Clutch will not disengage

- Faulty clutch lifter mechanism
- Plates warped

The vehicle creeps with clutch disengaged

- Faulty centrifugal clutch
- Plates warped

Clutch operation feels rough

- Outer drum slots rough

Hard to shift

- Incorrect clutch adjustment
- Faulty clutch lifter mechanism

Low oil pressure

- Faulty oil pump
- Oil pump drive gear broken

RIGHT CRANKCASE COVER REMOVAL

REMOVAL

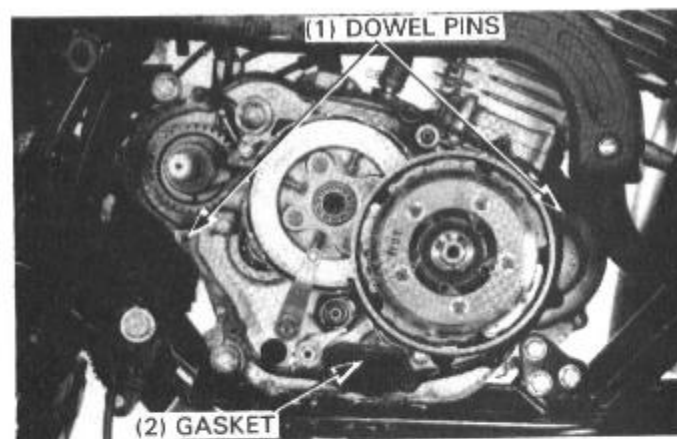
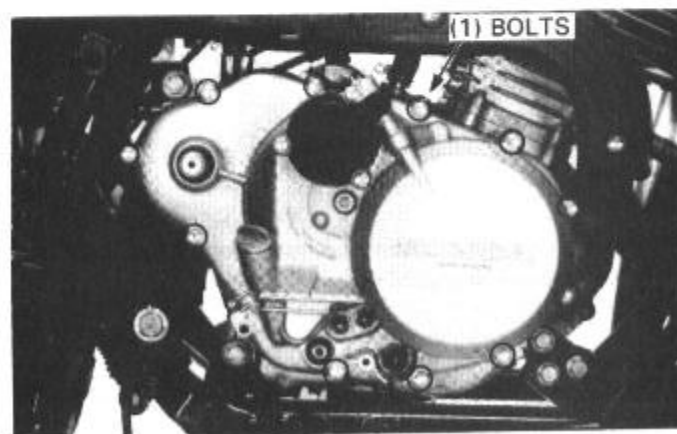
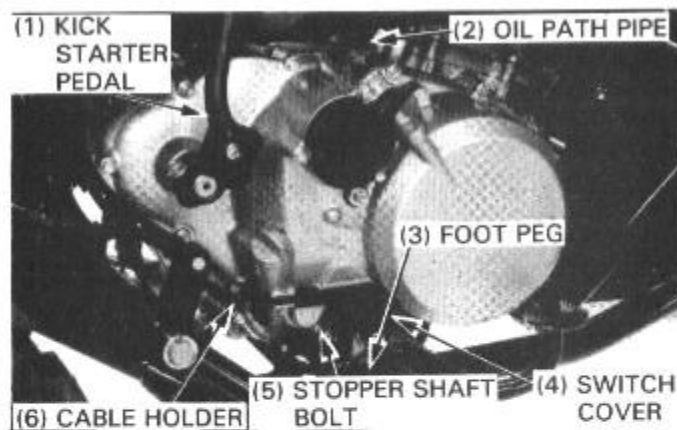
Shift the transmission into neutral and drain the oil from the engine (page 2-3).

Remove the following:

- oil path pipe bolts and oil path pipe.
- switch cover.
- neutral, reverse and oil temperature switch wires.
- bolt from the reverse stopper shaft, and reverse stopper lever.
- right crankcase cover bolt and reverse cable holder.
- skid plate (TRX300 FW).
- right foot peg.
- kick starter pedal.

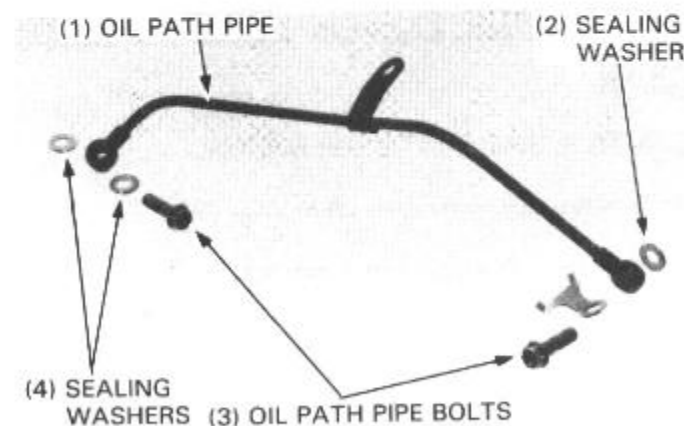
Remove the right crankcase cover bolts and the cover.

Remove the gasket and dowel pins.



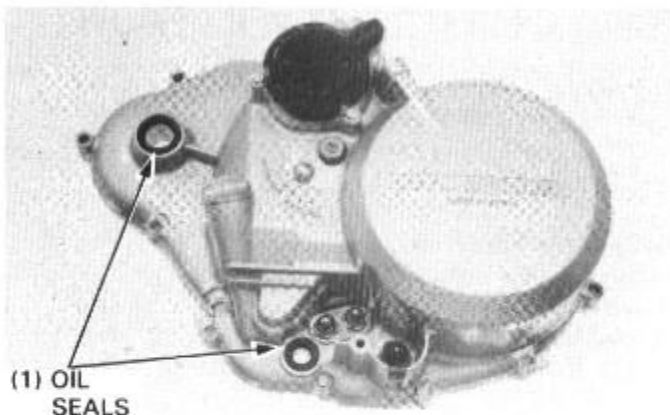
INSPECTION

Make sure that the oil path pipe and its bolts are not clogged, and that the sealing washers are in good condition.



CLUTCH/OIL PUMP/KICK STARTER

Check the kick starter pedal and reverse stopper shaft oil seals for wear or damage.



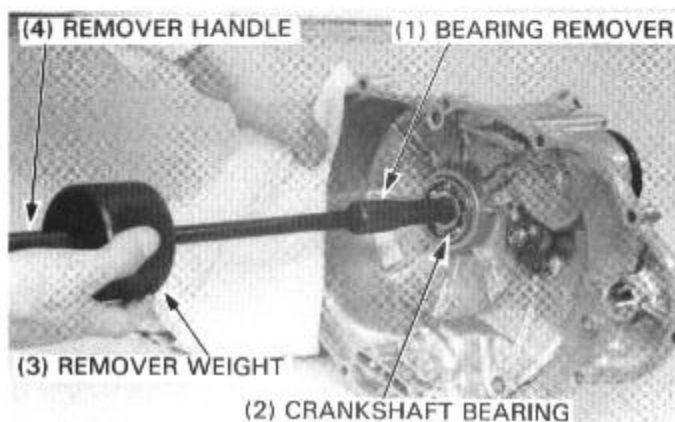
Turn the crankshaft bearing inner race with your finger. The bearing should turn smoothly and quietly. Also check that the bearing outer race fits tightly in the crankcase cover. Replace it if necessary.

BEARING REPLACEMENT

Remove the crankshaft bearing from the right crankcase cover with the following tools.

TOOLS:

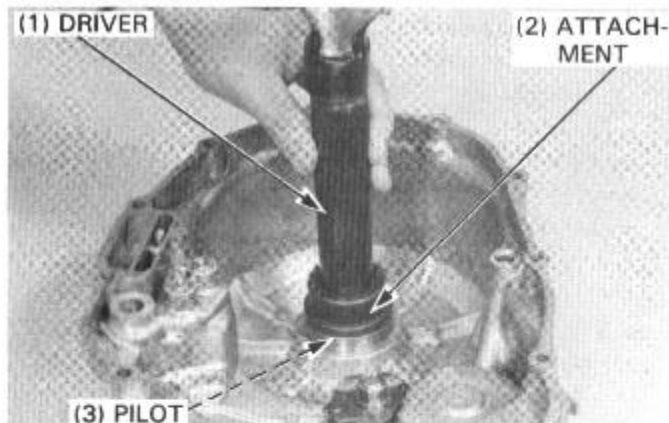
Bearing remover, 17 mm	07936-3710300
Remover handle	07936-3710100
Remover weight	07741-0010201 or 07936-3710200



Drive a new crankshaft bearing into the cover, with its sealed side facing out, using the following tools.

TOOLS:

Driver	07749-0010000
Attachment, 42 x 47 mm	07746-0010300
Pilot, 17 mm	07746-0040400

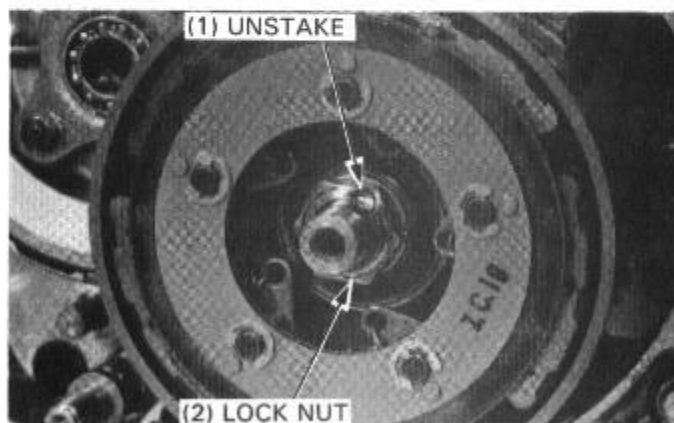


CENTRIFUGAL CLUTCH/PRIMARY DRIVE GEAR

CENTRIFUGAL CLUTCH REMOVAL

Remove the right crankcase cover (page 8-3).

Unstake the centrifugal clutch lock nut.



Hold the centrifugal clutch weight assembly with a clutch holder and remove the lock nut by turning it clockwise.

NOTE

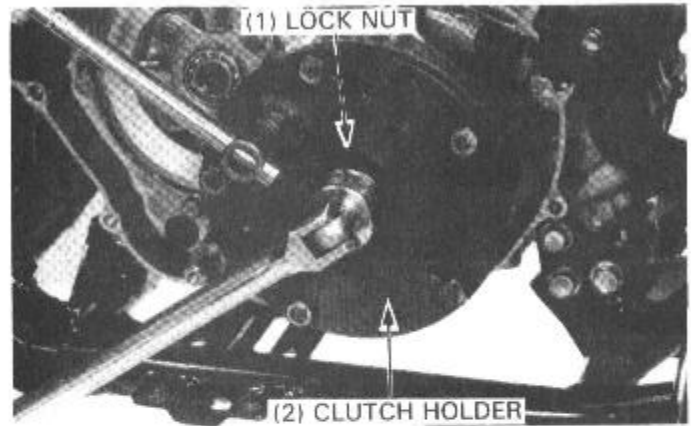
- The lock nut has left hand threads.

TOOL:

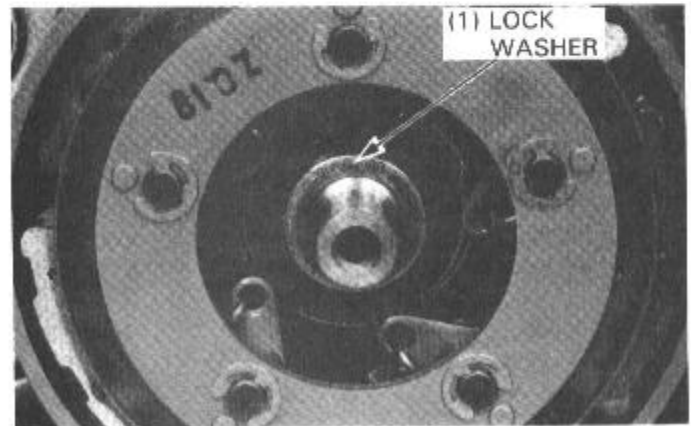
Clutch holder

07GMB-HA70100

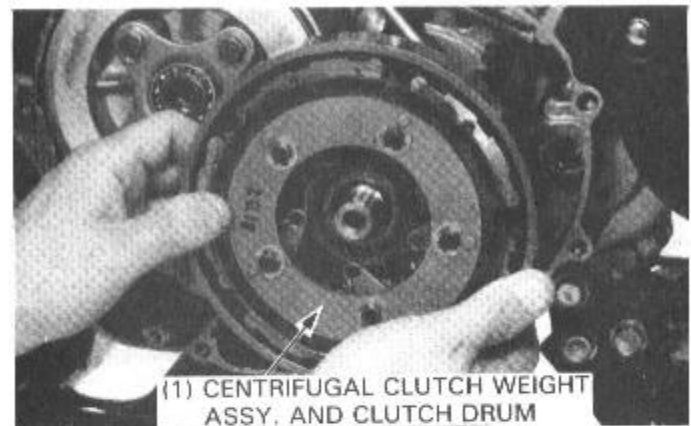
Discard the lock nut.



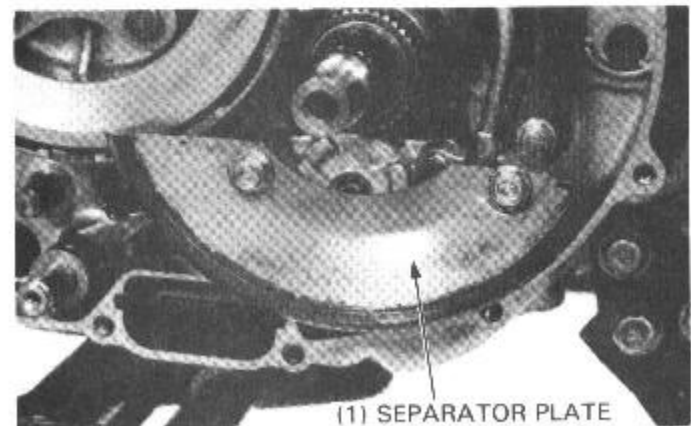
Remove the lock washer.



Remove the centrifugal clutch weight assembly and clutch drum.



Remove the separator plate.

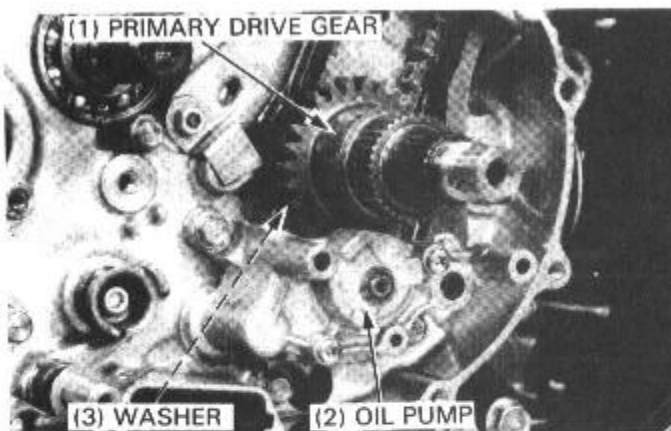


PRIMARY DRIVE GEAR REMOVAL

Remove the following:

- centrifugal clutch (page 8-4).
- change clutch (page 8-13).
- oil pump (page 8-18).

Remove the primary drive gear and washer from the crankshaft.



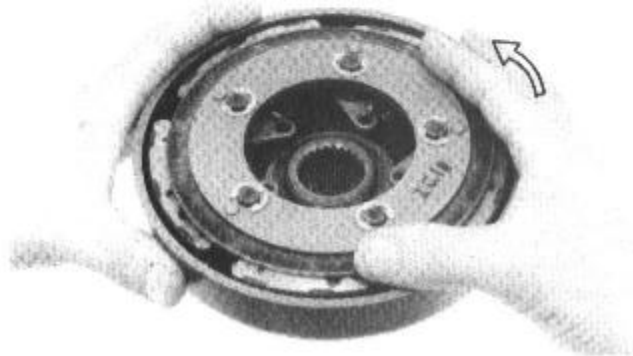
INSPECTION

• One-way clutch

Hold the clutch drum and rotate the clutch weight assembly. You should only be able to turn it counterclockwise.

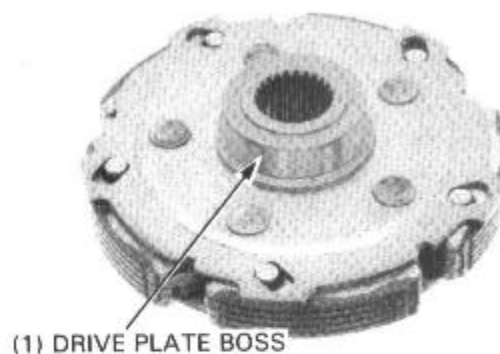
Check the rollers for excessive wear.

Remove the clutch weight assembly and one-way clutch from the clutch drum.



• Drive plate boss

Check the drive plate boss for excessive wear or damage.

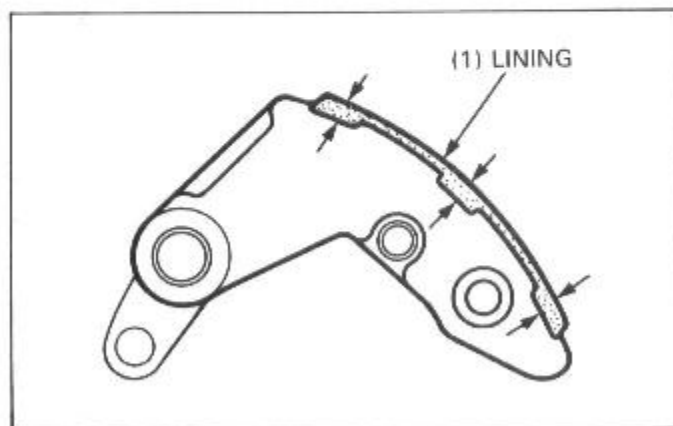


• Weight lining

Measure the weight lining thickness as shown.

SERVICE LIMIT: 2.0 mm (0.08 in)

For replacement, see page 8-7.

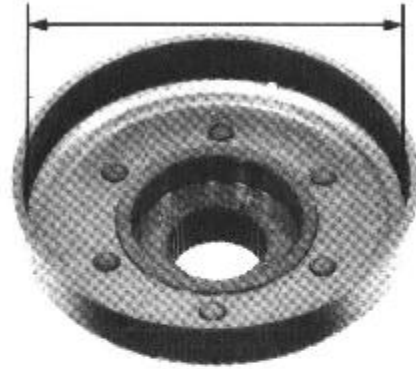


• Clutch Drum

Check the inside of the centrifugal clutch drum for scratches or excessive wear. Replace if necessary.

Measure the I.D. of the clutch drum.

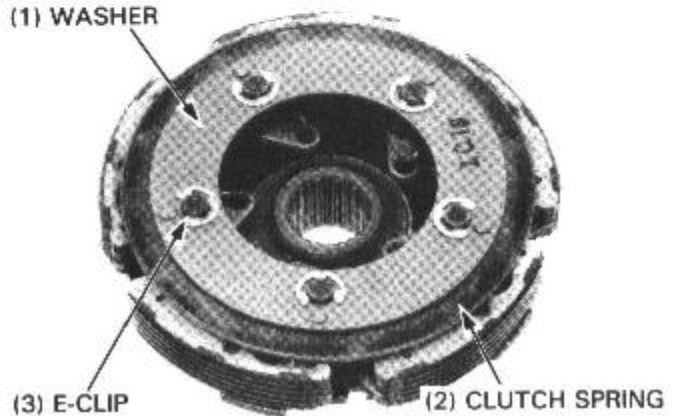
SERVICE LIMIT: 140.2 mm (5.52 in)



• Weight Spring/Clutch Spring

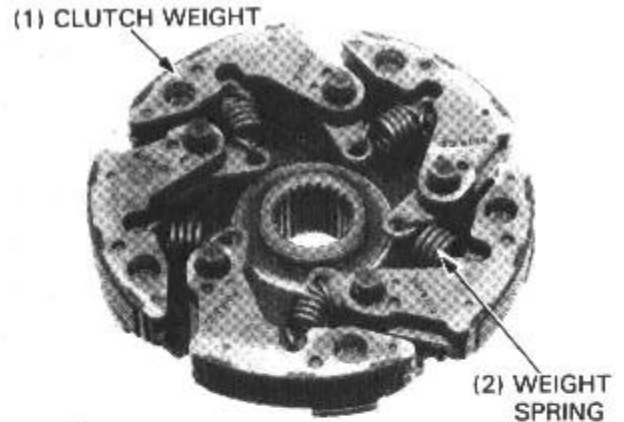
Remove the E-clips, washer, clutch spring and washer.

(1) WASHER



Remove the weight springs and clutch weights from the drive plate.

(1) CLUTCH WEIGHT



Measure the height of the clutch spring.

SERVICE LIMIT: 2.95 mm (0.116 in)

Replace the spring if it is shorter than the service limit.



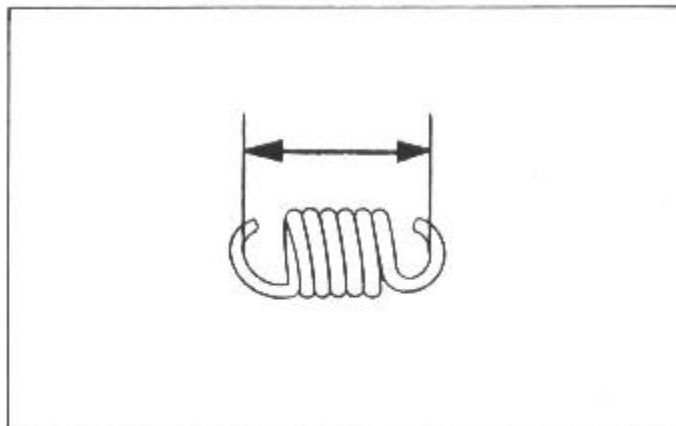
CLUTCH/OIL PUMP/KICK STARTER

Check the weight springs for wear or damage, and replace if necessary.

Measure the length of the weight spring.

SERVICE LIMIT: 22.5 mm (0.89 in)

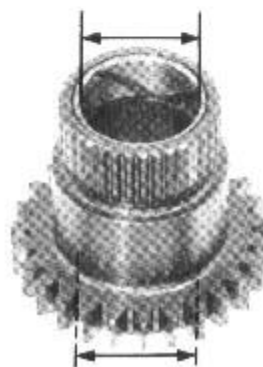
Replace the springs if they are longer than the service limit.



• Primary drive gear

Inspect the primary drive gear for damage or excessive wear. Measure the primary drive gear I.D.

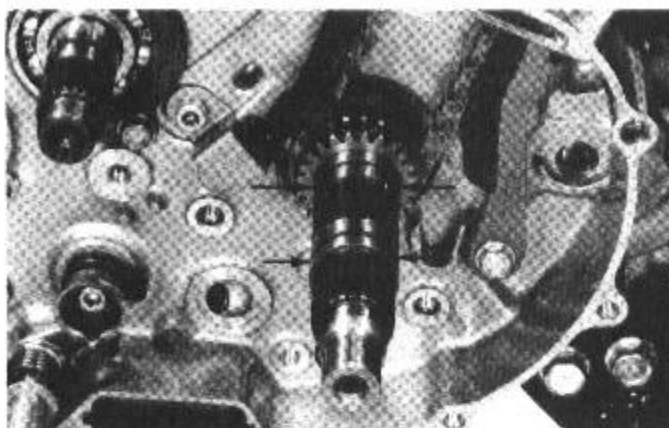
SERVICE LIMIT: 27.05 mm (1.065 in)



• Crankshaft at the primary drive gear

Measure the crankshaft O.D. at two locations as shown.

SERVICE LIMIT: 26.93 mm (1.060 in)



PRIMARY DRIVE GEAR INSTALLATION

Install the following:

- washer and primary drive gear to the crankshaft.
- oil pump (page 8-20).
- change clutch (page 8-15).



CENTRIFUGAL CLUTCH WEIGHT ASSEMBLY

120 N·m (12.0 kg-m,
87 ft-lb)

(1) LOCK NUT
(LEFT-HAND
THREADS)

(2) LOCK
WASHER

(3) CLUTCH
SPRING

(4) CLUTCH
WEIGHT

(5) DRIVE
PLATE

(6) CLUTCH
DRUM

(7) WASHER

(8) PRIMARY
DRIVE
GEAR

(9) ONE-WAY
CLUTCH

(10) WEIGHT
SPRING

(11) INSIDE
WASHER

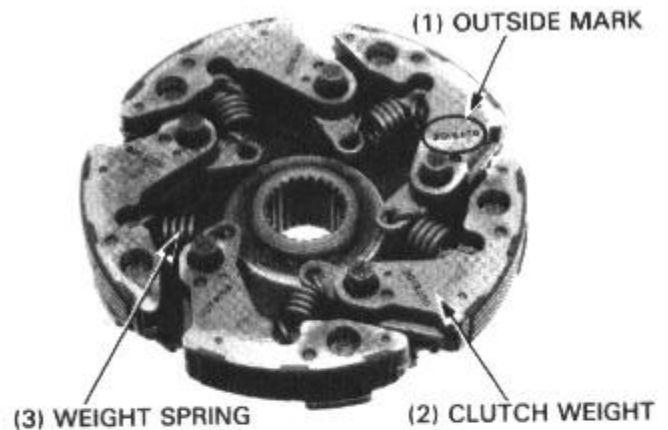
(12) OUTSIDE
WASHER

(13) E-CLIP

Install the clutch weights and springs onto the drive plate.

NOTE

- Install the weights with the "OUTSIDE" marks facing up.

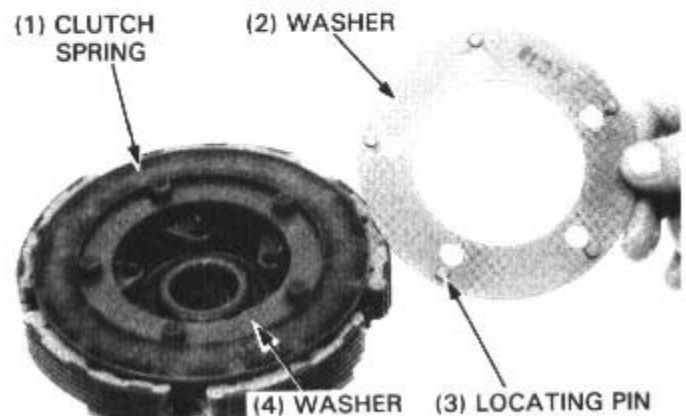


Install the inside washer and clutch spring.

NOTE

- Install the spring with the dished face towards the inside.

Install the outside washer with the locating pins facing out.

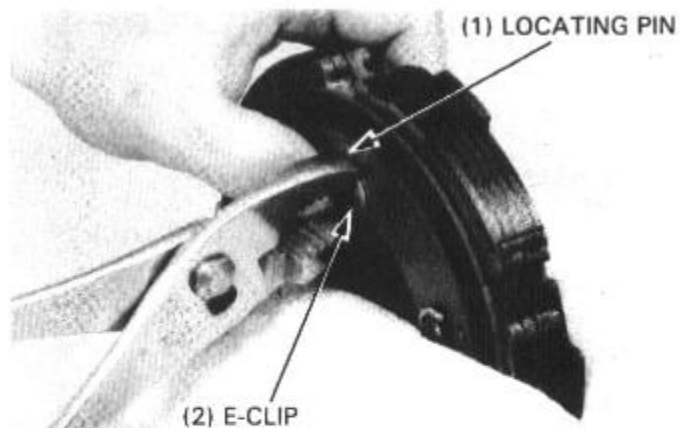


CLUTCH/OIL PUMP/KICK STARTER

Place the clutch weight assembly in a vise and tighten the jaws just enough to compress the clutch spring. Install the E-clips with their dished sides against the washer and their gaps aligned with the locating pins.

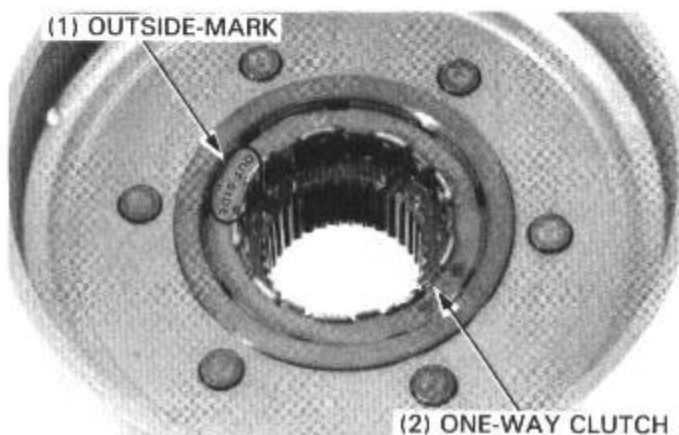
CAUTION

- *When compressing the clutch spring, be careful not to damage the clutch weight assembly.*

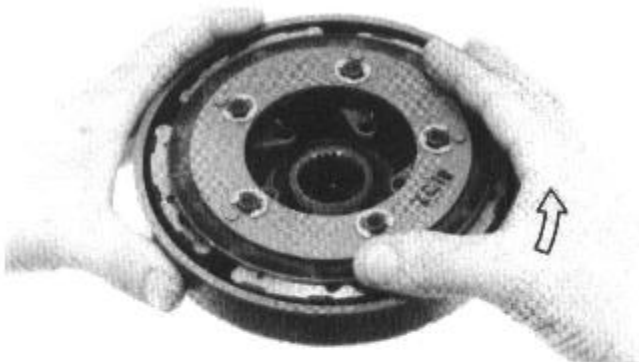


Inspect the one-way clutch for smooth operation and check the rollers for excessive wear.

Install the one-way clutch in the clutch drum with its "OUT-SIDE" mark facing out.

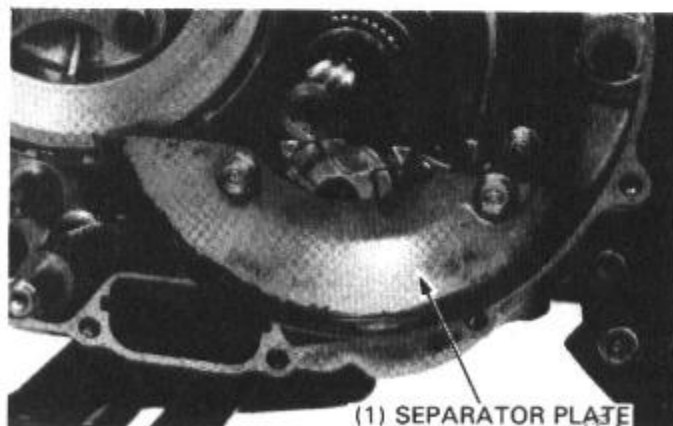


Install the centrifugal clutch weight assembly in the clutch drum, rotating the weight assembly counterclockwise.



CENTRIFUGAL CLUTCH INSTALLATION

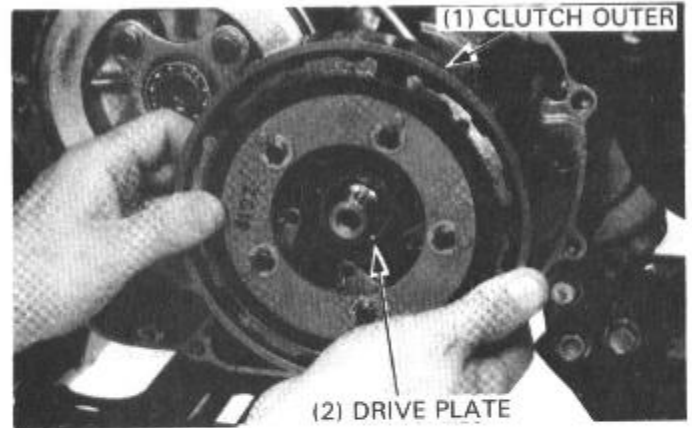
Install the separator plate.



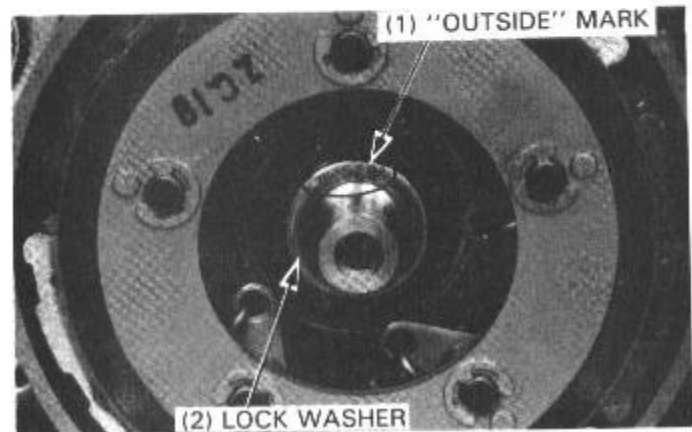
Install the centrifugal clutch weight assembly and clutch drum to the crankshaft.

NOTE

- How to install: First align the splines of the drive plate and crankshaft; and then rotating the clutch outer, align the splines of the primary drive gear and clutch outer.



Install the lock washer with its "OUTSIDE" mark facing out.



Apply locking agent to the new lock nut.
Hold the centrifugal clutch weight assembly with the clutch holder and tighten the lock nut by turning it counterclockwise.

NOTE

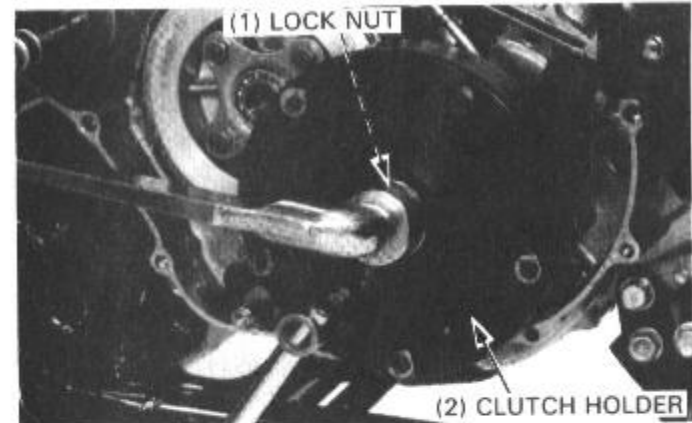
- The lock nut has left hand threads.

TORQUE: 120 N·m (12.0 kg-m, 87 ft-lb)

TOOL:

Clutch holder

07GMB-HA70100



Stake the lock nut and install the right crankcase cover (page 8-23).



CHANGE CLUTCH

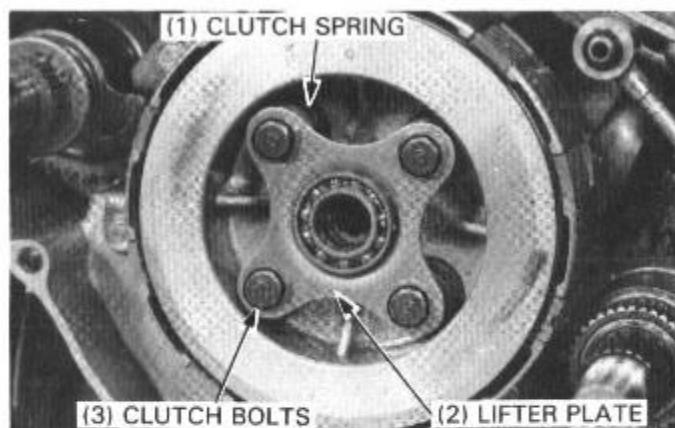
REMOVAL

Remove the following:

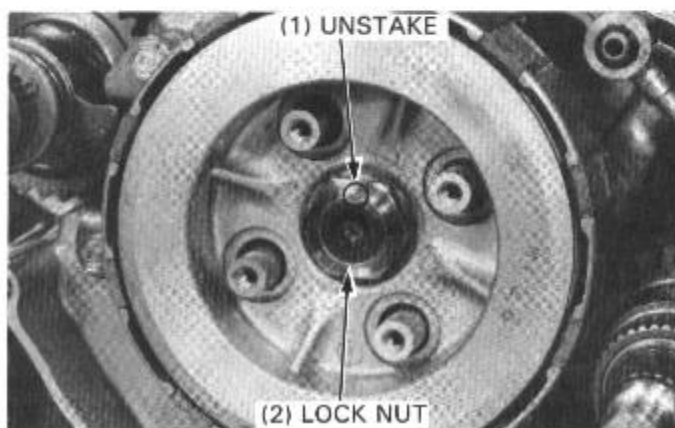
- right crankcase cover (page 8-3).
- centrifugal clutch (page 8-4).
- clutch lever (page 8-17).

Remove the clutch bolts, loosening them in a criss-cross pattern in 2 or 3 steps.

Remove the lifter plate and clutch springs.



Unstake the clutch center lock nut.



Install the clutch center holder and lock nut wrench as shown, and remove the clutch lock nut.

TOOLS:

Clutch center holder

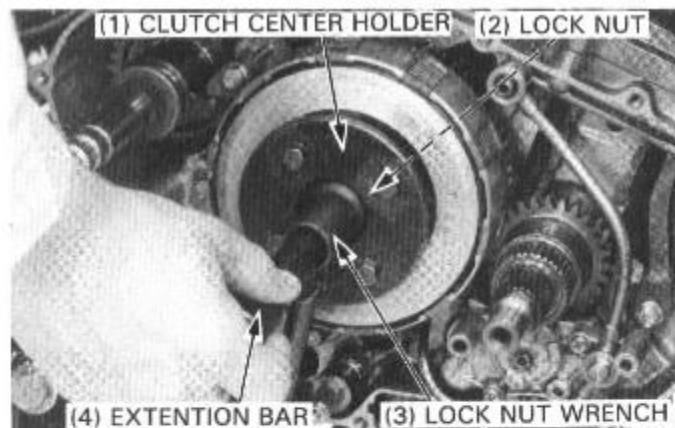
07923—KE10000 or
07HGB—001000A
(U.S.A. only)

Lock nut wrench, 17 x 27 mm

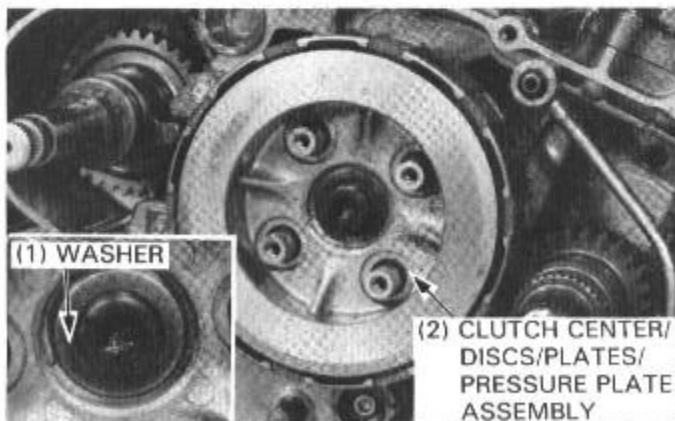
Extension bar

07716—0020300 } or
07716—0020500 }
equivalent commercially
available in U.S.A.

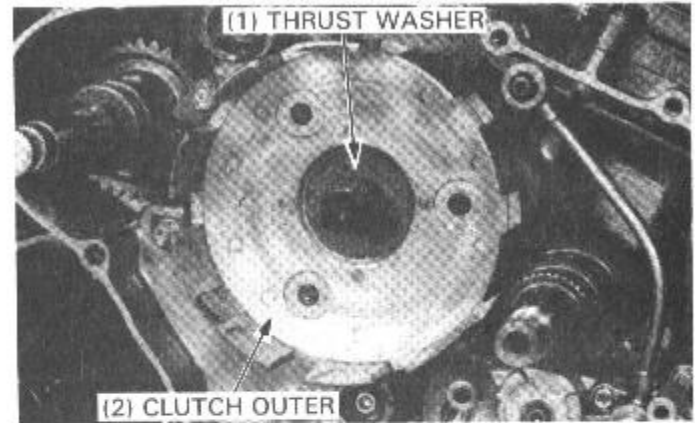
Discard the lock nut.



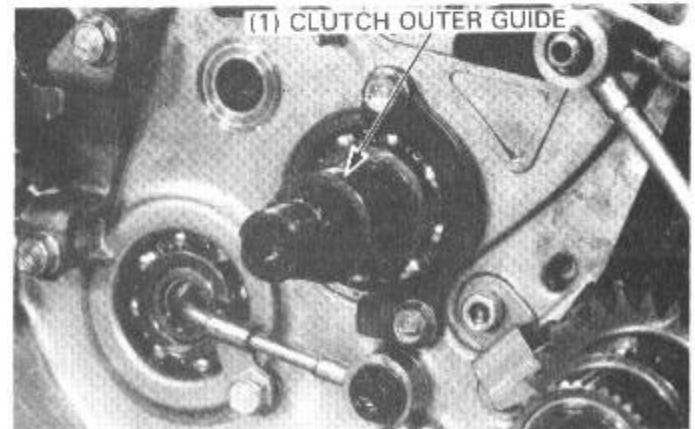
Remove the washer, clutch center, discs, plates and pressure plate as an assembly.



Remove the thrust washer and clutch outer.



Remove the clutch outer guide from the mainshaft.



INSPECTION

• Clutch lifter bearing

Turn the lifter bearing inner race with your finger. The bearing should turn smoothly and freely without excessive play. Also check that the bearing outer race fits tightly in the clutch lifter plate.

Replace if necessary: Drive the bearing out of the clutch lifter plate.

Drive a new bearing into the plate;

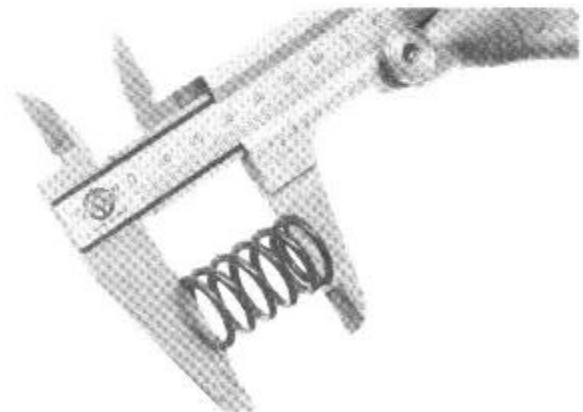
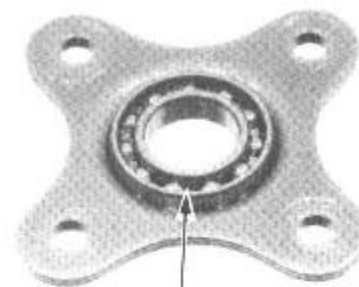
TOOLS:

Driver	07749-0010000
Attachment, 28 x 30 mm	07946-1870100

• Clutch spring

Measure the spring free length.

SERVICE LIMIT: 31.0 mm (1.22 in)



• Clutch center

Check the grooves of the clutch center for damage or wear caused by the clutch plate.
Replace if necessary.

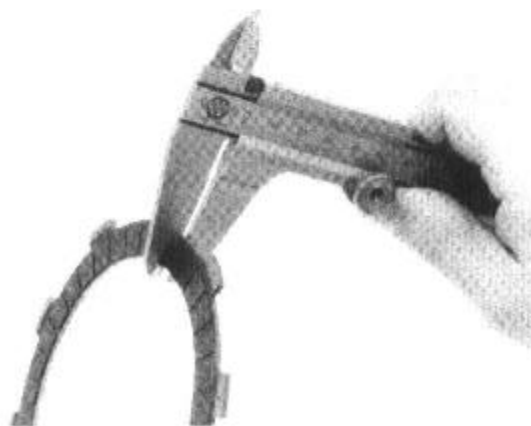


• Clutch disc

Replace the clutch discs if they show signs of scoring or discoloration.

Measure the disc thickness.

SERVICE LIMIT: 2.3 mm (0.09 in)



• Clutch plate

Check for plate and disc warpage on a surface plate using a feeler gauge.

SERVICE LIMIT: 0.20 mm (0.008 in)

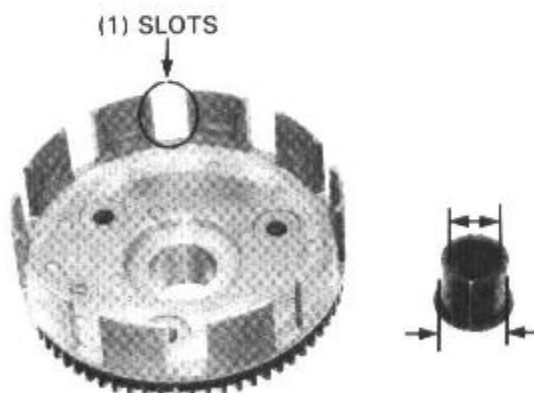


• Clutch outer/clutch outer guide

Check the slots of the clutch outer for damage or wear caused by the clutch discs. Replace if necessary.

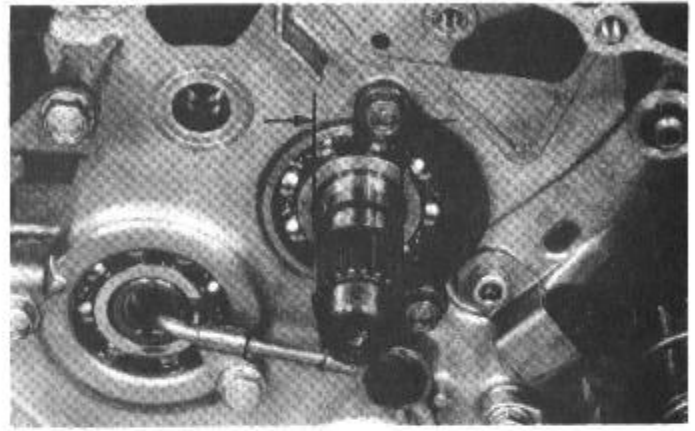
Measure the O.D. and I.D. of the clutch outer guide.

SERVICE LIMITS: O.D. 27.92 mm (1.099 in)
I.D. 22.05 mm (0.868 in)



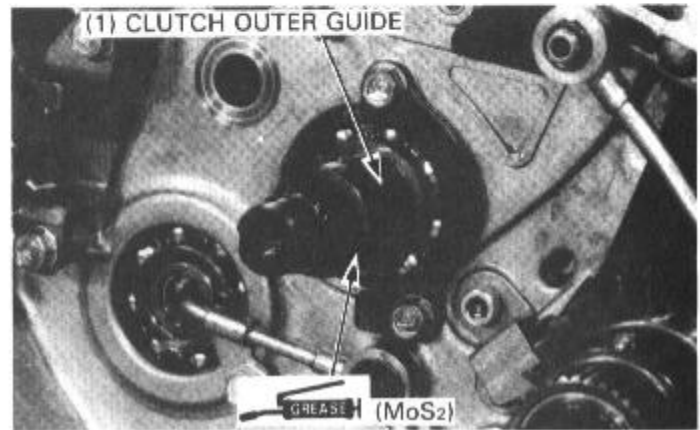
- Mainshaft at the clutch outer guide
Measure the O.D. of the mainshaft.

SERVICE LIMIT: 21.93 mm (0.863 in)

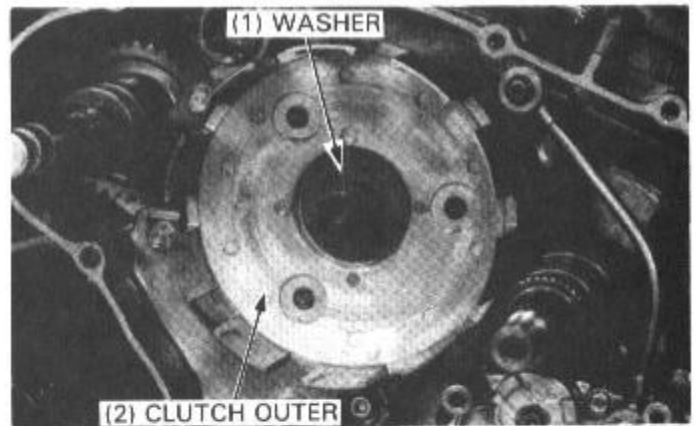


INSTALLATION

Apply molybdenum disulfide grease to the inner and outer surfaces of the clutch outer guide.
Install the clutch outer guide on the mainshaft.



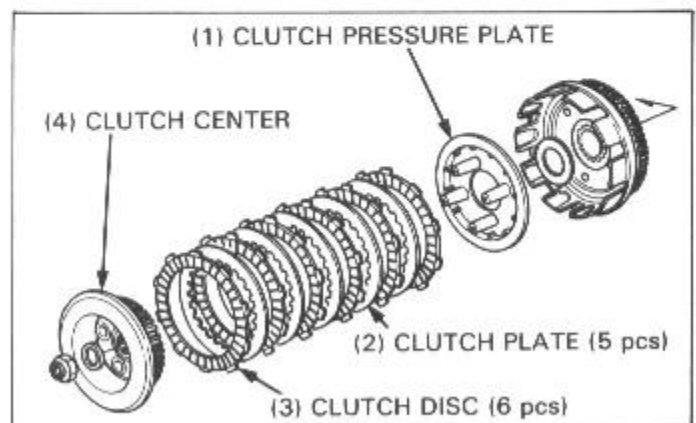
Install the clutch outer and thrust washer.



Assemble the clutch pressure plate, discs, plates and clutch center, and install them in the clutch outer.

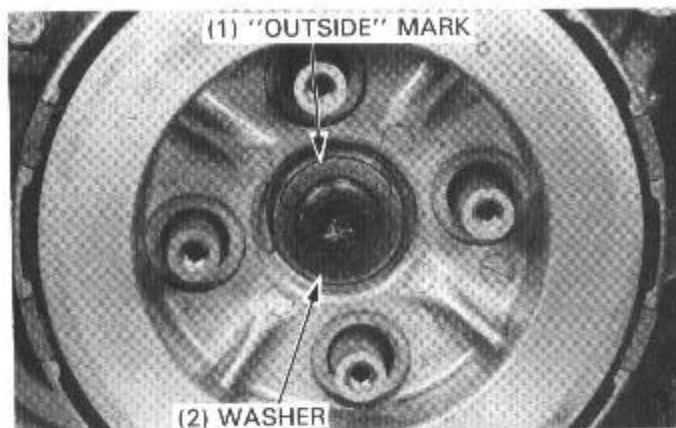
NOTE

- Stack the discs and plates alternately.
- Coat new clutch discs with engine oil.
- Be sure the clutch center and pressure plate grooves are properly aligned.



CLUTCH/OIL PUMP/KICK STARTER

Install the washer on the mainshaft with its "OUTSIDE" mark facing out.



Apply locking agent to the new lock nut.
Hold the clutch center and tighten the lock nut.

TORQUE: 110 N·m (11.0 kg-m, 80 ft-lb)

TOOLS:

Clutch center holder

07923-KE10000 or
07HGB-001000A

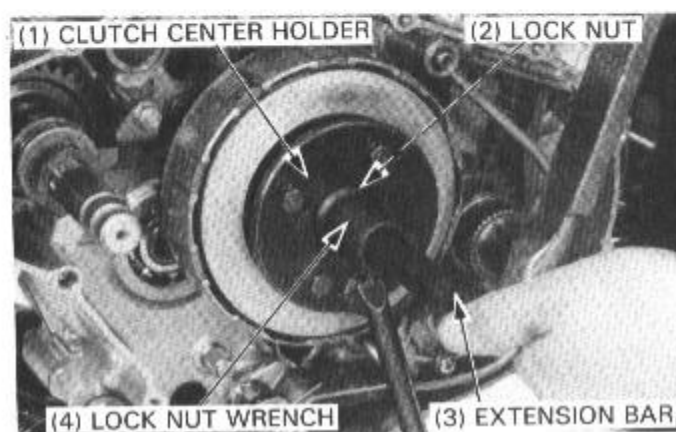
(U.S.A. only)

Lock nut wrench, 17 x 27 mm

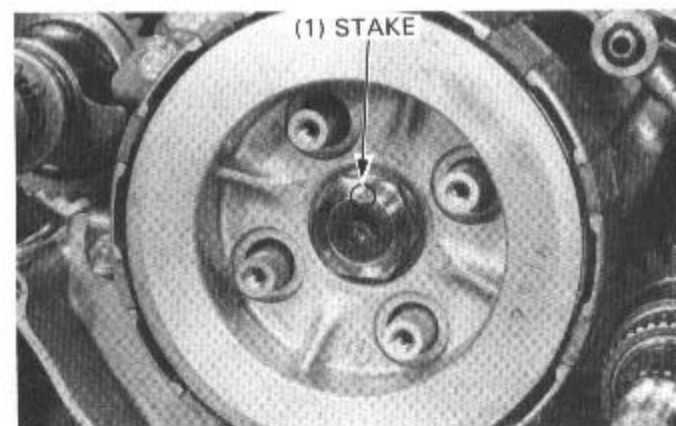
07716-0020300 } or
07716-0020500 }

Extension bar

equivalent commercially
available in U.S.A.



Stake the clutch center lock nut.

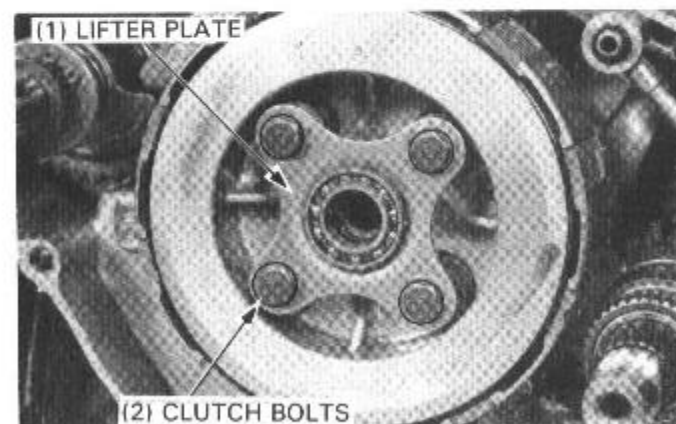


Install the clutch springs, lifter plate and bolts.
Tighten the bolts in a criss-cross pattern in 2 or 3 steps.

TORQUE: 12 N·m (1.2 kg-m, 9 ft-lb)

Install the following:

- clutch lever (page 8-17).
- centrifugal clutch (page 8-10).
- right crankcase cover (page 8-23).



REVERSE LOCK MECHANISM

REMOVAL

Remove the following:

- right crankcase cover (page 8-3).
- washer and clutch lever.
- washer and reverse stopper shaft.
- rotor bolt, reverse/neutral rotor and reverse lock plate.

Remove the washer and spring from the reverse stopper shaft.

Check all parts for excessive wear or damage, and replace if necessary.

INSTALLATION

Assemble the reverse stopper shaft and apply oil to the shaft pivot.

Install the reverse stopper shaft.

Install the reverse lock plate pins with their thicker sides towards the drum, then install the reverse lock plate.

Install the reverse/neutral rotor with its projection facing down.

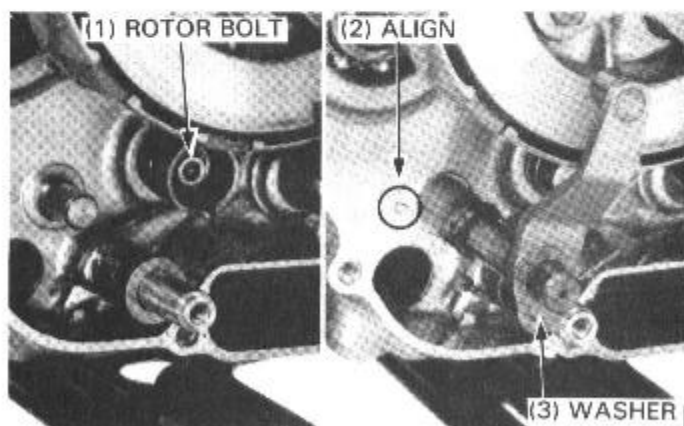
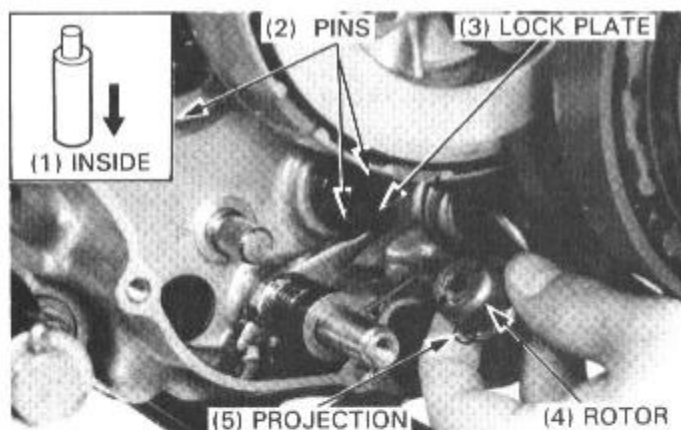
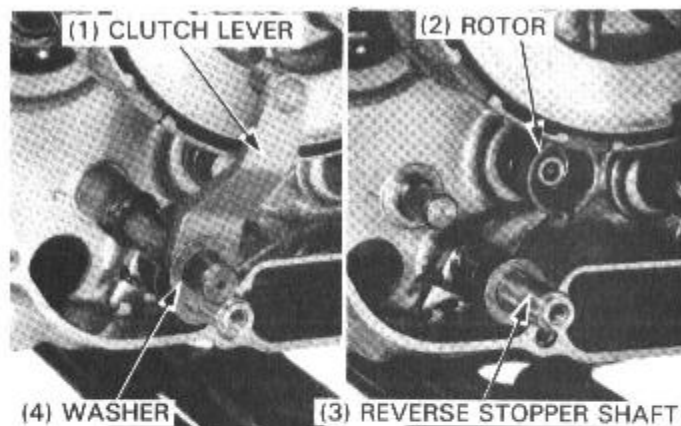
Apply locking agent to the rotor bolt and tighten it to the specified torque.

TORQUE: 12 N·m (1.2 kg·m, 9 ft·lb)

Align the index mark on the crankcase with the punch mark on the clutch lever and install the clutch lever.

Install the thrust washer.

Install the right crankcase cover (page 8-23).



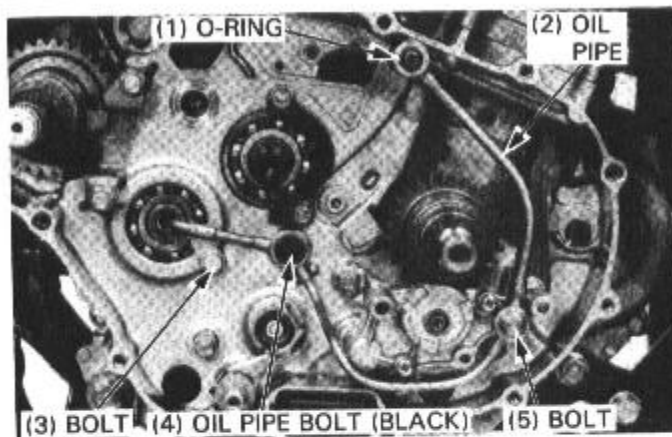
OIL PUMP

REMOVAL/DISASSEMBLY

Remove the following:

- centrifugal clutch (page 8-4)
- change clutch (page 8-12)

Remove the O-ring, oil pipe mounting bolts, oil pipe bolt (BLACK) and pipe.

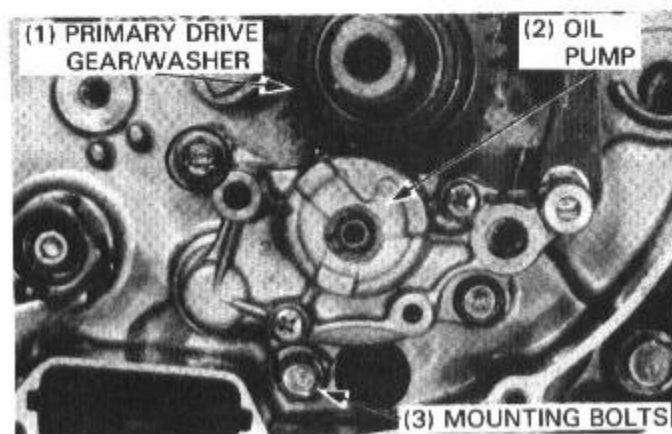


Remove the oil pump mounting bolts.

Remove the oil pump, primary drive gear and thrust washer.

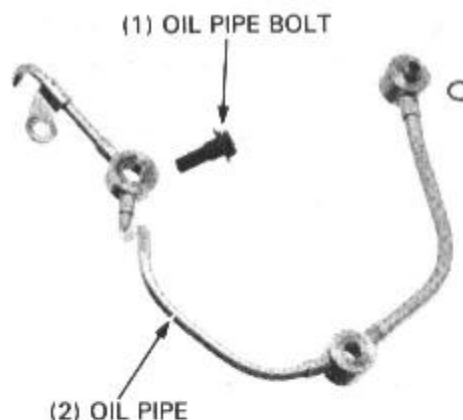
Remove the O-ring and two dowel pins from the crankcase.

Disassemble the oil pump.



INSPECTION

Make sure that the oil pipe and oil pipe bolt are not clogged.

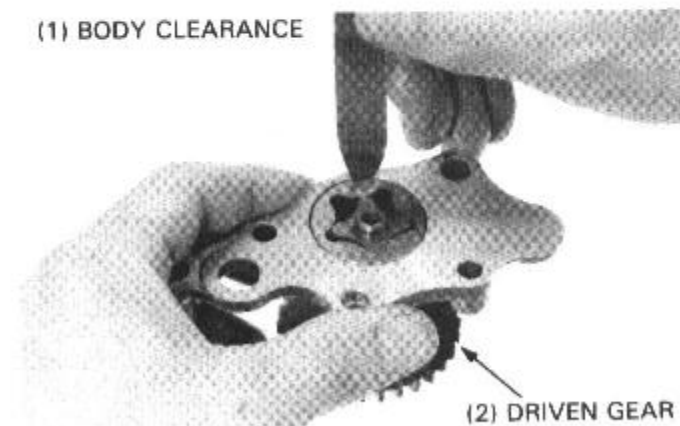


Thoroughly clean all the components.
Install the outer and inner rotors into the body and temporarily insert the oil pump driven gear shaft.

Measure the pump rotor clearance.

SERVICE LIMIT: 0.25 mm (0.010 in)

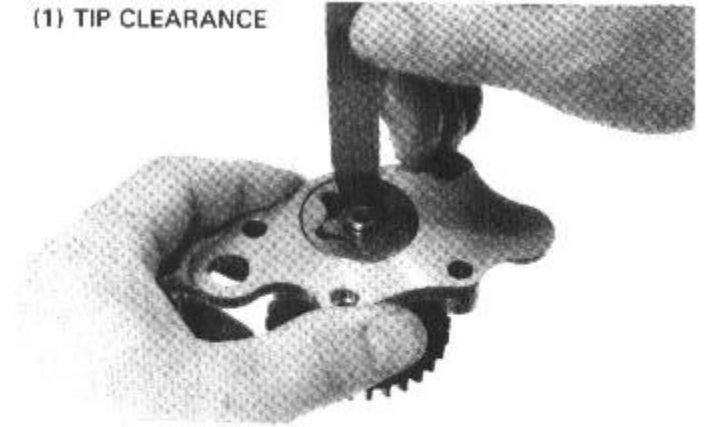
(1) BODY CLEARANCE



Measure the pump rotor tip clearance.

SERVICE LIMIT: 0.20 mm (0.008 in)

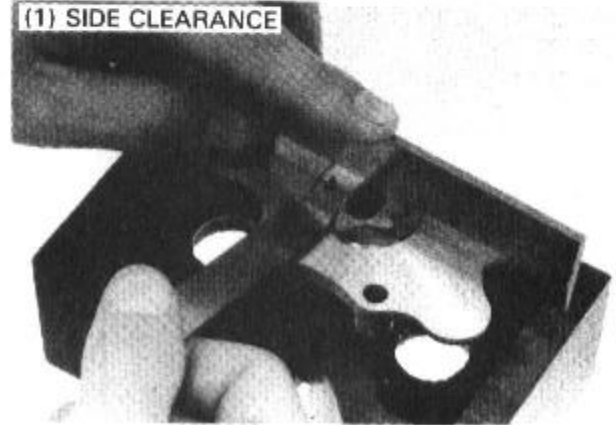
(1) TIP CLEARANCE



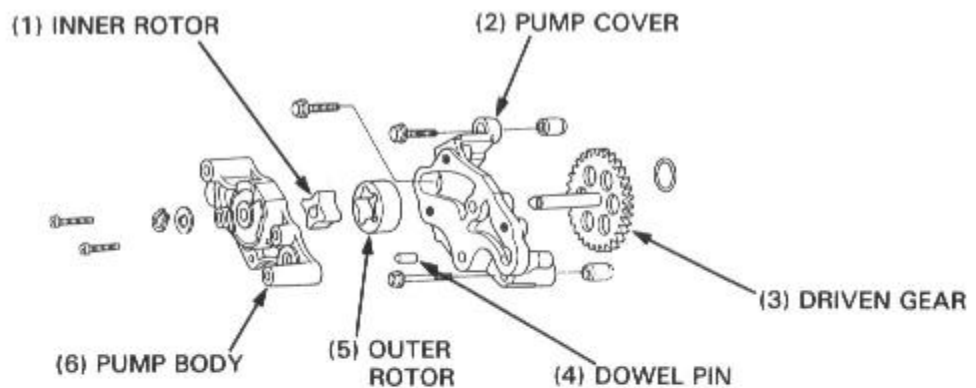
Remove the oil pump driven gear shaft from the oil pump body and measure the pump side clearance.

SERVICE LIMIT: 0.10 mm (0.004 in)

(1) SIDE CLEARANCE

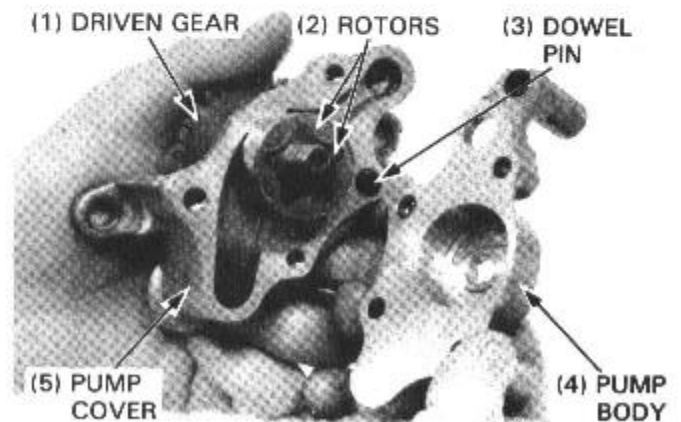


ASSEMBLY



Install the driven gear, inner rotor, outer rotor and dowel pin on the pump cover.

Install the pump body on the cover.

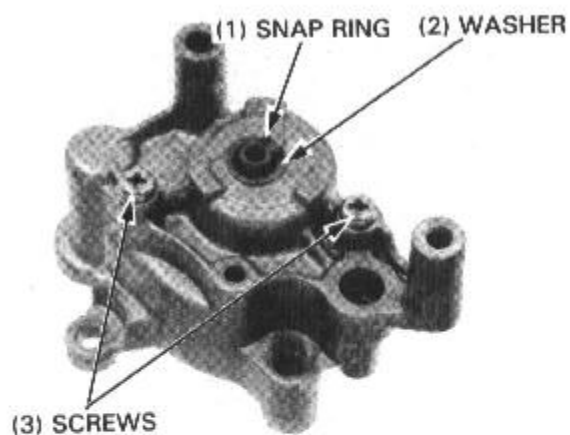


CLUTCH/OIL PUMP/KICK STARTER

Install the washer, snap ring and oil pump body screws as shown.

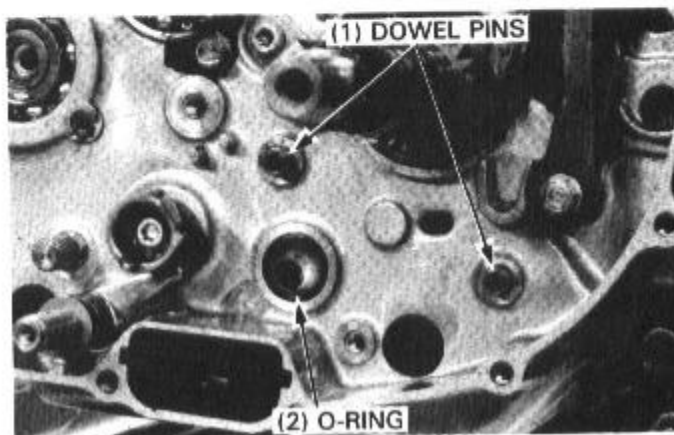
NOTE

- Install the snap ring with its chamfered surface facing the washer.



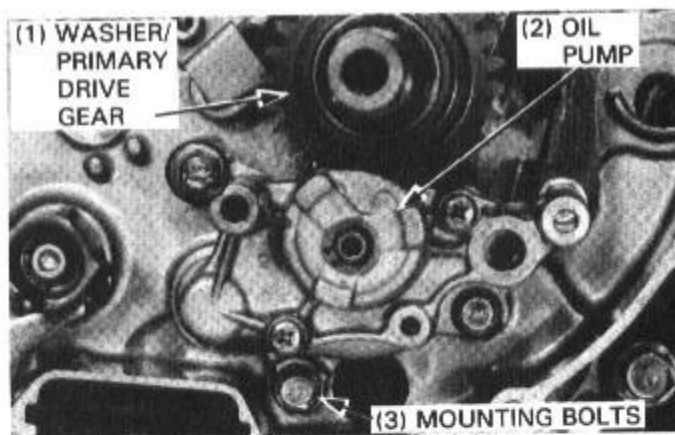
INSTALLATION

Install the O-ring and dowel pins into the right crankcase.



Install the thrust washer and primary drive gear on the crankshaft.

Install the oil pump and tighten the mounting bolts.



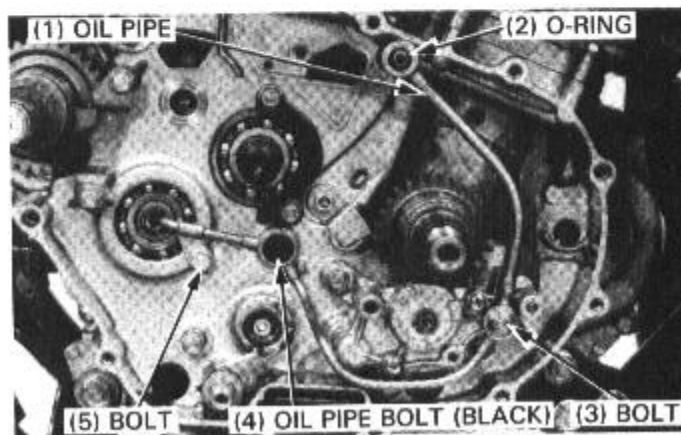
Install the oil pipe with the oil pipe bolt (BLACK), mounting bolts and O-ring.

Tighten the oil pipe bolt (BLACK) to the specified torque.

TORQUE: 12 N·m (1.2 kg-m, 9 ft-lb)

Install the following:

- change clutch (page 8-15).
- centrifugal clutch (page 8-10).



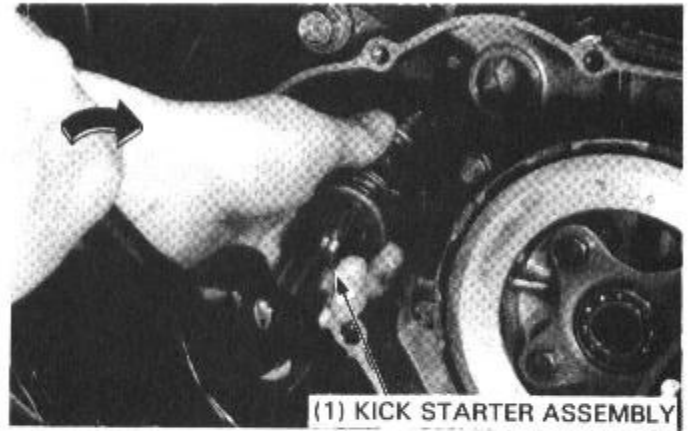
KICK STARTER

REMOVAL/DISASSEMBLY

Remove the right crankcase cover (page 8-3).

Temporarily install the kick starter pedal on the starter shaft and remove the shaft assembly by turning the kick starter arm clockwise to free the ratchet from the ratchet guide.

Disassemble the kick starter.



INSPECTION

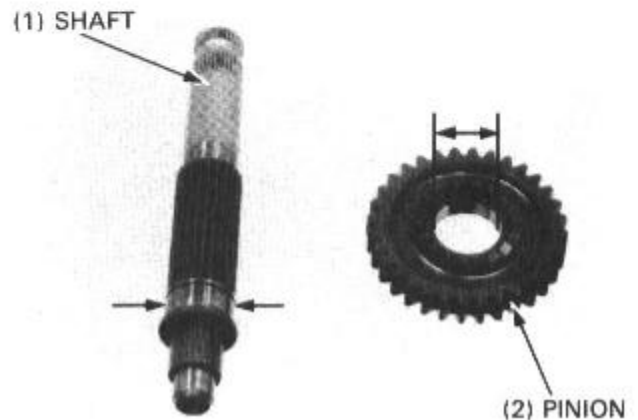
Measure the kick starter shaft O.D.

SERVICE LIMIT: 23.90 mm (0.941 in)

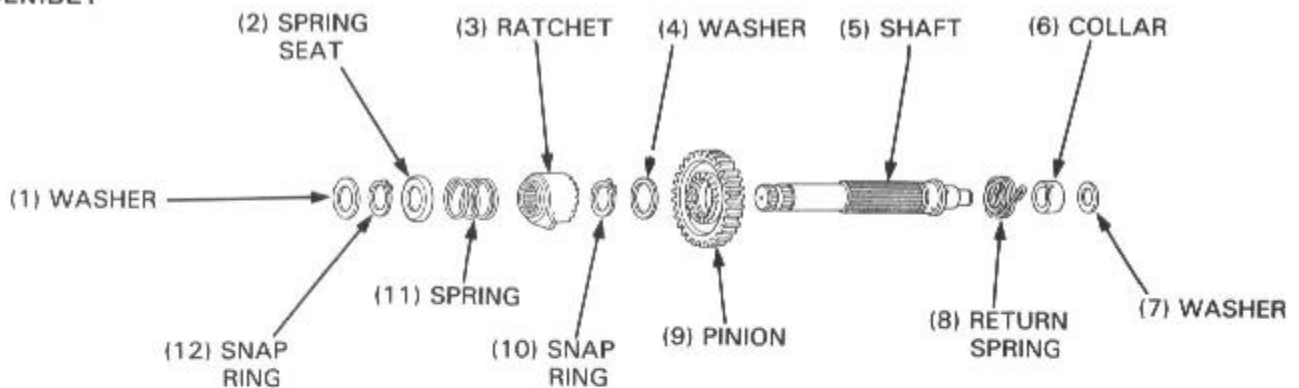
Inspect the pinion for damaged ratchet teeth.

Measure the kick starter pinion I.D.

SERVICE LIMIT: 24.10 mm (0.949 in)



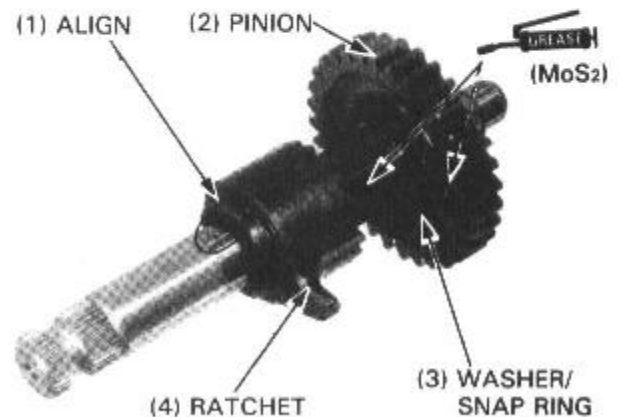
ASSEMBLY



Apply molybdenum disulfide grease to the spline side of the kick starter shaft and the sliding surface of the kick starter pinion.

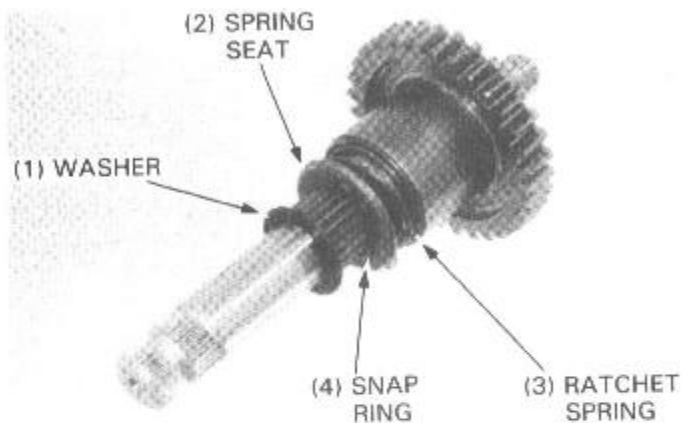
Install the kick starter pinion on the shaft, then install the washer and snap ring.

Install the ratchet on the shaft while aligning their punch marks.

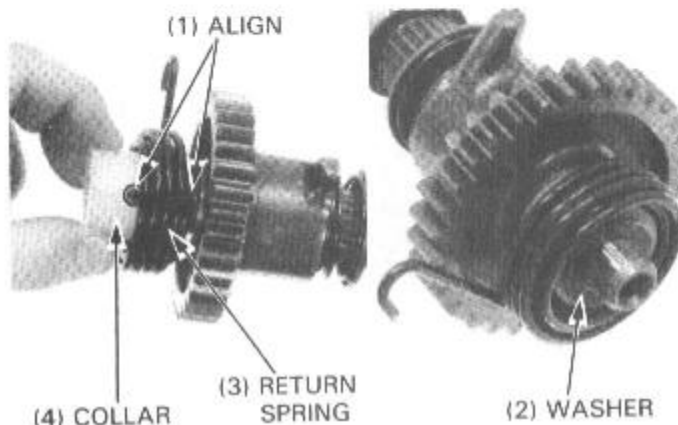


CLUTCH/OIL PUMP/KICK STARTER

Install the ratchet spring and spring seat, snap ring and washer.



Install the return spring and collar, aligning the groove in the collar with the end of the return spring. Install the washer.

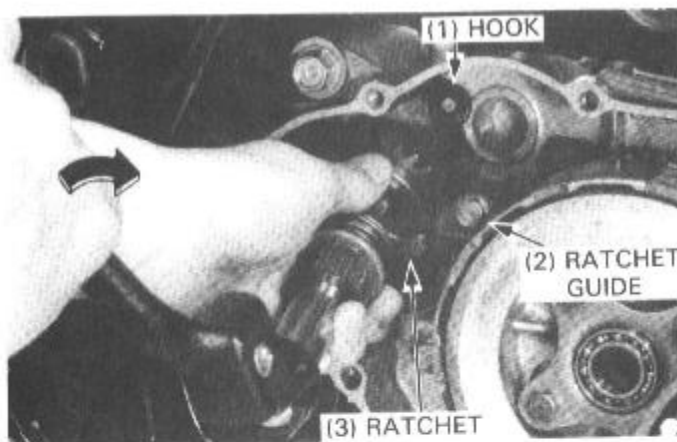


INSTALLATION

Temporarily install the kick starter pedal onto the shaft.

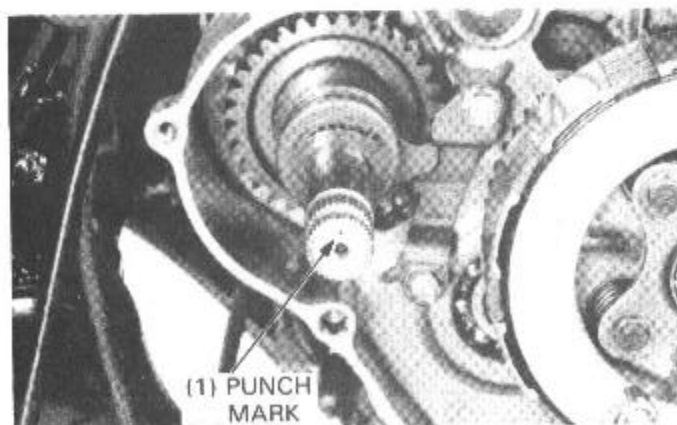
Hook the return spring onto the crankcase.

Install the kick starter assembly by turning it clockwise about a half-turn and aligning the ratchet with the ratchet guide.



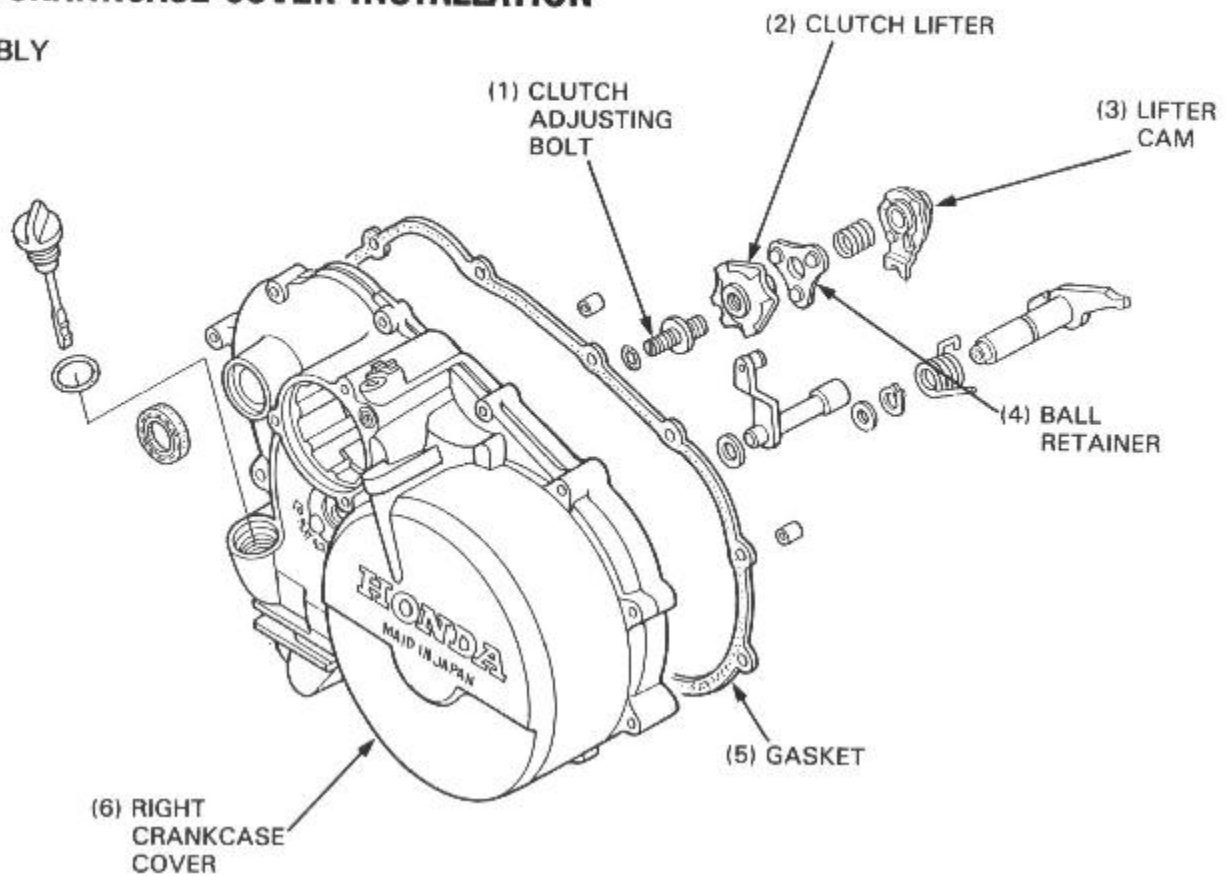
Make sure that the punch mark on the end of the spindle is facing up.

Install the right crankcase cover (page 8-23).



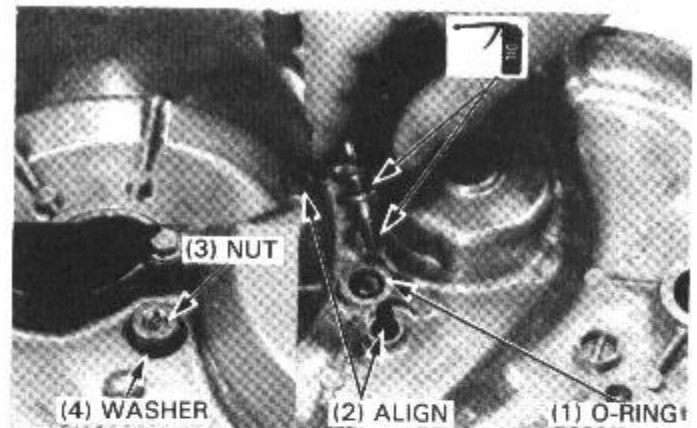
RIGHT CRANKCASE COVER INSTALLATION

ASSEMBLY



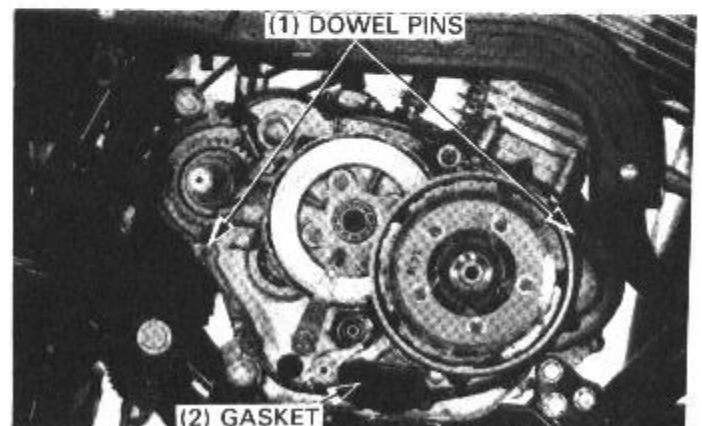
Apply oil to the clutch adjusting bolt.
Install the O-ring and the clutch adjusting bolt aligning the groove of the clutch lifter with the crankcase cover pin.

Install the washer and nut.



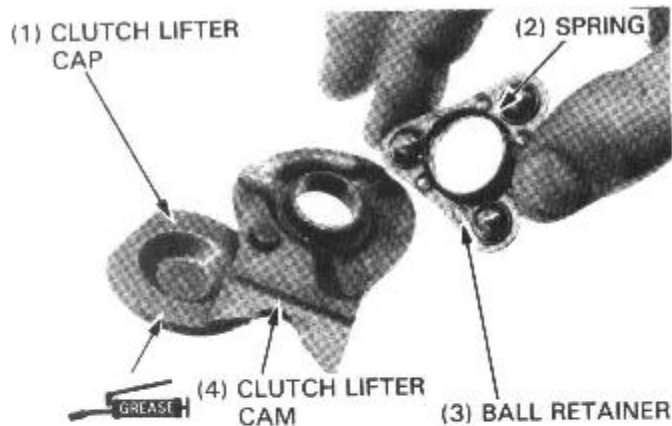
INSTALLATION

Install the dowel pins and new gasket.



CLUTCH/OIL PUMP/KICK STARTER

Apply grease to the clutch lifter cap.
Install the ball retainer and spring to the clutch lifter cam.

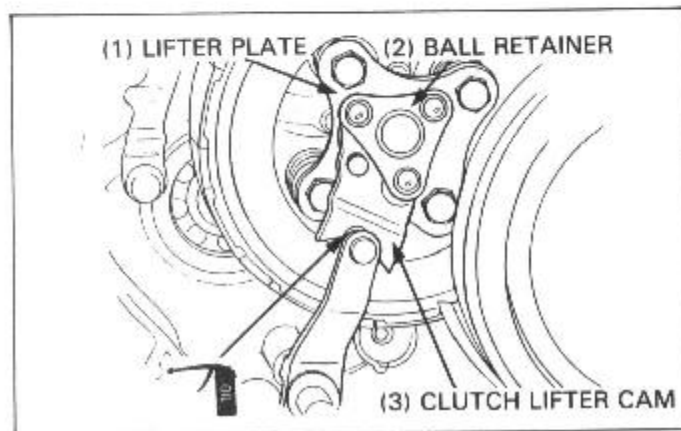


Apply oil to the clutch lever.

Install the clutch lifter cam and ball retainer to the clutch lifter plate as shown.

NOTE

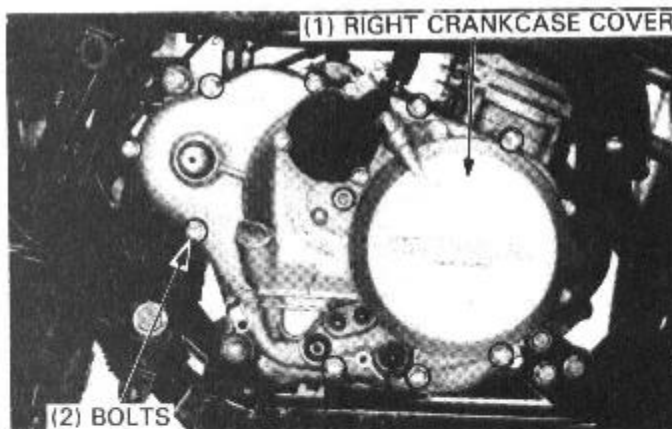
- Make sure the clutch lever should be turned toward the direction of the center of clutch.



Install the right crankcase cover.

Install and tighten the right crankcase cover bolts in 2 or 3 steps in a criss-cross pattern.

TORQUE: 10 N·m (1.0 kg-m, 7 ft-lb)

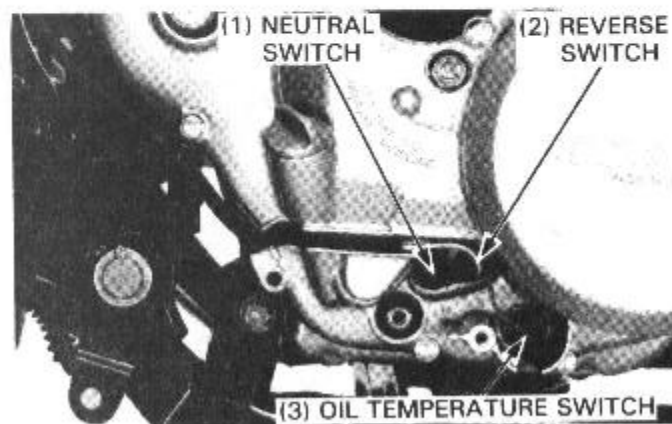


Connect the switch connectors referring their marked codes: "N" to the neutral switch and "R" to the reverse switch.

WARNING

- If the neutral and reverse switch wire connections are interchanged, the neutral indicator will come on when the transmission is in reverse.

Connect the oil temperature switch wire and route it along the crankcase cover properly.



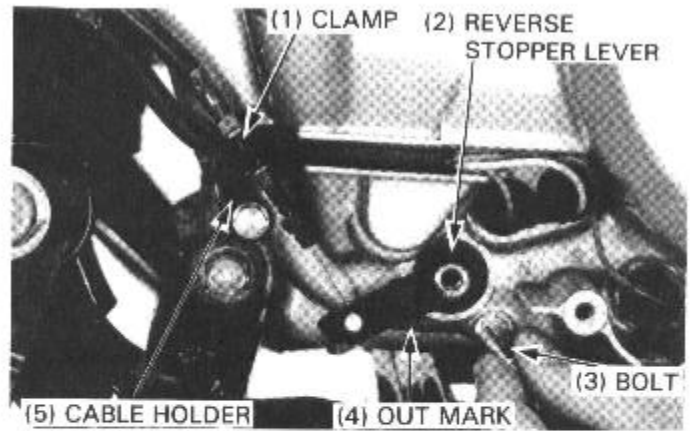
Install the cable holder with the right crankcase cover bolt.

TORQUE: 10 N·m (1.0 kg-m, 7 ft-lb)

NOTE

- Clamp the wire with the cable holder properly as shown.

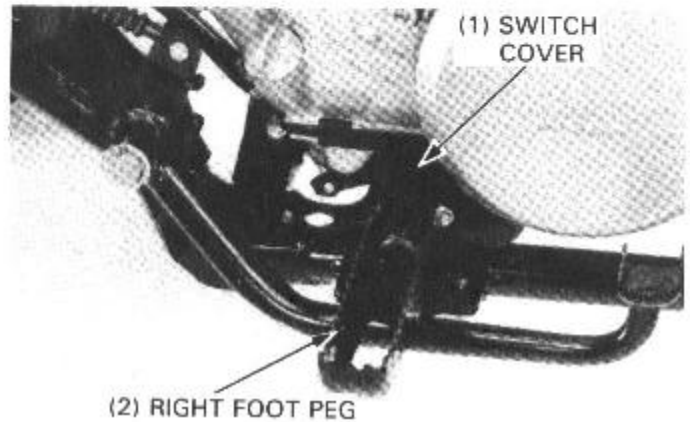
Install the reverse stopper lever with its "OUT" mark facing out. Install and tighten the reverse stopper shaft bolt.



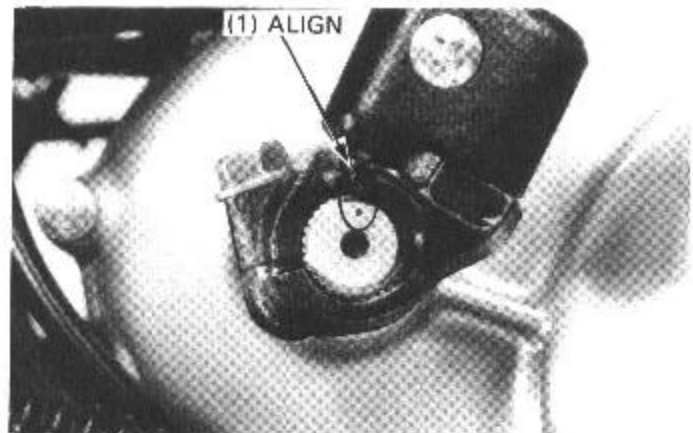
Install the switch cover and the right foot peg.

TORQUE: 33 N·m (3.3 kg-m, 24 ft-lb)

Install the skid plate (TRX300FW).



Install the kick starter pedal to the shaft, aligning the punch marks of the pedal and shaft.



Install the oil path pipe at the top using a special bolt, lock washer and a new sealing washer.

Attach the lower end of the oil path pipe using a special bolt and new sealing washers.

Torque the special bolts.

TORQUE:

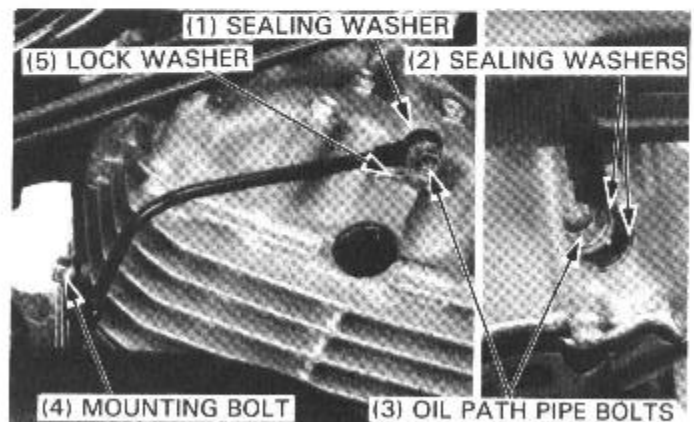
Oil path pipe bolt (oil control bolt):
12 N·m (1.2 kg-m, 9 ft-lb)

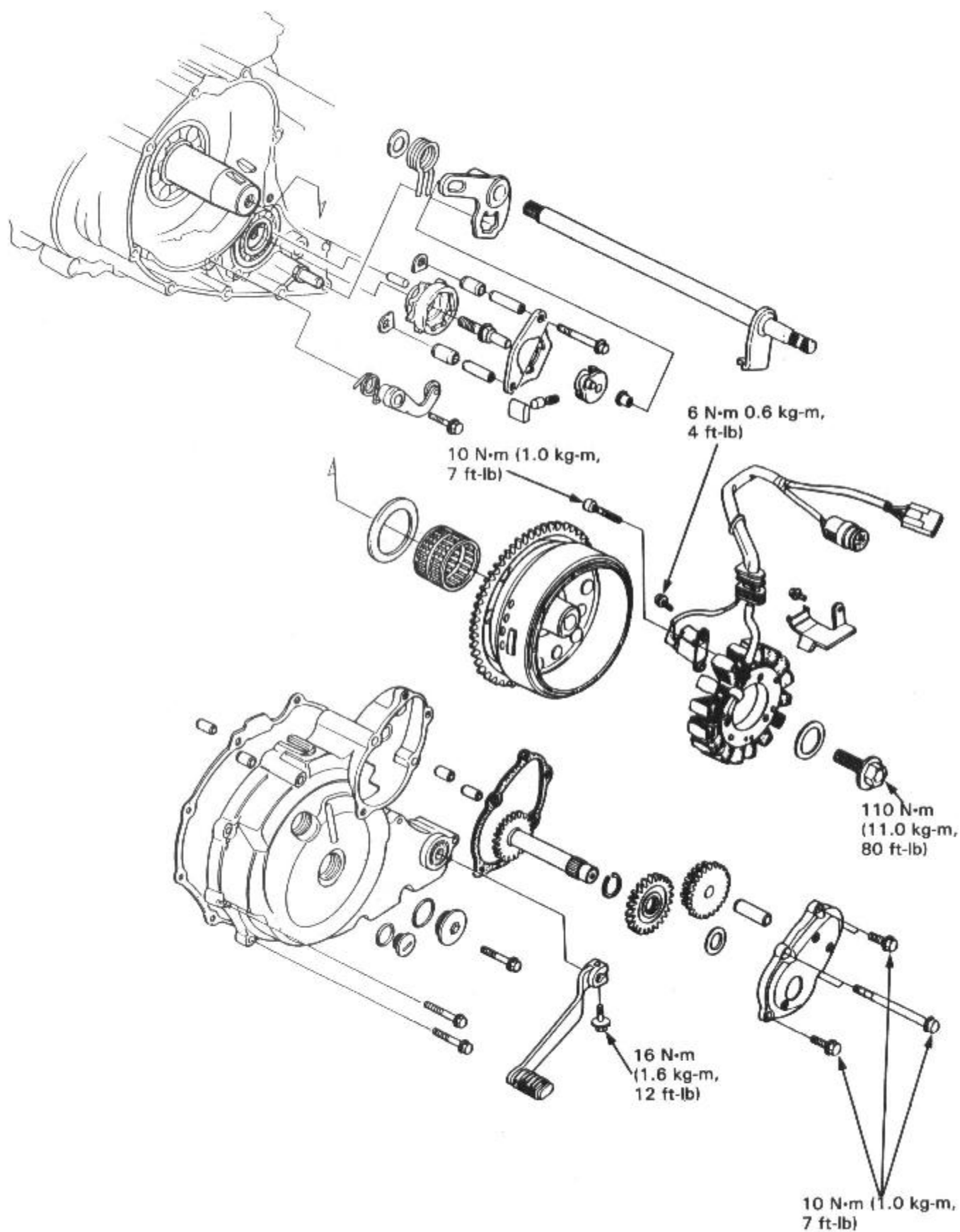
Secure the oil path pipe using the mounting bolt as shown. Tighten the bolt securely.

Adjust the clutch and reverse cable (page 3-12, 13).

Fill the engine with oil (page 2-3).

Check the clutch and gearshift pedal for smooth operation. Make sure there are no oil leaks.





9. ALTERNATOR/STARTER CLUTCH/GEARSHIFT LINKAGE

SERVICE INFORMATION	9-1	FLYWHEEL/STARTER CLUTCH	9-7
TROUBLESHOOTING	9-1	GEARSHIFT LINKAGE	9-10
STARTER REDUCTION GEAR	9-2	LEFT CRANKCASE COVER	
LEFT CRANKCASE COVER REMOVAL	9-4	INSTALLATION	9-13

SERVICE INFORMATION

GENERAL

- This section covers the removal and installation of the starter reduction gear, alternator, pulse generator, starter clutch and gearshift linkage.
- Refer to section 17 for pulse generator inspection, and to section 18 for alternator inspection.

TORQUE VALUES

Starter reduction gear cover bolt	10 N·m (1.0 kg-m, 7 ft-lb)
Pulse generator screw	6 N·m (0.6 kg-m, 4 ft-lb) — Apply locking agent
Alternator stator bolt	10 N·m (1.0 kg-m, 7 ft-lb)
Starter clutch torx bolt	16 N·m (1.6 kg-m, 12 ft-lb) — Apply locking agent
Flywheel bolt	110 N·m (11.0 kg-m, 80 ft-lb)
Left foot peg bolt	33 N·m (3.3 kg-m, 24 ft-lb)
Gearshift return spring pin	22 N·m (2.2 kg-m, 16 ft-lb)
Gearshift pedal bolt	16 N·m (1.6 kg-m, 12 ft-lb)
Left crankcase cover bolt	10 N·m (1.0 kg-m, 7 ft-lb)

TOOLS

Common

Driver	07749—0010000
Attachment, 24 x 26 mm	07746—0010700
Flywheel holder	07725—0040000 or strap wrench, commercially available in U.S.A.
Rotor puller	07733—0020001 or 07933—3950000
Torx driver bit	07703—0010200 or equivalent commercially available in U.S.A.

TROUBLESHOOTING

Engine does not turn

- Faulty one-way starter clutch
- Starter reduction gear broken

Transmission jumps out of gear

- Shift drum stopper arm broken

Hard to shift

- Shift drum cam plate damaged

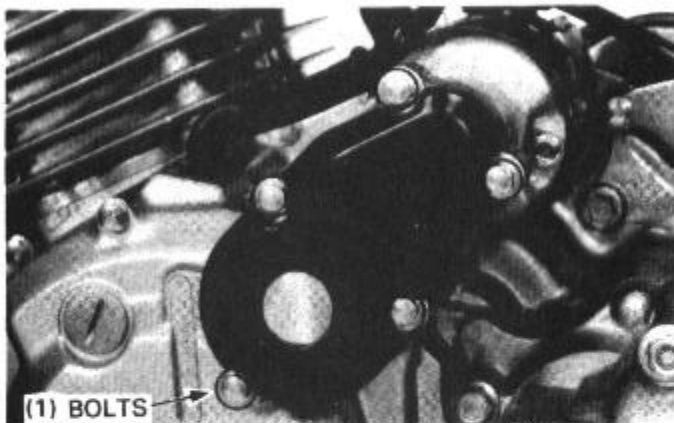
Gearshift pedal will not return

- Weak or broken shift return spring
- Shift spindle binding with case

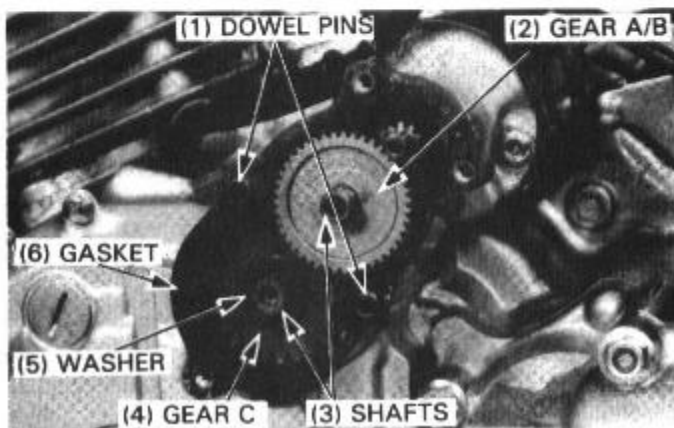
STARTER REDUCTION GEAR

REMOVAL

Remove the starter reduction gear cover bolts and cover.



Remove the gasket and dowel pins.
Remove reduction gears A/B and C, the washer and the shafts.



INSPECTION

Inspect the starter reduction gear teeth for wear or damage.

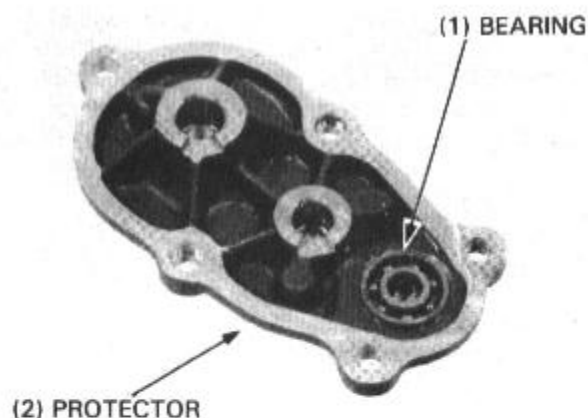
Check the reduction gear bearing for excessive play or damage and replace if necessary.

BEARING REPLACEMENT

Remove the gear cover protector by removing the screws.
Remove the reduction gear bearing by tapping the area around the bearing with a soft-hammer after heating the cover lightly.

WARNING

- To avoid burns, wear heavy gloves when handling the heated reduction cover.

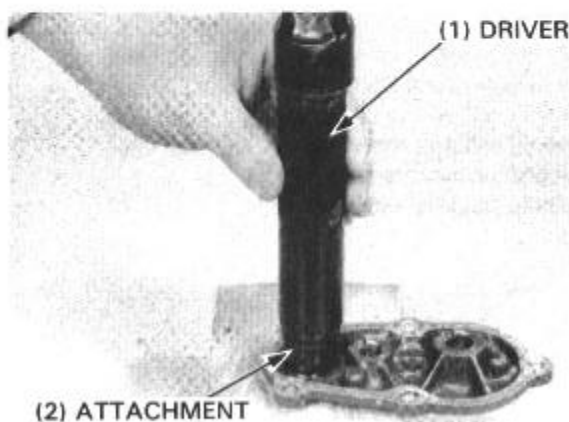


Drive the new bearing into the starter reduction gear cover.

TOOLS:

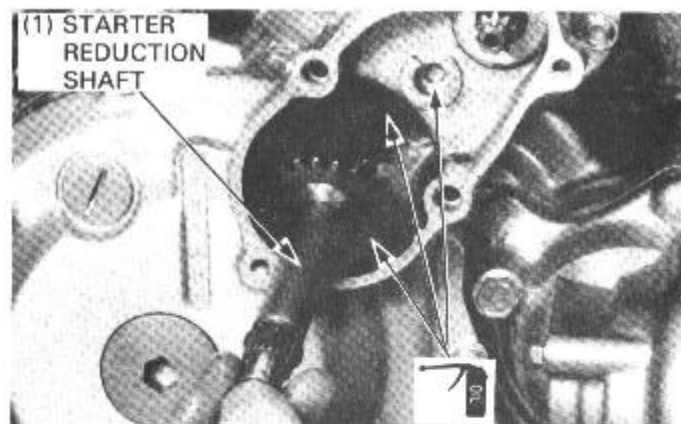
Driver 07749-0010000
Attachment, 24 x 26 mm 07746-0010700

Install the gear cover protector with screws.

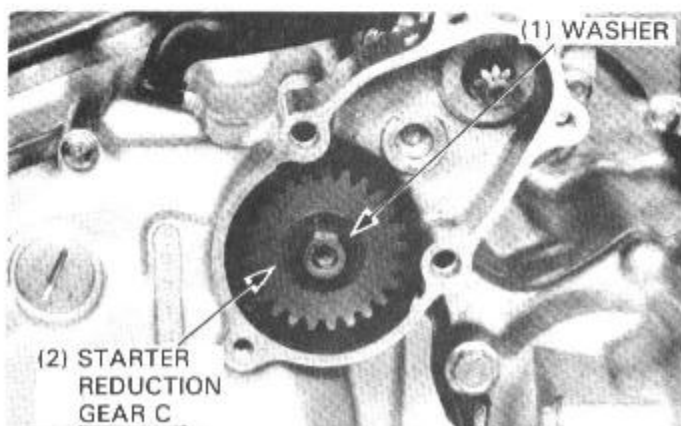


INSTALLATION

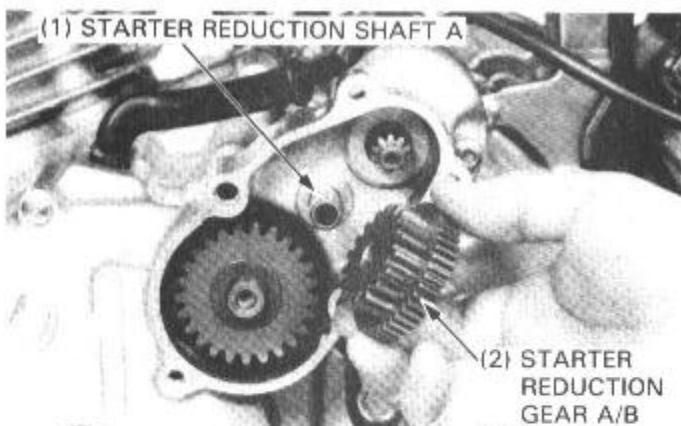
Apply oil to all the gear teeth and shaft journals of the crankcase.
Install the starter reduction shaft.



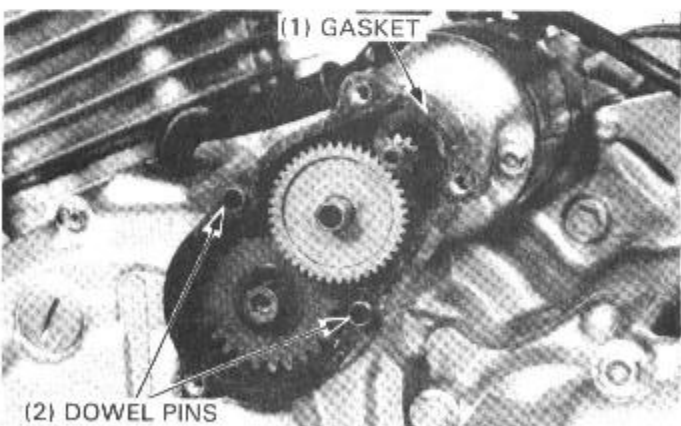
Install the starter reduction gear C and thrust washer on the shaft.



Install the starter reduction shaft A and starter reduction gear A/B.



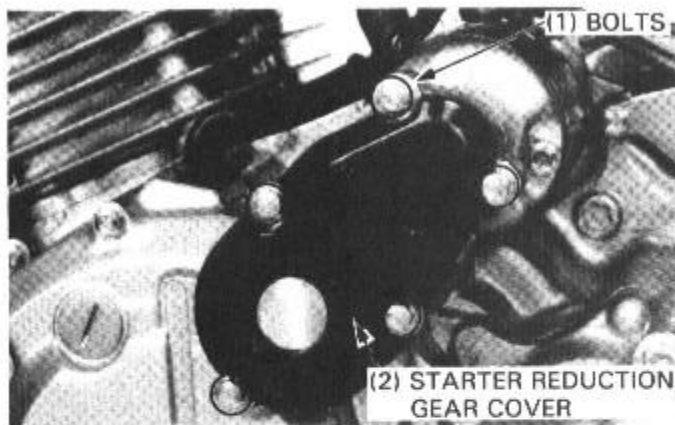
Install the dowel pins and new gasket.



ALTERNATOR/STARTER CLUTCH/GEARSHIFT LINKAGE

Install the starter reduction gear cover and tighten the bolts to the specified torque.

TORQUE: 10 N·m (1.0 kg-m, 7 ft-lb)



LEFT CRANKCASE COVER REMOVAL

COVER REMOVAL

Drain the oil from the engine (page 2-3).

Remove the following:

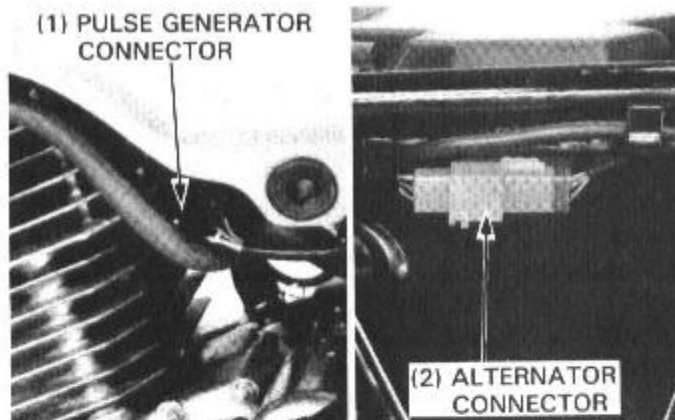
- skid plate (TRX300FW).
- front drive side shaft cover and shaft (page 14-25) (TRX300FW).
- left foot peg.
- gearshift pedal
- starter reduction gear (page 9-2).



Disconnect the pulse generator and alternator connectors.

NOTE

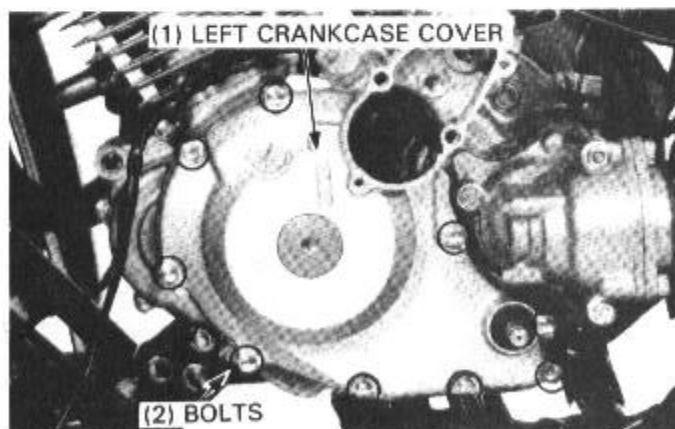
- It is not necessary to remove the rear fender to disconnect the alternator connector.



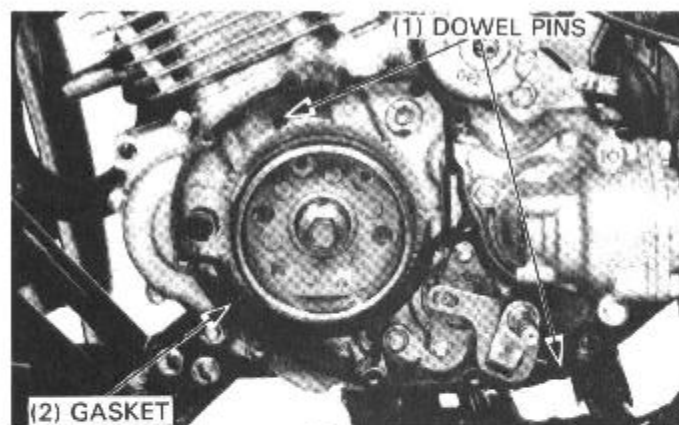
Remove the left crankcase cover mounting bolts and cover.

NOTE

- Be careful not to pull the gearshift spindle out of the crankcase when removing the crankcase cover.

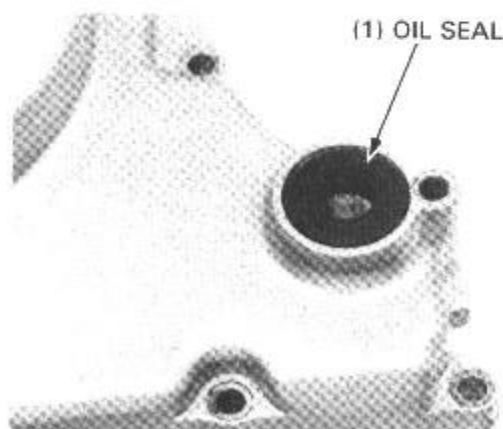


Remove the gasket and dowel pins.



INSPECTION

Inspect the gearshift spindle oil seal for wear or damage.

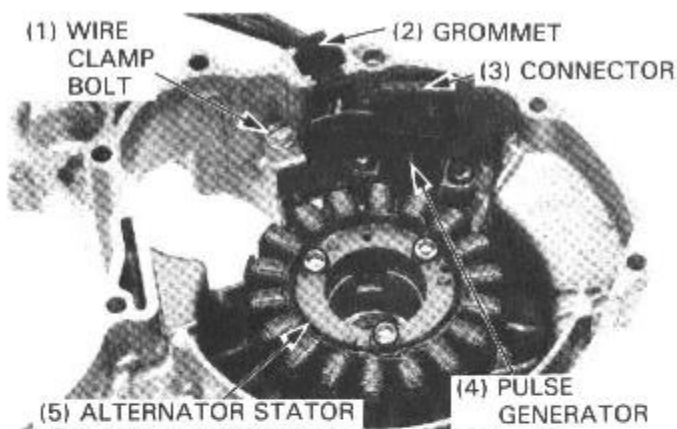


ALTERNATOR/PULSE GENERATOR REPLACEMENT

Remove the wire clamp by removing the bolt.

Remove the three stator bolts and stator.

Remove the pulse generator mounting screws.

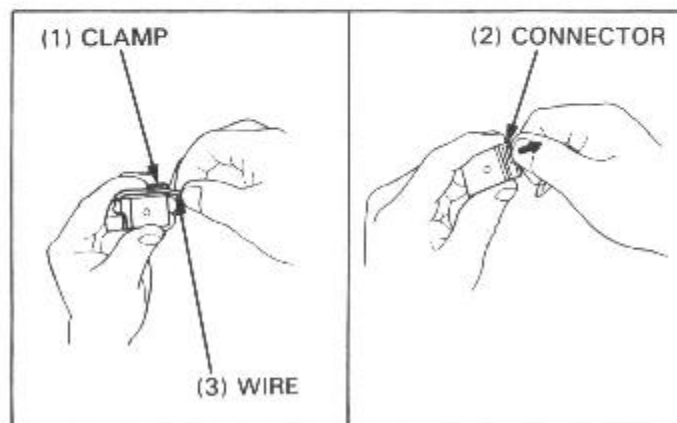


Release the pulse generator wire from the clamp on the pulse generator.

Disconnect the pulse generator wire connector from the pulse generator.

NOTE

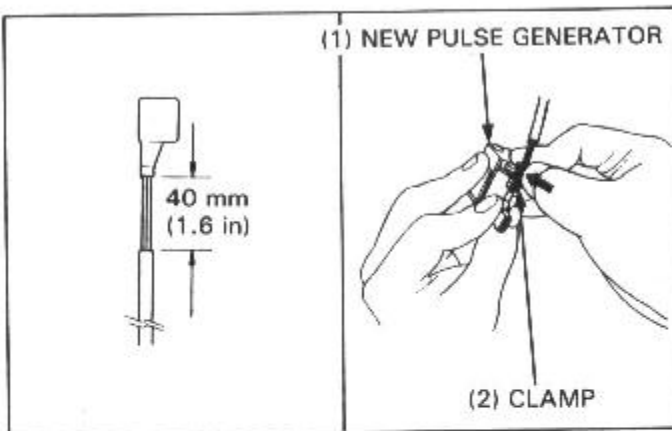
- Pull the connector, do not pull the wire.



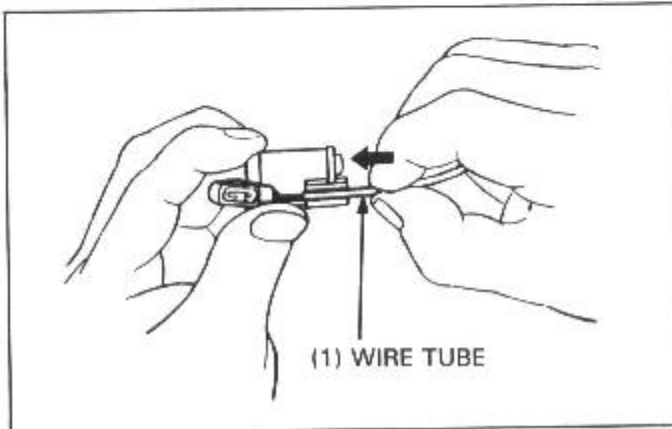
ALTERNATOR/STARTER CLUTCH/GEARSHIFT LINKAGE

Move the wire tube and keep the distance between the terminal insulator and wire tube at 40 mm (1.6 in).

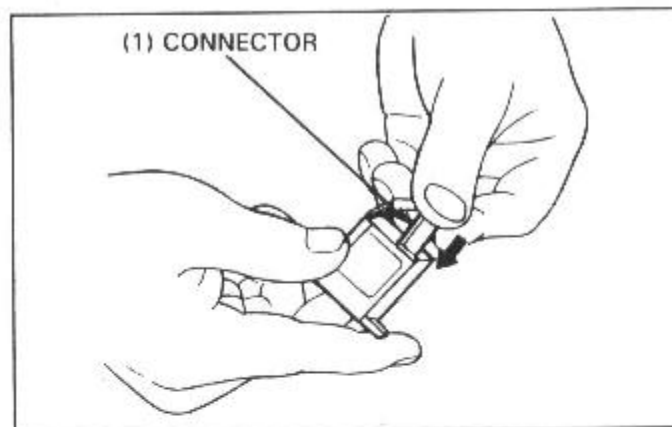
Clamp the pulse generator wire securely as shown.



Push the wire tube into the pulse generator clamp.



Connect the pulse generator wire connector on the pulse generator terminal.



Apply sealant to the groove in the left crankcase cover and insert the wire grommet.

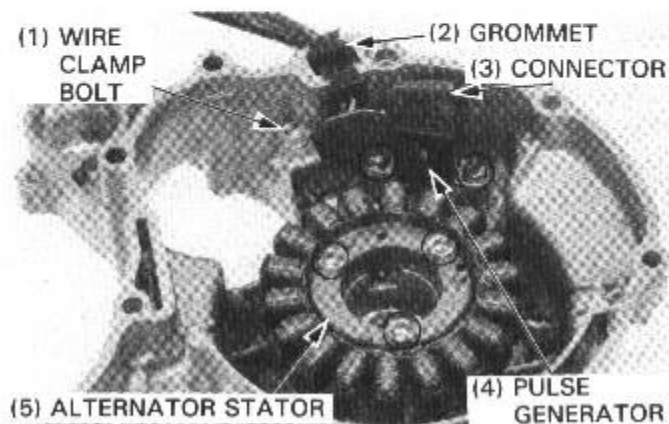
Apply locking agent to the attaching screws and install the stator, pulse generator and wire clamp securely.

Tighten the screws and bolts to the specified torque.

TORQUE:

Pulse generator: 6 N·m (0.6 kg-m, 4 ft-lb)

Alternator stator: 10 N·m (1.0 kg-m, 7 ft-lb)



FLYWHEEL/STARTER CLUTCH

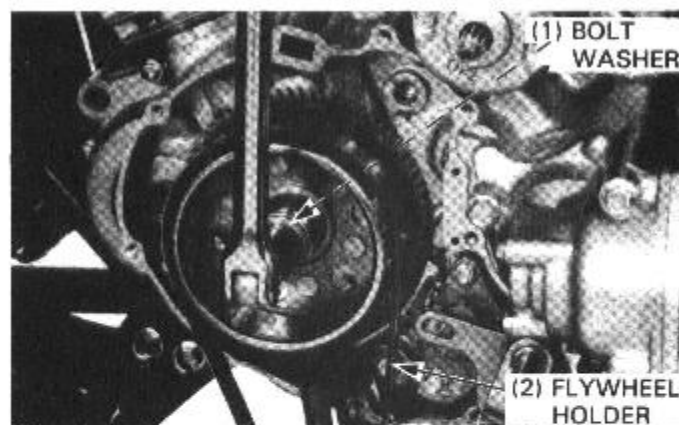
FLYWHEEL REMOVAL

Hold the flywheel with the flywheel holder, and remove the bolt and washer.

TOOL:

Flywheel holder

07725-0040000 or
strap wrench,
commercially available
in U.S.A.

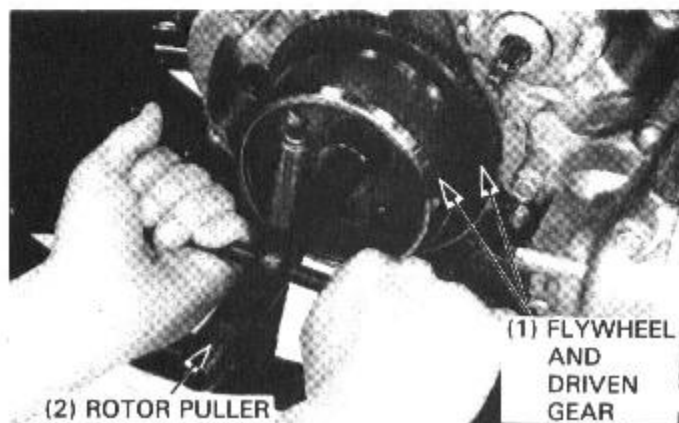


Remove the flywheel with the starter driven gear.

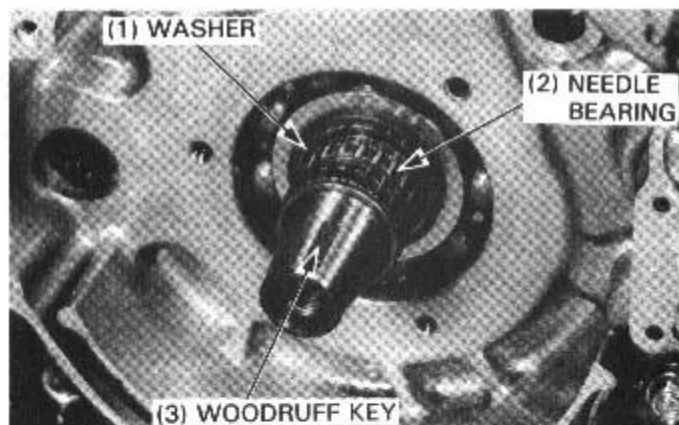
TOOL:

Rotor puller

07733-0020001 or
07933-3950000

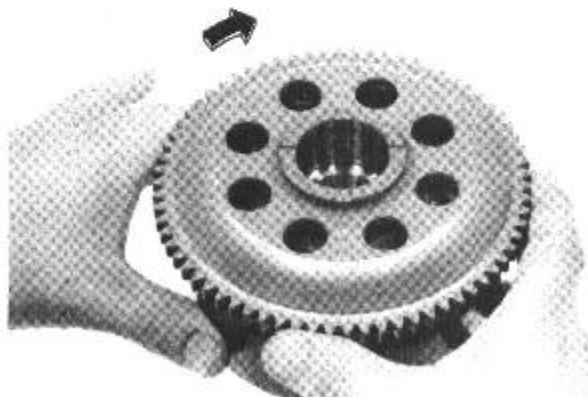


Remove the needle bearing, washer and woodruff key.



STARTER CLUTCH INSPECTION/DISASSMBLY

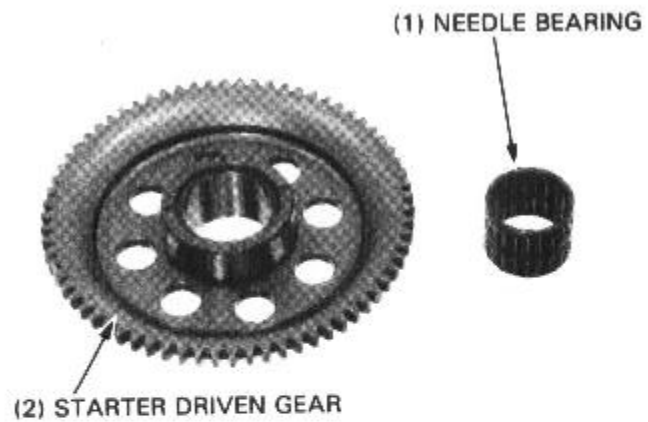
Check the operation of the one-way clutch by turning the driven gear. You should be able to turn the driven gear clockwise smoothly, but the gear should not turn counterclockwise.



ALTERNATOR/STARTER CLUTCH/GEARSHIFT LINKAGE

Inspect the starter driven gear teeth for damage or abnormal wear.

Check the needle bearing for damage.



Remove the one-way clutch from the flywheel using an impact driver and torx driver bit.

TOOL:

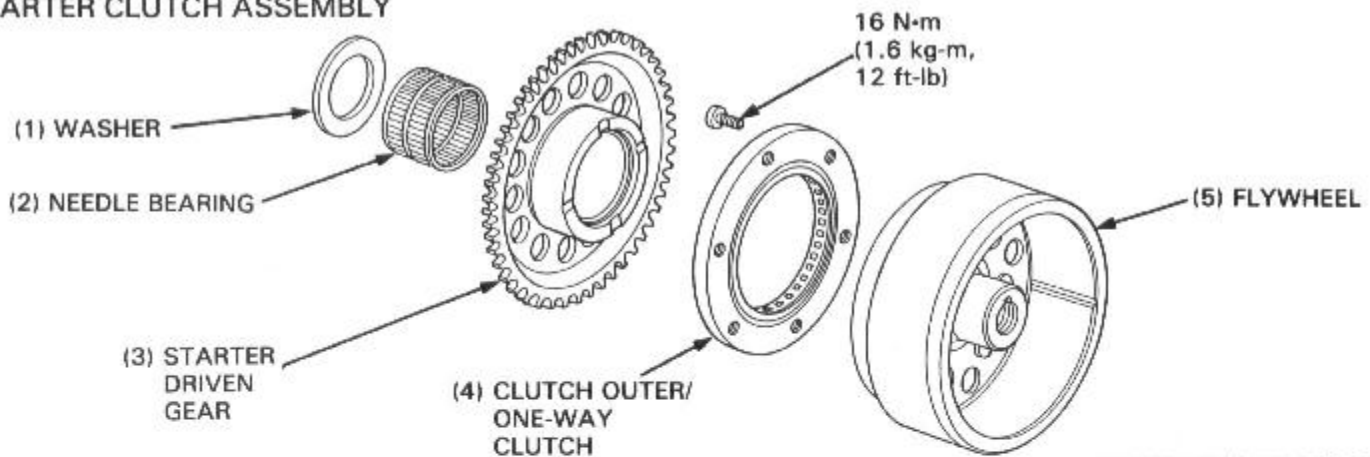
Torx driver bit

07703-0010200 or
equivalent commercially
available in U.S.A.

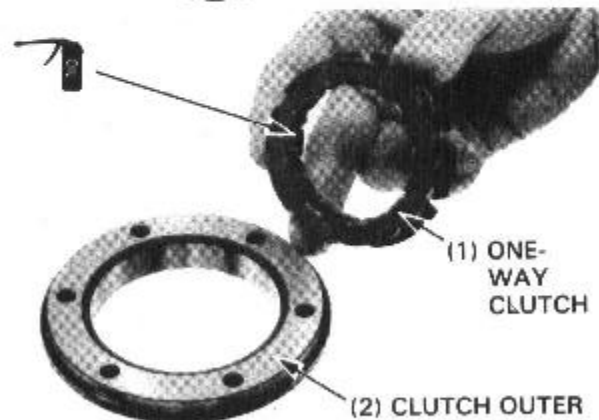


Check the one-way clutch rollers for wear or damage.

STARTER CLUTCH ASSEMBLY



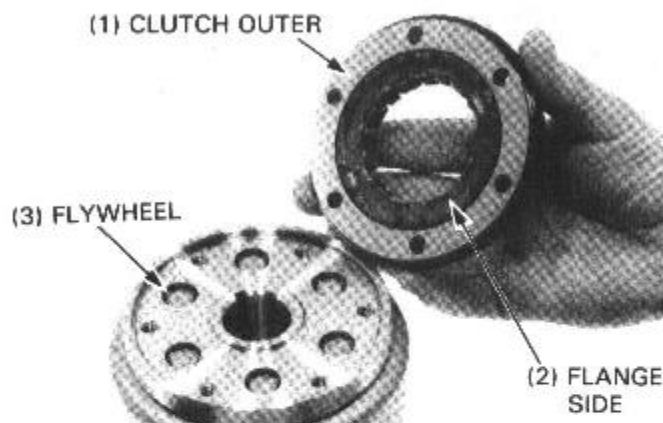
Apply oil to the one-way clutch rollers.
Install the one-way clutch in the clutch outer.



Assemble the one-way clutch outer and the flywheel.

NOTE

- Make sure the flange side of the one-way clutch is faced to the flywheel.



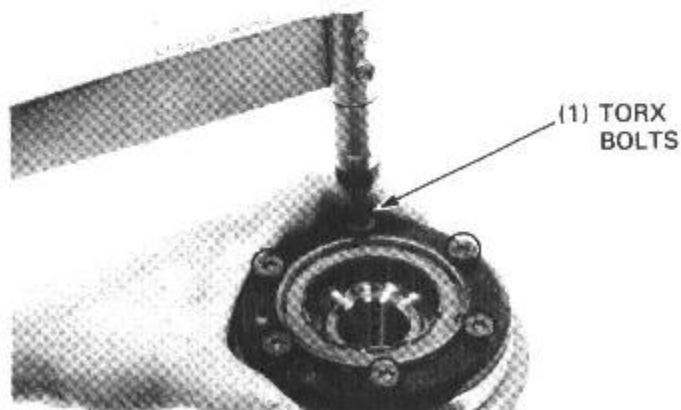
Apply locking agent to the threads of the torx bolts. Install and tighten the torx bolts.

TORQUE: 16 N·m (1.6 kg-m, 12 ft-lb)

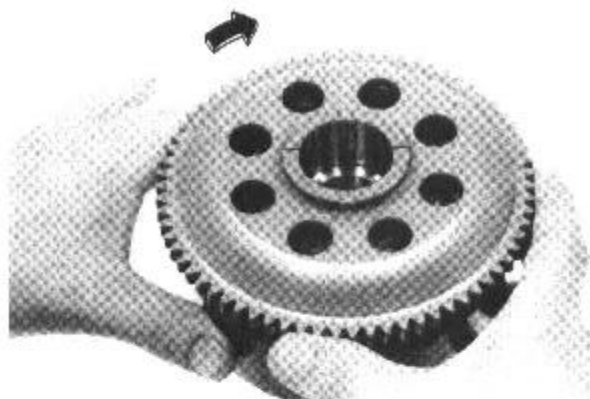
TOOL:

Torx driver bit

07703-0010200 or
equivalent commercially
available in U.S.A.

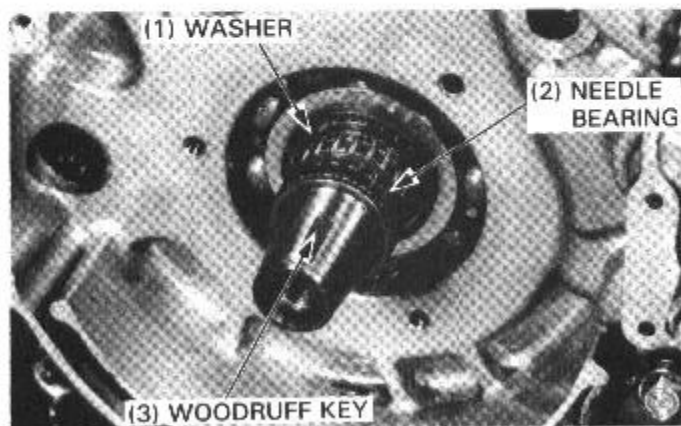


Install the starter driven gear into the one-way clutch by turning it clockwise.



FLYWHEEL INSTALLATION

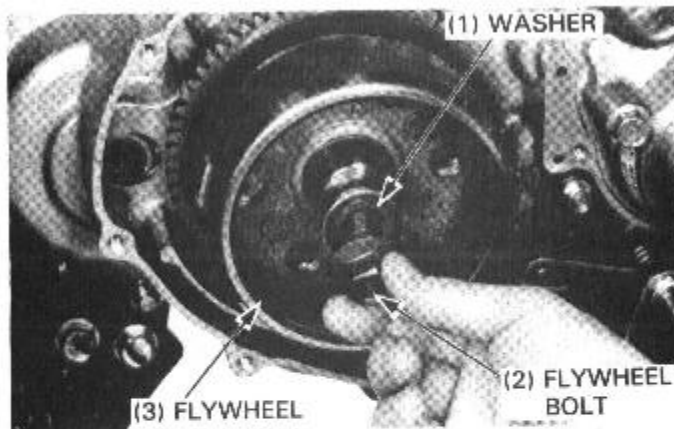
Clean any oil from the crankshaft.
Install the washer with its chamfered surface facing out.
Install the needle bearing.
Install the woodruff key.



ALTERNATOR/STARTER CLUTCH/GEARSHIFT LINKAGE

Install the flywheel with the starter driven gear, aligning the key way in the flywheel with the key on the crankshaft.

Install the washer and flywheel bolt.



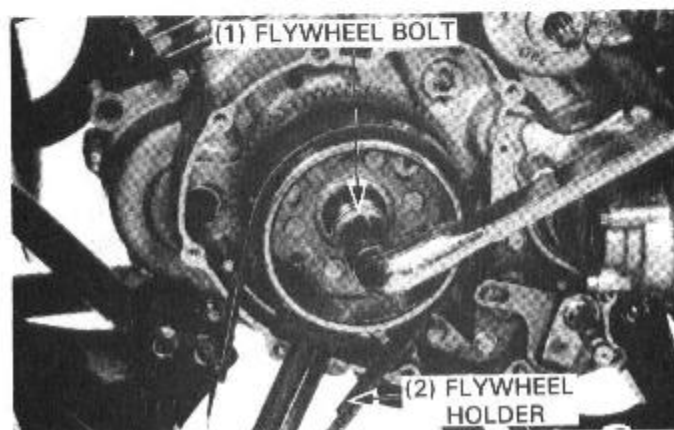
Hold the flywheel with the flywheel holder and tighten the bolt.

TORQUE: 110 N·m (11.0 kg-m, 80 ft-lb)

TOOL:

Flywheel holder

07725-0040000 or
strap wrench,
commercially available
in U.S.A.



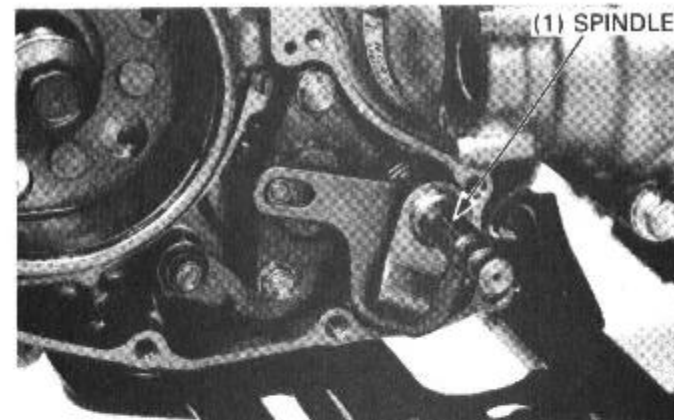
GEARSHIFT LINKAGE

REMOVAL

Remove the following:

- left crankcase cover (page 9-4).
- right crankcase cover (page 8-3).
- clutch lever (page 8-17).

Pull the gearshift spindle out of the crankcase.

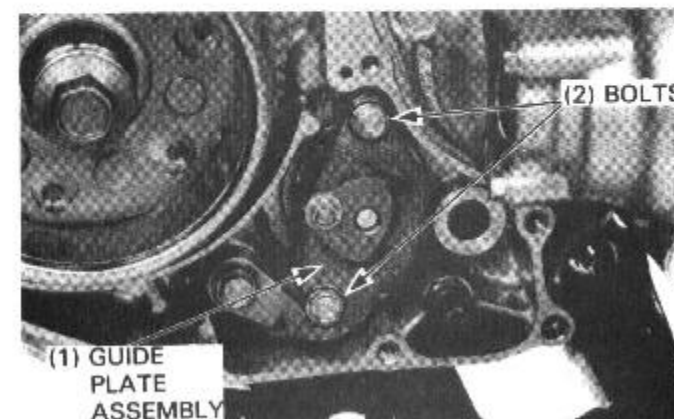


Remove the guide plate bolts and guide plate as assembly.

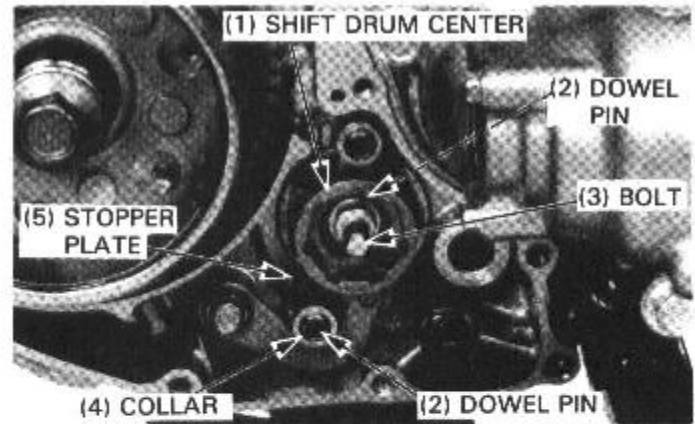
NOTE

- Be careful not to drop any components of the guide plate assembly into the crankcase.

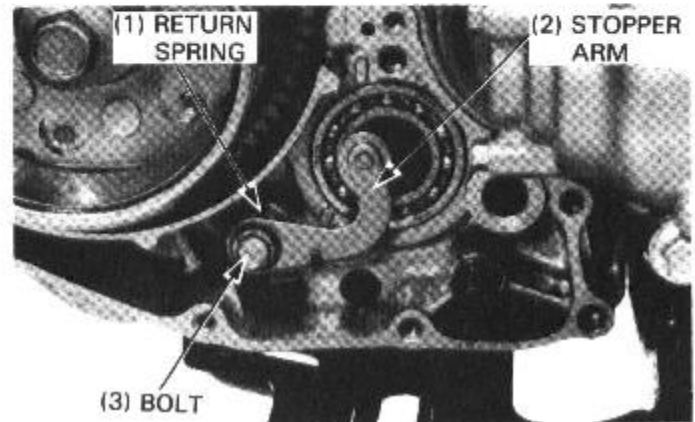
Disassemble them.



Remove the collars, dowel pins and bearing stopper plate. Remove the shift drum center bolt, shift drum center and dowel pin.

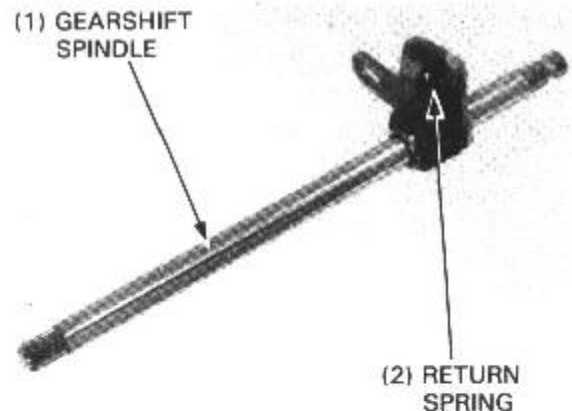


Remove the stopper arm bolt, stopper arm and return spring.



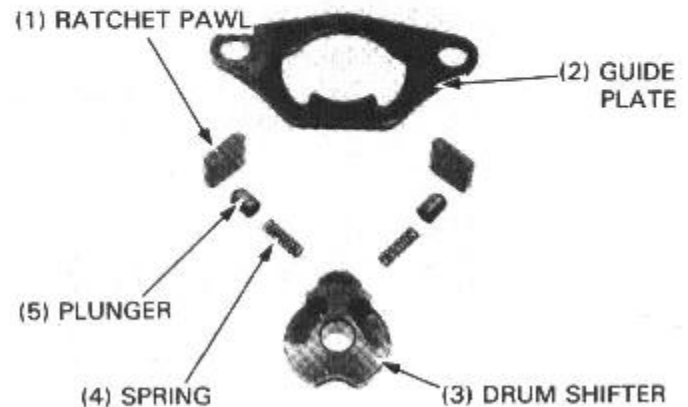
INSPECTION

Inspect the gearshift spindle for distortion. Check the return spring for wear or damage.



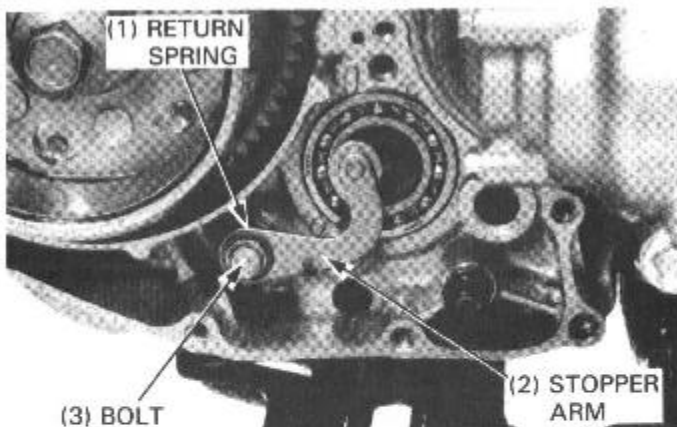
Check the ratchet pawls, plungers and springs for wear or damage.

Install the springs, plungers and ratchet pawls to the drum shifter. Install the drum shifter assembly to the guide plate.

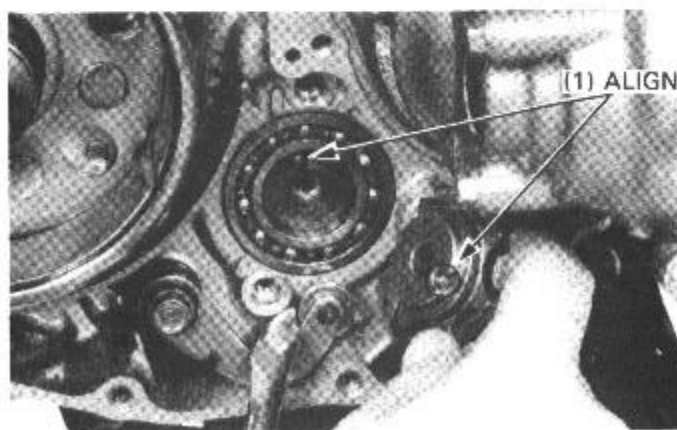


INSTALLATION

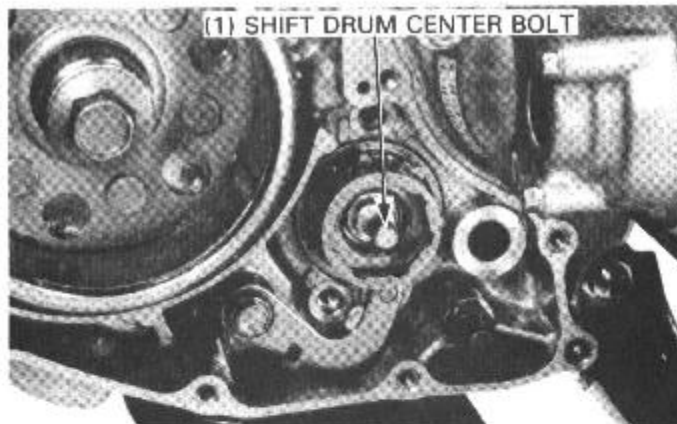
Install the return spring, stopper arm and stopper arm bolt.



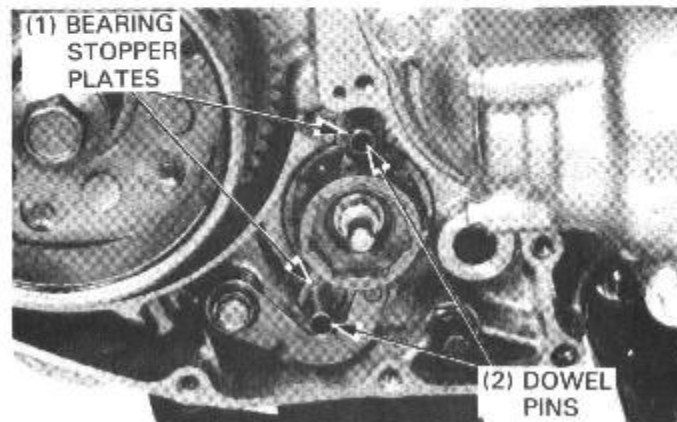
Install the dowel pin on the shift drum.
Install the shift drum center, aligning the hole of the drum center with the dowel pin.



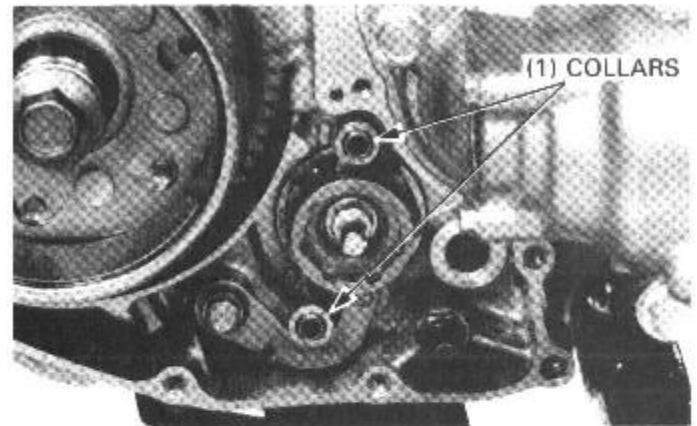
Apply locking agent to the shift drum center bolt.
Install and tighten the bolt securely.



Install the bearing stopper plates and dowel pins.



Install the collars.

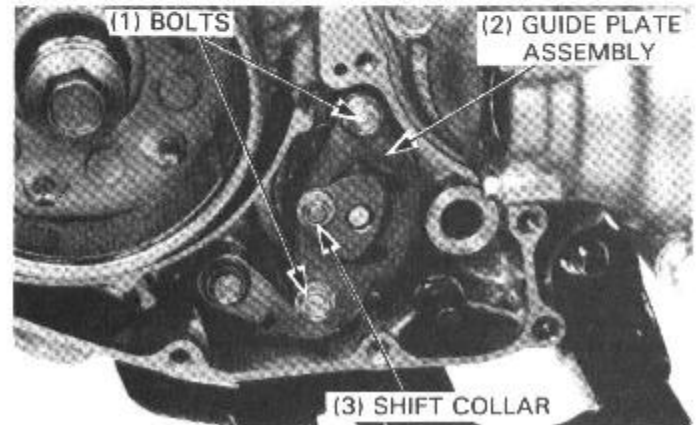


Install the guide plate assembly and tighten the bolts securely.

NOTE

- Be carefull not to drop any components of the guide plate assembly into the crankcase.

Install the shift collar onto the drum shifter pin.

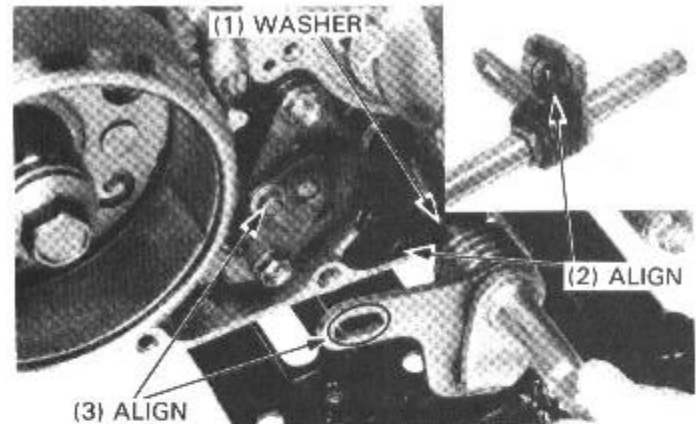


Install the washer and gearshift spindle:
Position the return spring ends over the return spring pin, and the gearshift spindle slot over the shift collar.

Install the following:

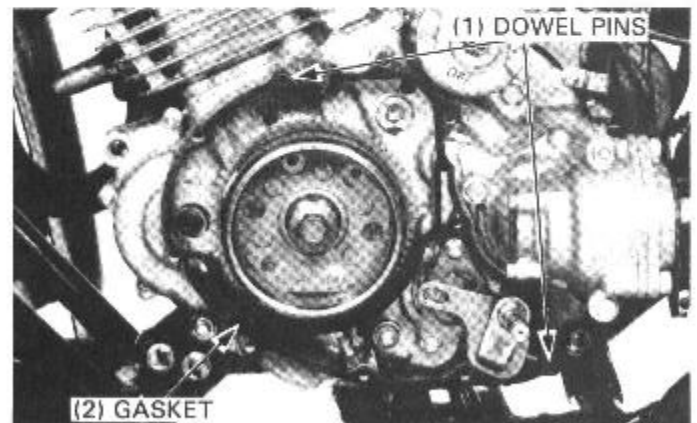
- clutch lever (page 8-17).
- right crankcase cover (page 8-23).
- left crankcase cover.

Check the gearshift pedal for smooth operation.



LEFT CRANKCASE COVER INSTALLATION

Install the dowel pins and a new gasket.



ALTERNATOR/STARTER CLUTCH/GEARSHIFT LINKAGE

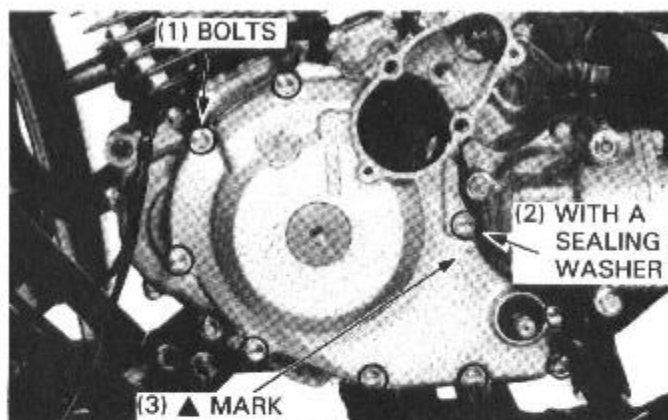
Install the left crankcase cover.

Install and torque the left crankcase cover bolts.

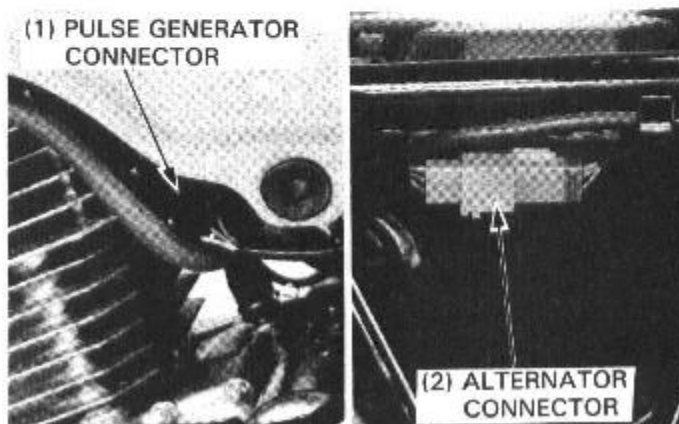
TORQUE: 10 N·m (1.0 kg-m, 7 ft-lb)

CAUTION

- Be sure to install a new sealing washer with the bolt near the ▲ mark.



Connect the pulse generator and alternator wire connectors.



Install the gearshift pedal, aligning the punch marks on the pedal and shaft.

Tighten the pedal bolt to the specified torque.

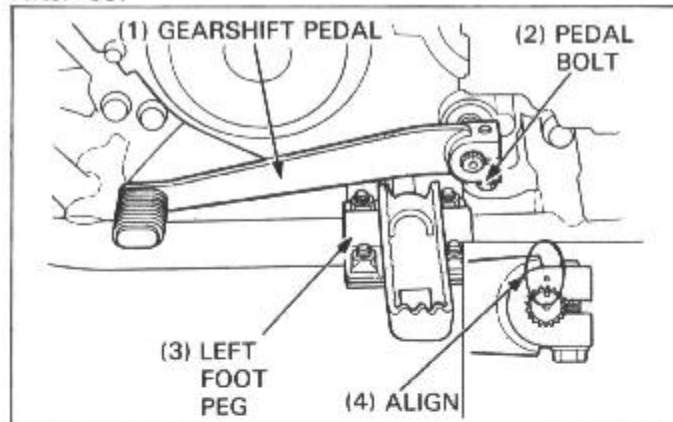
TORQUE: 16 N·m (1.6 kg-m, 12 ft-lb)

Install the left foot peg.

Tighten the four mounting bolts to the specified torque.

TORQUE: 33 N·m (3.3 kg-m, 24 ft-lb)

After '89:



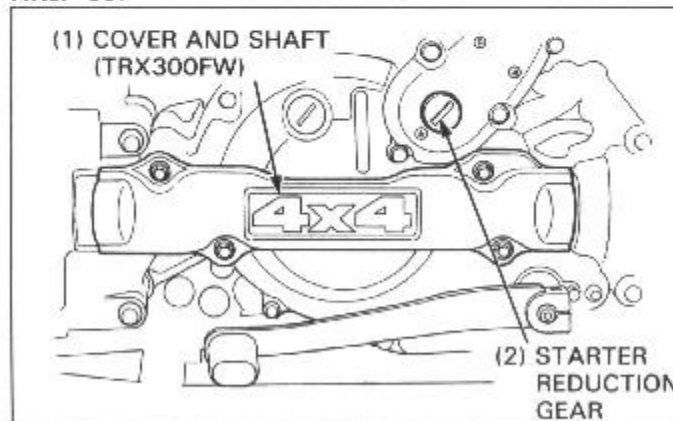
Install the following:

- skid plate (TRX300FW).
- front drive side shaft and shaft cover (page 14-31) (TRX300FW).
- starter reduction gear (page 9-2).

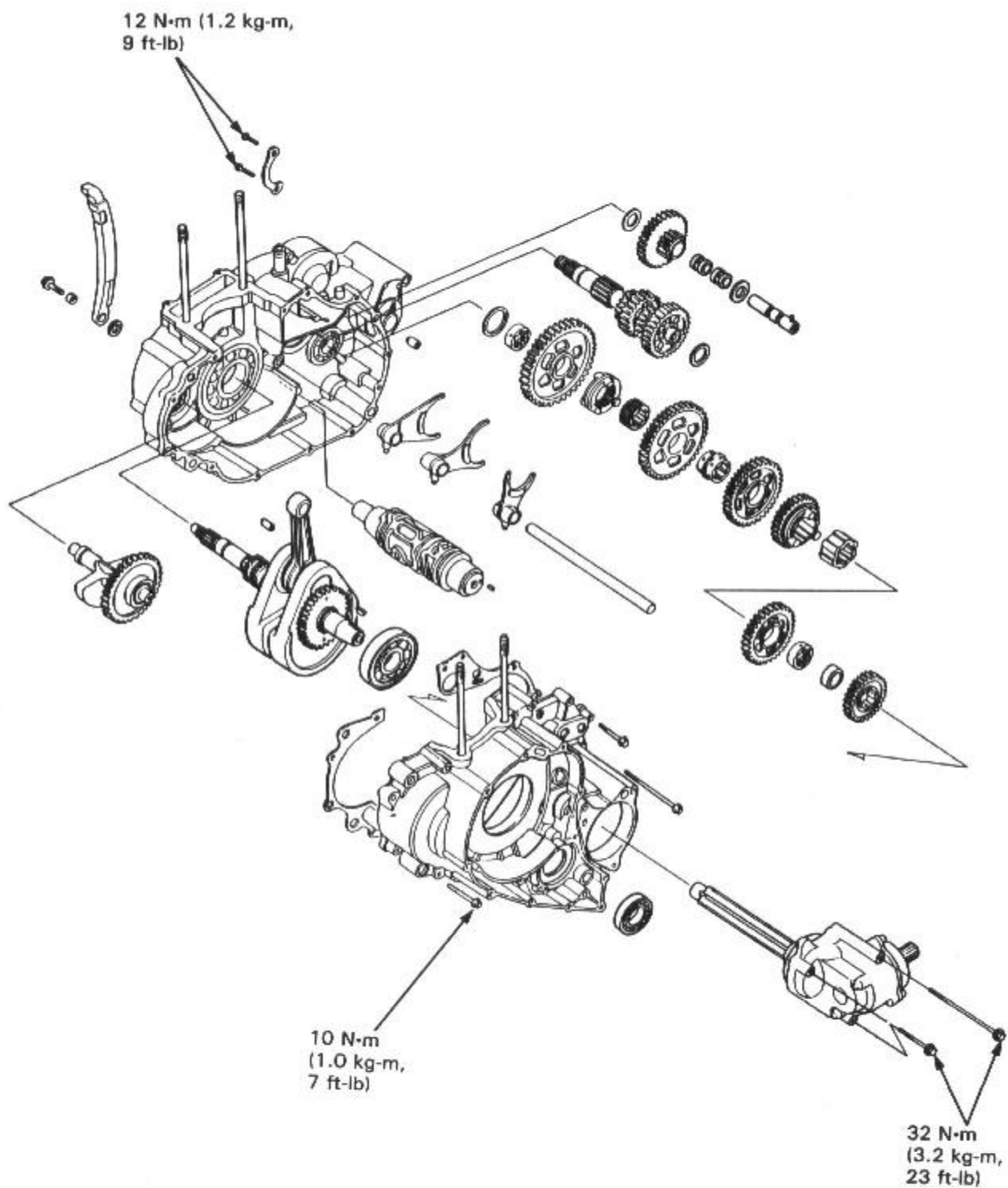
Fill the engine with the recommended oil (page 2-3).

Make sure there are no oil leaks.

After '89:



MEMO



10. CRANKCASE/CRANKSHAFT/TRANSMISSION

SERVICE INFORMATION	10-1	CRANKSHAFT/BALANCER	10-13
TROUBLESHOOTING	10-3	OUTPUT GEAR	10-16
CRANKCASE SEPARATION	10-4	CRANKCASE ASSEMBLY	10-26
TRANSMISSION	10-5		

SERVICE INFORMATION

GENERAL

- For crankshaft and transmission repair, the crankcase must be separated.
- Remove the following parts before separating the crankcase.

Service item	Removed parts
Transmission or Output gear case	Cylinder head/valve (section 6) Cylinder/piston (section 7) Gearshift linkage (section 9)
Crankshaft/balancer	Cylinder head/valve (section 6) Cylinder/piston (section 7) Flywheel (section 9)

- Use soft jaws to prevent damage to the output gear case when placing the case in a vise.
- When replacing the following output gear components, a new adjustment shim must be selected.
 - Output gear case
 - Output shaft assembly
 - Output shaft bearing
 - Output shaft bearing holder
 - Countershaft
- Replace the countershaft and output shaft as a set.
- When using the lock nut wrench, use a deflecting beam type torque wrench 20 inches long. The lock nut wrench increases the torque wrench's leverage, so the torque wrench reading will be less than the torque actually applied to the lock nut. The specification given is the actual torque applied to the lock nut, not the reading on the torque wrench when used with the lock nut wrench. The torque scale reading is given with the actual torque specifications.

SPECIFICATION

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Crankshaft	Connecting rod big end side clearance		0.05—0.65 (0.002—0.026)	0.80 (0.031)
	Connecting rod big end radial clearance		0.006—0.018 (0.0002—0.0007)	0.05 (0.002)
	Runout		—	0.05 (0.002)
Shift fork, shaft	Fork	I.D.	13.000—13.021 (0.5118—0.5126)	13.04 (0.513)
		Claw thickness	4.93—5.00 (0.194—0.197)	4.50 (0.177)
	Shaft O.D.		12.966—12.984 (0.5105—0.5112)	12.96 (0.510)
Transmission	Gear I.D.	M4	25.000—25.021 (0.9843—0.9851)	25.05 (0.986)
		M5	20.020—20.041 (0.7882—0.7890)	20.07 (0.790)
		C1, C2, C3	28.020—28.041 (1.1031—1.1040)	28.07 (1.105)
		CR	28.021—28.041 (1.1032—1.1040)	28.07 (1.105)
		R idler	18.000—18.021 (0.7087—0.7095)	18.05 (0.711)
	Shaft O.D.	M4	21.959—21.980 (0.8645—0.8654)	21.93 (0.863)
		M5	16.983—16.994 (0.6686—0.6691)	16.95 (0.667)
		R idler	13.966—13.984 (0.5498—0.5506)	13.93 (0.548)

mm (in)

ITEM			STANDARD	SERVICE LIMIT
Transmission	Gear bushing	C1 O.D.	27.984—28.005 (1.1017—1.1026)	27.93 (1.100)
		C2/CR O.D.	27.979—28.000 (1.1015—1.1024)	27.93 (1.100)
		C3 O.D.	27.984—28.005 (1.1017—1.1026)	27.93 (1.100)
		M4 O.D.	24.959—24.980 (0.9826—0.9835)	24.93 (0.981)
		M4 I.D.	22.000—22.021 (0.8661—0.8670)	22.05 (0.868)
		M5 O.D.	19.966—19.984 (0.7861—0.7868)	19.93 (0.785)
		M5 I.D.	17.016—17.034 (0.6699—0.6706)	17.06 (0.672)
		R O.D.	17.966—17.984 (0.7073—0.7080)	17.93 (0.706)
		R I.D.	14.000—14.025 (0.5512—0.5522)	14.05 (0.553)
	Gear-to-bushing clearance	M4	0.020—0.062 (0.0008—0.0024)	0.10 (0.004)
		M5	0.036—0.075 (0.0014—0.0030)	0.10 (0.004)
		C1	0.015—0.057 (0.0006—0.0022)	0.10 (0.004)
		C2/CR	0.020—0.062 (0.0008—0.0024)	0.10 (0.004)
		C3	0.015—0.057 (0.0006—0.0022)	0.10 (0.004)
		R idler	0.016—0.055 (0.0006—0.0022)	0.10 (0.004)
	Bushing-to-shaft clearance	M4	0.020—0.062 (0.0008—0.0024)	0.10 (0.004)
		M5	0.022—0.051 (0.0009—0.0020)	0.10 (0.004)
		R idler	0.016—0.059 (0.0006—0.0023)	0.10 (0.004)
Output gear backlash			0.080—0.180 (0.0031—0.0071)	0.25 (0.010)

TORQUE VALUES

Output shaft bearing holder bolt	23 N·m (2.3 kg-m, 17 ft-lb)
Countershaft bearing lock nut	100 N·m (10.0 kg-m, 72 ft-lb) — Apply oil/stake
Output shaft bearing outer race lock nut	100 N·m (10.0 kg-m, 72 ft-lb) — Apply oil/stake
Output shaft bearing inner race lock nut	75 N·m (7.5 kg-m, 54 ft-lb) — Apply oil/stake
Output gear case mounting bolt	32 N·m (3.2 kg-m, 23 ft-lb)
Crankcase bolt	10 N·m (1.0 kg-m, 7 ft-lb)
Bearing set plate bolt	12 N·m (1.2 kg-m, 9 ft-lb) — Apply locking agent
Cam chain guide holder bolt	12 N·m (1.2 kg-m, 9 ft-lb) — Apply locking agent

TOOLS

Special

Bearing remover, 17 mm	07936—3710300
Remover handle	07936—3710100
Remover weight	07741—0010201 or 07936—3710200
Universal bearing puller	07931—4630000 or 07631—0010000 (Not available in U.S.A.) or equivalent commercially available in U.S.A.
Crankcase assembly tool set	07965—VM00000
— assembly collar	07965—VM00100
— shaft puller	07965—VM00200 or 07931—ME4000A (U.S.A. only)
— threaded adaptor	07965—VM00300 or 07931—KF00200 (U.S.A. only)
Shaft holder	07924—ME50000
Lock nut wrench, 36 x 48 mm	07916—MB00001 or 07916—MB00000 and 07916—HA2020A (U.S.A. only)
Lock nut wrench, 34 x 44 mm	07916—ME50001 or 07916—ME50000 and 07916—HA0010A (U.S.A. only)
Attachment	07946—HA00001 (Not available in U.S.A.)

Special (Cont'd)

Bearing Remover, 15 mm	07936—KC10000 (Not available in U.S.A.)
— remover, 15 mm	07936—KC10500
— remover head, 15 mm	07936—KC10200 (Not available in U.S.A.)
— remover shaft, 15 mm	07936—KC10100 (Not available in U.S.A.)
— remover weight	07741—0010201 or 07936—3710200

Common

Driver	07749—0010000
Attachment, 28 x 30 mm	07946—1870100
Attachment, 52 x 55 mm	07746—0010400
Pilot, 22 mm	07746—0041000
Attachment, 42 x 47 mm	07746—0010300
Pilot, 20 mm	07746—0040500
Attachment, 72 x 75 mm	07746—0010600
Attachment, 37 x 40 mm	07746—0010200
Pilot, 28 mm	07746—0041100
Driver, 40 mm I.D.	07746—0030100
Attachment, 30 mm I.D.	07746—0030300
Pilot, 15 mm	07746—0040300
Pilot, 17 mm	07746—0040400

TROUBLESHOOTING

Crankshaft noisy

- Worn connecting rod big end bearing
- Bent connecting rod
- Worn crankshaft main journal bearing

Jumps out of gear

- Shift fork bent or damaged
- Shift fork shaft bent
- Shift claw bent
- Gear engagement dogs or slots worn
- Shift drum shifter grooves damaged

Hard to shift

- Incorrect clutch adjustment
- Shift fork bent or damaged
- Shift fork shaft bent

Excessive output gear noise

- Output shaft and countershaft gears worn or damaged
- Bearing worn or damaged
- Excessive backlash between output shaft and countershaft gears
- Improper shim thickness

CRANKCASE SEPARATION

NOTE

- The appropriate components must be removed before separating the crankcase (page 10-1).

Remove the following:

- cam chain.
- cam chain tensioner.

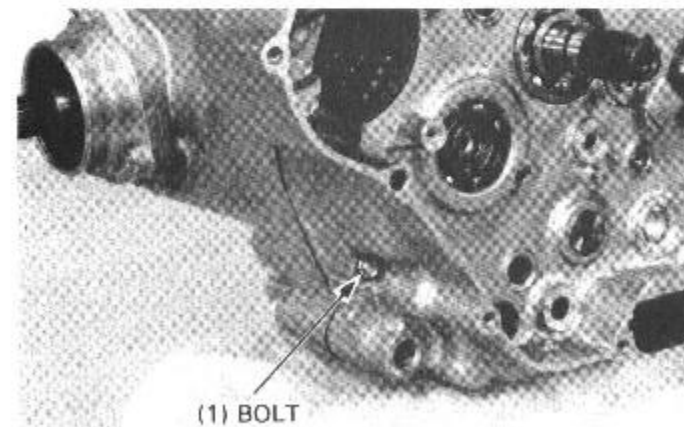
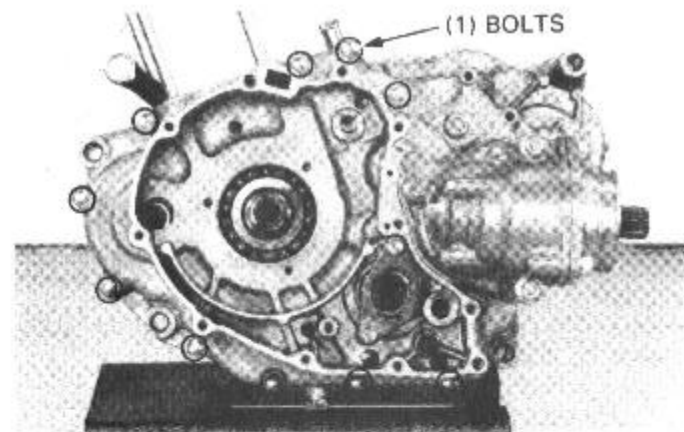
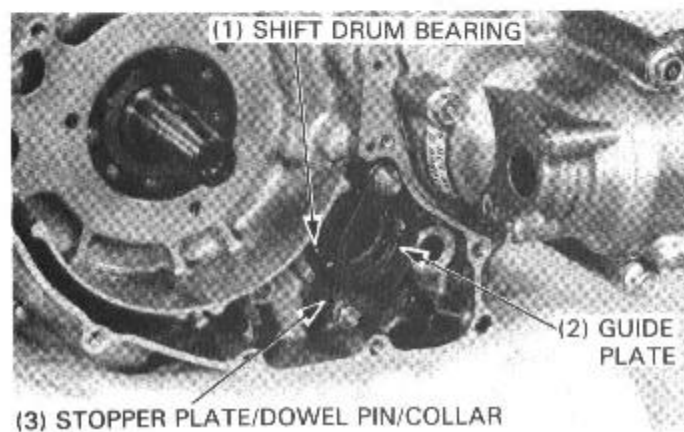
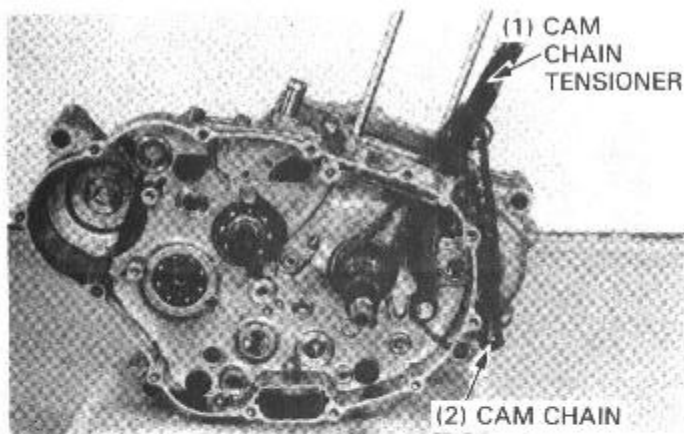
Temporarily install the gearshift drum bearing stopper plates, dowel pins, collars and guide plate to prevent the bearing from falling out while disassembling and assembling the transmission.

Remove the left crankcase bolts.

NOTE

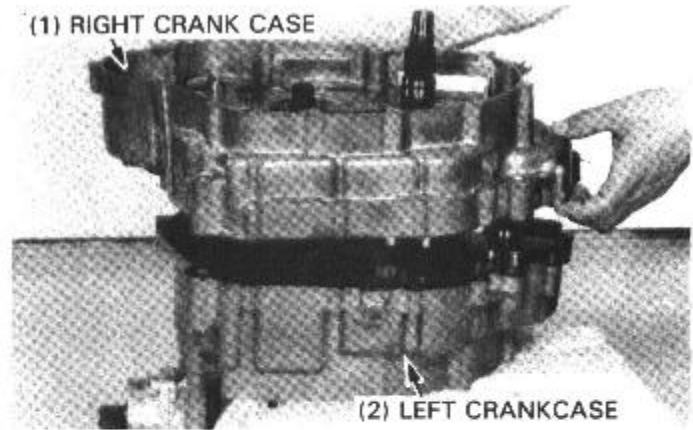
- Loosen the bolts in a criss-cross pattern in 2 or 3 steps to prevent crankcase distortion.

Remove the right crankcase bolt.



Place the engine with the left crankcase down and remove the right crankcase.

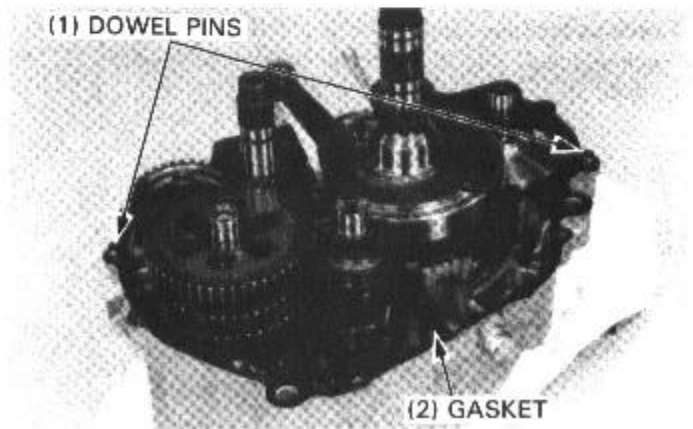
(1) RIGHT CRANK CASE



(2) LEFT CRANKCASE

Remove the dowel pins and gasket.

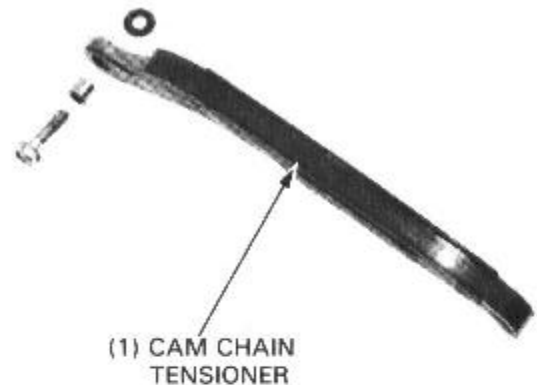
(1) DOWEL PINS



(2) GASKET

INSPECTION

Check the cam chain tensioner for excessive wear or damage.



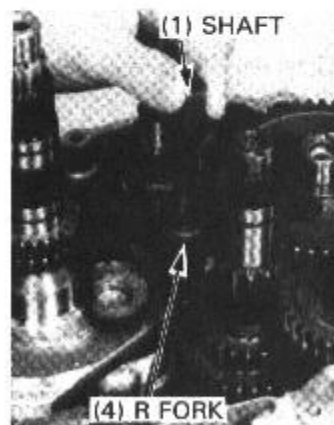
(1) CAM CHAIN TENSIONER

TRANSMISSION

REMOVAL/DISASSEMBLY

Remove the following:

- shift fork shaft and right shift fork.
- shift drum, center shift fork and left shift fork.



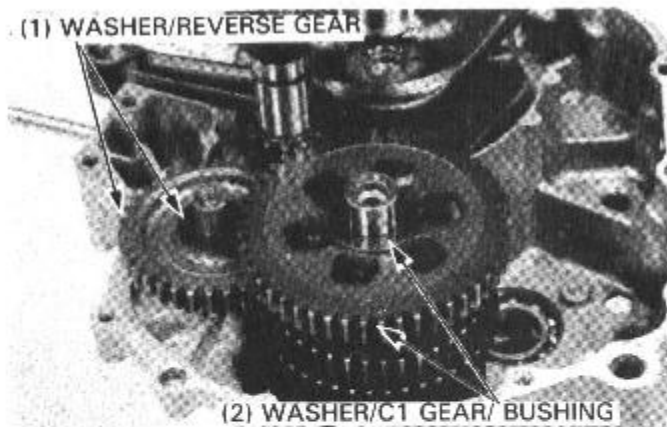
(4) R FORK



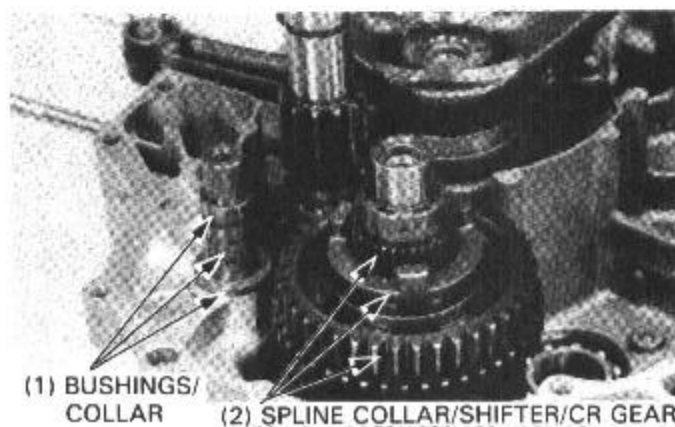
(3) SHIFT DRUM

CRANKCASE/CRANKSHAFT/TRANSMISSION

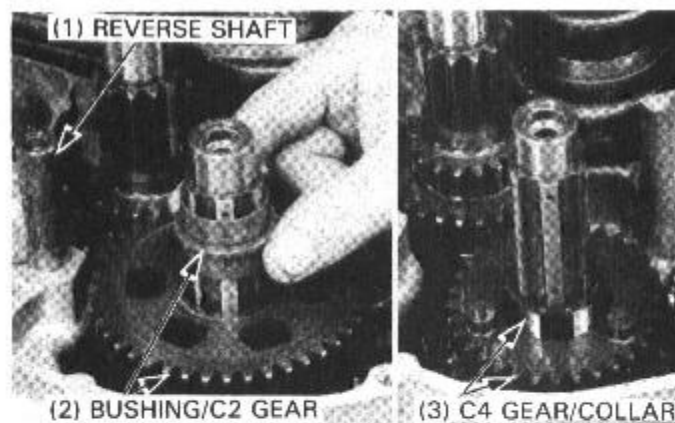
- washer, C1 gear and C1 bushing from the countershaft.
- washer and reverse idler gear from the reverse idler shaft.



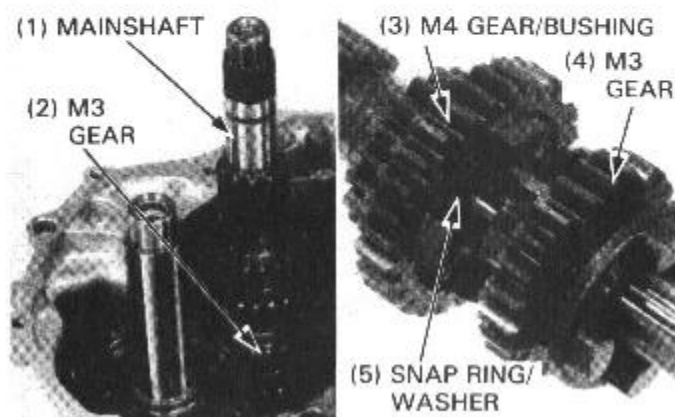
- reverse bushings and collar from the shaft.
- spline collar, C1/CR shifter and CR gear from the countershaft.



- reverse idler shaft.
- CR/C2 bushing, C2 gear, C4 gear and spline collar from the countershaft.



- mainshaft and M3 gear.
- snap ring, spline washer, M4 gear and M4 bushing from the mainshaft.



- washer, M5 bushing, M5 gear and washer.
- C3 gear, C3 bushing, collar and C5 gear from the counter-shaft.



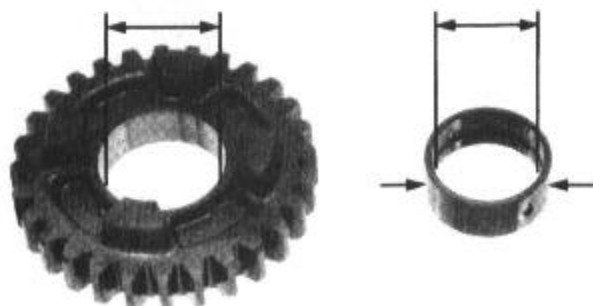
INSPECTION

Check the gear dogs, dog holes and teeth for abnormal wear or lack of lubrication.

Measure the I.D. of each gear.

SERVICE LIMITS:

C1, C2, C3, CR	28.07 mm (1.105 in)
M4	25.05 mm (0.986 in)
M5	20.07 mm (0.790 in)
R idler	18.05 mm (0.711 in)



Measure the I.D. and O.D. of each gear bushing.

SERVICE LIMITS:

C1, CR/C2, C3, O.D.	27.93 mm (1.100 in)
M4 O.D.	24.93 mm (0.981 in)
M4 I.D.	22.05 mm (0.868 in)
M5 O.D.	19.93 mm (0.785 in)
M5 I.D.	17.06 mm (0.672 in)
R O.D.	17.93 mm (0.706 in)
R I.D.	14.05 mm (0.553 in)

Calculate the gear-to-bushing clearance.

SERVICE LIMIT: 0.10 mm (0.004 in)

Check the gearshift groove of the C1/CR shifter, C4 gear and M3 gear for excessive wear or damage.

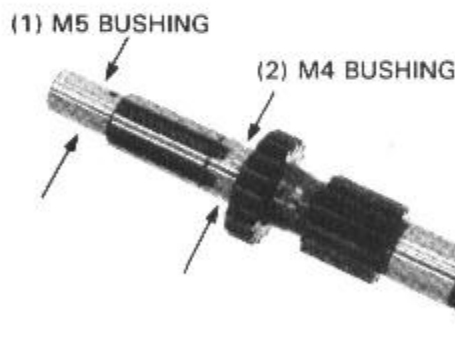
Measure the O.D. of the mainshaft.

SERVICE LIMITS:

M4	21.93 mm (0.863 in)
M5	16.95 mm (0.667 in)

Calculate the bushing-to-mainshaft clearance.

SERVICE LIMIT: 0.10 mm (0.004 in)



Measure the O.D. of the reverse idler shaft.

SERVICE LIMIT: 13.93 mm (0.548 in)

Calculate the bushing-to-reverse idler shaft clearance.

SERVICE LIMIT: 0.10 mm (0.004 in)



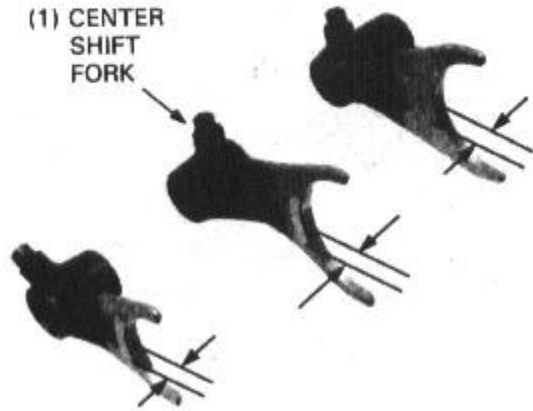
Check the shift fork and shaft for wear or damage.
Measure the I.D. of the shift forks.

SERVICE LIMIT: 13.04 mm (0.513 in)

Measure the shift fork claw thickness as shown.

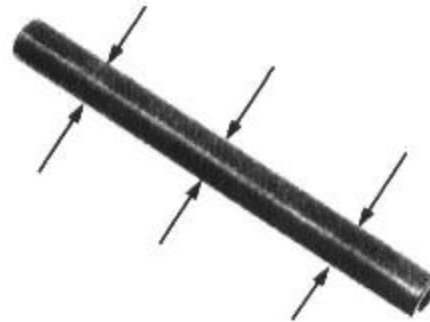
SERVICE LIMIT: 4.50 mm (0.177 in)

(1) CENTER
SHIFT
FORK



Measure the O.D. of the shift fork shaft.

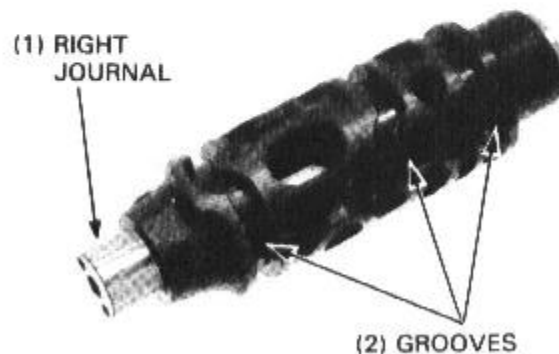
SERVICE LIMIT: 12.96 mm (0.510 in)



Inspect the shift drum right journal for scoring, scratches or lack of lubrication.

Check the shift drum grooves for damage.

(1) RIGHT
JOURNAL



Turn the inner race of each bearing with your finger. The bearings should turn smoothly and quietly. Also check that the outer race of each bearing fits tightly in the crankcase.

BEARING REPLACEMENT

NOTE

- For crankshaft and balancer bearing replacement, see page 10-15.

Pull the mainshaft needle bearing and washer out of the left crankcase.

TOOLS:

Bearing remover, 15 mm

- remover, 15 mm
- remover head, 15 mm
- remover shaft, 15 mm
- remover weight

07936-KC10000
Not available in U.S.A.
07936-KC10500
07936-KC10200
Not available in U.S.A.
07936-KC10100
Not available in U.S.A.
07741-0010201 or
07934-3710200

Install a new washer and mainshaft needle bearing. Press the bearing into the left crankcase.

TOOLS:

Driver

Attachment, 28 x 30 mm

Pilot, 17 mm

07749-0010000

07946-1870100

07746-0040400

Drive the mainshaft and countershaft bearings out of the right crankcase.

Drive new bearings into the right crankcase.

TOOLS:

Mainshaft bearing:

Driver

Attachment, 52 x 55 mm

Pilot, 22 mm

07749-0010000

07746-0010400

07746-0041000

Countershaft bearing:

Driver

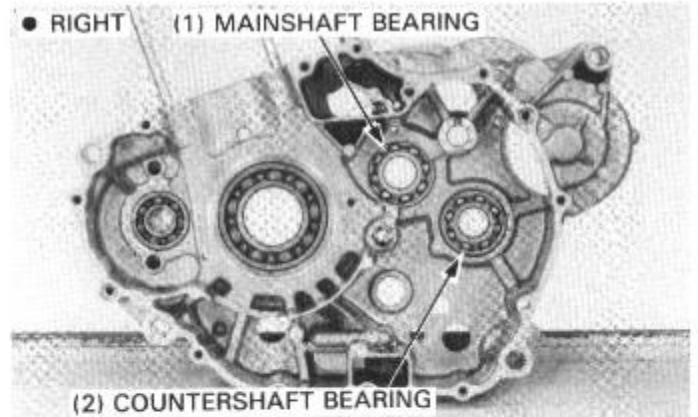
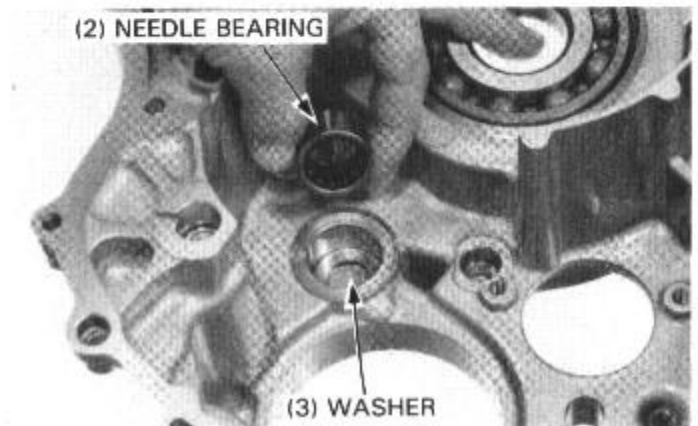
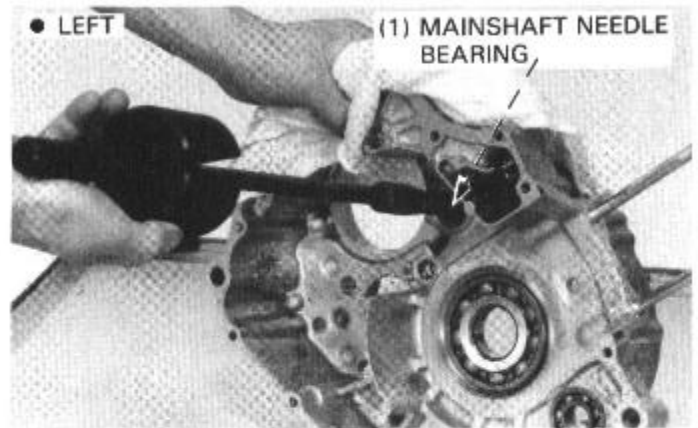
Attachment, 42 x 47 mm

Pilot, 20 mm

07749-0010000

07746-0010300

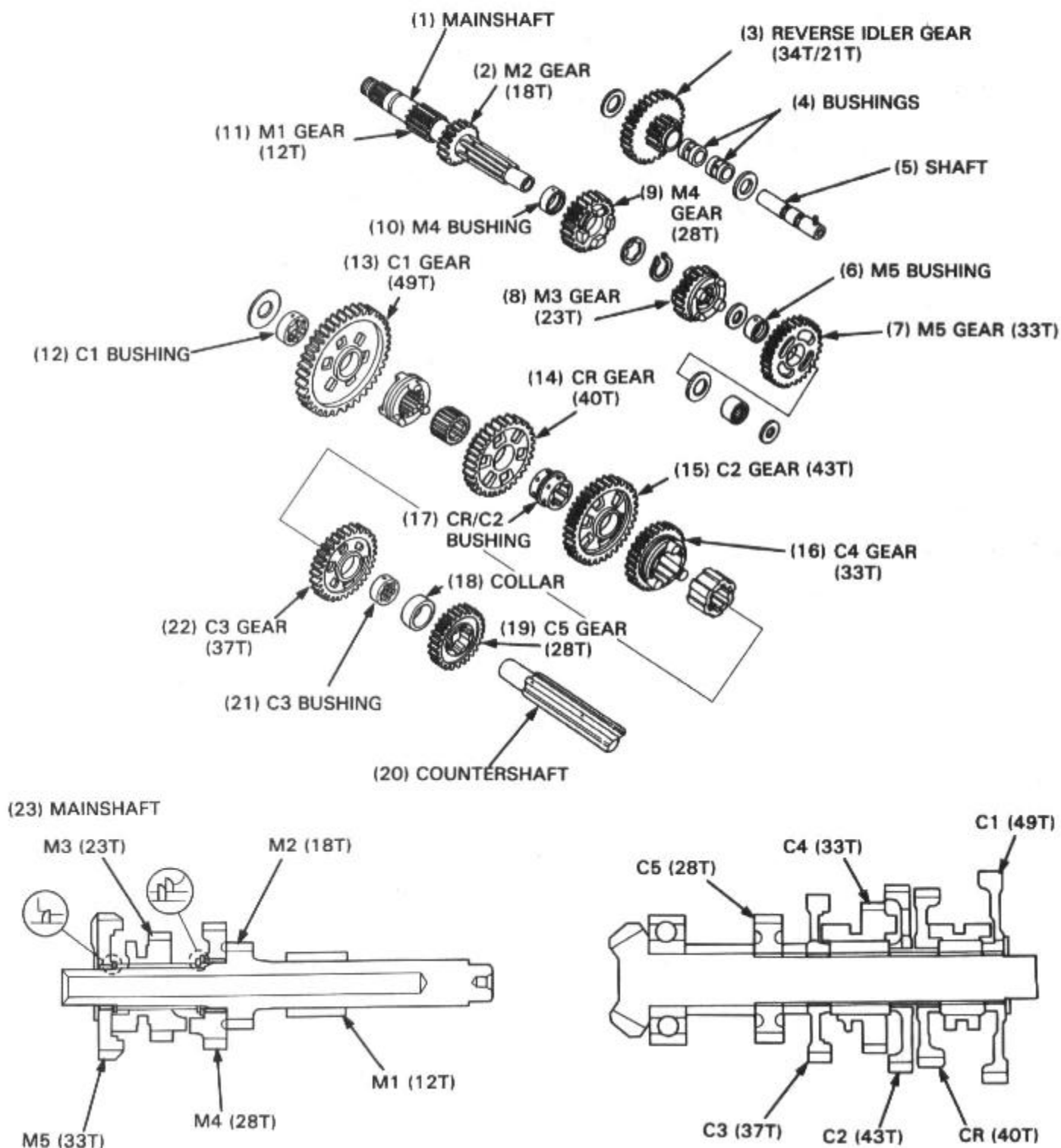
07746-0040500



ASSEMBLY/INSTALLATION

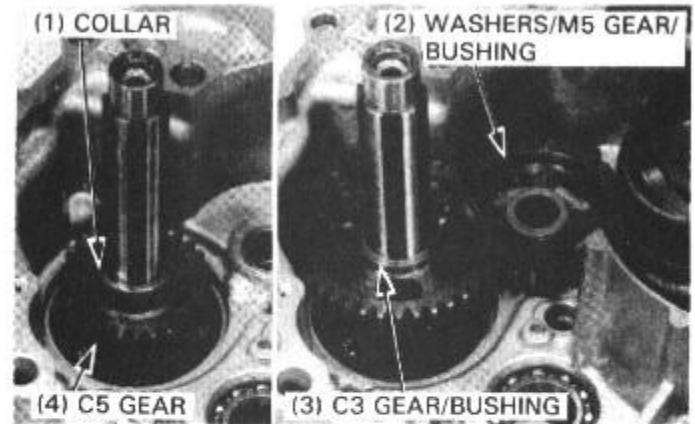
NOTE

- Apply oil to the gears, collar, bushing, shift fork shaft, shift drum, shift drum journal, mainshaft and reverse idler shaft.
- Install the snap ring with its chamfered side facing the gear.
- Align the holes on the shafts and all bushings.

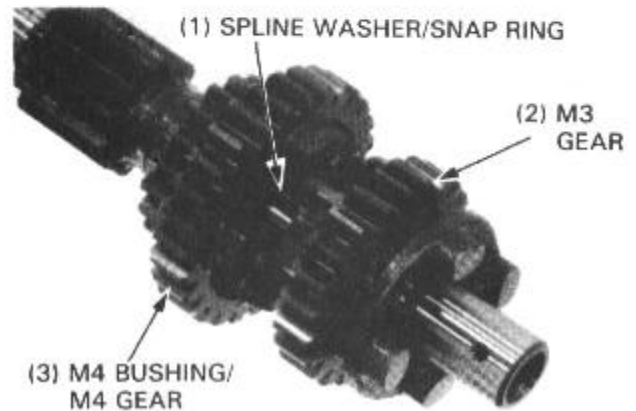


Install the following:

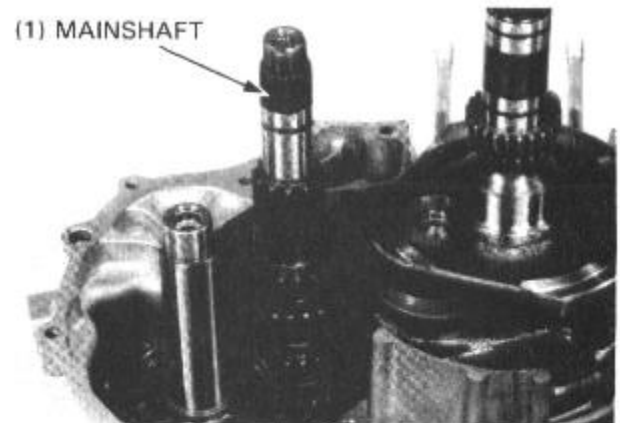
- C5 gear and collar onto the countershaft.
- washer, M5 gear, M5 bushing and washer.
- C3 gear and C3 bushing onto the countershaft.



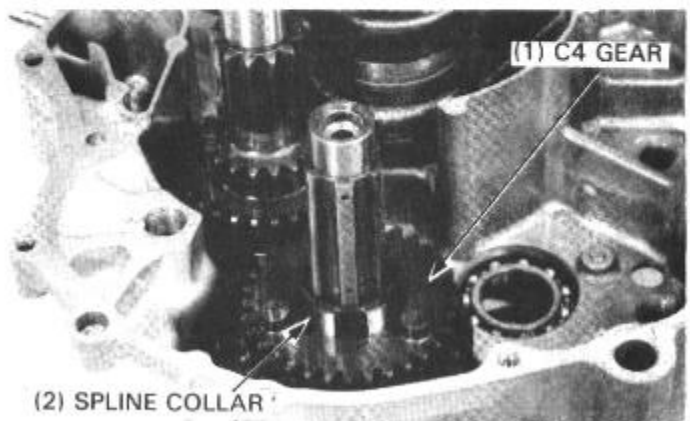
- M4 bushing, M4 gear, spline washer and snap ring onto the mainshaft.
- M3 gear onto the mainshaft.



- mainshaft into the left crankcase.

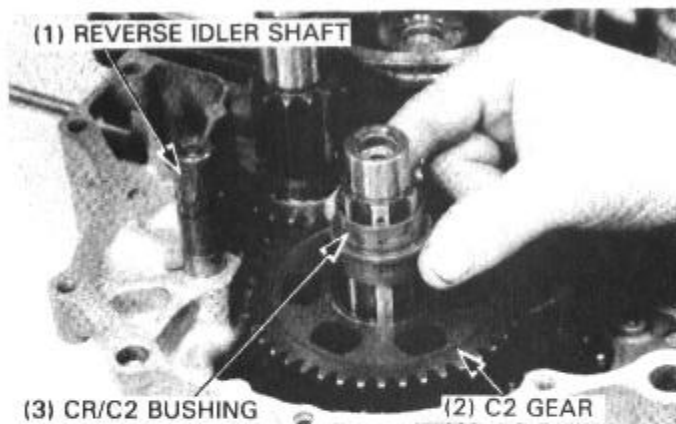


- spline collar and C4 gear onto the countershaft.

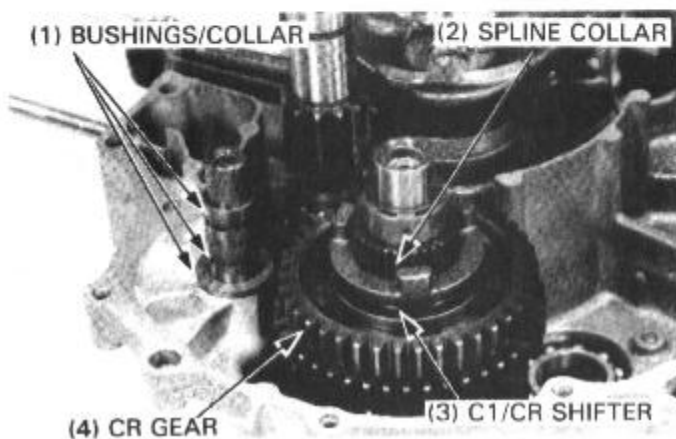


CRANKCASE/CRANKSHAFT/TRANSMISSION

- C2 gear and CR/C2 bushing onto the countershaft.
- reverse idler shaft.



- CR gear, spline collar and C1/CR shifter onto the countershaft.
- collar and reverse bushings onto the reverse idler shaft.



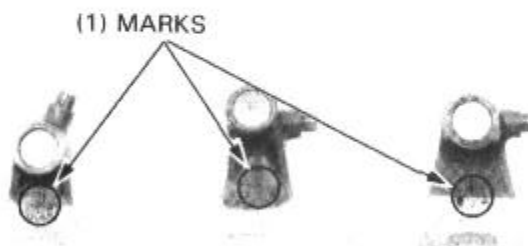
- reverse idler gear and washer onto the reverse idler shaft.
- C1 gear, C1 bushing and washer onto the countershaft.



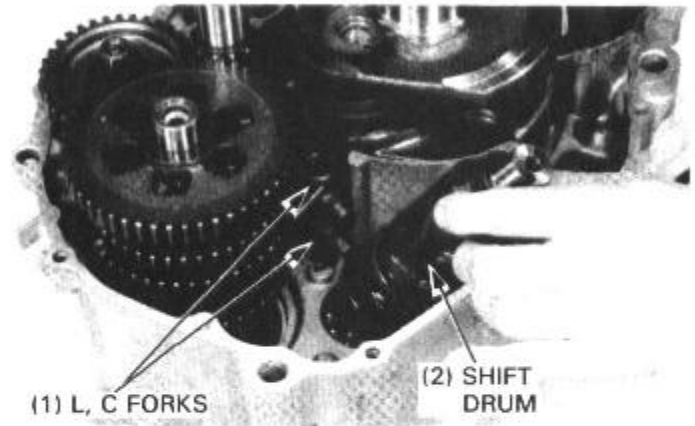
NOTE

- The shift forks are marked: L for left, C for center and R for right.

Install the shift forks with their marks facing up.

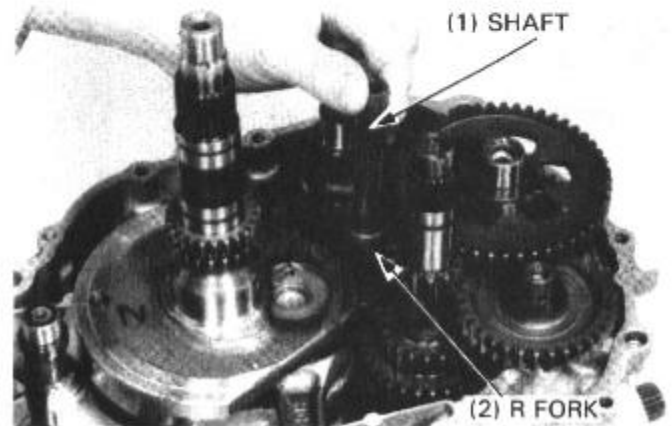


- left and center shift forks.
- shift drum, aligning each shift fork guide pin with the guide groove in the shift drum.



- right shift fork.
- shift fork shaft.

After installation, apply oil to the mainshaft and countershaft, and check each gear for smooth rotation.



CRANKSHAFT/BALANCER

REMOVAL

Remove the transmission (page 10-5).

Remove the crankshaft and balancer from the left crankcase using a hydraulic press.

If the left crankshaft bearing remains on the crankshaft, remove it with bearing puller.

TOOL:

Universal bearing puller

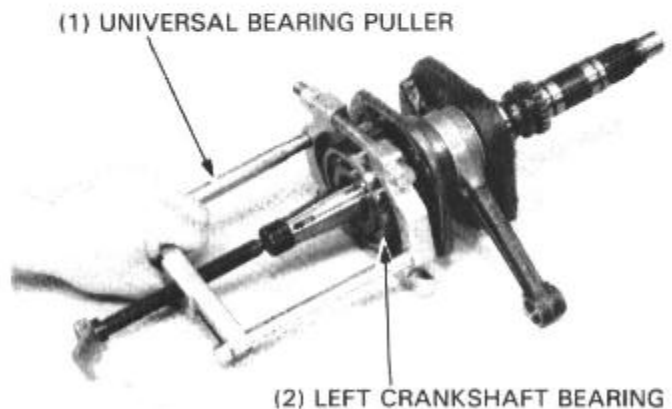
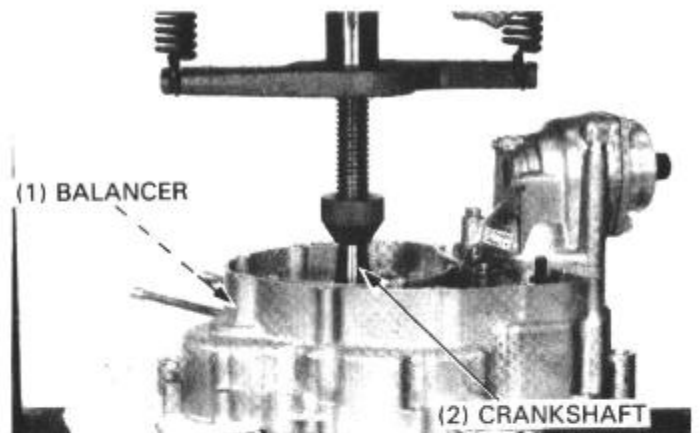
07931-4630000 or
07631-0010000 or
equivalent commercially
available in U.S.A.

If the bearing remains in the left crankcase, drive it out from the outside.

Discard the left crankshaft bearing.

NOTE

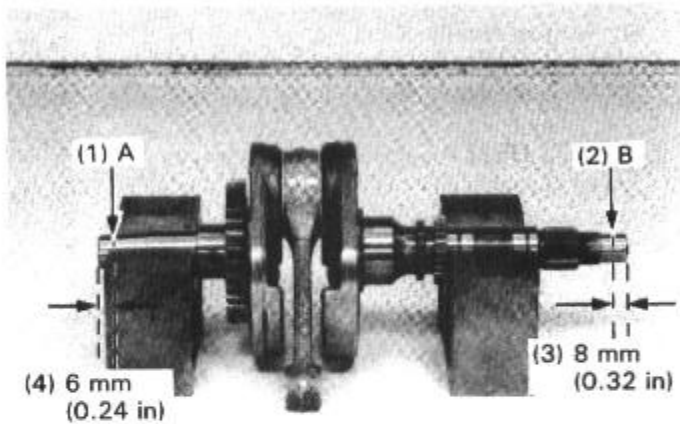
- Always replace the left bearing with a new one whenever the crankshaft is removed from the left crankcase.



INSPECTION

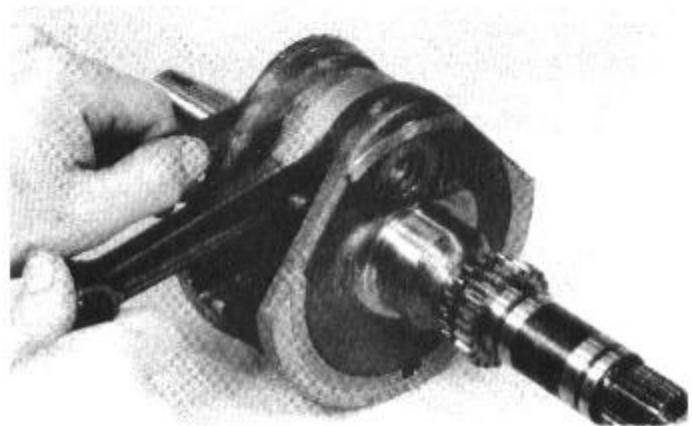
Set the crankshaft in a stand or V-blocks and read the runout using dial indicators at the A and B points as shown.

SERVICE LIMIT: 0.05 mm (0.002 in)



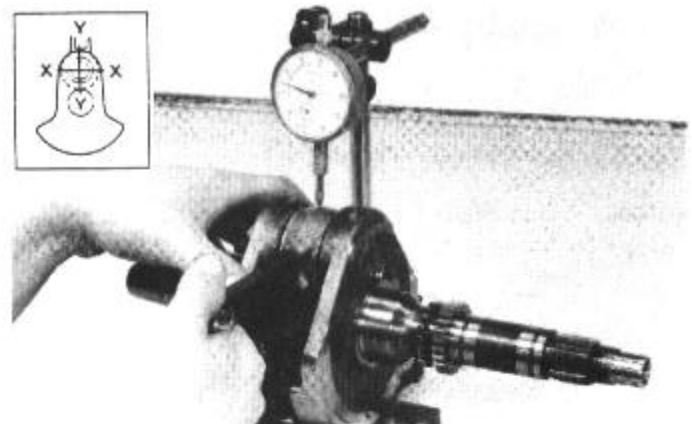
Measure the side clearance between the connecting rod big end and the crankshaft flyweight with a feeler gauge.

SERVICE LIMIT: 0.80 mm (0.031 in)

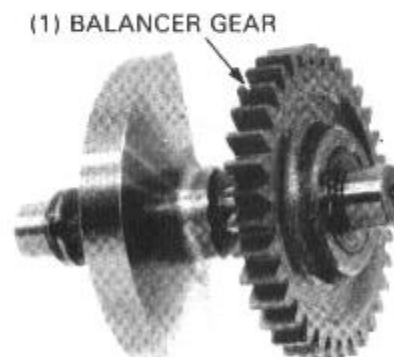


Measure the radial clearance at the connecting rod big end, at two points in the directions indicated by the arrows.

SERVICE LIMIT: 0.05 mm (0.002 in)



Check the balancer gear teeth for abnormal wear or damage.



Turn the inner race of each bearing with your finger. The bearings should turn smoothly and quietly. Also check that the outer race of each bearing fits tightly in the crankcase.

BEARING REPLACEMENT

Pull the crankshaft and balancer bearings out of the crankcase.

TOOLS:

Balancer bearings:

Bearing remover, 17 mm

07936-3710300

Remover handle

07936-3710100

Remover weight

07741-0010201 or

07936-3710200

Drive new bearings in with the following tools.

TOOLS:

Crankshaft bearing:

Driver

07749-0010000

Attachment, 72 x 75 mm

07746-0010600

Balancer bearings:

Driver

07749-0010000

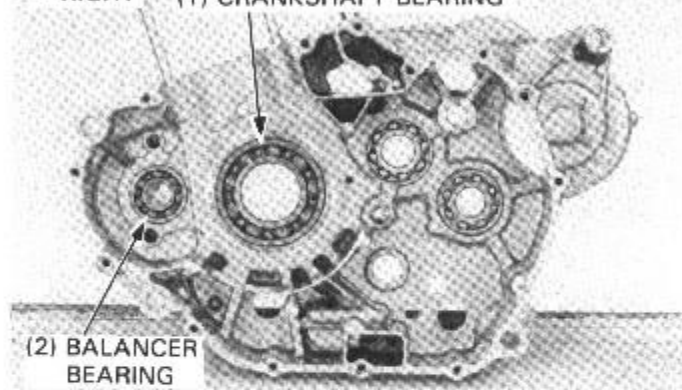
Attachment, 37 x 40 mm

07746-0010200

INSTALLATION

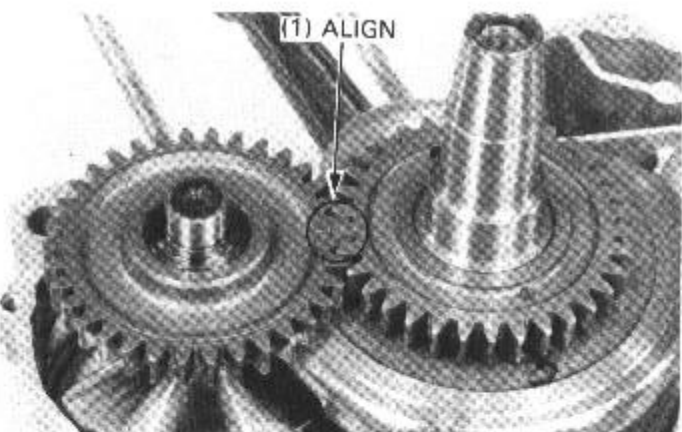
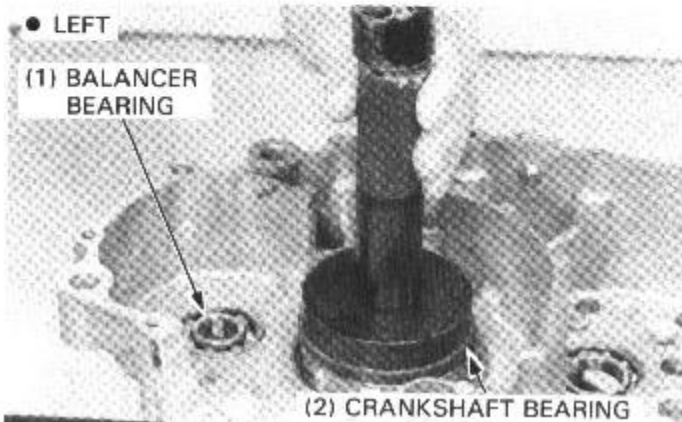
Temporarily install the balancer and crankshaft in the right crankcase and align their timing marks.

● RIGHT (1) CRANKSHAFT BEARING



● LEFT

(1) BALANCER BEARING



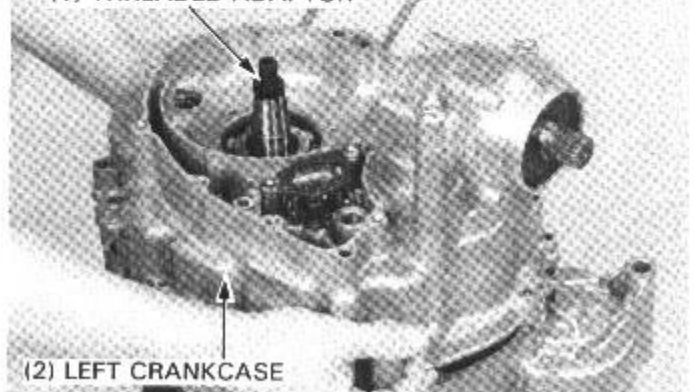
Install the left crankcase onto the right crankcase. Install the threaded adaptor on the crankshaft.

TOOL:

Threaded adaptor

07965-VM00300 or
07931-KF00200 (U.S.A.
only)

(1) THREADED ADAPTOR

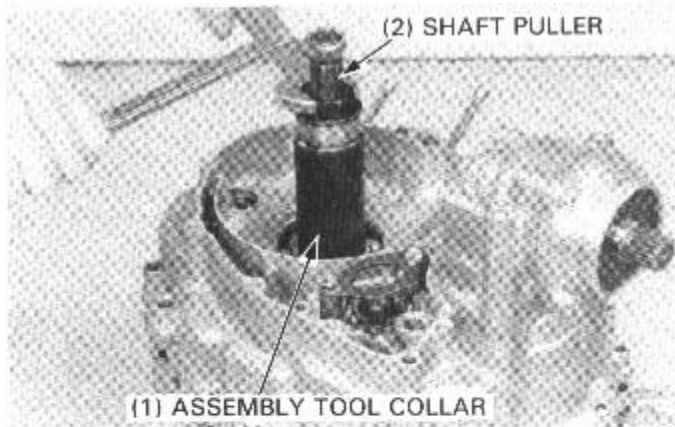


CRANKCASE/CRANKSHAFT/TRANSMISSION

Draw the crankshaft into the left crankcase using the special tools.

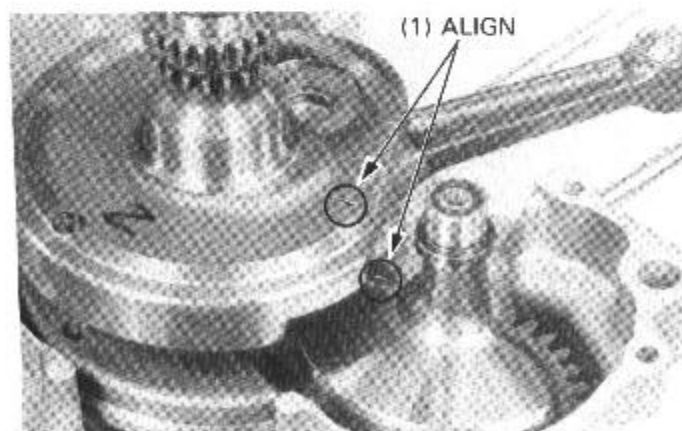
TOOLS:

Crankcase assembly tool set	07965-VM00000 (Not available in U.S.A.)
— assembly collar	07965-VM00100
— shaft puller	07965-VM00200 or 07931-ME4000A (U.S.A. only)
— threaded adaptor	07965-VM00300 or 07931-KF00200 (U.S.A. only)



Remove the right crankcase and make sure the index marks on the balancer and crankshaft are aligned.

Install the transmission (page 10-10).



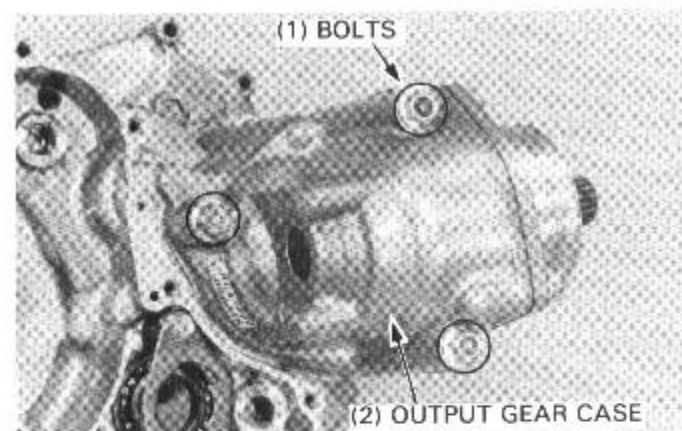
OUTPUT GEAR

REMOVAL

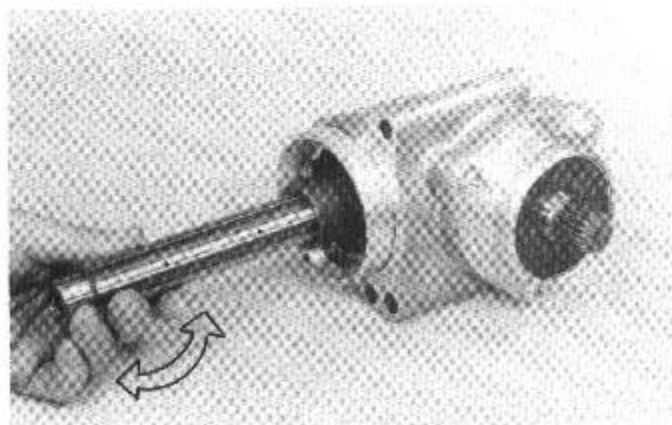
Remove the transmission (page 10-5).

Remove the three output gear case mounting bolts and remove the output gear case.

Remove the dowel pin and O-ring.



Rotate the countershaft and output shaft, and check that each shaft turns smoothly and quietly.



BACKLASH INSPECTION

Place the output gear case in a vise.

CAUTION

- Use soft jaws to prevent damage to the gear case.

Set a horizontal type dial indicator on the countershaft as shown.

Hold the output shaft and rotate the countershaft until the gear slack is taken up. Turn the countershaft back and forth to read the backlash.

TOOL:

Shaft holder 07924—ME50000

STANDARD: 0.080—0.180 mm (0.0031—0.0071 in)

SERVICE LIMIT: 0.25 mm (0.010 in)

Remove the dial indicator. Turn the output drive shaft 120° and measure the backlash. Repeat this procedure once more.

Compare the difference of the three measurements.

DIFFERENCE OF MEASUREMENT

SERVICE LIMIT: 0.10 mm (0.004 in)

If the difference in the measurements exceeds the limit, it indicates that the bearing is not installed squarely. Inspect the bearings and replace if necessary.

If the backlash is excessive, remove the output shaft assembly and replace the output shaft adjustment shim with a thinner one.

If the backlash is too small, replace the output shaft adjustment shim with a thicker one.

The backlash is changed by about 0.06 mm (0.002 in) when the thickness of the shim is changed by 0.10 mm (0.004 in).

OUTPUT SHAFT ADJUSTMENT SHIMS:

- A: 0.20 mm (0.008 in)
- B: 0.25 mm (0.010 in)
- C: 0.30 mm (0.012 in)
- D: 0.35 mm (0.014 in)
- E: 0.40 mm (0.016 in)
- F: 0.45 mm (0.018 in) Standard
- G: 0.50 mm (0.020 in)

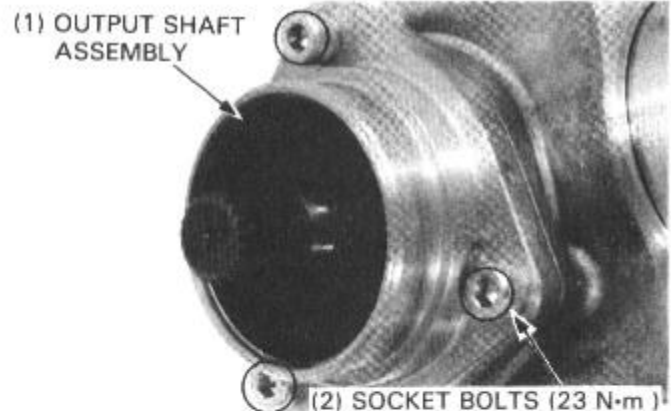
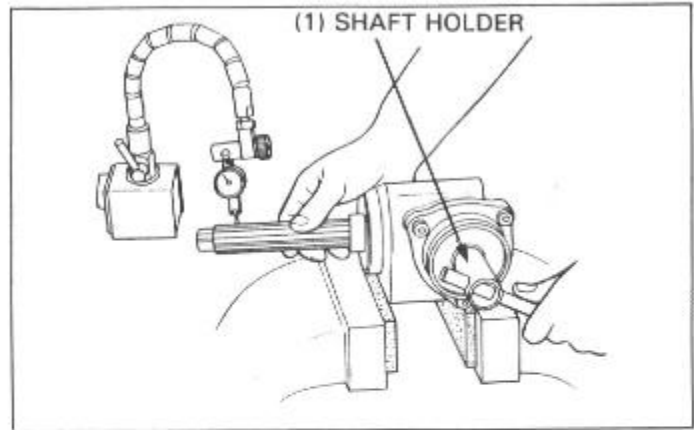
Install the output shaft assy. with the new shim. While turning the countershaft, tighten the socket bolts.

TORQUE: 23 N·m (2.3 kg·m, 17 ft·lb)

CAUTION

- It is important to turn the countershaft while tightening the bolts. If the shim is too thin, the gears will lock after only light tightening.

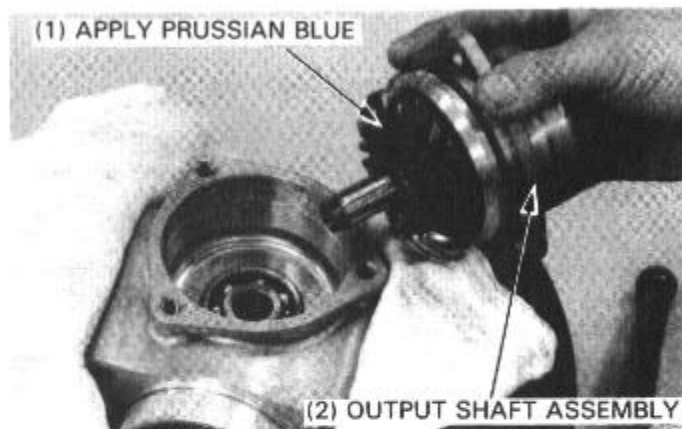
Next, perform the gear tooth contact pattern check (page 10-18).



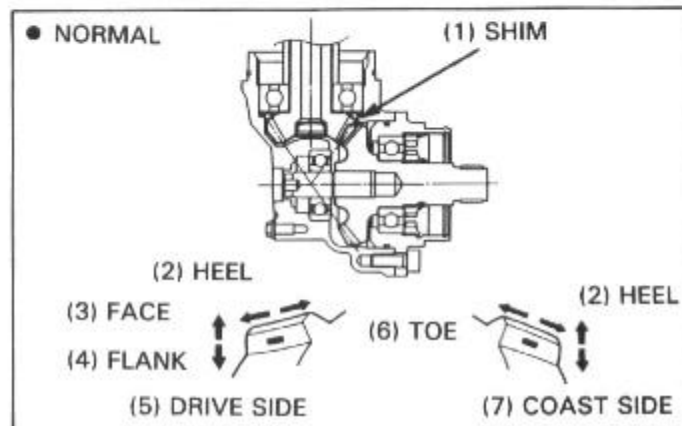
GEAR TOOTH CONTACT PATTERN CHECK

Remove the output shaft assembly and apply Prussian Blue to the output shaft gear teeth.
Install the output shaft assembly and rotate the countershaft several times in both directions of rotation.

Remove the output shaft assembly again, and check the gear tooth contact pattern.

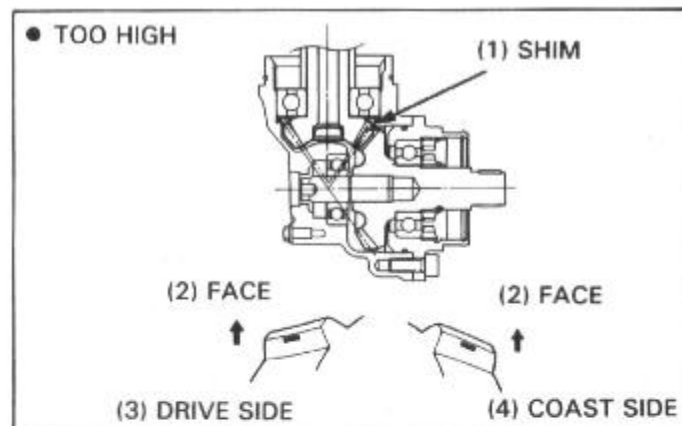


Contact is normal if Prussian Blue is transferred to the approximate center of each tooth and slightly to the side.



If the pattern is not correct, remove and replace the countershaft adjustment shim (page 10-21).

Replace the shim with a thinner one if the contact pattern is too high.

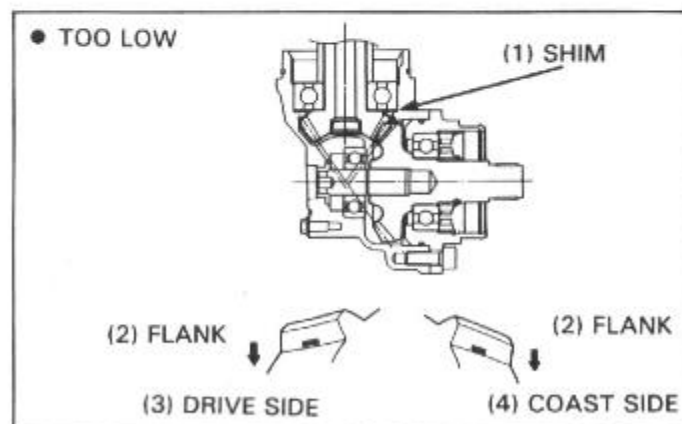


Replace the countershaft adjustment shim with a thicker one if the contact is too low.

The pattern will shift about 1.00 mm (0.039 in) when the thickness of the shim is changed by 0.10 mm (0.004 in).

OUTPUT DRIVE GEAR ADJUSTMENT SHIMS:

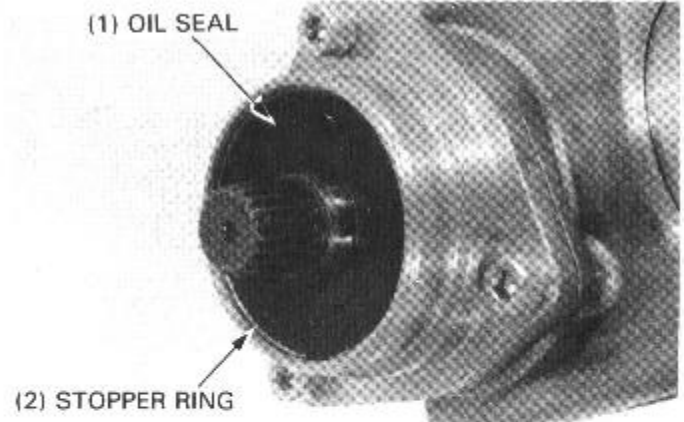
- A: 0.80 mm (0.031 in)
- B: 0.85 mm (0.033 in)
- C: 0.90 mm (0.035 in)
- D: 0.95 mm (0.037 in)
- E: 1.00 mm (0.039 in) Standard
- F: 1.05 mm (0.041 in)
- G: 1.10 mm (0.043 in)



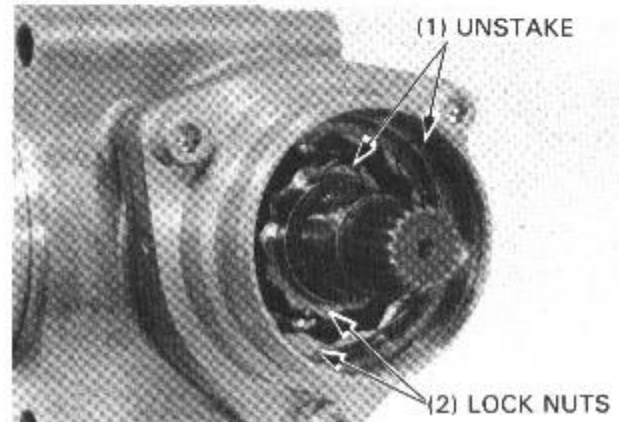
OUTPUT SHAFT DISASSEMBLY

Remove the oil seal stopper ring and oil seal.

Discard the oil seal.



Unstake the output shaft bearing race lock nuts with a drill or grinder. Be careful that metal particles do not enter the bearing, and that the threads on the shaft are not damaged.



Place the output gear case in a vise, being careful not to distort it.

CAUTION

- Use soft jaws to prevent damage to the gear case.

Hold the output shaft and remove the bearing inner race lock nut.

TOOLS:

Shaft holder

Lock nut wrench, 34 x 44 mm

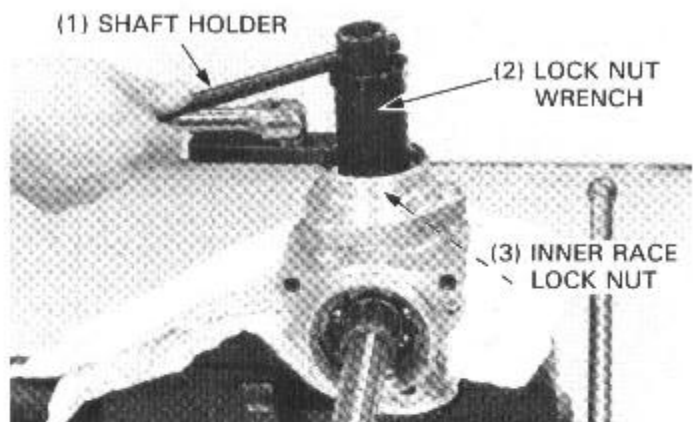
07924-ME50000

07916-ME50001 or

07916-ME50000 and

07916-HA0010A

(U.S.A. only)



Discard the lock nut.

Remove the outer race lock nut and discard the lock nut.

TOOL:

Lock nut wrench, 34 x 44 mm

07916-ME50001 or

07916-ME50000 and

07916-HA0010A

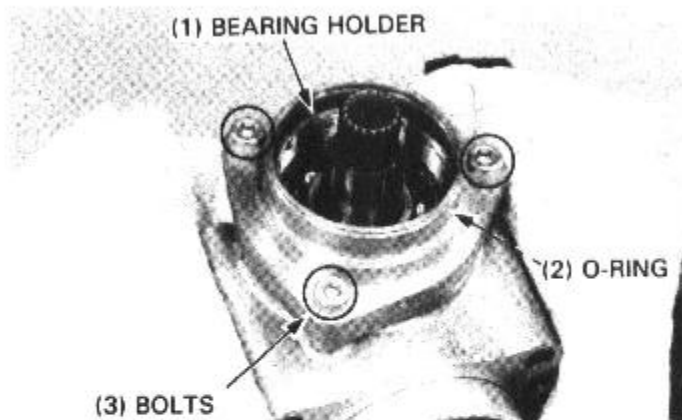
(U.S.A. only)



CRANKCASE/CRANKSHAFT/TRANSMISSION

Remove the 8 mm socket bolts attaching the output shaft bearing holder, and remove the bearing holder assembly from the gear case.

Remove the O-ring.

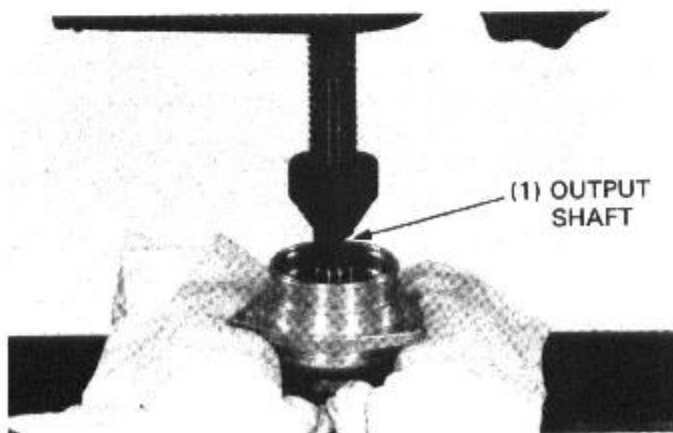


OUTPUT SHAFT BEARING REPLACEMENT

NOTE

- The output shaft must be removed before replacing the bearing.

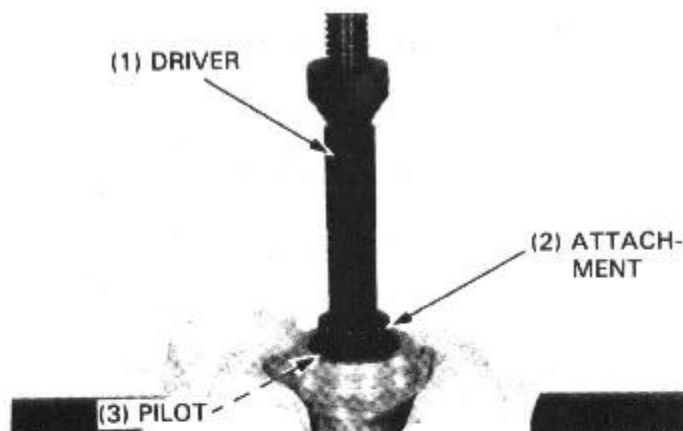
Place the bearing holder in a press and remove the output shaft from the bearing holder.



Place the bearing holder in the press and remove the bearing.

TOOLS:

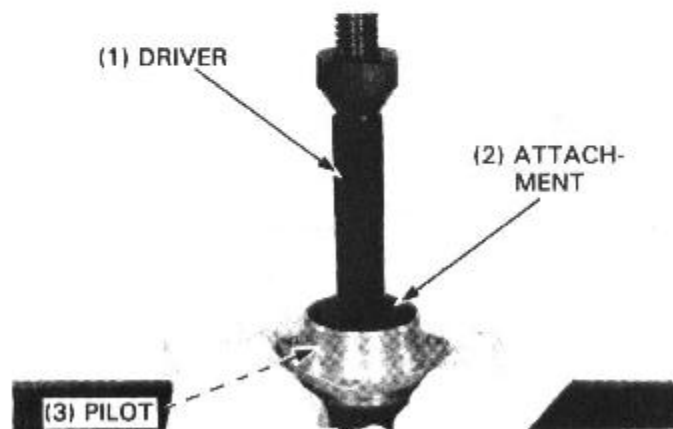
Driver	07749-0010000
Attachment, 42 x 47 mm	07746-0010300
Pilot, 28 mm	07746-0041100



Press in a new bearing.

TOOLS:

Driver	07749-0010000
Attachment, 52 x 55 mm	07746-0010400
Pilot, 28 mm	07746-0041100



Press the output shaft into the bearing.

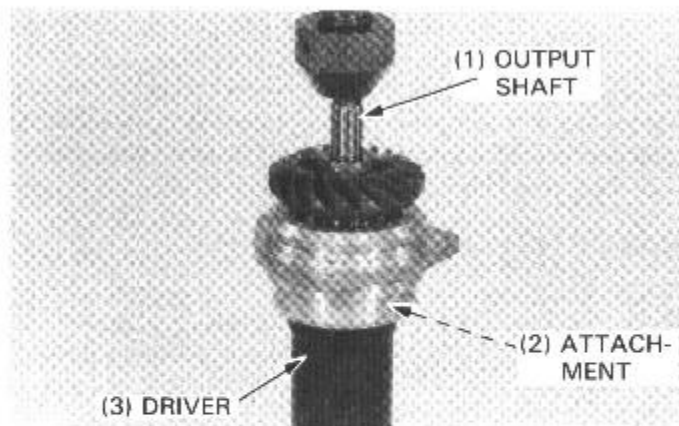
TOOLS:

Driver, 40 mm I.D.

07746-0030100

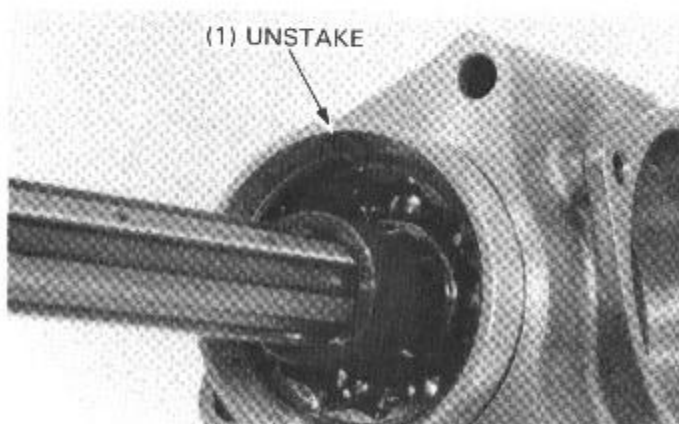
Attachment, 30 mm I.D.

07746-0030300



COUNTERSHAFT DISASSEMBLY

Unstake the countershaft bearing race lock nut with a drill or grinder. Be careful that metal particles do not enter the bearing.



Place the output gear case in a vise, being careful not to distort it.

CAUTION

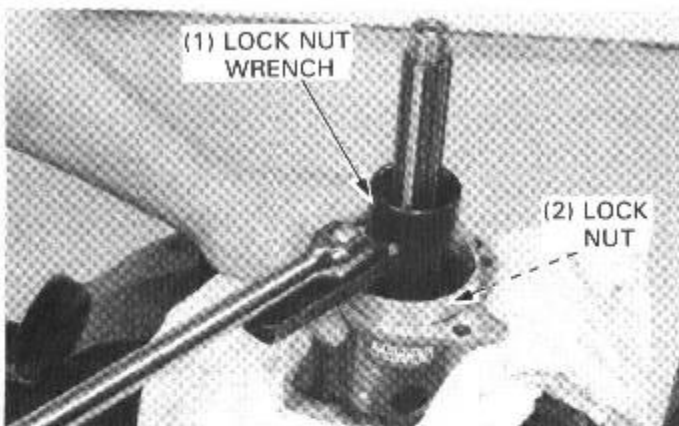
- Use soft jaws to prevent damage to the gear case.

Remove the countershaft bearing lock nut. Discard the lock nut.

TOOL:

Lock nut wrench, 36 x 48 mm

07916-MB00001 or
07916-MB00000 and
07916-HA2020A
(U.S.A. only)



Heat the output gear case around the countershaft bearing to 80°C (176°F).

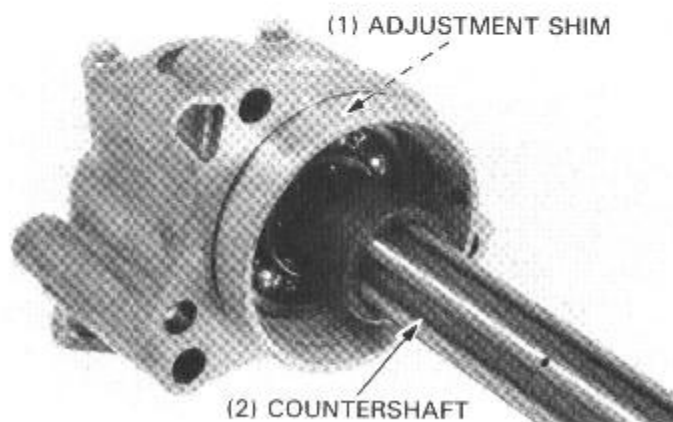
WARNING

- Always wear gloves when handling a heated gear case to prevent burning your hands.

CAUTION

- Do not use a torch to heat the output gear case; it may cause warping.

Remove the countershaft and adjustment shim.



GEAR CASE BEARING/OIL SEAL REPLACEMENT

Turn the inner race of the bearing with your finger. The bearing should turn smoothly and quietly. Also check the outer race of the bearing fits tightly in the gear case. Replace if necessary.

Remove the bearing.

TOOLS:

Bearing remover, 15 mm

- remover, 15 mm
- remover head, 15 mm

— remover shaft, 15 mm

— remover weight

07936—KC10000

Not available in U.S.A.

07936—KC10500

07936—KC10200

Not available in U.S.A.

07936—KC10100

Not available in U.S.A.

07741—0010201 or

07936—3710200

Check the oil seal for damage or fatigue and replace it if necessary.

Drive a new bearing into the gear case.

TOOLS:

Driver

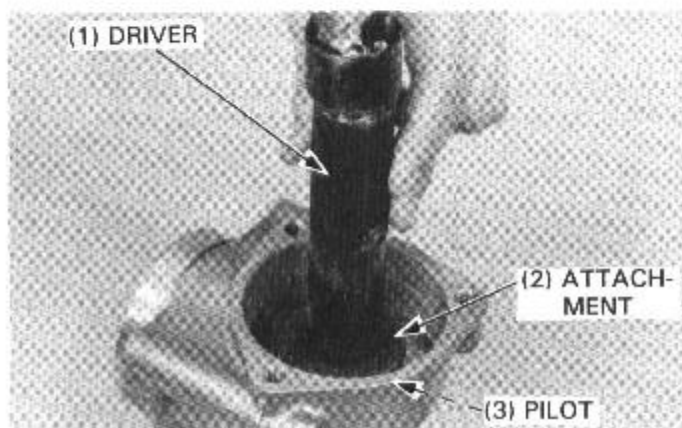
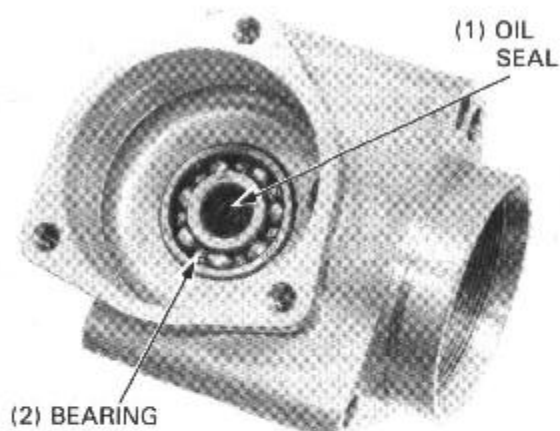
Attachment, 37 x 40 mm

Pilot, 15 mm

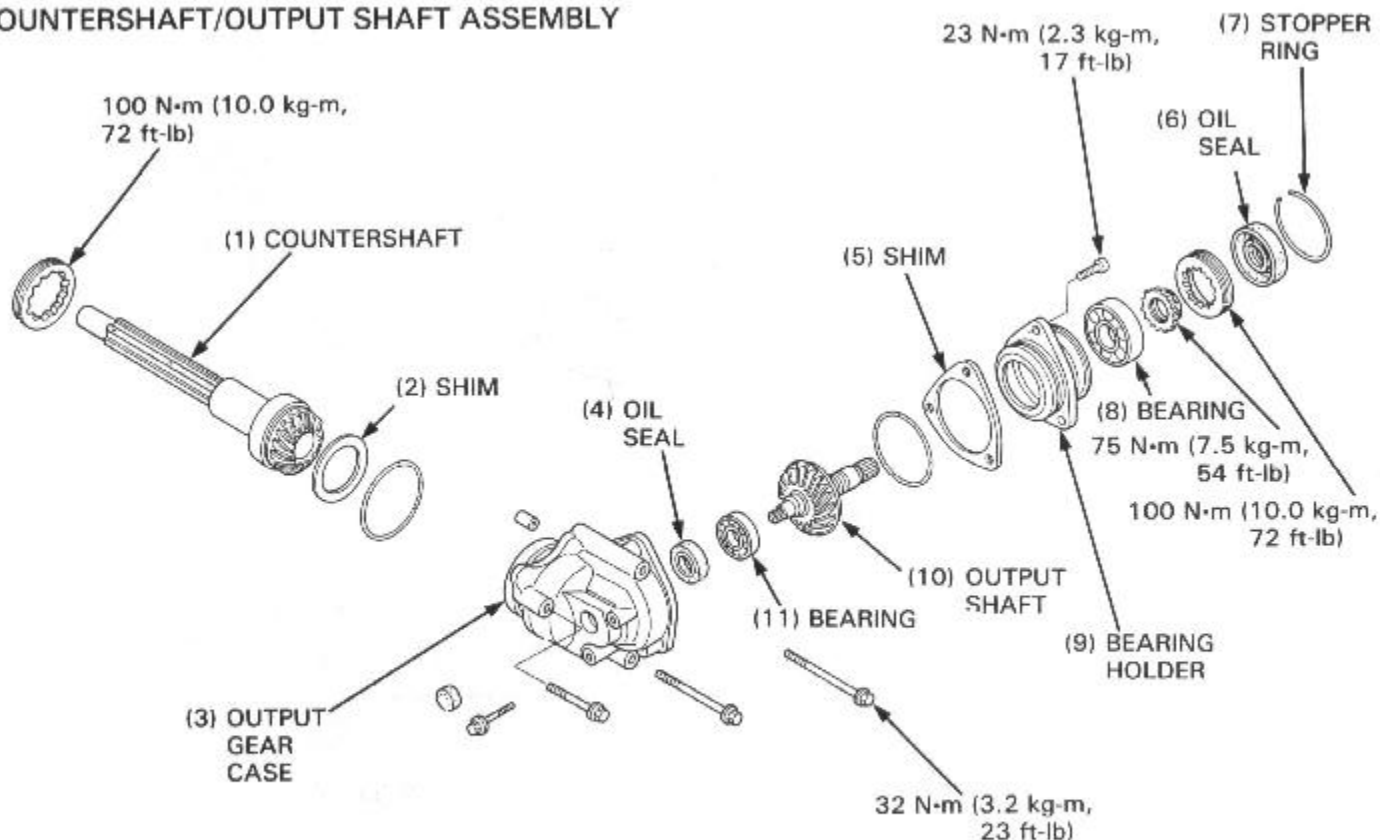
07749—0010000

07746—0010200

07746—0040300



COUNTERSHAFT/OUTPUT SHAFT ASSEMBLY

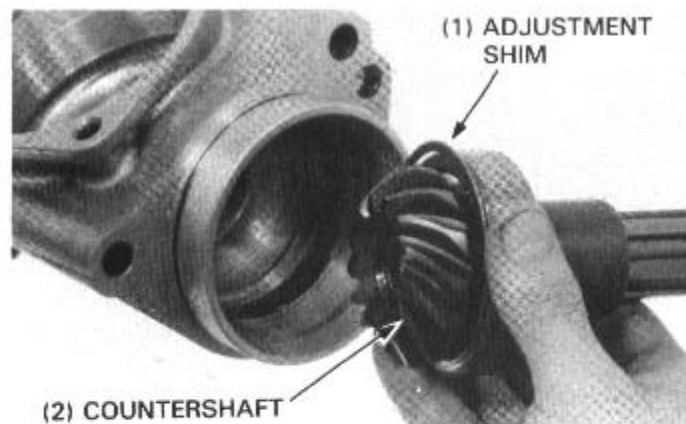


• COUNTERSHAFT ASSEMBLY

Place the shim and countershaft into the case.

NOTE

- When the shaft set, output shaft bearing holder, output shaft bearing and/or gear case have been replaced, use a shim of 1.00 mm (0.039 in) thickness for initial reference.



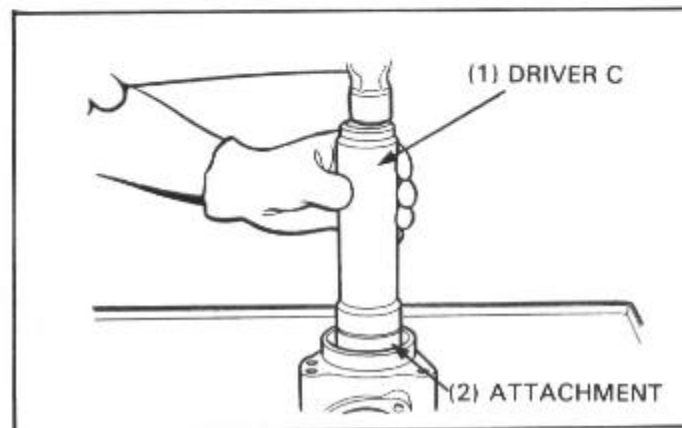
Heat the output gear case around the countershaft bearing to 80°C (176°F).

WARNING

- Always wear gloves when handling a heated gear case to prevent burning your hands.

CAUTION

- Do not use a torch to heat the output gear case; it may cause warping.



Drive the countershaft into the case.

TOOLS:

Driver, 40 mm I.D.
Attachment

07746-0030100
07946-HA00001

NOTE

- Check the backlash (page 10-17) and the gear tooth contact pattern (page 10-18) before tightening the lock nut.

Apply oil to the lock nut flange.

Install and tighten the countershaft bearing lock nut to the specified torque.

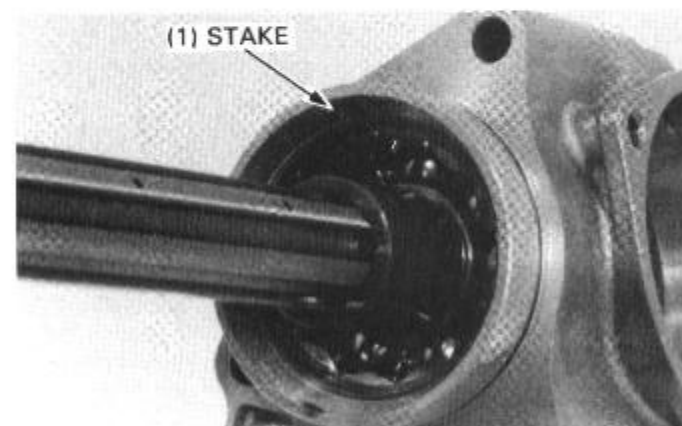
TORQUE: 100 N·m (10.0 kg-m, 72 ft-lb)

Torque wrench scale reading: 91 N·m (9.1 kg-m, 66 ft-lb)

TOOL:

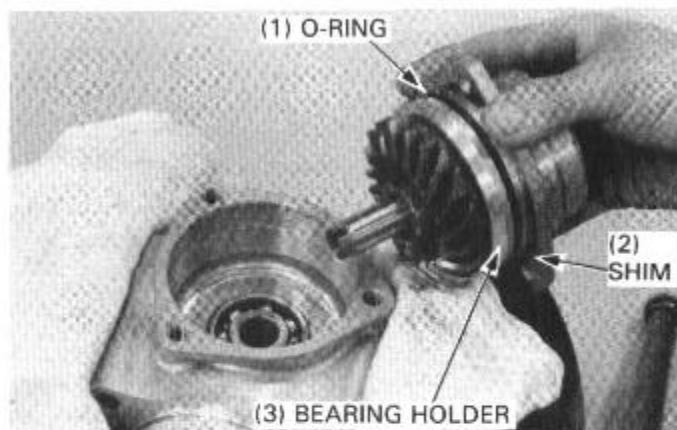
Lock nut wrench, 36 x 48 mm 07916-MB00001 or
07916-MB00000

Stake the lock nut.



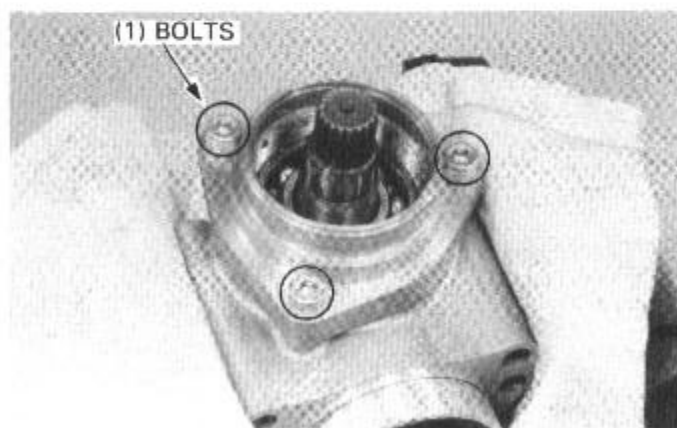
• OUTPUT SHAFT ASSEMBLY

Install a new O-ring to bearing holder.
Place the shim and output shaft/bearing holder assembly into the case.



Install and tighten the 8 mm socket bolts to the specified torque.

TORQUE: 23 N·m (2.3 kg-m, 17 ft-lb)



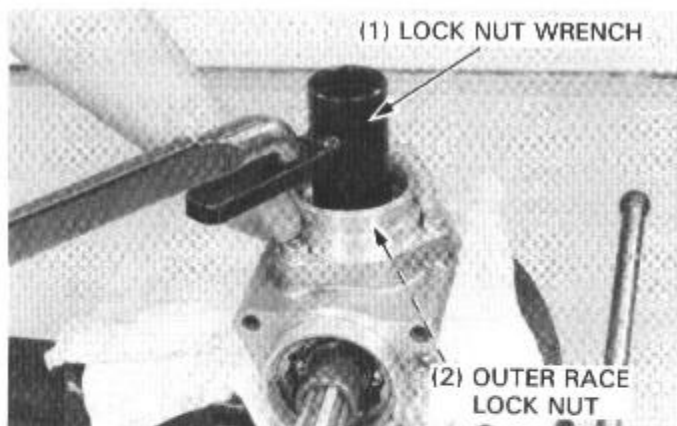
Apply oil to the flange of the bearing outer race lock nut.
Install and tighten the output shaft bearing outer race lock nut.

TORQUE: 100 N·m (10.0 kg-m, 72 ft-lb)

Torque wrench scale reading: 91 N·m (9.1 kg-m, 66 ft-lb)

TOOL:

Lock nut wrench, 34 x 44 mm 07916—ME50001 or
07916—ME50000 and
07916—HA0010A
(U.S.A. only)



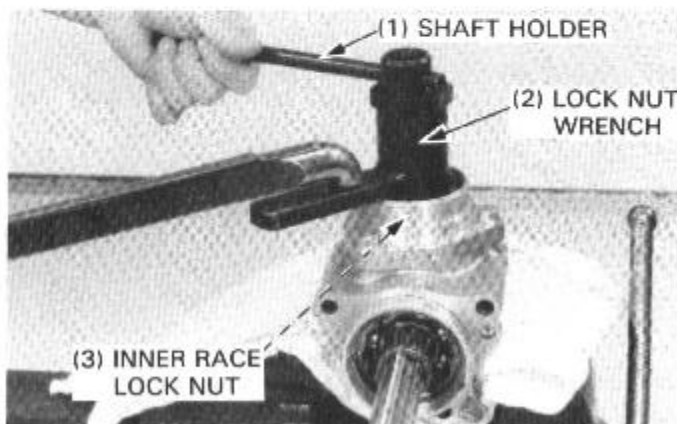
Apply oil to the flange of the bearing inner race lock nut.
Hold the output shaft with the shaft holder and tighten the lock nut.

TORQUE: 75 N·m (7.5 kg-m, 54 ft-lb)

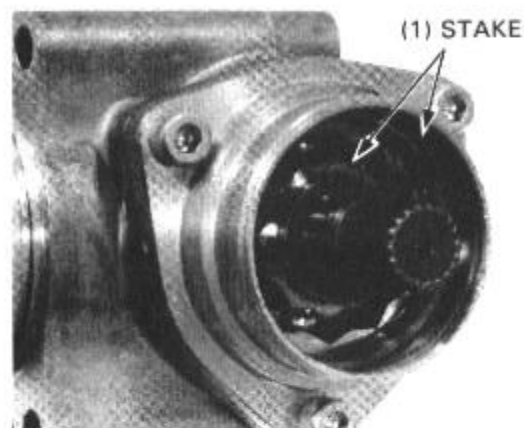
Torque wrench scale reading: 69 N·m (6.9 kg-m, 50 ft-lb)

TOOLS:

Shaft holder 07924—ME50000
Lock nut wrench, 34 x 44 mm 07916—ME50001 or
07916—ME50000 and
07916—HA0010A
(U.S.A. only)



Stake the outer and inner race lock nuts.

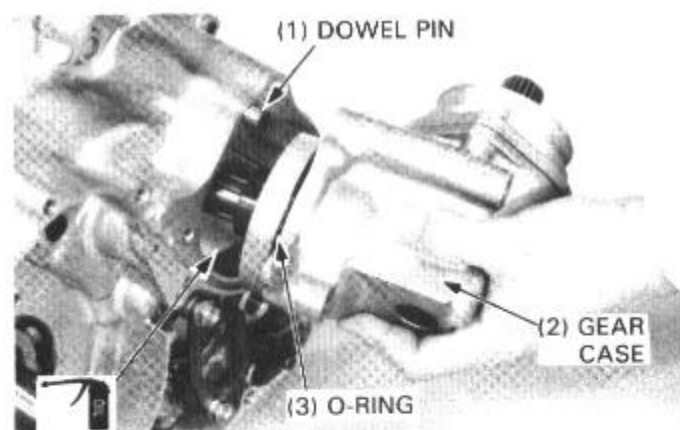


Install a new oil seal and stopper ring.



INSTALLATION

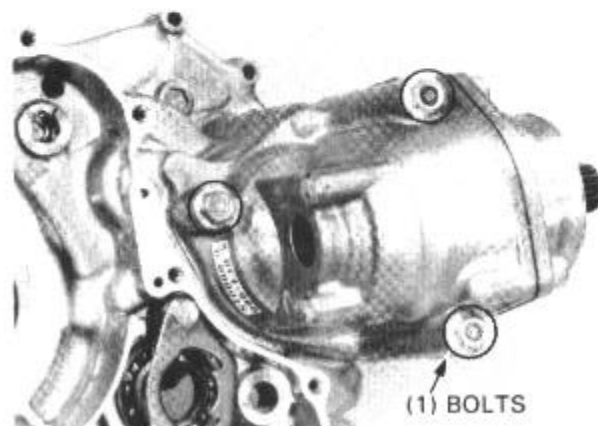
Apply oil to the output gear case hole in the left crankcase.
Install a new O-ring to the gear case.
Install the dowel pin and output gear case to the crankcase.



Install and tighten the output gear case mounting bolts to the specified torque.

TORQUE: 32 N·m (3.2 kg-m, 23 ft-lb)

Install the transmission (page 10-10).



CRANKCASE ASSEMBLY

Install the dowel pins and new gasket.

Install the right crankcase onto the left crankcase.

NOTE

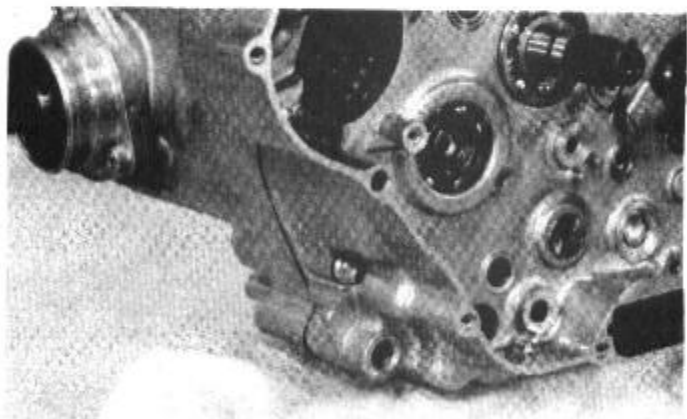
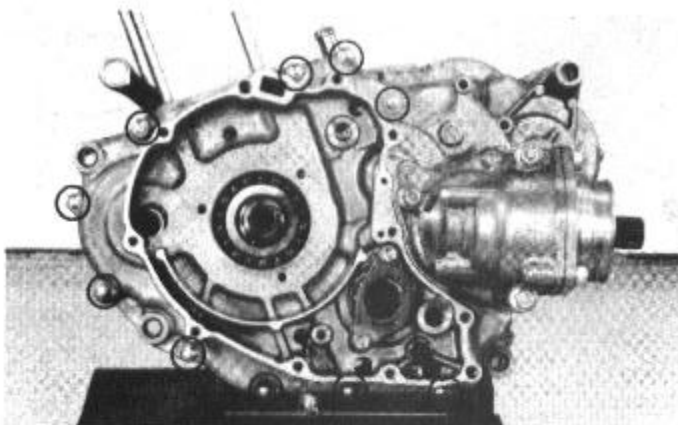
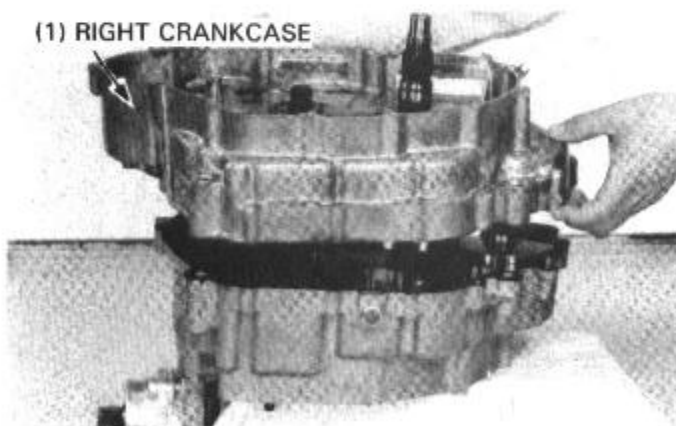
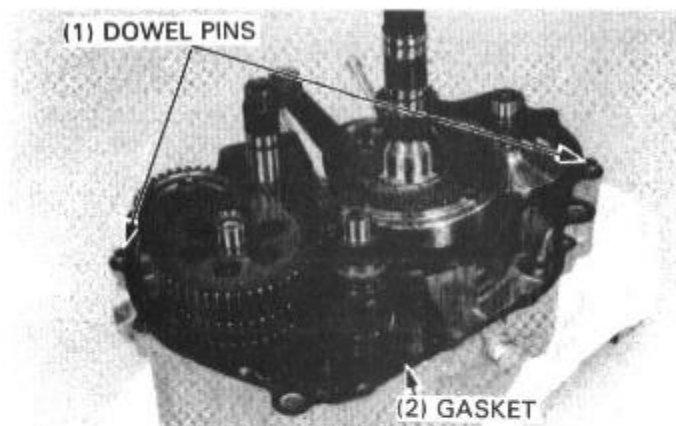
- Make sure that the gasket stays in place.

Install and tighten the left crankcase bolts in 2 or 3 steps in a criss-cross pattern.

TORQUE: 10 N·m (1.0 kg-m, 7 ft-lb)

Tighten the right crankcase bolt to the specified torque.

TORQUE: 10 N·m (1.0 kg-m, 7 ft-lb)



Clean off oil from the crankshaft.

Apply locking agent to the threads of the cam chain tensioner bolt, bearing set plate bolt and cam chain guide holder bolt.

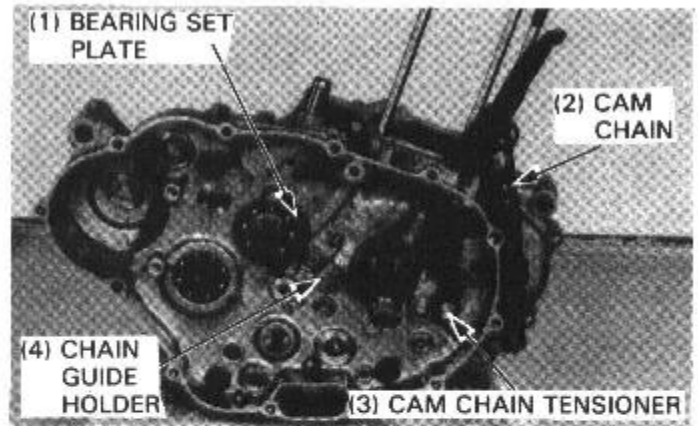
Install the following:

- bearing set plate and cam chain guide holder.

TORQUE: 12 N·m (1.2 kg-m, 9 ft-lb)

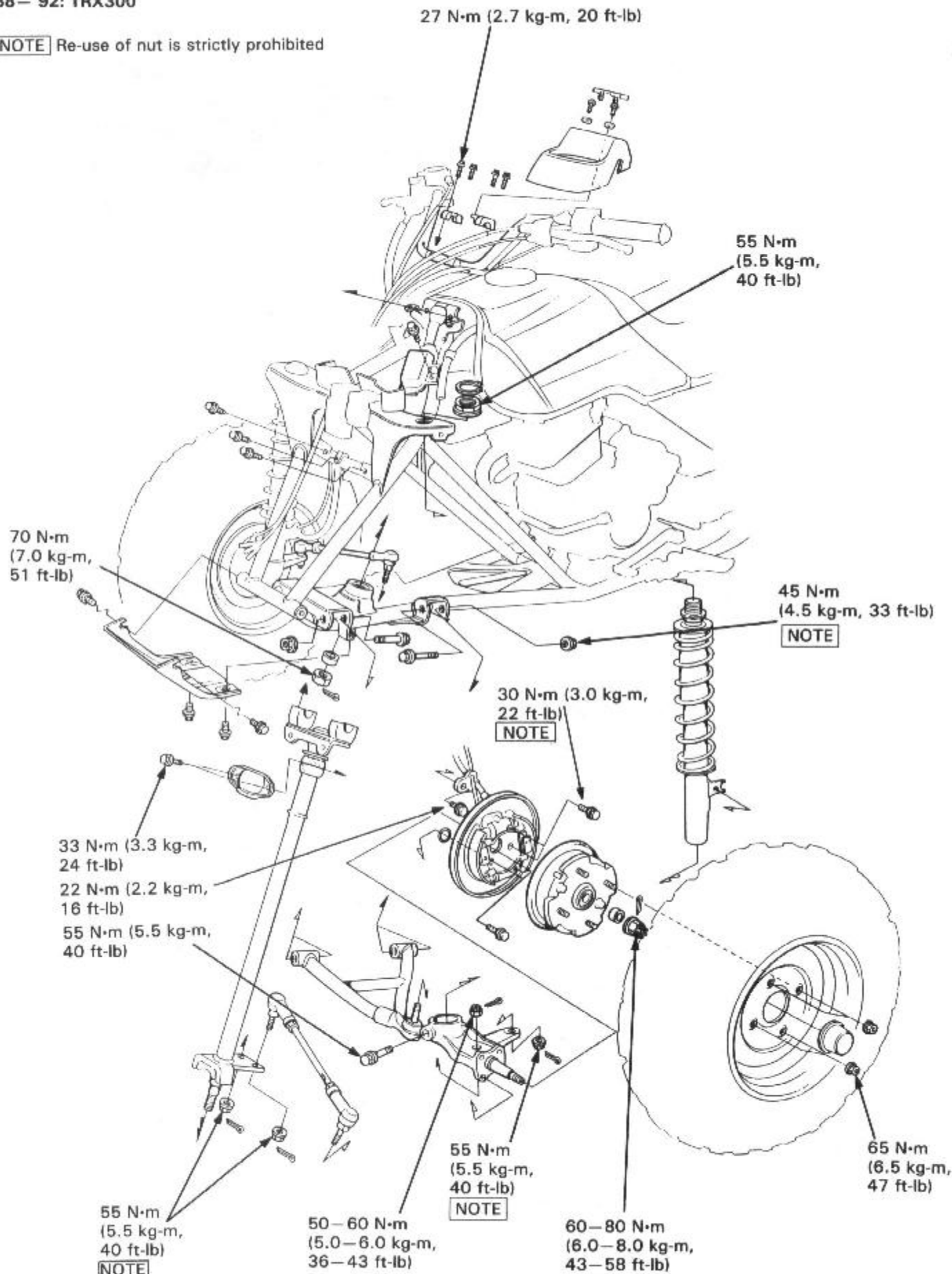
- cam chain tensioner.
- cam chain.

Install the removed parts in the reverse order of removal (page 10-1).



'88-'92: TRX300

NOTE Re-use of nut is strictly prohibited

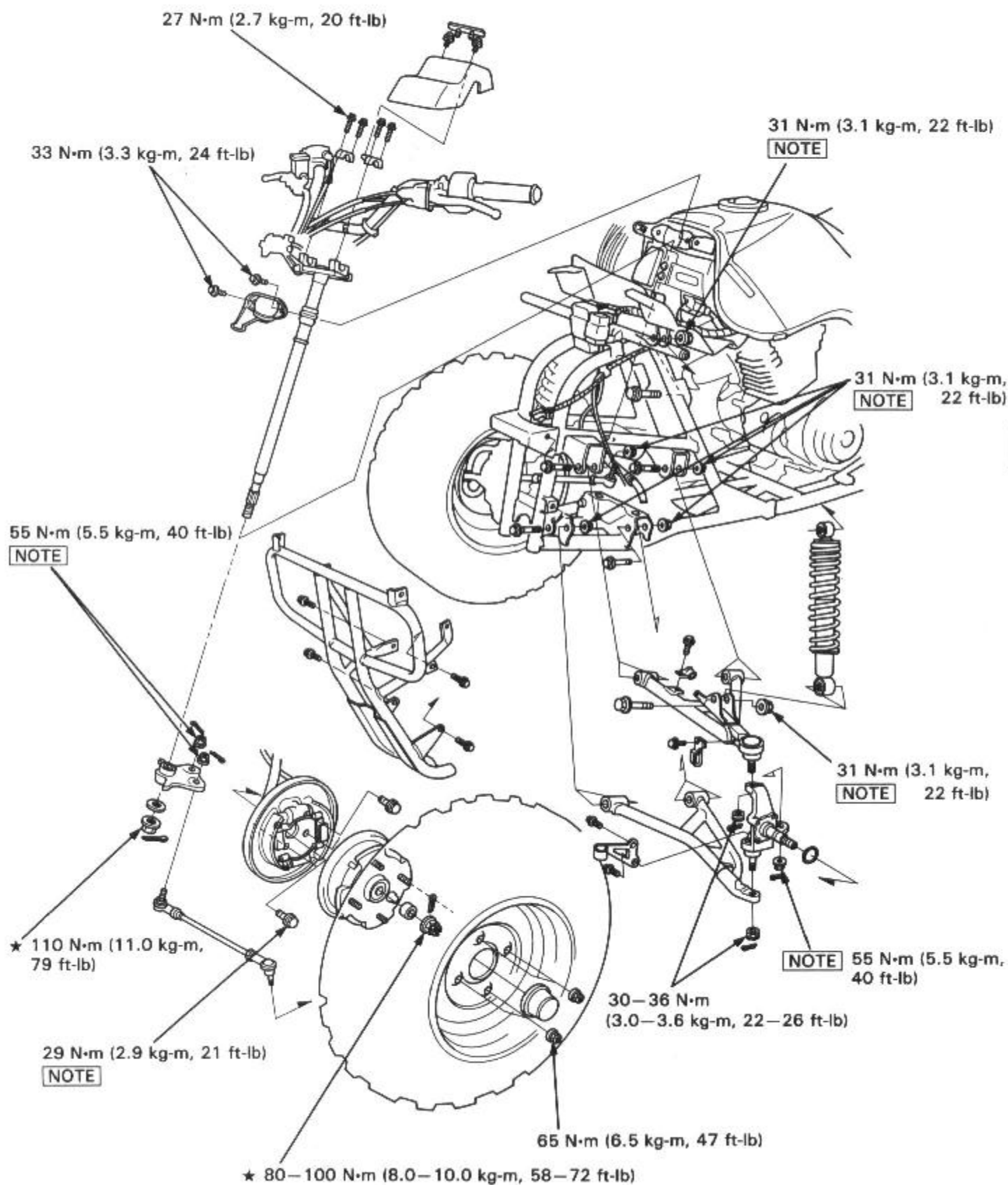


11. FRONT WHEEL/SUSPENSION/STEERING

After '92: TRX300

NOTE Re-use of nut is strictly prohibited

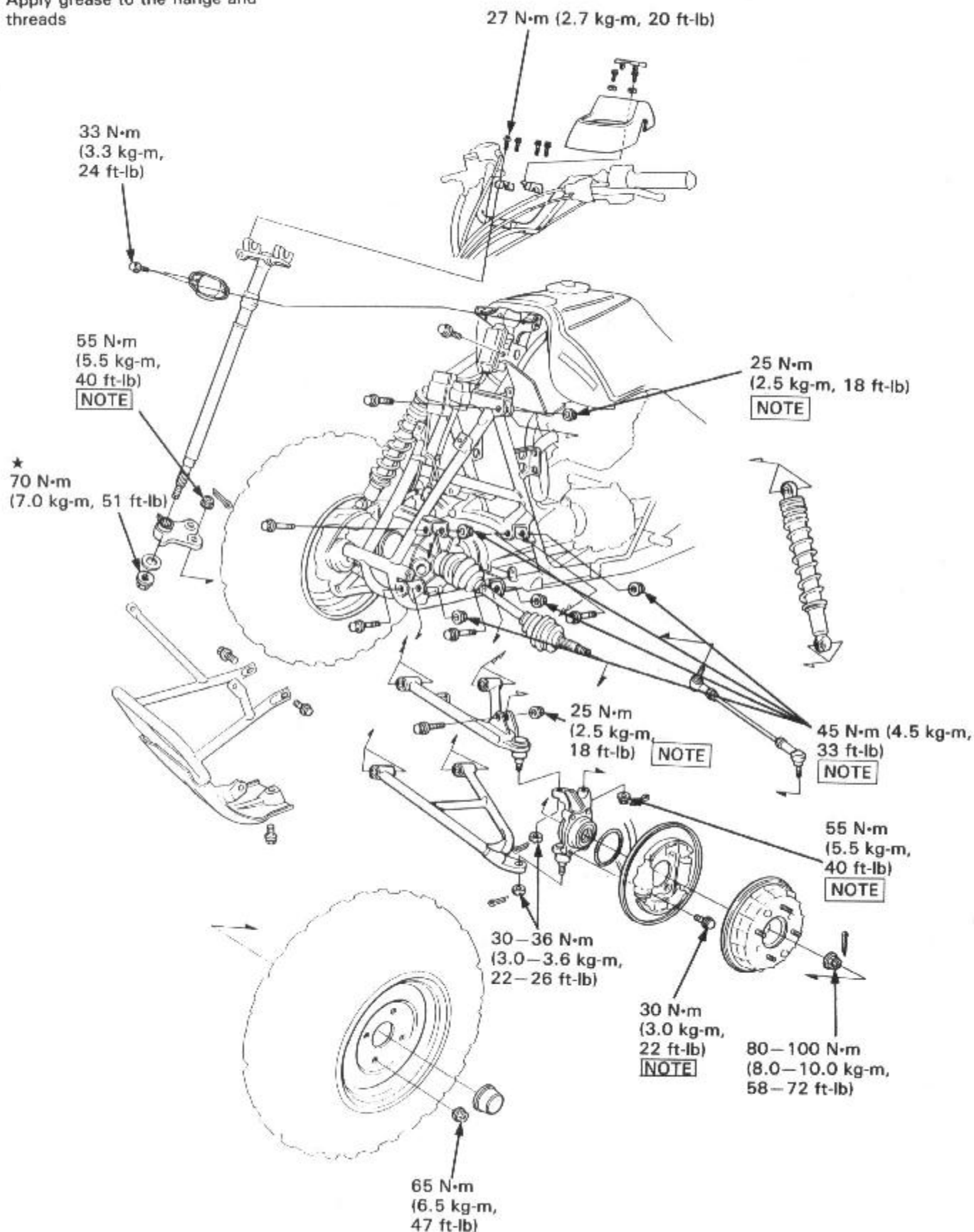
★ Apply grease to the flange and threads



'88, '90—'92:TRX300FW

NOTE Re-use of nut is strictly prohibited

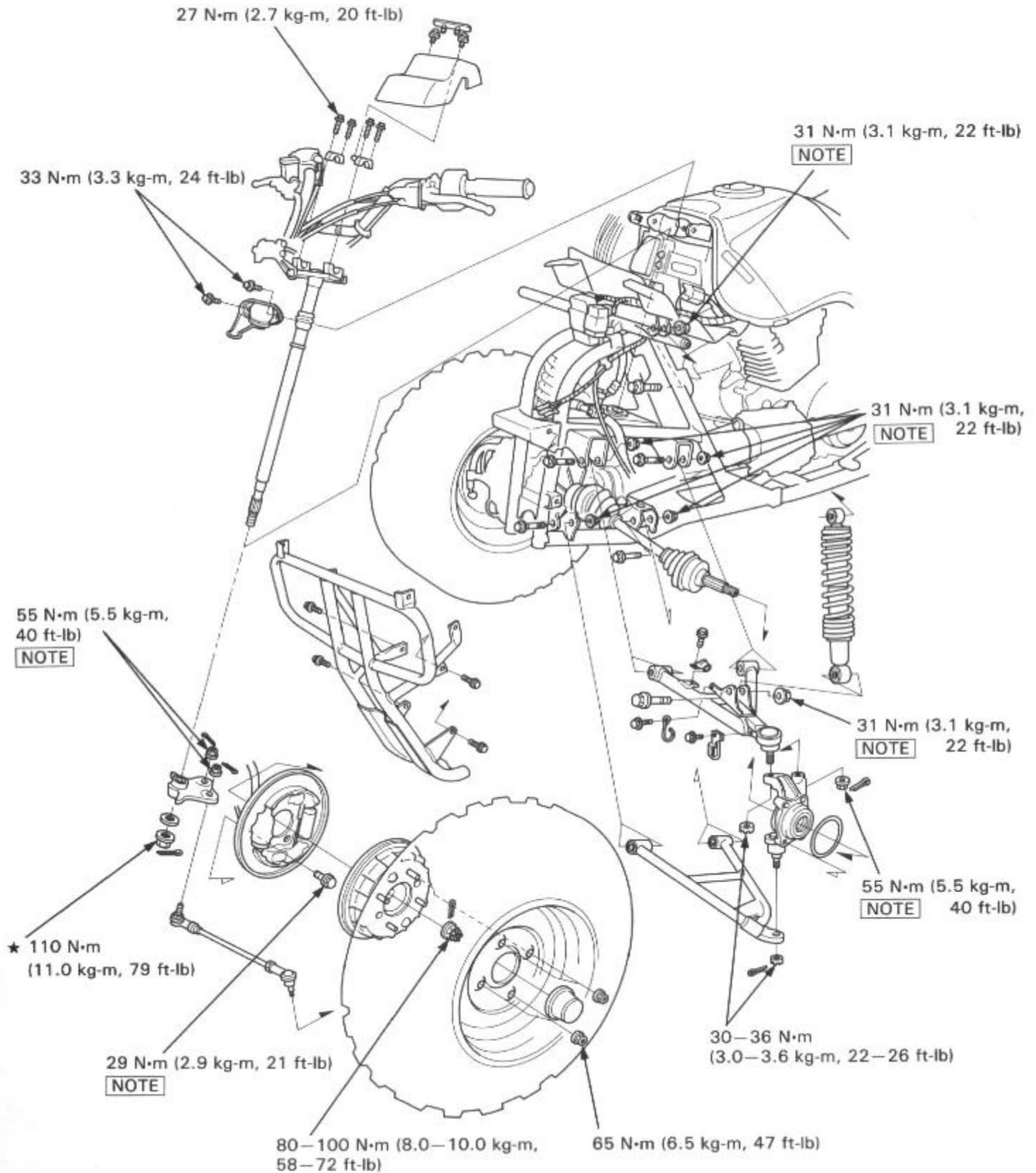
★ Apply grease to the flange and threads



After '92:TRX300FW

NOTE Re-use of nut is strictly prohibited

★ Apply grease to the flange and threads



SERVICE INFORMATION	11-4	TIE-ROD/KNUCKLE REMOVAL	11-10
TROUBLESHOOTING	11-5	FRONT ARM	11-14
HANDLEBAR	11-6	TIE-ROD/KNUCKLE INSTALLATION	11-17
THROTTLE HOUSING	11-8	STEERING SHAFT	11-24
FRONT WHEEL	11-9	FRONT SHOCK ABSORBER	11-27

SERVICE INFORMATION

GENERAL

WARNING

- Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake or clutch assemblies. Use an OSHA-approved vacuum cleaner or alternate method approved by OSHA designed to minimize the hazard caused by airborne asbestos fibers.

- This section covers servicing of the front wheel, steering stem and suspension.
- A jack or other support is required to support the vehicle.
- Adjust toe-in whenever the tie rod, knuckle or steering shaft are replaced or removed (page 3-17).
- Do not twist or bend the brake hoses and pipes when removing them from the knuckle or front arm.
- See section 13 for tire removal/repair procedures.

SPECIFICATIONS

[]: TRX300FW

Unit: mm (in)

ITEM	STANDARD	SERVICE LIMIT
Tie-rod distance between the ball joints	'86-'92:	300 (11.8) [343 (13.5)]
	After '92:	345.5 (13.6) [343 (13.5)]
Front shock absorber spring free length	'86-'92:	280.0—286.0 (11.02—11.26) [244.4—250.4 (9.62—9.86)]
	After '92:	277.2 (10.91) [241.9 (9.52)]
		212.5 (8.37) [219.3 (8.63)]

TORQUE VALUES

Handlebar upper holder bolt	27 N·m (2.7 kg-m, 20 ft-lb)
Switch housing screw	2 N·m (0.2 kg-m, 1.4 ft-lb)
Grip end bolt	10 N·m (1.0 kg-m, 7 ft-lb)
Master cylinder holder	12 N·m (1.2 kg-m, 9 ft-lb)
Wheel nut	65 N·m (6.5 kg-m, 47 ft-lb)
Front arm mounting nut '88-'92:	45 N·m (4.5 kg-m, 33 ft-lb): NOTE 1
After '92:	31 N·m (3.1 kg-m, 22 ft-lb)
Front arm ball joint nut ('88-'92: TRX300)	50—60 N·m (5.0—6.0 kg-m, 36—43 ft-lb)
(After '92: TRX300)	30—36 N·m (3.0—3.6 kg-m, 22—26 ft-lb)
(TRX300FW)	30—36 N·m (3.0—3.6 kg-m, 22—26 ft-lb)
Tie-rod ball joint nut	55 N·m (5.5 kg-m, 40 ft-lb): NOTE 1
Tie-rod lock nut	55 N·m (5.5 kg-m, 40 ft-lb)
Steering shaft upper holder bolt	33 N·m (3.3 kg-m, 24 ft-lb)
Steering shaft nut ('88-'92: TRX300)	70 N·m (7.0 kg-m, 51 ft-lb)
('88-'92: TRX300FW)	70 N·m (7.0 kg-m, 51 ft-lb): NOTE 2
(After '92:)	110 N·m (11.0 kg-m, 79 ft-lb): NOTE 2
Handlebar lower holder nut	40 N·m (4.0 kg-m, 29 ft-lb): NOTE 1
Shock absorber ball joint ('88-'92: TRX300)	38 N·m (3.8 kg-m, 27 ft-lb)
Shock absorber upper joint ('88-'92: TRX300FW)	38 N·m (3.8 kg-m, 27 ft-lb)
Shock absorber upper nut ('88-'92: TRX300)	55 N·m (5.5 kg-m, 40 ft-lb)
Shock absorber lower pinch bolt ('88-'92: TRX300)	55 N·m (5.5 kg-m, 40 ft-lb)
Shock absorber mounting bolt ('88-'92: TRX300FW)	25 N·m (2.5 kg-m, 18 ft-lb): NOTE 1
(After '92:)	31 N·m (3.1 kg-m, 22 ft-lb): NOTE 1
Brake hose/breather tube clamp bolt	22 N·m (2.2 kg-m, 16 ft-lb)
(TRX300)	12 N·m (1.2 kg-m, 9 ft-lb)
(TRX300FW)	

NOTE 1: Re-use of nut is strictly prohibited

NOTE 2: Apply grease to the flange and threads

TOOLS

Special

- TRX300
Ball joint puller 07934—5510000 or equivalent commercially available in U.S.A.
- TRX300FW
Ball joint remover 07JMD—HC50100
Ball joint puller 07MAC—SL00200 or 07941—6920003
Attachment 07945—3330300
Compressor adapter 07967—KC10100
Driver 07949—3710001

Common

- TRX300FW
Attachment, 37 x 40 mm 07746—0010200
Attachment, 42 x 47 mm 07746—0010300
Pilot, 20 mm 07746—0040500
Pilot, 30 mm 07746—0040700
Driver 07749—0010000
Shock absorber compressor 07GME—0010000 or 07959—3290001 and 07GME—0010100

TROUBLESHOOTING

Hard steering

- Damaged steering shaft bearing and holder bushing
- Steering shaft holder too tight
- Insufficient tire pressure

Steers to one side or does not track straight

- Bent tie-rod
- Insufficient tire pressure
- Bent front arm; frame or wheel installed incorrectly
- Incorrect wheel alignment
- Weak front shock absorber

Front wheel wobbling

- Bent rim
- Worn front drum bearing
- Faulty tire
- Axle nut not tightened properly

Soft suspension

- Weak spring

Hard suspension

- Bent shock absorber

Suspension noise

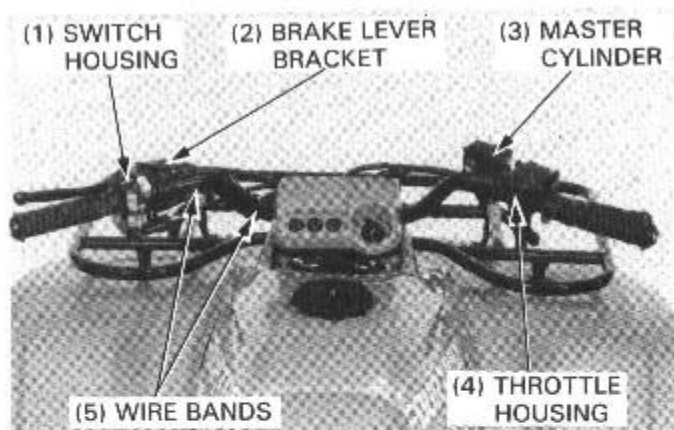
- Loose fasteners

HANDLEBAR

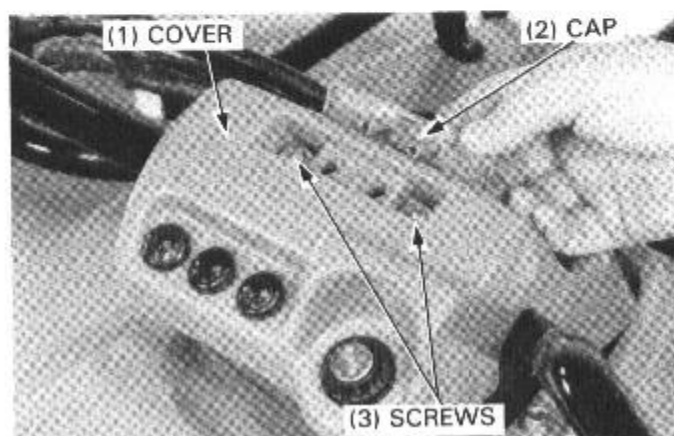
REMOVAL

Remove the following:

- wire bands
- throttle lever housing
- switch housing (and disconnect the choke cable)
- master cylinder
- rear brake lever bracket



- cover cap
- screws
- handlebar cover



- upper holder bolts
- upper holder
- handlebar

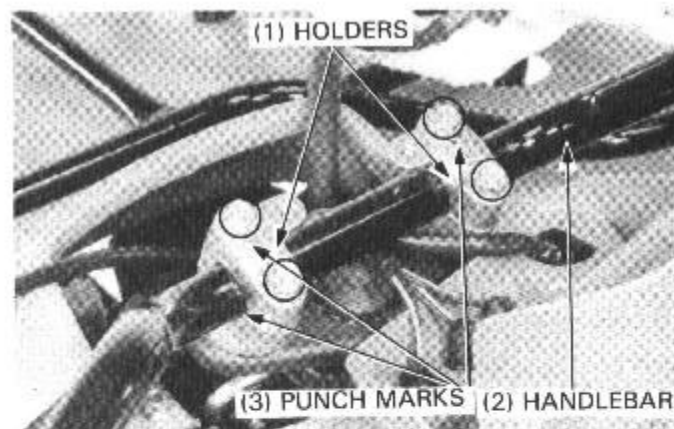
INSTALLATION

Place the handlebar on the lower holders.

Align the punch mark on the handlebar with the top of the lower holders.

Install the upper holders on the handlebar with their punch marks forward.

Tighten the front bolts first, then tighten the rear bolts.



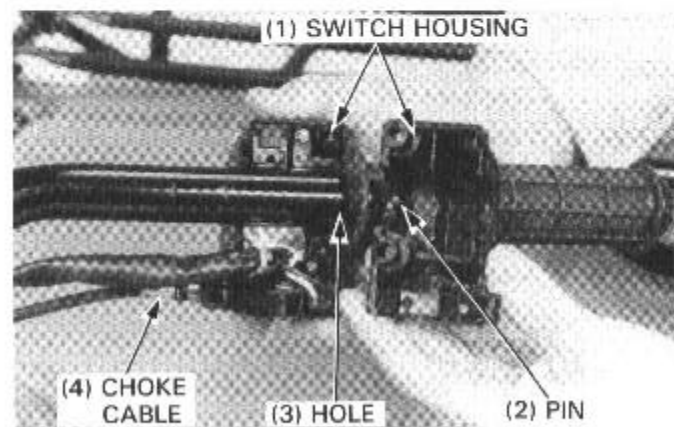
TORQUE: 27 N·m (2.7 kg-m, 20 ft-lb)

Install the following:

- choke cable to the choke lever
- switch housing

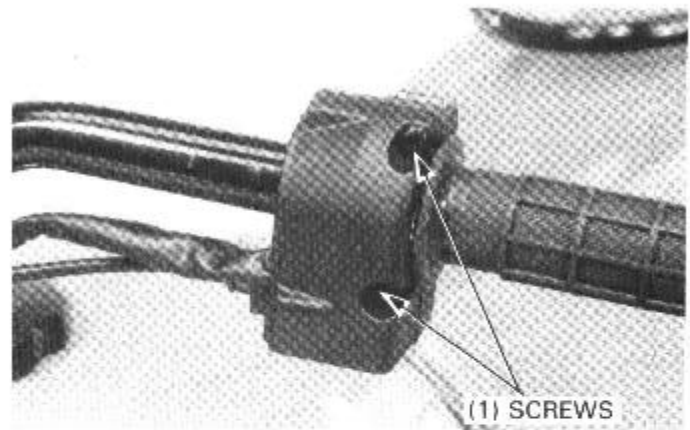
NOTE

- When installing the switch housing, place the locating pin in the hole on the handlebar.



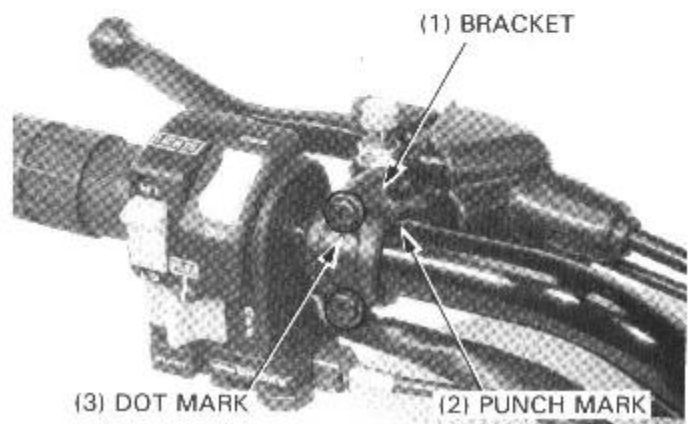
Tighten the upper screw first, then tighten the lower screw.

TORQUE: 2 N·m (0.2 kg-m, 1.4 ft-lb)



Install the rear brake lever bracket with the dot on the holder facing up. Align the end of the holder with the punch mark on the handlebar.

Tighten the upper screw first, then the lower screw.



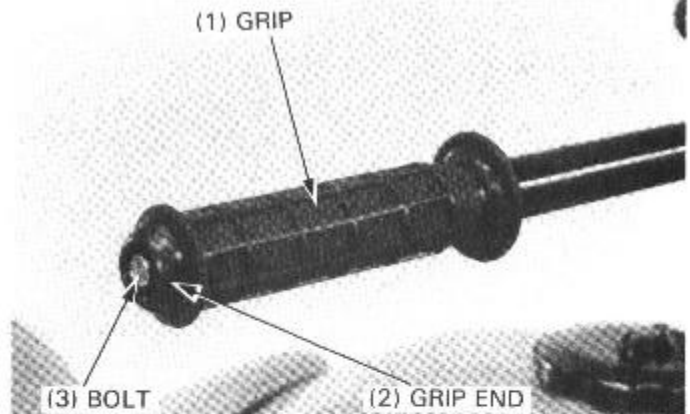
If the handlebar grips were removed, apply Honda Bond A or Honda Hand Grip Cement (U.S.A. only) to the inside of the grip and to the clean surfaces of the right and left handlebar. Wait 3—5 minutes and install the grip. Rotate the grip for even application of the adhesive.

NOTE

- Allow the adhesive to dry for an hour before using.

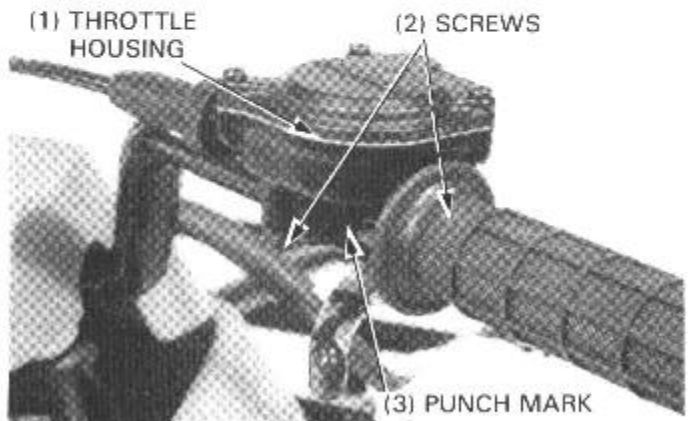
Install the grip end and tighten the bolt to the specified torque.

TORQUE: 10 N·m (1.0 kg-m, 7 ft-lb)



Install the throttle housing on the handlebar, aligning the end of the housing with the punch mark on the handlebar.

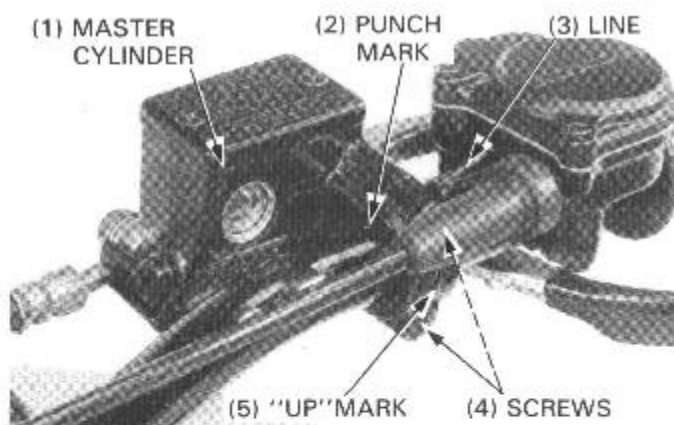
Loosely tighten the screws.



Install the master cylinder and front brake lever bracket with the "UP" mark on the holder facing up.
Align the end of the master cylinder with the punch mark on the handlebar.
Tighten the upper bracket screw first, then the lower screw.

TORQUE: 12 N·m (1.2 kg-m, 9 ft-lb)

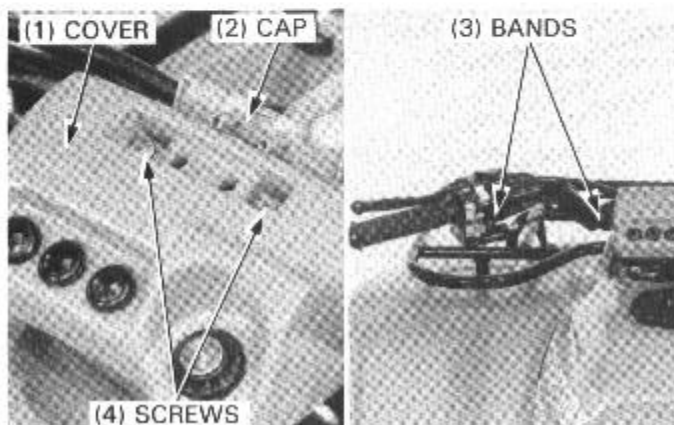
Align the line on the throttle housing with the end of the master cylinder.
Tighten the throttle housing screws securely.



Install the handlebar cover and tighten the screws securely.

Install the cover cap.

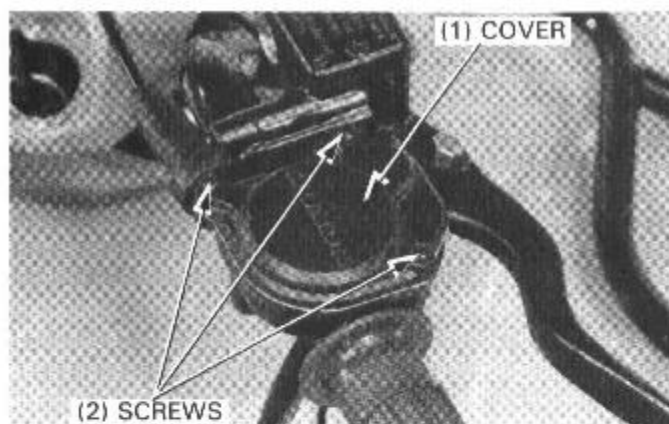
Secure the wires with wire bands.



THROTTLE HOUSING

DISASSEMBLY

Remove the three throttle housing cover screws and the cover. Remove the gasket.

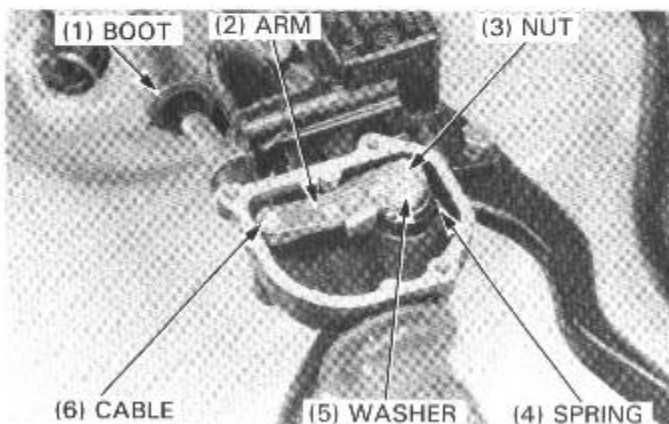


Slide the rubber boot off the cable adjuster.
Loosen the throttle cable adjuster.

Bend down the lock washer tab and remove the nut and lock washer.

Disconnect the throttle cable from the throttle arm.

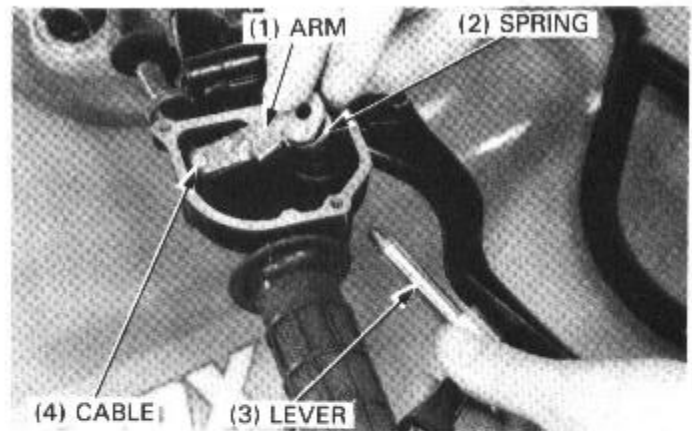
Remove the throttle arm, spring and throttle lever from the throttle housing.



ASSEMBLY

Connect the throttle cable to the throttle arm.

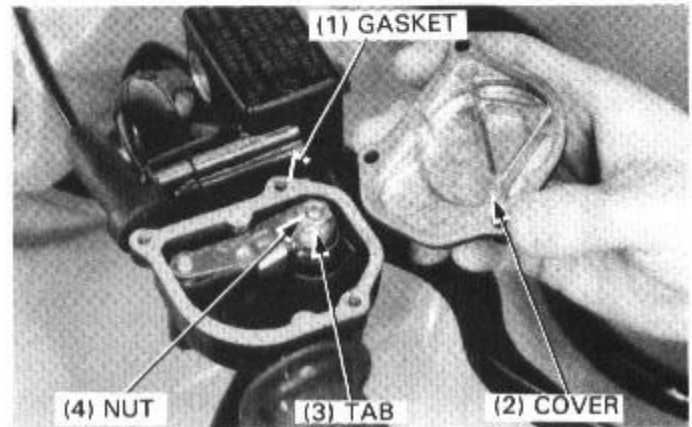
Install the throttle arm spring and arm onto the throttle lever, aligning their flats.



Install a new lock washer and tighten the nut. Bend up the lock washer tab against the nut.

Install a new gasket, then install the throttle housing cover using the three screws.

Adjust the throttle lever free play (page 3-6).



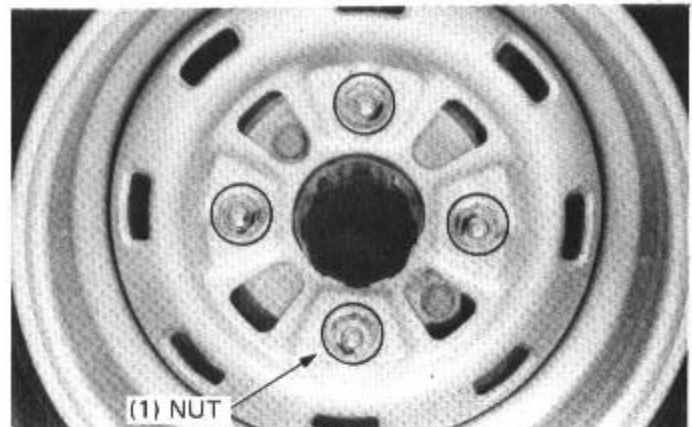
FRONT WHEEL

REMOVAL

Loosen the wheel nuts.

Place a support block under the engine to raise the front wheels off the ground.

Remove the wheel nuts and wheel.



INSTALLATION

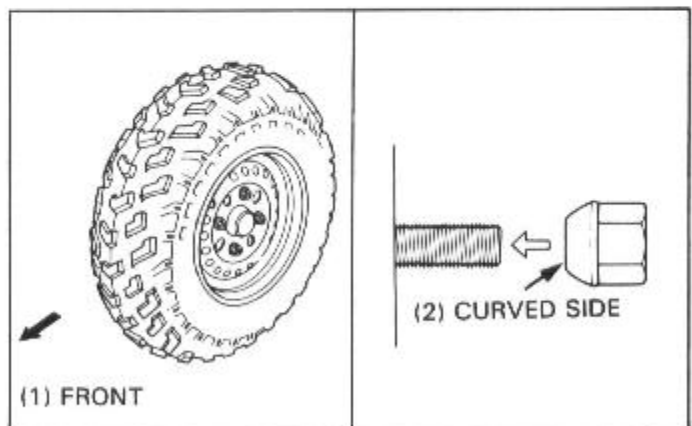
Install the front wheel.

NOTE

- Do not interchange the right and left tires.

Install the wheel nuts with their curved sides facing inward and tighten to the specified torque.

TORQUE: 65 N·m (6.5 kg-m, 47 ft-lb)



TIE-ROD/KNUCKLE REMOVAL

'88-'92:

NOTE

- The tie-rod can be removed without removing the parts below.

Remove the following:

- front wheel (page 11-9)
- front brake drum (page 12-8)
- brake hose and breather tube guide
- brake panel (page 12-9)

NOTE

- Do not disconnect the brake hose from the brake panel. The brake system will have to be bled if the brake hose is disconnected.
- Do not operate the front brake lever after removing the brake panel. To do so will make it difficult to refit the brake drum and shoes.

CAUTION

- Support the brake panel so that it does not hang from the brake hose. Do not twist the brake hose.

Remove the cotter pins.

Hold the tie-rod ball joints and remove the nuts. Discard the nuts.

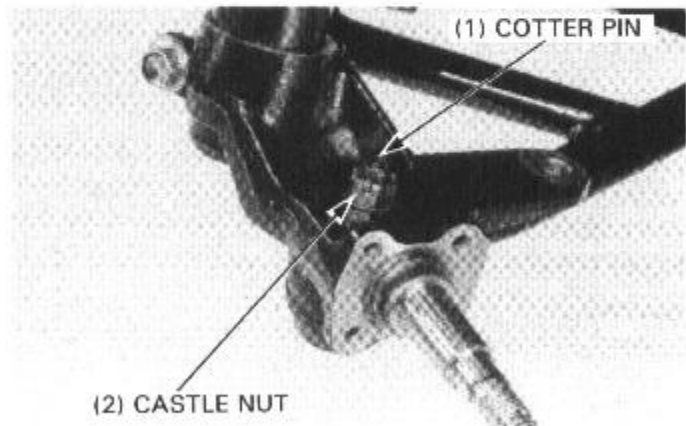
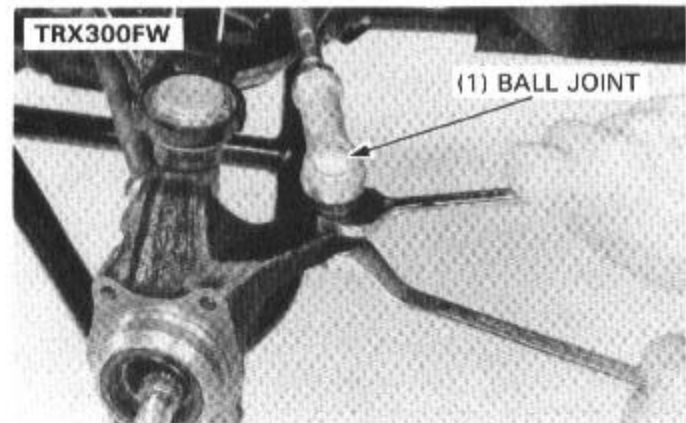
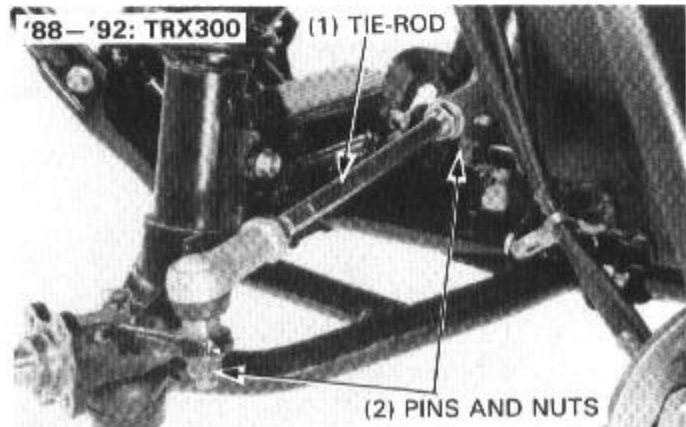
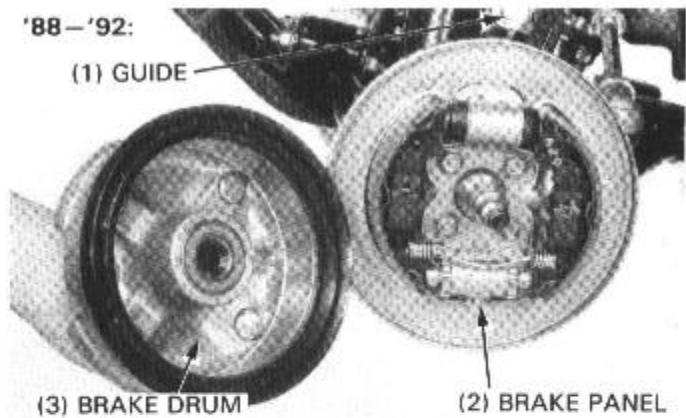
CAUTION

- Re-use of nuts is strictly prohibited.

Remove the tie-rod.

'88-'92: TRX300

Remove the cotter pin and front arm ball joint castle nut.

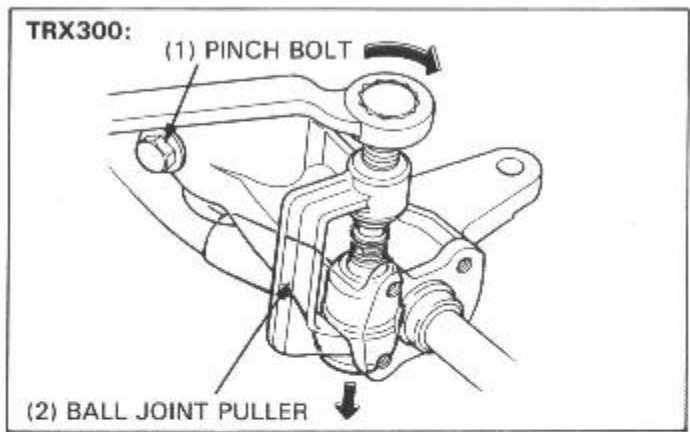


Remove the shock absorber lower pinch bolt.
Remove the knuckle from the front arm.

TOOL:

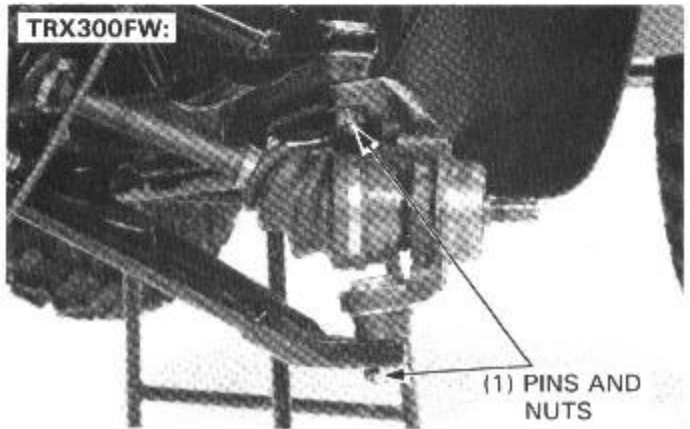
Ball joint puller

07934—5510000 or
equivalent commercially
available in U.S.A.



TRX300FW

Remove the cotter pins and castle nuts.

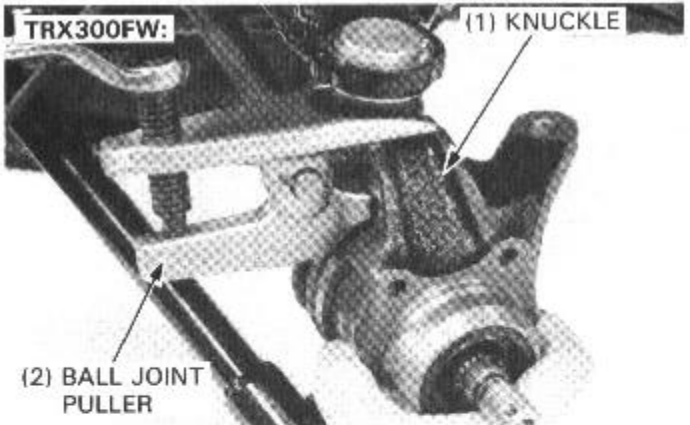


Remove the knuckle from the front arms.

TOOL:

Ball joint puller

07MAC—SL00200 or
07941—6920003



After '92: TRX300

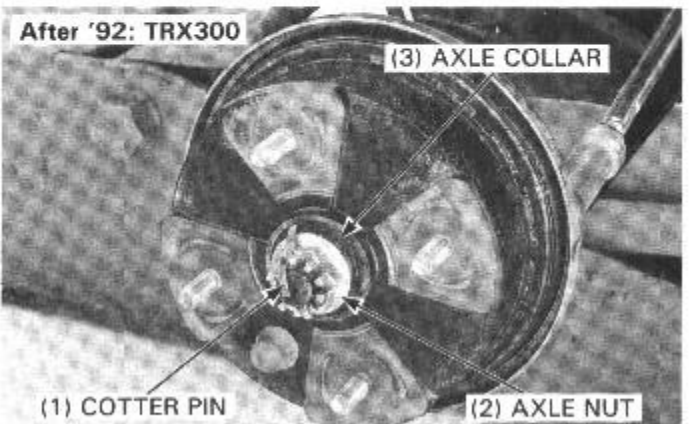
NOTE

- The tie-rod can be removed without removing the brake drum.

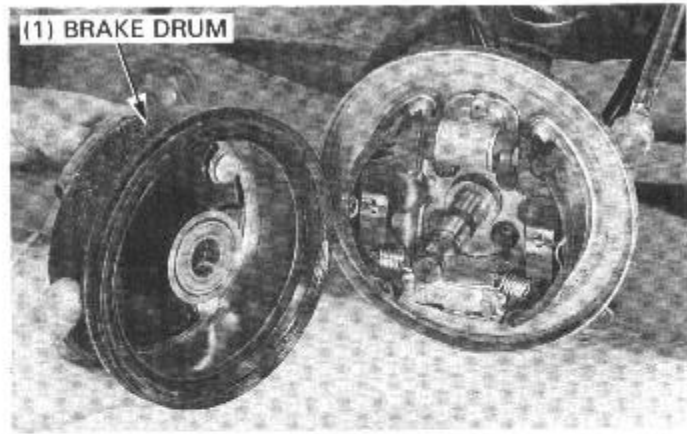
Remove the front wheel (page 11-9).

Remove the following:

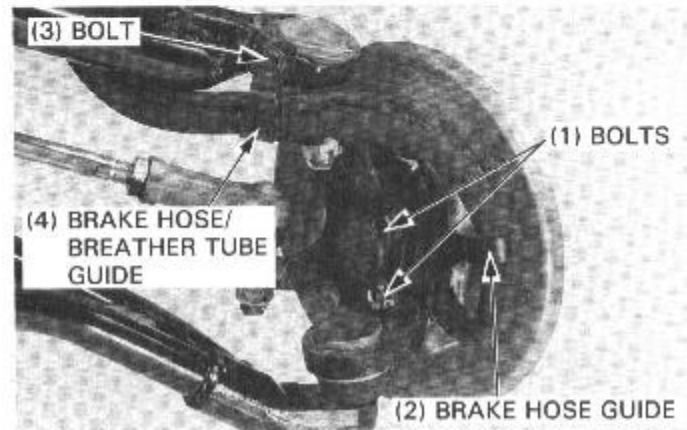
- cotter pin
- axle nut
- axle collar



Remove the brake drum.



Remove the brake hose guide mounting bolts.
Remove the brake hose and breather tube guide mounting bolt.



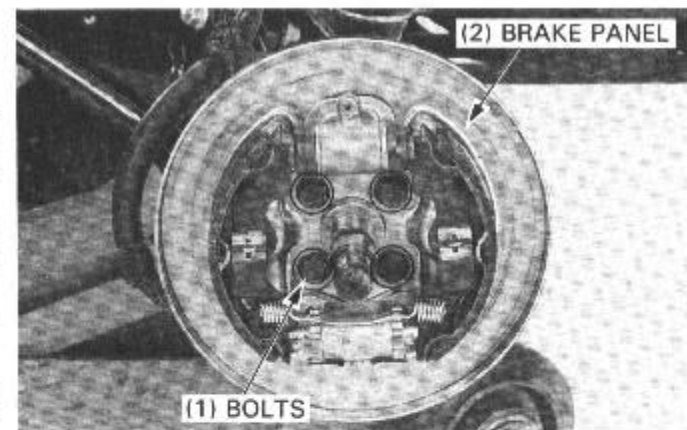
Remove the four bolts and brake panel from the knuckle.

NOTE

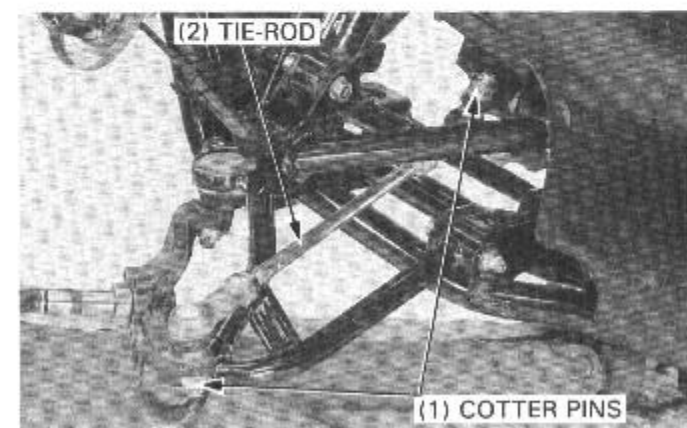
- Do not disconnect the brake hose from the brake panel. The brake system will have to be bled if the brake hose is disconnected.
- Do not operate the front brake lever after removing the brake panel. If you do, it will be difficult to refit the brake drum and shoes.

CAUTION

- Support the brake panel so that it does not hang from the brake hose. Do not twist the brake hose.



Remove the cotter pins.

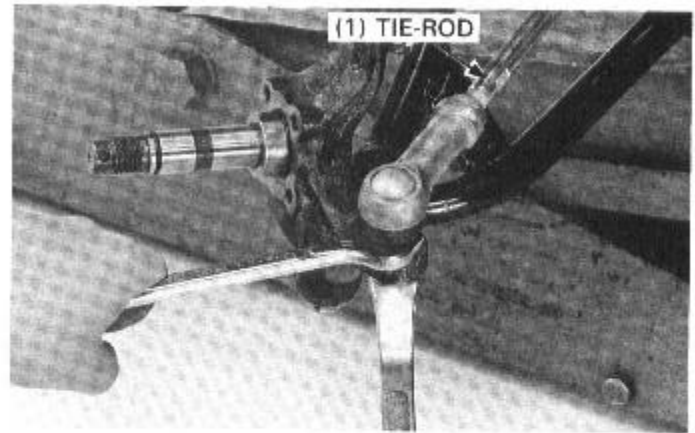


Hold the tie-rod ball joints and remove the nuts.
Discard the nuts.

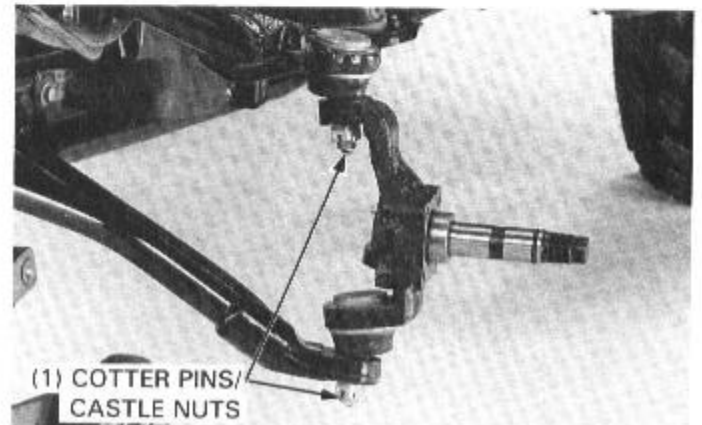
CAUTION

- *Re-use of nuts is strictly prohibited.*

Remove the tie-rod.



Remove the cotter pins and castle nuts.

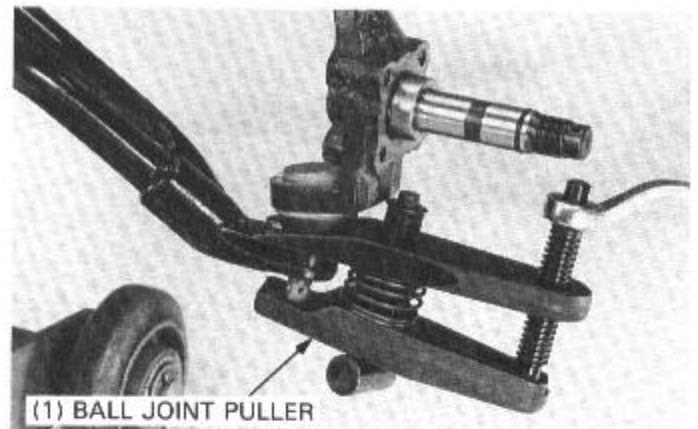


Remove the knuckle from the upper and lower arm.

TOOL:

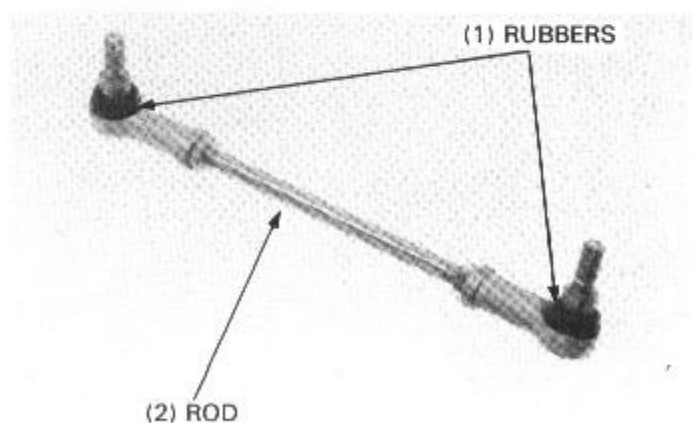
Ball joint puller

07MAC—SL00200



INSPECTION

Inspect the tie-rod for distortion or damage.
Inspect the ball joint rubbers for tears or other damage by moving the ball joint ends. They should move freely and smoothly.
Replace the ball joints if necessary.

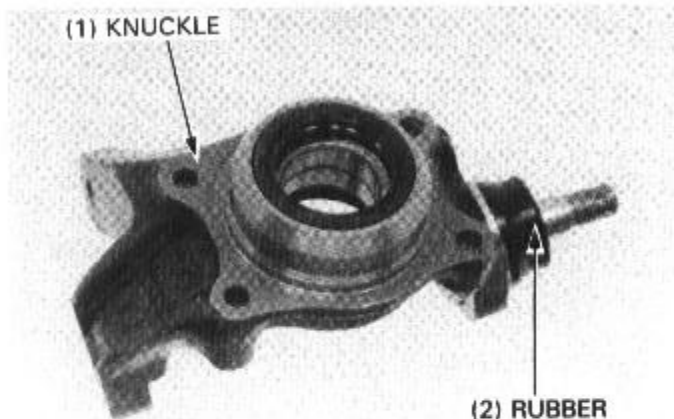


Inspect the knuckle for damage or cracking.

TRX300FW/After '92: TRX300

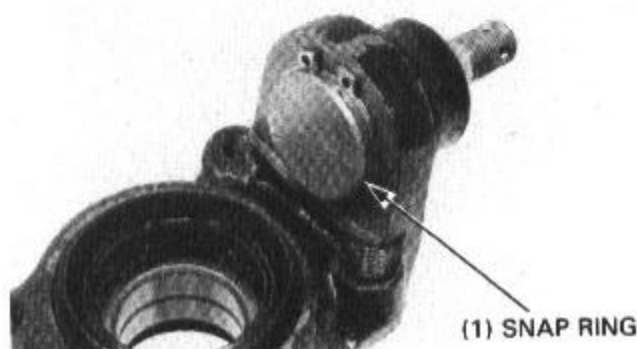
Inspect the knuckle ball joint rubbers for tears or other damage by joggling the ball joint end. It should move freely and smoothly.

Replace the ball joint if necessary.



BALL JOINT REPLACEMENT (TRX300FW/After '92: TRX300)

Remove the snap ring.



Set the knuckle and ball joint remover, which each "A" marked side on the tool is faced to the ball joint, in a vise as shown.

TOOL:
Ball joint remover

07JMF—HC50100 or
equivalent commercially
available in U.S.A.

Press the ball joint out of the knuckle by tightening the vise.

Set the knuckle, a new ball joint and ball joint remover, which each "B" marked side on the tool faces to the ball joint, in a vise as shown.

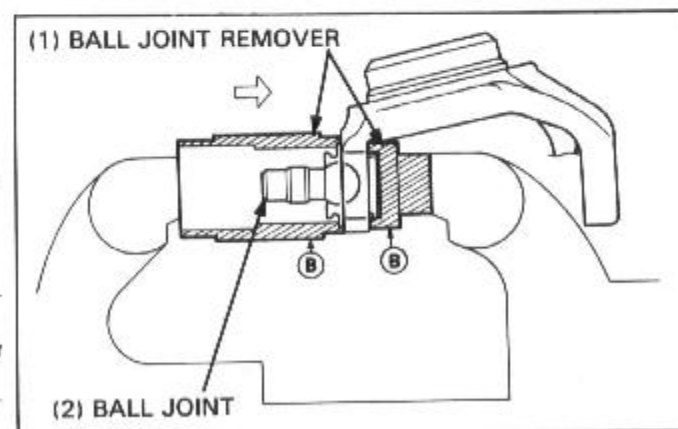
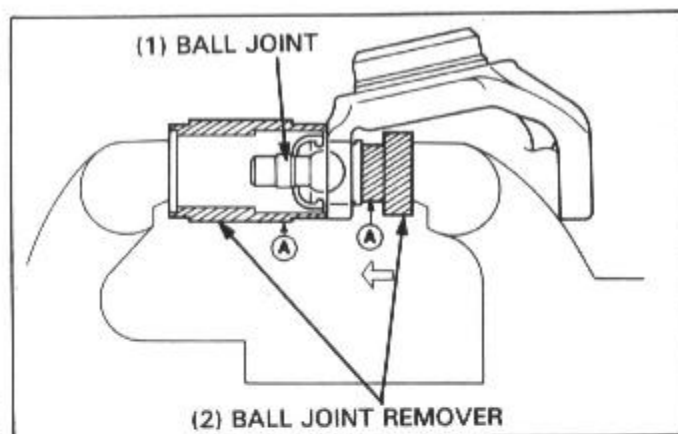
TOOL:
Ball joint remover

07JMF—HC50100 or
equivalent commercially
available in U.S.A.

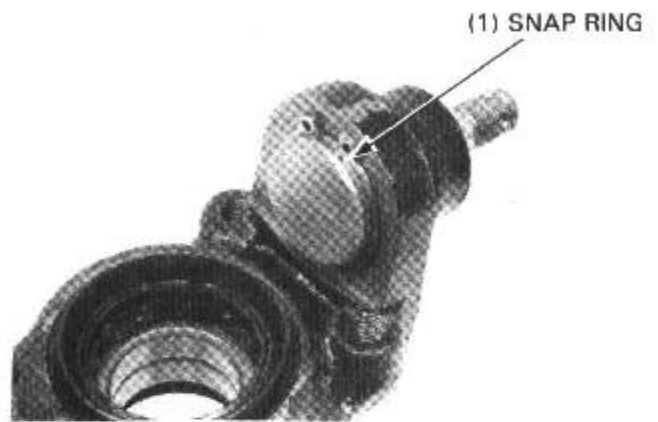
Press the ball joint into the knuckle by tightening a vise as shown.

CAUTION

- If you feel strong resistance when tightening the vise, stop. Reset the attachment of the tool so that the ball joint head can go into the hollow of the attachment and try again.

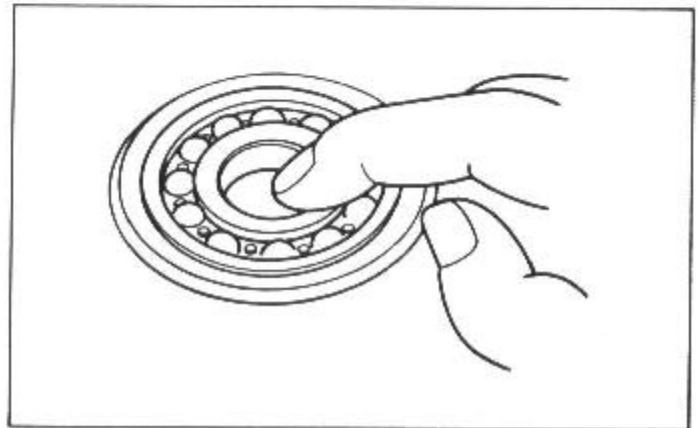


Install the snap ring securely in the ball joint groove.

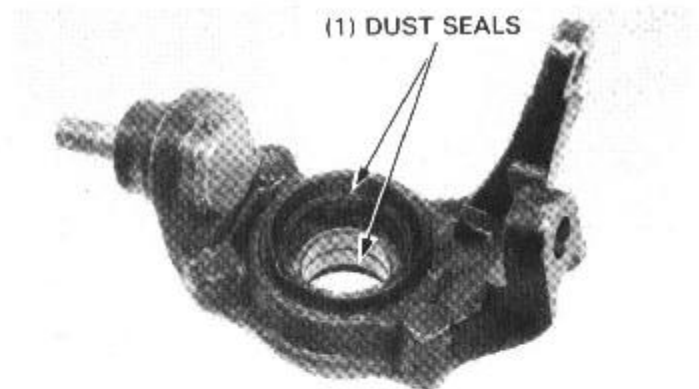


KNUCKLE BEARING INSPECTION/REPLACEMENT (TRX300FW)

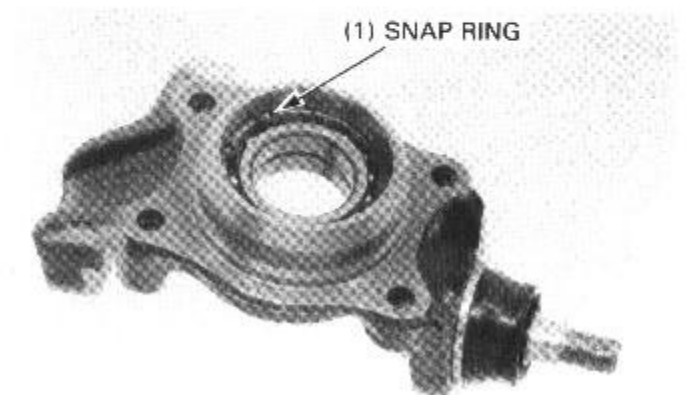
Turn the inner race of the knuckle bearing with your finger. The bearing should turn quietly. Also check that the bearing outer race fits tightly in the knuckle. Remove and discard the bearing if the race does not turn smoothly, quietly or if it fits loosely in the knuckle.



Remove the both dust seals from the knuckle.



Remove the snap ring.
Drive the bearing out of the knuckle.



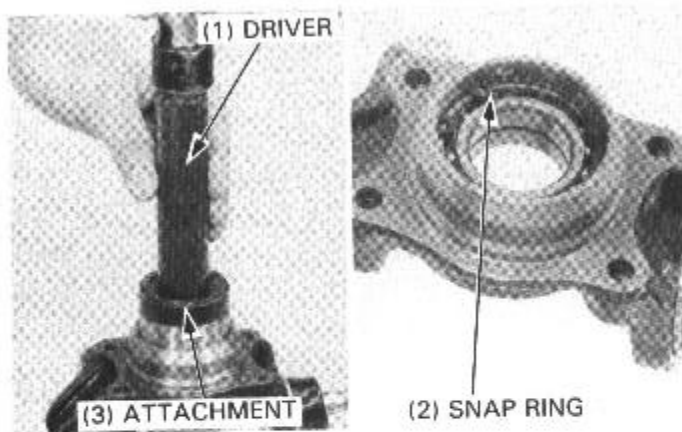
FRONT WHEEL/SUSPENSION/STEERING

Pack the new bearing cavity with grease.
Install the bearing squarely.

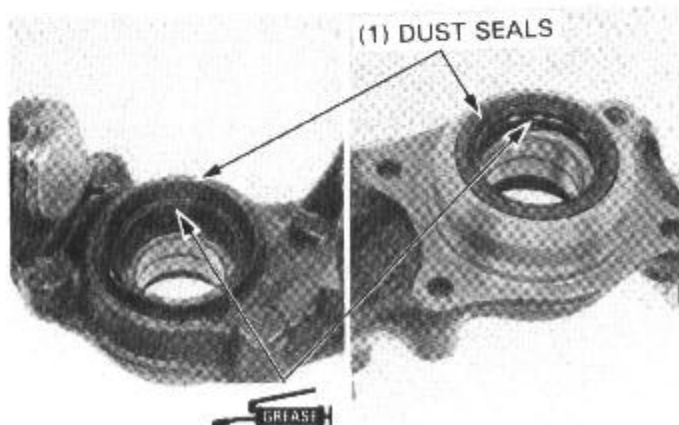
TOOLS:

Driver	07749-0010000
Attachment	07945-3330300
Pilot, 30 mm	07746-0040700

Install a snap ring securely in the knuckle groove.



Install new dust seals on both the sides of the knuckle.
Apply grease to the dust seal lips.



FRONT ARM

REMOVAL

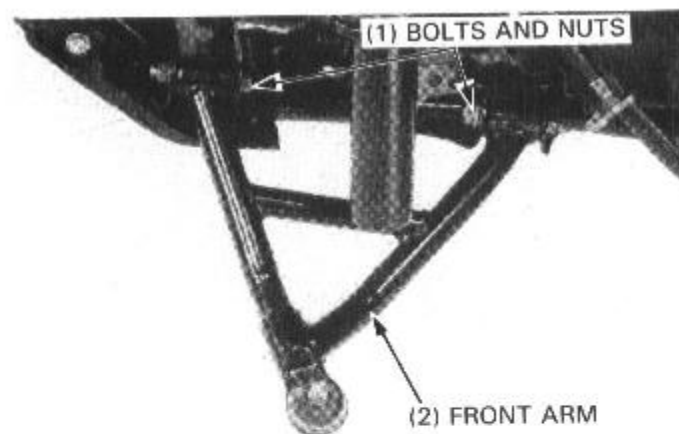
Remove the knuckle (page 11-10).

NOTE

- The front arm can be removed without removing the tie rod.

'88-'92: TRX300

Remove the front arm mounting bolts and arm.



TRX300FW

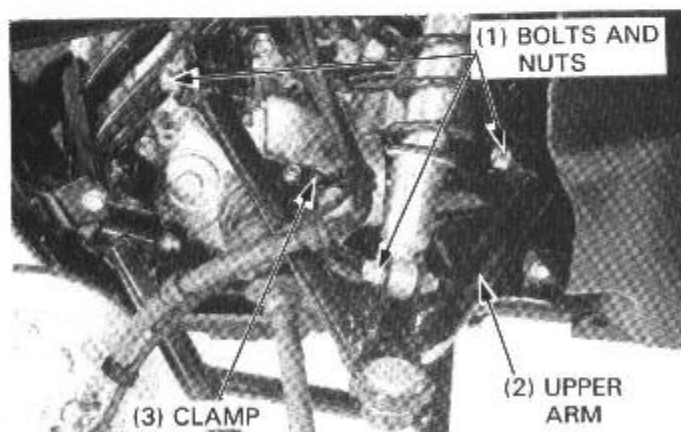
• Upper arm

Remove the shock absorber lower mounting bolt, and the brake hose and breather tube clamp.

Remove the upper arm mounting bolts and arm.
Discard the upper arm mounting nuts and shock absorber mounting nut.

CAUTION

- Re-use of nuts is strictly prohibited.



TRX300FW

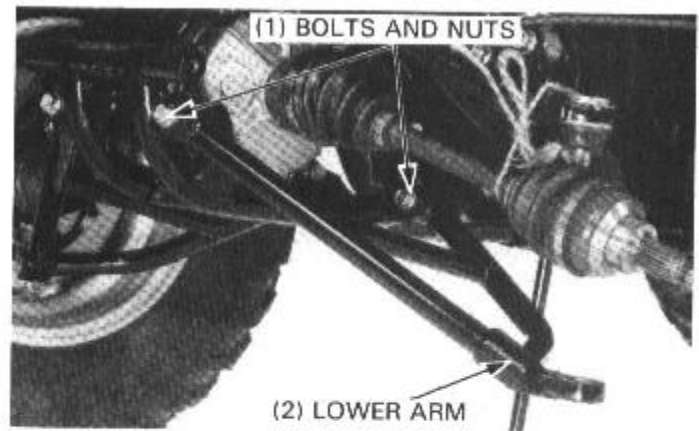
• **Lower arm**

Remove the front bumper (page 16-4).

Remove the lower arm mounting bolts and arm.
Discard the lower arm mounting nuts.

CAUTION

- *Re-use of nuts is strictly prohibited.*



After '92: TRX300

• **Upper arm**

Disconnect the brake hose and breather tube from the brake drum.

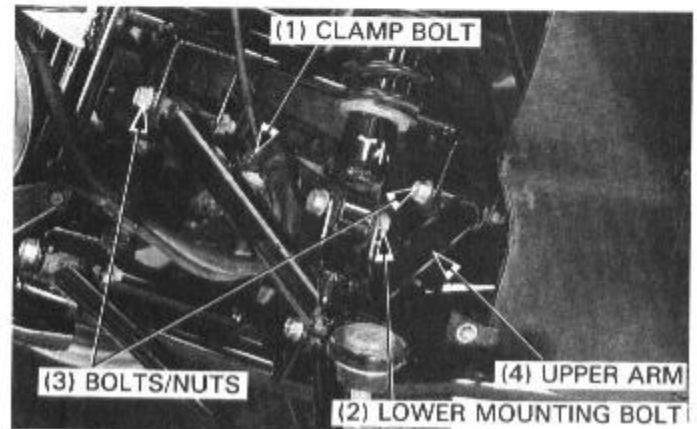
Remove the brake hose and breather tube clamp bolt.

Remove the shock absorber lower mounting bolt.
Remove the upper arm mounting bolts and upper arm.

Discard the upper arm mounting nuts and shock absorber mounting nut.

CAUTION

- *Re-use of nuts is strictly prohibited.*



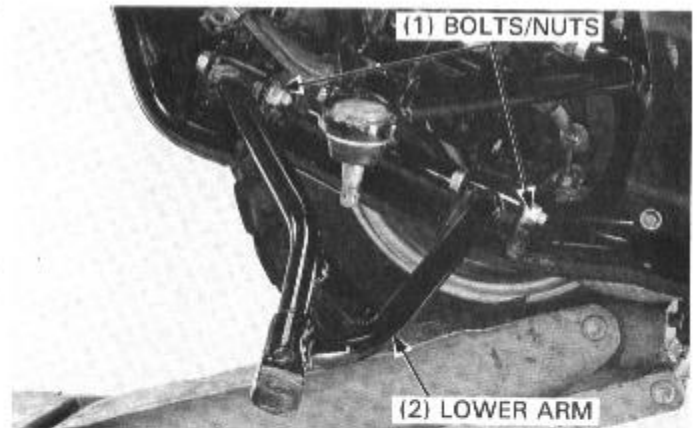
• **Lower arm**

Remove the front bumper (page 16-3).

Remove the lower arm mounting bolts and lower arm.
Discard the lower arm mounting nuts.

CAUTION

- *Re-use of nuts is strictly prohibited.*



INSPECTION

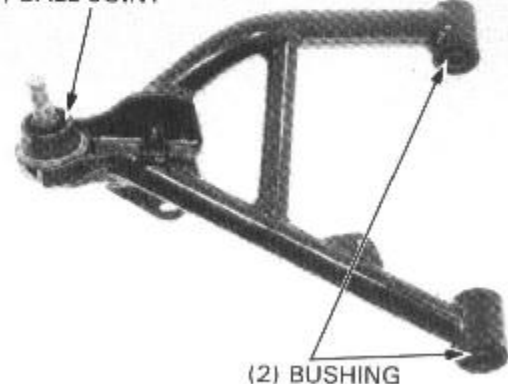
Inspect the ball joint rubber for tears or other damage by moving the ball joint end. It should move freely and smoothly.
Replace the front arm assembly if necessary ('88-'92: TRX300).
Replace the ball joint if necessary (TRX300FW/After '92: TRX300).

NOTE

- The ball joint cannot be removed from the '88-'92: TRX300 arm.

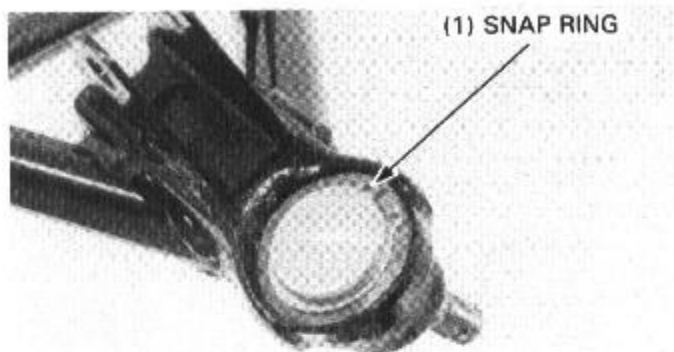
Check the pivot rubber bushing for damage.

(1) BALL JOINT



BALL JOINT REPLACEMENT (TRX300FW/After '92: TRX300)

Remove the snap ring.



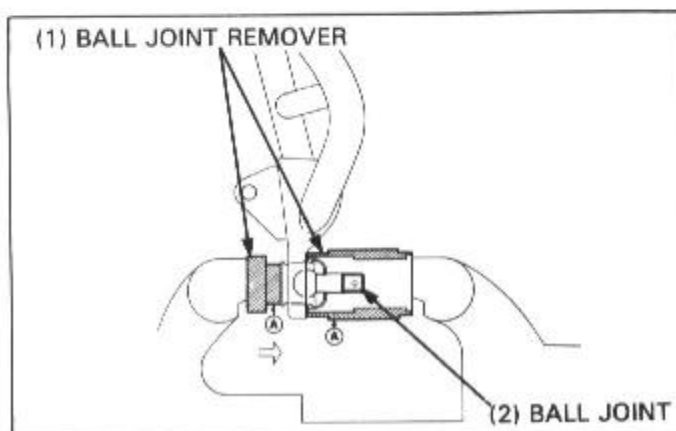
Set the upper arm and ball joint remover, which each "A" marked side on the tool is faced to the ball joint, in a vise as shown.

TOOL:

Ball joint remover

07JMF-HC50100

Press the ball joint out of the knuckle by tightening the vise.



Set the upper arm, a new ball joint and ball joint remover, which each "B" marked side on the tool is faced to the ball joint, in a vise as shown.

TOOL:

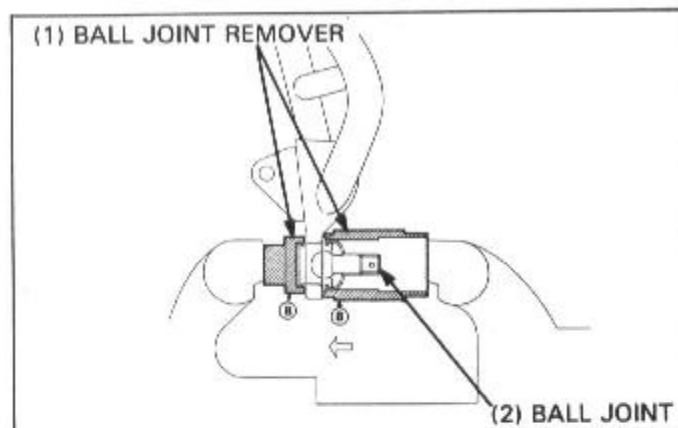
Ball joint remover

07JMF-HC50100

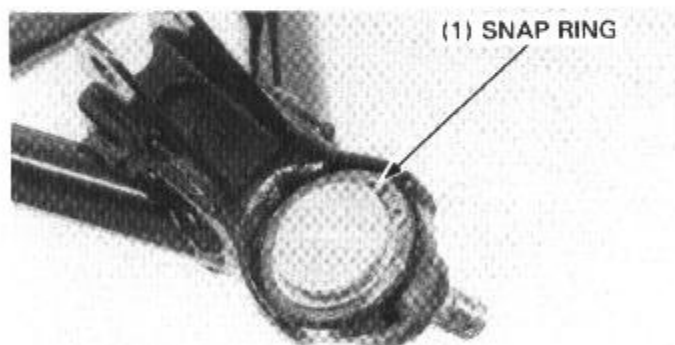
Press the ball joint into the upper arm by tightening a vise as shown.

CAUTION

- If you feel strong resistance when tightening the vise, stop. Reset the attachment of the tool so that the ball joint head can go into the hollow of the attachment and try again.



Install the snap ring to the groove of the ball joint securely.



INSTALLATION

'88—'92: TRX300

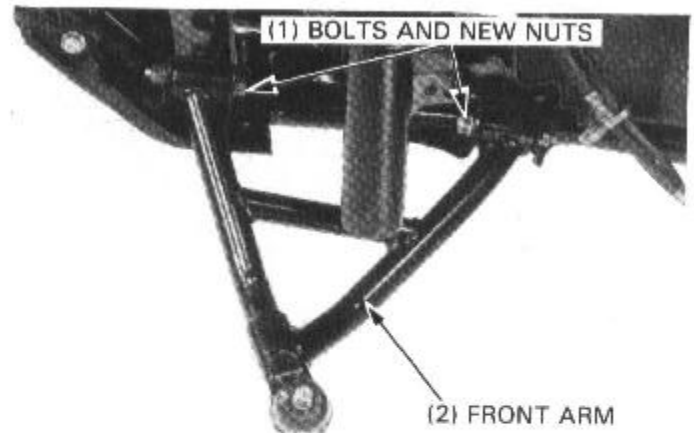
Install the front arm, bolts and new nuts.

CAUTION

- *Re-use of nuts is strictly prohibited.*

Install the knuckle (page 11-17) and front wheel (page 11-9), then place the vehicle on level ground. Tighten the front arm mounting nuts.

TORQUE: 45 N·m (4.5 kg-m, 33 ft-lb)



TRX300FW

• Upper arm

Install the upper arm, bolts and new nuts.

Install the front shock absorber lower mounting bolt and new nut and tighten it to the specified torque.

CAUTION

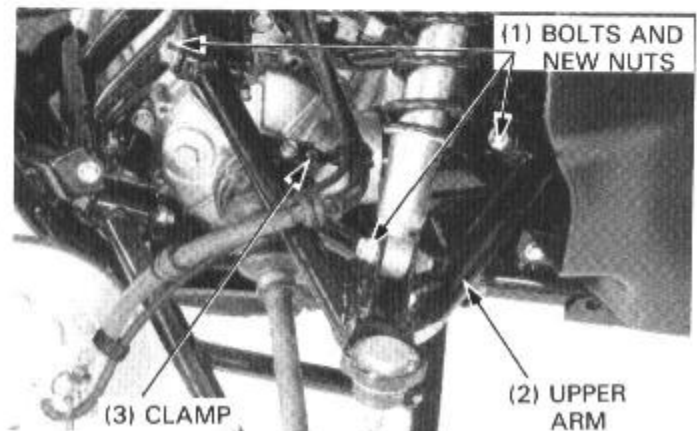
- *Re-use of nuts is strictly prohibited.*

TORQUE: '88—'92: 25 N·m (2.5 kg-m, 18 ft-lb)

After '92: 31 N·m (3.1 kg-m, 22 ft-lb)

Install the brake hose and breather tube clamp. Tighten the clamp bolt to the specified torque.

TORQUE: 12 N·m (1.2 kg-m, 9 ft-lb)



Install the knuckle (page 11-17) and front wheel (page 11-9), then place the vehicle on level ground. Tighten the upper arm mounting nuts to the specified torque.

TORQUE: '88—'92: 45 N·m (4.5 kg-m, 33 ft-lb)

After '92: 31 N·m (3.1 kg-m, 22 ft-lb)

• Lower arm

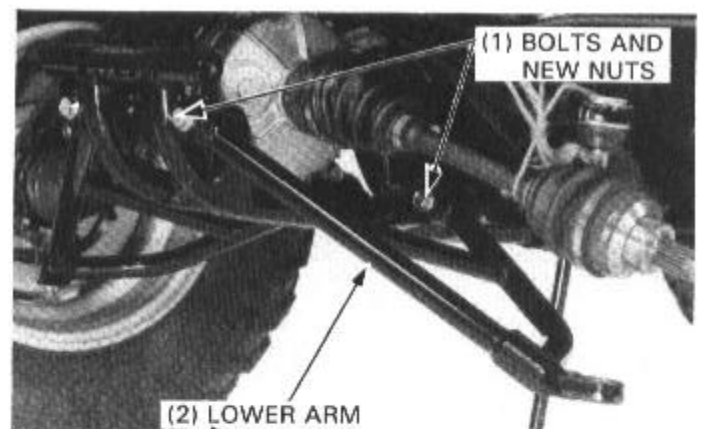
Install the lower arm, bolts and new nuts.

Install the knuckle and front wheel (page 11-9), then place the vehicle on level ground.

Tighten the lower arm mounting nuts to the specified torque.

TORQUE: '88—'92: 45 N·m (4.5 kg-m, 33 ft-lb)

After '92: 31 N·m (3.1 kg-m, 22 ft-lb)



Install the front bumper (page 16-2).

After '92: TRX300

- **Upper arm**

Install the upper arm, bolts and new nuts.
Install the front shock absorber lower mounting bolt and new nut and tighten it to the specified torque.

CAUTION

- *Re-use of nuts is strictly prohibited.*

TORQUE: 31 N·m (3.1 kg-m, 22 ft-lb)

Route the brake hose and breather hose (page 1-18) and install and tighten the clamp bolt.

Install the knuckle and front wheel (page 11-7), then place the vehicle on level ground.

Tighten the upper arm mounting nuts to the specified torque.

TORQUE: 31 N·m (3.1 kg-m, 22 ft-lb)

- **Lower arm**

Install the lower arm, bolts and new nuts.

Install the knuckle and front wheel (page 11-7), then place the vehicle on level ground.

Tighten the lower arm mounting nuts to the specified torque.

TORQUE: 31 N·m (3.1 kg-m, 22 ft-lb)

Install the front bumper (page 16-3).

TIE-ROD/KNUCKLE INSTALLATION

KNUCKLE INSTALLATION

'88-'92: TRX300

Install the knuckle on the shock absorber.

NOTE

- Position the knuckle by aligning the slit of the knuckle with the projection of the shock absorber.

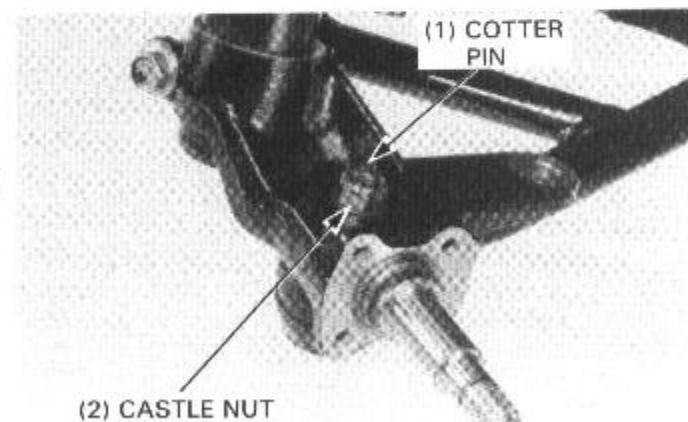
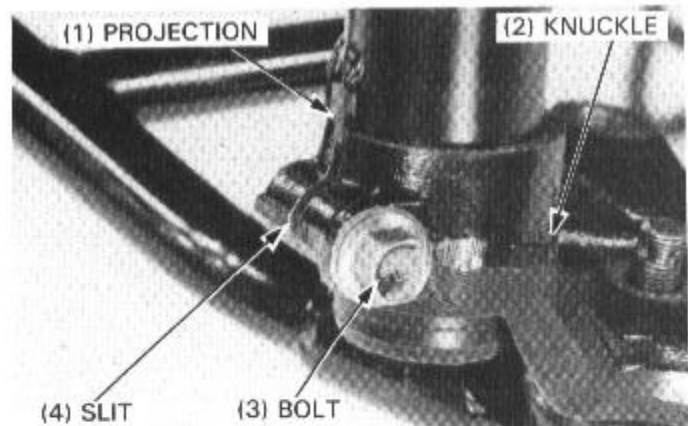
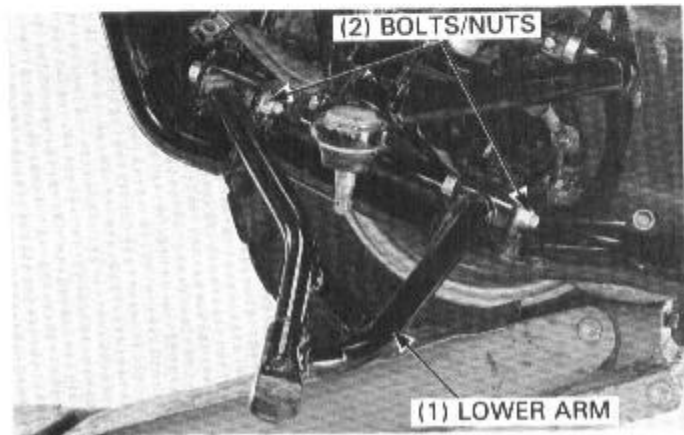
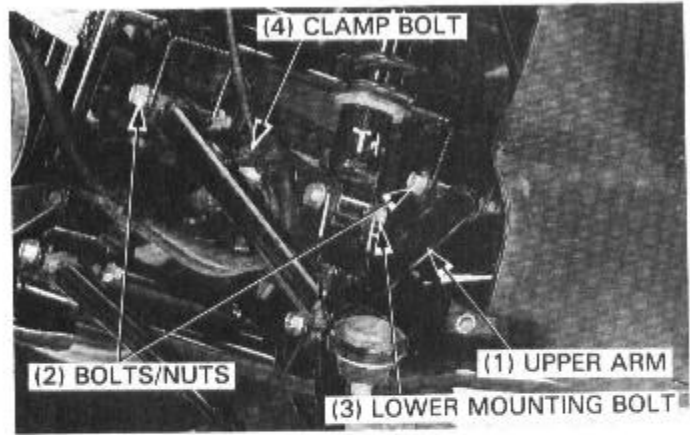
Tighten the shock absorber lower pinch bolt to the specified torque.

TORQUE: 55 N·m (5.5 kg-m, 40 ft-lb)

Assemble the knuckle on the front arm and tighten the castle nut to the specified torque.

TORQUE: 50-60 N·m (5.0-6.0 kg-m, 36-43 ft-lb)

Install a new cotter pin.



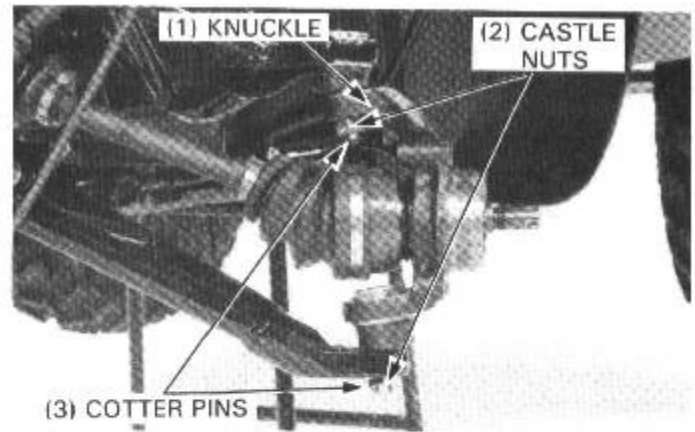
TRX300FW

Insert the drive shaft into the knuckle.
Connect the knuckle to the front arms.

Tighten the castle nuts to the specified torque.

TORQUE: 30–36 N·m (3.0–3.6 kg-m, 22–26 ft-lb)

Install new cotter pins.



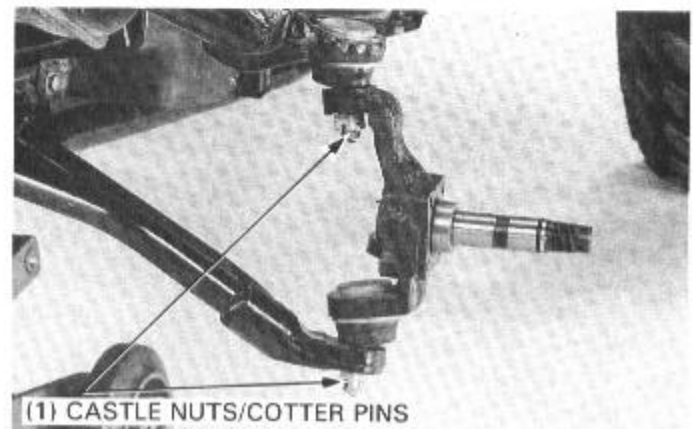
After '92: TRX300

Connect the knuckle to the upper and lower arms.

Install and tighten the nuts to the specified torque.

TORQUE: 30–36 N·m (3.0–3.6 kg-m, 22–26 ft-lb)

Install the new cotter pins.



TIE-ROD ASSEMBLY

Install the unmarked ball joint and gold colored nut on the flat side of the tie-rod, and the "L" marked ball joint and silver nut in opposite side.

Set the distance between the ball joints as specified below.

STANDARD SETTING:

TRX300: '88–'92:	300 mm (11.8 in)
After '92:	345.5 mm (13.6 in)
TRX300FW:	343 mm (13.5 in)

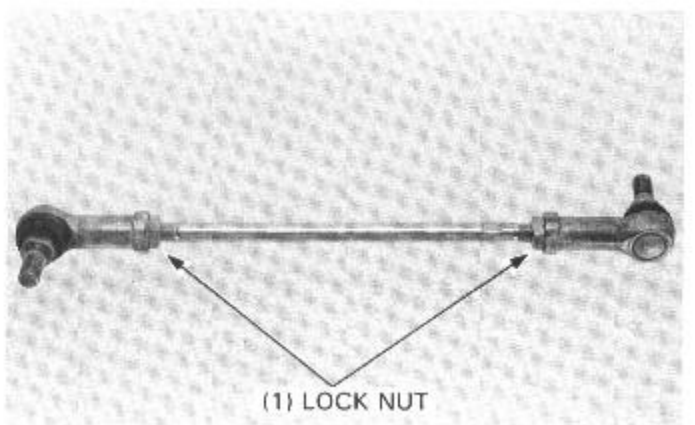
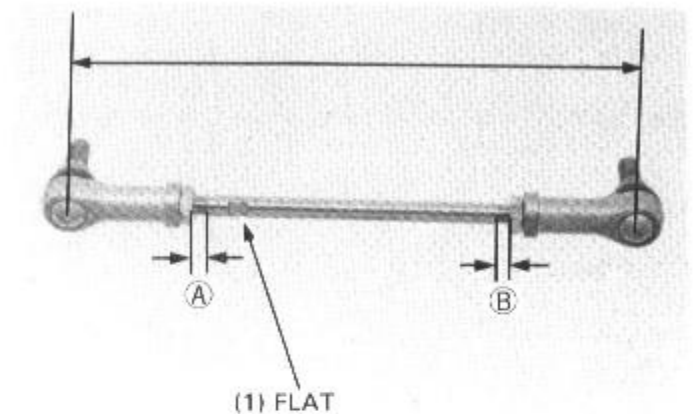
LOCK NUT-TO-THREAD END DISTANCE A AND B :

- A = 12 mm (0.5 in) MAX.
- B = 12 mm (0.5 in) MAX.
- $|A - B| \leq 3 \text{ mm (0.1 in)}$

NOTE

- TRX300FW/After '92: TRX300: Position the ball joints 180 degree from each other.

Tighten the lock nuts securely.



TIE-ROD INSTALLATION

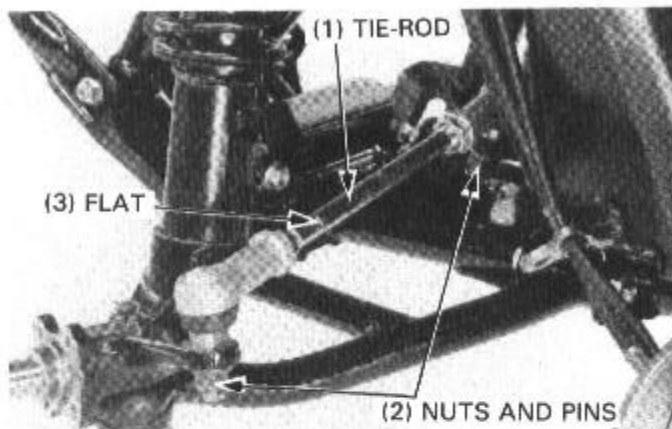
Install the tie-rod with its flat end at the knuckle.

Hold the ball joints and tighten the new ball joint nuts to the specified torque.

TORQUE: 55 N·m (5.5 kg-m, 40 ft-lb)

CAUTION

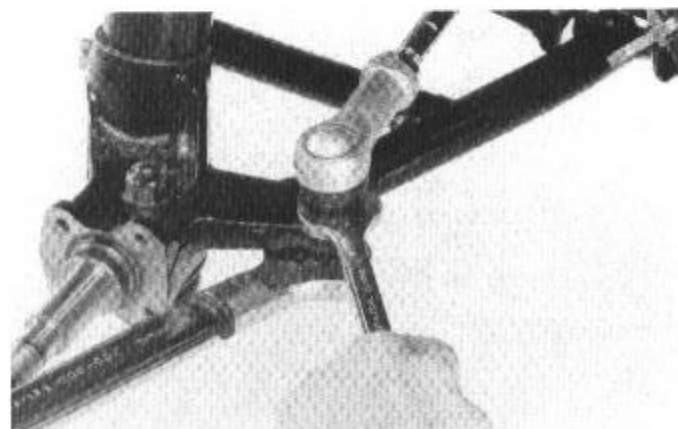
- *Re-use of nuts is strictly prohibited.*



Install the following (if removed):

- front brake panel and drum (section 12)
- brake hose and breather tube guide
- front wheel (page 11-9)

Adjust the toe-in (page 3-16).



After '92: TRX300

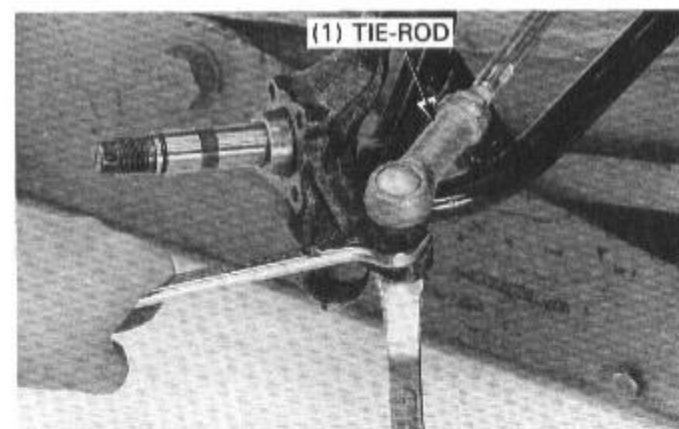
Install the tie-rod with its flat end at the knuckle.

Hold the ball joint and tighten the new ball joint nuts to the specified torque.

TORQUE: 55 N·m (5.5 kg-m, 40 ft-lb)

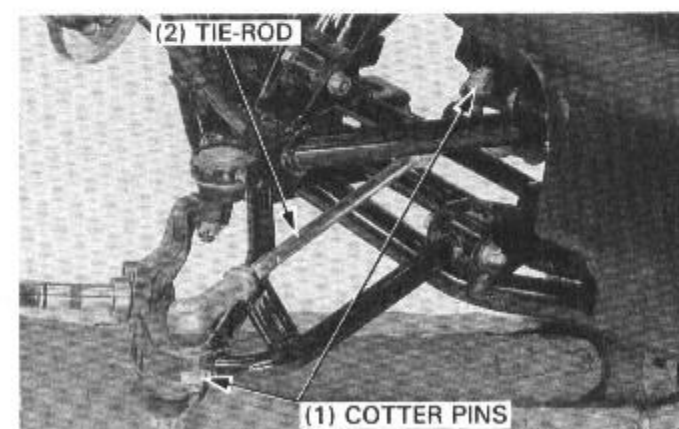
CAUTION

- *Re-use of nuts is strictly prohibited.*



Install new cotter pins.

Adjust the toe-in (page 3-16/specification page 1-4).



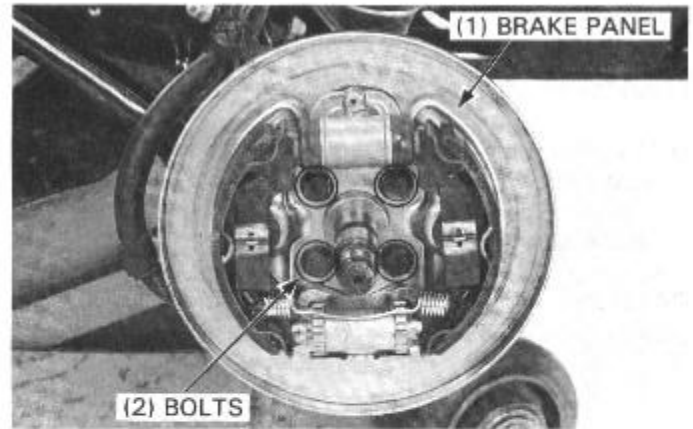
If you removed the brake panel, install the brake panel onto the knuckle.

Tighten the brake panel mounting bolts to the specified torque.

TORQUE: 29 N·m (2.9 kg-m, 21 ft-lb)

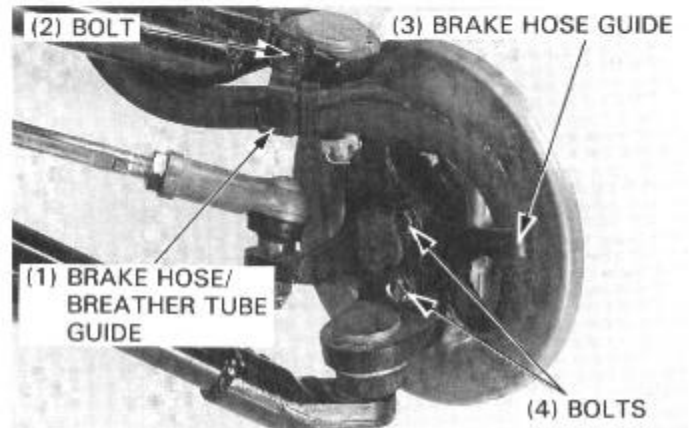
CAUTION

- *Re-use of bolts is strictly prohibited.*

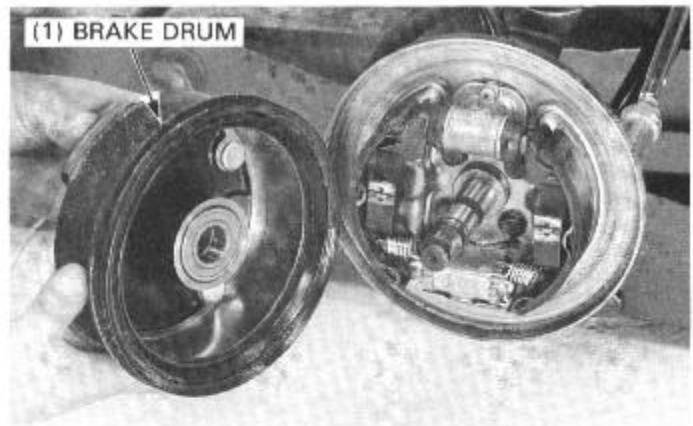


Install the brake hose and breather tube guide and tighten the bolt.

Install the brake hose guide and tighten the bolts.



Install the brake drum (page 12-19).



Install the axle collar.

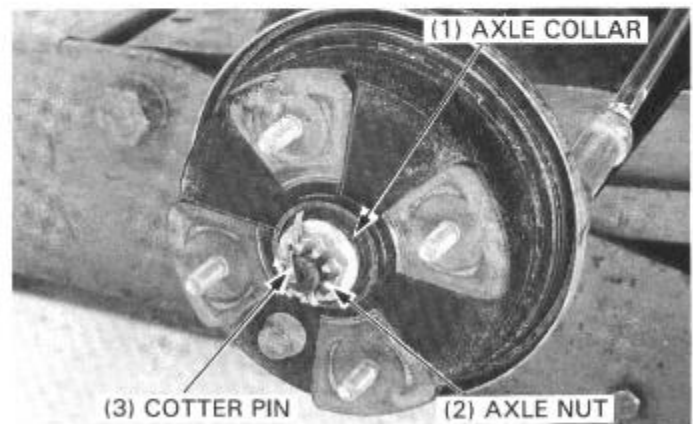
Apply grease to the castle nut flange and threads, then install the nut.

Tighten the axle nut to the specified torque.

TORQUE: 80 – 100 N·m (8.0 – 10.0 kg-m, 58 – 72 ft-lb)

Install a new cotter pin.

If you disconnect the brake line, bleed the system (page 12-3).
Install the front wheel (page 11-9).



STEERING SHAFT

REMOVAL

Remove the following:

- front fender (page 16-1)
- handlebar lower holder nuts and washers
- handlebar assembly
- steering shaft holder bolts and holder

Discard the handlebar lower holder nuts.

CAUTION

- *Re-use of bolts is strictly prohibited.*

'88-'92: TRX300

Remove the following:

- front upper inner fender
- cotter pins
- tie-rod ball joint nuts at the steering shaft (page 11-10)
- steering shaft nut and steering shaft

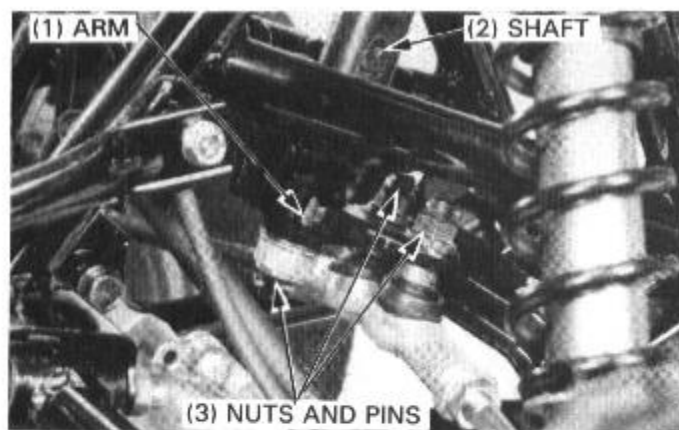
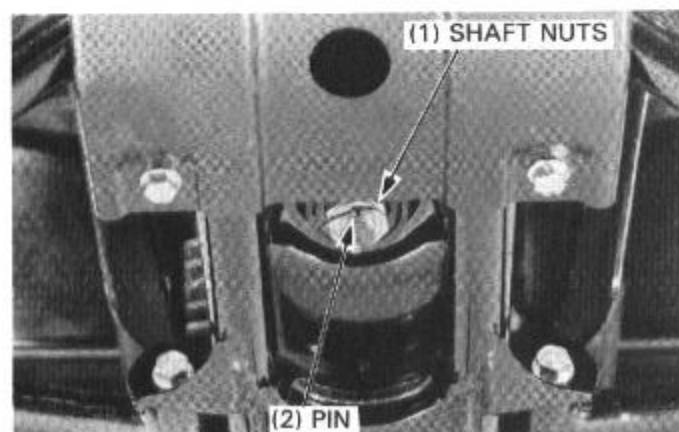
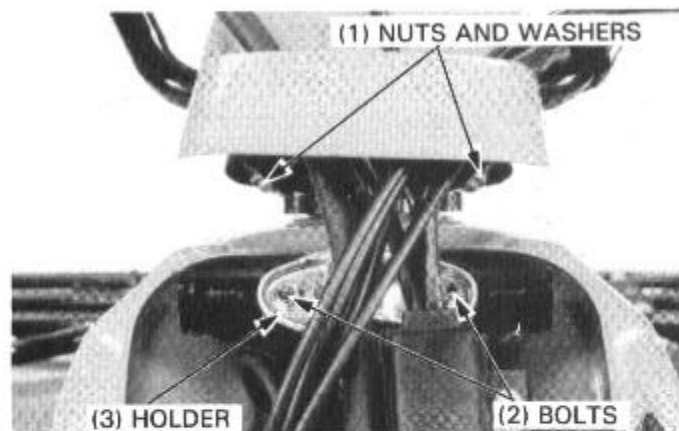
TRX300FW/After '92: TRX300

Remove the following:

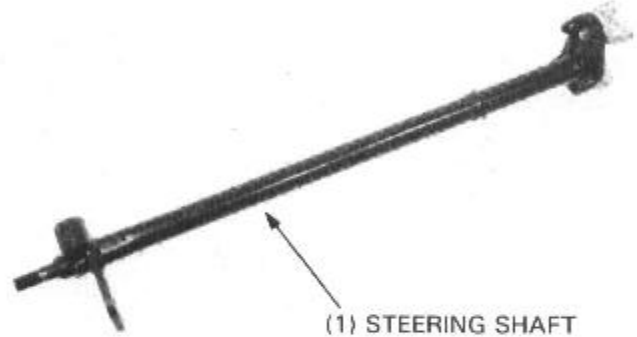
- cotter pins
- tie-rod ball joint nuts and steering shaft nut
- steering arm
- steering shaft

INSPECTION

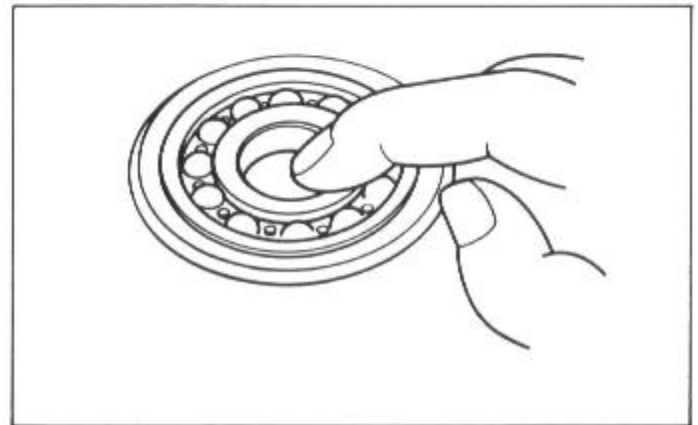
Check the steering shaft bushing for wear or damage.



Check the steering shaft for distortion or damage.



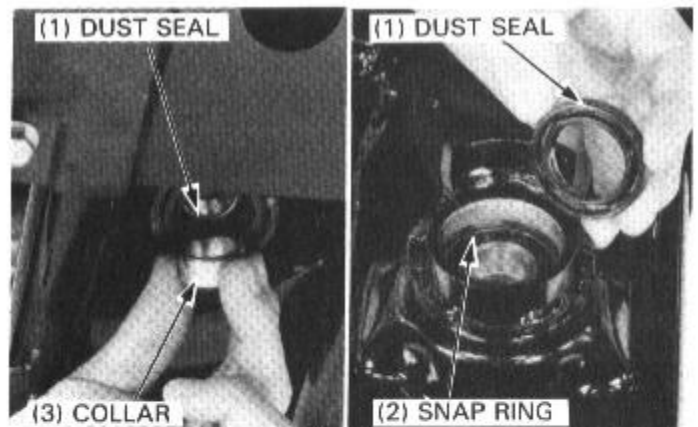
Turn the inner race of steering shaft bearing with your finger. The bearing should turn smoothly and quietly. Also check that the bearing outer race fits tightly in the frame. Remove and discard the bearing if the race does not turn smoothly, quietly or if it fits loosely in the frame.



BEARING REPLACEMENT

Remove the following:

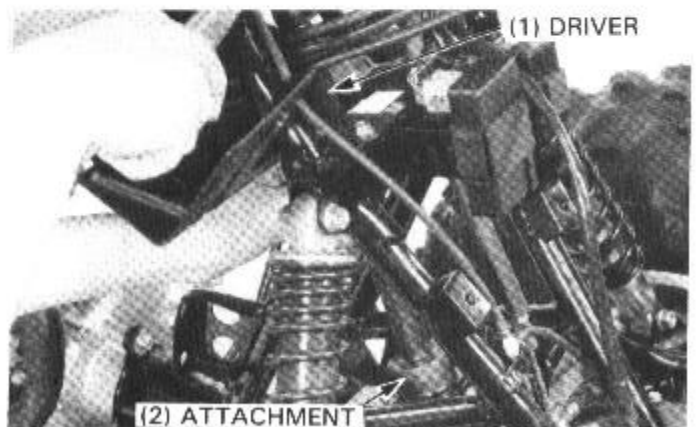
- lower collar ('88-'92: TRX300) and dust seal.
- upper dust seal and snap ring.
- steering shaft bearing (from the top).



Pack a new bearing cavities with grease.
Install the bearing with its sealed side up.

TOOLS (TRX300FW/After '92: TRX300):

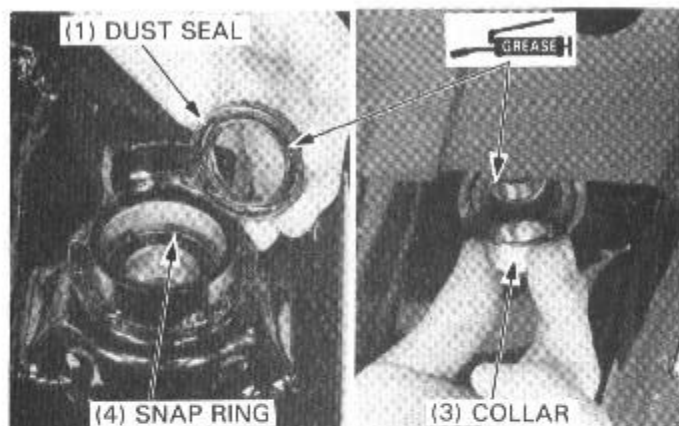
Driver	07949-3710001
Attachment, 42 x 47 mm	07746-0010300
Pilot, 20 mm	07746-0040500



Install a snap ring in the groove securely.
Apply grease to new dust seal lips.
Install the dust seals.

'88-'92: TRX300

Install the collar.



INSTALLATION

Apply grease to the steering shaft bushing cavities.

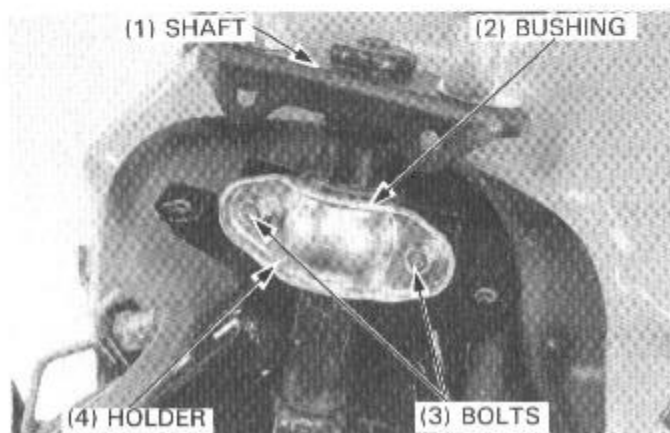
NOTE

- Install the bushing with its UP mark towards the up.

Install the steering shaft in the frame.

Install the steering shaft holder and tighten the holder bolts to the specified torque.

TORQUE: 33 N·m (3.3 kg-m, 24 ft-lb)



'88-'92: TRX300

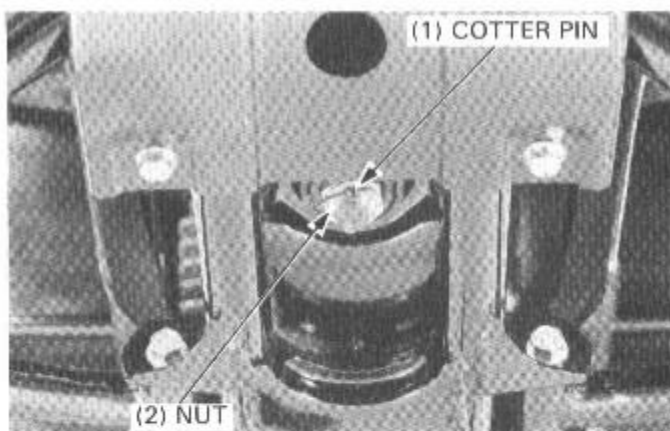
Install the tie-rod on the steering shaft (page 11-18).
Tighten the steering shaft nut to the specified torque.

TORQUE: 70 N·m (7.0 kg-m, 51 ft-lb)

Install a new cotter pin.

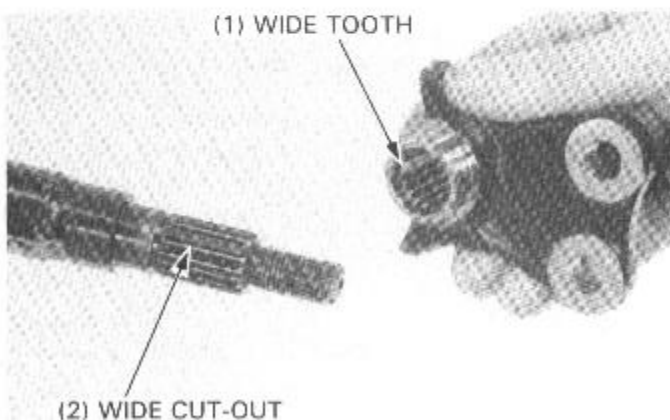
Install the front upper inner fender (page 16-2).

Install the handlebar assembly (page 11-22).



TRX300FW/After '92: TRX300

Assemble the steering shaft and steering arm by aligning the wide cut-out of the steering shaft with the wide tooth of the steering arm.



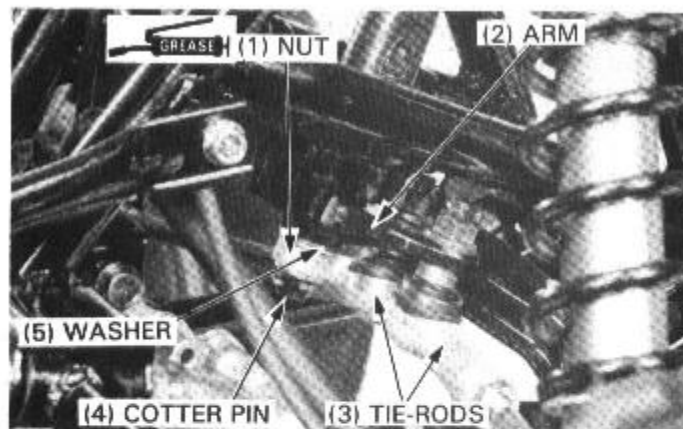
Apply grease to the flange and threads of the steering shaft nut.

Install the steering arm and tighten the steering shaft nut with the washer to the specified torque.

TORQUE: 70 N·m (7.0 kg-m, 51 ft-lb)

Install the tie-rod on the steering arm (page 11-18).

Install a new cotter pin.



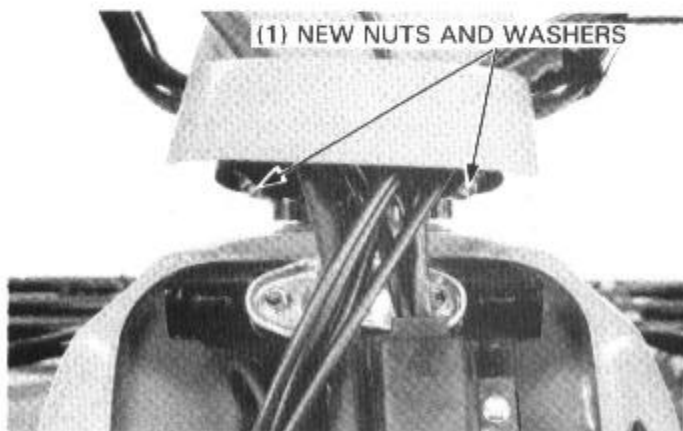
Install the handlebar assembly on the steering shaft and tighten the new lower holder nuts with washers to the specified torque.

TORQUE: 40 N·m (4.0 kg-m, 29 ft-lb)

CAUTION

- *Re-use of nuts is strictly prohibited.*

Adjust the toe-in (page 3-17).



FRONT SHOCK ABSORBER

REMOVAL

Support the vehicle with a support block under the engine to raise the front wheels off the ground.

'88-'92: TRX300

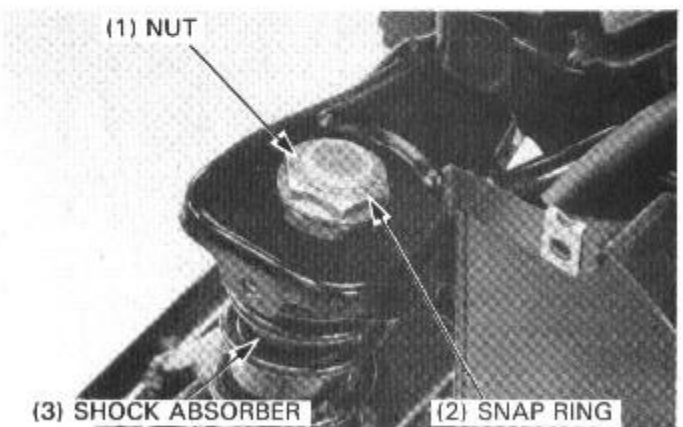
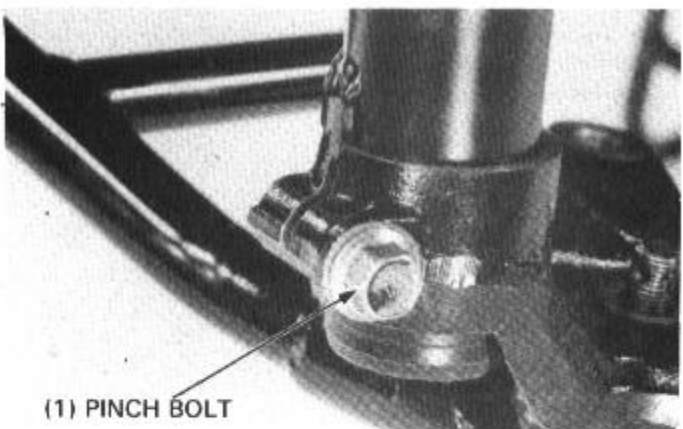
Remove the following:

- front fender (page 16-1)
- front wheel (page 11-9)
- shock absorber lower pinch bolt

Free the shock absorber from the knuckle.

Remove the snap ring.

Remove the shock absorber upper nut and the shock absorber.



TRX300FW/After '92: TRX300

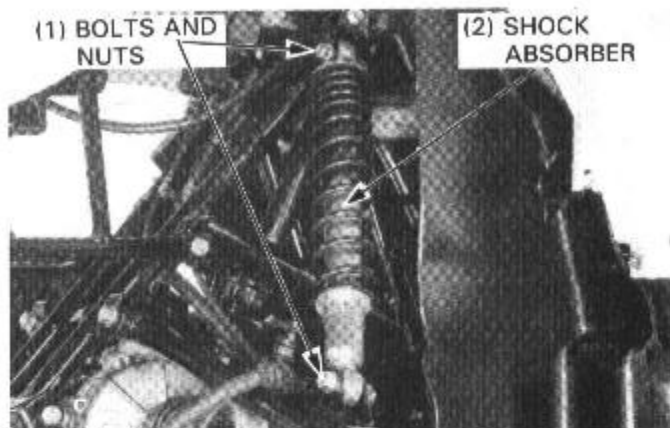
Remove the following:

- shock absorber mounting bolts
- shock absorber

Discard the mounting nuts.

CAUTION

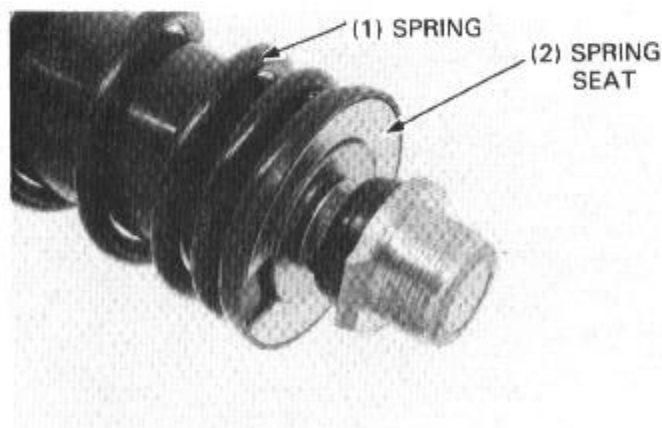
- *Re-use of nuts is strictly prohibited.*



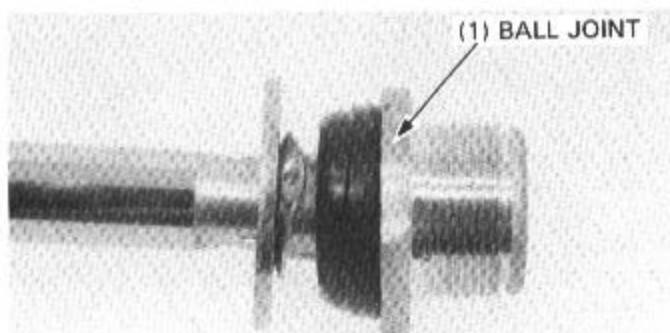
DISASSEMBLY

'88—'92: TRX300

Remove the spring seat while compressing the spring by hand.
Remove the spring guide and spring.



Inspect the ball joint rubber for tears or other damage by joggling the ball joint end. It should move freely and smoothly.
Replace the ball joint if necessary.

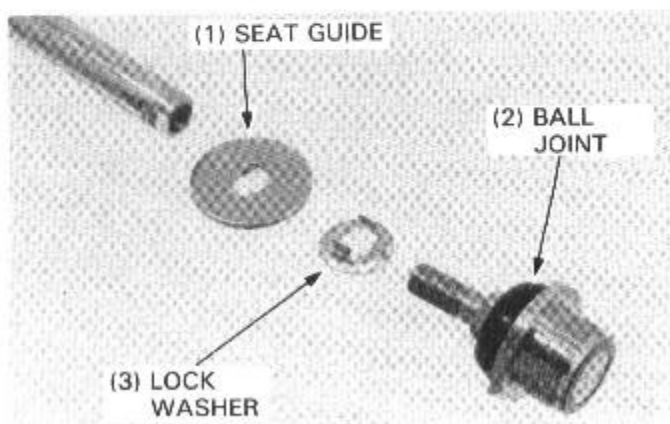


Unstake the lock washer.

Loosen the ball joint while holding the damper rod end with a wrench.

Remove the following:

- ball joint
- lock washer
- seat guide



'88-'92: TRX300FW

Compress the front shock absorber with the special tools as shown.

CAUTION

- Be careful that the upper end of the damper does not slip out of the compressor.

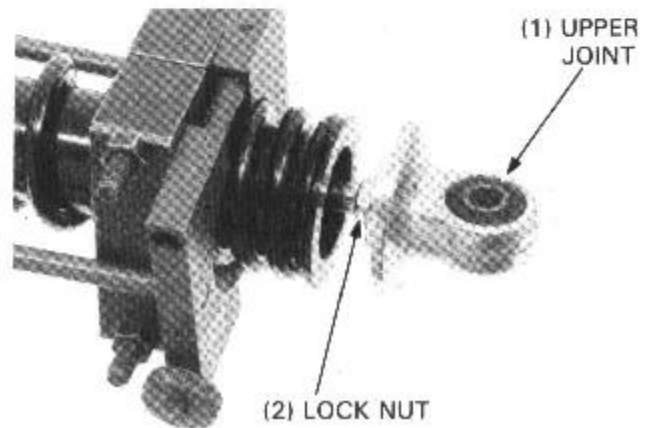
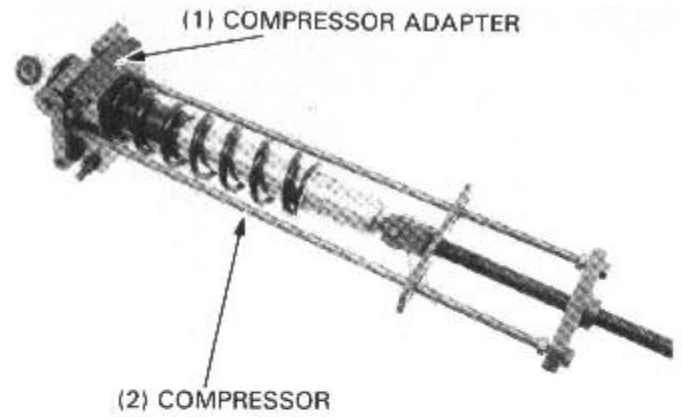
TOOLS:

Shock absorber compressor 07GME-0010000 or
07959-3290001
and 07GME-0010100
Spring compressor 07967-KC10100

NOTE

- When using 07959-3290001, replace the screw assembly with 07GME-0010100 before using.

Separate the upper joint by loosening the lock nut and remove the special tools.



TRX300FW/After '92: TRX300

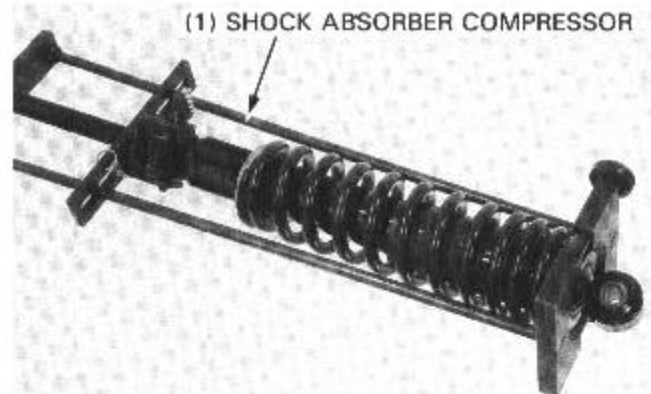
Compress the front shock absorber with the shock absorber compressor.

CAUTION

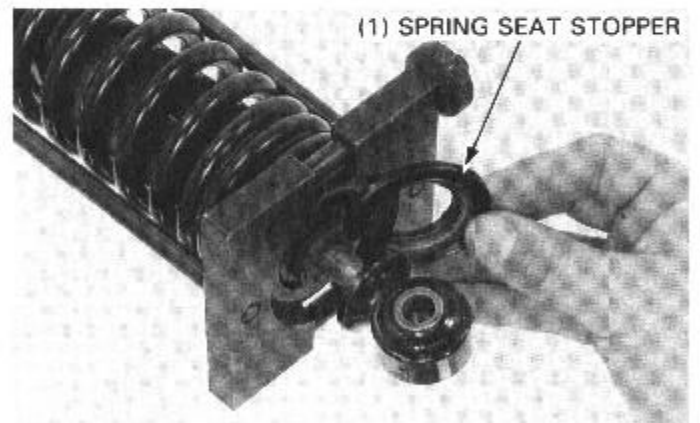
- Be careful that the upper end of the damper does not slip out of the compressor.

TOOL:

Shock absorber compressor 07GME-0010000



Remove the spring seat stopper.
Remove the spring compressor and spring.



INSPECTION

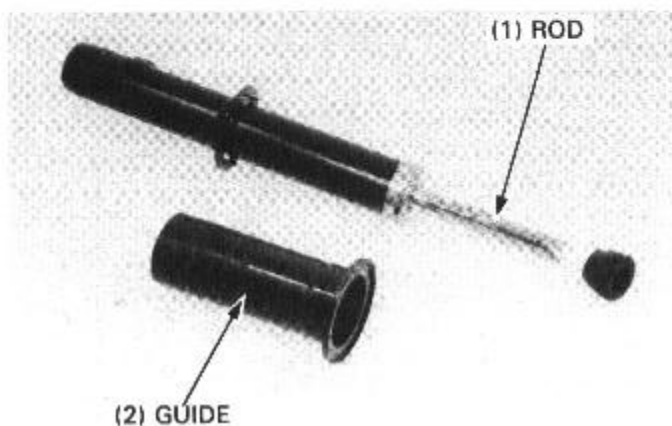
Inspect the spring for damage and measure its free length.

SERVICE LIMITS:

TRX300: '88—'92:	277.2 mm (10.91 in)
After '92:	212.5 mm (8.37 in)
TRX300FW: '88—'92:	241.9 mm (9.52 in)
After '92:	219.3 mm (8.63 in)



Inspect the damper rod for distortion and signs of oil leakage.
Inspect the spring guide for damage.



ASSEMBLY

'88—'92: TRX300

Install the following:

- seat guide
- lock washer
- ball joint

NOTE

- Use a new lock washer.

Tighten the ball joint to the specified torque while holding the damper rod end with a wrench.

TORQUE: 38 N·m (3.8 kg-m, 27 ft-lb)

Stake the lock washer.

CAUTION

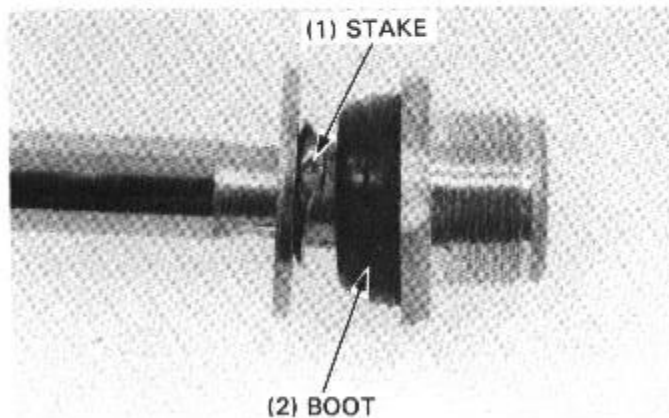
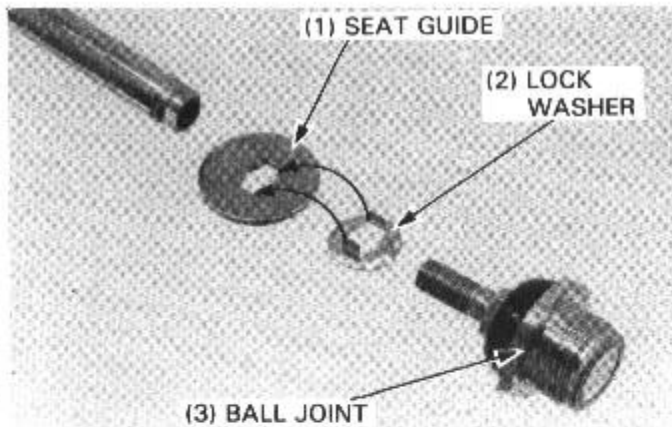
- Do not damage the boot.

Install the spring and spring guide.

NOTE

- Install the spring with the closely wound coils toward the top.

Install the spring seat while compressing the spring by hand.



'88-'92: TRX300FW

Apply locking agent to the rod threads and install the lock nut. Install the spring.

NOTE

- Install the spring with the closely wound coils toward the top.

Compress the shock absorber with the special tools.

TOOLS:

Shock absorber compressor 07GME-0010000 or
07959-3290001
and 07GME-0010100
Spring compressor adapter 07967-KC10100

NOTE

- When using 07959-3290001, replace the screw assembly with 07GME-0010100.

Apply locking agent to the damper rod threads and screw the upper joint on. Hold the lock nut with a wrench and tighten the upper joint securely.

TORQUE: 38 N·m (3.8 kg-m, 27 ft-lb)

NOTE

- Check that the lock nut is seated against the rod's bottom thread.

TRX300FW/After '92: TRX300

Install the shock spring onto the damper.

NOTE

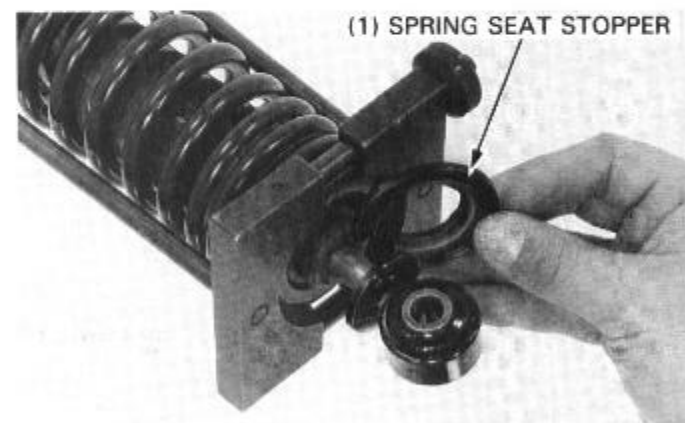
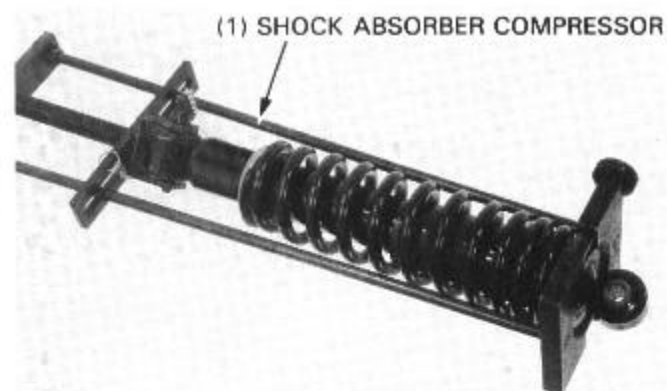
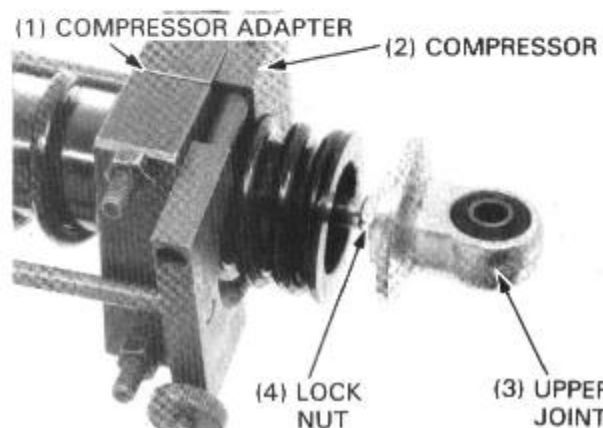
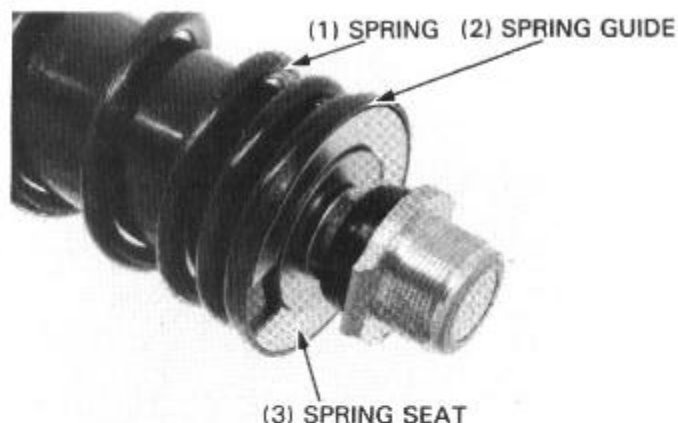
- Install the spring with the closely wound coil toward the top.

Compress the shock absorber spring with the compressor.

TOOL:

Shock absorber compressor 07GME-0010000

Install the spring seat stopper.



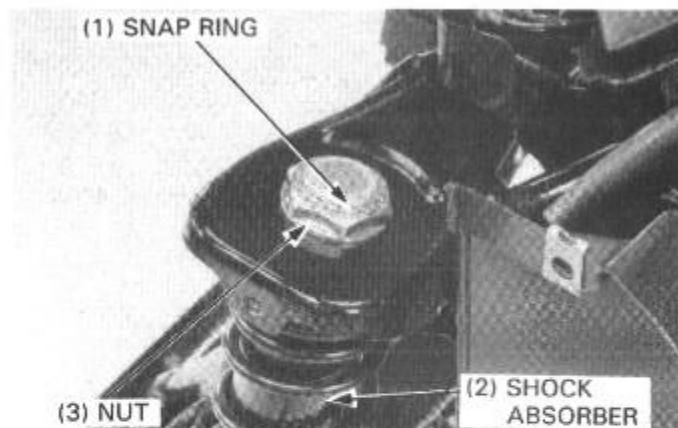
INSTALLATION

'88-'92: TRX300

Install the shock absorber and tighten the upper nut to the specified torque.

TORQUE: 55 N·m (5.5 kg-m, 40 ft-lb)

Install the snap ring securely.



Install the shock absorber on the knuckle.

NOTE

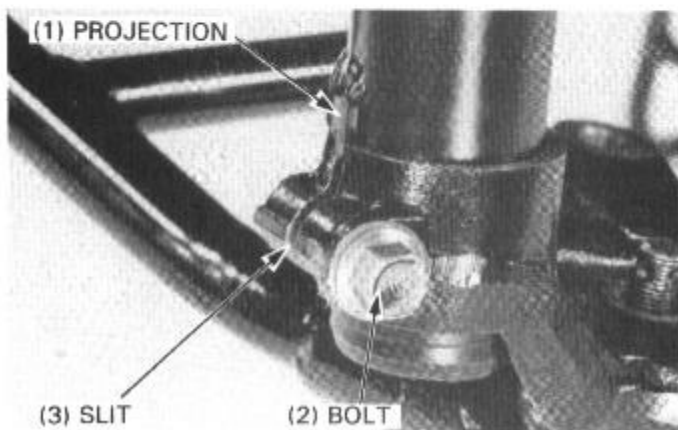
- Position the shock absorber by aligning the projection of the shock absorber with the slit in the knuckle.

Tighten the lower pinch bolt to the specified torque.

TORQUE: 55 N·m (5.5 kg-m, 40 ft-lb)

Install the following:

- front wheel (page 11-9)
- front fender (page 16-2)



TRX300FW/After '92: TRX300

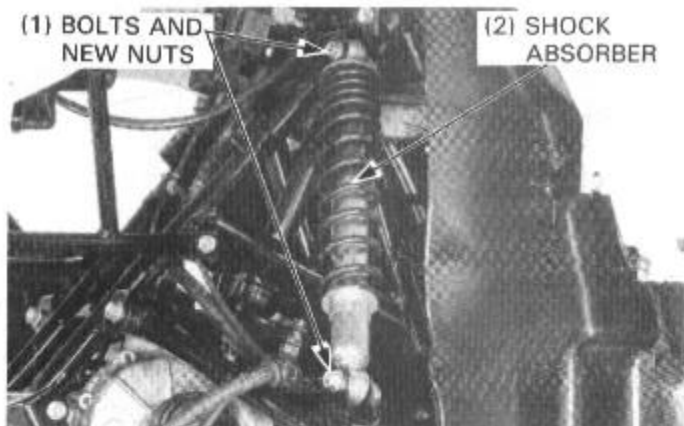
Install the shock absorber and tighten the mounting bolts and new nuts to the specified torque.

TORQUE: '88-'92: 25 N·m (2.5 kg-m, 18 ft-lb)

After '92: 31 N·m (3.1 kg-m, 22 ft-lb)

CAUTION

- *Re-use of nuts is strictly prohibited.*

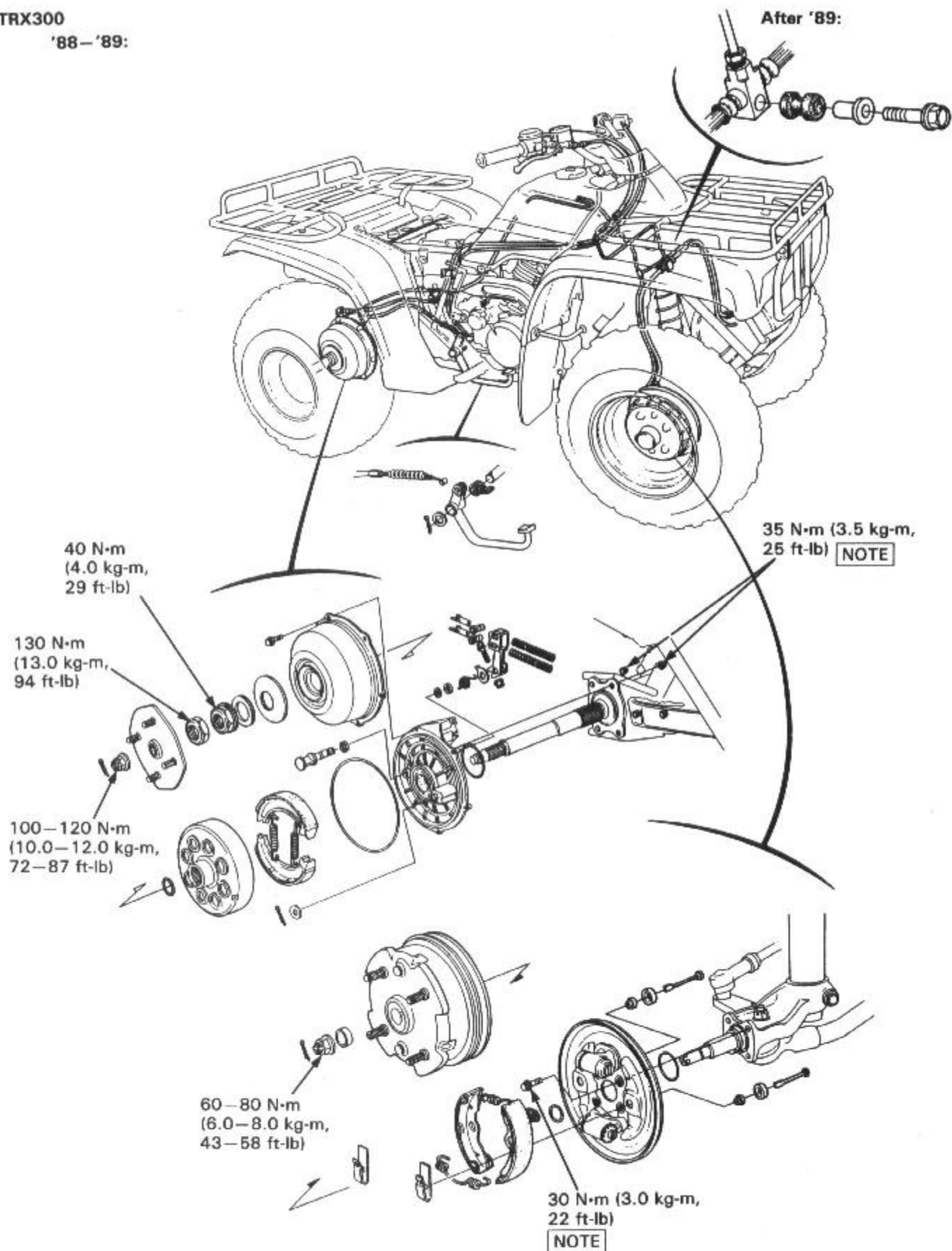


MEMO



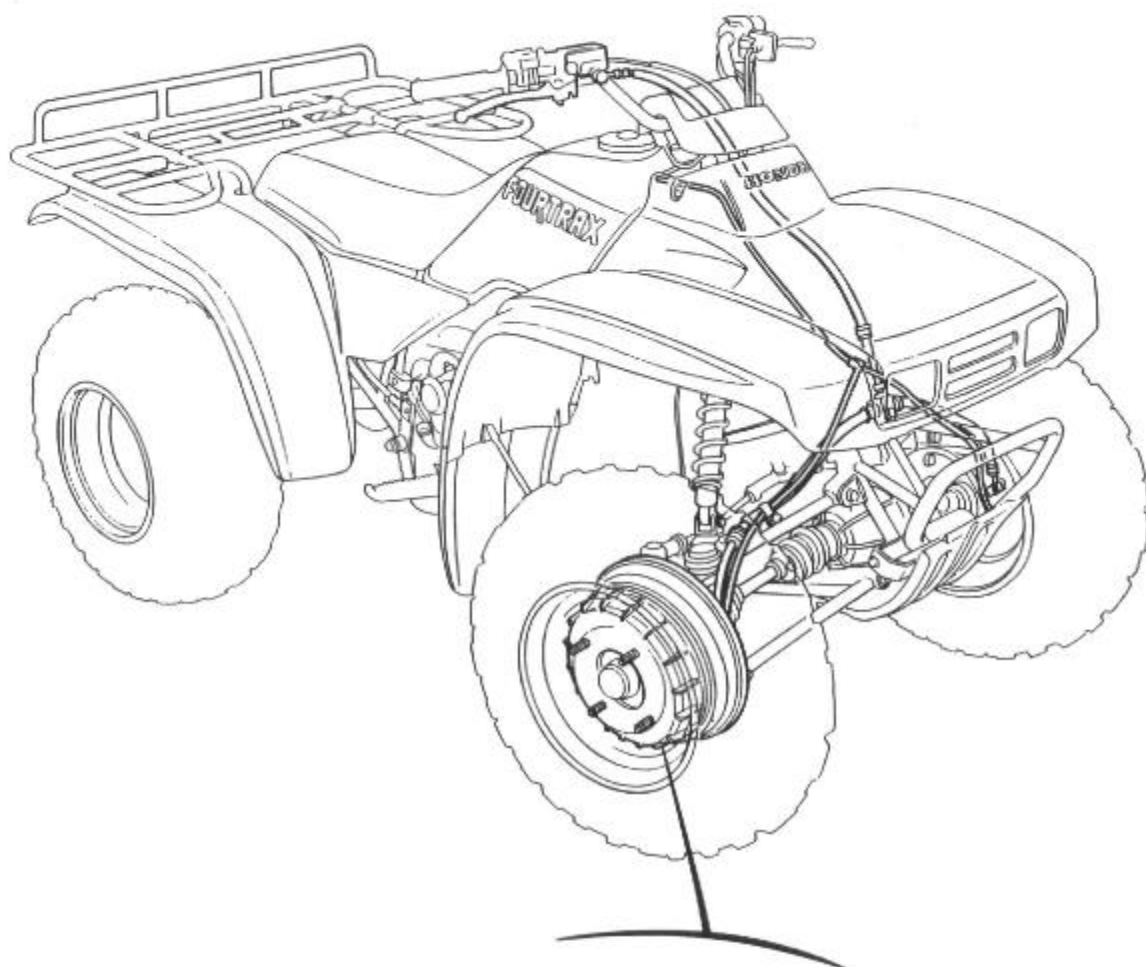
TRX300

'88-'89:

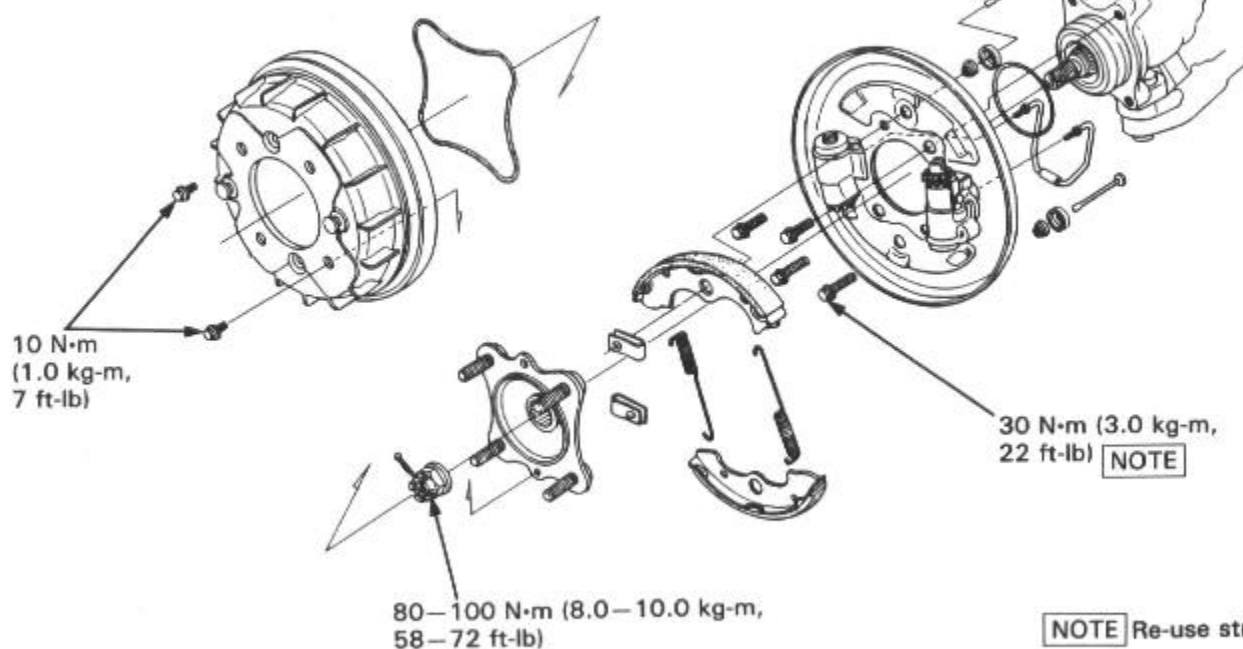


NOTE Re-use strictly prohibited

TRX300FW



12



SERVICE INFORMATION	12-2	BRAKE SHOES/WHEEL CYLINDER/ ADJUSTER	12-8
TROUBLESHOOTING	12-3	REAR BRAKE	12-23
BRAKE FLUID REPLACEMENT/ AIR BLEEDING	12-4	REAR BRAKE PEDAL	12-29
MASTER CYLINDER	12-6		

SERVICE INFORMATION

GENERAL

WARNING

- *Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake or clutch assemblies. Use an OSHA-approved vacuum cleaner or alternate method approved by OSHA designed to minimize the hazard caused by airborne asbestos fibers.*

- This section covers maintenance of the front drum hydraulic brake and rear drum brake systems.
- A jack or other support is required to support the vehicle.
- Once the hydraulic system has been opened, or if the brake feels spongy, the system must be bled.
- Do not allow foreign material to enter the system when filling the reservoir.
- Use DOT 3 or 4 brake fluid.
- Brake fluid will damage painted, plastic and rubber parts. Whenever handling brake fluid, protect the painted, plastic and rubber parts by covering them with a rag. If fluid does get on these parts, wipe it off with a clean cloth.
- Always check brake operation before riding the vehicle.
- Apply multipurpose grease (NLGI No.3) to the front brake waterproof seal lip.

SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Front brake drum I.D.	TRX300	130 (5.1)	131 (5.2)
	TRX300FW	160 (6.3)	161 (6.3)
Front brake lining thickness		4.0 (0.16)	1.0 (0.04)
Master cylinder I.D.	TRX300	12.700–12.743 (0.5000–0.5017)	12.755 (0.5022)
	TRX300FW	14.000–14.043 (0.5512–0.5529)	14.055 (0.5533)
Master cylinder piston O.D.	TRX300	12.657–12.684 (0.4983–0.4994)	12.645 (0.4978)
	TRX300FW	13.957–13.984 (0.5495–0.5506)	13.945 (0.5490)
Wheel cylinder piston O.D.	TRX300	15.827–15.854 (0.6231–0.6242)	15.817 (0.6227)
	TRX300FW	17.417–17.444 (0.6857–0.6868)	17.405 (0.6852)
Wheel cylinder I.D.	TRX300	15.870–15.913 (0.6248–0.6265)	15.923 (0.6269)
	TRX300FW	17.460–17.503 (0.6874–0.6891)	17.515 (0.6896)
Front brake panel warpage		—	0.4 (0.02)
Front brake panel seal lip wear		—	0.5 (0.02)
Front brake waterproof seal lip length	TRX300	21.0 (0.83)	19.0 (0.75)
	TRX300FW	22.0 (0.87)	20.0 (0.79)
Rear brake lining thickness		5.0 (0.20)	2.0 (0.08)
Rear brake drum I.D.		160 (6.3)	161 (6.3)

TORQUE VALUES

Master cylinder cover screw		2 N·m (0.2 kg-m, 1.4 ft-lb)
Master cylinder holder		12 N·m (1.2 kg-m, 9 ft-lb)
Brake hose bolt	'88-'90:	30 N·m (3.0 kg-m, 22 ft-lb)
	After '90:	35 N·m (3.5 kg-m, 25 ft-lb)
Wheel cylinder bolt (TRX300)		8 N·m (0.8 kg-m, 6 ft-lb)
Adjuster bolt (TRX300)		8 N·m (0.8 kg-m, 6 ft-lb)
Front brake panel bolt		30 N·m (3.0 kg-m, 22 ft-lb) — Re-use strictly prohibited.
Brake hose joint nut (TRX300)		14 N·m (1.4 kg-m, 10 ft-lb)
Front axle nut (TRX300)		60–80 N·m (6.0–8.0 kg-m, 43–58 ft-lb)
Front axle nut (TRX300FW)		80–100 N·m (8.0–10.0 kg-m, 58–72 ft-lb)
Front wheel hub mounting bolt (TRX300FW)		10 N·m (1.0 kg-m, 7 ft-lb)
Brake hose joint (TRX300)		35 N·m (3.5 kg-m, 25 ft-lb)
Cylinder assy. 6 mm bolt (TRX300FW)		8 N·m (0.8 kg-m, 6 ft-lb)
8 mm bolt (TRX300FW)		17 N·m (1.7 kg-m, 12 ft-lb)
Front brake pipe joint nut		14 N·m (1.4 kg-m, 10 ft-lb)
Rear brake panel drain bolt		25 N·m (2.5 kg-m, 18 ft-lb)
Rear brake panel nut		35 N·m (3.5 kg-m, 25 ft-lb) — Re-use strictly prohibited.

TOOLS

Special

Snap ring pliers	07914–3230001
Attachment	07965–MC70100

Common

Driver	07749–0010000
Attachment, 62 x 68 mm	07746–0010500
Pilot, 35 mm	07746–0040800

For TRX300

Bearing remover head, 15 mm	07746–0050400	} or equivalent commercially available in U.S.A.
Bearing remover shaft	07746–0050100	
Bearing remover head, 20 mm	07746–0050600	
Attachment, 32 x 35 mm	07746–0010100	
Pilot, 15 mm	07746–0040300	
Attachment, 42 x 47 mm	07746–0010300	
Pilot, 20 mm	07746–0040500	

TROUBLESHOOTING

Front wheel wobbling and noise

- Worn front wheel bearings (TRX300)
- Worn brake shoes

Poor brake performance

- Brake not adjusted properly
- Worn brake shoes
- Brake fluid leak
- Water in the front brake drum
- Incorrectly installed rear brake arm
- Contaminated brake shoes
- Worn rear brake cam
- Worn rear brake drum

Possible causes for water entering a front brake drum

- Faulty waterproof seal installation
- Warped or worn brake panel
- Damaged tension pin, tension pin seal or seal cap
- Unsealed wheel cylinder assembly
- Unsealed adjuster assembly
- Damaged or loose wheel cylinder or adjuster mounting bolt
- Damaged or loose brake panel bolt
- Disconnected or damaged breather tube
- Faulty breather tube routing
- Faulty inspection hole cap installation
- Loosened axle nut by uninstalled cotter pin
- Loose bolt attaching the drum to the hub (TRX300FW)
- Faulty hub O-ring (TRX300FW)
- Faulty brake panel O-ring
- Unsealed or damaged wheel bolt
- Faulty wheel bearing
- Faulty wheel hub dust seal (TRX300FW)
- Faulty brake drum dust seal (TRX300)
- Faulty wheel hub (TRX300FW)
- Faulty brake drum
- Faulty knuckle axle seal

BRAKE FLUID REPLACEMENT/AIR BLEEDING

BRAKE FLUID DRAINING

CAUTION

- Do not allow foreign material to enter the system when filling the reservoir.
- Avoid spilling fluid on painted, plastic or rubber parts. Place a rag over these parts whenever the system is serviced.

With the fluid reservoir parallel to the ground, remove the reservoir cover and diaphragm.

Connect a bleed hose to the bleed valve. Loosen the bleed valve and pump the brake lever. Stop pumping the lever when no more fluid flows out of the bleed valve.

BRAKE FLUID FILLING

Fill the reservoir with DOT 3 or 4 brake fluid from a sealed container.

CAUTION

- Do not mix different types of fluid. They are not compatible.

Connect a commercially available brake bleeder to the bleed valve.

Pump the brake bleeder and loosen the bleed valve, adding fluid when the fluid level in the master cylinder reservoir is low.

NOTE

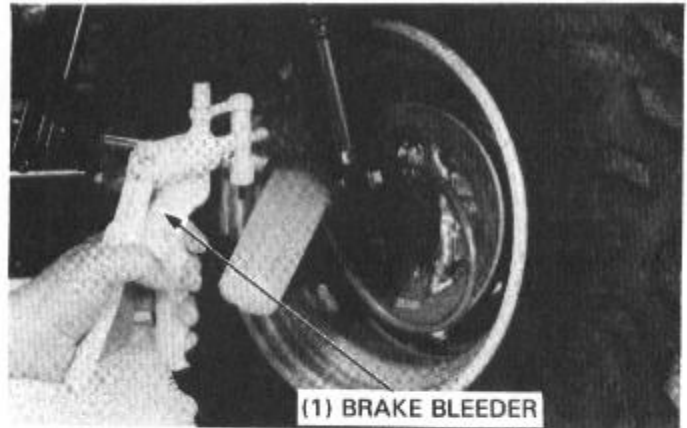
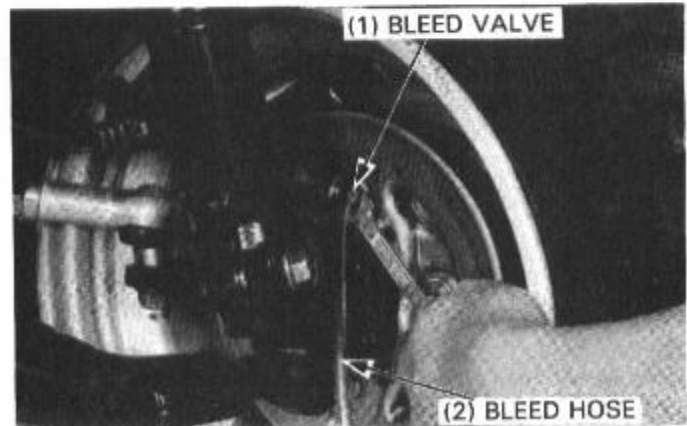
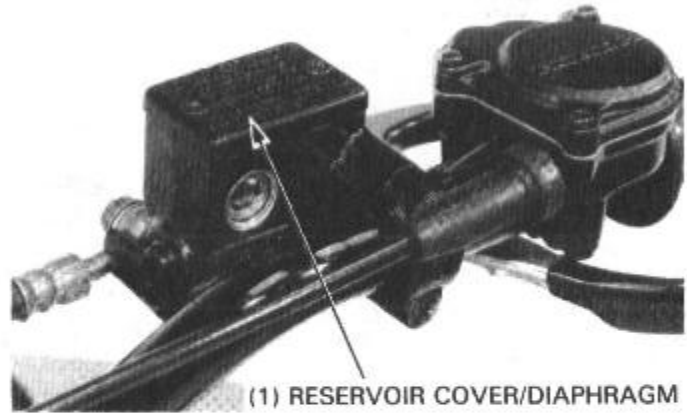
- Check the fluid level often while bleeding the brakes to prevent air from being pumped into the system.
- When using a brake bleeding tool, follow the manufacturer's operating instructions.

Repeat the above procedures until air bubbles do not appear in the plastic hose.

NOTE

- If air is entering the bleeder from around the bleed valve threads, seal the threads with teflon tape.
- If a brake bleeder is not available, fill the master cylinder and operate the brake lever to fill the system (page 12-5).

Close the bleed valve. Next, perform the available BLEEDING procedure (page 12-5).



BRAKE BLEEDING

Connect a bleed hose to the bleed valve.

Pump up the system pressure with the lever until there are no air bubbles in the fluid flowing out of the master cylinder and lever resistance is felt.

1. Squeeze the brake lever, open the bleed valve 1/2 turn and then close the valve.

NOTE

- Do not release the brake lever until the bleed valve has been closed.

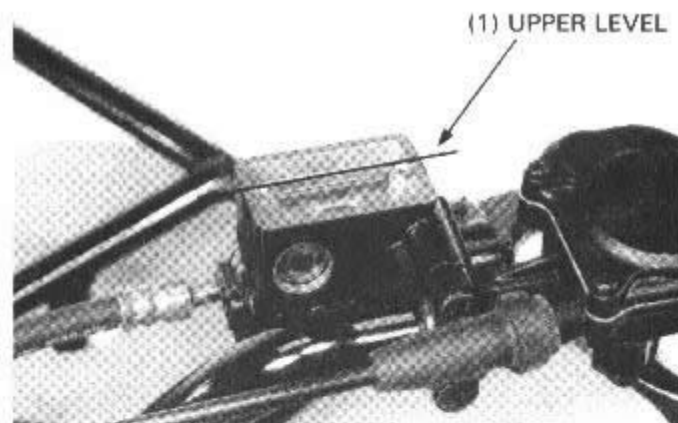
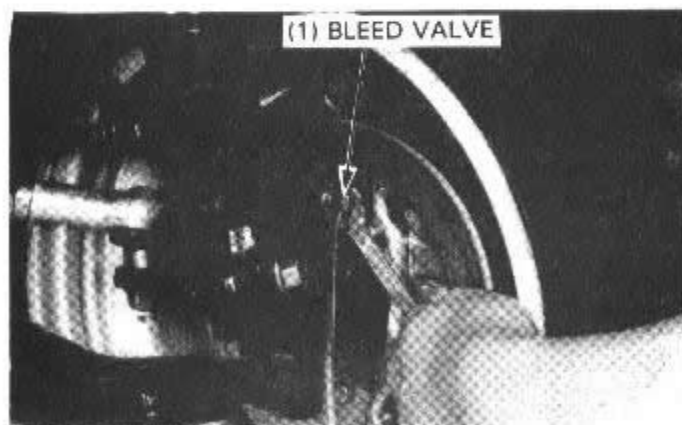
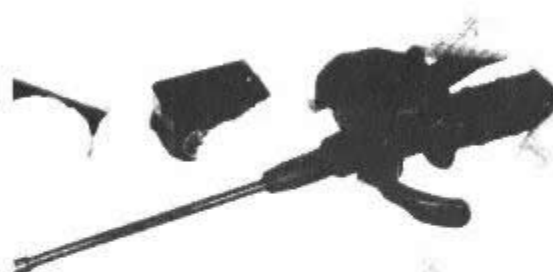
2. Release the brake lever slowly and wait several seconds after it reaches the end of its travel.

Repeat steps 1 and 2 until bubbles cease to appear in the fluid coming out of the bleed valve.

Fill the fluid reservoir to the upper level.

Reinstall the diaphragm and reservoir cover, and tighten the screws.

TORQUE: 2 N·m (0.2 kg-m, 1.4 ft-lb)

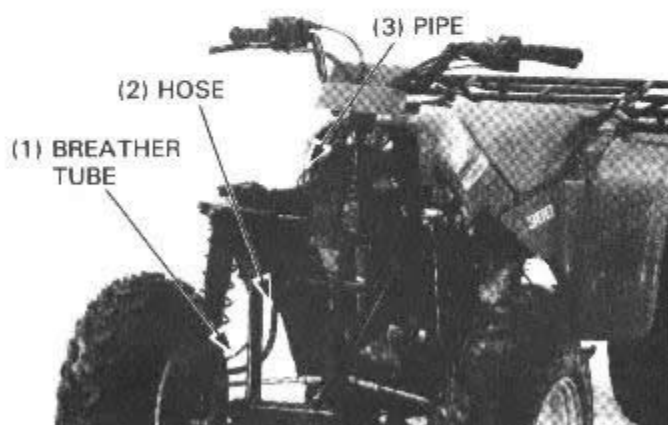


BRAKE HOSE/BRAKE PIPE/BREATHING TUBE INSPECTION

Remove the front fender (page 16-1).

Check the brake hose and brake pipe for damage and brake fluid leaks.

Check the front brake breather tubes for secure connections and damage. A disconnected breather means that the front brake drum is flooded with water.



MASTER CYLINDER

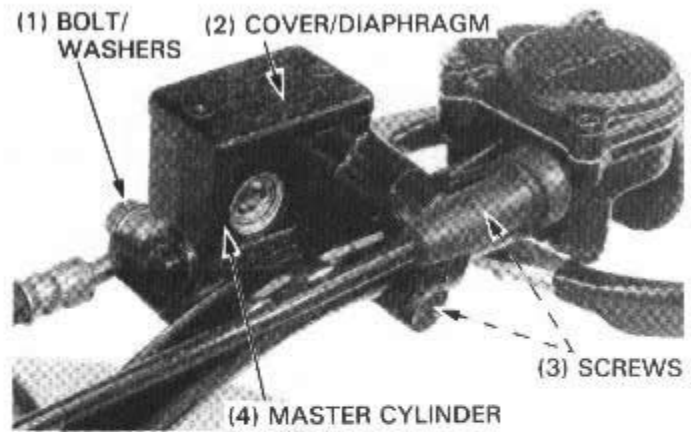
DISASSEMBLY

Remove the reservoir cover, diaphragm and float (After '92:), and soak up the brake fluid from the reservoir.

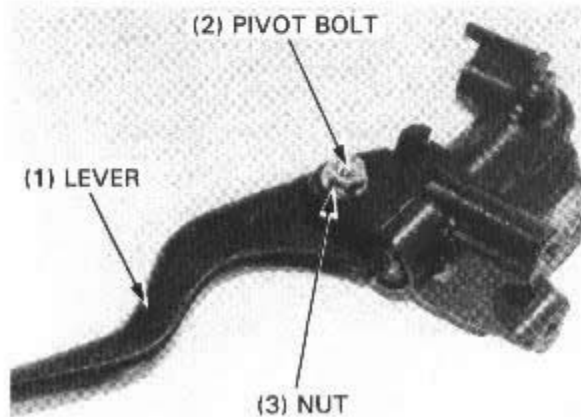
Disconnect the brake hose from the master cylinder by removing the bolt/two sealing washers.

Fix the brake hose to prevent the fluid from flowing out.

Remove the screws from the master cylinder holder and remove the master cylinder.



Remove the front brake lever nut and pivot bolt. Remove the boot.

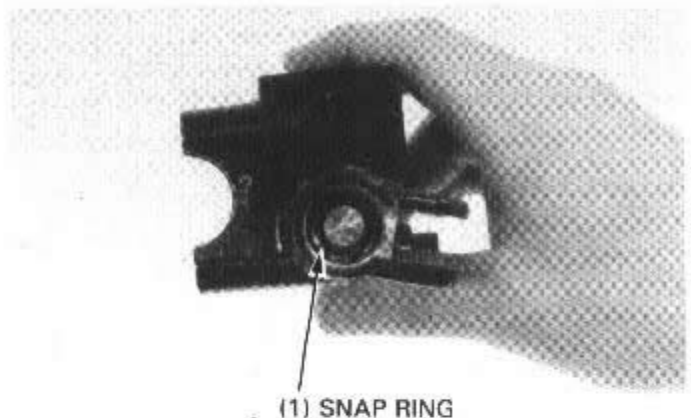


Remove the snap ring from the master cylinder body.

TOOL:

Snap ring pliers

07914-3230001

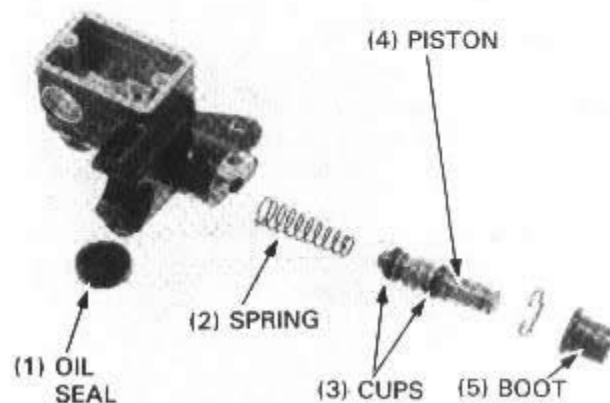


Remove the oil seal, piston and spring.

Clean the inside of the cylinder and reservoir with brake fluid.

Check the oil seal, piston boot, primary cup and secondary cup for fatigue or damage.

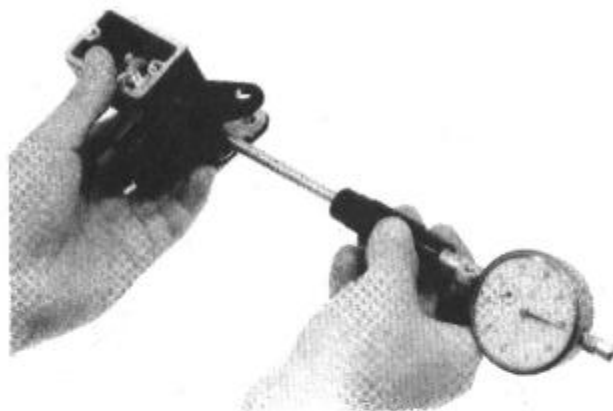
Check the master cylinder and piston for abnormal scratches.



INSPECTION

Measure the master cylinder I.D.

SERVICE LIMIT: (TRX300) 12.755 mm (0.5022 in)
(TRX300FW) 14.055 mm (0.5533 in)



Measure the master cylinder piston O.D.

SERVICE LIMIT: (TRX300) 12.645 mm (0.4978 in)
(TRX300FW) 13.945 mm (0.5490 in)



ASSEMBLY

CAUTION

- *Keep the piston, cups, spring, snap ring and boot as a set; do not substitute individual parts.*

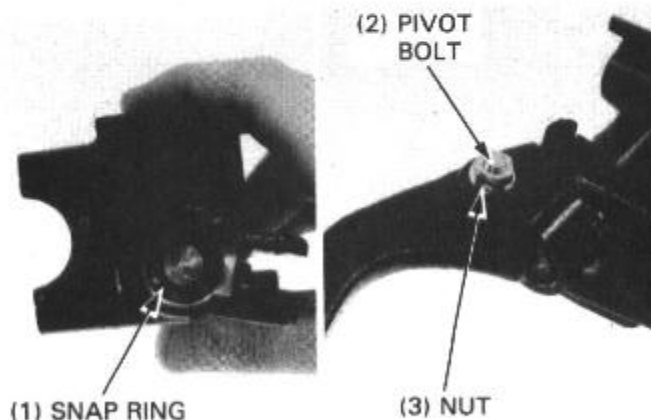
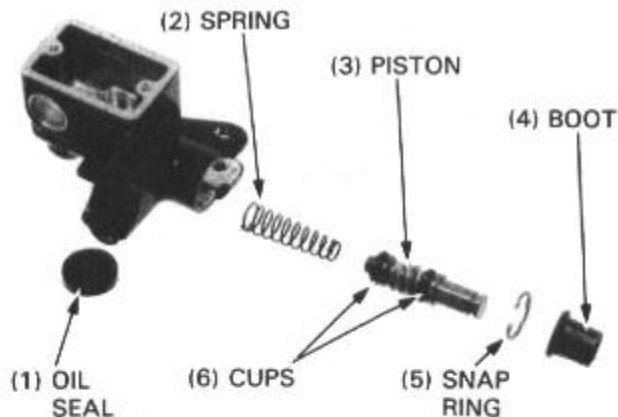
Coat all parts with clean brake fluid before assembly. Dip the secondary cup in brake fluid.

Install the primary cup and spring to the piston.
Install the oil seal, piston assembly, snap ring and boot.

CAUTION

- *When installing the cups, do not allow the lips to turn inside out and be certain the snap ring is firmly seated in the groove.*

Install the brake lever.
Place the master cylinder on the handlebar.



BRAKES

Install the master cylinder holder with the UP mark facing up. Tighten the upper screw first, then tighten the lower screw loosely.

TORQUE: 12 N·m (1.2 kg-m, 9 ft-lb)

Align the end of the master cylinder with the punch mark on the handlebar. Tighten the lower screw.

TORQUE: 12 N·m (1.2 kg-m, 9 ft-lb)

Install the brake hose between the stoppers with the bolt and new sealing washers.

TORQUE:

'88-'90: 30 N·m (3.0 kg-m, 22 ft-lb)

After '90: 35 N·m (3.5 kg-m, 25 ft-lb)

Fill the reservoir to the upper level and bleed the brake system according to page 12-4.

BRAKE SHOES/WHEEL CYLINDER/ADJUSTER

DISASSEMBLY (TRX300)

Remove the following:

- front wheel (page 11-7).
- cotter pin.
- axle nut.
- brake drum (wheel hub).

- collar.
- dust seal.

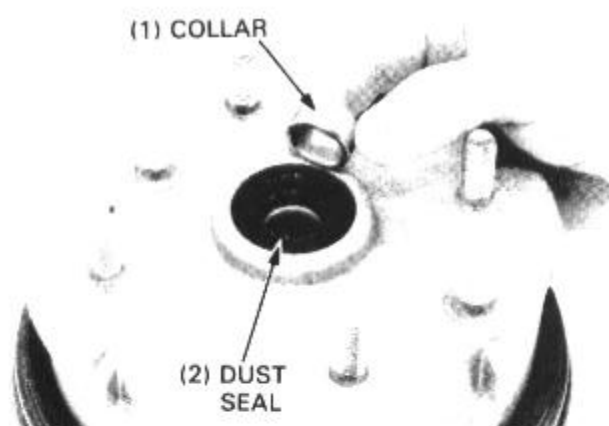
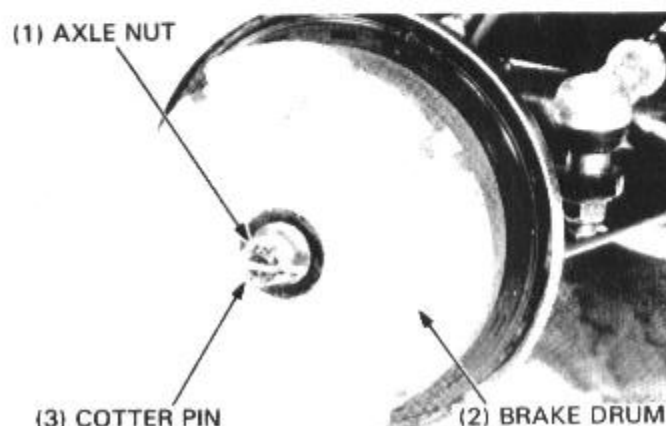
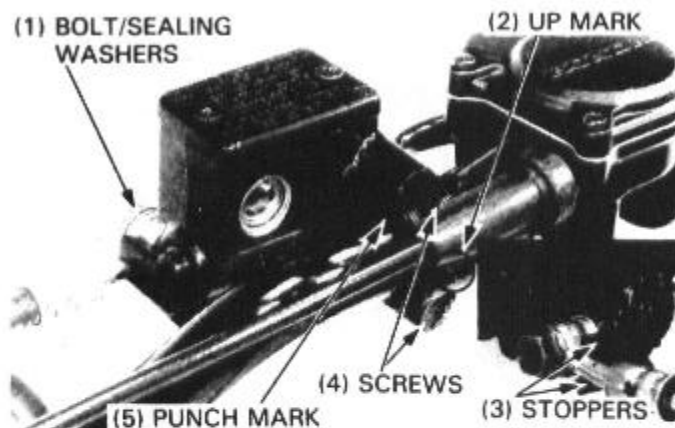
Turn the inner race of each bearing with your finger. The bearings should turn smoothly and quietly. Also check that the outer race of each bearing fits tightly in the brake drum.

For bearing replacement, see page 12-10.

For front brake waterproof seal inspection/replacement, see page 12-14.

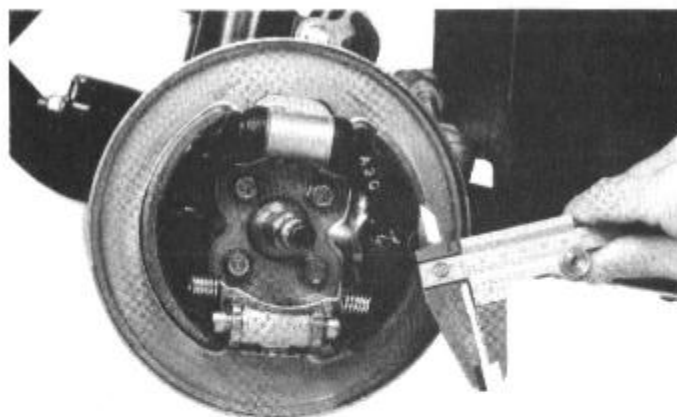
Measure the brake drum I.D.

SERVICE LIMIT: 131 mm (5.2 in)



Measure the brake lining thickness.

SERVICE LIMIT: 1.0 mm (0.04 in)

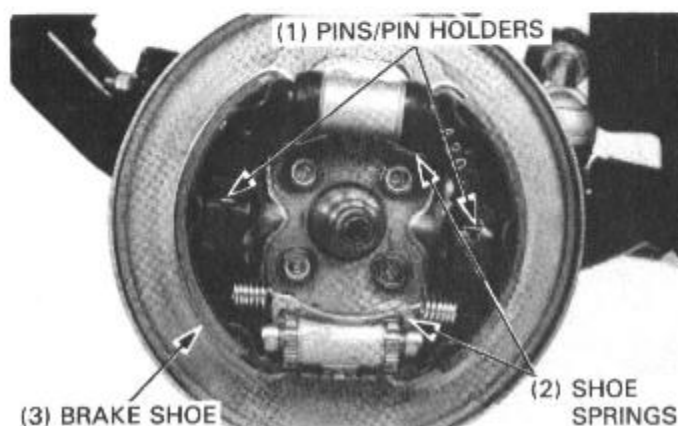


For brake panel inspection, see page 12-14.

- pins, pin holders, brake shoes and shoe springs.

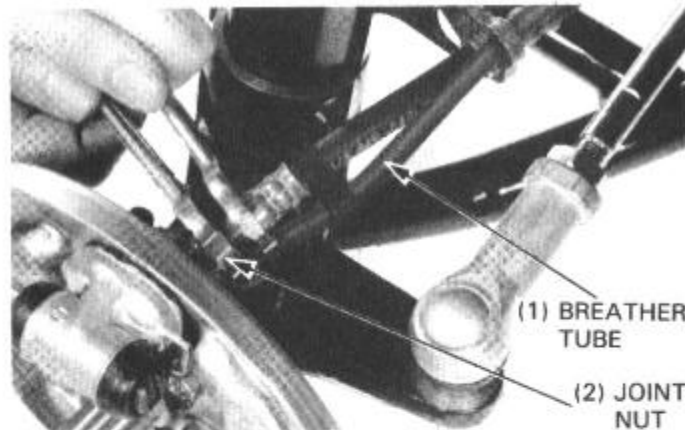
NOTE

- Mark the brake shoes to indicate their original positions before removing them.
- brake hose/breather tube guide.



Drain the brake fluid (page 12-4).

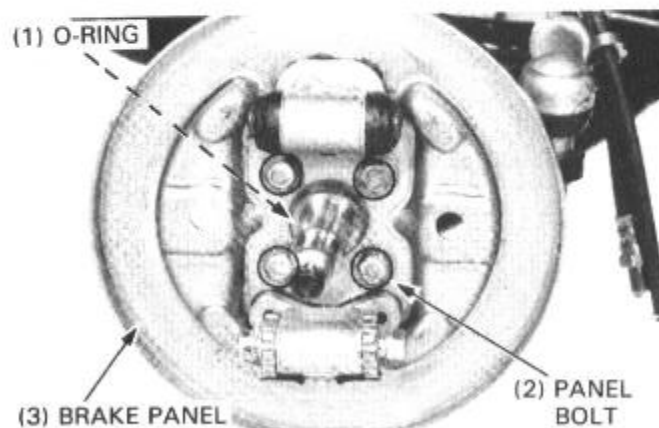
- brake hose by loosening the brake joint nut while holding the hose fixed.
- breather tube from brake panel.



- brake panel.
- O-ring.

CAUTION

- Discard the panel bolts. Re-use of panel bolts strictly prohibited, because these bolt threads are specially dry-coated for waterproofing.



BRAKES

- wheel cylinder and adjuster by removing the attaching bolts.

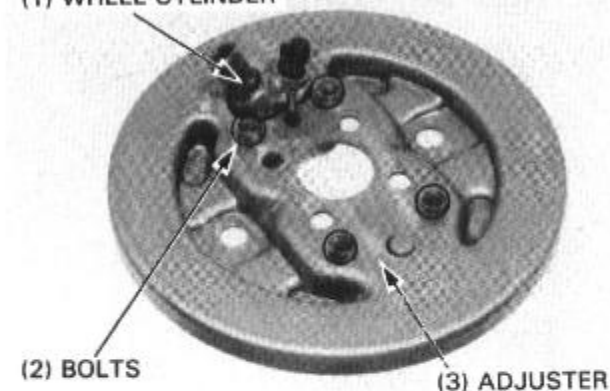
Disassemble them.

Clean off any sealant material from the cylinder, adjuster, brake panel and panel bolts.

(1) WHEEL CYLINDER

(2) BOLTS

(3) ADJUSTER



BRAKE DRUM BEARING REPLACEMENT (TRX300)

Remove the brake drum bearings.

TOOLS:

Outer bearing

Bearing remover head, 15 mm 07746-0050400

Bearing remover shaft 07746-0050100

Inner bearing

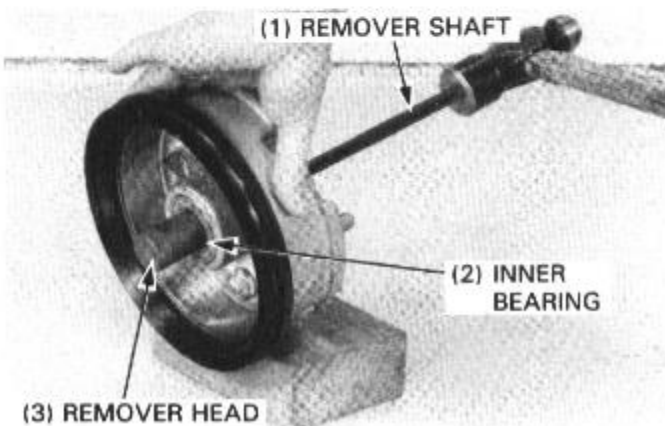
Bearing remover head, 20 mm 07746-0050600

Bearing remover shaft 07746-0050100

(1) REMOVER SHAFT

(2) INNER BEARING

(3) REMOVER HEAD



Pack the bearing cavities with grease.
Drive the new bearings into the brake drum.

TOOLS:

Outer bearing

Driver 07749-0010000

Attachment, 32 x 35 mm 07746-0010100

Pilot, 15 mm 07746-0040300

Inner bearing

Driver 07749-0010000

Attachment, 42 x 47 mm 07746-0010300

Pilot, 20 mm 07746-0040500

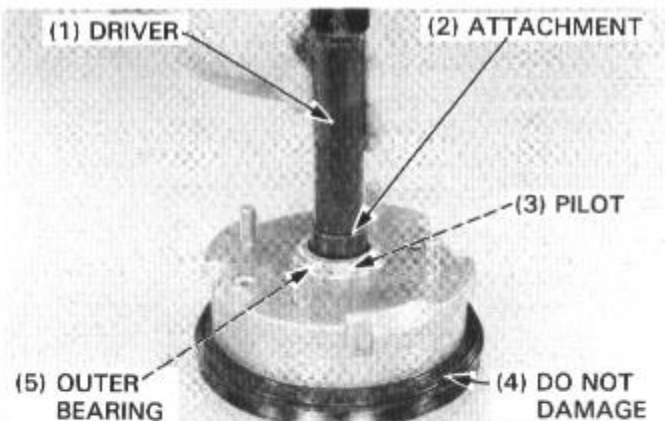
(1) DRIVER

(2) ATTACHMENT

(3) PILOT

(5) OUTER BEARING

(4) DO NOT DAMAGE



CAUTION

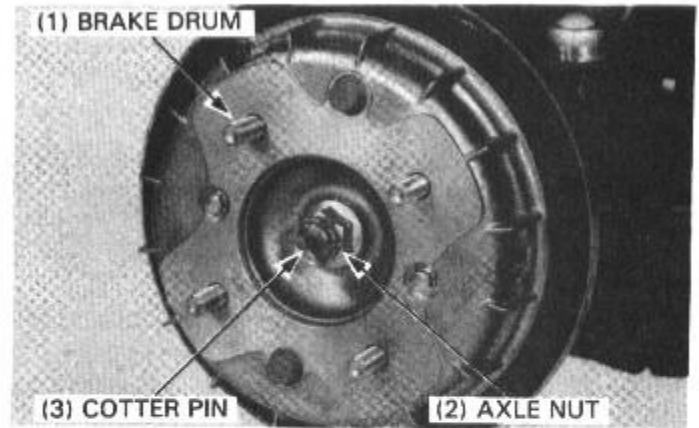
- Do not damage the waterproof seal. Support the brake drum boss when driving the bearings.

For seal inspection, see page 12-14.

DISASSEMBLY (TRX300FW)

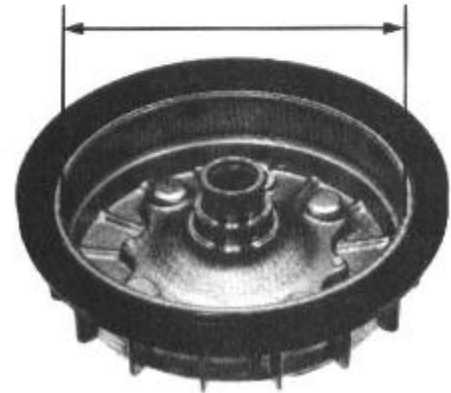
Remove the following:

- front wheel (page 11-7).
- cotter pin.
- axle nut.
- brake drum.



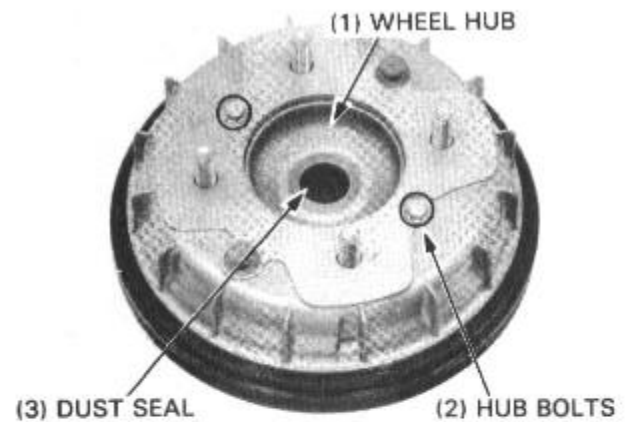
Measure the brake drum I.D.

SERVICE LIMIT: 161 mm (6.3 in)



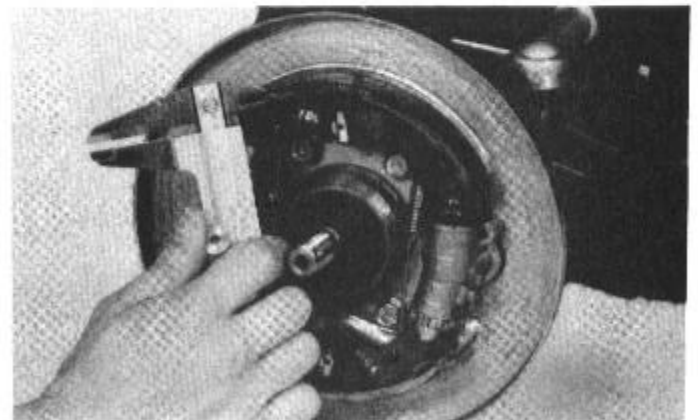
- wheel hub and O-ring by removing the hub bolts.
- dust seal.

For front brake waterproof seal inspection/replacement, see page 12-14.



Measure the brake lining thickness.

SERVICE LIMIT: 2.0 mm (0.08 in)



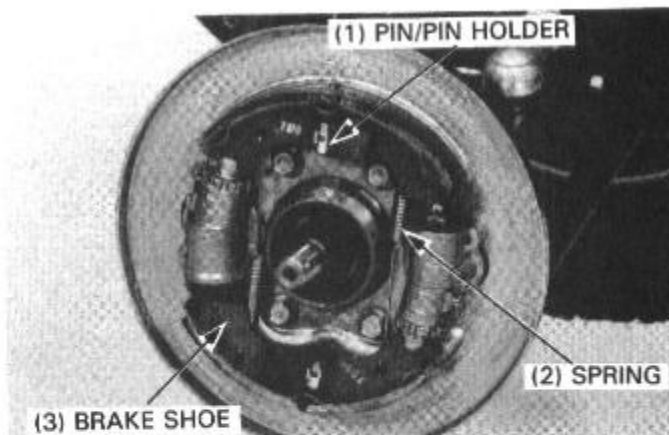
BRAKES

For brake panel inspection, see page 12-14.

- pins, pin holders, brake shoes and shoe springs.

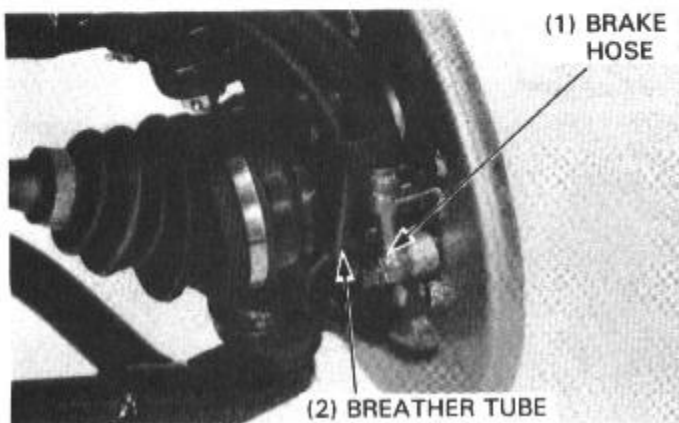
NOTE

- Mark the brake shoes to indicate their original positions before removing them.



Drain the brake fluid (page 12-4).

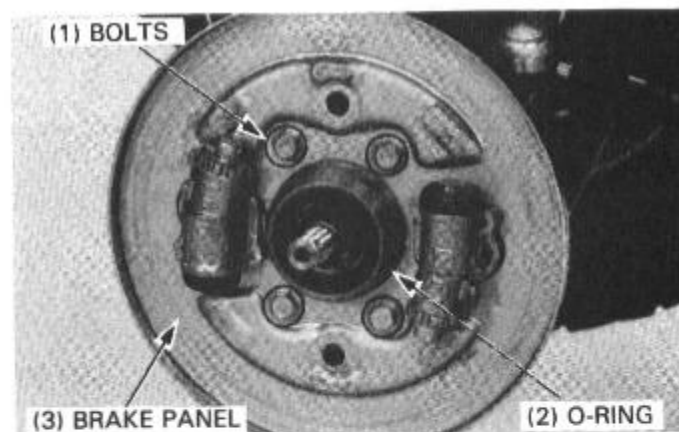
- brake hose by removing the brake hose bolt.
- breather tube from brake panel.



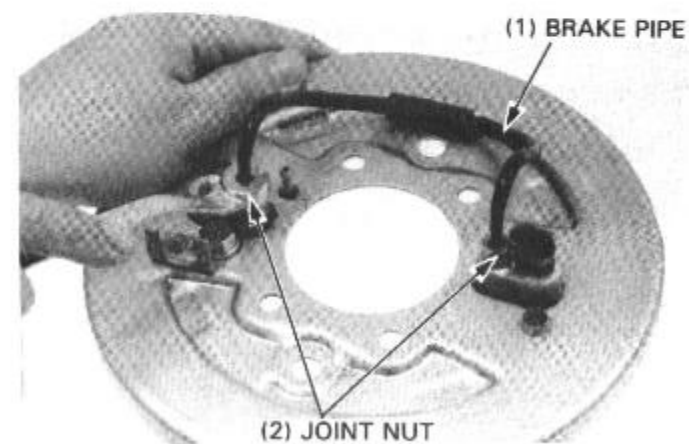
- brake panel.
- O-ring

CAUTION

- *Discard the panel bolts. Re-use of panel bolts strictly prohibited, because these bolt threads are specially dry-coated for waterproofing.*



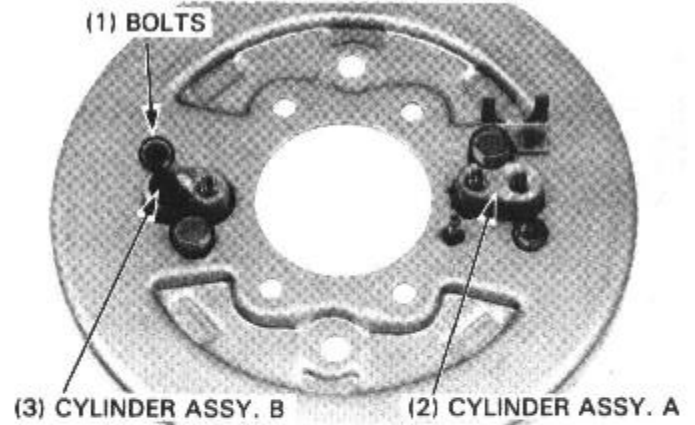
- brake pipe by loosening the joint nuts.



— cylinder assy. A and B by removing the bolts.

Disassembly them.

Clean off any sealant material from the cylinders, bolts and brake panel.



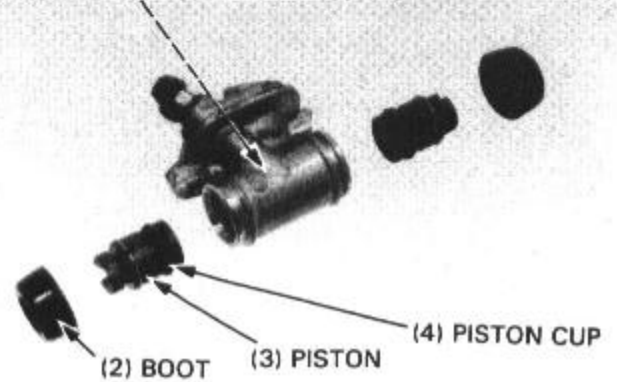
WHEEL CYLINDER/ADJUSTER INSPECTION

TRX300

Inspect the wheel cylinder bore and pistons for scoring or grooving.

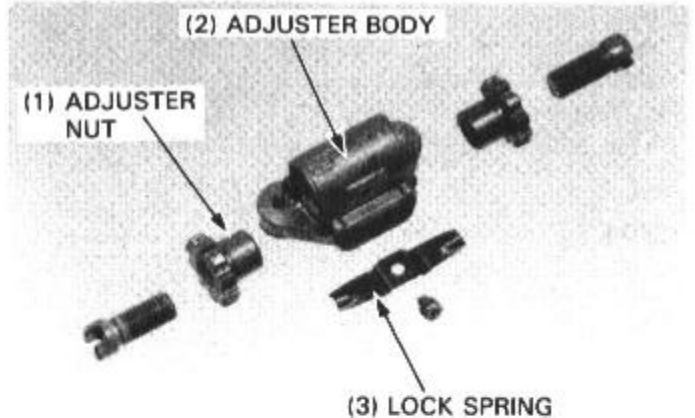
Inspect the piston cups and piston boots for wear or fatigue.

(1) WHEEL CYLINDER BODY



Inspect the adjuster body and adjuster nuts for wear or damage.

Check the lock spring for fatigue or damage.

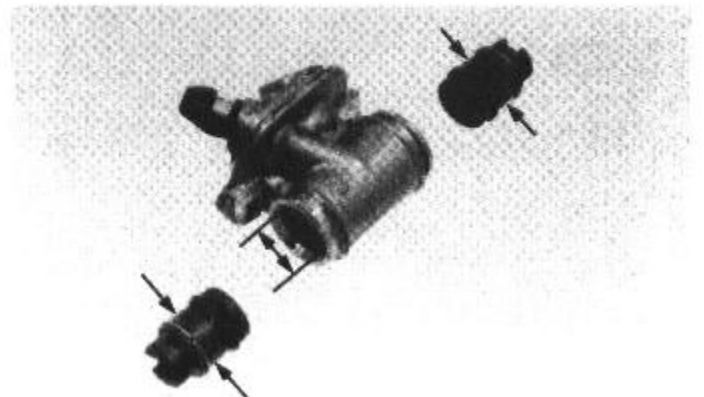


Measure the wheel cylinder I.D.

SERVICE LIMIT: 15.923 mm (0.6269 in)

Measure the wheel cylinder piston O.D.

SERVICE LIMIT: 15.817 mm (0.6227 in)



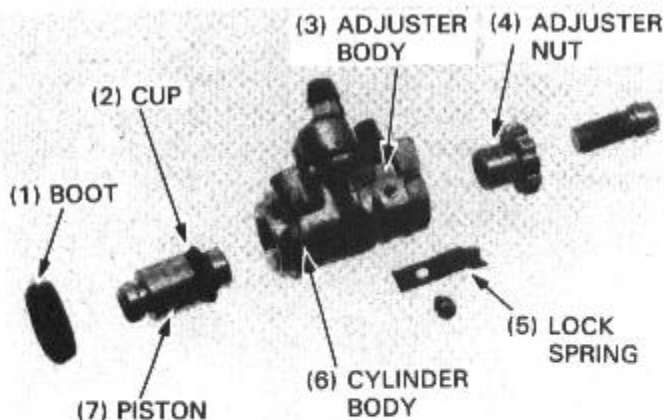
BRAKES

TRX300FW

Inspect the wheel cylinder bore and piston for scoring or grooving.

Inspect the piston cup and piston boot for wear or fatigue.

Inspect the adjuster body and adjuster nut for wear or damage.
Check the lock spring for fatigue or damage.



Measure the wheel cylinder I.D.

SERVICE LIMIT: 17.515 mm (0.6896 in)

Measure the wheel cylinder piston O.D.

SERVICE LIMIT: 17.405 mm (0.6852 in)

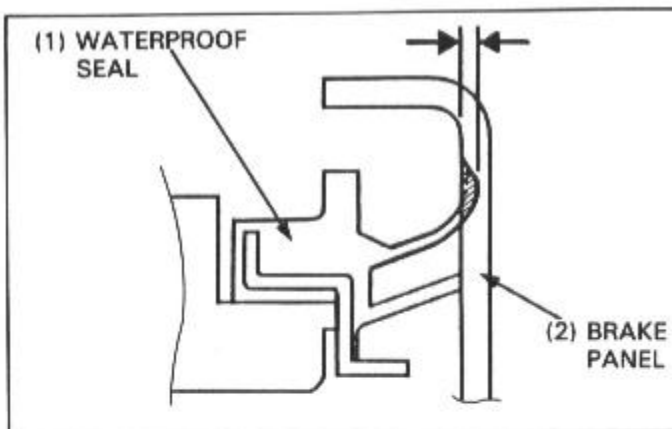


FRONT BRAKE PANEL INSPECTION

Check the brake panel at the waterproof seal lip contact area for abnormal scratches.

Check the brake panel for wear caused by the waterproof seal lip.

SERVICE LIMIT: 0.5 mm (0.02 in)



TRX300

Install a suitable steel plate and collar onto the knuckle.

Install and tighten the axle nut securely.

Clean off any grease from the brake panel.

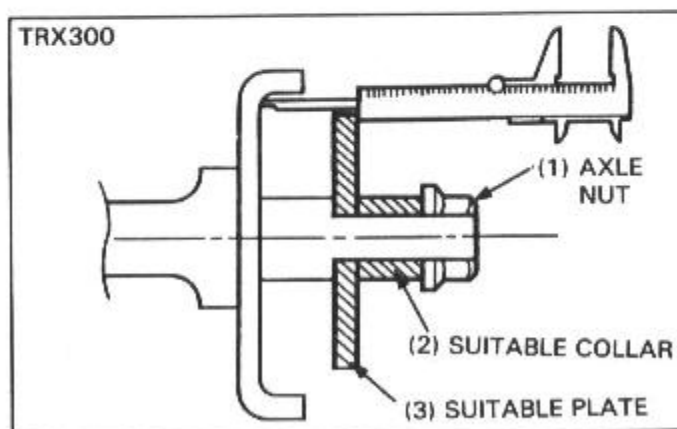
WARNING

- Grease on the brake linings reduces stopping power. Keep grease off the linings.

Using a vernier caliper as shown, measure the depth of the brake panel at several points on the seal lip contact area. Calculate the warpage.

SERVICE LIMIT: 0.4 mm (0.02 in)

Replace the brake panel if warpage is greater than the service limit.



TRX300FW

Remove the wheel hub from the brake drum and temporarily install the hub on the axle shaft. Tighten the axle nut securely. Install a suitable steel plate to the wheel hub and tighten the plate with the wheel nut securely. Clean off any grease from the brake panel.

WARNING

- Grease on the brake linings reduces stopping power. Keep grease off the linings.

Measure the brake panel on the points attached to the waterproof seal lip for warpage as shown, using a dial indicator.

SERVICE LIMIT: 0.4 mm (0.02 in)

Replace the brake panel if warpage is greater than the service limit.

FRONT BRAKE WATERPROOF SEAL INSPECTION

Check the waterproof seal for damage, fatigue or faulty installation.

Measure the front brake waterproof seal lip length.

SERVICE LIMIT:

TRX300: 19.0 mm (0.75 in)

TRX300FW: 20.0 mm (0.79 in)

FRONT BRAKE WATERPROOF SEAL REPLACEMENT

Remove the waterproof seal from the brake drum by prying open the seal edge.

Remove the wheel hub. (TRX300FW)

- CALCULATE THE CLEARANCES BETWEEN THE DRUM AND SEAL

TRX300

Measure the drum and seal at a, b and c as shown. Calculate the clearances A and B between the drum and seal.

$$A = a - c$$

$$B = b$$

TRX300FW

Measure the drum and seal at d, e, f and g as shown. Calculate the clearances C and D between the drum and seal.

$$C = d - f$$

$$D = g - e$$

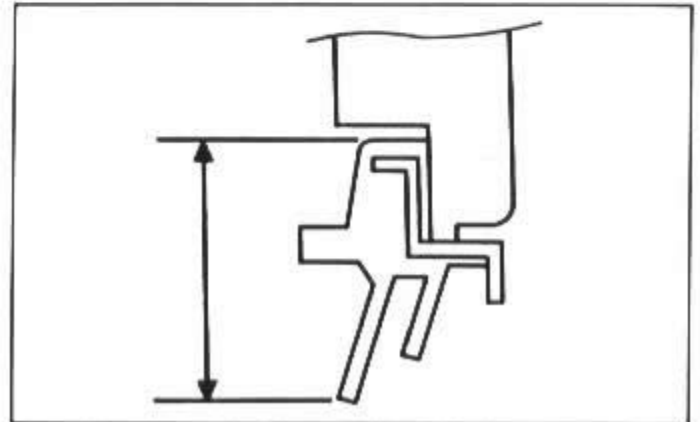
TRX300FW

(4) BRAKE PANEL

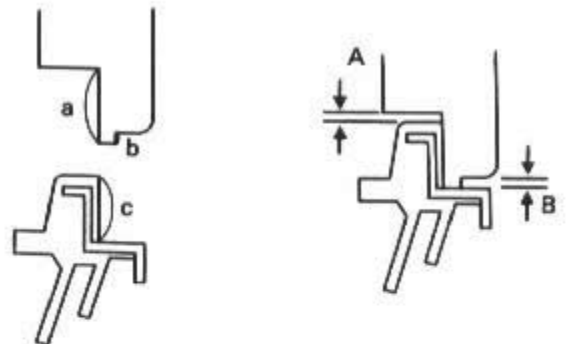
(1) STEEL PLATE

(2) AXLE NUT

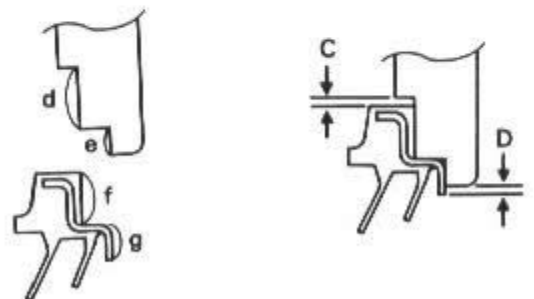
(3) WHEEL HUB



TRX300



TRX300FW



BRAKES

Apply water to the whole of a new waterproof seal.

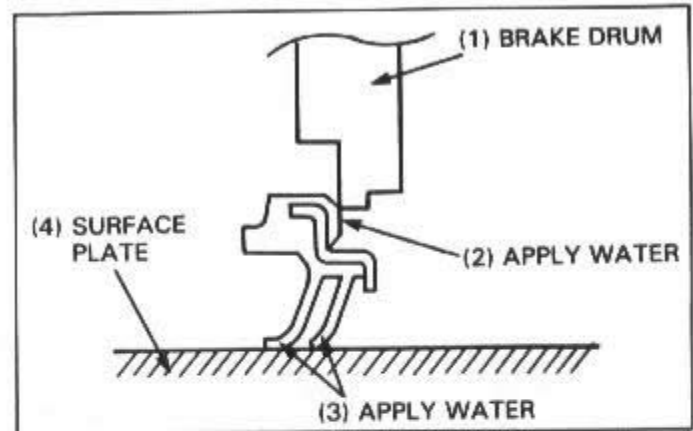
Place a waterproof seal on a clean surface plate, and press the brake drum into the waterproof seal, making sure that the clearances between the seal and drum will reach the calculated clearance (see previous page).

CAUTION

- Press the drum onto the seal evenly, so the lips will not be damaged. If the seal is damaged or mis-installed, remove it and try again with a new seal.

(TRX300FW)

- Place a steel plate [about 140 mm (5.5 in) in diameter and more than 10 mm (0.4 in) in thickness] on the brake drum, or the brake drum will be warped or damaged.

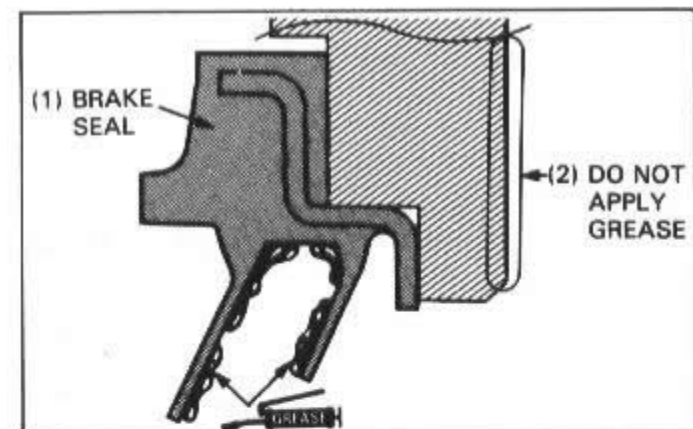


Dry the seal thoroughly and pack the lips cavity with multi-purpose grease (NLGI No.3) as shown.

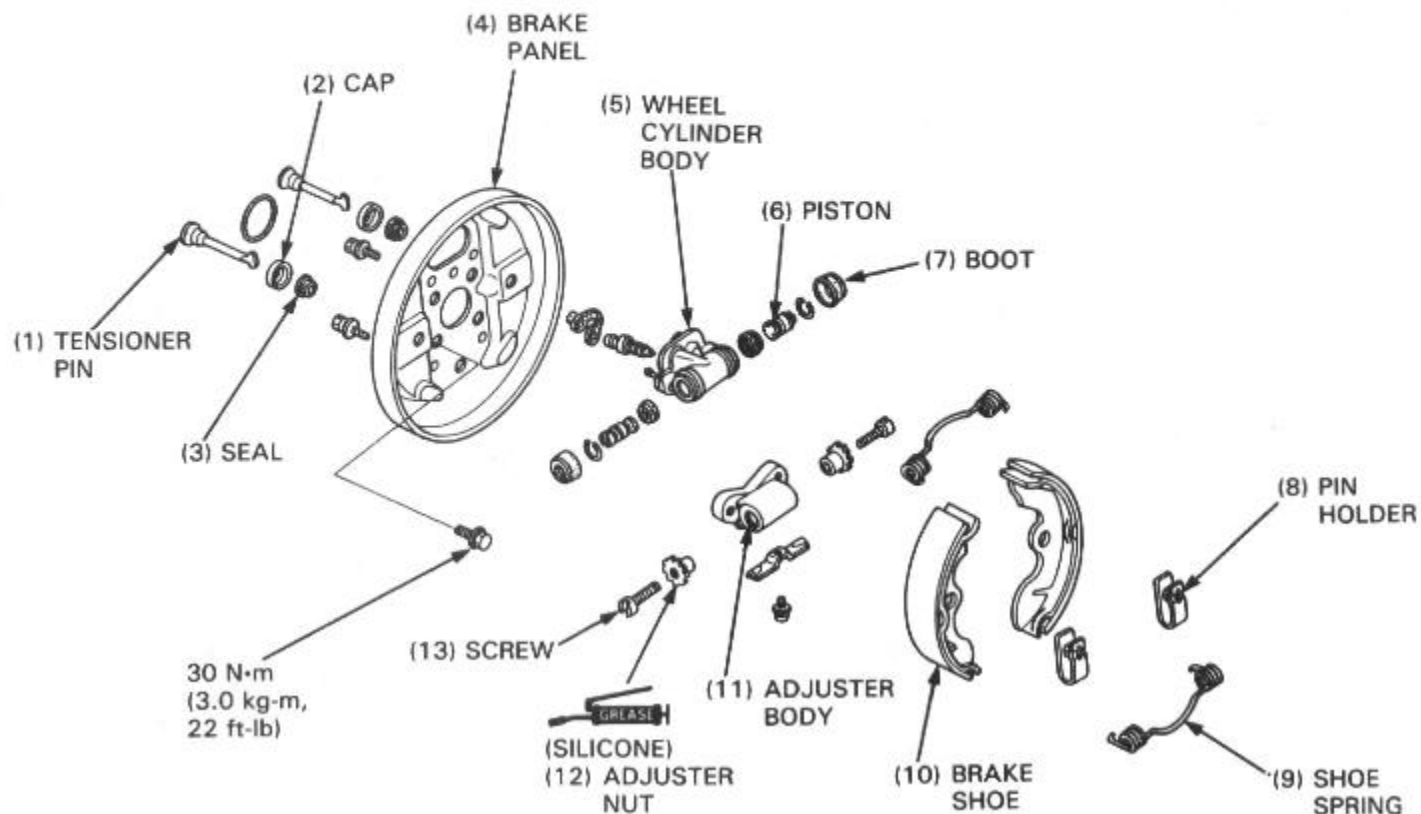
AMOUNT OF GREASE: 12–14 g (0.4–0.5 oz) (TRX300)
14–16 g (0.5–0.6 oz) (TRX300FW)

WARNING

- Do not apply grease to the inner surface of the brake drum. Grease on the inner surface of drum reduces stopping power. Keep grease off the drum.



ASSEMBLY (TRX300)

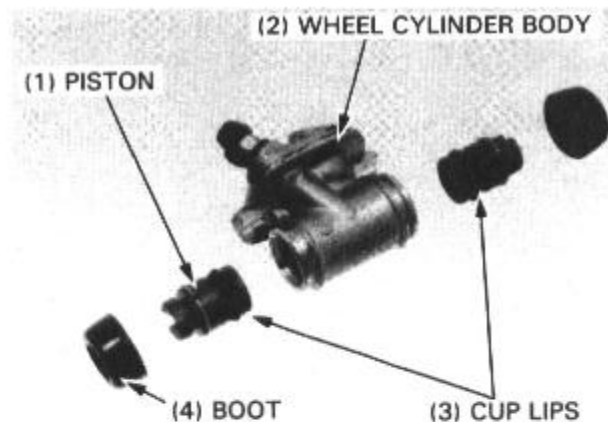


CAUTION

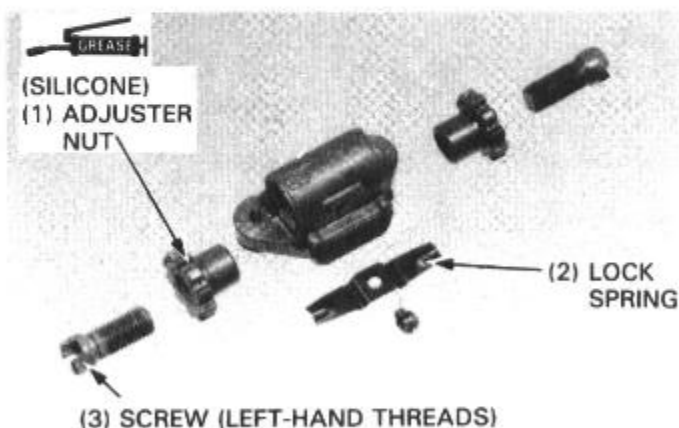
- Clean all parts, excluding the boots, thoroughly with **BRAKE FLUID** only.
- Blow out passages with compressed air.

Install the pistons into the wheel cylinder body without allowing the lips to turn inside out.

Install the boots on the cylinder body.



Apply silicone grease to the adjuster nuts. Install the adjuster nuts, screws and lock spring on the adjuster body.



BRAKES

Note that the wheel cylinders are marked.

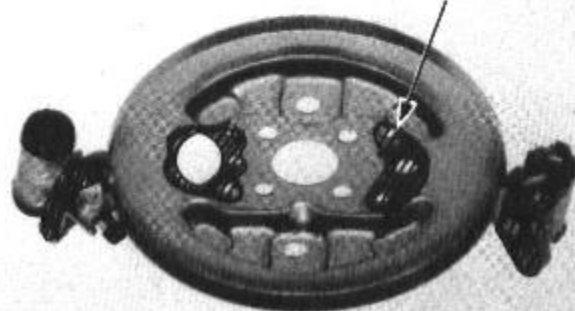
L: Install it for the left brake panel;
R: for the right brake panel.

(1) L MARK



Apply sealant between the wheel cylinder and adjuster bodies and the brake panel.

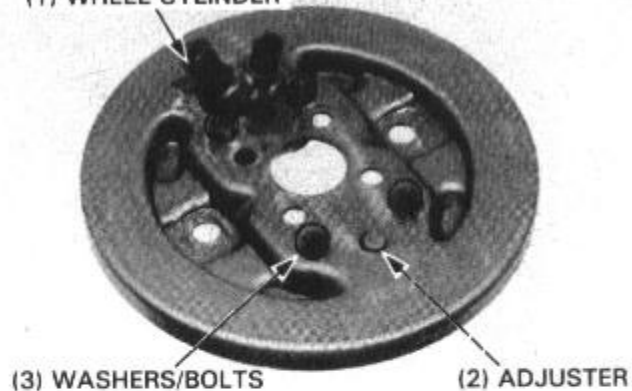
(1) APPLY SEALANT



Install the wheel cylinder and adjuster and tighten the washers and bolts.

TORQUE: 8 N·m (0.8 kg-m, 6 ft-lb)

(1) WHEEL CYLINDER



Install a O-ring on the knuckle.

Install the front brake panel assembly and tighten the new brake panel bolts.

TORQUE: 30 N·m (3.0 kg-m, 22 ft-lb)

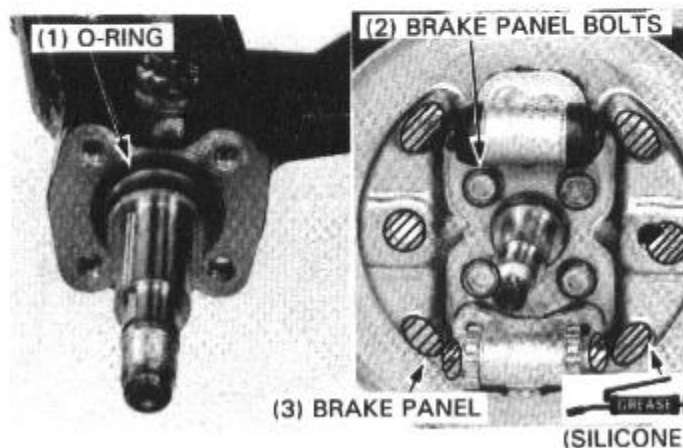
CAUTION

- *Discard the used panel bolts. Re-use of panel bolts strictly prohibited, because these bolt threads are specially dry-coated for waterproofing.*

Apply silicone grease on the metal contact areas indicated and pistons/adjuster screws.

(1) O-RING

(2) BRAKE PANEL BOLTS



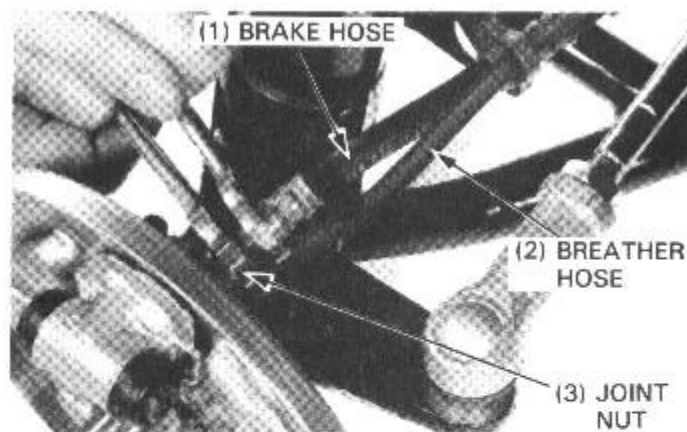
Tighten the brake hose joint, if removed.

TORQUE: 35 N·m (3.5 kg-m, 25 ft-lb)

Connect the brake hose to the wheel cylinder, and tighten the joint nut while holding the hose.

TORQUE: 14 N·m (1.4 kg-m, 10 ft-lb)

Install the brake panel breather tube to the wheel cylinder securely.



Install the brake shoes in their original positions, then install the shoe springs with their curved sides facing out.

NOTE

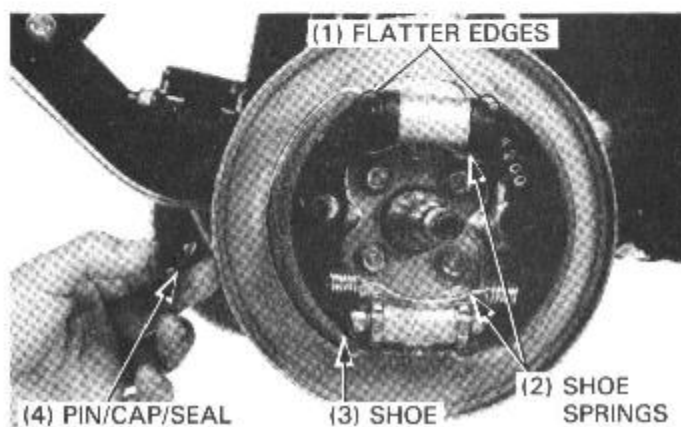
- Install the upper spring from the inside; lower spring, from the outside.
- Face the flatter edges of the shoes to the wheel cylinder.

Apply oil to the tension pin seals.

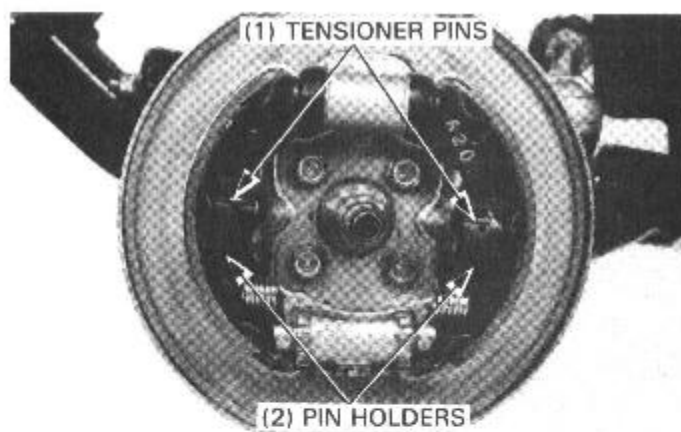
Install the tension pins, tension pin seals and seal caps as shown.

WARNING

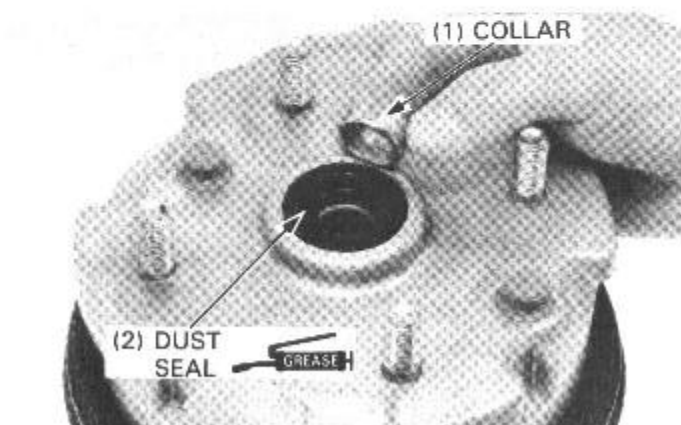
- *Do not get grease or oil on the brake lining surface.*



Install the pin holders as shown and lock them by tensioner pins.



Install the dust seal and apply grease to its lip. Install the collar.

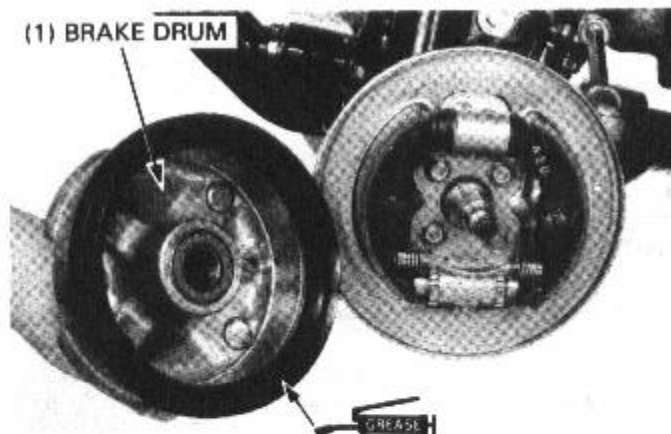


BRAKES

Make sure the inside of the brake drum and the brake shoes are completely free of grease, then install the drum.

NOTE

- Make sure the waterproof seal lip is packed with multi-purpose grease (NLGI No.3) (see page 12-16).
AMOUNT OF GREASE: 12–14 g (0.4–0.5 oz)



Install and tighten the axle nut.

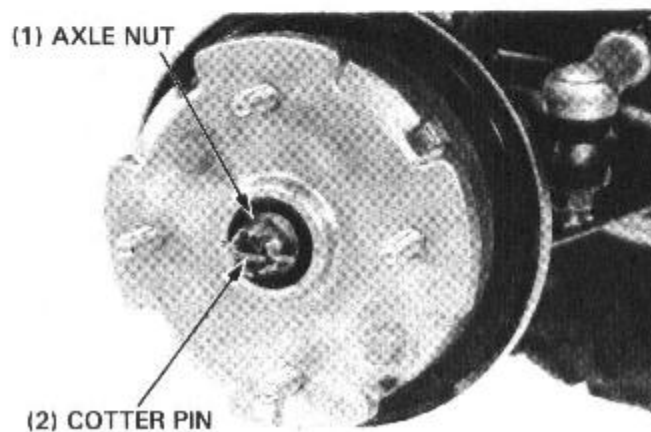
TORQUE: 60–80 N·m (6.0–8.0 kg-m, 43–58 ft-lb)

Install a new cotter pin.

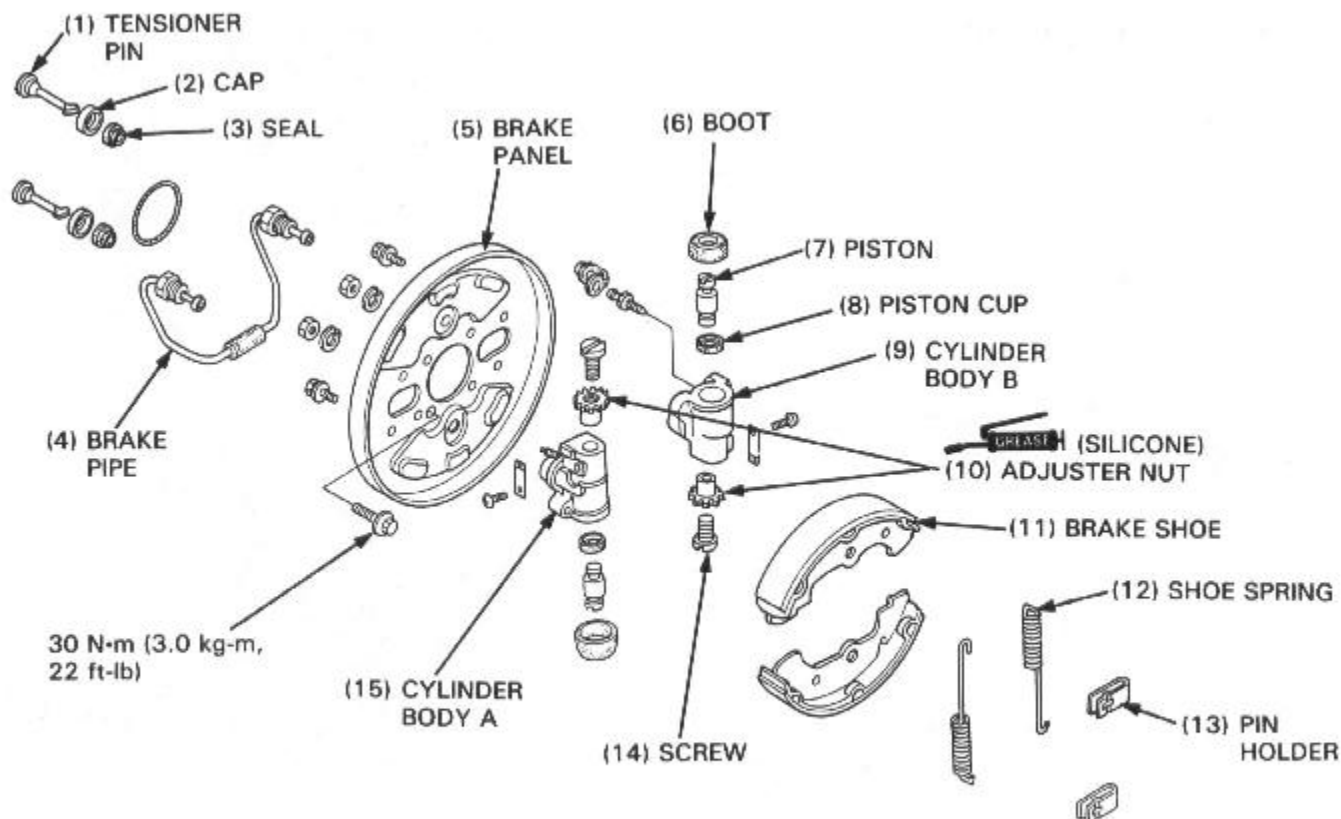
Fill the reservoir to the upper level with new brake fluid (page 12-4).

Install the front wheel (page 11-7).

Adjust the brake (page 3-11).



ASSEMBLY (TRX300FW)



CAUTION

- Clean all parts, excluding the boot, thoroughly with **BRAKE FLUID** only.
- Blow out passages with compressed air.

Install the piston into the cylinder body without allowing the lips to turn inside out.

Install the boot on the cylinder body.

Apply silicone grease to the adjuster nut. Install the adjuster nut, screw and lock spring on the adjuster body.

Apply sealant to the cylinders' mounting locations on the brake panel.

Install the cylinder assy. A and B, and tighten the washers and bolts.

TORQUE:

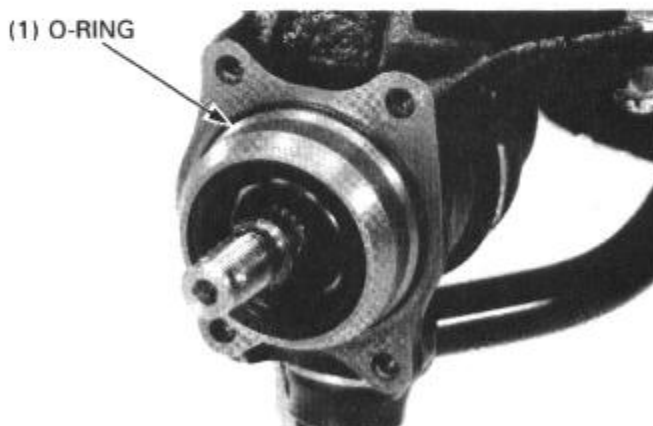
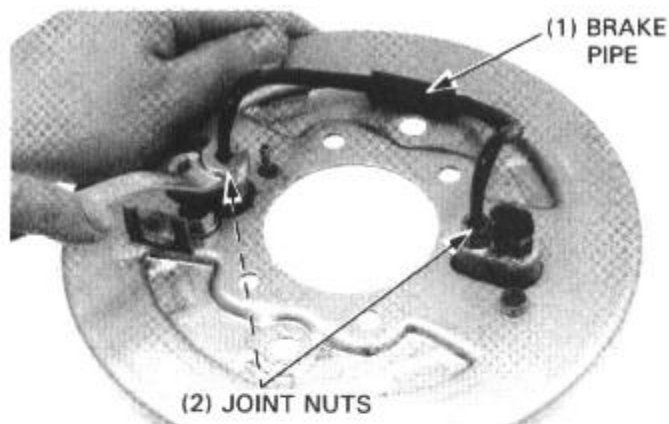
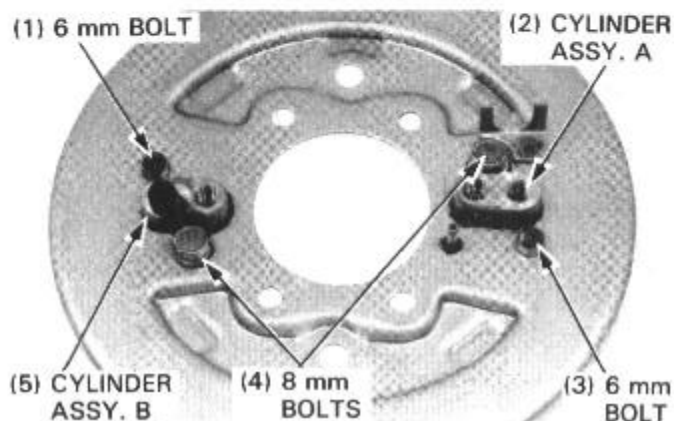
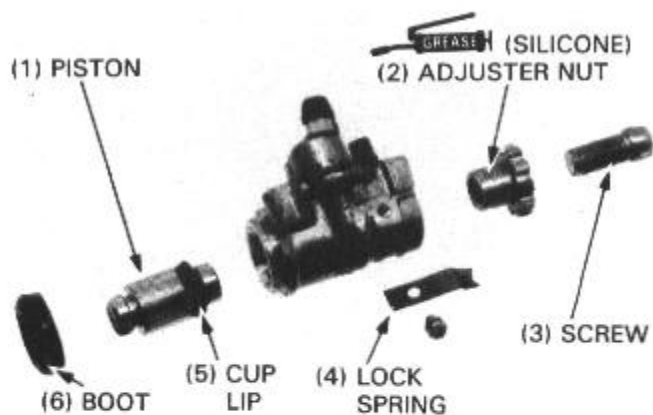
6 mm bolt: 8 N·m (0.8 kg-m, 6 ft-lb)

8 mm bolt: 17 N·m (1.7 kg-m, 12 ft-lb)

Install the brake pipe as shown by tightening the joint nuts.

TORQUE: 14 N·m (1.4 kg-m, 10 ft-lb)

Install an O-ring on the knuckle.



BRAKES

Install the front brake panel assembly and tighten the new brake panel bolts.

TORQUE: 30 N·m (3.0 kg-m, 22 ft-lb)

CAUTION

- *Discard the used panel bolts. Re-use of panel bolts strictly prohibited, because these bolt threads are specially dry-coated for waterproofing.*

Apply silicone grease on the metal contact areas indicated.

Install the brake hose to the cylinder assembly A and tighten the brake hose bolt with new sealing washers.

TORQUE:

'88 - '90: 30 N·m (3.0 kg-m, 22 ft-lb)

After '90: 35 N·m (3.5 kg-m, 25 ft-lb)

Securely install the breather tube to the cylinder assy. A.

NOTE

- Route the brake hose between the stoppers.

Install the brake shoes in their original positions with the shoe springs as shown.

NOTE

- Face the flatter edges of the shoes to the cylinder.

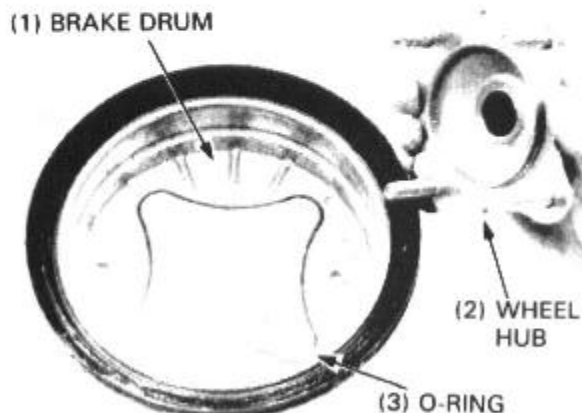
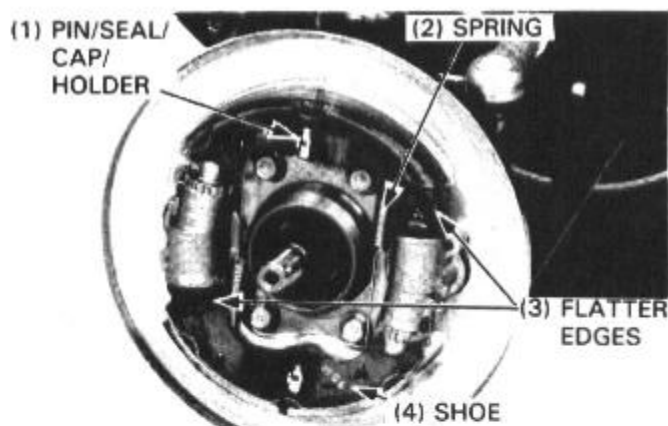
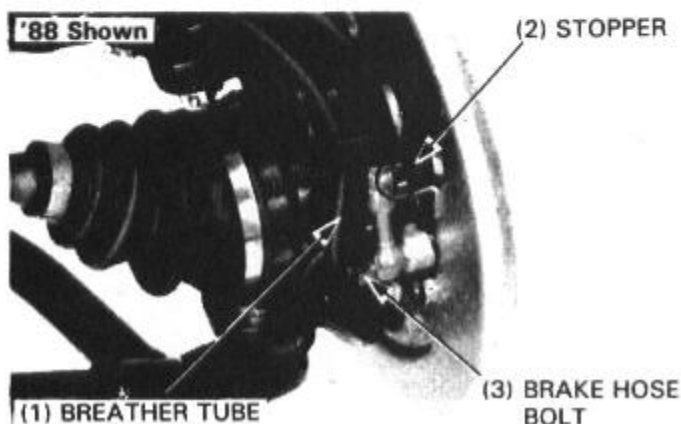
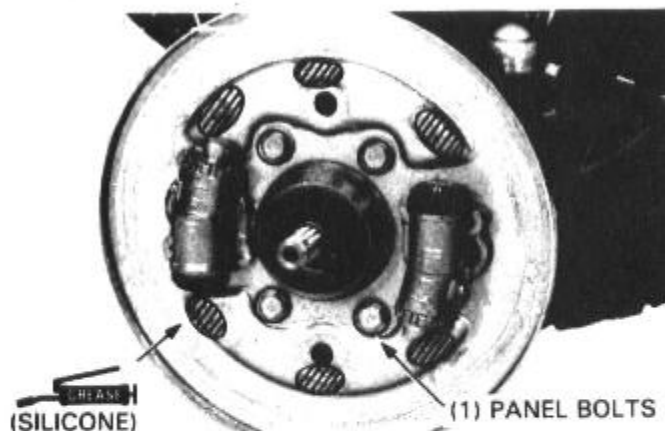
Apply oil to the tension pin seals.

Install the tension pins, tension pin seals, seal caps and pin holders.

WARNING

- *Do not get grease on the brake drum or shoes or stopping power will be reduced.*
- *Discard contaminated shoes and clean a contaminated drum with a high quality brake degreasing agent.*

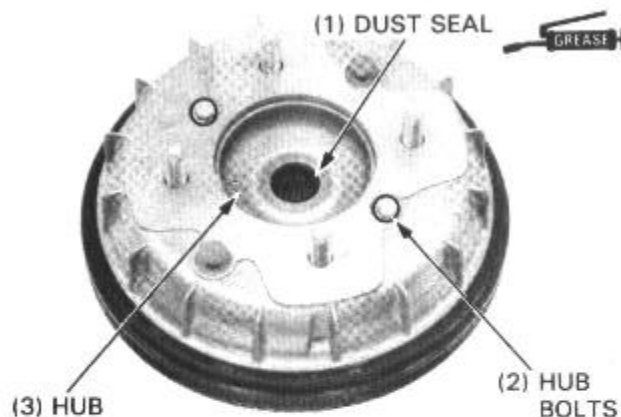
Seat an O-ring carefully in the brake drum, and install the wheel hub to the drum.



Install and tighten the wheel hub mounting bolts.

TORQUE: 10 N·m (1.0 kg-m, 7 ft-lb)

Apply grease to the dust seal and install it in the wheel hub.

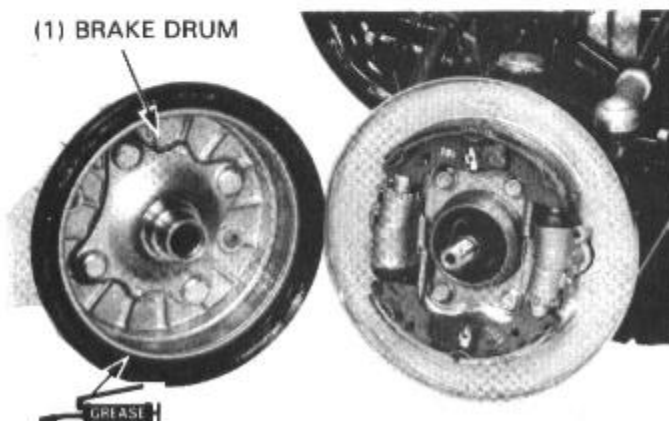


Install the brake drum.

NOTE

- Make sure the waterproof seal lip is packed with multi-purpose grease (NLGI No.3) (see page 12-16).
AMOUNT OF GREASE: 14—16 g (0.5—0.6 oz)

Make sure any grease is cleaned off the inside of the brake drum and brake shoes.



Install and tighten the axle nut.

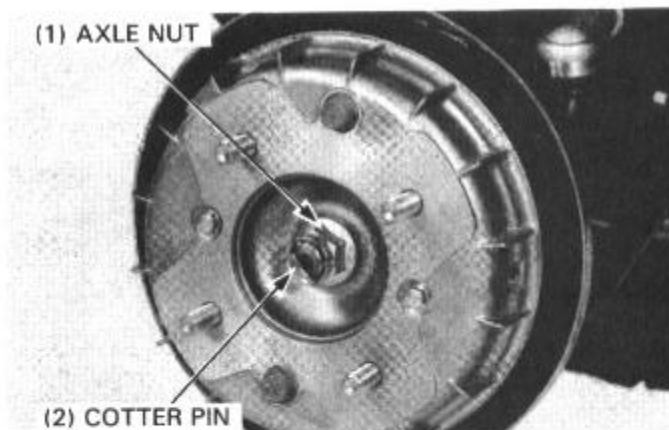
TORQUE: 80—100 N·m (8.0—10.0 kg-m, 58—72 ft-lb)

Install a new cotter pin.

Fill the reservoir to the upper level with new brake fluid (page 12-4).

Install the front wheel (page 11-7).

Adjust the brake (page 3-11).



REAR BRAKE

REMOVAL/DISASSEMBLY

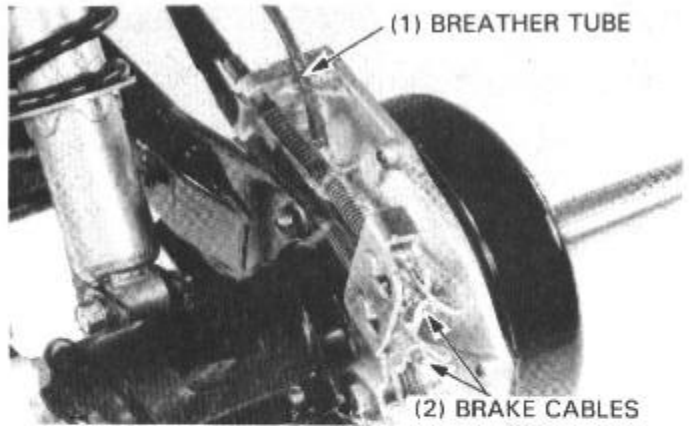
Remove the following:

- right rear wheel (page 13-3).
- right wheel hub, lock nuts and lock washer (page 15-3).
- rear brake skid plate.

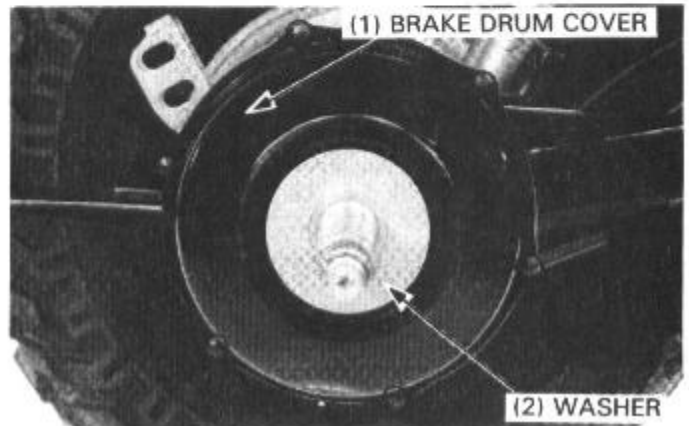


BRAKES

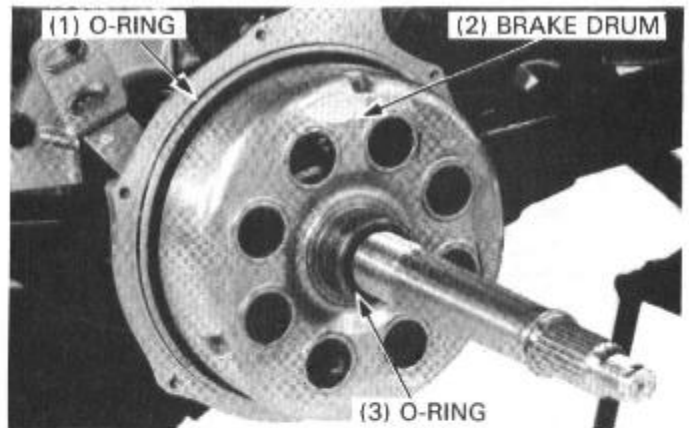
- brake cables from the brake arm.
- rear brake breather tube.



- washer and brake drum cover.



- O-rings and brake drum from the rear axle.



Measure the brake lining thickness.

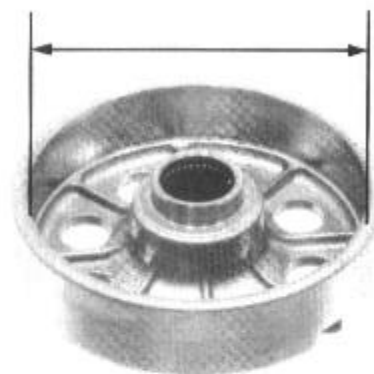
SERVICE LIMIT: 2.0 mm (0.08 in)



Measure the brake drum I.D.

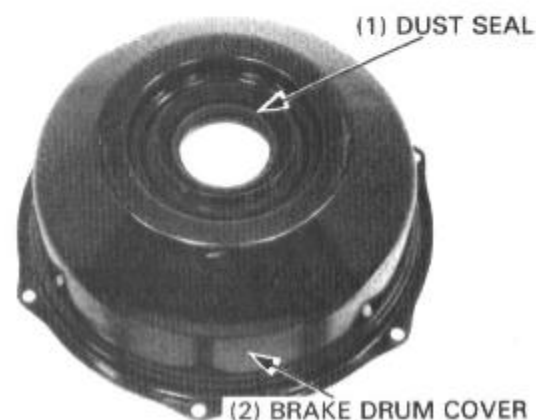
SERVICE LIMIT: 161 mm (6.3 in)

Inspect the brake drum for scoring, cracks and out of roundness.



Check the brake drum cover dust seal for wear or damage. Drive it out of the drum cover if necessary.

For the installation of the dust seal, see page 12-28.

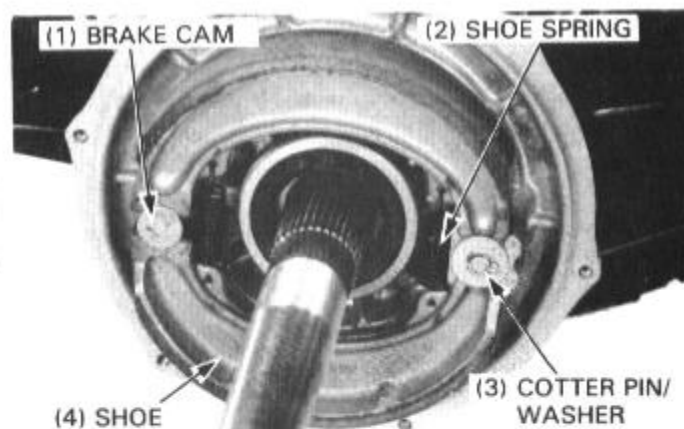


- cotter pin.
- washer.
- brake shoes and shoe springs.

NOTE

- Mark the brake shoes to indicate their original positions before removing them.

- brake arm, brake cam, felt seal and dust seal.



- brake panel and O-ring.

Discard the brake panel nuts.

CAUTION

- *Re-use strictly prohibited.*



BRAKES

Turn the inner race of the bearing with your finger. The bearing should turn smoothly and quietly.
Also check that the outer race of the bearing fits tightly in the brake panel.
Replace if necessary.

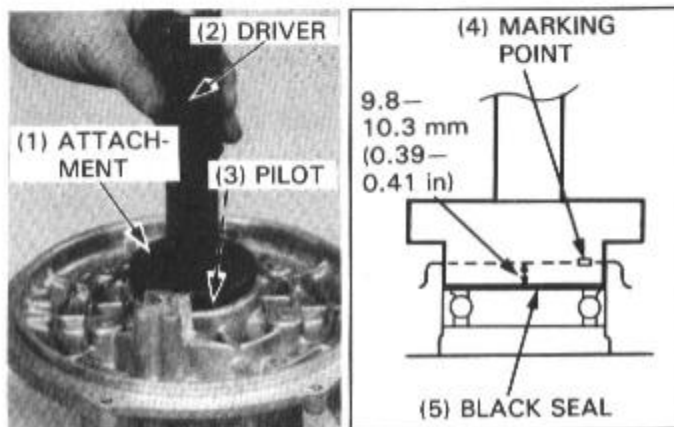
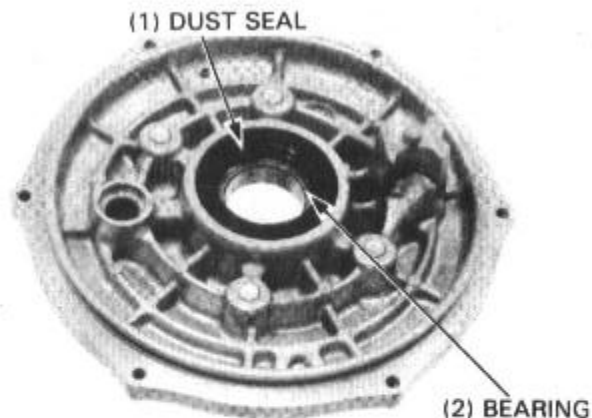
Check the dust seal for or wear damage.

Drive the dust seal and bearing out of the brake panel.

Mark the attachment at the specified point as shown and drive in a new bearing to the marked point with its **BLACK** sealed side facing up.

TOOLS:

Driver	07749-0010000
Attachment, 62 x 68 mm	07746-0010500
Pilot, 35 mm	07746-0040800

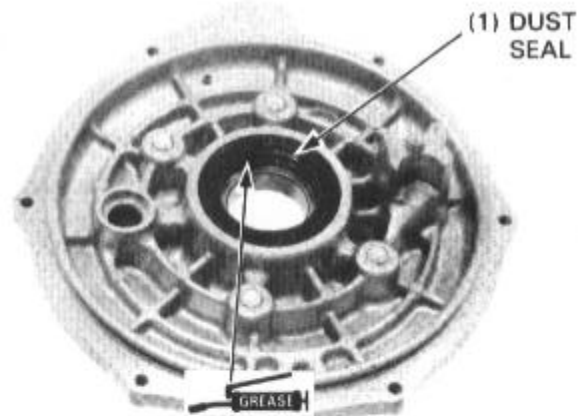


ASSEMBLY/INSTALLATION

Pack the dust seal lip with grease and install it in the panel with the lip facing down.

NOTE

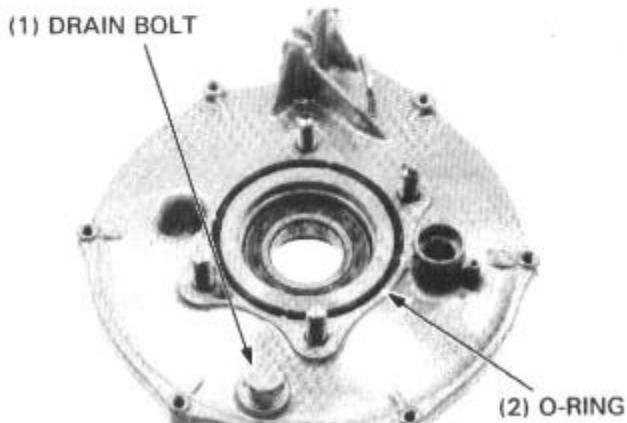
- Align the upper surfaces of the dust seal and brake panel.



Install an O-ring in the brake panel securely.

Tighten the brake panel drain bolt if removed.

TORQUE: 25 N·m (2.5 kg·m, 18 ft·lb)

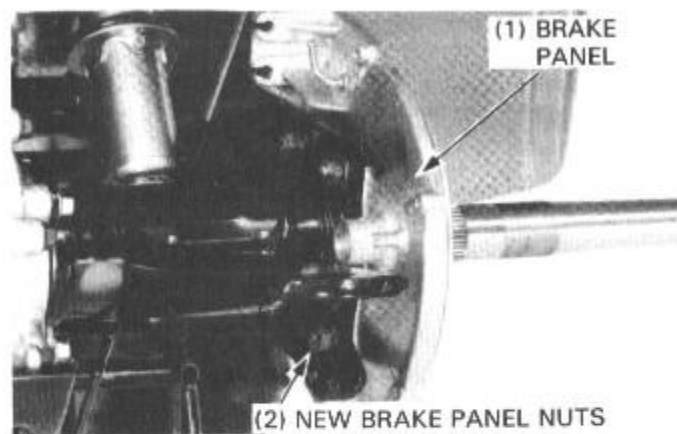


Install the brake panel and tighten the new nuts.

TORQUE: 35 N·m (3.5 kg-m, 25 ft-lb)

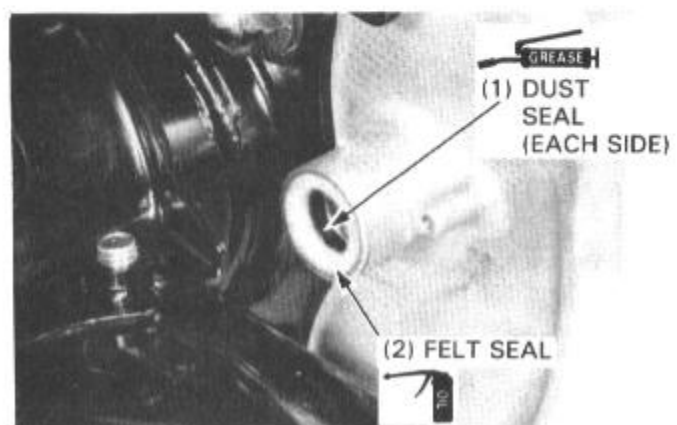
CAUTION

- *Re-use of nuts strictly prohibited.*

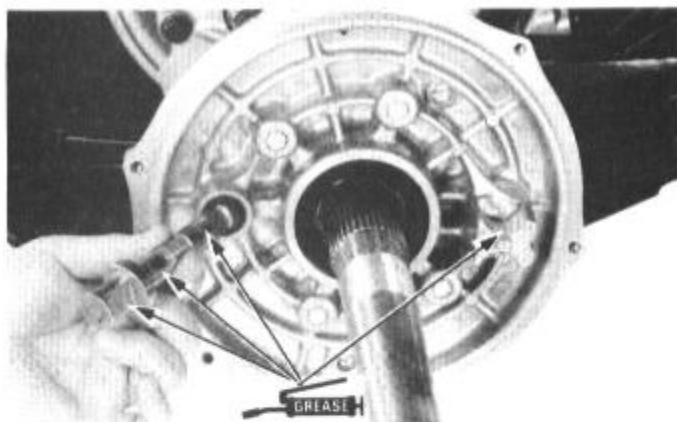


Apply grease to the dust seals.
Apply oil to the felt seal.

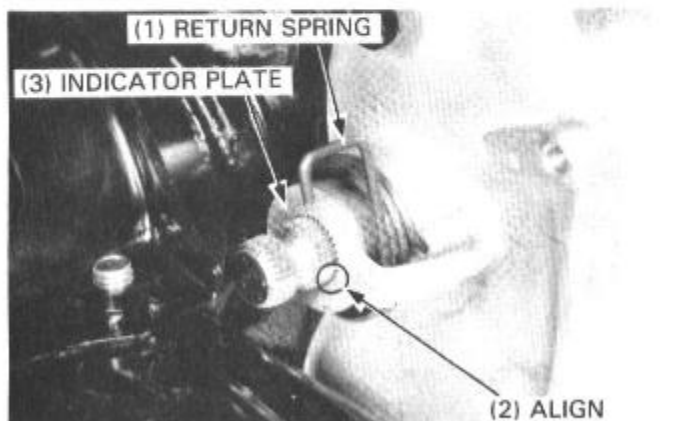
Install the dust seals and felt seal.



Apply grease to the anchor pin and brake cam.



Install the return spring and then install the indicator plate, aligning the wide tooth on the plate with the wide groove on the brake cam.

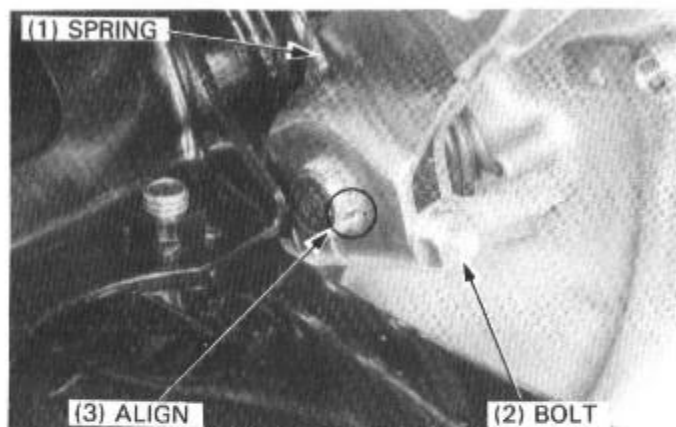


BRAKES

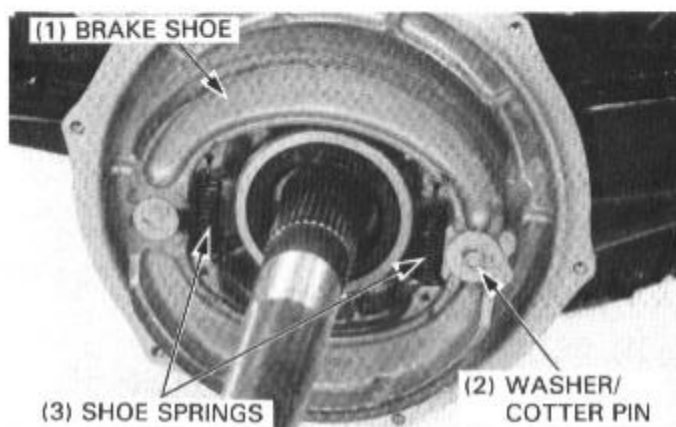
Install the brake arm, aligning the punch marks on the brake arm and cam.

Hook the return spring end onto the brake arm.

Tighten the brake arm bolt securely.



Install the brake shoes in their original positions with the springs as shown.



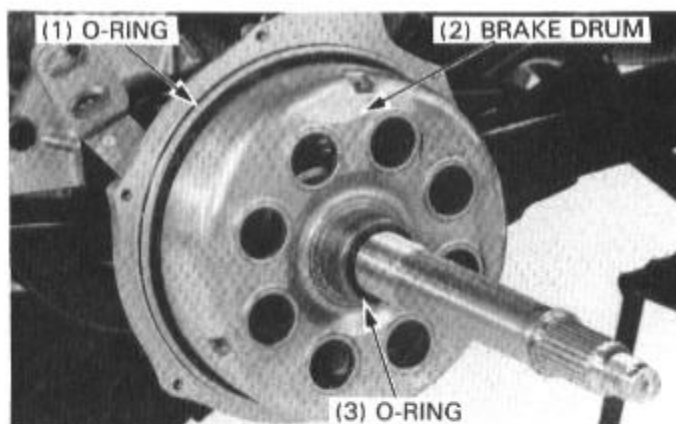
WARNING

- Contaminated brake linings reduce stopping power. Keep grease off the linings. Wipe excess grease off the cam.

Install the anchor pin washer and new cotter pin as shown.

Install the brake drum and a new O-ring onto the brake panel.

Install a new O-ring onto the brake drum.



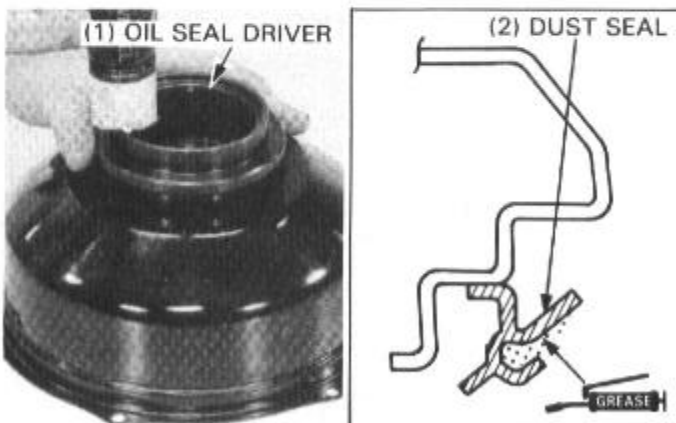
Install a new dust seal into the drum cover.

TOOL:

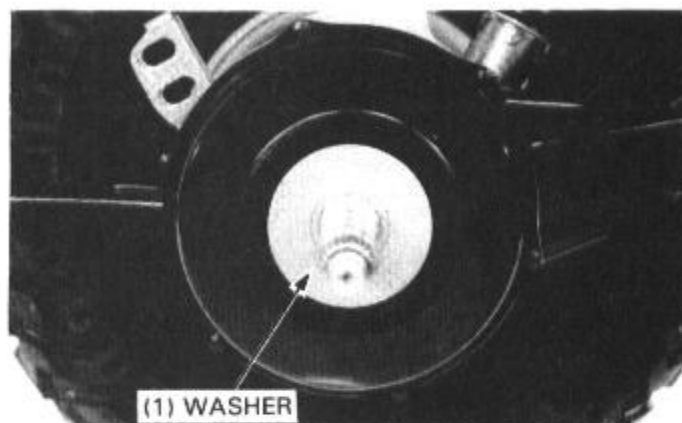
Oil seal driver

07965—MC70100

Apply grease to the brake drum cover dust seal lip as shown.



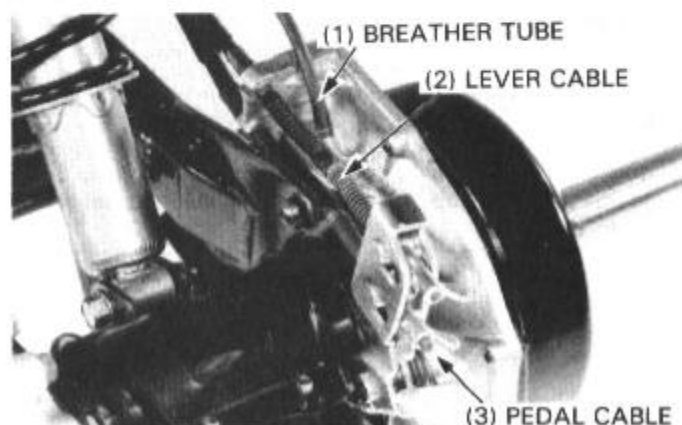
Install the washer.



Connect the brake cables to the brake arm and install the adjusting nuts.

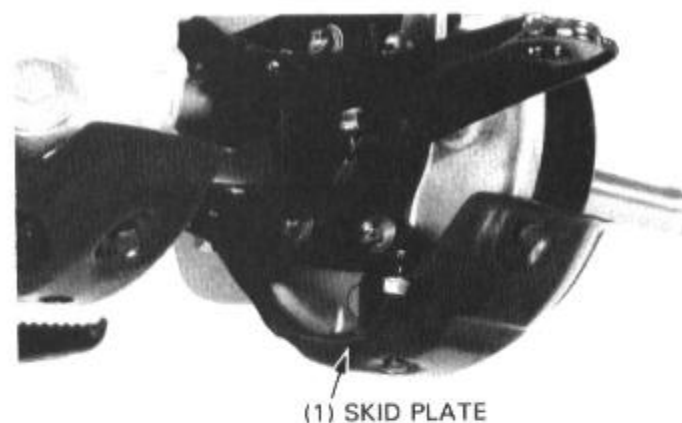
Connect the breather tube to the brake panel.

Adjust the rear brake lever and pedal free play (page 3-11).



Install the following:

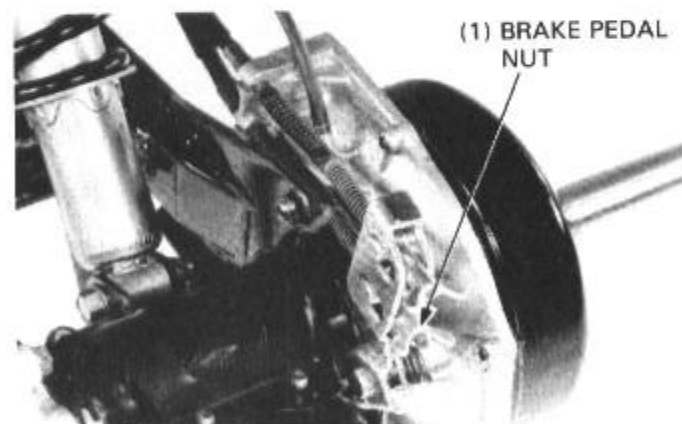
- skid plate.
- washer, lock nuts and right wheel hub (page 15-16).
- right rear wheel (page 13-3).



REAR BRAKE PEDAL

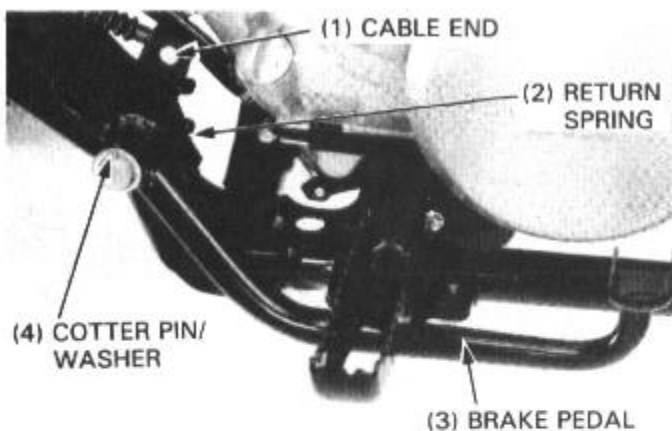
REMOVAL

Loosen and remove the rear brake pedal adjusting nut.



BRAKES

Remove the cotter pin and washer from the pedal pivot shaft. Disconnect the brake cable and return spring from the pedal and remove the pedal from the shaft.



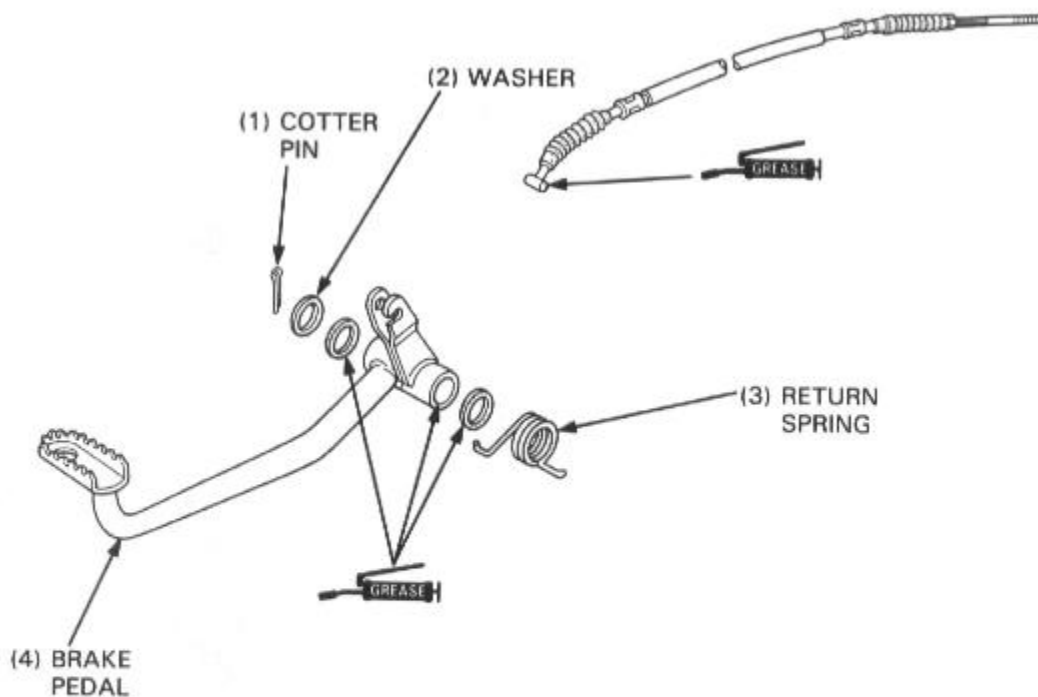
INSTALLATION

Install the brake pedal in the reverse order of removal.

NOTE

- Apply grease to the brake pedal pivot shaft, dust seals and brake cable end.

Adjust the rear brake (page 3-11).



MEMO

100–120 N·m (10.0–12.0 kg-m, 72–87 ft-lb)

130 N·m (13.0 kg-m, 94 ft-lb)

40 N·m (4.0 kg-m, 29 ft-lb)

50 N·m (5.0 kg-m, 36 ft-lb)

75 N·m (7.5 kg-m, 54 ft-lb)

35 N·m (3.5 kg-m, 25 ft-lb) **NOTE**

100–120 N·m (10.0–12.0 kg-m, 72–87 ft-lb)

35 N·m (3.5 kg-m, 25 ft-lb) **NOTE**

45 N·m (4.5 kg-m, 33 ft-lb) **NOTE**

45 N·m (4.5 kg-m, 33 ft-lb) **NOTE**

115 N·m (11.5 kg-m, 83 ft-lb)

4 N·m (0.4 kg-m, 3 ft-lb)

115 N·m (11.5 kg-m, 83 ft-lb)

65 N·m (6.5 kg-m, 47 ft-lb)

NOTE Re-use strictly prohibited.

13. REAR WHEEL/SUSPENSION

SERVICE INFORMATION	13-1	TIRES	13-3
TROUBLESHOOTING	13-2	REAR SHOCK ABSORBER	13-8
REAR WHEEL	13-3	SWING ARM	13-10

SERVICE INFORMATION

GENERAL

WARNING

- *Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake or clutch assemblies. Use an OSHA-approved vacuum cleaner or alternate method approved by OSHA designed to minimize the hazard caused by airborne asbestos fibers.*

- This section covers maintenance of the rear wheels, suspension and drive shaft.
- A jack or block is required to support the vehicle.

SPECIFICATIONS

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Rear shock absorber spring free length	TRX300	'88—'92:	251.3—257.3 (9.89—10.13)	248.8 (9.80)
		'After '92:	241.6 (9.51)	236.7 (9.32)
	TRX300FW	'88—'92:	253.0—259.0 (9.96—10.20)	250.4 (9.86)
		'After '92:	243.3 (9.58)	238.4 (9.39)

Tire pressure:

		Standard	Minimum	Maximum
TRX300 (Front/Rear)		2.9 psi (0.20 kg/cm ² , 20 kPa)	2.5 psi (0.17 kg/cm ² , 17 kPa)	3.3 psi (0.23 kg/cm ² , 23 kPa)
TRX300FW	Front	4.4 psi (0.30 kg/cm ² , 30 kPa)	3.8 psi (0.26 kg/cm ² , 26 kPa)	5.0 psi (0.34 kg/cm ² , 34 kPa)
	Rear	2.9 psi (0.20 kg/cm ² , 20 kPa)	2.5 psi (0.17 kg/cm ² , 17 kPa)	3.3 psi (0.23 kg/cm ² , 23 kPa)

TORQUE VALUES

Rear wheel nut	65 N·m (6.5 kg-m, 47 ft-lb)	
Rear shock absorber mount nut ('88-'92: upper)	45 N·m (4.5 kg-m, 33 ft-lb)	— Re-use of nuts is strictly prohibited.
('88-'92: lower)	35 N·m (3.5 kg-m, 25 ft-lb)	
(After '92: upper/lower)	45 N·m (4.5 kg-m, 33 ft-lb)	
Swing arm left pivot bolt	115 N·m (11.5 kg-m, 83 ft-lb)	
Swing arm right pivot bolt	4 N·m (0.4 kg-m, 3 ft-lb)	
Swing arm right pivot lock nut	115 N·m (11.5 kg-m, 83 ft-lb)	
Trailer hitch bolt	75 N·m (7.5 kg-m, 54 ft-lb)	— Apply locking agent to the threads.

TOOLS

Special

Replacement kit	07959—MB10000
Swingarm lock nut wrench	07908—4690001 or KS-HBA-08-469 (U.S.A. only)
Tire breaker attachment	07GMF—HB30100 (Not available in U.S.A.)
Bearing remover, 17 mm	07936—3710300
Remover handle	07936—3710100
Remover weight	07741—0010201 or 07936—3710200

Common

Socket bit, 17 mm	07703—0020500 or equivalent commercially available in U.S.A.
Tire breaker set	07772—0050001 or BN—AH—958—BB1 (U.S.A. only)
— breaker arm compressor	07772—0050101 (Not available in U.S.A.)
— breaker arm	07772—0050200 (Not available in U.S.A.)
Driver	07749—0010000
Attachment, 37 x 40 mm	07746—0010200
Shock absorber compressor	07GME—0010000 or 07959—3290001 and 07GME—0010100

TROUBLESHOOTING

Wobble or vibration in vehicle

- Bent rim
- Loose brake panel bearing
- Faulty tire
- Axle not tightened properly
- Swingarm bearings worn

Soft suspension

- Weak spring

Hard suspension

- Bent shock absorber
- Improperly tightened swingarm pivot
- Faulty pivot bearing

Suspension noise

- Rear shock absorber damper binding
- Loose fasteners

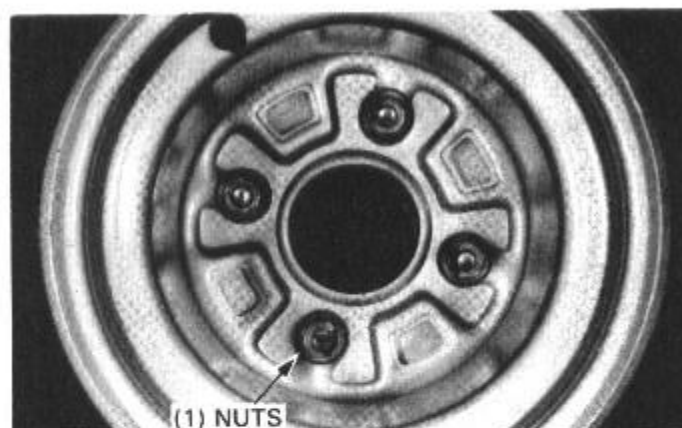
REAR WHEEL

REMOVAL

Loosen the wheel nuts.

Raise the rear wheels off the ground with a jack or block under the engine.

Remove the wheel nuts and wheel.



INSTALLATION

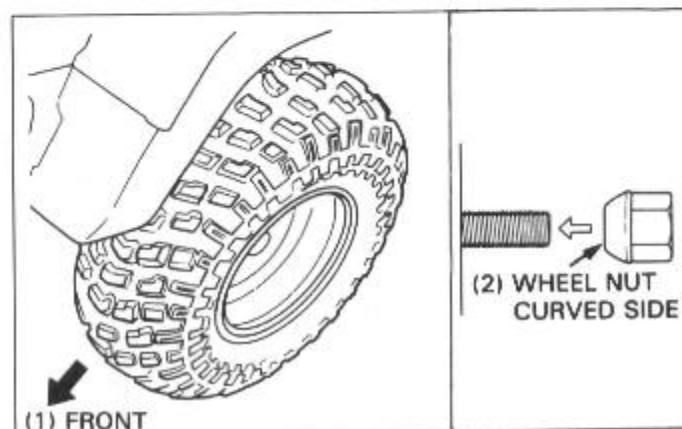
Install the rear wheel with the tire valve facing out so that the tires show a "V" pattern when viewed from front.

NOTE

- Do not interchange the right and left tires.

Install the wheel nuts with the curved sides facing inward and tighten to the specified torque.

TORQUE: 65 N·m (6.5 kg-m, 47 ft-lb)



TIRES

REMOVAL (U.S.A. ONLY)

NOTE

- This service requires the Universal Bead Breaker (GN-AH-958-BB1) available in U.S.A. only.
- Remove and install tires from the rim side opposite the valve stem.

Remove the core from the valve stem.

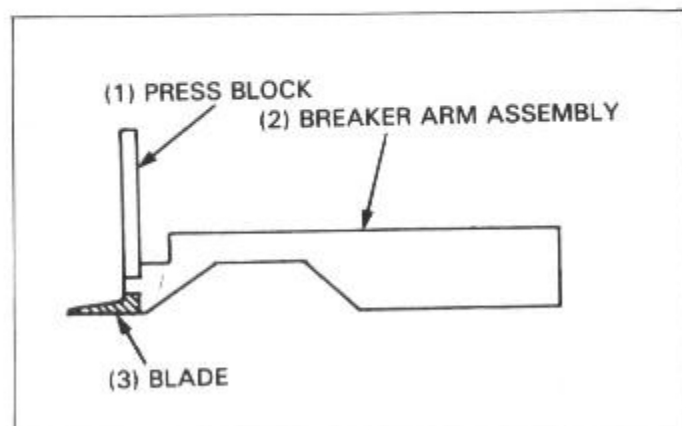
CAUTION

- Use of the Bead Breaker tool is required for tire removal.
- Do not damage the bead seating area of the rim.
- Use a Coats 220 Tire Changer or equivalent to remove the tire from the rim. If a tire changer is not available, rim protectors and tire irons may be used.

Install the blade for 9"/11" rims onto the breaker arm assembly.

CAUTION

- Use of an improper size blade may result in damage to the rim, tire or blade.



REAR WHEEL/SUSPENSION

Place the proper size adapter onto the threaded shaft and then put the wheel over the threaded shaft and adapter.

Lube the bead area with water, pressing down on the tire sidewall/bead area in several places to allow the water to run into and around the bead. Also lube the area where the breaker arm will contact the sidewall of the tire.

WARNING

- *Use only water as a lubricant when removing or mounting tires. Soap or some mounting lubricants may leave a slippery residue which can cause the tire to shift on the rim and lose air pressure during riding.*

While holding the breaker arm assembly at an approximate 45° position, insert the blade of the breaker arm between the tire and rim. Push the breaker arm inward and downward until it is in the horizontal position with its press block in contact with the rim.

With the breaker arm in the horizontal position, place the breaker press head assembly over the breaker arm press block. Make sure the press head bolt is backed out all the way and then position the nylon buttons on the press head against the inside edge of the rim.

Insert the threaded shaft through the appropriate hole in the breaker press head assembly and then tighten the lever nut until both ends of the breaker press head assembly are in firm contact with the rim.

Tighten the press head bolt until the reference mark on the press block is aligned with the top edge of the press head.

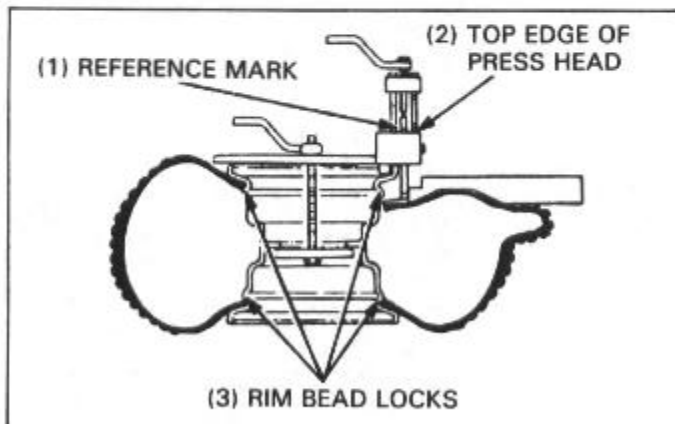
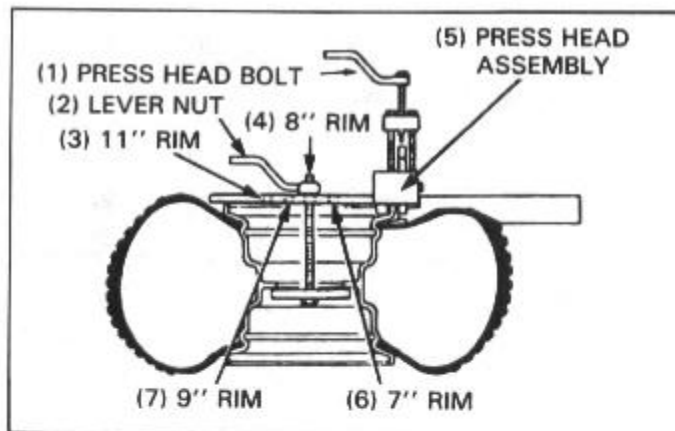
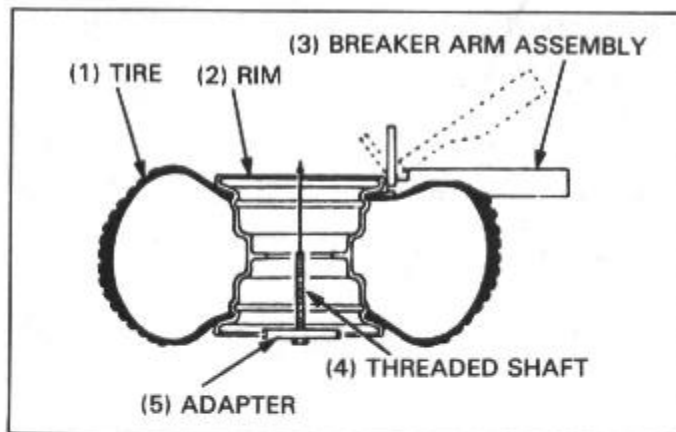
If the rest of the bead cannot be pushed down into the center of the rim by hand, loosen the press head bolt and the lever nut. Rotate the breaker arm assembly and breaker press head assembly 1/8 to 1/4 the circumference of the rim. Tighten the lever nut and then tighten the press head bolt as described.

Repeat this procedure as necessary until the remainder of the bead can be pushed down into the center of the rim.

Assemble the Universal Bead Breaker on the other side of the wheel and break the bead following the same procedures.

Remove the tire from the rim using a tire changer machine or tire irons and rim protectors.

Remove tire from rim that has the smallest shoulder area to simplify removal.



REMOVAL (EXCEPT U.S.A.)

CAUTION

- Do not apply water, soapy water, oil etc. to the tire, rim and tool when removing the tire. The tool breaker arm may slip off the tire and the bead can not be broken off the tire.
- Do not damage the bead seating area of the rim.
- Follow the breaker manufacturer's instruction.

Install the tire breaker attachment onto the rim with the wheel nuts and tighten the nuts securely.

TOOL:

Tire breaker attachment

07GMF-HC50100
Not available in U.S.A.

Insert the narrow end (A side) of the breaker arm between the tire and the rim.

TOOL:

Tire breaker set

07772-0050001 or
BN-AH-958-BB1
(U.S.A. only)
07772-0050101
Not available in U.S.A.
07772-0050200
Not available in U.S.A.

— breaker arm compressor

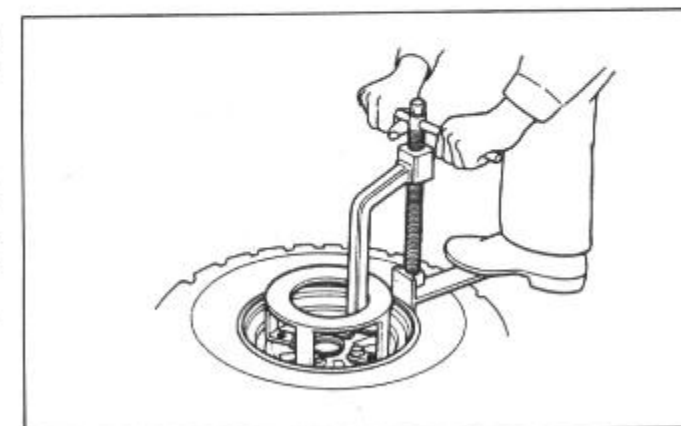
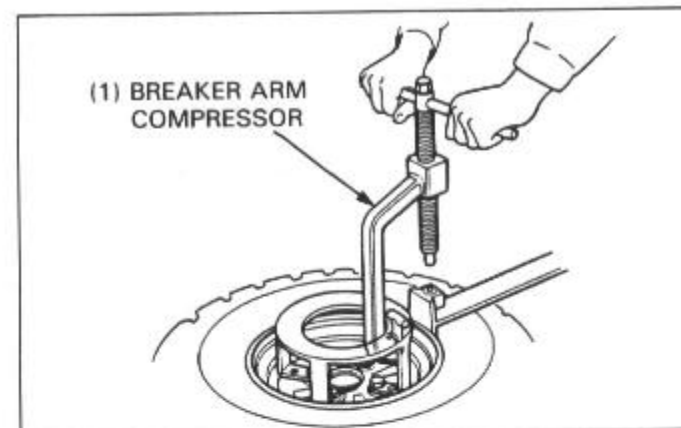
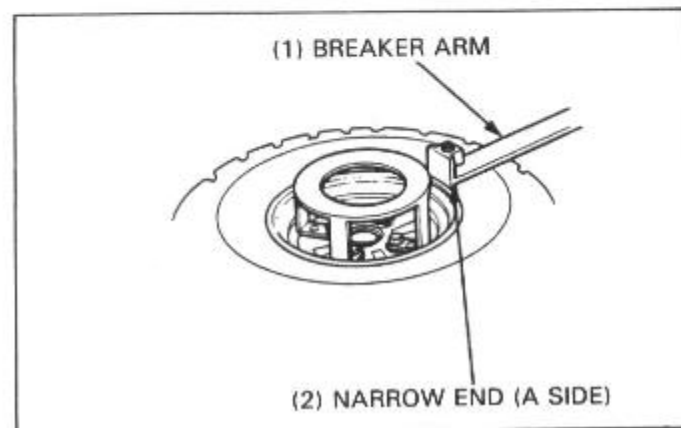
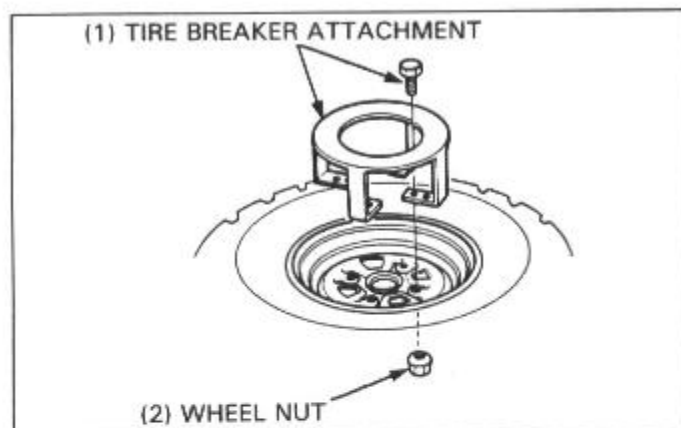
— breaker arm

Position the breaker arm compressor onto the tire breaker attachment as shown.
Keep the breaker arm horizontal and align the end of the compressor bolt with the breaker arm hole.

Screw in the breaker arm compressor bolt while pushing the breaker arm on the tire with your foot to break the bead from the rim.

NOTE

- Do not break the bead all at once. Remove and reposition the compressor and arm 1/8 the circumference of the rim. Tighten the compressor bolt. Break the bead by repeating this procedure 3-4 times.



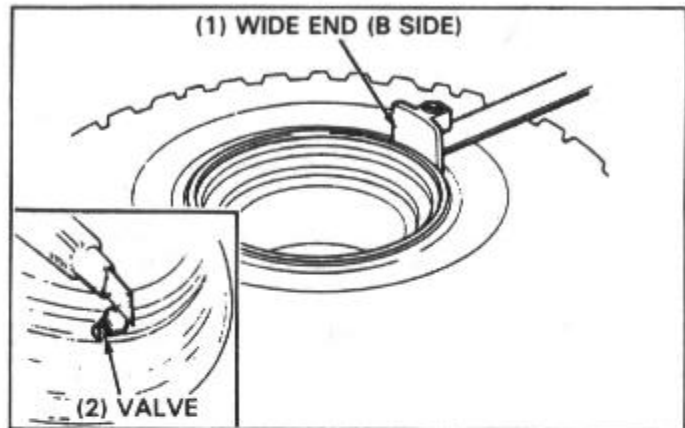
REAR WHEEL/SUSPENSION

If the bead breaking is difficult with the narrow end (A side) of the breaker arm, use the wide end (B side) of the arm and repeat the procedure on the previous page.

After removing the tire from the rim, cut the valve off at the bottom, being careful not to damage the rim.

NOTE

- Be sure to replace the valve with a new one whenever the tire is removed from the rim.

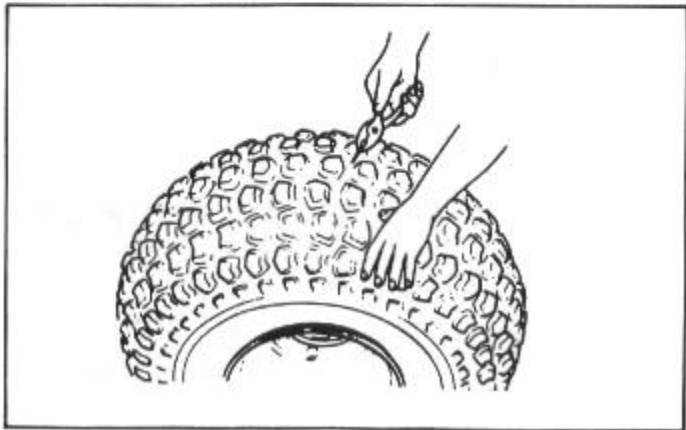


TIRE REPAIR

NOTE

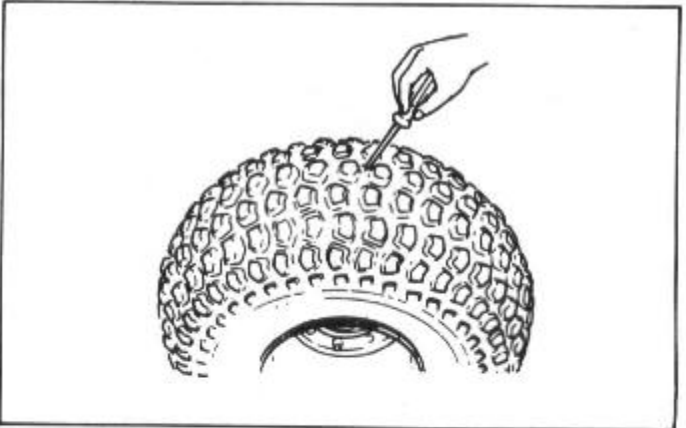
- Use the manufacturer's instructions for the tire repair kit you are using. If your kit does not have instructions, use the procedures provided here.

Check the tire for puncturing objects. Chalk mark the punctured area and remove the puncturing object. Inspect and measure the injury. Tire repairs for injuries larger than 15 mm (5/8 in) should be a section repair. Section repairs should be done by a professional tire repair shop. If the injury is smaller than 15 mm (5/8 in), proceed with the repair as described here.



Install a rubber plug into the injury as follows:

Apply cement to a plug inserting needle and work the needle into the injury to clean and lubricate it. Do this three times. Do not let the cement dry.



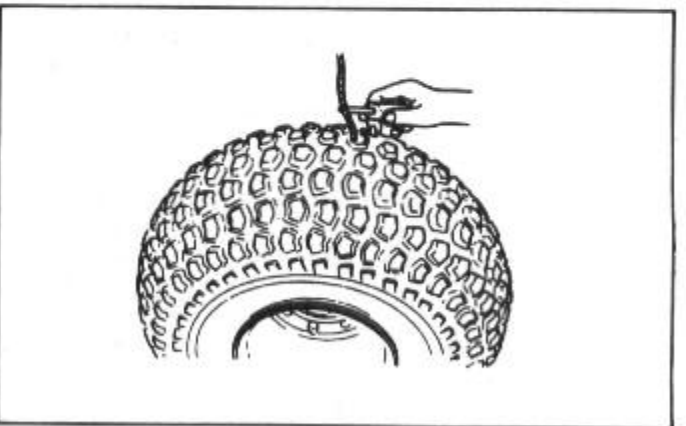
Insert and center a rubber plug through the eye of the inserting needle.

Apply cement to the rubber plug.

Push the inserting needle with plug into the injury until the plug is slightly above the tire. Twist the needle and remove it from the tire; the plug will stay in the tire.

NOTE

- Be careful not to push the plug all the way into the tire to prevent it from falling inside.



Trim the plug 6 mm (1/4 in) above the tire surface. Repeat the above procedure if the puncture is large. Do not use more than two plugs per injury.

Allow the repair to dry. Drying time will vary with air temperature. Refer to the tire repair kit manufacturer's recommendations.

Inflate the tire and test the seal by dabbing a small amount of cement around the plug. Escaping air will cause a bubble in the cement. If there is leakage, remove the tire (page 13-3) and apply a cold patch to the inside of the tire as described. If a plug has been inserted, trim it even with the inner tire surface.

Temporarily place a rubber patch that is at least twice the size of the puncture over the injury. Make a mark around the patch, slightly larger than the patch itself. Remove the patch. Roughen the area marked inside the tire with a tire buffer or a wire brush. Clean the rubber dust from the buffed area.

Apply cement over the area marked and allow it to dry. Remove the lining from the patch and center it over the injury. Press the patch against the injury using a special roller.

NOTE

- Allow cement to dry until tacky before applying patch.
- Do not touch the cement with dirty or greasy hands.

ASSEMBLY

Install the tire onto the rim, where the rim shoulder width is the narrowest, to simplify installation.

Clean the rim bead seat and flanges. Apply clean water to the rim flanges, bead seat and base.

WARNING

- *Use only water as a lubricant when mounting tires. Soap or some mounting lubricants may leave a slippery residue which can cause the tire to shift on the rim and lose air pressure during riding.*

Install the valve core in the valve stem. Install the tire and inflate it to seat the tire bead.

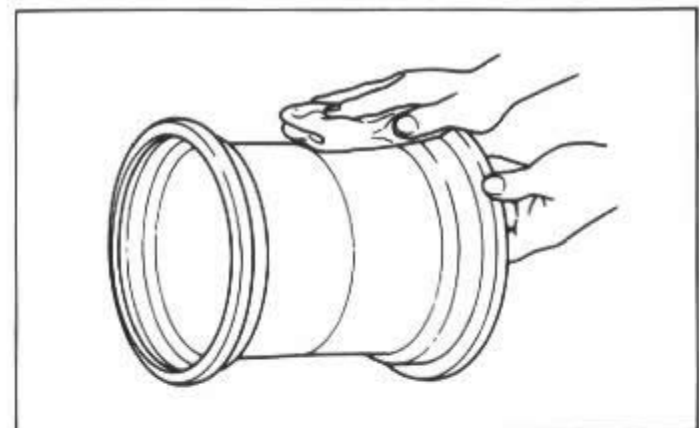
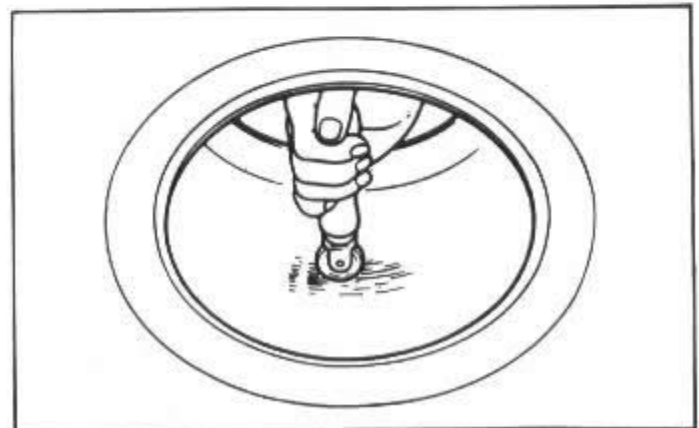
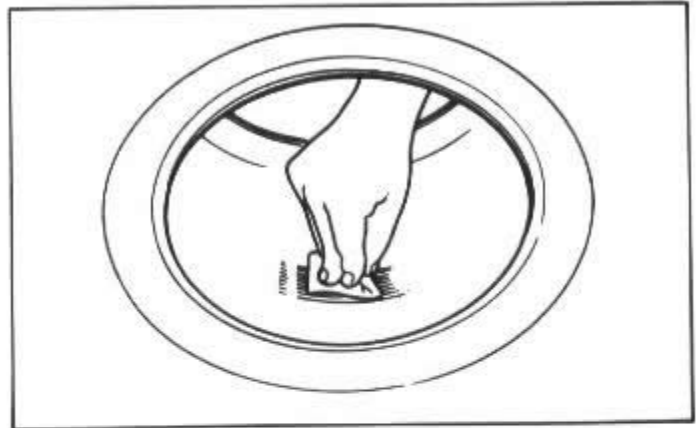
Deflate the tire. Wait 1 hour and inflate the tire to the specified pressure.

TIRE PRESSURE:

Unit: psi (kg/cm², kPa)

	TRX300 (Front/Rear)	TRX300FW	
		Front	Rear
Standard	2.9 (0.20, 20)	4.4 (0.30, 30)	2.9 (0.20, 20)
Minimum	2.5 (0.17, 17)	3.8 (0.26, 26)	2.5 (0.17, 17)
Maximum	3.3 (0.23, 23)	5.0 (0.34, 34)	3.3 (0.23, 23)

Check for air leaks and install the valve cap.



REAR SHOCK ABSORBER

REMOVAL

Raise the rear wheels off the ground by placing a jack or block under the engine.

Remove the rear shock absorber lower mount nut and bolt.

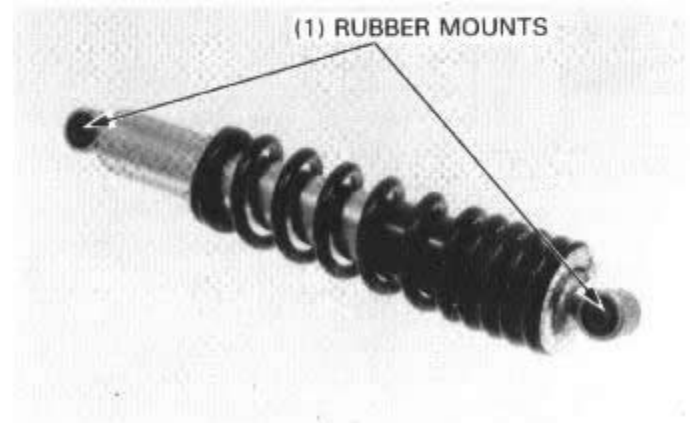
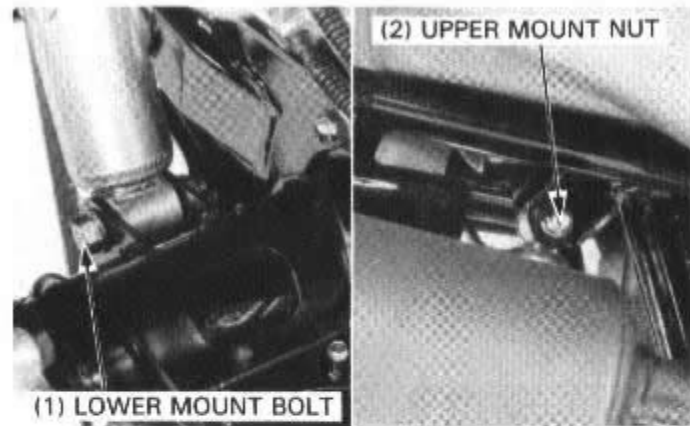
Remove the rear shock absorber upper mount nut and remove the shock absorber.

Discard the nuts.

CAUTION

- *Re-use of nuts is strictly prohibited.*

Check the upper and lower rubber mounts for damage or fatigue.



DISASSEMBLY

Compress the rear shock absorber with the shock compressor and base.

CAUTION

- *Be sure the base is adjusted correctly for the shock spring seat and the clevis pin is all the way in.*

TOOLS:

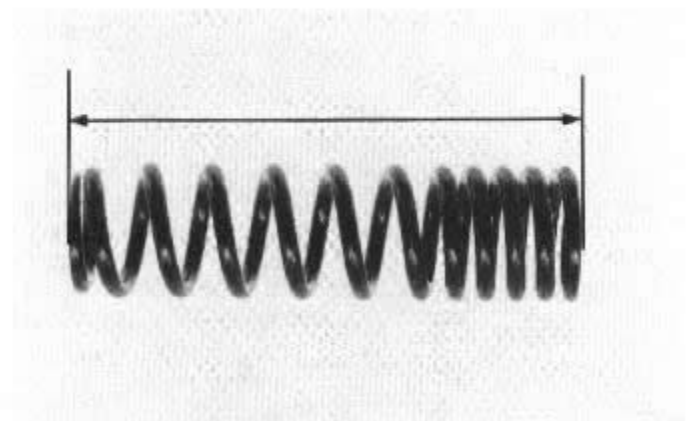
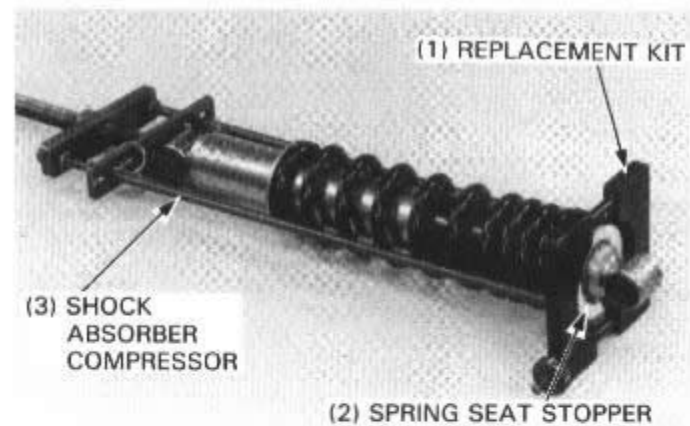
Shock absorber compressor	07GME-0010000 or 07959-3290001 and 07GME-0010100
Replacement kit	07959-MB10000

Remove the spring seat stopper and disassemble the shock absorber.

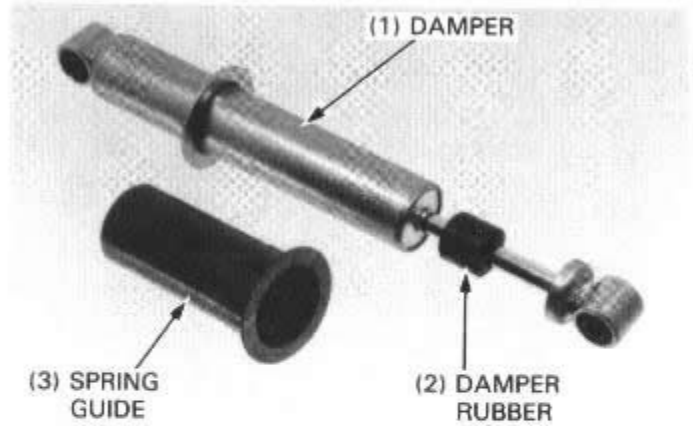
INSPECTION

Measure the rear shock absorber spring free length.

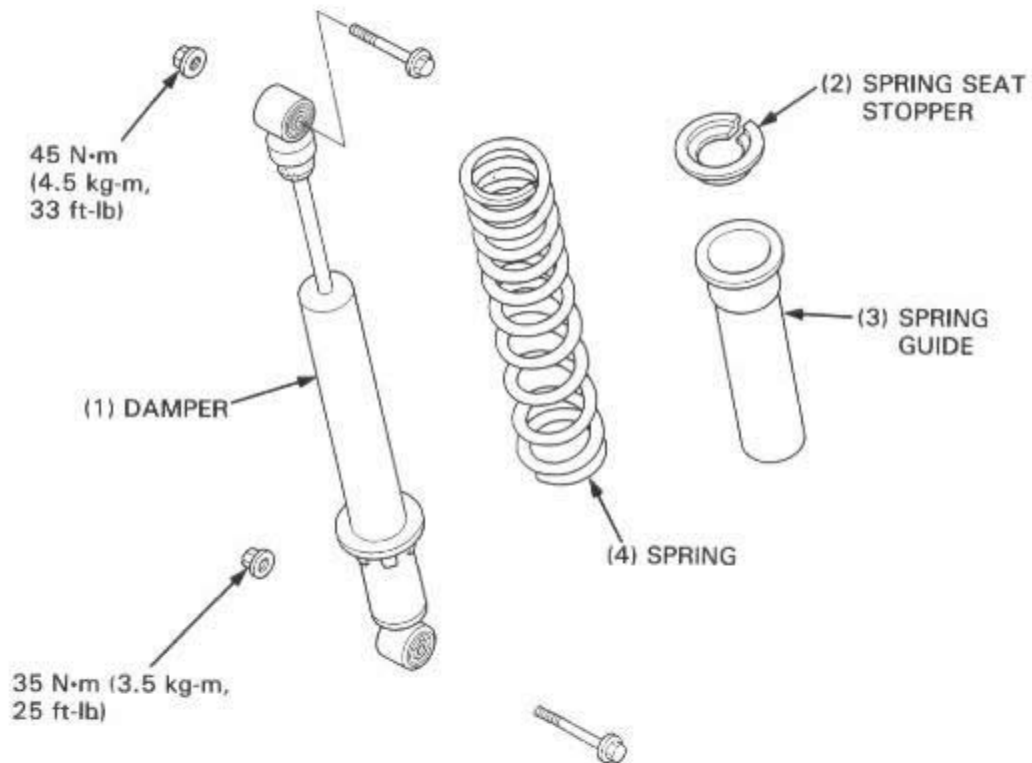
SERVICE LIMIT: (TRX300) 248.8 mm (9.80 in)
(TRX300FW) 250.4 mm (9.86 in)



Check the rear damper for signs of damage or oil leakage.
Check the rod for straightness and smooth operation.
Check the damper rubber and spring guide for wear or damage.



ASSEMBLY



Install the spring with its narrow pitched end facing the upper mount.

Install the spring guide, then compress the rear shock absorber with the shock compressor and base.

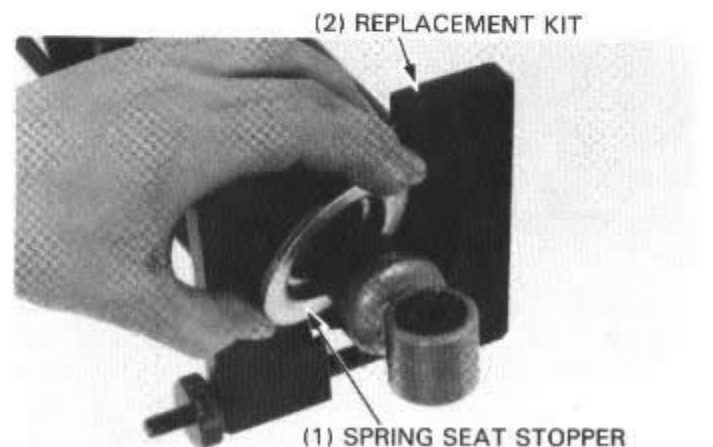
CAUTION

- Be sure the base is adjusted correctly for the shock spring seat and the clevis pin is all the way in.

TOOLS:

Shock absorber compressor 07GME-0010000 or
07959-3290001
and 07GME-0010100
Replacement kit 07959-MB10000

Install the spring seat stopper and remove the tools.



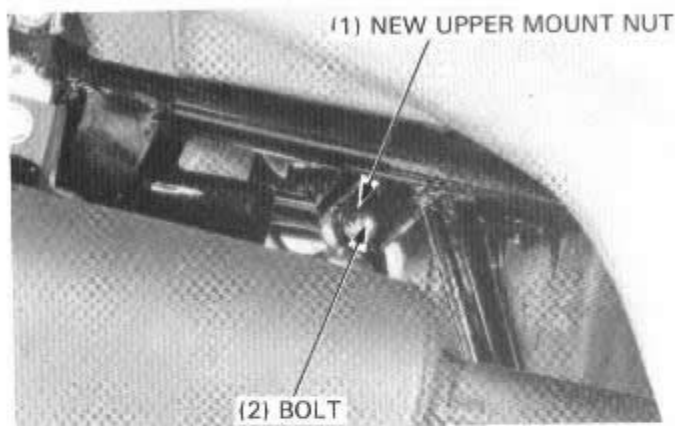
INSTALLATION

Position the rear shock absorber to the frame, and insert the upper mount bolt from the left.
Install and tighten the new upper mount nut.

TORQUE: 45 N·m (4.5 kg-m, 33 ft-lb)

CAUTION

- *Re-use of nuts is strictly prohibited.*

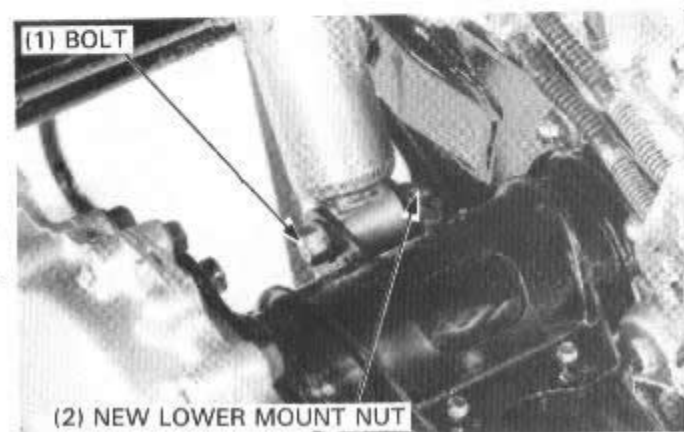


Insert the lower mount bolt from the left.
Install and tighten the new lower mount nut.

TORQUE: '88-'92: 35 N·m (3.5 kg-m, 25 ft-lb)
After '92: 45 N·m (4.5 kg-m, 33 ft-lb)

CAUTION

- *Re-use of nuts is strictly prohibited.*



SWINGARM

REMOVAL

Remove the following:

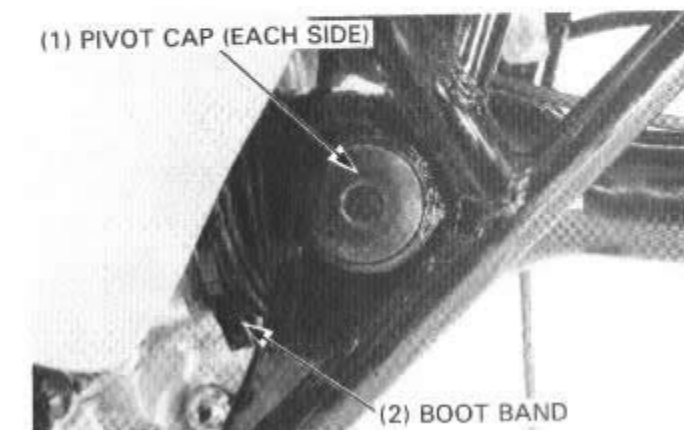
- rear brake cables.
- rear shock absorber lower mount bolt (page 13-8).

NOTE

- If you serve the pivot bearings, dust seals, drive shaft or boot, you have not to remove the brake, axle and final drive; go to next step.

- rear wheels (page 13-3).
- rear brake panel nuts (page 12-25).
- rear axle with rear brake assembly (page 15-3).
- axle housing and final drive (page 15-4).

- swingarm pivot cap (each side).
- swingarm boot and band (loosen).

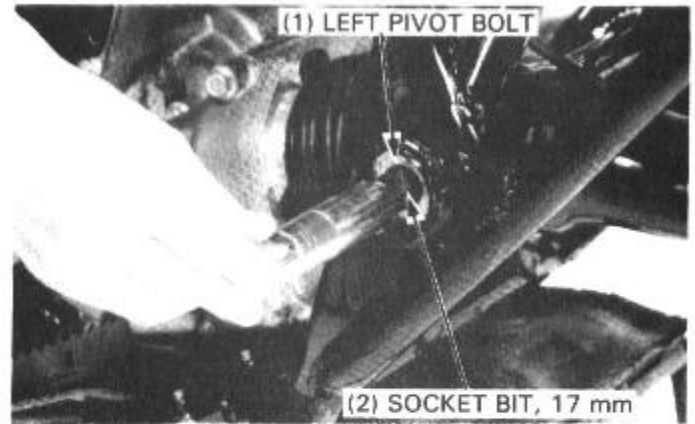


— left pivot bolt.

TOOL:

Socket bit, 17 mm

07703—0020500 or
equivalent commercially
available in U.S.A.

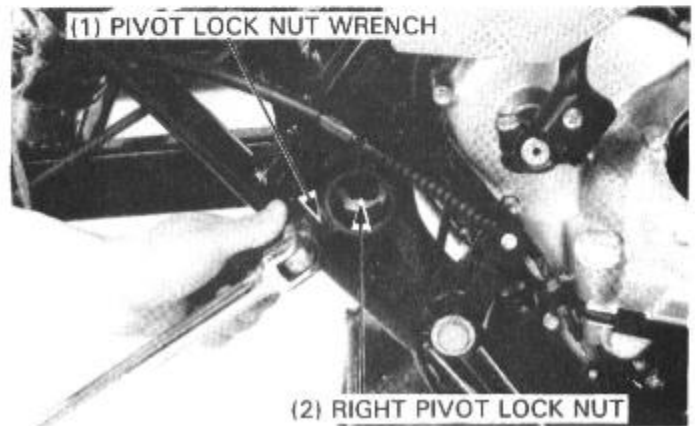


— right pivot lock nut.

TOOL:

Pivot lock nut wrench

07908—4690001 or
KS-HBA-08-469
(U.S.A. only)

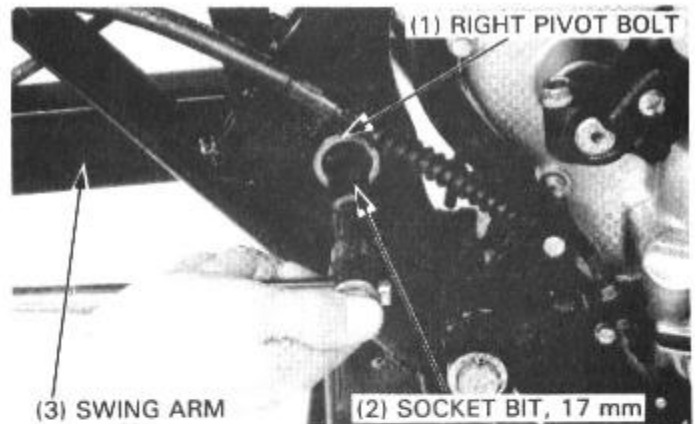


— right pivot bolt.

TOOL:

Socket bit, 17 mm

07703—0020500 or
equivalent commercially
available in U.S.A.

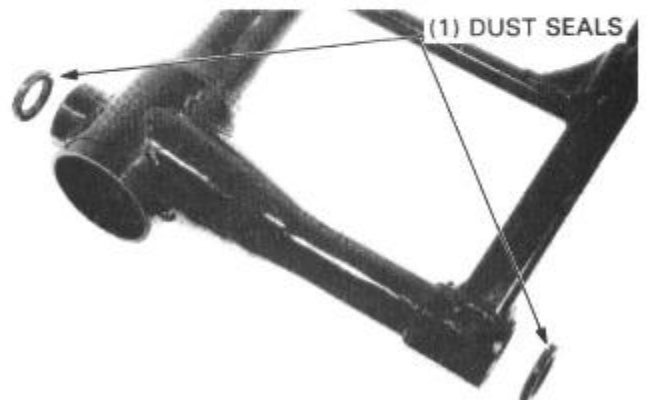


— swing arm.

— drive shaft from the swing arm.

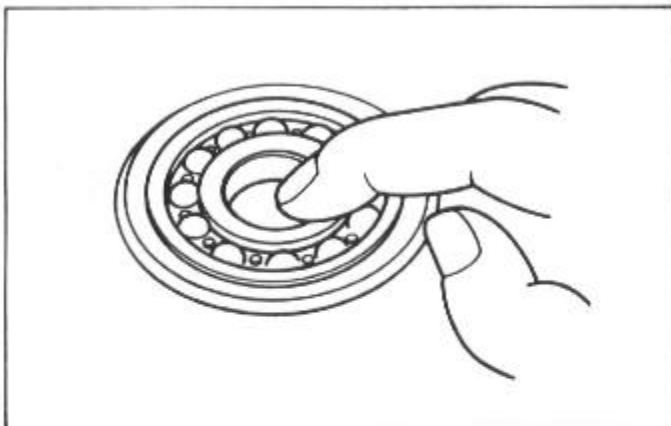
INSPECTION

Remove the dust seals and bearings from the swing arm.
Check the dust seals for wear or damage.



REAR WHEEL/SUSPENSION

Turn the inner race of pivot bearings with your finger. The bearings should turn smoothly and quietly. Also check that the outer race fits tightly in the swing arm pivot. Replace them if necessary (see REPLACEMENT below).



PIVOT BEARING REPLACEMENT

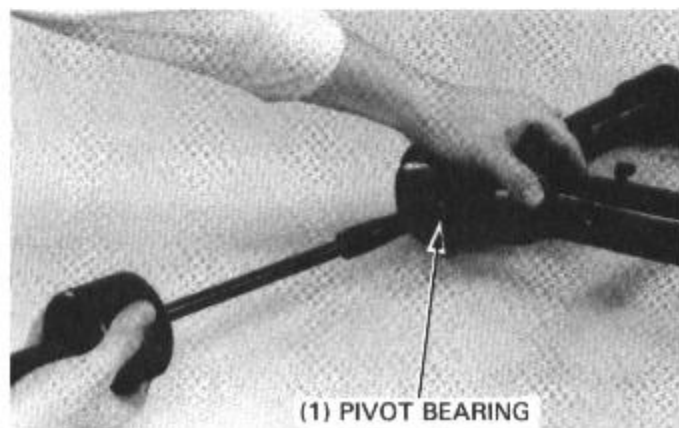
Remove the swing arm pivot bearing with the special tool.

NOTE

- Use the tools on a vertical against the bearing.
- There is some bearing that can be removed with your finger.

TOOLS:

Bearing remover, 17 mm	07936-3710300
Remover handle	07936-3710100
Remover weight	07741-0010201 or 07936-3710200

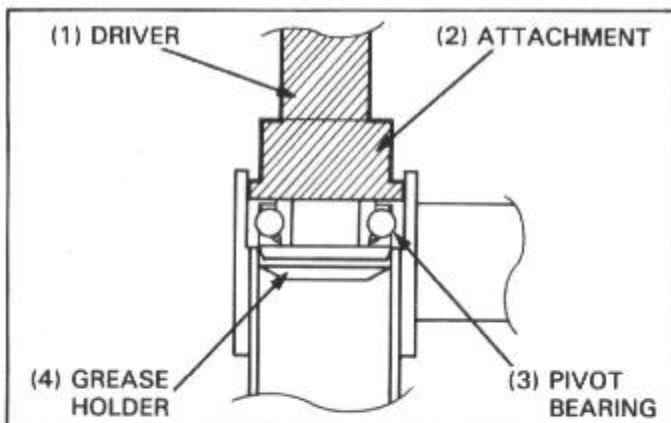


Remove the grease holder.

Install the grease holder in the swing arm pivot.
Install a new pivot bearing with the special tools, being careful of the bearing orientation as shown.

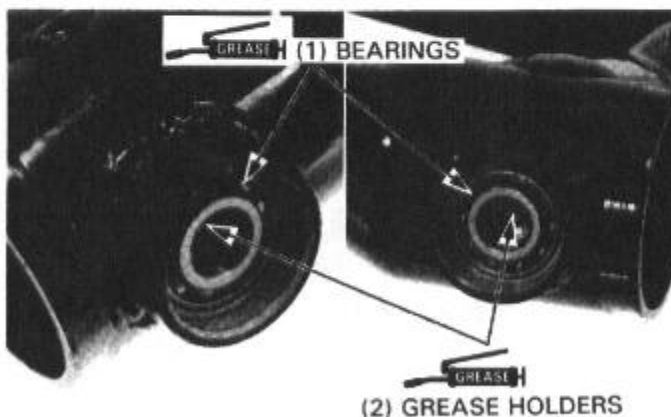
TOOLS:

Driver	07749-0010000
Attachment, 37 x 40 mm	07746-0010200



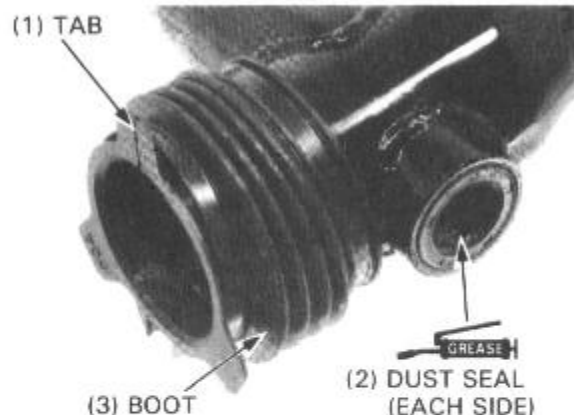
INSTALLATION

Pack the grease holders and bearing cavities with grease.

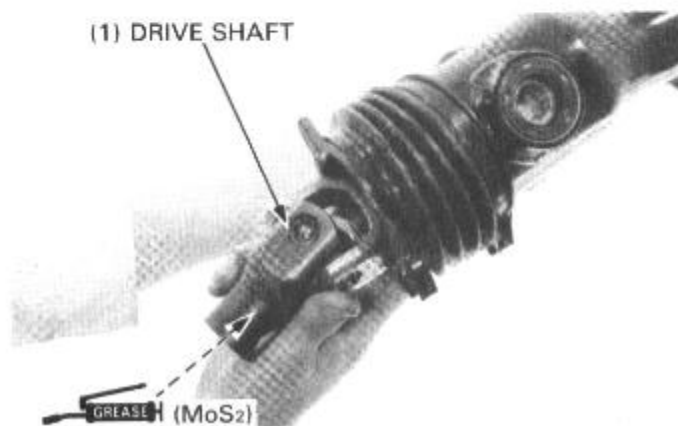


Apply grease to the dust seal lips, and install the dust seals in the swing arm.

Install the swing arm boot securely with its tab facing up.



Apply molybdenum disulfide grease to the drive shaft splines and install the drive shaft into the swing arm.



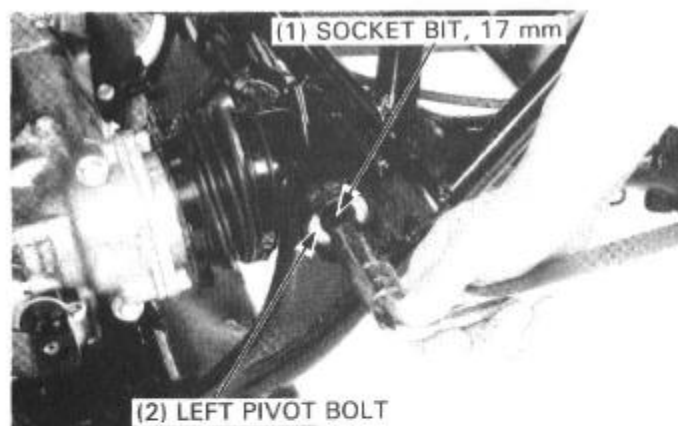
Position the swing arm in the frame. Install and tighten the left pivot bolt.

TORQUE: 115 N·m (11.5 kg-m, 83 ft-lb)

TOOL:

Socket bit, 17 mm

07703-0020500 or equivalent commercially available in U.S.A.



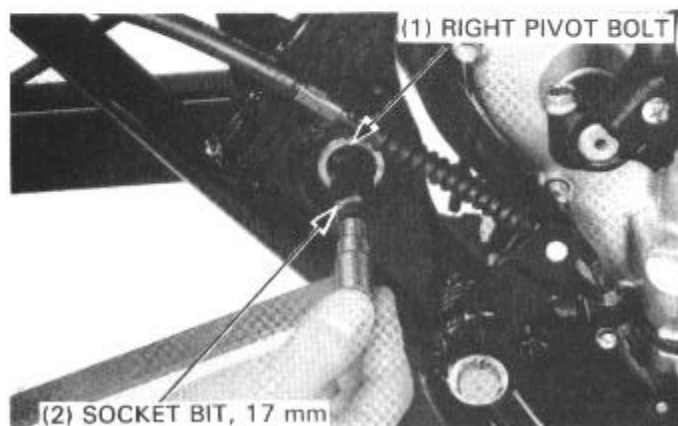
Install and tighten the right pivot bolt.

TORQUE: 4 N·m (0.4 kg-m, 3 ft-lb)

TOOL:

Socket bit, 17 mm

07703-0020500 or equivalent commercially available in U.S.A.



Move the swing arm up and down several times. Retighten the right pivot bolt to the specified torque (see above).

REAR WHEEL/SUSPENSION

Tighten the right pivot lock nut while holding the pivot bolt.

TORQUE: 115 N·m (11.5 kg-m, 83 ft-lb)

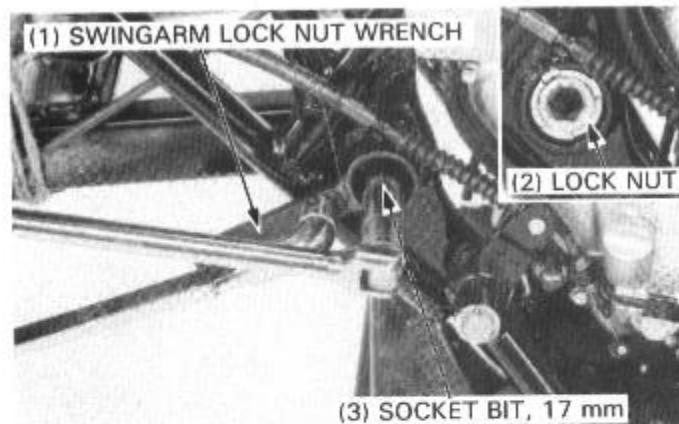
Torque wrench scale reading:
105 N·m (10.5 kg-m, 76 ft-lb)

TOOLS:

Socket bit, 17 mm

Swingarm lock nut wrench

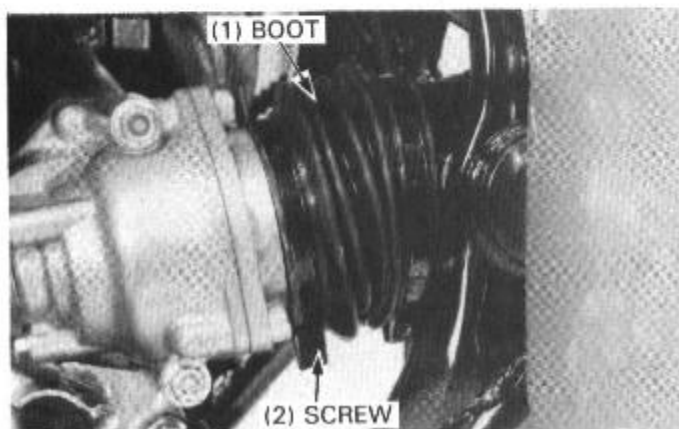
07703-0020500 or
equivalent commercially
available in U.S.A.
07908-4690001 or
KS-HBA-08-469
(U.S.A. only)



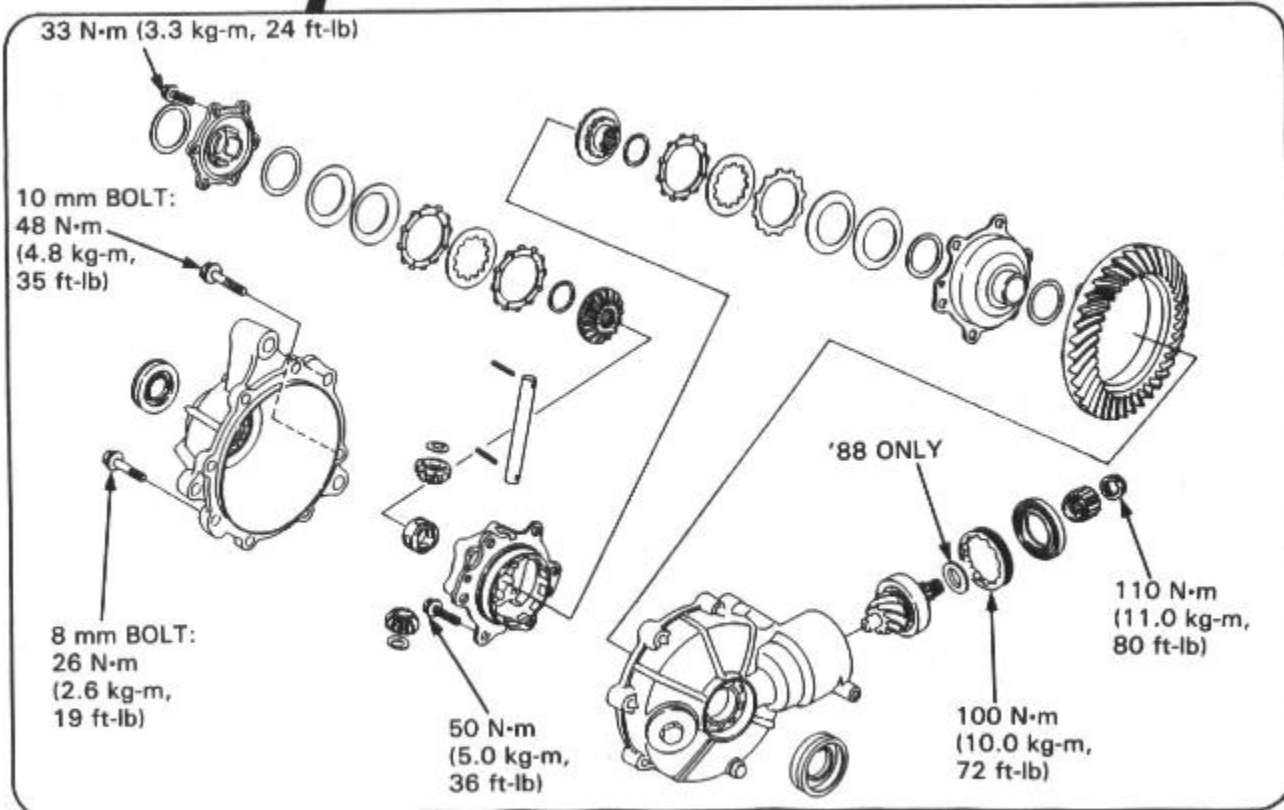
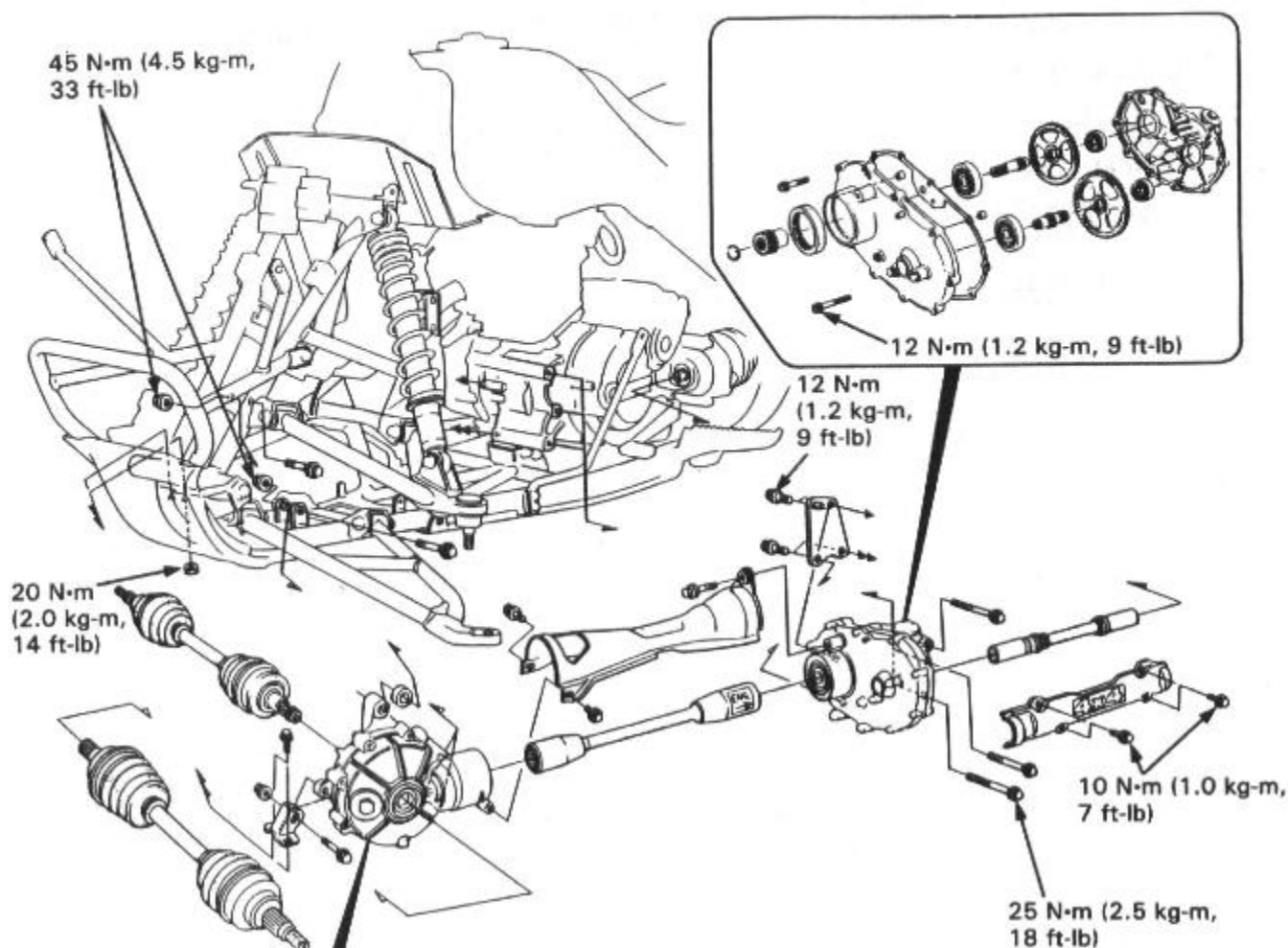
Attach the swingarm boot to the gear case and tighten the boot clamp screw securely.

Install the following:

- swingarm pivot cap (each side).
- axle housing and final drive (page 15-14).
- rear shock absorber lower mount bolt (page 13-10).
- rear axle with rear brake assembly (page 15-15).
- new rear brake panel nuts (page 12-27).
- rear wheels (page 13-3).



MEMO



14. FRONT DRIVING MECHANISM (TRX300FW)

SERVICE INFORMATION	14-1	FRONT DRIVE SIDE SHAFT REMOVAL	14-25
TROUBLESHOOTING	14-2	FRONT GEAR CASE	14-25
FRONT DRIVE SHAFT REMOVAL	14-3	FRONT DRIVE SIDE SHAFT	
FRONT DIFFERENTIAL	14-5	INSTALLATION	14-31
FRONT DRIVE SHAFT INSTALLATION	14-21		

SERVICE INFORMATION

GENERAL

- This section covers servicing of the front drive shaft, front differential, propeller shaft, front drive side shaft and front gear case.
- Replace all oil seals and O-rings whenever the front differential and front gear case assemblies are disassembled.
- Check the tooth contact pattern and gear backlash when the front differential bearing, gear set and/or gear case are replaced.
- When using the lock nut wrench to tighten the pinion bearing lock nut, use a deflecting beam type torque wrench 50 cm (20 inches) long. The lock nut wrench increases the torque wrench's leverage, so the torque wrench reading will be less than the torque actually applied to the lock nut.

SPECIFICATIONS

ITEM			STANDARD	SERVICE LIMIT	
Front differential	Oil capacity	'88	100 cc (3.4 oz) at disassembly	—	
		After '88	200 cc (6.8 oz) at disassembly	—	
	Recommended oil		Hypoid gear oil SAE#80	—	
	Differential assembly	Clutch spring free height		2.65 mm (0.104 in)	2.5 mm (0.10 in)
		Clutch disc thickness	A	2.3—2.4 mm (0.090—0.094 in)	2.1 mm (0.08 in)
			B	1.9—2.0 mm (0.075—0.079 in)	1.7 mm (0.07 in)
		Pinion gear I.D.		12.000—12.018 mm (0.4724—0.4731 in)	12.05 mm (0.474 in)
		Pinion gear shaft O.D.		11.973—11.984 mm (0.4714—0.4718 in)	11.75 mm (0.463 in)
	Slip torque		17—25 N·m (1.7—2.5 kg-m, 12—18 ft-lb)	—	
Gear backlash		0.08—0.18 mm (0.003—0.007 in)	0.25 mm (0.010 in)		
Front gear case	Oil capacity		200 cc (6.8 oz) at disassembly	—	
	Recommended oil		Honda GN4 4-stroke oil or equivalent. API Service Classification: SF or SG Viscosity: SAE 10W-40	—	

TORQUE VALUES

Front differential

Mounting bolt	10 mm	45 N·m (4.5 kg-m, 33 ft-lb)	
	8 mm ('88—'92:)	20 N·m (2.0 kg-m, 14 ft-lb)	
	8 mm (After '92:)	22 N·m (2.2 kg-m, 16 ft-lb)	
Differential cap bolt (torx)		33 N·m (3.3 kg-m, 24 ft-lb)	
Ring gear bolt		50 N·m (5.0 kg-m, 36 ft-lb)	
Pinion bearing lock nut		100 N·m (10.0 kg-m, 72 ft-lb)	
Pinion joint nut		110 N·m (11.0 kg-m, 80 ft-lb)	Apply locking agent
Differential cover bolt	10 mm	48 N·m (4.8 kg-m, 35 ft-lb)	Apply locking agent
	8 mm	26 N·m (2.6 kg-m, 19 ft-lb)	

Front gear case

Mounting bolt	8 mm	25 N·m (2.5 kg-m, 18 ft-lb)
	6 mm	12 N·m (1.2 kg-m, 9 ft-lb)
Drain bolt		22 N·m (2.2 kg-m, 16 ft-lb)
Cover bolt		12 N·m (1.2 kg-m, 9 ft-lb)
Side shaft cover bolt		10 N·m (1.0 kg-m, 7 ft-lb)

TOOLS

Special	
Differential inspection tool	07KMK—HC50101
Pinion holder	07924—HA00001 or 07924—HA00000 (Modified)
Lock nut wrench, 34 x 44 mm	07916—ME50001 or Lock nut wrench, 34 x 44 mm 07916—ME50000 and Attachment 07916—HA0010A (U.S.A. only) or 07931—ME4000A (U.S.A. only)
Shaft puller	07931—ME40000
Bearing remover, 17 mm	07936—3710300
Remover weight	07741—0010201 or 07936—3710200
Remover handle	07936—3710100
Pinion gear driver	07945—HA00000 (Not available in U.S.A.) or Driver, 40 mm I.D. 07746—0030100
Driver, 40 mm I.D.	07746—0030100
Ball joint puller	07MAC—SL00200 or 07941—6920003
Common	
Driver	07749—0010000
Attachment, 37 x 40 mm	07746—0010200
Attachment, 52 x 55 mm	07746—0010400
Pilot, 17 mm	07746—0040400
Pilot, 28 mm	07746—0041100
Driver, 22 mm I.D.	07746—0020100
Attachment, 20 mm I.D.	07746—0020400

TROUBLESHOOTING

FRONT DIFFERENTIAL

Consistent noise during cruising

- Oil level too low
- Foreign matter contaminating gear oil
- Improper tooth contact between ring gear and drive pinion
- Worn or damaged ring gear bearing
- Worn or damaged ring gear and drive pinion
- Worn pinion shaft or pinion gear side washer
- Deformed ring gear or differential case
- Chipped or damaged gears

Gear noises while running

- Oil level too low
- Foreign matter contaminating gear oil
- Chipped or damaged gears
- Improper tooth contact between ring gear and drive pinion

Gear noises while coasting

- Damaged or chipped gears

Bearing noises while running and coasting

- Cracked or damaged drive pinion bearing or ring gear

FRONT GEAR CASE

Oil leak

- Clogged breather hole or tube
- Oil level too high
- Worn or damaged oil seal
- Loose gear case bolt

Abnormal noises when turning

- Worn (excessive play) or damaged ring gear bearing
- Damaged side gear, pinion or pinion shaft
- Worn clutch disc/plate
- Worn clutch spring
- Worn or damaged slots of the differential housing

Abnormal noises at start or during acceleration

- Excessive backlash between ring gear and drive pinion
- Excessive pinion gear backlash
- Worn differential splines
- Loose pinion joint nut and other fasteners
- Worn clutch disc/plate
- Worn clutch spring

Oil leak

- Oil level too high
- Clogged breather hole or tube
- Worn or damaged oil seal
- Loose differential cover bolt

Overheating

- Oil level too low
- Insufficient backlash between ring gear and drive pinion

Excessive noise

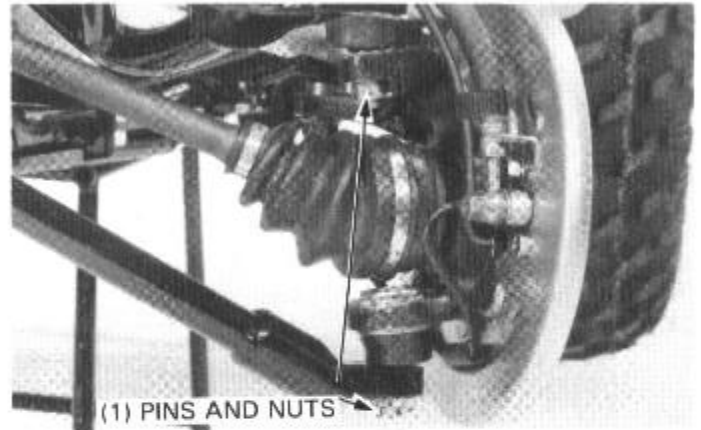
- Oil level too low
- Worn or scored splines
- Worn or damaged gear(s)

FRONT DRIVE SHAFT REMOVAL

REMOVAL

Remove the following:

- front wheel (page 11-9)
- front brake drum (page 12-11)
- cotter pins and castle nuts



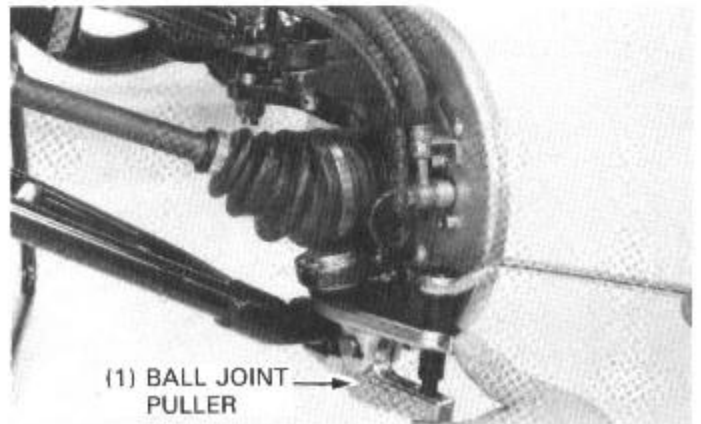
Separate the knuckle from the upper and lower suspension arms.

TOOL:

Ball joint puller

07MAC—SL00200 or
07941—6920003

Disconnect the breather tube from the brake panel.



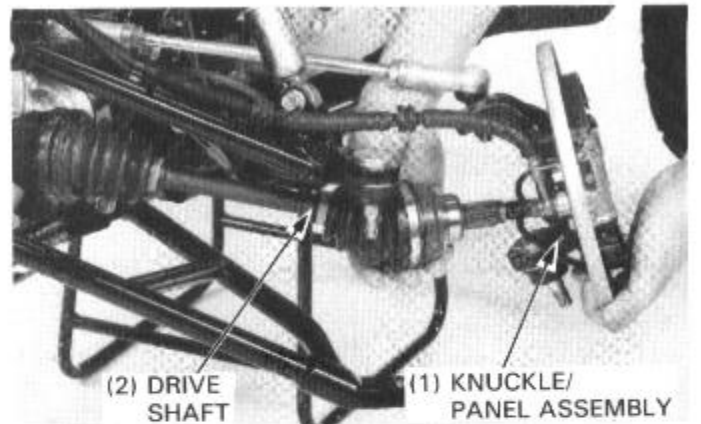
Separate the knuckle/brake panel assembly from the drive shaft.

CAUTION

- *Support the knuckle/brake panel assembly so that it does not hang from the brake hose. Do not twist the brake hose.*

NOTE

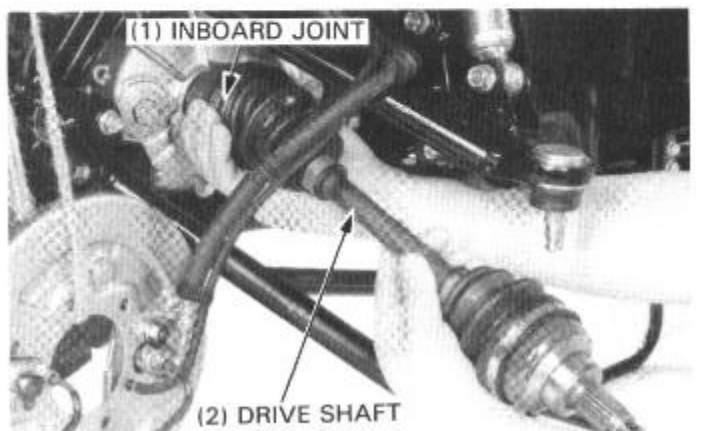
- Do not operate the front brake lever after removing the knuckle/brake panel assembly. If you do it will be difficult to refit the brake and brake shoes.



Hold the inboard joint as shown and pull out the drive shaft out of the differential.

CAUTION

- *To prevent damage to the differential oil seal, hold the inboard joint horizontal until the drive shaft is clear of the differential.*



INSPECTION

Check the boot for cuts or other damage; replace, if necessary.

Check the drive shaft joints for excessive play or noise by moving the joints in a circular direction.

If the outboard joint seems to be worn or damaged, the drive shaft must be replaced. To service the inboard joint, follow the DISASSEMBLY steps below.

DISASSEMBLY

NOTE

- To replace the outboard boot, first remove the inboard boot as described in these steps. Then remove the bands and pull the outboard boot off the inboard end of shaft.

Loosen both boot bands on the inboard side, and remove boot band A.

Pull the boot off the inboard joint.

Remove the stopper ring and inboard joint.

NOTE

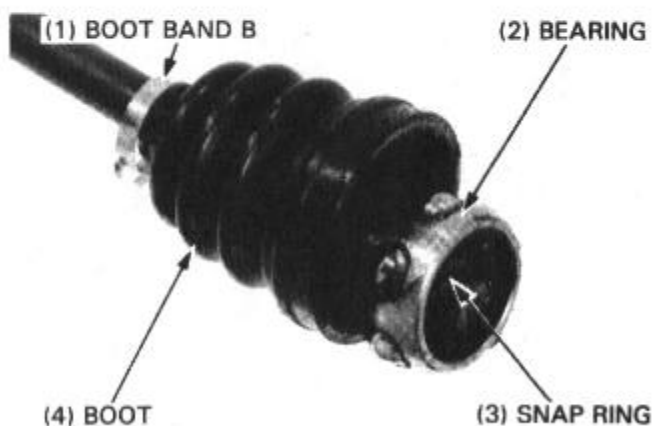
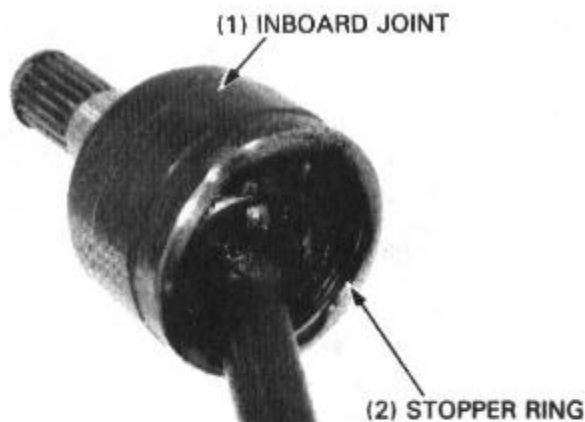
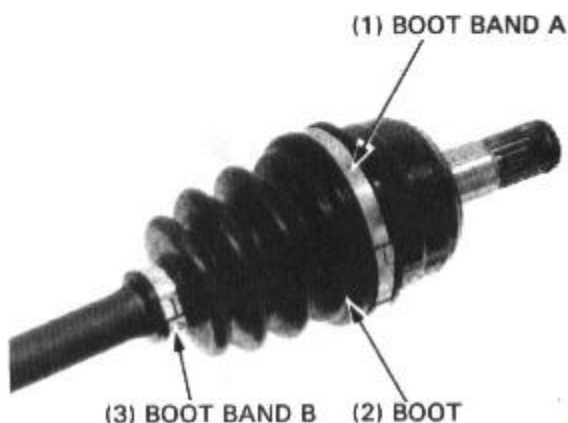
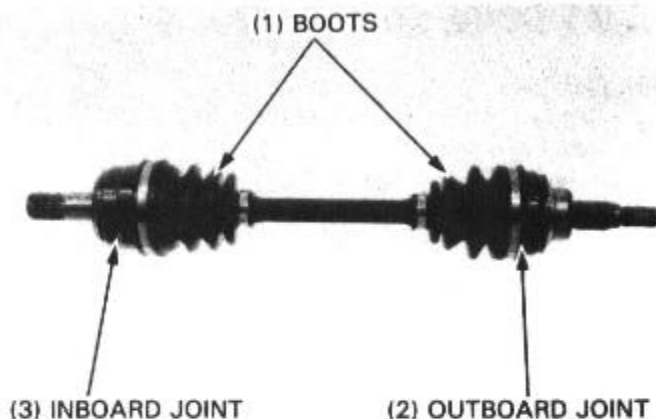
- The outboard joint cannot be disassembled.

Remove the snap ring and bearing.

Remove the boot band B and pull the boot off the drive shaft.

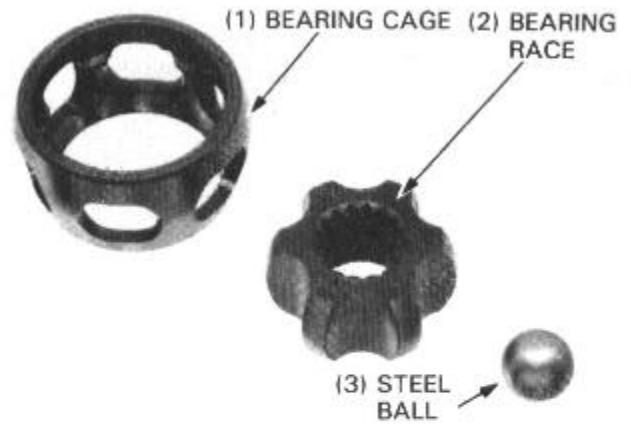
NOTE

- Replace the bands with new ones whenever removing them.



Check the following for wear or damage:

- bearing cage
- bearing race
- steel balls



- inboard joint

NOTE

- Replace the bearing cage, bearing race, steel balls and inboard joint as an assembly.



FRONT DIFFERENTIAL

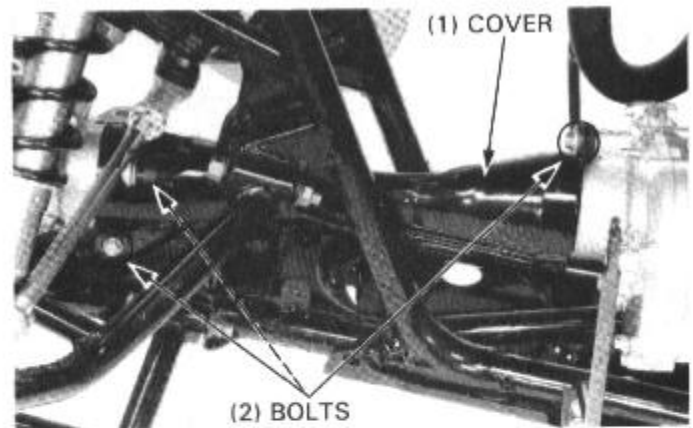
REMOVAL

Drain the front differential oil (page 2-4).

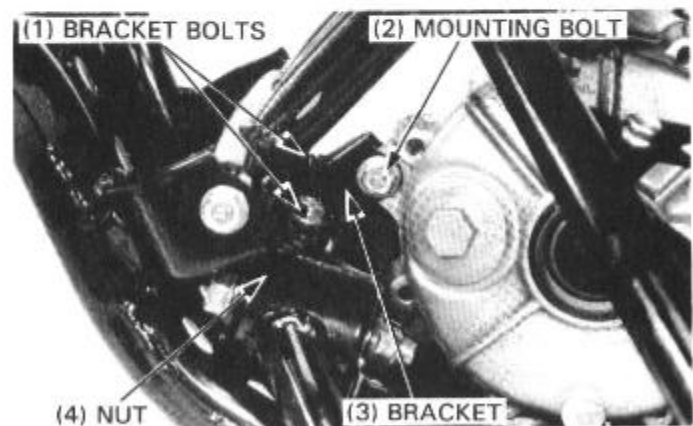
Remove the following:

- front drive shaft (page 14-3)
- front fender (page 16-1)

Remove the bolts and prepeller shaft cover.

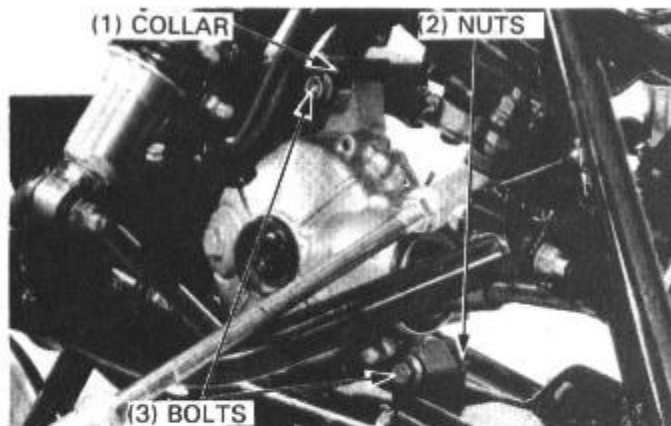


- front differential mounting bolt and nut
- front differential mounting bracket bolts, nut and bracket

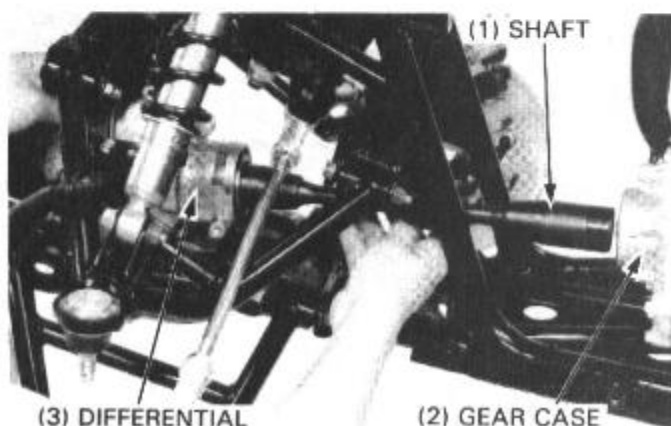


FRONT DRIVING MECHANISM (TRX300FW)

- upper mounting bolt, nut and collar
- rear mounting bolt and nut

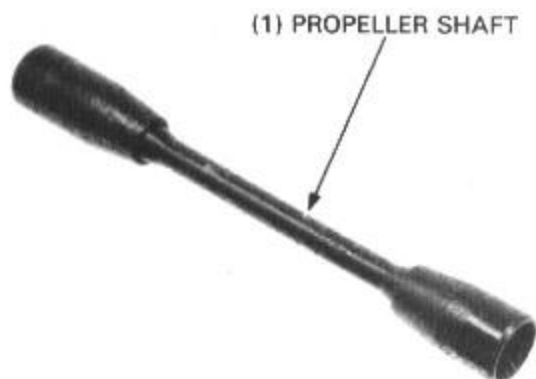


Push the front differential forward, then separate the propeller shaft from the front gear case.
Remove the propeller shaft and front differential.



INSPECTION

Check the propeller shaft for wear or damage.

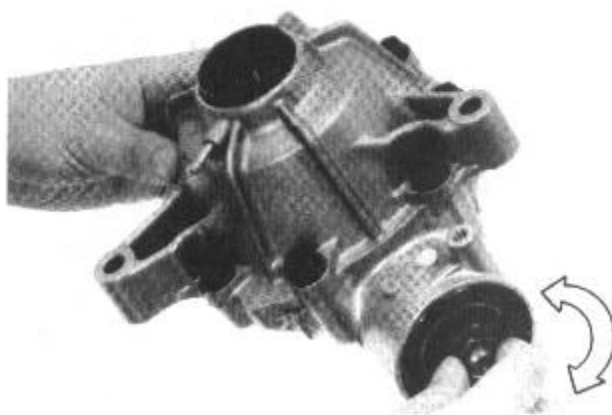


Turn the differential drive pinion with your finger; it should turn smoothly and quietly.

Inspect the following if the drive pinion does not turn smoothly and quietly:

- differential case
- ring gear bearings
- drive pinion
- ring gear

Proceed with the detailed inspection procedures that follow and replace faulty parts/assemblies as required.



BACKLASH INSPECTION

Remove the oil filler cap, and drive pinion oil seal.
Install the pinion holder onto the pinion joint.

TOOL:

PINION HOLDER: 07924-HA00001 or
07924-HA00000

Set the holder in the vise.

Set a horizontal type dial indicator on the ring gear, through the oil filler hole.

Install the differential inspection attachment into the right side of differential gear and rotate the differential assembly/ring gear by turning the differential inspection attachment by hand until gear slack is taken up. Turn the ring gear back and forth to read backlash.

STANDARD: 0.08–0.18 mm (0.003–0.007 in)

SERVICE LIMIT: 0.25 mm (0.010 in)

TOOL:

Differential inspection tool 07KMK-HC50101

Remove the dial indicator. Turn the ring gear and measure the backlash. Repeat this procedure once more.

Compare the difference of the three measurements.

DIFFERENCE OF MEASUREMENT

SERVICE LIMIT: 0.10 mm (0.004 in)

If the difference in measurements exceeds the limit, it indicates that either the bearing is not installed squarely, or the case is deformed.

Inspect each bearing and case.

If backlash is too small, replace the ring gear left side spacer with a thicker one.

Backlash is changed by about 0.06 mm (0.002 in) when thickness of the spacer is changed by 0.10 mm (0.004 in).

RING GEAR SPACERS:

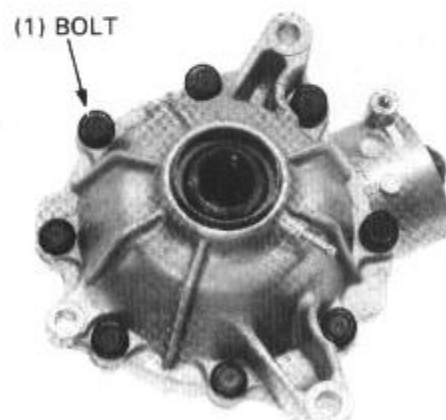
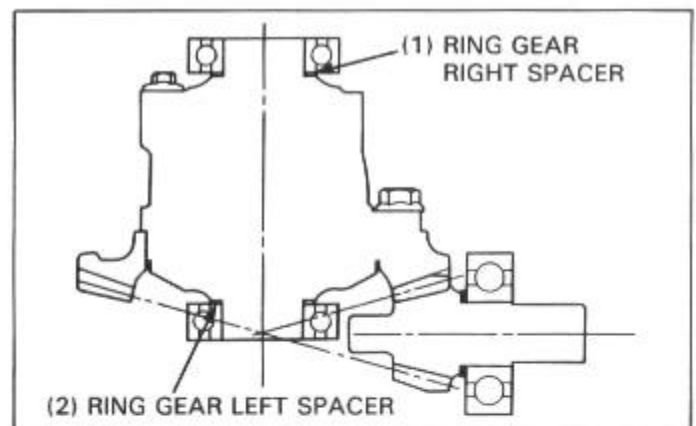
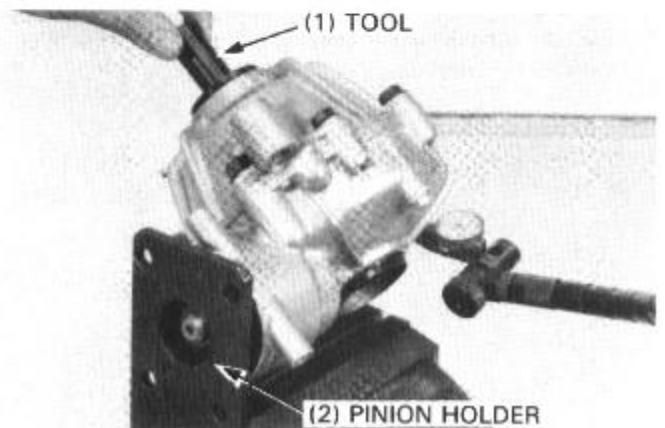
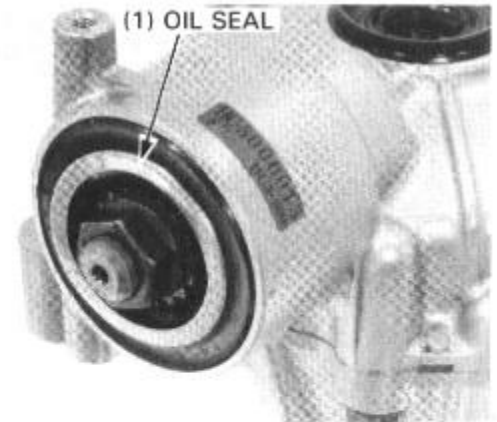
Twenty-three spacers (from A to W) are available in thickness intervals of 0.05 mm.

- Standard: 1.00 mm (0.039 in)
- Thinnest: 0.50 mm (0.020 in)
- Thickest: 1.60 mm (0.063 in)

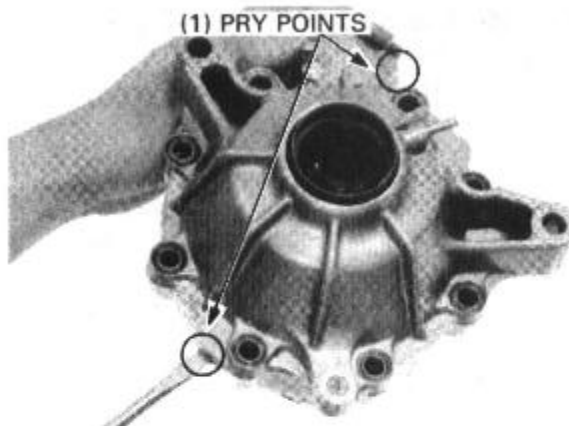
Change the right side spacer thickness and opposite amount to what the left side spacer was changed; if the left spacer was replaced with a 0.10 mm (0.004 in) thicker spacer, replace the right spacer with one that is 0.10 mm (0.004 in) thinner.

DIFFERENTIAL CASE DISASSEMBLY

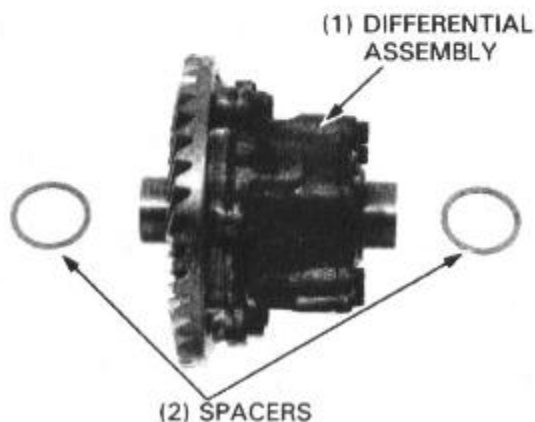
Remove the cover bolts in 2–3 steps in a crisscross pattern to prevent differential case warpage.



Carefully pry the cover off the case using a screwdriver at the pry points as shown.



Remove the differential assembly and the adjustment spacers from the differential case.

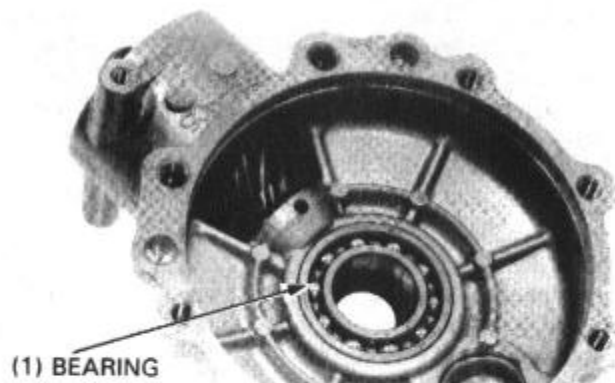


BEARING INSPECTION

Turn the inner race of each ring gear bearings with your finger. The bearings should turn smoothly and quietly. Also check that the outer race fit tightly in the case and cover.

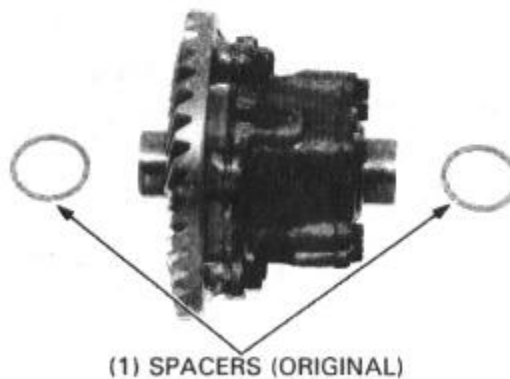
Remove and discard the bearings if the races do not turn smoothly and quietly, or if they fit loosely in the case or cover.

For ring gear bearing replacement, go to page 14-15.
For drive pinion removal and disassembly, go to page 14-13.



GEAR TOOTH CONTACT PATTERN CHECK

Install the original ring gear spacers onto the differential assembly.



Apply a thin coat of Prussian Blue to the pinion gear teeth for a gear tooth contact pattern check.

Clean all sealing material off the mating surfaces of the differential case and cover.

NOTE

- Keep dust and dirt out of the differential case.
- Be careful not to damage the mating surfaces.

Install the differential assembly with the spacers into the differential case.

Tighten the cover bolts in 2 or 3 steps until the cover evenly touches the gear case. Then, while rotating the drive pinion, tighten the bolts to the specified torque in 2–3 steps in a crisscross pattern.

TORQUES:

- 10 mm bolt: 48 N·m (4.8 kg-m, 35 ft-lb)
- 8 mm bolt: 26 N·m (2.6 kg-m, 19 ft-lb)

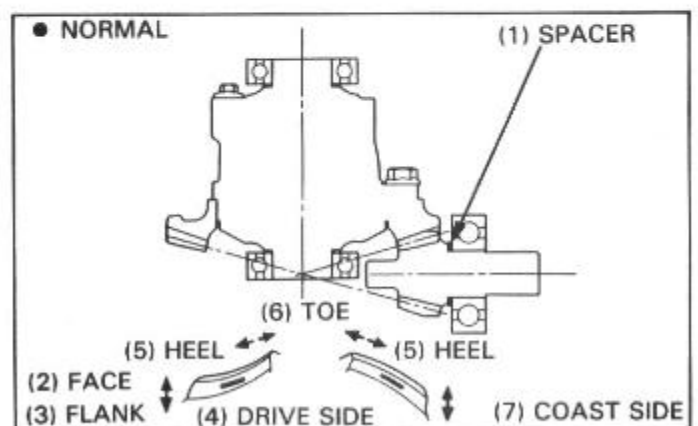
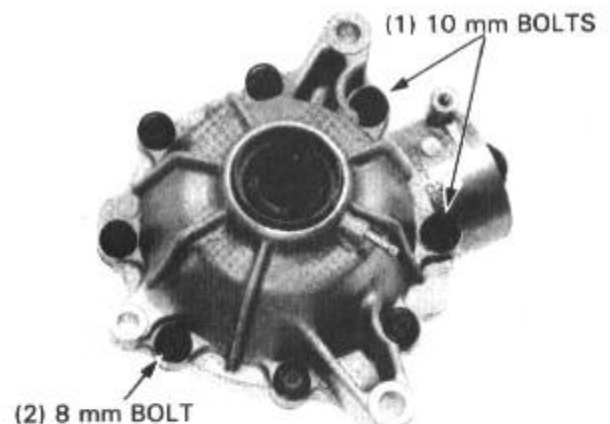
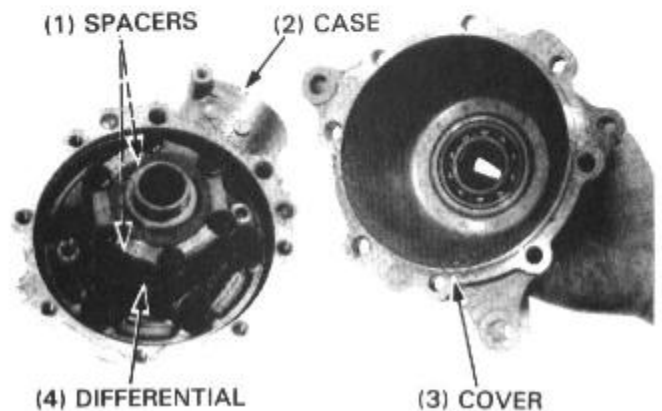
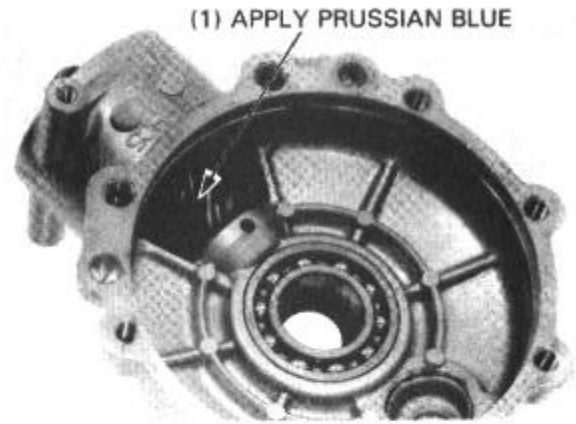
CAUTION

- It is important to turn the pinion while tightening the bolts. If the ring gear spacer is too thick, the gears will lock after only light tightening.

Remove the oil filler cap from the differential case.

Rotate the ring gear several times in both directions of rotation. Check the gear tooth contact pattern through the oil filler hole. The pattern is indicated by the Prussian Blue applied to the pinion before assembly.

Contact is normal if the Prussian Blue is transferred to the approximate center of each tooth and slightly to the flank side.



If the patterns are not correct, remove and replace the pinion spacer with one of an alternate thickness. Replace the pinion spacer with a thicker one if the contacts are too high, toward the face. Replace the pinion spacer with a thinner one if the contacts are too low, to the flank side. The patterns will shift about 1.5–2.0 mm (0.06–0.08 in) when the thickness of the spacer is changed by 0.10 mm (0.004 in).

PINION SPACERS:

- A: 1.82 mm (0.072 in)
- B: 1.88 mm (0.074 in)
- C: 1.94 mm (0.076 in)
- D: 2.00 mm (0.079 in)
- E: 2.06 mm (0.081 in)
- F: 2.12 mm (0.083 in)
- G: 2.18 mm (0.086 in)

For pinion spacer replacement, go to page 14-13.

DIFFERENTIAL ASSEMBLY INSPECTION

NOTE

- This inspection is to be done for one clutch pack at a time. The inspection must be done for each clutch pack (plate, discs, springs and seat).
- Always install each clutch pack assembly in its original location in the differential.
- Do not interchange components between the two clutch pack assemblies.

Remove one of the differential caps and remove one of the clutch pack assemblies (page 14-11).

Inspect the clutch pack assembly (page 14-12). Then, install the differential cap, leaving out the clutch pack you removed. Install the differential inspection tools to both sides of the differential.

TOOL:

Differential inspection tool 07KMK—HC50101

Hold the chamfered side with a bench vise as shown. Place a torque wrench on the other tool and measure the limited slip torque.

SLIP TORQUE: 17–25 N·m (1.7–2.5 kg-m, 12–18 ft-lb)

If the slip torque is out of specification, the clutch spring seat is worn.

Remove the inspection tools.

Remove the differential cap and the clutch pack from the differential. Select a clutch spring seat of the required thickness. If the slip torque is below specification, replace the spring seat with thicker one.

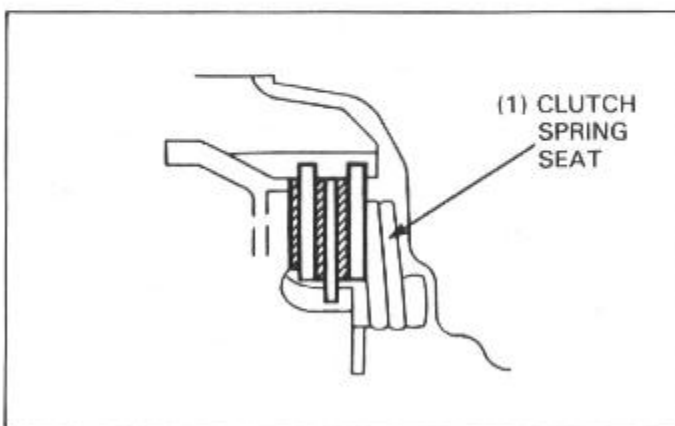
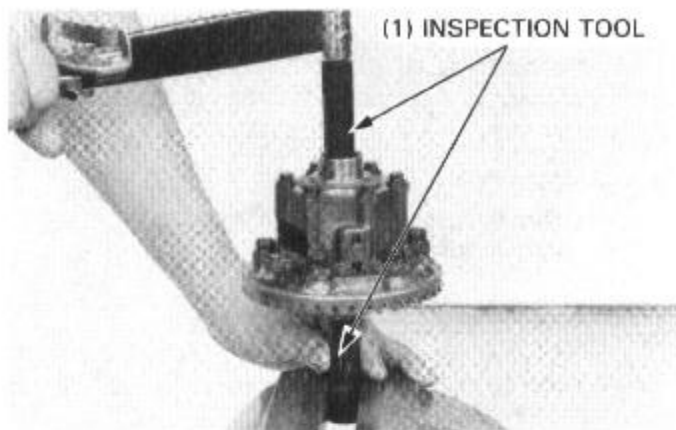
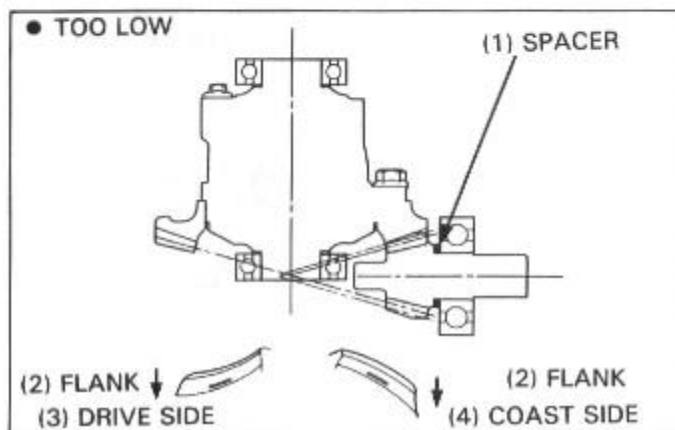
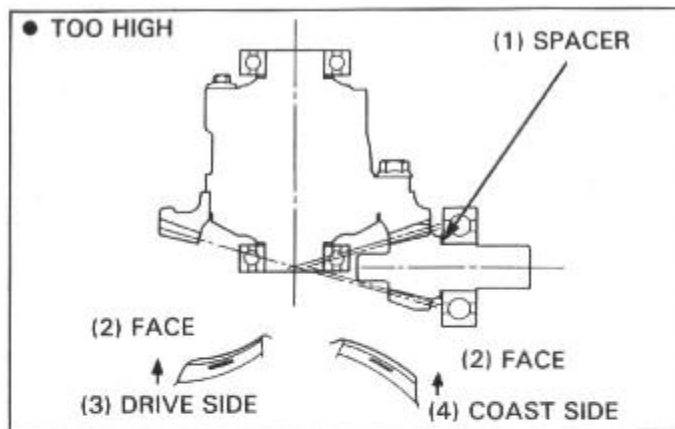
If the slip torque is above specification, replace the spring seat with a thinner one.

Select the clutch spring seat from the list below.

- A: 1.0 mm (0.039 in)
- B: 1.2 mm (0.047 in)
- C: 1.4 mm (0.055 in)
- D: 1.6 mm (0.063 in)
- E: 1.8 mm (0.071 in)

Recheck the slip torque.

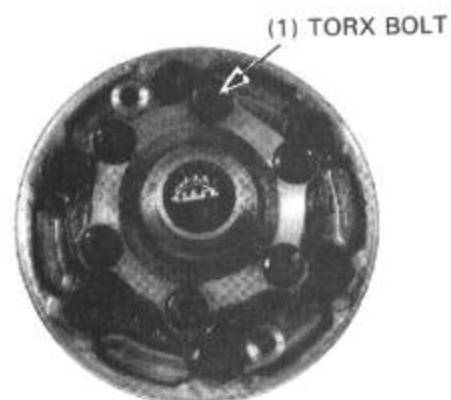
Next, inspect the remaining clutch pack assembly in the same way.



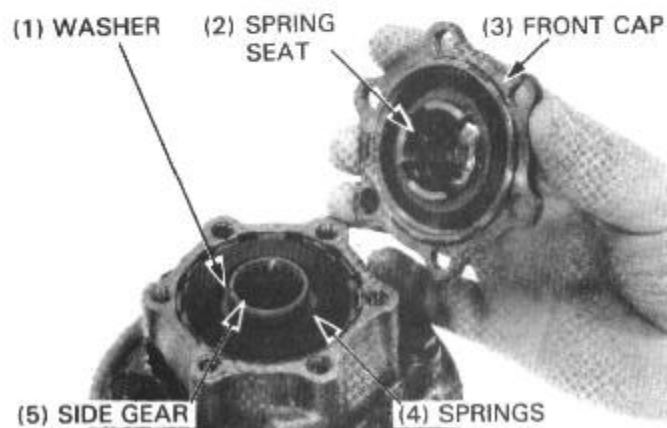
DIFFERENTIAL DISASSEMBLY

Remove the following:

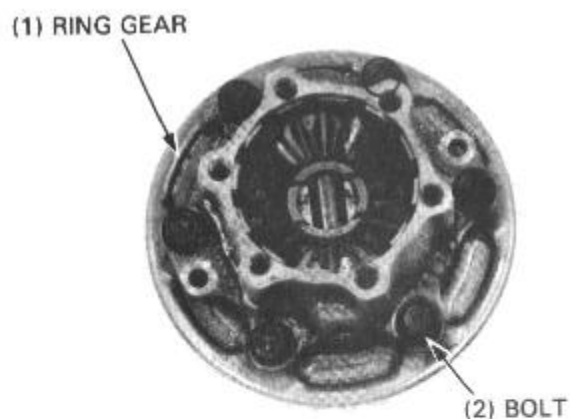
- torx bolts



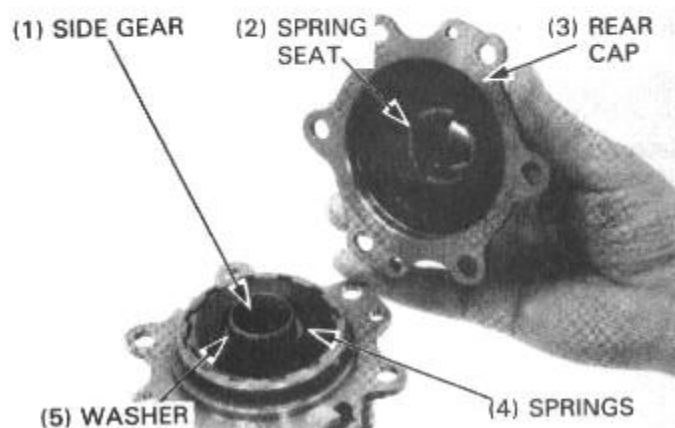
- front differential cap
- clutch pack (spring seat, springs, discs and plate)
- side gear
- washer



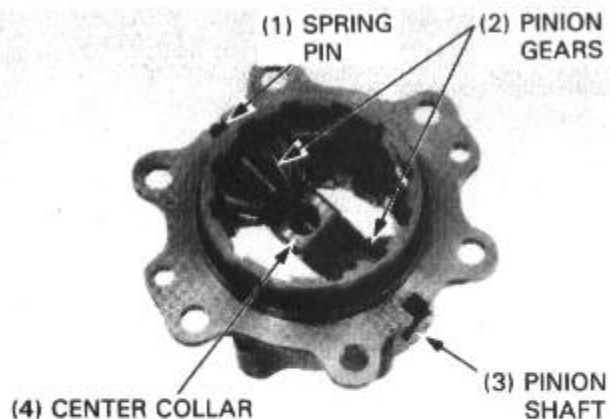
- bolts
- ring gear



- rear differential cap
- clutch pack (spring seat, springs, discs and plate)
- side gear
- washer



- spring pin
- pinion shaft
- pinion gears
- center collar
- side washers



DIFFERENTIAL INSPECTION

• CLUTCH

Measure and record the height of the clutch spring.

SERVICE LIMIT: 2.5 mm (0.10 in)



Check the clutch discs for scoring or discoloration. Measure the thickness of each disc.

SERVICE LIMITS:

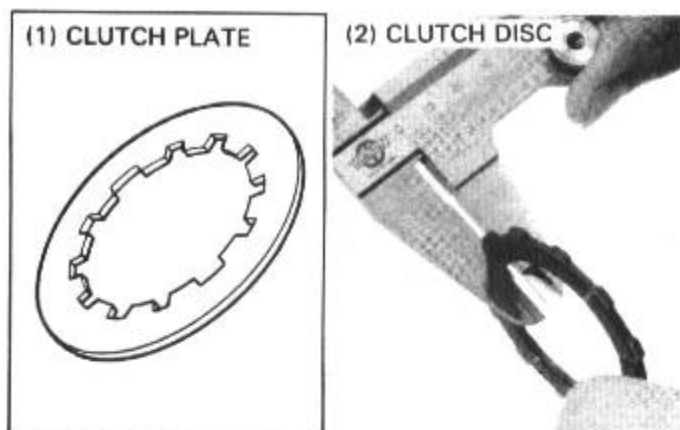
DISC A: 2.1 mm (0.08 in)

DISC B: 1.7 mm (0.07 in)

NOTE

- The clutch disc B has two faces; one side-plate, another side-disc.

Inspect the clutch plate surface for excessive scores or discoloration (purple) and replace if necessary.



• PINION

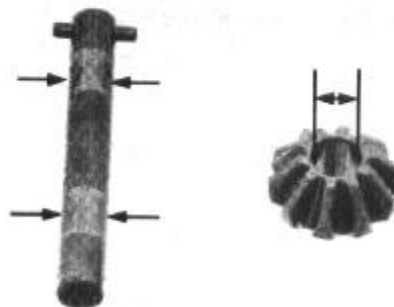
Measure the pinion gear I.D. and pinion shaft O.D.

SERVICE LIMITS:

PINION GEAR I.D.: 12.05 mm (0.474 in)

PINION SHAFT O.D.: 11.75 mm (0.463 in)

Check the side washer for wear or damage.

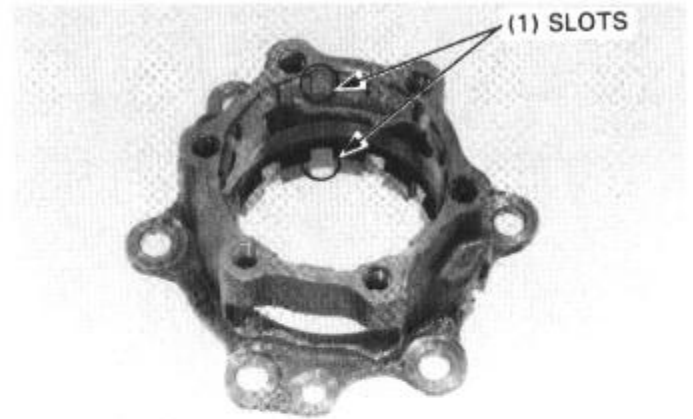


(1) PINION SHAFT

(2) PINION GEAR

• DIFFERENTIAL HOUSING

Check the slots for wear or damage.



DRIVE PINION REMOVAL

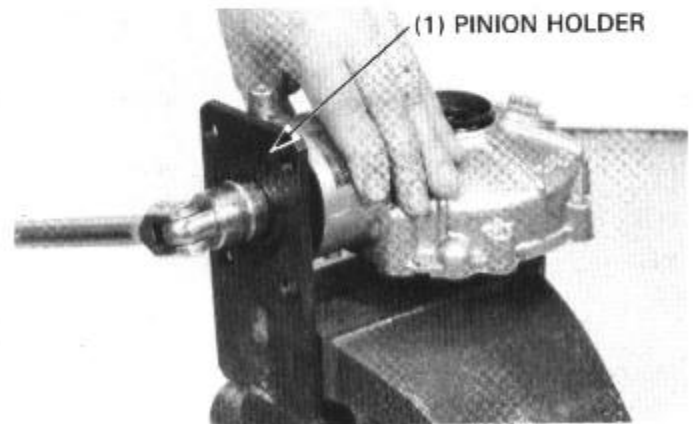
Install the pinion holder on the pinion joint and secure in a vise as shown.

TOOL:

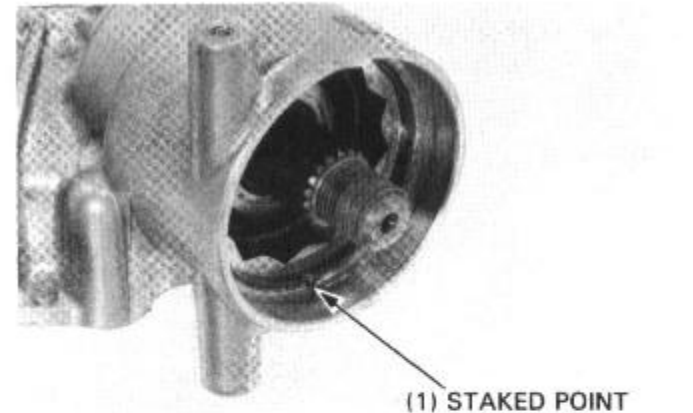
Pinion holder

07924-HA00001 or
07924-HA00000
(Modified)

Remove the pinion joint nut, then remove the pinion holder and pinion joint.



Unstake the pinion bearing lock nut with a drill or grinder.

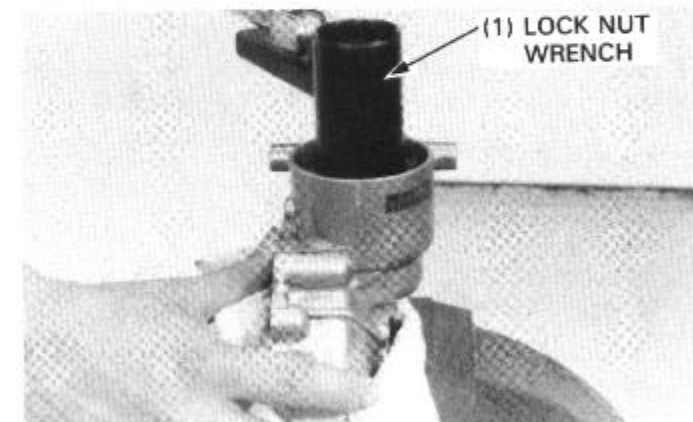


Remove the pinion bearing lock nut with the lock nut wrench.

TOOLS:

Lock nut wrench, 34 x 44 mm
or
Lock nut wrench, 34 x 44 mm
Attachment

07916-ME50001
07916-ME50000 and
07916-HA0010A
(U.S.A. only)



FRONT DRIVING MECHANISM (TRX300FW)

Put the pinion holder on the differential case.

Screw the shaft puller onto the threads of the drive pinion.

Screw the 23 mm special nut down until it contacts the pinion holder.

NOTE

- Be sure that the 23 mm special nut is backed off far enough to allow full thread engagement between the puller and the drive pinion.

Turn the 23 mm special nut counterclockwise with a 23 mm wrench while holding the shaft with a 17 mm wrench to remove the drive pinion from its housing.

Pull the drive pinion assembly off with the shaft puller.

TOOLS:

Shaft puller

07931—ME40000 or
07931—ME4000A
(U.S.A. only)

Pinion holder

07924—HA00001 or
07924—HA00000
(Modified)

DRIVE PINION DISASSEMBLY/ASSEMBLY

Pull the bearing outer and inner races off the shaft with a bearing puller.

Pull the other inner race off with the same tool.

Remove the pinion adjustment spacer.

To reassemble, first install the pinion spacer.

NOTE

- When the gear set, pinion bearing and/or differential case has been replaced, use a 2.0 mm (0.08 in) thick spacer.

Apply #80 gear oil to the inner races and the bearing.

Press one inner race onto the pinion gear shaft.

TOOL:

Driver, 22 mm I.D.

07746—0020100

Press the outer race with the other inner race onto the drive pinion.

TOOLS:

Driver, 22 mm I.D.

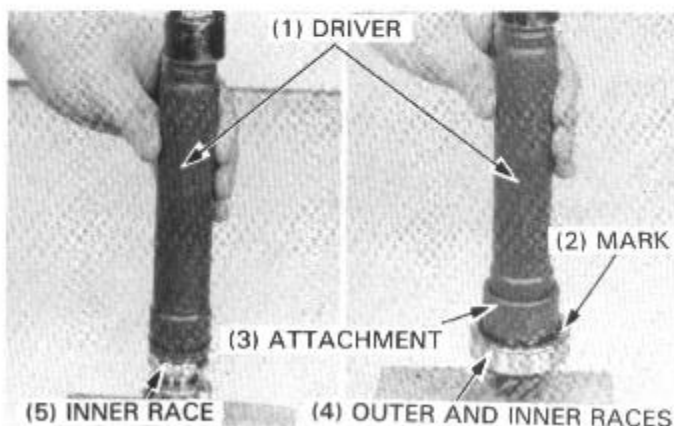
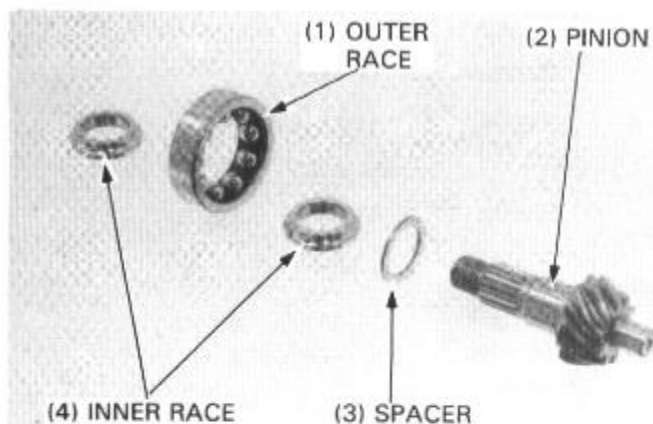
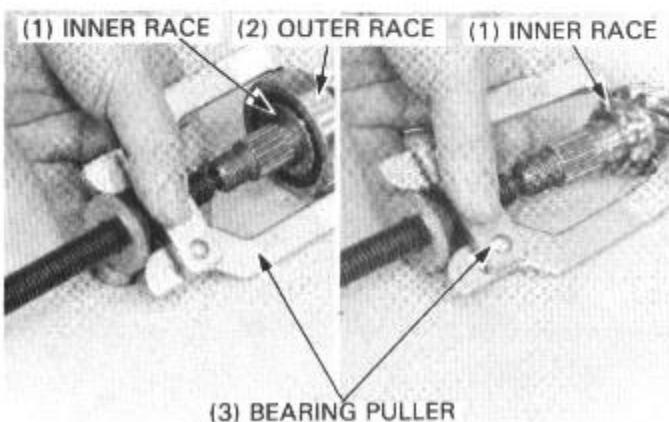
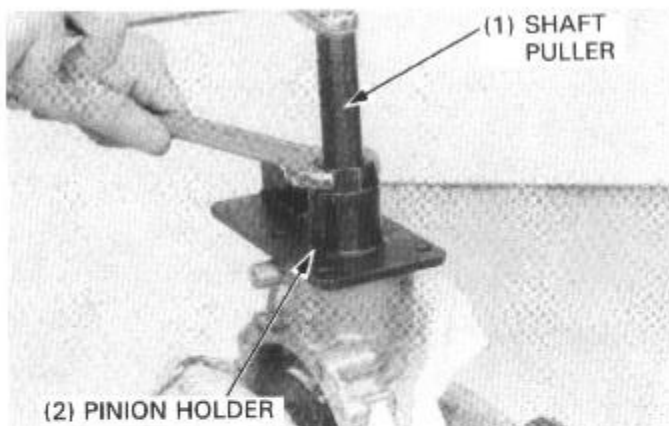
07746—0020100

Attachment, 20 mm I.D.

07746—0020400

NOTE

- Position the marked side of the outer race to the outside.



CASE BEARING REPLACEMENT

NOTE

- The drive pinion bearing cannot be removed. Replace the differential case if the bearing is damaged.

Remove the oil seal.

Drive the ring gear bearing out of the case and cover.

Blow compressed air through the breather hole in the differential cover.

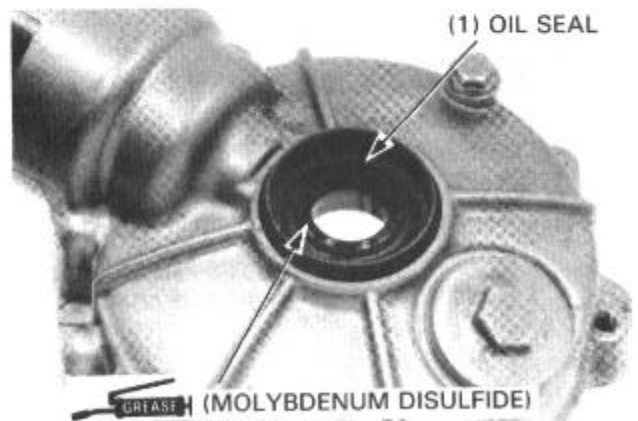
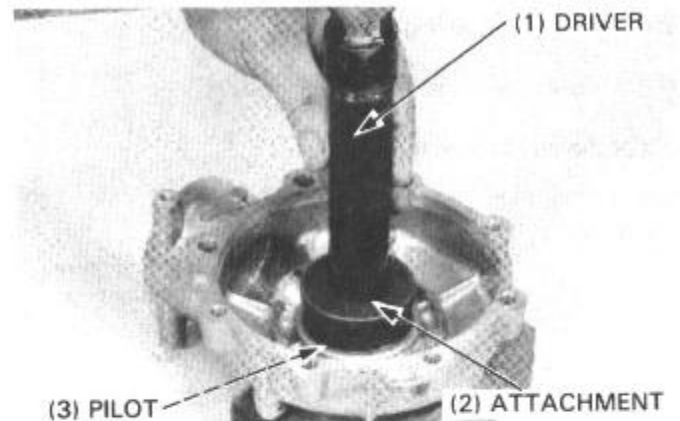
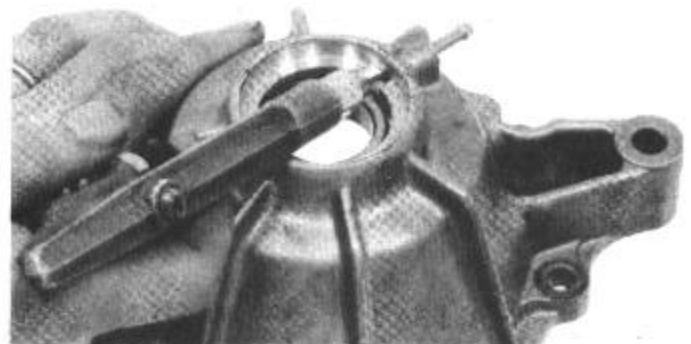
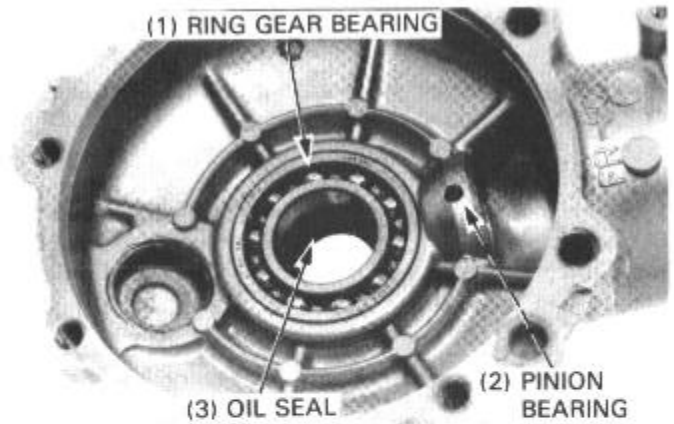
Drive the ring gear bearing into the case and cover.

TOOLS:

Driver	07749-0010000
Attachment, 52 x 55 mm	07746-0010400
Pilot, 28 mm	07746-0041100

Install a new oil seal in the case and cover.

Apply molybdenum disulfide grease to the oil seal lips.



DRIVE PINION INSTALLATION

Place the drive pinion assembly into its housing and drive it into the differential case.

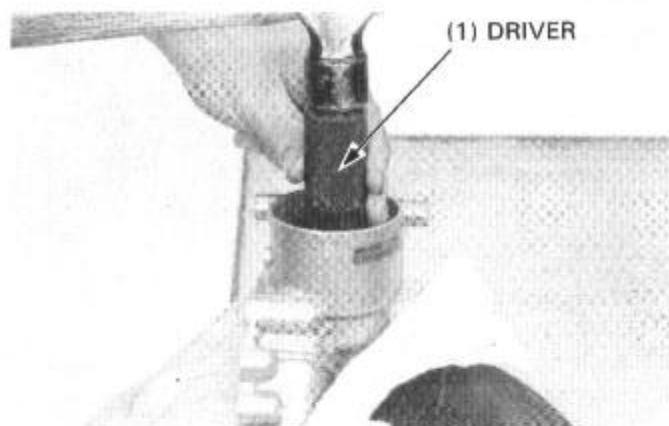
TOOL:

Pinion gear driver
or
Driver, 40 mm I.D.

07945—HA00000
(Not available in U.S.A.)
07746—0030100

NOTE

- Keep the driver centered with the bearing outer race during installation.



Install and tighten the pinion bearing lock nut.

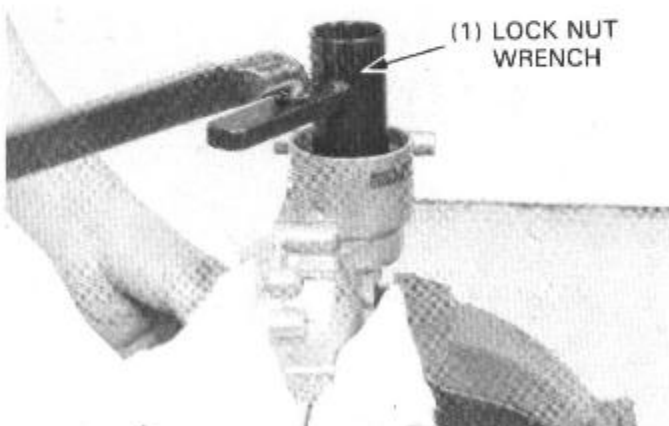
TORQUE: 100 N·m (10.0 kg-m, 72 ft-lb)

Torque wrench scale reading: 91 N·m (9.1 kg-m, 66 ft-lb)

TOOLS:

Lock nut wrench, 34 x 44 mm
or
Lock nut wrench, 34 x 44 mm
Attachment

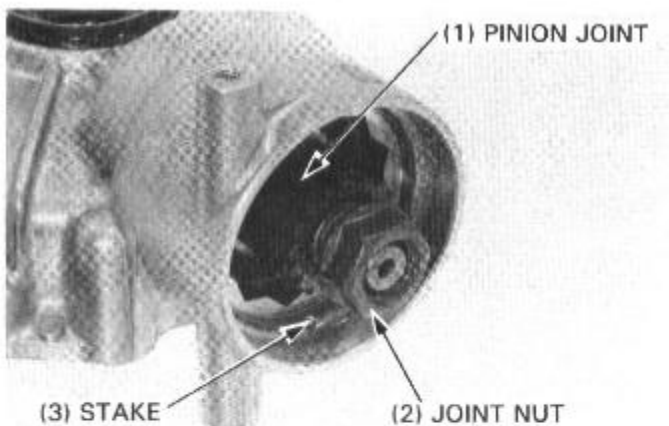
07916—ME50001
07916—ME50000 and
07916—HA0010A
(U.S.A. only)



Stake the pinion bearing lock nut.

Apply locking agent to the pinion threads.

Install the pinion joint and joint nut.



Attach the pinion holder on the pinion joint and secure in a vise.

Tighten the pinion joint nut.

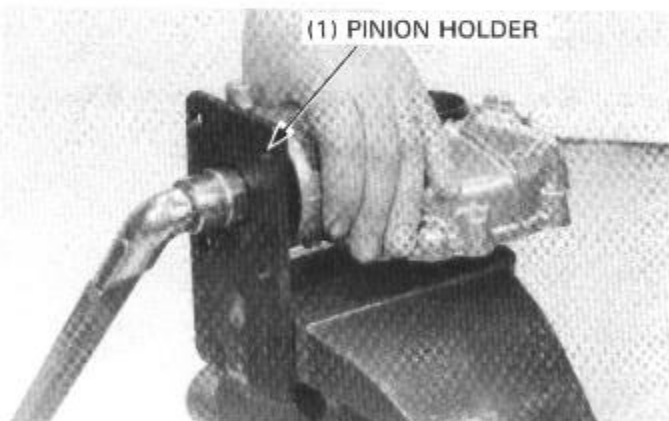
TORQUE: 110 N·m (11.0 kg-m, 80 ft-lb)

TOOL:

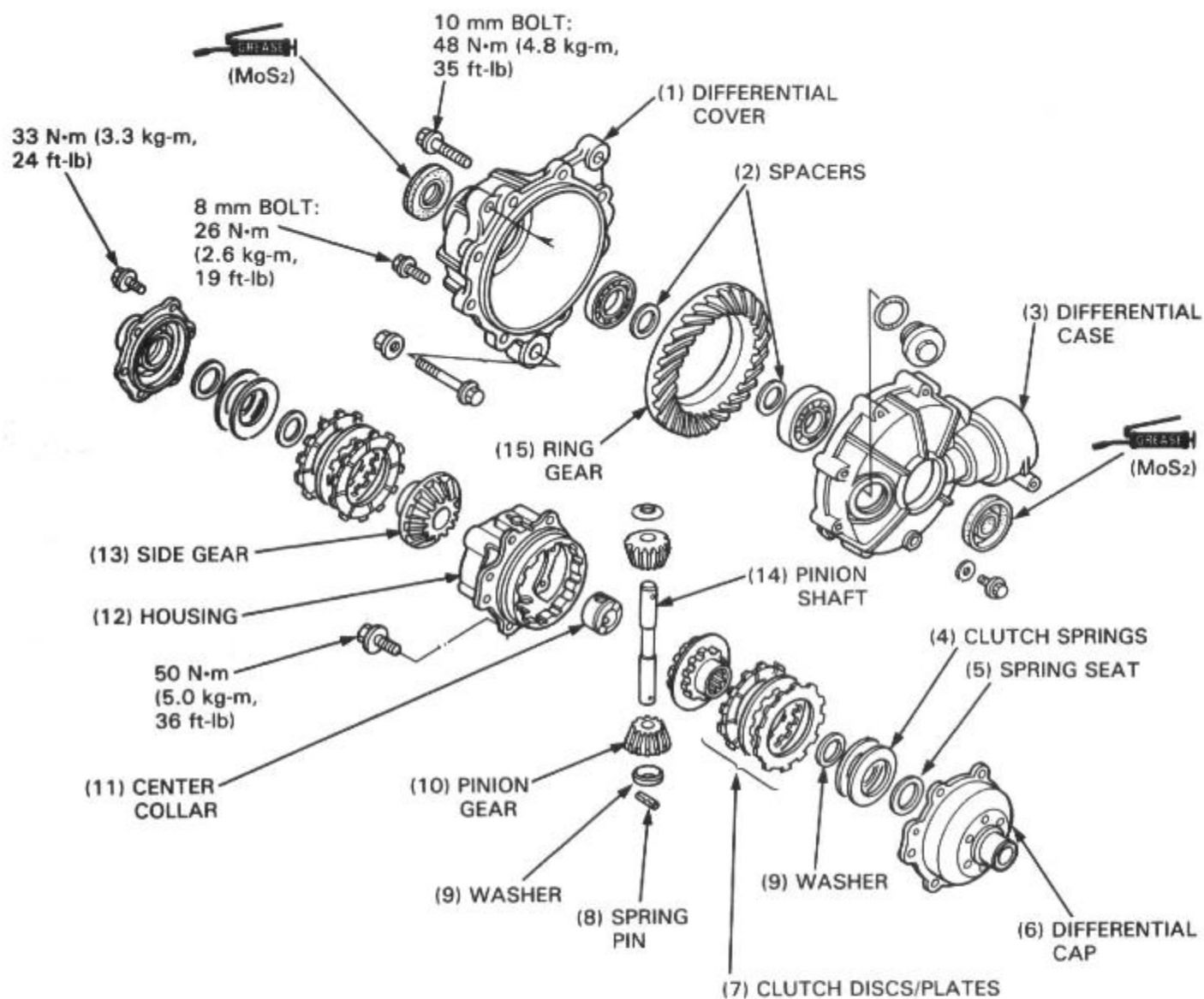
Pinion holder

07924—HA00001 or
07924—HA00000
(Modified)

Remove the pinion holder.

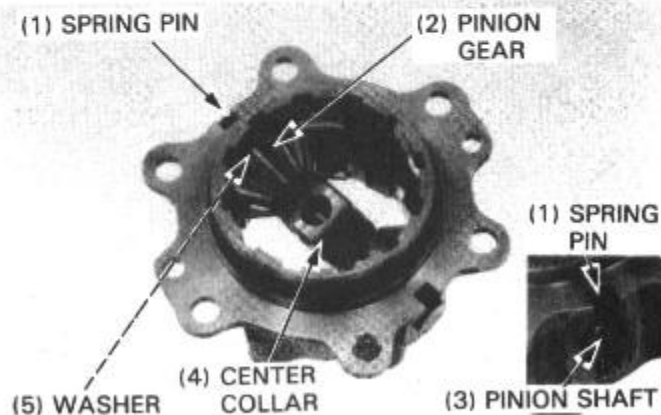


DIFFERENTIAL ASSEMBLY



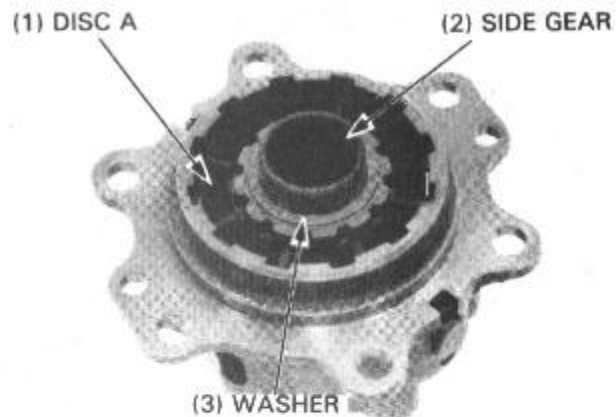
Install a new spring pin into the pinion shaft.

Install the washers, pinion gears and collar into the housing. Insert the pinion shaft and install a new spring pin securely.



Install the following:

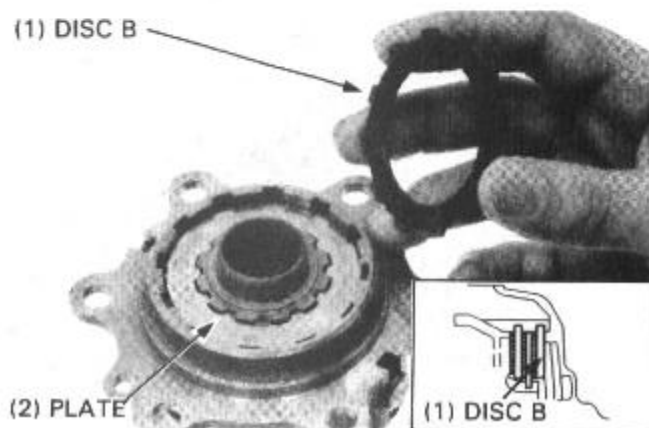
- side gear
- washer
- clutch disc A



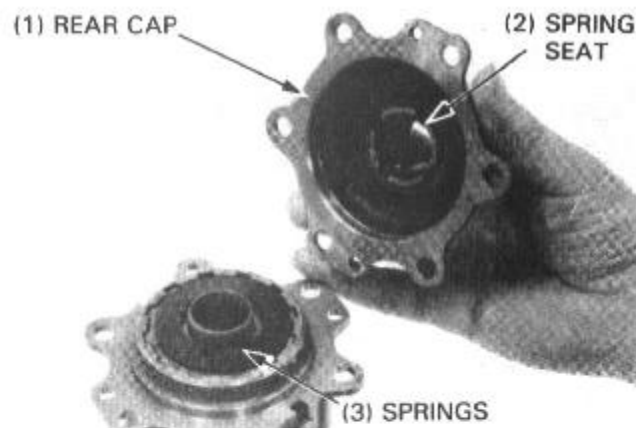
- clutch plate
- clutch disc B

NOTE

- Install clutch disc B with the lining facing inside.

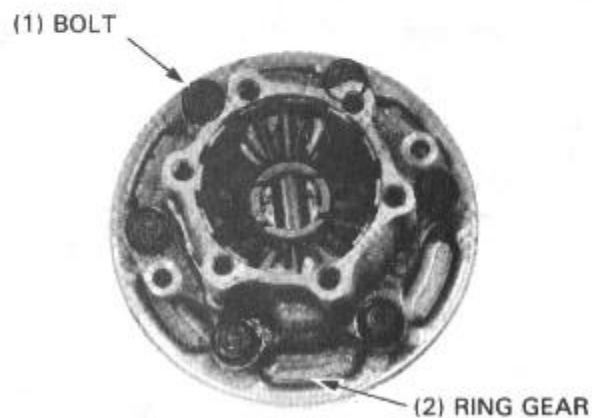


- clutch springs
- spring seat
- rear differential cap



- ring gear

Loosely install the bolts.



Install the other clutch pack as described.

Install the front differential cap.

Temporarily install the drive shaft to center the side gear, and differential cap.

Tighten the bolts to the specified torque.

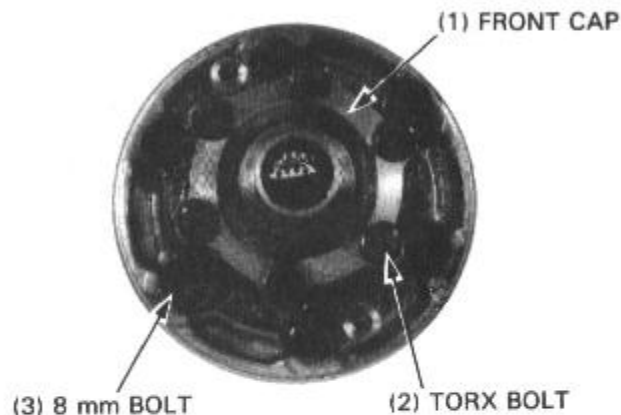
TORQUE:

Torx bolt: 33 N·m (3.3 kg-m, 24 ft-lb)

8 mm bolt: 50 N·m (5.0 kg-m, 36 ft-lb)

NOTE

- Tighten the bolts in 2—3 steps in a crisscross pattern.

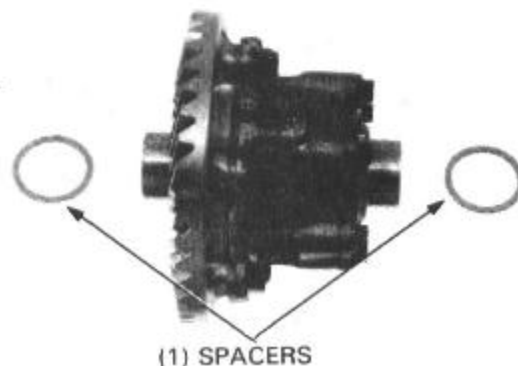


DIFFERENTIAL CASE ASSEMBLY

NOTE

- When the bearing, gear set and/or gear case has been replaced, check the tooth contact pattern (page 14-8) and gear backlash (page 14-7).

Install the ring gear spacers onto the differential assembly.

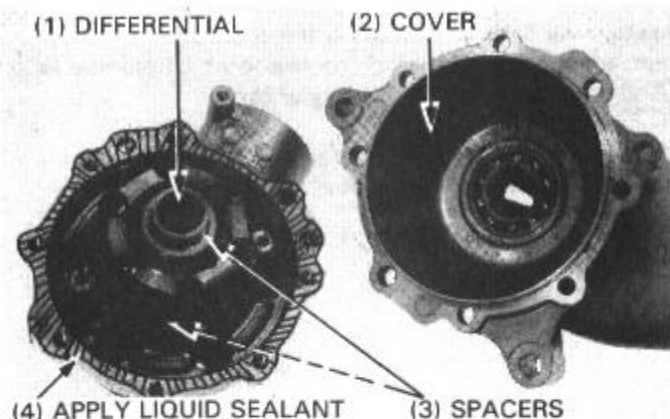


Apply liquid sealant to the mating surface of the gear case cover.

NOTE

- Keep dust and dirt out of the differential case.

Install the differential assembly with the spacers into the differential case.



Apply locking agent to the threads of the 10 mm bolts.

Tighten the cover bolts in 2—3 steps until the cover evenly touches the differential case. Then, while rotating the drive pinion, tighten the bolts to the specified torque in 2—3 steps in a crisscross pattern.

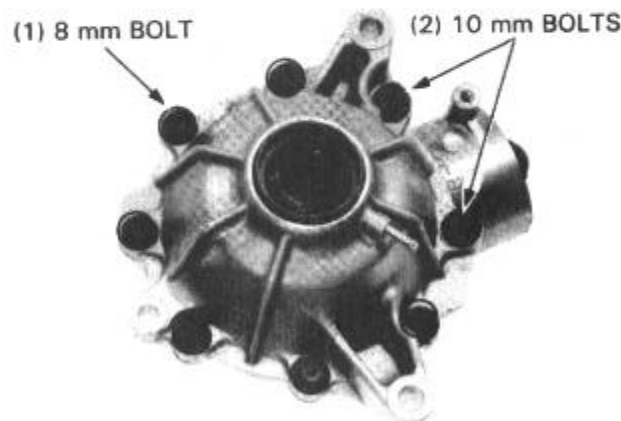
TORQUES:

10 mm bolt: 48 N·m (4.8 kg-m, 35 ft-lb)

8 mm bolt: 26 N·m (2.6 kg-m, 19 ft-lb)

CAUTION

- It is important to turn the pinion while tightening the bolts. If the ring gear spacer is too thick, the gears will lock after only light tightening.



FRONT DRIVING MECHANISM (TRX300FW)

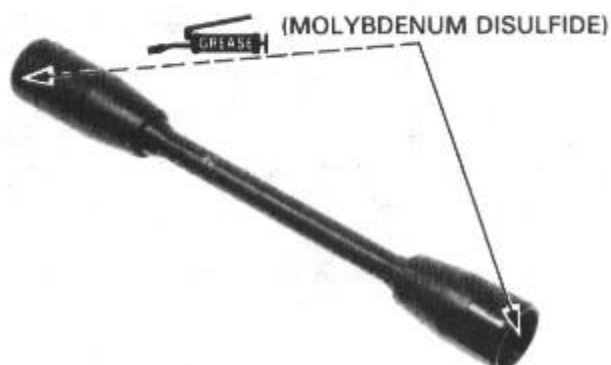
Apply molybdenum disulfide grease to the new drive pinion oil seal lips.

Install the new drive pinion oil seal on the case.



INSTALLATION

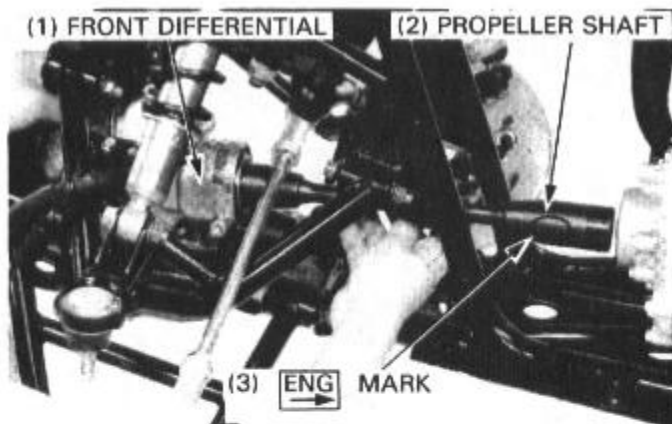
Apply molybdenum disulfide grease to the splines of the propeller shaft.



Position the front differential in the chassis.

Connect the propeller shaft on the front differential with its **ENG** mark facing the front gear case.

Push the front differential and propeller shaft slightly forward, then connect the propeller shaft to the front gear case.

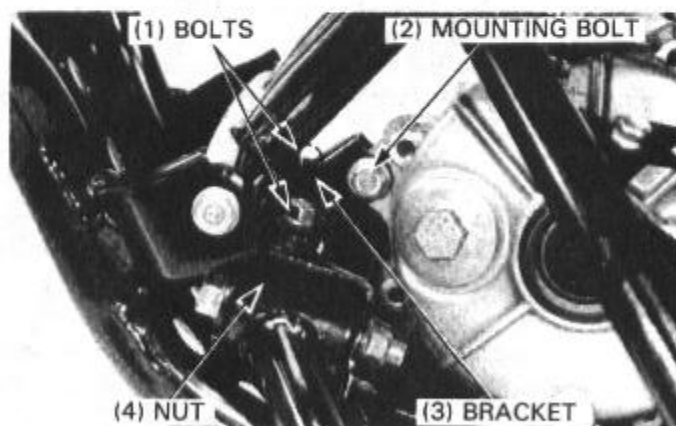


Install the front mounting bracket and tighten the bracket bolts.

TORQUE: 20 N·m (2.0 kg-m, 14 ft-lb)

Tighten the front mounting bolt.

TORQUE: 45 N·m (4.5 kg-m, 33 ft-lb)

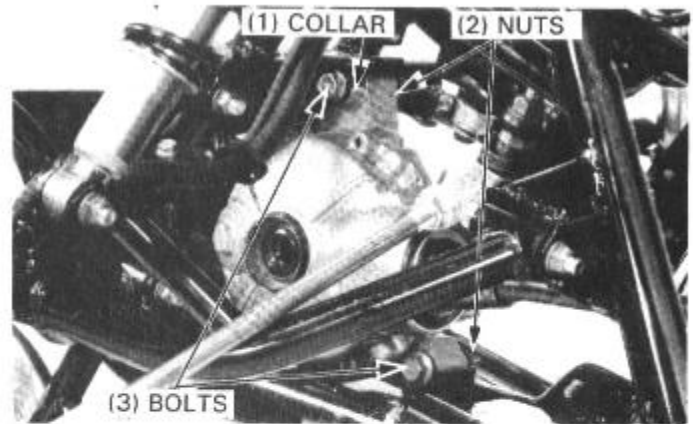


Tighten the upper and rear mounting bolts.

TORQUE: 45 N·m (4.5 kg-m, 33 ft-lb)

NOTE

- Install the upper mounting collar in the location shown.

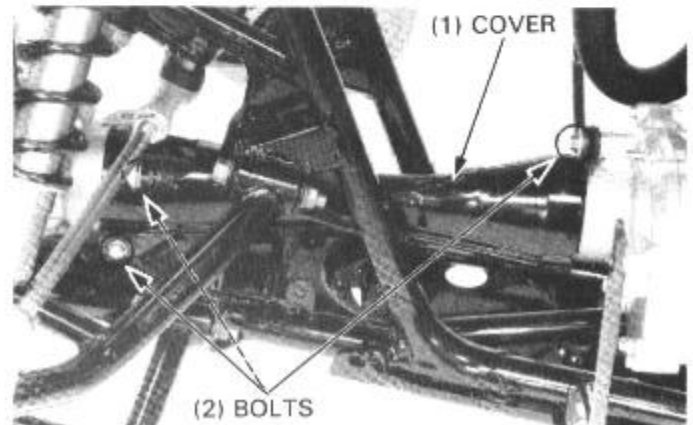


Install the propeller shaft cover and tighten the bolts securely.

Install the following:

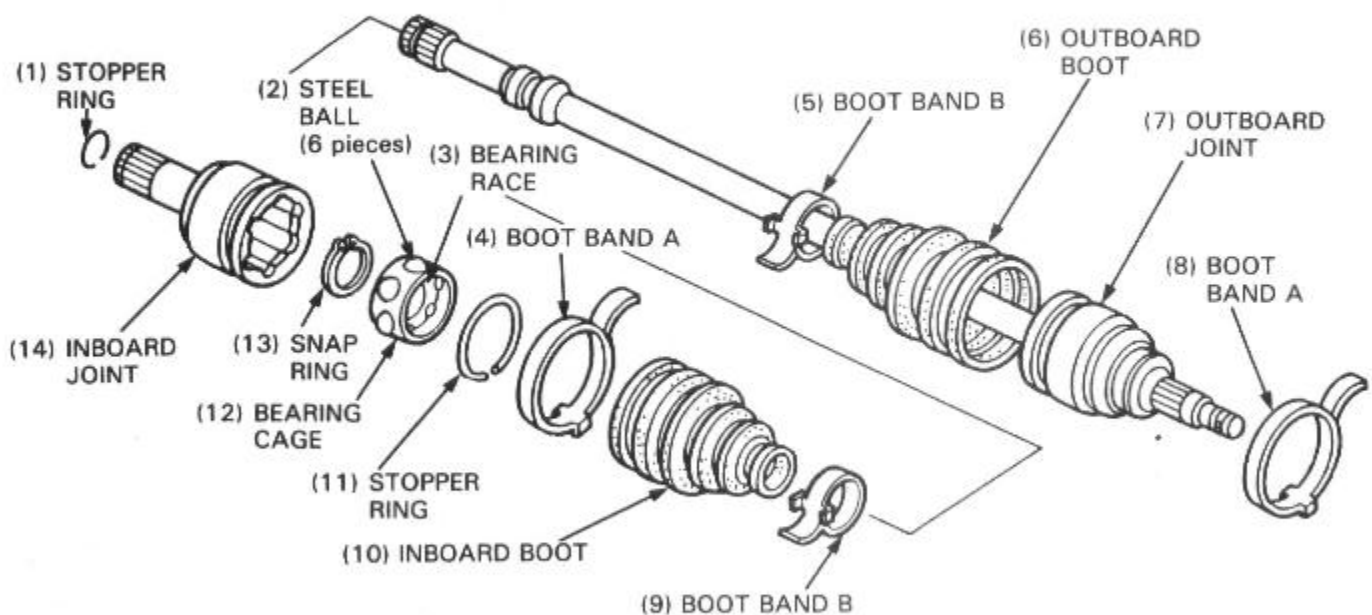
- front drive shaft
- front fender (page 16-2)

Fill the front differential with the recommended oil (page 2-4).



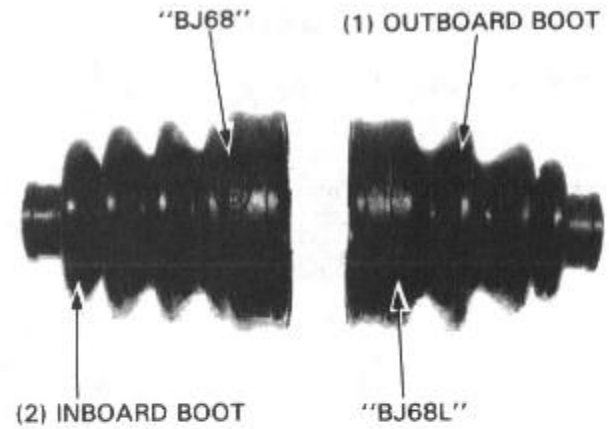
FRONT DRIVE SHAFT INSTALLATION

ASSEMBLY



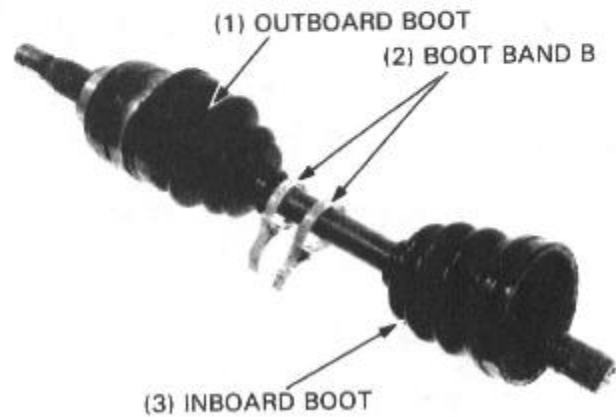
NOTE

- The boots are marked "BJ68L" for the outboard joint and "BJ68" for the inboard joint.

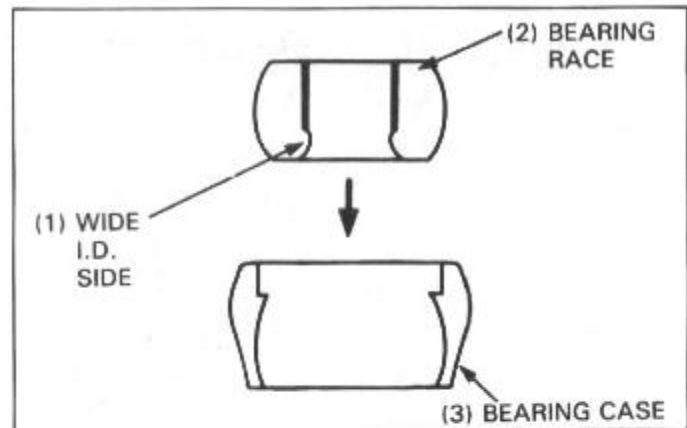


If the outboard boot was removed, install it on the drive shaft with a new boot band B (2 pieces).

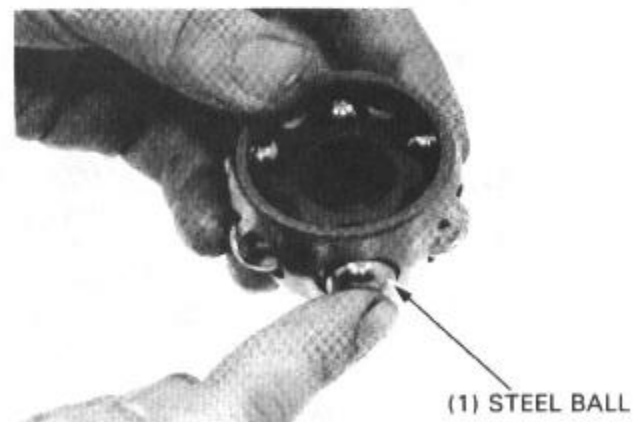
Install the inboard boot with a boot band B.
Do not tighten the bands at this time.



Install the bearing race in the bearing cage as shown.

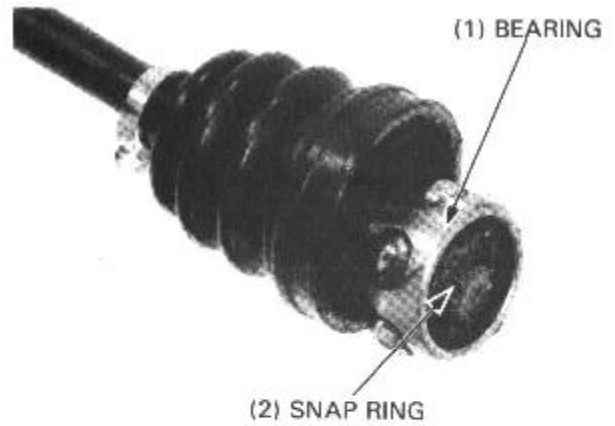


Push the steel balls into the bearing cage.



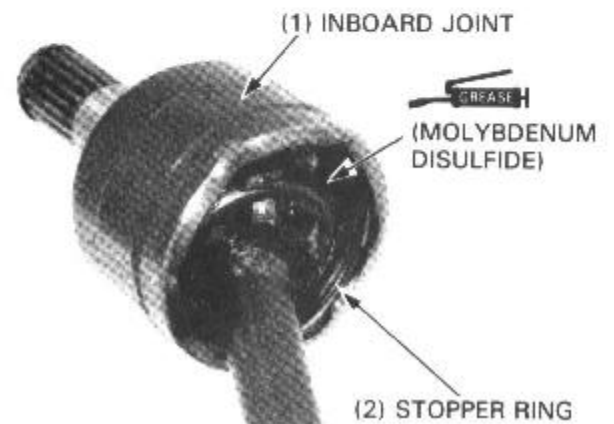
Install the bearing on the drive shaft with the small end of the bearing facing the inside of the drive shaft.

Install the snap ring securely in the groove of the drive shaft.



Apply molybdenum disulfide grease to the bearing and inside of the inboard joint.

Install the inboard joint to the drive shaft.
Install the stopper ring in the joint groove.

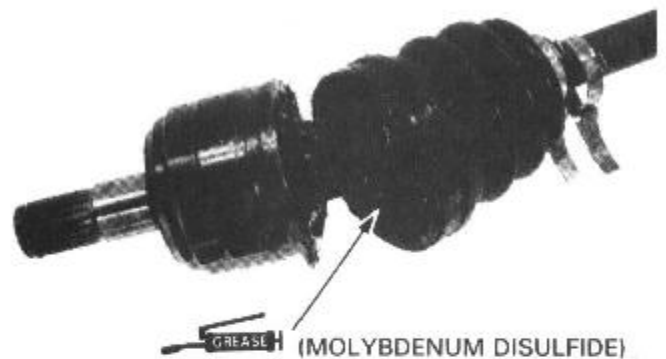


Pack the boots with molybdenum disulfide grease and pull them on the joints.

GREASE CAPACITY:

Inboard boot: 35—55 grams (1.2—1.9 oz)

Outboard boot: 30—50 grams (1.1—1.8 oz)



Adjust the length of the drive shaft to the figure given below.

DRIVE SHAFT LENGTH: 351—361 mm (13.8—14.2 in)



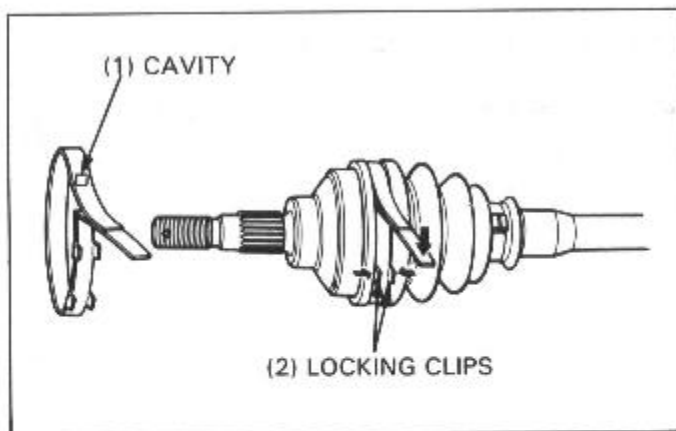
FRONT DRIVING MECHANISM (TRX300FW)

Secure the new boot bands as follows:

1. Bend down the tab of the boot band.
2. Secure the bent down tab with the locking clips and tap them with a plastic hammer.

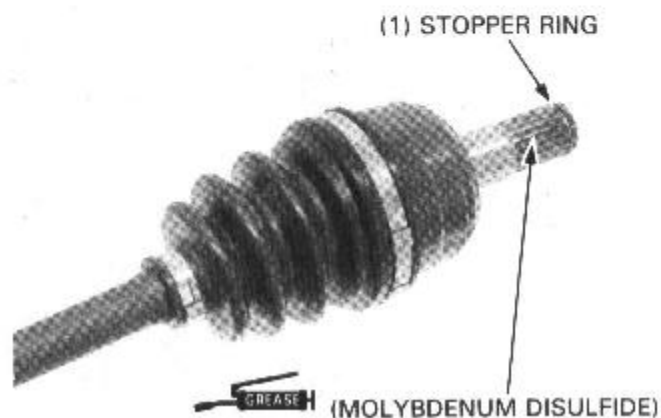
NOTE

- Be careful not to damage the boot.
- Install the bands with their tabs facing rearward.



Install a new stopper ring in the groove on the inboard joint.

Apply molybdenum disulfide grease to the splines of the inboard joint.

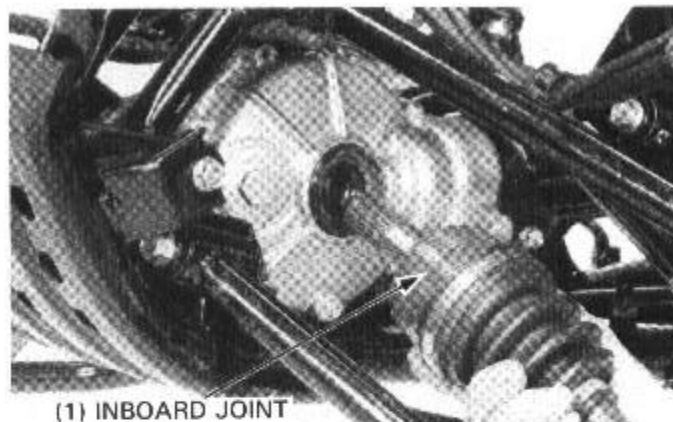


INSTALLATION

Install the drive shaft in the differential while pushing inboard joint.

NOTE

- After installing, pull the joint a little to make sure that the stopper ring locks in the differential side gear groove.



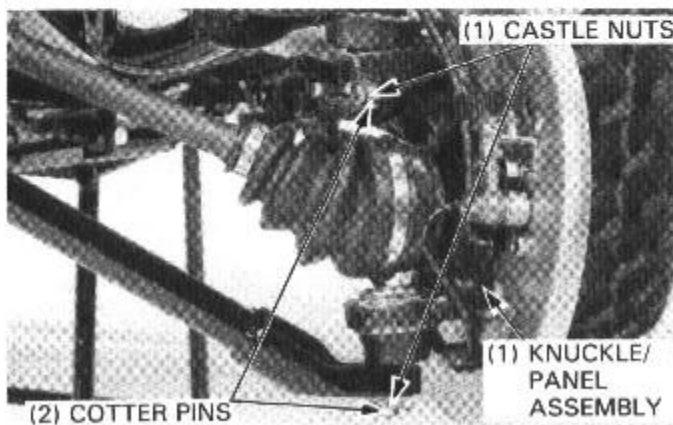
Install the knuckle/brake panel assembly.
Tighten the castle nuts to the specified torque.

TORQUE: 30–36 N·m (3.0–3.6 kg·m, 22–26 ft·lb)

Install new cotter pins.

Install the following:

- front brake drum (page 12-23).
- front wheel (page 11-9).



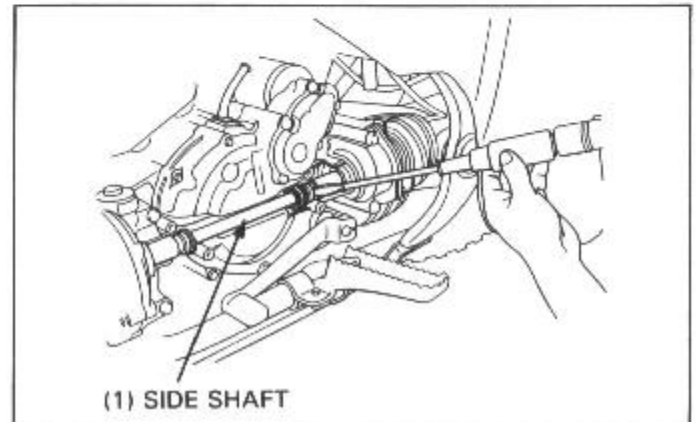
FRONT DRIVE SIDE SHAFT REMOVAL

Remove the side shaft cover.

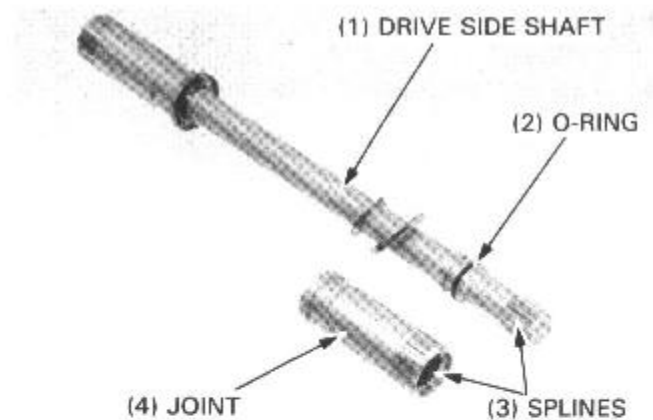


Remove the snap rings from the grooves of the shaft. Using a drift or punch, carefully tap the side shaft joints until they separate from the output shaft and front drive gear shaft.

Remove the front drive side shaft.



Check the front drive side shaft for damage.

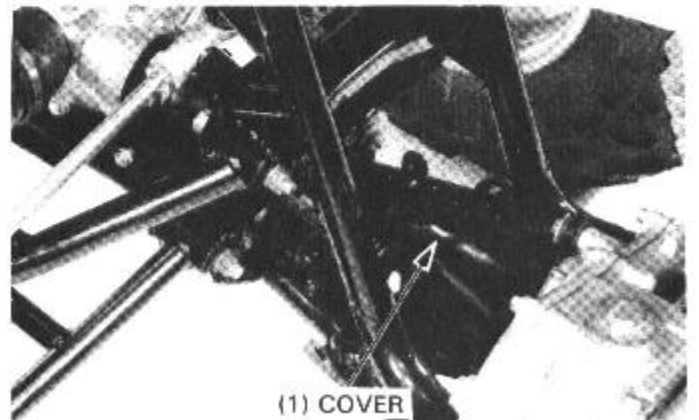


FRONT GEAR CASE

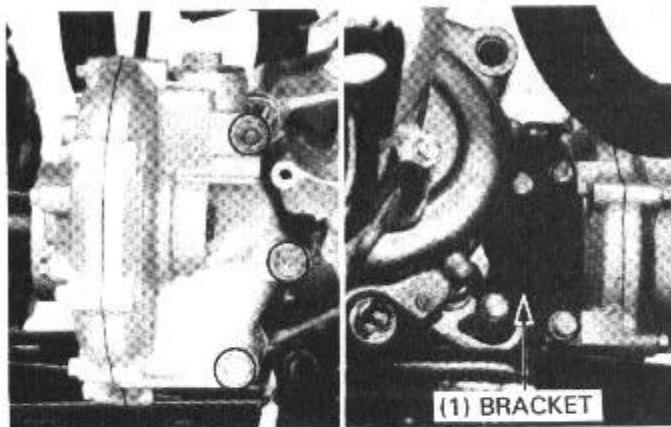
REMOVAL

Remove the front fender (page 16-1).
Drain the oil from the front gear case (page 2-5).

Remove the propeller shaft cover.

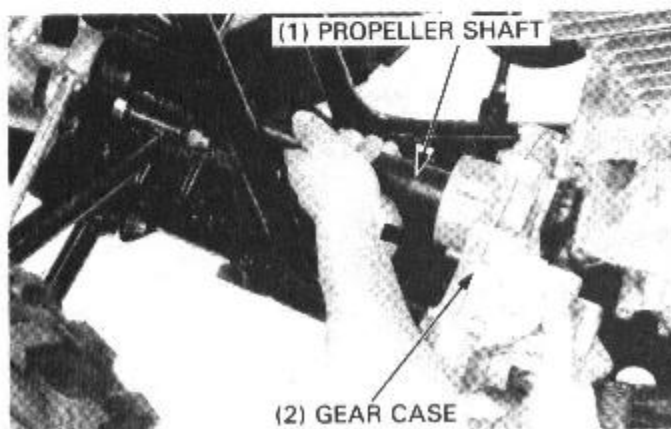


Remove the front gear case mounting bolts and bracket.



Clear the front gear case and propeller shaft from the engine and front differential by pushing the propeller shaft into the gear case.

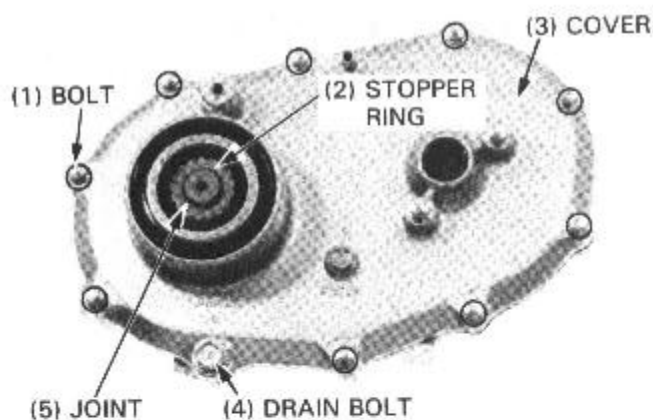
Remove the gear case and propeller shaft.



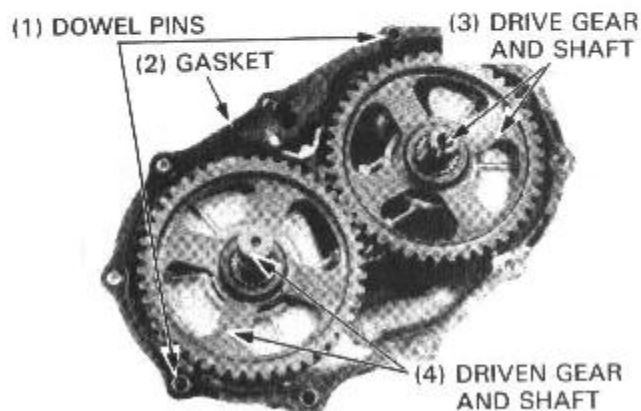
DISASSEMBLY

Remove the following from the gear case:

- stopper ring
- front driven gear shaft joint
- oil drain bolt
- cover bolts
- cover



- dowel pins
- gasket
- front driven gear and shaft
- front drive gear and shaft



INSPECTION

• GEAR AND SHAFT

Check the gear and shaft for wear or damage.



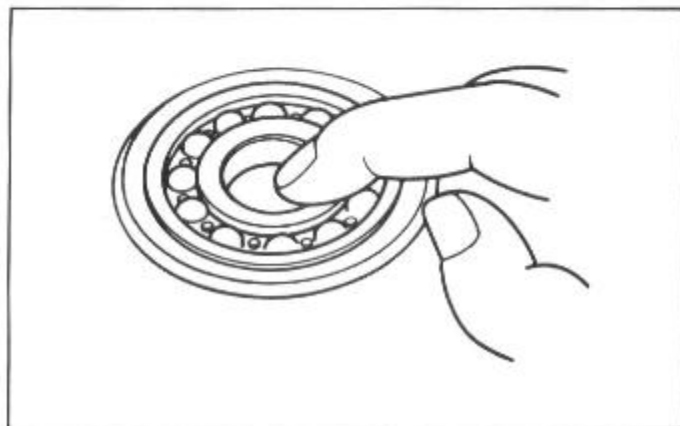
• BEARING

Turn the inner race of each bearing with your finger.

The bearing should turn smoothly and quietly.

Also check that the bearing outer race fits tightly in the case or cover.

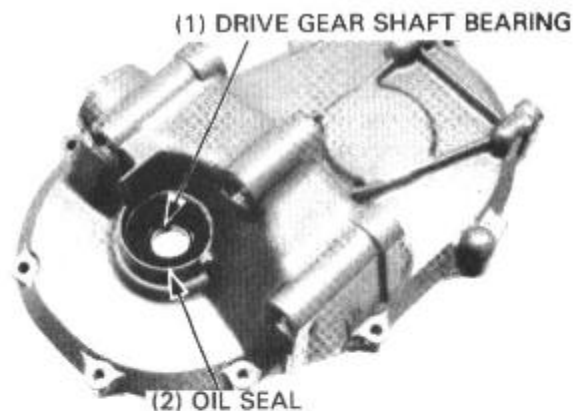
Remove and discard the bearings if the races do not turn smoothly, quietly or if they fit loosely in the case or cover.



BEARING REMOVAL

• CASE BEARING

Remove the oil seal and drive the drive gear shaft bearing out.



Remove the driven gear shaft bearing.

TOOLS:

Bearing remover, 17 mm

Remove handle

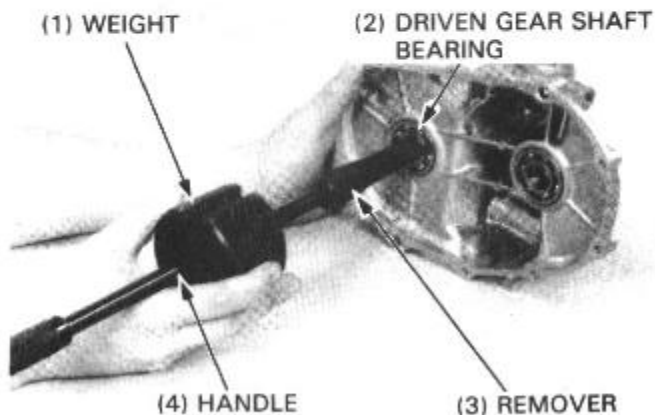
Remover sliding weight

07936-3710300

07936-3710100

07741-0010201 or

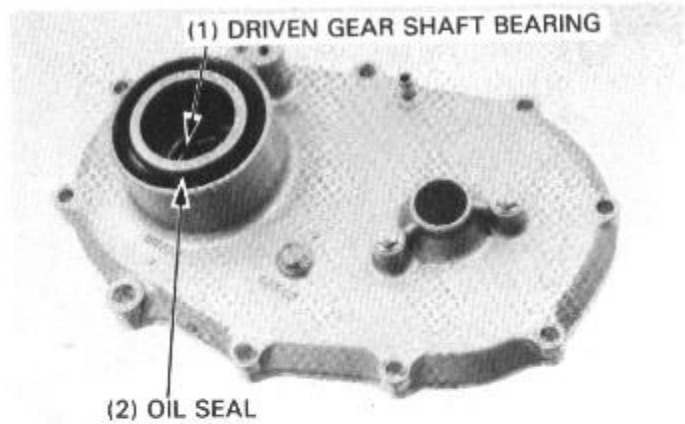
07936-3710200



• COVER BEARING

Remove the oil seal.

Drive the driven shaft bearing out.



Remove the drive gear shaft bearing.

TOOLS:

Bearing remover, 17 mm

07936-3710300

Remover handle

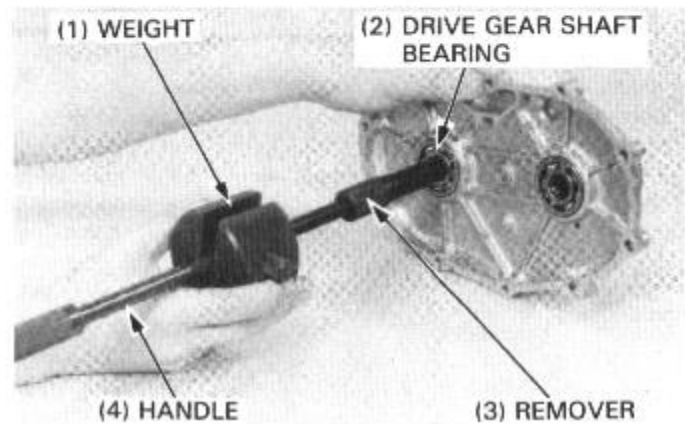
07936-3710100

Remover sliding weight

07741-0010201 or

07936-3710200

Remove the oil seal.



BEARING INSTALLATION

Install a new drive shaft oil seal in the cover.

Apply grease to the oil seal lips.

Install new bearings in the cover and case.

TOOLS:

Driver

07749-0010000

Attachment, 37 x 40 mm

07746-0010200

Pilot, 17 mm

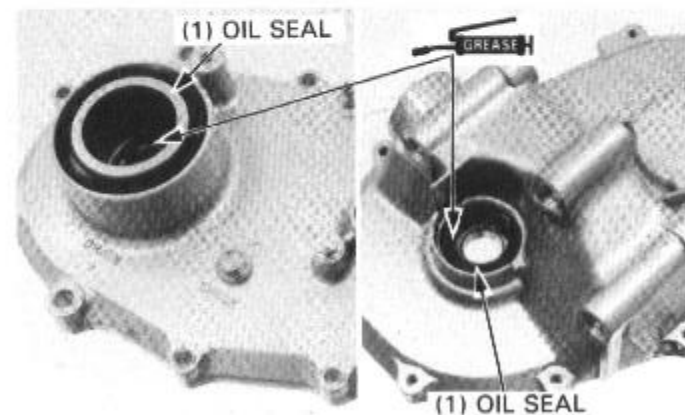
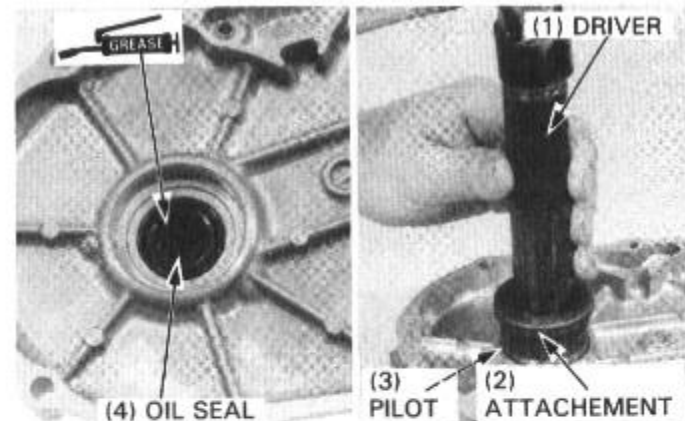
07746-0040400

NOTE

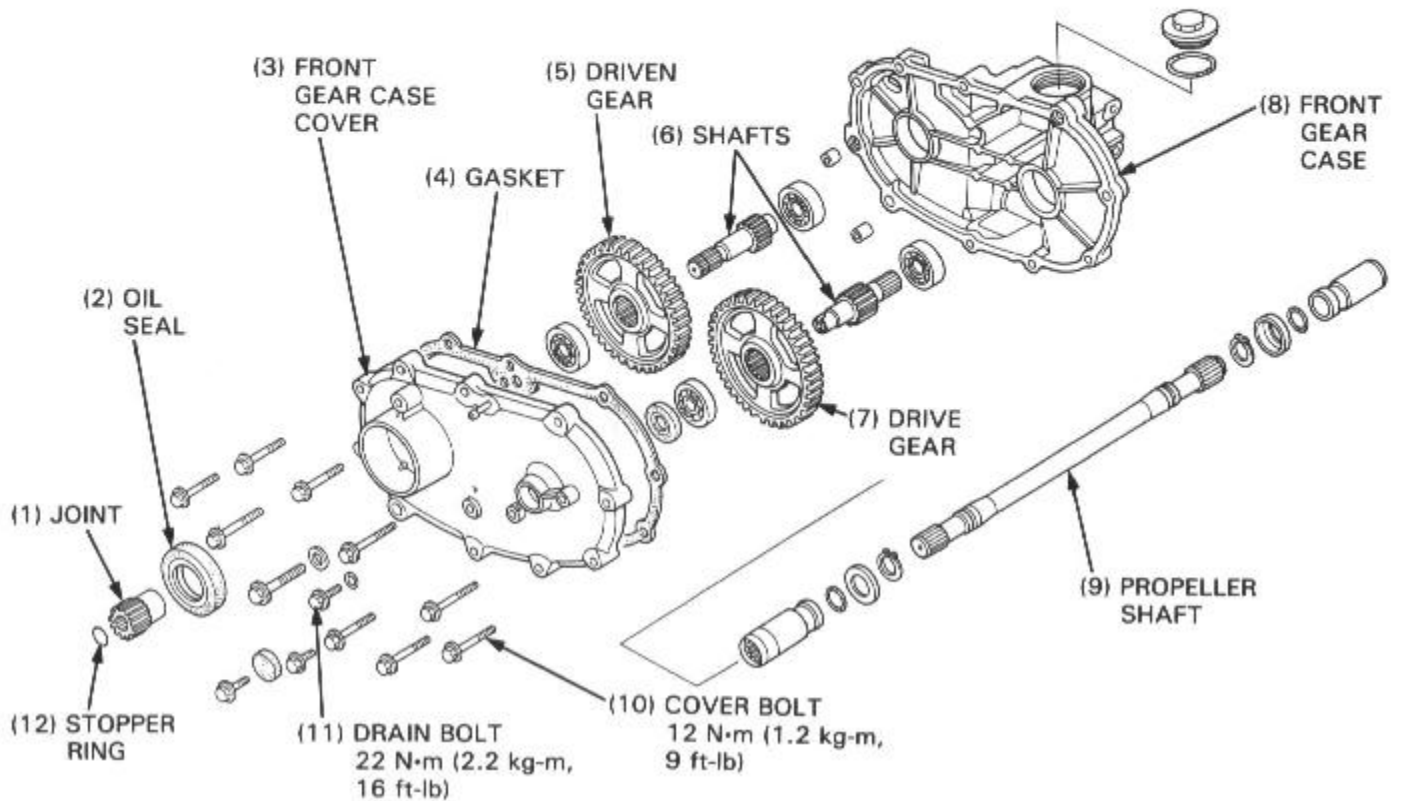
- To avoid case damage do not use the 17 mm pilot to install the driven gear shaft bearing.

Install new oil seals in the cover and case.

Apply grease to the oil seal lips.

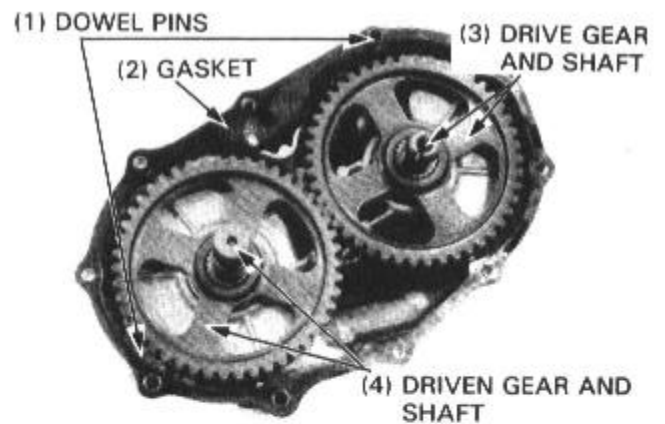


ASSEMBLY



Install the following in the case:

- front drive gear and shaft
- front driven gear and shaft
- new gasket
- dowel pins

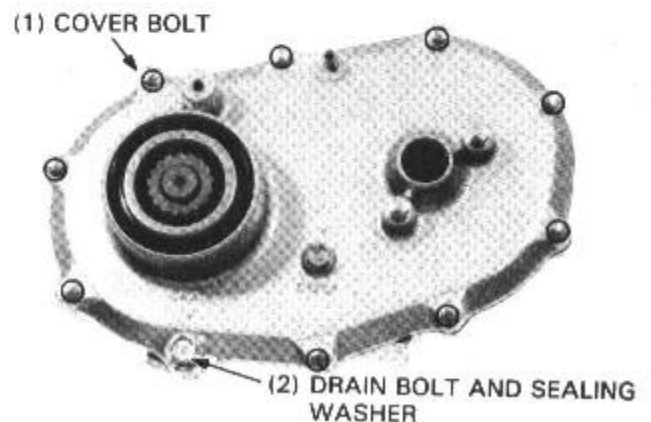


Tighten the cover bolts and drain bolt with a new sealing washer.

TORQUES:

Drain bolt: 22 N·m (2.2 kg-m, 16 ft-lb)

Cover bolt: 12 N·m (1.2 kg-m, 9 ft-lb)

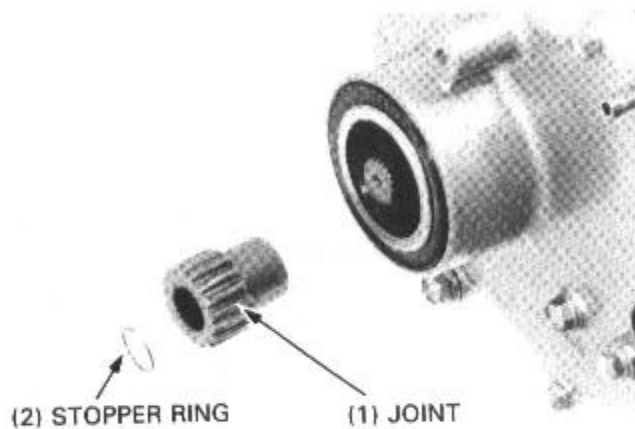


FRONT DRIVING MECHANISM (TRX300FW)

Install the driven gear shaft joint and secure it with the stopper ring.

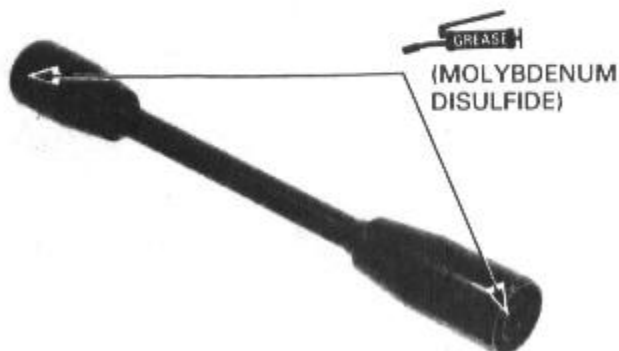
NOTE

- Install the stopper ring securely in the groove of the driven gear shaft.



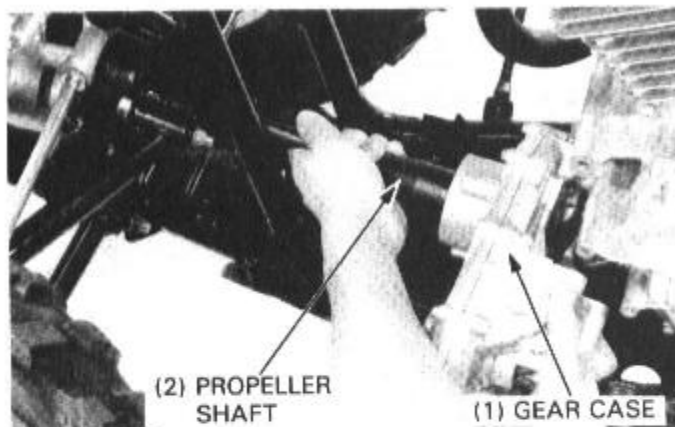
INSTALLATION

Apply molybdenum disulfide grease to the splines of the propeller shaft.



Install the propeller shaft in the front gear case with its **ENG** mark facing the gear case.

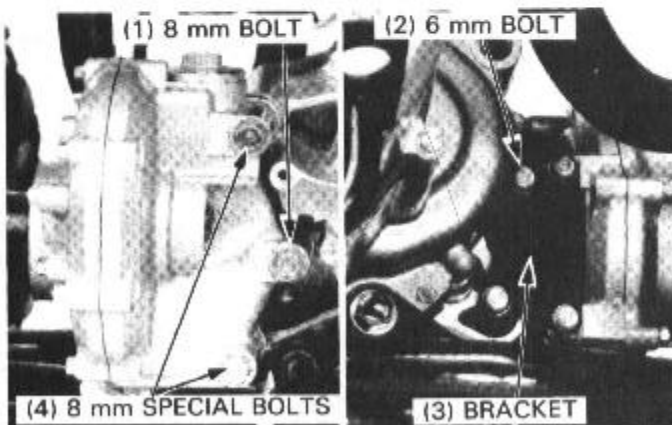
Position the gear case/propeller shaft in the frame and push slightly rearward to install the shaft in the differential case.



Install the front gear case to the engine.

TORQUES:

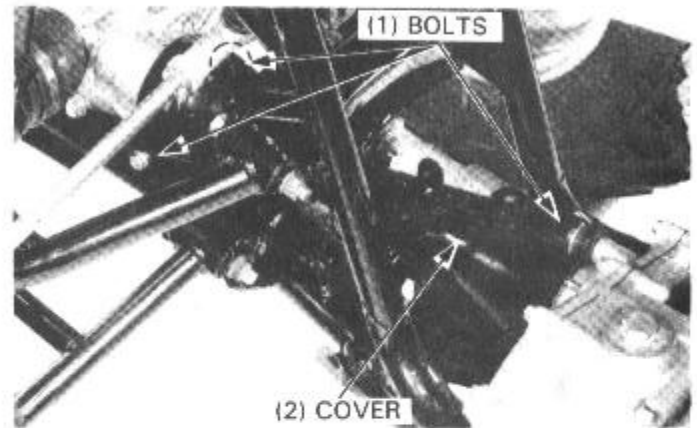
- 8 mm bolt: 25 N·m (2.5 kg-m, 18 ft-lb)
- 6 mm bolt: 12 N·m (1.2 kg-m, 9 ft-lb)



Install the propeller shaft cover and tighten the cover bolts securely.

Fill the front gear case with the recommended oil (page 2-5).

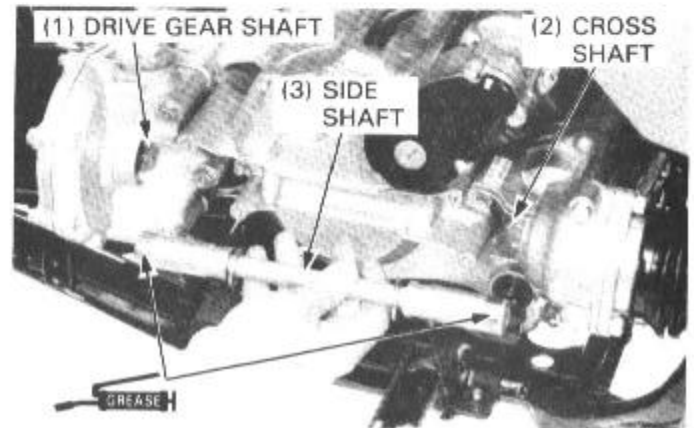
Install the front fender (page 16-2).



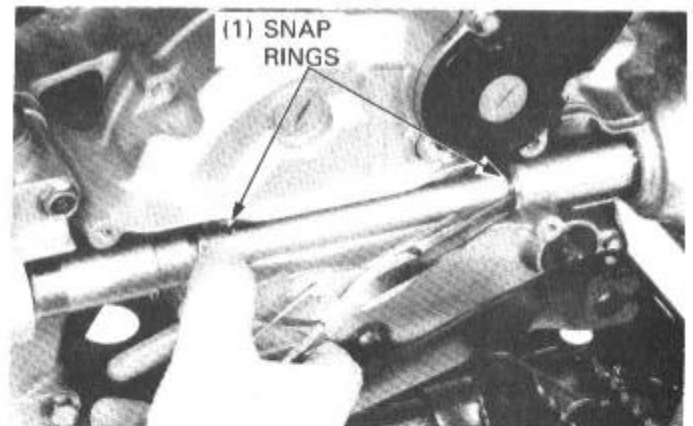
FRONT DRIVE SIDE SHAFT INSTALLATION

Apply grease to the splines of the side shaft.

Install the side shaft to the output shaft and front drive gear shaft.



Install the snap rings in the side shaft grooves.



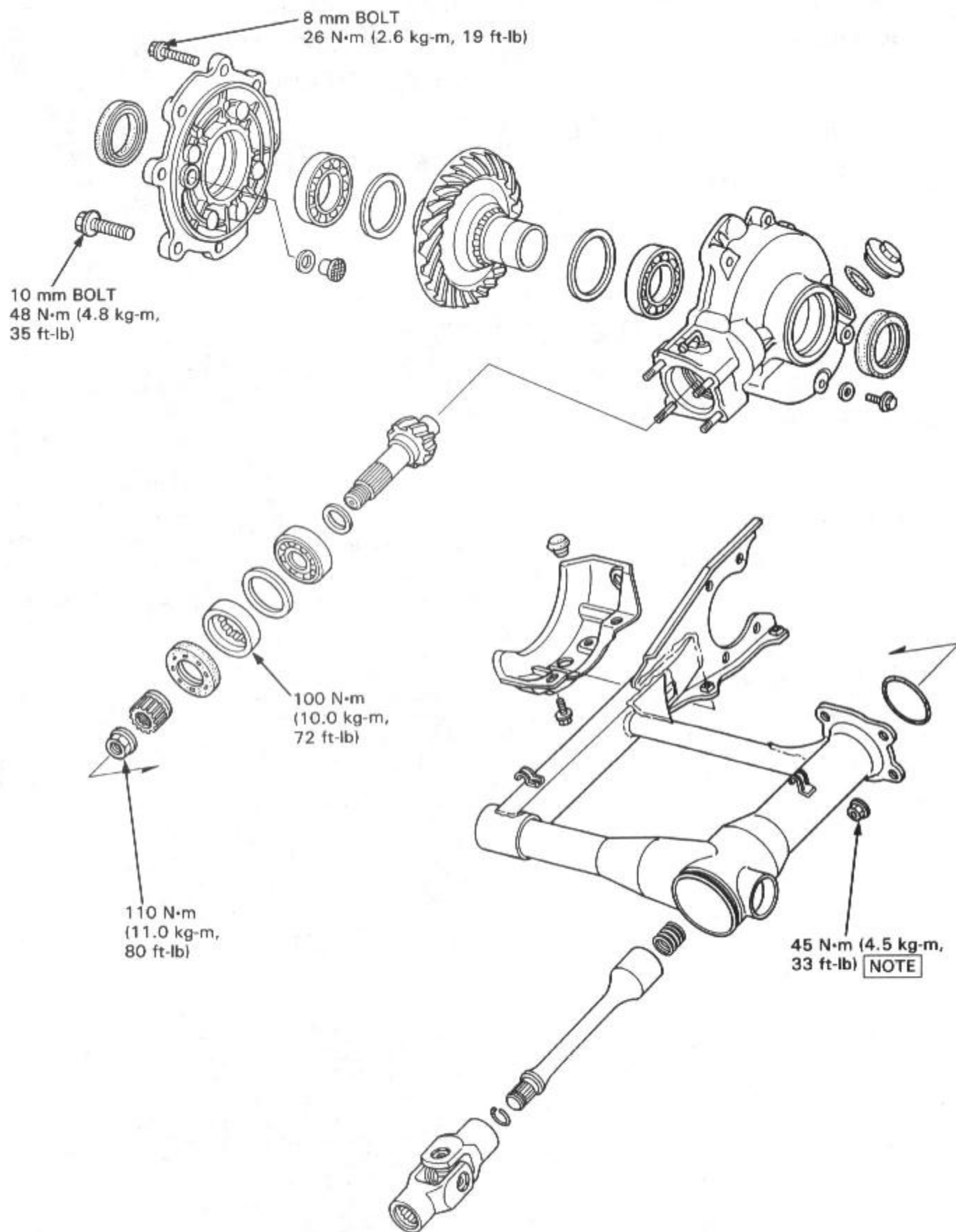
Install the side shaft cover.

Tighten the bolts to the specified torque.

TORQUE: 10 N·m (1.0 kg-m, 7 ft-lb)



REAR DRIVING MECHANISM



NOTE Re-use strictly prohibited.

15. REAR DRIVING MECHANISM

SERVICE INFORMATION	15-1	REAR DRIVE SHAFT	15-12
TROUBLESHOOTING	15-2	REAR FINAL DRIVE INSTALLATION	15-13
REAR AXLE REMOVAL	15-3	REAR AXLE INSTALLATION	15-15
REAR FINAL DRIVE REMOVAL	15-4		

SERVICE INFORMATION

GENERAL

- This section covers servicing of the rear axle, rear drive shaft and rear final drive.
- Replace all oil seals whenever the rear final drive is disassembled.
- Check the tooth contact pattern and gear backlash when the final drive bearing, gear set and/or case are replaced.
- When using the lock nut wrench, use a deflecting beam type torque wrench 50 cm (20 inches) long. The lock nut wrench increases the torque wrench's leverage, so the torque wrench reading will be less than the torque actually applied to the lock nut. The specification given is the actual torque applied to the lock nut, not the reading on the torque wrench.

SPECIFICATION

ITEM		STANDARD	SERVICE LIMIT
Axle runout		—	3.0 mm (0.12 in)
Rear final drive	Oil capacity	100 cc (3.4 oz) at disassembly	—
	Recommended oil	Hypoid gear oil SAE #80	—
	Gear backlash	0.08–0.18 mm (0.003–0.007 in)	0.25 mm (0.010 in)

TORQUE VALVES

Final drive

Joint nut	45 N·m (4.5 kg-m, 33 ft-lb) — Re-use strictly prohibited
Cover bolt 10 mm	48 N·m (4.8 kg-m, 35 ft-lb) Apply locking agent
8 mm	26 N·m (2.6 kg-m, 19 ft-lb)
Pinion bearing lock nut	100 N·m (10.0 kg-m, 72 ft-lb)
Pinion joint nut	110 N·m (11.0 kg-m, 80 ft-lb) Apply locking agent

Axle

Axle housing bolt	50 N·m (5.0 kg-m, 36 ft-lb)
Axle lock nut inner	40 N·m (4.0 kg-m, 29 ft-lb)
outer	130 N·m (13.0 kg-m, 94 ft-lb) Apply locking agent
Axle nut ('88–'92:)	100–120 N·m (10.0–12.0 kg-m, 72–87 ft-lb)
(After '92:)	140–160 N·m (14.0–16.0 kg-m, 101–116 ft-lb)

TOOLS

Special

Lock nut wrench, 41 mm	07916–9580200 or 07916–958020A (U.S.A. only)
Lock nut wrench attachment, 41 mm	07916–9580400 or 07916–958010A (U.S.A. only)
Pinion holder	07924–HA00001 or 07924–HA00000 Must be modified pinion holder (4) holes. Increase holes to 10.5 mm (0.41 in)
Lock nut wrench, 34 x 44 mm	07916–ME50001 or Lock nut wrench, 34 x 44 mm 07916–ME50000 and Attachment 07916–HA0010A (U.S.A. only)
Shaft puller	07931–ME40000 or 07931–ME4000A (U.S.A. only)
Pinion gear driver	07945–HA00000 (Not available in U.S.A.) or Driver, 40 mm I.D. 07746–0030100

REAR DRIVING MECHANISM

Common

Driver, 22 mm I.D.

07746—0020100

Driver

07749—0010000

Attachment, 62 x 68 mm

07746—0010500

Attachment, 52 x 55 mm

07746—0010400

TROUBLESHOOTING

REAR FINAL DRIVE

Excessive noise

- Worn or scored ring gear shaft and driven flange
- Scored driven flange and wheel hub
- Worn or scored drive pinion and splines
- Worn pinion and ring gears
- Excessive backlash between pinion and ring gear
- Oil level too low

REAR AXLE

Wobble or vibration in vehicle

- Axle not tightened properly
- Bent axle

Oil leak

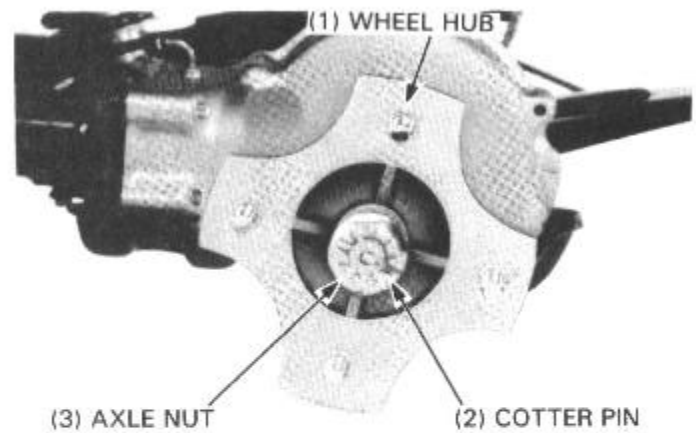
- Clogged breather hole or tube
- Oil level too high
- Worn or damaged oil seal
- Loose cover bolt

REAR AXLE REMOVAL

REMOVAL

Remove the following:

- right and left wheels (page 13-3).
- cotter pins, axle nuts and wheel hubs.



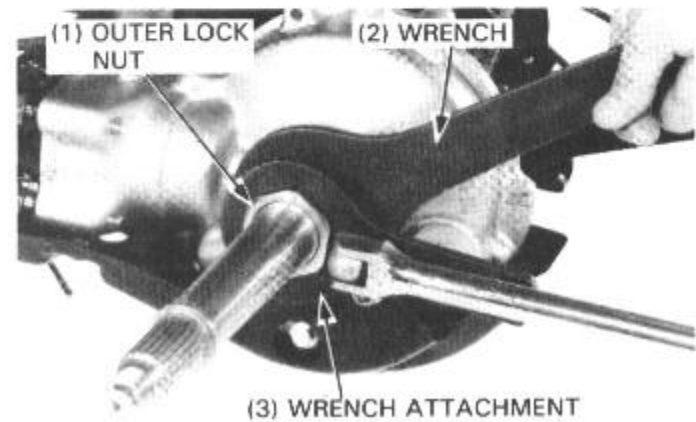
Loosen the axle outer lock nut while holding the inner lock nut.

TOOLS:

Lock nut wrench, 41 mm

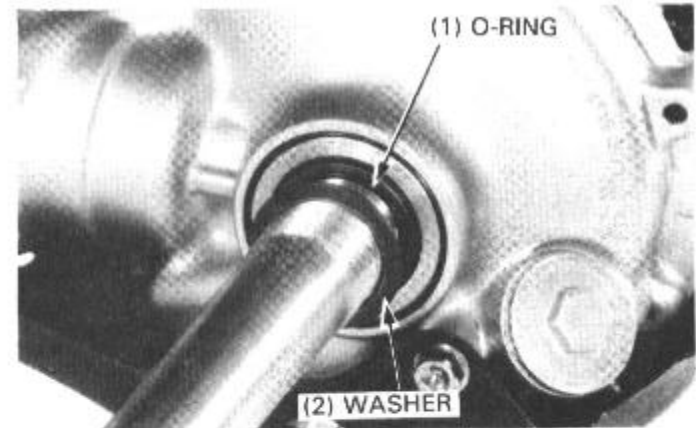
07916-9580200 or
07916-958020A
(U.S.A. only)

Lock nut wrench attachment, 41 mm 07916-9580400 or
07916-958010A
(U.S.A. only)



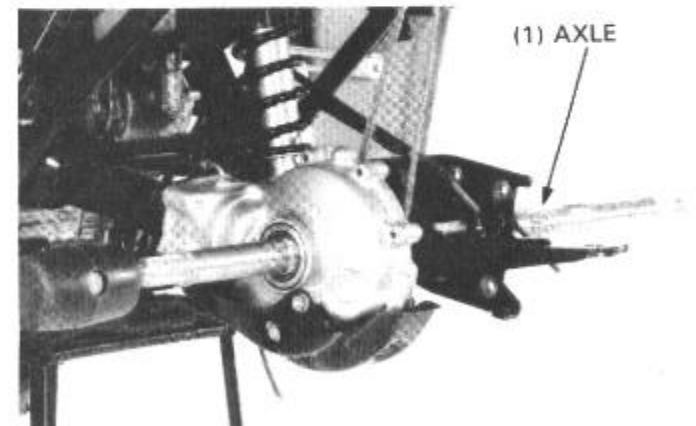
Loosen the inner lock nut then remove the lock nuts.

Remove the rear brake panel (page 12-23).



Remove the washer and O-ring from the axle.

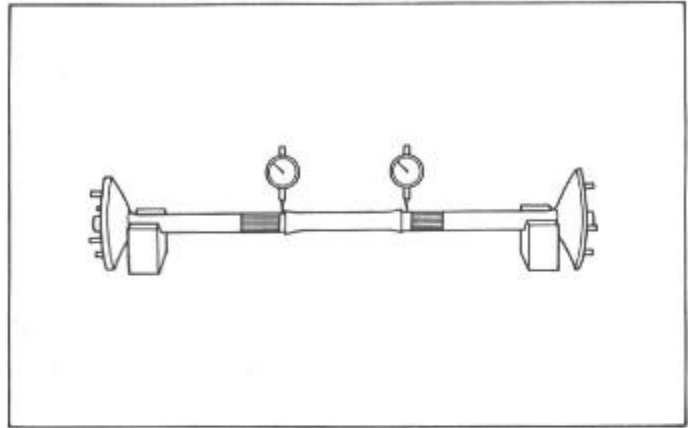
Drive the axle out from the left side with a rubber hammer.



INSPECTION

Install the wheel hubs onto both ends of the axle.
Place the rear axle in V-blocks and measure the runout.

SERVICE LIMIT: 3.0 mm (0.12 in)



REAR FINAL DRIVE REMOVAL

REMOVAL

NOTE

- It is not necessary to disassemble the brake panel.

Drain the oil from the rear final drive (page 2-4).

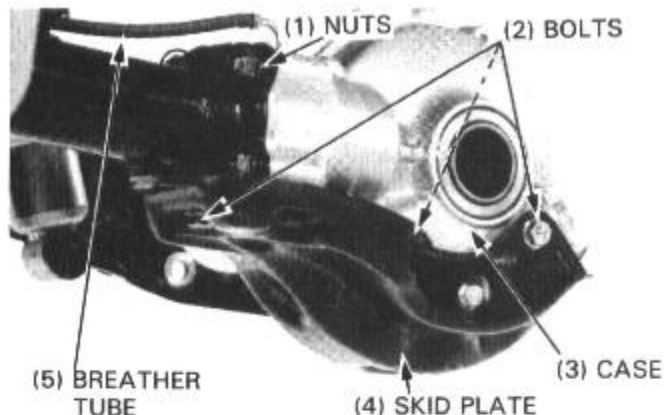
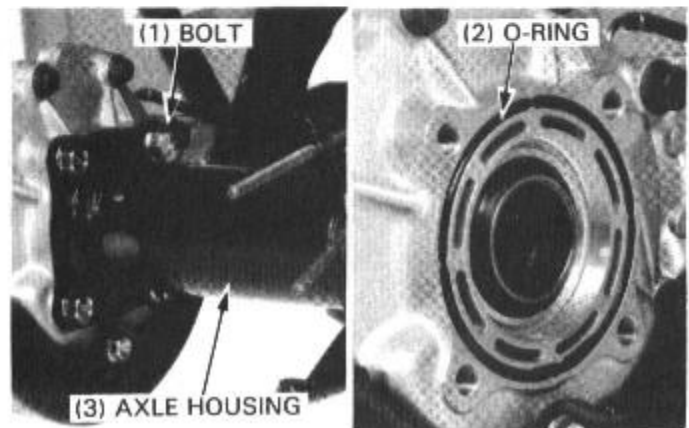
Remove the following:

- rear brake cables
 - rear brake panel nuts (page 12-25)
 - rear axle with rear brake assembly (page 15-3)
 - axle housing mounting bolts
 - axle housing
 - O-ring
-
- skid plate mounting bolts and skid plate
 - breather tube
 - final drive case mounting nuts and case
 - O-ring

Discard the mounting nuts.

CAUTION

- *Re-use strictly prohibited.*

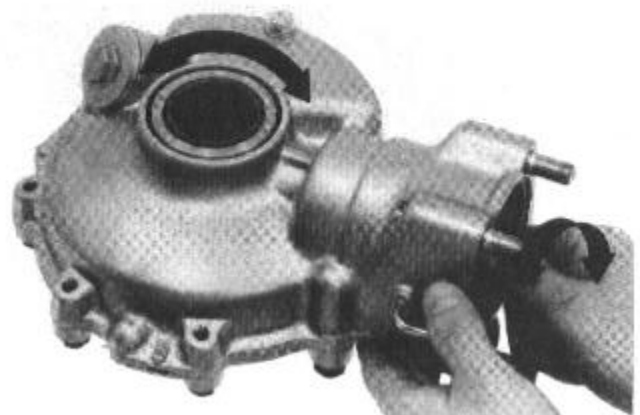


INSPECTION

Turn the drive pinion with your finger.
The drive pinion and ring gear should turn smoothly and quietly.

Check or replace the following if the drive pinion and ring gear do not turn smoothly and quietly.

- case
- each bearing
- drive pinion
- ring gear



BACKLASH INSPECTION

Remove the oil filler cap.

Install the pinion holder onto the pinion joint with four 10 mm nuts.

Set the holder in a vise.

TOOL:

Pinion holder

07924-HA00001 or
07924-HA00000
(Modified—Increase (4)
holes to 10.5 mm)

Set a horizontal type dial indicator on the ring gear, through the oil filler hole.

Rotate the ring gear by hand until gear slack is taken up. Turn the ring gear back and forth to read backlash.

STANDARD: 0.08–0.18 mm (0.003–0.007 in)

SERVICE LIMIT: 0.25 mm (0.010 in)

Remove the dial indicator. Turn the ring gear and measure backlash. Repeat this procedure once more.

Compare the difference of the three measurements.

DIFFERENCE OF MEASUREMENT

SERVICE LIMIT: 0.10 mm (0.004 in)

If the difference in measurements exceeds the limit, it indicates that either the bearing is not installed squarely, or the case is deformed.

Inspect the each bearing and case.

If backlash is too small, replace the ring gear left side spacer with a thicker one.

Backlash is changed by about 0.06 mm (0.002 in) when thickness of the spacer is changed by 0.12 mm (0.005 in).

RING GEAR SPACERS:

Twenty-five spacers (from U to X and A to T) are available in thickness intervals of 0.06 mm.

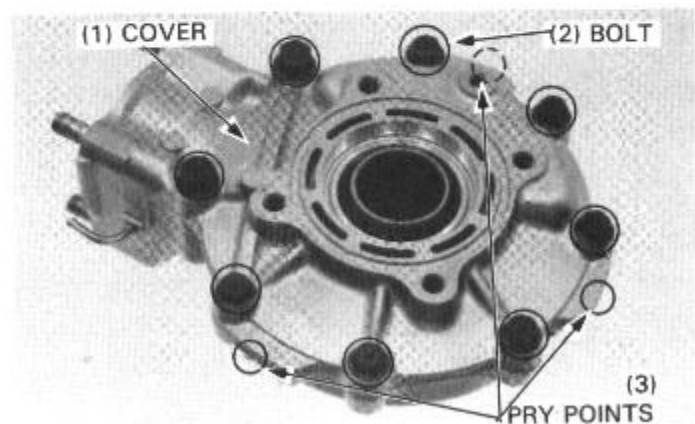
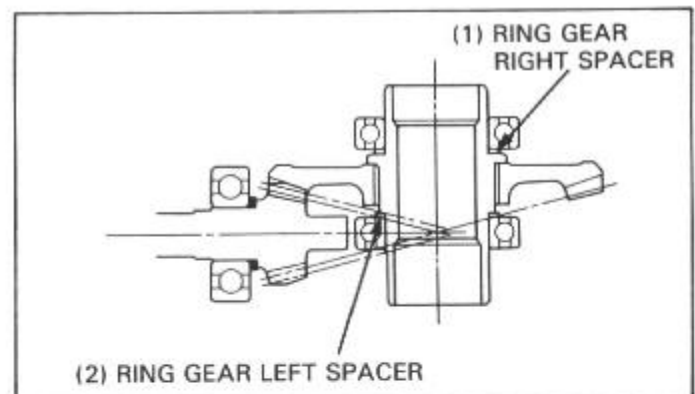
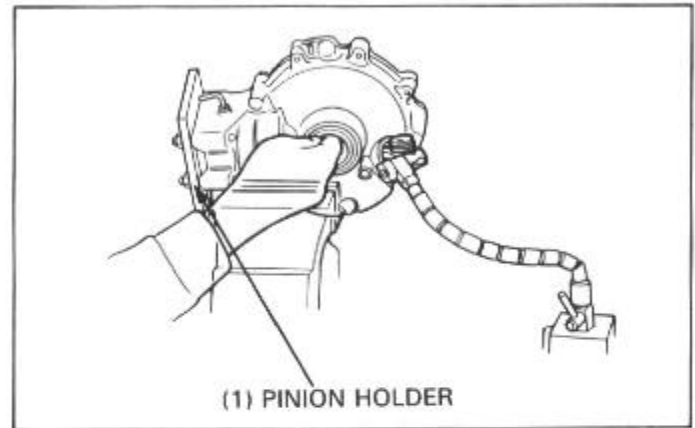
- Standard: 1.50 mm (0.059 in)
- Thinnest: 0.96 mm (0.038 in)
- Thickest: 2.40 mm (0.094 in)

Change the right side spacer thickness an opposite amount to what the left side spacer was changed if the left spacer was replaced with a 0.10 mm (0.004 in) thicker spacer, replace the right spacer with one that is 0.10 mm (0.004 in) thinner.

DISASSEMBLY

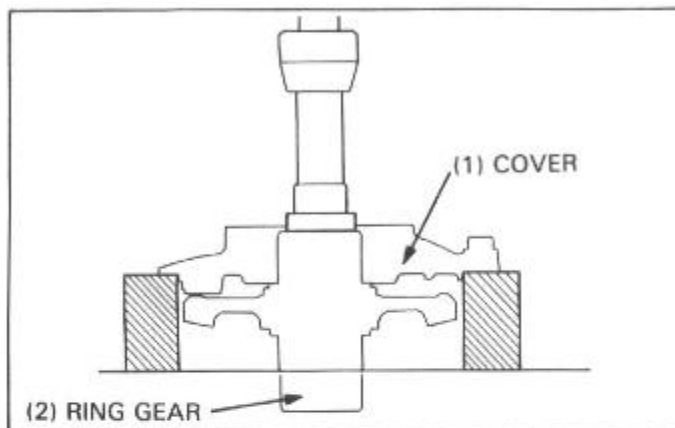
Remove the eight case cover bolts.

Carefully pry the cover off the case using a screwdriver on the pry points as shown.

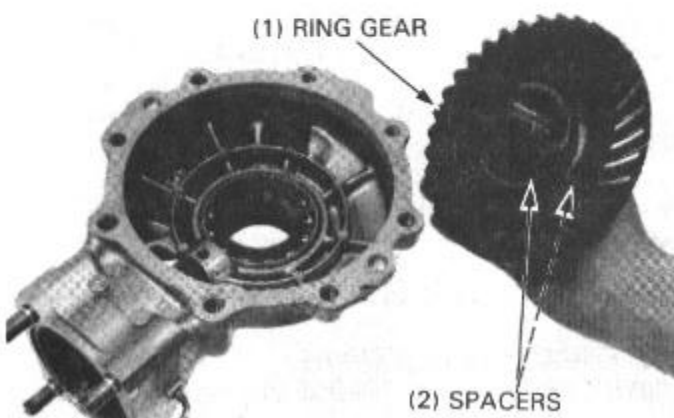


REAR DRIVING MECHANISM

If the ring gear stays in the cover, do the following:
Place the cover in a press with the ring gear down.
Make sure the cover is securely supported.
Press the ring gear out of the cover.



Remove the ring gear and spacers.



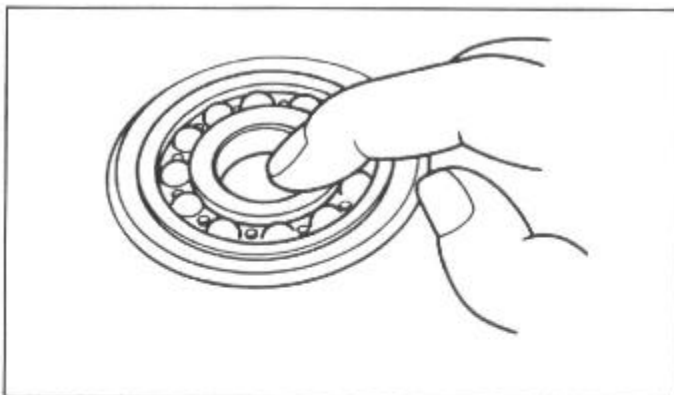
BEARING INSPECTION

Turn the inner race of the ring gear bearings with your finger. The bearings should turn smoothly and quietly. Also check that the outer races fit tightly in the case or cover.

Remove and discard the bearings if the races do not turn smoothly and quietly, or if they loosely fit in the case or cover.

For ring gear bearing replacement, go to page 15-10.

For drive pinion removal and disassembly, go to page 15-7.



GEAR TOOTH CONTACT PATTERN CHECK

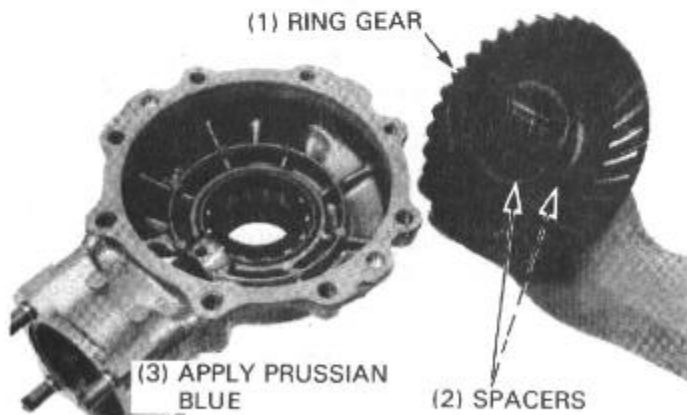
Clean all sealing material off the mating surfaces of the gear case and cover.

NOTE

- Keep dust and dirt out of the gear case.
- Be careful not to damage the mating surfaces.

Apply a thin coat of Prussian Blue to the pinion gear teeth for a gear tooth contact pattern check.

Install the ring gear with the ring gear spacers into the case.



Tighten the cover bolts in 2 or 3 steps until the cover evenly touches the gear case. Then, while rotating the drive pinion, tighten the bolts to the specified torque in 2-3 steps in a crisscross pattern.

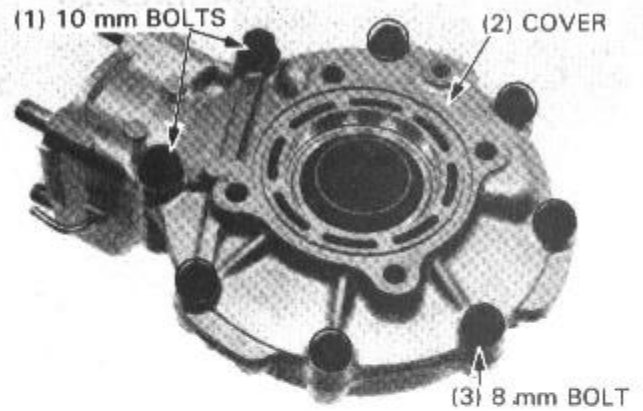
TORQUES:

10 mm bolt: 48 N·m (4.8 kg-m, 35 ft-lb)

8 mm bolt: 26 N·m (2.6 kg-m, 19 ft-lb)

CAUTION

- It is important to turn the pinion while tightening the bolts. If the ring gear spacer is too thick, the gears will lock after only light tightening.



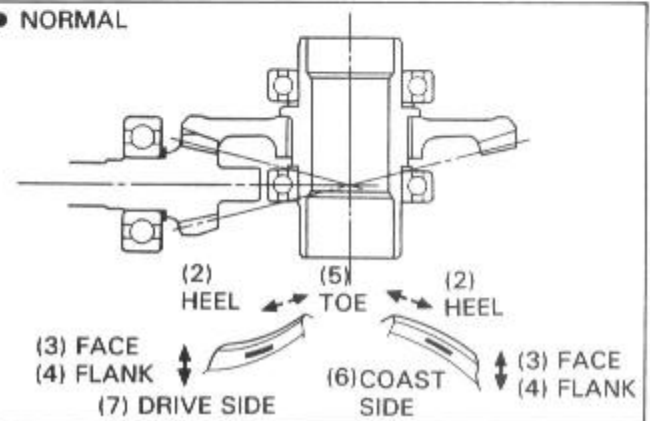
Remove the oil filler cap from the final drive case.

Rotate the ring gear several times in both directions of rotation. Check the gear tooth contact pattern through the oil filler hole. The pattern is indicated by the Prussian Blue applied to the pinion before assembly.

Contact is normal if the Prussian Blue is transferred to the approximate center of each tooth and slightly to the flank side.

If the patterns are not correct, remove and replace the pinion spacer. Replace the pinion spacer with a thicker one if the contacts are too high, toward the face.

● NORMAL



Replace the pinion spacer with a thinner one if the contacts are too low, to the flank side.

The patterns will shift about 1.5–2.0 mm (0.06–0.08 in) when the thickness of the spacer is changed by 0.10 mm (0.004 in).

PINION SPACERS:

A: 1.82 mm (0.072 in)

B: 1.88 mm (0.074 in)

C: 1.94 mm (0.076 in)

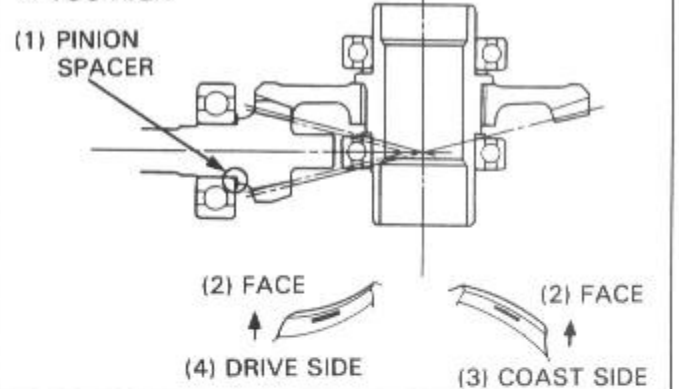
D: 2.00 mm (0.079 in) Standard

E: 2.06 mm (0.081 in)

F: 2.12 mm (0.083 in)

G: 2.18 mm (0.086 in)

● TOO HIGH



Remove the ring gear.

DRIVE PINION REMOVAL

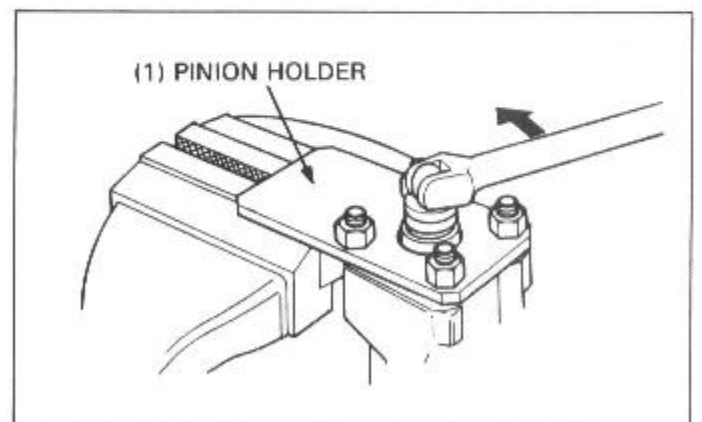
Place the pinion holder on the pinion joint. Align the holes in the pinion holder with the four studs on the final drive case and secure to the case with four 10 mm nuts. Secure the holder in a vise.

Remove the pinion joint nut, then remove the pinion holder.

TOOL:

Pinion holder

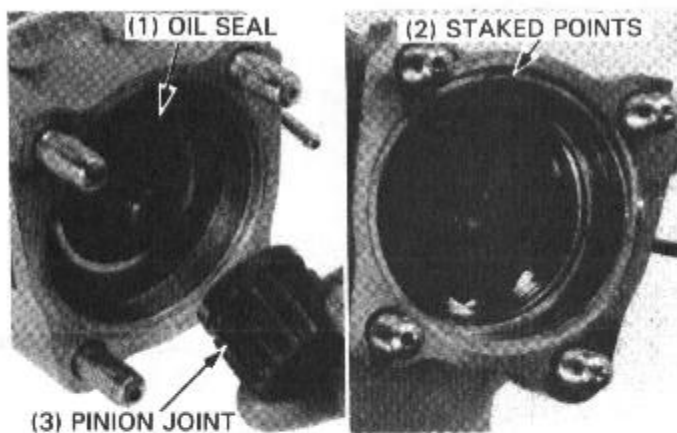
07924-HA00001 or
07924-HA00000
(Modified)



REAR DRIVING MECHANISM

Remove the pinion joint and oil seal.

Unstake the pinion bearing lock nut with a drill or grinder.



Remove the pinion bearing lock nut with the lock nut wrench.

TOOLS:

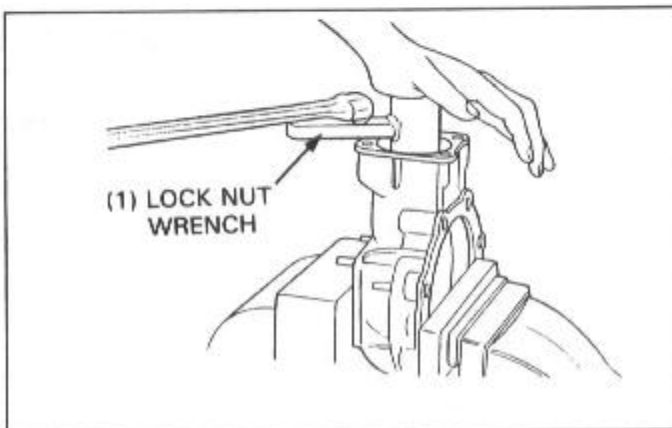
Lock nut wrench, 34 x 44 mm 07916—ME50001

or

Lock nut wrench, 34 x 44 mm 07916—ME50000 and
Attachment 07916—HA0010A

(U.S.A. only)

Remove the washer.



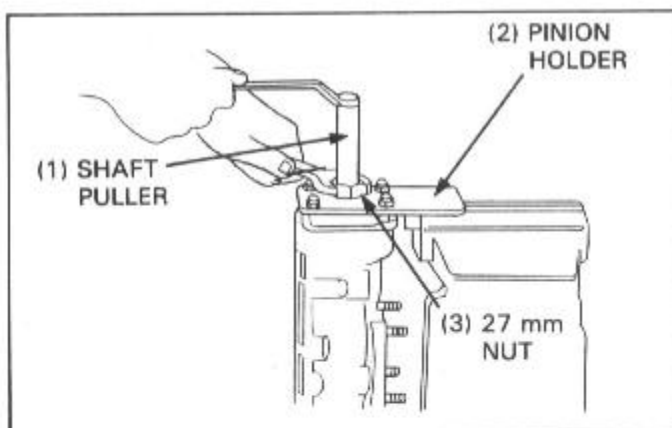
Position the pinion holder on the final drive case.

Screw the shaft puller onto the threads of the drive pinion.

Screw the 27 mm special nut down until it contacts the pinion holder.

NOTE

- Be sure that the 27 mm special nut is backed off far enough to allow full thread engagement between the puller and the pinion gear shaft.



Turn the 27 mm special nut counterclockwise with a 27 mm wrench while holding the shaft with a 17 mm wrench to remove the drive pinion from its housing.

Pull the pinion assembly off with the pinion holder.

TOOLS:

Shaft puller

07931—ME40000 or

07931—ME4000A

(U.S.A. only)

Pinion holder

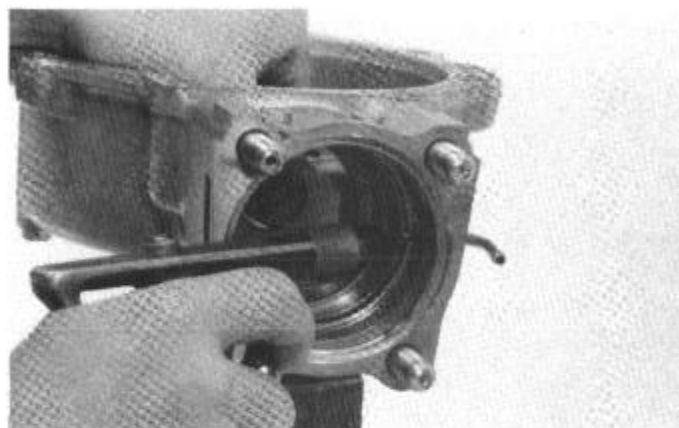
07924-HA00001 or

07924-HA00000

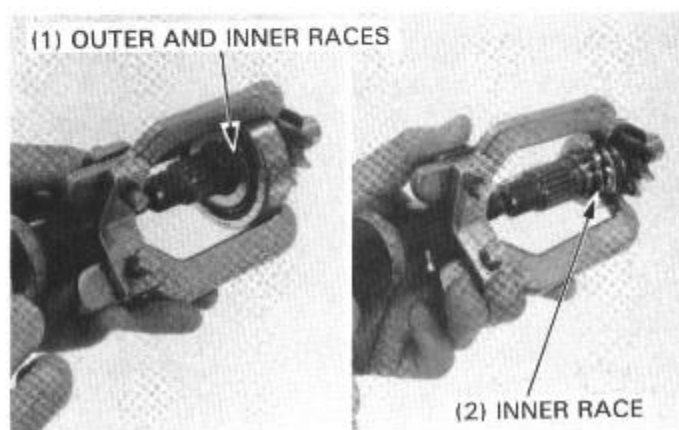
(Modified)-Increase (4)

holes to 10.5 mm (0.14 in)

Blow compressed air through the breather hole in the final drive case.



Pull the bearing outer and inner races off the shaft with the bearing puller. Pull the other inner race off with the same tool. Remove the pinion adjustment spacer.

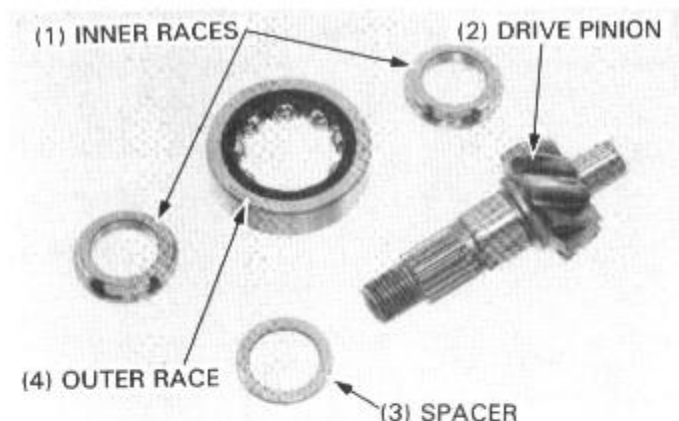


To reassemble, first install the pinion spacer.

NOTE

- When the gear set, pinion bearing and/or gear case have been replaced, use a 2.00 mm (0.079 in) thick spacer.

Apply #80 gear oil to the inner races and the bearing.



Press the bearing and both inner races onto the pinion gear shaft with the special tool shown.

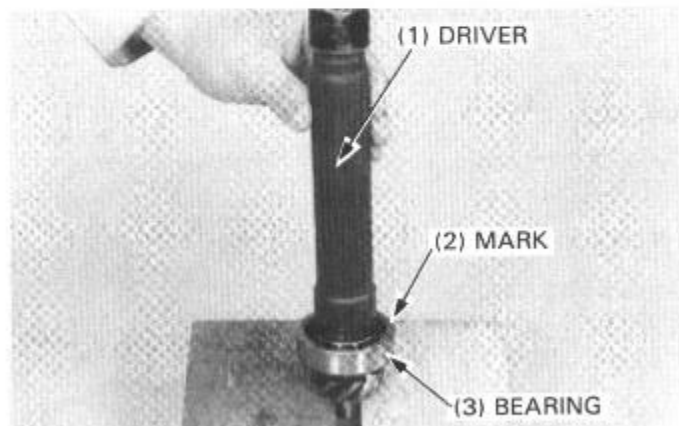
TOOL:

Driver, 22 mm I.D.

07746-0020100

NOTE

- Position the marked side of the outer race to the outside.



REAR DRIVING MECHANISM

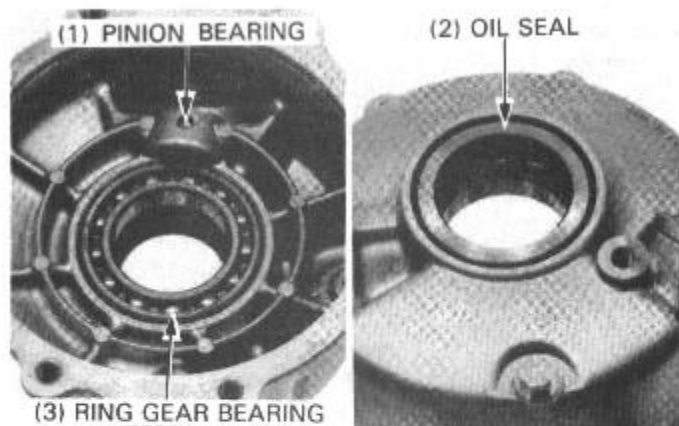
BEARING/OIL SEAL REPLACEMENT

NOTE

- The drive pinion bearing cannot be removed.
Replace the final drive case if the bearing is damaged.

Remove the oil seals.

Drive the ring gear bearing out of the case and cover.



Drive the oil seals into the case and cover.

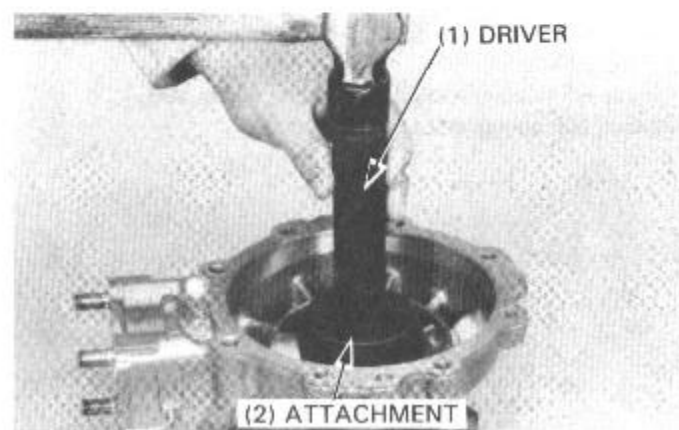
TOOLS:

CASE: Driver	07749-0010000
Attachment, 62 x 68 mm	07746-0010500
COVER: Driver	07749-0010000
Attachment, 52 x 55 mm	07746-0010400

Drive the ring gear bearing into the case and cover.

TOOLS:

Driver	07749-0010000
Attachment, 62 x 68 mm	07746-0010500

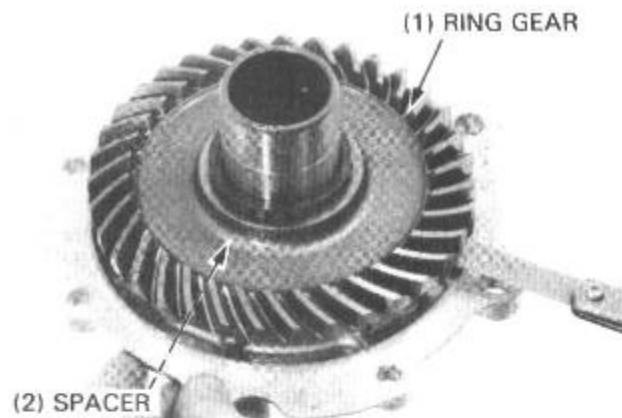


Install the ring gear with the spacer into the cover.

Measure the clearance between the ring gear and the ring gear stop pin with a feeler gauge.

CLEARANCE: 0.30–0.60 mm (0.012–0.024 in)

Remove the ring gear. If the clearance exceeds the standard, heat the cover to approximately 80°C (176°F) and remove the stop pin by tapping the cover.



WARNING

- Always wear gloves when handling the cover after it has been heated to prevent burning your hands.

CAUTION

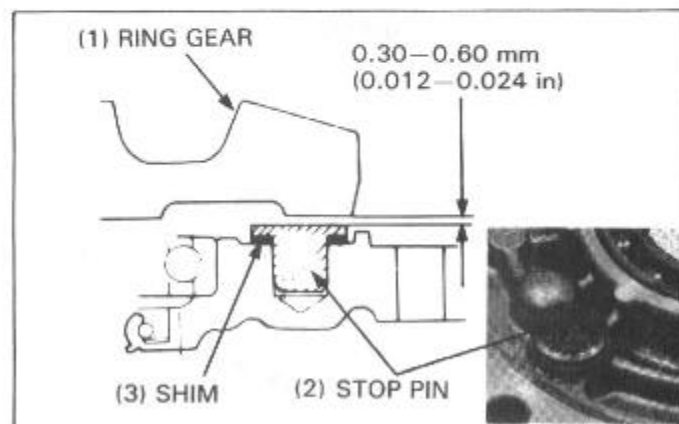
- Do not use a torch to heat the cover; it may cause warping.

Install a stop pin shim to obtain the correct clearance.

SHIM THICKNESS:

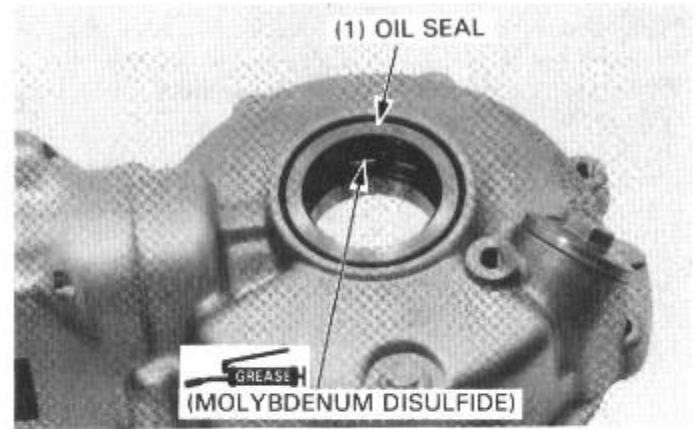
- A: 0.10 mm (0.004 in)
- B: 0.15 mm (0.006 in)

Install the shim and drive the stop pin into the cover.



Install a new oil seal in the case and cover.

Apply molybdenum disulfide grease to the oil seal lips.



DRIVE PINION INSTALLATION

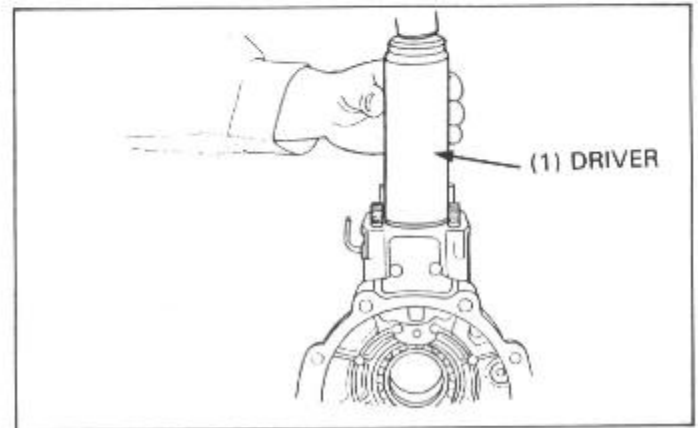
Place the drive pinion assembly into its housing and drive it into the final drive case.

TOOL:

Pinion gear driver

07945—HA00000 or
(Not available in U.S.A.)
07746—0030100

Driver, 40 mm I.D.



Install the washer.

Install and tighten the pinion bearing lock nut.

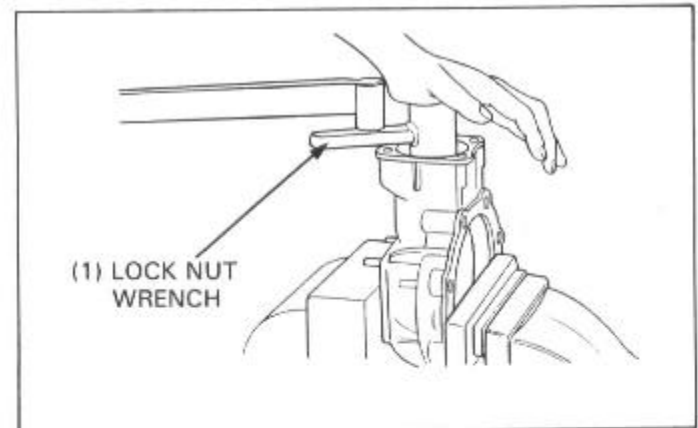
TORQUE: 100 N·m (10.0 kg-m, 72 ft-lb)

Torque wrench scale reading: 91 N·m (9.1 kg-m, 66 ft-lb)

TOOLS:

Lock nut wrench, 34 x 44 mm 07916—ME50001
or

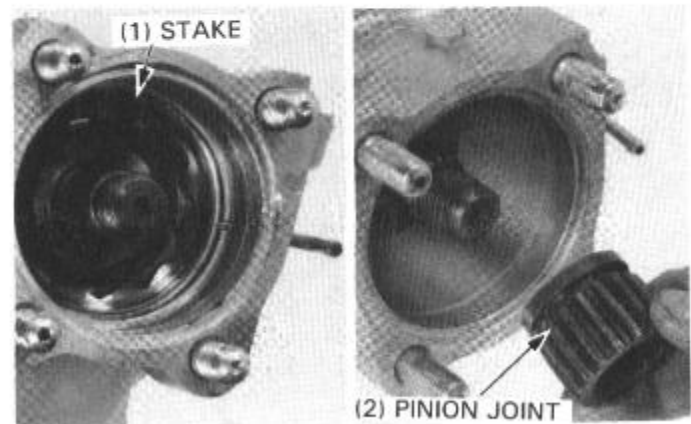
Lock nut wrench, 34 x 44 mm 07916—ME50000 and
Attachment 07916—HA0010A
(U.S.A. only)



Stake the pinion bearing lock nut.

Install the pinion joint into the pinion.

Apply locking agent to the pinion threads.



REAR DRIVING MECHANISM

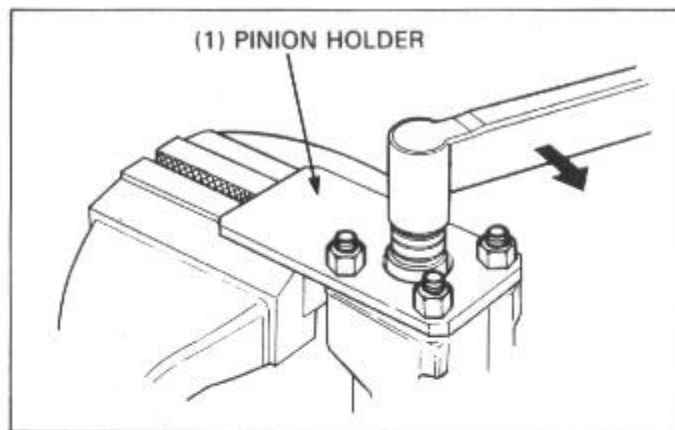
Place the pinion holder onto the pinion joint. Align the holes in the pinion holder with the four (4) studs on the final drive case and secure to the case with four 10 mm nuts. Place the holder in a vise. Tighten the pinion joint nut.

TORQUE: 110 N·m (11.0 kg-m, 80 ft-lb)

TOOLS:

Pinion holder

07924-HA00001 or
07924-HA00000
(Modified—Increase (4)
holes to 10.5 mm)



Remove the pinion holder.

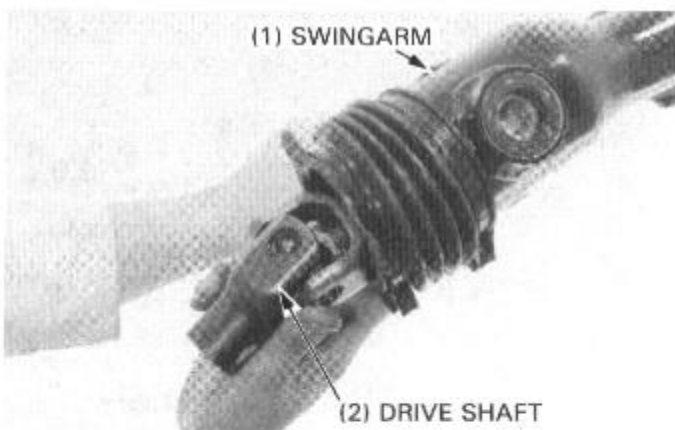
Apply molybdenum disulfide grease to the lips of a new drive pinion oil seal and the pinion joint. Install the new drive pinion oil seal in the case.



REAR DRIVE SHAFT

REMOVAL

Remove the swingarm (page 13-10). Pull the drive shaft out of the swing arm and disassemble them.



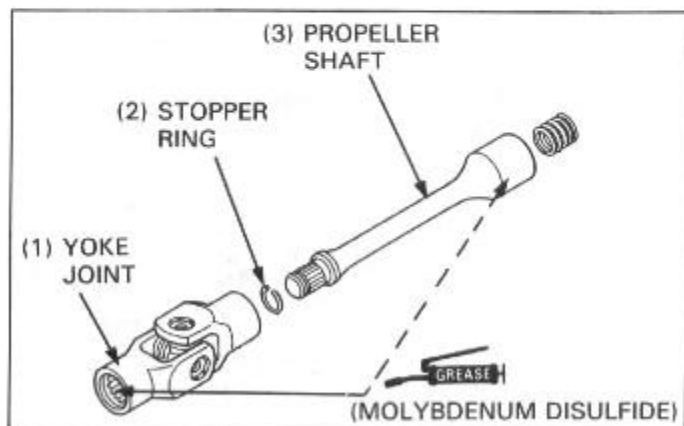
INSPECTION

Inspect the yoke joint bearings for excessive play or damage.

Apply molybdenum disulfide grease to the splines.

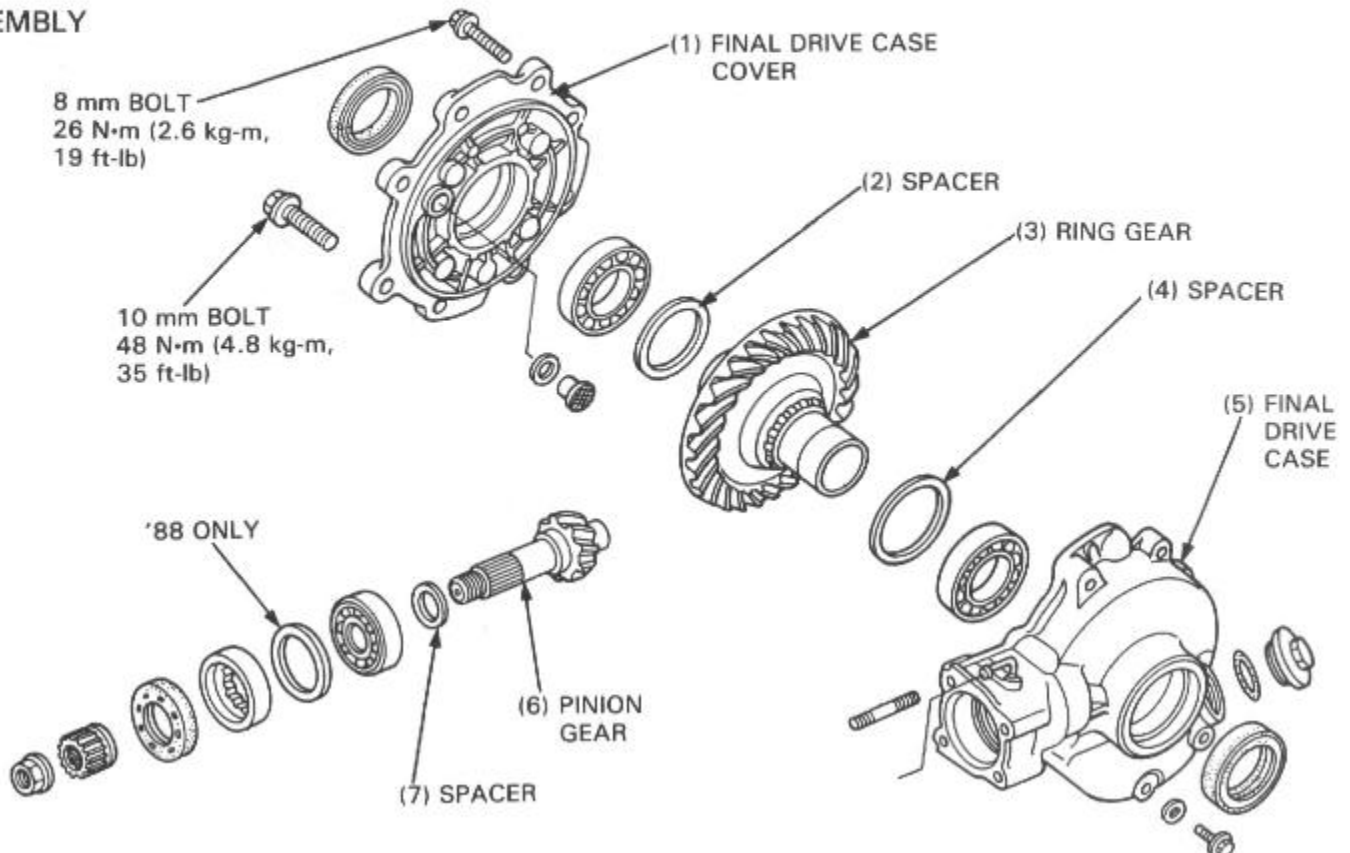
INSTALLATION

Install the stopper ring to the propeller shaft and install the yoke joint to the shaft by lightly tapping. Install the drive shaft into the swingarm. Install the swingarm (page 13-12).



REAR FINAL DRIVE INSTALLATION

ASSEMBLY



NOTE

- When the bearing, gear set and/or case has been replaced, check the tooth contact pattern (page 15-6) and gear backlash (page 15-5).

Install the ring gear spacers onto the ring gear.

Install the ring gear, with the spacers, into the final drive case.

Apply liquid sealant to the mating surface of the cover and install the cover on the final drive case.

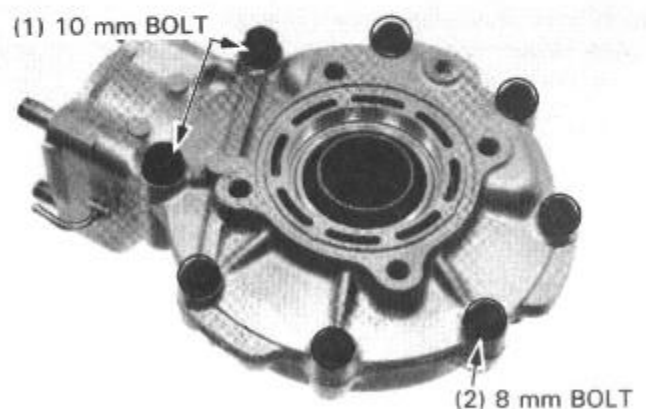
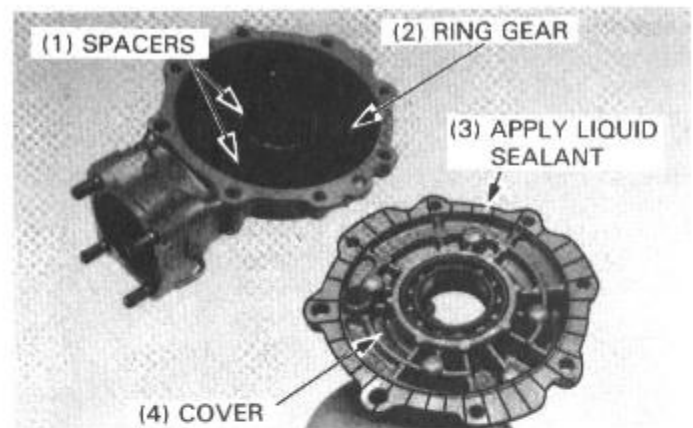
Apply locking agent to the threads of the 10 mm bolts. Tighten the cover bolts in 2-3 steps until the cover evenly touches the final drive case. Then, while rotating the pinion, tighten the bolts to the specified torque in 2-3 steps in a crisscross pattern.

TORQUES:

- 10 mm bolt: 48 N·m (4.8 kg-m, 35 ft-lb)
- 8 mm bolt: 26 N·m (2.6 kg-m, 19 ft-lb)

CAUTION

- It is important to turn the pinion while tightening the bolts. If the ring gear spacer is too thick, the gears will lock after only light tightening.

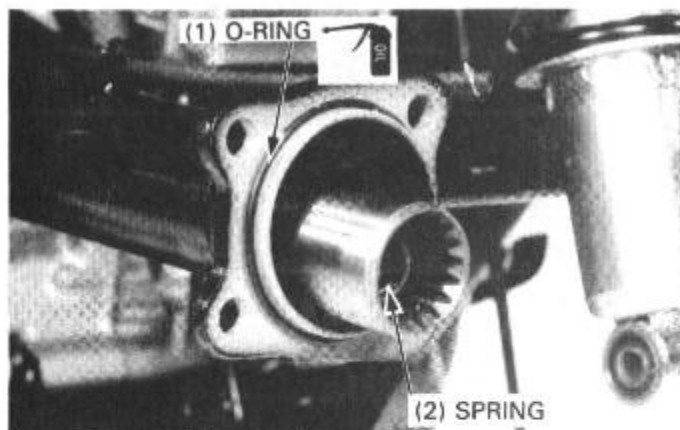


INSTALLATION

Install a new O-ring on the swing arm.
Apply oil to the O-ring.

NOTE

- Do not forget to install the spring in the drive shaft joint before installing the gear case.

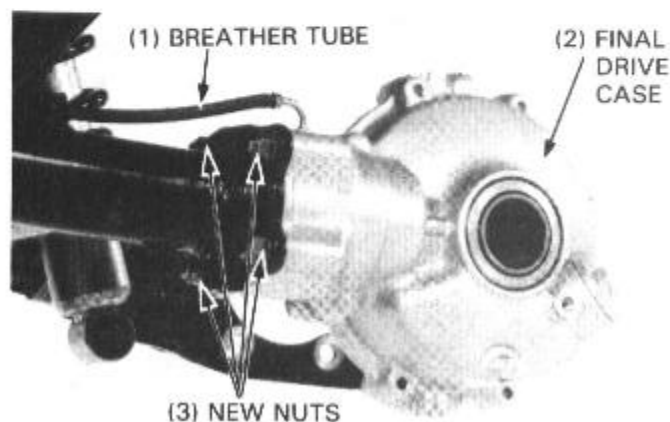


Assemble the final drive case to the swing arm.
Install the new joint nuts loosely.

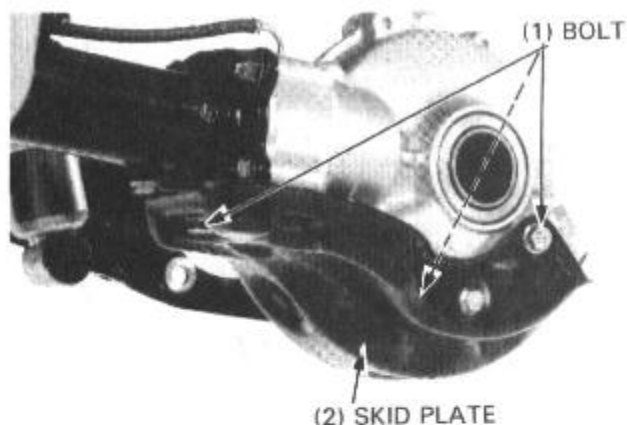
CAUTION

- *Re-use of nuts strictly prohibited.*

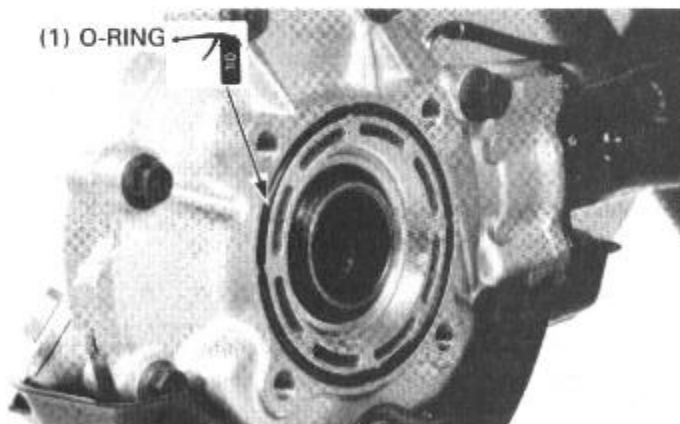
Connect the breather tube to the case.



Install the skid plate on the final drive case.



Install a new O-ring on the final drive case.
Apply oil to the O-ring.



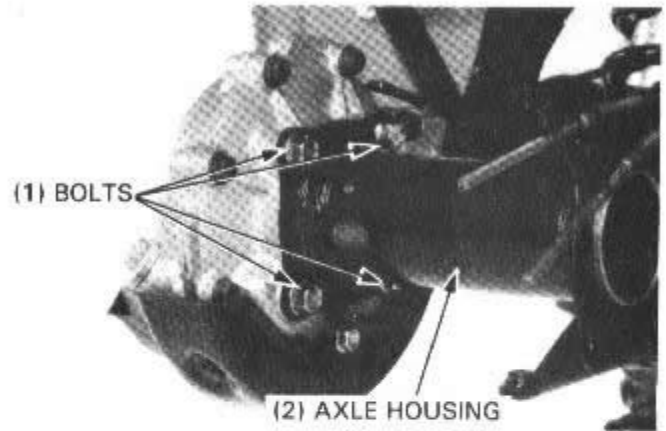
Install the axle housing to the final drive case and tighten the bolts to the specified torque.

TORQUE: 50 N·m (5.0 kg-m, 36 ft-lb)

Tighten the final drive case joint nuts to the specified torque.

TORQUE: 45 N·m (4.5 kg-m, 33 ft-lb)

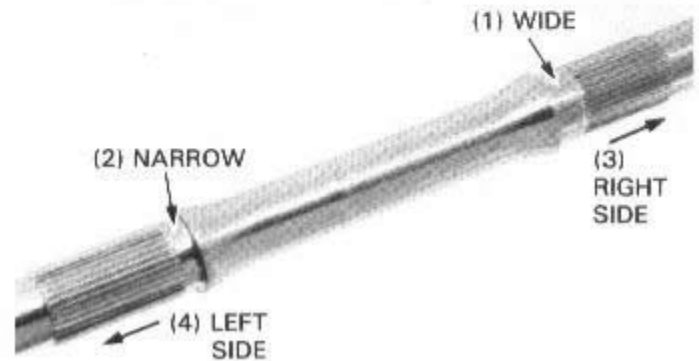
Fill the final drive with the recommended oil (page 2-4).
Install the rear axle housing with rear brake assembly.
Install new rear brake panel nuts (page 12-27).



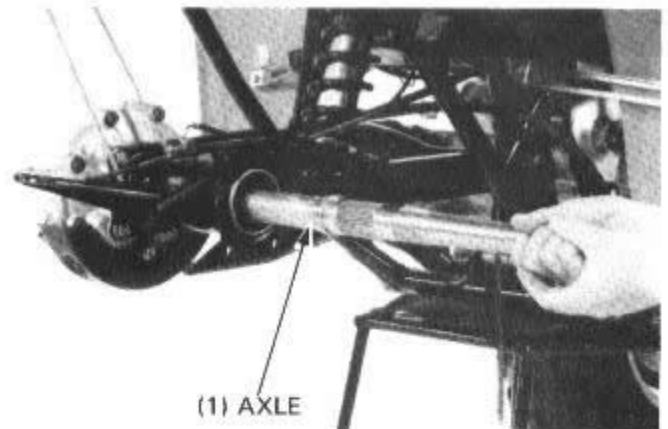
REAR AXLE INSTALLATION

NOTE

- Note the rear axle orientation as shown.



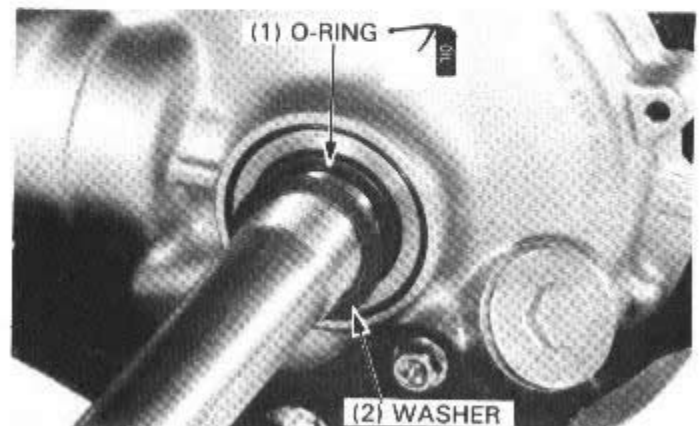
Install the rear axle from the right side while aligning the splines of the final drive and axle.



Install a new O-ring on the axle after applying oil

Install the washer with its OUTSIDE mark facing out.

Install the rear brake panel and drum (page 12-26).



REAR DRIVING MECHANISM

Install the inner lock nut and tighten it to the specified torque.

TORQUE: 40 N·m (4.0 kg-m, 29 ft-lb)

Apply locking agent to the threads of the outer lock nut.
Install the outer lock nut and tighten it to the specified torque while holding the inner lock nut.

TORQUE: 130 N·m (13.0 kg-m, 94 ft-lb)

TOOLS:

Lock nut wrench, 41 mm

07916-9580200 or
07916-958020A
(U.S.A. only)

Lock nut wrench attachment, 41 mm

07916-9580400 or
07916-958010A
(U.S.A. only)

'88-'92:

Apply grease to the axle splines.

Install the following:

- wheel hubs
- axle nuts

TORQUE: 100–120 N·m (10.0–12.0 kg-m, 72–87 ft-lb)

NOTE

- If cotter pins cannot be installed after torquing nuts due to alignment of axle hole, tighten nut further until cotter pin can be installed. Do not loosen the axle nuts after torquing them to install cotter pins.

- new cotter pins
- right and left rear wheels (page 13-3)

After '92:

Apply grease to the axle splines.

Install the following:

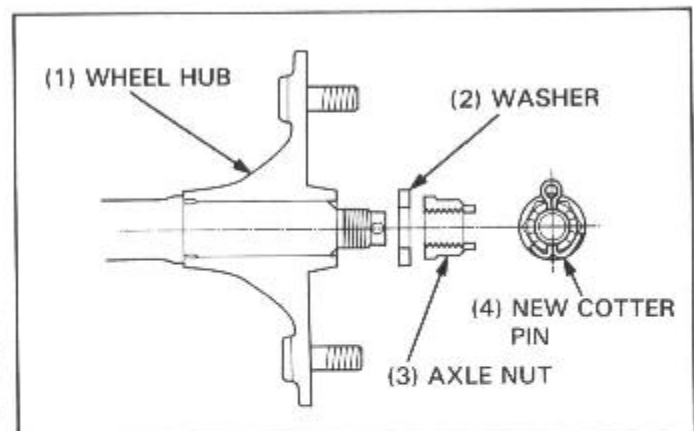
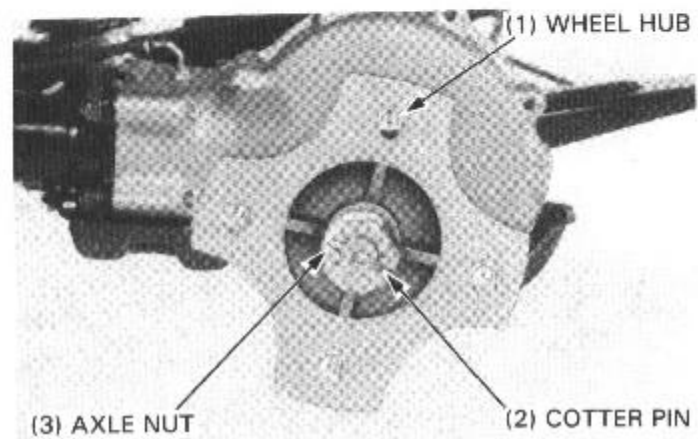
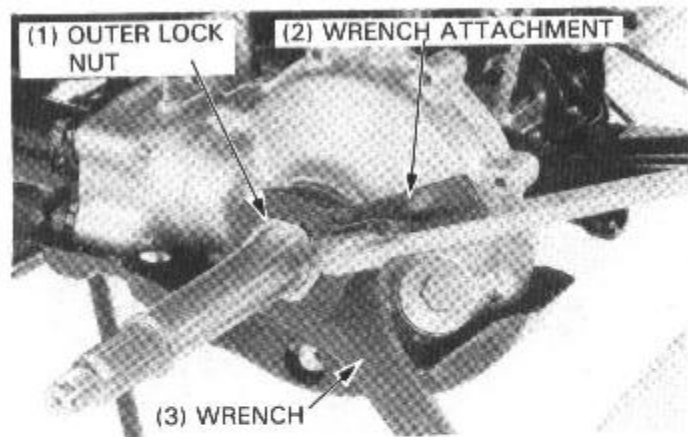
- Wheel hubs
- Washer
- axle nuts

Torque: 140–160 N·m (14.0–16.0 kg-m, 101–116 ft-lb)

NOTE

- If cotter pins cannot be installed after torquing nuts due to alignment of axle hole, tighten nut further until cotter pin can be installed. Do not loosen the axle nuts after torquing them to install cotter pins as shown.

- new cotter pins
- right and left rear wheels (page 13-3)



16. CARRIERS/FENDERS/MUFFLER

FRONT CARRIER/FRONT FENDER

16-1

EXHAUST MUFFLER

16-12

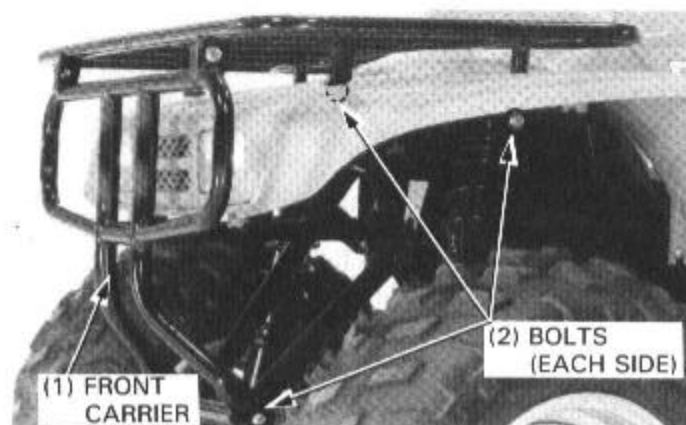
REAR CARRIER/REAR FENDER

16-7

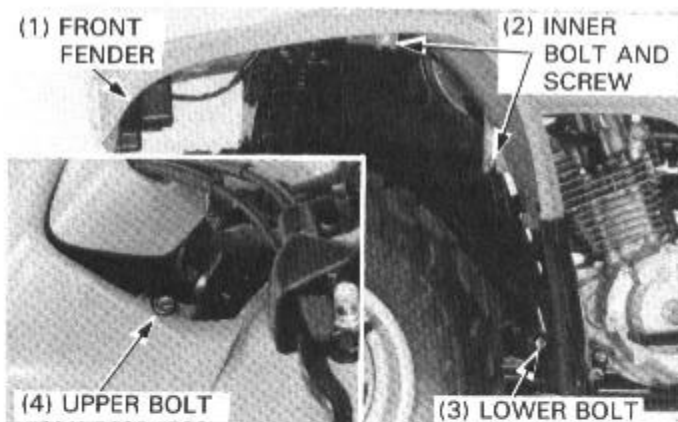
FRONT CARRIER/FRONT FENDER

REMOVAL (TRX300)

Remove the six bolts and front carrier.

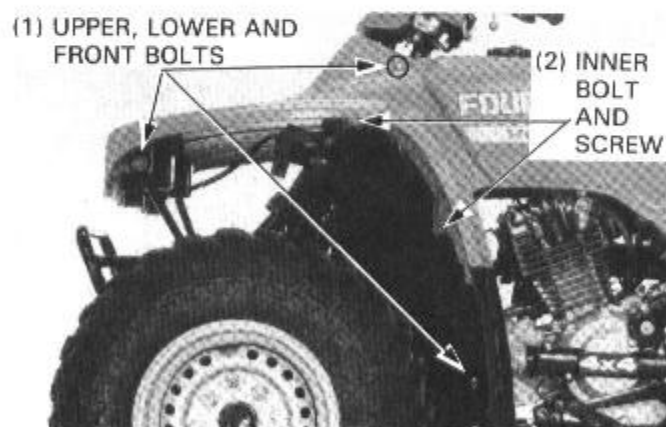


Disconnect the headlight wire connectors.
Remove the fender lower and upper bolts (each side).
Loosen the fender inner bolt and screw (each side) and remove the front fender.



REMOVAL (TRX300FW)

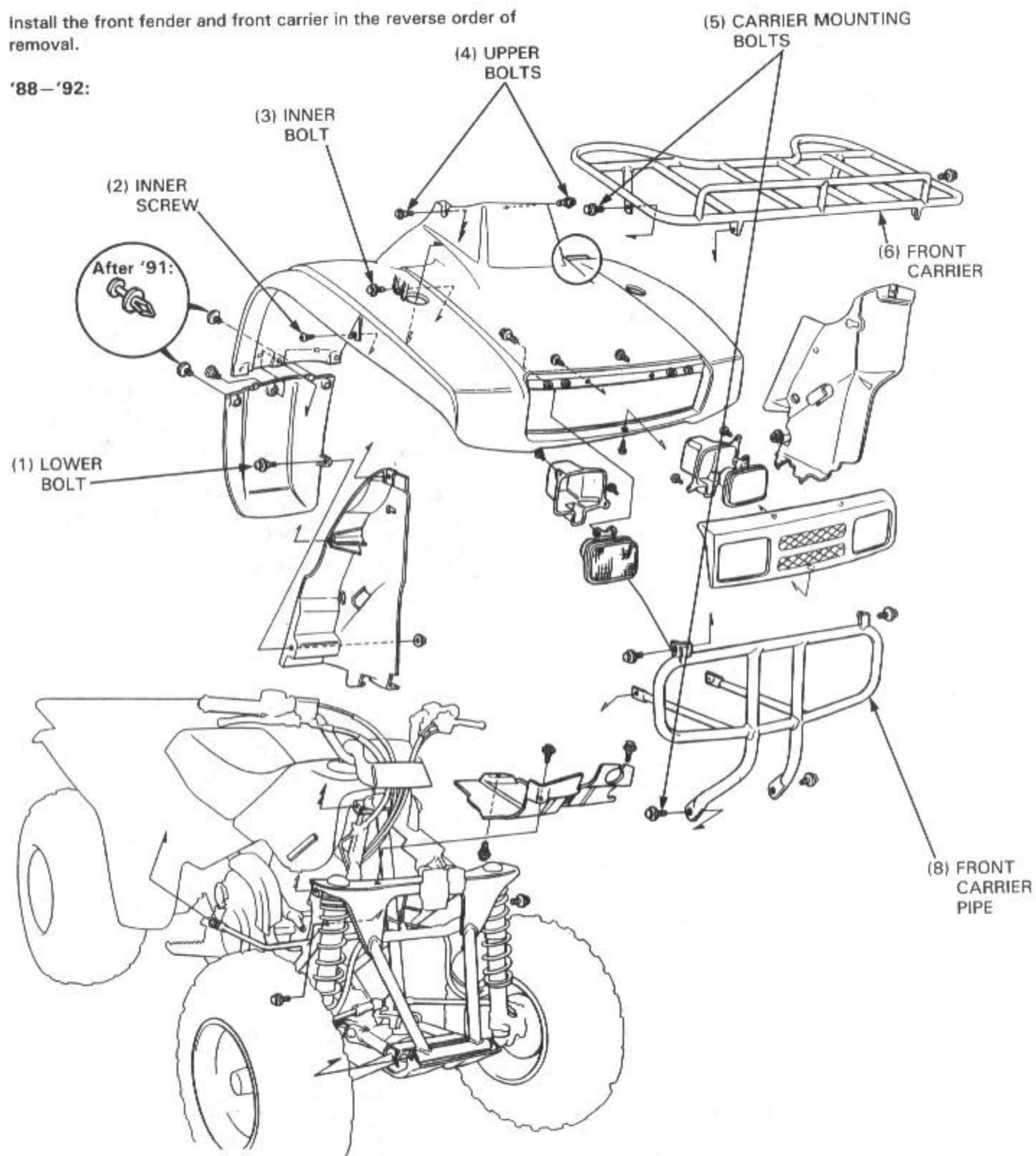
Disconnect the headlight wire connectors.
Remove the fender upper, lower and front bolts (each side).
Loosen the fender inner bolt and screw (each side) and remove the front fender.



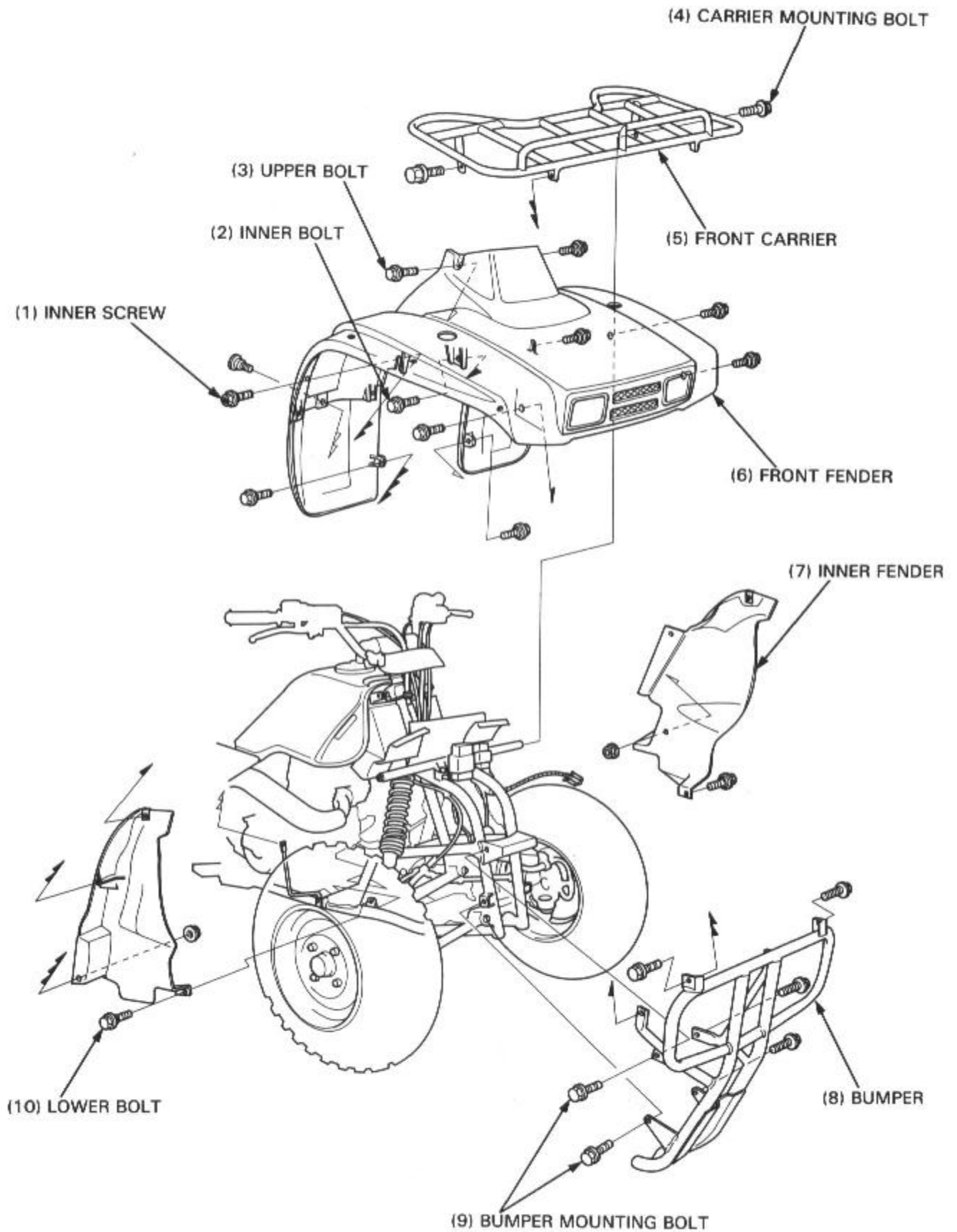
INSTALLATION (TRX300)

Install the front fender and front carrier in the reverse order of removal.

'88-'92:



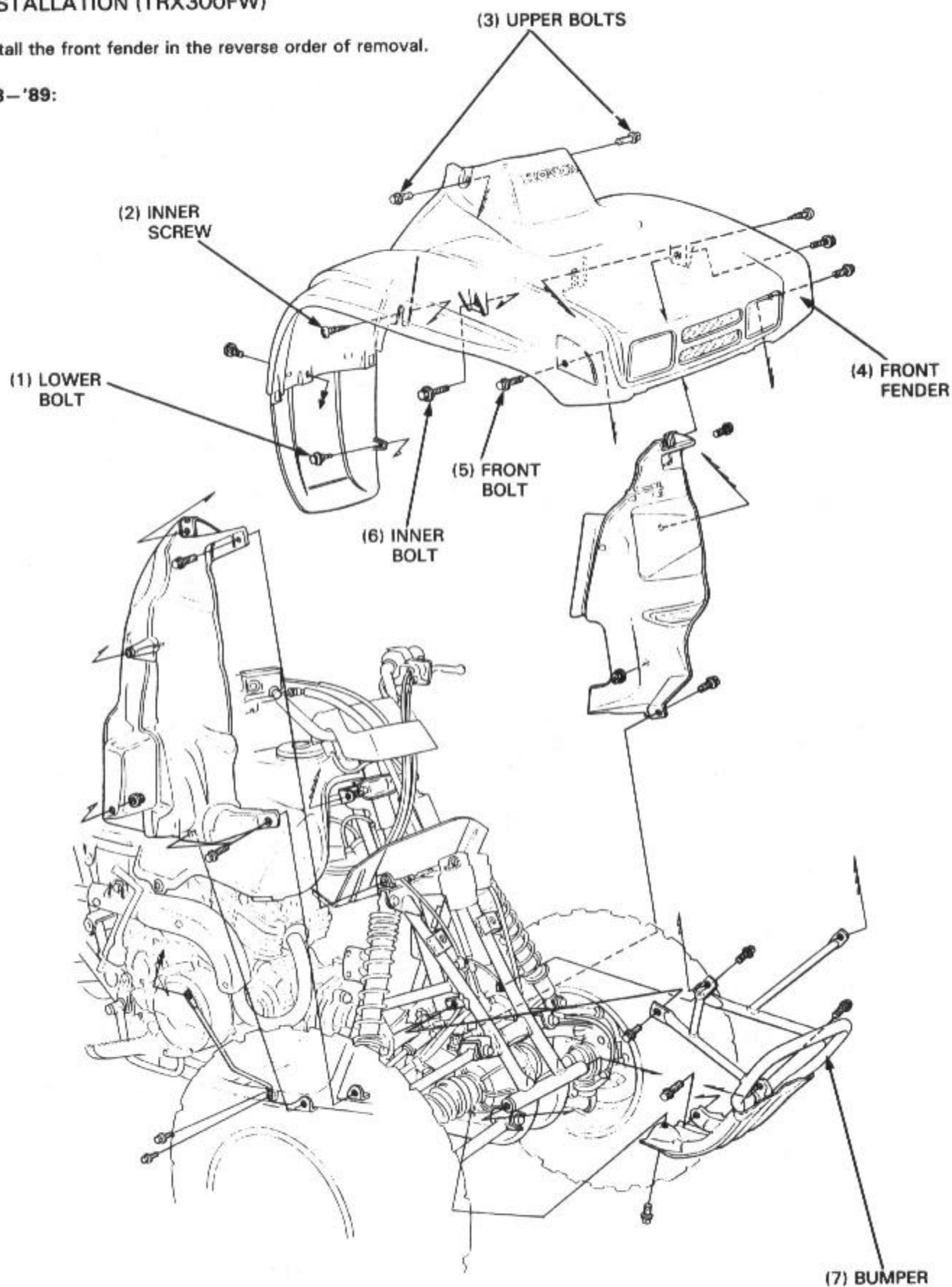
After '92: TRX300



INSTALLATION (TRX300FW)

Install the front fender in the reverse order of removal.

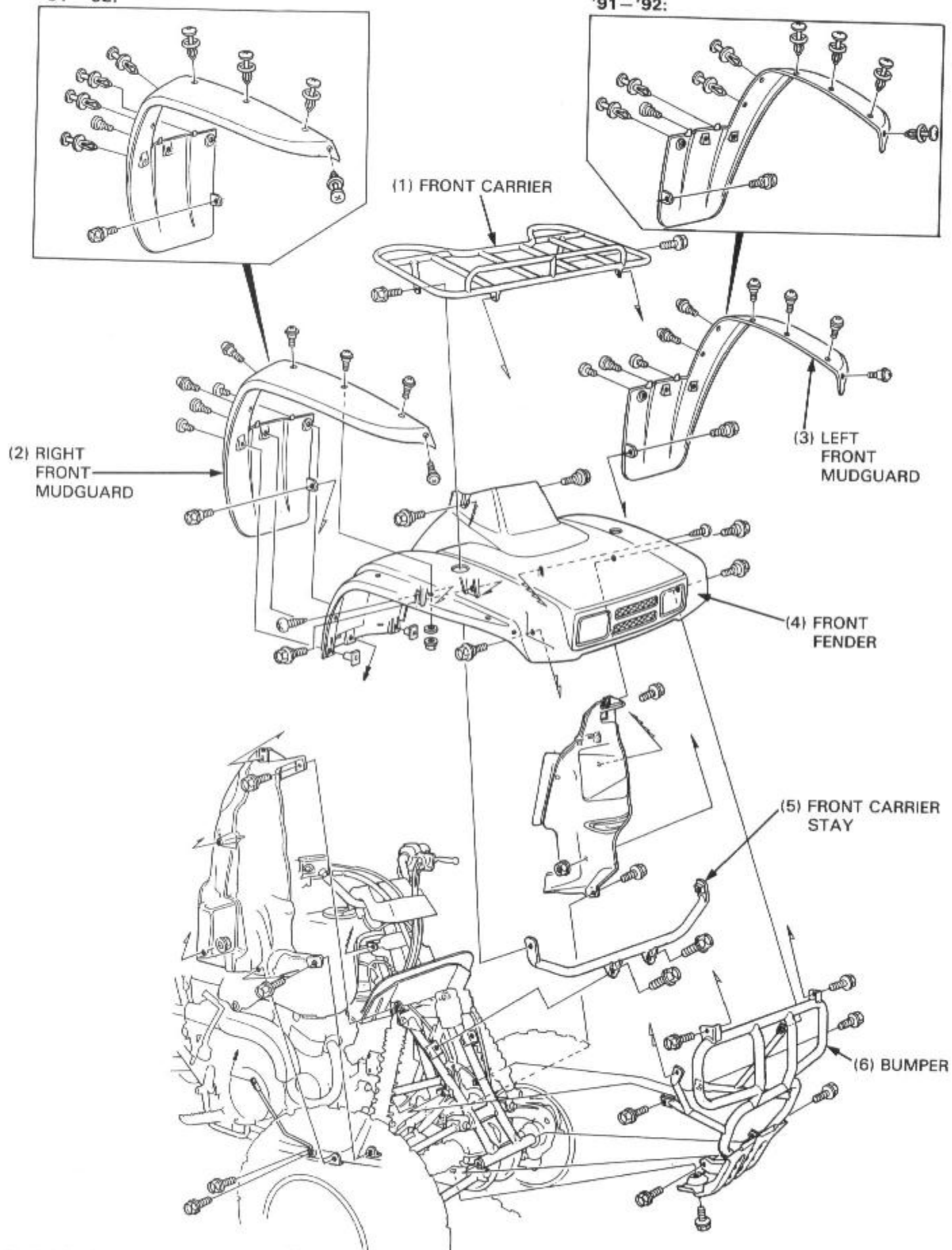
'88-'89:



'89-'92: TRX300FW

'91-'92:

'91-'92:



After '92: TRX300FW

(1) RIGHT FRONT MUDGUARD

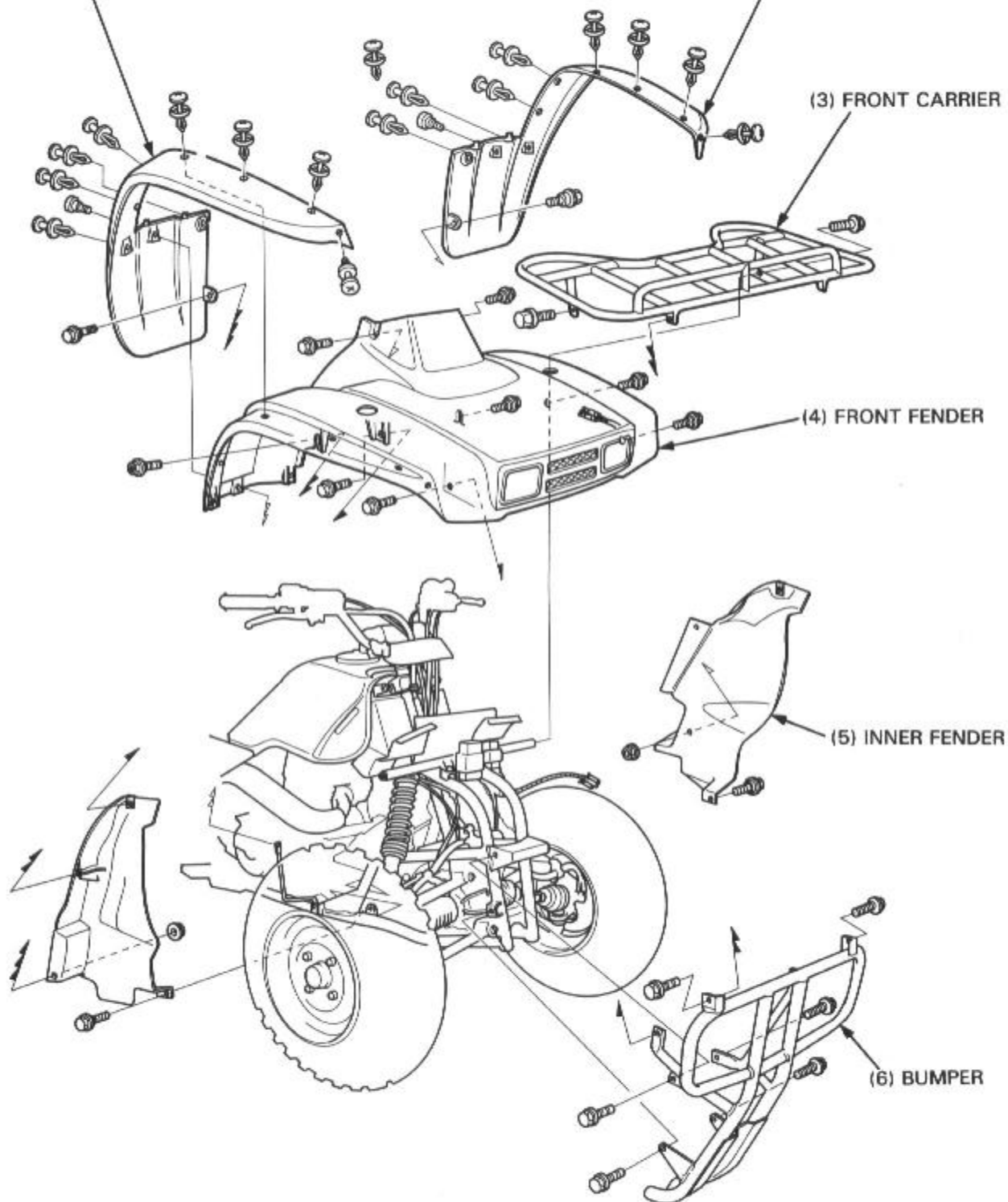
(2) LEFT FRONT MUDGUARD

(3) FRONT CARRIER

(4) FRONT FENDER

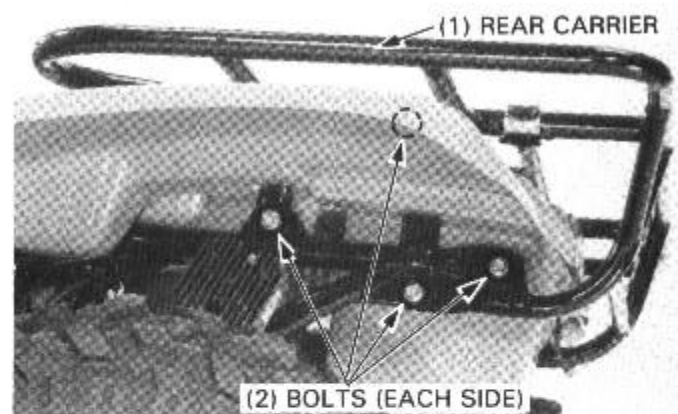
(5) INNER FENDER

(6) BUMPER



REAR CARRIER/REAR FENDER

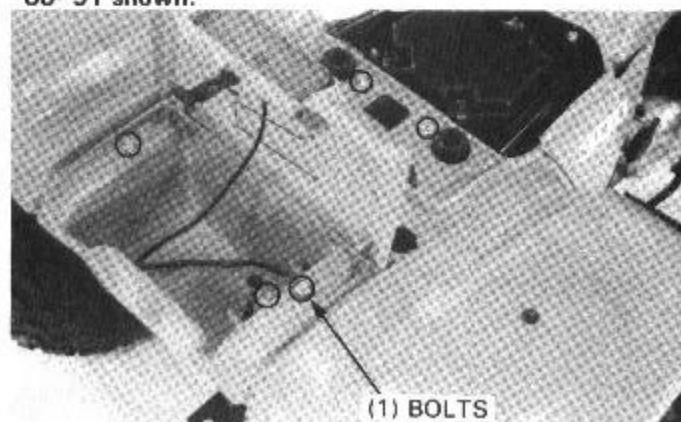
Remove the eight bolts and rear carrier.



Remove the battery (page 18-4) and disconnect all connectors in the battery box.

Open the tool box cover and remove five bolts.

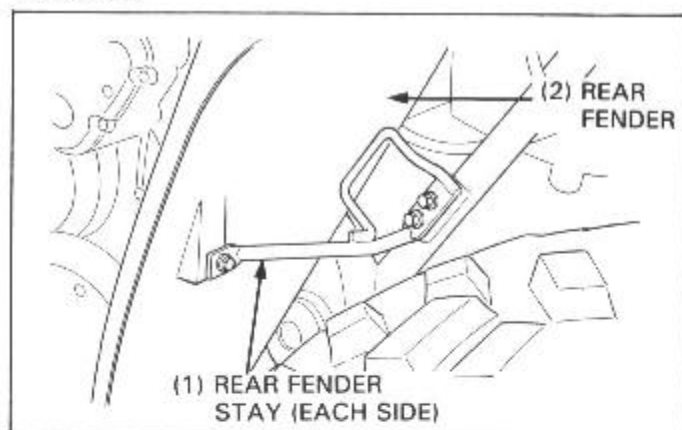
'88-'91 shown:



'88:

Remove the rear fender stay (each side) and rear fender.

'88 shown:

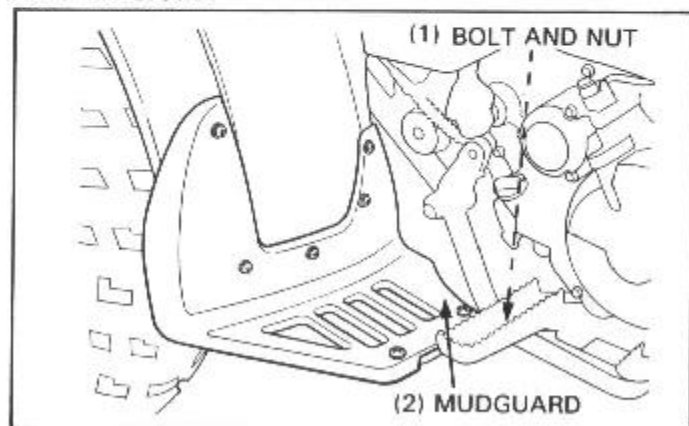


After '88:

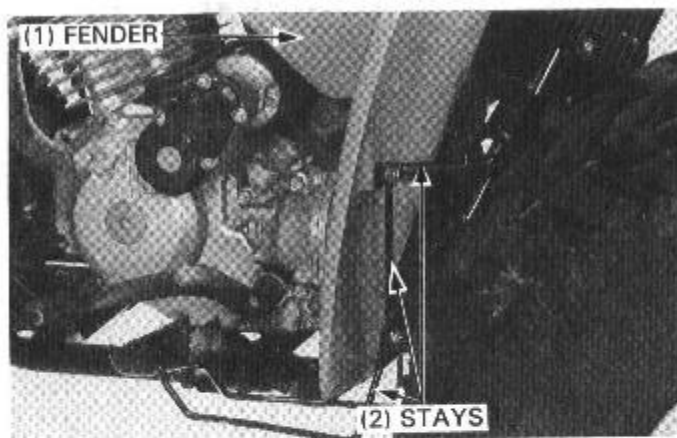
Remove the mudguard (each side).

Remove the mudguard stay bolt and nut (each side).

After '89 shown:



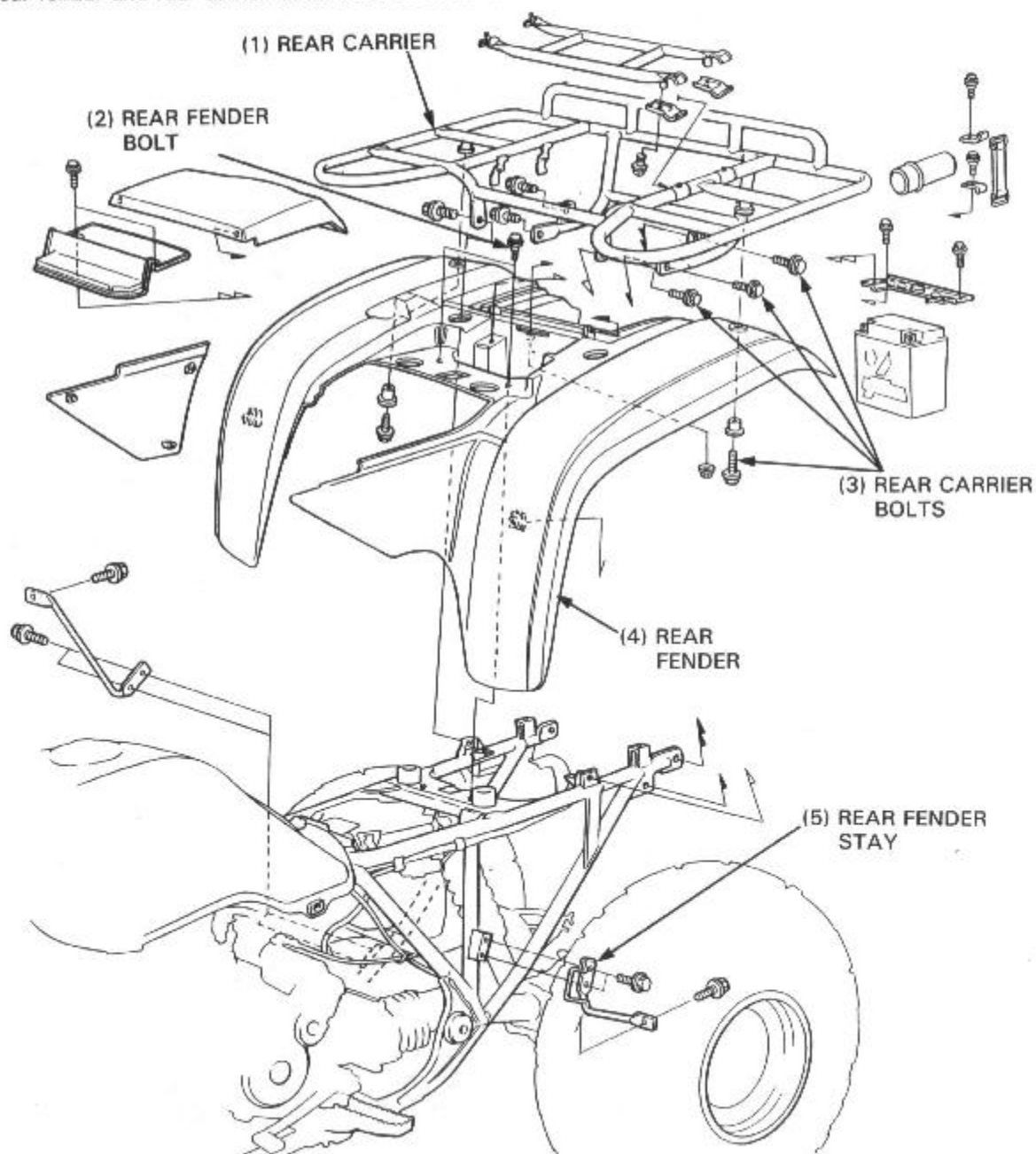
Remove the rear fender stay/mudguard stay.
Remove the rear fender.



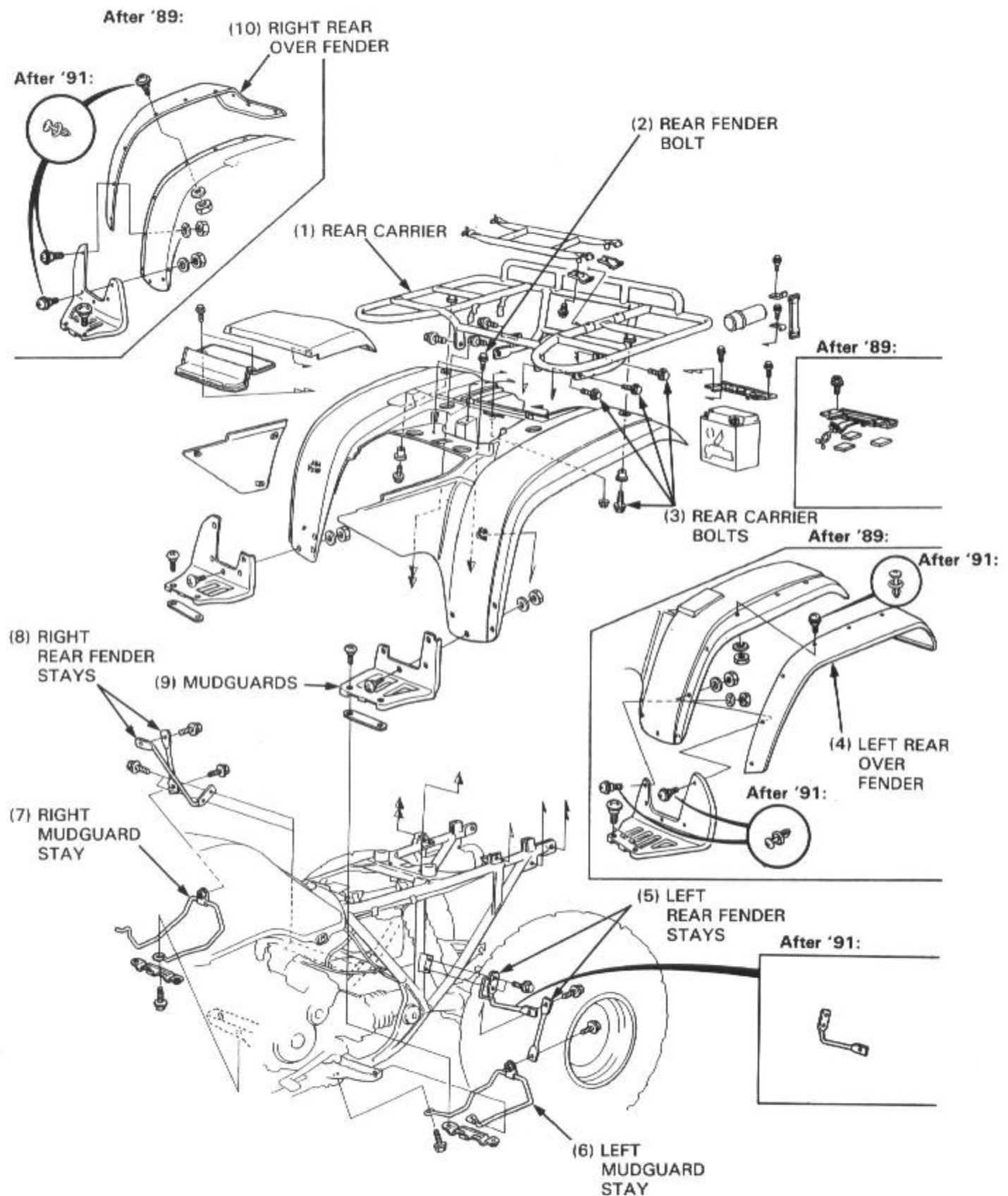
INSTALLATION

Install the rear fender and rear carrier in the reverse order of removal.

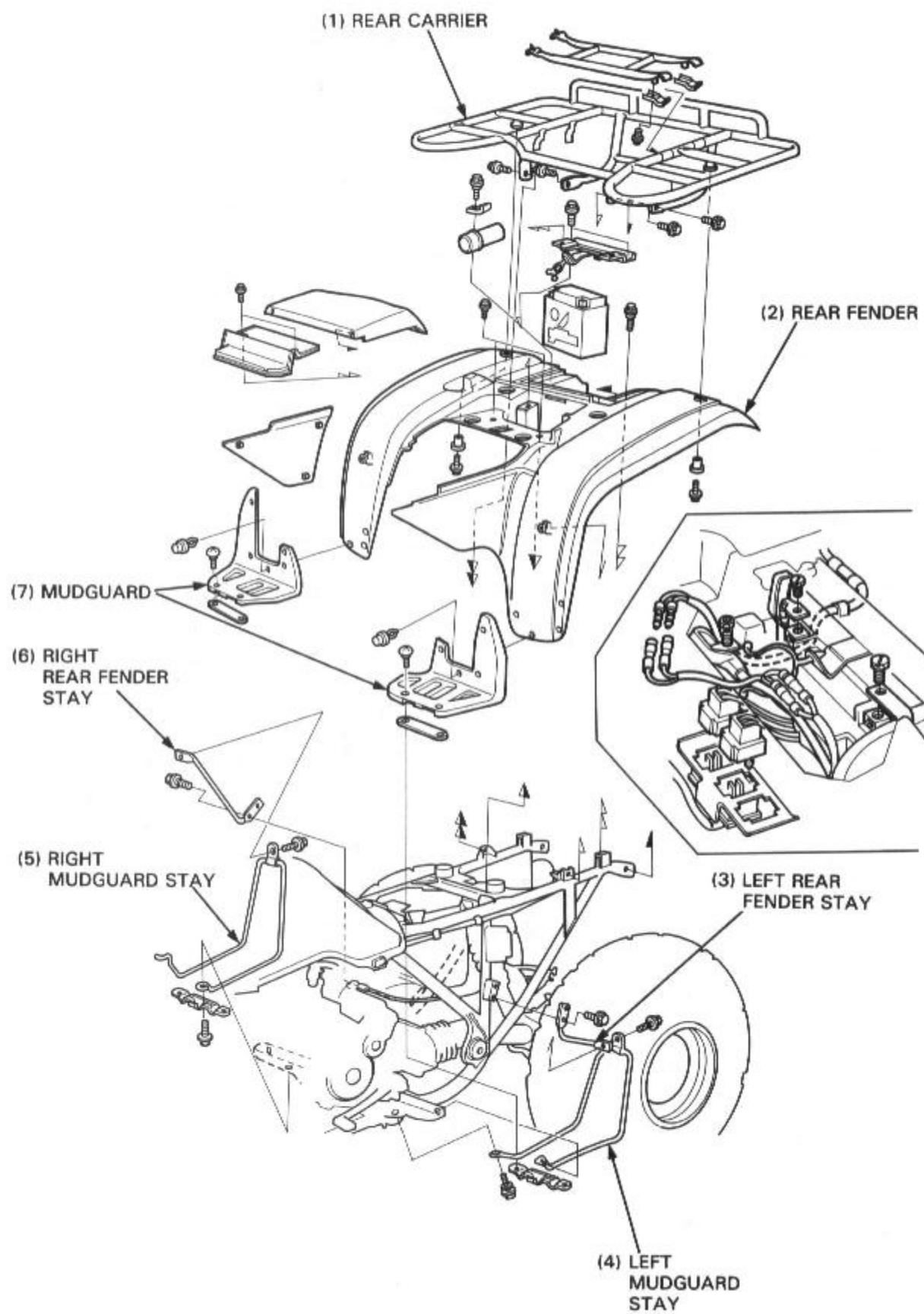
'88:



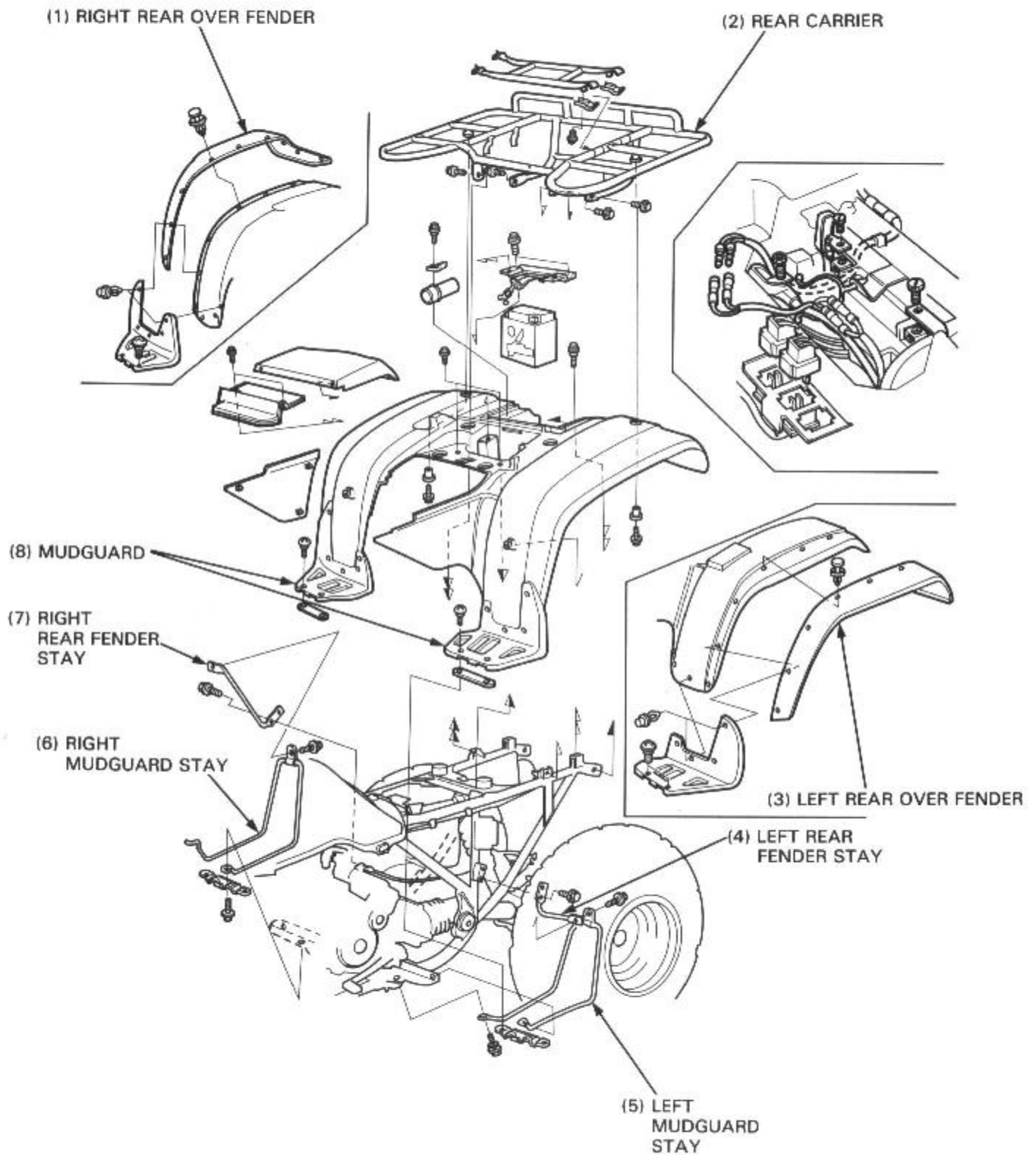
(TRX300FW) '89:



After '92: TRX300



After '92: TRX300FW



INSTALLING NEW PARTS ('88—'92:)

When replacing the rear fender with a new one, drill holes in the designated positions as indicated in the drawing at right.

HOLE DIAMETER: 7.5 mm (0.3 in)

Refer to the chart below for number of holes, and correct position for drilling.

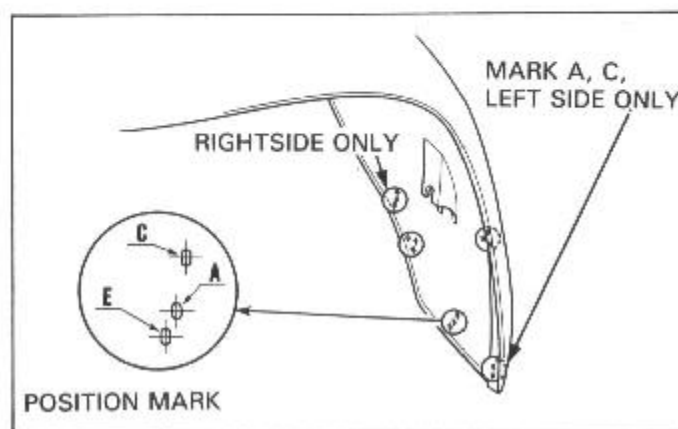
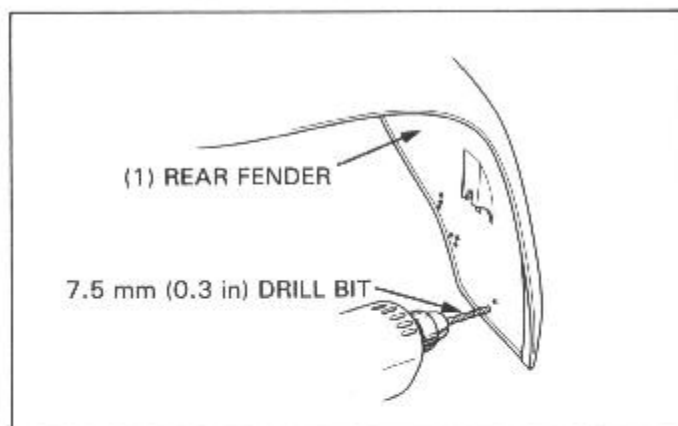
CAUTION

- Note that the number of holes for the right and left fenders are different.

NOTE

- Positions marked "AC" on rear the fender indicates that both A and C type drill holes in that location "A" is for America and "C" is for Canada. Ignore the "E" markings. When replacing rear fender with a new one, drill holes in the designated positions as indicated in the drawing at right.

Type	Position	Number of hole		Note
		R.Side	L.Side	
U.S.A.	A	5	4	Equipped without overfender
CANADA	C	3	2	Equipped with overfender


EXHAUST MUFFLER
REMOVAL
WARNING

- Do not service the exhaust system while it is hot.

NOTE

- The exhaust muffler can be serviced without removing the rear fender.

Remove the exhaust muffler joint nuts.

Remove the exhaust muffler mounting bolts and exhaust muffler.

INSTALLATION

Install the exhaust muffler in the reverse order of removal.

TORQUE:

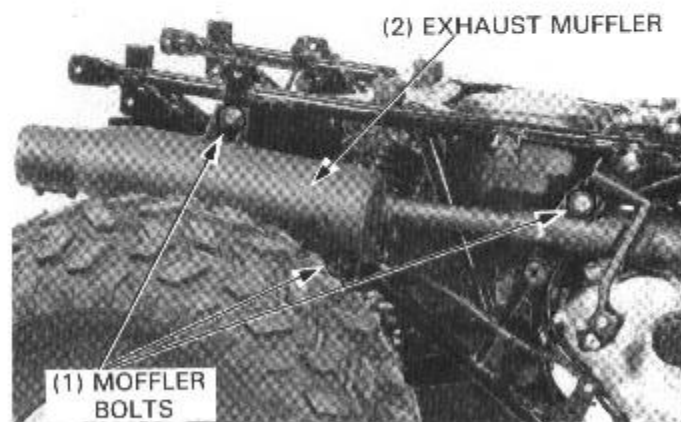
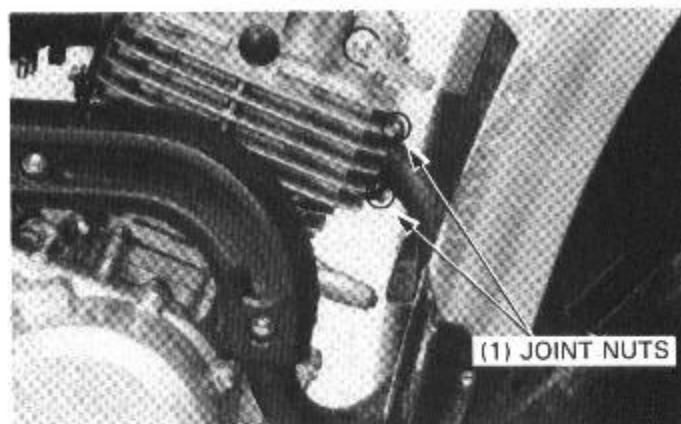
Muffler mounting bolt: 55 N·m (5.5 kg·m, 40 ft·lb)

Protector bolt:

'88—'92: 10 N·m (1.0 kg·m, 7 ft·lb)

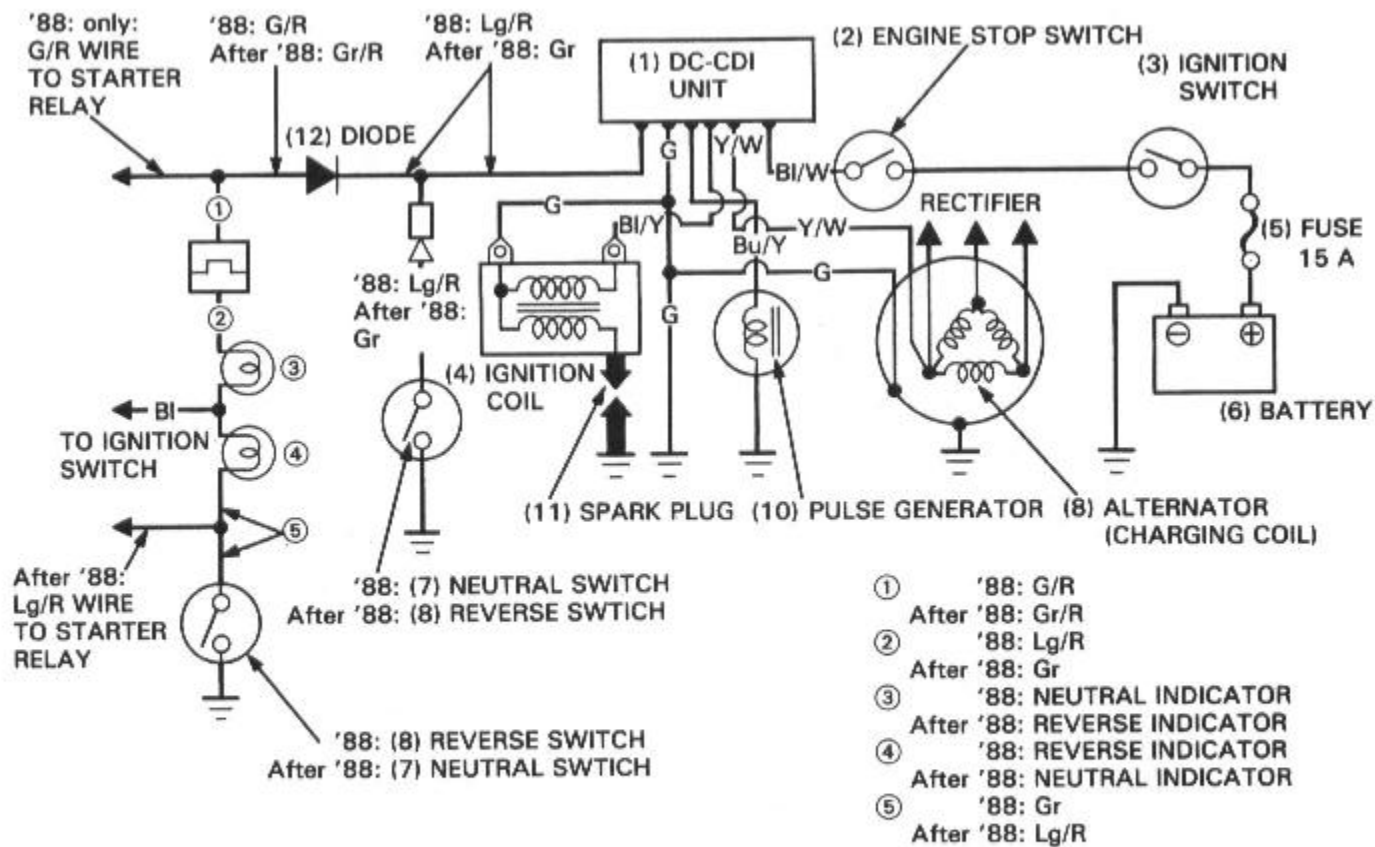
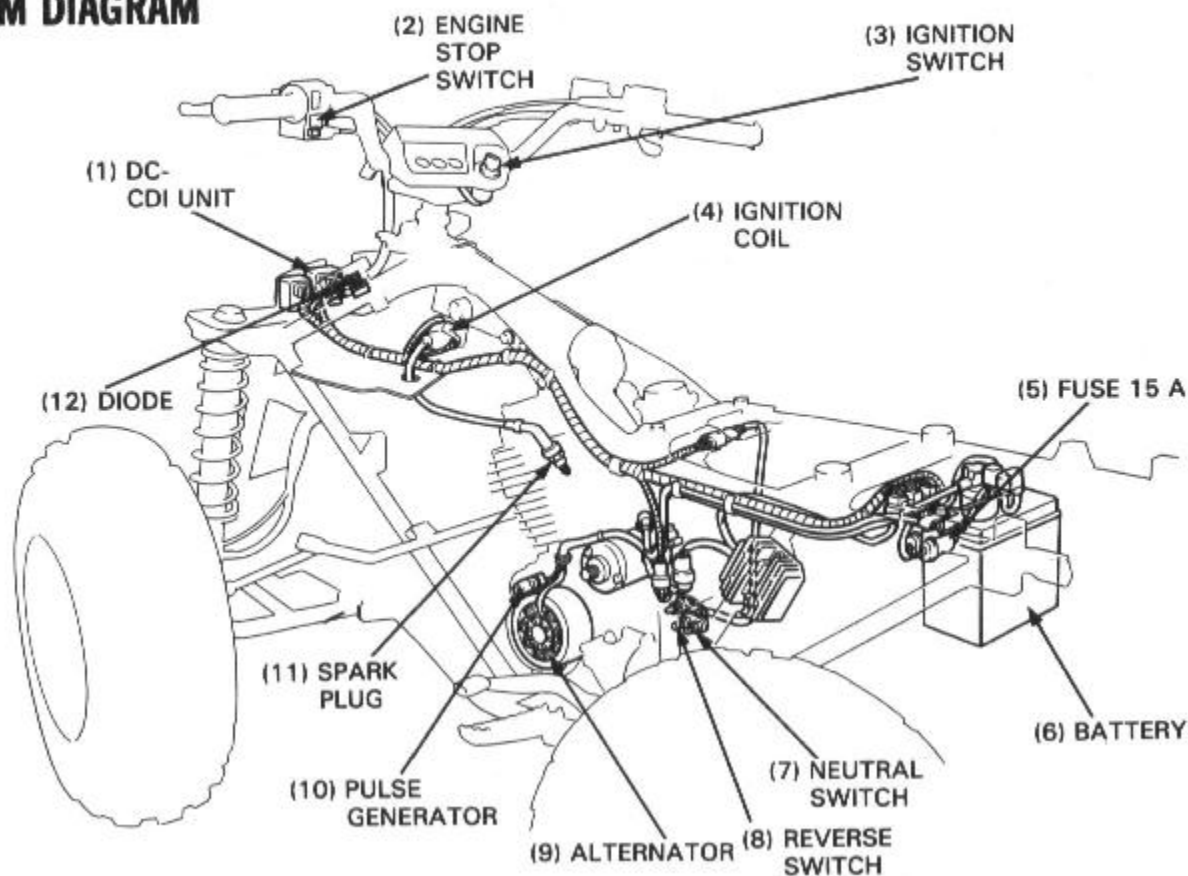
After '92: 18 N·m (1.8 kg·m, 13 ft·lb)

—Apply a locking agent to the bolt threads.



MEMO

SYSTEM DIAGRAM



SYSTEM DIAGRAM	17-0	IGNITION COIL	17-3
SERVICE INFORMATION	17-1	PULSE GENERATOR	17-4
TROUBLESHOOTING	17-2	ALTERNATOR	17-5
CDI UNIT SYSTEM INSPECTION	17-3	IGNITION TIMING	17-5

SERVICE INFORMATION

GENERAL

WARNING

- If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and lead to death.

- The following color codes are used throughout the electrical system.

Bu = Blue	G = Green	Lg = Light Green	R = Red
Bl = Black	Gr = Gray	O = Orange	W = White
Br = Brown	Lb = Light Blue	P = Pink	Y = Yellow

- Ignition timing does not normally need to be adjusted since the CDI (Capacitive Discharge Ignition) unit is factory preset.
- For spark plug inspection, refer to page 3-7.
- For alternator or pulse generator removal/installation, see section 9.
- When inspecting the ignition system, check the system components and lines step-by-step according to the troubleshooting sequence on the next page.
- This ignition system should be spark when the transmission is in neutral position.
When the transmission is in gear (except reverse position), should be spark while kick starter pedal operated (After '88).

SPECIFICATION

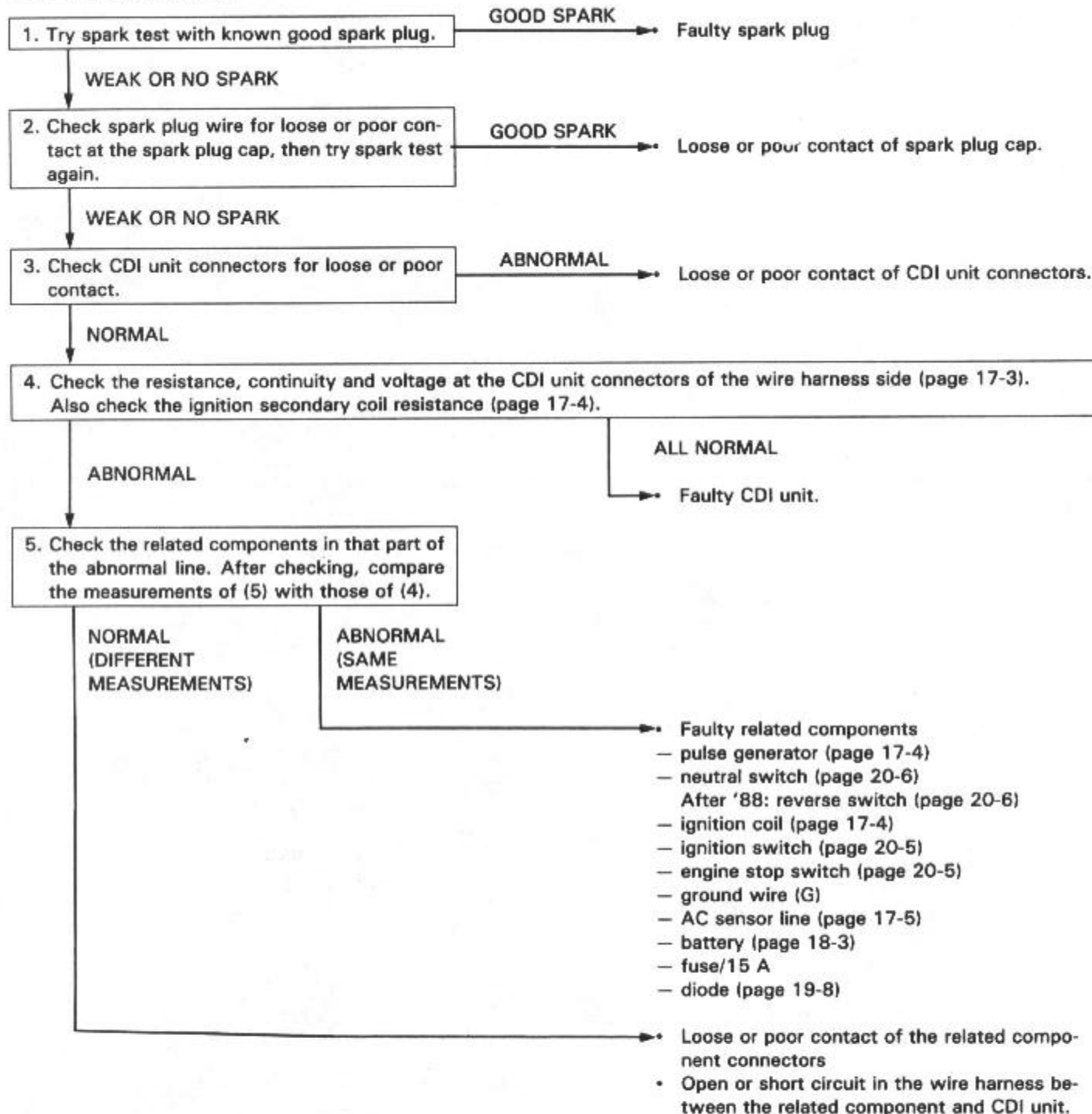
ITEM		STANDARD
Spark plug	Standard	DPR8EA-9 (NGK), X24EPR-U9 (ND)
	For extended high speed riding	DPR9EA-9 (NGK), X27EPR-U9 (ND)
	For cold climate (below 5°C/41°F)	DPR7EA-9 (NGK), X22EPR-U9 (ND)
Spark plug gap		0.8—0.9 mm (0.031—0.035 in)
Ignition timing	At idle (F mark)	13° BTDC at 1,500 ± 100 rpm
	Full advance	31° BTDC at 4,500 ± 100 rpm
Ignition coil (20°C/68°F)	Primary coil resistance	0.1—0.2 Ω
	Secondary coil resistance (Without spark plug cap) (With spark plug cap)	3.6—4.5 kΩ 8.1—10 kΩ
Pulse generator resistance (20°C/68°F)		290—360 Ω

TOOLS

Inspection adaptor (C)	07508—0012500 (Not available in U.S.A.)
Digital multimeter	07411—0020000 or KS-AHM-32-003 (U.S.A. only)
or	
Circuit tester (SANWA)	07308—0020000
or	
Circuit tester (KOWA)	TH-5H

TROUBLESHOOTING

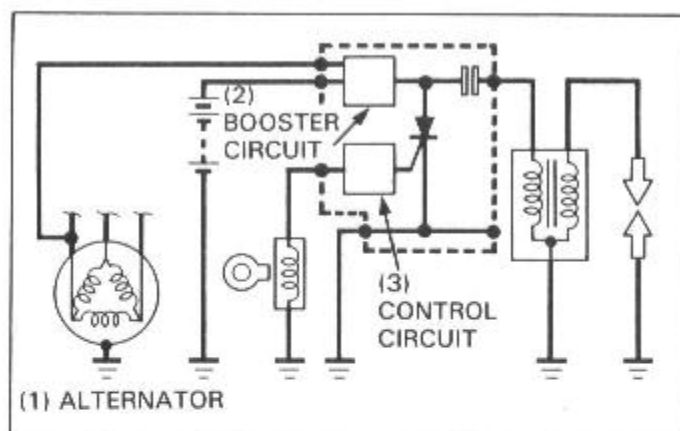
Weak or no spark at plug



CDI UNIT SYSTEM INSPECTION

DC-CDI SYSTEM

This model employs the special DC-CDI system that the ignition system should be spark only when the engine is cranking, by detecting the alternator charging current.



INSPECTION

NOTE

- Check the system components and lines step-by-step according to the troubleshooting on page 17-2.
- This method does not include an inspection of the ignition timing advance system at the CDI unit.

Disconnect the CDI unit connectors and check them for loose contact or corroded terminals.

Measure the resistance, continuity and voltage between connector terminals of the wire harness side as follows:

ITEM		TERMINAL	STANDARD
Ignition coil primary coil		Bl/Y and G	0.1 – 0.2 Ω (at 20°C/68°F)
Pulse generator coil		Bu/Y and G	290 – 360 Ω (at 20°C/68°F)
Ignition switch and engine stop switch (Turn the ignition switch ON and the engine stop switch RUN)		Bl/W (+) and G (–)	The battery voltage should register.
Gearshift pedal (in neutral position)	'88	Lg/R and G	Continuity
	After '88	Gr and G	No continuity
AC sensor line		Y/W and G	No continuity
		Y/W and Y (See NOTE below)	Continuity

NOTE

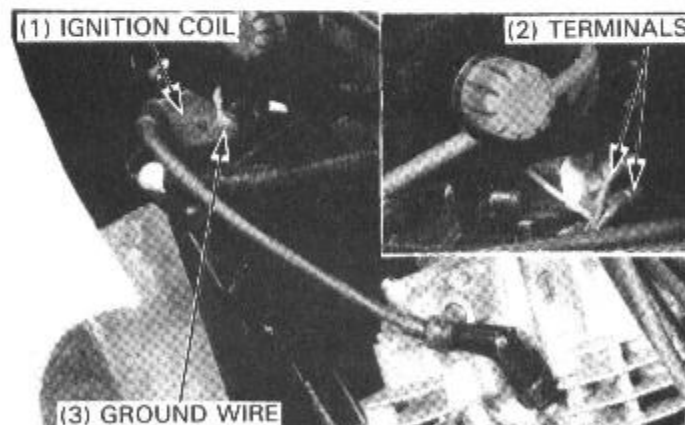
- Disconnect the alternator 3P connector (White), and check continuity between Y/W (CDI unit 4P connector of wire harness side) and Y (alternator 3P connector of alternator wire side).

IGNITION COIL

REMOVAL/INSTALLATION

Remove the fuel tank (page 4-3).
Remove the spark plug cap from the spark plug.
Disconnect the Bl/Y wire connector from the black terminal of the ignition coil and G wire connector from the green terminal.
Remove the screw, ground wire and ignition coil.

Install the ignition coil in the reverse order of removal.



IGNITION SYSTEM

INSPECTION

Remove the ignition coil (page 17-3).
Measure the primary coil resistance between terminals.

STANDARD: 0.1—0.2 Ω (at 20°C/68°F)

(1) PRIMARY COIL



Measure the secondary coil resistance with the spark plug cap in place by checking for continuity between the plug cap and green terminal.

STANDARD: 8.1—10 k Ω (at 20°C/68°F)

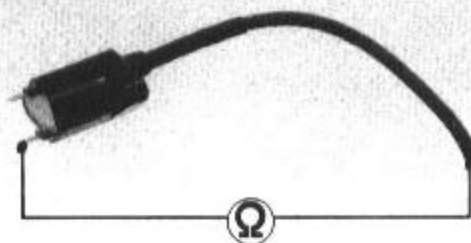
(1) SECONDARY COIL (WITH PLUG CAP)



Remove the spark plug cap from the wires and measure the secondary coil resistance.

STANDARD: 3.6—4.5 k Ω (at 20°C/68°F)

(1) SECONDARY COIL (WITHOUT PLUG CAP)



PULSE GENERATOR

NOTE

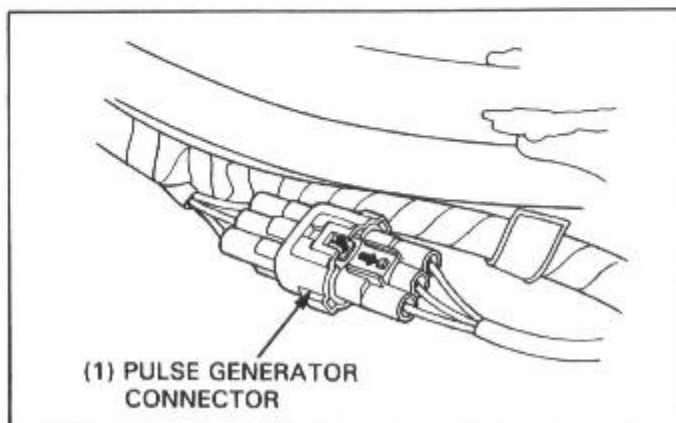
- It is not necessary to remove the fuel tank to make this test.

INSPECTION

Disconnect the pulse generator wire connector (Black).

NOTE

- Disconnect the connector by releasing the clip as shown.



Measure the resistance between the Bu/Y wire and body ground.

STANDARD: 290–360 Ω (at 20°C/68°F)

If the reading is far beyond the standard, remove the left crankcase cover, disconnect the pulse generator wire connector from the pulse generator terminal and measure the resistance between the terminal and body ground (see section 9). Replace the pulse generator if necessary.

ALTERNATOR

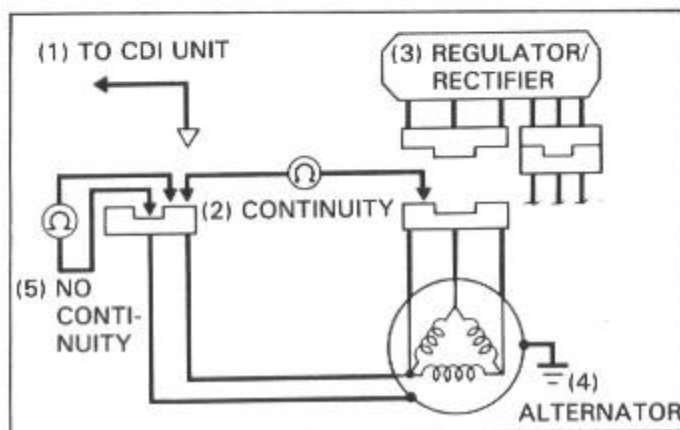
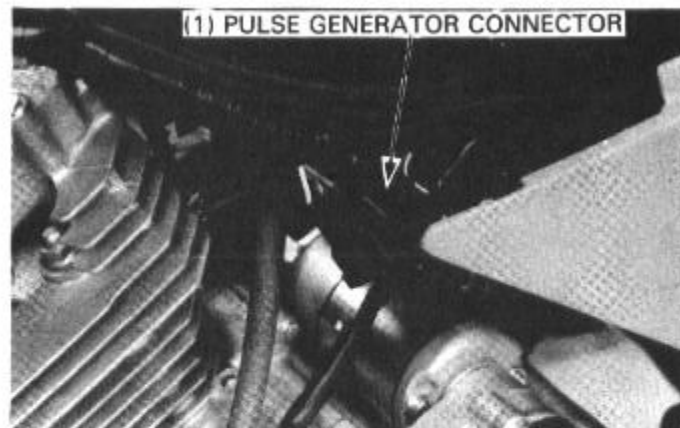
NOTE

- It is not necessary to remove the stator coil to make this test.

AC SENSOR LINE INSPECTION

Disconnect the AC sensor line connector (Black). And also disconnect the alternator 3P connector (White). Check the continuity between connector terminals as follows:

	AC sensor line connector terminal (Y/W)
Alternator 3P connector terminal (Y)	CONTINUITY
Alternator 3P connector terminal (G)	NO CONTINUITY



IGNITION TIMING

WARNING

- If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and lead to death.

NOTE

- The Capacitive Discharge Ignition (CDI) system is factory pre-set and does not require adjustment. To inspect the function of the CDI components, ignition timing inspection procedures are given here.

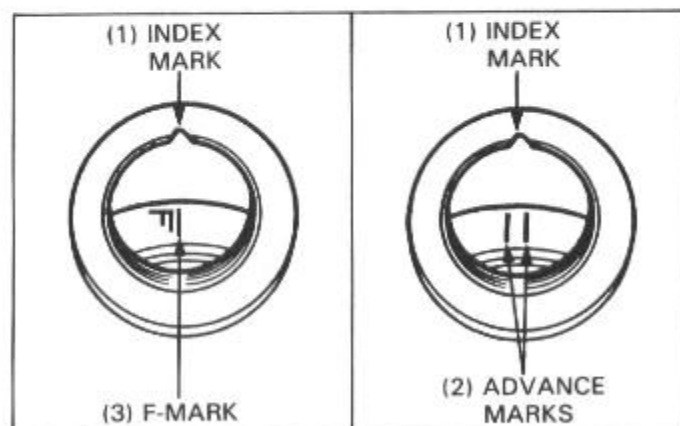
Warm up the engine to the operating temperature. Remove the timing hole cap. Connect a tachometer and timing light. Start the engine and allow it to idle.

IDLE SPEED: 1,500 \pm 100 rpm

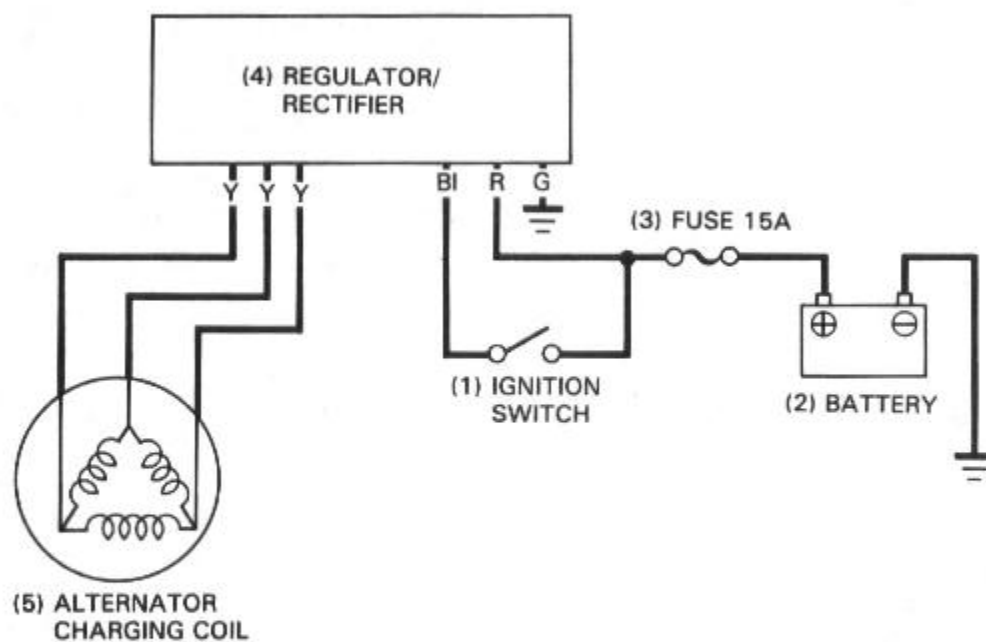
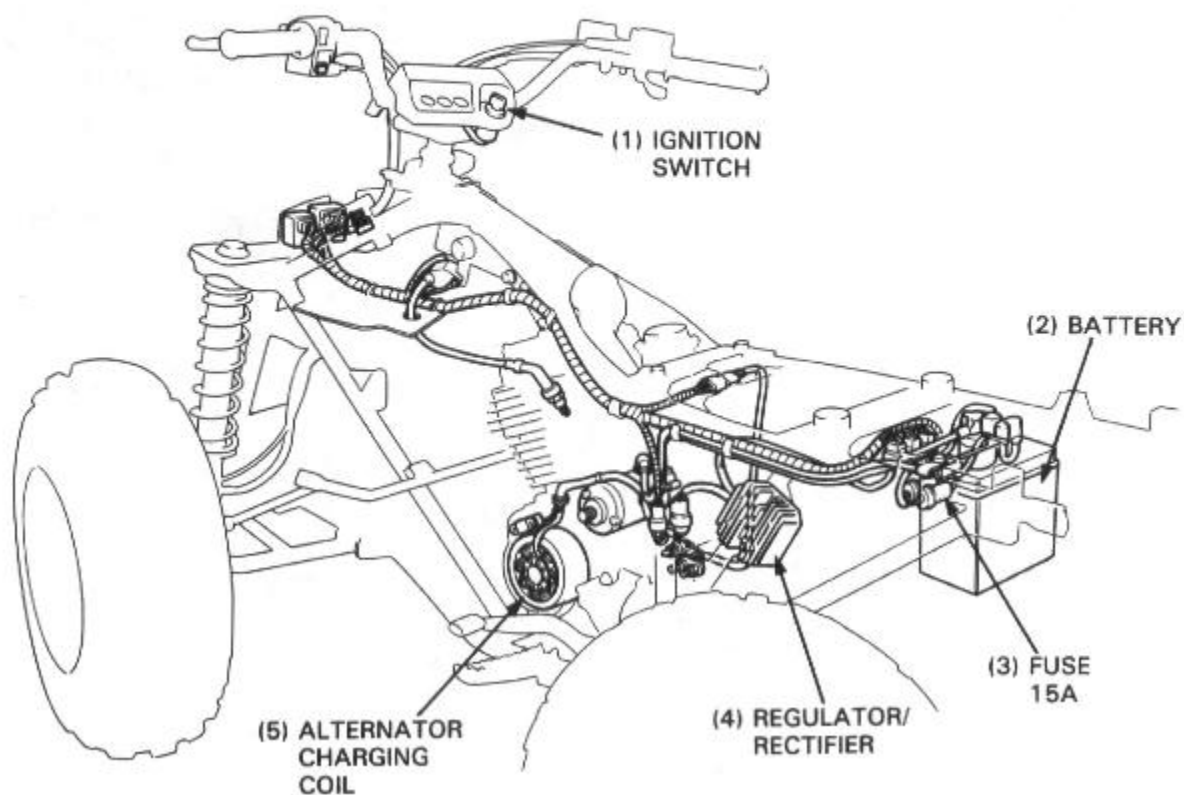
Inspect the ignition timing.

Timing is correct if the "F" mark on the alternator rotor is aligned with the index mark on the left crankcase cover at idle. To check the advance, raise the engine speed to 4,500 \pm 100 rpm. The index mark should be between the advance marks.

If the ignition timing is incorrect, perform the system inspection (page 17-3).



SYSTEM DIAGRAM



SYSTEM DIAGRAM	18-0	CHARGING SYSTEM	18-6
SERVICE INFORMATION	18-1	ALTERNATOR CHARGING COIL	18-8
TROUBLESHOOTING	18-3	REGULATOR/RECTIFIER	18-8
BATTERY	18-4		

SERVICE INFORMATION

GENERAL

WARNING

- The battery gives off explosive gases; keep sparks, flames and cigarettes away. Provide adequate ventilation when charging.
- The battery contains sulfuric acid (electrolyte). Contact with skin or eyes may cause severe burns. Wear protective clothing and a face shield.
 - If electrolyte gets on your skin, flush with water.
 - If electrolyte gets in your eyes, flush with water for at least 15 minutes and call a physician.
- Electrolyte is poisonous.
 - If swallowed, drink large quantities of water or milk and follow with milk of magnesia or vegetable oil and call a physician.
- If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and lead to death.

Battery charging

CAUTION

- For battery charging, do not exceed the charging current and time specified on the battery (and on the next page). Use of excessive current or charging time may damage the battery.

NOTE

- Refer to the instruction in the Operation Manual for the Honda Battery Tester and Christie Battery Charger for detailed battery charging steps.

After activation, both conventional and maintenance-free batteries must be charged at the appropriate ampere-hour rating for the proper length of time.

Set the Battery Amp. Hr. Selector Switch on the Christie Battery Charger (#MC1012/2) for the size of the battery being charged. Set the Timer to the NEW BATT position and connect the battery clamps. When the time reaches the "trickle" position, the charging cycle is complete.

After charging, test the condition of the new battery using the Honda Battery Tester (07GMJ—0010000) — refer to the Operation Manual for complete details.

Battery charging/Testing equipment

The Christie Battery Charger (#MC1012/2) is a constant current (amperage) type designed to produce current at a constant rate for the duration of the charge, even if the voltage varies.

The Honda Battery Tester (07GMJ—0010000) puts a "load" on the battery so that the actual battery condition at the time of the load can be measured.

This provides an accurate determination of the battery condition --- good (green), fair (yellow), or poor (red).

- Slow charge the battery whenever possible, quick charging should be an emergency procedure only.
- Remove the battery from the vehicle for charging.
- The battery on this vehicle is a sealed type. Do not try to remove the filler hole caps even during charging. Do not use a non-sealed battery as a replacement.
- All charging system components can be checked on the vehicle.
- When inspect the charging system, check the system components and lines step-by-step according to the troubleshooting on the next page.
- Alternator removal is given in section 9.

BATTERY/CHARGING SYSTEM

SPECIFICATIONS

Battery	Capacity		12 V—12 AH
	Voltage at 20°C (68°F)	Fully charged	13.0—13.2 V at 20°C (68°F)
		Needs charging	Below 12.3 V at 20°C (68°F)
Alternator	Capacity		0.22 kW/5,000 rpm
	Charging coil resistance		0.09—0.11 Ω (at 20°C/68°F)
Regulator/ rectifier	Type		Three-phase/full-wave rectification
	Regulated voltage/ampere		13.5—15.5 V/0—5 A at 5,000 rpm

TOOLS

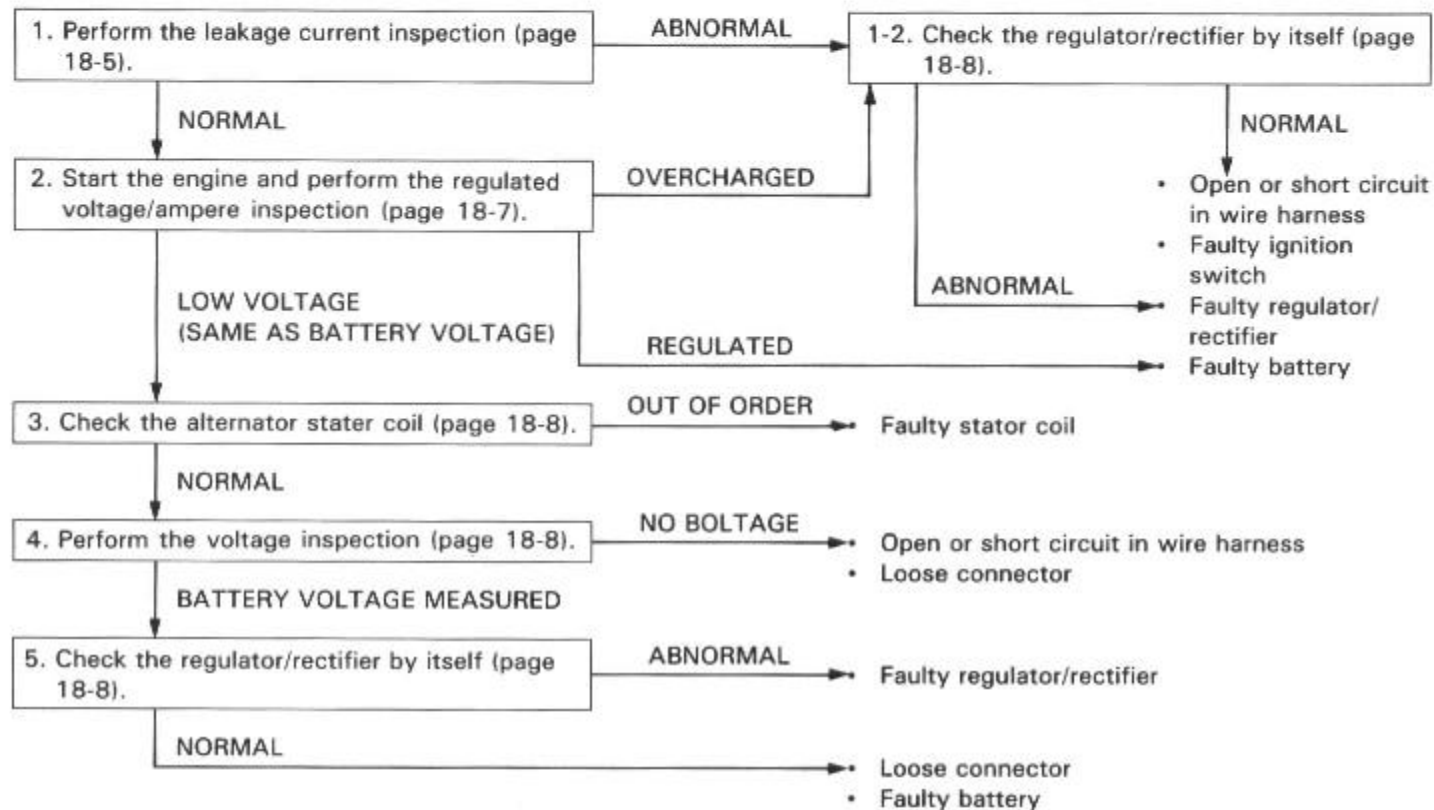
Digital multimeter	07411—0020000 or KS-AHM-32-003 (U.S.A. only)
Circuit tester (SANWA)	07308—0020000
or	
Circuit tester (KOWA)	TH-5H
Christie battery charger	MC1012/2 (U.S.A. only)
Battery tester	07GMJ—0010000 (U.S.A. only)

TROUBLESHOOTING

Battery overcharged

- Loose or poorly connected BI terminal of the regulator/rectifier 3P connector
- Open circuit in BI wire
- Faulty regulator/rectifier

Battery undercharged



BATTERY

REMOVAL

Remove the battery holder bolts and holder. Disconnect the negative cable and then the positive cable, and remove the battery.

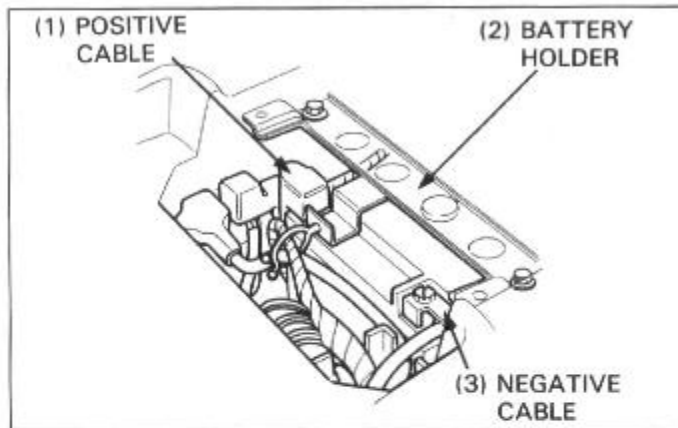
INSTALLATION

Install the battery in the reverse order of removal on the proper wiring as shown.

NOTE

- Connect the positive cable first, and then the negative cable.

After installing the battery, coat the terminals with clean grease.



VOLTAGE INSPECTION

Measure the battery voltage using a digital multimeter.

VOLTAGE: Fully charged: 13.0–13.2 V
Under charged: Below 12.3 V

TOOL:

Digital multimeter 07411–0020000 (KOWA)
KS–AHM–32–003 (U.S.A. only)

BATTERY TESTING

NOTE

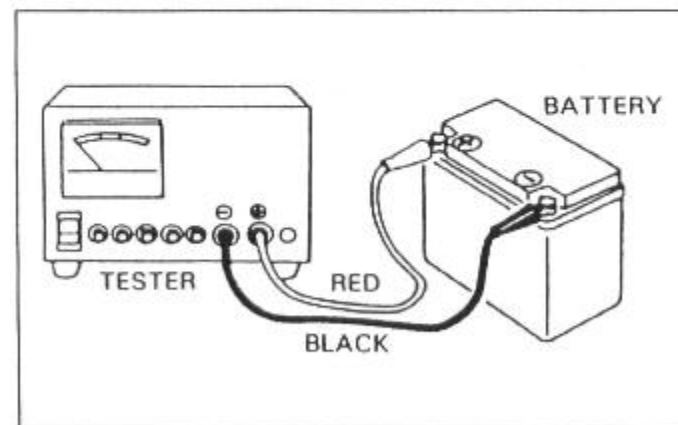
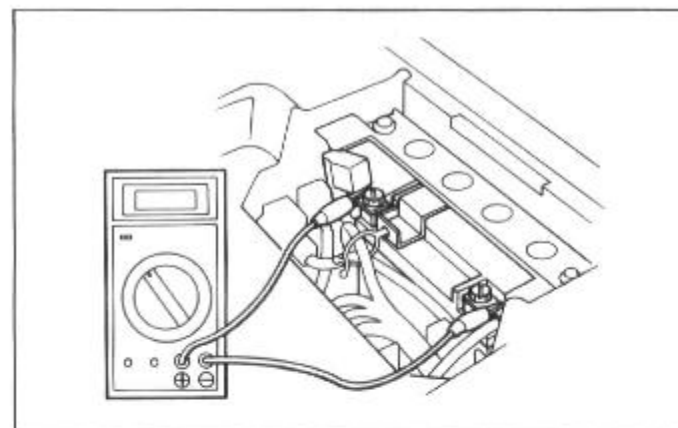
- Always clear the work area of flammable materials such as gasoline, brake fluid, electrolyte, or cloth towels when operating the tester, the heat generated by the tester may cause a fire.

Remove the battery.

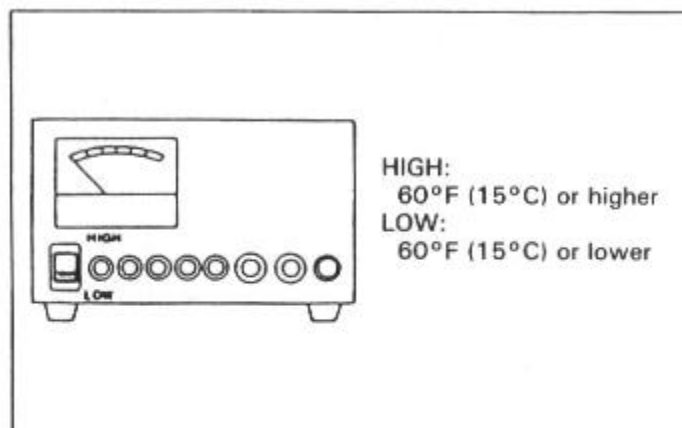
Securely connect the tester's positive (+) cable first, then connect the negative (–) cable.

NOTE

- For accurate test result, be sure the tester's cables and clamps are in good working condition and that a secure connection can be made at the battery.



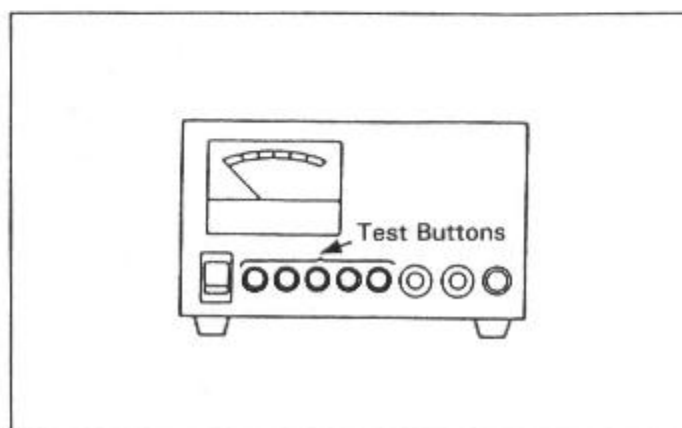
Set the temperature switch to "HIGH" or "LOW" depending on the ambient temperature.



Push in the appropriate test button for three second and read the condition of the battery on the meter.

NOTE

- Be sure you've selected the test button of 5.5 Ah-9Ah. For the first check, DO NOT charge the battery before testing- test it is an "as is" condition.



CAUTION

- To avoid damaging the tester, only test batteries with an amperage rating of less than 30A.
- Tester damage can result from overheating when:
 - The test button is pushed in for more than three seconds.
 - The tester is used without being allowed to cool for at least one minute when testing more than one battery.
 - More than ten consecutive tests are performed without allowing at least a 30-minute cool-down period.

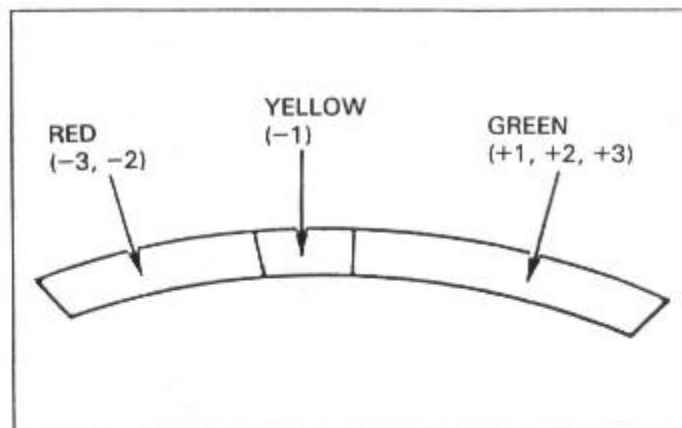
NOTE

- The result of a test on the meter scale is relative to the amp. hour rating of the battery. Any BATTERY READING IN THE GREEN ZONE IS OK. Batteries should only be charged if they register in the YELLOW or RED zone.

BATTERY CHARGING

WARNING

- The battery gives off explosive gases: keep sparks, flames and cigarettes away. Provide adequate ventilation when charging.
- The battery contains sulfuric acid (electrolyte). Contact with skin or eyes may cause severe burns. Wear protective clothing and a face shield.
 - If electrolyte gets on your skin, flush with water.
 - If electrolyte gets in your eyes, flush with water for at least 15 minutes and call a physician.
- Electrolyte is poisonous.
 - If swallowed, drink large quantities of water or milk and follow with milk of magnesia or vegetable oil and call a physician.
- Turn power ON/OFF at the charger, not at the battery terminals.



BATTERY/CHARGING SYSTEM

NOTE

- Be sure the area around the charger is well ventilated, clear of flammable materials, and free from heat, humidity, water and dust.
- Clean the battery terminals and position the battery as far away from the charger as the leads will permit.
- Do not place batteries below the charger-gases from the battery may corrode and damage the charger.
- Do not place batteries on top of the charger. Be sure the air vents are not blocked.

1. Turn the Power Switch to the OFF position.
2. Set the battery Amp. Hr. Selector Switch for the size of the battery being charged.
3. Set the Timer to the position indicated by the Honda Battery Tester: RED-3, RED-2 or YELLOW-1. If you are charging a new battery, set the switch to the NEW BATT position.
4. Attach the clamps to the battery terminals-RED to Positive, BLACK to Negative.

Connect the battery cables only when the Power Switch is OFF.

Connect the battery cables only when the Power Switch is OFF.

WARNING

- *Connecting the cables with the Power Switch can produce a spark which could ignite or explode the battery.*

5. Turn the Power Switch to the ON position.
6. When the timer reaches the "Trickle" position, the charging cycle is complete. Turn the Power Switch OFF and disconnect the clamps.

NOTE

- The charger will automatically switch to the Trickle mode after the set charging time has elapsed.

7. Retest the battery using the Honda Battery Tester and recharge if necessary using the above steps.

NOTE

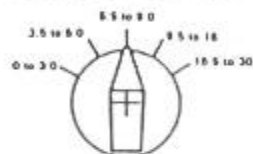
- For accurate test results, let the battery cool for at least ten minutes or until gassing subsides after charging.

CHARGING SYSTEM

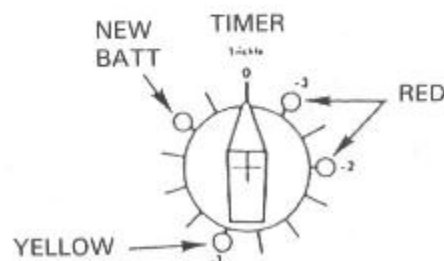
NOTE

- When inspecting the charging system, check the system components and lines step-by-step according to the troubleshooting on page 18-3.
- Measuring circuits with a large capacity that exceeds the capacity of the tester may cause damage to the tester. Before starting each test, set the tester at the high capacity range first, then gradually down to low capacity ranges in order that you have the correct range and do not damage the tester.
- When measuring small capacity circuits, keep the ignition switch off. If the switch is suddenly turned on during a test, the tester fuse may blow.

BATTERY AMP HR. SELECTOR SWITCH



Set the appropriate amp. hour rating.

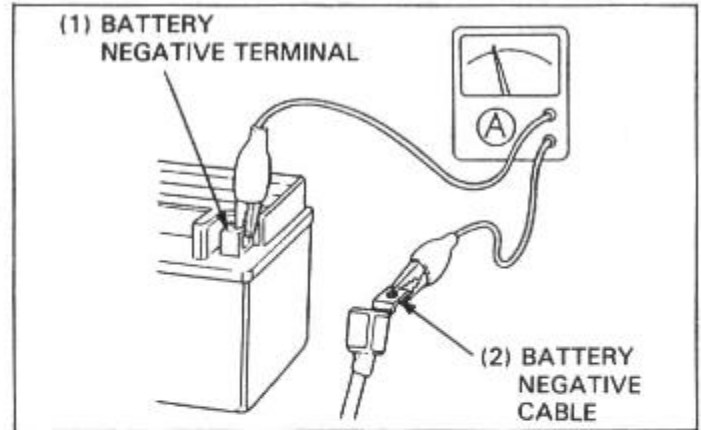


LEAKAGE INSPECTION

Check the battery ampere leakage before making the regulated ampere inspection. Turn the ignition switch off and disconnect the battery negative cable from the battery. Connect the tester between the negative cable and the negative battery terminal.

The voltage should indicate less than 0.1 mA with the ignition switch off.

LEAKAGE AMPERES: 0.1 mA max.



REGULATED VOLTAGE/AMPERAGE INSPECTION

WARNING

- *If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and lead to death.*

NOTE

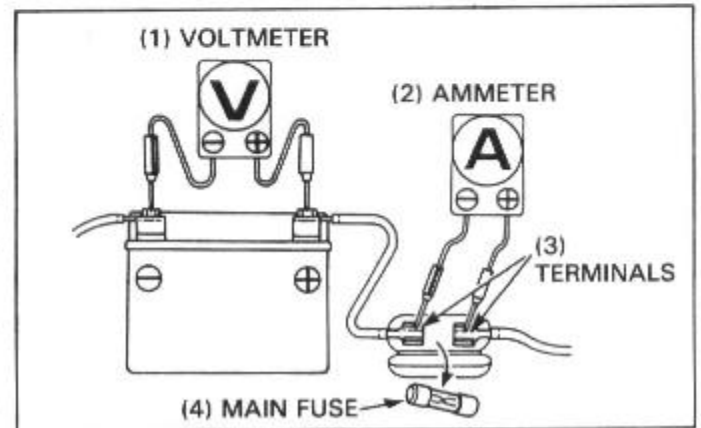
- Be sure the battery is in good condition before performing this test.

Warm up the engine to normal operating temperature. Stop the engine, and connect the voltmeter as shown. Remove the main fuse and connect an ammeter to the main fuse terminals as shown. Connect the tachometer and restart the engine. Allow the engine to idle, and increase the engine speed gradually. The voltage and amperage should be controlled as specified.

STANDARD: 13.5–15.5 V/0–5 A at 5,000 rpm

CAUTION

- *Be careful not to allow the battery positive cable to touch the frame while testing.*



ALTERNATOR CHARGING COIL

NOTE

- It is not necessary to remove the stator coil to make this test.

INSPECTION

Disconnect the regulator/rectifier (alternator) 3P (White) connector.

Check the resistance between the connector terminals.

STANDARD: 0.09—0.11 Ω (at 20°C/68°F)

Check for continuity between the connector terminals and ground.

There should be no continuity.

Replace the alternator stator if readings are far beyond the standard, or if any wire has continuity to ground. Refer to section 9 for stator removal.



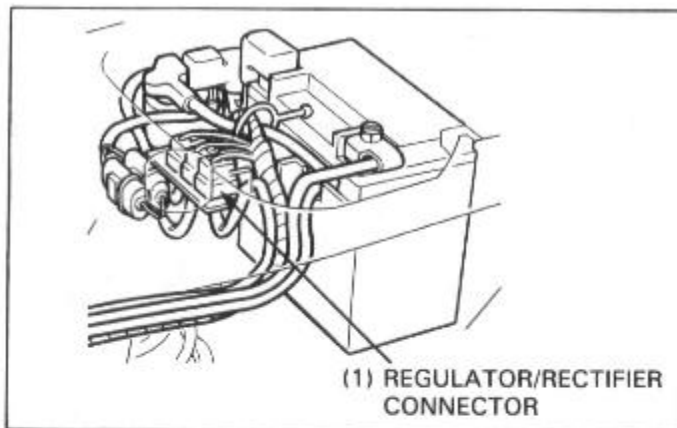
REGULATOR/RECTIFIER

VOLTAGE INSPECTION

Remove the battery box cover and disconnect the regulator/rectifier 3P connector, and check it for loose contact or corroded terminals.

If the regulated voltage reading (above) is out of the specification, measure the voltage between connector terminals (wire harness side) as follows:

ITEM	TERMINALS	SPECIFICATION
Battery charging line	R (+) and G (-)	Battery voltage should register.
Battery voltage feedback line	Bl (+) and G (-)	Battery voltage should register with the ignition switch ON.



REGULATOR/RECTIFIER INSPECTION

Provided that all components of the charging system are normal and there are no loose connections at the regulator/rectifier connector, inspect the regulator/rectifier unit by measuring the resistance between the terminals.

NOTE

- The resistance values will be incorrect if the probes touch your fingers.
- Use one of the following recommended multimeters. Using another manufacturer's equipment may not allow you to obtain the specified values. This is due to the characteristic of semiconductors, which have different resistance values depending on the applied voltage.

RECOMMENDED MULTIMETERS:

- 07411—0020000 (KOWA Digital type)
- KS—AHM—32—003 (KOWA Digital type; U.S.A. only)
- 07308—0020001 (SANWA Analogue type)
- TH—5H (KOWA Analogue type)

Unit: k Ω

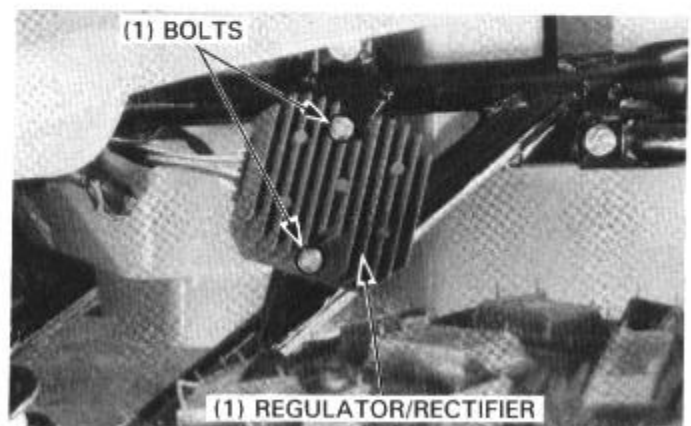
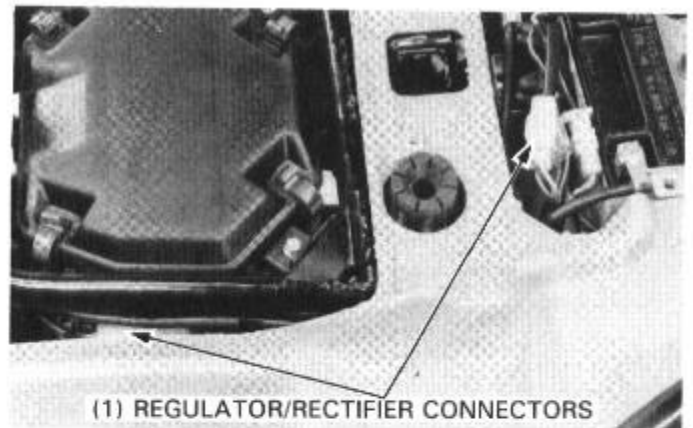
+Probe -Probe	Red	Green	Black	Yellow
Red		∞	∞	∞
Green	1—20		1—20	0.5—10
Black	20—100	10—50		15—80
Yellow	0.5—10	∞	∞	

- Select the following range.
Sanwa: k Ω
Kowa: x 100 Ω
- An old battery in the multimeter could cause inaccurate readings. Check the battery if the multimeter resisters incorrectly.
- When using the KOWA multimeter, remember that all readings should be multiplied by 100.

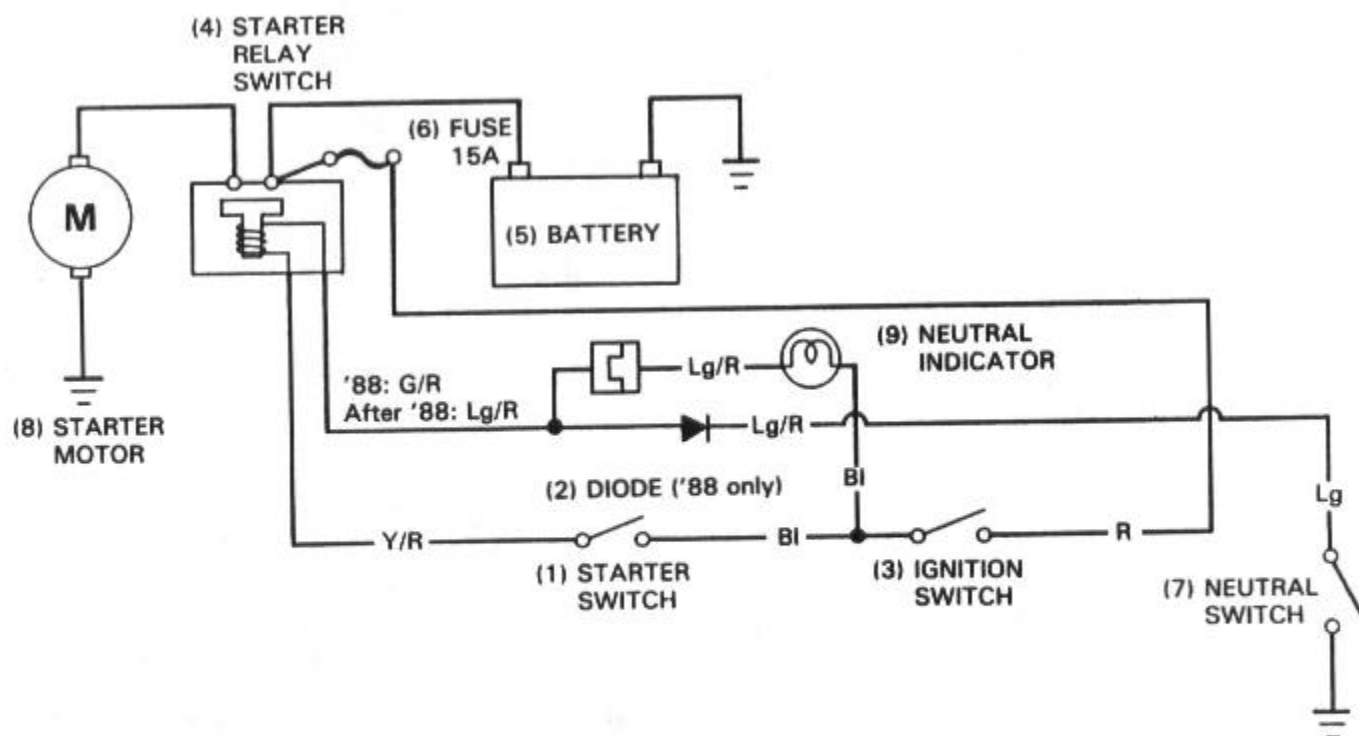
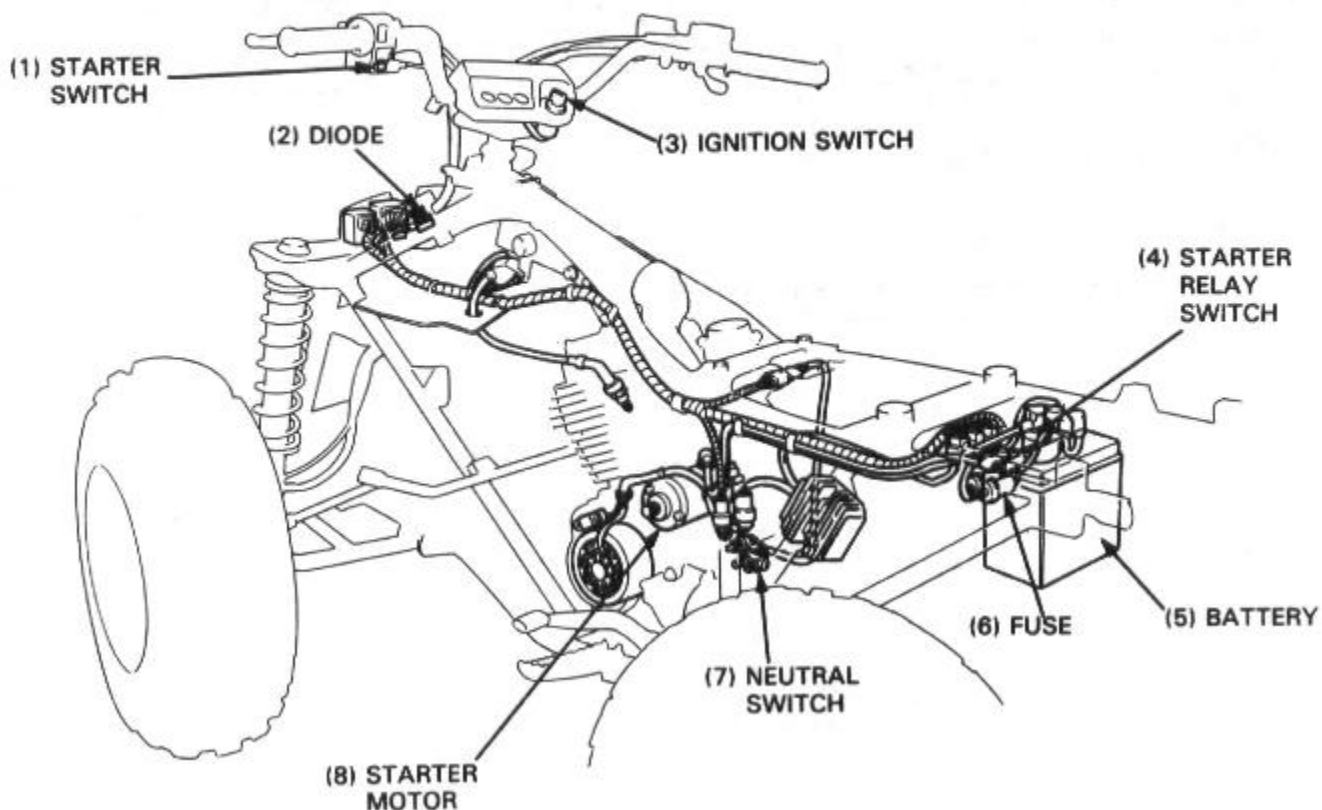
Replace the regulator/rectifier unit if any one of the resistance values is abnormal.

REPLACEMENT

Disconnect the regulator/rectifier connectors.
Remove the regulator/rectifier mounting bolts and regulator/rectifier.



SYSTEM DIAGRAM



19. STARTER SYSTEM

SYSTEM DIAGRAM	19-0	STARTER MOTOR	19-3
SERVICE INFORMATION	19-1	STARTER RELAY SWITCH	19-7
TROUBLESHOOTING	19-2	DIODE	19-8

SERVICE INFORMATION

GENERAL

- The starter motor can be removed with the engine in the frame.
- For the starter reduction gear removal/installation, see section 9.

SPECIFICATIONS

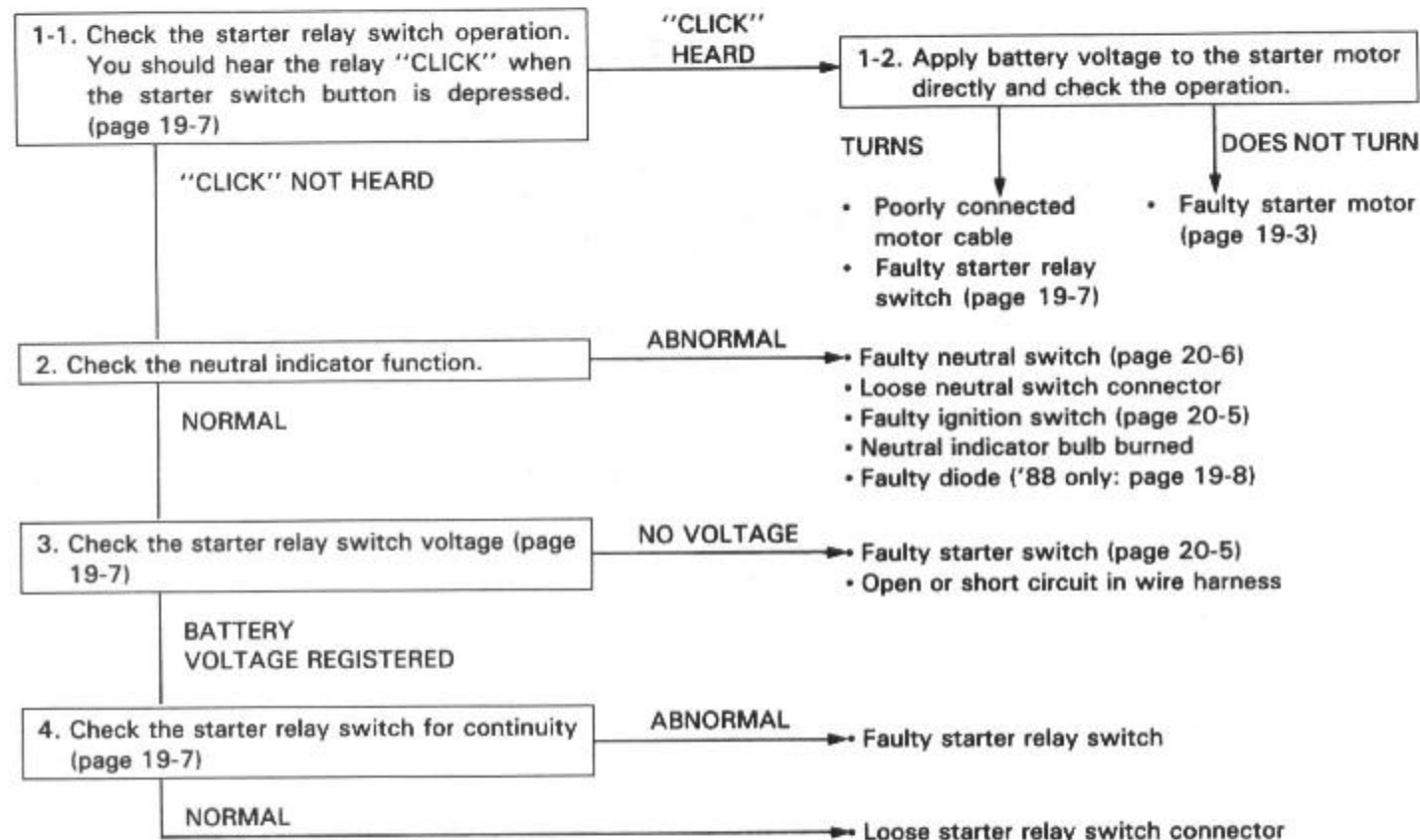
ITEM	STANDARD	SERVICE LIMIT
Starter motor brush length	12.5 mm (0.49 in)	9.0 mm (0.35 in)

TROUBLESHOOTING

NOTE

- The starter motor should operate only when the transmission is in neutral.
- Check the following items before troubleshooting the system.
 - Burned fuse (15A).
 - Battery and starter motor cables for loose connection.
 - Battery discharged.

Starter motor does not turn



Starter motor turns engine slowly

- Low specific gravity
- Excessive resistance in circuit
- Binding in starter motor

Starter motor turns, but engine does not turn

- Faulty starter clutch (see section 9)
- Faulty starter reduction gears (see section 9)

Starter motor and engine turns, but engine does not start

- Faulty ignition system (see section 17)
- Engine problems (see section 3)
 - Low compression
 - Fouled spark plugs

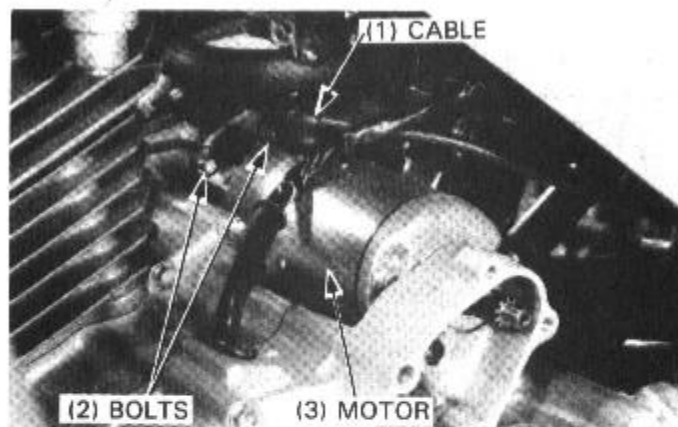
STARTER MOTOR

REMOVAL

WARNING

- *With the ignition switch OFF, remove the negative cable at the battery before servicing the starter motor.*

Remove the starter reduction gear A/B (page 9-2).
Disconnect the starter cable from the starter motor.
Remove the two mounting bolts and the starter motor.

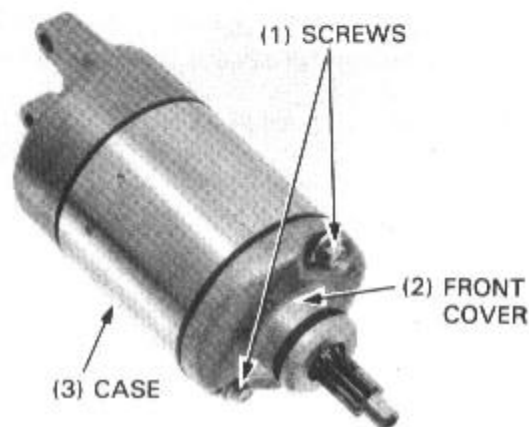


DISASSEMBLY

Remove the two starter motor case screws and remove the front cover, motor case and armature coil.

NOTE

- Record the number and location of shims for correct assembly.



INSPECTION

Inspect the commutator bars for discoloration. Bars discolored in pairs indicate grounded armature coils, in which case the starter motor must be replaced.

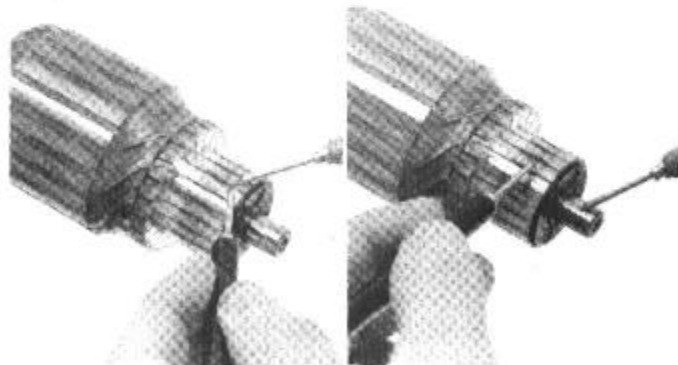


Check for continuity between individual commutator bars and the armature shaft; there should be no continuity.

Also, check for continuity between individual commutator bars and the armature shaft; there should be no continuity.

(1) CONTINUITY

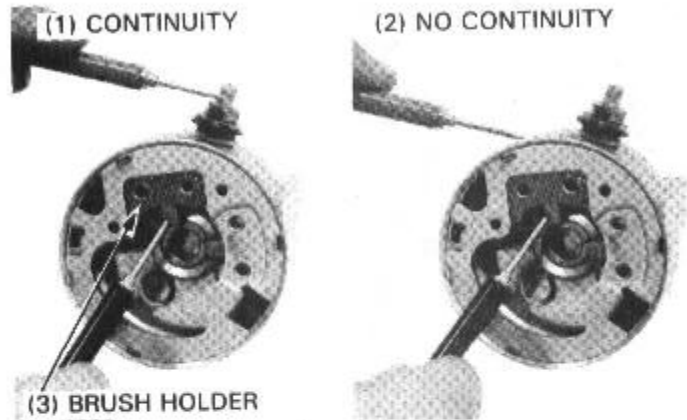
(2) NO CONTINUITY



STARTER SYSTEM

Check for continuity between the cable terminal and the brush wire (the indigo colored wire or the insulated brush holder). There should be continuity.

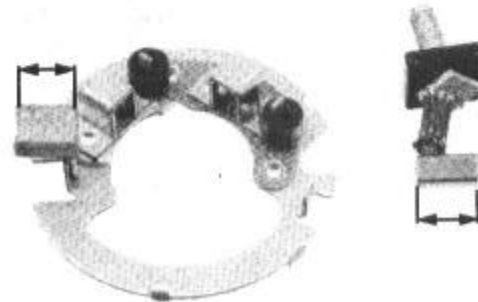
Check for continuity between the rear cover and the brush wire (the indigo cover wire or the insulated brush holder). There should be no continuity.



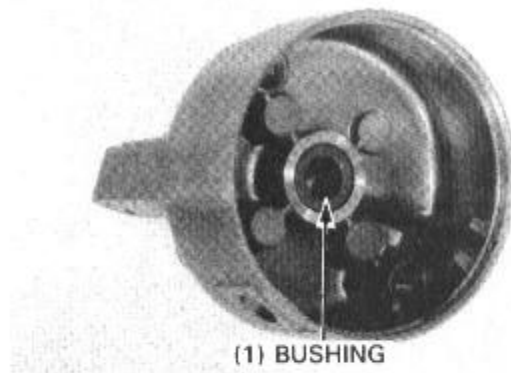
Disassemble the rear cover.

Inspect the brushes for damage and measure the brush length.

SERVICE LIMIT: 9.0 mm (0.35 in)

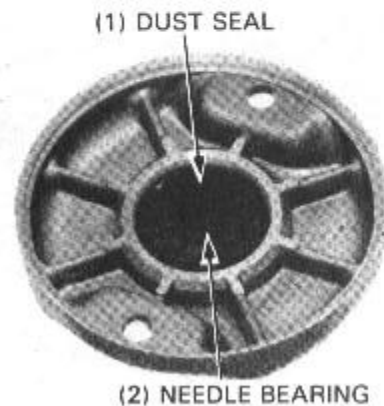


Check the bushing of the rear cover for wear or damage.

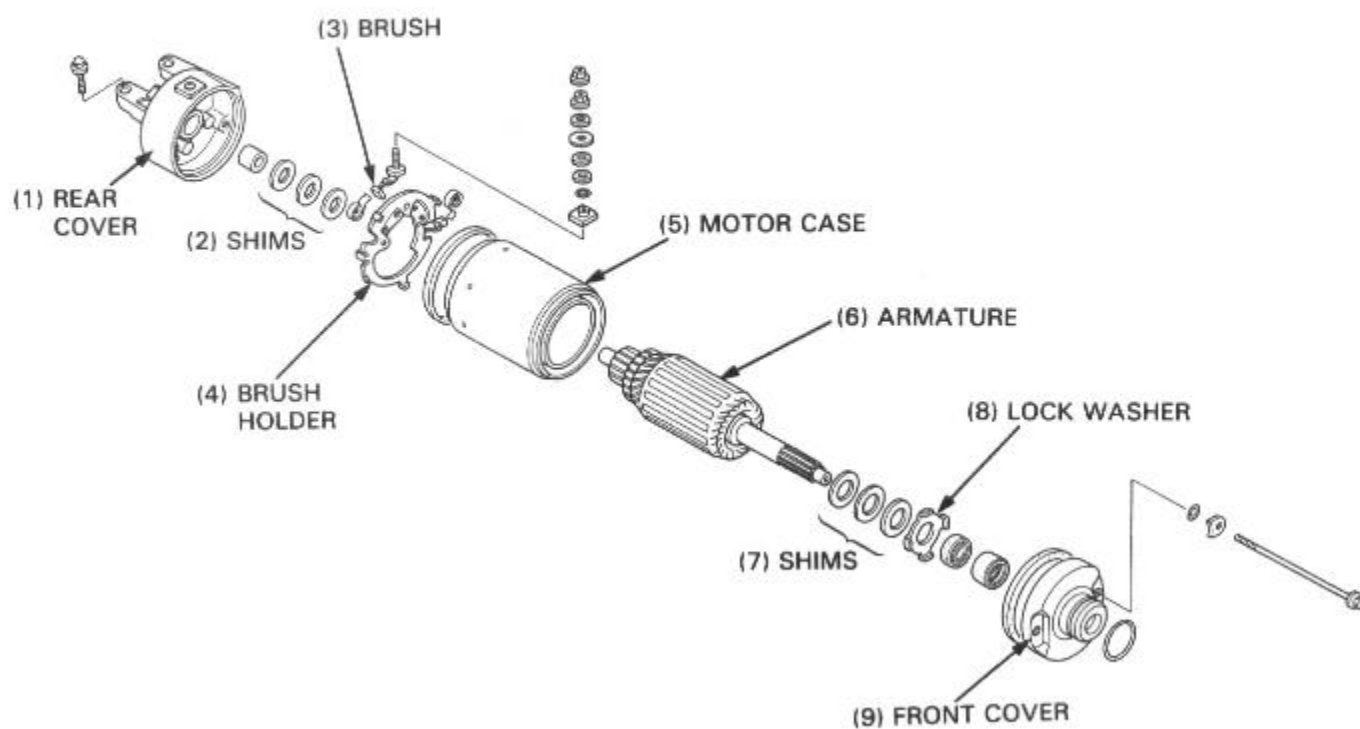


Check the needle bearing of the front cover for smooth rotation.

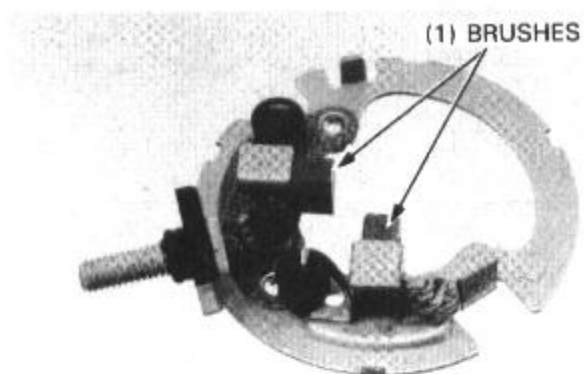
Check the dust seal for wear or damage.



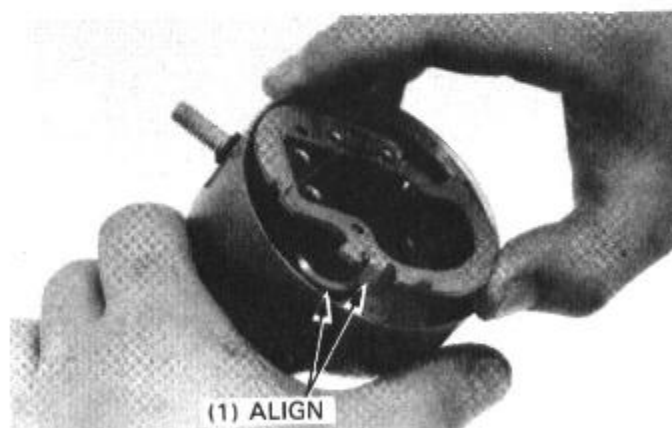
ASSEMBLY



Install the brushes in the brush holders as shown.



Install the brush holder assembly to the rear cover, aligning the tab of the holder with the groove of the rear cover.



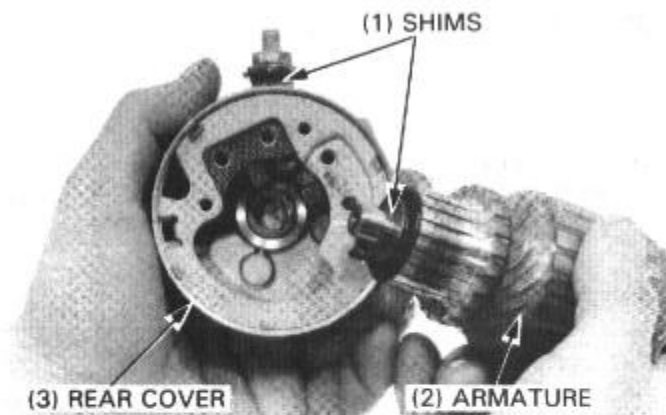
STARTER SYSTEM

Install the shims to the terminal and armature coil.

NOTE

- Install the shims in the correct positions as recorded.

Install the armature in the rear cover.

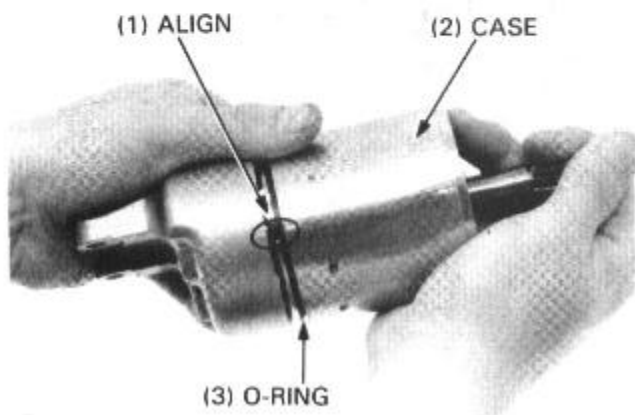


Install the O-ring on the motor case.

Assemble the motor case and rear cover, aligning the index marks.

NOTE

- Hold the armature coil shaft, or armature might be drawn out by the magnetic field.

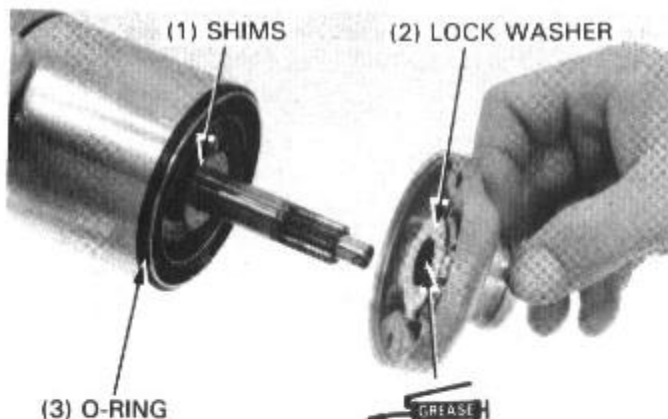


Apply grease to the dust seal of the front cover.

Install the lock washer to the cover, shims to the shaft and O-ring to the case.

NOTE

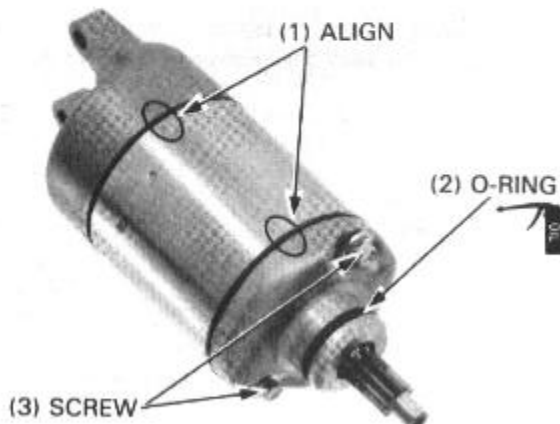
- Install the shims in the correct positions as recorded.
- Do not damage the front cover dust seal at installation.



Align the index marks of the front cover, motor case and rear cover.

Install the screws securely.

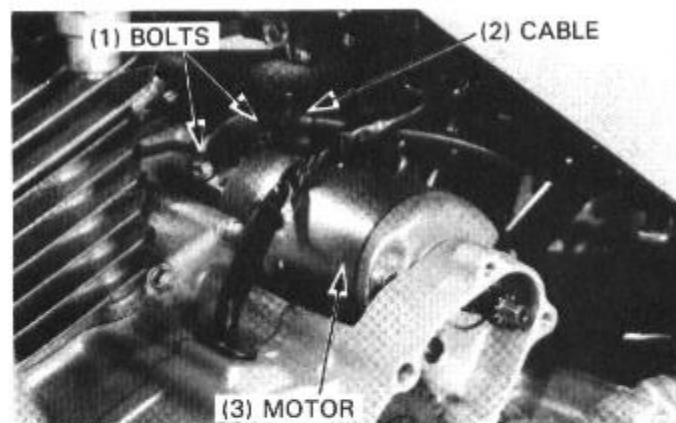
Apply oil to the O-ring and install it on the front cover.



INSTALLATION

Install the starter motor with the two mounting bolts.
Connect the starter cable to the motor.

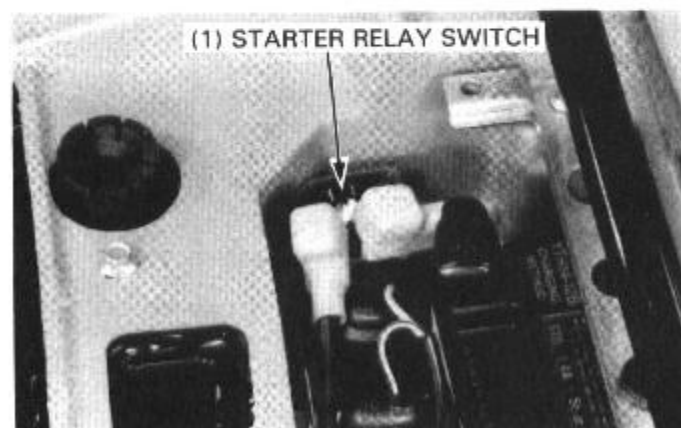
Install the starter reduction gear A/B and cover (page 9-3).
Connect the negative cable to the battery.



STARTER RELAY SWITCH

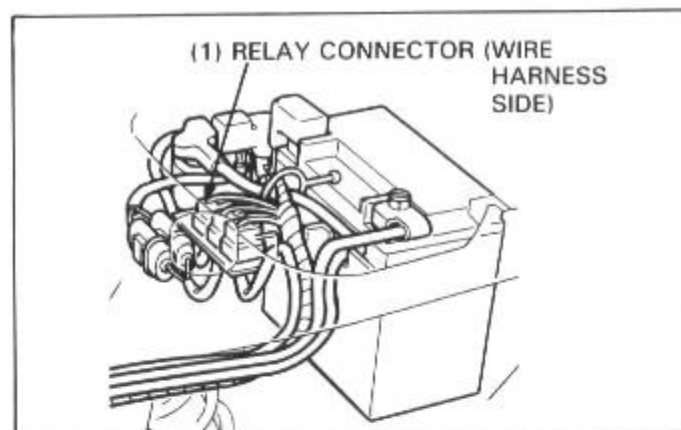
OPERATION INSPECTION

Remove the battery box cover.
Depress the starter switch button with the ignition ON.
The coil is normal if the starter relay switch clicks.



VOLTAGE INSPECTION

If the switch "CLICK" is not heard, disconnect the relay mini-connector. Measure the voltage between the Y/R (+) and G/R (-) wire terminals of the wire harness side. The battery voltage should be indicated when the starter switch button is depressed with the ignition switch ON and the transmission in neutral. If the battery voltage does not register, remove the relay switch and perform the following inspection.

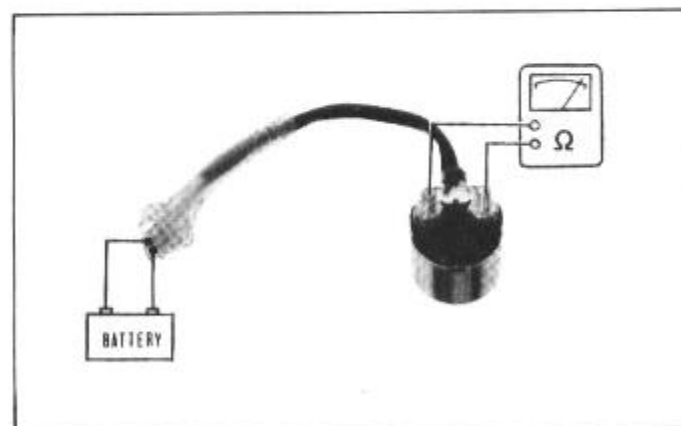


CONTINUITY INSPECTION

Connect an ohmmeter to the starter relay switch large terminals.

Connect a fully charged 12 V battery to the starter relay switch connector terminals (Y/R and G/R).
Check for continuity between the starter relay switch terminals.

There should be continuity while 12 V battery is connected to the starter relay switch connector terminals and should be no continuity when the battery is disconnected.

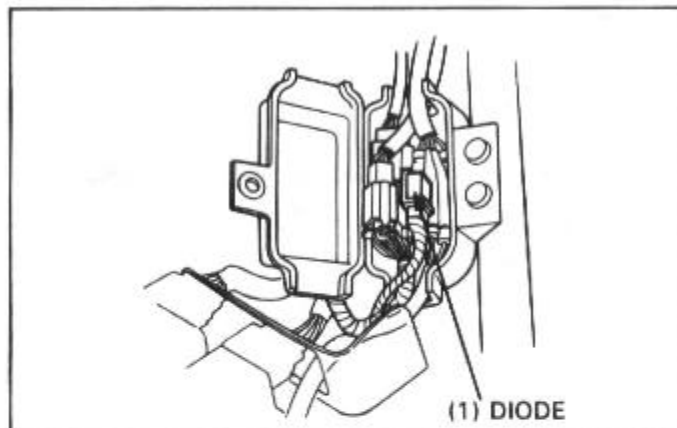


DIODE

REMOVAL

Remove the front fender to gain access to diode (page 16-1).
Open the connector box.

Remove the diode from the wire harness.



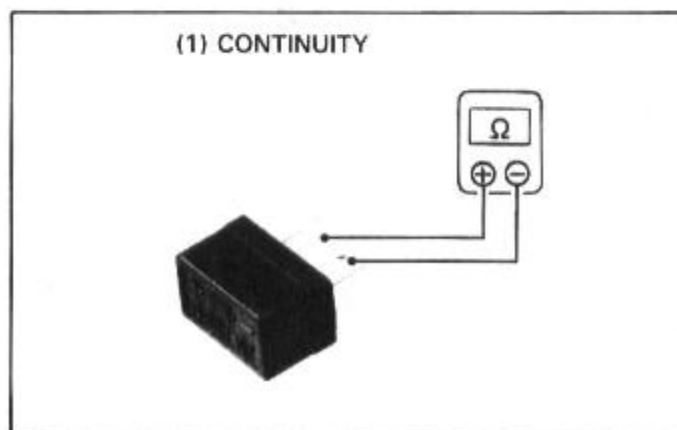
INSPECTION

Check for continuity with an ohmmeter.

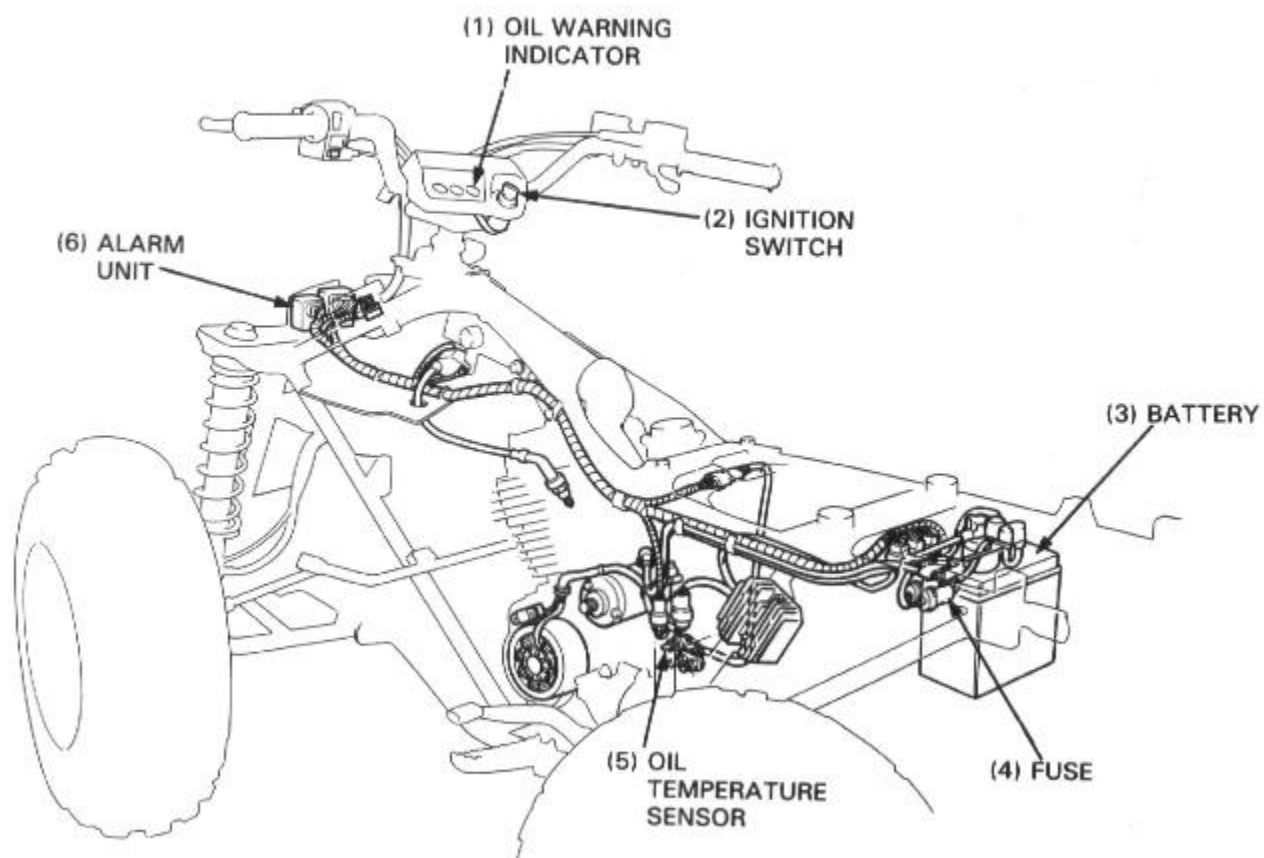
NORMAL DIRECTION: CONTINUITY
REVERSE DIRECTION: NO CONTINUITY

INSTALLATION

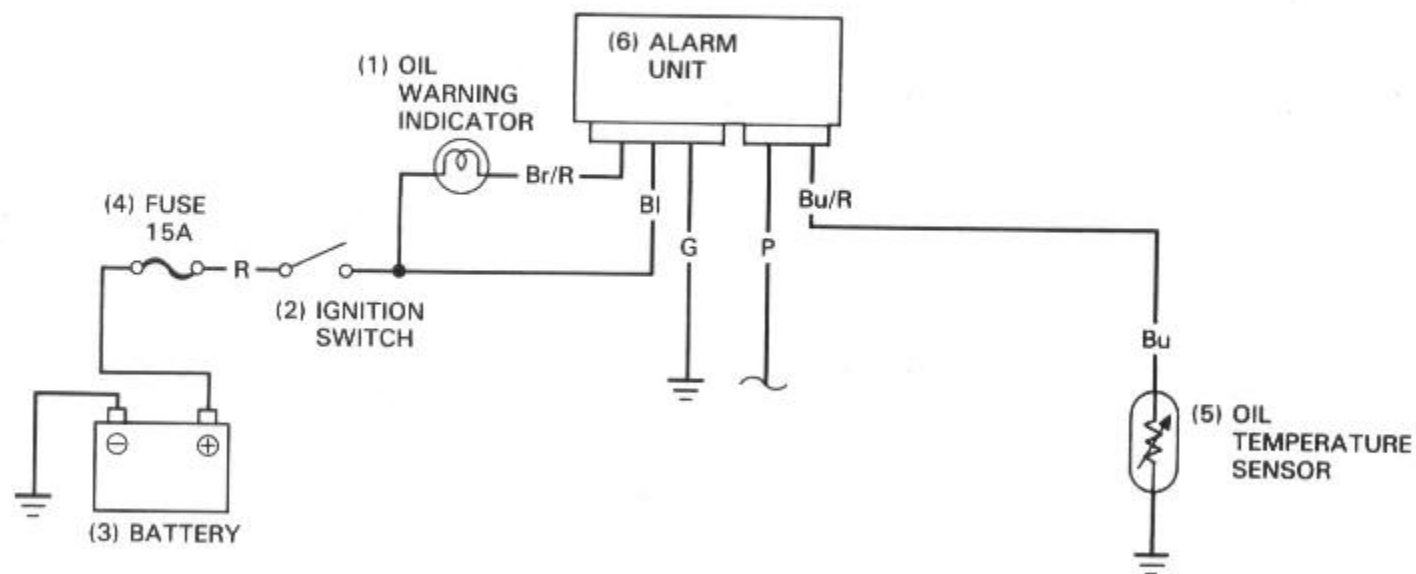
Install the diode in the reverse order of removal.
Install the front fender (page 16-2, 3).



MEMO



OIL WARNING SYSTEM DIAGRAM



SERVICE INFORMATION	20-1	IGNITION SWITCH	20-5
TROUBLESHOOTING	20-2	HANDLEBAR SWITCHES	20-5
HEADLIGHT	20-3	NEUTRAL SWITCH/REVERSE SWITCH	20-6
TAILLIGHT	20-4	OIL TEMPERATURE SENSOR	20-6
INDICATOR LAMP	20-4	ALARM UNIT	20-7

SERVICE INFORMATION

GENERAL

- A continuity check can usually be made without removing the part from the vehicle by simply disconnecting the wires and connecting a continuity tester or voltmeter to the terminals.
- When inspecting the oil warning system, check the system components and lines step-by-step, according to the troubleshooting on next page.

SPECIFICATION

Headlight	12V 25/25W x 2
Taillight	12V 5W
Indicator lamp	12V 3.4W x 3

TORQUE VALUES

Neutral switch	13 N·m (1.3 kg-m, 9 ft-lb)
Reverse switch	13 N·m (1.3 kg-m, 9 ft-lb)
Oil temperature sensor	18 N·m (1.8 kg-m, 13 ft-lb)

TROUBLESHOOTING

Light does not come on when light switch is turned on.

- Bulb burned out
- Faulty switch
- Wiring to that component has open circuit

Headlight beams do not shift when dimmer switch is operated

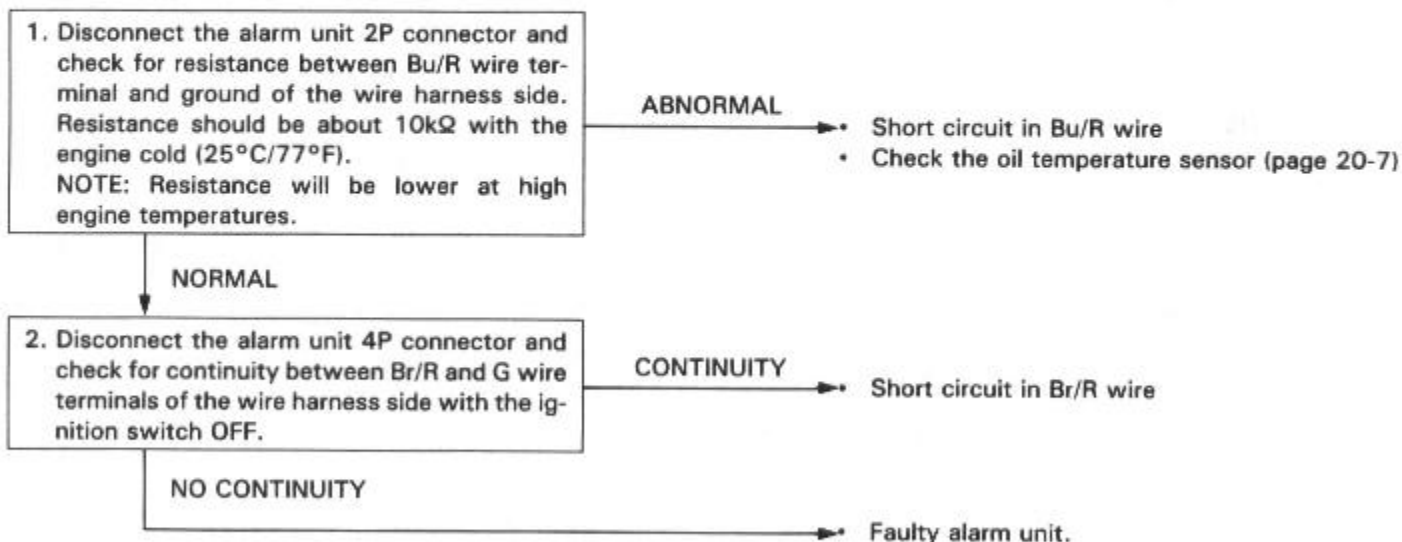
- Faulty dimmer switch
- Bulb burned out
- Wiring to that component has open circuit

OIL WARNING SYSTEM

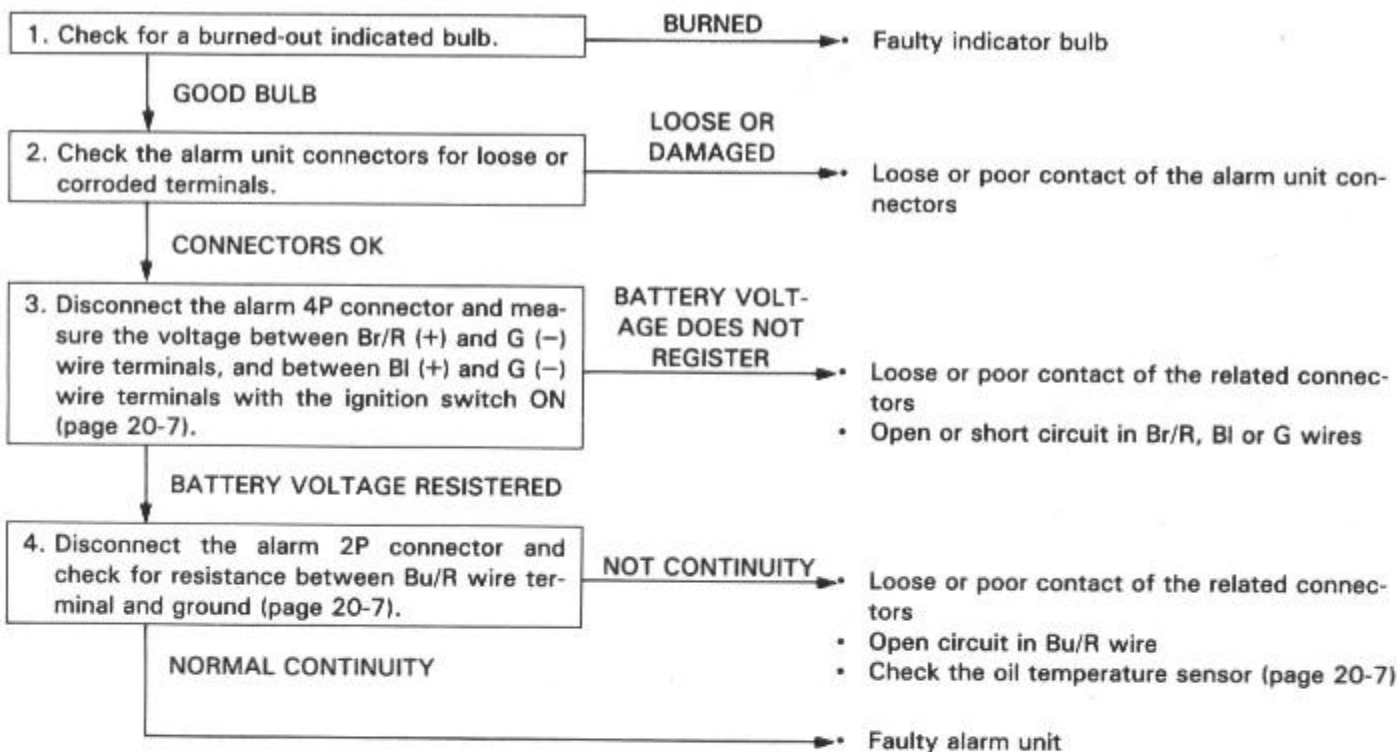
NOTE

- When the ignition switch is turned on, the oil warning indicator should come on for few seconds then go off.

Oil warning indicator does not go off



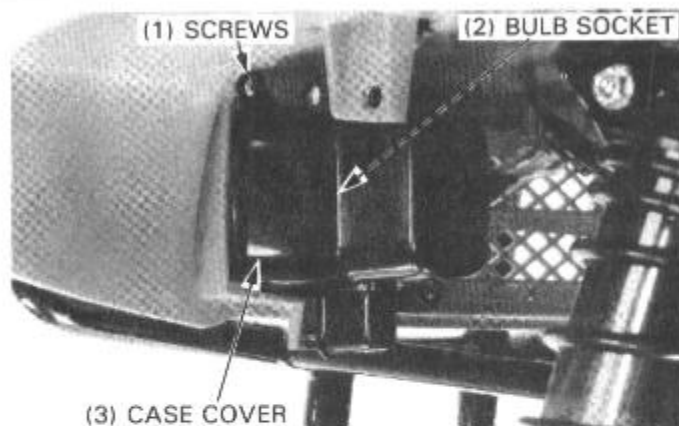
Oil warning indicator does not come on for few seconds, when the ignition switch is turned on.



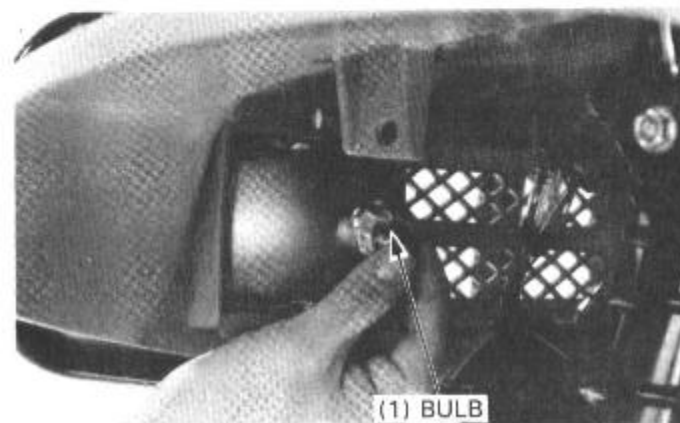
HEADLIGHT

BULB REPLACEMENT

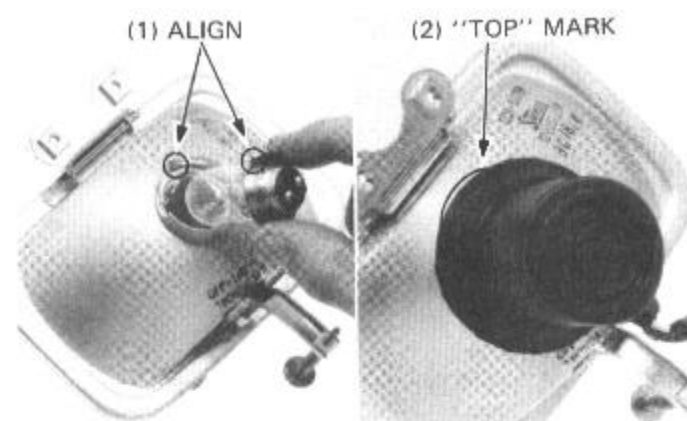
Remove the headlight case cover by removing two screws.
Remove the dust cover and bulb socket.



Remove the headlight bulb from the headlight case.

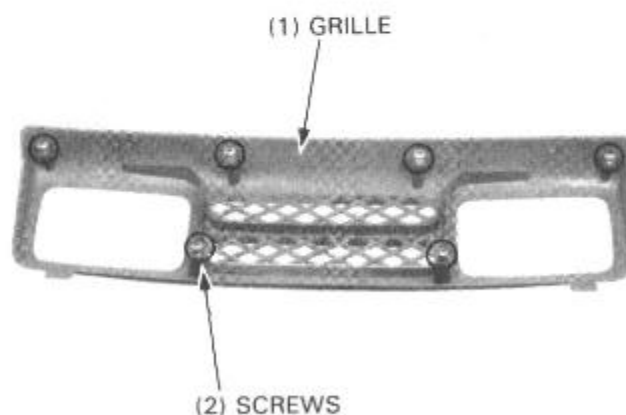


Install a new bulb in the case, aligning the bulb tab with the case groove.
Install the bulb socket and dust cover with TOP mark of the cover facing up.
Install the headlight case cover securely.



CASE REMOVAL/INSTALLATION

Remove the headlight bulb (see above).
Remove the headlight case grille by removing the attaching screws as shown.



LIGHTS/SWITCHES

Remove two headlight case mounting screws, release the headlight vertical adjusting screw from the front fender and remove the headlight case.

Install the headlight case in the reverse order of removal.

Adjust the headlight aim (page 3-16).

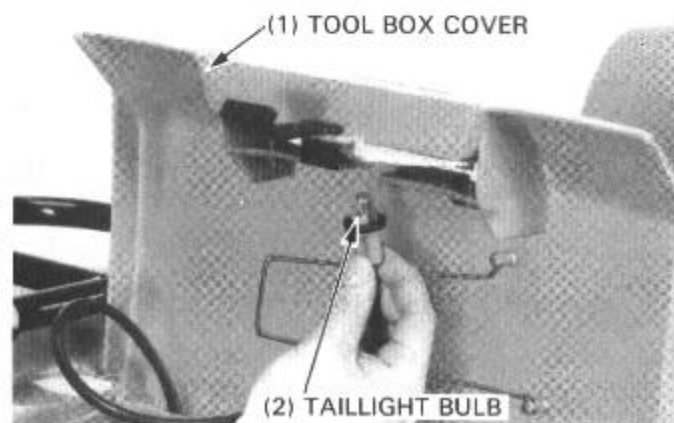


TAILLIGHT

BULB REPLACEMENT

Open the tool box cover.

Remove the bulb socket from the taillight case and replace the bulb with a new one.



INDICATOR LAMP

BULB REPLACEMENT

Pull the indicator lamp socket out of the handlebar cover.

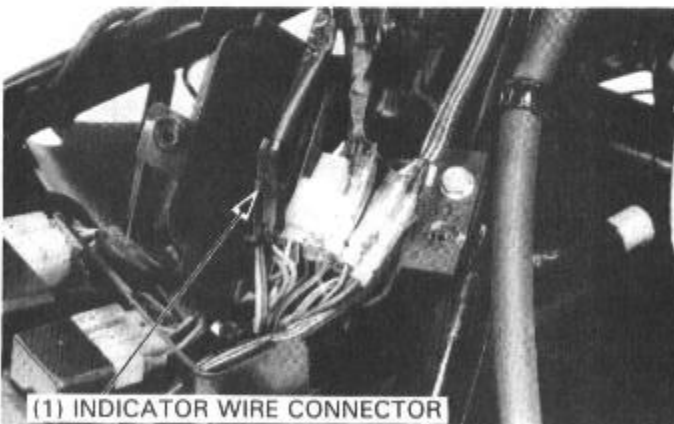
Remove the indicator lens.

Remove the bulb from the socket and replace it with a new one.



If you replace the bulb socket, remove the front fender (page 16-1) and open the connector box.

Disconnect the indicator wire connector, and replace indicator wires as an assembly.



IGNITION SWITCH

Remove the front fender (page 16-1).

Open the connector box and disconnect the ignition switch wire connectors.

Check for continuity between the wire terminals of the ignition switch connector in each switch position. Continuity should exist between the color coded wires as follows:

Color	R	Bl	P/W	P
OFF				
ON	○	○	○	○

HANDLEBAR SWITCHES

The handlebar switches (lighting, dimmer, engine stop, starter switches) must be replaced as an assembly.

Remove the front fender (page 16-1).

Open the connector box and disconnect the handlebar switch connectors.

Check for continuity between the wire terminals of the handlebar switch connectors. Continuity should exist between the color coded wire terminals as follows:

LIGHTING SWITCH

Color		Br	Bl
OFF			
ON	○	○	○

DIMMER SWITCH

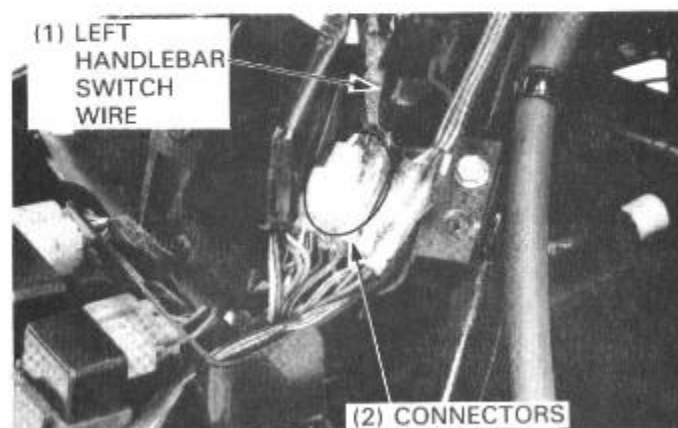
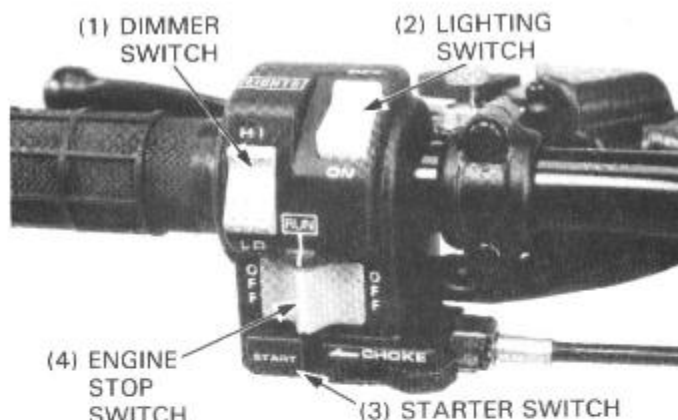
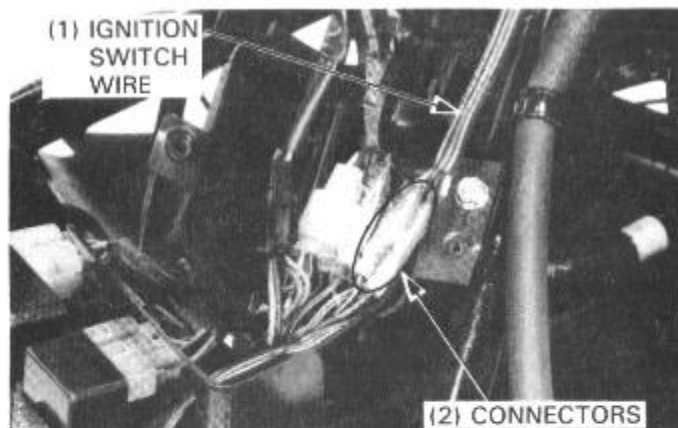
Color	Bu	●	W
HI	○	○	
↕	○	○	○
LO		○	○

ENGINE STOP SWITCH

Color		Bl/W
OFF		
RUN	○	○
OFF		

STARTER SWITCH

Color	Bl	●	Y/R
FREE			
PUSH	○	○	○



NEUTRAL SWITCH/REVERSE SWITCH

INSPECTION/REMOVAL

Remove the seat and disconnect the 3P connector.

The neutral switch is functional if continuity exists between the Lg wire terminal of the switch side and body ground only when the transmission is in neutral.

The reverse switch is functional if continuity exists between the Gr wire terminal of the switch side and body ground only when the transmission is in reverse position.

If there is no continuity as described, remove the switch cover and check the neutral/reverse switch wire connector for loose connection or corroded terminals.

Disconnect the connector and also check the neutral or reverse switches for continuity between each switch terminal and body ground (how to check: see above).

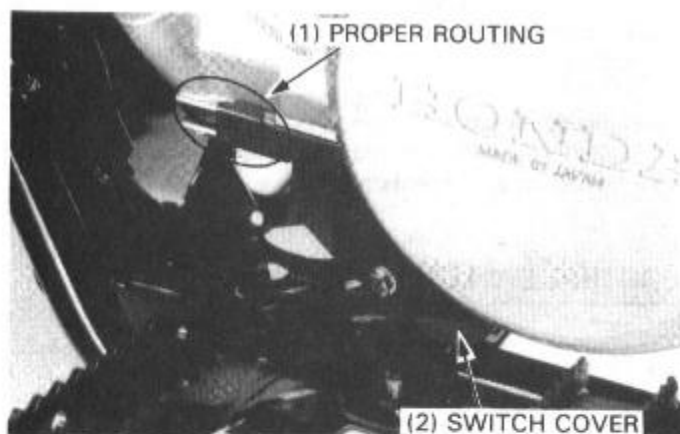
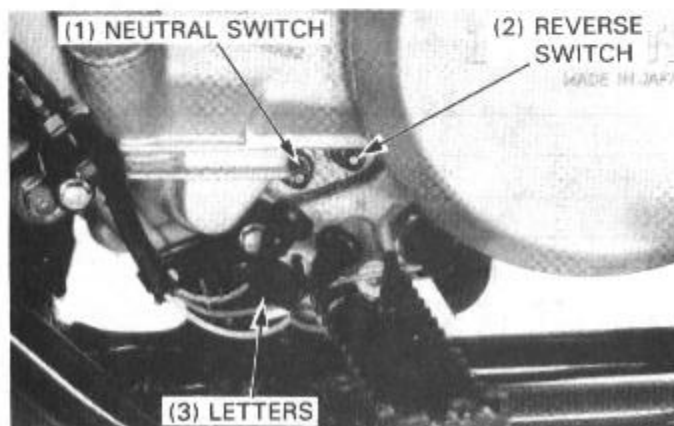
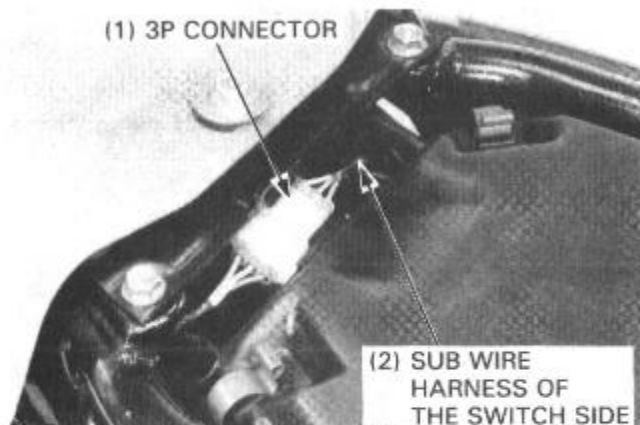
INSTALLATION

Connect the switch connector according to the letter (on the connector), "N" to neutral switch and "R" to reverse switch.

WARNING

- If the neutral and reverse switch wire connections are interchanged, the neutral indicator will come on when the transmission is in reverse.

Install the switch cover properly with the switch wire routed in the crankcase cover groove.



OIL TEMPERATURE SENSOR

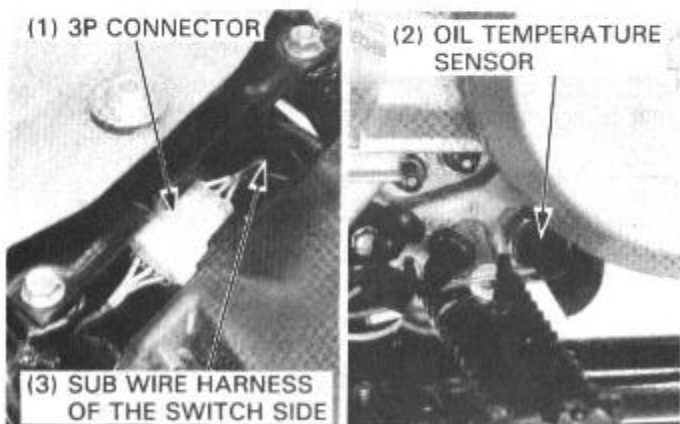
INSPECTION/REMOVAL

Remove the seat and disconnect the 3P connector. Check for resistance between Bu wire terminal of the switch side and body ground. Resistance should be about 10 kΩ with the engine cold (25°C/77°F).

If not remove the switch cover (see above) and disconnect the wire from the oil temperature sensor.

Drain the engine oil (page 2-3).

Remove the sensor from the right crankcase cover.

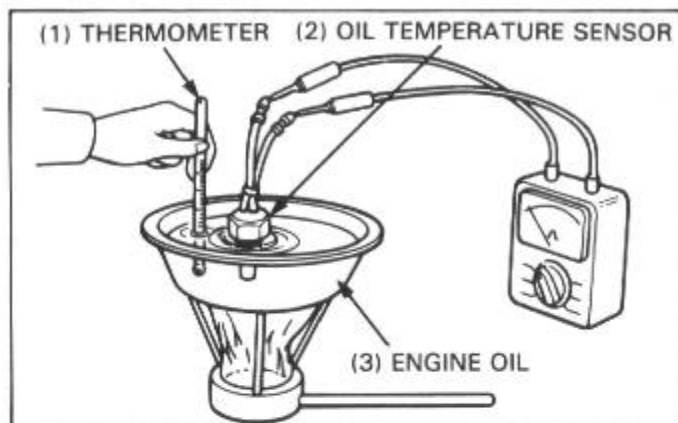


Suspend the oil temperature sensor in heated engine oil to check its operation. Do not let the thermometer or sensor touch the pan, or false readings will result.

Connect ohmmeter probes across the terminals of the sensor and measure the resistance.

TECHNICAL DATA

Temperature	25°C (77°F)	100°C (212°F)	170°C (338°F)
Resistance	9.5— 10.5 kΩ	0.95— 1.05 kΩ	209— 231 Ω



Replace the sensor if the readings are out of the ranges as shown.

INSTALLATION

Install the temperature sensor in the right crankcase and connect the wires.

TORQUE: 18 N·m (1.8 kg-m, 13 ft-lb)

Install the switch cover (page 20-6).

Fill the crankcase with the recommended oil (page 2-3).

ALARM UNIT

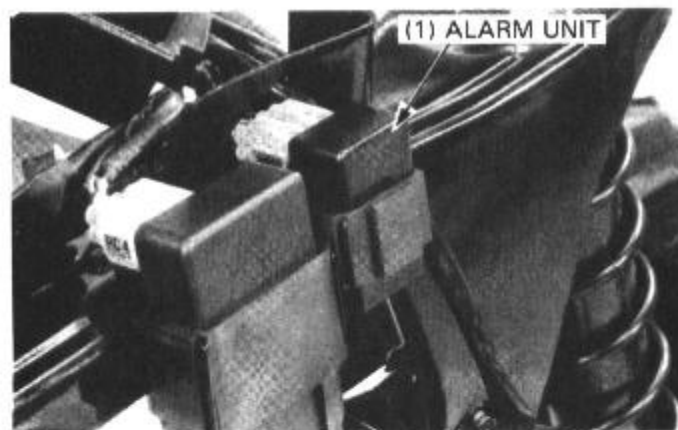
NOTE

- Check the system components and lines step-by-step according to the troubleshooting on page 20-2.

INSPECTION

Disconnect the alarm unit connectors and check them for loose contact or corroded terminals.

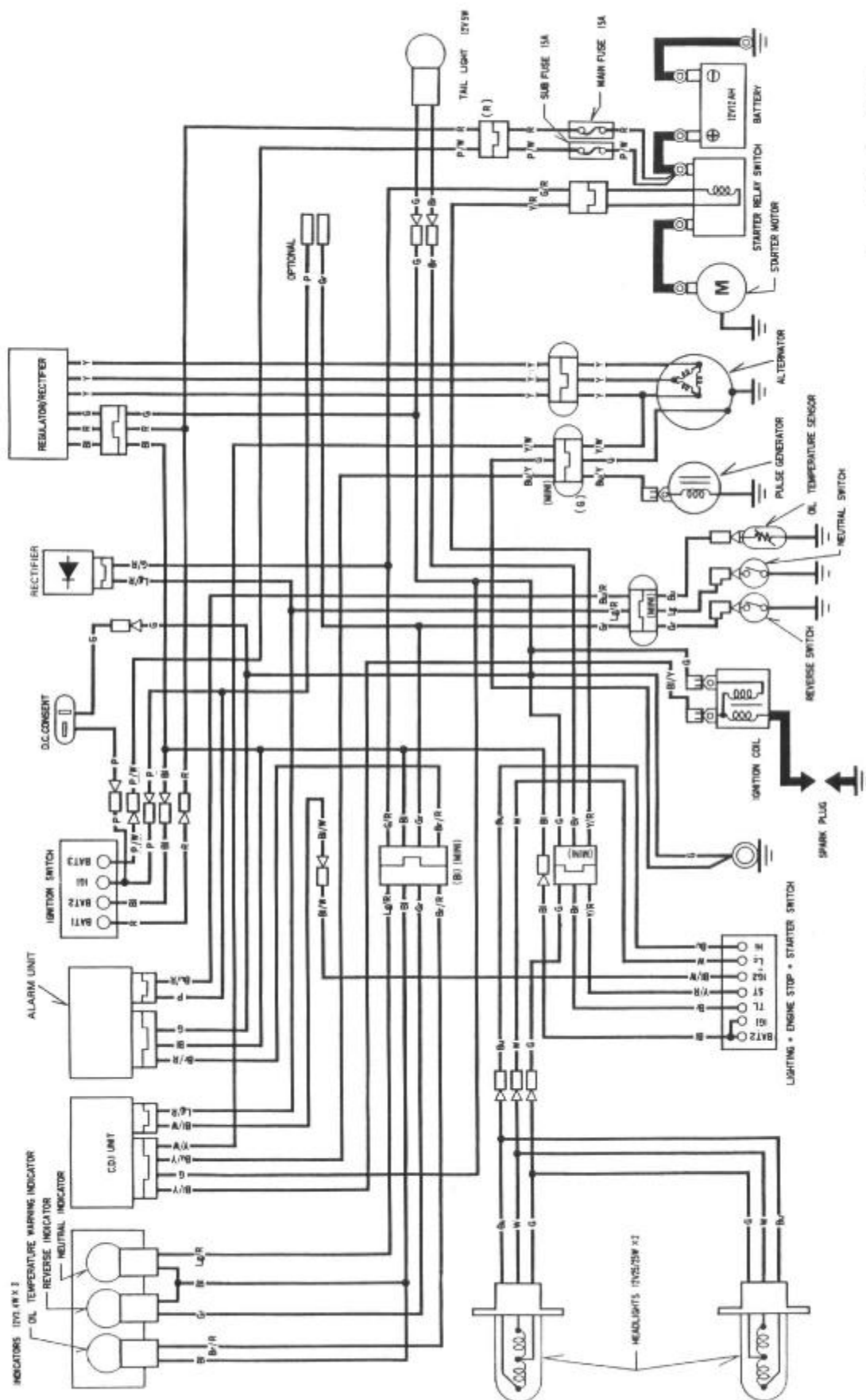
Check for voltage and continuity between the connector terminals of the wire harness side as follows:



ITEM	TERMINAL	SPECIFICATION
Oil warning indicator line	Br/R (+) and G (-)	Battery voltage should register with the ignition switch ON.
Battery voltage line	BI (+) and G (-)	
Oil temperature sensor line	Bu/R and ground	9.5—10.5 kΩ (Engine cold, 25°C/77°F)

MEMO





B	BLACK	B	BROWN
Y	YELLOW	O	ORANGE
B	BLUE	L	LIGHT BLUE
G	GREEN	L	LIGHT GREEN
R	RED	P	PINK
W	WHITE	G	GRAY

Diagram illustrating the wiring of five switches: Ignition Switch, Lighting Switch, Dimmer Switch, Engine Stop Switch, and Starter Switch. Each switch is represented by a table with columns for terminals and rows for functions. The diagram shows connections between terminals of different switches, such as BAT2 to TL, IGI to IG2, and various color-coded terminals to a common BL line.

IGNITION SWITCH

BAT1	BAT2	BAT3	IG1
OFF	ON	ON	ON
COLOR	R	BL	P/W
			P

LIGHTING SWITCH

BAT2	TL (HL)
OFF	ON
COLOR	BL
	B

DIMMER SWITCH

H	HL	Lx
ON	ON	ON
COLOR	BL	W

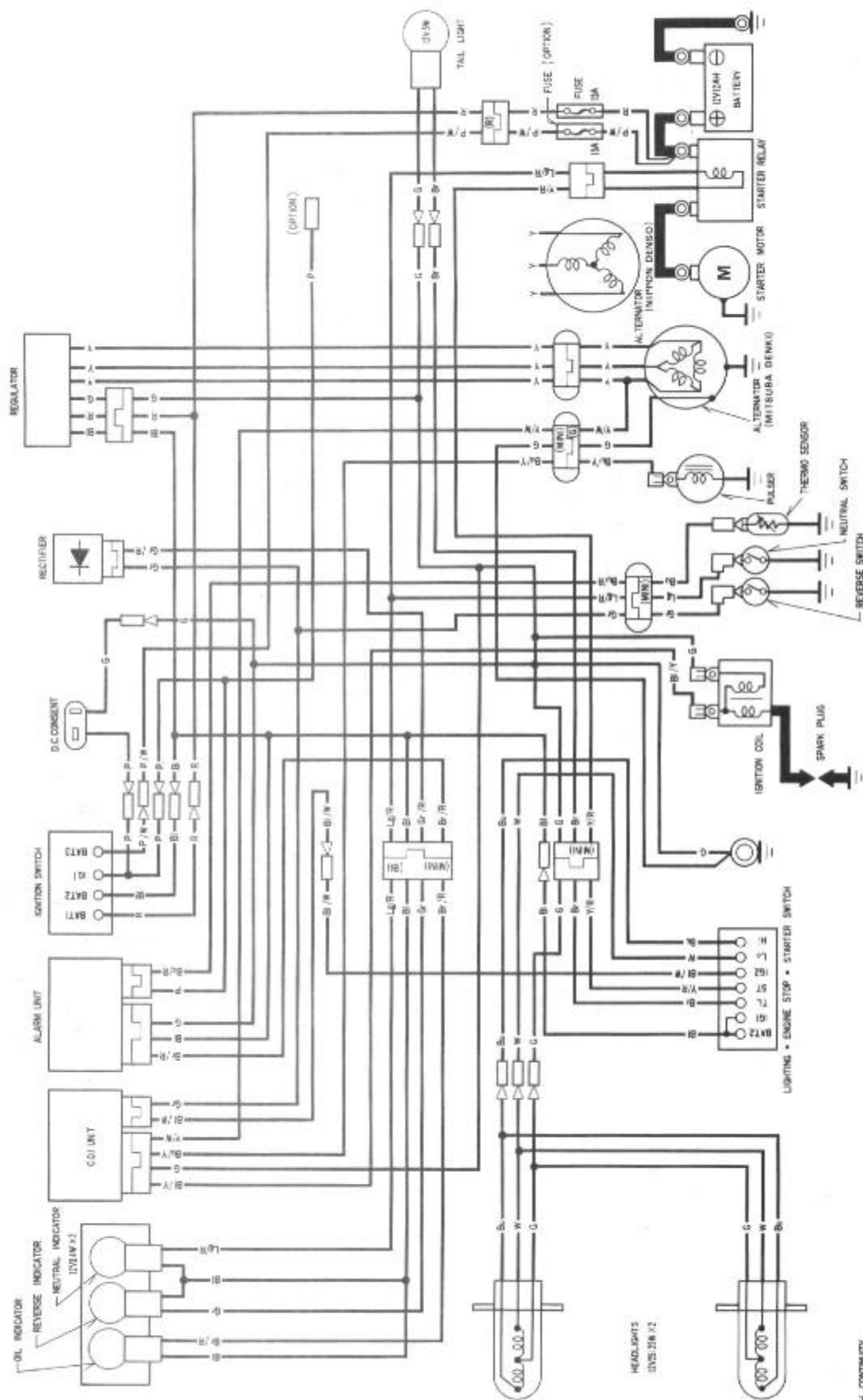
ENGINE STOP SWITCH

IG1	IG2
OFF	RUN
OFF	COLOR
	BL/W

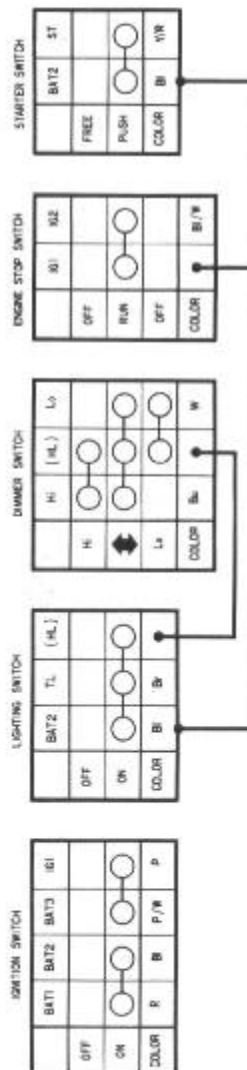
STARTER SWITCH

BAT2	ST
FREE	PUSH
COLOR	BL
	V/R

'89:

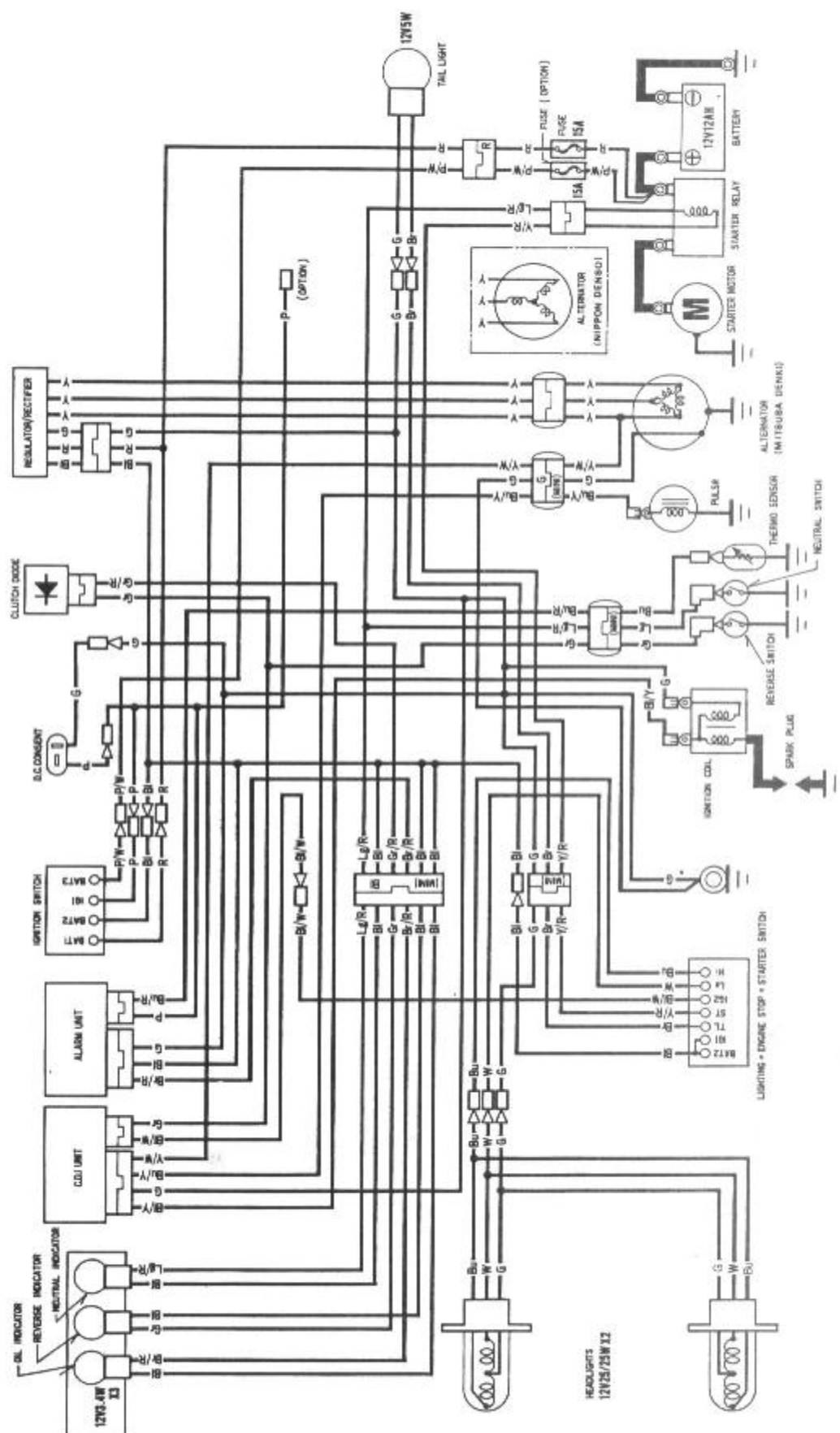


WIRE COLOR CODE
 B BLACK
 Y YELLOW
 BL BLUE
 G GREEN
 R RED
 W WHITE
 B BROWN
 O ORANGE
 LB LIGHT BLUE
 LG LIGHT GREEN
 P PINK
 GR GRAY

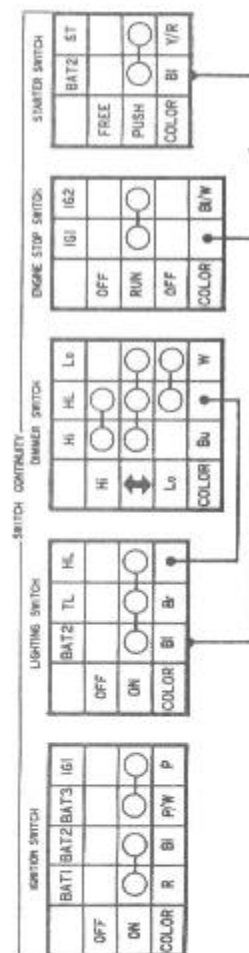


'90-'92:

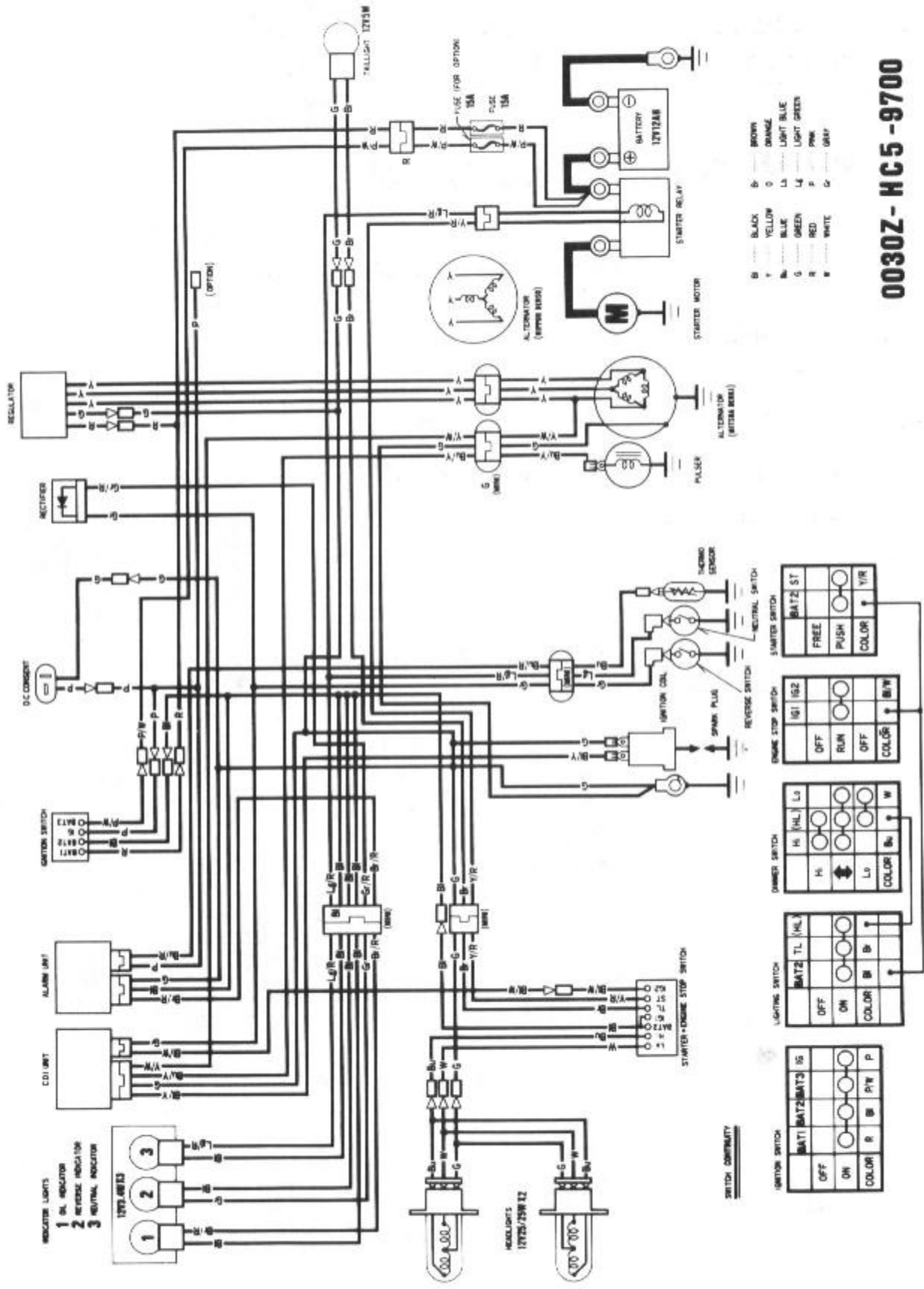
0030Z-HC4-6700



B BLACK
 Y YELLOW
 BL BLUE
 G GREEN
 R RED
 W WHITE
 B BROWN
 O ORANGE
 L LIGHT BLUE
 LG LIGHT GREEN
 P PINK
 GR GRAY



After '92:



0030Z-HC5-9700

**ENGINE DOES NOT START OR IS
HARD TO START**

22-1

ENGINE LACKS POWER

22-2

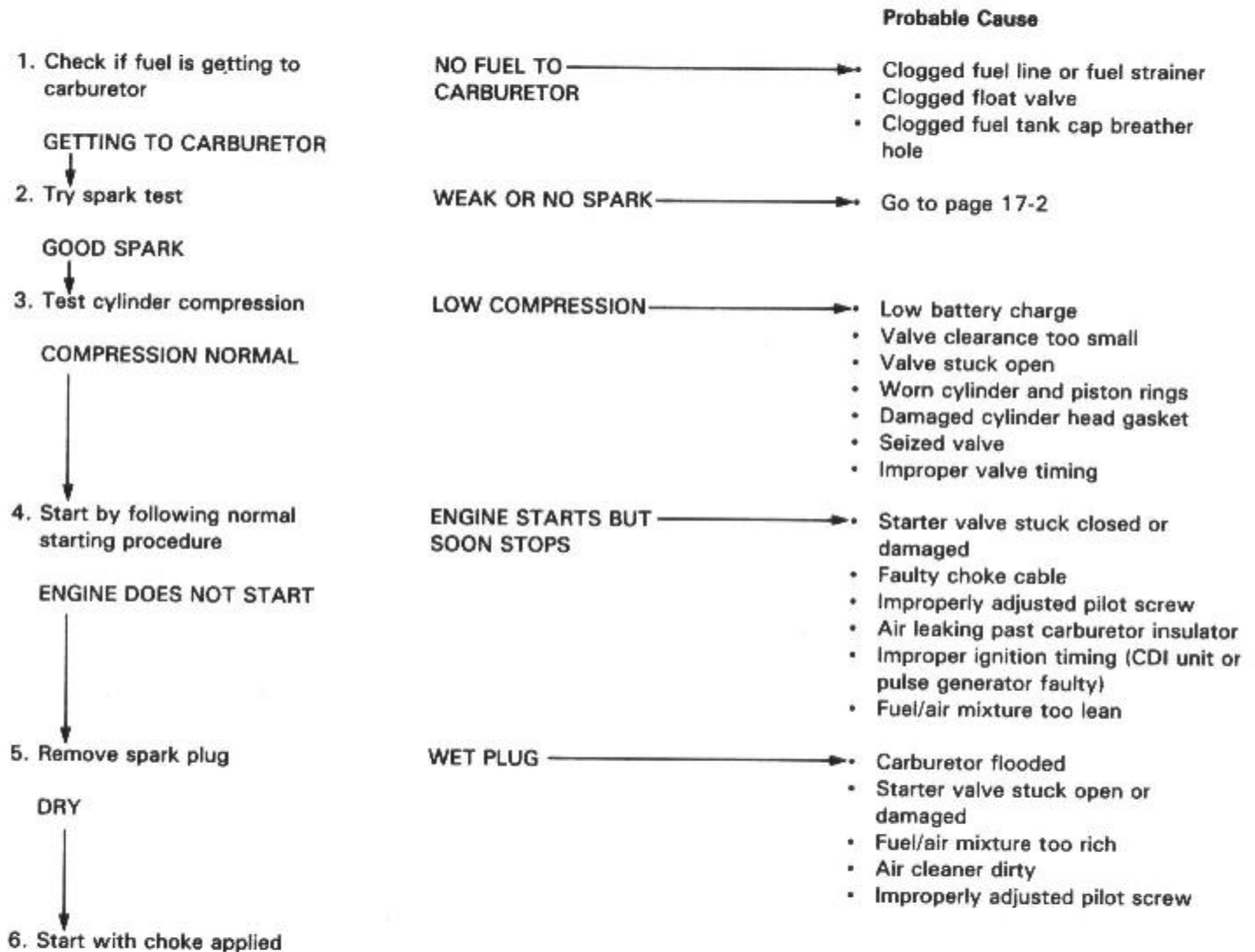
**POOR PERFORMANCE AT LOW
AND IDLE SPEEDS**

22-3

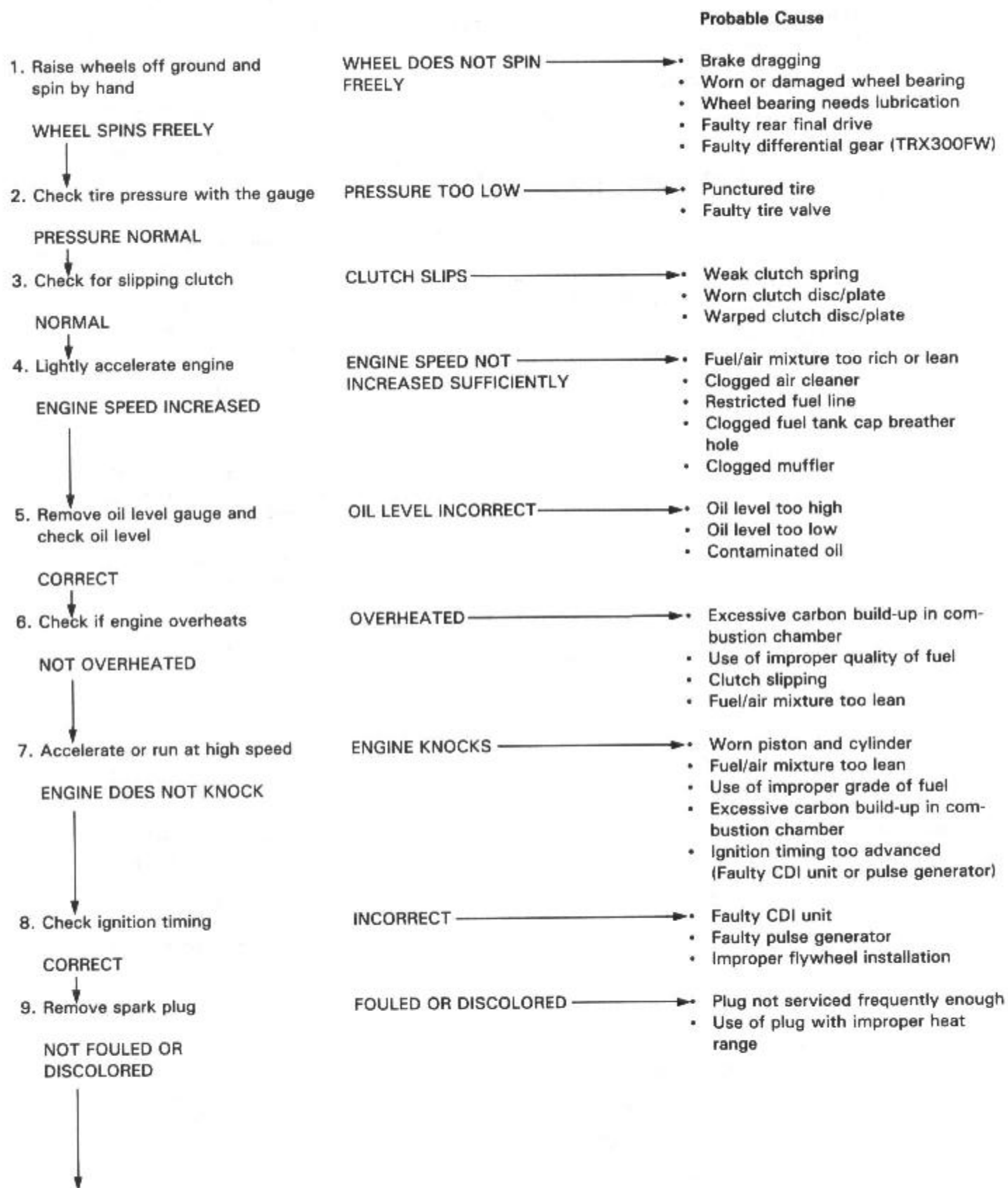
POOR PERFORMANCE AT HIGH SPEEDS 22-4

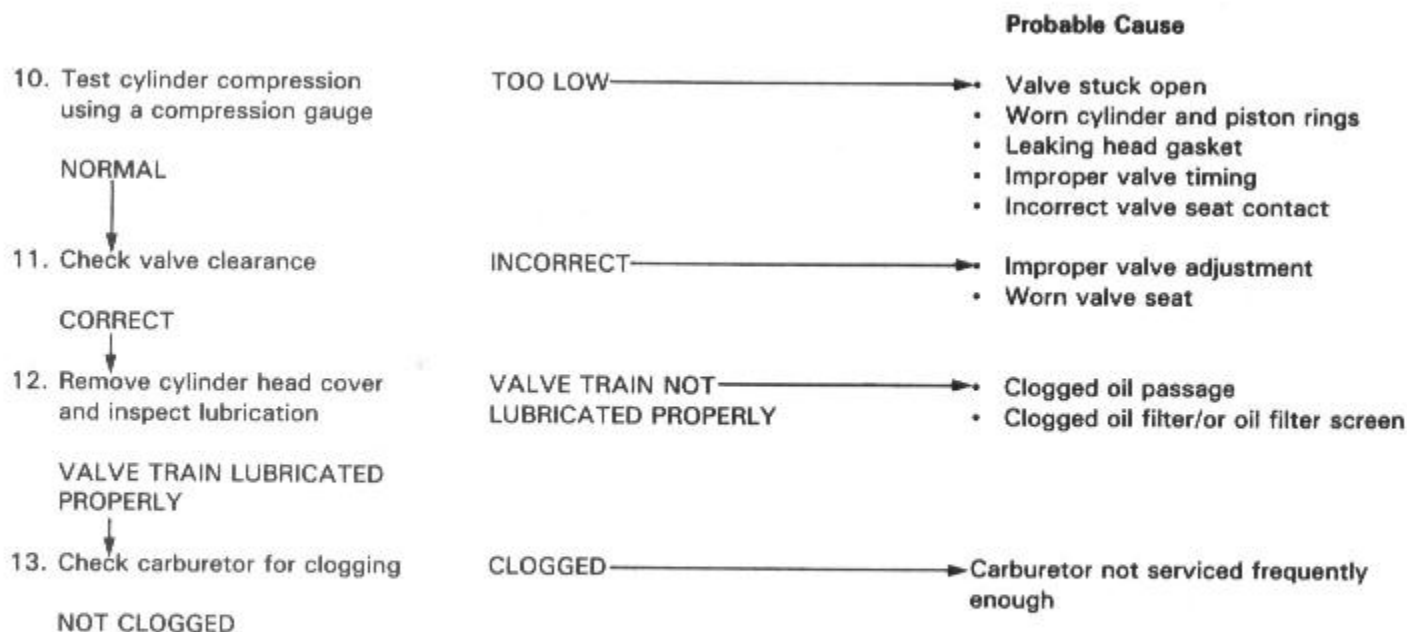
POOR HANDLING 22-4

ENGINE DOES NOT START OR IS HARD TO START

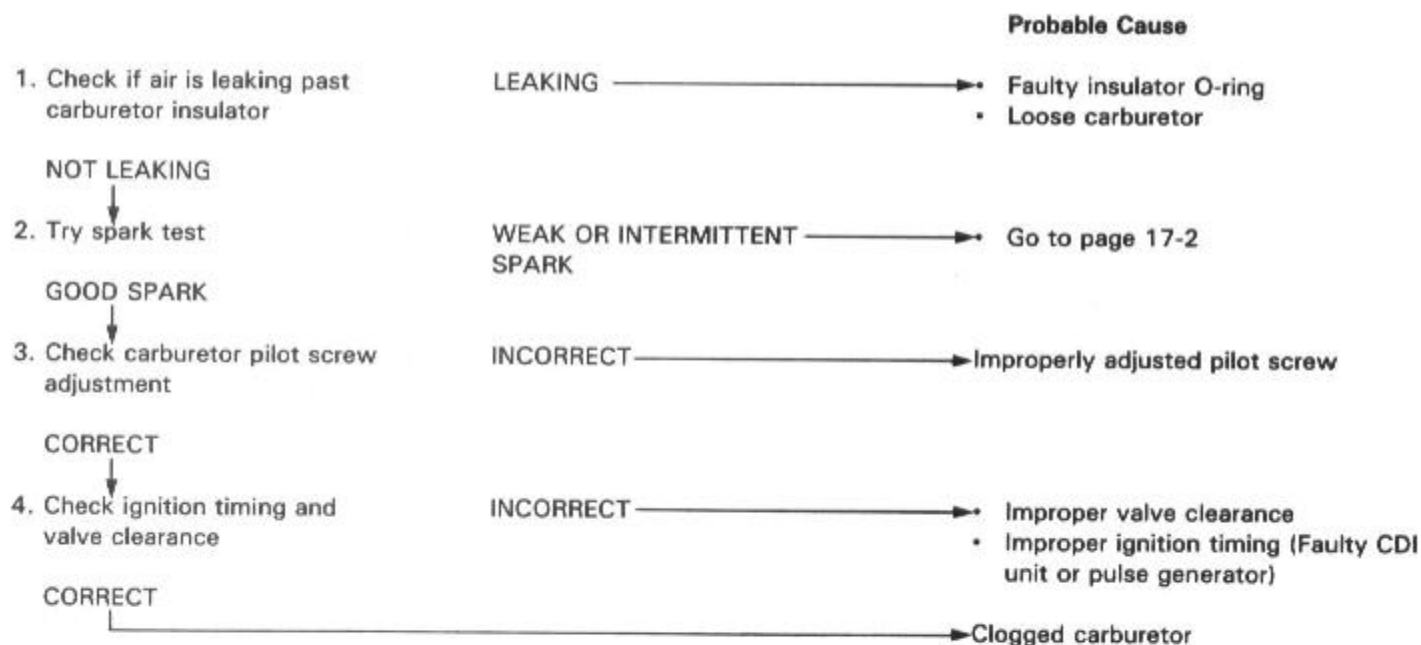


ENGINE LACKS POWER

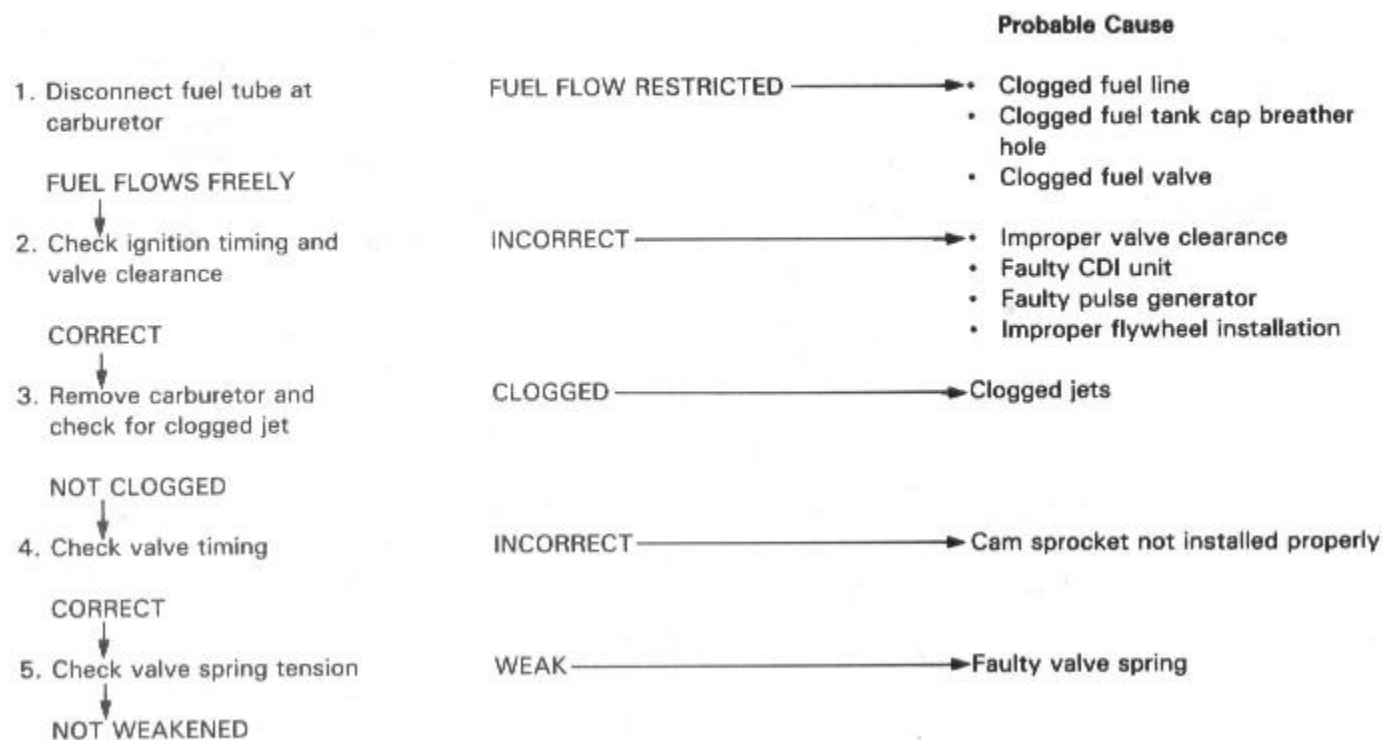




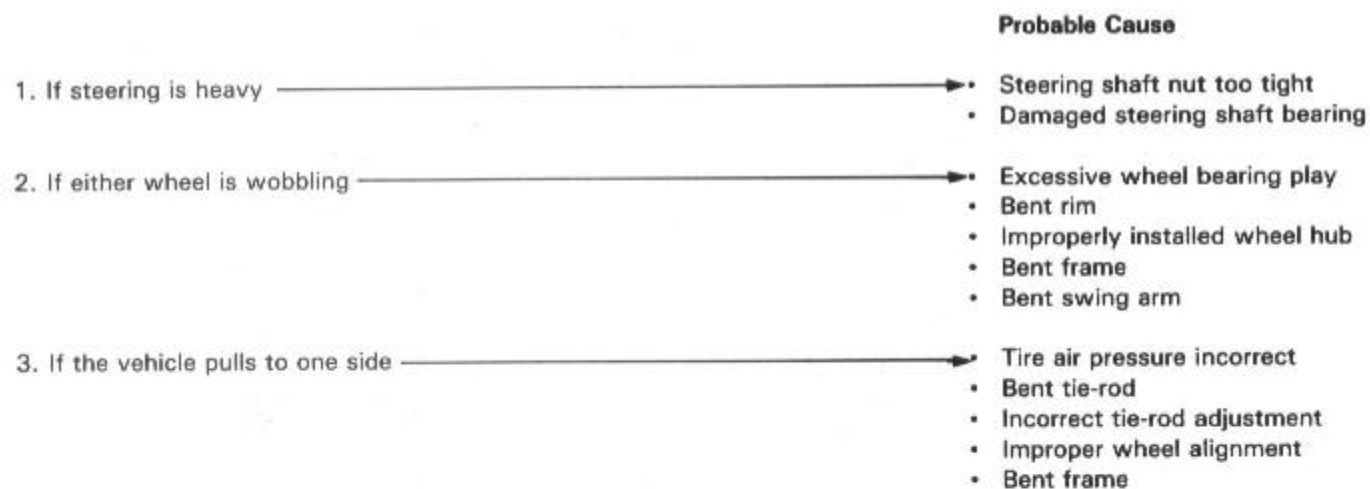
POOR PERFORMANCE AT LOW AND IDLE SPEEDS



POOR PERFORMANCE AT HIGH SPEEDS



POOR HANDLING —————→ Check tire pressure



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