

HONDA

XRV650

**SHOP MANUAL
MANUEL D'ATELIER
WERKSTATT-HANDBUCH**



IMPORTANT SAFETY NOTICE

⚠ WARNING *Indicates a strong possibility of severe personal injury or loss of life 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 possible 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 methods or tools selected.

AVIS IMPORTANT

⚠ ATTENTION *Indique un grand risque d'accident corporel grave, voire mortel, si les instructions ne sont pas observées.*

PRECAUTION: *Indique un risque d'accident corporel ou de détérioration du véhicule si les instructions ne sont pas observées.*

NOTE: Fournit des renseignements utiles.

On ne trouvera pas dans ce manuel de description détaillée des procédures en atelier, des principes de sécurité ou des opérations d'entretien. Noter cependant que ce manuel comprend quelques avertissements contre certaines méthodes de révision de la machine qui risquent, si on les applique, de provoquer des **BLESSURES** d'endommager la machine ou de rendre son utilisation peu sûre. On comprendra, par ailleurs, que ces avertissements ne peuvent couvrir toutes les façons de procéder à une révision, que celle-ci soit recommandée par Honda ou non, ni tous les dangers que l'on encourt à suivre telle ou telle façon étant donné qu'il est impossible pour Honda de ne serait-ce que répertorier toutes les procédures de révision. Avant de procéder à une révision, qu'elle soit ou non recommandée par Honda; il faudra donc s'assurer absolument que ni le personnel ni la machine ne sont soumis à un risque quelconque à cause des méthodes ou des outils utilisés pour la révision.

WICHTIGER SICHERHEITSHINWEIS

⚠ WARNING *Zeigt mögliche persönliche Verletzungs- oder Lebensgefahr an, falls Anweisungen nicht beachtet werden.*

VORSICHT: *Zeigt mögliche persönliche Verletzungsgefahr oder Beschädigung der Maschine an, falls Anweisungen nicht befolgt werden.*

ZUR BEACHTUNG: Gibt wertvolle Informationen.

Ausführliche Beschreibungen allgemeiner Werkstatt-Arbeitsweisen, Sicherheitsregeln und Wartungsverfahren sind nicht eingeschlossen. Es ist wichtig zu beachten, daß dieses Handbuch einige Warnungen und Vorsichtsmaßnahmen für bestimmte Wartungsmethoden enthält, die **PERSÖNLICHE VERLETZUNG** des Werkstattpersonals verursachen, das Fahrzeug beschädigen oder es fahrunsicher machen können. Verständlicherweise können diese Warnungen nicht alle absehbaren Verfahrensweisen der Wartung, ob von Honda empfohlen oder nicht, oder die möglichen gefährlichen Folgen der einzelnen Verfahrensweisen erfassen, ganz abgesehen davon, daß Honda nicht alle solche Verfahrensweisen erforschen kann. Jeder, der bestimmte Wartungsverfahren oder Werkzeuge benutzt, ob von Honda empfohlen oder nicht, muß sich selbst gründlich davon überzeugen, daß durch die gewählten Wartungsmethoden oder Werkzeuge weder die persönliche Sicherheit noch die Sicherheit des Fahrzeugs gefährdet ist.

HOW TO USE THIS MANUAL

This shop manual describes the servicing procedures for the XRV650.

Throughout the manual, the following abbreviations are used to identify individual models.

CODE	AREA (TYPE)	CODE	AREA (TYPE)
F	France	AR	Austria
G	Germany	SP	Spain
SW	Switzerland	IT	Italy
B	Belgium	FI	Finland
PO	Portugal		

Follow the Maintenance Schedule (Section 3) recommendations to ensure that the vehicle is in peak operating condition.

Performing the first scheduled maintenance is very important. It compensates for the initial wear that occurs during the break-in period. Sections 1 through 3 apply to the whole motorcycle, while sections 4 through 20 describe parts of the motorcycle, grouped according to location.

Find the section you want on this page, then turn to the table of contents on the first page 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 21 TROUBLESHOOTING.

ALL INFORMATION, ILLUSTRATIONS, DIRECTIONS AND SPECIFICATIONS INCLUDED IN THIS PUBLICATION ARE BASED ON THE LATEST PRODUCT INFORMATION AVAILABLE AT THE TIME OF APPROVAL FOR PRINTING. HONDA MOTOR CO., LTD. RESERVES THE RIGHT TO MAKE CHANGES AT ANY TIME WITHOUT NOTICE AND WITHOUT INCURRING ANY OBLIGATION WHATEVER. NO PART OF THIS PUBLICATION MAY BE REPRODUCED WITHOUT WRITTEN PERMISSION.

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SERVICE PUBLICATIONS OFFICE

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GENERAL INFORMATION

INFORMATIONS GENERALES

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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 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.*
- *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.*

⚠ WARNING

Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake assemblies.

⚠ 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.

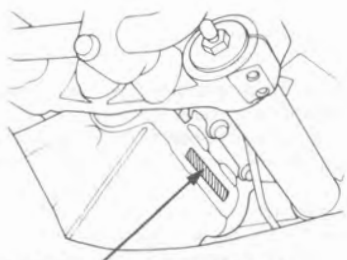
CAUTION

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.

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 damage to the motorcycle.
2. Use the special tools designed for this product to avoid damage and incorrect assembly.
3. Use only metric tools when servicing this motorcycle. 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 bolts first. Then tighten to the specified torque diagonally in 1-5 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.

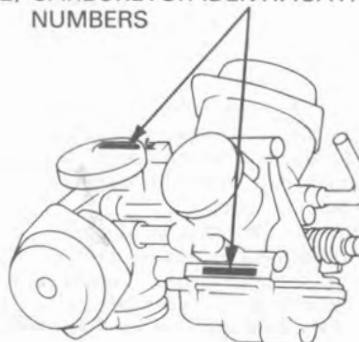
MODEL IDENTIFICATION



(1) FRAME SERIAL NUMBER

The frame serial number is stamped on the right side of the steering head.

(2) CARBURETOR IDENTIFICATION NUMBERS



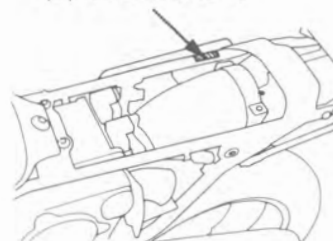
The carburetor identification number is on the front carburetor body (right-side).



(3) ENGINE SERIAL NUMBER

The engine serial number is stamped on the lower right side of the rear cylinder.

(4) COLOR LABEL



The color label is attached on the right frame tube under the seat. When ordering a color coded part, always specify its designated color code.

GENERAL INFORMATION

SPECIFICATIONS

ITEM				SPECIFICATIONS	
DIMENSIONS	Overall length			G, SW, FI types: 2,320 mm (91.3 in)	
	Overall width			F, B, IT, AR, SP types: 2,310 mm (90.9 in)	
	Overall height			900 mm (35.4 in)	
	Wheelbase			1,320 mm (52.0 in)	
	Seat height			1,555 mm (61.2 in)	
	Ground clearance			880 mm (34.6 in)	
	Dry weight			230 mm (9.1 in)	
	Curb weight			193 kg (425 lb)	
			220 kg (485 lb)		
			222 kg (489 lb) with center stand		
FRAME	Type			Semi double cradle	
	Front suspension, travel			Telescopic fork, 220 mm (8.7 in)	
	Rear suspension, travel			Swingarm/shock absorber, 210 mm (8.3 in)	
	Front tire size			90/90—21 54S	
	Rear tire size			130/90—17 68S	
	Cold tire pressure	Driver only	Front	200 kPa (2.00 kg/cm ² , 28 psi)	
			Rear	200 kPa (2.00 kg/cm ² , 28 psi)	
		Driver and one passenger	Front	200 kPa (2.00 kg/cm ² , 28 psi)	
			Rear	200 kPa (2.00 kg/cm ² , 28 psi)	
	Front brake, lining swept area			Hydraulic disc, 446 cm ² (69.1 sq in)	
	Rear brake, lining swept area			Hydraulic disc, 372 cm ² (57.7 sq in)	
	Fuel capacity			24 liters (6.34 US gal, 5.28 Imp gal)	
	Fuel reserve capacity			0 liter (0 US gal, 0 Imp gal)	
	Caster angle			28°	
Trail			113 mm (4.4 in)		
Fork fork oil capacity			656 cm ³ (22.2 US oz, 23.0 Imp oz)		
ENGINE	Type			Water cooled 4-stroke	
	Cylinder arrangement			2 cylindrs 52° V	
	Bore and stroke			79.0 x 66.0 mm (3.11 x 2.60 in)	
	Displacement			647 cm ³ (39.47 cu in)	
	Compression ratio			9.4:1	
	Valve train			Silent, multi-link chain drive and OHC with rocker arms	
	Oil capacity			2.8 liters (2.96 US qt, 2.46 Imp qt) after disassembly	
				2.4 liters (2.52 US qt, 2.11 Imp qt) at oil filter and oil change	
				2.2 liters (2.32 US qt, 1.94 Imp qt) after draining	
	Coolant capacity			2.5 liters (2.63 US qt, 2.20 Imp qt)	
				2.0 liters (2.10 US qt, 1.76 Imp qt) after draining	
	Lubrication system			Forced pressure and wet sump	
	Air filtration			Paper filter	
	Cylinder compression			1,275 ± 196 kPa (13.0 ± 2.0 kg/cm ² , 199 ± 28 psi)	
	Intake valve			Opens	} at 1 mm lift
				Closes	
	Exhaust valve			Opens	
				Closes	
	Valve clearance (cold)			Intake	10° BTDC
				Exhaust	40° ABDC
					40° BBDC
					10° ATDC
	Engine dry weight			0.15 ± 0.02 mm (0.006 ± 0.001 in)	
			0.20 ± 0.02 mm (0.008 ± 0.001 in)		
			60 kg (132 lb)		

ITEM		SPECIFICATIONS	
CARBURETOR	Type	Constant velocity dual carburetors	
	Identification number	VD F4B	
	Main jet	SW type: VE FGA	
	Slow jet	Front: #125, Rear: #130	
	Pilot screw opening	#38	
	Float level	SW type: #35	
	Idle speed	2-1/8 turns out, SW type: 1-3/4 turns out	
		7.0 mm (0.28 in)	
		1,200 ± 100 min ⁻¹ (rpm)	
		SW type: 1,200 ± 50 min ⁻¹ (rpm)	
DRIVE TRAIN	Clutch	Wet multi-plate	
	Transmission	5-speed constant mesh	
	Primary reduction	1.8888 (68/36)	
	Final reduction	3.0625 (49/16)	
	Gear ratio I	2.7692 (36/13)	
	II	1.8823 (32/17)	
	III	1.4500 (29/20)	
	IV	1.1739 (27/23)	
	V	0.9655 (28/29)	
	Gearshift pattern	Left foot operated return system, 1-N-2-3-4-5	
ELECTRICAL	Ignition	CDI	
	Ignition timing	10° BTDC at idle	
	Initial	30° BTDC at 4,500 min ⁻¹ (rpm)	
	Full advance	Front—232°—Rear—488°—Front	
	Firing order	310W/5,000 min ⁻¹ (rpm)	
	Alternator	12 V—12 AH	
	Battery capacity		
	Spark plug	NGK	ND
	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)	
	Main fuse	30 A	
	Fuse	10 A x 3, 15 A x 1	
	Starting system	Electric starter motor	
	Headlight (high/low beam)	12 V 35 W/35 W x 2	
		F type: 12 V 36 W/36 W x 2	
		SW type: 12 V 60 W/55 W	
	Position light	12 V 4 W	
		IT type: 12 V 4 W x 2	
	Turn signal light	12 V 21 W x 4	
	Tail/brake light	12 V 5 W/21W	
	Instrument light	12 V 1.7 W x 4	
	Neutral indicator	12 V 3.4 W	
	High beam indicator	12 V 1.7 W	
	Turn signal indicator	12 V 3.4 W x 2	
	Oil pressure warning light	12 V 3.4 W	
	Fuel reserve warning light	12 V 3.4 W x 2	
	Side stand indicator	12 V 3.4 W	

GENERAL INFORMATION

TORQUE VALUES

ENGINE

ITEM	Q'TY	THREAD DIA. mm	TORQUE N·m (kg-m, ft-lb)	REMARKS
Crankcase stud bolt (8 mm)	2	8	20–30 (2.0–3.0, 14–22)	Apply thread lock agent
(10 mm)	8	10	30–50 (3.0–5.0, 22–36)	
Oil pump driven sprocket	1	6	15 (1.5, 11)	
Water pump mounting bolt	2	6	12 (1.2, 9)	
Water pump cover bolt	2	6	12 (1.2, 9)	Apply engine oil
Spark plug	4	12	14 (1.4, 10)	
Oil filter	1	20	10 (1.0, 7)	
Oil drain bolt	1	14	35 (3.5, 25)	
Oil pass pipe holder mounting bolt	1	6	10 (1.0, 7)	Apply thread lock agent
Valve adjusting screw lock nut	6	7	23 (2.3, 17)	
Shift drum stopper plate bolt	1	6	12 (1.2, 9)	
Primary drive gear bolt	1	12	130 (13.0, 94)	
Oil pressure switch	1	—	12 (1.2, 9)	Apply thread lock agent
Clutch lock nut	1	18	90 (9.0, 65)	
Oil pass pipe bolt (7 mm)	2	7	10 (1.0, 7)	
Oil pass pipe bolt (8 mm)	1	8	23 (2.3, 17)	
Flywheel bolt	1	12	130 (13.0, 94)	Left hand threads
Starter clutch torx bolt	6	8	30 (3.0, 22)	
Timing hole cap	1	14	3.5 (0.35, 2.5)	
Crankshaft hole cap	1	30	15 (1.5, 11)	
Cylinder head cover bolt	4	6	10 (1.0, 7)	Apply MoS ₂ grease
Camshaft holder (8 mm bolt)	6	8	23 (2.3, 17)	
(8 mm nut)	2	8	23 (2.3, 17)	
(6 mm bolt)	4	6	10 (1.0, 7)	
Cylinder head (8 mm bolt)	4	8	23 (2.3, 17)	Apply engine oil
(6 mm socket bolt)	2	6	10 (1.0, 7)	
(10 mm cap nut)	8	10	48 (4.8, 35)	
(8 mm nut)	2	8	23 (2.3, 17)	
Cam sprocket bolt	4	7	23 (2.3, 17)	Apply thread lock agent
Cam chain tensioner bolt	4	6	10 (1.0, 7)	
Connecting rod bearing cap nut	4	8	34 (3.4, 25)	
Mainshaft bearing set plate bolt	1	6	10 (1.0, 7)	
Countershaft bearing set plate bolt	3	6	10 (1.0, 7)	Apply thread lock agent
Gearshift pedal bolt	1	6	10 (1.0, 7)	

FRAME

ITEM	Q'TY	THREAD DIA. mm	TORQUE N·m (kg-m, ft-lb)	REMARKS
Handlebar upper holder bolt	4	8	26 (2.6, 19)	Apply sealant
Thermostatic switch	1	16	18 (1.8, 13)	
Fuel valve lock nut	2	18	23 (2.3, 17)	
Side stand pivot bolt	1	10	40 (4.0, 29)	
Muffler band bolt	2	8	22 (2.2, 16)	Self-locking nut
Muffler mounting bolt (8 mm)	1	8	35 (3.5, 25)	
(10 mm)	1	10	55 (5.5, 40)	
Upper cowl mounting bolt	4	6	4.5 (0.45, 3.2)	
Exhaust pipe joint cap nut	4	8	27 (2.7, 20)	
Rear fuel tank mounting bolt	1	8	27 (2.7, 20)	
Seat mounting bolt	2	6	10 (1.0, 7)	
Engine mounting bolt	3	10	55 (5.5, 40)	
Engine mounting bracket bolt	6	8	27 (2.7, 20)	

ITEM	Q'TY	THREAD DIA. mm	TORQUE N·m (kg-m, ft-lb)	REMARKS
Skid plate mounting bolt	4	8	10 (1.0, 7)	
Air cleaner case mounting bolt	5	6	10 (1.0, 7)	
Passenger footpeg bracket bolt	4	8	27 (2.7, 20)	
Right footpeg holder bolt	1	12	85 (8.5, 61)	
Muffler/exhaust pipe protector bolt	6	6	10 (1.0, 7)	
Steering stem nut	1	24	100 (10.0, 72)	
Front fork top bridge pinch bolt	4	8	27 (2.7, 20)	
Front fork bottom bridge pinch bolt	4	8	35 (3.5, 25)	
Front fork socket bolt	2	8	20 (2.0, 14)	
Front fork cap bolt	2	39	23 (2.3, 17)	
Front axle holder nut	4	6	12 (1.2, 9)	
Front axle	1	12	65 (6.5, 47)	
Rear axle	1	16	95 (9.5, 69)	
Final driven sprocket bolt	6	10	46 (4.6, 33)	Apply oil
Swingarm pivot bolt	1	14	110 (11.0, 80)	Self-locking nut
Rear shock absorber mounting bolt (upper)	1	10	45 (4.5, 33)	Self-locking nut
(lower)	1	10	45 (4.5, 33)	Self-locking nut
Shock absorber spring adjuster lock nut	1	50	90 (9.0, 65)	
Shock absorber lower mount lock nut	1	14	68 (6.8, 49)	
Shock arm-to-swingarm bolt	1	12	60 (6.0, 43)	Self-locking nut
Shock link-to-frame bolt	1	10	45 (4.5, 33)	Self-locking nut
Shock link-to-shock arm bolt	1	10	45 (4.5, 33)	Self-locking nut
Steering bearing adjustment nut	1	26	3 (0.3, 2.2)	
Front caliper bracket mounting bolt	2	8	27 (2.7, 20)	
Front brake disc bolt	6	8	40 (4.0, 29)	
Front brake hose-to-joint	1	10	17 (1.7, 12)	
Front brake hose joint-to-master cylinder	1	10	35 (3.5, 25)	
Brake hose oil bolt	3	10	35 (3.5, 25)	
Caliper bleed valve	2	7	6 (0.6, 4.3)	
Pad pin	3	10	17 (1.7, 12)	
Pad pin plug	3	10	2.5 (0.25, 1.8)	
Caliper pin bolt	2	8	23 (2.3, 17)	
Left footpeg holder bolt	1	10	65 (6.5, 47)	
Rear carrier stay bolt (left front)	1	8	45 (4.5, 33)	
(right front)	1	10	65 (6.5, 47)	
(rear)	2	8	27 (2.7, 20)	
Choke lever pivot bolt	1	6	10 (1.0, 7)	
Rear brake disc bolt	4	6	15 (1.5, 11)	
Rear master cylinder bolt	2	6	13 (1.3, 9)	
Fuel reserve sensor	2	18	23 (2.3, 17)	

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

STANDARD TORQUE VALUES

ITEM	TORQUE			ITEM	TORQUE		
	N·m	kg-m	ft-lb		N·m	kg-m	ft-lb
5 mm bolt and nut	5	0.5	4	5 mm screw	4	0.4	3
6 mm bolt and nut	10	1.0	7	6 mm screw	9	0.9	7
8 mm bolt and nut	22	2.2	16	6 mm flange bolt with 8 mm head	9	0.9	7
10 mm bolt and nut	35	3.5	25	6 mm flange bolt and nut	12	1.2	9
12 mm bolt and nut	55	5.5	40	8 mm flange bolt and nut	27	2.7	20
				10 mm flange bolt and nut	40	4.0	29

GENERAL INFORMATION

TOOLS

SPECIAL

DESCRIPTION	TOOL NUMBER	REFERENCE SECTION
Oil pressure gauge	07506—3000000	2
Oil pressure gauge attachment	07510—4220100	2
Oil filter wrench	07HAA—PJ70100	2
Valve adjusting wrench	07908—KE90000	3
Vacuum gauge	07404—0030000	3
Clutch center holder	07923—KE10000	7
Valve guide driver attachment (IN)	07943—MF50100	9
Valve guide driver attachment (EX)	07943—MF50200	9
Valve guide reamer, 5.5 mm (IN)	07984—2000001	9
Valve guide reamer, 6.5 mm (EX)	07984—ZE20001	9
Bearing driver attachment	07HMF—MM90400	11
Bearing remover set, 25 mm	07936—3710001	11
— Remover handle	07936—3710100	11
— Bearing remover, 25 mm	07936—3710600	11
— Remover weight	07741—0010201	11
Steering stem socket	07916—KA50100	13
Steering stem driver	07946—4300101	13
Fork seal driver	07947—KA50100	13
Fork seal driver attachment	07947—KA40200	13
Ball race remover	07953—MA00000	13
Needle bearing remover	07946—KA50100	14
Driver shaft	07946—MJ00100	14
Snap ring pliers	07914—3230001	15

COMMON

DESCRIPTION	TOOL NUMBER	REFERENCE SECTION
Valve adjusting wrench 10 x 12 mm	07708—0030200	3
Spoke nipple wrench C, 5.8 x 6.1 mm	07701—0020300	3
Float level gauge	07401—0010000	4
Lock nut wrench, 17 x 27 mm	07716—0020300	7
Extension bar	07716—0020500	7
Gear holder	07724—0010100	7
Flywheel holder	07725—0040000	8
Rotor puller	07733—0020001	8
Torx bit	07703—0010100	8
Valve guide remover, 5.5 mm	07742—0010100	9
Valve guide remover, 6.6 mm	07742—0010200	9
Valve spring compressor	07757—0010000	9
Attachment, 32 x 35 mm	07746—0010100	13, 14
Attachment, 37 x 40 mm	07746—0010200	14
Attachment, 42 x 47 mm	07746—0010300	11, 13, 14
Attachment, 52 x 55 mm	07746—0010400	11
Attachment, 24 x 26 mm	07746—0010700	14
Pilot, 15 mm	07746—0040300	13
Pilot, 17 mm	07746—0040400	14
Pilot, 20 mm	07746—0040500	11
Pilot, 25 mm	07746—0040600	11
Pilot, 22 mm	07746—0041000	11
Bearing remover shaft	07746—0050100	13, 14
Bearing remover head, 15 mm	07746—0050400	13
Bearing remover head, 17 mm	07746—0050500	14
Driver	07749—0010000	11, 13, 14

VALVE SEAT CUTTER

DESCRIPTION	TOOL NUMBER	REFERENCE SECTION
Seat cutter, 27.5 mm (45° IN)	07780—0010200	11
Seat cutter, 35 mm (45° EX)	07780—0010400	11
Flat cutter, 28 mm (32° IN)	07780—0012100	11
Flat cutter, 35 mm (32° EX)	07780—0012300	11
Interior cutter, 30 mm (60° IN)	07780—0014000	11
Interior cutter, 37.5 mm (60° EX)	07780—0014100	11
Cutter holder, 5.5 mm	07781—0010101	11
Cutter holder, 6.6 mm	07781—0010201	11

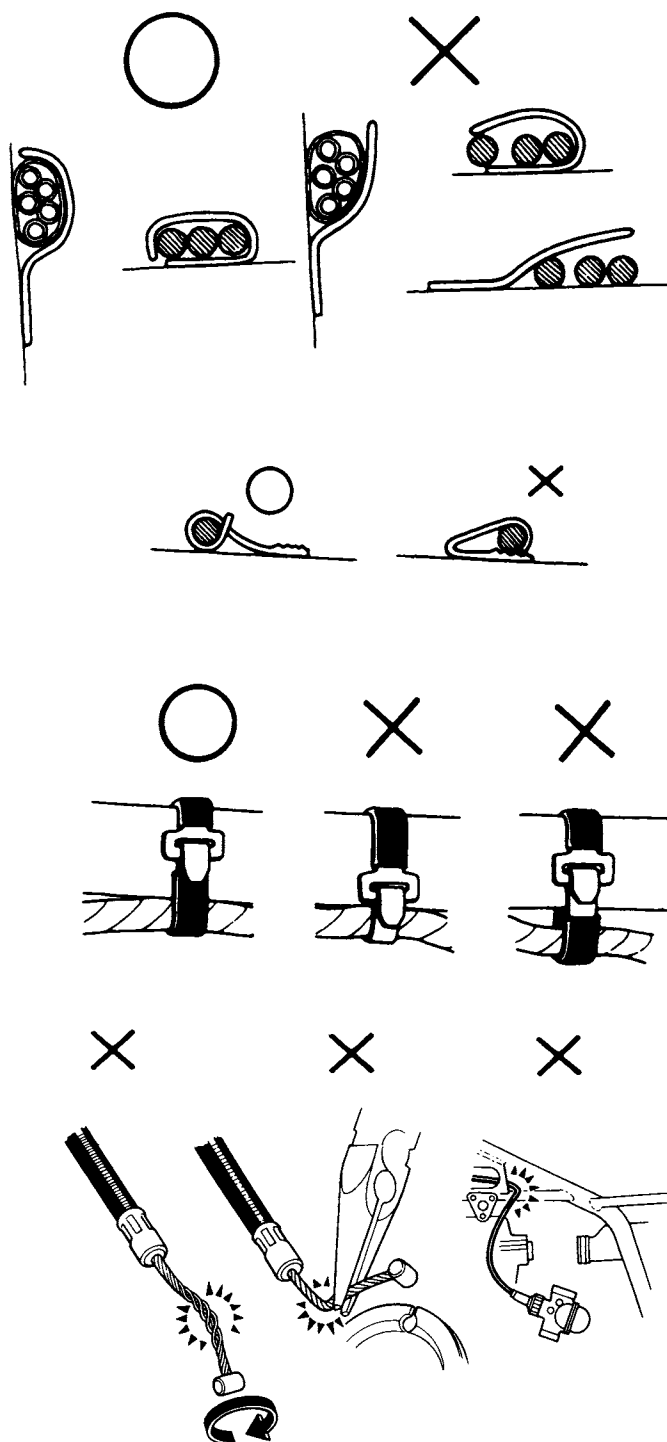
TESTER

DESCRIPTION	TOOL NUMBER	REFERENCE SECTION
Digital multi-tester (KOWA)	07411—0020000	16, 17
Circuit tester (SANWA)	07308—0020000	16, 17, 18, 19
Circuit tester (KOWA)	TH—5H	16, 17, 18, 19
Spark adaptor	07GGK—0010100	17
Inspection adaptor	07508—0014700	17

CABLE & HARNESS ROUTING

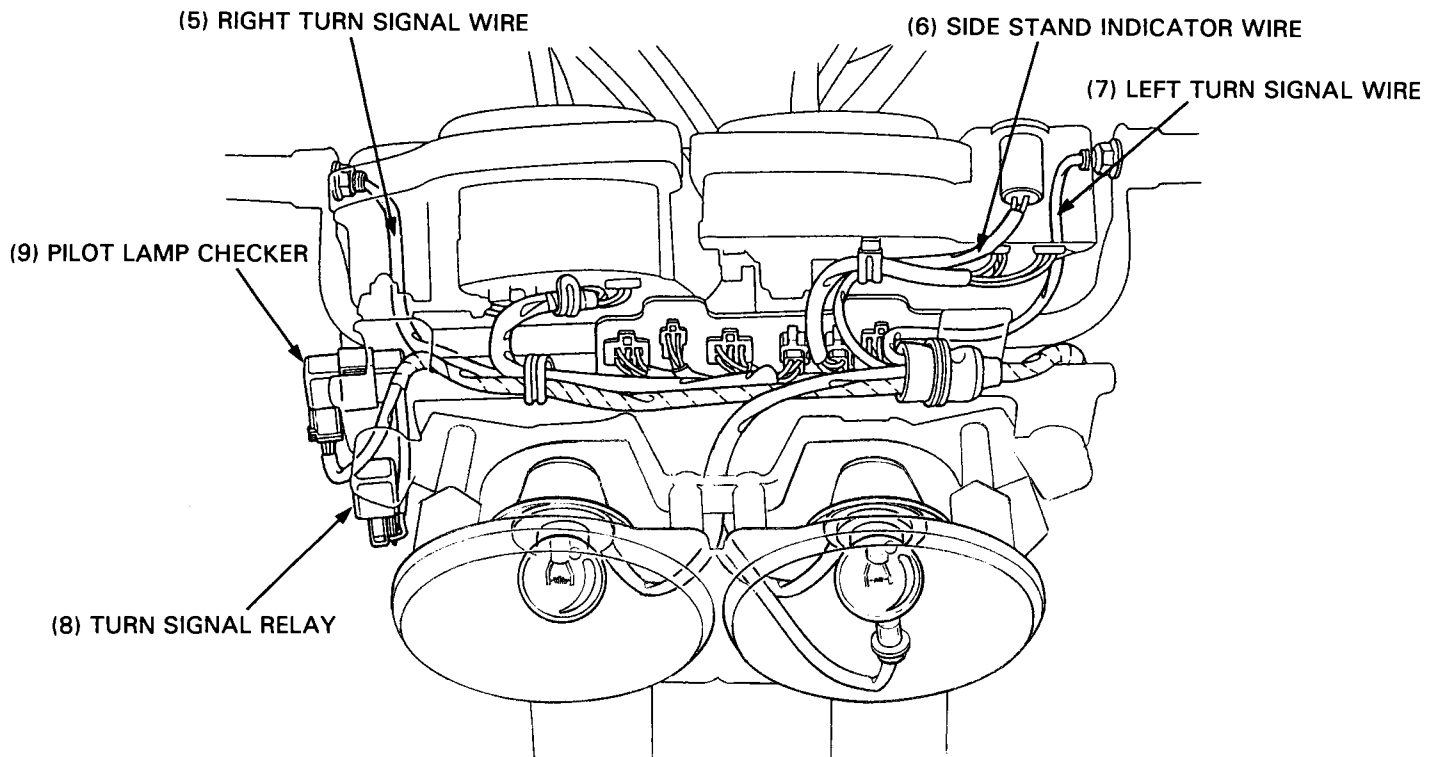
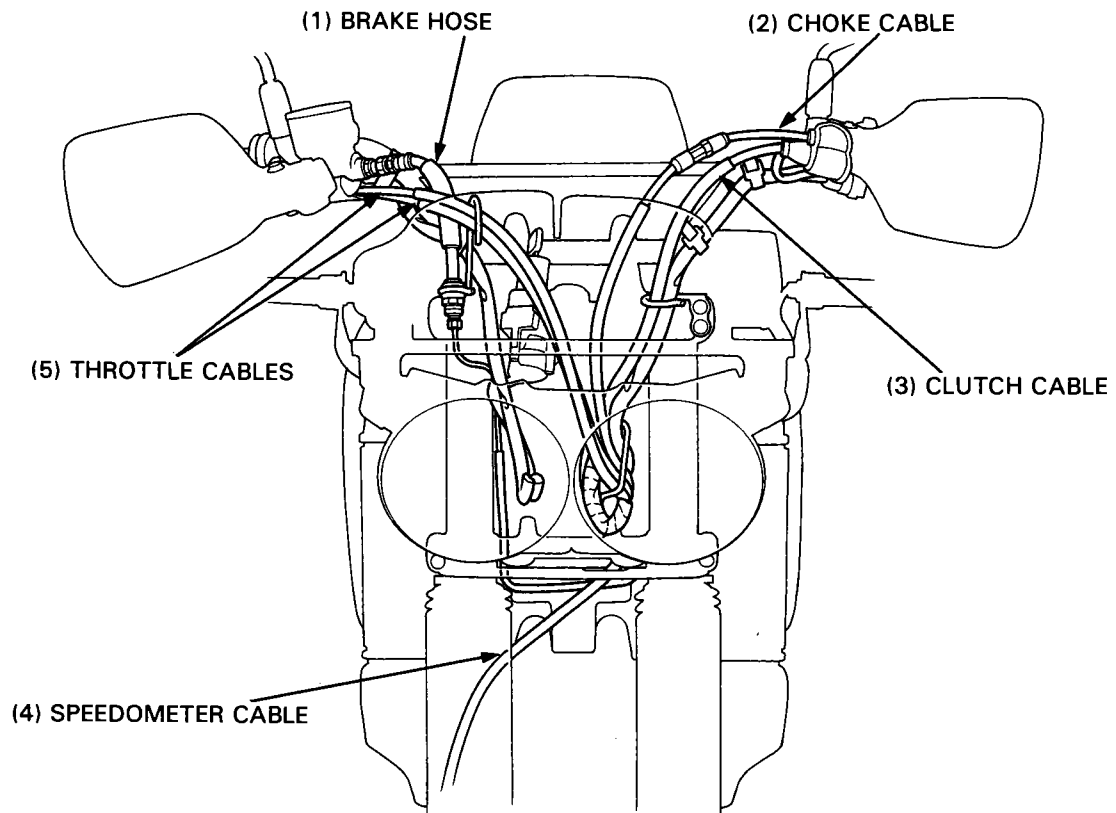
Note the following when routing cables and wire harnesses:

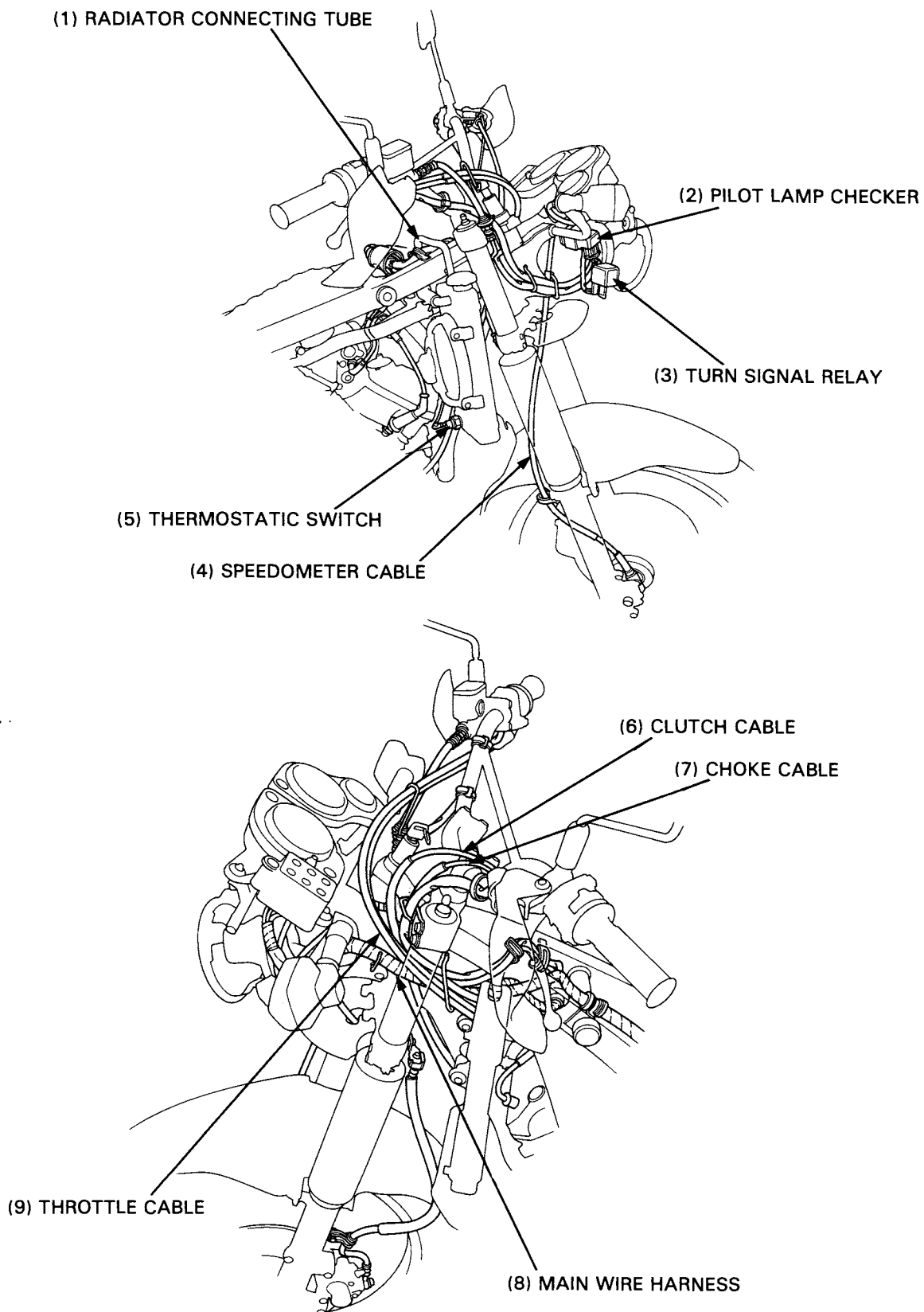
- A loose wire, harness or cable can be a safety hazard. After clamping, check each wire to be sure it is secure.
- Do not squeeze wires against welds or clamps.
- Secure wires and wire harnesses to the frame with their respective wire bands at the designated locations. Tighten the bands so that only the insulated surfaces contact the wires or wire harnesses.
- Route harnesses so they are neither pulled taut nor have excessive slack.
- Protect wires and harnesses with electrical tape or a tube if they contact a sharp edge or corner. Clean the attaching surface thoroughly before applying tape.
- Do not use a wire or harness with broken insulation. 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 pipes and other hot parts.
- Be sure grommets are seated in their grooves properly.
- After clamping, check each harness to be certain that it does not interfere with any moving or sliding parts.
- After routing, check that the wire harnesses are not twisted or kinked.
- Wire harnesses routed along the handlebars should not be pulled taut, have excessive slack, be pinched by or interfere with adjacent or surrounding parts in all steering positions.
- Do not bend or twist the control cables. Damaged control cables will not operate smoothly and may stick or bind.



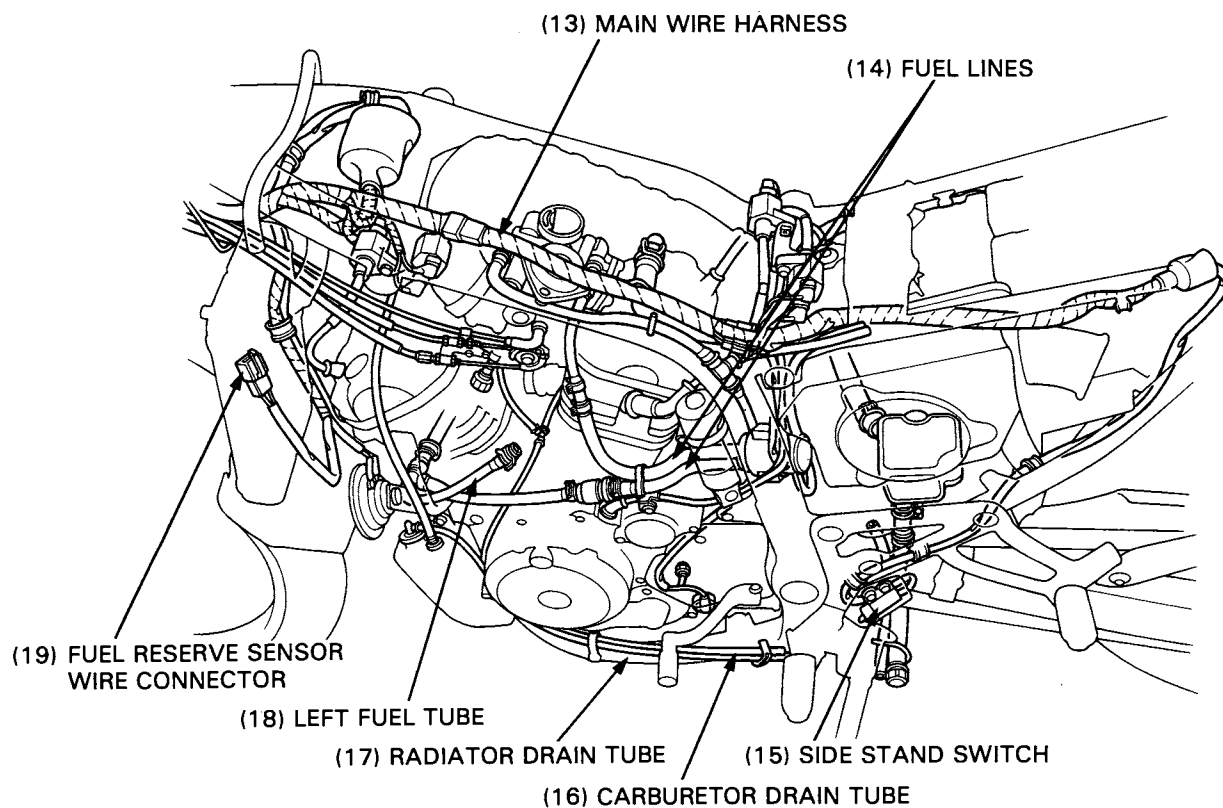
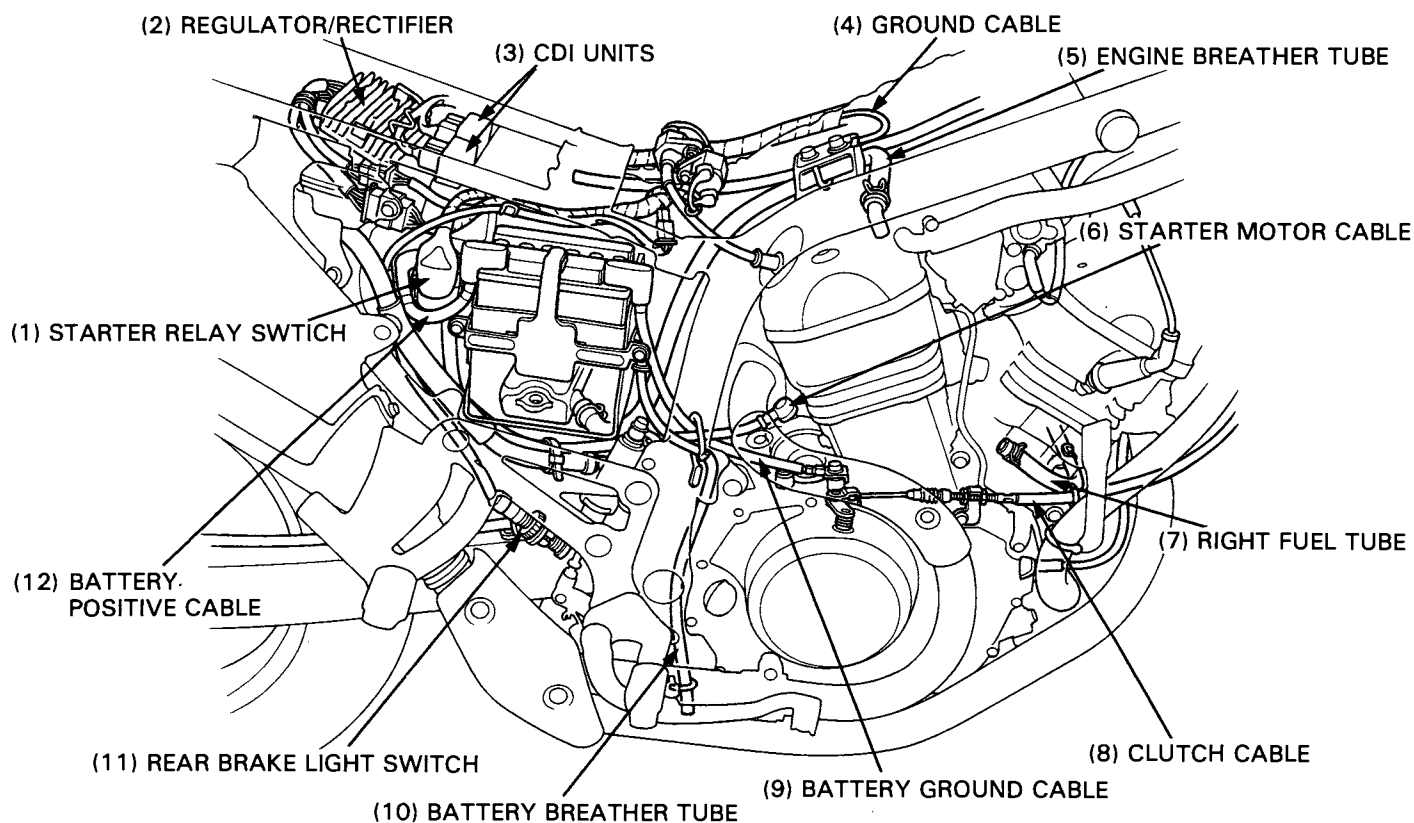
O: CORRECT
X: INCORRECT

GENERAL INFORMATION

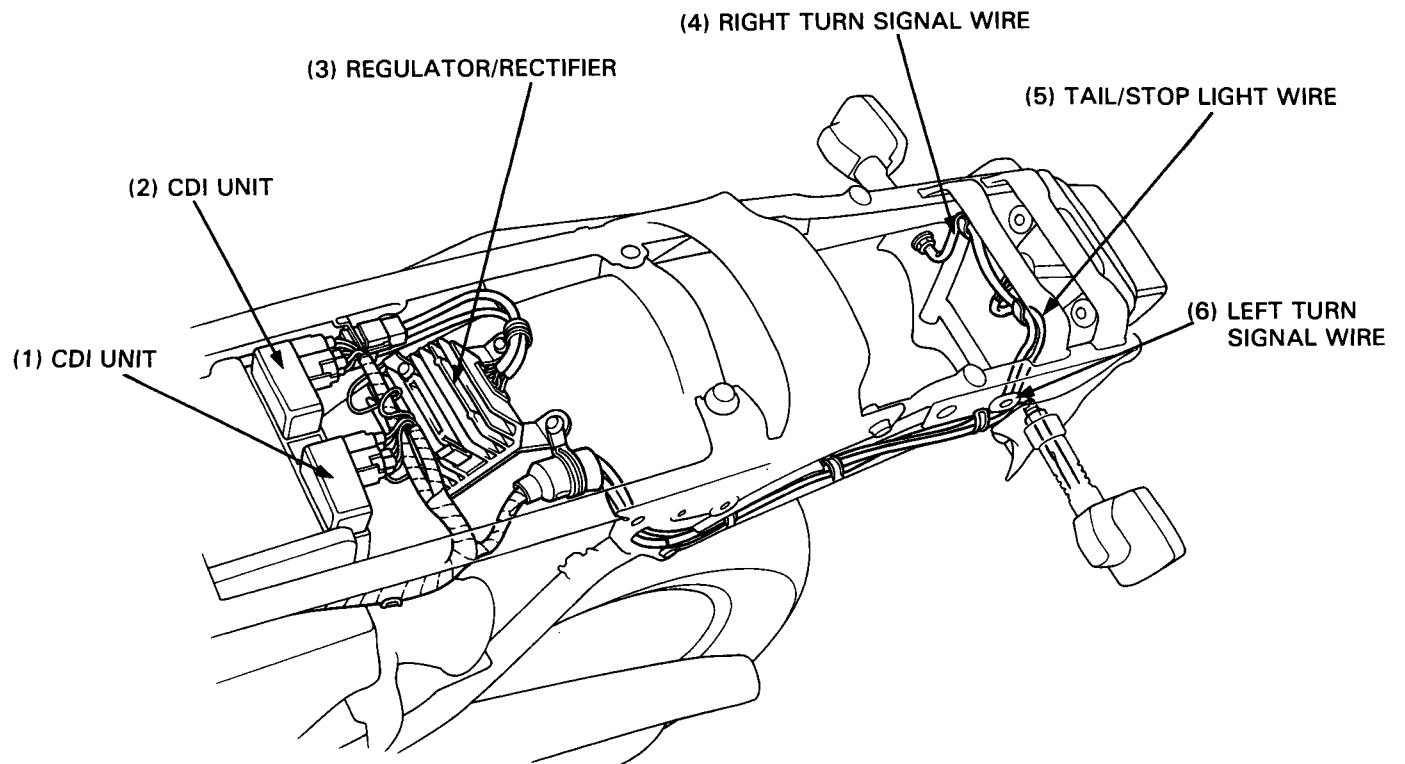




GENERAL INFORMATION



GENERAL INFORMATION



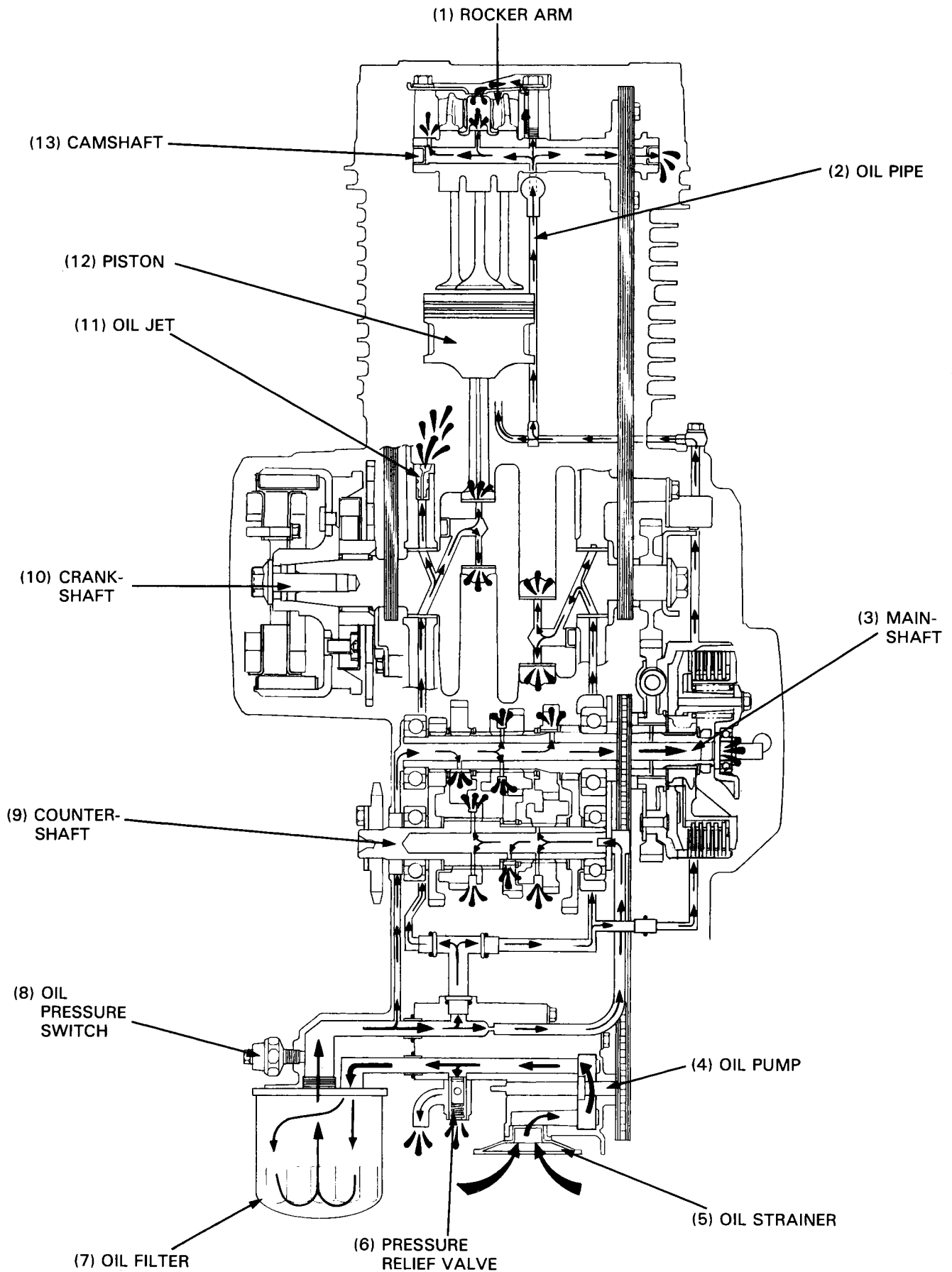
LUBRICATION

LUBRIFICATION

SCHMIERUNG

- (1) CULBUTEUR
- (2) TUYAU A HUILE
- (3) ARBRE PRIMAIRE
- (4) POMPE A HUILE
- (5) CREPINE A HUILE
- (6) CLAPET DE DECOMPRESSION
- (7) FILTRE A HUILE
- (8) CONTACTEUR DE PRESSION D'HUILE
- (9) ARBRE DE RENVOI
- (10) VILEBREQUIN
- (11) GICLEUR D'HUILE
- (12) PISTON
- (13) ARBRE A CAMES

- (1) KIPPEBEL
- (2) ÖLLEITUNG
- (3) KAUPTWELLE
- (4) ÖLPUMPE
- (5) ÖLSIEB
- (6) ÜBERDRUCKVENTIL
- (7) ÖLFILTER
- (8) ÖLDRUCKSCHALTER
- (9) NEBENWELLE
- (10) KURBELWELLE
- (11) ÖLDÜSE
- (12) KOLBEN
- (13) NOCKENWELLE



LUBRICATION

SERVICE INFORMATION	2-1	ENGINE OIL FILTER REPLACEMENT	2-4
TROUBLESHOOTING	2-2	OIL PRESSURE CHECK	2-4
ENGINE OIL LEVEL CHECK	2-3	OIL PUMP	2-5
ENGINE OIL CHANGE	2-3	LUBRICATION POINTS	2-10

SERVICE INFORMATION

GENERAL

⚠ WARNING

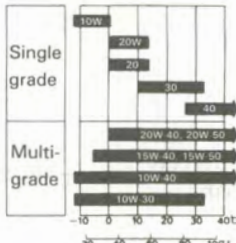
- If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and lead to death.

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.
- The oil pump can be serviced after removing the engine from the frame.

SPECIFICATIONS

Engine oil

Oil capacity	2.8 lit (2.96 US qt, 2.46 Imp qt) after disassembly. 2.4 lit (2.52 US qt, 2.11 Imp qt) at oil filter and oil change. 2.2 lit (2.32 US qt, 1.94 Imp qt) after draining.
Oil recommendation	HONDA 4 stroke oil or equivalent API service classification: SE or SF VISCOSITY: SAE 10W-40 Other viscosities shown in the chart may be used when the average temperature in your riding area is within the indicated range. 

Oil pump

Unit: mm (in)

ITEM	STANDARD	SERVICE LIMIT
Rotor tip clearance	0.15 (0.006)	0.20 (0.008)
Pump body clearance	0.15-0.22 (0.006-0.009)	0.35 (0.014)
Pump end clearance	0.02-0.07 (0.001-0.003)	0.10 (0.004)
Oil pressure	490-588 kPa (5.0-6.0 kg/cm ² , 71-85 psi) at 5,000 min ⁻¹ (rpm)	—

TORQUE VALUES

Oil pressure switch	12 N·m (1.2 kg-m, 9 ft-lb)
Engine oil drain bolt	35 N·m (3.5 kg-m, 25 ft-lb)
Oil filter	10 N·m (1.0 kg-m, 7 ft-lb)
Skid plate	10 N·m (1.0 kg-m, 7 ft-lb)

TOOLS

Special

Oil filter wrench	07HAA—PJ70100
Oil pressure gauge	07506—3000000
Oil pressure gauge attachment	07510—4220100

TROUBLESHOOTING

Oil level too low

- Normal oil consumption
- External oil leaks
- Worn piston rings

Oil contamination

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

Low oil pressure

- Faulty oil pump
- Clogged oil strainer
- Low oil level
- Faulty pressure relief valve
- Oil leaks

High oil pressure

- Faulty pressure relief valve
- Clogged oil filter or oil orifice

No oil pressure

- Too low oil level
- Broken oil pump drive or driven sprockets
- Broken oil pump drive chain
- Oil leaks

ENGINE OIL LEVEL CHECK

Support the motorcycle upright on level ground.
Start the engine and let it idle for a few minutes.

Stop the engine, remove the oil filler cap/dipstick and wipe it clean.

Check the oil level with the oil filler cap/dipstick by inserting it without screwing it in.

NOTE

- Do not screw the cap in when making this check.

If the oil level is below the lower level mark on the dipstick, fill to the upper level mark with the recommended oil (see below).

ENGINE OIL CHANGE

NOTE

- Change the engine oil with the engine warm and the motorcycle on its side stand to assure complete and rapid draining.

Remove the skid plate.

Remove the oil filler cap/dipstick and drain bolt.

With the engine stop switch OFF, start the starter motor for few seconds to drain any oil which may be left in the engine.

NOTE

- Do not operate the motor more than few seconds.

After the oil has drained, check that the drain bolt sealing washer is in good condition, and install the bolt.

TORQUE: 35 N·m (3.5 kg-m, 25 ft-lb)

Fill the crankcase with the correct quantity of the recommended oil.

OIL CAPACITY:

- 2.8 lit (2.96 US qt, 2.46 Imp qt) after disassembly
- 2.4 lit (2.52 US qt, 2.11 Imp qt) at oil filter and oil change
- 2.2 lit (2.32 US qt, 1.94 Imp qt) after draining

RECOMMENDED OIL: Honda 4-stroke oil or equivalent
API service classification: SE or SF
VISCOSITY: SAE 10W-40

Install the oil filler cap/dipstick.

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

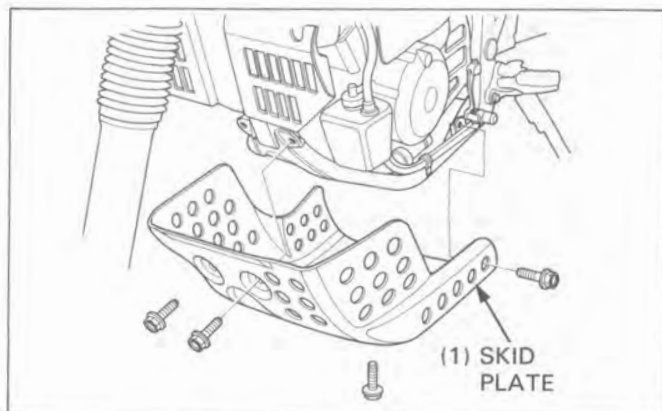
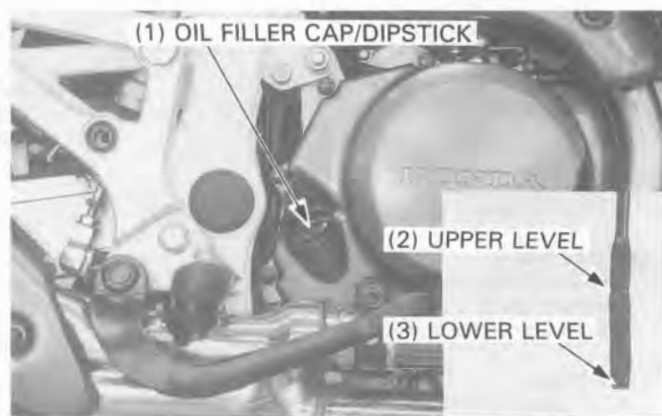
Stop the engine and wait a few minutes, then check that the oil level is at the upper level mark with the motorcycle upright. Check that there are no oil leaks.

Install the skid plate.

TORQUE: 10 N·m (1.0 kg-m, 7 ft-lb)

CAUTION

- Be careful not to pinch the carburetor and reserve tank overflow tubes.



ENGINE OIL FILTER REPLACEMENT

Drain the engine oil (page 2-3).

⚠ WARNING

- *Do not replace the oil filter when the exhaust pipe is hot.*

Remove the oil filter with a filter wrench.

TOOL:

Oil filter wrench **07HAA-PJ70100**

Apply oil to the new oil filter O-ring and install the new oil filter. Tighten the oil filter with a filter wrench.

TORQUE: 10 N·m (1.0 kg-m, 7 ft-lb)

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

OIL PRESSURE CHECK

NOTE

- After warm up the engine, check the oil pressure.

Remove the skid plate.

Remove the drive sprocket cover.

Remove the oil pressure switch screw and disconnect the oil pressure switch wire.

Remove the oil pressure switch and connect an oil pressure gauge to the pressure switch hole.

TOOLS:

Oil pressure gauge **07506-3000000**

Oil pressure gauge attachment **07510-4220100**

Check the oil level.

Start the engine.

Check the oil pressure at 5,000 min⁻¹ (rpm).

STANDARD OIL PRESSURE:

490–588 kPa (5.0–6.0 kg-cm², 71–85 psi)

Stop the engine.

Apply sealant to the pressure switch threads and install it.

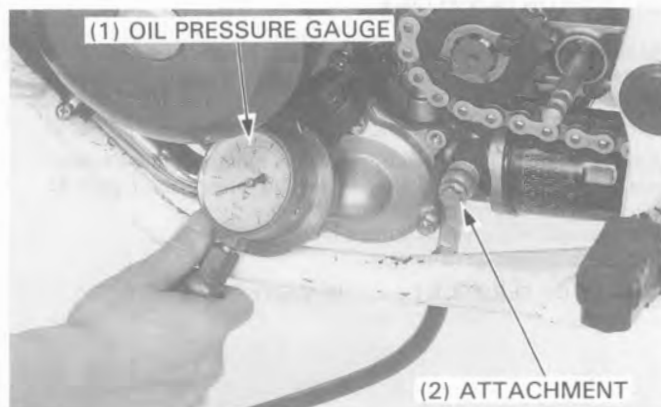
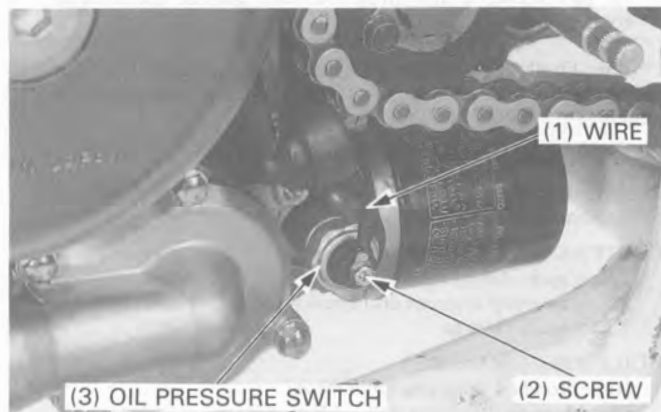
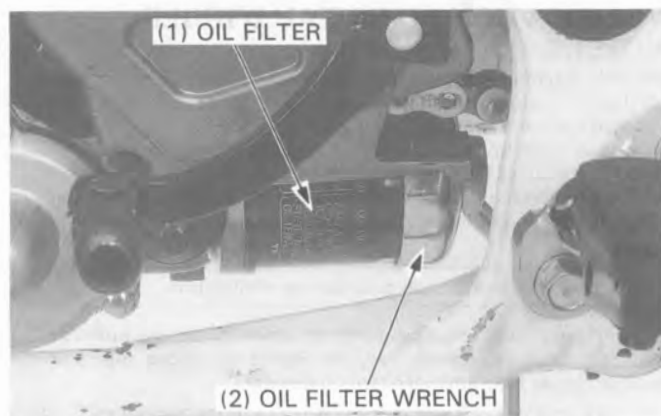
TORQUE: 12 N·m (1.2 kg-m, 9 ft-lb)

Connect the oil pressure switch wire.

Start the engine and check the oil pressure warning light goes out after one or two seconds.

NOTE

- Route the oil pressure switch wire properly (page 1-9).



OIL PUMP

PRESSURE RELIEF VALVE REMOVAL

Separate the crankcase (Section 11).

Remove the bolt and pressure relief valve cover.

Remove the pressure relief valve from the oil pump.



PRESSURE RELIEF VALVE DISASSEMBLY

Remove the snap ring and disassemble the relief valve.



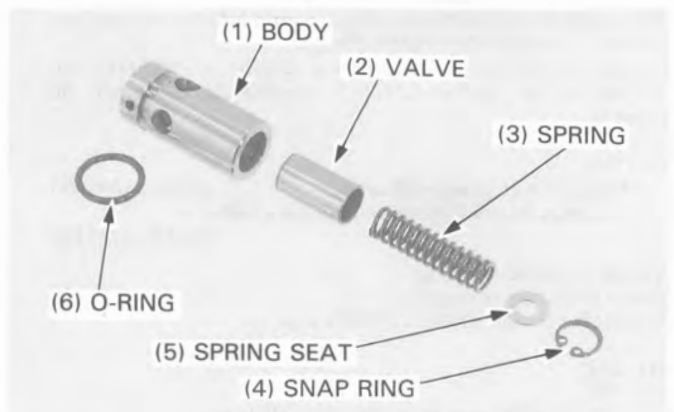
PRESSURE RELIEF VALVE INSPECTION

Check the spring, O-ring and valve for fatigue, wear or damage.

Check the body for clogging or damage.

Clean all the remained parts.

Assemble the parts in the reverse order of disassembly.

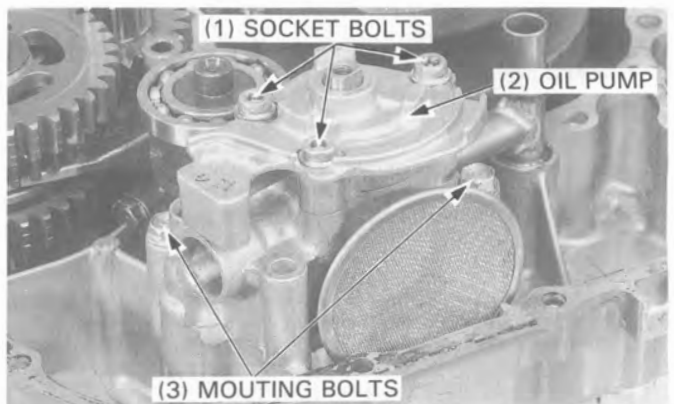


OIL PUMP REMOVAL

Temporarily loosen the three socket bolts if disassemble the oil pump.

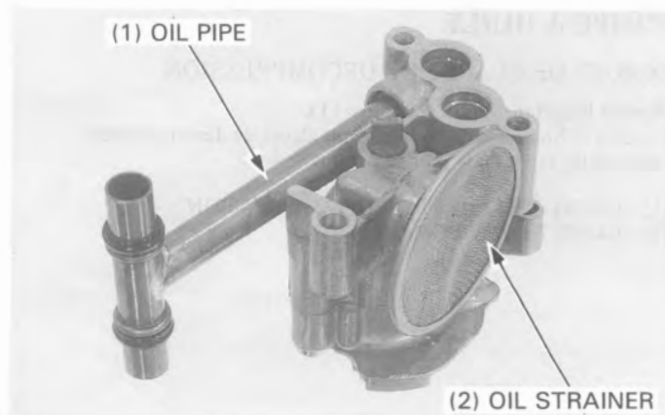
Remove the oil pump by removing two bolts.

Remove the dowel pins and O-rings.



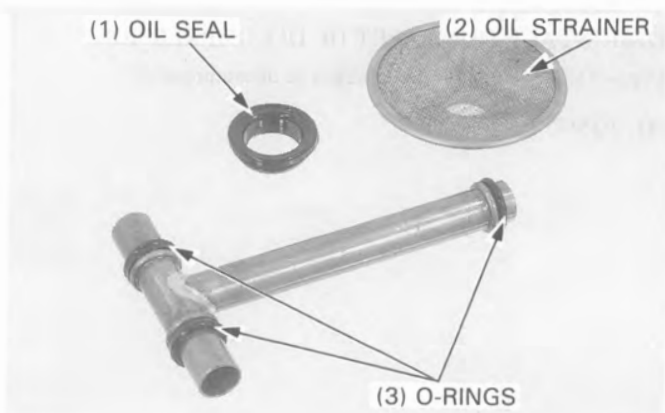
LUBRICATION

Remove the oil strainer and oil pipe from the oil pump.



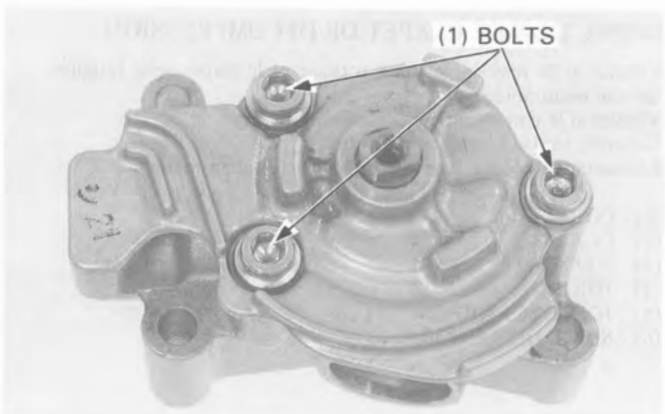
Check the O-rings and oil seal for fatigue or damage.

Clean the oil strainer and oil pipe with non-flammable or high flash point solvent.



OIL PUMP DISASSEMBLY

Disassemble the oil pump by removing three socket bolts. Clean disassembled parts with non-flammable or high flash point solvent.

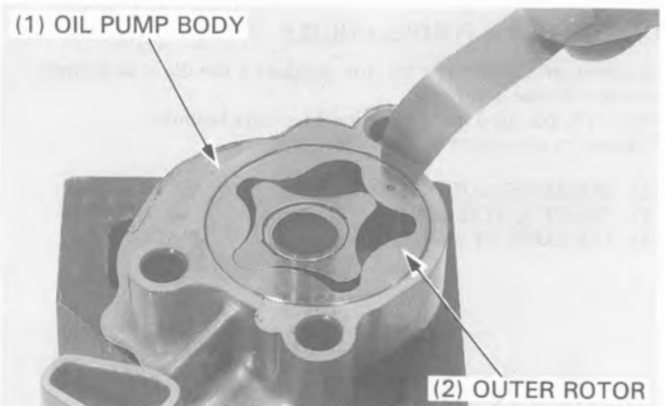


OIL PUMP INSPECTION

Install the outer rotor and inner rotor to the pump body.

Measure the pump body clearance.

SERVICE LIMIT: 0.35 mm (0.014 in)

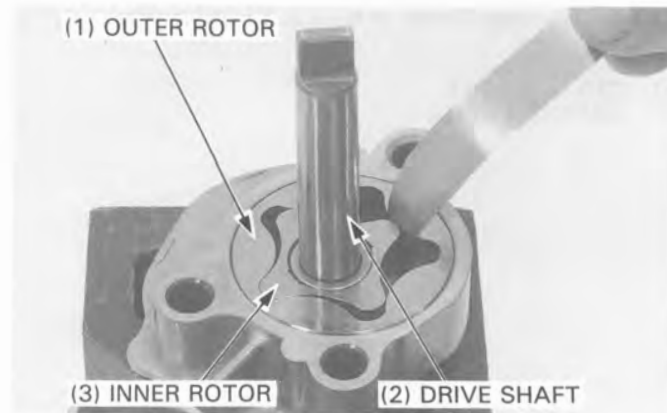


LUBRICATION

Temporarily install the pump shaft to the pump body.

Measure the tip clearance.

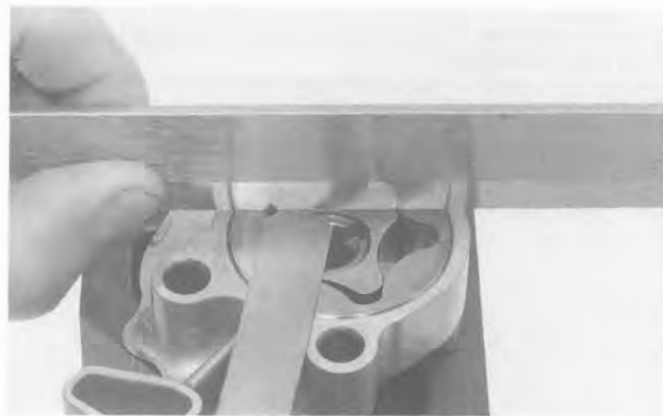
SERVICE LIMIT: 0.20 mm (0.008 in)



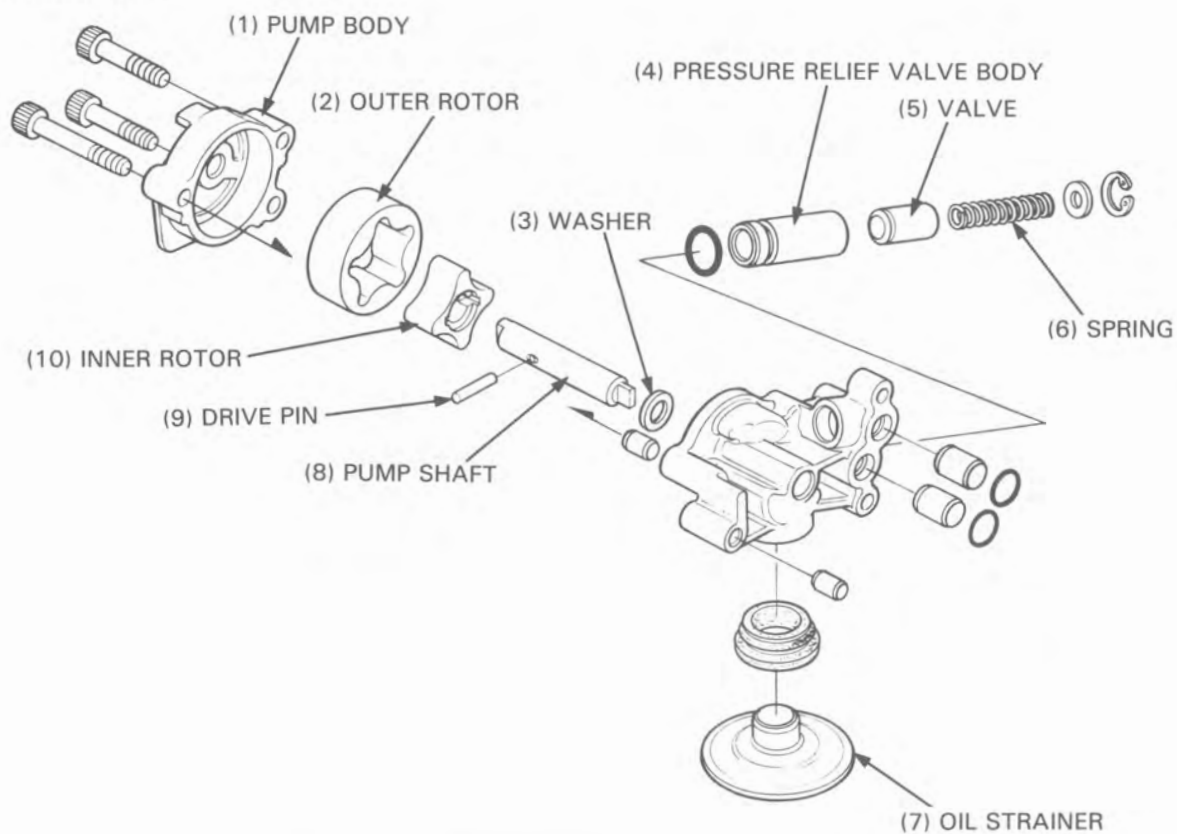
Remove the oil pump shaft from the oil pump.

Measure the pump end clearance.

SERVICE LIMIT: 0.10 mm (0.004 in)



OIL PUMP ASSEMBLY



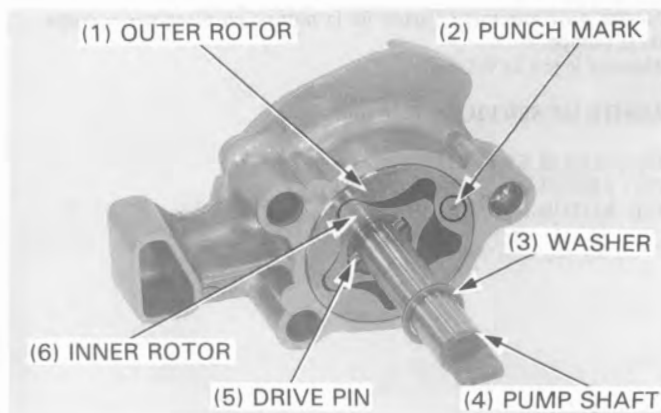
LUBRICATION

Install the outer rotor to the oil pump body with the punch mark facing the cover.

Install the inner rotor.

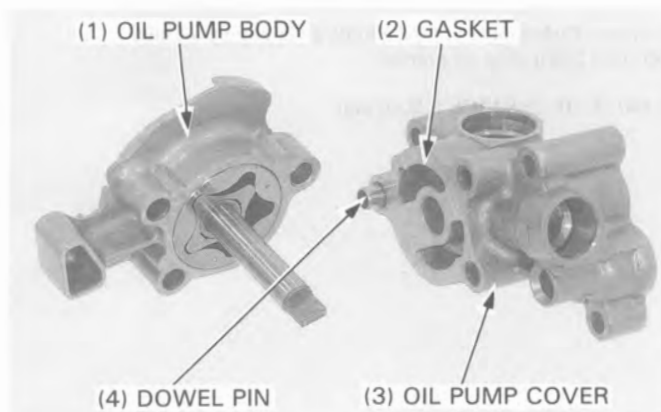
Install the drive pin and washer to the oil pump shaft.

Install the oil pump shaft to the oil pump body, aligning the drive pin with the groove of the inner rotor.

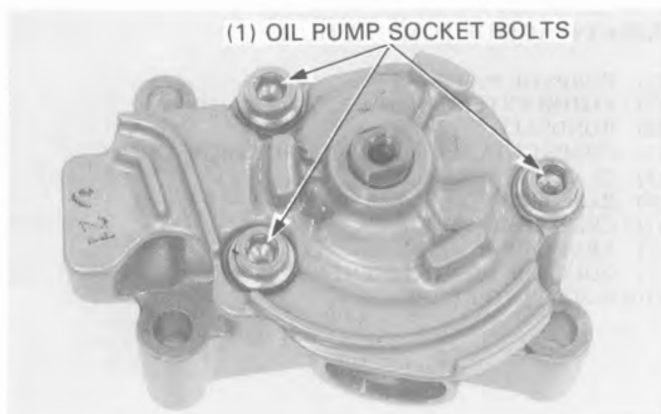


Install the dowel pin and new gasket.

Install the oil pump cover to the pump body.



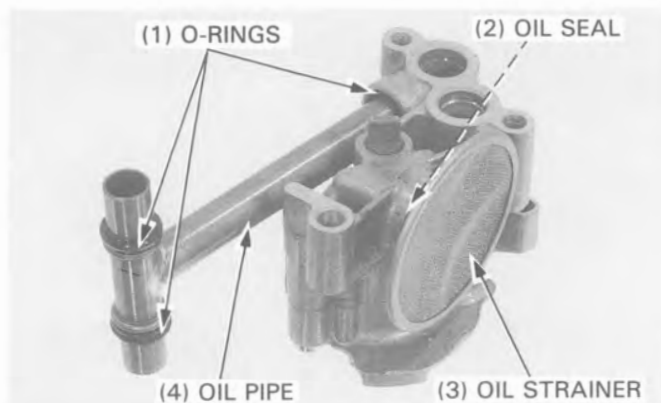
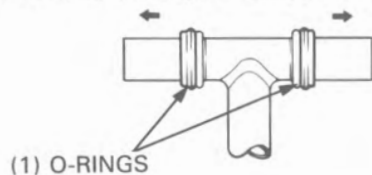
Tighten the oil pump socket bolts securely.



Install the O-rings, oil seal, oil strainer and oil pipe to the oil pump.

NOTE

- Install the O-rings to the oil pipe with the tapered side facing out as shown, or the engine will be damaged.

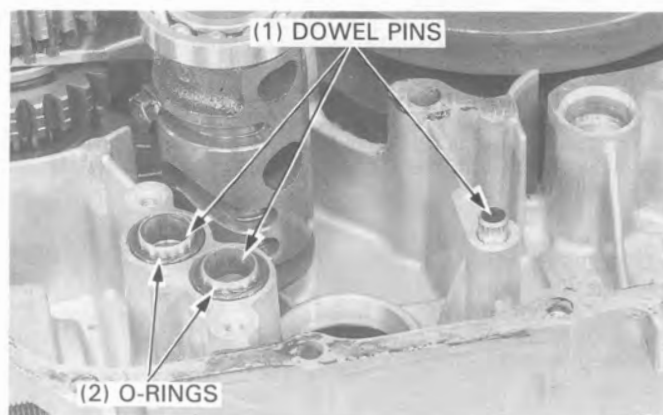


LUBRICATION

OIL PUMP INSTALLATION

Install the dowel pins and new O-rings.

Install the oil pump as an assembly.



PRESSURE RELIEF VALVE INSTALLATION

Install the pressure relief valve to the oil pump.



Install the pressure relief valve cover.
Assemble the crankcase (Section 11).



LUBRICATION POINTS

Use general purpose grease when not specified here.

Apply oil or grease to the other sliding surfaces and cables not shown here.

CONTROL CABLE LUBRICATION

Periodically disconnect the throttle and clutch cables at their upper ends. Clean the cable end mount in the throttle and clutch lever, then oil the cable ends and reinstall.

If a cable begins to bind, it must be replaced.

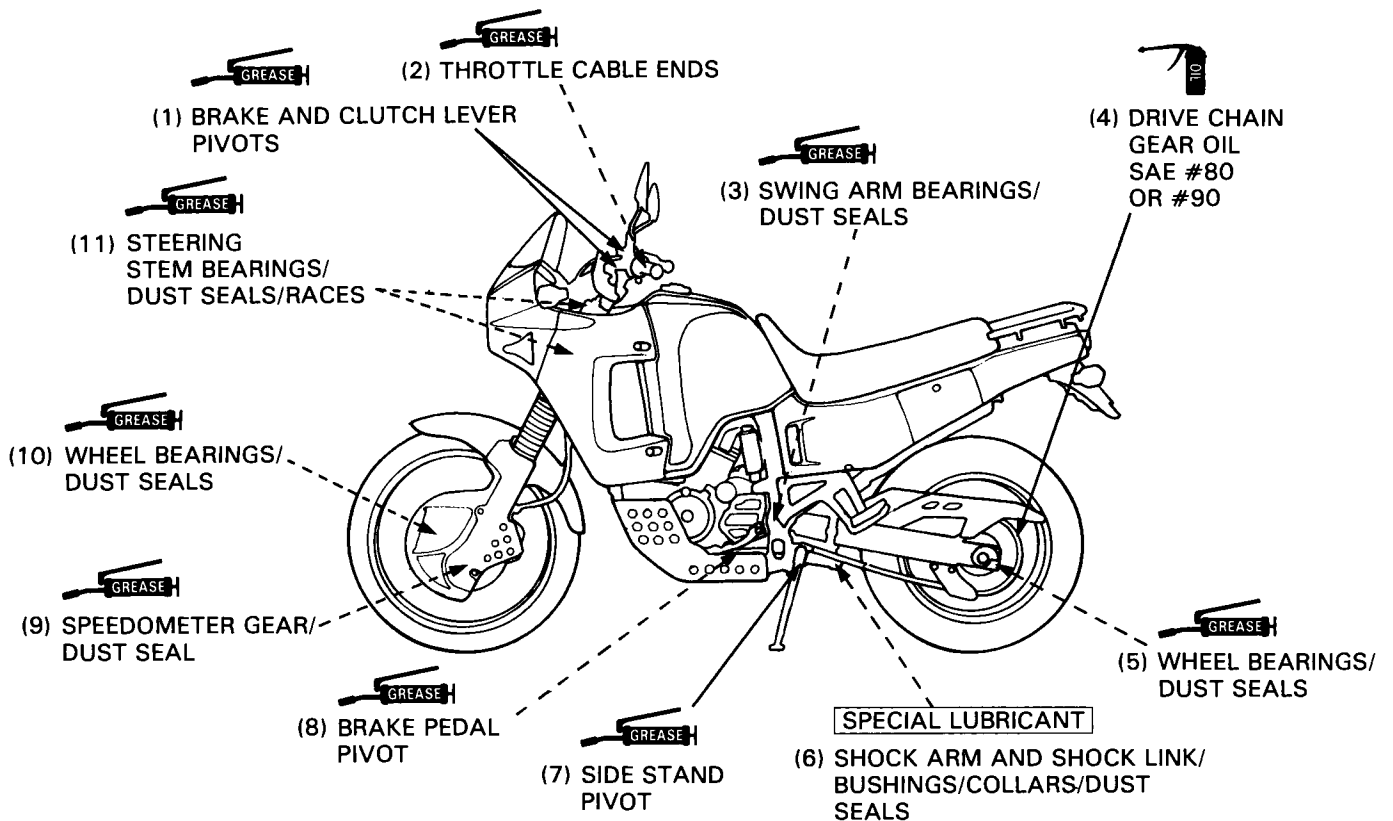
Apply a paste grease with 40% or more molybdenum disulfide to the **SPECIAL LUBRICANT** mark components.

NOTE

Some source of MoS₂ paste grease with 40% or more molybdenum are:

- Molykote® G-n Paste manufactured by Dow Corning, U.S.A.
- Honda Moly 45 (U.S.A. only)
- Rocol ASP manufactured by Rocol Limited, U.K.
- Rocol Paste manufactured by Sumico Lubricant, Japan.

Any other manufacturer's paste grease equivalent to the above may also be used.



MAINTENANCE

ENTRETIEN

WARTUNG

SERVICE INFORMATION	3-1	<CHASSIS>	
MAINTENANCE SCHEDULE	3-3	DRIVE CHAIN	3-10
<ENGINE>		DRIVE CHAIN SLIDER	3-11
FUEL LINE	3-4	BATTERY	3-12
FUEL STRAINER SCREEN	3-4	BRAKE FLUID	3-12
THROTTLE OPERATION	3-4	BRAKE PAD WEAR	3-13
CARBURETOR CHOKE	3-5	BRAKE SYSTEM	3-13
AIR CLEANER	3-5	BRAKE LIGHT SWITCH	3-14
CRANKCASE BREATHER	3-6	HEADLIGHT AIM	3-14
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VALVE CLEARANCE	3-6	SIDE STAND	3-15
CARBURETOR SYNCHRONIZATION	3-8	SUSPENSION	3-15
CARBURETOR IDLE SPEED	3-8	NUTS, BOLTS, FASTENERS	3-16
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COOLING SYSTEM	3-9	STEERING HEAD BEARINGS	3-16
CYLINDER COMPRESSION	3-9		

SERVICE INFORMATION

GENERAL

- Engine oil
- Engine oil filter replacement

See page 2-3

See page 2-4

SPECIFICATIONS

<<ENGINE>>

Spark plug

	NGK	ND
Standard	DPR8EA-9	X24EPR-U9
For cold climate (below 5°C/41°F)	DPR7EA-9	X22EPR-U9
For extended high speed driving	DPR9EA-9	X27EPR-U9

Spark plug gap

0.8—0.9 mm (0.031—0.035 in)

Valve clearance IN
(COLD) EX

0.15 ± 0.02 mm (0.006 ± 0.001 in)

0.20 ± 0.02 mm (0.008 ± 0.001 in)

Idle speed

1,200 ± 100 min⁻¹ (rpm)

Cylinder compression

1,275 ± 196 kPa (13.0 ± 2.0 kg/cm², 185 ± 28 psi)

Throttle grip free play

2—6 mm (1/16—1/4 in)

<<CHASSIS>>

Clutch lever free play

10—20 mm (3/8—3/4 in)

Drive chain slack

35—45 mm (1-3/8—1-3/4 in)

Chain slider wear service limit

3 mm (1/8 in)

Chain slipper wear service limit

5 mm (3/16 in)

MAINTENANCE

Tires

		Front	Rear
Tire size		90/90—21 54S	130/90—17 68S
Cold tire pressures	Drive only	200 kPa (2.00 kg/cm ² , 28 psi)	200 kPa (2.00 kg/cm ² , 28 psi)
	Driver and one passenger	200 kPa (2.00 kg/cm ² , 28 psi)	200 kPa (2.00 kg/cm ² , 28 psi)
Minimum thread depth		1.5 mm (0.06 in)	2.0 mm (0.08 in)

TORQUE VALUES

Rear axle nut	95 N·m (9.5 kg-m, 69 ft-lb)
Fuel cup	4 N·m (0.4 kg-m, 2.9 ft-lb)
Valve adjusting screw lock nut	23 N·m (2.3 kg-m, 17 ft-lb)
Spark plug	14 N·m (1.4 kg-m, 10 ft-lb)
Spokes (from/rear)	4 N·m (0.4 kg-m, 2.9 ft-lb)
Timing hole cap	3.5 N·m (0.35 kg-m, 2.5 ft-lb)
Crankshaft hole cap	15 N·m (1.5 kg-m, 11 ft-lb)

TOOLS

Special

Valve adjusting wrench	07908—KE90000
Vacuum gauge	07404—0030000

Common

Valve adjusting wrench, 10 x 12 mm	07708—0030200
Spoke nipple wrench C, 5.8 x 6.1 mm	07701—0020300

MAINTENANCE SCHEDULE

Perform the Pre-ride Inspection at each scheduled maintenance period.

I: Inspect and Clean, Adjust, Lubricate or Replace if necessary

C: Clean R: Replace A: Adjust L: Lubricate

ITEM		FREQUENCY	WHICHEVER COMES FIRST ↓	→ x 1,000 km x 1,000 mi MONTHS	ODOMETER READINGS (NOTE 1)							REFER TO PAGE
					1	6	12	18	24	30	36	
					0.6	4	8	12	16	20	24	
					EVERY	6	12	18	24	30	36	
*	FUEL LINE					I		I		I	3-4	
*	FUEL STRAINER SCREEN				C	C	C	C	C	C	3-4	
*	THROTTLE OPERATION					I		I		I	3-4	
*	CARBURETOR CHOKE					I		I		I	3-5	
	AIR CLEANER	(NOTE 2)					R			R	3-5	
	CRANKCASE BREATHER	(NOTE 3)			C	C	C	C	C	C	3-6	
	SPARK PLUG				I	R	I	R	I	R	3-6	
*	VALVE CLEARANCE			I		I		I		I	3-6	
	ENGINE OIL			R		R		R		R	2-3	
	ENGINE OIL FILTER			R		R		R		R	2-3	
*	CARBURETOR SYNCHRONIZATION			I		I		I		I	3-8	
*	CARBURETOR IDLE SPEED			I	I	I	I	I	I	I	3-8	
	RADIATOR COOLANT	(NOTE 5)				I		I		R	3-9	
*	COOLING SYSTEM					I		I		I	3-9	
	DRIVE CHAIN	(NOTE 4)		I, L EVERY 1,000 km (600 mi)							3-10	
	DRIVE CHAIN SLIDER				I	I	I	I	I	I	3-11	
	BATTERY				I	I	I	I	I	I	3-12	
	BRAKE FLUID	(NOTE 5)			I	I	R	I	I	R	3-12	
	BRAKE PADS WEAR				I	I	I	I	I	I	3-13	
	BRAKE SYSTEM			I		I		I		I	3-13	
*	BRAKE LIGHT SWITCH					I		I		I	3-14	
*	HEADLIGHT AIM					I		I		I	3-14	
	CLUTCH SYSTEM			I	I	I	I	I	I	I	3-14	
	SIDE STAND					I		I		I	3-15	
*	SUSPENSION					I		I		I	3-15	
*	NUTS, BOLTS, FASTENERS	(NOTE 4)		I		I		I		I	3-16	
**	WHEELS/TIRES	(NOTE 4)		I	I	I	I	I	I	I	3-16	
**	STEERING HEAD BEARINGS			I		I		I		I	3-16	

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

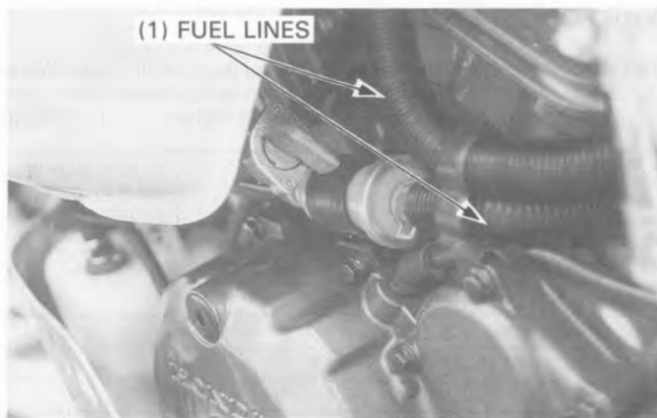
** In the interest of safety, we recommend these items be serviced ONLY by an authorized HONDA dealer.

NOTES:

- At higher odometer readings, repeat at the frequency interval established here.
- Service more frequently when riding in unusually wet or dusty areas.
- Service more frequently when riding in rain or at full throttle.
- Service more frequently when riding OFF-ROAD.
- Replace every 2 years, or at indicated odometer interval, whichever comes first. Replacement requires mechanical skill.

FUEL LINE

Check the fuel line and vacuum line, and replace any parts which show deterioration, damage or leakage.



THROTTLE OPERATION

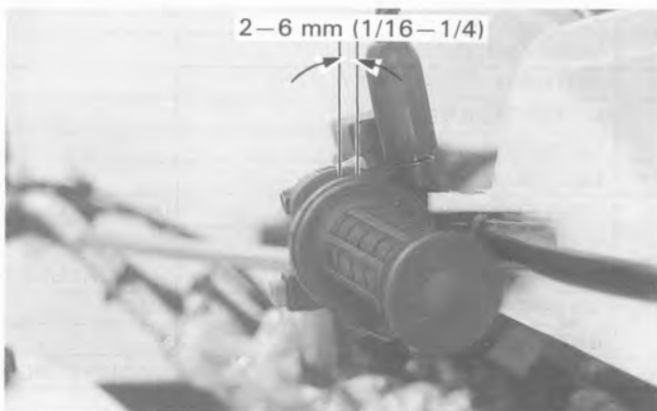
Check for smooth throttle grip full opening and automatic full closing in all steering positions.

Check the throttle cables and replace them if they are deteriorated, kinked or damaged.

Lubricate the throttle cables, if throttle operation is not smooth.

Measure throttle grip free play at the throttle grip flange.

FREE PLAY: 2–6 mm (1/16–1/4 in)

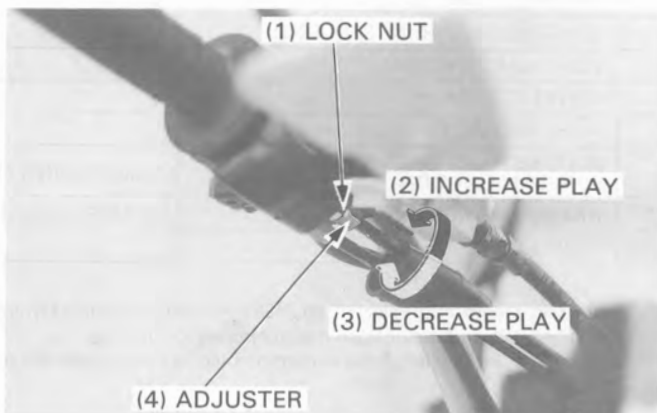


Minor adjustments are made with the upper throttle cable adjuster.

Slide the dust cover off the adjuster.

Adjust the free play by loosening the lock nut and turning the adjuster.

Tighten the lock nut.

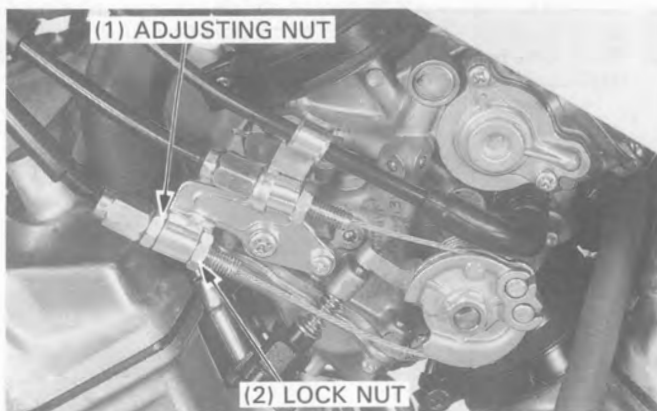


Major adjustments are made with the lower adjuster.

Remove the fuel tank (page 4-3).

Adjust the free play by loosening the lock nut and turning the adjusting nut. Tighten the lock nuts.

Recheck throttle operation. Replace any damaged parts, if necessary.



CARBURETOR CHOKE

Check that the choke lever moves smoothly.
Lubricate the choke cable, if the operation is not smooth.



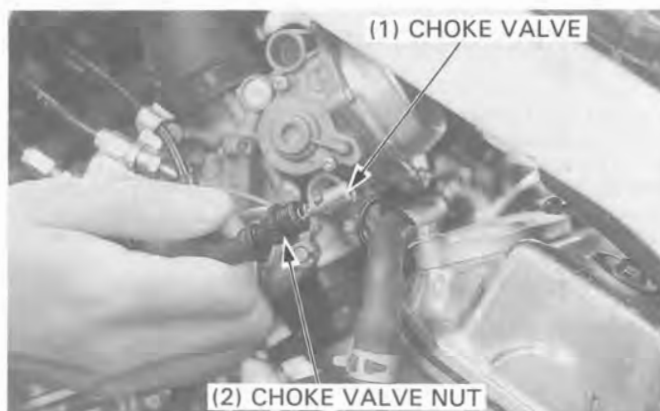
Remove the fuel tank (page 4-3).

Loosen the choke valve nut and remove the choke valve from the carburetor.

Pull the choke lever on the handlebar all the way back to fully open position and check for smooth operation of the choke lever.

There should be no free play.

Check the valve seat on the choke valve for damage. Reinstall the choke valve in the reverse order of removal.



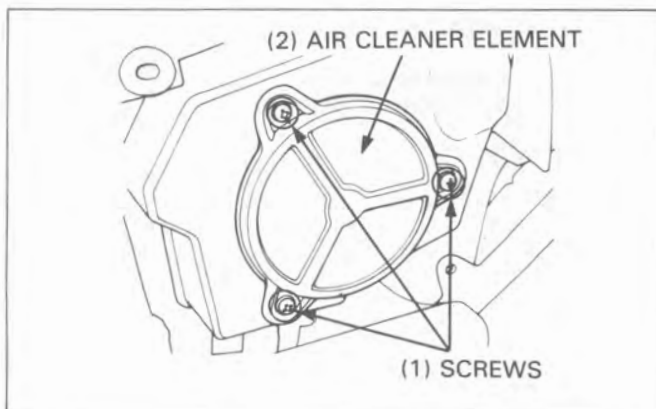
AIR CLEANER

Remove the left side cover.

Remove the air cleaner element screws and the element.

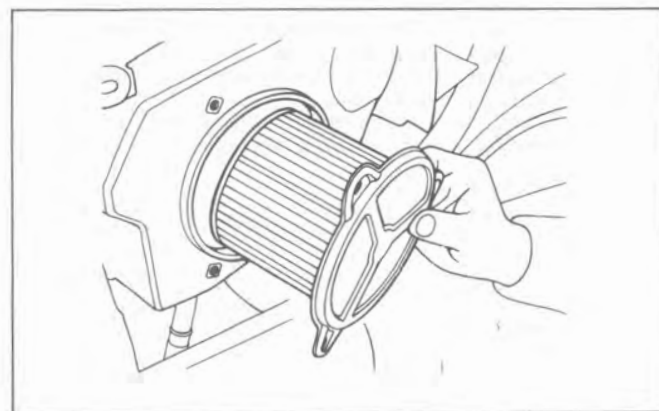
Replace the element in accordance with the maintenance schedule.

Also, replace the element any time it is excessively dirty or damaged.



Install the air cleaner element.

Install the parts in the reverse order of removal.



CRANKCASE BREATHER

Open the drain tube end of the air cleaner case to empty any deposits.

When you could see any deposits to the transparent part of the drain tube, remove the plug from the drain tube to empty them.

Install the drain plug.

NOTE

- Service more frequently when ridden in rain or at full throttle or if the deposit level can be seen in the transparent parts of the drain tube.



SPARK PLUGS

Disconnect the spark plug cap and remove the spark plug.

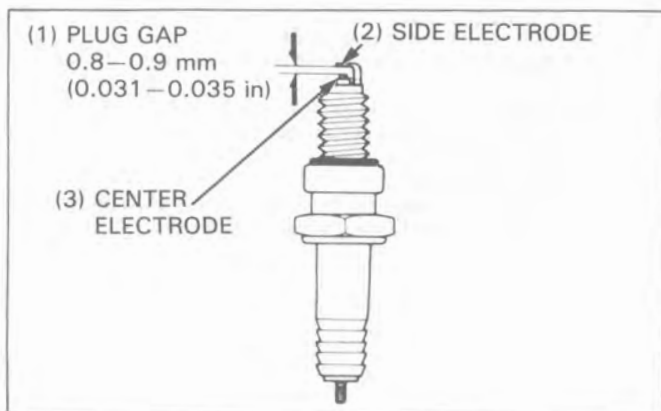
Visually inspect the spark plug. Discard it if the insulator is cracked or chipped.

Measure the spark plug gap with a wire-type feeler gauge. Adjust the gap by bending the side electrode carefully.

SPARK PLUG GAP: 0.8–0.9 mm (0.031–0.035 in)

RECOMMENDED SPARK PLUG:

	NGK	ND
Standard	DPR8EA-9	X24EPR-U9
For cold climate (below 5°C/41°F)	DPR7EA-9	X22EPR-U9
For extended high speed driving	DPR9EA-9	X27EPR-U9



Make sure the sealing washer is in good condition.

Install the spark plug, tighten it by hand, then use a spark plug wrench for the final tightening.

TORQUE: 14 N·m (1.4 kg·m, 10 ft·lb)

VALVE CLEARANCE

NOTE

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

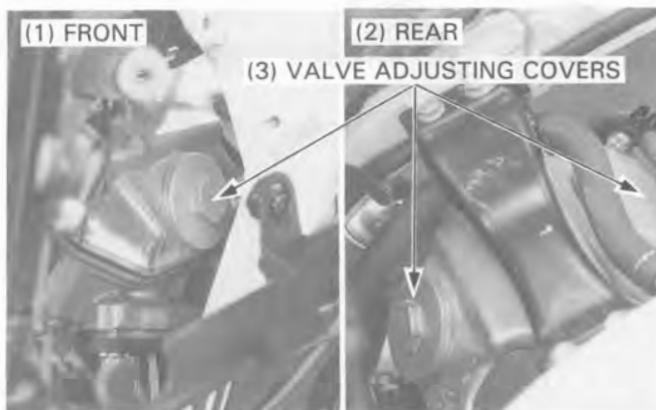
Remove the fuel tank (page 4-3).

Remove the air duct.

Remove the radiator mounting bolts and free the radiator (page 5-5).

Remove the crankshaft and timing mark hole caps.

Remove the valve adjusting covers of the cylinder head covers.



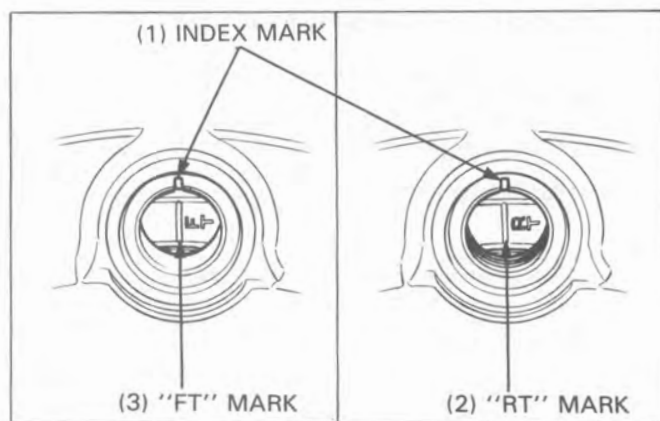
MAINTENANCE

For the inspection and adjustment of the front cylinder head valve clearance, rotate the flywheel counterclockwise to align the "FT" mark with the index notch on the left crankcase cover.

Make sure the piston is at TDC (Top Dead Center) on the compression stroke.

NOTE

- After the inspection and adjustment of the front cylinder head valve clearance, for them of the rear cylinder head valve clearance, rotate the flywheel counterclockwise to align the "RT" mark with the index notch on the left crankcase cover. Make sure the piston is at TDC (Top Dead Center) on the compression stroke.

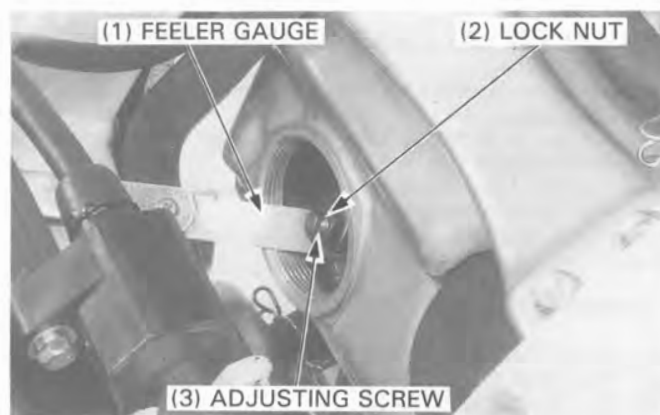


Inspect the clearance of all three valves by inserting a feeler gauge between the adjusting screw and the valve.

VALVE CLEARANCES:

Intake: 0.15 ± 0.02 mm (0.006 ± 0.001 in)

Exhaust: 0.20 ± 0.02 mm (0.008 ± 0.001 in)



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

Hold the adjusting screw and tighten the lock nut.

TORQUE: 23 N·m (2.3 kg-m, 17 ft-lb)

TOOLS:

Valve adjusting wrench 07908—KE90000

Valve adjusting wrench, 10 x 12 mm 07708—0030200



Check the O-rings of the valve adjusting covers (IN/EX) for damage and replace if necessary.

Install the front and rear valve adjusting covers.

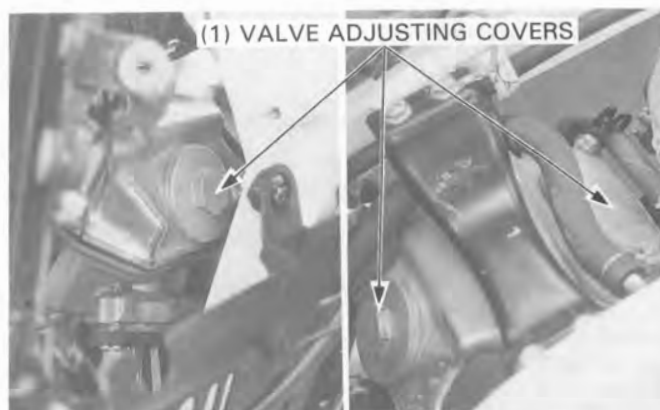
Apply MoS₂ paste grease (page 2-10) to the timing and crankcase hole caps, install and tighten them.

TORQUE:

Timing hole cap: 3.5 N·m (0.35 kg-m, 2.5 ft-lb)

Crankshaft hole cap: 15 N·m (1.5 kg-m, 11 ft-lb)

Install the removed parts in the reverse order of removal.



CARBURETOR SYNCHRONIZATION

NOTE

- Perform this maintenance with the engine at normal operating temperature.

Remove the fuel tank (page 4-3).

Move the fuel tank on the frame.
Connect the fuel line to the fuel tank.

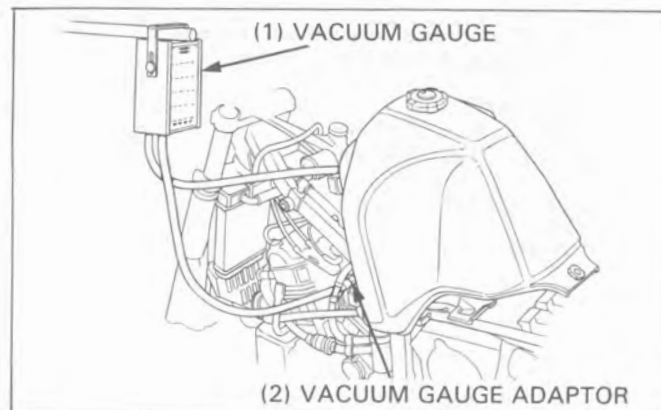
Remove the plugs from the cylinder head intake ports and install the vacuum gauge adaptors.
Connect the vacuum gauge.

TOOL:

Vacuum gauge 07404-0030000

Warm up the engine and adjust the idle speed with the throttle stop screw.

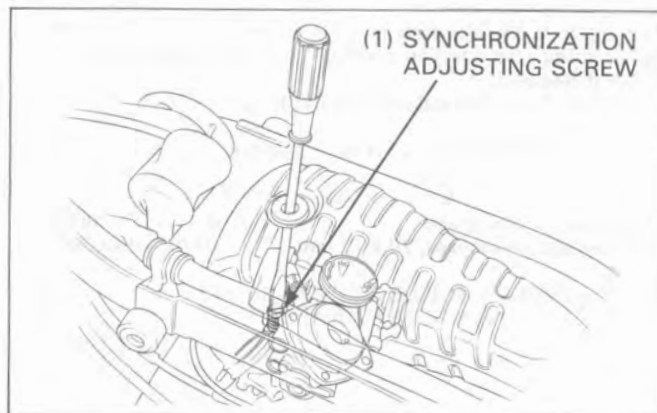
IDLE SPEED: $1,200 \pm 100 \text{ min}^{-1} \text{ (rpm)}$



Check that the difference in vacuum readings is 40 mm (1.6 in) Hg or less.

Synchronize to the specification by turning the synchronization adjusting screw through the hole in the air duct.

Recheck the idle speed and synchronization.
Remove the vacuum gauge adaptors and install the plugs.



CARBURETOR IDLE SPEED

NOTE

- Inspect and adjust idle speed after all other engine adjustments are within specifications.
- The engine must be warm for accurate adjustment. Ten minutes of stop-and-go riding is sufficient.

Warm up the engine, shift to NEUTRAL, and place the motorcycle on its side stand.
Turn the throttle stop screw as required to obtain the specified idle speed.

IDLE SPEED: $1,200 \pm 100 \text{ min}^{-1} \text{ (rpm)}$



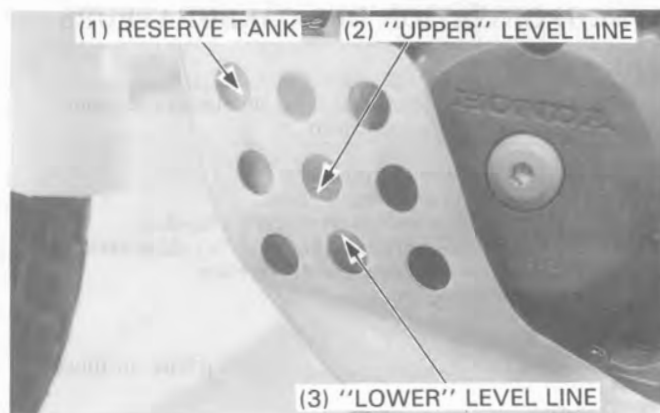
RADIATOR COOLANT

Check the coolant level of the reserve tank with the engine running at normal operating temperature.

The level should be between the "UPPER" and "LOWER" level lines.

If necessary, remove the reserve tank cap and fill up to the "UPPER" level line with 50/50 mixture of distilled water and antifreeze.

Reinstall the cap.



COOLING SYSTEM

Check the radiator cores for clogging and radiator fins for bending.

Straighten bent fins and collapsed core tubes.

Remove insects, mud or any obstruction with compressed air or low-pressure water.

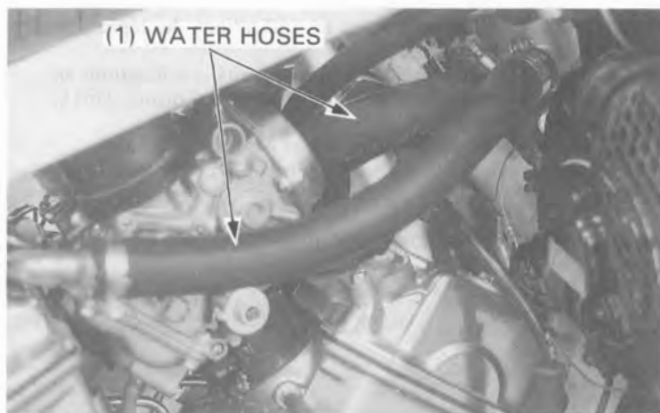
Replace the radiator if the air flow is restricted over more than 20% of the radiating surface.



Remove the fuel tank (page 4-3).

Inspect the water hoses for cracks or deterioration, and replace if necessary.

Check the tightness of all hose clamps.



CYLINDER COMPRESSION

Warm up the engine.

Stop the engine and remove the spark plug.

Connect a compression gauge.

Turn the engine stop switch OFF.

Open the throttle grip fully. Crank the engine with the starter motor until the gauge stops rising.

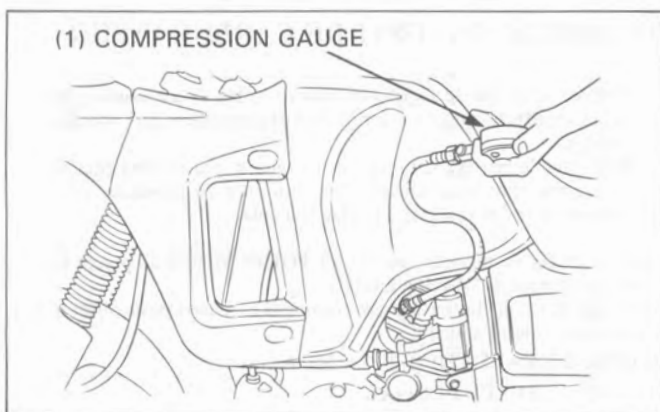
Check the gauge reading.

NOTE

- Check that there is no leakage at the gauge connection.

COMPRESSION:

1,275 ± 196 kPa (13.0 ± 2.0 kg/cm, 185 ± 28 psi)



MAINTENANCE

Low compression can be caused by:

- Improper valve clearance adjustment
- Valve leakage
- Leaking cylinder head gasket
- Worn piston rings or cylinder

High compression can be caused by:

- Carbon deposits in the combustion chamber or on the piston head.

DRIVE CHAIN

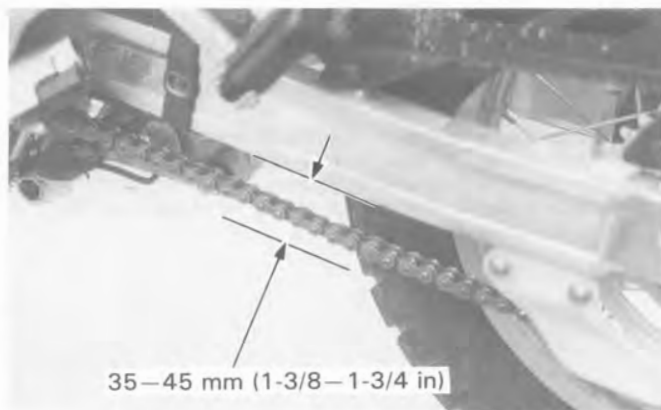
DRIVE CHAIN SLACK INSPECTION

⚠ WARNING

- *Never inspect or adjust the drive chain while the engine is running.*

Turn the ignition switch off, place the motorcycle on its side stand and shift the transmission into neutral. Check slack in the drive chain lower run midway between the sprockets.

SLACK: 35–45 mm (1-3/8–1-3/4 in)



DRIVE CHAIN ADJUSTMENT

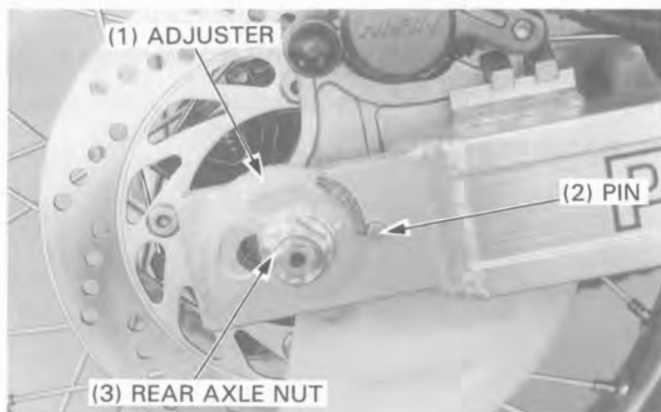
Raise the rear wheel off the ground by placing a support under the engine and loosen the rear axle nut.

Turn both right and left adjusters equally to increase or decrease chain slack.

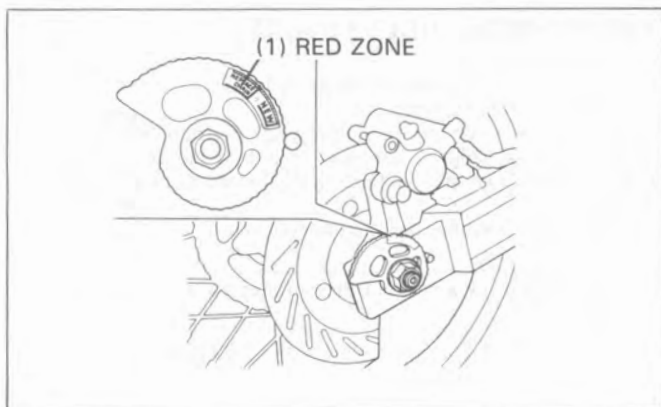
After adjusting, be sure the same adjuster index marks align with the pins on both sides of the swingarm.

Tighten the rear axle nut.

TORQUE: 95 N·m (9.5 kg-m, 69 ft-lb)



Check the chain wear label. If the red zone on the label aligns with the pin on the swingarm after the chain has been adjusted, the chain must be replaced.



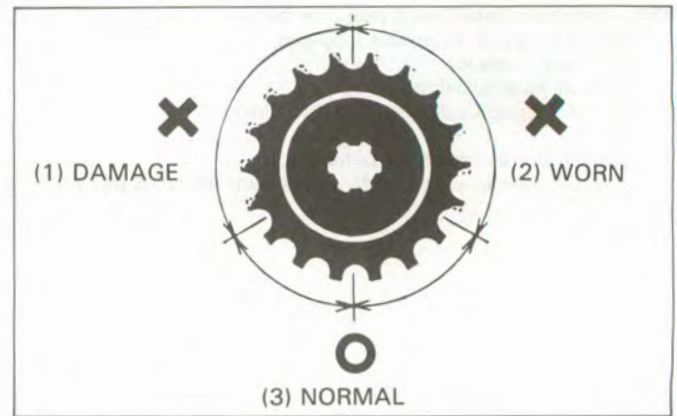
MAINTENANCE

DRIVE AND DRIVEN SPROCKET

Inspect the sprocket teeth for excessive wear or damage.
Replace if necessary.

NOTE

- Never install a new drive chain on worn sprockets or a worn chain on new sprockets. Both chain and sprockets must be in good condition, or the new replacement parts will wear rapidly.



DRIVE CHAIN INSPECTION

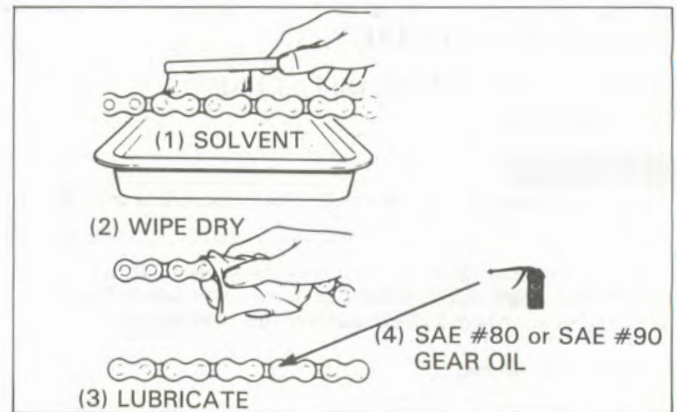
Clean the drive chain with a non-flammable or high flash point solvent that will not damage the O-rings and wipe dry.

CAUTION

- Do not use steam cleaner light pressure washers or aerosol chain lubricants as these will damage the O-rings. Do not use commercial aerosol chain lubricants. They contain solvents which could damage the O-rings.

Inspect the drive chain and O-rings for possible wear or damage.
Replace the chain if it is worn excessively or damaged.

Lubricate the drive chain with SAE #80 or #90 gear oil.



DRIVE CHAIN SLIDER

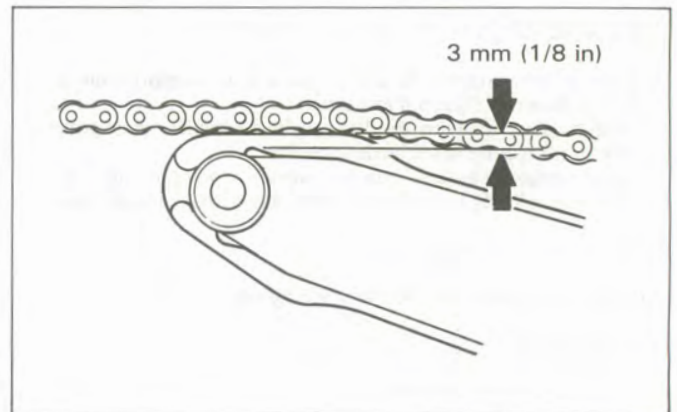
Check the chain slider for wear or damage.

Replace the drive chain slider if the thickness exceeds the service limit.

SERVICE LIMIT: 3 mm (1/8 in)

CAUTION

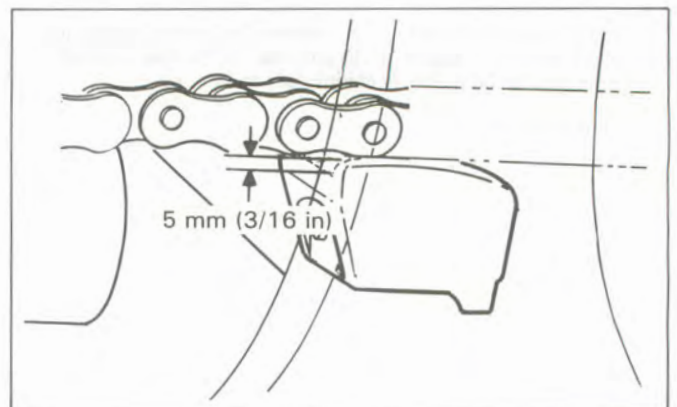
- If the chain slider becomes worn down through to the swingarm, the chain will wear against the swingarm.



CHAIN SLIPPER

Inspect the chain slipper and replace it if the depth of the chain groove leaves less material than specified.

SERVICE LIMIT: 5 mm (3/16 in)



BATTERY

Remove the right side cover and inspect the battery fluid level. When the fluid level near the lower level, add distilled water to the upper level line as follows:

Remove the battery (page 16-3).

Remove the filler caps and add distilled water to the upper level line.

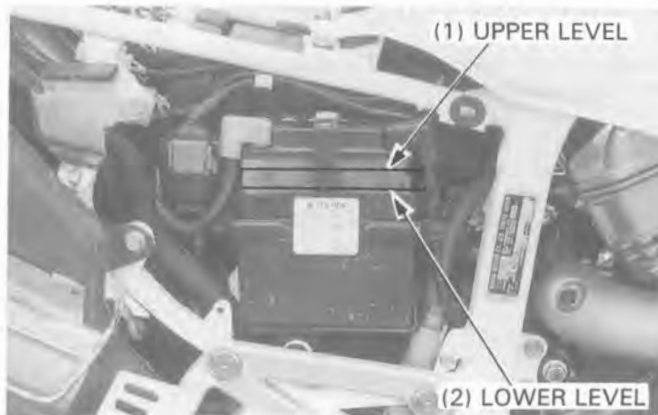
Reinstall the filler caps and the battery.

NOTE

- Add only distilled water. Tap water will shorten the service life of the battery.

⚠ WARNING

- *The battery electrolyte contains sulphuric acid. Protect your eyes, skin and clothing. If electrolyte gets in your eyes, flush them thoroughly with water and get prompt medical attention.*



BRAKE FLUID

Check the front brake fluid level with the handlebar turned so that the reservoir is level.

Check the rear brake fluid level after supporting the motorcycle upright on level ground and removing the right frame side cover.

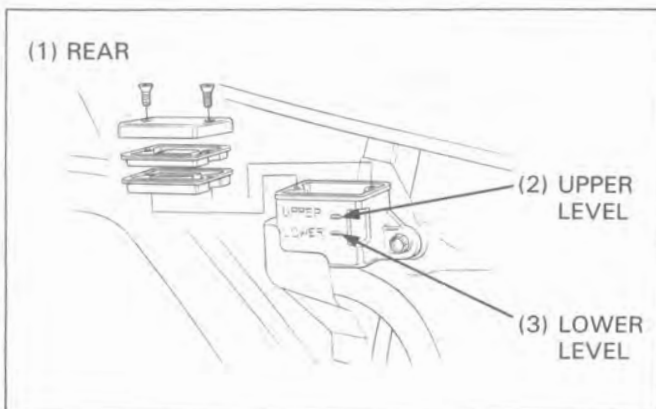
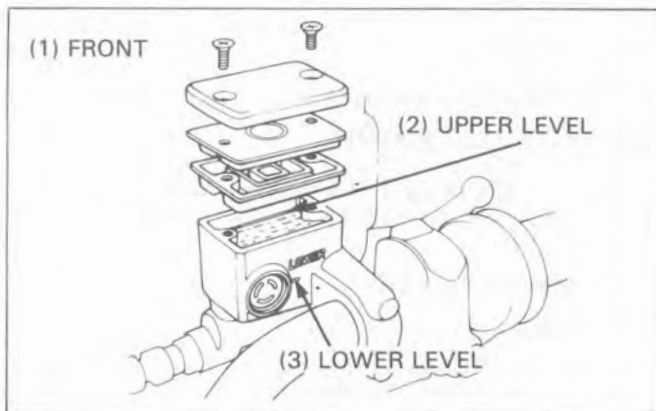
If the level nears the lower level mark, remove the reservoir cover, set plate and diaphragm. Fill the reservoir with DOT 4 brake fluid from sealed container.

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

CAUTION

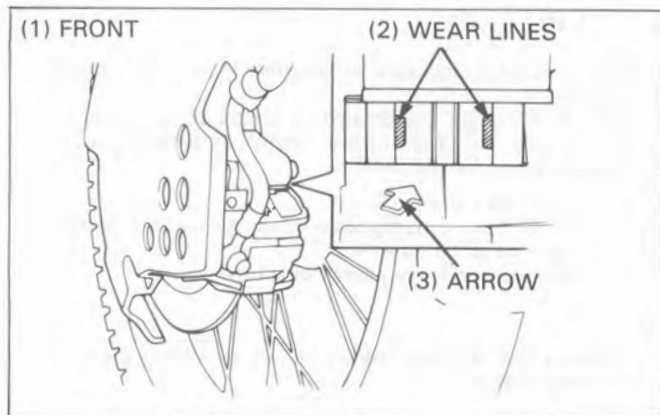
- *Be careful not to enter dust or water into the system when filling the reservoir.*
- *Avoid spilling brake fluid on painted surfaces or instrument lenses, as severe damage can result.*
- *Do not remove the cover until the handlebar has been turned so that the reservoir is level.*
- *Do not mix different types of fluid, as they are not compatible with each others.*

Refer to section 15 for brake bleeding procedures.



BRAKE PADS WEAR

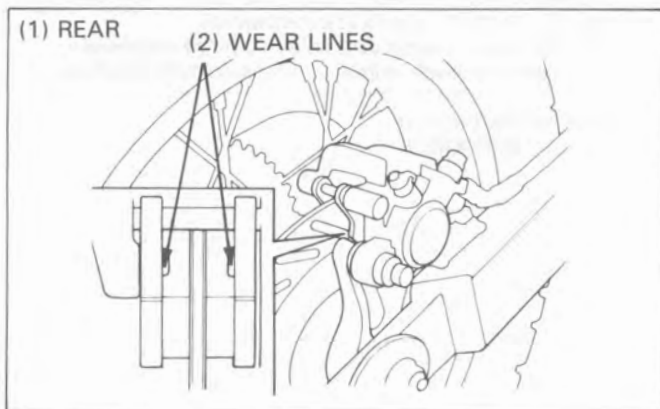
Inspect the pads visually from the direction as indicated by the arrow for the front brake, and from the rear of the brake caliper for the rear brake, during all regular service intervals to determine the pad wear.



If the pads wear to the wear lines, both pads must be replaced. Make sure there are no fluid leaks.

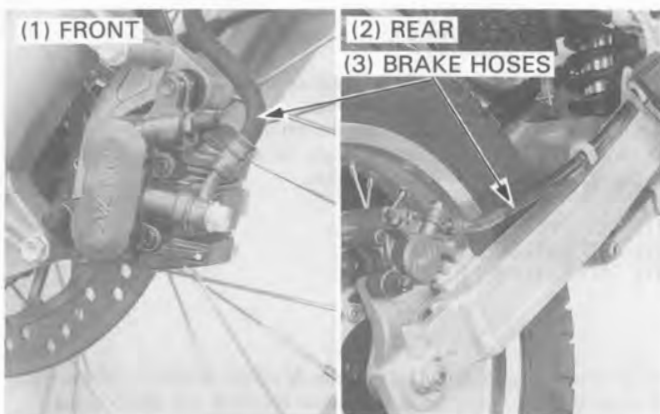
CAUTION

- Always replace the brake pads in pairs to assure even disc pressure.



BRAKE SYSTEM

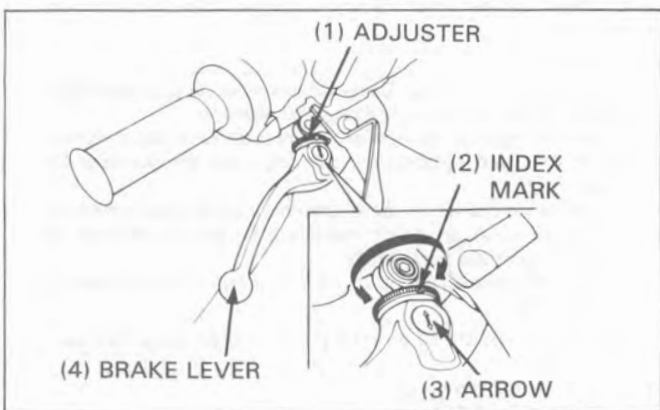
Inspect the brake hoses and fittings for deterioration, cracks and signs of leakage. Tighten any loose fittings. Replace hoses and fittings as required.



The distance between the tip of the brake lever and the grip can be adjusted by turning the adjuster.

CAUTION

- Align the arrow on the brake lever with the index mark on the adjuster.



BRAKE LIGHT SWITCH

NOTE

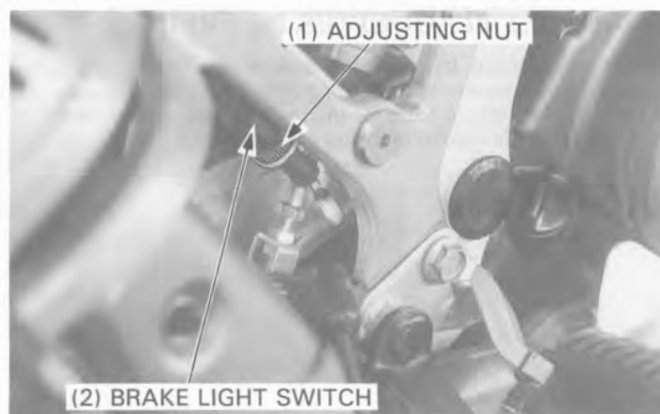
- The front brake light switch does not require adjustment.

Adjust the brake light switch so that the brake light will light when the brake pedal is depressed and the brake begins engagement.

Hold the switch body and turn the adjusting nut as required.

CAUTION

- *Do not turn the switch body.*



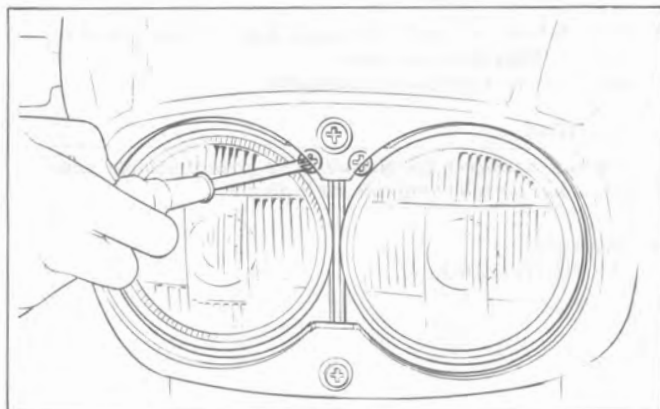
HEADLIGHT AIM

NOTE

- The adjustments can do without removing the front cowl-
ing.

Adjust horizontally by turning the adjusting screws at the front of the headlights.

Vertical adjustments are made using the wing nuts on the back of the headlights.



NOTE

- Adjust the headlight beam as specified by local laws and regulations.

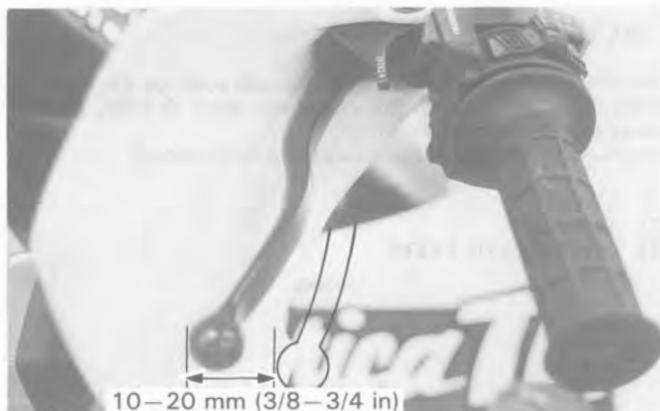
⚠ WARNING

- *An improperly adjusted headlight may blind oncoming drivers, or it may fail to light the road for a safe distance.*

CLUTCH SYSTEM

Measure the clutch free play at the lever end.

FREE PLAY: 10–20 mm (3/8–3/4 in)



Minor adjustments are made with the upper adjuster.

Pull the lever cover back, loosen the lock nut and turn the ad-
juster to obtain the specified free play.

Tighten the lock nut and install the cover.

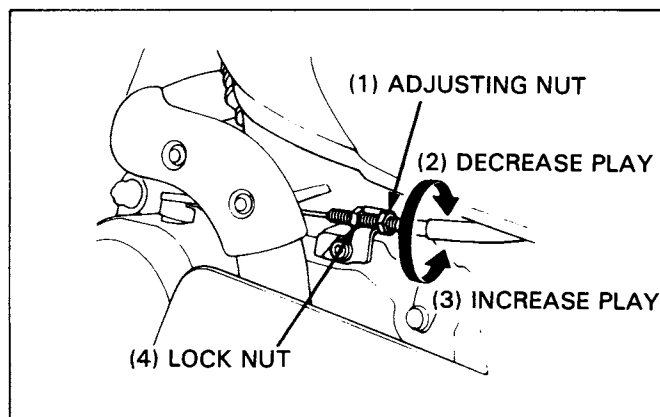
Check clutch operation.



MAINTENANCE

Major adjustments are made with the lower adjuster. Loosen the lock nut and turn the adjusting nut to obtain the specified free play.

Tighten the lock nut and check the clutch operation.



SIDE STAND

Perform the following inspections in accordance with maintenance schedule.

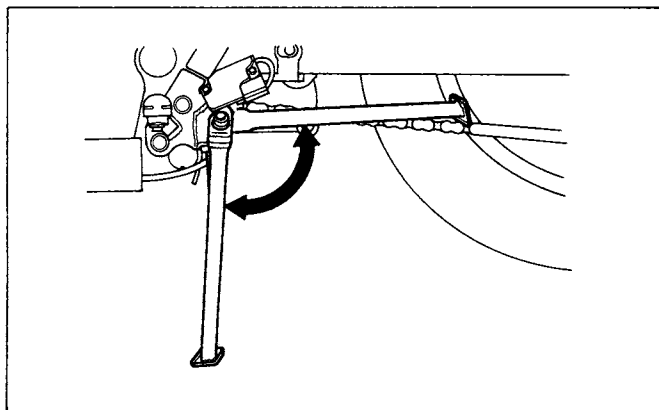
Check the spring for damage or loss of tension and the side stand assembly for freedom of movement.

Check the ignition cut-off system as follows:

1. Sit astride the motorcycle; put the side stand up and the transmission in neutral.
2. Start the engine and with the clutch pulled in, shift the transmission into gear.
3. Move the side stand fully down.
4. The engine should stop as you put the side stand down.

NOTE

- The side stand indicator should come on when the side stand is put down and go off when it is put up.



SUSPENSION

FRONT

Check the action of the fork by compressing them several times.

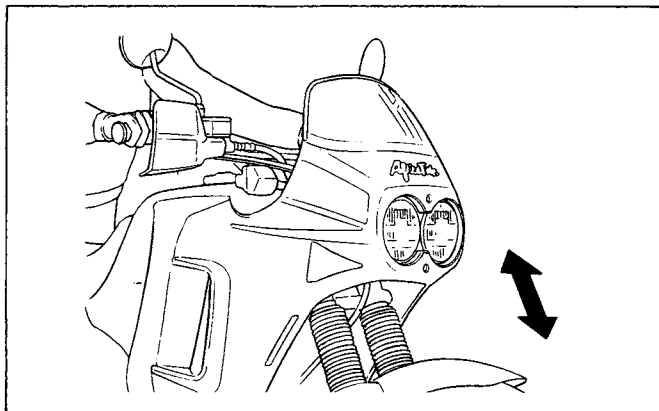
Check the entire fork leg assembly for signs of leaks or damage.

Replace any components which are unrepairable.

Tighten all nuts and bolts to the specified torque value.

⚠ WARNING

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

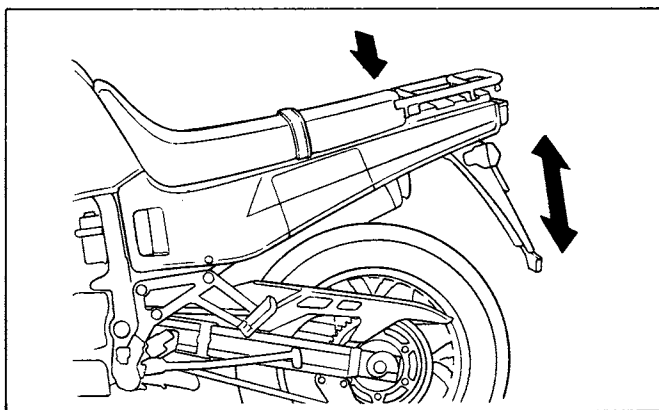


REAR

Check the action of the rear suspension components by compressing them several times.

Check the entire suspension assembly, being sure it is securely mounted and not damaged or distorted.

Tighten all nuts and bolts to the specified torque value.



NUTS, BOLTS, FASTENERS

Tighten the bolts, nuts and fasteners at the intervals shown in the Maintenance Schedule (page 3-3).
Check that all chassis nuts and bolts are tightened to their correct torque values (page 1-5 and 6).
Check all cotter pins and safety clips.

WHEELS/TIRES

TIRE PRESSURE

NOTE

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

		Front	Rear
Tire size		90/90–21 54S	130/90–17 68S
Cold tire pressures kPa (kg/cm ² , psi)	Driver only	200 (2.00, 28)	200 (2.00, 28)
	Driver and one passenger	200 (2.00, 28)	200 (2.00, 28)

Check the tires for cuts, imbedded nails, or other sharp objects.

Check the front and rear wheels for trueness (Section 13 and 14).

Measure the tread depth at the center of the tires.

Replace the tires if the tread depth reaches the following limit:

MINIMUM TREAD DEPTH:

Front: 1.5 mm (0.06 in)

Rear: 2.0 mm (0.08 in)

Tighten the wheel spokes periodically. More frequent inspection is necessary when riding off-road.

TORQUE (front/rear): 4 N·m (0.4 kg·m, 2.9 ft·lb)

TOOL:

Spoke nipple wrench C, 5.8 x 6.1 mm 07701–0020300

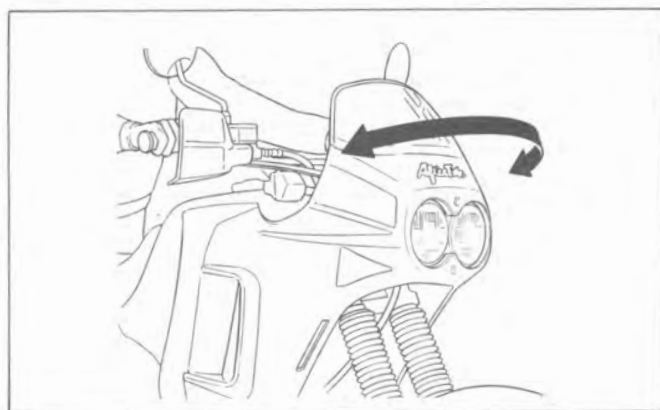
STEERING HEAD BEARINGS

NOTE

- Check that the control cables do not interfere with handlebar rotation.

Raise the front wheel off the ground.

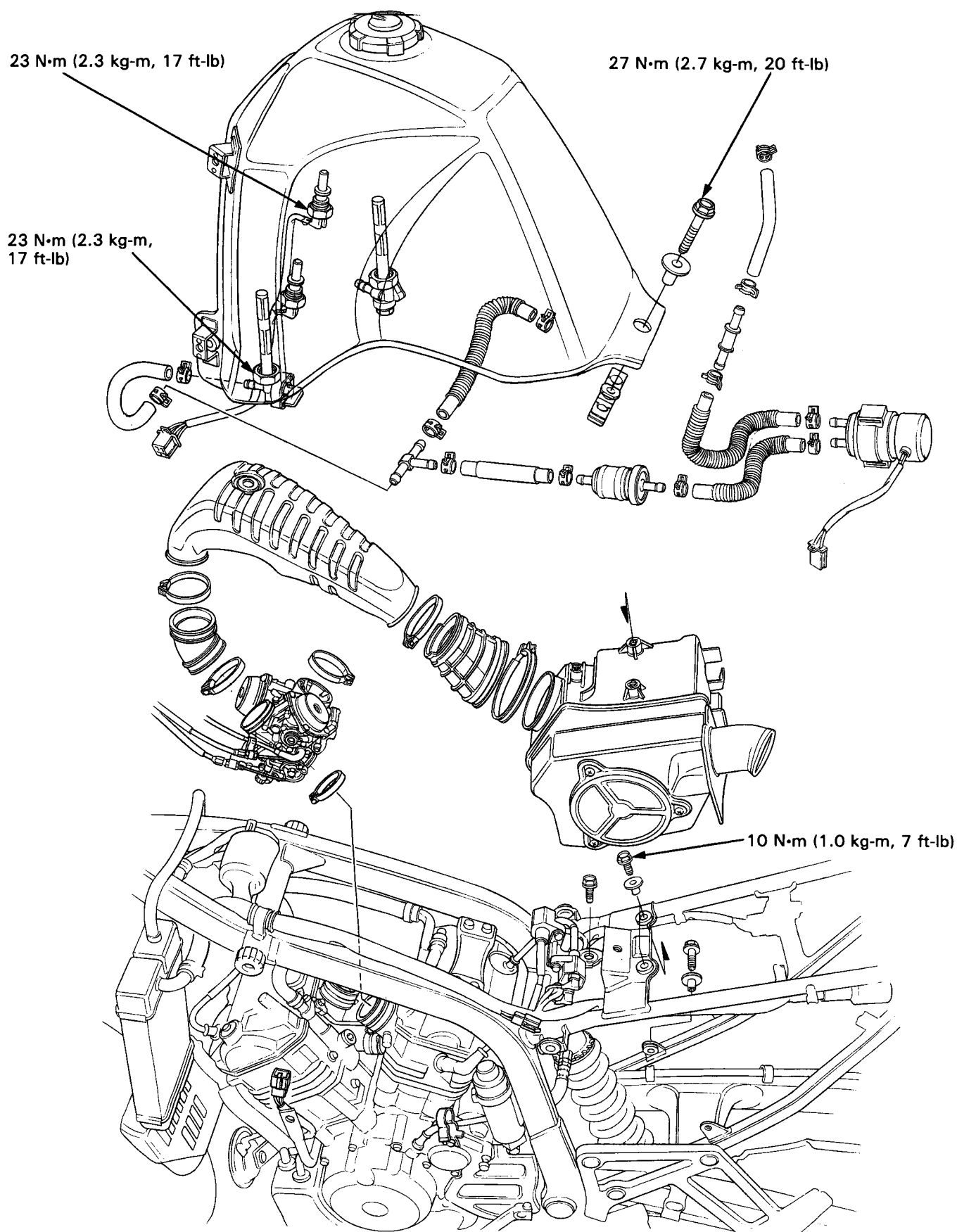
Check that the fork moves freely from side to side. If the fork moves unevenly, binds, or has vertical movement, inspect the steering head bearings (Section 13).



FUEL SYSTEM

CIRCUIT D'ALIMENTATION

KRAFTSTOFFSYSTEM



FUEL SYSTEM

SERVICE INFORMATION	4-1	FLOAT CHAMBER	4-7
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SERVICE INFORMATION

GENERAL

⚠ WARNING

- *Gasoline is extremely flammable and is explosive under certain conditions work in a well ventilated area with the engine stopped. Work in a well ventilated area. 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.*

- Refer to Section 3 for carburetor synchronization, throttle cable and choke cable adjustments.
- When disassembling fuel system parts, note the locations of the O-rings; replace them with new ones on reassembly.
- The carburetor float chambers have drain screws that can be loosened to drain residual gasoline.

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 bowl. Fuel left in the float bowl may cause clogged jets resulting in hard starting or poor driveability.

SPECIFICATIONS

Fuel tank capacity 24 liters (6.34 US gal, 5.28 Imp gal)

[]: SW type

Throttle bore	32.0 mm	
Identification No.	VD F4B [VD FGA]	
Float level	7.0 mm (0.28 in)	
Main jet	FRONT #125	REAR #130
Slow jet	#38 [#35]	
Idle speed	1,200 ± 100 min ⁻¹ (rpm)	
Throttle grip free play	2–6 mm (1/16–1/4 in)	
Pilot screw initial opening	2-1/8 turns out [1-3/4 turns out]	
Vacuum difference between cylinders	40 mm (1.6 in) Hg max.	

TORQUE VALUES

Fuel tank mounting bolt (rear)	27 N•m (2.7 kg-m, 20 ft-lb)
Air cleaner case mounting bolt	10 N•m (1.0 kg-m, 7 ft-lb)
Fuel valve lock nut	23 N•m (2.3 kg-m, 17 ft-lb)
Fuel reserve sensor	23 N•m (2.3 kg-m, 17 ft-lb)

TOOL**Common**

Float level gauge

07401—0010000

TROUBLESHOOTING**Engine cranks but won't start**

- No fuel in tank
- No fuel to carburetor
- Air cleaner clogged
- Too much fuel getting to cylinder
- Fuel filter clogged
- Fuel tube clogged
- Incorrect float level adjustment
- Fuel cap vent blocked
- No spark at plug
 - ignition system faulty (Section 17)
- Intake air leak
- Improper throttle operation
- Faulty fuel pump

Hard starting or stalling after starting

- Improper choke operation
- Ignition system faulty (Section 17)
- Carburetor faulty
- Fuel contaminated
- Intake air leak
- Incorrect idle speed (Section 3)
- Incorrect valve clearance adjustment (Section 3)
- Incorrect carburetor synchronization (Section 3)
- Improper choke valve operation (Section 3)

Rough idle

- Ignition system faulty (Section 17)
- Incorrect idle speed (Section 3)
- Incorrect carburetor synchronization (Section 3)
- Carburetor faulty
- Fuel contaminated
- Air cleaner clogged
- Intake air leak
- Incorrect valve clearance adjustment (Section 3)

Misfiring during acceleration

- Ignition system faulty (Section 17)
- Lean mixture

Backfiring

- Ignition system faulty (Section 17)
- Lean mixture
- Faulty air cut-off valve

Lean mixture

- Fuel jets clogged
- Vacuum piston stuck closed
- Float valve faulty
- Float level too low
- Fuel cap vent blocked
- Fuel strainer screen clogged
- Restricted fuel tube
- Intake air leak
- Incorrect pilot screw adjustment

Rich mixture

- Air jets clogged
- Float valve faulty
- Float level too high
- Choke valve stuck clogged
- Dirty air cleaner element
- Incorrect pilot screw adjustment

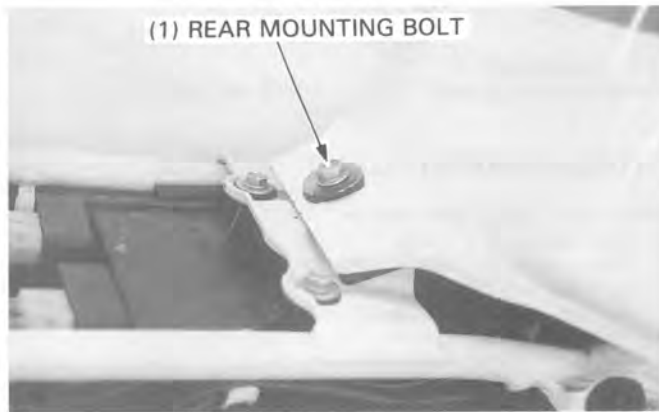
FUEL TANK

REMOVAL

⚠ WARNING

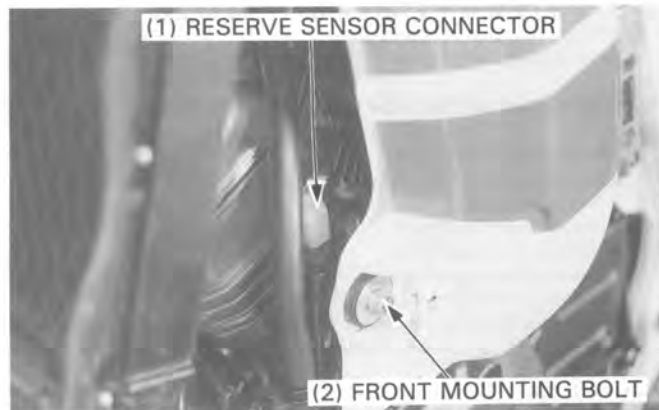
- *Keep gasoline away from flames or sparks. Wipe up spilled gasoline at once.*

Remove the frame side covers and seat (page 12-2).
Remove the rear fuel tank mounting bolt.



Remove the side cowls (page 12-2).
Remove the front fuel tank mounting bolts.
Disconnect the fuel reserve sensor connector.
Turn the fuel valves OFF, disconnect the fuel line at the T-fitting and remove the fuel tank.

Check that fuel flows out of the tank freely.
If flow is restricted, clean the fuel strainer screens.



INSTALLATION

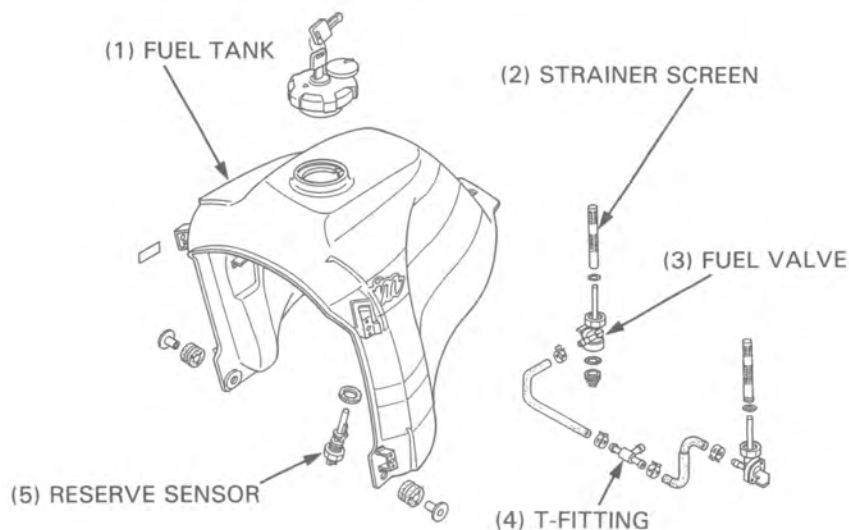
Install the fuel tank in the reverse order of removal.

TORQUE:

Fuel tank mounting bolt (rear)
27 N·m (2.7 kg-m, 20 ft-lb)

NOTE

- After assembling, make sure there are no fuel leaks.



AIR CLEANER CASE

REMOVAL

Remove the fuel tank (page 4-3).

Remove the three mounting bolts from the upper side of the air cleaner case.

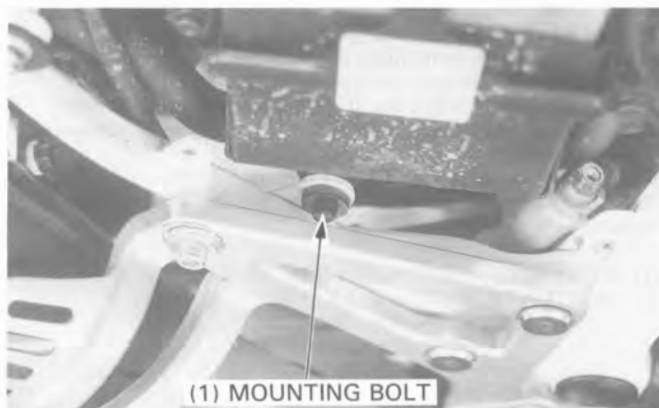
Loosen the air cleaner case connecting tube band.



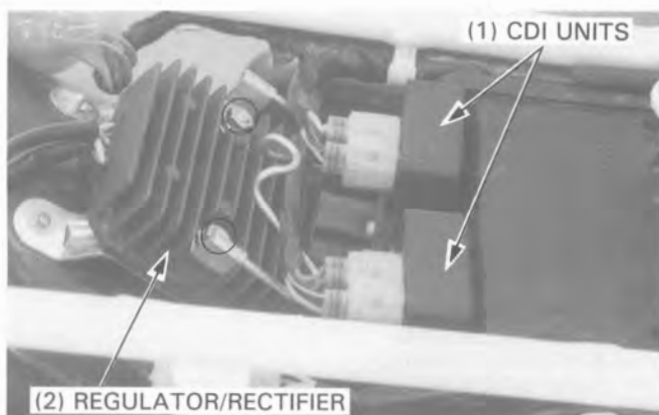
Remove the battery (page 16-3).

Remove the starter relay switch from the right side of the air cleaner case.

Remove the mounting bolt from the right side of the case.



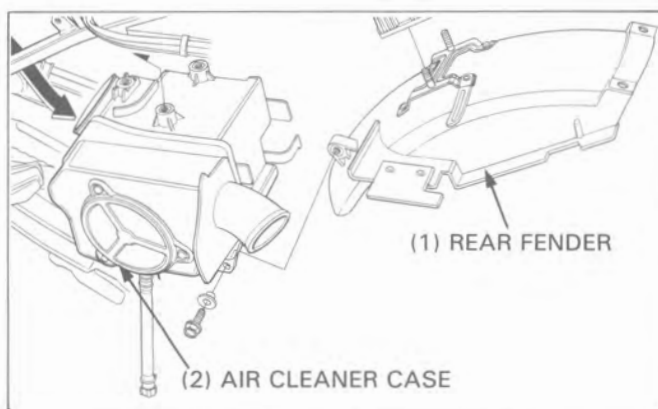
Remove the CDI units and regulator/rectifier.



Remove the rear wheel (page 14-3).

Remove the rear fender (page 12-3).

Pull air cleaner case rearwards, disconnect the breather tube and remove it from the frame.

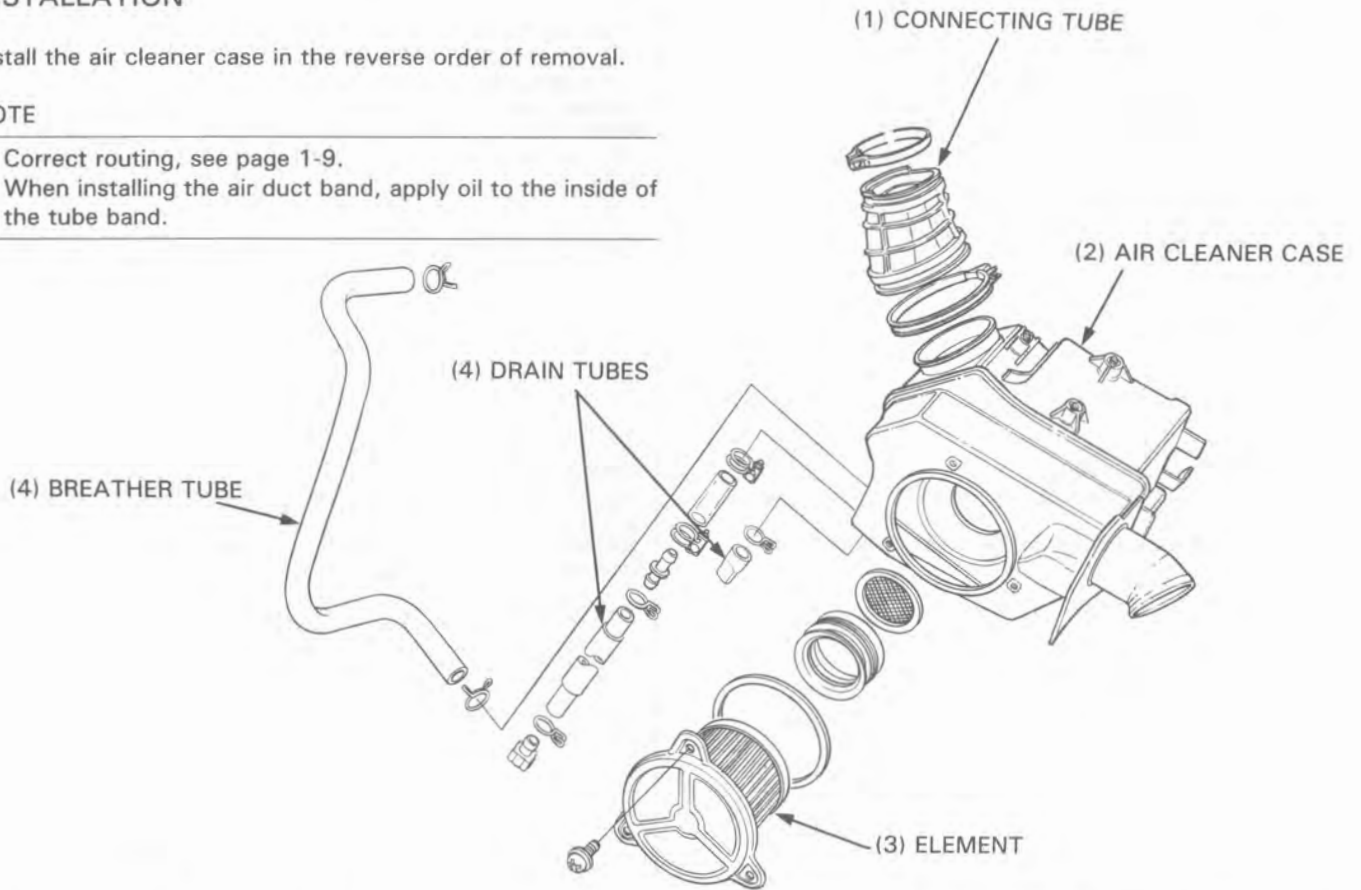


INSTALLATION

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

NOTE

- Correct routing, see page 1-9.
- When installing the air duct band, apply oil to the inside of the tube band.



CARBURETOR REMOVAL

Remove the fuel tank (page 4-3).

Remove the air duct.

Loosen the drain screws and drain the fuel into a container.

⚠ WARNING

- *Keep gasoline away from flames or sparks. Wipe up spilled gasoline at once.*

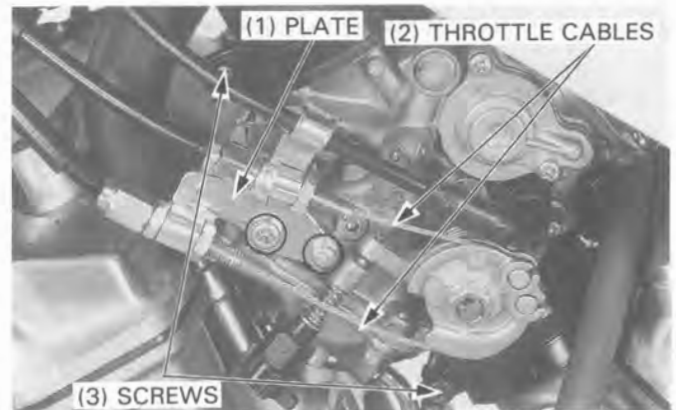
Remove the throttle cable setting plate with the two screws and disconnect the throttle cables.

Remove the choke valves from both carburetors by loosening the choke valve nuts.

Disconnect the fuel line and air vent tube from the T-fitting at the carburetor.

Loosen the carburetor insulator band screws and remove the carburetors.

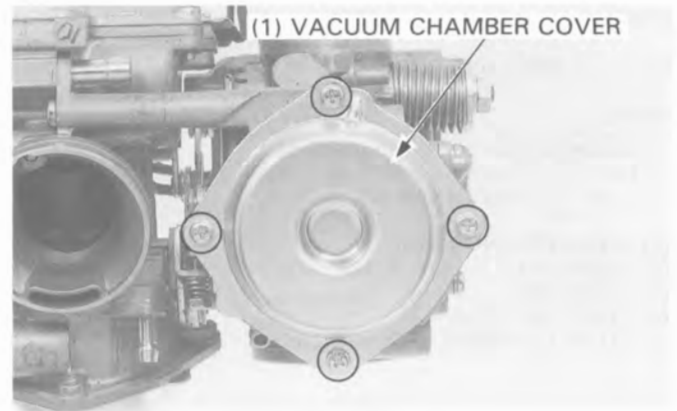
Remove the fuel tubes and air vent tubes from the carburetors.



VACUUM CHAMBER

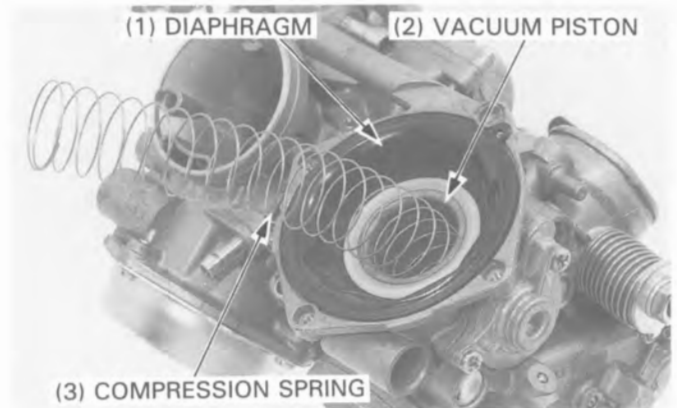
REMOVAL

Remove the four screws and vacuum chamber cover.



Remove the compression spring, diaphragm and vacuum piston.

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

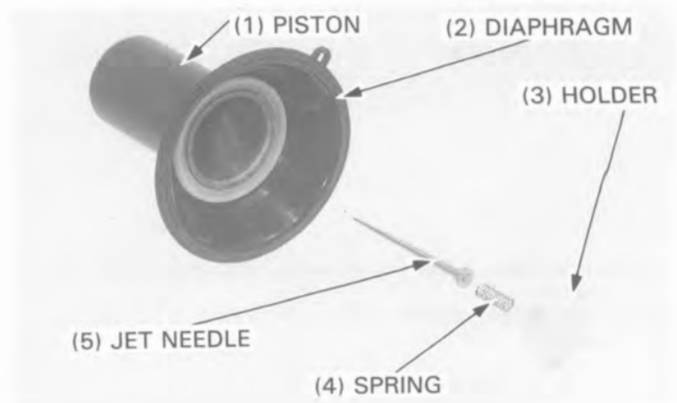


Push the needle holder in and turn it 60 degrees with an 8 mm socket. Then remove the needle holder, spring and needle from the piston.



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

Check the diaphragm for deterioration and tears.



FUEL SYSTEM

INSTALLATION

Installation is essentially the reverse order of removal but to keep from distorting the diaphragm, install the vacuum piston/diaphragm as follows:

Insert the vacuum piston, with the spring into the carburetor. Stick your finger into the carburetor bore and hold the vacuum piston in up, the full throttle position, then turn down the diaphragm so its lip fits into the carburetor groove.

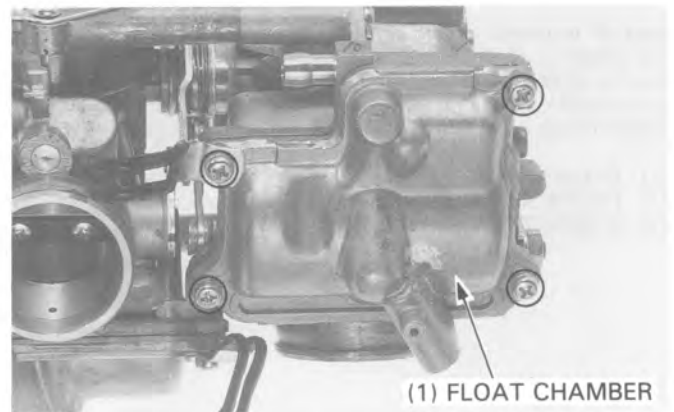
Install the vacuum chamber cover, aligning its cavity with the hole in the carburetor and secure with at least two screws before releasing the vacuum piston.



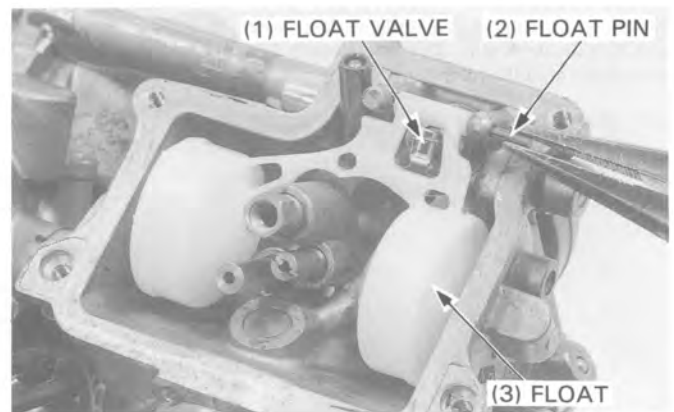
FLOAT CHAMBER

REMOVAL

Remove the four float chamber screws and the float chamber.

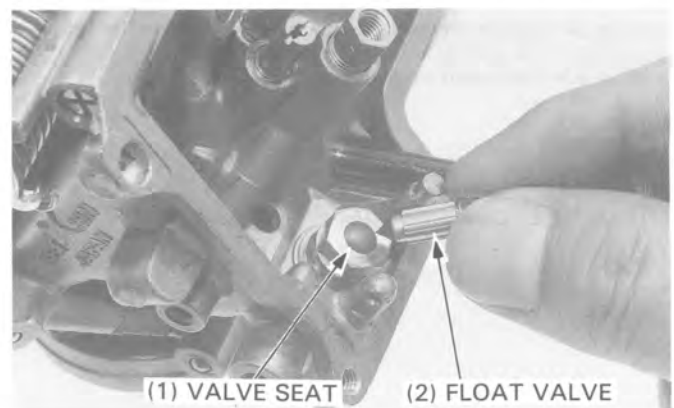


Remove the float pin, float and float valve.



Inspect the float valve for grooves or damage.

Inspect the operation of the float valve.

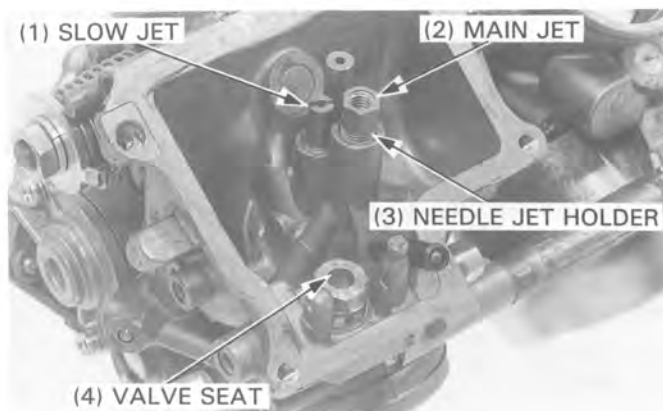


FUEL SYSTEM

Remove the main jet, needle jet holder, slow jet, valve seat and filter.

Check each part for wear or damage.
Blow open all jets with compressed air.

Clean each jets with non-flammable or high flash point solvent.

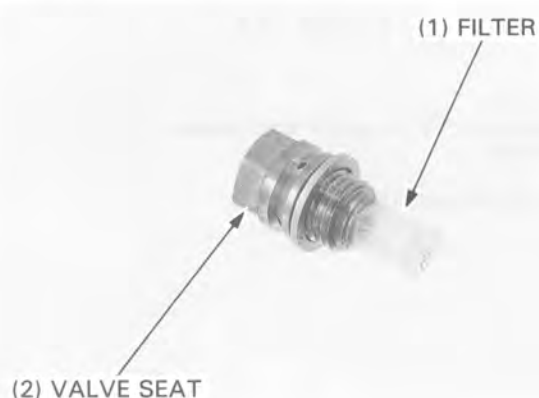


Inspect the float valve seat and filter for grooves, nicks or deposits.

Clean the filter with low-compressed air.

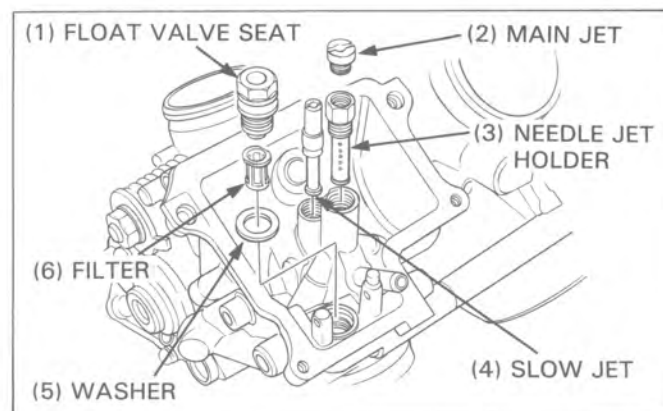
NOTE

- Do not use high-pressure air.



ASSEMBLY

Install the valve seat, slow jet, needle jet holder and main jet.



Install the float with float valve to the carburetor body and install the float arm pin through the body and float.

FLOAT LEVEL

Measure the float level with the float tang just contacting the float valve.

FLOAT LEVEL: 7.0 mm (0.28 in)

TOOL:

Float level gauge

07401-0010000

Adjust the float level by carefully bending the float tang.



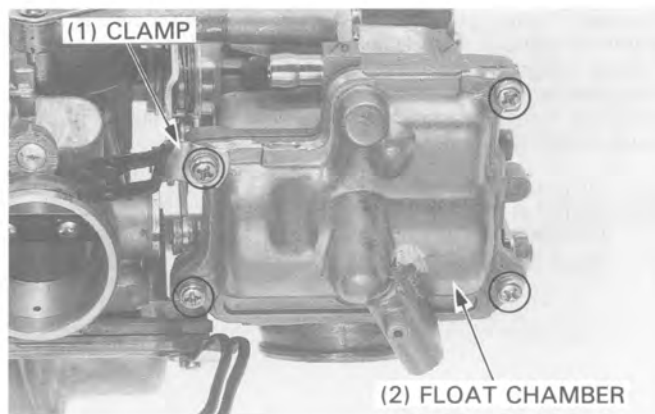
FUEL SYSTEM

Apply oil to the O-ring.

Install the float chamber and tighten the screws securely.

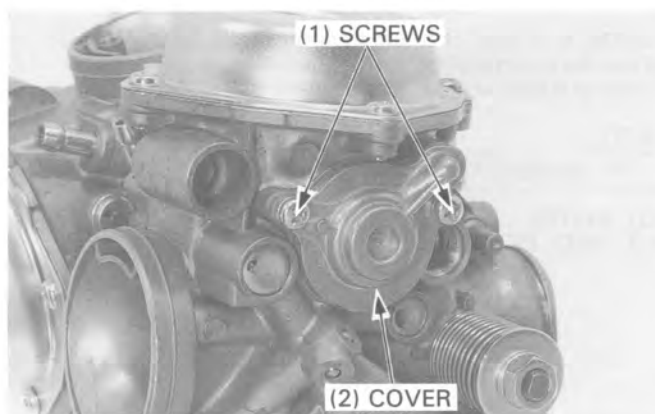
NOTE

- Install the fuel tube clamp at the correct position.

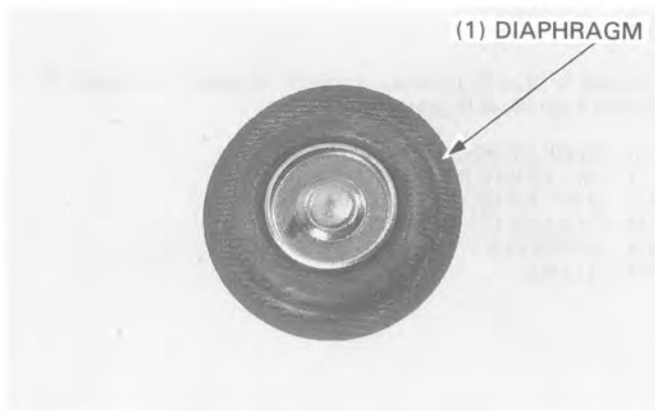


AIR CUT-OFF VALVE

Remove the two screws and air cut-off valve cover.
Remove the spring, diaphragm and O-ring.



Check the diaphragm for pin holes or other damage.

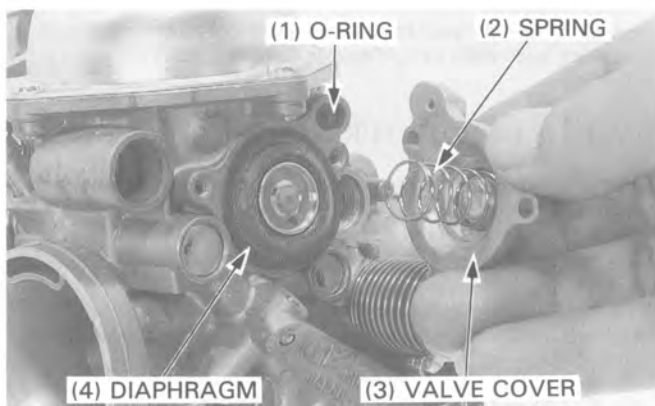


Install the diaphragm, spring, O-ring and valve cover to the carburetor body.

NOTE

- Install the O-ring with its flat side toward the carburetor body.

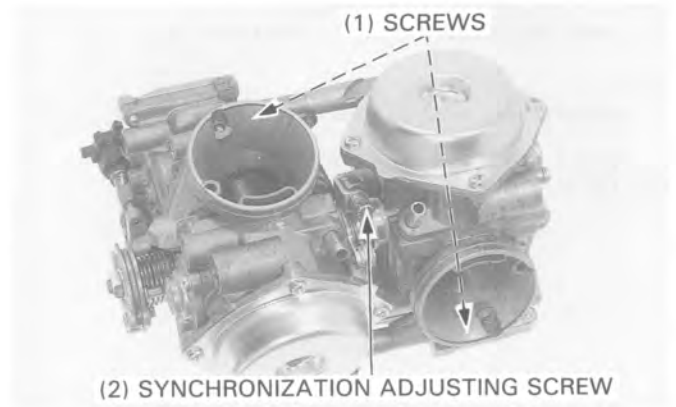
Tighten the screws securely.



CARBURETOR SEPARATION/COMBINATION

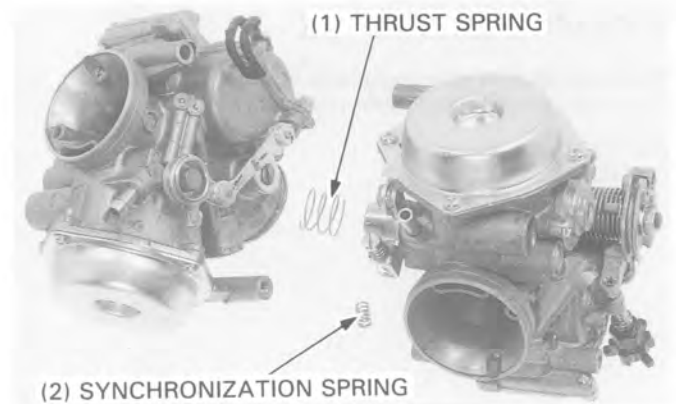
SEPARATION

Loosen the synchronization adjusting screw.
Separate the carburetors by removing two attaching screws.



Separate the carburetors.

Take care not to lose the thrust spring and synchronization adjusting spring.



CARBURETOR CLEANING

Remove all jets, valves and the pilot screw.
Blow open all carburetor openings with compressed air.

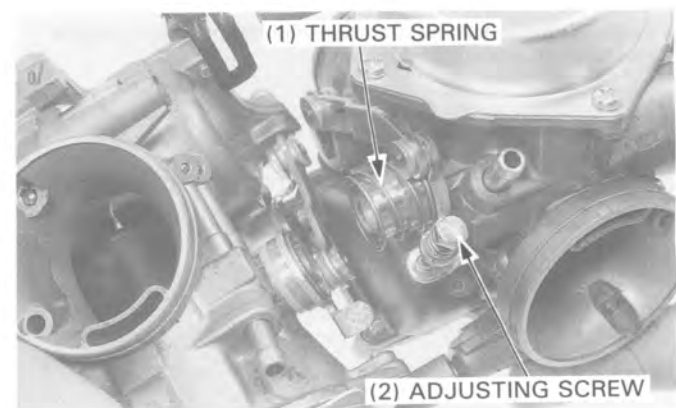


COMBINATION

Loosen the synchronization adjusting screw until there is no tension.

Install the thrust spring between the throttle links.

Secure the carburetors together with the two attaching screws.



FUEL SYSTEM

Install the synchronization spring.

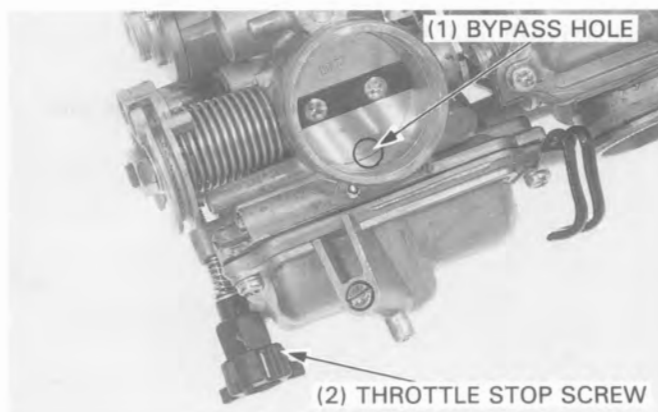


Inspect throttle operation as described below:

- Open the throttle slightly by rotating the throttle valve. Then release the throttle. Make sure that there is no drag when opening and closing the throttle.



Turn the throttle stop screw to align the left side carburetor throttle valve with the edge of the bypass hole.



Align the right side carburetor throttle valve with the bypass hole edge by turning the synchronization adjusting screw.

Make sure the throttle returns smoothly.



CARBURETOR INSTALLATION

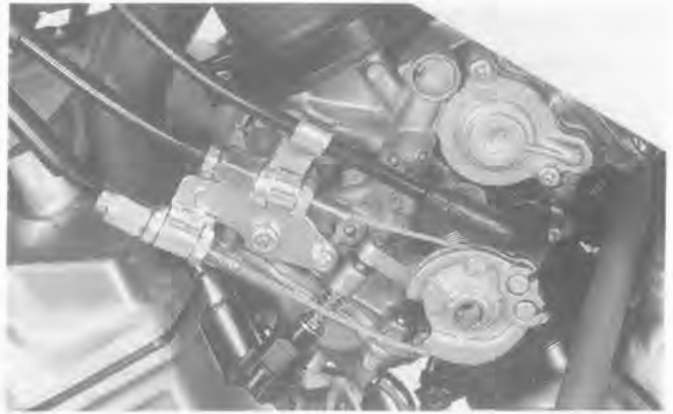
Install the carburetor in the reverse order of removal.

NOTE

- Route the throttle cables properly (page 1-9).

Perform the following inspections and adjustments.

- Throttle operation (page 3-4).
- Idle speed (page 3-8).
- Choke operation (page 3-5).
- Carburetor synchronization (page 3-8).



PILOT SCREW

REMOVAL

NOTE

- The pilot screws are factory pre-set and should not be removed unless the carburetors are overhauled.

On SW type, remove the pilot screw plug as follows:

NOTE

- The pilot screw plugs are factory installed to prevent pilot screw misadjustment. Do not remove the plugs unless the pilot screws are being removed.
- Cover all opening with tape to keep metal particles out when the plugs are drilled.

Center punch the pilot screw plug to center the drill point. Drill through the plug with a 4 mm (5/32 in) drill bit. Attach a drill stop to the bit, 3 mm (1/8 in) from the end to prevent drilling into the pilot screw.

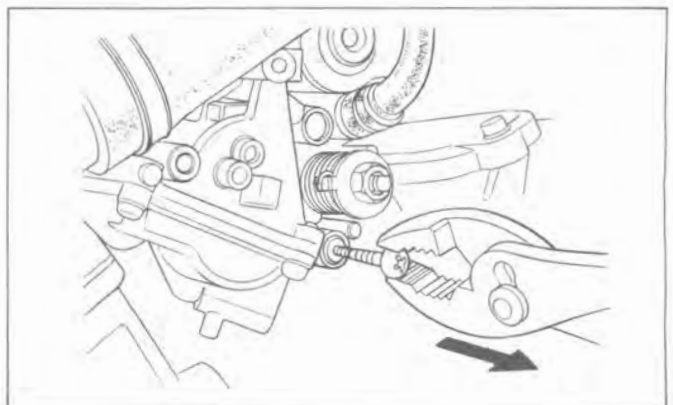
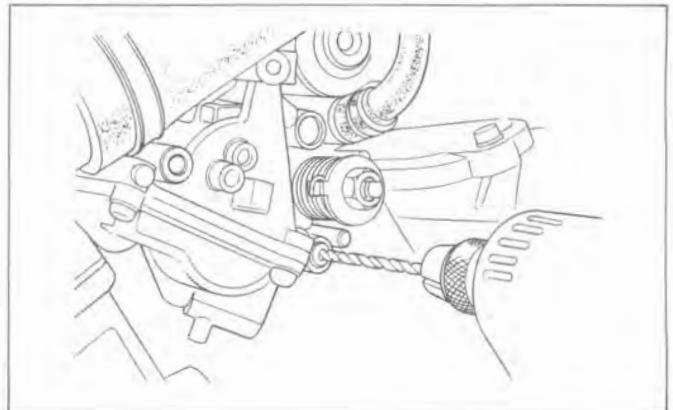
CAUTION

- *Be careful not to drill into the pilot screw.*
- *Both pilot screws must be replaced even if only one requires it, for proper pilot screw adjustment (page 4-13).*

Force a self-tapping 4 mm screw into the drilled plug and continue turning the screwdriver until the plug rotates with the screw.

Pull on the screw head with pliers to remove the plug.

Use compressed air to clean the pilot screw area and remove metal shavings.



FUEL SYSTEM

Turn each pilot screw in and carefully count the number of turns until it seats lightly. Make a note of this to use as a reference when reinstalling the pilot screws.

CAUTION

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

Remove the pilot screws and inspect them. Replace them if they are worn or damaged.

INSTALLATION

Install the pilot screw and turn it in until it seats lightly. Turn the pilot screw out the number of turns when it was removed.

CAUTION

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

Perform pilot screw adjustment if new pilot screws are installed.

NOTE

- Do not install new plugs on new pilot screw holes until after adjustment has been made (SW type only).
- If you replace the pilot screw in one carburetor, you must replace the pilot screw in the other carburetor for proper pilot screw adjustment.

ADJUSTMENT

Except SW type

Turn each pilot screw clockwise until it seats lightly and back it out to the specification below.

PILOT SCREW OPENING: 2-1/8 turns out (front/rear)

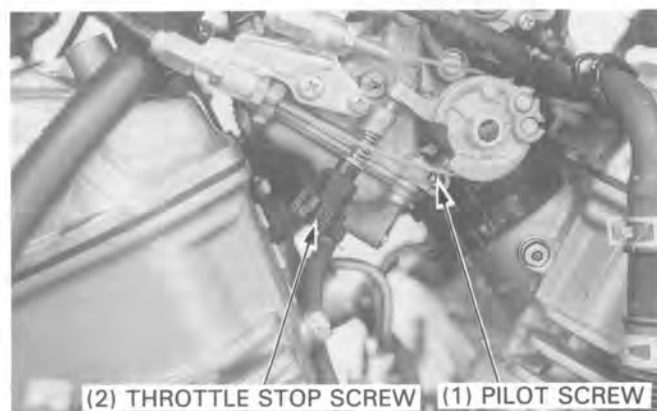
CAUTION

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

Warm up the engine to operating temperature.
Adjust the idle speed with the throttle stop screw.

IDLE SPEED: $1,200 \pm 100 \text{ min}^{-1}$ (rpm)

Turn each pilot screw in or out to obtain the highest engine speed.
Readjust the idle speed.



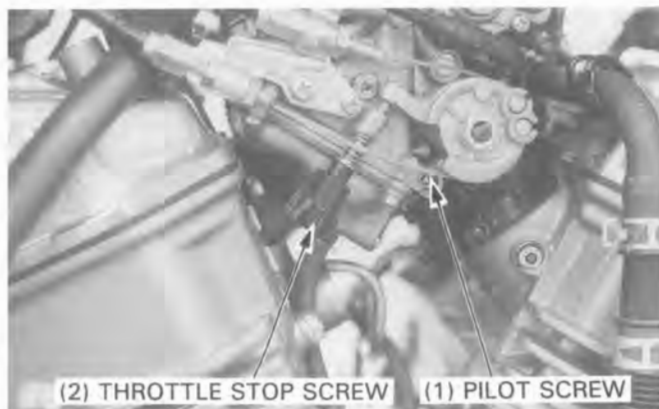
FUEL SYSTEM

IDLE DROP PROCEDURE (SW TYPE ONLY)

NOTE

- The pilot screws are factory pre-set and no adjustment is necessary unless the pilot screws are replaced.
- Use a tachometer with graduations of 50 min^{-1} (rpm) or smaller that will accurately indicate a 50 min^{-1} (rpm) change.

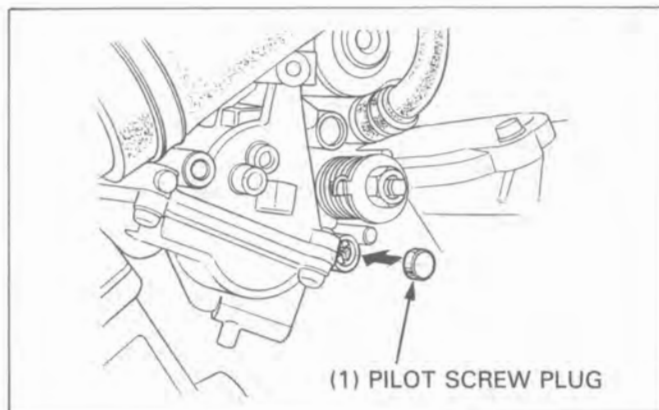
1. Turn each pilot screw clockwise until it seats lightly and back it out to the specification given.
This is an initial setting prior to the final pilot screw adjustment.



INITIAL OPENING: 1-3/4 turns out

CAUTION

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



2. Warm up the engine to operating temperature.
Stop and go driving for 10 minutes is sufficient.
3. Attach a tachometer according to the manufacturer's instructions.
4. Adjust the idle speed with the throttle stop screw.
5. Turn each pilot screw 1/2 turn out from the initial setting.
6. If the engine speed increases by 50 min^{-1} (rpm) or more, turn each pilot screw out by a continual 1/2 turn until engine speed drops by 50 min^{-1} (rpm) or less.
7. Adjust the idle speed with the throttle stop screw.
8. Turn the No. 1 carburetor pilot screw in until the engine speed drops 50 min^{-1} (rpm).
9. Turn the No. 1 carburetor pilot screw 1 turn out from the position obtained in step 8.
10. Adjust the idle speed with the throttle stop screw.
11. Perform steps 8, 9 and 10 for the No. 2 carburetor pilot screw.
12. Drive new pilot screw plugs into the pilot screw bores with a 7 mm valve guide driver (P/N 07942-8230000). When fully seated the plug surfaces will be recessed 1 mm.

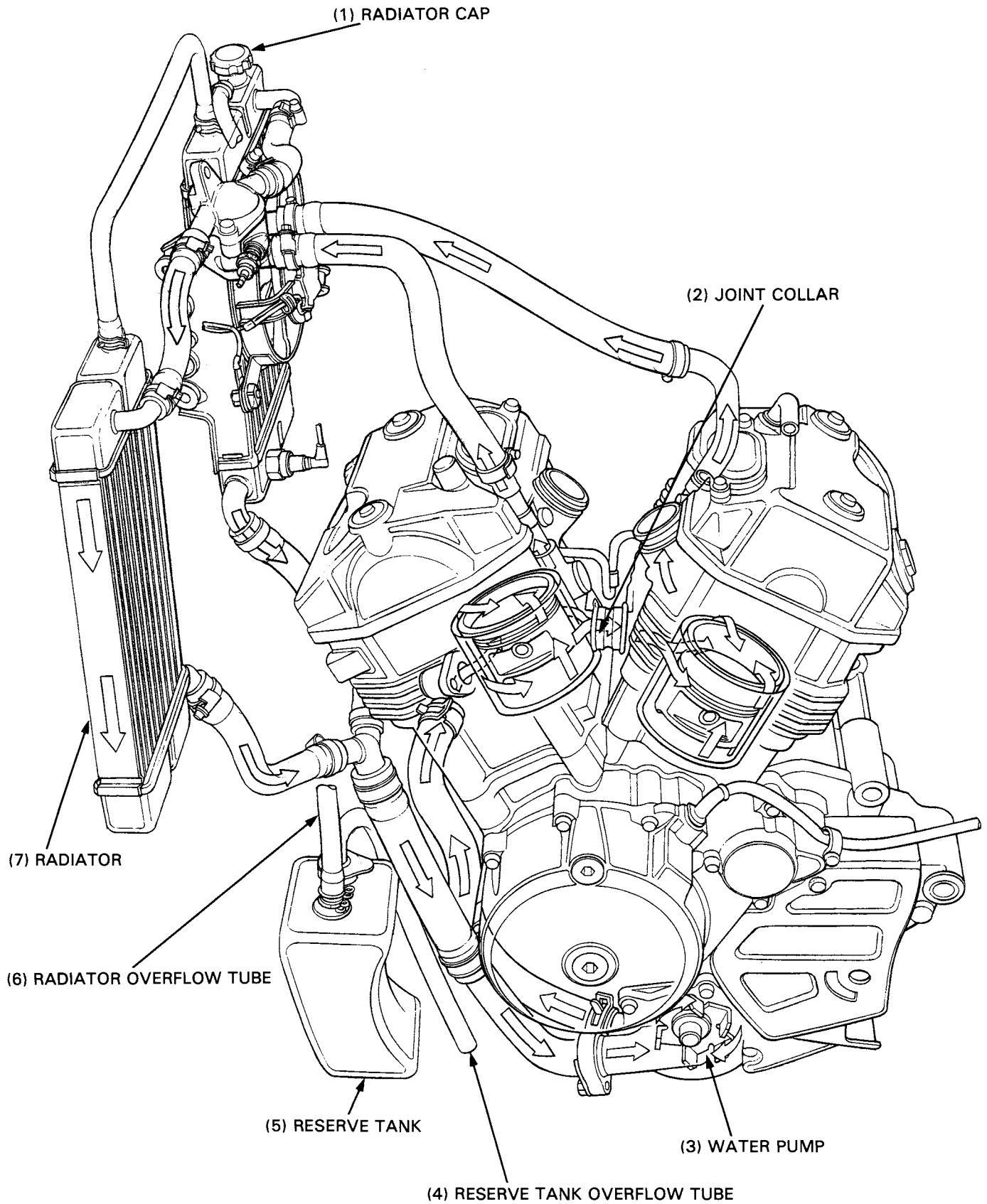
COOLING SYSTEM

CIRCUIT DE REFROIDISSEMENT

KÜHLSYSTEM

- (1) BOUCHON DE RADIATEUR
- (2) BAGUE DE RACCORD
- (3) POMPE A EAU
- (4) TUBE DE TROP-PLEIN DE RESERVOIR DE RESERVE
- (5) RESERVOIR DE RESERVE
- (6) TUBE DE TROP-PLEIN DE RADIATEUR
- (7) RADIATEUR

- (1) KÜHLERDECKEL
- (2) VERBINDUNGSSTÜCK
- (3) WASSERPUMPE
- (4) ÜBERLAUFROHR DES ÜBERLAUFTANKS
- (5) ÜBERLAUFTANK
- (6) ÜBERLAUFROHR DES KÜHLERS
- (7) KÜHLER



COOLING SYSTEM

SERVICE INFORMATION	5-1	THERMOSTAT	5-3
TROUBLESHOOTING	5-1	RADIATOR/COOLING FAN	5-4
SYSTEM TESTING	5-2	WATER PUMP	5-6
COOLANT REPLACEMENT	5-3		

SERVICE INFORMATION

GENERAL

⚠ WARNING

- *Do not remove the radiator cap when the engine is hot. The coolant is under pressure and severe scalding could result. The engine must be cool before servicing the cooling system.*
- *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.*

- Use only distilled water and ethylene glycol in the cooling system. A 50–50 mixture is recommended for maximum corrosion protection. Do not use alcohol-based antifreeze or an antifreeze with self sealing properties.
- Add coolant at the reserve tank. Do not remove the radiator cap except to refill or drain the system.
- Radiator, cooling fan and thermostat services can be made with the engine in the frame.
- Avoid spilling coolant on painted surfaces.
- After servicing the system, check for leaks with a cooling system tester.
- Refer to Section 19 for fan motor thermostatic switch and temperature sensor inspections.

SPECIFICATIONS

ITEM	SPECIFICATIONS
Radiator cap relief pressure	88–127 kPa (0.9–1.3 kg/cm ² , 13–18 psi)
Freezing point (Hydrometer test):	55% Distilled water + 45% ethylene glycol: –32°C (–25°F) 50% Distilled water + 50% ethylene glycol: –37°C (–34°F) 45% Distilled water + 55% ethylene glycol: –44.5°C (–48°F)
Coolant capacity: Total system Coolant change	2.5 liters (2.63 US qt, 2.20 Imp qt) 2.0 liters (2.10 US qt, 1.76 Imp qt)
Thermostat	Begins to open: 80° to 84°C (176° to 183°F) Valve lift: Minimum of 8 mm at 95°C (0.3 in at 203°F)
Boiling point (with 50–50 mixture):	Unpressurized: 107.7°C (226°F) Cap on, pressurized: 125.6°C (258°F)

TORQUE VALUES

Thermostatic switch	18 N·m (1.8 kg-m, 13 ft-lb)
Water pump	12 N·m (1.2 kg-m, 9 ft-lb)

TROUBLESHOOTING

Engine temperature too high

- Faulty temperature gauge or sensor
- Thermostat stuck closed
- Faulty radiator cap
- Insufficient coolant or coolant level too low
- Passages blocked in radiator, hoses or water jacket
- Cooling fan motor does not turn
 - Broken or loose sub fuse.
 - Faulty fan motor
 - Faulty thermostatic switch
 - Poorly contact or open circuit in harness
- Faulty water pump

Engine temperature too low

- Faulty temperature gauge or gauge sensor.
- Thermostat stuck open

Coolant leaks

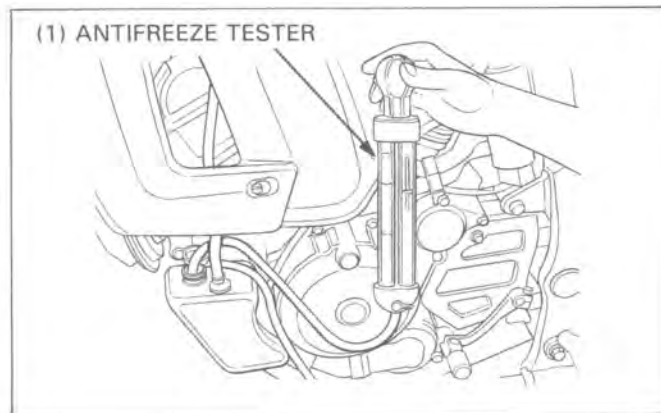
- Faulty pump mechanical seal
- Deteriorated O-rings

MEMO

SYSTEM TESTING

COOLANT MIXTURE

Test the coolant mixture with an antifreeze tester.
For maximum corrosion protection, a 50–50% solution of ethylene glycol and distilled water is recommended.



RADIATOR CAP/SYSTEM INSPECTION

Remove the right side cowl (page 12-2).
Remove the radiator cap.

⚠ WARNING

- *Be sure the engine is cool before removing the cap.*



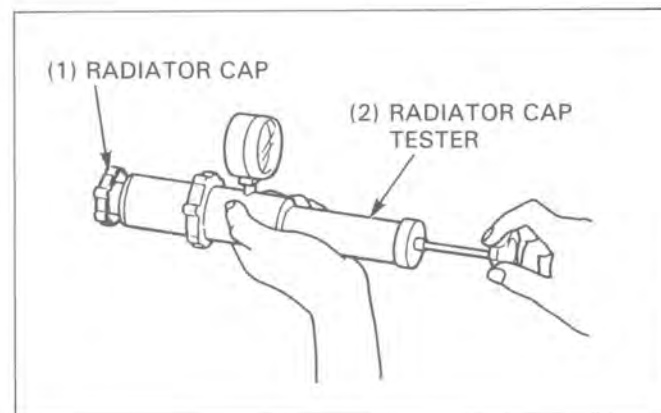
Pressure test the radiator cap. Replace the radiator cap if it does not hold pressure, or if its relief pressure is too high or too low. It must hold specified pressure for at least six seconds.

NOTE

- Before installing the cap on the tester, wet the sealing surfaces with water.

RADIATOR CAP RELIEF PRESSURE:

88–127 kPa (0.9–1.3 kg/cm², 13–18 psi)

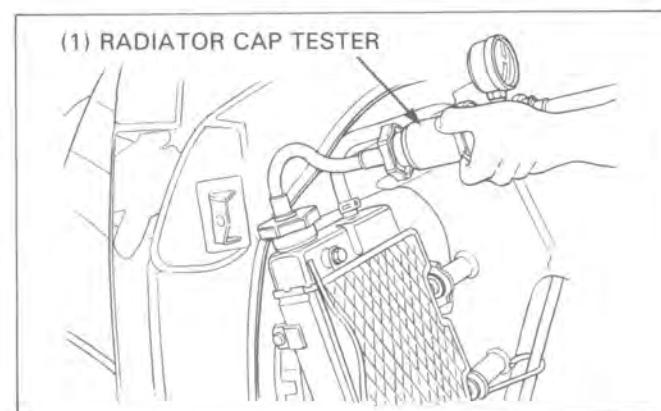


Pressurize the radiator, engine and hoses, and check for leaks.

CAUTION

- *Excessive pressure can damage the radiator. Do not exceed 125 kPa (1.25 kg/cm², 18 psi)*

Repair or replace components if the system will not hold specified pressure for at least six seconds.



COOLANT REPLACEMENT

⚠ WARNING

- *The engine must be cool before servicing the coolant replacement, or severe scalding may result.*

Remove the skid plate (page 2-3).

Remove the radiator cap.

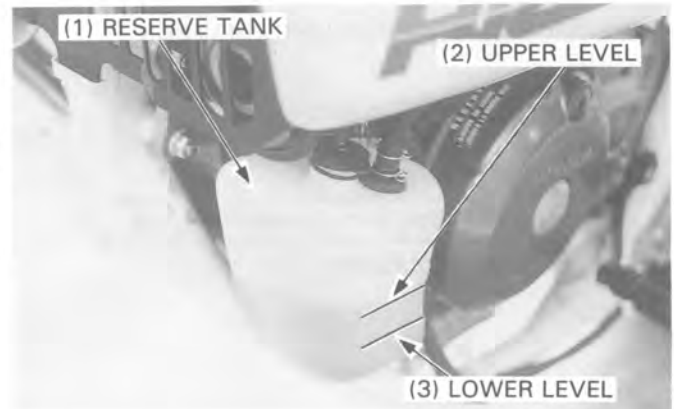
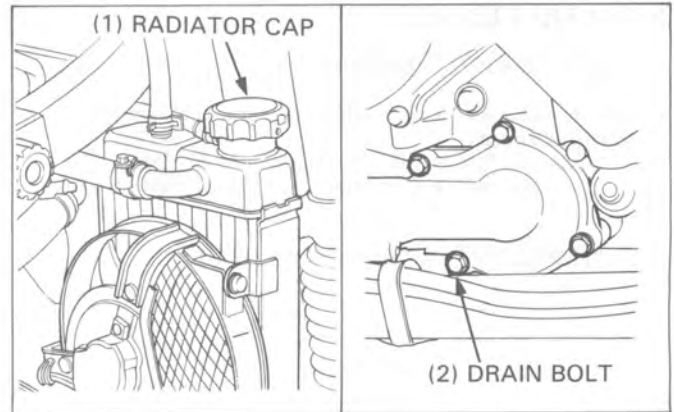
Drain the coolant from the system by removing the drain bolt on the water pump cover.
Install the drain bolt.

Fill the system with 50–50 mixture of distilled water and ethylene glycol.

Bleed air from the cooling system.

- Apply side stand and shift the transmission into neutral.
- Start the engine and snap the throttle grip, 3–4 times at 4,000–5,000 min⁻¹ (rpm). Then add coolant up to the radiator filler neck.
- Reinstall the radiator cap.
- Check the level of coolant in the reserve tank and fill to the correct level if the level is low.

Install the skid plate.



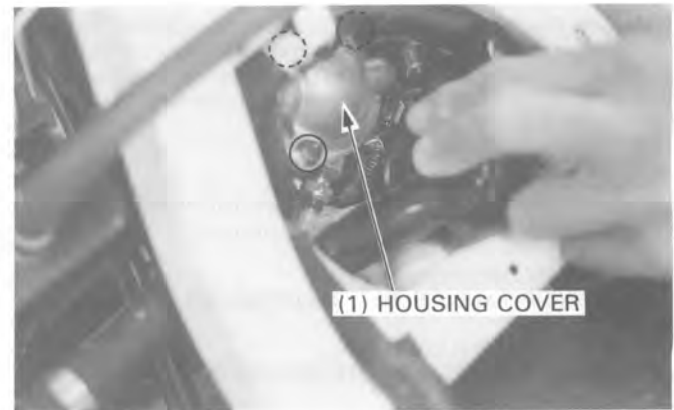
THERMOSTAT

REMOVAL

Remove the fuel tank (page 4-3).

Drain the coolant.

Remove the thermostat housing cover by disconnecting the water hoses and removing the housing cover mounting bolts.



Remove the thermostat from the housing.



COOLING SYSTEM

INSPECTION

Inspect the thermostat visually for damage.
Suspend the thermostat in heated water to check its operation.

NOTE

- If the thermostat or thermometer touches the pan, you'll get a false reading.

Replace thermostat if valve stays open at room temperature, or if it responds at temperatures other than those specified.

Data:

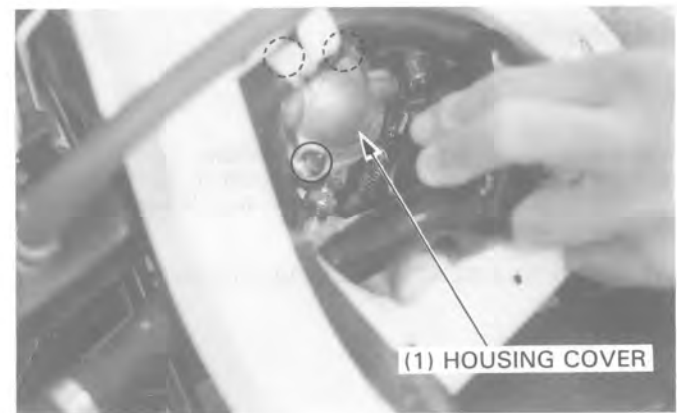
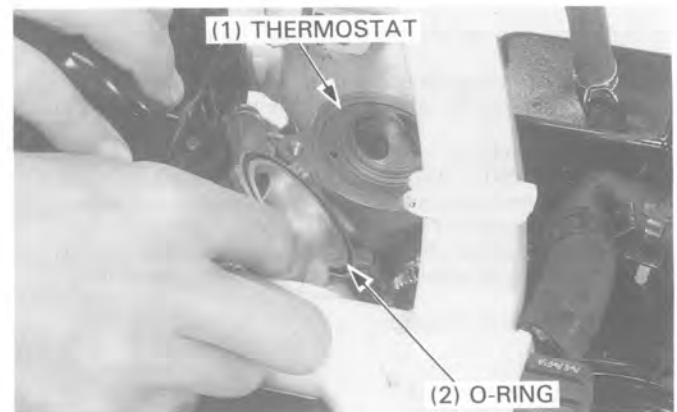
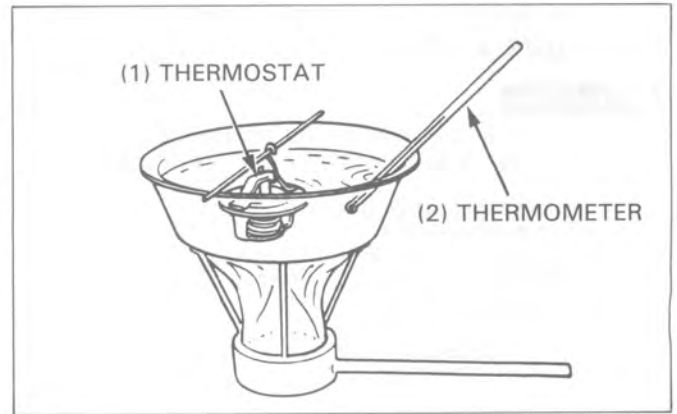
Start to open	80° to 84°C (176—183°F)
Valve lift	8 mm (0.3 in) minimum when heated to 95°C (203°F) for five minutes.

INSTALLATION

Install the thermostat into the housing.
Install a new O-ring to the housing cover and install the housing cover onto the housing.

Tighten the thermostat housing cover mounting bolts.
Connect the water hoses to the housing cover properly.

Install the fuel tank (page 4-3).



RADIATOR

REMOVAL

Drain the coolant (page 5-3).
Remove the fuel tank (page 4-3).

Remove the center cowl from the frame.

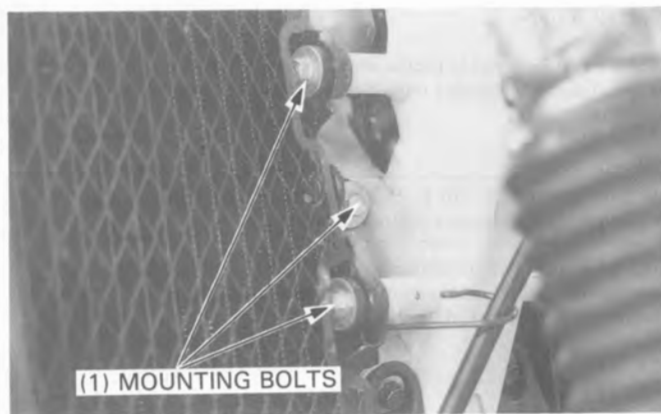


COOLING SYSTEM

Disconnect the radiator connecting tube and radiator hoses from the radiators.

Disconnect the radiator overflow tube and fan motor/thermostatic switch connector from the right radiator.

Remove the radiator mounting bolts and the radiator.

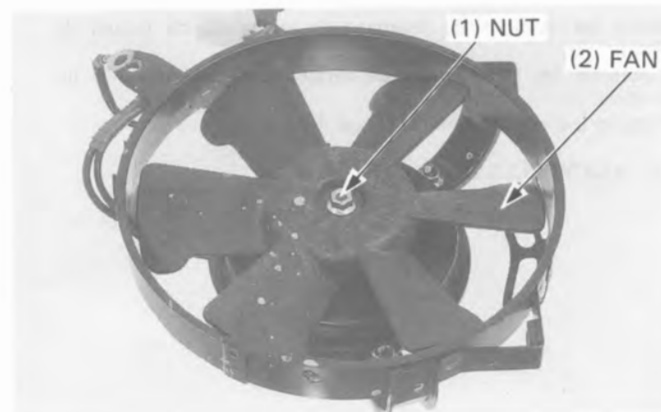


DISASSEMBLY

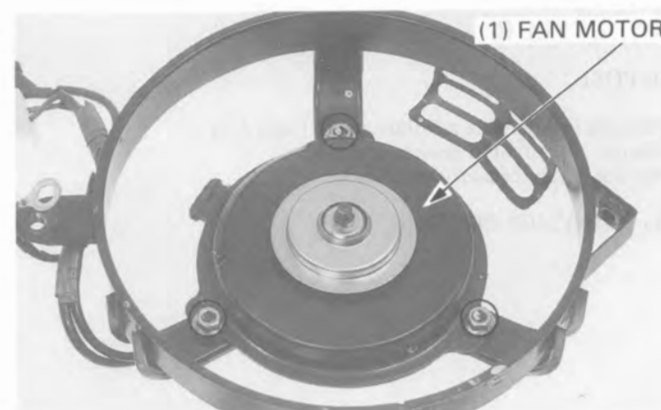
Remove the fan motor shroud mounting bolts, and remove the fan motor shroud and fan motor as an assembly.



Remove the nut and fan.



Remove the fan motor mounting nuts and fan motor from the fan motor shroud.



COOLING SYSTEM

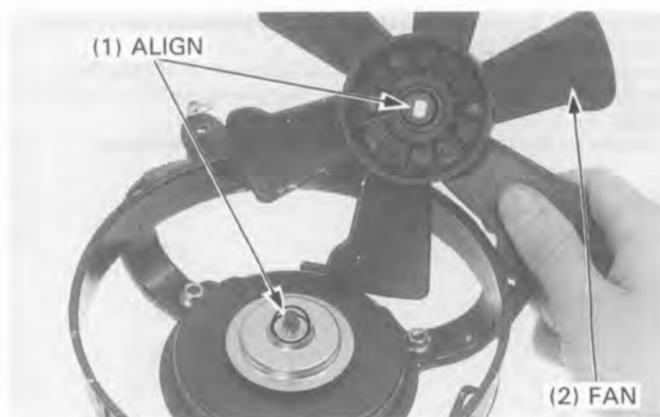
ASSEMBLY

Check the each part for damage.
Install the fan to the fan motor shaft, aligning the boss of the shaft with the groove of the fan.

Assemble the remained components in the reverse order of the disassembly.

If the thermostatic switch was removed, install it with a new O-ring and tighten it to the specified torque.

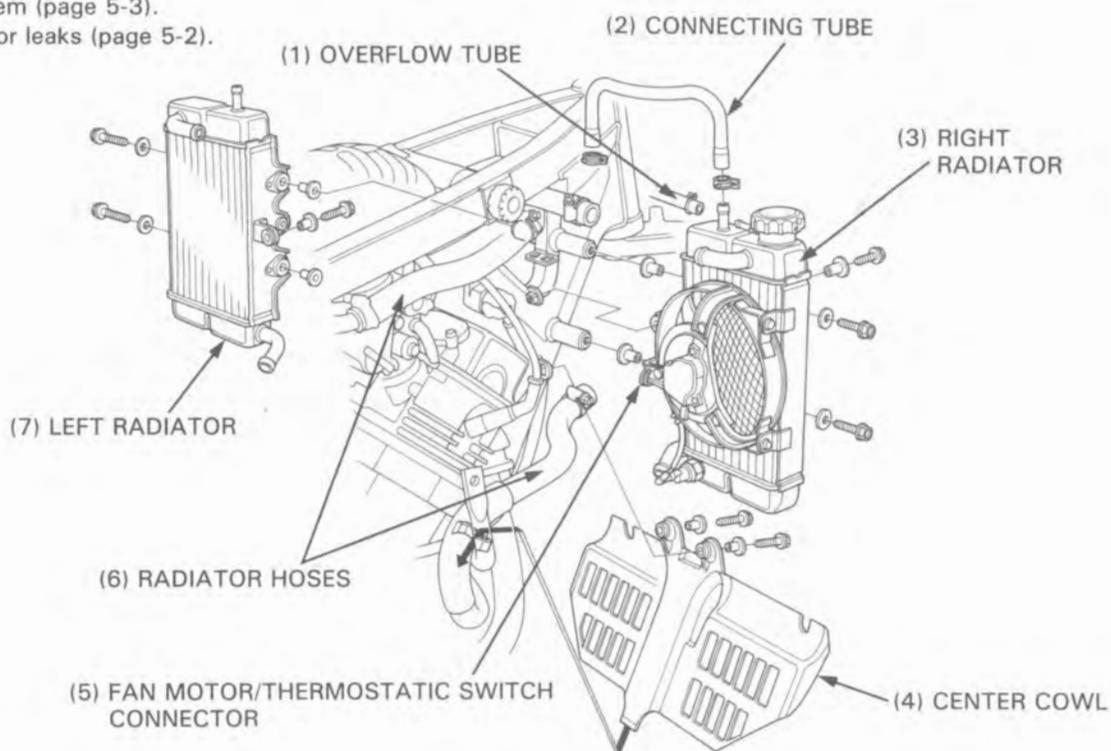
TORQUE: 18 N·m (1.8 kg-m, 13 ft-lb)



INSTALLATION

Install the radiators in the reverse order of removal.

Fill the cooling system (page 5-3).
Check the system for leaks (page 5-2).



WATER PUMP

MECHANICAL SEAL INSPECTION

Remove the lower cowling (page 12-2).
Inspect the telltale hole for signs of mechanical seal coolant leakage.
Replace the water pump as an assembly if the mechanical seal is leaking.

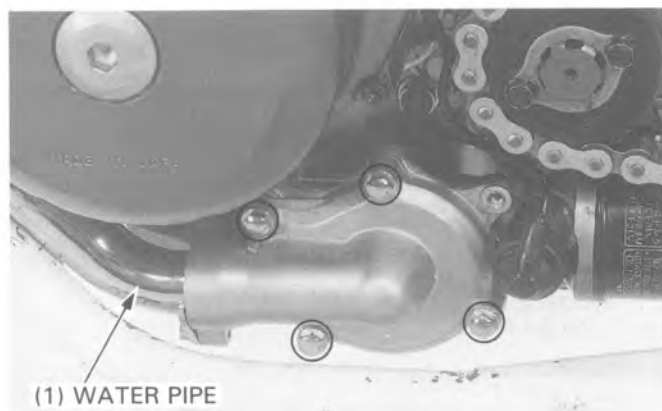


COOLING SYSTEM

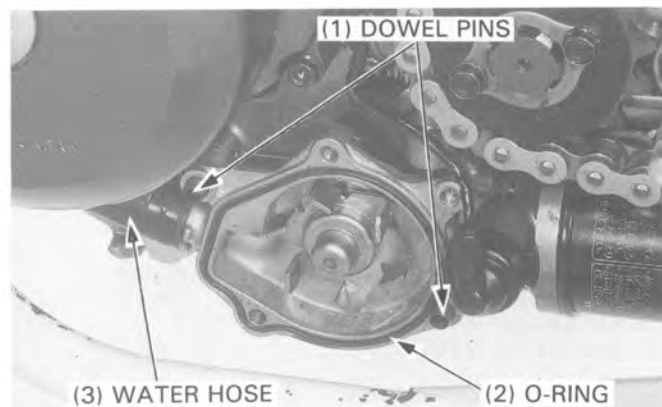
REMOVAL

Drain the coolant (page 5-3).
Drain the engine oil (page 2-3).
Remove the drive sprocket cover (page 8-2).

Remove the water pump mounting bolts and the water pump cover.
Disconnect the water pipe from the pump cover by removing the bolt.

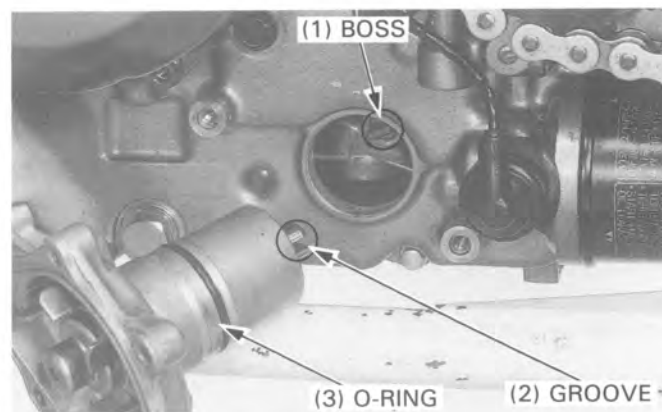


Remove the dowel pins and O-ring.
Disconnect the water hose from the water pump and remove the pump.

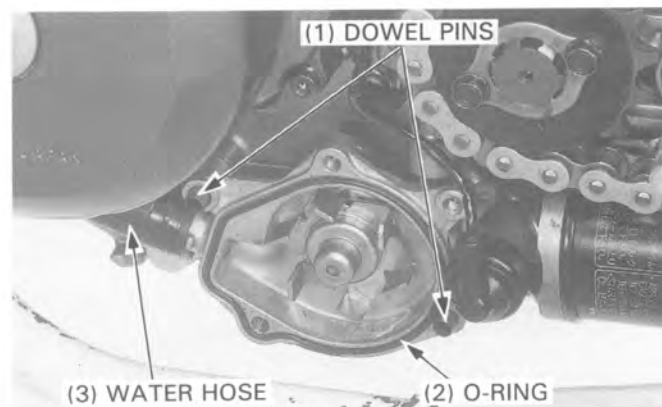


INSTALLATION

Install a new O-ring onto the water pump.
Install the water pump, aligning the boss of the oil pump shaft with the groove of the water pump shaft.



Connect the water hose to the pump.
Connect the water pipe to the pump cover with a new O-ring and tighten the bolt securely.
Install the dowel pins and a new O-ring.



COOLING SYSTEM

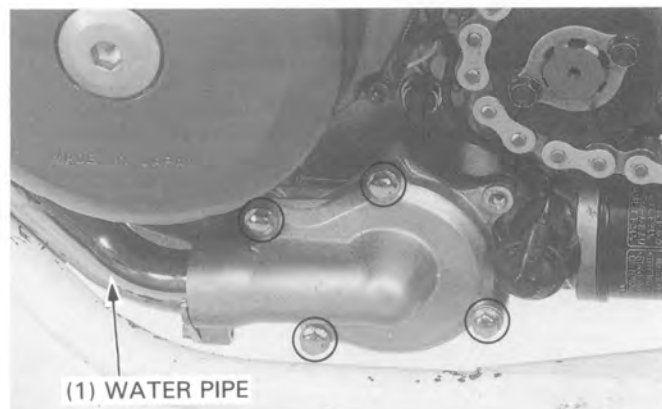
Install the water pump cover onto the pump and tighten the bolts.

TORQUE: 12 N·m (1.2 kg-m, 9 ft-lb)

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

Fill the cooling system (page 5-3).

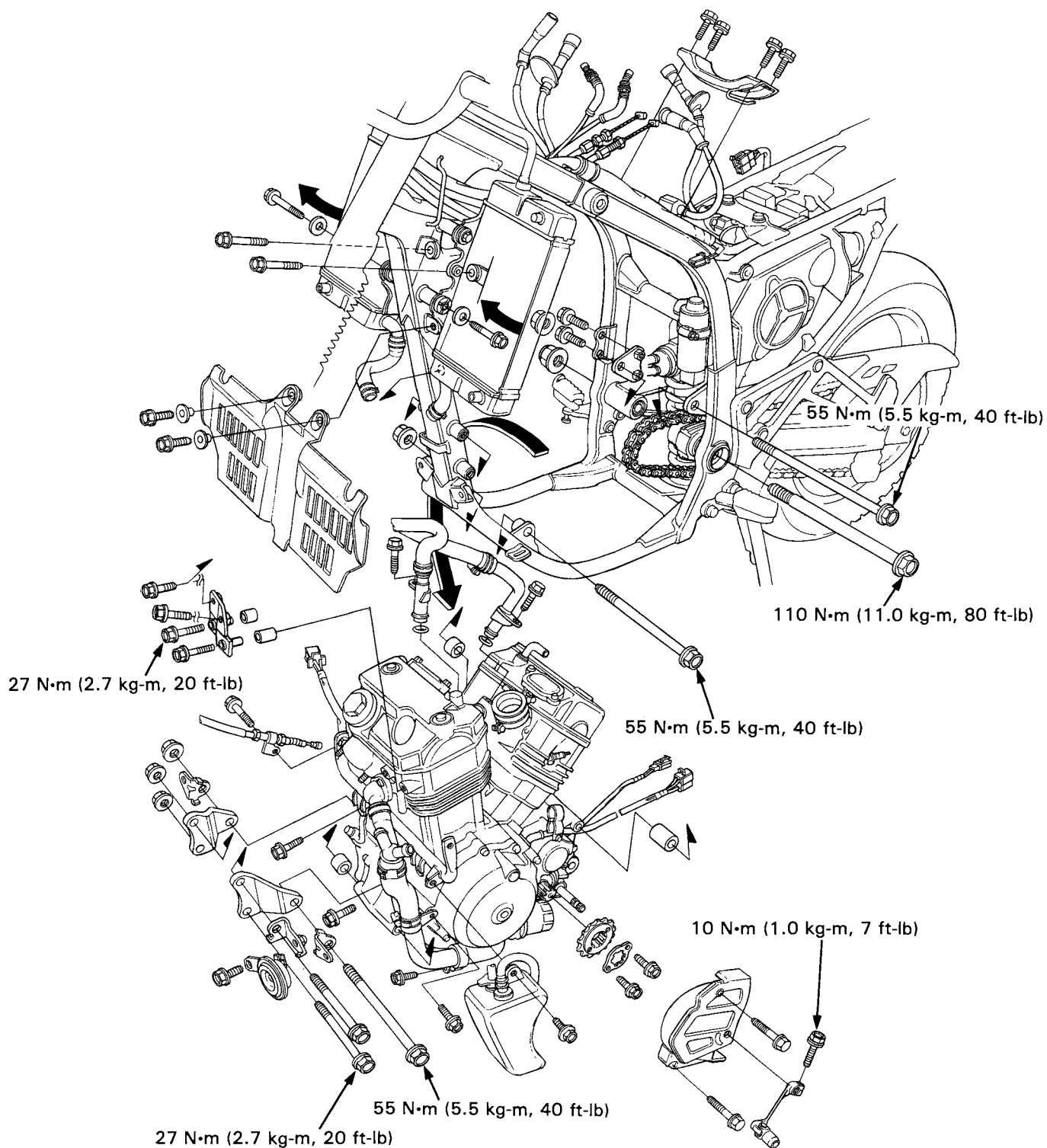
Install the drive sprocket cover (page 8-6).



ENGINE REMOVAL/INSTALLATION

DEPOSE/REPOSE DU MOTEUR

AUSBAU/EINBAU DES MOTORS



SERVICE INFORMATION	6-1	ENGINE INSTALLATION	6-3
ENGINE REMOVAL	6-2		

SERVICE INFORMATION

GENERAL

CAUTION

- Do not jack up the oil filter.

- During removal and installation, support the frame with suitable stay.
- Parts requiring engine removal for servicing:

Oil pump	Section 2
Cylinder head	Section 9
Cylinder/Piston	Section 10
Crankshaft/Transmission	Section 11

SPECIFICATION

Engine dry weight	60 kg (132 lb)
Engine oil capacity	2.8 liters (2.96 US qt, 2.46 Imp qt) after disassembly
	2.4 liters (2.52 US qt, 2.11 Imp qt) at oil filter and oil change
	2.2 liters (2.32 US qt, 1.94 Imp qt) after draining
Coolant capacity	2.5 liters (2.63 US qt, 2.20 Imp qt) 2.0 liters (2.10 US qt, 1.76 Imp qt) after draining

TORQUE VALUES

Engine mounting bolt	55 N·m (5.5 kg-m, 40 ft-lb)
Engine mounting bracket bolt	27 N·m (2.7 kg-m, 20 ft-lb)
Swingarm pivot bolt	110 N·m (11.0 kg-m, 80 ft-lb)
Gearshift pedal bolt	10 N·m (1.0 kg-m, 7 ft-lb)

MEMO

ENGINE REMOVAL

Support the motorcycle using a hoist or other adjustable support.

Drain the engine oil (page 2-3).

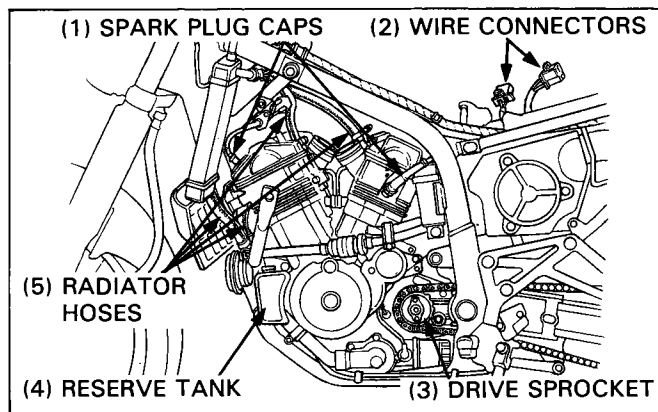
Drain the coolant (page 5-3).

Remove the following:

- fuel tank (page 4-3)
- carburetor (page 4-5)
- radiator mounting bolts (page 5-4)
- muffler (page 12-3)
- drive sprocket cover (page 8-2)
- drive sprocket
- reserve tank
- spark plug caps from the plugs.

Disconnect the alternator wire connector and oil pressure switch/neutral switch wire connector.

Disconnect the radiator lower hoses at the hose joint and the upper hoses from the cylinder heads.



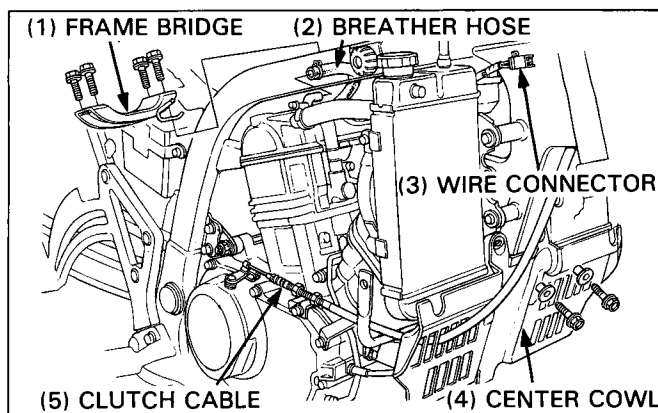
Disconnect the clutch cable.

Remove the center cowl.

Disconnect the pulse generator wire connector.

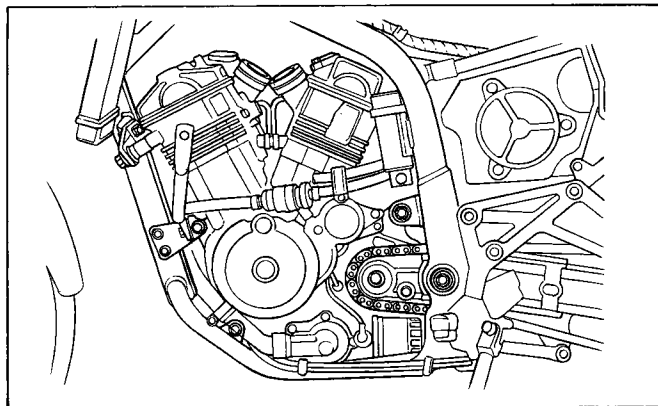
Disconnect the breather hose from the rear cylinder head cover.

Remove the frame bridge.



Remove the engine mounting brackets, collars and bolts.

Remove the swingarm pivot bolt and the engine from the right side.



ENGINE INSTALLATION

Engine installation is essentially the reverse order of removal. Use a floor jack or other adjustable support to carefully maneuver the engine into place.

CAUTION

- *Carefully align the mounting points with the jack to prevent damage to the mounting bolt thread and wire harness and cables.*

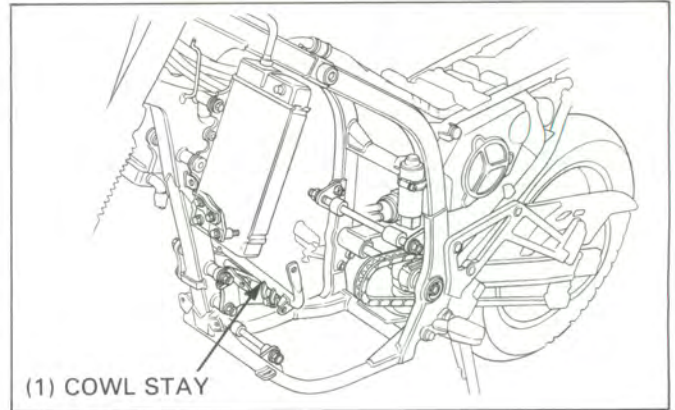
NOTE

- Insert all engine mounting bolts from the left side.
- Install the front engine mounting bolt with the cowl stay.
- Be sure to install the mounting collars in their correct positions.

Tighten all the fasteners to the specified torque given on pages 6-0 and 6-1.

NOTE

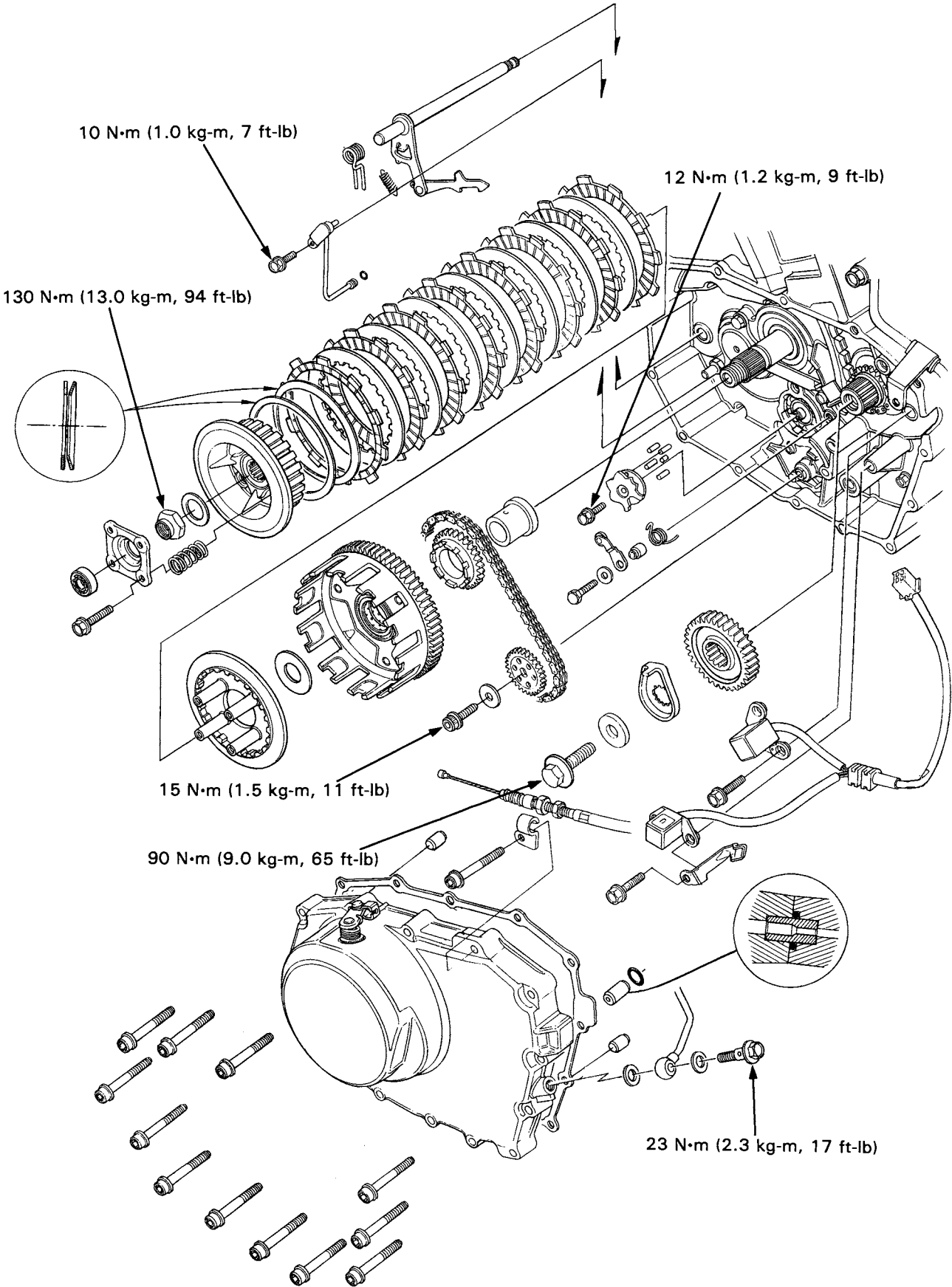
- Route the wires and cables properly (section 1).
- Fill the crankcase to the proper level with recommended oil (page 2-1).
- Fill the cooling system (page 5-3).
- Perform the following inspections and adjustments:
 - Throttle operation (page 3-4)
 - Clutch (page 3-14)
 - Drive chain (page 3-10)



CLUTCH/GEARSHIFT LINKAGE

**EMBAYAGE/TRINGLERIE DE
SELECTION DES VITESSES**

KUPPLUNG/SCHALTGESTANGE



CLUTCH/GEARSHIFT LINKAGE

SERVICE INFORMATION	7-1	PRIMARY DRIVE GEAR	7-10
TROUBLESHOOTING	7-2	CLUTCH INSTALLATION	7-11
RIGHT CRANKCASE COVER REMOVAL	7-3	RIGHT CRANKCASE COVER	
CLUTCH REMOVAL	7-4	INSTALLATION	7-13
GEARSHIFT LINKAGE	7-7		

SERVICE INFORMATION

GENERAL

- This section covers the removal and installation of the clutch, oil pump drive chain, gearshift linkage and primary drive gear. All these operations can be done with the engine installed in the frame.
- If the shift fork, drum and transmission require servicing, remove the engine and separate the crankcase (section 11).
- Coat the new clutch discs with clean engine oil before reassembly.

SPECIFICATIONS

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Clutch	Spring free length		45.5 (1.79)	43.9 (1.73)
	Spring preload/length		24.0/26.3 kg/mm (52.91/1.035 lb/in)	—
	Disc thickness	Disc A	2.62—2.78 (0.103—0.109)	2.30 (0.091)
		Disc B	2.92—3.08 (0.115—0.121)	2.60 (0.102)
	Plate warpage		—	0.30 (0.012)
	Outer guide	I.D.	21.991—22.016 (0.8658—0.8668)	22.09 (0.870)
		O.D.	31.959—31.975 (1.2582—1.2589)	31.92 (1.257)
Outer I.D.		32.000—32.025 (1.2598—1.2608)	32.10 (1.264)	
Oil pump drive sprocket I.D.			32.000—32.025 (1.2598—1.2608)	32.10 (1.264)
Mainshaft O.D. at clutch outer guide			21.967—21.980 (0.8648—0.8654)	21.92 (0.863)

TORQUE VALUES

Shift drum stopper plate bolt	12 N·m (1.2 kg-m, 9 ft-lb) Apply locking agent to the threads
Primary drive gear bolt	90 N·m (9.0 kg-m, 65 ft-lb)
Oil pump driven sprocket bolt	15 N·m (1.5 kg-m, 11 ft-lb) Apply locking agent to the threads
Clutch lock nut	130 N·m (13.0 kg-m, 94 ft-lb) Staked nut
Oil pipe bolt	23 N·m (2.3 kg-m, 17 ft-lb)
Oil pipe mounting bolt	10 N·m (1.0 kg-m, 7.2 ft-lb)

TOOLS

Special

Clutch center holder	07923—KE10000
----------------------	---------------

Common

Lock nut wrench, 17 x 27 mm	07716—0020300
Gear holder	07724—0010100

TROUBLESHOOTING

Faulty clutch operation can usually be corrected by adjusting the clutch lever free play.

Clutch slips when accelerating

- No free play
- Discs worn
- Springs weak

Clutch will not disengage

- Too much free play
- Plates warped

Motorcycle creeps with clutch disengaged

- Too much free play
- Plates warped

Excessive lever pressure

- Clutch cable kinked, damaged or dirty
- Lifter mechanism damaged

Clutch operation feels rough

- Clutch outer slots rough
- Dirty clutch cable

RIGHT CRANKCASE COVER REMOVAL

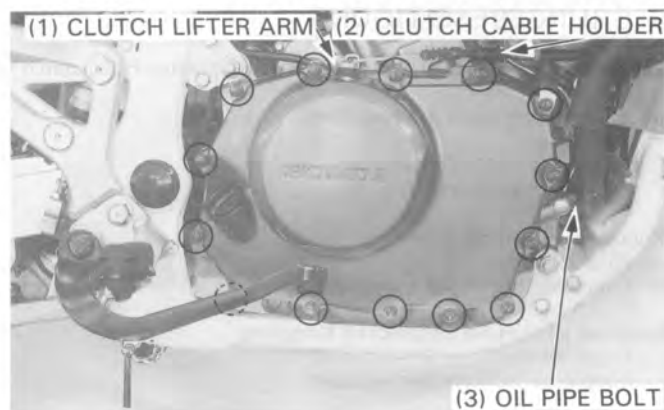
Drain the engine oil (page 2-3).

Remove the exhaust pipe (page 12-3).

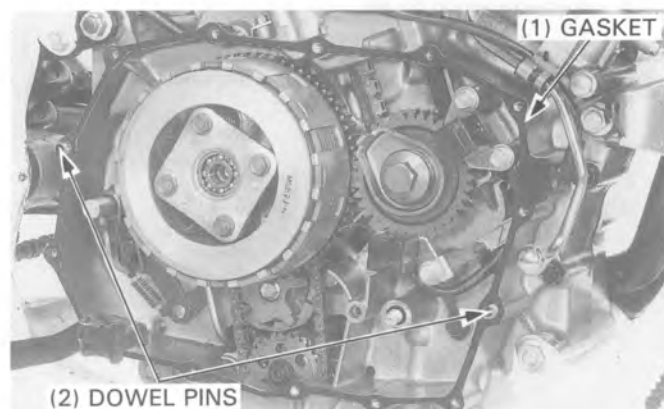
Remove the clutch cable holder and disconnect the clutch cable from the clutch lifter arm.

Loosen the oil pipe holder and remove the oil pipe bolt and sealing washers from the right crankcase cover.

Remove the right crankcase cover bolts and cover.



Remove the dowel pins and gasket.



Remove the oil orifice.



RIGHT CRANKCASE COVER INSPECTION

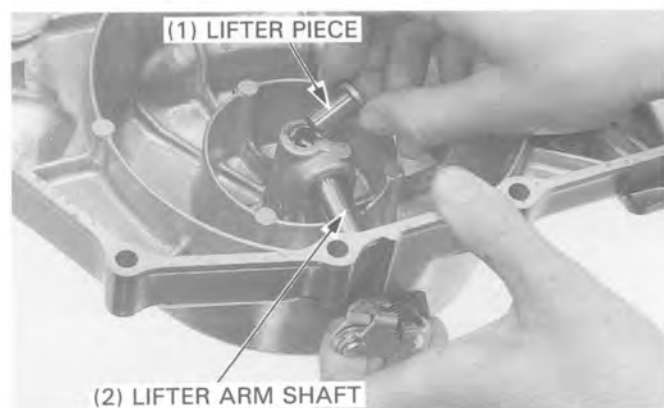
Remove the clutch lifter piece, clutch lifter arm shaft and spring from the right crankcase cover.

Check the clutch lifter piece and clutch lifter arm shaft for damage or excessive scratches.

Check the spring for fatigue or damage.

Check the needle bearings for wear, damage or loose fit.

Check the oil seal for fatigue or damage.



CLUTCH REMOVAL

Remove the following:

- clutch bolts
- clutch lifter plate
- springs

NOTE

- Remove the bolts in a crisscross pattern in 2 or 3 steps.

Unstake the clutch lock nut with a drill or grinder.

NOTE

- Be careful not to damage the shaft threads.

Hold the clutch center with the special tool and loosen the clutch lock nut. Remove the tools and the lock nut.

TOOLS:

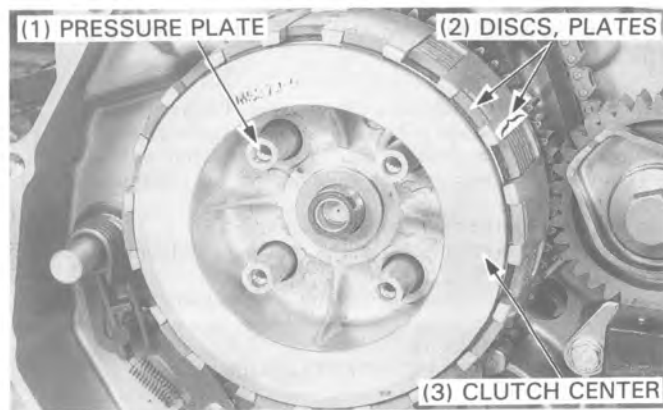
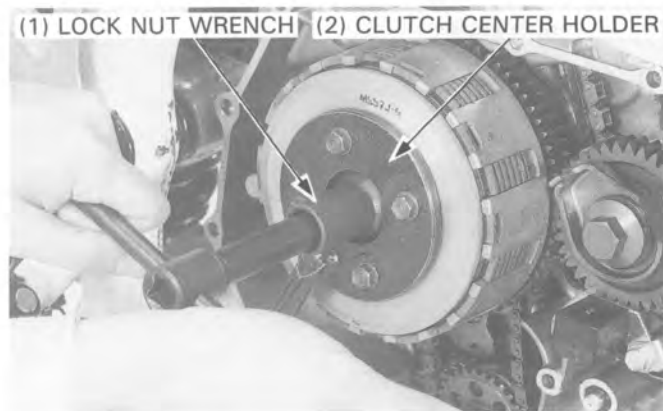
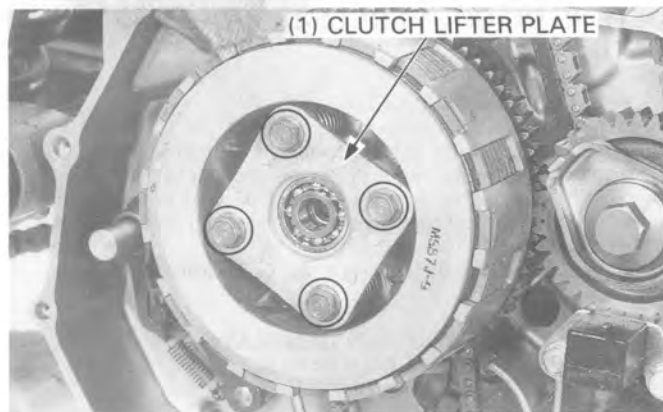
Clutch center holder	07923—KE10000
Lock nut wrench, 17 x 27 mm	07716—0020300

NOTE

- If you will remove the oil pump driven sprocket, loosen the driven sprocket mounting bolt at this time.

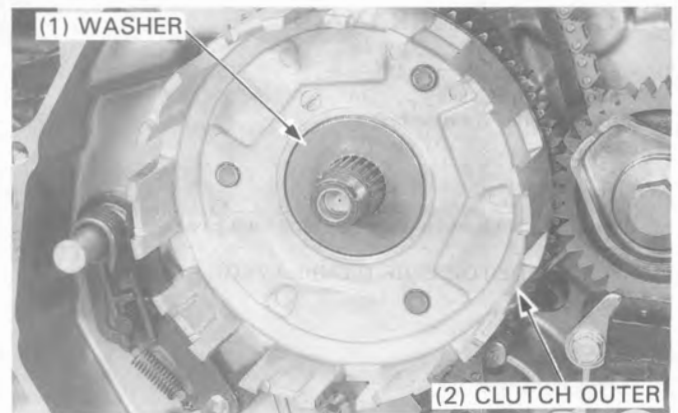
Remove the following:

- washer
- clutch center, judder spring and spring seat
- discs and plates
- pressure plate



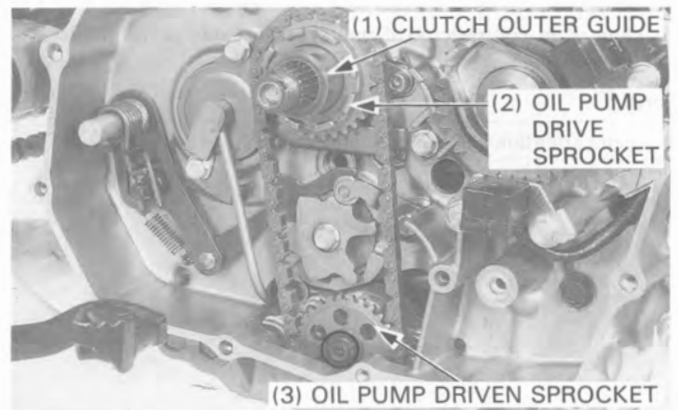
CLUTCH/GEARSHIFT LINKAGE

Remove the thrust washer and clutch outer.



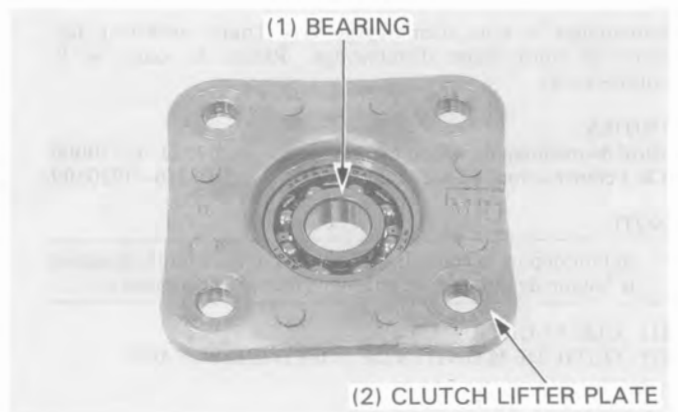
Remove the oil pump driven sprocket mounting bolt, drive and driven sprockets and oil pump drive chain.

Remove the clutch outer guide from the mainshaft.



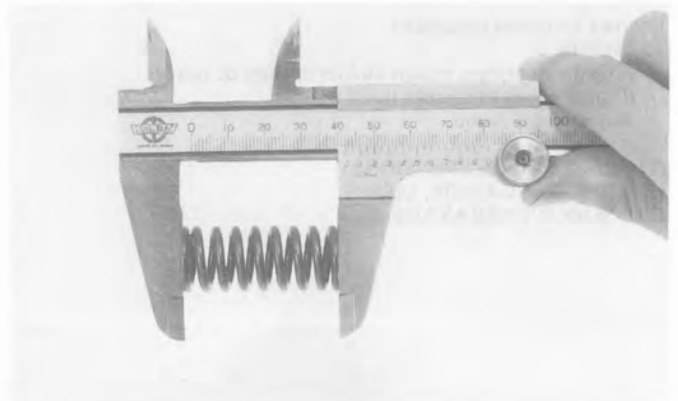
INSPECTION

Check the lifter plate bearing for damage.
Turn the bearing inner race with your finger.
The bearing should turn smoothly and quietly.
Also check that the bearing outer race fits tightly in the clutch lifter plate.
Replace the bearing if necessary.



Measure the spring free length.

SERVICE LIMIT: 43.9 mm (1.73 in)



CLUTCH/GEARSHIFT LINKAGE

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

Measure the thickness of discs A and B.

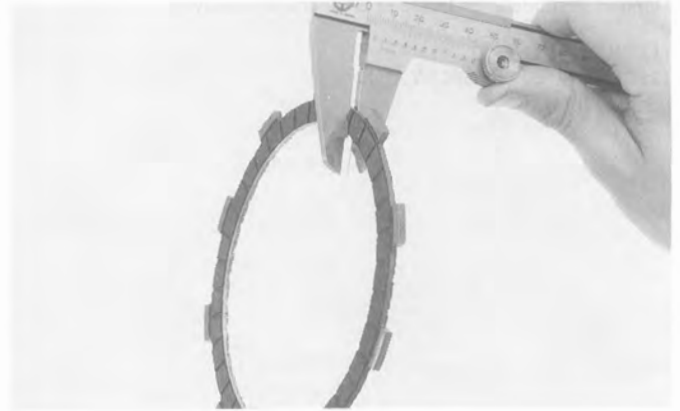
SERVICE LIMITS:

Disc A: 2.30 mm (0.091 in)

Disc B: 2.60 mm (0.102 in)

NOTE

- Replace the discs and plates as a set if any one is beyond the service limit.



Check the plate warpage on a surface plate using a thickness gauge.

SERVICE LIMIT: 0.30 mm (0.012 in)

NOTE

- Replace the discs and plates as a set if any one is beyond the service limit.

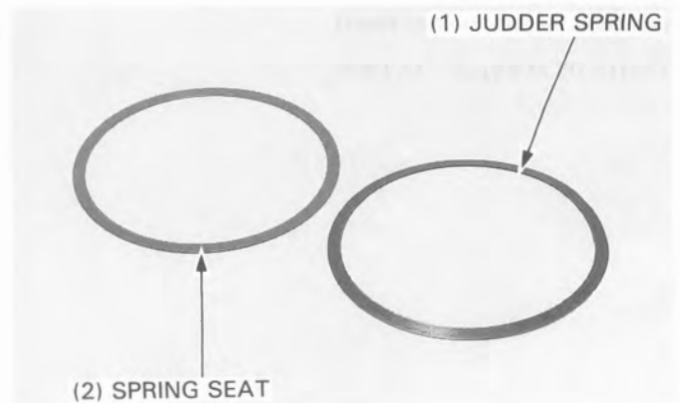


Check the clutch center for nicks or indentations made by the clutch plates.



Check the spring seat and judder spring for distortion, wear or damage.

Replace them if necessary.



CLUTCH/GEARSHIFT LINKAGE

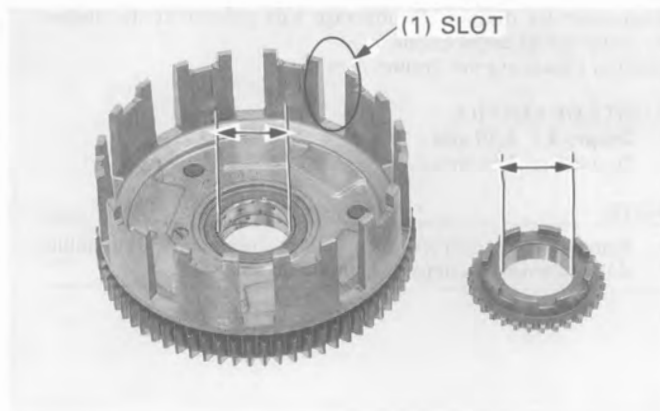
Check the slots in the clutch outer for nicks or indentations made by the clutch discs.

Measure the I.D. of the clutch outer and oil pump drive sprocket.

SERVICE LIMITS:

Clutch outer I.D. 32.10 mm (1.264 in)

Oil pump drive sprocket I.D. 32.10 mm (1.264 in)



Check the oil pump drive sprocket for damage.

SERVICE LIMITS:

Clutch outer guide O.D. 31.92 mm (1.257 in)

I.D. 22.09 mm (0.870 in)



Measure the mainshaft O.D. at the clutch outer guide.

SERVICE LIMIT: 21.92 mm (0.863 in)



GEARSHIFT LINKAGE

REMOVAL

Remove the following:

- gearshift pedal from the gearshift spindle
- right crankcase cover (page 7-3)
- clutch assembly (page 7-4)
- oil pump drive chain (page 7-5)



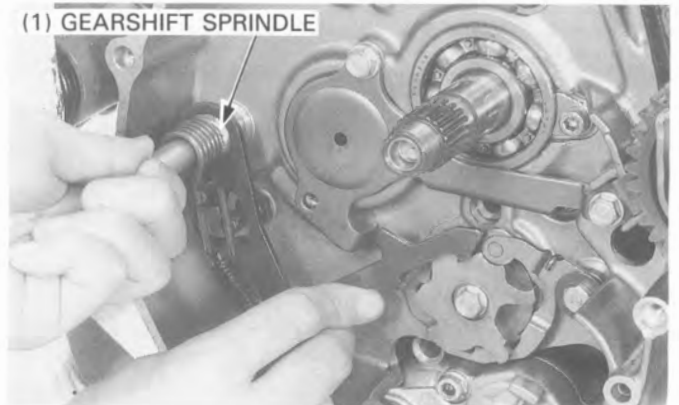
CLUTCH/GEARSHIFT LINKAGE

Remove the oil pipe mounting bolt.

Pull the oil pipe out of the countershaft and oil pump.

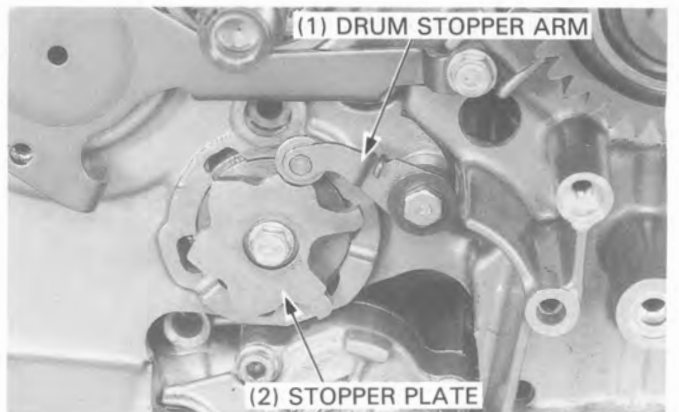


Remove the gearshift spindle.



Remove the following:

- drum stopper arm bolt, stopper arm, collar and spring
- drum stopper plate bolt and stopper plate/drum



INSPECTION

Check the gearshift spindle for bending or damage.
Check the return spring for fatigue or damage.



CLUTCH/GEARSHIFT LINKAGE

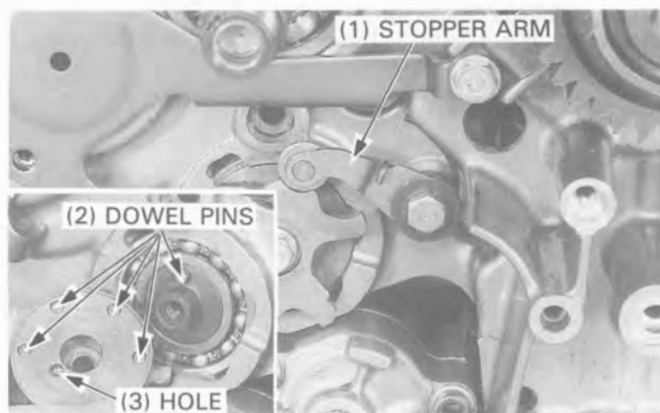
INSTALLATION

Install the collar, spring, stopper arm, washer and stopper arm bolt and tighten the bolt.

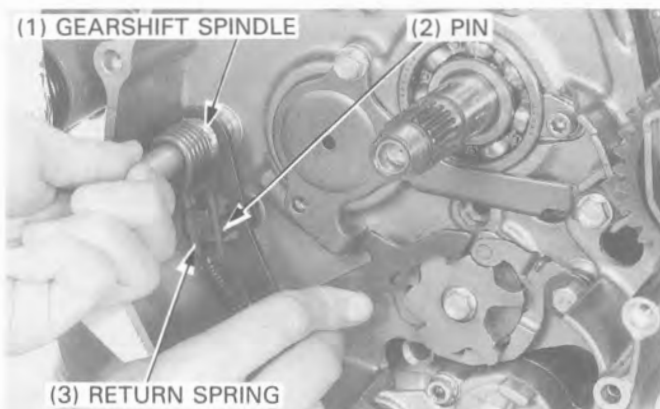
Install the dowel pins into the gearshift drum and stopper plate.

Lift the drum stopper arm and install the drum stopper plate aligning the hole in the plate with the dowel pin on the drum. Apply locking agent to the threads of the stopper plate bolt and tighten the bolt.

TORQUE: 12 N·m (1.2 kg-m, 9 ft-lb)



Install the gearshift spindle, aligning the return spring ends with the pin in the case.

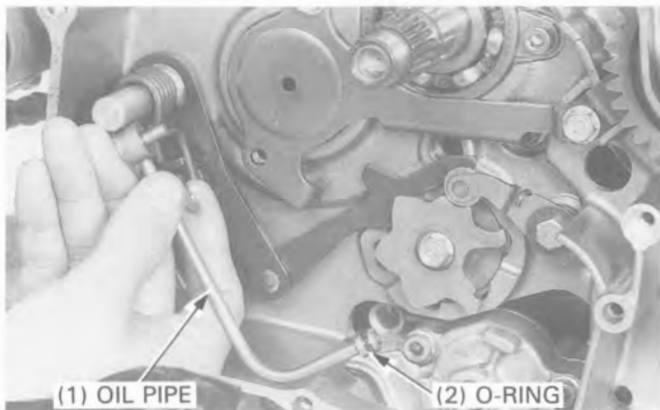


Install a new O-ring onto the end of the oil pipe and install the oil pipe.

Tighten the oil pipe mounting bolt.

TORQUE: 10 N·m (1.0 kg-m, 7 ft-lb)

Install the removed parts in the reverse order of removal.



Install the gearshift pedal onto the gearshift spindle aligning the slit of the pedal with the punch mark on the spindle.

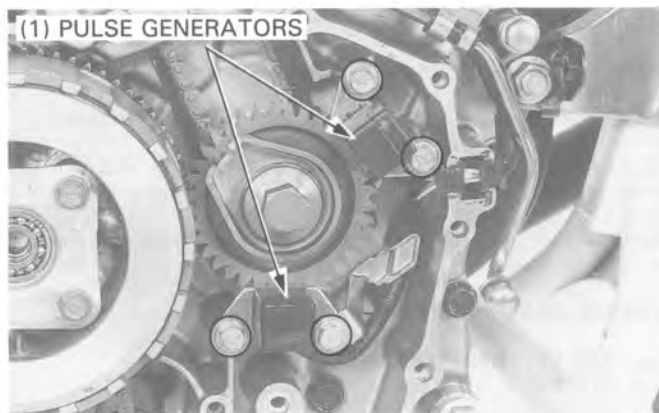


PRIMARY DRIVE GEAR

REMOVAL

Remove the following:

- right crankcase cover (page 7-3)
- clutch assembly (page 7-4)
- pulse generators



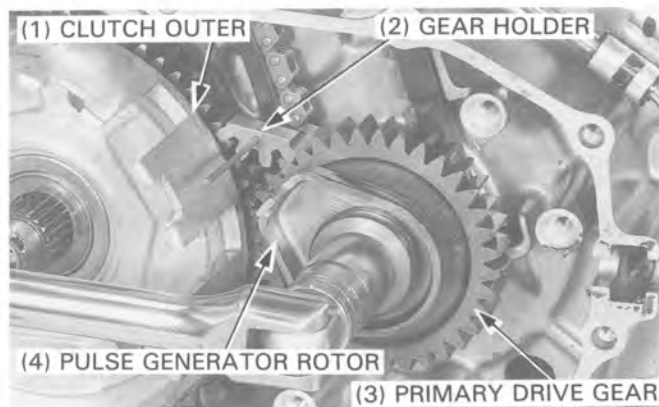
Temporarily install the clutch outer, then install the gear holder as shown.

TOOL:

Gear holder 07724-0010100

Remove the following:

- primary drive gear bolt and pulse generator rotor
- clutch outer and gear holder
- primary drive gear



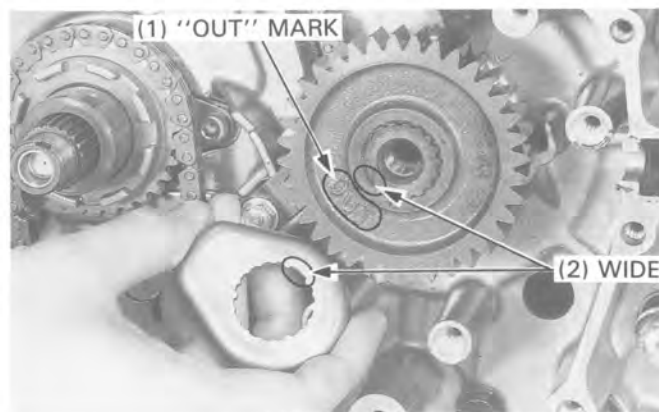
INSTALLATION

Install the primary drive gear with the "OUT" mark facing out.

NOTE

- The primary drive gear and pulse generator rotor will only go on in one position because of the extra wide aligning spline.

Install the pulse generator rotor.



Temporarily install the clutch outer and install the gear holder as shown.

TOOL:

Gear holder 07724-0010100

Install the washer and bolt and tighten the bolt.

TORQUE: 90 N·m (9.0 kg-m, 65 ft-lb)

Remove the gear holder and clutch outer.



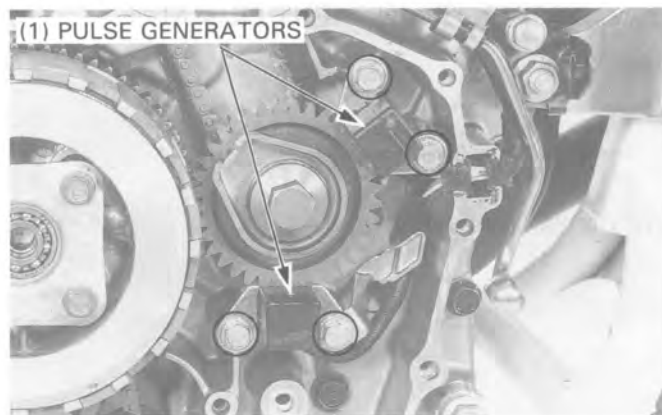
CLUTCH/GEARSHIFT LINKAGE

Install the following:

- pulse generators
- clutch
- right crankcase cover

NOTE

- If the pulse generator wire grommets were removed from the case groove, reinstall them securely.



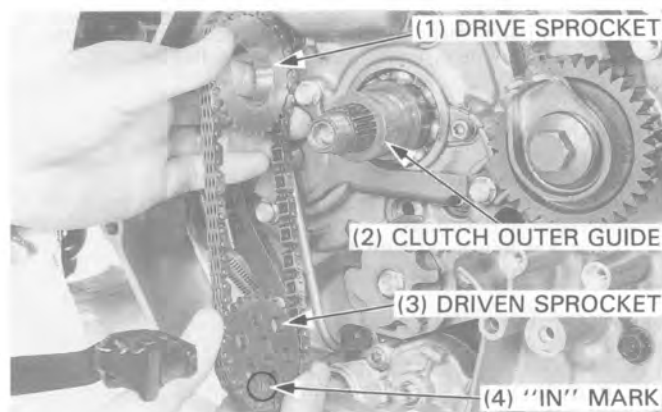
CLUTCH INSTALLATION

Apply molybdenum disulfide (MoS₂) paste grease to the outside of the clutch outer guide.

Install the oil pump drive sprocket, drive chain and driven sprocket with the "IN" mark facing in.

Apply locking agent to the threads of the driven sprocket mounting bolt and tighten it with the washer to the specified torque.

TORQUE: 15 N·m (1.5 kg-m, 11 ft-lb)

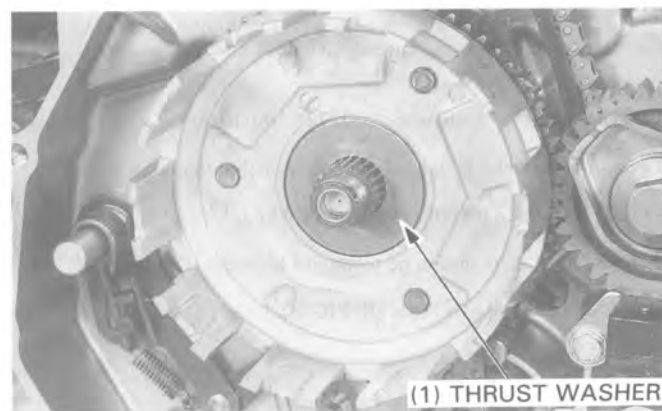


Install the clutch outer.

Align the grooves in the clutch outer with the bosses on the oil pump drive sprocket while turning the sprocket with the chain and pushing the clutch outer onto the shaft.



Install the thrust washer onto the mainshaft.



CLUTCH/GEARSHIFT LINKAGE

Install the pressure plate, clutch discs B, plates and disc A in the clutch outer.

NOTE

- Stack the discs and plates alternately.
- Coat the new clutch discs with clean engine oil.

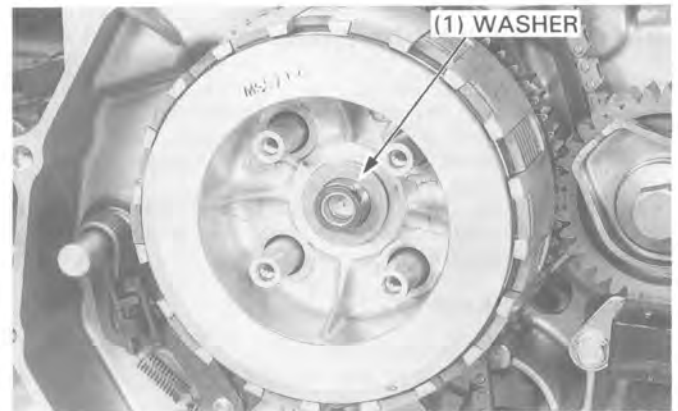
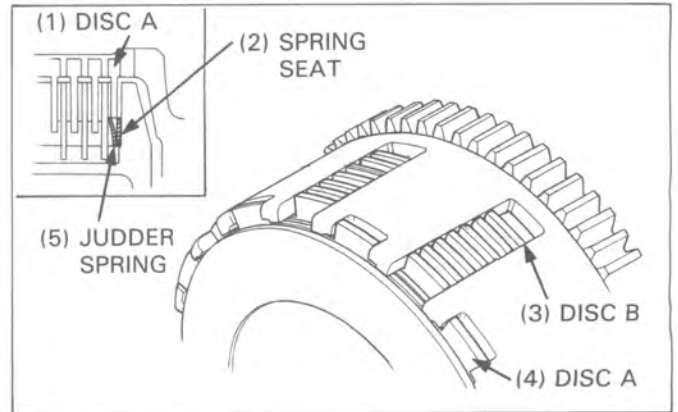
Install the spring seat and judder spring on the clutch center as shown.

Install them in the clutch outer.

NOTE

- Note the positions of the seat and disc A.

Install the washer on the mainshaft.

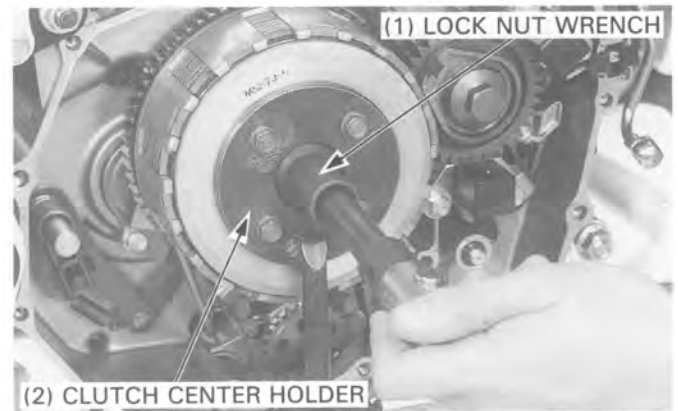


Hold the clutch center with the clutch center holder, and tighten the lock nut to the specified torque.

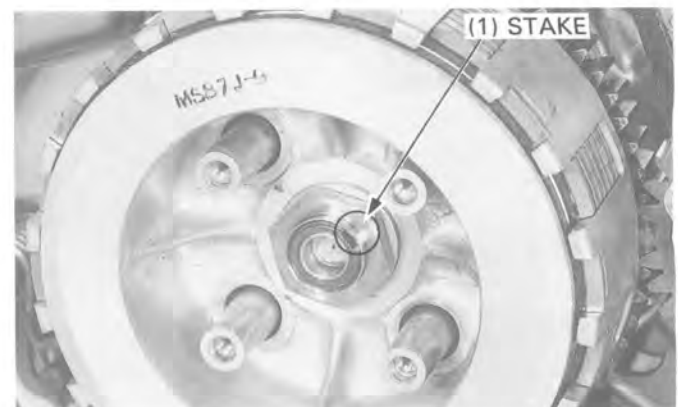
TORQUE: 130 N·m (13.0 kg-m, 94 ft-lb)

TOOLS:

Clutch center holder 07923-KE10000
Lock nut wrench, 17 x 27 mm 07716-0020300



Stake the lock nut with a center punch.



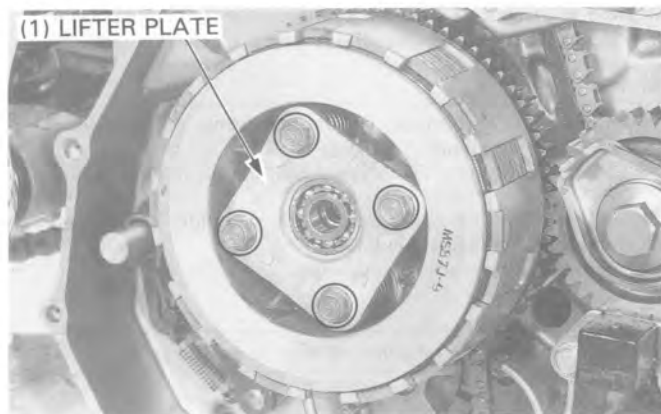
CLUTCH/GEARSHIFT LINKAGE

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

NOTE

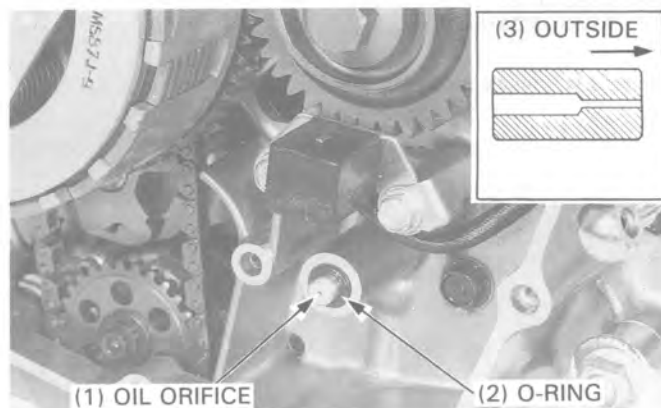
- Make sure the pressure plate firmly pushes the discs and plates.

Install the bearing into the lifter plate.

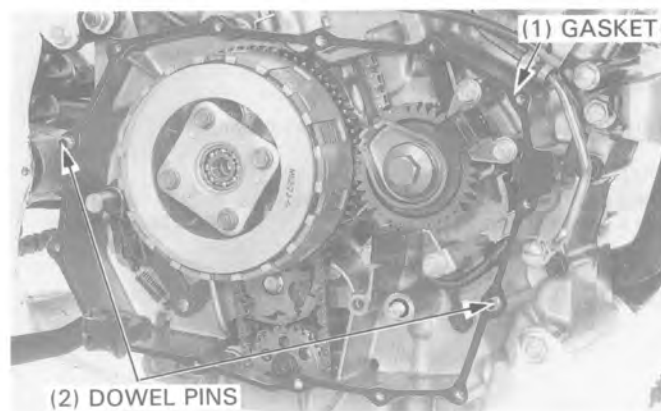


RIGHT CRANKCASE COVER INSTALLATION

Check the oil orifice for clogging.
Install a new O-ring on the oil orifice.
Install the oil orifice with its smaller hole facing in.



Install the dowel pins and new gasket.

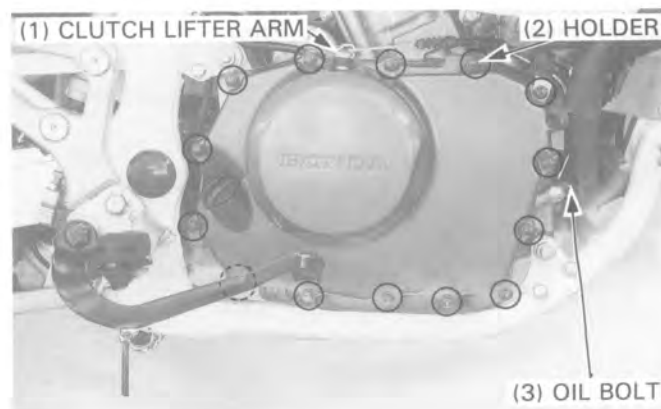


Tighten the right crankcase cover mounting bolts in a crisscross pattern in 2 or 3 steps and install the clutch cable holder and oil pipe holder at the same time.
Connect the clutch cable to the clutch lifter arm.

Tighten the oil pipe bolt with the new sealing washers.

TORQUE: 23 N·m (2.3 kg·m, 17 ft·lb)

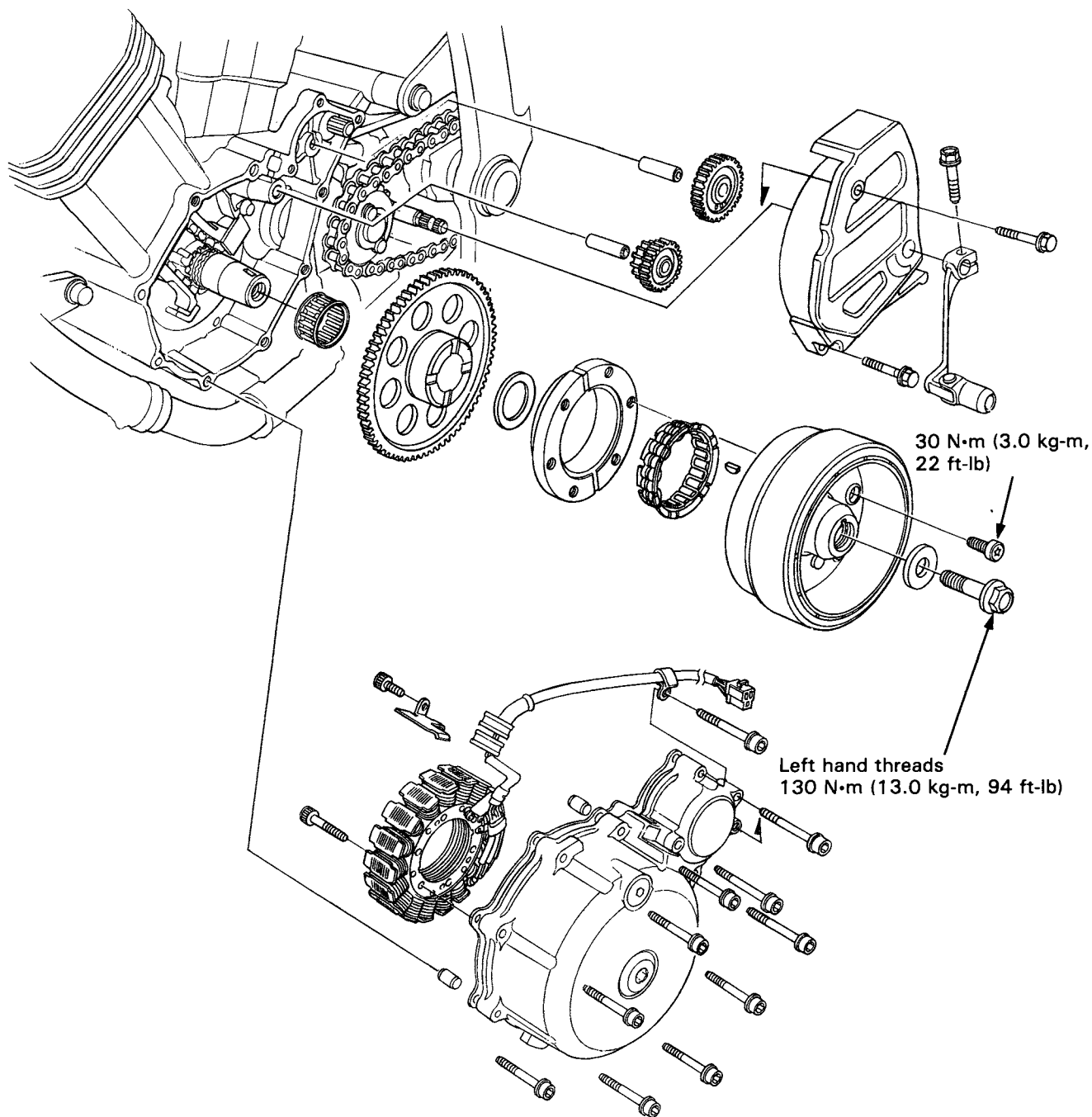
Install the exhaust pipe/muffler (page 12-3).
Fill the crankcase with engine oil (page 2-3).
Adjust the clutch lever free play (page 3-14).



ALTERNATOR/STARTER CLUTCH

**ALTERNATEUR/ROUE LIBRE DE
DEMARREUR**

LICHTMASCHINE/KICKSTÄRTER



ALTERNATOR/STARTER CLUTCH

SERVICE INFORMATION	8-1	FLYWHEEL INSTALLATION	8-5
LEFT CRANKCASE COVER REMOVAL	8-2	LEFT CRANKCASE COVER	
FLYWHEEL REMOVAL	8-3	INSTALLATION	8-6
STARTER CLUTCH	8-3		

SERVICE INFORMATION

GENERAL

- This section covers the removal and installation of the alternator, starter clutch and starter gears.
- Refer to section 15 for troubleshooting and inspection of the alternator.

SPECIFICATIONS

Unit: mm (in)

ITEM	STANDARD	SERVICE LIMIT
Starter driven gear O.D.	57.749—57.768 (2.2736—2.2743)	57.60 (2.268)

TORQUE VALUES

Flywheel bolt	130 N·m (13.0 kg-m, 94 ft-lb) Left-hand thread
Starter clutch torx bolts	30 N·m (3.0 kg-m, 22 ft-lb) Apply locking agent to the threads

TOOLS

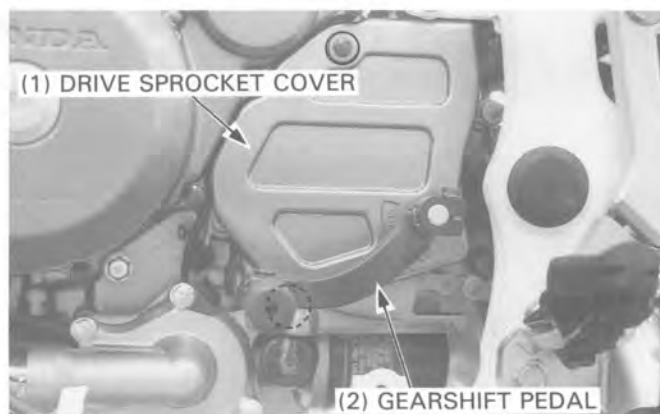
Common	
Rotor puller	07733—0020001
Flywheel holder	07725—0040000
Torx bit	07703—0010100

MEMO

LEFT CRANKCASE COVER REMOVAL

Remove the skid plate (page 2-3).

Remove the gearshift pedal and drive sprocket cover.



Remove the seat (page 12-3).

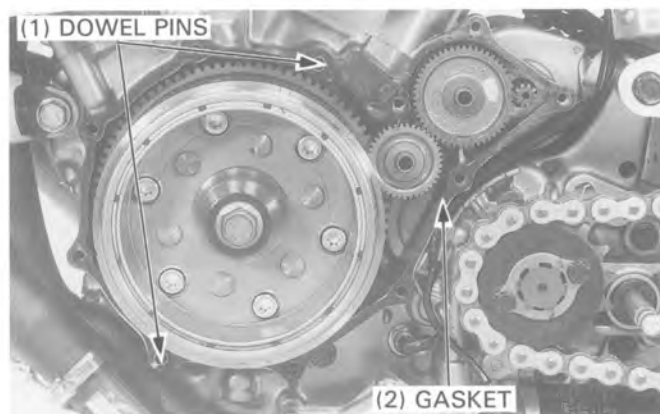
Disconnect the alternator wire 3P connector (WHITE).

Place a container under the left crankcase cover to catch the engine oil.

Remove the eleven left crankcase cover bolts and the cover.



Remove the dowel pins and gasket.

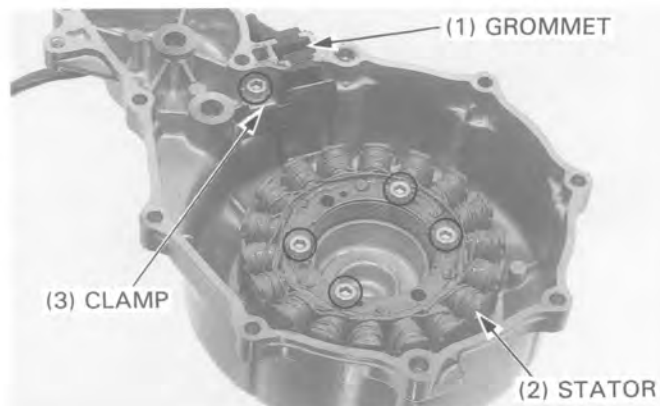


STATOR REPLACEMENT

Remove the wire clamp bolt and the clamp.
Remove the stator mounting bolts and stator.

Position the new stator and the grommets in the cover.
Apply a locking agent to the threads of the stator mounting bolts.

Tighten the stator mounting bolts and the clamp bolts.



FLYWHEEL REMOVAL

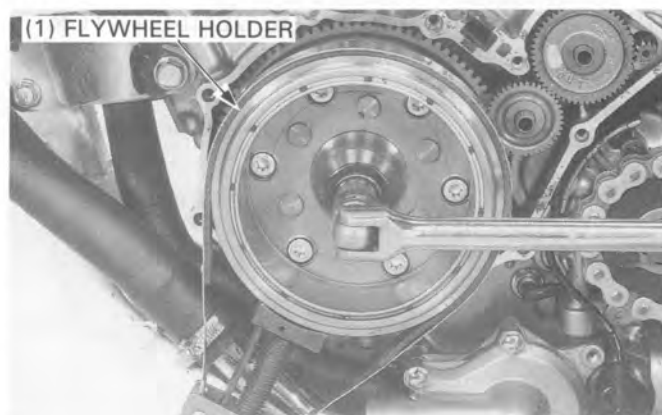
Hold the flywheel with the flywheel holder and remove the flywheel bolt and washer.

TOOL:

Flywheel holder 07725—0040000

NOTE

- The flywheel bolt has left-hand threads.

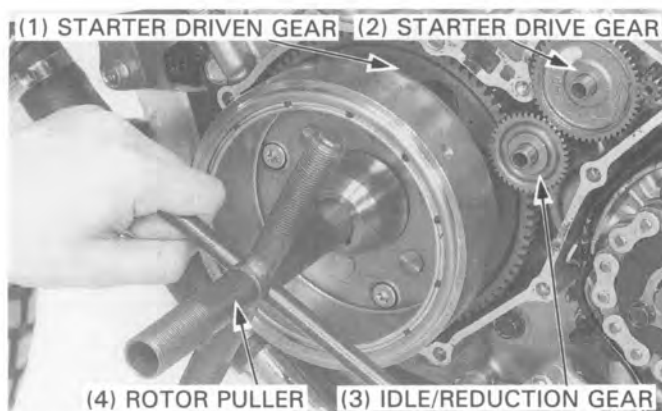


Remove the flywheel with the rotor puller.

TOOL:

Rotor puller 07733—0020001

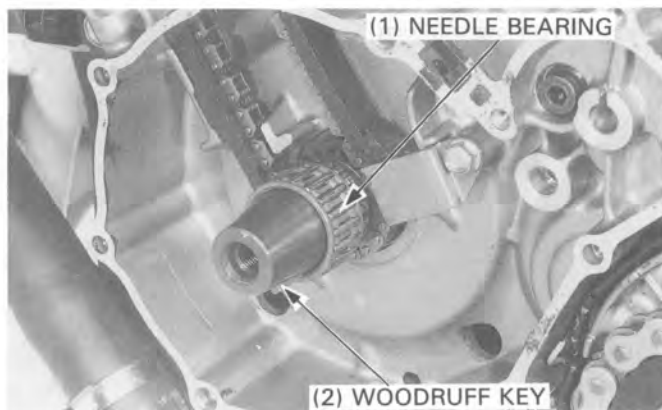
Remove the starter drive, idle/reduction and driven gears.



Remove the needle bearing from the crankshaft, then remove the woodruff key.

NOTE

- Do not lose the woodruff key.



STARTER CLUTCH

DISASSEMBLY

Reinstall the starter driven gear into the flywheel.

Inspect the starter clutch by turning the starter driven gear. The gear should turn counterclockwise freely and should not turn clockwise: if it turns incorrectly, replace the starter clutch.



ALTERNATOR/STARTER CLUTCH

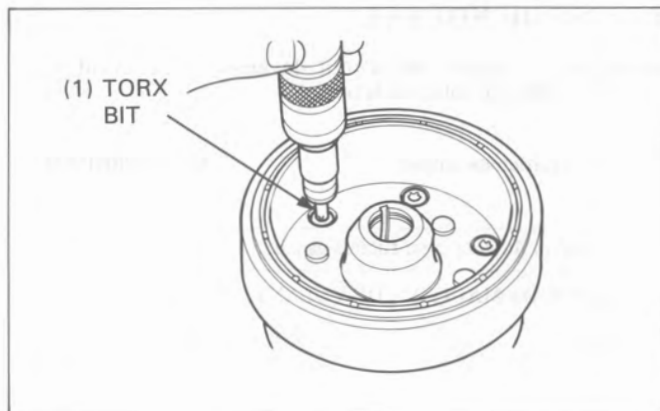
Remove the torx bolts using a torx bit and a shock driver.

Remove the starter clutch outer and oneway clutch.

TOOL:

Torx bit

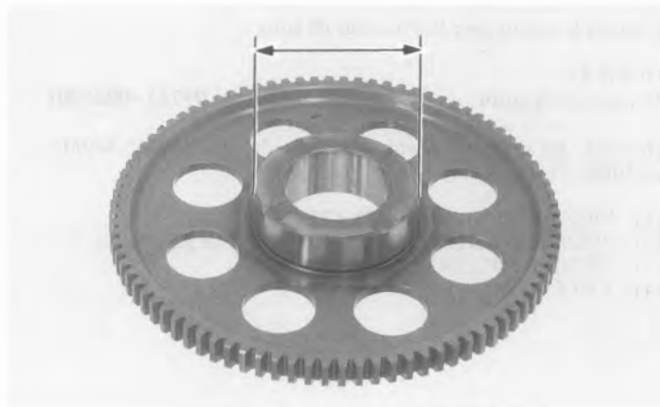
07703—0010100



INSPECTION

Measure the O.D. of the starter driven gear.

SERVICE LIMIT: 57.60 mm (2.268 in)

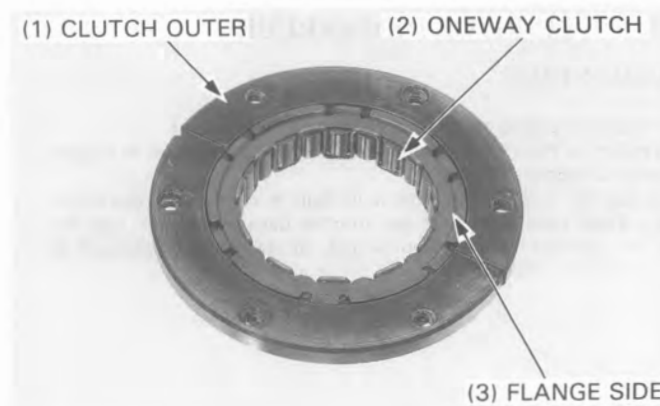


Inspect the oneway clutch for wear or damage and replace if necessary.



ASSEMBLY

Install the oneway clutch into the clutch outer so that the flange side faces to the flywheel.



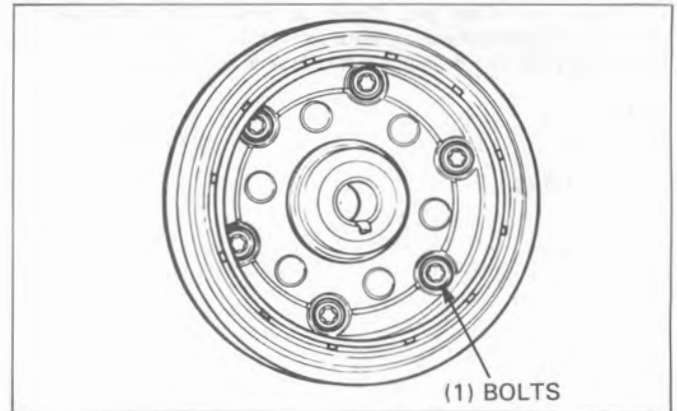
ALTERNATOR/STARTER CLUTCH

Hold the flywheel with the flywheel holder. Apply locking agent to the torx bolt threads and tighten the bolts.

TORQUE: 30 N·m (3.0 kg-m, 22 ft-lb)

TOOLS:

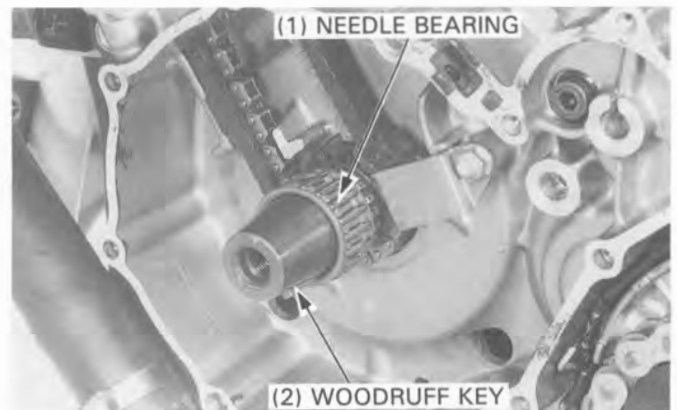
Flywheel holder	07725-0040000
Torx bit	07703-0010100



FLYWHEEL INSTALLATION

Clean the crankshaft and install the woodruff key.

Install the needle bearing onto the crankshaft.



Install the starter driven gear and flywheel, aligning the woodruff key on the crankshaft with the flywheel keyway.

Install the starter idle/reduction gear with the longer shaft.

Install the starter drive gear with the "OUT" mark facing out and the shorter shaft, if the gear is removed.



Hold the flywheel with the flywheel holder, install the washer and flywheel bolt and tighten the bolt.

TORQUE: 130 N·m (13.0 kg-m, 94 ft-lb)

TOOL:

Flywheel holder	07725-0040000
-----------------	---------------

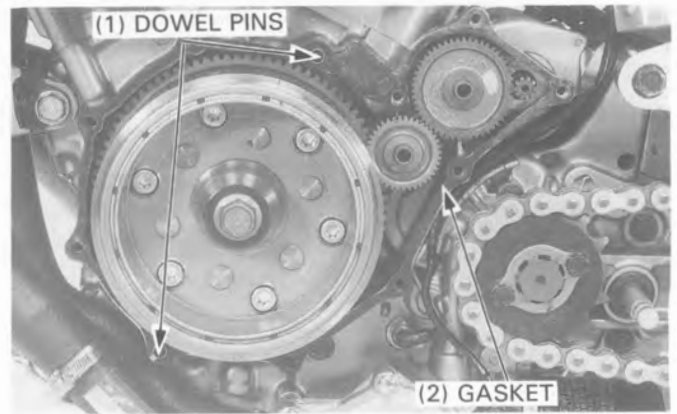
NOTE

- The flywheel bolt has left hand threads.



LEFT CRANKCASE COVER INSTALLATION

Install the dowel pins and new gasket.



Install the left crankcase cover and tighten the cover bolts.

NOTE

- Route and clamp the alternator wire, neutral and oil pressure switch wire harnesses properly (page 1-9).

Connect the alternator wire 3P connector.



Install the drive sprocket cover and the gearshift pedal aligning the slit of the pedal with the punch mark on the spindle.

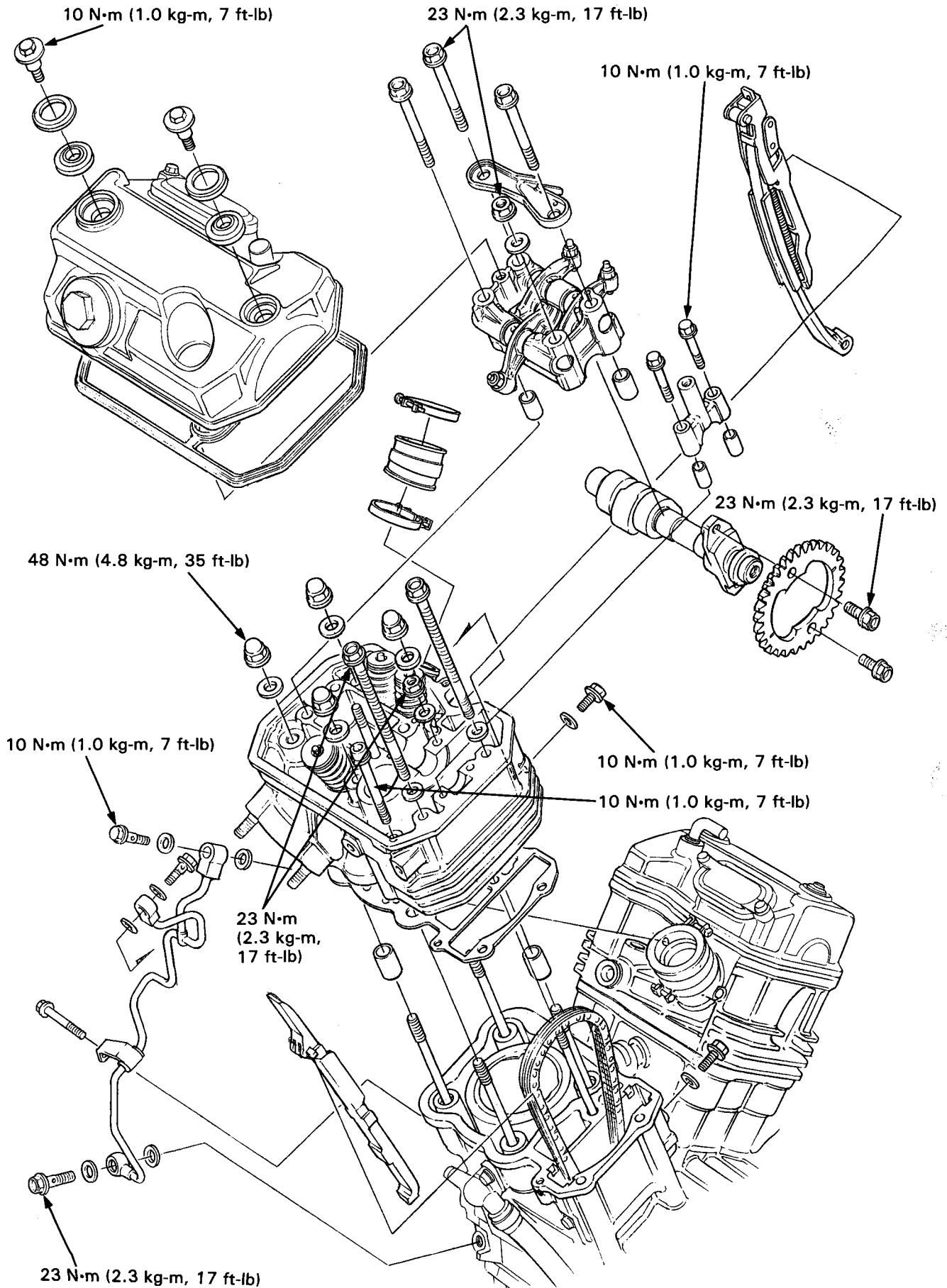
Check the engine oil level and add the oil if necessary.



CYLINDER HEAD/VALVE

CULASSE/SOUPAPE

ZYLINDERKOPF/VENTILE



CYLINDER HEAD/VALVE

SERVICE INFORMATION	9-1	VALVE SEAT INSPECTION/REFACING	9-11
TROUBLESHOOTING	9-2	CYLINDER HEAD ASSEMBLY	9-14
CYLINDER HEAD COVER REMOVAL	9-3	CYLINDER HEAD INSTALLATION	9-15
CAMSHAFT REMOVAL	9-3	CAMSHAFT INSTALLATION	9-16
CYLINDER HEAD	9-7	CYLINDER HEAD COVER	
VALVE GUIDE REPLACEMENT	9-10	INSTALLATION	9-19

SERVICE INFORMATION

GENERAL

- To service the cylinder head, the engine must be removed from the frame; you can service the cylinder head cover, rocker arm, camshaft, cam chain and cam chain tensioner without removing the engine.
- Camshaft lubricating oil is fed through an oil pass pipe. Be sure the holes in the oil pass pipe bolts are not clogged.
- During assembly apply molybdenum disulfide (MoS₂) paste grease to the camshaft holders, camshaft journals of the cylinder head, rocker arm shafts, rocker arm slipper faces and valve stems to provide initial lubrication.

SPECIFICATIONS

Unit: mm (in)

ITEM				STANDARD	SERVICE LIMIT
Compression pressure				1,324 kPa (13.5 ± 2.0 kg/cm ² , 192 ± 28 psi)	—
Camshaft	Cam lobe height	IN		38.189 (1.5035)	38.17 (1.503)
		EX		38.213 (1.5044)	38.19 (1.504)
	Journal O.D.		21.959—21.980 (0.8645—0.8654)	21.95 (0.864)	
	Runout		0.030 (0.0012)	0.05 (0.002)	
	Oil clearance		0.050—0.111 (0.0020—0.0044)	0.13 (0.005)	
Rocker arm	Rocker arm I.D.	IN/EX		12.000—12.018 (0.4724—0.4731)	12.03 (0.474)
	Rocker arm shaft O.D.	IN/EX		11.966—11.984 (0.4711—0.4718)	11.96 (0.471)
Valve and valve guide	Valve stem O.D.	IN		5.475—5.490 (0.2156—0.2161)	5.47 (0.215)
		EX		6.555—6.570 (0.2580—0.2587)	6.55 (0.258)
	Valve guide I.D.	IN		5.500—5.512 (0.2165—0.2170)	5.53 (0.218)
		EX		6.600—6.615 (0.2598—0.2604)	6.66 (0.262)
	Stem-to-guide clearance	IN		0.010—0.037 (0.0004—0.0015)	0.07 (0.003)
		EX		0.030—0.060 (0.0014—0.0024)	0.11 (0.004)
	Valve seat width		0.9—1.1 (0.035—0.043)		1.5 (0.06)
	Valve guide projection height	IN		19.4—19.6 (0.76—0.77)	—
EX		17.9—18.1 (0.70—0.71)	—		
Valve spring	Free length	OUTER	IN	42.14 (1.659)	40.58 (1.598)
			EX	42.83 (1.686)	41.25 (1.624)
		INNER	IN	38.11 (1.500)	36.47 (1.436)
			EX	38.81 (1.765)	37.51 (1.477)
Cylinder head warpage				—	0.10 (0.004)

TORQUE VALUES

Cylinder head cover bolt		10 N•m (1.0 kg-m, 7 ft-lb)
Camshaft holder	8 mm bolt	23 N•m (2.3 kg-m, 17 ft-lb)
	8 mm nut	23 N•m (2.3 kg-m, 17 ft-lb)
	6 mm bolt	10 N•m (1.0 kg-m, 7 ft-lb)
Cylinder head	10 mm nut	48 N•m (4.8 kg-m, 35 ft-lb)
	8 mm bolt	23 N•m (2.3 kg-m, 17 ft-lb)
	8 mm nut	23 N•m (2.3 kg-m, 17 ft-lb)
	6 mm bolt	10 N•m (1.0 kg-m, 7 ft-lb)
Camshaft sprocket bolt		23 N•m (2.3 kg-m, 17 ft-lb)
Cam chain tensioner bolt		10 N•m (1.0 kg-m, 7 ft-lb)
Oil pass pipe	7 mm bolt	10 N•m (1.0 kg-m, 7 ft-lb)
	8 mm bolt	23 N•m (2.3 kg-m, 17 ft-lb)

TOOLS

Special

Valve guide reamer (IN)	07984—2000001
Valve guide reamer (EX)	07984—ZE20001
Valve guide driver attachment (IN)	07943—MF50100
Valve guide driver attachment (EX)	07943—MF50200

Common

Valve guide driver, 5.5 mm (IN)	07742—0010100
Valve guide driver, 6.6 mm (EX)	07742—0010200
Valve spring compressor	07757—0010000

Valve seat cutter

Cutter holder	IN 5.5 mm	07781—0010101
	EX 6.6 mm	07781—0010201
Flat cutter	IN 28 mm (32°)	07780—0012100
	EX 35 mm (32°)	07780—0012300
Interior cutter	IN 30 mm (60°)	07780—0014000
	EX 37.5 mm (60°)	07780—0014100
Seat cutter	IN 27.5 mm (45°)	07780—0010200
	EX 35 mm (45°)	07780—0010400

TROUBLESHOOTING

Engine top-end problems are usually performance-related and can usually be diagnosed by a compression test. Engine noises can usually be traced to the top-end with a sounding rod or stethoscope.

Uneven or low compression

- Valves
 - Incorrect valve adjustment
 - Burned or bent valves
 - Incorrect valve timing
 - Broken valve spring
- Cylinder head
 - Leaking or damaged head gasket
 - Warped or cracked cylinder head
- Cylinder and piston (Refer to Section 10)

Excessive noise

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

Poor idling

- Compression too low

High compression

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

CYLINDER HEAD COVER REMOVAL

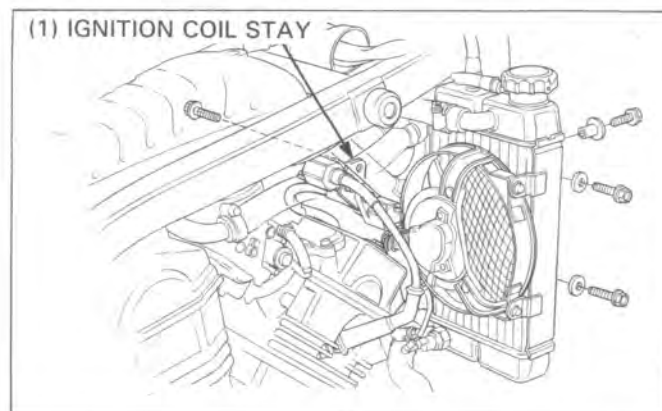
Remove the carburetor (page 4-5).

Front cylinder head cover only:

Remove the right radiator mounting bolts.

Remove the spark plug caps from the plugs.

Remove the ignition coil stay from the frame.

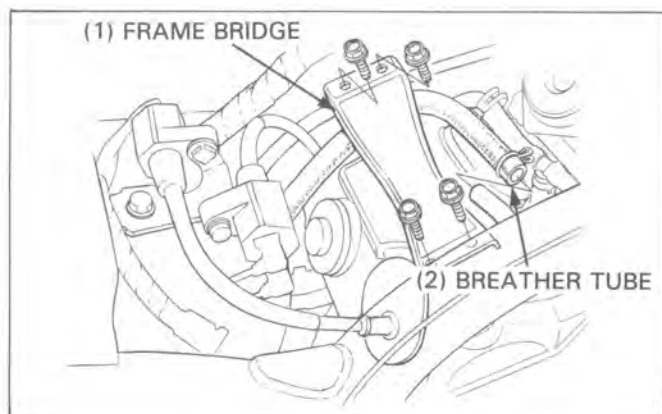


Rear cylinder head cover only:

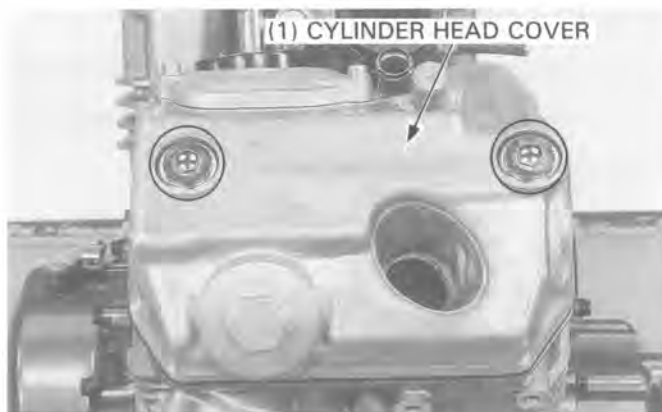
Remove the spark plug caps from the plugs.

Remove the frame bridge from the frame.

Disconnect the breather tube from the cylinder head cover.



Remove the cylinder head cover bolts and cover.

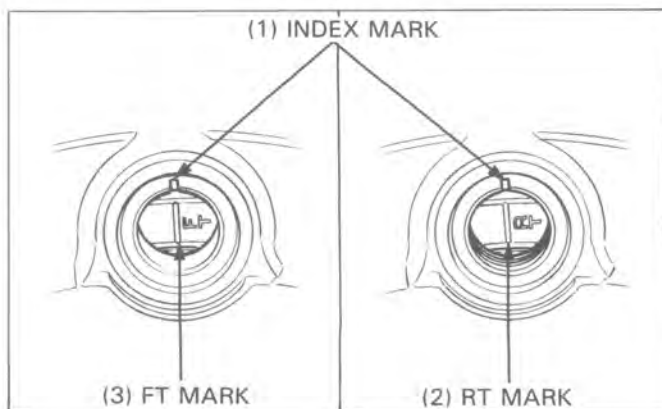


CAMSHAFT REMOVAL

Remove the cylinder head covers.

Remove the timing hole cap and crankshaft hole cap from the left crankcase cover.

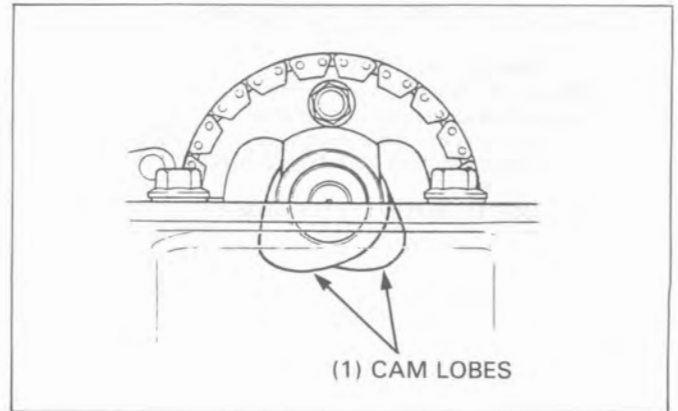
Align the FT mark (rear: RT mark) on the flywheel with the index mark on the left crankcase cover timing hole by turning the crankshaft counterclockwise.



CYLINDER HEAD/VALVE

Make sure the piston is at TDC (TOP DEAD CENTER) on the compression stroke with cam lobes are all facing down.

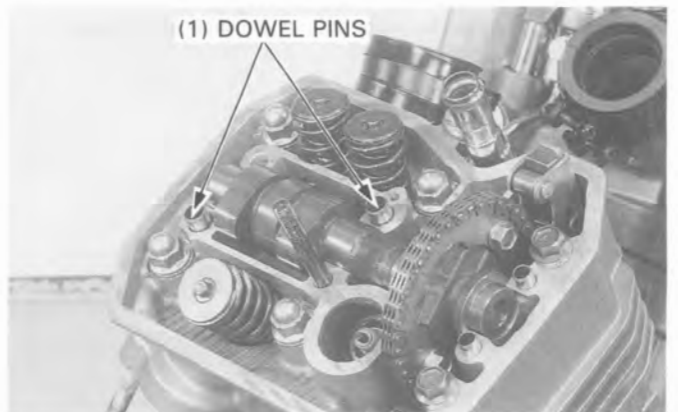
If the cam lobe is facing up at TDC, turn the crankshaft 360° counterclockwise, and re-align the marks.



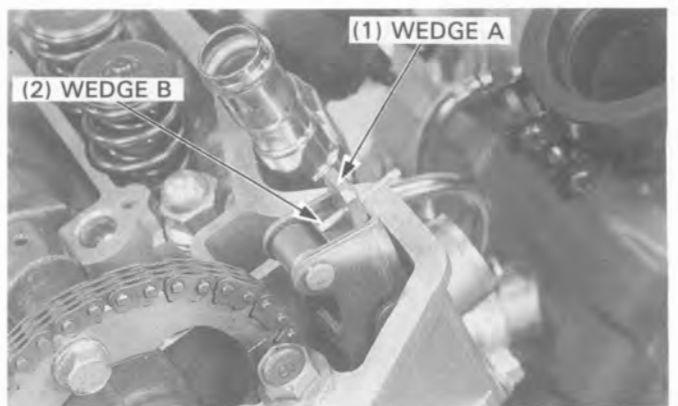
Remove the camshaft holder mounting bolts and nut, oil guide plate and camshaft holders.



Remove the dowel pins.



Pull cam chain tensioner wedge A straight up while holding wedge B down.
Secure wedge A with a 2 mm pin as shown.

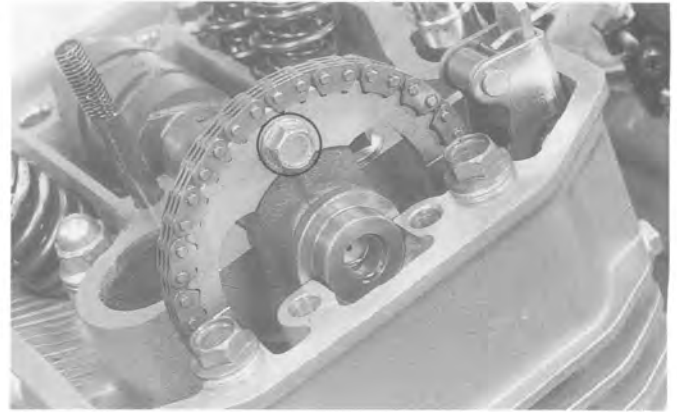


CYLINDER HEAD/VALVE

Remove the cam sprocket bolt, rotate the crankshaft counter-clockwise one turn (360°) and remove the other cam sprocket bolt.

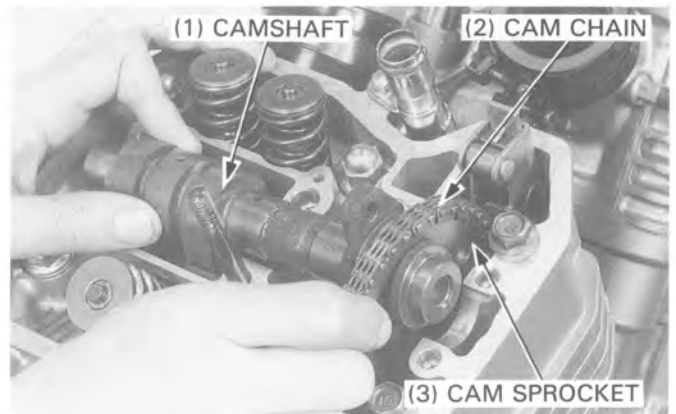
NOTE

- Be careful not to let the cam sprocket bolts fall into the crankcase.



Hang the cam chain on the camshaft behind the camshaft flange and remove the cam sprocket while lifting the camshaft out.

Attach a piece of wire to the cam chain to prevent it from being dropped into the crankcase.



INSPECTION

Cylinder head

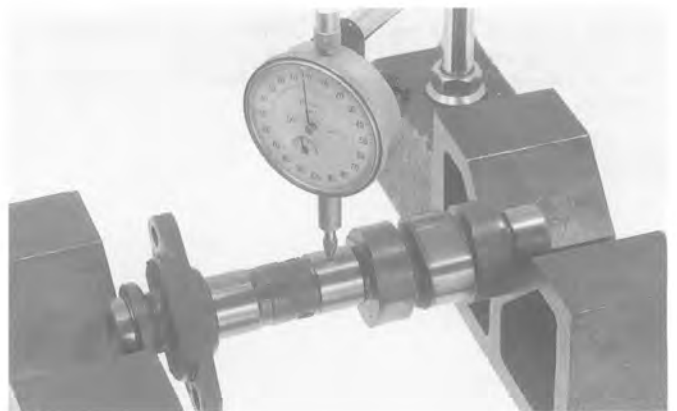
Inspect the camshaft holder and cylinder head journal surfaces for scoring or evidence of insufficient lubrication.



Camshaft runout

Support both ends of the camshaft with V-blocks and check the camshaft runout with a dial indicator.

SERVICE LIMIT: 0.05 mm (0.002 in)



CYLINDER HEAD/VALVE

Using a micrometer, measure the height of each cam lobe.

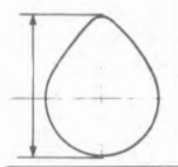
SERVICE LIMIT:

IN: 38.17 mm (1.503 in)

EX: 38.19 mm (1.504 in)

Check the camshaft journals for wear or damage.
Measure the O.D. of each journal.

SERVICE LIMIT: 21.95 mm (0.864 in)

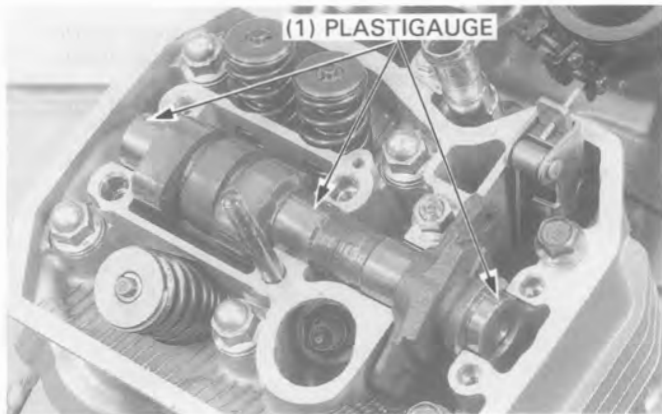


Camshaft bearing oil clearance

Wipe any oil from the journals. Lay a strip of plastigauge lengthwise on top of each camshaft journal.

NOTE

- Avoid placing plastigauge over the oil hole.



Install the camshaft holders and tighten the mounting bolts in a crisscross pattern in 2 or 3 steps.

NOTE

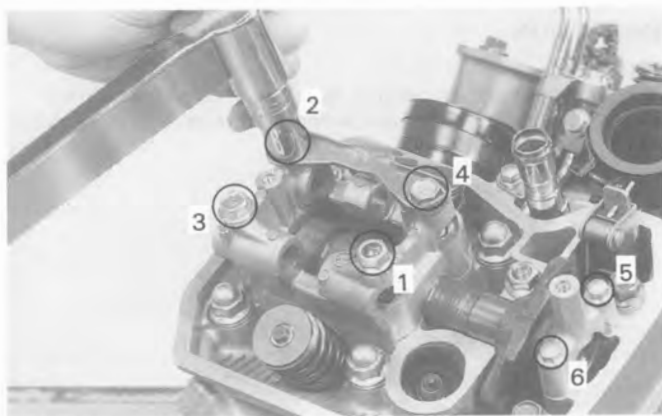
- Do not rotate the camshaft when using plastigauge.

TORQUE:

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

8 mm flange bolt: 23 N·m (2.3 kg-m, 17 ft-lb)

8 mm flange nut: 23 N·m (2.3 kg-m, 17 ft-lb)



Remove the camshaft holder and measure the width of each plastigauge. The widest thickness determines the oil clearance.

SERVICE LIMIT: 0.13 mm (0.005 in)

When the service limit is exceeded, replace the camshaft and recheck the oil clearance.

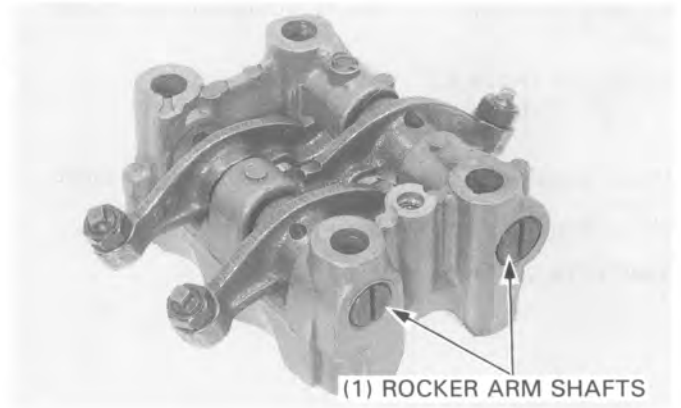
Replace the cylinder head and camshaft holder if the clearance still exceeds the service limit.



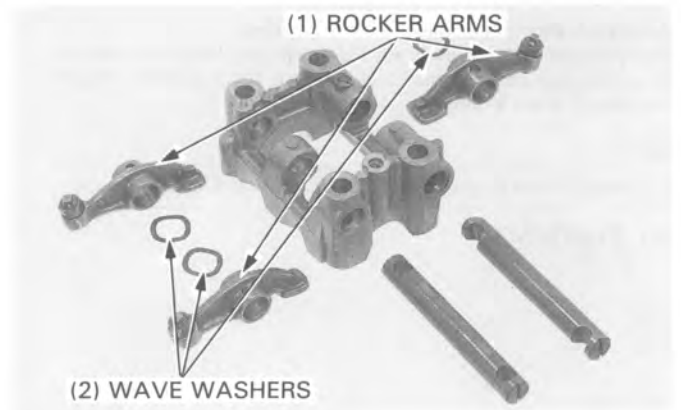
CYLINDER HEAD/VALVE

Camshaft holder/Rocker arm shaft/Rocker arm

Remove the rocker arm shafts by tapping the holder with a soft hammer.



Remove the rocker arms and wave washers from the shafts.



Inspect the rocker arm shafts and rocker arms for wear or damage.

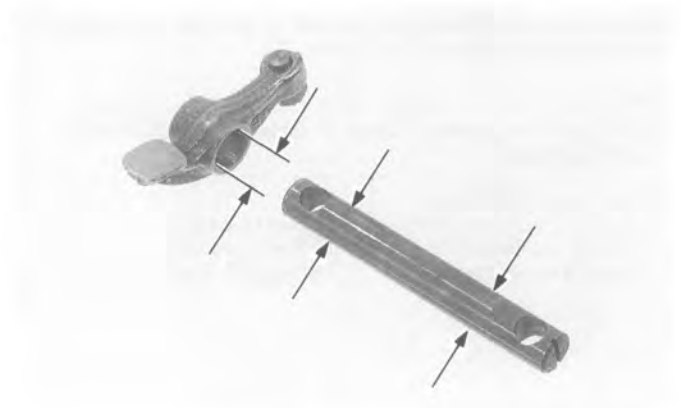
Check the rocker arms for clogged oil holes.

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

SERVICE LIMIT: 11.96 mm (0.471 in)

Measure the I.D. of each rocker arm.

SERVICE LIMIT: 12.03 mm (0.474 in)



CYLINDER HEAD

REMOVAL

Remove the engine from the frame (page 6-2).

Remove the camshaft (page 9-3).

Remove the oil pipe from the engine.

NOTE

- Do not bend the oil pipe during removal.

Remove the water pipes.



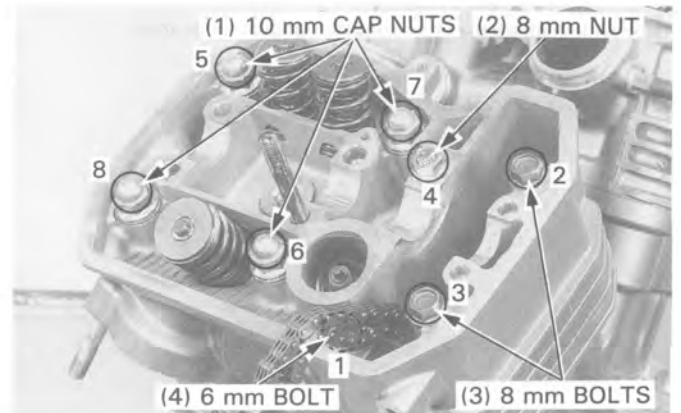
CYLINDER HEAD/VALVE

Remove the cam chain tensioner mounting bolts and washers from the cylinder head and cylinder.

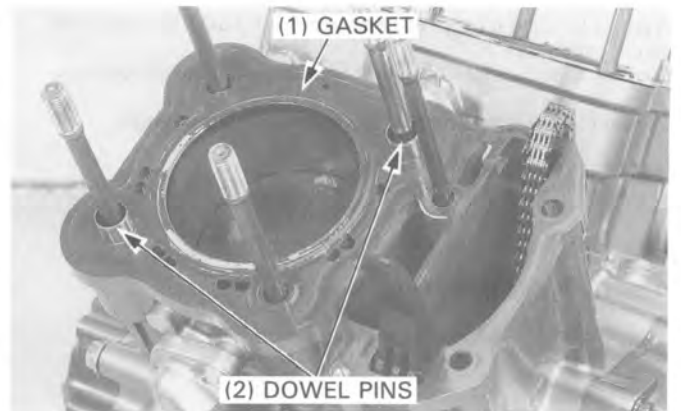


Loosen the 6 mm bolt, 8 mm bolts, 8 mm nut and 10 mm nuts/washers in a criss-cross pattern in 2 or 3 steps. Remove the bolts and nuts.

Remove the cylinder head.



Remove the gasket, dowel pins and cam chain guide from the cylinder.



DISASSEMBLY/INSPECTION

Remove the valve spring cotters, retainers, springs, and valves using a 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.

Remove the carbon deposits from the combustion chamber.



CYLINDER HEAD/VALVE

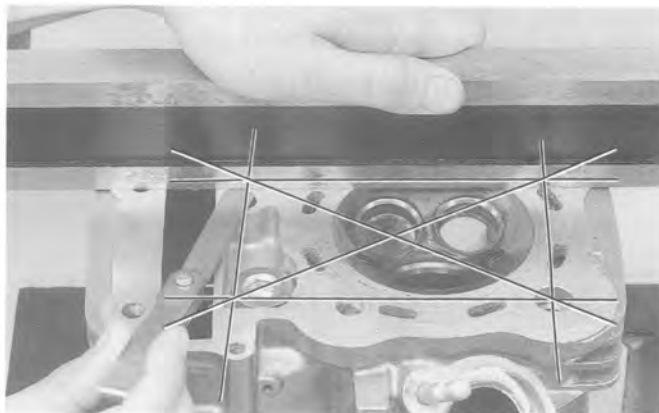
Cylinder head

CAUTION

- *Avoid damaging the gasket surfaces.*

Check the spark plug hole and valve areas for cracks. Check the cylinder head for warpage with the straight edge and feeler gauge.

SERVICE LIMIT: 0.10 mm (0.004 in)



Valve springs

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

SERVICE LIMITS:

INNER (IN): 36.47 mm (1.436 in)

(EX): 37.51 mm (1.477 in)

OUTER (IN): 40.58 mm (1.598 in)

(EX): 41.25 mm (1.624 in)

Replace the springs as a set if they are shorter than the service limits.



Valve stem-to-guide clearance

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

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

SERVICE LIMITS:

IN: 5.47 mm (0.215 in)

EX: 6.55 mm (0.258 in)

Measure and record each valve guide I.D.

NOTE

- Ream the guides to remove any carbon deposits before checking clearances.

SERVICE LIMITS:

IN: 5.53 mm (0.218 in)

EX: 6.66 mm (0.262 in)

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

SERVICE LIMITS:

IN: 0.07 mm (0.003 in)

EX: 0.11 mm (0.004 in)



CYLINDER HEAD/VALVE

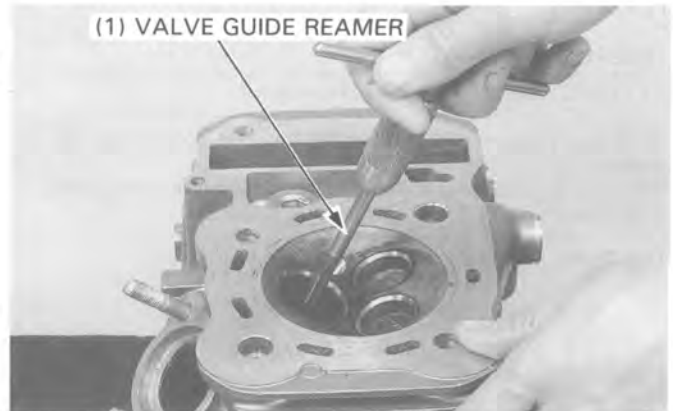
If the stem-to-guide clearance exceeds the service limits, determine if a new guide with standard dimensions would bring the clearance within tolerance. If so, replace any guides as necessary and ream to fit.

TOOLS:

Valve guide reamer IN: 07984—2000001
EX: 07984—ZE20001

NOTE

- Always rotate the reamer clockwise, never counterclockwise.



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

NOTE

- Reface the valve seats whenever the valve guides are replaced.

VALVE GUIDE REPLACEMENT

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

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

⚠ 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.

TOOLS:

Valve guide driver IN: 07742—0010100
EX: 07742—0010200

NOTE

- Avoid damaging the cylinder head.



CYLINDER HEAD/VALVE

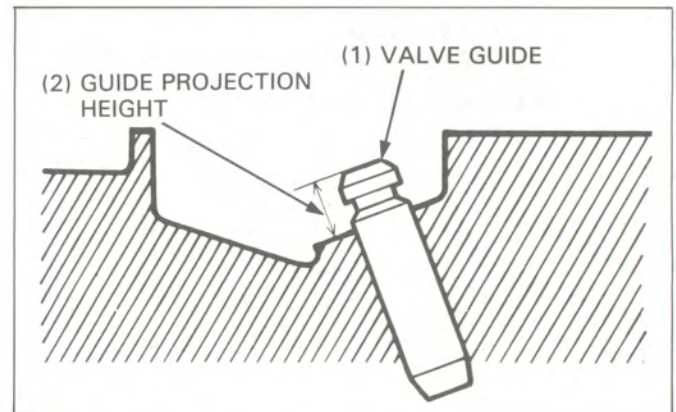
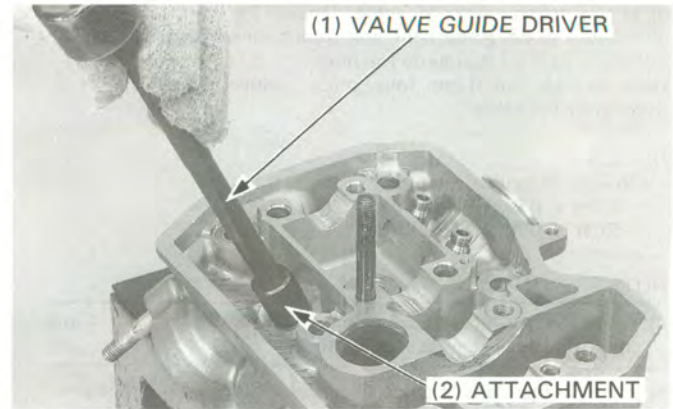
Make note of the valve guide projection specifications (following), then drive in new guides from camshaft side of the cylinder head.

TOOLS:

Valve guide driver	5.5 mm (IN):	07742-0010100
	6.6 mm (EX):	07742-0010200
Attachment	5.5 mm (IN):	07943-MF50100
	6.6 mm (EX):	07943-MF50200

VALVE GUIDE PROJECTION HEIGHT:

IN:	19.4–19.6 mm (0.76–0.77 in)
EX:	17.9–18.1 mm (0.70–0.71 in)



Ream the new valve guides after installation.

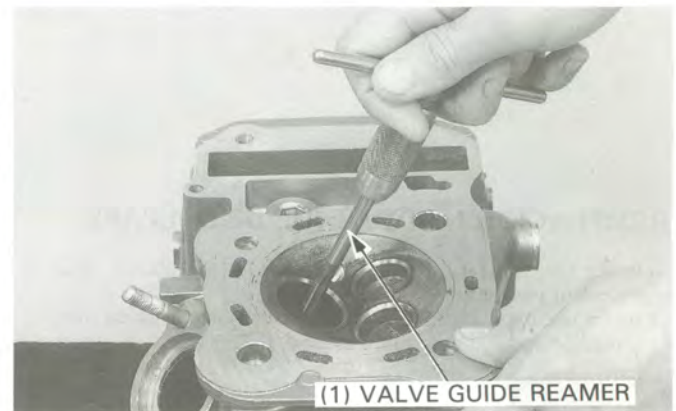
NOTE

- Use cutting oil on the reamer during this operation.
- Always rotate the reamer clockwise, never counterclockwise.

Clean the head thoroughly after reaming the valve guides.

TOOLS:

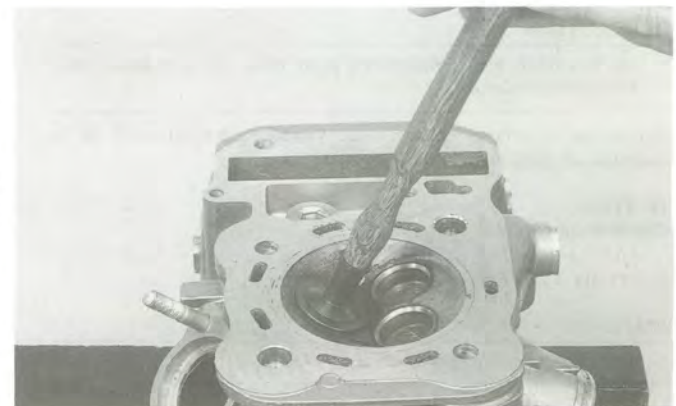
Valve guide reamer	IN:	07984-2000001
	EX:	07984-ZE20001



VALVE SEAT INSPECTION/REFACING

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

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



CYLINDER HEAD/VALVE

Remove and inspect each valve.

CAUTION

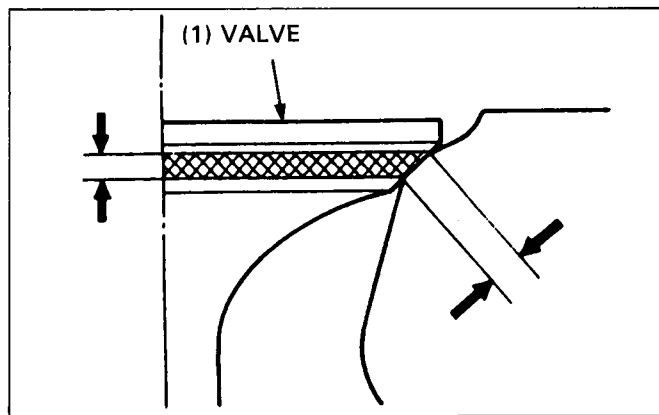
- *The valves cannot be ground. If a valve face is burned or badly worn or if it contacts the seat unevenly, replace the valve.*

Inspect the width of each valve seat.

STANDARD: 0.9–1.1 mm (0.035–0.043 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.

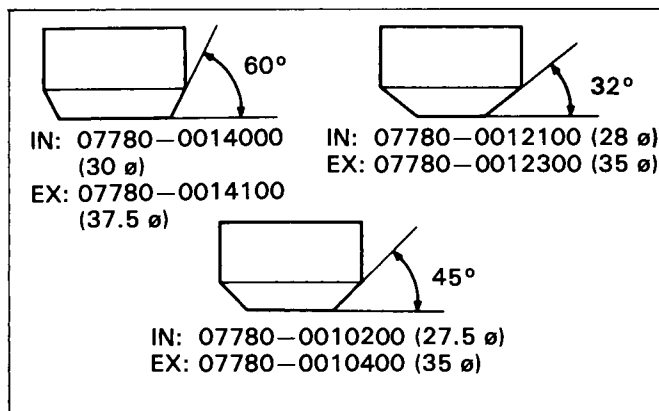


VALVE SEAT CUTTERS

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

NOTE

- Follow the refacer manufacturer's operating instructions.

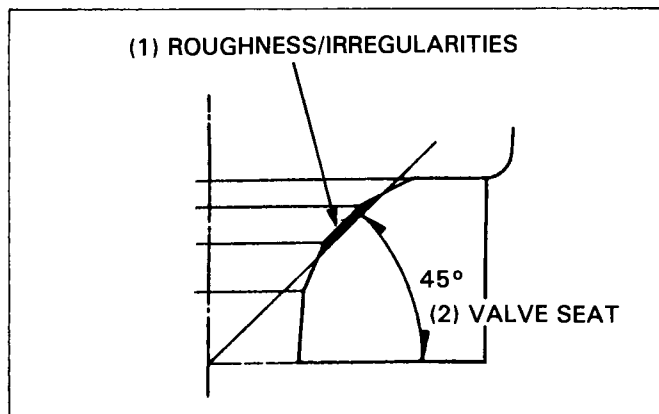


VALVE SEAT REFACING

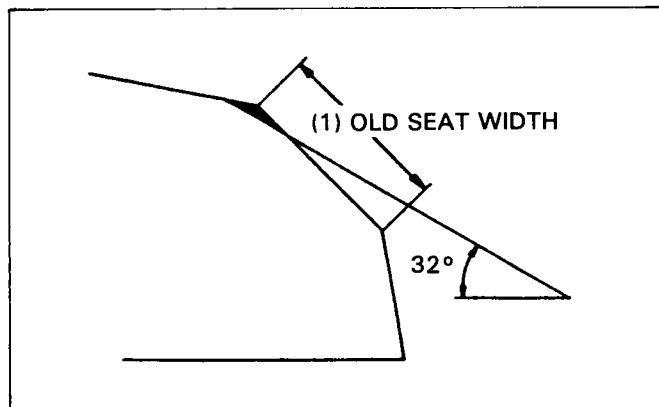
Use a 45 degree cutter to remove any roughness or irregularities from the seat.

NOTE

- Reface the seat with a 45 degree cutter when a valve guide is replaced.

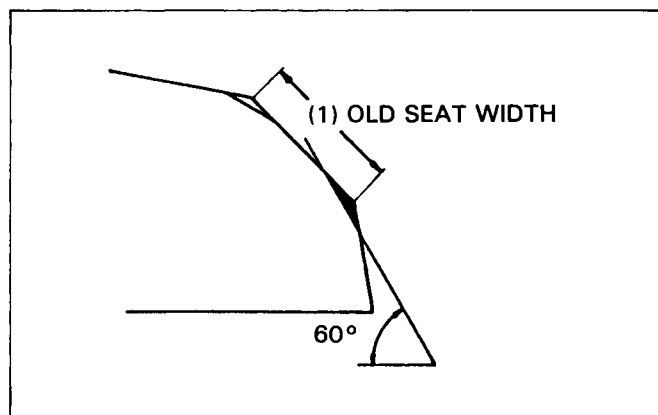


Use a 32 degree cutter to remove the top 1/4 of the existing valve seat material.

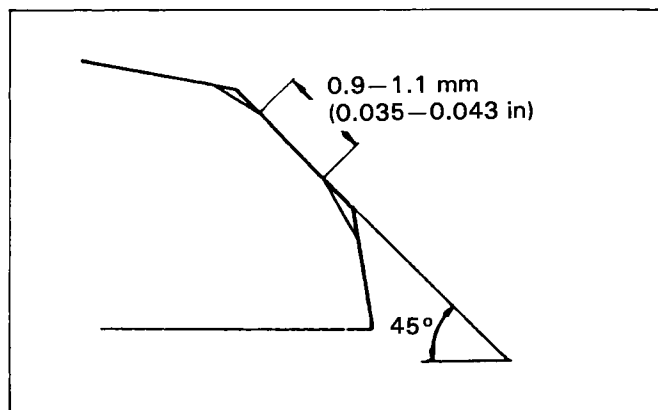


CYLINDER HEAD/VALVE

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



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

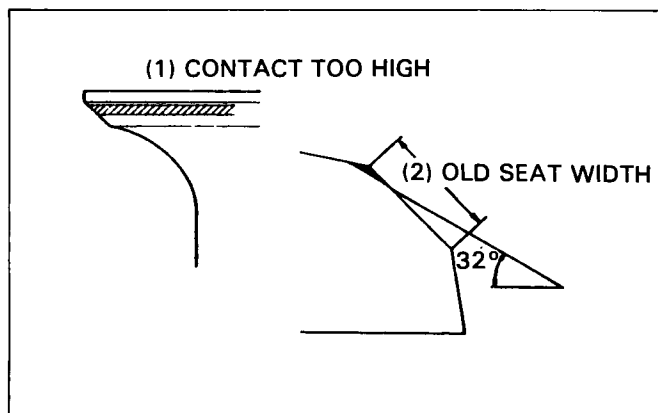


Apply a thin coating of Prussian Blue to the valve seat. Press the valve through the valve guide and onto the seat to make a clear pattern.

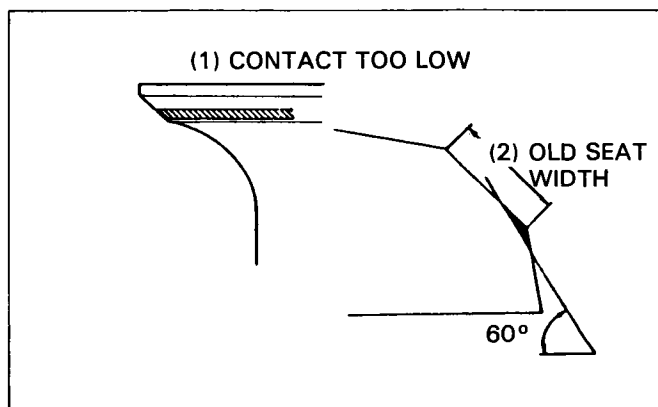
NOTE

- 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 degree flat cutter.



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



CYLINDER HEAD/VALVE

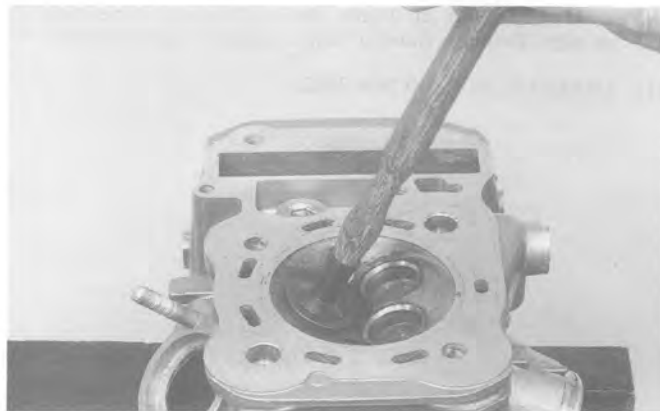
Refinish the seat to specifications, using a 45 degree finish cutter.

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

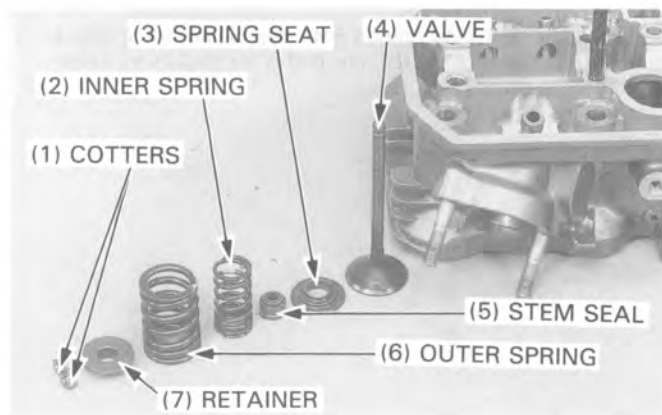
- Do not allow lapping compound to enter the guides.



CYLINDER HEAD ASSEMBLY

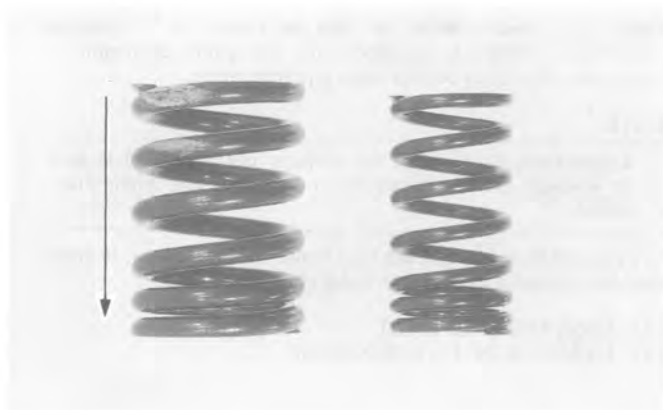
Install the valve spring seats and new stem seals. Lubricate each valve stem with MoS₂ paste grease and insert the valve into the valve guide. Turn the valve slowly while inserting to avoid damaging the seals.

Move the valves up and down to check for smooth operation.



Install the valve springs with the tightly wound coils facing the combustion chamber.

Install the spring retainers.



Compress the springs and install the valve cotters.

CAUTION

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

TOOL:

Valve spring compressor

07757-0010000

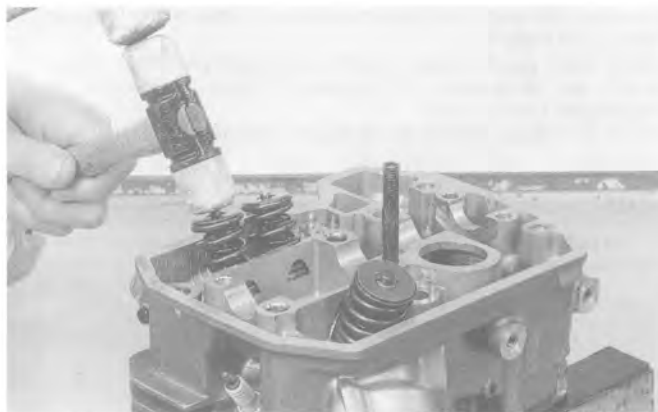


CYLINDER HEAD/VALVE

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

NOTE

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



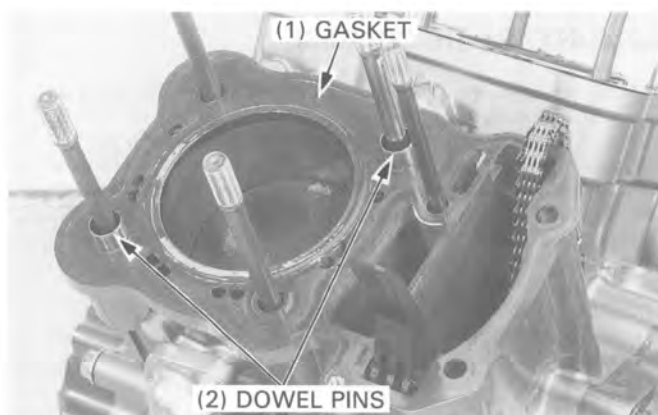
CYLINDER HEAD INSTALLATION

Install the cam chain guide into the cylinder.

Make sure that the cam chain guide bosses are in the grooves of cylinder.

Clean the cylinder head surface of any gasket material.

Install the dowel pins and a new head gasket.

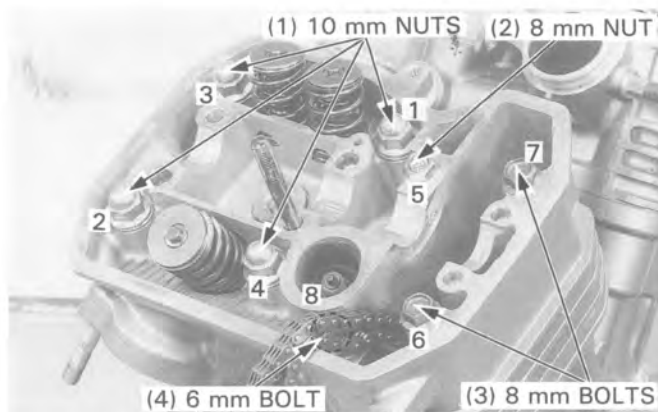


Install the cylinder head.

Install the 10 mm nut/washer, 8 mm nut/washer, 8 mm bolt/washer and 6 mm bolt and tighten them in a crisscross pattern in 2 or 3 steps.

TORQUE:

- 10 mm nut: 48 N·m (4.8 kg-m, 35 ft-lb)
- 8 mm bolt: 23 N·m (2.3 kg-m, 17 ft-lb)
- 8 mm nut: 23 N·m (2.3 kg-m, 17 ft-lb)
- 6 mm bolt: 10 N·m (1.0 kg-m, 7 ft-lb)



Install the cam chain tensioner into the cylinder head and tighten the mounting bolts with new sealing washers.

TORQUE: 10 N·m (1.0 kg-m, 7 ft-lb)



CYLINDER HEAD/VALVE

Check the oil pass pipe bolts and oil pass pipe for clogging or bending.

Install the oil pass pipe, new sealing washers, oil pass pipe bolts and the pipe holder bolt. Tighten the bolts.

TORQUE:

Oil pass pipe bolt.

7 mm: 10 N·m (1.0 kg-m, 7 ft-lb)

8 mm: 23 N·m (2.3 kg-m, 17 ft-lb)

Install the water pipes.

Install the carburetor insulator on the cylinder head, aligning the boss on the cylinder head with the slot in the insulator. Tighten the screw securely.

Install the following:

- camshaft
- cylinder head cover

Install the engine in the frame (page 6-3)

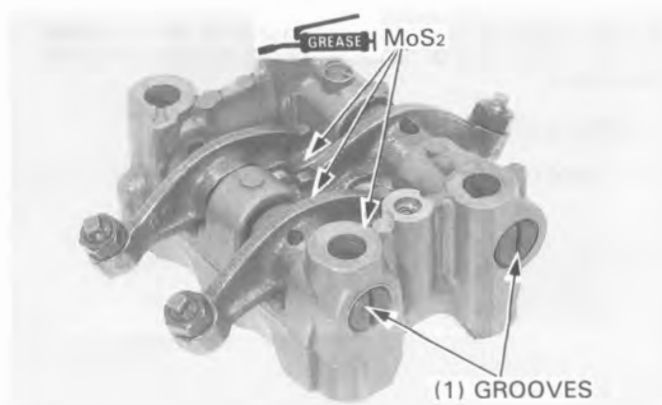
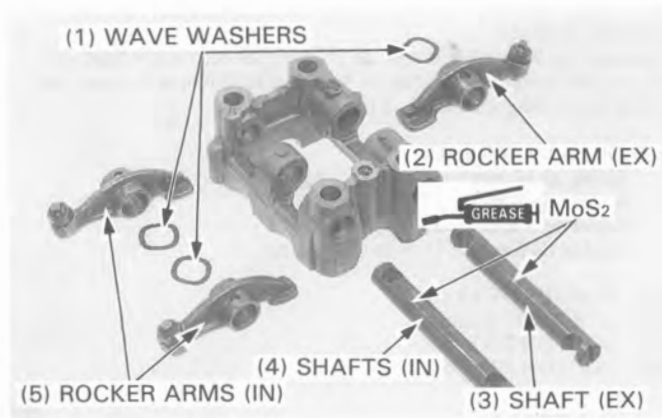
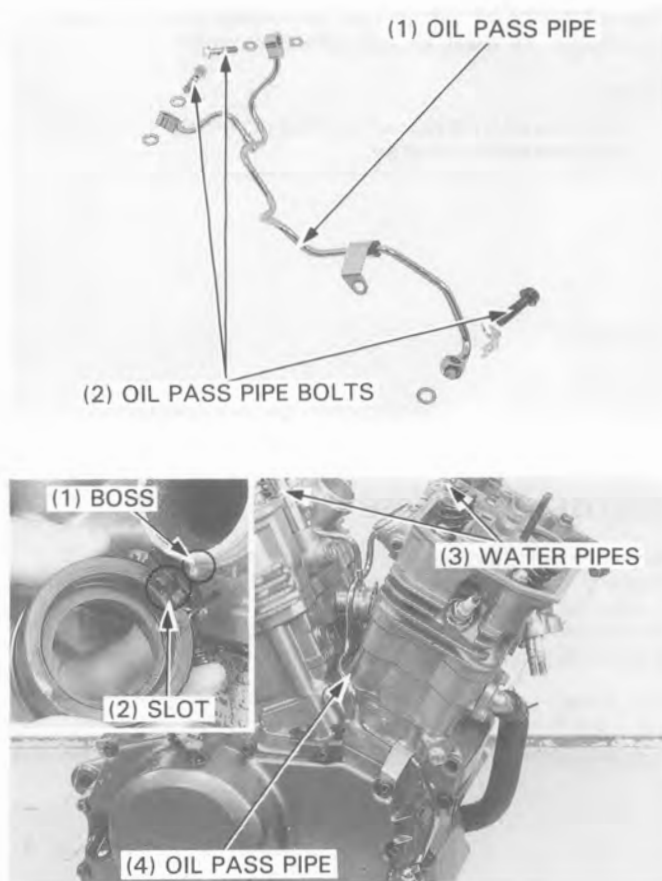
CAMSHAFT INSTALLATION

Apply MoS₂ paste grease to the rocker arm shafts. Install the rocker arms, rocker arm shafts and wave washers in the camshaft holders.

NOTE

- Install the wave washers in the proper position as shown.

Position the grooves in the rocker arm shafts vertically, aligning the bolt holes of the holder with the holes of the shafts. Apply MoS₂ grease to the rocker arm slipper faces.



CYLINDER HEAD/VALVE

NOTE

- If both the front and rear camshafts were removed, start the installation with front cylinder as described below.
- The camshafts are identified by marks on their flanges:
 - “F” Front cylinder camshaft
 - “R” Rear cylinder camshaft

FRONT CYLINDER

NOTE

- If the rear cylinder head was not serviced, remove the rear cylinder head cover and check the camshaft position as follows:
Turn the crankshaft counterclockwise and align the “RT” mark on the flywheel with the index mark on the timing hole, then check that the cam lobes are all facing down. If the can lobes are all facing down, turn the crankshaft counterclockwise 488° and begin installation of the front camshaft.
If the cam lobes are all facing up, turn the crankshaft counterclockwise 128° and begin installation.

Align the “FT” mark on the flywheel with the index mark on the timing hole with cam lobes are all facing down.

Lubricate the camshaft journal surface of the cylinder head with molybdenum disulfide grease.

Install the camshaft on the cylinder head through the cam chain and install the cam sprocket on the camshaft with the timing marks (index lines) facing the outside.

With the cam lobes are all facing down, align the timing marks (index lines) on the cam sprocket with the top of the cylinder head and place the cam chain on the sprocket.

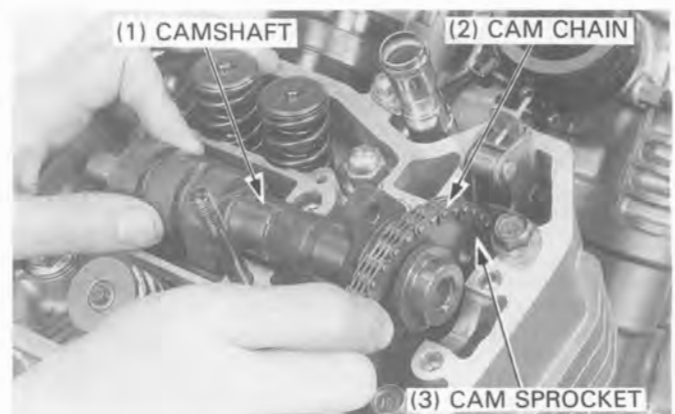
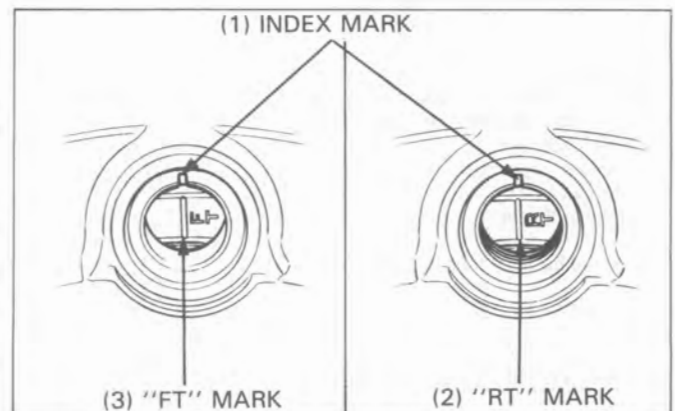
Install the cam sprocket on the camshaft flange and recheck that the timing marks (index lines) align with the top of the cylinder head.

Align the cam sprocket bolt holes in the cam sprocket and camshaft, install and tighten the cam sprocket bolt.

TORQUE: 23 N·m (2.3 kg·m, 17 ft·lb)

Turn the crankshaft counterclockwise 360° and install the other sprocket bolt.

After installing the front cylinder camshaft, turn the crankshaft counterclockwise 592° and align the RT mark with the index mark on the timing hole, then install the rear cylinder camshaft using the same procedure as for the front cylinder.



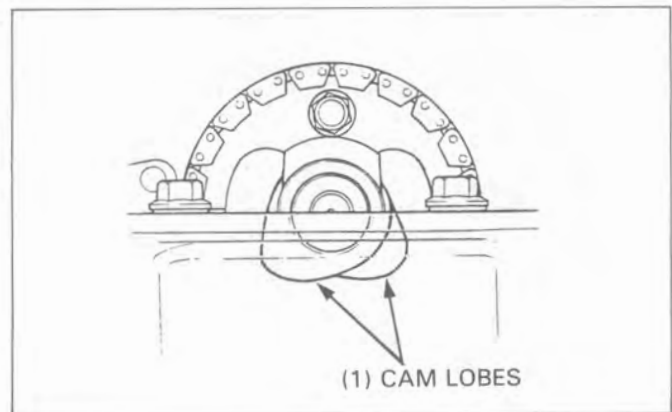
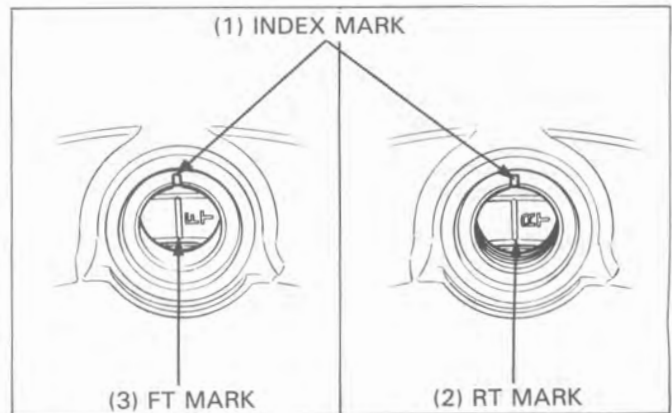
REAR CYLINDER

NOTE

- If the front cylinder head was not serviced, remove the front cylinder head cover and check the camshaft position as follows:
Turn the crankshaft counterclockwise and align the "FT" mark on the flywheel with the index mark on the timing hole, then check that the cam lobes are all facing down. If the cam lobes are all facing down, turn the crankshaft counterclockwise 232° and begin installation of the rear camshaft.
If the cam lobes are all facing up, turn the crankshaft counterclockwise 592° and begin installation.

Make sure that the "RT" mark on the flywheel aligns with the index mark on the timing hole.

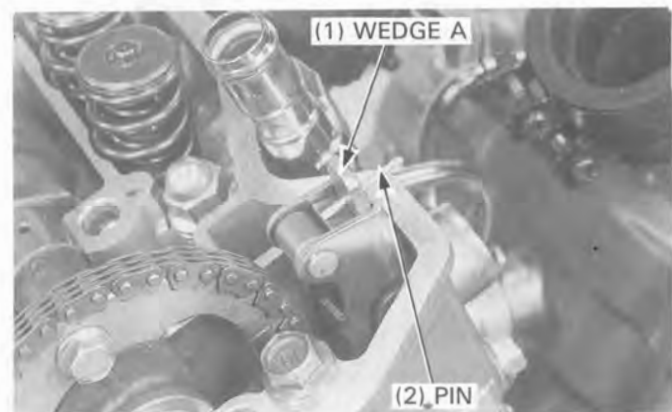
Place the camshaft into correct position with the cam lobes are all facing down.
Install the cam sprocket and camshaft holders using the same procedure as for the front cylinder (page 9-17).



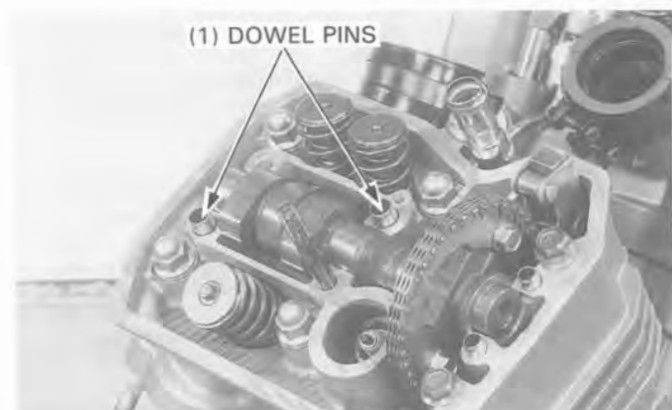
Remove the 2 mm pin holding cam chain tensioner wedge A.

NOTE

- Be careful not to let the 2 mm pin fall into the crankcase.
- Do not forget to remove the 2 mm pin before installing the cylinder head cover.



Install the dowel pins into the cylinder head.



CYLINDER HEAD/VALVE

Install the holders, oil guide plate, 8 mm bolts, 8 mm nut and 6 mm bolts.

CAUTION

- *Note the direction of the camshaft end holder, install the flat surface on the holder facing in.*

Tighten the camshaft holder mounting bolts and nut in a criss-cross pattern in 2—3 steps as shown.

TORQUE:

8 mm bolt: 23 N·m (2.3 kg-m, 17 ft-lb)

8 mm nut: 23 N·m (2.3 kg-m, 17 ft-lb)

6 mm bolt: 10 N·m (1.0 kg-m, 7 ft-lb)

Fill the oil pockets in the head with oil so that the cam lobes are submerged.

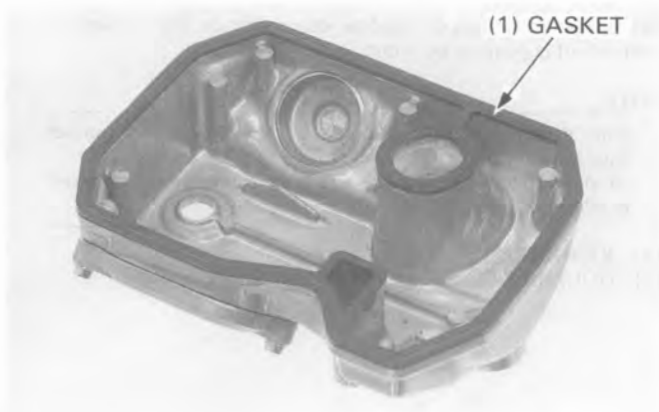
Adjust the valve clearance (page 3-7).



CYLINDER HEAD COVER INSTALLATION

Clean the gasket and apply contact cement to the gasket groove.

Install the gasket into the groove in the head cover properly.



Install the cylinder head cover, rubber washer, washer cover and cylinder head cover bolts.

Tighten the cover bolts.

TORQUE: 10 N·m (1.0 kg-m, 7 ft-lb)

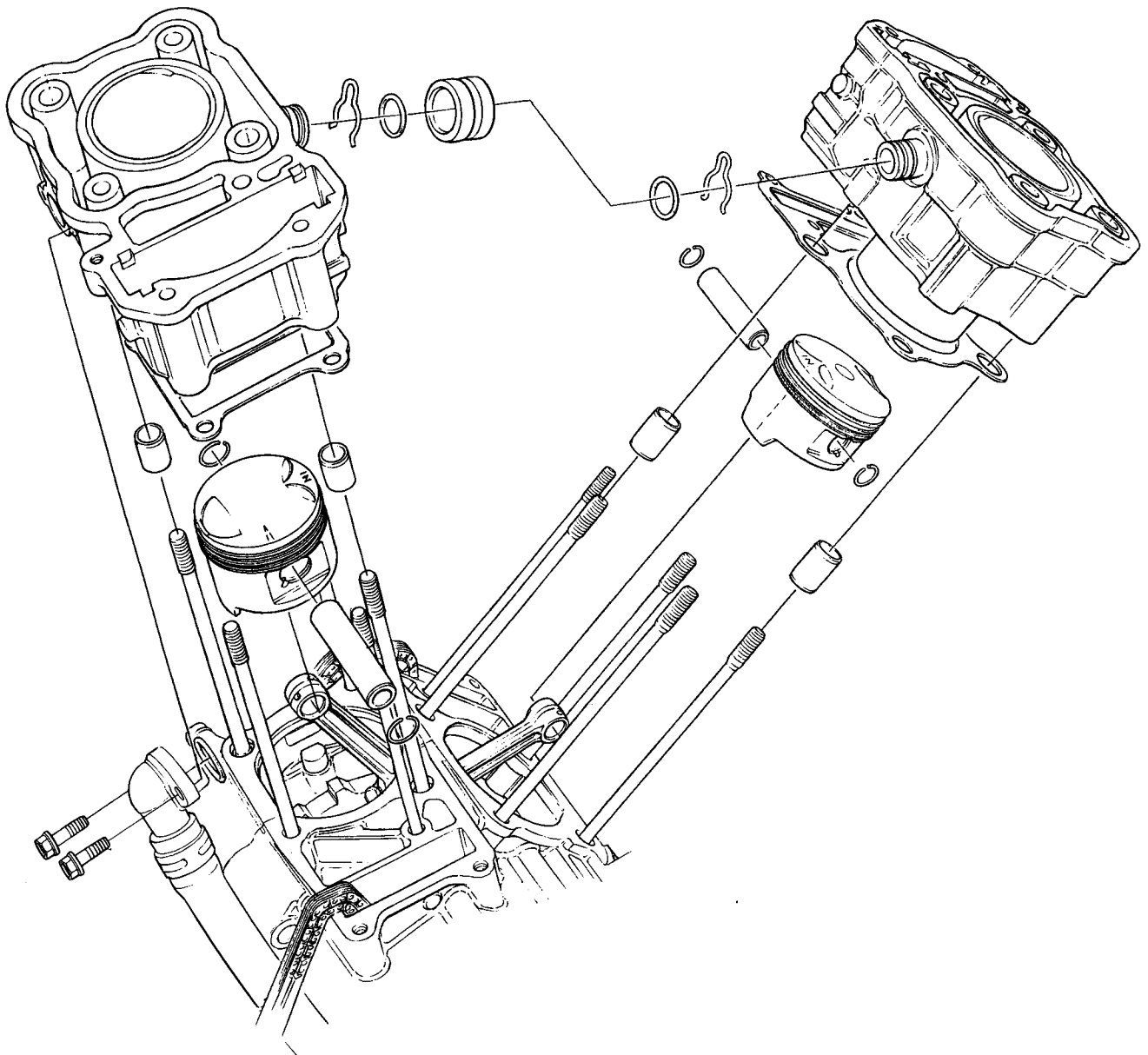
Install the removed parts in the reverse order of removal.



CYLINDER/PISTON

CYLINDRE/PISTON

ZYLINDER/KOLBEN



10

CYLINDER/PISTON

SERVICE INFORMATION	10-1	PISTON RING INSTALLATION	10-5
TROUBLESHOOTING	10-1	PISTON INSTALLATION	10-5
CYLINDER	10-2	CYLINDER INSTALLATION	10-6
PISTON	10-3		

SERVICE INFORMATION

GENERAL

- This section covers service of the cylinder and piston.
- The engine must be removed to service the cylinder/piston.
- To service the crankcase stud bolts, refer to page 11-14.

SPECIFICATIONS

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Cylinder	I.D.		79.000–79.015 (3.1102–3.1108)	79.05 (3.112)
	Warpage across top		—	0.10 (0.004)
	Taper		—	0.06 (0.002)
	Out-of-round		—	0.06 (0.002)
Piston, piston rings and piston pin	Piston ring-to-ring groove clearance	TOP	0.025–0.055 (0.001–0.002)	0.11 (0.004)
		SECOND	0.015–0.045 (0.0006–0.0018)	0.10 (0.004)
	Ring end gap	TOP	0.20–0.35 (0.008–0.014)	0.65 (0.026)
		SECOND	0.35–0.50 (0.014–0.020)	0.65 (0.026)
		OIL	0.20–0.80 (0.008–0.031)	0.95 (0.037)
	Piston O.D.		78.970–78.990 (3.1086–3.1098)	78.92 (3.107)
	Piston pin bore		20.002–20.008 (0.7874–0.7877)	20.02 (0.788)
	Connecting rod small end I.D.		20.016–20.034 (0.7880–0.7887)	20.04 (0.789)
	Piston pin O.D.		19.994–20.000 (0.7871–0.7874)	19.98 (0.787)
	Piston-to-piston pin clearance		0.002–0.014 (0.0001–0.0006)	0.034 (0.0013)
	Cylinder-to-piston clearance		0.010–0.045 (0.0004–0.0018)	0.13 (0.005)
	Piston pin-to-connecting rod small end clearance		0.016–0.040 (0.0006–0.0016)	0.060 (0.0024)

TROUBLESHOOTING

Low or uneven compression

- Worn cylinder or piston rings.
- Leaking head gasket.
- Incorrect valve timing.

Piston noise

- Worn cylinder and piston.
- Excessive carbon deposits.

Excessive smoke

- Worn cylinder and piston rings.
- Improperly installed piston rings.
- Damaged piston or cylinder.

Overheating

- Excessive carbon deposits on piston or combustion chamber.
- Faulty water pump.

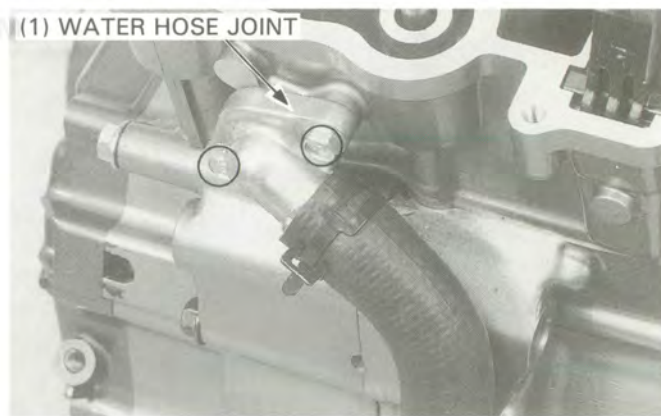
MEMO

CYLINDER

REMOVAL

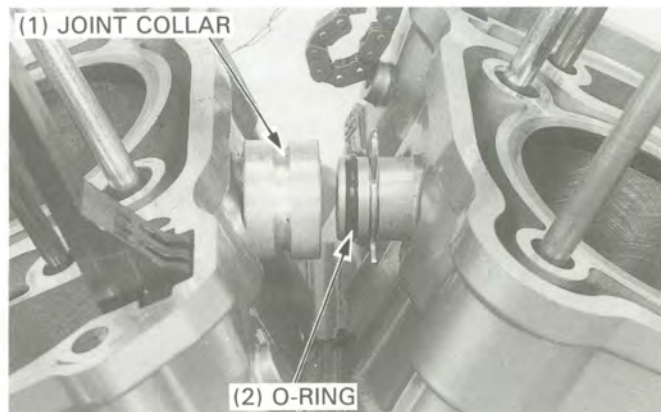
Remove the following:

- engine from the frame (page 5-2).
- cylinder head cover (page 9-3).
- cylinder head (page 9-7).
- water hose joint from the front cylinder.

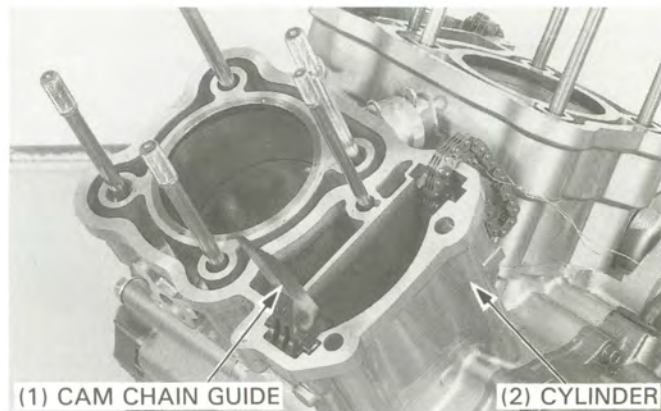


Remove the clip and slide the cylinder joint collar toward either the front or rear cylinder.

Remove the O-ring.



Remove the cam chain guide and the cylinder. Remove the cylinder gasket and dowel pins from the crankcase.



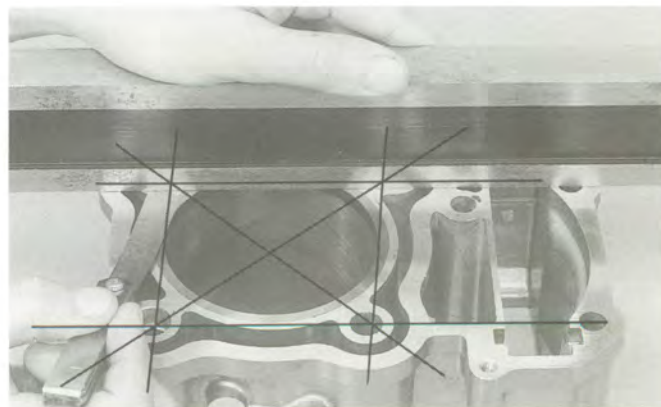
INSPECTION

Inspect the cylinders for transverse warpage across the top.

NOTE

- Measure warpage using a straight edge and feeler gauge as shown.

SERVICE LIMIT: 0.10 mm (0.004 in)



CYLINDER/PISTON

Clean the top of each cylinder thoroughly.

Inspect the cylinder walls for scratches and wear.

Measure and record the cylinder I.D. at three levels in both an X and Y axis. Take the maximum reading to determine the cylinder wear.

SERVICE LIMIT: 79.05 mm (3.112 in)

Calculate the piston-to-cylinder clearance. Take the maximum reading to determine the clearance.

SERVICE LIMIT: 0.13 mm (0.005 in)

Calculate the cylinder for taper at three levels in an X and Y axis. Take the maximum reading to determine the taper.

SERVICE LIMIT: 0.06 mm (0.002 in)

Calculate the cylinder for out-of-round at three levels in an X and Y axis. Take the maximum reading to determine the out-of-round.

SERVICE LIMIT: 0.06 mm (0.002 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) and 0.50 mm (0.020 in)

The cylinder must be rebored so that the clearance to an oversize piston is 0.010–0.045 mm (0.0004–0.0018 in).

PISTON

REMOVAL

Place a shop towel into the crankcase and remove the piston pin clips.

NOTE

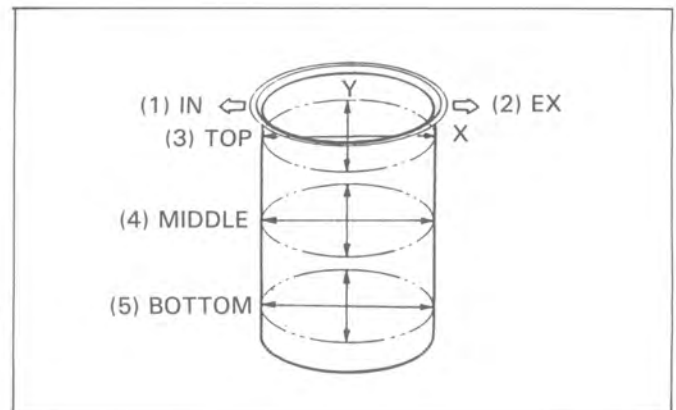
- Do not let the clips fall into the crankcase.

Push the piston pin out and remove the piston.

Remove the piston rings and mark them to indicate the correct cylinder and piston position for reassembly.

NOTE

- Do not damage the piston rings when removing them.



CYLINDER/PISTON

INSPECTION

Clean the piston domes, ring lands and skirts.

Measure the piston ring-to-groove clearance.

SERVICE LIMITS:

Top: 0.11 mm (0.004 in)

Second: 0.10 mm (0.004 in)

If clearance is excessive, replace the piston ring.



Measure the piston O.D.

NOTE

- Take measurements 10 mm (0.4 in) from the bottom, and 90° to the piston pin hole.

SERVICE LIMIT: 78.92 mm (3.107 in)

Calculate the piston-to-cylinder clearance by subtracting the piston O.D. from the cylinder I.D. (page 10-2).

SERVICE LIMIT: 0.13 mm (0.005 in)



Measure the top and second ring end gaps: using a piston, push the ring into the cylinder and measure the gap.

Measure the ring end gaps: using a piston, push the ring into the cylinder and measure the gap.

SERVICE LIMITS:

Top: 0.65 mm (0.026 in)

Second: 0.65 mm (0.026 in)

Oil: 0.95 mm (0.037 in)



Measure each piston pin bore.

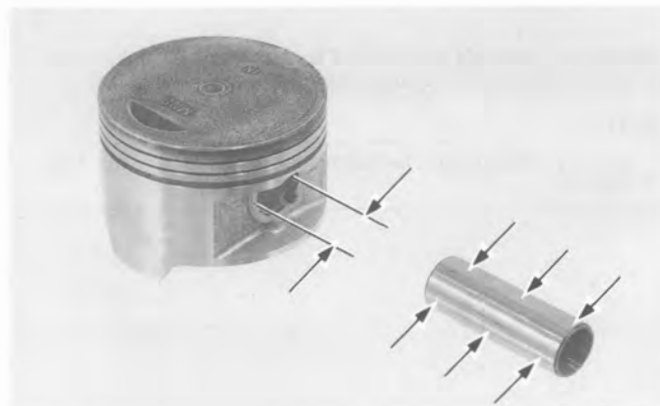
SERVICE LIMIT: 20.02 mm (0.788 in)

Measure each piston pin O.D.

SERVICE LIMIT: 19.98 mm (0.787 in)

Calculate the piston pin-to-piston clearance.

SERVICE LIMIT: 0.034 mm (0.0013 in)



CYLINDER/PISTON

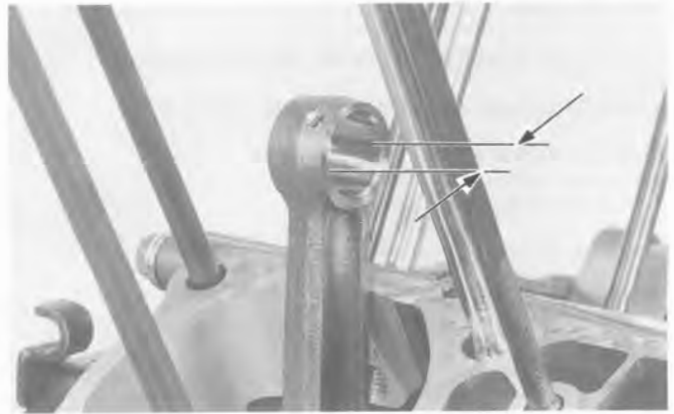
Measure the I.D. of the connecting rod small end.

SERVICE LIMIT: 20.04 mm (0.789 in)

Calculate the piston pin-to-connecting rod clearance.

SERVICE LIMIT: 0.060 mm (0.0024 in)

Refer to section 11 for connecting rod replacement.



PISTON RING INSTALLATION

NOTE

- Insert the outside surface of the ring into the proper ring groove and roll the ring around in the groove to make sure that the ring has a free fit around the piston's circumference.



Carefully install the piston rings onto the piston with the markings facing up.

NOTE

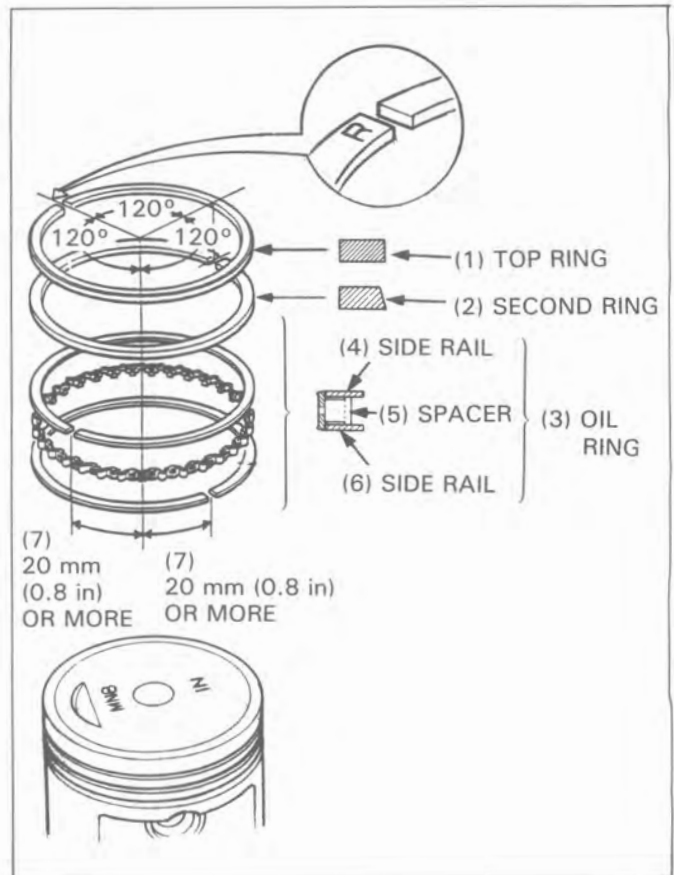
- Be careful not to damage the piston and piston rings during assembly.

Stagger the ring end gaps 120° apart from each other as shown.

NOTE

- To install the oil ring, install the spacer first, then install the side rails.

After installing the rings, check that they rotate freely without sticking.

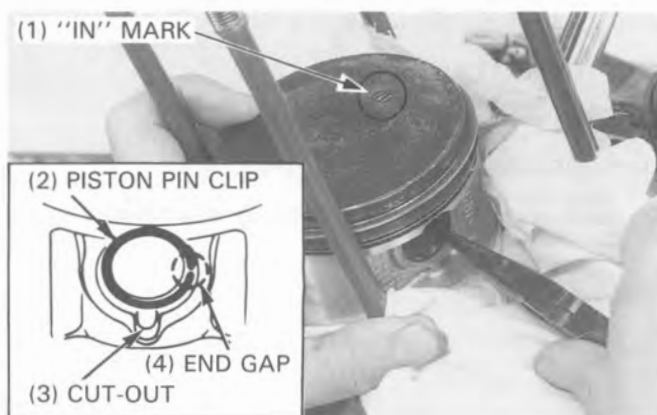


PISTON INSTALLATION

Place a shop towel into the crankcase.
Coat the rod small end with molybdenum disulfide grease.
Assemble the piston and connecting rod with the piston and piston pin clips as shown.

NOTE

- Install the pistons with the mark "IN" facing towards the intake side.
- After installing the piston pin clips, make sure that they are seated properly and the end gaps are not aligned with the cut-out in the piston.
- Do not let the piston pin clips fall into the crankcase.



CYLINDER INSTALLATION

Clean the cylinder gasket surface.

Install the dowel pins and new gasket.



Coat the cylinder, piston rings/grooves and piston with clean engine oil.

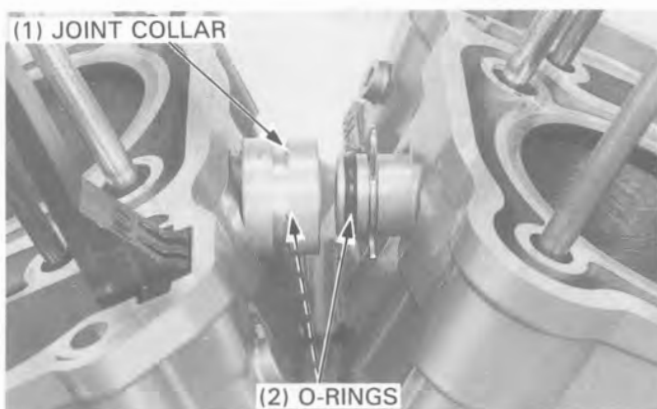
Install the piston assembly into the cylinder from the top of the crankcase while compressing the piston rings with your fingers.

NOTE

- Be careful not to damage the piston rings during assembly.
- When the cylinder is halfway over the piston, route the cam chain through the cylinder.

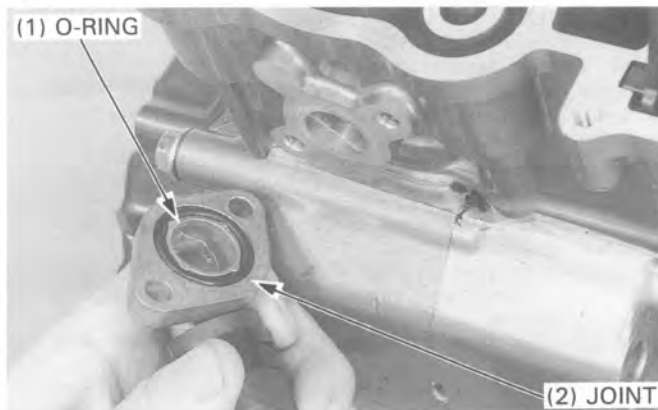


Install new O-rings onto the cylinder joints and install the cylinder joint collar by sliding the collar toward either cylinder. Install the clips securely.



CYLINDER/PISTON

Install a new O-ring into the water hose joint and install and tighten the joint mounting bolts.



Clean the cylinder gasket surface.

NOTE

- Avoid damaging the gasket surface.

Install the cam chain guide.

NOTE

- Align the guide boss with the groove in the cylinder.
- Make sure that the end of the guide is inserted into place in the crankcase.

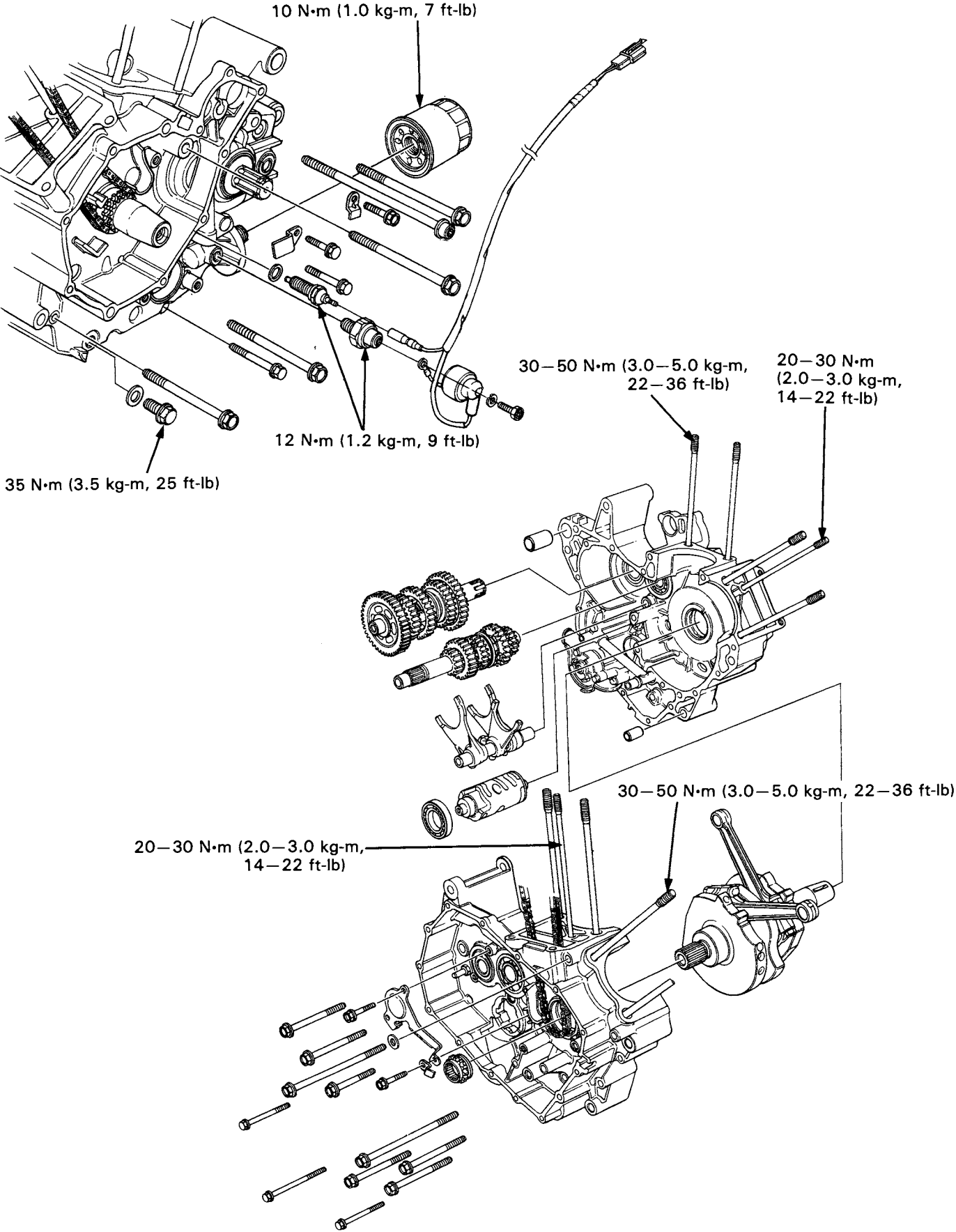


Install the cylinder heads and covers (Section 9).

CRANKSHAFT/TRANSMISSION

VILEBREQUIN/BOITE DE VITESSES

KURBELWELLE/GETRIEBE



SERVICE INFORMATION	11-1	CRANKCASE	11-12
TROUBLESHOOTING	11-2	TRANSMISSION ASSEMBLY/ INSTALLATION	11-14
CRANKCASE SEPARATION	11-3	CRANKCASE ASSEMBLY	11-16
CRANKSHAFT/CONNECTING ROD	11-4		
TRANSMISSION	11-10		

SERVICE INFORMATION

GENERAL

- To service the connecting rods, crankshaft, transmission and oil pump, the engine must be removed from the frame (Section 6).
- All bearing inserts are select fitted and are identified by color code or code letter. Select replacement bearings from the code tables.
After installing new bearings, recheck them with plastigauge to verify clearance.
- Apply molybdenum disulfide grease to the main journals and crankpins during assembly.
- Before separating the crankcase, the following parts must be removed.
 - Cylinder head (Section 9)
 - Flywheel (Section 8)
 - Cylinder/piston (section 10)
 - Starter motor (Section 18)
 - Clutch/gearshift linkage (Section 7)
 - Water pump (Section 5)

SPECIFICATIONS

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Crankshaft/ connecting rod	Connecting rod big end side clearance		0.05—0.20 (0.002—0.008)	0.3 (0.012)
	Crankpin oil clearance		0.028—0.052 (0.0011—0.0020)	0.08 (0.003)
	Main journal oil clearance		0.025—0.041 (0.0010—0.0016)	0.05 (0.002)
	Crankshaft runout		—	0.05 (0.002)
Transmission	Gear I.D.	C1	24.000—24.021 (0.9449—0.9457)	24.03 (0.946)
		M4, M5, C2, C3	28.000—28.021 (1.1024—1.1032)	28.03 (1.103)
	Gear bushing O.D.	C1	23.959—23.980 (0.9433—0.9441)	24.95 (0.982)
		M4, M5, C2, C3	27.959—27.980 (1.1007—1.1016)	27.95 (1.100)
	Gear bushing I.D.	C1	20.016—20.037 (0.7880—0.7889)	20.05 (0.789)
		M4, C2, C3	25.000—25.021 (0.9843—0.9851)	25.03 (0.985)
	Bushing-to-shaft clearance	M4, C3	0.020—0.062 (0.0008—0.0024)	0.08 (0.003)
		C2	0.010—0.049 (0.0004—0.0019)	0.07 (0.003)
	Gear-to-bushing clearance	M4, M5, C1, C2, C3	0.020—0.062 (0.0008—0.0024)	0.08 (0.003)
	Mainshaft O.D.	M4 bushing	24.959—24.980 (0.9826—0.9835)	24.95 (0.982)
	Countershaft O.D.	C1 bushing	19.980—19.993 (0.7866—0.7871)	19.97 (0.786)
		C2 bushing	24.972—24.990 (0.9831—0.9839)	24.96 (0.983)
		C3 bushing	24.959—24.980 (0.9826—0.9835)	24.95 (0.982)
Shift fork/ fork shaft	Claw thickness		5.93—6.00 (0.233—0.236)	5.83 (0.230)
	Right and left shift fork I.D.		13.000—13.018 (0.5118—0.5125)	13.03 (0.513)
	Shaft O.D.		12.966—12.984 (0.5105—0.5112)	12.96 (0.510)
Shift drum O.D. (at the left side journal)			11.966—11.984 (0.4711—0.4718)	11.96 (0.471)

TORQUE VALUES

Connecting rod bearing cap nut	34 N•m (3.4 kg-m, 25 ft-lb)
Crankcase 8 mm stud bolt	20–30 N•m (2.0–3.0 kg-m, 14–22 ft-lb)
10 mm stud bolt	30–50 N•m (3.0–5.0 kg-m, 22–36 ft-lb)

TOOLS**Special**

Main bearing driver attachment	07HMF—MM90400
Bearing remover set	07936—3710001
— remover handle	07936—3710100
— bearing remover set	07936—3710600
— remover weight	07741—0010201

Common

Driver	07749—0010000
Attachment, 42 x 47 mm	07746—0010300
Pilot, 20 mm	07746—0040500
Attachment, 52 x 55 mm	07746—0010400
Pilot, 22 mm	07746—0041000
Pilot, 25 mm	07746—0040600

TROUBLESHOOTING**Excessive noise**

- Crankshaft
 - Worn main bearing
 - Worn crankpin bearing
- Connecting rod
- Worn rod small end
- Worn crankpin bearing

Hard to shift

- Shift fork bent
- Shift fork shaft bent
- Shift spindle claw bent
- Shift drum cam grooves damaged
- Shift fork guide pin damaged

Transmission jumps out of gear

- Gear dogs worn
- Shift shaft bent
- Shift fork bent

CRANKCASE SEPARATION

Remove the engine from the frame (Section 6).

Remove the oil filter.

Refer to the service information (page 11-1) for the parts that must be removed before separating the crankcase.

Remove the bearing set plates and cam chain tensioner set plate by removing the bolts.

Remove the rear cam chain and cam chain drive sprocket.

Remove the bolt and cam chain tensioner set plate.

Remove the front cam chain from the crankshaft.

Remove the oil seal set plate.

Remove the 8 mm bolts and 6 mm bolts from the left crankcase.

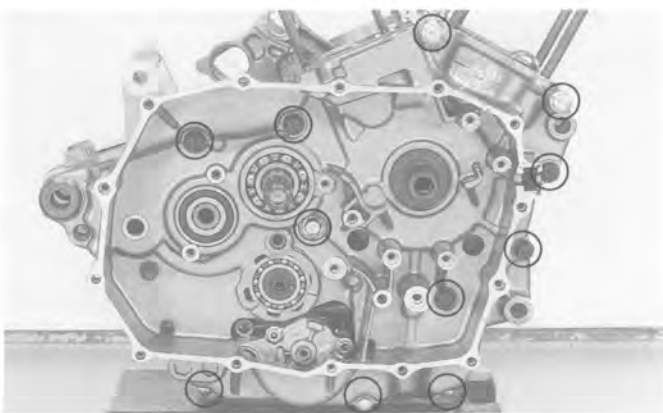
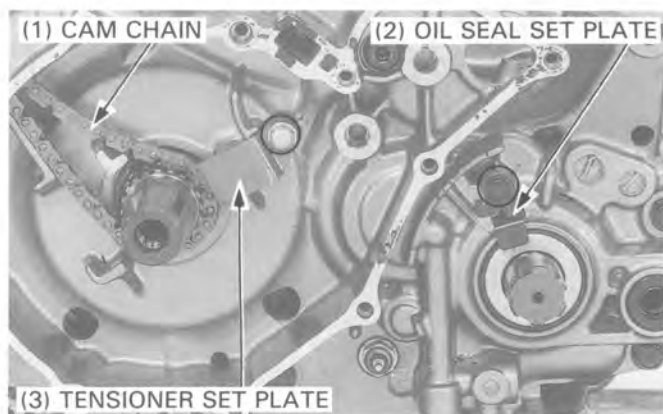
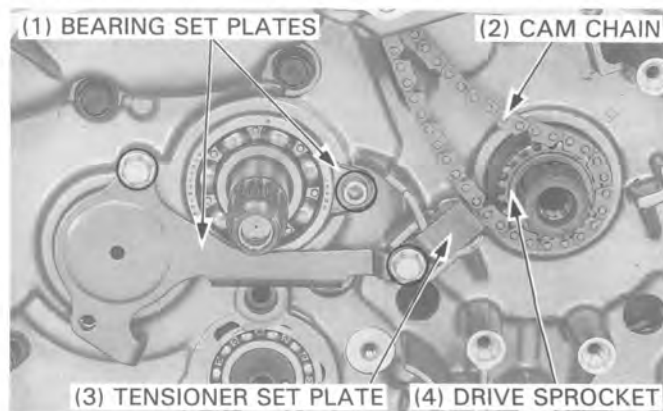
NOTE

- Remove the bolts in a crisscross pattern in 2 or 3 steps.
- Loosen the 6 mm bolts first, then loosen the 8 mm bolts.

Remove the 8 mm bolts and 6 mm bolts from the right crankcase.

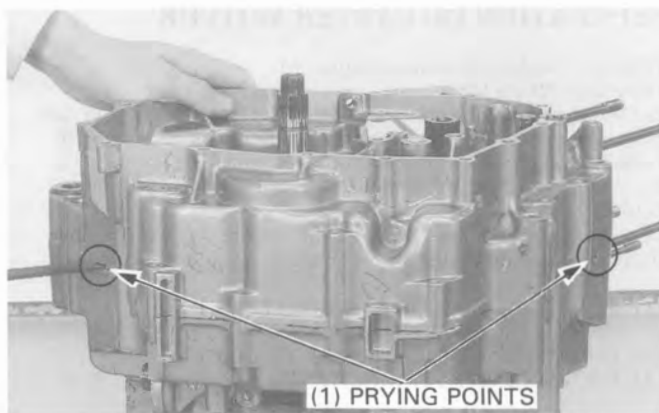
NOTE

- Remove the bolts in a crisscross pattern in 2 or 3 steps.
- Loosen the 6 mm bolts first, then loosen the 8 mm bolts.



CRANKSHAFT/TRANSMISSION

Place the left crankcase side down and separate the right crankcase from the left crankcase while prying where indicated at the points shown and tapping the cases at several locations with a soft hammer.



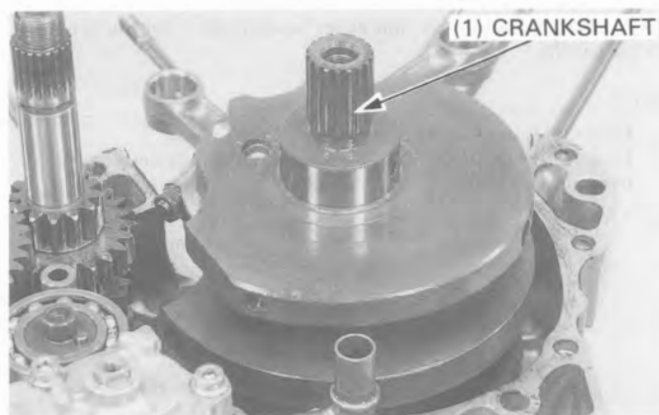
Remove the dowel pins and clean the crankcase halves of any sealant material.



CRANKSHAFT/CONNECTING ROD

CRANKSHAFT SIDE CLEARANCE INSPECTION

Remove the crankshaft from the left crankcase.



Check the connecting rod side clearance with feeler gauge.

SERVICE LIMIT: 0.30 mm (0.012 in)

If either side clearance exceeds the service limit, replace the connecting rod and recheck.

If still beyond the limit, replace the crankshaft.

Inspect the crankshaft for rough spots or damage.



CRANKSHAFT/TRANSMISSION

CONNECTING ROD DISASSEMBLY

Remove the connecting rod bearing caps noting their locations.

NOTE

- Tap the side of the cap lightly if it is hard to remove.

CAUTION

- *Do not interchange the crankpin bearings. They must be installed in their original positions or the correct bearing oil clearance may not be obtained resulting in engine damage.*



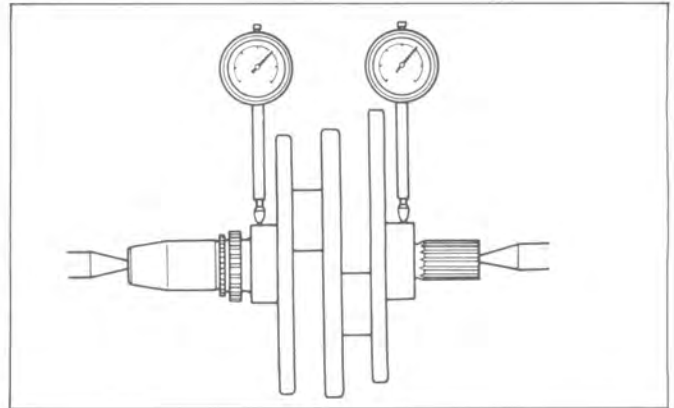
CRANKSHAFT RUNOUT INSPECTION

Place the crankshaft on a stand or V blocks. Set a dial indicator on the main journals. Rotate the crankshaft two revolutions and read the runout.

SERVICE LIMIT: 0.05 mm (0.002 in)

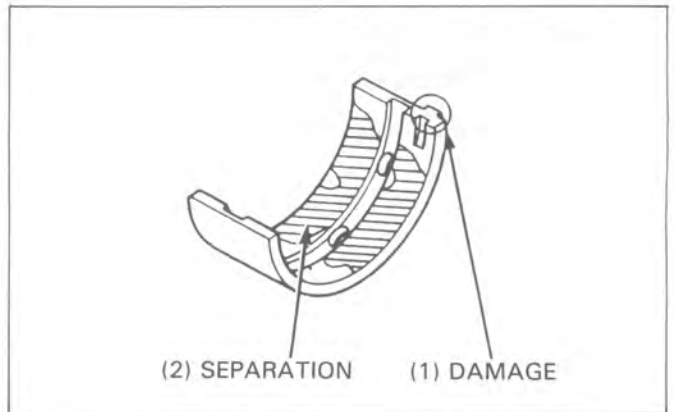
NOTE

- The crankshaft cannot be repaired. Replace it if the journals or crankpins are burnt, cracked, or if the runout is beyond limits.



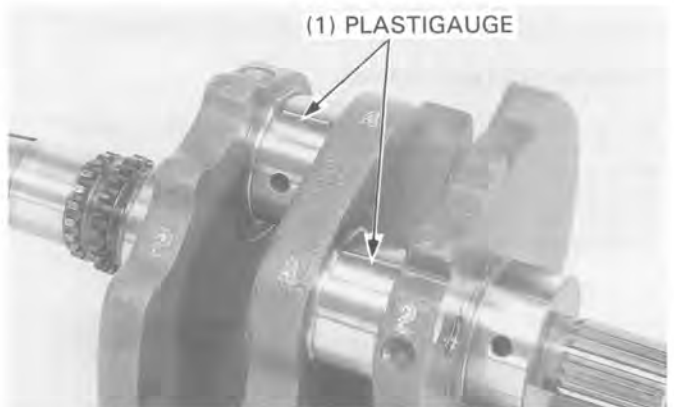
CONNECTING ROD BEARING INSPECTION

Inspect the bearing inserts for damage or separation. Clean all oil from the bearing inserts and crankpins.



OIL CLEARANCE INSPECTION

Put a piece of plastigauge on each crankpin avoiding the oil hole.



CRANKSHAFT/TRANSMISSION

Install the bearing caps and rods on the correct crankpins, and tighten them evenly.

TORQUE: 34 N·m (3.4 kg-m, 25 ft-lb)

NOTE

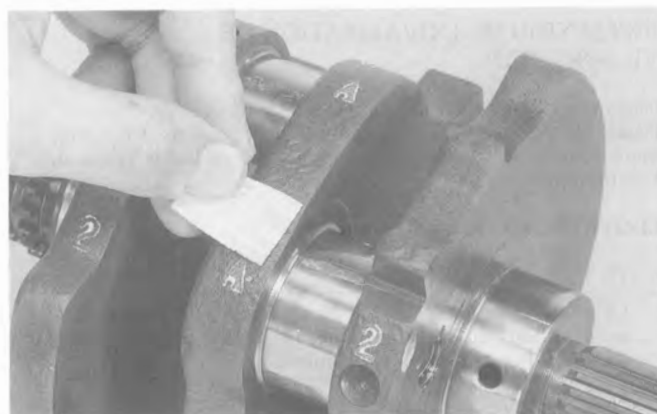
- Do not rotate the crankshaft during inspection.



Remove the caps and measure the compressed plastigauge at its widest point on each crankpin to determine the oil clearance.

SERVICE LIMIT: 0.08 mm (0.003 in)

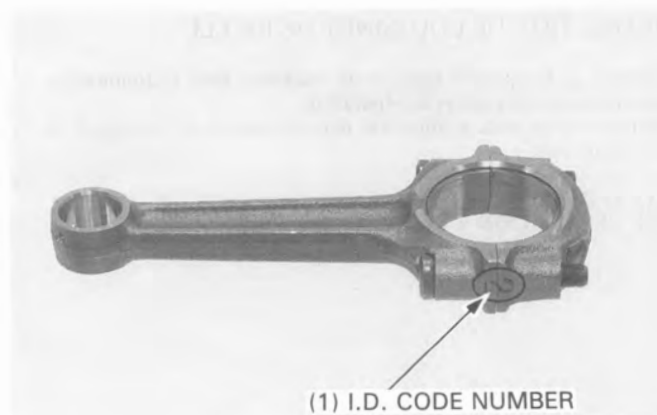
If the rod bearing clearance is beyond tolerance, select replacement bearings.



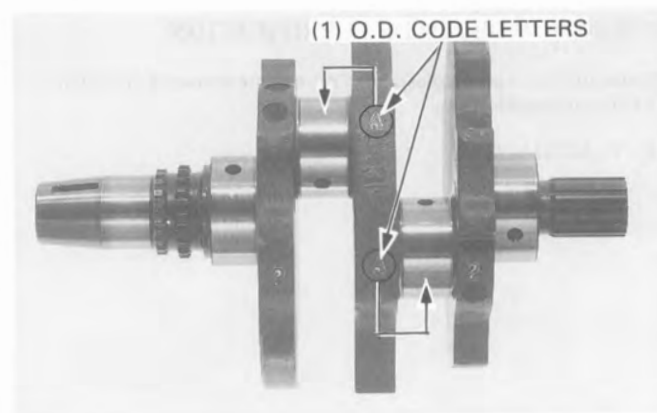
CONNECTING ROD BEARING SELECTION

Determine the connecting rod I.D. code number.

The code will be either a number 1 or 2 located on the rod in the area shown.



Determine the corresponding crankpin O.D. code (or measure the crankpin O.D.). The code will be either a letter A or B on the crank weight.



CRANKSHAFT/TRANSMISSION

Cross reference the crankpin and connecting rod codes to determine the replacement bearing color.

CRANKPIN O.D. CODE		A	B
CONNECTING ROD I.D. CODE		39.982— 39.990 mm (1.5741— 1.5744 in)	39.974— 39.983 mm (1.5738— 1.5741 in)
1	43.000—43.008 mm (1.6929—1.6932 in)	C (BROWN)	B (BLACK)
2	43.008—43.016 mm (1.6932—1.6935 in)	B (BLACK)	A (BLUE)

BEARING INSERT THICKNESS

A (BLUE): 1.495—1.499 mm (0.0589—0.0590 in)

B (BLACK): 1.491—1.495 mm (0.0587—0.0589 in)

C (BROWN): 1.487—1.491 mm (0.0585—0.0587 in)

MAIN BEARING INSPECTION

Measure the main journal O.D. and record it.



Measure the main journal bearing I.D. and record it.

Calculate the clearance between the main journal and the main bearing.

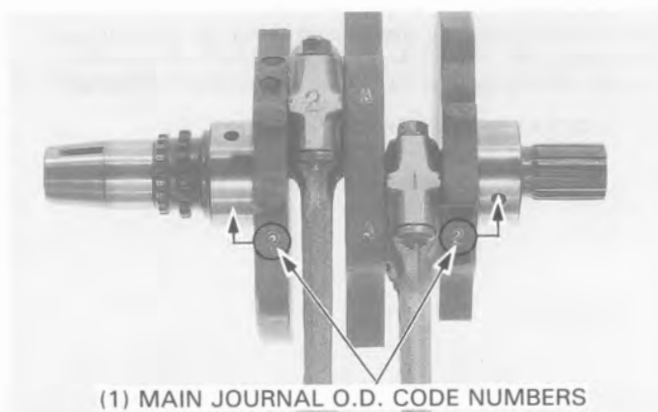
SERVICE LIMIT: 0.06 mm (0.002 in)

If the oil clearance is beyond the service limit, select a replacement bearings as follows:



MAIN BEARING SELECTION

Determine the crankshaft main journal O.D. code. The code will be either a number 1 or 2 on the crank weight.



CRANKSHAFT/TRANSMISSION

Determine the corresponding main bearing I.D. code. The code will be either a letter A or B on the crankcase.

Cross reference the main journal and crankcase codes to determine the replacement bearing color.

MAIN JOURNAL O.D. CODE		1	2
		44.992— 45.000 mm (1.7713— 1.7717 in)	44.984— 44.992 mm (1.7710— 1.7713 in)
CRANKCASE I.D. CODE			
A	48.990—49.000 mm (1.9287—1.9291 in)	C (BROWN)	B (BLACK)
B	49.000—49.010 mm (1.9291—1.9295 in)	B (BLACK)	A (BLUE)

BEARING INSERT THICKNESS

A (BLUE): 2.003—2.013 mm (0.0789—0.0793 in)

B (BLACK): 1.998—2.008 mm (0.0787—0.0791 in)

C (BROWN): 1.993—2.003 mm (0.0785—0.0789 in)

MAIN BEARING REPLACEMENT

Press the main bearing out of the crankcase using a hydraulic press and special tools.

NOTE

- Always use a press to remove the main bearing.

TOOLS:

Driver

07749—0010000

Main bearing remover attachment 07HMF—MM90400

Mark a vertical line below each side of the bearing tab.

Apply molybdenum disulfide grease to the outer surface of the main bearing.

Align the marks on the bearing with the groove in the bearing hole, and press the main bearing into the crankcase.

CAUTION

- Be careful not to damage the bearings.

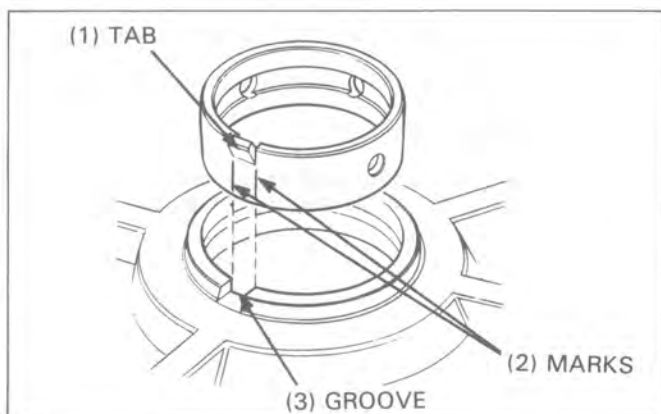
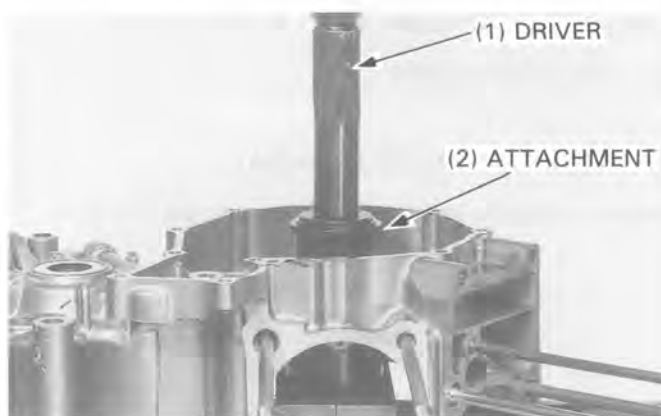
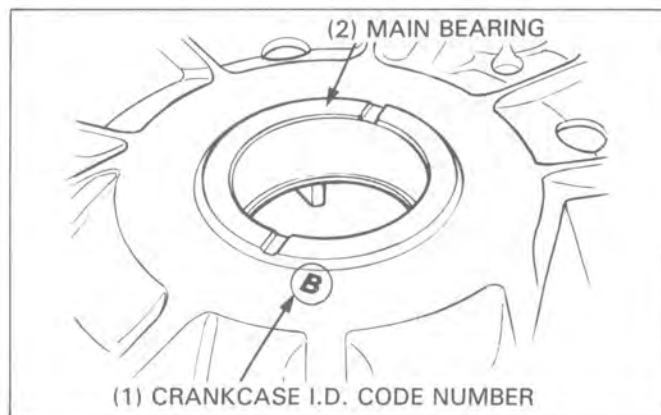
TOOLS:

Driver

07749—0010000

Main bearing driver attachment

07HMF-MM90400



CRANKSHAFT/TRANSMISSION

CONNECTING ROD SELECTION

A letter stamped on the connecting rod is the code for the rod's weight.

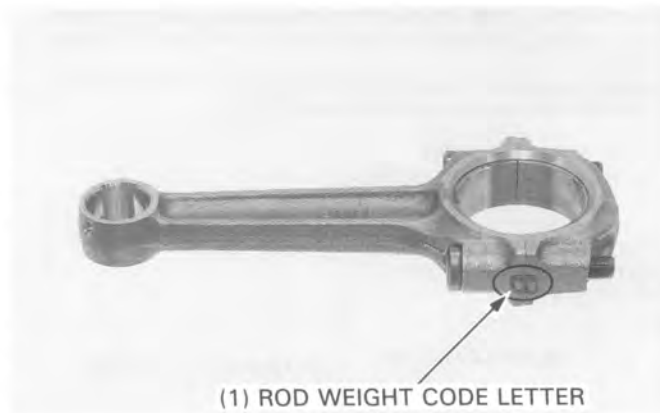
When replacing the connecting rod, select the new rod by cross-matching the front and rear cylinder connecting rod weights using the selection table below.

NOTE

- The "O" mark in the table indicates that the matching is possible in the crossed codes.

SELECTION TABLE

Front rod code \ Rear rod code	A	B	C	D
A	○	○		
B	○	○	○	
C		○	○	○
D			○	○

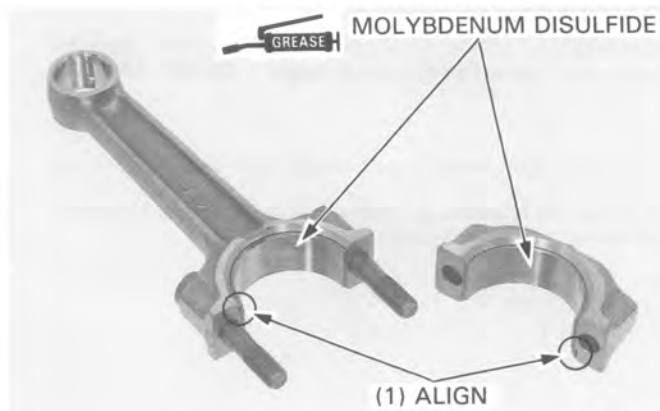


CONNECTING ROD ASSEMBLY

Install the bearing inserts on the rods and caps.

NOTE

- Align the boss on the bearing with the groove in the rod or cap.
- Apply molybdenum disulfide grease to the bearing.



Install the connecting rods and caps on the crankpin. Be sure each part is installed in its original position, as noted during removal.

Tighten the bearing cap nuts.

NOTE

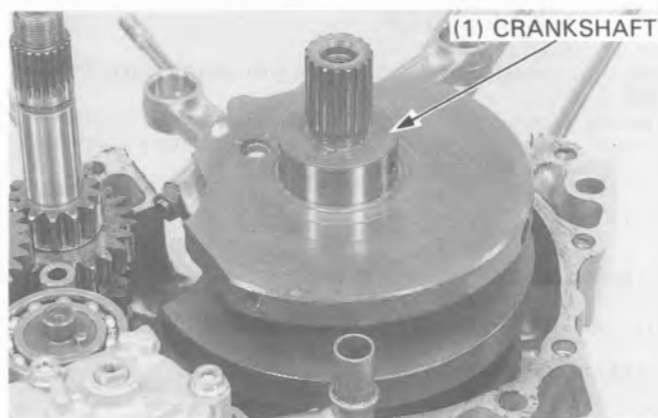
- Align the I.D. code on the cap and rod.
- Tighten the nuts in two or more steps. After tightening, check that the rods move freely without binding.

TORQUE: 34 N·m (3.4 kg-m, 25 ft-lb)



CRANKSHAFT/TRANSMISSION

Install the crankshaft in the left crankcase.
Install the dowel pins and assemble the crankcase (page 11-16).

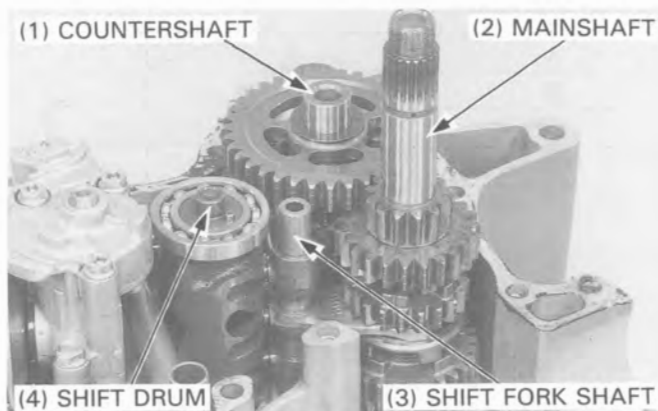


TRANSMISSION

REMOVAL

Remove the mainshaft, countershaft, shift fork shaft and shift drum as an assembly.

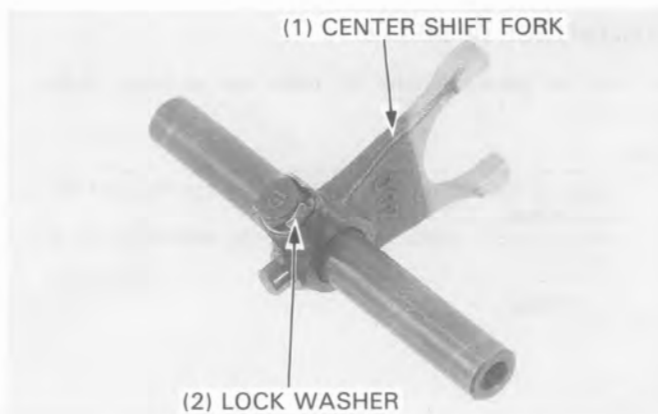
Separate the shift forks/shaft, mainshaft and countershaft assemblies from each other.



DISASSEMBLY/INSPECTION

Bend down the lock washer tabs and remove the bolt and lock washer from the center shift fork.
Remove the shift fork shaft.

Disassemble the mainshaft and countershaft.



Inspect the shift drum end for scoring, scratches, or evidence of insufficient lubrication. Check the shift drum grooves for damage.

Measure the shift drum shaft O.D. at the left side journal.

SERVICE LIMIT: 11.96 mm (0.471 in)

Check the bearing inner and outer races for damage.
The bearing should turn smoothly and quietly.



CRANKSHAFT/TRANSMISSION

Check the shift fork shaft for scratches, scoring or evidence of insufficient lubrication.

Measure the shift fork shaft O.D.

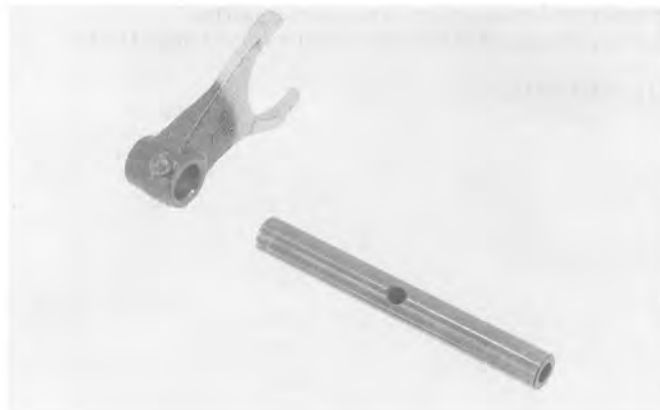
SERVICE LIMIT: 12.96 mm (0.510 in)

Measure the I.D. of each shift fork and the fork claw thickness.

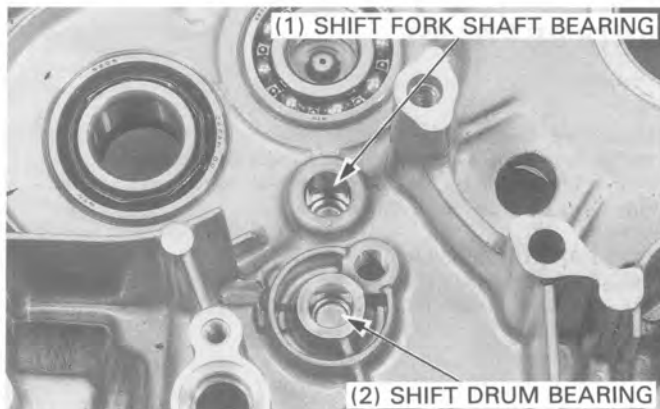
SERVICE LIMITS:

I.D.: 13.03 mm (0.513 in)

CLAW THICKNESS: 5.83 mm (0.230 in)



Inspect the shift drum and shift fork shaft bearings for excessive wear or damage.



Measure the O.D. of mainshaft and countershaft.

SERVICE LIMITS:

A: M4 bushing 24.95 mm (0.982 in)

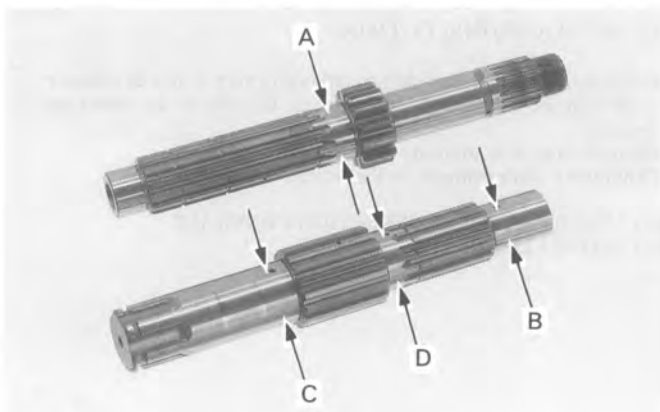
B: C1 bushing 19.97 mm (0.786 in)

C: C2 bushing 24.96 mm (0.983 in)

D: C3 bushing 24.95 mm (0.982 in)

Check each shaft's grooves for damage.

Replace if necessary.



Check the gear dogs, holes and teeth for excessive or abnormal wear, or evidence of insufficient lubrication.

Measure the I.D. of each gear.

SERVICE LIMITS:

M4, M5, C2, C3 gears: 28.03 mm (1.103 in)

C1 gear: 24.03 mm (0.946 in)

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

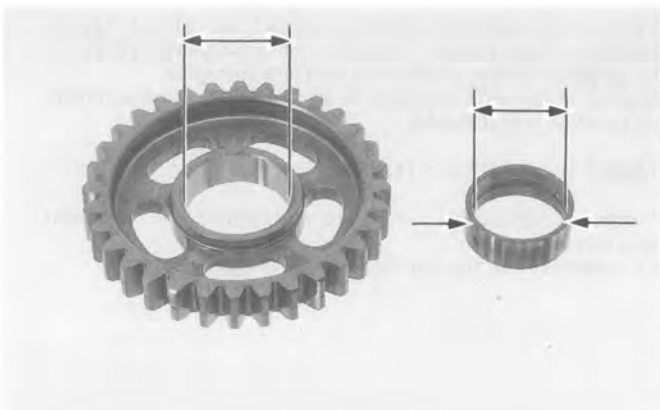
SERVICE LIMITS:

M4, M5, C2, C3 bushings O.D.: 27.95 mm (1.100 in)

C1 bushing O.D.: 24.95 mm (0.982 in)

M4, C2, C3 bushing I.D.: 25.03 mm (0.985 in)

C1 bushing I.D.: 20.05 mm (0.789 in)



CRANKSHAFT/TRANSMISSION

Calculate the bushing to shaft clearances and gear to bushing clearance.

SERVICE LIMITS:

Bushing-to-shaft (M4, C3):

0.08 mm (0.003 in)

(C2):

0.07 mm (0.03 in)

Gear-to-bushing (M4, M5, C1, C2, C3):

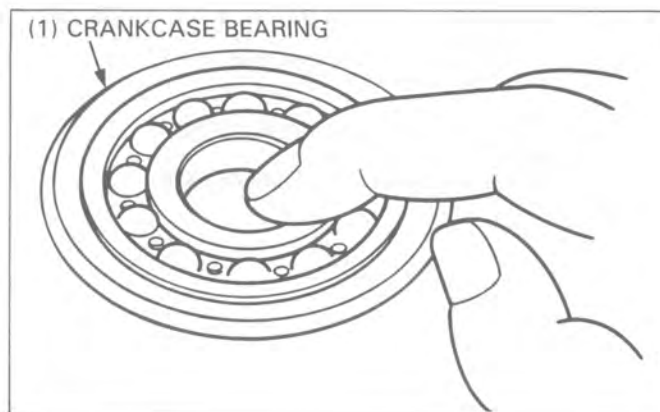
0.08 mm (0.003 in)

CRANKCASE

BEARING REPLACEMENT

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

Remove and discard the bearings if the races do not turn smoothly, quietly, or if they fit loosely in the crankcase.



Left crankcase

Remove the left mainshaft bearing using the special tools.

TOOLS:

Bearing remover set	07936-3710001
— remover handle	07936-3710100
— bearing remover set	07936-3710600
— remover weight	07741-0010201

Drive the countershaft bearing and oil seal out of the crankcase.



Install the new oil guide plate on the left crankcase.



CRANKSHAFT/TRANSMISSION

NOTE

- Apply fresh engine oil to the new crankcase bearings before installation.

Install the new bearings with the following tools.

TOOLS:

Left mainshaft bearing:

Driver 07749-0010000

Attachment, 42 x 47 mm 07746-0010300

Left countershaft bearing:

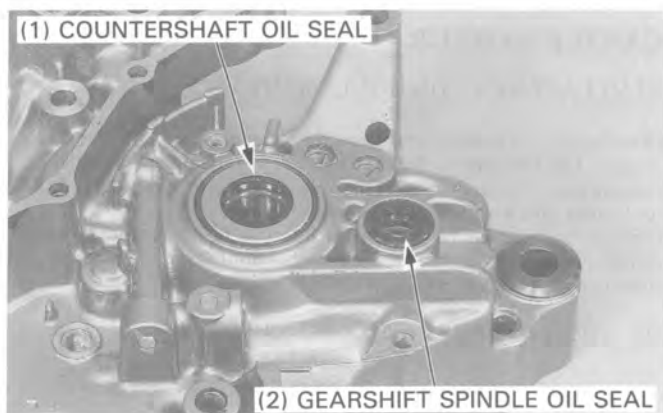
Driver 07749-0010000

Attachment, 52 x 55 mm 07746-0010400

Pilot, 25 mm 07746-0040600

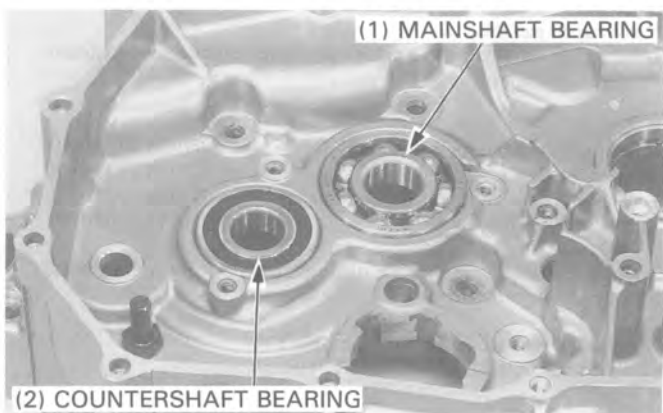
Install a new countershaft oil seal.

Check the gearshift spindle oil seal for wear or damage, and replace if necessary.



Right crankcase

Drive the countershaft bearing and mainshaft bearing out of the crankcase.



Install new bearings with the following tools.

TOOLS:

Right mainshaft bearing

Driver 07749-0010000

Attachment, 52 x 55 mm 07746-0010400

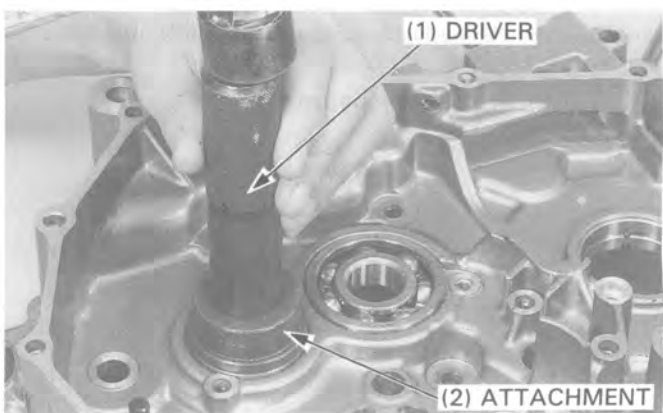
Pilot, 22 mm 07746-0041000

Right countershaft bearing

Driver 07749-0010000

Attachment, 42 x 47 mm 07746-0010300

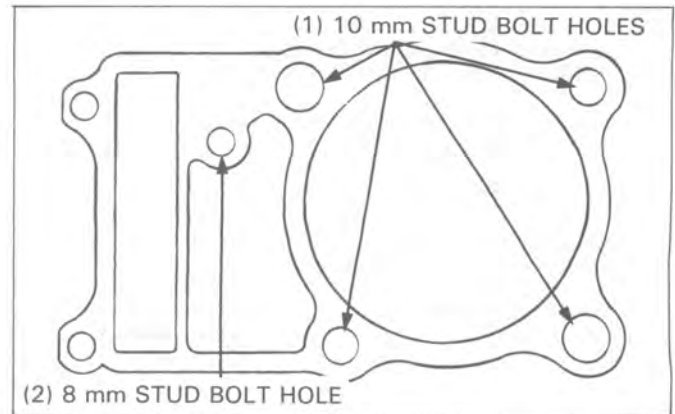
Pilot, 20 mm 07746-0040500



INSPECTION

Crankcase studs

Check that the studs are tight. If any are loose, remove them, clean their threads with contact cleaner, then reinstall them using Honda Anaerobic Thread Lock, or equivalent.



After installing, be sure to measure the distance from the top of each stud to the crankcase surface.

Tighten the stud bolts to the specified torque.

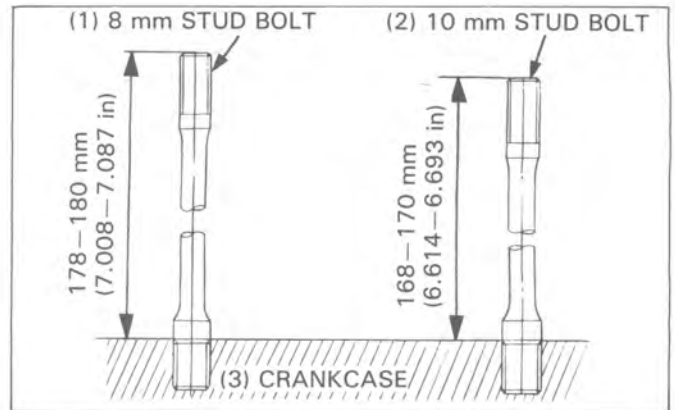
TORQUE:

8 mm stud bolt:

20–30 N·m (2.0–3.0 kg-m, 14–22 ft-lb)

10 mm stud bolt:

30–50 N·m (3.0–5.0 kg-m, 22–36 ft-lb)

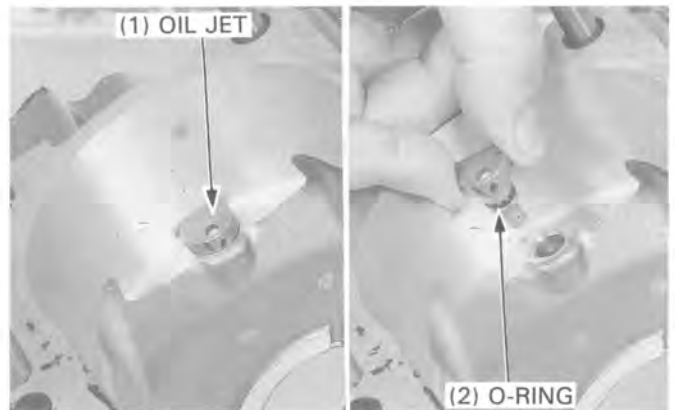


Oil jet

Remove the oil jets from the cylinder bores of the right and left crankcases.

Check the O-ring for fatigue and damage.

Check the oil jet orifice for clogging.



TRANSMISSION ASSEMBLY/ INSTALLATION

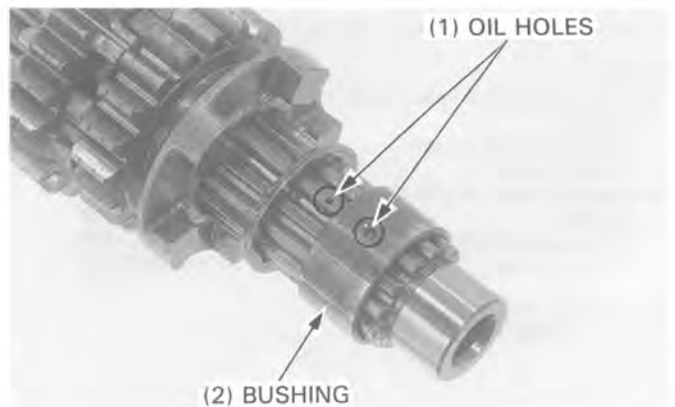
Clean all parts in solvent and dip them in clean engine oil.

CAUTION

- Align the oil holes in the bushings and gears with the oil holes in the shaft.

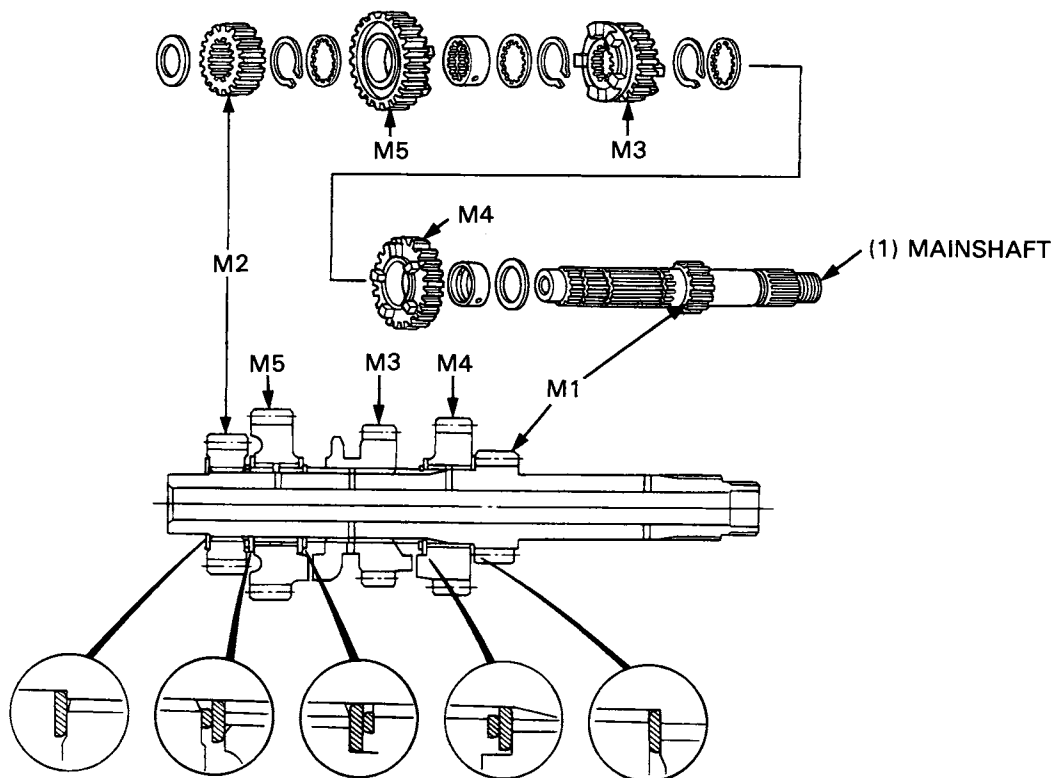
Apply molybdenum disulfide grease to the following.

- shift fork grooves
- inside and outside of the bushings
- outside of the spline bushings

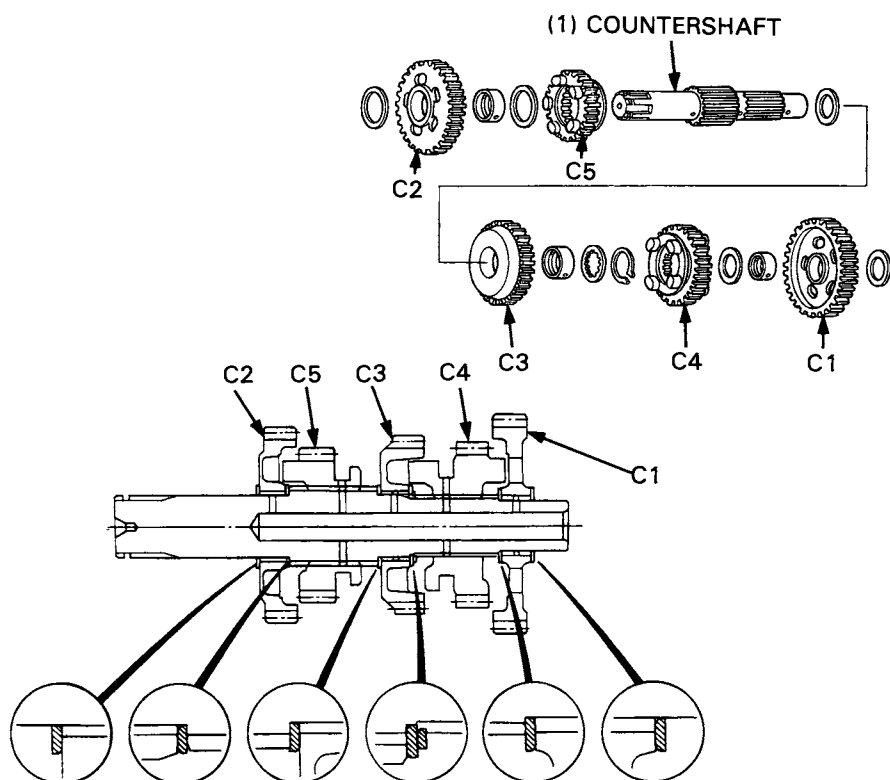


CRANKSHAFT/TRANSMISSION

Mainshaft



Countershaft

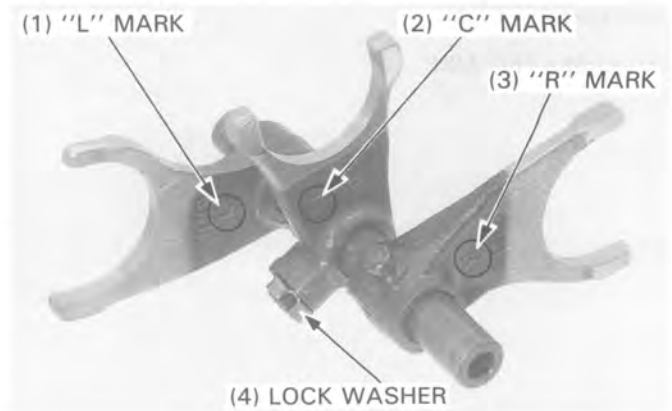


CRANKSHAFT/TRANSMISSION

Install the shift forks onto the shaft with their marks facing to the right crankcase.

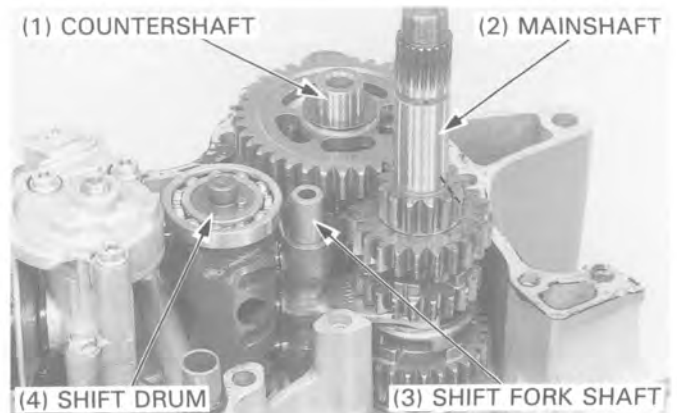
Left fork: "L" mark
Center fork: "C" mark
Right fork: "R" mark

Tighten the bolt with the lock washer and bend up the tabs of the lock washer.



Assemble the mainshaft, countershaft, shift fork shaft and shift drum.

Install them into the left crankcase as an assembly.



CRANKCASE ASSEMBLY

Apply sealant to the crankcase mating surfaces.
Install the dowel pins.

Assemble the right and left crankcases being careful to align the dowel pins and shafts.

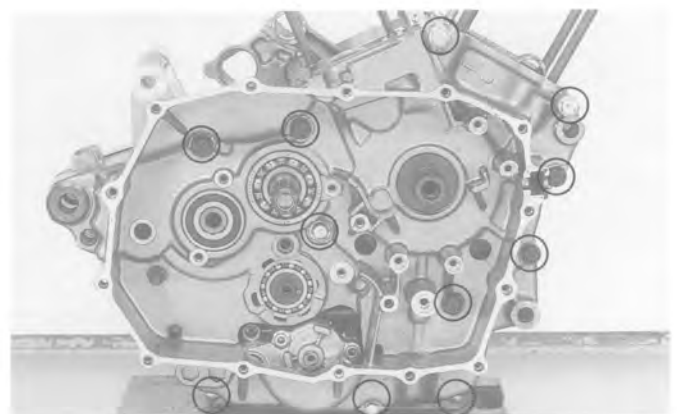
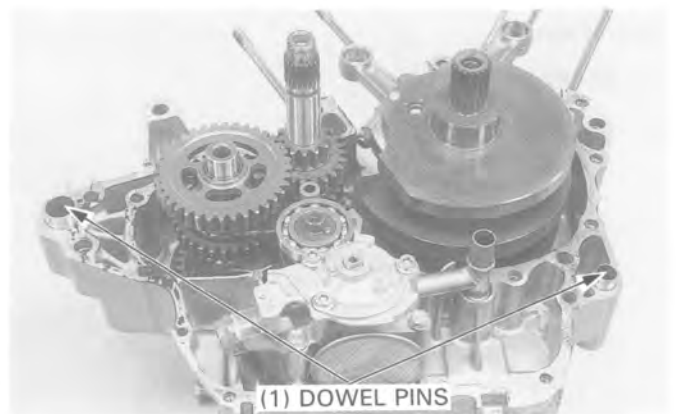
CAUTION

- *Do not force the crankcase halves together; if there is excessive force required, something is wrong. Remove the right crankcase and check for misaligned parts.*

Apply oil to all crankcase bolts.
Install and tighten the right crankcase bolts in a crisscross pattern in 2 or 3 steps.

NOTE

- Tighten the 8 mm bolts first, then tighten the 6 mm bolts.

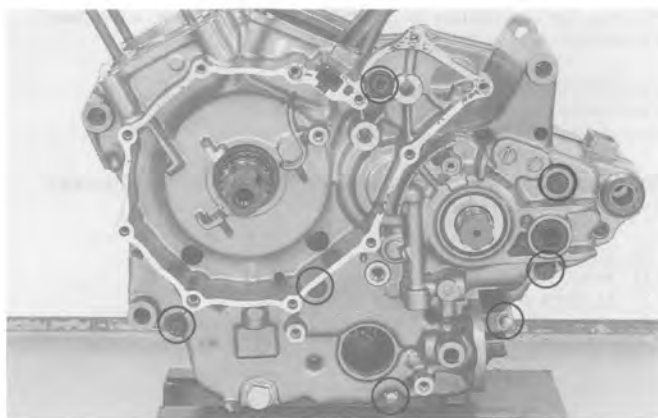


CRANKSHAFT/TRANSMISSION

Install and tighten the left crankcase bolts in a crisscross pattern in 2 or 3 steps.

NOTE

- Tighten the 8 mm bolts first, then tighten the 6 mm bolts.



Install the rear cam chain drive sprocket over the crankshaft, aligning the extra-wide splines in the sprocket and crankshaft.



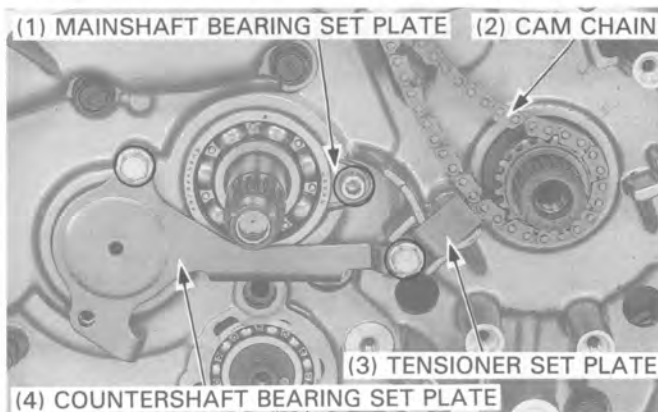
Install the rear cam chain over the drive sprocket.

Install the countershaft bearing set plate and cam chain tensioner set plate.

Tighten the bolt securely.

Apply a locking agent to the threads of the mainshaft bearing set plate attaching bolt.

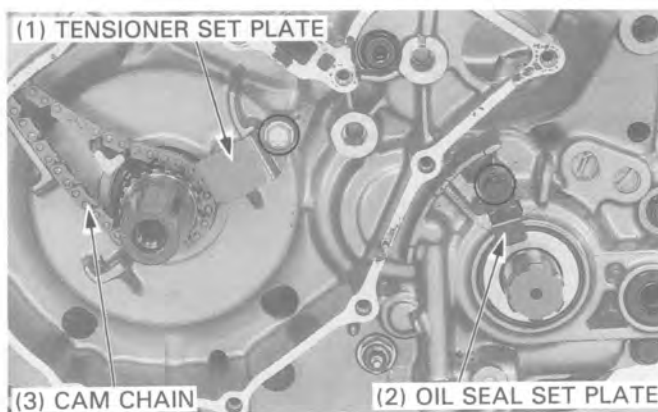
Install the set plate aligning the edge of the set plate with the slot on the bearing outer and tighten the bolt securely.



Install the front cam chain over the front cam chain drive sprocket.

Install the cam chain tensioner set plate and oil seal set plate, and tighten the bolts securely.

Install the remaining parts in the reverse order of removal (page 11-1).



COWLING/MUFFLER/REAR FENDER

**CAPOTAGE/SILENCIEUX/GARDE-
BOUE ARRIERE**

**VERKLEIDUNGEN/AUSPUFFANLAGE/
HINTERES SCHUTZBLECH**

SERVICE INFORMATION	12-1	MUFFLER/EXHAUST PIPES	12-3
COWLING	12-2	REAR FENDER	12-3

SERVICE INFORMATION

GENERAL

WARNING

- *Do not service the exhaust system while it is hot.*

TORQUE VALUES

Muffler band bolt	22 N•m (2.2 kg-m, 16 ft-lb)
Muffler mounting bolt (8 mm)	35 N•m (3.5 kg-m, 25 ft-lb)
(10 mm)	55 N•m (5.5 kg-m, 40 ft-lb)
Upper cowl mounting bolt	4.5 N•m (0.45 kg-m, 3.2 ft-lb)
Exhaust pipe joint cap nut	27 N•m (2.7 kg-m, 20 ft-lb)
Seat mounting bolt	10 N•m (1.0 kg-m, 7 ft-lb)
Muffler/exhaust pipe protector bolt	10 N•m (1.0 kg-m, 7 ft-lb)

WARTUNGSMANUALINFORMATIONEN	12-1	SCHALLDÄMPFER/AUSPUFFROHR	12-3
VERKLEIDUNG	12-2	HINTERES SCHUTZBLECH	12-3

WARTUNGSMANUALINFORMATIONEN

ALLGEMEINES

▲ WARNUNG

- *Keine Wartungsarbeiten an der heißen Auspuffanlage vornehmen.*

ANZUGSMOMENTE

Schalldämpfer-Halteband	22 N·m (2,2 kg·m)
Befestigungsschraube des Schalldämpfers (8 mm)	35 N·m (3,5 kg·m)
(10 mm)	55 N·m (5,5 kg·m)
Windlauf-Befestigungsschraube	4,5 N·m (0,45 kg·m)
Bundschraube des Auspuffrohr-Verbindungsstücks	27 N·m (2,7 kg·m)
Sitzbank-Befestigungsschraube	10 N·m (1,0 kg·m)
Halteschraube der Schalldämpfer/auspuffrohr-Abschirmung	10 N·m (1,0 kg·m)

COWLING

LEFT FRAME SIDE COVER

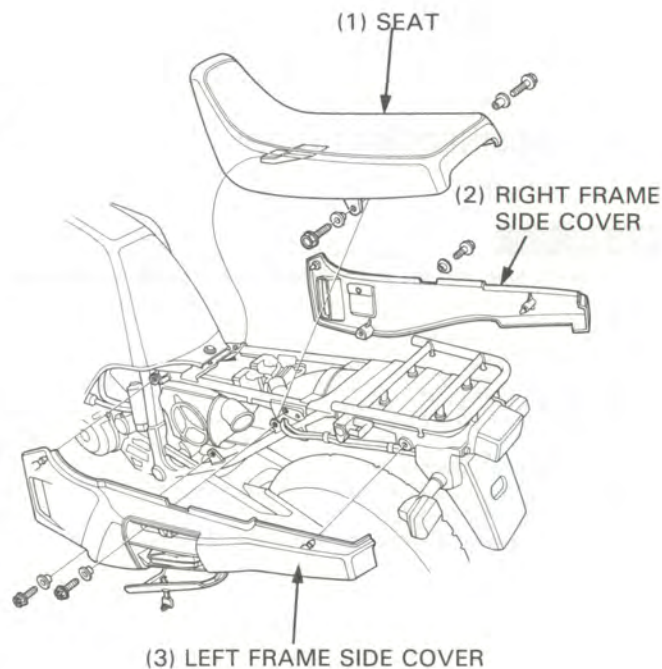
Open the tool box cover with the ignition key.
Remove the two mounting bolts.
Remove the side cover by pulling it to release the two tabs from the grommets.

RIGHT FRAME SIDE COVER

Remove the mounting bolt.
Remove the side cover by pulling it to release the two tabs from the grommets.

SEAT

Remove both frame side covers.
Remove the two mounting bolts and the seat.



SIDE COWL

Remove the two screws attaching the side cowl onto the upper cowl.
Release the quick screws by turning them counterclockwise and remove the side cowl.

UPPER COWL

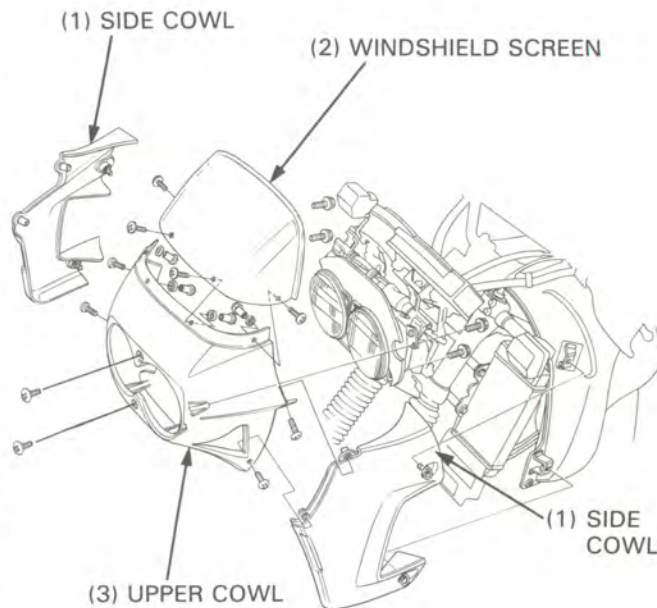
Remove both side cowls.
Remove the four mounting bolts and the upper cowl.

WINDSHIELD SCREEN

Remove the five mounting screws and nuts, and remove the screen from the upper cowl.

CAUTION

- When installing the screen, hold the nut and tighten the mounting screw to prevent the stripe on the bottom of the screen from damaging.



MUFFLER/EXHAUST PIPE

⚠ WARNING

- Do not service the exhaust system while it is hot.

REMOVAL

Remove the skid plate (page 2-3).

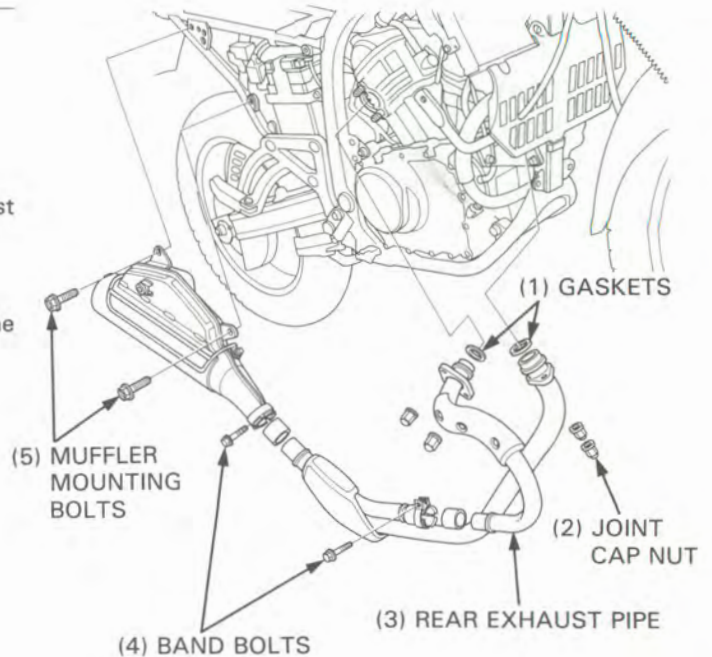
Remove the right frame side cover.

Remove the four exhaust pipe joint cap nuts.

Remove the muffler mounting bolts and the muffler/exhaust pipes.

Remove the exhaust pipe gaskets.

Loosen the muffler and exhaust pipe band bolt and remove the muffler and rear exhaust pipe.



INSTALLATION

Install the muffler and exhaust pipes in the reverse order of removal.

TORQUE:

Muffler/exhaust pipe band bolt:

22 N·m (2.2 kg-m, 16 ft-lb)

Muffler mounting bolt

(8 mm): 35 N·m (3.5 kg-m, 25 ft-lb)

(10 mm): 55 N·m (5.5 kg-m, 40 ft-lb)

Exhaust pipe joint cap nut: 27 N·m (2.7 kg-m, 20 ft-lb)

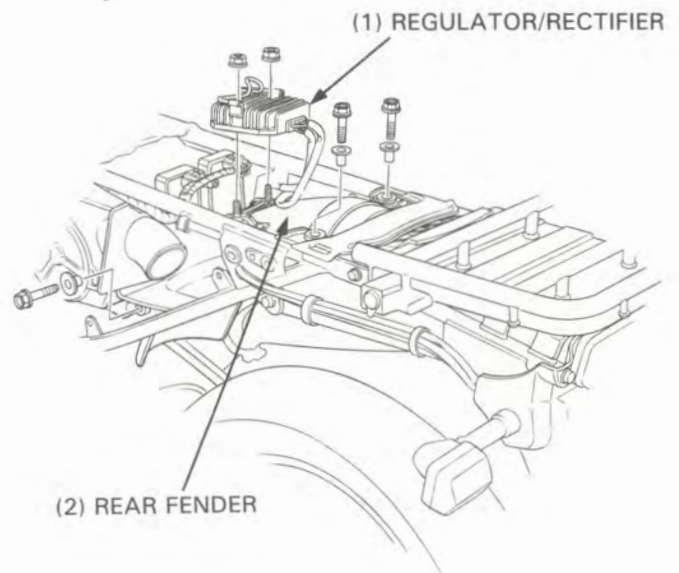
After installation, check for exhaust leaks.

REAR FENDER

Remove the seat.

Remove the regulator/rectifier from the rear fender.

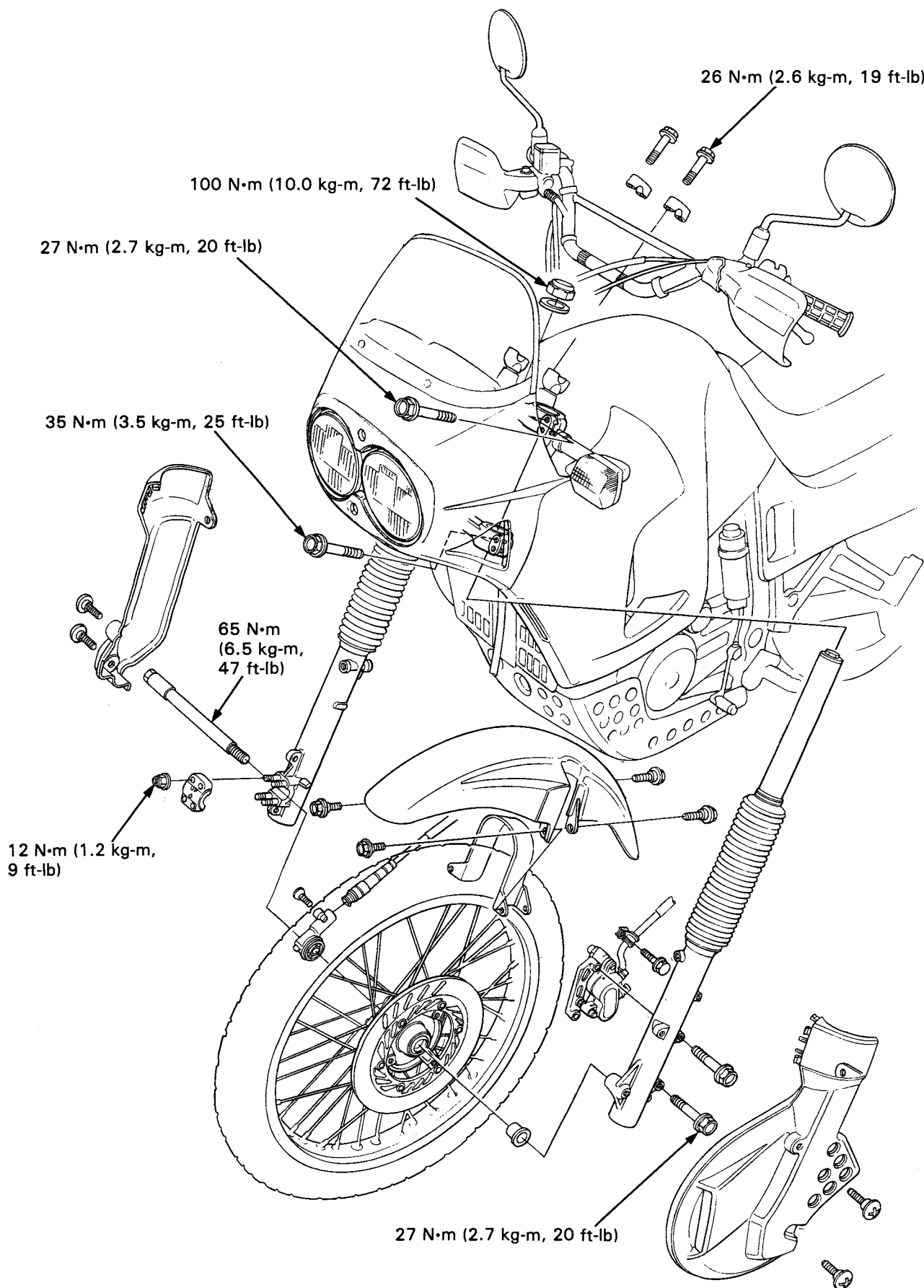
Remove the three mounting bolts and the rear fender.



FRONT WHEEL/SUSPENSION/ STEERING

ROUE AVANT/SUSPENSION/DIRECTION

VORDERRAD/AUFHÄNGUNG/LENKUNG



SERVICE INFORMATION	13-1	FRONT WHEEL	13-6
TROUBLESHOOTING	13-2	FRONT FORK	13-11
HANDLEBAR	13-3	STEERING STEM	13-18

SERVICE INFORMATION

GENERAL

⚠ WARNING

- A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality *brake degreasing agent*.
- *Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake assemblies.*

- This section covers maintenance of the front wheel, fork and steering stem. Refer to section 15 for front (hydraulic) brake service.
- Support the motorcycle using a hoist or a jack under the engine.

CAUTION

- Do not jack up the oil filter.

SPECIFICATIONS

Unit: mm(in)

ITEM		STANDARD	SERVICE LIMIT
Axle shaft runout		—	0.2 (0.01)
Front wheel rim runout	Radial	—	2.0 (0.08)
	Axial	—	2.0 (0.08)
Fork spring free length	A	57.3 (2.26)	54 (2.1)
	B	579.0 (22.8)	567 (22.3)
Fork tube runout		—	0.2 (0.01)
Fork oil capacity		656 cm ³ (22.2 US oz, 23.0 Imp oz)	—
Fork oil level		110 (4.3)	—
Steering bearing preload		1.1 – 1.6 kg (2.4 – 3.5 lb)	—

TORQUE VALUES

Handlebar upper holder bolt	26 N•m (2.6 kg-m, 19 ft-lb)
Spoke	4 N•m (0.4 kg-m, 2.9 ft-lb)
Brake disc bolt	40 N•m (4.0 kg-m, 29 ft-lb)
Front axle	65 N•m (6.5 kg-m, 47 ft-lb)
Axle holder nut	12 N•m (1.2 kg-m, 9 ft-lb)
Fork socket bolt	20 N•m (2.0 kg-m, 14 ft-lb)
Fork top pinch bolt	27 N•m (2.7 kg-m, 20 ft-lb)
Fork bottom pinch bolt	35 N•m (3.5 kg-m, 25 ft-lb)
Fork cap bolt	23 N•m (2.3 kg-m, 17 ft-lb)
Brake caliper mounting bolt	27 N•m (2.7 kg-m, 20 ft-lb)
Steering bearing adjustment nut	3 N•m (0.3 kg-m, 2.2 ft-lb)
Steering stem nut	100 N•m (10.0 kg-m, 72 ft-lb)

TOOLS

Special

Fork seal driver	07947—KA50100
Fork seal driver attachment	07947—KA40200
Steering stem socket	07916—KA50100
Ball race remover	07953—MA00000
Steering stem driver	07946—4300101

Common

Bearing remover shaft	07746—0050100
Bearing remover head, 15 mm	07746—0050400
Driver	07749—0010000
Attachment, 32 x 35 mm	07746—0010100
Attachment, 42 x 47 mm	07746—0010300
Pilot, 15 mm	07746—0040300

TROUBLESHOOTING

Hard steering

- Steering bearing adjustment nut too tight
- Faulty steering stem bearings
- Insufficient air in front tire

Steers to one side or does not track straight

- Bent fork legs
- Bent front axle, wheel installed incorrectly
- Unequal oil quantity in each fork tube

Front wheel wobbling

- Distorted rim
- Worn front wheel bearings
- Loose or broken spokes
- Faulty tire
- Axle or axle holder not tightened properly

Soft suspension

- Weak fork springs
- Insufficient fluid in fork legs

Hard suspension

- Fork oil level too high
- Fork tube(s) bent or fork slider(s) damaged

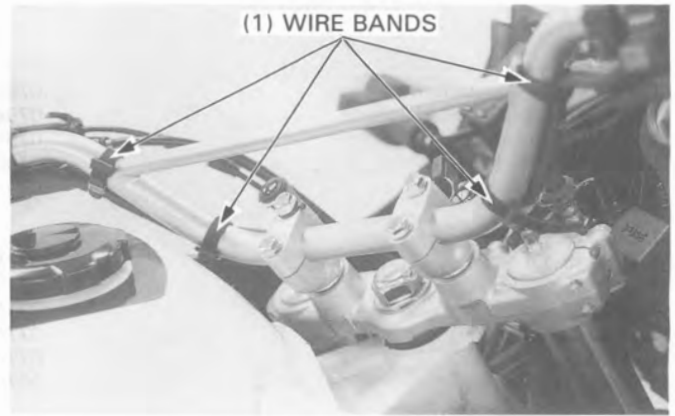
Front suspension noise

- Slider binding
- Insufficient fluid in fork legs
- Loose fork leg fasteners

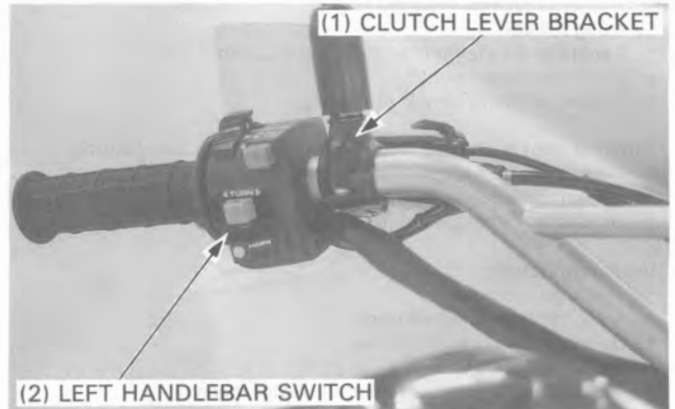
HANDLEBAR

REMOVAL

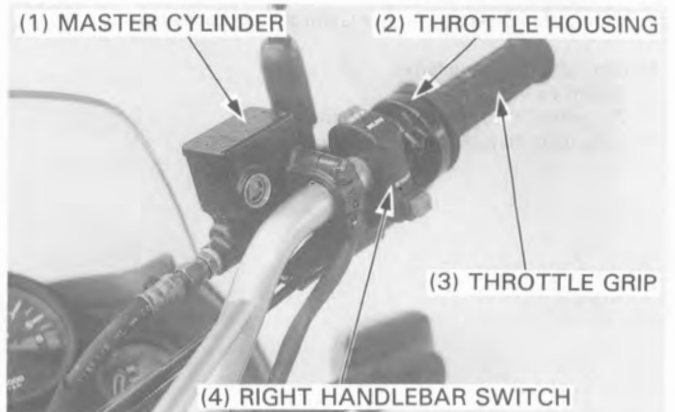
Remove the wire bands.



Remove the clutch lever bracket and the left handlebar switch.



Remove the front master cylinder.
Remove the throttle housing, disconnect the throttle cables and remove the throttle grip.
Remove the right handlebar switch.



Remove the handlebar upper holders and the handlebar.



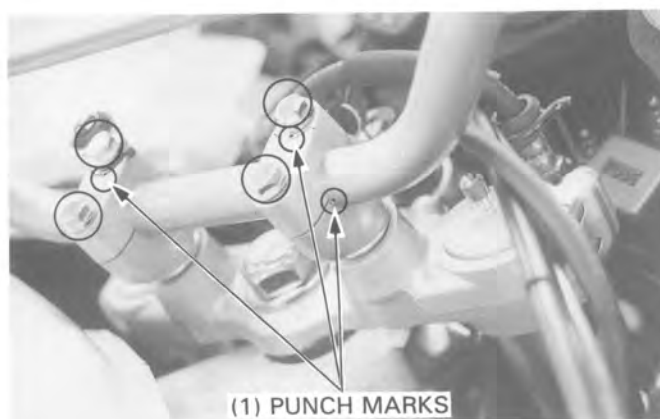
INSTALLATION

Place the handlebar on the lower holders, aligning the punch marks on the handlebar with the upper surface of the lower holder.

Install the upper holders with the punch marks facing forward.

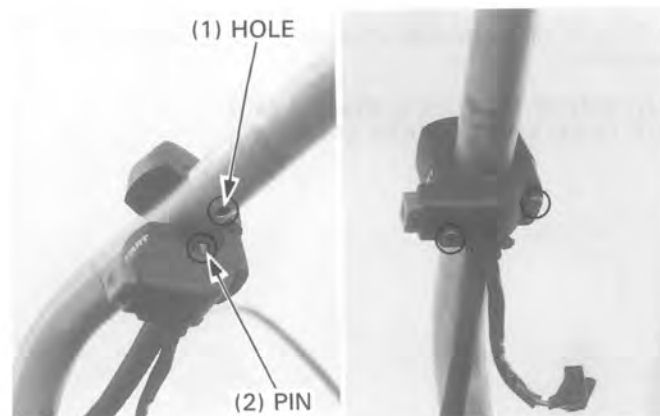
Tighten the forward bolts first, then tighten the rear bolts.

TORQUE: 26 N·m (2.6 kg-m, 19 ft-lb)



Install the right handlebar switch, aligning the pin with the hole in the handlebar.

Tighten the forward screw first, then tighten the rear screw.



If removed the grips, apply Honda Bond A to the inside surfaces of the grips and clean the surfaces of the left handlebar and throttle grip pipe. Wait 3–5 minutes and install the grips. Rotate the grips for even application of the adhesive.

NOTE

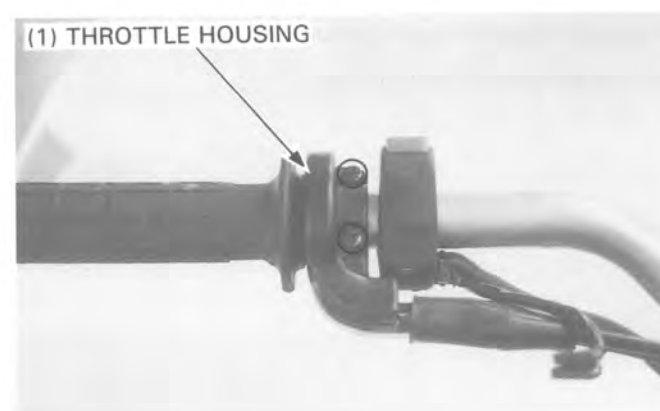
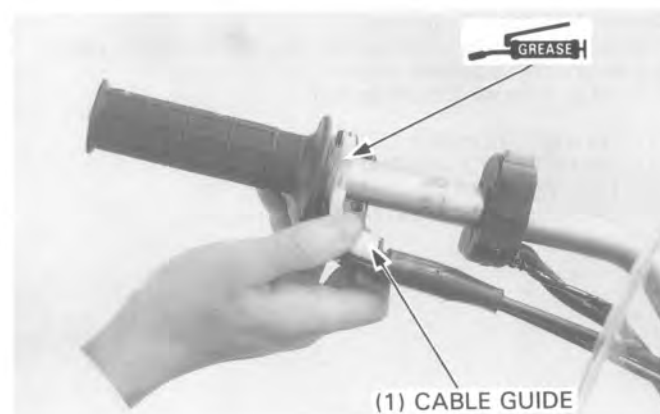
- Allow the adhesive to dry for an hour before using.

Apply grease to the throttle cable ends and cable guide.

Install the throttle grip onto the handlebar.

Connect the throttle cable ends to the throttle grip and set the cable guide as shown.

Set the throttle housing halves, align the slit of the housing with the punch mark on the handlebar and tighten the upper screw first, then tighten the under one.



FRONT WHEEL/SUSPENSION/STEERING

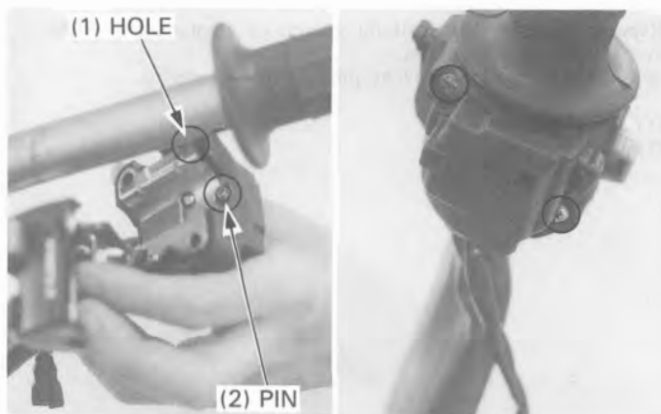
Install the front brake master cylinder and set the master cylinder holder with "UP" mark facing up, and loosely install the holder bolts.

Align the split of the master cylinder with the punch mark on the handlebar and tighten the upper bolt first, then tighten the lower bolt.

Connect the front stop switch wires to the switch terminals.



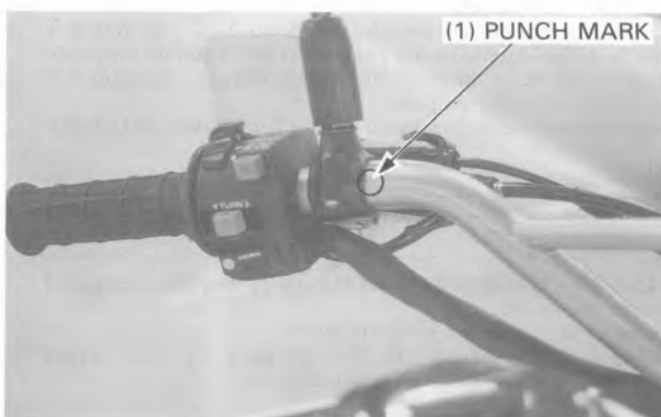
Install the left handlebar switch, aligning the pin with the hole in the handlebar, and tighten the forward screw first, then tighten the rear screw.



Install the clutch lever bracket.

Align the split of the clutch lever holder with the punch mark on the handlebar and tighten the forward screw first, then tighten the rear screw.

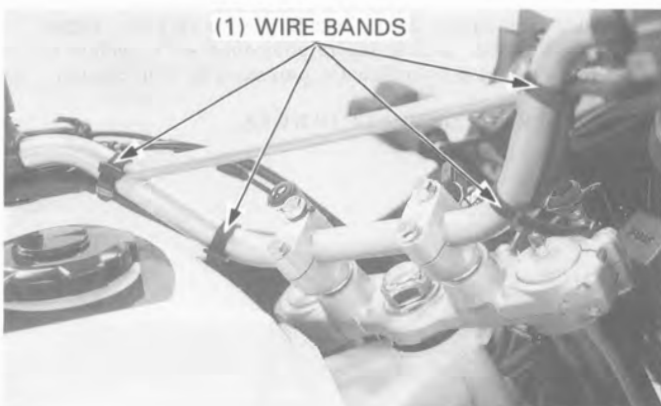
Connect the clutch switch wires to the switch terminals.



Route the switch wires and secure them with the wire bands (page 1-9).

Adjust the following:

- Throttle grip free play (page 3-4).
- Clutch lever free play (page 3-14).



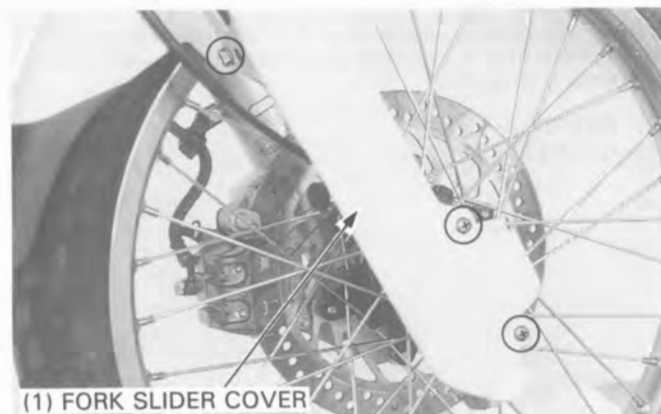
FRONT WHEEL

REMOVAL

Remove the front disc cover.



Remove the fork slider cover.



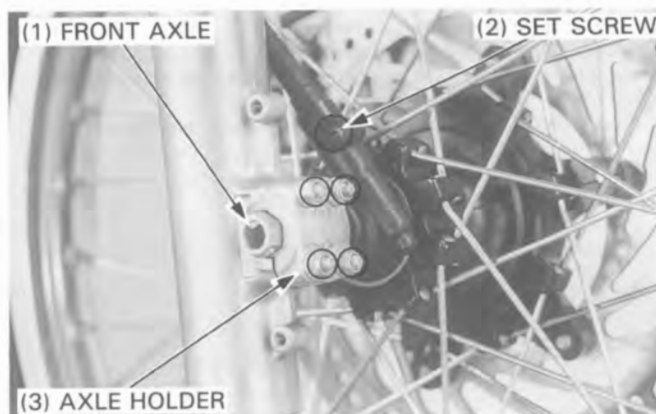
Raise the front wheel off the ground by placing a box or work stand under the engine.

CAUTION

- *Do not jack up the oil filter.*

Disconnect the speedometer cable from the speedometer gearbox by removing the set screw.

Loosen the axle holder nuts and then remove the front axle. Remove the front wheel.

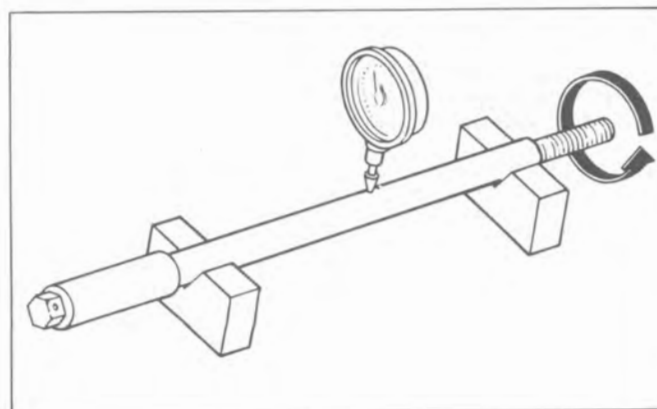


INSPECTION

Axle

Set the axle in V blocks and measure the runout. The actual runout is 1/2 of the total reading.

SERVICE LIMIT: 0.2 mm (0.01 in)



FRONT WHEEL/SUSPENSION/STEERING

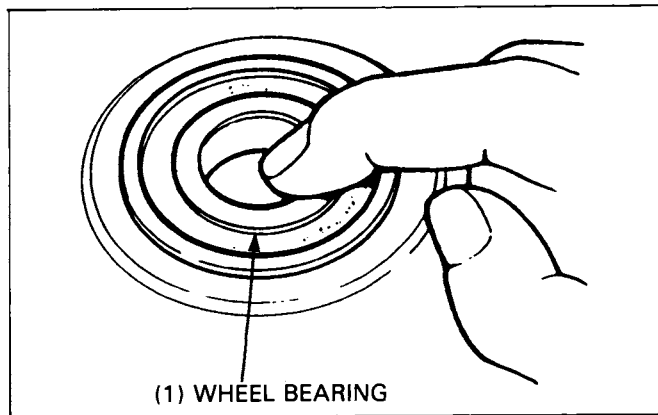
Wheel bearings

Turn the inner race of each bearing with your finger. The bearings should turn smoothly and quietly. Also check that the bearing outer race fits tightly in the hub. Remove and discard the bearings if the races do not turn smoothly, quietly, or if they fit loosely in the hub.

NOTE

- Replace wheel bearings in pairs.

For bearing replacement, see page 13-8.



Wheel

Check the spokes and tighten any that are loose.

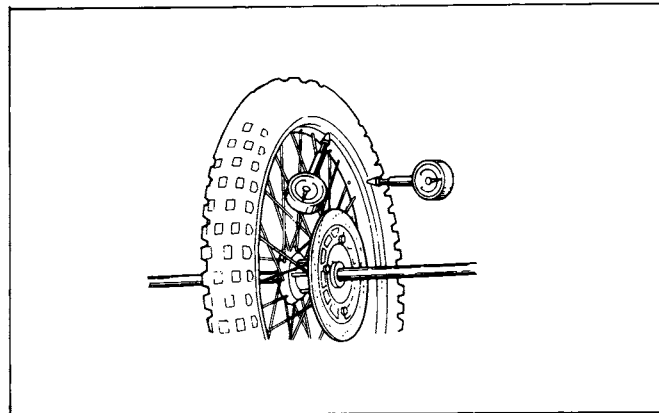
TORQUE: 4 N·m (0.4 kg-m, 2.9 ft-lb)

Check the rim runout by placing the wheel on a truing stand. Then spin the wheel with hand, and read the runout using a dial indicator.

SERVICE LIMITS:

RADIAL: 2.0 mm (0.08 in)

AXIAL: 2.0 mm (0.08 in)



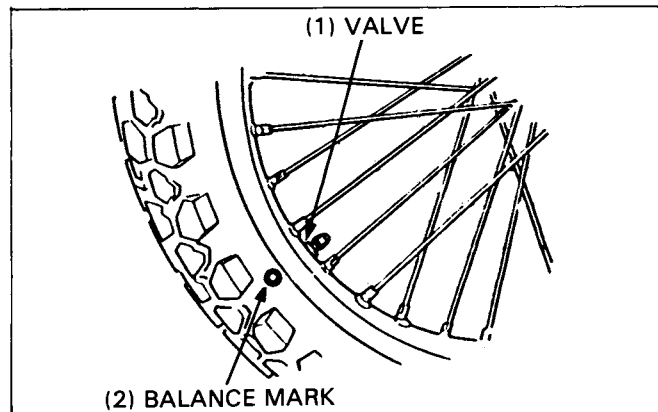
WHEEL BALANCING

CAUTION

- *Wheel balance directly affects the stability, handling and overall safety of the motorcycle. Always check balance when the tire has been removed from the rim.*

NOTE

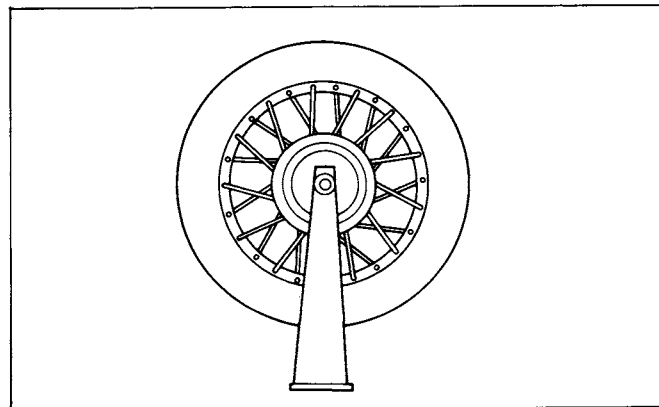
- For optimum balance, the tire balance mark (a paint dot on the sidewall) must be located next to the valve stem. Remount the tire if necessary.



Mount the front wheel in a inspection stand.

Spin the wheel, allow it to stop, and mark the lowest (heaviest) part of the wheel with chalk. Do this two or three times to verify the heaviest area.

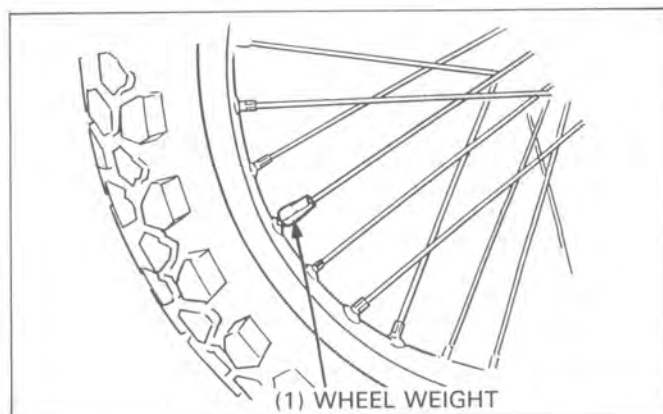
If the wheel is balanced, it will not stop consistently in the same position.



FRONT WHEEL/SUSPENSION/STEERING

To balance the wheel, install wheel weights on the highest side of the rim, the side opposite to the chalk marks. Add just enough weight so the wheel will no longer stop in the same position when it is spun.

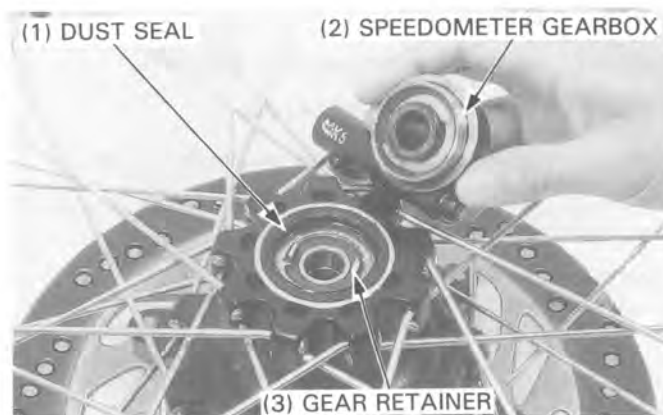
Do not add more than 60 grams.



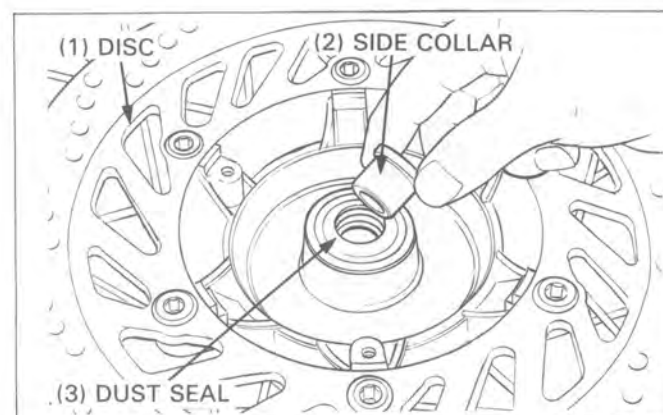
DISASSEMBLY

Remove the speedometer gearbox from the right side of wheel hub.

Remove the dust seal and speedometer gear retainer.



Remove the side collar, front brake disc and dust seal.



Remove the wheel bearings and distance collar.

NOTE

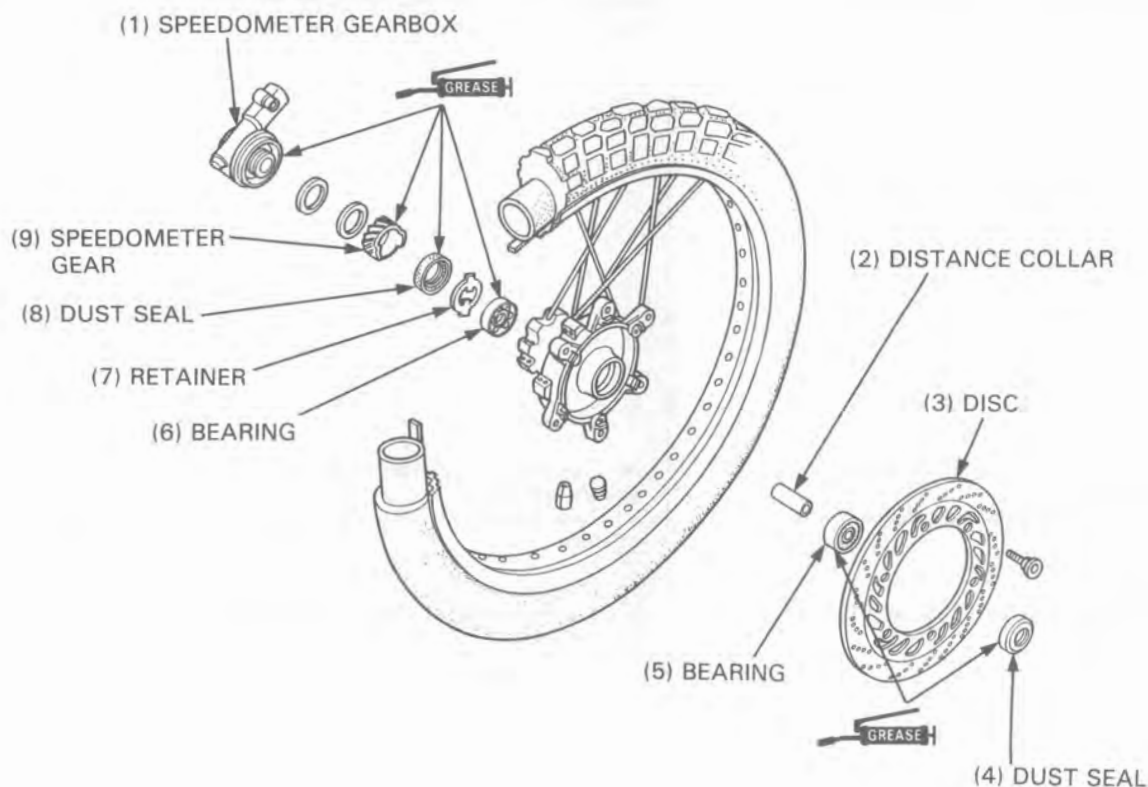
- Replace the wheel bearing with a new one, whenever the bearing has been removed.

TOOLS:

Bearing remover shaft	07746-0050100
Bearing remover head, 15 mm	07746-0050400



ASSEMBLY



Pack all bearing cavities with grease.

Drive in the right bearing first with the sealed side facing up until it seats.

Install the distance collar and drive in the left wheel bearing.

NOTE

- Install the bearings with the sealed faces toward the outside. Be sure to drive the bearing in squarely.

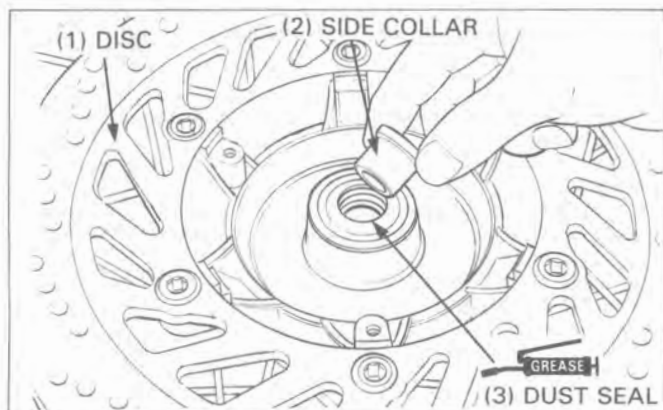
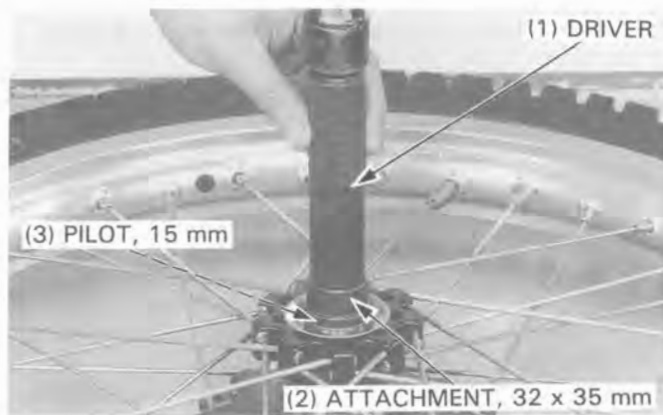
TOOLS:

Driver	07749-0010000
Attachment, 32 x 35 mm	07746-0010100
Pilot, 15 mm	07746-0040300

Install the brake disc and tighten the bolts to the specified torque.

TORQUE: 40 N·m (4.0 kg-m, 29 ft-lb)

Apply grease to the dust seal lips and install it. Install the left side collar.



FRONT WHEEL/SUSPENSION/STEERING

Apply grease to the speedometer gear retainer and install it, aligning the tabs with the grooves in the wheel hub.

Apply grease to the speedometer gearbox and gear. Install the speedometer gear and two washers into the gearbox.

Apply grease to the dust seal lip and install it.

Install the speedometer gearbox into the wheel hub, aligning the tangs with the slots.

Clean the brake discs with a high quality degreasing agent.



INSTALLATION

Place the front wheel between the front fork legs. Fit the caliper over the brake disc, taking care not to damage the brake pads.

Clean the axle and holder.

Install the axle through the speedometer gearbox and wheel hub.

Set the speedometer gearbox tab under the tang on the right fork slider.

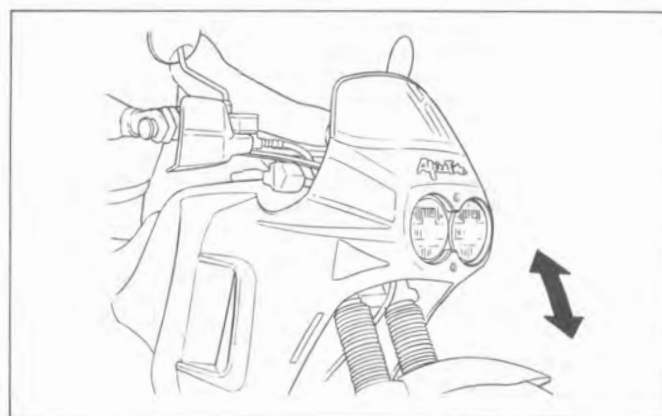
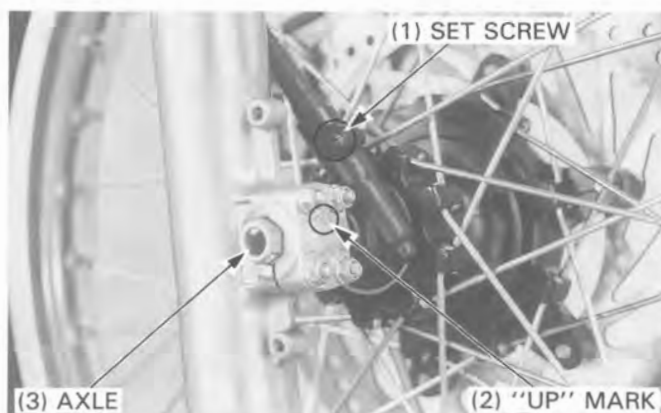
If removed the axle holder, install it with "UP" mark facing up. Install the axle holder nuts loosely.

Tighten the axle shaft.

TORQUE: 65 N·m (6.5 kg-m, 47 ft-lb)

Connect the speedometer cable and secure it with the screw.

With the front brake applied, pump the fork up and down several times to seat the axle.



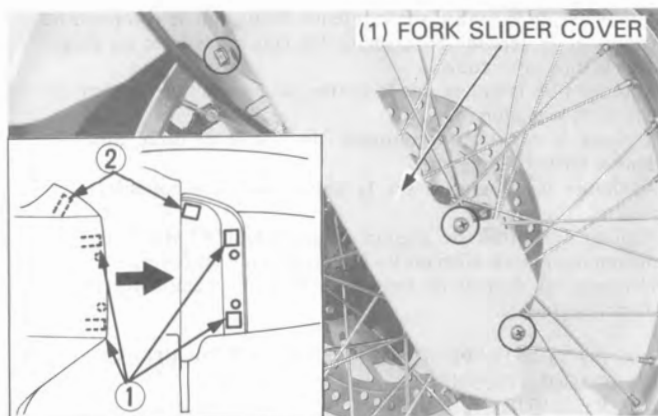
Torque the axle holder nuts, the upper nuts first, then tighten the lower nuts in 2 or 3 steps.

TORQUE: 12 N·m (1.2 kg-m, 9 ft-lb)



FRONT WHEEL/SUSPENSION/STEERING

Install the fork slider cover, aligning the tabs with the holes in the front fender in the sequence as shown.



Install the front disc cover in the same manner as the slider cover.

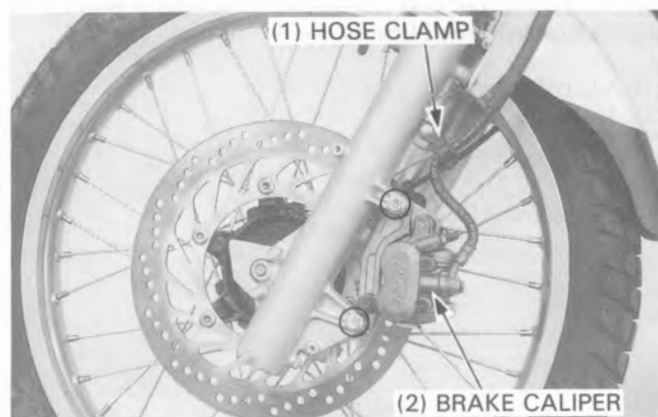


FRONT FORK

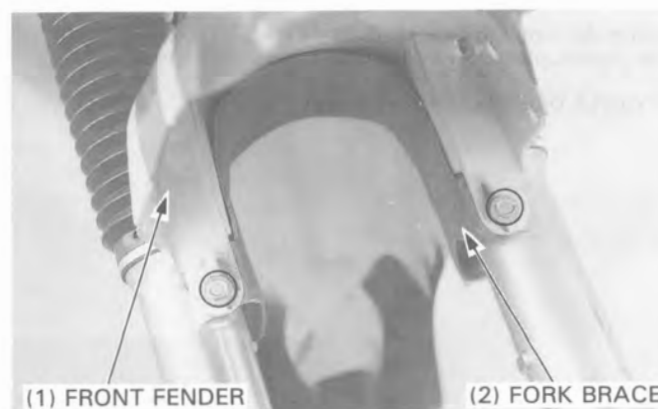
REMOVAL

Remove the following components:

- front disc cover.
- brake caliper from the left fork leg.
- brake hose clamp from the left fork leg.
- front wheel (page 13-6).

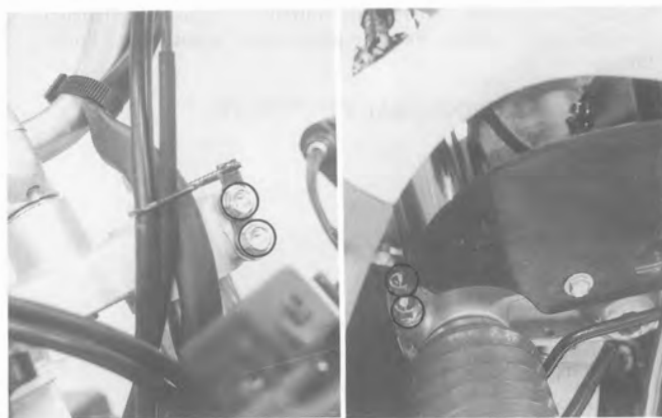


Remove the front fender and fork brace.



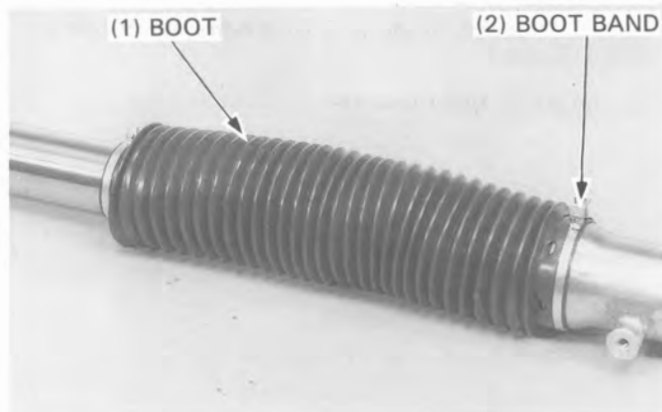
FRONT WHEEL/SUSPENSION/STEERING

Loosen the fork cap bolt when the fork is to be disassembled.
Loosen the fork top and bottom pinch bolts.
Remove the fork from the top and bottom bridges.



DISASSEMBLY

Loosen the boot band screw and remove the fork boot and boot band.



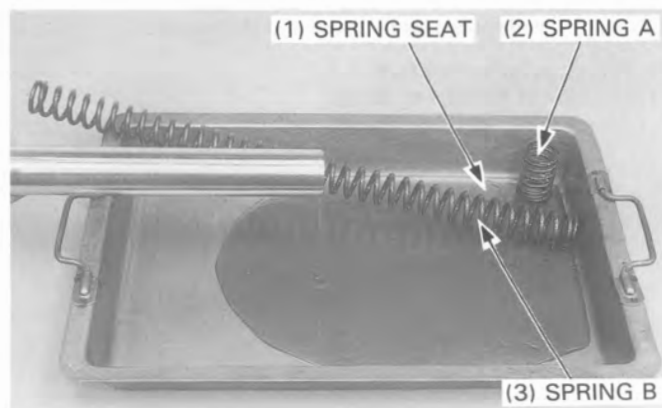
Remove the fork cap bolt.

⚠ WARNING

- *The cap bolts are under spring pressure. Take care when removing and wear eye and face protection.*



Remove the fork spring A, spring seat and spring B.
Pour out the fork fluid by pumping the fork up and down several times.



FRONT WHEEL/SUSPENSION/STEERING

Hold the fork slider in a vise with soft jaws or a shop towel. Remove the fork slider socket bolt.

CAUTION

- *Do not distort the fork slider in a vise.*

NOTE

- Temporarily install the spring and fork tube cap if difficulty is encountered in removing the socket bolt.

Remove the fork piston and rebound spring from the fork tube.



Remove the dust seal and pry out the set ring with a screwdriver.

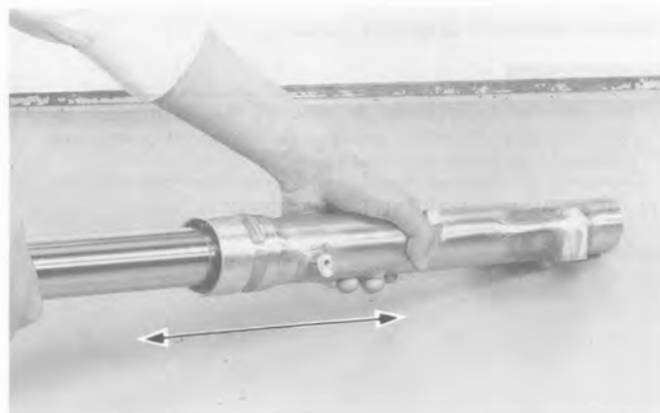
CAUTION

- *Be careful not to damage the fork tube.*



Pull the fork tube out until resistance from the slider bushing is felt. Then move it in and out, tapping the bushing lightly until the fork tube separates from the slider. The slider bushing will be forced out by the fork tube bushing.

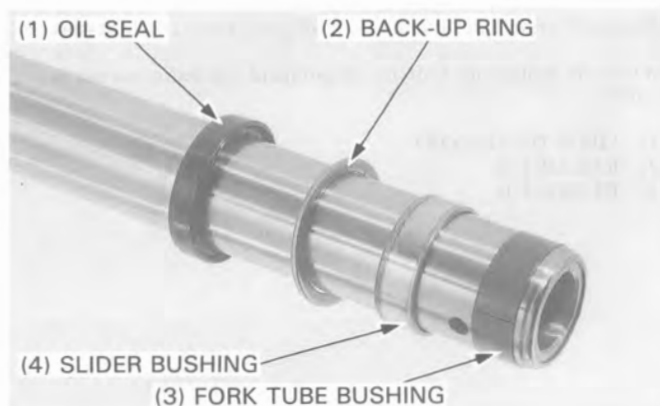
Remove the oil lock piece from inside the slider.



Remove the oil seal, back-up ring and slider bushing from the fork tube.

NOTE

- Do not remove the fork tube bushing unless it is necessary to replace it with a new one. See bushing inspection, page 13-14.



FRONT WHEEL/SUSPENSION/STEERING

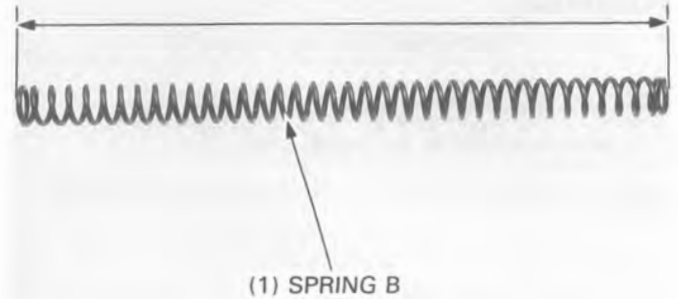
INSPECTION

Measure the fork spring free length.

SERVICE LIMITS:

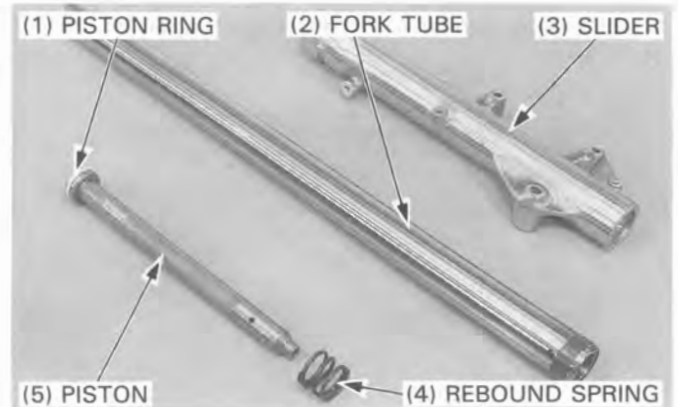
Spring A: 54 mm (2.1 in)

Spring B: 567 mm (22.3 in)



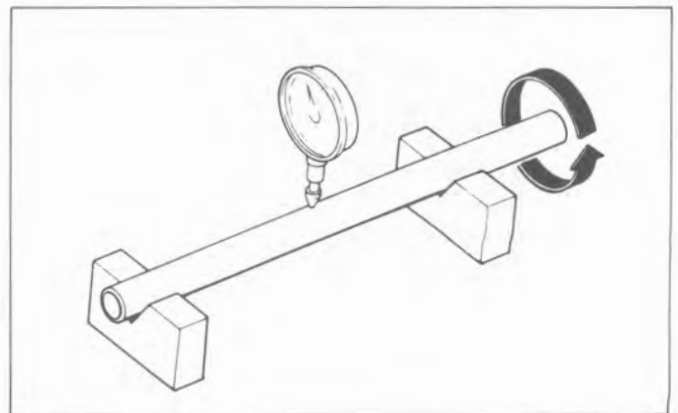
Check the fork tube, fork slider and piston for score marks, scratches, excessive or abnormal wear. Replace if necessary.

Check the piston ring for wear or damage.
Check the rebound spring for fatigue or damage.



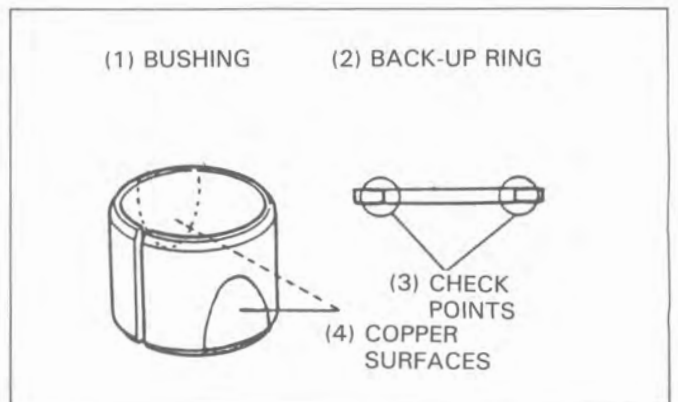
Set the fork tube on V blocks and measure the runout. The actual runout is 1/2 of the total indicator reading.

SERVICE LIMIT: 0.2 mm (0.01 in)

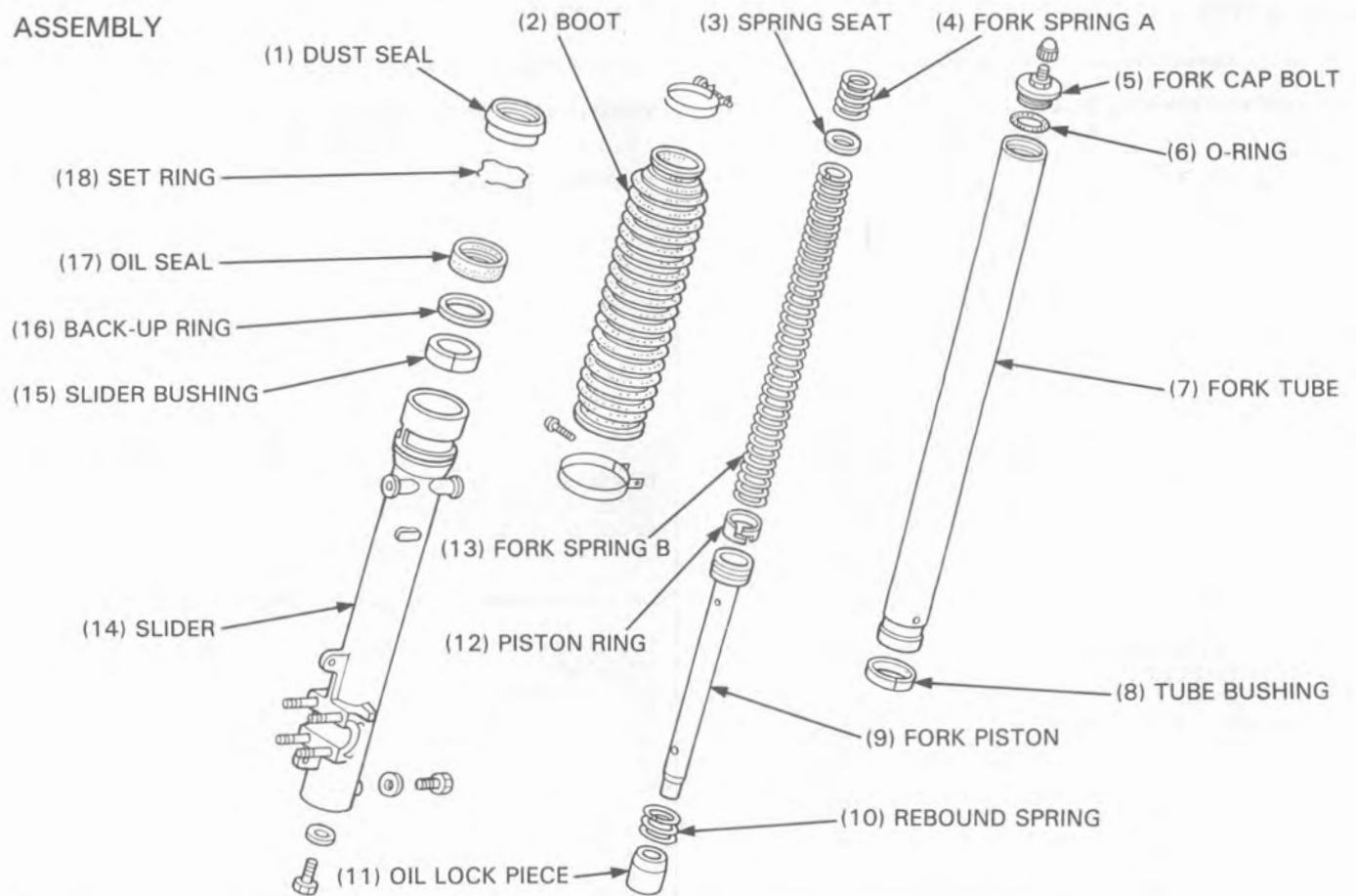


Visually inspect the slider and fork tube bushings. Replace the bushings if there is excessive scoring or scratching, or if the teflon is worn so that the copper surface appears on more than 3/4 of the entire surface.

Check the back-up ring; replace it if there is any distortion at the points shown.



ASSEMBLY



Insert the rebound spring and piston into the fork tube.

Place the oil lock piece on the end of the piston and insert the fork tube into the slider.



Place the fork slider in a vise with soft jaws or a shop towel. Apply a locking agent to the socket bolt and thread it into the piston. Tighten with a 6 mm hex wrench.

NOTE

- Temporarily install the fork spring and fork tube cap to tighten the socket bolt.

TORQUE: 20 N·m (2.0 kg-m, 14 ft-lb)



FRONT WHEEL/SUSPENSION/STEERING

Place the slider bushing over the fork tube and rest it on the slider. Put the back-up ring and an old bushing or equivalent tool on top.

Drive the bushing into place with the seal driver and remove the old bushing or equivalent tool.

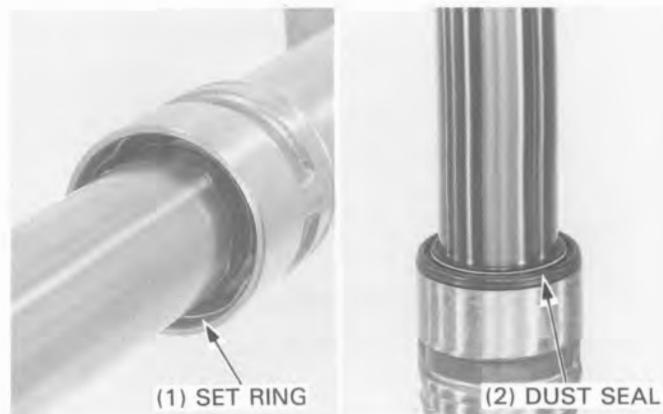
Coat a new oil seal with ATF and install it with the seal markings facing up. Drive the seal in with the seal driver.

TOOLS:

Fork seal driver	07947-KA50100
Seal driver attachment	07947-KA40200



Install the set ring and dust seal.



Pour in the specified amount of ATF.

SPECIFIED FLUID: ATF

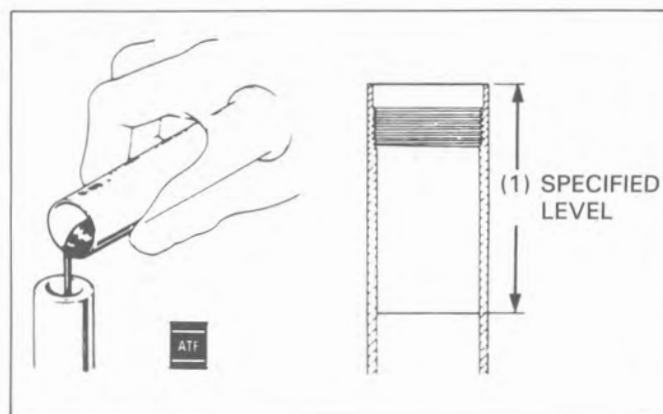
CAPACITY: 656 cm³ (22.2 US oz, 23.0 Imp oz)

Compress the fork tube all the way and measure the oil level from the top of the tube.

NOTE

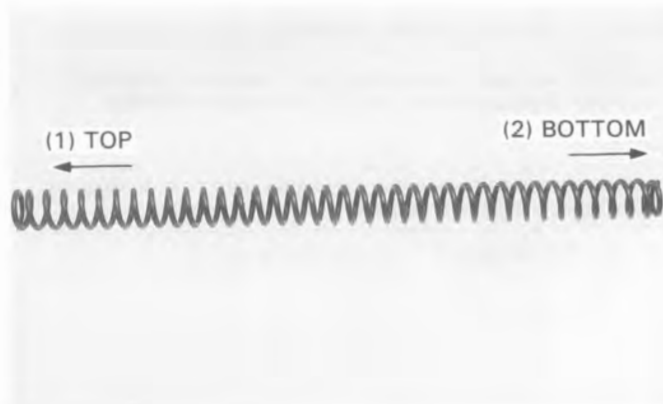
- Be sure the oil level is the same in both fork tubes.

STANDARD OIL LEVEL: 110 mm (4.3 in)



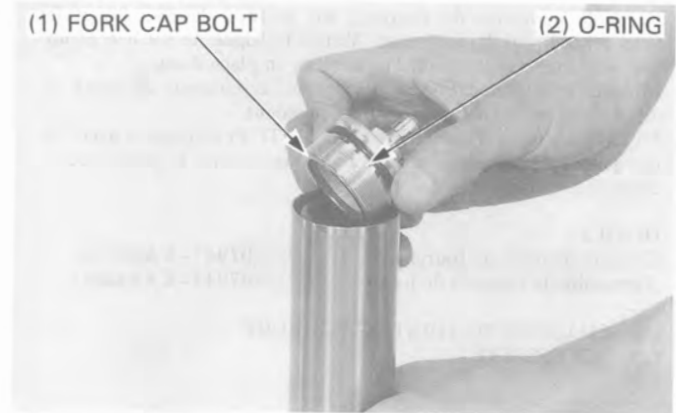
Wipe any oil off the fork spring.

Install the spring B into the fork tube with the small coil end facing down.

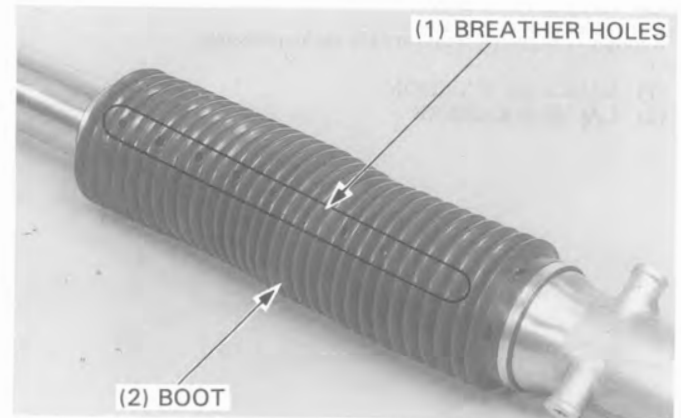


FRONT WHEEL/SUSPENSION/STEERING

Install the spring seat and spring A.
Install a new O-ring onto the fork cap bolt.
Install the fork cap bolt; not tighten at this time.

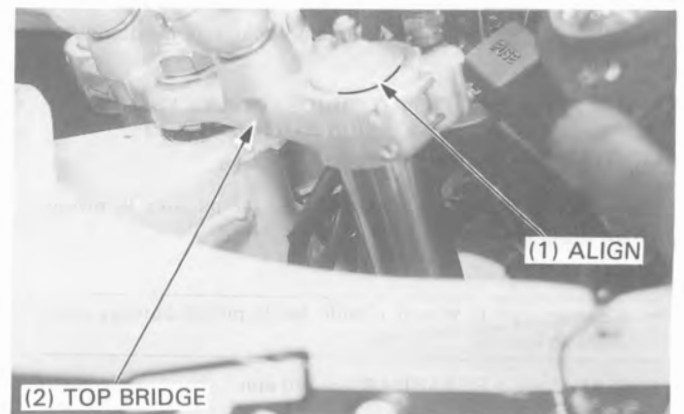


Install the fork boot with the breather holes facing in.
Loosely install the band with the screw head facing out.



INSTALLATION

Install the front fork and align the top end of the fork tube with the upper surface of the fork top bridge.



Tighten the top and bottom pinch bolts.

TORQUE:

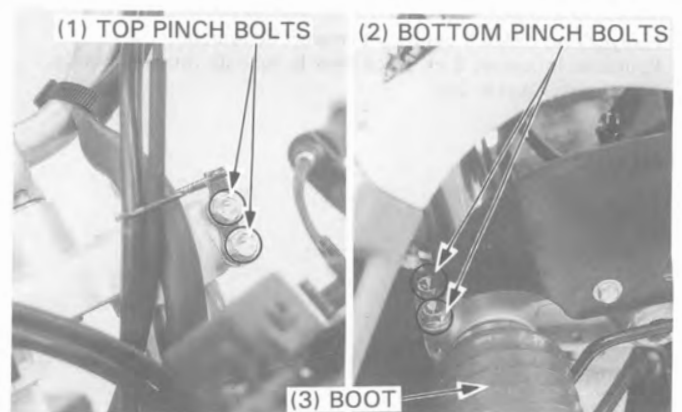
Top: 27 N·m (2.7 kg-m, 20 ft-lb)

Bottom: 35 N·m (3.5 kg-m, 25 ft-lb)

Tighten the fork tube cap bolt if it was removed.

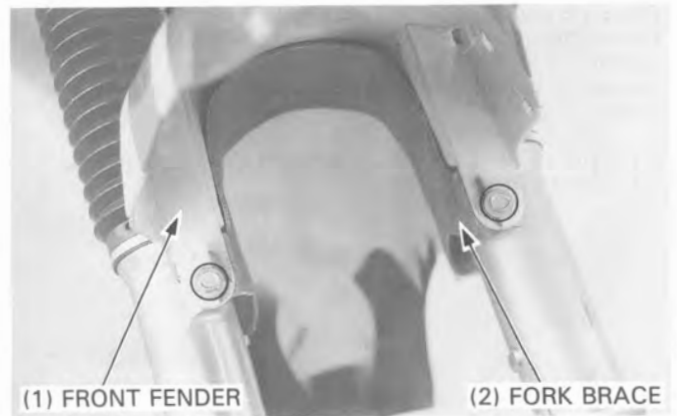
TORQUE: 23 N·m (2.3 kg-m, 17 ft-lb)

Push the fork boot up until they just touch the steering stem and tighten the boot band.



FRONT WHEEL/SUSPENSION/STEERING

Install the fork brace and front fender.



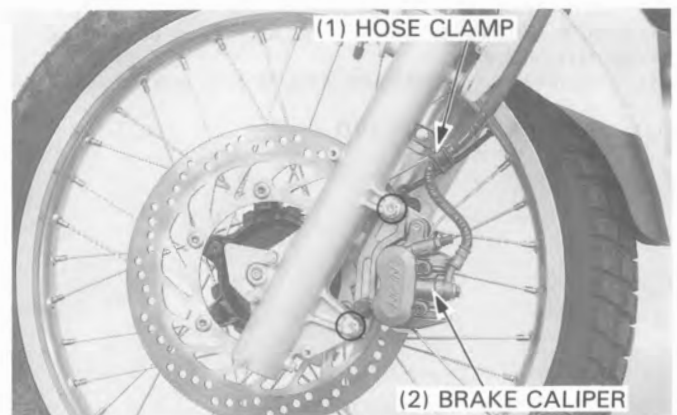
Install the front wheel (page 13-10).

Install the brake caliper to the left fork leg.

TORQUE: 27 N·m (2.7 kg·m, 20 ft·lb)

Secure the brake hose with the clamp.

Install the front disc cover.



STEERING STEM

REMOVAL

Remove the following components.

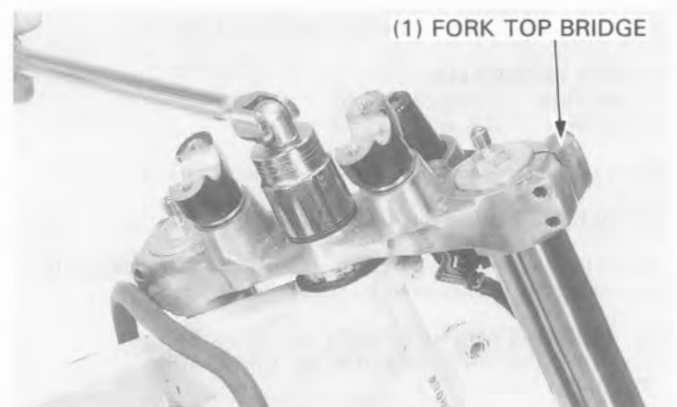
- front wheel (page 13-6).
- brake pipe holder bolts from the stem and top bridge.
- front guard plate.
- handlebar (page 13-3).



Remove the steering stem nut.

Remove the front forks (page 13-11).

Remove the fork top bridge.



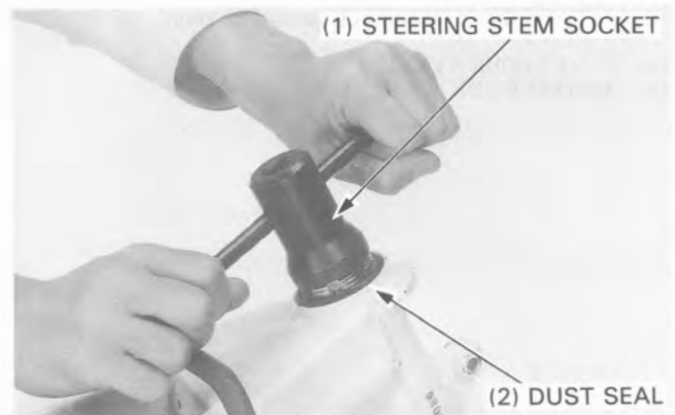
FRONT WHEEL/SUSPENSION/STEERING

Remove the bearing adjustment nut.

TOOL:

Steering stem socket 07916—KA50100

Remove the dust seal.



Remove the upper bearing and the steering stem.

Check the bearings and outer races for wear or damage and replace if necessary.

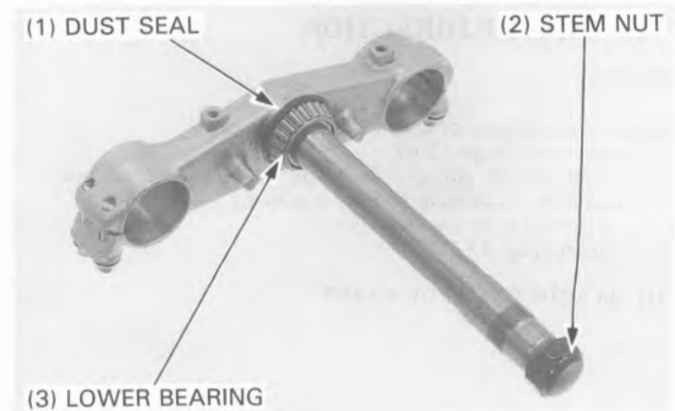


BEARING REPLACEMENT

NOTE

- Always replace the bearing and race as a set.

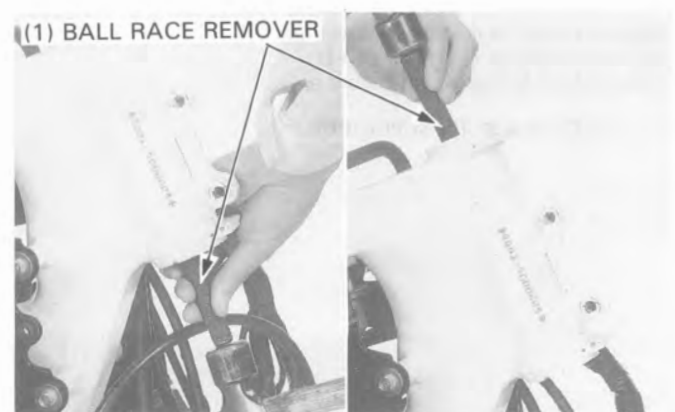
Install the steering stem nut on the top end of the steering stem to prevent the threads from damaging.
Remove the lower bearing and dust seal using a punch or driver.



Remove the upper and lower races using a ball race remover.

TOOL:

Ball race remover 07953—MA00000

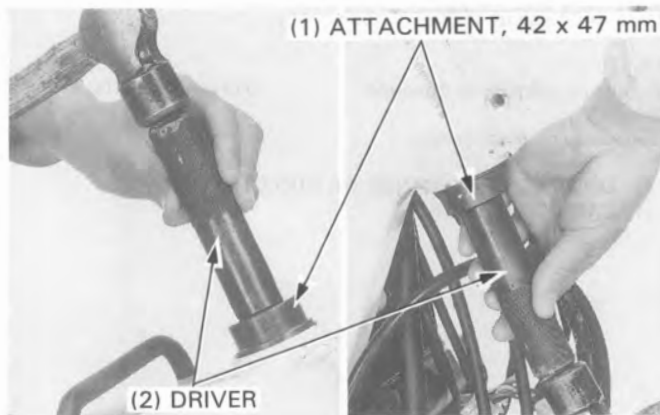


FRONT WHEEL/SUSPENSION/STEERING

Drive in new outer races.

TOOLS:

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



Install new dust seal and lower bearing using a hydraulic press and steering stem driver.

TOOL:

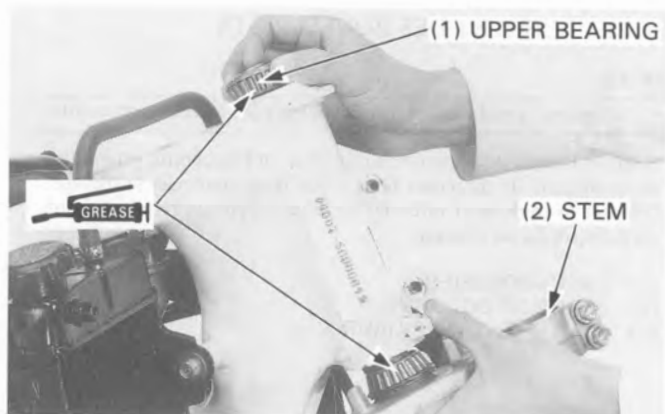
Steering stem driver	07946-4300101
----------------------	---------------



INSTALLATION

Pack the upper and lower bearing cavities with grease.
Slide the steering stem through the steering head from the bottom.

Install the upper bearing.



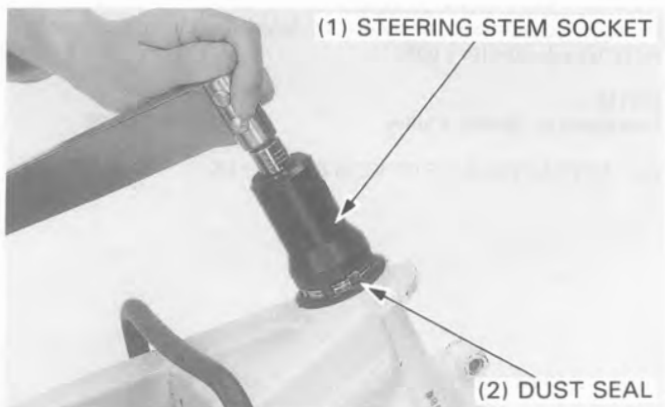
Install the dust seal and steering bearing adjustment nut, and torque the nut.

TORQUE: 3 N·m (0.3 kg-m, 2.2 ft-lb)

TOOL:

Steering stem socket	07916-KA50100
----------------------	---------------

Turn the steering stem lock-to-lock several times to seat the bearings. Repeat the bearing tightening and steering stem turning sequence twice more.



FRONT WHEEL/SUSPENSION/STEERING

Install the fork bridge.
Temporarily install the fork legs.
Tighten the steering stem nut.

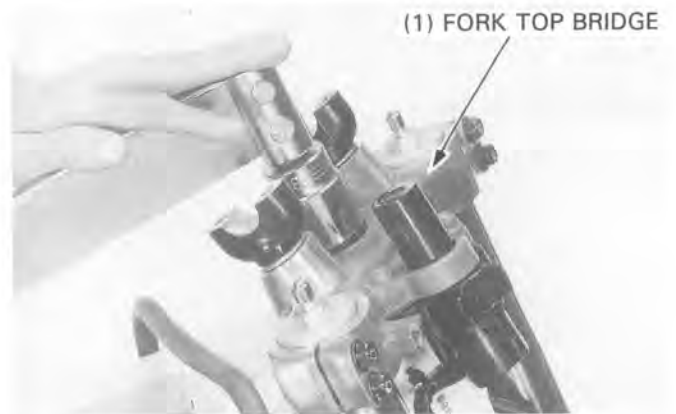
TORQUE: 100 N·m (10.0 kg-m, 72 ft-lb)

Recheck the steering stem adjustment.

Install the following parts:

- front forks (page 13-17).
- front wheel (page 13-10).

Check the steering head bearing preload.



STEERING HEAD BEARING PRELOAD

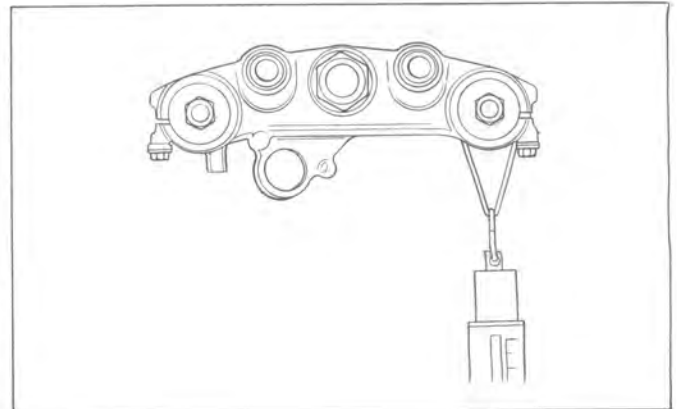
Place a stand under the engine and raise the front wheel off the ground.

Position the steering stem to the straight ahead position.

Hook a spring balance to the fork tube and measure the steering head bearing preload.

NOTE

- Make sure that there is no cable and wire harness interference.



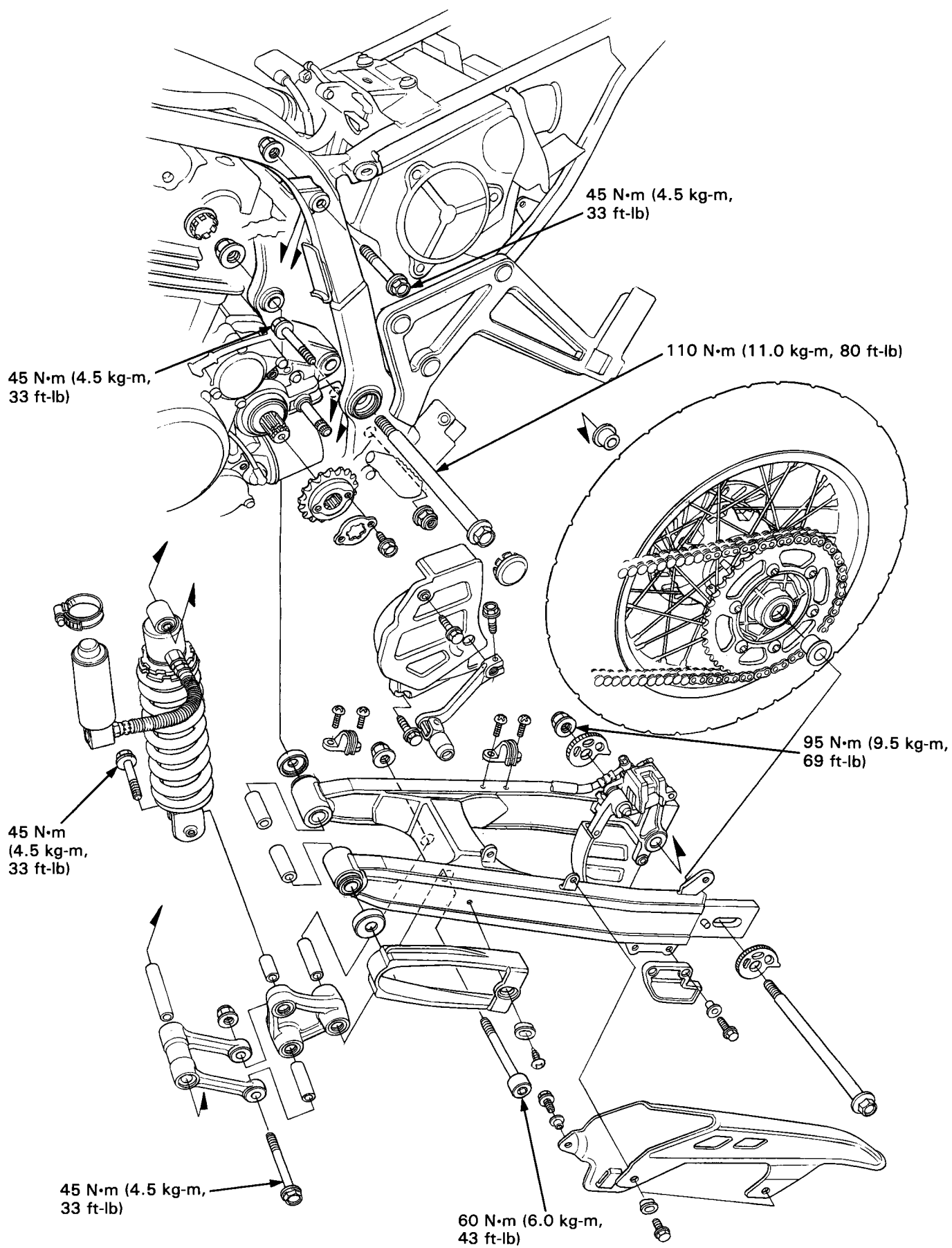
The preload should be within 1.1 – 1.6 kg (2.43 – 3.53 lb) for right and left turns.

If the readings do not fall within the limits, lower the front wheel on the ground and adjust the bearing adjustment nut. After making sure the bearing preload, install the removed parts in the reverse order of removal.

REAR WHEEL/SUSPENSION

ROUE ARRIERE/SUSPENSION

HINTERRAD/AUFHÄNGUNG



REAR WHEEL/SUSPENSION

SERVICE INFORMATION	14-1	REAR SHOCK ABSORBER	14-7
TROUBLESHOOTING	14-2	SHOCK LINKAGE	14-11
REAR WHEEL	14-3	SWINGARM	14-13

SERVICE INFORMATION

GENERAL

⚠ WARNING

- *A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.*
- *Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake assemblies.*
- *The rear shock absorber contains nitrogen gas under high pressure. Do not allow fire or heat near the shock absorber.*
- *Before disposal of the shock absorber, release the nitrogen (see page 14-9).*

- Support the motorcycle using a hoist or a jack under the engine.

CAUTION

- *Do not jack up the oil filter.*

- Use only genuine Honda replacement fasteners for the rear suspension. Note the installation direction of the bolts.
- Refer to section 15 for rear (hydraulic) brake service.

SPECIFICATIONS

Unit: mm(in)

ITEM		STANDARD	SERVICE LIMIT
Axle runout		—	0.2 (0.01)
Wheel rim runout	Radial	—	2.0 (0.08)
	Axial	—	2.0 (0.08)
Shock absorber spring	Free length	236.5 (9.31)	231 (9.1)
	Installed length	230.5 (9.07)	—
Damper compression at stroke 10 mm (0.4 in) compressed		27 kg (59.5 lb)	20 kg (44.1 lb)
Reservoir gas pressure (Nitrogen)		1,569 kPa (16 kg/cm ² , 227.5 psi)	—

TORQUE

Driven sprocket bolt	46 N•m (4.6 kg-m, 33 ft-lb)
Rear axle nut	95 N•m (9.5 kg-m, 69 ft-lb)
Shock absorber lower mount lock nut	68 N•m (6.8 kg-m, 49 ft-lb)
Shock absorber spring adjuster lock nut	90 N•m (9.0 kg-m, 65 ft-lb)
Shock absorber mounting bolt upper	45 N•m (4.5 kg-m, 33 ft-lb)
lower	45 N•m (4.5 kg-m, 33 ft-lb)
Shock arm-to-swingarm bolt	60 N•m (6.0 kg-m, 43 ft-lb)
Shock link-to-frame bolt	45 N•m (4.5 kg-m, 33 ft-lb)
Shock link-to-shock arm bolt	45 N•m (4.5 kg-m, 33 ft-lb)
Swingarm pivot bolt	110 N•m (11.0 kg-m, 80 ft-lb)
Rear brake disc bolt	15 N•m (1.5 kg-m, 11 ft-lb)

TOOLS

Special

Needle bearing driver	07946—KA50100
Driver shaft	07946—MJ00100

Common

Bearing remover shaft	07746—0050100
Bearing remover head, 17 mm	07746—0050500
Driver	07749—0010000
Attachment, 37 x 40 mm	07746—0010200
Attachment, 42 x 47 mm	07746—0010300
Attachment, 24 x 26 mm	07746—0010700
Pilot, 17 mm	07746—0040400

TROUBLESHOOTING

Wobble or vibration in motorcycle

- Bent rim
- Loose wheel bearing(s)
- Loose or bent spokes
- Damaged tire
- Axle not tightened properly
- Swingarm pivot bearing worn
- Chain adjusters not adjusted equally
- Bent frame or swingarm

Hard suspension

- Improper shock absorber spring preload
- Bent shock absorber rod
- Swingarm pivot bearings damaged
- Bent frame or swingarm

Suspension noise

- Faulty rear damper
- Loose fasteners
- Worn shock linkage pivot bearing(s)

REAR WHEEL

REMOVAL

Loosen the axle nut.

Raise the rear wheel off the ground by placing a box or work-stand under the engine.

CAUTION

- Do not jack up the oil filter.

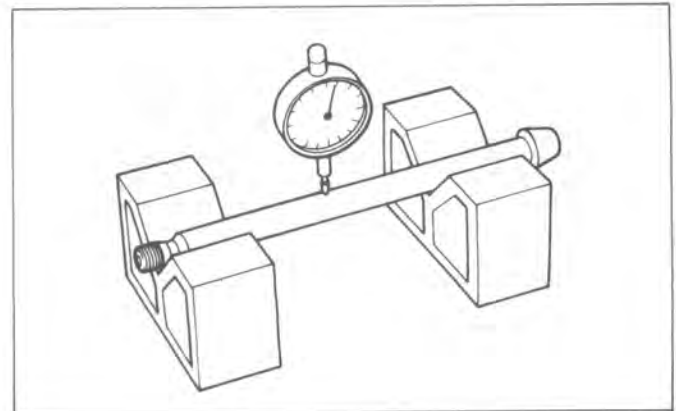
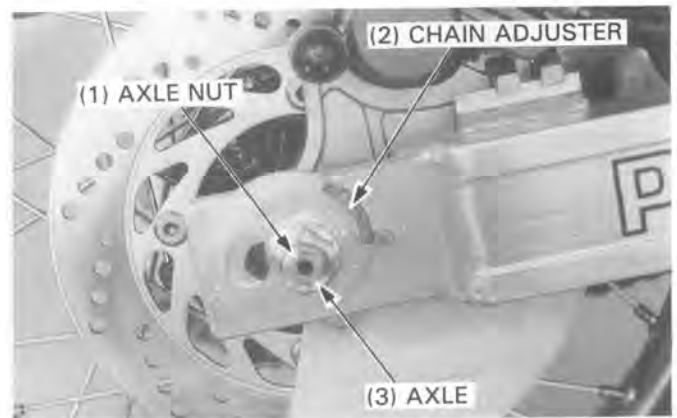
Remove the axle nut, washer, axle and drive chain adjusters. Derail the drive chain from the driven sprocket and remove the rear wheel.

INSPECTION

Axle

Set the axle on V blocks and measure the runout. The actual runout is 1/2 of the total indicator reading.

SERVICE LIMIT: 0.2 mm (0.01 in)



Wheel bearings

Remove the driven flange (page 14-4).

Turn the inner race of each bearing with your finger.

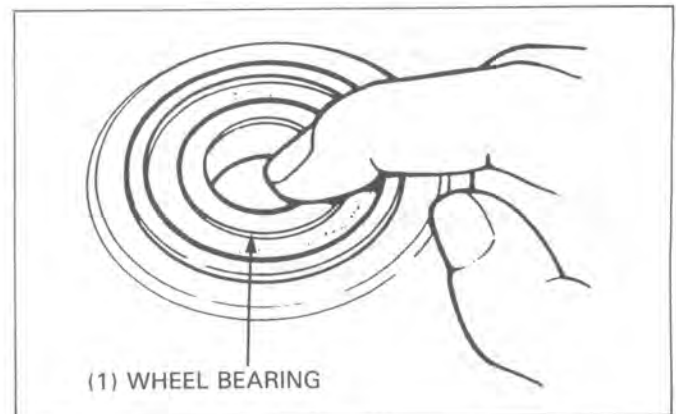
The bearings should turn smoothly and quietly.

Also check that the bearing outer race fits tightly in the hub and flange.

Remove and discard the bearings if the races do not turn smoothly, quietly, or if they fit loosely in the hub and flange.

NOTE

- Replace wheel bearings as a set.



For bearings replacement, see page 14-4.

Wheel

Check the spokes and tighten any that are loose.

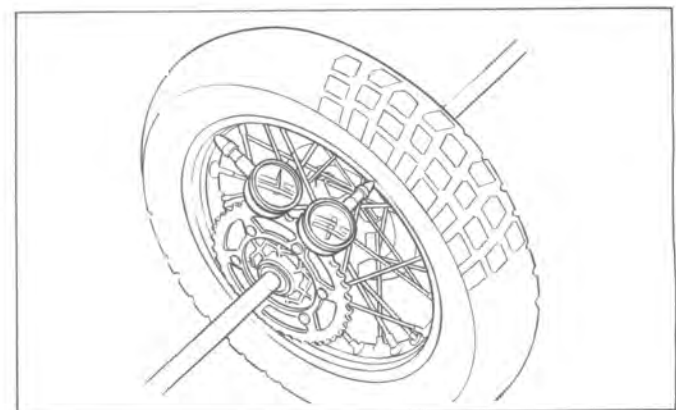
TORQUE: 4 N·m (0.4 kg-m, 2.9 ft-lb)

Check the rim runout by placing the wheel on a truing stand. Turn the wheel by hand and measure the runout using a dial indicator.

SERVICE LIMITS:

RADIAL: 2.0 mm (0.08 in)

AXIAL: 2.0 mm (0.08 in)



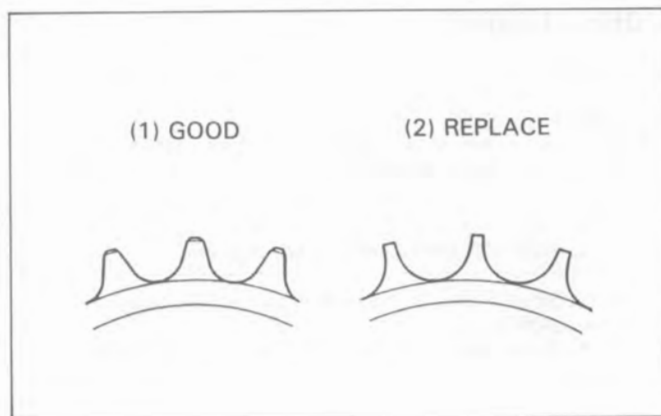
REAR WHEEL/SUSPENSION

FINAL DRIVEN SPROCKET

Check the condition of the final driven sprocket teeth.
Replace a worn or damaged sprocket.

NOTE

- The drive chain and drive sprocket must also be inspected if the driven sprocket is worn or damaged. Never install a new drive chain on worn sprockets or a worn chain on new sprockets. Both chain and sprocket must be in good condition or the new replacement chain or sprockets will wear rapidly.

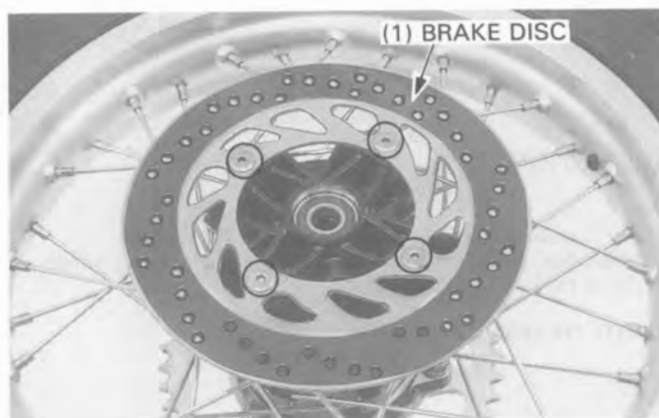


WHEEL BALANCING

Refer to page 13-7.

DISASSEMBLY

Remove the side collars and dust seals.
Remove the brake disc.

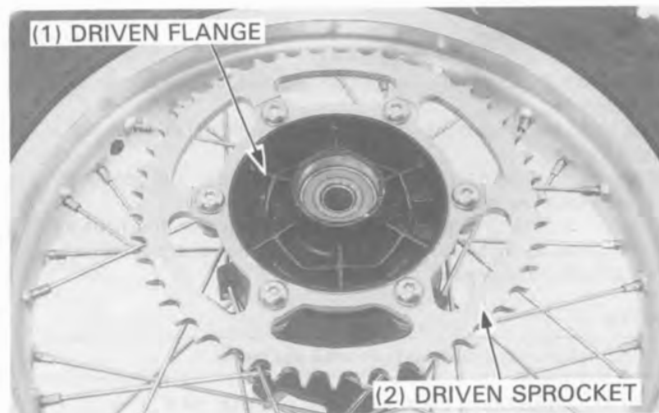


Remove the final driven flange.

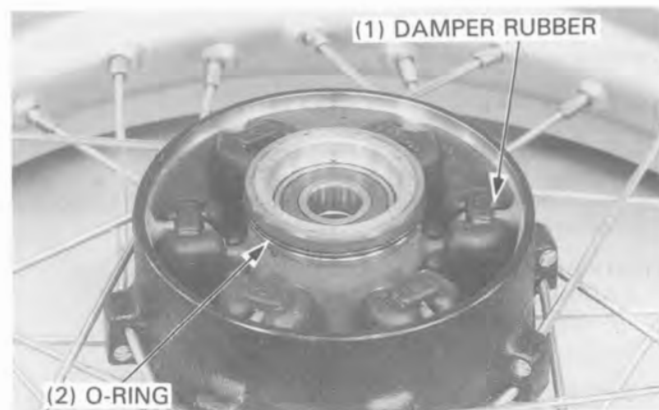
NOTE

- When removing the driven sprocket, loosen the sprocket bolt with the driven flange installed.

If driven flange fit tightly on the hub, drive it out by tapping several locations with wood block.



Remove the damper rubbers and O-ring.
Check the damper rubbers for wear, damage or deterioration.



REAR WHEEL/SUSPENSION

Drive out the driven flange bearing and collar.

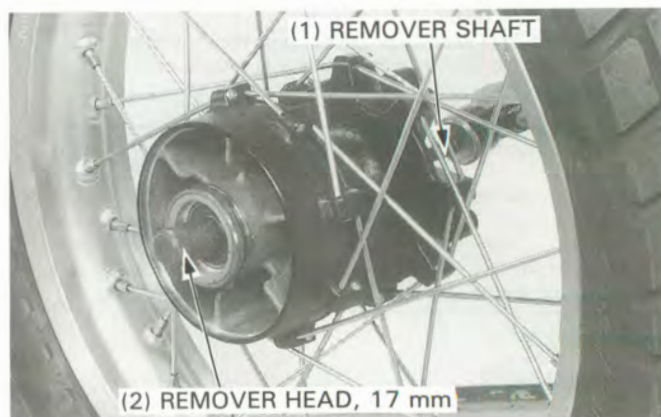
Drive out the wheel bearings and remove the distance collar.

NOTE

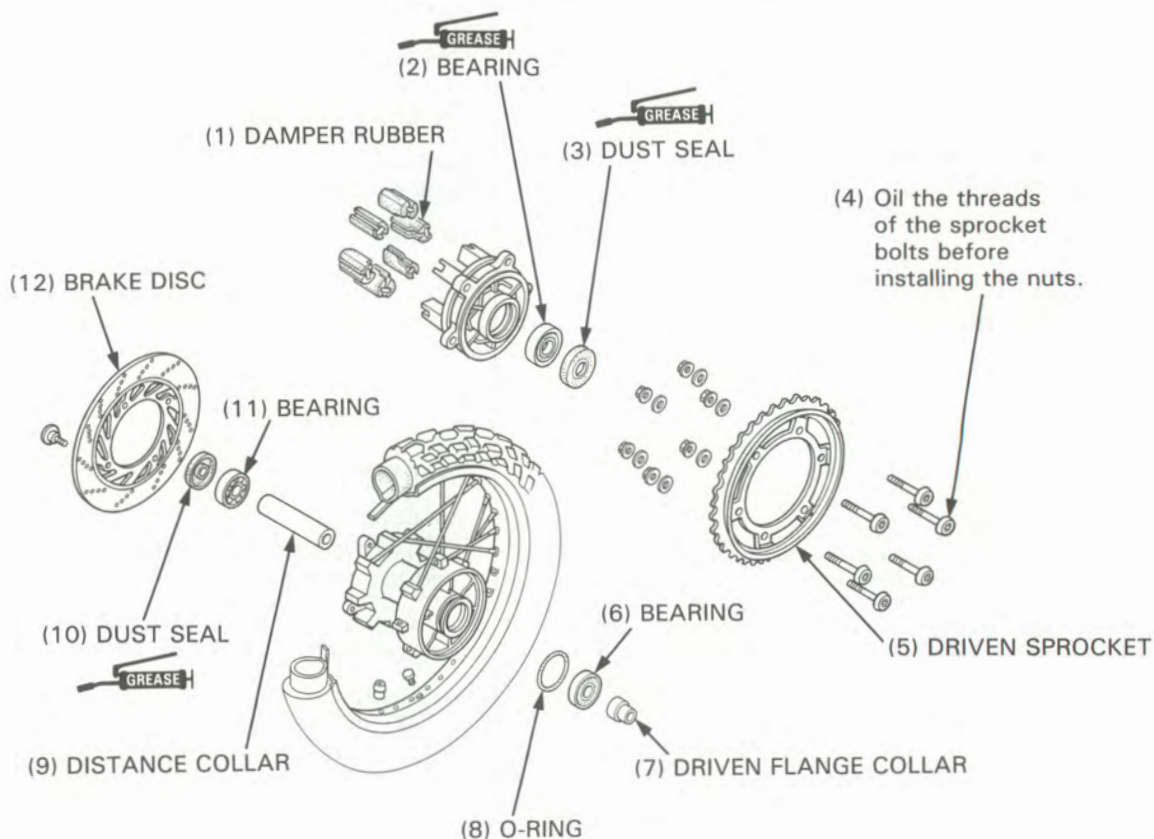
- If the bearings are removed, they should be replaced with new ones.

TOOLS:

Bearing remover shaft	07746-0050100
Bearing remover head, 17 mm	07746-0050400



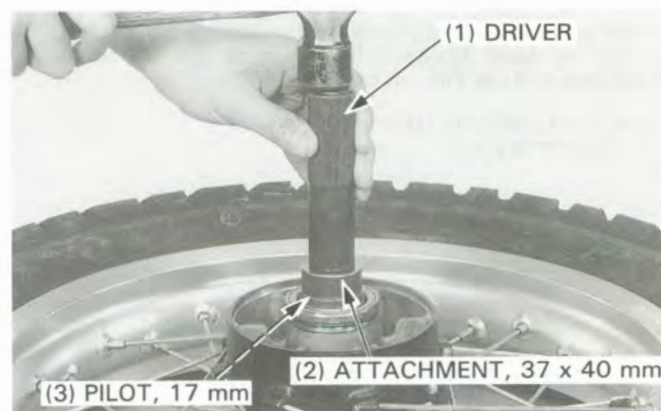
ASSEMBLY



Drive in a new right bearing first, with the markings facing up, until it is fully seated. Install the distance collar, and drive in a new left bearing.

TOOLS:

Driver	07749-0010000
Attachment, 37 x 40 mm	07746-0010200
Pilot, 17 mm	07746-0040400



REAR WHEEL/SUSPENSION

Pack the bearing cavities with grease.

Install the driven flange collar to a new flange bearing from the labyrinth side.

NOTE

- Do not damage the bearing.

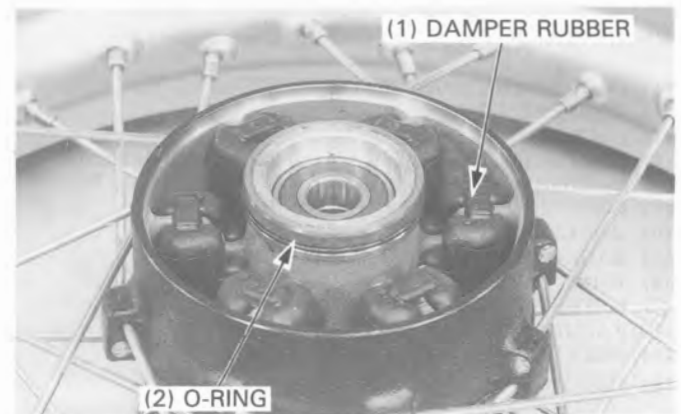
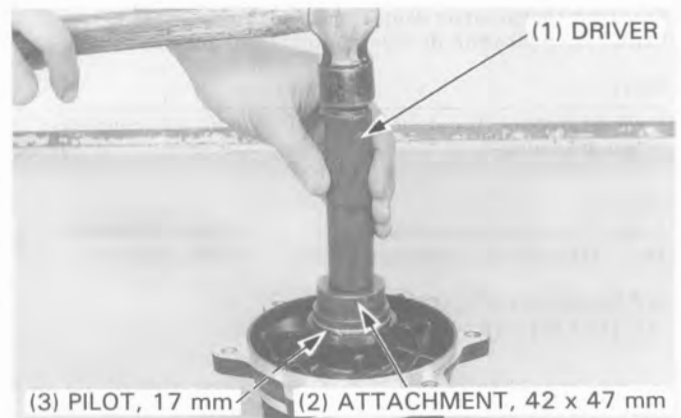
Drive in the driven flange bearing with its sealed end facing out.

TOOLS:

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

Install the damper rubbers.

Apply grease to a new O-ring and install it onto the groove of the wheel hub.



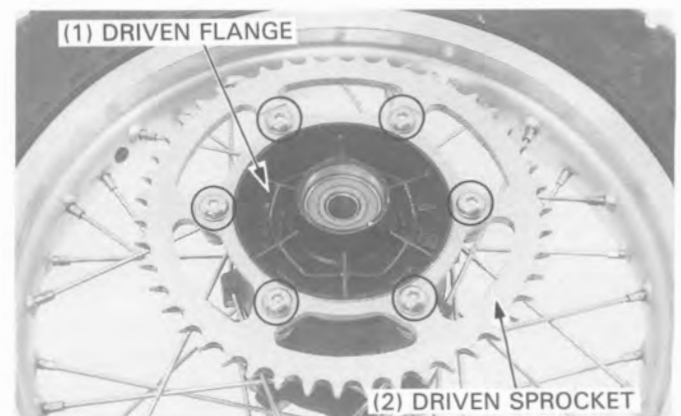
Install the final driven flange into the hub.

Install the driven sprocket if removed.

NOTE

- When tightening the driven sprocket bolts and nuts, apply oil to the threads of the bolts.

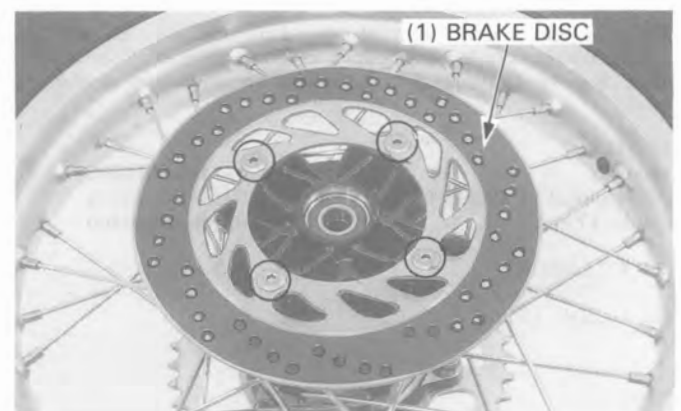
TORQUE: 46 N·m (4.6 kg-m, 33 ft-lb)



Install the brake disc and tighten the bolts.

TORQUE: 15 N·m (1.5 kg-m, 11 ft-lb)

Grease the dust seal lips and install the dust seals and the side collars on both sides of the hub.



REAR WHEEL/SUSPENSION

INSTALLATION

Place the rear wheel between the swingarm and install the drive chain over the driven sprocket.

Make sure that the brake caliper bracket is installed on the **boss** of the swingarm properly.

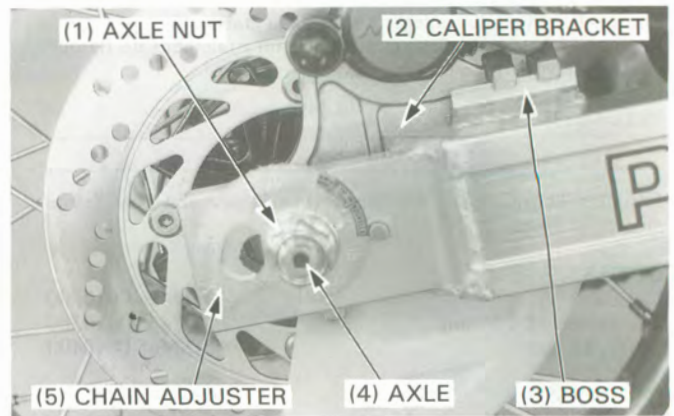
Lift the rear wheel and insert the rear axle from the left side through the **swingarm**, wheel and caliper bracket.

Loosely install the rear axle nut.

Adjust the drive chain (page 3-10).

Tighten the axle nut.

TORQUE: 95 N·m (9.5 kg-m, 69 ft-lb)



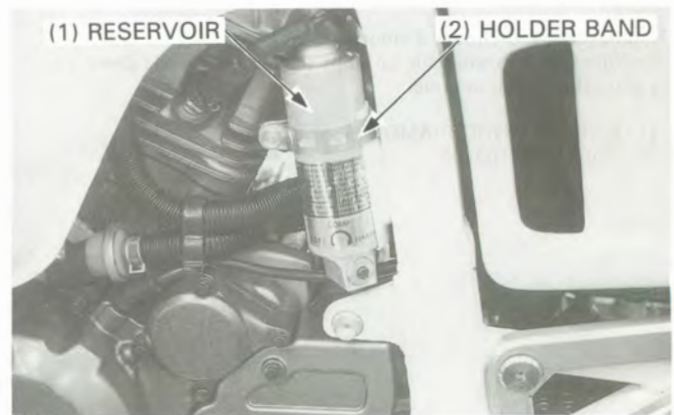
REAR SHOCK ABSORBER

REMOVAL

Remove both frame side covers (page 12-2).

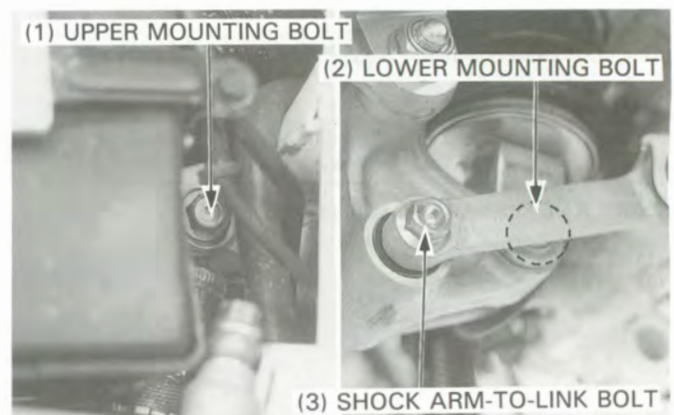
Remove the shock absorber reservoir holder band.

Remove the fuel pump from the frame.



Remove the shock arm-to-shock link bolt and the shock absorber lower mounting bolt.

Remove the shock absorber upper mounting bolt and the shock absorber.

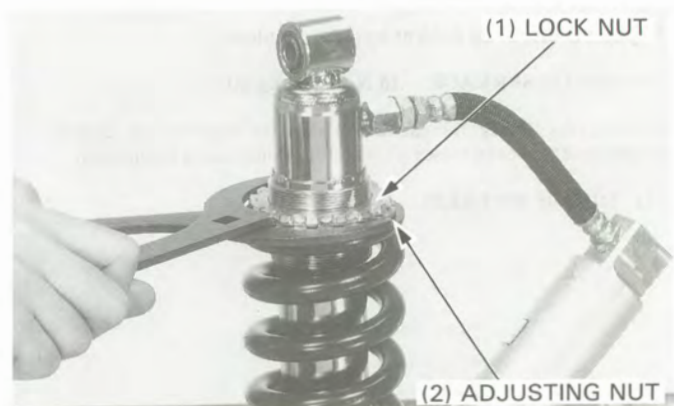


DISASSEMBLY

Hold the rear shock lower mount in a vice with soft jaws or shop towel.

Remove the lock nut and adjusting nut.

Remove the shock spring.



REAR WHEEL/SUSPENSION

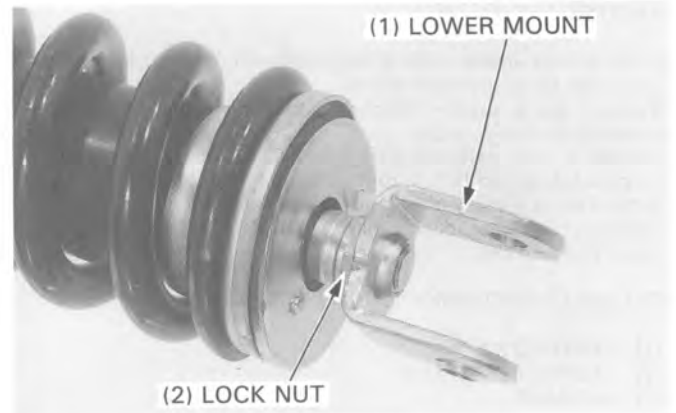
Loosen the lock nut.

Remove the lower mount, seat stopper, spring guide, spring seat, dust seal, spring, adjusting nut and lock nut.

Clean the locking agent of the damper rod and lower mount lock nut threads.

⚠ WARNING

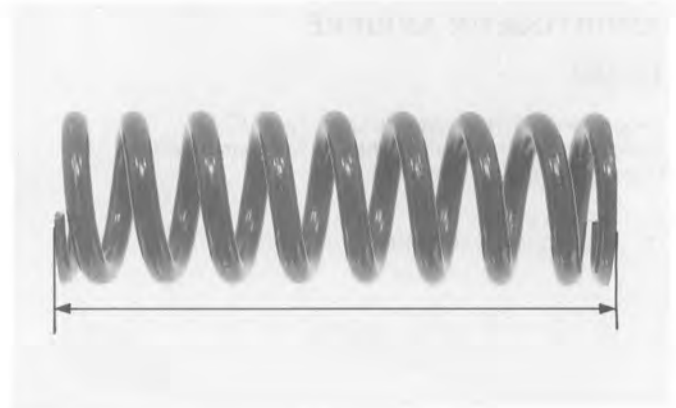
- *The damper unit is filled with nitrogen gas under high pressure, do not try to disassemble.*



INSPECTION

Measure the spring free length.

SERVICE LIMIT: 231 mm (9.1 in)



Check the damper unit for oil leaks or other damage and the damper rod for trueness.

Check the spring seat, dust seal and spring guide, damper rubber and spring seat stopper for wear or damage.

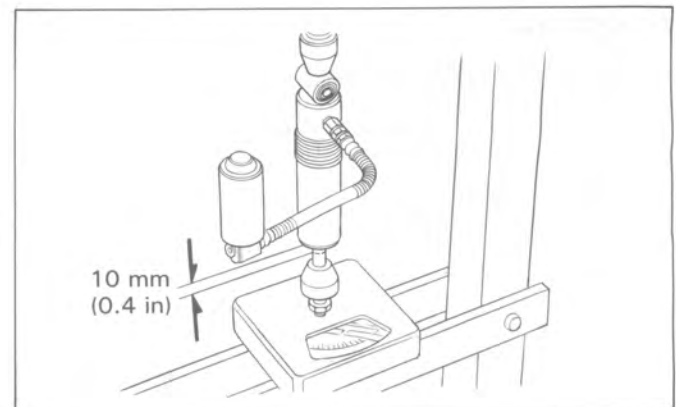
Check the upper mount bushing for wear or damage.



Mark the 10 mm position as shown of the damper rod. Place the damper rod on a scale and measure the force required to compress the damper until 10 mm (0.4 in).

COMPRESSION FORCE: 27 kg (59.5 lb)

If the force required is less than 20 kg (44.1 lb), gas is leaking. Examine the damper rod and replace the damper unit if it is bent or scored.



REAR WHEEL/SUSPENSION

SHOCK ABSORBER DISPOSAL PROCEDURE

Center punch the center of the pressure tank cap to mark the drilling point.

Wrap the pressure tank inside a plastic bag.

Support the pressure tank in a vise as shown.

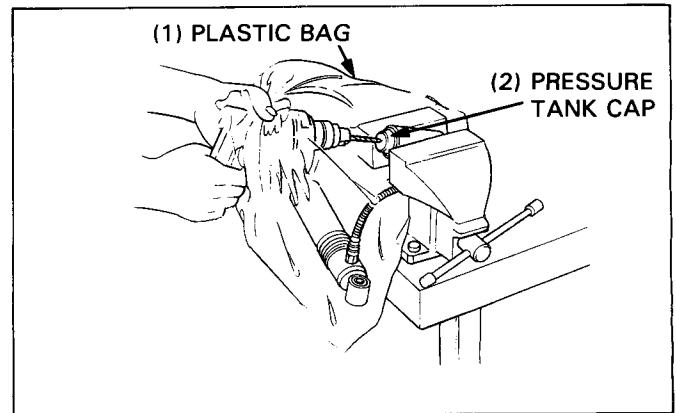
Through the open end of the bag, insert a drill motor with a sharp 2–3 mm (5/64–1/8 in) drill bit.

⚠ WARNING

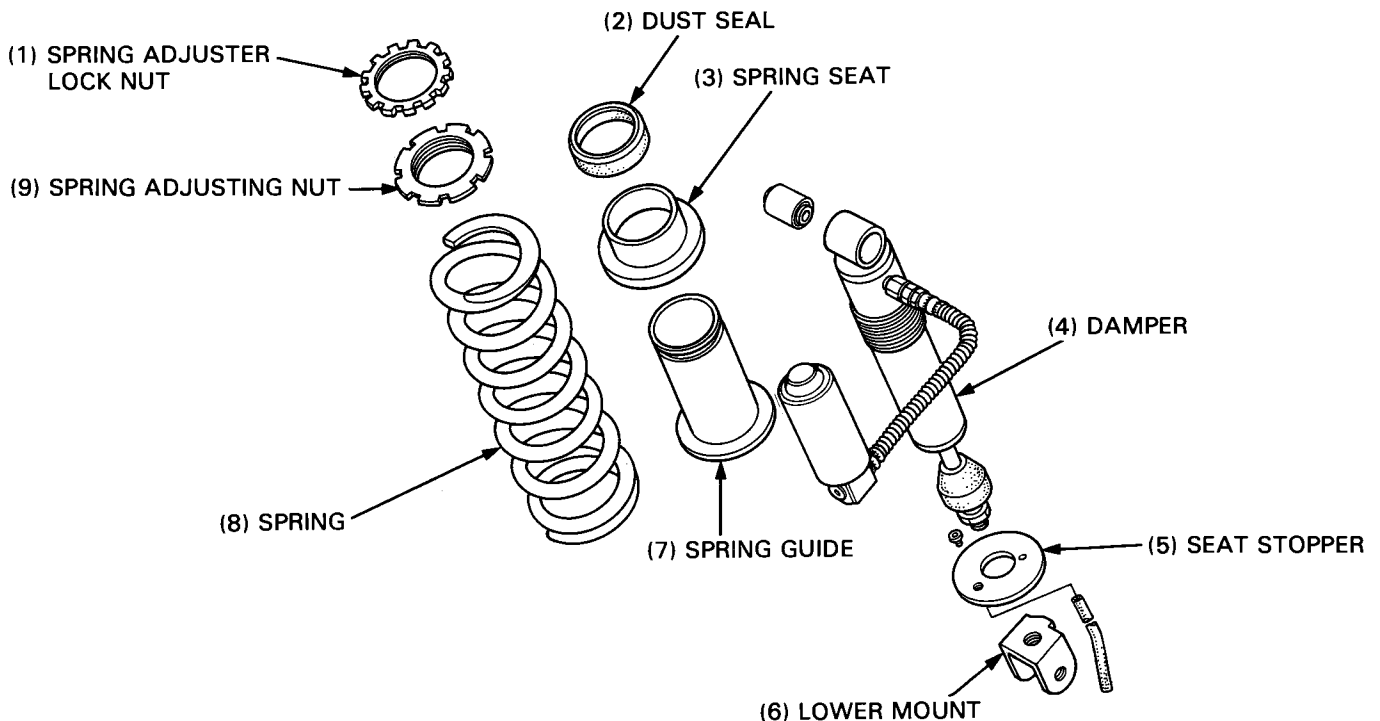
- *Do not use a dull drill bit which could cause a build-up of excessive heat and pressure inside the damper, leading to explosion and severe personal injury.*
- *The shock absorber contains nitrogen gas and oil under high pressure. Do not drill the damper case pressure tank body, or you may drill into the oil chamber; oil escaping under high pressure may cause serious personal injury.*
- *Always wear eye protection to avoid getting metal shavings in your eyes when the gas pressure is released. The plastic bag is only intended to shield you from the escaping gas.*

Hold the bag around the drill motor and briefly run the drill motor inside the bag; this will inflate the bag with air from the motor and help keep the bag from getting caught in the bit when you start.

Remove the joint hose from the damper.



ASSEMBLY



REAR WHEEL/SUSPENSION

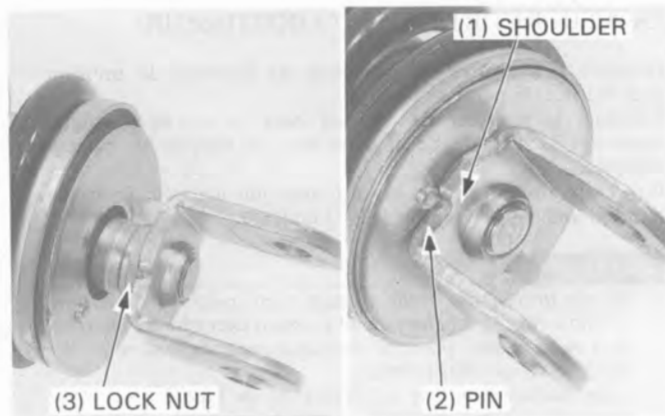
Install the lock nut, spring adjusting nut, spring seat, dust seal, spring guide and spring seat stopper.

Apply a locking agent to the rod threads and install the lock nut. Screw in the lock nut fully.

Screw the lower mount onto the damper rod fully, hold it and tighten the lock nut.

TORQUE: 68 N·m (6.8 kg-m, 49 ft-lb)

Align the lower mount shoulder with the locating pin on the spring seat stopper as shown.



Install the spring, adjusting nut and lock nut. Turn the spring adjusting nut until the spring length is as specified.

A: DECREASE THE SPRING LENGTH

B: INCREASE THE SPRING LENGTH

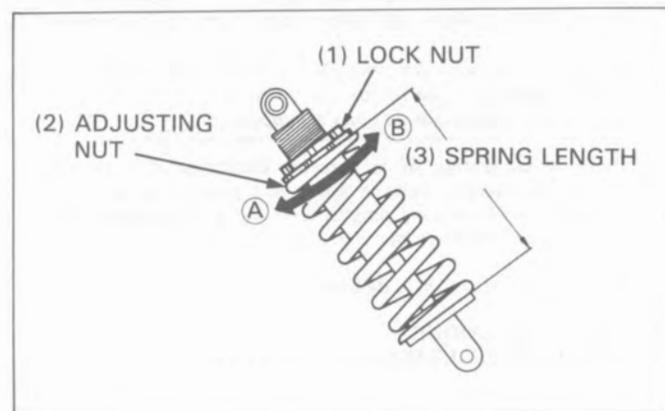
STANDARD SPRING LENGTH: 230.5 mm (9.07 in)

MAXIMUM LENGTH: 225.5 mm (8.88 in)

MINIMUM LENGTH: 235.5 mm (9.27 in)

NOTE

- One turn of the adjusting nut changes the spring length by 1.5 mm.



Tighten the lock nut.

TORQUE: 90 N·m (9.0 kg-m, 65 ft-lb)

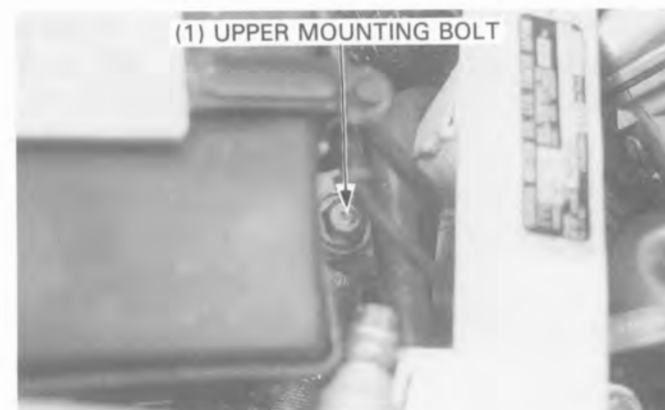
Install the breather tube.



INSTALLATION

Install the shock absorber in the frame. Install and tighten the upper mounting bolt.

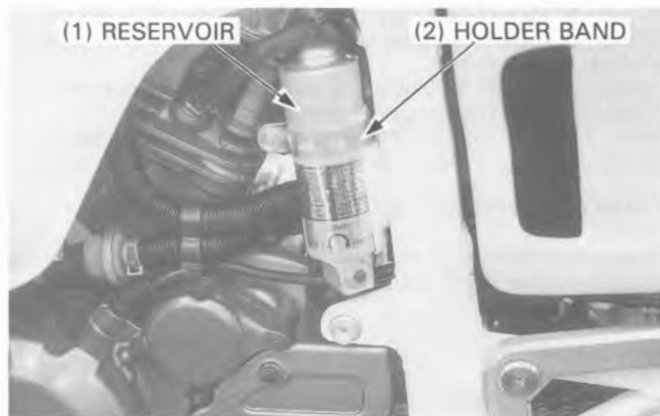
TORQUE: 45 N·m (4.5 kg-m, 33 ft-lb)



REAR WHEEL/SUSPENSION

Pass the shock absorber reservoir through the frame, being careful not to damage the reservoir hose.

Install the reservoir onto the frame with the holder band and tighten the bolt securely.



Install and tighten the lower mounting bolt.

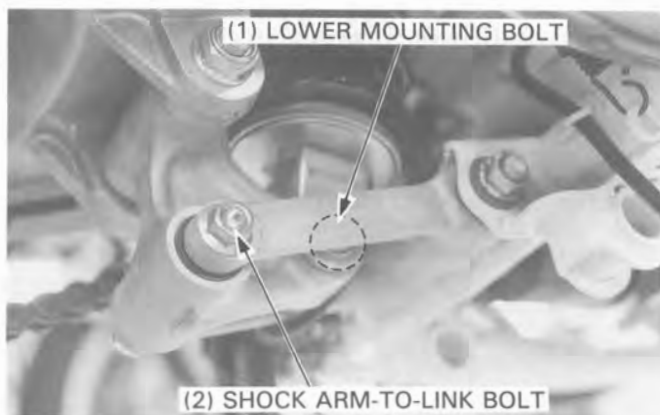
TORQUE: 45 N·m (4.5 kg-m, 33 ft-lb)

Connect the shock link to the shock arm and tighten the bolt.

TORQUE: 45 N·m (4.5 kg-m, 33 ft-lb)

Install both frame side covers (page 12-2).

Check the operation of the shock absorber.



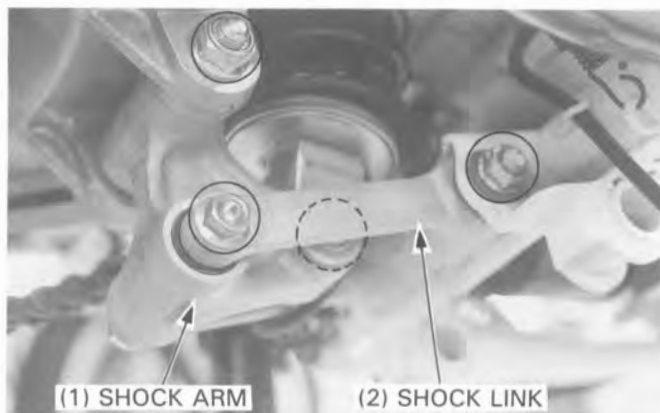
SHOCK LINKAGE

REMOVAL

Raise the rear wheel off the ground by placing a work stand or box under the engine.

Remove the following components:

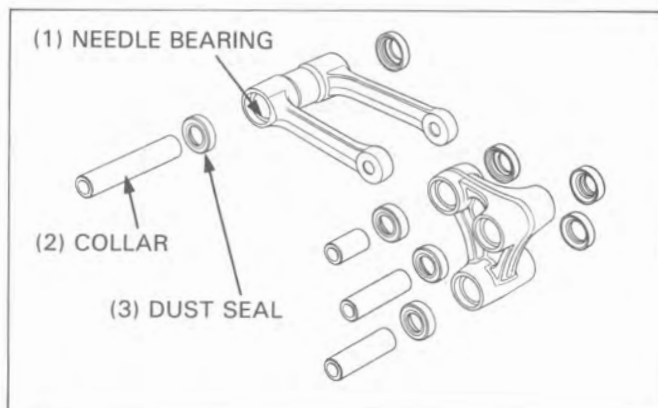
- shock link-to-shock arm pivot bolt.
- shock link-to-frame pivot bolt.
- shock link.
- shock arm-to-swingarm pivot bolt.
- shock absorber lower mounting bolt.
- shock arm.



INSPECTION

Remove the dust seals and pivot collars from the shock link and shock arm.

Check the dust seals, collars and needle bearings for wear or damage.



REAR WHEEL/SUSPENSION

PIVOT BEARING REPLACEMENT

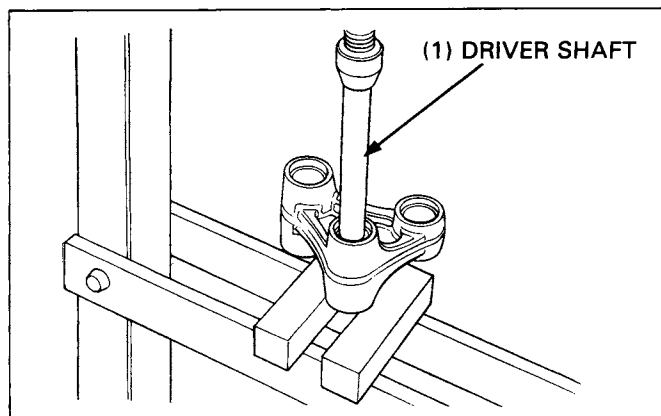
Shock arm

Press the needle bearings out of the shock arm.

TOOL:

Driver shaft

07946—MJ00100



Press a new needle bearing into the shock arm with the markings facing out.

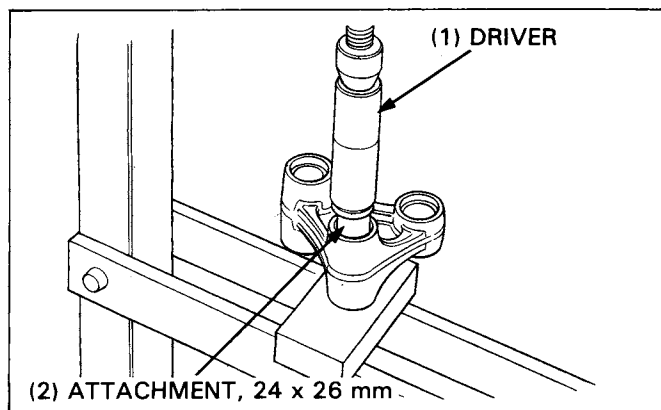
TOOLS:

Driver

Attachment, 24 x 26 mm

07749—0010000

07746—0010700



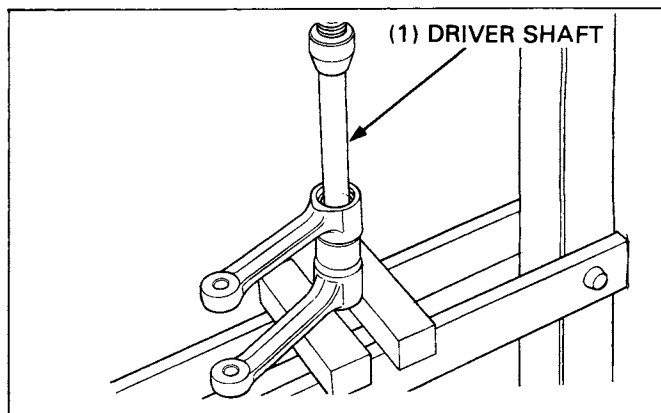
Shock link

Press the needle bearings out of the shock link.

TOOL:

Driver shaft

07946—MJ00100



Press a new needle bearing into the shock link with the markings facing out.

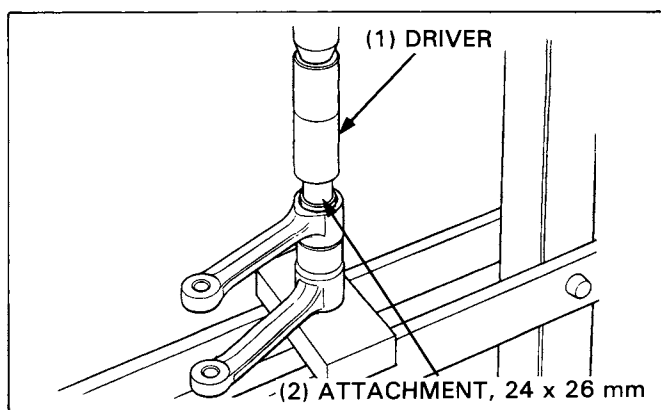
TOOLS:

Driver

Attachment, 24 x 26 mm

07749—0010000

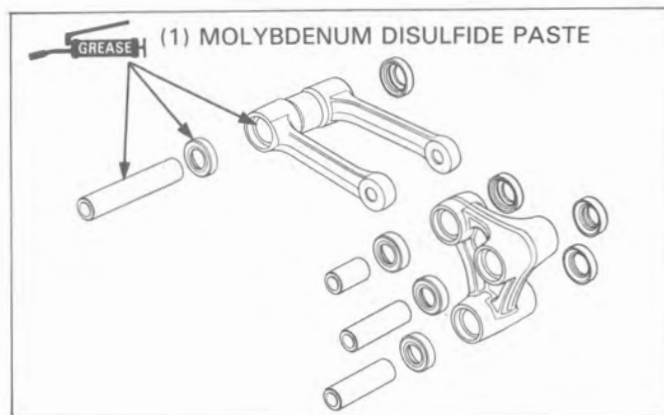
07746—0010700



REAR WHEEL/SUSPENSION

INSTALLATION

Apply molybdenum disulfide paste grease to the pivot collars, insides of the needle bearings and the dust seal lips. Install the pivot collars and dust seals properly.

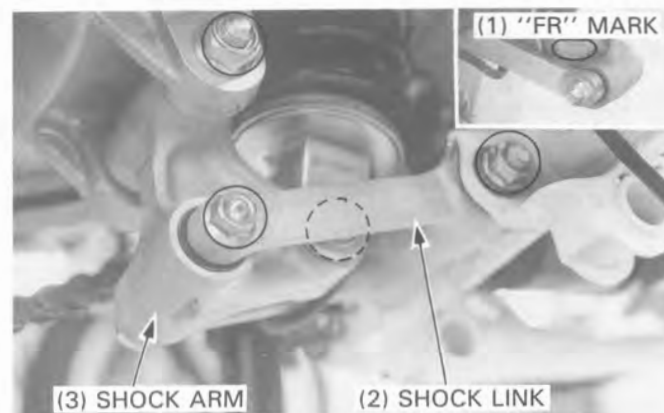


Install the shock link with the "MS8" mark facing up, and the shock arm with the "FR" mark facing to the front.

Tighten each bolt to the specified torque.

TORQUE:

- Shock arm-to-swingarm bolt:
60 N·m (6.0 kg-m, 43 ft-lb)
- Shock absorber lower mounting bolt:
45 N·m (4.5 kg-m, 33 ft-lb)
- Shock link-to-shock arm bolt:
45 N·m (4.5 kg-m, 33 ft-lb)
- Shock link-to-frame bolt:
45 N·m (4.5 kg-m, 33 ft-lb)



SWINGARM

REMOVAL

Remove the rear wheel (page 14-3).

Remove the drive chain cover from the swingarm.
Remove the rear brake caliper and brake hose clamps from the swingarm.



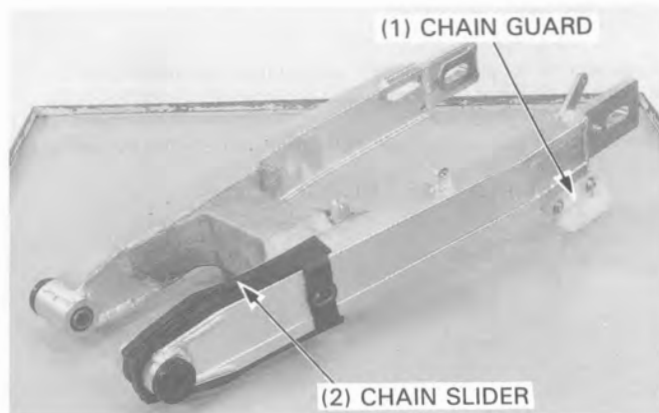
Remove the swingarm pivot cap.
Remove the swingarm pivot bolt and the swingarm.



REAR WHEEL/SUSPENSION

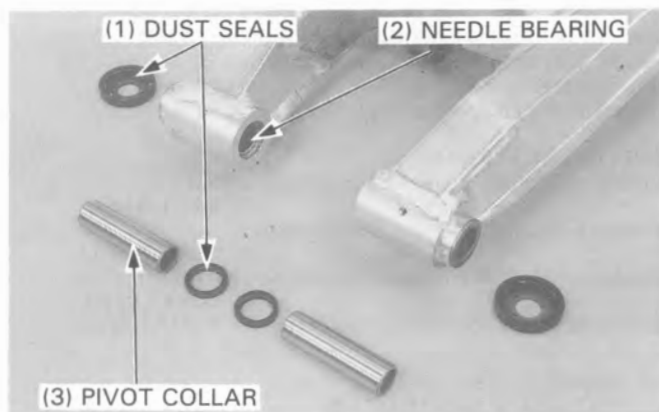
DISASSEMBLY

Remove the chain slider and chain guard.
Remove the dust seals and pivot collars.



INSPECTION

Inspect the swingarm for deformation or cracks.
Check the pivot bearings, collars and dust seals for wear or damage.



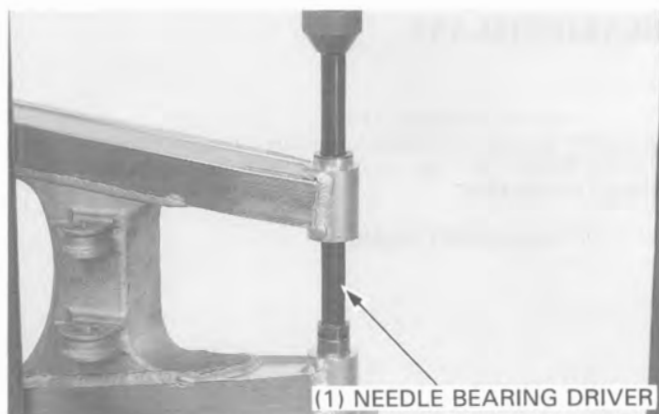
PIVOT BEARING REPLACEMENT

Press the needle bearings and pivot bushing out of the swingarm pivot.

TOOL:

Needle bearing driver

07946—KA50100



Carefully press the outer needle bearing with the bushing into the swingarm pivot.

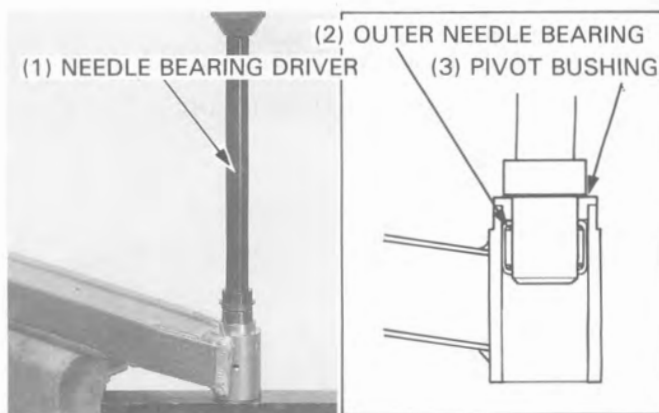
NOTE

- Install the bearing with the marks facing out.

TOOL:

Needle bearing driver

07946—KA50100



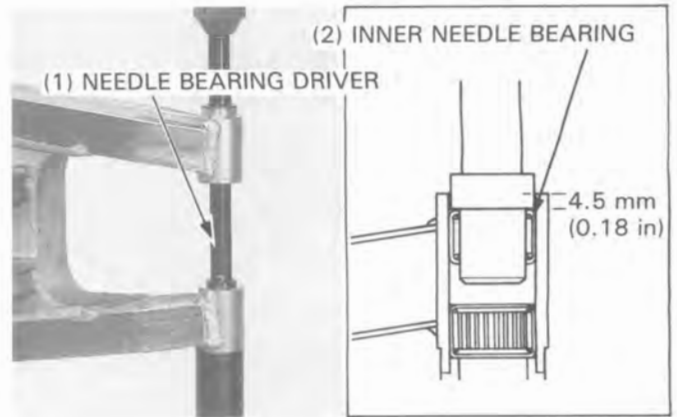
REAR WHEEL/SUSPENSION

Mark the needle bearing driver on the specified point as shown and press in the new inner needle bearing to the marking point.

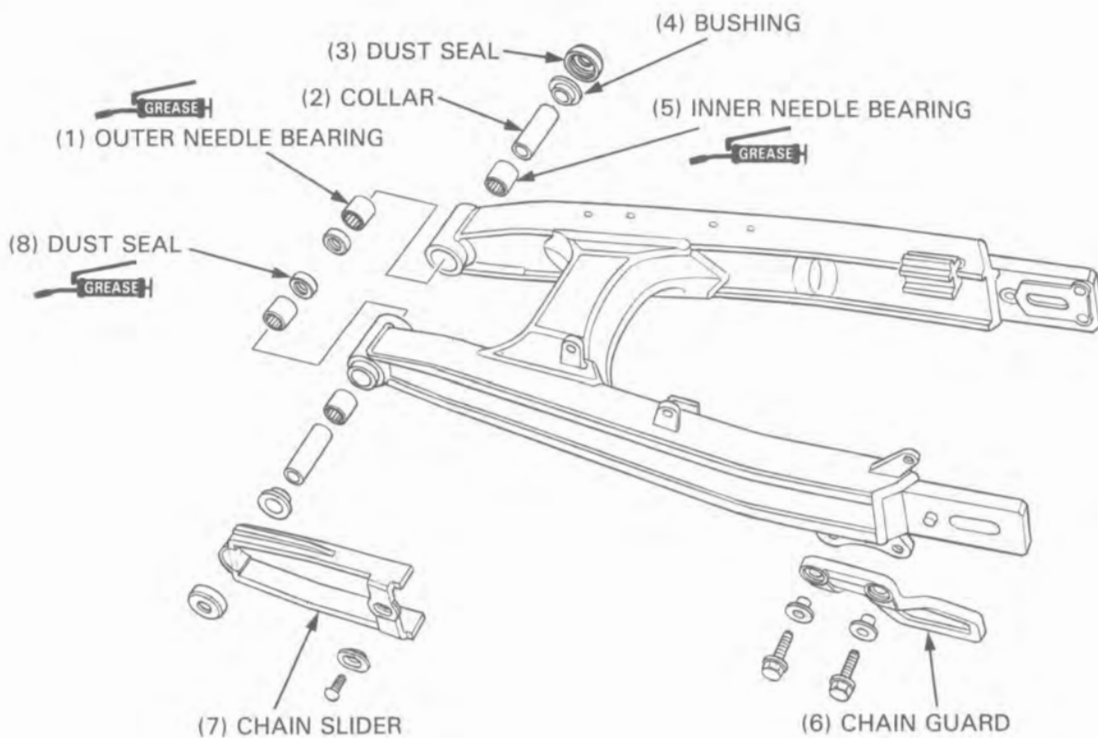
TOOL:

Needle bearing driver 07946-KA50100

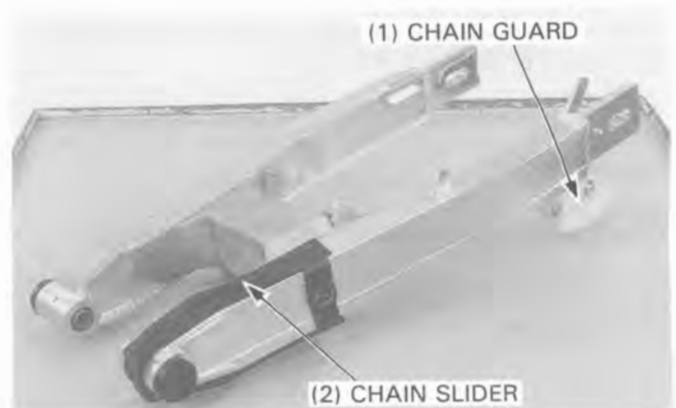
Apply grease to the dust seal lips and install them.



ASSEMBLY



Install the chain slider and chain guard.
Apply grease to the dust seal lips.
Install the dust seals and pivot collars.



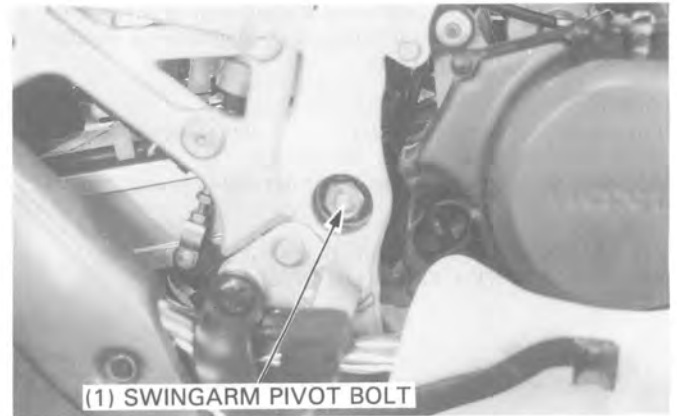
REAR WHEEL/SUSPENSION

INSTALLATION

Install the swingarm in the frame.
Install the pivot bolt and tighten the nut.

TORQUE: 110 N·m (11.0 kg-m, 80 ft-lb)

Install the pivot cap.



Install the brake caliper onto the boss of the swingarm.
Install the brake hose clamps to secure the brake hose onto the swingarm.
Install the drive chain cover.

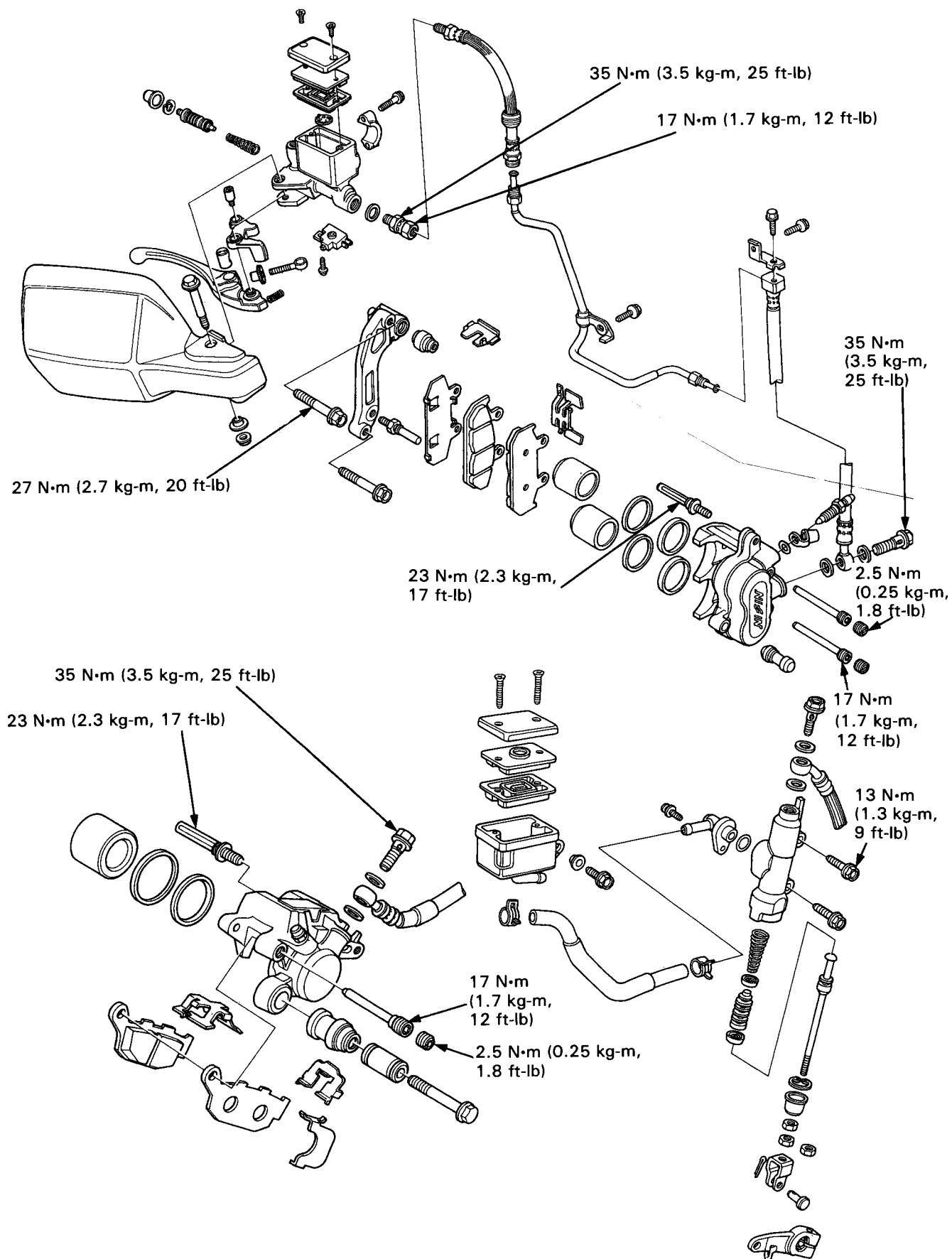
Install the rear wheel (page 14-7).



HYDRAULIC BRAKE

FREIN HYDRAULIQUE

HYDRAULISCHES BREMSYSTEM



SERVICE INFORMATION	15-1	FRONT BRAKE CALIPER	15-10
TROUBLESHOOTING	15-2	REAR BRAKE MASTER CYLINDER	15-12
BRAKE FLUID REPLACEMENT/ BLEEDING	15-3	REAR BRAKE CALIPER	15-14
BRAKE PADS/DISCS	15-5	BRAKE PEDAL	15-16
FRONT MASTER CYLINDER	15-8		

SERVICE INFORMATION

GENERAL

⚠ WARNING

- *A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.*
- *Use only DOT 4 brake fluid.*
- *The brake caliper and brake pads can be removed without disconnecting the hydraulic system.*
- *Once the hydraulic system has been disassembled, or if the brakes feel spongy, the system must be bled.*
- *Do not allow foreign material to enter the system when filling the reservoir.*
- *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 shop towel. If fluid does get on these parts, wipe it off immediately with a clean cloth.*
- *Always check brake operation before riding the motorcycle.*
- *Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake assemblies.*

SPECIFICATIONS

Unit: mm(in)

ITEM		STANDARD	SERVICE LIMIT
Brake disc	Thickness	4.0 (0.16)	3.5 (0.14)
	Warpage	—	0.30 (0.012)
Master cylinder I.D.	Front	11.000—11.040 (0.4330—0.4346)	11.05 (0.435)
	Rear	14.000—14.043 (0.5512—0.5529)	14.05 (0.553)
Master piston O.D.	Front	10.850—10.910 (0.4272—0.4295)	10.84 (0.427)
	Rear	13.957—13.984 (0.5495—0.5506)	13.95 (0.549)
Caliper cylinder I.D.	Front	30.230—30.280 (1.1902—1.1921)	30.29 (1.193)
	Rear	38.180—38.230 (1.5031—1.5051)	38.24 (1.505)
Caliper piston O.D.	Front	30.148—30.199 (1.1870—1.1889)	30.14 (1.187)
	Rear	38.115—38.148 (1.5005—1.5018)	38.11 (1.500)
Brake fluid		DOT 4 only	—

TORQUE VALUES

Brake oil bolt	35 N•m (3.5 kg-m, 25 ft-lb)
Brake hose joint-to-hose	17 N•m (1.7 kg-m, 12 ft-lb)
Brake hose joint-to-master cylinder	35 N•m (3.5 kg-m, 25 ft-lb)
Bleed valve	6 N•m (0.6 kg-m, 4.3 ft-lb)
Front brake caliper bracket mounting bolt	27 N•m (2.7 kg-m, 20 ft-lb)
Pad pin	17 N•m (1.7 kg-m, 12 ft-lb)
Pad pin plug	2.5 N•m (0.25 kg-m, 1.8 ft-lb)
Rear master cylinder mounting bolt	13 N•m (1.3 kg-m, 9 ft-lb)
Caliper pin bolt	23 N•m (2.3 kg-m, 17 ft-lb)
Right passenger footpeg bracket bolt	27 N•m (2.7 kg-m, 20 ft-lb)

TOOL

Special	
Snap ring pliers	07914—3230001

TROUBLESHOOTING

Brake lever/pedal soft or spongy

- Air in hydraulic system
- Low fluid level
- Hydraulic system leaking

Brake lever/pedal too hard

- Sticking piston(s)
- Clogged hydraulic system
- Pads glazed or worn excessively

Brake drag

- Hydraulic system sticking
- Sticking piston(s)
- Clogged hydraulic system
- Incorrect pedal adjustment
- Caliper slide pins sticking
- Disc or wheel misaligned

Brakes grab

- Pads contaminated
- Disc or wheel misaligned

Brake chatter or squeal

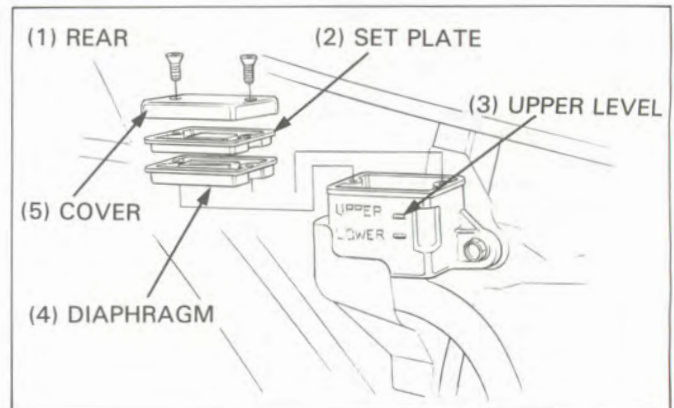
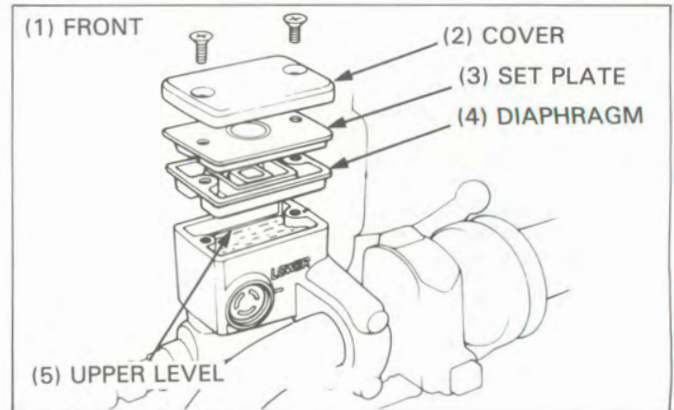
- Pads contaminated
- Excessive disc runout
- Caliper installed incorrectly

BRAKE FLUID REPLACEMENT/ AIR BLEEDING

CAUTION

- Be careful not to allow dust or water to enter the brake system when filling the reservoir.
- **USE ONLY DOT 4 BRAKE FLUID**
- Do not mix different types of fluid since they are not compatible.
- Avoid spilling fluid on painted surfaces. Place a rag over the fuel tank whenever the system is serviced.

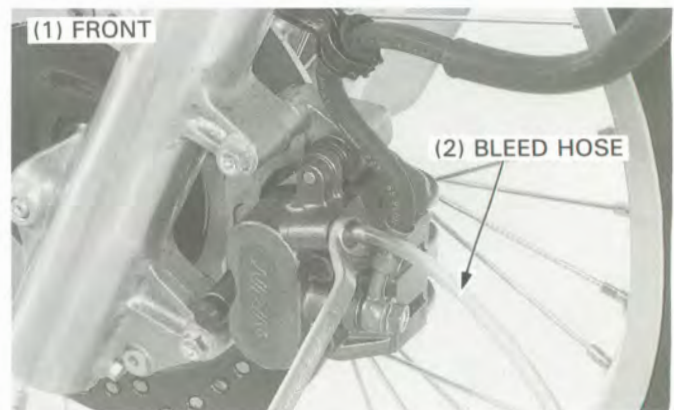
With the fluid reservoir parallel to ground, remove the front brake reservoir cover, set plate and diaphragm. Remove the right frame side cover, and remove the rear brake reservoir cover, set plate and diaphragm.



BRAKE FLUID DRAINING

Connect a bleed hose to the bleed valve.

Loosen the caliper bleed valve and pump the brake lever. Stop operating the lever when fluid stops flowing out of the bleed valve.

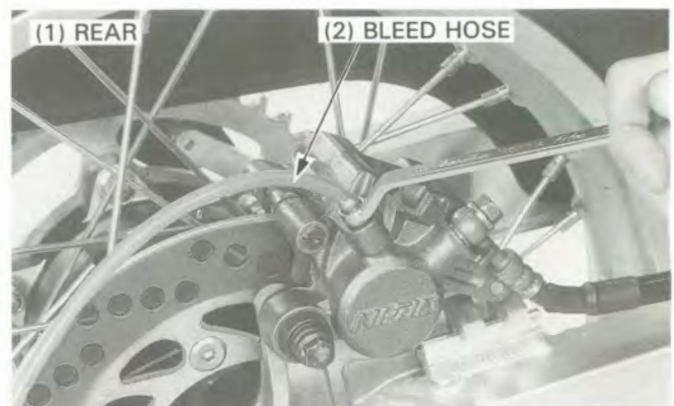


BRAKE FLUID FILLING/AIR BLEEDING

NOTE

- Check the fluid level often while bleeding the brakes to prevent air from being pumped into the system.
- When using the Brake Bleeder, follow the manufacturer's instructions.
- Do not mix brake fluid types and never reuse the fluid which has been bled out of the system; it may impair the efficiency of the brake system.

Close the bleed valve, fill the reservoir with DOT 4 brake fluid to the upper level. Install the diaphragm and reservoir cover.



HYDRAULIC BRAKE

Connect a Brake Bleeder or equivalent to the bleed valve.

Pump the brake bleeder and loosen the bleed valve. Add fluid when the fluid level in the master cylinder reservoir is low. Repeat above procedures until no air bubbles appear in the plastic hose.

NOTE

- If air is entering the system from around the bleed valve threads, seal the threads with teflon tape.



If a brake bleeder is not available, bleed the system as follows:

Pump up the system pressure with the lever or pedal until there are no air bubbles in the fluid flowing out of the reservoir hole and lever or pedal resistance is felt.

- 1) Connect a bleed hose to the bleed valve.
- 2) Squeeze the brake lever (or depress the brake pedal), then open the bleed valve 1/2 turn and close the valve.

NOTE

- Do not release the brake lever (or pedal) until the bleed valve has been closed.

- 3) Release the brake lever (or pedal) slowly and wait several seconds after it reaches the end of its travel.

Repeat steps 2 and 3 until bubbles cease to appear in the fluid at the end of the hose.

Tighten the bleed valve.

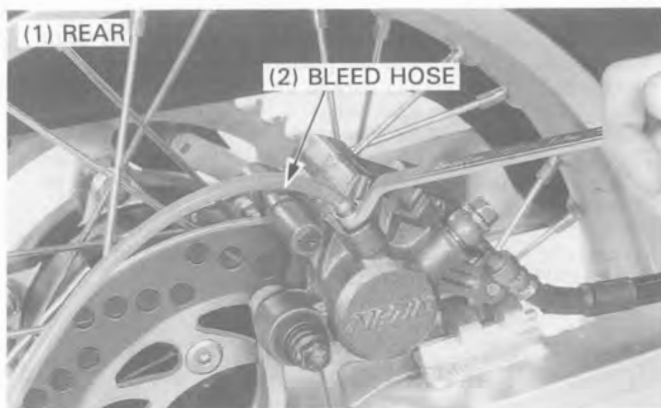
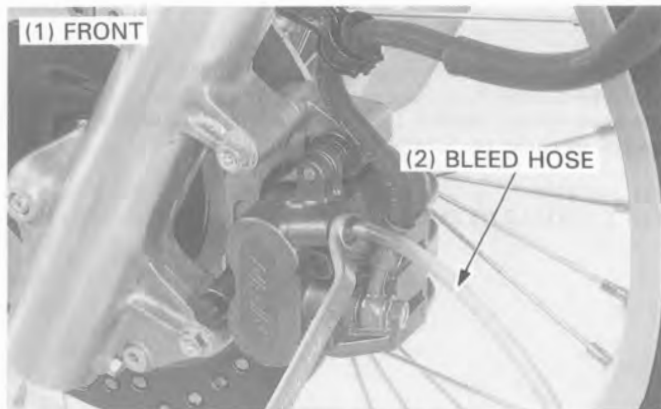
TORQUE: 6 N·m (0.6 kg-m, 4.3 ft-lb)

Close the bleed valve, fill the reservoir with DOT 4 brake fluid to the upper level.

Reinstall the diaphragm and reservoir cover.

⚠ WARNING

- A contaminated brake disc or pad reduces stopping power. Discard contaminated pads and clean a contaminated disc with a high quality brake degreasing agent.



BRAKE PADS/DISCS

FRONT BRAKE PAD REPLACEMENT

⚠ WARNING

- *Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake assemblies.*

NOTE

- Always replace the brake pads in pairs to assure even disc pressure.

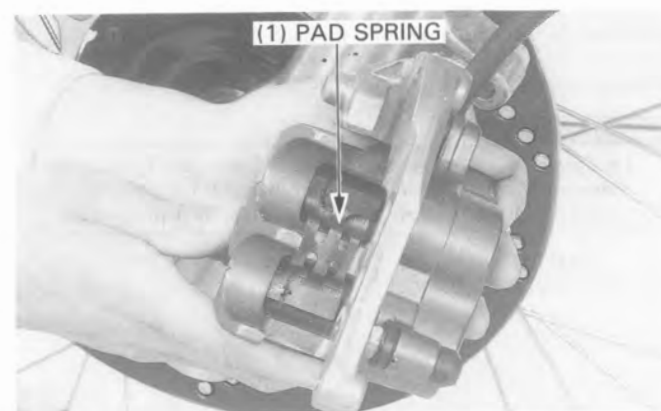
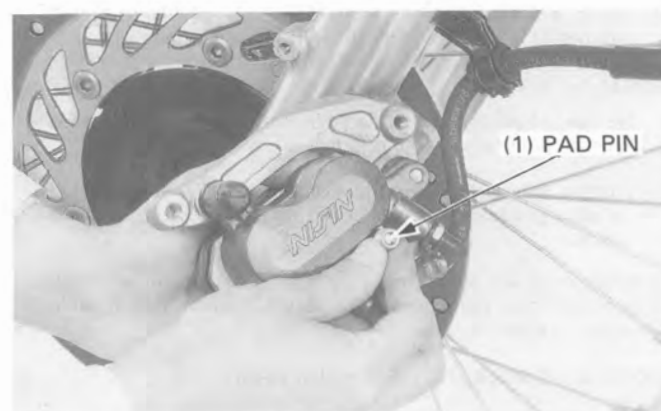
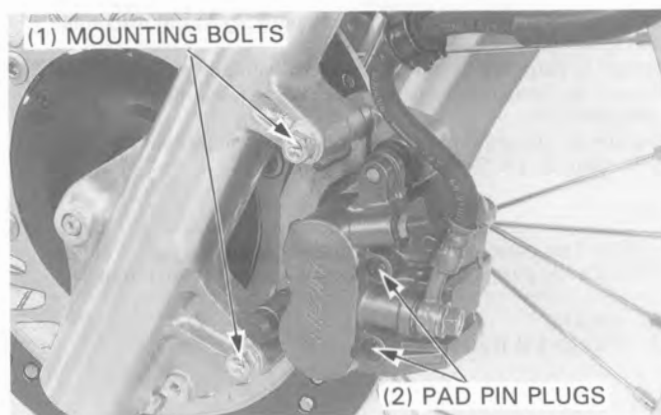
Remove the pad pin plug and loosen the pad pin.

Remove the caliper bracket mounting bolts and the caliper from the left fork leg.

Pry one old pad against the caliper with a screwdriver to push the pistons into the caliper.

Remove the pad pins from the caliper.
Remove the brake pads.

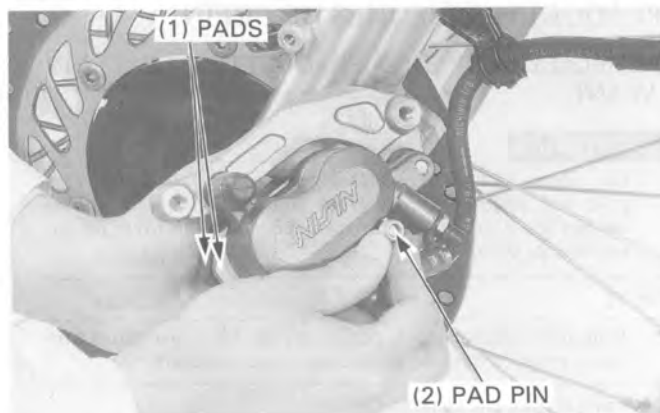
Position the pad spring in the caliper as shown.



HYDRAULIC BRAKE

Install new pads in the caliper.

Install the pad pins, one pad pin first, then install the other pin by pushing the pads against the caliper to depress the pad spring.



Install the caliper over the disc and onto the fork leg so the disc is positioned between the pads, being careful not to damage the pads.

Tighten the caliper bracket mounting bolts.

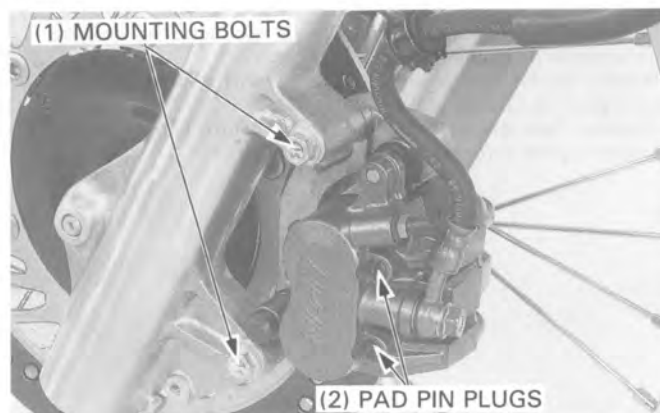
TORQUE: 27 N·m (2.7 kg-m, 20 ft-lb)

Tighten the pad pins.

TORQUE: 17 N·m (1.7 kg-m, 12 ft-lb)

Install and tighten the pad pin plugs.

TORQUE: 2.5 N·m (0.25 kg-m, 1.8 ft-lb)

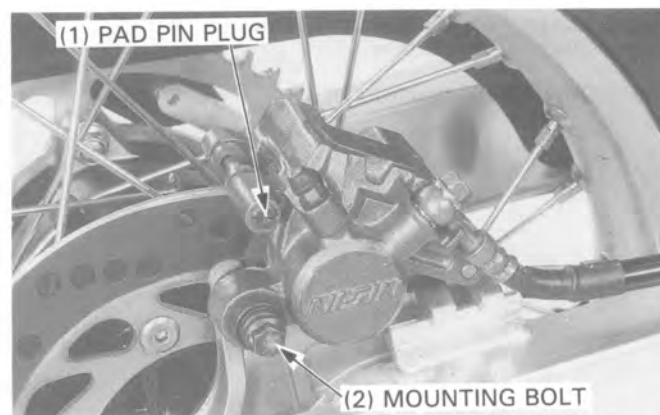


Operate the brake lever to seat the pistons against the pads.

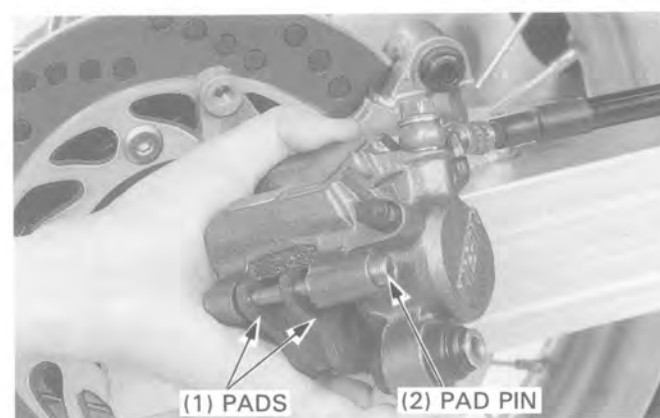
REAR BRAKE PAD REPLACEMENT

Remove the pad pin plug and loosen the pad pin.

Remove the caliper mounting bolt, pivot the caliper up out of the way and remove it from the bracket.



Remove the pad pin and the brake pads from the caliper.

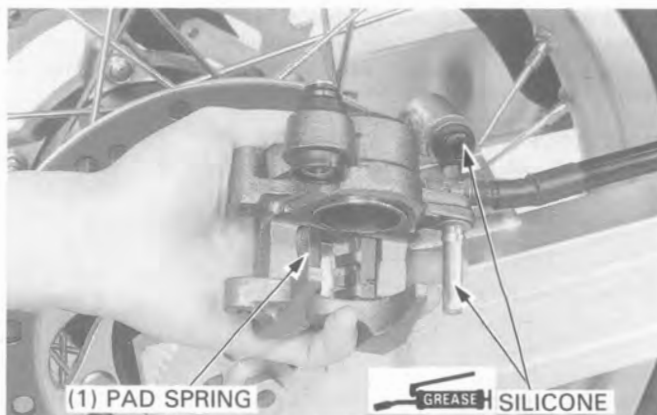


HYDRAULIC BRAKE

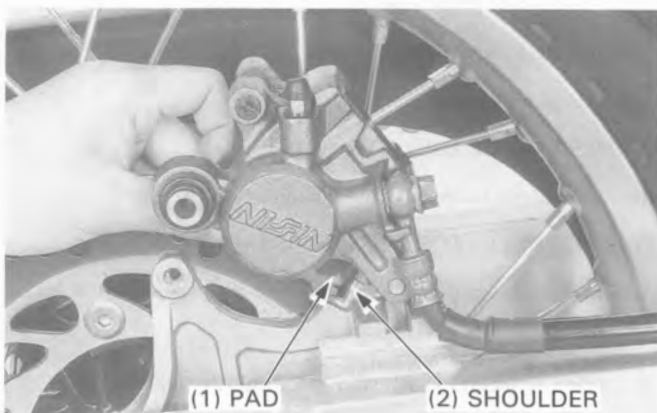
Position the pad spring in the caliper as shown.

Install new pads and pad pin in the caliper.

Apply silicone grease to the caliper pin and inside of the boot.



Insert the caliper pin into the bracket, set the edges of the pads onto the shoulder of the bracket as shown and pivot the caliper down so the brake disc is positioned between the pads, being careful not to damage the pads.



Install the caliper mounting bolt and tighten it securely.

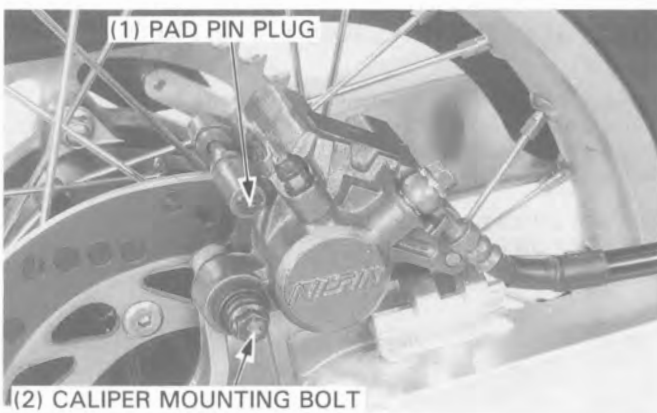
Tighten the pad pin.

TORQUE: 17 N·m (1.7 kg-m, 12 ft-lb)

Install and tighten the pad pin plug.

TORQUE: 2.5 N·m (0.25 kg-m, 1.8 ft-lb)

Operate the brake pedal to seat the piston against the pads.



DISC THICKNESS

Measure the thickness of each disc:

SERVICE LIMIT: 3.5 mm (0.14 in)

Brake disc removal is refer to:

Front: page 13-6.

Rear: page 14-3.

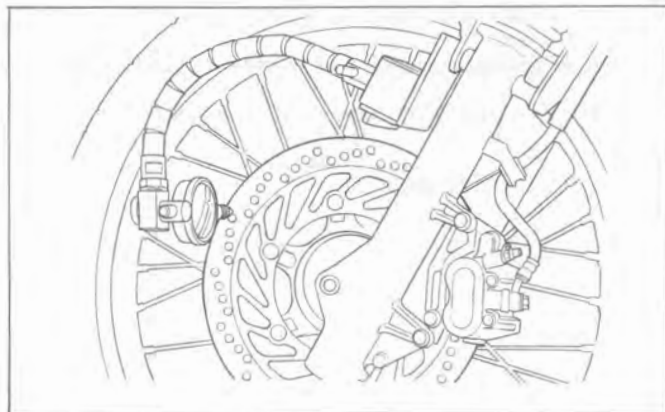


HYDRAULIC BRAKE

BRAKE DISC WARPAGE

Measure the brake discs for warpage with a dial indicator as shown.

SERVICE LIMIT: Front/Rear: 0.30 mm (0.012 in)



FRONT MASTER CYLINDER

DISASSEMBLY

Drain the brake fluid from the front hydraulic system (page 15-3).

Remove the rear view mirror, right knuckle guard and front brake lever assembly from the master cylinder.

Disconnect the front brake light switch wires.

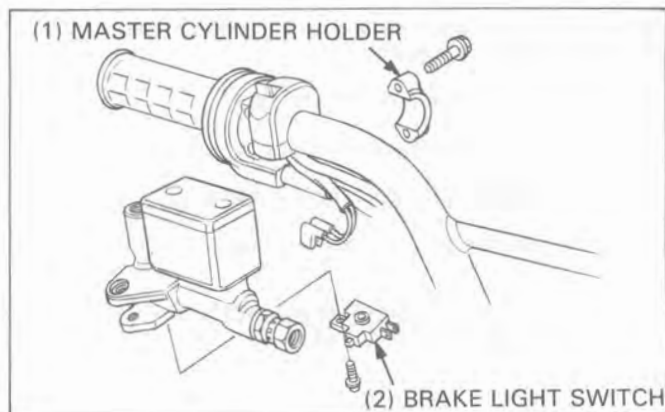
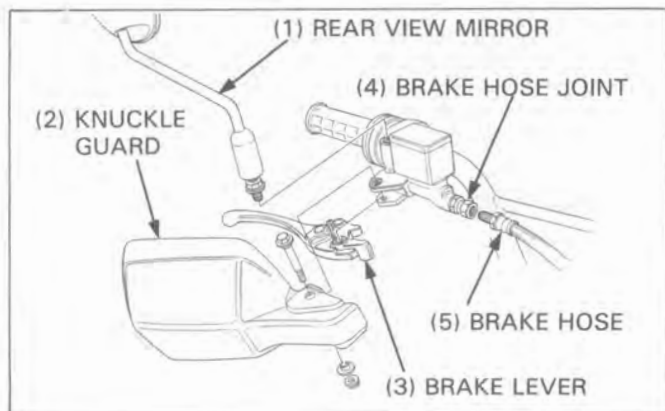
Disconnect the brake hose by loosening the brake hose joint.

CAUTION

- *Avoid spilling brake fluid on painted, plastic or rubber parts. Place a rag over these parts whenever the system is serviced.*
- *When removing the oil bolt, cover the end of the hose to prevent contamination.*

Remove the master cylinder holder bolts and holder, then remove the master cylinder from the handlebar.

Remove the brake light switch from the master cylinder.



Remove the boot.

Remove the piston and spring by removing the snap ring.

TOOL:

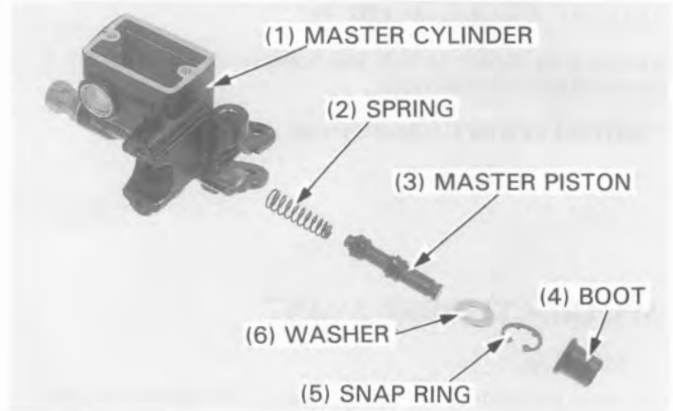
Snap ring pliers

07914-3230001



HYDRAULIC BRAKE

Clean the inside of the master cylinder, reservoir, spring and piston with clean brake fluid.



INSPECTION

Measure the master cylinder I.D.

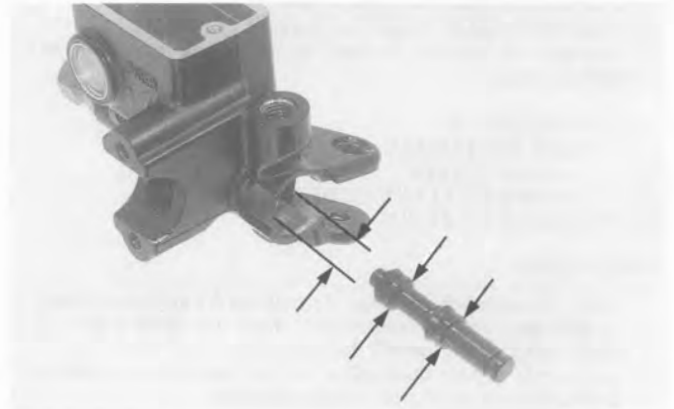
SERVICE LIMIT: 11.05 mm (0.435 in)

Check the master cylinder for scores, scratches or nicks.

Measure the master piston O.D. at the location shown.

SERVICE LIMIT: 10.48 mm (0.427 in)

Check the primary and secondary cups for damage before assembly.



ASSEMBLY

NOTE

- Handle the master cylinder piston, cylinder and spring as a set.

Coat all parts with clean brake fluid before assembly.
Install the spring in the master cylinder with its large diameter facing inside.
Install the piston.

CAUTION

- *When installing the piston, do not allow the cup lips to turn inside out.*

Install the snap ring using a snap ring pliers.
Install the boot.

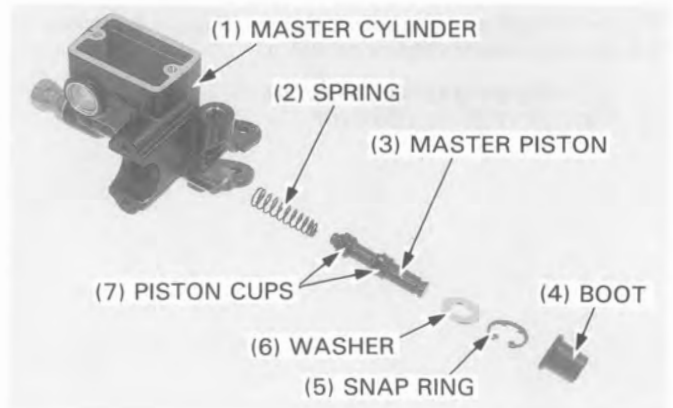
CAUTION

- *Be certain that the snap ring is seated firmly in the groove.*

TOOL:

Snap ring pliers

07914-3230001

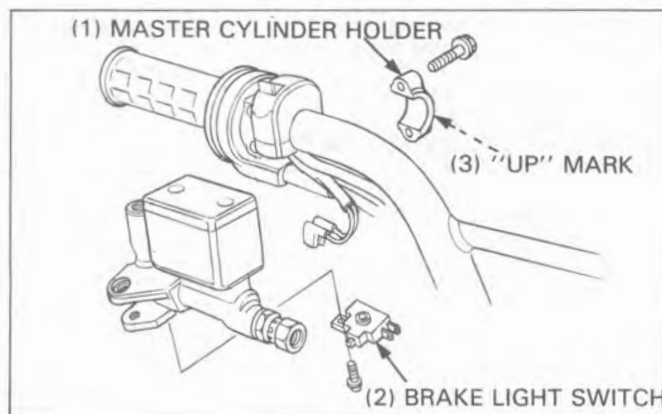


HYDRAULIC BRAKE

Install the brake light switch.

Install the master cylinder and holder on the handlebar with the "UP" mark facing up.

Align the mating surface of the master cylinder and holder with the punch mark on the handlebar, and tighten the upper bolt first, then tighten the lower bolt.



Install the brake lever assembly, knuckle guard and the rear view mirror.

Connect the brake light switch wires to the switch.

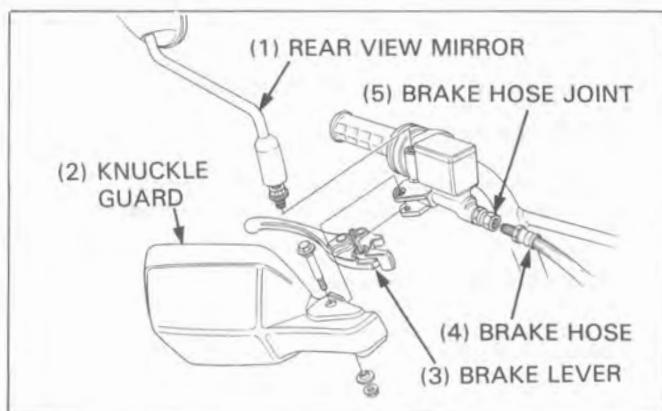
Install and tighten the brake hose joint with a new sealing washer if removed.

TORQUE: 35 N·m (3.5 kg-m, 25 ft-lb)

Connect the brake hose to the hose joint and tighten the joint nut.

TORQUE: 17 N·m (1.7 kg-m, 12 ft-lb)

Fill and bleed the front hydraulic system (page 15-3).



FRONT BRAKE CALIPER

DISASSEMBLY

Drain the brake fluid from the front hydraulic system (page 15-3).

Disconnect the front brake hose from the caliper by removing the oil bolt and sealing washers.

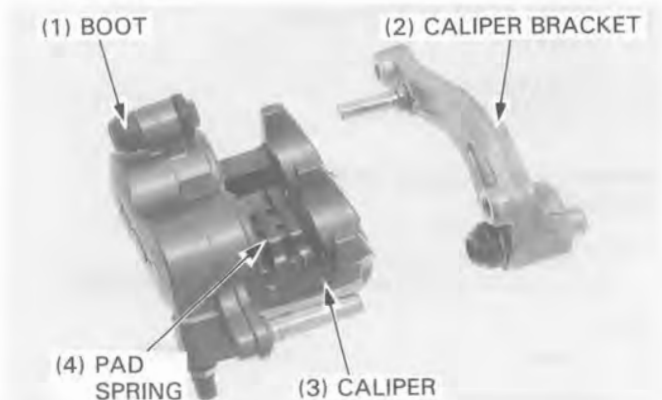
CAUTION

- Avoid spilling brake fluid on painted, plastic or rubber parts. Place a rag over these parts whenever the system is serviced.



Remove the brake pads (page 15-5).

Separate the caliper from the bracket.
Remove the pivot boot from the caliper.



HYDRAULIC BRAKE

If necessary, apply compressed air to the caliper fluid inlet to get the pistons out. Place a shop rag under the caliper to cushion the pistons when they are expelled. Use the air in short spurts.

⚠ WARNING

- *Do not use high pressure air or bring the nozzle too close to the inlet.*



Push the dust seals and piston seals in, lift them out and discard them.

NOTE

- The seals must be replaced whenever they are removed.

Clean the seal grooves with clean brake fluid.

CAUTION

- *Be careful not to damage the piston sliding surfaces.*



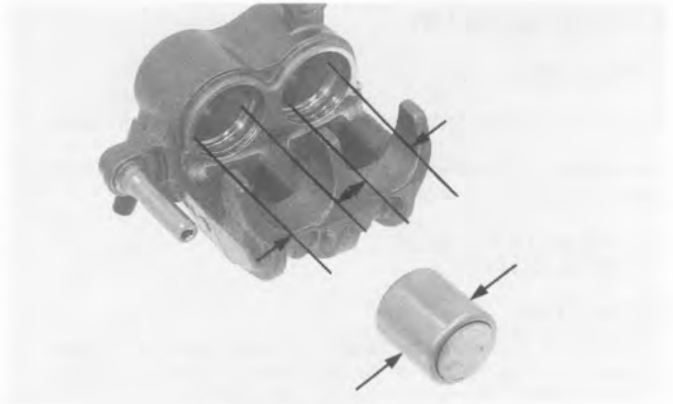
INSPECTION

Check the pistons for scoring, scratches or other faults.
Measure the piston O.D.

SERVICE LIMIT: 30.14 mm (1.187 in)

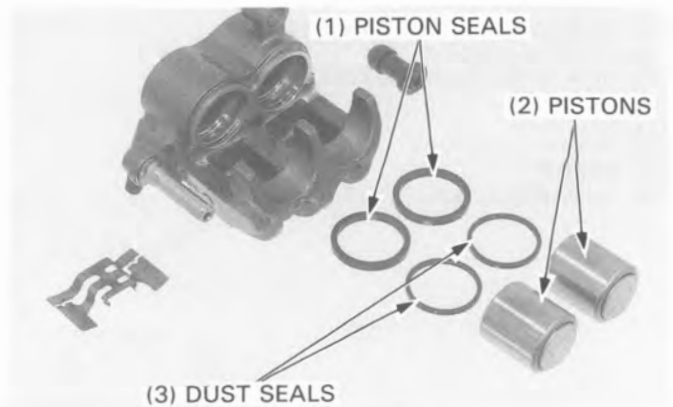
Check the caliper cylinder for scoring, scratches or other faults.
Measure the caliper cylinder I.D.

SERVICE LIMIT: 30.29 mm (1.193 in)



ASSEMBLY

Coat new piston seals and dust seals with clean brake fluid and install them in the caliper.
Install the pistons with the dished ends toward the pads.

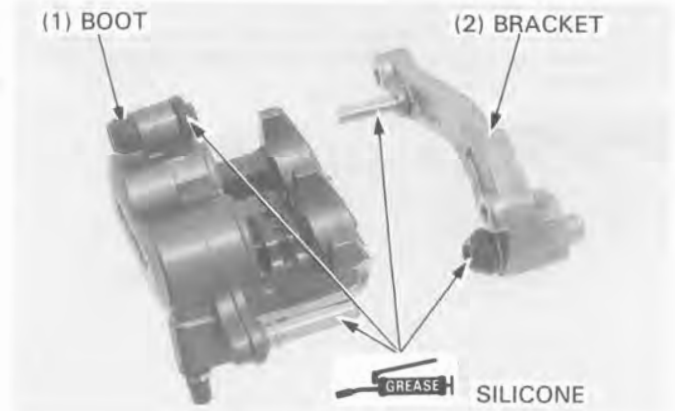


HYDRAULIC BRAKE

Install the pad spring and pivot boot in the caliper.

Apply silicone grease to the caliper and bracket pin bolts and boots.

Install the caliper onto the bracket.

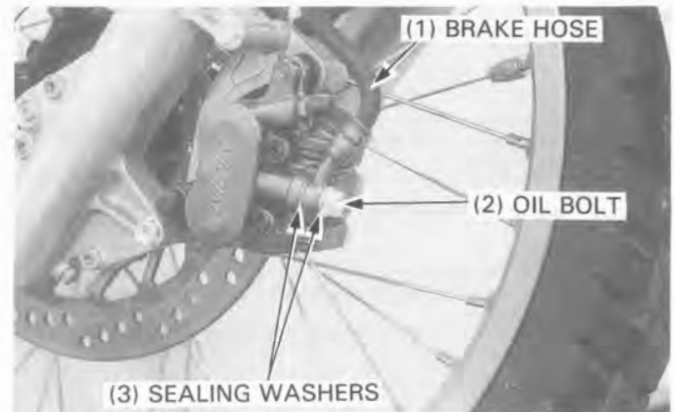


Install the brake pads (page 15-5).

Connect the brake hose to the caliper with the oil bolt and new sealing washers and tighten the oil bolt.

TORQUE: 35 N·m (3.5 kg-m, 25 ft-lb)

Fill and bleed the front brake hydraulic system (page 15-3).



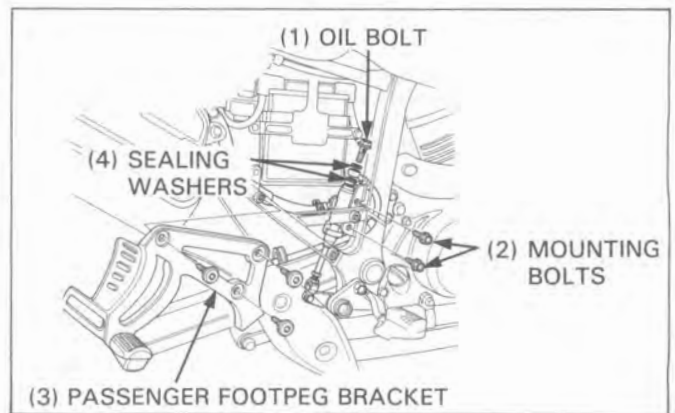
REAR BRAKE MASTER CYLINDER

Drain the brake fluid from the rear brake hydraulic system (page 15-3).

Remove the right passenger footpeg bracket. Disconnect the rear brake hose from the master cylinder by removing the oil bolt and sealing washers.

CAUTION

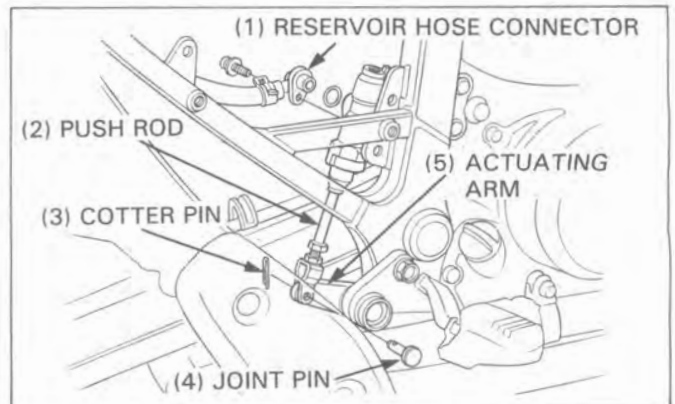
- Avoid spilling brake fluid on painted, plastic or rubber parts. Place a rag over these parts whenever the system is serviced.
- When removing the oil bolt, cover the end of the hose to prevent contamination.



Remove the master cylinder mounting bolts.

Remove the connector screw and disconnect the reservoir hose from the master cylinder.

Disconnect the master cylinder push rod from the rear brake actuating arm by removing the cotter pin and joint pin, and remove the master cylinder.



HYDRAULIC BRAKE

Remove the rubber boot.

Remove the snap ring and push rod from the master cylinder body.

CAUTION

- *The push rod will pop out when the snap ring is removed.*

TOOL:

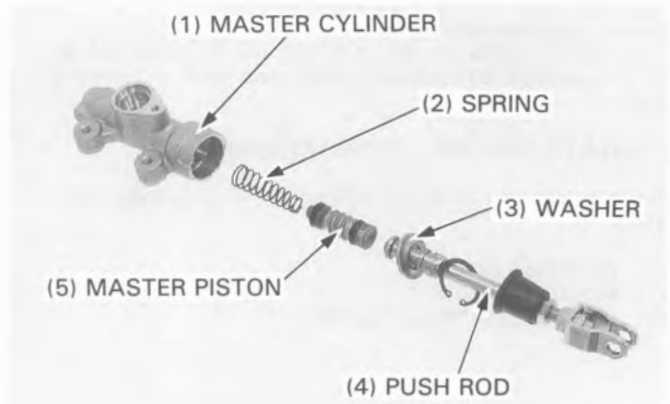
Snap ring pliers

07914—3230001



Remove the master piston and spring.

Clean the inside of the master cylinder, spring and piston with clean brake fluid.



INSPECTION

Check the primary and secondary cups for wear, deterioration or damage.

Check the master cylinder and piston for scoring or other damage.

Measure the master cylinder I.D.

SERVICE LIMIT: 14.05 mm (0.553 in)

Measure the master piston O.D.

SERVICE LIMIT: 13.95 (0.549 in)



ASSEMBLY

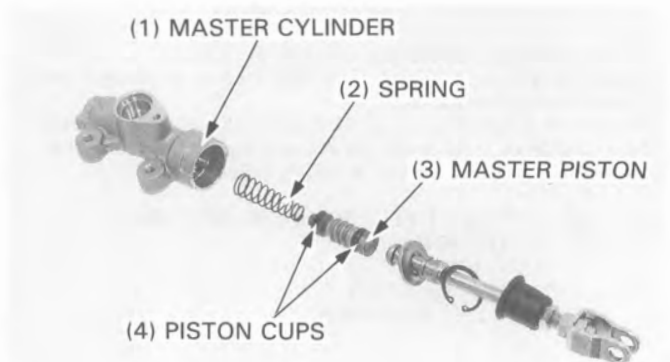
NOTE

- Handle the master piston, cups and spring as a set.

Coat the piston cups and piston with clean brake fluid.
Install spring and master piston.

CAUTION

- *When installing the piston, do not allow the cup lips to turn inside out.*



HYDRAULIC BRAKE

Install the push rod, washer and snap ring using a snap ring pliers.

TOOL:

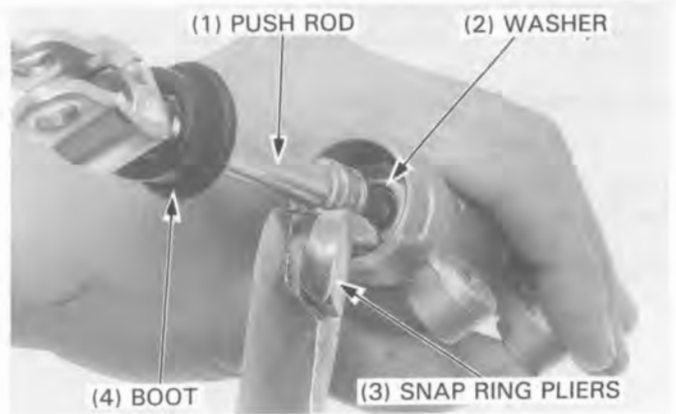
Snap ring pliers

07914-3230001

CAUTION

- Be certain that the snap ring is seated firmly in the groove.

Install the boot.

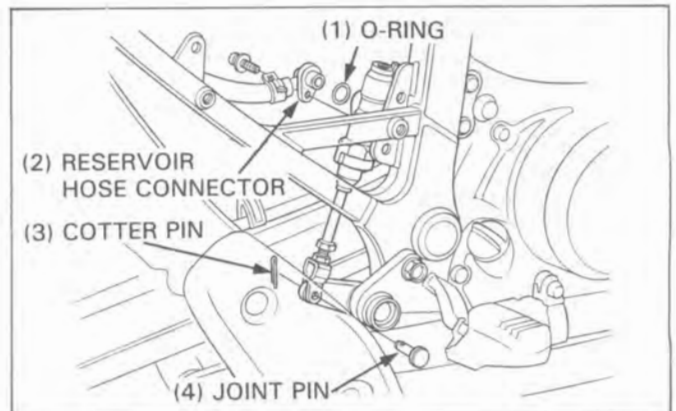


Connect the master cylinder push rod to the actuating arm with the joint pin and a new cotter pin.

Install the reservoir hose connector with a new O-ring and tighten the screw securely.

Install the master cylinder onto the frame and tighten the mounting bolts.

TORQUE: 13 N·m (1.3 kg-m, 9 ft-lb)



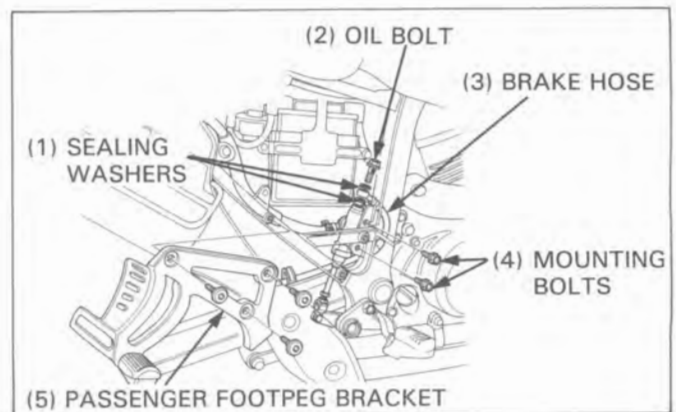
Connect the rear brake hose to the master cylinder with the oil bolt and new sealing washers. Tighten the oil bolt.

TORQUE: 35 N·m (3.5 kg-m, 25 ft-lb)

Install the passenger footpeg bracket.

TORQUE: 27 N·m (2.7 kg-m, 20 ft-lb)

Fill and bleed the rear brake hydraulic system (page 15-3).



REAR BRAKE CALIPER

DISASSEMBLY

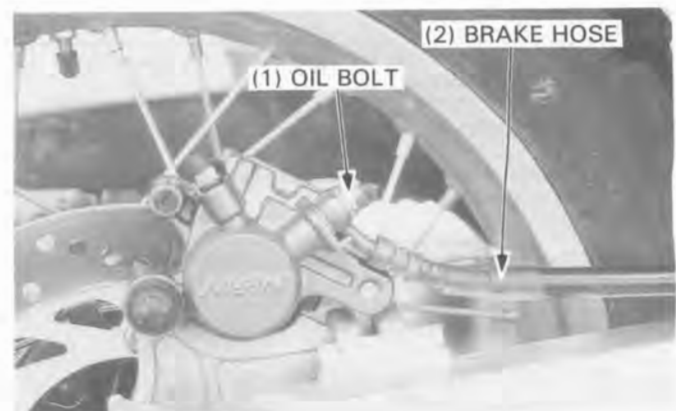
Drain the brake fluid from the rear brake hydraulic system (page 15-3).

Disconnect the rear brake hose from the caliper by removing the oil bolt and sealing washers.

CAUTION

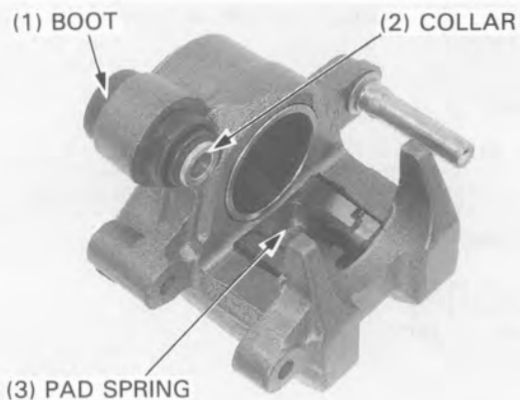
- Avoid spilling brake fluid on painted, plastic or rubber parts. Place a rag over these parts whenever the system is serviced.

Remove the brake pads (page 15-6).



HYDRAULIC BRAKE

Remove the pad spring, pivot collar and boot from the caliper.



Place a shop towel over the piston, position the caliper with the piston down and apply small squirts of air pressure to the fluid inlet to remove the piston.

⚠ WARNING

- *Do not use high pressure air or bring the nozzle too close to the inlet.*



Push the dust and piston seals in and lift them out.

Wash the caliper cylinder, seal grooves and caliper piston with clean brake fluid.

CAUTION

- *Be careful not to damage the piston sliding surface.*



INSPECTION

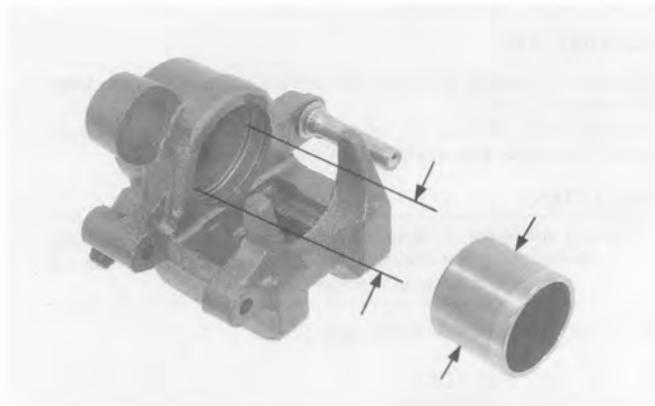
Check the caliper piston for scratches, scoring or other damage.

Measure the caliper cylinder I.D.

SERVICE LIMIT: 38.24 mm (1.505 in)

Measure the caliper piston O.D.

SERVICE LIMIT: 38.11 mm (1.500 in)



HYDRAULIC BRAKE

ASSEMBLY

Coat new piston seal and dust seal with clean brake fluid and install them in the caliper.
Install the piston with the padded end facing out.

Apply silicone grease to the pivot collar and boot.
Install the collar and boot, making sure that the boot is seated in the grooves properly.



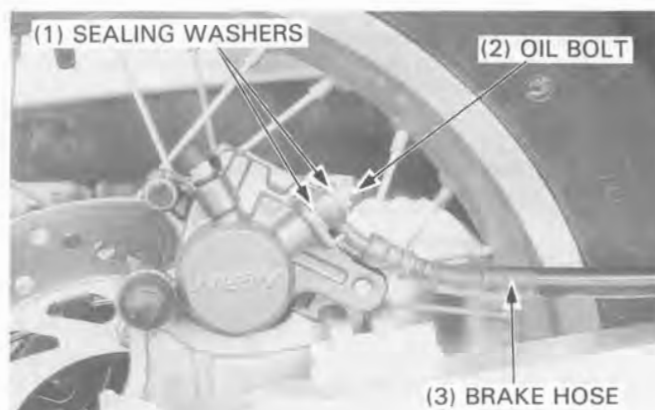
Install the pad spring.

Install the brake pads (page 15-7).

Connect the rear brake hose to the caliper with the oil bolt and new sealing washers.
Tighten the oil bolt.

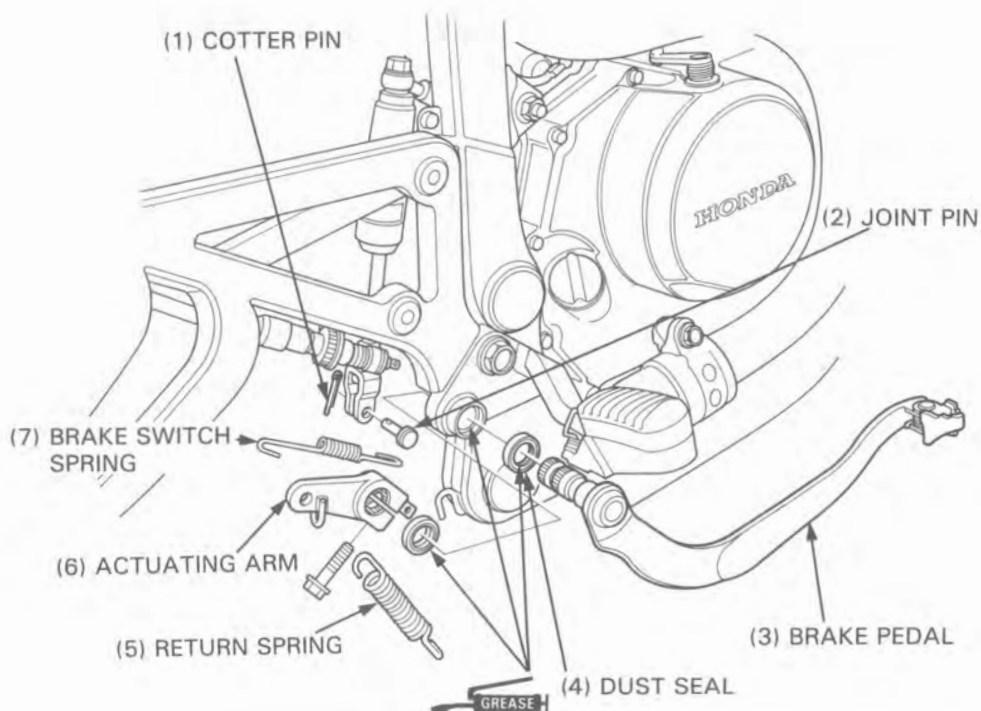
TORQUE: 35 N·m (3.5 kg-m, 25 ft-lb)

Fill and bleed the rear brake hydraulic system (page 15-3).



BRAKE PEDAL

REMOVAL/INSTALLATION



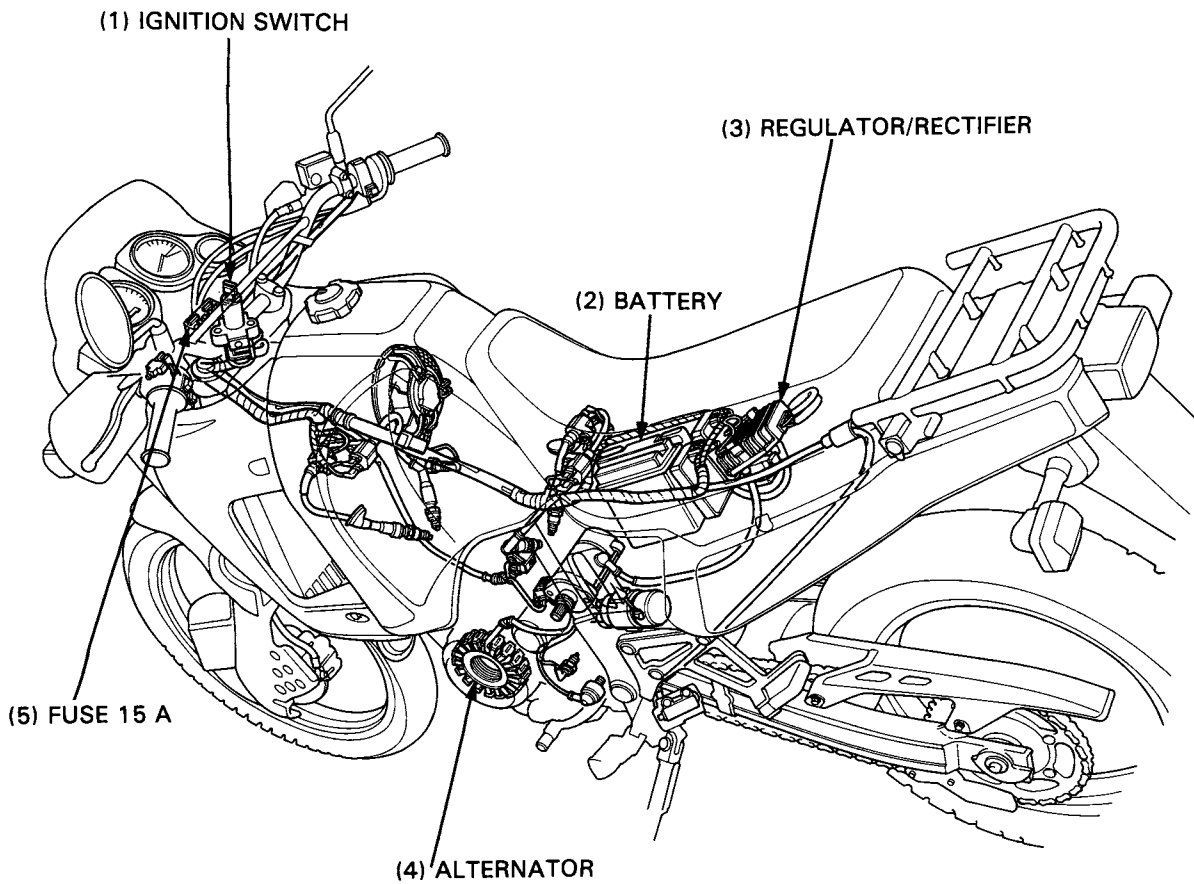
BATTERY/CHARGING SYSTEM

BATTERIE/CIRCUIT DE CHARGE

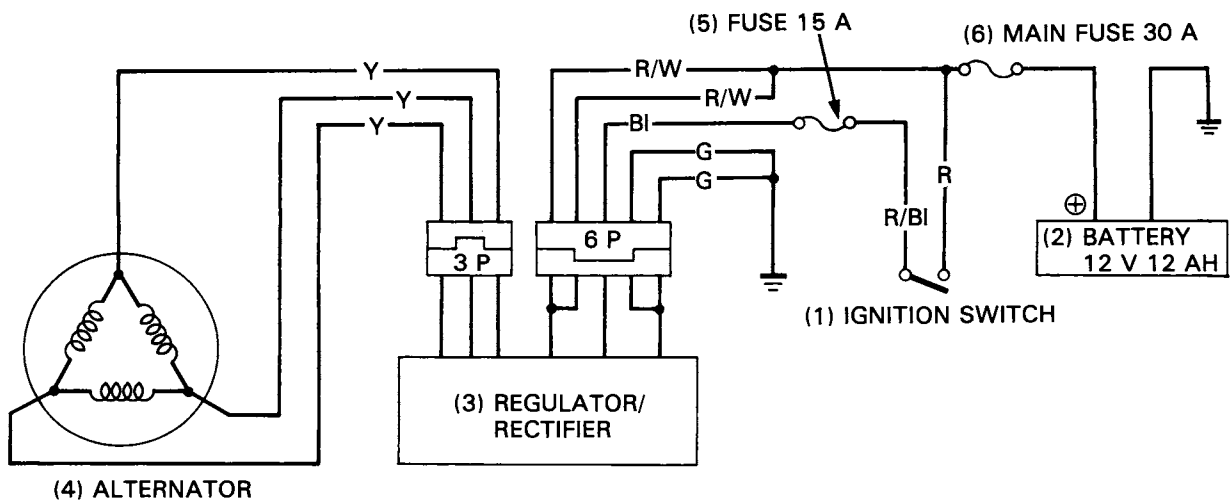
BATTERIE/LADESYSTEM

- (1) CONTACTEUR D'ALLUMAGE
- (2) BATTERIE 12V 12AH
- (3) REGULATEUR/REDRESSEUR
- (4) ALTERNATEUR
- (5) FUSIBLE 15A
- (6) FUSIBLE PRINCIPAL 30A

- (1) ZÜNDSCHALTER
- (2) BATTERIE
- (3) REGLER/GLEICHRICHTER
- (4) LICHTMASCHINE
- (5) SICHERUNG 15 A
- (6) HAUPTSICHERUNG



16



BATTERY/CHARGING SYSTEM

SERVICE INFORMATION	16-1	CHARGING SYSTEM	16-4
TROUBLESHOOTING	16-2	REGULATOR/RECTIFIER	16-5
BATTERY	16-3	ALTERNATOR	16-6

SERVICE INFORMATION

GENERAL

⚠ 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.*
- *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 sections.

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

- The battery fluid level should be checked regularly. Fill with distilled water when necessary.
- Quick charge a battery only in an emergency; slow-charging is preferred.
- Remove the battery from the motorcycle for charging. If the battery must be charged on the motorcycle, disconnect the battery cables.
- When inspect the charging system, check the system components and lines step-by-step according to the troubleshooting on next page.
- All charging system components can be tested on the motorcycle.
- Alternator removal is given in Section 8.

SPECIFICATIONS

ITEM			STANDARD (20°C/68°F)
Battery	Capacity		12V—12AH
	Specific gravity	Fully charged	1.280
		Need charging	1.260
	Charging current		1.2 A max.
	Leakage ampere		1 mA max.
Alternator	Capacity		0.31 kW/5,000 min ⁻¹ (rpm)
	Charging coil resistance		0.1—1.0 Ω
	Charging start		1,000 min ⁻¹ (rpm)
Regulator/rectifier	Type		Transistorized non-adjustable
	Regulated voltage		13.5—15.5 V at 5,000 min ⁻¹ (rpm)

TOOL

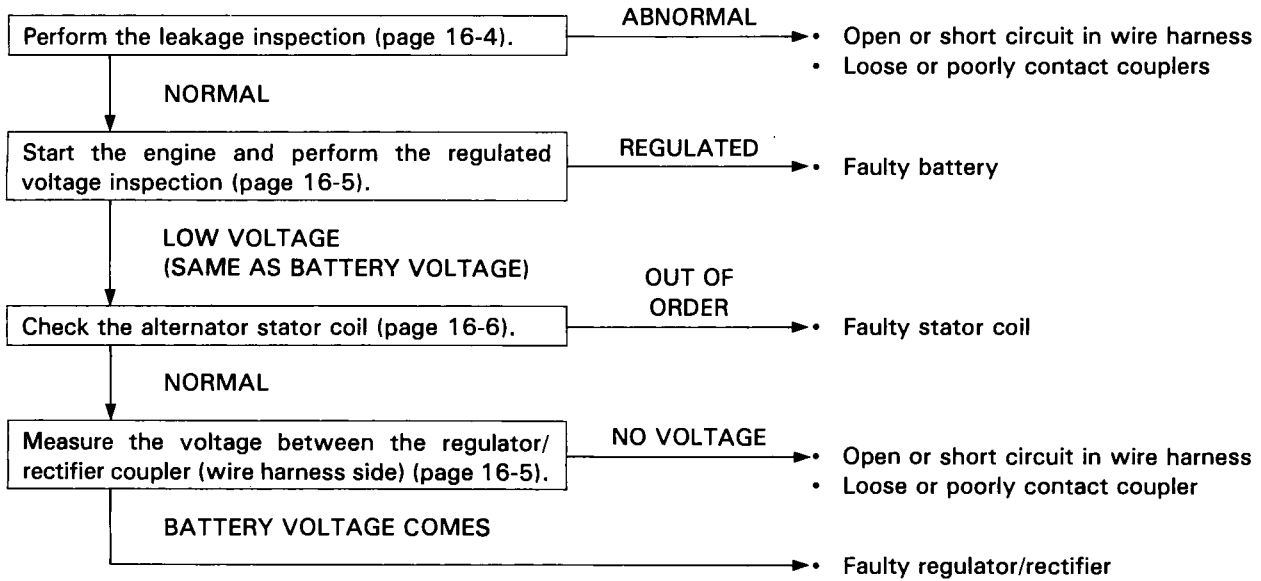
Digital multimeter	07411—0020000
Circuit tester (SANWA)	07308—0020000
or	
Circuit tester (KOWA)	TH—5H

TROUBLESHOOTING

NOTE

- If the battery would be overcharged, replace the regulator/rectifier.

Battery undercharged

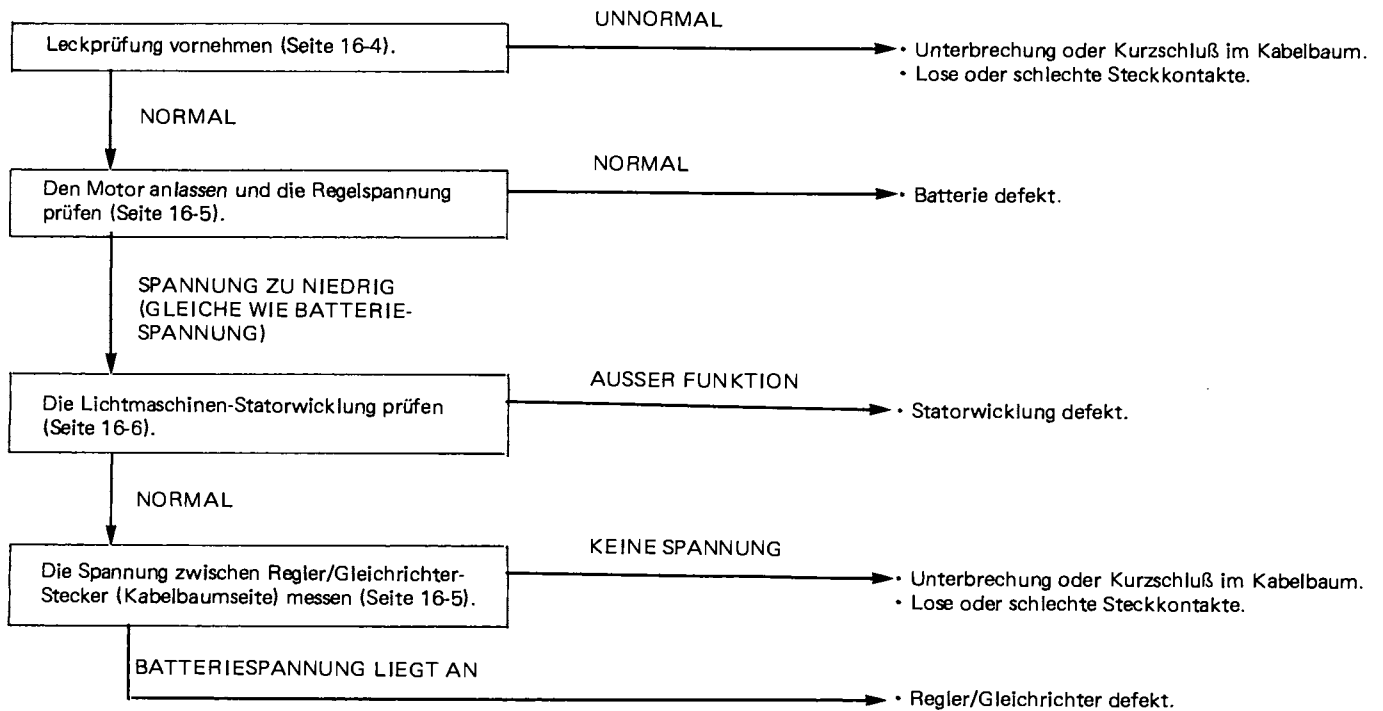


STÖRUNGSBESEITIGUNG

ZUR BEACHTUNG

- Wenn die Batterie überladen ist, den Regler/Gleichrichter auswechseln.

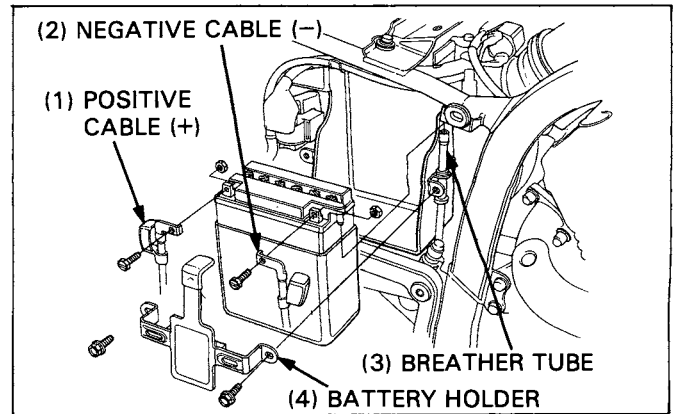
Batterie unvollständig geladen



BATTERY

REMOVAL

Remove the right frame side cover (page 12-2).
 Disconnect the negative terminal first, then positive terminal at the battery.
 Remove the bolts and battery holder.
 Disconnect the battery breather tube.
 Pull the battery out of the battery case, and remove the battery.



TESTING SPECIFIC GRAVITY

Test each cell with a hydrometer.

SPECIFIC GRAVITY: 1.270–1.290 (20°C/68°F)

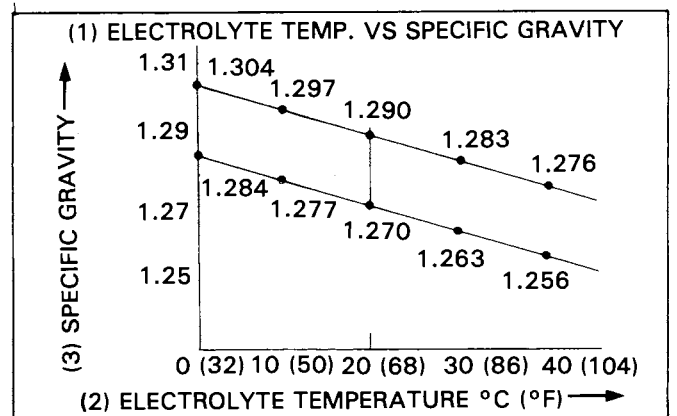
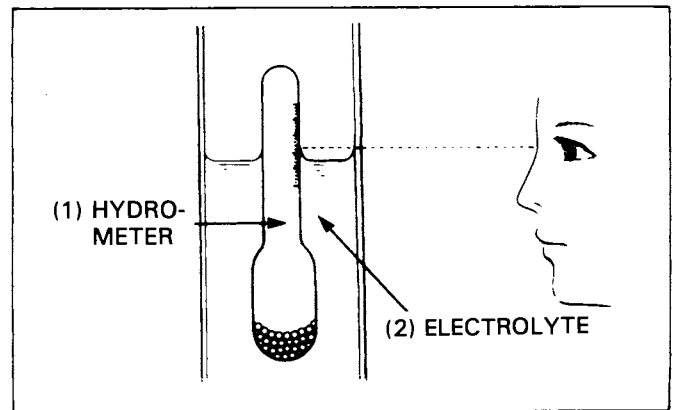
1.270–1.290	Fully charged
Below 1.260	Undercharged

NOTE

- The battery must be recharged if the specific gravity is below 1.230.
- The specific gravity varies with the temperature as shown in the accompanying table.
- Replace the battery if sulfation is evident or if the space below the cell plates is filled with sediment.

⚠ WARNING

- The battery contains sulfuric acid. Avoid contact with skin, eyes, or clothing.
 Antidote: Flush with water and get prompt medical attention.*

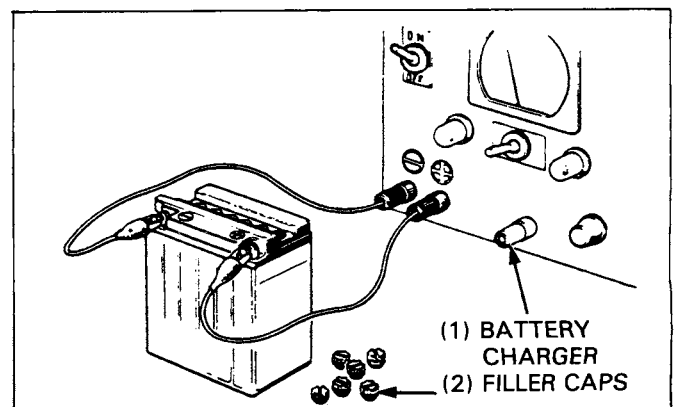


CHARGING

Remove the battery cell filler caps. Fill the battery cells with distilled water to the upper level line, if necessary.
 Connect the charger positive (+) cable to the battery positive (+) terminal.
 Connect the charger negative (–) cable to the battery negative (–) terminal.

Charging current: 1.2 amperes max.

Charge the battery until specific gravity is 1.270–1.290 at 20°C (68°F)



BATTERY/CHARGING SYSTEM

⚠ WARNING

- Before charging battery, remove the cap from each cell.
- Keep flames and sparks away from a charging battery.
- Turn power ON/OFF at the charger, not at the battery terminals to prevent sparks.
- Discontinue charging if the electrolyte temperature exceeds 45°C (113°F).

CAUTION

- Quick charging should only be done in an emergency; slow charging is preferred.

INSTALLATION

Install the battery in the reverse order of the removal.

After installing the battery, coat the terminals with clean grease.

CAUTION

- Route the breather tube as shown on the battery caution label.
- Make sure the breather tube does not bend, after the battery has been installed into the case.

CHARGING SYSTEM

NOTE

- When inspecting the charging system, check the system components and lines step-by-step according to the troubleshooting on page 15-3.
- With large capacity circuits that exceed the ratings of the fuse contained in the tester, measuring errors can cause damage to testing equipment.
Before starting each test, set the tester at the high capacity range first, then adjust it to the small capacity circuits range in order that you have the correct range.

LEAKAGE INSPECTION

CAUTION

- 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.

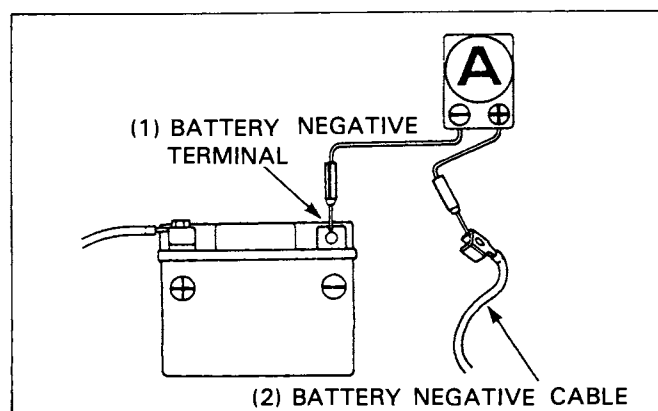
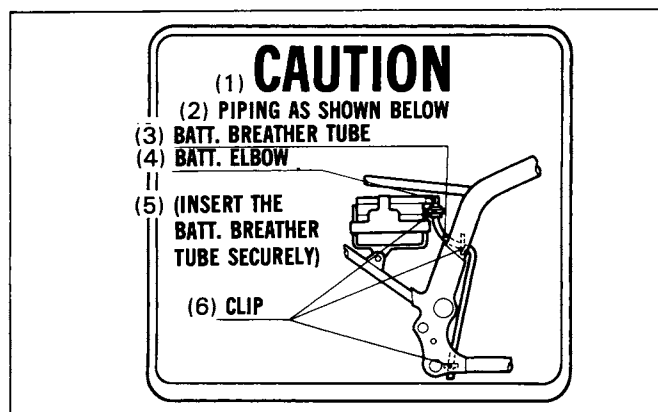
Check the battery ampere leakage before making the regulated ampere inspection.

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 tester should indicate within 1 mA with the ignition switch OFF.

LEAKAGE AMPERE: 1 mA max (20°C/68°F)



BATTERY/CHARGING SYSTEM

REGULATED VOLTAGE/AMPERE INSPECTION

NOTE

- Be sure the battery is in good condition before performing this test.

Warm up the engine to the normal operating temperature.

⚠ 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.*

Stop the engine.
Remove the right frame side cover.
Connect the voltmeter as shown.

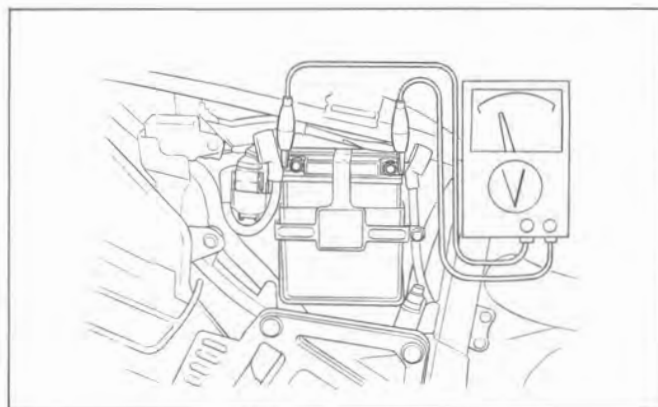
CAUTION

- *Be careful not to let the battery positive cable contact the frame while testing.*

Restart the engine and allow it to idle, then increase the engine speed gradually.

The voltage should be controlled as specified below:

STANDARD: 13.5–15.5 V at 5,000 min⁻¹ (rpm)
(20°C/68°F)



REGULATOR/RECTIFIER

INSPECTION

Remove the seat (page 12-2).

Disconnect the 3P and 6P connector of the regulator/rectifier. Check them for loose contact or rusting the terminals.

If the regulated voltage and amperage readings are out of the specification, check the items between connector terminals (wire harness side) following the chart below.



ITEM	TERMINALS	STANDARDS (20°C/68°F)
Battery charging line	Red/White (+) and Ground (–)	Battery voltage should come.
Feedback line	Black (+) and Ground (–)	Battery voltage should come with the ignition switch "ON".
Ground line	Green and body ground	There should be continuity.
Alternator coil line	Yellow and Yellow	0.1 – 1.0 Ω

BATTERY/CHARGING SYSTEM

UNIT INSPECTION

Provided the circuit on the wire harness side are normal and there are no loose connections at the connector, inspect the regulator/rectifier unit by measuring the resistance between the terminals.

NOTE

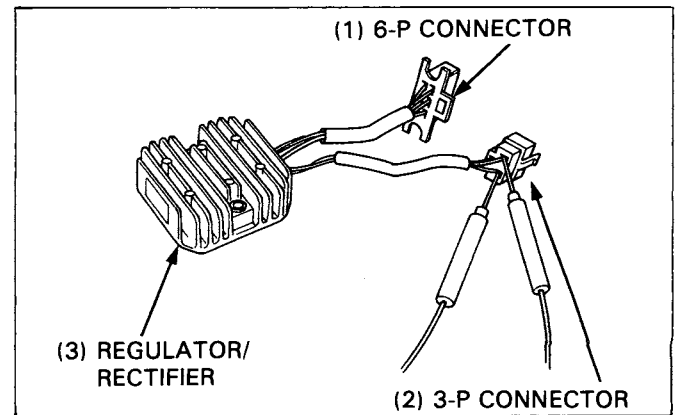
- You'll get false readings if the probes touch your fingers.
- Use the specified multimeters. Using other equipment may not allow you to obtain the correct results.
This is due to the characteristic of semiconductors, which have different resistance values depending on the applied voltage.

SPECIFIC MULTITESTER:

- 07411—0020000 (KOWA Digital type)
- 07308—0020001 (SANWA Analogue type)
- TH—5H (KOWA Analogue type)

- Select the following range:
SANWA: k Ω
KOWA: X100
- An old battery stored in the multimeter could cause inaccurate readings. Check the battery if the multimeter resistance incorrectly.
- When using the KOWA multimeter, remember that all readings should be multiplied by 100.

Replace the regulator/rectifier unit if the resistance value between the terminals is abnormal.



Unit: k Ω

$\oplus$ Probe	Black	Red/White	Yellow	Yellow	Yellow	Green
$\ominus$ Probe	Black	Red/White	Yellow	Yellow	Yellow	Green
Black		20—100	15—80	15—80	15—80	10—50
Red/White	∞		∞	∞	∞	∞
Yellow	∞	0.5—10		∞	∞	∞
Yellow	∞	0.5—10	∞		∞	∞
Yellow	∞	0.5—10	∞	∞		∞
Green	1—20	1—20	0.5—10	0.5—10	0.5—10	

ALTERNATOR

INSPECTION

NOTE

- It is not necessary to remove the stator coil to make this test.

Remove the seat (page 12-2).

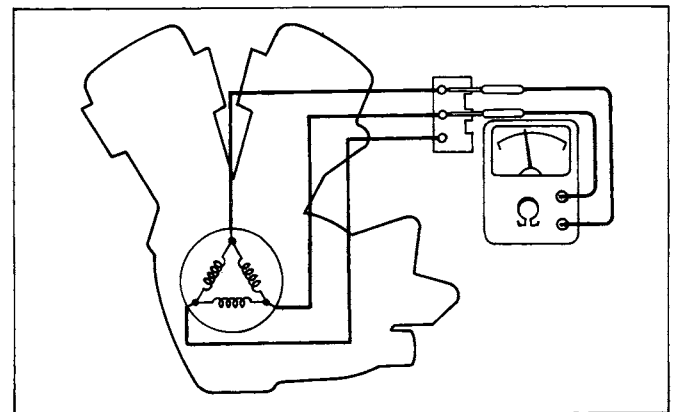
Disconnect the alternator 3P (WHITE) connector.

Measure the resistance between the yellow wire terminals and check for no continuity between each terminal and ground.

STANDARD: 0.1—1.0 Ω (20°C/68°F)

Replace the stator if the resistance is out of specification or if there is continuity between any yellow wire terminal and ground.

For the alternator replacement, see section 8.



IGNITION SYSTEM

CIRCUIT D'ALLUMAGE

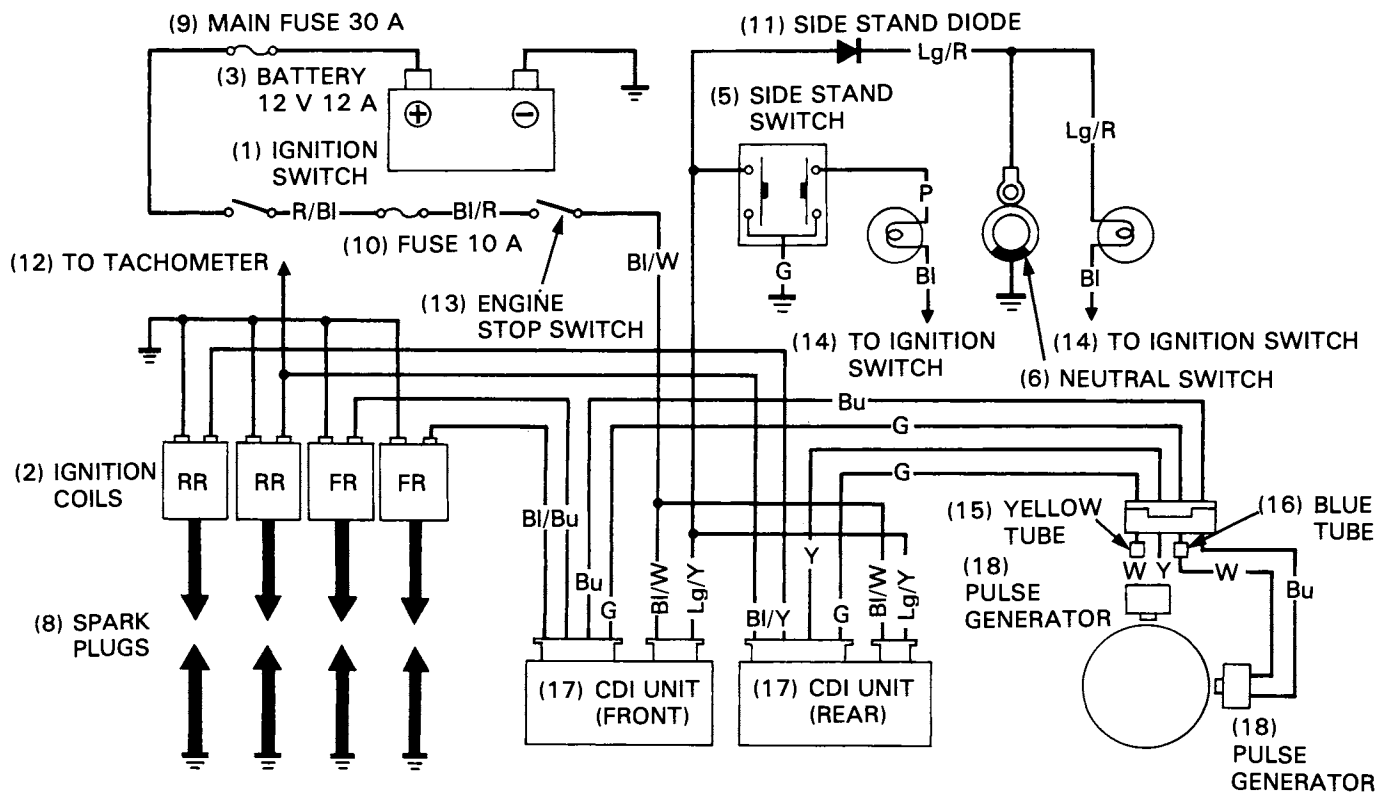
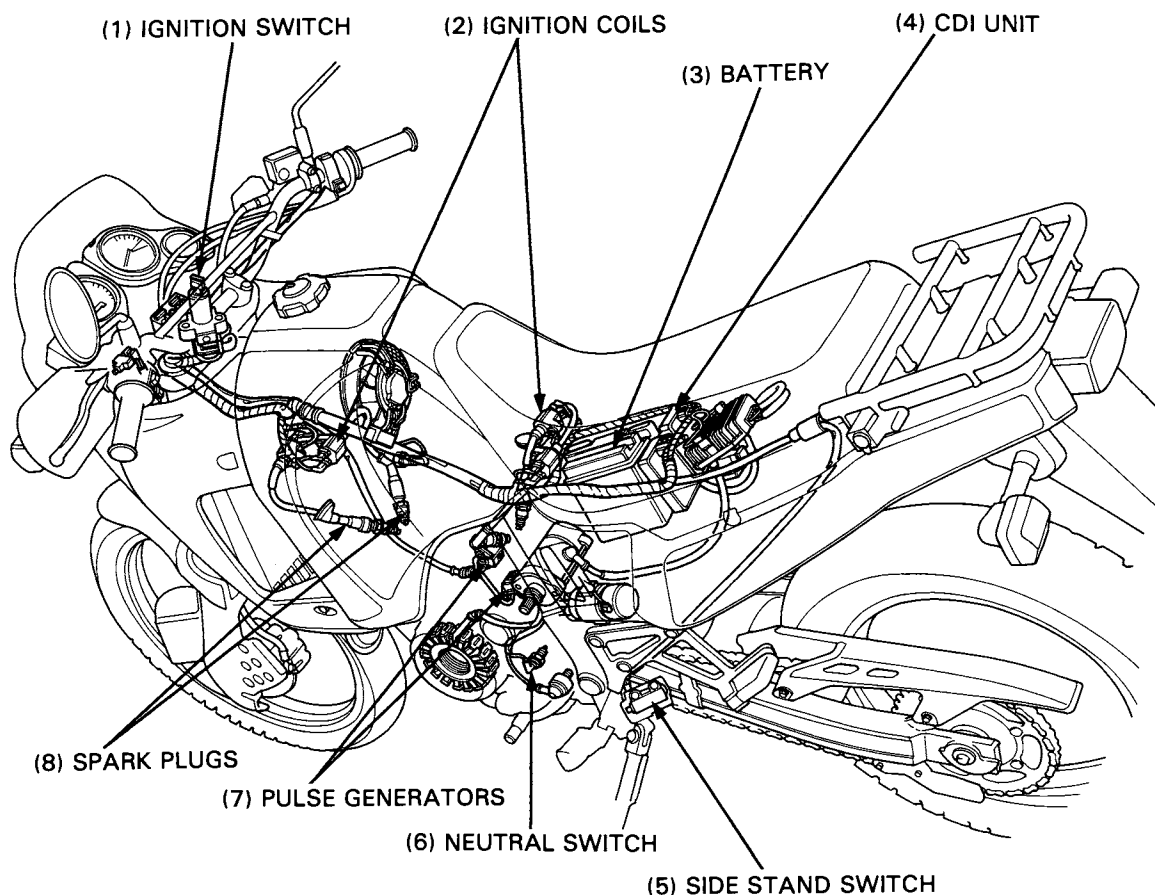
ZÜNDSYSTEM

CIRCUIT D'ALLUMAGE

- (1) CONTACTEUR D'ALLUMAGE
- (2) BOBINES D'ALLUMAGE
- (3) BATTERIE 12V 12A
- (4) UNITE CDI
- (5) CONTACTEUR DE BEQUILLE LATERALE
- (6) CONTACTEUR DE POINT MORT
- (7) GENERATEURS D'IMPULSIONS
- (8) BOUGIES D'ALLUMAGE
- (9) FUSIBLE PRINCIPAL 30A
- (10) FUSIBLE 10A
- (11) DIODE DE BEQUILLE LATERALE
- (12) VERS COMPTE-TOURS
- (13) INTERRUPTEUR D'ARRET DU MOTEUR
- (14) VERS CONTACTEUR D'ALLUMAGE
- (15) TUBE JAUNE
- (16) TUBE BLEU
- (17) UNITE CDI (ARRIERE)
- (17) UNITE CDI (AVANT)
- (18) GENERATEUR D'IMPULSIONS

ZÜNDSYSTEM

- (1) ZÜNDSCHALTER
- (2) ZÜNDSPULEN
- (3) BATTERIE
- (4) CDI-EINHEIT
- (5) SEITENSTÄNDERSCHALTER
- (6) LEERLAUFSCHALTER
- (7) IMPULSGEBER
- (8) ZÜNDKERZEN
- (9) HAUPTSICHERUNG 30 A
- (10) SICHERUNG 10 A
- (11) SEITENSTÄNDERDIODE
- (12) ZUM DREHZAHLMESSER
- (13) MOTORSTOPPSCHALTER
- (14) ZUM ZÜNDSCHALTER
- (15) GELBE HÜLLE
- (16) BLAUE HÜLLE
- (17) CDI-EINHEIT (VORNE)
- (17) CDI-EINHEIT (HINTEN)
- (18) IMPULSGEBER



IGNITION SYSTEM

SERVICE INFORMATION	17-1	PULSE GENERATOR	17-6
TROUBLESHOOTING	17-2	SIDE STAND SWITCH	17-6
SYSTEM INSPECTION	17-4	SIDE STAND DIODE	17-7
IGNITION COIL	17-5	IGNITION TIMING	17-7

SERVICE INFORMATION

GENERAL

- Ignition timing cannot be adjusted since the CDI (Capacitive Discharge Ignition) unit is non-adjustable. If ignition timing is incorrect, check the system components and replace the faulty parts.
- When inspect the ignition system, check the system components and lines step-by-step according to the troubleshooting on next page.
- Each pair of the spark plugs (FRONT and REAR) has its own ignition circuit.
- For spark plug gap inspection and adjustment procedure, see page 3-6.
- For pulse generator removal and installation, see section 7.

SPECIFICATIONS

ITEM			SPECIFICATIONS (20°C/68°F)	
Spark plug			NGK	ND
	Standard		DPR8EA-9	X24EPR-U9
	For cold climate (Below 5°C/41°F)		DPR7EA-9	X22EPR-U9
	For extended high speed driving		DPR9EA-9	X27EPR-U9
Spark plug gap			0.8—0.9 mm (0.031—0.035 in)	
Ignition timing	Initial (F mark)		10° BTDC/idle	
	Advance starts		2,000 min ⁻¹ (rpm)	
	Full advance		30° BTDC/4,500 min ⁻¹ (rpm)	
Ignition coil resistance	Primary		0.1—0.2 Ω	
	Secondary	With cap	7.4—10.8 kΩ	
		Without cap	3.6—4.5 kΩ	
Pulse generator	Coil resistance		360—540 Ω	
Firing order			Front—232°—Rear—488°—Front	

TOOLS

Special

Inspection adaptor	07508—0014700
Spark adaptor	07GGK—0010100

Tester

Digital multimeter (KOWA)	07411—0020000
or	
Circuit tester (SANWA)	07308—0020000
or	
Circuit tester (KOWA)	TH—5H

ZÜNDSYSTEM

WARTUNGSHINWEISE	17-1	IMPULSGEBER	17-6
STÖRUNGSBESEITIGUNG	17-2	SEITENSTÄNDERSCHALTER	17-6
SYSTEMÜBERPRÜFUNG	17-4	SEITENSTÄNDERDIODE	17-7
ZÜNDSPULE	17-5	ZÜNDPUNKT	17-7

WARTUNGSHINWEISE

ALLGEMEINES

- Ein Einstellung des Zündzeitpunktes ist nicht möglich, da die CDI-Einheit (Capacitive Discharge Ignition) wartungsfrei ist und nicht verändert werden kann. Wenn der Zündzeitpunkt inkorrekt ist, müssen die Komponenten des Systems überprüft und defekte Teile ersetzt werden.
- Bei der Überprüfung des Zündsystems alle Systembauteile und die Kabel systematisch mit Hilfe der Störungssuchtable auf der folgenden Seite kontrollieren.
- Jedes Zündkerzenpaar (VORNE und HINTEN) besitzt einen getrennten Zündstromkreis.
- Für die Überprüfung und Einstellung der Zündkerze sich auf Seite 3-6 beziehen.
- Aus- und Einbau des Impulsgebers ist in Kapitel 7 beschrieben.

TECHNISCHE DATEN

	GEGENSTAND	TECHNISCHE DATEN (20°C)	
Zündkerze		NGK	ND
	Standard	DPR8EA-9	X24EPR-U9
	Für kalte Gebiete (unter 5°C)	DPR7EA-9	X22EPR-U9
	Bei überwiegendem Hochgeschwindigkeitsbetrieb	DPR9EA-9	X27EPR-U9
Elektrodenabstand		0,8–0,9 mm	
Zündzeitpunkt	Anfangsstellung (F-Markierung)	10° vor OT/Leerlauf	
	Vorverstellung beginnt	2 000 min ⁻¹	
	Volle Vorverstellung	30° vor OT bei 4500 ± 100 U/min	
Zündspulenwiderstand	Primär	0,1–0,2 Ω	
	Sekundär	ohne Zündkerzenstecker	7,4–10,8 kΩ
		mit Zündkerzenstecker	3,6–4,5 kΩ
Impulsgeberwiderstand	Spulenwiderstand	360–540 Ω	
Zündfolge		Vorne – 232° – hinten – 488° – vorne	

WERKZEUGE

Spezialwerkzeuge

Prüfadapter	07508–0014700
Funkenprüfadapter	07GGK–0010100

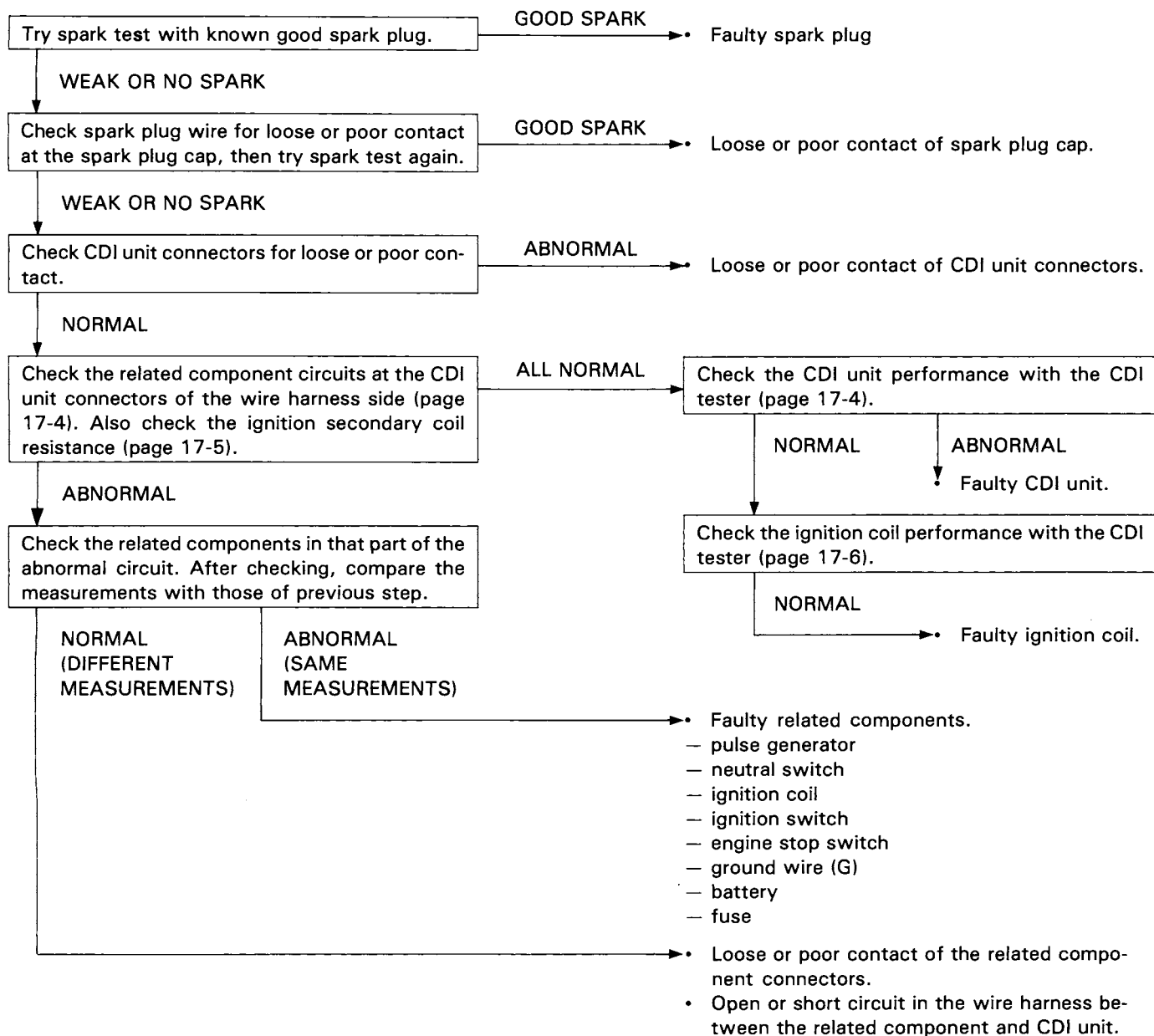
Testgeräte

Digitaler Multitester (KOWA)	07411–0020000
oder	
Schaltkreis-Prüfgerät (SANWA)	07308–0020000
oder	
Schaltkreis-Prüfgerät (KOWA)	TH–5H

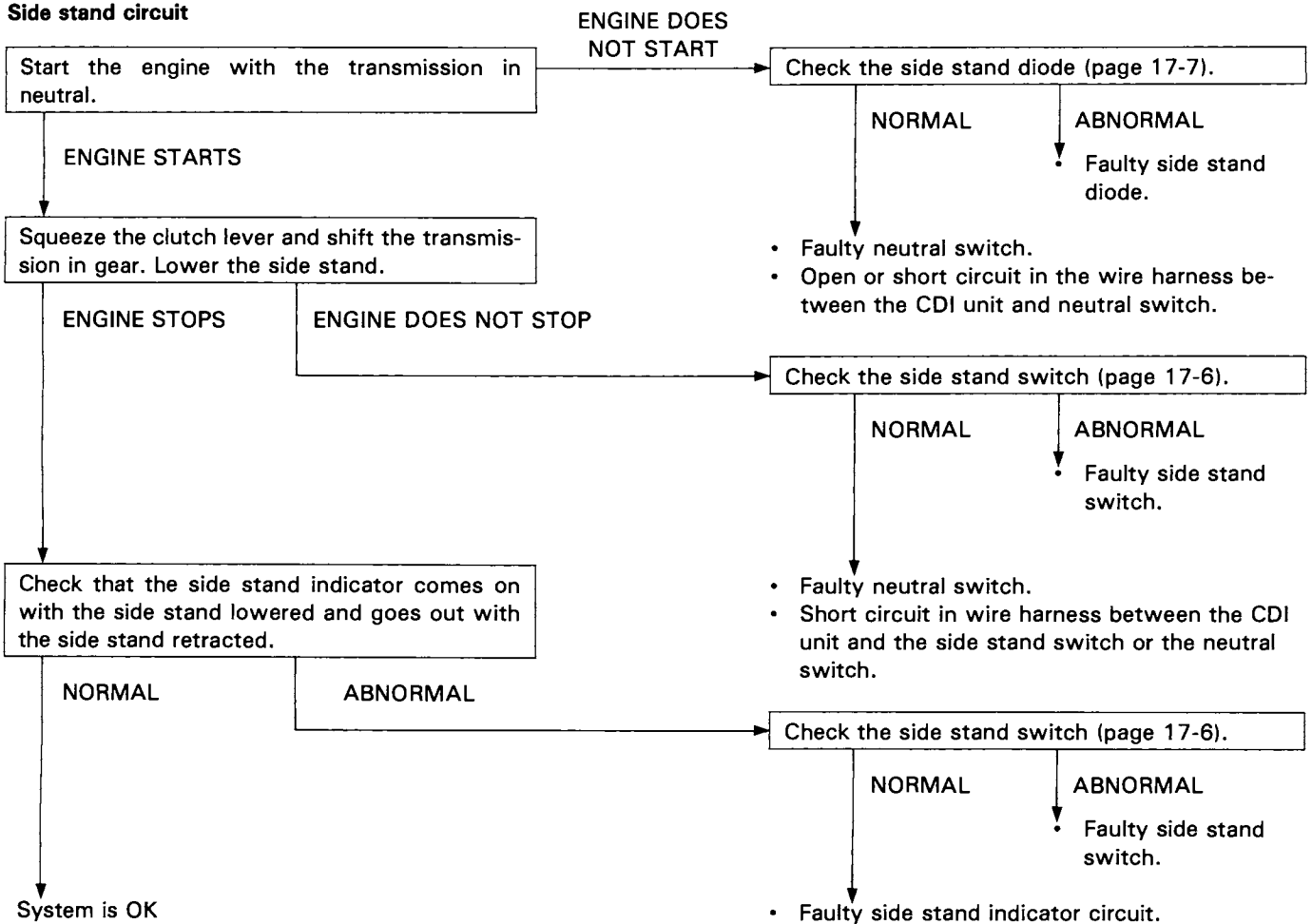
MEMO

TROUBLESHOOTING

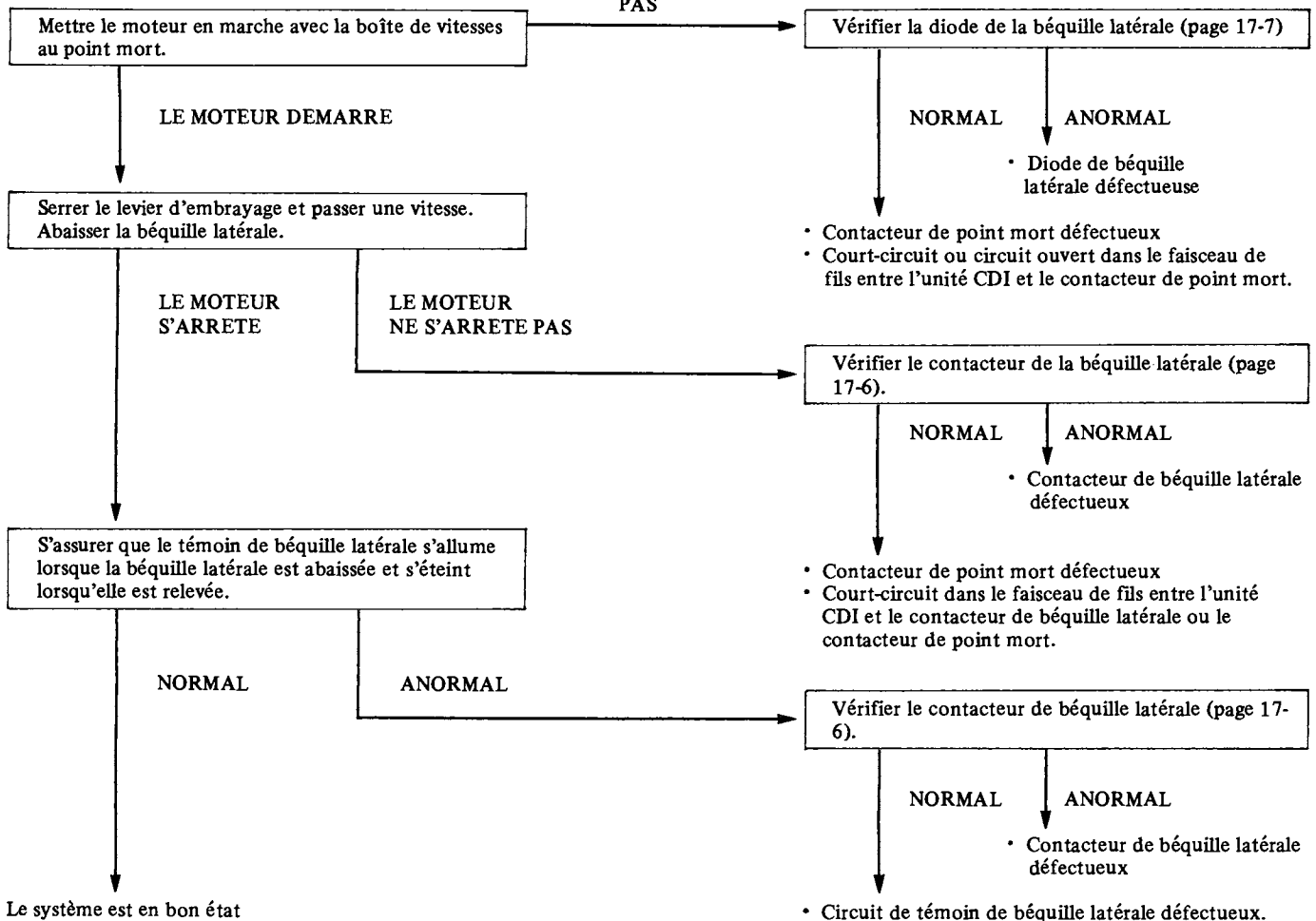
Weak or no spark at plug



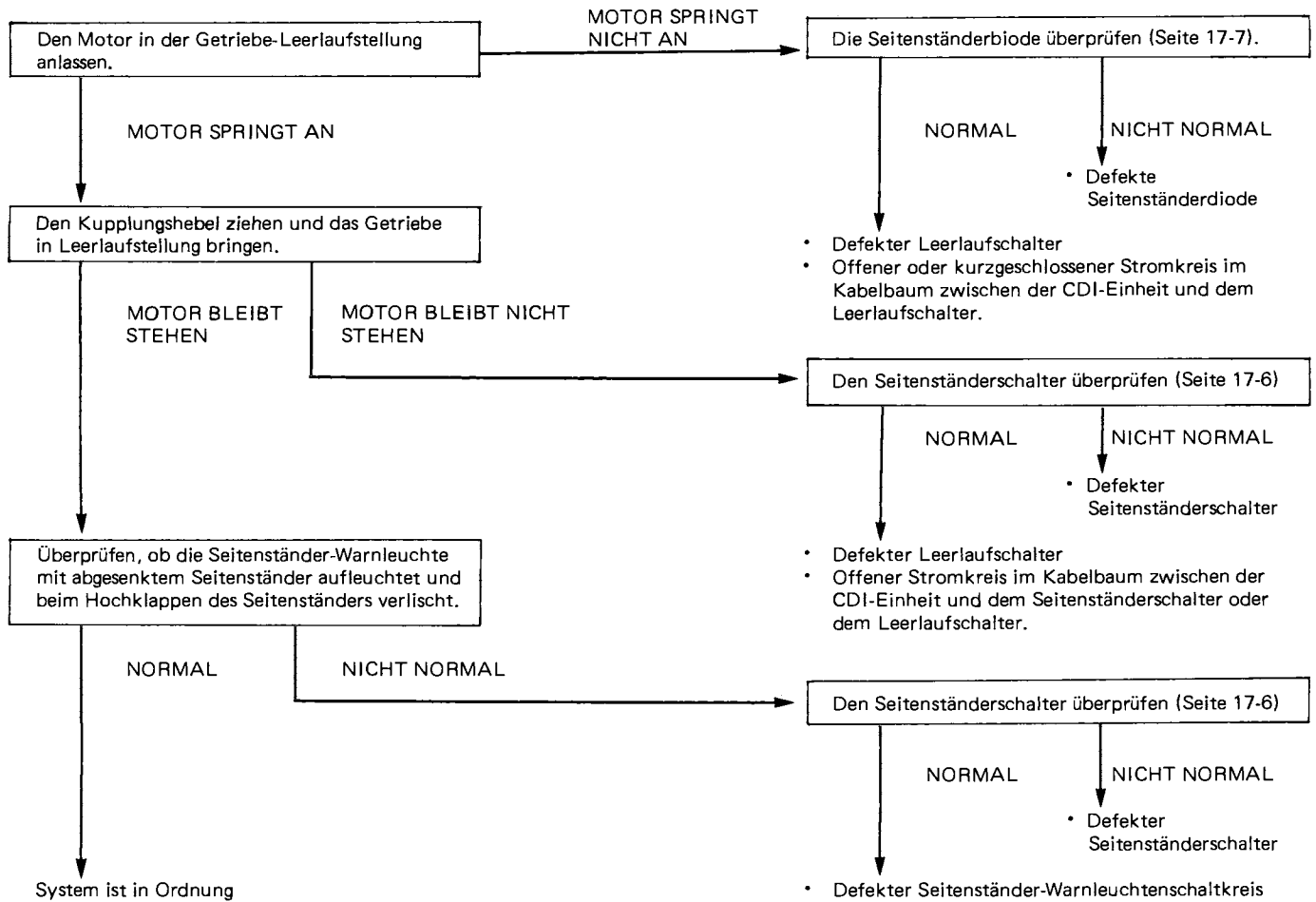
Side stand circuit



Side stand circuit

LE MOTEUR
NE DEMARRE
PAS

Seitenständer-Schaltkreis



SYSTEM INSPECTION

NOTE

- Check the system components and lines step-by-step according to the troubleshooting on page 17-2.

Remove the seat (page 12-2).

Disconnect the CDI unit connectors and check the related circuit at the wire harness side according to the following chart:



ITEM	TERMINALS		STANDARDS (20°C/68°F)
	CDI UNIT (FRONT)	CDI UNIT (REAR)	
Ignition coil (primary coil)	Bl/Bu and G	Bl/Y and G	0.1—0.2 Ω
Ignition coil (secondary coil) with spark plug cap	G and Spark plug cap		7.4—10.8 kΩ
Pulse generator	Bu and W	Y and W	360—540 Ω
Battery power supply circuit line	Bl/W (+) and G (–) with the ignition switch "ON" and engine stop switch "RUN"		Battery voltage should come.
Neutral switch	Lg/R and body ground with the side stand connector disconnected.		There should be continuity with the transmission in neutral and no continuity with the transmission in gear.
Side stand switch	Lg/R and body ground with the side stand diode removed.		There should be continuity with the side stand retracted and no continuity with the side stand lowered.

CDI UNIT PERFORMANCE TEST

Inspect the CDI unit with CDI tester.

NOTE

- Follow the CDI tester manufacturer's instructions.

TOOL:

Inspection adaptor

07508—0014700

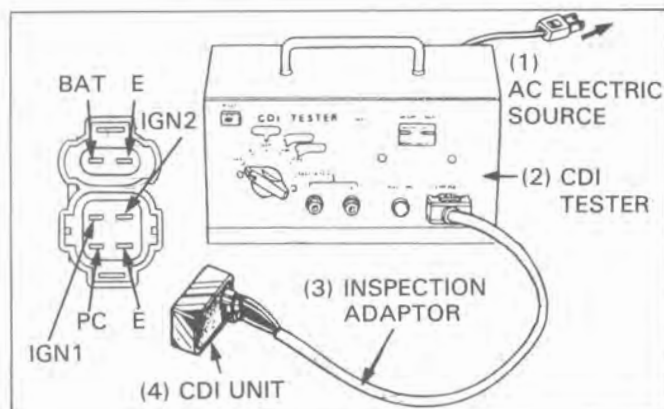
Connect the special adaptor to the CDI unit and CDI tester.

NOTE

- Connect the adaptor wires to the CDI unit terminals as shown.

TESTER SWITCH POSITION	CDI UNIT GOOD	CDI UNIT FAULTY
1. OFF	No spark	—
2. P	Sparks jump	—
3. EXT	No spark	Sparks jump
4. ON1	Sparks jump	No spark
5. ON2	↑	↑

Repeat the test with the IGN1 and IGN2 wires reversed.
Replace the CDI unit with a new one if necessary.



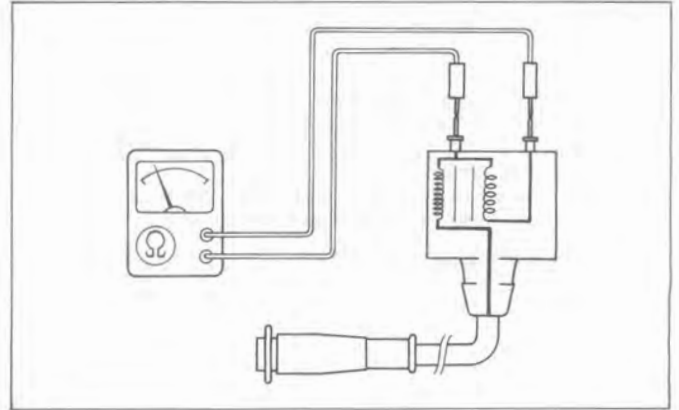
IGNITION COIL

INSPECTION

Remove the fuel tank (page 4-3).

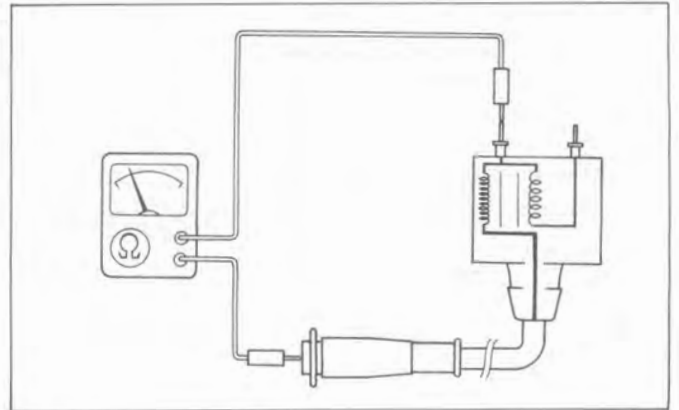
Measure the primary coil resistance by checking for continuity between the primary terminals.

STANDARD: 0.1—0.2 Ω (20°C/68°F)



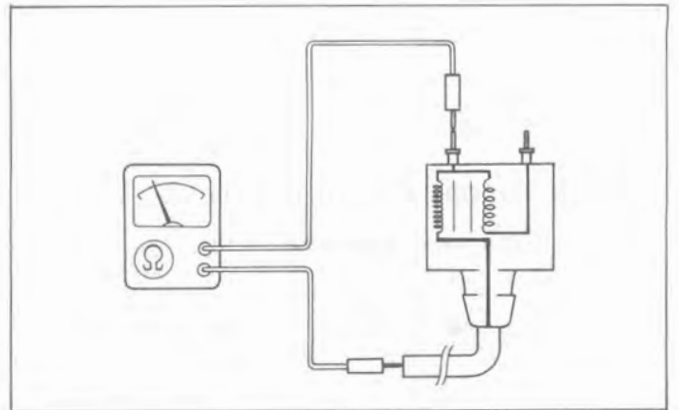
Measure the secondary coil resistance with the spark plug cap in place by checking for continuity between the plug cap and green terminal.

STANDARD: 7.4—10.8 k Ω (20°C/68°F)



If the resistance is out of range, remove the spark plug cap and measure the resistance between the spark plug wire and green terminal.

STANDARD: 3.6—4.5 k Ω (20°C/68°F)



REPLACEMENT

Remove the fuel tank (page 4-3).

Disconnect the primary terminals from the coils.

Remove the spark plug cap from the spark plug.

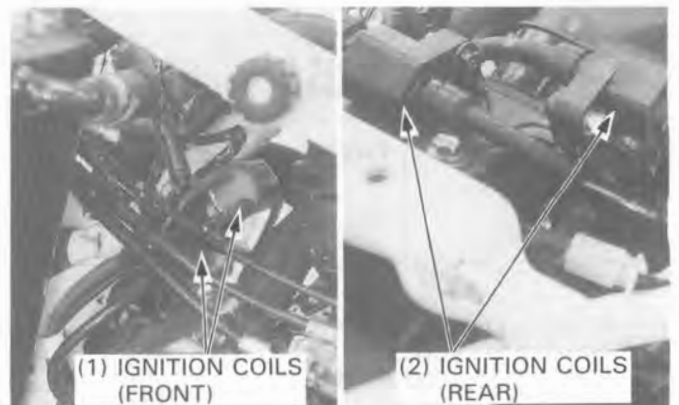
Remove the front/or rear ignition coils stay bolt and front or rear ignition coils.

Remove the ignition coil from its stay.

Install a new ignition coil in the reverse order of the removal.

NOTE

- Install the coils properly according to their marks.
FR-R: front-right, FR-L: front-left,
RR-R: rear-right, RR-L: rear-left
- Connect the primary wire terminals properly.
FR coil: black terminal-black/blue wire
 green terminal-green wire
RR coil: black terminal-black/yellow wire
 green terminal-green wire



IGNITION SYSTEM

PERFORMANCE TEST

Remove the ignition coils.
Check the ignition coil with a CDI tester.

NOTE

- Follow the tester manufacturer's instructions.
- Connect the adaptor wires to the CDI unit terminals as shown.

TOOLS:

Spark adaptor

07GGK-0010100

Inspection adaptor

07508-0014700

If sparks fail to jump across the electrodes in the tester inspection window, replace the ignition coil with a new one.

PULSE GENERATOR

INSPECTION

NOTE

- It is not necessary to remove the pulse generator to make this inspection.

Remove the fuel tank (page 4-3).

Disconnect the pulse generator 4P mini connector.

Measure the resistance between the yellow and white (yellow tube) wires (RR), and between the blue and white (blue tube) wires (FR).

STANDARD: 360—540 Ω (20°C/68°F)

For the replacement, refer to section 7.

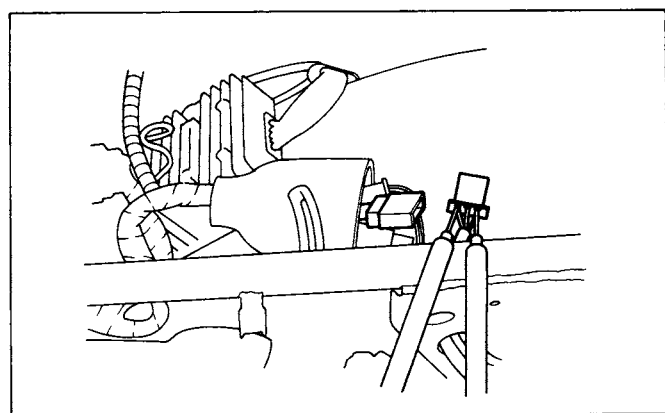
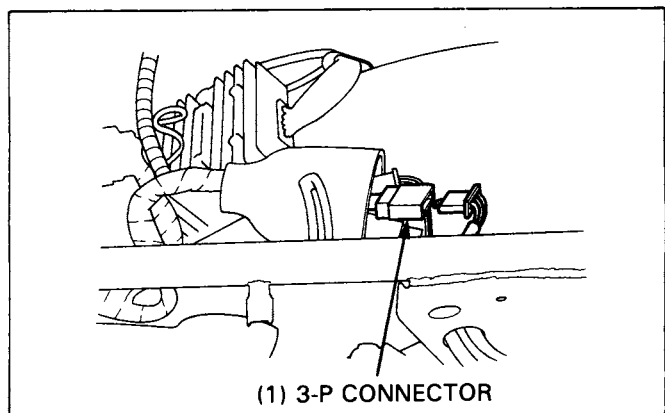
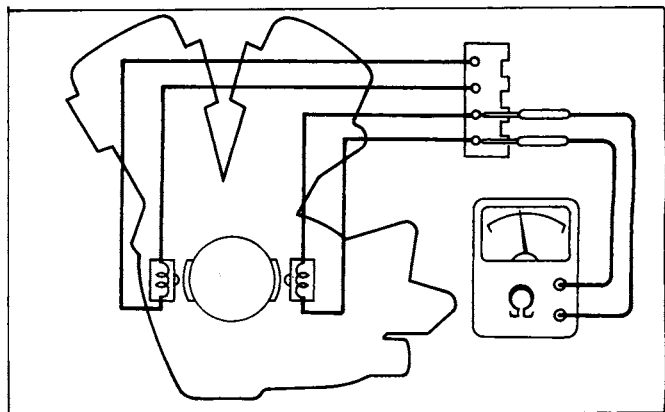
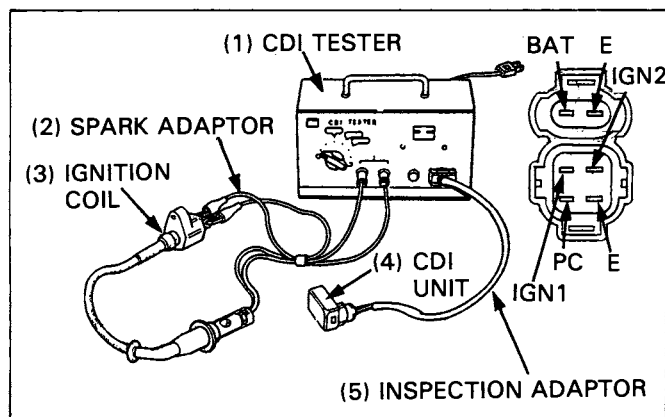
SIDE STAND SWITCH

Remove the seat (page 12-2).

Disconnect the side stand switch 3-P connector.

Check the continuity between the connector terminals as follows:

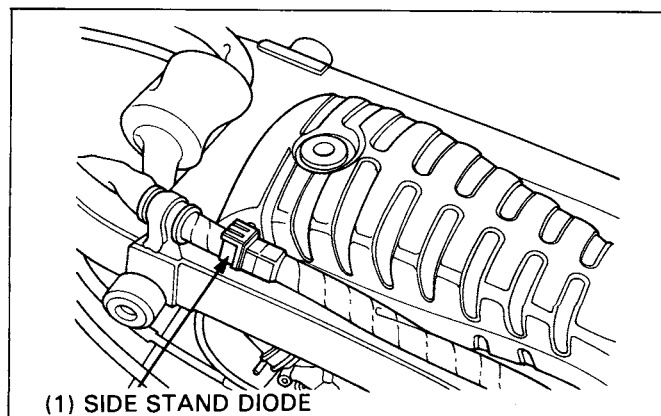
With the side stand retracted	Lg/Y and G	Continuity
	P and G	No continuity
With the side stand lowered	Lg/Y and G	No continuity
	P and G	Continuity



SIDE STAND DIODE

Remove the fuel tank (page 4-3).

Remove the side stand diode from the main wire harness.



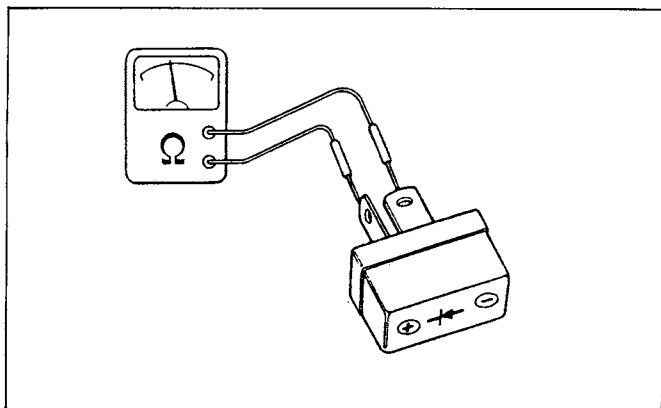
Check for continuity with an ohmmeter.

Connect the positive probe to the $\oplus$ terminal and the negative probe to the $\ominus$ terminal of the diode.

There should be continuity, then with the probes reversed, there should be no continuity.

NOTE

- The test results shown are for a positive ground ohmmeter and the opposite results will be obtained when a negative ground ohmmeter is used.



IGNITION TIMING

NOTE

- The Capacitive Discharge Ignition (CDI) system is factory pre-set and cannot be adjusted. Ignition timing inspection procedures are given to inspect the function of the CDI components.

Warm up the engine to the operating temperature.

⚠ 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. The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and lead to death.*

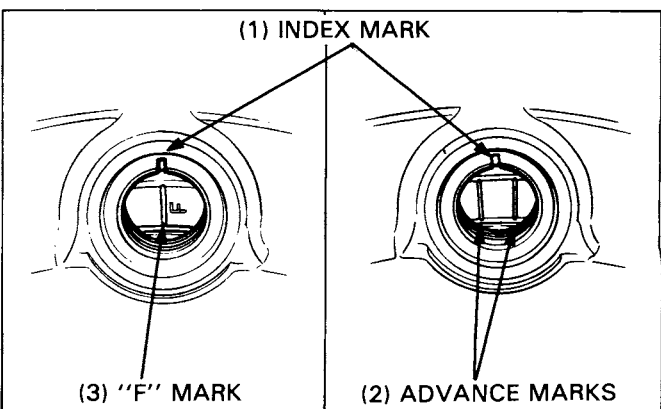
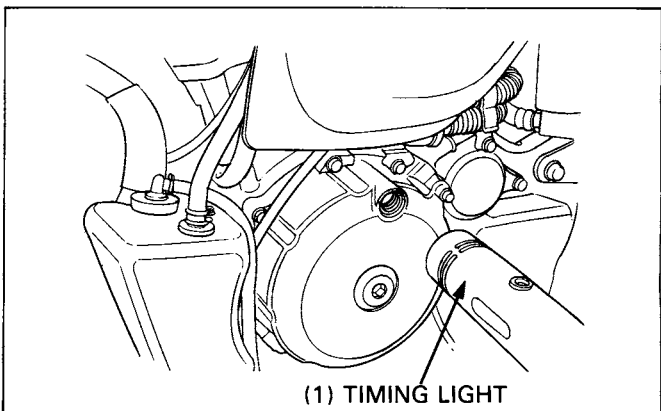
Remove the timing inspection hole cap on the left crankcase cover.

Connect the timing light.

The timing is correct if the "F" mark aligns with the index mark on the left crankcase cover at $1,200 \pm 100 \text{ min}^{-1}$ (rpm) for each cylinder.

Raise the engine to $4,500 \text{ min}^{-1}$ (rpm).

The index mark should be between the advance marks for each cylinder.



ELECTRIC STARTER

DEMARREUR ELECTRIQUE

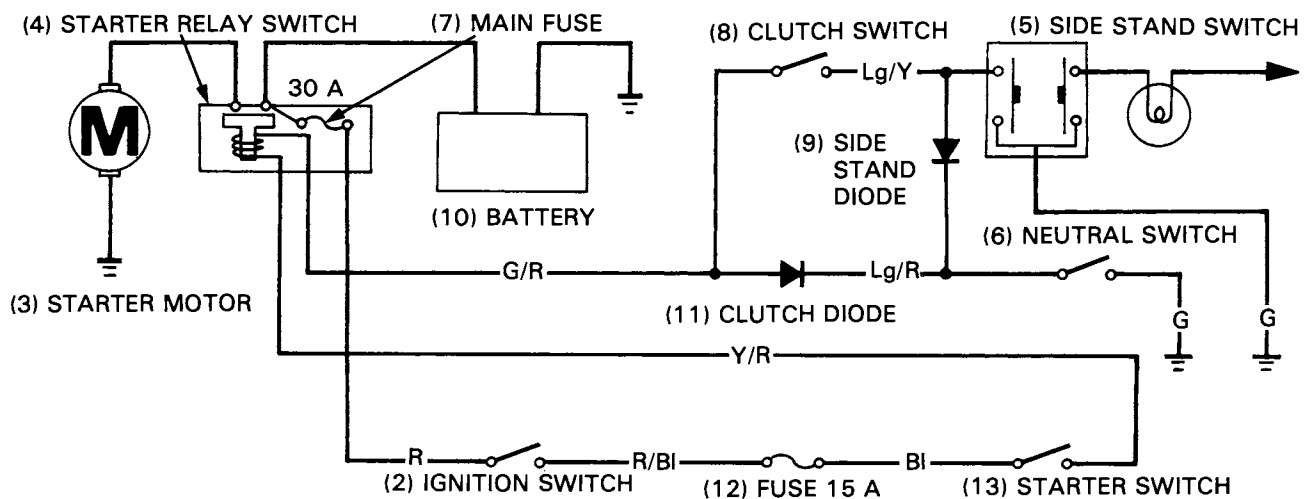
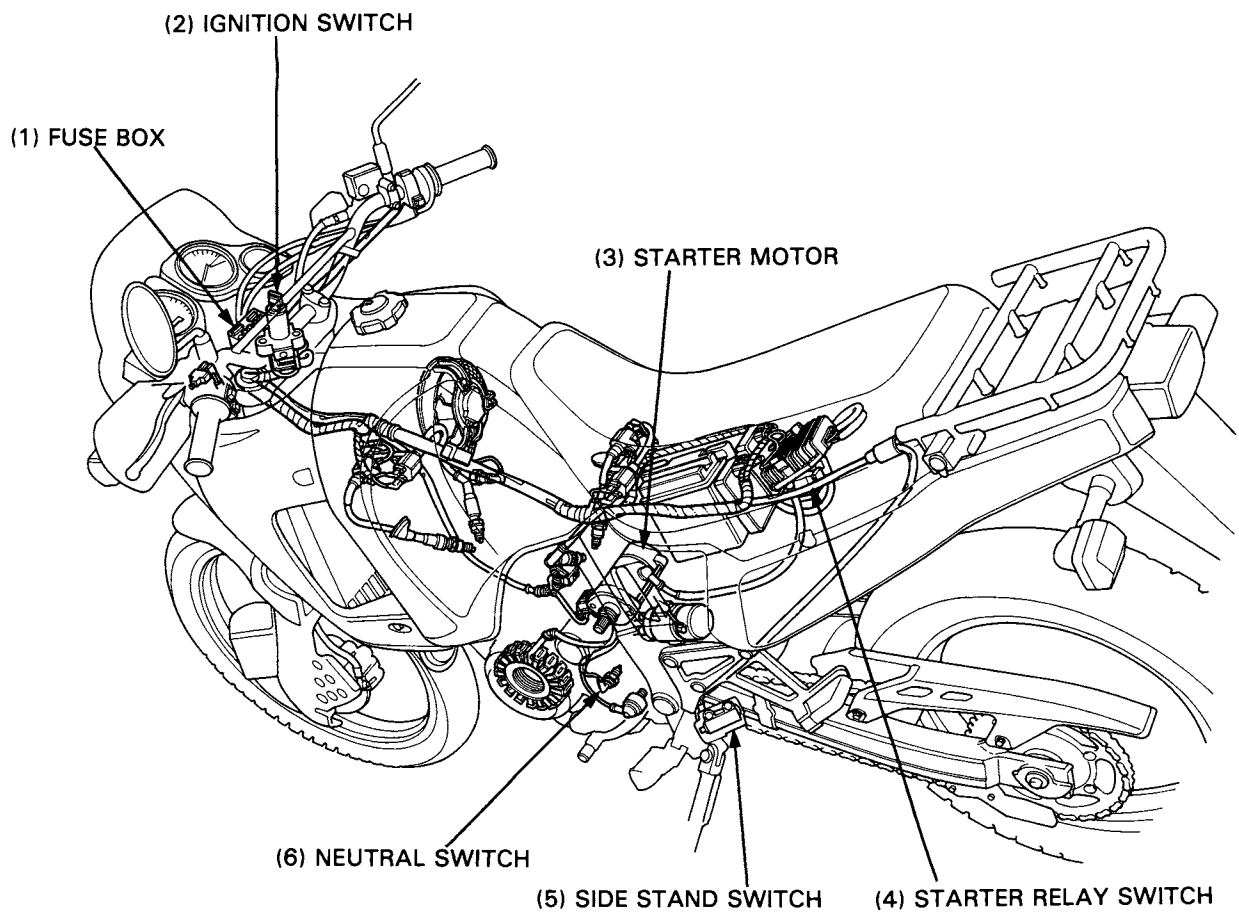
ELEKTRISCHER ANLASSER

DEMARREUR ELECTRIQUE

- (1) BOITE A FUSIBLES
- (2) CONTACTEUR D'ALLUMAGE
- (3) DEMARREUR
- (4) CONTACTEUR DE RELAIS DE DEMARREUR
- (5) CONTACTEUR DE BEQUILLE LATERALE
- (6) CONTACTEUR DE POINT MORT
- (7) FUSIBLE PRINCIPAL
- (8) CONTACTEUR D'EMBRAYAGE
- (9) DIODE DE BEQUILLE LATERALE
- (10) BATTERIE
- (11) DIODE D'EMBRAYAGE
- (12) FUSIBLE 15A
- (13) CONTACTEUR DE DEMARREUR

ELEKTRISCHER ANLASSER

- (1) SICHERUNGSKASTEN
- (2) ZÜNDSCHALTER
- (3) ANLASSER
- (4) ANLASSERRELAISSCHALTER
- (5) SEITENSTÄNDERSCHALTER
- (6) LEERLAUFSCHALTER
- (7) HAUPTSICHERUNG
- (8) KUPPLUNGSSCHALTER
- (9) SEITENSTÄNDERDIODE
- (10) BATTERIE
- (11) KUPPLUNGSDIODE
- (12) SICHERUNG 15 A
- (13) ANLASSERSCHALTER



ELECTRIC STARTER

SERVICE INFORMATION	18-1	STARTER RELAY SWITCH	18-6
TROUBLESHOOTING	18-2	CLUTCH DIODE	18-7
STARTER MOTOR	18-3		

SERVICE INFORMATION

GENERAL

- The starter motor can be removed with the engine in the frame.

SPECIFICATIONS

Unit: mm (in)

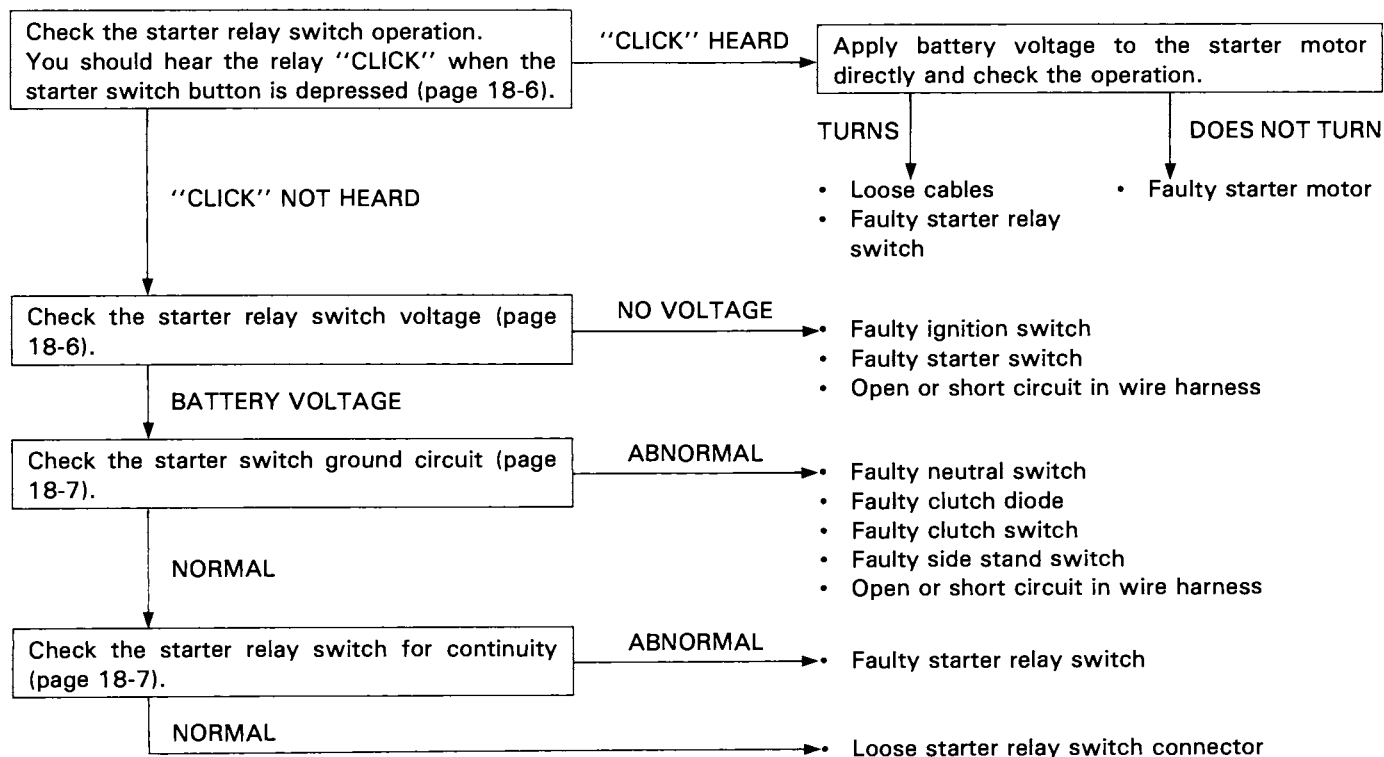
ITEM	STANDARD	SERVICE LIMIT
Starter motor brush length	12.0–13.0 (0.47–0.51)	6.5 (0.26)

TROUBLESHOOTING

NOTE

- The starter motor should turn when the transmission is in neutral, and when the clutch is disengaged and the side stand is retracted.
- Check for the following before troubleshooting the system.
 - Blown main (30 A) or sub (15 A) fuse.
 - Loose battery and starter motor cables.
 - Discharged battery.

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
- Faulty starter motor gears

Starter motor and engine turns, but engine does not start

- Faulty ignition system
- Engine problems
 - Low compression
 - Fouled spark plugs

STARTER MOTOR

REMOVAL

⚠ WARNING

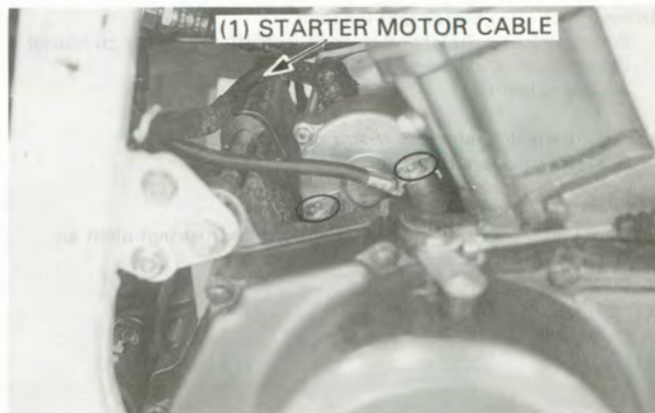
- *With the ignition switch OFF, remove the negative cable at the battery before servicing the starter motor.*

Remove the muffler (page 12-3).

Remove the rubber cap and disconnect the starter motor cable.

Remove the motor mounting bolts.

Remove the motor from the right side.



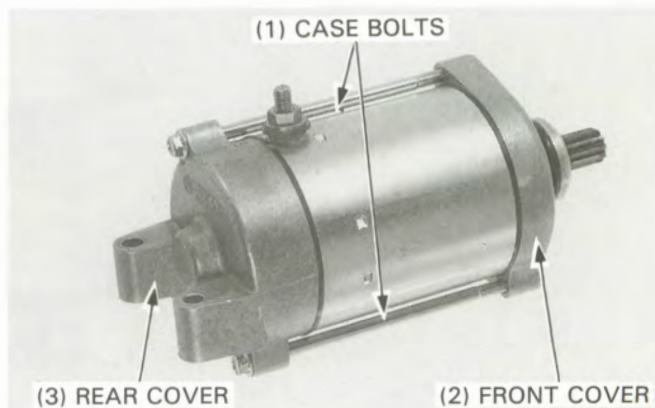
DISASSEMBLY

Remove the following components:

- motor case bolts.
- front and rear covers.
- armature.

NOTE

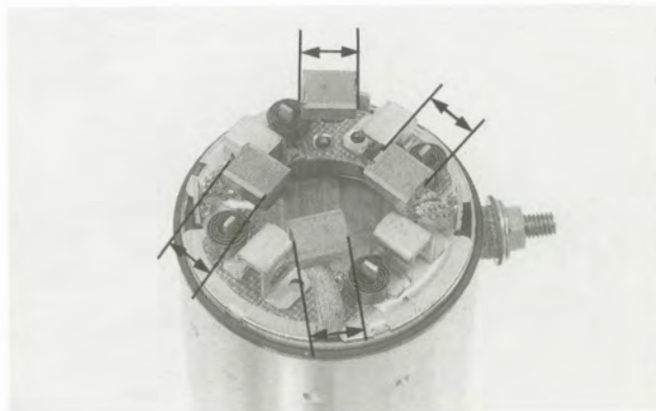
- Record the location and number of shims.



INSPECTION

Measure each brush length.

SERVICE LIMIT: 6.5 mm (0.26 in)

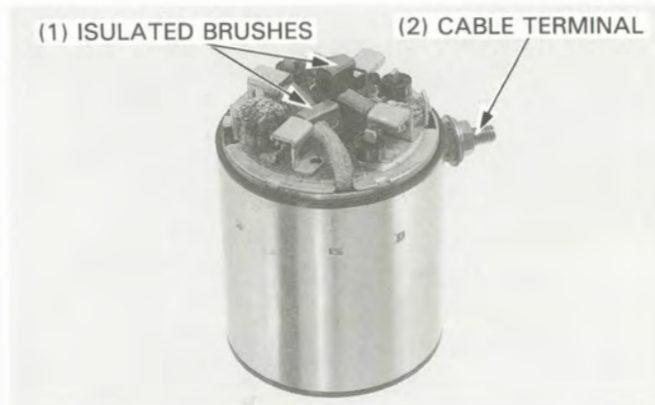


Check for continuity from the cable terminal to the motor case and from the cable terminal to the brush (insulated wire).

CABLE TERMINAL-MOTOR CASE
NO CONTINUITY: NORMAL

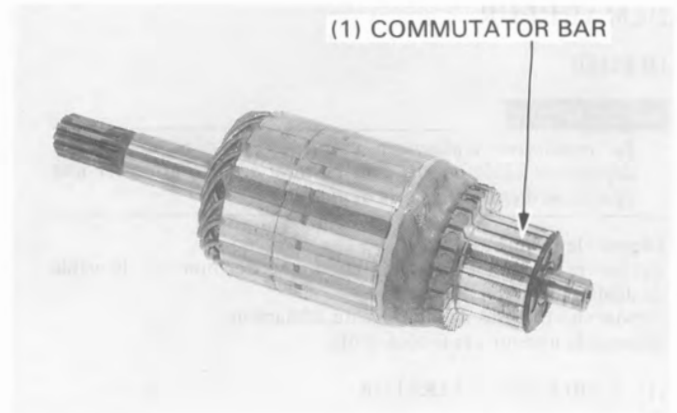
CABLE TERMINAL-BRUSH (INSULATED WIRE)
CONTINUITY: NORMAL

Disassemble the brush holder if necessary.



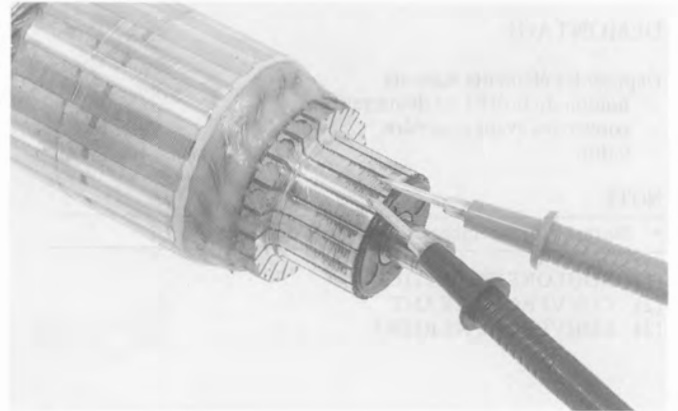
ELECTRIC STARTER

Inspect the commutator bars for discoloration.
Bars discolored in pairs indicate grounded armature coils.



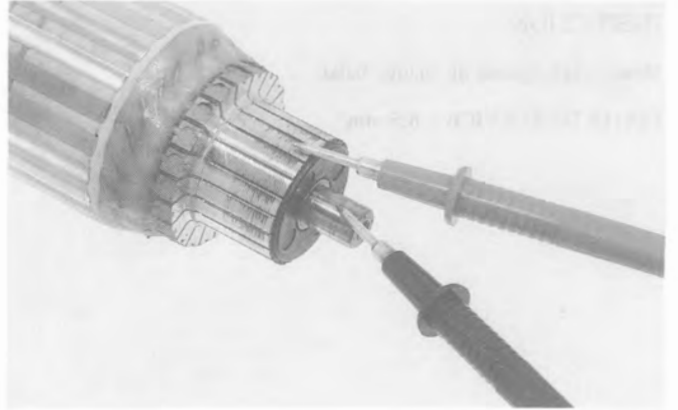
Check for continuity between pairs of commutator bars.

There should be continuity.

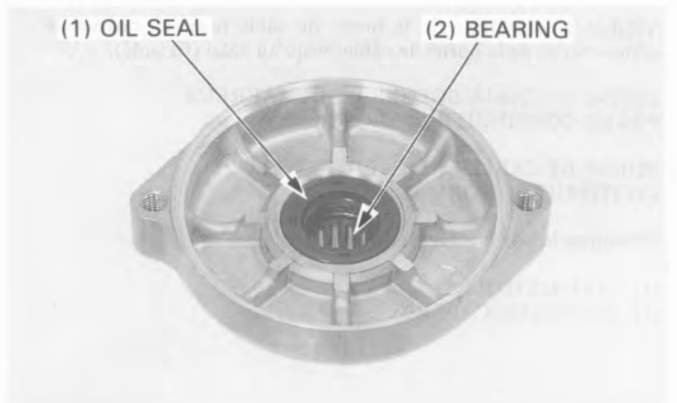


Check for continuity between individual commutator bars and the armature shaft.

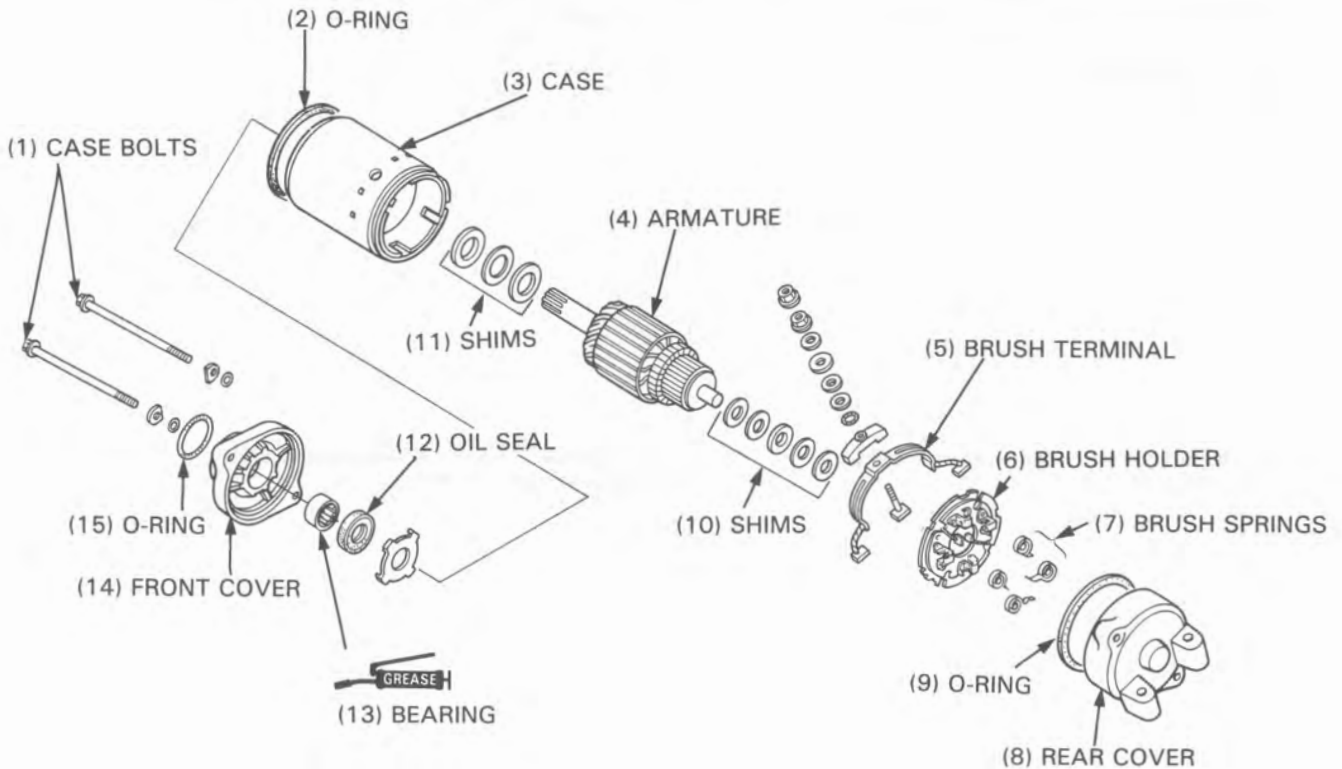
There should be no continuity.



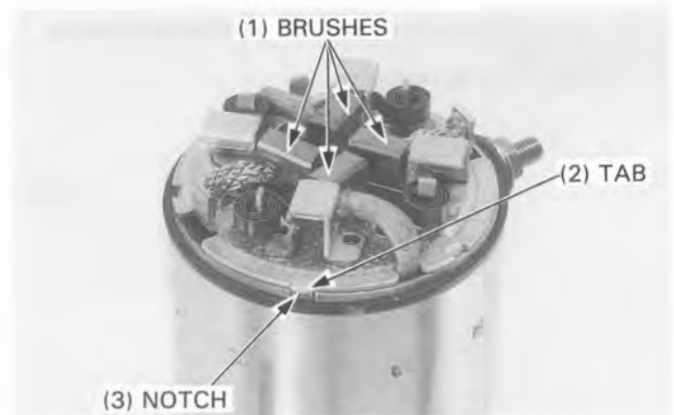
Check the front cover oil seal and bearing for wear or fatigue.



ELECTRIC STARTER

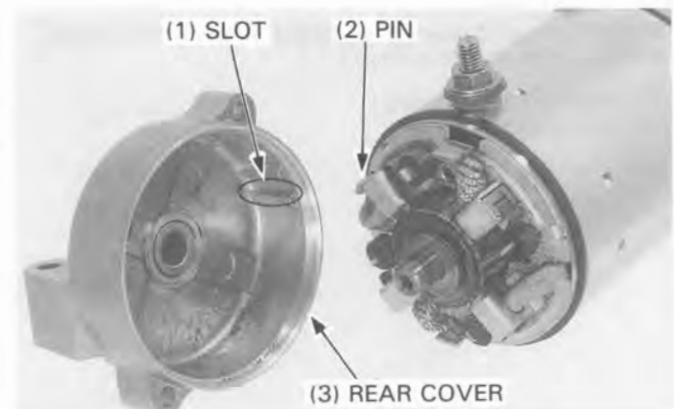


Set the brushes on the brush holder.
Align the starter motor case notch with the brush holder tab.



Install the armature in the case.
Set the brush springs.

Install the rear shims in the same location and number as before disassembly.
Install the O-ring on the case.
Install the rear cover, aligning its slot with the brush holder pin.



ELECTRIC STARTER

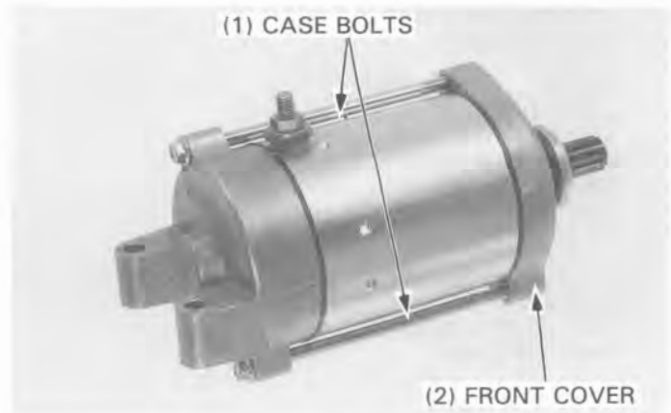
Install the front shims in the same location and number as before disassembly.

Install the O-ring on the case.

Install the lock washer, aligning its tabs with the slots of the front cover.

Apply grease to the dust seal and install the front cover.

Install and tighten the starter motor case bolts and apply oil to the O-ring and install it on the front cover.



INSTALLATION

Install the starter motor in the engine.

Install and tighten the motor mounting bolts securely.

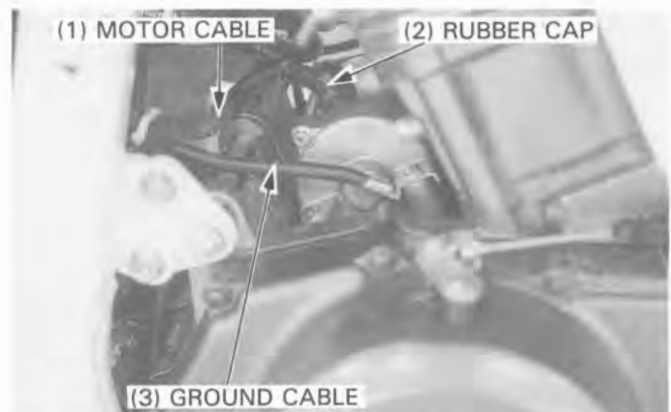
NOTE

- Install the ground cable with one mounting bolt as shown.

Connect the motor cable to the motor terminal and install the rubber cap over the terminal.

Connect the battery negative cable.

Install the muffler (page 12-3).



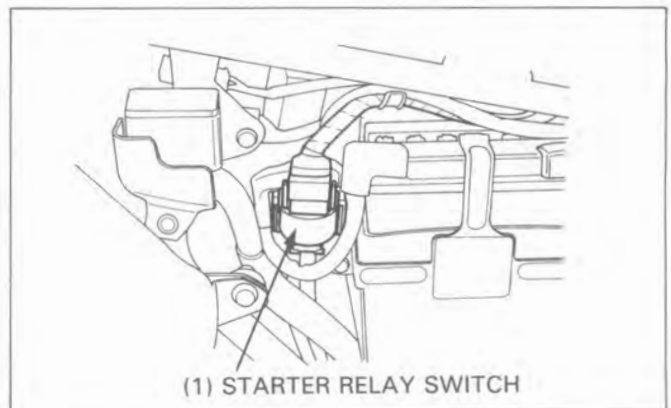
STARTER RELAY SWITCH

OPERATION INSPECTION

Remove the right frame side cover (page 12-2).

Depress the starter switch button with the ignition switch ON.

The coil is normal if the starter relay switch clicks.



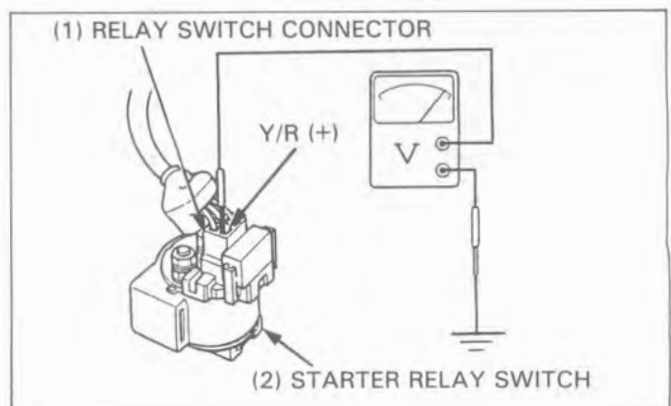
VOLTAGE INSPECTION

If you don't hear the switch "CLICK", disconnect the switch connector.

Turn the ignition switch ON.

Measure the voltage between the Yellow/Red wire of the connector and engine ground as you press the starter switch.

There should be battery voltage.

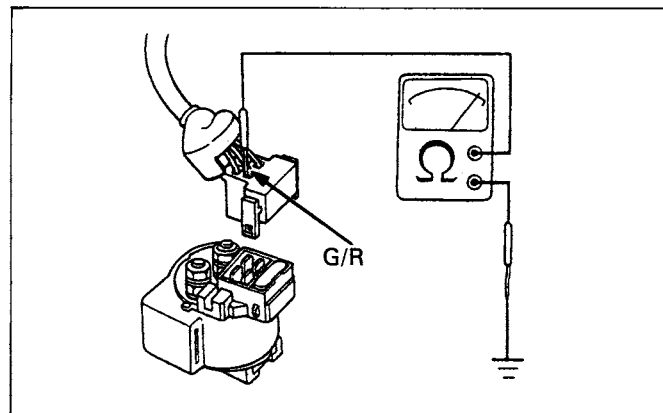


ELECTRIC STARTER

GROUND CIRCUIT INSPECTION

Disconnect the connector from the starter relay switch and check for continuity between the Green/Red wire of the connector and engine ground.

There should be continuity when the transmission is in neutral, and when the clutch lever is squeezed and the side stand is retracted.



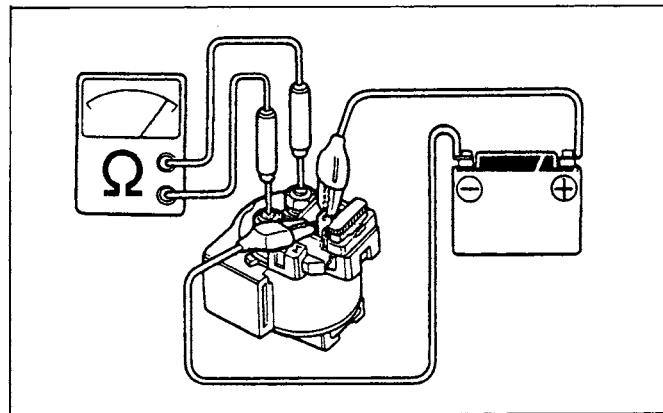
CONTINUITY INSPECTION

Remove the starter relay switch.

Connect an ohmmeter to the switch large terminals.

Connect a fully charged 12 V battery positive wire to the starter relay switch Yellow/Red wire terminal, and the battery negative wire to the Green/Red wire terminal.

There should be continuity while the battery is connected to the terminals, and no continuity when the battery is disconnected.



CLUTCH DIODE

Remove the upper cowl (page 12-2).

Disconnect the fuse box 6-P connector.

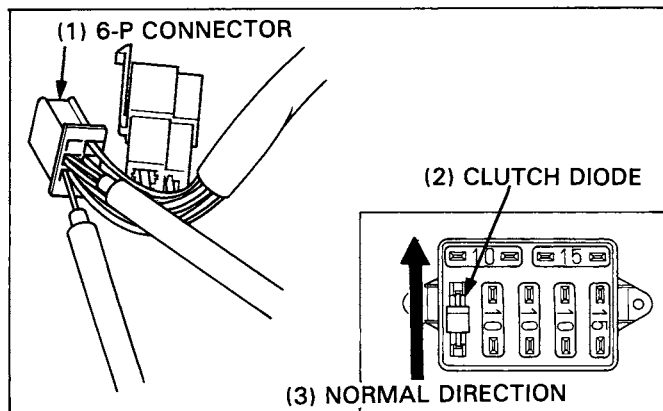
Check the clutch diode function at the fuse box connector.

Connect the positive probe to the Light green/Red wire and the negative probe to the Green/Red wire of the connector.

There should be continuity, then with the probes reversed, there should be no continuity.

NOTE

- The test results shown above are for a positive ground ohmmeter and the opposite results will be obtained when a negative ground ohmmeter is used.



LIGHTS/INSTRUMENTS/SWITCHES

FEUX/INSTRUMENTS/COMMODOES

**BELEUCHTUNG/ANZEIGEINSTRUMENTE/
SCHALTER**

SERVICE INFORMATION	19-1	THERMOSTATIC SWITCH	19-9
TROUBLESHOOTING	19-2	FUEL PUMP	19-10
BULB REPLACEMENT	19-3	FUEL RESERVE SENSOR/ WARNING LIGHT CHECKER	19-10
HEADLIGHT	19-4	TACHOMETER	19-11
INSTRUMENTS	19-5	NEUTRAL SWITCH	19-12
IGNITION SWITCH	19-5	BRAKE LIGHT SWITCH	19-12
HANDLEBAR SWITCH	19-6	CLUTCH SWITCH	19-12
OIL PRESSURE SWITCH	19-7	HORN	19-13
TEMPERATURE GAUGE/SENSOR	19-8		

SERVICE INFORMATION

GENERAL

- Some wires have different colored bands around them near the connector. These are connected to other wires which correspond to the band color.
- All plastic connectors have locking tabs that must be released before disconnecting, and must be aligned when reconnecting.
- To isolate an electrical failure, check the continuity of the electrical path through the part. A continuity check can usually be made without removing the part from the motorcycle. Simply disconnect the wires and connect a continuity tester or volt-ohmmeter to the terminals or connections.
- A continuity tester is useful when checking to find out whether or not there is an electrical connection between the two points. An ohmmeter is needed to measure the resistance of a circuit, such as when there is a specific coil resistance involved, or when checking for high resistance caused by corroded connections.

SPECIFICATIONS

Headlight	12 V 35 W/35 W F type: 12 V 36 W/36 W x 2 SW type: 12 V 60 W/55 W
Position light	12 V 4 W SW type: 12 V 4 W x 2
Turn signal light	12 V 21 W x 4
Tail/brake light	12 V 5 W/21 W
Instrument light	12 V 1.7 W x 4
Neutral indicator	12 V 3.4 W
High beam indicator	12 V 1.7 W
Turn signal indicator	12 V 3.4 W x 2
Oil pressure warning light	12 V 3.4 W
Fuel reserve warning light	12 V 3.4 W x 2
Side stand indicator	12 V 3.4 W

WARTUNGSMITTELS	19-1	WARTUNGSMITTELS	19-9
STÖRUNGSBESEITIGUNG	19-2	KRAFTSTOFFPUMPE	19-10
ERSETZEN DER BIRNEN	19-3	KRAFTSTOFFRESERVE-SENSOR/ WARNINDIKATOR	19-10
SCHEINWERFER	19-4	DREHZAHLMESSER	19-11
INSTRUMENTE	19-5	LEERLAUFSCHALTER	19-12
ZÜNDSCHALTER	19-5	BREMSLEUCHTENSCHALTER	19-12
LENKERSCHALTER	19-6	KUPPLUNGSSCHALTER	19-12
ÖLDRUCKSCHALTER	19-7	HUPE	19-13
TEMPERATURANZEIGE/SENSOR	19-8		

WARTUNGSMITTELS

ALLGEMEINES

- Einige Kabel sind im Bereich des Steckers mit andersfarbigen Bändern versehen. Diese Kabel sind mit anderen Kabel der gleichen Farbmarkierung zu verbinden.
- Alle Plastikstecker sind mit Laschen versehen, die vor dem Abziehen der Stecker ausgerastet und beim Wiederanschießen ausgerichtet werden müssen.
- Um eine Fehlfunktion der elektrischen Anlage zu lokalisieren, den Stromdurchgang durch das betreffende Teil prüfen. Diese Stromdurchgangsprüfung kann meist durchgeführt werden, ohne daß das betreffende Teil aus dem Motorrad ausgebaut werden muß. Dazu sind einfach die Kabel abzuklemmen und einen Stromdurchgangsprüfer oder Volt/Ohmmeter an den entsprechenden Klemmen oder Anschlüssen anzuschließen.
- Ein Stromdurchgangsprüfer dient dazu, einen Stromdurchgang zwischen zwei Punkten zu bestätigen. Ein Ohmmeter wird benötigt, um den Widerstand in einem Schaltkreis zu messen, zum Beispiel wenn ein bestimmter Spulenwiderstand vorgeschrieben ist, oder um einen hohen Widerstand festzustellen, der durch korrodierte Anschlüsse verursacht wird.

TECHNISCHE DATEN

Scheinwerfer	12V 35W/35W
Modell F:	12V 36W/36W x 2
Modell SW:	12V 60W/55W
Positionslampe	12V 4W
Modell SW:	12V 4W x 2
Blinklampe	12V 21W x 4
Schluß/Bremslampe	12V 5W/21W
Armaturenbeleuchtung	12V 1,7W x 4
Leerlaufanzeige	12V 3,4W
Fernlichtanzeige	12V 1,7W
Blinkleuchtenanzeige	12V 3,4W x 2
Öldruckwarnlampe	12V 3,4W
Kraftstoffreserve-Warnlampe	12V 3,4W x 2
Seitenständer-Warnlampe	12V 3,4W

TROUBLESHOOTING

No lights come on when ignition switch is turned ON:

- Bulb as fault or burned out
- Faulty switch
- Wiring to that component has open circuit
- Fuse blown
- Wiring loose, broken, or at fault
- Battery dead or disconnected

Headlight beam does not shift when HI-LO switch is operated:

- Beam filament burned out
- Faulty dimmer switch

All lights come on, but dimly, when ignition switch is turned ON:

- Battery voltage low
- Wiring or switch has excessive resistance

BULB REPLACEMENT

HEADLIGHT

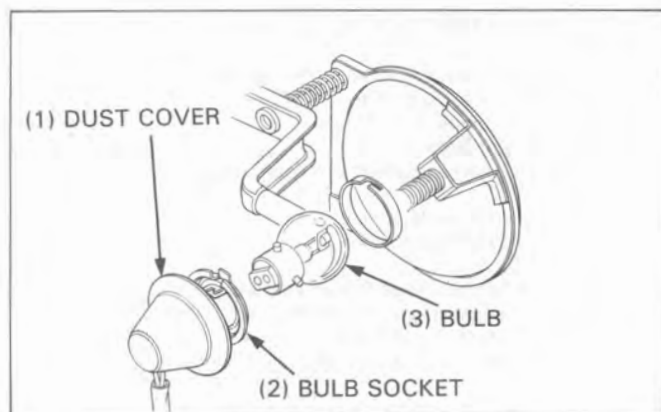
Remove the side cowls (page 12-2).

Except SW type

Remove the dust cover from the headlight bulb socket.

Remove the socket from the headlight by turning it counterclockwise.

Remove the bulb from the socket by turning it counterclockwise while pushing it in.



SW type

Disconnect the headlight connector and remove the dust cover.

Release the retainer clip.

Remove the headlight bulb and replace it with a new one.

CAUTION

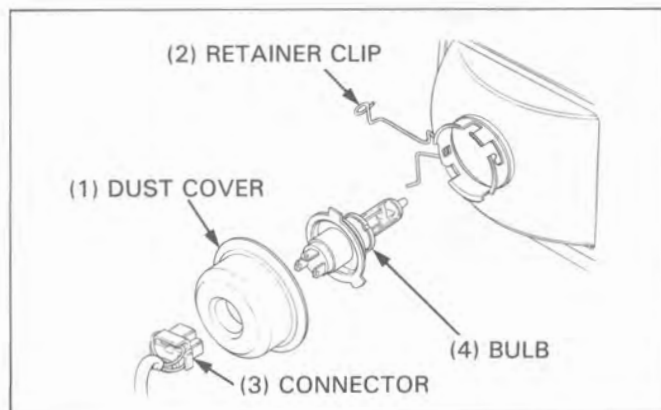
- *Wear glove when installing the halogen bulb. If you touch the bulb with your bare hands, clean it with a cloth moistened with alcohol to prevent its early failure.*

Install the bulb, aligning its tabs with case slots.

Install the retainer clip.

Install the dust cover with its TOP mark facing up.

Install a new bulb in the reverse order of removal.



TAIL/BRAKE LIGHT

Remove the tail/brake light lens.

Remove the bulb by turning it counterclockwise while pushing it in.

Install a new bulb in the reverse order of removal.

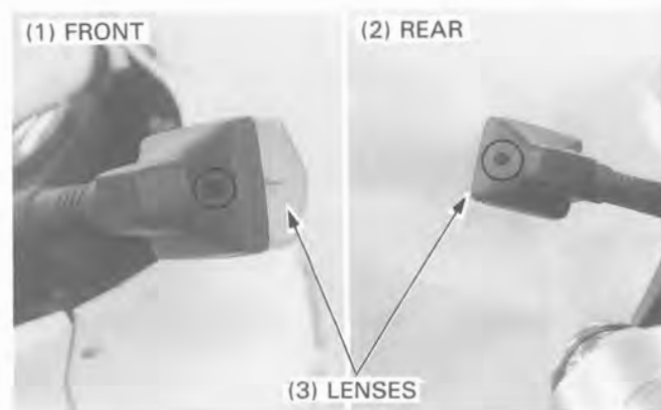


TURN SIGNAL LIGHT

Remove the turn signal light lens.

Remove the bulb by turning it counterclockwise while pushing it in.

Install a new bulb in the reverse order of removal.



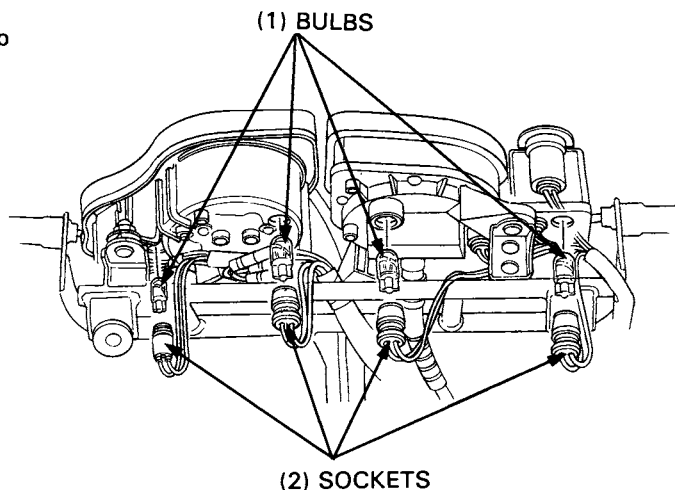
LIGHTS/INSTRUMENTS/SWITCHES

INSTRUMENT, INDICATOR AND WARNING LIGHT

Remove the instrument mounting nuts and lift the instruments up.

Pull the bulb socket out of the instrument and remove the bulb from the socket.

Install a new bulb in the reverse order of removal.



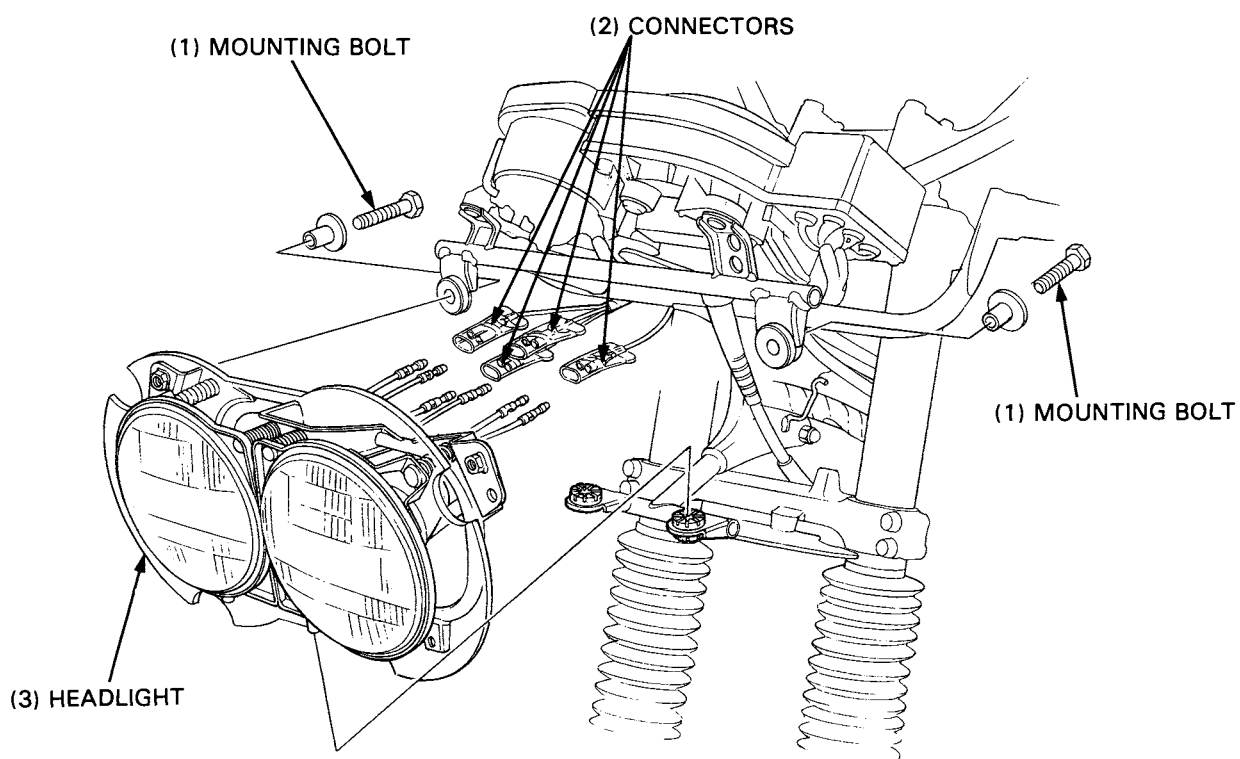
HEADLIGHT

REMOVAL/INSTALLATION

Remove the upper cowl (page 12-2).

Remove the two headlight mounting bolts and the headlight from the stay.

Disconnect the headlight and position light connectors and remove the headlight.



Install the headlight in the reverse order of removal.

INSTRUMENTS

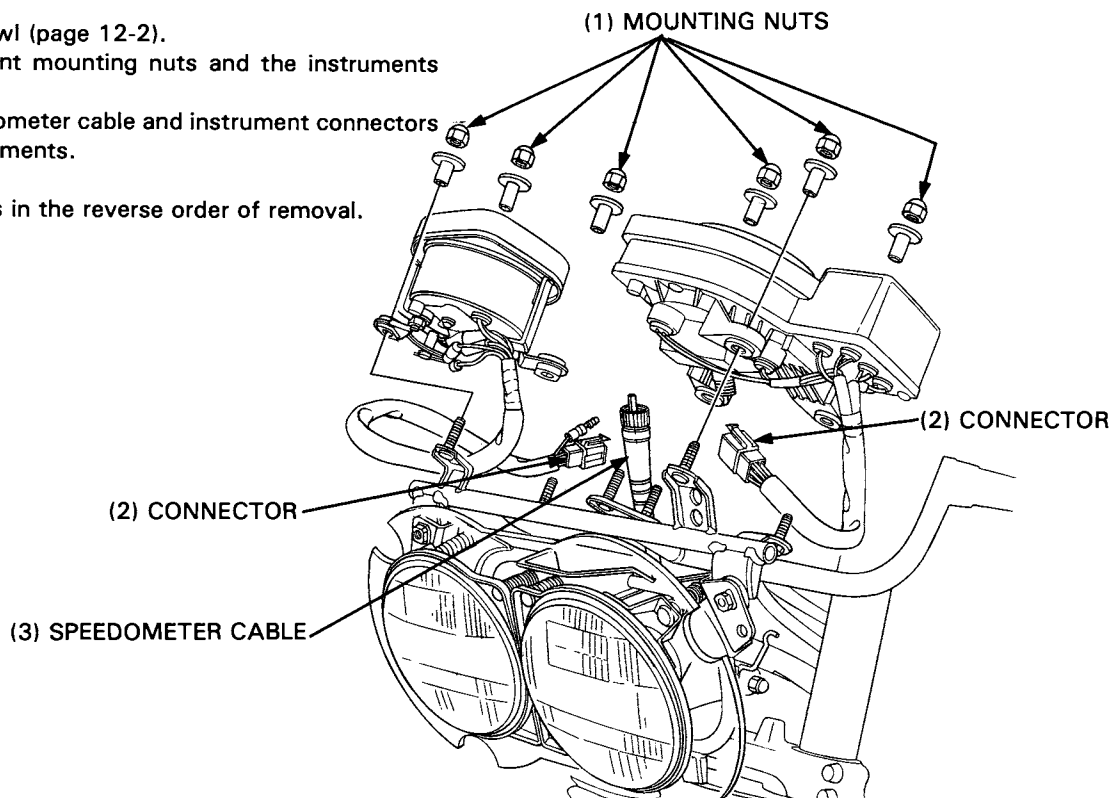
REMOVAL/INSTALLATION

Remove the upper cowl (page 12-2).

Remove the instrument mounting nuts and the instruments from the bracket.

Disconnect the speedometer cable and instrument connectors and remove the instruments.

Install the instruments in the reverse order of removal.



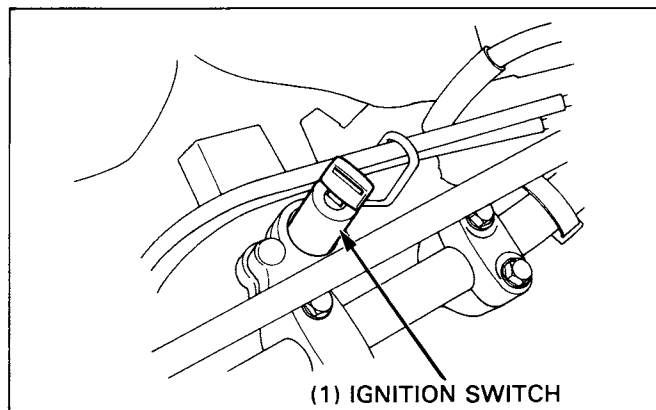
IGNITION SWITCH

Remove the upper cowl (page 12-2).

Disconnect the ignition switch 4-P connector.

Check for continuity between the ignition switch coupler terminals in each switch position.

Continuity should exist between the color coded wires in each chart below.



Except AR type

TERMINAL	BAT1	BAT2	FAN
ON	○	○	○
OFF			
LOCK			
COLOR	R	R/BI	Bu/O

AR type

TERMINAL	BAT1	BAT2	FAN	PA
ON	○	○	○	
OFF				
P	○			○
LOCK				
COLOR	R	R/BI	Bu/O	Y/BI

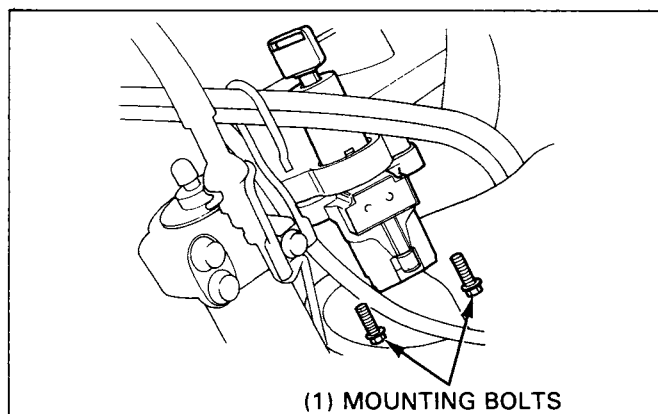
LIGHTS/INSTRUMENTS/SWITCHES

REMOVAL

Remove the upper cowl (page 12-2).

Disconnect the ignition switch 4-P connector.

Remove the two ignition switch mounting bolts and ignition switch.



Remove the wire clamp.

Remove the three screws, push the lugs in the slots and pull the contact base out of the cylinder.

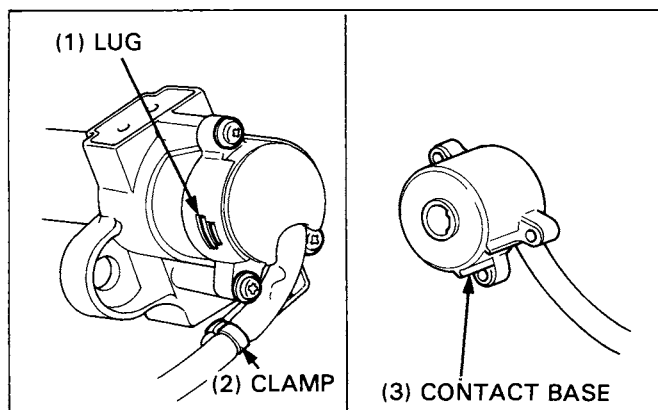
INSTALLATION

Install the ignition switch in the reverse order of removal.

NOTE

- Be sure to use a new wire clamp.

After installation, check the ignition switch operation.



HANDLEBAR SWITCH

Remove the upper cowl (page 12-2).

Disconnect the 6P mini coupler of the starter/engine stop switches.

Disconnect the 9P mini coupler of the lighting/dimmer/turn signal/horn/passing switches.

Continuity checks for the components of the handlebar cluster switches are as follows.

Continuity should exist between the color coded wires in each chart below.

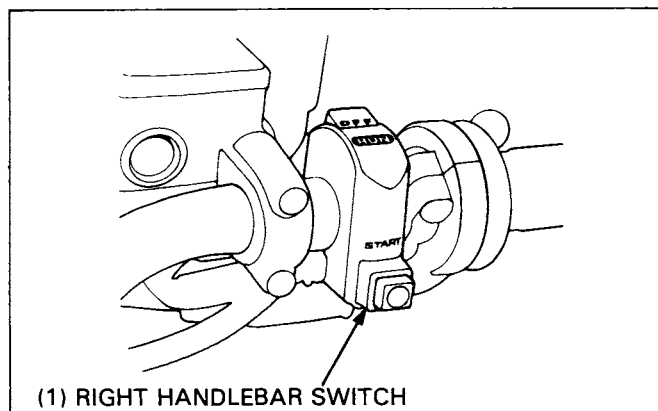
<RIGHT HANDLEBAR SWITCH>

STARTER SWITCH

TERMINAL	BAT4	ST
FREE		
PUSH	○	○
COLOR	BI	Y/R

ENGINE STOP SWITCH

TERMINAL	BAT3	IG
OFF		
RUN	○	○
COLOR	BI/R	BI/W

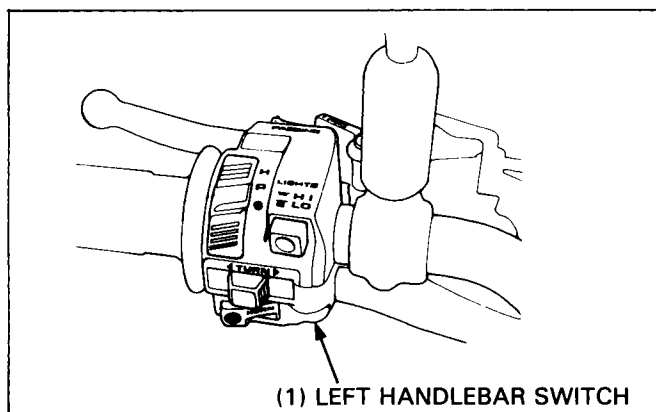


LIGHTS/INSTRUMENTS/SWITCHES

<LEFT HANDLEBAR SWITCH>

LIGHTING SWITCH

TERMINAL	BAT6	TL	HL	BAT5
•				
P	○	○		
(N)	○	○		
HL	○	○	○	○
COLOR	Bl	Br AR: Br/W	•	W/G



DIMMER SWITCH

TERMINAL	HL	Lo	Hi
Lo	○	○	
(N)	○	○	○
Hi	○		○
COLOR	•	W	Bu

TURN SIGNAL SWITCH

TERMINAL	W	R	L
R	○	○	
N			
L	○		○
COLOR	Gr	Lb	O

HORN SWITCH

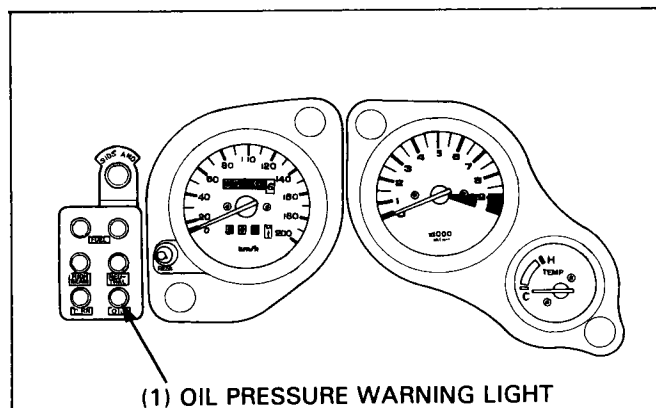
TERMINAL	Ho1	BAT6
FREE		
PUSH	○	○
COLOR	Lg	Bl

PASSING SWITCH

TERMINAL	BAT5	Hi
FREE		
PUSH	○	○
COLOR	W/G	Bu

OIL PRESSURE SWITCH

Make sure that the oil pressure warning light comes on with the ignition switch "ON".



LIGHTS/INSTRUMENTS/SWITCHES

If the light does not come on, inspect as follow:

Remove the drive sprocket cover.

Disconnect the oil pressure switch wire from the switch by removing the terminal screw.

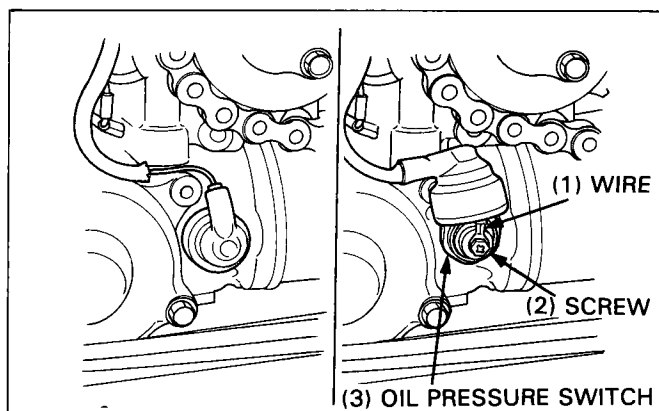
Short it to ground using a jumper wire. Turn the ignition switch "ON".

The oil pressure warning light should come on.

If the light does not come on, check the bulb, fuse (15 A) and wires for a loose connection or an open circuit.

Start the engine and make sure that the light goes out. If the light does not go out, check the oil pressure (page 2-4).

If the oil pressure is normal, replace the oil pressure switch with a new one (page 2-4).



TEMPERATURE GAUGE/SENSOR

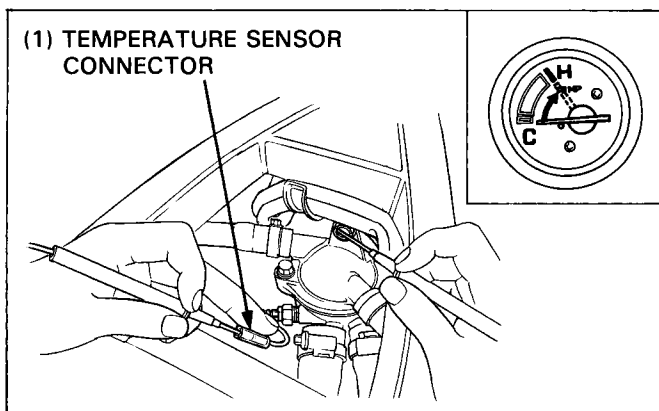
Remove the fuel tank (page 4-3).

TEMPERATURE GAUGE

Disconnect the temperature sensor wire from the sensor and short it to ground with a jumper wire.

Turn the ignition switch ON.

The temperature gauge pointer should move all the way to high (H).



CAUTION

- Do not leave the temperature sensor wire grounded for longer than 5 seconds with the ignition switch turned ON, or the gauge will be damaged.

If the gauge does not move, check for loose connections or open circuits. If normal, replace the gauge.

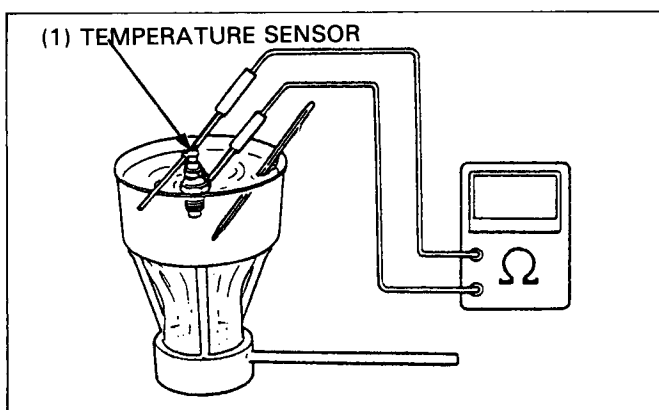
TEMPERATURE SENSOR

Drain the cooling system (page 5-3).

Disconnect the temperature sensor wire and remove the sensor from the thermostat housing.

Suspend the sensor in a pan of coolant (50—50 mixture) over a heater and measure the resistance through the sensor as the coolant heats up.

Temperature (°C/°F)	50/122	80/176	120/248
Resistance (Ω)	130—180	45—60	10—20



⚠ WARNING

- *Wear gloves and eye protection.*

NOTE

- Coolant must be used as the heated liquid to check the function above 100°C (212°F).
- You will get false readings if either the sensor or thermometer touches the pan.

Replace the sensor if it is out of specification by more than 10% at either temperature.

THERMOSTATIC SWITCH

The cooling fan motor is actuated by the thermostatic switch located in the bottom of the radiator.

If the fan motor does not start, disconnect the Black/Blue lead from the thermostatic switch and ground it with a jumper wire. Turn the ignition switch ON. The cooling fan motor should start running. If it does not start, check for battery voltage from the Black/Blue lead of the fan motor connector and ground with ignition switch ON.

If there is no voltage, check for a blown fuse, loose terminals or connectors, or an open circuit.

If there is voltage, inspect the thermostatic switch as follows: Remove the switch.

Connect one lead of an ohmmeter to the connector of the thermostatic switch and the other to the body.

Suspend the thermostatic switch in a pan of coolant (50–50 mixture) and check the temperatures at which the switch opens and closes.

Make sure that there is no continuity at room temperature and then gradually raise the coolant temperature. The switch should show continuity (close) at 93°–97°C (199°–207°F).

NOTE

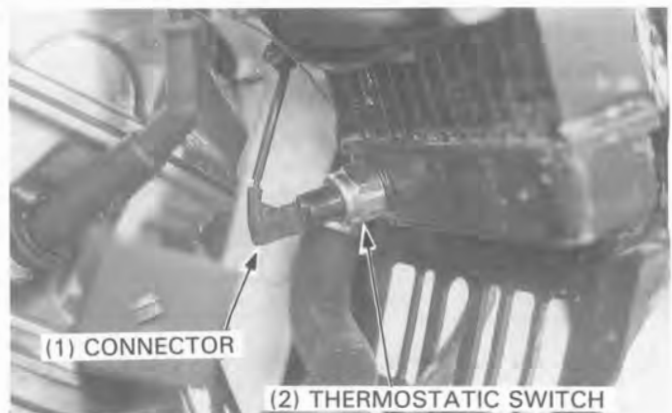
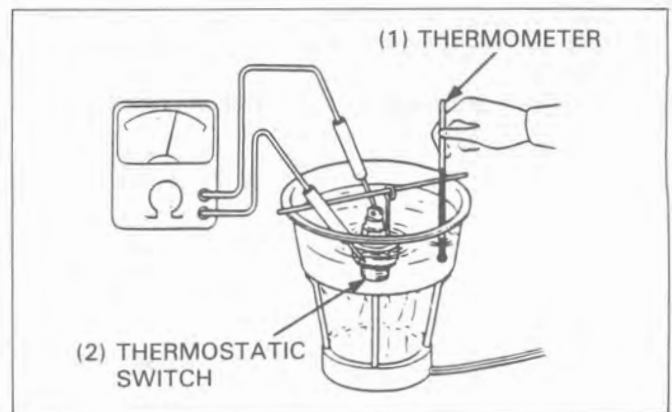
- Keep the temperature constant for 3 minutes to confirm continuity.
A sudden change of temperature will cause error temperature reading between the thermometer and switch.
- Do not let the switch or thermometer touch the pan as it will give a false reading.
- Immerse the switch in coolant up to its threads.

Install a new O-ring on the switch.
Apply sealant to the switch threads and install it.
Tighten the switch to the specified torque.

TORQUE: 18 N·m (1.8 kg-m, 13 ft-lb)

NOTE

- Do not over tighten the switch.



FUEL PUMP

SYSTEM INSPECTION

Remove the fuel tank (page 4-3).

Disconnect the fuel pump 6-P connector.

Measure the voltage between the BI/R (positive) and G (negative) terminals of the harness side connector.

There should be battery voltage with the ignition switch ON. If there is no voltage, check the wire harness for open or short circuit.



(1) FUEL PUMP CONNECTOR

FUNCTIONAL TEST

Turn the ignition switch OFF.

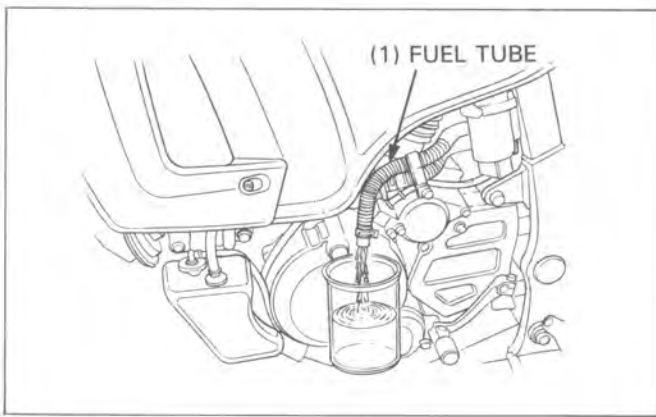
Connect the BI/R and BI wire terminals with a suitable jumper wire.

NOTE

- The BI ends at the connector: its only purpose is for the functional test.

⚠ WARNING

- *Gasoline is extremely flammable and is explosive under certain conditions. Refuel in a well-ventilated area with the engine stopped. Do not smoke or allow flames or sparks in the area where the motorcycle is refueled or where gasoline is stored.*



Disconnect the fuel tube between the fuel pump and carburetor, and hold a graduated beaker under the fuel tube.

Turn the ignition switch ON and let the fuel flow into the beaker for 5 seconds, then turn the ignition switch OFF.

Multiply the amount in the beaker by 12 to determine the fuel pump flow capacity per minute.

FUEL PUMP FLOW CAPACITY:

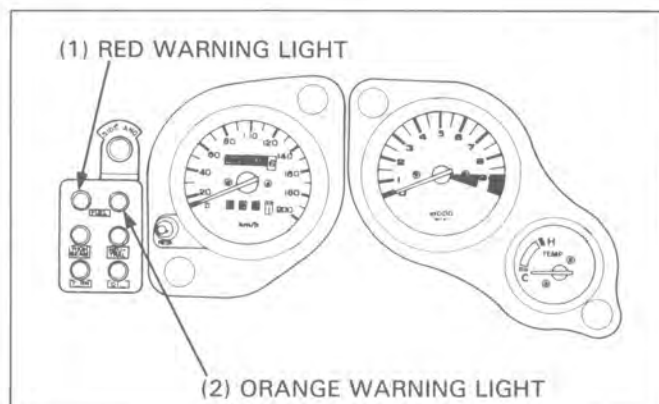
700 cc (0.74 US qt, 0.62 Imp qt)/minute

FUEL RESERVE SENSOR/ WARNING LIGHT CHECKER

WARNING LIGHT CHECKER

Turn the ignition switch ON.

The fuel reserve warning lights should come on and remain on for few seconds, then go off.



(1) RED WARNING LIGHT

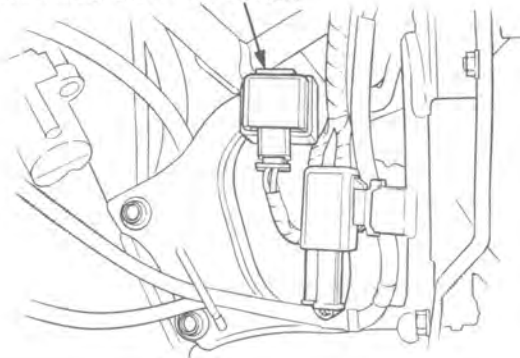
(2) ORANGE WARNING LIGHT

LIGHTS/INSTRUMENTS/SWITCHES

If they do not come on, check the fuel reserve sensor circuit. If the circuit is OK, disconnect the checker connector from the checker and measure the voltage between the BI and G wires of the connector at the wire harness side. There should be battery voltage. If the battery voltage exist, replace the checker.

If no voltage, check the wire harness for an open or short circuit, or loose connection.

(1) WARNING LIGHT CHECKER



RESERVE SENSOR CIRCUIT

Disconnect the warning light checker connector from the checker.

Disconnect the fuel reserve sensor wire 3-P connector and perform the following test at the wire harness side connector.

- Short the O/W and G wires with a jumper wire. The orange fuel reserve warning light should come on.
- Short the Gr/BI and G wires with a jumper wire. The red fuel reserve warning light should come on.

If the warning lights come on, check the fuel reserve sensor wire for an open or short circuit, or loose connectors. If there are no problems, replace the fuel reserve sensors.

If the warning lights do not come on, check the bulb and the wire harness for an open or short circuit, or loose connections.

TACHOMETER

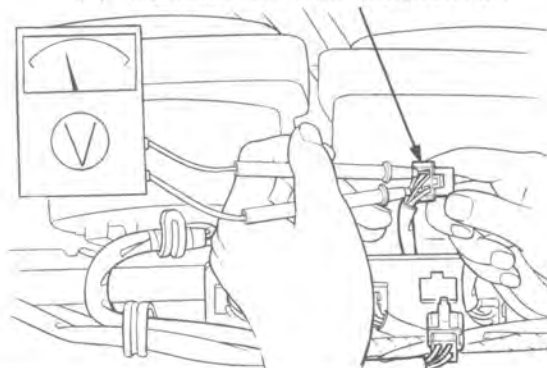
If the tachometer does not work properly, check as follows: Remove the upper cowl (page 12-2).

Disconnect the tachometer wire 4-P connector and check the voltage between the BI (+) and G (–) wires of the connector at the wire harness side.

There should be battery voltage.

If the voltage does not come on, check the fuse (15 A) and wire for a loose connection or an open circuit.

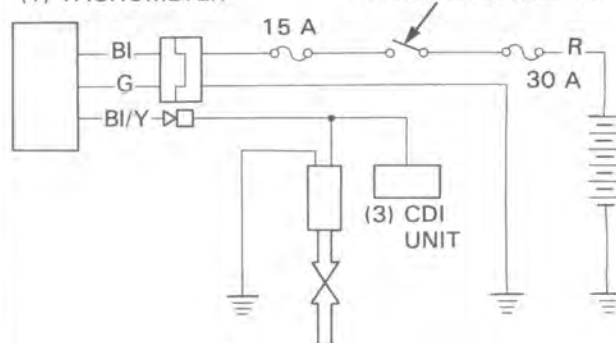
(1) TACHOMETER WIRE CONNECTOR



If there is good condition, check the BI/Y wire for open circuit between the tachometer and CDI unit (REAR).

If the problem still appears, replace the tachometer with a new one (page 19-5).

(1) TACHOMETER (2) IGNITION SWITCH



NEUTRAL SWITCH

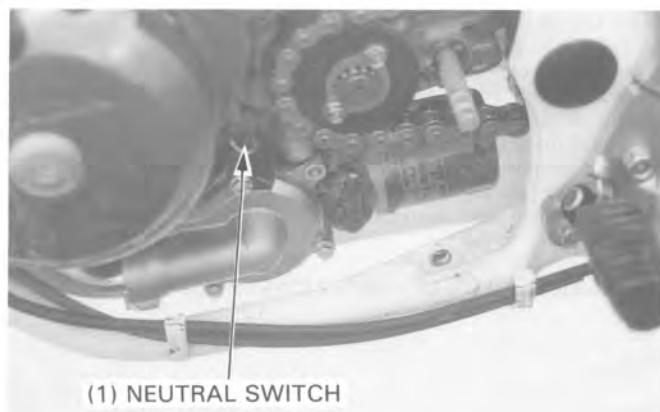
INSPECTION

Remove the skid plate (page 2-3).

Remove the drive sprocket cover, and temporarily install the gearshift pedal.

Check the neutral switch for continuity between the switch terminal and body ground.

There should be continuity when the transmission is in neutral and should be no continuity with the transmission in any gear.



BRAKE LIGHT SWITCH

FRONT INSPECTION

Disconnect the front brake light switch connectors and check for continuity between the switch terminals.

There should be continuity with the front brake applied, and should be no continuity when the brake released.

Replace the switch if necessary.



REAR INSPECTION

Remove the fuel tank (page 4-3).

Disconnect the rear brake light switch coupler and check for continuity between the terminals.

There should be continuity with the rear brake applied and should be no continuity with the rear brake released.

Replace the rear brake light switch, if necessary.



CLUTCH SWITCH

INSPECTION

Disconnect the clutch switch wire connectors.

Check for continuity between the switch terminals.

There should be continuity with the clutch lever applied and should no continuity with the clutch lever released.

Replace the clutch switch with a new one if necessary.

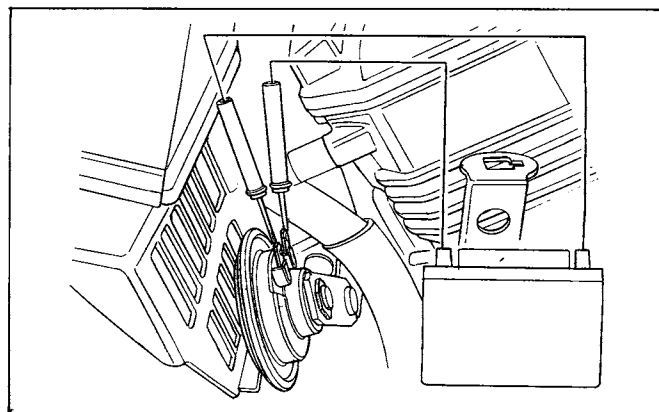


HORN

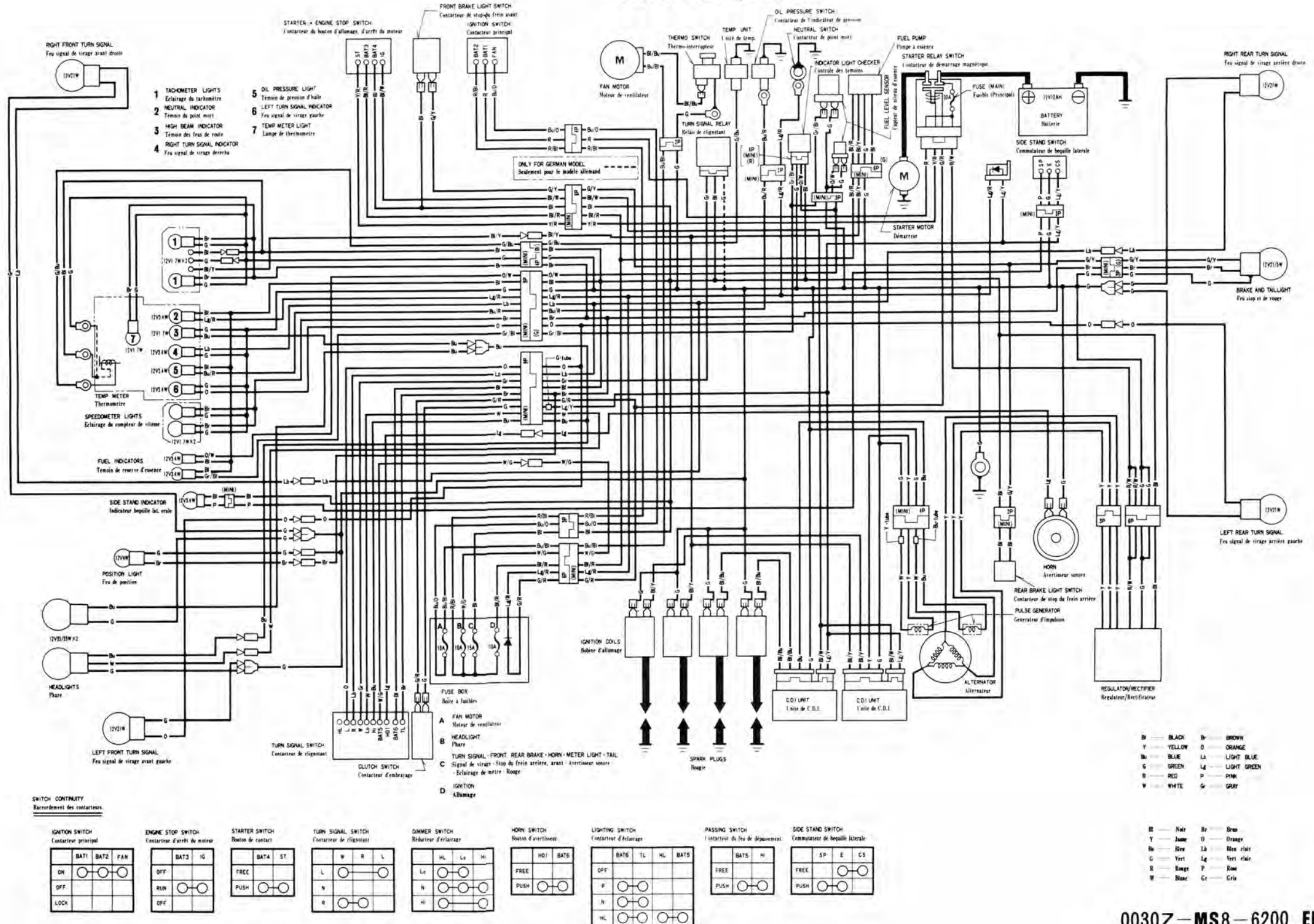
INSPECTION

Disconnect the horn wire connectors and connect a fully charged 12 V battery to the horn terminals.

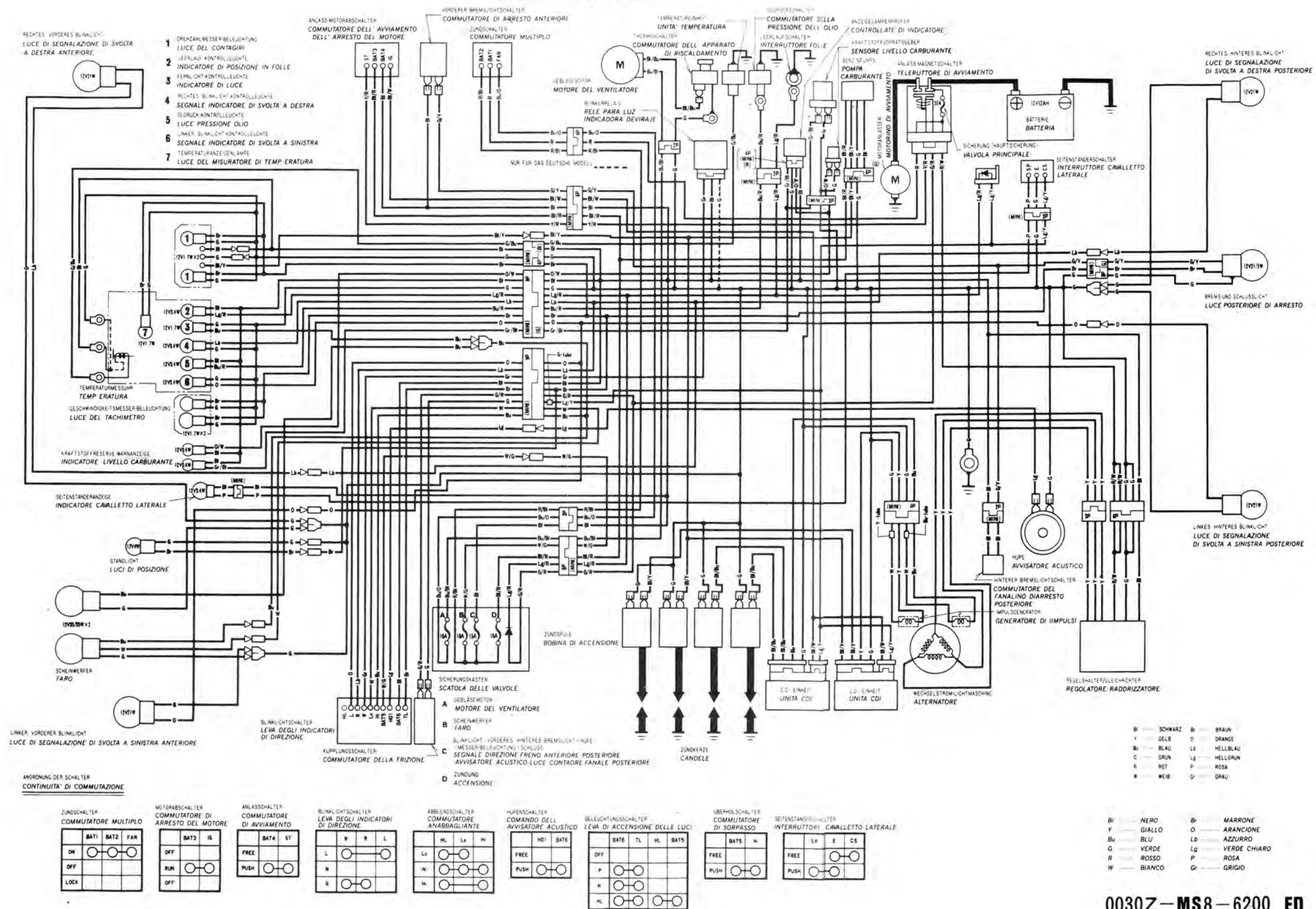
The horn is normal if it sounds when the battery is connected across the terminals.



XRV650 (ED, G)

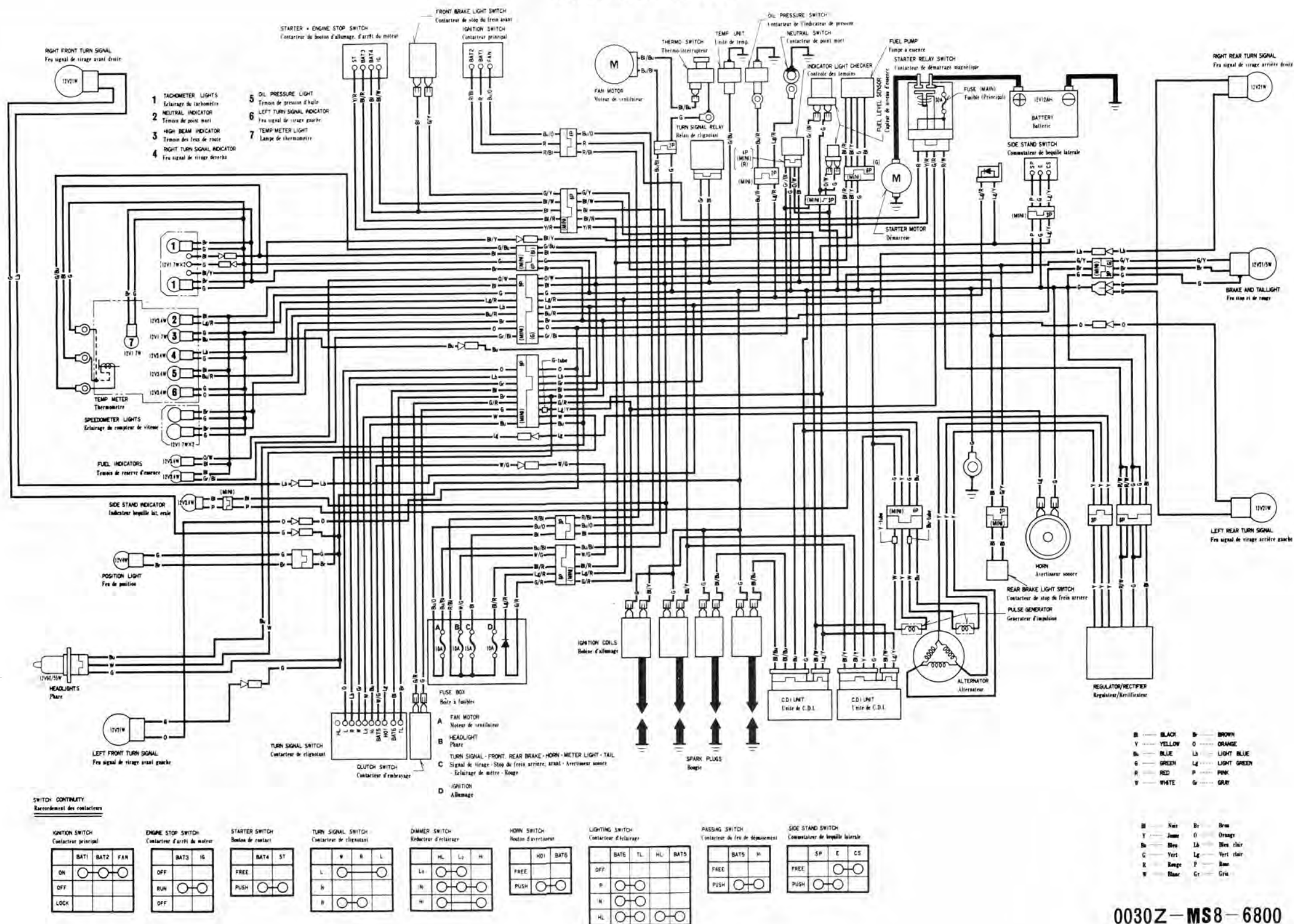


XRV650 (ED, G)



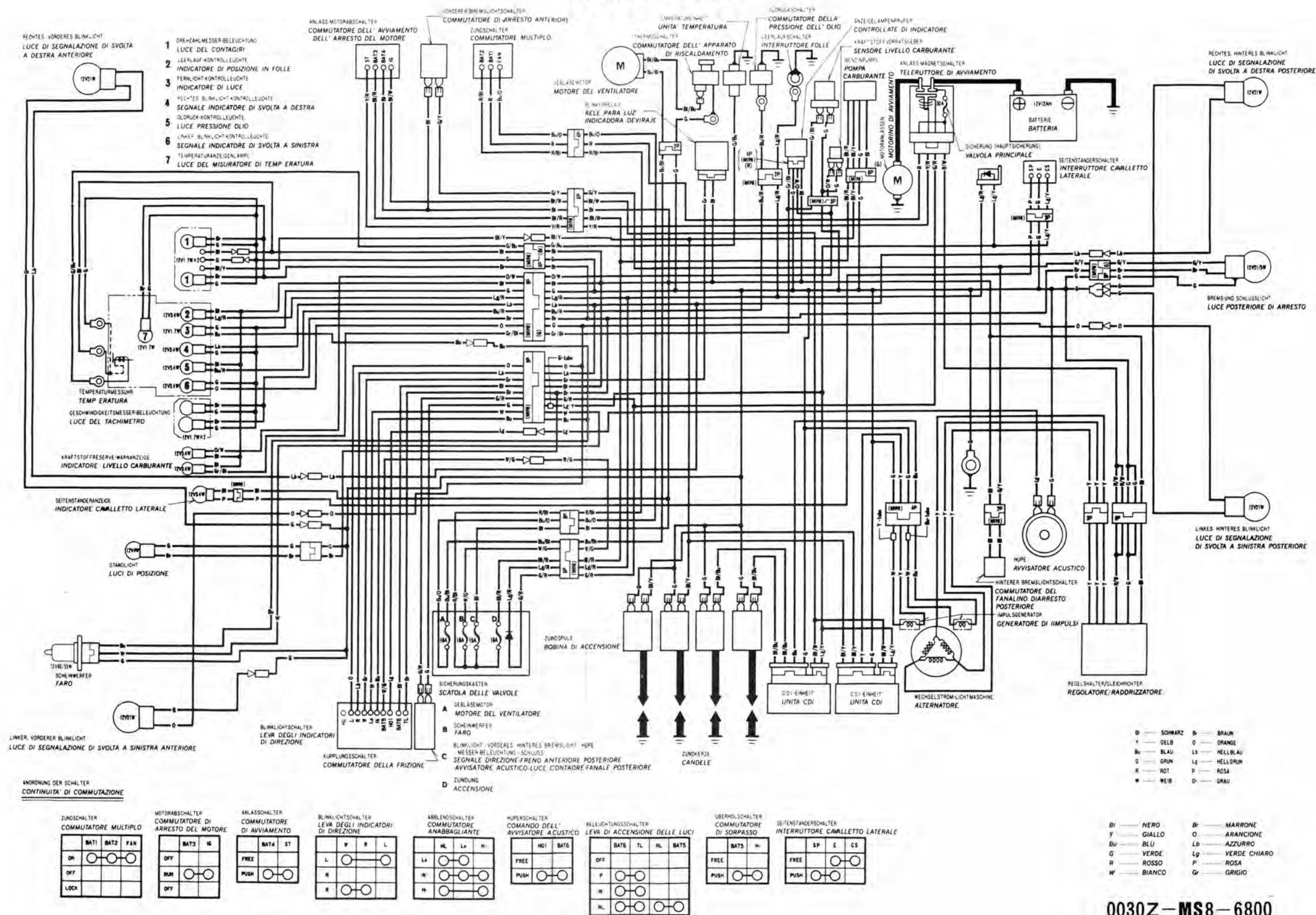
0030Z-MS8-6200 ED
6100 G

XRV650 (SW)



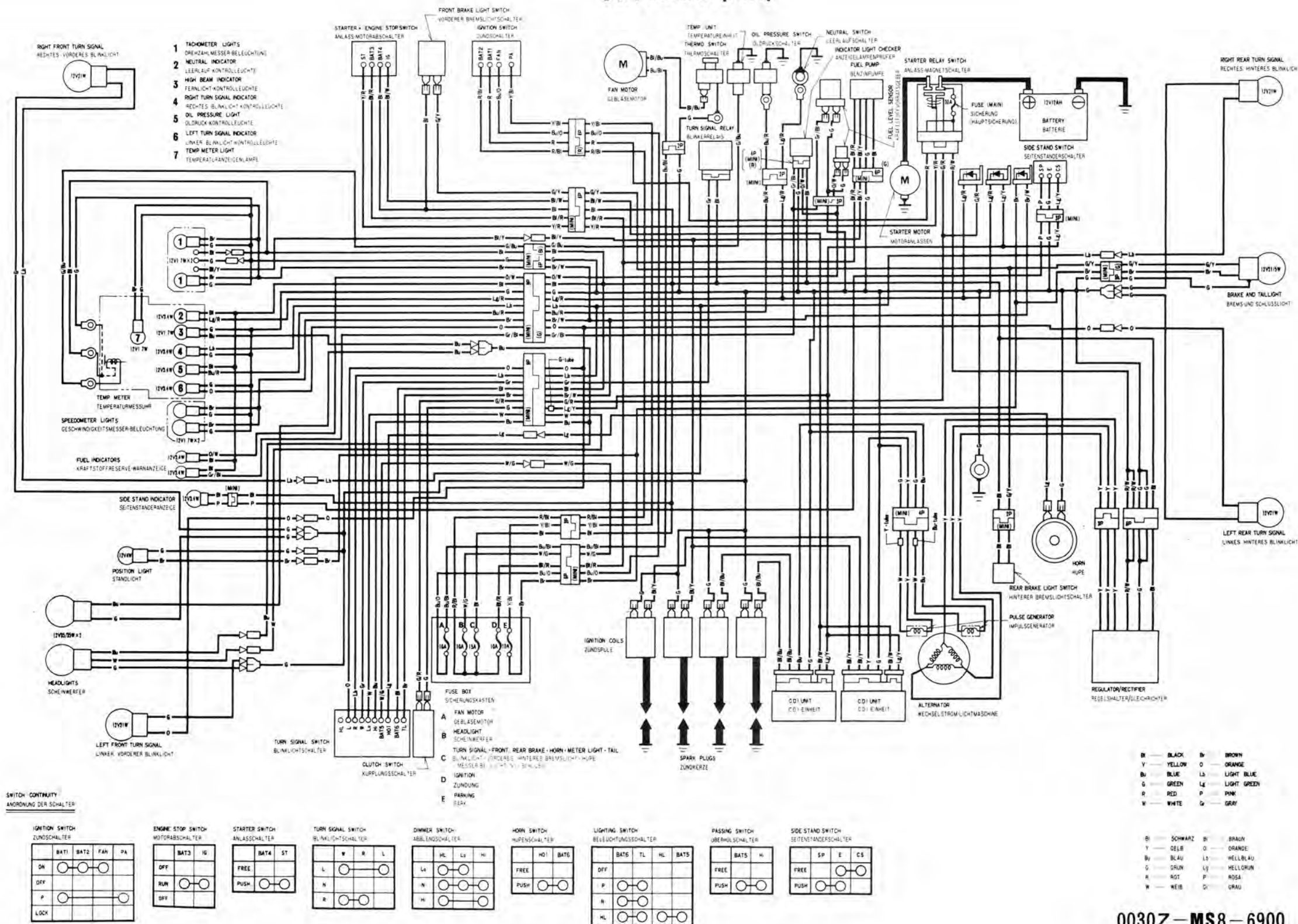
0030Z-MS8-6800

XRV650 (SW)



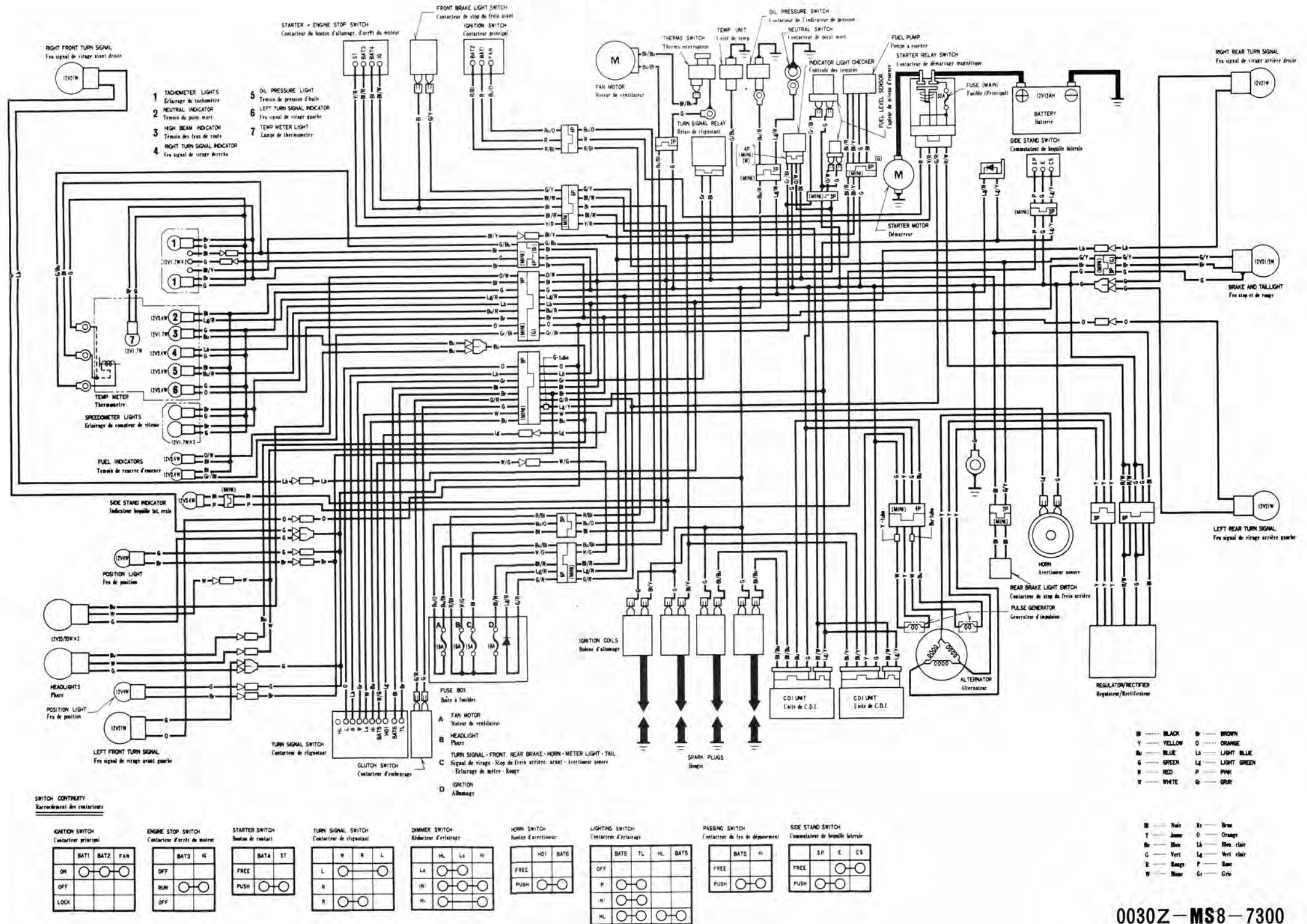
0030Z-MS8-6800

XRV650 (AR)



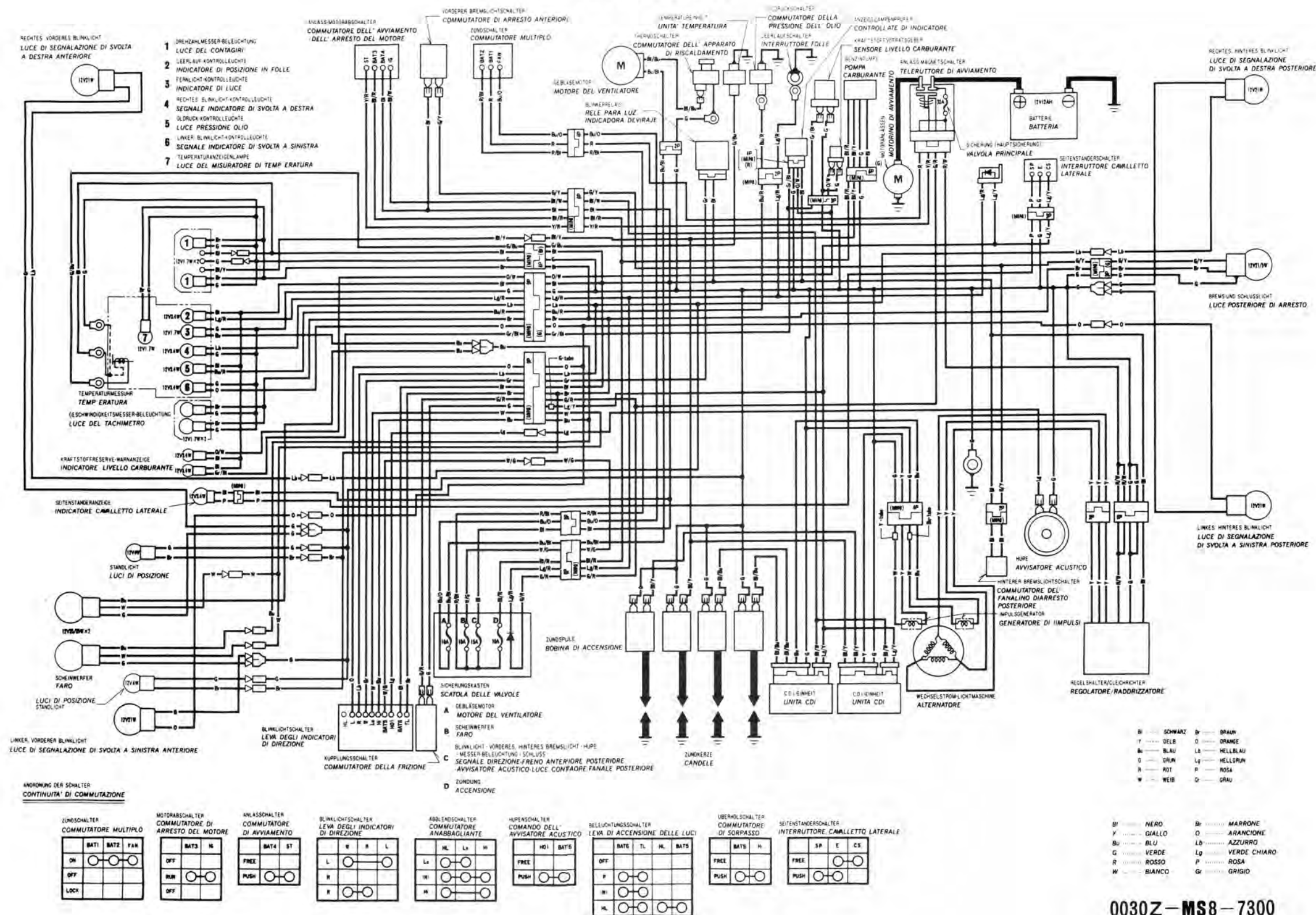
0030Z-MS8-6900

XRV650 (IT)



0030Z-MS8-7300

XRV650 (IT)



0030Z-MS8-7300

MEMO

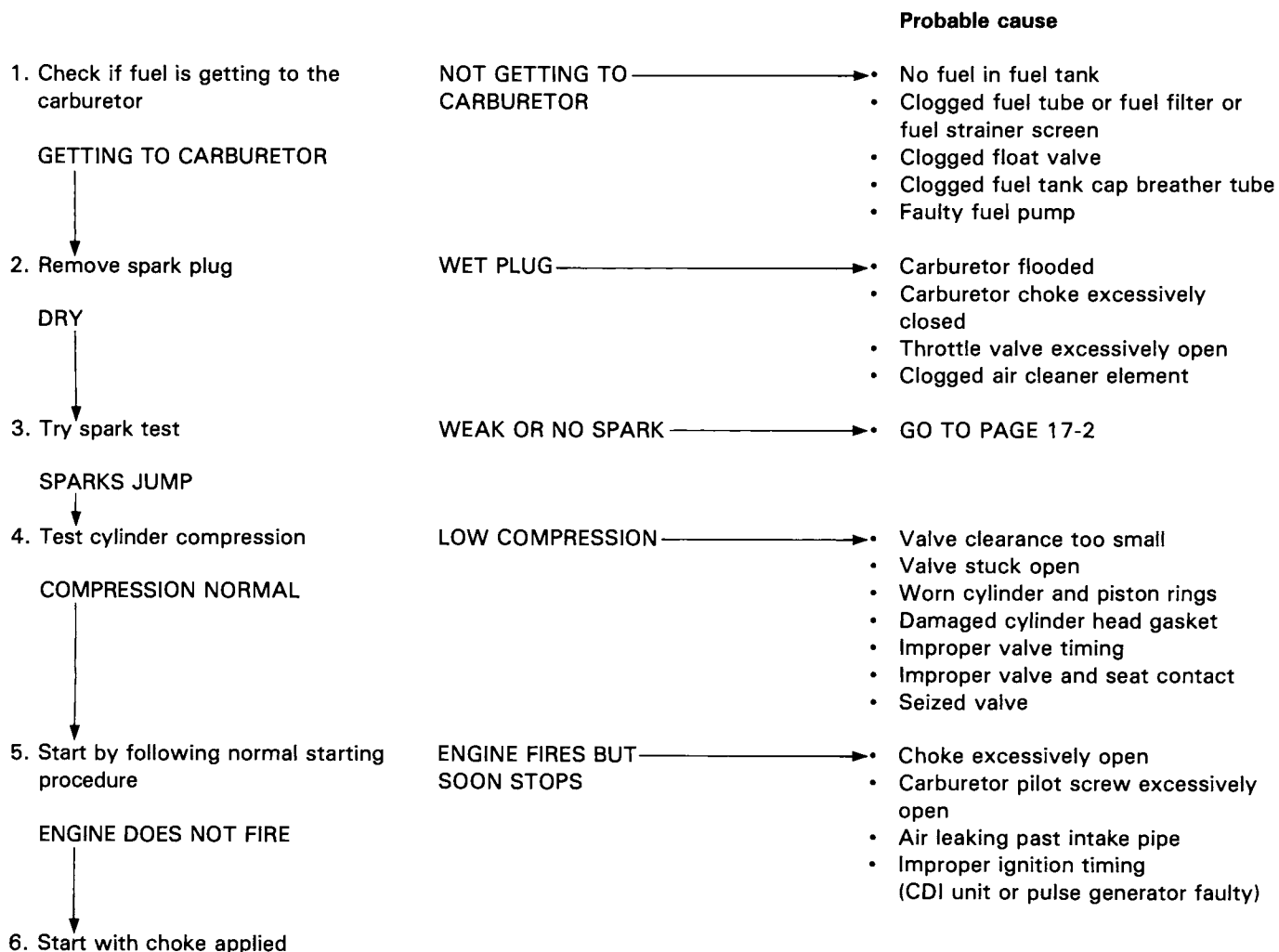
TROUBLESHOOTING

DEPISTAGE DES PANNES

STÖRUNGSBESSEITIGUNG

ENGINE DOES NOT START OR IS HARD TO START	21-1	POOR PERFORMANCE AT HIGH SPEED	21-4
ENGINE LACKS POWER	21-2	POOR HANDLING	21-4
POOR PERFORMANCE AT LOW AND IDLE SPEEDS	21-3		

ENGINE DOES NOT START OR IS HARD TO START



ENGINE LACKS POWER

Probable cause

1. Raise wheel off ground and spin by hand

WHEEL DOES NOT SPIN FREELY

- Brake dragging
- Worn or damaged wheel bearing
- Wheel bearing needs lubrication
- Drive chain too tight
- Axle nut excessively tightened

WHEEL SPINS FREELY

2. Check tire pressure with tire gauge

PRESSURE TOO LOW

- Punctured tire
- Faulty tire valve

PRESSURE NORMAL

3. Try rapid acceleration from low to second

ENGINE SPEED DOES NOT CHANGE WHEN CLUTCH IS RELEASED

- Clutch slipping
- Worn clutch disc/plate
- Warped clutch disc/plate
- Weak clutch springs

ENGINE SPEED LOWERED WHEN CLUTCH IS RELEASED

4. Lightly accelerate engine

ENGINE SPEED DOES NOT INCREASE SUFFICIENTLY

- Carburetor choke closed
- Clogged air cleaner
- Restricted fuel flow
- Clogged fuel tank breather tube
- Clogged muffler

ENGINE SPEED INCREASES

5. Check ignition timing using timing light

INCORRECT

- Faulty CDI unit
- Faulty pulse generator

CORRECT

6. Check valve clearance

INCORRECT

- Improper valve adjustment
- Worn valve seat

CORRECT

7. Test cylinder compression using compression gauge

TOO LOW

- Valve stuck open
- Worn cylinder and piston rings
- Leaking head gasket
- Improper valve timing
- Improper valve and seat contact

NORMAL

8. Check carburetor for clogging

CLOGGED

- Carburetor not serviced frequently enough

NOT CLOGGED

9. Remove spark plug

FOULED OR DISCOLORED

- Plug not serviced frequently enough
- Use of plug with improper heat range

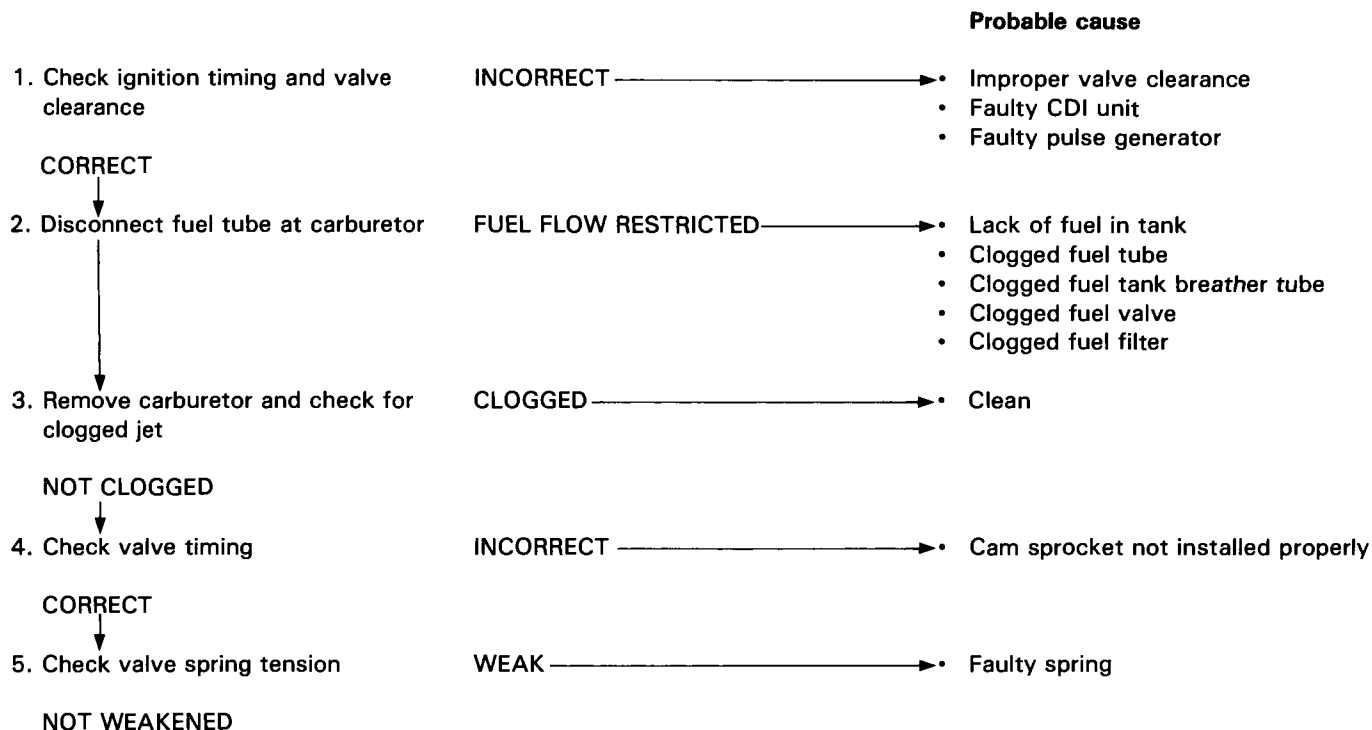
NOT FOULED OR DISCOLORED

		Probable cause
10. Remove oil level gauge and check oil level and for dirty oil	OIL LEVEL INCORRECT	• Oil level too high • Oil level too low
CORRECT		
11. Remove the valve adjusting cover and inspect lubrication	VALVE TRAIN NOT LUBRICATED PROPERLY	• Clogged oil passage • Clogged oil control orifice • Contaminated oil • Faulty oil pump
VALVE TRAIN LUBRICATED PROPERLY		
12. Check if engine overheats	OVERHEATED	• Excessive carbon build-up in combustion chamber • Use of improper quality of fuel • Clutch slipping • Fuel air mixture too lean
13. Accelerate or run at high speed	ENGINE KNOCKS	• Worn piston ring and cylinder • Fuel air mixture too lean • Use of improper grade of fuel • Excessive carbon build-up in combustion chamber • Ignition timing too advanced (Faulty CDI unit)
ENGINE DOES NOT KNOCK		

POOR PERFORMANCE AT LOW AND IDLE SPEEDS

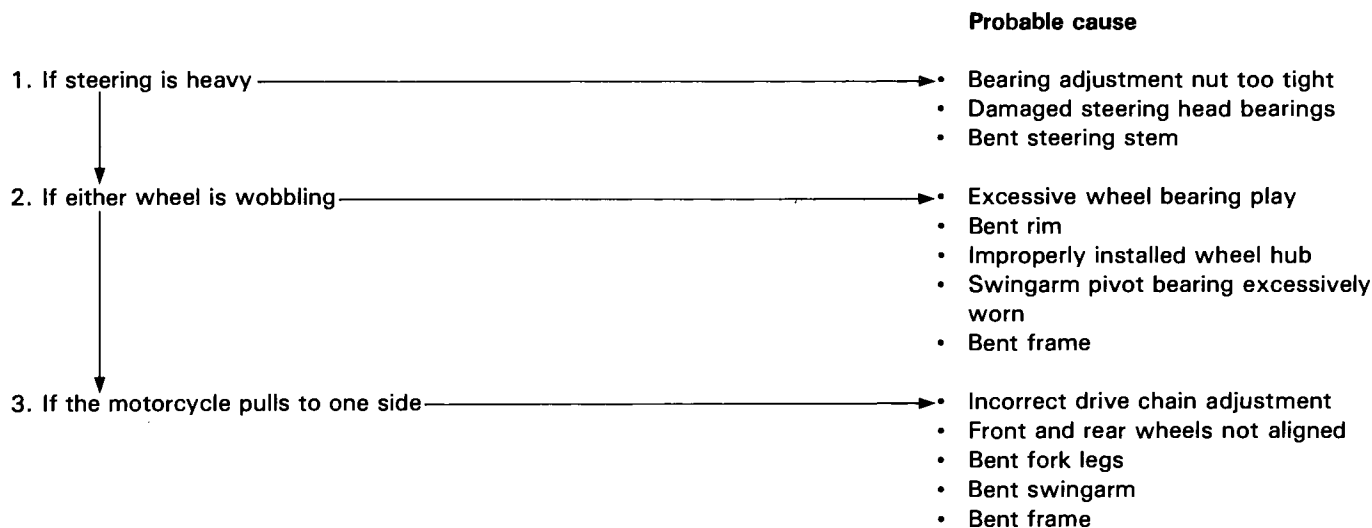
		Probable cause
1. Check ignition timing and valve clearance	INCORRECT	• Improper valve clearance • Improper ignition timing (Faulty CDI unit and pulse generator)
CORRECT		
2. Check carburetor pilot screw adjustment	INCORRECT	• Fuel air mixture too lean (To correct, screw out) • Fuel air mixture too rich (To correct, screw in)
CORRECT		
3. Check if air is leaking past intake pipe	LEAKING	• Deteriorated insulator O-ring • Loose carburetor • Damaged insulator
NOT LEAKING		
4. Try spark test	WEAK OR INTERMITTENT SPARK	• GO TO PAGE 17-2
GOOD SPARK		

POOR PERFORMANCE AT HIGH SPEED



POOR HANDLING

Check tire and suspension pressure





67MS800
HONDA MOTOR CO., LTD. TOKYO. JAPAN

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PRINTED IN JAPAN

HONDA

XRV650

SHOP MANUAL
MANUEL D'ATELIER
WERKSTATT-HANDBUCH



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 possible 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 methods or tools selected.

AVIS IMPORTANT

⚠ ATTENTION *Indique un grand risque d'accident corporel grave, voire mortel, si les instructions ne sont pas observées.*

PRECAUTION: *Indique un risque d'accident corporel ou de détérioration du véhicule si les instructions ne sont pas observées.*

NOTE: Fournit des renseignements utiles.

On ne trouvera pas dans ce manuel de description détaillée des procédures en atelier, des principes de sécurité ou des opérations d'entretien. Noter cependant que ce manuel comprend quelques avertissements contre certaines méthodes de révision de la machine qui risquent, si on les applique, de provoquer des **BLESSURES** d'endommager la machine ou de rendre son utilisation peu sûre. On comprendra, par ailleurs, que ces avertissements ne peuvent couvrir toutes les façons de procéder à une révision, que celle-ci soit recommandée par Honda ou non, ni tous les dangers que l'on encourt à suivre telle ou telle façon étant donné qu'il est impossible pour Honda de ne serait-ce que répertorier toutes les procédures de révision. Avant de procéder à une révision, qu'elle soit ou non recommandée par Honda; il faudra donc s'assurer absolument que ni le personnel ni la machine ne sont soumis à un risque quelconque à cause des méthodes ou des outils utilisés pour la révision.

WICHTIGER SICHERHEITSHINWEIS

⚠ WARNUNG *Zeigt mögliche persönliche Verletzungs- oder Lebensgefahr an, falls Anweisungen nicht beachtet werden.*

VORSICHT: *Zeigt mögliche persönliche Verletzungsgefahr oder Beschädigung der Maschine an, falls Anweisungen nicht befolgt werden.*

ZUR BEACHTUNG: Gibt wertvolle Informationen.

Ausführliche Beschreibungen allgemeiner Werkstatt-Arbeitsweisen, Sicherheitsregeln und Wartungsverfahren sind nicht eingeschlossen. Es ist wichtig zu beachten, daß dieses Handbuch einige Warnungen und Vorsichtsmaßnahmen für **bestimmte** Wartungsmethoden enthält, die **PERSÖNLICHE VERLETZUNG** des Werkstattpersonals verursachen, das Fahrzeug beschädigen oder es fahrunsicher machen können. Verständlicherweise können diese Warnungen nicht alle absehbaren Verfahrensweisen der Wartung, ob von Honda empfohlen oder nicht, oder die möglichen gefährlichen Folgen der einzelnen Verfahrensweisen erfassen, ganz abgesehen davon, daß Honda nicht alle solche Verfahrensweisen erforschen kann. Jeder, der bestimmte Wartungsverfahren oder Werkzeuge benutzt, ob von Honda empfohlen oder nicht, muß sich selbst gründlich davon überzeugen, daß durch die gewählten Wartungsmethoden oder Werkzeuge weder die persönliche Sicherheit noch die Sicherheit des Fahrzeugs gefährdet ist.

HOW TO USE THIS MANUAL

This addendum contains information for the XRV650. Refer to XRV650 SHOP MANUAL (No. 67MS800) for service procedures and data not included in this addendum. Throughout the manual, the following abbreviations are used to identify individual models:

CODE	AREA (TYPE)	CODE	AREA (TYPE)
F	France	AR	Austria
G	Germany	SP	Spain
SW	Switzerland	IT	Italy
B	Belgium	FI	Finland
PO	Portugal	H	Netherland

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SPECIFICATIONS

ITEM				SPECIFICATIONS		
DIMENSIONS	Overall length			G, SW, FI types: 2,320 mm (91.3 in)		
	Overall width			F, B, IT, AR, SP types: 2,310 mm (90.9 in)		
	Overall height			900 mm (35.4 in)		
	Wheelbase			1,320 mm (52.0 in)		
	Seat height			1,555 mm (61.2 in)		
	Ground clearance			880 mm (34.6 in)		
	Dry weight			230 mm (9.1 in)		
	Curb weight			193 kg (425 lb)		
			220 kg (485 lb)			
			222 kg (489 lb) with center stand			
FRAME	Type			Semi double cradle		
	Front suspension, travel			Telescopic fork, 220 mm (8.7 in)		
	Rear suspension, travel			Swingarm/shock absorber, 210 mm (8.3 in)		
	Front tire size			90/90—21 54S		
	Rear tire size			130/90—17 68S		
	Cold tire pressure	Driver only	Front	200 kPa (2.00 kg/cm ² , 28 psi)		
			Rear	200 kPa (2.00 kg/cm ² , 28 psi)		
		Driver and one passenger	Front	200 kPa (2.00 kg/cm ² , 28 psi)		
			Rear	200 kPa (2.00 kg/cm ² , 28 psi)		
	Front brake, lining swept area			Hydraulic disc, 446 cm ² (69.1 sq in)		
	Rear brake, lining swept area			Hydraulic disc, 372 cm ² (57.7 sq in)		
	Fuel capacity			24 liters (6.34 US gal, 5.28 Imp gal)		
	Fuel reserve capacity			0 liter (0 US gal, 0 Imp gal)		
	Caster angle			28°		
	Trail			113 mm (4.4 in)		
Fork fork oil capacity			656 cm ³ (22.2 US oz, 23.0 Imp oz)			
ENGINE	Type			Water cooled 4-stroke		
	Cylinder arrangement			2 cylindsr 52° V		
	Bore and stroke			79.0 x 66.0 mm (3.11 x 2.60 in)		
	Displacement			647 cm ³ (39.47 cu in)		
	Compression ratio			9.4:1		
	Valve train			Silent, multi-link chain drive and OHC with rocker arms		
	Oil capacity			2.8 liters (2.96 US qt, 2.46 Imp qt) after disassembly		
				2.4 liters (2.52 US qt, 2.11 Imp qt) at oil filter and oil change		
				2.2 liters (2.32 US qt, 1.94 Imp qt) after draining		
	Coolant capacity			2.5 liters (2.63 US qt, 2.20 Imp qt)		
				2.0 liters (2.10 US qt, 1.76 Imp qt) after draining		
	Lubrication system			Forced pressure and wet sump		
	Air filtration			Paper filter		
	Cylinder compression			1,275 ± 196 kPa (13.0 ± 2.0 kg/cm ² , 199 ± 28 psi)		
	Intake valve			Opens	} at 1 mm lift	
				Closes		
	Exhaust valve			Opens		
				Closes		
	Valve clearance (cold)			Intake	0.15 ± 0.02 mm (0.006 ± 0.001 in)	
				Exhaust	0.20 ± 0.02 mm (0.008 ± 0.001 in)	
	Engine dry weight			60 kg (132 lb)		

ITEM		SPECIFICATIONS	
CARBURETOR	Type	Constant velocity dual carburetors	
	Identification number	VD F4B	
	Main jet	SW type: VE FGB	
	Slow jet	Front: #125, Rear: #130 #38	
	Pilot screw opening	SW type: #35	
	Float level	2-1/8 turns out, SW type: 1-3/4 turns out	
	Idle speed	7.0 mm (0.28 in)	
		1,200 $\pm$ 100 min ⁻¹ (rpm)	
		SW type: 1,200 $\pm$ 50 min ⁻¹ (rpm)	
DRIVE TRAIN	Clutch	Wet multi-plate	
	Transmission	5-speed constant mesh	
	Primary reduction	1.8888 (68/36)	
	Final reduction	3.0625 (49/16)	
	Gear ratio I	2.7692 (36/13)	
	II	1.8823 (32/17)	
	III	1.4500 (29/20)	
	IV	1.1739 (27/23)	
	V	0.9655 (28/29)	
	Gearshift pattern	Left foot operated return system, 1-N-2-3-4-5	
ELECTRICAL	Ignition	CDI	
	Ignition timing	10° BTDC at idle	
	Initial	30° BTDC at 4,500 min ⁻¹ (rpm)	
	Full advance	Front—232°—Rear—488°—Front	
	Firing order	310W/5,000 min ⁻¹ (rpm)	
	Alternator	12 V—12 AH	
	Battery capacity		
	Spark plug	NGK	ND
	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)	
	Main fuse	30 A	
	Fuse	10 A x 3, 15 A x 1	
	Starting system	Electric starter motor	
	Headlight (high/low beam)	12 V 60 W/55 W x 2	
		F, G, AR, FI, H types: 12 V 60 W/55W + 12 V 60 W	
		SW type: 12 V 60W/55 W	
		IT type: 12 V 35 W /35 W x 2	
	Position light	12 V 4 W	
		IT, B, SP, PO, types: 12 V 4 W x 2	
	Turn signal light	12 V 21 W x 4	
	Tail/brake light	12 V 5 W/21W	
	Instrument light	12 V 1.7 W x 4	
	Neutral indicator	12 V 3.4 W	
	High beam indicator	12 V 1.7 W	
	Turn signal indicator	12 V 3.4 W x 2	
	Oil pressure warning light	12 V 3.4 W	
	Fuel reserve warning light	12 V 3.4 W x 2	
	Side stand indicator	12 V 3.4 W	

TORQUE VALUES

ENGINE

ITEM	Q'TY	THREAD DIA. mm	TORQUE N·m (kg-m, ft-lb)	REMARKS
Crankcase stud bolt (8 mm)	2	8	20–30 (2.0–3.0, 14–22)	Apply thread lock agent
(10 mm)	8	10	30–50 (3.0–5.0, 22–36)	
Oil pump driven sprocket	1	6	15 (1.5, 11)	
Water pump mounting bolt	2	6	12 (1.2, 9)	
Water pump cover bolt	2	6	12 (1.2, 9)	Apply engine oil
Spark plug	4	12	14 (1.4, 10)	
Oil filter	1	20	10 (1.0, 7)	
Oil drain bolt	1	14	35 (3.5, 25)	
Oil pass pipe holder mounting bolt	1	6	10 (1.0, 7)	Apply thread lock agent
Valve adjusting screw lock nut	6	7	23 (2.3, 17)	
Shift drum stopper plate bolt	1	6	12 (1.2, 9)	
Primary drive gear bolt	1	12	90 (9.0, 65)	
Oil pressure switch	1	—	12 (1.2, 9)	Apply thread lock agent
Clutch lock nut	1	18	130 (13.0, 94)	
Oil pass pipe bolt (7 mm)	2	7	10 (1.0, 7)	
Oil pass pipe bolt (8 mm)	1	8	23 (2.3, 17)	
Flywheel bolt	1	12	130 (13.0, 94)	Left hand threads
Starter clutch torx bolt	6	8	30 (3.0, 22)	Apply thread lock agent
Timing hole cap	1	14	3.5 (0.35, 2.5)	Apply MoS ₂ grease
Crankshaft hole cap	1	30	15 (1.5, 11)	Apply MoS ₂ grease
Cylinder head cover bolt	4	6	10 (1.0, 7)	
Camshaft holder (8 mm bolt)	6	8	23 (2.3, 17)	
(8 mm nut)	2	8	23 (2.3, 17)	
(6 mm bolt)	4	6	10 (1.0, 7)	
Cylinder head (8 mm bolt)	4	8	23 (2.3, 17)	Apply engine oil
(6 mm socket bolt)	2	6	10 (1.0, 7)	
(10 mm cap nut)	8	10	48 (4.8, 35)	
(8 mm nut)	2	8	23 (2.3, 17)	
Cam sprocket bolt	4	7	23 (2.3, 17)	Apply thread lock agent
Cam chain tensioner bolt	4	6	10 (1.0, 7)	Apply thread lock agent
Connecting rod bearing cap nut	4	8	34 (3.4, 25)	
Mainshaft bearing set plate bolt	1	6	10 (1.0, 7)	
Countershaft bearing set plate bolt	3	6	10 (1.0, 7)	
Gearshift pedal bolt	1	6	10 (1.0, 7)	

FRAME

ITEM	Q'TY	THREAD DIA. mm	TORQUE N·m (kg-m, ft-lb)	REMARKS
Handlebar upper holder bolt	4	8	26 (2.6, 19)	Apply sealant
Thermostatic switch	1	16	18 (1.8, 13)	
Fuel valve lock nut	2	18	23 (2.3, 17)	
Side stand pivot bolt	1	10	40 (4.0, 29)	
Muffler band bolt	2	8	22 (2.2, 16)	Self-locking nut
Muffler mounting bolt (8 mm)	1	8	35 (3.5, 25)	
(10 mm)	1	10	55 (5.5, 40)	
Upper cowl mounting bolt	4	6	4.5 (0.45, 3.2)	
Exhaust pipe joint cap nut	4	8	27 (2.7, 20)	
Rear fuel tank mounting bolt	1	8	27 (2.7, 20)	
Seat mounting bolt	2	6	10 (1.0, 7)	
Engine mounting bolt	3	10	55 (5.5, 40)	
Engine mounting bracket bolt	6	8	27 (2.7, 20)	

ITEM	Q'TY	THREAD DIA. mm	TORQUE N·m (kg-m, ft-lb)	REMARKS
Skid plate mounting bolt	4	8	10 (1.0, 7)	
Air cleaner case mounting bolt	5	6	10 (1.0, 7)	
Passenger footpeg bracket bolt	4	8	27 (2.7, 20)	
Right footpeg holder bolt	1	12	85 (8.5, 61)	
Muffler/exhaust pipe protector bolt	6	6	10 (1.0, 7)	
Steering stem nut	1	24	100 (10.0, 72)	
Front fork top bridge pinch bolt	4	8	27 (2.7, 20)	
Front fork bottom bridge pinch bolt	4	8	35 (3.5, 25)	
Front fork socket bolt	2	8	20 (2.0, 14)	
Front fork cap bolt	2	39	23 (2.3, 17)	
Front axle holder nut	4	6	12 (1.2, 9)	
Front axle	1	12	65 (6.5, 47)	
Rear axle	1	16	95 (9.5, 69)	
Final driven sprocket bolt	6	10	46 (4.6, 33)	Apply oil
Swingarm pivot bolt	1	14	110 (11.0, 80)	Self-locking nut
Rear shock absorber mounting bolt (upper)	1	10	45 (4.5, 33)	Self-locking nut
(lower)	1	10	45 (4.5, 33)	Self-locking nut
Shock absorber spring adjuster lock nut	1	50	90 (9.0, 65)	
Shock absorber lower mount lock nut	1	14	68 (6.8, 49)	
Shock arm-to-swingarm bolt	1	12	60 (6.0, 43)	Self-locking nut
Shock link-to-frame bolt	1	10	45 (4.5, 33)	Self-locking nut
Shock link-to-shock arm bolt	1	10	45 (4.5, 33)	Self-locking nut
Steering bearing adjustment nut	1	26	3 (0.3, 2.2)	
Front caliper bracket mounting bolt	2	8	33 (3.3, 24)	
Front brake disc bolt	6	8	43 (4.3, 31)	For this (K) model only
Front brake hose-to-joint	1	10	17 (1.7, 12)	
Front brake hose joint-to-master cylinder	1	10	35 (3.5, 25)	
Brake hose oil bolt	3	10	35 (3.5, 25)	
Caliper bleed valve	2	7	6 (0.6, 4.3)	
Pad pin	3	10	17 (1.7, 12)	
Pad pin plug	3	10	2.5 (0.25, 1.8)	
Caliper pin bolt	2	8	23 (2.3, 17)	
Left footpeg holder bolt	1	10	65 (6.5, 47)	
Rear carrier stay bolt (left front)	1	8	45 (4.5, 33)	
(right front)	1	10	65 (6.5, 47)	
(rear)	2	8	27 (2.7, 20)	
Choke lever pivot bolt	1	6	10 (1.0, 7)	
Rear brake disc bolt	4	8	43 (4.3, 31)	For this (K) model only
Rear master cylinder bolt	2	6	13 (1.3, 9)	
Fuel reserve sensor	2	18	23 (2.3, 17)	

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

STANDARD TORQUE VALUES

ITEM	TORQUE			ITEM	TORQUE		
	N·m	kg-m	ft-lb		N·m	kg-m	ft-lb
5 mm bolt and nut	5	0.5	4	5 mm screw	4	0.4	3
6 mm bolt and nut	10	1.0	7	6 mm screw	9	0.9	7
8 mm bolt and nut	22	2.2	16	6 mm flange bolt with 8 mm head	9	0.9	7
10 mm bolt and nut	35	3.5	25	6 mm flange bolt and nut	12	1.2	9
12 mm bolt and nut	55	5.5	40	8 mm flange bolt and nut	27	2.7	20
				10 mm flange bolt and nut	40	4.0	29

TOOLS

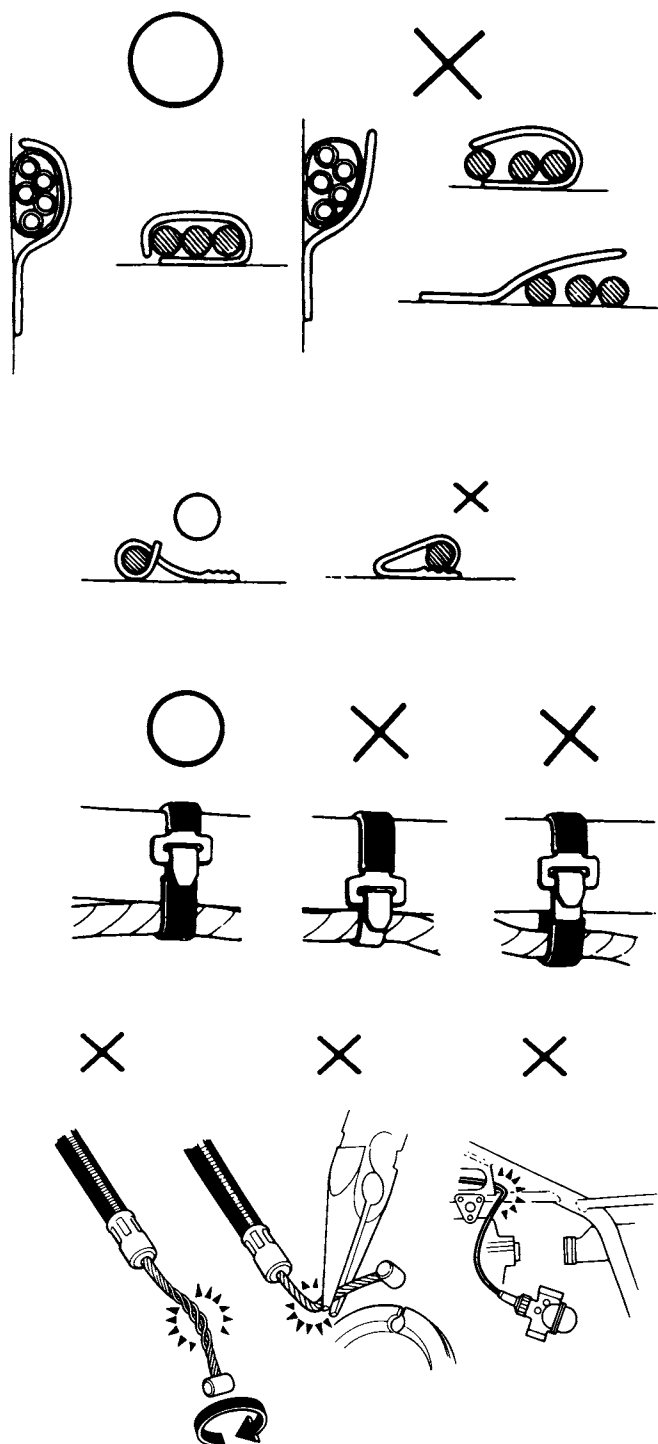
SPECIAL

DESCRIPTION	TOOL NUMBER	REFERENCE SECTION
Oil pressure gauge	07506-3000000	2
Oil pressure gauge attachment	07510-4220100	2
Oil filter wrench	07HAA-PJ70100	2
Valve adjusting wrench	07908-KE90000	3
Vacuum gauge	07404-0030000	3
Clutch center holder	07923-KE10000	7
Valve guide driver attachment (IN)	07943-MF50100	9
Valve guide driver attachment (EX)	07943-MF50200	9
Valve guide reamer, 5.5 mm (IN)	07984-2000001	9
Valve guide reamer, 6.5 mm (EX)	07984-ZE20001	9
Bearing driver attachment	07HMF-MM90400	11
Bearing remover set, 25 mm	07936-3710001	11
— Remover handle	07936-3710100	11
— Bearing remover, 25 mm	07936-3710600	11
— Remover weight	07741-0010201	11
Steering stem socket	07916-KA50100	13
Steering stem driver	07946-4300101	13
Fork seal driver	07947-KA50100	13
Fork seal driver attachment	07947-KA40200	13
Ball race remover	07953-MA00000	13
Needle bearing remover	07946-KA50100	14
Driver shaft	07946-MJ00100	14
Snap ring pliers	07914-3230001	15
Pilot screw wrench (SW type only)	07KMA-MS60100	20

CABLE & HARNESS ROUTING

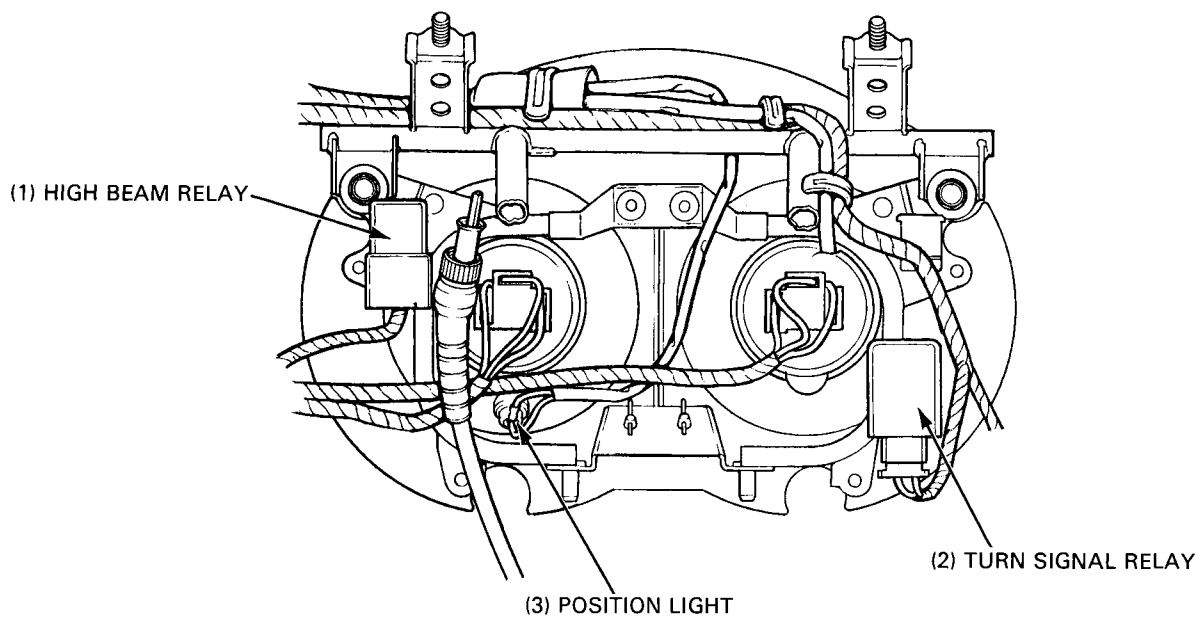
Note the following when routing cables and wire harnesses:

- 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 wires against welds or clamps.
- 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.
- Route harnesses so they are neither pulled taut nor have excessive slack.
- Protect wires and harnesses with electrical tape or a tube if they contact a sharp edge or corner. Clean the attaching surface thoroughly before applying tape.
- Do not use a wire or harness with broken insulation. 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 pipes and other hot parts.
- Be sure grommets are seated in their grooves properly.
- After clamping, check each harness to be certain that it does not interfere with any moving or sliding parts.
- After routing, check that the wire harnesses are not twisted or kinked.
- Wire harnesses routed along the handlebars should not be pulled taut, have excessive slack, be pinched by or interfere with adjacent or surrounding parts in all steering positions.
- Do not bend or twist the control cables. Damaged control cables will not operate smoothly and may stick or bind.

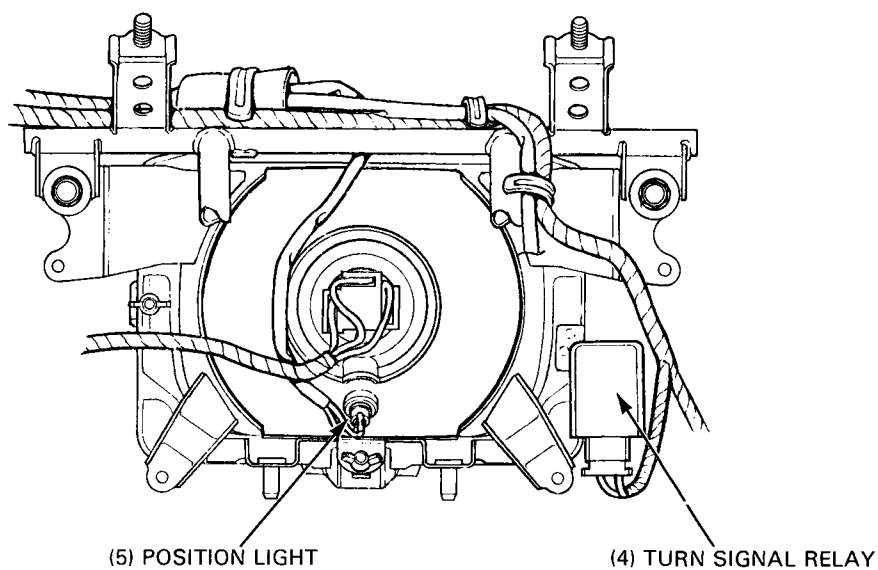


O: CORRECT
X: INCORRECT

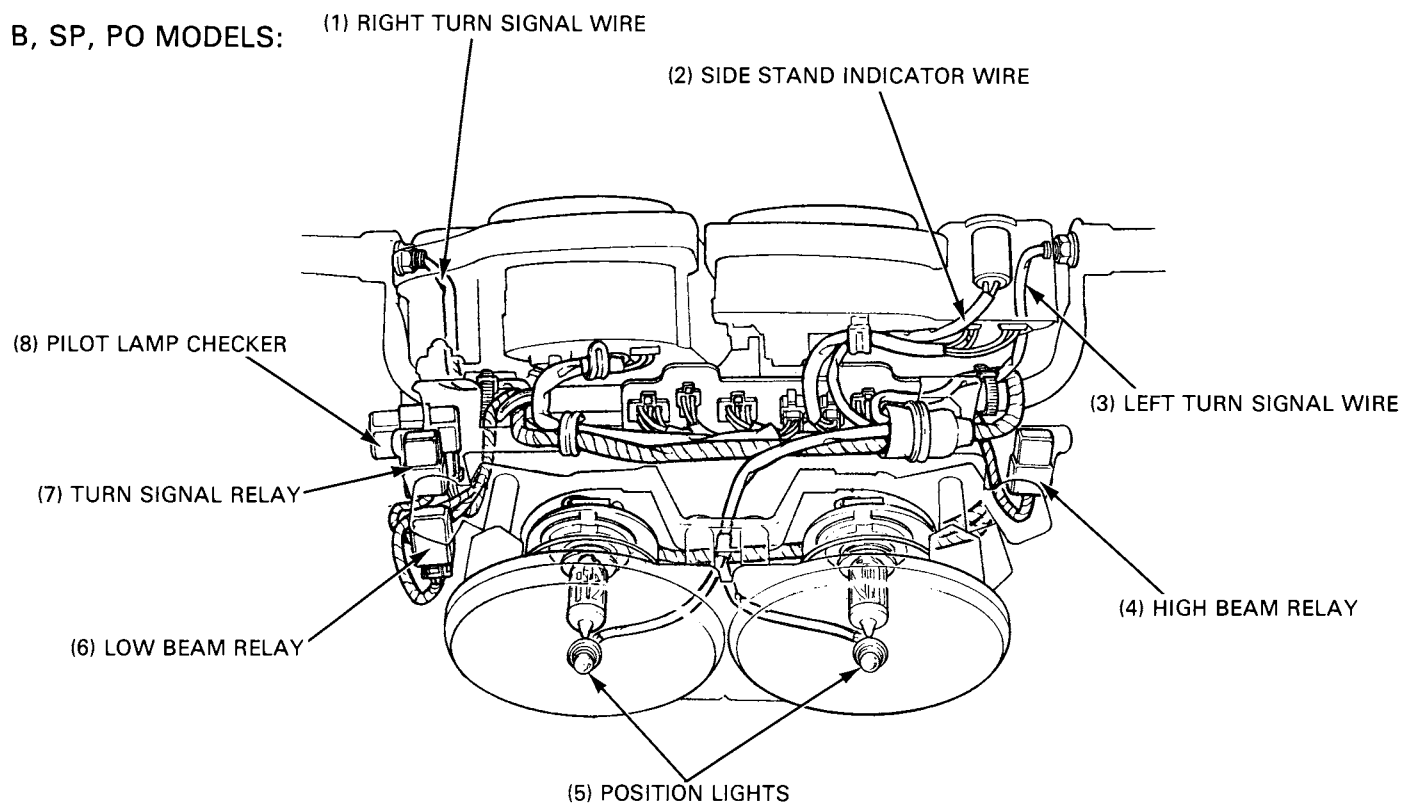
F, G, AR, FI, H MODELS:



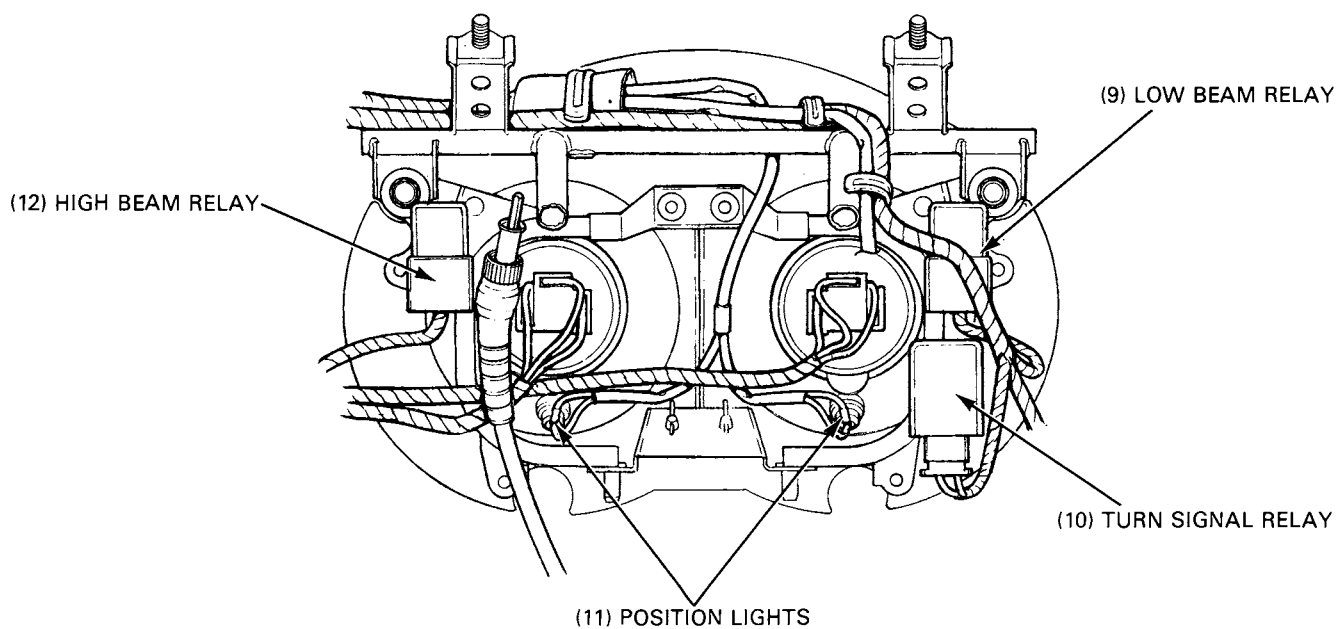
SW MODEL ONLY:



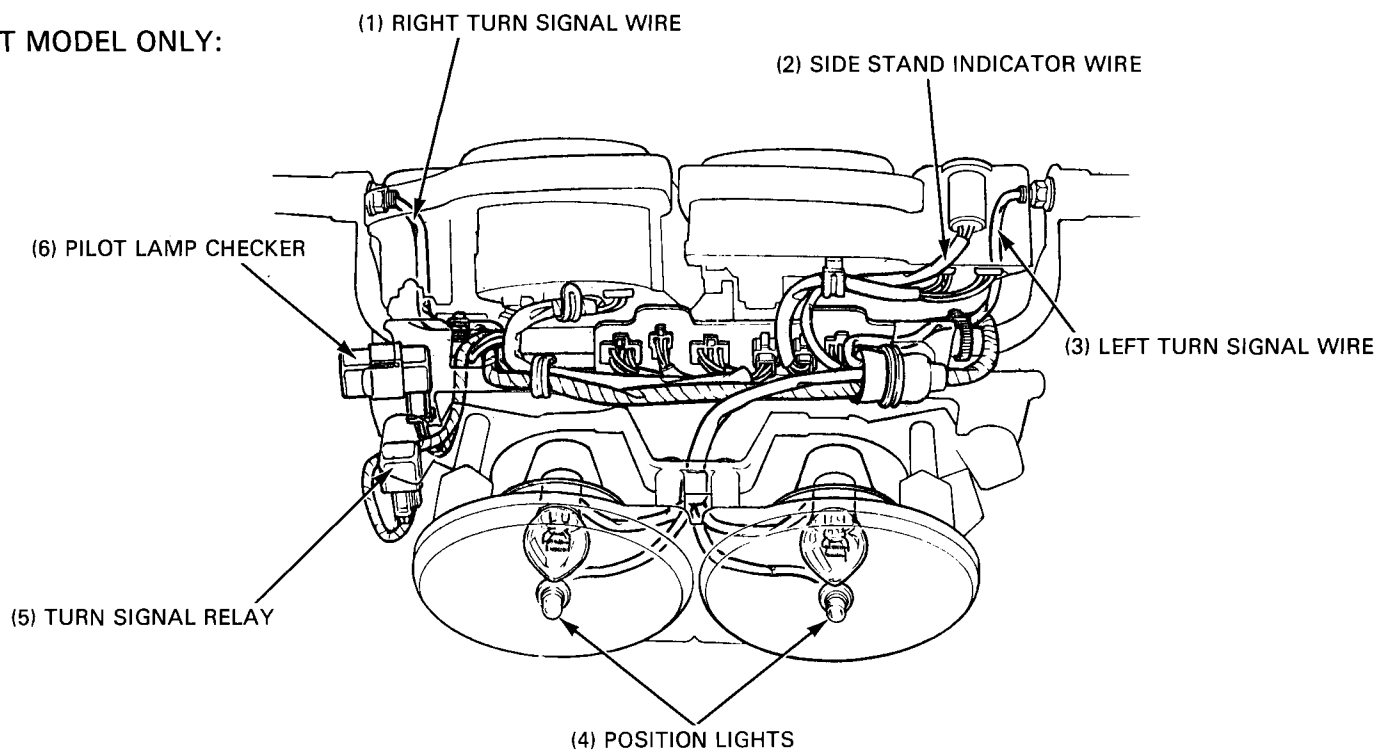
B, SP, PO MODELS:



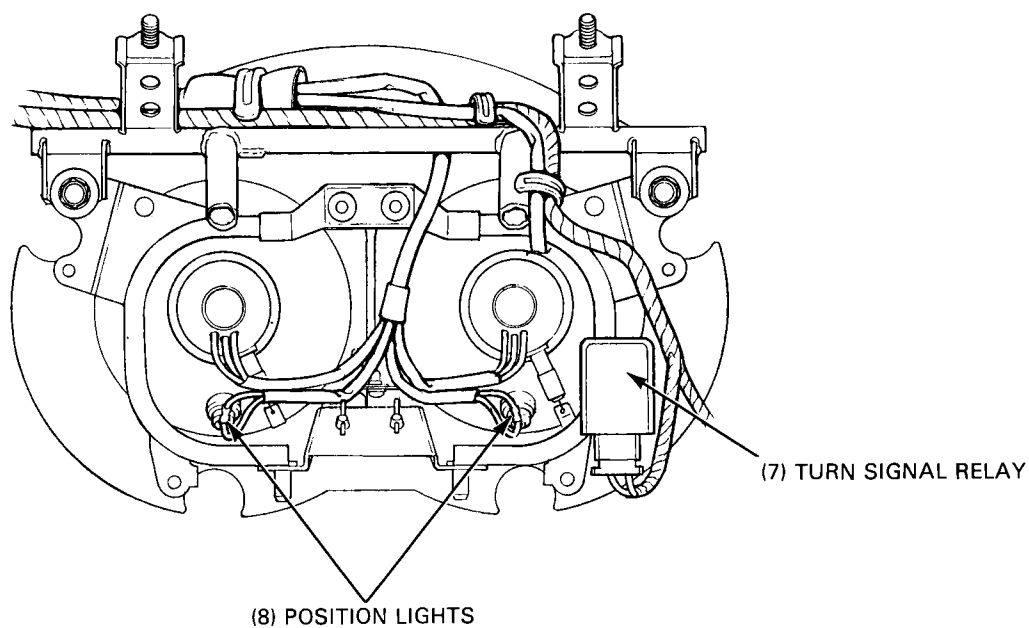
B, SP PO MODELS:



IT MODEL ONLY:



IT MODEL ONLY:



SERVICE INFORMATION

FUEL 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.
- Before disassembling the carburetor, drain the fuel in the float chamber by loosening the drain screw.

NOTE

- If vehicle is to be stored for more than one month, drain the float chambers.
Fuel left in the float chambers may cause clogged jets resulting in hard starting or poor driveability.

SERVICE DATA

FUEL SYSTEM FUEL SYSTEM

[]: SW type

Throttle bore	32.0 mm	
Identification No.	VD F4B [VD FGB]	
Float level	7.0 mm (0.28 in)	
Main jet	FRONT # 125	REAR # 130
Slow jet	# 38 [# 35]	
Idle speed	1,200 ± 100 min ⁻¹ (rpm) [1,200 ± 50 min ⁻¹ (rpm)]	
Throttle grip free play	2–6 mm (1/16–1/4 in)	
Pilot screw initial opening	2-1/8 turns out [1-3/4 turns out]	
Vacuum difference between cylinders	40 mm (1.6 in) Hg max.	

HYDRAULIC BRAKES

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Brake disc	Thickness	Front	5.0 (0.20)	4.0 (0.16)
		Rear	4.0 (0.16)	3.5 (0.14)
	Warpage		—	0.3 (0.012)
Master cylinder I.D.		Front	11.000 – 11.040 (0.4330 – 0.4346)	11.05 (0.435)
		Rear	14.000 – 14.043 (0.5512 – 0.5529)	14.05 (0.553)
Master piston O.D.		Front	10.850 – 10.910 (0.4272 – 0.4295)	10.84 (0.427)
		Rear	13.957 – 13.984 (0.5495 – 0.5506)	13.95 (0.549)
Caliper cylinder I.D.		Front	30.230 – 30.280 (1.1901 – 1.1921)	30.29 (1.193)
		Rear	38.180 – 38.230 (1.5031 – 1.5051)	38.24 (1.505)
Caliper piston O.D.		Front	30.148 – 30.199 (1.1869 – 1.1889)	30.14 (1.187)
		Rear	38.115 – 38.148 (1.5005 – 1.5018)	38.11 (1.500)
Brake fluid			DOT 4 only	—

MEMO

PILOT SCREW ADJUSTMENT

IDLE DROP PROCEDURE (SW MODEL ONLY)

NOTE

- For this model; the pilot screw's head is modified to adjustment with special tool only and no pilot screw plug.
- Make sure the carburetor synchronization is within specification before pilot screw adjustment.
- The pilot screws are the factory pre-set and no adjustment is necessary unless they are replaced.
- Use a tachometer with graduation of $50 \text{ min}^{-1} \text{ (rpm)}$ or smaller that will accurately indicate a $50 \text{ min}^{-1} \text{ (rpm)}$ change.

1. Turn each pilot screw clockwise until it seats lightly and back it out to the specification given.
This is an initial setting prior to the final pilot screw adjustment.

INITIAL OPENING: 1-3/4 turns out

TOOL:

Pilot screw wrench

07KMA-MS60100

CAUTION

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

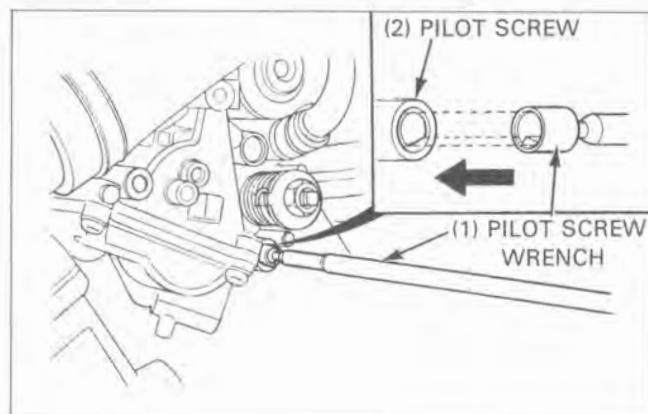
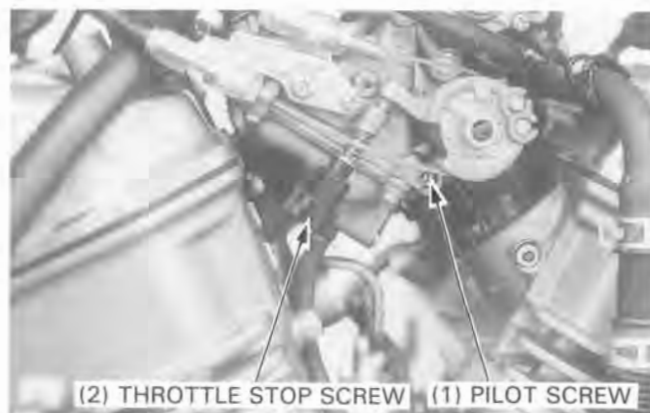
2. Warm up the engine to operating temperature.
Stop and go driving for 10 minutes is sufficient.
3. Attach a tachometer according to the manufacturer's instructions.
4. Adjust the idle speed with the throttle stop screw.

IDLE SPEED: $1,200 \pm 50 \text{ min}^{-1} \text{ (rpm)}$

5. Turn each pilot screw 1/2 turn out from the initial setting.
6. If the engine speed increases by $50 \text{ min}^{-1} \text{ (rpm)}$ or more, turn each pilot screw out by continual 1/2 turn increments until engine speed does not increase.
7. Adjust the idle speed with the throttle stop screw.
8. Turn the No. 1 carburetor pilot screw in until the engine speed drops by $50 \text{ min}^{-1} \text{ (rpm)}$.
9. Turn the No. 1 carburetor pilot screw 1 turn out from the position obtained in step 8.

FINAL OPENING: 1 TURN OUT

10. Adjust the idle speed with the throttle stop screw.
11. Perform steps 8, 9 and 10 for the No. 2 carburetor pilot screw.



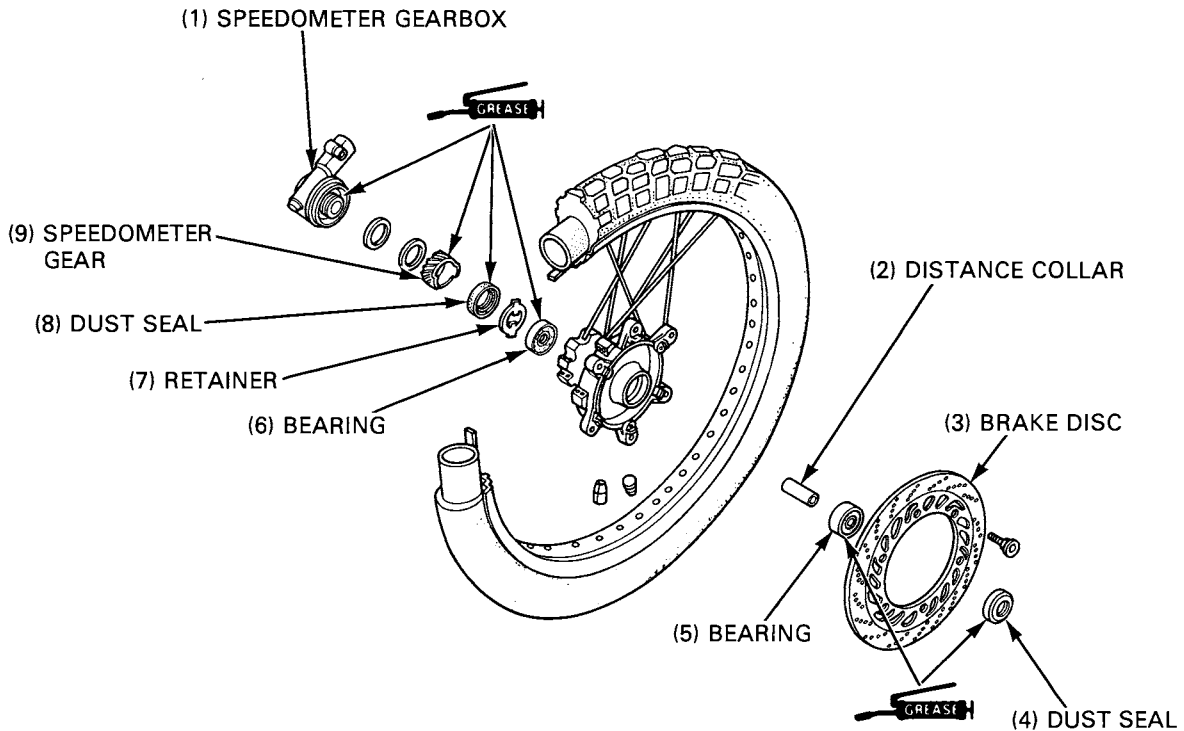
WHEELS

NOTE

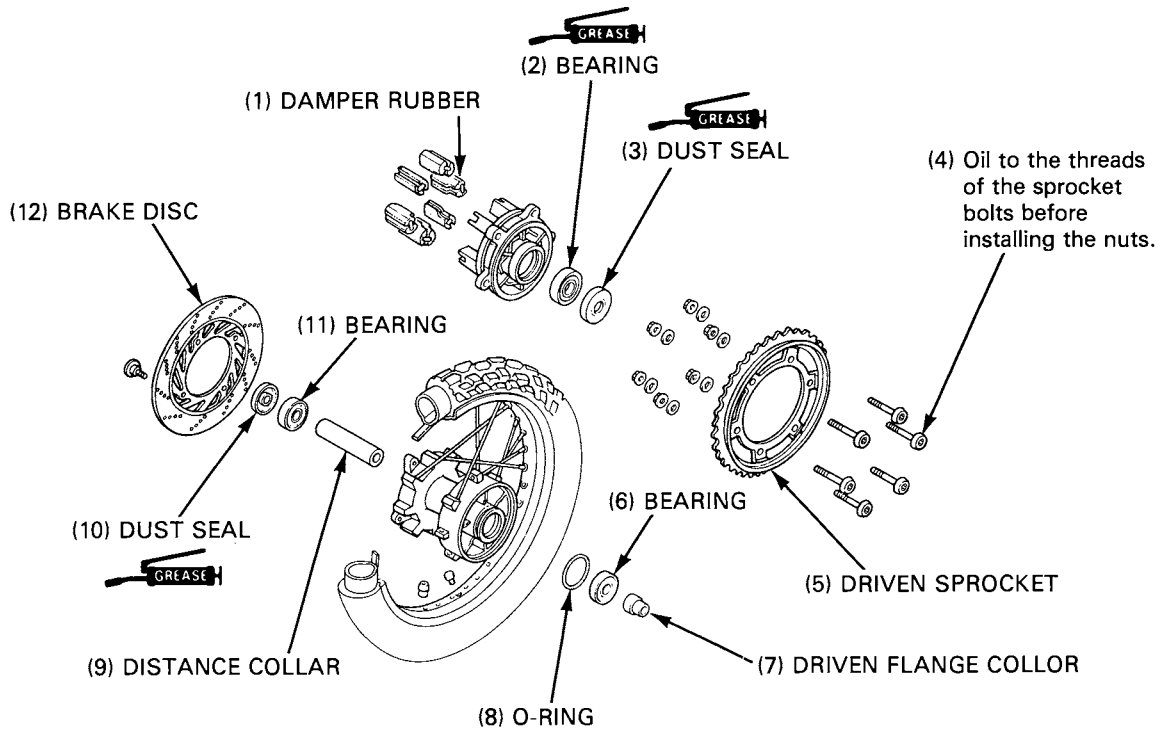
For this model, wheels equipped the sealed ends (both side) wheel bearings. For inspection and service procedures, see base shop manual sections 13, 14.

DISASSEMBLY/ASSEMBLY

Front:



Rear:



HEADLIGHT BULB REPLACEMENT

Except IT model:

Disconnect the headlight connector and remove the rubber protector.

Remove the headlight retainer clip and replace the headlight bulb.

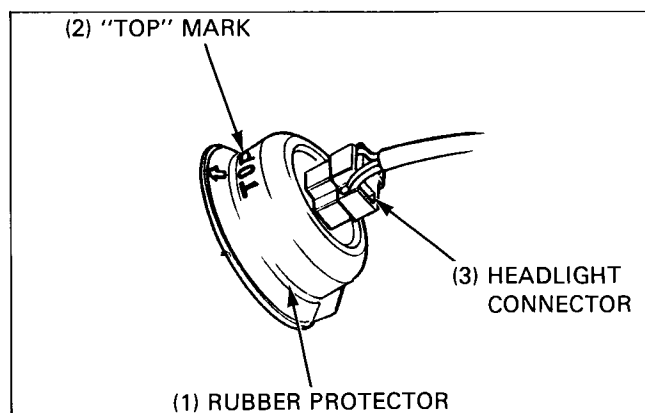
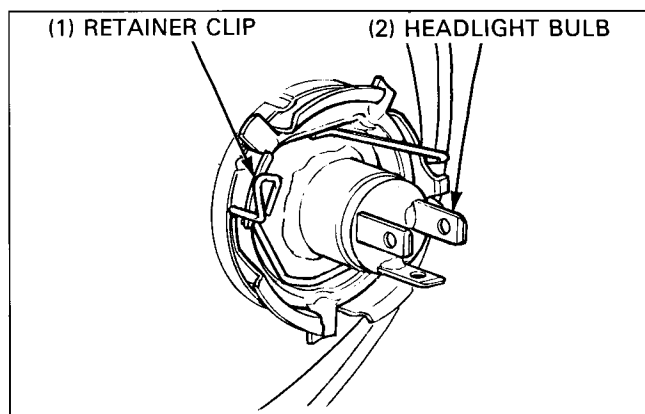
CAUTION

- *This motorcycle is equipped with a halogen headlight bulb.*
- *Do not put finger prints on the headlight bulb, they may create hot spots on the bulb.*
- *If you touch the bulb with your bare hands, clean it with a cloth moistened with alcohol to prevent its early failure.*
- *Do not try to replace the bulb or clean the headlight with the light ON.*
- *After replacing the bulb, install the rubber boot tightly against the unit.*

NOTE

- Install the rubber protector with the top mark facing up.

Install the headlight in the reverse order of removal.



HEADLIGHT RELAY

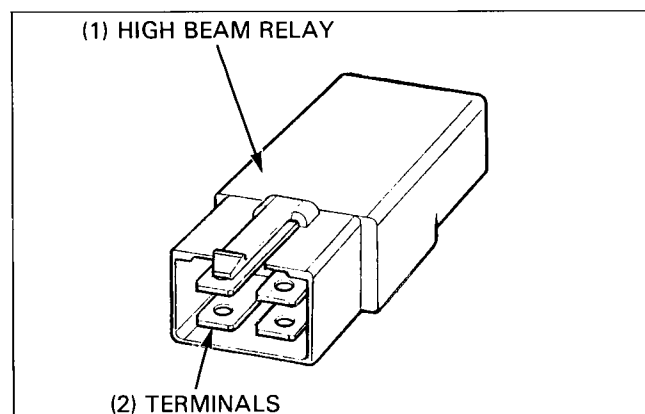
High beam relay

Except IT model:

Does not come on headlight high beam:

Check the headlight bulb and sub fuse.

Disconnect the high beam relay connector and check if for loose contact or corroded terminals.

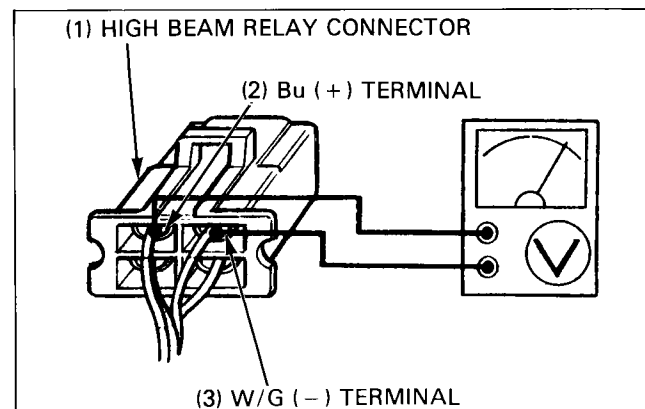


[INPUT LINE CHECK]

Measure the battery voltage between the Blue (Positive) and White/Green (Negative) terminals of the supplier side connector. There should be battery voltage with the ignition switch ON and high beam switch ON.

If there is no voltage, check the wire harness for open or short circuit and high beam or passing switch condition.

If there is battery voltage, replace the high beam relay.



XRV650 ADDENDUM

Does not come off the high beam:

Check the wire harness and high beam or passing switch for short circuit.

Turn the ignition switch OFF and disconnect the high beam relay 4P connector.

[UNIT SWITCHING LINE]

Check the continuity between the Blue terminal and Blue/Yellow terminal.

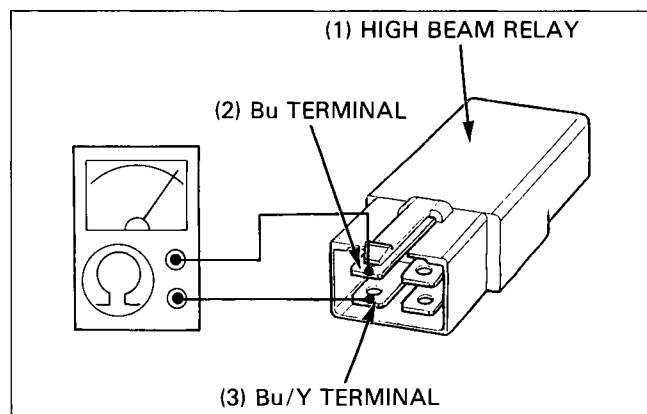
There should be no continuity.

If there is continuity, replace the high beam relay.

NOTE

For only B, SP, PO models, high beam relay and low beam relay are including in headlight system.

Check the low beam relay using the same procedure as for the high beam relay. However, be careful to do the difference of each terminal color as indicated.



HEADLIGHT RELAY CHECK LINES TERMINAL COLOR COAD

	FOR HIGH BEAM	FOR LOW BEAM	REMARKS
INPUT LINE	White/Green — Blue (Positive) — (Negative)	White/Green — White (Positive) — (Negative)	Battery voltage should come; Ignition and each beam switch are ON.
UNIT SWITCHING LINE	Blue — Blue/Yellow	White — White/Black	No continuity; Ignition switch is OFF.

FUEL CUT RELAY

⚠ WARNING

- Gasoline is extremely flammable and is explosive under certain conditions. Work in a well ventilated area. Do not smoke or allow flames or sparks in the work area or where gasoline is stored.**

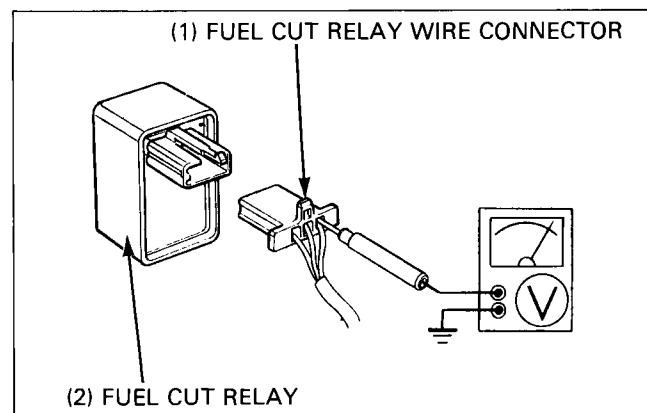
Check the sub-fuse (10 A).

Remove the relay from the rubber bracket and check the relay connector terminals for looseness and corrosion.

Inspect as follows:

Disconnect the connector and test the wires on the main harness side.

ITEM	STANDARD
Between BI/R (+) and body ground (—) with the ignition switch "ON"	Battery voltage should come.
BI/Y wire between the pump relay and CDI (Rear) unit	CONTINUITY
Y/BI wire between the pump relay and fuel pump	CONTINUITY



FUEL PUMP

SYSTEM INSPECTION

Turn the ignition switch OFF. Disconnect the fuel cut relay wire connector. Short the Yellow/Black and Black/Red wire terminals with a jumper wire.

Disconnect the fuel tube from the T-joint near the carburetor and hold a graduated beaker under the fuel tube.

⚠ WARNING

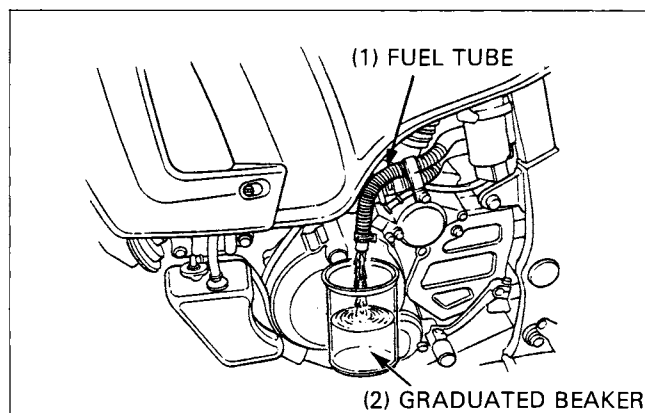
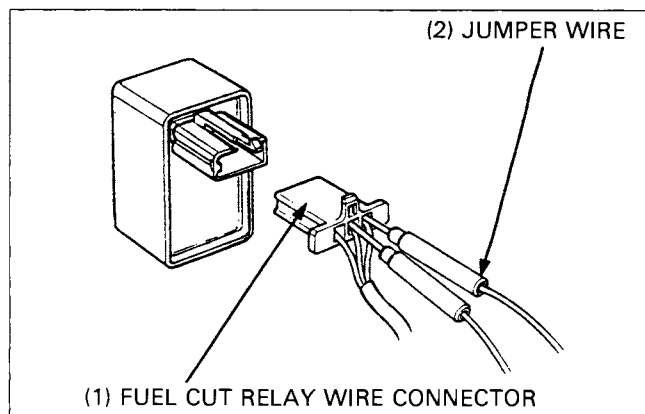
- *Gasoline is extremely flammable and is explosive under certain conditions. Work in a well ventilated area. Do not smoke or allow flames or sparks in the work area or where gasoline is stored.*

Turn the ignition switch ON and let fuel flow into the beaker for 5 seconds, then turn the ignition switch OFF.

Multiply the amount in the beaker by 12 to determine the fuel pump flow capacity per minute.

FUEL PUMP FLOW CAPACITY:

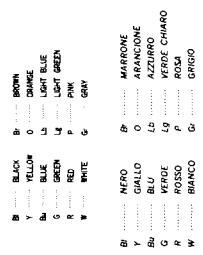
650 cm³ (0.682 US qt 0.572 Imp qt)/minute at 10 V



20-16



20-16



SWITCH CONTINUITY
CONTINUITA' DI COMMUTAZIONE

BI	NERO	B*	MARRONE
Y	GIALLO	O	ARANCIONE
Bu	BLU	Lb	AZZURRO
G	VERDE	Lg	VERDE CHIARO
R	ROSSO	P	ROSA
W	BIANCO	G	GRIGIO

PASSING SWITCH
COMMUTATORE
DI SORPASSO

LIGHTING SWITCH
LEVA DI ACCENSIONE DELLE LUCI

COMANDO DELL'INVISORE ACUSTICO

DIMMER SWITCH
 COMMUTATORE
 ANABBAGLIANTE

ION SIGNAL SWITCH
EVA DEGLI INDICATORI
N DIREZIONE

STARTER SWITCH
COMMUTATORE DI
AVVIAMENTO

ENGINE STOP SWITCH
COMMUTATORE DI
ARRESTO DEL MOTORE

IGNITION SWITCH
COMMUTATORE MULTIPLIO

1151

0030Z—MS8—7300

20-16



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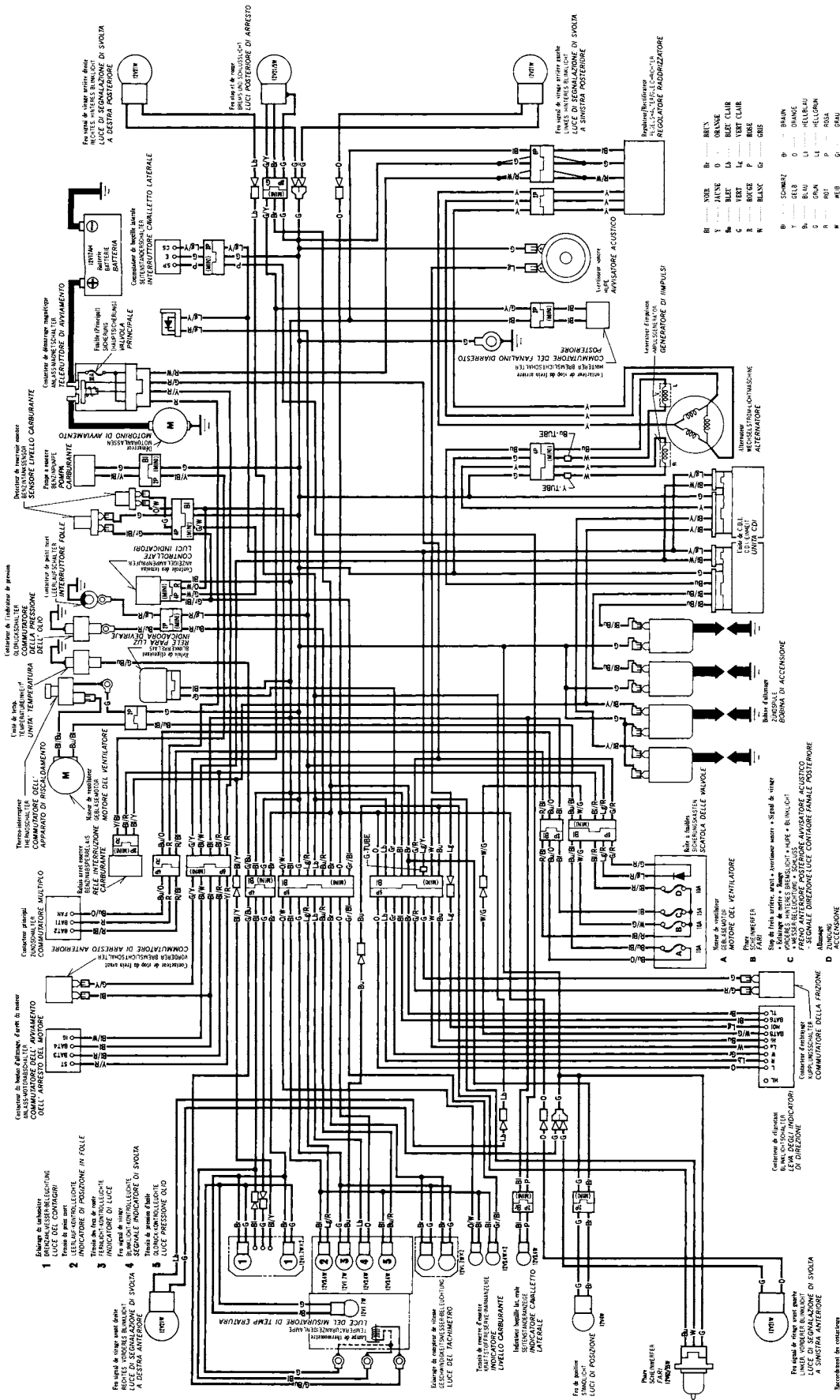
20-16

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20-16

20-16

XRV650 (SW)



BI	NERO	Br	MARRONE
Y		O	
BU		Ar	ARANCIONE
BLU		Lb	
G	VERDE	Lg	
R		P	VERDE CHIARO
W	ROSSO	R	
		Gr	ROSA
			GRIGIO

Caratteristiche di tutti gli strumenti
SISTEMI AMERICANA THER
COMMUTATORE
DI COMPASSO

BATS	IN
FREE	
PUSH	

Caratteristiche di tutti gli strumenti
SISTEMI AMERICANA THER
INTERRUPTORE CAMELLETTO LATERALE

SP	E	CS
FREE		
PUSH		

Comandante d'habitat
BELLICHISSIONALITER
LEVA DI ACCENSIONE DELLE LUCI

	BAT6	TL	HL	BAT5
OFF				
P	○	○		
(N)	○	○		

Modello d'investitura
PERSONALE, TER
COMANDO DELL'
AVVISATORE ACUSTICO

	HOI	BAT6	
FREE			
PUSH			

ML	Lo	Hi

[illegible]

ST		

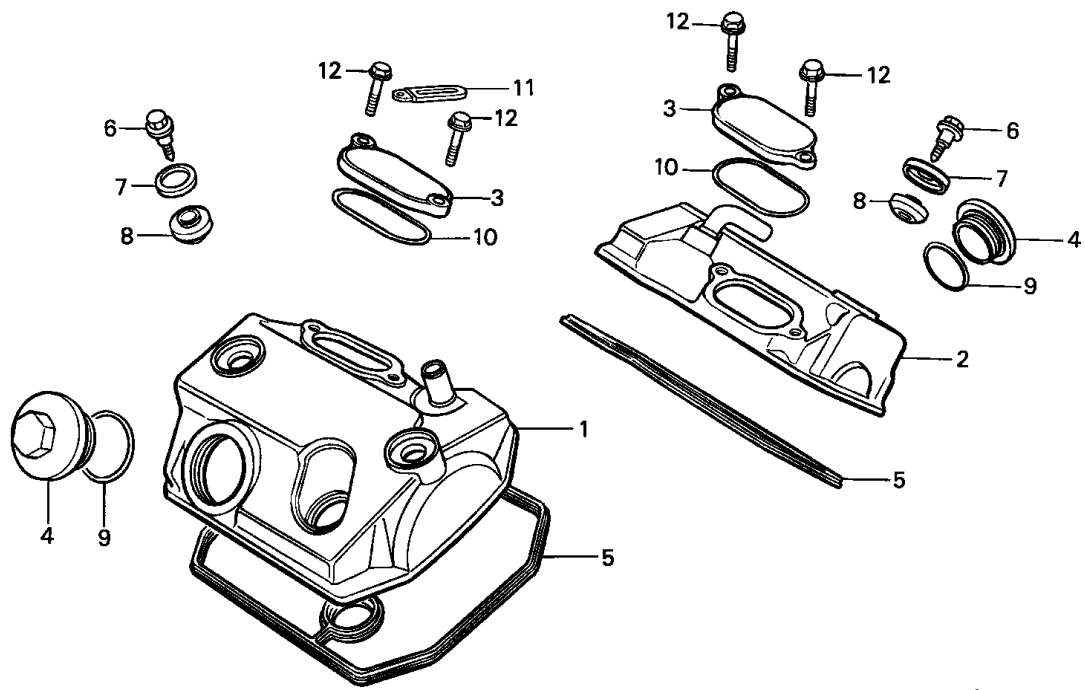
de moteur
E DI
MOTORE

(Collezioni d'arte NOTORIE) COMMUTATO ARRESTO D	BA			
	OFF			
	RUN			
	OFF			

TIPO FAN				

	BATI	BA
	ON	
	OFF	
	LOCK	

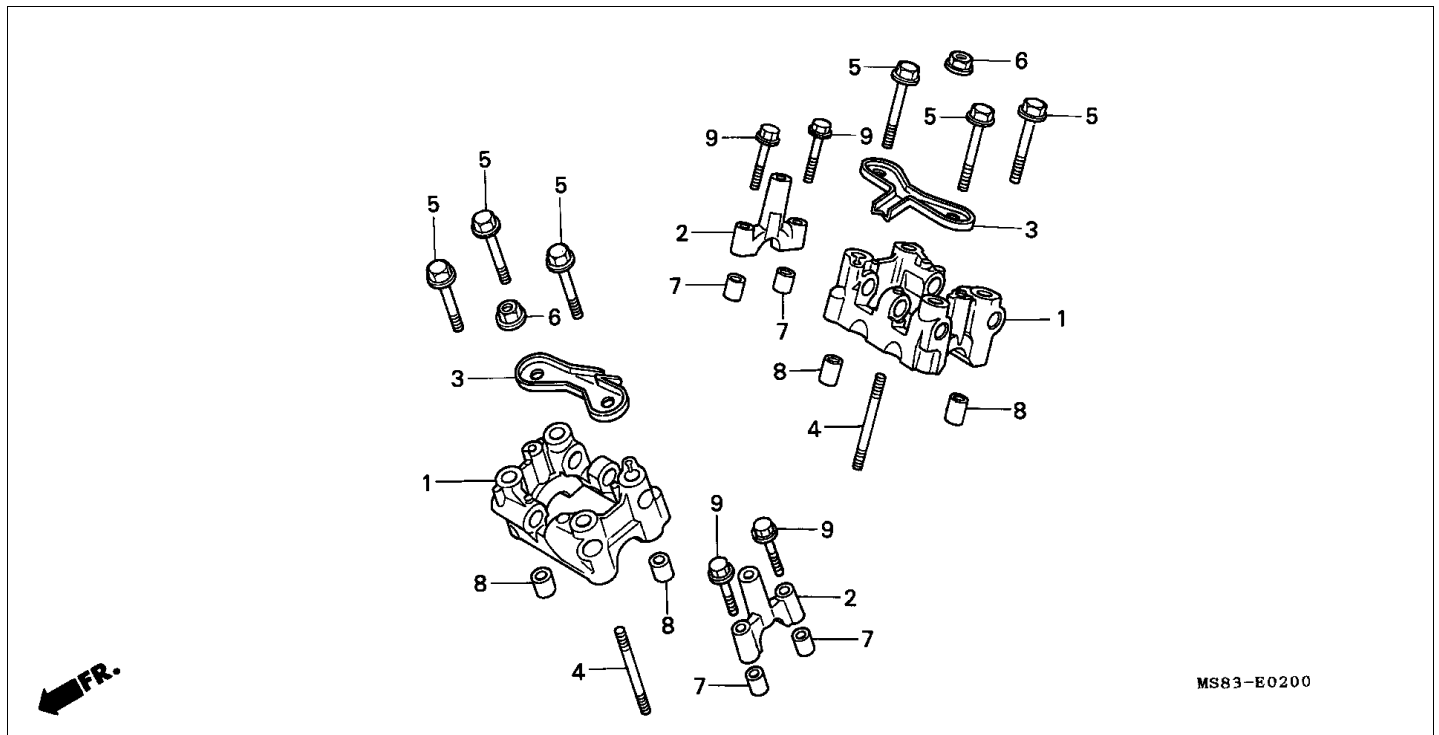
0030Z--MS8--6800



MS83-E0100

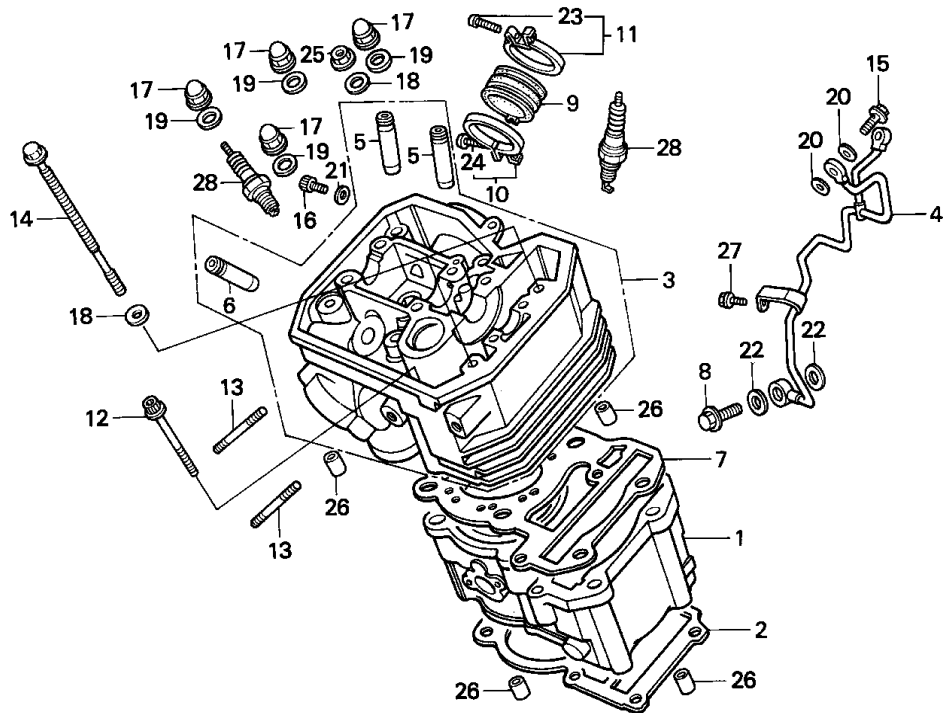
Block E-1 CYLINDER HEAD COVER

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	12310-MS8-000	COVER, FR. CYLINDER HEAD	001	0
2	12320-MS8-000	COVER, RR. CYLINDER HEAD	001	0
3	12351-MF5-000	COVER, TAPPET ADJUSTING HOLDER	002	0
4	12361-MF5-000	CAP, TAPPET ADJUSTING HOLDER	002	0
5	12391-MF5-750	GASKET, HEAD COVER	002	0
6	90011-MA6-000	BOLT, FLANGE, 6X30	004	0
7	90541-MB0-000	WASHER, MOUNTING RUBBER	004	0
8	90542-MB0-000	RUBBER, MOUNTING	004	0
9	91303-MF5-003	O-RING, 44X3 (ARAI)	002	0
10	91304-MF5-003	O-RING, 62.4X2.5 (ARAI)	002	0
11	91413-679-000	CLIP, 2X70	001	0
12	96001-0602000	BOLT, FLANGE, 6X20	004	0



Block E-2 CAMSHAFT HOLDER

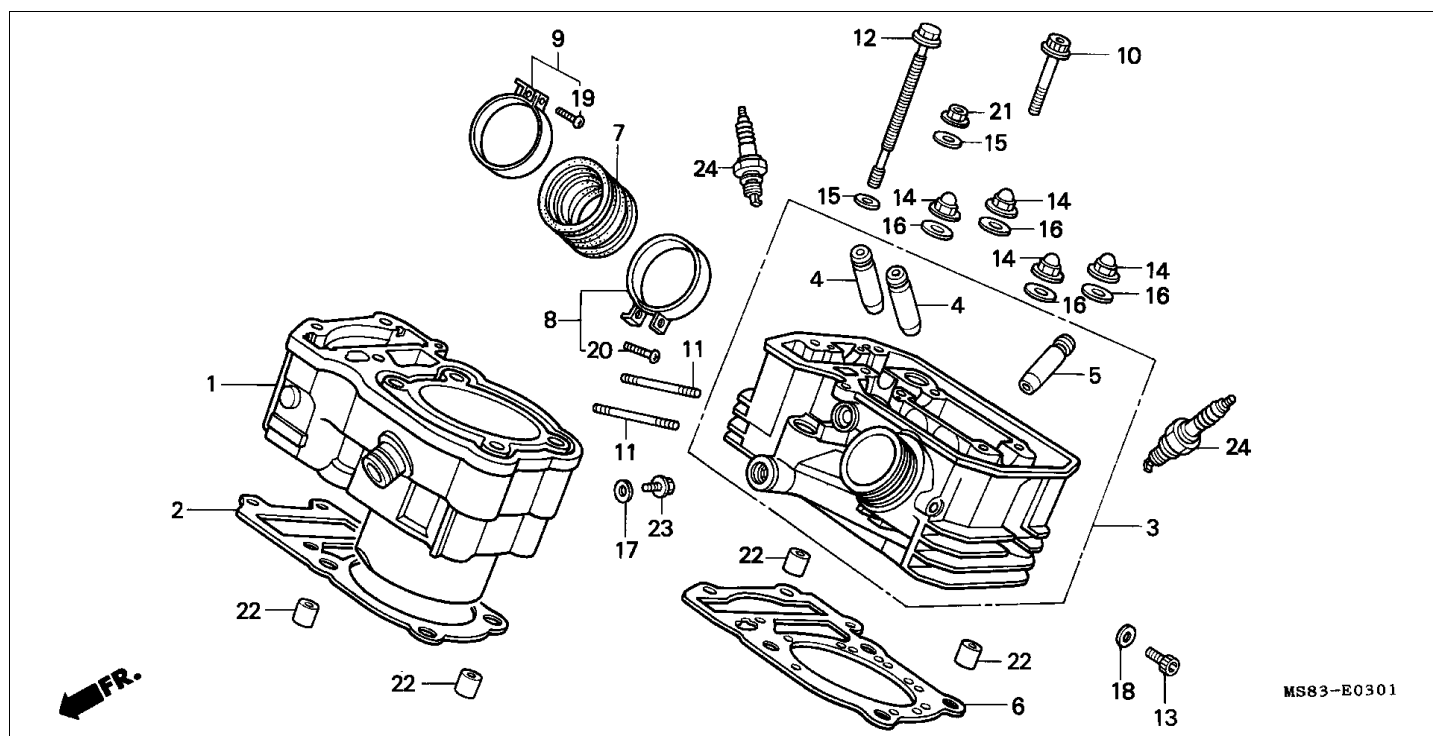
Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	12223-MF5-030	HOLDER, RR. CAMSHAFT	002	0
2	12225-MF5-000	HOLDER, SIDE CAMSHAFT	002	0
3	12226-MF5-000	PLATE, VALVE OIL GUIDE	002	0
4	90013-MF5-000	BOLT, STUD, 8X50	002	0
5	90066-MC7-000	BOLT, FLANGE, 8X68	006	0
6	94050-08080-	NUT, FLANGE, 8MM	002	0
7	94301-08140-	DOWEL PIN, 8X14	004	0
8	94301-10160-	DOWEL PIN, 10X16	004	0
9	96001-0604000	BOLT, FLANGE, 6X40	004	0



MS83-E0300A

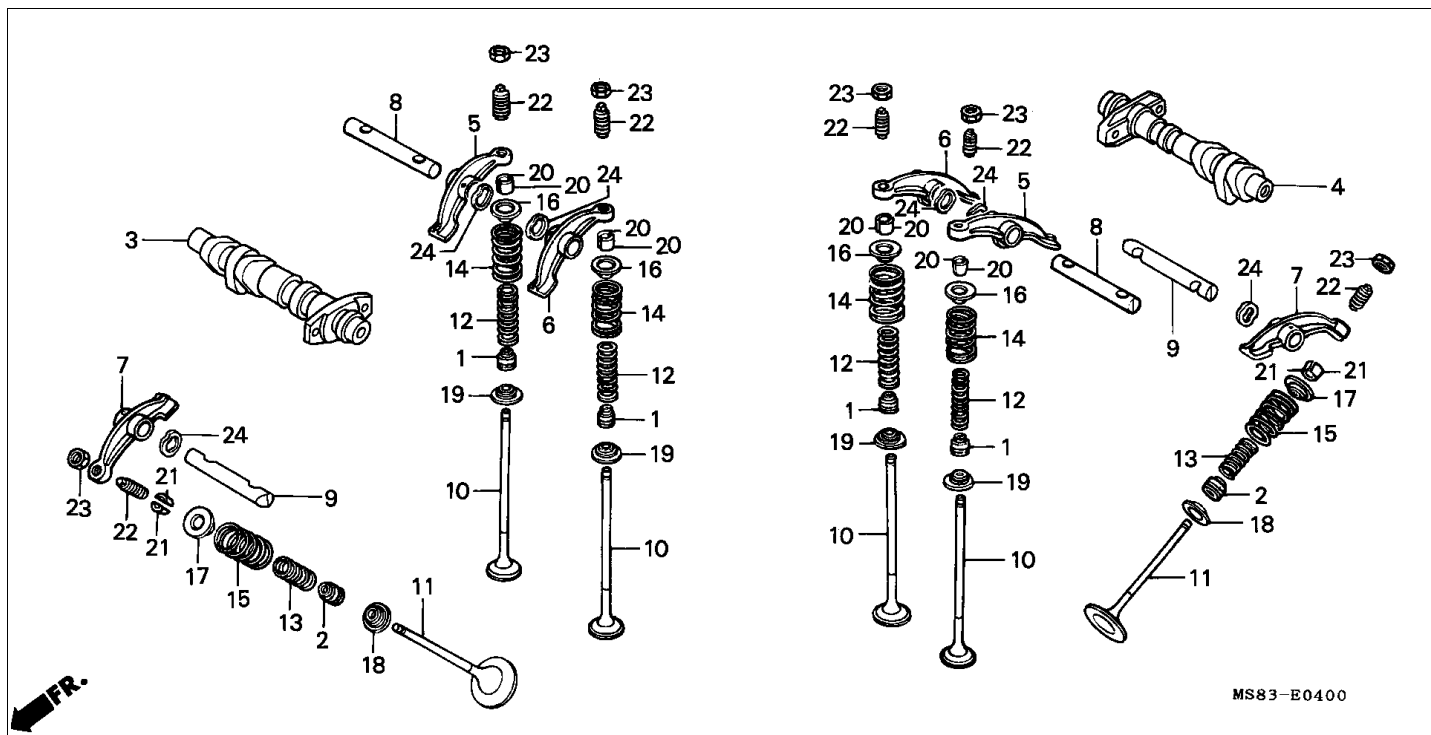
Block E-3 CYLINDER/CYLINDER HEAD (FRONT)

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	12100-MN8-000	CYLINDER COMP., FR.	001	0
2	12191-MN8-003	GASKET, CYLINDER	001	0
3	12210-MN8-000	HEAD COMP., FR. CYLINDER	001	0
4	12230-MR1-700	PIPE, OIL PASS	001	0
4	12230-MR1-020	PIPE, OIL PASS	001	0
5	12231-MF5-305	GUIDE, IN. VALVE (O.S.)	002	0
6	12241-MF5-315	GUIDE, EX. VALVE (O.S.)	001	0
7	12251-MN8-003	GASKET, CYLINDER HEAD	001	0
8	15532-KN8-730	BOLT, FLANGE, 8X30	001	0
9	16211-MS8-610	INSULATOR, CARBURETOR	001	0
10	16219-ME9-000	BAND, INSULATOR	001	0
10	16218-MN8-750	BAND A, INSULATOR	001	0
11	16219-MS8-000	BAND B, CARBURETOR INSULATOR	001	0
12	90094-MK4-600	BOLT, FLANGE SOCKET, 6X70	001	0
13	90015-MN8-000	BOLT, STUD, 8X22	002	0
14	90081-MM9-003	BOLT, CYLINDER, 8X187	002	0
15	90085-MF5-000	BOLT, SPECIAL, 7X26.5	002	0
16	90089-MN8-000	BOLT, SOCKET, 5X8	001	0
17	90202-329-000	NUT, FLANGE CAP, 10MM	004	0
18	90401-MR1-000	WASHER, 8MM	003	0
19	90410-HC4-000	WASHER, 10MM	004	0
20	90441-MC0-000	WASHER, SEALING, 7MM	004	0
21	90452-323-000	WASHER, SEALING, 5MM	001	0
22	90475-703-000	WASHER C, 8MM	002	0
23	93500-050220G	SCREW, PAN, 5X22	001	0
24	93500-050250G	SCREW, PAN, 5X25	001	0
25	94050-08080-	NUT, FLANGE, 8MM	001	0
26	94301-14200-	DOWEL PIN, 14X20	004	0
27	96001-0601400	BOLT, FLANGE, 6X14	001	0
28	98069-57916-	PLUG, SPARK (DPR7EA-9)(NGK)	(2)	0
28	98069-57926-	PLUG, SPARK (X22EPR-U9)(DENSO)	(2)	0
28	98069-58916-	PLUG, SPARK (DPR8EA-9)(NGK)	002	0
28	98069-58926-	PLUG, SPARK (X24EPR-U9)(DENSO)	002	0
28	98069-59916-	PLUG, SPARK (DPR9EA-9)(NGK)	(2)	0
28	98069-59926-	PLUG, SPARK (X27EPR-U9)(DENSO)	(2)	0



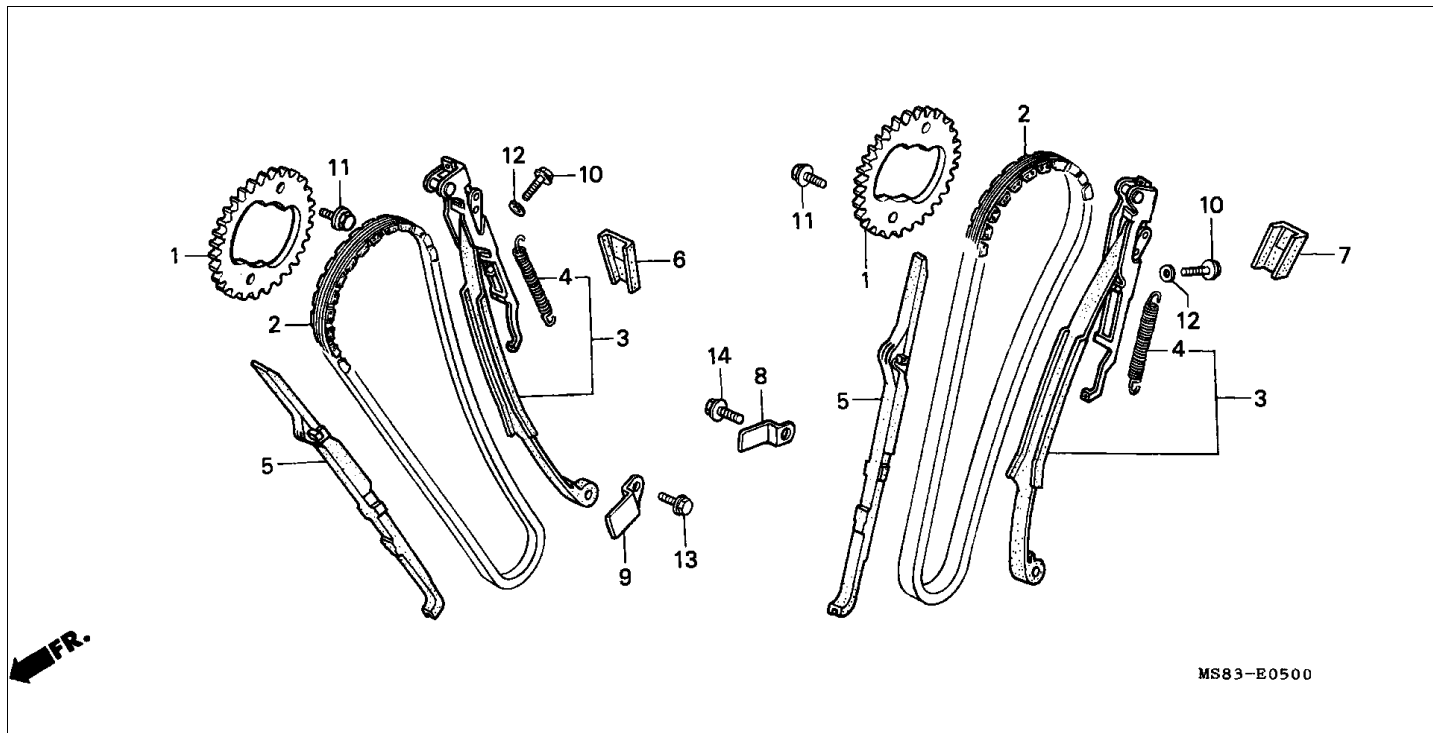
Block E-3-1 CYLINDER/CYLINDER HEAD (REAR)

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	12110-MN8-000	CYLINDER COMP., RR.	001	0
2	12191-MN8-003	GASKET, CYLINDER	001	0
3	12220-MN8-000	HEAD COMP., RR. CYLINDER	001	0
4	12231-MF5-305	GUIDE, IN. VALVE (O.S.)	002	0
5	12241-MF5-315	GUIDE, EX. VALVE (O.S.)	001	0
6	12251-MN8-003	GASKET, CYLINDER HEAD	001	0
7	16211-MS8-610	INSULATOR, CARBURETOR	001	0
8	16219-ME9-000	BAND, INSULATOR	001	0
9	16219-MS8-000	BAND B, CARBURETOR INSULATOR	001	0
10	90094-MK4-600	BOLT, FLANGE SOCKET, 6X70	001	0
11	90015-MN8-000	BOLT, STUD, 8X22	002	0
12	90081-MM9-003	BOLT, CYLINDER, 8X187	002	0
13	90089-MN8-000	BOLT, SOCKET, 5X8	001	0
14	90202-329-000	NUT, FLANGE CAP, 10MM	004	0
15	90401-MR1-000	WASHER, 8MM	003	0
16	90410-HC4-000	WASHER, 10MM	004	0
17	90441-706-000	WASHER, SEALING, 6MM	001	0
18	90452-323-000	WASHER, SEALING, 5MM	001	0
19	93500-050220G	SCREW, PAN, 5X22	001	0
20	93500-050250G	SCREW, PAN, 5X25	001	0
21	94050-08080-	NUT, FLANGE, 8MM	001	0
22	94301-14200-	DOWEL PIN, 14X20	004	0
23	95701-0601000	BOLT, FLANGE, 6X10	001	0
24	98069-57916-	PLUG, SPARK (DPR7EA-9)(NGK)	(2)	0
24	98069-57926-	PLUG, SPARK (X22EPR-U9)(DENSO)	(2)	0
24	98069-58916-	PLUG, SPARK (DPR8EA-9)(NGK)	002	0
24	98069-58926-	PLUG, SPARK (X24EPR-U9)(DENSO)	002	0
24	98069-59916-	PLUG, SPARK (DPR9EA-9)(NGK)	(2)	0
24	98069-59926-	PLUG, SPARK (X27EPR-U9)(DENSO)	(2)	0



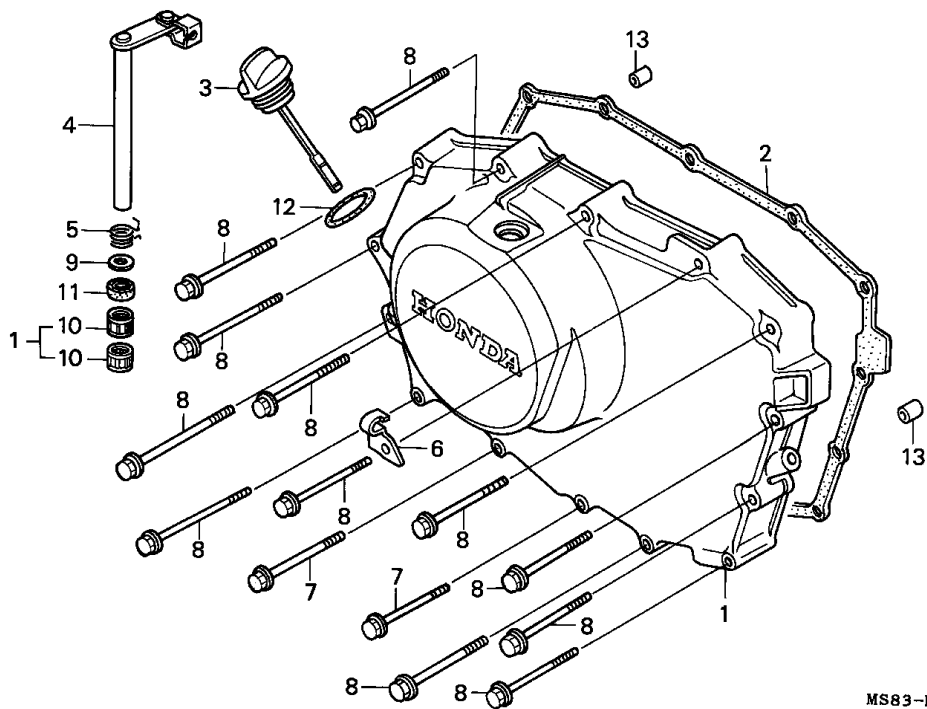
Block E-4 CAMSHAFT/VALVE

Refrn	Part Number	Parts Description	Unit Qty	Repair Qty
1	12208-413-003	SEAL, VALVE STEM (ARAI)	004	0
2	12209-413-003	SEAL, VALVE STEM (ARAI)	002	0
3	14110-MS8-000	CAMSHAFT COMP., FR.	001	0
4	14120-MS8-000	CAMSHAFT COMP., RR.	001	0
5	14421-MR1-000	ARM A, IN. ROCKER	002	0
6	14422-MR1-000	ARM B, IN. ROCKER	002	0
7	14431-MR1-000	ARM, EX. VALVE ROCKER	002	0
8	14441-MF5-000	SHAFT, IN. ROCKER ARM	002	0
9	14451-MF5-000	SHAFT, EX. ROCKER ARM	002	0
10	14711-MR1-000	VALVE, IN.	004	0
11	14721-MR1-000	VALVE, EX.	002	0
12	14751-MR1-003	SPRING, IN. VALVE INNER (CHUO HATSUJO)	004	0
13	14752-MR1-003	SPRING, EX. VALVE INNER (CHUO HATSUJO)	002	0
14	14761-MR1-003	SPRING, IN. VALVE OUTER (CHUO HATSUJO)	004	0
15	14762-MR1-003	SPRING, EX. VALVE OUTER (CHUO HATSUJO)	002	0
16	14771-MF5-000	RETAINER, IN. VALVE SPRING	004	0
17	14771-MR1-000	RETAINER, VALVE SPRING	002	0
18	14775-ME9-000	SEAT, VALVE SPRING	002	0
19	14775-MF5-000	SEAT, VALVE SPRING	004	0
20	14781-MB4-000	COTTER, VALVE	008	0
21	14781-MB9-000	COTTER, VALVE	004	0
22	90014-MF5-000	SCREW, TAPPET ADJUSTING	006	0
23	90206-590-000	NUT, TAPPET ADJUSTING	006	0
24	90402-428-000	WASHER, WAVE, 12MM	006	0



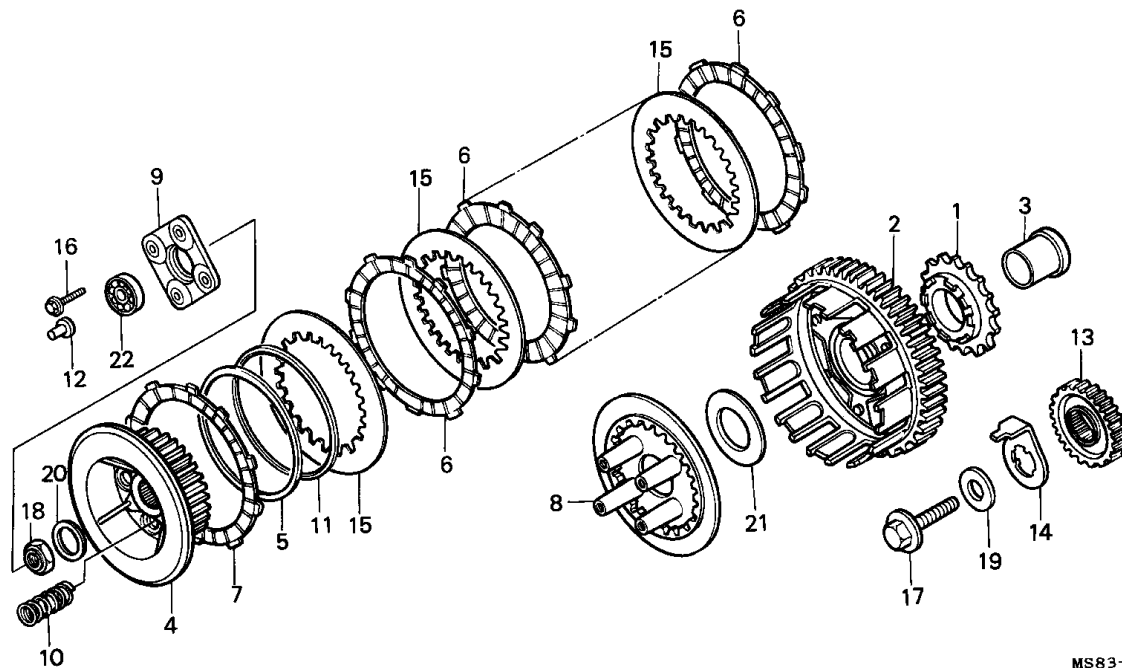
Block E-5 CAM CHAIN/TENSIONER

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	14322-MR1-000	SPROCKET, CAM (40T)	002	0
2	14401-MN1-671	CHAIN, CAM (BORG WARNER)(118L)	002	0
3	14510-MR1-000	TENSIONER COMP., CAM CHAIN	002	0
4	14516-MG8-003	SPRING, CAM CHAIN TENSIONER (NIPPON HATSUJO)	002	0
5	14522-MR1-000	GUIDE, CAM CHAIN	002	0
6	14531-MN8-000	RUBBER, FR. CUSHION	001	0
7	14532-MN8-000	RUBBER, RR. CUSHION	001	0
8	14623-MF5-000	PLATE A, TENSIONER SETTING	001	0
9	14624-MF5-000	PLATE B, TENSIONER SETTING	001	0
10	90021-KE9-000	BOLT, SPECIAL, 6MM	004	0
11	90086-MF5-000	BOLT, FLANGE KNOCK, 7X13	004	0
12	90441-706-000	WASHER, SEALING, 6MM	004	0
13	95701-0601400	BOLT, FLANGE, 6X14	001	0
14	95701-0601600	BOLT, FLANGE, 6X16	001	0



Block E-6 RIGHT CRANKCASE COVER

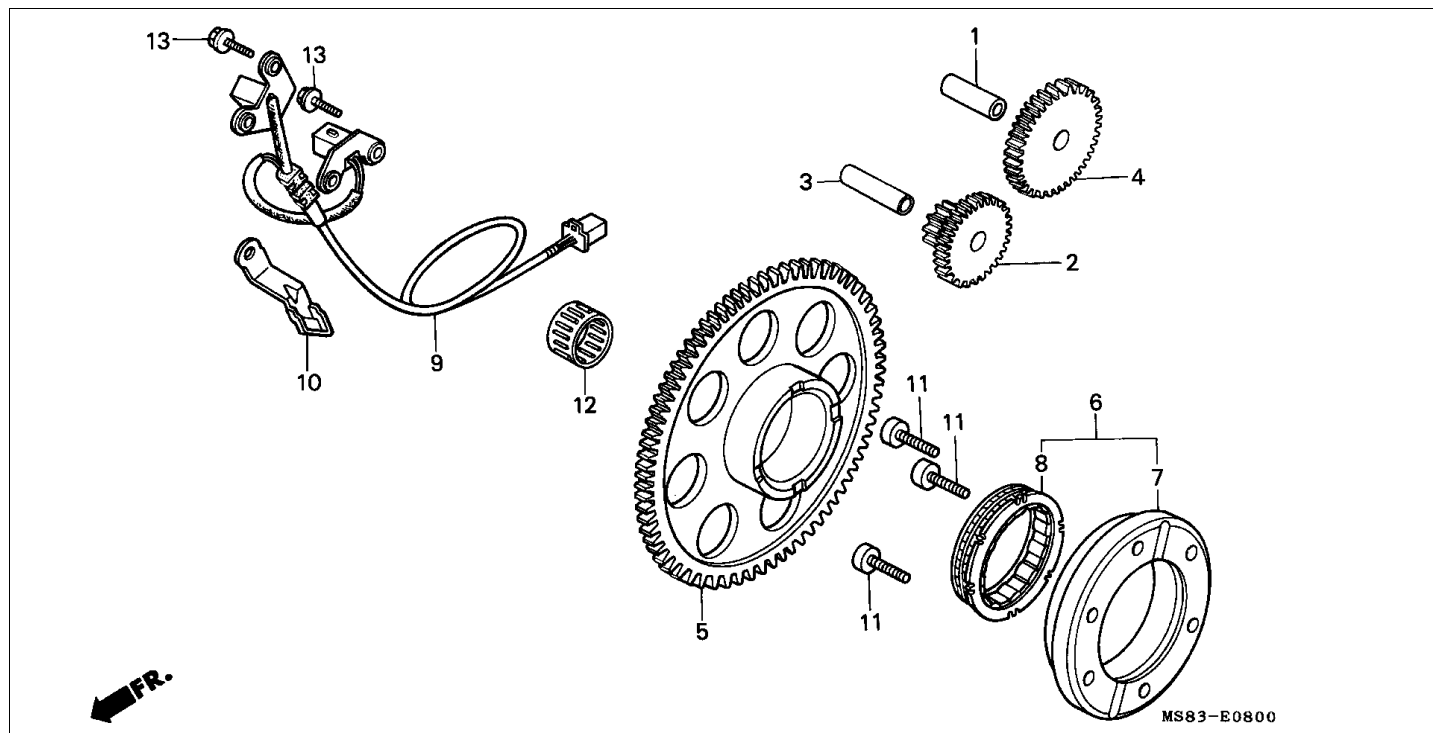
Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	11330-MS8-000	COVER COMP., R. CRANKCASE	001	0
2	11394-MR1-000	GASKET, R. COVER	001	0
3	15650-MM9-000	GAUGE COMP., OIL LEVEL	001	0
4	22810-MS8-000	LEVER COMP., CLUTCH	001	0
5	22815-MS8-000	SPRING, CLUTCH LEVER	001	0
6	22825-MS8-000	RECEIVER, CLUTCH WIRE	001	0
7	90003-MS8-000	BOLT, FLANGE, 6X35	002	0
8	90004-MS8-000	BOLT, FLANGE, 6X45	012	0
9	90546-KF0-000	WASHER, 12MM	001	0
10	91053-719-003	BEARING, NEEDLE, 12X16X10 (TOMUSON)	002	0
10	91053-719-004	BEARING, NEEDLE, 12X16X10 (TOYO)	002	0
10	91053-719-005	BEARING, NEEDLE, 12X16X10 (NTN)	002	0
11	91204-KK0-003	OIL SEAL, 12X18X5 (ARAI)	001	0
12	91301-250-000	O-RING, 21.5MM	001	0
13	94301-08140-	DOWEL PIN, 8X14	002	0



MS83-E0700

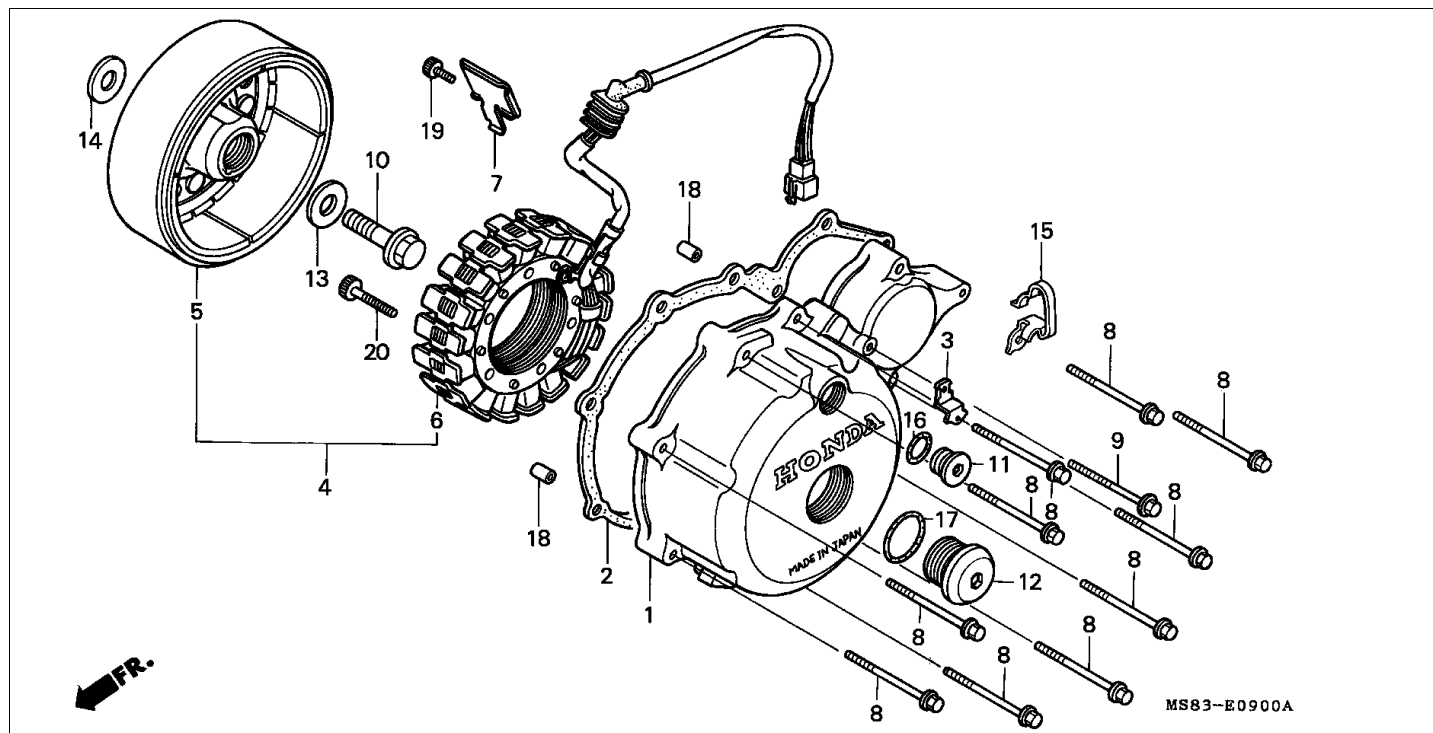
Block E-7 CLUTCH

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	15131-MR1-000	SPROCKET, OIL PUMP DRIVE (31T)	001	0
2	22100-MR1-000	OUTER COMP., CLUTCH	001	0
3	22116-MF5-000	COLLAR, PRIMARY DRIVEN	001	0
4	22120-MM9-010	CENTER COMP., CLUTCH	001	0
5	22125-MN8-000	SEAT, JUDDER SPRING	001	0
6	22201-MN8-000	DISK, CLUTCH FRICTION	007	0
6	22201-MN8-700	DISK, CLUTCH FRICTION	007	0
7	22201-302-010	DISK, CLUTCH FRICTION	001	0
8	22350-MR1-000	PLATE, CLUTCH PRESSURE	001	0
9	22361-MR1-000	PLATE, CLUTCH LIFTER	001	0
10	22401-MS8-000	SPRING, CLUTCH	004	0
11	22402-435-000	SPRING, JUDDER	001	0
12	22847-415-000	ROD, CLUTCH LIFTER	001	0
13	23103-MR1-010	GEAR, PRIMARY DRIVE (36T)	001	0
14	23105-MS8-000	PLATE, PULSER	001	0
15	23311-200-000	PLATE A, CLUTCH	007	0
15	22321-MN8-000	PLATE, CLUTCH	007	0
16	90007-MR1-000	BOLT, FLANGE SPECIAL, 6X30	004	0
17	90013-415-000	BOLT, UBS, 12X28	001	0
18	90236-MN8-000	NUT, LOCK, 18MM	001	0
19	90402-PC6-000	WASHER, 12.5X34X5	001	0
20	90432-MR1-000	WASHER, SPECIAL, 18MM	001	0
21	90452-471-000	WASHER, THRUST, 22MM	001	0
22	96100-6001000	BEARING, RADIAL BALL, 6001	001	0



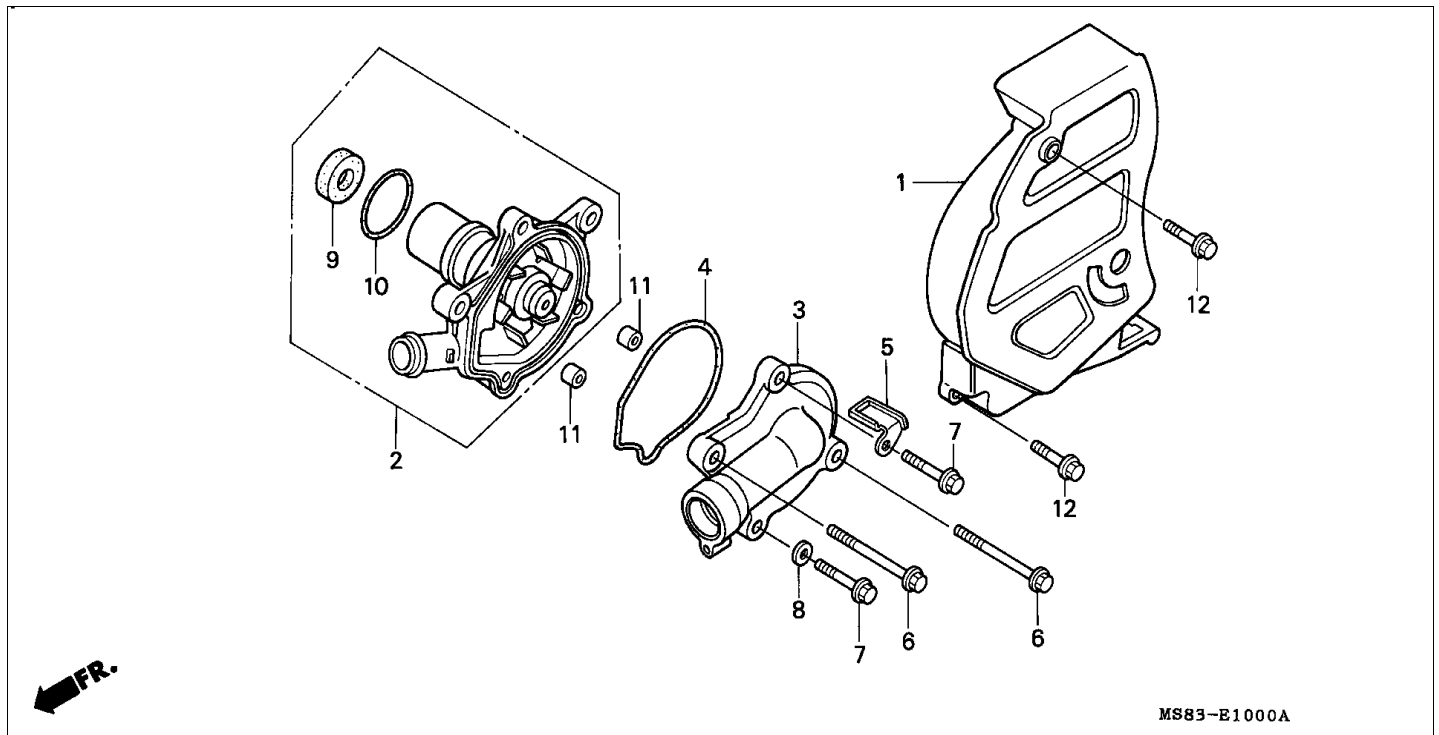
Block E-8 PULSE GENERATOR/ STARTING CLUTCH

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	13111-122-000	PIN, PISTON, 10X33	001	0
2	28101-MS8-000	GEAR, STARTER REDUCTION (38/12T)	001	0
3	28102-ME9-000	PIN, 10X44	001	0
4	28106-ME9-010	GEAR, STARTER (51T)	001	0
5	28110-MM9-000	GEAR COMP., STARTER DRIVEN (75T)	001	0
6	28120-MM9-003	OUTER ASSY., STARTING CLUTCH (BORG WARNER)	001	0
7	28121-MM9-000	OUTER, STARTING CLUTCH	001	0
8	28125-MK5-023	CLUTCH, ONE WAY	001	0
9	30300-MS8-000	GENERATOR ASSY., PULSE	001	0
10	32963-MM9-000	CLAMPER, PULSE	001	0
11	90010-KE5-000	BOLT, SOCKET, 8MM	006	0
12	91021-MF5-841	BEARING, NEEDLE, 30X37X20 (NTN)	001	0
13	95701-0602000	BOLT, FLANGE, 6X20	004	0



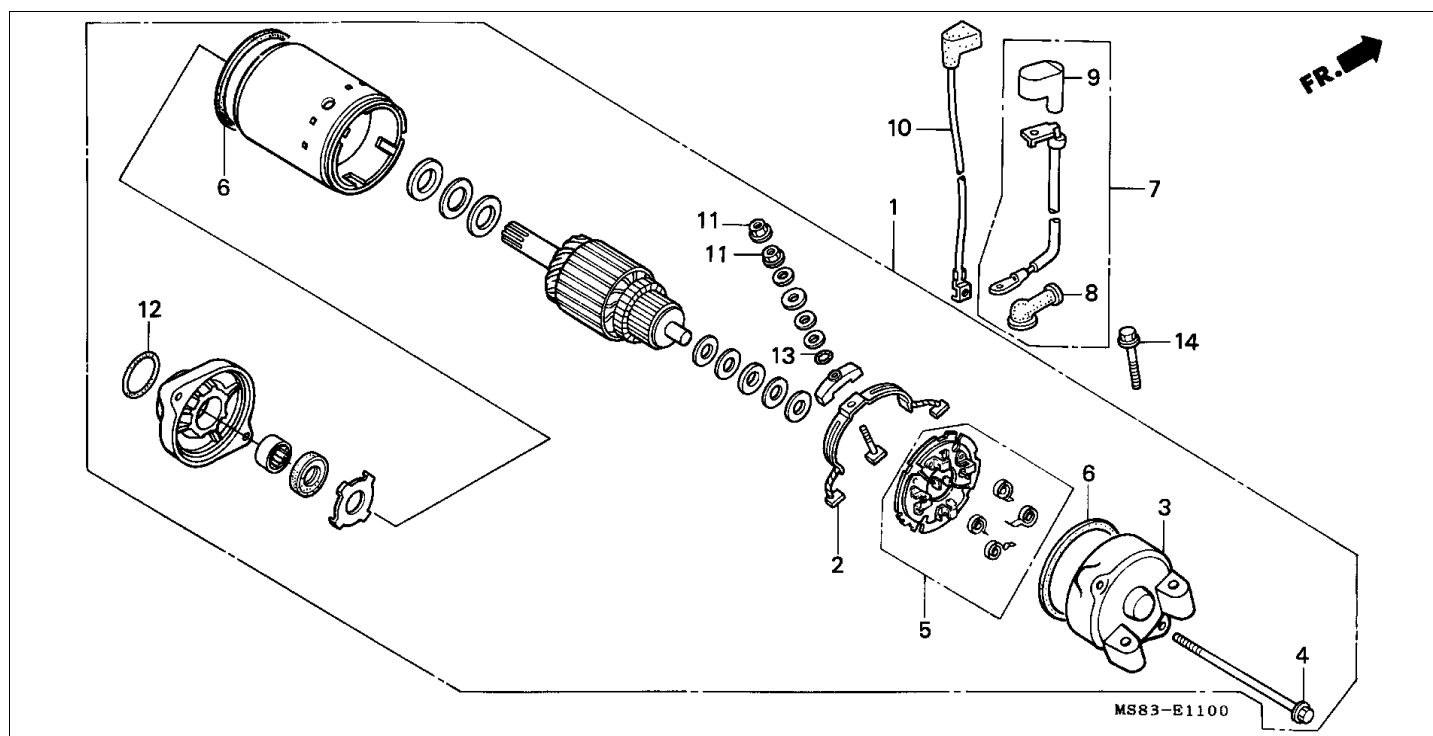
Block E-9 LEFT CRANKCASE COVER/ GENERATOR

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	11341-MS8-000	COVER, L. CRANKCASE	001	0
2	11395-MR1-000	GASKET, L. COVER	001	0
3	16712-MS8-000	STAY, FUEL STRAINER	001	0
4	31100-MS8-751	GENERATOR ASSY., FLYWHEEL TYPE A.C. (DENSO)	001	0
5	31110-MS8-751	FLYWHEEL COMP. (DENSO)	001	0
6	31120-MS8-751	STATOR COMP. (DENSO)	001	0
7	32961-MF5-000	CLAMPER, A.C. GENERATOR CORD	001	0
8	90003-MS8-000	BOLT, FLANGE, 6X35	010	0
9	90004-MS8-000	BOLT, FLANGE, 6X45	001	0
10	90025-MN8-000	BOLT, FLANGE, 12X48	001	0
11	90084-MM9-000	CAP, 14MM	001	0
12	90087-KT7-000	CAP, 30MM	001	0
13	90402-PC6-000	WASHER, 12.5X34X5	001	0
14	90453-MN8-750	WASHER, THRUST, 30X50X1	001	0
15	90601-MS8-000	CLIP, FUEL TUBE	001	0
16	91303-377-000	O-RING, 13.8X2.5	001	0
17	91356-425-003	O-RING, 30MM	001	0
18	94301-08140-	DOWEL PIN, 8X14	002	0
19	96700-0601200	BOLT, SOCKET, 6X12	001	0
20	90116-375-000	BOLT, SOCKET, 6X38	004	0



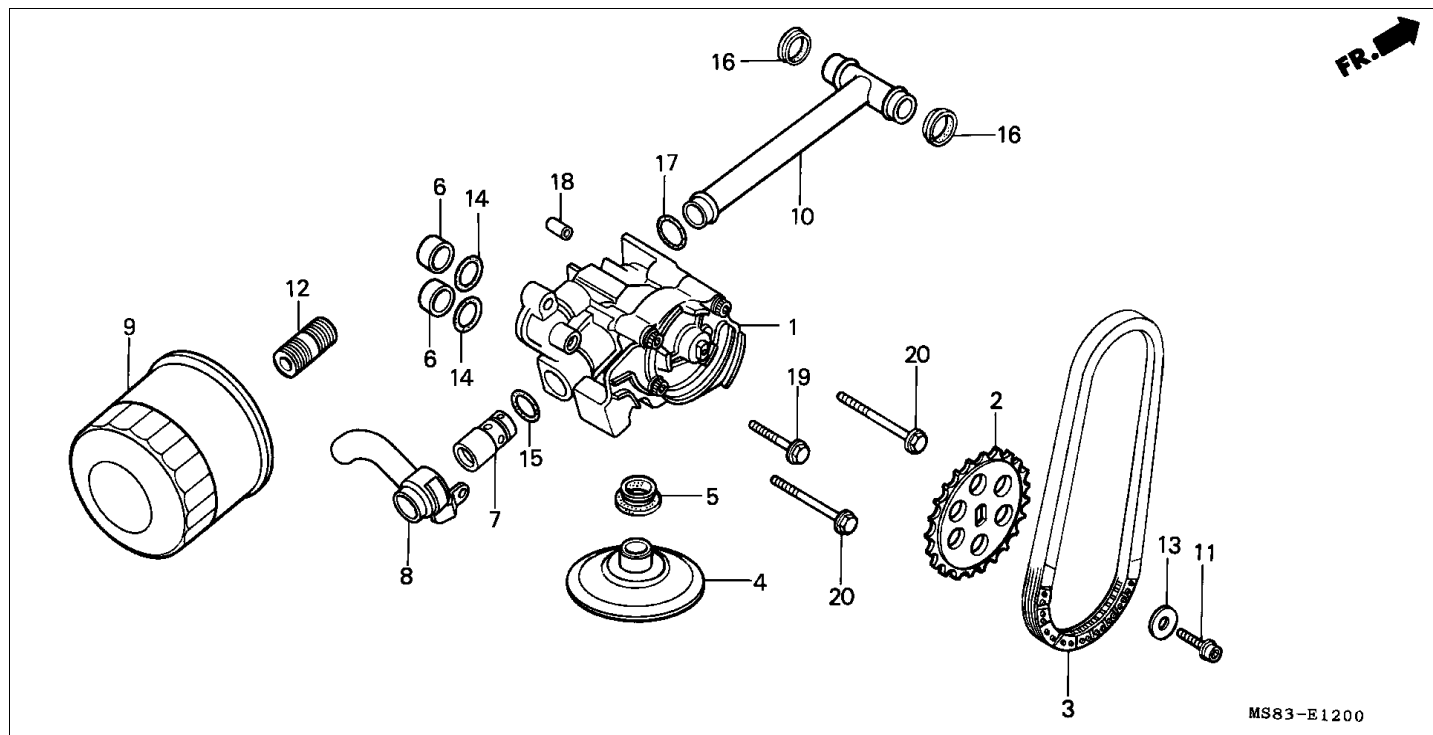
Block E-10 WATER PUMP

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	11351-MS8-621	COVER, L. RR. CRANKCASE	001	0
2	19200-MN8-000	PUMP COMP., WATER	001	0
3	19221-MN8-000	COVER, WATER PUMP	001	0
4	19226-MM9-000	GASKET, WATER PUMP COVER	001	0
5	32972-MS8-000	CLAMPER, OIL PRESSURE CORD	001	0
6	90022-MN8-000	BOLT, SPECIAL, 6X45	002	0
7	90023-MN8-000	BOLT, SPECIAL, 6X25	002	0
8	90425-300-000	WASHER, 11MM	001	0
9	91201-MF2-003	OIL SEAL, 12X28X7 (ARAI)	001	0
10	91302-MB0-013	O-RING, 32.95X2.62 (ARAI)	001	0
11	94301-08140-	DOWEL PIN, 8X14	002	0
12	96001-0602207	BOLT, FLANGE, 6X22	002	0



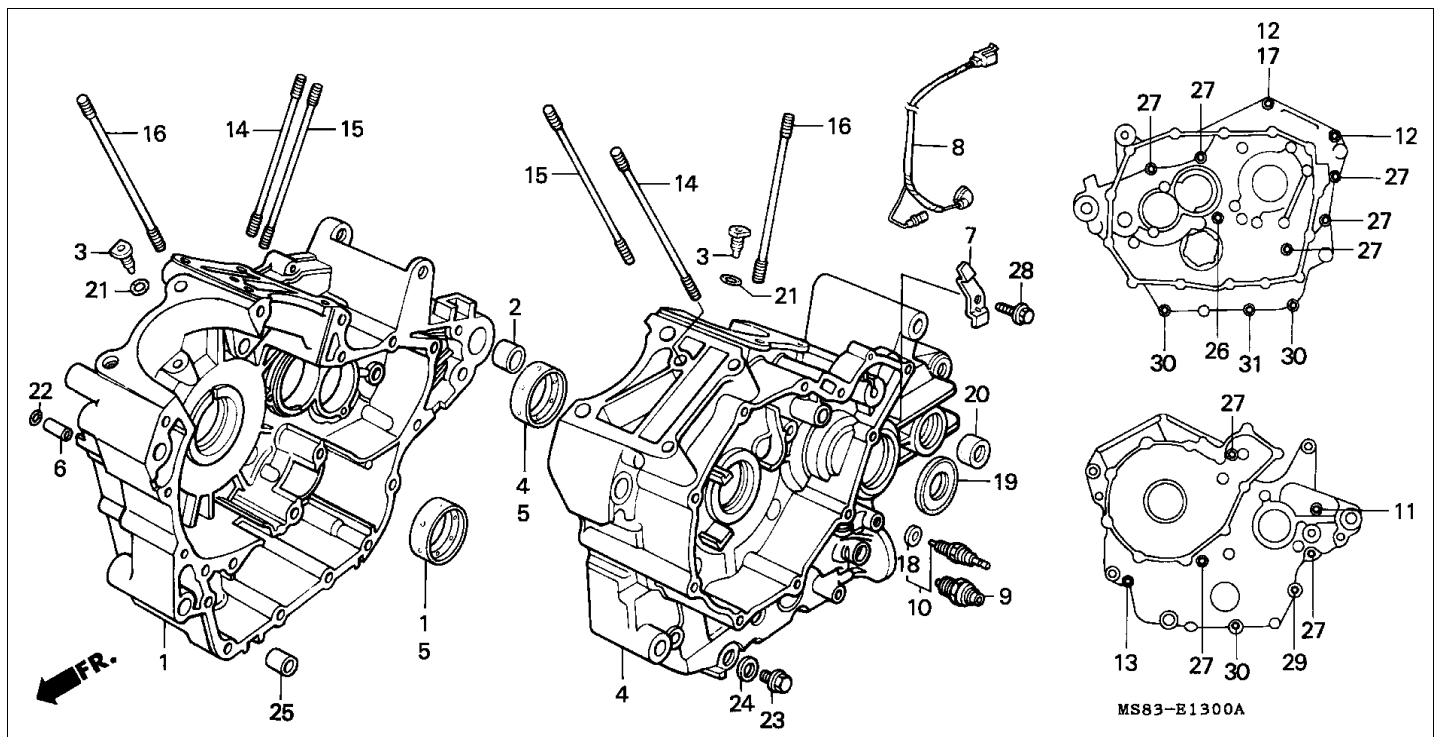
Block E-11 STARTING MOTOR

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	31200-MN8-008	MOTOR ASSY., STARTING	001	0
2	31201-MR6-008	TERMINAL SET, BRUSH	001	0
3	31203-MN8-008	BRACKET, RR.	001	0
4	31205-MR1-008	BOLT, SETTING	002	0
5	31206-MR6-008	HOLDER SET, BRUSH	001	0
6	31207-KS5-901	RING	002	0
7	32410-MM9-000	CABLE, STARTER MOTOR	001	0
8	32411-253-000	COVER, STARTER MOTOR TERMINAL	001	0
9	32414-MJ6-720	COVER A, MAGNETIC SWITCH	001	0
10	32601-MS8-000	CABLE, BATTERY EARTH	001	0
11	90071-MB0-000	NUT-WASHER, 6MM	002	0
12	91309-425-003	O-RING, 24.4X3.1 (ARAI)	001	0
13	91320-MB0-000	O-RING	001	0
14	96001-0603200	BOLT, FLANGE, 6X32	002	0



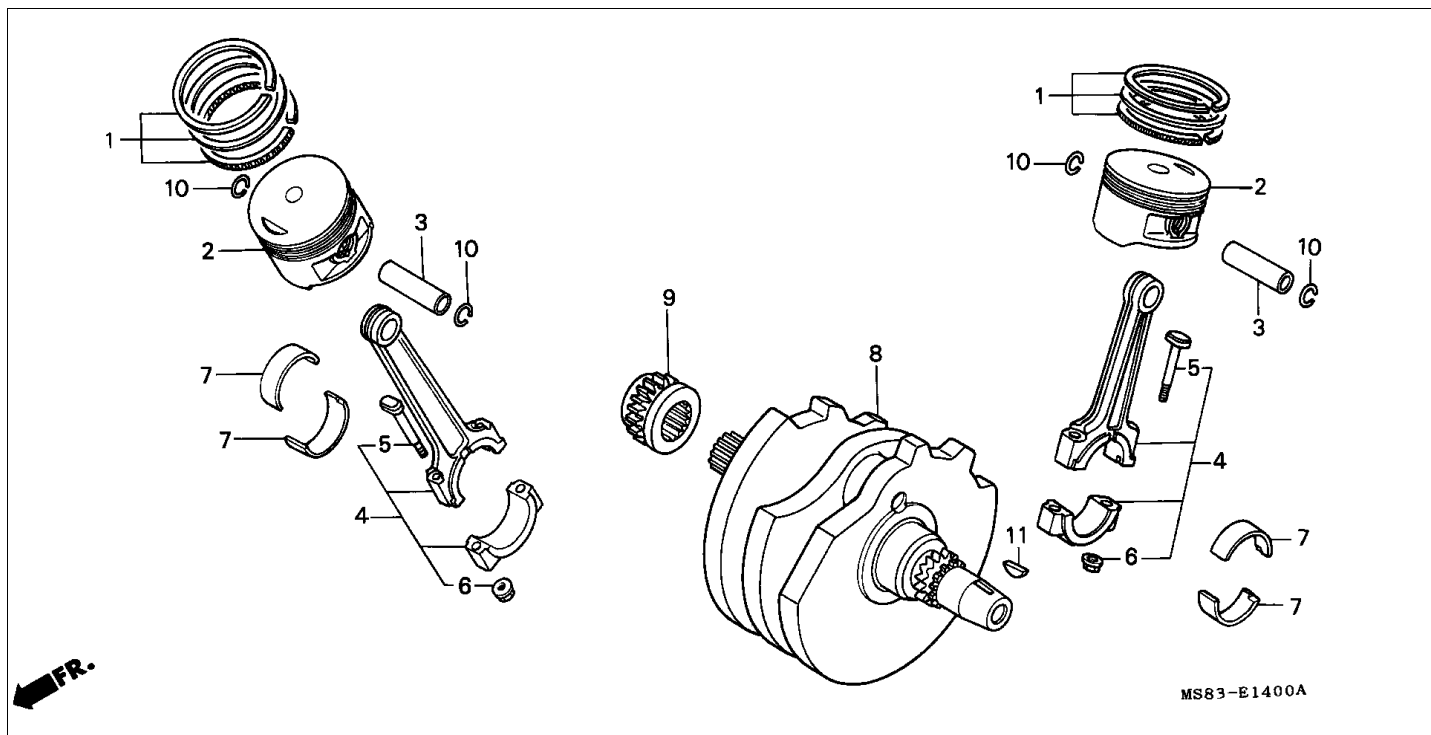
Block E-12 OIL PUMP/OIL FILTER

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	15100-MR1-000	PUMP ASSY., OIL	001	0
2	15134-MR1-000	SPROCKET, OIL PUMP DRIVEN (27T)	001	0
3	15136-MR1-003	CHAIN, OIL PUMP DRIVE (70L) (BORG WARNER)	001	0
4	15153-MR1-000	STRAINER, OIL	001	0
5	15154-425-000	GASKET, OIL STRAINER	001	0
6	15155-300-000	COLLAR, O-RING	002	0
7	15220-MB0-010	VALVE ASSY., RELIEF	001	0
8	15240-MM9-000	PIPE, OIL RELIEF	001	0
9	15410-MM9-003	CARTRIDGE, OIL FILTER (TOYO ROKI)	001	0
10	15511-MF5-000	PIPE, OIL	001	0
11	90009-ME5-000	BOLT, FLANGE SOCKET, 6X14	001	0
12	90019-MB0-000	BOSS, OIL FILTER	001	0
13	90487-MB0-000	WASHER, SHIFT DRUM STOPPER	001	0
14	91303-KF0-003	O-RING, 14.8X2.4 (ARAI)	002	0
15	91313-MB0-003	O-RING, 14.7X2.2 (ARAI)	001	0
16	91315-MF5-003	SEAL, OIL PIPE	002	0
17	91319-300-000	O-RING, 13X2.5	001	0
18	94301-08140-	DOWEL PIN, 8X14	001	0
19	95701-0602800	BOLT, FLANGE, 6X28	001	0
20	95701-0604500	BOLT, FLANGE, 6X45	002	0



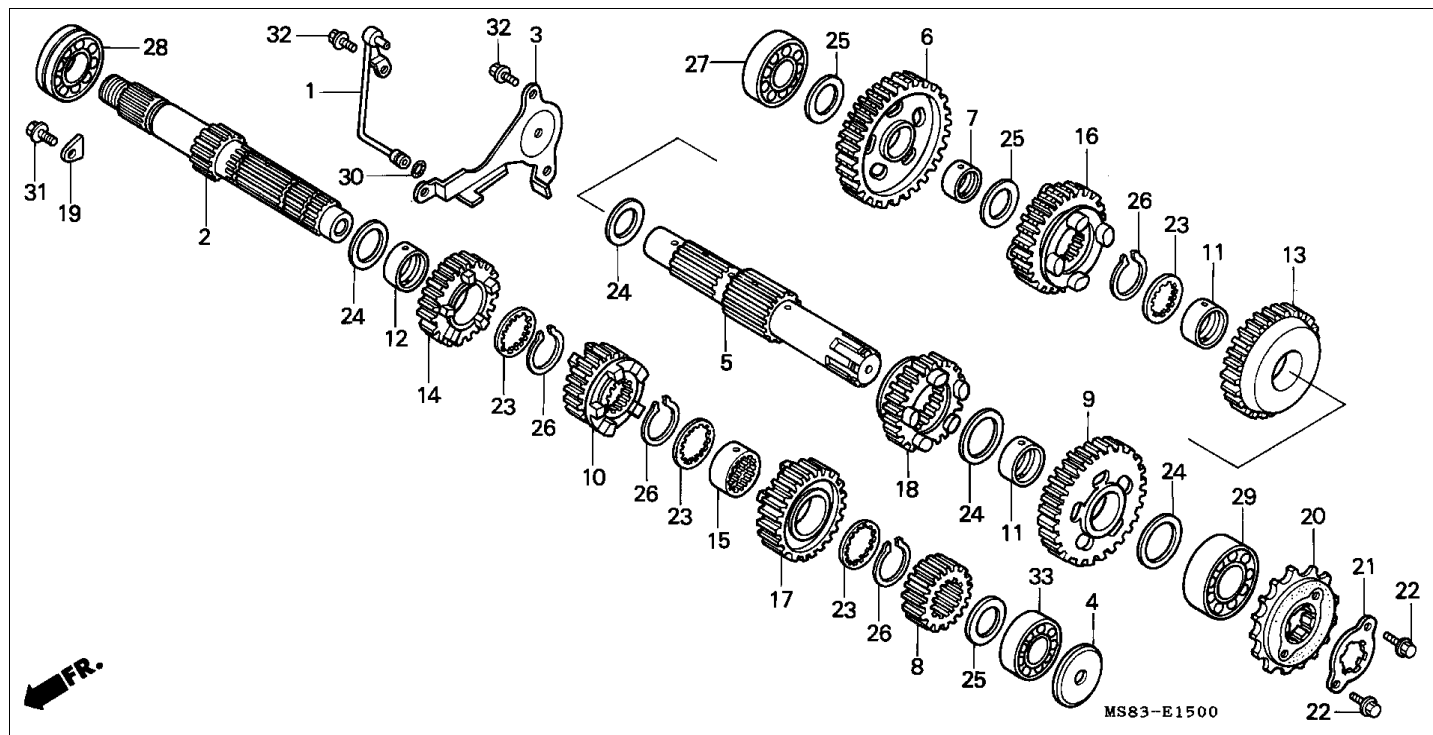
Block E-13 CRANKCASE

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	11100-MN8-010	CRANKCASE COMP., R.	001	0
1	11100-MN8-020	CRANKCASE COMP., R.	001	0
2	11105-MM9-000	COLLAR, 23X20	001	0
3	11146-MN8-000	JET, OIL	002	0
4	11200-MN8-000	CRANKCASE COMP., L.	001	0
5	13325-MM9-305	BEARING A, MAIN (BLUE)	002	0
5	13326-MM9-305	BEARING B, MAIN (BLACK)	002	0
5	13327-MM9-305	BEARING C, MAIN (BROWN)	002	0
6	15515-MM9-000	ORIFICE, 1.6	001	0
7	23531-MN8-000	PLATE, OIL SEAL SETTING	001	0
8	32101-MS8-000	SUB HARNESS	001	0
9	35500-MJ4-014	SWITCH ASSY., OIL PRESSURE (DENSO)	001	0
10	35600-425-023	SWITCH ASSY., NEUTRAL	001	0
11	90001-MM9-000	BOLT, SOCKET, 8X125	001	0
12	90002-MM9-000	BOLT, FLANGE, 8X140	002	0
13	90008-KE9-000	BOLT, FLANGE, 8X70	001	0
14	90011-MM9-000	BOLT, STUD, 8X197	002	0
15	90012-MR1-000	BOLT, STUD, 10X193.5	002	0
16	90013-MR1-000	BOLT, STUD, 10X197	006	0
17	90441-ME9-000	WASHER, SEALING, 8MM	001	0
18	90443-KR0-000	WASHER, NEUTRAL SWITCH	001	0
19	91201-MM9-003	OIL SEAL, 25X45X7	001	0
20	91204-425-003	OIL SEAL, 12.5X25X8 (ARAI)	001	0
21	91305-MG7-003	O-RING, 5X1.7 (ARAI)	002	0
22	91313-393-003	O-RING, 7.8X2.2 (ARAI)	001	0
22	91303-428-003	O-RING, 7.7X2.5	001	0
23	92800-14000-	BOLT, DRAIN PLUG, 14MM	001	0
24	94109-14000-	WASHER, DRAIN PLUG, 14MM	001	0
25	94301-14200-	DOWEL PIN, 14X20	001	0
26	95701-0806500	BOLT, FLANGE, 8X65	001	0
27	95701-0808000	BOLT, FLANGE, 8X80	008	0
28	96001-0601400	BOLT, FLANGE, 6X14	001	0
29	96001-0604000	BOLT, FLANGE, 6X40	001	0
30	96001-0605000	BOLT, FLANGE, 6X50	003	0
31	96001-0608000	BOLT, FLANGE, 6X80	001	0



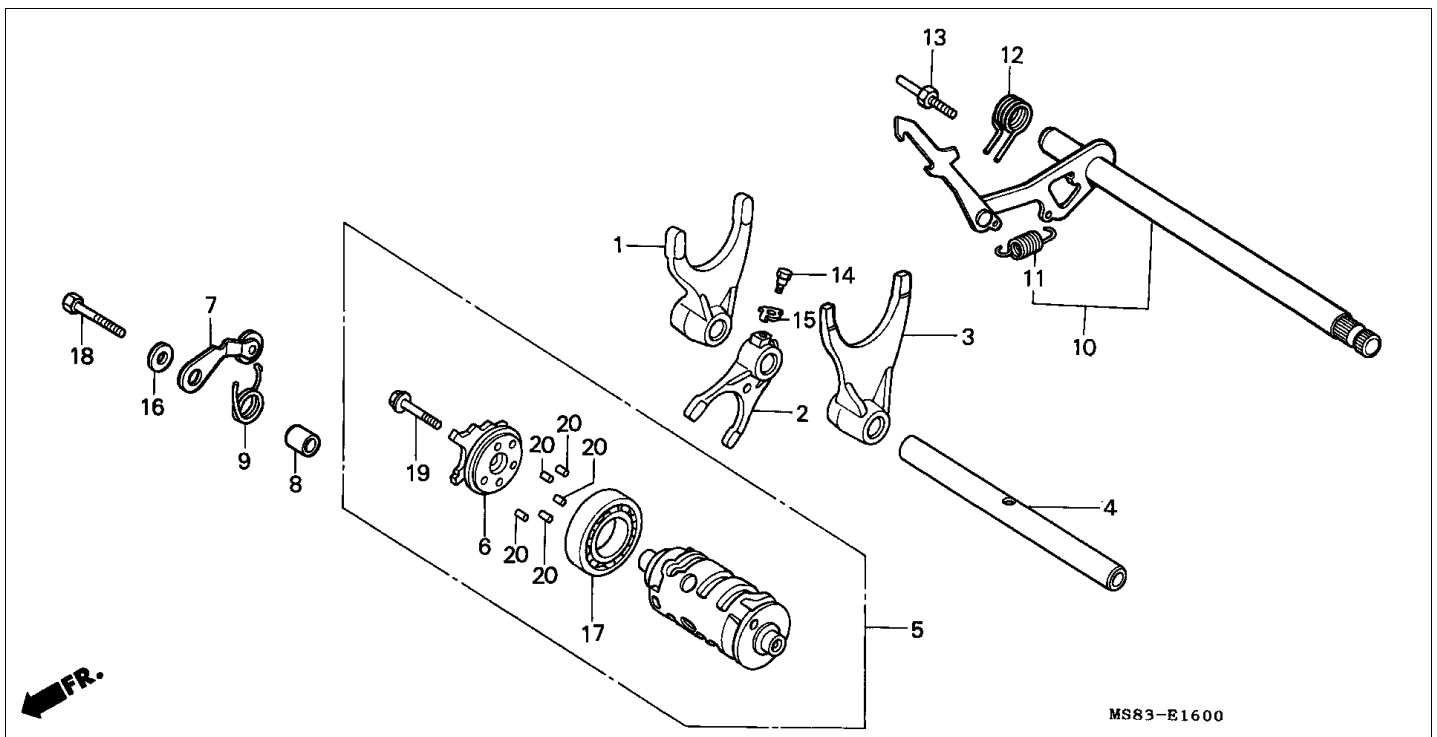
Block E-14 CRANKSHAFT/PISTON

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	13011-MN8-305	RING SET, PISTON (STD.)(RIKEN)	002	0
1	13012-MN8-305	RING SET, PISTON (0.25)(RIKEN)	(2)	0
1	13013-MN8-305	RING SET, PISTON (0.50)(RIKEN)	(2)	0
2	13101-MN8-000	PISTON (STD.)	002	0
2	13102-MN8-305	PISTON (0.25)	(2)	0
2	13103-MN8-305	PISTON (0.50)	(2)	0
3	13111-ME9-000	PIN, PISTON	002	0
4	13201-MN8-000	ROD ASSY. A, CONNECTING	002	0
4	13202-MN8-000	ROD ASSY. B, CONNECTING	002	0
4	13203-MN8-000	ROD ASSY. C, CONNECTING	002	0
4	13204-MN8-000	ROD ASSY. D, CONNECTING	002	0
5	13213-463-003	BOLT, CONNECTING ROD (NAGOYA RASHI)	004	0
5	13213-463-004	BOLT, CONNECTING ROD (TOKAI)	004	0
6	13215-ML7-000	NUT, CONNECTING ROD	004	0
7	13216-MF5-003	BEARING A, CONNECTING ROD (BLUE)	004	0
7	13217-MF5-003	BEARING B, CONNECTING ROD (BLACK)	004	0
7	13218-MF5-003	BEARING C, CONNECTING ROD (BROWN)	004	0
8	13300-MN8-000	CRANKSHAFT COMP.	001	0
9	14311-MR1-000	SPROCKET, CAM CHAIN DRIVE (20T)	001	0
10	90601-KA5-000	CLIP, PISTON PIN, 1.2X20	004	0
11	90741-413-000	KEY, WOODRUFF, 25X14	001	0



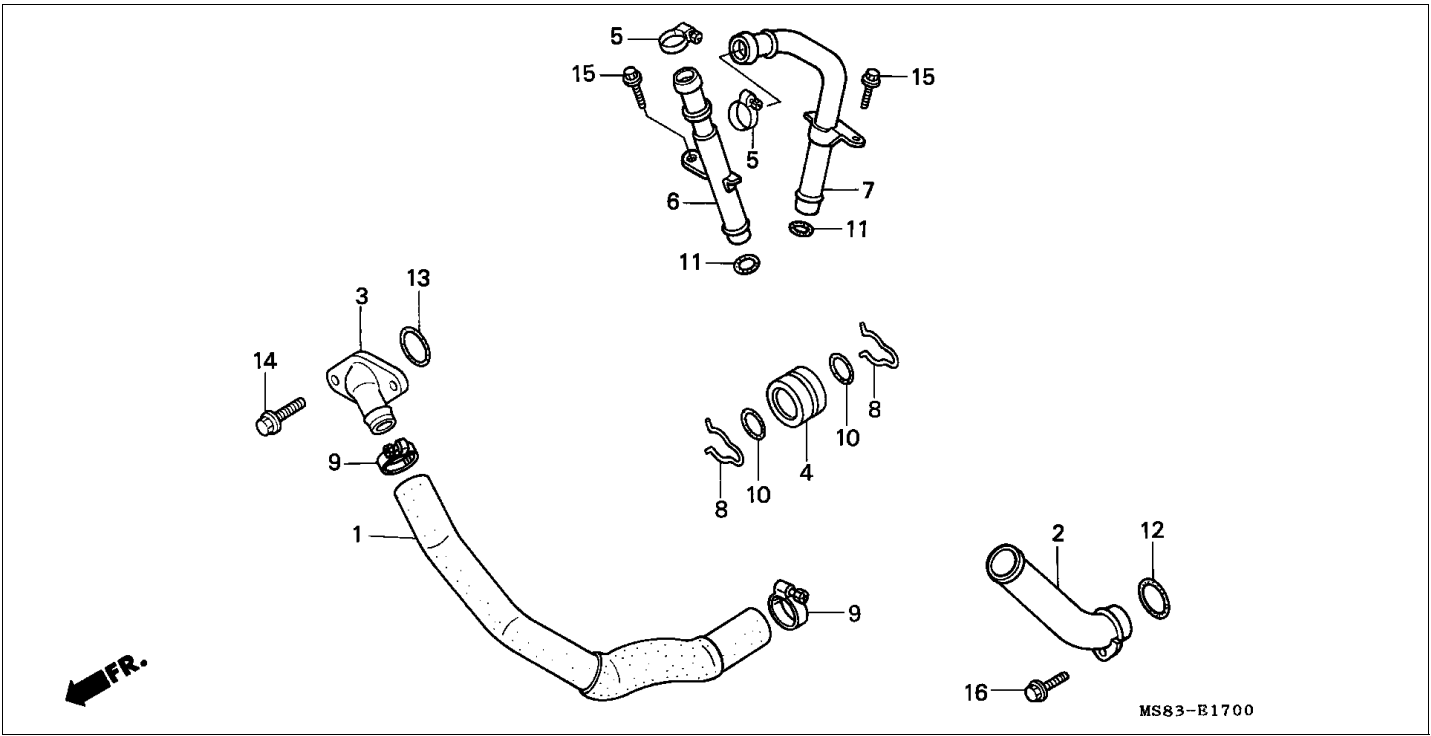
Block E-15 TRANSMISSION

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	15520-MM9-000	PIPE COMP., TRANSMISSION FEED OIL	001	0
1	15520-MS6-000	PIPE COMP., OIL FEED	001	0
2	23210-MS8-000	MAINSHAFT COMP. (13T)	001	0
3	23212-MM9-000	PLATE, BEARING SETTING	001	0
4	23219-MF5-000	PLATE, OIL GUIDE	001	0
5	23220-KW9-000	COUNTERSHAFT	001	0
6	23421-MS8-000	GEAR, COUNTERSHAFT LOW (36T)	001	0
7	23422-MB0-010	COLLAR, 20X11.8	001	0
8	23431-MN8-000	GEAR, MAINSHAFT SECOND (17T)	001	0
9	23441-MN8-000	GEAR, COUNTERSHAFT SECOND (32T)	001	0
10	23451-MS8-000	GEAR, MAINSHAFT THIRD (20T)	001	0
11	23455-HA7-670	BUSH, COUNTERSHAFT THIRD	002	0
12	23455-MM9-000	BUSH, 25X28X15	001	0
13	23461-MS8-010	GEAR, COUNTERSHAFT THIRD (29T)	001	0
14	23471-MS8-000	GEAR, MAINSHAFT FOURTH (23T)	001	0
15	23472-MR1-000	COLLAR, SPLINE, 25X28X15	001	0
16	23481-MS8-000	GEAR, COUNTERSHAFT FOURTH (27T)	001	0
17	23491-MS8-000	GEAR, MAINSHAFT FIFTH (29T)	001	0
18	23501-MS8-000	GEAR, COUNTERSHAFT FIFTH (28T)	001	0
19	23521-MM9-000	PLATE, BEARING SETTING	001	0
20	23801-MN8-000	SPROCKET, DRIVE (16T)	001	0
21	23811-MN8-000	PLATE, FIXING	001	0
22	90118-958-003	BOLT, FLANGE, 6X12	002	0
23	90451-KY2-000	WASHER, SPLINE, 25X31X1.5	004	0
24	90456-MA6-000	WASHER, THRUST, 25MM	004	0
25	90554-700-000	WASHER, THRUST, 20MM	003	0
26	90601-107-000	CIRCLIP, 25MM	004	0
27	91003-MG2-791	BEARING, RADIAL BALL, 6204U (TOYO)	001	0
27	91003-MG2-792	BEARING, RADIAL BALL, 6204U (KOYO)	001	0
28	91007-393-003	BEARING, RADIAL BALL, 6322	001	0
29	91014-969-003	BEARING, RADIAL BALL, 5205 (NTN)	001	0
30	91318-ME5-003	O-RING, 5.6X1.9 (ARAI)	001	0
31	95701-0601200	BOLT, FLANGE, 6X12	001	0
32	95701-0601600	BOLT, FLANGE, 6X16	002	0
33	96100-6204000	BEARING, RADIAL BALL, 6204	001	0



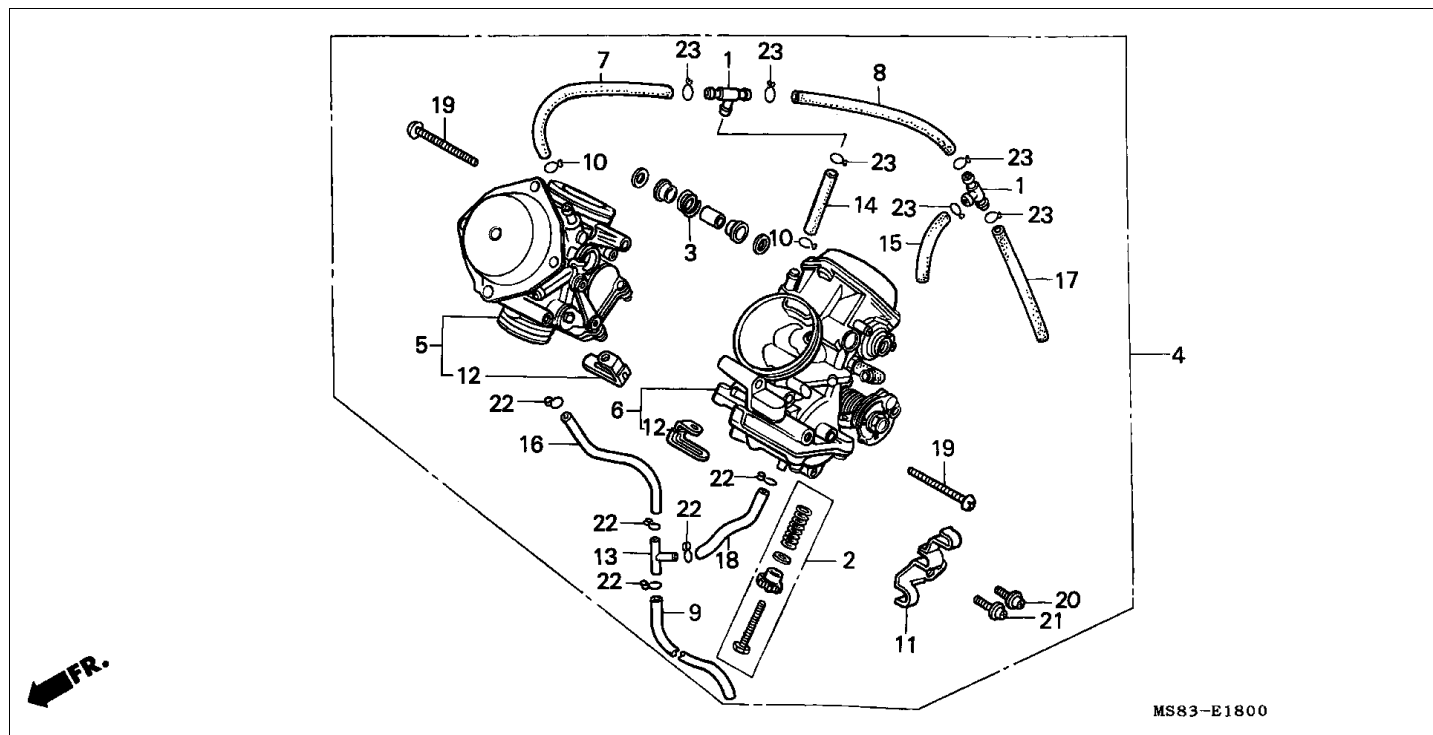
Block E-16 GEARSHIFT DRUM

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	24211-MS9-000	FORK, R. GEARSHIFT	001	0
2	24212-MR1-000	FORK, CENTER GEARSHIFT	001	0
2	24212-MS9-750	FORK, CENTER GEARSHIFT	001	0
3	24213-MN8-000	FORK, L. GEARSHIFT	001	0
4	24241-MM9-000	SHAFT, SHIFT FORK GUIDE	001	0
5	24300-MS8-000	DRUM COMP., GEARSHIFT	001	0
6	24301-MS8-000	PLATE COMP., CAM	001	0
7	24430-MS8-000	STOPPER COMP., DRUM	001	0
8	24432-413-000	COLLAR, GEARSHIFT DRUM STOPPER	001	0
9	24435-MM9-000	SPRING, SHIFT DRUM STOPPER	001	0
10	24610-MM9-000	ARM COMP., GEARSHIFT	001	0
11	24641-216-000	SPRING, GEARSHIFT ARM	001	0
12	24651-MB0-000	SPRING, GEARSHIFT RETURN	001	0
13	24652-259-000	PIN, SHIFT RETURN SPRING	001	0
14	90041-MB0-000	BOLT, SPECIAL, 7X18	001	0
15	90407-MB0-000	WASHER, LOCK	001	0
16	90488-MB0-000	WASHER, 6X2.3	001	0
17	91008-374-003	BEARING, BALL, 16005 (NTN)	001	0
18	92000-06025-	BOLT, HEX., 6X25	001	0
19	95701-0601800	BOLT, FLANGE, 6X18	001	0
20	96220-40118-	ROLLER, 4X11.8	005	0



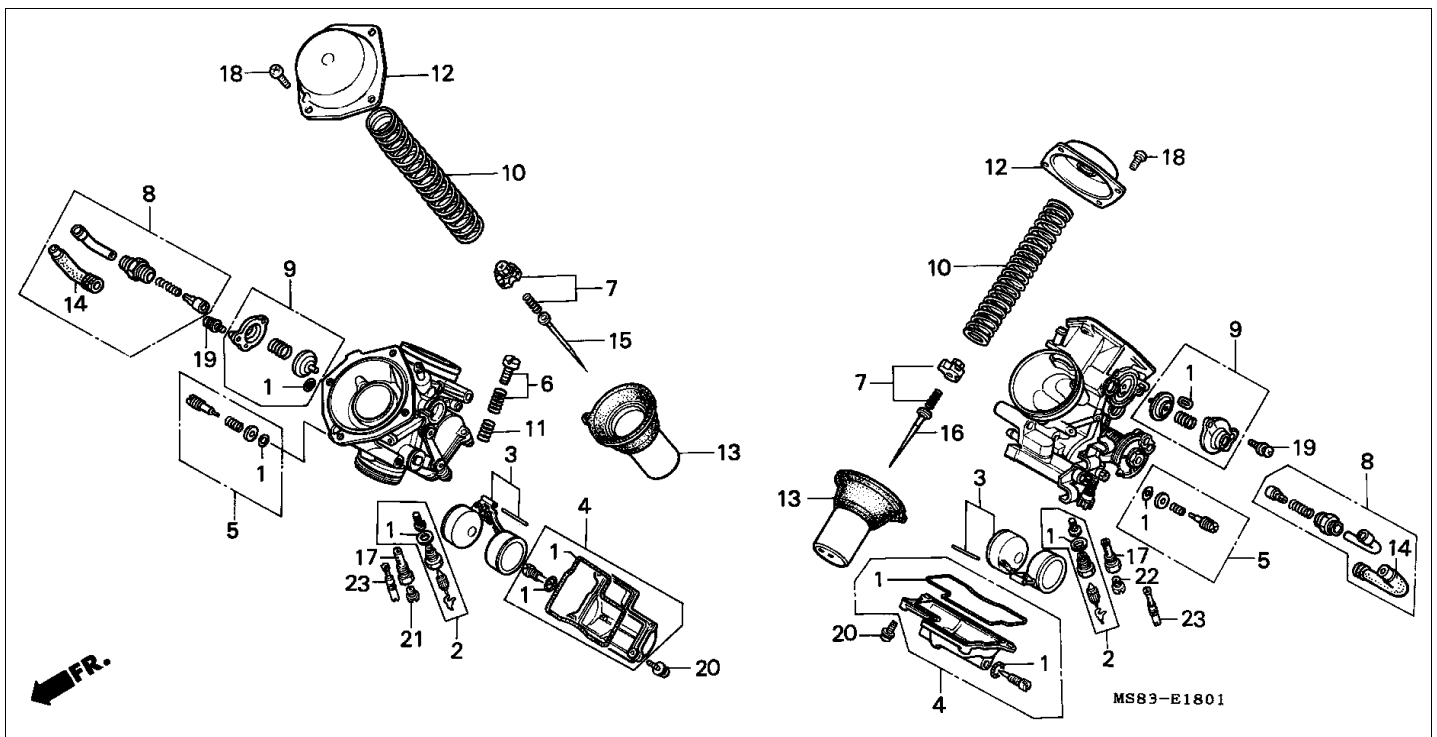
Block E-17 WATER PIPE

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	19501-MR1-000	HOSE, MAIN WATER	001	0
2	19502-MS8-000	PIPE, IN. WATER	001	0
3	19503-MR1-000	JOINT, WATER HOSE	001	0
4	19505-MR1-000	JOINT, WATER	001	0
5	19506-KS6-700	CLAMP B, WATER HOSE	002	0
6	19511-MS8-010	PIPE, FR. OUTLET WATER	001	0
7	19512-MS8-000	PIPE, RR. OUTLET WATER	001	0
8	90601-MR1-000	CLIP, RING, 18MM	002	0
9	90702-MF5-003	CLAMP, WATER HOSE (27MM)	002	0
9	19505-ML3-770	CLAMPER, WATER HOSE	002	0
10	91306-KK4-003	O-RING, 18X2.6 (ARAI)	002	0
11	91315-MN8-000	SEAL, WATER PIPE, 16MM	002	0
12	91316-MN8-000	SEAL, WATER PIPE, 28MM	001	0
13	91356-169-003	O-RING	001	0
14	95701-0602000	BOLT, FLANGE, 6X20	002	0
15	96001-0601200	BOLT, FLANGE, 6X12	002	0
16	96001-0601600	BOLT, FLANGE, 6X16	001	0



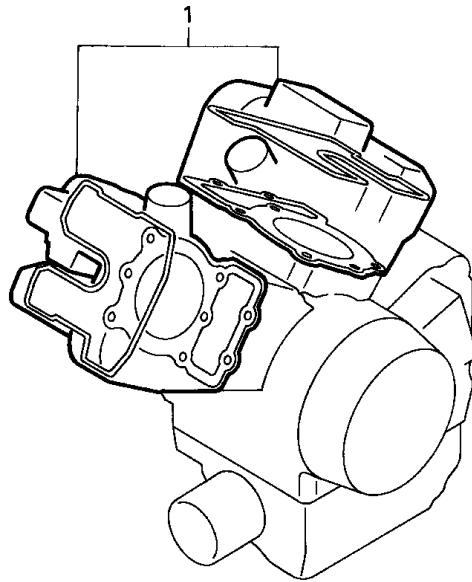
Block E-18 CARBURETOR (ASSY.)

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	16026-MF5-671	T-JOINT	002	0
2	16028-ME9-671	SCREW SET B	001	0
3	16053-ME9-672	SPRING	001	0
4	16100-MS8-622	CARBURETOR ASSY. (VDF4B B)	001	0
5	16101-MS8-622	CARBURETOR ASSY., R. FR.	001	0
6	16102-MS8-622	CARBURETOR ASSY., L. RR.	001	0
7	16143-MF5-671	PIPE, AIR VENT	001	0
8	16143-MM9-621	TUBE	001	0
9	16144-MS8-004	TUBE	001	0
10	16163-KM4-004	CLIP, TUBE	002	0
11	16169-MM9-621	STAY COMP., WIRE	001	0
12	16179-MM9-621	CLIP, PLATE	002	0
13	16180-195-731	T-JOINT	001	0
14	16198-MF5-671	PIPE, AIR VENT	001	0
15	16198-MM9-621	TUBE	001	0
16	16198-MS8-004	TUBE	001	0
17	16199-MM9-621	TUBE	001	0
18	16199-MS8-004	TUBE	001	0
19	93500-050400H	SCREW, PAN, 5X40	002	0
20	93892-0400800	SCREW-WASHER, 4X8	001	0
21	93892-0501200	SCREW-WASHER, 5X12	001	0
22	95002-02070-	CLIP, TUBE (B7)	005	0
23	95002-02100-	CLIP, TUBE (B10)	006	0



Block E-18-1 CARBURETOR (COMPONENT PARTS)

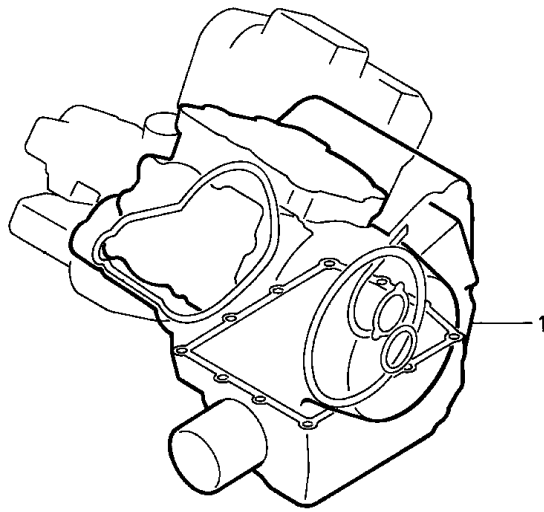
Refrnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	16010-MR1-691	GASKET SET	002	0
2	16011-MS8-004	SEAT SET, VALVE	002	0
3	16013-ML7-004	FLOAT SET	002	0
4	16015-MS8-014	CHAMBER SET, FLOAT	002	0
5	16016-MN8-004	SCREW SET	002	0
6	16029-MN4-003	SCREW SET	001	0
7	16037-ME5-671	PLATE SET, VALVE	002	0
8	16046-MR1-004	VALVE SET, STARTER	002	0
9	16048-MS8-004	VALVE SET, AIR CUT	002	0
10	16050-MF5-671	SPRING, VACUUM PISTON	002	0
11	16052-ME9-672	SPRING	001	0
12	16107-MM9-621	TOP	002	0
13	16111-MS8-004	PISTON COMP., VACUUM	002	0
14	16118-ME9-671	CAP, CABLE SEALING	002	0
15	16131-MM9-621	NEEDLE COMP., JET (FR.)	001	0
16	16151-MM9-621	NEEDLE COMP., JET (RR.)	001	0
17	16165-MF5-671	HOLDER, NEEDLE JET	002	0
18	93500-040100A	SCREW, PAN, 4X10	008	0
19	93892-0401200	SCREW-WASHER, 4X12	004	0
20	93892-0401600	SCREW-WASHER, 4X16	008	0
21	99101-393-125	JET, MAIN, #125	001	0
22	99101-393-130	JET, MAIN, #130	001	0
23	99103-427-038	JET, SLOW, #38	002	0



ENG1- X0004

Block EOP-1 GASKET KIT A

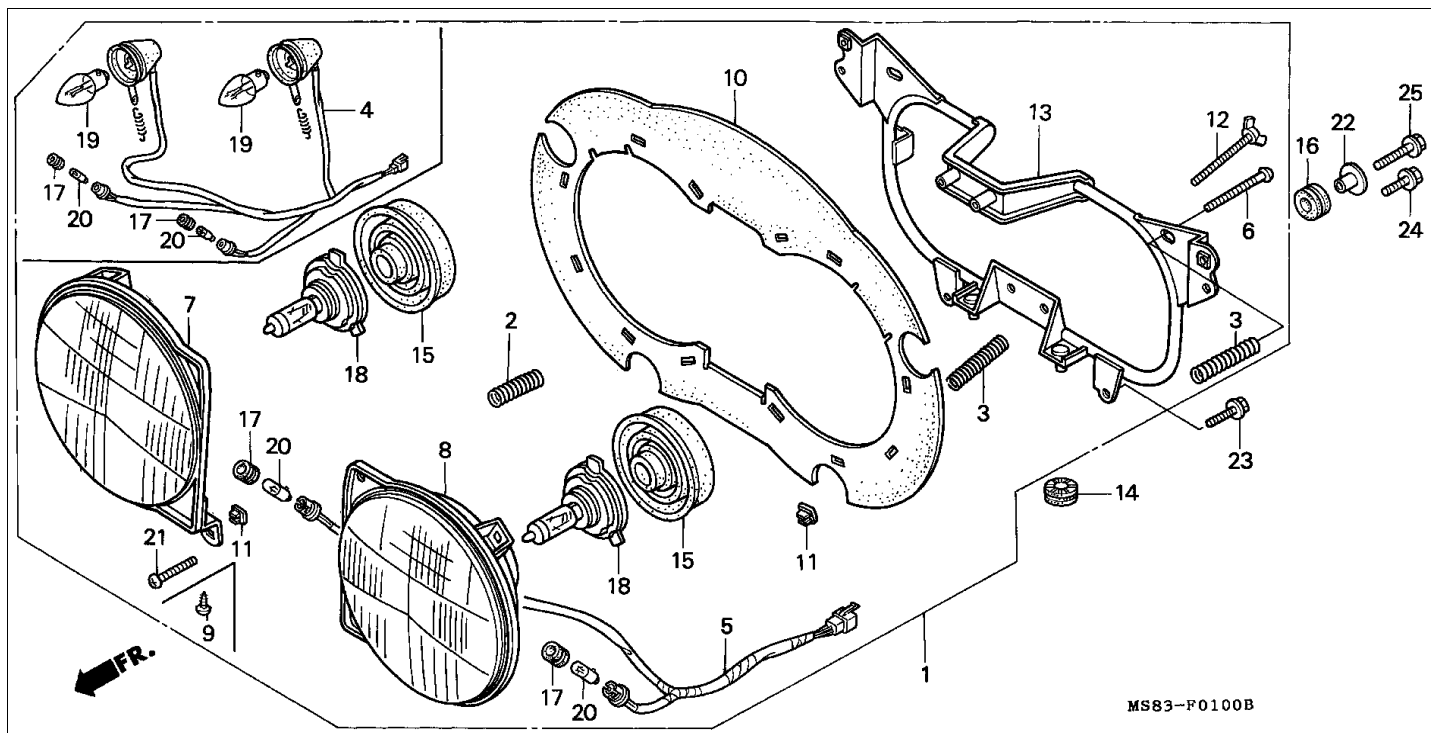
Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	061A1-MS8-000	GASKET KIT A (COMPONENT PARTS)	001	0
1	12191-MN8-003	GASKET, CYLINDER	002	0
1	12208-413-003	SEAL, VALVE STEM (ARAI)	004	0
1	12209-413-003	SEAL, VALVE STEM (ARAI)	002	0
1	12251-MN8-003	GASKET, CYLINDER HEAD	002	0
1	12391-MF5-750	GASKET, HEAD COVER	002	0
1	18291-236-000	GASKET, EX. PIPE	002	0
1	90441-MC0-000	WASHER, SEALING, 7MM	004	0
1	90475-703-000	WASHER C, 8MM	002	0
1	91303-MF5-003	O-RING, 44X3 (ARAI)	002	0
1	91304-MF5-003	O-RING, 62.4X2.5 (ARAI)	002	0
1	91306-KK4-003	O-RING, 18X2.6 (ARAI)	002	0
1	91315-MN8-000	SEAL, WATER PIPE, 16MM	002	0
1	91316-MN8-000	SEAL, WATER PIPE, 28MM	001	0
1	91356-169-003	O-RING	001	0



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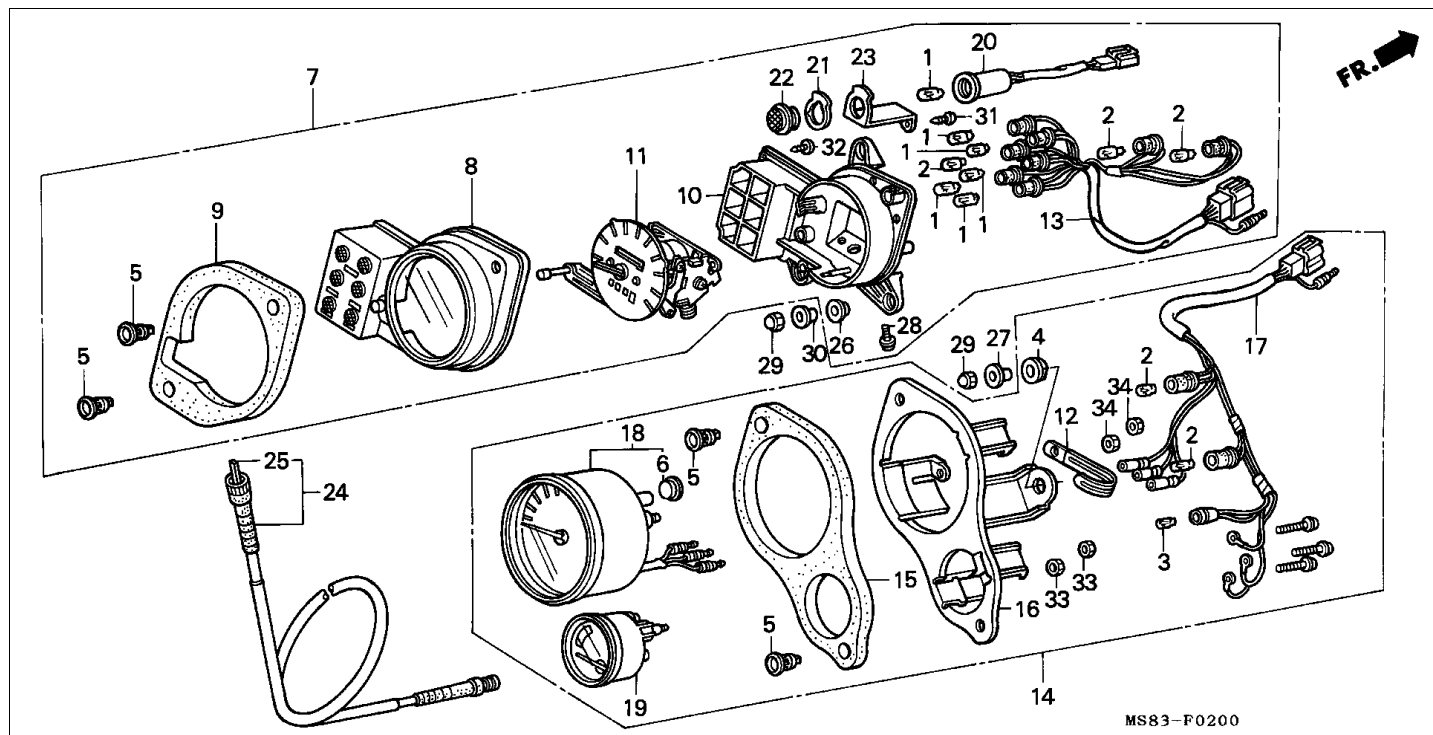
Block EOP-2 GASKET KIT B

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	061B1-MS8-000	GASKET KIT B	001	0
1	11394-MR1-000	GASKET, R. COVER	001	0
1	11395-MR1-000	GASKET, L. COVER	001	0
1	19226-MM9-000	GASKET, WATER PUMP COVER	001	0
1	90425-300-000	WASHER, 11MM	001	0
1	91301-250-000	O-RING, 21.5MM	001	0
1	91302-MB0-013	O-RING, 32.95X2.62 (ARAI)	001	0
1	91303-377-000	O-RING, 13.8X2.5	001	0
1	91303-KF0-003	O-RING, 14.8X2.4 (ARAI)	002	0
1	91305-MG7-003	O-RING, 5X1.7 (ARAI)	002	0
1	91309-425-003	O-RING, 24.4X3.1 (ARAI)	001	0
1	91313-393-003	O-RING, 7.8X2.2 (ARAI)	001	0
1	91313-MB0-003	O-RING, 14.7X2.2 (ARAI)	001	0
1	91315-MF5-003	SEAL, OIL PIPE	002	0
1	91318-ME5-003	O-RING, 5.6X1.9 (ARAI)	001	0
1	91319-300-000	O-RING, 13X2.5	001	0
1	91356-425-003	O-RING, 30MM	001	0
1	94109-14000-	WASHER, DRAIN PLUG, 14MM	001	0
1	061B1-MS8-010	GASKET KIT B (COMPONENT PARTS)	001	0
1	91303-428-003	O-RING, 7.7X2.5	001	0



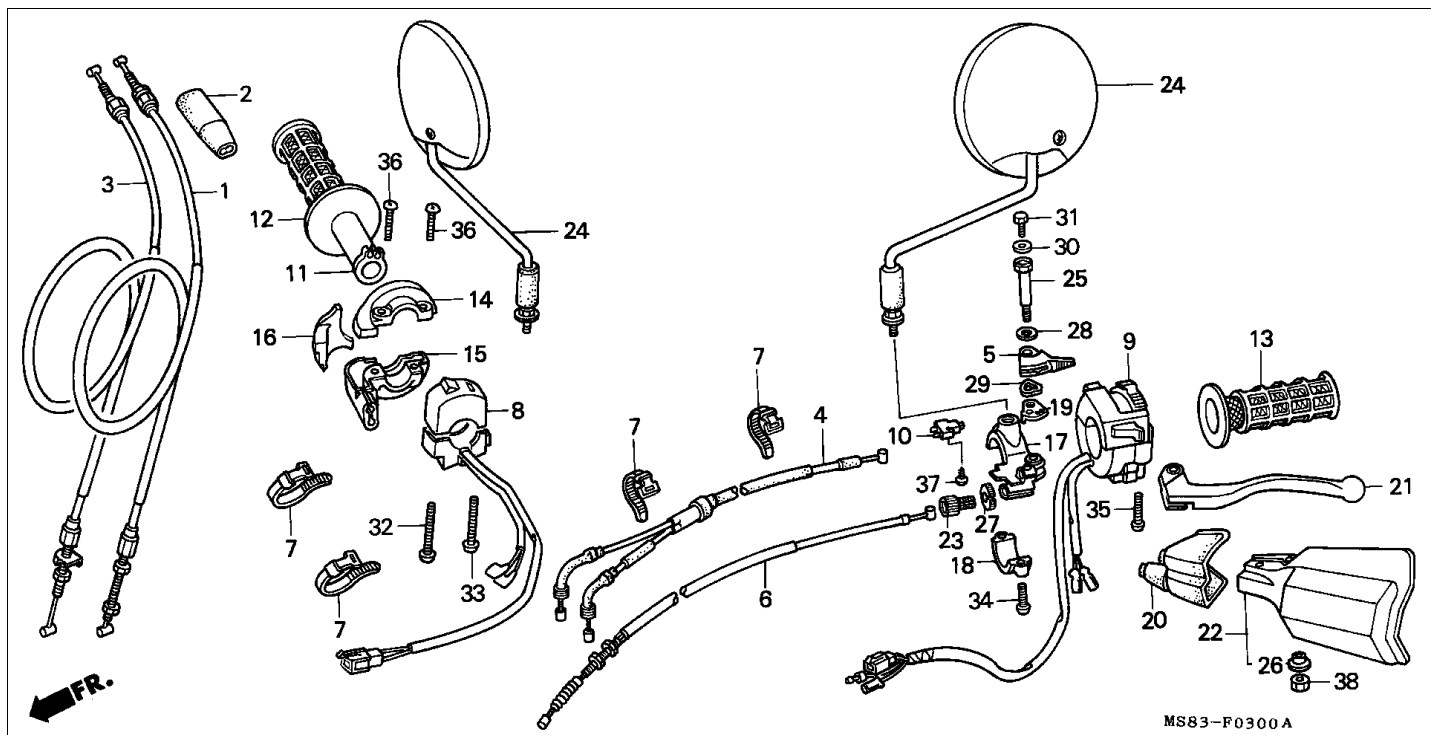
Block F-1 HEADLIGHT (1)

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	33100-MS8-871	HEADLIGHT ASSY., DUAL (12V 60/55W)	001	0
1	33100-MS8-872	HEADLIGHT ASSY., DUAL (12V 60/55W)	001	0
2	33107-KR0-003	SPRING, SETTING	002	0
3	33108-MJ0-000	SPRING, ADJUSTING	004	0
5	33110-MS8-871	SOCKET ASSY., POSITION LIGHT	001	0
6	33114-MS8-871	SCREW, BEAM ADJUSTING	002	0
7	33120-MS8-871	HEADLIGHT UNIT, R.	001	0
8	33121-MS8-871	HEADLIGHT UNIT, L.	001	0
10	33130-MS8-611	RUBBER, HEADLIGHT SEAL	001	0
11	33135-MS8-611	NUT, SPECIAL	004	0
12	33142-MM9-003	SCREW, SPECIAL	002	0
13	33155-MS8-871	BRACKET COMP.	001	0
14	33157-MJ0-000	RUBBER, HEADLIGHT BRACKET	002	0
15	33180-MJ0-000	COVER, RUBBER	002	0
15	33180-MJ0-010	COVER, RUBBER	002	0
16	33712-KT1-670	RUBBER, TAILLIGHT	002	0
17	33905-371-601	RUBBER, JOINT	001	0
18	34901-MC7-601	BULB, HEADLIGHT (STANLEY) (12V 60/55W)	002	0
20	34903-388-611	BULB, POSITION (12V 4W)	001	0
21	90110-MK5-611	SCREW, PAN	002	0
22	90501-MJ6-000	COLLAR, HEADLIGHT BRACKET	002	0
23	95700-0602207	BOLT, FLANGE, 6X22	002	0
24	95701-0601208	BOLT, FLANGE, 6X12	002	0
25	95701-0601807	BOLT, FLANGE, 6X18	002	0



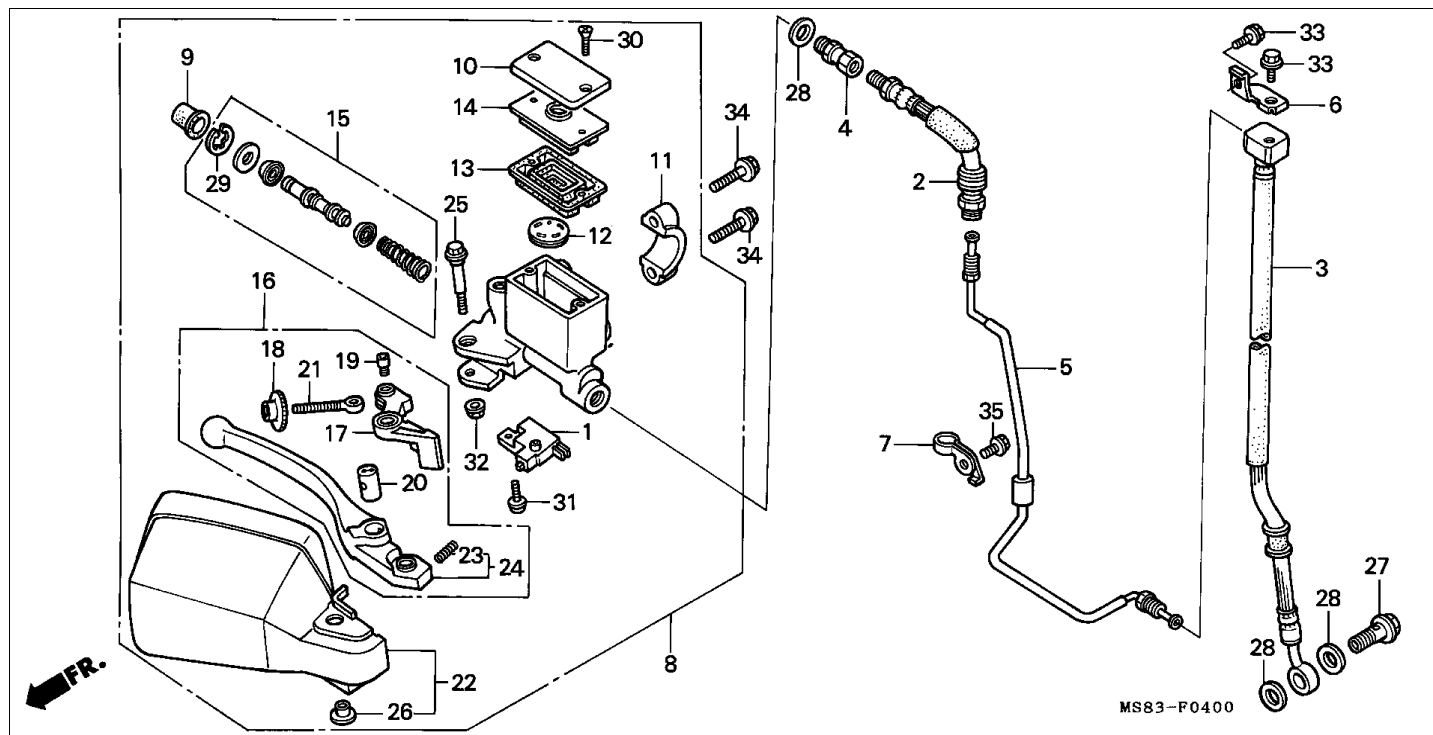
Block F-2 METER

Refrn	Part Number	Parts Description	Unit Qty	Repair Qty
1	34908-GA7-701	BULB, WEDGE BASE (T10) (12V 3.4W)	006	0
2	34908-MB9-871	BULB, WEDGE BASE (12V 1.7W)	005	0
3	34908-MG9-951	BULB, WEDGE BASE (12V 1.7W)	001	0
4	34931-MC7-000	RUBBER, RESISTOR MOUNTING	003	0
5	37112-MS8-003	CLIP, METER PANEL	004	0
6	37116-KG4-008	CAP A	002	0
7	37200-MS8-611	SPEEDOMETER ASSY.	001	0
8	37202-MS8-611	CASE COMP., UPPER	001	0
9	37205-MS8-008	PANEL	001	0
10	37208-MS8-611	CASE COMP., LOWER	001	0
11	37210-MS8-611	SPEEDOMETER COMP.	001	0
12	37212-MJ1-670	CLIP, 4X100	001	0
13	37222-MS8-611	SOCKET COMP.	001	0
14	37240-MS8-611	METER ASSY., TACHOMETER & TEMPERATURE	001	0
15	37241-MS8-008	PANEL	001	0
16	37242-MS8-008	BRACKET COMP.	001	0
17	37243-MS8-008	CORD ASSY.	001	0
18	37250-MS8-611	TACHOMETER ASSY.	001	0
19	37400-MS8-611	METER ASSY., TEMPERATURE	001	0
20	37550-MS8-008	SOCKET COMP.	001	0
21	37556-MS8-000	PANEL, SIDE STAND	001	0
22	37561-GB7-641	LENS COMP., WINKER PILOT	001	0
23	37590-MS8-008	STAY, SPEED WARNING LAMP	001	0
24	44830-MM9-000	CABLE ASSY., SPEEDOMETER	001	0
25	44831-MM9-000	CABLE, INNER	001	0
26	61313-KN6-910	RUBBER, HEADLIGHT MOUNTING	003	0
27	83505-MS8-010	COLLAR, METER MOUNTING	003	0
28	90101-GG2-008	SCREW-WASHER, 4X10	002	0
29	90215-GM0-000	NUT, CAP, 6MM	006	0
30	90501-KB7-940	COLLAR, 22X6.2X13.5	003	0
31	93903-24380-	SCREW, TAPPING, 4X12	001	0
32	93903-24480-	SCREW, TAPPING, 4X16	005	0
33	94001-050700S	NUT, HEX., 5MM	002	0
34	94001-060700S	NUT, HEX., 6MM	002	0



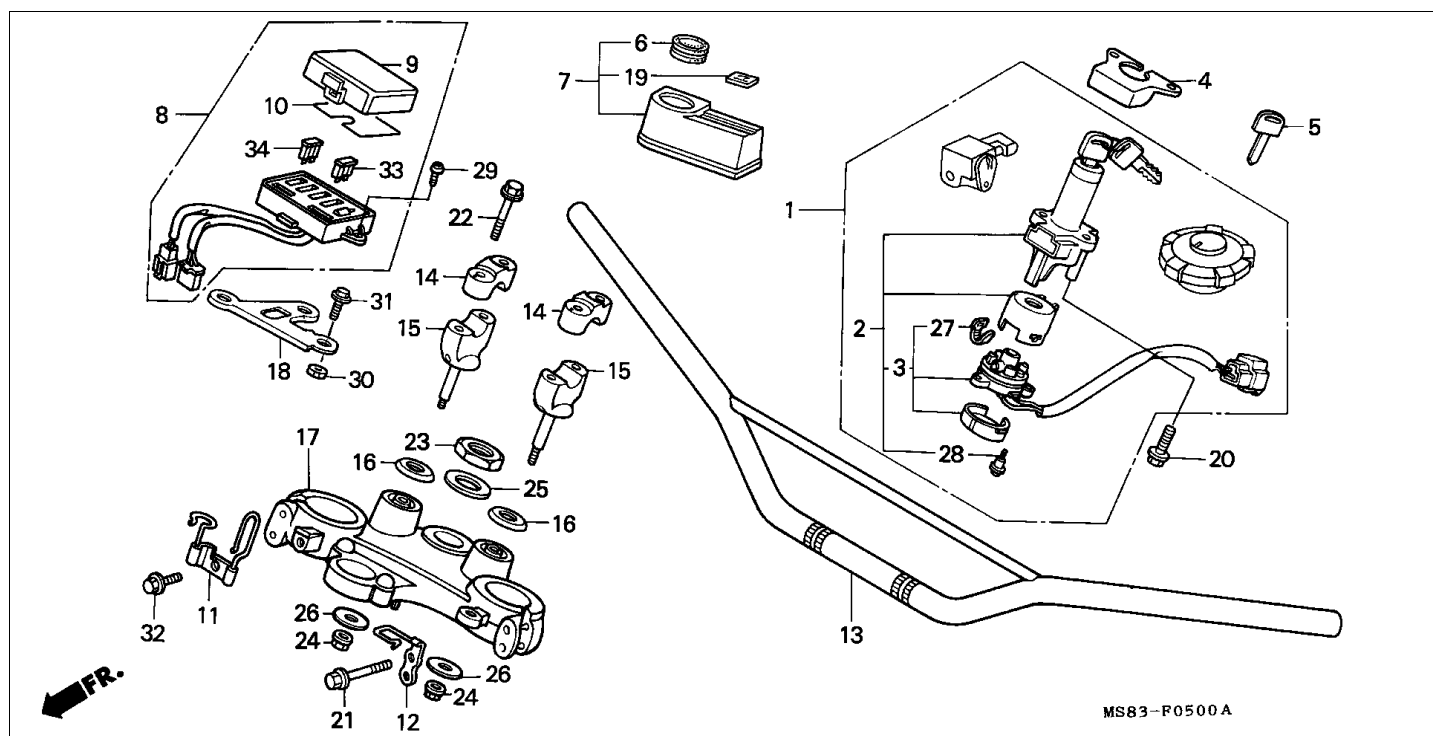
Block F-3 HANDLE LEVER/SWITCH/ CABLE

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	17910-MM9-000	CABLE COMP. A, THROTTLE	001	0
2	17913-KB7-000	COVER, THROTTLE CABLE	001	0
3	17920-MM9-000	CABLE COMP. B, THROTTLE	001	0
4	17950-MS8-000	CABLE COMP., CHOKE	001	0
5	17961-MG2-000	LEVER COMP., CHOKE	001	0
6	22870-MS8-000	CABLE COMP., CLUTCH	001	0
7	32161-404-000	BAND B1, WIRE	004	0
8	35130-MS8-000	SWITCH ASSY., STARTER KILL	001	0
9	35200-MM9-000	SWITCH ASSY., WINKER	001	0
10	35330-MK5-003	SWITCH ASSY., CLUTCH	001	0
11	53141-429-000	PIPE, THROTTLE GRIP	001	0
12	53165-MK5-010	GRIP, R. HANDLE	001	0
13	53166-MK5-010	GRIP, L. HANDLE	001	0
14	53167-KB7-000	HOUSING, UPPER THROTTLE	001	0
15	53168-MG7-000	HOUSING, UNDER THROTTLE	001	0
16	53169-KB7-000	SLIDER, THROTTLE CABLE	001	0
17	53172-MK5-000	BRACKET, L. HANDLE LEVER	001	0
18	53174-KE1-000	HOLDER, L. LEVER BRACKET	001	0
19	53176-MM9-000	PLATE, POINT	001	0
20	53177-MK5-000	COVER, L. HANDLE LEVER	001	0
21	53178-MG7-003	LEVER, L. STEERING HANDLE	001	0
22	53185-MN9-000	GUARD, L. KNUCKLE *NH138*	001	0
23	53192-KA4-710	BOLT, WIRE ADJUSTING	001	0
24	88110-MN9-003	MIRROR ASSY., R. BACK	002	0
25	90114-MK5-000	BOLT, LEVER PIVOT	001	0
26	90127-KF0-770	COLLAR, 6X4	001	0
27	90321-KA4-700	NUT, FIXING	001	0
28	90405-463-000	WASHER, 8MM	001	0
29	90406-KF0-003	WASHER, WAVE	001	0
30	90554-240-000	WASHER B	001	0
31	92201-050120A	BOLT, HEX., 5X12	001	0
32	93500-040320G	SCREW, PAN, 4X32	001	0
33	93500-040450G	SCREW, PAN, 4X45	001	0
34	93500-050160A	SCREW, PAN, 5X16	002	0
35	93500-050200G	SCREW, PAN, 5X20	002	0
36	93500-050200G	SCREW, PAN, 5X20	002	0
37	93901-32320-	SCREW, TAPPING, 3X12	001	0
38	94001-060000S	NUT, HEX., 6MM	001	0



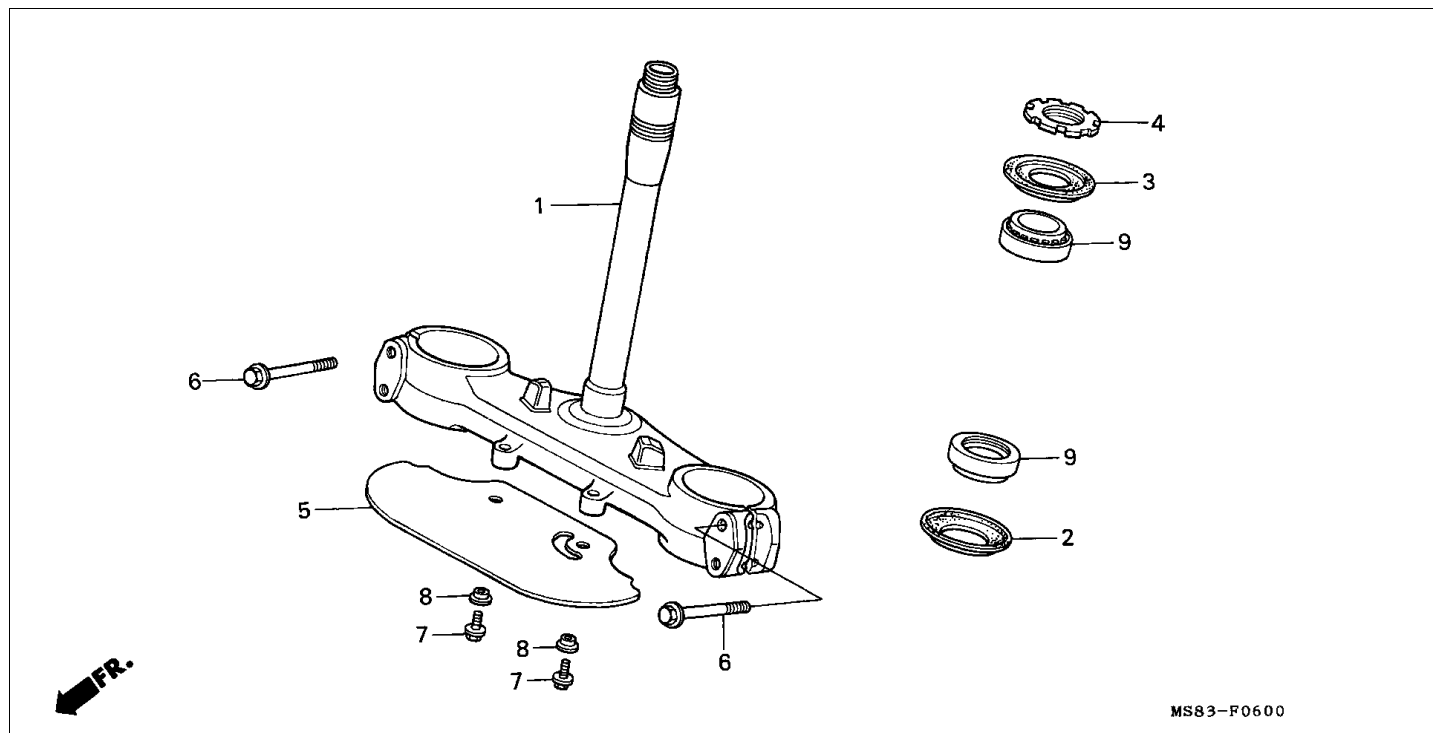
Block F-4 FR. BRAKE MASTER CYLINDER

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	35340-MM5-600	SWITCH ASSY., FR. STOP	001	0
2	45125-MM9-003	HOSE, BRAKE UPPER	001	0
3	45126-MS8-000	HOSE, FR. BRAKE LOWER	001	0
4	45127-KA3-831	JOINT, BRAKE HOSE	001	0
5	45135-MS8-000	PIPE COMP., FR. BRAKE	001	0
6	45462-MG2-010	STAY, BRAKE HOSE	001	0
7	45463-MM9-000	CLAMPER, FR. BRAKE HOSE	001	0
8	45500-MS8-611	CYLINDER ASSY., FR. MASTER *NH105/NH138*	001	0
9	45504-410-003	BOOT COMP.	001	0
10	45513-KK1-771	CAP, MASTER CYLINDER	001	0
11	45517-166-006	HOLDER, MASTER CYLINDER	001	0
12	45518-MG3-016	SEPARATOR COMP.	001	0
13	45520-MG7-006	DIAPHRAGM	001	0
14	45521-HA2-006	PLATE, DIAPHRAGM	001	0
15	45530-MN9-305	CYLINDER SET, MASTER	001	0
16	53170-MN9-000	LEVER ASSY., R. HANDLE	001	0
17	53171-MJ4-006	KNOCKER, MASTER CYLINDER	001	0
18	53172-KV0-006	ADJUSTER, R. HANDLE LEVER	001	0
19	53177-KV0-006	BOLT, LEVER SOCKET, 5X5	001	0
20	53179-KV0-006	JOINT, LEVER	001	0
21	53180-KV0-006	BOLT, ADJUSTING	001	0
22	53180-MN9-000	GUARD, R. KNUCKLE *NH138*	001	0
23	53181-KV0-006	SPRING, HANDLE LEVER	001	0
24	53185-MN9-305	LEVER SET, R. HANDLE	001	0
25	90114-MN9-006	BOLT, HANDLE LEVER	001	0
26	90127-KF0-770	COLLAR, 6X4	001	0
27	90145-KM3-750	BOLT, OIL, 10X22	001	0
28	90545-300-000	WASHER, OIL BOLT	003	0
29	90651-MA5-671	CIRCLIP	001	0
30	93600-040121G	SCREW, FLAT, 4X12	002	0
31	93893-0401218	SCREW-WASHER, 4X12	001	0
32	94050-06000-	NUT, FLANGE, 6MM	001	0
33	96000-0601000	BOLT, FLANGE, 6X10	002	0
34	96001-0602507	BOLT, FLANGE, 6X25	002	0
34	96001-0602207	BOLT, FLANGE, 6X22	002	0
35	96500-0601007	BOLT, FLANGE, 6X10	001	0



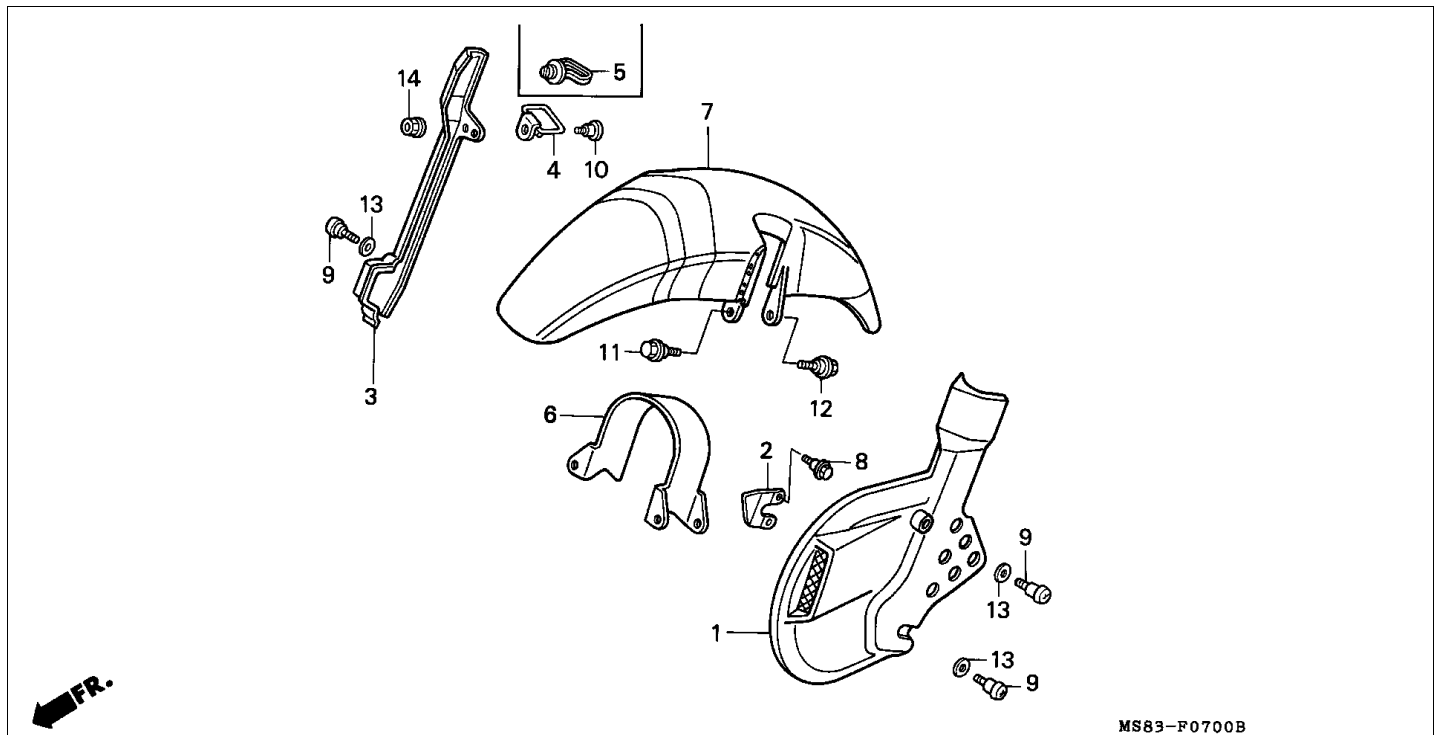
Block F-5 HANDLE PIPE/TOP BRIDGE

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	35010-MS8-870	KEY SET	001	0
1	35010-MS8-871	KEY SET	001	0
1	35010-MS8-872	KEY SET	001	0
2	35100-MS8-610	SWITCH ASSY., COMBINATION & LOCK	001	0
2	35100-MS8-611	SWITCH ASSY., COMBINATION & LOCK	001	0
3	35101-MM9-611	BASE COMP., CONTACT	001	0
4	35106-MB0-610	COVER, COMBINATION SWITCH	001	0
5	35121-MN9-611	KEY, BLANK	(1)	0
6	37312-KB7-008	GROMMET, COMBINATION SWITCH	001	0
7	37610-MS8-000	COVER COMP., IGNITION SWITCH	001	0
8	38200-MS8-871	BOX ASSY., FUSE	001	0
9	38210-KR0-005	COVER, FUSE BOX	001	0
10	38215-MM9-300	LABEL, FUSE	001	0
10	38215-MS8-871	LABEL, FUSE	001	0
11	45461-MS8-000	HOLDER, BRAKE HOSE UPPER	001	0
12	50296-MN9-000	GUIDE, CLUTCH CABLE	001	0
13	53100-MS8-000	BAR, STEERING HANDLE *YR112MU*	001	0
14	53131-MS8-000	HOLDER, UPPER	002	0
15	53132-MS8-000	HOLDER, HANDLE UNDER	002	0
16	53135-MS8-000	CAP, HANDLE PIPE	002	0
17	53220-MS8-000	BRIDGE COMP., FORK TOP	001	0
18	61312-MM9-000	STAY, FUSE CASE	001	0
19	87122-KY7-910	MARK, WING	001	0
20	90105-KE1-722	BOLT, COMBINATION SWITCH SETTING	002	0
21	90107-KF0-000	BOLT, FLANGE, 8X40	004	0
22	90111-362-000	BOLT, FLANGE, 8X36	004	0
23	90304-415-000	NUT, STEERING STEM	001	0
24	90309-KF0-003	NUT, FLANGE, 8MM	002	0
25	90503-283-000	WASHER, STEERING STEM	001	0
26	90535-KB9-000	WASHER, HANDLE CUSHION	002	0
27	91058-MG9-681	BAND, SELF LOCK	001	0
28	91059-MK4-601	SCREW, TAPPING, 3X16	003	0
28	91059-KY2-711	SCREW, TAPPING, 3X16	003	0
29	93500-040120G	SCREW, PAN, 4X12	002	0
30	94001-080700S	NUT, HEX., 8MM	001	0
31	95700-0802507	BOLT, FLANGE, 8X25	001	0
32	96400-0601000	BOLT, FLANGE, 6X10	001	0
33	98200-31000-	FUSE, BLADE (10A)	003	0



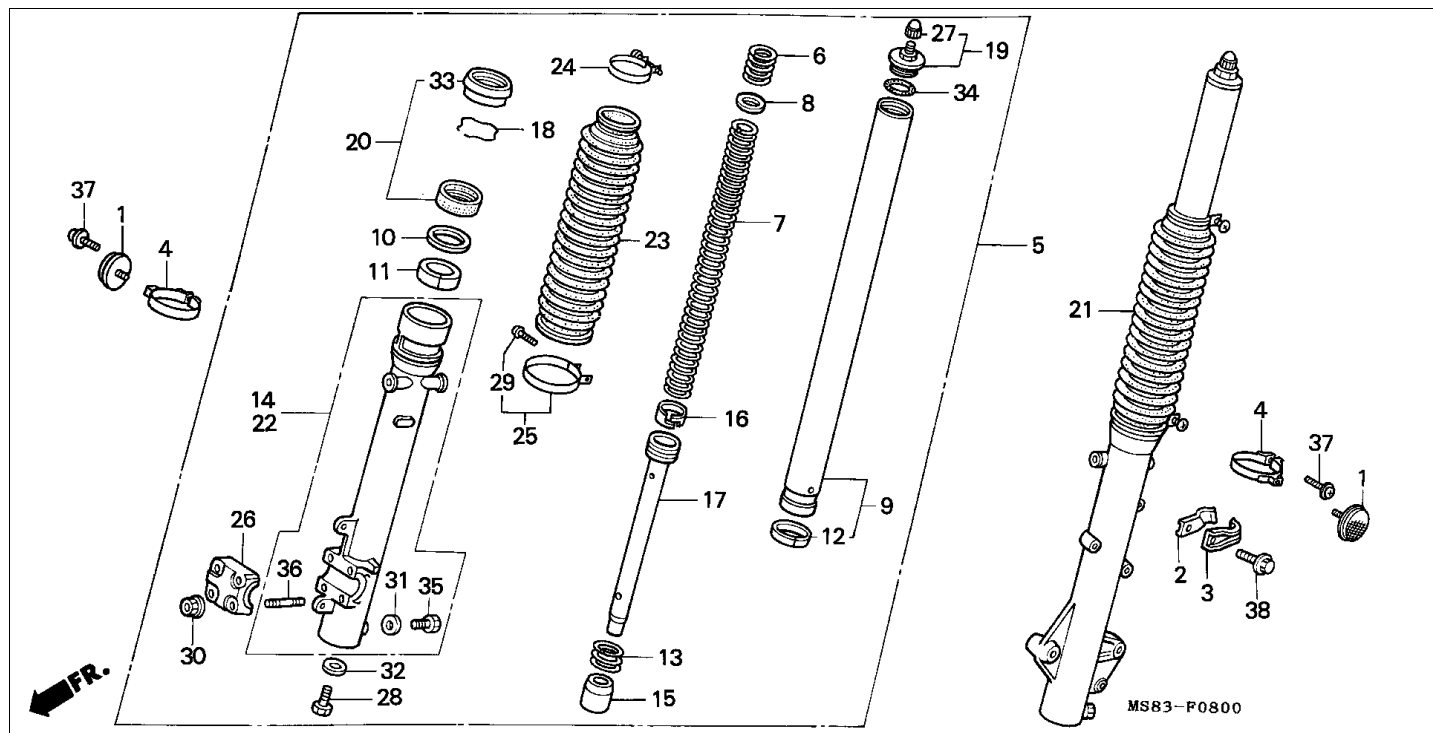
Block F-6 STEERING STEM

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	53200-MS8-000	STEM COMP., STEERING	001	0
2	53214-KA4-701	DUST SEAL, STEERING HEAD (ARAI)	001	0
3	53214-MM9-003	DUST SEAL, STEERING HEAD (ARAI)	001	0
3	53214-MM9-005	DUST SEAL, STEERING HEAD (NOK)	001	0
4	53229-KN5-650	THREAD, STEERING HEAD TOP	001	0
5	61120-MM9-000	PLATE, AIR GUIDE	001	0
6	90107-KF0-000	BOLT, FLANGE, 8X40	004	0
7	90111-ML0-730	BOLT, FLANGE, 6MM	002	0
8	90556-MB4-000	WASHER	002	0
9	91015-425-832	BEARING, HEAD PIPE UPPER (NACHI)	002	0



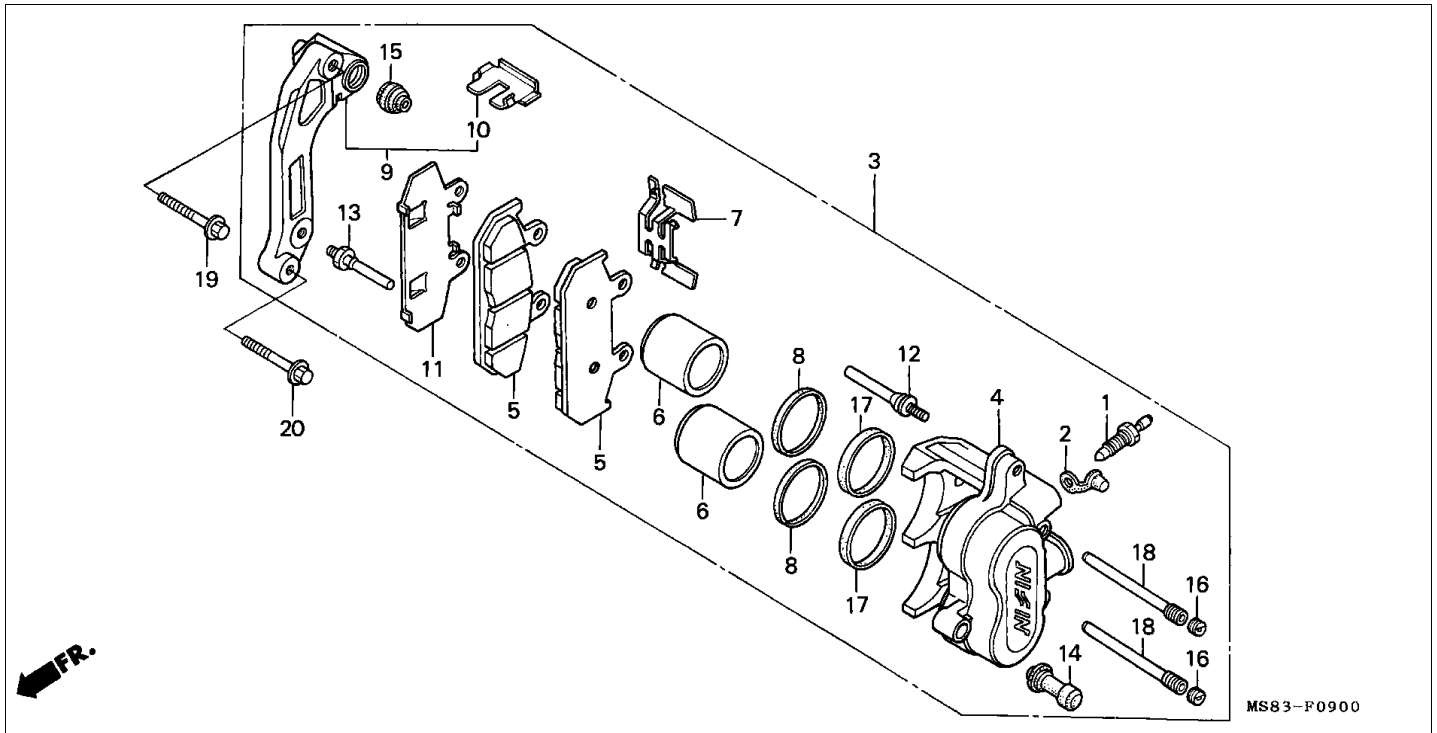
Block F-7 FRONT FENDER

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	45320-MS8-010	COVER COMP., FR. DISK *NH138*	001	0
2	45335-MS8-000	STOPPER, FR. DISK COVER	001	0
3	45340-MS8-000	COVER, BOTTOM CASE *NH138*	001	0
4	45451-MS8-000	GUIDE, SPEEDOMETER CABLE	001	0
6	53240-MS8-000	BRACE, FR. FORK	001	0
7	61200-MS8-000	FENDER SET, FR. (WL) *NH138*	001	0
8	90028-MA6-000	BOLT, SPECIAL FLANGE, 6X14	002	0
9	90103-MN9-000	BOLT, FR. DISK	004	0
10	90105-GC4-600	BOLT, DISK, 6X17	001	0
10	90105-KS6-700	BOLT, DISK, 6X17	001	0
11	90106-MM9-000	BOLT, FR. FENDER FIXING	002	0
12	90106-MN9-000	BOLT, FR. FENDER FIXING	002	0
13	90505-MM5-770	WASHER, 8MM	004	0
14	94071-06080-	NUT-WASHER, 6MM	001	0



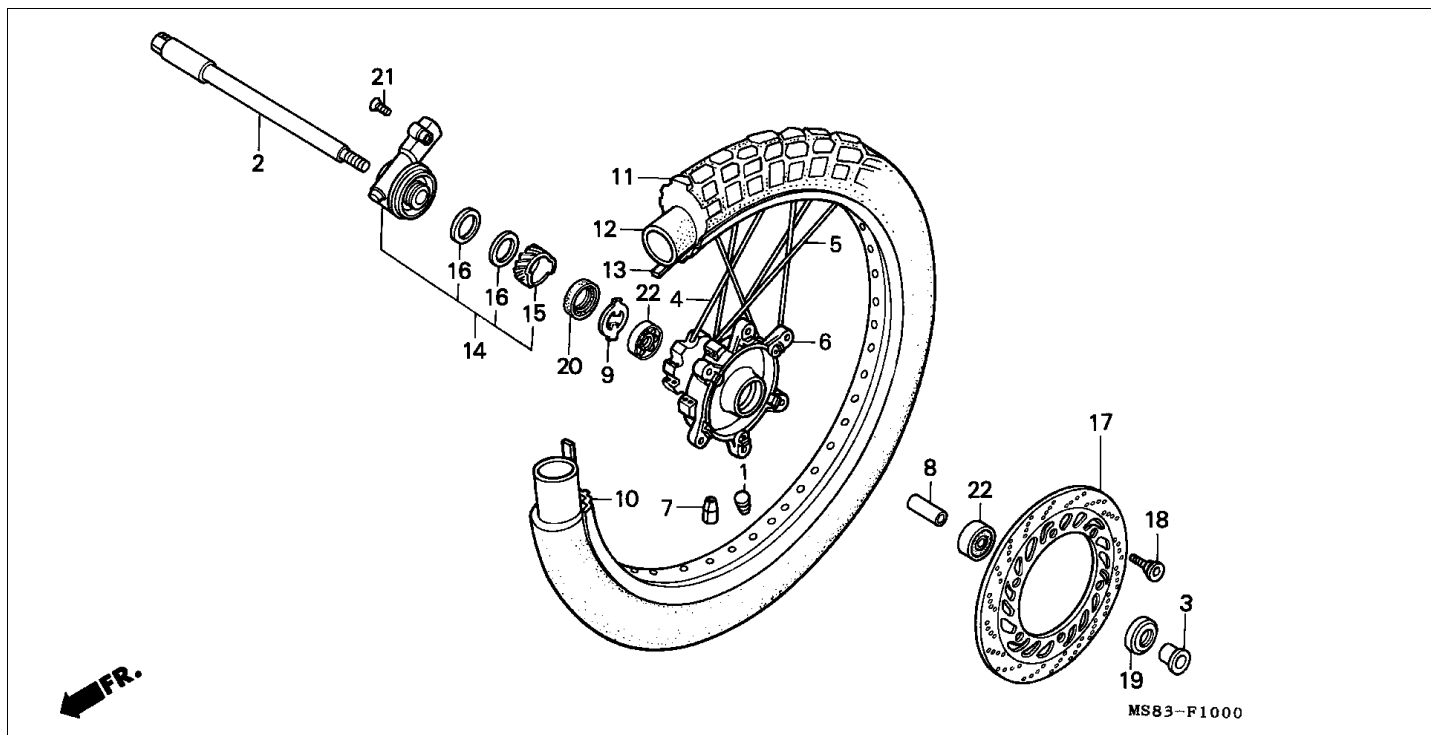
Block F-8 FRONT FORK

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
2	45464-MM9-000	CLAMPER A, BRAKE HOSE	001	0
3	45465-MM9-000	CLAMPER B, BRAKE HOSE	001	0
5	51400-MS8-611	FORK ASSY., R. FR. *NH35M/PB181*	001	0
6	51401-MS8-003	SPRING A, FR. CUSHION	002	0
7	51402-MS8-003	SPRING B, FR. CUSHION	002	0
8	51405-KA4-711	SEAT, SPRING	002	0
9	51410-MS8-003	PIPE COMP., FR. FORK (SHOWA)	002	0
10	51412-KA4-711	RING, BACK UP	002	0
11	51414-MN1-671	BUSH, GUIDE	002	0
12	51415-MN1-671	BUSH, SLIDER	001	0
13	51416-KA4-831	SPRING, FR. REBOUND (SHOWA) (34.3N/MM, 3.5KGF/MM)	002	0
14	51420-MS8-003	CASE COMP., R. BOTTOM *NH35M*	001	0
15	51432-MG7-003	PIECE, OIL LOCK	002	0
16	51437-KA4-711	RING, PISTON (SHOWA)	002	0
17	51440-MS8-003	PIPE, SEAT	002	0
18	51447-KA4-711	RING, OIL SEAL STOPPER	002	0
19	51450-MS8-003	BOLT ASSY., FR. FORK	002	0
20	51490-KA4-831	SEAL SET, FR. FORK (SHOWA)	002	0
21	51500-MS8-611	FORK ASSY., L. FR. *NH35M/PB181*	001	0
22	51520-MS8-003	CASE COMP., L. BOTTOM *NH35M*	001	0
23	51611-MS8-003	BOOT, FR. FORK *PB181*	002	0
24	51612-KA4-831	BAND, BOOT UPPER (SHOWA)	002	0
25	51613-MK2-003	BAND, BOOT LOWER	002	0
26	51634-MK5-003	HOLDER, AXLE *NH35M*	001	0
27	52425-381-771	CAP, AIR VALVE	002	0
28	90116-383-721	BOLT, SOCKET, 8X27	002	0
29	90202-MK2-003	SCREW, PAN, 3.5X25	002	0
30	90301-473-003	NUT, U, 6MM	004	0
31	90543-273-000	PACKING, FR. FORK DRAIN COCK	002	0
32	90544-283-000	WASHER, SPECIAL, 8MM	002	0
33	91254-KA4-831	DUST SEAL, FR. FORK	002	0
34	91356-KA4-711	O-RING, 35.2X2.4	002	0
35	92101-060080A	BOLT, HEX., 6X8	002	0
36	92900-060250E	BOLT, STUD, 6X25	004	0
38	96001-0601200	BOLT, FLANGE, 6X12	001	0



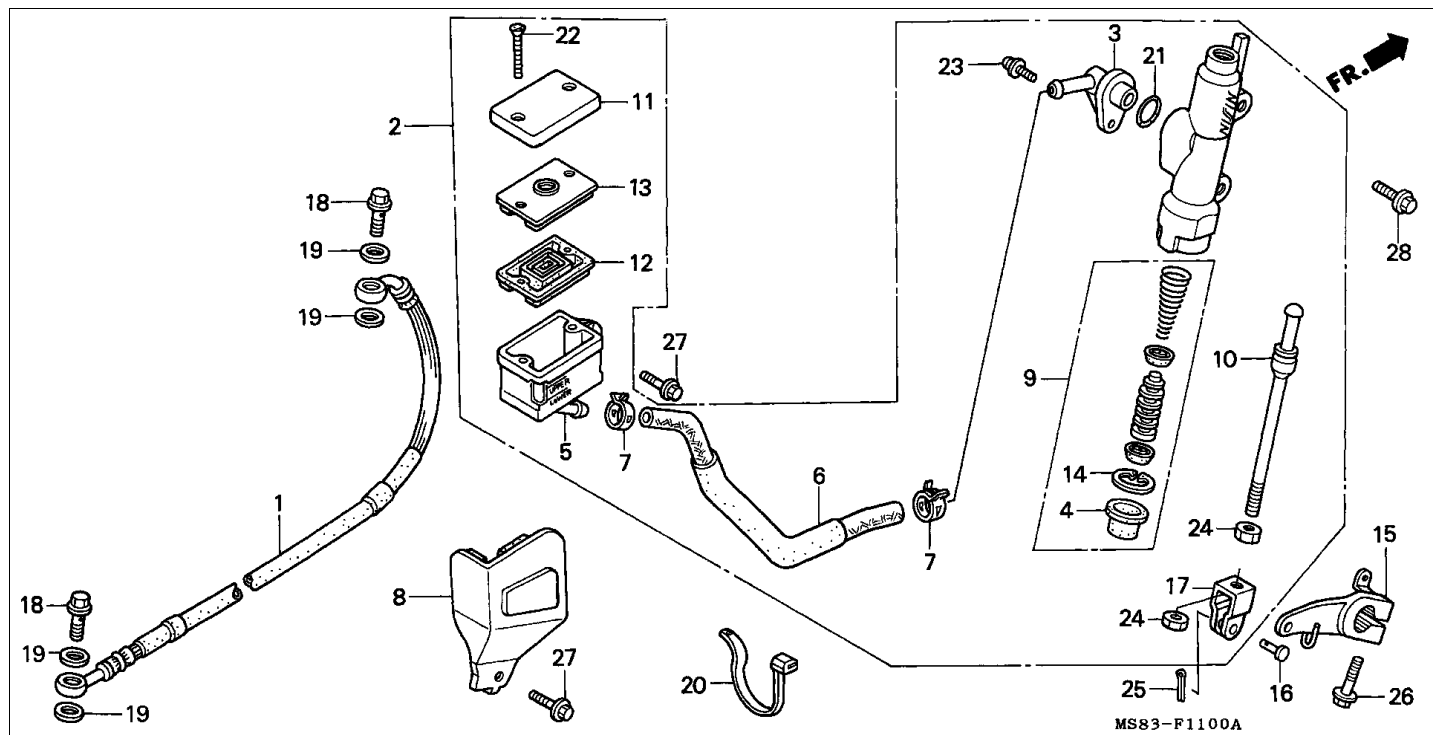
Block F-9 FRONT BRAKE CALIPER

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	43352-568-003	SCREW, BLEEDER	001	0
2	43353-461-771	CAP, BLEEDER	001	0
3	45100-MS8-006	CALIPER ASSY., L. FR. (NISSIN)	001	0
3	45100-MS8-016	CALIPER ASSY., L. FR. (NISSIN)	001	0
4	45101-MN9-016	BODY, FR. CALIPER	001	0
5	45105-MS8-008	PAD COMP., FR. (NISSIN) (TT)	002	0
6	45107-ML7-691	PISTON COMP.	002	0
7	45108-KV0-701	SPRING, PAD (NISSIN)	001	0
8	45109-166-006	DUST SEAL	002	0
9	45110-MS8-006	BRACKET COMP., FR.	001	0
10	45112-KM1-006	RETAINER	001	0
12	45131-HA5-671	BOLT A, PIN	001	0
12	45131-HA5-672	BOLT A, PIN	001	0
13	45131-166-016	BOLT, PIN	001	0
14	45132-166-016	BOOT, PIN BUSH (NISSIN)	001	0
15	45133-MA3-006	BOOT B	001	0
16	45203-MG3-006	PLUG, PIN	002	0
16	45203-MG3-016	PLUG, PIN	002	0
17	45209-166-006	SEAL, PISTON	002	0
18	45215-KA3-731	PIN, HANGER	002	0
18	45215-KA3-732	PIN, HANGER	002	0
19	90131-MG3-000	BOLT, FLANGE, 8X40	001	0
20	90132-MG3-000	BOLT, FLANGE, 8X50	001	0



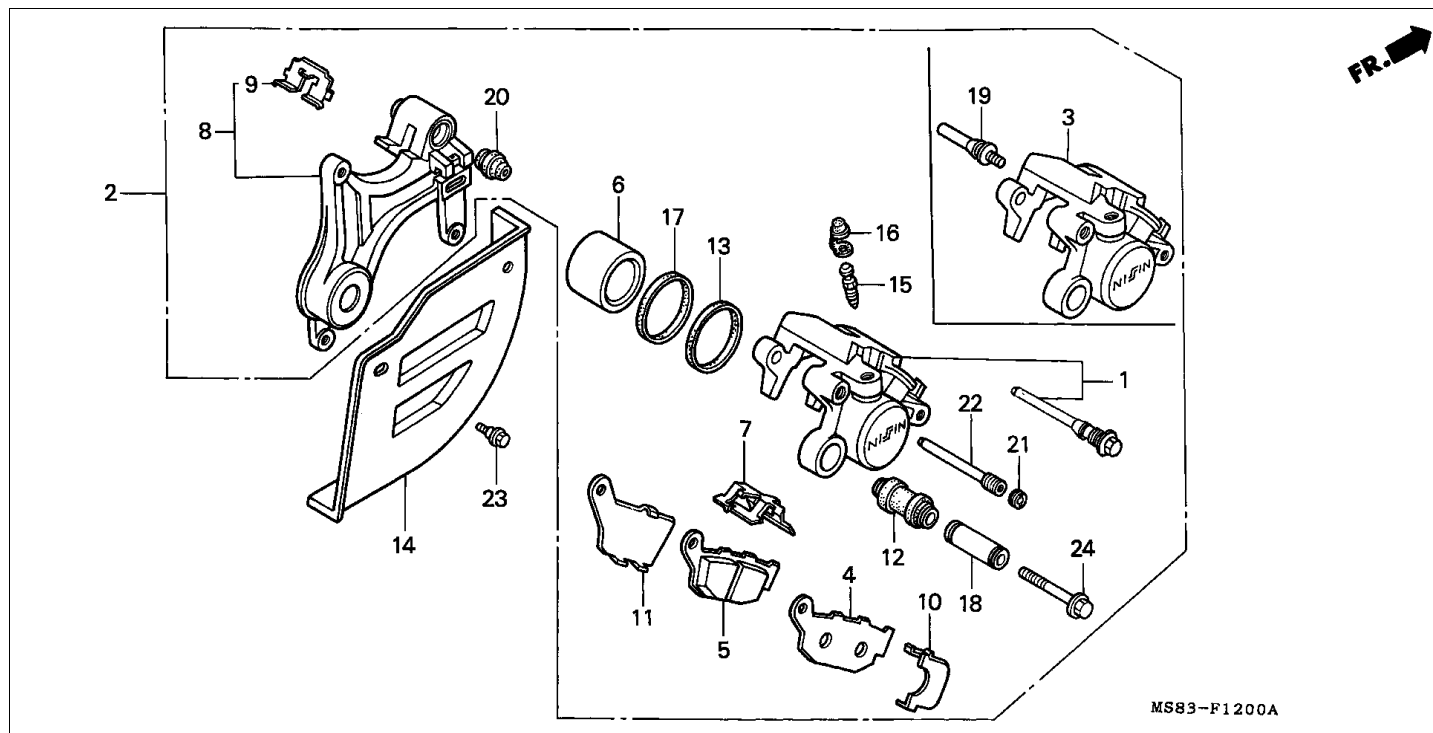
Block F-10 FRONT WHEEL

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	42717-329-000	CAP, RIM HOLE	001	0
2	44301-KF0-000	AXLE, FR. WHEEL	001	0
3	44311-MG3-000	COLLAR, FR. WHEEL	001	0
4	446A0-MM9-000	SPOKE SET A, FR. (B9X250.5)	018	0
5	446B0-MM9-000	SPOKE SET B, FR. (B9X247.0)	018	0
6	44601-MM9-000	HUB, FR. WHEEL	001	0
7	44606-283-000	BALANCER (20G)	N	0
8	44620-MG3-000	COLLAR, FR. WHEEL DISTANCE	001	0
9	44680-MA0-000	RETAINER, GEAR BOX	001	0
10	44701-MM9-003	RIM, FR. WHEEL (1.85X21)	001	0
11	44711-MN9-013	TIRE, FR. (BS) (90/90-21 54S TW41)	001	0
11	44711-MN9-015	TIRE, FR. (DUNLOP) (90/90-21 54S K560)	001	0
12	44712-400-004	TUBE, TIRE (DUNLOP) (2.75/3.00-21)	001	0
12	44712-MG7-003	TUBE, TIRE (BRIDGESTONE)	001	0
13	44713-400-004	FLAP, TIRE (DUNLOP) (1.40/1.60-21)	001	0
13	44713-MG7-003	FLAP, TIRE (BRIDGESTONE) (1.85X21)	001	0
14	44800-MK5-013	BOX ASSY., SPEEDOMETER GEAR	001	0
15	44806-KF0-000	GEAR, SPEEDOMETER	001	0
16	44809-402-000	WASHER, SPEEDOMETER GEAR	002	0
17	45351-MS8-010	DISK, FR. BRAKE	001	0
18	90105-MK5-010	BOLT, DISK, 8X22	006	0
19	90755-229-003	OIL SEAL, 21X37X7 (ARAI)	001	0
19	90755-229-005	OIL SEAL, 21X37X7 (NOK)	001	0
20	91258-410-006	DUST SEAL, 40X50X5 (NOK)	001	0
20	91258-410-013	DUST SEAL, 40X50X5 (ARAI)	001	0
21	93700-050200G	SCREW, OVAL, 5X20	001	0
22	96140-6202010	BEARING, RADIAL BALL, 6202U	002	0
22	96150-6202010	BEARING, RADIAL BALL, 6202UU	002	0



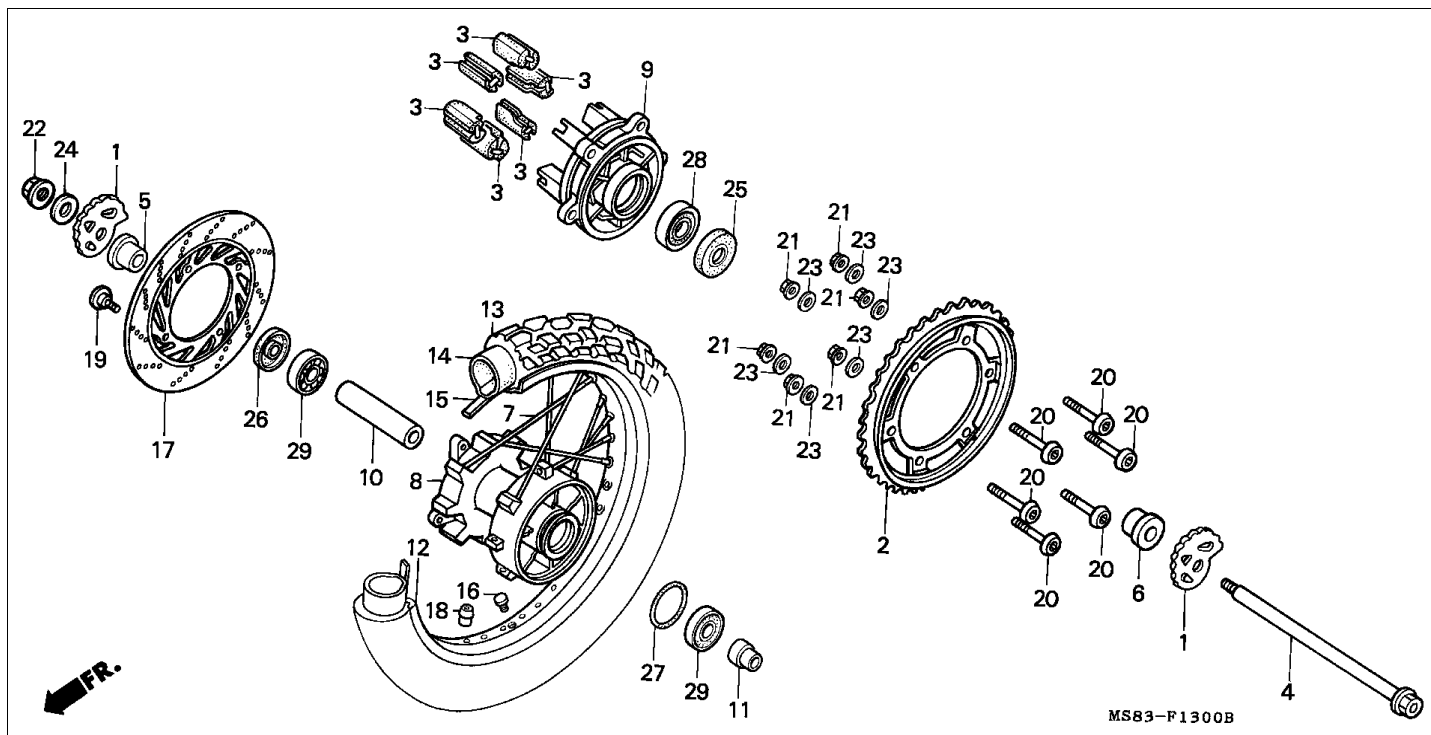
Block F-11 REAR BRAKE MASTER CYLINDER

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	43310-MS8-003	HOSE, RR. BRAKE	001	0
2	43500-MS8-611	CYLINDER ASSY., RR. MASTER	001	0
3	43503-MS8-006	CONNECTOR	001	0
4	43504-MB2-006	BOOT COMP.	001	0
5	43511-KT8-006	CUP COMP., OIL	001	0
6	43512-MS8-006	HOSE, MASTER CYLINDER	001	0
7	43514-445-771	CLAMP, MASTER CYLINDER OIL HOSE	002	0
8	43519-MS8-000	PROTECTOR, OIL CUP HEAT	001	0
9	43520-MB2-305	PISTON SET, MASTER CYLINDER (NISSIN)	001	0
10	43530-MS8-006	ROD COMP., PUSH	001	0
11	45513-KK1-771	CAP, MASTER CYLINDER	001	0
12	45520-MG7-006	DIAPHRAGM	001	0
13	45521-HA2-006	PLATE, DIAPHRAGM	001	0
14	46182-500-013	CIRCLIP	001	0
15	46502-MS8-000	ARM, RR. BRAKE MIDDLE	001	0
16	46503-KW3-000	PIN COMP., BRAKE ROD	001	0
17	46504-MB2-006	JOINT, BRAKE ROD	001	0
18	90145-KM3-750	BOLT, OIL, 10X22	002	0
19	90545-300-000	WASHER, OIL BOLT	004	0
20	90651-MA6-720	BAND, WIRE HARNESS	001	0
21	91212-422-006	O-RING, 14.8X2.4	001	0
22	93600-040401G	SCREW, FLAT, 4X40	002	0
23	93893-0401218	SCREW-WASHER, 4X12	001	0
24	94002-080000S	NUT, HEX., 8MM	002	0
25	94201-20120-	PIN, SPLIT, 2.0X12	001	0
26	95701-0802508	BOLT, FLANGE, 8X25	001	0
27	96500-0601400	BOLT, FLANGE, 6X14	002	0
28	96500-0601600	BOLT, FLANGE, 6X16	002	0



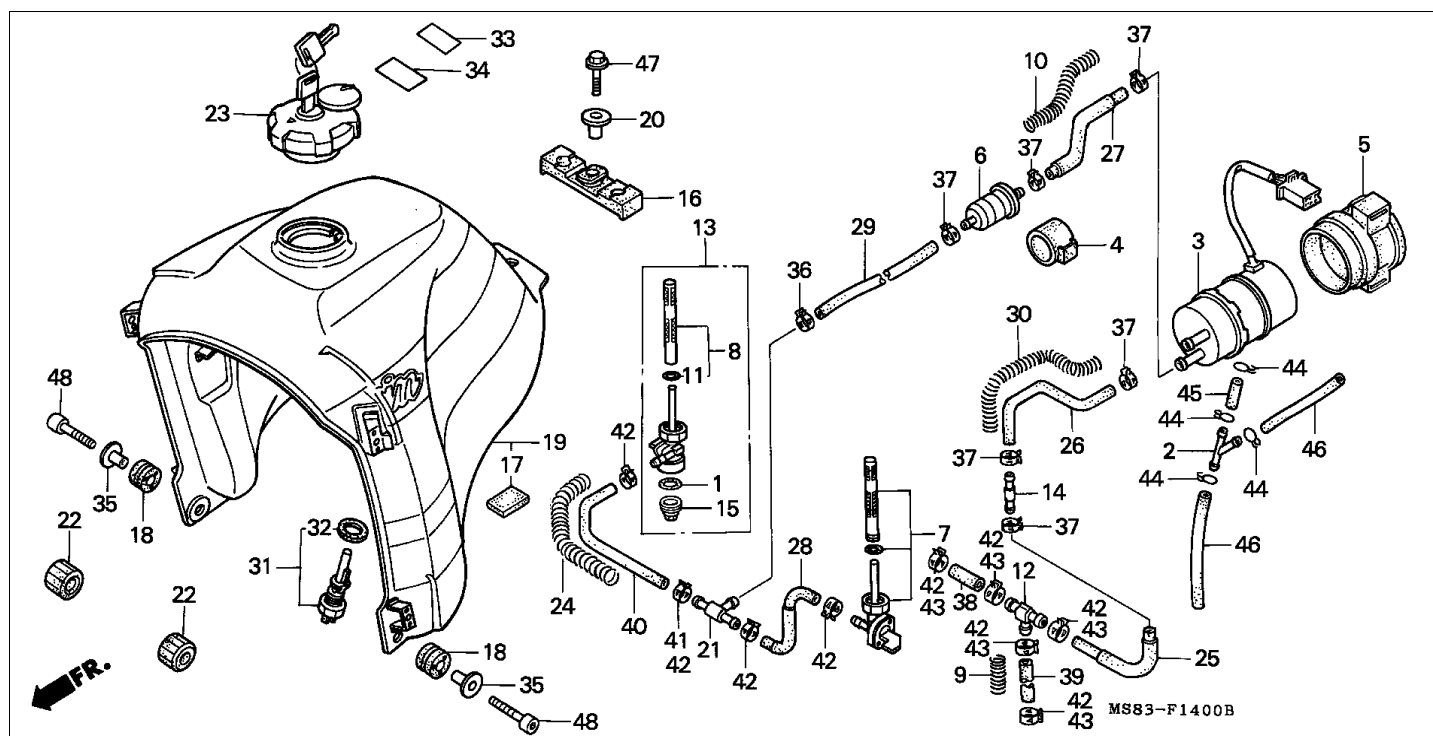
Block F-12 REAR BRAKE CALIPER

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	43050-MN9-305	BODY SET, RR. CALIPER	001	0
2	43100-MS8-006	CALIPER ASSY., RR. (NISSIN)	001	0
2	43100-MS8-016	CALIPER ASSY., RR. (NISSIN)	001	0
2	43100-MS8-026	CALIPER ASSY., RR. (NISSIN)	001	0
3	43101-MN9-016	BODY, RR. CALIPER (NISSIN)	001	0
4	43105-KT7-762	PAD COMP. A, RR.	001	0
5	43106-KT7-762	PAD COMP. B, RR.	001	0
6	43107-KT7-761	PISTON	001	0
7	43108-KT7-761	SPRING, PAD	001	0
8	43110-MS8-006	BRACKET COMP., RR.	001	0
9	43112-KT7-761	RETAINER	001	0
10	43114-KT7-761	SHIM A	001	0
11	43115-MN9-006	SHIM B	001	0
12	43132-KT7-761	BOOT, SLEEVE	001	0
13	43209-371-006	SEAL, PISTON (38MM)	001	0
14	43330-MN9-000	COVER, RR. DISK	001	0
15	43352-568-003	SCREW, BLEEDER	001	0
16	43353-461-771	CAP, BLEEDER	001	0
17	45109-443-870	DUST SEAL	001	0
18	45111-MA3-006	SLEEVE	001	0
19	45131-HA5-671	BOLT A, PIN	001	0
20	45133-MA3-006	BOOT B	001	0
21	45203-MG3-006	PLUG, PIN	001	0
21	45203-MG3-016	PLUG, PIN	001	0
22	45215-KA3-731	PIN, HANGER	001	0
22	45215-KA3-732	PIN, HANGER	001	0
23	90111-GJ5-000	BOLT, FLANGE, 6MM	002	0
24	90180-MA3-006	BOLT, FLANGE, 8X49	001	0



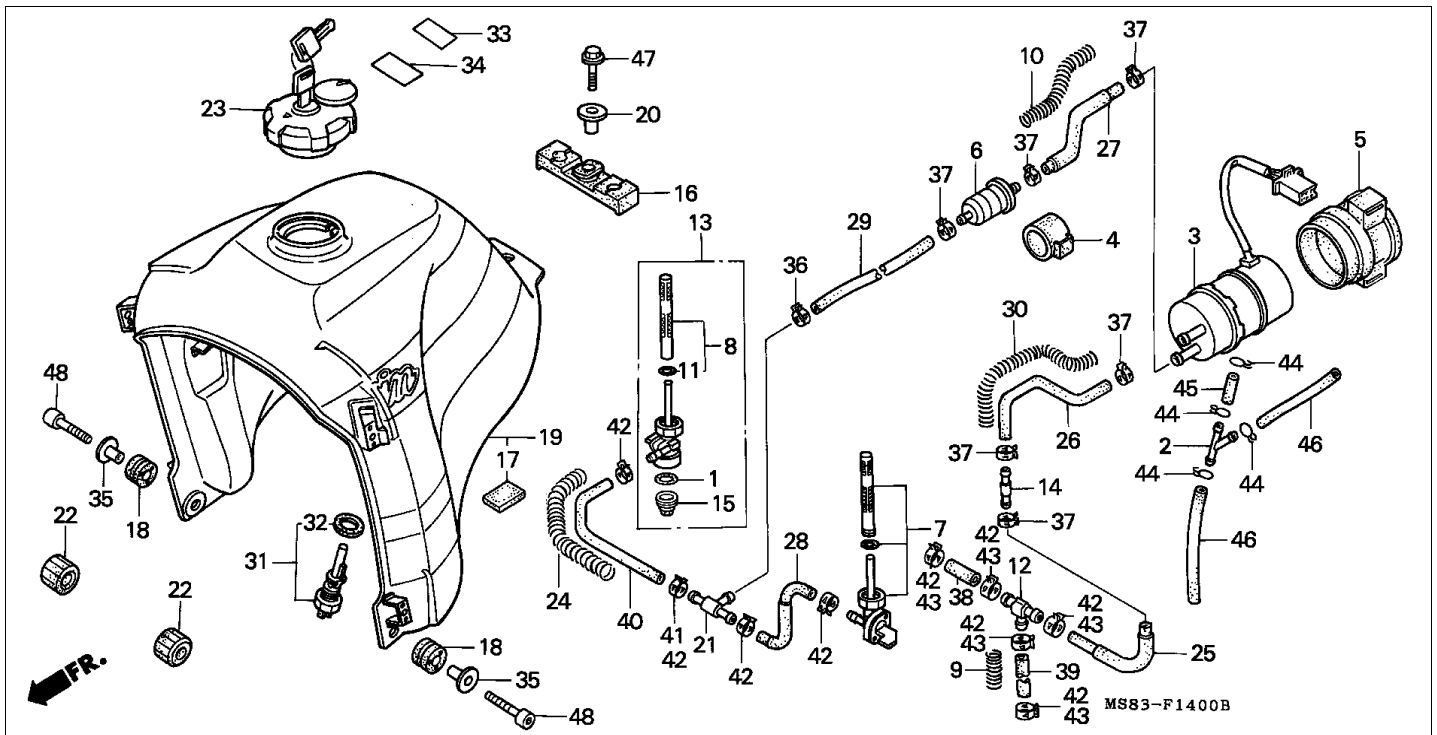
Block F-13 REAR WHEEL

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	40544-MS8-000	ADJUSTER, CHAIN	002	0
2	41200-MS8-610	SPROCKET COMP., FINAL DRIVEN (49T)	001	0
3	41241-MC4-010	RUBBER, RR. WHEEL DAMPER	006	0
4	42301-MS8-003	AXLE, RR. WHEEL	001	0
5	42311-KS5-000	COLLAR, RR. WHEEL SIDE	001	0
6	42312-MC4-000	COLLAR, RR. WHEEL	001	0
7	426A0-MS8-003	SPOKE SET, RR.	032	0
8	42601-MS8-000	HUB, RR. WHEEL	001	0
8	42601-MS8-010	HUB, RR. WHEEL	001	0
9	42611-MS8-000	FLANGE, FINAL DRIVEN	001	0
10	42620-MS8-000	COLLAR A, RR. AXLE DISTANCE	001	0
11	42625-MC4-000	COLLAR B, RR. AXLE DISTANCE	001	0
12	42701-MS8-003	RIM, RR. WHEEL	001	0
13	42711-MS8-004	TIRE, RR. (DUNLOP) (130/90-17 68S K560)	001	0
13	42711-MS8-013	TIRE, RR. (BS) (130/90-17 68S TW42A)	001	0
14	42712-MS8-003	TUBE, TIRE (BS) (130/90-17)	001	0
14	42712-MS8-004	TUBE, TIRE (DUNLOP) (130/90-17)	001	0
15	42713-MS8-003	FLAP, TIRE (BS) (2.75-17)	001	0
15	42713-MS8-004	FLAP, TIRE (DUNLOP) (2.75/3.00-17)	001	0
16	42717-329-000	CAP, RIM HOLE	001	0
17	43351-MS8-000	DISK, RR. BRAKE	001	0
18	44606-283-000	BALANCER (20G)	N	0
19	90105-KS6-700	BOLT, DISK, 6X17	004	0
19	90105-MK5-010	BOLT, DISK, 8X22	004	0
20	90128-MM9-000	BOLT, SPROCKET FIXING	006	0
21	90304-GA6-003	NUT, AXLE, 10MM	006	0
22	90305-ME5-003	NUT, FLANGE, 16MM	001	0
23	90465-MM9-000	WASHER, 10MM	006	0
24	90530-MS8-000	WASHER, SPECIAL	001	0
25	91252-MC4-003	OIL SEAL, 28X47.2X7 (ARAI)	001	0
25	91252-MC4-005	OIL SEAL, 28X47.2X7 (NOK)	001	0
26	91252-428-000	OIL SEAL, 25X40X7	001	0
27	91302-317-700	O-RING, 54X2	001	0
28	96140-6204010	BEARING, RADIAL BALL, 6204U	001	0
29	96150-6203010	BEARING, RADIAL BALL, 6203UU	002	0



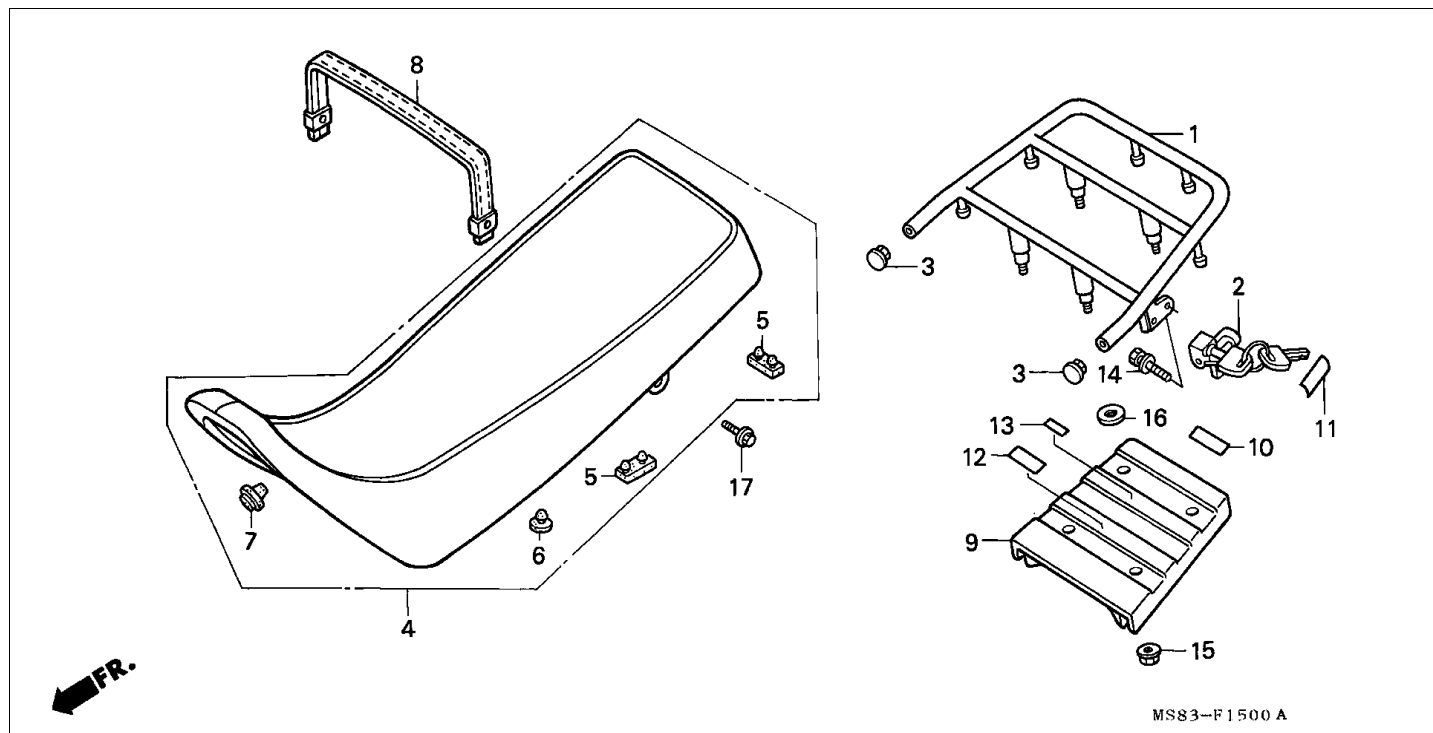
Block F-14 FUEL TANK/FUEL PUMP

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	16173-001-004	PACKING, FUEL STRAINER CUP	001	0
2	16235-MG2-880	JOINT, VENT TUBE	001	0
3	16710-MS8-005	PUMP ASSY., FUEL	001	0
4	16711-MF2-000	HOLDER, STRAINER	001	0
5	16711-MN8-000	RUBBER, FUEL PUMP MOUNTING	001	0
6	16900-MG8-003	STRAINER COMP., FUEL	001	0
7	16950-MS8-005	COCK ASSY., FUEL	001	0
7	16950-MS8-015	COCK ASSY., FUEL	001	0
8	16952-MS8-005	SCREEN, FUEL STRAINER	001	0
9	16953-MM9-000	WIRE A, GUARD	001	0
10	16955-MM5-000	WIRE, TUBE GUARD	001	0
11	16958-MA1-731	O-RING	001	0
12	16958-MB0-000	JOINT, FUEL TUBE	001	0
13	16960-MS8-005	COCK ASSY., FUEL	001	0
13	16960-MS8-015	COCK ASSY., FUEL	001	0
14	16966-MJ4-670	JOINT, FUEL TUBE	001	0
15	16967-GA6-671	CUP, FUEL STRAINER	001	0
16	17503-MM9-000	RUBBER, RR. TANK	001	0
17	17511-MS8-300	CUSHION	001	0
18	17513-HA5-000	RUBBER, FUEL TANK SETTING	002	0
19	17520-MS8-000	TANK SET, FUEL (WL) *NH138/PB200*	001	0
20	17525-KG7-830	COLLAR, FUEL TANK MOUNTING	001	0
21	17555-MS8-000	JOINT, FUEL TUBE THREE WAY	001	0
22	17611-MM9-000	CUSHION, FUEL TANK FR.	002	0
23	17620-MN9-003	CAP COMP., FUEL FILLER	001	0
23	17620-MN9-013	FUEL FILL CAP COMP.	001	0
24	17684-MS8-000	WIRE, GUARD	001	0
25	17685-MS8-000	TUBE E, FUEL	001	0
26	17686-MS8-000	TUBE A, FUEL	001	0
27	17687-MS8-000	TUBE B, FUEL	001	0
28	17688-MS8-000	TUBE C, FUEL	001	0
29	17689-MS8-000	TUBE D, FUEL	001	0
30	18627-MN0-680	WIRE, TUBE GUARD	001	0
31	37810-MS8-008	SENSOR, FUEL RESERVE	002	0
32	37811-MB1-008	PACKING, FUEL RESERVE SENSOR	002	0
33	87517-KM9-640	LABEL, FR. FORK CAUTION	001	0
34	87560-ME9-670	MARK, DRIVE CAUTION *TYPEG*	001	0
35	90505-HA5-000	WASHER, TANK SETTING	002	0



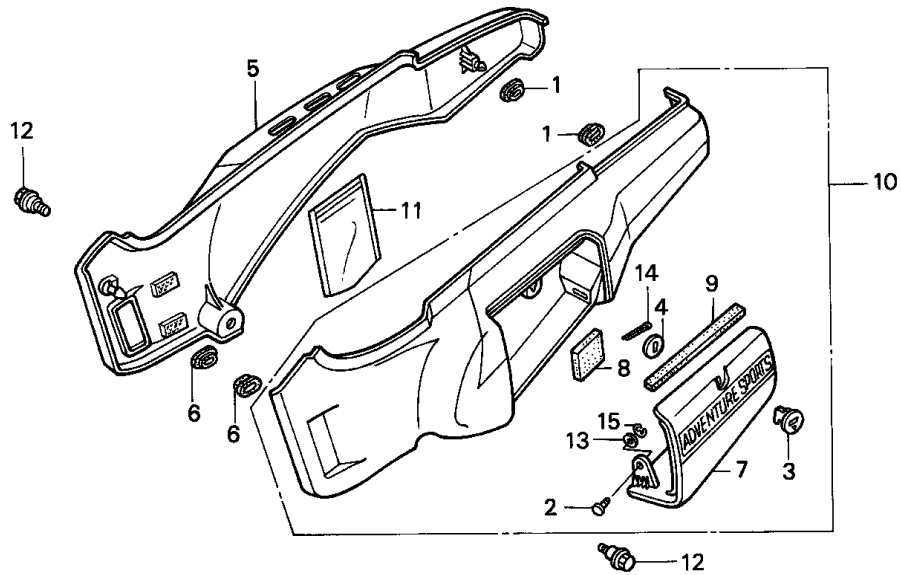
Block F-14 FUEL TANK/FUEL PUMP

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
36	91405-MS8-000	CLAMP, TUBE, (D17)	001	0
37	91406-MS8-000	CLAMP, TUBE, (D14.5)	006	0
38	95001-7504040	TUBE, FUEL, 7.3X40 (95001-75001-60M)	001	0
39	95001-7520040	TUBE, FUEL, 7.3X200 (95001-75001-60M)	001	0
40	95001-7535040	TUBE, FUEL, 7.3X350 (95001-75001-60M)	001	0
41	95002-02130-	CLIP, TUBE (B12.5)	001	0
42	95002-4120004	CLAMP, TUBE (D12)	009	0
42	95002-4120004	CLAMP, TUBE (D12)	008	0
44	95002-50000-	CLIP, TUBE (C9)	004	0
45	95005-5003030	TUBE, 5X30 (95005-50001-30M)	001	0
46	95005-5039030	TUBE, 5X390 (95005-50001-30M)	002	0
47	95800-0803500	BOLT, FLANGE, 8X35	001	0
48	96600-0803507	BOLT, SOCKET, 8X35	002	0



Block F-15 SEAT

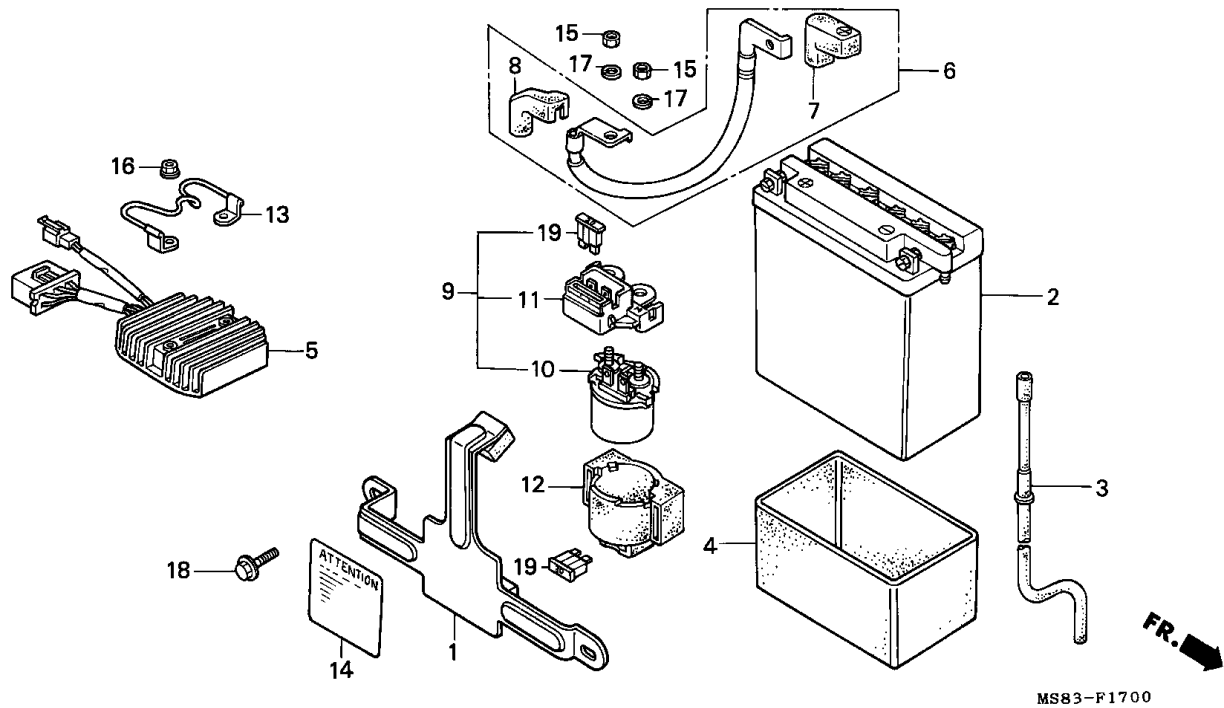
Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	50310-MS8-000	CARRIER COMP., RR. *NH146M*	001	0
2	50710-382-671	HOLDER ASSY., HELMET	001	0
3	65003-KN7-810	CAP, FR. BUMPER	002	0
4	77200-MS8-013	SEAT COMP., DOUBLE	001	0
5	77205-MG2-000	RUBBER A, SEAT SETTING	004	0
6	77206-GF0-000	RUBBER, SEAT CUSHION	002	0
7	77211-438-000	RUBBER, SEAT STOPPER	001	0
8	77216-MS8-000	SEATBELT COMP.	001	0
9	83710-MS8-000	PANEL, CARRIER (WOL) *PB186*	001	0
10	83711-MS8-300	MARK, CARRIER PANEL	001	0
11	87511-323-670	LABEL, HELMET HOLDER	001	0
12	87512-MS8-610	MARK, ACCESSORIES & LOADING CAUTION	001	0
13	87513-MS8-610	LABEL, LUGGAGE CARRIER CAUTION	001	0
14	90084-166-661	BOLT, DRIVE SPROCKET FIXING	002	0
15	90309-KF0-003	NUT, FLANGE, 8MM	004	0
16	90501-GK8-870	COLLAR, MUFFLER MOUNTING	004	0
17	95701-0601800	BOLT, FLANGE, 6X18	002	0



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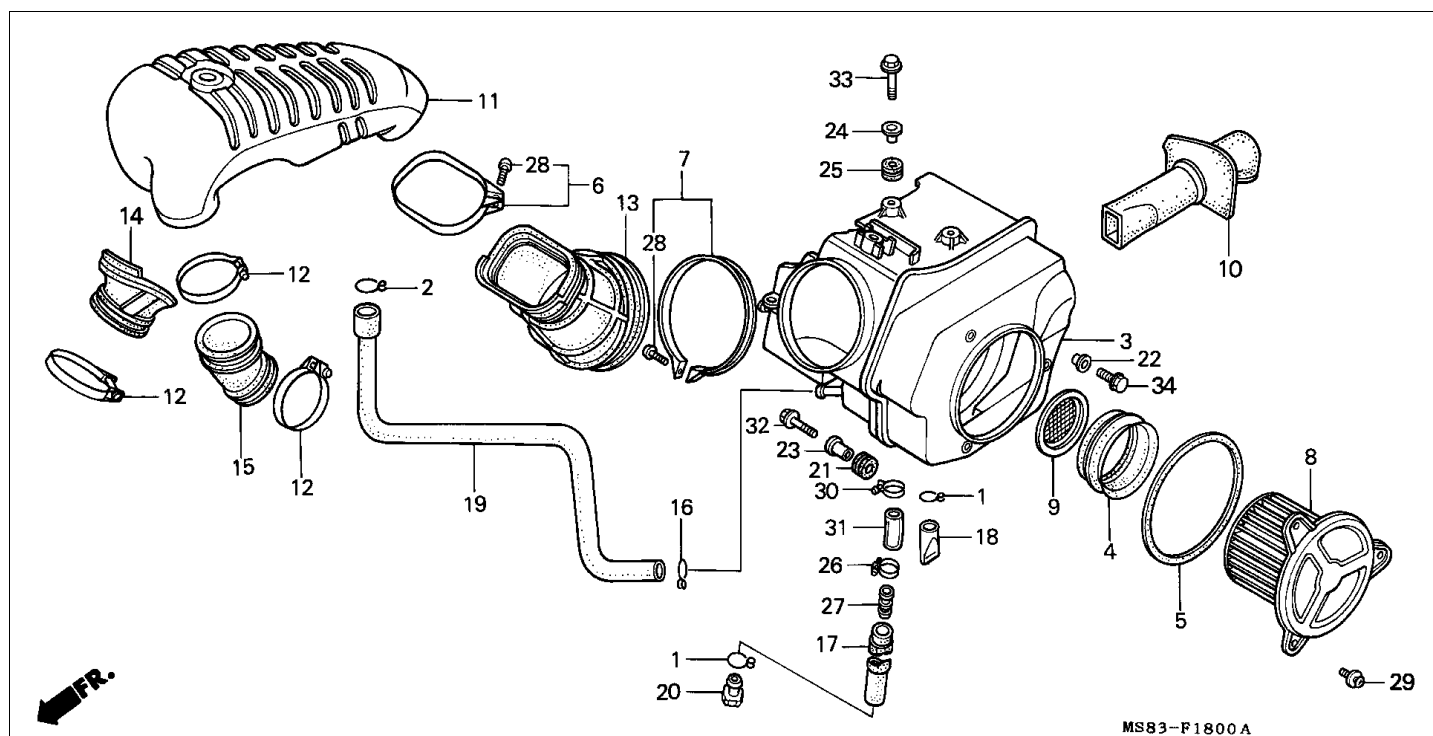
Block F-16 SIDE COVER

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	11346-MB4-770	GROMMET, RR. COVER (A)	002	0
2	64314-KS4-000	PIN, FUEL LID	002	0
3	83507-MJ1-000	BODY, KEY	001	0
4	83508-MJ1-000	WASHER, KEY BODY	001	0
5	83520-MS8-000	COVER SET, R. SIDE (WL) *NH138*	001	0
6	83551-300-000	GROMMET, AIR CLEANER CASE	002	0
7	836A0-MS8-000	LID SET, SIDE COVER (WL) *NH138*	001	0
9	83603-MS8-000	CUSHION, SIDE COVER LID (B)	001	0
10	83620-MS8-000	COVER SET, L. SIDE (WL) *NH138*	001	0
11	83642-GM2-000	BAG, OWNERS MANUAL	001	0
12	90102-MM9-010	BOLT, SPECIAL, 6X14	002	0
13	94101-04800-	WASHER, PLAIN, 4MM	002	0
14	94201-20100-	PIN, SPLIT, 2.0	001	0
15	94540-03028-	E-RING, 3MM	002	0



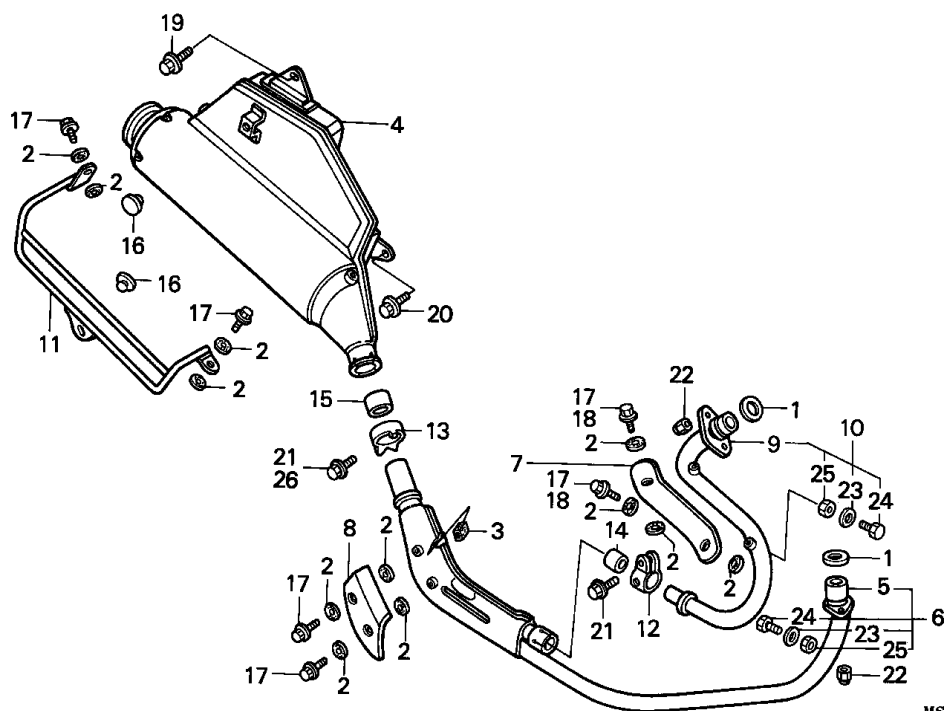
Block F-17 BATTERY

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	17250-MS8-000	BAND, BATTERY	001	0
2	31500-MK4-612	BATTERY (YB14-B2 YUASA)	001	0
3	31503-MM9-000	TUBE, BATTERY BREATHER	001	0
4	31511-MM9-000	CASE, BATTERY	001	0
5	31600-MS8-000	RECTIFIER ASSY., REGULATOR	001	0
6	32401-MM9-000	CABLE, STARTING MAGNETIC BATTERY	001	0
7	32414-MM9-000	COVER A, BATTERY TERMINAL	001	0
8	32416-MF5-000	COVER B, MAGNETIC SWITCH	001	0
9	35850-MK3-671	SWITCH ASSY., STARTER MAGNETIC	001	0
10	35851-MF5-751	SWITCH COMP., STARTER MAGNETIC	001	0
11	35855-MG7-751	HOLDER ASSY., FUSE	001	0
12	35856-MF5-751	RUBBER, SHOCK	001	0
13	80123-MS8-000	GUARD, REGULATOR	001	0
14	87506-MM9-600	MARK, BATTERY CAUTION	001	0
15	94002-060000S	NUT, HEX., 6MM	002	0
16	94050-06000-	NUT, FLANGE, 6MM	002	0
17	94111-06000-	WASHER, SPRING, 6MM	002	0
18	95701-0600807	BOLT, FLANGE, 6X8	002	0
19	98200-33000-	FUSE, BLADE (30A)	002	0



Block F-18 AIR CLEANER

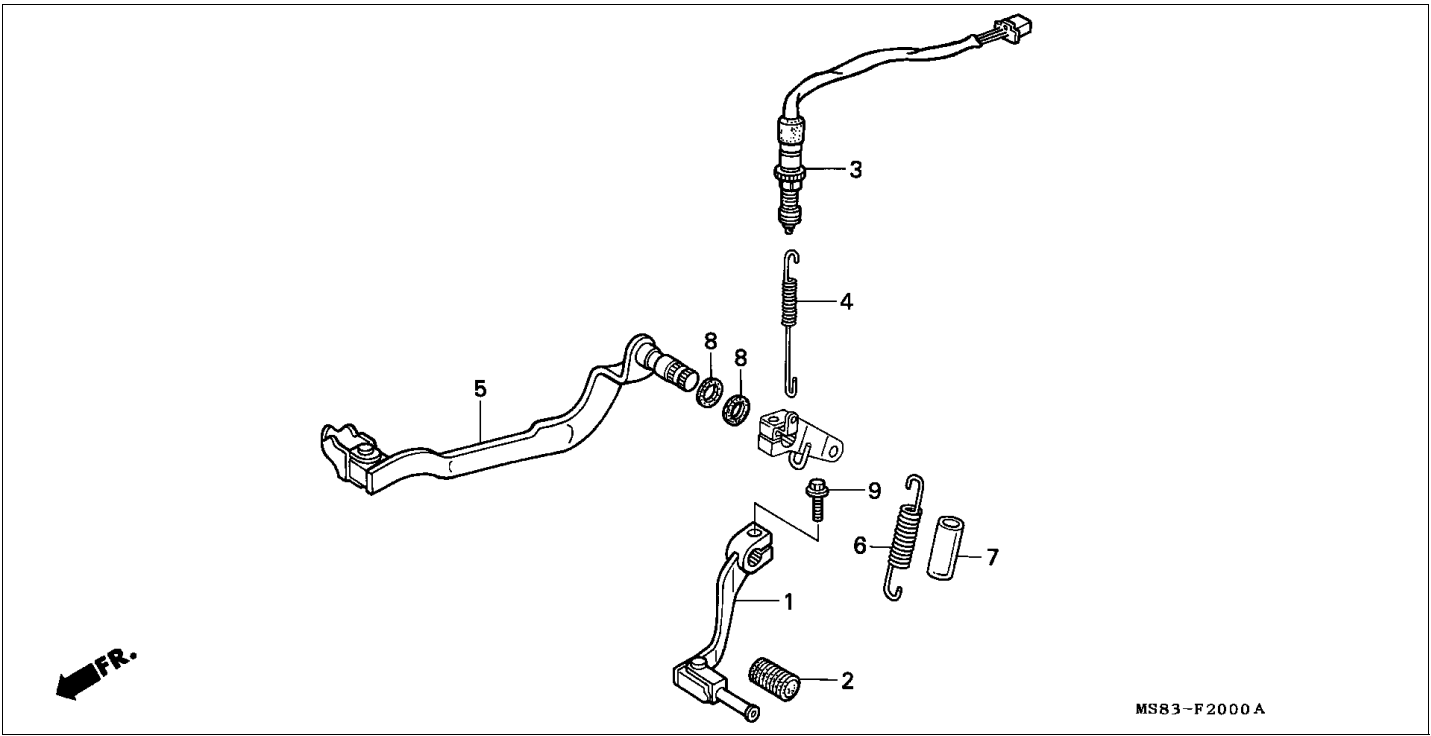
Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	15772-292-010	CLIP, BREATHER TUBE	002	0
2	15772-551-000	CLIP, BREATHER TUBE	001	0
3	17210-MS8-000	CASE COMP., AIR CLEANER	001	0
4	17213-MM9-300	SEAL, ELEMENT	001	0
5	17217-MF5-000	SEAL, AIR CLEANER CAP	001	0
6	17227-MM9-000	BAND, AIR CLEANER	001	0
7	17228-MM9-000	BAND, AIR CLEANER CONNECTING	001	0
8	17230-MM9-000	ELEMENT COMP., AIR CLEANER	001	0
9	17240-MM9-000	TRAP COMP., FRAME	001	0
10	17241-MM9-000	DUCT, AIR CLEANER INTAKE	001	0
11	17253-MM9-000	CHAMBER, AIR CLEANER	001	0
12	17256-358-000	BAND B, AIR CLEANER CONNECTING TUBE	003	0
13	17257-MM9-000	TUBE, MAIN CONNECTING	001	0
14	17258-MF5-000	TUBE, R. AIR CLEANER CHAMBER CONNECTING	001	0
15	17259-MF5-000	TUBE, L. AIR CLEANER CHAMBER CONNECTING	001	0
16	17316-611-000	CLIP, BREATHER TUBE	001	0
17	17357-MM9-000	TUBE B, DRAIN	001	0
18	17358-HA0-680	TUBE, DRAIN	001	0
19	17358-MM9-000	TUBE, OIL BREATHER	001	0
20	17370-382-870	PLUG, BREATHER TUBE	001	0
21	17611-MB1-000	CUSHION, FUEL TANK FR.	001	0
22	33118-MC7-000	COLLAR	001	0
23	61104-MA6-720	COLLAR	001	0
24	90501-MC4-000	COLLAR A, AIR CLEANER CASE	002	0
25	90505-MC4-000	GROMMET A, AIR CLEANER CASE	002	0
26	91462-393-780	CLIP, TUBE	001	0
27	91463-393-780	JOINT, TUBE	001	0
28	93500-050250A	SCREW, PAN, 5X25	002	0
29	93891-0601207	SCREW-WASHER, 6X12	003	0
30	95002-01160-	CLIP, TUBE (A16)	001	0
31	95003-3700631	TUBE, VINYL, 11X15X60 (95003-37001-60M)	001	0
32	95701-0602007	BOLT, FLANGE, 6X20	001	0
33	95701-0602008	BOLT, FLANGE, 6X20	002	0
34	95800-0601208	BOLT, FLANGE, 6X12	001	0



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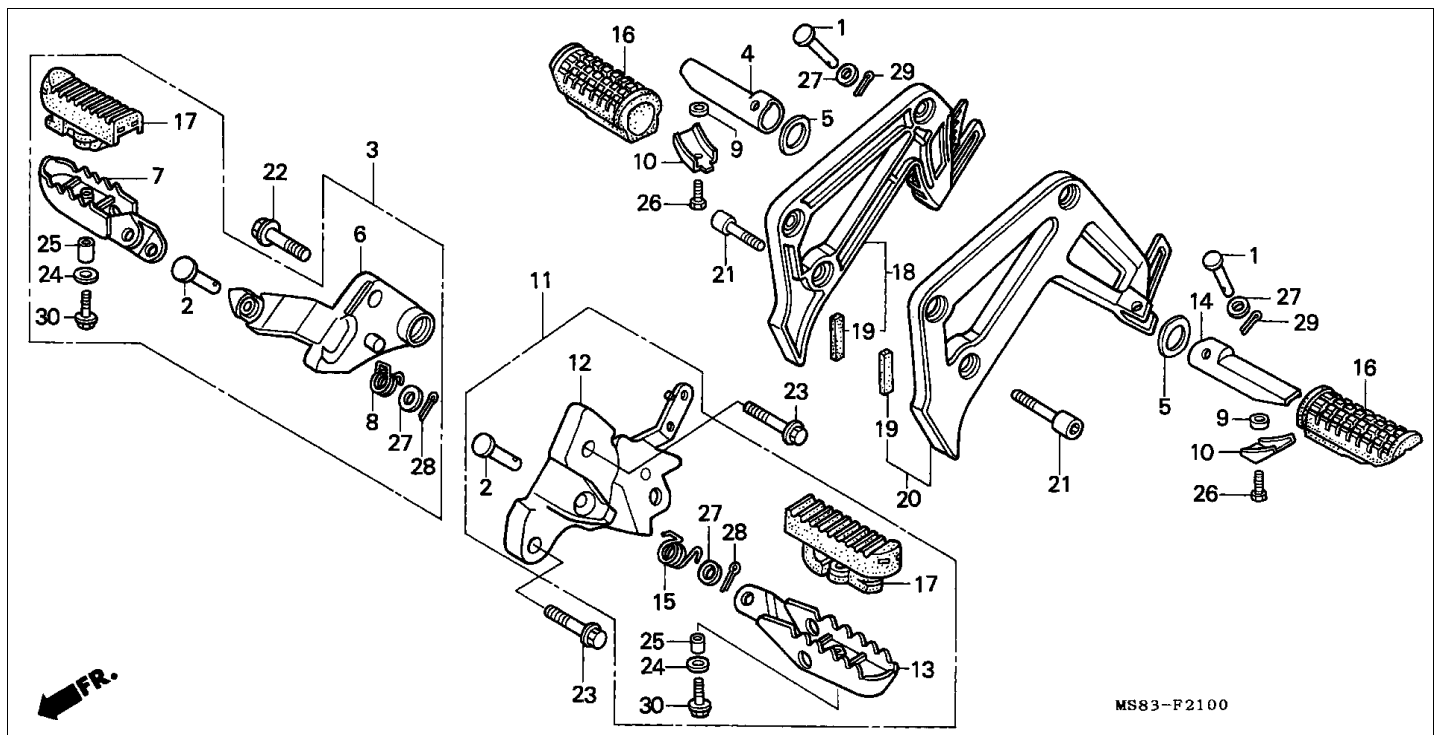
Block F-19 EXHAUST MUFFLER

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	18291-236-000	GASKET, EX. PIPE	002	0
1	18291-MN4-920	GASKET, EX. PIPE	002	0
2	18292-415-000	PACKING, PROTECTOR	012	0
3	18293-147-000	RUBBER, PROTECTOR PACKING	001	0
4	18310-MS8-621	MUFFLER COMP.	001	0
5	18320-MS8-003	PIPE COMP., FR. EX.	001	0
7	18326-MS8-010	PROTECTOR, RR. EX.	001	0
8	18327-MS8-010	PROTECTOR, LOWER EX.	001	0
9	18330-MS8-003	PIPE, RR. EX.	001	0
11	18340-MS8-000	PROTECTOR, MUFFLER	001	0
12	18373-ML0-000	BAND, R. EX. PIPE	001	0
13	18376-KK9-720	BAND, L. RR. MUFFLER	001	0
14	18391-310-000	PACKING, MUFFLER	001	0
15	18392-MJ4-670	PACKING, RR. MUFFLER	001	0
16	83512-KA4-700	RUBBER, SIDE COVER	002	0
17	90101-MM9-000	BOLT, FLANGE, 6X12	004	0
18	90101-MS8-000	BOLT, FLANGE, 6X10	002	0
19	90211-KF0-000	BOLT, FLANGE, 10X30	001	0
20	90212-MN1-670	BOLT, FLANGE, 8X28	001	0
21	90216-MM9-000	BOLT, FLANGE, 8X32	001	0
22	90304-ME1-670	NUT, CAP, 8MM	004	0
26	96300-0803807	BOLT, FLANGE, 8X38	001	0



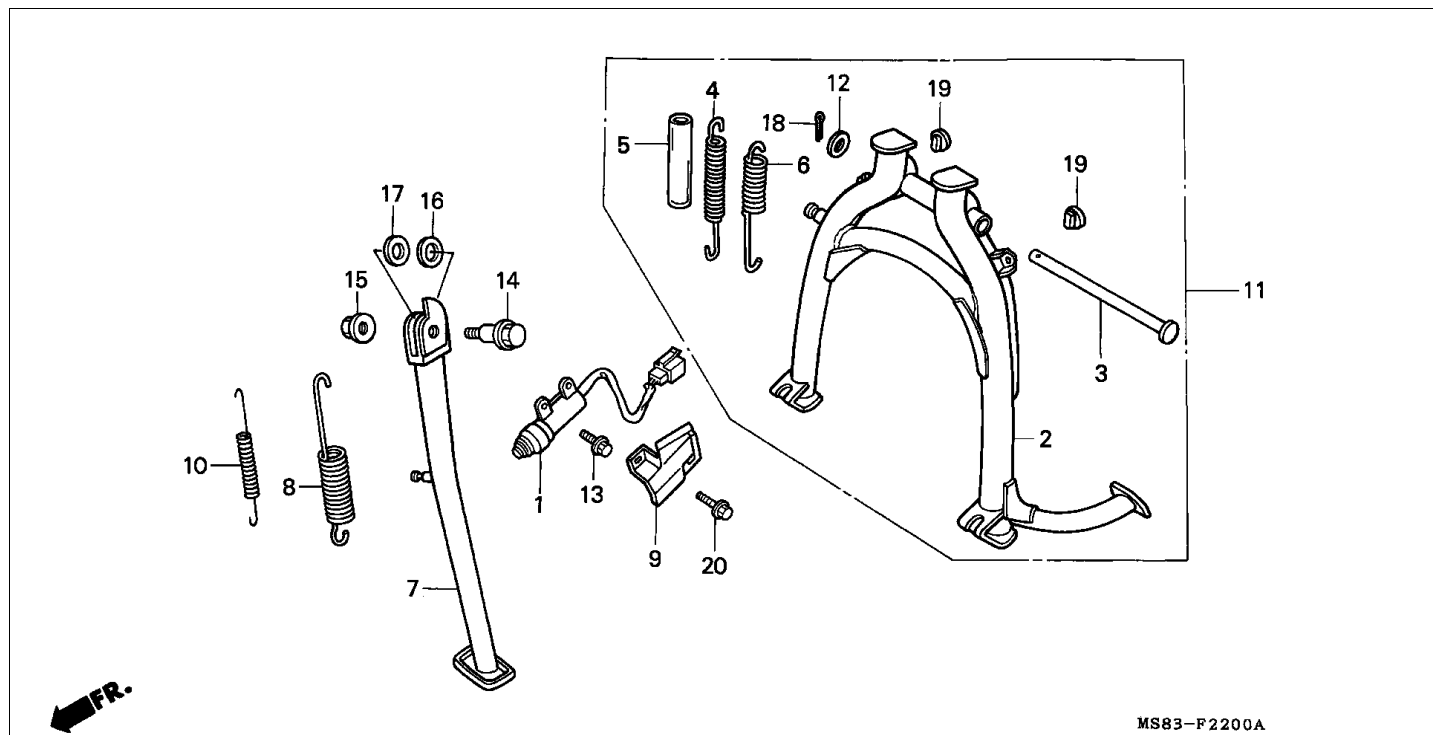
Block F-20 PEDAL

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	24700-MS8-000	PEDAL COMP., CHANGE	001	0
2	24781-KE1-000	RUBBER, CHANGE PEDAL	001	0
3	35350-MS8-000	SWITCH ASSY., RR. STOP	001	0
4	35357-MG2-000	SPRING, STOP SWITCH	001	0
5	46510-MS8-610	PEDAL COMP., BRAKE	001	0
6	46514-KN5-670	SPRING, BRAKE PEDAL	001	0
7	46515-KL4-000	TUBE, BRAKE PEDAL SPRING	001	0
8	46525-KK0-003	DUST SEAL, 17X20X2.5	002	0
9	95701-0602007	BOLT, FLANGE, 6X20	001	0



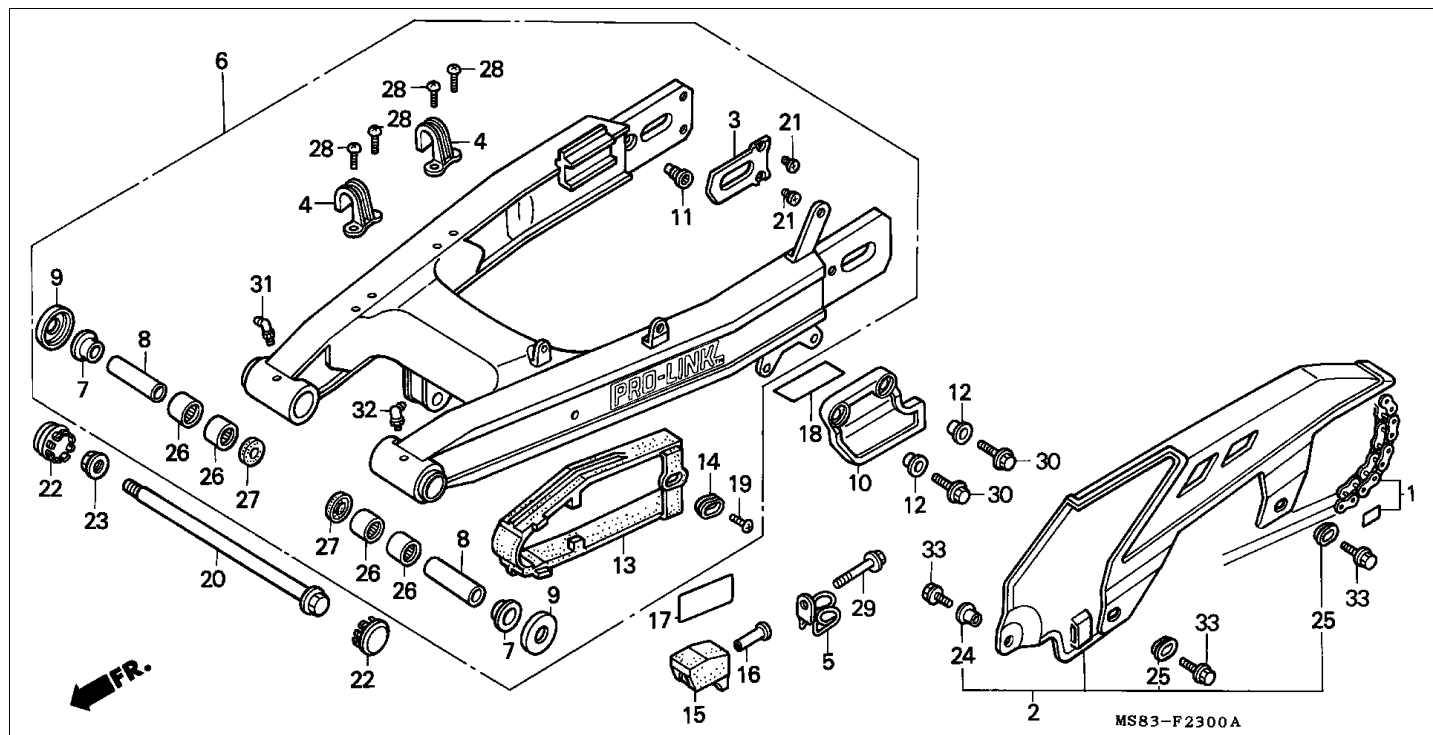
Block F-21 STEP

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	50603-MN1-670	PIN, STEP BAR JOINT	002	0
2	50603-033-000	PIN, STEP BAR JOINT	002	0
2	50603-033-010	PIN, STEP BAR JOINT	002	0
3	50610-MS8-000	ARM ASSY., R. STEP *NH146M*	001	0
4	50701-MS8-000	BAR, R. PILLION STEP	001	0
5	50614-KE8-000	PLATE, MAIN STEP SIDE	002	0
6	50615-MS8-000	ARM, R. STEP *NH146M*	001	0
7	50616-MM9-000	STEP COMP., R.	001	0
8	50617-MM9-000	SPRING, R. STEP RETURN	001	0
9	50618-KE8-000	COLLAR, 6.5X11X3	002	0
10	50619-KE8-000	PLATE, MAIN STEP LOWER	002	0
11	50620-MS8-000	ARM ASSY., L. STEP *NH146M*	001	0
12	50625-MS8-000	BASE COMP., L. STEP *NH146M*	001	0
13	50642-MM9-000	STEP COMP., L.	001	0
14	50801-MS8-000	BAR, L. PILLION STEP	001	0
15	50644-MM9-000	SPRING, L. STEP RETURN	001	0
16	50661-KE8-000	RUBBER, MAIN STEP	002	0
17	50661-MS8-000	RUBBER, STEP	002	0
18	50710-MS8-000	HOLDER, R. PILLION STEP	001	0
19	50714-MS8-000	RUBBER, PROTECTOR	002	0
20	50810-MS8-000	HOLDER, L. PILLION STEP	001	0
21	90109-MS8-000	BOLT, SOCKET, 8X10	006	0
22	90212-MM9-000	BOLT, FLANGE, 12X38	001	0
23	90213-MM9-000	BOLT, FLANGE, 10X38	002	0
24	90485-MB2-000	WASHER, 6MM	002	0
25	90503-MG7-000	SPACER, HANDLE END GUARD	002	0
26	92000-060121A	BOLT, HEX., 6X12	002	0
27	94101-08000-	WASHER, PLAIN, 8MM	004	0
28	94201-16150-	PIN, SPLIT, 1.6X15	002	0
28	94201-20150-	PIN, SPLIT, 2.0X15	002	0
29	94201-20150-	PIN, SPLIT, 2.0X15	002	0
30	95801-0602207	BOLT, FLANGE, 6X22	002	0



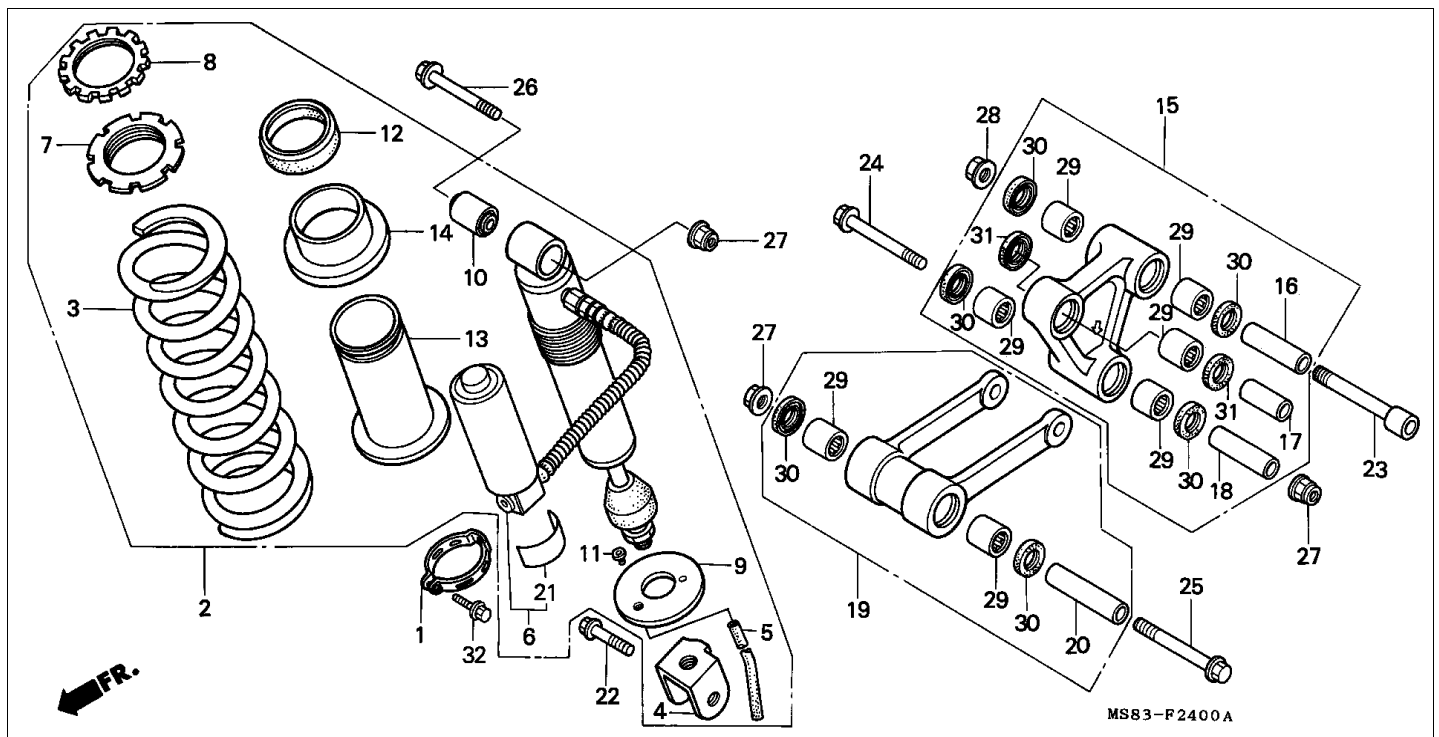
Block F-22 STAND

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	35710-MM9-830	SWITCH ASSY., SIDE STAND	001	0
2	50500-MS8-000	STAND COMP., MAIN	(1)	0
3	50501-MS8-010	SHAFT, MAIN STAND	(1)	0
4	50520-MF2-610	SUB SPRING, MAIN STAND	(1)	0
5	50521-MS8-700	TUBE	(1)	0
6	50522-KE8-000	SPRING, MAIN STAND	(1)	0
7	50530-MS8-000	BAR COMP., SIDE STAND	001	0
8	50535-MM9-610	SPRING, SIDE STAND	001	0
9	50535-MS8-000	COVER, SIDE STAND SWITCH	001	0
10	50542-MM9-830	SUB SPRING, SIDE STAND	001	0
11	50600-MS8-811	STAND SET, MAIN	(1)	0
12	50715-KE8-000	PLATE, PILLION STEP SIDE	(1)	0
13	90103-MM9-830	BOLT, FLANGE, 6X16	002	0
14	90108-MM9-000	SCREW, SIDE STAND PIVOT	001	0
14	90108-KV6-000	SCREW, SIDE STAND PIVOT	001	0
15	90203-MF9-710	NUT, SIDE STAND	001	0
16	90501-MF9-710	WASHER, THRUST, 24X13	001	0
17	90502-MF9-710	WASHER, THRUST, 24X10	001	0
18	94201-25350-	PIN, SPLIT, 2.5X35	(1)	0
19	95011-62000-	RUBBER B, STAND STOPPER	(2)	0
20	90103-MM9-830	BOLT, FLANGE, 6X16	001	0



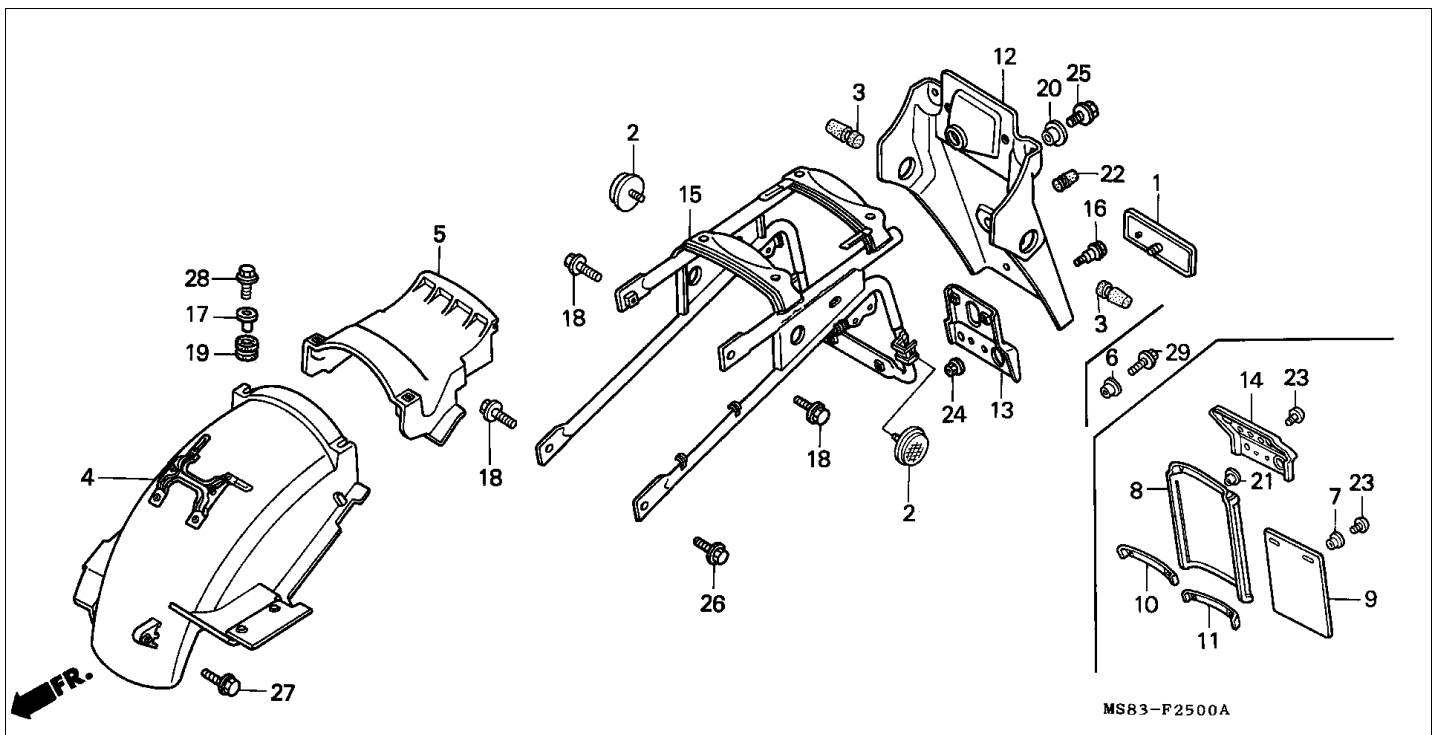
Block F-23 REAR FORK/CHAIN CASE

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	405A3-MS8-611	CHAIN SET, DRIVE (525V.7-124LE DAIDO)	001	0
1	405A3-MS8-612	CHAIN SET, DRIVE (525SMO.Z3-124LE TAKASAGO)	001	0
2	40510-MM9-000	CASE, DRIVE CHAIN	001	0
3	42307-MK5-000	WASHER, RR. FORK INNER	002	0
4	43468-KS6-700	GUIDE, RR. BRAKE HOSE	002	0
5	50178-MS8-000	CLAMP, BREATHER TUBE	001	0
6	52100-MS8-610	FORK ASSY., RR. (WL)	001	0
7	52109-MM9-300	BUSH, PIVOT THRUST	002	0
8	52141-MM9-000	COLLAR, RR. FORK	002	0
9	52144-KR8-003	CAP, DUST SEAL (ARAI)	002	0
9	52144-KR8-005	CAP, DUST SEAL (NIPPON)	002	0
10	52156-KB7-000	GUARD, CHAIN	001	0
11	52156-KV6-000	PIN, CHAIN ADJUSTER	002	0
12	52159-KB7-000	COLLAR, CHAIN GUARD	002	0
13	52170-MS8-005	SLIDER, CHAIN	001	0
14	52171-KR6-000	WASHER, CHAIN SLIDER	001	0
15	52181-MM9-000	SLIDER, CHAIN LOWER	001	0
16	53209-HA0-000	COLLAR, HANDLE COVER MOUNTING	001	0
17	87505-MS8-610	MARK, TIRE CAUTION	001	0
18	87509-MS8-610	MARK, DRIVE CHAIN CAUTION	001	0
19	90115-KV3-700	SCREW, PAN, 5X8	001	0
20	90121-MS8-000	BOLT, RR. FORK PIVOT	001	0
21	90124-KA3-830	SCREW, FLAT, 5X4.5	004	0
22	90302-MM9-000	CAP, PIVOT	002	0
23	90305-GE8-003	NUT, U, 14MM	001	0
24	90512-422-000	WASHER, CHAIN CASE SETTING	001	0
25	90513-405-000	WASHER, 6X9	002	0
26	91071-KS6-004	BEARING, SWINGARM PIVOT (NTN)	004	0
27	91254-KS6-003	DUST SEAL, 20X26X4.5 (ARAI)	002	0
27	91254-KS6-005	DUST SEAL, 20X26X5 (NOK)	002	0
28	93500-050080A	SCREW, PAN, 5X8	004	0
29	95700-0604000	BOLT, FLANGE, 6X40	001	0
30	96000-0602000	BOLT, FLANGE, 6X20	002	0
31	96201-60000-	NIPPLE, GREASE (B.T6)	001	0
32	96201-60000-	NIPPLE, GREASE (B.T6)	001	0
33	96300-0601207	BOLT, FLANGE, 6X12	003	0



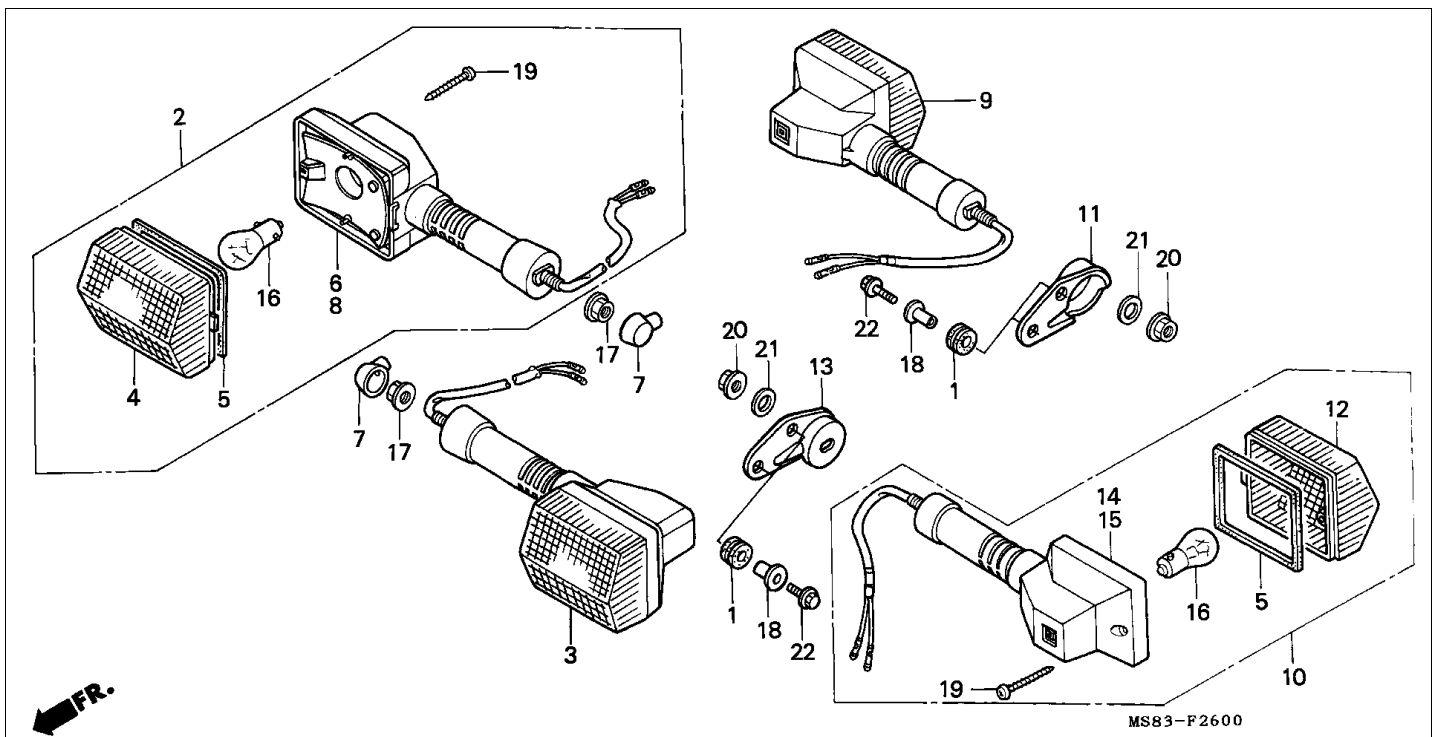
Block F-24 REAR CUSHION

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	50252-KR6-000	BAND, SUB TANK	001	0
2	52400-MS8-611	CUSHION ASSY., RR. (SHOWA) *NH1*	001	0
3	52401-MS8-003	SPRING, RR. CUSHION (SHOWA) *NH1*	001	0
4	52403-MM9-003	METAL, JOINT	001	0
5	52405-KB7-003	PIPE, DRAIN	001	0
6	52410-MS8-611	DAMPER COMP., RR.	001	0
7	52422-MA0-003	ADJUSTER, SPRING	001	0
8	52423-KA3-711	NUT, ADJUSTER	001	0
9	52424-KB7-003	STOPPER, SPRING SEAT	001	0
10	52451-MA0-000	BUSH, DAMPER LOWER	001	0
11	52456-KB7-003	JOINT, PIPE	001	0
12	52457-KB7-003	DUST SEAL	001	0
13	52458-KR6-003	GUIDE, SPRING	001	0
14	52459-KB7-003	SEAT C, SPRING (SHOWA)	001	0
15	52460-MS8-000	ARM ASSY., CUSHION	001	0
16	52463-MS8-000	COLLAR A, CUSHION ARM	001	0
17	52464-MN9-000	COLLAR, DAMPER LOWER	001	0
18	52464-MS8-000	COLLAR B, CUSHION ARM	001	0
19	52470-MS8-000	ROD ASSY., CUSHION CONNECTING	001	0
20	52473-MS8-000	COLLAR, CUSHION CONNECTING ROD	001	0
21	87516-HB5-671	LABEL, RR. DAMPER WARNING	001	0
22	90126-KT2-000	BOLT, FLANGE, 10X42	001	0
23	90128-KN5-000	BOLT, SOCKET, 12X100	001	0
24	90130-KA3-730	BOLT, FLANGE, 10X98	001	0
25	90151-MM9-000	BOLT, FLANGE, 10X118	001	0
26	90154-HA6-000	BOLT, FLANGE, 10X60	001	0
27	90304-GE8-003	NUT, U, 10MM	003	0
28	90306-KF0-003	NUT, FLANGE, 12MM	001	0
29	91079-KA3-831	BEARING, NEEDLE, 17.5X24.5X22	007	0
30	91205-KT2-005	OIL SEAL, 17.5X26X5	006	0
31	91261-MN9-005	SEAL, CUSHION ARM, 17.5X26X2.5	002	0
32	96500-0602500	BOLT, FLANGE, 6X25	001	0



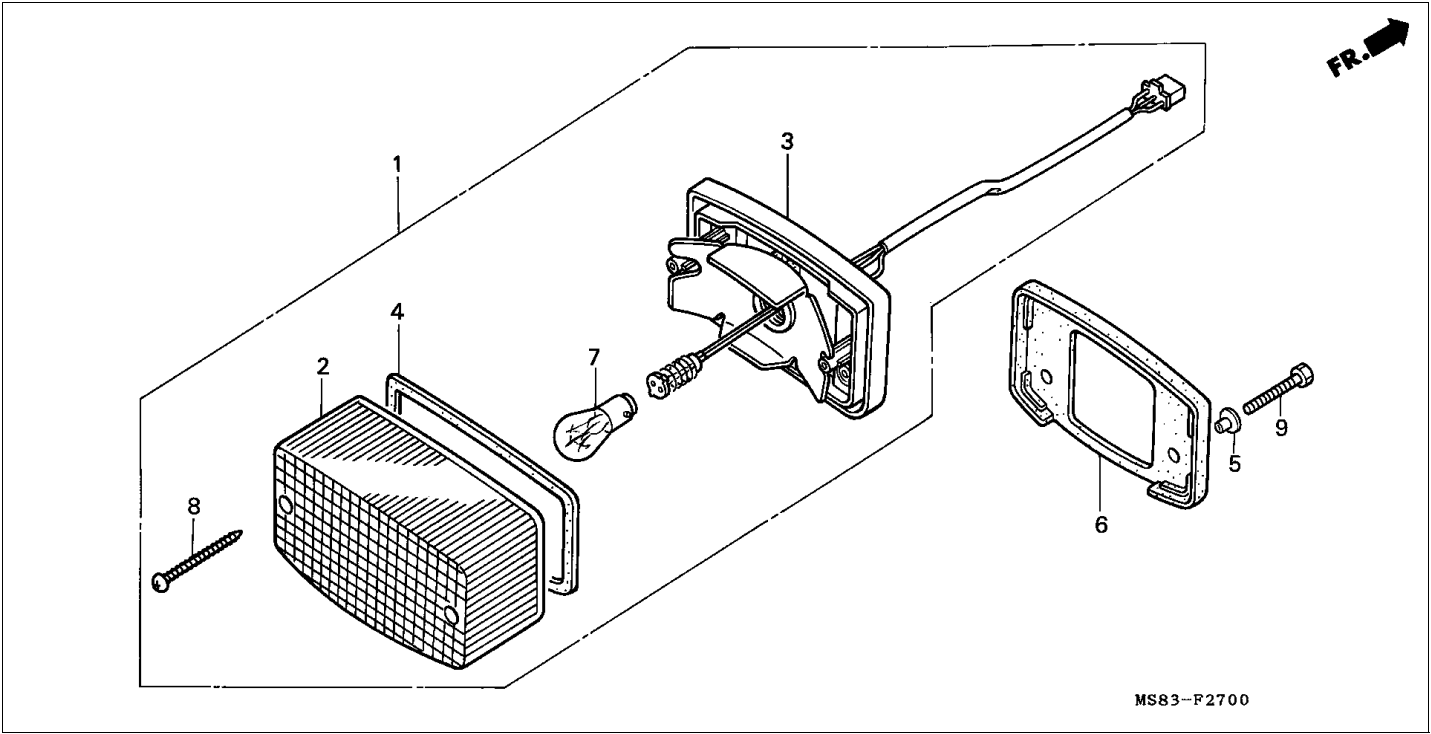
Block F-25 REAR FENDER

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	33741-MC7-612	REFLECTOR, REFLEX	001	0
3	50352-434-000	RUBBER A, STOPPER	002	0
4	80102-MS8-000	FENDER COMP., RR. (B)	001	0
5	80103-MS8-000	FENDER C, RR.	001	0
8	80124-MK5-610	SUB MUDGUARD, RR.	001	0
10	80126-MG7-660	PLATE, RR. MUDGUARD	001	0
12	80211-MS8-610	MUDGUARD, RR.	001	0
14	80402-MK5-610	STAY, REFLECTOR	001	0
15	84710-MS8-000	STAY, TAILLIGHT BRACKET	001	0
17	90120-102-000	COLLAR, AIR CLEANER CASE	002	0
18	90157-HA7-670	BOLT, SPECIAL FLANGE, 8X18	003	0
19	90506-MC4-000	GROMMET B, AIR CLEANER CASE	002	0
20	90512-KB5-000	WASHER, 8X18	002	0
21	90520-134-000	WASHER, HEADLIGHT CASE SETTING	002	0
22	90899-422-610	PLUG, CONE TYPE	002	0
23	93500-050120G	SCREW, PAN, 5X12	002	0
24	94050-05000-	NUT, FLANGE, 5MM	001	0
25	95701-0801607	BOLT, FLANGE, 8X16	002	0
26	95701-0803500	BOLT, FLANGE, 8X35	001	0
27	95800-0601208	BOLT, FLANGE, 6X12	001	0
28	95800-0602008	BOLT, FLANGE, 6X20	002	0



Block F-26 WINKER

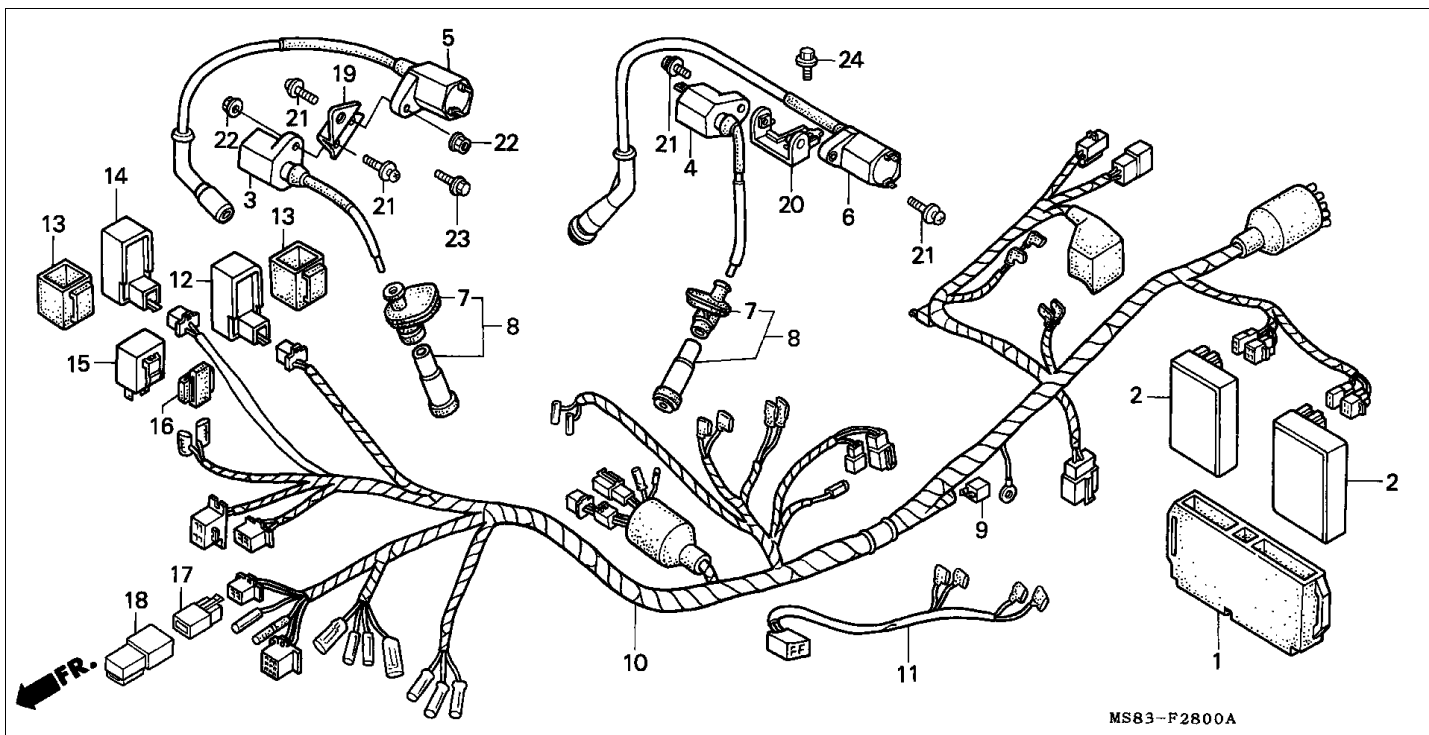
Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	17622-GB7-900	RUBBER, CUSHION	004	0
2	33300-MS8-621	WINKER SET, R. FR. (12V 21W)	001	0
3	33350-MS8-621	WINKER SET, L. FR. (12V 21W)	001	0
4	33402-MG2-003	LENS, WINKER	002	0
5	33407-MG2-003	GASKET, LENS	004	0
6	33420-MS8-621	BASE COMP., R. FR. WINKER	001	0
8	33470-MS8-621	BASE COMP., L. FR. WINKER	001	0
9	33500-MS8-621	WINKER ASSY., R. RR. (12V 21W)	001	0
10	33550-MS8-621	WINKER ASSY., L. RR. (12V 21W)	001	0
11	33601-MS8-000	STAY, R. RR. WINKER	001	0
12	33602-MG2-601	LENS, WINKER	002	0
13	33602-MS8-000	STAY, L. RR. WINKER	001	0
14	33620-MS8-621	BASE COMP., R. RR. WINKER	001	0
15	33670-MS8-621	BASE COMP., L. RR. WINKER	001	0
16	34908-634-611	BULB (12V 21W) (ECE) (STANLEY)	004	0
17	90303-428-900	NUT, FLANGE, 10MM	002	0
18	90501-KC2-750	WASHER, REGULATOR SETTING	004	0
19	91901-MG2-003	SCREW, TAPPING, 3X25	004	0
20	94050-10000-	NUT, FLANGE, 10MM	002	0
21	94102-10000-	WASHER, PLAIN, 10MM	002	0
22	96400-0601607	BOLT, FLANGE, 6X16	004	0



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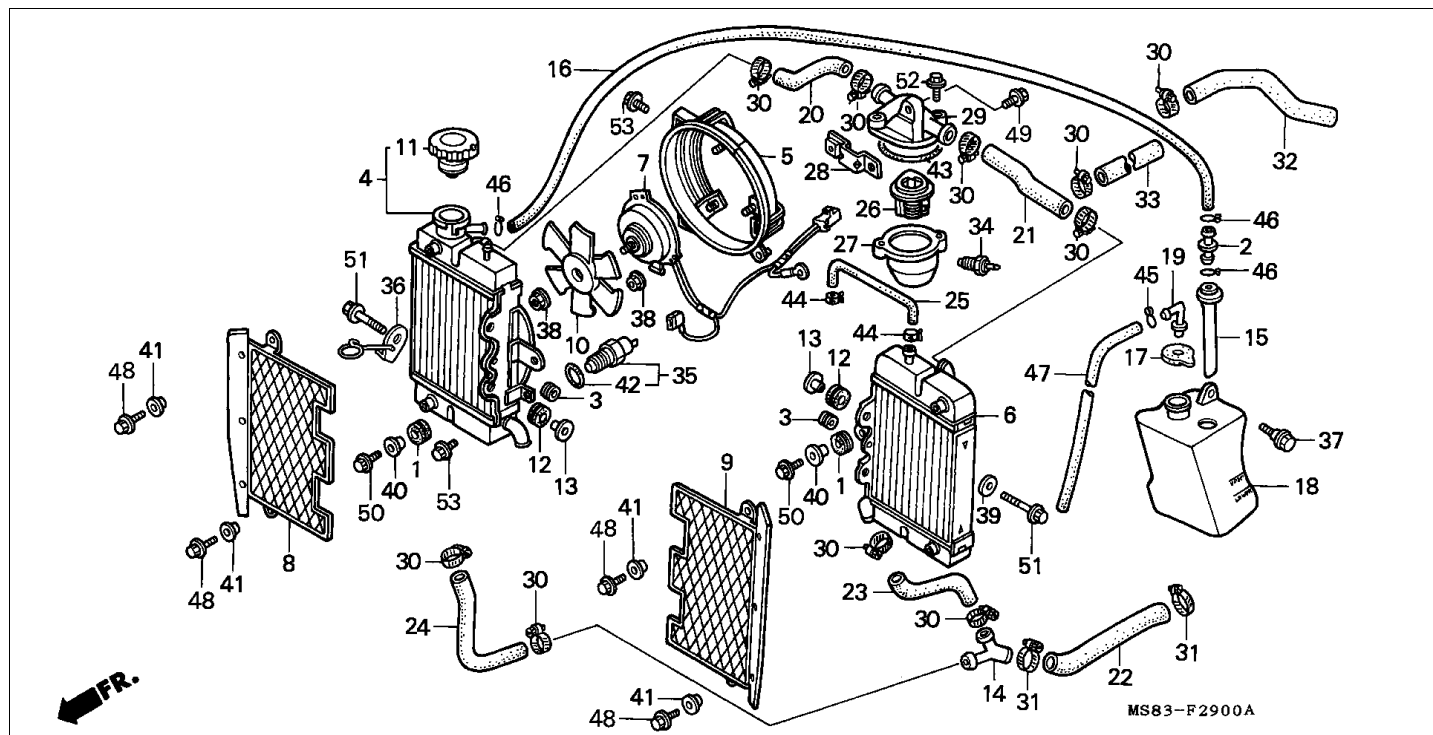
Block F-27 TAILLIGHT

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	33701-MS8-621	TAILLIGHT UNIT (12V 21/5W)	001	0
2	33702-KB7-013	LENS, TAILLIGHT (STANLEY)	001	0
3	33703-MS8-621	SOCKET COMP., TAILLIGHT	001	0
4	33709-KB7-003	PACKING, TAILLIGHT LENS	001	0
5	33715-KE1-000	COLLAR, TAILLIGHT SETTING	002	0
6	33718-KL3-670	PACKING, TAILLIGHT	001	0
7	34906-447-711	BULB, TAILLIGHT (STANLEY) (12V 21/5W)	001	0
8	90105-KB7-910	SCREW, TAPPING, 4X40	002	0
9	92101-050180H	BOLT, HEX., 5X18	002	0



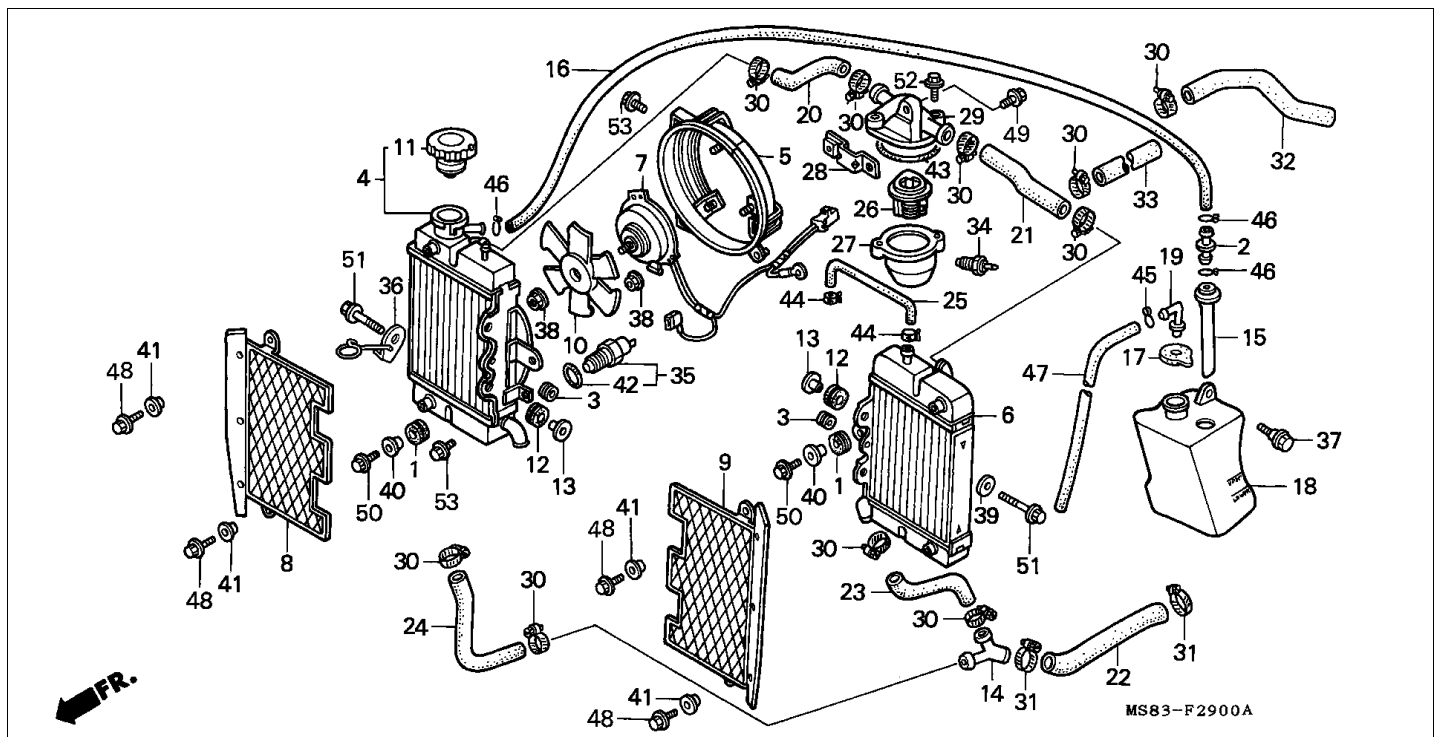
Block F-28 WIRE HARNESS/ IGNITION COIL

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	30401-MM9-000	CUSHION, C.D.I. UNIT	001	0
2	30410-MS8-610	C.D.I. UNIT	002	0
3	30510-MM9-000	COIL COMP., IGNITION (1)	001	0
4	30520-MM9-000	COIL COMP., IGNITION (2)	001	0
5	30540-MS8-000	COIL COMP., IGNITION (4)	001	0
6	30550-MM9-000	COIL COMP., IGNITION (5)	001	0
7	30605-MF5-000	SEAL, PLUG CAP	002	0
8	30701-MF5-000	CAP ASSY., NOISE SUPPRESSOR	002	0
9	31700-124-008	RECTIFIER ASSY., SILICON (SHINDENGEN)	001	0
10	32100-MS8-870	HARNESS, WIRE	001	0
11	32102-MS8-000	SUB HARNESS	001	0
12	36100-MG7-008	RELAY, FUEL CUT	001	0
13	36101-MB1-000	SUSPENSION, FUEL CUT RELAY	002	0
14	37640-MB1-701	CHECK UNIT, PILOT LAMP	001	0
15	38301-MF8-771	RELAY COMP., WINKER (TATEISHI)	001	0
15	38301-MF8-773	RELAY COMP., WINKER (MITSUBA)	001	0
16	38306-KJ6-740	SUSPENSION, WINKER RELAY	001	0
17	38501-GN2-014	RELAY COMP., STARTER (MITSUBA)	001	0
18	38506-GC7-611	SUSPENSION, STARTER RELAY (MITSUBA)	001	0
19	50155-MM9-000	STAY, FR. IGNITION COIL	001	0
20	50189-MS8-000	STAY, RR. IGNITION COIL	001	0
21	93893-0502207	SCREW-WASHER, 5X22	004	0
22	94050-05000-	NUT, FLANGE, 5MM	002	0
23	95700-0601208	BOLT, FLANGE, 6X12	001	0
24	95701-0601000	BOLT, FLANGE, 6X10	001	0



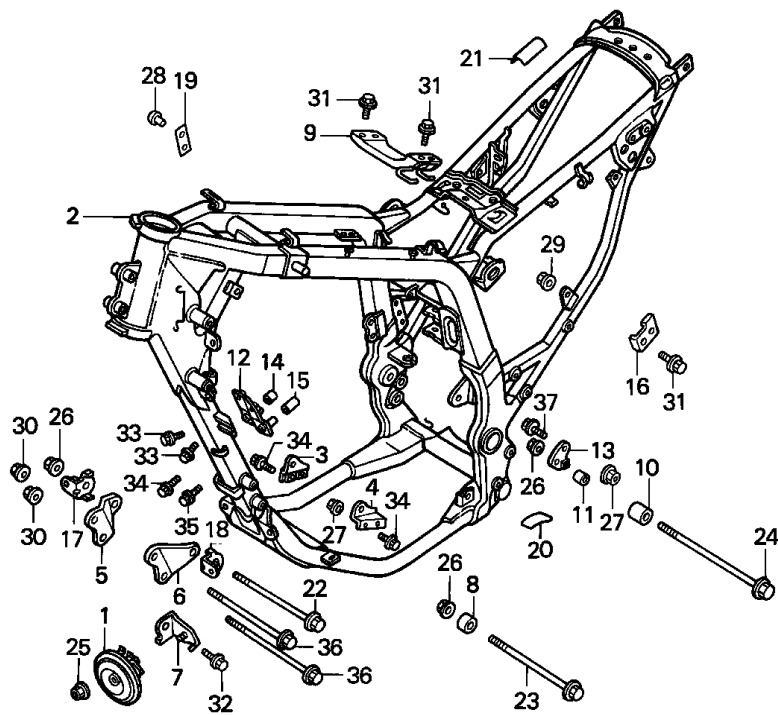
Block F-29 RADIATOR

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	17245-107-010	RUBBER, AIR CLEANER CASE MOUNTING	002	0
2	17359-419-670	JOINT, BREATHER TUBE	001	0
3	18624-634-670	GROMMET, AIR BYPASS	002	0
4	19011-MS8-003	RADIATOR COMP., R.	001	0
5	19013-MS8-003	SHROUD COMP. (TOYO)	001	0
6	19020-MS8-003	RADIATOR COMP., L.	001	0
7	19030-MS8-000	MOTOR ASSY., FAN	001	0
8	19031-MS8-000	GRILLE, R. RADIATOR	001	0
9	19032-MS8-000	GRILLE, L. RADIATOR	001	0
10	19040-MF5-751	FAN, COOLING (TOYO)	001	0
11	19045-ML0-901	CAP COMP. (TOYO)	001	0
12	19051-MS8-000	RUBBER, RADIATOR MOUNTING	004	0
13	19052-MS8-000	COLLAR, RADIATOR MOUNTING	004	0
14	19069-MS8-000	JOINT, WATER HOSE	001	0
15	19102-463-000	TUBE, LEVEL	001	0
16	19107-MS8-000	TUBE, OVERFLOW	001	0
17	19108-KK4-000	CAP, RESERVE TANK	001	0
18	19110-MS8-000	TANK, RESERVE	001	0
19	19113-KR1-760	ADAPTER, RESERVE CAP	001	0
20	19222-MS8-000	HOSE, WATER (NO.5)	001	0
21	19223-MS8-000	HOSE, WATER (NO.6)	001	0
22	19231-MS8-000	HOSE, WATER	001	0
23	19232-MS8-000	HOSE, L. WATER	001	0
24	19234-MS8-000	HOSE, R. WATER	001	0
25	19235-MS8-000	TUBE, RADIATOR JOINT	001	0
26	19300-KE8-000	THERMOSTAT ASSY.	001	0
27	19311-MS8-000	CASE, THERMOSTAT	001	0
28	19312-MS8-010	BRACKET, THERMOSTAT	001	0
29	19315-MM9-000	COVER, THERMOSTAT	001	0
30	19506-KS6-700	CLAMP B, WATER HOSE	010	0
31	19516-MB6-000	CLAMP, WATER HOSE	002	0
32	19521-MS8-000	HOSE, FR. OUTER WATER	001	0
33	19522-MS8-000	HOSE, RR. OUTER WATER	001	0
34	37750-PC1-004	THERMO UNIT (DENSO)	001	0
35	37760-MR1-003	THERMOSWITCH ASSY.	001	0
36	50716-MS8-000	GUIDE, CLUTCH CABLE	001	0
37	90111-162-000	BOLT, FLANGE, 6MM	001	0
38	90315-MK3-003	NUT, SERRATE, 5MM	004	0



Block F-29 RADIATOR

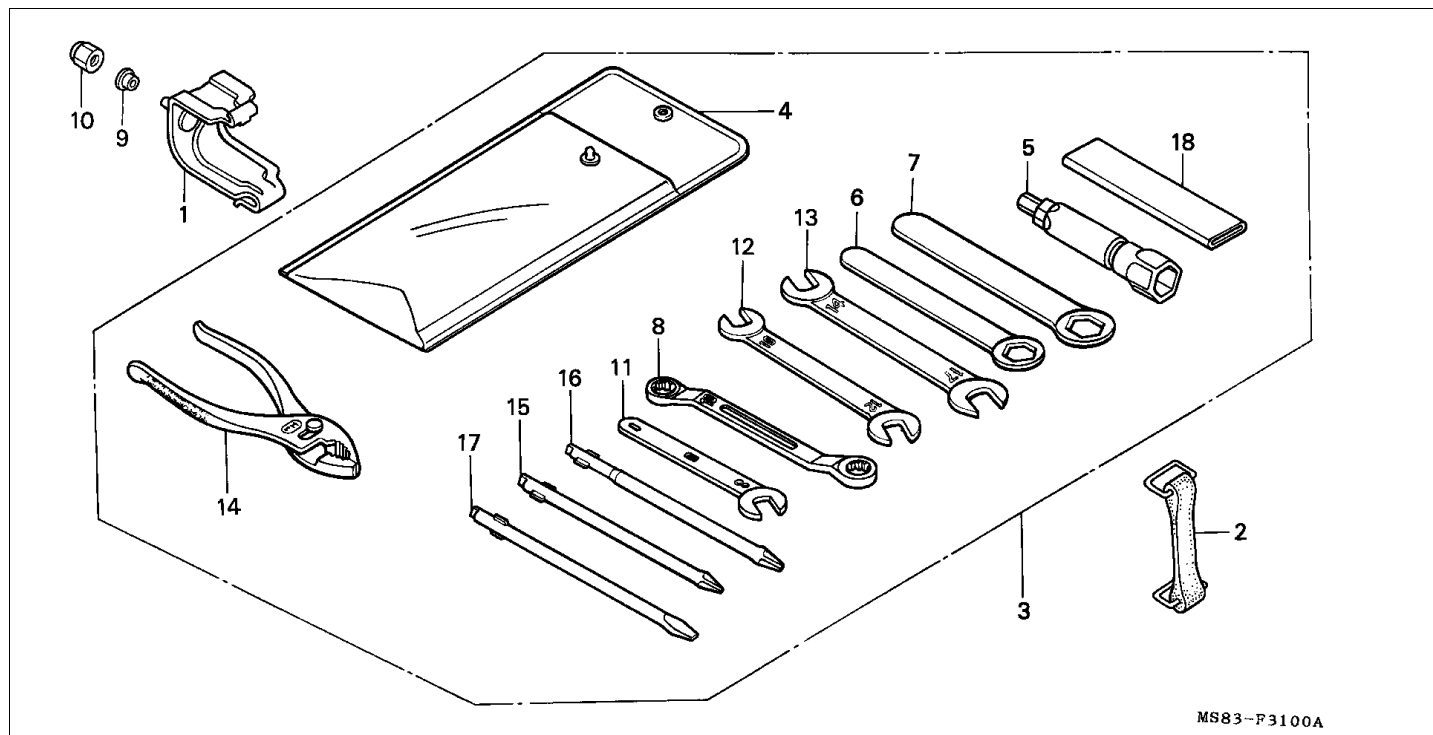
Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
39	94103-06700-	WASHER, PLAIN, 6MM	003	0
40	90501-MA3-770	COLLAR, 6.2X12	002	0
41	90522-170-700	COLLAR, GEARSHIFT LEVER SETTING	004	0
42	91307-611-000	O-RING, 13.5X1.4	001	0
43	91311-KE8-000	O-RING, 47.5X2	001	0
44	95002-4120004	CLAMP, TUBE (D12)	002	0
45	95002-02070-	CLIP, TUBE (B7)	001	0
46	95002-02120-	CLIP, TUBE (B12)	003	0
47	95005-4556030	TUBE, 4.5X560 (95005-45001-30M)	001	0
48	95700-0601207	BOLT, FLANGE, 6X12	004	0
49	95701-0601800	BOLT, FLANGE, 6X18	001	0
50	95800-0602007	BOLT, FLANGE, 6X20	002	0
51	95800-0602807	BOLT, FLANGE, 6X28	004	0
52	96000-0602007	BOLT, FLANGE, 6X20	002	0
53	96001-0601007	BOLT, FLANGE, 6X10	003	0



MS83-F3000B

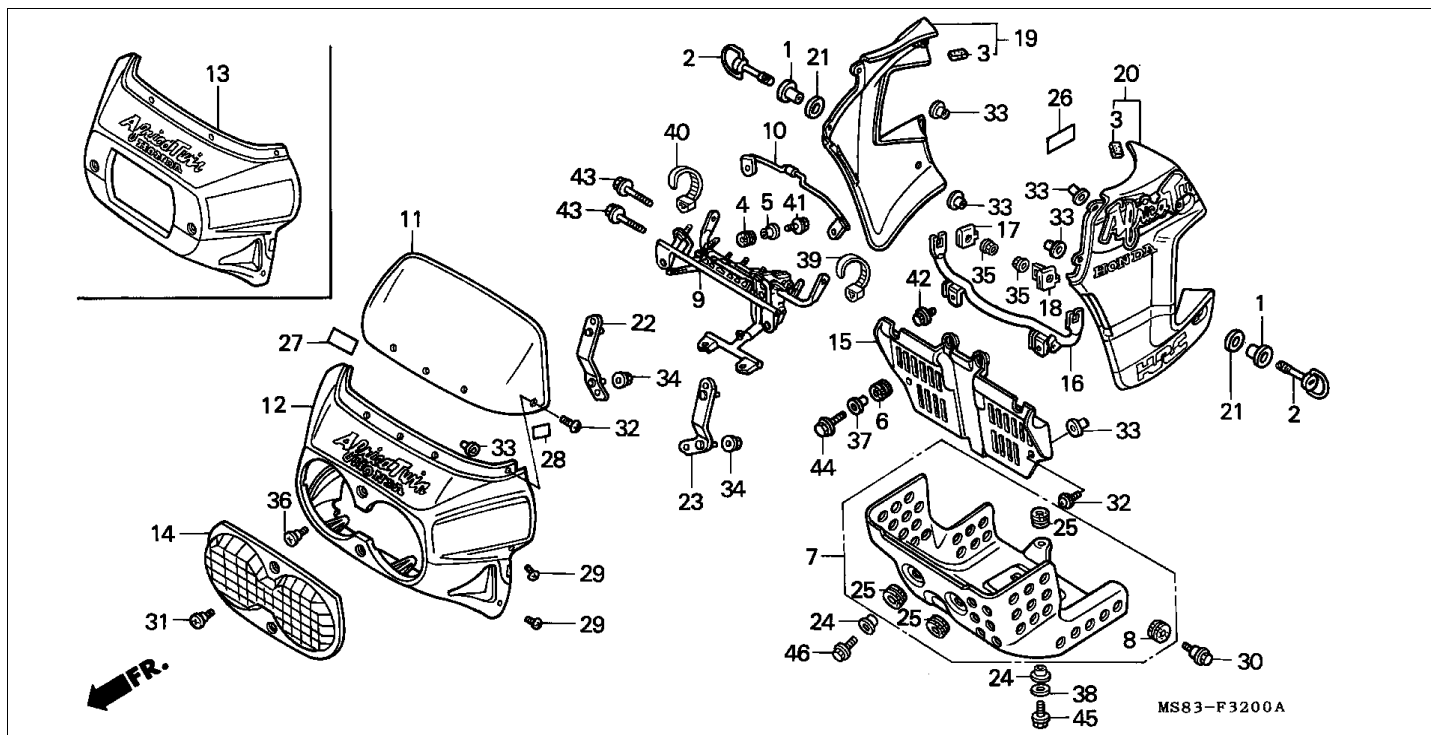
Block F-30 FRAME BODY

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	38120-MM9-008	HORN COMP., LOW (MITSUBA)	001	0
2	50100-MS8-611	BODY COMP., FRAME *NH138*	001	0
3	50123-MS8-000	PLATE, R. ENGINE HANGER LOWER *NH138*	001	0
4	50124-MS8-000	PLATE, L. ENGINE HANGER LOWER *NH138*	001	0
5	50181-MS8-000	PLATE, R. FR. ENGINE HANGER	001	0
6	50182-MS8-000	PLATE, L. FR. ENGINE HANGER	001	0
7	50183-MS8-000	STAY, HORN	001	0
8	50184-MM9-000	COLLAR, R. ENGINE HANGER LOWER	001	0
9	50185-MS8-000	BRIDGE, MAIN PIPE	001	0
10	50186-MS8-000	COLLAR A, ENGINE MOUNTING	001	0
11	50187-MS8-000	COLLAR, ENGINE MOUNTING (B)	001	0
12	50188-MS8-000	PLATE, FR. HEAD ENGINE HANGER	001	0
13	50202-MS8-000	PLATE, R. RR. ENGINE HANGER UPPER *NH138*	001	0
14	50203-MS8-000	COLLAR, FR. ENGINE HANGER (A)	001	0
15	50204-MS8-000	COLLAR, FR. ENGINE HANGER (B)	001	0
16	50211-MS8-000	STAY, SIDE COVER SUB	001	0
17	64207-MS8-000	STAY, R. LOWER COWL	001	0
18	64208-MS8-000	STAY, L. LOWER COWL	001	0
19	87501-MS8-610	PLATE, REGISTERED NUMBER	001	0
20	87507-MB4-670	LABEL, RESERVE TANK	001	0
21	87565-MS8-870	LABEL, COLOR *TYPE1* (NH138H)	001	0
22	90103-162-000	BOLT, ENGINE HANGER	001	0
22	96400-1016000	BOLT, FLANGE, 10X160	001	0
23	90108-GE1-670	BOLT, FLANGE, 10X155	001	0
24	90117-KW3-000	BOLT, FLANGE, 10X250	001	0
25	90208-425-870	NUT, FLANGE, 8MM	001	0
26	90308-382-670	NUT, FLANGE, 10MM	003	0
27	90309-357-000	NUT, HEX., 8MM	003	0
28	90841-001-000	SCREW, RIVET, 1.8X5	002	0
29	94050-06000-	NUT, FLANGE, 6MM	001	0
30	94050-08000-	NUT, FLANGE, 8MM	002	0
31	95700-0601000	BOLT, FLANGE, 6X10	005	0
32	95701-0801207	BOLT, FLANGE, 8X12	001	0
33	95701-0801408	BOLT, FLANGE, 8X14	002	0
34	95701-0804508	BOLT, FLANGE, 8X45	005	0
35	95701-0805508	BOLT, FLANGE, 8X55	001	0
36	95701-0809500	BOLT, FLANGE, 8X95	002	0
37	96300-0802200	BOLT, FLANGE, 8X22	002	0



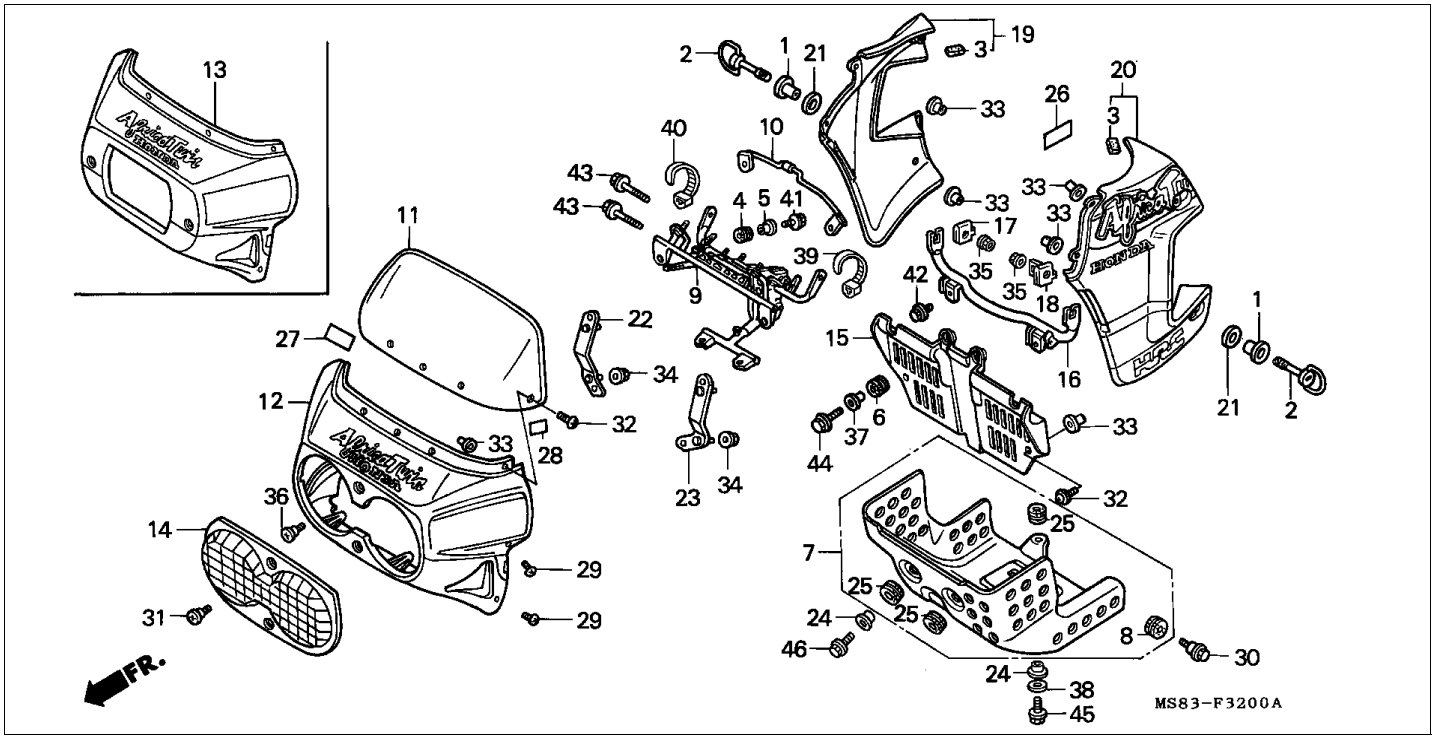
Block F-31 TOOLS

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	83552-MS8-000	STAY COMP., TOOL SETTING	001	0
2	83553-MS8-000	BAND, TOOL	001	0
3	89010-MS8-000	TOOL SET	001	0
4	89101-MS8-000	BAG, TOOL	001	0
5	89216-MJ1-000	WRENCH, PLUG	001	0
6	89218-MF5-000	WRENCH, EYE, 17MM	001	0
7	89223-MM9-000	WRENCH, EYE, 24MM	001	0
8	89227-MJ4-000	WRENCH, EYE, 10X12	001	0
8	89227-461-000	WRENCH, EYE, 10X12	001	0
9	90506-425-000	WASHER, RR. COVER	002	0
10	94021-060700S	NUT, CAP, 6MM	002	0
11	99001-08000-	SPANNER, 8	001	0
12	99001-10120-	SPANNER, 10X12	001	0
13	99001-14170-	SPANNER, 14X17	001	0
14	99002-13500-	PLIERS, 135	001	0
15	99003-10000-	DRIVER 1, PLUS SCREW (NO.2)	001	0
16	99003-20000-	DRIVER 2, PLUS SCREW (NO.3)	001	0
17	99003-30000-	DRIVER 3, MINUS SCREW (NO.2)	001	0
18	99006-12000-	HANDLE, EYE WRENCH, 12MM	001	0



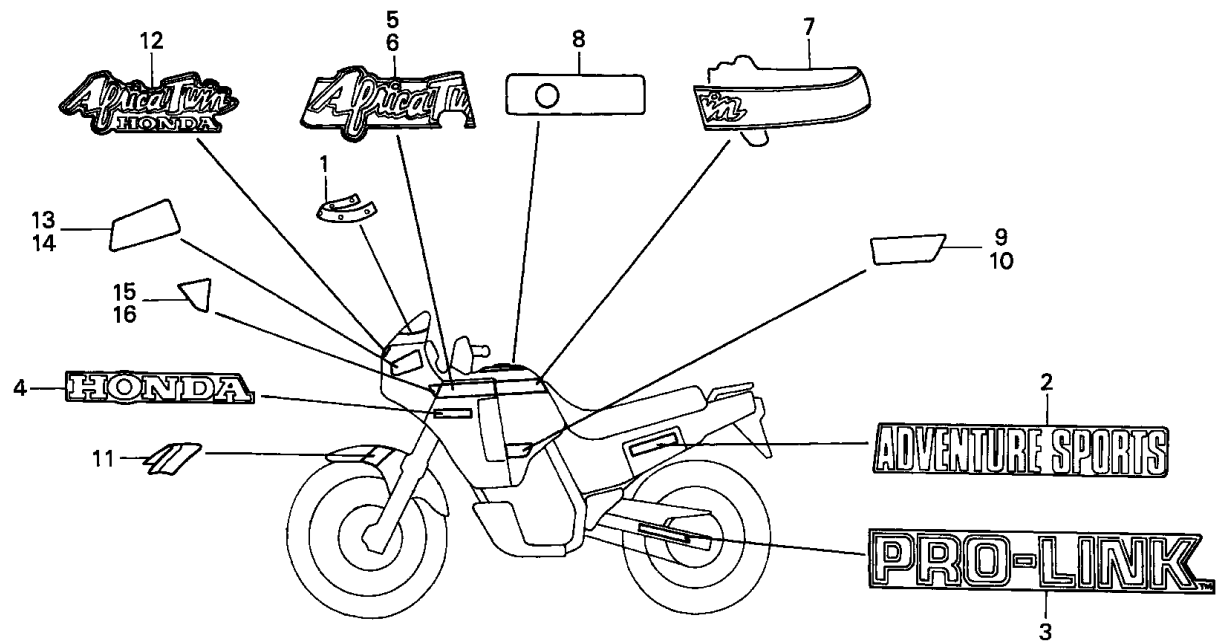
Block F-32 COWL

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	17223-KN5-670	COLLAR, AIR CLEANER COVER SETTING	004	0
2	17225-KN5-670	STUD, 6X21	004	0
4	19051-GE2-000	RUBBER, RADIATOR MOUNTING	004	0
5	19052-MB0-000	COLLAR, RADIATOR MOUNTING	004	0
6	33712-KT1-670	RUBBER, TAILLIGHT	002	0
7	50351-MS8-010	PLATE, SKID	001	0
8	50370-HA2-770	GROMMET, ENGINE HANGER	001	0
9	61310-MS8-000	STAY, FR. COWL	001	0
10	61315-MS8-000	BAR COMP., SCREEN SUPPORT	001	0
11	61320-MS8-000	SCREEN, FR. (WL)	001	0
12	64200-MS8-000	COWL SET, UPPER (WL) *NH138*	001	0
14	64202-MS8-305	GUARD, DUAL HEADLIGHT	(1)	0
15	64206-MS8-000	COWL, CENTER	001	0
16	64209-MS8-000	PIPE COMP., COWL MOUNTING	001	0
17	64211-MS8-000	PLATE, R. NUT, 8MM	001	0
18	64212-MS8-000	PLATE, L. NUT, 8MM	001	0
19	64220-MS8-620	COWL SET, R. SIDE (WL) *NH138*	001	0
20	64230-MS8-620	COWL SET, L. SIDE (WL) *NH138*	001	0
21	64297-MR7-000	RETAINER	004	0
22	64303-MS8-000	SUB STAY, R. UPPER COWL	001	0
23	64304-MS8-000	SUB STAY, L. UPPER COWL	001	0
24	80101-KB7-600	COLLAR, 8X12	003	0
25	80152-958-680	RUBBER, RR. FENDER	003	0
26	87508-GE3-610	MARK, RADIATOR CAUTION	001	0
27	87515-MS8-610	LABEL, FAIRING CAUTION	001	0
28	87522-KE8-600	LABEL, VISOR CAUTION	001	0
29	90001-MG1-000	SCREW, SPECIAL, 5X16	004	0
30	90003-732-900	BOLT, HEIGHT ADJUST SETTING	001	0
31	90104-MS8-000	SCREW, SPECIAL, 6X16	(2)	0
32	90109-SB6-000	SCREW, TRUSS, 5X16	007	0
33	90111-MM9-000	NUT, COWL SETTING, 5MM	011	0
34	90203-PD1-000	NUT, FLANGE, 6MM	004	0
35	90301-SA0-000	NUT, FLANGE CAP, 8MM	002	0
36	90380-MS8-000	SCREW, SPECIAL, 6X12	002	0
37	90001-961-670	COLLAR, SIDE MOUNTING	002	0
38	90505-VA9-K40	WASHER, 13MM	001	0
39	90650-KV6-003	BAND, WIRE	001	0
40	90652-KT1-771	BAND, WIRE (BLACK)	001	0



Block F-32 COWL

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
41	92301-060220A	BOLT, RECESSED, 6X22	004	0
42	95701-0601200	BOLT, FLANGE, 6X12	002	0
43	96400-0803807	BOLT, FLANGE, 8X38	002	0
44	96300-0601807	BOLT, FLANGE, 6X18	002	0
45	96300-0802500	BOLT, FLANGE, 8X25	001	0
46	96300-0802800	BOLT, FLANGE, 8X28	002	0



MS83-F3300

Block F-33 STRIPE/MARK

Refnr	Part Number	Parts Description	Unit Qty	Repair Qty
1	61321-MS8-300	STRIPE, FR. SCREEN	001	0
2	80133-MS8-000	MARK, SIDE COVER	002	0
3	87121-MS8-620	MARK, RR. FORK	002	0
4	87135-MS8-000	MARK, SIDE COWL (A)	002	0
5	87136-MS8-000	STRIPE, R. SIDE COWL	001	0
6	87137-MS8-000	STRIPE, L. SIDE COWL	001	0
7	87138-MS8-000	STRIPE, FUEL TANK (B)	001	0
8	87139-MS8-000	STRIPE, FUEL TANK (A)	001	0
9	87141-MS8-000	STRIPE, R. FUEL TANK (C)	001	0
10	87142-MS8-000	STRIPE, L. FUEL TANK (C)	001	0
11	87143-MS8-000	STRIPE, FR. FENDER	001	0
12	87144-MS8-000	MARK, UPPER COWL	001	0
13	87145-MS8-000	STRIPE, R. UPPER COWL (A)	001	0
14	87146-MS8-000	STRIPE, L. UPPER COWL (A)	001	0
15	87147-MS8-000	STRIPE, R. UPPER COWL (B)	001	0
16	87148-MS8-000	STRIPE, L. UPPER COWL (B)	001	0