HONDA

XL400R
XL500R

SHOP MANUAL
MANUEL D'ATELIER
WERKSTATT-HANDBUCH
MANUAL DE TALLER

INTRODUCTION

This Addendum contains information for the XL400R and XL500R. Refer to the base shop manual for service information not included in this addendum.
The XL400R (F type) can be used the above base Manual.

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INTRODUCTION

Ce supplément renferme des informations pour la XL400R et XL500R. Se reporter au manuel d'atelier principal pour les informations d'entretien qui n'y sont pas données.
La XL400R (type F) suit les explications du Manuel d'atelier de base.

TOUTES LES INFORMATIONS, ILLUSTRATIONS, INSTRUCTIONS ET CARACTERISTIQUES DE CETTE PUBLICATION S'APPUIENT SUR LES DERNIERES DONNEES SUR LE PRODUIT DISPONIBLES AU MOMENT DE LA MISE SOUS PRESSE. LA HONDA MOTOR CO., LTD. SE RESERVE LE DROIT D'EFFECTUER DES MODIFICATIONS A TOUT MOMENT, SANS AUTRE AVERTISSEMENT ET SANS AUCUNE OBLIGATION DE SA PART.

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TABLE DES MATIERES

GENERAL INFORMATION

SPECIFICATION

	ITEM		XL500R	AREA	XL400R
DIMENSIONS	Overall length		2,155 mm (84.8 in)	G	2,110 mm (83.1 in)
			2,110 mm (83.1 in)	F	
			2,210 mm (87.0 in)	ED	
	Overall width		865 mm (34.1 in)		←
	Overall height		1,260 mm (49.6 in)		←
	Wheel base		1,405 mm (55.3 in)		←
	Seat height		895 mm (35.2 in)		←
	Ground clearance		270 mm (10.6 in)		←
	Dry weight		139 kg (306 lb)		138 kg (304 lb)
FRAME	Frame type		Diamond		←
	Front suspension, travel		Telescopic, 215 mm (8.5 in)		←
	Rear suspension, travel		Pro-link, 190 mm (7.5 in)		←
	Front tire size, pressure		3.00-21-4PR		←
			160 kPa (1.5 kg/cm², 21 psi)		←
	Rear tire size, pressure		4.60-17-4PR		←
			150 kPa (1.5 kg/cm², 21 psi)		←
	Front brake, swept area		Internal expanding shoes		←
			102 cm² (15.8 sq in)		←
	Rear brake, swept area		Internal expanding shoes		←
			122 cm² (18.9 sq in)		←
	Fuel capacity		10 lit (2.6 US gal, 2.2 Imp gal)		←
	Fuel reserve capacity		2 lit (0.5 US gal, 0.4 Imp gal)		←
	Caster		61°		←
	Trail		118 mm (4.6 in)		←
	Front fork oil capacity/oil level		378.5 cc (12.8 US oz)/163.0 mm (6.42 in)		←
ENGINE	Type		Gasoline, air-cooled 4 stroke O.H.C.		←
	Cylinder arrangement		Single cylinder inclined 15°		←
	Bore x stroke		89 x 80 mm (3.50 x 3.15 in)		89 x 64 mm (3.50 x 2.52 in)
	Displacement		498 cm³ (30.37 cu in)		398 cm³ (24.28 cu in)
	Compression ratio		8.6 : 1		←
	Valve train		Silent chain driven OHC, 4-valve		←
	Maximum horsepower		24.3 kW/6,500 min⁻¹ (33 PS/6,500 rpm)		19.9 kW/6,500 min⁻¹ (27 PS/6,500 rpm)
	Maximum torque		39 N.m (3.9 kg-m, 28.2 ft-lb)/ 5,000 min⁻¹ (rpm)		32 N.m (3.2 kg-m, 23.1 ft-lb)/ 5,000 min⁻¹ (rpm)
	Engine oil capacity				
	(After disassembly)		2.0 liters (2.1 US qt, 1.8 Imp qt)		←
	(After draining)		1.5 liters (1.6 US qt, 1.3 Imp qt)		←
	Intake valve	opens	5° (BTDC) } At 1 mm lift		
		closes	40° (ABDC)		←
	Exhaust valve	opens	45° (BBDC)		
		closes	5° (ATDC)		
	Valve clearance	Intake	0.05 mm (0.002 in)		←
		Exhaust	0.10 mm (0.004 in)		←

	ITEM		XL500R	AREA	XL400R
CARBURETOR	Type		Piston valve, 32 mm (1.26 in)		Piston valve, 30 mm (1.18 in)
	Identification number		PD 78A		PD 75A
	Main jet		#130		#125
	Pilot screw initial opening		2-1/4		←
	Float level		18.0 mm (0.71 in)		←
	Idle speed		1,200 ± 100 mm^{-1} (rpm)		←
DRIVE TRAIN	Clutch		Wet multi-plate		←
	Transmission		5-speed constant mesh		←
	Primary reduction ratio		2.379 (69/29)		←
	Gear ratio	1st	2.462 (32/13)		←
		2nd	1.647 (28/17)		←
		3rd	1.250 (25/20)		←
		4th	1.000 (23/23)		←
		5th	0.840 (21/25)		←
	Final reduction ratio		2.733 (41/15)		3.066 (46/15)
	Gear shift pattern		Left foot operated return system		←
	Drive chain		DID 520 VS or RK520 SO		←
			100 Links		102 Links
ELECTRICAL	Ignition		C.D.I.		←
	Ignition timing	Initial	10°BTDC at 1,200 min^{-1} (rpm)		←
		Full advance	35°BTDC at 3,500 min^{-1} (rpm)		35° BTDC at 3,000 min^{-1} (rpm)
	Alternator		12V – 196W/5,000 min^{-1} (rpm)		←
	Battery capacity		12V – 3AH		←
	Spark plug	Standard:	DR8ES-L (NGK) or X24ESR-U (ND)		DR8ES-L (NGK) or X24ESR-U (ND)
			D8EA (NGK) or X24ES-U (ND)	U, D	
		For cold climate (Below 5°C, 41°F):	DR7ES (NGK) or X22ESR-U (ND)		DR7ES (NGK) or X22ESR-U (ND)
			D7EA (NGK) or X22ES-U (ND)	U, D	
		For extended high speed riding:	DR8ES (NGK) or X27ESR-U (ND)		DR8ES (NGK) or X27ESR-U (ND)
			D9EA (NGK) or X27ES-U (ND)	U, D	
	Spark plug gap		0.6–0.7 mm (0.024–0.028 in)		←
	Headlight (high/low)		12V–35/35W		12V–36/36W
			12V–36/36W	F	
	Tail/stoplight		12V–5/21W		←
	Turn signal light		12V–21W		12V–21W
			12V–23W	D,SA,U	
	Speedometer light		12V–1.7W		←
	Tachometer light		12V–3.4W		←
	Neutral indicator light		12V–3.4W		←
	Turn signal indicator light		12V–3.4W		←
	High beam indicator light		12V–1.7W		←
	Position light		12V–4W		←

TORQUE SPECIFICATIONS
• ENGINE

ITEM		Q'TY	THREAD DIA. (mm)	TORQUE		
				N.m	kg-m	ft-lb
Kickstarter stopper plate		1	8	18–25	1.8–2.5	13–18
Kickstarter spring hook pin		1	8	22–30	2.2–3.0	16–22
Gear shift drum bearing set plate screw		2	6	9–13	0.9–1.3	7–9
Upper crankcase	6 mm bolt	7	6	10–14	1.0–1.4	7–10
	8 mm bolt	1	8	22–28	2.2–2.8	16–20
Lower crankcase	6 mm bolt	6	6	10–14	1.0–1.4	7–10
	9 mm bolt	2	9	27–33	2.7–3.3	20–24
	10 mm bolt	2	10	32–38	3.2–3.8	23–27
Balancer holder lock bolt		1	8	22–28	2.2–2.8	16–20
Cam chain tensioner		2	6	10–14	1.0–1.4	7–10
Primary drive gear lock nut		1	18	45–60	4.5–6.0	33–43
Clutch center lock nut		1	18	45–60	4.5–6.0	33–43
Flywheel bolt		1	12	100–120	10.0–12.0	72–87
Cylinder	6 mm bolt	2	6	10–14	1.0–1.4	7–10
	8 mm nut	2	8	22–28	2.2–2.8	16–20
Cylinder head cap nut		6	8	22–28	2.2–2.8	16–20
Cam sprocket bolt		2	7	17–23	1.7–2.3	12–17
Valve clearance adjuster lock nut		4	6	15–18	1.5–1.8	11–13
Valve adjuster cover		4	6	10–14	1.0–1.4	7–10
Cylinder head cover	6 mm bolt	11	6	10–14	1.0–1.4	7–10
	7 mm bolt	2	7	13–17	1.3–1.7	9–12
Carburetor set band		2	5	3–5	0.3–0.5	2–4
Decompressor cable lock nut		1	6	5–7	0.5–0.7	4–5
Spark plug		1	12	15–20	1.5–2.0	11–14
Engine oil drain plug		1	12	30–40	3.0–4.0	22–29

• FRAME

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE		
			N.m	kg-m	ft-lb
Engine mount bolt 8 mm	4	8	30–37	3.0–3.7	22–27
10 mm	3	10	55–65	5.5–6.5	40–47
12 mm	2	12	90–100	9.0–10.0	65–72
Steering stem nut	1	24	80–120	8.0–12.0	58–87
Steering adjuster nut	1	26	1–2	0.1–0.2	0.7–1.4
Steering stem pipe pinch bolt	1	10	40–50	4.0–5.0	29–36
Front fork pinch bolt (upper)	2	8	18–23	1.8–2.3	13–17
(lower)	2	8	30–35	3.0–3.5	22–25
Handlebar holder bolt	4	8	18–30	1.8–3.0	13–22
Front axle	1	12	50–80	5.0–8.0	36–58
Front axle holder nut	4	6	10–14	1.0–1.4	7–10
Rear axle	1	16	80–110	8.0–11.0	58–80
Driven sprocket nut	6	8	28–34	2.8–3.4	20–25
Swingarm pivot	1	14	70–100	7.0–10.0	51–72
Rear shock absorber mount bolt (upper)	1	10	60–75	6.0–7.5	43–54
(lower)	1	10	38–48	3.8–4.8	27–35
Suspension linkage pivot bolt					
(Swingarm to shock arm)	1	12	90–120	9.0–12.0	65–87
(Shock arm to shock link)	1	10	60–75	6.0–7.5	43–54
(Shock link to frame)	1	10	60–75	6.0–7.5	43–54
Foot peg bracket bolt	2	12	70–100	7.0–10.0	51–72
Kickstarter pedal bolt	1	8	20–35	2.0–3.5	15–25
Gearshift pedal bolt	1	6	8–12	0.8–1.2	6–9
Muffler band bolt	2	8	15–25	1.5–2.5	11–18
Muffler mount bolt	2	8	20–30	2.0–3.0	15–22
Side stand pivot nut	1	10	35–45	3.5–4.5	25–33

• STANDARD TORQUE VALUES

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

Type	Torque N.m (kg-m, ft-lb)	Type	Torque N.m (kg-m, ft-lb)
5 mm bolt, nut	4.5–6.0 (0.45–0.6, 3.3–4.3)	5 mm screw	3.5–6.0 (0.35–0.5, 2.5–3.6)
6 mm bolt, nut	8–12 (0.8–1.2, 6–9)	6 mm screw	7–11 (0.7–1.1, 5–8)
8 mm bolt, nut	18–25 (1.8–2.5, 13–18)	6 mm flange bolt, nut	10–14 (1.0–1.4, 7–10)
10 mm bolt, nut	30–40 (3.0–4.0, 22–29)	8 mm flange bolt, nut	24–30 (2.4–3.0, 17–22)
12 mm bolt, nut	50–60 (5.0–6.0, 36–43)	10 mm flange bolt, nut	30–40 (3.0–4.0, 22–29)

TOOLS

• SPECIAL

( ): Refer to base mar

DESCRIPTION	TOOL NO.	ALTERNATE TOOL	REF. PAG
6 mm hex wrench	07917–3230000		22–46·50
Circlip pliers	07914–3230001		22–50
Steering stem socket	07916–3710100		22–56
Clutch center holder	07923–4280000		22–30·31
Bearing remover set	07936–3710000	Handle 07936–3710100 Weight 07936–3710200 Remover, 23 mm 07936–3710600	22–73
Needle bearing driver	07946–KA50000		22–73
Bearing race remover	07953–MA00000		22–54
Steering stem driver	07946–4300101		22–55
Valve guide reamer, 6.6 mm	07984–5510000		(6–13)
Fork seal driver	07947–3710101		22–50·51

• COMMON

DESCRIPTION	TOOL NO.	ALTERNATE TOOL	REF. PAG
Float level gauge	07401–0010000		22–23
Spoke wrench, 5.8 x 6.1 mm	07701–0020300		22–19
Valve adjuster	07708–0030300		(3–6)
Valve adjuster wrench, 10 x 12 mm	07708–0030200		(3–6)
Retainer wrench body	07710–0010401	Retainer wrench 07910–3600000	22–62·64
Retainer wrench attachment	07710–0010200		22–62·64
Socket wrench, 30 x 32 mm	07716–0020400		22–53
Extension	07716–0020500		22–53
Rotor puller (22 mm)	07733–0020001	Rotor puller 07933–3290001	(9–3)
Valve guide remover, 6.6 mm	07742–0010200	Remover 07942–6110000 or 07942–6570100	(6–12)
Valve guide driver	07742–0020200	Driver 07942–3290200	(6–13)
Attachment, 32 x 35 mm	07746–0010100	Driver 07949–2660000	22–40
Pilot, 15 mm	07746–0040300	Attachment 07946–9180000	22–40
Attachment, 37 x 40 mm	07746–0010200	Driver 07949–3000000	22–64
Pilot, 17 mm	07746–0040400	Attachment 07946–3000100	22–64
Attachment, 42 x 47 mm	07746–0010300	Attachment 07946–4300200	22–54·63
Pilot, 20 mm	07746–0040600		22–63
Driver	07749–0010000		22–40·54·6

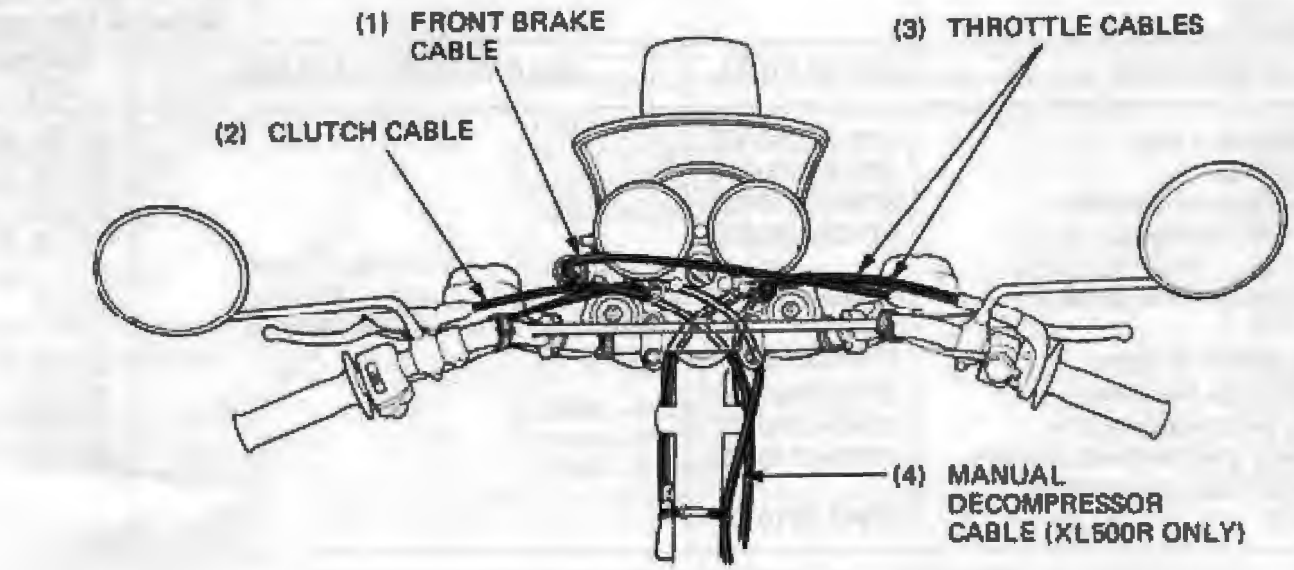
• OPTIONAL TOOL

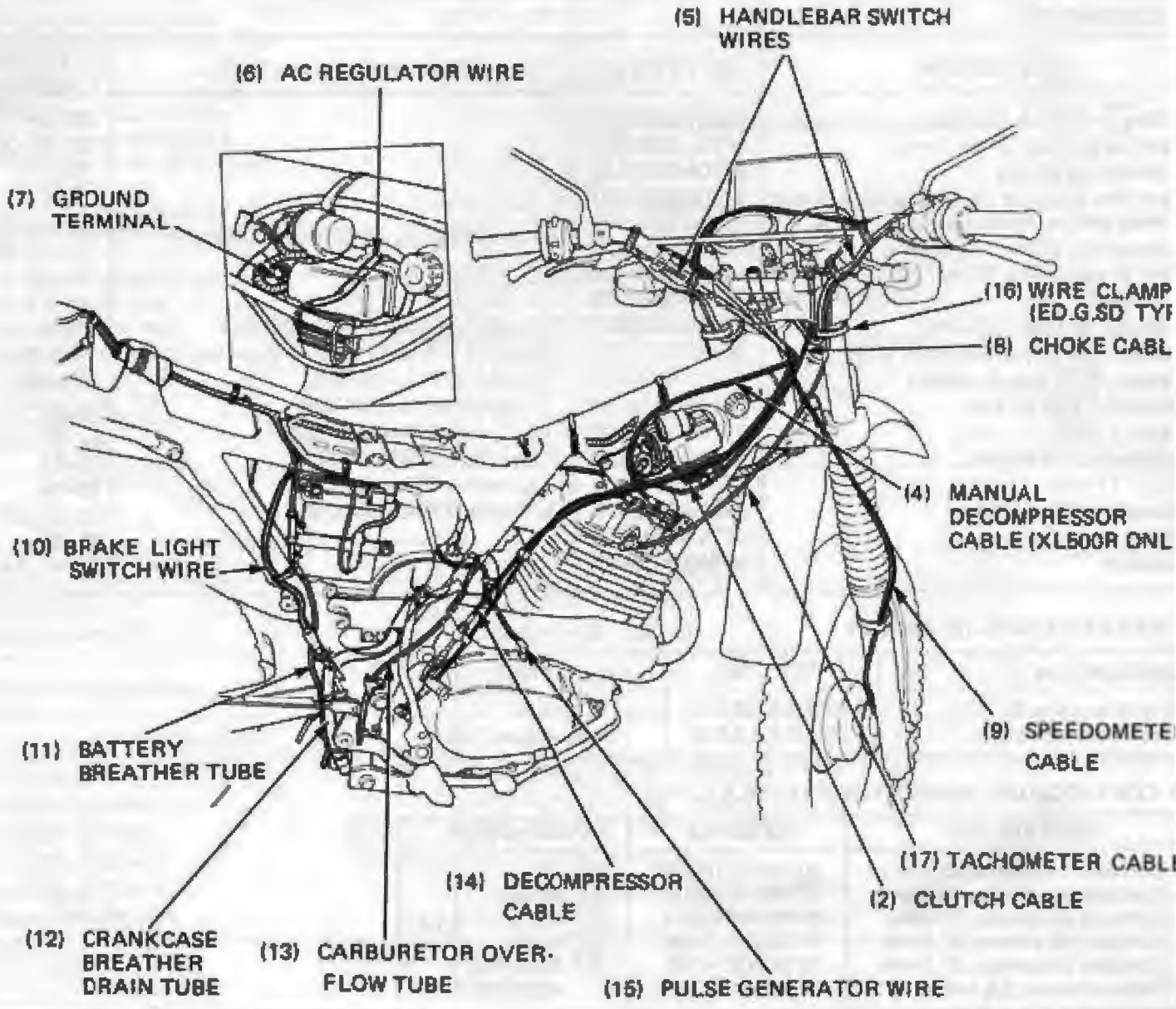
DESCRIPTION	TOOL NO.	REF. PAGE
Pin spanner A	89201–KA4–810	22–68
Pin spanner B	89202–KA4–810	22–68

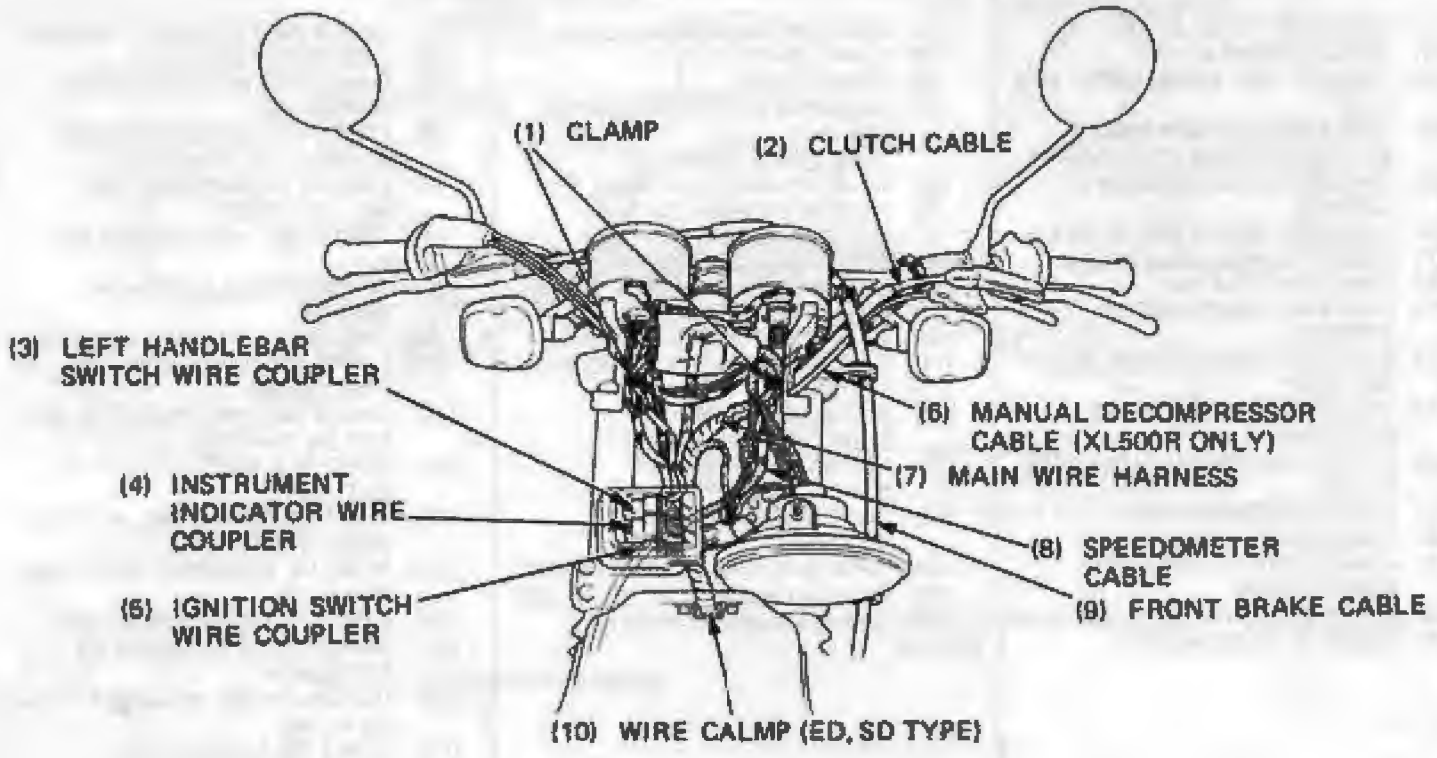
• VALVE SEAT CUTTERS

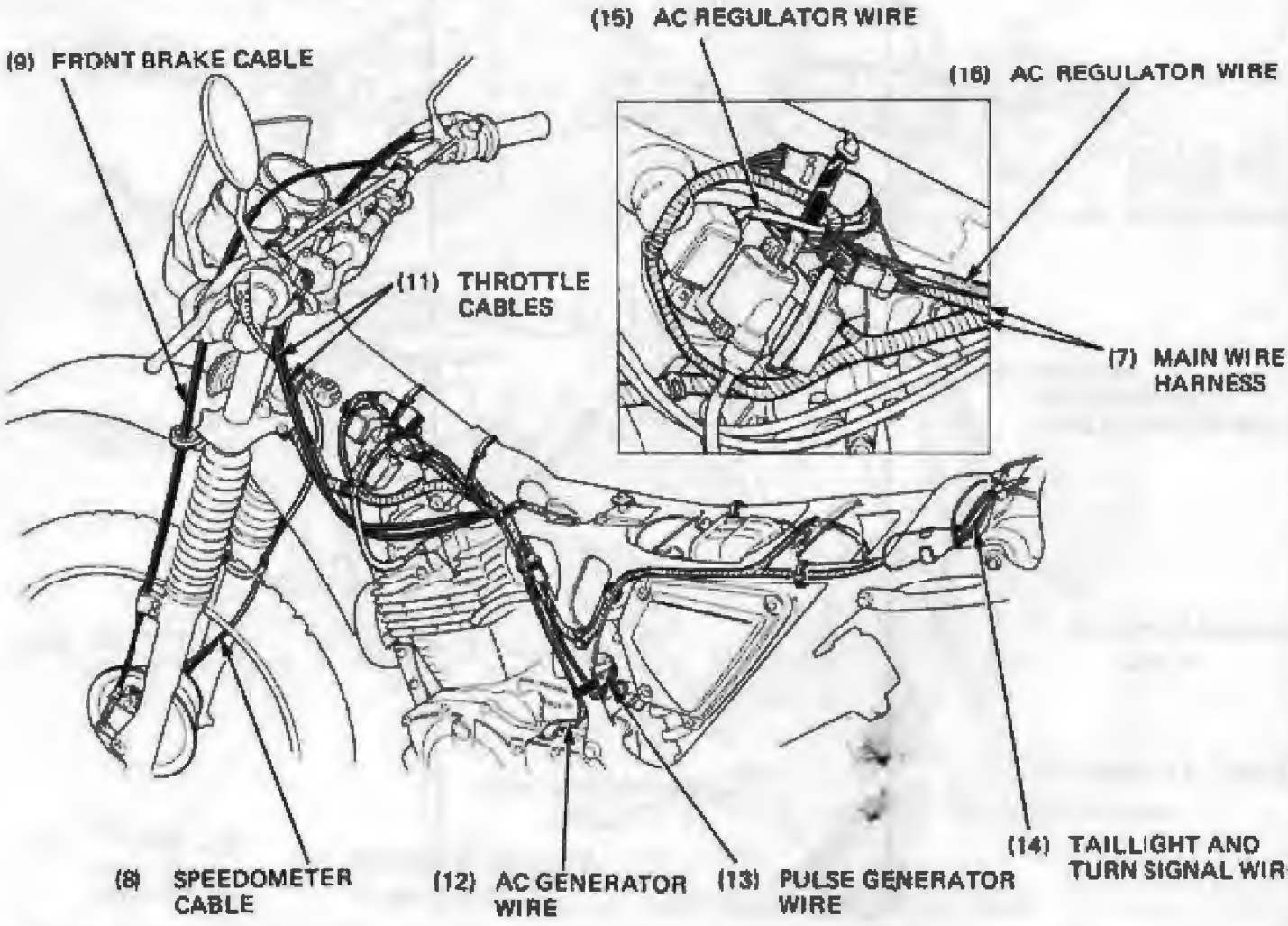
DESCRIPTION	TOOL NO.		REF. PAGE
Seat cutter, 35 mm	07780–0010400	46° EX	(6–14)
Seat cutter, 40 mm	07780–0010500	45° IN	
Seat cutter, 35 mm	07780–0012300	32° EX	
Seat cutter, 38.5 mm	07780–0012400	32° IN	
Seat cutter, 37.5 mm	07780–0014100	60° IN/EX	
Cutter holder, 6.6 mm	07781–0010200	IN/EX	

CABLE AND HARNESS ROUTING






(1) CLAMP
(2) CLUTCH CABLE
(3) LEFT HANDLEBAR SWITCH WIRE COUPLER
(4) INSTRUMENT INDICATOR WIRE COUPLER
(5) IGNITION SWITCH WIRE COUPLER
(6) MANUAL DECOMPRESSOR CABLE (XL500R ONLY)
(7) MAIN WIRE HARNESS
(8) SPEEDOMETER CABLE
(9) FRONT BRAKE CABLE
(10) WIRE CALMP (ED, SD TYPE)


(15) AC REGULATOR WIRE
(16) AC REGULATOR WIRE
(9) FRONT BRAKE CABLE
(11) THROTTLE CABLES
(7) MAIN WIRE HARNESS
(8) SPEEDOMETER CABLE
(12) AC GENERATOR WIRE
(13) PULSE GENERATOR WIRE
(14) TAILLIGHT AND TURN SIGNAL WIRES

MAINTENANCE SCHEDULE

Perform the PRE-RIDE INSPECTION in the Owner's Manual at each scheduled maintenance period.

I : INSPECT AND CLEAN, ADJUST, LUBRICATE, OR REPLACE IF NECESSARY
C : CLEAN
R : REPLACE
A : ADJUST
L : LUBRICATE

(B) ITEM / (A) FREQUENCY		(1) WHICHEVER COMES FIRST ➡ / EVERY ⬇	(2) ODOMETER READING (NOTE 5)						
			1,000 km (600 miles)	6,000 km (3,600 miles)	12,000 km (7,200 miles)	18,000 km (10,800 miles)	24,000 km (14,400 miles)	30,000 km (18,000 miles)	(32) Refer to
*	(3) FUEL LINE			I	I	I	I	I	Page 3–3
*	(4) FUEL STRAINER		C	C	C	C	C	C	Page 22–11
*	(5) THROTTLE OPERATION		I	I	I	I	I	I	Page 3–3
*	(6) CARBURETOR–CHOKE			I	I	I	I	I	Page 3–4
	(7) AIR CLEANER	(33) NOTE 1		C	C	C	C	C	Page 22–12
	(8) CRANKCASE BREATHER	(34) NOTE 2		C	C	C	C	C	Page 22–13
	(9) SPRAK PLUG			I	R	I	R	I	Page 22–13
*	(10) VALVE CLEARANCE		I	I	I	I	I	I	Page 3–6
	(11) ENGINE OIL	(28) YEAR	R	(30) REPLACE EVERY 2,000 mi (3,200 km)					Page 2–3, 22–11
*	(12) OIL FILTER SCREEN		C		C		C		Page 2–4
**	(13) BALANCER CHAIN TENSION		A		A		A		Page 3–7
*	(14) STARTER DECOMPRESSOR		I	I	I	I	I	I	Page 3–8, 22–14
*	(15) CARBURETOR-IDLE SPEED		I	I	I	I	I	I	Page 3–9
	(16) DRIVE CHAIN	(35) NOTE 3	I, L (31) EVERY 1,000 km (600 miles)						Page 22–15
	(17) BATTERY	(29) MONTH	I	I	I	I	I	I	Page 3–13
	(18) BRAKE SHOE WEAR			I	I	I	I	I	Page 3–13
	(19) BRAKE SYSTEM		I	I	I	I	I	I	Page 3–15, 22–16
*	(20) BRAKE LIGHT SWITCH		I	I	I	I	I	I	Page 3–16
*	(21) HEADLIGHT AIM		I	I	I	I	I	I	Page 3–16
	(22) CLUTCH		I	I	I	I	I	I	Page 3–16
	(23) SIDE STAND			I	I	I	I	I	Page 3–17
*	(24) SUSPENSION		I	I	I	I	I	I	Page 3–18, 22–18
*	(25) NUTS, BOLTS, FASTENERS	(36) NOTE 4	I	I	I	I	I	I	Page 3–19
**	(26) WHEELS/SPOKES	(37) NOTE 4	I	I	I	I	I	I	Page 22–19
**	(27) STEERING HEAD BEARING		I		I		I		Page 3–19

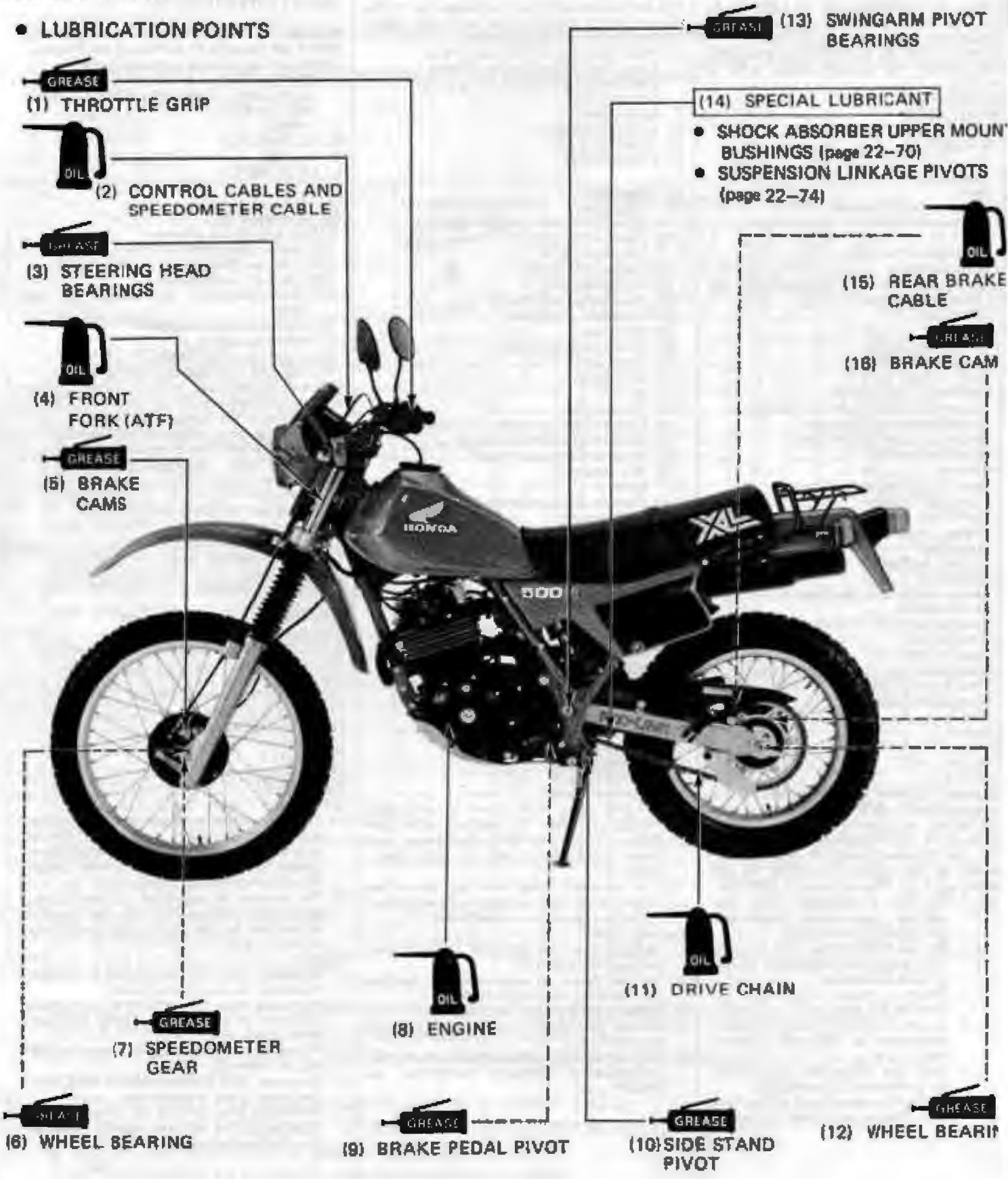
* SHOULD BE SERVICED BY AN AUTHORIZED HONDA DEALER, UNLESS THE OWNER HAS PROPER TOOLS AND SERVICE DATA AND IS MECHANICALLY QUALIFIED.

** IN THE INTEREST OF SAFETY, WE RECOMMEND THESE ITEMS BE SERVICED ONLY BY AN AUTHORIZED HONDA DEALER.

NOTES:
1. SERVICE MORE FREQUENTLY WHEN RIDING IN DUSTY AREAS.
2. SERVICE MORE FREQUENTLY WHEN RIDING IN RAIN OR AT FULL THROTTLE.
3. INITIAL SERVICE PERIOD: 300 km (200 miles).
4. SERVICE MORE FREQUENTLY WHEN RIDING OFF-ROAD.
5. FOR HIGHER ODOMETER READINGS, REPEAT AT THE FREQUENCY INTERVAL ESTABLISHED HERE.

LUBRICATION

- LUBRICATION POINTS

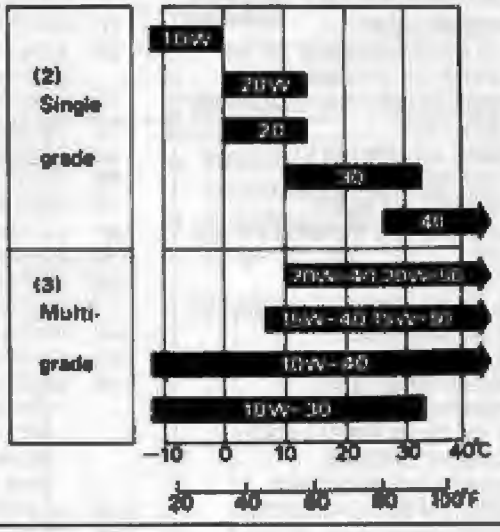


• ENGINE OIL RECOMMENDATION

API SERVICE CLASSIFICATION: SE or SF

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

(1) RECOMMENDED OIL VISCOSITY



INSPECTION AND ADJUSTMENT

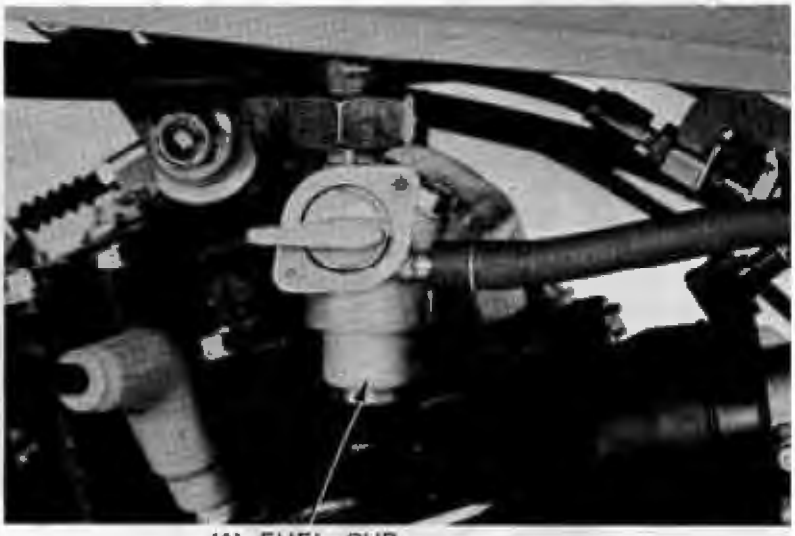
• FUEL STRAINER

Turn the fuel valve OFF.

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

WARNING

Gasoline is flammable and is explosive under certain conditions. Do not smoke or allow flames or sparks near the equipment while draining fuel.



(1) FUEL CUP

Wash the cup and filter screen in clean non-flammable or high flash point solvent.
Reinstall the screen securely, aligning the index marks on the fuel valve body and filter screen.

Install a new O-ring into the fuel valve body.
Reinstall the fuel cup, making sure the new O-ring is in place. Hand tighten the fuel cup and then torque it to specification.

TORQUE: 3–5 N·m (0.3–0.5 kg-m, 2–4 ft-lb)

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

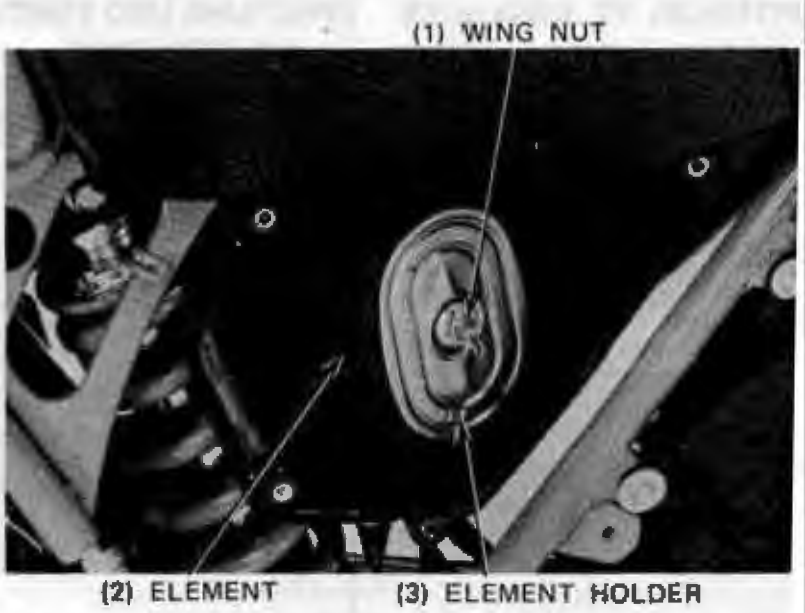
(1) O-RING (2) SCREEN

(3) FUEL CUP

• AIR CLEANER

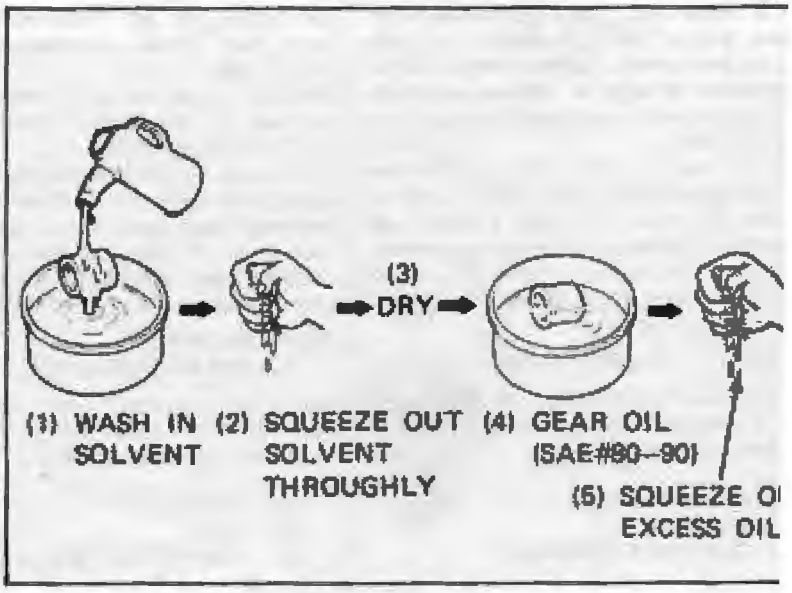
Remove the left side cover.
Remove the air cleaner cover bolts and the cover.

Remove the wing nut and remove the air cleaner element.



Wash the element in non-flammable or high flash point solvent, and let it dry.
Soak the element in gear oil (SAE #80-90) and squeeze out the excess.

Installation is the reverse order of disassembly.

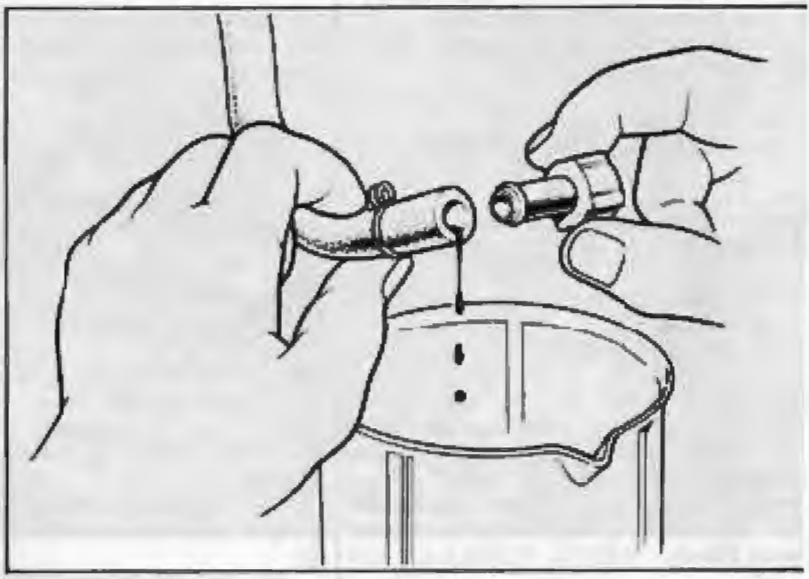


• CRANKCASE BREATHER

Remove the plug from the drain tube to drain deposits.
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 section of the drain tubes.



• SPARK PLUG

Disconnect the spark plug cap and remove the spark plug.

Visually inspect the spark plug electrodes for wear. The center electrode should have a constant thickness. Discard the spark plug if the electrode is worn or if the insulator is cracked or chipped. If the spark plug is in good condition and the deposits can be removed by sandblasting, the spark plug can be reused.

RECOMMENDED SPARK PLUG

	XL400R/XL500R	XL500R U, D type
Standard	DR8ES-L (NGK) or X24ESR-U (ND)	D8EA (NGK) or X24ES-U (ND)
For cold climate (Below 5°C, 41°F)	DR7ES (NGK) or X22ESR-U (ND)	D7EA (NGK) or X22ES-U (ND)
For extended high speed riding	DR8ES (NGK) or X27ESR-U (ND)	D9EA (NGK) or X27ES-U (ND)

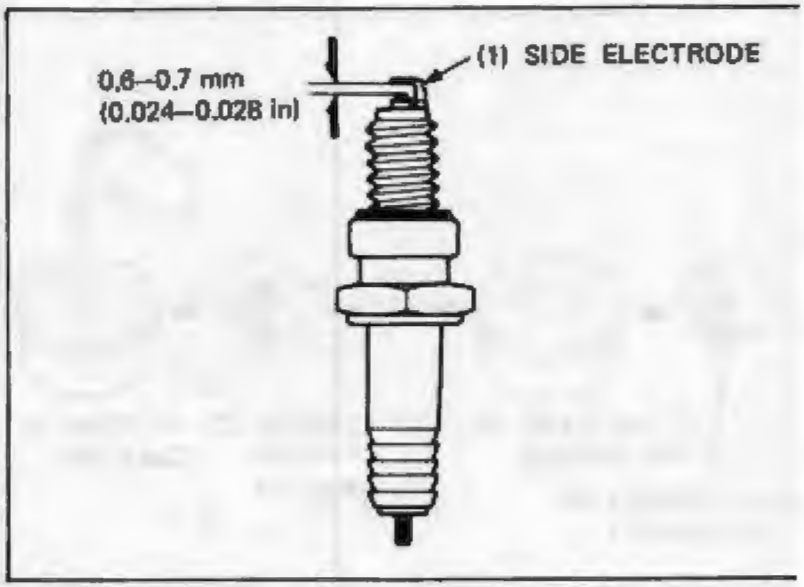
Measure the gap with a wire gauge and adjust it, if necessary, by bending the side electrode.

SPARK PLUG GAP: 0.6–0.7 mm (0.024–0.028 in)

Check the spark plug sealing washer and replace it with a new one if it is damaged.

Install the washer on the spark plug and thread the plug into the head by hand to prevent cross-threading. After hand tightening, tighten the plug an additional 1/2 turn with a spark plug wrench to compress the washer.

Connect the spark plug cap.



• STARTER DECOMPRESSOR (XL500R ONLY)

CAUTION

Adjustment must be made for both the manual and kickstarter decompressor.

NOTE

- Adjust the decompressor linkage after adjusting the valve clearance, (See page 3-6).
- Refer to page 3-8 for the XL400R starter decompressor adjustment.

Loosen the manual decompressor cable lock nut and the adjusting nut to obtain slack.

Disconnect the manual decompressor cable at the decompressor valve lifter lever.

Remove the crankshaft and timing mark hole caps.

Rotate the flywheel counterclockwise to align the T mark with the index mark.

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

Measure the free play at the tip of the decompressor valve lifter lever.

FREE PLAY: 1–2mm (1/16 in)

To adjust free play, loosen lock nut on kick starter decompressor cable and turn adjusitng nut as equired. Tighten lock nut.

CAUTION

Excessive free play causes hard starting; insufficient free play may cause erratic idling and valve damage.

Operate the kickstarter and check operation of the decompressor mechanism.
Recheck the free play.

Reconnect the manually controlled decompressor valve lifter cable.

Adjust manual lever free play by turning the adjusting nut.

FREE PLAY: 6–8 mm (3/16–5/16 in)

Tighten the lock nut and recheck free play.

Install the fual tank, seat, crankshaft and timing hole caps. Make sure that the decompressor cable does not interfere with handlebar rotation.

(1) MANUAL DECOMPRESSOR CABLE

(2) ADJUSTING NUT (3) LOCK NUT (4) LIFTER LEVER

(1) INDEX MARK

(2) T MARK

(1) MANUAL DECOMPRESSOR LEVER

• DRIVE CHAIN

Stop the engine and shift the transmission into neutral.

Place the motorcycle on its side stand.

Inspect the drive chain slack midway between the sprockets on the lower chain run.

Move the chain up and down by hand and measure the amount of slack.

DRIVE CHAIN SLACK: 30–40 mm (1-1/4 – 1-5/8 in)

Adjust as follows:

Loosen the rear axle nut.
Turn both right and left adjusters equally to increase or decrease chain slack.

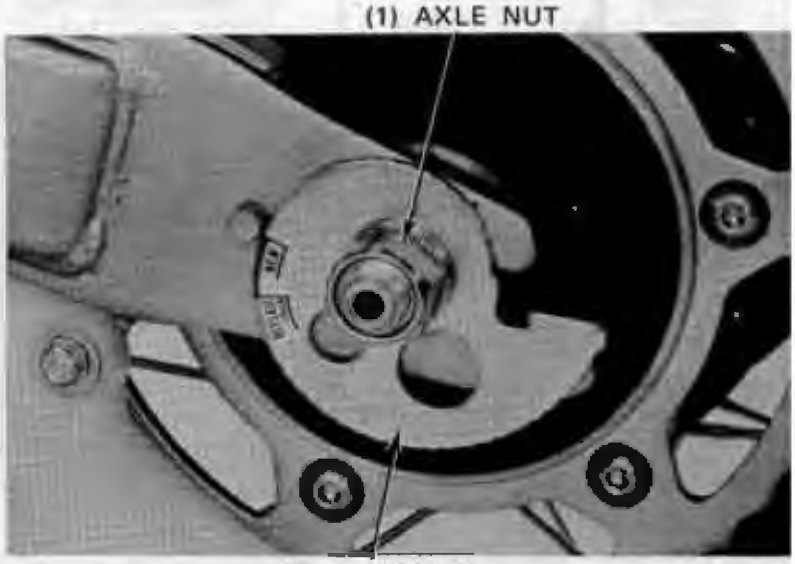
After adjusting, be sure the same adjustment index mark number aligns with the stopper pins on both side of the swingarm.

Tighten the rear axle nut.

TORQUE: 90–110 N·m (8.0–11.0 kg-m, 58–80 ft-lb)

Recheck the drive chain free play and free wheel rotation.

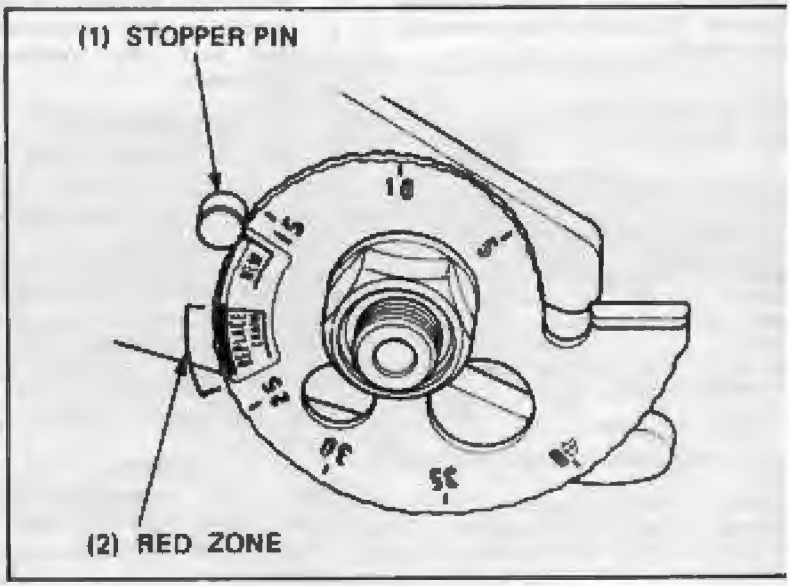
Check brake pedal free play and adjust, if necessary.



Drive chain and sprocket inspection:

Replace the drive chain when the red zone on the label aligns with the center of the stopper pin after the chain has been adjusted to 20–30mm (1-1/4–1-5/8 in) slack.

Replacement chain: DID 520VS (DAIDO) or RK520SO (TAKASAGO)
100 Links : XL500R
102 Links : XL400R



Inspect the drive chain and sprockets for damage or wear. A drive chain with damaged rollers, loose pins, or missing O-ring must be replaced. Replace any sprocket which is damaged or excessively worn.

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 replacement chain or sprockets will wear rapidly.

(1) DRIVE CHAIN

(2) DRIVE SPROCKET

Drive chain slider inspection:

Check the chain slider for wear.

CAUTION

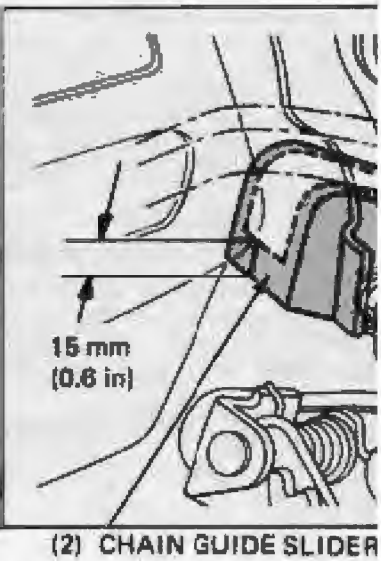
If the chain slider becomes worn so that the swingarm is exposed, the chain will wear against the swingarm.

Inspect the chain guide slider and replace if the depth of the chain groove is greater than specified.

SERVICE LIMIT: 15 mm (0.6 in)

(1) CHAIN SLIDER

(2) CHAIN GUIDE SLIDER

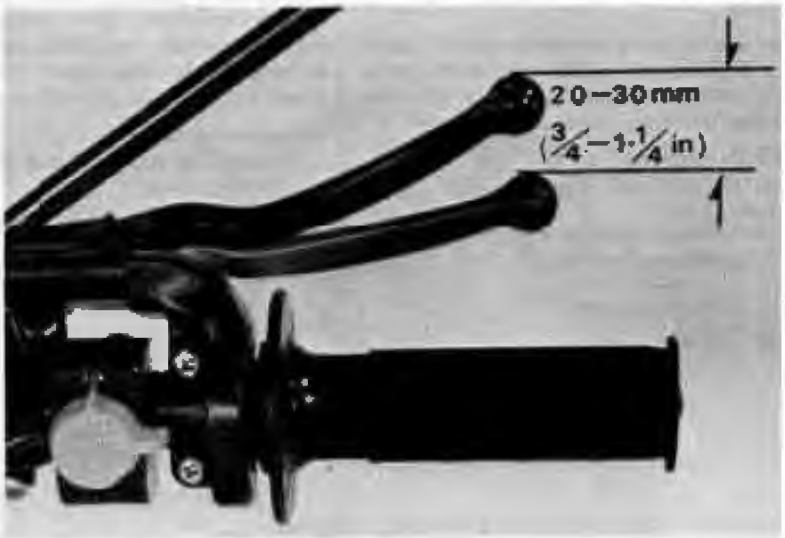


(2) CHAIN GUIDE SLIDER

• FRONT BRAKE

Measure the front brake lever free play at the tip of the brake lever.

BRAKE LEVER FREE PLAY:
20–30 mm (3/4 – 1-1/4 in)



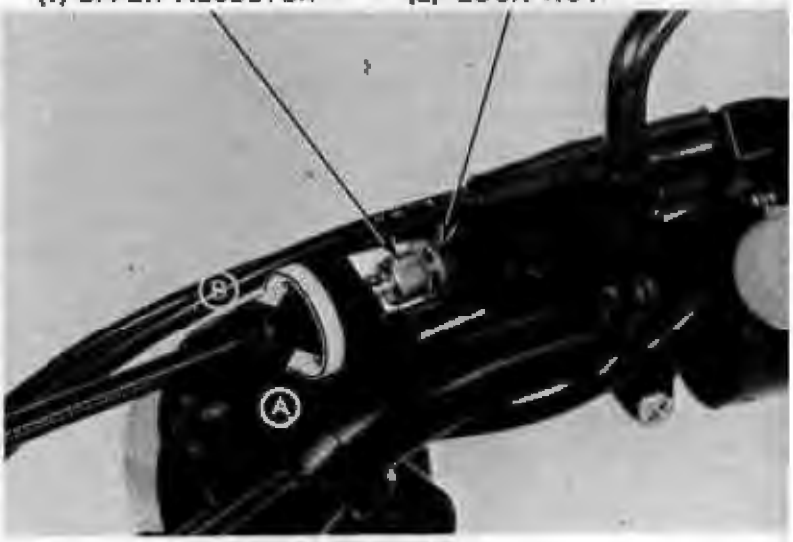
Perform minor adjustments with the upper adjuster on the handlebar.

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

Turn the upper adjuster in direction A to increase free play. Turn the upper adjuster in direction B to decrease free play.

Tighten the lock nut.

(1) UPPER ADJUSTER (2) LOCK NUT



Perform major adjustments with the lower adjuster on the brake panel.

Loosen the front brake cable guide bolts. Adjust the free play by loosening the lock nut and turning the lower adjuster.

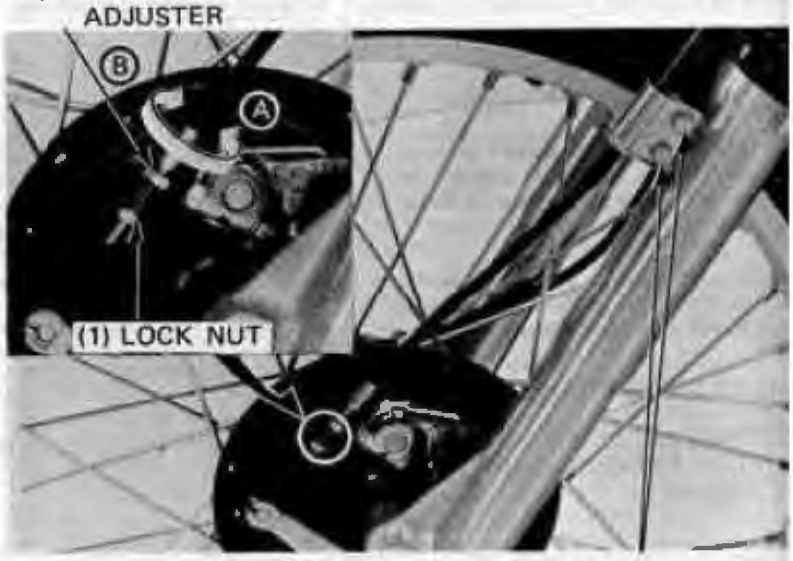
Turn the lower adjuster in direction A to increase free play. Turn the lower adjuster in direction B to decrease free play.

CAUTION

The front brake is equipped with the two leading shoe system. Do not attempt to remove the adjusting rod.

Tighten the lock nut and cable guide bolts.

(2) LOWER ADJUSTER



(3) CABLE GUIDE BOLTS

• REAR BRAKE

Brake pedal height:

NOTE

The pedal height can be adjusted for the rider's preference. Adjust the brake pedal free play after pedal height adjustment.

Loosen the lock nut and adjust the brake pedal height by turning the stopper bolt.

Tighten the lock nut securely.

Adjust the brake pedal free play.

(2) STOPPER BOLT

(1) LOCK NUT

Brake pedal free play:

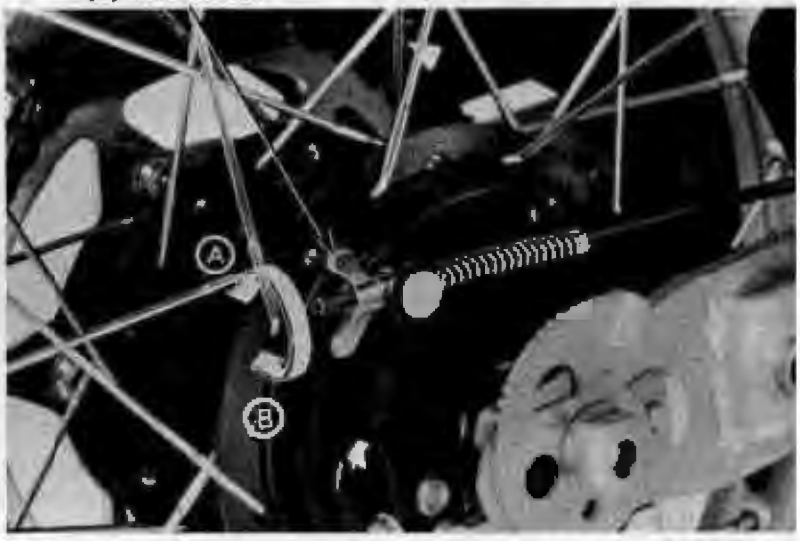
Measure the rear brake pedal free play.

BRAKE PEDAL FREE PLAY:
20—30 mm (3/4 — 1-1/4 in)

(1) ADJUSTER

Adjust the free play by turning the adjuster.

Turn the adjuster in direction A to increase free play. Turn the adjuster in direction B to decrease free play.



• SUSPENSION

Rear:

Check the operation of the rear suspension and the entire suspension assembly. Be sure it is securely mounted and not damage or leaking.

Place the motorcycle on a support to raise the rear wheel off the ground.

Move the rear wheel sideways forcefully to check the swingarm bearings for wear.

Forcefully move the rear wheel vertically to check the suspension linkage bushings for wear.

Replace bearings or bushings if excessively worn.
Tighten all bolts and nuts to the specified torque.

• WHEEL/SPOKES

NOTE

Tire pressure should be check when the tires are COLD.

SPECIFICATIONS

Up to 90 kg (200 lbs) load		Front	150 kPa (1.5 kg/cm², 21 psi)
		Rear	150 kPa (1.5 kg/cm², 21 psi)
Up to vehicle capacity load		Front	150 kPa (1.5 kg/cm², 21 psi)
		Rear	175 kPa (1.75 kg/cm², 24 psi)
Vehicle capacity load			150 kg (330 lbs)
Tire Brand	YOKOHAMA	Front	Y969
		Rear	Y969
	INOUE	Front	GP3
		Rear	GP3
Tire size		Front	3.00–21–4PR
		Rear	4.60–17–4PR

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

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

TORQUE: 25–50 kg-cm (20–57 in-lb)

Check the tightness of the rim lock.

TORQUE: 10–15 N·m (1.0–1.5 kg-m, 7–11 ft-lb)

(1) SPOKE WRENCH 5.8 x 6.1 mm (07701-0020300)

FUEL SYSTEM

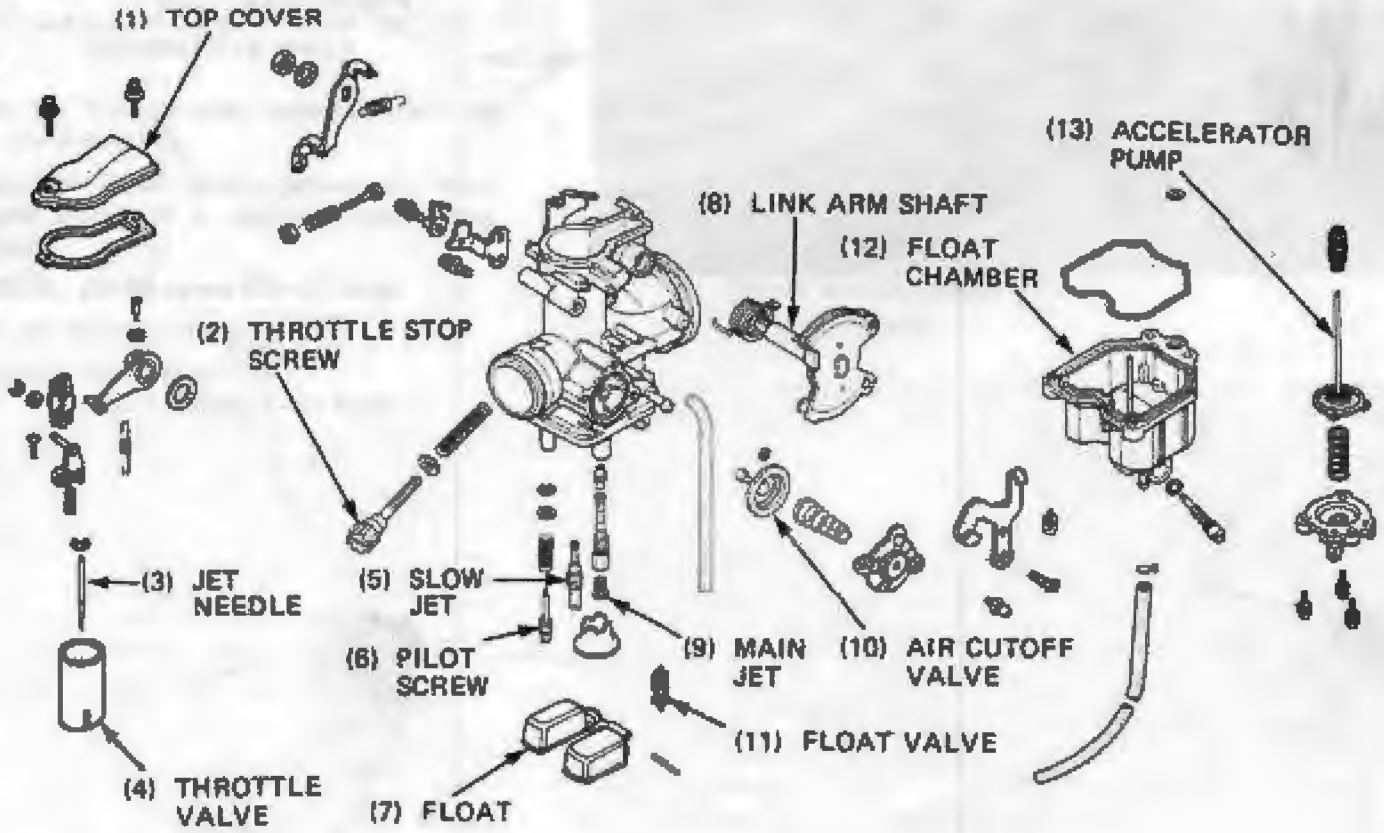
• CARBURETOR SPECIFICATIONS

ITEM	XL500R	XL400R
Venturi diameter	32 mm (1.26 in)	30 mm (1.18 in)
Identification number	PD78A	PD75A
Float level	18.0 mm (0.71 in)	←
Pilot screw opening	2–1/4	←
Idle speed	1,200 ± 100 min^{-1} (rpm)	←
Main jet	#130	#125
Throttle valve diameter	34 mm (1.34 in)	28 mm (1.10 in)
Slow jet	#55	#48
Throttle grip free play	2–6 mm (1/8–1/4 in)	←
Accelerator pump derivery	0.10–0.25 cc/stroke	←
Air cut-off valve operating pressure	350–430 mmHg	←
Jet needle	3rd groove (from top)	←

• CARBURETOR DISASSEMBLY

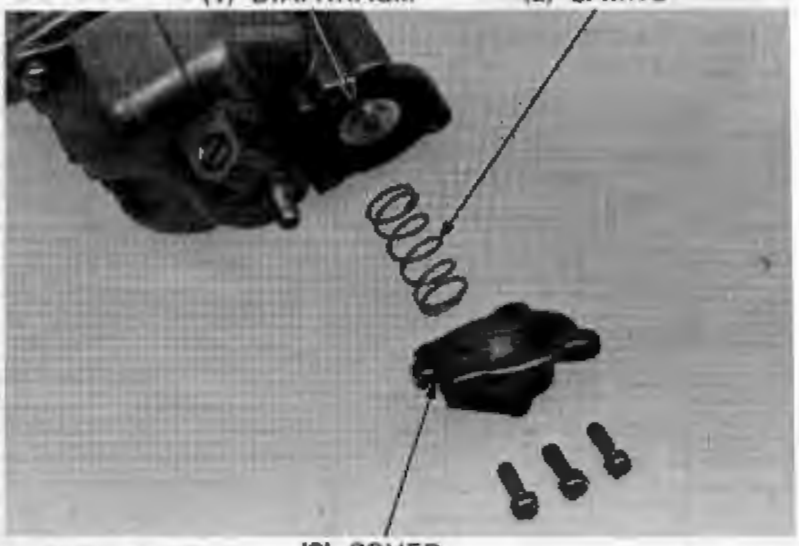
NOTE

Before disassembly, drain the gasoline from the float chamber by loosening the drain screw.



• ACCELERATOR PUMP DISASSEMBLY

Remove the accelerator pump cover and spring.



Remove the diaphragm.
Inspect the diaphragm for cracks and brittleness.

NOTE

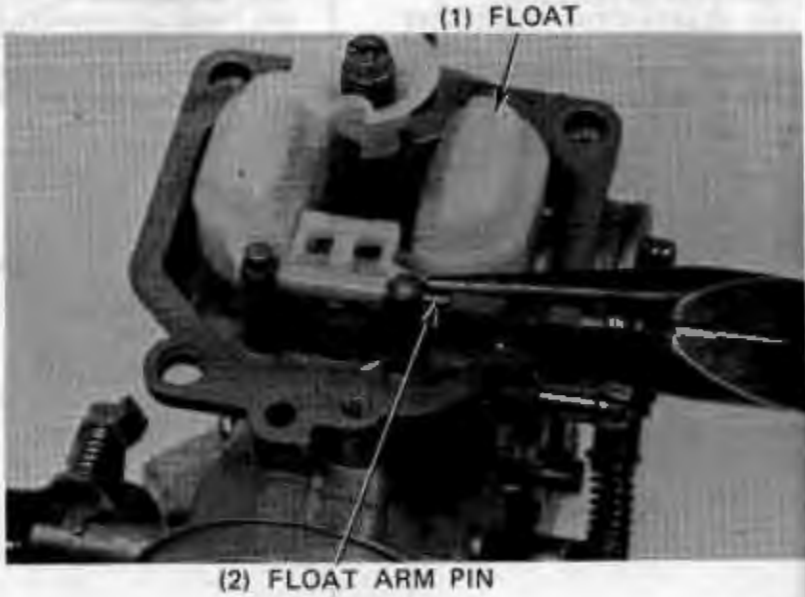
Be sure the rod is not bent.

• CARBURETOR JETS REMOVAL

Remove the float chamber body.
Remove the float arm pin using a needle nose pliers.
Remove the float and float valve.

NOTE

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



Inspect the float valve and seat for deposits, grooves or other damage.

(1) FLOAT VALVE

Remove the main jet.
Remove the needle jet holder and needle jet from the carburetor body.

Remove the slow jet.
Turn the pilot screw in and carefully count the number of turns before it seats lightly.
Make a note of this to use as a reference when reinstalling the pilot screw.

CAUTION

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

Remove the pilot screw.
Inspect the pilot screw and replace if worn or damaged.

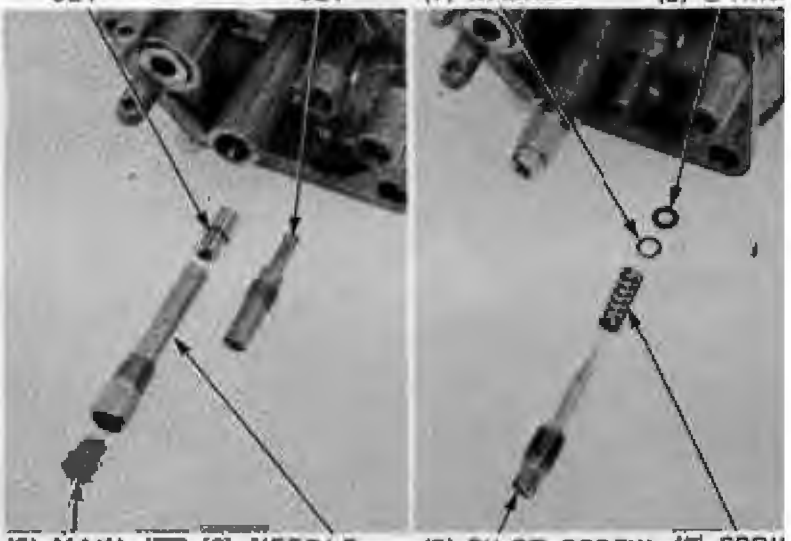
(4) NEEDLE JET HOLDER (3) MAIN JET

(2) SLOW JET (1) PILOT SCREW

Clean the passages and jets with compressed air.

Install the jets in the carburetor body.

Install the pilot screw and return it to its original position as noted during removal.
Perform pilot screw adjustment if a new pilot screw is installed (page 22-24).

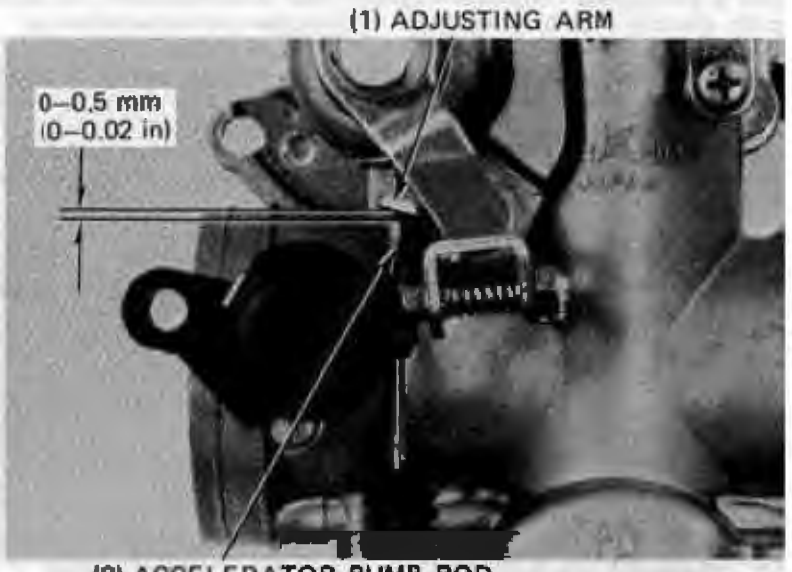


• ACCELERATOR PUMP ADJUSTMENT

Loosen the throttle stop screw, so the throttle valve is closed.
Measure the clearance between the accelerator pump rod and the adjusting arm with the throttle valve closed.

CREARANCE: 0–0.5 mm (0–0.002 in)

Adjust by bending the adjusting arm.
Adjust the idle speed.



• FLOAT LEVEL INSPECTION

Remove the float chamber.
Measure the float level with the float tip just contacting the float valve and the carburetor inclined 15°–45° from vertical.

FLOAT LEVEL: 18.0 mm (0.71 in)

Replace the float if the float level is not within the specification.

• PILOT SCREW ADJUSTMENT (IDLE DROP PROCEDURE)

NOTE

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

CAUTION

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

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

   INITIAL PILOT SCREW OPENING: 2-1/4 Turns

2. Warm the engine up to operating temperature.
   Stop and go driving for ten minutes is sufficient.
3. Stop the engine and connect a tachometer.
4. Start the engine and adjust the idle speed with the throttle stop screw.

   IDLE SPEED: 1,200 ± 100 min^{-1} (rpm)

5. Turn the pilot screw clockwise slowly until the engine stops, and then back it out 2 turns. Start the engine and readjust the idle speed with the throttle stop screw, if necessary.

(1) THROTTLE STOP SCREW

(1) PILOT SCREW

• FAST IDLE SPEED ADJUSTMENT

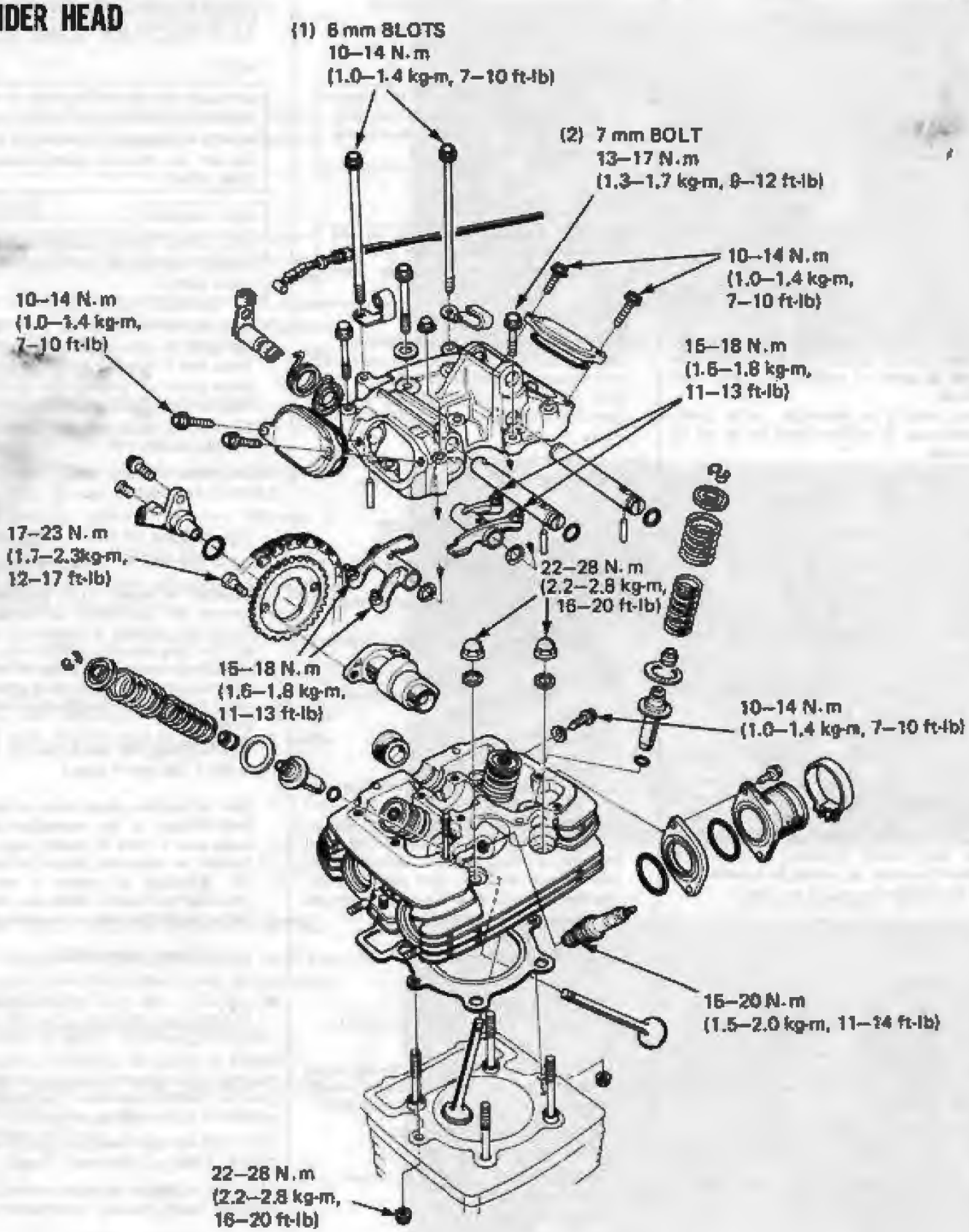
Check the fast idle speed adjustment with the engine warm, and the choke knob in its detent position.

FAST IDLE SPEED: 2,000–2,500 min^{-1} (rpm)

To adjust, loosen the lock nut and turn the adjusting bolt.
Tighten the lock nut.

(1) LOCK NUT (2) ADJUSTING SCREW

CYLINDER HEAD



• CYLINDER HEAD COVER REMOVAL

Remove the engine from the frame (See Section 5).

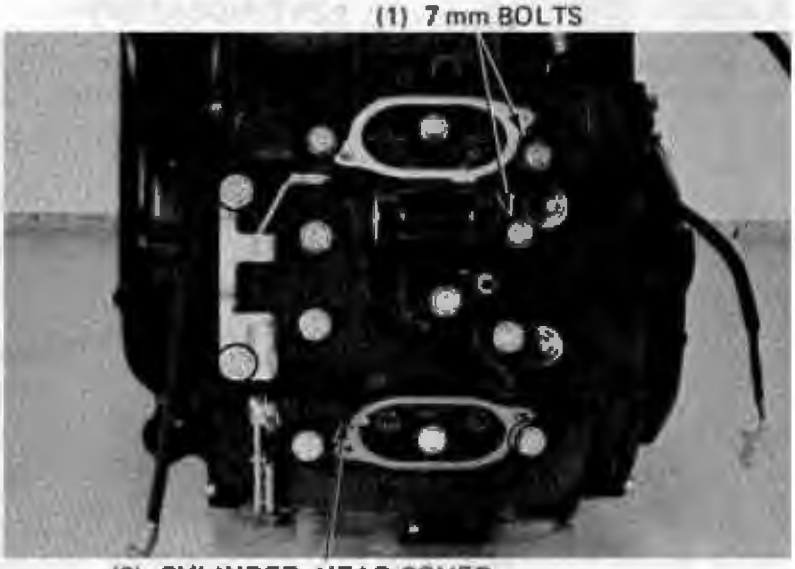
Loosen the decompressor cable lock nut and remove the cable from the holder.

Disconnect the cable from the valve lifter lever.

Remove the valve adjuster covers.

Remove the cylinder head cover bolts nothing the location of the 7mm bolts.

Remove the cylinder head cover.



• CAM SPROCKET INSTALLATION

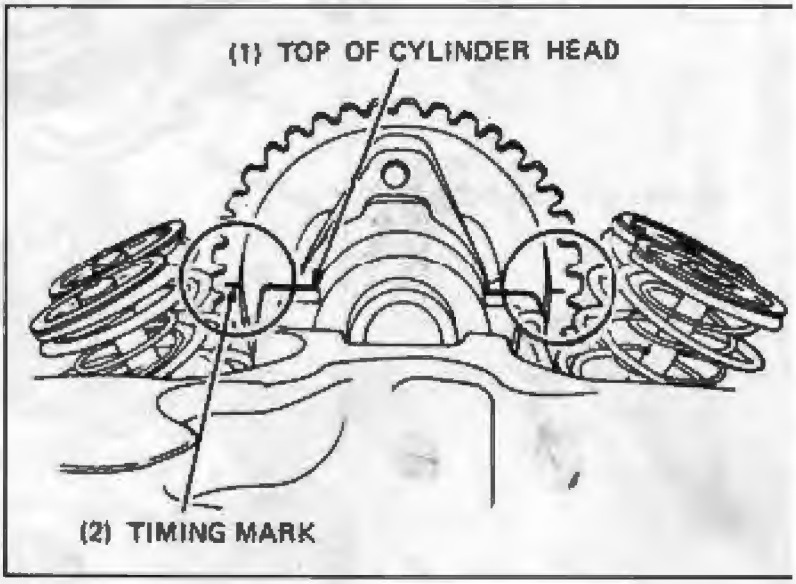
Coat the camshaft journals with molybdenum disulfide grease.
Route the camshaft through the cam chain.
Install the cam sprocket on the camshaft.

NOTE

Install the cam sprocket so that the timing marks face inside.

Turn the crankshaft and align the "T" mark on the generator rotor with the index mark on the left crankcase cover.

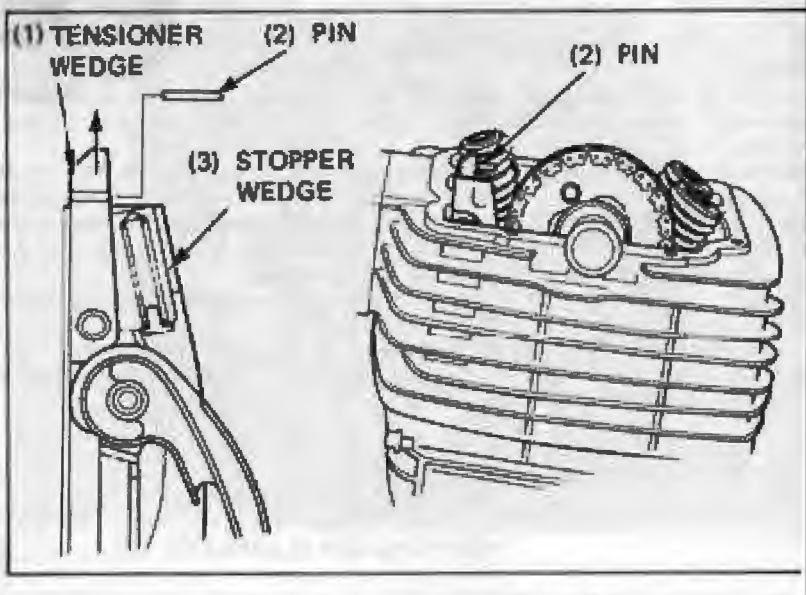
Align the timing marks on the cam sprocket with the top of the cylinder head.



Pull up the tensioner wedge with a priers while pushing in the stopper wedge as shown to loosen the tensioner.

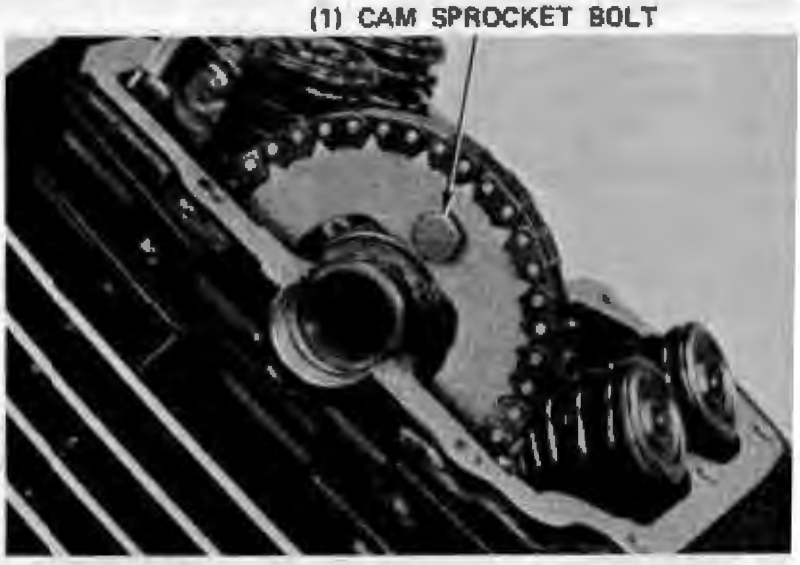
Insert a pin into the hole in the tensioner wedge to hold the tensioner in this position.

Install the cam sprocket on the camshaft.



Tighten the cam sprocket bolts.

TORQUE: 17–23 N.m (1.7–2.3 kg-m, 12–17 ft-lb)



Recheck the valve timing alignment.

- Align the T mark on the flywheel with the index mark on the AC generator cover and make sure that the timing marks on the cam sprocket are flush with the cylinder head upper surface.

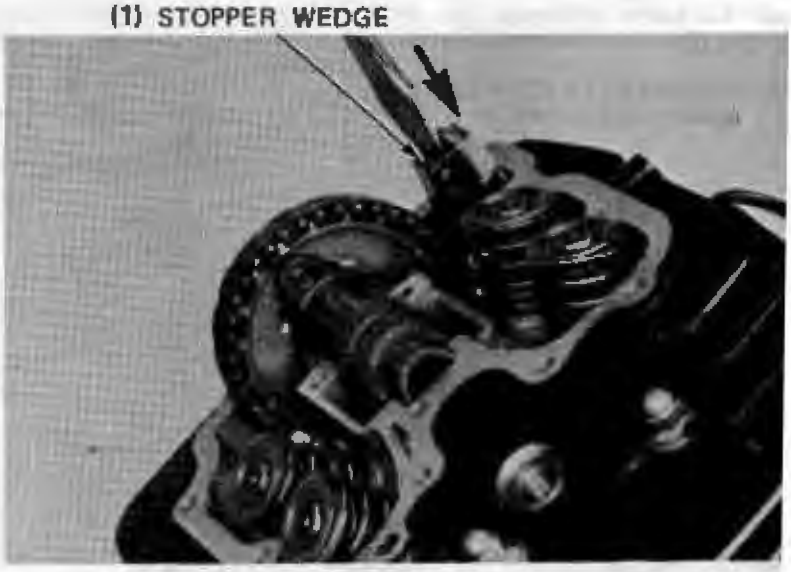
NOTE

Turn the camshaft until its cam lobes face bottom and install the cylinder head cover.

Remove the pin from the tensioner wedge.

Recheck tension of the cam chain tensioner by pushing in the stopper wedge.

Pour fresh oil into the cylinder head until the cams are submerged in the oil.



• CYLINDER HEAD COVER INSTALLATION

Apply liquid sealer to the cylinder head mating surfaces of the cylinder head cover (See page 6-21).

Install the cylinder head cover.

Tighten the cylinder head bolts to the specified torque.

TORQUE: 6mm bolt: 10–14 N·m
(1.0–1.4 kg-m, 7–10 ft-lb)
7mm bolt: 13–17 N·m
(1.3–1.7 kg-m, 9–12 ft-lb)

NOTE

- Tighten the head bolts in a crisscross pattern in two or more steps.
- Clean excessive sealant from the head.

Check the valve clearance (page 3-6).

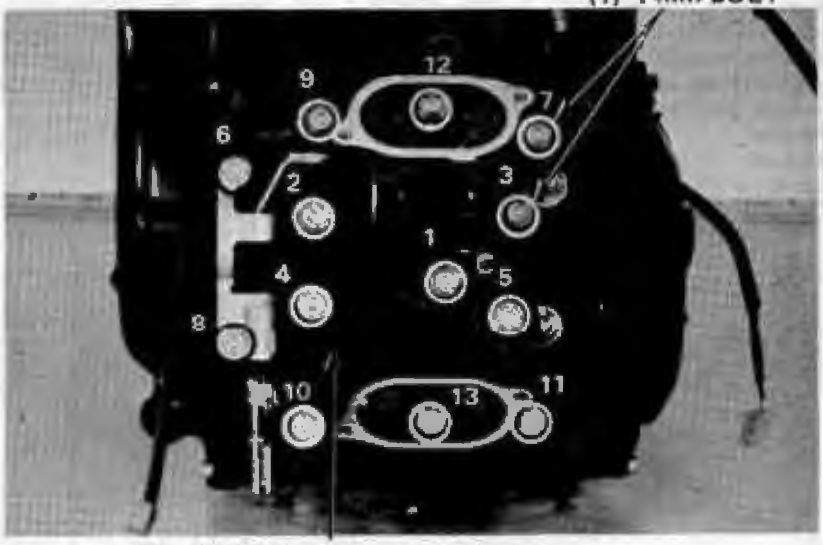
Install the valve adjuster covers.

NOTE

Make sure the O-ring is properly seated in the groove.

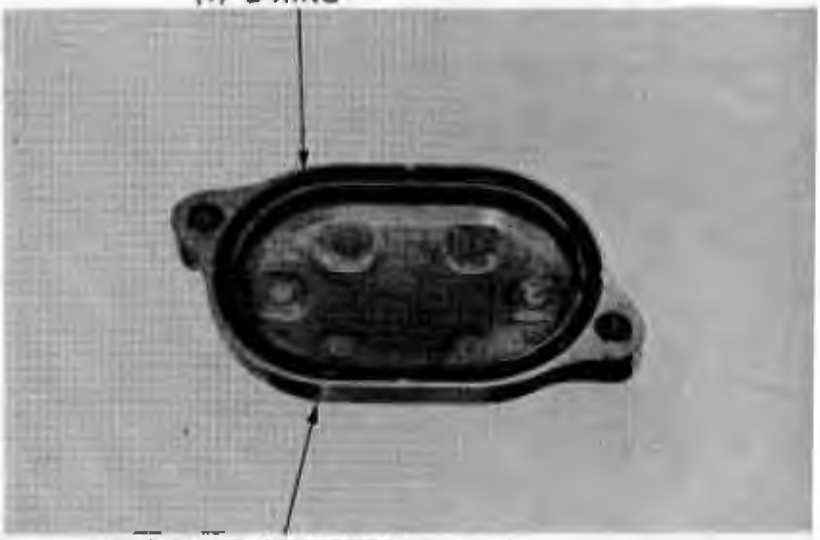
Connect the decompression cable.
Adjust the starter decompressor (page 22-14).

(1) 7mm BOLT



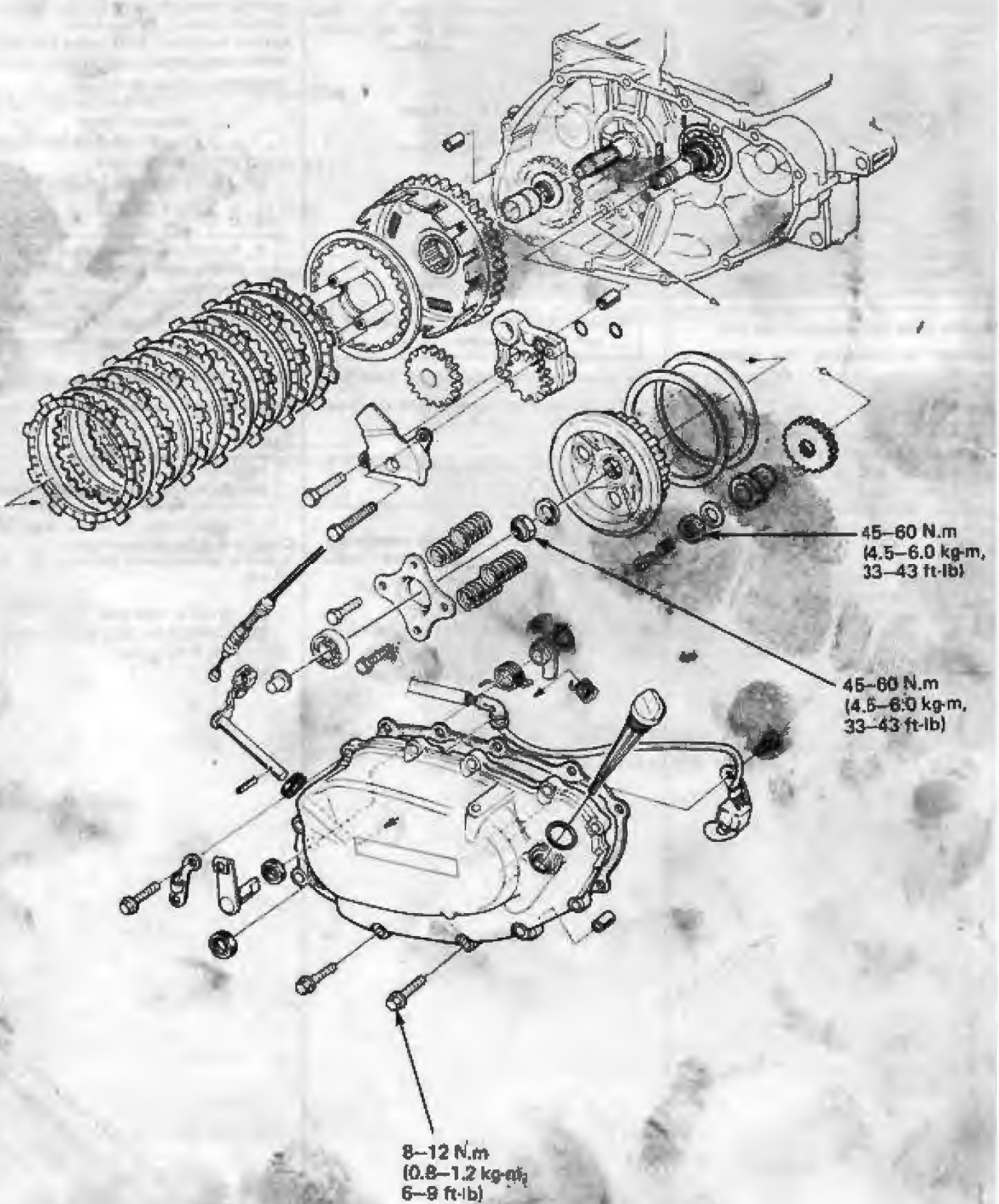
(2) CYLINDER HEAD COVER

(1) O-RING



(2) VALVE ADJUSTER COVER

CLUTCH/OIL PUMP



• CLUTCH SPRING SPECIFICATIONS

	STANDARD	SERVICE LIMIT
Clutch spring free length	44.1 mm (1.74 in)	42.5 mm (1.67 in)
Clutch spring preload/length	23.7–26.3 kg/27 mm (52.2–58.0 lb/1.06 in)	———

• PULSE GENERATOR ROTOR

Removal:

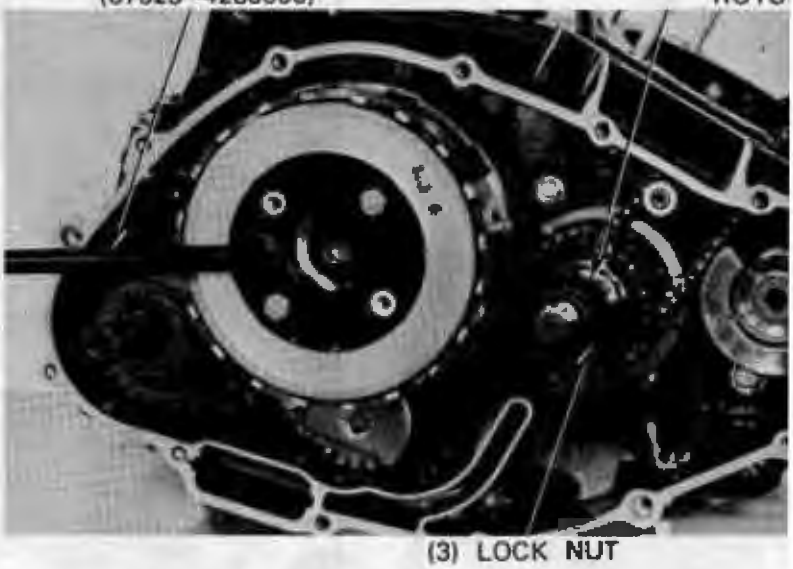
Drain the engine oil from the crankcase.

Remove the clutch lifter plate and clutch spring (See page 8-6).

Attach the clutch center holder to the pressure plate with two clatch bolts.

Remove the primary gear lock nut.

(1) CLUTCH CENTER HOLDER (07923–4280000) (2) PULSE GENERATO ROTO



(3) LOCK NUT

Remove the oil pressure pad and spring by removing the stopper pin.

Remove the pulse generator rotor from the crankshaft.

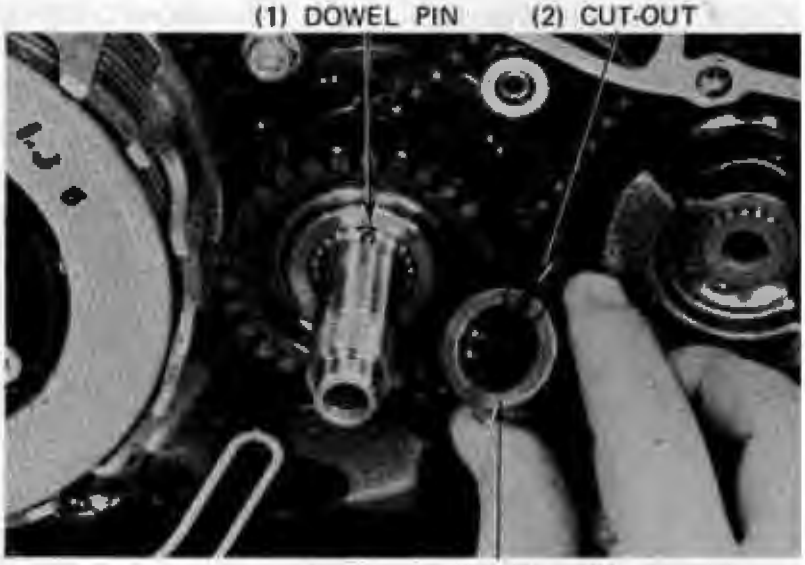
(1) STOPPER PIN

(2) OIL PRESSURE PAD

Installation:

Install the pulse generator rotor, aligning the dowel pin on the crankshaft with rotor cut-out.

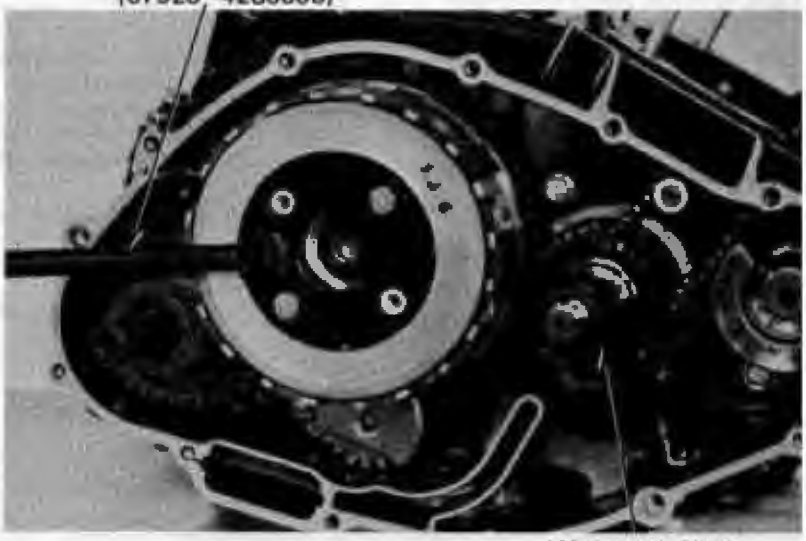
Install the oil pressure pad, spring and stopper pin.



Tighten the primary gear lock nut to the specified torque.

TORQUE: 45–60 N·m
(4.5–6.0 kg-m, 33–43 ft-lb)

Check the oil pressure pad for smooth movement.

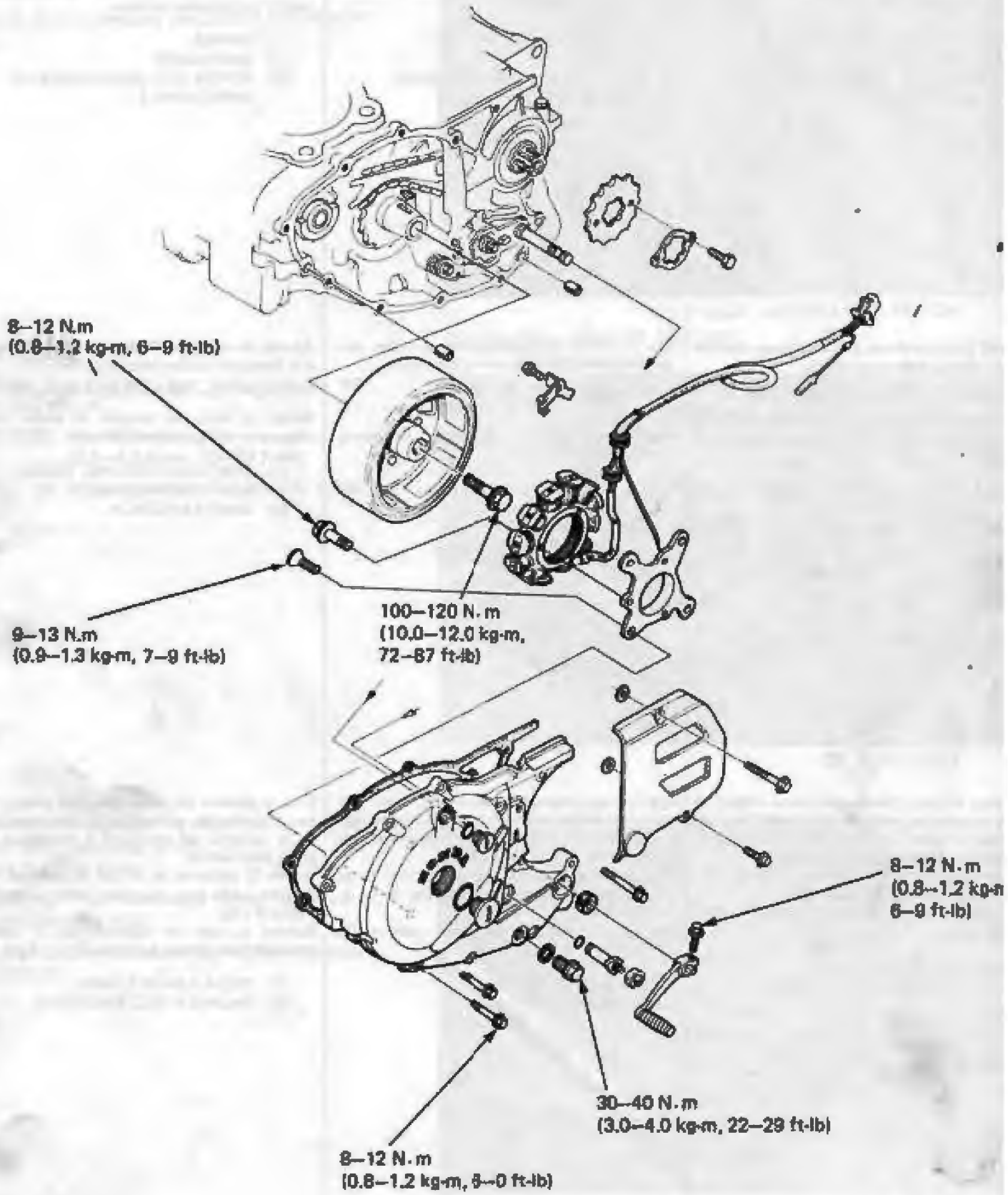


Rotate the clutch lever to align the hole in the lever with the hole in the clutch cover and insert the lifter piece.

Install the right crankcase cover with new gasket (See page 8-16).

Fill crankcase with recommended oil (See Page 22 11, 2-3).

AC GENERATOR



• AC GENERATOR STATOR COIL

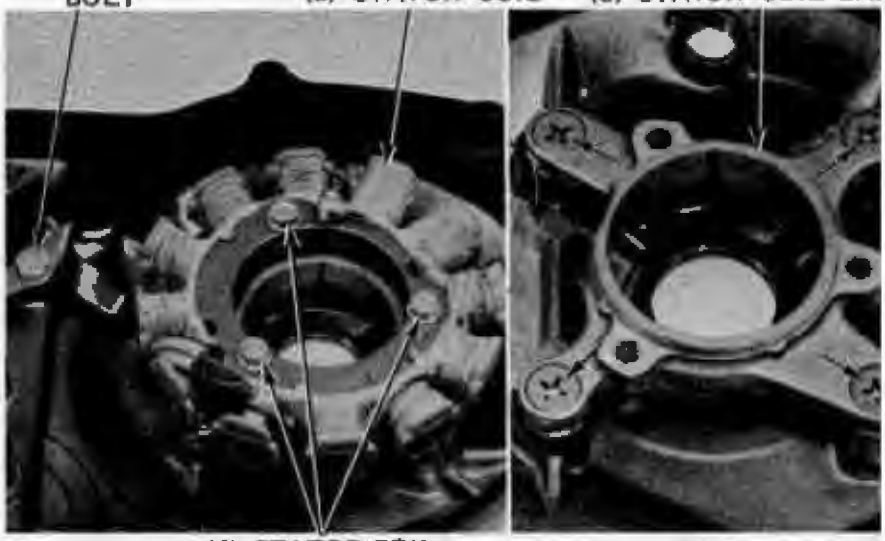
Removal:

Remove the left crankcase cover.

Remove the AC generator wire holder bolt and stator coil bolts.

Remove the stator coil from the stator base.

Remove the stator coil base by removing screws.

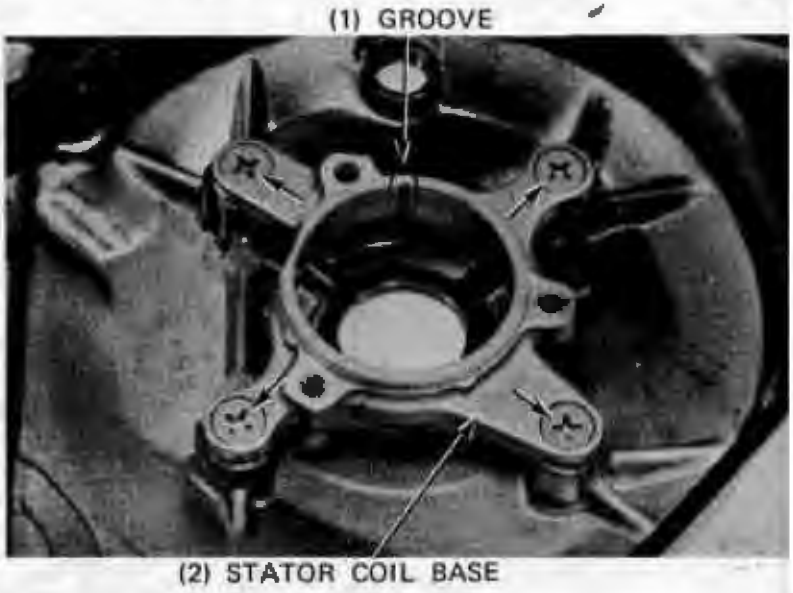


Installation:

Install the stator coil base with the groove facing upward.

Torque the screws.

TORQUE: 9–13 N.m (0.9–1.3 kg-m, 7–9 ft-lb)

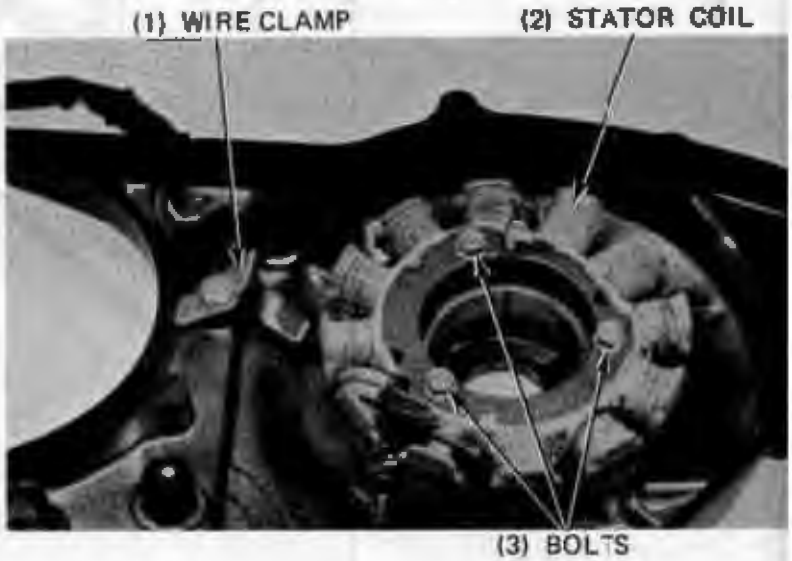


Install the stator coil on the stator base and torque the bolts.

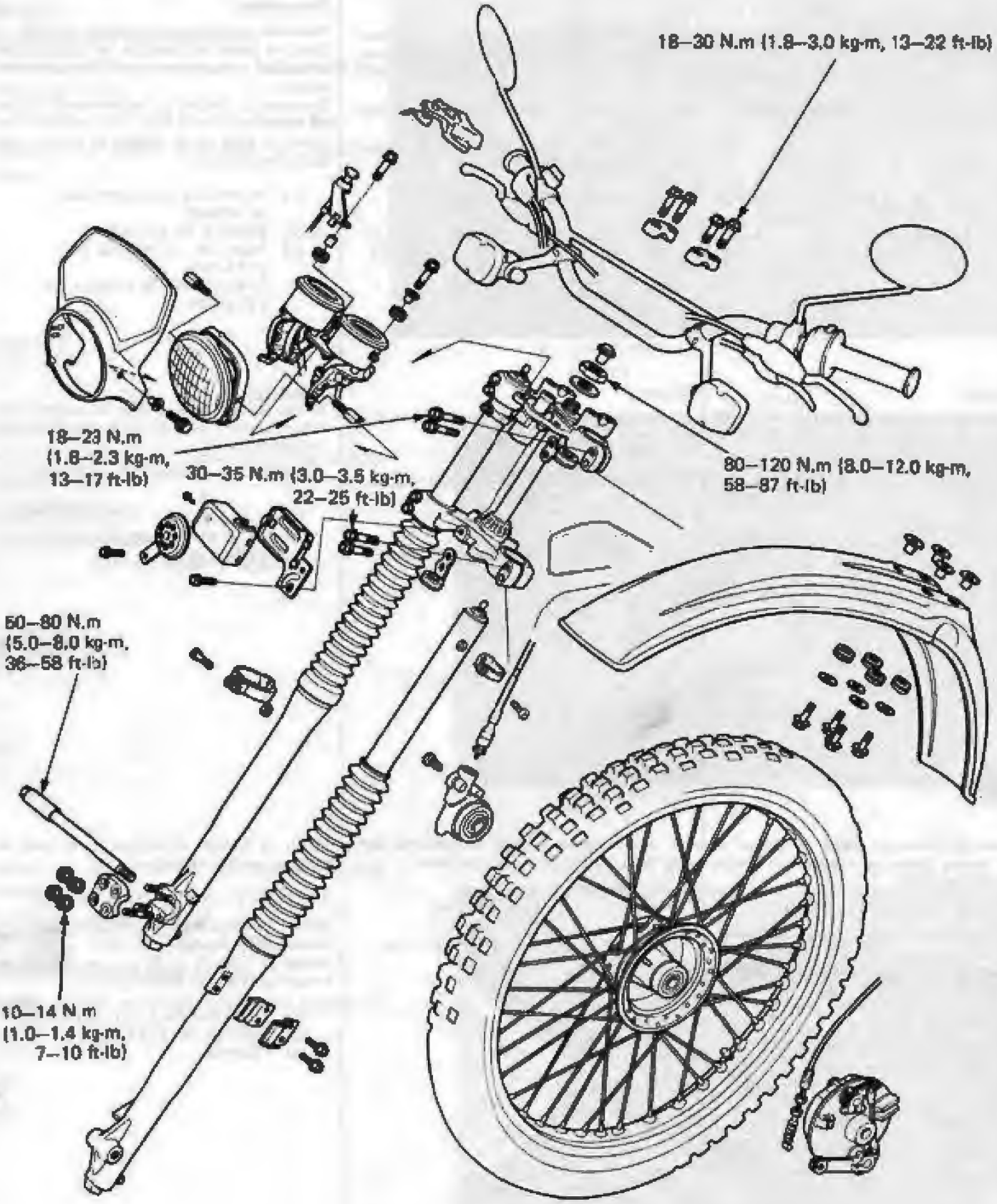
TORQUE: 8–12 N.m (0.8–1.2 kg-m, 6–9 ft-lb)

Install the wire clamp as shown.

Install the left crankcase cover (See page 9-4).



FRONT WHEEL/BRAKE/SUSPENSION/STEERING



ROUE/FREIN/SUSPENSION/ DIRECTION AVANT

VORDERRAD/BREMSE/ AUFHÄNGUNG/LENKUNG

RUEDA/FRENO/SUSPEN-SION DIRECCION DERANTERA

SERVICE INFORMATION

• GENERAL INSTRUCTIONS

WARNING

Brake dust may contain asbestos which can be harmful to your health. Do not use compressed air to clean the brake drum or brake panel. Use a vacuum with a sealed dust collector. Wear a protective face mask and thoroughly wash your hands when finished.

Special

6 mm hex wrench	07917–3230000	
Circlip pliers	07914–3230001	
Steering stem socket	07916–3710100	
Bearing race remover	07953–MA00000	
Steering stem driver	07946–4300101	
Fork seal driver	07947–3710101	

Common

Socket wrench, 30 x 32 mm	07716–0020400	
Extension	07716–0020500	
Attachment, 32 x 35 mm	07746–0010100	
Pilot, 15 mm	07746–0040300	
Attachment, 42 x 47 mm	07746–0010300	or Attachment 07946-4300200
Driver	07749–0010000	

• SPECIFICATIONS

ITEM		STANDARD	SERVICE LIMIT
Axle runout		———	0.2 mm (0.01 in)
Wheel rim runout	Radial	———	2.0 mm (0.08 in)
	Axial	———	2.0 mm (0.08 in)
Brake drum I.D.		130.0 mm (5.12 in)	131.0 mm (5.16 in)
Brake shoe thickness		4.0 mm (0.16 in)	2.0 mm (0.08 in)
Front fork spring free length		580.4 mm (22.85 in)	568.8 mm (22.39 in)
Fork tube runout		———	0.20 mm (0.008 in)
Front fork air pressure		0–20 kPa (0–0.2 kg/cm^2, 0–2.8 psi)	———
Front fork oil	Capacity	376.0–381.0 cc (12.71–12.8 oz)	———
	Level	163.0 mm (6.42 in)	———

• TORQUE VALUES

Steering stem nut		: 80–120 N.m (8.0–12.0 kg-m, 58–87 ft-lb)
Steering adjusting nut		: 1–2 N.m (0.1–0.2 kg-m, 0.7–1.5 ft-lb)
Fork pinch bolt	(upper)	: 18–23 N.m (1.8–2.3 kg-m, 13–17 ft-lb)
	(lower)	: 30–35 N.m (3.0–3.5 kg-m, 22–25 ft-lb)
Handlebar holder bolt		: 18–30 N.m (1.8–3.0 kg-m, 13–22 ft-lb)
Axle		: 60–80 N.m (6.0–8.0 kg-m, 36–58 ft-lb)
Axle holder nut		: 10–14 N.m (1.0–1.4 kg-m, 7–10 ft-lb)
Steering stem pipe pinch bolt		: 40–50 N.m (4.0–5.0 kg-m, 29–36 ft-lb)
Brake arm bolt	(upper arm)	: 8–12 N.m (0.8–1.2 kg-m, 6–9 ft-lb)
	(lower arm)	: 10–14 N.m (1.0–1.4 kg-m, 7–10 ft-lb)

TROUBLE SHOOTING

Hard steering

1. Steering stem nut too tight
2. Faulty steering stem bearings
3. Damaged steering stem bearings
4. Insufficient tire pressure

Steers to one side or does not track straight

1. Bent front forks
2. Bent front axle, wheel installed incorrectly

Front wheel wobbling

1. Distorted rim
2. Worn front wheel bearing
3. Faulty tire
4. Axle not tightened properly
5. Loose, bent or broken spokes

Soft suspension

1. Weak fork spring
2. Insufficient fluid weight in front forks
3. Incorrect fork air pressure

Hard suspension

1. Incorrect fluid weight in front forks
2. Incorrect fork air pressure
3. Fork tube bent

Front suspension noise

1. Slider binding
2. Insufficient fluid in forks
3. Loose front fork fasteners

Improper brake performance

1. Incorrect adjustment of lever
2. Brake shoes worn
3. Brake shoes contaminated
4. Brake cam worn
5. Brake drum worn
6. Brake arm serrations improperly engated
7. Cam contacting area of shoes worn

• HEADLIGHT/INSTRUMENT

Removal:

Remove the headlight case mounting bolts.

Remove the headlight case.

(1) MOUNTING BOLTS

(2) HEADLIGHT CASE

Remove the headlight by removing two mounting bolts.

Remove the coupler box cover.

Disconnect the instrument wires.

(1) MOUNTING BOLTS

(2) COUPLER BOX COVER

(3) HEADLIGHT

Disconnect the speedometer and tachometer cables from the instrument.

Remove the speedometer and tachometer by removing mounting nuts.

Installation:

Install the instrument in the reverce order of removal.

(1) MOUNTING NUTS

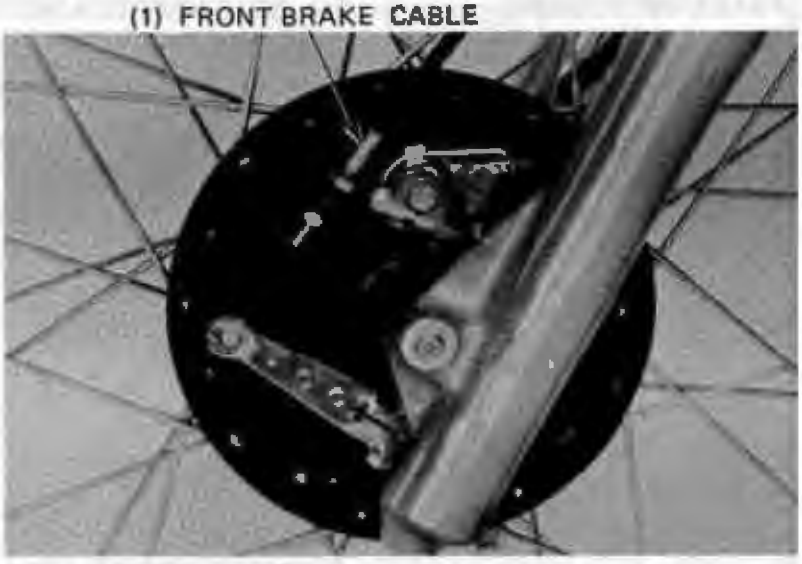
• FRONT WHEEL

Removal:

Raise the front wheel off the ground by placing a block or safety stand under the engine.

Disconnect the front brake cable from the brake panel.

(1) FRONT BRAKE CABLE



Disconnect the speedometer cable.

Loosen the lower axle holder nuts then loosen the upper axle holder nuts.

Unscrew the axle, and remove the front wheel.

(1) UPPER AXLE HOLDER NUTS

(2) AXLE (3) LOWER AXLE HOLDER NUTS

CAUTION

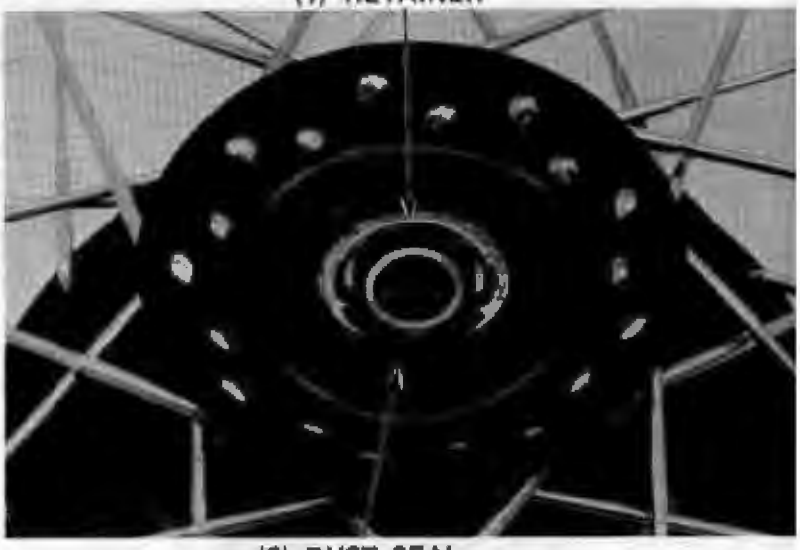
- *Do not let the brake panel fall.*
- *If the brakes are not going to be serviced, do not turn the brake arm or arm connecting rod. The rod synchronization will be off and stopping power will be reduced.*

Disassembly:

Remove the dust seal and speedometer gear retainer from the wheel hub.

Remove the bearings and collar from wheel hub.

(1) RETAINER

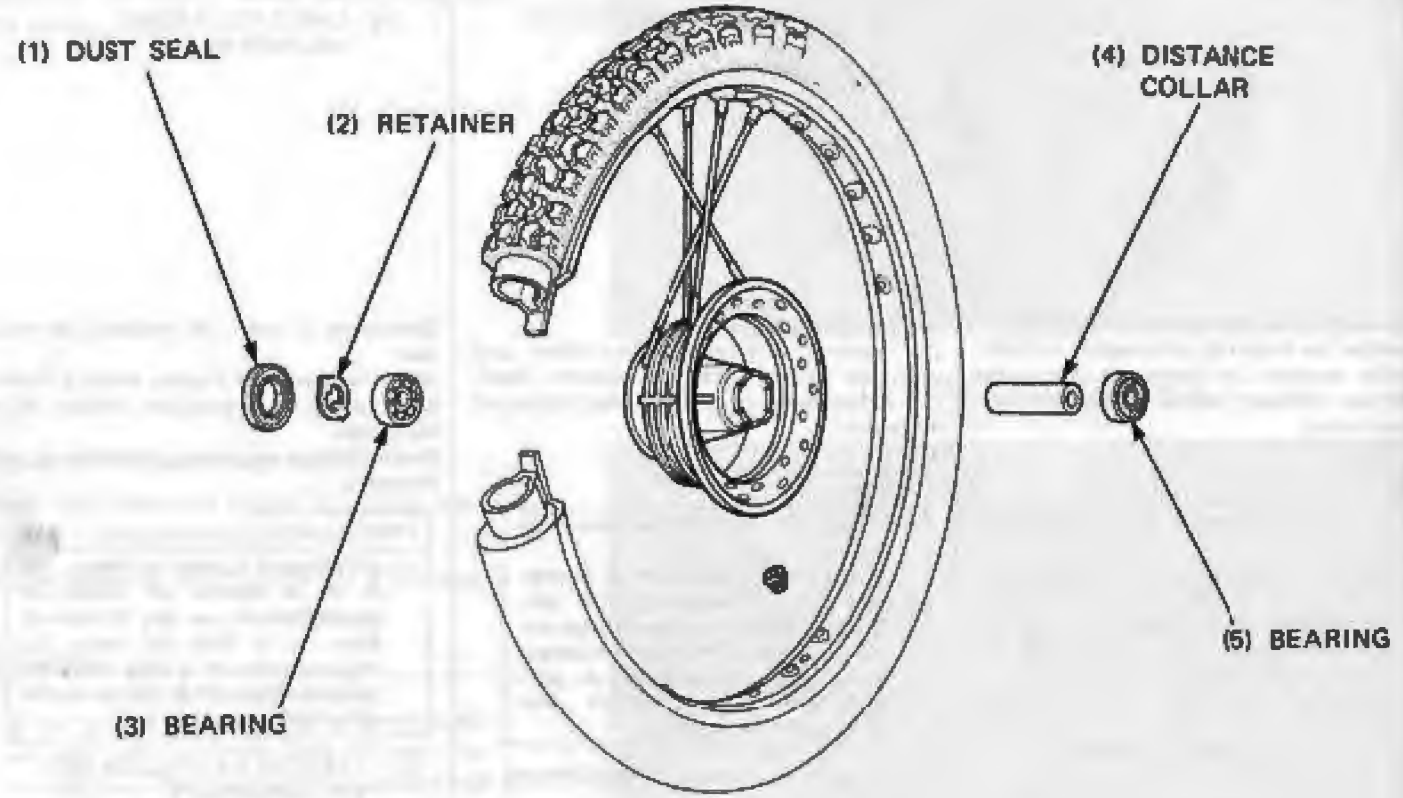


(2) DUST SEAL

NOTE

If bearings are removed, replace them with new bearings during assembly.

Assembly:



Pack all front wheel bearing cavities with grease.

Drive in the right bearing first.

Install the distance collar and drive in the left bearing.

NOTE

- Do not allow the bearing to tilt while driving it in.
- Install the bearings with the sealed end facing out.

WARNING

Avoid getting grease on the inside face of the brake drum.

(1) DRIVER (07749-0010000)

(2) ATTACHMENT, 32 x 35 mm (07746-0010100) AN
PILOT, 15 mm (07746-0040300)

Apply grease to the inside of the dust seal.
Install the dust seal and the speedometer gear retainer.

(1) RETAINER

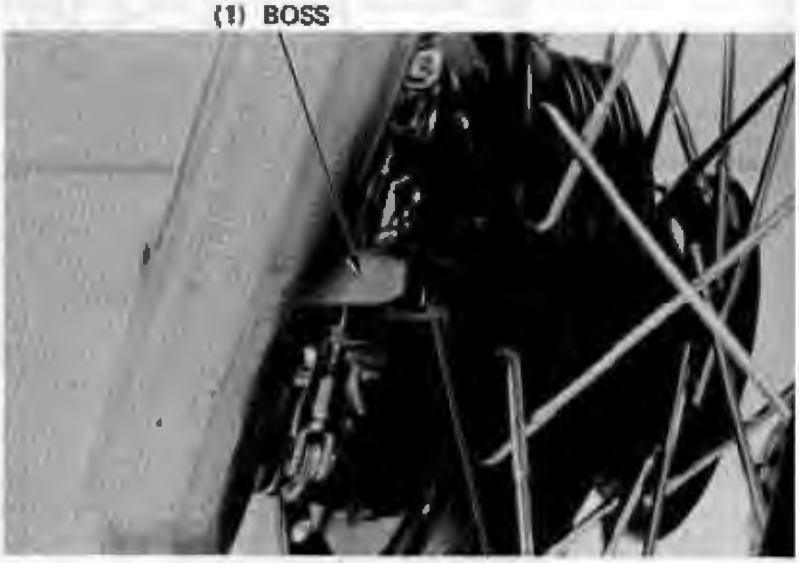
(2) DUST SEAL

Installation:

Install the brake panel into the front wheel.

Align the brake panel groove with the front fork slider boss.

(1) BOSS

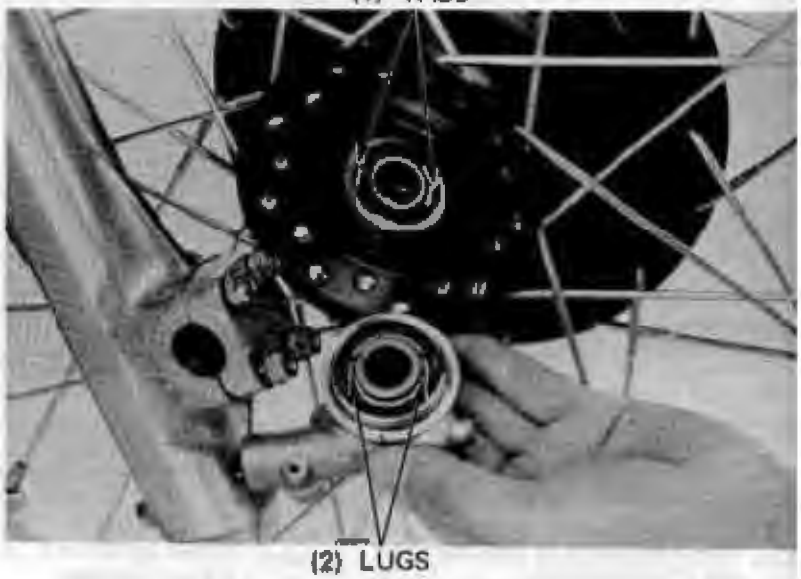


(2) GROOVE

Aligning the lugs on the speedometer gear box with the tabs on the wheel hub.

Install the speedometer gearbox into the wheel hub.

(1) TABS



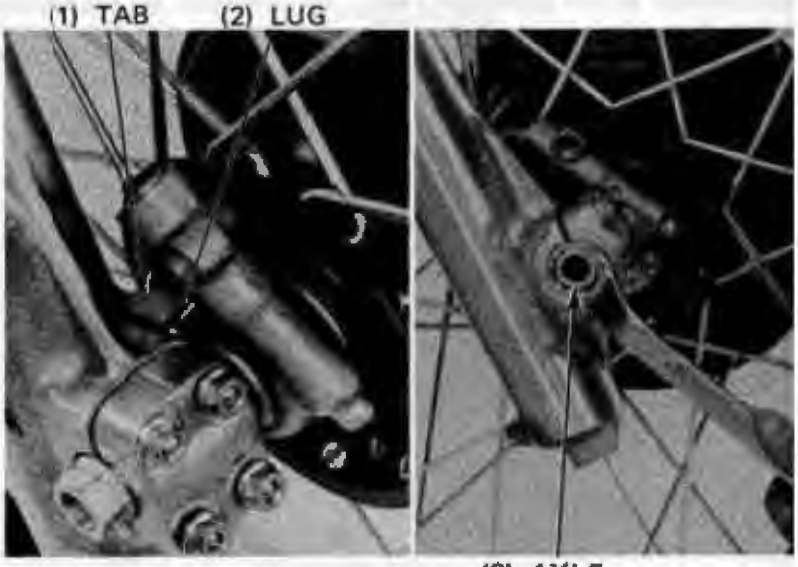
(2) LUGS

Insert the axle through the wheel hub and thread it into the left fork leg. Then tighten the axle.

TORQUE: 50–80 N·m
(5.0–8.0 kg-m, 36–58 ft-lb)

NOTE

Make sure that the lug on the speedometer gearbox are aligned with tab on the left fork leg.



Install the axle holder with the "UP" mark facing upward.

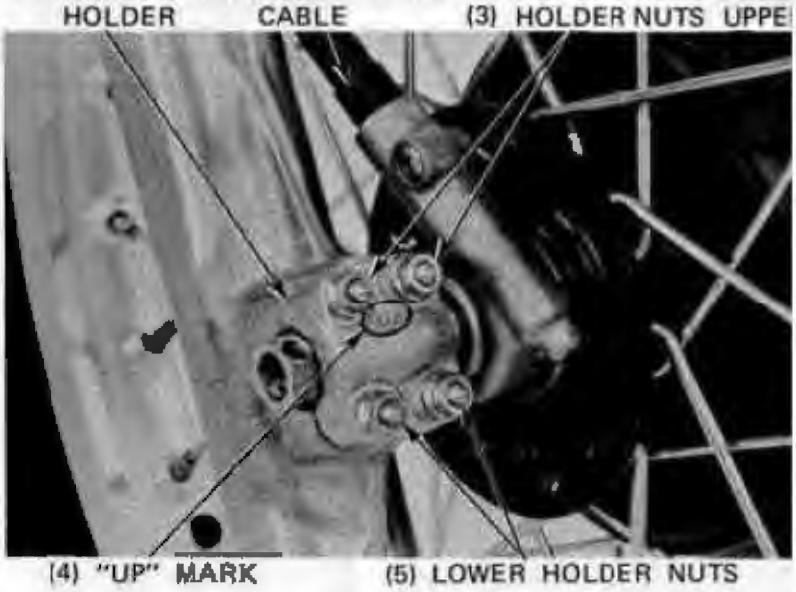
With the front brake applied, pump the front fork up and down several times.

Tighten the upper holder nuts first, then tighten the lower holder nuts.

TORQUE: 10–14 N·m
(1.0–1.4 kg-m, 7–10 ft-lb)

Connect the front brake and speedometer cables.

Adjust the front brake lever free play (Page 22-16).



• FRONT BRAKE

Disassembly:

Remove the front wheel.

Remove the front brake panel assembly from the wheel hub.

CAUTION

- *Mark the shoes to indicate the normal positions before disassembly.*
- *Always replace the brake shoes in pairs.*

Remove the brake shoes and springs.

WARNING

Do not remove the brake arm rod when the brake shoes are replaced.

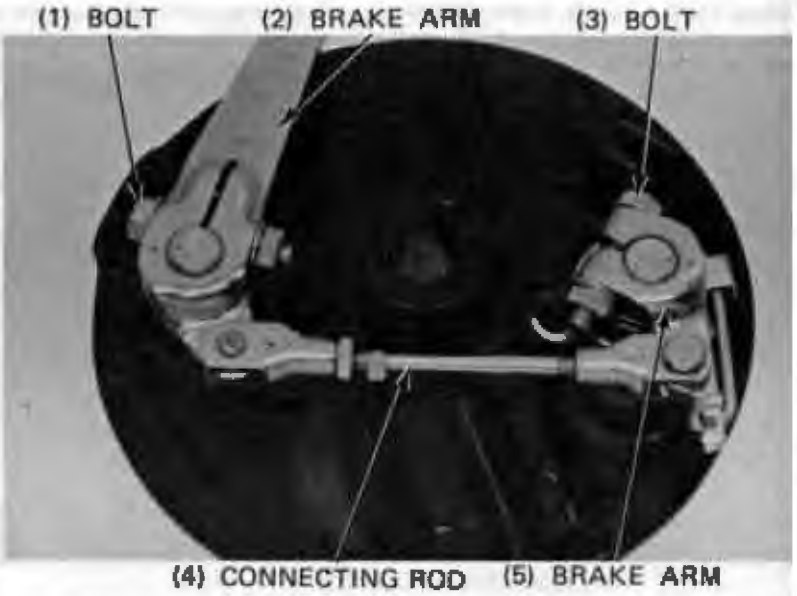
Remove the bolts attaching each brake arm to the brake cams.

Remove the brake arms with the arm connecting rod.

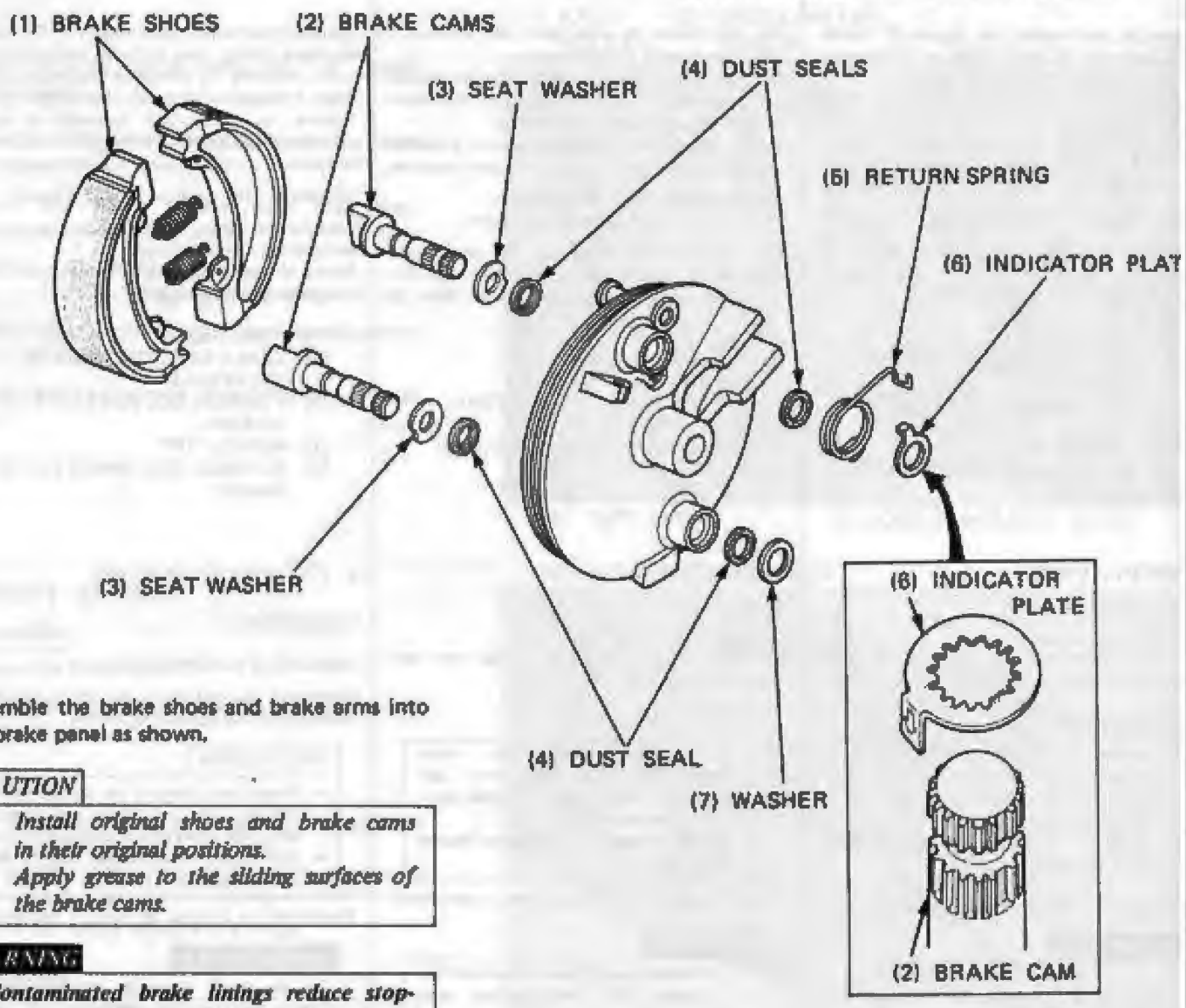
WARNING

Do not try to turn the connecting rod when removing the brake arms of synchronization of the brake arms will be out of order and stopping power will be reduced.

Remove the brake cams from the brake panel.



Assembly:



Assemble the brake shoes and brake arms into the brake panel as shown.

CAUTION

- *Install original shoes and brake cams in their original positions.*
- *Apply grease to the sliding surfaces of the brake cams.*

WARNING

Contaminated brake linings reduce stopping power. Keep grease off the linings.

Install the brake arm assembly on the brake cams.

NOTE

When installing the brake arm, align the punch marks on each brake arm and brake cam.

CAUTION

Be carefull to do not turn the arms and connecting rod during installation.

Tighten the brake arm bolts.

TORQUE:

Upper arm: 8–12 N·m (0.8–1.2 kg-m, 6–9 ft-lb)
Lower arm: 10–14 N·m (1.0–1.4 kg-m, 7–10 ft-lb)

Visually inspect the brake cam synchronization by operating the brake arm.

Adjust the brake cam synchronization if necessary.

Adjustment:

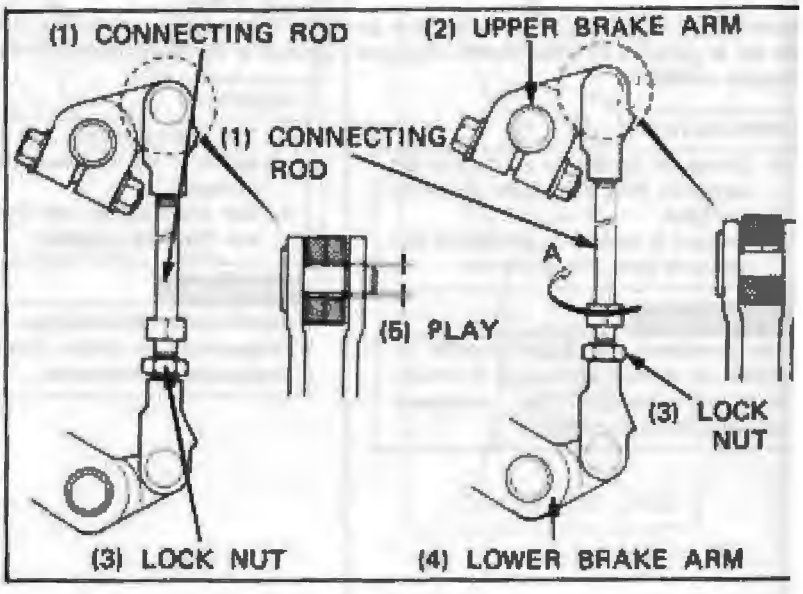
Adjust the brake arm connecting rod whenever the cam, arm or connecting rod are replaced.

While pushing the brake shoes in toward one another by hand to remove any clearance between the shoes and brake cams, loosen the brake arm connecting rod lock nut, turn the rod until it shows free play, and then turn the rod in direction A just enough to remove that free play.

NOTE

You are looking for the point that free play is just removed.

Tighten the lock nut.
Make sure that both brake cams are parallel to each other and that arms upper and lower start to move at the same time when the brake is applied.



• FRONT FORK

Removal:

Remove the front wheel.
Loosen the fork boot clamp screws.

Remove the speedometer cable from the clamp on the right fork.

(1) BOOT CLAMP

(2) SPEEDOMETER CABLE CLAMP

Loosen the upper and lower fork pinch bolts.
Remove the front forks.
Remove the fork boot.

(1) FORK PINCH BOLTS

Disassembly

Release the air from each fork tube by pressing the air valve core.

WARNING

Be sure to release front fork air pressure before disassembling to prevent parts from becoming projectiles.

(1) AIR VALVE (2) FORK CAP BOLT

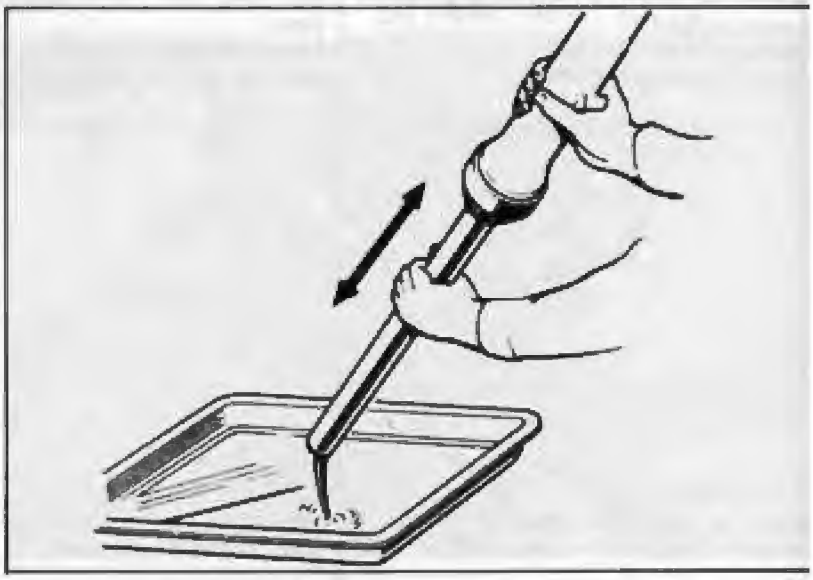
Hold the tube in a vise with soft jaws or a shop towel, avoiding the sliding surface.
Remove the fork cap bolt.

WARNING

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

Remove the spacer, seat washer and fork spring from the fork tube.

Pour out any remaining fork fluid by pumping the fork several times.



Hold the fork slider in a vise with soft jaws or a shop towel and hold the fork piston with a holder.
Remove the hex bolt.

CAUTION

Do not distort the fork slider in a vise.

Pull the fork tube out of the slider.

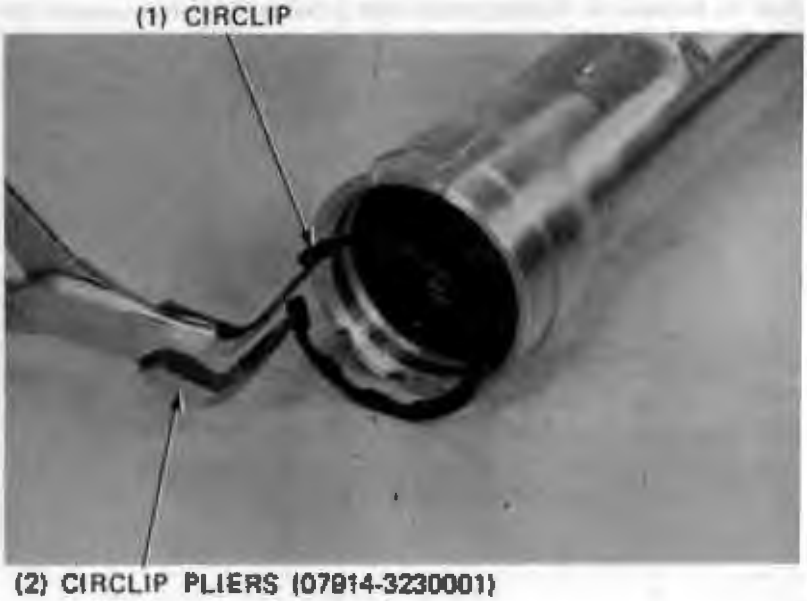
Remove the fork piston from the fork tube.
Remove the oil lock piece from the fork slider.

Remove the dust seal using a screwdriver with a dull or rounded edge.

NOTE

- Avoid damage the inner and outer surfaces of the fork slider when removing the oil seal.
- If the dust seal is removed, replace it with new one.

Remove the circlip with snap-ring pliers.



Remove the oil seal using a screwdriver with a dull or rounded edge.

NOTE

- Avoid damaging the inner and outer surfaces of the fork slider when removing the oil seal.
- The oil seal must be, replaced with new seal during assembly.

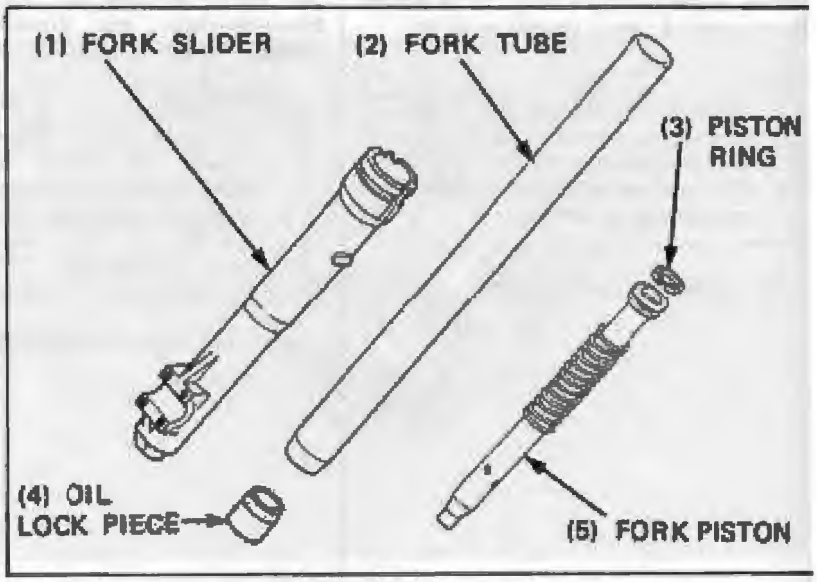
Remove the back-up ring.

(1) OIL SEAL

Inspection:

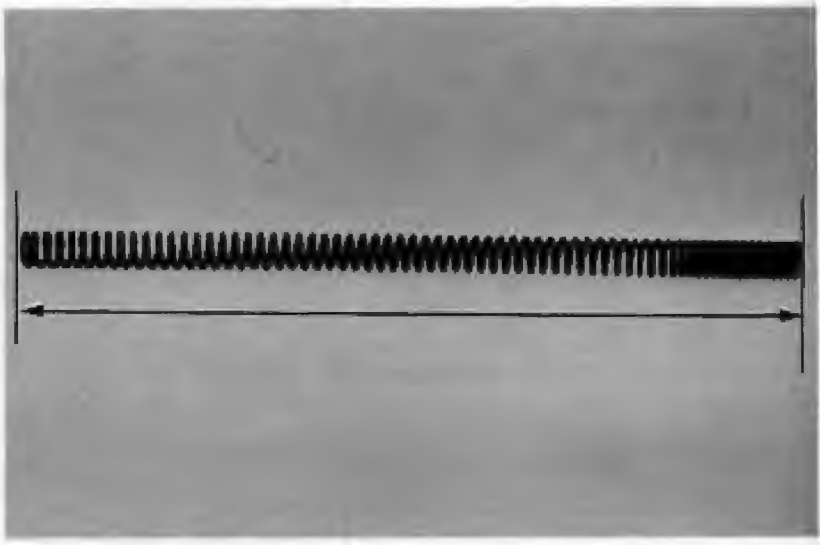
Check the fork tube, fork slider, piston and oil lock piece for score marks, scratches, or excessive or abnormal wear.

Replace any damaged or badly worn parts.
Check the fork piston ring for wear or damage.
Check the rebound spring for fatigue or damage.



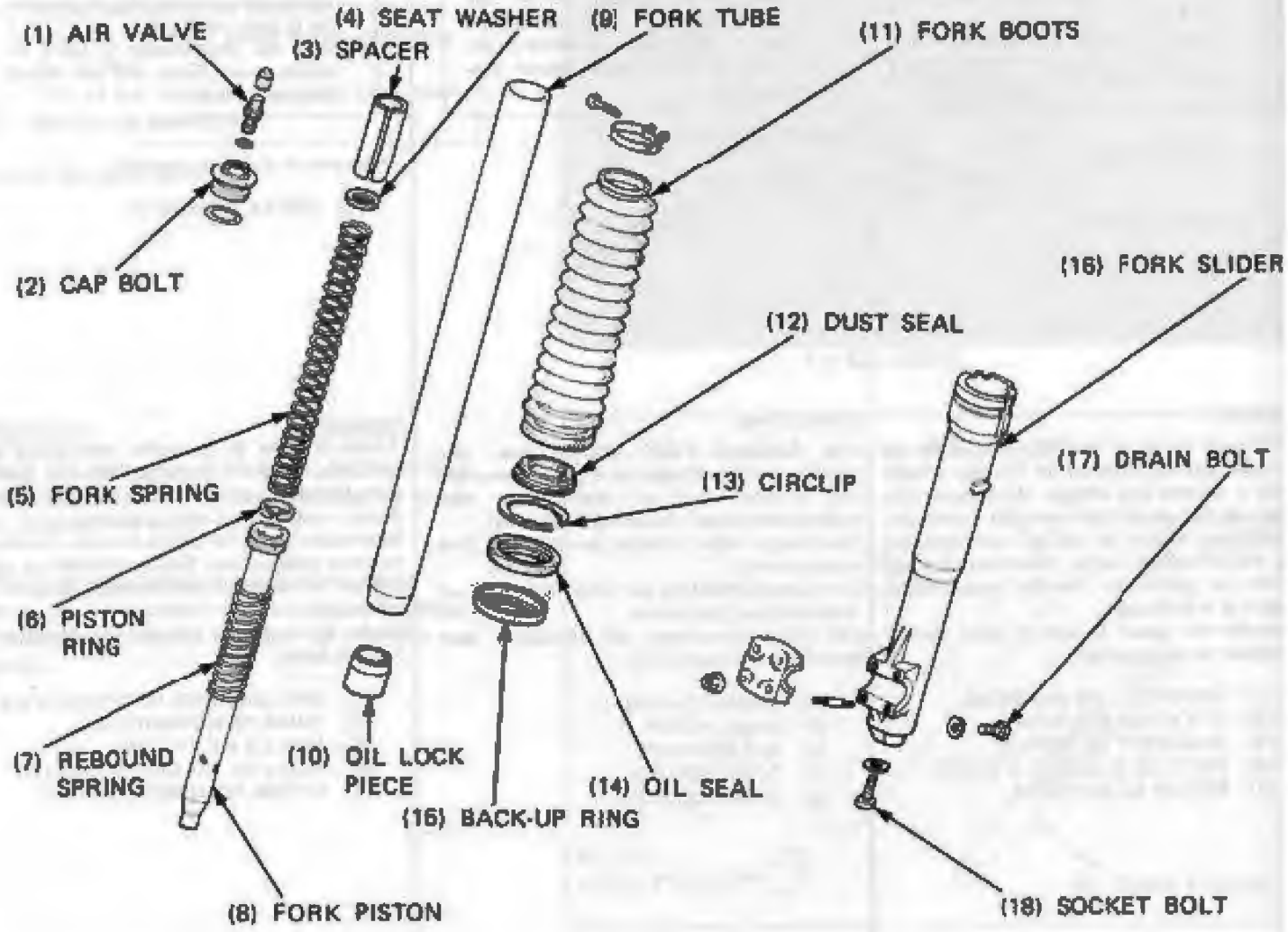
Measure the fork spring free length.

SERVICE LIMIT: 568.8 mm (22.39 in)



Assembly:

Clean all parts with non-flammable or high flash point solvent and wipe them off throughly before assembly.



Install the fork piston and rebound spring into the fork tube from top.
Place the oil lock piece on the end of the piston.
Insert the fork tube into the slider.

Apply a locking agent to the socket bolt threads and underside of the bolt and torque the bolt.

TORQUE: 15–25 N·m (1.5–2.5 kg-m, 11–18 ft-lb)

CAUTION

Excessive air pressure can damage the fork slider.

NOTE

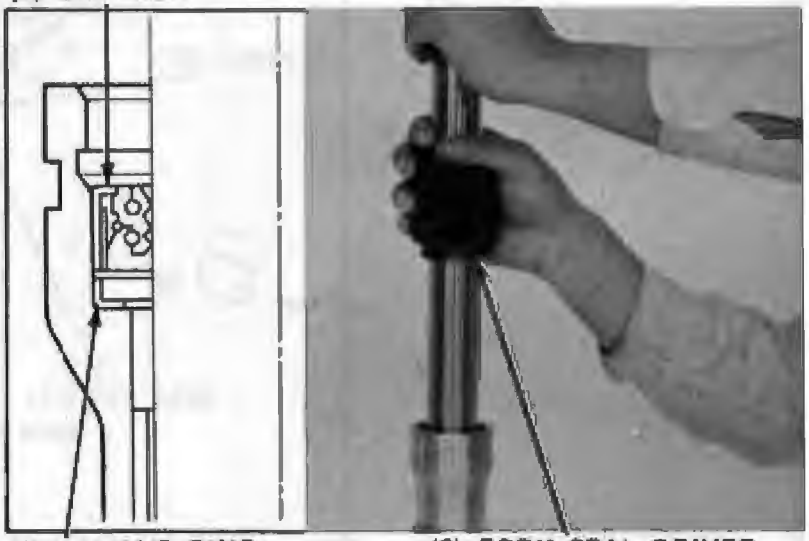
Temporarily install the spring, spacer and fork bolt if difficulty is encountered in moving the socket bolt..

(1) 6 mm HEX WRENCH (07917-3230000)

Install the back-up ring.
Coat a new oil seal with ATF and install it with the seal markings facing up.

Drive the seal in with the seal driver.

(1) OIL SEAL



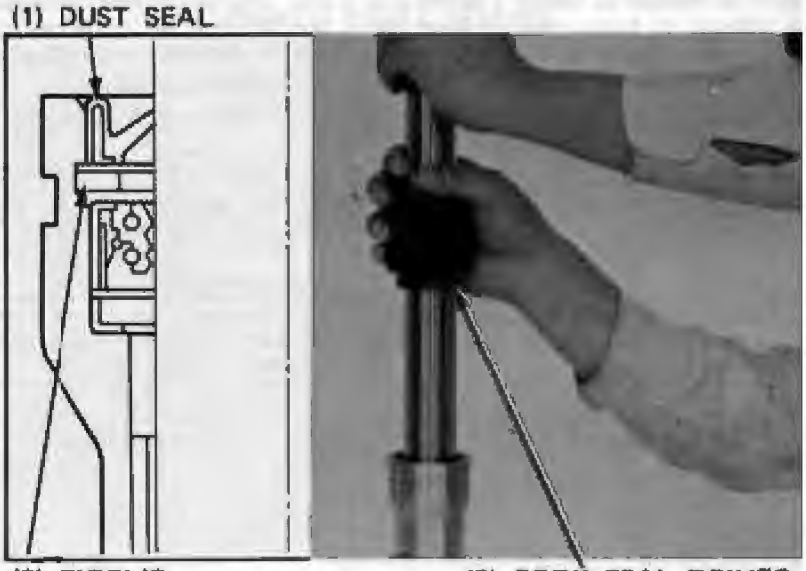
(2) BACK-UP RING

(3) FORK SEAL DRIVER (07947-3710101)

Install the circlip into groove of the slider with sharp edge facing upward.

(1) CIRCLIP PLIERS (07914-3230001) (2) CIRCLIP

Install the dust seal with the seal markings facing down and drive the seal in with the seal driver.



Pour in the specified amount of ATF.

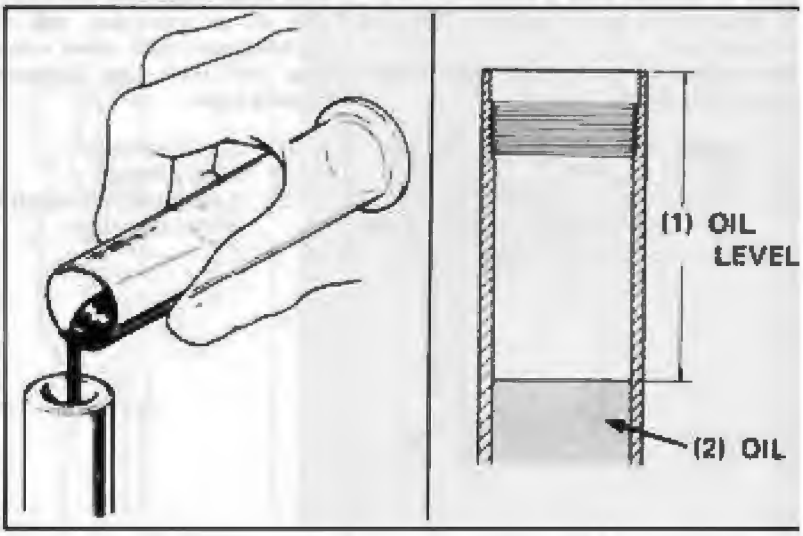
CAPACITY: 376.0–381.0 cc (12.71–12.88 oz)

Compress the front fork 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: 163.0 mm (6.42 in)



Wipe all oil from the fork spring and install it into the fork tube with the narrow coils facing down.

Install the spring seat washer and spacer and install the fork cap bolt.

CAUTION

Be careful not to cross-thread the fork cap bolts.

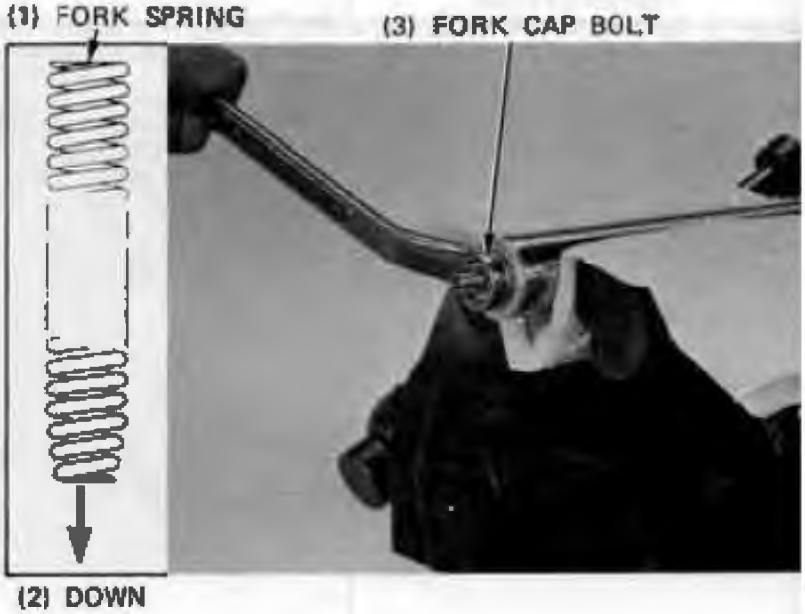
Tighten the fork cap bolt.

TORQUE: 15–30 N·m (1.5–3.0 kg-m, 11–22 ft-lb)

Install the fork boot and boot clamp.

NOTE

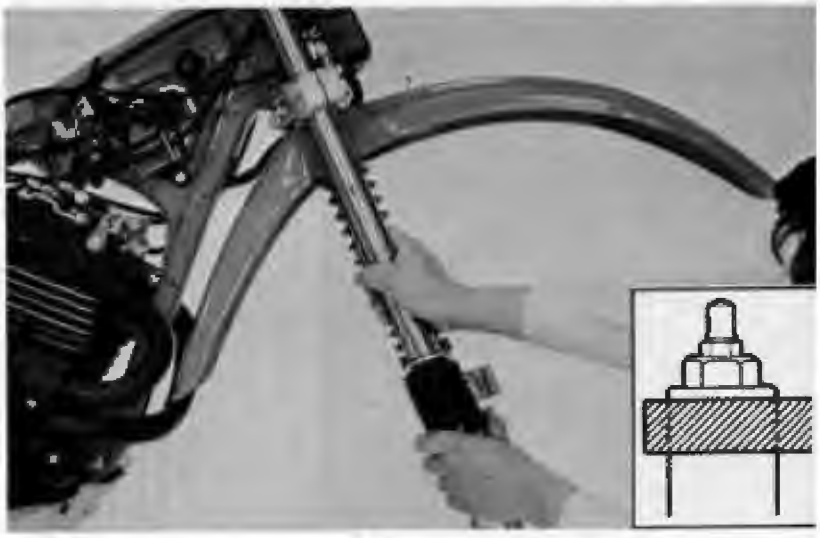
Do not tighten the clamps until the forks are properly installed on the vehicle.



Installation:

Install the fork tubes in the fork bridge and steering stem while rotating them by hand.

Align the top surface of fork tube with the top surface of the fork bridge.



(1) FORK PINCH BOLTS

Tighten the upper and lower fork pinch bolts.

TORQUE:

Upper : 18–23 N.m
(1.8–2.3 kg-m, 13–17 ft-lb)

Lower : 30–35 N.m
(3.0–3.5 kg-m, 22–25 ft-lb)

(1) FORK BOOT CLAMP

Bring the top of each fork boot into contact with the steering stem and tighten the clamp.

Install the speedometer cable in the clamps on the left fork slider.

Install the front wheel (Page 22-41).

Make sure all weight is off the front wheel, and charge the forks with air.

STANDARD PRESSURE: 0–20 kPa
(0–0.2 kg/cm², 0–2.8 psi)

CAUTION

Use a low-volume low-pressure pump to charge the forks with air.

(2) SPEEDOMETER CABLE CLAMP

• STEERING STEM

Disassembly:

Remove the instrument (Page 22-38).

Remove the front wheel (Page 22-39).

Remove the front fender.

Remove the horn bracket from the steering stem.

Remove the handlebar.

Loosen the upper fork pinch bolts.

(2) UPPER FORK PINCH BOLTS

Remove the stem nut and remove the for bridge.

Remove the front fork legs by loosening the lower fork pinch bolts.

(3) SOCKET WRENCH, 30 x 32 mm (07716-0020400)

Remove the steering stem adjuster nut.

NOTE

Hold the steering stem to prevent it from falling.

Remove the steering stem.
Remove the upper bearing.

(3) STEERING STEM

Check the bearings for operation and replace if necessary.

Check the bearing races for wear or damage and replace if necessary.

NOTE

Replace the bearings and races as a set.

(1) BEARING

(2) BEARING RACE

Remove the bearing race with a bearing race remover.

(1) BEARING RACE REMOVER (07953-MA00000)

Drive in the new races with a steering race driver.

NOTE

Drive the races in squarely until they seat.

(1) DRIVER (07749-0010000)

(2) ATTACHMENT (07746-0010300 or 07946-4300200)

To remove the lower bearing, remove the steering stem pipe pinch bolt.

Remove the lower bearing using a hydraulic press.

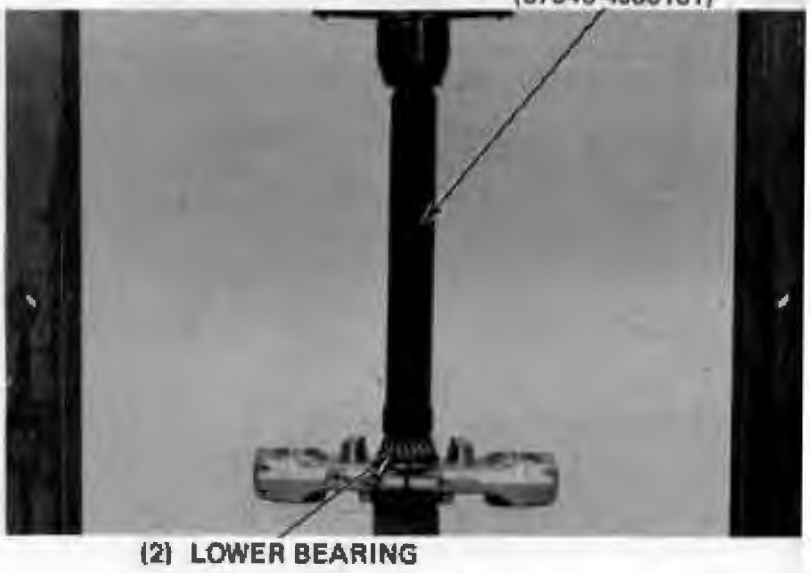
NOTE

Set the blocks near the center of the steering stem.

Install new dust seal.
Press the new bearing onto the stem pipe with a hydraulic press and steering stem driver.

Install and torque the steering stem pipe pinch bolt.

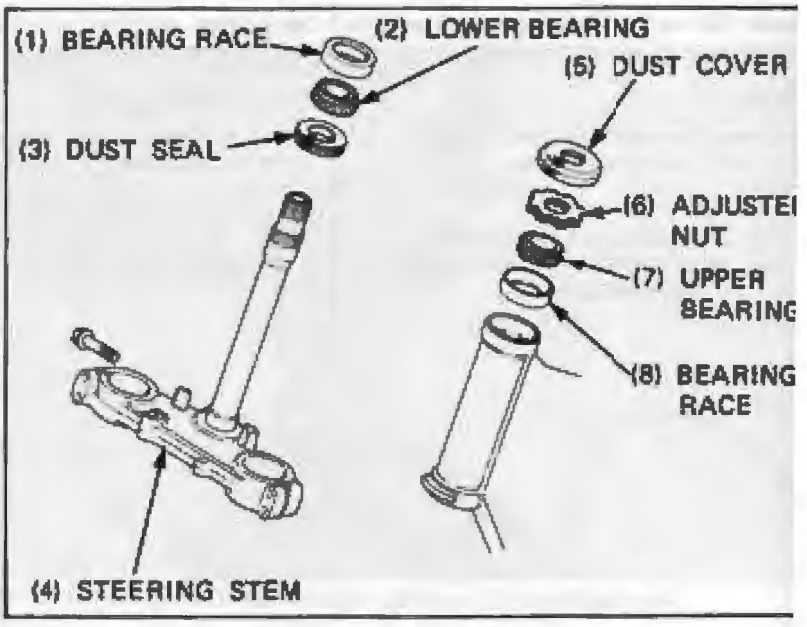
TORQUE: 40–50 N·m (4.0–5.0 kg-m, 29–36 ft-lb)



Installation:

Clean the races and apply grease to the bearings.

Slide the steering stem through the steering head from the bottom.



Remove the dust cover from the steering adjuster nut.

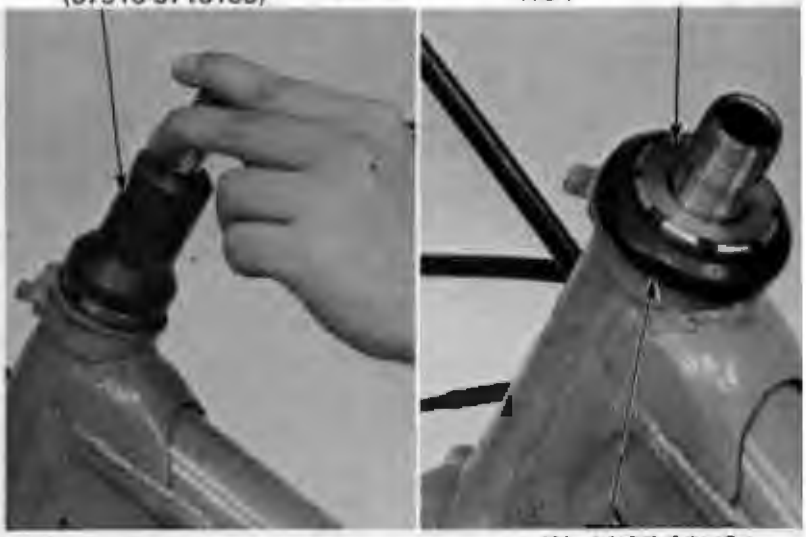
Tighten the steering adjuster nut until the stem rotates freely, but without play.

TORQUE: 1–2 N·m (0.1–0.2 kg-m, 0.7–1.5 ft-lb)

Reinstall the dust cover on the steering adjuster nut.

(1) STEERING STEM SOCKET (07916-3710100)

(2) STEERING ADJUSTER NUT



(3) DUST COVER

Temporarily hold the front fork legs by tightening the fork pinch bolts.

Install the fork bridge onto the front fork tubes and tirhgen the stem nut.

TORQUE: 80–120 N·m (8.0–12.0 kg-m, 58–87 ft-lb)

Loosen the ower pinch bolts. Then align the fork tube top surface with the upper edge of the fork bridge.

Tighten upper and lower fork pinch bolts.

TORQUE:

Upper : 16–23 N·m (1.6–2.3 kg-m, 13–17 ft-lb)

Lower : 30–35 N·m (3.0–3.5 kg-m, 22–25 ft-lb)

(1) EXTENSION (07716-0020500)

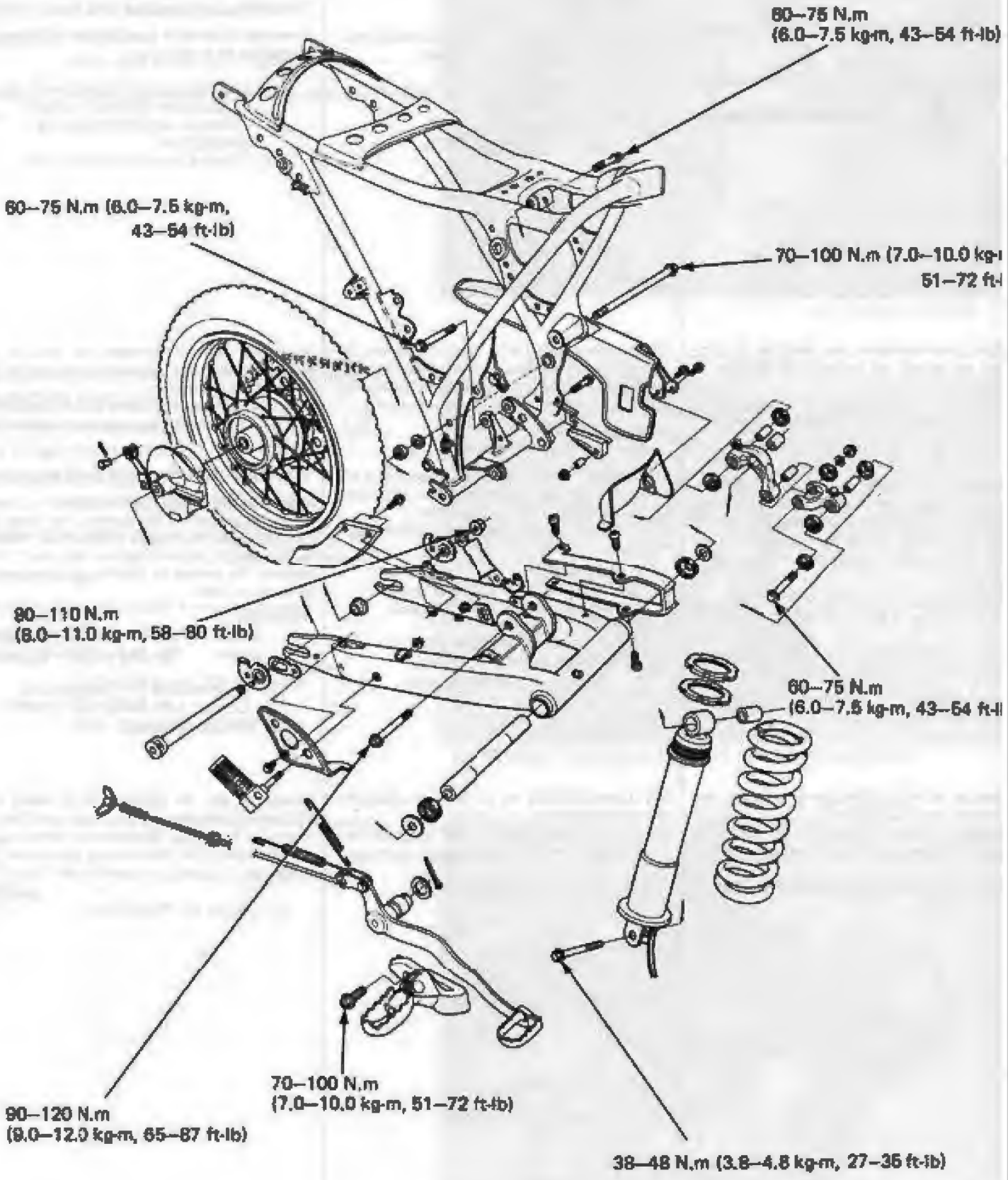
(2) SOCKET WRENCH, 30 x 32 mm (07716-0020400)

Install the plastic grommet in the steering stem nut.

Reinstall the remaining parts in reverse order of removal.

(1) PLASTIC GROMMET

REAR WHEEL/SUSPENSION



ROUE/FREIN/SUSPENSION ARRIERE

HINTERRAD/BREMSE/ AUFHÄNGUNG

RUEDA/FRENO/ SUSPENSION TRASERA

SERVICE INFORMATION

• GENERAL INSTRUCTIONS

WARNING

- ***Brake dust may contain asbestos which can be harmful to your health. Do not use compressed air to clean the brake drum or brake panel. Use a vacuum with a sealed dust collector. Wear a protective face mask and thoroughly wash your hands when finished.***
- ***Use only genuine rear suspension linkage and shock absorber pivot/mount bolts. Others may not have adequate strength. Note the installation direction of the bolts.***

• TOOLS

Special

Bearing remover set	07936–3710000	or	Handle 07936–3710100 Weight 07936–3710200 Remover, 23 mm 07936–3710600
Needle bearing driver	07946–KA50000		

Common

Retainer wrench body Retainer wrench attachment	07710–0010401 07710–0010201	or	Retainer wrench 07910–3600000
Attachment, 37 x 40 mm Pilot, 17 mm	07746–0010200 07746–0040400	or	Driver 07949–3000000 Attachment 07946–3000100
Attachment, 42 x 47 mm Pilot, 20 mm	07746–0010300 07746–0040500	or	
Driver	07749–0010000		

Optional

Pin spanner	89201–KA4–810
Pin spanner	89202–KA4–810

• SPECIFICATIONS

ITEM	STANDARD	SERVICE LIMIT
Rear shock absorber spring free length	251.0 mm (9.88 in)	248.5 mm (9.78 in)
Rear brake drum I.D.	130.0 mm (5.12 in)	131.0 mm (5.16 in)
Rear brake lining thickness	4 mm (0.16 in)	2 mm (0.08 in)
Rear shock absorber damper compression force	28–38 kg (62–84 lb)	28 kg (62 lb)
Swingarm pivot center collar O.D.	19.987 – 20.000 mm (0.7869 – 0.7874 in)	19.915 mm (0.7840 in)

• TORQUE VALUES

Rear shock absorber mount bolt	(upper)	60–75 N.m (6.0–7.5 kg-m, 43–54 ft-lb)
	(lower)	38–48 N.m (3.8–4.8 kg-m, 27–35 ft-lb)
Rear axle nut		80–110 N.m (8.0–11.0 kg-m, 58–80 ft-lb)
Swingarm pivot bolt		70–100 N.m (7.0–10.0 kg-m, 51–72 ft-lb)
Shock arm pivot bolt	(Swingarm side)	90–120 N.m (9.0–12.0 kg-m, 65–87 ft-lb)
	(Shock link side)	60–75 N.m (6.0–7.5 kg-m, 43–54 ft-lb)
Shock link pivot bolt		60–75 N.m (6.0–7.5 kg-m, 43–54 ft-lb)

TROUBLESHOOTING

Nobble or Vibration in Motorcycle

1. Tire pressure incorrect
2. Faulty tire
3. Bent rim
4. Loose wheel bearing
5. Loose or bent spokes
6. Swingarm Bushing worn
7. Chain adjusters not adjusted equally

Suspension Noise

1. Loose fasteners
2. Faulty rear damper
3. Worn suspension linkage pivot bushing

Soft Suspension

1. Weak spring
2. Improper rear suspension spring preload adjusting

Hard Suspension

1. Improper rear suspension pring preload adjusting
2. Bent shock absorber rod
3. Swingarm pivot bearings damaged.

Poor Brake Performance

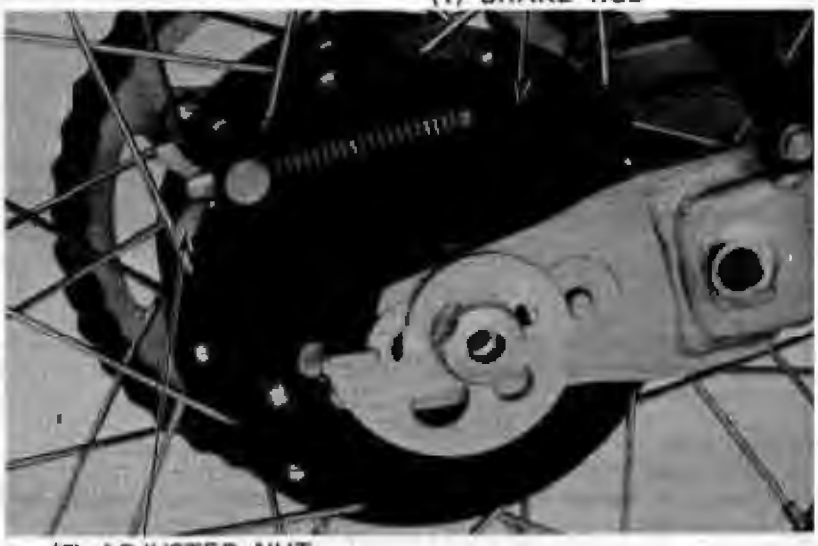
1. Improper brake adjustment
2. Worn brake shoes
3. Brake linings oily, greasy or dirty
4. Worn brake cam
5. Worn brake drum
6. Brake arm serrations improperly engaged
7. Brake shoes worn at cam contact area.

• REAR WHEEL

Removal:

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

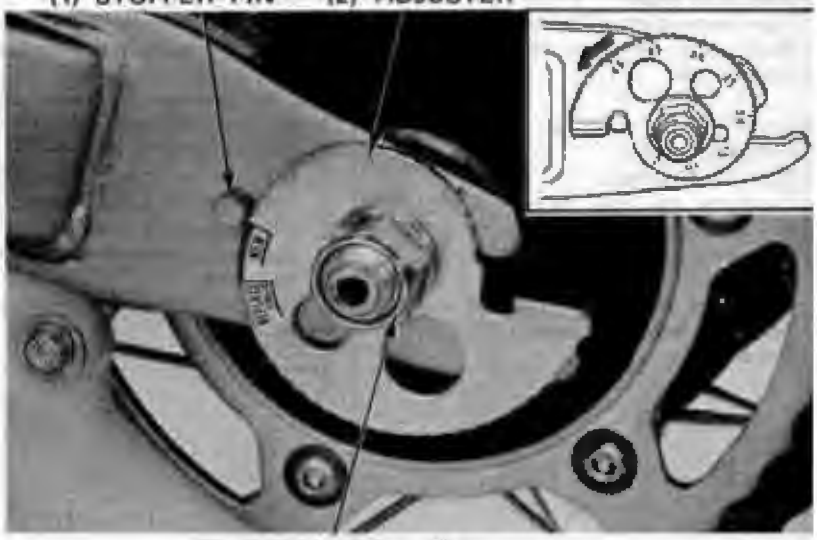
Remove the rear brake adjuster nut and disconnect the brake rod.



Loosen the rear axle nut.

Turn both adjusters so the rear wheel can be moved all the way forward for maximum drive chain slack.

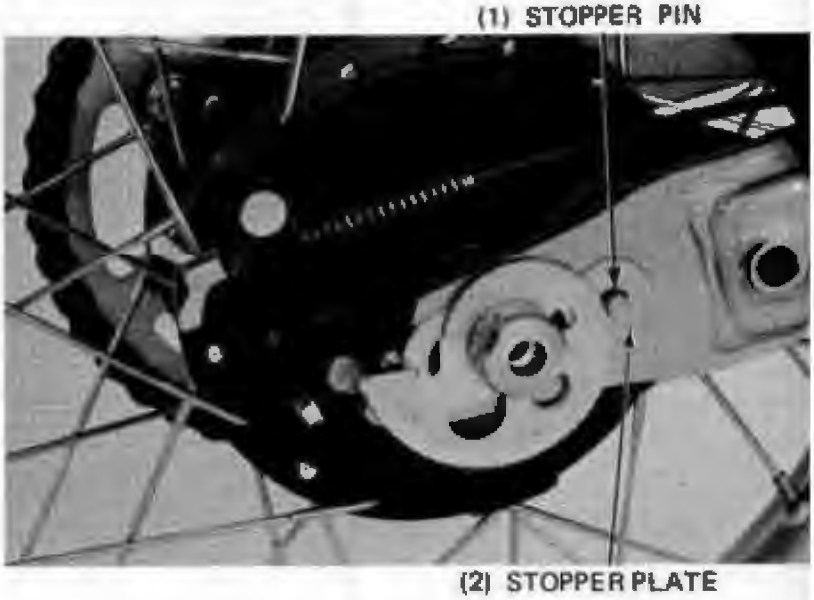
Move the rear wheel forward and "hook" the adjuster over the stopper pins on the swingarm.



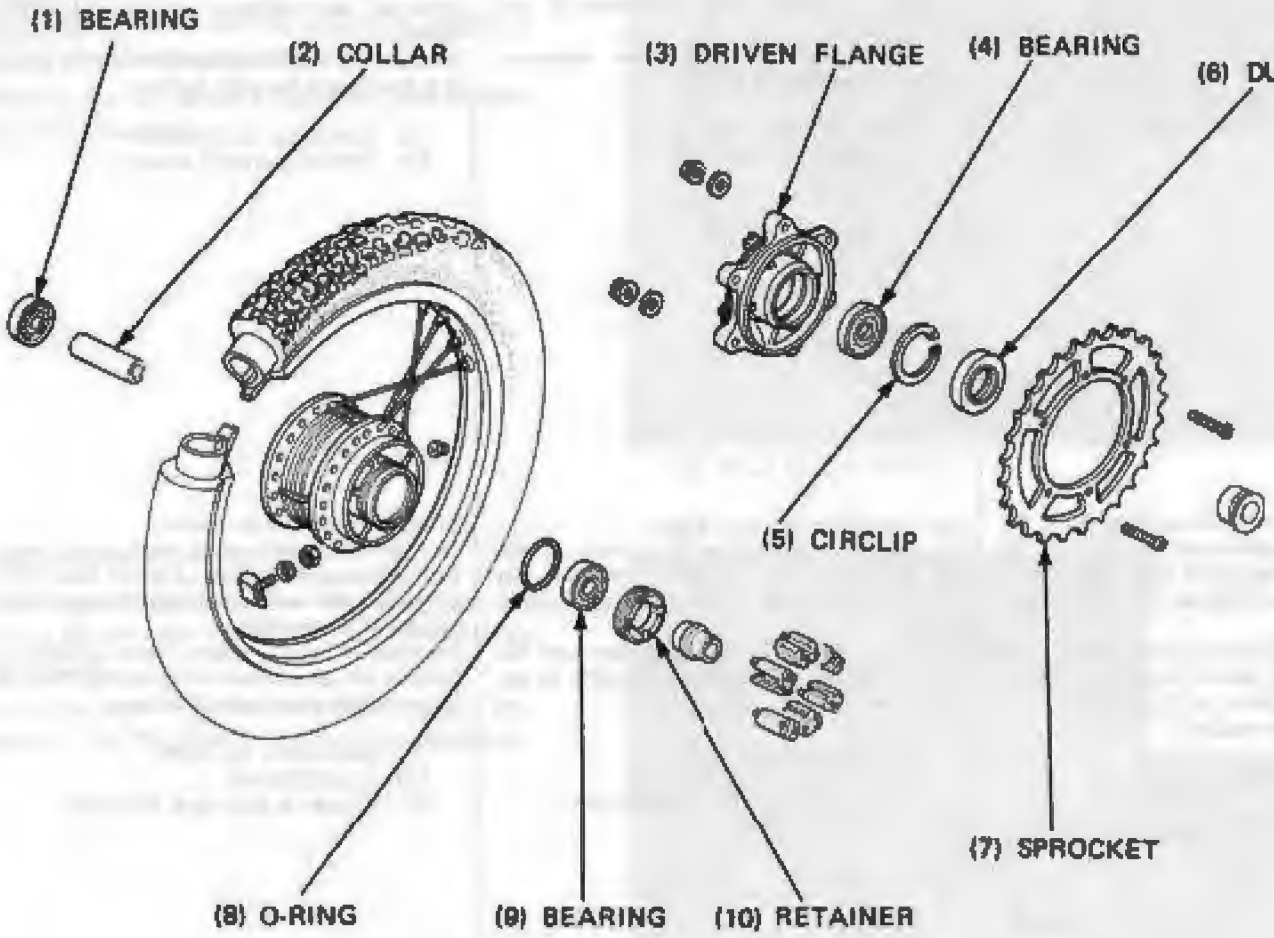
Derail the drive chain from the drive sprocket.

Remove the stopper plate from the pin on the swingarm's right side.

Remove the rear wheel with the rear axle.



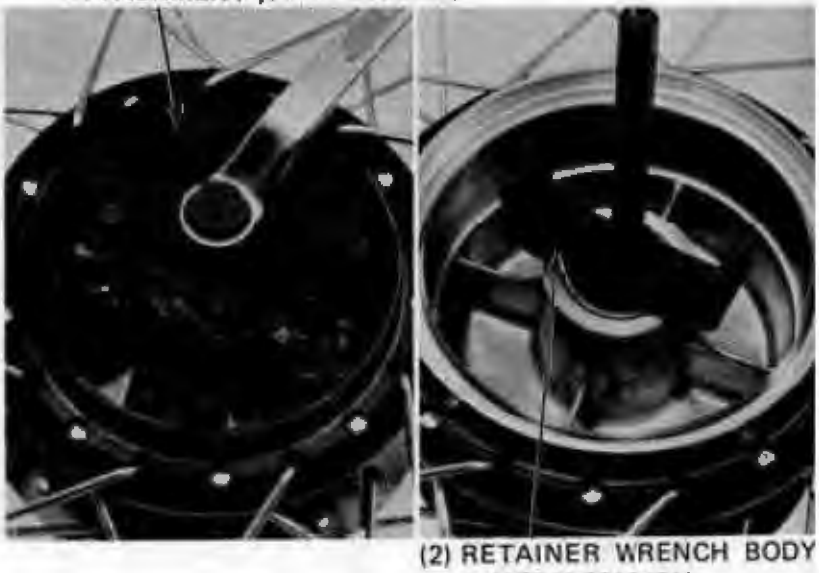
Disassembly:



Remove the bearing retainer.

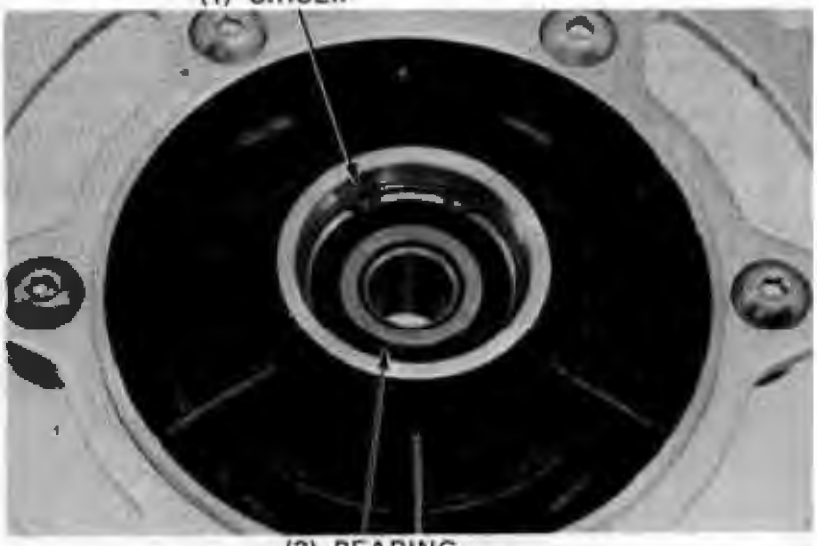
Remove the bearing and collar from the wheel hub.

(1) RETAINER WRENCH ATTACHMENT (07710-0010200)



(2) RETAINER WRENCH BODY (07710-0010401)

Remove the dust seal and circlip, then remove the bearing from the driven flange.



Assembly:

Pack the bearing cavity with grease.

Install the bearing with the sealed end facing out.

Install the circlip.
Grease the dust seal lip.
Drive the dust seal into the driven flange.

Pack the new bearing cativities with grease.

Drive the left bearing in the hub first, than install the distance collar and drive in the right bearing.

NOTE

Install both bearings with the sealed end facing out.

WARNING

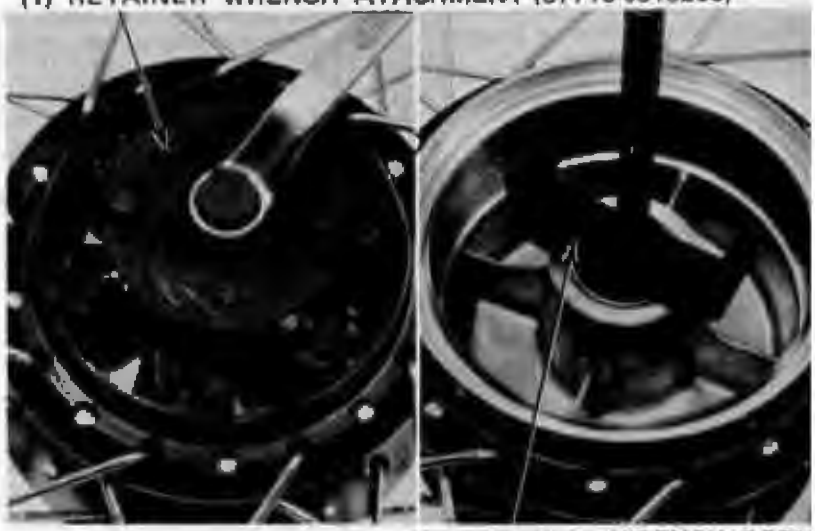
Grease on the brake linings reduces stopping power. Keep grease off the linings.

(1) DRIVER (07749-0010000)

(2) ATTACHMENT, 37 x 40 mm (07746-0010200) AND PILOT, 17 mm (07746-0040400)

Grease the bearing retainer and install it in the hub with the retainer wrench attachment and retainer wrench body.

(1) RETAINER WRENCH ATACHMENT (07710-0010200)



(2) RETAINER WRENCH BODY (07710-0010401)

Installation:

Place the rear wheel into the swingarm locating the tang on the swingarm into the slot on the brake panel.

Set the stopper plate to the pin on the swingarm.

(1) SLIT (2) TANG

(3) STOPPER PIN (4) STOPPER PLATE

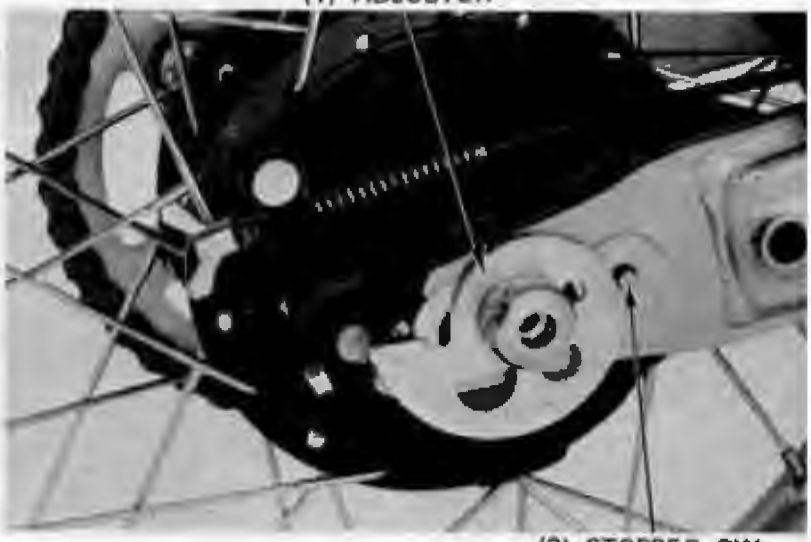
Run the chain over the final sprocket.

Turn the right and left chain adjuster plates and adjust the drive chain. (page 22-15).

CAUTION

The same index mark on both sides should align with pins on the swingarm.

(1) ADJUSTER



(2) STOPPER PIN

Tighten the axle nut.

TORQUE: 80–110 N·m
(8.0–11.0 kg-m, 58–80 ft-lb)

Connect the rear brake rod.
Adjust the rear brake pedal free play.

(1) AXLE NUT

(2) ADJUSTER NUT (3) BRAKE ROD

• REAR BRAKE

Measure the rear brake drum I.D.

SERVICE LIMIT: 131.0 mm (5.16 in)

Install the brake arm aligning the punch mark with the punch mark on the brake cam.

Torque the brake arm bolt.

TORQUE: 8–12 N·m (0.8–1.2 kg-m, 6–9 ft-lb)

Install the brake arm pin.

Place a new cotter pin through the brake arm pin and spread the ends.

(1) BRAKE ARM (2) PUNCH MARKS

(3) COTTER PIN (4) BRAKE ARM PIN

• SHOCK ABSORBER

Removal:

Raise the rear wheel off the ground by placing a jack or workstand under the engine.

Remove the right and left side covers.

Remove the mud guard and the seat.

(1) MUD GUARD

(2) BOLT

Remove the shock link pivot bolt.

(1) PIVOT BOLT

Loosen the shock arm pivot bolt (swing arm side).

Loosen the rear shock absorber lower mount bolt.

Lift up the rear wheel with a jack or block under the wheel, then remove the two bolts.

Remove the shock arm with the shock link.

(1) LOWER MOUNT BOLT

(2) PIVOT BOLT

Remove the rear shock absorber upper mount bolt and remove the shock absorber from behind.

NOTE

Hold the shock absorber to prevent it from falling.

WARNING

Do not swing the swingarm with no rear shock absorber installed. You may get hurt by the wheels or damage the swingarm.

(1) UPPER MOUNT BOLT

Disassembly:

Hold the upper mount of the shock absorber in a vise with soft jaws or shop towel.

Remove the lock nut and adjusting nut.

NOTE

The pin spanners are optional tools.

CAUTION

Do not try to disassembly the gas-filled damper.

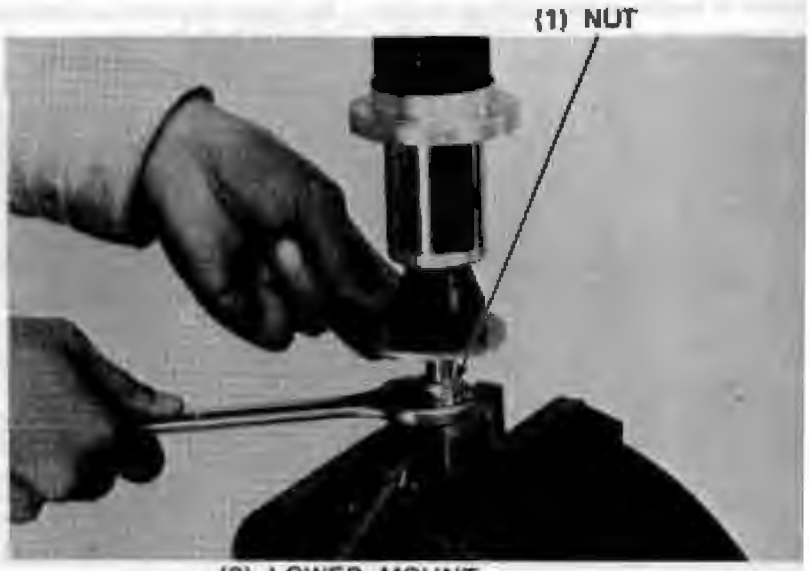
Remove the spring.

(1) PIN SPANNER A (89201-KA4-810)
PIN SPANNER B (89202-KA4-810)

Hold the lower mount of the shock absorber in a vise with soft jaws or shop towel.

Turn the lock nut and remove the lower mount.

Remove the dust seal, spring guide, spring seat and spring seat stopper.

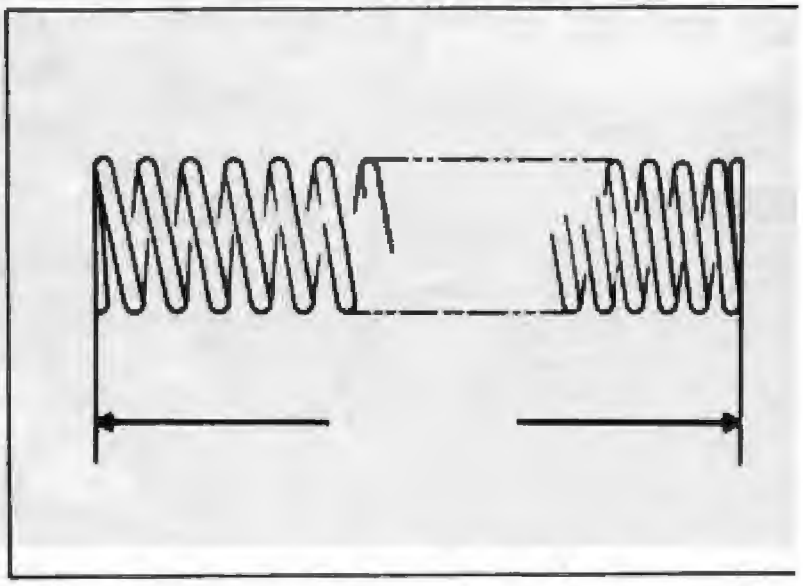


(2) LOWER MOUNT

Inspection:

Measure the rear shock absorber spring length.

SERVICE LIMIT: 248.5 mm (9.78 in)



Visually inspect the damper unit for dents, oil leaks or other faults.

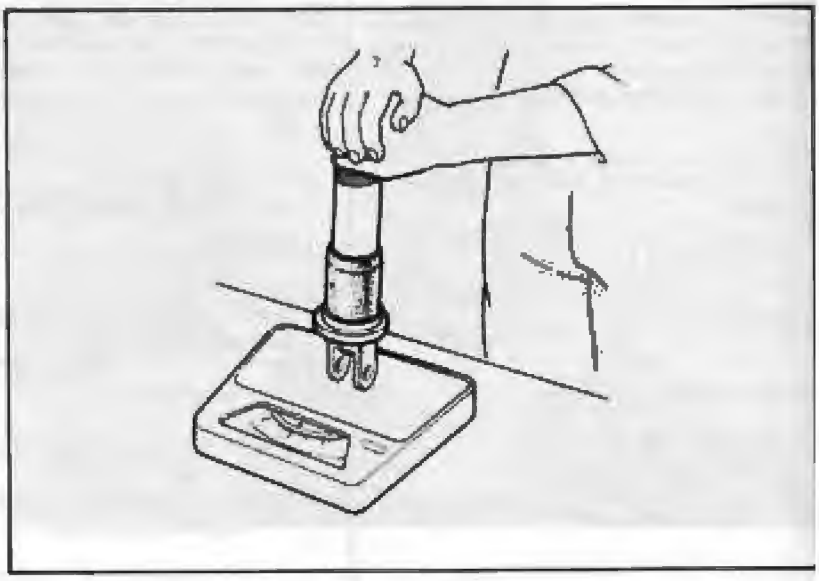
Replace the damper unit if necessary.

Place the damper rod on a scale and measure the force required to compress the damper unit 10mm (0.4 in).

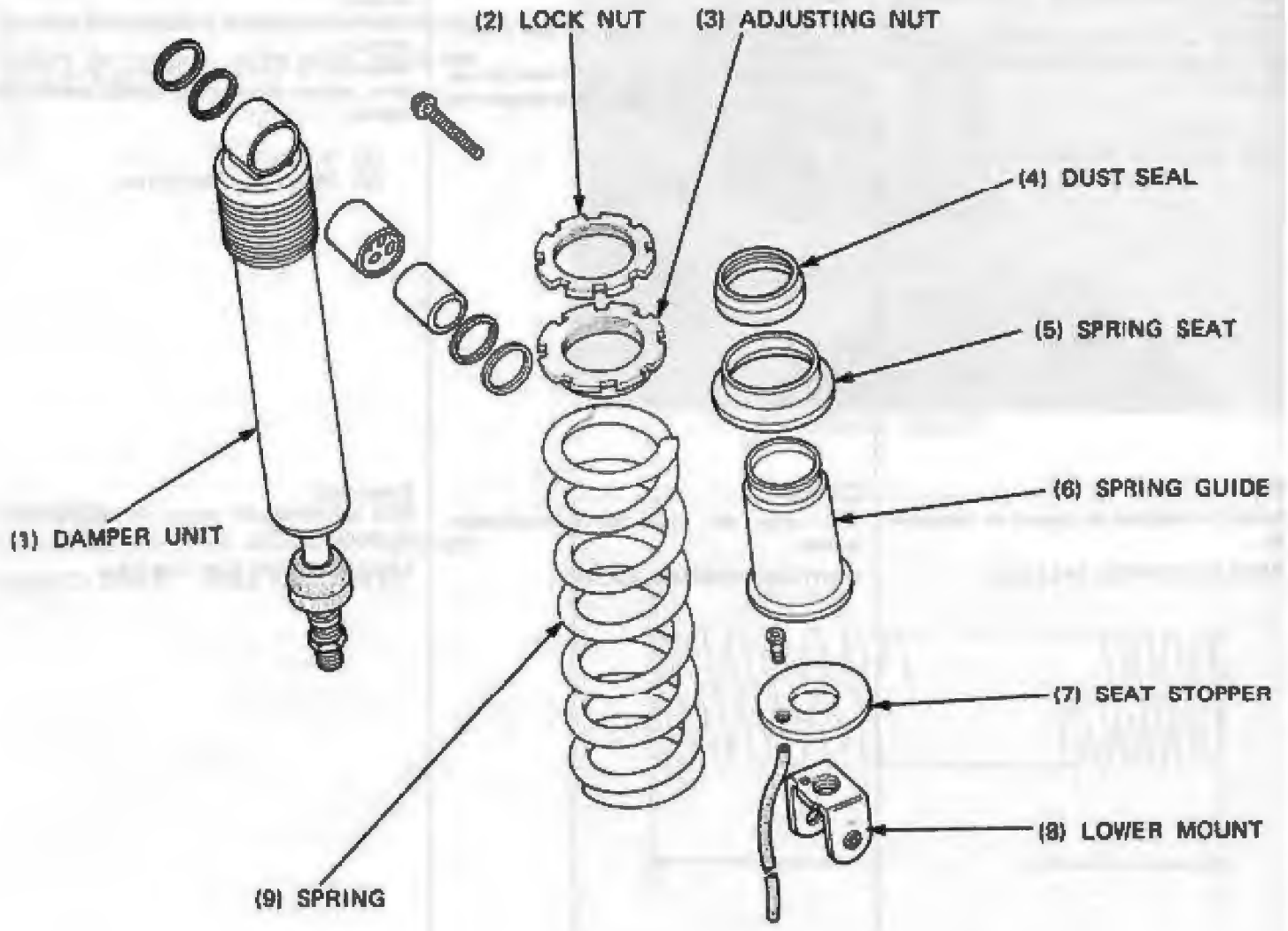
COMPRESSION FORCE: 28–38 kg (62–84 lb)

If the required is less than 28 kg (62 lb), gas is leaking.

Examine the damper rod and replace the damper unit if bent or scored.



Assembly:



Install the dust seal and other parts.

Apply a locking agent to the lower mount threads.

Align the pin of spring seat stopper with the lower mount cut out and torque the nut.

TORQUE: 60–75 N·m (6.0–7.5 kg-m, 45–54 ft-lb)

Measure the springs length.

Turn the adjusting nut to obtain the standard spring length.

STANDARD SPRING LENGTH: 241 mm (9.49 in)

Tighten the lock nut.

CAUTION

Do not ride the motorcycle without the spring having preload. Loss of rider control could result.

Installation:

Apply molybdenum disulfied (MoS_2) paste (containing more than 45% of MoS_2) to the upper mount bushings.

NOTE

Use MoS_2 paste (containing more than 45% of MoS_2) as follows:
- Molykote® G-n Paste manufactured by Dow Corning U.S.A.
- Locol Paste manufactured by Sumico Lubricant Co., LTD. Japan.
- Other lubricants of equivalent quality.

Attach the shock absorber to the frame and torque the upper mount bolt.

TORQUE: 60–75 N·m (6.0–7.5 kg-m, 43–54 ft-lb)

Lubricate the shock arm and shock link pivots with the MoS_2 paste (containing more than 45% of MoS_2).

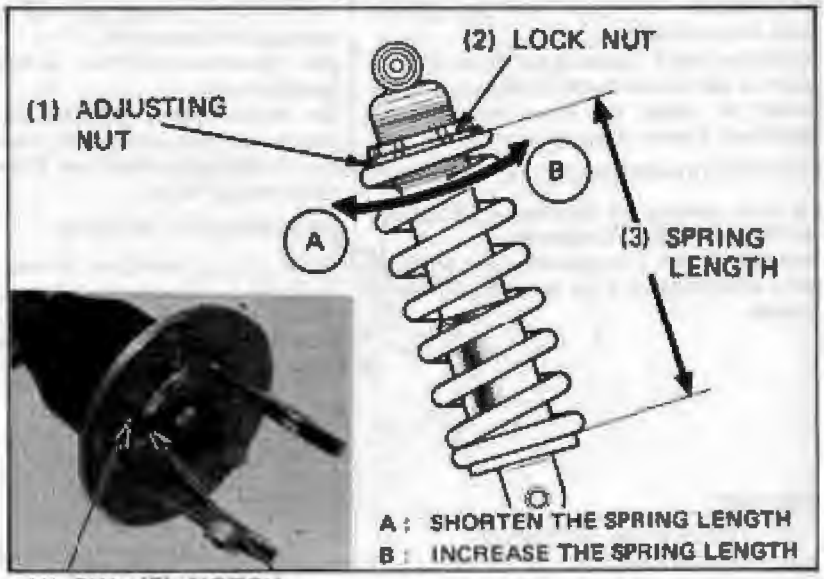
Place the shock arm with the shock link into the swingarm.

Install the shock absorber lower mount bolt and torque the bolt.

TORQUE: 38–48 N·m (3.8–4.8 kg-m, 27–35 ft-lb)

Install the shock link pivot bolt (swingarm side). Torque the bolt.

TORQUE: 90–120 N·m (9.0–12.0 kg-m, 65–87 ft-lb)



(4) PIN (5) NOTCH

(1) UPPER MOUNT BOLT

(1) PIVOT BOLT

(2) LOWER MOUNT BOLT

Attach the shock link to the frame and torque the pivot bolt.

TORQUE: 60–75 N·m (6.0–7.5 kg-m, 43–54 ft-lb)

Install the mud guard.

Install the right and left side covers.

Install the seat.

Check the operation of the rear suspension.

(1) PIVOT BOLT

• SWINGARM

Removal:

Raise the rear wheel off the ground with a jack or block under the engine.

Remove the right and left side covers.

Remove the rear wheel (page 22-61).

Remove the shock link pivot bolt.

(1) PIVOT BOLT

Remove the mud guard.

Remove the chain case.

Remove the rear brake return spring.

Remove the rear shock absorber lower mount bolt.

(1) CHAIN CASE (2) LOWER MOUNT BOLT

(3) RETURN SPRING

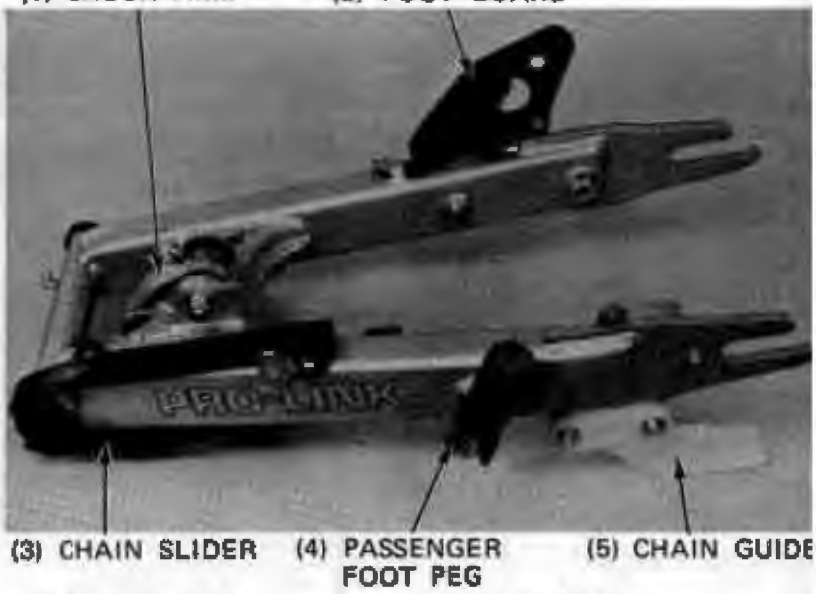
Loosen the 12mm engine mount bolt.

Remove the swingarm by removing the pivot bolt.

Disassembly:

Remove the shock arm from the swingarm.

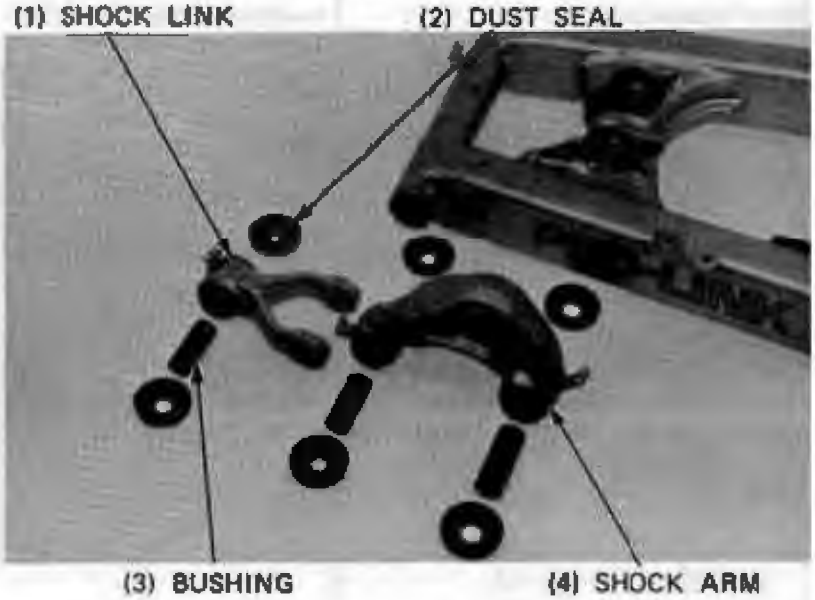
Remove the chain slider, chain guide, passenger foot peg and foot guard.



Disassemble the shock arm from the shock link. Inspect the shock arm and shock link components for damage or excessive or abnormal wear; replace if necessary.

Lubricate the parts shown with molybdenum disulfied (MoS_2) paste (See page 22-70).

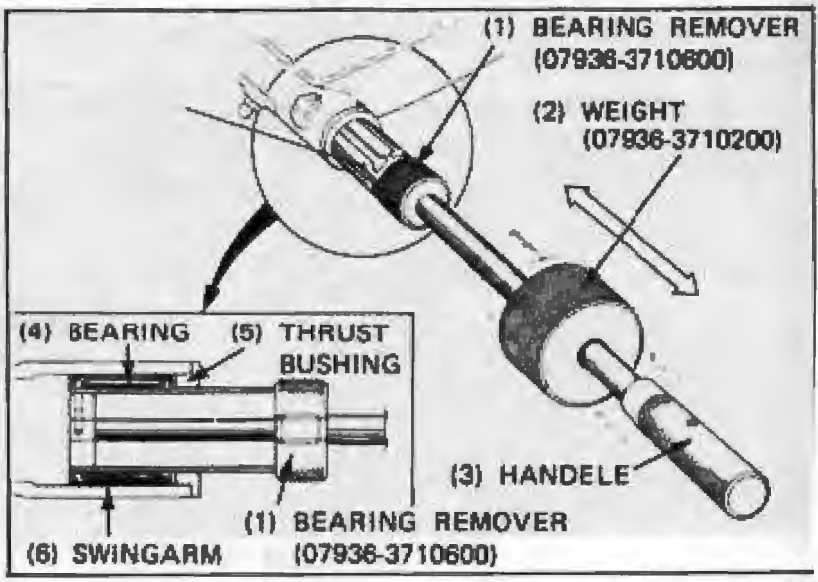
Remove the dust seals from the swingarm pivot holes. Inspect the bearings and thrust bearings for damage or excessive or abnormal wear and replace them if necessary (page 22-73).



Remove the dust covers.

Install the bearing remover into the swingarm pivot hole and expand the tool behind the bearing.

Drive the bearings out with the bearing remover.



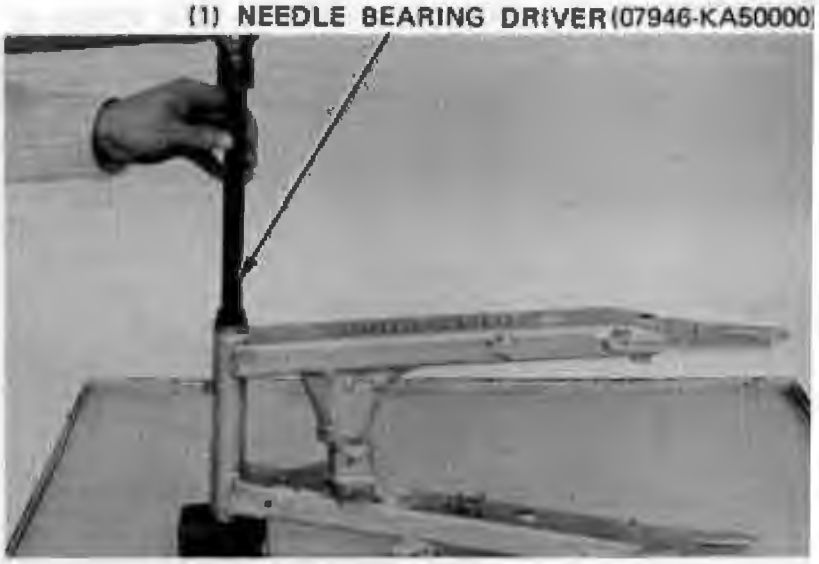
Assembly:

Clean the bearings, the lubricate them with grease.

Carefully drive the new bearings and thrust bushings into the swingarm pivot.

NOTE

Install the bearings with the marks facing out.



Connect the shock link to the shock arm and torque the pivot bolt.

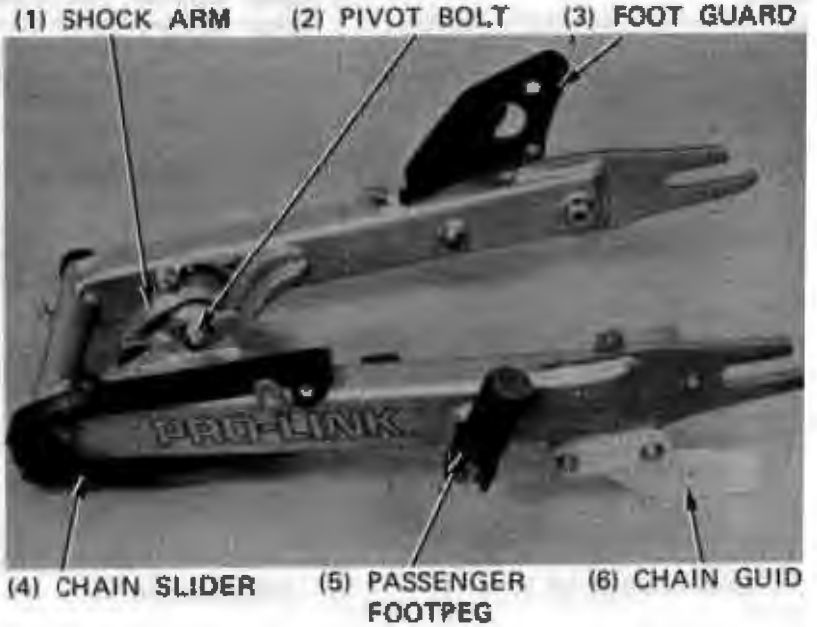
TORQUE: 60–75 N·m (6.0–7.5 kg-m, 43–54 ft-lb)

Install the shock arm/link to the swingarm and torque the pivot bolt.

TORQUE: 90–120 N·m (9.0–12.0 kg-m, 65–87 ft-lb)

Install the chain slider, chain guide passenger footpegs and foot guard.

Apply grease to the inside of the pivot dust seal.



Installation:

Install the swingarm and torque the pivot bolt.

TORQUE: 70–100 N·m (7.0–10.0 kg-m, 51–72 ft-lb)

Torque the 12mm engine mount bolt.

TORQUE: 90–100 N·m (9.0–10.0 kg-m, 65–72 ft-lb)

Check the swingarm operation.

Attach the shock absorber lower mount on the shock arm and torque the mount bolt.

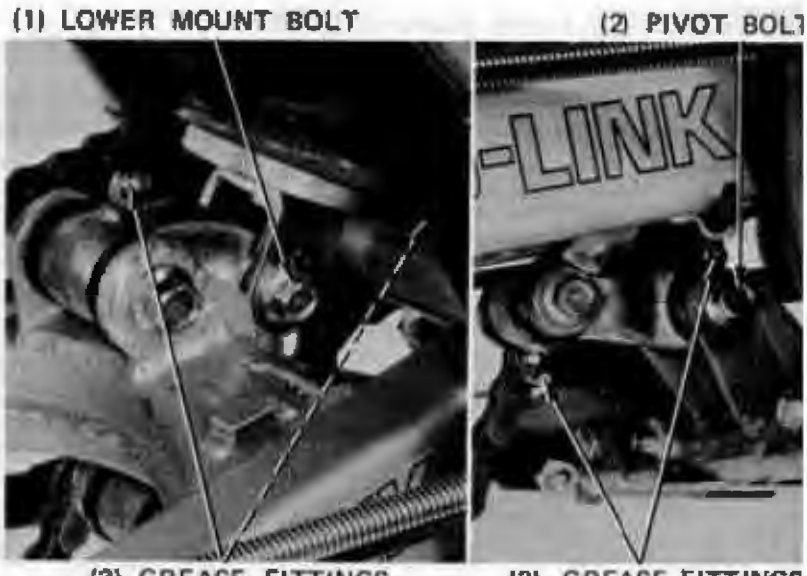
TORQUE: 38–48 N·m (3.8–4.8 kg-m, 27–35 ft-lb)

Install the shock link to the frame and torque the pivot bolt.

TORQUE: 60–75 N·m (6.0–7.5 kg-m, 43–54 ft-lb)

After installation, grease the swingarm pivot through the grease fitting.

Grease the linkage bushings through the grease fittings with the molybdenum disulfide (MoS_2) paste (See page 22-70).



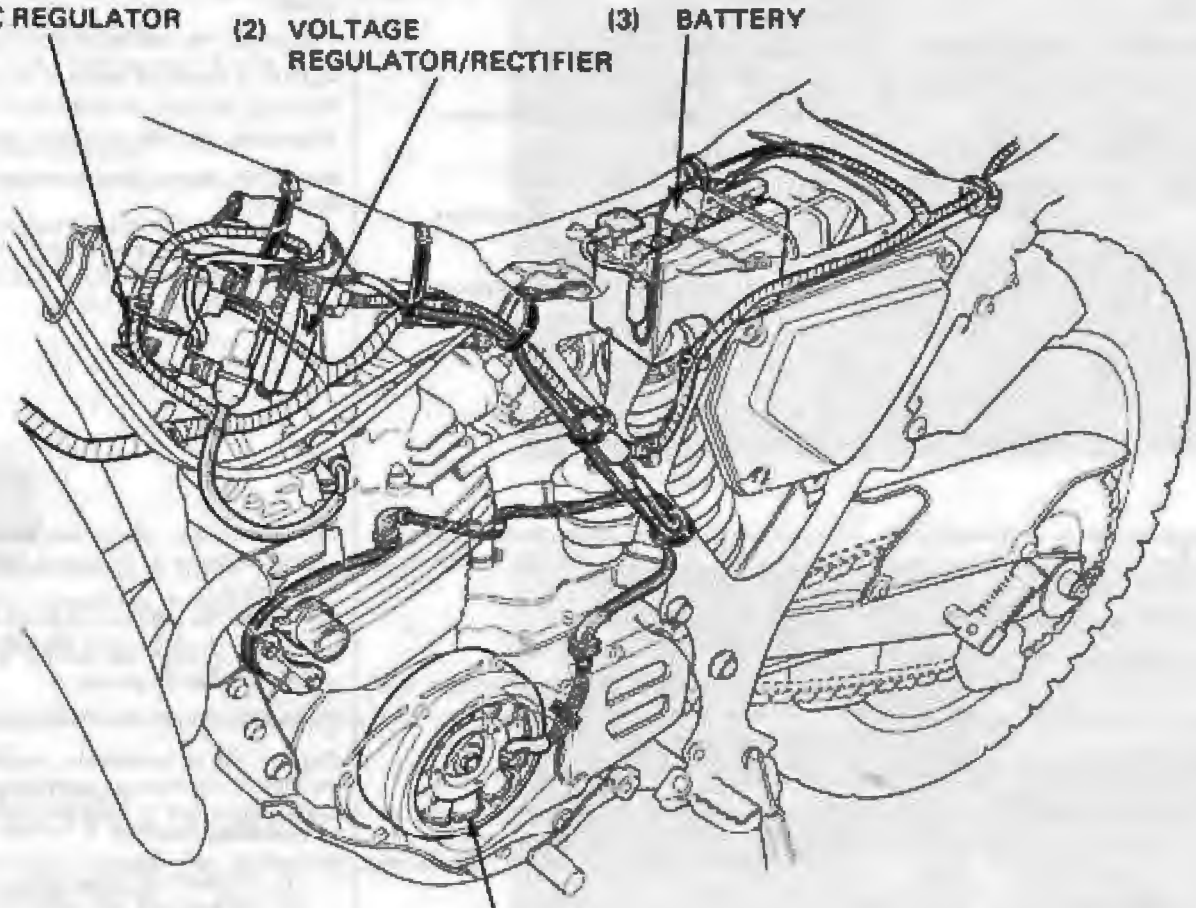
Install the chain case, and mud guard.

Install the rear wheel (page 22-65).

Install the rear brake return spring and rear brake rod.

Check the operation of the rear suspension.

BATTERY/CHARGING SYSTEM



BATTERIE/CIRCUIT DE CHARGE

(1) REGULATEUR DE COURANT ALTERNATIF
(2) REGULATEUR/REDRESSEUR DE TENSION
(3) BATTERIE
(4) ALTERNATEUR

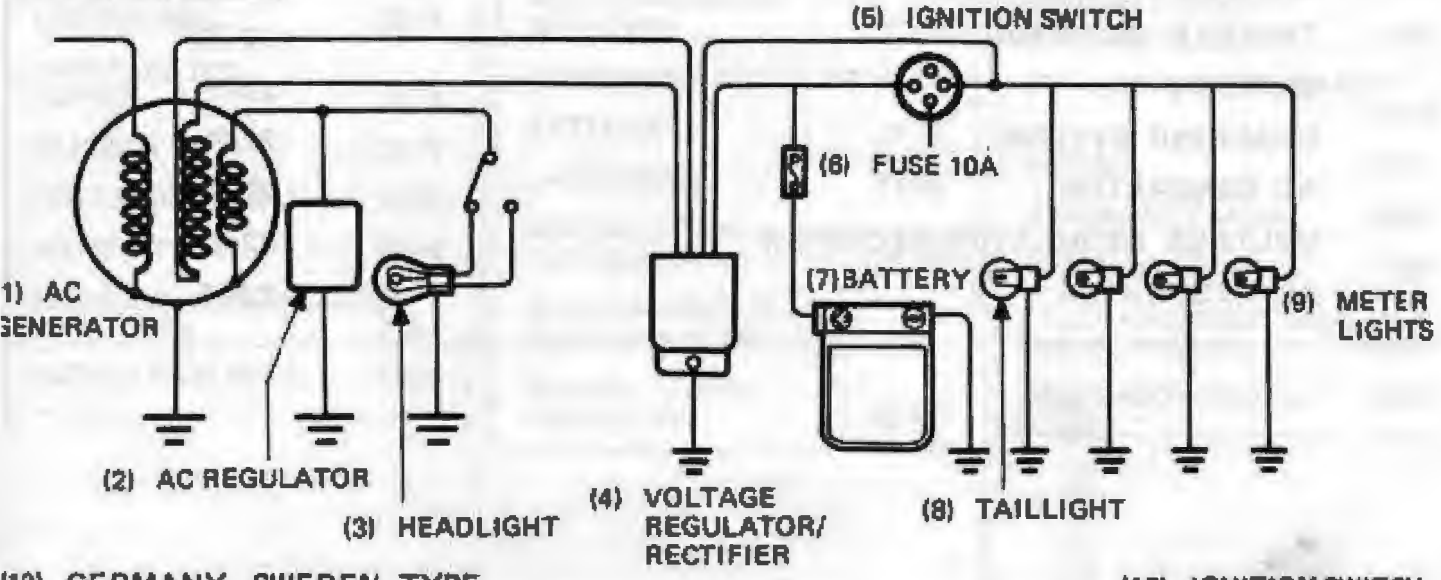
BATTERIE/LADESYSTEM

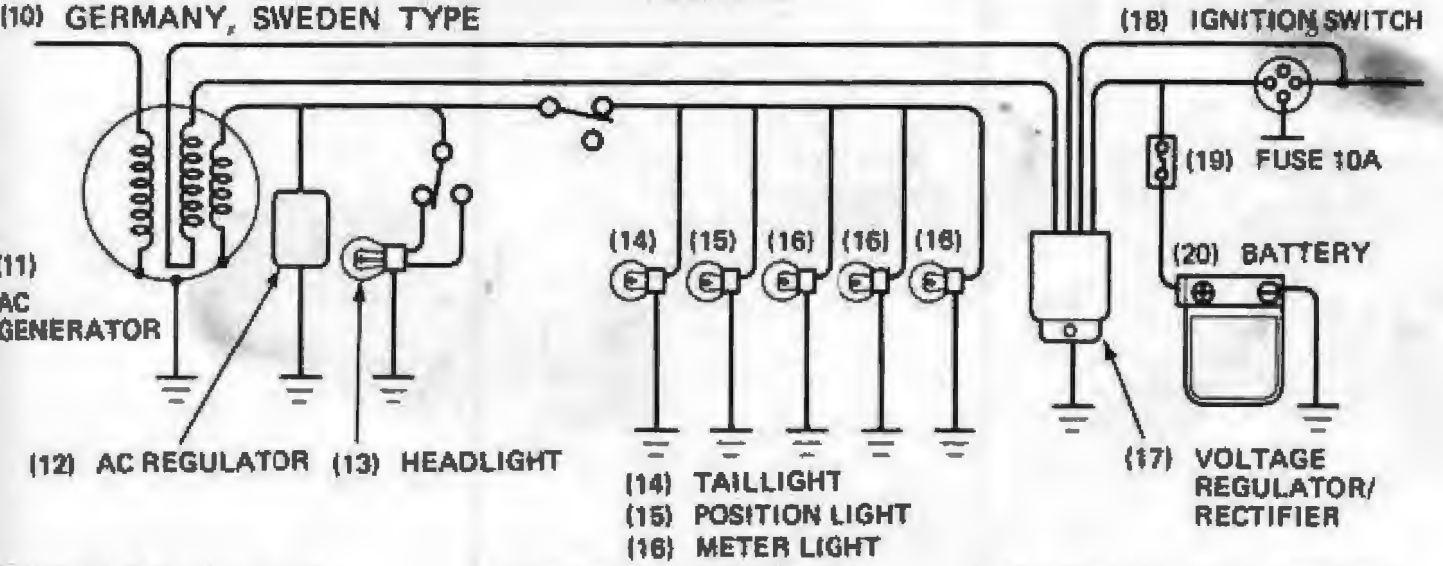
(1) WECHSELSTROMREGULATOR
(2) SPANNUNGSREGULATOR/ GLEICHRICHTER
(3) BATTERIE
(4) WECHSELSTROMLICHTMA-SCHINE

BATERIA/SISTEMA DE CARGA

(1) REGULADOR DE C.A.
(2) REGULADOR/RECTIFICADOR DE TENSION
(3) BATERIA
(4) ALTERNADOR

SYSTEM DIAGRAM





SCHEMA DE CABLAGE

(1) ALTERNATEUR
(2) REGULATEUR DE C.A.
(3) PHARE
(4) REGULATEUR/REDRESSEUR DE TENSION
(5) CONTACTEUR D'ALLUMAGE
(6) FUSIBLE 10A
(7) BATTERIE
(8) FEU ARRIERE
(9) ECLAIRAGE DE COMPTEURS
(10) (TYPE POUR ALLEMAGNE ET POUR SUEDE)
(11) ALTERNATEUR
(12) REGULATEUR DE C.A.
(13) PHARE
(14) FEU ARRIERE
(15) FEU DE POSITION
(16) ECLAIRAGE DE COMPTEURS
(17) REGULATEUR/REDRESSEUR DE TENSION
(18) CONTACTEUR D'ALLUMAGE
(19) FUSIBLE 10A
(20) BATTERIE

SYSTEMSCHALTPLAN

(1) WECHSELSTROMLICHTMASCHINE
(2) WECHSELSTROMREGULATOR
(3) SCHEINWERFER
(4) SPANNUNGSREGULATOR-GLEICHRICHTER
(5) ZÜNDSCHALTER
(6) SICHERUNG 10A
(7) BATTERIE
(8) RÜCKLICHT
(9) INSTRUMENTENBELEUCHTUNGEN
(10) (DEUTSCHER, SCHWEDISCHER TYP)
(11) WECHSELSTROMLICHTMASCHINE
(12) WECHSELSTROMREGULATOR
(13) SCHEINWERFER
(14) RÜCKLICHT
(15) SEITENLICHT
(16) INSTRUMENTENBELEUCHTUNGEN
(17) SPANNUNGSREGULATOR-GLEICHRICHTER
(18) ZÜNDSCHALTER
(19) SICHERUNG 10A
(20) BATTERIE

DIAGRAMA DEL SISTEMA

(1) ALTERNADOR
(2) REGULADOR DE C.A.
(3) FARO
(4) REGULADOR/RECTIFICADOR DE TENSION
(5) INTERRUPTOR DE ENCENDIDO
(6) FUSIBLE 10A
(7) BATERIA
(8) LUZ DE COLA
(9) ALUMBRADO DE MEDIDORES
(10) (MODELOS PARA ALEMANIA Y SUECIA)
(11) ALTERNADOR
(12) REGULADOR DE C.A
(13) FARO
(14) LUZ DE COLA
(15) LUZ DE POSICION
(16) ALUMBRADOR DE MEDIDORES
(17) REGULADOR/RECTIFICADOR DE TENSION
(18) INTERRUPTOR DE ENCENDIDO
(19) FUSIBLE 10A
(20) BATERIA

SERVICE INFORMATION

• SPECIFICATIONS

AC generator		
Charging start	: 1,200 min^{-1} (rpm)	
Charging output	: 16.8V/2.4A minimum at 2,500 min^{-1} (rpm) 18.4V/5.5A maximum at 8,000 min^{-1} (rpm)	At disconnect the regulato circuit in voltage regulator rectifier.
Lighting output	: 13V minimum at 2,500 min^{-1} (rpm) 23V maximum at 8,000 min^{-1} (rpm)	At disconnect the AC regulator
Battery capacity	: 12V–3AH	
Fuse	: 10A	
Voltage regulator/rectifier	: Transistorized non-adjustable type	
Battery charting rate	: 0.3A maximum	

TROUBLESHOOTING

No Power – Key Turned On:
1. Dead battery
   – Battery not charged
   – Battery electrolyte evaporated
   – Charging system failure
2. Disconnected battery cable
3. Main fuse burned out
4. Faulty ignition switch

Low Power – Key Turned On:
1. Weak battery
   – Low battery electrolyte level
   – Battery run down
   – Charging system failure
2. Loose battery connection

Low Power – Engine Running:
1. Battery undercharged
   – Low battery electrolyte level
   – One or more dead cells
2. Charging system failure

Intermittent Power:
1. Loose battery connection
2. Loose charing system connection
3. Loose connection or short circuit in ignition system
4. Loose connection or short circuit in lighting system

Charging System Failure:
1. Loose, broken, or shorted wire or connection
2. Faulty voltage regulator/rectifier
3. Faulty AC generator

Headlight burned out
1. Faulty AC regulator

• BATTERY

Removal:

Remove the right side cover.

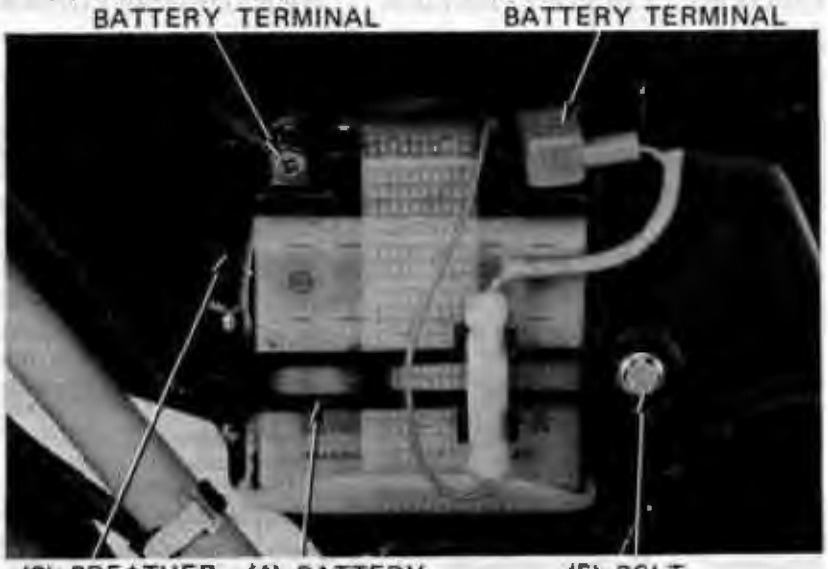
Disconnect the wires from the battery terminals.

NOTE

Remove the negative cable wire first, then remove the positive cable.

Disconnect the breather tube from the battery.

Remove the bolt and open the battery holder. Remove the battery.



• SPECIFIC GRAVITY TEST

Refer to page 16-3 for battery specific gravity test.

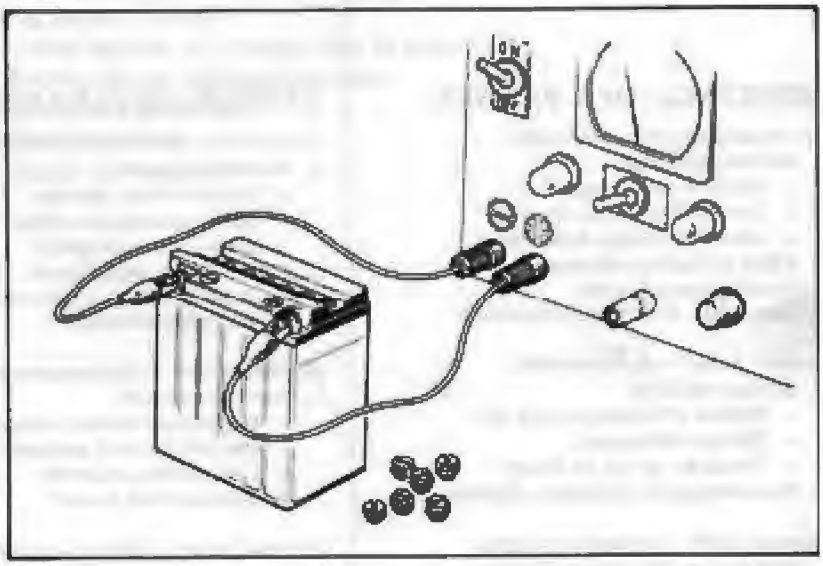
SPECIFIC GRAVITY (20°C/68°F)

1.26 – 1.28	Full charge
1.22 or below	Undercharge

MAXIMUM CHARGING CURRENT:
0.3 amperes.

NOTE

The XL400R and XL500R has a 12V battery. Be sure the charger is set at the 12V range.

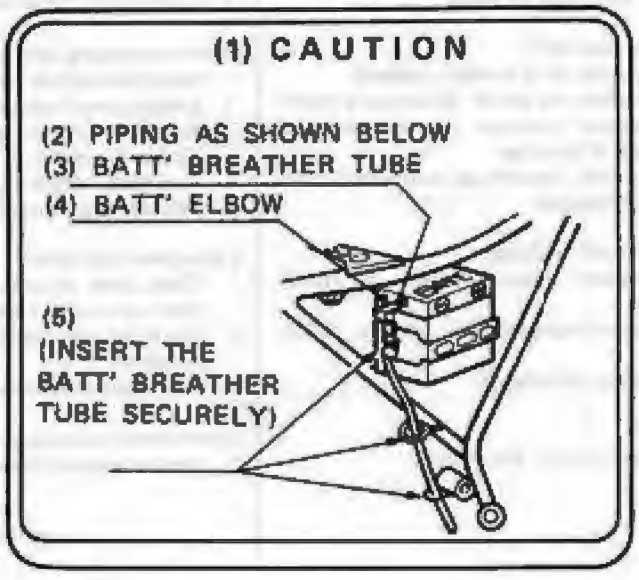


Installation is the reverse of removal.

When installing the battery, be sure to connect the breather tube.

CAUTION

Be sure the breather tube is routed as shown on the battery caution label.



• CHARGING SYSTEM

NOTE

Use a fully charged battery to check the charging system output.

Warm up the engine for 10 minutes at 5,000 min^{-1} (rpm) before taking reading. Disconnect the black wire from the regulator/rectifier coupler.

NOTE

The terminal is a critical part. Be careful not to damage it.

(1) VOLTAGE REGURATOR/ RECTIFIER COUPLER

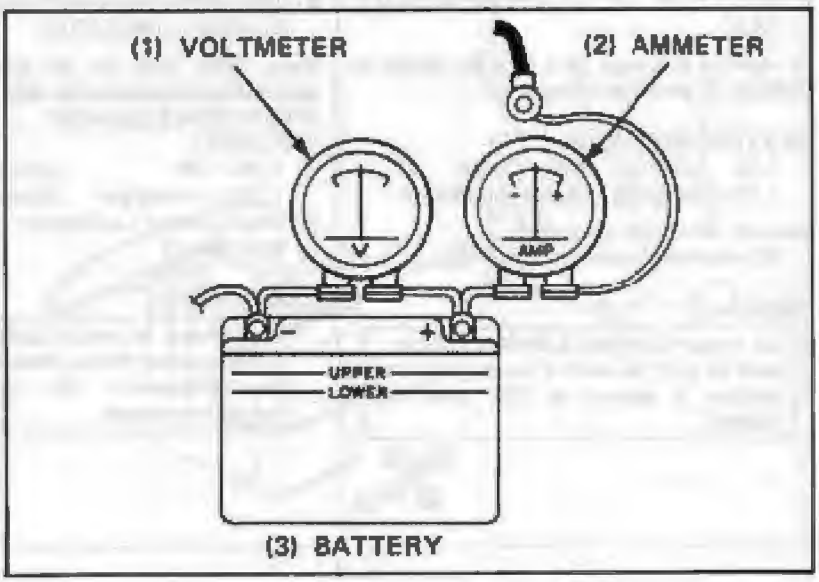
(2) VOLTAGE REGURATOR/ RECTIFIER

Connect a voltmeter and an ammeter to check charging system output.

Start the engine and check the meter readings while increasing engine speed slowly.

NOTE

Connect the regulator/rectifier wire as before.



• TECHNICAL DATA

Charging	begins at 1,200 min^{-1} (rpm)
2,500 min^{-1} (rpm)	16.8V/2.4A min.
8,000 min^{-1} (rpm)	18.4V/5.5A max.

If there is no charging current, check each charging circuit connection for looseness.

If the connections are good, check the alternator charging coil for continuity.

• AC GENERATOR

NOTE

It is not necessary to remove the stator to make this test.

CHARGING COIL:

The charging coil is correct if there is continuity between the pink wire and yellow wire.

SPECIFIED RESISTANCE:

0.2–1Ω

LAMP COIL:

The lamp coil is correct if there is continuity between the white/yellow wire and ground.

SPECIFIED RESISTANCE:

0.2–1Ω

If there is no continuity, it indicates coil open circuit and the stator coil should be replaced with a new one (page 22-33).

(1) AC GENERATOR WIRE COUPLER

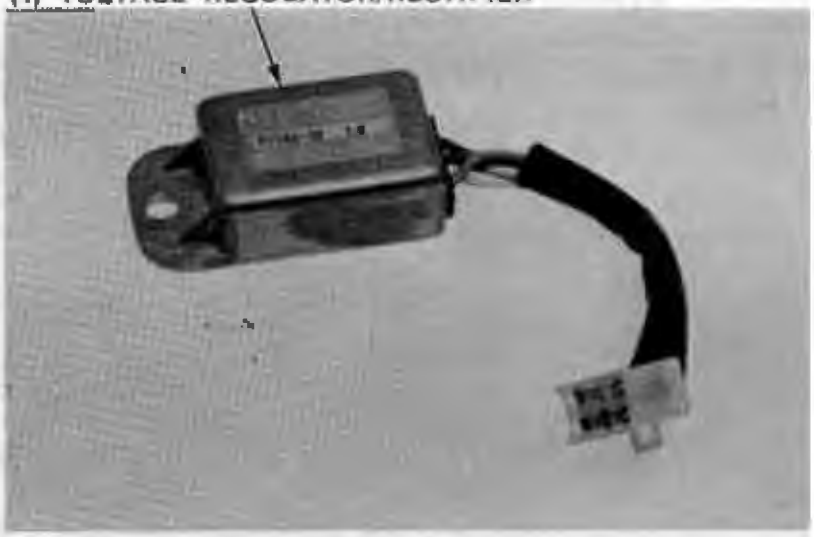
• VOLTAGE REGULATOR/ RECTIFIER

Check the resistances between the leads with an ohmmeter.

NOTE

- Use SANWA ELECTRICAL TESTER P/N 07308-0020000 or KOWA ELECTRICAL TESTER (TH-5H).
- SANWA and KOWA TESTERS have different measurements as shown.
- Make sure the tester contains new batteries, perform the zero adjustment in the measuring range for accurate readings.

(1) VOLTAGE REGULATOR/RECTIFIER



Tester range: SANWA x kΩ / KOWA x 100Ω

⊖ Probe \ ⊕ Probe	Yellow	Pink	Green	Red	Black
Yellow		∞	∞	1–20	∞
Pink	∞		∞	1–20	∞
Green	1–20	1–20		3–100	0.2–20
Red	∞	∞	∞		∞
Black	1–50	1–50	0.2–10	3–100	

• AC REGULATOR

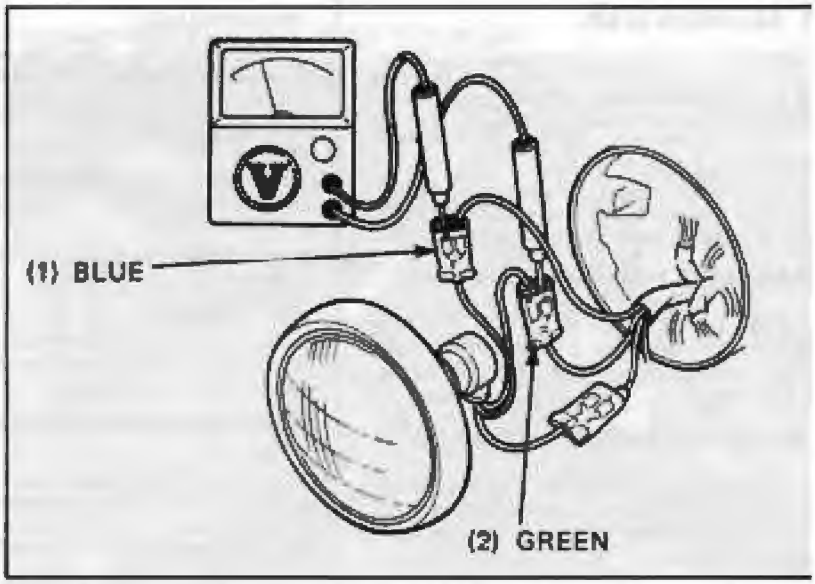
AC regurator test:

Remove the headlight and connect voltmeter as shown.

Select the dimmer switch to "Hi" position.

Start the engine and check the meter readings while increasing engine speed slowly.

SPECIFIC VOLTAGE: 13.5–14.5V at 5,000 min^{-1} (rpm)



(1) A C REGURATOR

AC regulator inspection:

Check the resistances between the leads with an ohmmeter.

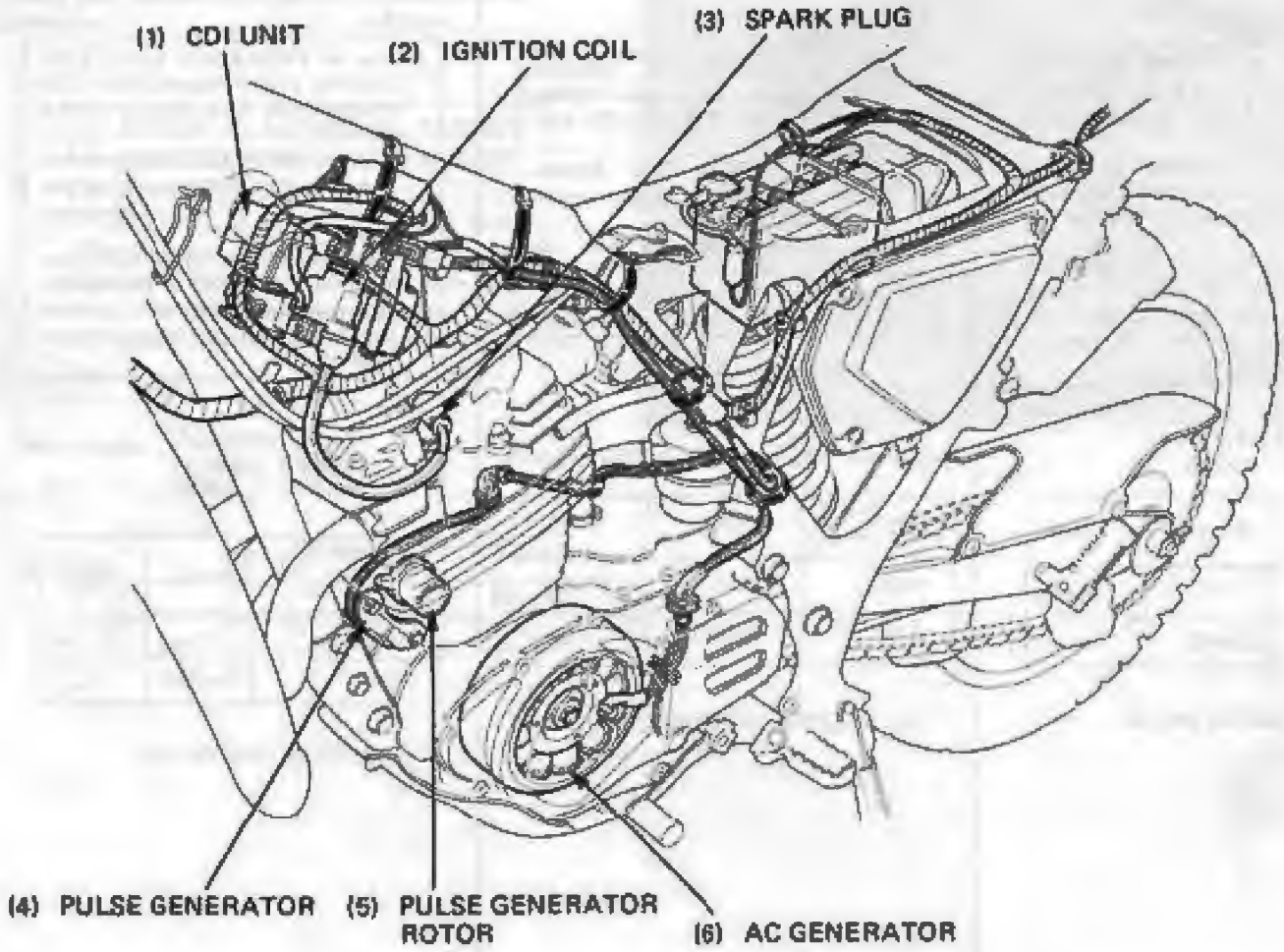
NOTE

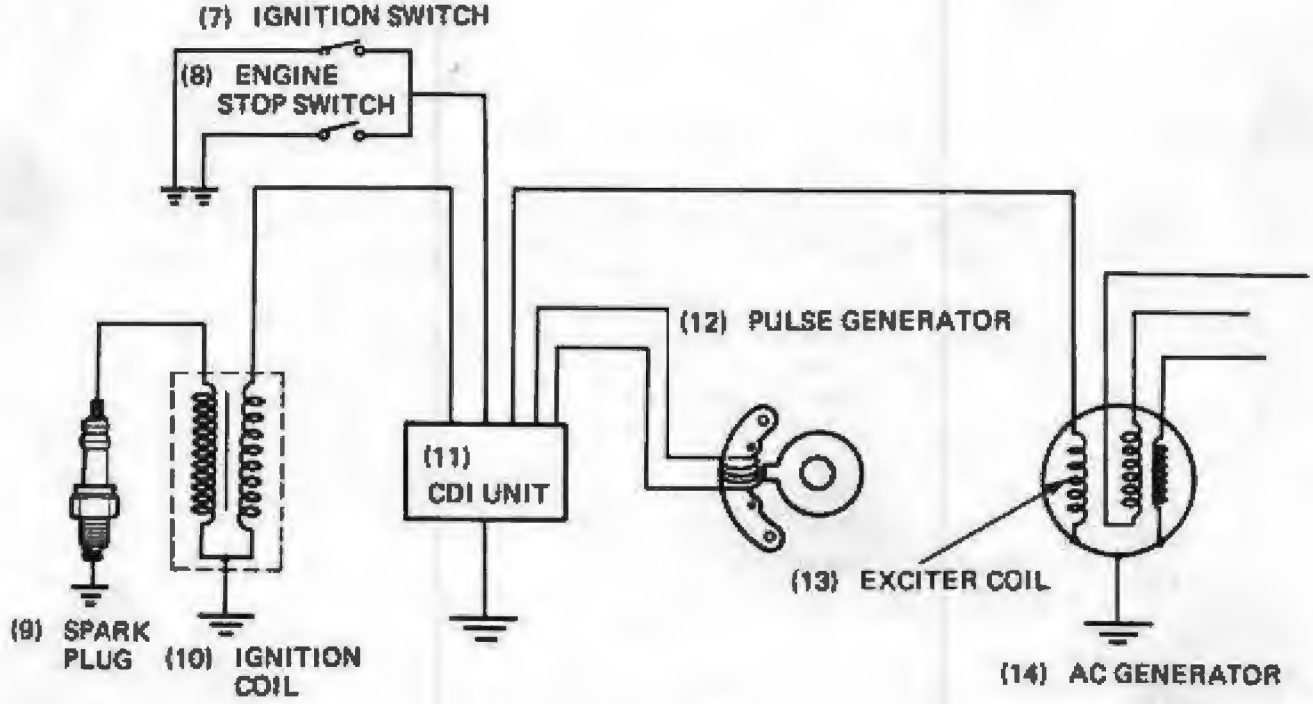
- Use SANWA ELECTRIC AL TESTER P/N 07308-0020000 or KOWA ELECTRICAL TESTER (TH-5H).
- SANWA and KOWA TESTERS have different measurements as shown.
- Make sure the tester contains new batteries, perform the zero adjustment in the measuring range for accurate readings.

Tester range: [SANWA x kΩ / KOWA x 100Ω]

⊖ Prove \ ⊕ Probe	White	Green
White		10–900
Green	10–900	

IGNITION SYSTEM





CIRCUIT D'ALLUMAGE

(1) UNITE CDI (ALLUMAGE PAR DECHARGE DE CONDENSATEUR)
(2) BOBINE D'ALLUMAGE
(3) BOUGIE D'ALLUMAGE
(4) GENERATEUR D'IMPULSIONS
(5) ROTOR DU GENERATEUR D'INPULSIONS
(6) ALTERNATEUR
(7) CONTACTEUR D'ALLUMAGE
(8) CONTACTEUR D'ARRET DU MOTEUR
(9) BOUGIE D'ALLUMAGE
(10) BOBINE D'ALLUMAGE
(11) UNITE CDI
(12) GENERATEUR D'IMPULSIONS
(13) BOBINE D'EXCITATION
(14) ALTERNATEUR

ZÜNDSYSTEM

(1) CDI-EINHEIT
(2) ZÜNDSPULE
(3) ZÜNDKERZE
(4) IMPULSLICHTMASCHINE
(5) IMPULSLICHTMA-SCHINENROTOR
(6) WECHSELSTROMLICHTMA-SCHINE
(7) ZÜNDSCHALTER
(8) MOTORABSTELL-SCHALTER
(9) ZÜNDKERZE
(10) ZÜNDSPULE
(11) CDI-EINHEIT
(12) IMPULSLICHTMASCHINE
(13) ERREGERSPULE
(14) WECHSELSTROM-LICHTMASCHINE

SISTEMA DE ENCENDIDO

(1) UNIDAD CDI (ENCENDIDO POR DESCARGA DE CONDENSADOR)
(2) BOBINA DE ENCENDIDO
(3) BUJIA DE ENCENDIDO
(4) GENERADOR DE IMPUL-SIONES
(5) ROTOR DEL GENERADOR DE IMPULSIONES
(6) ALTERNADOR
(7) INTERRUPTOR DE ENCEN-DIDO
(8) INTERRUPTOR DE PARADA DE MOTOR
(9) BUJIA DE ENCENDIDO
(10) BOBINA DE ENCENDIDO
(11) UNIDAD CDI
(12) GENERADOR DE IMPUL-SIONES
(13) BOBINA DE EXCITACION
(14) ALTERNADOR

SERVICE INFORMATION

• GENERAL INSTRUCTIONS

The XL400R and XL500R uses an electrical ignition timing advance system. If the ignition timing advance is incorrect, check the CDI unit and replace it if necessary.

• SPECIFICATIONS

Spark plugs:

	XL400R, XL500R	XL500R U, D type
Standard	DR8ES-L (NGK) or X24ESR-U (ND)	D8EA (NGK) or X24ES-U (ND)
For cold climate (Below 5°C/41°F):	DR7ES (NGK) or X22ESR-U (ND)	D7EA (NGK) or X22ES-U (ND)
For extended high speed riding:	DR8ES (NGK) or X27ESR-U (ND)	D9EA (NGK) or X27ES-U (ND)

Spark plug gap: 0.6–0.7 mm (0.024–0.028 in)
Ignition timing (Initial): 10°BTDC at 1,200 min^{-1} (rpm)
(Full advance): 35°BTDC at 3,500 min^{-1} (rpm) (XL500R)
35°BTDC at 3,000 min^{-1} (rpm) (XL400R)

TROUBLE SHOOTING

No Spark at Plug

1. Engine stop switch "OFF"
2. Poorly connected, broken or shorted wires
   - Between CDI unit and engine stop switch
   - Between CDI unit and ignition coil
   - Between CDI unit and ignition switch
   - Between ignition coil and spark plug
   - Between pulse generator and CDI unit
3. Faulty ignition switch
4. Faulty ignition coil
5. Faulty CDI unit
6. AC generator faulty
7. Faulty pulse generator

Engine Starts But Runs Poorly

1. Ignition primary circuit
   - Faulty ignition coil
   - Loose or bare wire
   - Faulty pulse generator
2. Secondary circuit
   - AC generator faulty
   - CDI unit faulty
   - Faulty pulse generator

• IGNITION COIL

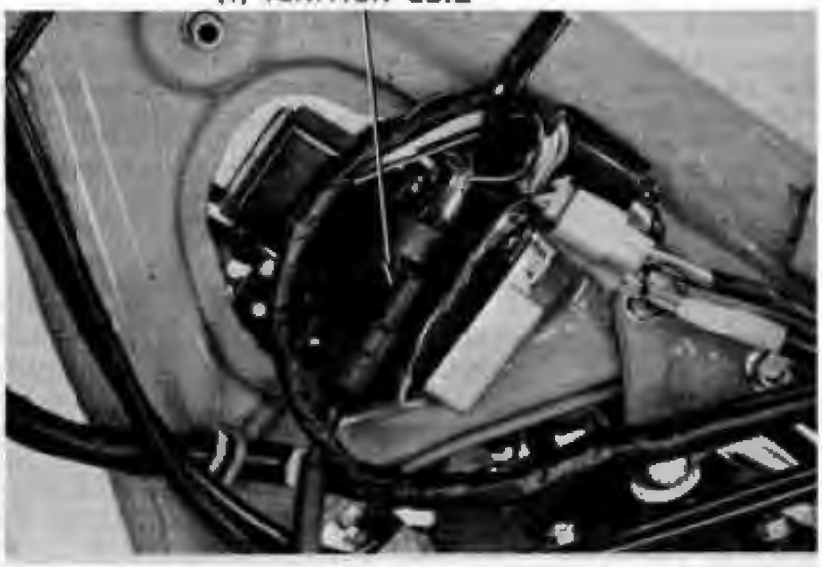
Removal:

Remove the fuel tank.

Disconnect the wire leads.

Remove the attaching screws and remove the coil.

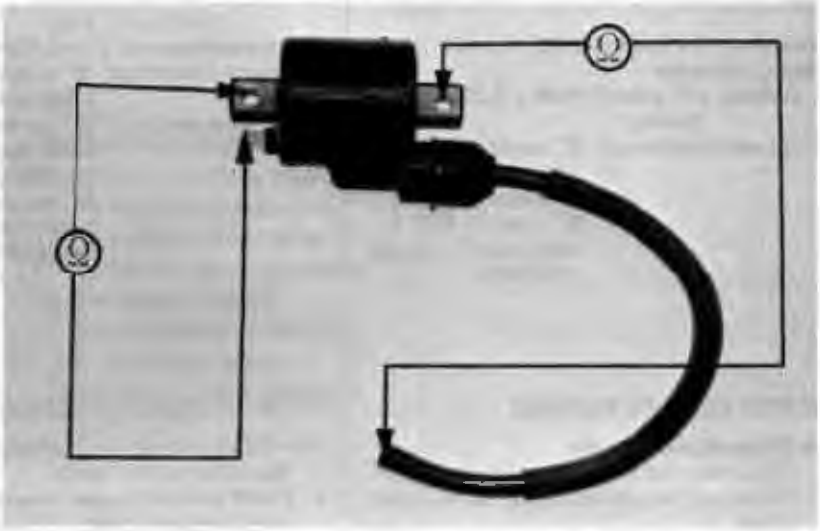
(1) IGNITION COIL



Inspection:

Measure the resistances of the primary and secondary coils.

PRIMARY: 0.2–0.3Ω
SECONDARY: 3.4–4.2kΩ



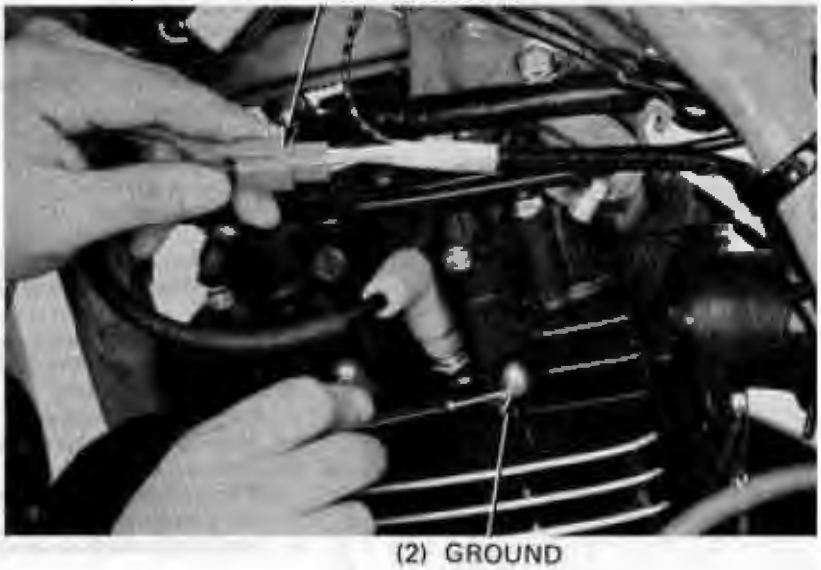
• AC GENERATOR EXCITER COIL

Disconnect the AC generator wire coupler.

Measure the resistance between the black/read wire and ground.

SPECIFIED RESISTANCE: 50–200Ω

(1) AC GENERATOR COUPLER



(2) GROUND

• CDI UNIT

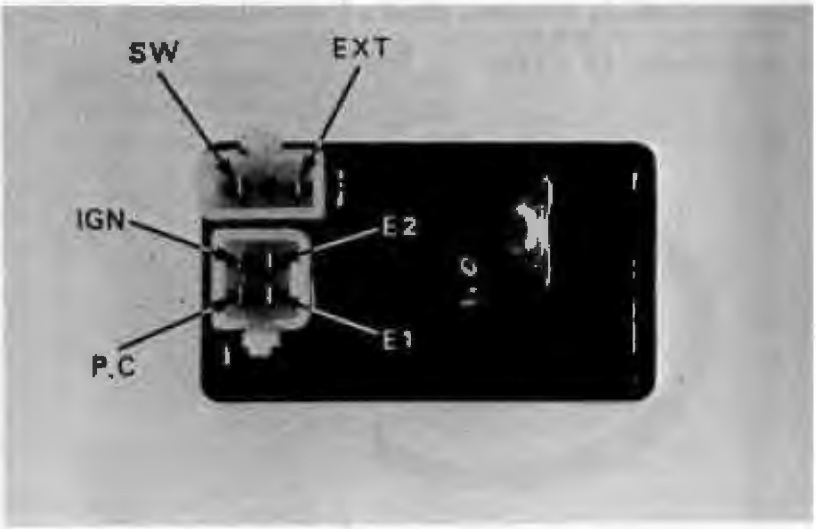
Remove the dust cover and disconnect the couplers.

Remove the CDI unit.

Check continuity between the CDI terminals. Replace the CDI unit if the readings do not fall within the limits shown in the table.

NOTE

- The CDI unit is fully transistorized.
- For accurate testing, it is necessary to use a specified electric tester. Use of an improper tester or measurements in improper range may give a false readings.
- Use SANWA ELECTRICAL TESTER (P/N 07308-0020000) or KOWA ELECTRICAL TESTER (TH-5H).



Tester range: [SANWA × kΩ / KOWA × 100Ω]

⊖ Probe \ ⊕ Probe	SW	EXT	P·C	E1·E2	IGN
SW		∞	∞	∞	∞
EXT	0.1–20		*∞	*∞	∞
P·C	30–300 [10–100]	10–200 [5–50]		1–100 [1–50]	∞
E1·E2	1–50	0.1–20	1–50		∞
IGN	∞	∞	∞		

(*) : Needle swings and returns to ∞.
[ ] : Specification for the XL400R.

• PULSE GENERATOR

Disconnect the pulse generator wire coupler and measure the resistance between Blue/Yellow and Green/White terminals.

SPECIFIED RESISTANCE: 510–570Ω

(1) PULSE GENERATOR WIRE COUPLER

• IGNITION TIMING

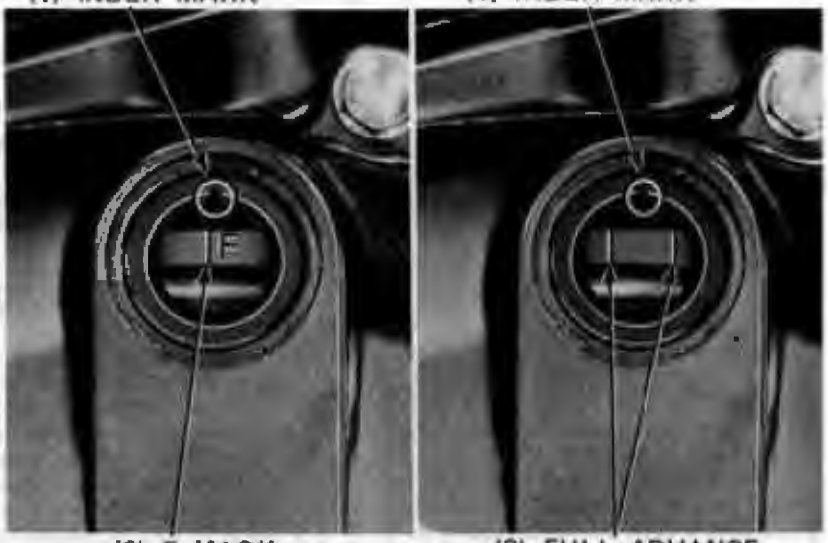
Remove the timing hole cap.

Connect a timing right and tachometer.

Start the engine and check the ignition timing:

(1) INDEX MARK

(1) INDEX MARK



(2) F MARK

(3) FULL ADVANCE MARKS

IGNITION TIMING SPECIFICATIONS

XL500R	1,200 ± 100 min^{-1} (rpm)	1,200 – 2,000 min^{-1} (rpm)	3,400 – 4,000 min^{-1} (rpm)
XL400R	1,200 ± 100 min^{-1} (rpm)	1,200 – 2,000 min^{-1} (rpm)	2,900 – 4,000 min^{-1} (rpm)
	The index mark should be aligned with F mark.	Timing advance should start.	Timing advance should cease. The index mark should be between the full advance mark.

SWITCHES

SERVICE INFORMATION

• GENERAL INSTRUCTIONS

- Some wires have different colored bands around them near the connector. These are connected to other wires which correspond with the band color.
- All plastic plugs 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 — by simply disconnecting the wires and connecting a continuity tester or voltmeter to the terminals or connections.

• SPECIFICATION

	XL500R	XL400R
Headlight (high/low)	12V–35/35W 12V–36/36W (F type)	12V–36/36W
Tail/stoplight	12V–5/21W	12V–5/21W
Turn signal light	12V–21W 12V–23W (D, U, SA type)	12V–21W
Speedometer light	12V–1.7W	12V–1.7W
Tachometer light	12V–3.4W	12V–3.4W
Neutral indicator light	12V–3.4W	12V–3.4W
Turn signal indicator light	12V–3.4W	12V–3.4W
High beam indicator light	12V–1.7W	12V–1.7W
Position light	12V–4W	12V–4W

TROUBLESHOOTING

No Lights Come On When Ignition Switch Is Turned ON:

1. Bulb at fault or burned out
2. Faulty switch
3. Wiring to that component has open circuit
4. Fuse blown
5. Wiring loose, broken, or at fault
6. Battery dead or disconnected

All Lights Come On, But Dimly, When Ignition Switch Is Turned ON:

1. Battery voltage low
2. Wiring or switch has excessive resistance

Headlight Beam Does Not Shift When HI-LO Switch Is Operated:

1. Beam filament burned out
2. Faulty dimmer switch

• IGNITION SWITCH

Continuity test:

Remove the coupler box cover.

Disconnect the ignition switch coupler.

Check for continuity between terminals.

	Black	Red	Black/ White	Green
ON	○——	——○		
OFF			○——	——○

Continuity should exist between color coded wires indicated by interconnected circles.

(1) IGNITION SWITCH WIRE

Removal:

Remove the headlight and instrument assembly (page 22–38).

Remove the ignition switch by removing mount bolts.

(1) IGNITION SWITCH

(2) MOUNT BOLTS

Disassembly:

Insert the key and position it in the middle of ON and OFF position.

Push the lugs from the slots and remove the contact base.

Assemble in the reverse order of removal.

(1) IGNITION KEY (2) CONTACT BASE

(3) LUGS

• LEFT HANDLEBAR SWITCH

Remove the coupler box cover and disconnect the left handlebar switch coupler.

Turn signal switch:

Check for continuity between terminal.

	LIGHT BLUE	GRAY	ORANGE
R	○——	——○	
(N)			
L		○——	——○

Continuity should exist between color coded wires indicated by interconnected circles.

Headlight dimmer switch:

NOTE

Select the headlight switch to "H" position before inspect the dimmer switch.

	BLUE	WHITE/ YELLOW	WHITE
Hi	○——	——○	
(N)	○——	——○	——○
Lo		○——	——○

(1) LEFT HANDLEBAR SWITCH COUPLER

Horn Switch:

	BLACK	LIGHT GREEN
ON (PUSH)	○——	——○
OFF		

Headlight switch:

NOTE

Select the dimmer switch to "Hi" position before inspect the headlight switch.

	BLACK	BROWN/ WHITE	BLUE	WHITE/ YELLOW
• (OFF)				
P	○——	——○		
H	○——	——○	○——	——○

(Germany, Sweden type)

	WHITE/ YELLOW	BROWN/ WHITE	BLUE
• (OFF)			
P	○——	——○	
H	○——	——○	——○

• FRONT STOPLIGHT SWITCH

Remove the headlight and disconnect the front stoplight switch connectors.
Check front brake light switch for continuity with front brake applied.

	BLACK	GREEN/ YELLOW
ON	○——	——○
OFF		

(1) FRONT STOPLIGHT SWITCH WIRES

• ENGINE STOP SWITCH

Check engine stop switch for continuity.

	BLACK/ WHITE	GREEN
OFF	○——	——○
RUN		
OFF	○——	——○

(1) ENGINE STOP SWITCH WIRES

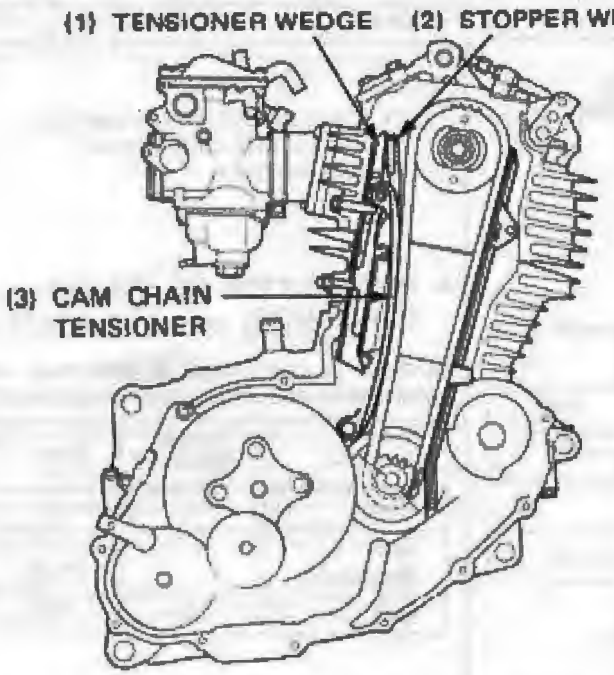
TECHNICAL FEATURES

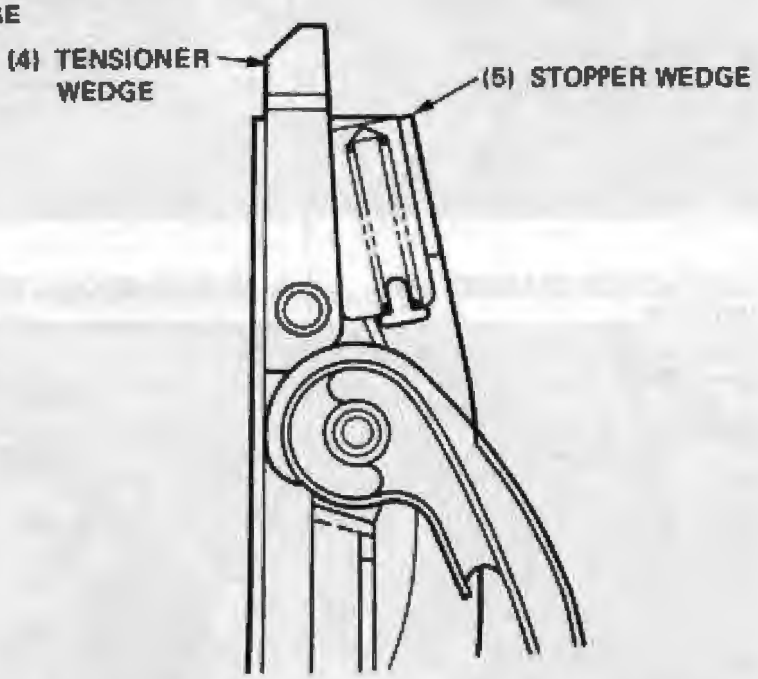
• AUTOMATIC CAM CHAIN TENSIONER

The XL400R and XL500R is equipped with an automatic cam chain tensioner to compensate for natural wear on the chain, eliminating periodic adjustment and maintenance. It operates as follows:

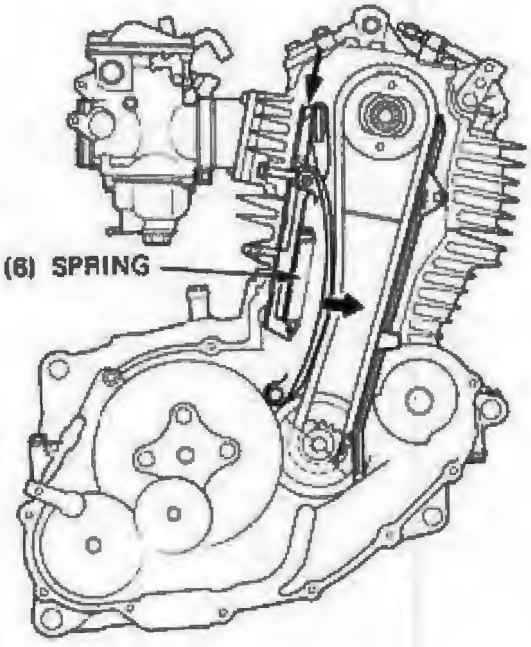
OPERATION

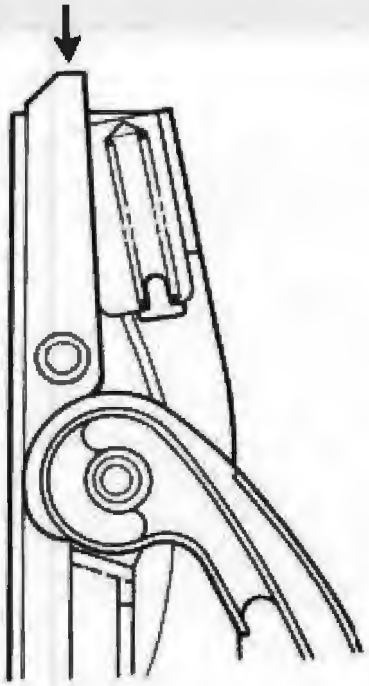
The device consists of the tensioner spring, tensioner, tensioner wedge, stopper wedge and tensioner base. The tensioner wedge is connected to the tensioner whereas the stopper wedge is attached to the tensioner base. The spring exerts pressure on the tensioner so as to deflect the tensioner against the chain at all times.





As the chain is elongated due to wear, the tensioner is pulled by the spring to take up slack on the chain. The wedges stopper and tensioner combine to prevent the tensioner from returning to its original shape, thus always applying correct pressure on the chain.

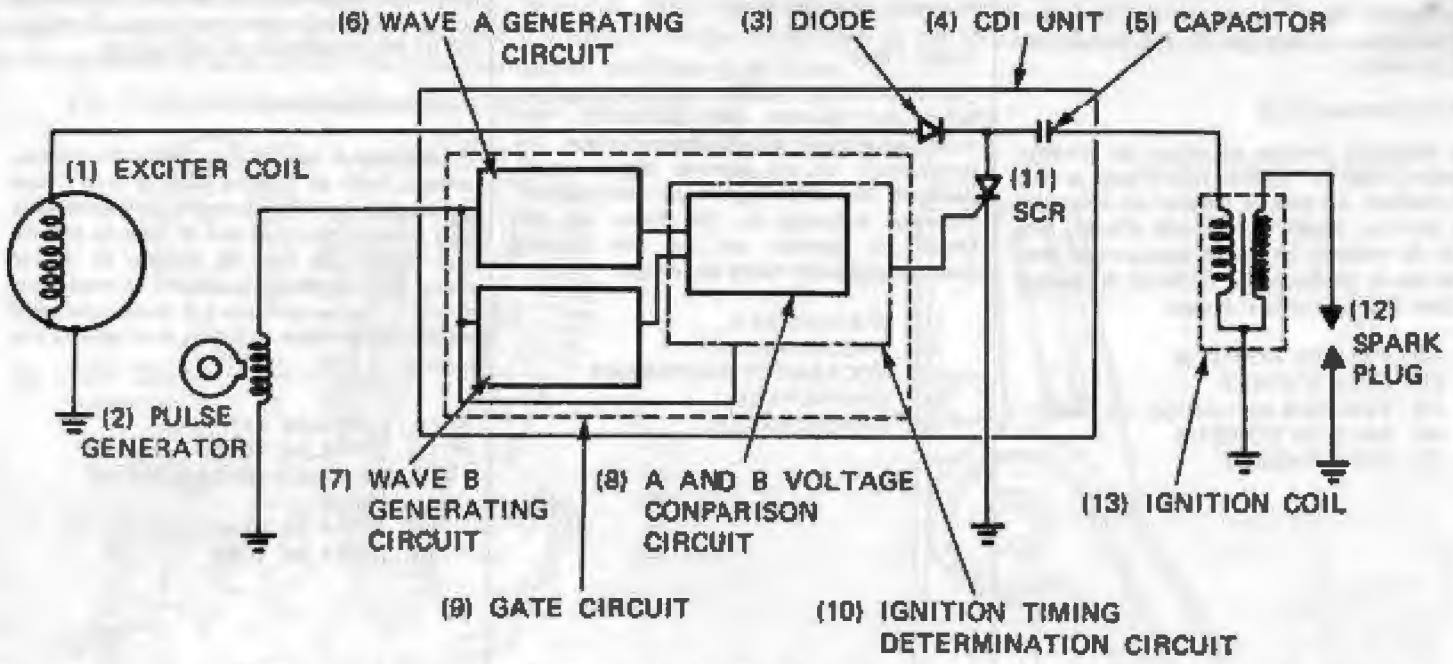




• ELECTRICAL CONTROL ADVANCE IGNITION

Electrical advance CDI ignition system is adopted on the XL400R and XL500R. Ignition principle of this system is the same as the conventional CDI system, however, it controls ignition timing advance electrically instead of mechanical advance system. It eliminates mechanical wear and stable ignition performance can be obtained.

BASIC CIRCUIT



The CDI unit contains two circuits, one is high tension energy circuit for ignition, and another one is gate circuit for determination of ignition timing.

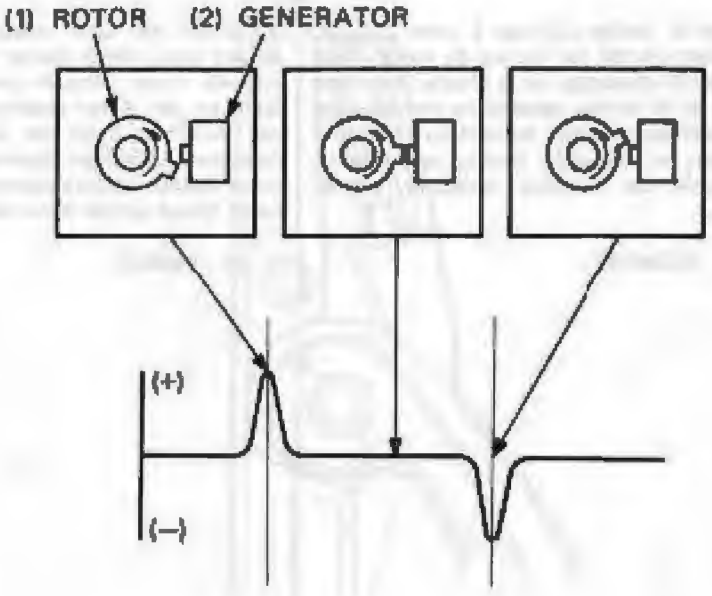
HIGH TENSION ENERGY CIRCUIT: Contains exciter coil rectifier diode and SCR, and has high voltage generating function.

GATE CIRCUIT: Consists of circuit for converting output wave from the pulse generator into basic waves A and B and circuit for determination of ignition timing, and has advance function.

The high tension energy circuit is the same circuit and operation as the conventional CDI system.

ADVANCER OPERATION

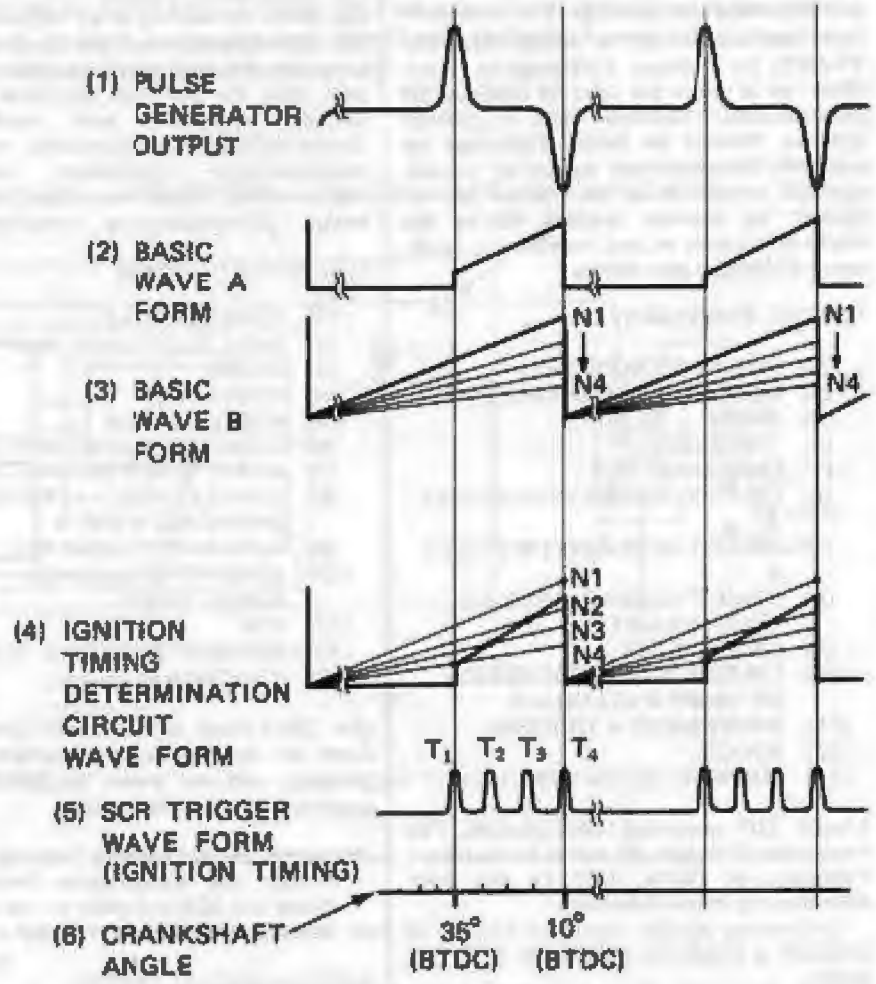
Pulse generator output wave form is generated in positive and negative voltages when the rotor pick-up edge just acrosses the generator.



Output from the pulse generator is converted into the basic waves through the basic wave A and B circuits.

The Basic wave A is designed so that it is not varried by variation of engine speed.

The basic wave B is varried its form from N1 to N4 by the variation of engine speed as shown.

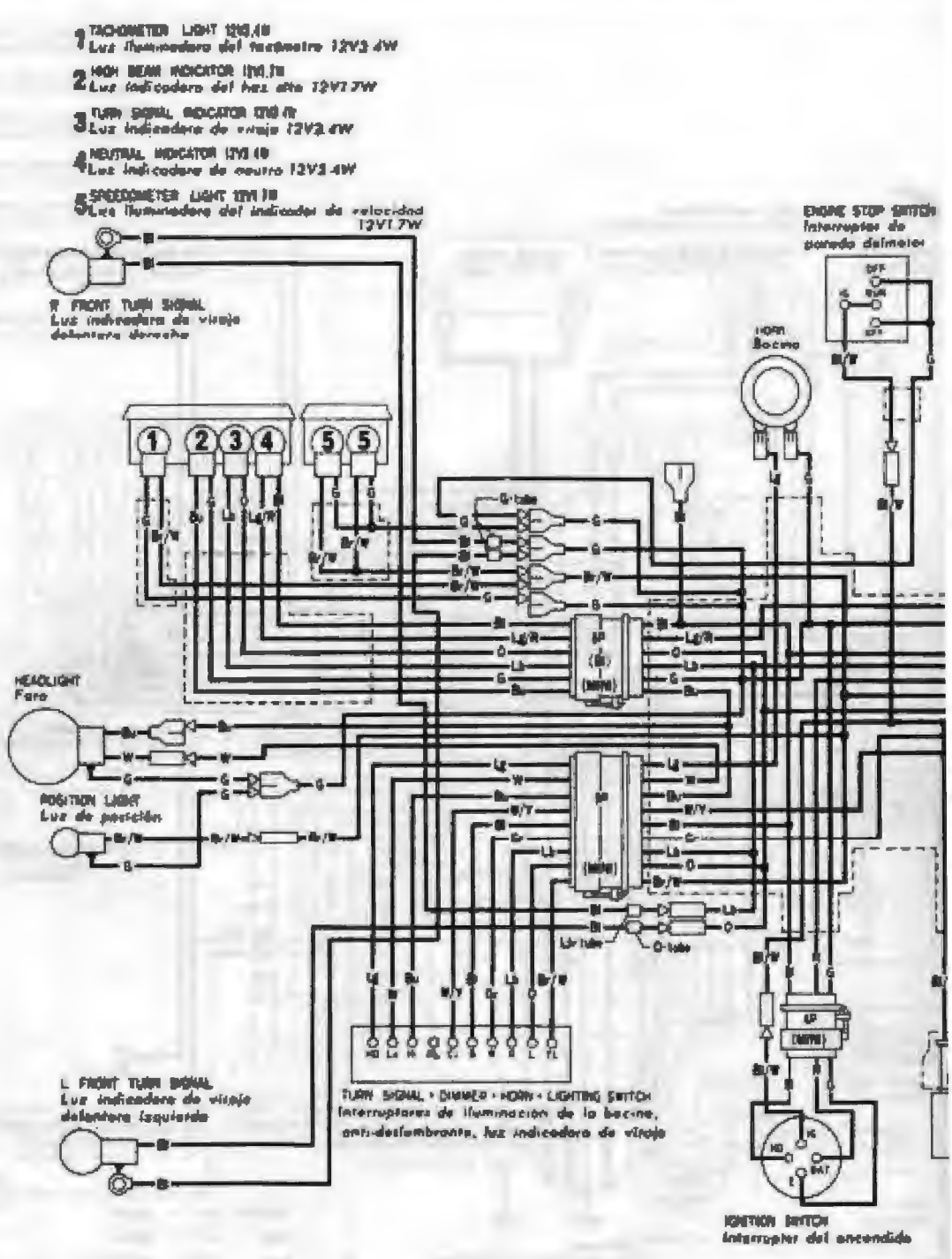


The ignition timing determination circuit outputs SCR trigger wave to open the SCR gate and ignits the spark plug when the negative voltage from the pulse generator is intput into the ignition timing determination circuit, or when the basic wave A becomes greater than the B.

Since the basic wave B is varried by engine speed while the wave A is not varried, wave B becomes small against A as engine speed increases.

Therefore, timing that wave A becomes larger than the B, advances as engine speed increases. When engine speed increases above N4, ignition timing does not advance, since the basic wave A is not inclined, causing the timing to stop advancing.

At N1 condition, form of the wave B is larger than A and ignition timing is determined by negative voltage from the pulse generator.



SWITCH CONTINUITY
Conexión de los interruptores

ENGINE STOP SWITCH
Interruptor de parada del motor

	IG	E
OFF	○	○
RUN		
OFF	○	○

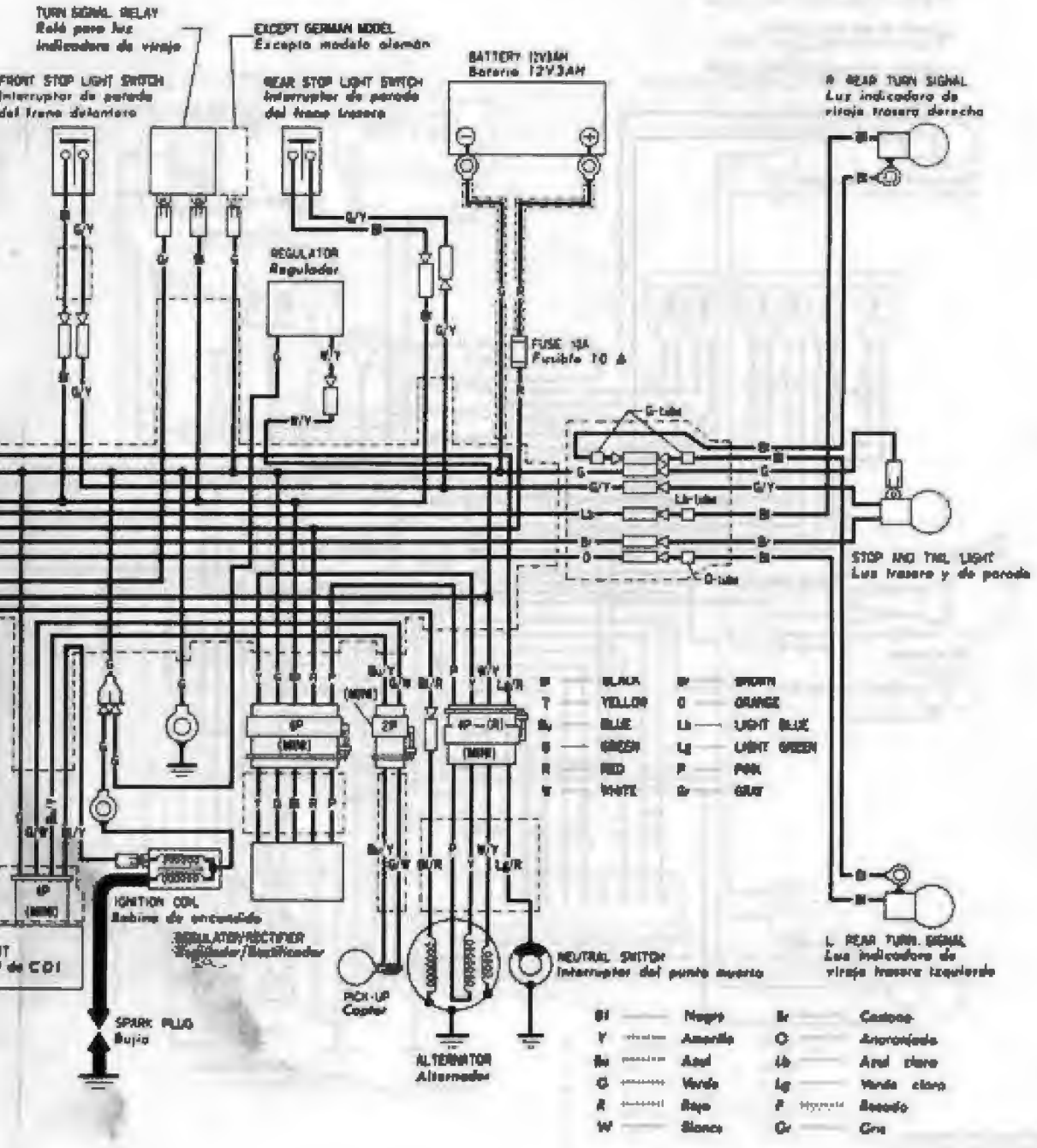
IGNITION SWITCH
Interruptor del encendido

	HO	BAT	IG	E
ON	○	○		
OFF			○	○

TURN SIGNAL • DIMMER • HORN • LIGHTING SWITCH
Interruptor de iluminación del anti-deslumbrante, bocina paso, luz indicadora de viraje

	R	W	L		H	HL	La		B	TL	HL	Cl
R	○			H	○			•				
N				OFF	○	○		P	○			
L		○		La		○	○	H	○		○	

	B	HO
ON	○	○
OFF		



	AREA(TYPE) AREA(TIPO)	HEADLIGHT Faro	POSITION LIGHT Luz de posición	TURN SIGNAL LIGHT Luz indicadora de viraje delantera	STOP AND TAIL LIGHT Luz parada y de trasero
0030Z-MC4-6000	E·ED·B·IT	12V35/35W	12V4W	12V21W	12V21/5W
0030Z-MC4-6100	G·GI·SD	12V35/25W	12V4W	12V21W	12V21/5W
0030Z-MC4-6200	F	12V35/30W	12V4W	12V21W	12V21/5W
0030Z-MC4-6800	DK·DM·U·SA	12V35/25W	12V3.4W	12V23W	12V23/8W

0030Z-MC4-6000, 6100, 6200, 6800

HONDA

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