HONDA

SERVICE MANUAL



85-97

XR80R
XR100R

IMPORTANT SAFETY NOTICE

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

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

NOTE: Gives helpful information.

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

RIDE RED

HOW TO USE THIS MANUAL

Follow the Maintenance Schedule recommendations to ensure that the vehicle is always in peak operating condition and the emission levels are within the standards set by the U.S. Environmental Protection Agency. Performing the first scheduled maintenance is very important. It compensates for the initial wear that occurs during the break-in period.

Sections 1 through 3 apply to the whole motorcycle, while sections 4 through 13 describe parts of the motorcycle, grouped according to location.

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

Most sections start with an assembly or system illustration and all the required specifications, torque values, general instructions, tools and troubleshooting for the section. The subsequent pages give detailed procedures for the section.

If you don't know the source of the trouble, go to section 15 TROUBLESHOOTING.

CONTENTS

	GENERAL INFORMATION	1
	LUBRICATION	2
	MAINTENANCE	3
ENGINE	FUEL SYSTEM	4
ENGINE	ENGINE REMOVAL/INSTALLATION	5
ENGINE	CYLINDER HEAD/VALVES	6
ENGINE	CYLINDER/PISTON	7
ENGINE	CLUTCH	8
ENGINE	TRANSMISSION/CRANKSHAFT/ CRANKCASE/KICK STARTER	9
CHASSIS	FRONT WHEEL/BRAKE/SUSPENSION/ STEERING	10
CHASSIS	REAR WHEEL/BRAKE/SUSPENSION	11
CHASSIS	REAR FENDER/EXHAUST PIPE	12
	ELECTRICAL	13
	WIRING DIAGRAM	14
	TROUBLESHOOTING	15
	INDEX	16

RIDE RED

1. GENERAL INFORMATION

GENERAL SAFETY	1-1	TORQUE VALUES	1-5
SERVICE RULES	1-1	TOOLS	1-6
MODEL IDENTIFICATION	1-2	CABLE & HARNESS ROUTING	1-7
SPECIFICATIONS	1-3		

GENERAL SAFETY

WARNING

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

WARNING

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

CAUTION

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

WARNING

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

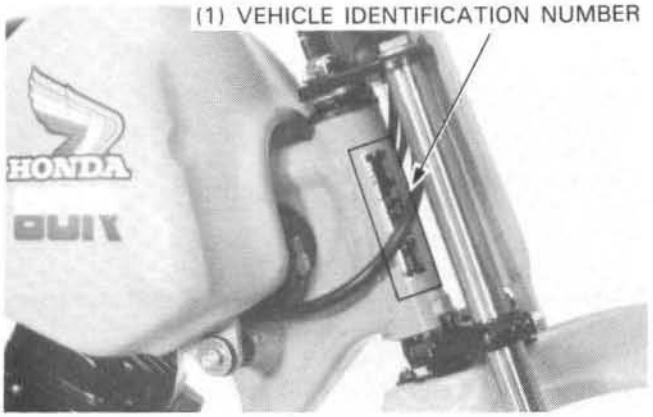
SERVICE RULES

1. Use genuine HONDA or HONDA-recommended parts and lubricants or their equivalents. Parts that don't meet HONDA's design specifications may damage to the vehicle.
2. Use the special tools designed for this product to avoid damage and incorrect assembly.
3. Use only metric tools when servicing the vehicle. Metric bolts, nuts, and screws are not interchangeable with English fasteners.
4. Install new gaskets, O-rings, cotter pins, and lock plates when reassembling.
5. When tightening bolts or nuts, begin with the larger-diameter or inner bolts first. Then tighten to the specified torque diagonally in 1-5 steps, unless a particular sequence is specified.
6. Clean parts in non-flammable or high flash point solvent upon disassembly. Lubricate any sliding surfaces before reassembly.
7. After reassembly, check all parts for proper installation and operation.
8. Route all wires as shown on pages 1-7 through 1-11. Cable and Harness Routing.

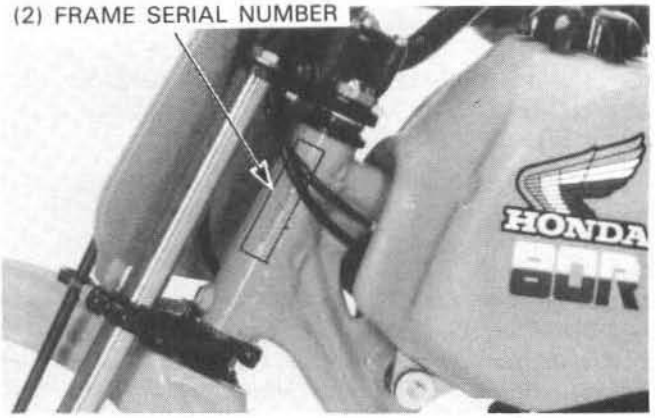
MODEL IDENTIFICATION

'85 XR80R SHOWN:

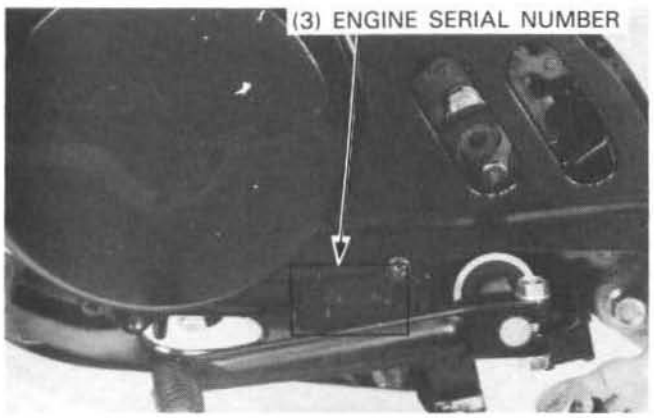




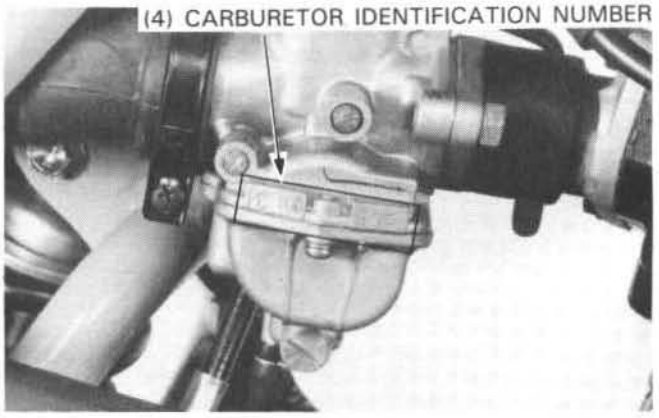
The vehicle identification number is attached to the right side of the steering head.



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



The engine serial number is stamped on the lower left side of the crankcase.



The carburetor identification number is stamped on the right side of the carburetor.

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SPECIFICATIONS

	ITEM		XR80R	XR100R
DIMENSIONS	Overall length		1,730 mm (68.1 in)	1,855 mm (73.0 in)
	Overall width		755 mm (29.7 in)	800 mm (31.5 in)
	Overall height		955 mm (37.6 in)	1,030 mm (40.6 in)
	Wheel base		1,195 mm (47.1 in)	1,255 mm (49.4 in)
	Seat height		725 mm (28.6 in)	770 mm (30.3 in)
	Ground clearance		210 mm (8.3 in)	265 mm (10.4 in)
	Dry weight		64 kg (141.1 lb)	68 kg (149.9 lb)
FRAME	Type		Diamond	Diamond
	Front suspension/travel		Telescopic/140 mm (5.5 in)	Telescopic/140 mm (5.5 in)
	Caster angle		28° 30'	28° 30'
	Trail		75 mm (3.0 in)	110mm (4.3 in)
	Front fork oil capacity		83 cc (2.8 US oz, 2.9 Imp oz)	88 cc (3.0 US oz, 3.1 Imp oz)
	Rear suspension/travel		Swingarm/110 mm (4.3 in)	Swingarm/120 mm (4.7 in)
	Tire size/ Cold pressure	Front	2.50–16–4PR 15 psi (1.0 kg/cm², 100 kPa)	2.50–19–4PR 15 psi (1.0 kg/cm², 100 kPa)
		Rear	3.60–14–4PR 18 psi (1.25 kg/cm², 125 kPa)	3.00–16–4PR 18 psi (1.25 kg/cm², 125 kPa)
	Front brake		Cable operated leading trailing expanding shoe	Cable operated leading trailing expanding shoe
	Rear brake		Rod operated leading trailing expanding shoe	Rod operated leading trailing expanding shoe
	Fuel tank capacity		6.5 ℓ (1.71 US gal, 1.43 Imp gal)	6.5 ℓ (1.71 US gal, 1.43 Imp gal)
	Fuel tank reserve capacity		0.9 ℓ (0.24 US gal, 0.20 Imp gal)	0.9 ℓ (0.24 US gal, 0.20 Imp gal)
ENGINE	Type		Gasoline, air cooled 4-stroke	Gasoline, air cooled 4-stroke
	Cylinder arrangement		Vertical Single cylinder	Vertical Single cylinder
	Bore × stroke		47.5×45.0 mm (1.87 × 1.77 in)	53.0 × 45.0 mm (2.09 × 1.77 in)
	Displacement		79.7 cc (4.86 cu-in)	99.2 cc (6.05 cu-in)
	Compression ratio		9.7 : 1	9.4 : 1
	Valve train		Over Head Camshaft, chain driven	Over Head Camshaft, chain driven
	Oil capacity		0.9 ℓ (0.95 US qt, 0.79 Imp qt)	1.0 ℓ (1.06 US qt, 0.88 Imp qt)
	Lubrication system		Forced pressure and wet sump	Forced pressure and wet sump
	Air filtration system		Oiled polyurethane foam	Oiled polyurethane foam
	Cylinder compression		1,177±196 kPa (12.0±2.0 kg/cm², 171±28 psi)	1,128±147 kPa (11.5±1.5 kg/cm², 164±21 psi)
	Intake valve	Opens	8° BTDC — at 1 mm (0.04 in) lift	10° BTDC — at 1 mm (0.04 in) lift
		Closes	40° ABDC — at 1 mm (0.04 in) lift	35° ABDC — at 1 mm (0.04 in) lift
	Exhaust valve	Opens	40° BBDC — at 1 mm (0.04 in) lift	40° BBDC — at 1 mm (0.04 in) lift
		Closes	8° ATDC — at 1 mm (0.04 in) lift	5° ATDC — at 1 mm (0.04 in) lift
	Valve clearance (cold)	Intake	0.05 mm (0.002 in)	0.05 mm (0.002 in)
		Exhaust	0.05 mm (0.002 in)	0.05 mm (0.002 in)
	Idle speed		1,500±100 rpm	1,400±100 rpm)
			'85, '86 : / After '86 :	'85, '86 : / After '86:
CARBURETOR	Type		Piston valve	Piston valve
	Identification number		PC10D / PC20B	PD36D / PD80C
	Main jet		#92 / #95	#95
	Slow jet		#35	#38
	Air screw (XR80R), Pilot screw (XR100R) initial opening		1-1/2 turns out / 1-3/4 turns out	2-5/8 turns out / 1-3/4 turns out
	Float level		21.5 mm (0.85 in)	12.5 mm (0.49 in)

	ITEM		XR80R		XR100R	
DRIVE TRAIN	Clutch		Cable operated, Wet multi plate		Cable operated, Wet multi plate	
	Transmission		5-speed constant mesh		5-speed constant mesh	
	Primary reduction		4.437 (71/16)		4.437 (71/16)	
	Gear ratios: 1	I	2.692 (35/13)		3.083 (37/12)	
		II	1.823 (31/17)		1.882 (32/17)	
		III	1.400 (28/20)		1.400 (28/20)	
		IV	1.130 (26/23)		1.130 (26/23)	
		V	0.960 (24/25)		0.923 (24/26)	
	Final reduction		3.285 (46/14)		3.571 (50/14)	
	Gearshift pattern		Left-foot operated return system 1-N-2-3-4-5		Left-foot operated return system 1-N-2-3-4-5	
ELECTRICAL					'85 through '91	After '91
	Ignition system		Flywheel magneto, contact points		Flywheel magneto, contact points	CDI
	Ignition timing initial		15° BTDC/1,800 ± 150 rpm		13°BTDC/2,050 ± 150 rpm	15.5°BTDC/1,900 ± 200 rpm
	Full advance		30° BTDC/3,400 ± 200 rpm		28°BTDC/3,650 ± 200 rpm	30°BTDC/3,300 ± 200 rpm
	Contact point gap		0.3–0.4 mm (0.012–0.016 in)		0.3–0.4 mm (0.012–0.016 in)	———
	Alternator output		15W/5,000 rpm		15W /5,000 rpm	7.7W/5,000 rpm
	Spark plug		NGK	NIPPONDENSO	NGK	NIPPONDENSO
		Standard	CR7HSA	U22-FSR-U	CR7HSA	U22-FSR-U
		For cold climate (Below 5°C, 41°F)	CR6HSA	U20-FSR-U	CR6HSA	U20-FSR-U
		For extended high speed riding	CR8HSA	U24-FSR-U	CR8HSA	U24-FSR-U
	Spark plug gap		0.6–0.7 mm (0.024–0.028 in)		0.6–0.7 mm (0.024–0.028 in)	

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TORQUE VALUES

ENGINE

ITEM	THREAD DIA. X PITCH	TORQUE N·m (kg-m, ft-lb)
Camshaft holder nut	8 x 1.25	18–22 (1.8–2.2, 13–16)
Cam sprocket	6 x 1.0	10–14 (1.0–1.4, 7–10)
Valve adjuster lock nut	5 x 0.5	8–12 (0.8–1.2, 5.8–9.0)
Flywheel nut	12 x 1.25	60–70 (6.0–7.0, 43–51)
Primary drive gear	14 x 1.0	35–45 (3.5–4.5, 25–33)
Drain plug	12 x 1.25	20–30 (2.0–3.0, 14–22)
Spark plug	10 x 1.0	10–17 (1.0–1.7, 7–12)

FRAME

ITEM	THREAD DIA. X PITCH	TORQUE N·m (kg-m, ft-lb)
Engine hanger bolt (rear, upper, lower)	8 x 1.25	40–50 (4.0–5.0, 29–36)
Foot peg bolt	10 x 1.25	35–45 (3.5–4.5, 25–33)
Rear brake pedal pivot bolt	10 x 1.25	35–45 (3.5–4.5, 25–33)
Kick starter pedal	6 x 1.0	10–14 (1.0–1.4, 7–10)
Gearshift pedal	6 x 1.0	8–12 (0.8–1.2, 6–9)
Side stand pivot bolt	10 x 1.25	35–45 (3.5–4.5, 25–33)
Exhaust pipe mount bolt	8 x 1.25	24–30 (2.4–3.0, 17–22)
Exhaust pipe joint nut	6 x 1.0	10–14 (1.0–1.4, 7–10)
Front fuel tank mount bolt	6 x 1.0	10–14 (1.0–1.4, 7–10)
Seat mount bolt	6 x 1.0	10–14 (1.0–1.4, 7–10)
Air cleaner case mount bolt	6 x 1.0	10–14 (1.0–1.4, 7–10)
Engine hanger plate bolt	8 x 1.25	30–40 (3.0–4.0, 22–29)
Final driven sprocket	8 x 1.25	30–35 (3.0–3.5, 22–25)
Shock arm-to-swing arm bolt	10 x 1.25	40–50 (4.0–5.0, 29–36)
Shock arm-to-shock link bolt	10 x 1.25	40–50 (4.0–5.0, 29–36)
Shock absorber mount bolt (upper, lower)	8 x 1.25	30–40 (3.0–4.0, 22–29)
Front axle nut	12 x 1.25	55–70 (5.5–7.0, 40–51)
Front fork lower pinch bolt	8 x 1.25	24–30 (2.4–3.0, 17–22)
Swing arm pivot bolt	12 x 1.25	55–70 (5.5–7.0, 40–51)
Steering stem nut	22 x 1.0	60–90 (6.0–9.0, 43–65)
Handlebar holder bolt	6 x 1.0	10–14 (1.0–1.4, 7–10)
Shock link-to-shock arm bolt	10 x 1.25	40–50 (4.0–5.0, 29–36)
Bearing adjustment nut	22 x 1.0	1–2 (0.1–0.2, 0.7–1.4)
Rear axle nut	12 x 1.25	55–70 (5.5–7.0, 40–51)
Front fork upper pinch bolt	7 x 1.0	9–13 (0.9–1.3, 7–9)

Torque specifications listed above are for specific tightening points. If a specification is not listed, follow the standard torque values below.

STANDARD TORQUE VALUES

ITEM	TORQUE N·m (kg-m, ft-lb)	ITEM	TORQUE N·m (kg-m, ft-lb)
5 mm bolt, nut	4.5–6 (0.45–0.6, 3.3–4.3)	5 mm screw	3.5–5 (0.35–0.5, 2.5–3.6)
6 mm bolt, nut	8–12 (0.8–1.2, 5.8–8.7)	6 mm screw and 6 mm bolt with 8 mm head	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, 7.2–10)
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

DESCRIPTION	TOOL NUMBER	ALTERNATIVE TOOL	REF.PAGE(S)
Steering stem socket	07916—3710100		10-14, 16
Hex wrench, 6 mm	07917—3230000	or equivalent commercially available in U.S.A.	10-9, 11
Bearing remover set, 12 mm	07936—1660001	Not available in U.S.A.	9-7
—Bearing spindle assy, 12 mm	07936—1660100		9-7
—Remover weight	07741—0010201	or 07936—3710200	9-7
Bearing remover, 17 mm	07936—3701300		11-12
Bearing remover handle	07936—3710100		11-12
Remover weight	07741—0010201	or 07936—3710200	11-12
Ball race remover	07944—1150001	M9360—277—91774 (U.S.A. only)	10-14
Spring compressor attachment	07967—KC10000		11-9
Valve guide reamer	07984—0980000	07984—098000A (U.S.A. only)	6-8
Steering stem driver	07946—GC40000	or steering stem driver 07946—MB00000 and steering stem driver attachment 07946—GC4000A	10-15

COMMON

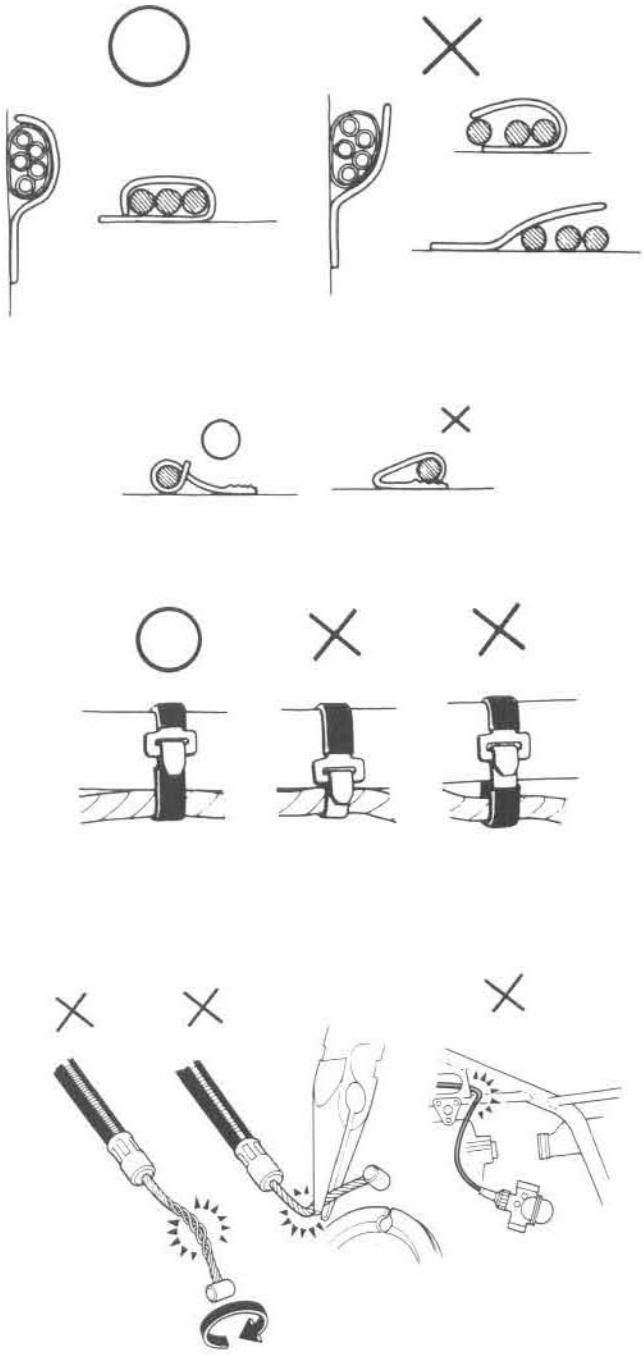
DESCRIPTION	TOOL NUMBER	ALTERNATIVE TOOL	REF.PAGE(S)
Float level gauge	07401—0010000		4-9
Valve adjusting wrench	07708—0030400	or valve adjuster 07908—KE90200 (U.S.A. only) or equivalent commercially available in U.S.A.	3-7
Valve adjusting wrench, 8 x 9 mm	07708—0030100		3-7
Spoke wrench, 4.5 x 5.1 mm	07701—0020200	equivalent commercially available in U.S.A.	3-15
Socket wrench, 30 x 32 mm	07716—0020400		10-14, 17
Extension	07716—0020500		
Universal holder	07725—0030000		13-4, 6
Rotor puller	07733—0010000	or rotor puller 07933—0010000	13-4
Valve guide remover, 5.5 mm	07742—0010100	or 07942—3290100	6-7
Valve guide driver, 5.5 mm	07742—0020200		6-7
Attachment, 32 x 35 mm	07746—0010100		9-8, 9, 10-6, 11-5, 13
Attachment, 37 x 40 mm	07746—0010200		9-8, 10-15, 11-5
Attachment, 42 x 47 mm	07746—0010300		9-7
Pilot, 12 mm	07746—0040200		10-6, 11-5
Pilot, 17 mm	07746—0040400		9-8
Pilot, 25 mm	07746—0040600		9-7
Bearing remover shaft	07746—0050100	equivalent commercially available in U.S.A.	10-6, 11-4
Bearing remover head, 12 mm	07746—0050300		10-6, 11-4
Fork seal driver body	07747—0010100	Fork seal driver 07947—1180001	10-12
Fork seal driver attachment	07747—0010300		10-12
Driver	07749—0010000		
Valve spring compressor	07757—0010000		6-6, 6-11
Gear holder	07725—0010100	equivalent commercially available in U.S.A.	8-3, 8-8
Digital multimeter	KS-AHM-32-003	U.S.A. only	13-4,5,6,11,12

RIDE RED

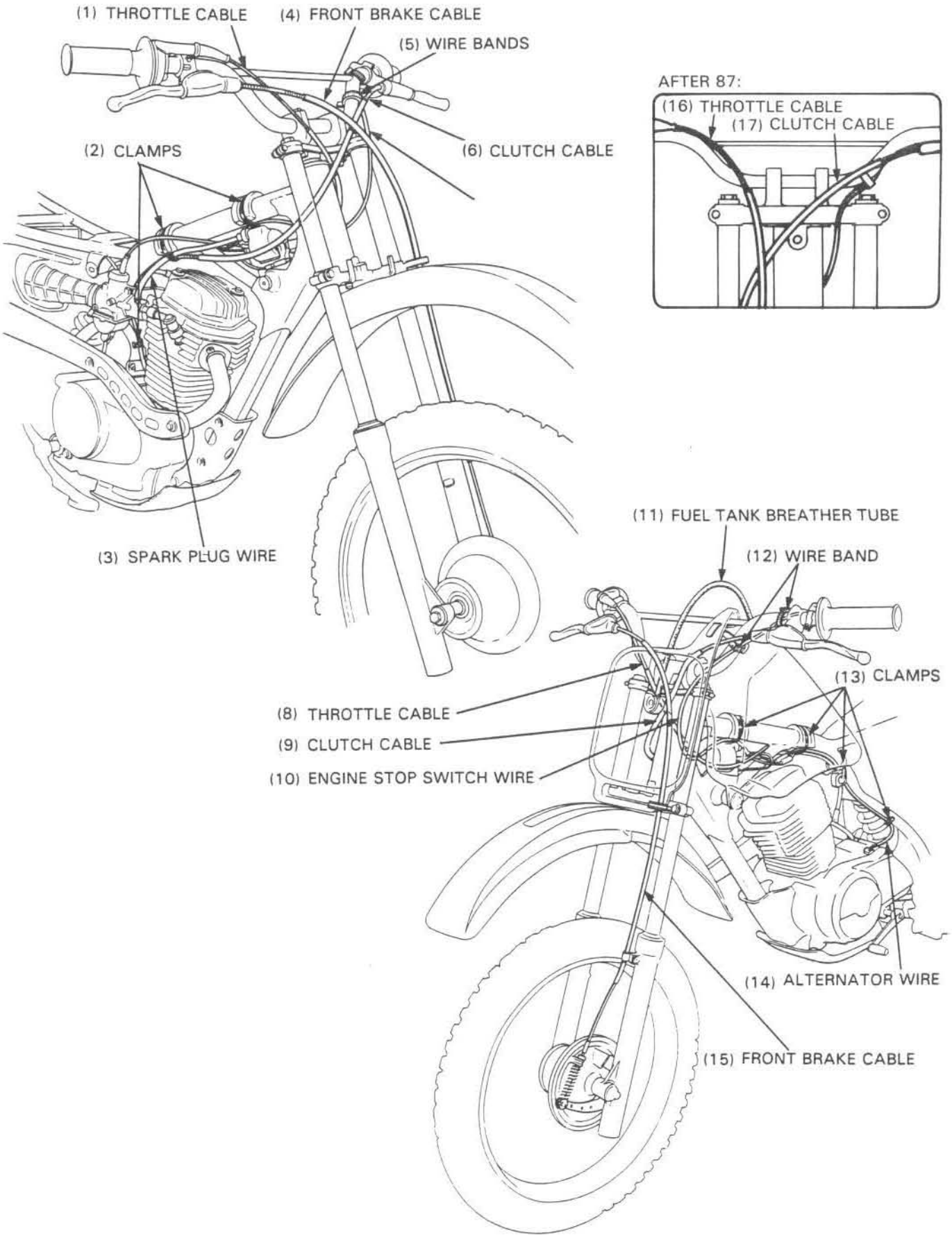
CABLE & HARNESS ROUTING

Note the following when routing cables and wire harnesses:

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

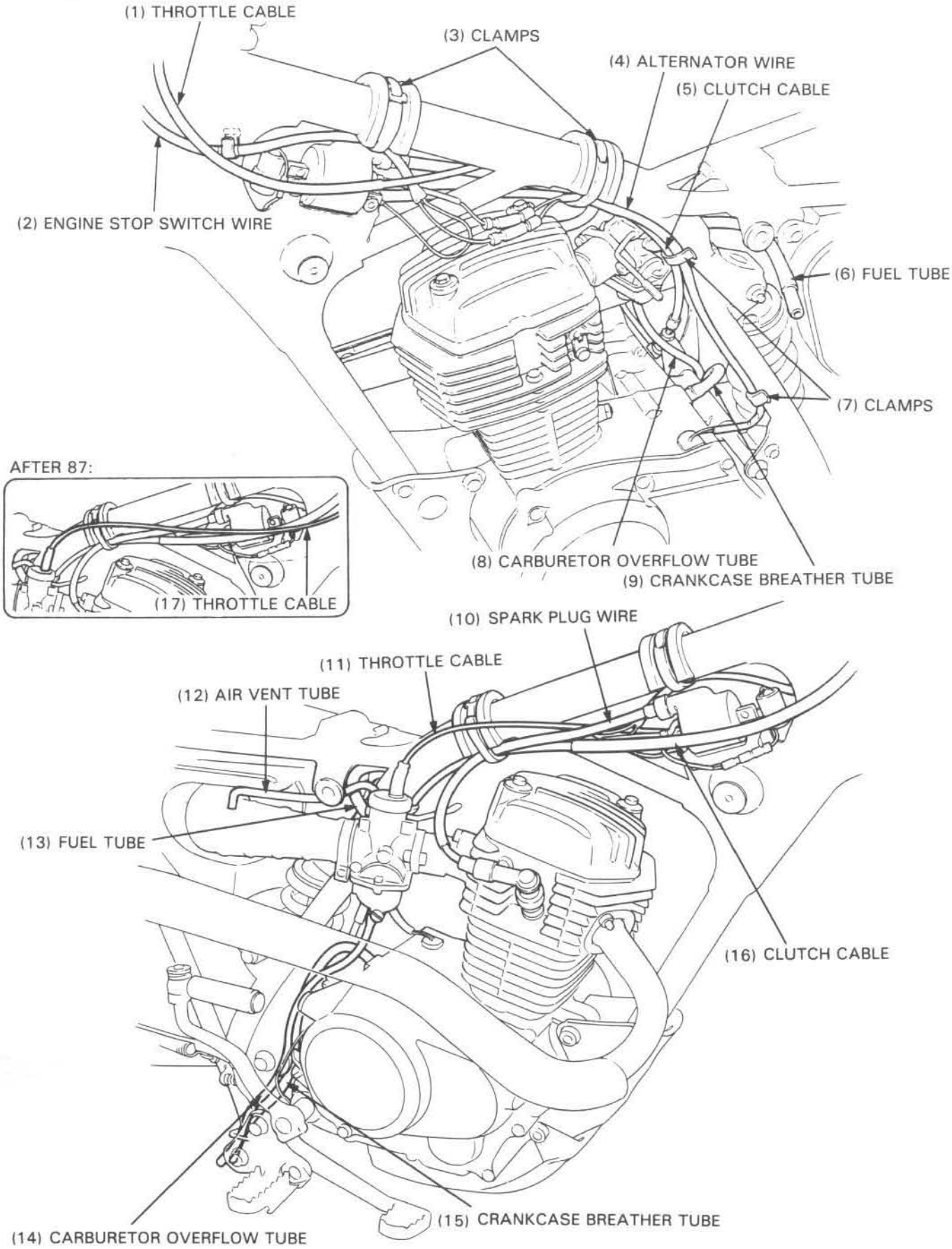


O : CORRECT
X : INCORRECT

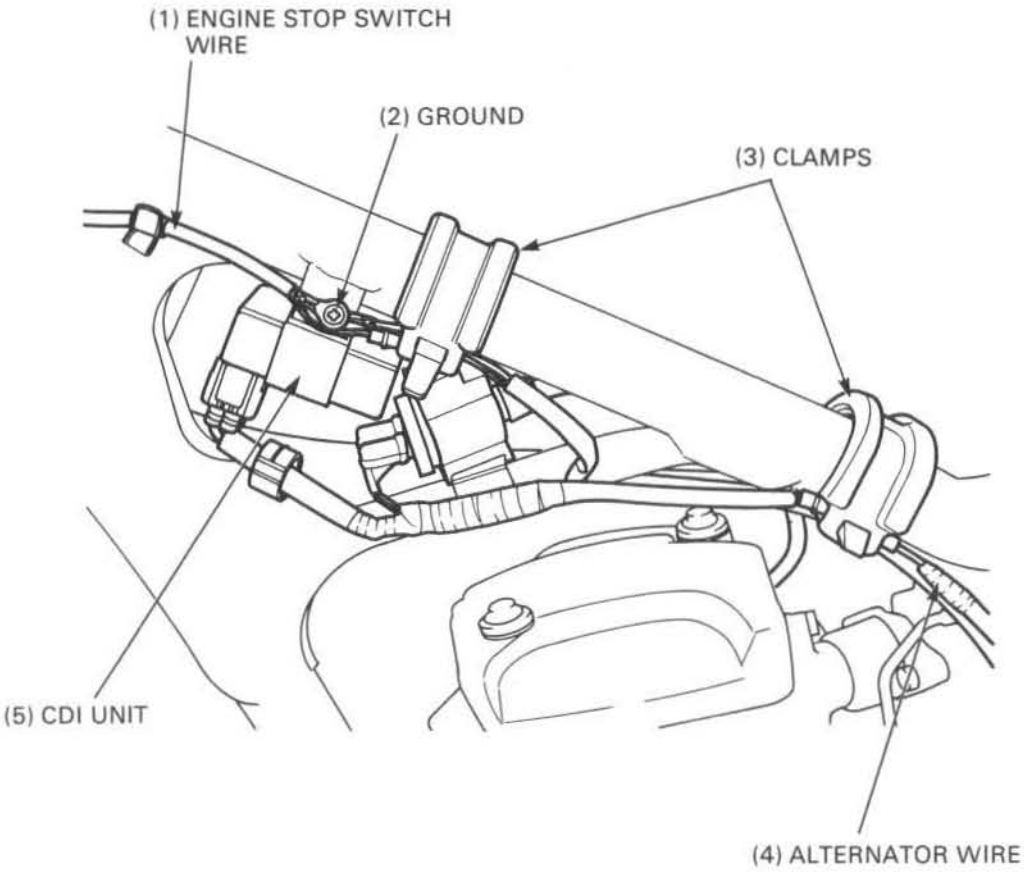

(1) THROTTLE CABLE
(4) FRONT BRAKE CABLE
(5) WIRE BANDS
(2) CLAMPS
(6) CLUTCH CABLE
(3) SPARK PLUG WIRE
AFTER 87:
(16) THROTTLE CABLE
(17) CLUTCH CABLE
(11) FUEL TANK BREATHER TUBE
(12) WIRE BAND
(13) CLAMPS
(8) THROTTLE CABLE
(9) CLUTCH CABLE
(10) ENGINE STOP SWITCH WIRE
(14) ALTERNATOR WIRE
(15) FRONT BRAKE CABLE

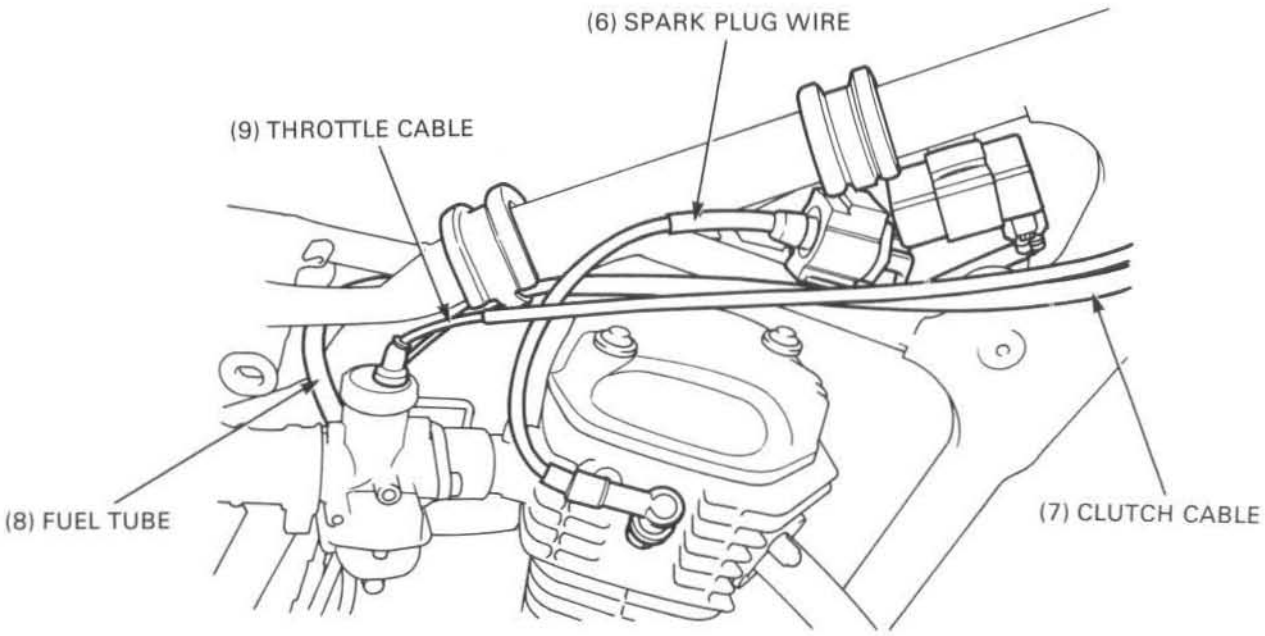
RIDE RED

XR80R, '85 THROUGH '91 XR100R:

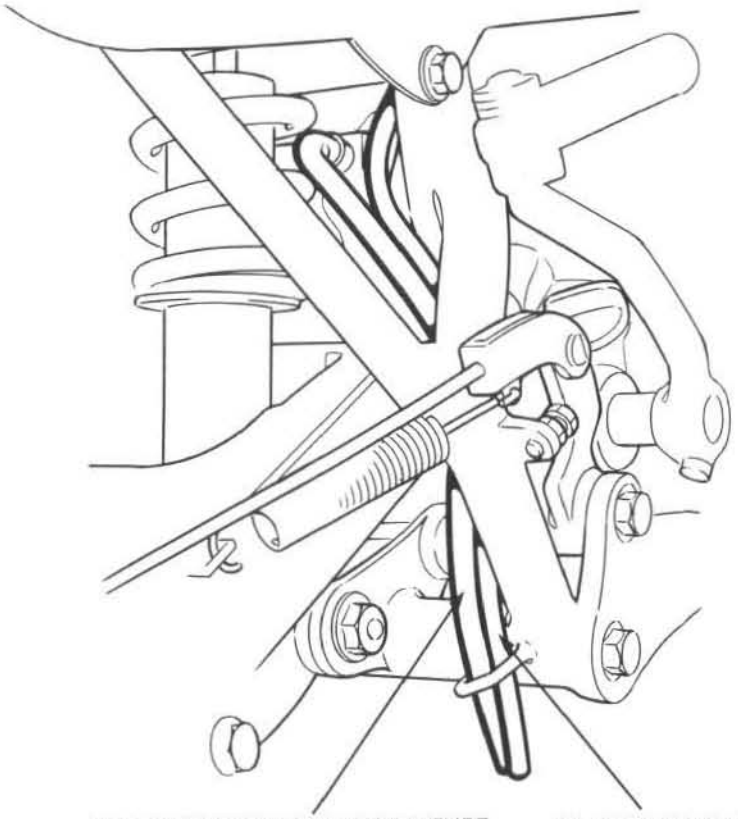


AFTER '91 XR100R:



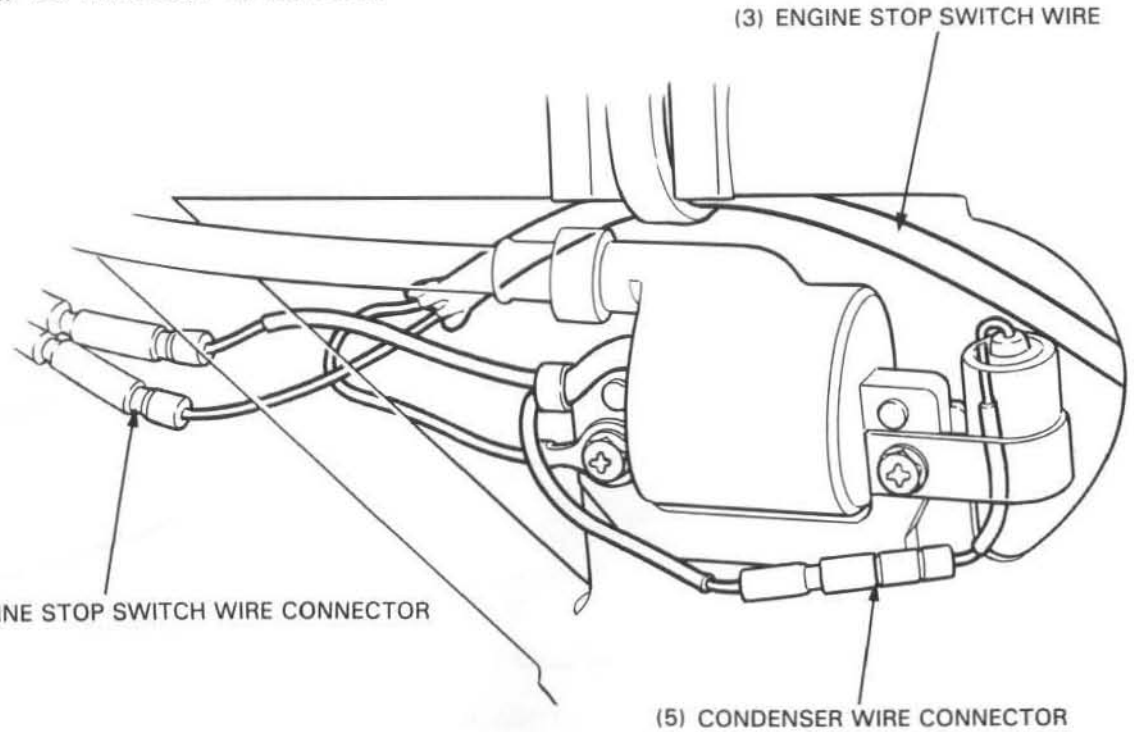


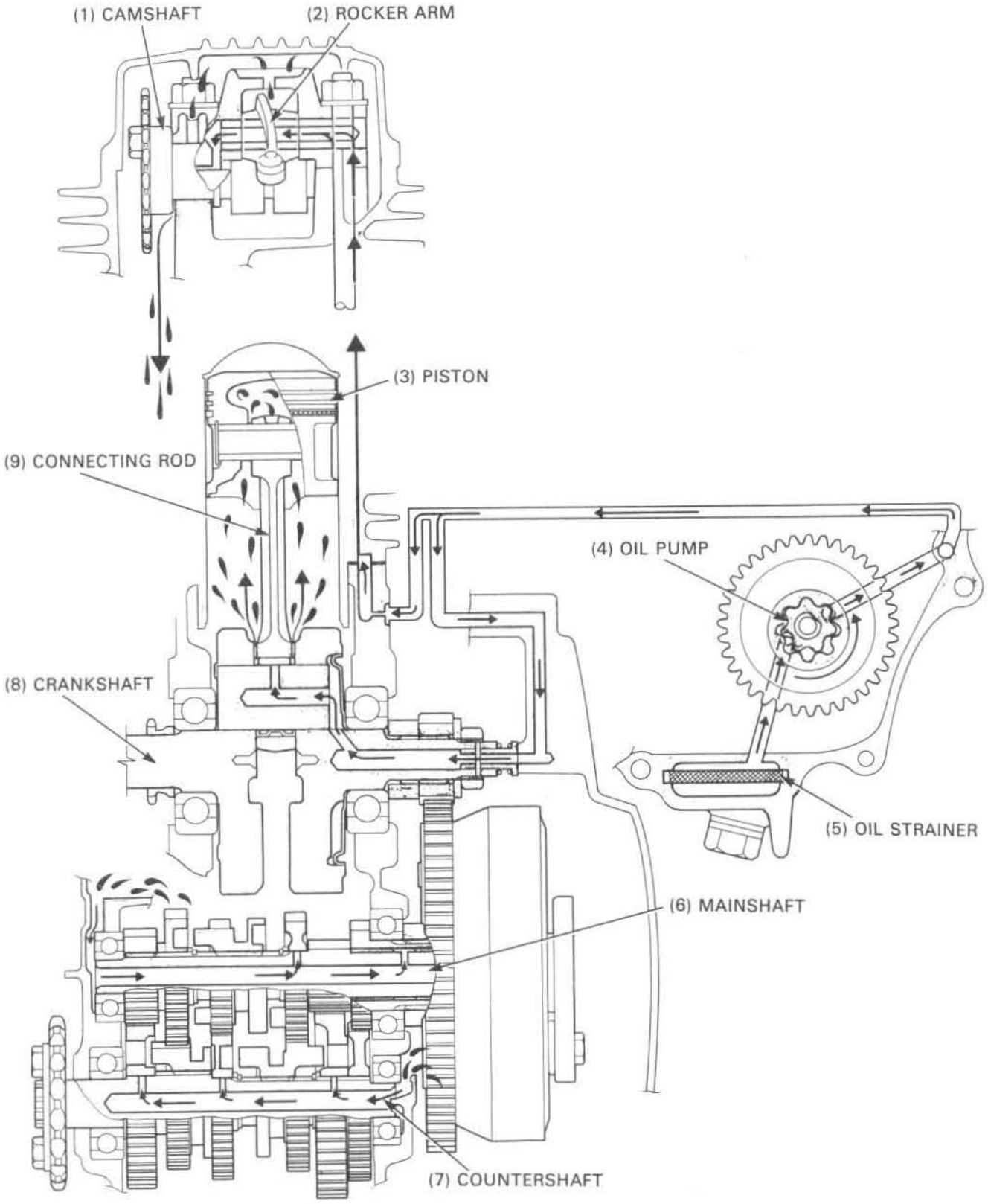
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(1) CRANK CASE BREATHER TUBE (2) CARBURETOR OVERFLOW TUBE

XR80R, '85 THROUGH '91 XR100R:




(1) CAMSHAFT
(2) ROCKER ARM
(3) PISTON
(9) CONNECTING ROD
(4) OIL PUMP
(8) CRANKSHAFT
(5) OIL STRAINER
(6) MAINSHAFT
(7) COUNTERSHAFT

RIDE RED

SERVICE INFORMATION	2-1	ENGINE OIL FILTER SCREEN	2-2
TROUBLESHOOTING	2-1	CYLINDER HEAD OIL CHECK BOLT	2-3
ENGINE OIL LEVEL CHECK	2-2	OIL PUMP	2-3
ENGINE OIL CHANGE	2-2	LUBRICATION POINTS	2-7

SERVICE INFORMATION

GENERAL

CAUTION

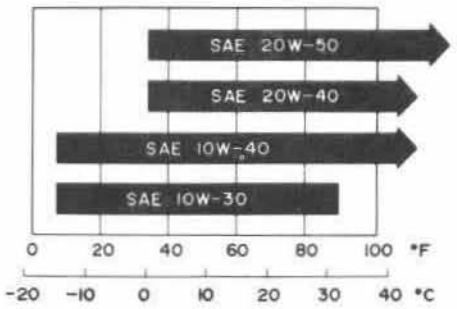
Used engine oil may cause skin cancer if repeatedly left in contact with the skin for prolonged periods. Although this is unlikely unless you handle used oil on a daily basis, it is still adviseadle to thoroughly wash your hands with soap and water as soon as possible after handling used oil.

- This section describes engine oil level inspection, replacement, and oil filter screen cleaning.

SPECIFICATIONS

		XR80R	XR100R
Engine oil capacity	at disassemble	0.9 ℓ (0.95 US qt, 0.79 Imp qt)	1.0 ℓ (1.06 US qt, 0.88 Imp qt)
	after draining	0.7 ℓ (0.74 US qt, 0.62 Imp qt)	0.9 ℓ (0.95 US qt, 0.79 Imp qt)
Recommended engine oil		Honda 4-stroke oil, SAE 10W-40 or equivalent, API service classification SE or SF. Other viscosities may be used when the average temperature in your riding area is with in the indicated range.	

Recommended oil viscosities



ITEM		STANDARD mm (in)	SERVICE LIMIT mm (in)
Oil pump	Tip clearance	0.15 (0.006)	0.20 (0.008)
	Body clearance	0.15–0.21 (0.006–0.008)	0.40 (0.016)
	End clearance	0.15–0.20 (0.006–0.008)	0.25 (0.010)

TROUBLESHOOTING

Oil level too low
- Normal oil consumption
- External oil leaks
- Worn piston rings

Oil contamination
- External oil leaks
- Worn cylinder or piston rings
- Worn valve stem seal
- Dirty oil filter screen

ENGINE OIL LEVEL CHECK

Support the motorcycle upright on level ground.

Check the oil level with the cap/dipstick. Do not screw the cap in when making this check.

If the oil level is below the lower level mark on the dipstick, fill to the upper level mark with the recommended oil (page 2-1).



ENGINE OIL CHANGE

NOTE

- Change the engine oil with the engine warm and the motorcycle held upright to assure complete and rapid draining.

Place an oil pan under the engine and remove the oil filler cap and drain plug.

Check the condition of the drain plug sealing washer; replace if necessary.

Install the drain plug with the washer.

Tighten the drain plug.

TORQUE: 20–30 N·m (2.0–3.0 kg-m, 14–22 ft-lb)

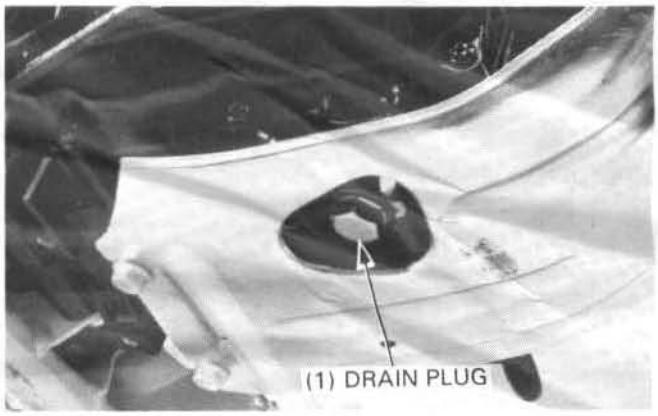
Fill the crankcase with the recommended grade of engine oil (page 2-1).

NOTE

- If the engine oil filter screen is due to be serviced, clean it before filling the crankcase.

Install the oil filler cap. Start the engine and let it idle for few minutes, then stop the engine and recheck the oil level.

Check that there no oil leaks.



ENGINE OIL FILTER SCREEN

NOTE

- Perform this maintenance before filling the engine with oil.

Remove the kick starter and brake pedals.
Disconnect the clutch cable at the lower end.

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



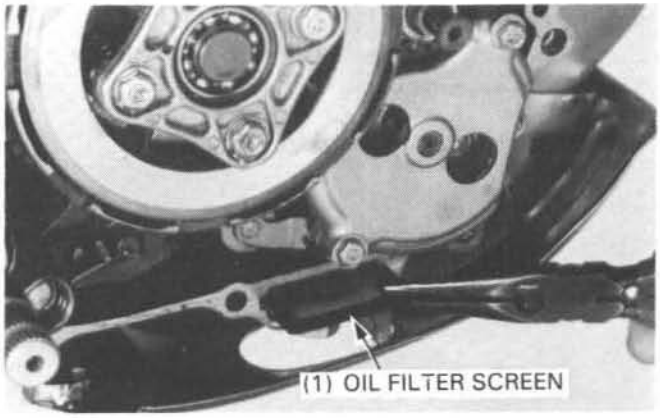
RIDE RED

Remove and clean the oil filter screen with non-flamable or high flash point solvent.
Install the oil filter screen, a new gasket and the right crankcase cover (page 8-8).

Install the removed parts in the reverse order of removal.

Adjust the clutch lever and rear brake pedal free play (pages 3-12 and 3-13).

Fill the crankcase with recommended grade of engine oil (page 2-2).



CYLINDER HEAD OIL CHECK BOLT

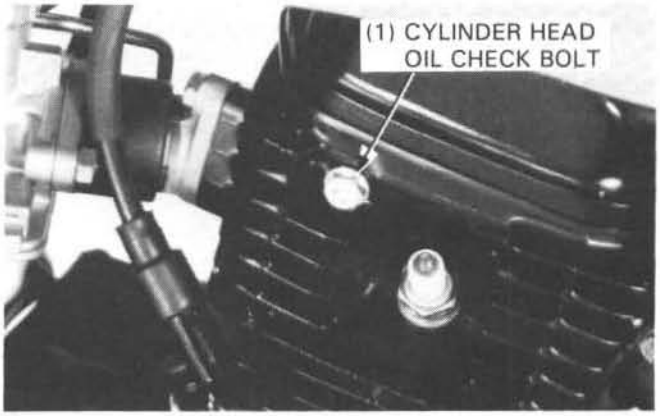
Start the engine.

Loosen, but do not remove, the cylinder head oil check bolt and make sure oil comes out of the oil bolt hole.

CAUTION

- *Do not remove the oil check bolt when the engine is running.*

Retighten the oil check bolt and be sure there are no oil leaks.

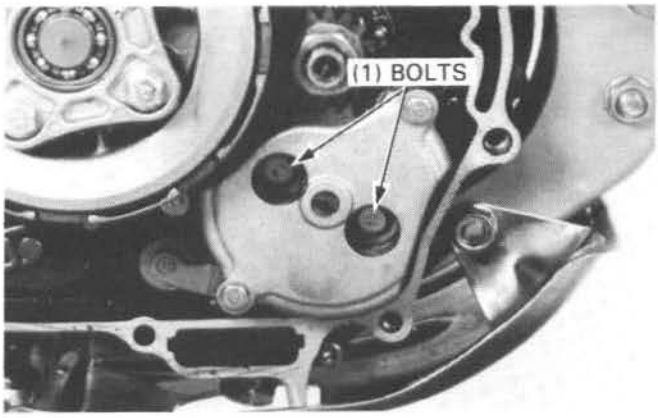


OIL PUMP

REMOVAL

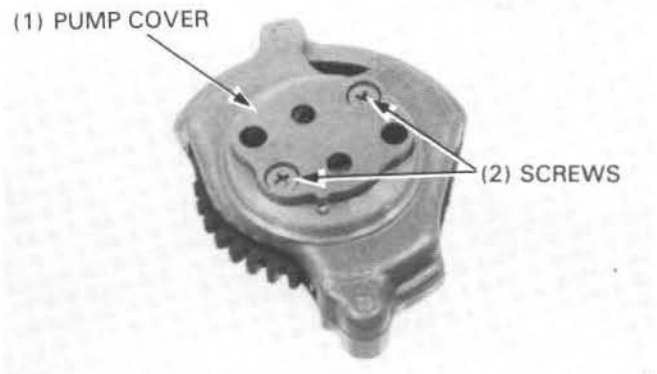
Remove the right crankcase cover (page 8-3).

Remove the two oil pump mount bolts, the oil pump and the two O-rings.



DISASSEMBLY

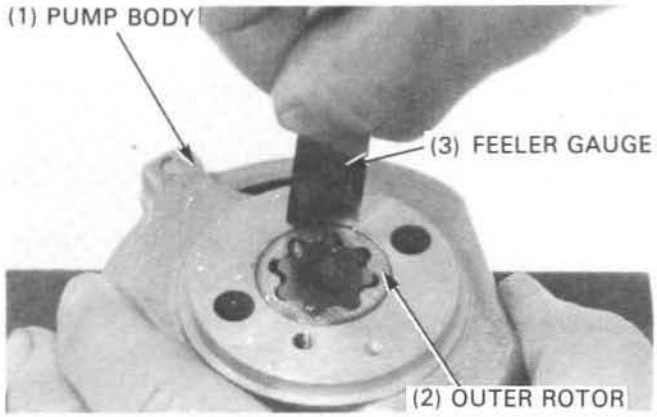
Remove the oil pump cover by removing the two screws.



INSPECTION

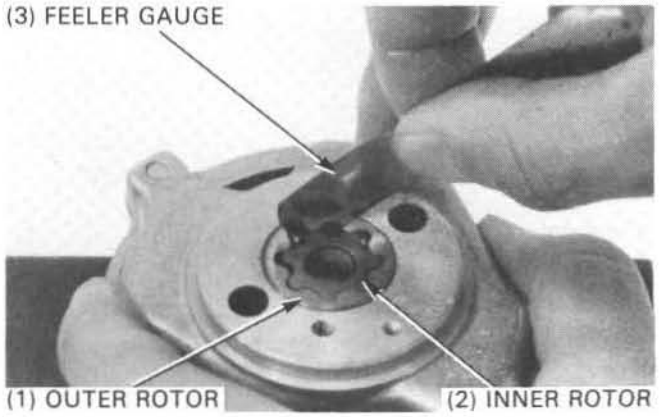
Measure the oil pump body clearance.

SERVICE LIMIT: 0.40 mm (0.016 in)



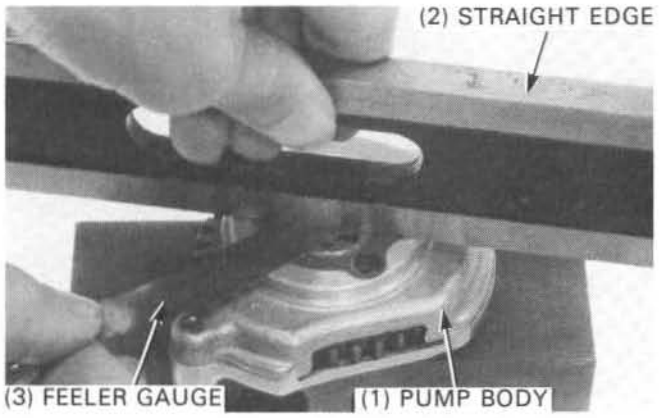
Measure the tip clearance between the inner and outer rotors.

SERVICE LIMIT: 0.20 mm (0.008 in)

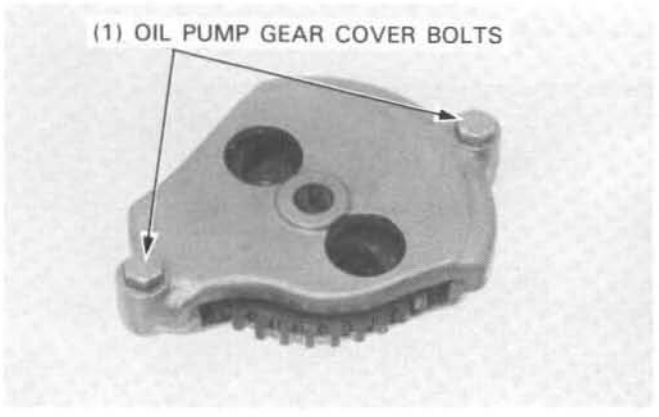


Measure the oil pump end clearance with the gasket installed.

SERVICE LIMIT: 0.25 mm (0.010 in)



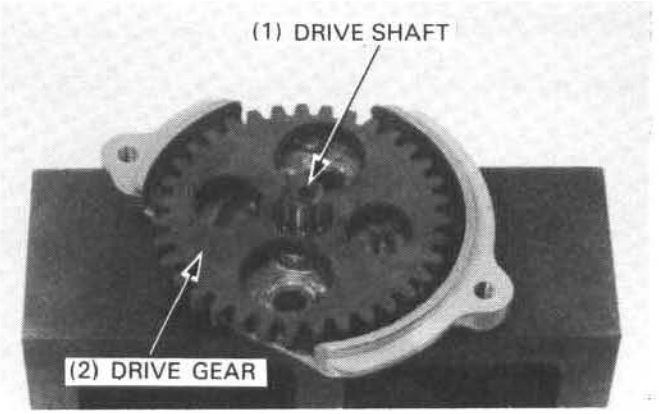
Remove the gear cover by removing the two bolts.



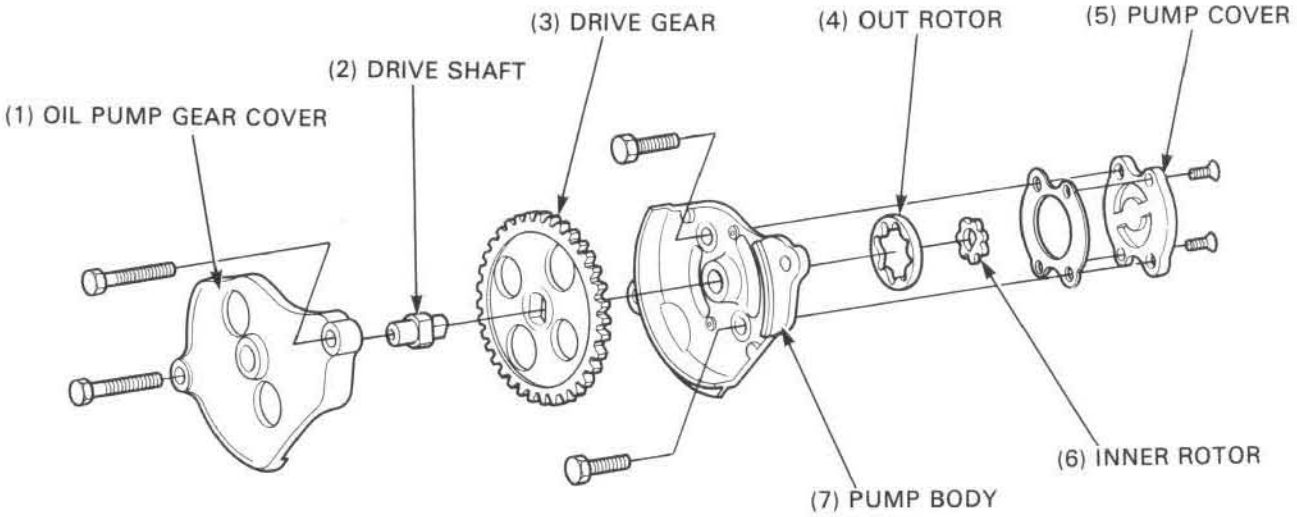
RIDE RED

Remove the oil pump drive gear and drive shaft.

Check the drive gear and shaft for wear or damage.



ASSEMBLY



Place the oil pump drive gear onto the drive shaft.

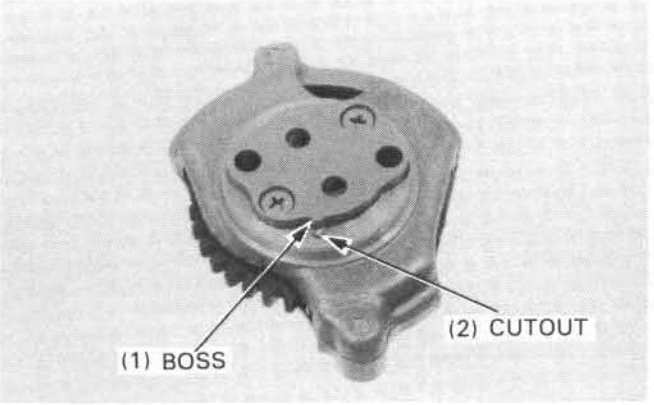
Install the gear and shaft into the oil pump body.

Install the inner and outer rotors and the gasket.

Install the oil pump cover aligning the boss on the cover with the cutout in the pump body.

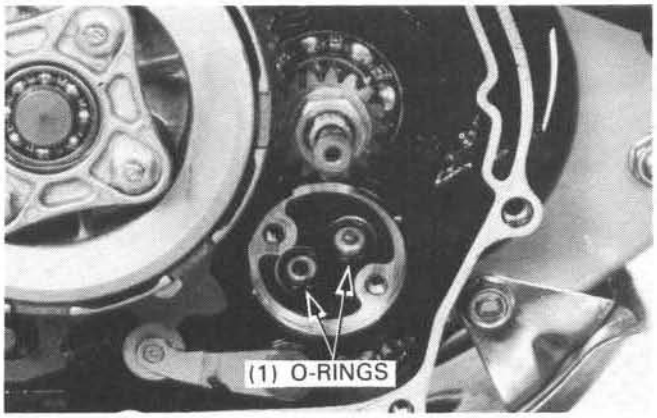
Tighten the two oil pump cover screws.

Check the oil pump operation by turning the oil pump gear.



INSTALLATION

Install the new pump O-rings onto the left crankcase.

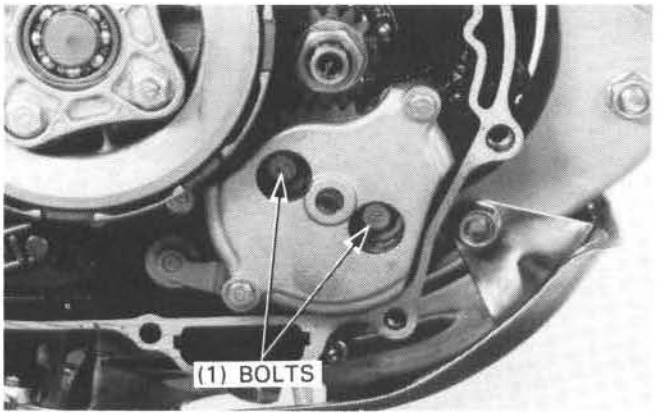


Install the oil pump and tighten the two bolts.

NOTE

- Make sure that the O-rings are in place and are not dislodged before tightening the bolts.

Reinstall the right crankcase cover (page 8-8).



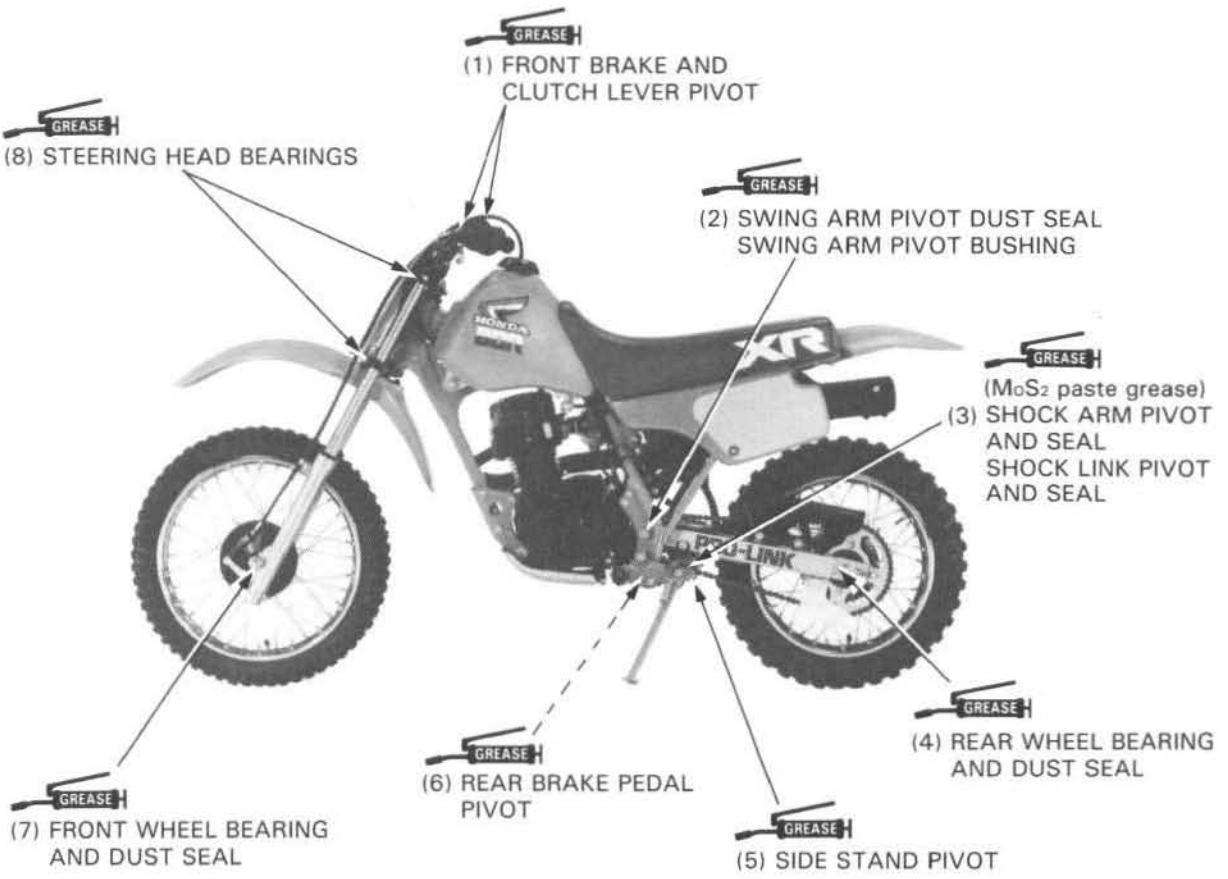
RIDE RED

LUBRICATION POINTS

Use general purpose grease when not otherwise specified here.
Apply oil or grease to the other sliding surfaces and cables not shown here.

CONTROL CABLE LUBRICATION

Periodically disconnect the throttle, front brake, and clutch cables at their upper ends.
Throughly lubricate the cables and their pivot points with a commercially available cable lubricant.



MEMO

SERVICE INFORMATION	3-1	CYLINDER COMPRESSION	3-9
MAINTENANCE SCHEDULE	3-2	DRIVE CHAIN	3-10
FUEL LINE	3-4	DRIVE CHAIN SLIDER	3-11
FUEL STRAINER	3-4	BRAKE SHOE WEAR	3-11
THROTTLE OPERATION	3-4	BRAKE SYSTEM	3-12
AIR CLEANER	3-5	CLUTCH SYSTEM	3-13
SPARK PLUG	3-6	SIDE STAND	3-14
VALVE CLEARANCE	3-6	SUSPENSION	3-14
CONTACT POINTS AND IGNITION TIMING	3-7	SPARK ARRESTER (USA only)	3-14
CAM CHAIN TENSION	3-8	NUTS, BOLTS, FASTENERS	3-15
CARBURETOR IDLE SPEED	3-9	WHEELS/TIRES	3-15
		STEERING HEAD BEARINGS	3-16

SERVICE INFORMATION

SPECIFICATIONS

Throttle grip free play: 2–6 mm (1/8–1/4 in)

Spark plugs:

Standard		For cold climate (Below 5°C, 41°F)		For extended high speed riding	
NIPPONDENSO	NGK	NIPPONDENSO	NGK	NIPPONDENSO	NGK
U22FSR-U	CR7HSA	U20FSR-U	CR6HSA	U24FSR-U	CR8HSA

Spark plug gap		0.6–0.7 mm (0.024–0.028 in)	
Valve clearance	IN	0.05 mm (0.002 in)	
	EX	0.05 mm (0.002 in)	
Contact point gap		0.3–0.4 mm (0.012–0.016 in)	
Ignition timing		XR80R:	'85 THROUGH '91 XR100R:
initial		15° BTDC 1,800±150 rpm	13° BTDC 2,050±150 rpm
full advance		30° BTDC 3,400±200rpm	28° BTDC 3,650±200 rpm
Idle speed		1,500 ± 100 rpm	1,400 ± 100 rpm
Drive chain free play		25–35 mm (1–1-3/8 in)	
Front brake lever free play		20–30 mm (3/4–1-1/4 in)	
Rear brake pedal free play		20–30 mm (3/4–1-1/4 in)	
Clutch lever free play		10–20 mm (3/8–3/4 in)	

Tire:

[ ]: XR100R

	Front	Rear
Tire size	2.50–16–4PR [2.50–19–4PR]	3.60–14–4PR [3.00–16–4PR]
Cold tire pressure,	15 psi (1.0 kg/cm², 100 kPa)	18 psi (1.25 kg/cm², 125 kPa)

TORQUE VALUES

Valve adjuster lock nut	7–11 N·m (0.7–1.1 kg-m, 5–8 ft-lb)
Wheel spoke	2–4.5 N·m (0.2–0.45 kg-m, 17–40 in-lb)
Rim lock nut	10–15 N·m (1.0–1.5 kg-m, 7–11 ft-lb)

TOOLS

Common

Valve adjusting wrench, 8 x 9 mm	07708–0030100	or equivalent commercially available in U.S.A.
Valve adjusting wrench	07708–0030400	or valve adjuster 07908-KE90200 (U.S.A. only)
Spoke wrench, B 4.5 x 5.1 mm	07701–0020200	or equivalent commercially available in U.S.A.

MAINTENANCE SCHEDULE

Perform the Pre-ride inspection in the Owner's Manual at each scheduled maintenance period.
I :Inspect, clean, adjust, lubricate or replace if necessary
R :Replace
C :Clean
A :Adjust
L :Lubricate

XR80R, '85 THROUGH '91 XR100R

	ITEM / FREQUENCY	NOTE	BREAK-IN MAINTENANCE First week of operation – about 200 miles/350km	REGULAR MAINTENANCE INTERVAL Every 30 operating day – about 1000 miles/1600 km	Refer to page
*	FUEL LINE			I	3-4
* *	FUEL STRAINER SCREEN			C	3-4
*	THROTTLE OPERATION			I	3-4
	AIR CLEANER	NOTE 1		C	3-5
	SPARK PLUG			I	3-6
*	VALVE CLEARANCE		I	I	3-6
*	CONTACT POINT AND IGNITION TIMING		I	I	3-7
	ENGINE OIL		R	R	2-2
* *	ENGINE OIL STRAINER SCREEN			C	2-2
*	CAM CHAIN TENSION		A	A	3-8
*	CARBURETOR IDLE SPEED		I	I	3-9
	DRIVE CHAIN	NOTE 1	I,L	EVERY 300 miles (500 km) I,L	3-10
	DRIVE CHAIN SLIDER			I	3-11
	BRAKE SHOES WEAR			I	3-11
	BRAKE SYSTEM		I	I	3-12
	CLUTCH SYSTEM		I	I	3-13
	SIDE STAND			I	3-14
*	SUSPENSION			I	3-14
*	SPARK ARRESTER	NOTE 2		C	3-14
*	NUT, BOLT, FASTENER		I	I	3-15
* *	WHEELS/TIRES		I	I	3-15
* *	STEERING HEAD BEARINGS		I	I	3-16

* SHOULD BE SERVICED BY AN AUTHORIZED HONDA DEALER, UNLESS THE OWNER HAS THE PROPER TOOLS 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 WET OR DUSTY CONDITIONS.
2. USA ONLY

RIDE RED

AFTER '91 XR100R

ITEM / FREQUENCY		NOTE	BREAK-IN MAINTENANCE First week of operation – about 200 miles/350km	REGULAR MAINTENANCE INTERVAL Every 30 operating day – about 1000 miles/1600 km	Refer to page
*	FUEL LINE			I	3-4
* *	FUEL STRAINER SCREEN			C	3-4
*	THROTTLE OPERATION			I	3-4
	AIR CLEANER	NOTE 1		C	3-5
	SPARK PLUG			I	3-6
*	VALVE CLEARANCE		I	I	3-6
	ENGINE OIL		R	R	2-2
* *	ENGINE OIL STRAINER SCREEN			C	2-2
*	CAM CHAIN TENSION		A	A	3-8
*	CARBURETOR IDLE SPEED		I	I	3-9
	DRIVE CHAIN	NOTE 1	I,L	EVERY 300 miles (500 km) I,L	3-10
	DRIVE CHAIN SLIDER			I	3-11
	BRAKE SHOES WEAR			I	3-11
	BRAKE SYSTEM		I	I	3-12
	CLUTCH SYSTEM		I	I	3-13
	SIDE STAND			I	3-14
*	SUSPENSION			I	3-14
*	SPARK ARRESTER	NOTE 2		C	3-14
*	NUT, BOLT, FASTENER		I	I	3-15
* *	WHEELS/TIRES		I	I	3-15
* *	STEERING HEAD BEARINGS		I	I	3-16

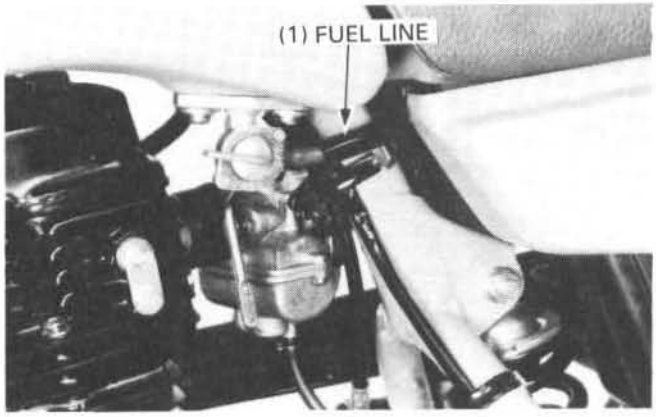
* SHOULD BE SERVICED BY AN AUTHORIZED HONDA DEALER, UNLESS THE OWNER HAS THE PROPER TOOLS AND IS MECHANICALLY QUALIFIED.

* * 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 WET OR DUSTY CONDITIONS.
2. USA ONLY

FUEL LINE

Check the fuel line and replace any parts that show signs of deterioration, damage or leakage.

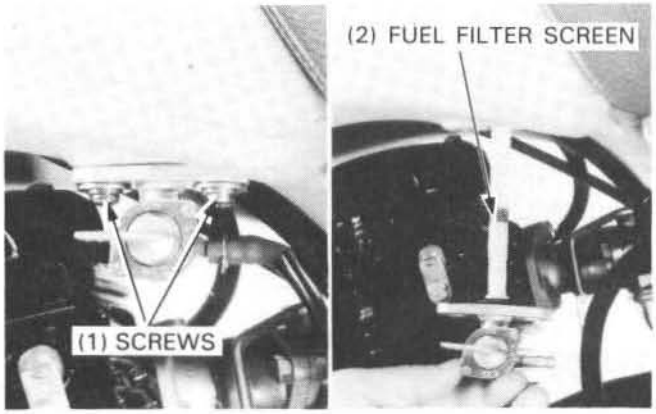


FUEL STRAINER SCREEN

WARNING

- ***Gasoline is extremely flammable and is explosive under certain conditions. Perform this operation in a wellventilated area with the engine stopped. Do not smoke or allow open flames or sparks in the area or where gasoline is stored.***
- ***Wipe up spilled gasoline at once.***

Turn the fuel valve OFF and disconnect the fuel tube at the carburetor.
Place a drain pan under the fuel tube and turn the fuel valve ON to drain the fuel tank.
After the tank has drained completely, remove the two screws and remove the fuel valve.
Wash the fuel strainer screen in non-flammable or high flash solvent and reinstall.

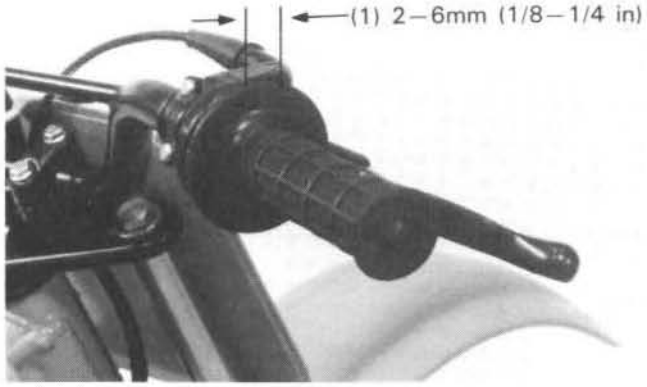


THROTTLE OPERATION

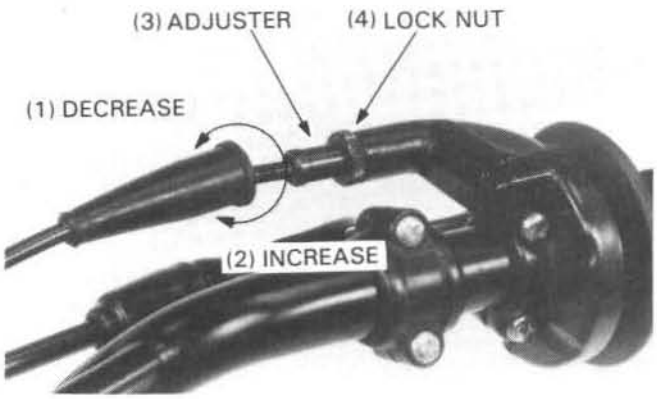
Check for smooth throttle grip full opening and automatic full closing in all steering positions.

Inspect the throttle cable for deterioration, damage or kinks.
Lubricate or replace the throttle cable as required.
Measure the throttle grip free play at the grip flange.

THROTTLE GRIP FREE PLAY: 2—6 mm (1/8—1/4 in)



Throttle grip free play can be adjusted at the either end of the throttle cable on '85 model. After '85 models use throttle cable adjusters only on the upper throttle control end of the cable.
Minor adjustments are made at the upper adjuster by loosening the lock nut and turning the adjuster.



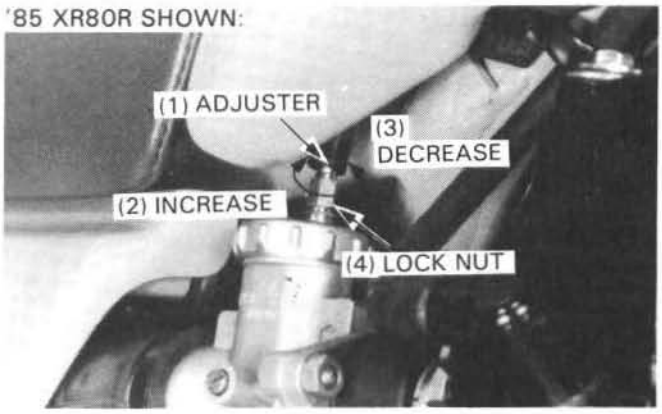
RIDE RED

Major adjustments are made at the lower adjuster on the carburetor by loosening the lock nut and turning the adjuster. Retighten the lock nut and recheck the throttle operation.

NOTE

- For models after '85 there is an integral carburetor top and throttle cable assembly.
- The integral cable is manufactured so that it must be adjusted at the upper adjuster on the throttle grip only.

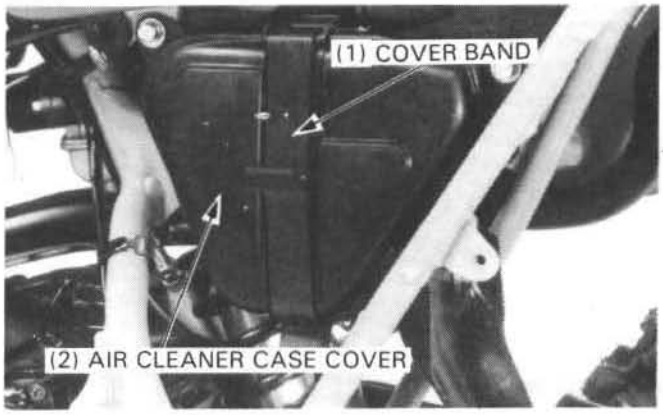
'85 XR80R SHOWN:



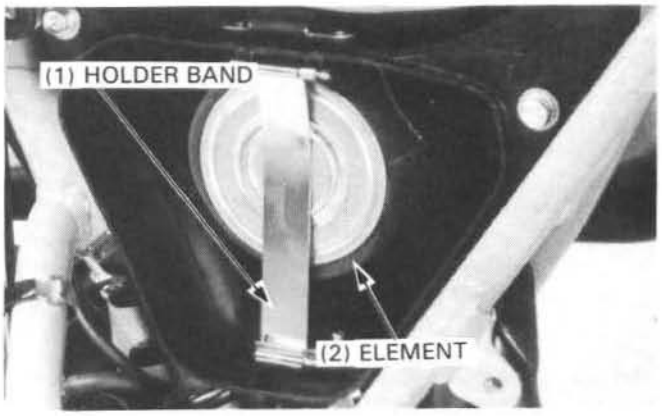
AIR CLEANER

Remove the left side cover.

Remove the air cleaner case cover band and case cover.



Remove the air cleaner holder band and the air cleaner element assembly.

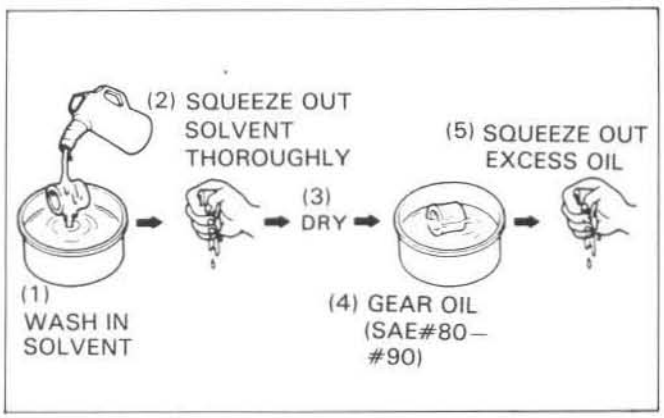


Wash the element in non-flammable or high flash point solvent, squeeze out the solvent thoroughly, and let the element dry.
Inspect the element closely for any fews or irregularities and replace if necessary.
Soak the element in gear oil (SAE #80—#90) and squeeze out the excess.

Assemble the air cleaner element and holder.

Install the element holder with the element and secure, with the band.

Reinstall the air cleaner case cover, cover band and left side cover.



SPARK PLUG

Disconnect the spark plug cap and remove the spark plug.

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

Measure the spark plug gap with a wire-type feeler gauge.

Adjust the gap by bending the side electrode carefully.

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

RECOMMENDED SPARK PLUG:

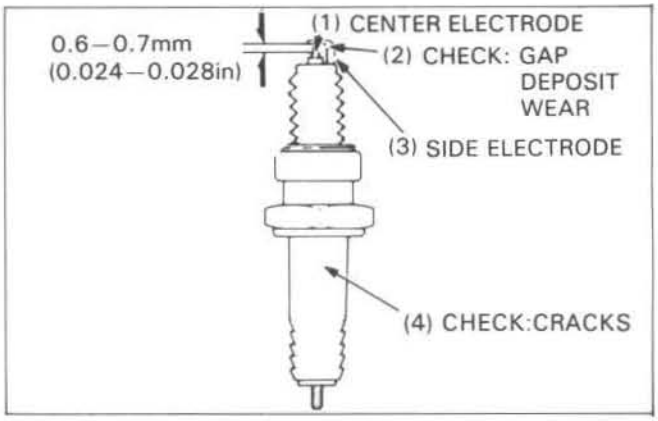
For cold climate (Below 5°C, 41°F)	NGK	CR6HSA
	NIPPONDENSO	U20FSR-U
Standard	NGK	CR7HSA
	NIPPONDENSO	U22FSR-U
For extended high speed riding	NGK	CR8HSA
	NIPPONDENSO	U24FSR-U

With the sealing washer attached, thread the spark plug in by hand to prevent crossthreading.

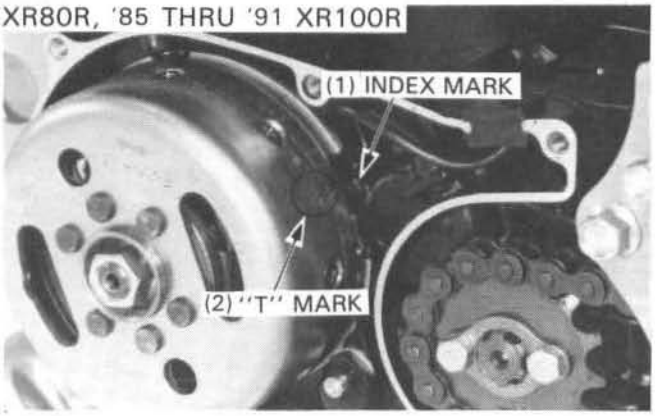
Tighten the spark plug to the specified torque.

TORQUE: 12–19 N·m (1.2–1.9 kg-m, 9–14 ft-lb)

Connect the spark plug cap.



XR80R, '85 THRU '91 XR100R



VALVE CLEARANCE

NOTE

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

Remove the left crankcase cover screws and remove the cover.

Remove the cylinder head cover (page 6–3)

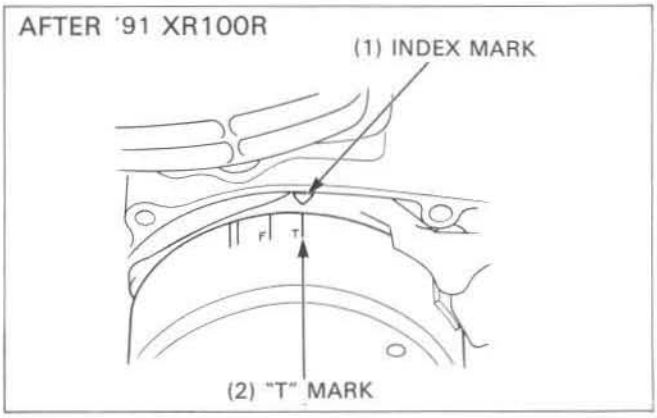
Turn the flywheel counterclockwise until the "T" mark on the flywheel is aligned with the index mark on the left crankcase.

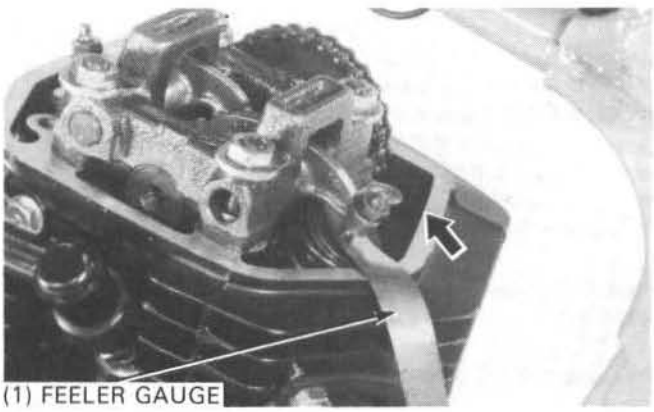
Make sure the piston is at T.D.C. (Top Dead Center) on the compression stroke.

Check the clearance of both valves by inserting a feeler gauge between the adjusting screw and the valve stem.

VALVE CLEARANCE:
INTAKE: 0.05 mm (0.002 in)
EXHAUST: 0.05 mm (0.002 in)

AFTER '91 XR100R





RIDE RED

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

Hold the adjusting screw and tighten the lock nut.

Recheck the valve clearance.

Install the cylinder head cover (page 6-13) and the left crankcase cover.



CONTACT POINTS AND IGNITION TIMING

CONTACT POINTS INSPECTION

XR80R, '85 THROUGH '91 XR100R

NOTE

- Ignition timing is adjusted by varying the contact point gap.

Remove the left crankcase cover screws and cover.
Inspect the contact point surfaces. If they are level but grayish in color or slightly pitted, file them lightly.

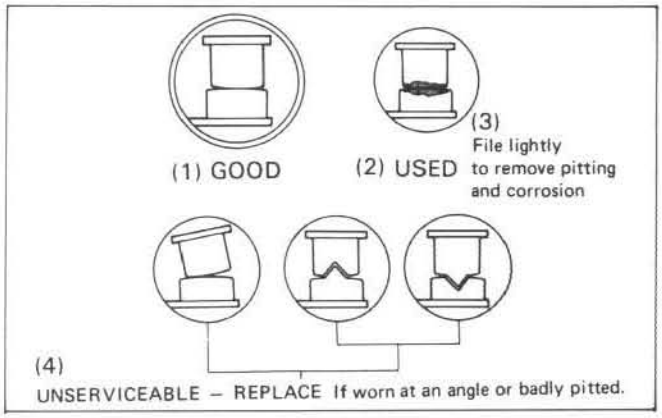
If there is a noticeable transfer of metal from one surface to the other, evidence of heavy arcing, or if either point is worn at an angle, the point set should be replaced (page 13-7).

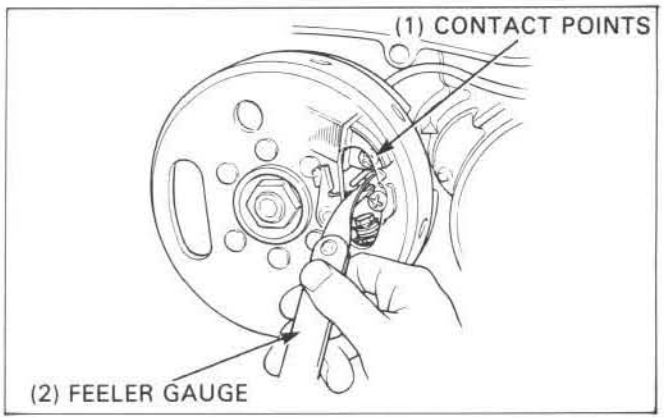
Turn the flywheel counterclockwise to obtain maximum point gap and measure the gap with a feeler gauge.

POINT GAP: 0.3–0.4 mm (0.012–0.016 in)

If the gap is incorrect, loosen the lock screw and adjust as necessary.

Clean the contact point surfaces with an electrical contact cleaner to remove any oil film or dirt.





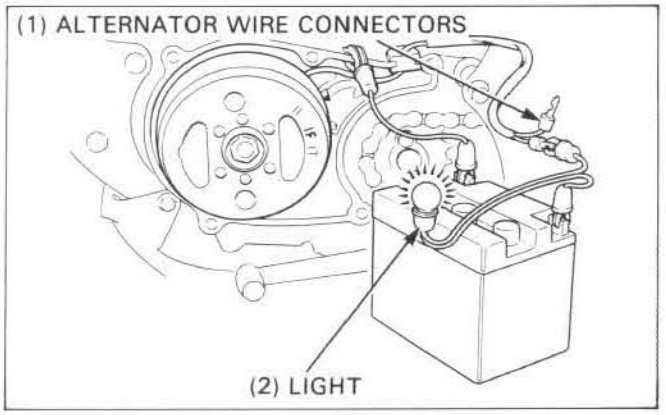
IGNITION TIMING

XR80R, '85 THROUGH '91 XR100R

Disconnect the alternator wire connectors.
Connect a continuity light between the alternator wire (black/white) and the positive terminal of a fully charged battery. Ground the battery negative terminal to a frame, or engine ground.

Slowly rotate the flywheel counterclockwise until the "F" mark on the flywheel aligns with the index mark on the crankcase.

The ignition timing is correct if the light dims when both marks align.

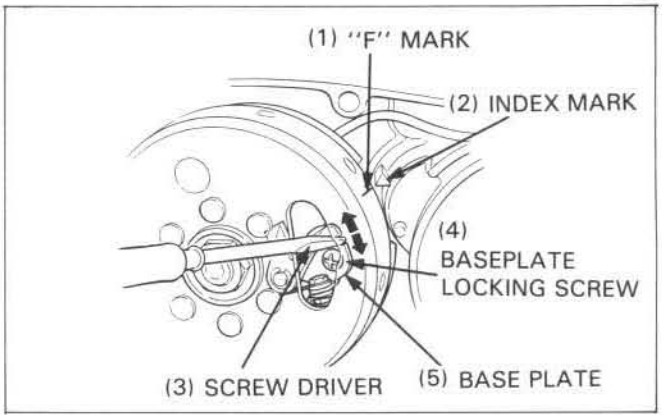


If the ignition timing is incorrect, loosen the locking screw and adjust the contact point gap.
Increasing the gap advances ignition timing. Decreasing the gap retards ignition timing.

Tighten the locking screw.

NOTE

- Replace the point set if the specified gap can not be maintained to obtain the correct ignition timing.
- Use a stroboscopic timing light to determine accurate ignition timing.



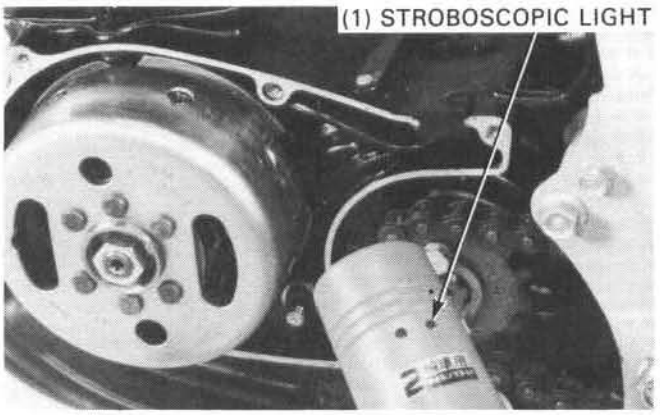
DYNAMIC TEST(WITH A STROBOSCOPIC LIGHT)

XR80R, '85 THROUGH '91 XR100R

Remove the left crankcase cover.

Connect a tachometer and stroboscopic light.

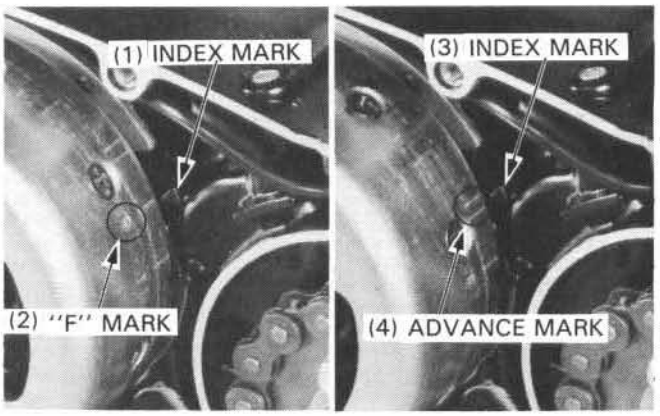
Start the engine and allow it to idle.



XR80R, 1,500 ± 100 rpm : "F" mark should be aligned
XR100R, 1,400 ± 100 rpm : with the index mark

Increase the engine speed and check for the following:
XR80R, 1,800±150 rpm : Advance stars
XR100R, 2,050±150 rpm :

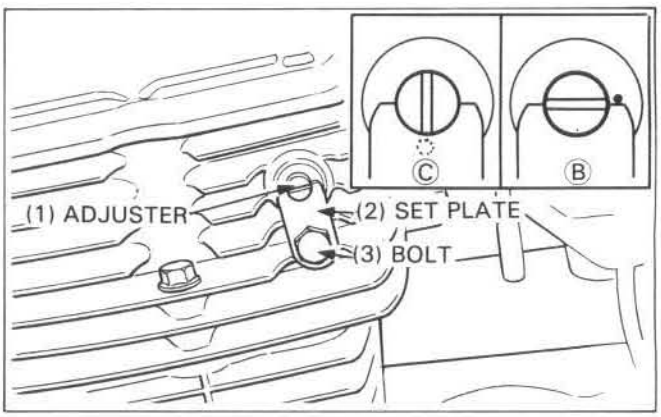
XR80R, 3,400±200 rpm: Advance stops
XR100R, 3,650±200 rpm: Index mark should be between advance marks.



CAM CHAIN TENSION

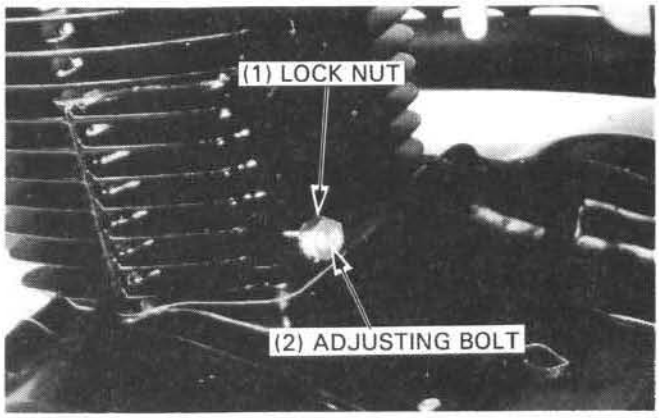
Start the engine and let it idle.
Loosen the cam chain set plate bolt and turn the cam chain adjuster in either direction. When chain noise is minimized, tighten the set plate bolt.

If the cam chain is still noisy with the punch mark at the "B" position, tighten the set plate bolt, stop the engine and proceed with the following steps.



RIDE RED

Loosen the cam chain adjusting bolt lock nut and the adjusting bolt.
Tighten the adjusting bolt and lock it with the lock nut.
Loosen the set plate bolt and turn the punch mark on the chain adjuster to the "C" position.
Start the engine and turn the adjuster in either direction and stop it when chain noise quiets.
Tighten the set plate bolt.



CARBURETOR IDLE SPEED

NOTE

- Inspect and adjust the carburetor idle speed after all other engine adjustments are within specification.

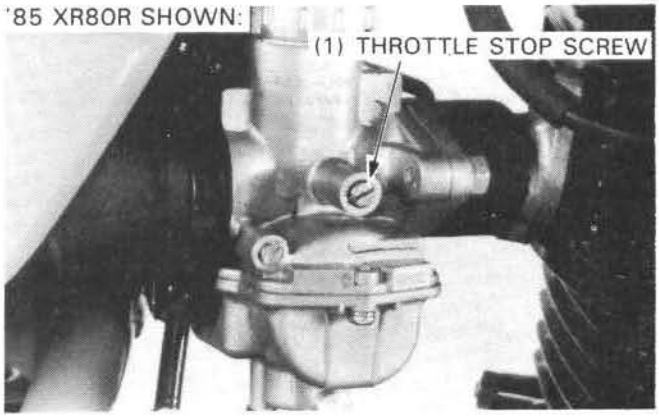
Connect a tachometer.
Shift the transmission into NEUTRAL, warm up the engine and hold the motorcycle on level ground.
NOTE

- The engine must be warm for accurate idle inspection and adjustment.

Check the idle speed and adjust with the throttle stop screw if necessary.

IDLE SPEED: XR80R 1,500 ± 100 rpm
XR100R 1,400 ± 100 rpm

'85 XR80R SHOWN:

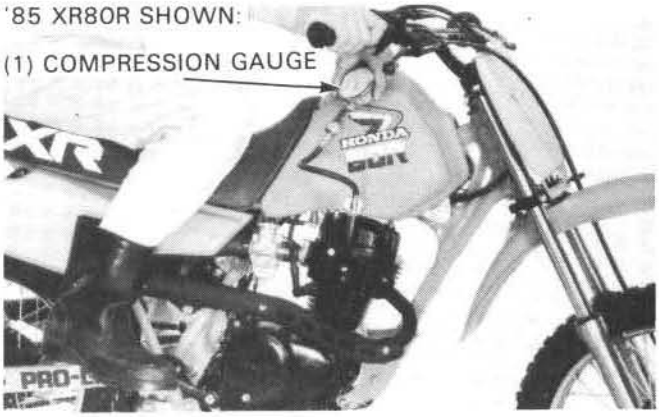


CYLINDER COMPRESSION

Warm up the engine.
Stop the engine, remove the spark plug and insert a compression gauge.
With the throttle at full open, operate the kick starter pedal several times.
NOTE

- Be certain that compression is not leaking at the gauge connection.

'85 XR80R SHOWN:



CYLINDER COMPRESSION:
XR80R: 1,177 ± 196kPa(12.0 ± 2.0kg/cm², 171 ± 28psi)
XR100R: 1,128 ± 147kPa(11.5 ± 1.5kg/cm², 164 ± 21psi)

Low compression can be caused by:
- Improper valve adjustment
- Valve leakage
- Blown cylinder head gasket
- Worn piston ring or cylinder

High compression can be caused by:
- Carbon deposits in combustion chamber or on the piston crown.

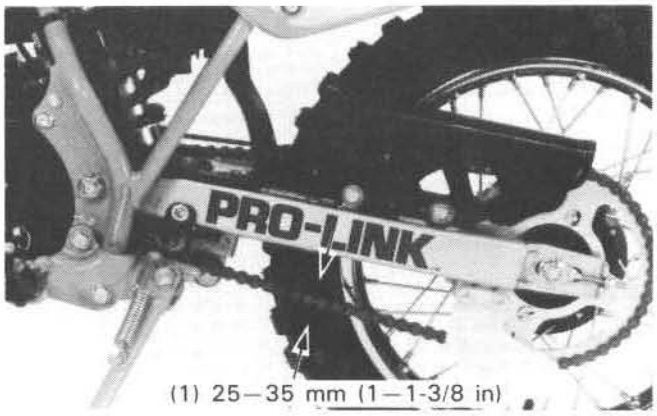
DRIVE CHAIN

With the engine OFF, place the motorcycle on its side stand and shift the transmission into neutral.
Check slack in the drive chain lower run midway between the sprockets.

DRIVE CHAIN SLACK: 25—35 mm (1—1-3/8 in)

CAUTION

- *Excessive chain slack, 50 mm (2 in) or more, may damage the frame.*

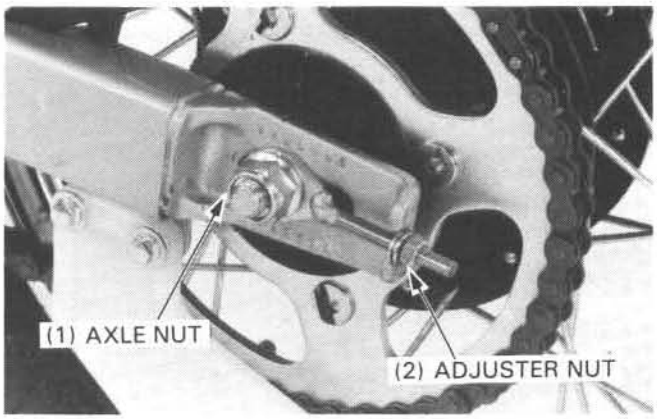


Adjust as follows:

Loosen the rear axle nut.
Turn both adjuster nuts an equal number of turns until the correct drive chain slack is obtained.

CAUTION

- *Make sure that the adjuster index marks are set to the same alignment marks on the both sides of the swing arm.*



Tighten the rear axle nut.

TORQUE: 55—70 N·m (5.5—7.0 kg-m, 40—51 ft-lb).

Tighten the drive chain adjuster nuts.

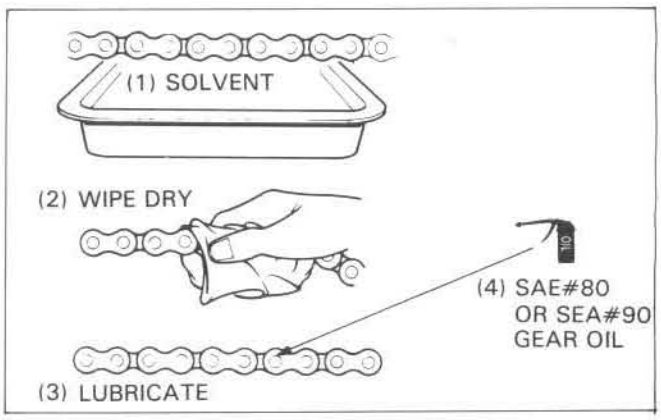
Recheck the drive chain slack and free wheel rotation.

Check the Rear brake pedal free play (page 3-12) and adjust if necessary.

When the drive chain becomes extremely dirty, it should be removed and cleaned prior to lubrication.
Remove the left crankcase cover (page 13-7).
Remove the drive chain retaining clip carefully.
Remove the master link and the drive chain.



Clean the drive chain with a non-flammable or high flash point solvent and a brush.



RIDE RED

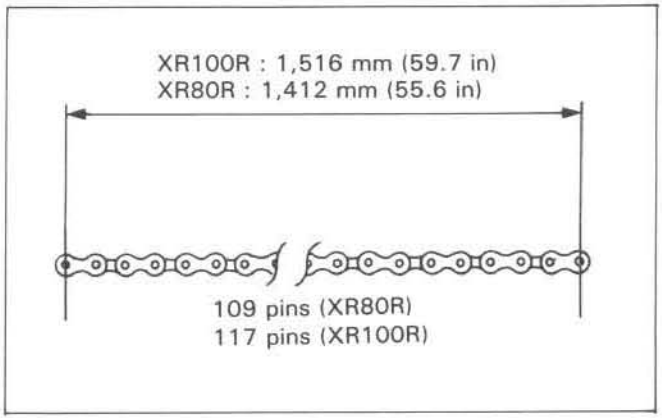
Inspect the drive chain for wear or damage.
Replace any chain that is excessively worn or damaged.

DRIVE CHAIN SIZE/LINKS: RK428 HS/118 LINKS

Measure the drive chain distance between a span of 109 pins (XR80R) and 117 pins (XR100R) from pin center to pin center with the chain held taut and any kinked joint straightened.

XR80R 108 PITCHES (109 PINS) LENGTH:
1,384 mm (54.5 in)
XR100R 116 PITCHES (117 PINS) LENGTH:
1,486 mm (58.5 in)

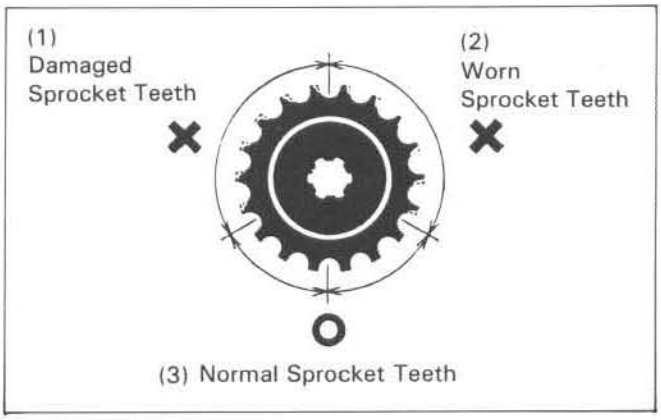
SERVICE LIMIT: XR80R 1,412 mm (55.5 in)
XR100R 1,516 mm (59.7 in)



Inspect the drive and driven sprockets teeth for excessive wear or damage and replace if necessary.

NOTE

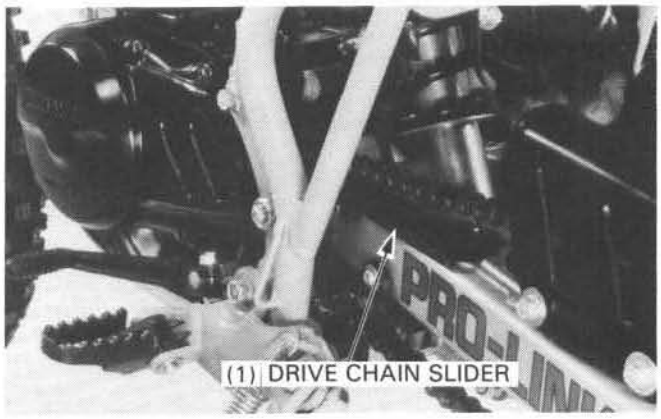
- Never install a new drive chain on worn sprockets or a worn chain on new sprockets. Both chain and sprockets must be in good condition, or the new replacement chain or sprockets will wear rapidly.



DRIVE CHAIN SLIDER

Inspect the drive chain slider for wear or damage at the swingarm pivot.

SERVICE LIMIT: 6.0 mm (0.24 in)



BRAKE SHOE WEAR

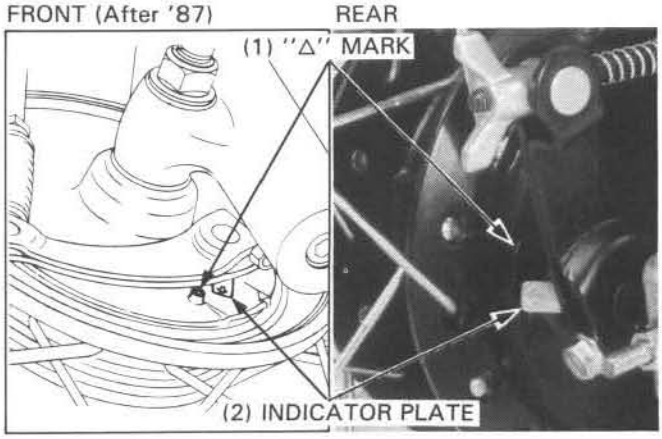
FRONT BRAKE

Refer to page 10-7 for front brake shoes inspection.

FRONT (After '87 only) AND REAR BRAKE

Check the brake shoe and brake drum for wear if the arrow on the indicator plate aligns with the "△" mark on the brake panel when the brake pedal is applied.

Replace the rear brakes if the arrow on the indicator plate aligns with the "△" mark on the brake panel when the brake pedal is applied.

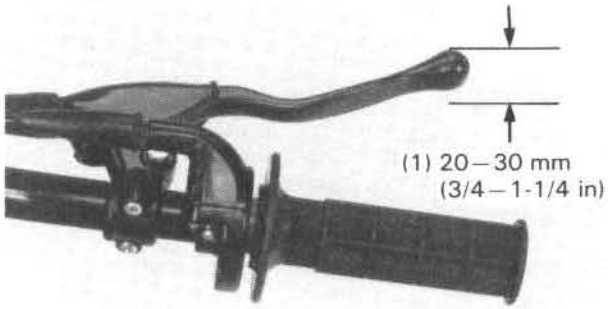


BRAKE SYSTEM

FRONT BRAKE

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

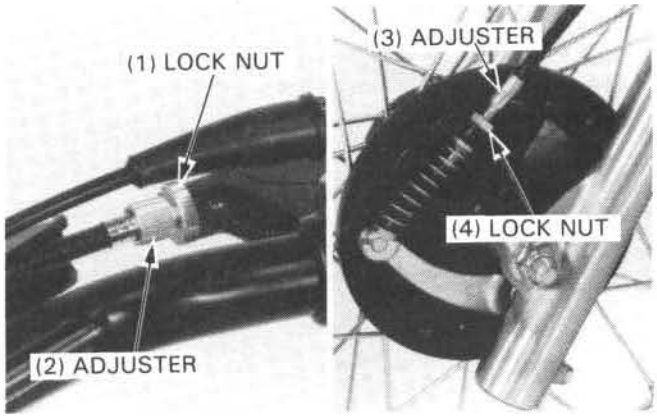
BRAKE LEVER FREE PLAY: 20—30 mm (3/4—1-1/4 in)



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

Tighten the lock nut.

Make minor adjustments with the upper adjuster on the handlebar.
Make major adjustments with the lower adjuster on the brake panel.



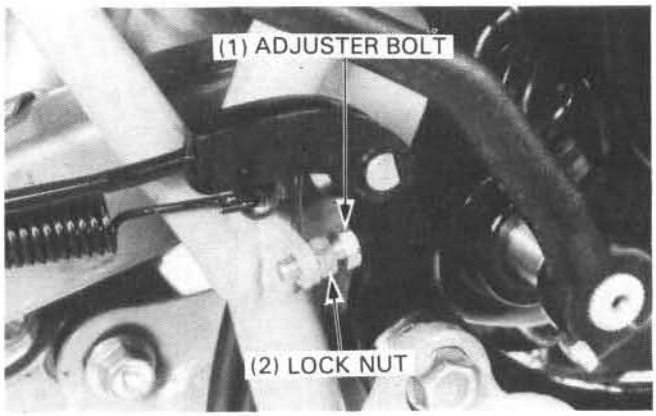
REAR BRAKE

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

Retighten the lock nut.

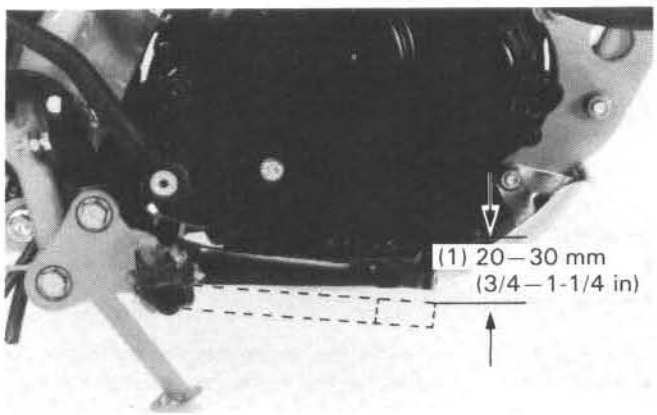
NOTE

- Adjust the rear brake pedal free play after adjusting the brake pedal height.



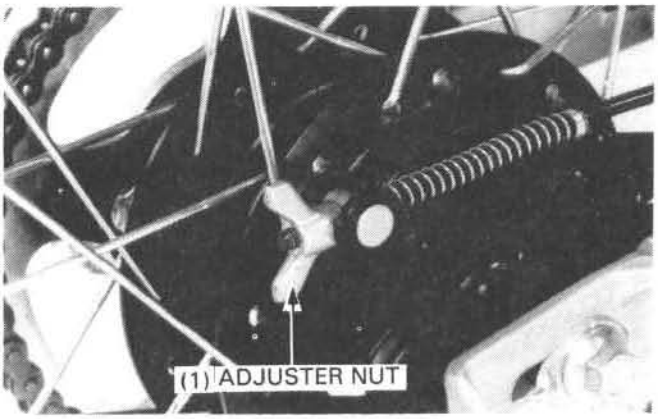
Pedal free play
Measure the brake pedal free play.

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



RIDE RED

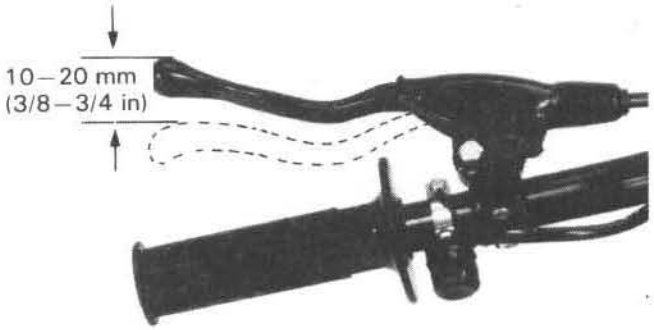
Adjust the brake pedal free play by turning the adjuster nut.



CLUTCH SYSTEM

Measure the clutch lever free play at the tip of the clutch lever.

FREE PLAY: 10–20 mm (3/8–3/4 in)

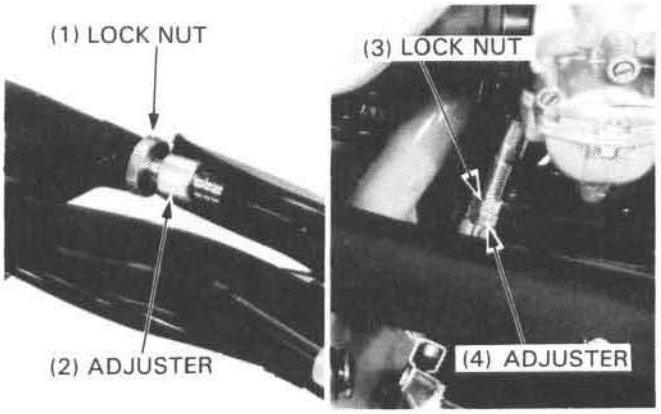


Minor adjustments are made with the upper adjuster.

Loosen the lock nut, turn the adjuster and retighten the lock nut.

Check the clutch operation.

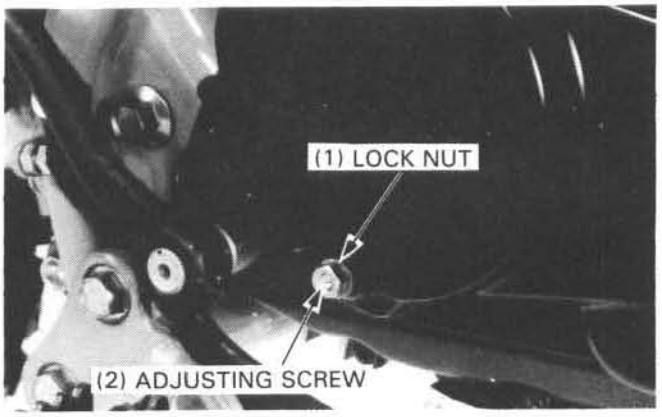
To make major adjustments:
Turn the upper adjuster in all the way.
Loosen the lower adjuster lock nut and turn the adjuster in all the way.



Loosen the adjusting screw lock nut on the right crankcase. Turn the adjusting screw counterclockwise until resistance is felt. Then turn the screw clockwise 1/8–1/4 turn. Hold the adjusting screw and tighten the lock nut.

Turn the lower adjuster out until there is 25 mm (1.0 in) free play at the lever end.
Tighten the lock nut.

Then turn the upper adjuster to obtain the specified free play.

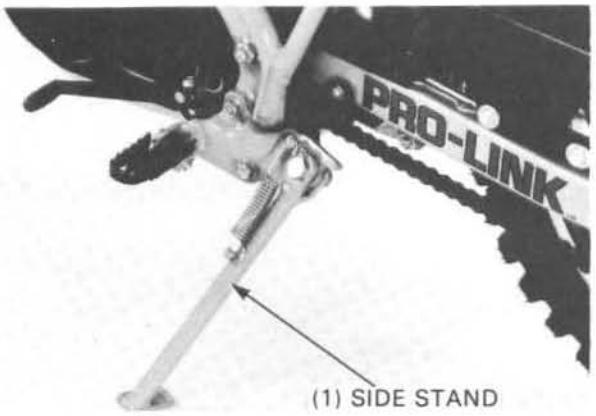


SIDE STAND

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

NOTE

- Spring tension is correct if the readings fall within 2—3 kg (4.4—6.6 lb) when the side stand lower end is pulled with a spring scale.



(1) SIDE STAND

SUSPENSION

FRONT

Check the action of the front forks by compressing them several times.
Check the entire fork assembly for signs of leaks or damage.
Replace any components whitch are damaged.

WARNING

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


(1) FRONT SUSPENSION

REAR

Bounce the rear of the motorcycle up and down to check proper operation.
Check for the entire suspension assembly.
Be sure it is securely mounted and not damaged.
Move the rear wheel sideways to check for play in the swing arm.
Apply grease to the swing arm pivot bushing through the swing arm grease fitting.



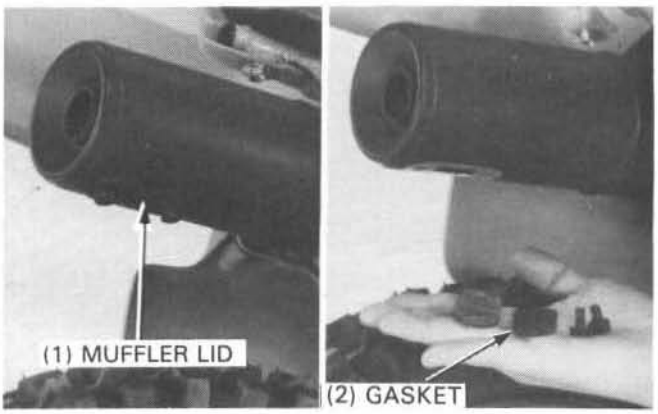
(1) REAR SUSPENSION

SPARK ARRESTER (USA only)

WARNING

- *Do not remove and install the muffler lid while the exhaust pipe is hot.*
- *Perform this operation in a well ventilated area, free from fire hazard.*
- *Use adequate eye protection.*

Remove the muffler lid.
Start the engine and rev it up several times while momentarily creating exhaust system back pressure by blocking the end of the exhaust pipe with a rag to blow carbon out of the muffler hole.
Ensure that the muffler lid bolts and gasket are in good condition. Replace if necessary.


(1) MUFFLER LID
(2) GASKET

RIDE RED

NUTS, BOLTS, FASTENERS

Tighten bolts, nuts and fasteners at regular intervals as shown in the Maintenance Schedule (page 3-2, 3).

Tighten all chassis nuts and bolts to their correct torque values (page 1-4). Check all cotter pins, fasteners and safety clips.

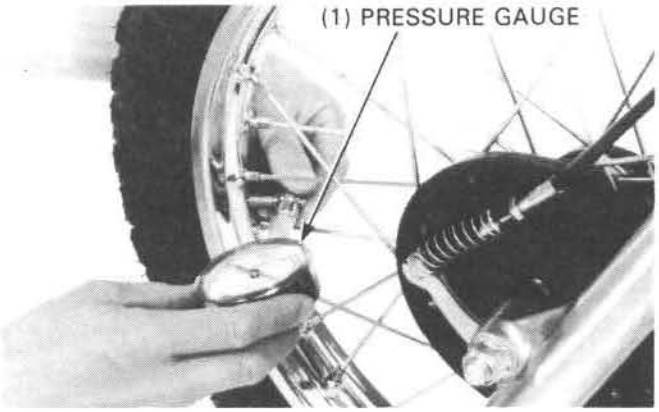
WHEELS/TIRES

TIRE PRESSURE

Tire pressure: (cold)
Front: 15psi(1.0kg/cm^2,100kPa)
Rear: 18psi(1.25kg/cm^2,125kPa)

Tire:

	XR80R	XR100R
Front:	2.50-16-4PR	2.50-19-4PR
Rear:	3.60-14-4PR	3.00-16-4PR



Check the tires for cuts, embedded objects.

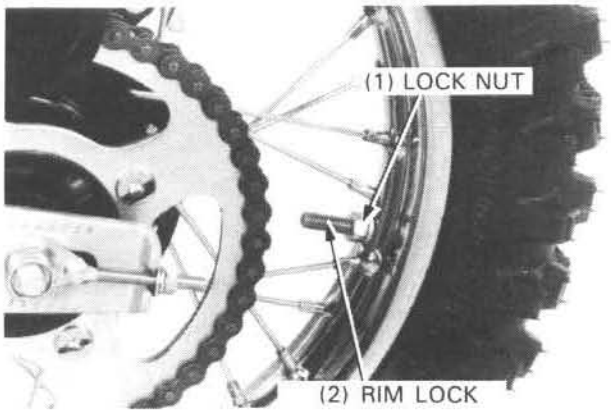
Check the tightness of the wheel spokes frequently.

TORQUE: 2—4.5 N·m (0.20—0.45 kg-m, 17—40 in-lb)



Check and tighten the rim lock nut.

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



STEERING HEAD BEARINGS

NOTE

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

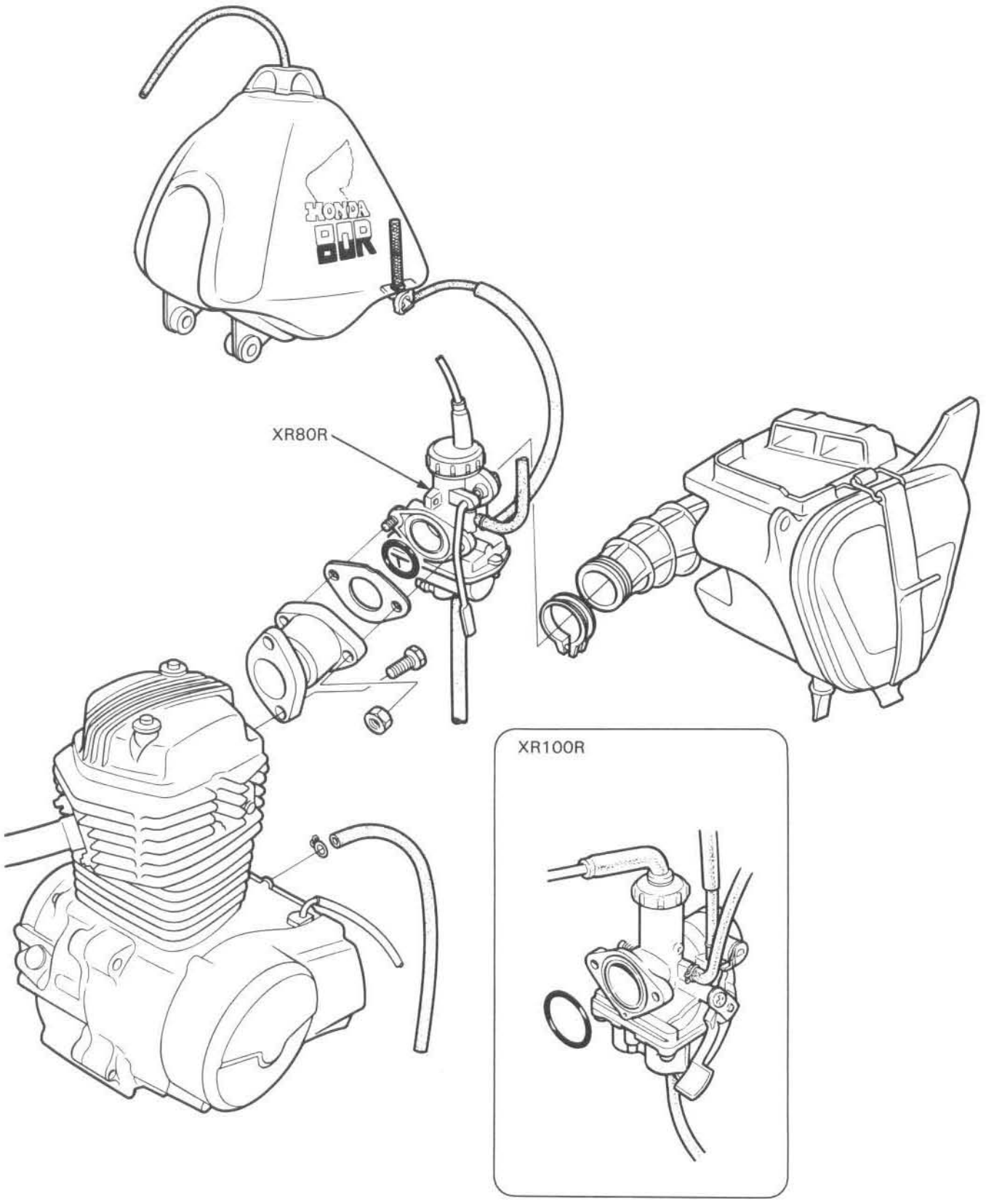
Raise the front wheel off the ground and make sure that the handlebar rotates freely.

If the handlebars move unevenly, bind or have vertical movement, adjust the steering head bearings by turning the adjusting nut (page 10-16).



RIDE RED

MEMO



RIDE RED

4. FUEL SYSTEM

SERVICE INFORMATION	4-1	CARBURETOR ASSEMBLY	4-8
TROUBLESHOOTING	4-2	FLOAT LEVEL ADJUSTMENT	4-10
FUEL TANK	4-3	THROTTLE VALVE INSTALLATION	4-10
AIR CLEANER CASE	4-4	CARBURETOR INSTALLATION	4-10
THROTTLE VALVE REMOVAL	4-5	AIR SCREW ADJUSTMENT (XR80R)	4-10
CARBURETOR REMOVAL	4-6	PILOT SCREW ADJUSTMENT (XR100R)	4-11
FLOAT, FLOAT VALVE AND JETS	4-6	HIGH ALTITUDE ADJUSTMENT	4-12

SERVICE INFORMATION

GENERAL

WARNING

- *Gasoline is extremely flamable and is explosive under certain conditions. Work in a well ventilated area with the engine stopped. Do not smoke or allow flames or sparks in the work area or where gasoline is stored.*

CAUTION

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

NOTE

If motorcycle is to be stored for more that one month, drain the float chamber. Fuel left in the float chamber may cause clogged jets resulting in hard starting or poor, drivability.

- When disassembling fuel system parts, note the locations of the O-rings. Replace them in their proper locations during reassembly.

SPECIFICATIONS

Fuel tank

Fuel tank capacity	6.5 liter (1.71 US gal, 1.43 Imp gal)
Fuel reserve capacity	0.9 liter (0.24 US gal, 0.2 Imp gal)

Carburetor

Item	XR80R		XR100R	
	'85, '86:	After '86:	'85, '86:	After '86:
Type	Piston valve			
Identification number	PC10D	PC20B	PD36D	PD80C
Main jet	#92	#95	#95	
Slow jet	#35		#38	
Jet needle setting : from top	4th groove	2nd groove	3rd groove	
Air screw initial opening	1-1/2 turns out	1-3/4 turns out	— —	— —
Pilot screw initial opening	— —	— —	2-5/8 turns out	1-3/4 turns out
Float level	21.5 mm (0.85 in)		12.5 mm (0.49 in)	
Idle speed	1,500 ± 100 rpm		1,400 ± 100 rpm	

TOOL

Common

Float level gauge 07401-0010000

TROUBLESHOOTING

Engine cranks but won't start
- No fuel in tank
- No fuel to cylinder
- Too much fuel getting to cylinder
- No spark at plug (ignition malfunction)
- Air cleaner clogged

Engine idles roughly, stalls, or runs poorly
- Idle speed incorrect
- Ignition malfunction
- Rich mixture
- Lean mixture
- Air cleaner clogged
- Air leaks into manifold

Lean mixture
- Carburetor fuel jet clogged
- Fuel cap vent blocked
- Breather tube clogged
- Fuel filter clogged
- Fuel line kinked or restricted
- Float valve faulty
- Float level too low

Rich mixture
- Carburetor choke stuck open
- Float valve faulty
- Float level too high
- Carburetor air jet clogged

RIDE RED

FUEL TANK

Remove the right and left side covers and the seat.

Turn the fuel valve OFF, and disconnect the fuel line from the valve.

Remove the two fuel tank mount bolts and the band.
Remove the fuel tank.



WARNING

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

Check that fuel flows freely from the fuel valve.
Remove the valve and clean the fuel strainer if fuel flow is restricted.

INSTALLATION

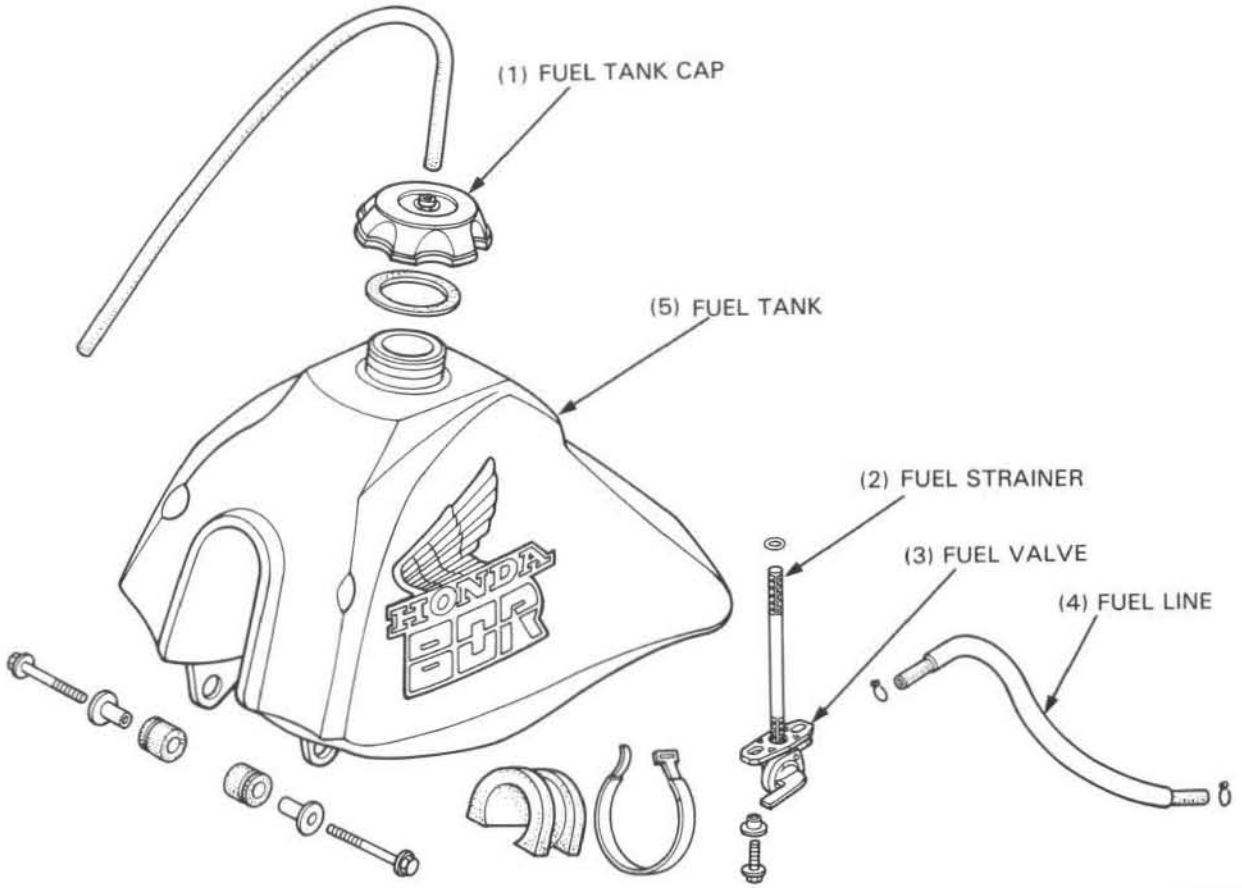
Install the fuel tank in the reverse order of removal and reconnect the fuel line.
Install the seat and right and left side covers.

NOTE

- After assembly make sure there are no fuel leaks.

CAUTION

- *Do not over-tighten the fuel valve screws.*

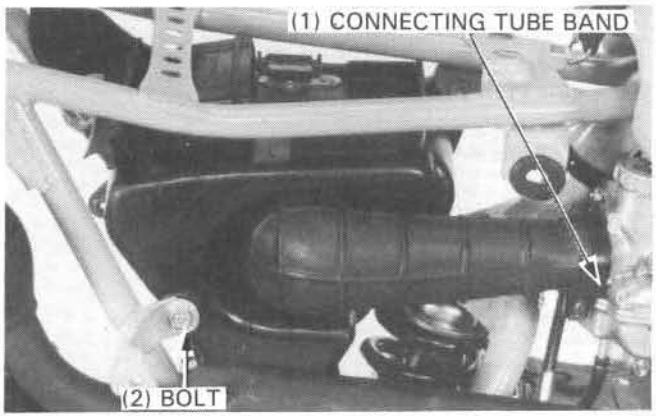


AIR CLEANER CASE

Remove the seat and the right and left side covers.
Loosen the carburetor connecting tube band and remove it from the carburetor.

Remove the air cleaner case mount bolt.

For air cleaner element service, refer to page 3-5.

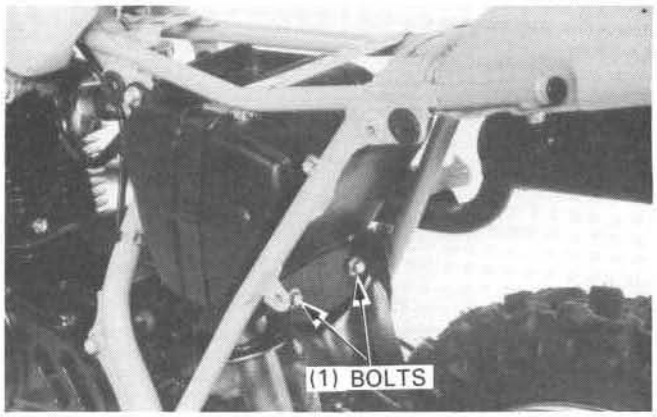


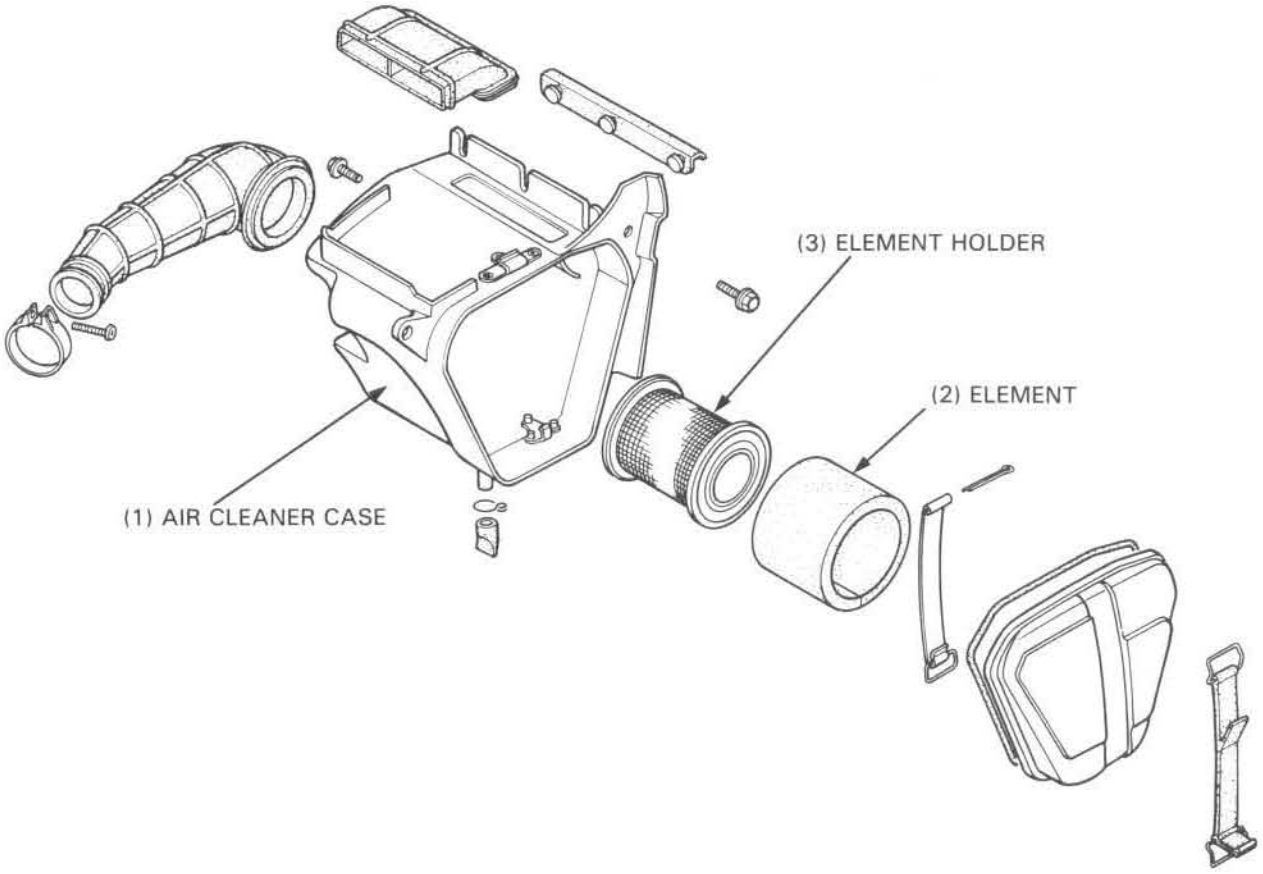
Remove the two rear fender mounting bolts.
Remove the two air cleaner case mounting bolts, then remove the case from the left side of the frame.

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

NOTE

- Be sure that the carburetor connecting tube band is tightened securely.





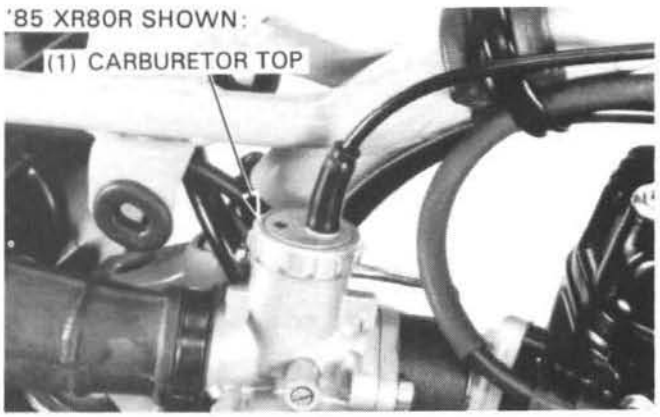
RIDE RED

THROTTLE VALVE REMOVAL

Remove the fuel tank (page 4-3).

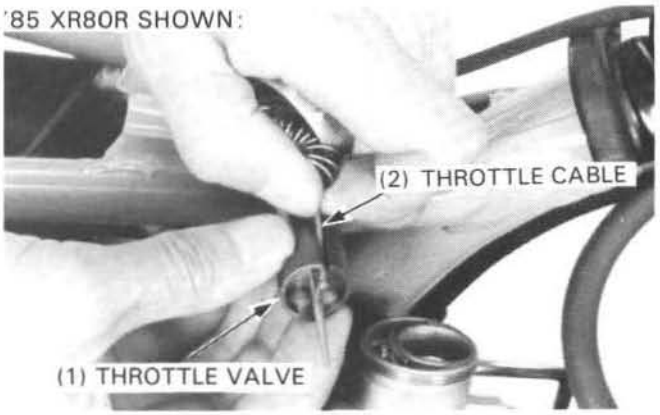
Unscrew the carburetor top and pull the throttle valve out of the carburetor.

'85 XR80R SHOWN:



Remove the throttle cable end from the throttle valve while compressing the valve spring.

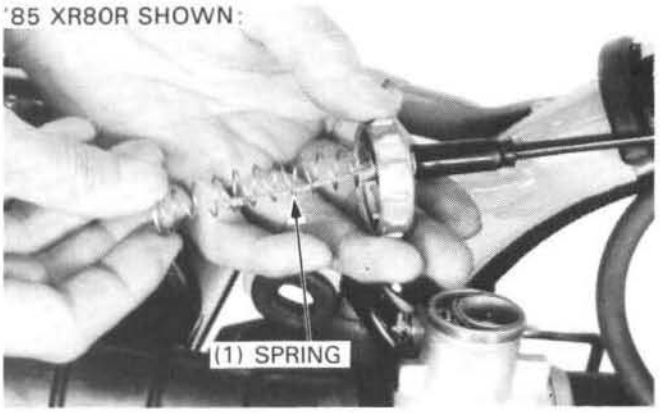
'85 XR80R SHOWN:



'85 only:
Remove the throttle valve spring, carburetor top and rubber seal.

After '85:
Remove the throttle valve spring.

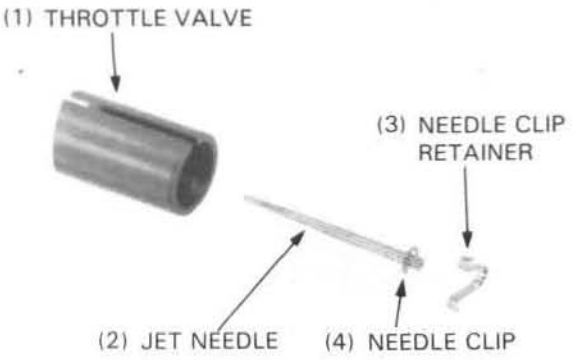
'85 XR80R SHOWN:



Remove the needle clip retainer, jet needle and needle clip. Inspect the throttle valve and jet needle surface for dirt, scratches or wear.

NOTE

- For after '85 models: This is integral type of carburetor with the top and throttle cable assemblies manufactured as one piece.
- The integral cable is manufactured so that it must be replaced as an assembly with the carburetor top.



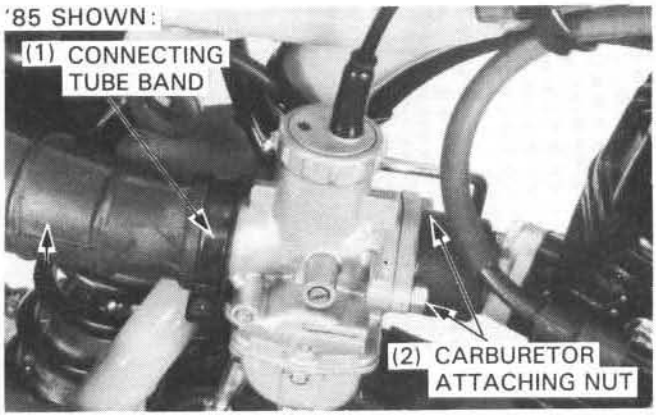
CARBURETOR REMOVAL

Turn the fuel valve OFF, and remove the fuel tank (page 4-3).

Remove the throttle valve (page 4-5).

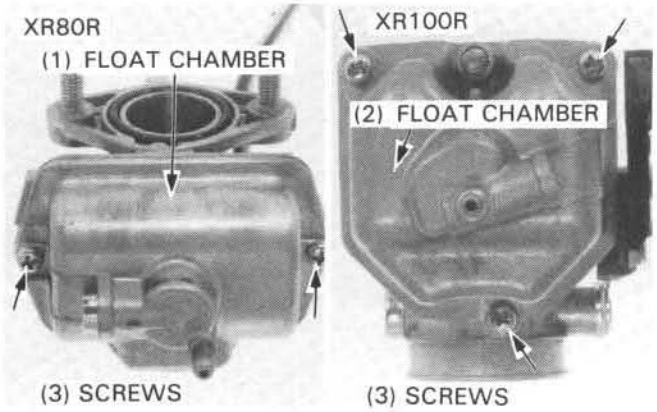
Disconnect the connecting tube band by loosening the screw. Remove the two carburetor attaching nuts and remove the carburetor.

Disconnect the air vent and drain tubes from the carburetor.

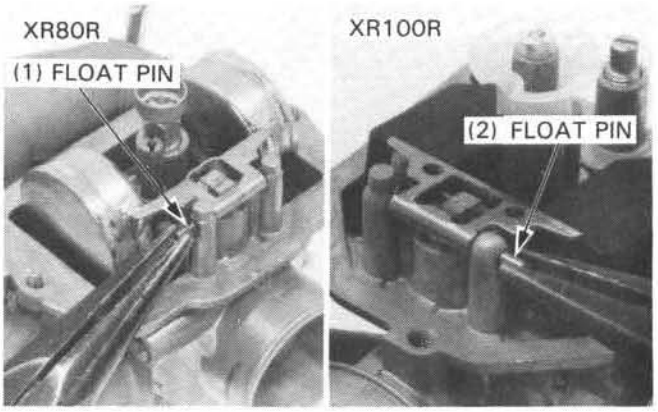


FLOAT, FLOAT VALVE AND JETS

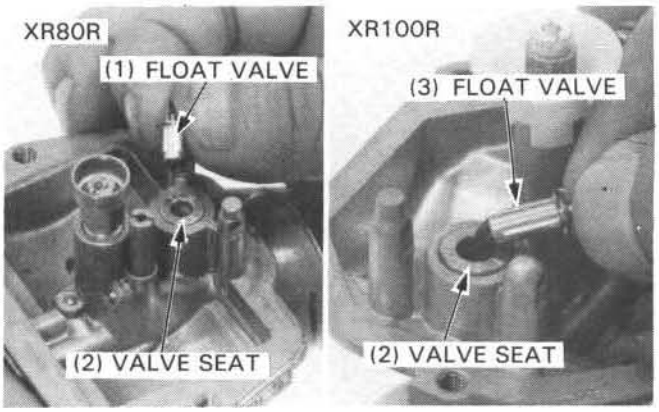
Remove the float chamber by removing the screws.



Remove the float pin with pliers.
Remove the float and float valve.



Inspect the float valve and valve seat for wear or damage. Check the float for deformation or the presence of fuel and replace if necessary.



RIDE RED

XR80R

Remove the main jet, main jet holder, needle jet holder and needle jet.
Remove the slow jet and the throttle stop screw.

NOTE

- The air screw is factory preset and should not be removed unless the carburetor is overhauled.

Turn the air screw in, carefully counting the number of turns before it seats lightly.
Make a note of this to use as a reference when reinstalling the air screw.

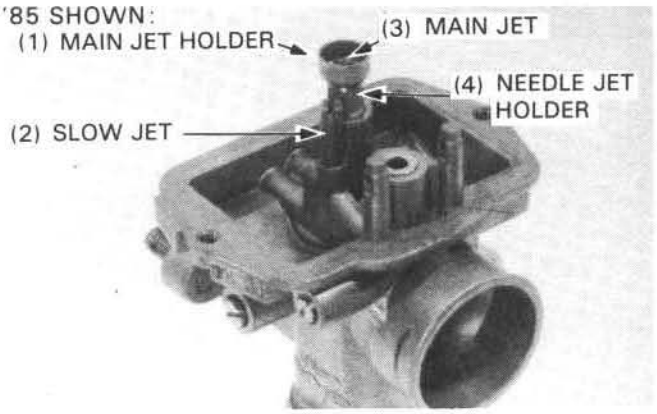
CAUTION

- *The air screw seat will be damaged if the air screw is tightened against the seat.*

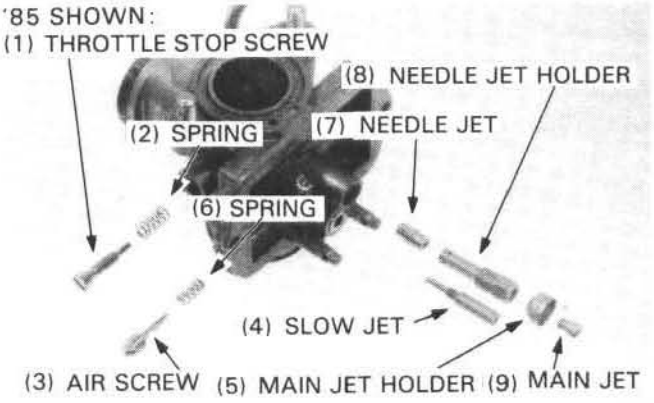
Remove the air screw.

Inspect the air screw, main, slow and needle jets, and main and needle jet holders for wear or damage and replace if necessary.

'85 SHOWN:



'85 SHOWN:



XR100R

Remove the main jet, needle jet holder and needle jet.

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

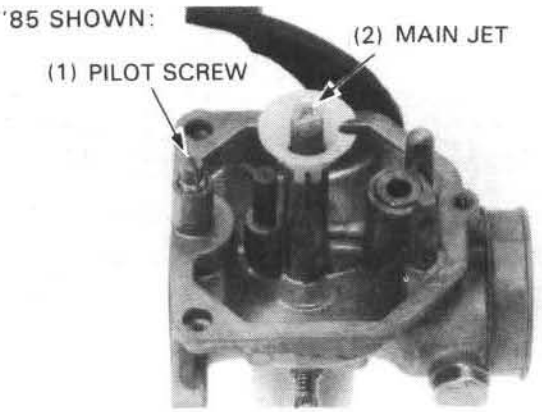
CAUTION

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

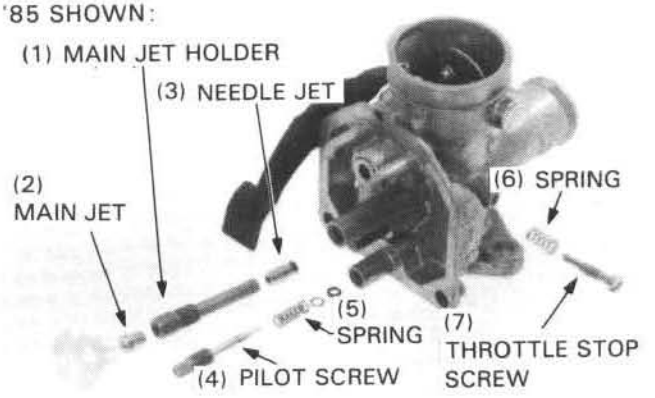
Remove the pilot screw.

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

'85 SHOWN:

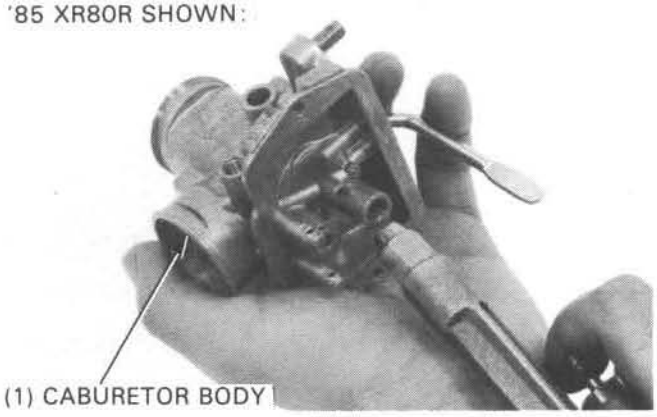


'85 SHOWN:



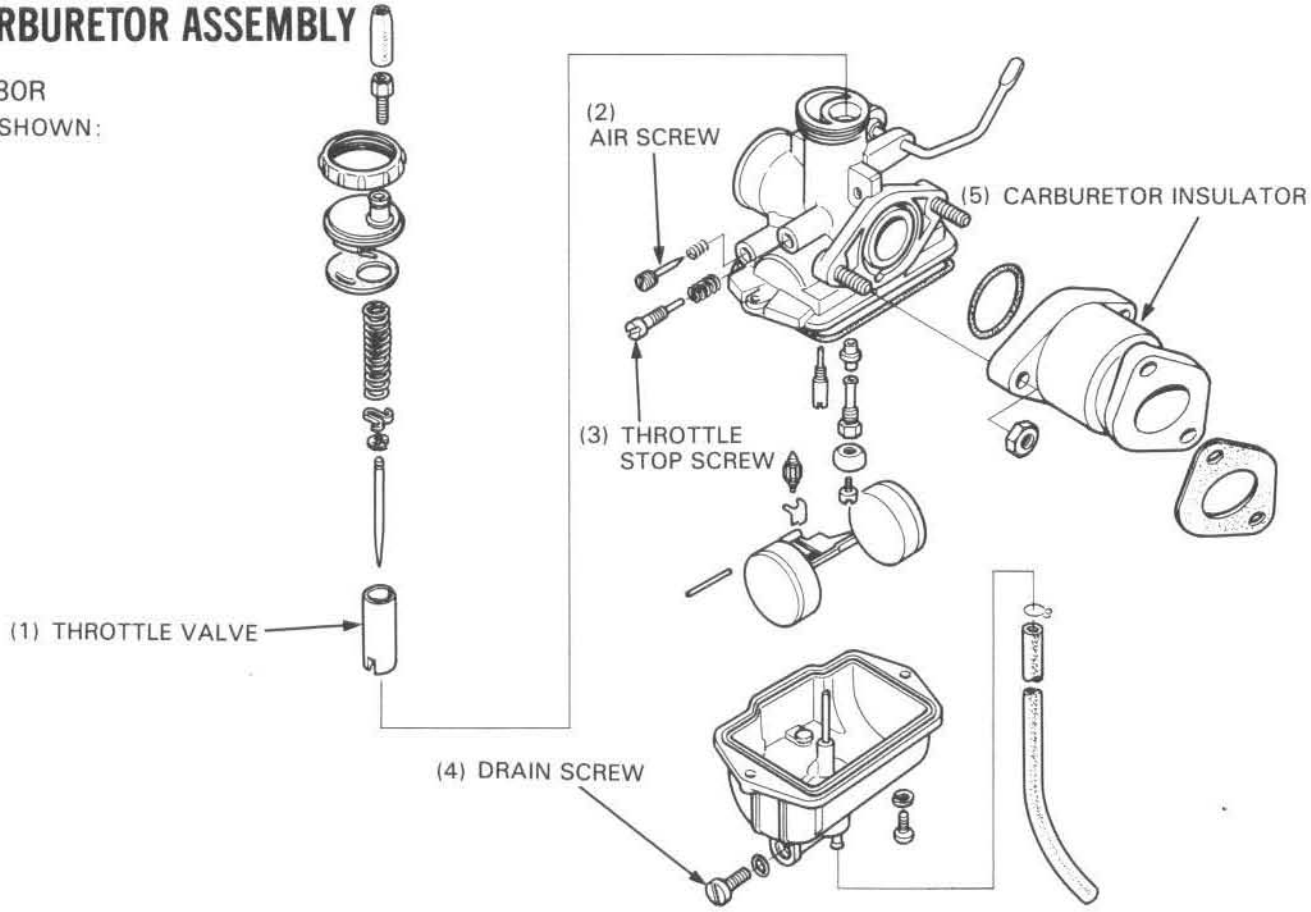
Blow open all jets and vent opening with compressed air.

'85 XR80R SHOWN:



CARBURETOR ASSEMBLY

XR80R
'85 SHOWN:



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

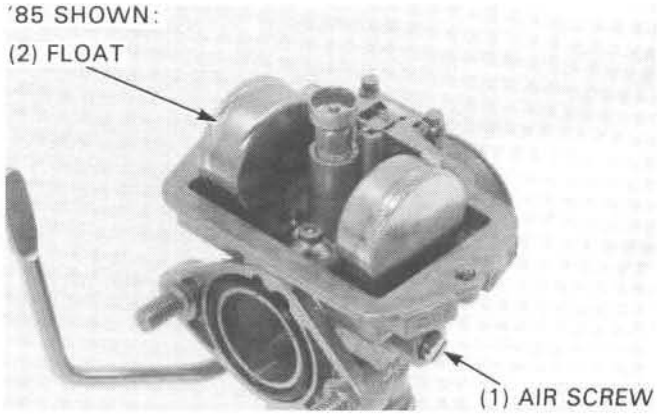
Carburetor assembly is essentially the reverse order of disassembly.

NOTE

- Use new O-rings whenever the carburetor is reassembled.
- Handle all jets and needles with care. They can easily be scored or scratched.

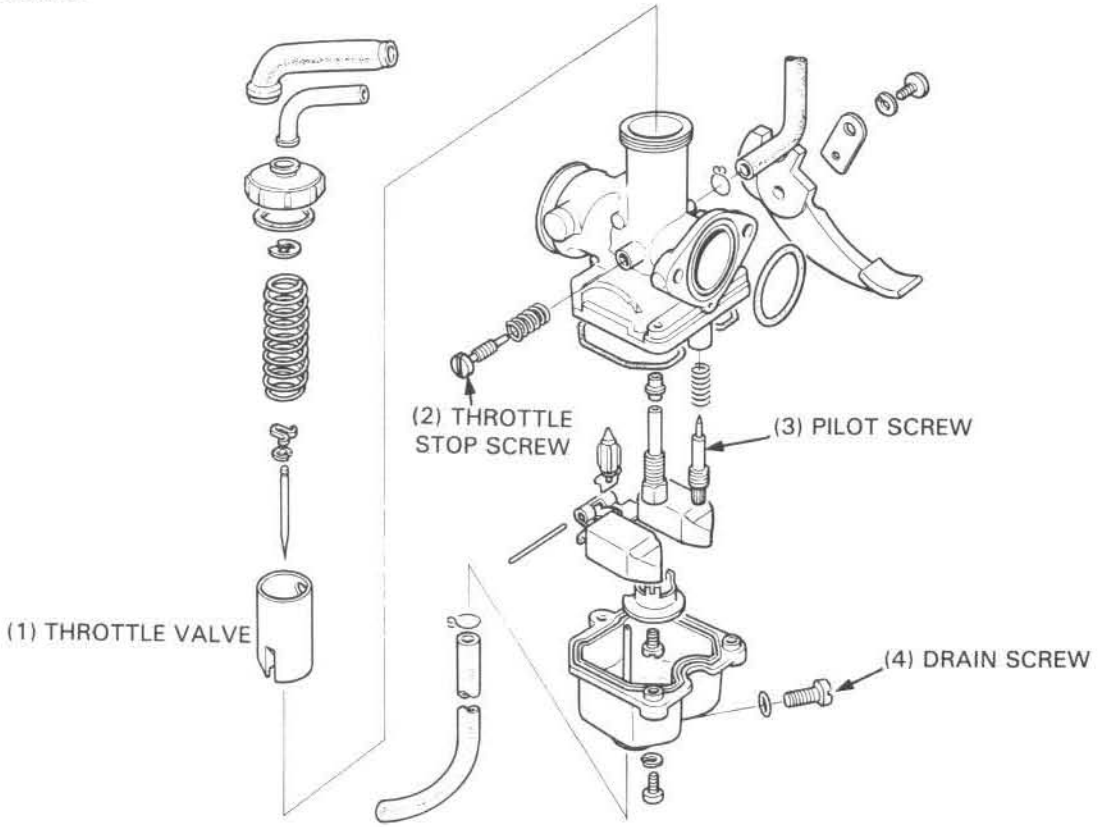
Perform the air screw adjustment if a new air screw is installed.
Install the float valve and float.

'85 SHOWN:



RIDE RED

XR100R
'85 SHOWN:



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

Carburetor assembly is essentially the reverse order of disassembly.

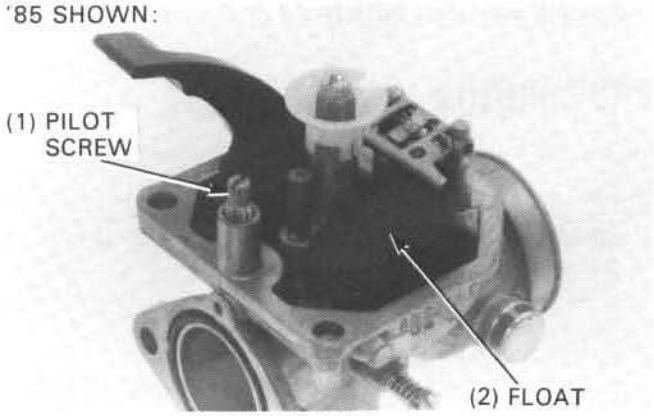
NOTE

- Use new O-rings whenever the carburetor is reassembled.
- Handle all jets with care. They can easily be scored or scratched.
- Return the pilot screw to the original position noted during disassembly.

Install the float valve and float.

Install the carburetor and adjust the pilot screw if the carburetor has been overhauled.

'85 SHOWN:



FLOAT LEVEL ADJUSTMENT

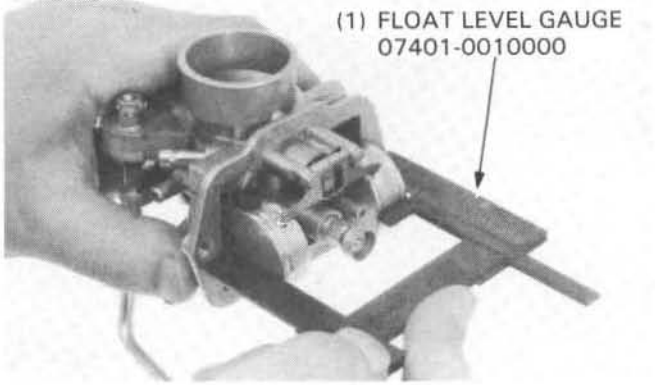
Measure the float level with a float level gauge as shown.

FLOAT LEVEL: XR80R 21.5 mm (0.85 in)
XR100R 12.5 mm (0.49 in)

To adjust the float level, bend the float arm carefully until the float tip just contacts the float valve.

Install the float chamber.

'85 SHOWN:



THROTTLE VALVE ASSEMBLY

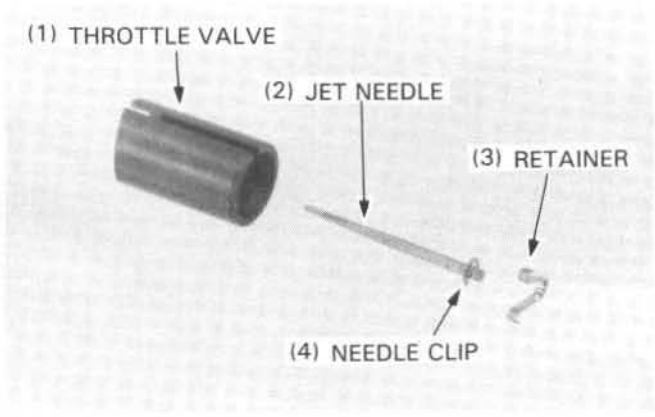
Install the needle clip on the jet needle.

STANDARD SETTING: XR80R 4th groove
After '86 XR80R 2nd groove
XR100R 3rd groove

Install the jet needle into the throttle valve and secure it with the needle clip retainer.

'85 only:
Install the rubber seal into the carburetor top.
Compress the throttle spring and insert the throttle cable into the cable holder.

After '85:
Install the throttle spring onto the carburetor top and compress the spring and insert the throttle cable into the cable holder.



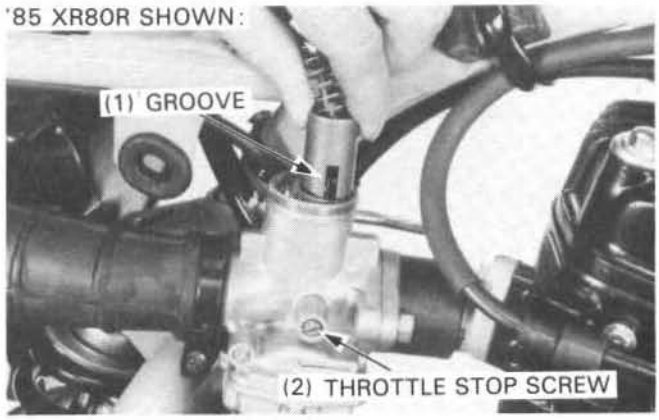
CARBURETOR INSTALLATION

Carburetor installation is essentially the reverse of removal.

NOTE

- When installing the throttle valve, align the throttle valve groove with the throttle stop screw.
- After installing the carburetor, perform the following adjustments:
  - throttle grip free play (page 3-4)
  - air screw adjustment, or pilot screw adjustment (page 4-11), if the carburetor was overhauled.

'85 XR80R SHOWN:



AIR SCREW ADJUSTMENT (XR80R)

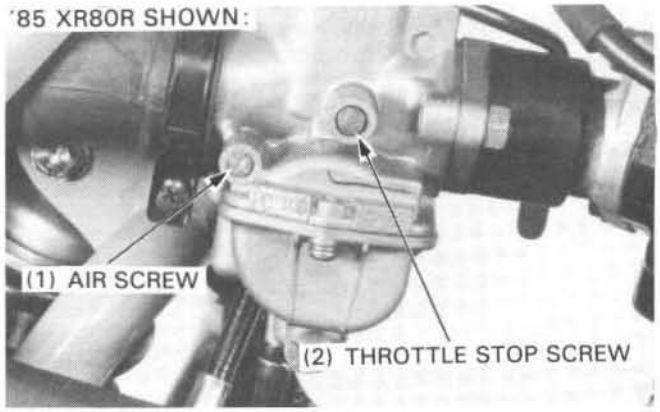
IDLE DROP PROCEDURE

NOTE

- The air screw is factory preset and no adjustment is necessary unless the air screw is replaced (Page 4-7).
- Use a tachometer with graduations of 100 rpm or smaller and that will accurately indicate a 100 rpm change.

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

'85 XR80R SHOWN:



RIDE RED

2. Warm up the engine to operating temperature.
   Stop and go riding for 10 minutes is sufficient.
3. Attach a tachometer.
4. Adjust the idle speed with the throttle stop screw.

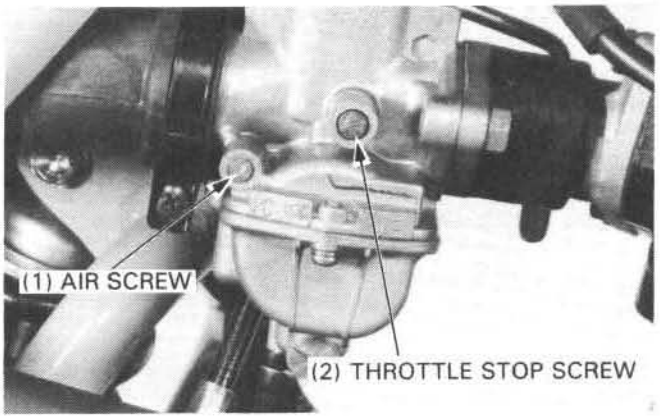
IDLE SPEED: 1,500 ± 100 rpm

5. Turn the air screw in or out slowly to obtain the highest engine speed.
6. Readjust the idle speed with the throttle stop screw.
7. Turn the air screw in gradually until the engine speed drops 100 rpm.

NOTE

- If the air screw seats before lowering the engine speed 100 rpm, continue to step 8.

8. Turn the air screw 1 turn open from the position obtained in step 7.
9. Readjust the idle speed with the throttle stop screw.



PILOT SCREW ADJUSTMENT (XR100R)

NOTE

- The pilot screw is factory pre-set. Adjustment is not necessary unless the carburetor is overhauled or a new pilot screw is installed.
- Use a tachometer with graduations of 100 rpm or smaller and that will accurately indicate a 100 rpm change.

CAUTION

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

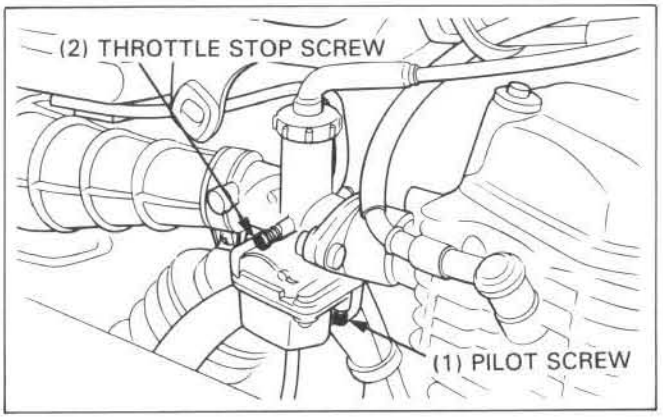
Turn the pilot screw clockwise until it seats lightly and back it out below turns.

INITIAL OPENING: 2-5/8 turns out
After '86: 1-3/4 turns out

This is an initial setting prior to the final pilot screw adjustment.
Warm the engine up to operating temperature.
Stop the engine and connect a tachometer.
Start the engine and adjust the idle speed with the throttle stop screw.

IDLE SPEED: 1,400 ± 100 rpm

Turn the pilot screw clockwise slowly until the engine stops, and then back it out 1 turn. Start the engine and readjust the idle speed with the throttle stop screw, if necessary.



HIGH ALTITUDE ADJUSTMENT

The carburetor must be adjusted for high altitude riding (above 5,000 ft/1,500 m).

STANDARD SETTING: 6,000 ft (1,800 m) max.

HIGH ALTITUDE SETTING: 5,000 ft (1,500 m) min.

The high altitude carburetor adjustment is performed as follows:

Remove the carburetor (page 4-6) and disassemble it.
Replace the main jet with the high altitude type.

MAIN JET:

XR80R: #88
After '86:#90
XR100R: #90

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

NOTE

- Adjust the idle speed at high altitude to ensure proper high altitude operation.

Readjust the air screw (XR80R) or pilot screw (XR100R) if the engine idles rough, misses, or stalls (pages 4-10 and 4-11).

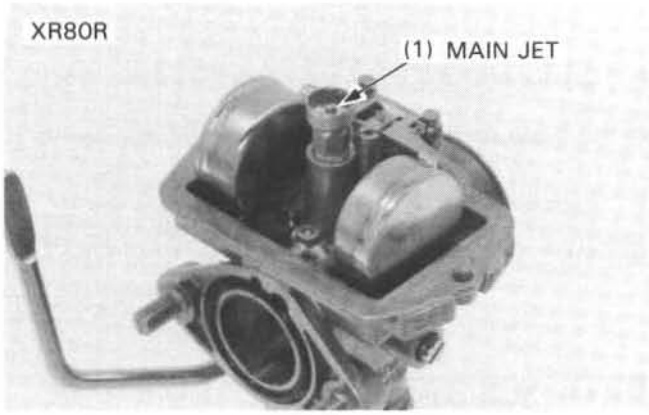
CAUTION

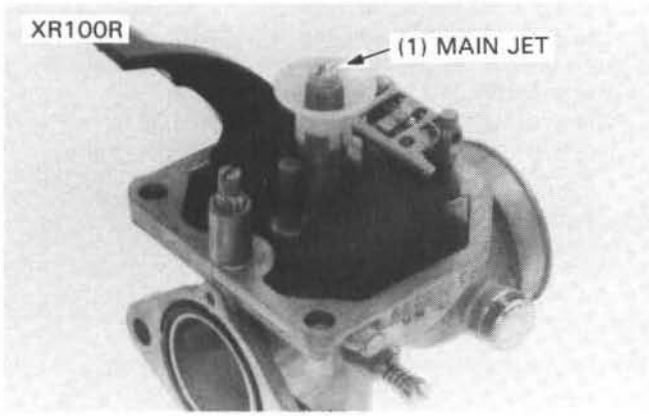
- *Sustained operation at altitudes lower than 5,000 ft (1,500 m) with the high altitude setting carburetor may cause engine overheating and damage.*
  Install the standard main jet and adjust the air screw (XR80R) or pilot screw (XR100R) using the idle drop procedure when operating the vehicle below 5,000 ft (1,500 m).

SPECIFICATIONS

* After '86

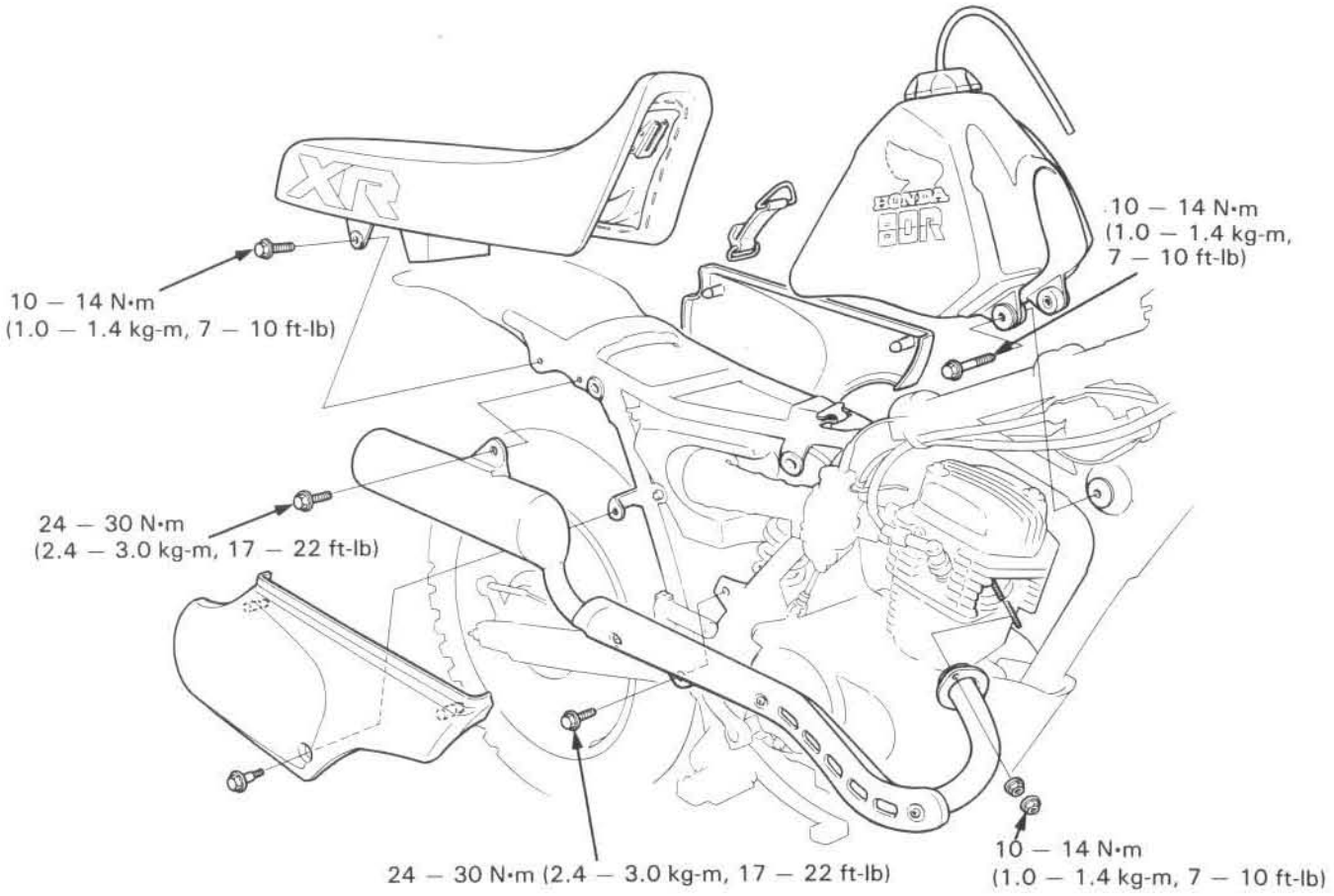
		Below 6,000 ft (1,800 m)	Above 5,000 ft (1,500 m)
XR80R	Main jet	# 92 *#95	# 88 *#90
	Air screw initial opening	1-1/2 turns *1-3/4 turns counterclockwise	2-1/2 turns *2-3/4 turns counterclockwise
XR100R	Main jet	# 95	# 90
	Pilot screw initial opening	2-5/8 turns *1-3/4 counterclockwise	1-5/8 turns *1-3/4 counterclockwise

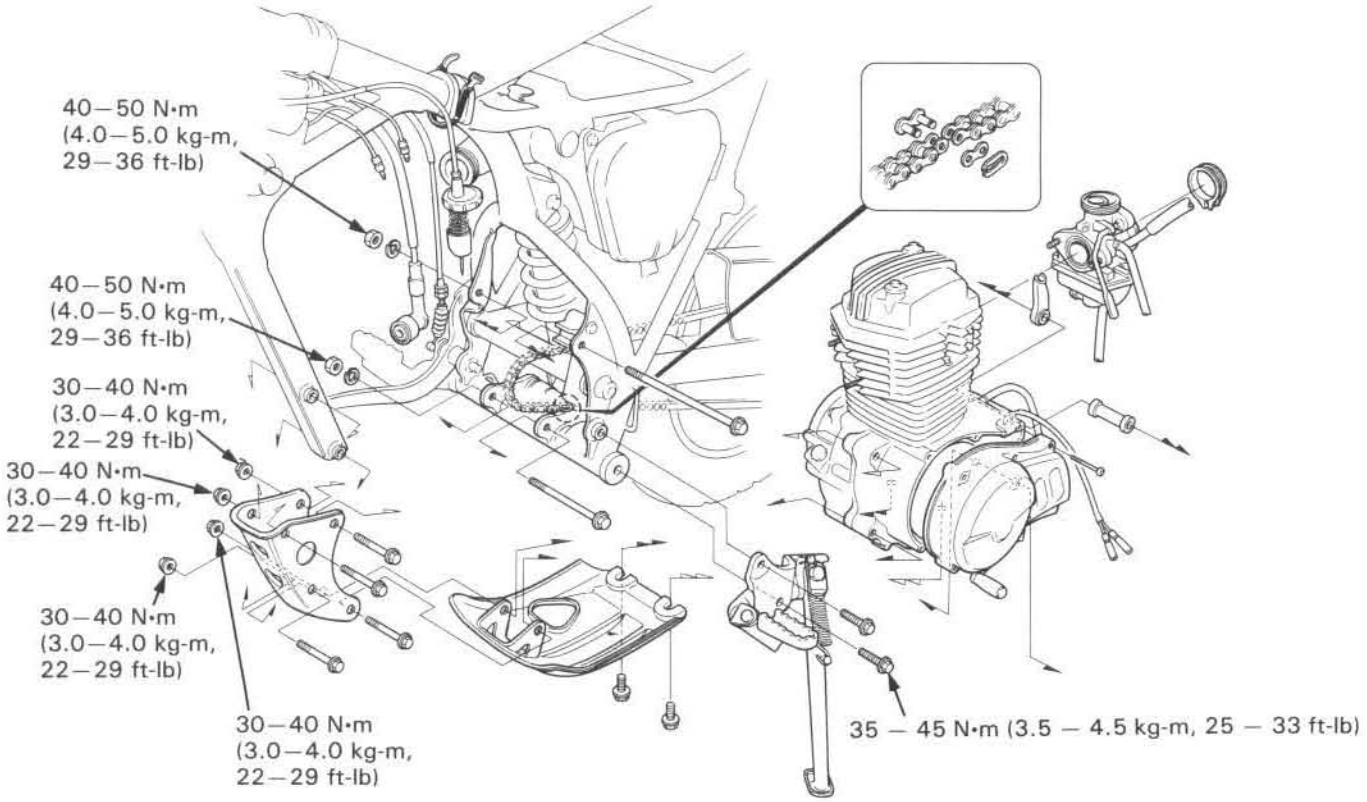




RIDE RED

MEMO


10 – 14 N·m
(1.0 – 1.4 kg-m, 7 – 10 ft-lb)
10 – 14 N·m
(1.0 – 1.4 kg-m,
7 – 10 ft-lb)
24 – 30 N·m
(2.4 – 3.0 kg-m, 17 – 22 ft-lb)
24 – 30 N·m (2.4 – 3.0 kg-m, 17 – 22 ft-lb)
10 – 14 N·m
(1.0 – 1.4 kg-m, 7 – 10 ft-lb)


40–50 N·m
(4.0–5.0 kg-m,
29–36 ft-lb)
40–50 N·m
(4.0–5.0 kg-m,
29–36 ft-lb)
30–40 N·m
(3.0–4.0 kg-m,
22–29 ft-lb)
30–40 N·m
(3.0–4.0 kg-m,
22–29 ft-lb)
30–40 N·m
(3.0–4.0 kg-m,
22–29 ft-lb)
30–40 N·m
(3.0–4.0 kg-m,
22–29 ft-lb)
35 – 45 N·m (3.5 – 4.5 kg-m, 25 – 33 ft-lb)

RIDE RED

5. ENGINE REMOVAL/INSTALLATION

SERVICE INFORMATION	5-1	ENGINE INSTALLATION	5-3
ENGINE REMOVAL	5-2		

SERVICE INFORMATION

GENERAL

- This section covers engine removal and installation.
- A floor jack or other adjustable support is required to support and maneuver the engine.
- The engine must be removed from the frame for service and maintenance of the following parts:
  - Cylinder head (section 6)
  - Cylinder and piston (section 7)
  - Transmission, crankshaft, crankcase and kick starter (section 9)

SPECIFICATIONS

Engine dry weight		XR80R	18.7 kg (41.23 lb)
	('85, '86, '87)	XR100R	20.4 kg (44.97 lb)
	(After '87)	XR100R	20.7 kg (45.64 lb)
Engine oil capacity	after draining	XR80R	0.7 liter (0.19 US gal, 0.15 Imp gal)
		XR100R	0.9 liter (0.24 US gal, 0.20 Imp gal)
	at disassembly	XR80R	0.9 liter (0.24 US gal, 0.20 Imp gal)
		XR100R	1.0 liter (0.26 US gal, 0.22 Imp gal)

TORQUE VALUES

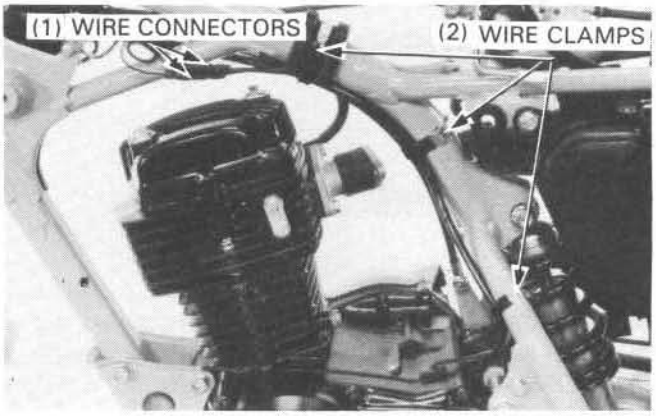
Front mount bolt	30–40 N·m (3.0–4.0 kg-m, 22–29 ft-lb)
Front hanger bracket	30–40 N·m (3.0–4.0 kg-m, 22–29 ft-lb)
Upper mount bolt	40–50 N·m (4.0–5.0 kg-m, 29–36 ft-lb)
Lower mount bolt	40–50 N·m (4.0–5.0 kg-m, 29–36 ft-lb)
Hanger bracket bolt	24–30 N·m (2.4–3.0 kg-m, 17–22 ft-lb)
Left foot peg stay	35–45 N·m (3.5–4.5 kg-m, 25–33 ft-lb)
Side stand mount bolt	35–45 N·m (3.5–4.5 kg-m, 25–33 ft-lb)
Exhaust pipe mount bolt	24–30 N·m (2.4–3.0 kg-m, 17–22 ft-lb)
Exhaust pipe joint nut	10–14 N·m (1.0–1.4 kg-m, 7–10 ft-lb)
Fuel tank mount bolt	10–14 N·m (1.0–1.4 kg-m, 7–10 ft-lb)
Seat mount bolt	10–14 N·m (1.0–1.4 kg-m, 7–10 ft-lb)

ENGINE REMOVAL

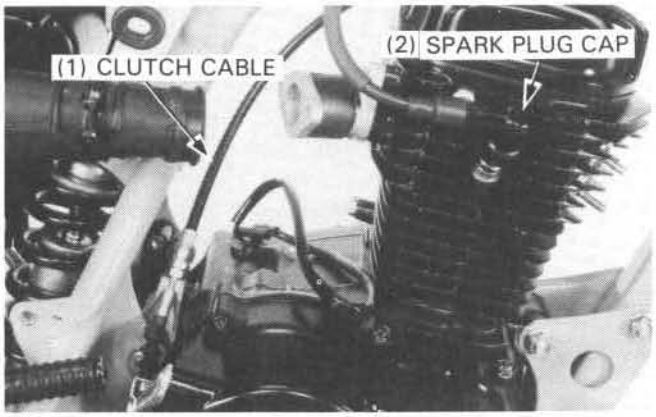
Remove the following parts:
- seat and fuel tank (page 4-3)
- carburetor (page 4-6)
- drive chain (page 3-10)
- exhaust pipe (page 12-2)

Drain the engine oil (page 2-2).

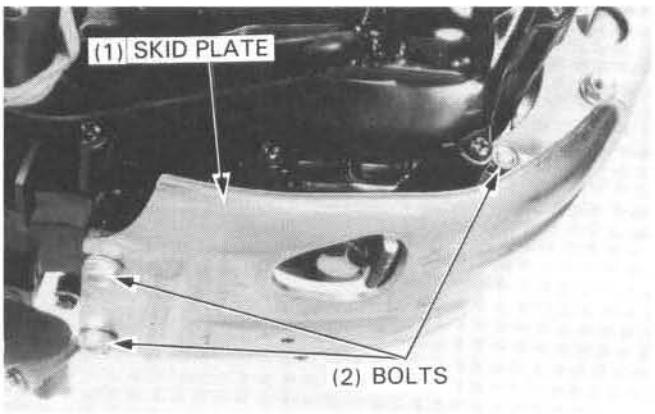
Disconnect the wire connectors and remove the wires and cable clamps.



Remove the spark plug cap from the spark plug and disconnect the clutch cable from the clutch arm.

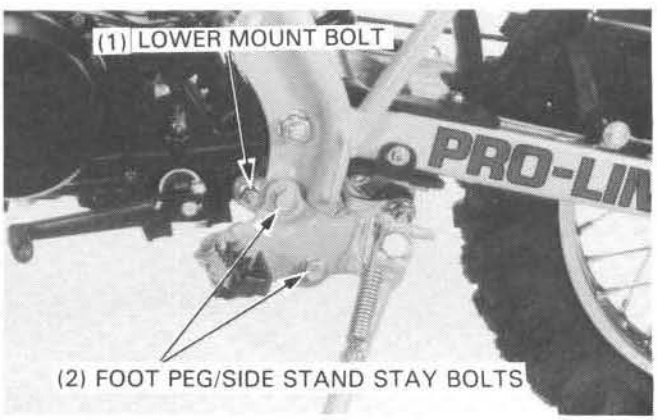


Remove the skid plate by removing the three bolts.



Support the motorcycle in an upright position and remove the left foot peg/side stand stay by removing the two bolts.

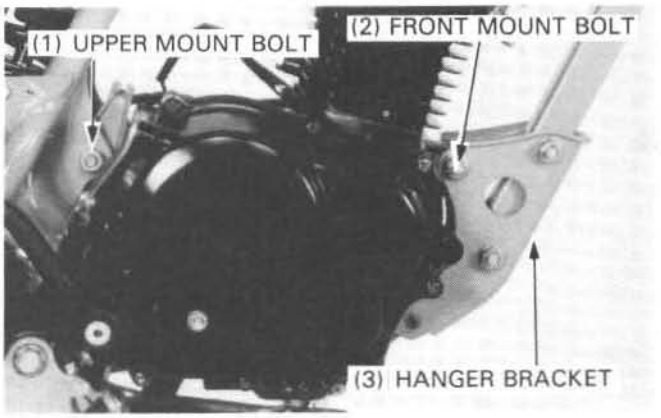
Remove the lower mount bolt, then reinstall the left foot peg/side stand stay.



RIDE RED

Remove the front engine hanger bracket bolts and front mount bolt.

Remove the upper mount bolt and remove the engine from the frame.



ENGINE INSTALLATION

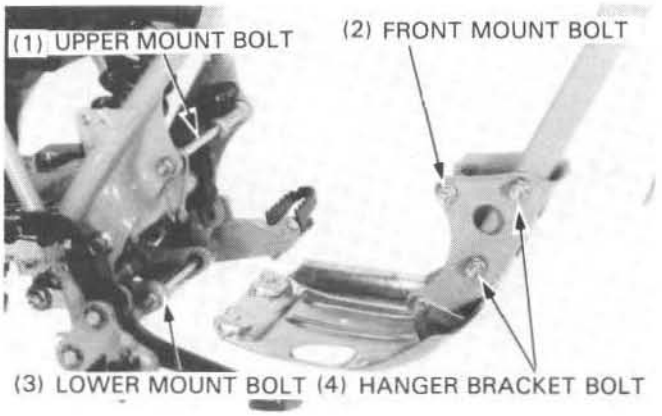
Installation is essentially the reverse of removal.

NOTE

- Use the correct bolts in their proper positions. Route the wires and cables properly (pages 1-8 through 1-11).

After installing the engine, inspect and adjust the following:
- Engine oil level (page 2-2)
- Throttle operation (page 3-4)
- Clutch (page 3-13)
- Electrical system performance.

Check that there are no leaks in the exhaust system.



TORQUE:

Front mount bolt:
30–40 N·m (3.0–4.0 kg-m, 22–29 ft-lb)

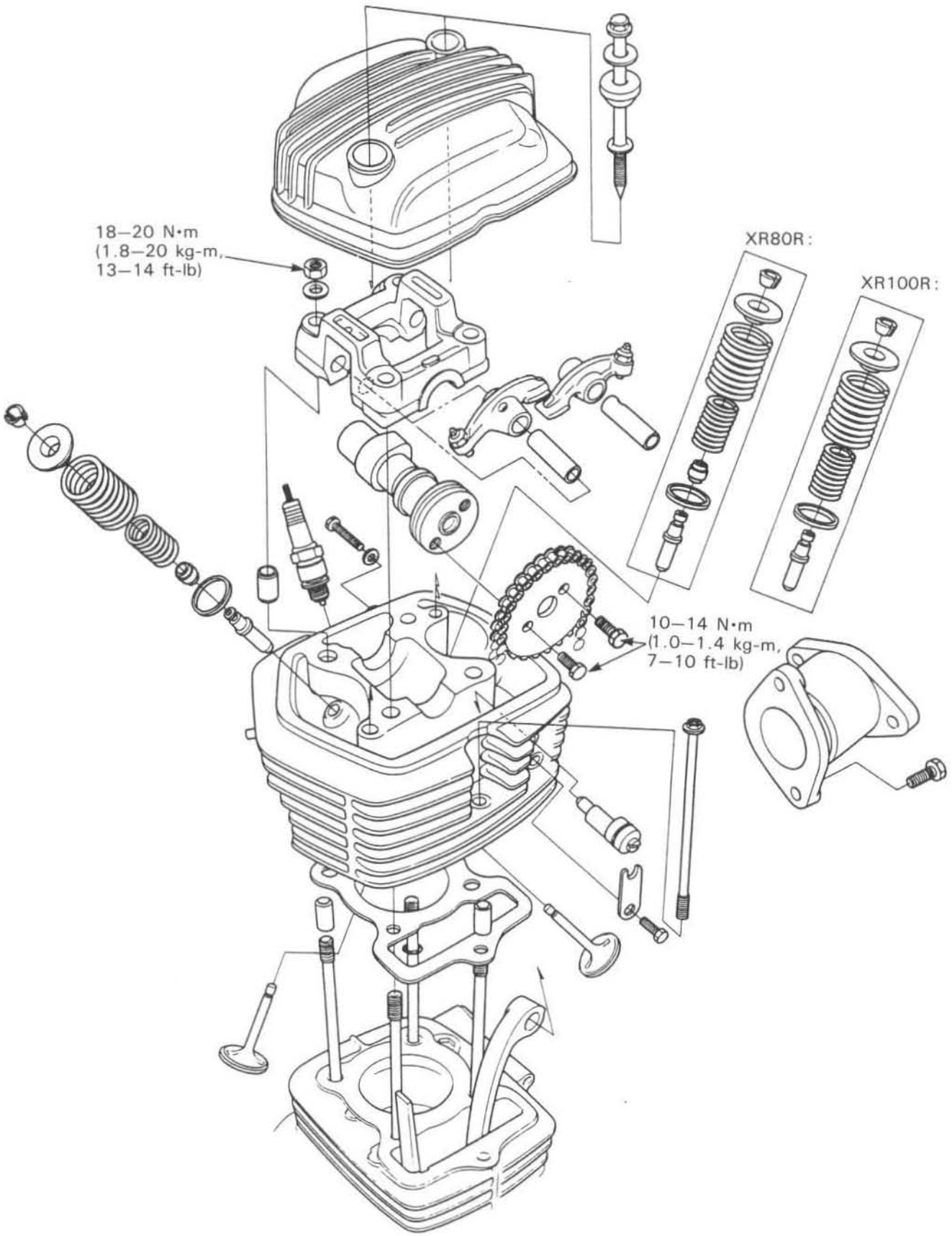
Hanger bracket bolt:
30–40 N·m (3.0–4.0 kg-m, 22–29 ft-lb)

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

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

Left foot peg stay:
35–45 N·m (3.5–4.5 kg-m, 25–33 ft-lb)

Side stand mount bolt:
35–45 N·m (3.5–4.5 kg-m, 25–33 ft-lb)


18–20 N·m
(1.8–20 kg-m,
13–14 ft-lb)
XR80R:
XR100R:
10–14 N·m
(1.0–1.4 kg-m,
7–10 ft-lb)

RIDE RED

6. CYLINDER HEAD/VALVES

SERVICE INFORMATION	6-1	VALVE SEAT INSPECTION AND REFACING	6-8
TROUBLESHOOTING	6-2	CYLINDER HEAD ASSEMBLY	6-10
CAMSHAFT REMOVAL	6-3	CYLINDER HEAD INSTALLATION	6-11
CYLINDER HEAD REMOVAL	6-5	CAMSHAFT INSTALLATION	6-12
CYLINDER HEAD DISASSEMBLY	6-6		
VALVE GUIDE REPLACEMENT	6-7		

SERVICE INFORMATION

GENERAL

- This section covers maintenance of the cylinder head, valves, camshaft and rocker arm.
- Camshaft lubrication oil is fed to the cylinder head through an oil control orifice in the crankcase. Be sure this orifice is not clogged and that the O-rings and dowel pins are in place before installing the cylinder head.
- Apply molybdenum disulfide grease to the camshaft bearings to provide initial lubrication, before assembly.
- Pour clean engine oil into the cylinder head oil pockets to lubricate the cams.
- The camshaft can be removed with the engine in the frame, but the engine must be removed from the frame to perform the other service.

SPECIFICATIONS

Unit: mm (in)

ITEM				STANDARD	SERVICE LIMIT
Camshaft	XR80R	Camlobes height	IN	28.017–28.197 (1.1030–1.1102)	27.95 (1.100)
			EX	27.835–28.015 (1.0959–1.1030)	27.75 (1.092)
		Journal O.D.	R	19.950–19.968 (0.7854–0.7861)	19.90 (0.783)
			L	19.950–19.968 (0.7854–0.7861)	19.90 (0.783)
	XR100R	Camlobes height	IN	27.840–28.020 (1.0960–1.1031)	27.80 (1.094)
			EX	27.776–27.950 (1.0935–1.1004)	27.70 (1.091)
		Journal O.D.	R	19.950–19.968 (0.7854–0.7861)	19.90 (0.783)
			L	19.950–19.968 (0.7854–0.7861)	19.90 (0.783)
Cylinder head warpage				———	0.1 (0.004)
Camshaft holder I.D.		XR80R		20.008–20.063 (0.7877–0.7899)	20.15 (0.793)
		XR100R		20.008–20.063 (0.7877–0.7899)	20.15 (0.793)
Rocker arm I.D.				10.000–10.015 (0.3937–0.3943)	10.1 (0.40)
Rocker arm shaft O.D.				9.978–9.987 (0.3930–0.3931)	9.91 (0.390)
Rocker arm to shaft clearance				0.013–0.037 (0.0005–0.0014)	0.08 (0.003)
Valve spring		Free length	Inner	28.05 (1.10)	27.6 (1.09)
			Outer	34.80 (1.37)	33.7 (1.33)
		Preload/length	Inner	5.25 kg/25.65 (11.6 lb/1.010)	———
			Outer	13.8kg/29.65 (30.4 lb/1.167)	———
Valve		Valve stem O.D.	IN	5.450–5.465 (0.2145–0.2151)	5.42 (0.213)
			EX	5.430–5.445 (0.2137–0.2143)	5.40 (0.214)
		Valve guide I.D.		5.475–5.485 (0.2155–0.2159)	5.50 (0.217)
		Stem to guide clearance	IN	0.010–0.035 (0.0004–0.0013)	0.08 (0.003)
			EX	0.030–0.055 (0.0012–0.0022)	0.10 (0.004)
		Valve seat width		1.0 (0.04 in)	1.5 (0.06)

TORQUE VALUES

Cam sprocket bolts	10–14 N·m (1.0–1.4 kg-m, 7–9 ft-lb)
Camshaft holder mount nuts	18–20 N·m (1.8–2.0 kg-m, 13–14 ft-lb)

TOOLS

Special

Valve guide reamer, 5.5 mm	07984–0980000

Common

Valve guide remover, 5.5 mm	07742–0010100 or 07942–3290100
Valve guide driver, 5.5 mm	07742–0020200
Valve spring compressor	07757–0010000

TROUBLESHOOTING

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

Uneven compression or low compression

- Valve
  - Incorrect valve adjustment
  - Burned or bent valves
  - Incorrect valve timing
  - Weak valve spring
- Cylinder head
  - Leaking or damaged head gasket
  - Warped or cracked cylinder head
- Cylinder and piston (refer to section 7)

High compression

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

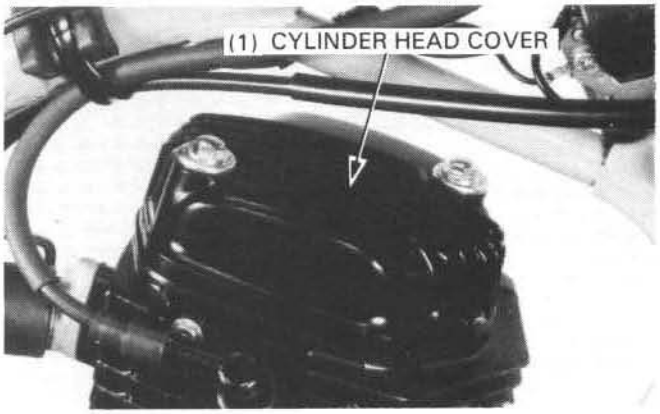
Excessive noise

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

RIDE RED

CAMSHAFT REMOVAL

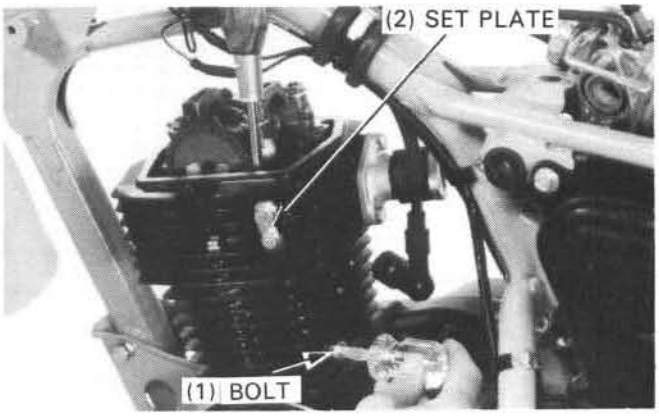
Remove the left crankcase cover.
Remove the fuel tank (page 4-3).
Remove the cylinder head cover mounting bolts and the cover.



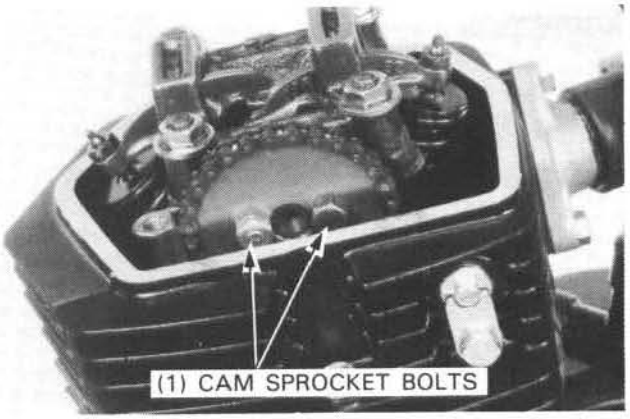
Loosen the cam chain tensioner adjusting bolt lock nut and adjuster.
Release the chain tension by pushing the chain tensioner with a screwdriver, then tighten the bolt and lock nut.

NOTE

If you will be remove the cylinder head, remove the cam chain tension adjuster set plate bolt, set plate and adjuster to release the cam chain tension at this time.



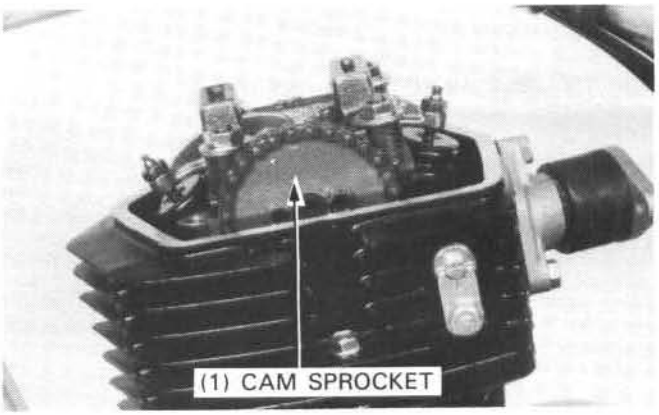
Remove the cam sprocket bolts.



Disengage the cam sprocket from the cam chain and remove the sprocket.

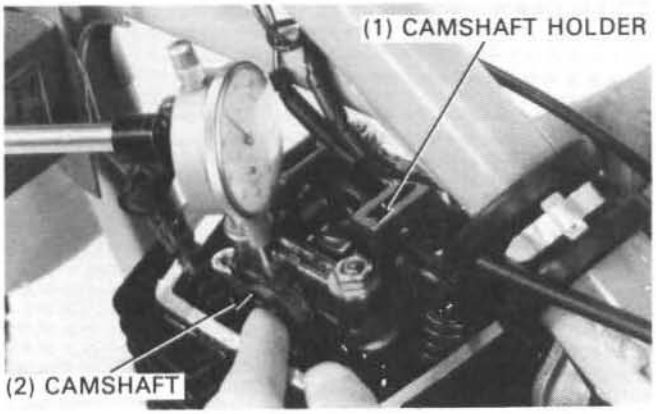
NOTE

- Suspend the cam chain with a piece of wire to prevent it from falling into the crankcase.



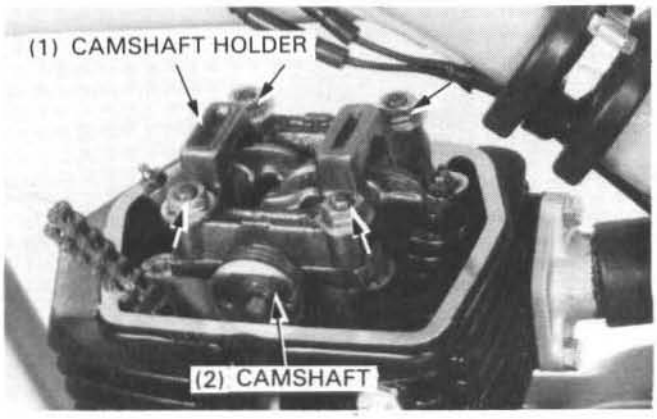
Measure the camshaft to camshaft holder clearance using a dial gauge.

SERVICE LIMIT: 0.20 mm (0.008in)



Remove the four camshaft holder nuts.

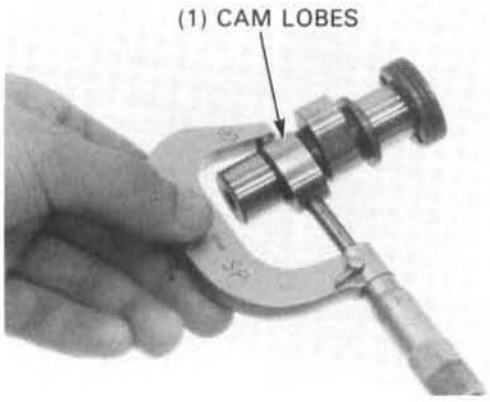
Remove the holder and the camshaft.



INSPECTION

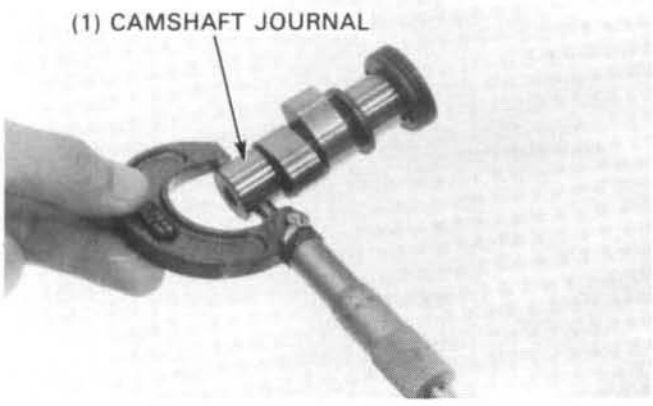
Check each cam lobe for wear or damage.
Measure the cam lobes height.

SERVICE LIMITS: XR80R IN 27.95 mm (1.100 in)
EX 27.75 mm (1.093 in)
XR100R IN 27.80 mm (1.094 in)
EX 27.70 mm (1.091 in)



Measure the camshaft journal O.D.

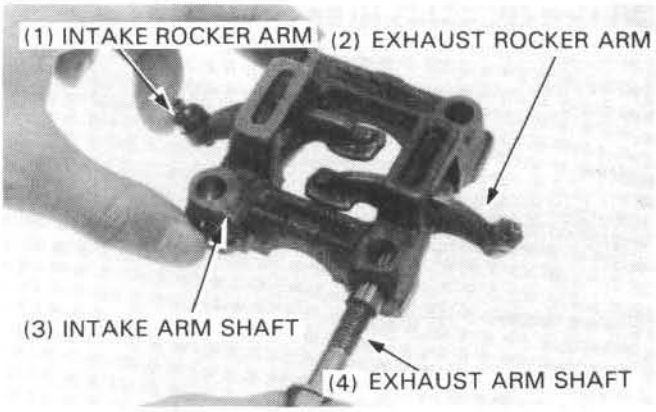
SERVICE LIMIT: 19.90 mm (0.783 in)



RIDE RED

Tap the camshaft holder with a plastic hammer to remove the intake rocker arm shaft.
Screw an 8 mm bolt into the exhaust rocker arm shaft and pull the shaft out of the holder.

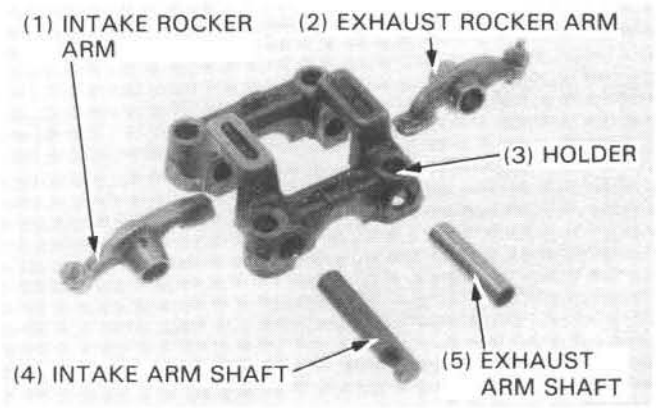
Remove the rocker arms.



Inspect the rocker arms and shafts for wear or damage.

NOTE

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



Measure the rocker arm shaft O.D..

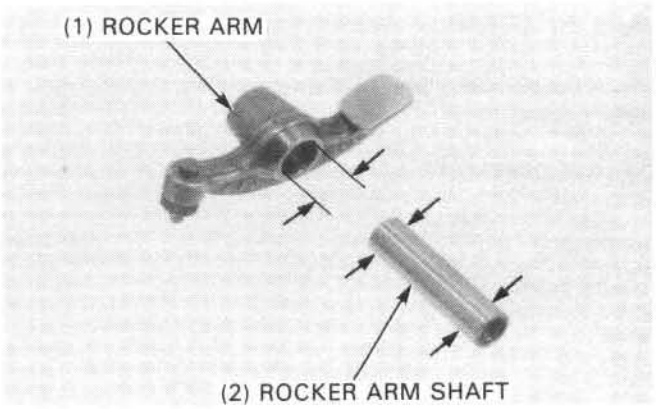
SERVICE LIMIT: 9.91 mm (0.390 in)

Measure the rocker arm I.D..

SERVICE LIMIT: 10.1 mm (0.40 in)

Calculate the rocker arm-to-shaft clearance.

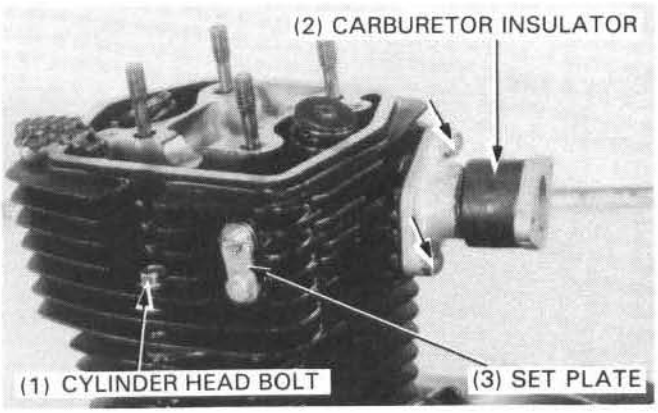
SERVICE LIMIT: 0.08 mm (0.003 in)



CYLINDER HEAD REMOVAL

Remove the followings
— engine (page 5-2).
— camshaft (page 6-3).
— carburetor insulator.
— cam chain tensioner set plate bolt, set plate and adjuster.

Remove the cylinder head bolt and the cylinder head.



CYLINDER HEAD DISASSEMBLY

Remove the valve spring cotters, retainers, springs, washers and valves.

CAUTION

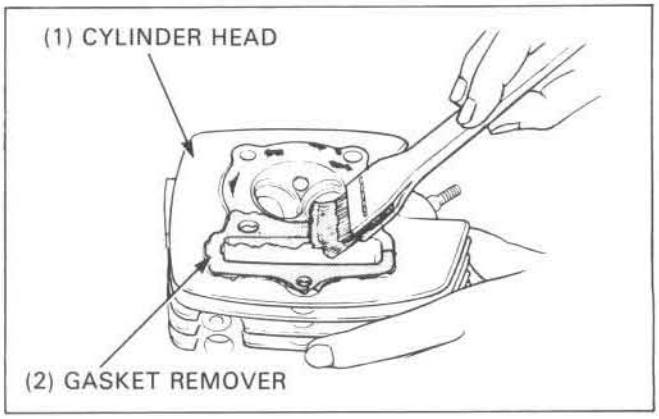
- *To prevent loss of tension, do not compress the valve springs more than necessary to remove the cotters.*

Remove the valve spring seats and stem seal caps.



Remove the carbon deposits from the combustion chamber.

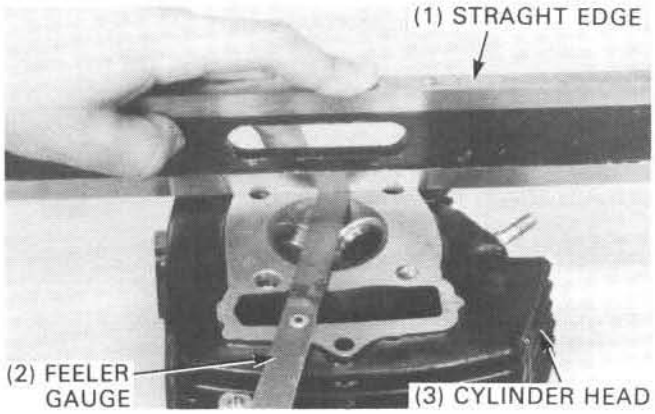
Clean off any gasket material from the cylinder head surface using commercially available gasket remover or equivalent.



Check the spark plug hole and valve area for cracks.

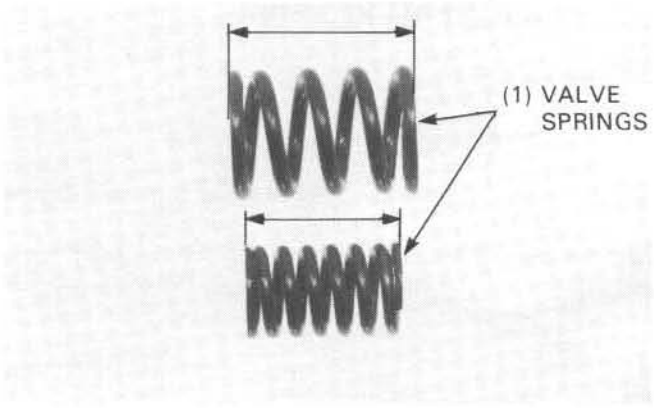
Check the cylinder head for warpage with a straight edge and feeler gauge.

SERVICE LIMIT: 0.10 mm (0.004 in)



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

SERVICE LIMITS: Inner: 27.6 mm (1.09 in)
Outer: 33.7 mm (1.33 in)



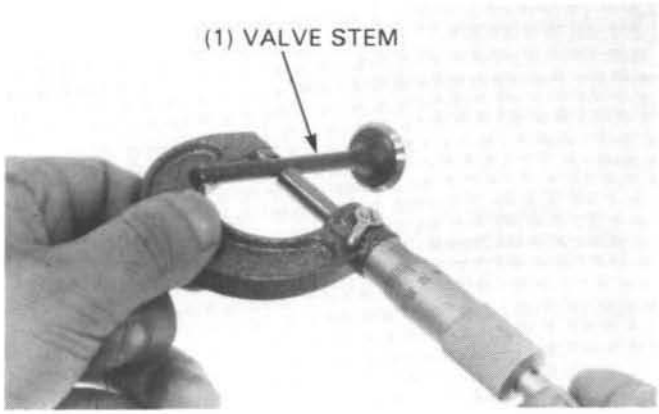
RIDE RED

Inspect each valve for trueness, burning, scratches or abnormal wear.

Check the valve movement in the guide.

Measure and record each valve stem O.D..

SERVICE LIMITS: IN: 5.42 mm (0.213 in)
EX: 5.40 mm (0.213 in)



Measure and record the valve guide I.D..

NOTE

- Ream the guide to remove any carbon build-up before checking the I.D..

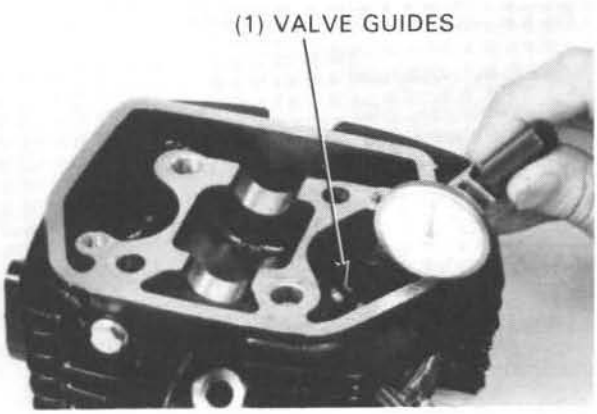
SERVICE LIMITS: IN/EX 5.50 mm (0.217 in)

Calculate the stem-to guide clearance.

SERVICE LIMITS: IN 0.08 mm (0.003 in)
EX 0.10 mm (0.004 in)

NOTE

- If the stem-to-guide clearance exceeds the service limit, determine if a new guide with standard dimensions would bring the clearance within tolerance.
  If so, replace the guides as necessary and ream to fit.
- If the valve guide is replaced, the valve seat must be refaced.



VALVE GUIDE REPLACEMENT

Chill the valve guides in the freezer section of a refrigerator for about an hour.
Heat the cylinder head to 212°F(100°C) with a hot plate or oven. Maximum allowable temperature is 300° F(150°C)

WARNING

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

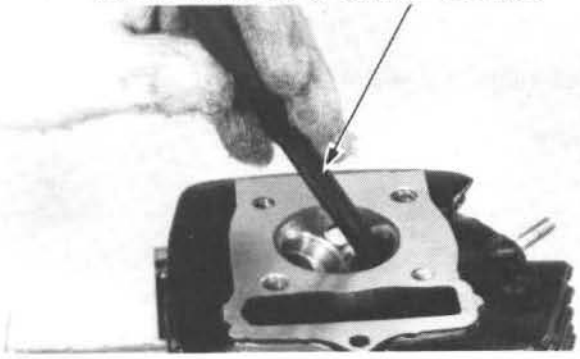
CAUTION

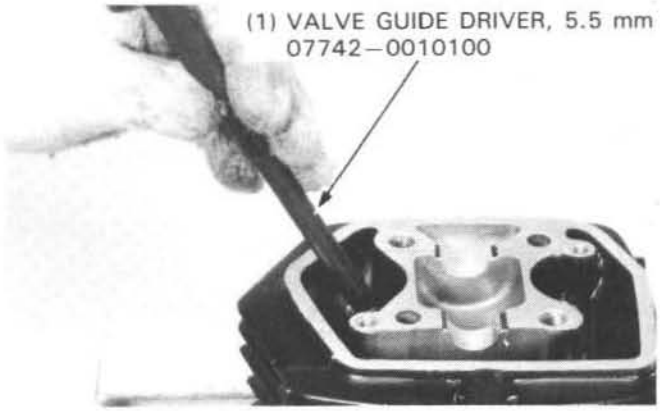
- *Do not use a touch to heat the cylinder head; it may cause warping.*

Support the cylinder head and drive out the oil guides from the combustion champer side of the cylinder head.

CAUTION

- *Avoid damaging the cylinder head.*





Place a new O-ring on the new valve guide. Drive in the guide from the top of the head.
Inspect the valve guide for damage.
Ream the new valve guide after installation.

NOTE

- Use cutting oil on the reamer during this operation.
- Always rotate the reamer in the same direction.

Clean the cylinder head thoroughly to remove any metal particles.

Reface the valve seat.

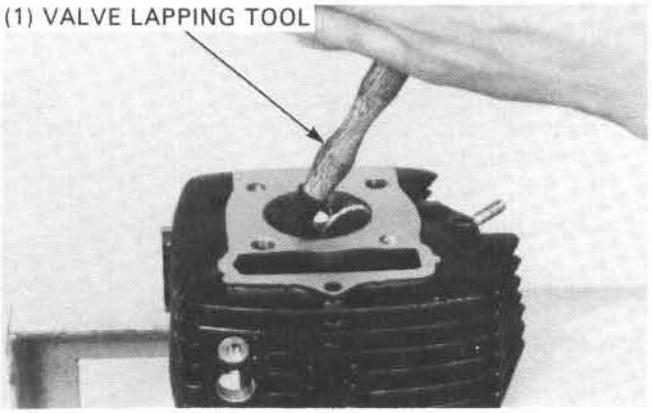


VALVE SEAT INSPECTION/REFACING

Clean both intake and exhaust valves thoroughly to remove carbon deposits. Apply a light coating of valve lapping compound to each valve face. Lap the valves and seats using a rubber hose or other hand-lapping tool.

NOTE

- Take care not to allow the compound to enter between the valve stem and guide.
- After lapping, wash out the compound completely and apply a coat of engine oil to the valve face and seat.



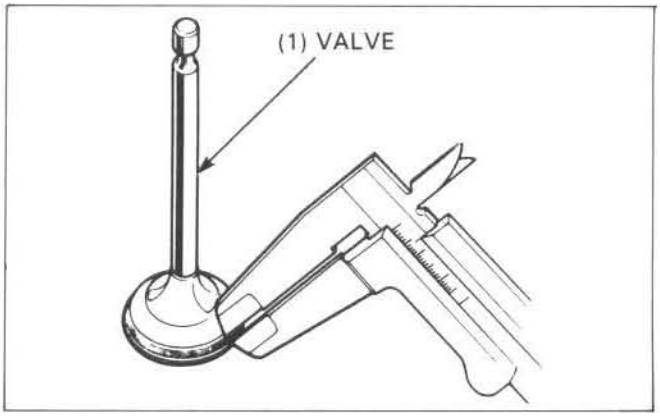
Remove and inspect the valves.

Measure the width of the valve faces.

SERVICE LIMIT: 1.5 mm (0.06 in)

CAUTION

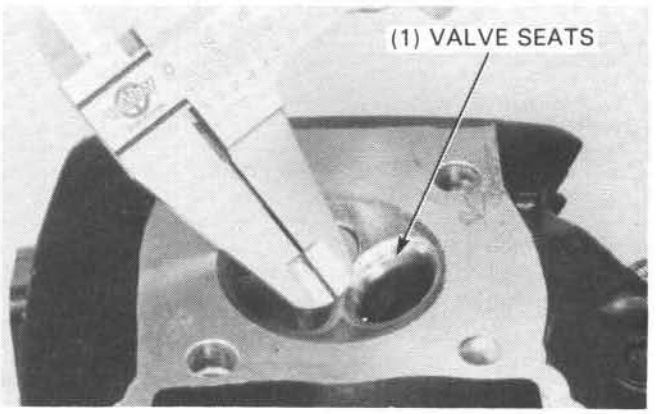
- *The valves cannot be ground. If the valve face is rough, worn unevenly, or contacts the seat improperly, the valve must be replaced.*



Measure the valve seats.

SERVICE LIMIT: 1.5 mm (0.06 in)

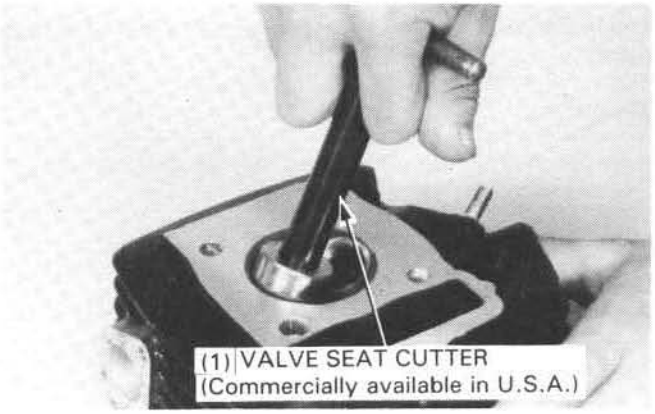
If the seat is too wide, too narrow, or has low spots, it must be refaced to seal properly.



RIDE RED

VALVE SEAT REFACING

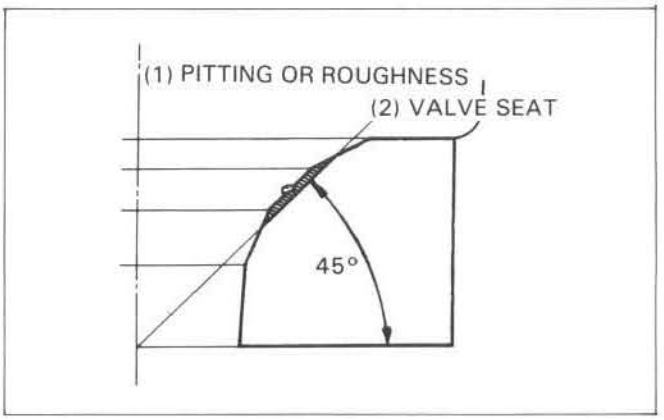
Follow the valve seat cutters manufacturers instructions.



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

NOTE

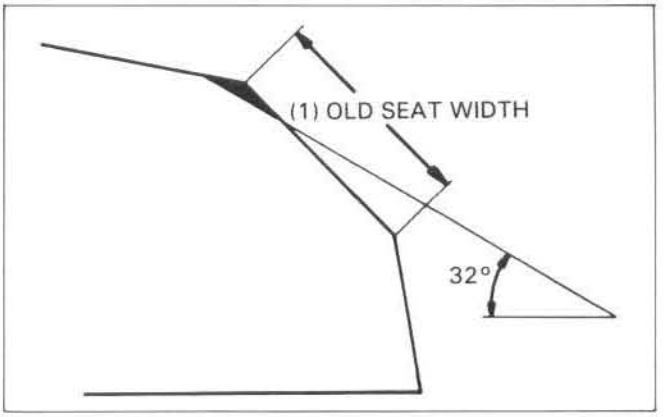
- Reface the seat with a 45 degree cutter when the valve guide is replaced.



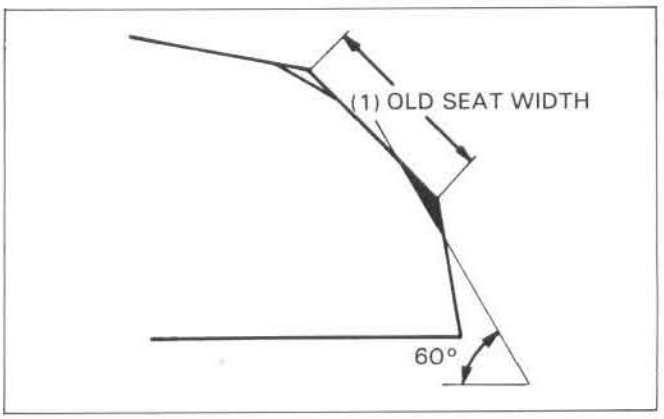
Use a 32 degree cutter to remove 1/4 of the existing valve seat material.

NOTE

- Follow the instructions supplied with the Valve Seat Refacing Equipment.



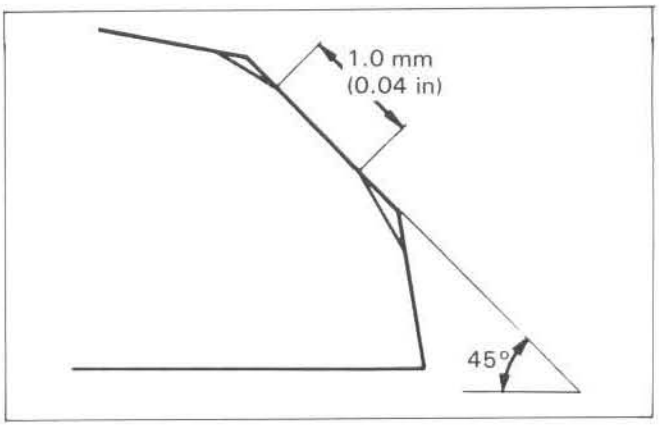
Use a 60 degree cutter to remove the lower 1/4 of the old seat. Remove the cutter and inspect the area you have just cut.



Install a 45 degree finish cutter and cut the seat to the proper width.

NOTE

- Make sure that all pitting and irregularities are removed. Refinish if necessary.



Apply a thin coating of Prussian Blue to the valve seat.

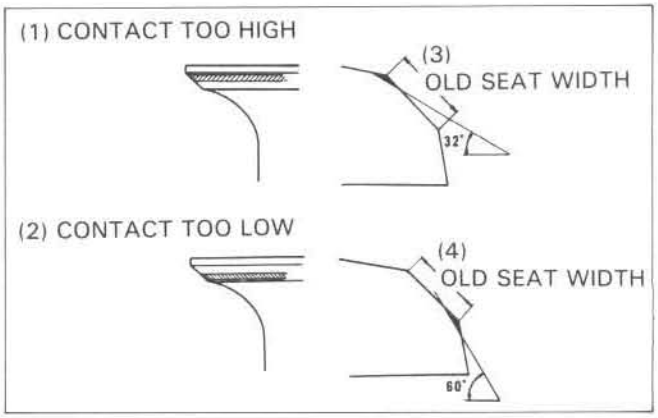
Without rotating the valve, insert it through the valve guide and onto the seat to make a clear pattern.

NOTE

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

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

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



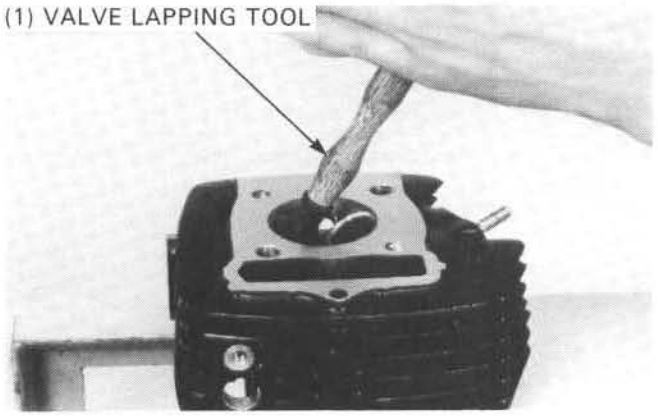
Refinish the seat to specifications using a 45 degree seat cutter.

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

NOTE

- Take care not to allow the compound to enter between the valve stem and guide.

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

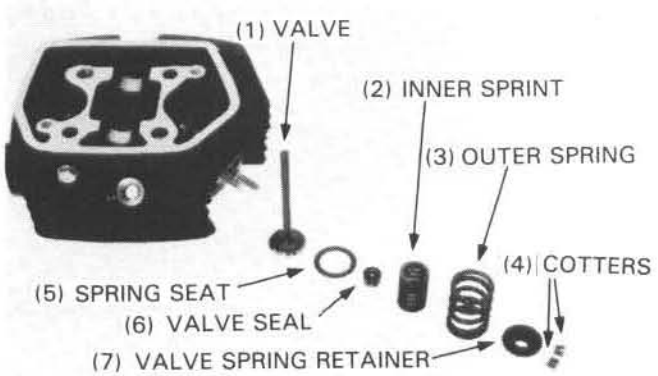


CYLINDER HEAD ASSEMBLY

XR80R:
Install new valve stem seals.
XR100R:
Install a new valve stem seal on the exhaust side.

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

Install the valve spring seats and springs.

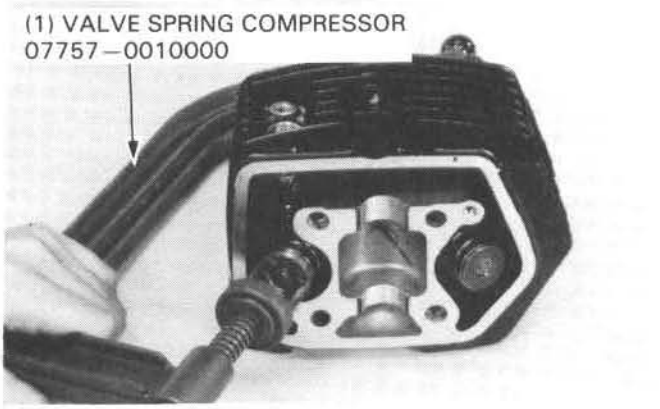


RIDE RED

Install the valve spring retainers and cotters.

CAUTION

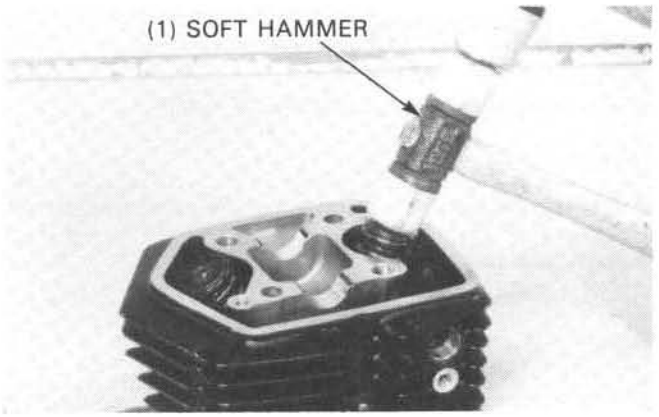
- *To prevent loss of tension, do not compress the spring more than necessary to install the valve cotters.*



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

CAUTION

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



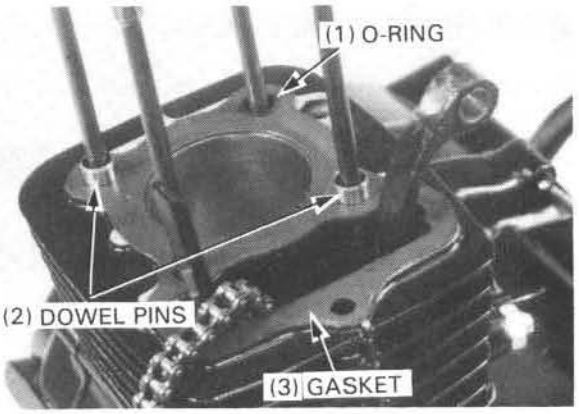
CYLINDER HEAD INSTALLATION

Clean off any gasket material from the cylinder surface.

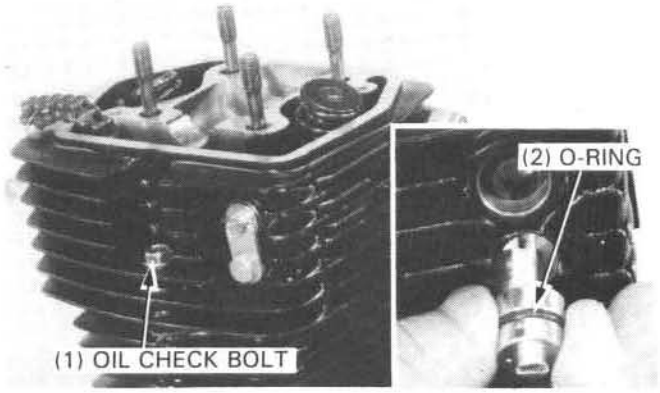
Install new O-rings, dowel pins and gasket.

Loosen the tensioner adjusting bolt lock nut and the bolt. Push down on the tensioner rod with a screwdriver and retighten the bolt.(page 6-3).

Tighten the lock nut.



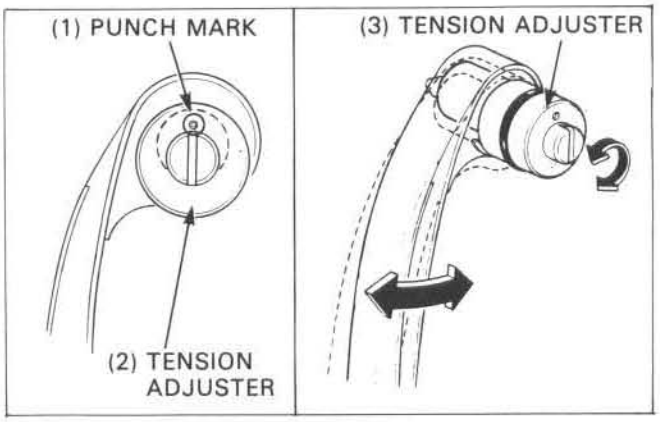
Install the cylinder head.
Install the cam chain tension adjuster with a new O-ring. Install the set plate and set plate bolt.
Install and tighten the oil check bolt.
Install the carburetor insulator.



The cam chain tension adjuster has an eccentric cam to control the tension of cam chain.

NOTE

To loosen the cam chain tension:
– Loosen the cam chain tension adjuster set plate bolt.
– Turn to the adjuster to the punch mark facing up.

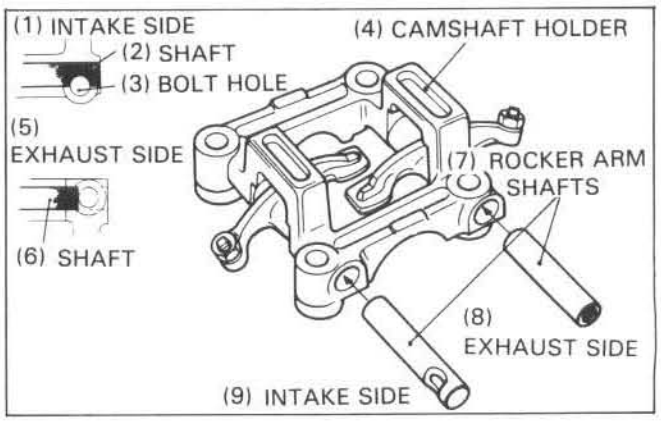


CAMSHAFT INSTALLATION

Install the rocker arms and rocker arm shafts.

NOTE

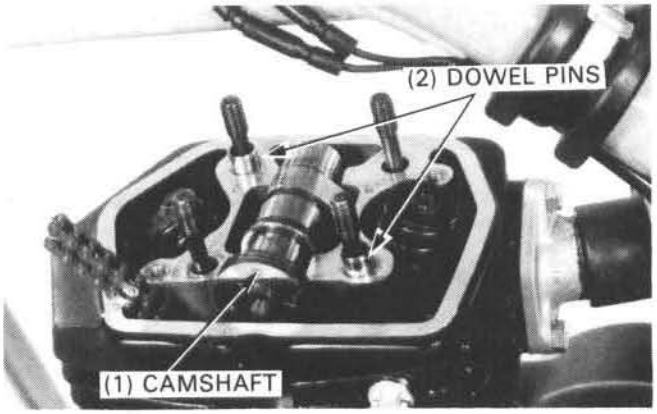
- Align the cutout of the intake arm shaft with the bolt hole as shown.
- Push the exhaust arm shaft in completely.



Coat the camshaft journals with molybdenum disulfide grease.

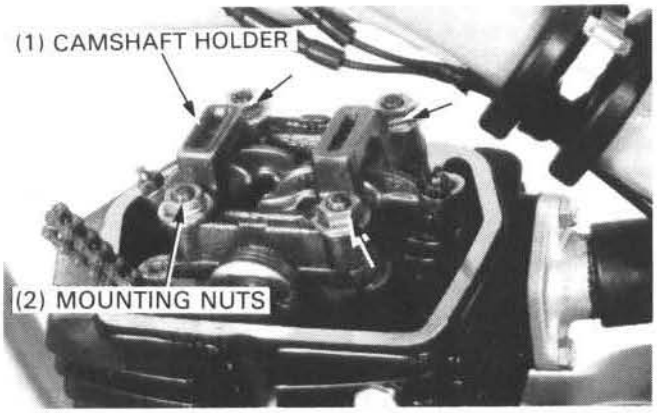
Install the camshaft onto the cam holder with its lobes facing down.

Install the dowel pins.



Install the camshaft holder assembly over the cylinder head and tighten the holder mounting nuts.

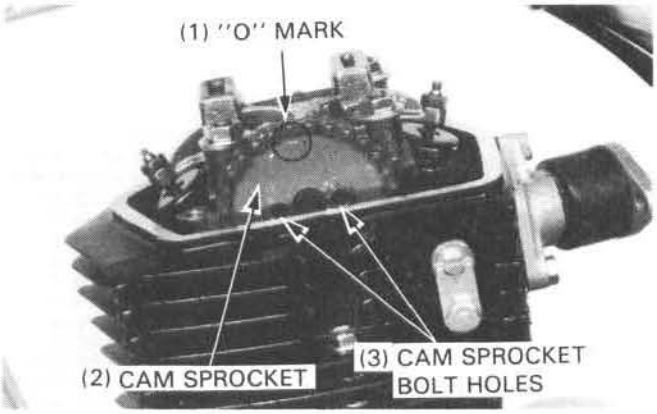
TORQUE: 18–20 N·m (1.8–2.0 kg-m, 13–15ft-lb)



Make sure that the cam chain tension adjuster is set to the loosen setting(page 6-12)

Turn the crankshaft counterclockwise and align the "T" mark on the flywheel with the index mark on the left crankcase.

Install the cam sprocket with its bolt holes in parallel to the cylinder head surface and "O" mark facing up.

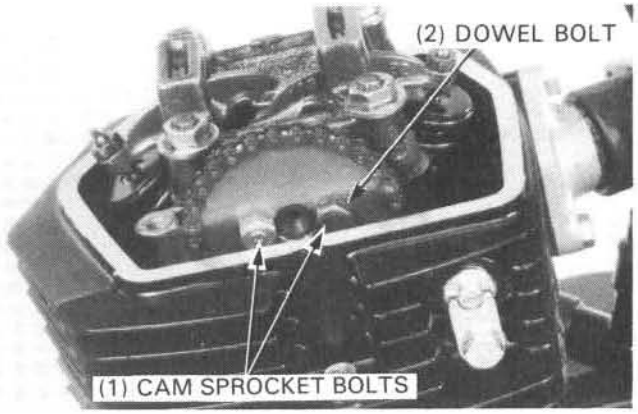


Install and tighten the cam sprocket bolts.

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

NOTE

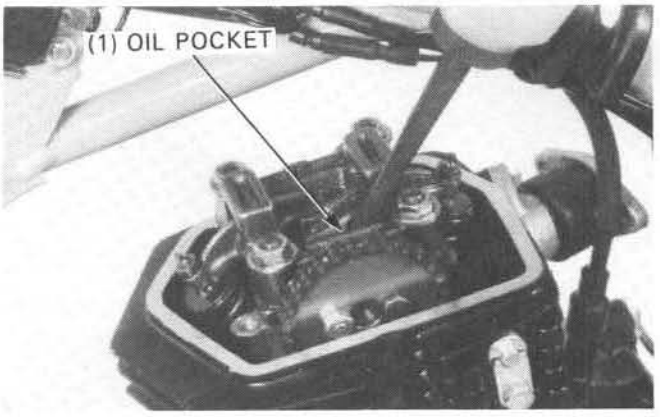
- Install the dowel bolt on the intake side.



Pour clean engine oil into the cylinder head oil pocket.

Adjust the valve clearance (page 3-6) and the cam chain tension (page 3-8).

Inspect the cylinder head cover gasket for damage or evidence deterioration.



Install the cylinder head cover with gasket and tighten the mounting bolts.

Reinstall the left crankcase cover and the fuel tank.

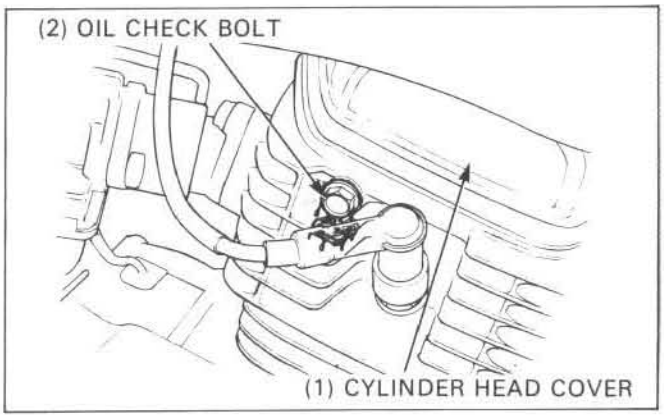
Start the engine and allow it to idle.

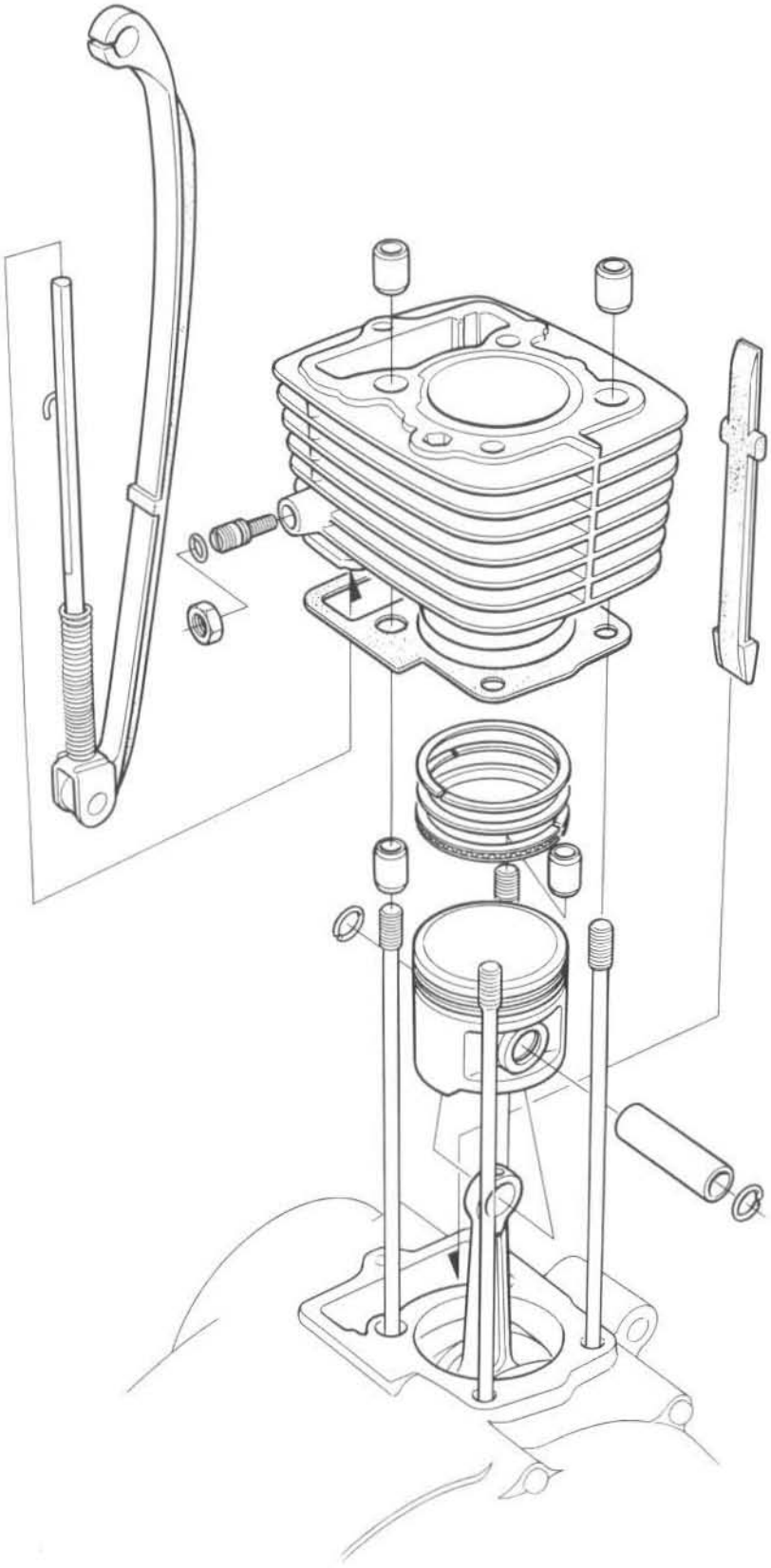
CAUTION

Do not run the engine at high-speed. This will prevent engine damage, if the oil circuit is colgged.

Loosen, but do not remove, the cylinder head oil check bolt and make sure oil flows from the oil bolt hole.

Retighten the oil check bolt and check for oil leaks.





RIDE RED

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

SERVICE INFORMATION

GENERAL

- Camshaft lubrication oil is fed to the cylinder head through an orifice in the crankcase. Be sure this orifice is not clogged and that the O-rings and dowel pins are in place before installing the cylinder head.
- The engine must be removed from the frame to perform these operations.

SPECIFICATIONS

Unit: mm (in)

ITEM				STANDARD	SERVICE LIMIT
Cylinder	XR80R	I.D.		47.50–47.51 (1.8700–1.8704)	47.6 (1.874)
	XR100R	I.D.		53.00–53.01 (2.0866–2.0870)	53.1 (2.091)
	Taper			—	0.10 (0.004)
	Out-of-round			—	0.10 (0.004)
	Warpage			—	0.10 (0.004)
Piston, Piston rings Piston pin	XR80R	Piston ring-to-groove clearance	Top	0.015–0.050 (0.0006–0.0020)	0.10 (0.004)
			Second	0.015–0.045 (0.0006–0.0018)	0.10 (0.004)
			Oil	0.035–0.180 (0.0014–0.0071)	—
		Piston ring end gap	Top/Second	0.15–0.35 (0.006–0.014)	0.5 (0.02)
			Oil	0.3–0.9 (0.01–0.04)	1.1 (0.04)
		Piston O.D.		47.465–47.490 (1.8686–1.8697)	47.40 (1.866)
		Piston-to-cylinder clearance		0.01–0.04 (0.0004–0.0016)	0.10 (0.004)
		Piston pin hole I.D.		13.002–13.008 (0.5119–0.5121)	13.04 (0.513)
		Piston pin O.D.		12.994–13.000 (0.5116–0.5118)	12.96 (0.510)
		Piston-to-piston pin clearance		0.002–0.014 (0.0001–0.0006)	0.02 (0.001)
	XR100R	Piston ring-to-groove clearance	Top	0.015–0.045 (0.0006–0.0018)	0.10 (0.004)
			Second	0.015–0.045 (0.0006–0.0018)	0.10 (0.004)
			Oil	0.035–0.180 (0.0014–0.0071)	—
		Piston ring end gap	Top/Second	0.15–0.35 (0.0006–0.0014)	0.5 (0.02)
			Oil	0.2–0.9 (0.01–0.04)	1.1 (0.04)
		Piston O.D.		52.970–52.990 (2.0854–2.0862)	52.90 (2.083)
		Piston-to-cylinder clearance		0.01–0.04 (0.0004–0.0016)	0.10 (0.004)
		Piston pin hole I.D.		14.002–14.008 (0.5513–0.5515)	14.04 (0.553)
		Piston pin O.D.		13.994–14.000 (0.5509–0.5512)	13.96 (0.550)
		Piston-to-piston pin clearance		0.002–0.014 (0.0001–0.0006)	0.02 (0.0008)
Connecting Rod	XR80R	Small end I.D.		13.016–13.034 (0.5124–0.5131)	13.04 (0.513)
	XR100R	Small end I.D.		14.012–12.030 (0.5517–0.5524)	14.05 (0.553)
	Piston pin-to-connecting rod small end clearance			0.016–0.040 (0.0006–0.0016)	0.03 (0.001)

TROUBLESHOOTING

Low or unstable compression
- Worn cylinder or piston rings

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

Knocking or abnormal noise
- Worn piston and cylinder
- Excessive carbon build-up

Overheating
- Excessive carbon build-up on piston crown or combustion chamber wall.

RIDE RED

CYLINDER/PISTON REMOVAL

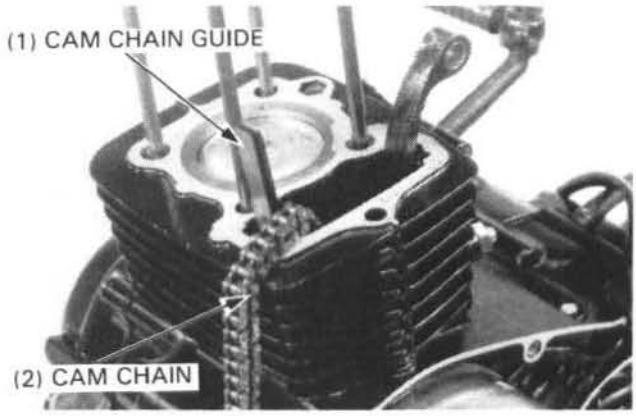
Remove the cylinder head (Section 6), head gasket, dowel pins and O-ring.

Remove the cam chain guide.

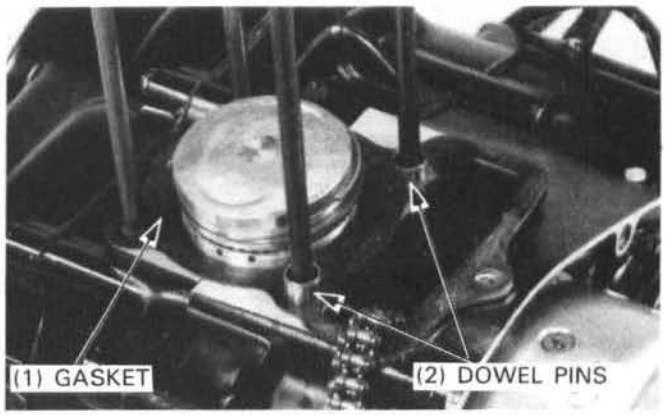
Remove the cylinder.

NOTE

- Suspend the cam chain with a piece of wire to prevent it from falling into the crankcase.

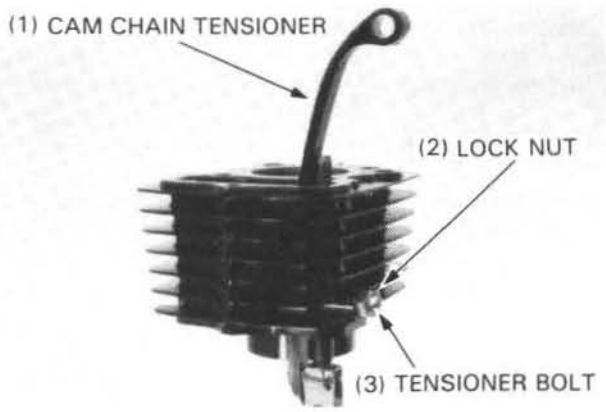


Remove the gasket and dowel pins.

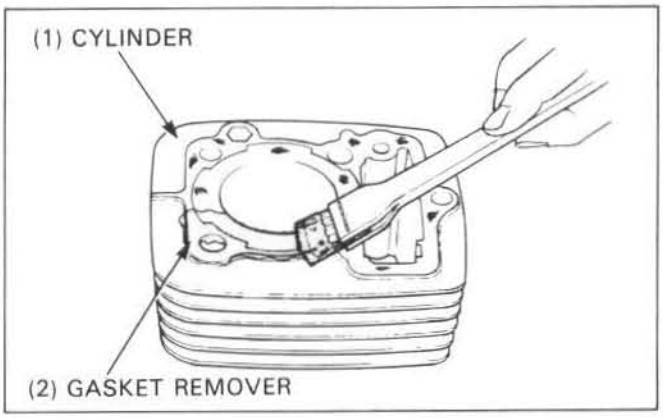


Loosen the lock nut and remove the cam chain tensioner bolt.

Remove the cam chain tensioner, tensioner rod and spring.

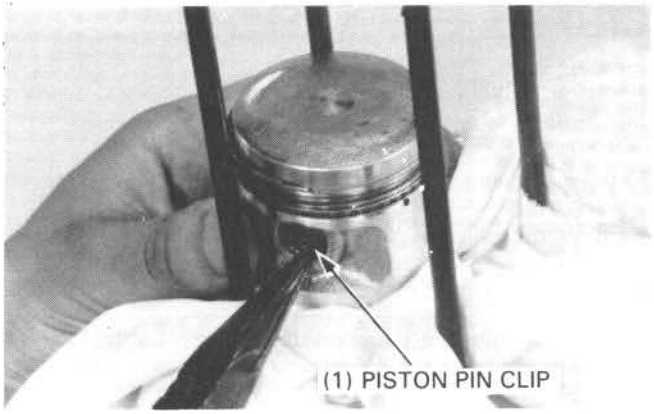


Clean off any gasket material from the cylinder surface using commercially available gasket remover or equivalent.



Place clean shop towels in the crankcase to keep parts from falling into the crankcase.

Remove the piston pin clip, the piston pin and piston.



CYLINDER INSPECTION

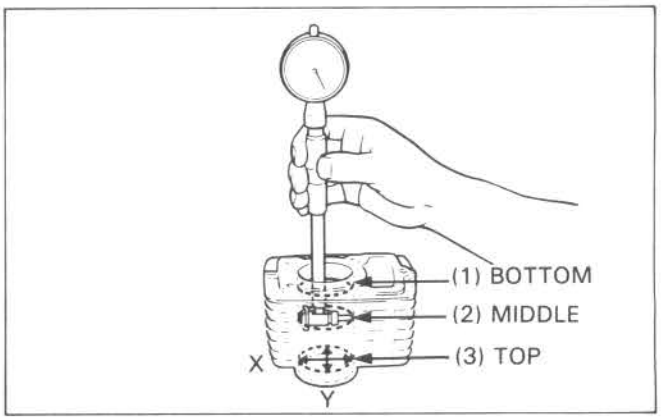
Inspect the cylinder walls for scratches and wear.

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

SERVICE LIMIT: XR80R: 47.6 mm (1.874 in)
XR100R: 53.1 mm (2.091 in)

Calculate the piston-to-cylinder clearance. Take the maximum reading to determine the clearance.
Refer to page 7-5 for measurement of the piston O.D..

SERVICE LIMIT: 0.10 mm (0.004 in)

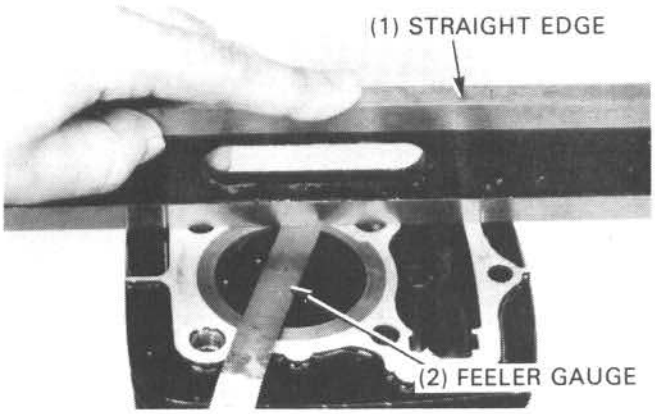


Calculate the cylinder for taper at three levels in an X and Y axis.
Take the maximum reading to determine the taper.

SERVICE LIMIT: 0.10 mm (0.004 in)

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

SERVICE LIMIT: 0.10 mm (0.004 in)



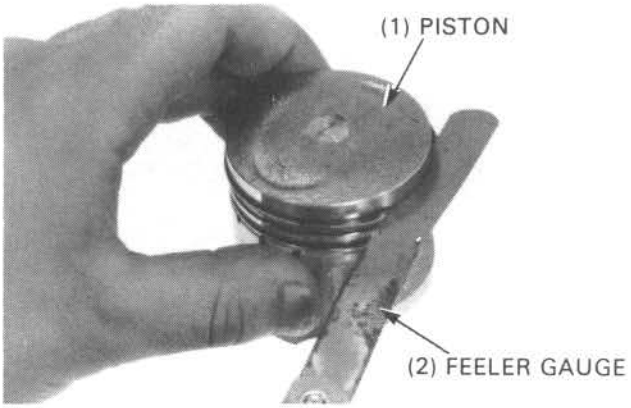
The cylinder must be rebored so that the clearance to a new piston is 0.01—0.04 mm (0.0004—0.0016 in).

Inspect the top of the cylinder for warpage.

SERVICE LIMIT: 0.10 mm (0.004 in)

Measure the piston ring-to-groove clearance.

SERVICE LIMIT: XR80R: 0.10 mm (0.004 in)
XR100R: 0.10 mm (0.004 in)



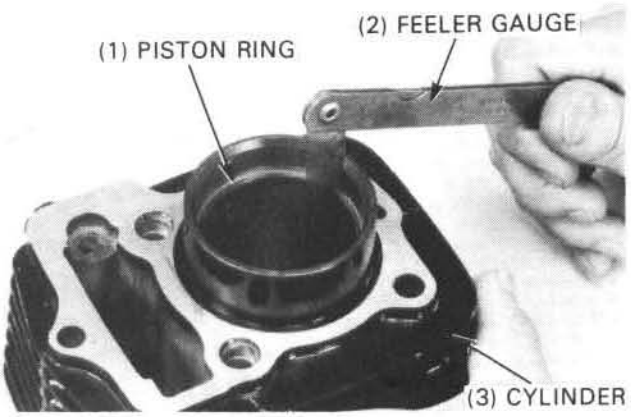
Remove the piston rings.

Clean the piston crown, removing all carbon deposits.
Inspect the piston for cracks or other damage, and the ring grooves for excessive wear and carbon build-up.

RIDE RED

Using a piston, push the piston ring into the cylinder squarely and measure the end gap.

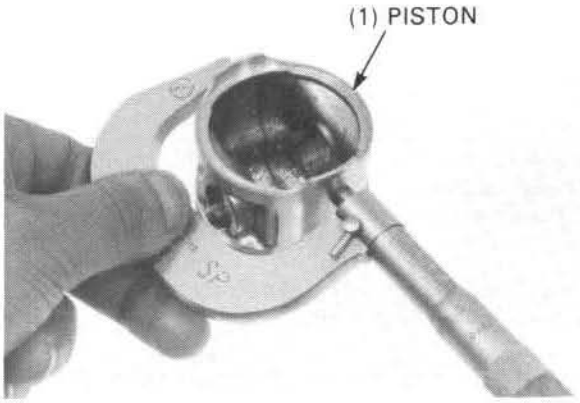
SERVICE LIMIT: Top/Second: 0.5 mm (0.02 in)
Oil : 1.1 mm (0.04 in)



Measure and record the piston O.D. at points 7 mm (0.28 in) for XR80R and 10 mm (0.4 in) for XR 100R from the bottom, and 90° to the piston pin bore.

SERVICE LIMIT: XR80R: 47.40 mm (1.866 in)
XR100R: 52.90 mm (2.083 in)

Compare this measurement against the service limit and to calculate piston-to-cylinder clearance.
Refer to page 7-4 for measuring the cylinder.



Measure the piston pin hole I.D.

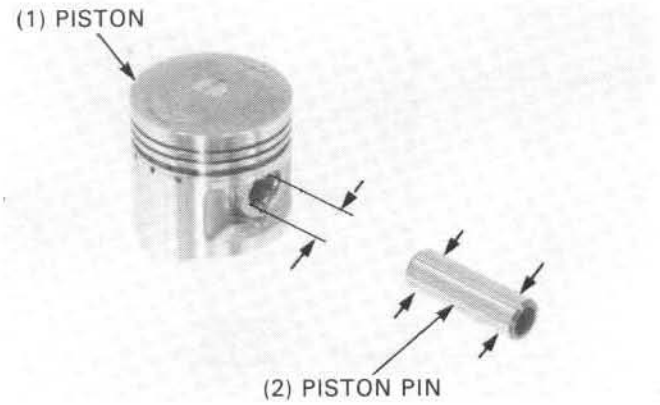
SERVICE LIMIT: XR80R: 13.04 mm(0.513 in)
XR100R: 14.04 mm(0.553 in)

Measure the piston pin O.D.

SERVICE LIMIT: XR80R: 12.96 mm(0.510 in)
XR100R: 13.96 mm(0.550 in)

Calculate the piston-to-piston pin clearance.

SERVICE LIMIT: XR80R: 0.03 mm(0.0012 in)
XR100R: 0.02 mm(0.0008 in)

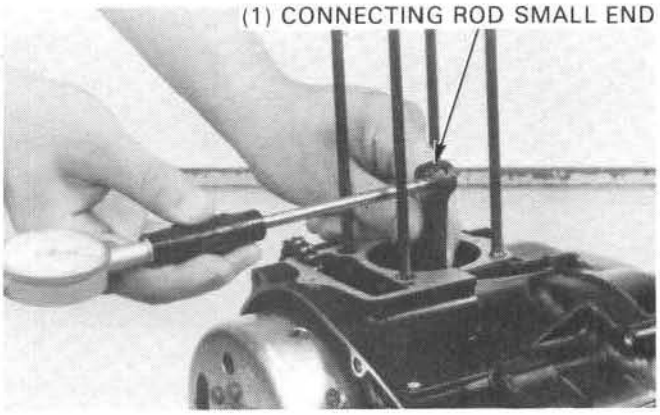


Measure the connecting rod small end I.D.

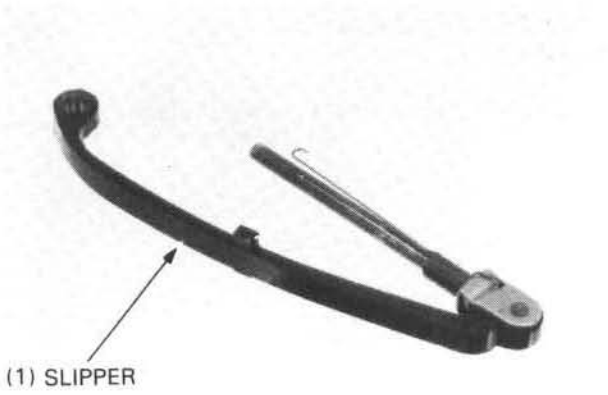
SERVICE LIMIT: XR80R: 13.04 mm(0.513 in)
XR100R: 14.05 mm(0.553 in)

Calculate the piston pin-to-connecting rod small end clearance.

SERVICE LIMIT: 0.03 mm(0.001 in)



Inspect the cam chain tensioner slipper for wear or damage and replace if necessary.



PISTON RING INSTALLATION

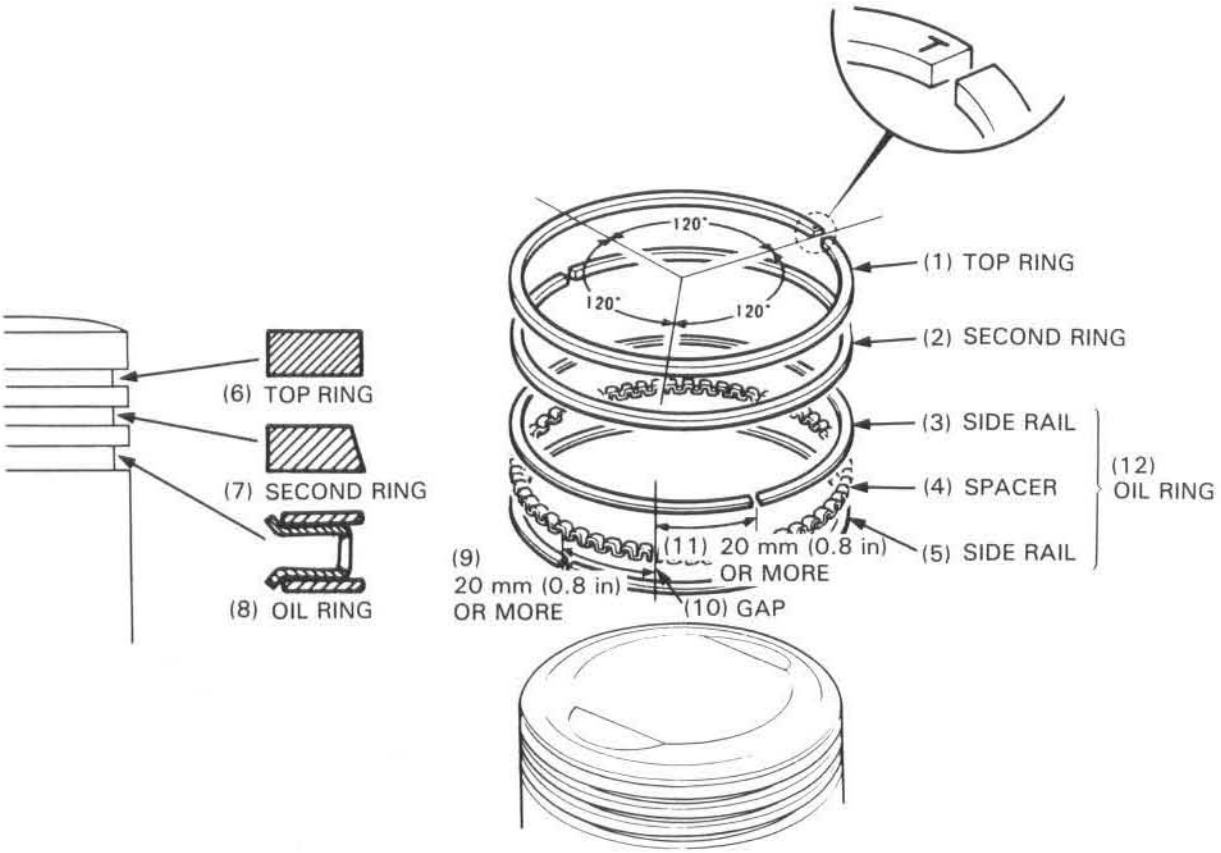
Clean the piston ring grooves thoroughly and install the rings.

NOTE

- Avoid piston and piston ring damage during installation.
- Install the piston rings with the marking facing up.
- Do not confuse the top and second rings.

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

After installation, the rings should be free to rotate in the ring grooves.



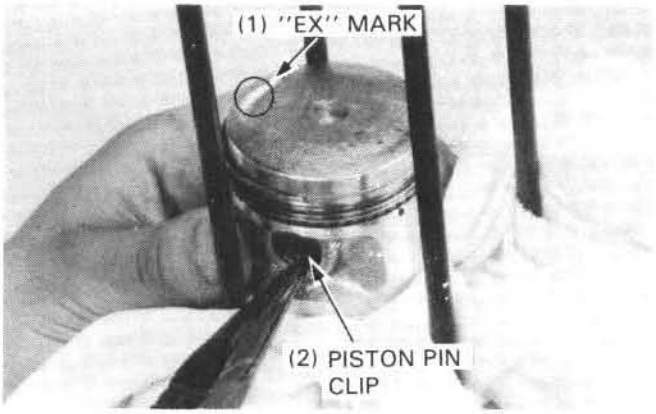
RIDE RED

PISTON INSTALLATION

Install the piston and piston pin.

NOTE

•Position the piston "EX" mark on the exhaust valve side.



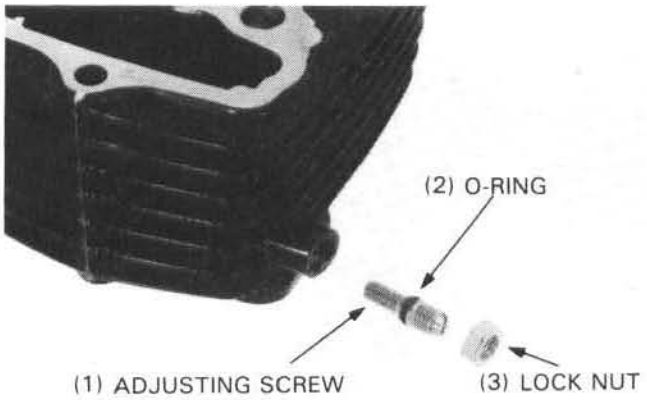
Install new piston pin clips.

NOTE

- Do not align the piston pin clip gap with the piston cutout.
- Do not let the clip fall into the crankcase.

CYLINDER INSTALLATION

Install a new O-ring on the cam chain tensioner screw.

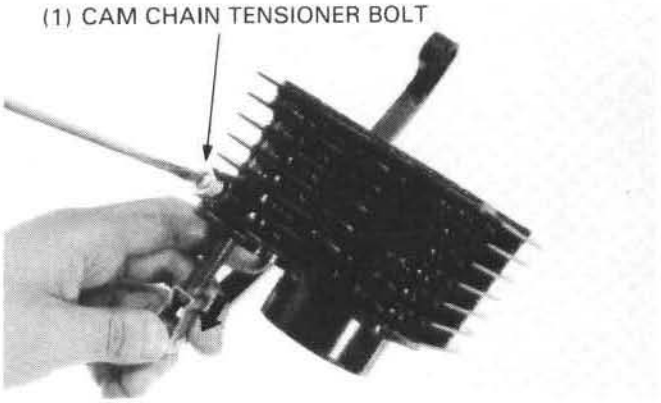


Insert the cam chain tensioner rod into the hole in the cylinder and hook the spring end on the cylinder spring groove.

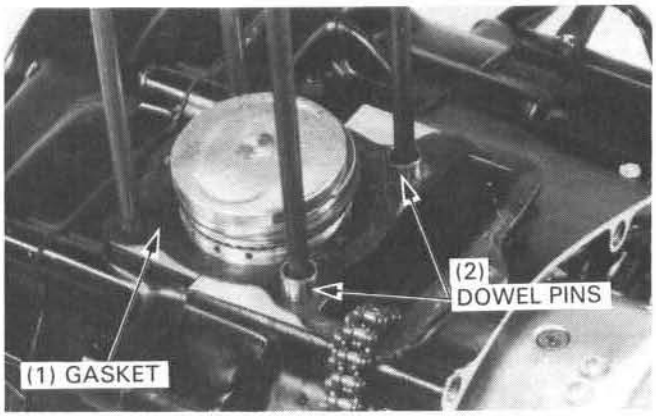


Install the cam chain tensioner bolt and lock nut.

Pull the tensioner down, then tighten the bolt and lock nut.



Install the new gasket and dowel pins into the crankcase.

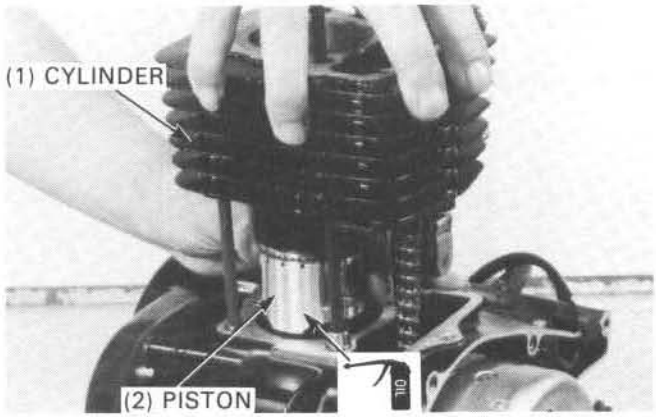


Coat the cylinder bore, piston, rings with clean engine oil.

Carefully lower the cylinder over the piston by compressing the piston rings.

CAUTION

- *Do not force the cylinder over a ring; you may damage the piston ring.*
- *Do not let the cam chain fall into the crankcase.*

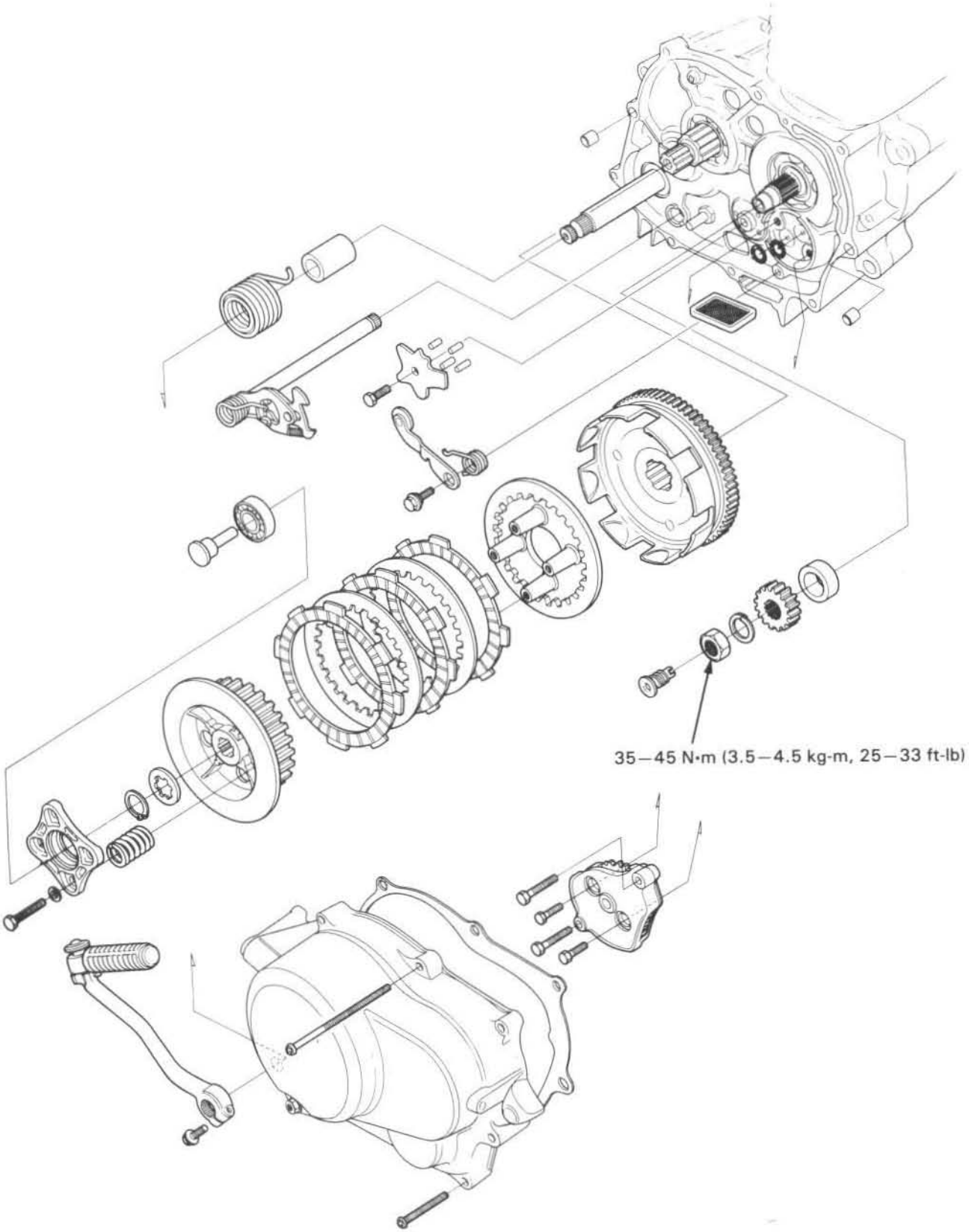


Install the cam chain guide.

Install the cylinder head (page 6-11).

RIDE RED

MEMO



RIDE RED

SERVICE INFORMATION	8-1	GEARSHIFT LINKAGE	8-6
TROUBLESHOOTING	8-2	PRIMARY DRIVE GEAR INSTALLATION	8-8
RIGHT CRANKCASE REMOVAL	8-3	RIGHT CRANKCASE COVER INSTALLATION	8-8
PRIMARY DRIVE GEAR REMOVAL	8-3		
CLUTCH	8-4		

SERVICE INFORMATION

GENERAL

- This section covers removal and installation of the clutch, primary drive gear and gearshift linkage. All these operations can be done with the engine installed in the frame.
- When the existing clutch discs are replaced, coat the new discs with engine oil prior to assembly.

SPECIFICATIONS

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Clutch	Spring	Free length	26.1 (1.03)	24.1 (0.95)
		Preload	20 kg/19.5 mm	—
	Disc thickness		2.80–2.90 (0.110–0.114)	2.5 (0.10)
	Plate warpage		—	0.2 (0.008)

TORQUE VALUE

Primary drive gear lock nut	35–45 N·m (3.5–4.5 kg-m, 25–33 ft-lb)

TOOLS

Special

Gear holder	07724–0010100

TROUBLESHOOTING

NOTE

- Faulty clutch performance can often be corrected by adjusting the clutch lever free play.

Clutch slips when accelerating
- No free play
- Discs worn
- Spring weak

Clutch will not disengage
- Too much free play
- Plates warped

Motorcycle creeps with clutch disengaged
- Too much free play
- Plates warped

Excessive lever pressure
- Clutch cable kinked, damaged or dirty
- Lifter mechanism damaged

Clutch operation feels rough
- Outer drum slots rough
- Dirty or damaged clutch cable
- Dirty or insufficiently lubricated clutch lever pivot

Hard to shift
- Stopper plate damaged
- Incorrect clutch adjustment

Gearshift pedal will not return
- Weak or broken shift return spring
- Shift spindle binding with case

Transmission jumps out of gear
- Weak or broken stopper spring
  See transmission section, (Section 9)

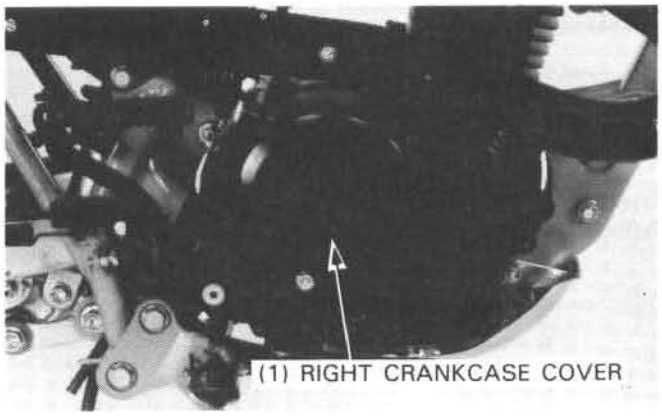
RIDE RED

RIGHT CRANKCASE COVER REMOVAL

Drain the engine oil (page 2-2).
Disconnect the clutch cable and remove the kick starter pedal.

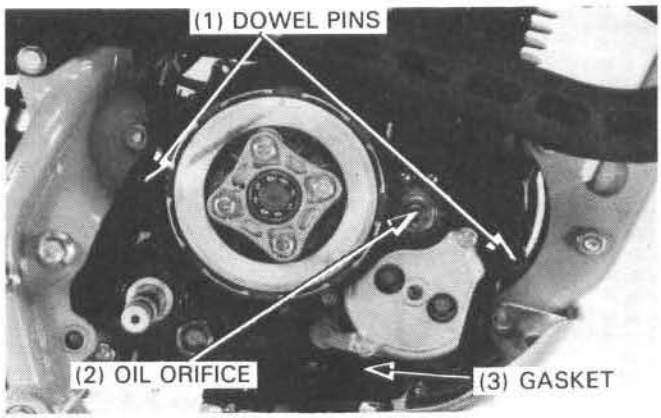
Remove the rear brake pedal pivot bolt. Loosen the right foot peg stay mount bolt and pull down the rear brake pedal.

Remove the right crankcase cover by removing the nine screws.



Remove the gasket and dowel pins.

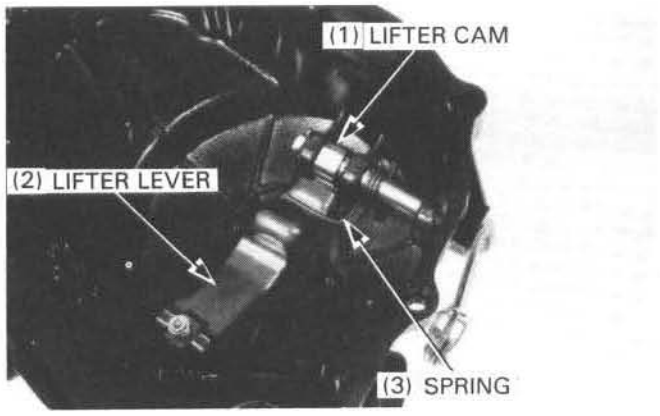
Remove the oil orifice from the crankshaft.



RIGHT CRANKCASE COVER DISASSEMBLY

Remove the clutch adjuster lock nut, clutch adjusting bolt and lifter lever.

Remove the cotter pin, lifter cam, spring and O-ring.

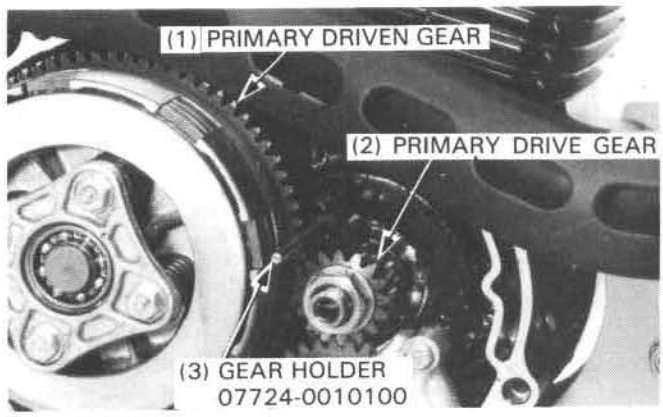


PRIMARY DRIVE GEAR REMOVAL

Install the gear holder between the primary drive and driven gears as shown to prevent the drive gear from turning.

Remove the primary drive gear lock nut.

Remove the oil through drive pin from the crankshaft.

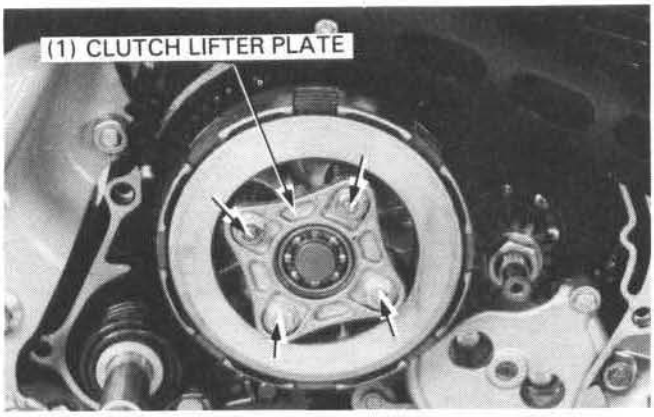


CLUTCH

REMOVAL

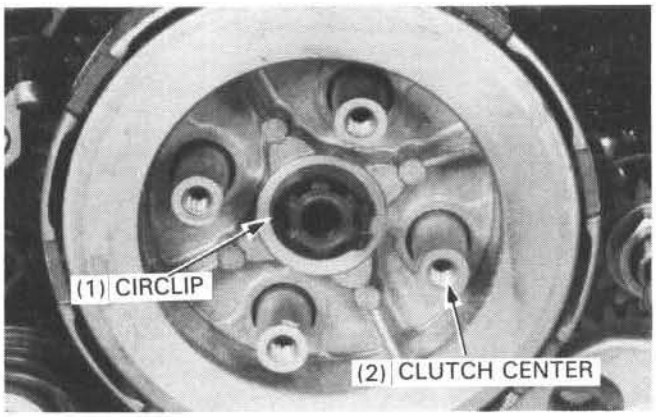
Remove the right crankcase cover (page 8-3).

Remove the clutch lifter plate and spring by removing the four bolts.

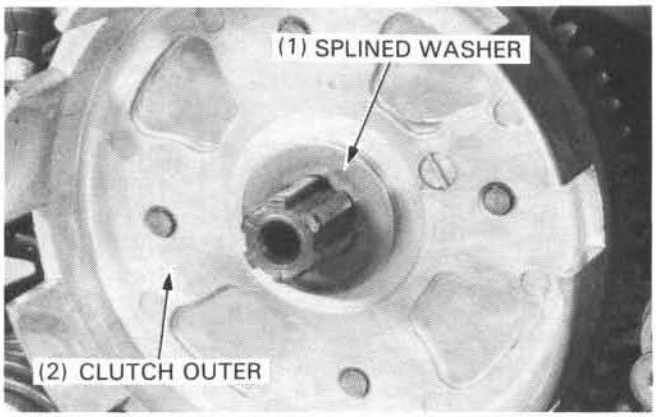


Remove the circlip.

Remove the clutch center, plates, discs and pressure plate.



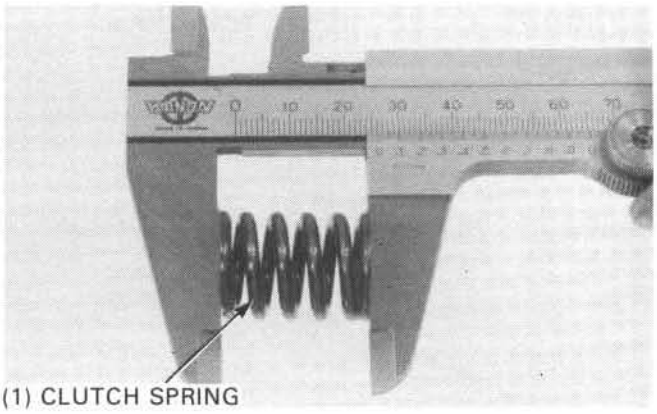
Remove the splined washer and clutch outer.



INSPECTION

Measure the clutch springs free length.

SERVICE LIMIT: 24.1 mm (0.95 in)

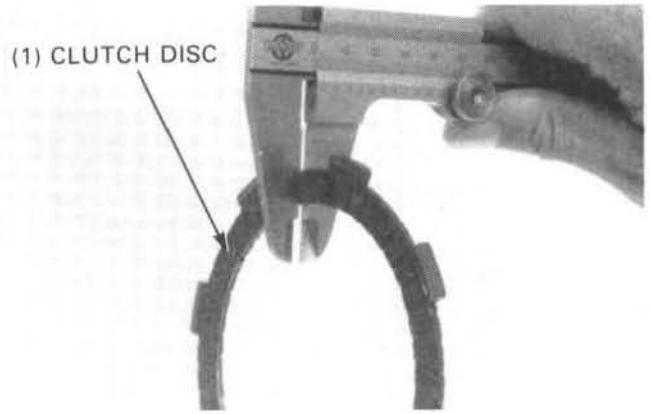


RIDE RED

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

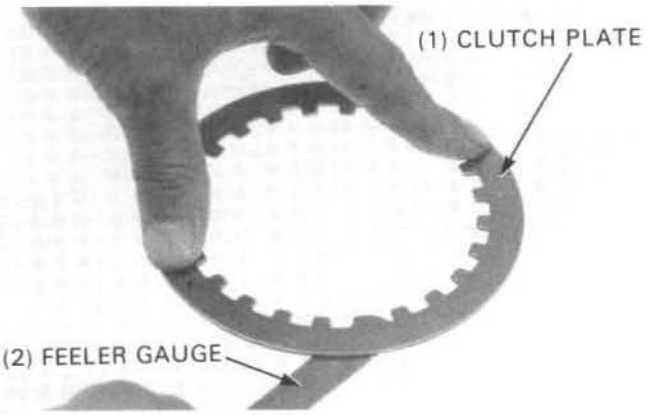
Measure the clutch disc thickness.

SERVICE LIMIT: 2.5 mm (0.10 in)

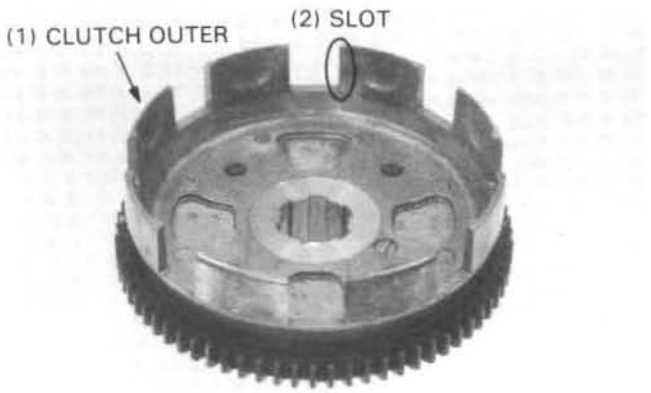


Check for clutch plate warpage on a surface plate using a feeler gauge.

SERVICE LIMIT: 0.2 mm (0.008 in)



Check the slots in the outer drum for nicks, cuts or indentations made by the friction discs.



INSTALLATION

Install the clutch outer.

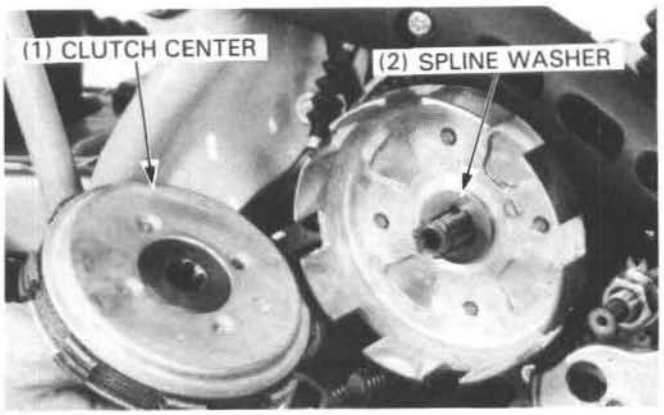
Install the spline washer.

Assemble the pressure plate, discs, clutch plates and clutch center.

NOTE

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

Install the circlip.

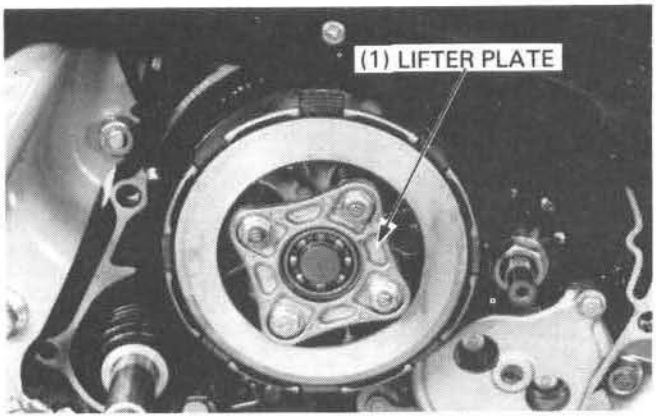


Install the clutch springs and lifter plate, and tighten the bolts.

NOTE

- Tighten the bolts in a crisscross pattern in 2-3 steps.

Install the bearing and lifter rod.



GEAR SHIFT LINKAGE

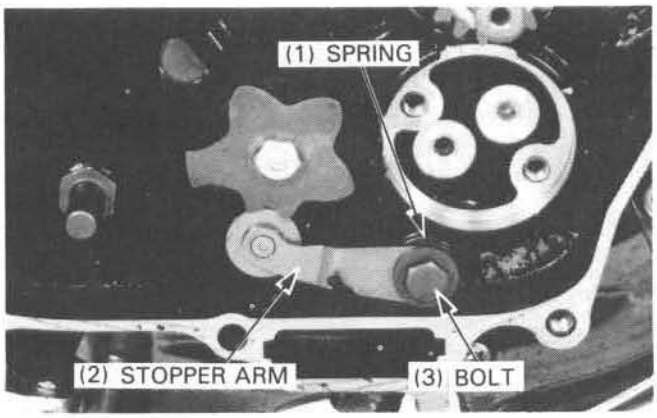
REMOVAL

Remove the following:
- right crankcase cover (page 8-3).
- clutch (page 8-4).
- oil pump (page 2-3).
- gearshift pedal.

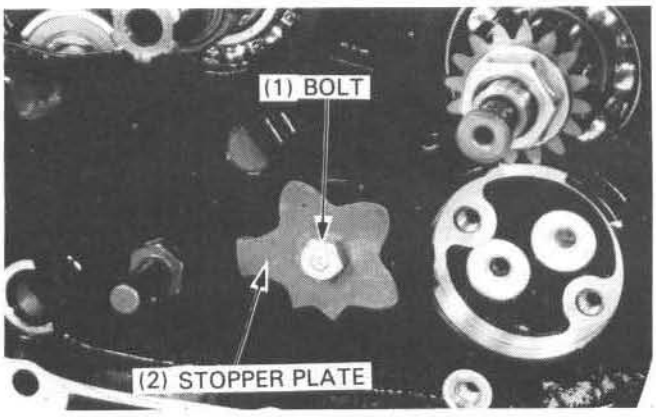
Remove the gearshift spindle as shown.



Remove the gearshift drum stopper arm bolt and stopper arm.



Remove the drum stopper plate bolt, stopper plate and dowel pins.



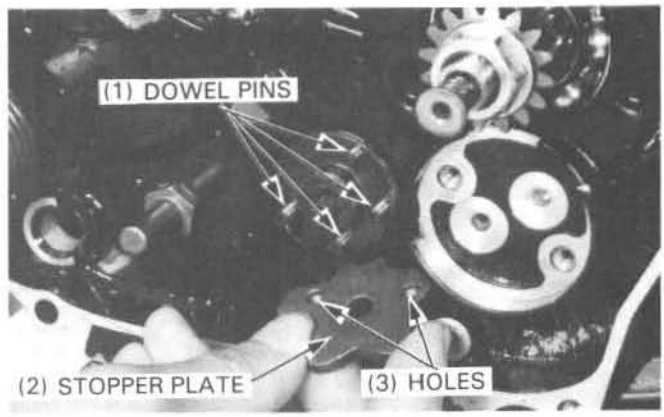
RIDE RED

Inspect the gearshift spindle for wear or damage and replace if necessary.



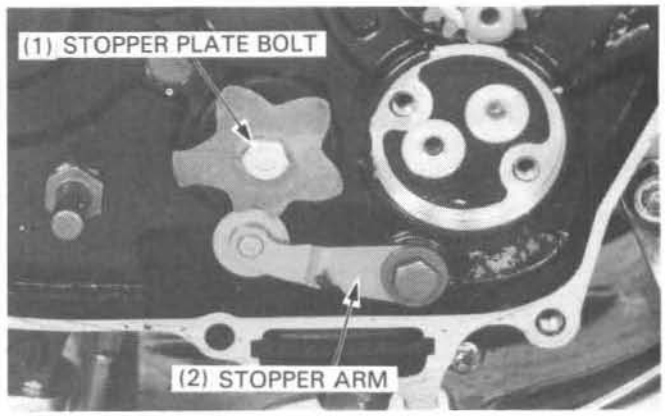
INSTALLATION

Install the dowel pins into the shift drum, then install the drum stopper plate aligning the holes with the dowel pins as shown.



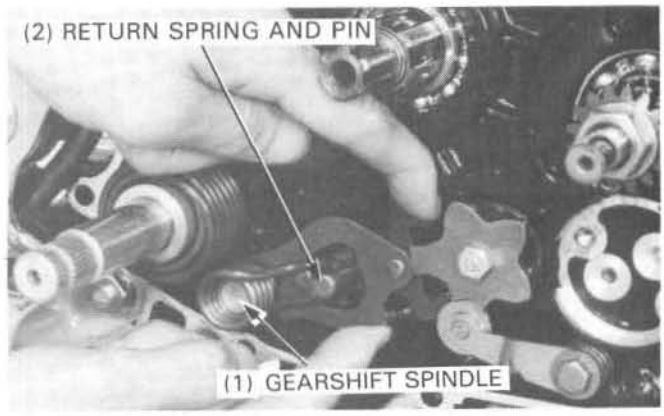
Install and tighten the drum stopper plate bolt.

Install the drum stopper arm and spring and tighten with the bolt.



Install the gearshift spindle, push the return spring ends over the pin in the case.

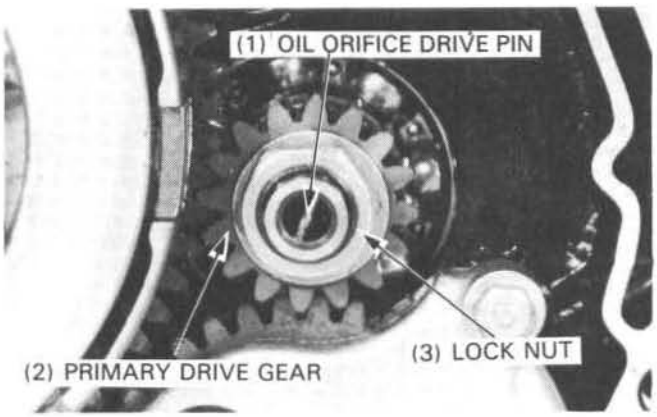
Install the following parts:
- oil pump (page 2-6).
- clutch (page 8-5).



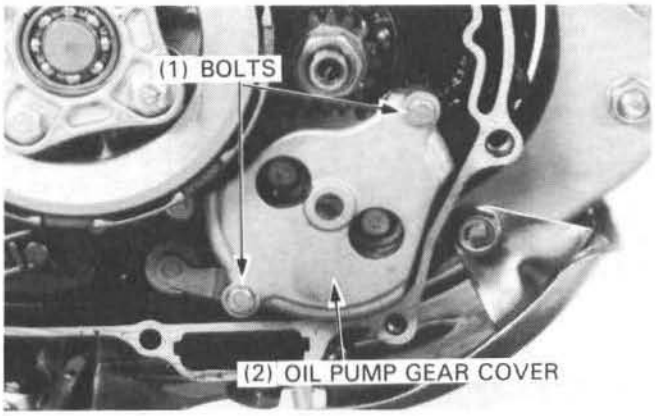
PRIMARY DRIVE GEAR INSTALLATION

Install the oil orifice drive pin into the crankshaft.

Install the primary drive gear and lock nut.



Remove the oil pump gear cover by removing the two bolts.



Set the gear holder between the primary drive and driven gears as shown to prevent the drive gear from turning.

Tighten the primary drive gear lock nut.

TORQUE: 35–45 N·m (3.5–4.5 kg-m, 25–33 ft-lb)

Install the oil pump gear cover with two bolts.



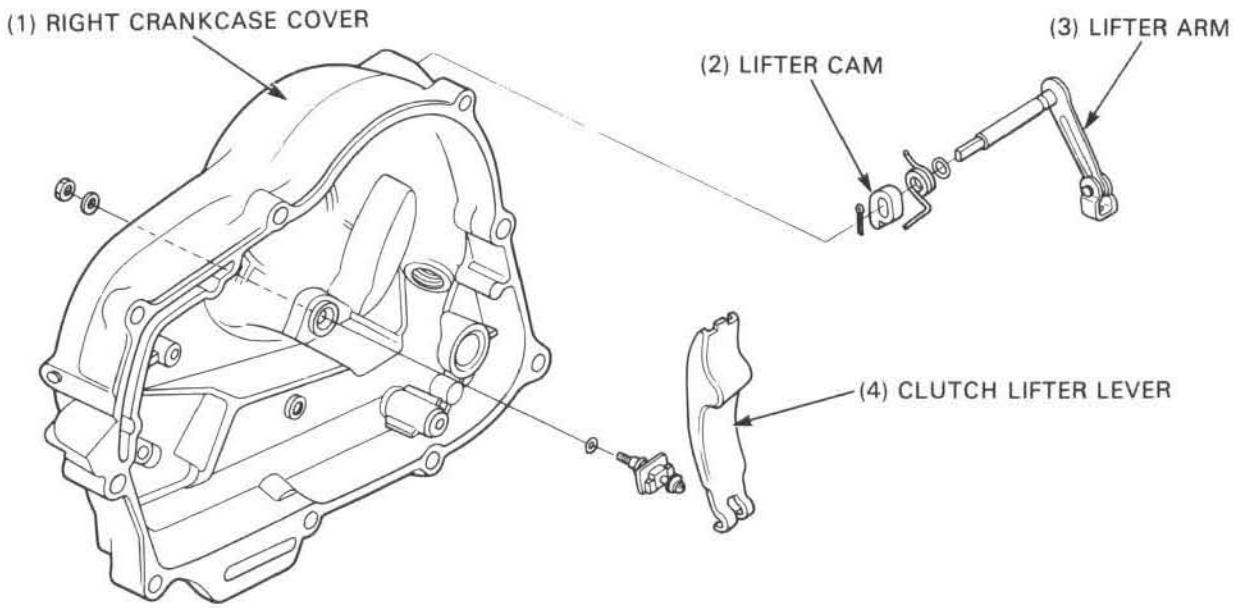
RIGHT CRANKCASE COVER INSTALLATION

Install the oil orifice by fitting its cutout over the oil drive pin in the crankshaft.

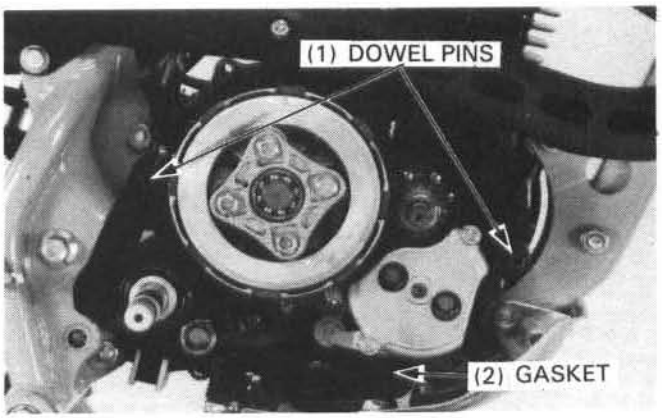


RIDE RED

Assemble the right crankcase cover in the reverse order of disassembly.



Install the dowel pins and new gasket on the mating surface of the right crankcase.



Install the right crankcase cover and tighten the nine screws.

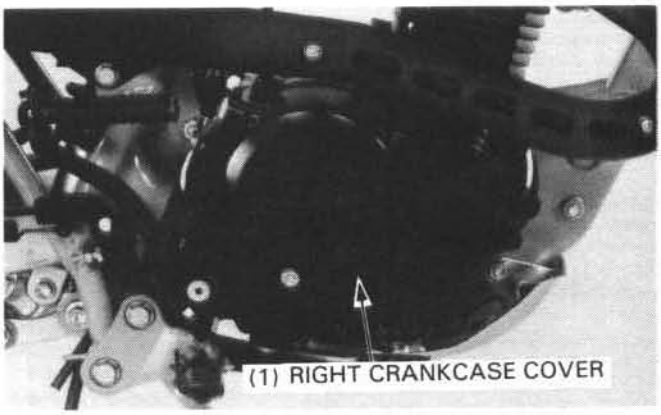
Install the kick starter and rear brake pedal. Install and tighten the brake pedal pivot bolt.

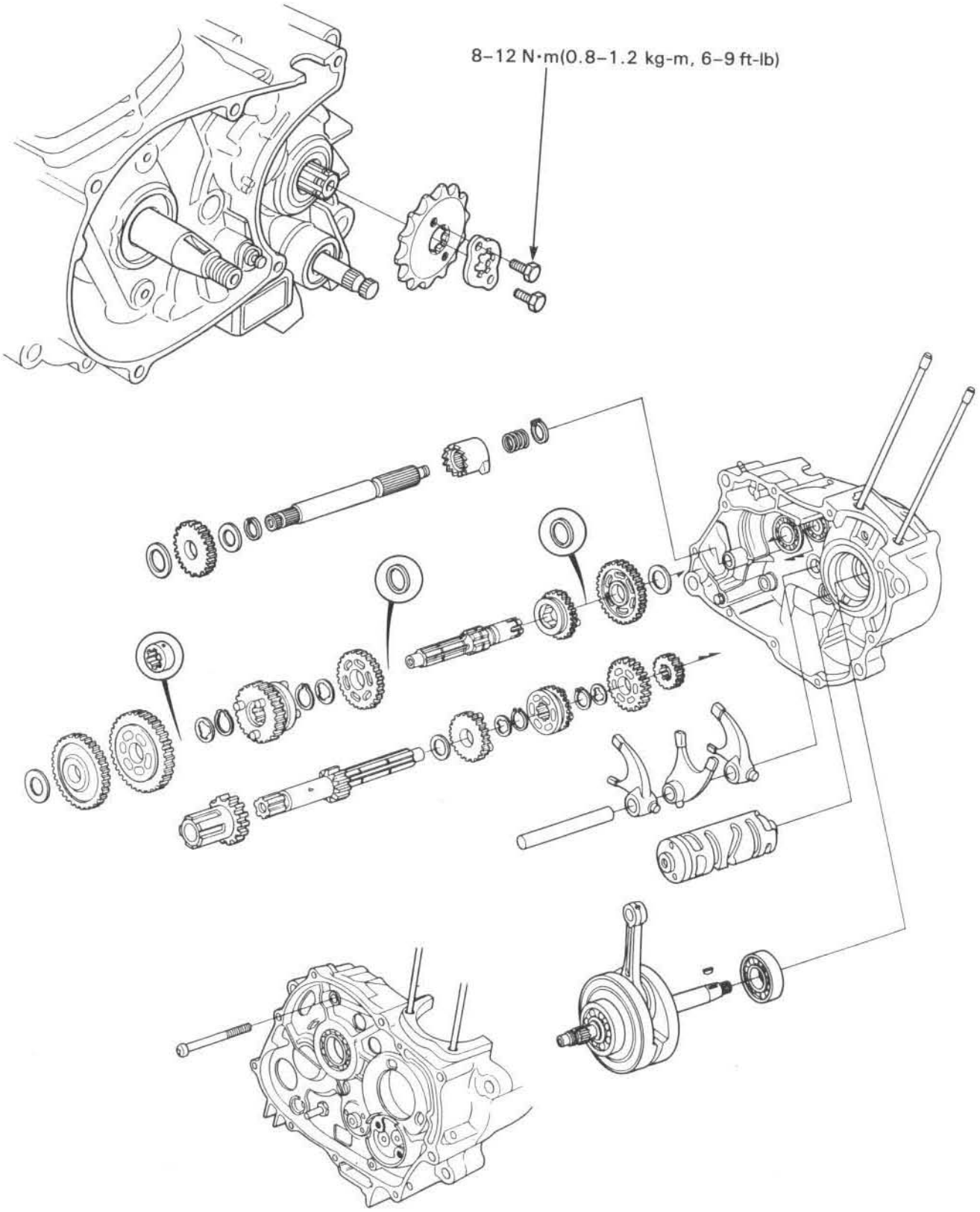
Tighten the right foot peg stay mount bolt.

Fill the crankcase with recommended grade of engine oil to the upper level mark (page 2-1).

Inspect and adjust following ;
- Clutch (page 3-13).
- Rear brake (page 3-12).

Connect the clutch cable.




8–12 N·m(0.8–1.2 kg-m, 6–9 ft-lb)

9. TRANSMISSION/CRANKSHAFT/CRANKCASE/KICK STARTER

SERVICE INFORMATION	9-1	KICK STARTER	9-10
TROUBLESHOOTING	9-2	CRANKSHAFT INSTALLATION	9-11
CRANKCASE SEPARATION	9-3	CRANKCASE ASSEMBLY	9-12
CRANKSHAFT REMOVAL	9-4	LEFT CRANKSHAFT OIL SEAL REPLACEMENT	9-13
TRANSMISSION	9-5		

SERVICE INFORMATION

GENERAL

- This section covers the crankshaft, transmission and kick starter maintenance.
- The engine must be removed from the frame to perform the operations in this section. Refer to the section 5 for engine romoval/installation.
- The crankcases must be separated to service the crankshaft, transmission and kick starter. Remove the following parts before separating the crankcases.
  - Cylinder head (section 6)
  - Cylinder and piston (section 7)
  - Clutch and gear shift linkage (section 8)
  - Flywheel (section 13)

  XR80R, '85 through '91 XR100R:
  - Stator coil base plate (section 13)

  After '91 XR100R:
  - Alternator stator (section 13)

SPECIFICATIONS

Unit: mm (in)

ITEM				STANDARD	SERVICE LIMIT
Crankshaft	Runout	Right		——	0.085 (0.0033)
		Left		——	0.070 (0.0027)
	Side clearance			0.10–0.35 (0.0039–0.0138)	0.60 (0.024)
	Radial clearance			0–0.008 (0–0.0003)	0.01 (0.0004)
Shift fork, shift fork shaft	Shift fork I.D.			12.000–12.018 (0.4724–0.4731)	12.05 (0.474)
	Fork claw thickness			4.93–5.00 (0.194–0.197)	4.7 (0.19)
	Shaft O.D.			11.976–11.994 (0.4715–0.4722)	11.96 (0.553)
	Drum groove width			7.05–7.15 (0.278–0.281)	7.16 (0.282)
Transmission Gear, shaft	Mainshaft			16.966–16.984 (0.6680–0.6687)	16.95 (0.667)
	Countershaft	A		19.459–19.480 (0.7661–0.7669)	19.44 (0.765)
		B	XR80R	16.966–16.984 (0.6680–0.6687)	16.95 (0.667)
			XR100R	17.966–17.984 (0.7073–0.7080)	17.95 (0.707)
		C	XR80R	16.966–16.984 (0.6680–0.6687)	16.95 (0.667)
	C1 gear collar O.D. (XR100R)			20.559–20.580 (0.8094–0.8102)	20.54 (0.809)
	Gear I.D.	C1	XR80R	17.022–17.043 (0.6701–0.6710)	17.06 (0.672)
			XR100R	20.622–20.643 (0.8119–0.8127)	20.66 (0.814)
		C2		19.520–19.541 (0.7685–0.7693)	19.56 (0.770)
		C3	XR80R	17.016–17.034 (0.6699–0.6706)	17.05 (0.671)
			XR100R	18.016–18.034 (0.7093–0.7100)	18.05 (0.711)
		M4, M5		17.016–17.034 (0.6699–0.6706)	17.05 (0.671)
Kick starter	Pinion I.D.			18.020–18.041 (0.7094–0.7103)	18.06 (0.711)
	Spindle O.D.			17.959–17.980 (0.7070–0.7078)	17.88 (0.704)

TOOLS

Special

Bearing remover set, 12mm	07936—1660001 (Not available in U.S.A.)
— Bearing remover, 12mm	07936—1660100
— Remover weight	07741—0010201 or 07936-3710200

Common

Attachment,	32 x 35 mm	07746—0010100
Attachment,	37 x 40 mm	07746—0010200
Attachment,	42 x 47 mm	07746—0010300
Pilot,	17 mm	07746—0040400
Pilot,	25 mm	07746—0040600
Driver		07749—0010000

TROUBLESHOOTING

Hard to shift
- Shift fork bent
- Shift fork shaft bent
- Improper clutch adjustment; too much free play
- Shift drum cam groove damaged

Transmission jumps out of gear
- Gear dogs worn
- Shift fork bent or damaged
- Shift fork shaft bent
- Shift drum stopper broken

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

Gears noisy
- Worn transmission gears
- Worn spline shafts

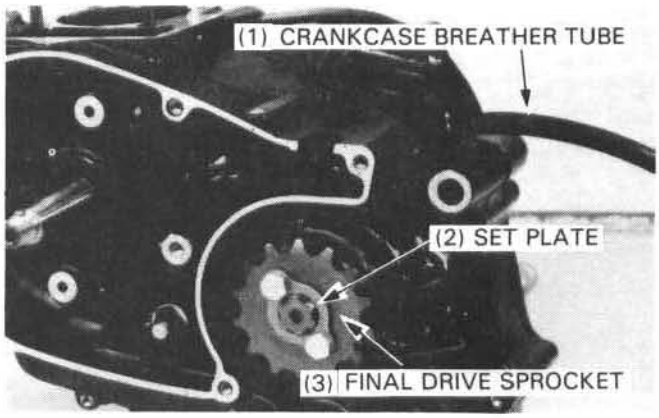
RIDE RED

CRANKCASE SEPARATION

Remove the parts listed in General Service Information (page 9-1).

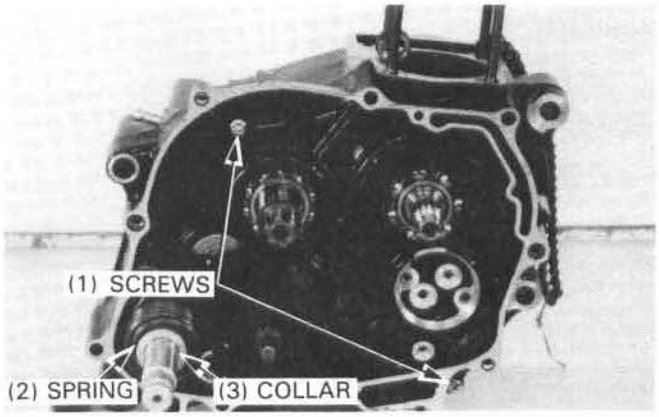
Remove the final drive sprocket by removing the two set plate bolts.

Disconnect the crankcase breather tube.

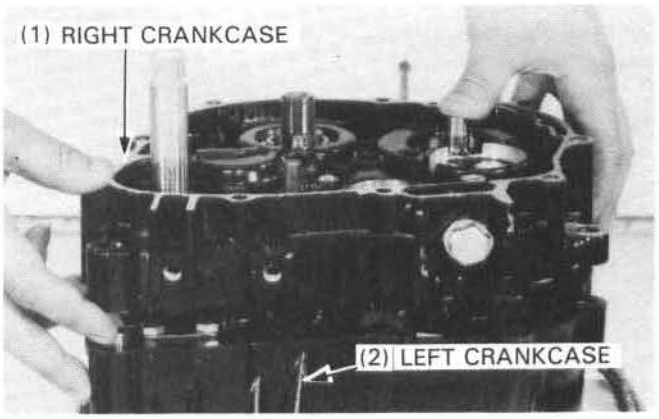


Remove the kick starter collar and spring.

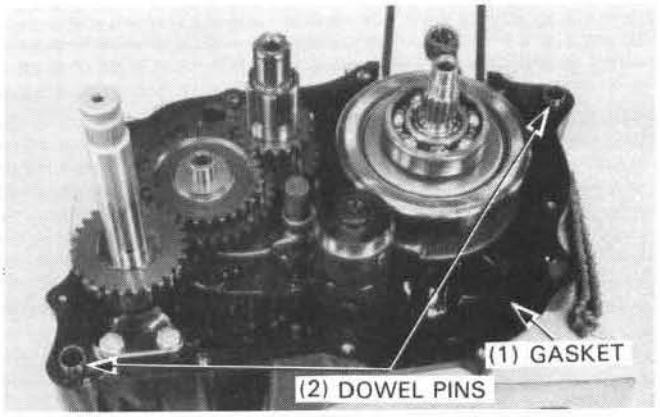
Remove the two crankcase screws.



Place the engine on its left side and separate the right crankcase from the left crankcase.



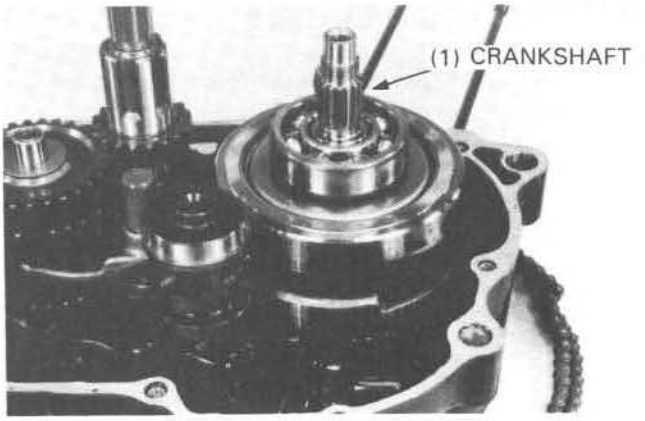
Remove the dowel pins and gasket.



CRANKSHAFT REMOVAL

REMOVAL

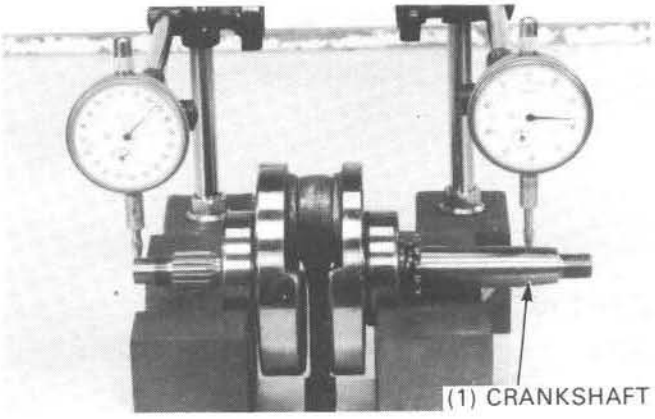
Remove the crankshaft.



INSPECTION

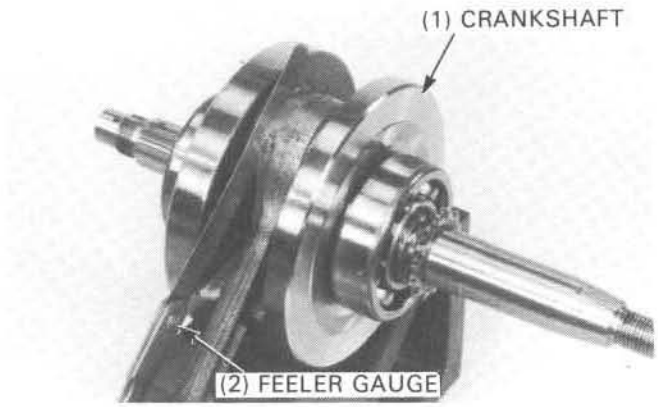
Set the crankshaft on a stand or V-blocks and read the runout using a dial gauge.

SERVICE LIMITS: Right: 0.085 mm(0.0033 in)
Left: 0.070 mm(0.0027 in)



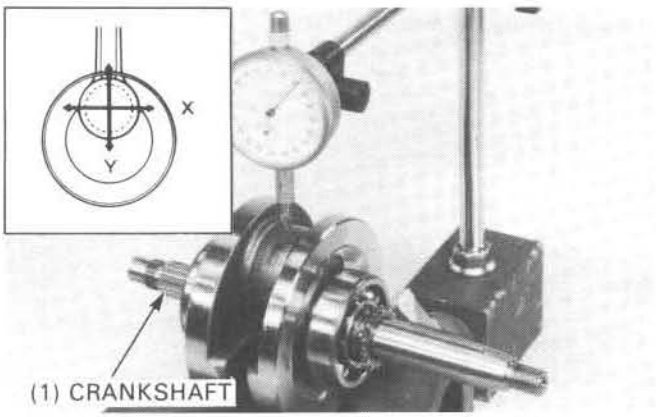
Measure the side clearance at the connecting rod big end with a feeler gauge.

SERVICE LIMIT: 0.60 mm (0.024 in)



Measure the connecting rod big end radial clearance at two points as indicated by the illastration.

SERVICE LIMIT: 0.01 mm (0.0004 in)

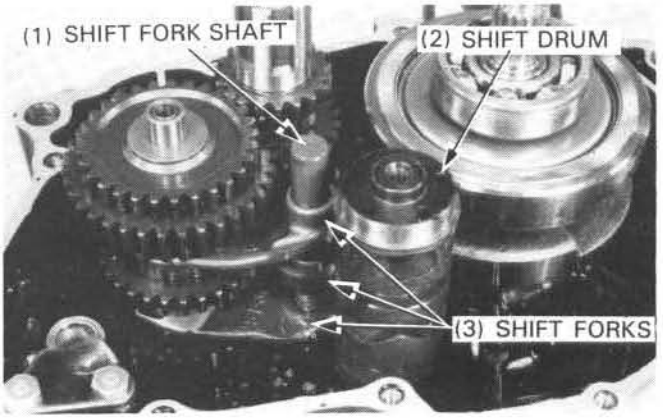


RIDE RED

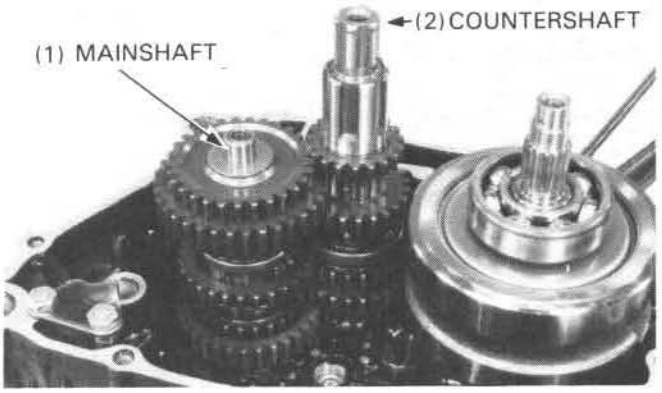
TRANSMISSION

REMOVAL

Remove the shift fork shaft, shift forks and shift drum.



Remove the mainshaft and countershaft as an assembly.

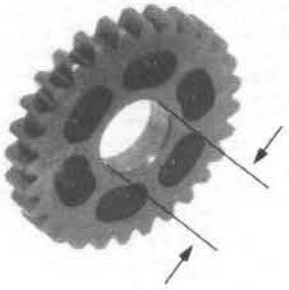


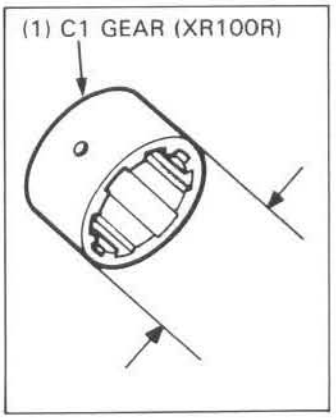
INSPECTION

Inspect each gear and collar (XR100R) for wear or damage and replace if necessary.

Disassemble the mainshaft and countershaft.

Measure the gear I.D..





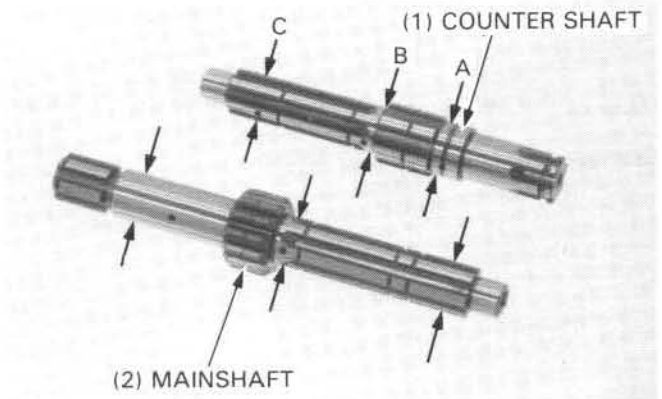
SERVICE LIMIT: C1 **XR80R: 17.06 mm (0.672 in)**
XR100R: 20.66 mm (0.814 in)
C2 : 19.56 mm (0.770 in)
C3 XR80R: 17.05 mm (0.671 in)
XR100R: 18.05 mm (0.711 in)
M4, M5 : 17.05 mm (0.671 in)

XR100 ONLY
Measure the C1 gear collar O.D.

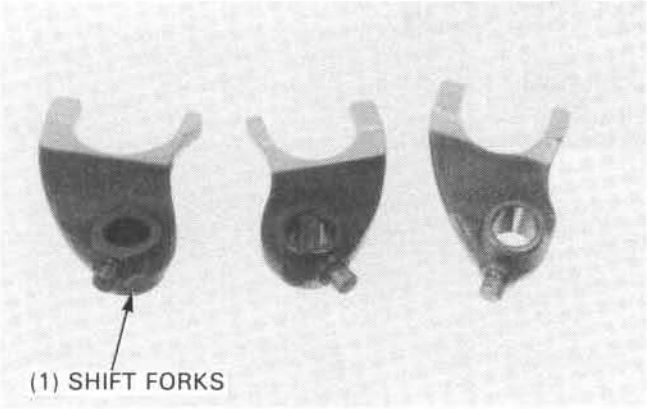
SERVICE LIMIT : 20.54 mm (0.809 in)

Measure the mainshaft and countershaft O.D.

SERVICE LIMIT:
Countershaft A : 19.44 mm (0.765 in)
B XR80R : 16.95 mm (0.667 in)
XR100R: 17.95 mm (0.707 in)
C : 16.95 mm (0.667 in)
Mainshaft: 16.95 mm (0.667 in)



Inspect the shift forks for wear or damage and replace if necessary.

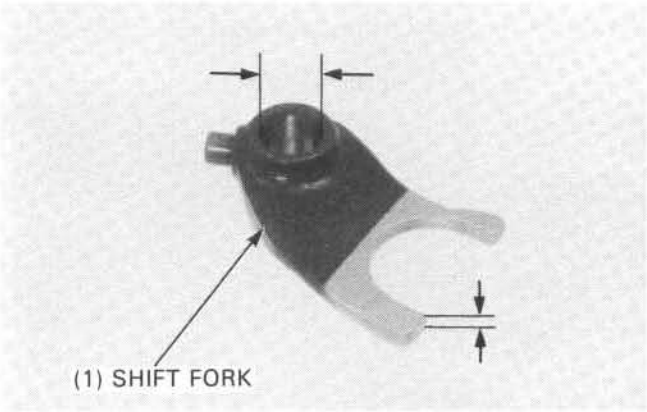


Measure the I.D. of the shift forks.

SERVICE LIMIT: 12.05 mm (0.474 in)

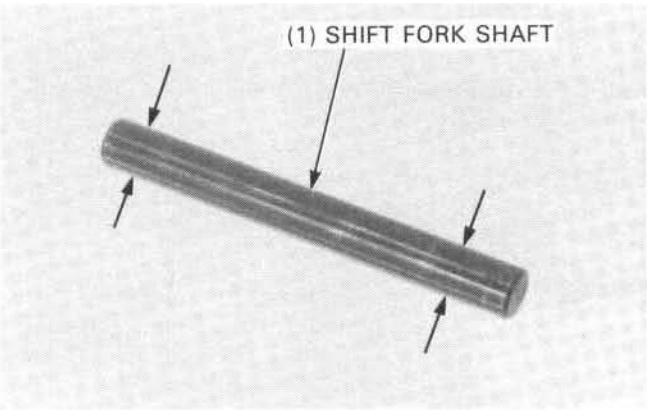
Measure the thickness of the shift fork claw.

SERVICE LIMIT: 4.7 mm (0.19 in)



Measure the shift fork shaft O.D..

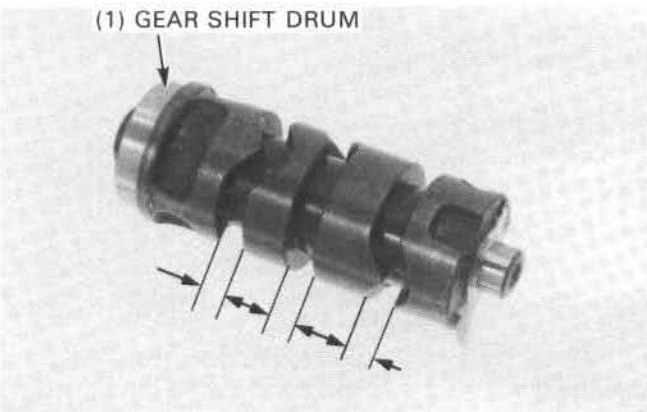
SERVICE LIMIT: 11.96 mm (0.471 in)



Inspect the gear shift drum for wear or damage and replace if necessary.

Measure the shift drum groove width.

SERVICE LIMIT: 7.16 mm (0.282 in)



RIDE RED

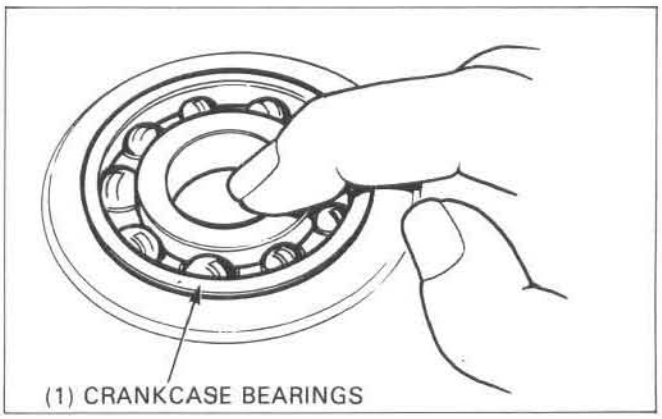
Turn the inner race of each bearing with your finger. The bearings should turn smoothly and quietly. Also check that the bearing outer race has not been spinning in the crankcase.

Discard the bearings if the races do not turn smoothly and quietly, or if they have been spinning in the crankcase.
When the bearing stays on the crankshaft.
Spin the bearing race and check that it spins smoothly and quietly.

NOTE:

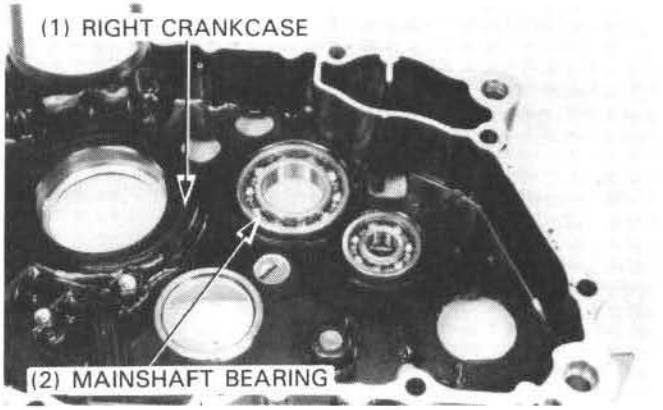
- Replace crankshaft ball bearings in pairs.

Lubricate the bearing with engine oil and install them with the special tools.

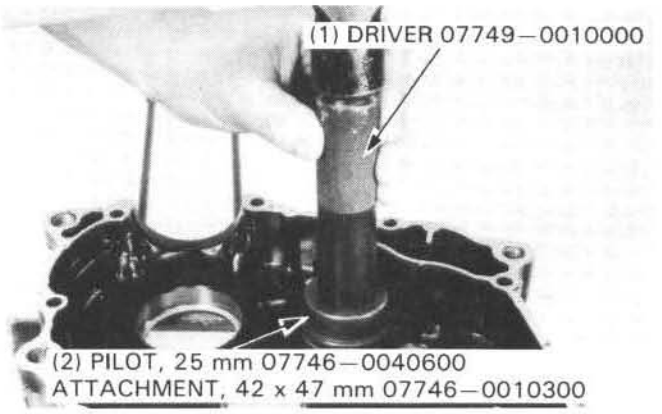


MAINSHAFT BEARING REPLACEMENT

Drive the mainshaft bearing out of the right crankcase.



Drive the new mainshaft bearing into the right crankcase.



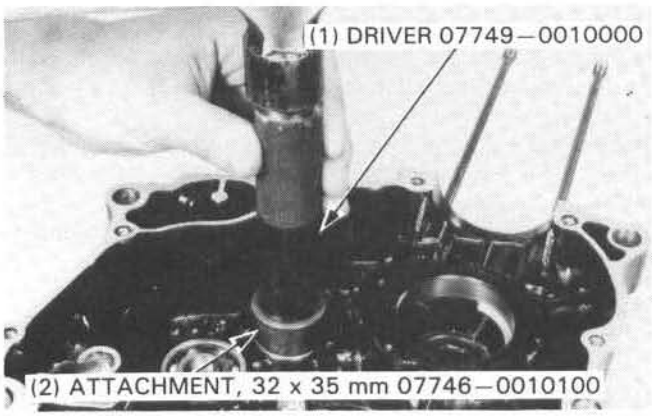
Remove the mainshaft bearing from the left crankcase.



Drive the new mainshaft bearing into the left crankcase.

NOTE

- Do not use the pilot to drive the bearing in.

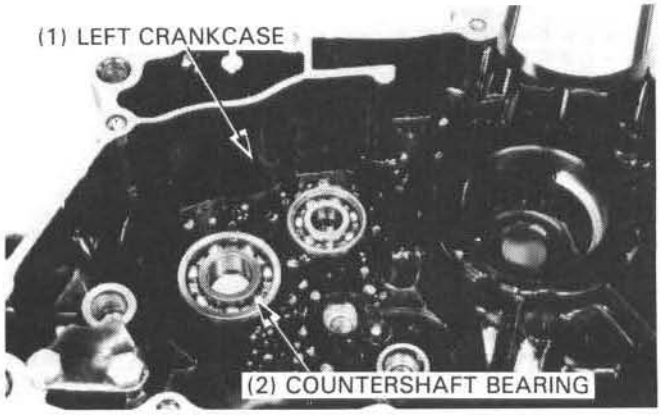


COUNTERSHAFT BEARING REPLACEMENT

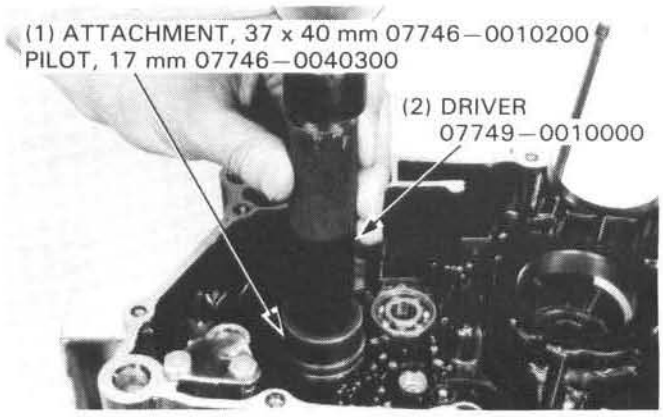
Remove the countershaft bearing oil seal from the outside of the left crankcase.



Drive the countershaft bearing out of the left crankcase.



Drive the new bearing into the left crankcase.



RIDE RED

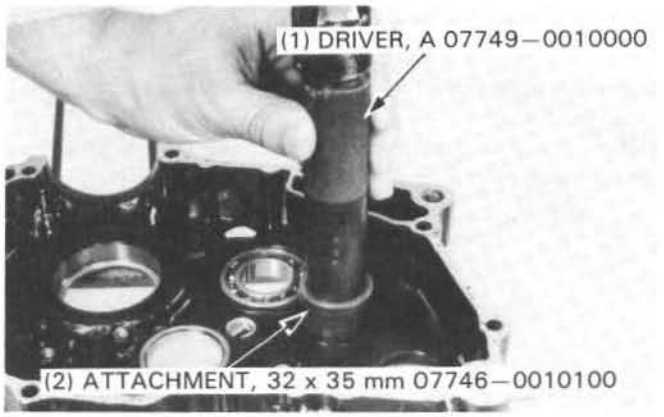
Remove the countershaft bearing from the right crankcase.



Drive the new countershaft bearing into the right crankcase.

NOTE

- Do not use the pilot to drive the bearing in.



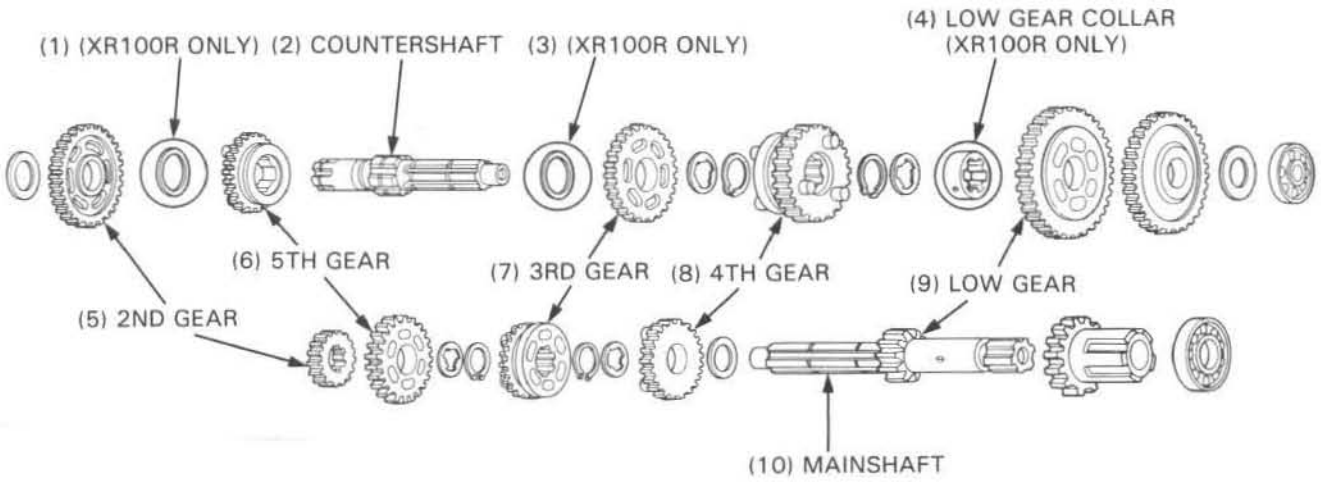
ASSEMBLY

Coat all parts with clean engine oil.

Assemble the transmission shafts and gears noting the locations of the thrust washers and snap rings.

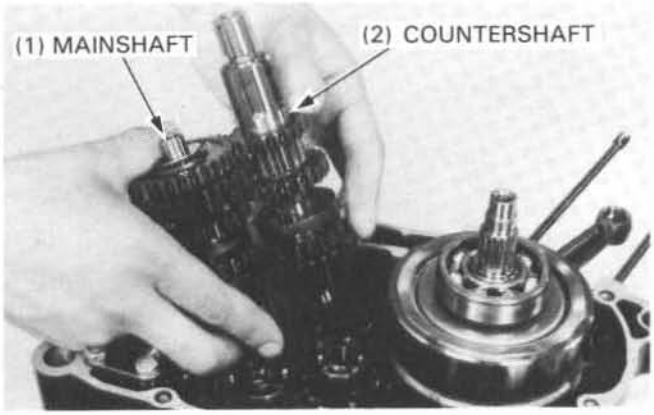
NOTE

- Make sure the snap rings are seated properly.



INSTALLATION

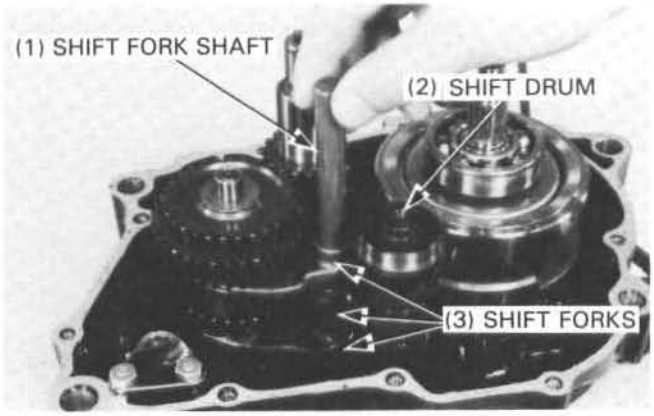
Install the mainshaft and countershaft assemblies together in the left crankcase.



Install the gear shift drum and shift forks.

Insert the shift fork shaft into the shift forks.

Rotate the mainshaft by hand to make sure that the gears rotate freely.



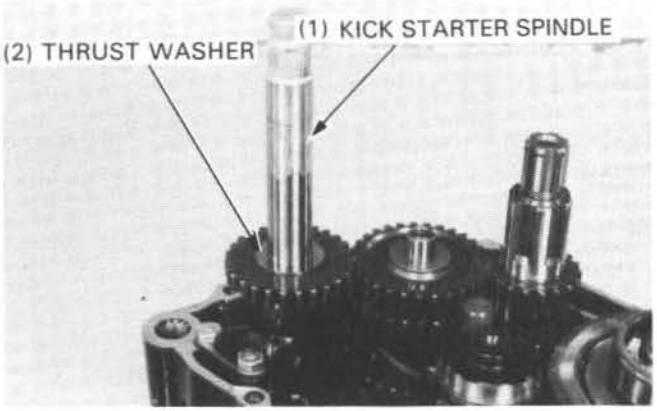
KICK STARTER

REMOVAL

Remove the kick starter spindle.

Remove the circlip, spring and drive ratchet.

Remove the thrust washer, circlip and pinion grar.



INSPECTION

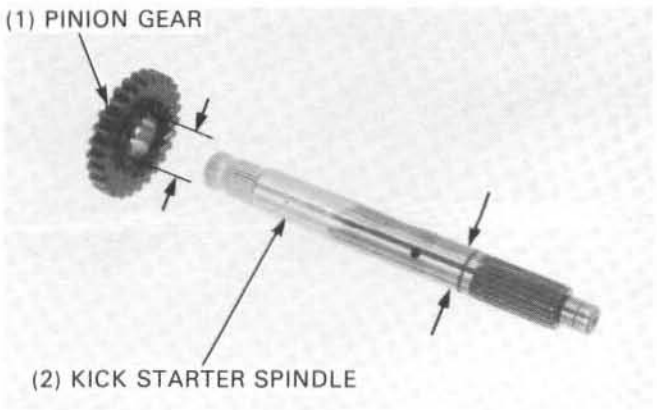
Inspect the pinion gear for wear or damage.

Measure the pinion gear I.D..

SERVICE LIMIT: 18.07 mm (0.711 in)

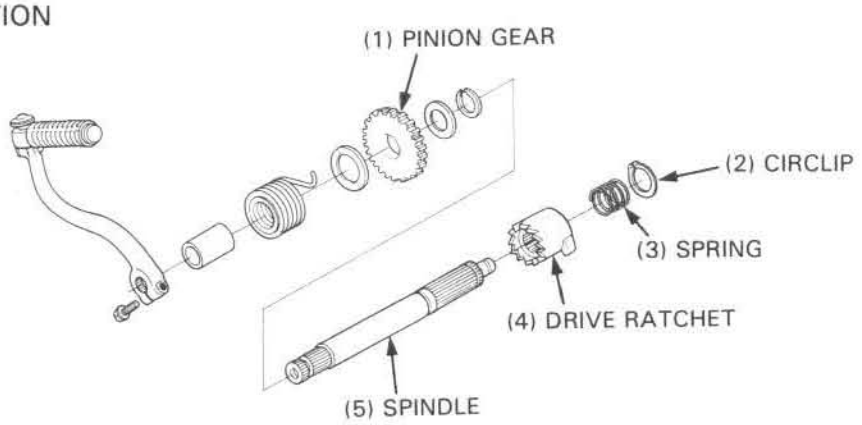
Measure the kick starter spindle.

SERVICE LIMIT: 17.88 mm (0.704 in)



RIDE RED

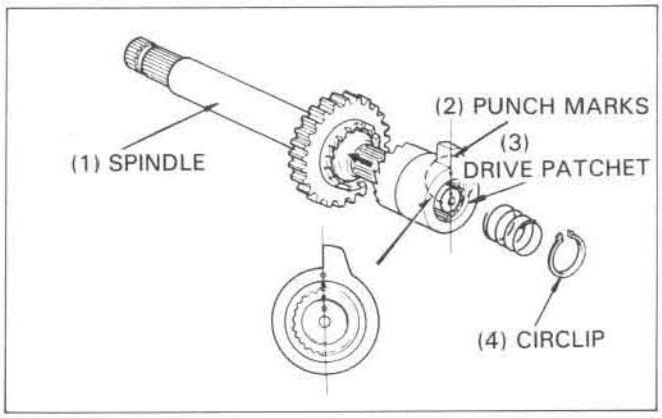
ASSEMBLY/INSTALLATION



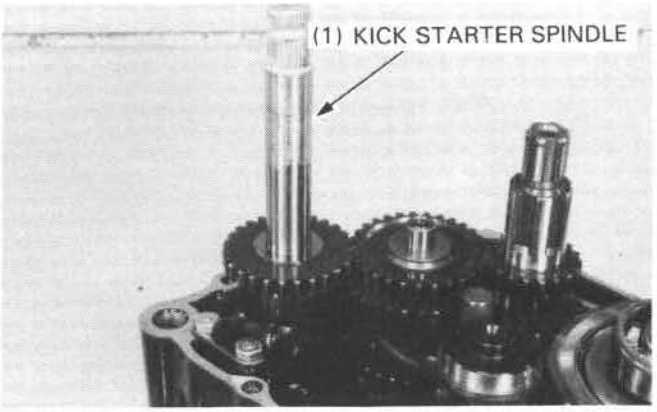
Install the pinion gear and circlip.

Install the starter drive ratchet, aligning the punch marks on the ratchet and spindle.

Install the spring and secure with the cirdip.



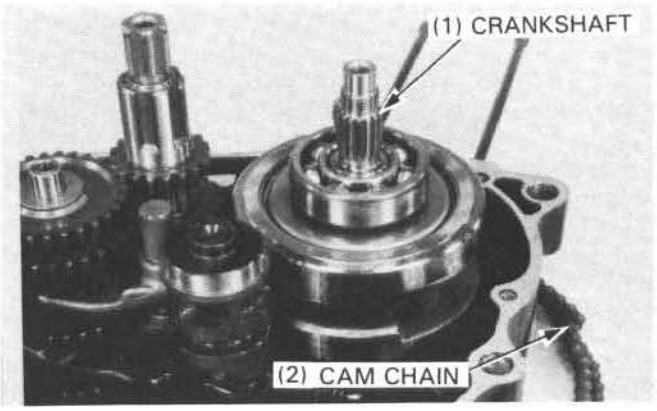
Install the kick starter spindle into the left crankcase.



CRANKSHAFT INSTALLATION

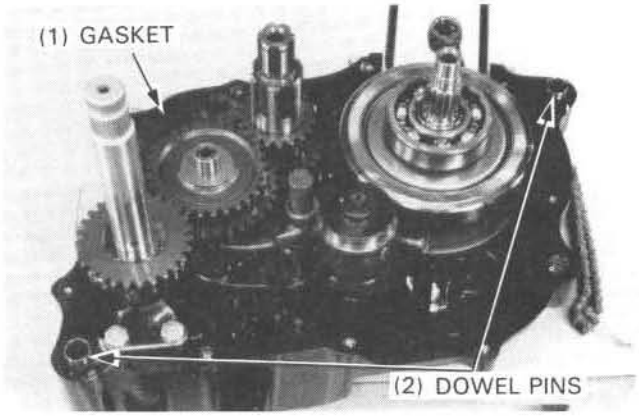
Install the cam chain through the cam chain hole.

Install the crankshaft.



CRANKCASE ASSEMBLY

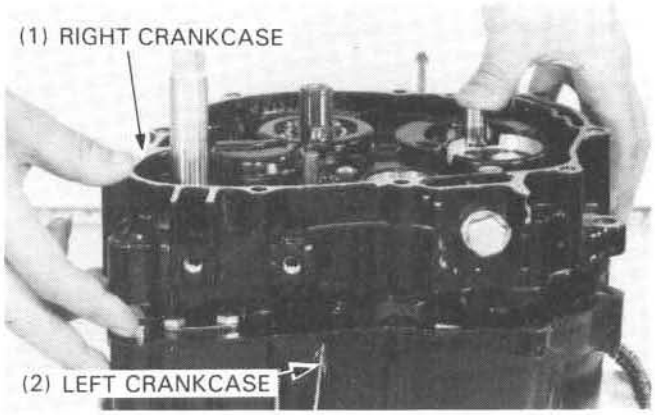
Install a new gasket and the dowel pins.



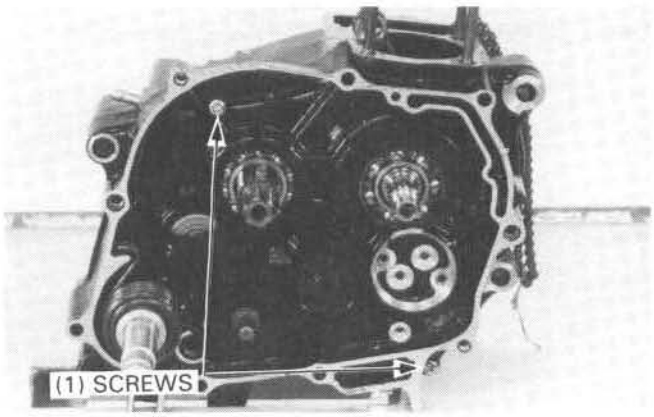
Assemble the right and left crankcase halves.

NOTE

- Make sure that the gasket stays in place during this operation.



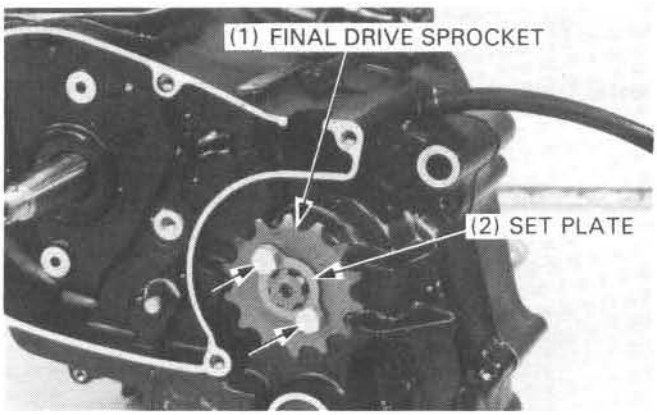
Tighten the two crankcase mount screws.



Install the final drive sprocket and set plate and tighten the bolts.

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

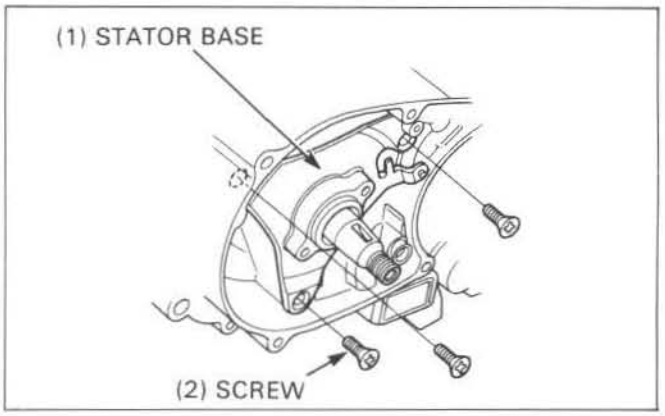
Install the removed parts in the reverse order of removal (page 9-1).



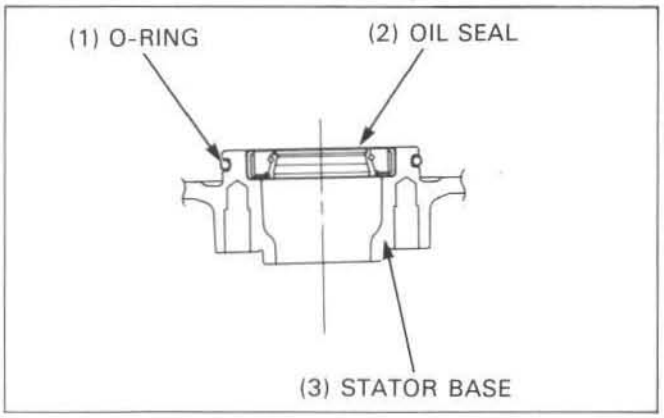
RIDE RED

LEFT CRANKSHAFT OIL SEAL REPLACEMENT

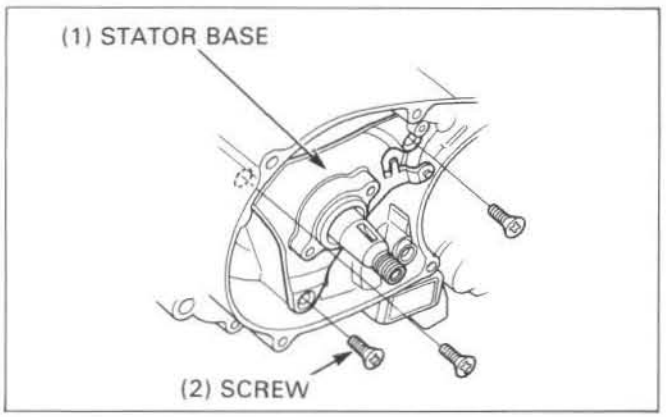
AFTER '91 XR100R:
Remove the stator base mounting screws, and remove the stator base.

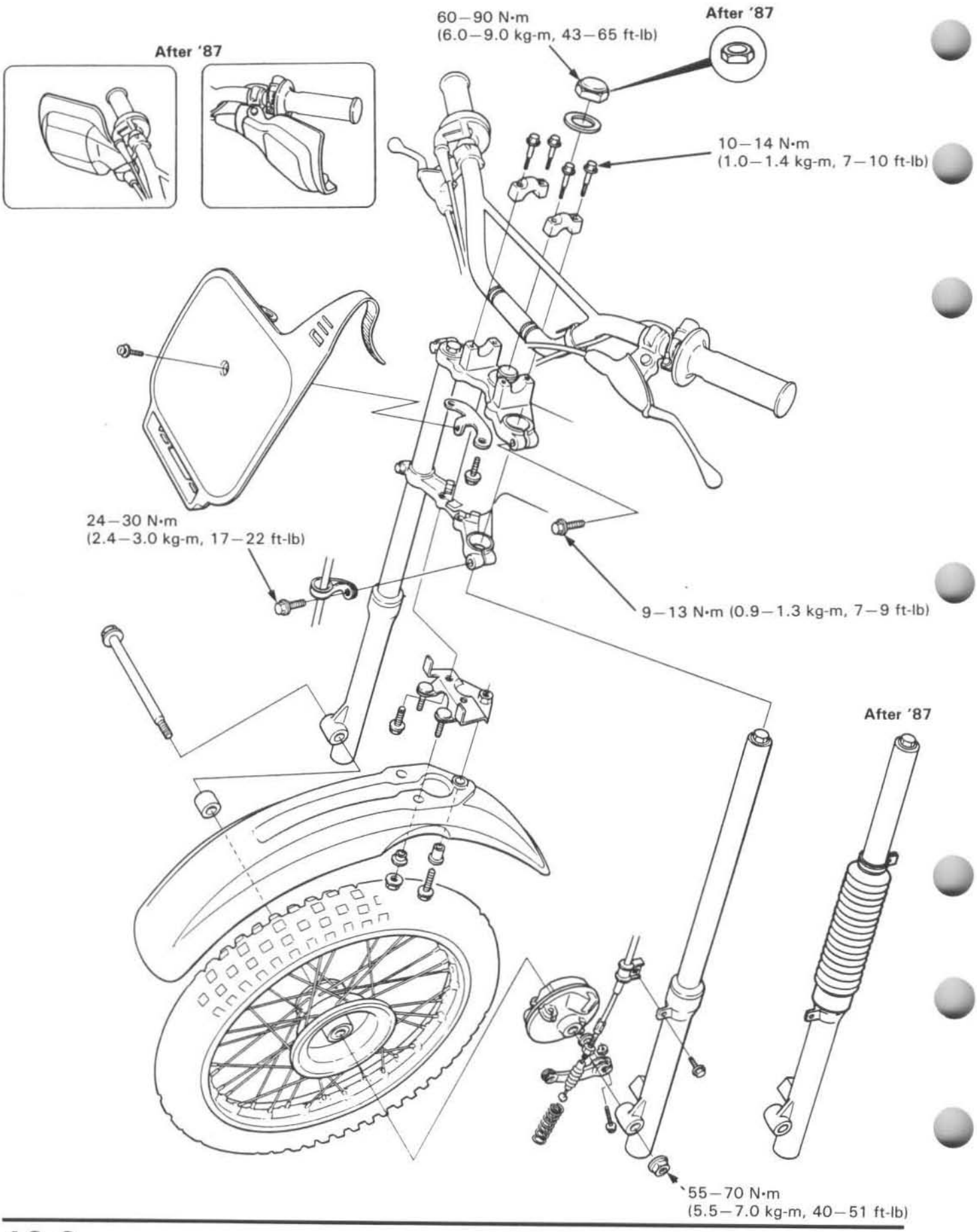


Remove the O-ring and oil seal from the stator base.
Apply grease to the new oil seal and install it.
Apply oil to the new O-ring and install it.



Install the stator base and tighten the mounting screws.




After '87
After '87
60–90 N·m
(6.0–9.0 kg-m, 43–65 ft-lb)
10–14 N·m
(1.0–1.4 kg-m, 7–10 ft-lb)
24–30 N·m
(2.4–3.0 kg-m, 17–22 ft-lb)
9–13 N·m (0.9–1.3 kg-m, 7–9 ft-lb)
After '87
55–70 N·m
(5.5–7.0 kg-m, 40–51 ft-lb)

RIDE RED

10. FRONT WHEEL/BRAKE/SUSPENSION/STEERING

SERVICE INFORMATION	10-1	FRONT BRAKE	10-7
TROUBLESHOOTING	10-2	FRONT FORK	10-9
HANDLEBAR	10-3	STEERING STEM	10-13
FRONT WHEEL	10-5		

SERVICE INFORMATION

GENERAL

WARNING

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

- This section covers maintenance and inspection of the front wheel, front brake, fork and steering system.
- A floor jack or other adjustable support is required to support the motorcycle, during these procedures.

SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Front wheel rim runout		—	2.0 (0.08)
Front axle runout		—	0.2 (0.008)
Front brake lining thickness		4.0 (0.16)	2.0 (0.08)
Front brake drum I. D.		95.0 (3.74)	96.0 (3.78)
Fork spring free length	XR 80R	525.2 (20.68)	514.7 (20.26)
	XR 100R	566.0 (22.28)	554.7 (21.84)
Fork tube runout		—	0.2 (0.008)

TORQUE VALUES

Steering stem nut	60—90 N·m (6.0—9.0 kg-m, 43—65 ft-lb)
Handlebar holder bolt	10—14 N·m (1.0—1.4 kg-m, 7—10 ft-lb)
Fork bridge bolt	9—13 N·m (0.9—1.3 kg-m, 7—9 ft-lb)
Bearing adjustment nut	1—2 N·m (0.1—0.2 kg-m, 0.7—1.4 ft-lb)
Front axle nut	55—70 N·m (5.5—7.0 kg-m, 40—51 ft-lb)
Front fork bottom pinch bolt	24—30 N·m (2.4—3.0 kg-m, 17—22 ft-lb)
Front fork cap bolt	15—30 N·m (1.5—3.0 kg-m, 11—22 ft-lb)

TOOLS

Special

Steering stem driver attachment	07946—GC4000A or 07946—GC40000
Steering stem driver	07946—MB00000
Steering stem socket wrench	07916—3710100
Hex wrench, 6 mm	07917—3230000 or equivalent commercially available in U.S.A.
Ball race remover	07944—1150001 or M9360—277—91774 (U.S.A. only)

Common

Socket wrench, 30 x 32 mm	07716—0020400 Equivalent commercially available in U.S.A.
Extension bar	07716—0020500
Bearing remover shaft	07746—0050100
Bearing remover head, 12 mm	07746—0050300
Attachment, 32 x 35 mm	07746—0010100
Attachment, 37 x 40 mm	07746—0010200
Pilot, 12 mm	07746—0040200
Driver	07749—0010000
Fork seal driver	07747—0010100 07947—1180001
Fork seal driver attachment	07747—0010300

TROUBLESHOOTING

Hard steering
- Steering stem nut too tight
- Faulty steering stem bearings
- Damaged steering stem ball race and/or cone race
- Insufficient tire pressure

Steers to one side or does not track straight
- Bent fork
- Bent front axle, wheel installed incorrectly
- Wheel installed incorrectly

Front wheel wobbling
- Bent rim
- Worn front wheel bearing
- Faulty tire
- Axle not tightened properly
- Distorted loose or broken spokes

Soft suspension
- Weak fork spring
- Insufficient fluid in fork
- Fluid weight too light

Hard suspension
- Incorrect fluid type in fork
- Fluid weight too heavy

Front suspension noise
- Slider bending
- Insufficient fluid in fork
- Loose fork fasteners

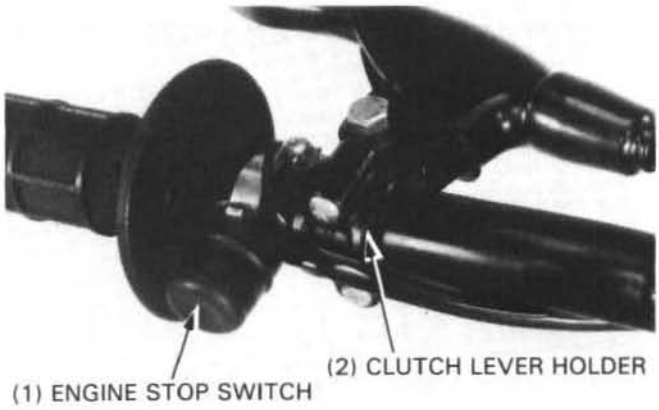
Improper brake performance
- Incorrect adjustment of lever
- Brake shoes worn
- Brake shoes oily, greasy or dirty
- Brake cam worn
- Brake drum worn
- Brake arm serrations improperly engaged
- Cam contacting area of shoes worn

HANDLEBAR

REMOVAL

Remove the engine stop switch screw and switch.

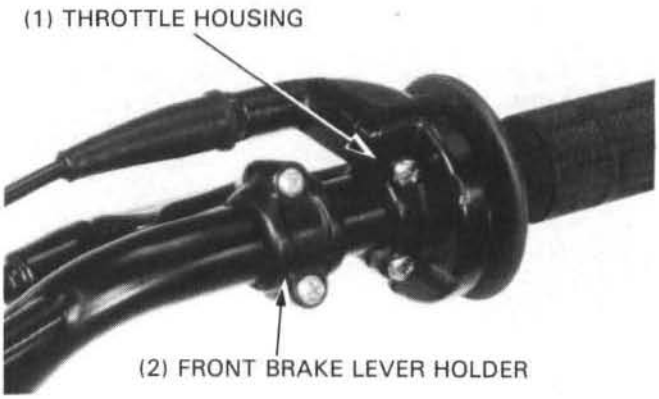
Remove the clutch lever holder mounting screws and the clutch lever.



Remove the front brake lever holder mounting screws and the brake lever.

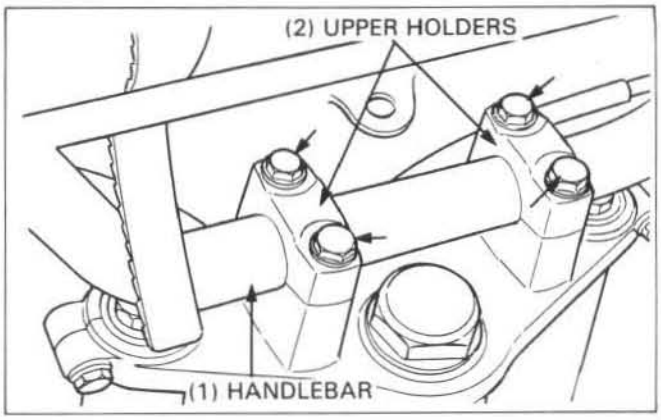
Remove the throttle housing mounting screws and housing cover.

Disconnect the throttle cable from the housing and remove the throttle grip.



Remove the handlebar upper holder bolts and remove the upper holder.

Remove the handlebar.



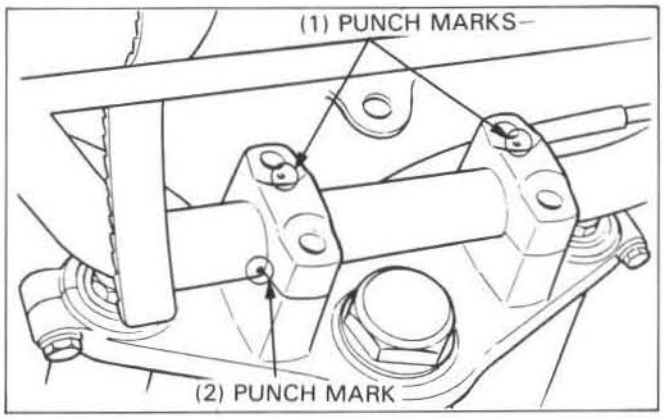
INSTALLATION

Place the handlebar onto the lower holders, aligning the punch mark on the handlebar with the top of the lower holder.

Install the upper holders with the punch mark on the holder facing the front.

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

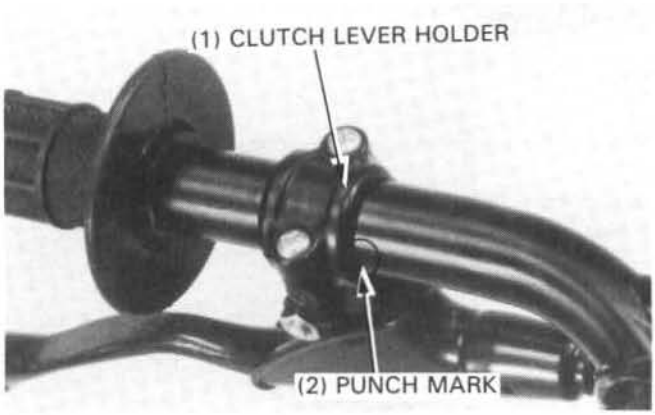
TORQUE: 10—14 N·m (1.0—1.4 kg-m, 7—10 ft-lb)



Align the slit in the clutch lever holder with the punch mark on the handlebar.

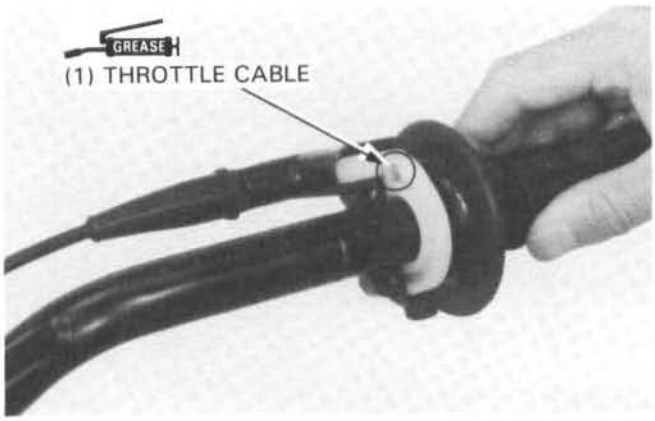
Tighten the upper holder screw first, then tighten the lower screw.

Install the engine stop switch and tighten the screws.



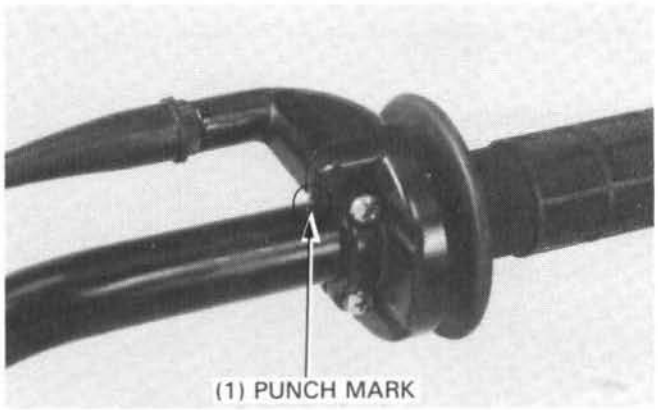
Apply grease to the throttle cable upper end.

Install the throttle grip onto the handlebar and connect the throttle cable.



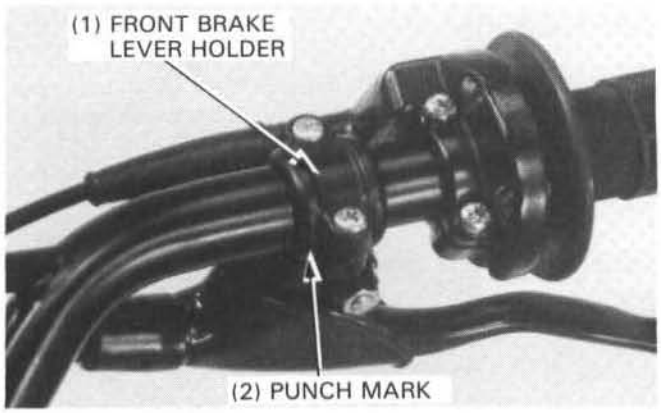
Align the slit in the throttle housing with the punch mark on the handlebar.

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



Install the front brake lever and holder, aligning the punch mark on the handlebar with the slit of the brake lever holder.

Tighten the upper screw first then tighten the lower screw.



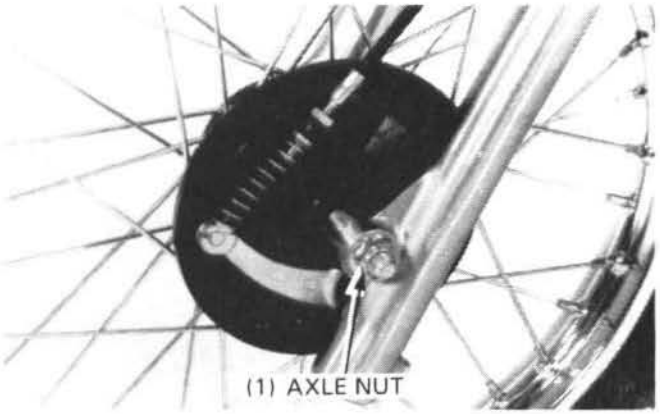
RIDE RED

FRONT WHEEL

REMOVAL

Raise the front wheel off the ground by placing a floor jack or other adjustable support under the engine.
Disconnect the brake cable from the front wheel.

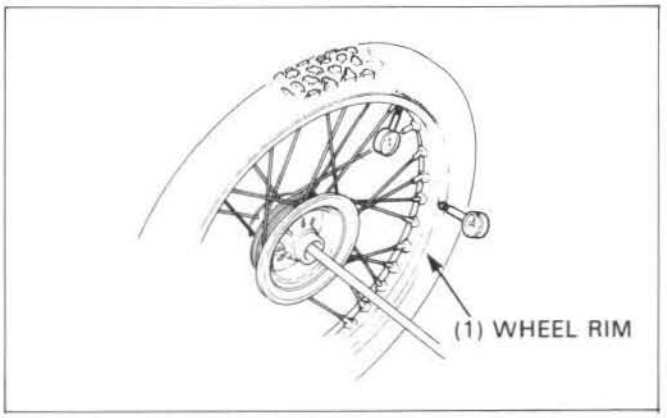
Remove the axle nut, axle and front wheel.



INSPECTION

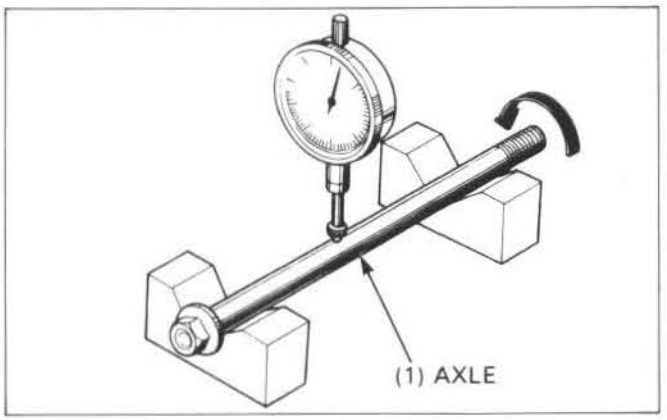
Check the rim runout by placing the wheel in a truing stand.
Spin the wheel slowly and read the runout using a dial indicator.

SERVICE LIMITS: Radial: 2.0 mm(0.08 in)
Axial: 2.0 mm(0.08 in)



Set the axle in V-blocks, rotate it and measure the runout with a dial gauge. The actual runout is 1/2 of the total indicator reading.

SERVICE LIMIT: 0.2 mm (0.008 in)

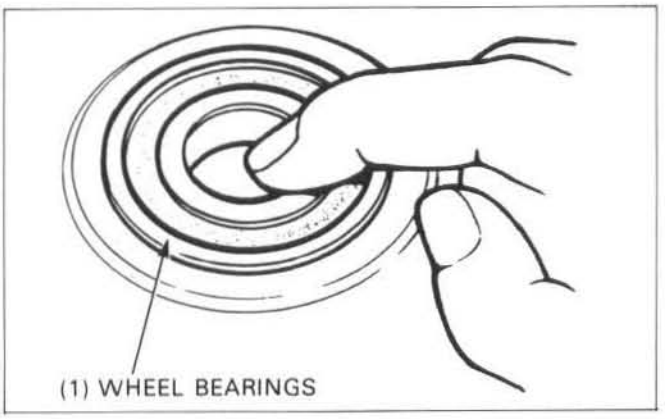


Turn the inner race of each bearing with your finger. The bearings should turn smoothly and quietly. Also check that the bearing outer race fits tightly in the hub.

Remove and discard the bearings if the races do not turn smoothly, quietly, or if they fit loosely in the hub. (page 10—6)

NOTE

- Replace hub bearings in pairs.



BEARING REPLACEMENT

Remove the dust seal from the right side of the wheel.
Install the bearing remover head into the bearing.

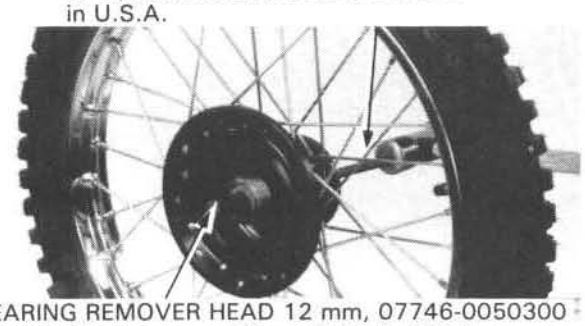
From the opposite side, install the bearing remover shaft and drive the bearing out of the wheel.

Remove the distance collar and drive out other bearing.

NOTE

- If the bearings are removed, new ones must be installed.

(1) BEARING REMOVER SHAFT 07746-0050100 or equivalent commercially available in U.S.A.



(2) BEARING REMOVER HEAD 12 mm, 07746-0050300 or equivalent commercially available in U.S.A.

Pack the bearing cavities with grease.

Drive in the left bearing squarely until it seats.
Install the distance collar and drive in the right bearing squarely.

NOTE

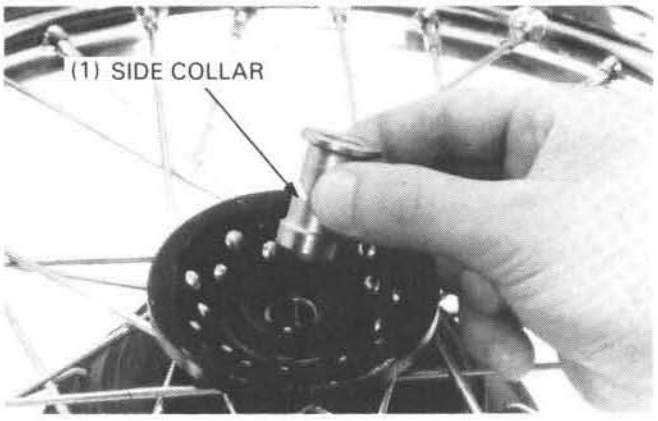
- Do not allow the bearings to tilt while driving them in. Drive the bearings with the sealed side facing out.



Install a new dust seal on the right side of the wheel hub.

INSTALLATION

Install the collar on the right side of the wheel hub.



Install the brake panel into the hub and insert the axle from the right side.

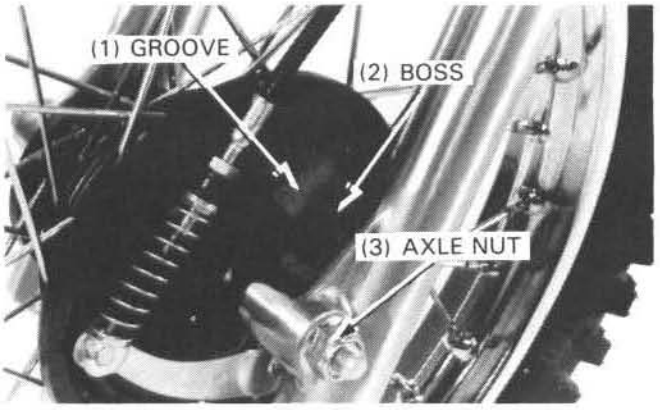
NOTE

- Align the groove in the brake panel with the boss in the front fork.

Install and tighten the axle nut.

TORQUE: 55-70 N·m (5.5-7.0 kg-m, 40-50 ft-lb)

Connect the front brake cable and adjust the brake lever free play (page 3-12).



RIDE RED

FRONT BRAKE

WARNING

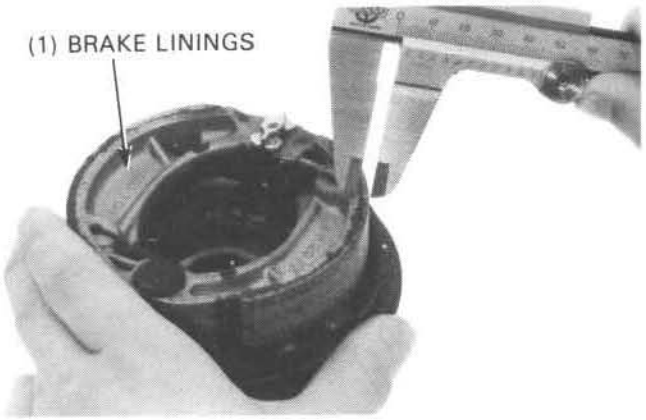
- *Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake assemblies.*
- *Use an OSHA-approved vacuum cleaner or alternate method approved by OSHA designed to minimize the hazard caused by airborne asbestos fibers.*

Remove the front wheel(page 10-5).

Remove the brake panel from the front wheel.

Measure the brake lining thickness.

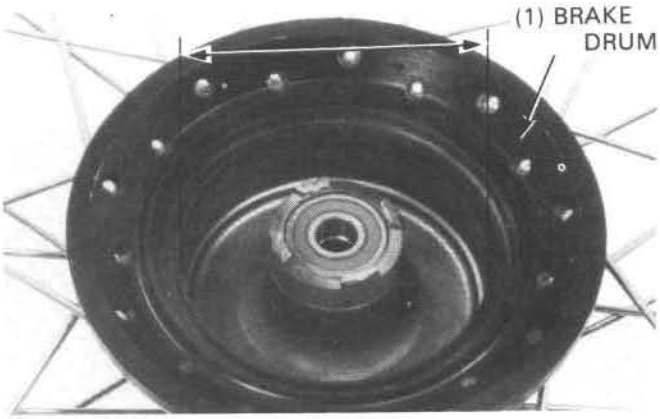
SERVICE LIMIT: 2.0 mm (0.08 in)



Inspect the brake drum for wear or damage and replace if necessary.

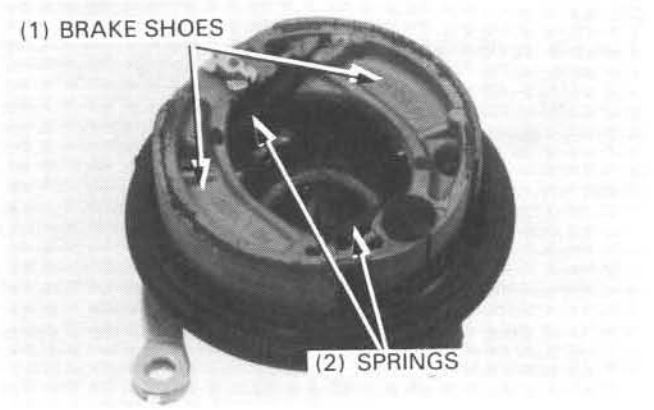
Measure the brake drum I.D.

SERVICE LIMIT: 96.0 mm (3.78 in)



BRAKE PANEL DISASSEMBLY

Expand the brake shoes and remove them from the brake panel.

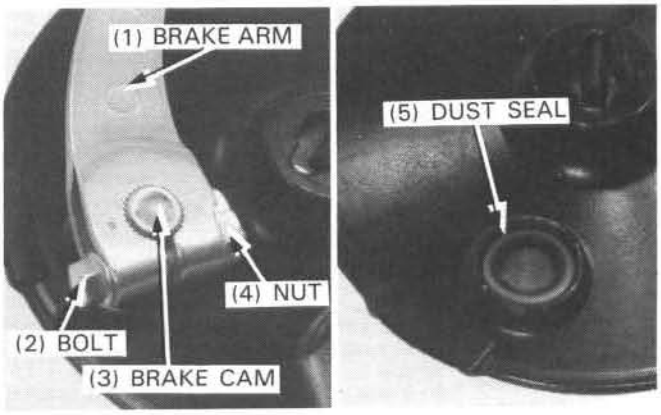


Remove the brake arm bolt, nut and brake arm.

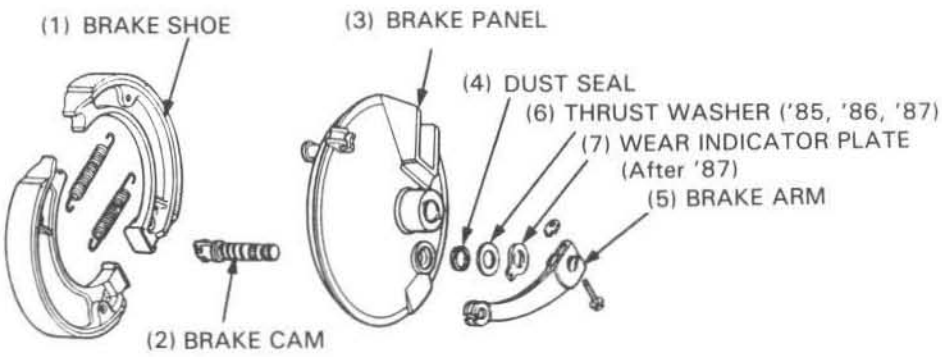
'85, '86, '87
Remove the washer.

AFTER '87
Remove the brake wear indicator plate.

Remove the brake cam and the dust seal.

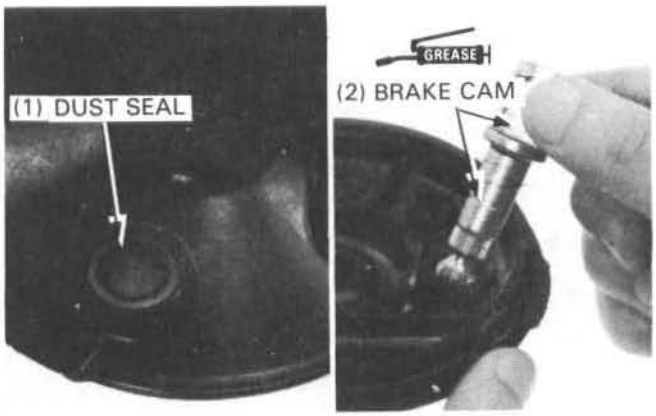


BRAKE PANEL ASSEMBLY



Install the dust seal.

Apply grease to the sliding surface of the brake cam and install it.

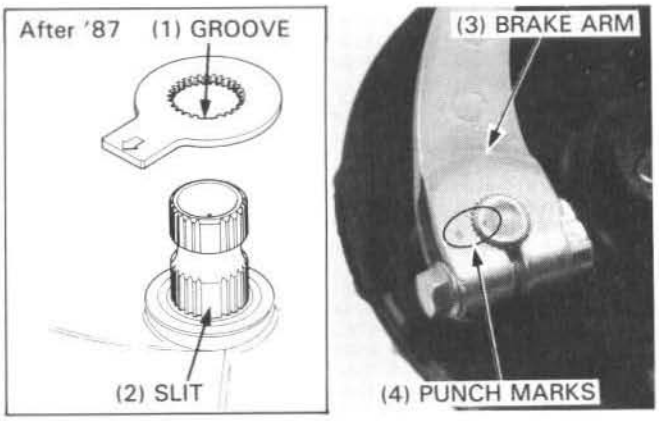


'85, '86, '87,
Install the thrust washer.

AFTER '87
Install the wear indicator plate.

NOTE

- Align the groove in the indicator plate with the slit in the cam.



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

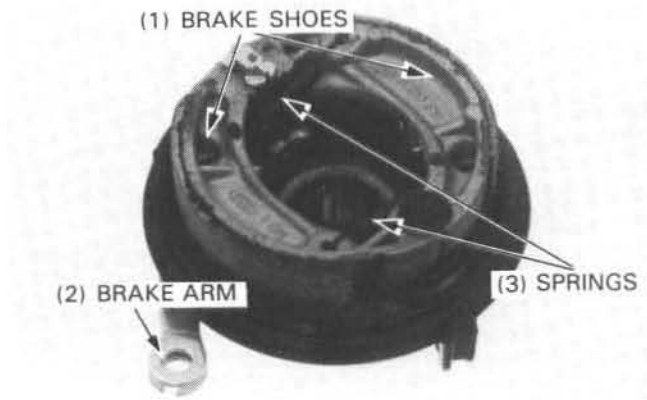
Tighten the brake arm bolt and nut.

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

Install the brake shoes and springs.

WARNING

- ***Contaminated brake linings reduce stopping power. Keep oil and grease off the linings.***
- ***Brake dust may contain asbestos. Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner or an alternate method approved by OSHA-designed to minimize the hazard caused by airborne asbestos fibers.***



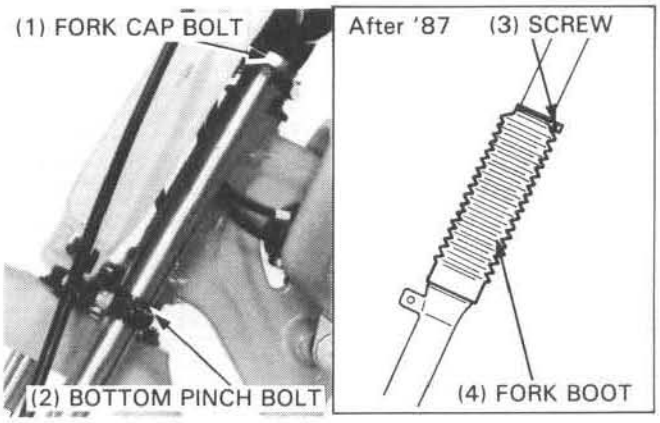
RIDE RED

FRONT FORK

Remove the handlebar (page 10-3).
Remove the front wheel (page 10-5).
Remove the fork cap bolts and loosen the pinch bolts.

Pull the fork tubes down and out of the fork bridge and steering stem.

After '87:
Loosen the boot band screws and remove the fork boots from the fork tubes.



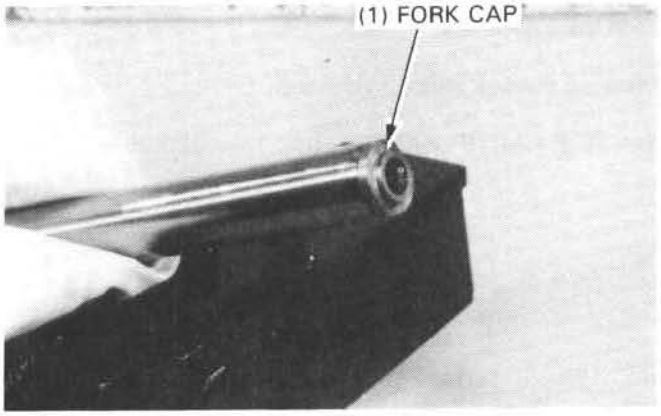
Place the fork tube in a vise with a shop towel or soft jaws to avoid damage.

Remove the fork cap and spring.

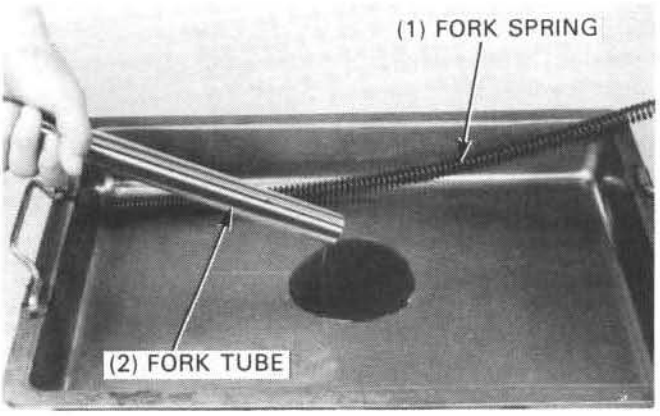
CAUTION

- *The fork cap is under the spring pressure. Use care when removing the fork cap and wear face and eye protection.*

Be careful not to distort the fork tube.



Drain the oil from the fork tube by pumping the tube up and down several times.



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

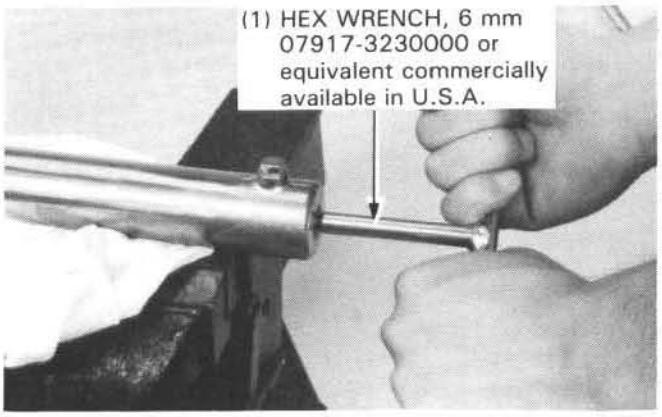
Remove the socket bolt with a hex wrench.

NOTE

- Temporarily install the fork spring and cap if the socket bolt is difficult to remove.

Remove the fork tube from the slider.

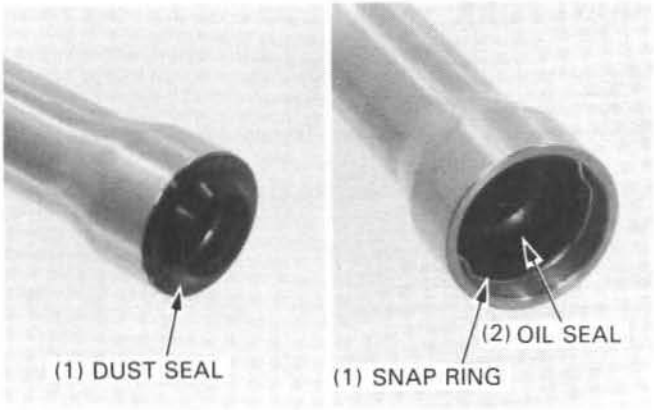
Remove the piston and rebound spring from the fork tube.



Remove the dust seal, then remove snap ring and the oil seal.

NOTE

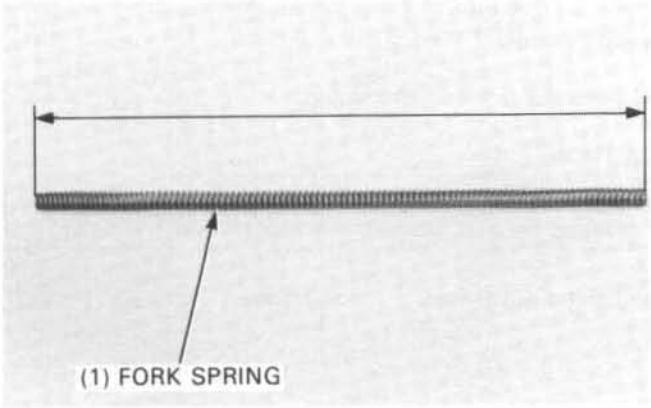
- Avoid damaging the inner and outer surfaces of the fork slider when removing the snap ring and oil seal.



INSPECTION

Measure the fork spring free length.

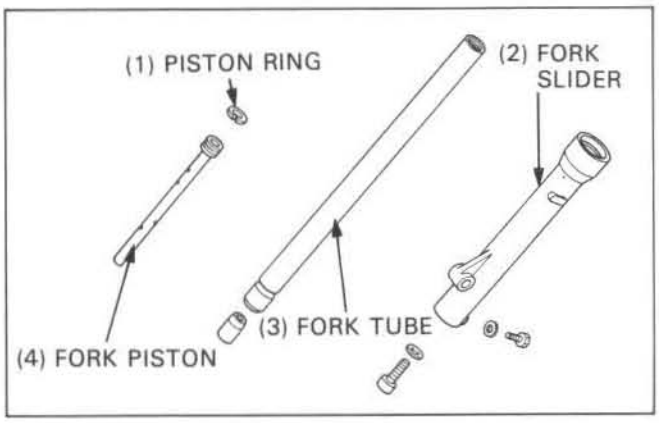
SERVICE LIMITS: XR80R: 514.7 mm(20.26 in)
XR100R: 554.7 mm(21.84 in)



Check the fork tube, fork slider and piston for score marks, scratches, or excessive or abnormal wear. Replace any components which are worn or damaged.

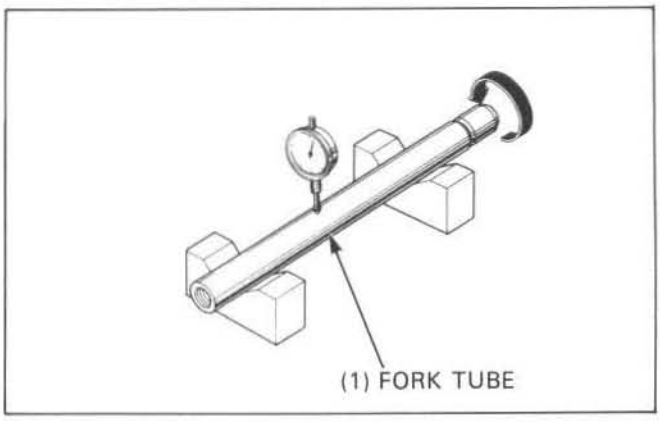
Check the fork piston ring for wear or damage.

Check the rebound spring for fatigue or damage.



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

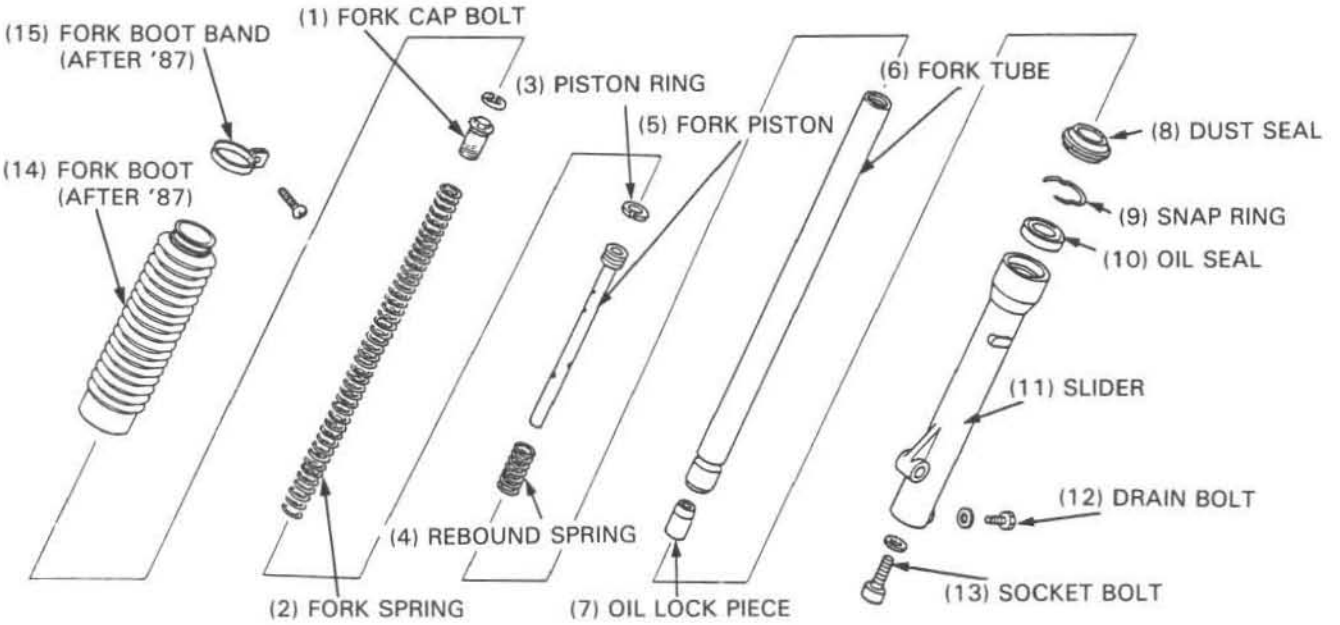
SERVICE LIMIT: 0.20 mm (0.008 in)



RIDE RED

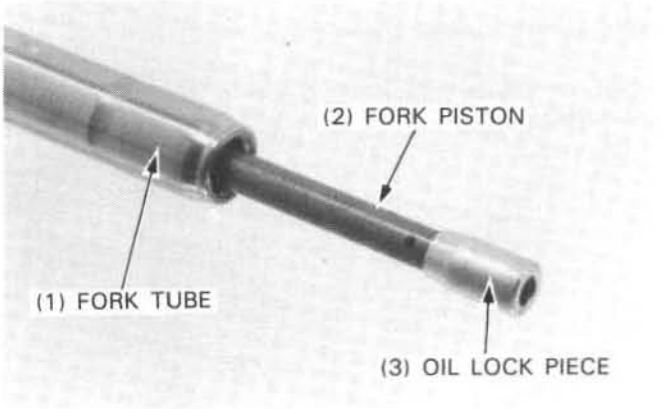
ASSEMBLY

Before assembly, wash all parts in solvent and dry them completely.



Insert the rebound spring and piston into the fork tube.

Place the oil lock piece onto the end of the piston.



Insert the fork tube into the fork slider.

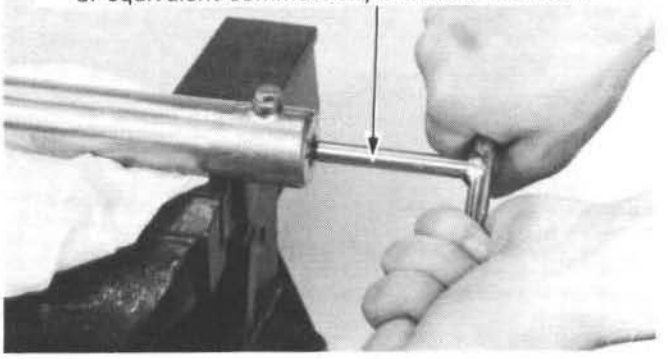
Place the fork slider in a vise with a shop towel or soft jaws. Do not overtighten the jaws.

NOTE

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

Apply locking agent to the threaded area of the socket bolt and thread it into the piston by hand, then tighten it with the wrench.

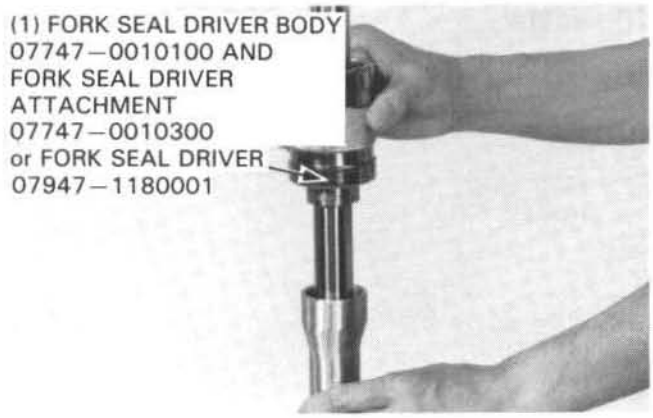
(1) HOLLOW SET WRENCH 6 mm, 07917-3230000 or equivalent commercially available in U.S.A.



Coat a new oil seal with ATF and install it with its marking facing up.

Drive in the oil seal with the seal driver.

Install the snap ring and dust seal.



Pour the specified amount of ATF into the fork tube.

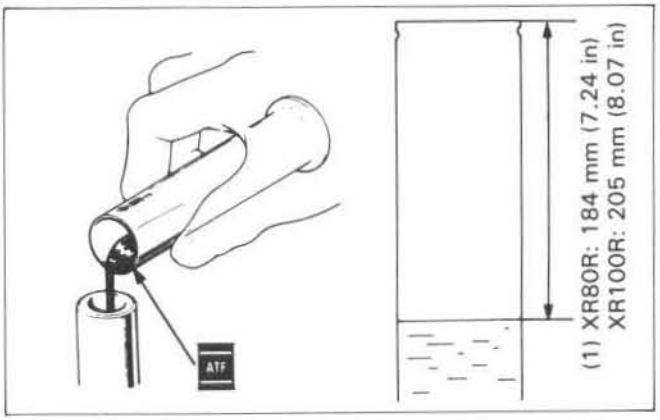
CAPACITY: XR80R 83cc (2.8 US oz, 2.9 Imp oz)
XR100R 88cc (3.0 US oz, 3.1 Imp oz)

Compress the front fork all the way and measure the oil level from the top of the tube.

SPECIFIED OIL LEVEL: XR80R 184 mm (7.24 in)
XR100R 205 mm (8.07 in)

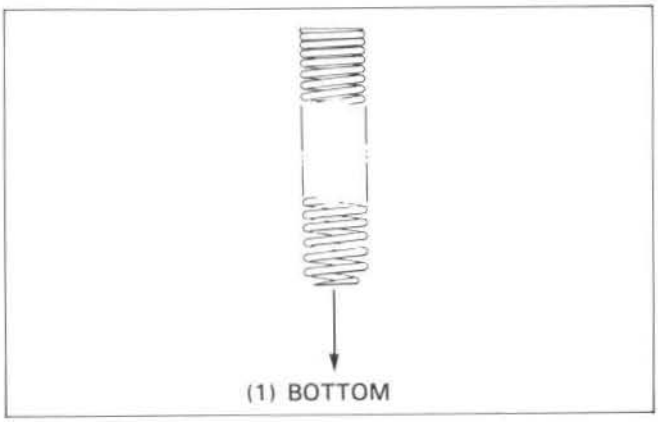
NOTE

- Do not over fill the tube.



Wipe ATF off the fork spring completely.

Insert the fork spring into the fork tube with the tapered coil end facing down.



Hold the fork tube in a vise with a shop towel or soft jaws.

Install the fork cap onto the top of the fork tube and tighten it.

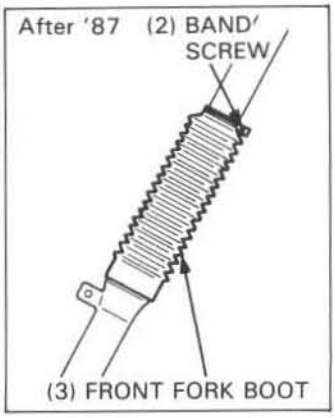
NOTE

- Do not damage the fork tube sliding surface.

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

After '87:
Install the fork boots, but do not tighten the band screws yet.





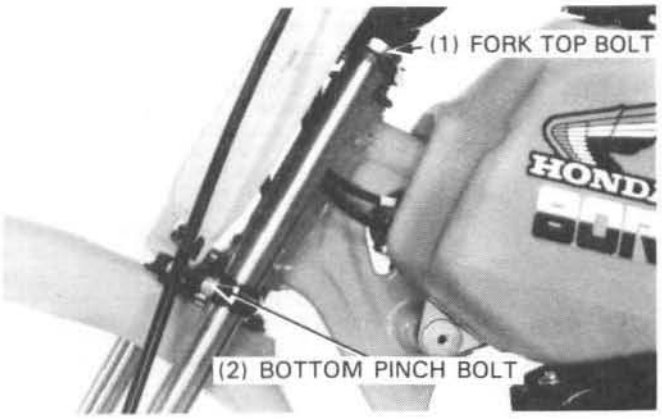
RIDE RED

INSTALLATION

Install the fork tube by rotating them up through the steering stem.

NOTE

- Be sure that the top of the each tube is flush with the top of the top bridge.



Tighten the upper pinch bolts.

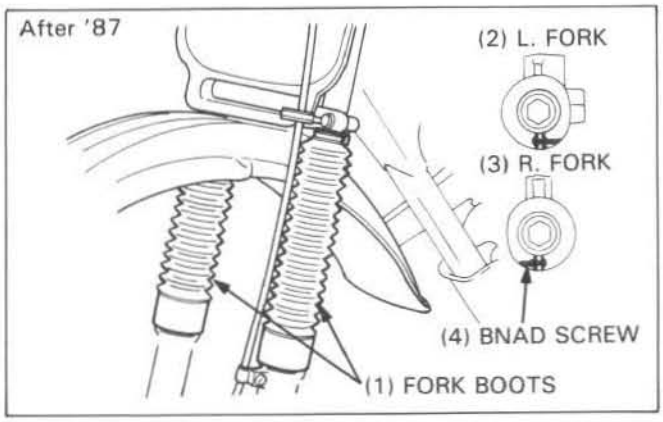
TORQUE: 9—13 N·m (0.9—1.3 kg-m, 7—9 ft-lb)

Tighten the bottom pinch bolts.

TORQUE: 24—30 N·m (2.4—3.0 kg-m, 17—22 ft-lb)

Install the front wheel (page 10-6) and handlebar (page 10-4).

After installing the removed parts, inspect and adjust following.
- throttle operation (page 3-4).
- front brake (page 3-12).
- clutch (page 3-13).
- suspension (page 3-14).



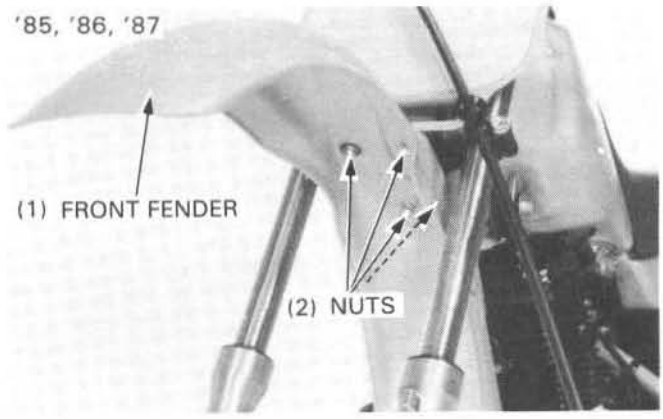
AFTER '87 ONLY
Slide the fork boots up until they just touch the bottom of the steering stem, then tighten the band screws.

STEERING STEM

REMOVAL

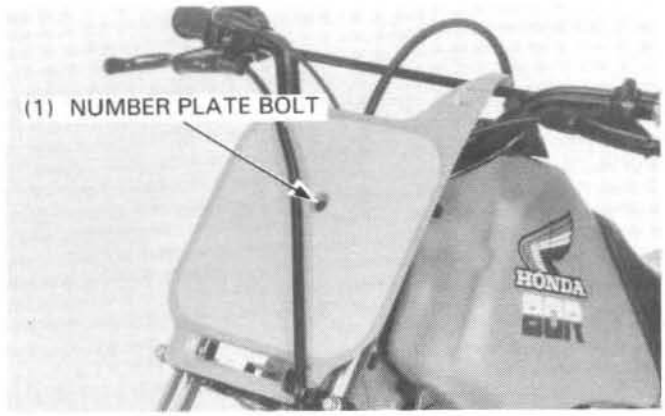
Remove the front wheel (page 10-5).

Remove the front fender by removing the four nuts.



Remove the number plate by removing the bolt and clamp.

Remove the handlebar (page 10-3).

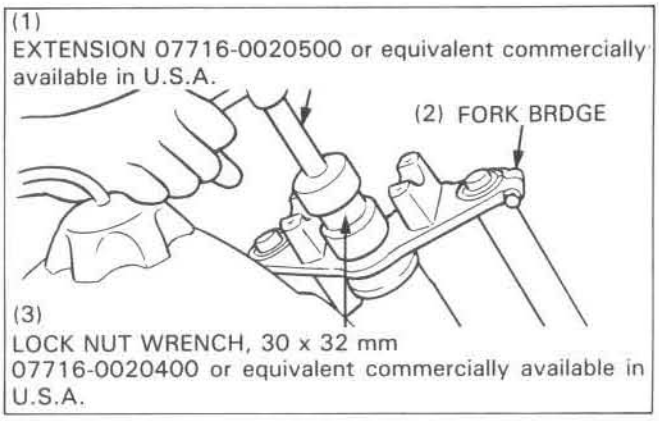


Loosen the steering stem nut.

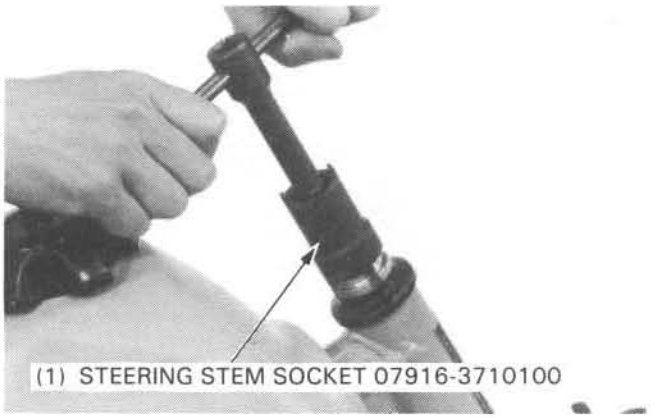
Remove the front forks (page 10-9).

Remove the steering stem nut and lock washer.

Remove the fork bridge.



Loosen the bearing adjustment nut.

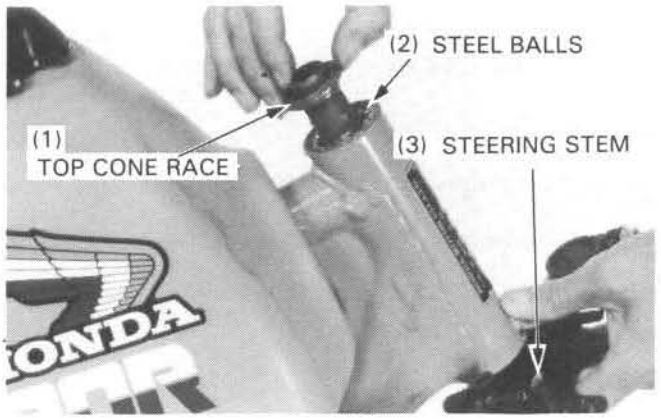


Hold the bottom of steering stem to prevent it from falling out of the steering head, then remove the adjustment nut.

Remove the bearing adjustment nut and top cone race then remove the steering stem.
Remove the steel balls from the top and bottom ball races.

NOTE

- Do not allow the steel balls to fall.



Check the top and bottom ball races for wear or damage and replace if necessary.

BALL RACE REPLACEMENT

NOTE

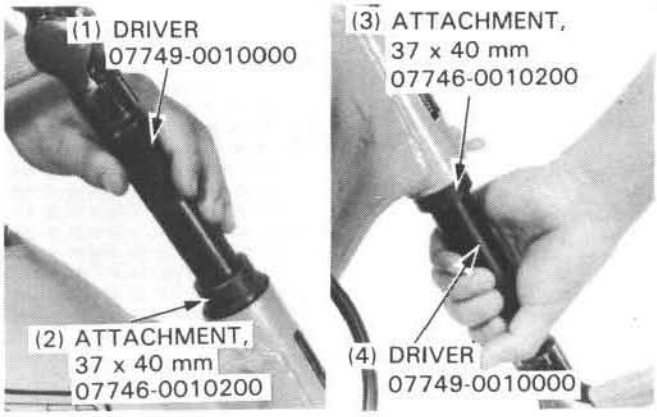
- Replace the races and steel balls as a set.

Remove the upper and lower ball races with a ball race remover.

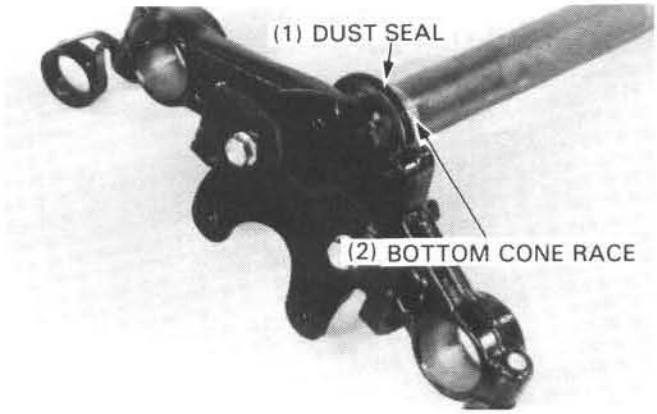


RIDE RED

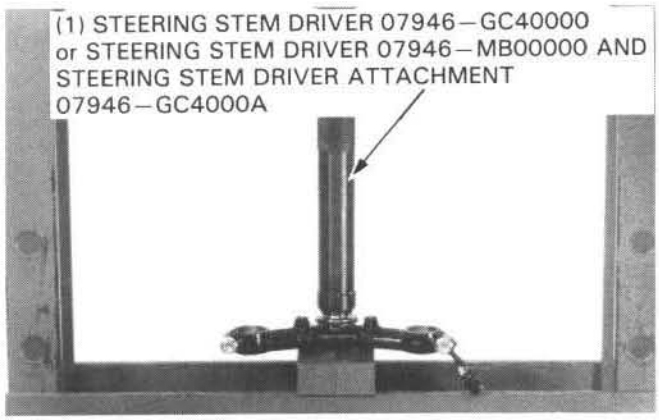
Drive a new ball race into the steering head.



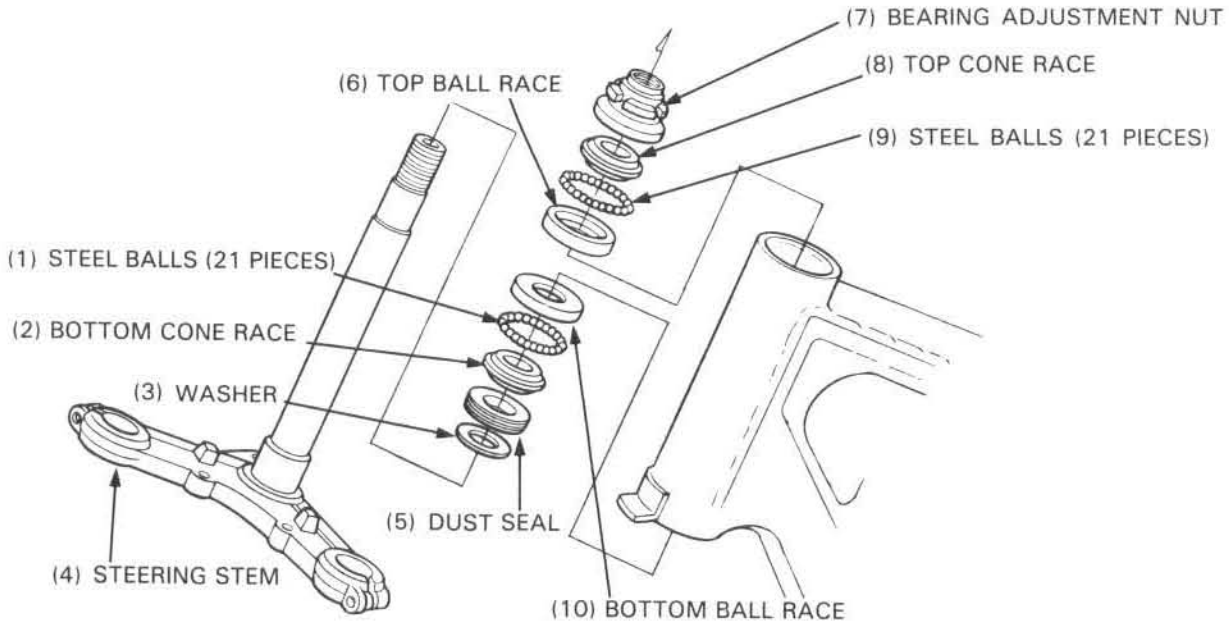
Remove the bottom cone race from the steering stem.



Drive a new cone race into the steering stem.

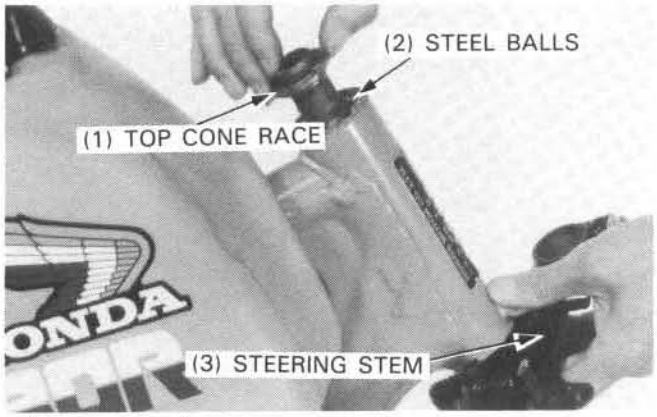


INSTALLATION



Grease the top and bottom ball races and install 21 steel balls in each race.

Install the steering stem into the steering head and install the top cone race.



Install the bearing adjustment nut and initially tighten it.

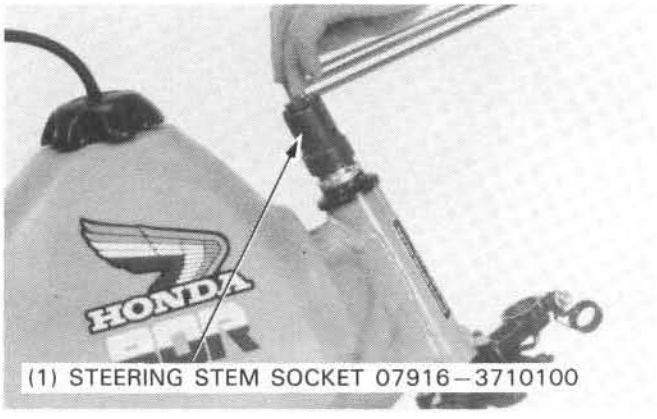
TORQUE: 25–35 N·m (2.5–3.5 kg-m, 18–25 ft-lb)

Turn the steering stem lock-to-lock 4 or 5 times to seat the bearings.

Completely loosen the nut then tighten it to final torque.

TORQUE: 1–2 N·m (0.1–0.2 kg-m, 0.7–1.4 ft-lb)

Make sure that there is no vertical movement and that the steering stem rotates smoothly.



RIDE RED

Install the fork bridge and the front forks, then temporarily tighten the fork bolts.

Tighten the steering stem lock nut.

TORQUE: 60—90 N·m (6.0—9.0 kg-m, 43-65 ft-lb)

Bend up the lock washer tab.

Tighten the upper fork pinch bolts.

TORQUE: 9—13 N·m (0.9-1.3 kg-m, 6.5—9.3 ft-lb)

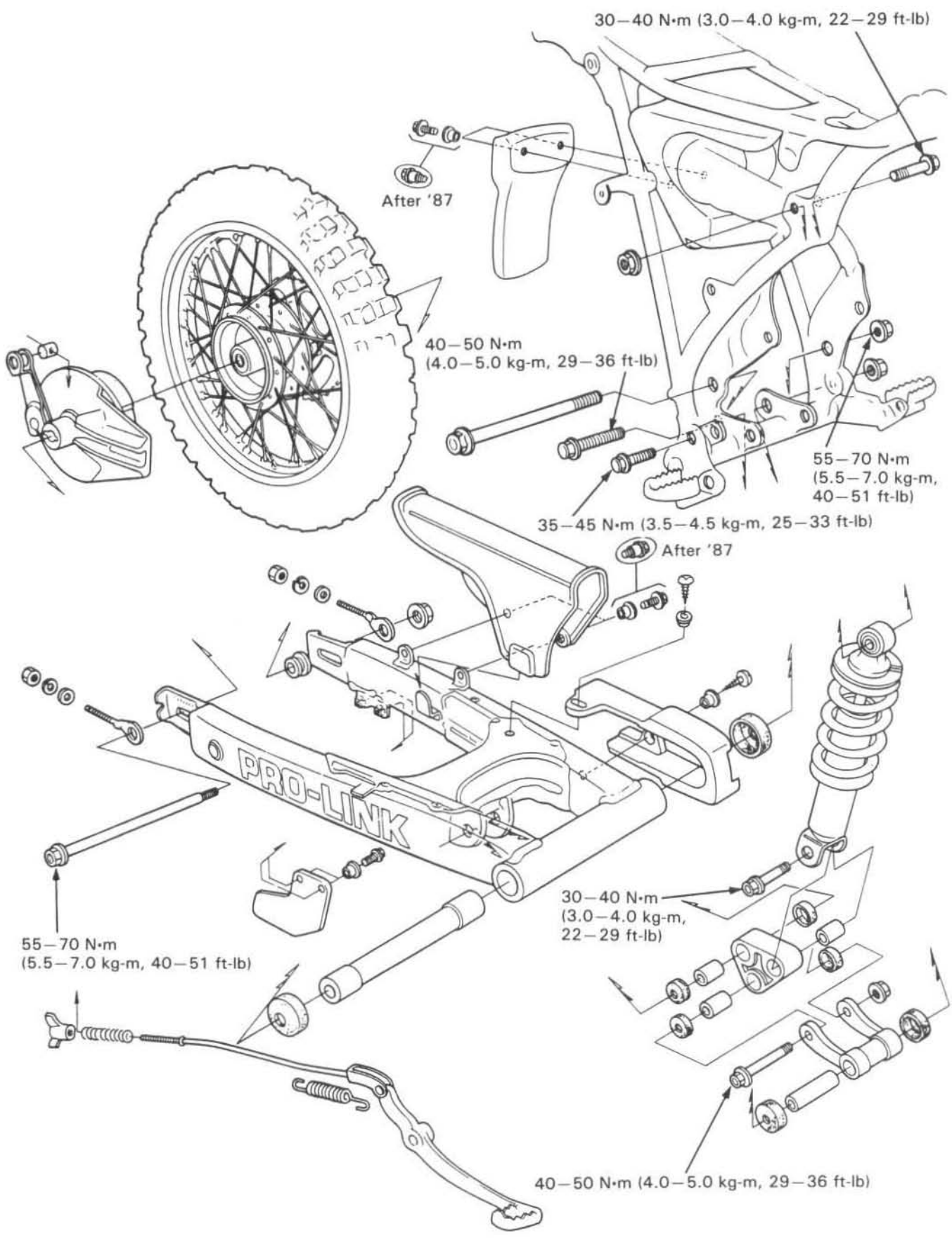
Tighten the bottom pinch bolts

TORQUE: 24—30 N·m (2.4—3.0 kg-m, 17-22 ft-lb)

Install the following parts.
— front fender.
— front wheel (page 10-6)
— handlebar (page 10-4)

When all parts are installed, inspect and adjust the following items:
— steering head bearings (page 3-16)
— front suspension (page 3-14)
— throttle operation (page 3-4)
— clutch (page 3-13)
— front brake (page 3-12)
— cable and wire harness routing (pages 1-7 through 1-11)




30—40 N·m (3.0—4.0 kg-m, 22—29 ft-lb)
After '87
40—50 N·m
(4.0—5.0 kg-m, 29—36 ft-lb)
55—70 N·m
(5.5—7.0 kg-m,
40—51 ft-lb)
35—45 N·m (3.5—4.5 kg-m, 25—33 ft-lb)
After '87
PRO-LINK
55—70 N·m
(5.5—7.0 kg-m, 40—51 ft-lb)
30—40 N·m
(3.0—4.0 kg-m,
22—29 ft-lb)
40—50 N·m (4.0—5.0 kg-m, 29—36 ft-lb)

RIDE RED

11. REAR WHEEL/BRAKE/SUSPENSION

SERVICE INFORMATION	11-1	SHOCK ABSORBER	11-8
TROUBLESHOOTING	11-2	SHOCK LINKAGE	11-10
REAR WHEEL	11-3	SWING ARM	11-11
REAR BRAKE	11-6	BRAKE PEDAL	11-14

SERVICE INFORMATION

GENERAL

- This section covers rear suspension and brake service.
- A floor jack or other adjustable support is required to support the motorcycle during these procedures.

WARNING

- *A contaminated brake drum or lining reduces stopping power. Discard contaminated lining and clean a contaminated drum with a high quality brake degreasing agent.*
- *Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner at alternate method approved by OSHA designed to minimize the hazard caused by airborne asbestos fibers.*
- *Wear a protective face mask and thoroughly wash your hands when finished.*

SPECIFICATIONS

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Rear wheel Rear brake	Axle runout		———	0.20 (0.008)
	Rim runout	Radial	———	2.0 (0.08)
		Axial	———	2.0 (0.08)
	Lining thickness		4.0 (0.16)	2.0 (0.08)
	Drum I.D.		95.0 (3.74)	96.0 (3.78)
Shock absorber	Spring free length	XR80R	136.0 (5.35)	133.3 (5.25)
		XR100R	136.5 (5.37)	133.8 (5.27)
	Damper compression force		70 kg/0.3 m/s (154.3 lb/1.18 in/s)	———
	Damper tension force		220 kg/0.3 m/s (485.0 lb/1.18 in/s)	———
Shock Linkage	Bushing I.D.		18.000–18.052 (0.7087–0.7107)	18.25 (0.718)
	Collar O.D.		17.941–17.968 (0.7063–0.7074)	17.91 (0.705)
Swing arm	Bushing I.D.		14.990–15.030 (0.5902–0.5917)	15.20 (0.598)
	Collar O.D.		14.966–14.984 (0.5892–0.5899)	14.94 (0.588)
Brake pedal	Pedal hole I.D.		17.300–17.327 (0.6811–0.6822)	17.34 (0.683)
	Collar O.D.		17.294–17.298 (0.6809–0.6810)	17.27 (0.680)

TORQUE VALUES

Driven sprocket nut	30–35 N·m (3.0–3.5 kg-m, 22–25 ft-lb)
Rear axle nut	55–70 N·m (5.5–7.0 kg-m, 40–51 ft-lb)
Brake arm bolt	8–12 N·m (0.8–1.2 kg-m, 6–9 ft-lb)
Shock absorber upper mount bolt	30–40 N·m (3.0–4.0 kg-m, 22–29 ft-lb)
Shock absorber lower mount bolt	30–40 N·m (3.0–4.0 kg-m, 22–29 ft-lb)
Shock arm-to-swing arm bolt	40–50 N·m (4.0–5.0 kg-m, 29–36 ft-lb)
Shock link-to-frame bolt	40–50 N·m (4.0–5.0 kg-m, 29–36 ft-lb)
Shock linl-to-shock arm bolt	40–50 N·m (4.0–5.0 kg-m, 29–36 ft-lb)
Swing arm pivot bolt	55–70 N·m (5.5–7.0 kg-m, 40–51 ft-lb)
Right foot peg stay mount bolt	35–45 N·m (3.5–4.5 kg-m, 25–33 ft-lb)
Rear brake pedal pivot bolt	35–45 N·m (3.5–4.5 kg-m, 25–33 ft-lb)

TOOLS

Special

Spring compressor attachment	07967–KC10000
Bearing remover, 17 mm	07936–3710300
Remover handle	07936–3710100
Remover weight	07741–0010201 or 07936–3710200

Common

Attachment, 32 x 35 mm	07746–0010100
Attachment, 37 x 40 mm	07746–0010200
Pilot, 12 mm	07746–0040200
Bearing remover shaft	07746–0050100 — Equivalent commercially available in U.S.A.
Bearing remover head, 12 mm	07746–0050300
Driver	07749–0010000

TROUBLESHOOTING

Wobble or vibration in motorcycle
- Bent rim
- Loose wheel bearings
- Loose or bent spokes
- Damaged tire
- Axle not tightened properly
- Swingarm pivot bearing worn
- Chain adjusters not set equally

Soft suspension
- Weak spring
- Improper rear shock absorber spring preload.

Hard suspension
- Improper rear shock absorber spring preload.
- Spring thrust sleeve binding
- Bent shock absorber rod
- Swingarm pivot bearings damaged

Suspension noise
- Faulty rear damper
- Loose fasteners
- Worn suspension linkage pivot bushings

Poor brake performance
- Improper brake adjustment
- Worn brake shoes
- Brake linings oily, greasy or dirty
- Worn brake cam
- Worn brake drum
- Brake arm serrations improperly engaged
- Brake shoes worn at cam contact area

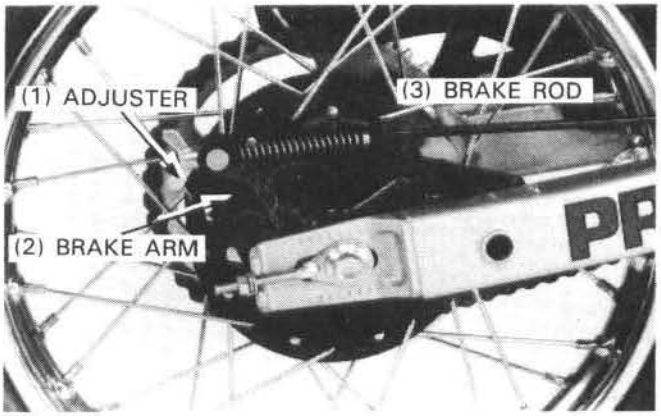
RIDE RED

REAR WHEEL

REMOVAL

Raise the rear wheel off the ground.

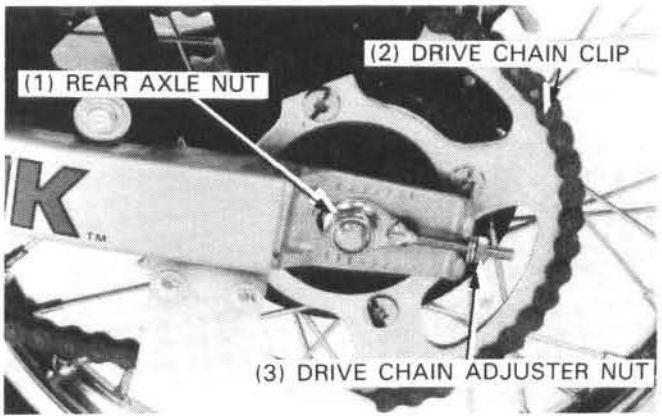
Loosen the rear brake adjuster and disconnect the brake rod from the brake arm.



Loosen the rear axle nut and drive chain adjuster nuts, then move the wheel forward.

Remove the drive chain clip and master link.

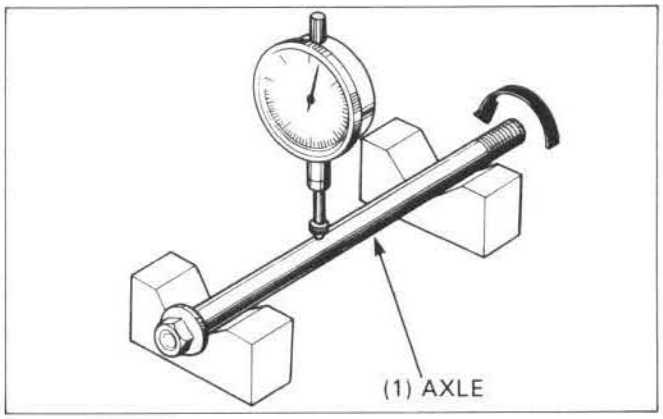
Remove the rear axle and remove the wheel.



INSPECTION

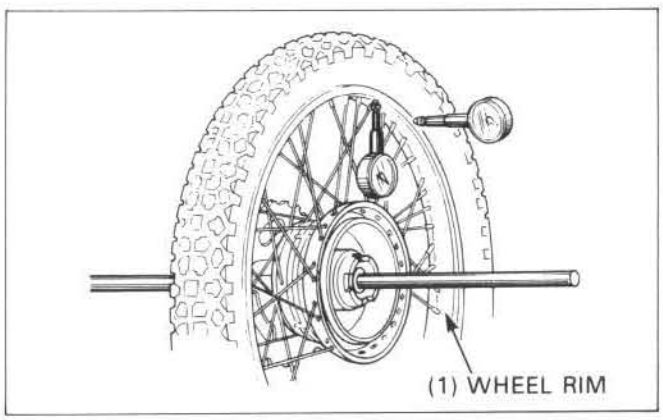
Place the axle in V-blocks and measure the runout.
The actual runout is 1/2 of the total indicator reading.

SERVICE LIMIT: 0.20 mm (0.008 in)



Place the wheel in a truing stand and measure the rim runout using a dial indicator.

SERVICE LIMITS: Radial: 2.0 mm(0.08 in)
Axial: 2.0 mm(0.08 in)



Check the condition of the final driven sprocket teeth. Replace the sprocket if the teeth are worn or damaged.

NOTE

- If the final driven sprocket requires replacement, inspect the drive chain and drive sprocket (section 3).

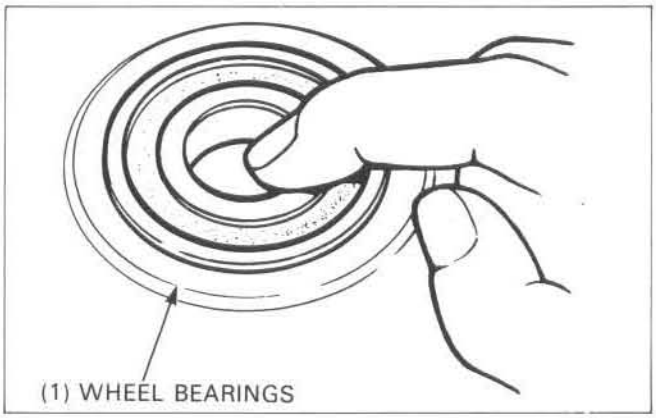


Turn the inner race of each bearing with your finger. The bearings should turn smoothly and quietly. Also check that the bearing outer race fits tightly in the hub.

Remove and discard the bearings if the races do not turn smoothly, quietly, or if they fit loosely in the hub, (below).

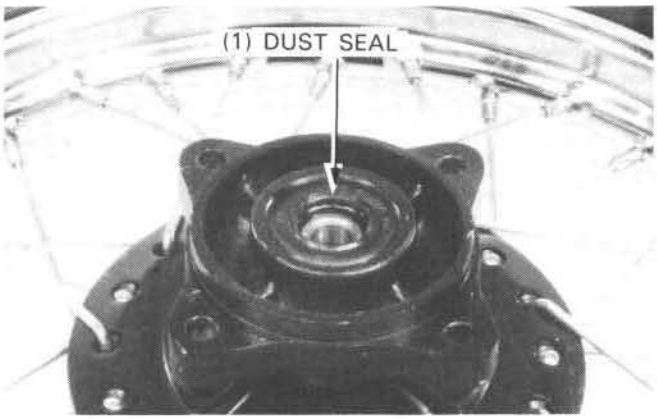
NOTE:

- Replace hub bearings in pairs.



BEARING REPLACEMENT

Remove the dust seal from the left side of the wheel hub.



Install the bearing remover head into the bearing. From the opposite side, install the bearing remover shaft, then drive the bearing out of the wheel.

Remove the distance collar and drive out the other bearing.

NOTE

- If the bearings are removed, they must be replaced with new ones.



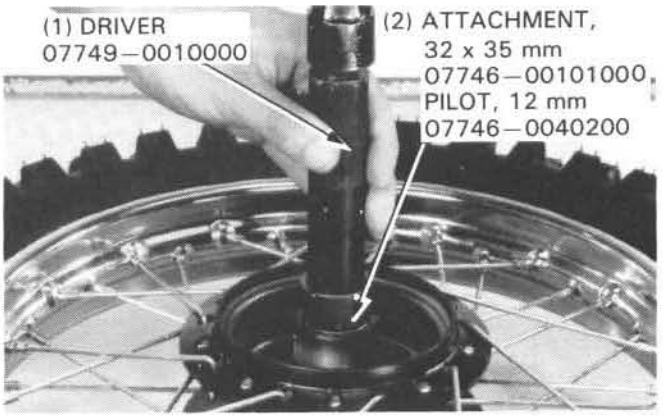
RIDE RED

Pack the bearing cavities with grease.

Drive in the left bearing first then insert the distance collar and drive in the right bearing.

NOTE

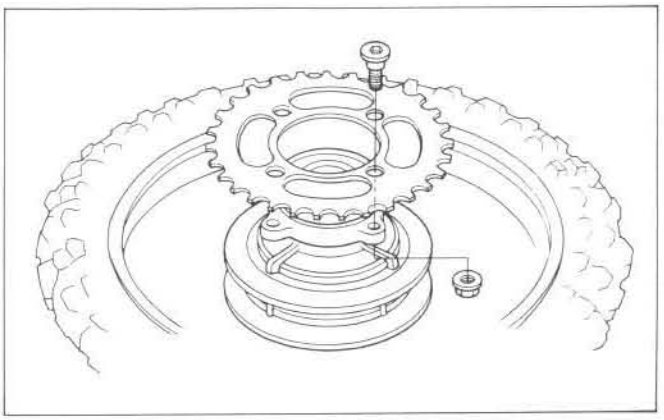
- Install the bearing with the sealed end facing out.
- Drive the bearings squarely; do not allow then it to tilt.



Apply grease to the dust seal and install it.

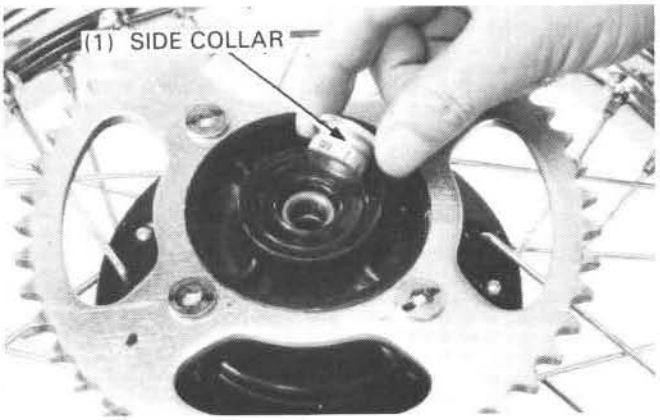
Install the final driven sprocket and tighten the four nuts.

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



INSTALLATION

Install the side collar into the hubs left side.



Install the brake panel on the wheel.

Position the wheel on the swing arm, aligning the groove on the brake panel with the swing arm boss.

Install the rear axle and place the drive chain over the driven sprocket. Install the master link and chain clip.

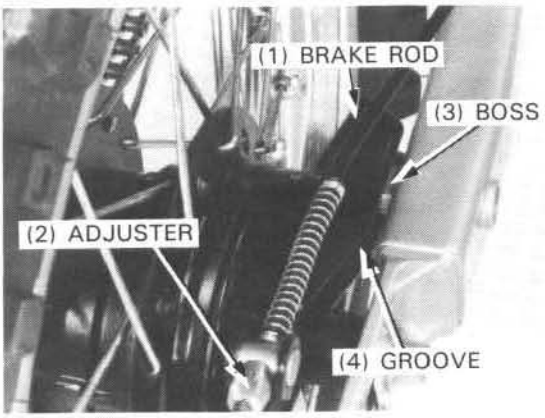
NOTE

- Note the direction of the chain clip.

Adjust the drive chain free play (page 3-10) and tighten the rear axle nut.

TORQUE: 55–70 N·m (5.5–7.0 kg-m, 40–51 ft-lb)

Connect the brake rod to the brake arm and adjust the rear brake (page 3-12).



REAR BRAKE

WARNING

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

REMOVAL

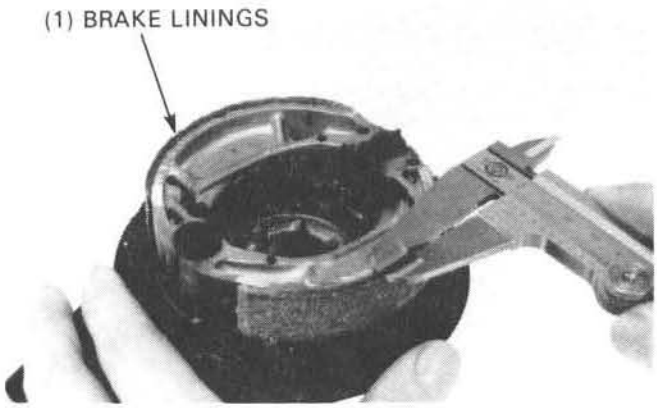
Remove the rear wheel (page 11-3).

Remove the brake panel from the rear wheel.

INSPECTION

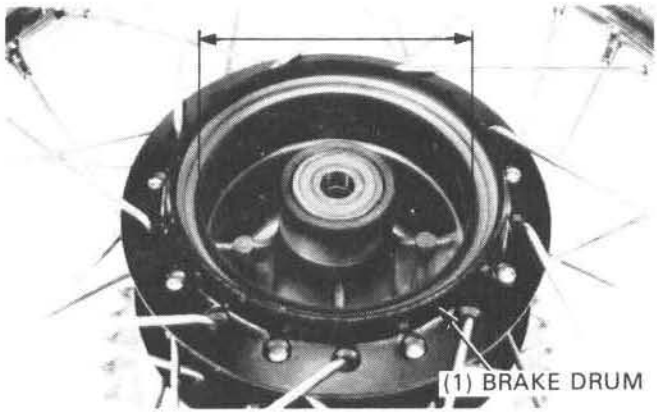
Measure the brake lining thickness.

SERVICE LIMIT: 2.0 mm (0.08 in)



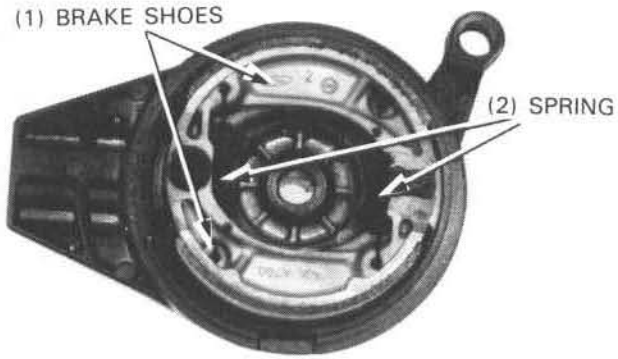
Measure the brake drum I.D.

SERVICE LIMIT: 96.0 mm (3.78 in)



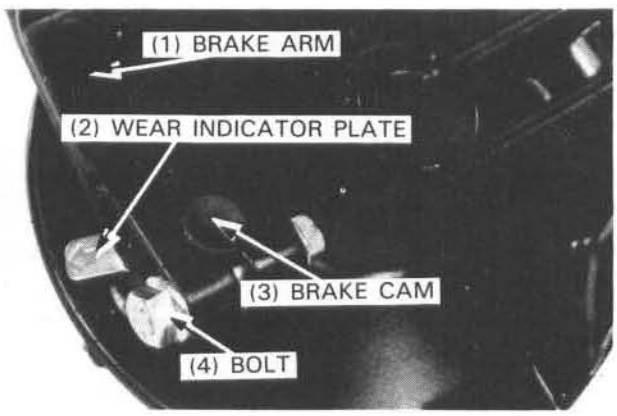
DISASSEMBLY

Remove the brake shoes by expanding them.



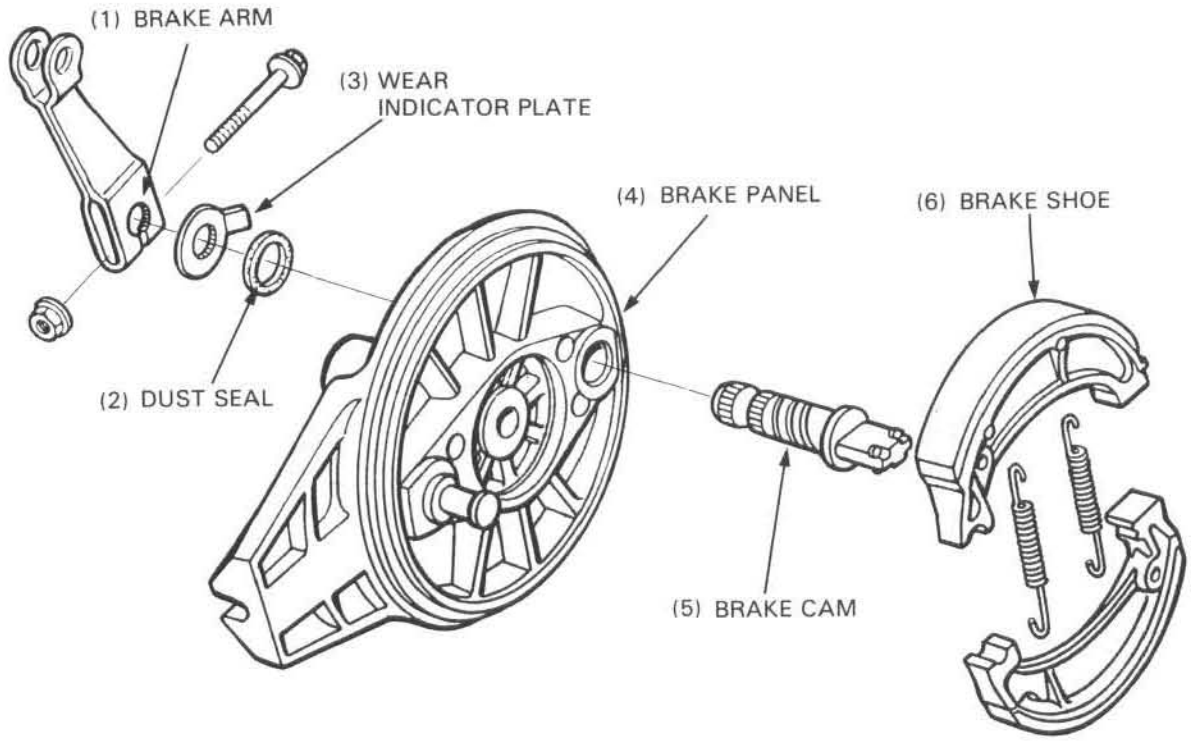
Remove the brake arm bolt, nut and brake arm.

Remove the wear indicator plate, brake cam and dust seal.

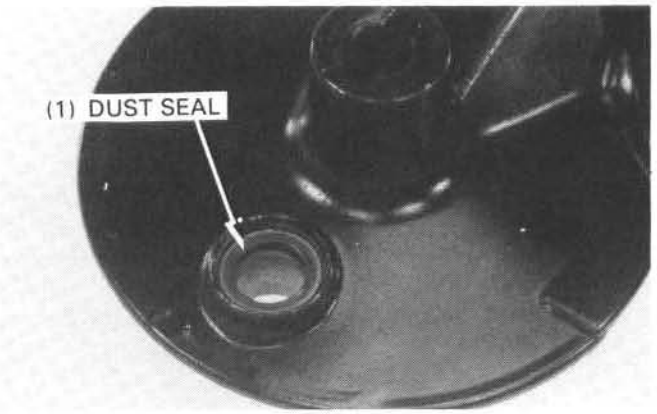


RIDE RED

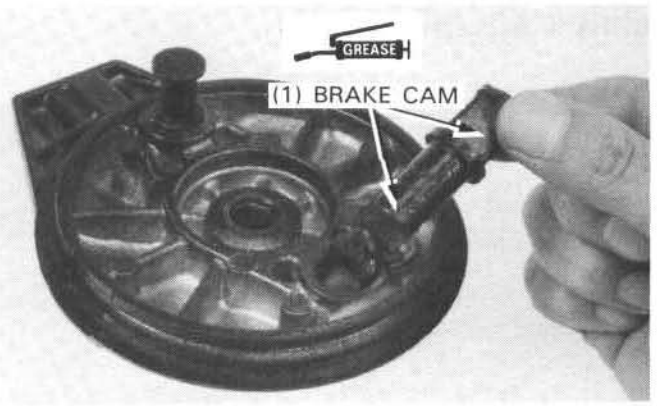
ASSEMBLY



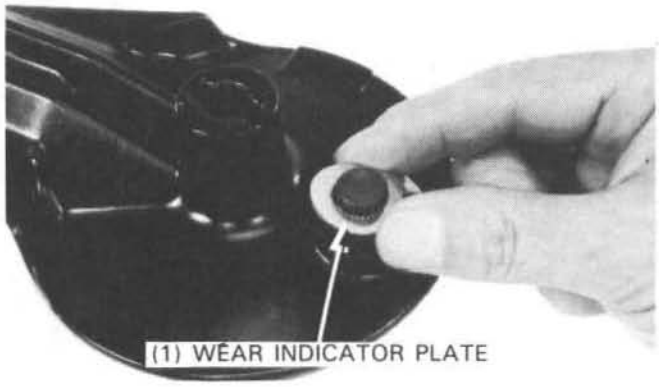
Install the dust seal.



Apply grease to the sliding surface of the brake cam and install it.



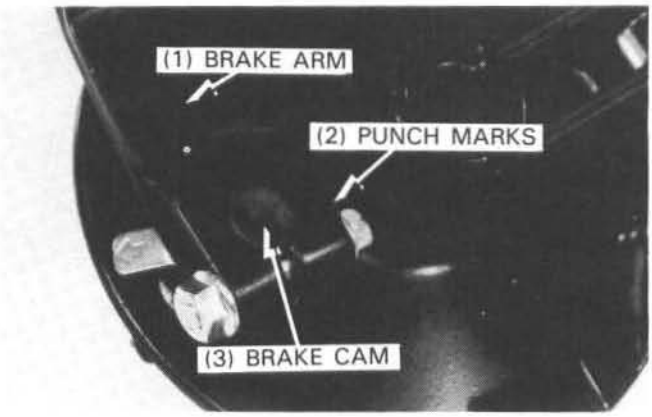
Install the wear indicator plate onto the brake cam aligning the groove in the indicator plate with the slit in the cam.



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

Tighten the brake arm bolt.

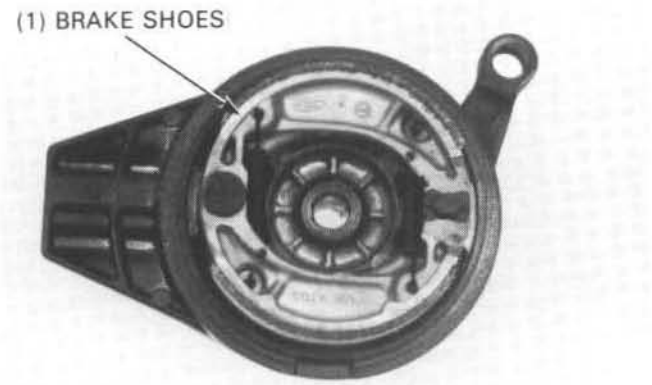
TORQUE: 8–12 N·m (0.8–1.2 kg-m, 6–9 ft-lb)



Install the brake shoes onto the brake panel.

WARNING

- ***Contaminated brake linings reduce stopping power. Keep oil and grease off the linings.***
- ***Inhaled asdestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner or an alternate method approved by OSHA-designed to minimize the hazard caused by airborne asbestos fibers.***



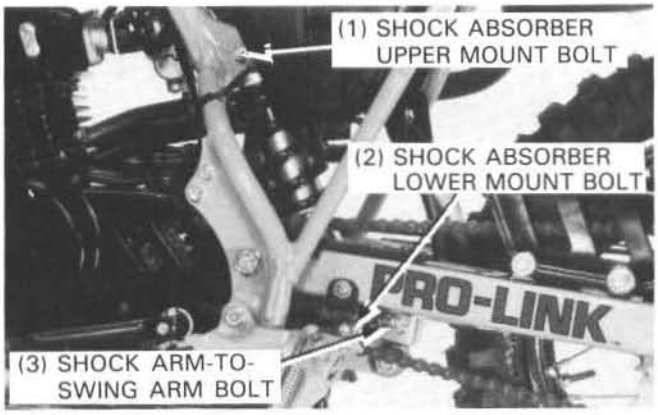
SHOCK ABSORBER

REMOVAL

Remove the left side cover.

Remove the shock absorber upper mount bolt and loosen the lower mount bolt.

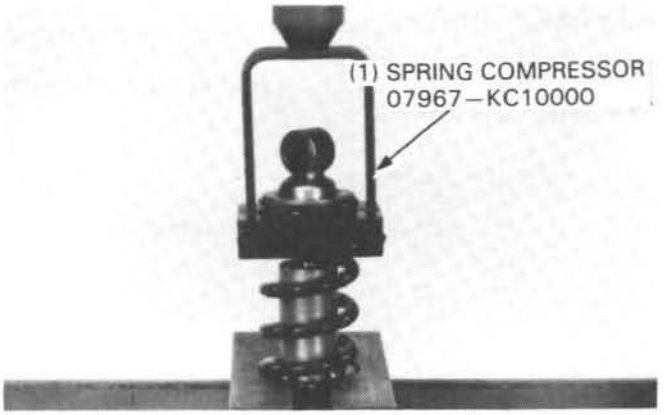
Remove the shock arm-to-swing arm bolt and shock absorber lower mount bolt, then remove the shock absorber.



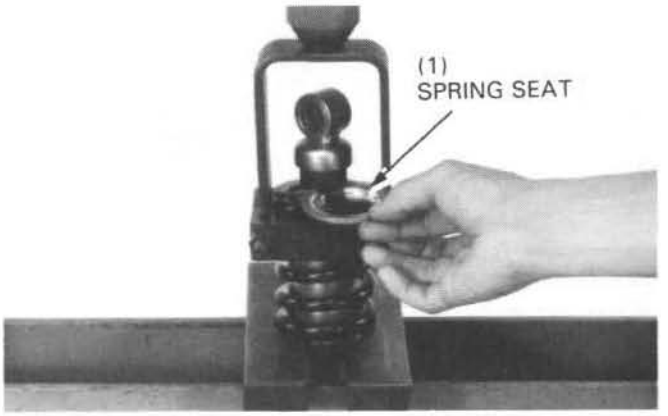
RIDE RED

DISASSEMBLY

Compress the shock absorber spring using a press.



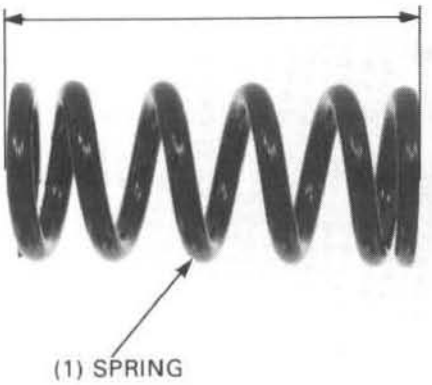
Remove the spring seat and spring.



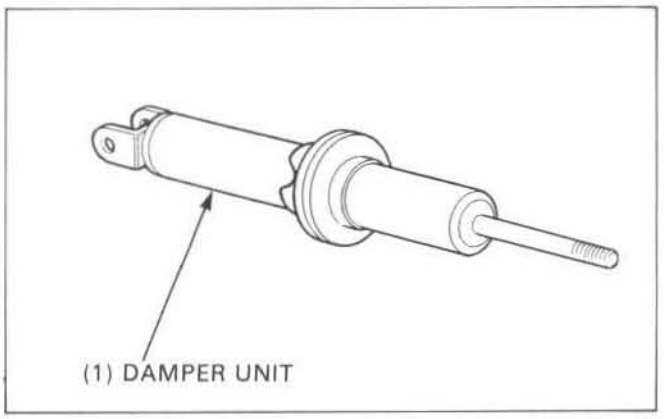
INSPECTION

Measure the spring free length.

SERVICE LIMIT: XR80R 133.3 mm (5.25 in)
XR100R 133.8 mm (5.27 in)

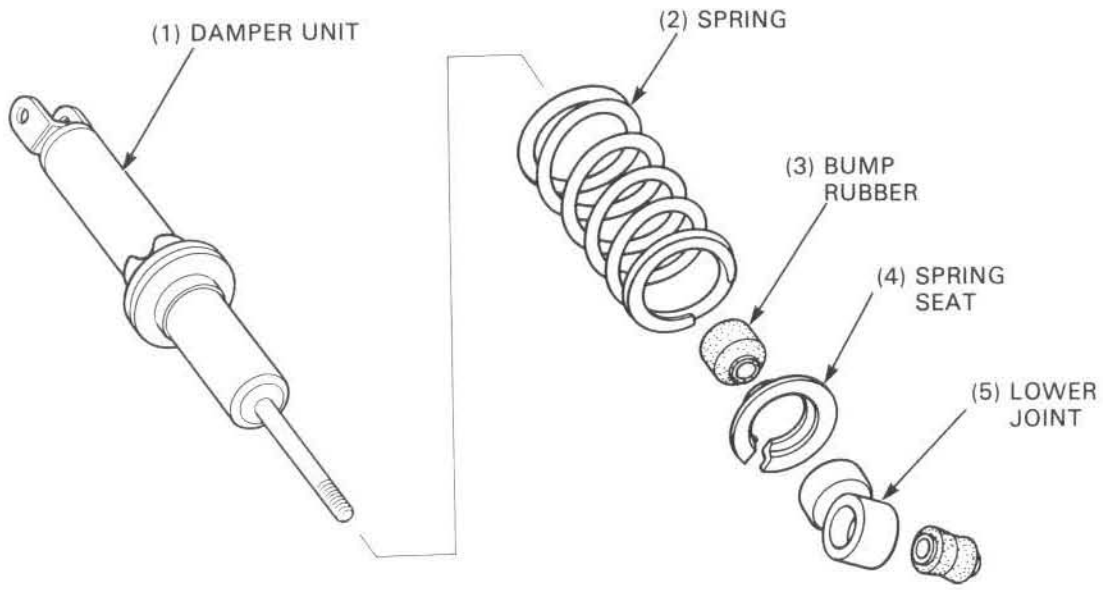


Visually inspect the damper unit for dents, oil leaks or other faults. Replace the damper if necessary.



ASSEMBLY/INSTALLATION

Assemble and install the shock absorber in the reverse order of disassembly and removal.

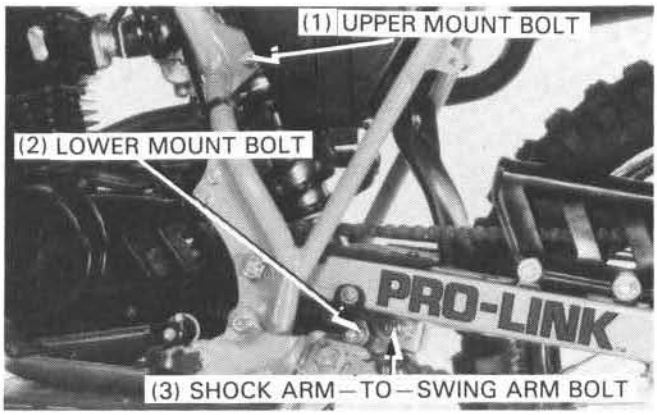


Tighten the shock absorber upper and lower mount bolts.

TORQUE: 30–40 N·m (3.0–4.0 kg-m, 22–29 ft-lb)

Tighten the shock arm-to-swing arm bolt.

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

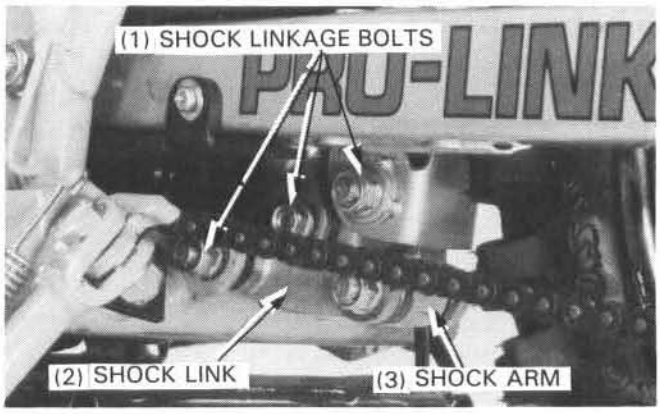


SHOCK LINKAGE

REROVAL

Remove the three shock linkage bolts and remove the shock linkage.

Remove the shock link-to-shock arm bolt.



RIDE RED

INSPECTION

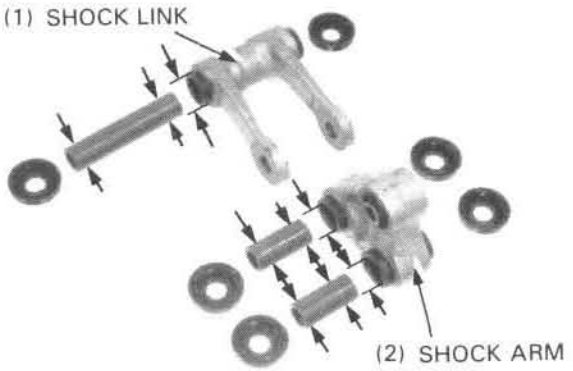
Remove the dust seals and collars and check the bushing for damage.

Measure the bushing I.D..

SERVICE LIMIT: 18.25 mm (0.718 in)

Measure the collar O.D..

SERVICE LIMIT: 17.91 mm (0.705 in)



INSTALLATION

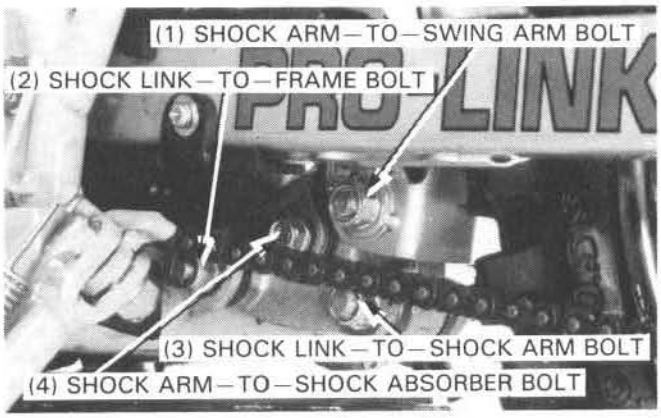
Apply molybdenum disulfied (MoS_2) paste (containing more than 40% of MoS_2) to the shock link and shock arm pivot sliding surface and dust seals.

NOTE

- Use MoS_2 paste grease (containing more than 40% of MoS_2) as follows:
  - Molykote G-n paste manufactured by Dow Corning U.S.A.
  - Rocol Paste manufactured by Sumico Lubricant Co,Ltd. Japan.
  - Other lubricants of equivalent quality.

Install the shock arm and shock link and tighten each bolt in the order listed.

TORQUE:
SHOCK LINK-TO-FRAME
40–50 N·m (4.0–5.0 kg-m, 29–36 ft-lb)
SHOCK LINK-TO-SHOCK ARM
40–50 N·m (4.0–5.0 kg-m, 29–36 ft-lb)
SHOCK ARM-TO-SHOCK ABSORBER
30–40 N·m (3.0–4.0 kg-m, 22–29 ft-lb)
SHOCK ARM-TO-SWING ARM
40–50 N·m (4.0–5.0 kg-m, 29–36 ft-lb)



SWING ARM

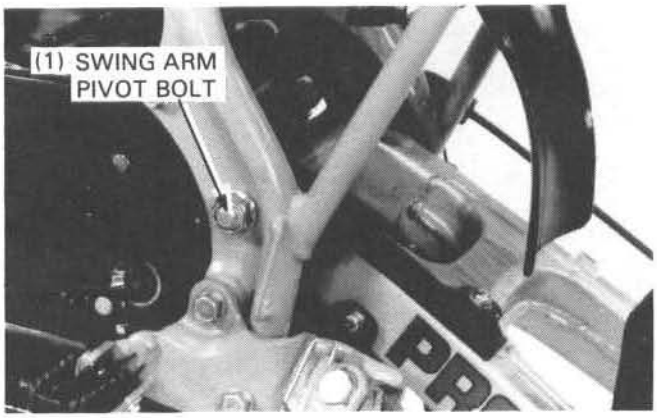
REMOVAL

Raise the rear wheel off the ground by placing the floor jack or other adjustable support under the engine.

Remove the following:
- rear wheel (page 11-3).
- rear shock absorber (page 11-8).
- shock linkage (page 11-10).
- rear brake pedal return spring from the swing arm.

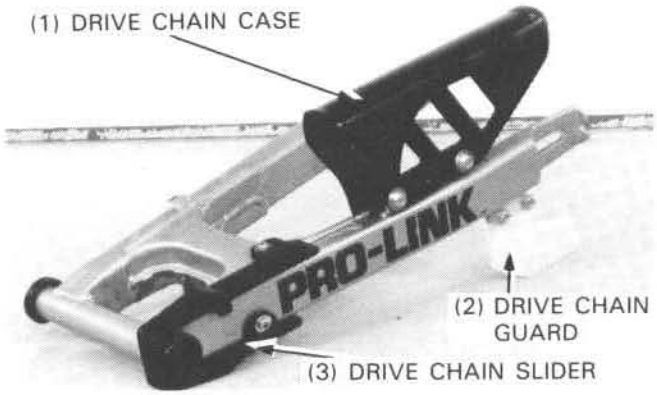


Remove the swing arm pivot bolt and the swing arm.



DISASSEMBLY

Remove the drive chain case, chain guard and chain slider.

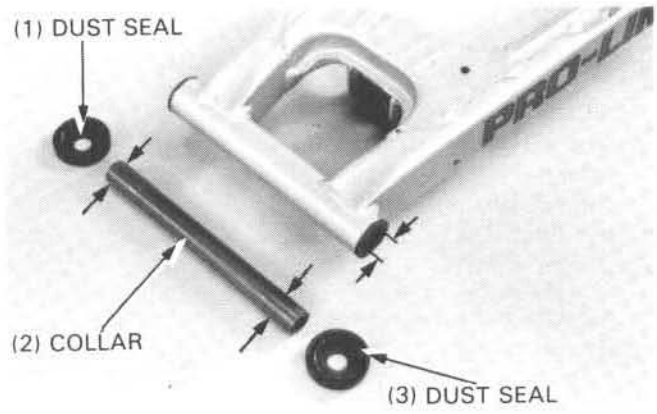


Remove the dust seals and pivot collar.

INSPECTION

Measure each bushing I.D. and the pivot collar O.D..

SERVICE LIMIT:
Bushing I.D.: 15.20 mm (0.598 in)
Pivot collar O.D.: 14.94 mm (0.588 in)



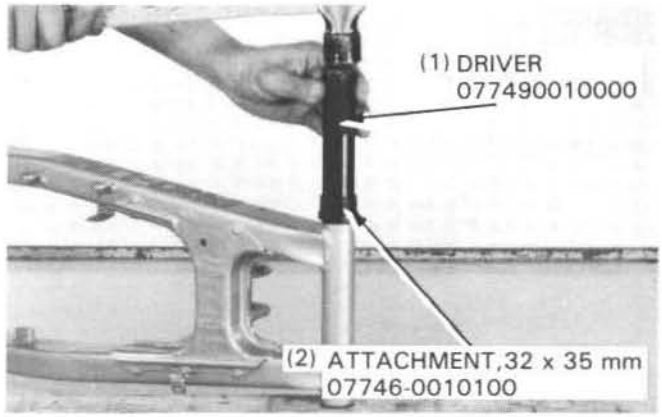
BUSHING REPLACEMENT

Install the bearing remover into the swing arm pivot hole and expand the tool behind the bushing, then drive the bushing out of the swing arm.



RIDE RED

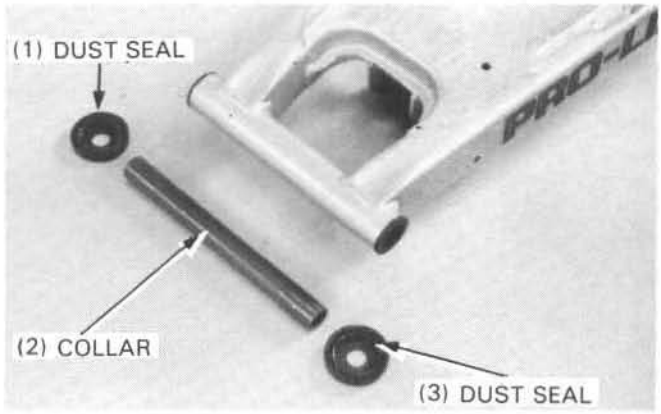
Drive a new bushing into the swing arm.



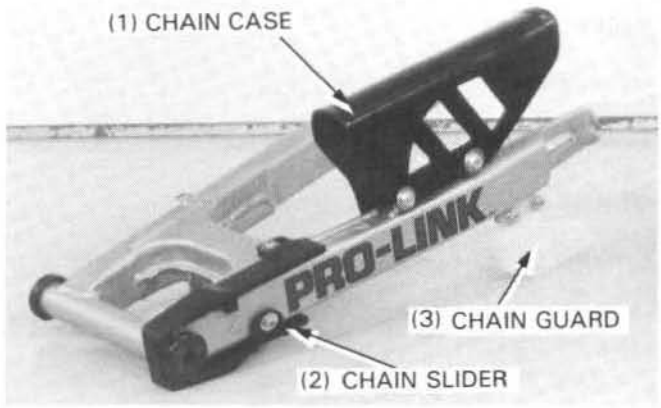
INSTALLATION

Apply grease to the swing arm inner bushing, collar and dust seal.

Insert the pivot collar into the swing arm and install the dust seal.



Install the chain slider, chain case and chain guard.

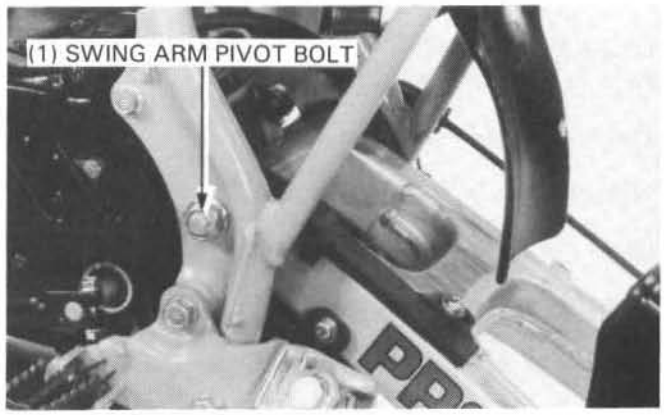


Install the swing arm and tighten the pivot bolt.

TORQUE: 55—70 N·m (5.5—7.0 kg-m, 40—51 ft-lb)

Connect the brake pedal return spring.

Install the shock linkage(page 11-11) and the rear wheel (page 11-5)



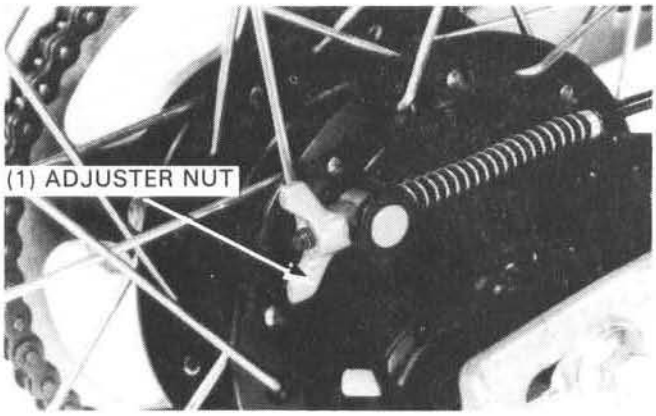
NOTE

- After installing the swing arm, inspect and adjust following:
  - drive chain (page 3-10)
  - rear brake (page 3-12)
  - rear suspension (page 3-14)

REAR BRAKE PEDAL

REMOVAL

Remove the rear brake adjuster nut.



Remove the rear brake pedal return spring and pivot bolt.

Loosen the right foot peg stay bolt, then remove the brake pedal.



INSPECTION

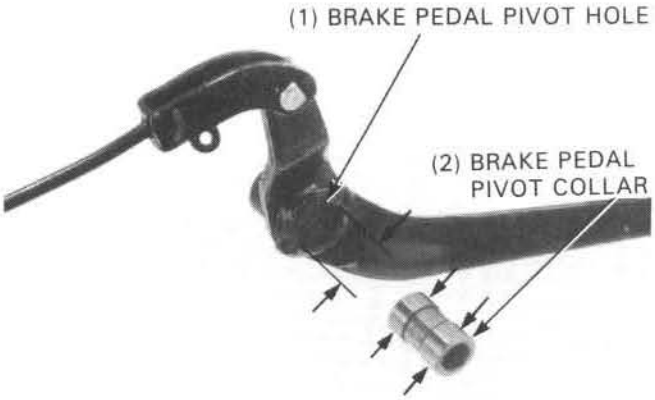
Measure the brake pivot collar O.D..

SERVICE LIMIT: 17.34 mm (0.683 in)

Measure the brake pedal pivot hole I.D..

SERVICE LIMIT: 17.27 mm (0.680 in)

Check the brake pedal and collar for wear or damage and replace if necessary.



INSTALLATION

Grease the brake pedal pivot hole and collar and install the pedal in the reverse order of removal.

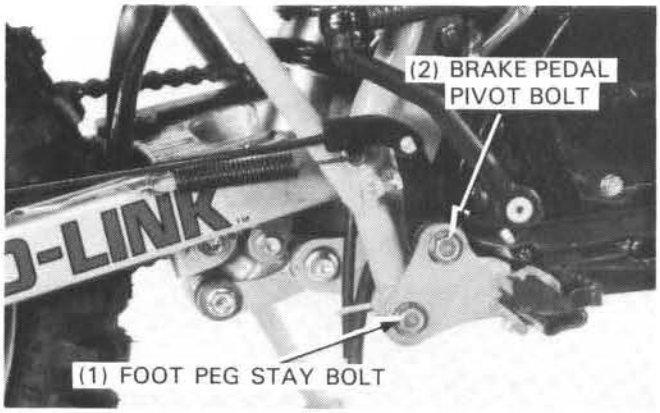
Tighten the right foot peg stay bolt.

TORQUE: 35–45 N·m (3.5–4.5 kg-m, 25–33 ft-lb)

Install and tighten the brake pedal pivot bolt.

TORQUE: 35–45 N·m (3.5–4.5 kg-m, 25–33 ft-lb)

Inspect and adjust the brake pedal height and free play (page 3-12).



RIDE RED

12. REAR FENDER/EXHAUST PIPE

REAR FENDER	12-1	EXHAUST PIPE	12-2

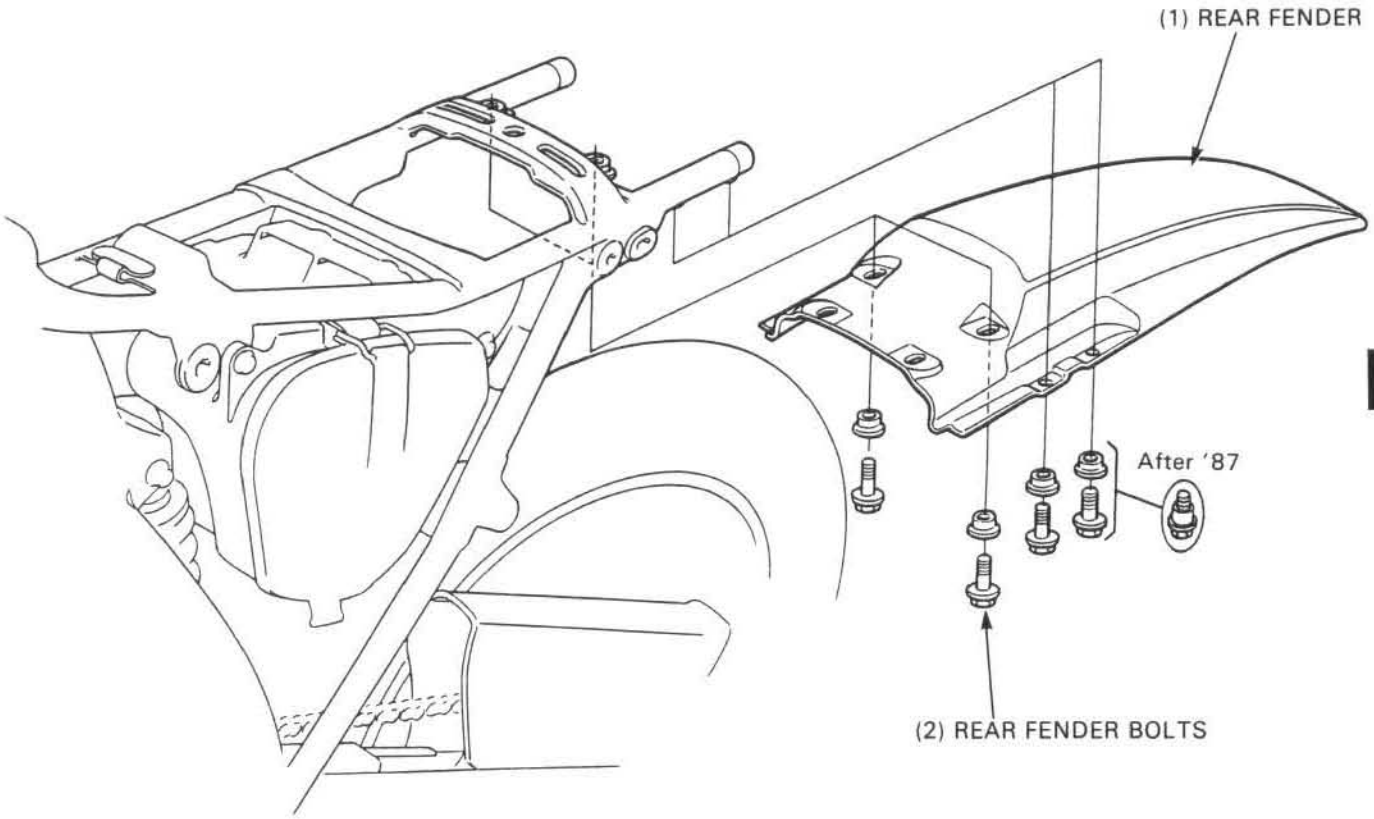
REAR FENDER

REMOVAL/INSTALLATION

Remove the seat and right and left side covers.

Remove the bolts and the rear fender.

Install the rear fender in the reverse order of removal.



EXHAUST PIPE

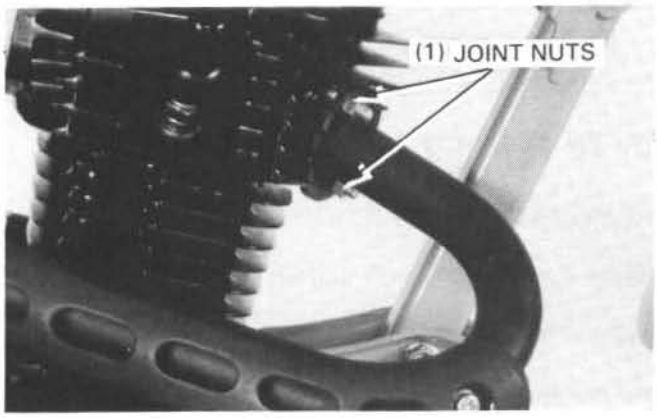
WARNING

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

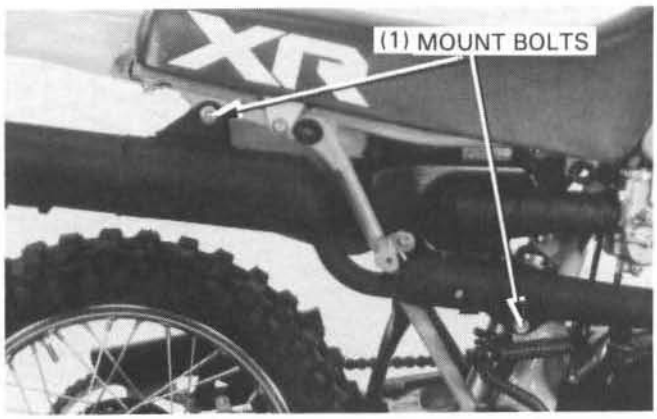
REMOVAL

Remove the right side cover.

Remove the two exhaust pipe joint nuts.



Remove the two exhaust pipe mount bolts and exhaust pipe.



Check the exhaust pipe joint gasket for damage and replace if necessary.

INSTALLATION

The exhaust pipe installation is essentialy the reverse order of removal.

After installing the exhaust pipe, make sure that there are no exhaust leaks.

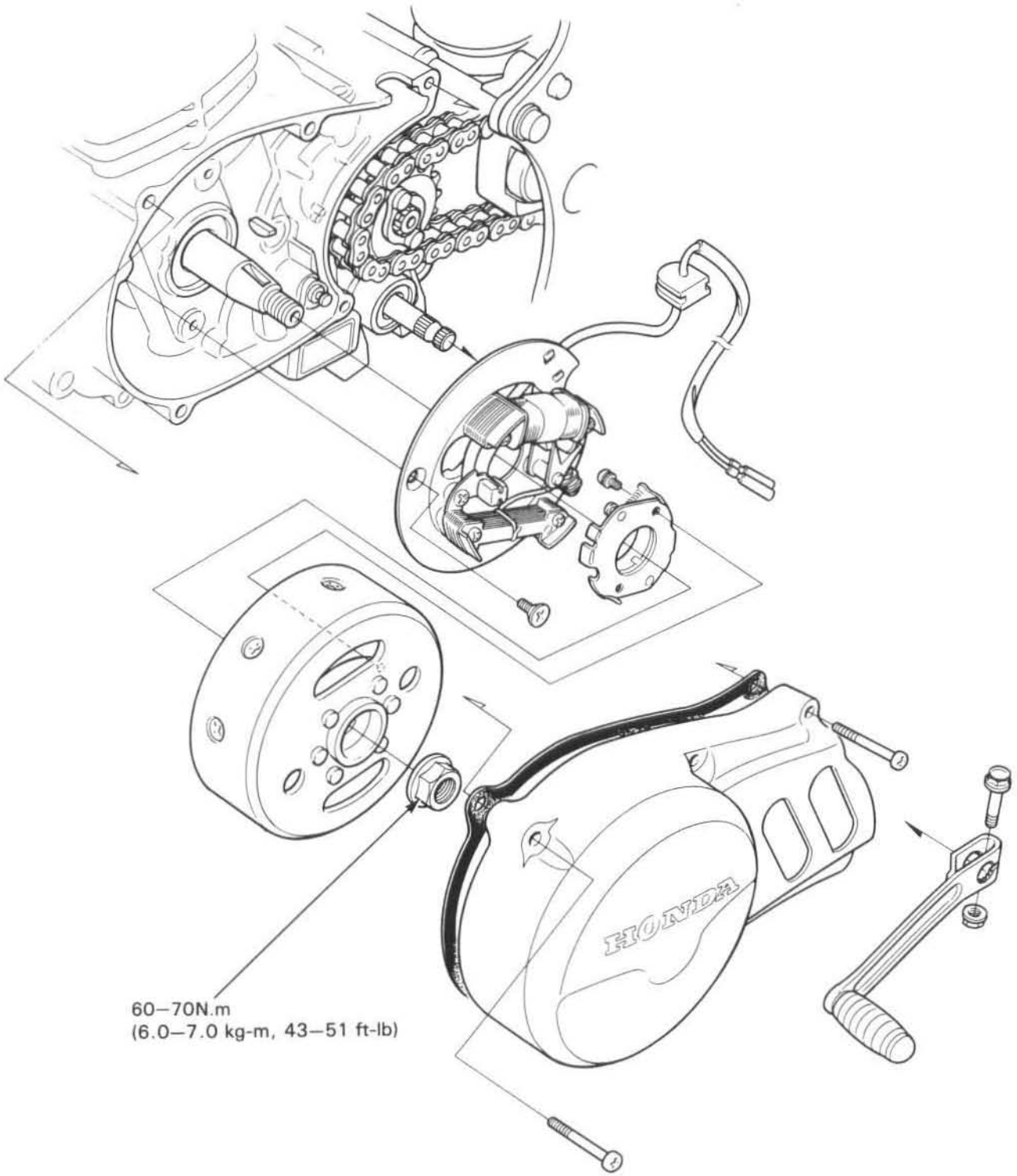
TORQUE:

EXHAUST PIPE JOINT NUT:
10–14 N·m (1.0–1.4 kg-m, 7–10 ft-lb)

EXHAUST PIPE MOUNT BOLT:
24–30 N·m (2.4–3.0 kg-m, 17–22 ft-lb)

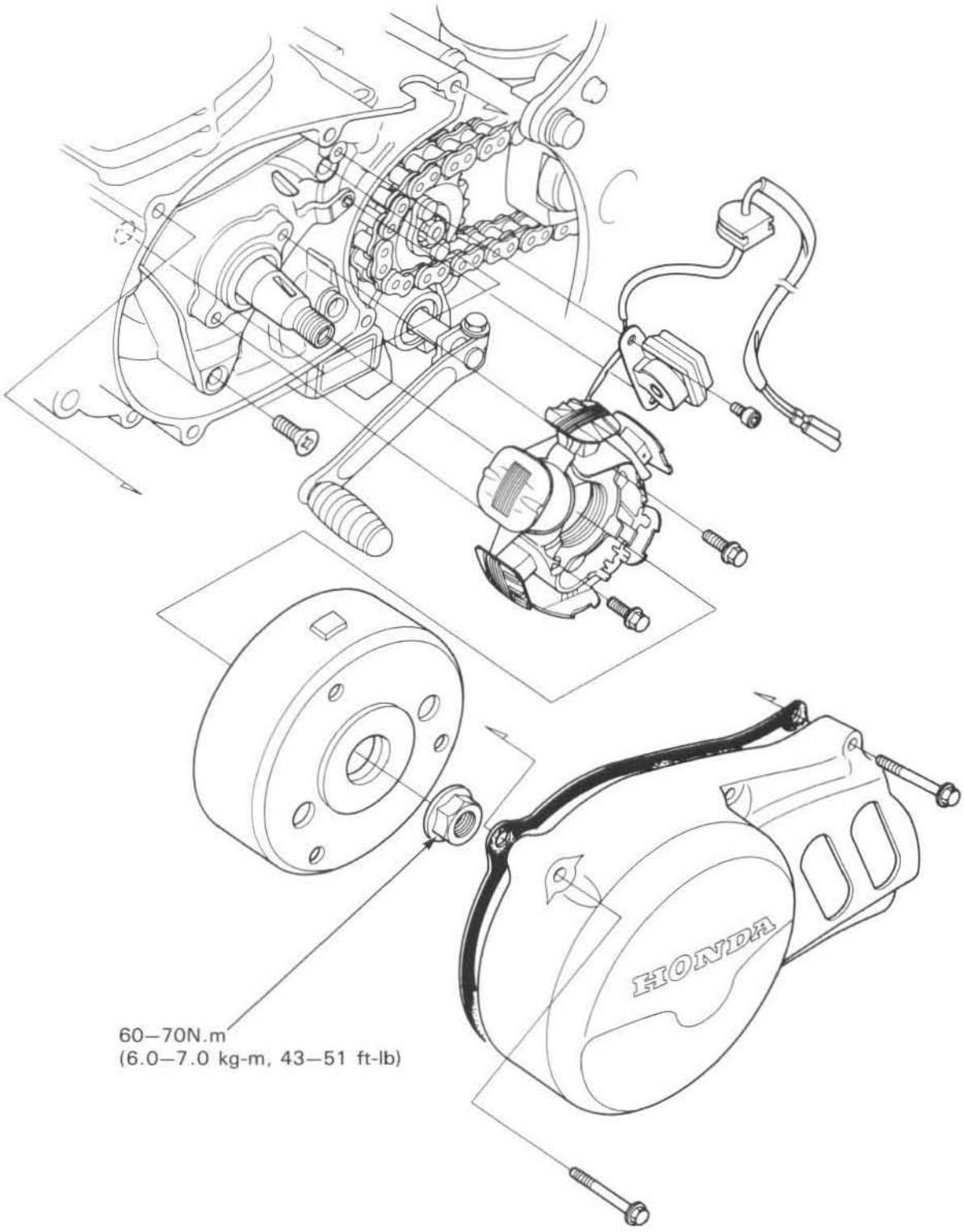
RIDE RED

MEMO



RIDE RED

AFTER '91 XR100R:



SERVICE INFORMATION	13-2	SPARK ADVANCER REMOVAL/INSTALLATION	13-8
TROUBLESHOOTING	13-3	STATOR COIL REPLACEMENT	13-8
IGNITION COIL	13-4	ALTERNATOR STATOR REMOVAL	13-9
CONDENSER	13-5	ALTERNATOR STATOR INSTALLATION	13-10
ALTERNATOR	13-6	FLYWHEEL INSTALLATION	13-10
PULSE GENERATOR	13-6	IGNITION TIMING	13-12
ALTERNATOR EXCITOR COIL	13-6	CDI UNIT	13-11
FLYWHEEL REMOVAL	13-7	ENGINE STOP SWITCH	13-12
CONTACT POINT REPLACEMENT	13-7		

SERVICE INFORMATION

GENERAL

- This section covers maintenance and inspection of the alternator and other electrical equipment.
- These procedures can be done with the engine installed in the frame.
- Refer to for ignition timing, contact points and spark plug inspection procedures.

SPECIFICATIONS

ITEM			SPECIFICATIONS
Spark plug	For cold climate (Below 5°C, 41°F)	NGK	CR6HSA
		NIPPONDENSO	U20FSR-U
	Standard	NGK	CR7HSA
		NIPPONDENSO	U22FSR-U
	For extended high speed riding	NGK	CR8HSA
		NIPPONDENSO	U24FSR-U
Spark plug gap			0.6–0.7 mm (0.024–0.028 in)
Contact point gap XR80R, '85 through '91 XR100R:			0.3–0.4 mm (0.012–0.016 in)
Ignition coil resistance [At 20°C (68°F)]	XR80R '85 through '91 XR100R:	Primary	1.3–1.7Ω
		Secondary	7.0–10.6 kΩ
		Spark plug cap	3.7–6.3 kΩ
	After '91 XR100R:	Primary	0.1–0.3Ω
		With spark plug cap	6.4–10.1 kΩ
		Without spark plug cap	2.7–3.5 kΩ
Condenser capacity [At 20°C (68°F)] XR80R, '85 through '91 XR100R:			0.22–0.28 μF
Alternator coil resistance [At 20°C (68°F)] XR80R, '85 through '91 XR100R:			0.57–0.71 Ω
Pulse generator resistance [At 20°C (68°F)] After '91 XR100R:			50–200 Ω
Alternator excitor coil resistance [At 20°C (68°F)] After '91 XR100R:			400–800 Ω

TORQUE

Flywheel nut	60–70 N·m (6.0–7.0 kg-m, 43–51 ft-lb)

TOOLS

Universal holder	07725-0030000 or equivalent commercially available in U.S.A.
Rotor puller	07733-0010000 or 07933-0010000

RIDE RED

TROUBLESHOOTING

XR80R, '85 THROUGH '91 XR100R:

Engine cranks but will not start
- Engine stop switch faulty
- No spark at plug

No spark at plug
- Engine stop switch faulty
- Points not opening
- Points burned, wet fouled or dirty
- Poorly connected, broken or shorted wire
  - Between ignition coil and contact point
  - Between ignition coil and ground
- Plug fouled
- Faulty plug wire
- Coil weak or inoperative
- Faulty condenser
- Faulty ignition coil
- Faulty alternator

Engine starts but runs poorly
- Ignition primary circuit
  - Points dirty or fouled
  - Incorrect point gap
  - Faulty ignition coil
  - Faulty condenser
  - Loose or bare wire
  - Intermittent short circuit
- Ignition secondary circuit
  - Faulty plug
  - Faulty spark plug wire
- Improper ignition timing
  - Faulty spark advancer
  - Incorrect point gap

AFTER '91 XR100R:

No spark at plug
- Faulty spark plug
- Poorly conected, broken or shorted wires
  - Between alternator and CDI unit
  - Between CDI unit and ignition coil
  - Between CDI unit and engine stop switch
  - Between ignition coil and plug
- Faulty ignition coil
- Faulty alternator
- Faulty engine stop switch
- Faulty CDI unit

Engine starts but runs poorly
- Ignition primary circuit
  - Faulty ignition coil
  - Loose or bare wire
  - Loose connector
- Secondary circuit
  - Faulty ignition coil
  - Faulty plug
  - Faulty high tention cord
  - Spark plug cap leaking
- Ignition timing
  - Faulty alternator
  - Loose or improperly insulated stator
  - Faulty CDI unit

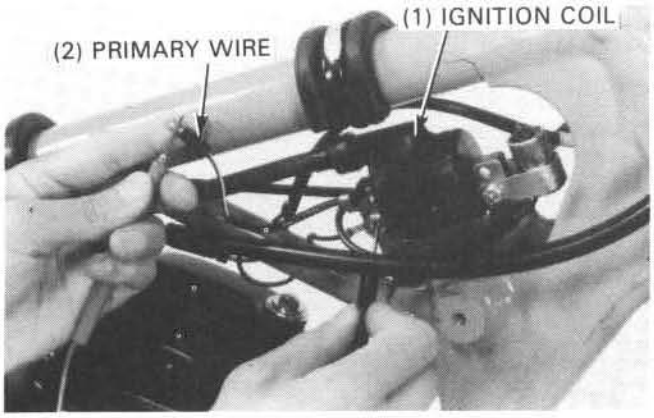
IGNITION COIL

XR80R, '85 THROUGH '91 XR100R:

Remove the fuel tank (page 4-3).

Disconnect the ignition coil primary wire and check the resistance between the connector and ground.

STANDARD: 1.3–1.7 Ω (20°C/68°F)



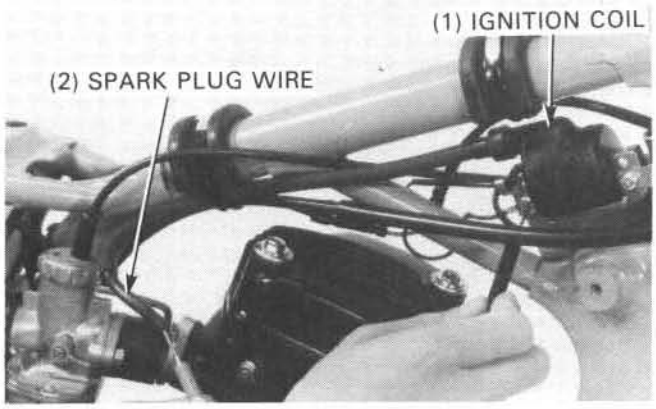
Disconnect the spark plug cap from the spark plug.

Remove the spark plug cap from the spark plug wire and check the resistance of the secondary coil.

STANDARD: 7.0–10.6K Ω (20°C/68°F)

Measure the spark plug cap resistance.

STANDARD: 3.7–6.3K Ω (20°C/68°F)



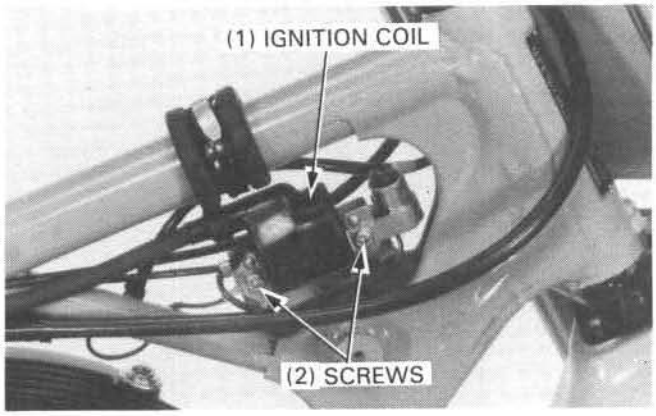
REMOVAL

Disconnect the spark plug cap from the spark plug and the primary wire connector.

Remove the two ignition coil attaching screws and the ignition coil.

INSTALLATION

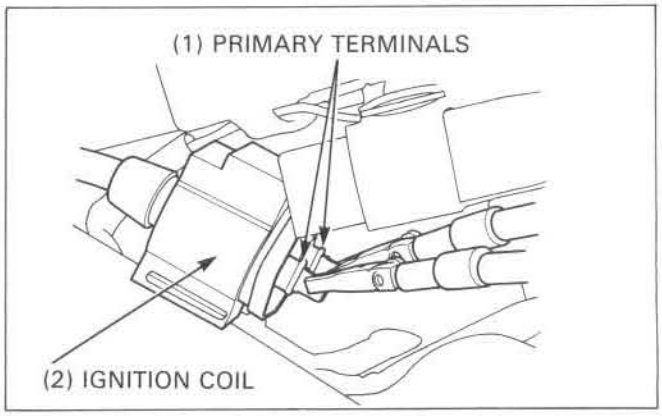
Install the ignition coil in the reverse order of removal and connect the wires.



AFTER '91 XR100R:

Remove the fuel tank (page 4-3).
Measure the primary coil resistance between the primary terminals.

STANDARD: 0.1–0.3Ω (20 °C/68 °F)



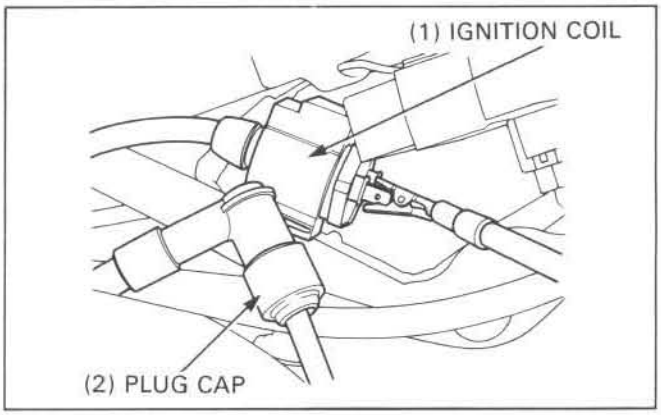
RIDE RED

Measure the secondary coil resistance with the spark plug cap in place. Measure the resistance between the plug cap and Green terminal.

STANDARD: 6.4–10.1 kΩ (20 °C/68 °F)

If the resistance of the secondary coil is outside the specification, check resistance without the spank plug cap to confirm.
Remove the spark plug cap from the wire and measure the secondary coil resistance.

STANDARD: 2.7–3.5kΩ (20 °C/68°F)



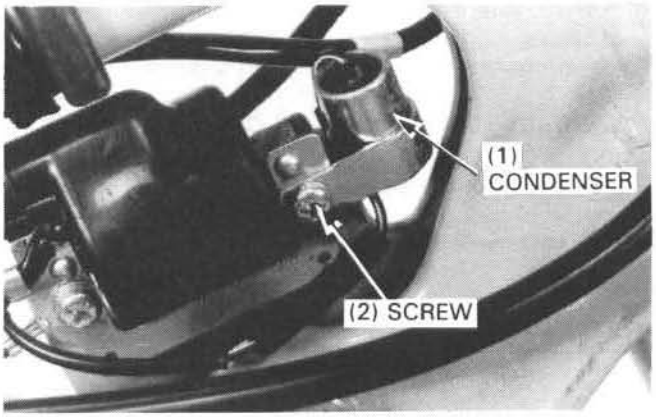
CONDENSER

XR80R, '85 THROUGH '91 XR100R

REMOVAL

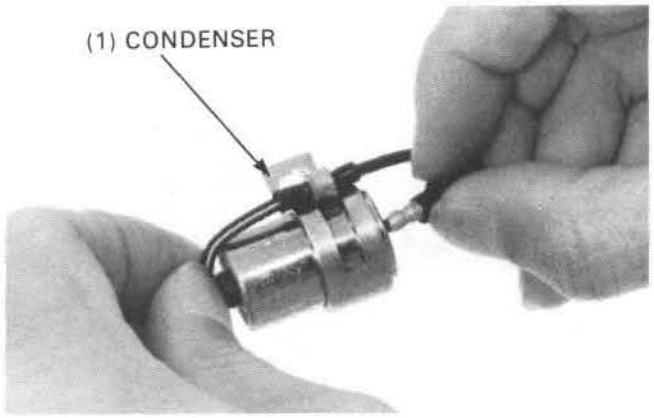
Remove the fuel tank (page 4-3).

Disconnect the condenser wire connector and remove the condenser attaching screw and condenser.



INSPECTION

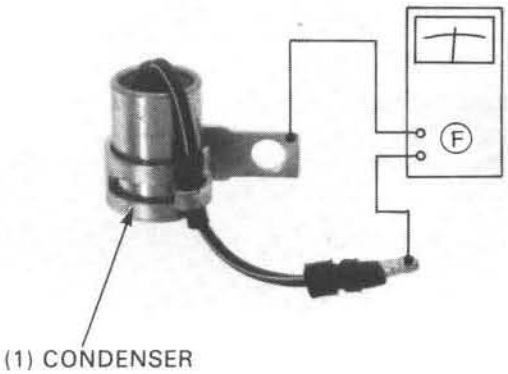
Discharge the condenser before inspection as shown.



Measure the condenser capacity with a tester.

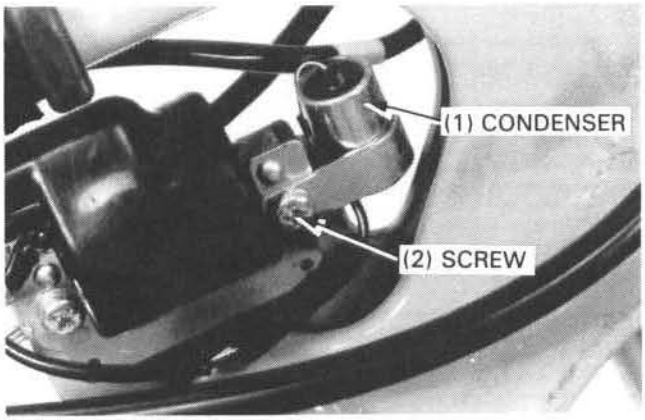
CAPACITY: 0.22–0.28μF (20°C/68°F)

If the capacity is not within the range replace the condenser with a new one.



INSTALLATION

Install the condenser and secure with the attaching screw.
Connect the condenser wire.
Install the fuel tank (page 4-3).



ALTERNATOR

XR80R, '85 THROUGH '91 XR100R:

INSPECTION

Check the alternator resistance between the alternator wire and ground: Align the "F" mark on the flywheel with the index mark on the left crankcase to open the contact points.

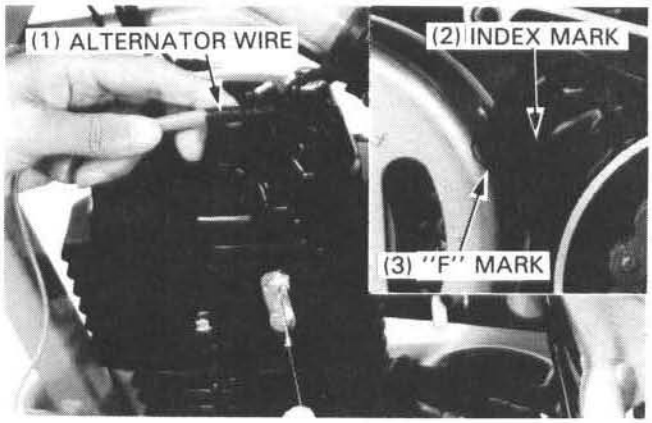
STANDARD: 0.57–0.71 Ω (20°C/68°F)

If the resistance is too high, dress the points and recheck.

If the resistance is too low, or if there is no resistance, replace the stator.

NOTE

- When the "F" mark is not aligned with the index mark, there should be continuity (0Ω resistance).

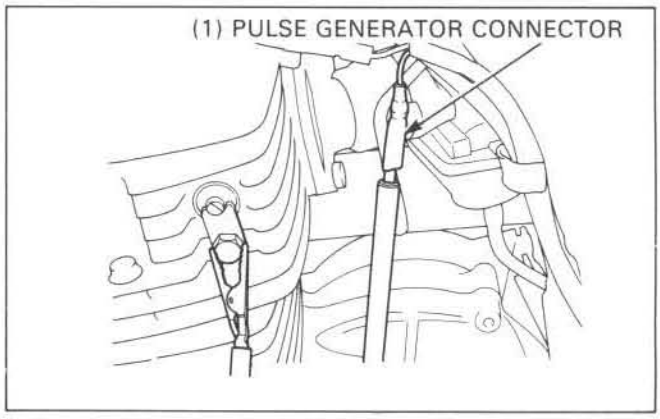


PULSE GENERATOR

AFTER '91 XR100R:

Remove the fuel tank (page4-3)
Disconnect the Blue/Yellow connector.
Measure the resistance between the ground and the Blue/Yellow connector.

STANDARD: 50–200Ω (20 °C/68 °F)

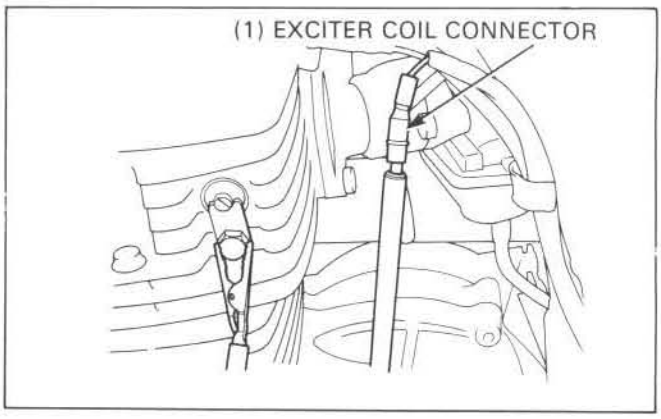


ALTERNATOR EXCITER COIL

AFTER '91 XR100R:

Remove the fuel tank (page 4-3)
Disconnect the Black/Red connector.
Measure the resistance between the ground and the Black/Red connector.

STANDARD: 400–800Ω (20 °C/68 °F)



RIDE RED

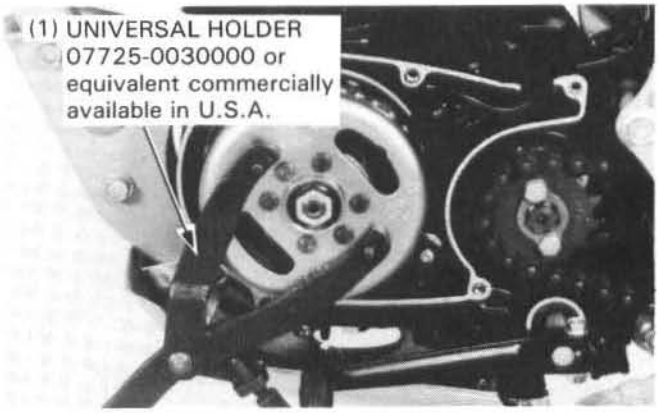
FLYWHEEL REMOVAL

Remove the five screws and the left crankcase cover.

Remove the gasket.



Hold the flywheel and remove the flywheel nut.



Install the flywheel puller and remove the flywheel from the crankshaft.



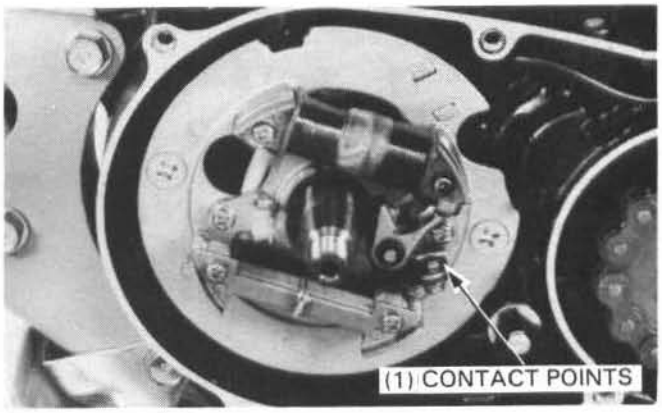
CONTACT POINT REPLACEMENT

XR80R, '85 THROUGH '91 XR100R:

Remove the nut and disconnect the contact point wire from the points. Remove the attaching screw and remove the points.

Install the new points and connect the wire and tighten the nut and screw.

Adjust the contact point gap and check ignition timing (page 3-7).

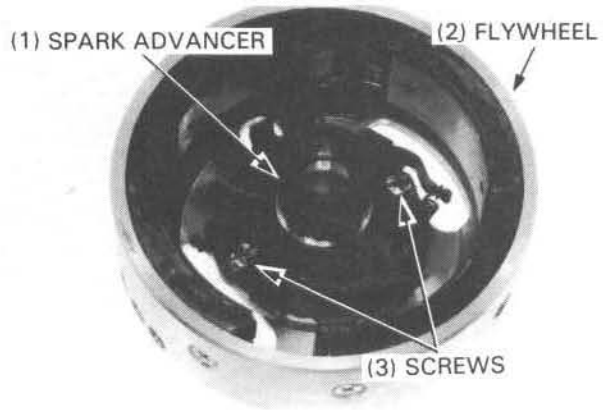


SPARK ADVANCER REMOVAL/ INSTALLATION

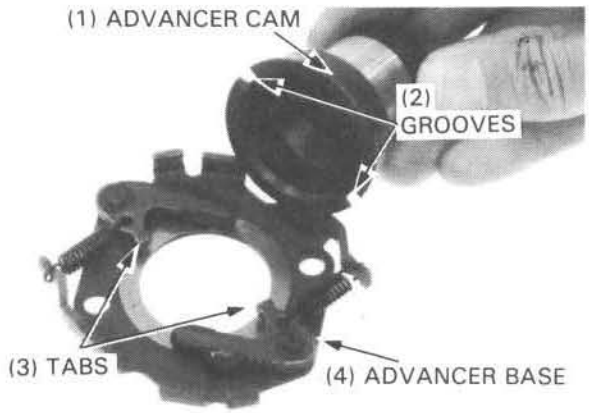
XR80R, '85 THROUGH '91 XR100R:

Remove the two screws and remove the spark advancer from the flywheel.

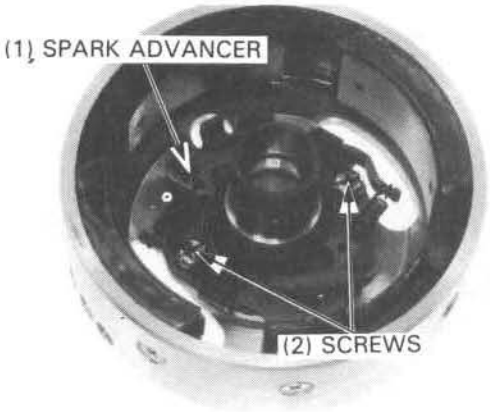
Check the spark advancer and flywheel for wear or damage and replace if necessary.



Install the spark advancer cam on the advancer base aligning the cam grooves in with the tabs on the base.



Install the spark advancer in the flywheel and tighten the two screws.

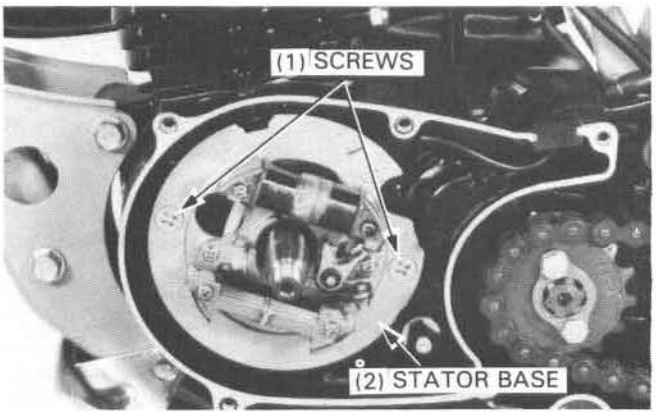


STATOR COIL REPLACEMENT

XR80R, '85 THROUGH '91 XR100R:

Disconnect the wire connectors.

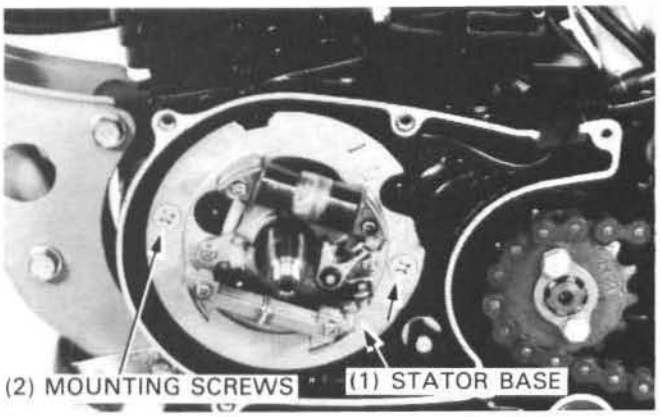
Remove the two screws and remove the stator base from the left crankcase.



RIDE RED

Install the stator coil on the stator base.

Install the stator base over the crankshaft and tighten the mounting screws.

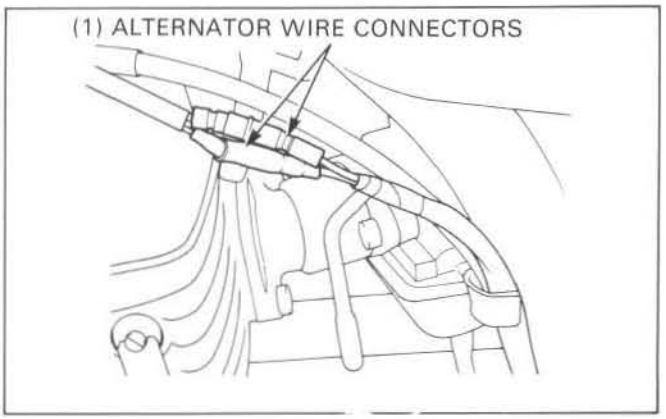


ALTERNATOR STATOR REMOVAL

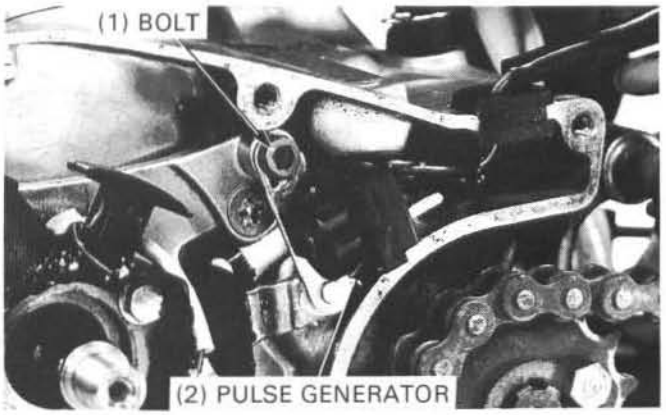
AFTER '91 XR100R:

Remove the fuel tank (page 4-3).

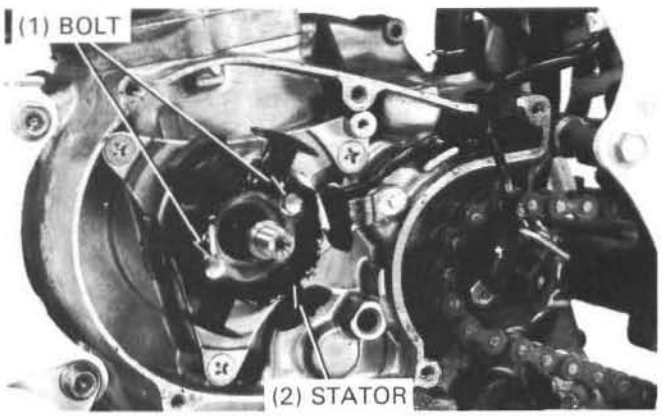
Disconnect the alternator wire connectors.



Remove the bolt attaching the pulse generator, and remove the generator.



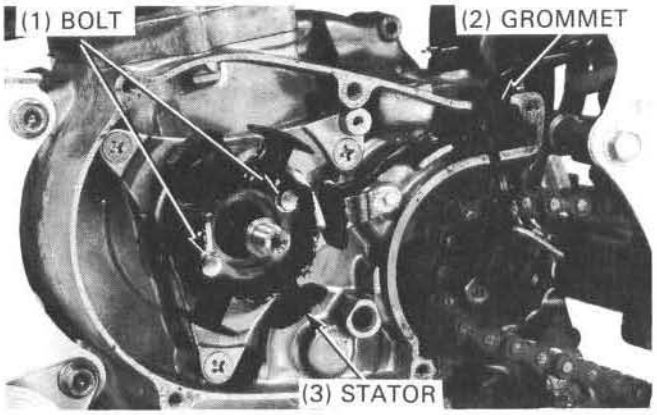
Remove the two bolts attaching the alternater stator to the stator base, then remove the stator and pulse generator.



ALTERNATOR STATOR INSTALLATION

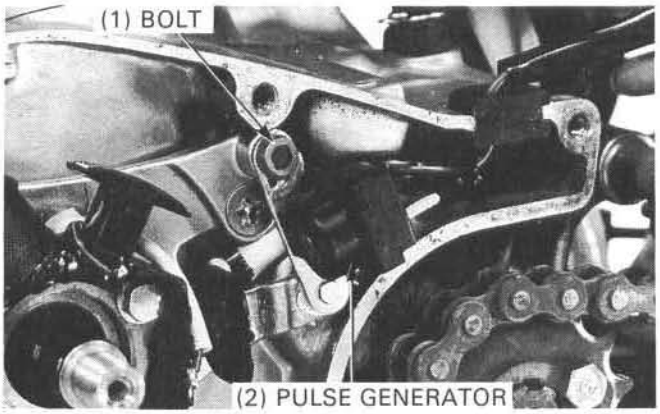
AFTER '91 XR100R:

Install the stator onto the stator base and tighten the two bolts.
Route the stator wire and install the wire grommet into the groove.



Install the pulse generator and tighten the new bolt.

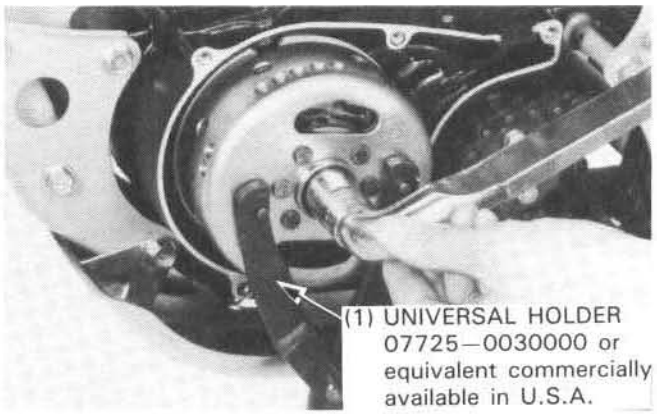
Connect the alternator wire connectors.
Install the fuel tank (page 4-3).



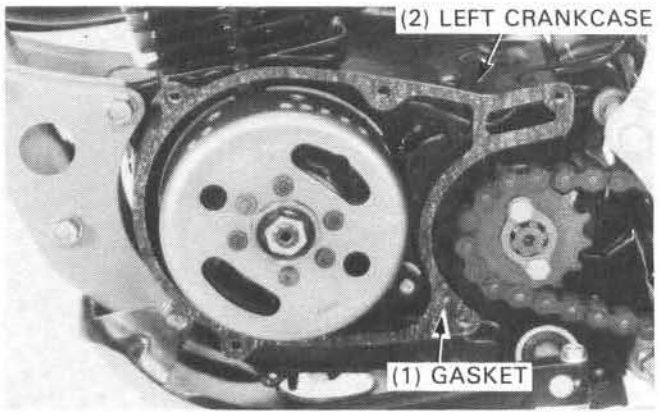
FLYWHEEL INSTALLATION

Hold the flywheel on the crankshaft with the tool and tighten the flywheel nut to the specified torque.

TORQUE: 60—70 N·m (6.0—7.0 kg-m, 43—51 ft-lb)

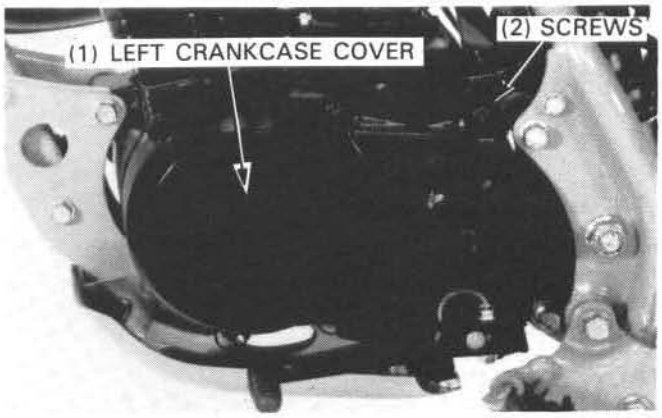


Install a new gasket onto the left crankcase.



RIDE RED

Install the left crankcase cover and tighten the five screws.

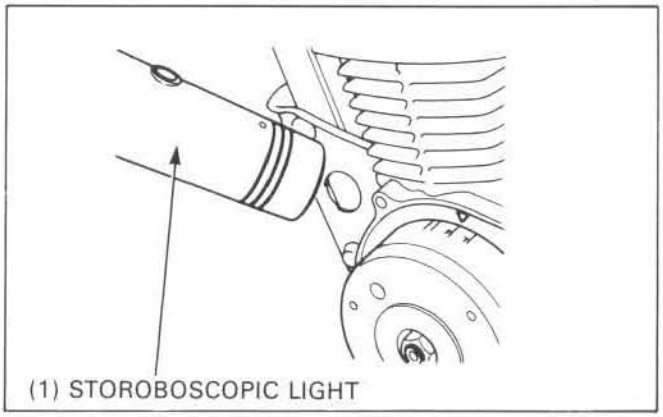


IGNITION TIMING

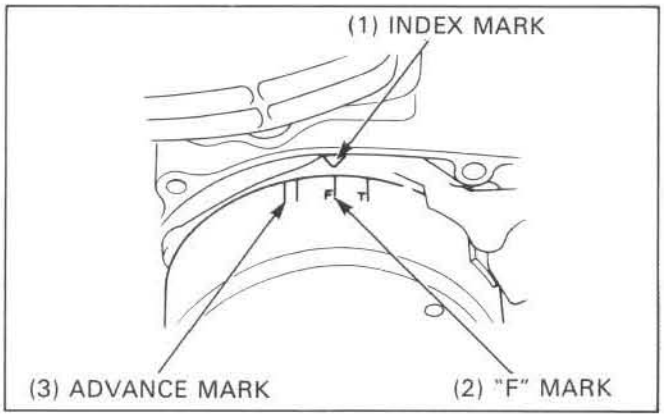
AFTER '91 XR100R:

INSPECTION

Remove the left crankcase cover.
Connect a stroboscopic light and tachometer.



Start the engine and check the ignition timing:
At 1,400 ± 100 rpm: The index mark should be aligned with the F mark.
At 1,900 ± 200 rpm: Timing advance should start.
At 3,300 ± 200 rpm: Timing advance should cease. The index mark should be between the full advance marks.



CDI UNIT

AFTER '91 XR100R:

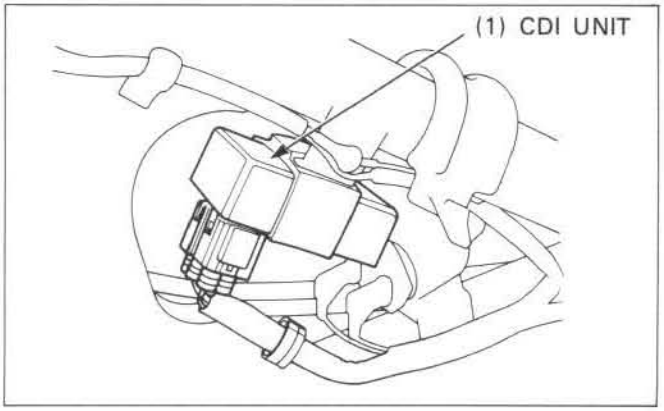
SYSTEM INSPECTION

Testing the CDI unit is done by a process of eliminating other components.

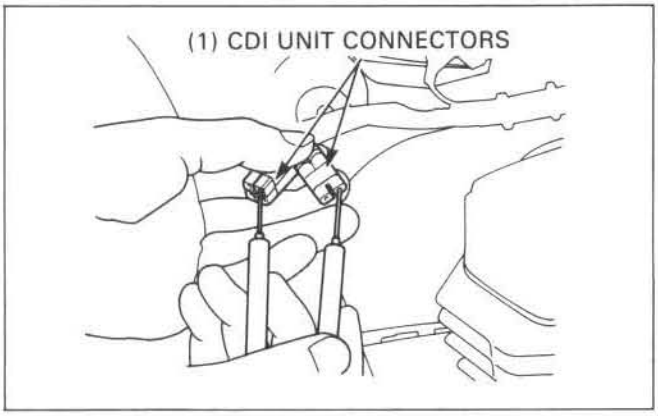
NOTE

- This method does not include an inspection of the ignition timing advance system at the CDI unit.

Check the spark plug condition before system inspection (page 3-6).
Remove the fuel tank (page 4-3).



Disconnect the 2P and 4P connectors from the CDI unit. Check the CDI unit connector for loose or poor connection. Test the 2P and 4P connectors according to the following chart.



ITEM	TERMINALS	SPECIFICATIONS (20°C/68°F)
Ignitinn coil primary coil	Black/Yellow and Green	0.1-0.3Ω
Ignition coil secondary coil (without spark plug cap)	Black/Yellow and high tention cord	2.7-3.5 kΩ
Alternator exciter coil	Black/Red and ground	400-800Ω
Pulse generator	Blue/Yellow and ground	50-200Ω
Engine stop switch (free position)	Black/White and Ground	No continuity (∞)

If ther is no problem, perform a spark test with a known good ignition coil.

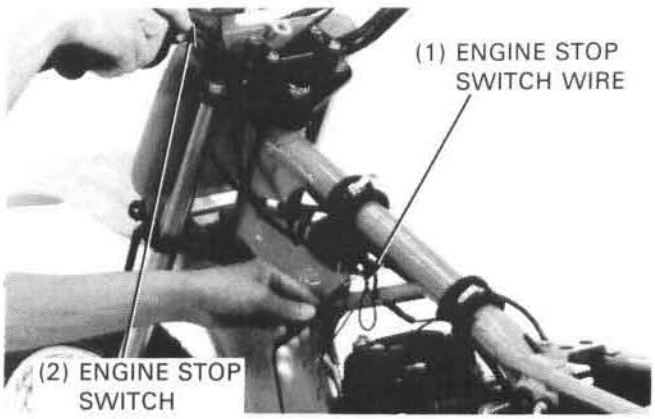
If there is indicatinn of abnormality, inspect the related circuit:
— Ignition coil primary coil (page 13-4)
— Ignition coil secondary coil (page 13-5)
— Alternator exciter coil (page 13-6)
— Pulse generator (page 13-6)
— Engine stop switch (page 13-12)

ENGINE STOP SWITCH

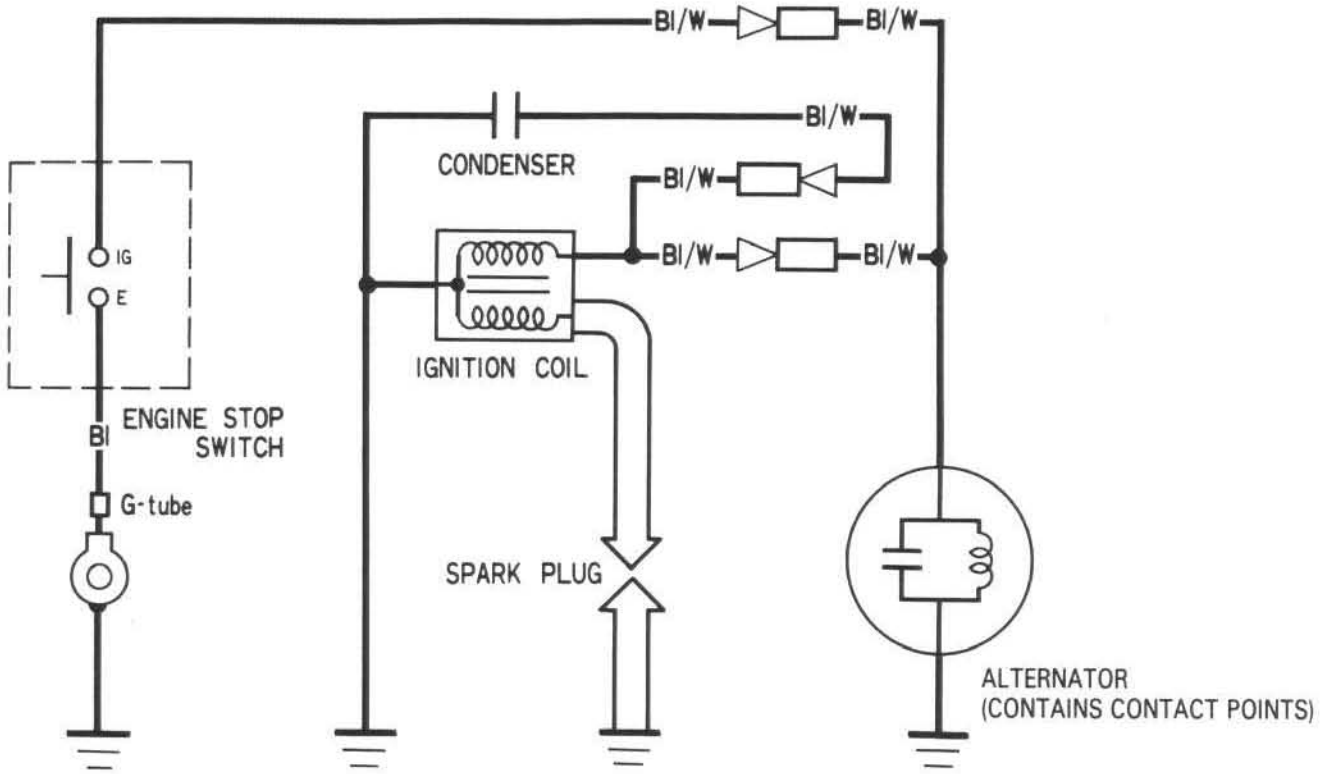
Remove the fuel tank (page 4-3).

Disconnect the engine stop switch wire connectors and check for continuity between the terminals.

The engine stop switch is normal if there is continuity when the switch button is pressed and no continuity when released.



RIDE RED



SWITCH CONTINUITY

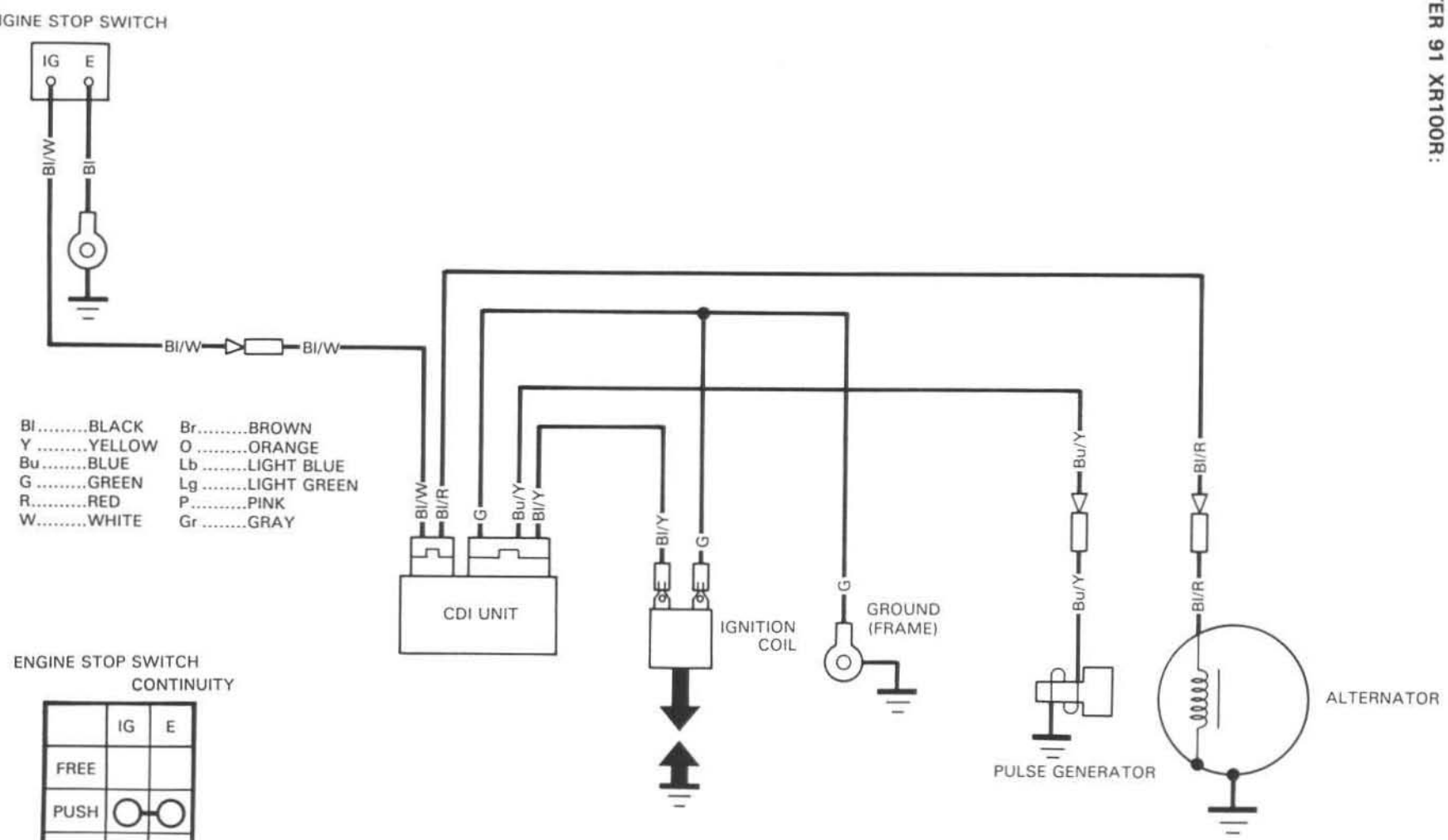
ENGINE STOP SWITCH

	IGN (Bl/W)	E (G)
FREE		
PUSH	○	○

Bl ..... BLACK
G ..... GREEN
W ..... WHITE

0030Z—GN1—0000

AFTER 91 XR100R:



ENGINE STOP SWITCH CONTINUITY

	IG	E
FREE		
PUSH	○	○
COLOR	Bl/W	Bl

0030Z-KN4-8500

ENGINE WILL NOT START OR IS HARD TO START	15-1	POOR HIGH SPEED PERFORMANCE	15-7
ENGINE LACKS POWER	15-3	POOR HANDLING	15-8
POOR PERFORMANCE AT IDLE AND LOW SPEED	15-6		

ENGINE WILL NOT START OR IS HARD TO START

XR80R, '85 THRU '91 XR100R

		POSSIBLE CAUSE
1. Check if fuel reaches carburetor	FUEL DOES NOT REACH CARBURETOR →	(1) Clogged fuel line between fuel tank and carburetor (2) Clogged fuel valve (3) Clogged fuel tank cap breather hole
FUEL REACHES CARBURETOR ↓		
2. Remove spark plug and test spark	WEAK OR NO SPARK →	(1) Faulty or fouled spark plug (2) Fouled, burnt or pitted contact points (3) Incorrect point gap (4) Faulty condenser (5) Broken or shorted spark plug wire (6) Open or shorted ignition coil (7) Faulty alternator (8) Faulty engine stop switch (9) Improper ignition timing
GOOD SPARK ↓		
3. Test cylinder compression	LOW COMPRESSION →	(1) No valve clearance (2) Valve stuck open (3) Worn cylinder and piston rings (4) Blown cylinder head gasket (5) Damaged cylinder head (6) Incorrect valve timing
NORMAL COMPRESSION ↓		
4. Start engine	ENGINE FIRES, BUT DOES NOT START →	(1) Choke valve open (2) Carburetor air or pilot screw improperly adjusted (3) Air leaking through intake manifold (4) Improper ignition timing
ENGINE STARTS ↓		
5. Remove spark plug	WET PLUG →	(1) Carburetor flooded (2) Carburetor choke excessively closed (3) Throttle valve operated excessively (4) Air cleaner dirty
DRY PLUG ↓		
6. Start engine with choke closed		

15

AFTER '91 XR100R

		POSSIBLE CAUSE
1. Check if fuel reaches carburetor FUEL REACHES CARBURETOR	FUEL DOES NOT REACH CARBURETOR →	(1) Clogged fuel line between fuel tank and carburetor (2) Clogged fuel valve (3) Clogged fuel tank cap breather hole
2. Remove spark plug and test spark GOOD SPARK	WEAK OR NO SPARK →	(1) Faulty or fouled spark plug (2) Faulty CDI unit (3) Faulty exciter coil (4) Faulty pulse generator (5) Broken or shorted spark plug wire (6) Open or shorted ignition coil (7) Faulty engine stop switch
3. Test cylinder compression NORMAL COMPRESSION	LOW COMPRESSION →	(1) No valve clearance (2) Valve stuck open (3) Worn cylinder and piston rings (4) Blown cylinder head gasket (5) Damaged cylinder head (6) Incorrect valve timing
4. Start engine ENGINE STARTS	ENGINE FIRES, BUT DOES NOT START →	(1) Choke valve open (2) Carburetor air or pilot screw improperly adjusted (3) Air leaking through intake manifold (4) Improper ignition timing
5. Remove spark plug DRY PLUG	WET PLUG →	(1) Carburetor flooded (2) Carburetor choke excessively closed (3) Throttle valve operated excessively (4) Air cleaner dirty
6. Start engine with choke closed		

ENGINE LACKS POWER

XR80R, '85 THRU '91 XR100R

		POSSIBLE CAUSE
1. Raise wheels off ground and spin	WHEELS DO NOT SPIN FREELY →	(1) Dragging brake (2) Faulty wheel bearing (3) Over tightened drive chain
WHEELS SPIN FREELY ↓		
2. Check tire pressure	INCORRECT TIRE PRESSURE →	(1) Punctured tire (2) Faulty tire valve
NORMAL PRESSURE ↓		
3. Rapidly accelerate from low to second	DOES NOT ACCELERATE WITH ENGINE SPEED INCREASE →	(1) Slipping clutch (2) Worn or uneven clutch facings
ACCELERATES ↓		
4. Rev up gradually	ENGINE SPEED DOES NOT INCREASE →	(1) Carburetor choke closed (2) Clogged air cleaner (3) Clogged fuel line (4) Clogged fuel tank breather tube (5) Clogged muffler
ENGINE SPEED INCREASES ↓		
5. Check ignition timing	INCORRECT TIMING →	(1) Incorrect contact point gap (2) Faulty spark advancer
CORRECT TIMING ↓		
6. Check valve clearance	INCORRECT VALVE CLEARANCE →	(1) Incorrect adjustment. (2) Worn valve seat
CORRECT VALVE CLEARANCE ↓		
7. Test cylinder compression	LOSS OF COMPRESSION →	(1) Valve stuck open (2) Worn cylinder and piston rings (3) Blown cylinder head gasket (4) Incorrect valve timing
NORMAL COMPRESSION ↓		
8. Check carburetor for clogging	CARBURETOR CLOGGED →	Carburetor jets clogged
CARBURETOR NOT CLOGGED ↓		
9. Remove spark plug	PLUG FOULED OR DISCOLORED →	(1) Choke on (2) Incorrect heat range plug (3) Carburetor float level incorrect (4) Loose carburetor main jet (5) Stuck carburetor float valve
PLUG NOT FOULED OR DISCOLORED ↓		

10. Check oil level and condition CORRECT ENGINE OIL LEVEL ↓	OIL DIRTY OR LEVEL INCORRECT →	(1) Level too low or high (2) Contaminated oil (3) Oil leak (4) Damage oil filter screen
11. Remove cylinder head cover and check lubrication SUFFICIENTLY LUBRICATED ↓	INSUFFICIENTLY LUBRICATED →	(1) Clogged oil passage (2) Clogged oil filter screen (3) Poor oil pump delivery (4) Low oil pressure
12. Check if engine overheats ENGINE DOES NOT OVERHEAT ↓	ENGINE OVERHEATS →	(1) Excessive carbon in combustion chamber (2) Incorrect fuel (3) Slipping clutch (4) Fuel mixture too lean
13. Rapidly accelerate or run at high speeds ENGINE DOES NOT KNOCK	ENGINE KNOCKS →	(1) Worn piston or cylinder (2) Fuel mixture too lean (3) Incorrect fuel (4) Excessive carbon in combustion chamber

AFTER '91 XR100R

		POSSIBLE CAUSE
1. Raise wheels off ground and spin WHEELS SPIN FREELY ↓	WHEELS DO NOT SPIN FREELY →	(1) Dragging brake (2) Faulty wheel bearing (3) Over tightened drive chain
2. Check tire pressure NORMAL PRESSURE ↓	INCORRECT TIRE PRESSURE →	(1) Punctured tire (2) Faulty tire valve
3. Rapidly accelerate from low to second ACCELERATES ↓	DOES NOT ACCELERATE WITH ENGINE SPEED INCREASE →	(1) Slipping clutch (2) Worn or uneven clutch facings
4. Rev up gradually ENGINE SPEED INCREASES ↓	ENGINE SPEED DOES NOT INCREASE →	(1) Carburetor choke closed (2) Clogged air cleaner (3) Clogged fuel line (4) Clogged fuel tank breather tube (5) Clogged muffler
5. Check ignition timing CORRECT TIMING ↓	INCORRECT TIMING →	(1) Faulty CDI unit (2) Faulty pulse generator

RIDE RED

6. Check valve clearance	INCORRECT VALVE CLEARANCE →	(1) Incorrect adjustment. (2) Worn valve seat
CORRECT VALVE CLEARANCE ↓		
7. Test cylinder compression	LOSS OF COMPRESSION →	(1) Valve stuck open (2) Worn cylinder and piston rings (3) Blown cylinder head gasket (4) Incorrect valve timing
NORMAL COMPRESSION ↓		
8. Check carburetor for clogging	CARBURETOR CLOGGED →	Carburetor jets clogged
CARBURETOR NOT CLOGGED ↓		
9. Remove spark plug	PLUG FOULED OR DISCOLORED →	(1) Choke on (2) Incorrect heat range plug (3) Carburetor float level incorrect (4) Loose carburetor main jet (5) Stuck carburetor float valve
PLUG NOT FOULED OR DISCOLORED ↓		
10. Check oil level and condition	OIL DIRTY OR LEVEL INCORRECT →	(1) Level too low or high (2) Contaminated oil (3) Oil leak (4) Damage oil filter screen
CORRECT ENGINE OIL LEVEL ↓		
11. Remove cylinder head cover and check lubrication	INSUFFICIENTLY LUBRICATED →	(1) Clogged oil passage (2) Clogged oil filter screen (3) Poor oil pump delivery (4) Low oil pressure
SUFFICIENTLY LUBRICATED ↓		
12. Check if engine overheats	ENGINE OVERHEATS →	(1) Excessive carbon in combustion chamber (2) Incorrect fuel (3) Slipping clutch (4) Fuel mixture too lean
ENGINE DOES NOT OVERHEAT ↓		
13. Rapidly accelerate or run at high speeds	ENGINE KNOCKS →	(1) Worn piston or cylinder (2) Fuel mixture too lean (3) Incorrect fuel (4) Excessive carbon in combustion chamber
ENGINE DOES NOT KNOCK		

POOR PERFORMANCE AT IDLE AND LOW SPEED

XR80R, '85 THRU '91 XR100R

			POSSIBLE CAUSE
1. Check ignition timing and valve clearance	INCORRECT TIMING AND CLEARANCE	→	(1) Incorrect point gap (2) Incorrect valve adjustment
CORRECT TIMING AND CLEARANCE ↓			
2. Check carburetor air screw adjustment	INCORRECTLY ADJUSTED	→	(1) Fuel mixture too lean (2) Fuel mixture too rich
CORRECTLY ADJUSTED ↓			
3. Check for air leaks	AIR LEAKS	→	(1) Faulty carburetor gasket (2) Carburetor not securely tightened (3) Faulty intake pipe gasket (4) Deteriorated O-ring
NO AIR LEAKS ↓			
4. Remove spark plug and test spark	WEAK OR INTERMITTENT SPARK	→	(1) Faulty or fouled spark plug (2) Fouled, rough, or pitted breaker point surface (3) Condenser shorted (4) Faulty ignition coil
GOOD SPARK			

AFTER '91 XR100R

			POSSIBLE CAUSE
1. Check ignition timing and valve clearance	INCORRECT TIMING AND CLEARANCE	→	(1) Inproper ignition timing (Faulty CDI unit or pulse generator) (2) Incorrect valve adjustment
CORRECT TIMING AND CLEARANCE ↓			
2. Check carburetor air screw adjustment	INCORRECTLY ADJUSTED	→	(1) Fuel mixture too lean (2) Fuel mixture too rich
CORRECTLY ADJUSTED ↓			
3. Check for air leaks	AIR LEAKS	→	(1) Faulty carburetor gasket (2) Carburetor not securely tightened (3) Faulty intake pipe gasket (4) Deteriorated O-ring
NO AIR LEAKS ↓			
4. Remove spark plug and test spark	WEAK OR INTERMITTENT SPARK	→	(1) Faulty or fouled spark plug (2) Faulty CDI unit (3) Alternator faulty (4) Faulty ignition coil (5) Faulty pulse generator
GOOD SPARK			

RIDE RED

POOR HIGH SPEED PERFOMANCE

XR80R, '85 THRU '91 XR100R

		POSSIBLE CAUSE
1. Check ignition timing and valve clearance	INCORRECT TIMING & CLEARANCE →	Incorrect adjustment
CORRECT TIMING & CLEARANCE ↓		
2. Disconnect fuel tube at carburetor and check for clogging	RESTRICTED FUEL FLOW →	(1) Clogged fuel tube (2) Clogged fuel tank breather tube
UNRESTRICTED FUEL FLOW ↓		
3. Check fuel filter, fuel valve, and carburetor jet for clogging	CLOGGED →	Replace or clean after checking carburetor (page4-6)
NOT CLOGGED ↓		
4. Replace carburetor main jet with smaller size	CONDITION AGGRAVATED →	Jet size too small
CONDITION IMPROVED Check for a) Clogged air cleaner b) Choke not opened fully ↓		
5. Check valve timing CORRECT ↓	INCORRECT →	Cam sprocket not installed properly
6. Check valve spring tension	INCORRECT SPRING TENSION →	Worn or broken valve spring
SPRING TENSION CORRECT ↓		

AFTER '91 XR100R

		POSSIBLE CAUSE
1. Check ignition timing and valve clearance	INCORRECT TIMING & CLEARANCE →	(1) Incorrect valve clearance (2) Faulty CDI unit (3) Faulty pulse generator
CORRECT TIMING & CLEARANCE ↓		
2. Disconnect fuel tube at carburetor and check for clogging	RESTRICTED FUEL FLOW →	(1) Clogged fuel tube (2) Clogged fuel tank breather tube
UNRESTRICTED FUEL FLOW ↓		
3. Check fuel filter, fuel valve, and carburetor jet for clogging	CLOGGED →	Replace or clean after checking carburetor (page4-6)
NOT CLOGGED ↓		

4. Replace carburetor main jet with smaller size

CONDITION AGGRAVATED → Jet size too small

CONDITION IMPROVED

Check for
a) Clogged air cleaner
b) Choke not opened fully

5. Check valve timing

INCORRECT → Cam sprocket not installed properly

CORRECT

6. Check valve spring tension

INCORRECT SPRING TENSION → Worn or broken valve spring

SPRING TENSION CORRECT

POOR HANDLING

	POSSIBLE CAUSE
DIFFICULT STEERING IN BOTH DIRECTIONS →	(1) Overtightened steering head bearing adjustment nut (2) Broken steering ball bearings (3) Bent steering stem (4) Damaged steel balls or cone races
WHEEL WOBBLES →	(1) Excessive play in wheel bearing (2) Bent wheel rim (3) Bent frame (4) Drive chain adjusters unequally adjusted
MOTORCYCLE PULLS TO ONE SIDE →	(1) Bent rear axle (2) Bent front fork (3) Bent swing arm (4) Front and rear wheel not aligned

RIDE RED

16. INDEX

Air Cleaner 3-4
  Case 4-4
Air Screw Adjustment (XR80R) 4-10
Alternator 13-6
Alternator exciter coil 13-6
Alternator stator removal 13-9
Alternator stator installation 13-10
Brake Pedal 11-14
  Shoe Wear 3-11
  System 3-12
Cable & Harness Routing 1-7
Cam Chain Tension 3-8
Camshaft Installation 6-12
  Removal 6-3
Carburetor Assembly 4-8
  Idle Speed 3-9
  Installation 4-10
  Removal 4-6
CDI unit 13-11
Clutch 8-1, 4
  System 3-13
Condenser 13-5
Contact Point Replacement 13-7
  Points And Ignition Timing 3-7
Crankcase Assembly 9-12
  Separation 9-3
Crankshaft Installation 9-11
  Removal 9-4
Cylinder Head/Valves 6-1
Cylinder/Piston 7-1
Cylinder Compression 3-9
Cylinder Head Assembly 6-10
  Disassembly 6-6
  Installation 6-11
  Oil Check Bolt 2-3
  Removal 6-5
Cylinder Installation 7-7
Cylinder/Piston Removal 7-3
Drive Chain 3-10
  Slider 3-11
Electrical 13-1
Engine Removal/Installation 5-1
  Installation 5-3
Engine Oil Change 2-2
  Filter Screen 2-2
  Level Check 2-2
Engine Removal 5-2
  Stop Switch 13-12
Exhaust Pipe 12-2
Float Level Adjustment 4-10
Float, Float Valve And Jets 4-6
Flywheel Installation 13-10
  Removal 13-7
Fork 10-9
Front Wheel/Brake/Suspension/Steering 10-1
Front Brake 10-7
  Wheel 10-5
Fuel System 4-1
  Line 3-3
  Strainer 3-3
  Tank 4-3
Gearshift Linkage 8-6
General Information 1-1
  Safety 1-1
Handlebar 10-3
High Altitude Adjustment 4-12
Ignition Coil 13-4
Ignition Timing 13-11
Kick Starter 9-10
Left Crankshaft Oil Seal Replacement 9-13
Lubrication 2-1
  Points 2-7
Maintenance 3-1
  Schedule 3-2
Model Identification 1-2
Nuts, Bolts, Fasteners 3-15
Oil Pump 2-3
Pilot Screw Adjustment (XR100R) 4-11
Piston Installation 7-7
Primary Drive Gear Installation 8-8
  Removal 8-3
Pulse generator 13-6
Rear Fender/Exhaust Pipe 12-1
Rear Wheel/Brake/Suspension 11-1
  Brake 11-6
  Fender 12-1
  Wheel 11-3
Right Crankcase Cover Installation 8-8
  Removal 8-3
Service Information
  Clutch 8-1
  Cylinder Head/Valves 6-1
  Cylinder/Piston 7-1
  Electrical 13-2
  Engine Removal/Installation 5-1
  Front Wheel/Brake/Suspension/Steering 10-1
  Fuel System 4-1
  Lubrication 2-1
  Maintenance 3-1
  Rear Wheel/Brake/Suspension 11-1
  Transmission/Crankshaft/Crankcase/Kick Starter 9-1
Service Rules 1-1
Shock Absorber 11-8
  Linkage 11-10
Side Stand 3-14
Spark Advancer Removal/Installation 13-8
  Arrester (USA only) 3-14
  Plug 3-6
Specifications 1-3
Stator Coil Replacement 13-8
Steering Head Bearings 3-16
  Stem 10-13
Suspension 3-14
Swing Arm 11-11
Throttle Operation 3-3
Throttle Valve Installation 4-10
  Removal 4-5
Tools 1-6
Torque Values 1-5
Transmission/Crankshaft/Crankcase/Kick Starter 9-1
Transmission 9-5

16

Troubleshooting
- Clutch 8-2
- Cylinder Head/Valves 6-2
- Cylinder/Piston 7-2
- Electrical 13-3
- Front Wheel/Brake/Suspension/Steering 10-2
- Fuel System 4-2
- Lubrication 2-1
- Rear Wheel/Brake/Suspension 11-2
- Transmission/Crankshaft/Crankcase/Kick Starter 9-2

Valve Clearance 3-6
- Guide Replacement 6-7
- Seat Inspection And Refacing 6-8

Wheels Tires 3-15
Wiring Diagram 14-1