

1998-2003



SERVICE MANUAL

XR80R
XR100R

HOW TO USE THIS MANUAL

This service manual describes the service procedures for the XR80R and XR100R.

Follow the Maintenance Schedule (Section 3) recommendations to ensure that the vehicle is in peak operating condition and the emission levels are within the standards set by the California Air Resources Board.

Performing the first scheduled maintenance is very important. It compensates for the initial wear that occurs during the break-in period.

Sections 1 and 3 apply to the whole motorcycle. Section 2 illustrates procedures for removal/installation of components that may be required to perform service described in the following sections. Section 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 the first page of the section.

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

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

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1. GENERAL INFORMATION

1

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GENERAL SAFETY

CARBON MONOXIDE

If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area.

⚠ WARNING

The exhaust contains poisonous carbon monoxide gas that can cause loss of consciousness and may lead to death.

Run the engine in an open area or with an exhaust evacuation system in an enclosed area.

GASOLINE

Work in a well ventilated area. Keep cigarettes, flames or sparks away from the work area or where gasoline is stored.

⚠ WARNING

Gasoline is extremely flammable and is explosive under certain conditions. KEEP OUT OF REACH OF CHILDREN.

HOT COMPONENTS

⚠ WARNING

Engine and exhaust system parts become very hot and remain hot for some time after the engine is run. Wear insulated gloves or wait until the engine and exhaust system have cooled before handling these parts.

USED ENGINE OIL

⚠ WARNING

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. KEEP OUT OF REACH OF CHILDREN.

BRAKE DUST

Never use an air hose or dry brush to clean the brake assemblies.

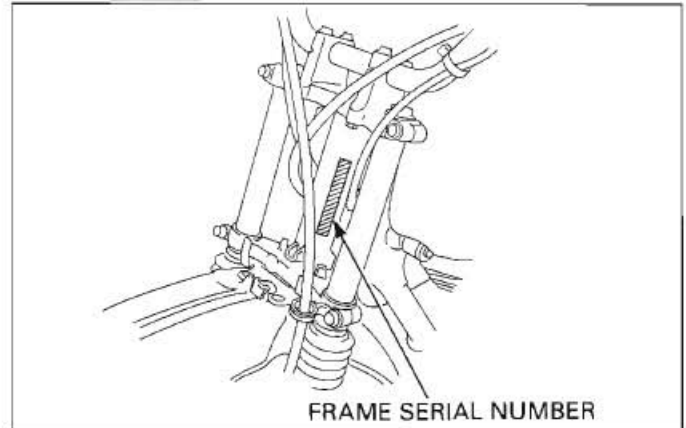
⚠ WARNING

Inhaled asbestos fibers have been found to cause respiratory disease and cancer.

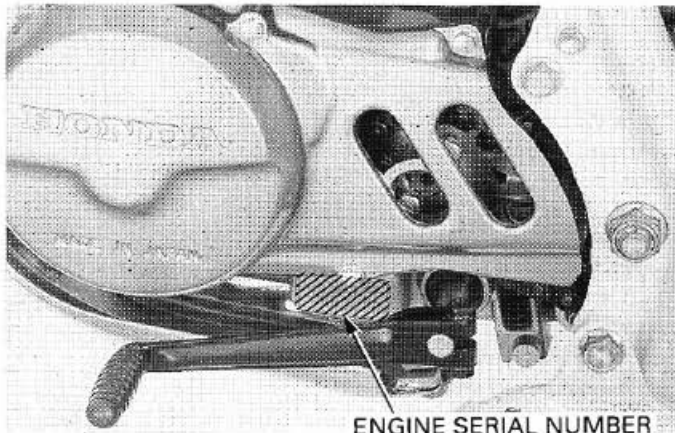
SERVICE RULES

1. Use genuine HONDA or HONDA-recommended parts and lubricants or their equivalents. Parts that don't meet HONDA's design specifications may cause damage to the motorcycle.
2. Use the special tools designed for this product to avoid damage and incorrect assembly.
3. Use only metric tools when servicing the motorcycle. Metric bolts, nuts and screws are not interchangeable with English fasteners.
4. Install new gaskets, O-rings, cotter pins, and lock plates when reassembling.
5. When tightening bolts or nuts, begin with the larger diameter or inner bolt first. Then tighten to the specified torque *diagonally in incremental steps unless a particular sequence is specified*.
6. Clean parts in cleaning solvent upon disassembly. Lubricate any sliding surfaces before reassembly.
7. After reassembly, check all parts for proper installation and operation.
8. Route all electrical wires as show on pages 1-18 through 1-24, Cable and Harness Routing.

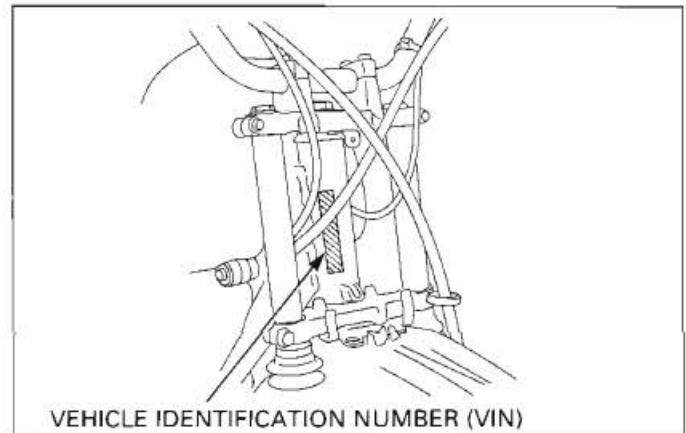
MODEL IDENTIFICATION



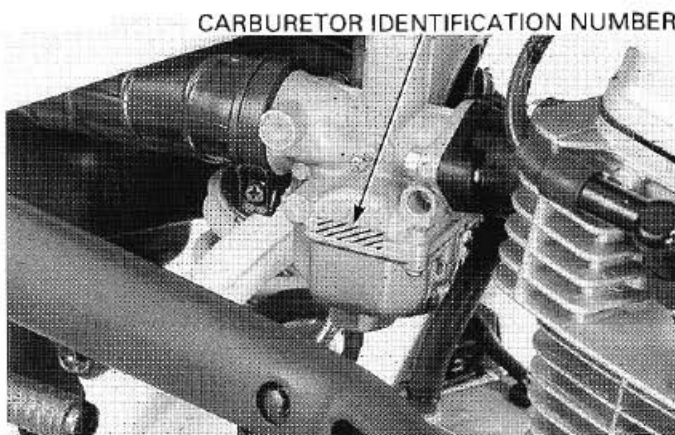
- (1) The frame serial number is stamped on the left side of the steering head.



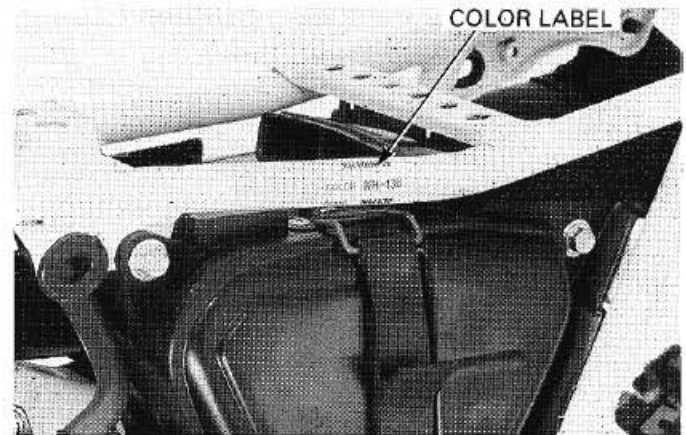
- (2) The engine serial number is stamped on the lower left of the crankcase.



- (3) The Vehicle Identification Number (VIN) is located on right side of the steering head on the Safety Certification Label.



- (4) The carburetor identification number is stamped on the right side of the carburetor body as shown.



- (5) The color label is attached as shown. When ordering color-coded part, always specify the designated color code.

GENERAL INFORMATION

SPECIFICATIONS

XR100R

GENERAL

ITEM		SPECIFICATIONS	
DIMENSIONS	Overall length	'98 - 2000:	1,855 mm (73.0 in)
		After 2000:	1,869 mm (73.6 in)
	Overall width	'98 - 2000:	800 mm (31.5 in)
		After 2000:	816 mm (32.1 in)
	Overall height	'98 - 2000:	1,050 mm (41.3 in)
		After 2000:	1,102 mm (43.4 in)
	Wheelbase	'98 - 2000:	1,255 mm (49.4 in)
		After 2000:	1,264 mm (49.8 in)
	Seat height	'98 - 2000:	770 mm (30.3 in)
		After 2000:	775 mm (30.5 in)
	Footpeg height	'98 - 2000:	320 mm (12.6 in)
FRAME		After 2000:	308 mm (12.1 in)
	Ground clearance	'98 - 2000:	265 mm (10.4 in)
		After 2000:	253 mm (10.0 in)
	Dry weight	'98 - 2000:	68 kg (150 lbs)
		After 2000:	75 kg (165 lbs)
	Curb weight	'98 - 2000:	75 kg (165 lbs)
		After 2000:	79 kg (174 lbs)
	Frame type		Back bone
	Front suspension		Telescopic fork
	Front wheel travel	'98 - 2000:	126 mm (5.0 in)
		After 2000:	132 mm (5.2 in)
ENGINE	Rear suspension		Swingarm
	Rear wheel travel	'98 - 2000:	120 mm (4.7 in)
		After 2000:	140 mm (5.5 in)
	Rear damper		Conventional type oil damper
	Front tire size		2.50-19-4 PR
	Rear tire size		3.00-16-4 PR
	Tire brand	Bridgestone	Front: M23 Rear: M22
	Front brake		Internal expanding shoe
	Rear brake		Internal expanding shoe
	Caster angle	'98 - 2000:	28° 30'
		After 2000:	29° 52'
ENGINE	Trail length	'98 - 2000:	110 mm (4.3 in)
		After 2000:	103 mm (4.1 in)
	Fuel tank capacity	'98 - 2000:	6.2 ℓ (1.64 US gal, 1.36 Imp gal)
		After 2000:	5.6 ℓ (1.48 US gal, 1.23 Imp gal)
	Fuel tank reserve capacity	'98 - 2000:	2.1 ℓ (0.55 US gal, 0.46 Imp gal)
		After 2000:	1.1 ℓ (0.29 US gal, 0.24 Imp gal)
	Bore and stroke		53.0 X 45.0 mm (2.09 X 1.77 in)
	Displacement		99.2 cm ³ (6.1 cu-in)
	Compression ratio		9.4 : 1
	Valve train		Silent, multi-link chain drive and OHC with rocker arm
	Intake valve	opens — at 1 mm	10° BTDC
ENGINE		closes — (0.04 in)	35° ABDC
	Exhaust valve	opens — lift	40° BBDC
		closes —	5° ATDC
	Lubrication system		Forced pressure and wet sump
	Oil pump type		Trochoid
	Cooling system		Air cooled
	Air filtration		Oiled polyurethane foam
	Crankshaft type		Assembled type
	Engine dry weight		21.4 kg (47.18 lbs)
	Cylinder arrangement		Single cylinder inclined 15° from vertical

GENERAL (Cont'd)

ITEM		SPECIFICATIONS
CARBURETOR	Carburetor type Throttle bore	Piston valve 20 mm (0.8 in)
DRIVE TRAIN	Clutch system Clutch operation system Transmission Primary reduction Final reduction Gear ratio 1st 2nd 3rd 4th 5th Gearshift pattern	Multi-plate, wet Mechanical type 5-speed 4.438 (71/16) 3.571 (50T/14T) 3.083 (37T/12T) 1.882 (32T/17T) 1.400 (28T/20T) 1.130 (26T/23T) 0.923 (24T/26T) Left foot operated return system, 1 – N – 2 – 3 – 4 – 5
ELECTRICAL	Ignition system Starting system	Condenser Discharged Ignition Kickstarter

GENERAL INFORMATION

XR80R

GENERAL

	ITEM		SPECIFICATIONS
DIMENSIONS	Overall length	'98 – 2000: After 2000:	1,740 mm (68.5 in) 1,743 mm (68.6 in)
	Overall width	'98 – 2000: After 2000:	755 mm (29.7 in) 778 mm (30.6 in)
	Overall height	'98 – 2000: After 2000:	980 mm (38.6 in) 1,030 mm (40.6 in)
	Wheelbase	'98 – 2000: After 2000:	1,210 mm (47.6 in) 1,208 mm (47.6 in)
	Seat height	'98 – 2000: After 2000:	725 mm (28.5 in) 727 mm (28.6 in)
	Footpeg height	'98 – 2000: After 2000:	265 mm (10.4 in) 257 mm (10.1 in)
	Ground clearance	'98 – 2000: After 2000:	220 mm (8.7 in) 206 mm (8.1 in)
	Dry weight	'98 – 2000: After 2000:	64 kg (141 lbs) 70 kg (154 lbs)
	Curb weight	'98 – 2000: After 2000:	69 kg (152 lbs) 74 kg (163 lbs)
FRAME	Frame type		Back bone
	Front suspension		Telescopic fork
	Front wheel travel		126 mm (5.0 in)
	Rear suspension		Swingarm
	Rear wheel travel		110 mm (4.3 in)
	Rear damper		Conventional type oil damper
	Front tire size		2.50-16-4 PR
	Rear tire size		3.60-14-4 PR
	Tire brand	IRC	Front: GS-45Zl/Rear: GS-45Zl
	Front brake		Internal expanding shoe
	Rear brake		Internal expanding shoe
	Caster angle	'98 – 2000: After 2000:	28° 30' 27° 34'
	Trail length	'98 – 2000: After 2000:	75 mm (3.0 in) 68 mm (2.7 in)
	Fuel tank capacity	'98 – 2000: After 2000:	6.2 ℓ (1.64 US gal, 1.36 Imp gal) 5.6 ℓ (1.48 US gal, 1.23 Imp gal)
	Fuel tank reserve capacity	'98 – 2000: After 2000:	2.1 ℓ (0.55 US gal, 0.46 Imp gal) 1.1 ℓ (0.29 US gal, 0.24 Imp gal)
ENGINE	Bore and stroke		47.5 X 45.0 mm (1.87 X 1.77 in)
	Displacement		79.7 cm ³ (4.86 cu-in)
	Compression ratio		9.7 : 1
	Valve train		Chain drive and OHC with rocker arm
	Intake valve	opens — at 1 mm closes — (0.04 in) lift	8° BTDC
	Exhaust valve	opens — closes —	40° ABDC
			40° BBDC
			8° ATDC
	Lubrication system		Forced pressure and wet sump
	Oil pump type		Trochoid
	Cooling system		Air cooled
	Air filtration		Oiled polyurethane foam
	Crankshaft type		Assembled type
	Engine dry weight		18.9 kg (41.7 lbs)
	Cylinder arrangement		Single cylinder inclined 15° from vertical

GENERAL (Cont'd)		
	ITEM	SPECIFICATIONS
CARBURETOR	Carburetor type Throttle bore	Piston valve 18 mm (0.7 in)
DRIVE TRAIN	Clutch system Clutch operation system Transmission Primary reduction Final reduction Gear ratio 1st 2nd 3rd 4th 5th Gearshift pattern	Multi-plate, wet Mechanical type 5-speed 4.437 (71/16) 3.285 (46/14) 2.692 (35/13) 1.823 (31/17) 1.400 (28/20) 1.130 (26/23) 0.960 (24/25) Left foot operated return system, 1 – N – 2 – 3 – 4 – 5
ELECTRICAL	Ignition system Starting system	Capacitive Discharged Ignition Kickstarter

GENERAL INFORMATION

Unit: mm (in)

Unit: mm (in)

LUBRICATION SYSTEM				
ITEM			STANDARD	SERVICE LIMIT
Engine oil capacity	XR100R	At draining	0.9 ℓ (0.95 us qt, 0.79 Imp qt)	_____
		At disassembly	1.0 ℓ (1.06 us qt, 0.88 Imp qt)	_____
	XR80R	At draining	0.8 ℓ (0.85 us qt, 0.70 Imp qt)	_____
		At disassembly	0.9 ℓ (0.95 us qt, 0.79 Imp qt)	_____
Recommended engine oil			HONDA GN4 or HP4 4-stroke oil or equivalent motor oil API service classification: SF or SG Viscosity: SAE 10W-30	_____
Oil pump rotor	Tip clearance		0.15 (0.006)	0.20 (0.008)
	Body clearance		0.15 – 0.21 (0.006 – 0.008)	0.40 (0.016)
	Side clearance		0.02 – 0.07 (0.001 – 0.003)	0.025 (0.010)

FUEL SYSTEM				
ITEM			STANDARD	SERVICE LIMIT
Carburetor identification number	XR100R	'98 – 2000/except California type	PD80C	_____
		'98 – 2000/California type	PDC3D	_____
		After 2000	PDC3L	_____
	XR80R	'98 – '99	PC20B	_____
		2000	PC20F	_____
		After 2000	PC20J	_____
Main jet	XR100R	'98 – 2000	#95	_____
		After 2000	#98	_____
	XR80R		#95	_____
Slow jet	XR100R	'98 – 2000/except California type	#38 X #38	_____
		'98 – 2000/California type	#35 X #35	_____
		After 2000	#35 X #35	_____
	XR80R		#35	_____
Jet needle clip position	XR100R		3rd groove from top	_____
	XR80R	'98 – '99	2nd groove from top	_____
		After '99	3rd groove from top	_____
Pilot screw opening	XR100R		See page 5-14	_____
Air screw opening	XR80R		See page 5-16	_____
Float level	XR100R		12.5 mm (0.49 in)	_____
	XR80R		21.5 mm (0.85 in)	_____
Engine idle speed	XR100R		1,400 ± 100 rpm	_____
	XR80R		1,500 ± 100 rpm	_____
Throttle grip free play			2.0 – 6.0 mm (1/12 – 1/4 in)	_____

Unit: mm (in)

Unit: mm (in)

CYLINDER HEAD/VALVES				STANDARD	SERVICE LIMIT
ITEM					
Cylinder compression	XR100R			1127 kPa (11.5 kgf/cm ² , 164 psi) at 800 rpm	——
	XR80R			1176 kPa (12.0 kgf/cm ² , 171 psi) at 1,000 rpm	——
Valve, valve spring, valve guide	Valve clearance		IN	0.05 (0.002)	——
			EX	0.05 (0.002)	——
	Valve spring free length		Inner	28.05 (1.104)	27.6 (1.09)
			Outer	34.80 (1.370)	33.7 (1.33)
	Valve stem O.D.		IN	5.450 – 5.465 (0.2145 – 0.2151)	5.420 (0.2134)
			EX	5.430 – 5.445 (0.2137 – 0.2143)	5.400 (0.2126)
	Valve guide I.D.		IN	5.475 – 5.465 (0.2155 – 0.2159)	5.50 (0.217)
			EX	5.475 – 5.465 (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			1.70 (0.06)	2.1 (0.08)
Rocker arm/shaft	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 (0.3928 – 0.3932)	9.91 (0.390)
	Rocker arm to shaft clearance			0.013 – 0.037 (0.0005 – 0.0014)	0.08 (0.003)
Camshaft	Cam lobe height	XR100R	IN	27.860 – 28.040 (1.0968 – 1.1039)	27.80 (1.095)
			EX	27.776 – 27.950 (1.0935 – 1.1004)	27.70 (1.095)
		XR80R	IN	28.017 – 28.197 (1.1030 – 1.1102)	27.95 (1.100)
			EX	27.835 – 28.015 (1.0959 – 1.1102)	27.75 (1.093)
	Journal O.D.	XR100R	Right	19.950 – 19.968 (0.7854 – 0.7861)	19.90 (0.783)
			Left	19.950 – 19.968 (0.7854 – 0.7861)	19.90 (0.783)
		XR80R	Right	19.950 – 19.968 (0.7854 – 0.7861)	19.90 (0.783)
			Left	19.950 – 19.968 (0.7854 – 0.7861)	19.90 (0.783)
Cylinder head warpage				——	0.10 (0.004)
Camshaft holder I.D.	XR100R			20.008 – 20.063 (0.7877 – 0.7899)	20.15 (0.793)
	XR80R			20.008 – 20.063 (0.7877 – 0.7899)	20.15 (0.793)
Oil clearance	XR100R			0.040 – 0.113 (0.0016 – 0.0044)	0.20 (0.008)
	XR80R			0.040 – 0.113 (0.0016 – 0.0044)	0.20 (0.008)

GENERAL INFORMATION

Unit: mm (in)

Unit: mm (in)

CYLINDER/PISTON					STANDARD	SERVICE LIMIT
		ITEM				
Cylinder	I.D.	XR100R			53.000 – 53.010 (2.0866 – 2.0870)	53.1 (2.09)
		XR80R			47.500 – 47.510 (1.8701 – 1.8705)	47.6 (1.87)
	Taper			—	0.10 (0.004)	
	Out-of-round			—	0.10 (0.004)	
	Warpage			—	0.10 (0.004)	
Piston, piston rings, piston pin	XR100R	Piston mark direction			"IN" mark facing toward the intake side	—
		Piston O.D.			52.960 – 52.990 (2.0850 – 2.0862)	52.90 (2.083)
		Piston O.D. measurement point			10 mm (0.4 in) from bottom of skirt	—
		Piston pin bore 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)	0.020 (0.0008)
		Piston ring-to-ring groove clearance	Top	'98 – 2000	0.015 – 0.045 (0.0006 – 0.0018)	0.10 (0.004)
				After 2000	0.015 – 0.045 (0.0006 – 0.0018)	0.10 (0.004)
			Second	'98 – 2000	0.015 – 0.045 (0.0006 – 0.0018)	0.10 (0.004)
				After 2000	0.015 – 0.045 (0.0006 – 0.0018)	0.10 (0.004)
		Piston ring end gap	Top	'98 – 2000	0.15 – 0.35 (0.006 – 0.014)	0.5 (0.02)
				After 2000	0.05 – 0.20 (0.002 – 0.008)	0.4 (0.02)
			Second	'98 – 2000	0.15 – 0.35 (0.006 – 0.014)	0.5 (0.02)
				After 2000	0.05 – 0.20 (0.002 – 0.008)	0.4 (0.02)
			Oil (Side rail)	'98 – 2000	0.3 – 0.9 (0.01 – 0.04)	1.1 (0.04)
				After 2000	0.2 – 0.7 (0.01 – 0.03)	0.9 (0.04)
	XR80R	Piston mark direction			"EX" mark facing toward the exhaust side	—
		Piston O.D.			47.465 – 47.490 (1.8686 – 1.8697)	47.40 (1.866)
		Piston O.D. measurement point			7 mm (0.3 in) from bottom of skirt	—
		Piston pin bore 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)	0.020 (0.0008)
		Piston ring-to-ring groove clearance	Top	'98 – '99	0.015 – 0.050 (0.0006 – 0.0020)	0.10 (0.004)
				After '99	0.015 – 0.045 (0.0006 – 0.0018)	0.10 (0.004)
			Second	'98 – '99	0.015 – 0.045 (0.0006 – 0.0018)	0.10 (0.004)
				After '99	0.015 – 0.045 (0.0006 – 0.0018)	0.10 (0.004)
		Piston ring end gap	Top	'98 – '99	0.15 – 0.35 (0.006 – 0.014)	0.5 (0.02)
				After '99	0.10 – 0.25 (0.004 – 0.010)	0.4 (0.02)
			Second	'98 – '99	0.15 – 0.35 (0.006 – 0.014)	0.5 (0.02)
				After '99	0.10 – 0.25 (0.004 – 0.010)	0.4 (0.02)
			Oil (Side rail)	'98 – '99	0.3 – 0.9 (0.01 – 0.04)	1.1 (0.04)
				After '99	0.2 – 0.7 (0.01 – 0.03)	0.9 (0.04)
Cylinder-to-piston clearance		XR100R			0.01 – 0.04 (0.0004 – 0.0016)	0.10 (0.004)
		XR80R			0.01 – 0.04 (0.0004 – 0.0016)	0.10 (0.004)
Connecting rod small end I.D.		XR100R			14.012 – 14.030 (0.5517 – 0.5523)	14.05 (0.553)
		XR80R			13.016 – 13.034 (0.5124 – 0.5131)	13.04 (0.513)
Connecting rod-to-piston pin clearance		XR100R			0.016 – 0.040 (0.0006 – 0.0016)	0.03 (0.001)
		XR80R			0.016 – 0.040 (0.0006 – 0.0016)	0.03 (0.001)

Unit: mm (in)

CLUTCH/GEAR SHIFT LINKAGE

ITEM		STANDARD	SERVICE LIMIT
Clutch lever free play		10.0 – 20.0 (3/8 – 3/4)	—
Clutch spring free length	XR100R	31.9 (1.25)	29.5 (1.16)
	XR80R	27.6 (1.09)	25.5 (1.00)
Clutch disc thickness	XR100R	2.92 – 3.08 (0.115 – 0.121)	2.7 (0.11)
	XR80R	2.80 – 2.90 (0.110 – 0.114)	2.5 (0.10)
Clutch plate warpage		—	0.20 (0.008)

Unit: mm (in)

CRANK SHAFT/TRANSMISSION/KICKSTARTER

ITEM				STANDARD	SERVICE LIMIT
Crankshaft	Runout	Right		0.035 (0.0014)	0.085 (0.0033)
		Left		0.020 (0.0008)	0.070 (0.0028)
	Side clearance		0.10 – 0.35 (0.0039 – 0.0138)	0.60 (0.024)	
	Radial clearance		0 – 0.008 (0 – 0.0003)	0.010 (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 (0.471)	
Transmission	Gear I.D.	M4,M5		17.016 – 17.034 (0.6699 – 0.6706)	17.05 (0.671)
		C1	XR100R	20.662 – 20.643 (0.8119 – 0.8127)	20.66 (0.813)
			XR80R	17.022 – 17.043 (0.6701 – 0.6710)	17.06 (0.672)
		C2	XR100R	19.520 – 19.541 (0.7685 – 0.7693)	19.56 (0.770)
			XR80R	19.520 – 19.541 (0.7685 – 0.7693)	19.56 (0.770)
		C3	XR100R	18.016 – 18.034 (0.7093 – 0.7100)	18.05 (0.711)
	XR80R		17.016 – 17.034 (0.6699 – 0.6706)	17.05 (0.671)	
	Bushing O.D.	C1	XR100R	20.559 – 20.580 (0.8094 – 0.8102)	20.54 (0.809)
	Gear-to-bushing clearance (C1)		XR100R	0.042 – 0.084 (0.0017 – 0.0034)	0.12 (0.005)
	Mainshaft O.D.	M4,M5		16.966 – 16.984 (0.6680 – 0.6687)	16.95 (0.667)
	Counter shaft O.D.	C2		19.459 – 19.480 (0.7661 – 0.7669)	19.44 (0.765)
		C3	XR100R	17.966 – 17.984 (0.7073 – 0.7080)	17.95 (0.707)
			XR80R	16.966 – 16.984 (0.6680 – 0.6687)	16.95 (0.667)
		Gear-to-shaft clearance		M4	0.032 – 0.068 (0.0013 – 0.0027)
	Primary starter			0.016 – 0.052 (0.0006 – 0.0020)	0.008 (0.003)
	C2			0.040 – 0.082 (0.0016 – 0.0032)	0.12 (0.005)
	C3			0.032 – 0.068 (0.0013 – 0.0027)	0.10 (0.004)
Kickstarter	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)	

GENERAL INFORMATION

Unit: mm (in)

Unit: mm (in)

FRONT WHEEL/BRAKE/SUSPENSION/STEERING					STANDARD	SERVICE LIMIT
ITEM						
Front wheel	Minimum tire tread depth				_____	3.0 (0.12)
	Cold tire pressure				100 kPa (1.00 kgf/cm ² , 15 psi)	_____
	Front wheel rim runout	Radial		_____	2.0 (0.08)	
		Axial		_____	2.0 (0.08)	
	Front axle runout				_____	0.20 (0.008)
Brake	Lining thickness				4.0 (0.16)	2.0 (0.08)
	Drum I.D.				95.0 (3.74)	96.0 (3.78)
Fork	Spring free length	XR100R	'98 – 2000	566.0 (22.28)	554.7 (21.84)	
			After 2000	548.0 (21.57)	537.0 (21.14)	
		XR80R		525.2 (20.68)	514.7 (20.26)	
		Fork tube runout				_____
	Oil capacity	XR100R	'98 – 2000	88 ± 2.5cm ³ (3.0 ± 0.02 US oz, 3.1 ± 0.09 Imp oz)	_____	
			After 2000	86 ± 2.5cm ³ (2.9 ± 0.02 US oz, 3.0 ± 0.09 Imp oz)	_____	
		XR80R		83 ± 2.5cm ³ (2.8 ± 0.02 US oz, 2.9 ± 0.09 Imp oz)	_____	
		Fluid level	XR100R	'98 – 2000	205.0 (8.07)	_____
	After 2000			200.0 (7.87)	_____	
	XR80R		184.0 (7.24)	_____		

Unit: mm (in)

Unit: mm (in)

REAR WHEEL/BRAKE/SUSPENSION					STANDARD	SERVICE LIMIT
ITEM						
Rear wheel	Minimum tire tread depth				—	3.0 (0.12)
	Cold tire pressure				125 kPa (1.25 kgf/cm ² , 18 psi)	—
	Rear wheel rim runout		Radial	—	2.0 (0.08)	
			Axial	—	2.0 (0.08)	
	Rear axle runout				—	0.20 (0.008)
Drive chain	Slack				25 – 35 (1 – 1-3/8)	—
	Size/link	XR100R	DID ('98 – 2000/After 2000)	428GM-118L/428HGI-118RB	—	
			RK ('98 – 2000/After 2000)	428HS-118RJ/428FD-118RJ	—	
		XR80R	DID ('98 – 2000/After 2000)	420M-110RJ/420M-110RB	—	
			RK ('98 – 2000/After 2000)	420-110RJ/420MZ-110RJ	—	
Brake	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	XR100R	'98 – 2000	136.5 (5.37)	133.8 (5.27)	
			After 2000	140.4 (5.53)	137.6 (5.42)	
		XR80R		136.0 (5.35)	133.3 (5.25)	
Shock linkage	Bushing I.D.				18.000 – 18.052 (0.7087 – 0.7107)	18.25 (0.719)
	Collar O.D.				17.941 – 17.968 (0.7063 – 0.7074)	17.91 (0.705)
Swingarm	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)	15.20 (0.598)
	Collar O.D.				17.294 – 17.298 (0.6809 – 0.6810)	17.27 (0.680)

Unit:mm(in)

Unit:mm(in)

IGNITION SYSTEM			
ITEM			SPECIFICATION
Spark plug	Standard	NGK	CR7HSA
		DENSO	U22FSR-U
	For cold climate/below (5° C/41° F)	NGK	CR6HSA
		DENSO	U20FSR-U
	For extended high speed riding	NGK	CR8HSA
		DENSO	U24FSR-U
	Spark plug gap		0.6 – 0.7 (0.024 – 0.028)
Ignition coil peak voltage			100 V minimum
Ignition pulse generator peak voltage			0.7 V minimum
Alternator exciter coil peak voltage			100 V minimum
Ignition timing ("F" mark)			15.5° at idle

GENERAL INFORMATION

TORQUE VALUES

FASTENER TYPE	TORQUE N·m (kgf·m, lbf·ft)	FASTENER TYPE	TORQUE N·m (kgf·m, lbf·ft)
5 mm hex bolt and nut	5 (0.5, 3.6)	5 mm screw	4 (0.4, 2.9)
6 mm hex bolt and nut	10 (1.0, 7)	6 mm screw	9 (0.9, 6.5)
8 mm hex bolt and nut	22 (2.2, 16)	6 mm flange bolt (8 mm head)	10 (1.0, 7)
10 mm hex bolt and nut	34 (3.5, 25)	6 mm flange bolt (10 mm head) and nut	12 (1.2, 9)
12 mm hex bolt and nut	54 (5.5, 40)	8 mm flange bolt and nut	26 (2.7, 20)
		10 mm flange bolt and nut	39 (4.0, 29)

- Torque specifications listed below are for important fasteners.
- Others should be tightened to standard torque values listed above.

NOTES: 1. U-nut
 2. Apply a locking agent to the threads.
 3. Apply grease to the sliding surface.
 4. Apply oil to the threads and seating surface.

ENGINE				
ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
MAINTENANCE:				
Spark plug	1	10	14 (1.4, 10)	
Oil drain bolt	1	12	25 (2.5, 18)	
Valve adjusting bolt lock nut	2	5	10 (1.0, 7)	NOTE 4
LUBRICATION:				
Oil pump plate screw	2	4	3 (0.3, 2)	
CYLINDER HEAD/VALVES:				
Camchain tensioner adjusting bolt lock nut	1	8	12 (1.2, 9)	
Cylinder head cover bolt	2	6	12 (1.2, 9)	
Camshaft holder nut	4	8	20 (2.0, 14)	
Cam sprocket bolt	2	6	12 (1.2, 9)	
CLUTCH/GEARSHIFT LINKAGE:				
Primary drive gear nut	1	14	39 (4.0, 29)	NOTE 4
Shift drum stopper arm pivot bolt	1	6	13 (1.3, 9)	
Shift return spring pin	1	8	29 (3.0, 22)	
IGNITION SYSTEM:				
Flywheel nut	1	12	64 (6.5, 47)	NOTE 4
Pulse generator mounting bolt (XR100R only)	1	5	6 (0.6, 4)	NOTE 2

FRAME				
ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
FRAME/BODY PANELS/EXHAUST SYSTEM:				
Exhaust pipe/muffler mounting bolt	2	8	26 (2.7, 20)	
Exhaust pipe joint nut	2	6	12 (1.2, 9)	
Exhaust pipe protector bolt (After 2000)	2	6	14 (1.4, 10)	
Fuel tank mounting bolt	2	6	12 (1.2, 9)	
ENGINE REMOVAL/INSTALLATION:				
Gearshift pedal bolt	1	6	10 (1.0, 7)	
Kickstarter pedal bolt	1	6	12 (1.2, 9)	
Front engine hanger bolt/nut	2	8	34 (3.5, 25)	NOTE 1
Rear engine hanger bolt/nut ('98 – 2000)	2	8	34 (3.5, 25)	NOTE 1
(After 2000)	2	8	44 (4.5, 33)	NOTE 1
Engine hanger plate bolt/nut ('98 – 2000)	2	8	26 (2.7, 20)	NOTE 1
(After 2000)	2	8	34 (3.5, 25)	NOTE 1
FRONT WHEEL/BRAKE/SUSPENSION/STEERING:				
Handlebar holder bolt	4	6	12 (1.2, 9)	
Steering stem lock nut	1	22	74 (7.5, 54)	
Steering stem bearing adjusting nut	1	22	2 (0.2, 1)	
Fork top bridge pinch bolt	2	7	11 (1.1, 8)	
Fork bottom bridge pinch bolt	2	8	26 (2.7, 20)	
Front axle nut	1	12	62 (6.3, 46)	NOTE 1
Fork socket bolt	2	8	20 (2.0, 14)	NOTE 2
Fork bolt	2	22	23 (2.3, 17)	
Spoke	36	—	3 (0.3, 2)	
REAR WHEEL/BRAKE/SUSPENSION:				
Rear axle nut	1	12	62 (6.3, 46)	NOTE 1
Driven sprocket nut	4	8	32 (3.3, 24)	NOTE 1
Shock absorber upper mounting bolt/nut ('98 – 2000)	1	8	34 (3.5, 25)	NOTE 1
(After 2000)	1	10	44 (4.5, 33)	NOTE 1
Shock absorber lower mounting bolt/nut	1	8	34 (3.5, 25)	NOTE 1
Swingarm pivot nut ('98 – 2000)	1	12	62 (6.3, 46)	NOTE 1
(After 2000)	1	12	64 (6.5, 47)	NOTE 1
Shock absorber arm nut	1	10	44 (4.5, 33)	NOTE 1
Shock absorber connecting rod nut	2	10	44 (4.5, 33)	NOTE 1
Foot peg mounting bolt	4	10	39 (4.0, 29)	
Spoke	36	—	3 (0.3, 2)	NOTE 1
Rim lock	1	8	13 (1.3, 9)	NOTE 1
OTHERS:				
Side stand pivot bolt	1	10	39 (4.0, 29)	NOTE 3

GENERAL INFORMATION

TOOLS

NOTES: 1. Equivalent commercially available in U.S.A.
2. Not available in U.S.A.
3. Alternative tool.

DESCRIPTION	TOOL NUMBER	REMARKS	REF. SEC.
Float level gauge	07401 - 0010000		5
Spoke wrench, 4.5 X 5.1 mm	07701 - 0020200	NOTE 1	3, 11, 12
Valve adjuster B	07908 - KE90000	NOTE 3: 07908-KE90200 (U.S.A. only)	3, 7
Valve adjusting wrench, 8 X 9 mm	07708 - 0030100	NOTE 1	3, 7
Gear holder	07724 - 0010100		9
Universal holder	07725 - 0030000		13
Flywheel puller	07733 - 0010000	NOTE 3: 07933-0010000	13
Valve guide remover, 5.5 mm	07742 - 0010100	NOTE 3: 07942-3290100 (U.S.A. only)	7
Valve guide driver, 5.5 mm	07742 - 0020200		7
Attachment, 32 x 35 mm	07746 - 0010100		10, 11, 12
Attachment, 37 x 40 mm	07746 - 0010200		10, 11, 12
Attachment, 42 x 47 mm	07746 - 0010300		10
Pilot, 12 mm	00746 - 0040200		10, 11, 12
Pilot, 17 mm	07746 - 0040400		10
Pilot, 25 mm	07746 - 0040600		10
Bearing remover shaft	07746 - 0050100		11, 12
Bearing remover head, 12 mm	07746 - 0050300		11, 12
Fork seal driver	07747 - 0010100	NOTE 3: 07947-1180001 (U.S.A. only)	11
Fork seal driver attachment	07747 - 0010300		11
Driver	07749 - 0010000		10, 11, 12
Valve spring compressor	07757 - 0010000		7
Valve seat cutters		NOTE 1	
Seat cutter, 24.5 mm (45° EX)	07780 - 0010100		7
Seat cutter, 27.5 mm (45° IN)	07780 - 0010200		7
Flat cutter, 25 mm (32° IN)	07780 - 0012000		7
Flat cutter, 22 mm (32° IN)	07780 - 0012601		7
Interior cutter, 22 mm (60° IN/EX)	07780 - 0014000		7
Cutter holder, 5.5 mm	07781 - 0010101		7
Steering stem socket wrench	07916 - 3710101	NOTE 3: 07936-3710100	11
Bearing remover set, 12 mm	07936 - 1660001	NOTE 3: 07936-166010A (U.S.A. only) and 07936-371020A or 07936-3710200 (U.S.A. only)	10
Ball race remover	07944 - 1150001	NOTE 3:	11
Steering stem driver	07946 - GC40000	07946-MB00000 (U.S.A. only) and 07946GC4000A	11
Spring compressor attachment	07967 - KC10001		12
-Holder base	07967 - KC10100		
-Press attachment	07LME - GE20100		
Valve guide reamer, 5.5 mm	07984 - 0980001	NOTE 3: 07984-098000D	13
Peak voltage adaptor	07HGJ - 0020100	Peak voltage tester (U.S.A. only)	7

LUBRICATION & SEAL POINTS

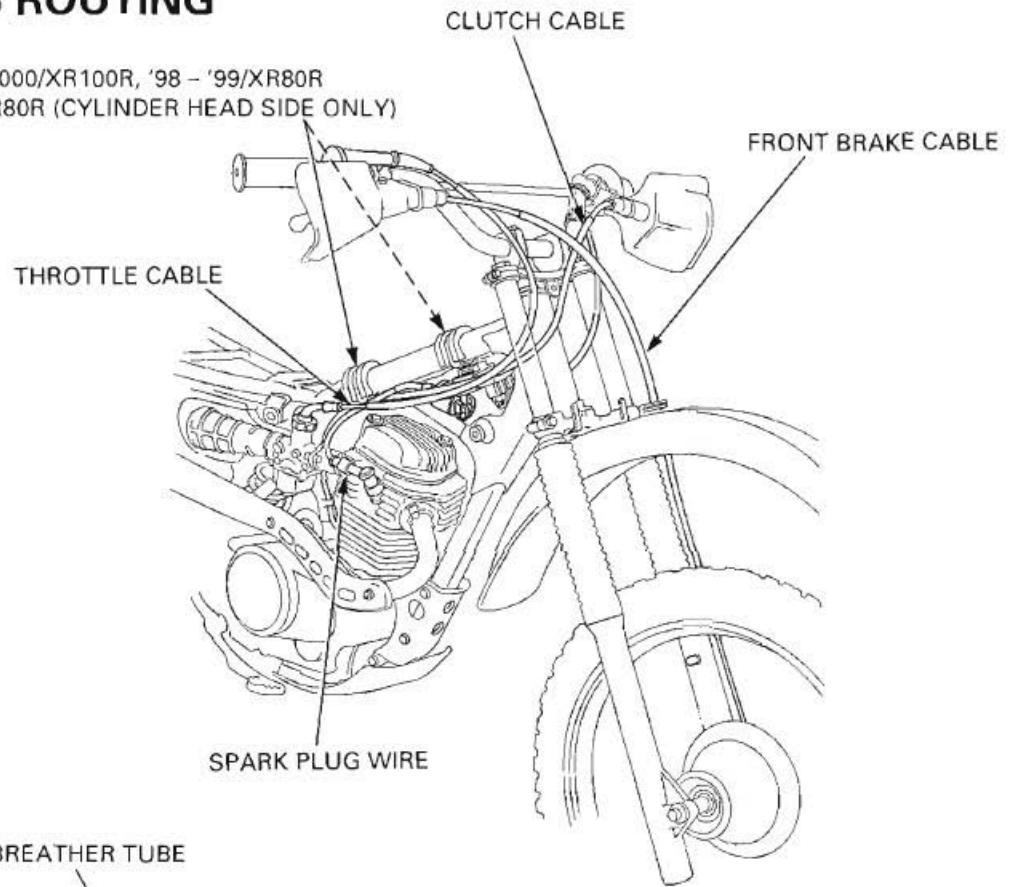
ENGINE		
LOCATION	MATERIAL	REMARKS
Crankshaft connecting rod big end Crankshaft connecting rod small end Piston pin bore Piston ring grooves Piston outer surface Primary drive gear teeth Flywheel nut Cam chain whole surface Valve clearance adjusting lock nut Oil pump rotor Clutch outer surface Clutch friction disk Radial ball bearing and needle bearing Each oil seal lips Each O-rings	Engine oil	
Piston pin whole surface Camshaft whole surface Rocker arm shaft surface Valve stem sliding surface Transmission gear rotating surface Transmission gear teeth and shift fork groove	Molybdenum disulfide oil (a mixture of 1/2 engine oil and 1/2 molybdenum disulfide grease)	
Pulse generator mounting bolt threads	Locking agent	

FRAME		
LOCATION	MATERIAL	REMARKS
Steering stem ball race and steel ball sliding surface Wheel hub dust seal lips Brake panel anchor pin (brake shoe sliding surface) Brake cam (brake shoe sliding surface) Brake pedal pivot surface Side stand pivot sliding surface Front brake and clutch lever pivot sliding surface Swingarm pivot sliding surface	Multi-purpose grease	
Shock arm and shock link pivot sliding surface Shock arm and shock link dust seal cap lips	Molybdenum disulfide paste	
Brake cam dust seal	Engine oil	
Fork dust seal lip	Fork fluid	
Brake cable inside	Cable lubricant	
Handlebar grip rubber inside	Honda Bond A or Honda Hand Grip Cement (U.S.A. only)	

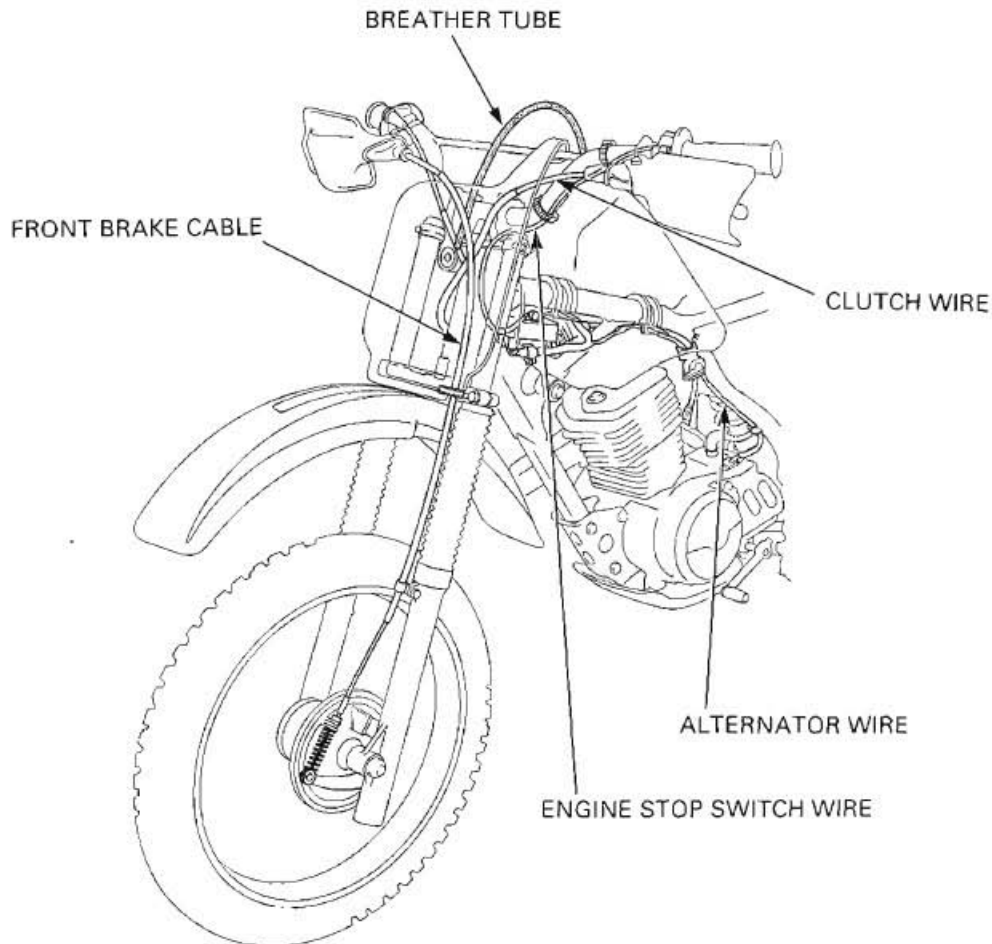
CABLE & HARNESS ROUTING

'98 – 2000:

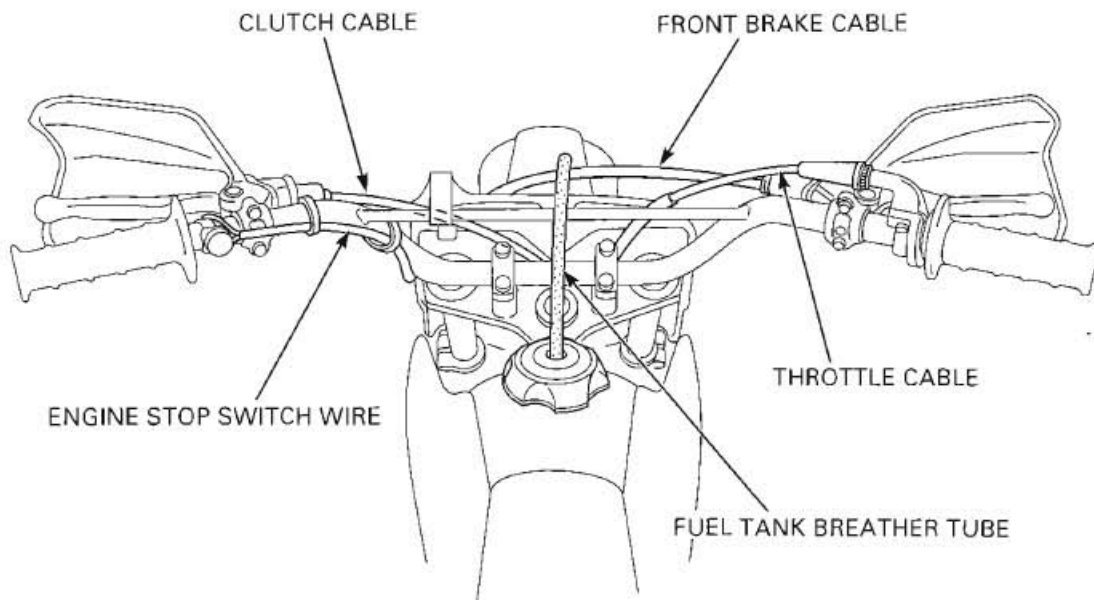
TANK SETTING RUBBERS: '98 – 2000/XR100R, '98 – '99/XR80R
RUBBER: 2000/XR80R (CYLINDER HEAD SIDE ONLY)



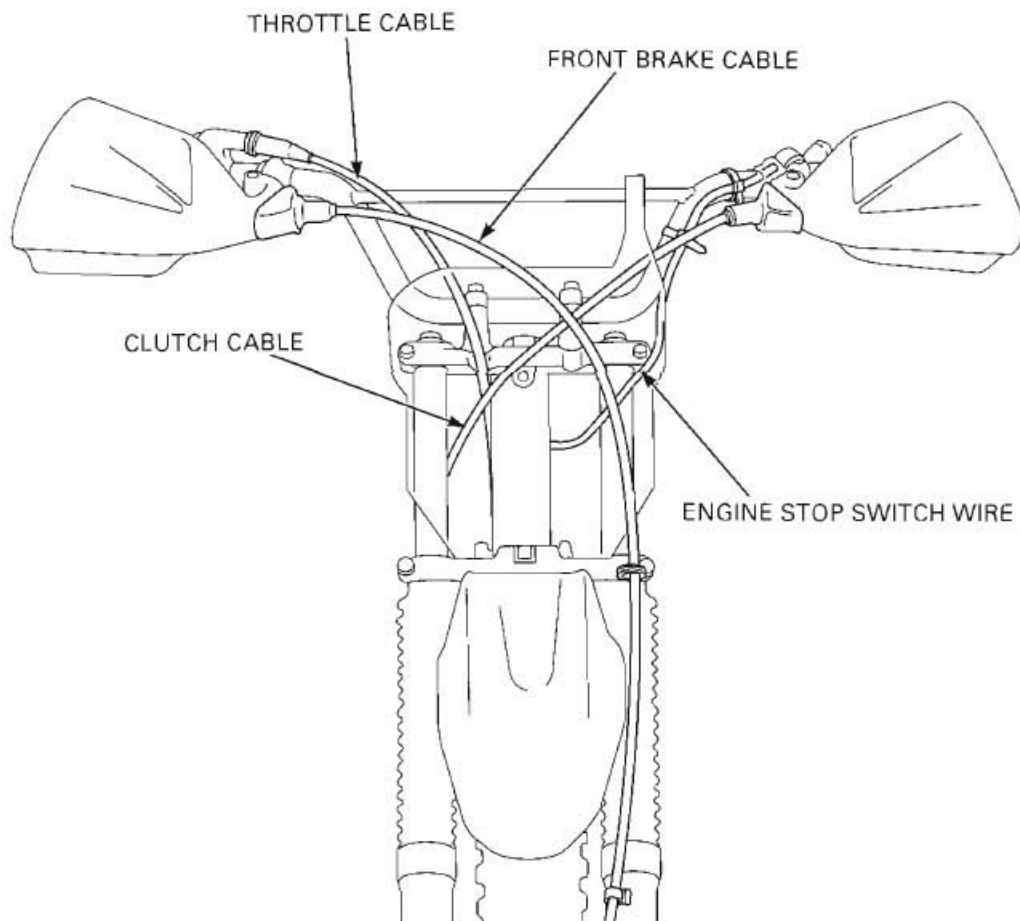
'98 – 2000:



After 2000:

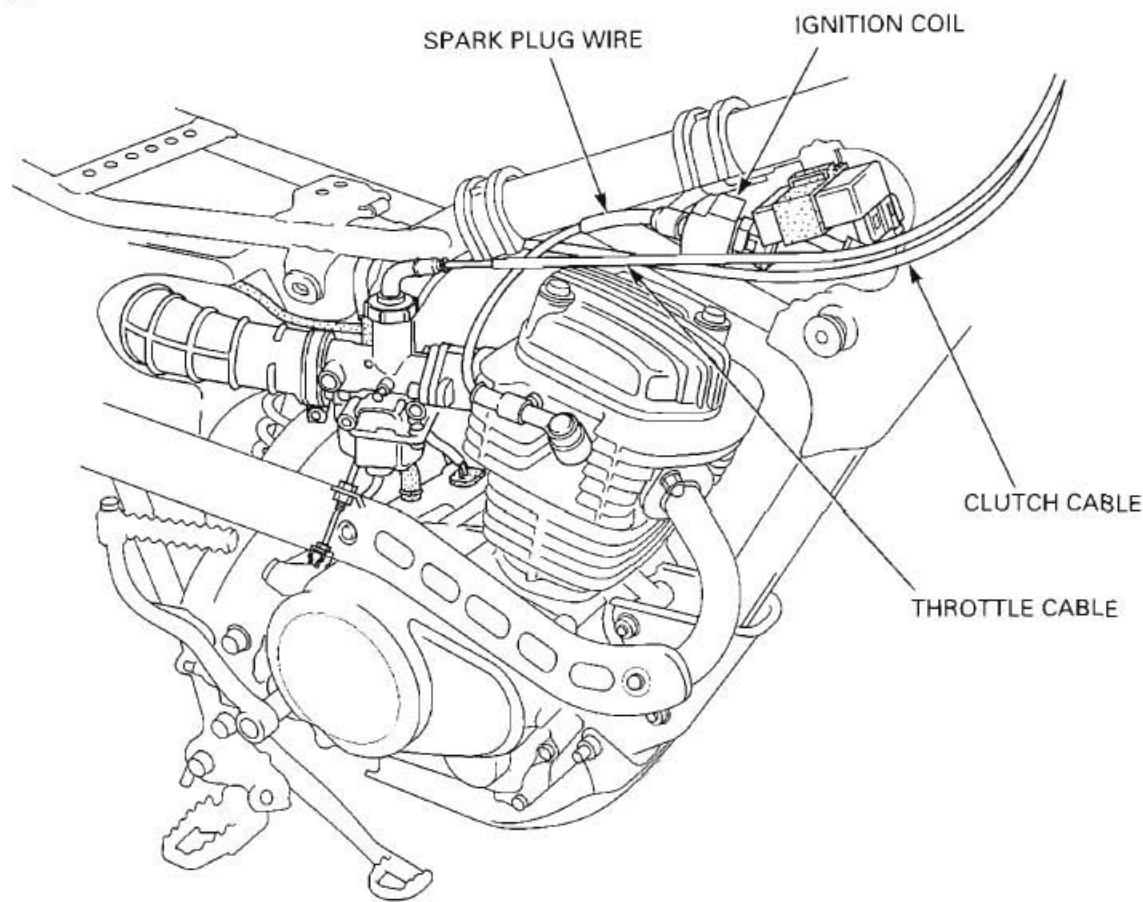


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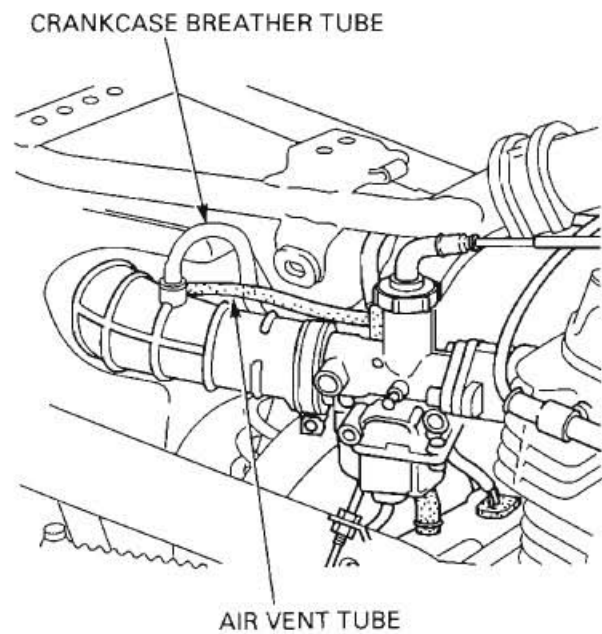


GENERAL INFORMATION

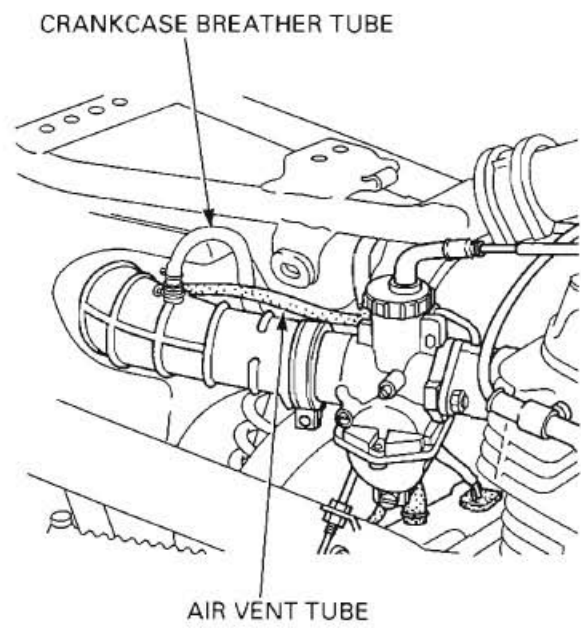
'98 – 2000:



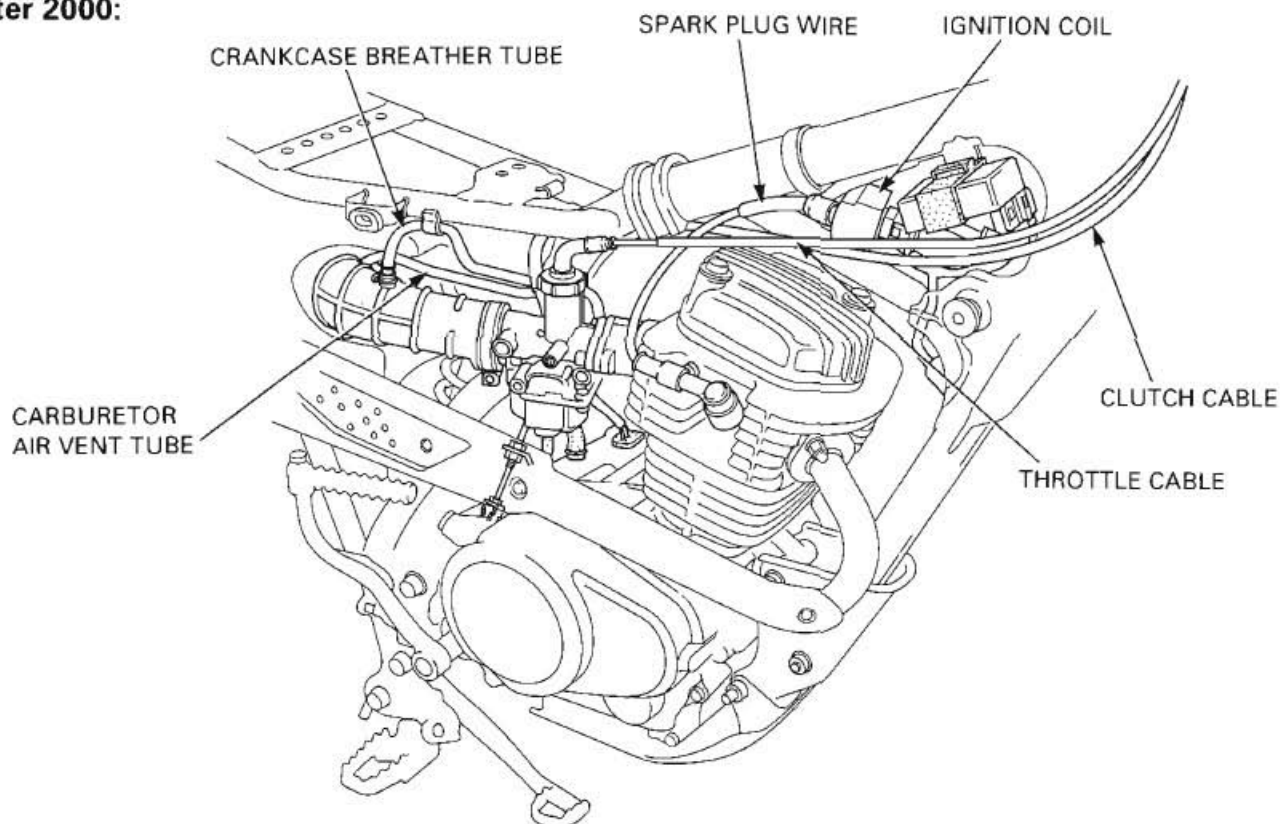
XR100R CALIFORNIA TYPE:



2000/XR80R:

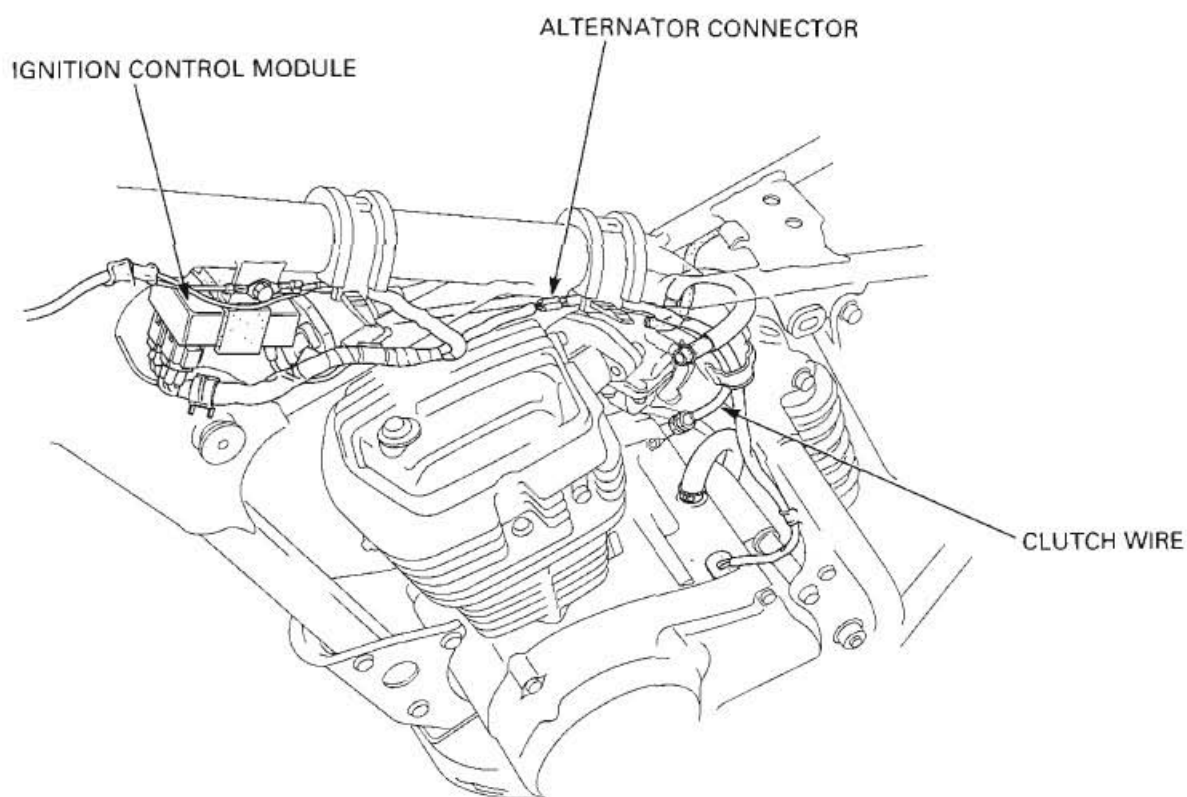


After 2000:



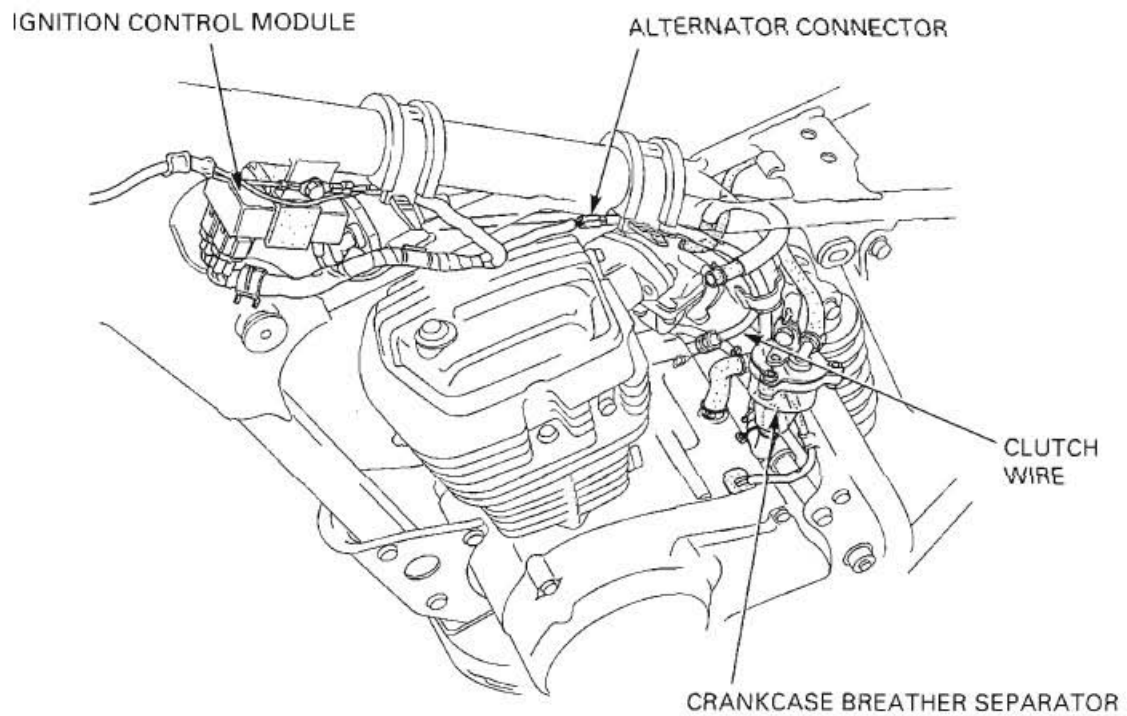
'98 – 2000/XR100R (except California type):

'98 – '99/XR80R:

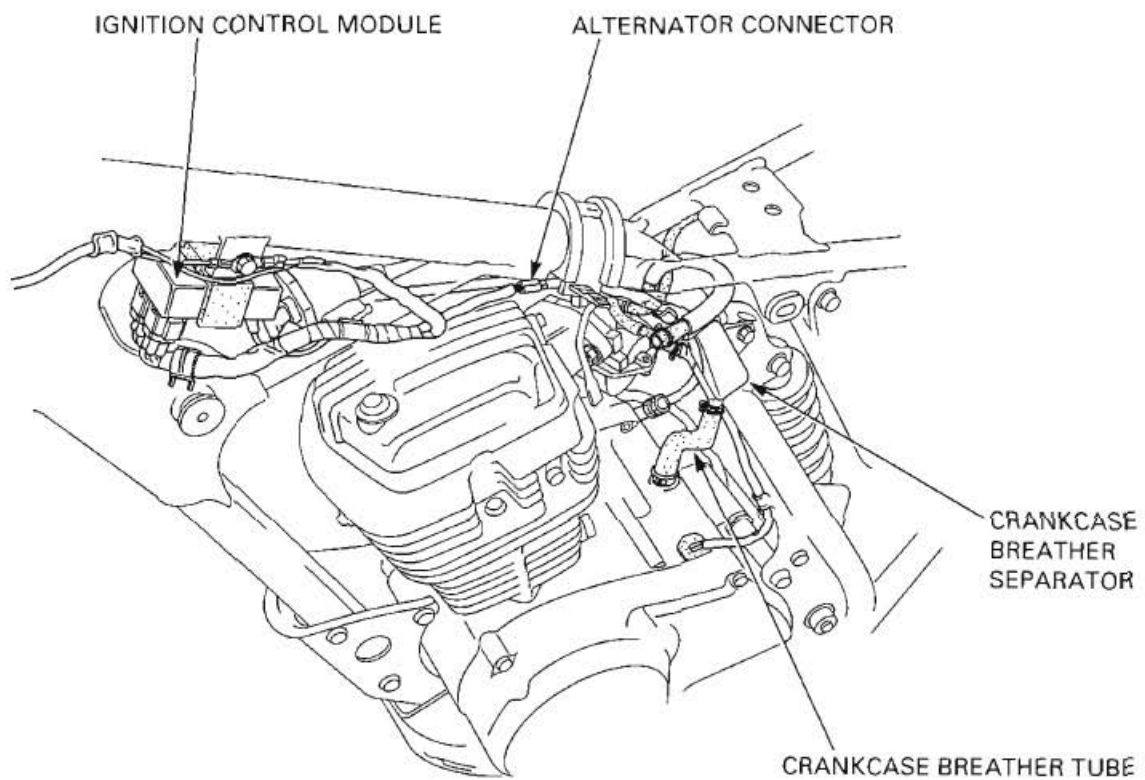


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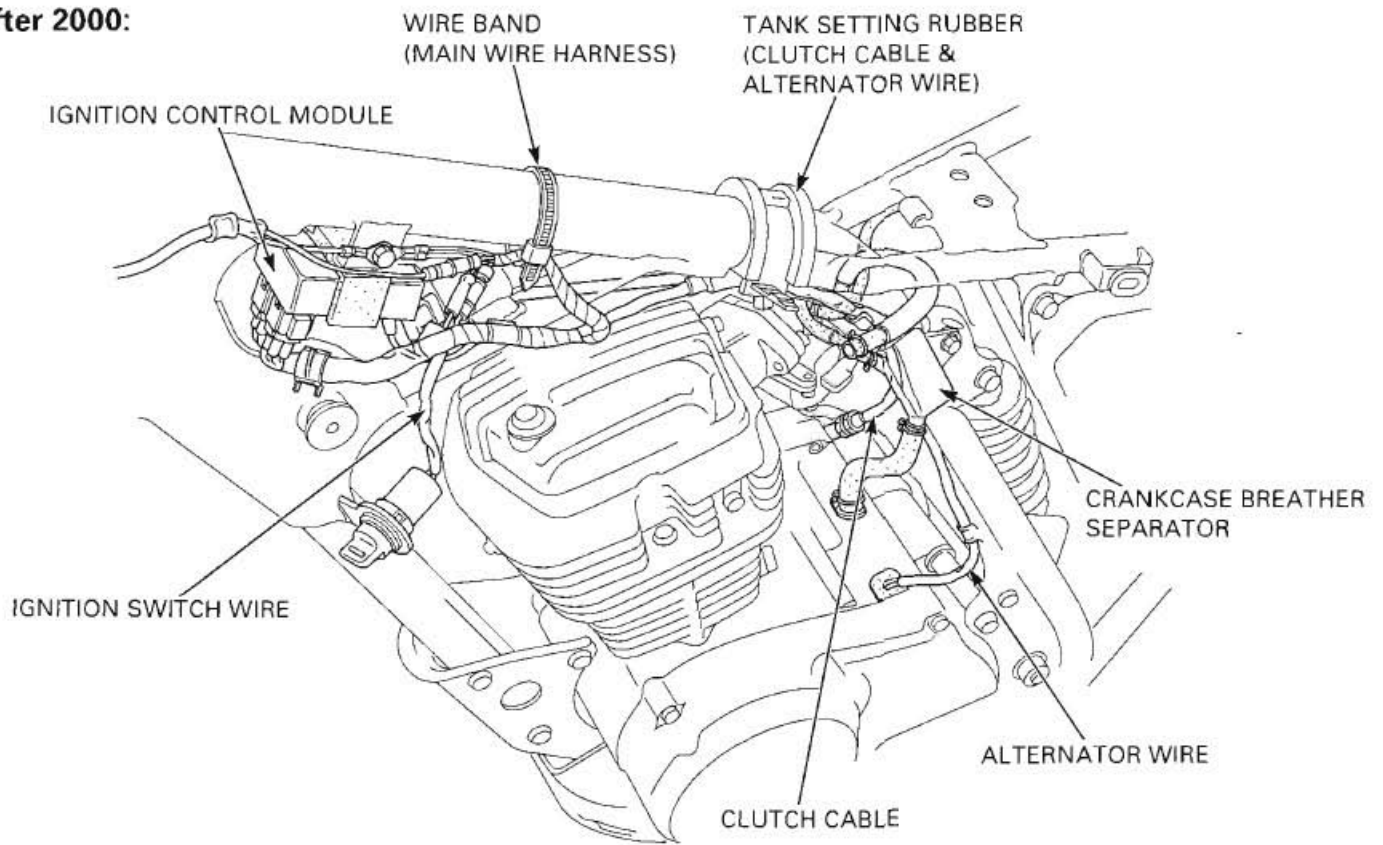
'98 – 2000/XR100R California type:



2000/XR80R:

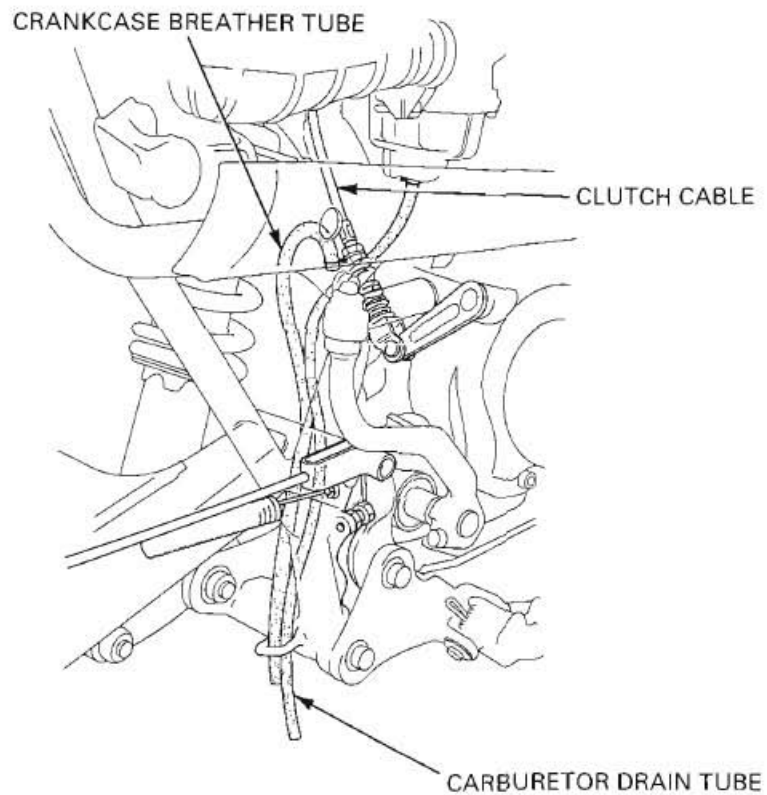


After 2000:



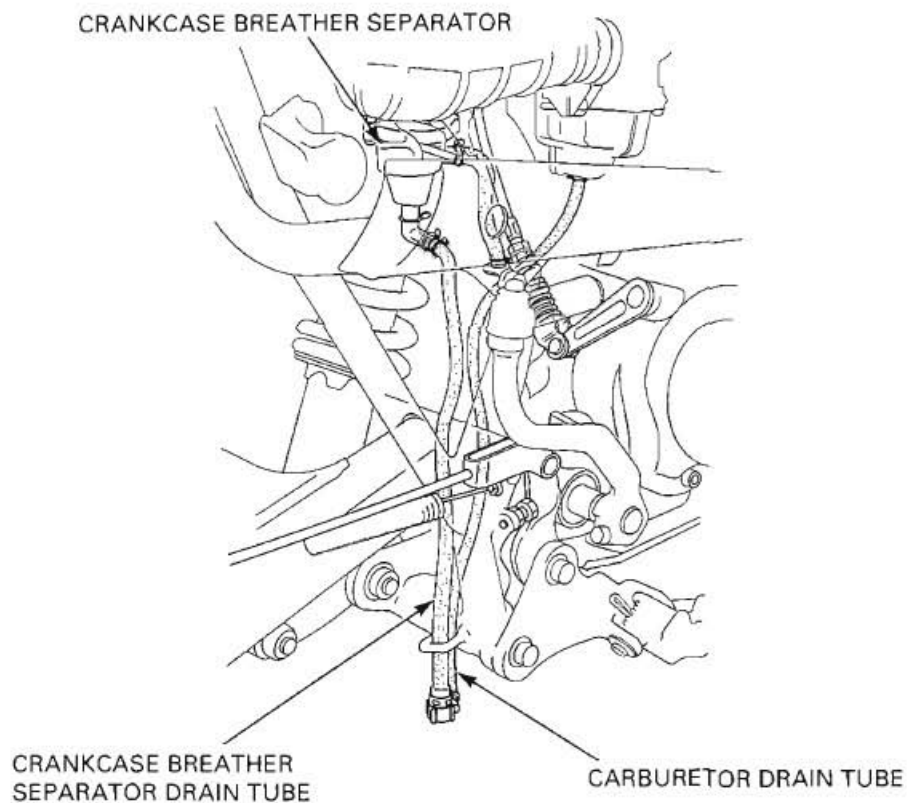
'98 – 2000/XR100R (except California type):

'98 – '99/XR80R:



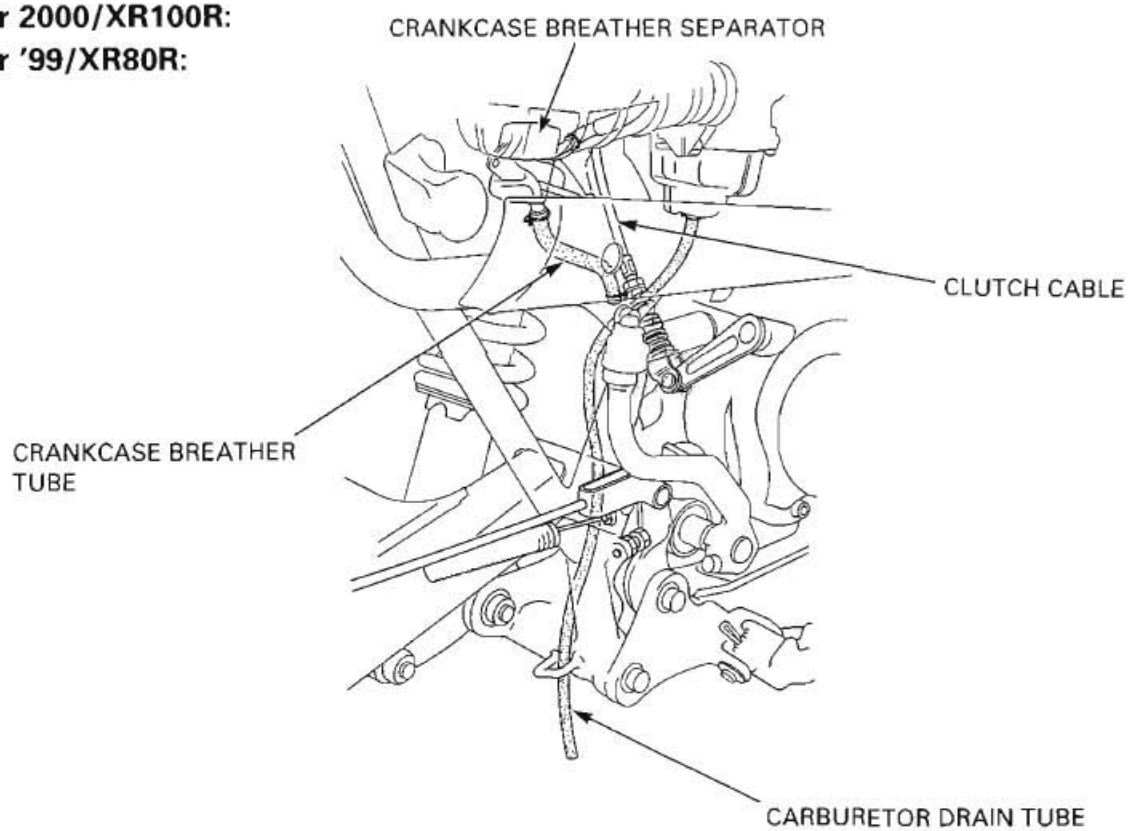
GENERAL INFORMATION

'98 – 2000/XR100R California type:



After 2000/XR100R:

After '99/XR80R:



EMISSION CONTROL SYSTEMS

The California Air Resources Board (CARB) requires manufacturers to certify that their motorcycles comply with applicable exhaust emissions standards during their useful life, when operated and maintained according to the instructions provided ('98 – 2000/XR100R California type, After 2000/XR100R and After '99/XR80R).

SOURCE OF EMISSIONS

The combustion process produces carbon monoxide and hydrocarbons. Control of hydrocarbons is very important because, under certain conditions, they react to form photochemical smog when subjected to sunlight. Carbon monoxide does not react in the same way, but it is toxic.

Honda Motor Co., Ltd. utilizes lean carburetor settings as well as other systems, to reduce carbon monoxide and hydrocarbons.

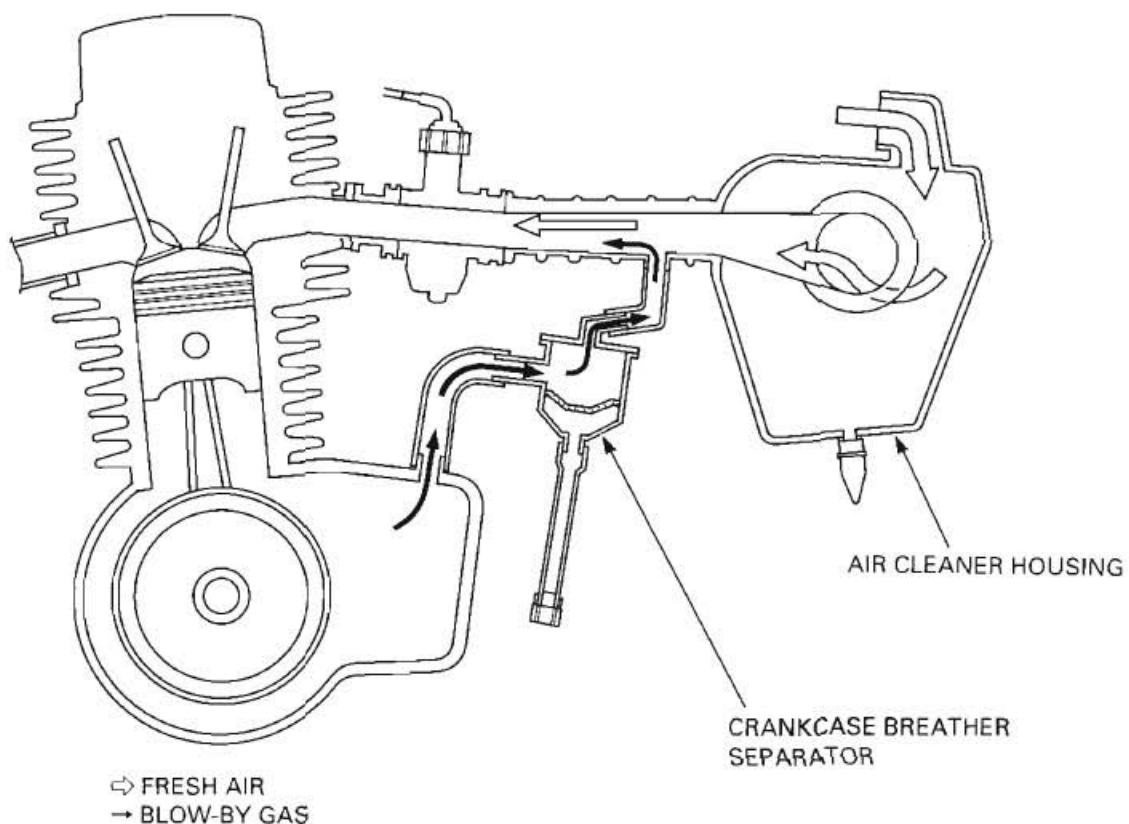
EXHAUST EMISSION CONTROL SYSTEM ('98 – 2000/XR100R CALIFORNIA TYPE, AFTER 2000/XR100R AND AFTER '99/XR80R)

The exhaust emission control system is composed of a lean carburetor setting, and no adjustments should be made except idle speed adjustment with the throttle stop screw. The exhaust emission control system is separate from the crankcase emission control system.

CRANKCASE EMISSION CONTROL SYSTEM ('98 – 2000/XR100R CALIFORNIA TYPE, AFTER 2000/XR100R AND AFTER '99/XR80R)

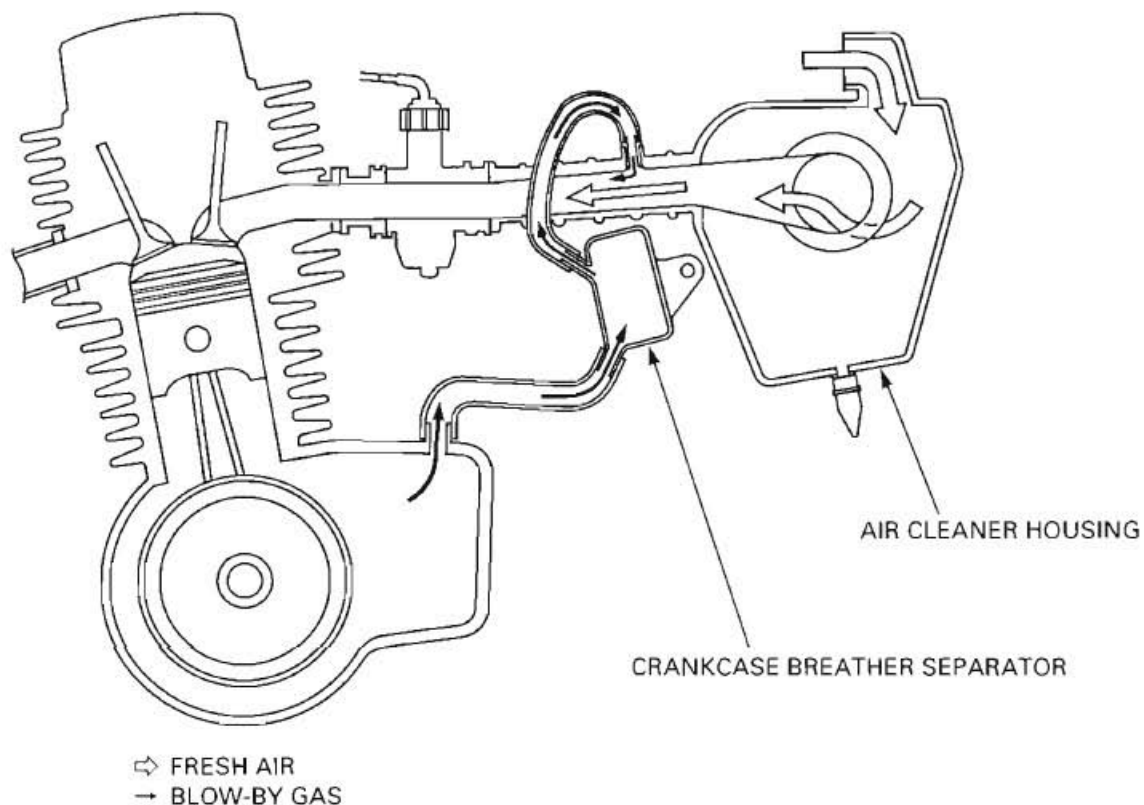
The engine is equipped with a closed crankcase system to prevent discharging crankcase emissions into the atmosphere. Blow-by gas is returned to the combustion chamber through the air cleaner and carburetor.

'98 – 2000/XR100R CALIFORNIA TYPE:



GENERAL INFORMATION

AFTER '99/XR80R:
AFTER 2000/XR100R:

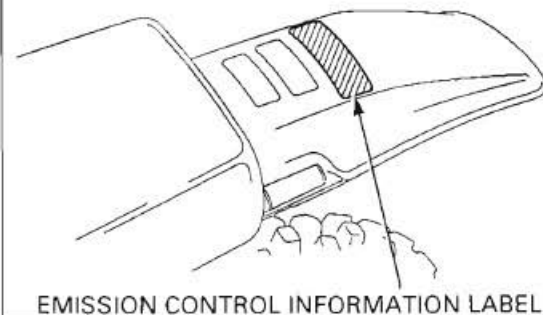


EMISSION CONTROL INFORMATION LABEL

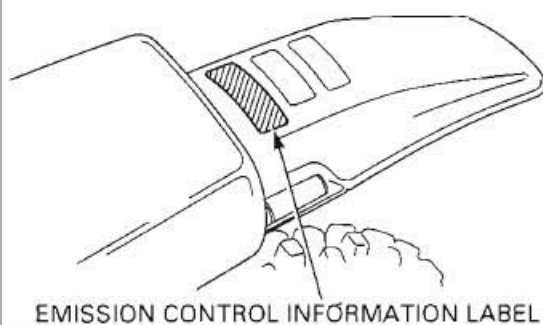
'98 - 2000/XR100R CALIFORNIA TYPE,
AFTER 2000/XR100R AND AFTER '99/
XR80R

An Emission Control Label is located on the rear fender as shown.

'98 - 2000
XR100R CALIFORNIA TYPE SHOWN:



AFTER '99 XR80R SHOWN:



2. FRAME/BODY PANELS/EXHAUST SYSTEM

2

SERVICE INFORMATION	2-1	TANK SHROUD (AFTER 2000)	2-3
TROUBLESHOOTING	2-1	NUMBER PLATE	2-4
SIDE COVER	2-2	FRONT FENDER	2-4
SEAT	2-2	MUD GUARD	2-4
FUEL TANK	2-3	MUFFLER/EXHAUST PIPE	2-4

SERVICE INFORMATION

GENERAL

⚠ WARNING

- Gasoline is extremely flammable and is explosive under certain conditions. **KEEP OUT OF REACH OF CHILDREN.**
- Serious burns may result if the exhaust system is not allowed to cool before components are removed or serviced.

- Work in a well ventilated area. Smoking or allowing flames or sparks in the work area or where gasoline is stored can cause a fire or explosion.
- This section covers removal and installation of the body panels, fuel tank and exhaust system.
- Always replace the exhaust pipe gaskets after removing the exhaust pipe from the engine.
- When installing the exhaust system, loosely install all of the exhaust pipe fasteners. Always tighten the exhaust clamps first, then tighten the mounting fasteners. If you tighten the mounting fasteners first, the exhaust pipe may not seat properly.
- Always inspect the exhaust system for leaks after installation.

TORQUE VALUES

Exhaust pipe/muffler mounting bolt	26 N•m (2.7 kgf•m, 20 lbf•ft)
Exhaust pipe joint nut	12 N•m (1.2 kgf•m, 9 lbf•ft)
Exhaust pipe protector bolt	14 N•m (1.4 kgf•m, 10 lbf•ft)
Fuel tank mounting bolt	12 N•m (1.2 kgf•m, 9 lbf•ft)

TROUBLESHOOTING

Excessive exhaust noise

- Broken exhaust system
- Exhaust gas leak

Poor performance

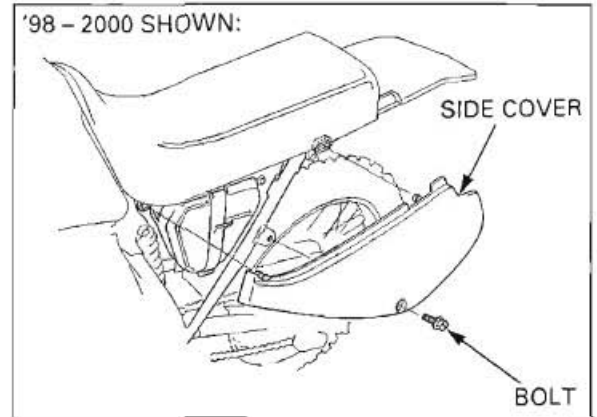
- Damaged exhaust system
- Exhaust gas leak
- Clogged muffler

SIDE COVER

REMOVAL/INSTALLATION

Remove the bolt and side cover.

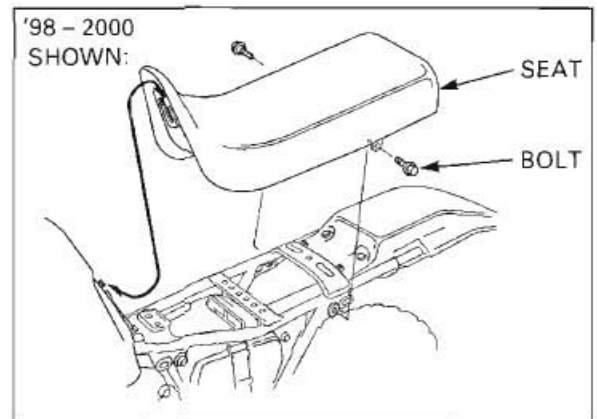
Installation is in the reverse order of removal.



SEAT

REMOVAL/INSTALLATION

'98 - 2000: Remove the right and left side covers (see above).
Remove the two mounting bolts and seat assembly.

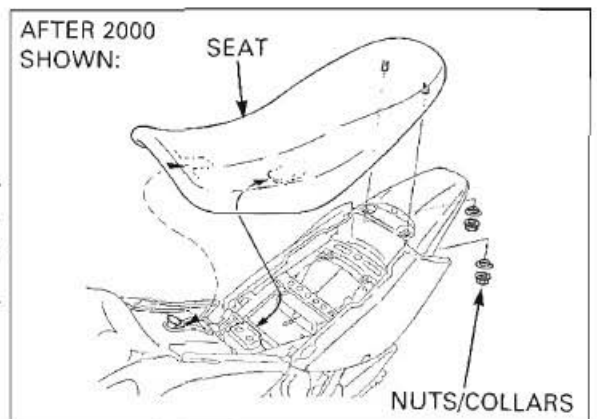


After 2000: Remove the nuts/collars.
Remove the seat.

Installation is in the reverse order of removal.

NOTE:

When installing the seat, align the seat hook with the screw on the fuel tank, and also align the prong with the frame clamp.



FUEL TANK

REMOVAL/INSTALLATION

⚠ WARNING

Gasoline is extremely flammable and is explosive under certain conditions. KEEP OUT REACH OF CHILDREN.

Turn the fuel valve OFF.

Disconnect the fuel tube from the fuel valve.

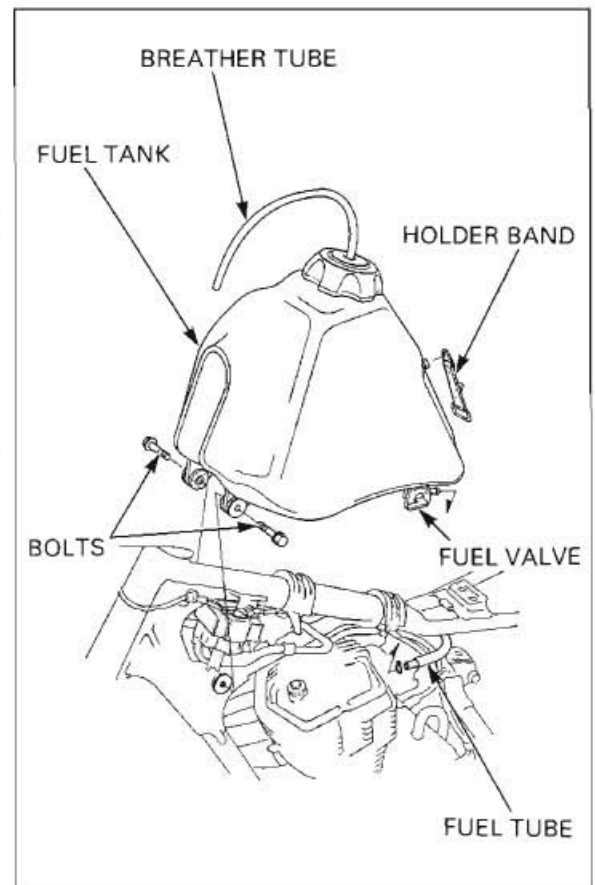
Disconnect the fuel tank breather tube from the number plate.

Remove the fuel tank holder band.
Remove the fuel tank mounting bolts and fuel tank.

Installation is in the reverse order of removal.

TORQUE:

Fuel tank mounting bolt: 12 N·m (1.2 kgf·m, 9 lbf·ft)



TANK SHROUD (AFTER 2000)

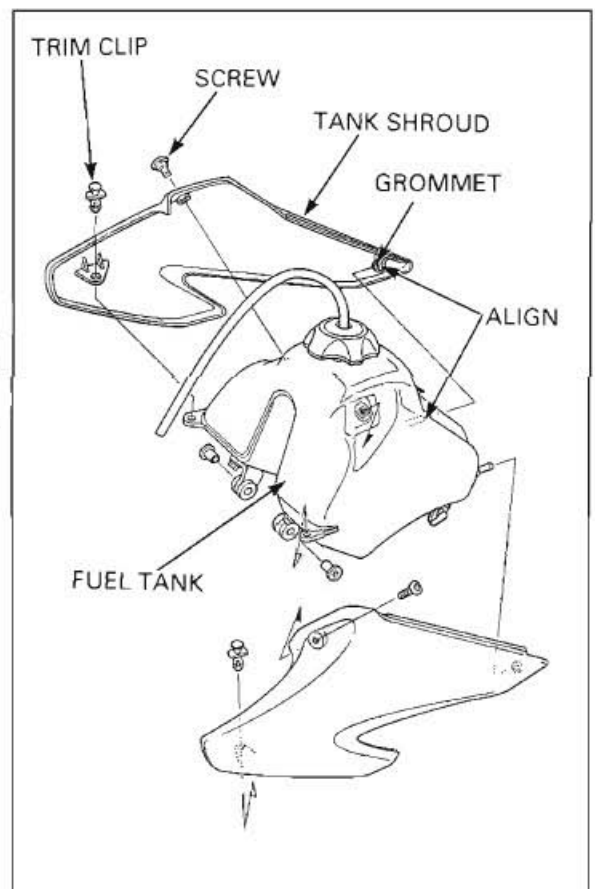
REMOVAL/INSTALLATION

Remove the screw and trim clip.
Remove the tank shroud from the fuel tank.

Installation is in the reverse order of removal.

NOTE:

Align the hole in the shroud with the boss on the fuel tank.



NUMBER PLATE

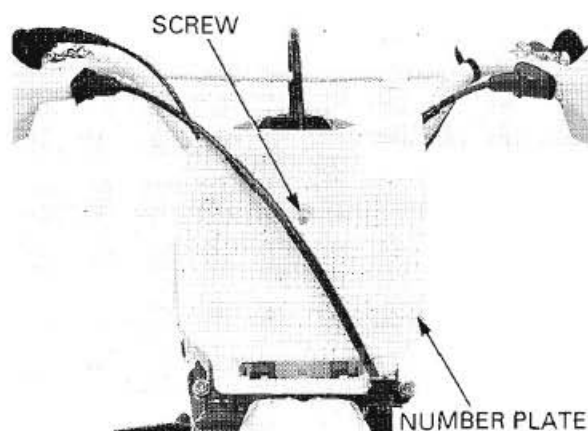
REMOVAL/INSTALLATION

Unfasten the number plate from the handlebar.
Remove the screw and number plate.

Installation is in the reverse order of removal.

NOTE:

During installation, align the lower grooves with the bracket tabs on the steering stem.

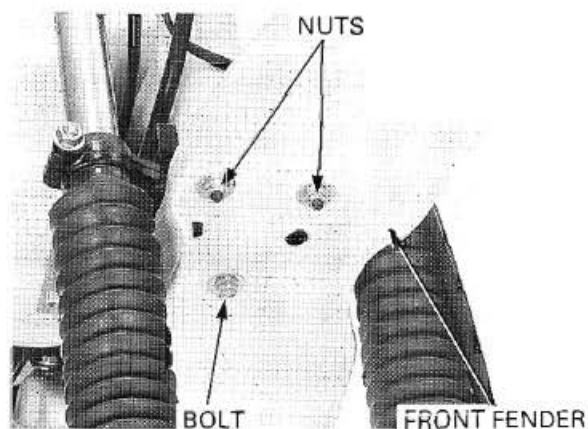


FRONT FENDER

REMOVAL/INSTALLATION

Remove the bolt, nuts, collars and front fender.

Installation is in the reverse order of removal.



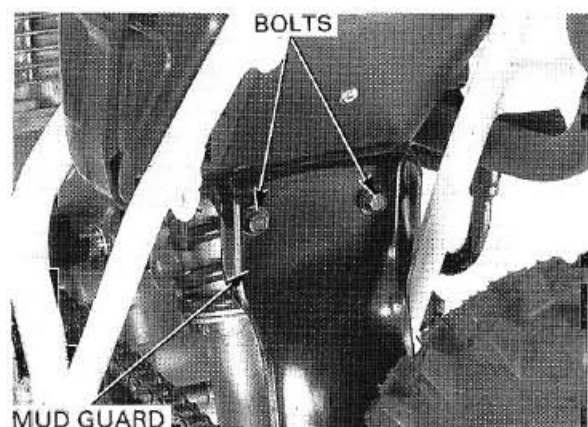
MUD GUARD

REMOVAL/INSTALLATION

Remove the seat (page 2-2).

Remove the two bolts and mud guard.

Installation is in the reverse order of removal.



MUFFLER/EXHAUST PIPE

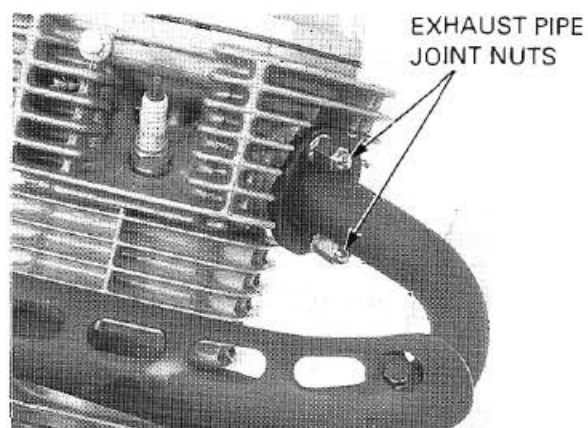
REMOVAL

⚠ WARNING

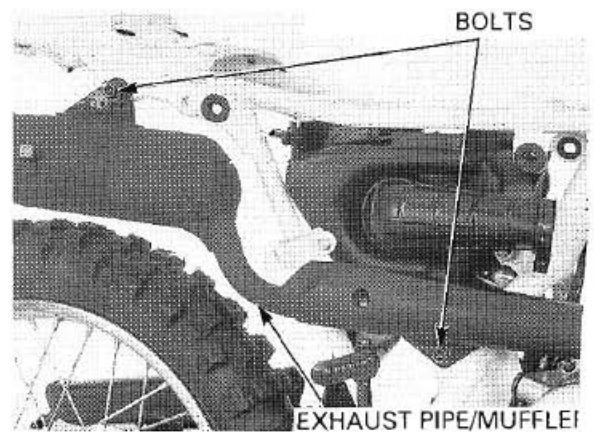
Do not service the exhaust system while it is hot.

Remove the right side cover and seat (page 2-2).

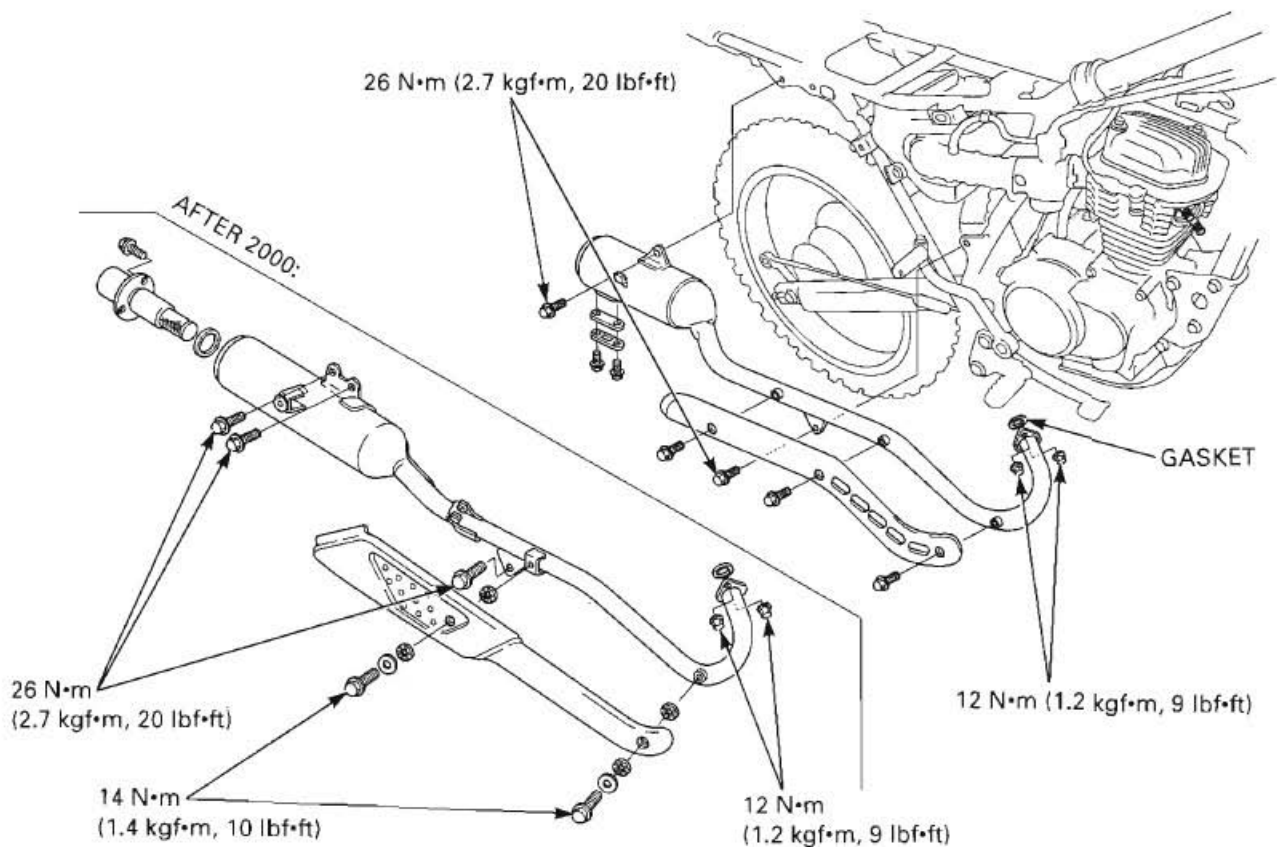
Remove the exhaust pipe joint nuts.



Remove the exhaust pipe/muffler mounting bolts and exhaust pipe/muffler assembly.



INSTALLATION



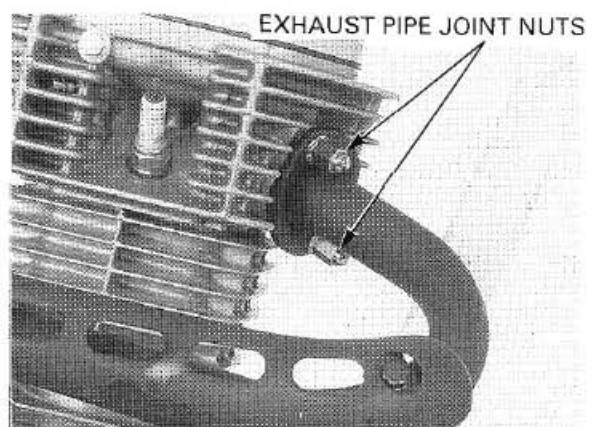
Always replace the exhaust pipe gasket with a new one.

Install a new exhaust pipe gasket onto the exhaust port of the cylinder head.

Install the exhaust pipe, temporarily install the exhaust pipe joint nuts and mounting bolts.

First tighten the exhaust pipe joint nuts to the specified torque.

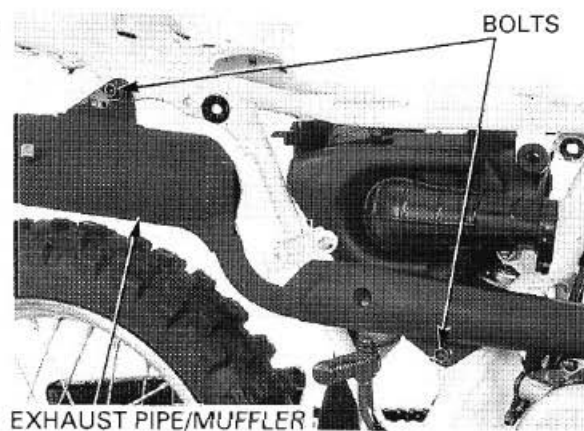
TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)



FRAME/BODY PANELS/EXHAUST SYSTEM

Tighten the exhaust pipe/muffler mounting bolts to the specified torque.

TORQUE: 26 N·m (2.7 kgf·m, 20 lbf·ft)



3. MAINTENANCE

3

SERVICE INFORMATION	3-1	ENGINE IDLE SPEED	3-14
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SERVICE INFORMATION

GENERAL

WARNING

- Gasoline is extremely flammable and is explosive under certain conditions. Work in a well ventilated area. Smoking or allowing flames or sparks in the work area or where the gasoline is stored can cause a fire or explosion.
 - If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and may lead to death. Run the engine in an open area or with an exhaust evacuation system in enclosed area.
-
- Place the motorcycle on level ground before starting any work.

MAINTENANCE

SPECIFICATIONS

ITEM				SPECIFICATIONS
Spark plug	Standard	NGK	CR7HSA	
		DENSO	U22FSR-U	
	For cold climate/below 5°C/41° F	NGK	CR6HSA	
		DENSO	U20FSR-U	
	For extended high speed riding	NGK	CR8HSA	
		DENSO	U24FSR-U	
Spark plug gap			0.6 – 0.7 mm (0.024 – 0.028 in)	
Engine oil capacity		XR100R	At draining	0.9 ℓ (0.95 us qt, 0.79 imp qt)
			At disassembly	1.0 ℓ (1.06 us qt, 0.88 imp qt)
		XR80R	At draining	0.8 ℓ (0.85 us qt, 0.70 imp qt)
			At disassembly	0.9 ℓ (0.95 us qt, 0.79 imp qt)
Recommended engine oil				HONDA GN4 or HP4 4-stroke oil or equivalent motor oil API service classification SF or SG Viscosity: SAE 10W-30
Engine idle speed		XR100R	Except California type	1400 ± 100 rpm
			California type	1400 ± 100 rpm
		XR80R		1500 ± 100 rpm
Throttle grip free play				2.0 – 6.0 mm (1/12–1/4 in)
Valve clearance	IN	0.05 mm (0.002 in)		
	EX	0.05 mm (0.002 in)		
Drive chain slack				25 – 35 mm (1 – 1-3/8 in)
Brake lever free play				20 – 30 mm (3/4 – 1-1/4 in)
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 size	XR100R	Front	2.50–19–4PR	
		Rear	3.00–16–4PR	
	XR80R	Front	2.50–16–4PR	
		Rear	3.60–14–4PR	
Tire brand	XR100R	Bridgestone	Front	M23
			Rear	M22
	XR80R	IRC	Front	GS-45Z1
			Rear	GS-45Z1
Cold tire pressure		Front	100 kPa (1.0 kgf/cm², 15 psi)	
		Rear	125 kPa (1.25 kgf/cm², 18 psi)	
Minimum tire tread depth		Front	3.0 mm (0.12 in)	
		Rear	3.0 mm (0.12 in)	

TORQUE VALUES

Spark plug	14 N•m (1.4 kgf•m, 10 lbf•ft)	
Oil drain bolt	25 N•m (2.5 kgf•m, 18 lbf•ft)	
Valve adjusting bolt lock nut	10 N•m (1.0 kgf•m, 7 lbf•ft)	Apply oil to the threads and seating surface
Cam chain tensioner adjusting bolt lock nut	12 N•m (1.2 kgf•m, 9 lbf•ft)	
Fuel tank mounting bolt	12 N•m (1.2 kgf•m, 9 lbf•ft)	
Rear axle nut	62 N•m (6.3 kgf•m, 46 lbf•ft)	
Spoke	3 N•m (0.3 kgf•m, 2 lbf•ft)	
Rim lock	13 N•m (1.3 kgf•m, 9 lbf•ft)	

TOOLS

Valve adjusting wrench, 8 × 9 mm	07708-0030100	Equivalent commercially available in U.S.A.
Valve adjuster B	07908-KE90000	or 07908-KE90200 (U.S.A. only)
Spoke wrench, 4.5 × 5.1 mm	07701-0020200	Equivalent commercially available in U.S.A.

MAINTENANCE SCHEDULE

'98 - 2000/XR100R:

Perform the pre-ride inspection in the Owner's Manual at each scheduled maintenance period.

I: Inspect and Clean, Adjust, Lubricate or Replace if necessary. C: Clean. R: Replace. A: Adjust. L: Lubricate.

The following items require some mechanical knowledge. Certain items (particularly those marked * and **) may require more technical information and tools. Consult an authorized HONDA dealer.

ITEMS			FREQUENCY	WHICHEVER COMES FIRST ⇒	INITIAL MAINTENANCE	REGULAR MAINTENANCE INTERVAL						Refer to page						
						mi	100	600	1200	1800	2400							
													km	150	1000	2000	3000	4000
EMISSION RELATED ITEMS	*	FUEL LINE						I			I	3-7						
	**	FUEL STRAINER SCREEN						C			C	3-7						
	*	THROTTLE OPERATION						I			I	3-7						
		AIR CLEANER	NOTE 1				C	C	C	C	C	3-8						
		CRANKCASE BREATHER	NOTE 2				I	I	I	I	I	3-9						
		SPARK PLUG					I	I	I	I	I	3-9						
	*	VALVE CLEARANCE				I	I	I	I	I	I	3-10						
		ENGINE OIL				R	R	R	R	R	R	3-11						
	**	ENGINE OIL STRAINER SCREEN						C			C	3-13						
	*	CAM CHAIN TENSION				A	A	A	A	A	A	3-13						
	**	ENGINE IDLE SPEED				I	I	I	I	I	I	3-14						
NON-EMISSION RELATED ITEMS		DRIVE CHAIN	NOTE 1		I, L	I, L: EVERY 300 mi (500 km) or 3 month					3-15							
		DRIVE CHAIN SLIDER				I	I	I	I	I	I	3-17						
		BRAKE SHOE WEAR				I	I	I	I	I	I	3-17						
		BRAKE SYSTEM				I	I	I	I	I	I	3-18						
		CLUTCH SYSTEM				I	I	I	I	I	I	3-19						
		SIDE STAND						I			I	3-20						
	*	SUSPENSION						I			I	3-21						
	*	SPARK ARRESTER					C	C	C	C	C	3-22						
	*	NUTS, BOLTS, FASTENERS				I			I		I	3-23						
	**	WHEELS/TIRES				I	I	I	I	I	I	3-24						
	**	STEERING HEAD BEARINGS				I			I		I	3-25						

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

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

NOTES: 1. Service more frequently when ridden in wet or dusty conditions.

2. California type only.

MAINTENANCE

AFTER 2000/XR100R:

Perform the pre-ride inspection in the Owner's Manual at each scheduled maintenance period.

I: Inspect and Clean, Adjust, Lubricate or Replace if necessary. C: Clean. R: Replace. A: Adjust. L: Lubricate.

The following items require some mechanical knowledge. Certain items (particularly those marked * and **) may require more technical information and tools. Consult an authorized HONDA dealer.

ITEMS			FREQUENCY	WHICHEVER COMES FIRST ➡	mi	INITIAL MAINTENANCE	REGULAR MAINTENANCE INTERVAL					Refer to page		
							NOTE	MONTH	1	6	12		18	24
EMISSION RELATED ITEMS	*	FUEL LINE						I		I	3-7			
	**	FUEL STRAINER SCREEN						C		C	3-7			
	*	THROTTLE OPERATION						I		I	3-7			
		AIR CLEANER	NOTE 1				C	C	C	C	3-8			
		SPARK PLUG					I	I	I	I	3-9			
	*	VALVE CLEARANCE				I	I	I	I	I	3-10			
		ENGINE OIL				R	R	R	R	R	3-11			
	**	ENGINE OIL STRAINER SCREEN						C		C	3-13			
	*	CAM CHAIN TENSION				A	A	A	A	A	3-13			
	**	ENGINE IDLE SPEED				I	I	I	I	I	3-14			
NON-EMISSION RELATED ITEMS		DRIVE CHAIN	NOTE 1			I, L	I, L: EVERY 300 mi (500 km) or 3 month					3-15		
		DRIVE CHAIN SLIDER					I	I	I	I	3-17			
		BRAKE SHOE WEAR					I	I	I	I	3-17			
		BRAKE SYSTEM				I	I	I	I	I	3-18			
		CLUTCH SYSTEM				I	I	I	I	I	3-19			
		SIDE STAND						I		I	3-20			
	*	SUSPENSION						I		I	3-21			
	*	SPARK ARRESTER				C: EVERY 1,000 mi (1,600 km) or every 100 operating hours					3-22			
	*	NUTS, BOLTS, FASTENERS				I		I		I	3-23			
	**	WHEELS/TIRES				I	I	I	I	I	3-24			
	**	STEERING HEAD BEARINGS				I		I		I	3-25			

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

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

NOTE: 1. Service more frequently when ridden in wet or dusty conditions.

'98 – 2000/XR80R:

Perform the pre-ride inspection in the Owner's Manual at each scheduled maintenance period.

I: Inspect and Clean, Adjust, Lubricate or Replace if necessary. C: Clean. R: Replace. A: Adjust. L: Lubricate.

The following items require some mechanical knowledge. Certain items (particularly those marked * and **) may require more technical information and tools. Consult an authorized HONDA dealer.

ITEMS	FREQUENCY	WHICHEVER COMES FIRST ⇒	mi	100	600	1200	1800	2400	Refer to page
		NOTE	MONTH	1	6	12	18	24	
EMISSION RELATED ITEMS (AFTER '99)	* FUEL LINE					I		I	3-7
	** FUEL STRAINER SCREEN					C		C	3-7
	* THROTTLE OPERATION					I		I	3-7
	AIR CLEANER	NOTE 1			C	C	C	C	3-8
	SPARK PLUG				I	I	I	I	3-9
	* VALVE CLEARANCE			I	I	I	I	I	3-10
	ENGINE OIL			R	R	R	R	R	3-11
	** ENGINE OIL STRAINER SCREEN					C		C	3-13
	* CAM CHAIN TENSION			A	A	A	A	A	3-13
	** ENGINE IDLE SPEED			I	I	I	I	I	3-14
NON-EMISSION RELATED ITEMS (AFTER '99)	DRIVE CHAIN	NOTE 1		I, L	I, L: EVERY 300 mi (500 km) or 3 month				3-15
	DRIVE CHAIN SLIDER				I	I	I	I	3-17
	BRAKE SHOE WEAR				I	I	I	I	3-17
	BRAKE SYSTEM			I	I	I	I	I	3-18
	CLUTCH SYSTEM			I	I	I	I	I	3-19
	SIDE STAND					I		I	3-20
	* SUSPENSION					I		I	3-21
	* SPARK ARRESTER				C	C	C	C	3-22
	* NUTS, BOLTS, FASTENERS			I		I		I	3-23
	** WHEELS/TIRES			I	I	I	I	I	3-24
	** STEERING HEAD BEARINGS			I		I		I	3-25

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

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

NOTE: 1. Service more frequently when ridden in wet or dusty conditions.

MAINTENANCE

AFTER 2000/XR80R:

Perform the pre-ride inspection in the Owner's Manual at each scheduled maintenance period.

I: Inspect and Clean, Adjust, Lubricate or Replace if necessary. C: Clean. R: Replace. A: Adjust. L: Lubricate.

The following items require some mechanical knowledge. Certain items (particularly those marked * and **) may require more technical information and tools. Consult an authorized HONDA dealer.

ITEMS			FREQUENCY	WHICHEVER COMES FIRST ⇒	INITIAL MAINTENANCE	REGULAR MAINTENANCE INTERVAL					Refer to page	
						mi	100	600	1200	1800		2400
						km	150	1000	2000	3000		4000
			NOTE	MONTH	1	6	12	18	24			
EMISSION RELATED ITEMS	*	FUEL LINE						I		I	3-7	
	**	FUEL STRAINER SCREEN						C		C	3-7	
	*	THROTTLE OPERATION						I		I	3-7	
		AIR CLEANER	NOTE 1				C	C	C	C	3-8	
		SPARK PLUG					I	I	I	I	3-9	
	*	VALVE CLEARANCE				I	I	I	I	I	3-10	
		ENGINE OIL				R	R	R	R	R	3-11	
	**	ENGINE OIL STRAINER SCREEN						C		C	3-13	
	*	CAM CHAIN TENSION				A	A	A	A	A	3-13	
	**	ENGINE IDLE SPEED				I	I	I	I	I	3-14	
NON-EMISSION RELATED ITEMS		DRIVE CHAIN	NOTE 1		I, L	I, L: EVERY 300 mi (500 km) or 3 month					3-15	
		DRIVE CHAIN SLIDER					I	I	I	I	3-17	
		BRAKE SHOE WEAR					I	I	I	I	3-17	
		BRAKE SYSTEM				I	I	I	I	I	3-18	
		CLUTCH SYSTEM				I	I	I	I	I	3-19	
		SIDE STAND						I		I	3-20	
	*	SUSPENSION						I		I	3-21	
	*	SPARK ARRESTER				C: EVERY 1,000 mi (1,600 km) or every 100 operating hours					3-22	
	*	NUTS, BOLTS, FASTENERS				I		I		I	3-23	
	**	WHEELS/TIRES				I	I	I	I	I	3-24	
	**	STEERING HEAD BEARINGS				I		I		I	3-25	

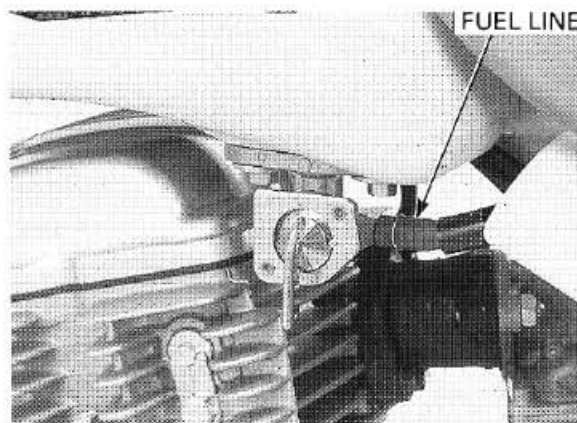
* Should be serviced by an authorized HONDA dealer, unless the owner has proper tools and service data and is mechanically qualified.

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

NOTE: 1. Service more frequently when ridden in wet or dusty conditions.

FUEL LINE

Check the fuel line for deterioration, damage or leakage. Replace the fuel line if necessary.



FUEL STRAINER SCREEN

⚠ WARNING

- *Gasoline is extremely flammable and is explosive under certain conditions. Work in a well ventilated area. Smoking or allowing flames or sparks in the work area or where the gasoline is stored can cause a fire or explosion.*
- *Wipe up spilled gasoline at once.*

Turn the fuel valve OFF and disconnect the fuel tube from the carburetor.

Place a drain pan under the fuel tube and turn the fuel valve ON to drain the fuel tank.

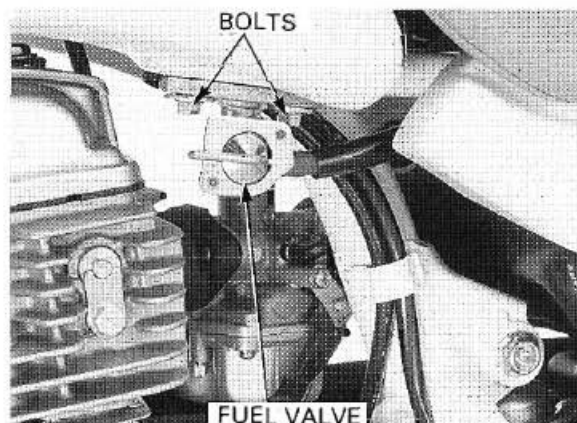
After the tank has drained completely, remove the two bolts, fuel valve and strainer screen.

Wash the fuel strainer screen in non-flammable or high flash solvent.

Check that the O-ring is in good condition, reinstall the fuel valve.

Tighten the fuel valve mounting bolts.

After installation, check for fuel leaks.



THROTTLE OPERATION

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

Check the throttle cable and replace it if deteriorated, kinked or damaged.

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

Measure the free play at the throttle grip flange.

FREE PLAY: 2 – 6 mm (1/12 – 1/4 in)

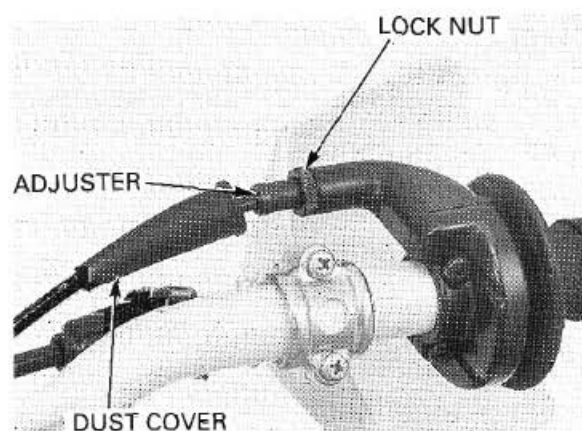


MAINTENANCE

Throttle grip free play can be adjusted at the throttle housing adjuster.

Remove the dust cover from the adjuster.
Adjust the free play by loosening the lock nut and turning the adjuster.

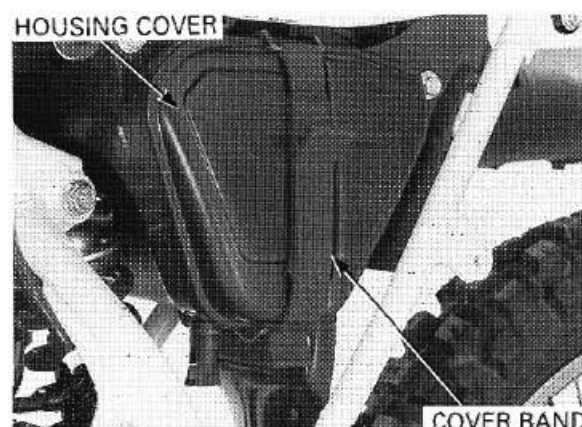
Recheck the throttle operation.
Replace any damaged parts, if necessary.



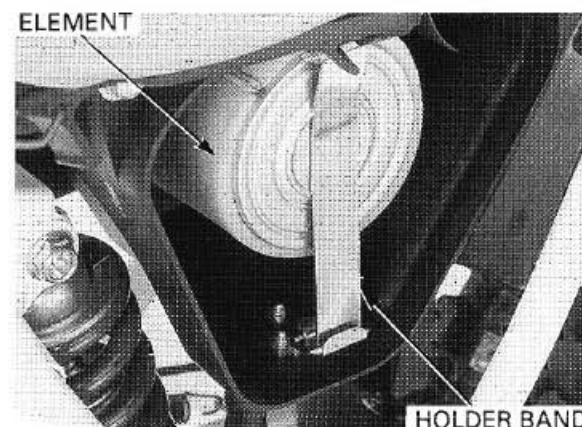
AIR CLEANER

Remove the left side cover (page 2-2).

Remove the air cleaner housing cover band and housing cover.



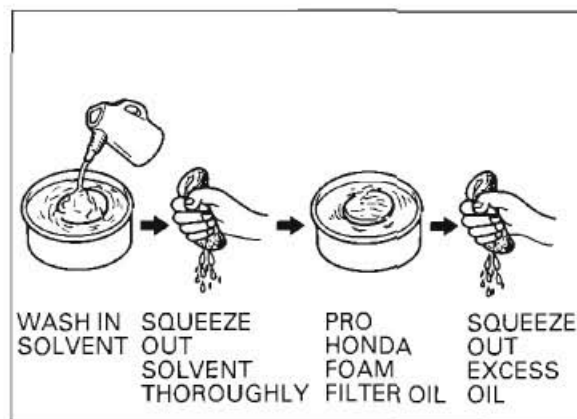
Remove the air cleaner element holder band and element from the housing.



Wash the element in non-flammable or high flash point solvent, and let it dry thoroughly.

Soak the element in Pro Honda Foam Filter Oil or equivalent, and squeeze out any excess oil.

Installation is in the reverse order of removal.

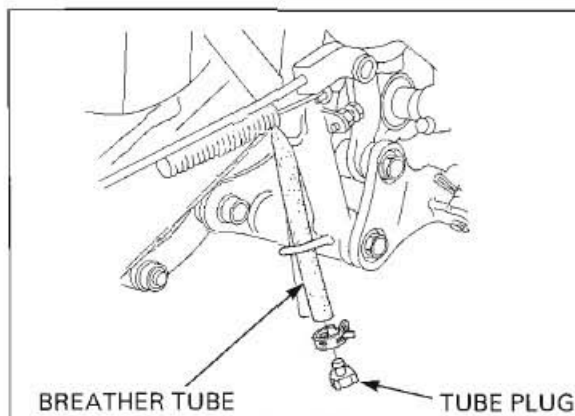


CRANKCASE BREATHER (‘98 – 2000/XR100R CALIFORNIA TYPE ONLY)

NOTE

Service more frequently when ridden in rain, at full throttle, or after the motorcycle is washed or overturned. Service if deposits can be seen in the transparent section of the breather tube.

Remove the crankcase breather tube plug from the tube end and drain deposits into a suitable container, then install the tube plug securely.



SPARK PLUG

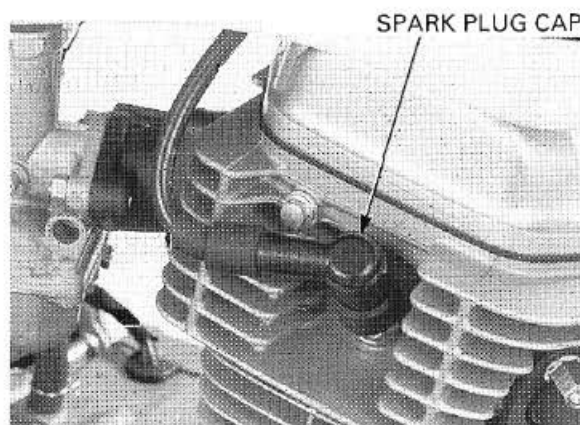
REMOVAL

Clean around the spark plug base with compressed air before removing, and be sure that no debris is allowed to enter the combustion chamber.

Disconnect the spark plug cap.

Remove the spark plug using a spark plug wrench or equivalent.

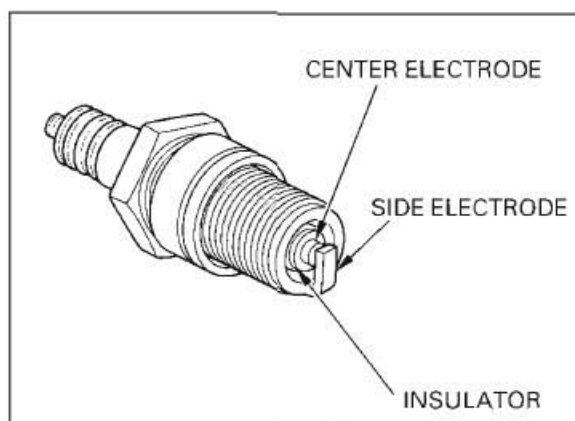
Inspect or replace as described in the maintenance schedule (pages 3-3 through 3-6)



INSPECTION

Check the following and replace if necessary (recommended spark plug: page 3-2)

- Insulator for damage
- Electrodes for wear
- Burning condition, coloration;
 - dark to light brown indicates good condition.
 - excessive lightness indicates malfunctioning ignition system or lean mixture.
 - wet or black sooty deposit indicates over-rich mixture.



REUSING A SPARK PLUG

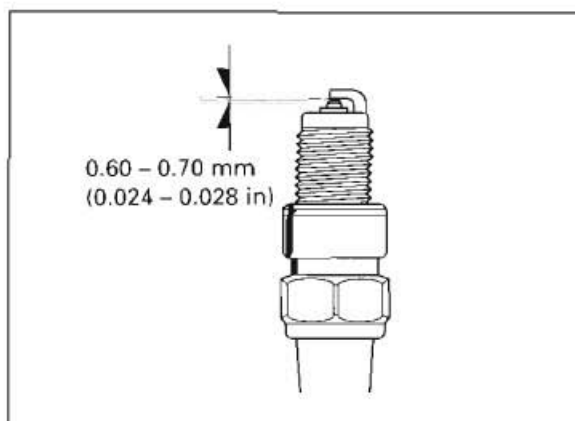
Clean the spark plug electrodes with a wire brush or special plug cleaner.

Check the gap between the center and side electrodes with a wire-type feeler gauge.

If necessary, adjust the gap by bending the side electrode carefully.

SPARK PLUG GAP:

0.60 – 0.70 mm (0.024 – 0.028 in)



CAUTION:

To prevent damage to the cylinder head, hand-tighten the spark plug before using a wrench to tighten to the specified torque.

Reinstall the spark plug in the cylinder head and hand tighten, then torque it using a spark plug wrench.

TORQUE: 14 N·m (1.4 kgf·m, 10 lbf·ft)

REPLACING A SPARK PLUG

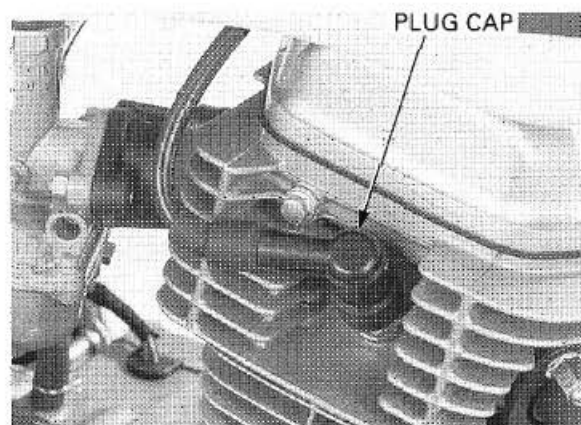
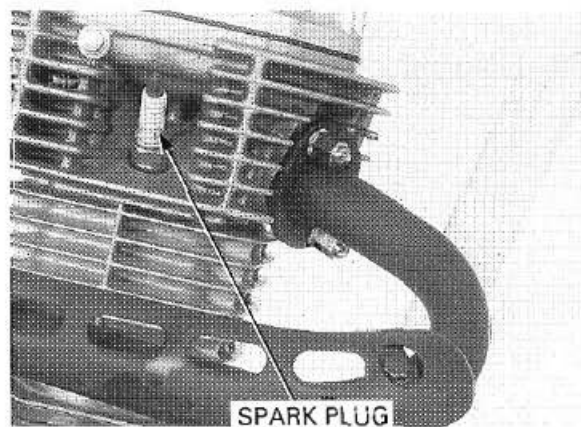
Set the plug gap to specification with a wire-type feeler gauge (page 3-9).

CAUTION:

Do not overtighten the spark plug.

Install and hand tighten the new spark plug, then tighten it about 1/2 of a turn after the sealing washer contacts the seat of the plug hole.

Install the spark plug cap.



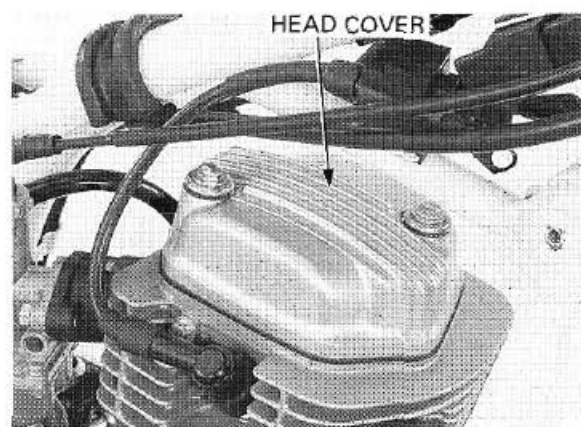
VALVE CLEARANCE

INSPECTION

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

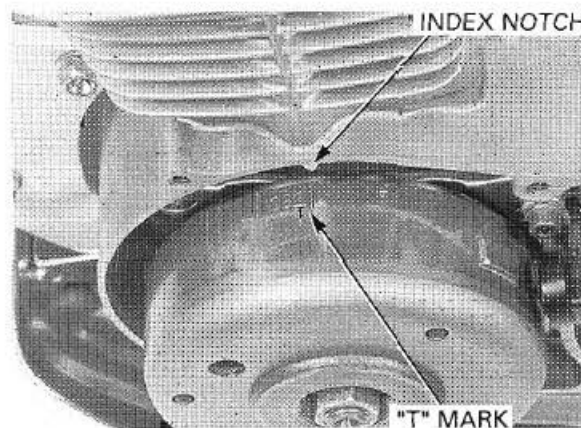
Remove the following

- Side cover (page 2-2)
- Seat (page 2-2)
- Head cover (page 7-3)



Remove the left crankcase cover (page 13-9).

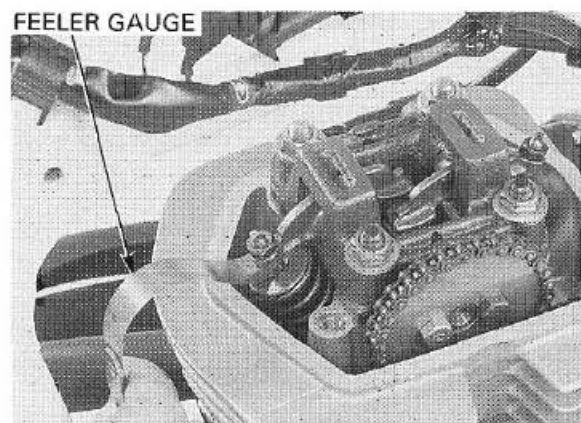
Turn the crankshaft counterclockwise and align the "T" mark on the flywheel with the index notch on the left crankcase. Make sure the piston is at TDC (Top Dead Center) on the compression stroke.



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

VALVE CLEARANCE:

IN/EX: 0.05 mm (0.002 in)



ADJUSTMENT

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

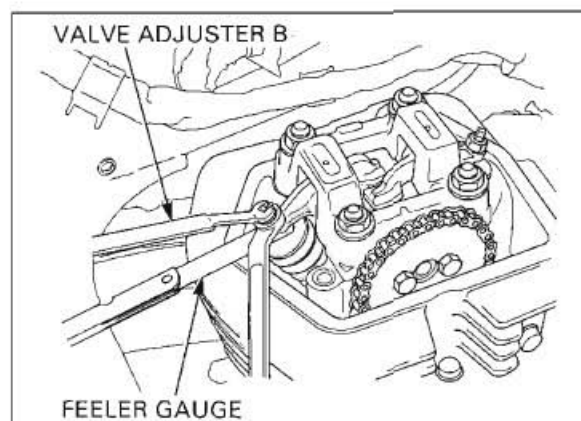
Hold the adjusting screw and tighten the lock nut to the specified torque.

TOOLS:

Valve adjusting wrench, 8 × 9 mm

07708-0030100
(Equivalent commercially available in U.S.A.)
07908-KE90000
(Not available in U.S.A.) or
07908-KE90200
(U.S.A. only)

Valve adjuster B



TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)

Recheck the valve clearance.

Install the following:

- Head cover (page 7-18)
- Seat (page 2-2)
- Side cover (page 2-2)
- Left crankcase cover (page 13-12)

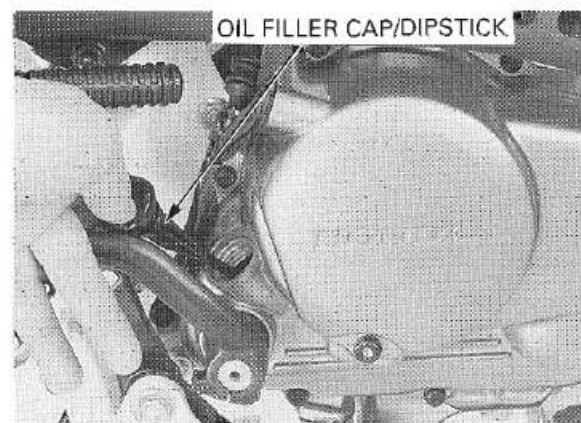


ENGINE OIL

OIL LEVEL INSPECTION

Support the motorcycle in an upright position on level ground.

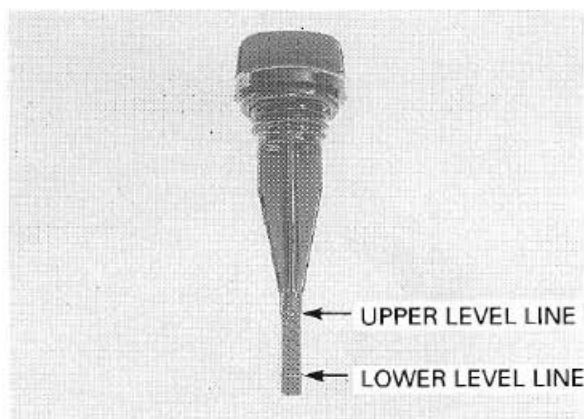
Remove the oil filler cap/dipstick and wipe it clean. Reinstall the oil filler cap/dipstick, but do not screw it.



MAINTENANCE

Remove the oil filler cap/dipstick and check the oil level.

If the level is below the lower level line on the dipstick, fill the crankcase with recommended oil.

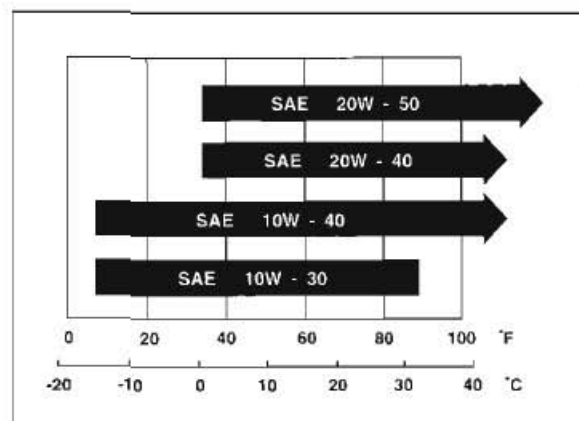


RECOMMENDED ENGINE OIL:

HONDA GN4 or HP4 4-stroke oil or equivalent motor oil API service classification: SF or SG
Viscosity: 10W-30

NOTE:

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



Check the O-ring for damage.
Reinstall the oil filler cap/dipstick.

ENGINE OIL CHANGE

⚠ WARNING

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

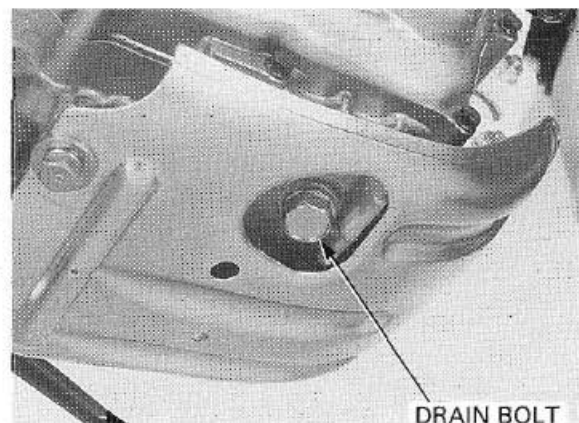
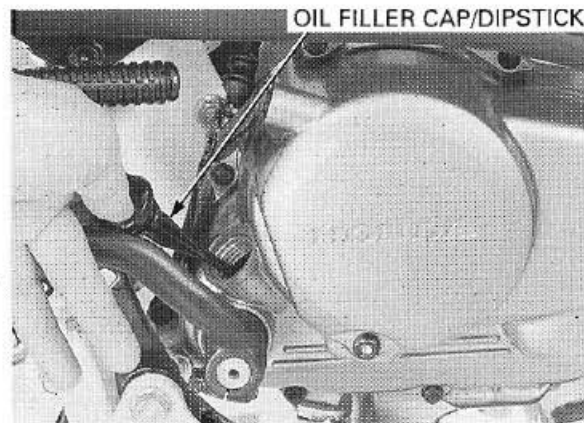
Change the engine oil with the engine warm and place the motorcycle on level ground to assure complete draining.

Warm up the engine.

Stop the engine and remove the oil filler cap/dipstick and drain bolt.
Drain the oil completely.

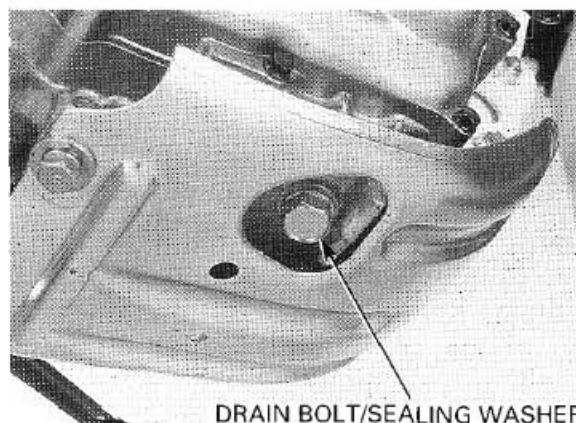
⚠ WARNING

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. KEEP OUT OF REACH OF CHILDREN.



Check that the sealing washer on the drain bolt is in good condition, replace if necessary. Install and tighten the drain bolt.

TORQUE: 25 N·m (2.5 kgf·m, 18 lbf·ft)



DRAIN BOLT/SEALING WASHER

Fill the crankcase with the recommended engine oil.

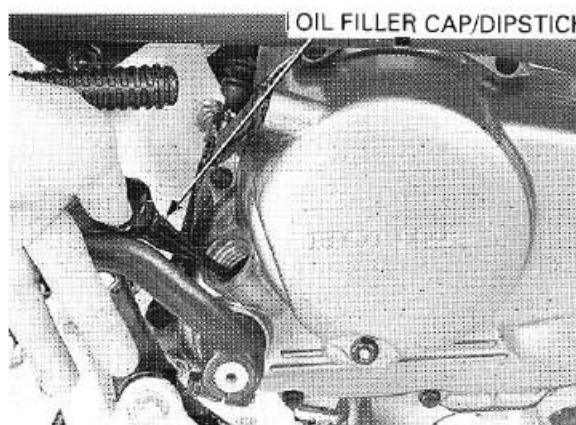
OIL CAPACITY:

XR100R: 0.9 ℓ (0.95 us qt, 0.79 imp qt)

XR80R: 0.8 ℓ (0.85 us qt, 0.70 imp qt)

Install the oil filler cap/dipstick.

Start the engine and let it idle for 2 to 3 minutes. Stop the engine and recheck the oil level. Make sure there are no oil leaks.



OIL FILLER CAP/DIPSTICK

ENGINE OIL STRAINER SCREEN

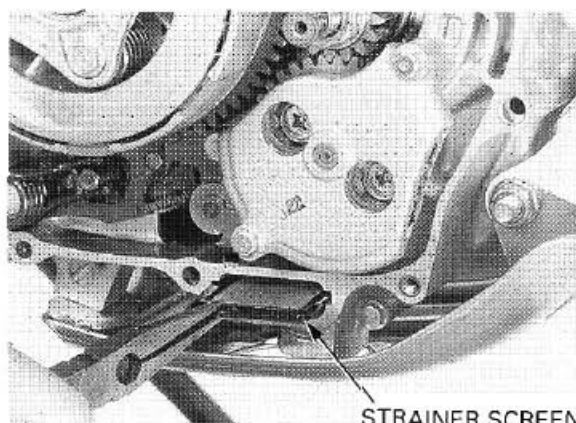
Perform this maintenance before filling the engine with oil.

Remove the right crankcase cover (page 9-3).

Remove the oil strainer screen and clean it.

Reinstall the oil strainer screen and right crankcase cover (page 9-12).

Fill the crankcase with recommended engine oil (page 3-12).



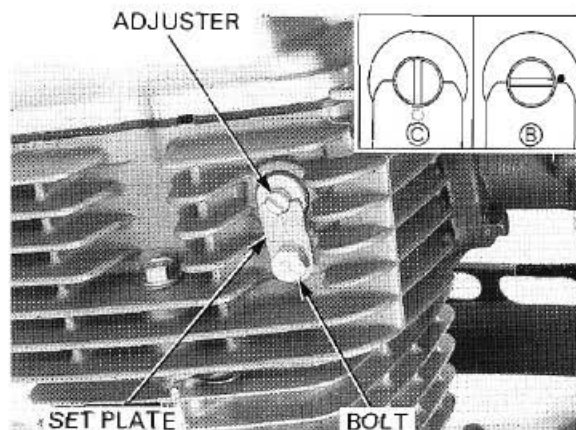
STRAINER SCREEN

CAM CHAIN TENSION

Start the engine and let it idle.

Loosen the cam chain adjuster 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.



ADJUSTER

SET PLATE

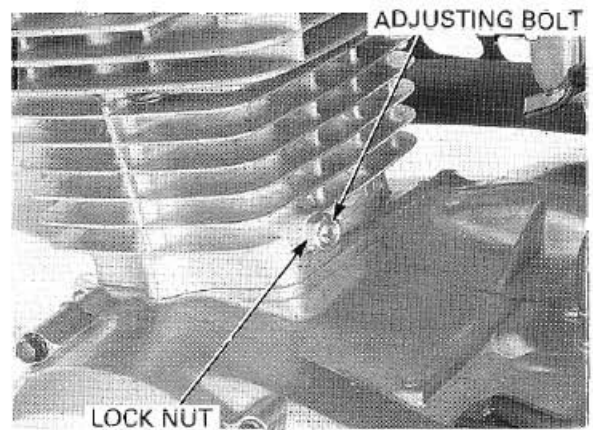
BOLT

MAINTENANCE

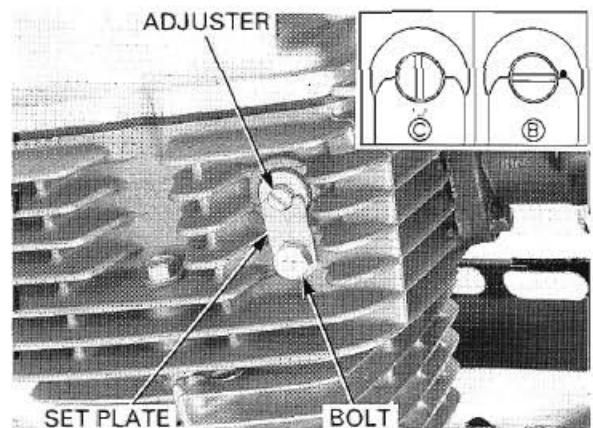
Loosen the cam chain adjusting bolt lock nut and the adjusting bolt.
Tighten the adjusting bolt and lock it with the lock nut.

TORQUE:

Lock nut: 12 N·m (1.2 kgf·m, 9 lbf·ft)



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 until the chain noise decrease or is eliminated.
Tighten the set plate bolt.



ENGINE IDLE SPEED

⚠ WARNING

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

NOTE:

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

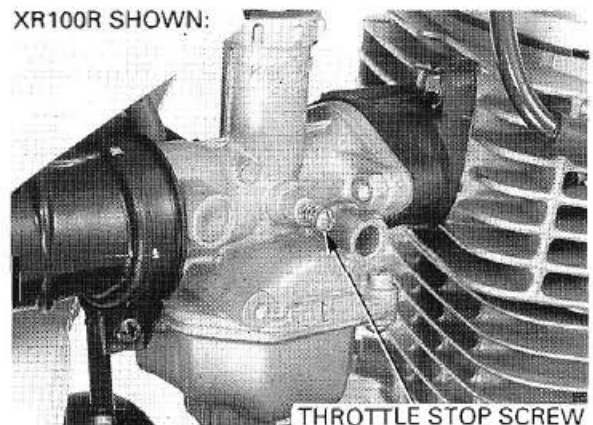
Warm up the engine for about 10 minutes.
Connect a tachometer.
Turn the throttle stop screw as required to obtain the specified idle speed.

IDLE SPEED:

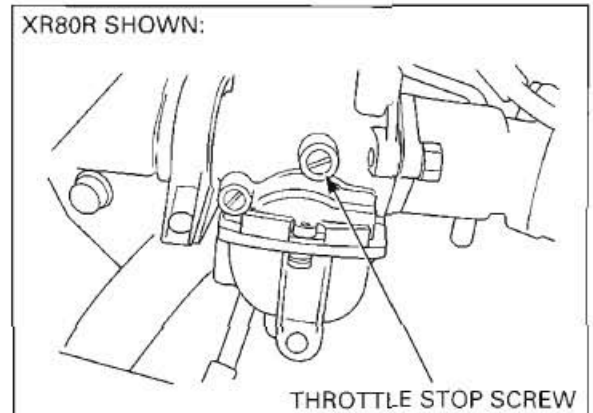
XR100R: 1,400 ± 100 rpm

XR80R: 1,500 ± 100 rpm

XR100R SHOWN:



XR80R SHOWN:



DRIVE CHAIN

DRIVE CHAIN SLACK INSPECTION

⚠ WARNING

Never inspect and adjust the drive chain while the engine is running.

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

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

CAUTION:

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

ADJUSTMENT

Loosen the rear axle nut.
Turn both adjusting nuts until the correct drive chain slack is obtained.

Make sure the index marks on both adjusters are aligned with the index marks on the swingarm. Tighten the rear axle nut to the specified torque.

TORQUE: 62 N·m (6.3 kgf·m, 46 lbf·ft)

Tighten both adjusting nuts.

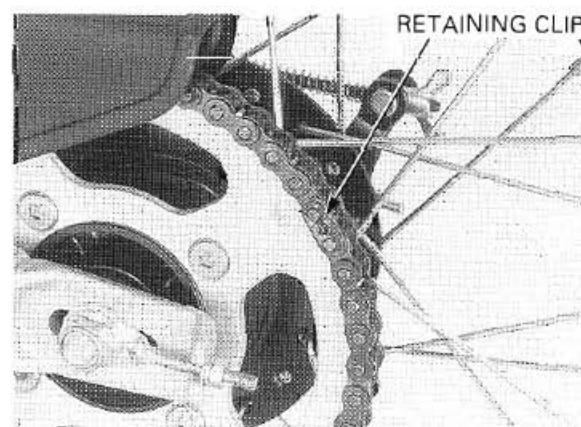
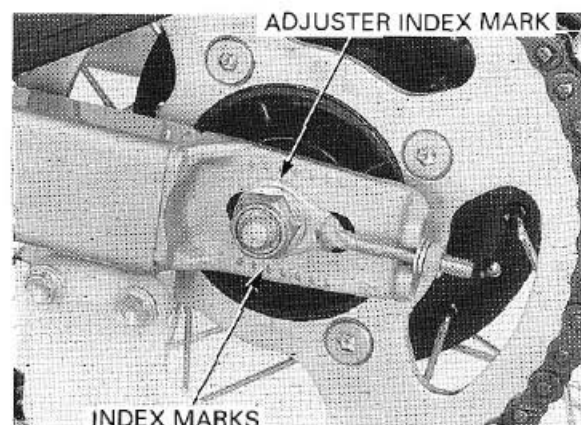
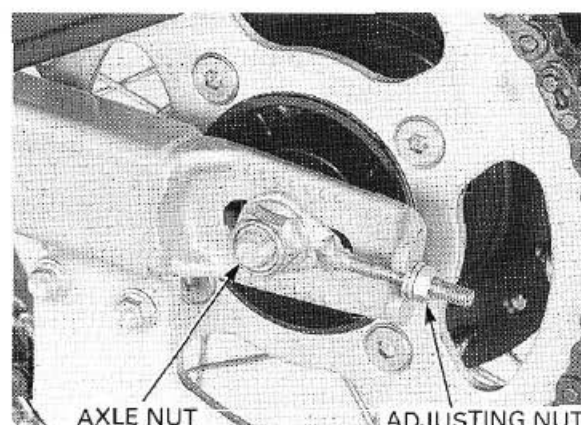
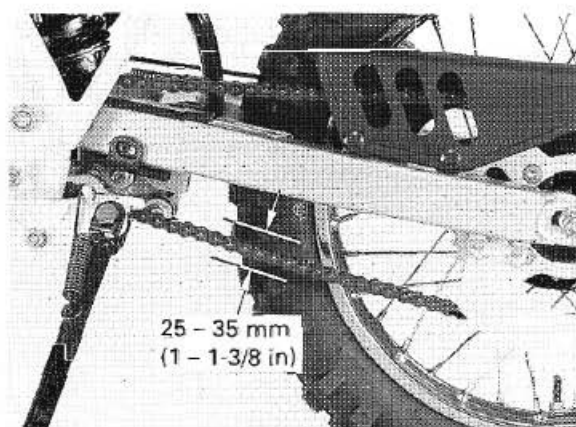
Recheck the drive chain slack and free wheel rotation.
Check the rear brake pedal free play (page 3-19), adjust if necessary.
Lubricate the drive chain with #80-90 gear oil.
Wipe off any excess oil.

CLEANING INSPECTION AND LUBRICATION

If the drive chain becomes extremely dirty, it should be removed and cleaned prior to lubrication.

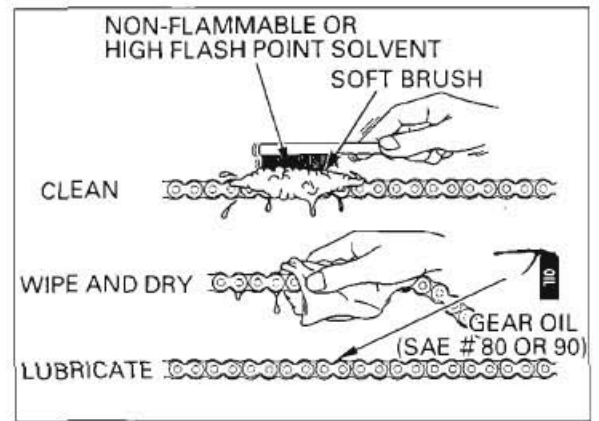
Remove the left crankcase cover (page 13-9).

Carefully remove the retaining clip with pliers. Remove the master link and drive chain.



MAINTENANCE

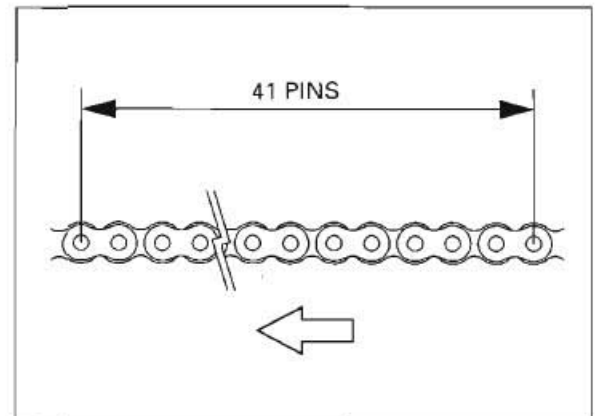
Clean the chain with non-flammable or high flash point solvent and wipe it dry.
Make sure the chain has dried completely before lubricating it.
Lubricate the drive chain with #80-90 gear oil.
Wipe off any excess gear oil.



Inspect the drive chain for possible damage or wear.
Replace any chain that has damaged rollers, loose fitting links, or otherwise appears unserviceable.

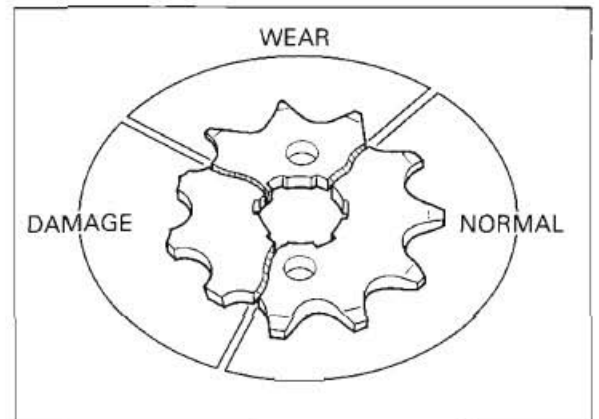
Measure the drive chain distance between a span of 41 pins from pin center to pin center with the chain held taut and any kinked joint straightened.

SERVICE LIMIT: 511 mm (20.1 in)

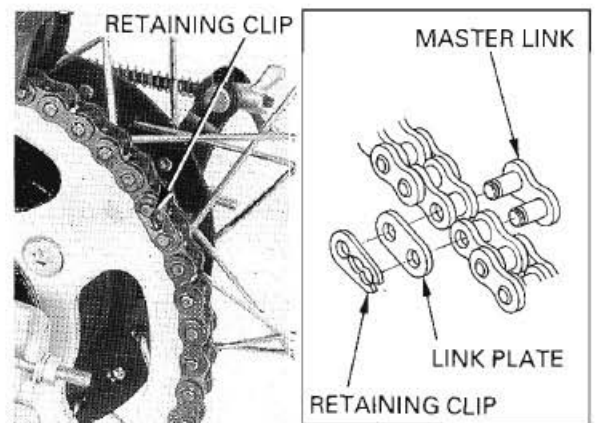


Installing a new chain on badly worn sprockets will cause the new chain to wear quickly.
Inspect the drive and driven sprocket teeth for wear or damage, replace if necessary.
Never use a new drive chain on worn sprockets.
Both chain and sprockets must be in good condition, or the new replacement chain will wear rapidly.

Check the attaching bolts and nuts on the drive and driven sprockets.
If any are loose, torque them.



Install the drive chain onto the sprockets.
Install the master link and link plate.
Install the retaining clip with the open end opposite the direction of chain travel.



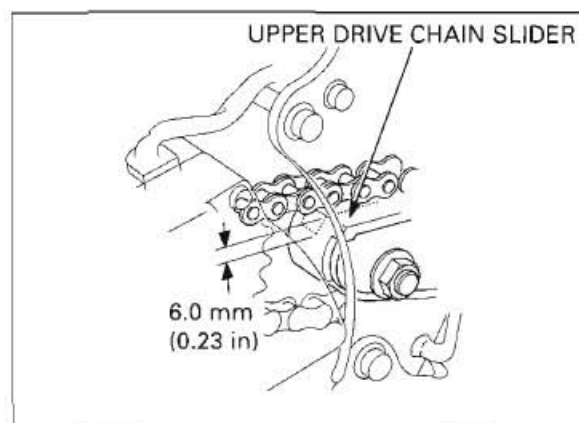
DRIVE CHAIN SLIDER

UPPER DRIVE CHAIN SLIDER

Check the upper drive chain slider for wear or damage.

Replace the upper drive chain slider if it is worn to the service limit or if it has been damaged.

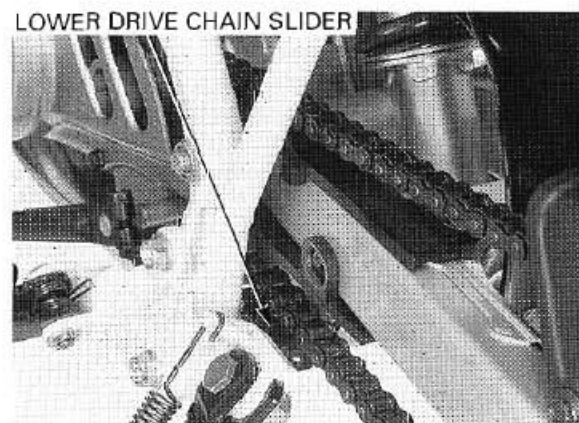
SERVICE LIMIT: 6.0 mm (0.23 in)



LOWER DRIVE CHAIN SLIDER

Check the lower drive chain slider for wear or damage.

Replace the lower drive chain slider if it is worn to the wear limit or if it has been damaged.

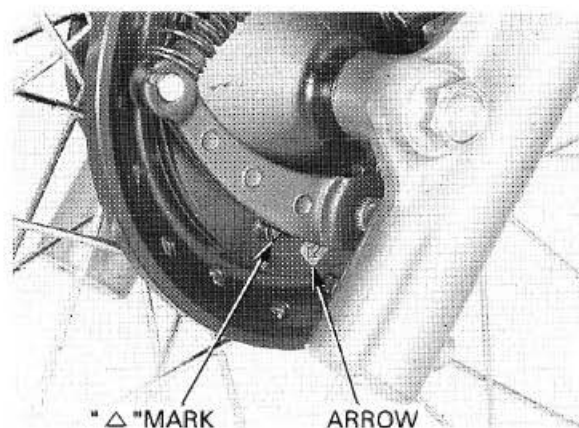


BRAKE SHOE WEAR

FRONT BRAKE SHOES

Check the brake shoes and brake drum if the arrow on the indicator plate aligns with the "△" mark on the brake panel when the brake lever is applied.

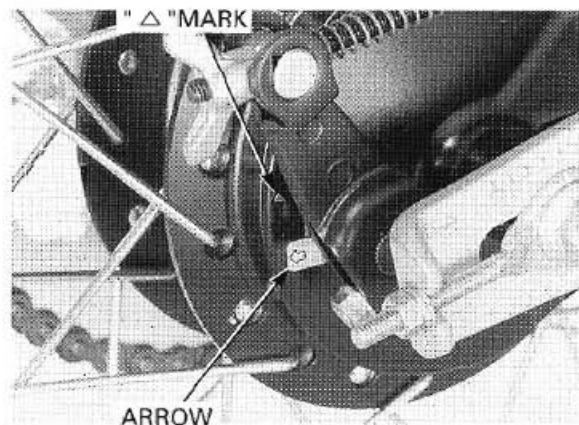
Refer to page 11-11 for brake shoe replacement.



REAR BRAKE SHOES

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

Refer to page 12-8 for brake shoe replacement.

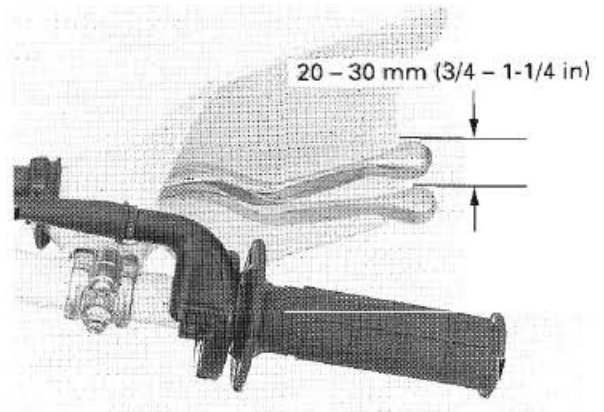


BRAKE SYSTEM

FRONT BRAKE

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

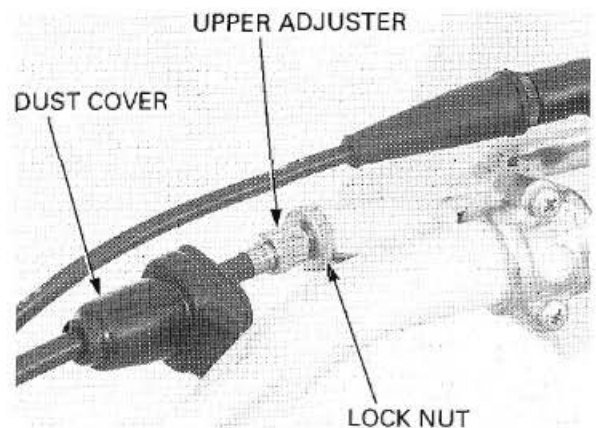
FREE PLAY: 20 – 30 mm (3/4 – 1-1/4 in)



Minor adjustments can be made with the upper adjuster.

Loosen the lock nut and turn the adjuster until the free play is within specification.

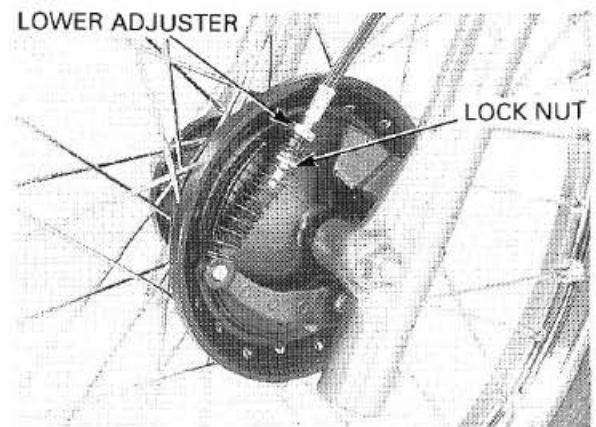
After adjustment, tighten the lock nut.



Major adjustments can be made with the lower adjuster on the brake panel.

Loosen the lock nut and turn the adjusting nut until the free play is within specification.

After adjustment, tighten the lock nut.



REAR BRAKE

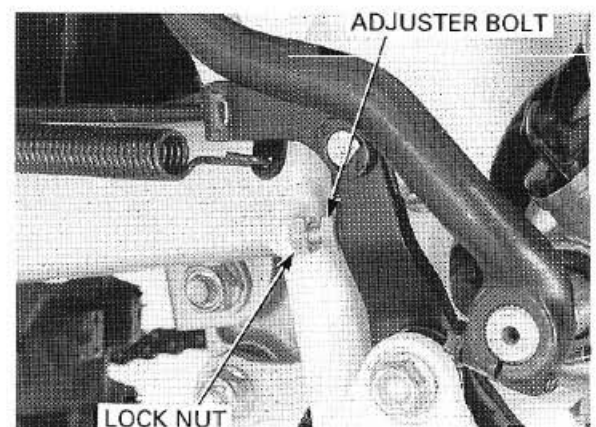
Pedal Height

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

Retighten the lock nut.

NOTE:

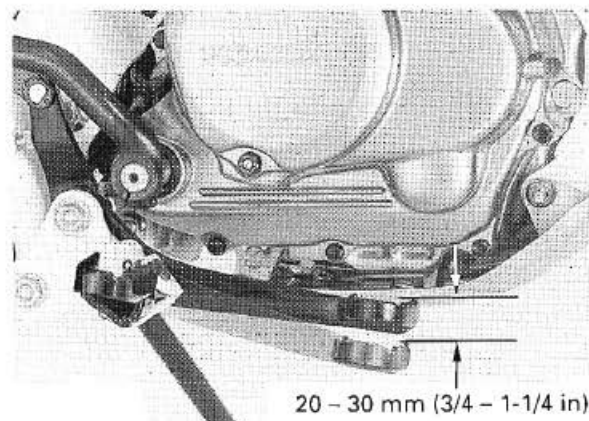
Adjust the rear brake pedal free play after adjusting the brake pedal height.



Pedal Free Play

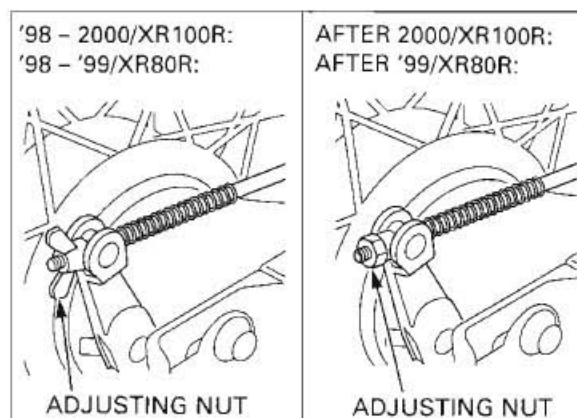
Check the brake pedal free play.

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



Make sure the cutout on the adjusting nut is seated on the brake arm pin after making the final free play adjustment.

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

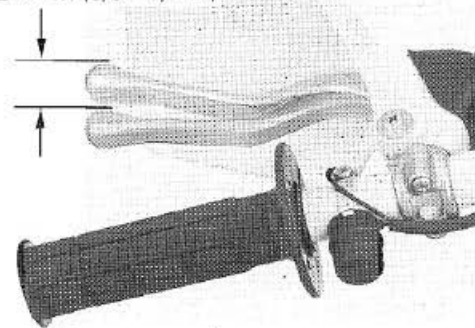


CLUTCH SYSTEM

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

FREE PLAY: 10 – 20 mm (3/8 – 3/4 in)

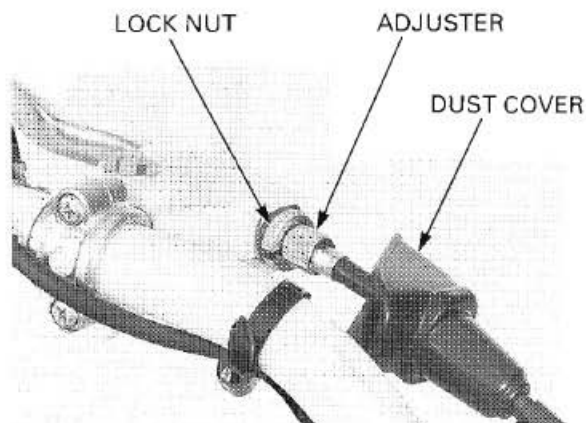
10 – 20 mm (3/8 – 3/4 in)



Minor adjustments can be made with the upper adjuster.

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

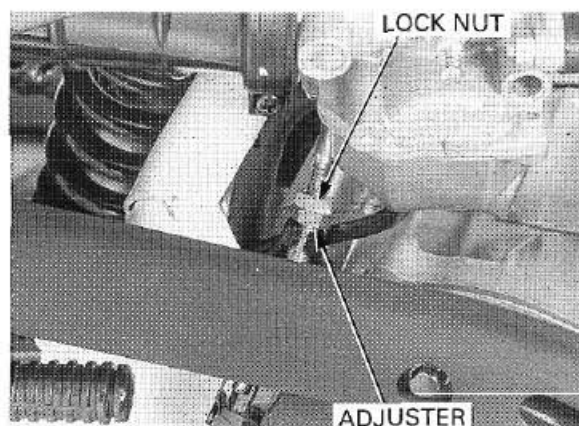
Check the clutch operation.



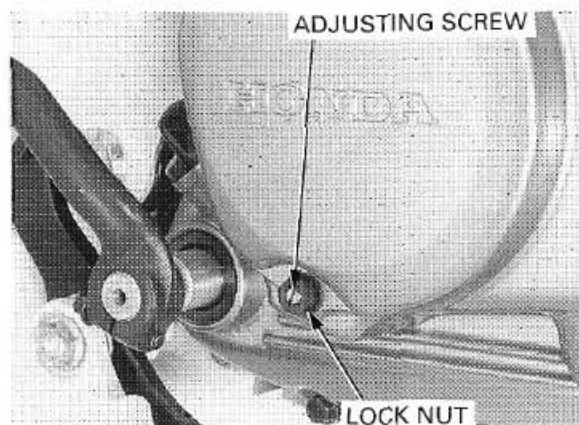
MAINTENANCE

Major adjustment can be made with the lower adjuster.

Loosen the lower adjuster lock nut and turn the adjuster all the way in.

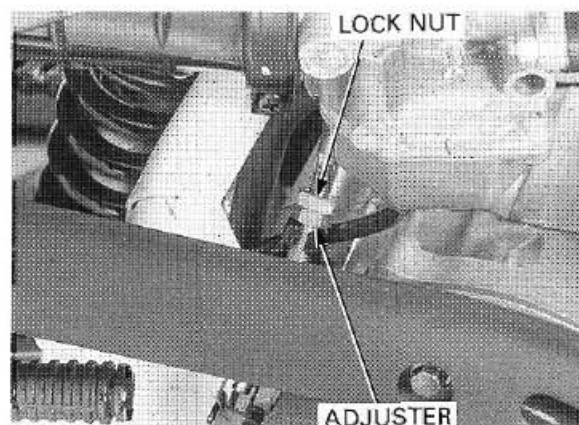


Loosen the adjusting screw lock nut on the right crankcase. Turn the adjusting screw counter-clockwise until resistance is felt. Then turn the screw clockwise 1/8-1/4 of a turn. Hold the adjusting screw and tighten the lock nut.



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

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

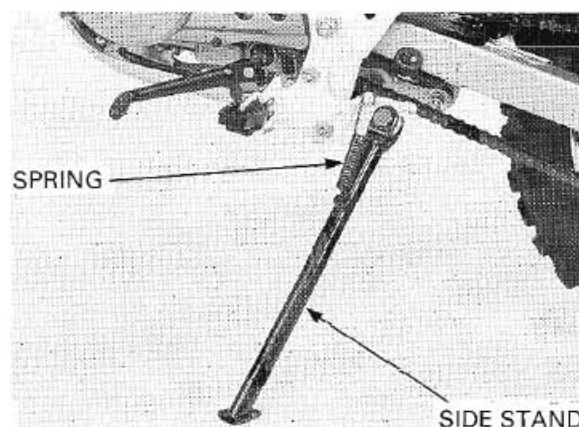


SIDE STAND

Support the motorcycle on a level surface.

Check the side stand spring for damage or loss of tension.

Check the side stand assembly for smooth movement and lubricate the side stand pivot if necessary.



SUSPENSION

⚠ WARNING

Loose, worn or damaged suspension parts impair motorcycle stability and control. Repair or replace any damaged components before riding. Riding a motorcycle with faulty suspension increases your risk of an accident and possible injury.

FRONT SUSPENSION INSPECTION

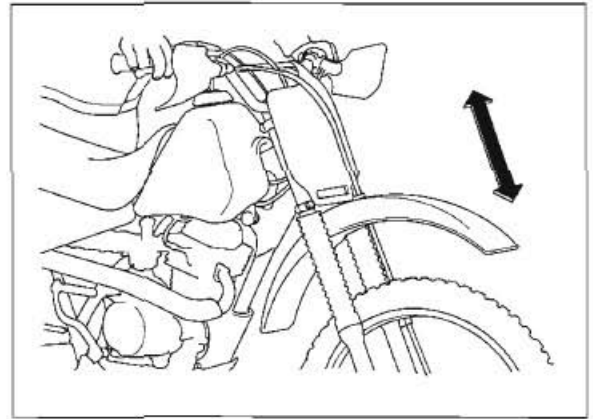
Check the action of the fork legs by operating the front brake and compressing the front suspension several times.

Check the entire assembly for signs of leaks, damage or loose fasteners.

Replace damaged components which cannot be repaired.

Tighten all nuts and bolts.

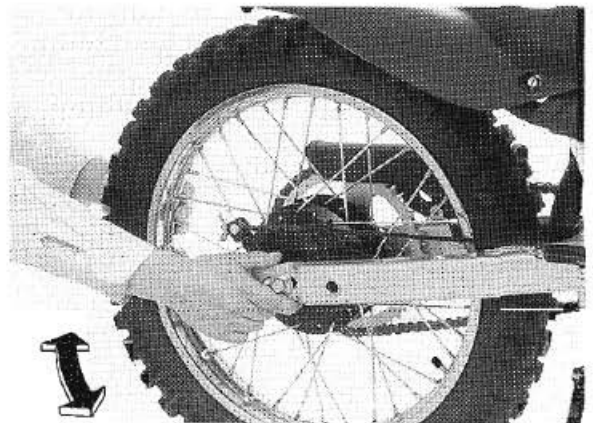
Refer to section 11 for fork service.



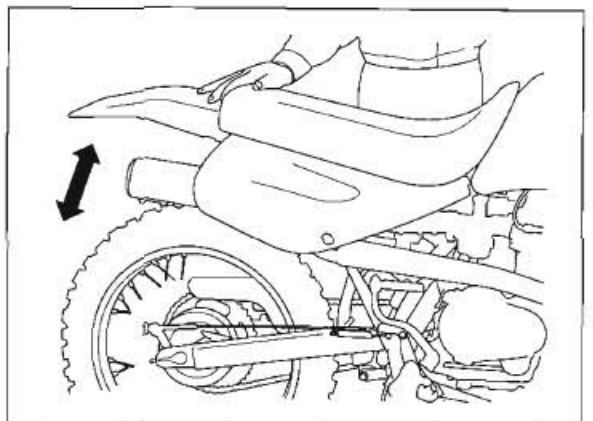
REAR SUSPENSION INSPECTION

Support the motorcycle on a safety stand or box and raise the rear wheel off the ground.

Hold the swingarm and move the rear wheel sideways with force to see if the wheel bearings are worn.

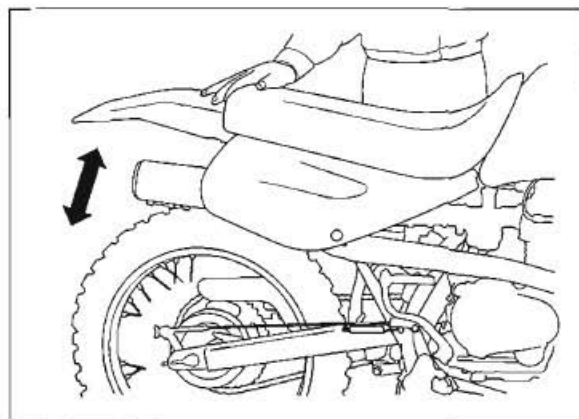


Check for worn swingarm bushings by grabbing the swingarm and try to move it side to side. Replace the bushings if any looseness is noted.



Check the action of the shock absorber by compressing it several times.
Check the entire shock absorber assembly for signs of leaks, damage or loose fasteners.
Replace damaged components which cannot be repaired.
Tighten all nuts and bolts.

Refer to section 12 for shock absorber service.

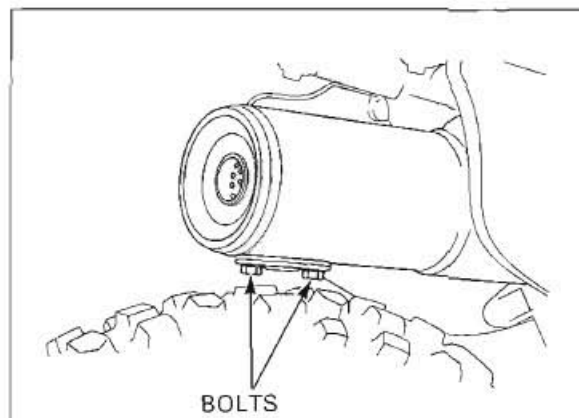


SPARK ARRESTER

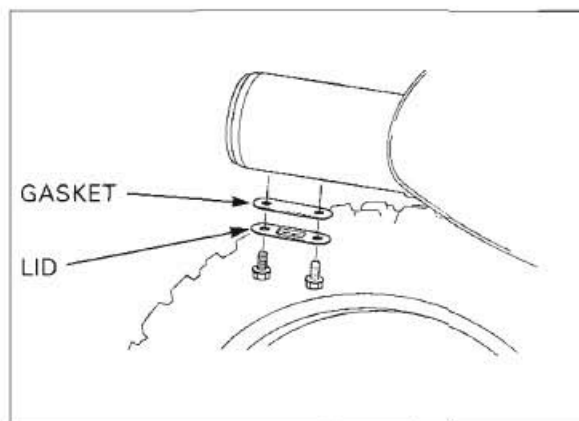
⚠ WARNING

- *Wait until the pipe has cooled before removing or installing the spark arrester lid.*
- *Perform this operation in a well/ventilated area free from combustible materials.*
- *Use adequate eye protection.*

'98 – 2000: Remove the two bolts.

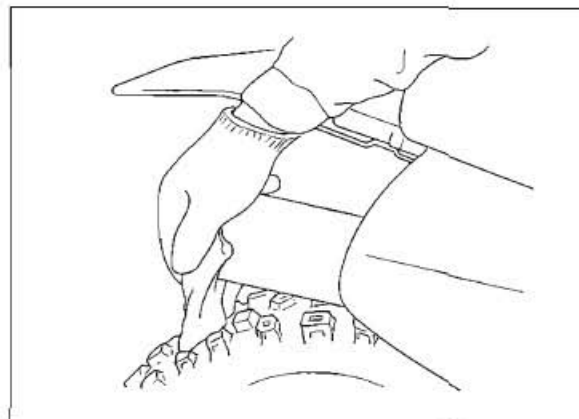


Remove the spark arrester lid and gasket.



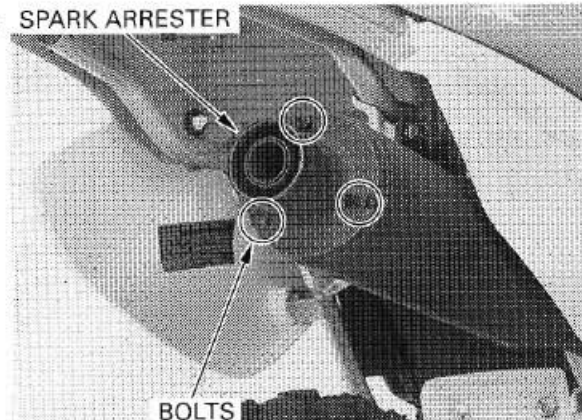
Start the engine and rev it up 20 times while momentarily creating exhaust system back pressure by blocking the end of the exhaust pipe with a rag to blow carbon out of the muffler hole.

Ensure that the muffler lid bolts and gasket are in good condition. Replace if necessary.



After 2000: Remove the three SH bolts, spark arrester and gasket from the muffler.

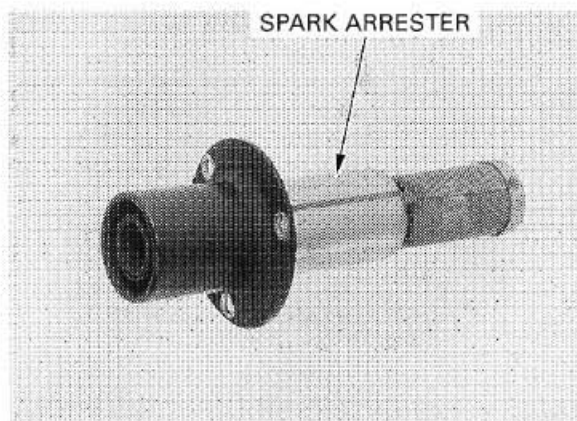
SPARK ARRESTER



Use a soft brush to remove carbon from the spark arrester screen.

The spark arrester must be free of cracks and holes. Replace if necessary.

SPARK ARRESTER



Install the new gasket and spark arrester in the muffler.
Tighten the three bolts securely.

NEW GASKET



NUTS, BOLTS, FASTENERS

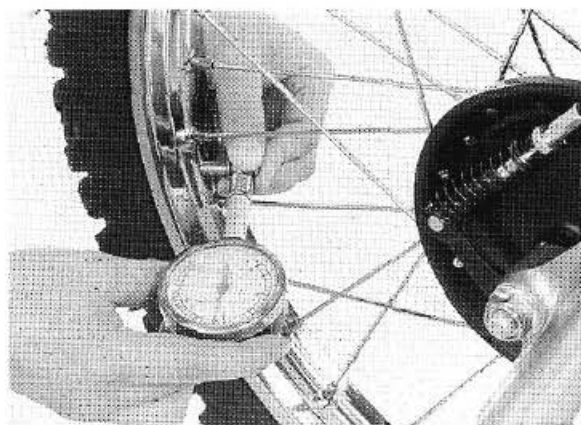
Check that all chassis nuts and bolts are tightened to their correct torque values (page 1-14).
Check that all safety clips, clamps and cable stays are in place and properly secured.

WHEELS/TIRES

Tire pressure should be checked when the tires are cold.

RECOMMENDED TIRE PRESSURE AND TIRE SIZE:

Tire pressure kPa (kgf/cm ² , psi)		Front	100 (1.0, 15)
		Rear	125 (1.25, 18)
Tire size	XR100R	Front	2.50-19-4PR
		Rear	3.00-16-4PR
	XR80R	Front	2.50-16-4PR
		Rear	3.60-14-4PR
Tire brand	XR100R Bridgestone	Front	M23
		Rear	M22
	XR80R IRC	Front	GS-45Z1
		Rear	GS-45Z1



Check the tires for cuts, embedded nails, or other damage.

Check the front and rear wheels for trueness (refer to sections 11 and 12).

Measure the tread depth at the center of the tires. Replace the tires when the tread depth reaches the following limits.

MINIMUM TREAD DEPTH:

FRONT: 3.0 mm (0.12 in)

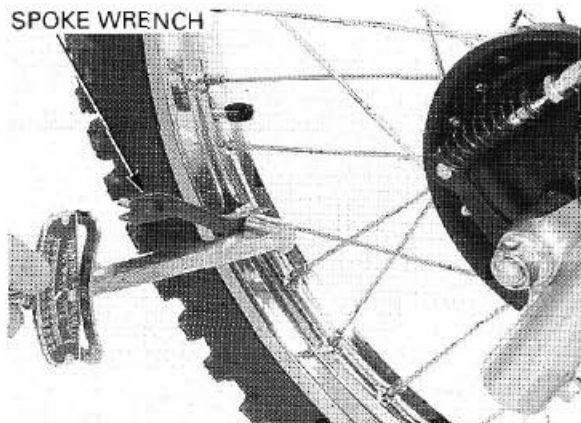
REAR: 3.0 mm (0.12 in)

Tighten any loose spokes.

TOOL:

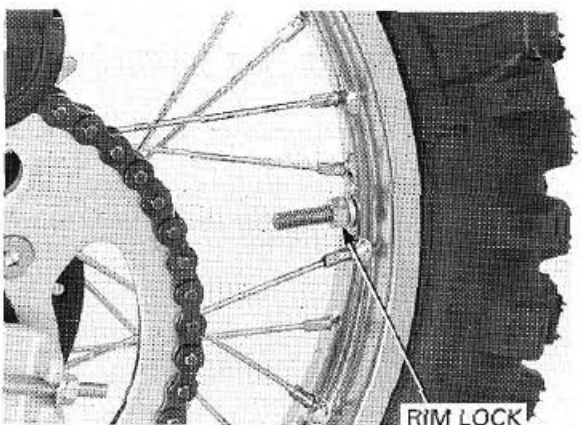
Spoke wrench, 4.5 × 5.1 mm 07701-0020200 or equivalent commercially available in U.S.A.

SPOKE WRENCH



Tighten the rear wheel rim lock to the specified torque.

TORQUE: 13 N·m (1.3 kgf·m, 9 lbf·ft)



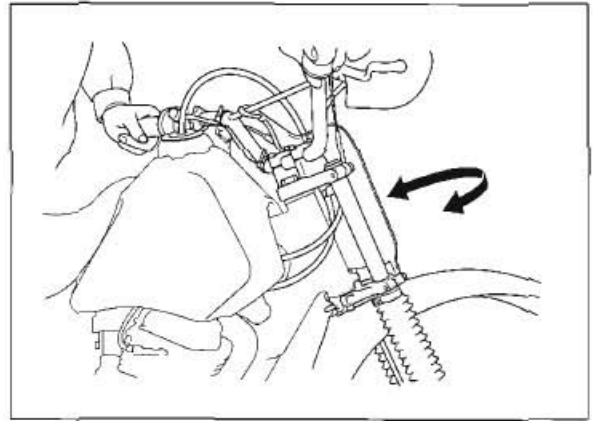
STEERING HEAD BEARINGS

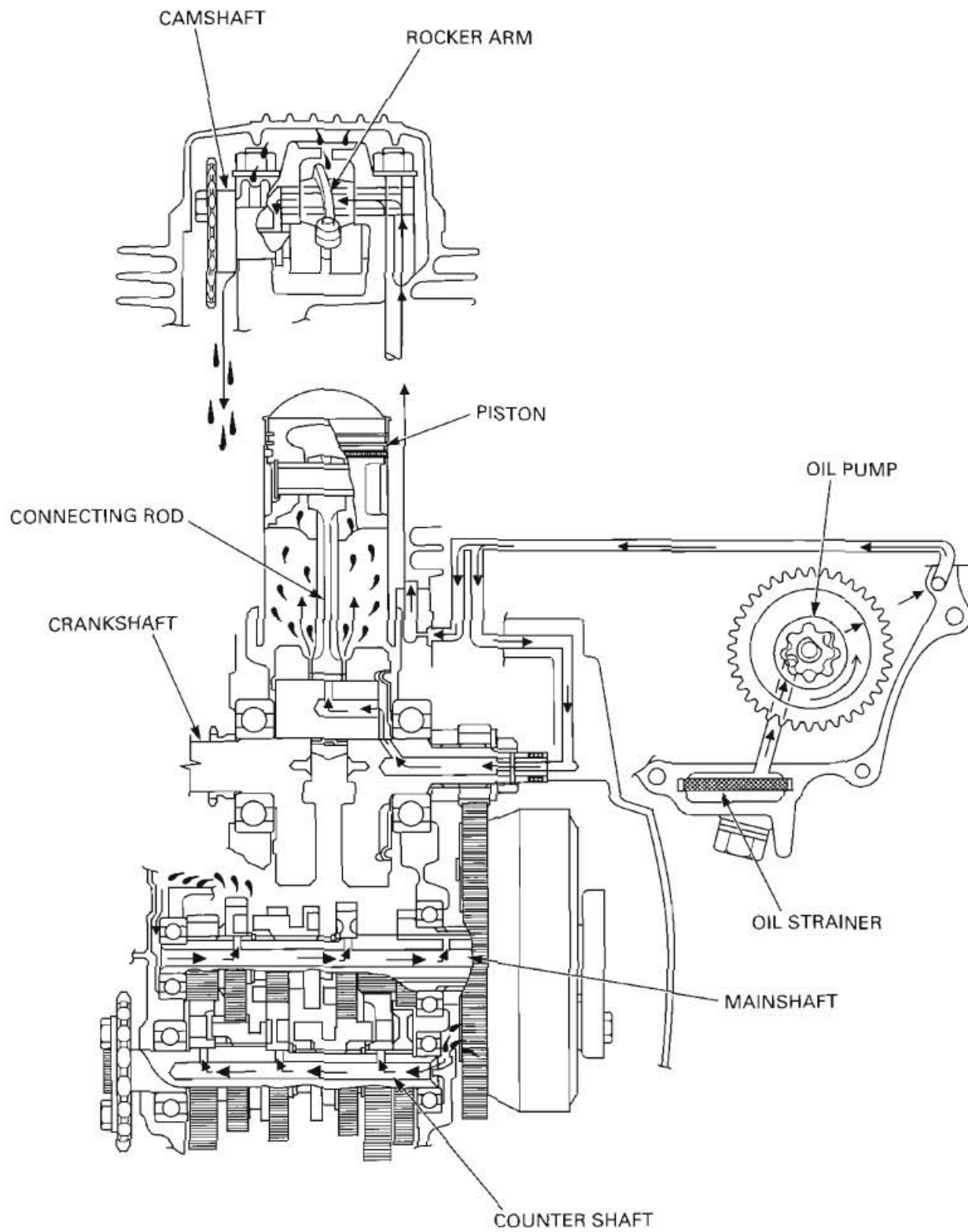
Check that the control cables do not interfere with handlebar rotation.

Support the motorcycle securely and raise the front wheel off the ground.

Check that the handlebar moves freely from side to side.

If the handlebar moves unevenly, binds, or has vertical movement, inspect the steering head bearings (page 11-21).





4. LUBRICATION SYSTEM

LUBRICATION SYSTEM DIAGRAM	4-0	CYLINDER HEAD OIL CHECK BOLT	4-2
SERVICE INFORMATION	4-1	OIL PUMP	4-2
TROUBLESHOOTING	4-1		

SERVICE INFORMATION

GENERAL

⚠ WARNING

- If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area. The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and may lead to death. Run the engine in an open area or with an exhaust evacuation system in an enclosed area.
- 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. **KEEP OUT OF REACH OF CHILDREN.**

- The oil pump can be serviced with the engine installed in the frame.
- The service procedures in this section must be performed with the engine oil drained.
- When removing and installing the oil pump, use care not to allow dust or dirt to enter the engine.
- If any portion of the oil pump is worn beyond the specified service limits, replace the oil pump as an assembly.
- After the oil pump has been installed, check that there are no oil leaks.

SPECIFICATIONS

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Engine oil capacity	XR100R	At draining	0.9 ℓ (0.95 us qt, 0.79 Imp qt)	_____
		At disassembly	1.0 ℓ (1.06 us qt, 0.88 Imp qt)	_____
	XR80R	At draining	0.8 ℓ (0.85 us qt, 0.70 Imp qt)	_____
		At disassembly	0.9 ℓ (0.95 us qt, 0.79 Imp qt)	_____
Recommended engine oil			HONDA GN4 or HP4 4-stroke oil or equivalent motor oil API service classification SF or SG Viscosity: SAE 10W-30	_____
Oil pump rotor	Tip clearance		0.15 (0.006)	0.20 (0.008)
	Body clearance		0.15 – 0.21 (0.006 – 0.008)	0.40 (0.016)
	Side clearance		0.02 – 0.07 (0.001 – 0.003)	0.025 (0.010)

TORQUE VALUES

Oil drain bolt	25 N•m (2.5 kgf•m, 18 lbf•ft)
Oil pump plate screw	3 N•m (0.3 kgf•m, 2 lbf•ft)

TROUBLESHOOTING

Engine oil level too low

- Normal oil consumption
- External oil leak
- Worn piston ring or incorrect piston ring installation
- Worn valve guide or seal

Oil contamination

- External oil leak
- Worn piston ring or incorrect piston ring installation
- Worn valve guide or seal
- Clogged oil strainer screen

Low oil pressure

- Oil pump worn or damaged
- Oil not change often enough
- Oil pump drive sprocket broken

CYLINDER HEAD OIL CHECK BOLT

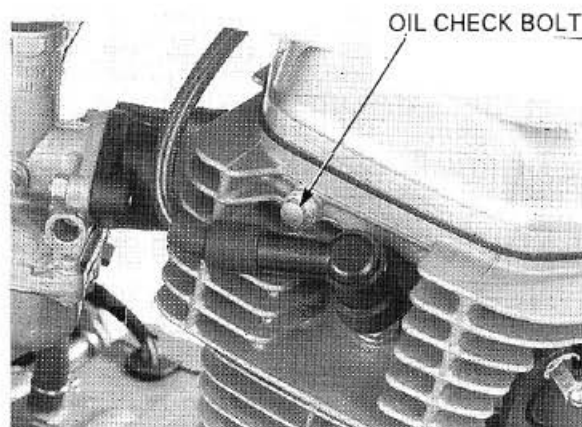
Start the engine.

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.



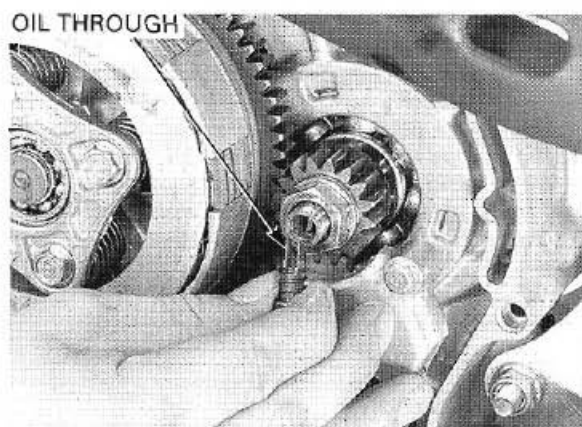
OIL PUMP

REMOVAL

Drain the engine oil (page 3-12).

Remove the following:

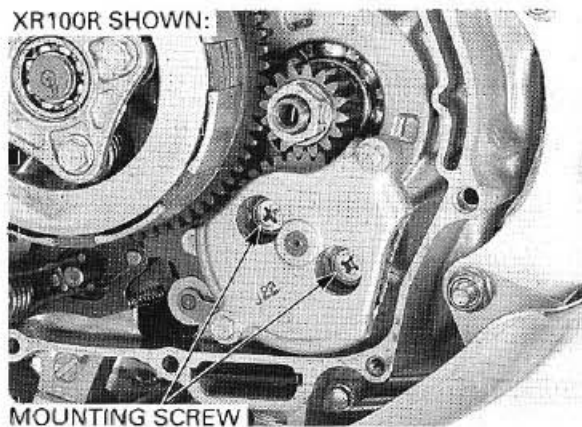
- Right crankcase cover (page 9-3)
- Oil through.



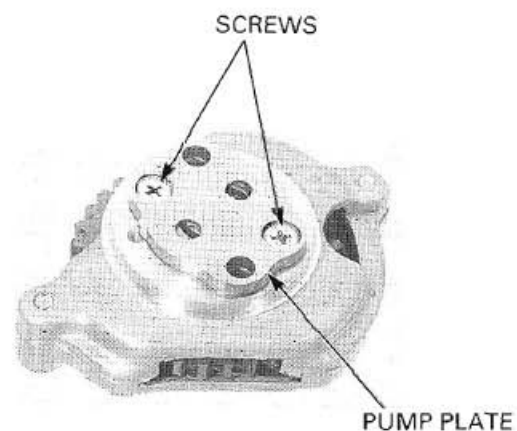
Turn the crankshaft and align the hole on the oil pump drive gear with oil pump mounting screws (or bolts).

XR100R: Remove the two screws, oil pump and O-rings.

XR80R: Remove the two bolts, oil pump and O-rings.



Remove the two screws and oil pump plate.



INSPECTION

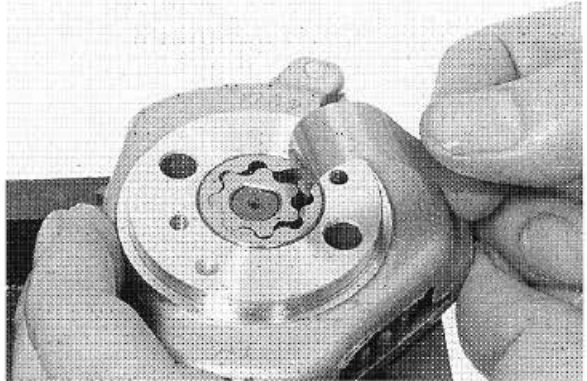
If any portion of the oil pump is worn beyond the specified service limit, replace the oil pump as an assembly.

Temporarily install the outer and inner rotors into the oil pump body.
Install the oil pumps shaft.

Measure the tip clearance between the inner and outer rotors.

SERVICE LIMIT: 0.20 mm (0.008 in)

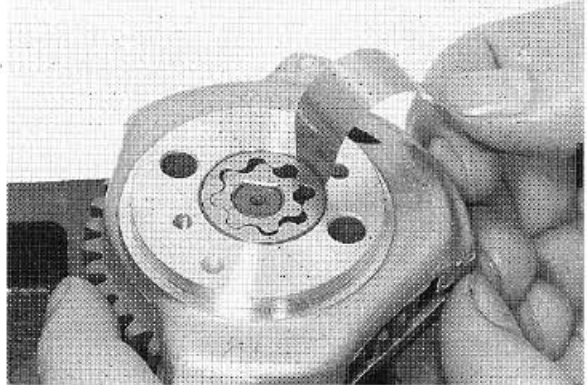
TIP CLEARANCE:



Measure the pump body clearance between the outer rotor and pump body.

SERVICE LIMIT: 0.40 mm (0.016 in)

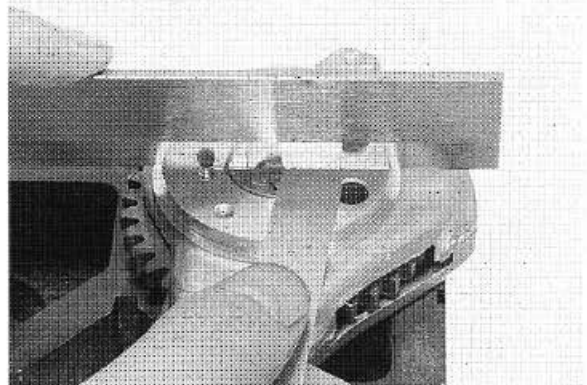
BODY CLEARANCE:



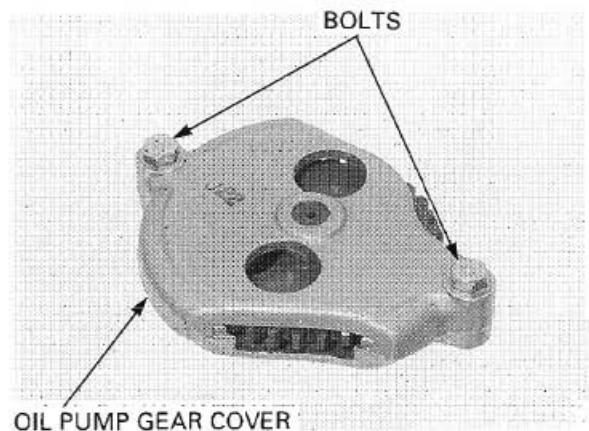
Measure the side clearance using a straight edge and feeler gauge.

SERVICE LIMIT: 0.025 mm (0.010 in)

SIDE CLEARANCE:

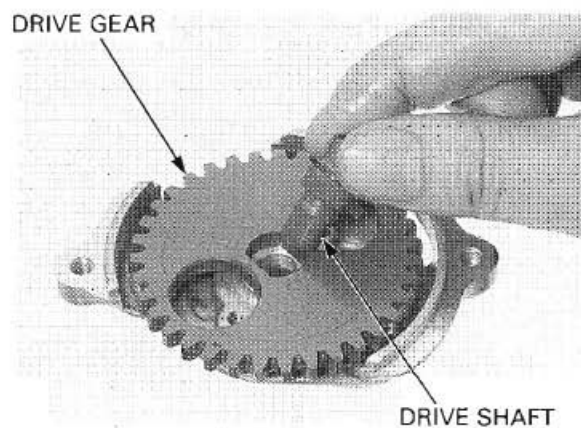


Remove the two bolts and oil pump gear cover.

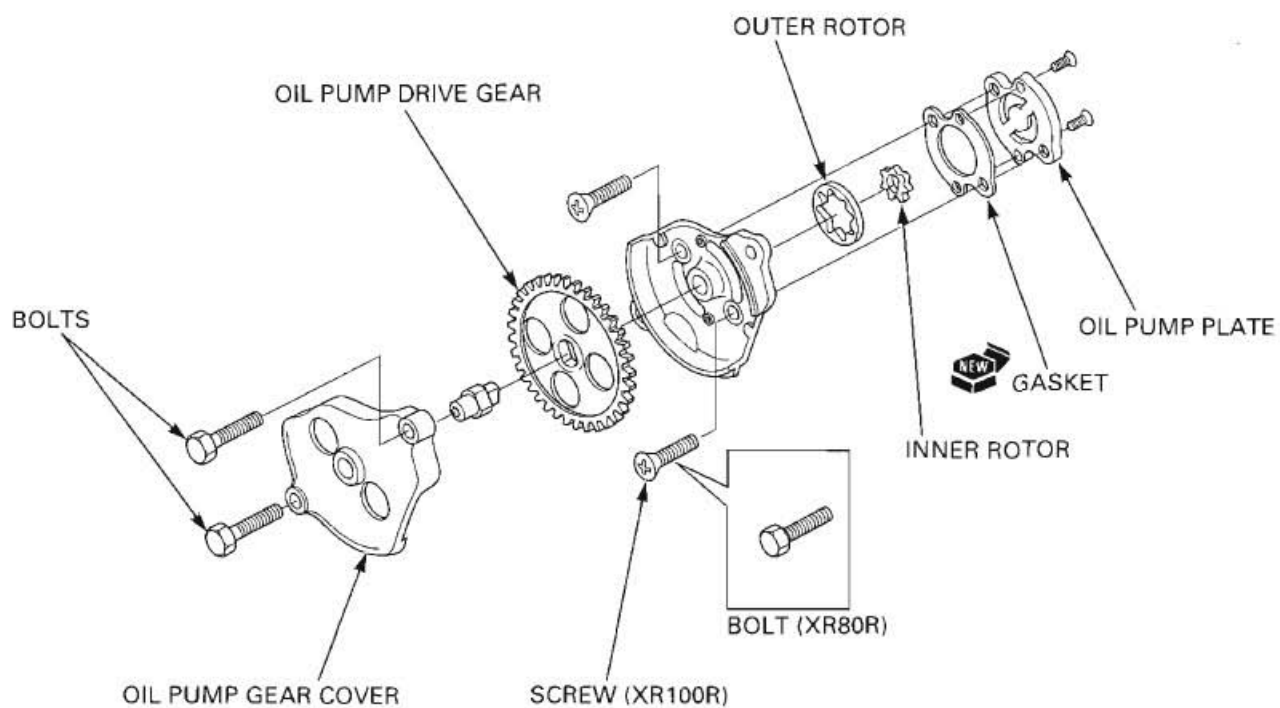


LUBRICATION SYSTEM

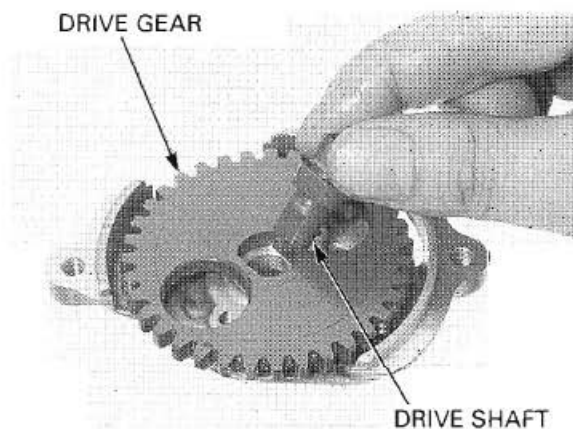
Remove the oil pump drive shaft and drive gear.
Check the drive gear and shaft for wear or damage.



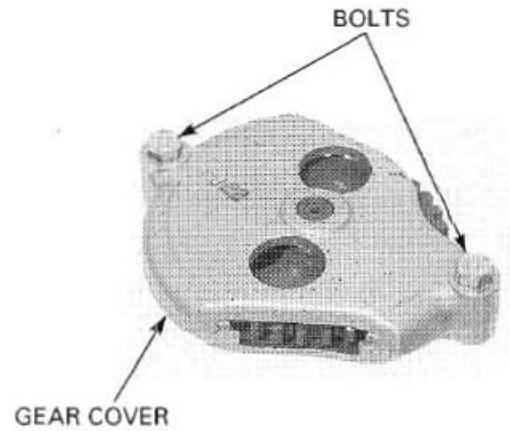
ASSEMBLY



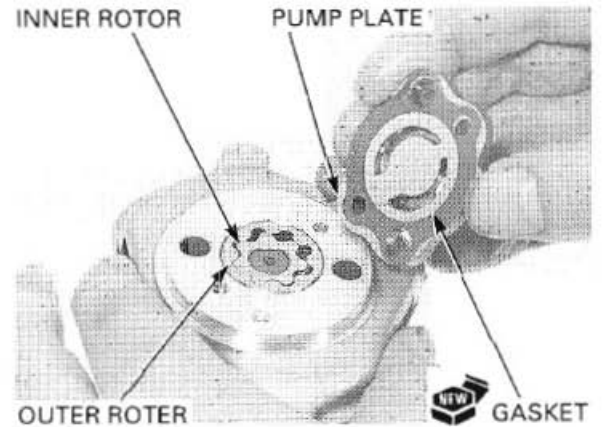
Install the oil pump drive gear and drive shaft.



Install the oil pump gear cover and tighten the two bolts.



Install the inner rotor and outer rotor.
Install a new gasket and oil pump plate.

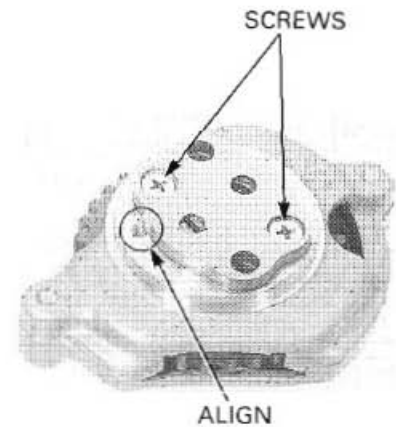


Install the oil pump cover by aligning the boss on the cover with the cutout in the pump body.

Tighten the two oil pump plate screws to the specified torque.

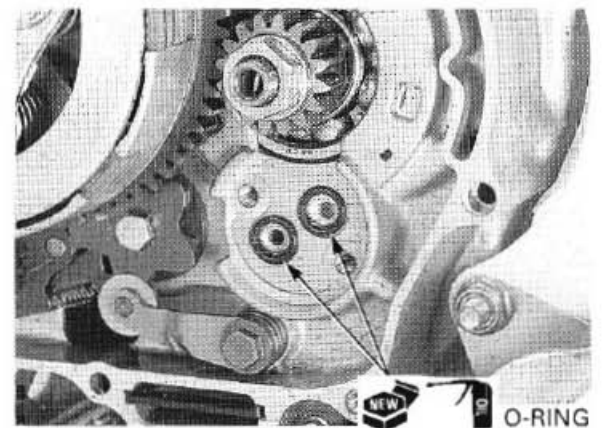
TORQUE: 3 N·m (0.3 kgf·m, 2 lbf·ft)

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



INSTALLATION

Apply oil to new O-ring, then install them onto the left crankcase.

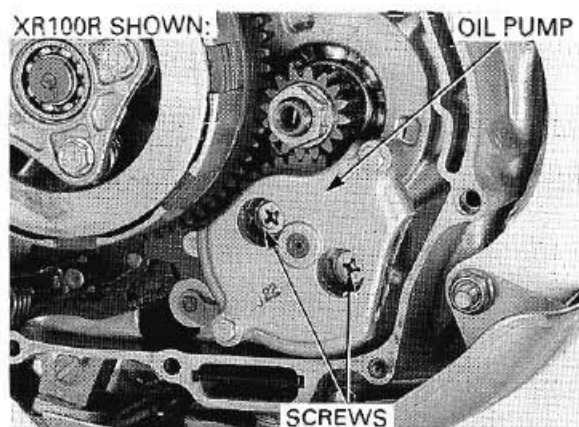


LUBRICATION SYSTEM

Turn the crankshaft and align the hole on the oil pump drive gear with oil pump mounting screws (or bolts).

XR100R: Tighten the two screws.

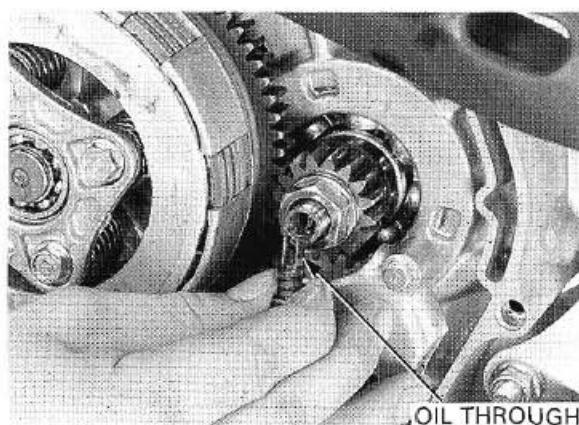
XR80R: Tighten the two bolts.



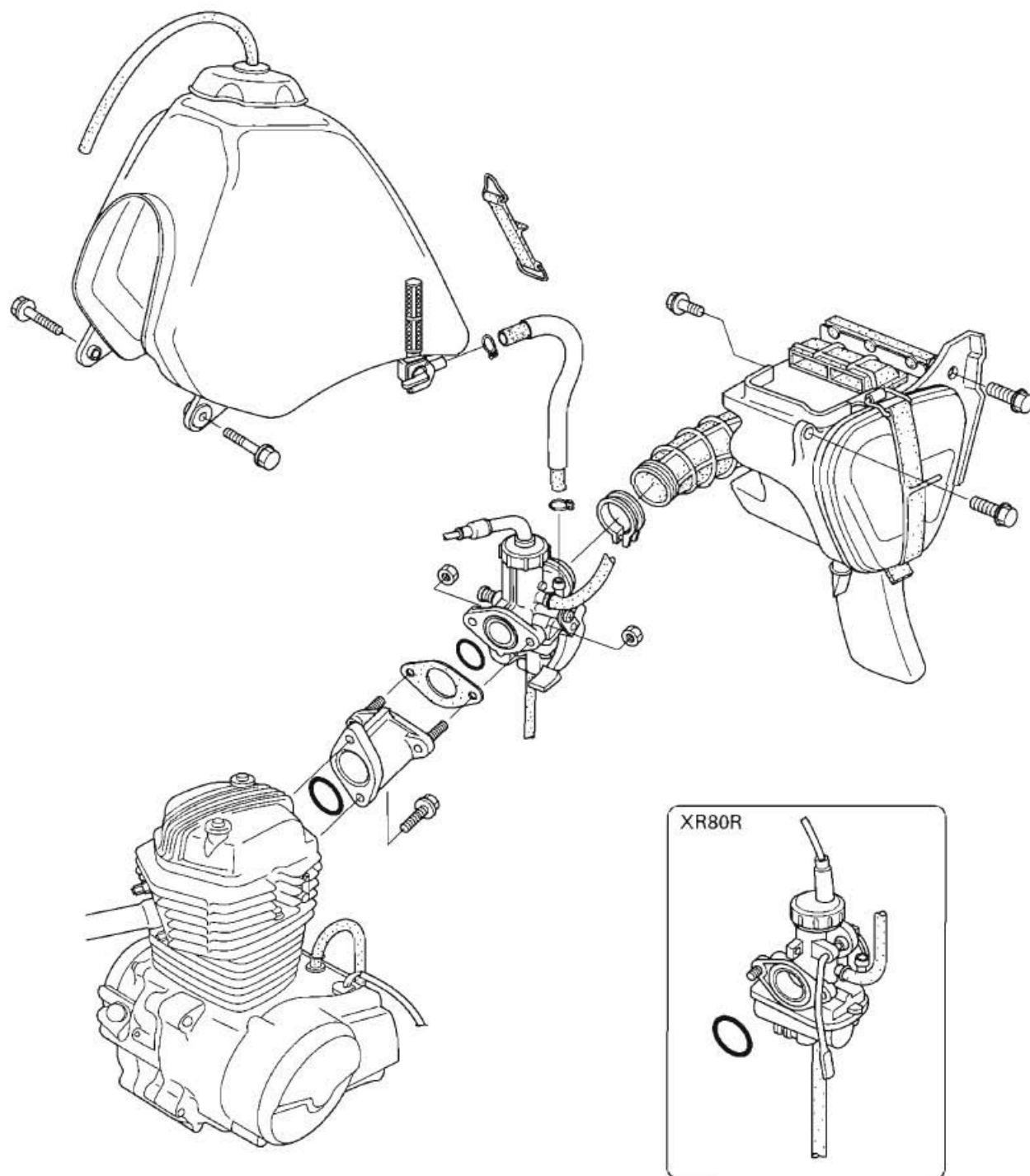
Install the oil through align the cutout to the drive pin.

Install the right crankcase cover (page 9-12).

After installation, fill the crankcase with recommended oil (page 3-12) and check that there is no oil leak.



MEMO



5. FUEL SYSTEM

SERVICE INFORMATION	5-1	CARBURETOR INSTALLATION	5-12
TROUBLESHOOTING	5-3	PILOT SCREW ADJUSTMENT (XR100R)	5-14
AIR CLEANER HOUSING	5-4	AIR SCREW ADJUSTMENT (XR80R)	5-16
CARBURETOR REMOVAL	5-4	HIGH ALTITUDE ADJUSTMENT	5-18
CARBURETOR DISASSEMBLY	5-6		
CARBURETOR ASSEMBLY	5-8		

SERVICE INFORMATION

GENERAL

WARNING

- Gasoline is extremely flammable and is explosive under certain conditions. KEEP OUT OF REACH OF CHILDREN.
- Bending or twisting the control cable will impair smooth operation and could cause the cable to stick or bind, resulting in loss of vehicle control.

- Work in a well ventilated area. Smoking or allowing flames or sparks in the work area or where gasoline is stored can cause a fire or explosion.
- Refer to section 2 for fuel tank removal and installation.
- When disassembling fuel system parts, note the location of the O-rings. Replace them with new ones on reassembly.
- Before disassembling the carburetor, place the suitable container under the carburetor drain tube. Loosen the screw and drain the carburetor.
- After removing the carburetor, wrap the intake port of the engine with a shop towel or cover it with piece of tape to prevent any foreign material from dropping into the engine.

NOTE:

If the vehicle is to be stored for more than one month, drain the float bowl. Fuel left in the float bowl may cause clogged jets, resulting in hard starting or poor driveability.

FUEL SYSTEM

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Carburetor identification number	XR100R	'98 – 2000/except California type	PD80C	_____
		'98 – 2000/California type	PDC3D	_____
		After 2000	PDC3L	_____
	XR80R	'98 – '99	PC20B	_____
		2000	PC20F	_____
		After 2000	PC20J	_____
Main jet	XR100R	'98 – 2000	#95	_____
		After 2000	#98	_____
	XR80R	#95	_____	
Slow jet	XR100R	'98 – 2000/except California type	#38 X #38	_____
		'98 – 2000/California type	#35 X #35	_____
		After 2000	#35 X #35	_____
	XR80R	#35	_____	
Jet needle clip position	XR100R		3rd groove from top	_____
	XR80R	'98 – '99	2nd groove from top	_____
		AFTER '99	3rd groove from top	_____
Pilot screw opening	XR100R		See page 5-14	_____
Air screw opening	XR80R		See page 5-16	_____
Float level	XR100R		12.5 mm (0.49 in)	_____
	XR80R		21.5 mm (0.85 in)	_____
Engine idle speed	XR100R		1,400±100 rpm	_____
	XR80R		1,500±100 rpm	_____
Throttle grip free play			2.0 - 6.0 mm (1/12 - 1/4 in)	_____

TOOL

Carburetor float level gauge

07401-0010000

TROUBLESHOOTING

Engine won't to start

- Too much fuel getting to the engine
 - Air cleaner clogged
 - Flooded carburetor
- Intake air leak
- Fuel contaminated/deteriorated
- No fuel to carburetor
 - Fuel strainer clogged
 - Fuel tube clogged
 - Float level misadjusted
 - Fuel tank breather tube clogged

Lean mixture

- Fuel jets clogged
- Float valve faulty
- Float level too low
- Fuel line restricted
- Carburetor air vent tube clogged
- Intake air leak
- Throttle valve faulty

Rich mixture

- Choke lever in CLOSE position
- Float valve faulty
- Float level too high
- Air jets clogged
- Air cleaner element contaminated
- Flooded carburetor

Engine stalls, hard to start, rough idling

- Fuel line restricted
- Ignition malfunction
- Fuel mixture too lean/rich
- Fuel contaminated/deteriorated
- Intake air leak
- Idle speed misadjusted
- Float level misadjusted
- Fuel tank breather tube clogged
- Pilot or air screw misadjusted
- Slow circuit clogged

Afterburn when engine braking is used

- Lean mixture in slow circuit

Backfiring or misfiring during acceleration

- Ignition system malfunction
- Fuel mixture too lean

Poor performance (driveability) and poor fuel economy

- Fuel system clogged
- Ignition system malfunction

AIR CLEANER HOUSING

REMOVAL/INSTALLATION

NOTE:

Refer to page 3-8 for air cleaner element service.

Remove the following:

- Side cover (page 2-2)
- Seat (page 2-2)

Disconnect the crankcase breather tube from the connecting tube ('98 – 2000/XR100R California type, After 2000/XR100R and After '99/XR80R: page 1-20, 21).

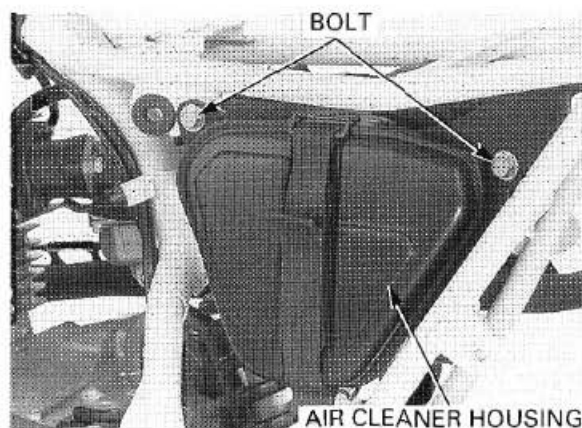
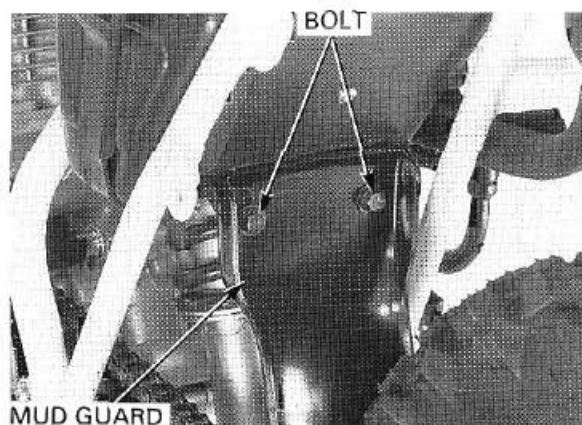
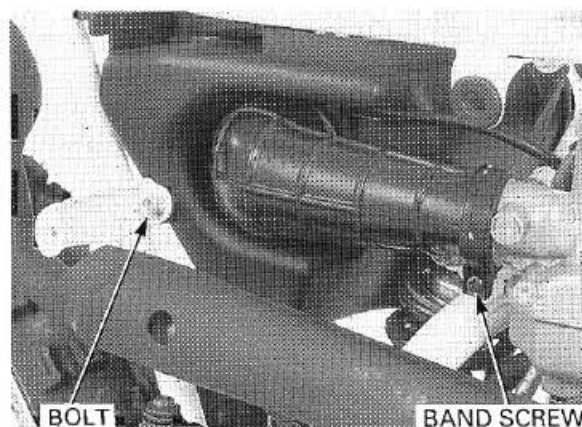
Loosen the connecting tube band screw.
Remove the bolts.

Remove the two bolts and mud guard.

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

Make sure the carburetor connecting tube band is tightened securely.

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



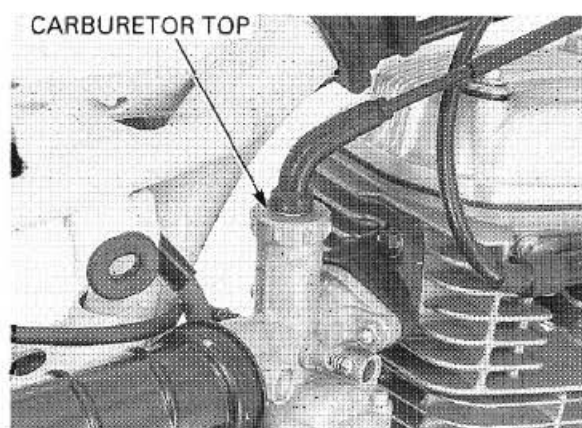
CARBURETOR REMOVAL

WARNING

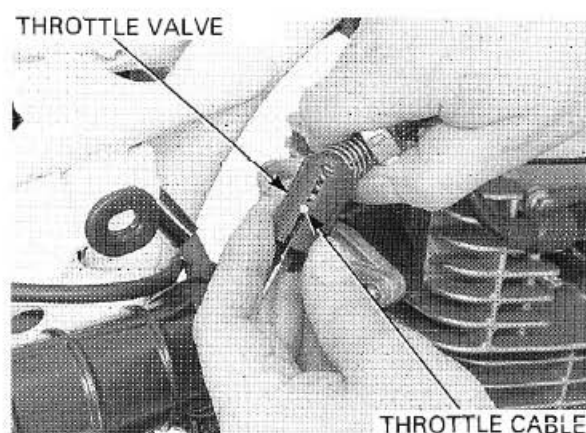
Gasoline is extremely flammable and is explosive under certain conditions. KEEP OUT OF REACH OF CHILDREN.

THROTTLE VALVE

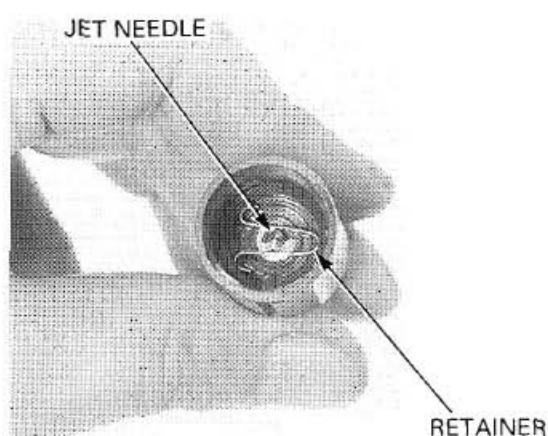
Loosen the carburetor top.



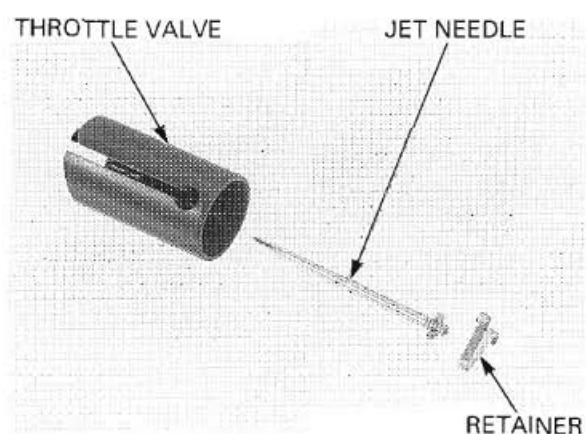
Remove the throttle cable from the throttle valve while compressing the throttle valve spring.



Remove the jet needle retainer and jet needle.



Check the throttle valve and jet needle for scratches, wear or damage.



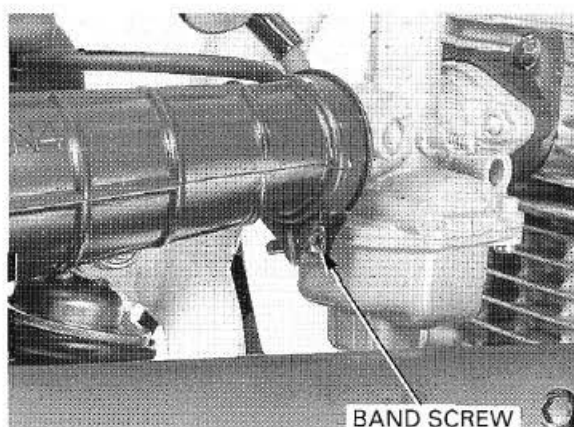
CARBURETOR BODY

⚠ WARNING

Gasoline is extremely flammable and is explosive under certain conditions. Work in a well ventilated area. Smoking or allowing flames or sparks in the work area or where the gasoline is stored can cause a fire or explosion.

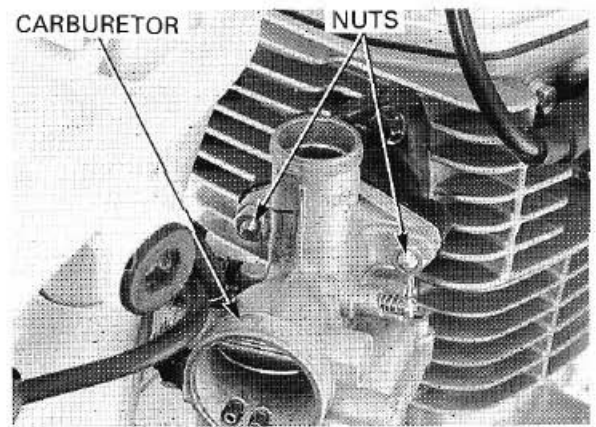
Loosen the drain screw and drain the fuel from float chamber into the approved gasoline container.

Loosen the carburetor connecting tube band screw.



FUEL SYSTEM

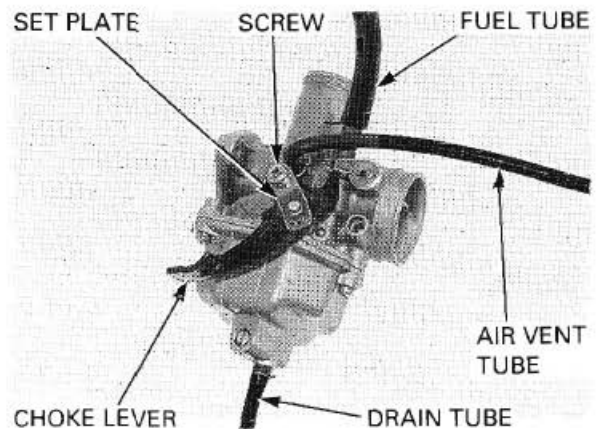
Remove the carburetor mounting nuts, carburetor and O-ring.



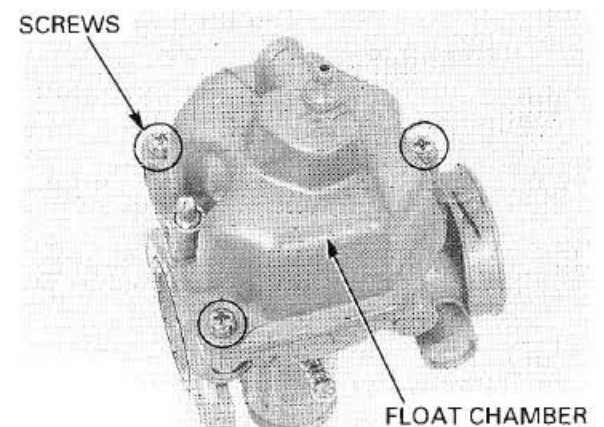
CARBURETOR DISASSEMBLY

Disconnect the fuel tube, air vent tube and drain tube.

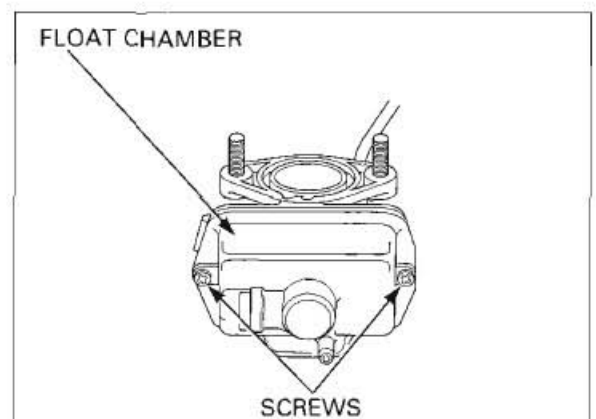
XR100R: Remove the screw, set plate, choke lever and washer.



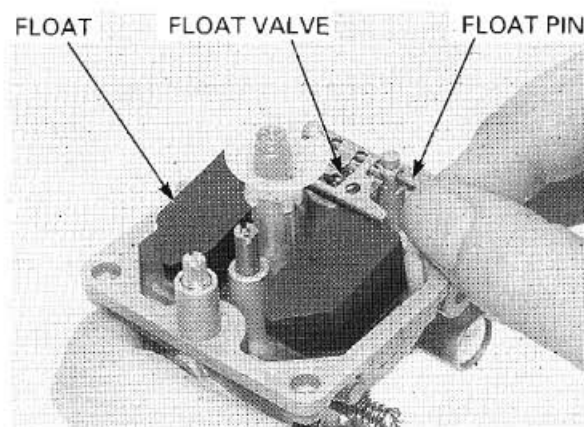
XR100R: Remove the three screws and float chamber.



XR80R: Remove the two screws and float chamber.

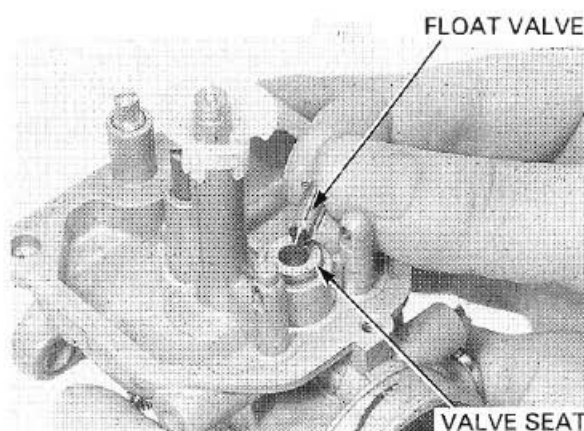


Remove the float pin, float and float valve.
Inspect the float for deformation or damage.



Inspect the float valve seat for scores, scratches, clogging and damage.
Check the tip of the float valve where it contacts the valve seat for stepped wear or contamination.
Replace the valve if the tip is worn or contaminated.

Check the operation of the float valve.



XR100R

Remove the following:

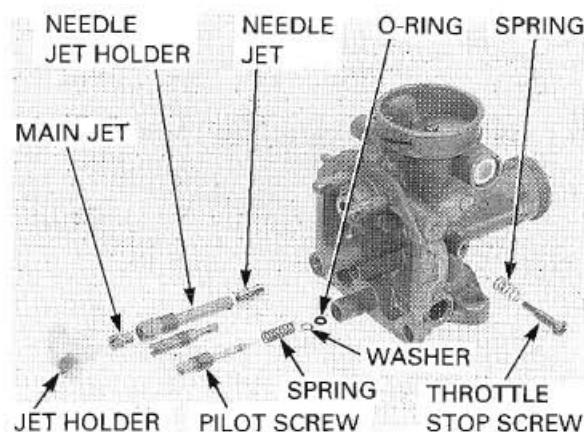
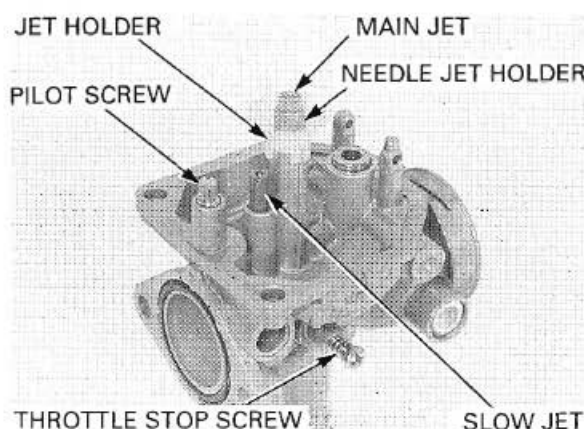
- Jet holder
- Main jet
- Needle jet holder
- Needle jet
- Slow jet
- Throttle stop screw/spring

Turn the pilot screw in and record the number of turns it takes before it seats lightly.
Remove the pilot screw and spring.

CAUTION:

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

Inspect each jet for wear or damage and replace if necessary.



XR80R

Remove the following:

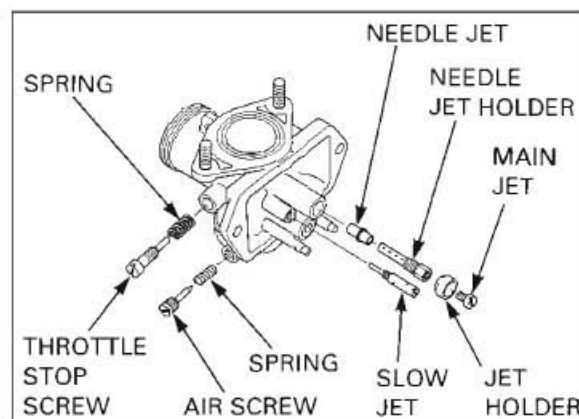
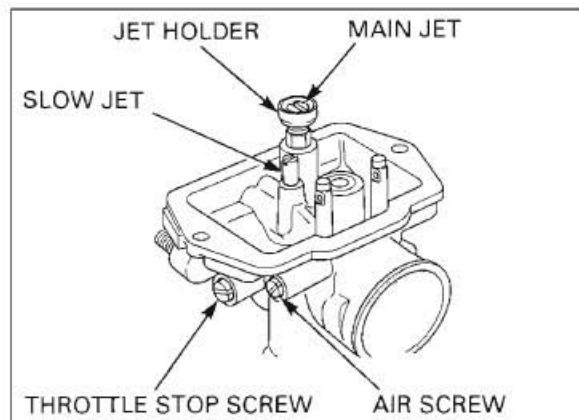
- Main jet
- Jet holder
- Needle jet holder
- Needle jet
- Slow jet
- Throttle stop screw/spring

Turn the air screw in and record the number of turns it takes before it seats lightly.
Remove the air screw and spring.

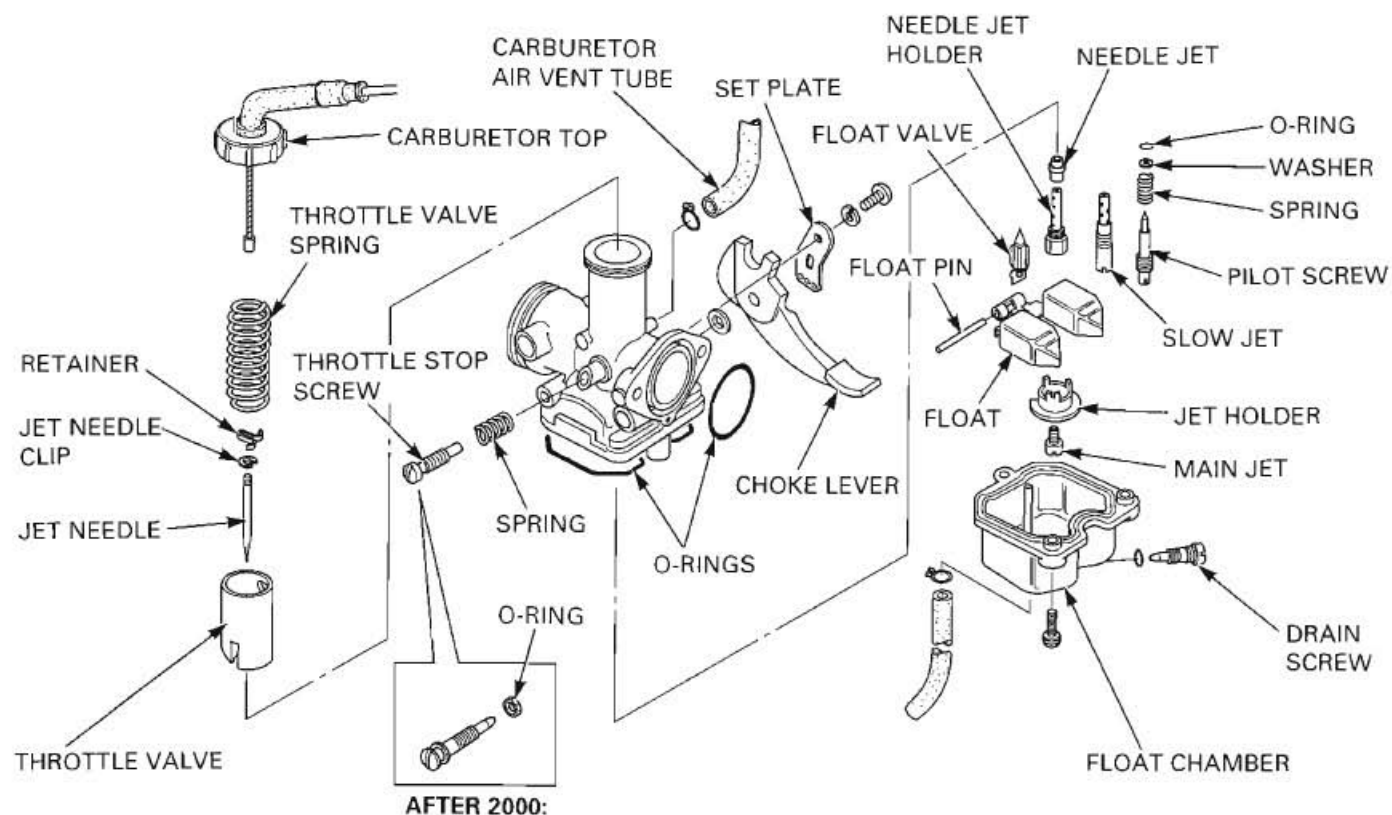
CAUTION:

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

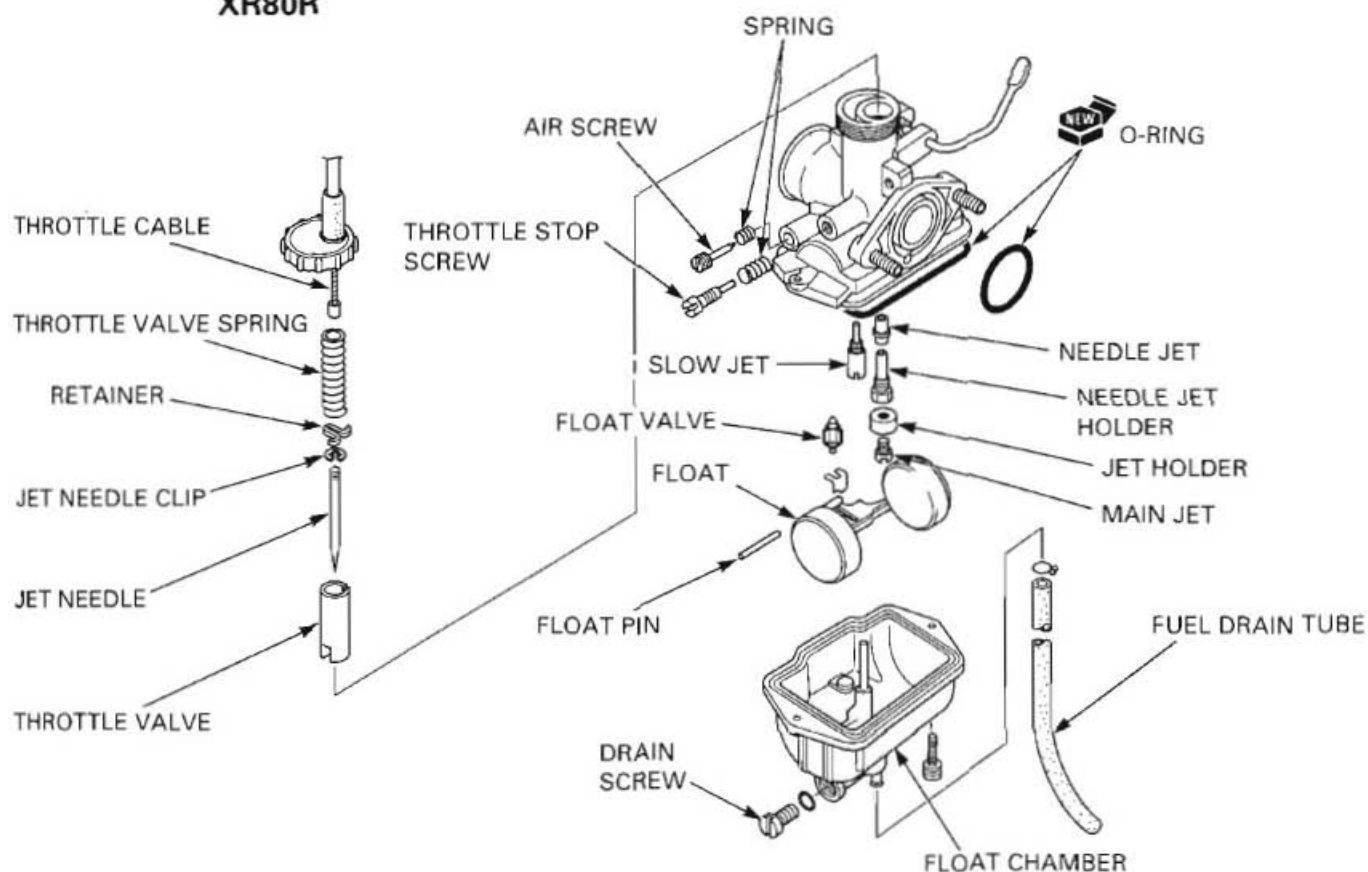
Inspect each jet for wear or damage and replace if necessary.



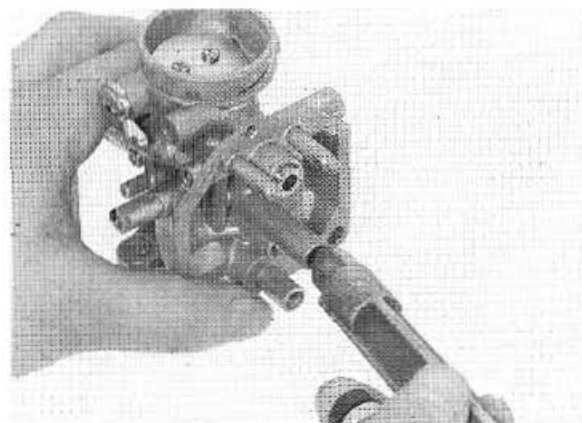
CARBURETOR ASSEMBLY



XR80R



Blow open each air and fuel passage in the carburetor body with compressed air.

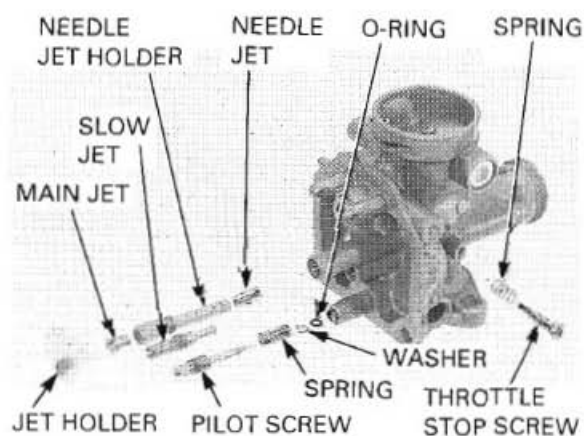


- XR100R:** Install the following:
- Throttle stop screw/spring
 - Slow jet
 - Needle jet
 - Needle jet holder
 - Main jet
 - Jet holder

CAUTION:

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

Install the pilot screw and return it to its original position as noted during removal. Perform the pilot screw adjustment procedure if a new pilot screw is installed (page 5-14).



FUEL SYSTEM

- XR80R:** Install the following:
- Throttle stop screw/spring
 - Slow jet
 - Needle jet
 - Needle jet holder
 - Jet holder
 - Main jet

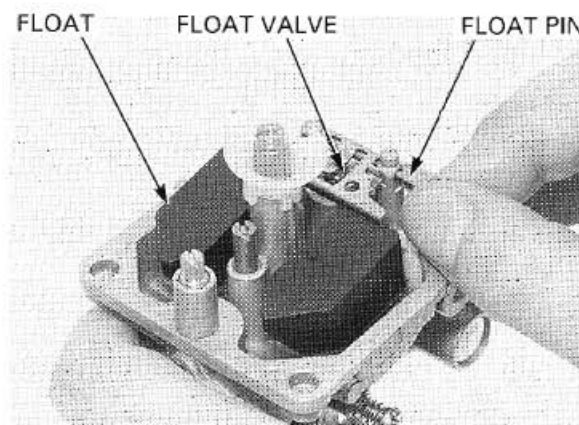
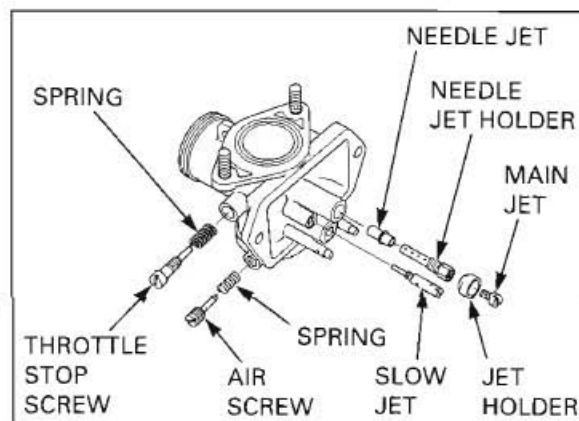
CAUTION:

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

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

Perform the air screw adjustment procedure if a new air screw is installed ('98 - '99 model: page 5-16/
After '99 model: page 5-17).

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



FLOAT LEVEL INSPECTION

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

FLOAT LEVEL:

XR100R: 12.5 mm (0.49 in)

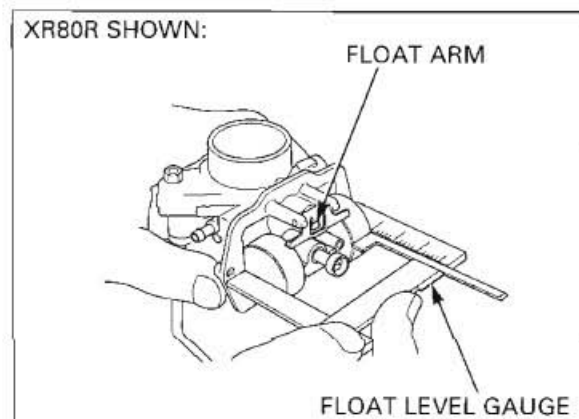
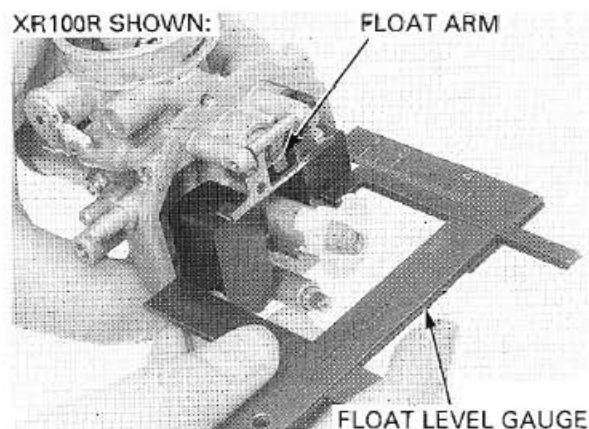
XR80R: 21.5 mm (0.85 in)

TOOL:

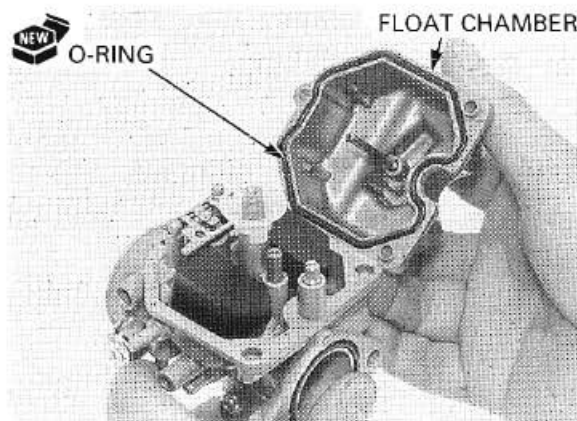
Carburetor float level gauge **07401-0010000**

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

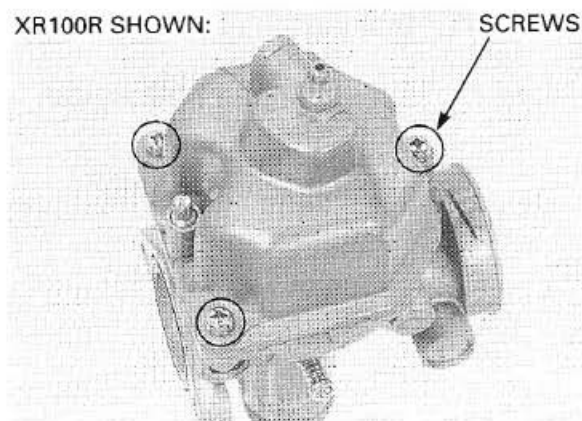
Install the float chamber.



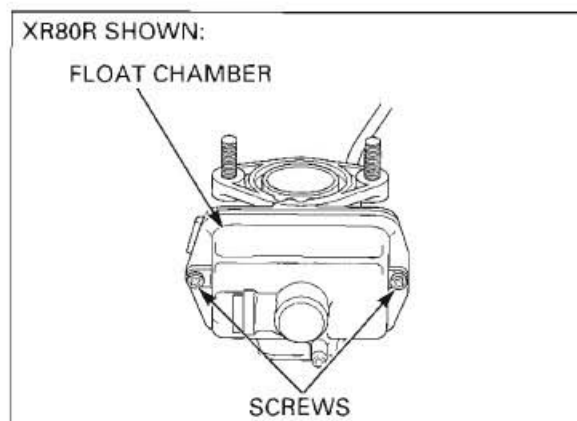
Install a new O-ring in the float chamber.
Install the float chamber.



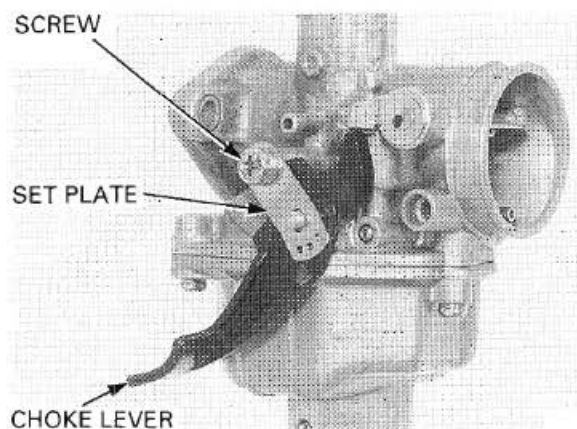
XR100R: Install and tighten the three float chamber screws.



XR80R: Install and tighten the two float chamber screws.

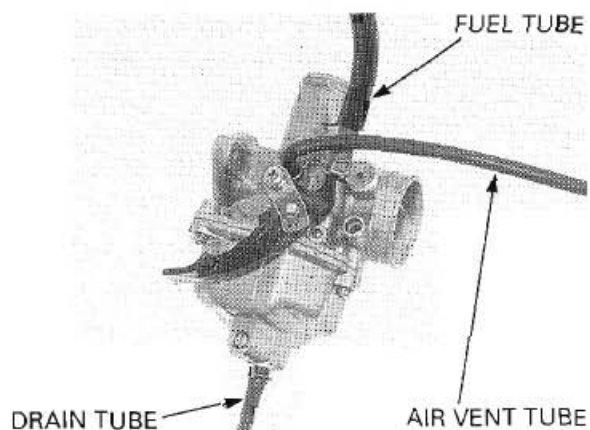


XR100R: Install the washer, choke lever and set plate, then tighten the screw.



FUEL SYSTEM

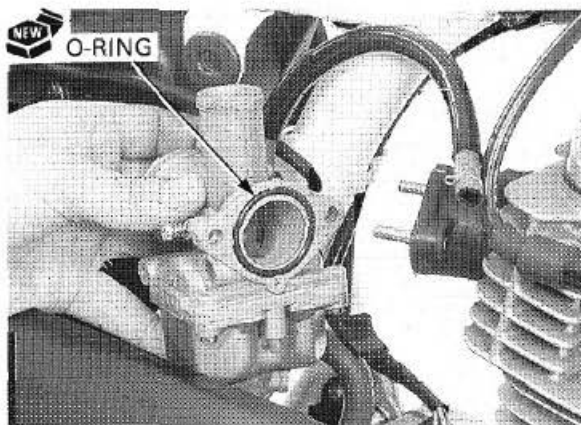
Connect the fuel tube, air vent tube and drain tube.



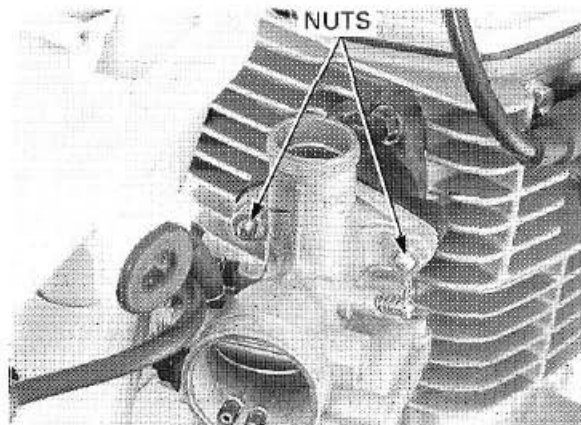
CARBURETOR INSTALLATION

CARBURETOR BODY

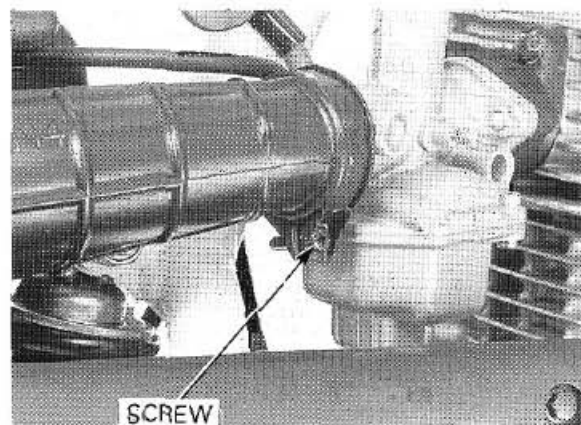
Install the new O-ring into the carburetor body grooves.



Install the carburetor body to the intake manifold and tighten the nuts securely.



Install the connecting tube and tighten the band screw.



THROTTLE VALVE

Install the needle clip on the jet needle.

STANDARD POSITION:

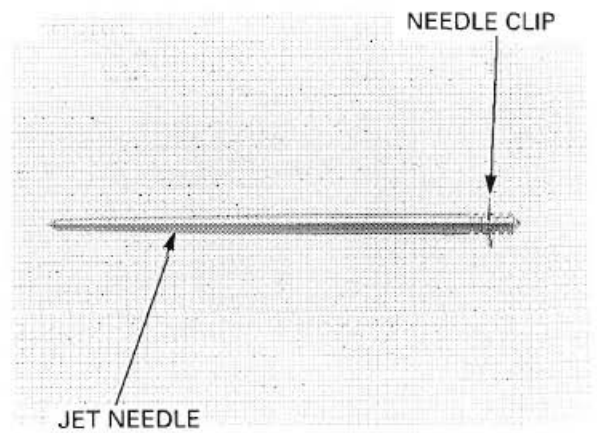
XR100R:

3rd groove from top

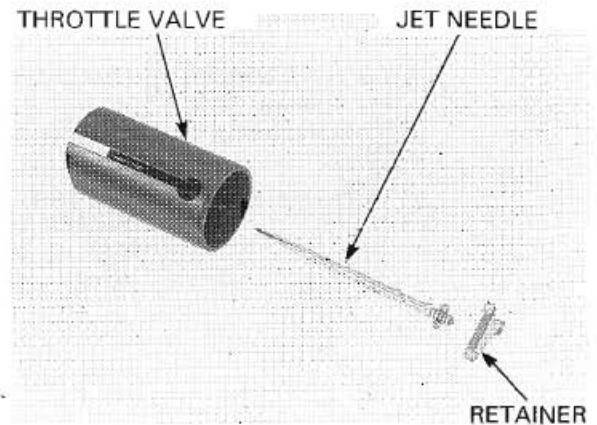
XR 80R:

'98 - '99: 2nd groove from top

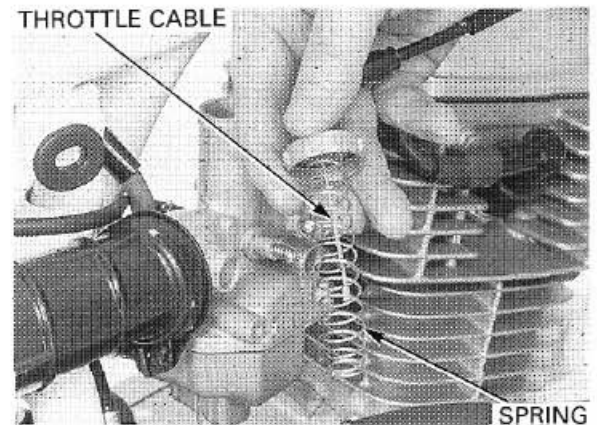
After '99: 3rd groove from top



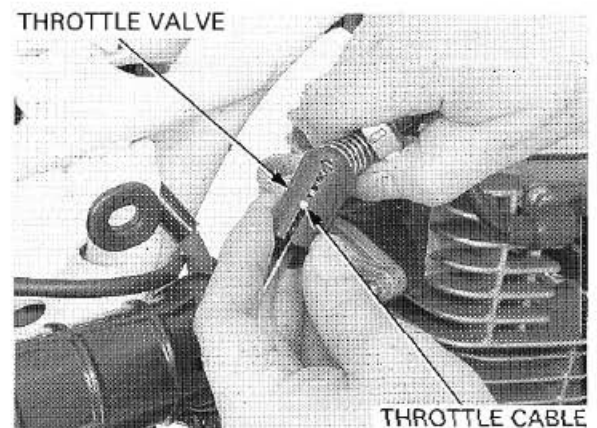
Install the jet needle into the throttle valve and secure it with the needle clip retainer.



Install the throttle valve spring onto the throttle cable.

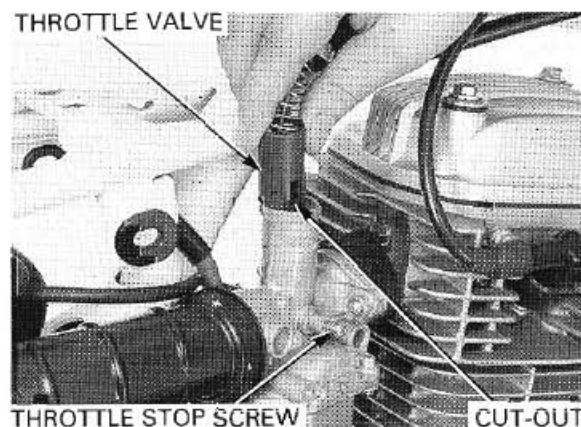


Connect the throttle cable to the throttle valve while compressing the throttle valve spring.



FUEL SYSTEM

Install the throttle valve into the carburetor body, aligning its cut-out with the throttle stop screw.



Tighten the carburetor top securely.

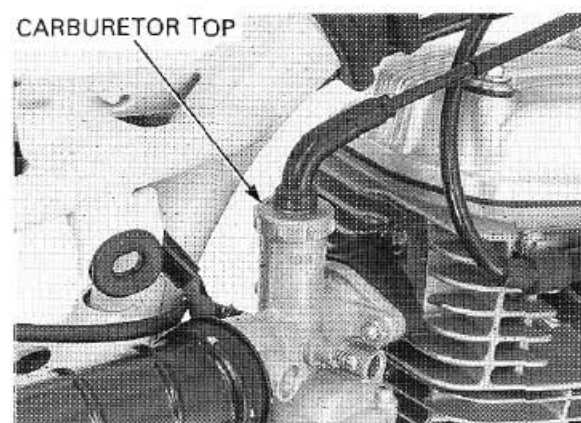
After installing the carburetor, check for the following:

- Throttle grip free play (page 3-7)
- Engine idle speed (page 3-14)
- Pilot or air screw adjustment

XR100R: (see below)

'98 ~ '99 XR80R: (page 5-16)

AFTER '99 XR80R: (page 5-17)



PILOT SCREW ADJUSTMENT

XR100R

IDLE DROP PROCEDURE

⚠ WARNING

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

NOTE:

- The pilot screw is factory pre-set. Adjustment is not necessary unless the carburetor is overhauled or new pilot screw is installed.
- The engine must be warm for accurate adjustment. Ten minutes of stop-and-go riding is sufficient.
- Use a tachometer with graduations of 50 rpm or smaller that will accurately indicate 50 rpm change.

1. Turn the pilot screw clockwise until it seats lightly, then back it out to the specification given.

CAUTION:

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

INITIAL OPENING:

'98 – 2000: 1-3/4 turns out

After 2000: 2-3/8 turns out

2. Warm the engine to operating temperature.
3. Stop the engine and connect a tachometer according to the tachometer manufacturer's instructions.
4. Start the engine and adjust the idle speed with the throttle stop screw.

IDLE SPEED: 1,400 ± 100 rpm

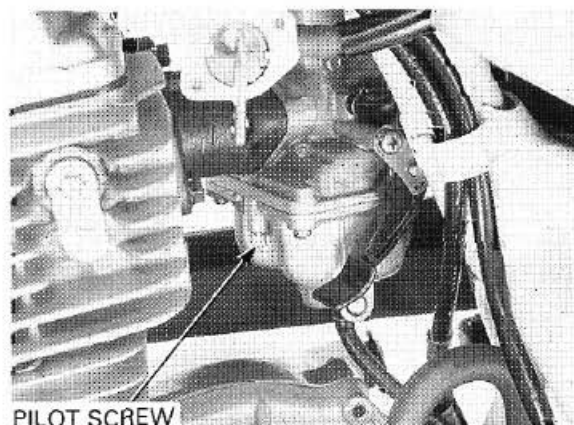
5. Turn the pilot screw in or out slowly to obtain the highest engine speed.
6. Readjust the idle speed with the throttle stop screw.
7. Turn the pilot screw in gradually until the engine speed drops 100 rpm.
8. Turn the pilot screw counterclockwise the specified number of turns.

FINAL OPENING:

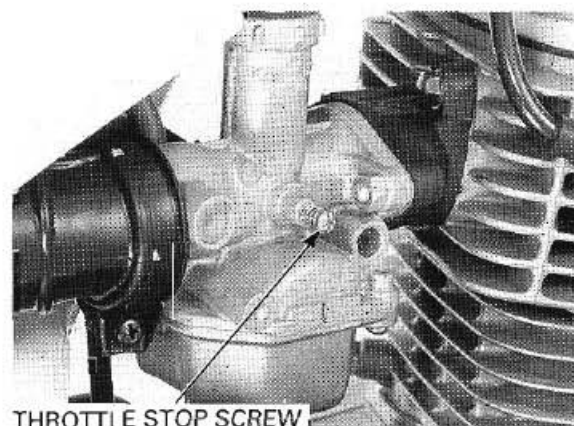
'98 – 2000: 1/2 turns out

After 2000: 1/2 turns out

9. Readjust the idle speed with the throttle stop screw.



PILOT SCREW



THROTTLE STOP SCREW

AIR SCREW ADJUSTMENT

XR80R

BEST IDLE PROCEDURE ('98 - '99)

WARNING

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

NOTE:

- The air screw is factory pre-set. Adjustment is not necessary unless the carburetor is overhauled or new air screw is installed.
- The engine must be warm for accurate adjustment. Ten minutes of stop-and-go riding is sufficient.
- Use a tachometer with graduations of 50 rpm or smaller that will accurately indicate 50 rpm change.

1. Turn the air screw clockwise until it seats lightly, and then back it out to the specification given.

CAUTION:

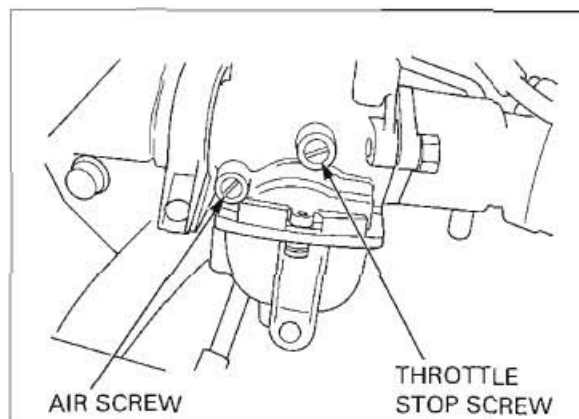
Damage to the air screw seat will occur if the air screw is tightened against the seat.

INITIAL OPENING: 1-3/4 turns out

2. Warm the engine up to operating temperature.
3. Stop the engine and connect a tachometer according to the tachometer manufacture's instructions.
4. Start the engine and adjust the idle speed with the throttle stop screw.

IDLE SPEED: 1,500 \pm 100 rpm

5. Turn the air screw in or out slowly to obtain the highest engine speed.
6. Repeat step 4 and 5.
7. Readjust the idle speed with the throttle stop screw.
8. Lightly open the throttle grip and check that the engine speed increase smoothly; if it is not smooth, repeat steps 4 through 7.



IDLE DROP PROCEDURE (AFTER '99)

⚠ WARNING

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

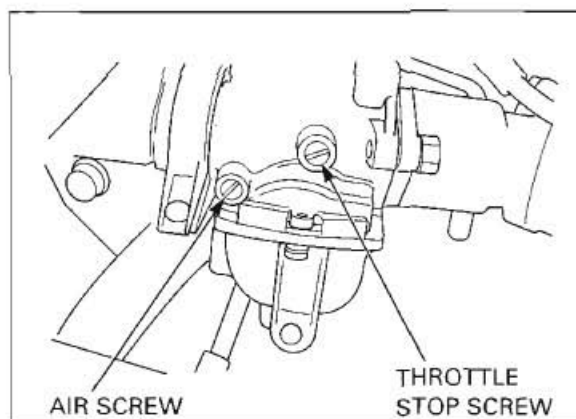
NOTE:

- The air screw is factory pre-set. Adjustment is not necessary unless the carburetor is overhauled or new air screw is installed.
- The engine must be warm for accurate adjustment. Ten minutes of stop-and-go riding is sufficient.
- Use a tachometer with graduations of 50 rpm or smaller that will accurately indicate 50 rpm change.

1. Turn the air screw clockwise until it seats lightly, then back it out to the specification given.

CAUTION:

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

**INITIAL OPENING: 2-1/8 turns out**

2. Warm the engine up to operating temperature.
3. Stop the engine and connect a tachometer according to the tachometer manufacture's instructions.
4. Start the engine and 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.
8. Turn the air screw counter-clockwise the number of turns to the specification given.

FINAL OPENING: 1/2 turns out

9. Readjust the idle speed with the throttle stop screw.

HIGH ALTITUDE ADJUSTMENT

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

STANDARD SETTING: Below 5,000 ft (1,500 m)
HIGH ALTITUDE SETTING: Between 3,000 – 8,000 ft (1,000 – 2,500 m)

The high altitude carburetor adjustment is performed as follows:
 Remove the carburetor (page 5-4) and float chamber.
 Replace the standard main jet with the high altitude type.

HIGH ALTITUDE MAIN JET:

'98 – 2000/XR100R: #90

After 2000/XR100R: #92

XR80R: #90

Assemble and install the carburetor.
 Turn-in the pilot (or air) screw the specified number of turns from the initial setting.

HIGH ALTITUDE PILOT OR AIR SCREW OPENING:

XR100R:

'98 – 2000/except California type:

1 turn in from factory preset

'98 – 2000/California type:

1/2 turns in from factory preset

After 2000:

3/4 turns in from factory preset

XR80R:

'98 – '99: 1 turn out from factory preset

After '99: 1/2 turns out from factory preset

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

⚠ WARNING

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

CAUTION:

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

SPECIFICATIONS

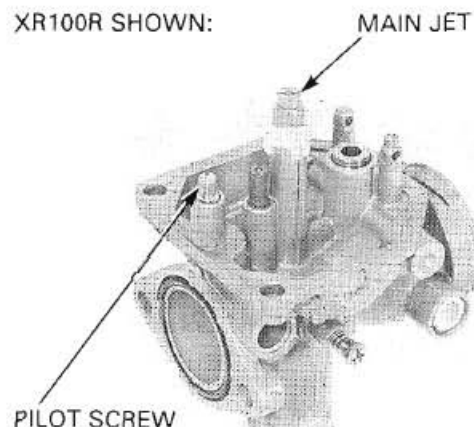
XR100R

	Below 5,000 ft (1,500 m)	Between 3,000 – 8,000 ft (1,000 – 2,500 m)
Main jet	'98 – 2000: #95 After 2000: #98	'98 – 2000: #90 After 2000: #92
Pilot screw opening	Factory preset	Except California type: 1 turn in from factory preset California type: 1/2 turns in from factory preset

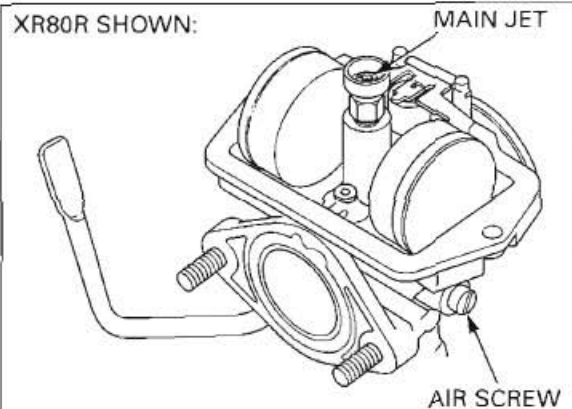
XR80R

	Below 5,000 ft (1,500 m)	Between 3,000 – 8,000 ft (1,000 – 2,500 m)
Main jet	# 95	# 90
Air screw opening	Factory preset	'98 – '99 : 1 After '99 : 1/2 turn (s) out from factory preset

XR100R SHOWN:



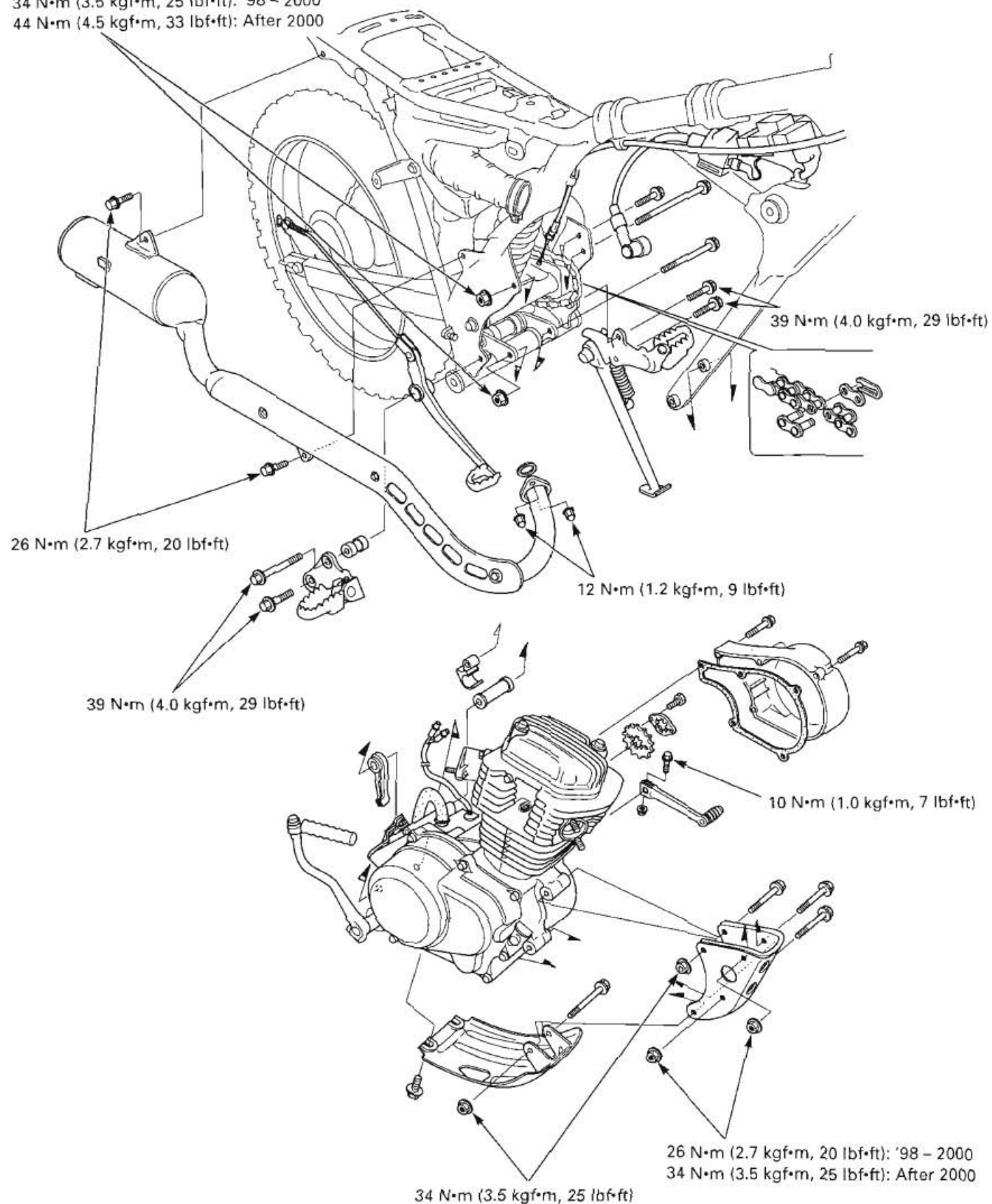
XR80R SHOWN:



MEMO

ENGINE REMOVAL/INSTALLATION

34 N·m (3.5 kgf·m, 25 lbf·ft): '98 ~ 2000
44 N·m (4.5 kgf·m, 33 lbf·ft): After 2000



6. ENGINE REMOVAL/INSTALLATION

SERVICE INFORMATION	6-1	ENGINE INSTALLATION	6-5
ENGINE REMOVAL	6-2		

SERVICE INFORMATION

GENERAL

- During engine removal and installation, support the motorcycle securely using a hoist.
- Support the engine using a jack or other adjustable support to ease of engine hanger bolts removal.
- The following components can be serviced with the engine installed in the frame.
 - Alternator (Section 13)
 - Camshaft (Section 7)
 - Clutch (Section 9)
 - Gearshift linkage (Section 9)
 - Oil pump (Section 4)
- The following components require engine removal for service.
 - Crankshaft/transmission (Section 10)
 - Shift forks/shift drum (Section 10)
 - Cylinder/piston (Section 8)
 - Cylinder head/valves (Section 7)

6

SPECIFICATIONS

ITEM			STANDARD
Engine oil capacity	XR100R	At disassembly	1.0 ℓ (1.06 us qt, 0.88 Imp qt)
	XR80R	At disassembly	0.9 ℓ (0.95 us qt, 0.79 Imp qt)
Engine dry weight	XR100R		21.4 kg (47.2 lbs)
	XR80R		18.9 kg (41.7 lbs)

TORQUE VALUES

Gear shift pedal bolt	10 N•m (1.0 kgf•m, 9 lbf•ft)
Kick starter pedal bolt	12 N•m (1.2 kgf•m, 9 lbf•ft)
Front engine hanger bolt/nut	34 N•m (3.5 kgf•m, 25 lbf•ft) U-NUT
Rear engine hanger bolt/nut ('98-2000)	34 N•m (3.5 kgf•m, 25 lbf•ft) U-NUT
(After 2000)	44 N•m (4.5 kgf•m, 33 lbf•ft) U-NUT
Engine hanger plate bolt/nut ('98-2000)	26 N•m (2.7 kgf•m, 20 lbf•ft) U-NUT
(After 2000)	34 N•m (3.5 kgf•m, 25 lbf•ft) U-NUT
Foot peg mounting bolt	39 N•m (4.0 kgf•m, 29 lbf•ft)
Exhaust pipe mounting bolt	26 N•m (2.7 kgf•m, 20 lbf•ft)
Exhaust pipe joint nut	12 N•m (1.2 kgf•m, 9 lbf•ft)

ENGINE REMOVAL

Support the motorcycle securely with a hoist or equivalent.

Drain the engine oil (page 3-12).

Remove the following:

- Right and left side cover (page 2-2)
- Seat (page 2-2)
- Muffler (page 2-4)
- Kickstarter pedal (page 9-3)
- Left crankcase cover (page 13-9)
- Carburetor (page 5-4)

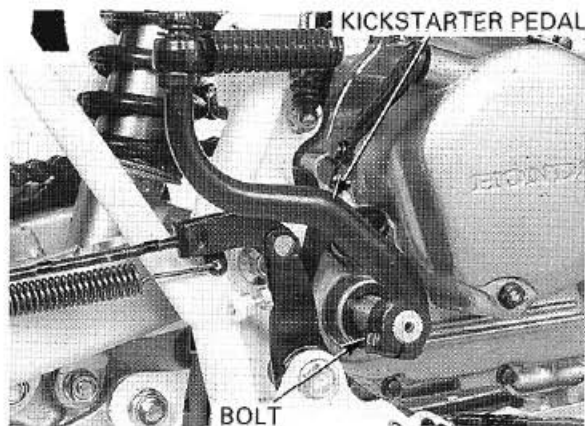
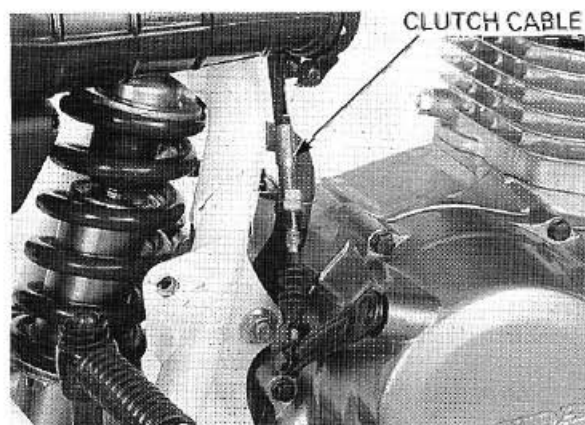
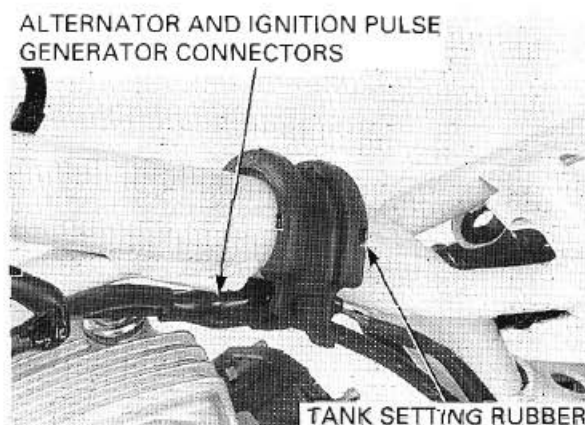
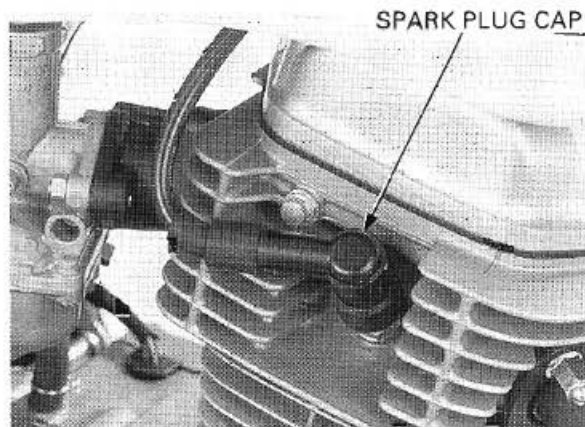
Disconnect the spark plug cap.

Remove the tank setting rubber.

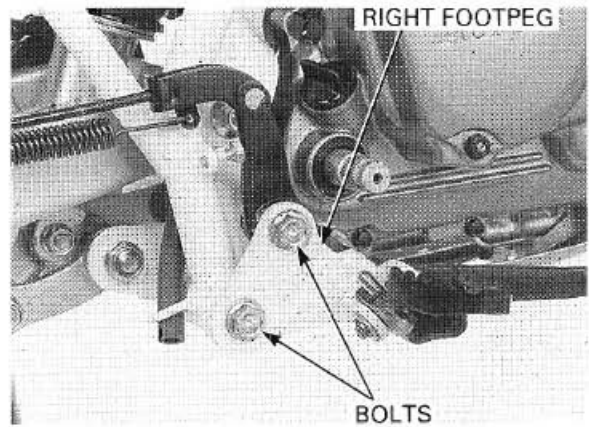
Disconnect the alternator and ignition pulse generator connectors.

Disconnect the clutch cable.

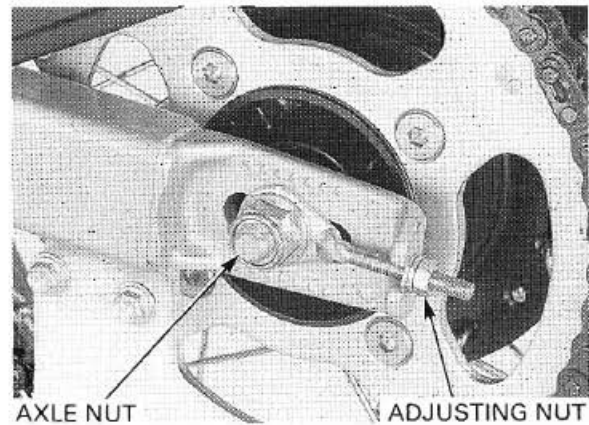
Remove the bolt and kickstarter pedal.



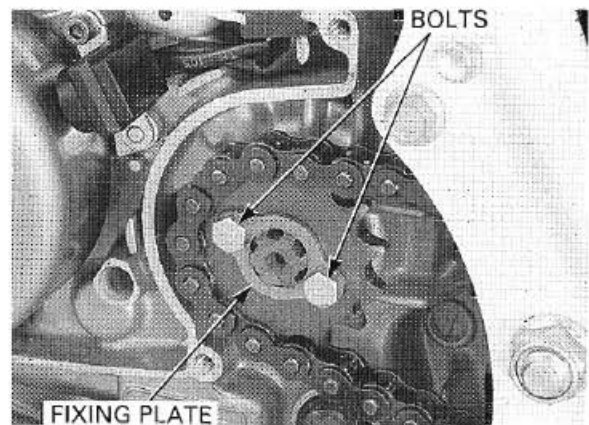
Remove the two bolts and right footpeg.



Loosen the rear axle nut and drive chain adjusting nuts.
Push the rear wheel forward to maximize slack in the drive chain.

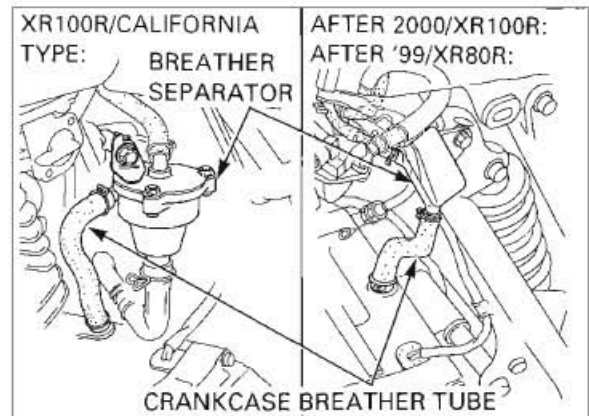


Remove the fixing plate bolts, fixing plate and drive sprocket.



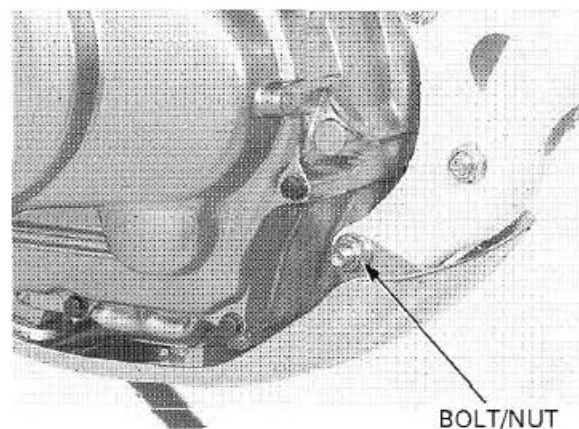
'98 - 2000/
XR100R
(California type),
After 2000/
XR100R and
After '99/XR80R:

Disconnect the crankcase breather tube from the breather separator.

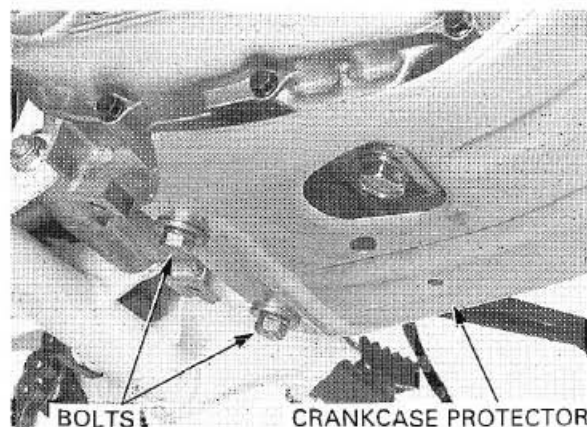


ENGINE REMOVAL/INSTALLATION

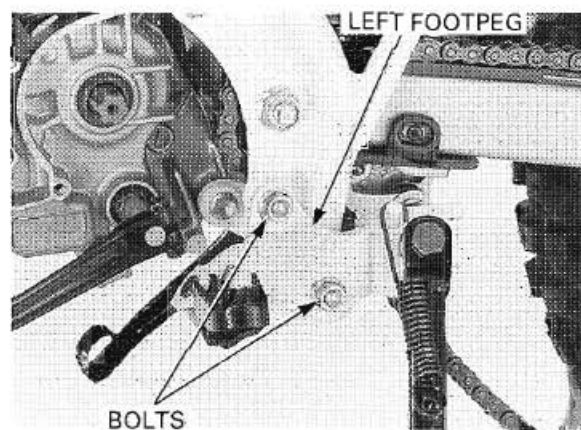
Remove the bolt/nut.



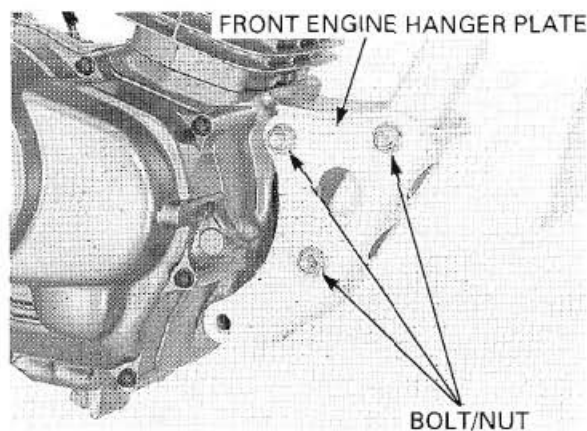
Remove the two bolts and crankcase protector.



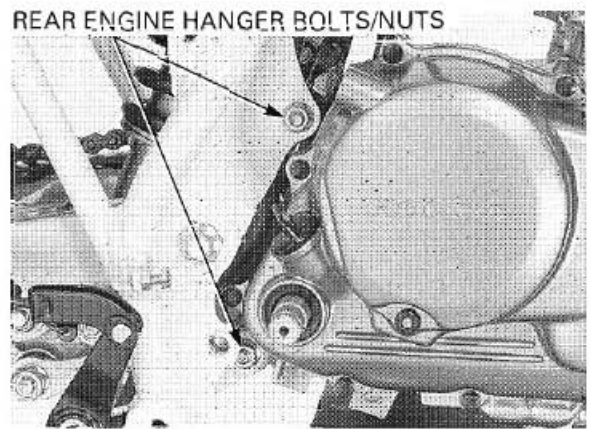
Remove the two bolts and left footpeg mounting bolts.



Remove the three bolts/nuts and front engine hanger plate.



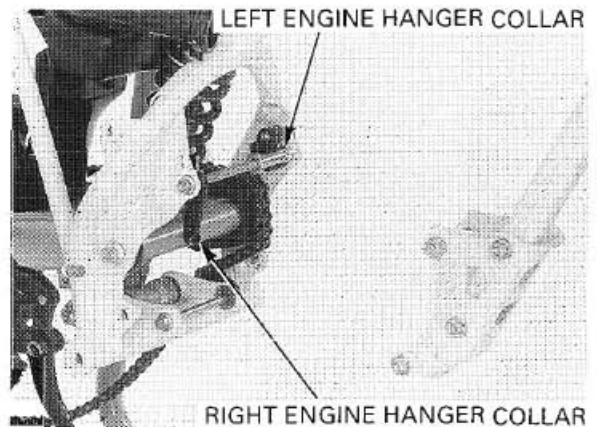
Loosen the rear engine hanger bolts/nuts. Support the engine using a jack or other adjustable support to ease of engine hanger bolts removal. Remove the engine hanger bolts, collars and engine from the frame.



ENGINE INSTALLATION

NOTE:

- Note the direction of the right engine hanger collar (clutch cable stay), left engine hanger collar and hanger bolts.
- Use a floor jack or other adjustable support to carefully maneuver the engine into place.

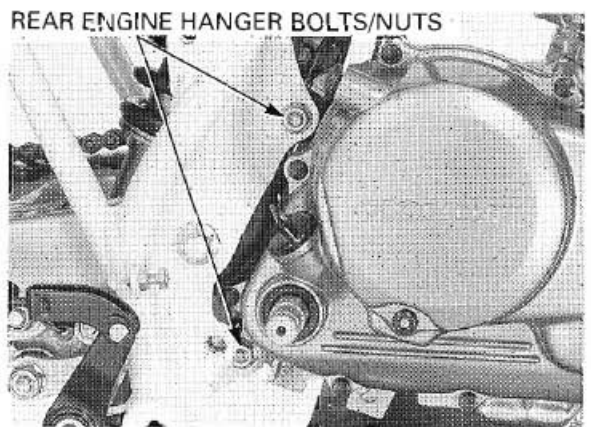


Place the engine into the frame, and install the engine hanger bolts from the left side.

CAUTION:

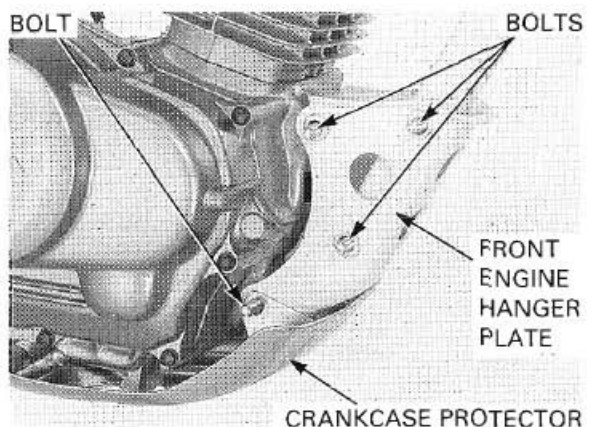
Be careful not to damage the frame.

Install the nuts, then tighten them loosely.



Place the front engine hanger plate and install the three bolts from the left side.

Place the crankcase protector and install the bolt from the left side.



ENGINE REMOVAL/INSTALLATION

Tighten the engine hanger nuts to the specified torque.

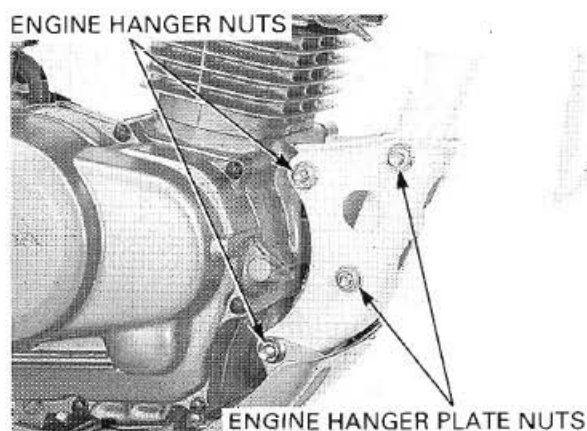
TORQUE: 34 N·m (3.5 kgf·m, 25 lbf·ft)

Tighten the engine hanger plate nuts to the specified torque.

TORQUE:

'98-2000: 26 N·m (2.7 kgf·m, 20 lbf·ft)

After 2000: 34 N·m (3.5 kgf·m, 25 lbf·ft)

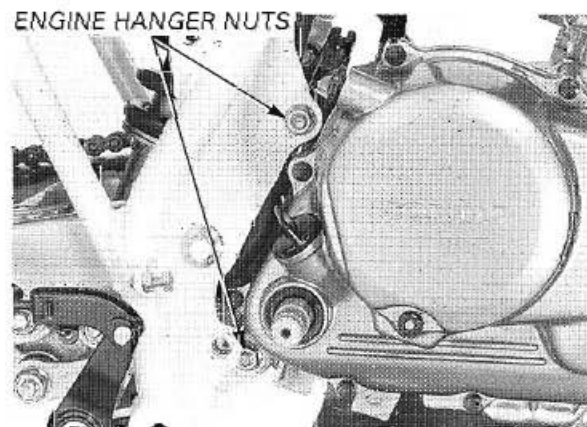


Tighten the rear engine hanger nuts to the specified torque.

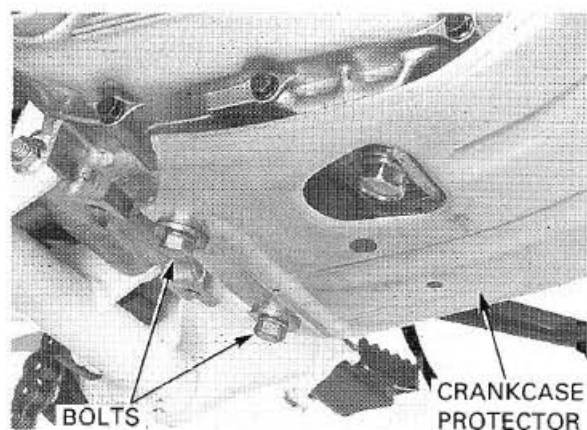
TORQUE:

'98-2000: 34 N·m (3.5 kgf·m, 25 lbf·ft)

After 2000: 44 N·m (4.5 kgf·m, 33 lbf·ft)

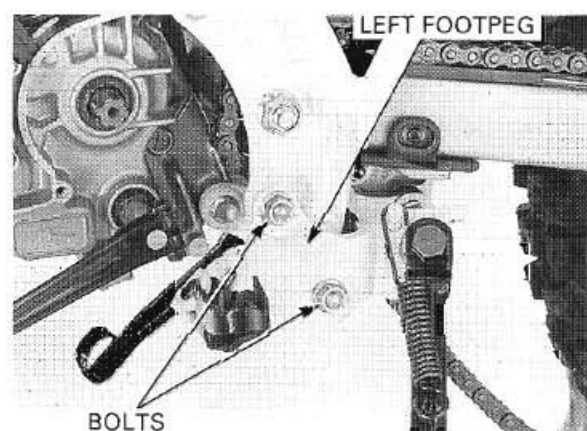


Tighten the two bolts.



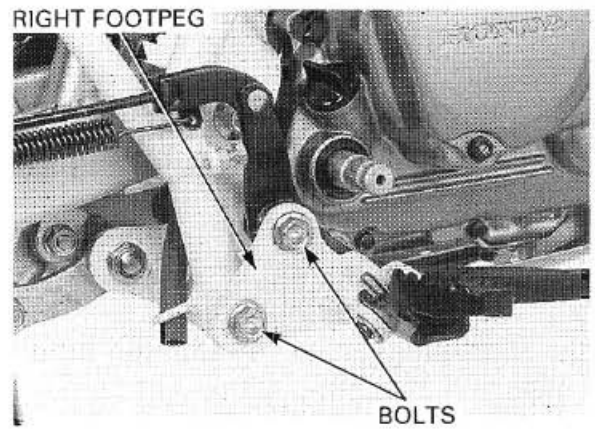
Install the left footpeg and tighten the two bolts to the specified torque.

TORQUE: 39 N·m (4.0 kgf·m, 29 lbf·ft)



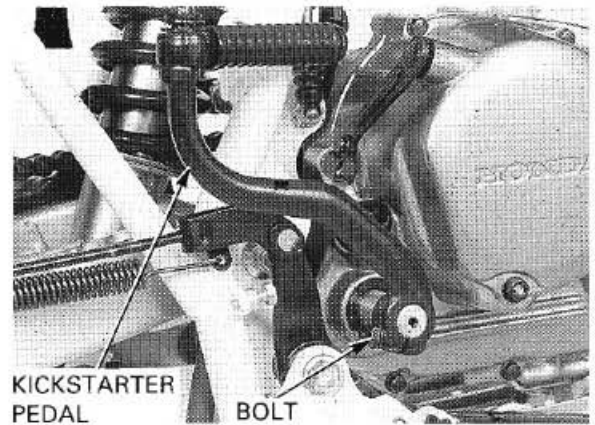
Install the right foot peg and tighten the two bolts to the specified torque.

TORQUE: 39 N·m (4.0 kgf·m, 29 lbf·ft)

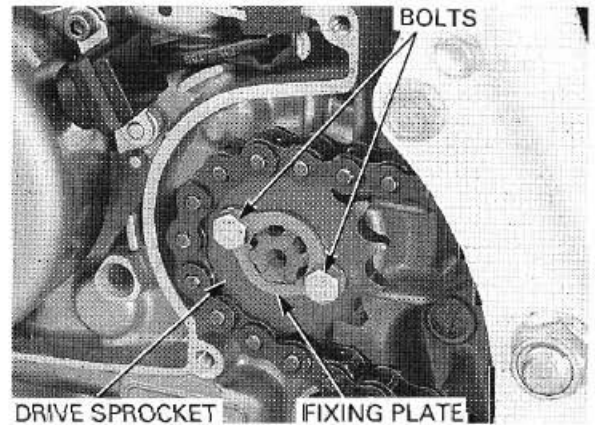


Install the kickstarter pedal and tighten the bolt to the specified torque.

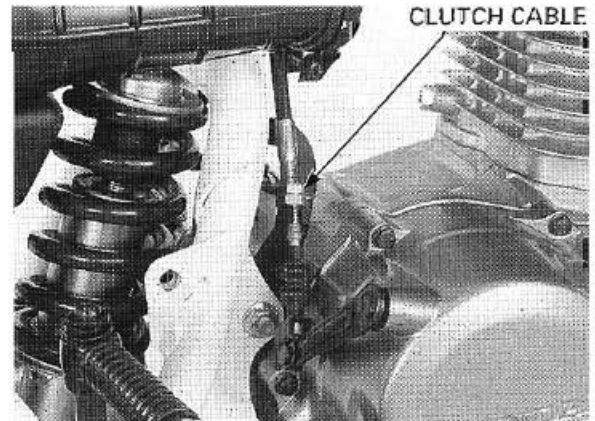
TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)



Install the drive sprocket onto the countershaft. Install the fixing plate and tighten the bolts.

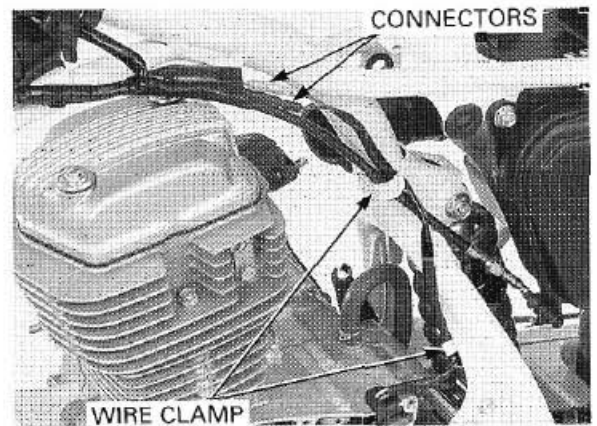


Connect the clutch cable.

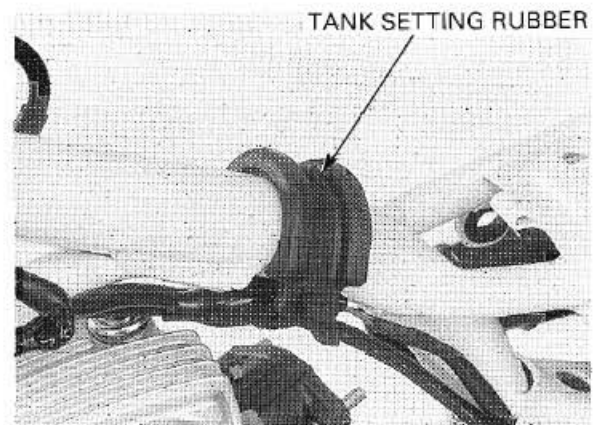


ENGINE REMOVAL/INSTALLATION

Connect the alternator and ignition pulse generator connector.

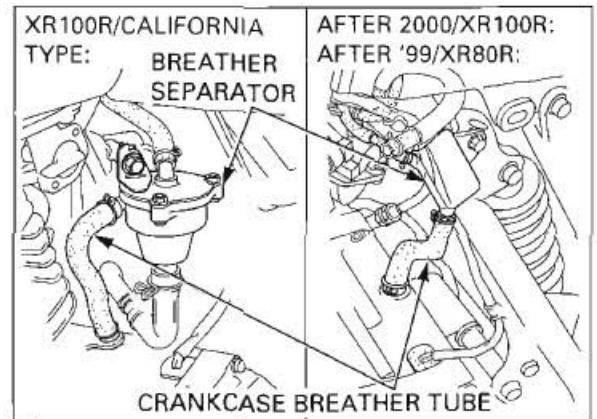


Install the tank setting rubber.



'98 – 2000/
XR100R
(California type),
After 2000/
XR100R and
After '99/XR80R:

Connect the crankcase breather tube to the breather separator.



Connect the spark plug cap.

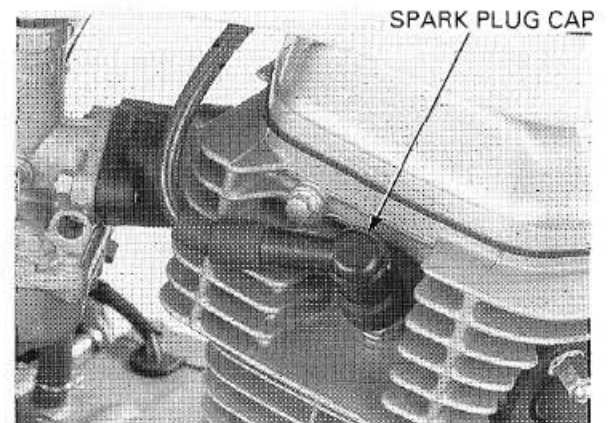
Install the following:

- Left crankcase cover (page 13-12).
- Muffler (page 2-5)
- Carburetor (page 5-12)
- Seat, side cover (page 2-2)

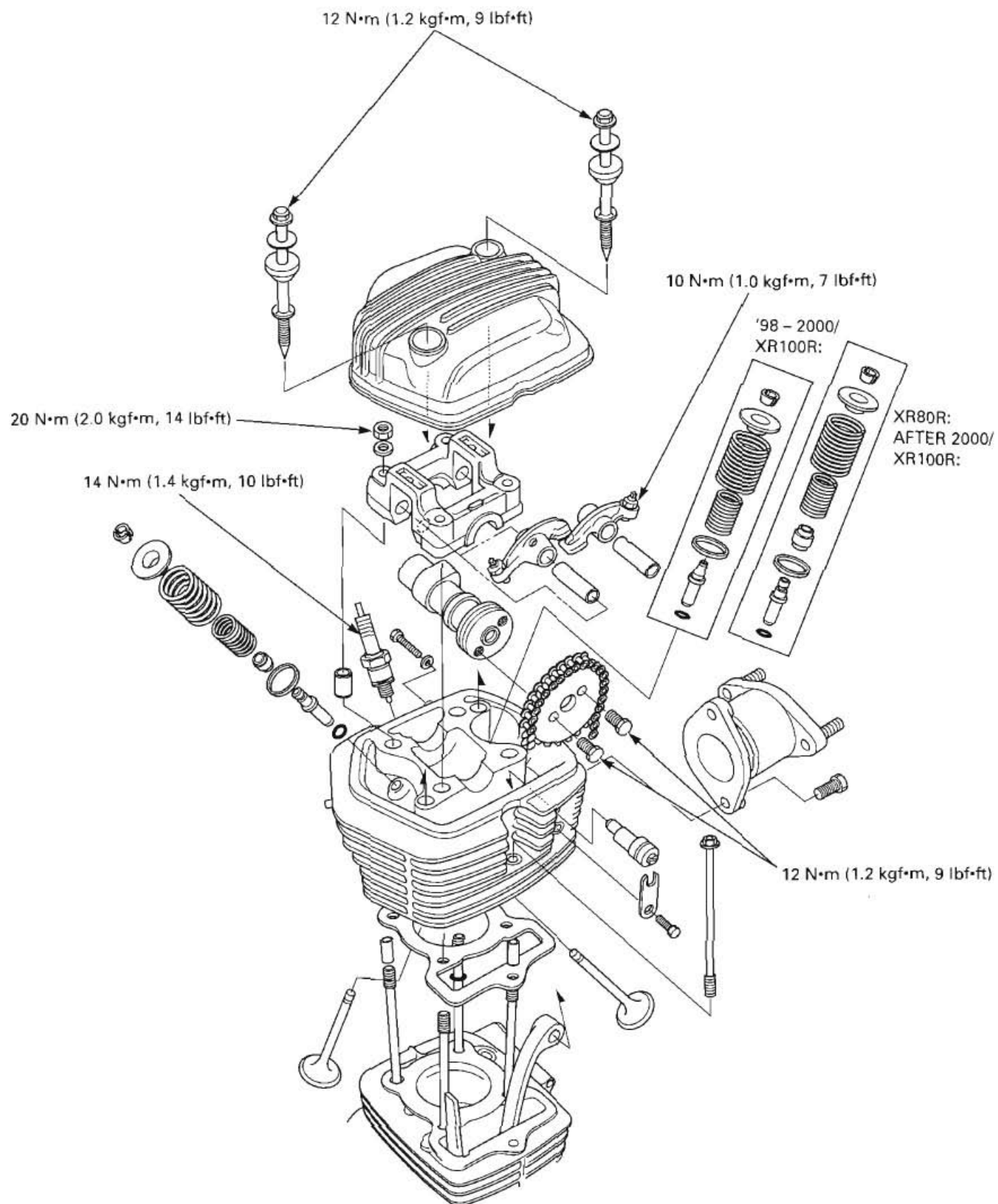
Pour the recommended engine oil to the proper level (page 3-12).

Adjust the drive chain slack (page 3-15).

Adjust the clutch lever free play (page 3-19).



MEMO



7. CYLINDER HEAD/VALVES

SERVICE INFORMATION	7-1	CAMSHAFT REMOVAL	7-3
TROUBLESHOOTING	7-2	CYLINDER HEAD	7-7
CYLINDER COMPRESSION TEST	7-3	CAMSHAFT INSTALLATION	7-16

SERVICE INFORMATION

GENERAL

- This section covers service of the cylinder head, valves and camshaft.
- 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.
- When disassembling, mark and store the disassembled parts to ensure that they are reinstalled in their original locations.
- Clean all disassembled parts with cleaning solvent and dry them by blowing them off with compressed air before inspection.
- Camshaft lubricating oil is fed through oil passages in the cylinder head. Clean the oil passages before assembling cylinder head.
- Be careful not to damage the mating surfaces when removing the cylinder head cover and cylinder head.

7

SPECIFICATIONS

Unit: mm (in)

ITEM				STANDARD		SERVICE LIMIT
Cylinder compression	XR100R			1127 kPa (11.5 kgf/cm ² , 164 psi) at 800 rpm		——
	XR80R			1176 kPa (12.0 kgf/cm ² , 171 psi) at 1,000 rpm		——
Valve, valve spring, valve guide	Valve clearance		IN	0.05 (0.002)		——
			EX	0.05 (0.002)		——
	Valve spring free length		Inner	28.05 (1.104)		27.6 (1.09)
			Outer	34.80 (1.370)		33.7 (1.33)
	Valve stem O.D.		IN	5.450 – 5.465 (0.2145 – 0.2151)		5.420 (0.2134)
			EX	5.430 – 5.445 (0.2137 – 0.2143)		5.400 (0.2126)
	Valve guide I.D.		IN	5.475 – 5.465 (0.2155 – 0.2159)		5.50 (0.217)
			EX	5.475 – 5.465 (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			1.70 (0.06)		2.1 (0.08)	
Rocker arm/ shaft	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 (0.3928 – 0.3932)		9.91 (0.390)
	Rocker arm to shaft clearance			0.013 – 0.037 (0.0005 – 0.0014)		0.08 (0.003)
Camshaft	Cam lobe height	XR100R	IN	27.860 – 28.040 (1.0968 – 1.1039)		27.80 (1.095)
			EX	27.776 – 27.950 (1.0935 – 1.1004)		27.70 (1.091)
		XR80R	IN	28.017 – 28.197 (1.1030 – 1.1102)		27.95 (1.100)
			EX	27.835 – 28.015 (1.0959 – 1.1102)		27.75 (1.093)
	Journal O.D.	XR100R	Right	19.950 – 19.968 (0.7854 – 0.7861)		19.90 (0.783)
			Left	19.950 – 19.968 (0.7854 – 0.7861)		19.90 (0.783)
		XR80R	Right	19.950 – 19.968 (0.7854 – 0.7861)		19.90 (0.783)
			Left	19.950 – 19.968 (0.7854 – 0.7861)		19.90 (0.783)
Cylinder head warpage				——		0.10 (0.004)
Camshaft holder I.D.		XR100R		20.008 – 20.063 (0.7877 – 0.7899)		20.15 (0.793)
		XR80R		20.008 – 20.063 (0.7877 – 0.7899)		20.15 (0.793)
Oil clearance		XR100R		0.040 – 0.113 (0.0016 – 0.0044)		0.20 (0.008)
		XR80R		0.040 – 0.113 (0.0016 – 0.0044)		0.20 (0.008)

CYLINDER HEAD/VALVES

TORQUE VALUES

Cylinder head cover bolt	12 N•m (1.2 kgf•m, 9 lbf•ft)
Camshaft holder nut	20 N•m (2.0 kgf•m, 14 lbf•ft)
Cam sprocket bolt	12 N•m (1.2 kgf•m, 9 lbf•ft)
Spark plug	14 N•m (1.4 kgf•m, 10 lbf•ft)
Valve adjusting bolt lock nut	10 N•m (1.0 kgf•m, 7 lbf•ft)

TOOL

Valve adjusting wrench, 8 X 9 mm	07708-0030100	Equivalent commercially available in U.S.A.
Valve adjuster B	07908-KE90000	or 07908-KE90200 (U.S.A. only)
Valve spring compressor	07757-0010000	
Valve guide driver, 5.5 mm	07742-0010100	or 07942-3290100 (U.S.A. only)
Valve guide reamer, 5.5 mm	07984-0980001	or 07984-098000D
Valve seat cutters		– These are commercially available in U.S.A.
Seat cutter, 27.5 mm (45° IN)	07780-0010200	
Seat cutter, 24.5 mm (45° EX)	07780-0010100	
Flat cutter, 25 mm (32° IN)	07780-0012000	
Flat cutter, 22 mm (32° EX)	07780-0012601	
Interior cutter, 22 mm (60° IN/EX)	07780-0014000	
Cutter holder, 5.5 mm	07781-0010101	

TROUBLESHOOTING

- Engine top-end problems usually affect engine performance. These problem can be diagnosed by a compression test or by tracing engine noises to the top-end with a sounding rod stethoscope.
- If the performance is poor at low speeds, check for white smoke in the crankcase breather tube. If the tube is smoky check for a seized piston ring (Section 8).

Compression too low, hard starting or poor performance at low speed

- Valves:
 - Incorrect valve adjustment
 - Burned or bent valve
 - Incorrect valve timing
 - Broken valve spring
 - Uneven valve seating
- Cylinder head:
 - Leaking or damaged head gasket
 - Warped or cracked cylinder head
- Worn cylinder, piston or piston rings (section 8)

Compression too high, overheating or knocking

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

Excessive smoke

- Cylinder head:
 - Worn valve stem or valve guide
 - Damaged stem seal
- Worn cylinder, piston or piston rings (section 8)

Excessive noise

- Cylinder head:
 - Incorrect valve adjustment
 - Sticking valve or broken valve spring
 - Damaged or worn camshaft
 - Loose or worn cam chain
 - Worn or damaged cam chain
 - Worn or damaged cam chain tensioner
 - Worn cam sprocket teeth
 - Worn rocker arm and/or shaft
- Worn cylinder, piston or piston rings (section 8)

Rough idle

- Low cylinder compression

CYLINDER COMPRESSION TEST

⚠ WARNING

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

Warm up the engine to normal operating temperature.

Stop the engine and remove the spark plug.

Install a compression gauge.

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

COMPRESSION PRESSURE:

XR100R: 1127 kPa (11.5 kgf/cm², 164 psi)
at 800 rpm

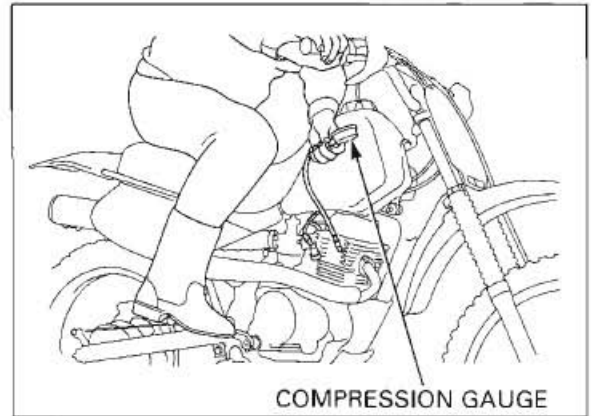
XR80R: 1176 kPa (12.0 kgf/cm², 171 psi)
at 1,000 rpm

Low compression can be caused by:

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

High compression can be caused by:

- Carbon deposits in combustion chamber or on piston head



COMPRESSION GAUGE

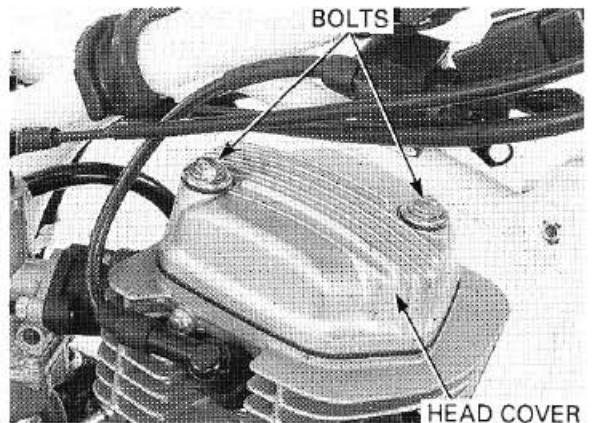
CAMSHAFT REMOVAL

Remove the following

- Side cover (page 2-2)
- Seat (page 2-2)
- Fuel tank (page 2-3)
- Left crankcase cover (page 13-9)

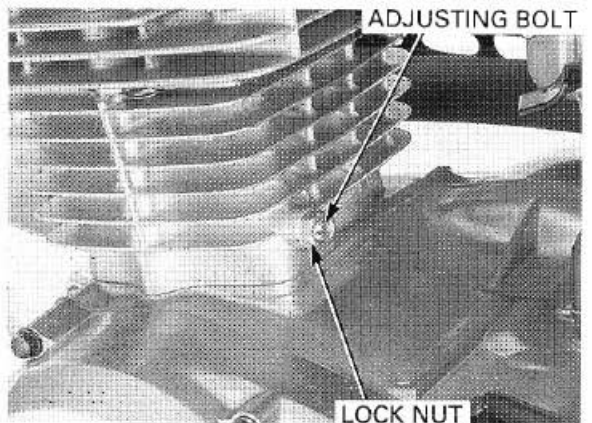
Remove the two bolts and cylinder head cover.

Loosen the cam chain tensioner adjusting bolt lock nut and adjuster.



BOLTS

HEAD COVER



ADJUSTING BOLT

LOCK NUT

CYLINDER HEAD/VALVES

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

NOTE:

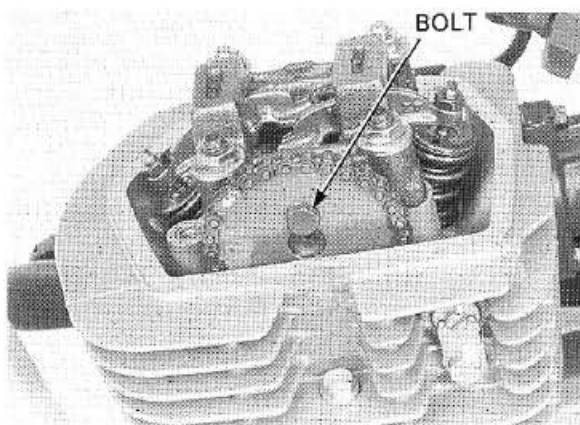
If you will be remove the cylinder head, remove the cam chain tension adjuster set plate bolt, set plate and adsuter to release the cam chain tension at this time.



ADJUSTING BOLT

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

Remove the cam sprocket bolt, turn the crankshaft counterclockwise one full turn (360°) and remove the other cam sprocket bolt.

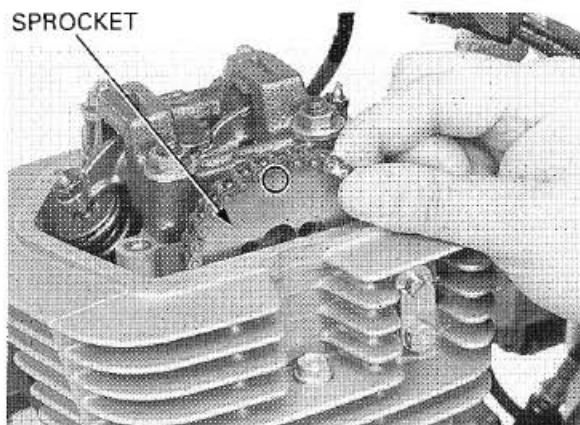


BOLT

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

NOTE:

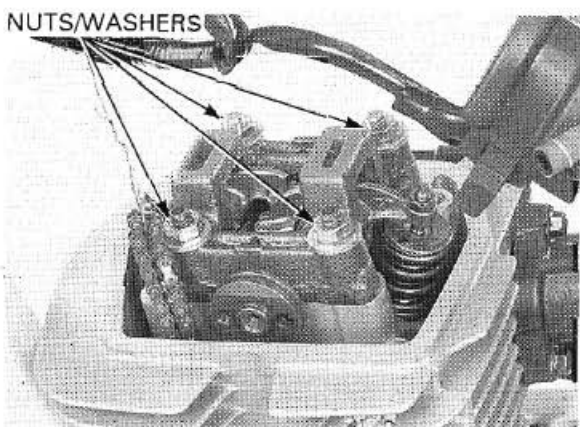
Suspend the cam chain with a piece of wire to prevent it from falling into the crankcase.



SPROCKET

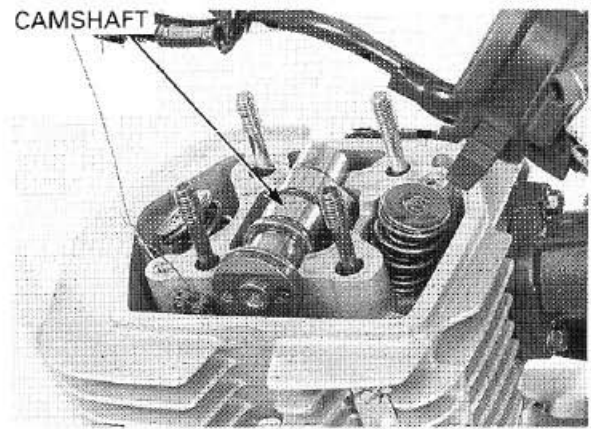
Remove the four camshaft holder nuts and washers.

Remove the holder.



NUTS/WASHERS

Remove the camshaft.



CAM LOBE HEIGHT

Inspect the cam lobe surfaces for scoring or evidence of insufficient lubrication.
Measure the height of each cam lobe using a micrometer.

SERVICE LIMITS:

XR100R: IN: 27.80 mm (1.095 in)

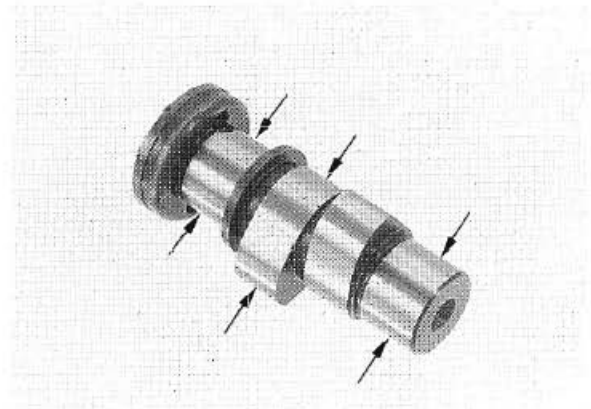
EX: 27.70 mm (1.091 in)

XR80R: IN: 27.95 mm (1.100 in)

EX: 27.75 mm (1.093 in)

NOTE:

Inspect the rocker arm if the cam lobe is worn or damaged.



CAMSHAFT JOURNAL

Inspect the camshaft journal surfaces for scoring or evidence of insufficient lubrication.

Measure the O.D. of each camshaft journal.

SERVICE LIMIT: 19.90 mm (0.783 in)

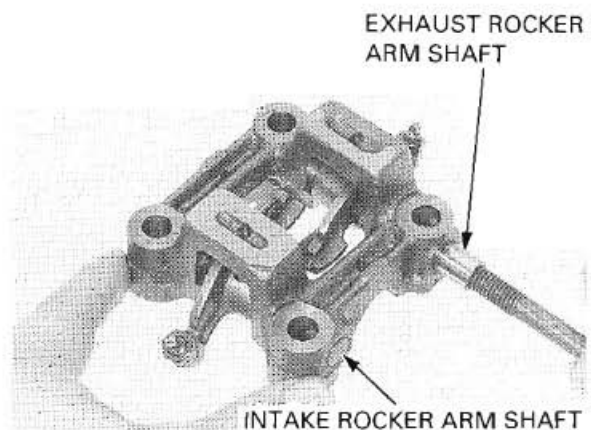
NOTE:

Inspect the oil passages and camshaft holder for wear or damage if the journal surface is worn or damaged.

CAMSHAFT HOLDER

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

Remove the rocker arms.



CYLINDER HEAD/VALVES

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.

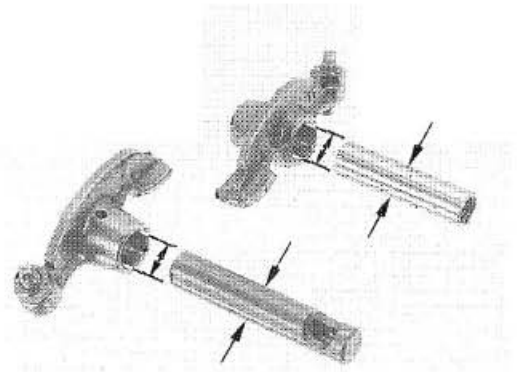
SERVICE LIMIT: 9.91 mm (0.390 in)

Measure the rocker arm I.D.

SERVICE LIMIT: 10.1 mm (0.40 in)

Calculate the rocker arm-to-shaft clearance.

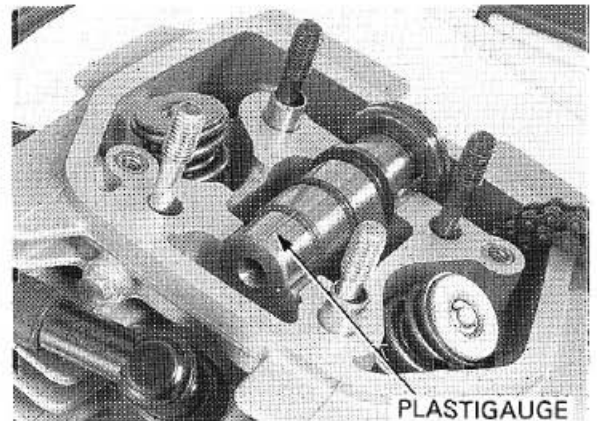
SERVICE LIMIT: 0.08 mm (0.003 in)



CAMSHAFT OIL CLEARANCE

Wipe any oil from the journals of the camshaft, cylinder head and camshaft holders.

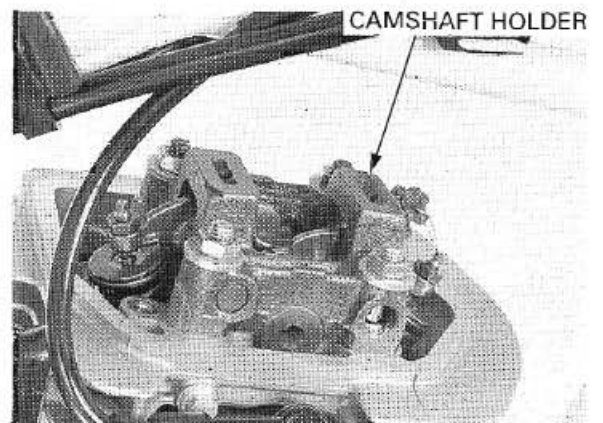
Lay a strip of plastigauge lengthwise on top of each camshaft journal.



Do not rotate the camshaft when using plastigauge.

Install the camshaft holders and tighten the nuts in a crisscross pattern in 2 – 3 steps.

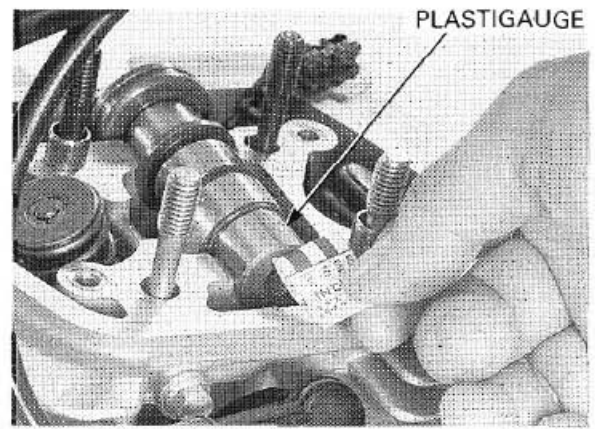
TORQUE: 20 N·m (2.0 kgf·m, 14 lbf·ft)



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

SERVICE LIMIT: 0.20 mm (0.008 in)

When the service limits are exceeded, replace the camshaft and recheck the oil clearance. Replace the cylinder head and camshaft holders as a set if the clearance still exceeds the service limit.



CYLINDER HEAD

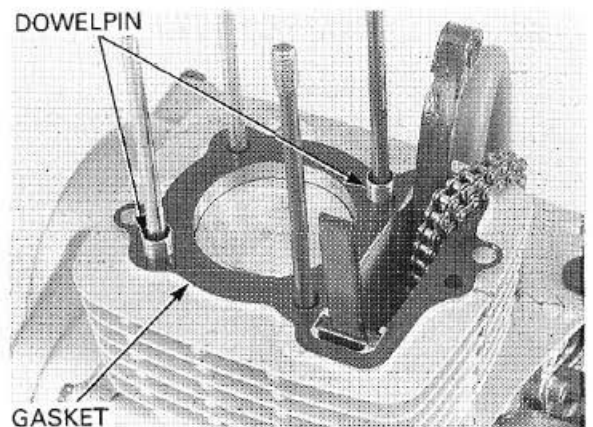
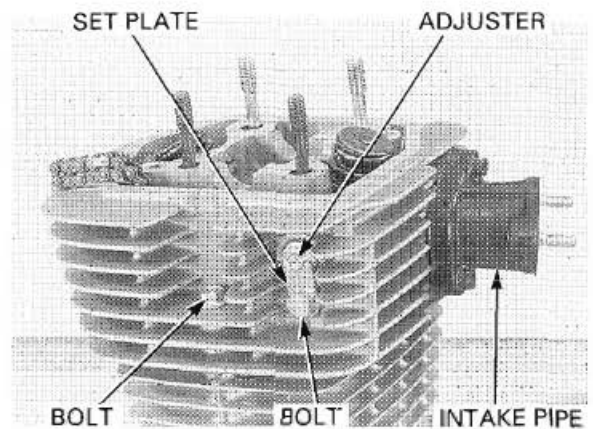
REMOVAL

Remove the followings

- engine (page 6-2)
- camshaft (page 7-3)
- carburetor intake pipe
- cam chain tensioner set plate bolt, set plate and adjuster.

Remove the cylinder head bolt and the cylinder head.

Remove the gasket and dowel pins.



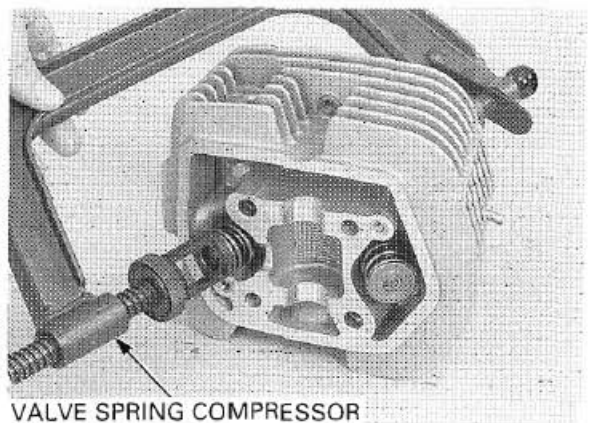
Remove the valve spring cotters using the special tool as shown.

TOOL:

Valve spring compressor 07757-0010000

CAUTION:

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

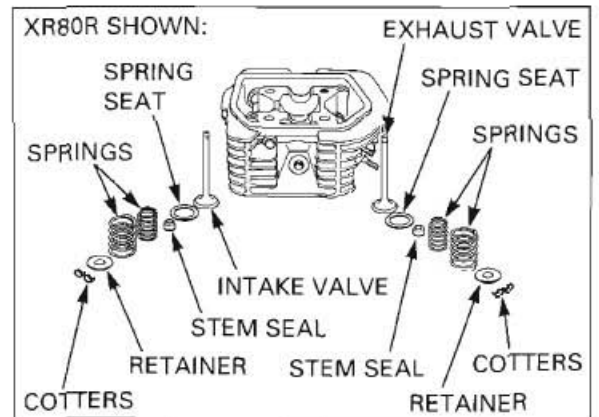
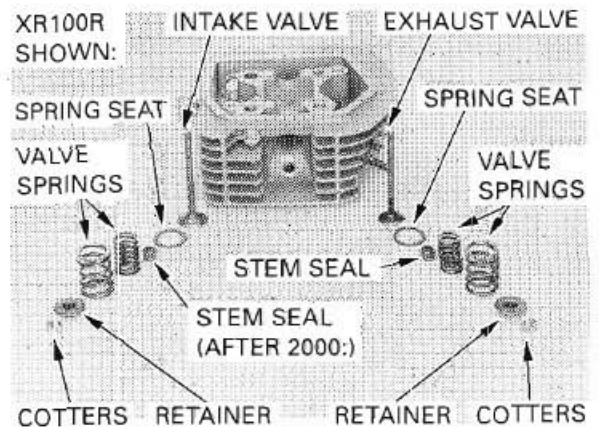


CYLINDER HEAD/VALVES

Mark all parts during disassembly so they can be installed in their original locations.

Remove the following:

- Spring retainer
- Outer and inner valve springs
- Valve
- Stem seal
- Valve spring seat



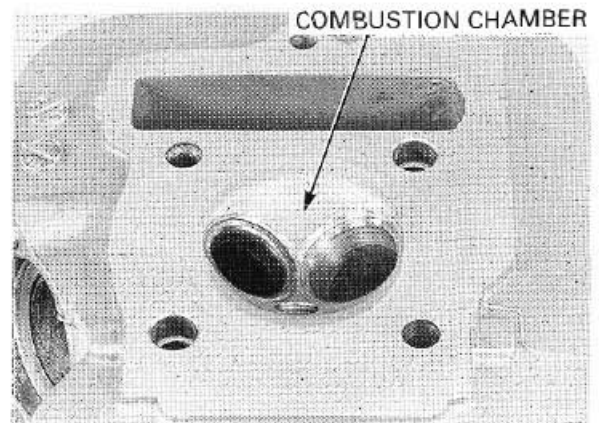
INSPECTION

CYLINDER HEAD

Remove carbon deposits from the combustion chamber.

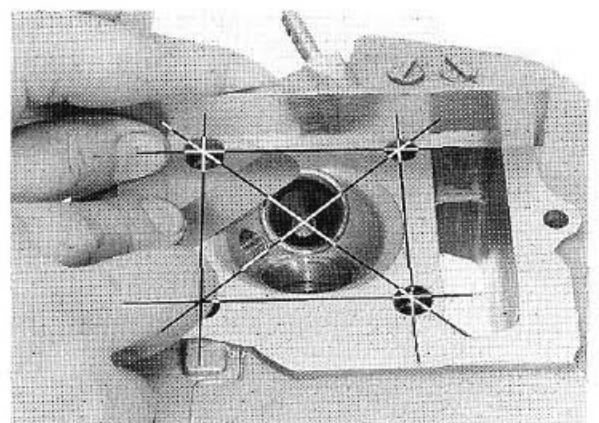
Check the spark plug hole and valve areas for cracks.

Avoid damaging the gasket surface.



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

SERVICE LIMIT: 0.10 mm (0.004 in)



VALVE SPRING

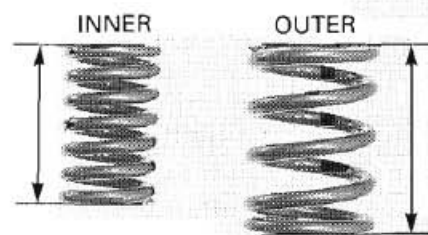
Measure the free length of the inner and outer valve springs.

SERVICE LIMIT:

Inner: 27.6 mm (1.09 in)

Outer: 33.7 mm (1.33 in)

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

**VALVE**

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

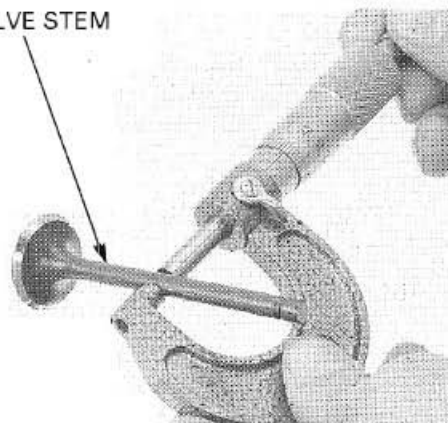
Check valve movement in the guide, measure and record each valve stem O.D.

SERVICE LIMIT:

IN: 5.420 mm (0.2134 in)

EX: 5.400 mm (0.2126 in)

VALVE STEM



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

Insert the reamer from the camshaft side of the head and always rotate the reamer clockwise.

TOOL:

Valve guide reamer, 5.5 mm 07984-0980001 or
07984-098000D

Measure and record each valve guide I.D.

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

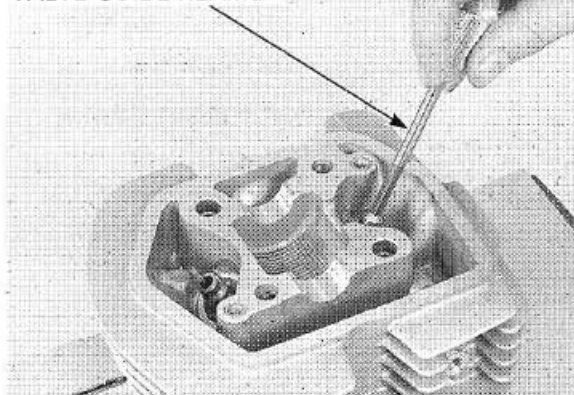
Subtract each valve stem O.D. from the corresponding guide I.D. to obtain the stem-to-guide clearance.

SERVICE LIMITS:

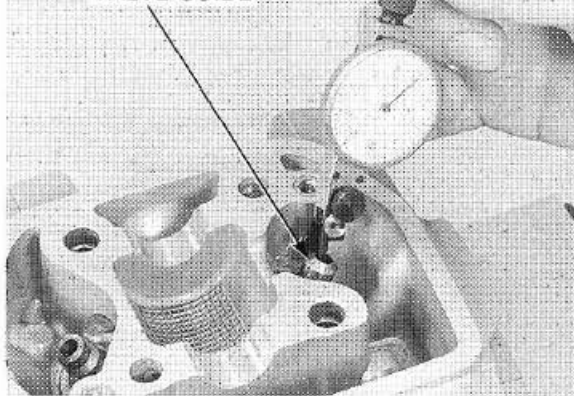
IN: 0.08 mm (0.003 in)

EX: 0.10 mm (0.004 in)

VALVE GUIDE REAMER



VALVE GUIDE



Reface the valve seats whenever the valve guides are replaced (page 7-10).

If the stem-to-guide clearance is out of specification, determine if a new guide with standard dimensions would bring the clearance within tolerance. If so, replace any guides as necessary and ream to fit. If the stem-to-guide clearance is out of specification with the new guides, replace the valves and guides.

VALVE GUIDE REPLACEMENT

Chill the replacement valve guides in the freezer section of a refrigerator for about an hour.
Heat the cylinder head to 100 – 150 °C (212 – 302 °F) with a hot plate or oven.

WARNING

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

CAUTION:

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

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

TOOL:

Valve guide driver, 5.5 mm 07942-0010100 or
07942-3290100
(U.S.A. only)

Drive in the guide from the top of the head using the special tool as shown.

TOOL:

Valve guide driver, 5.5 mm 07942-0010100 or
07942-3290100
(U.S.A. only)

Let the cylinder head cool to room temperature.

Ream the new valve guide after installation.
Insert the reamer from the combustion chamber side of the head and also always rotate the reamer clockwise.

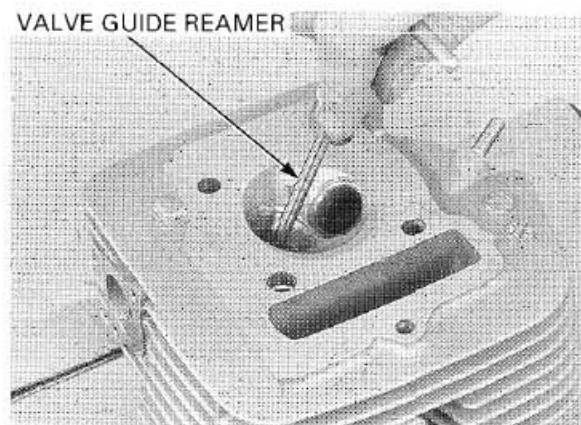
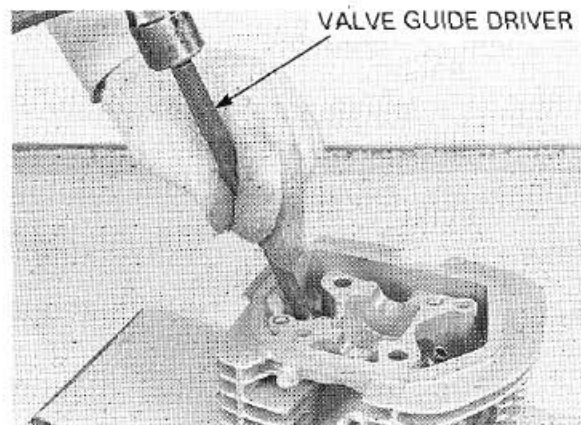
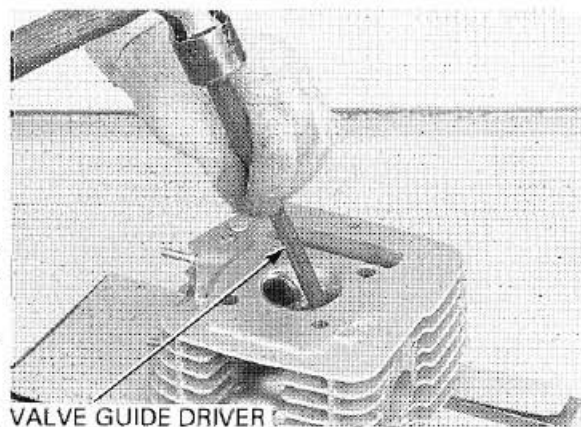
TOOL:

Valve guide reamer, 5.5 mm 07984-0980001 or
07984-098000D

NOTE:

Use cutting oil on the reamer during this operation.

Clean the cylinder head thoroughly to remove any metal particles.
Reface the valve seat (page 7-11).

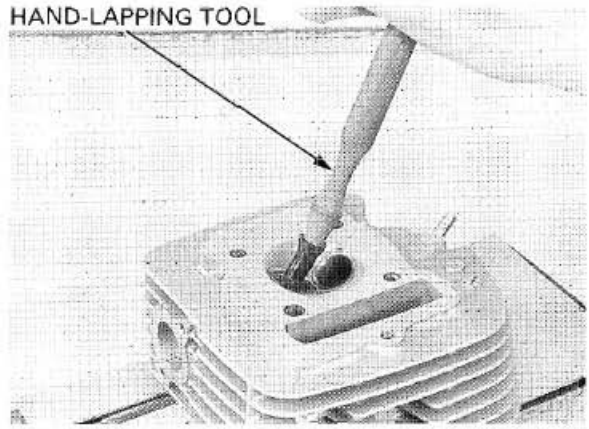


VALVE SEAT INSPECTION/REFACING

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

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

HAND-LAPPING TOOL



Remove and inspect the valves.

CAUTION:

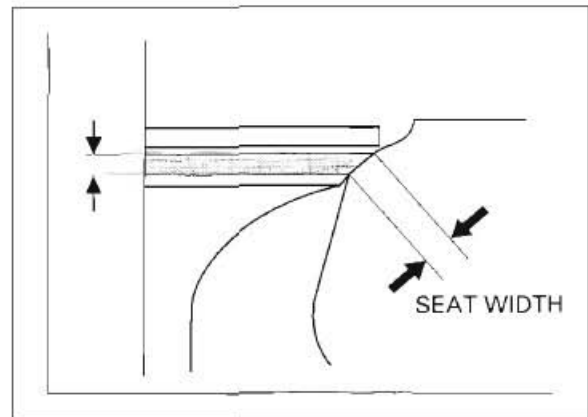
The valves cannot be ground. If a valve face is burned or badly worn or if it contacts the seat unevenly, replace the valve.

Inspect the width of each valve seat.

STANDARD: 1.7 mm (0.06 in)

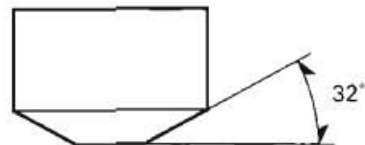
SERVICE LIMIT: 2.1 mm (0.08 in)

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

**VALVE SEAT REFACING**

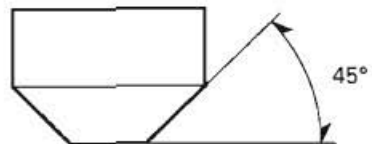
Follow the refacing manufacturer's operating instructions.

Valve seat cutters/grinders or equivalent valve seat refacing equipment are recommended to correct worn valve seats.

VALVE SEAT CUTTERS (EQUIVALENT COMMERCIALLY AVAILABLE IN U.S.A.)

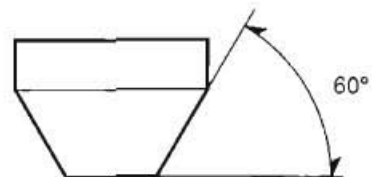
IN: 07780 - 0012000 (25 mm/32°)

EX: 07780 - 0012601 (22 mm/32°)



IN: 07780 - 0010200 (27.5 mm)

EX: 07780 - 0010100 (24.5 mm)

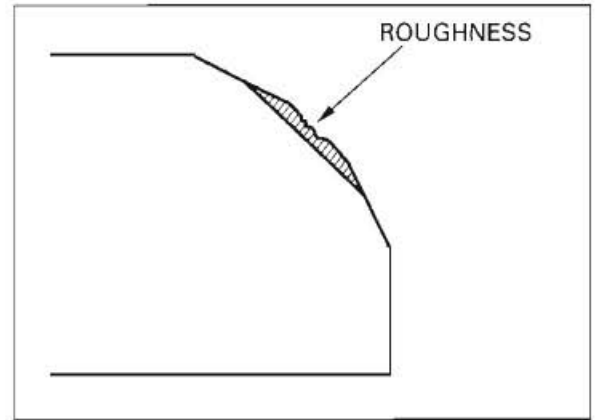


IN, EX: 07780 - 0014000 (22 mm)

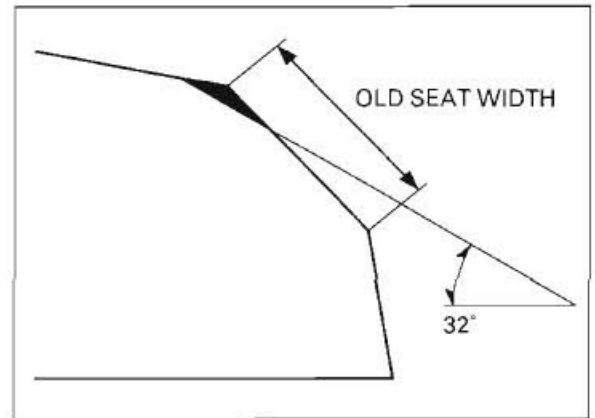
CYLINDER HEAD/VALVES

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

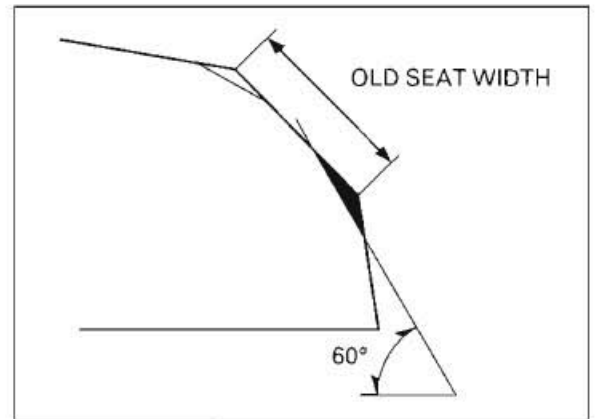
Use a 45-degree cutter to remove any roughness or irregularities from the seat.



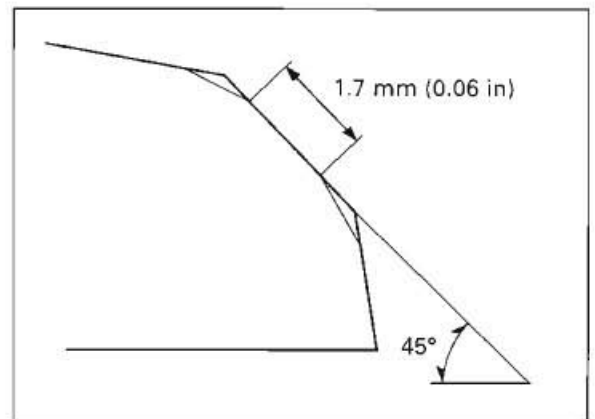
Use a 32-degree cutter to remove the top 1/4 of the existing valve seat material.



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



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



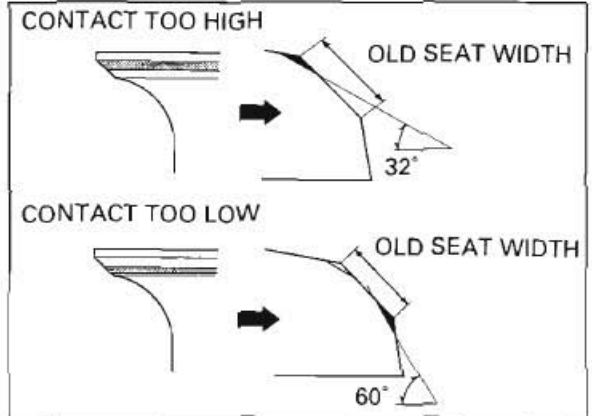
Apply a thin coating of Prussian Blue to the valve seat.
Press the valve through the valve guide and onto the seat to make a clear pattern.

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 finish cutter.

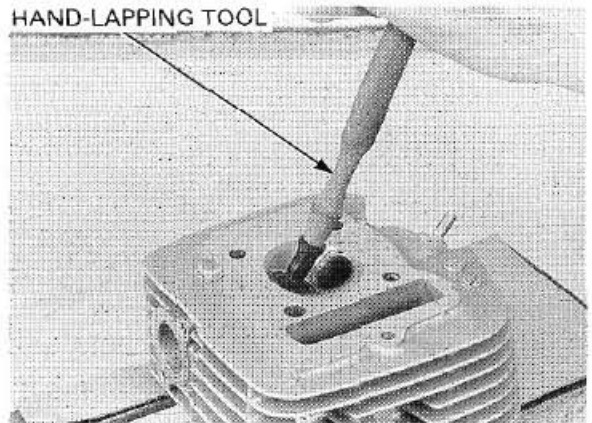


After cutting the seat, apply lapping compound to the valve face, and lap the valve using light pressure.

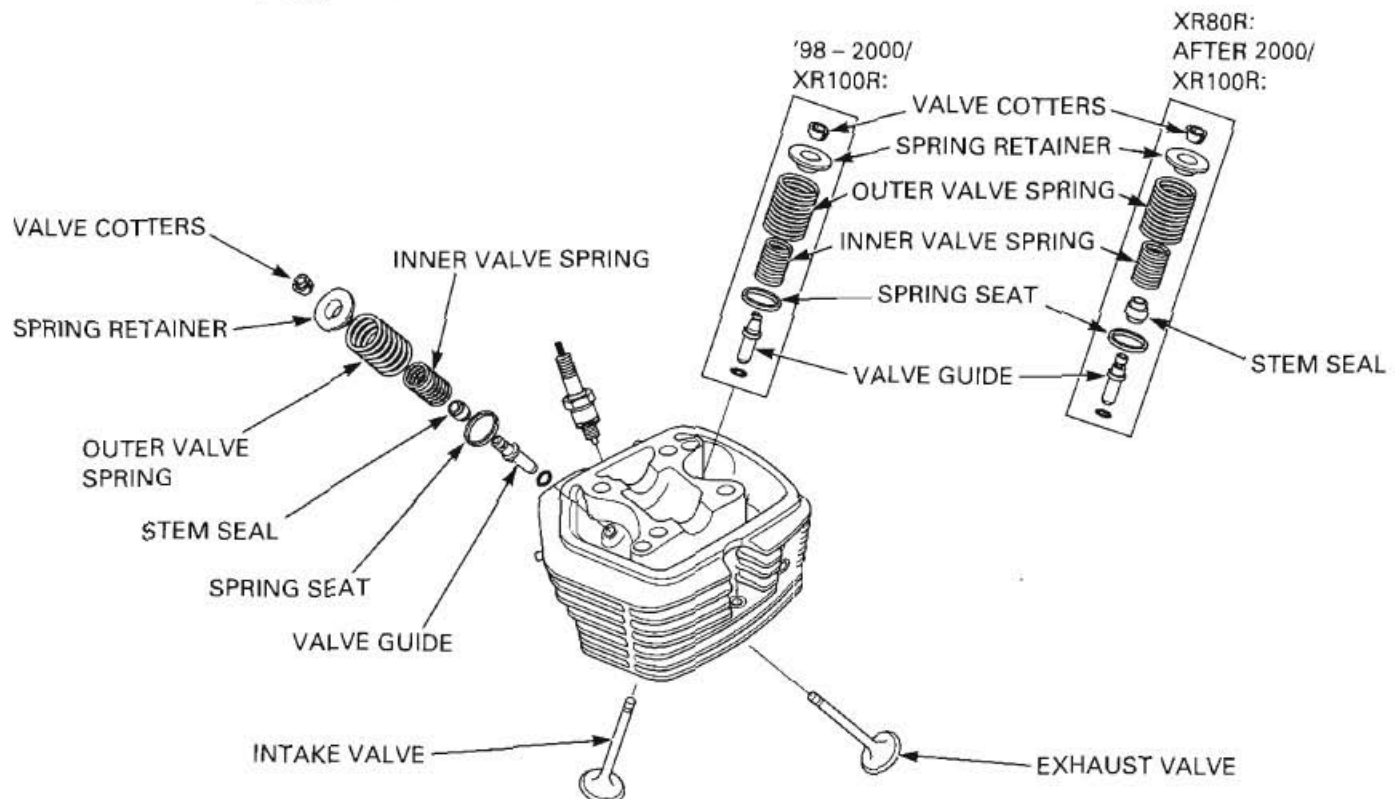
After lapping, wash all residual compound off the cylinder head and valve.

CAUTION:

Do not allow lapping compound to enter the guides.



ASSEMBLY



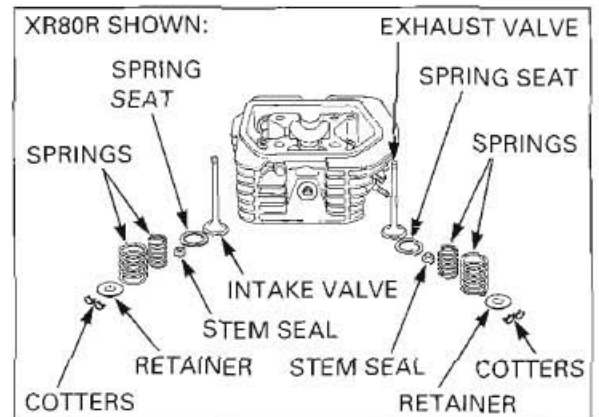
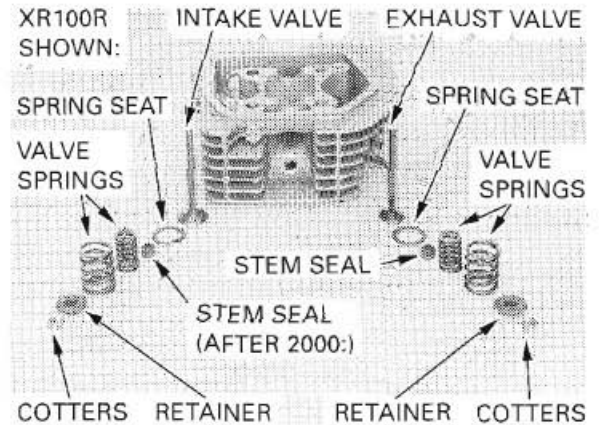
CYLINDER HEAD/VALVES

Clean the cylinder head assembly with solvent and blow out all oil passages with compressed air.

Install the valve spring seats.
Install the new stem seals.

Lubricate the valve stems with engine oil and insert the valve into the valve guide.
To avoid damaging to the stem seal, turn the valve slowly when inserting.

Install the valve springs.
Install the valve spring retainer.

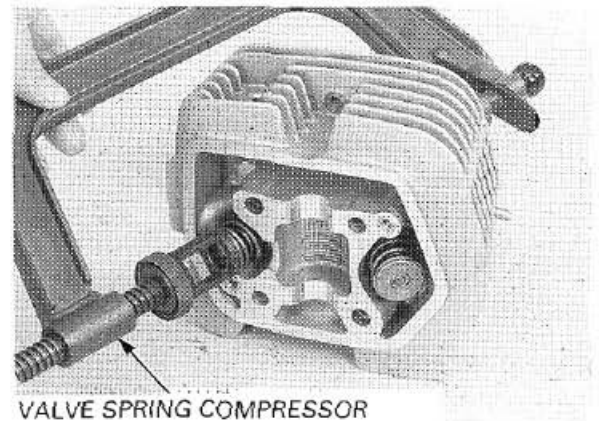


Install the valve cotter pins using the special tool as shown.

TOOL:
Valve spring compressor 07757-0010000

CAUTION:

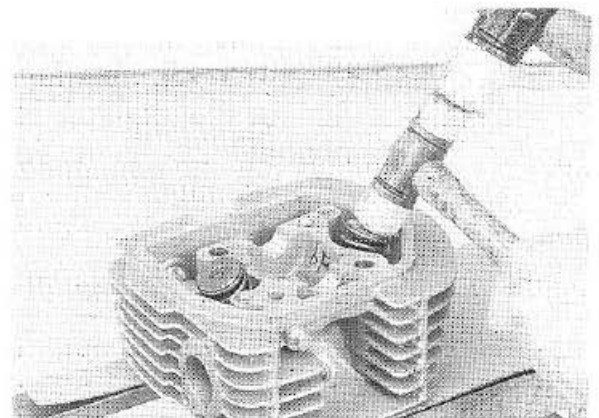
To prevent loss of tension, do not compress the valve spring more than necessary.



Tap the valve stems gently with two plastic hammers as shown to seat the cotter pins firmly.

CAUTION:

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



INSTALLATION

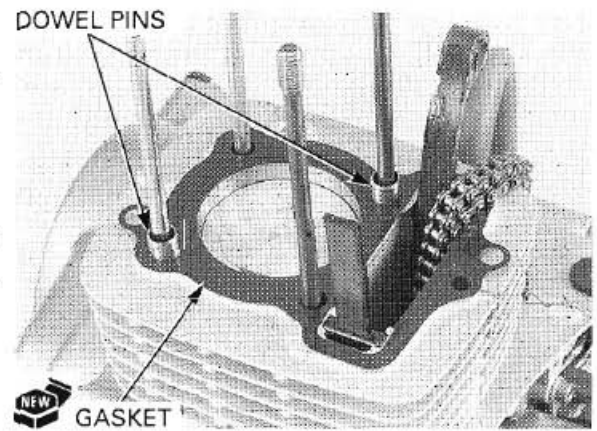
Clean off the gasket material from the cylinder surface.

Install the new gasket and dowel pins.

Loosen the tensioner adjusting bolt lock nut and the bolt.

Push down on the tensioner rod with a screwdriver and retighten the bolt (page 7-4).

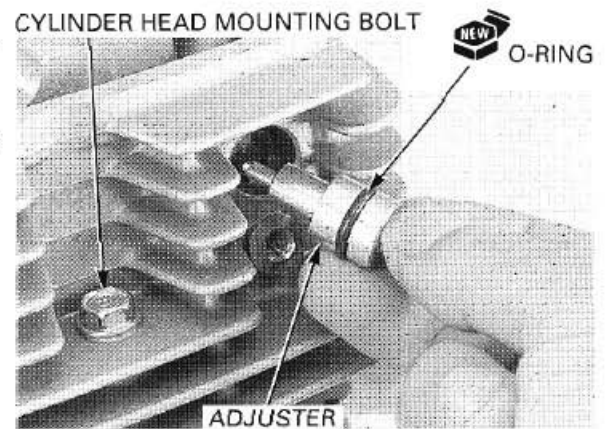
Tighten the lock nut.



Install the cylinder head.

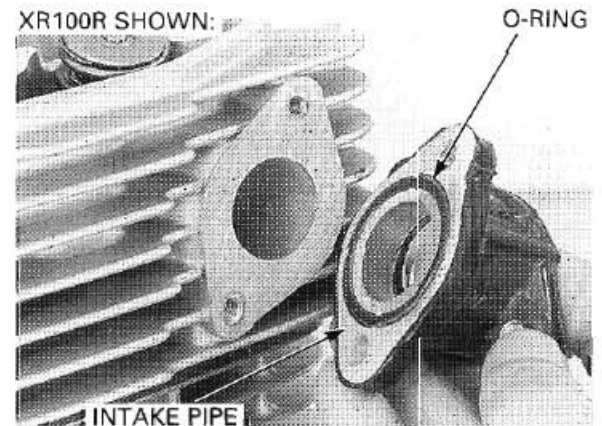
Install the cam chain tension adjuster with a new O-ring.

Install the cylinder head mounting bolt, but do not tighten.



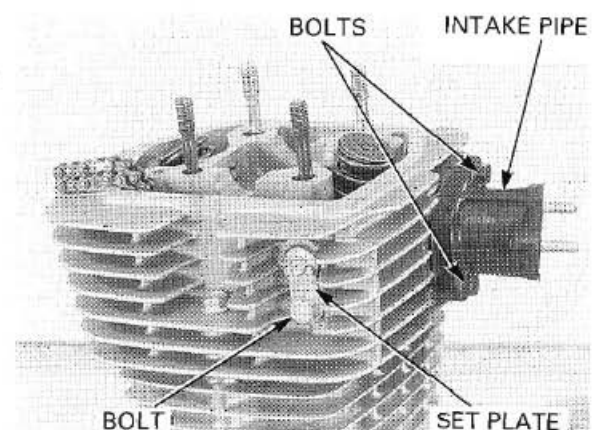
XR100R: Install the new O-ring to the intake pipe.

XR80R: Install the new gasket to the intake pipe.



Install the intake pipe and tighten the two bolts.

Install the camchain tensioner adjuster set plate and bolt.



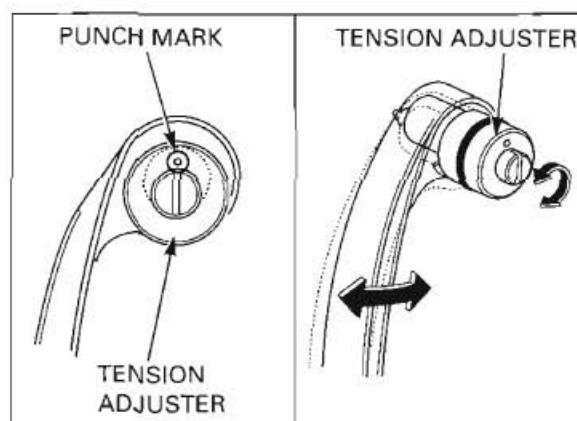
CYLINDER HEAD/VALVES

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.

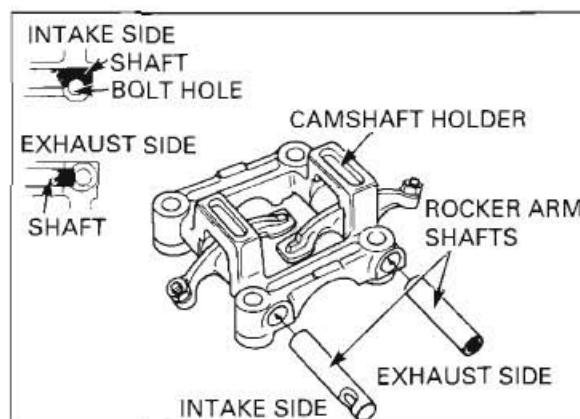


CAMSHAFT INSTALLATION

Install the rocker arms and rocker arm shafts.

NOTE:

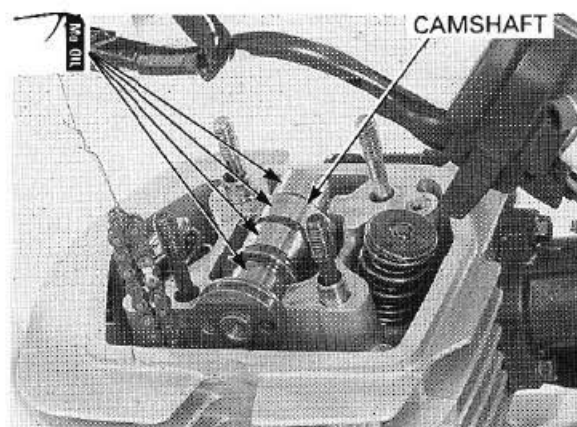
- Align the cutout of the intake arm shaft with the bolt hole as shown.
- Push the exhaust arm shaft in completely.



Coat the camshaft journals with molybdenum disulfide grease.

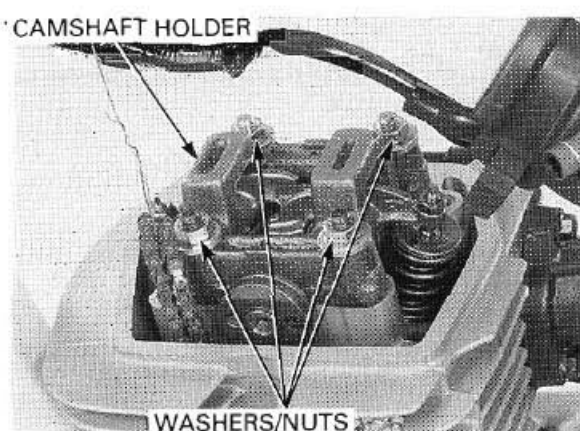
Install the camshaft onto the cam holder with its lobes facing down.

Install the dowel pins.



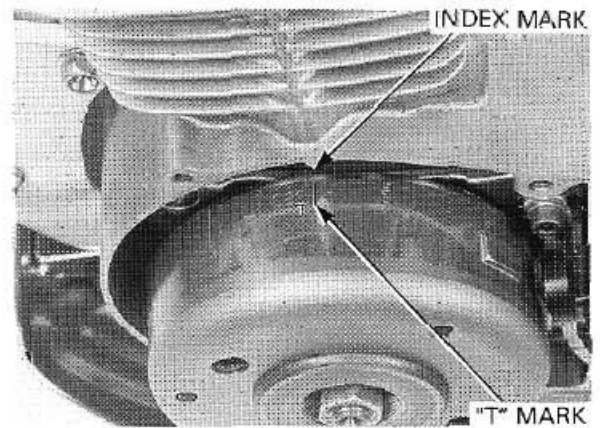
Install the camshaft holder assembly and washers over the cylinder head, then tighten the holder mounting nuts to the specified torque.

TORQUE: 20 N·m (2.0 kgf·m, 14 lbf·ft)

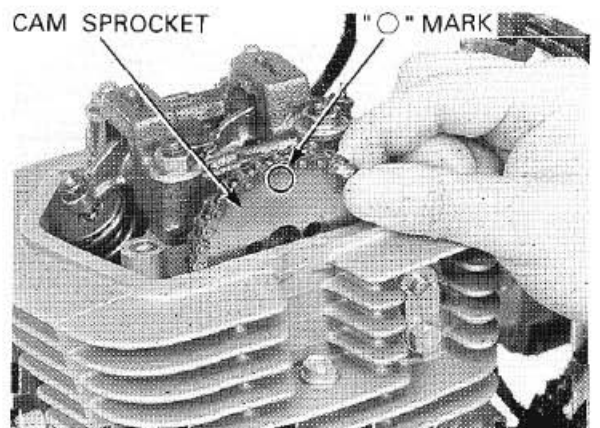


Make sure that the cam chain tension adjuster is set to the loosen setting (page 7-16).

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.

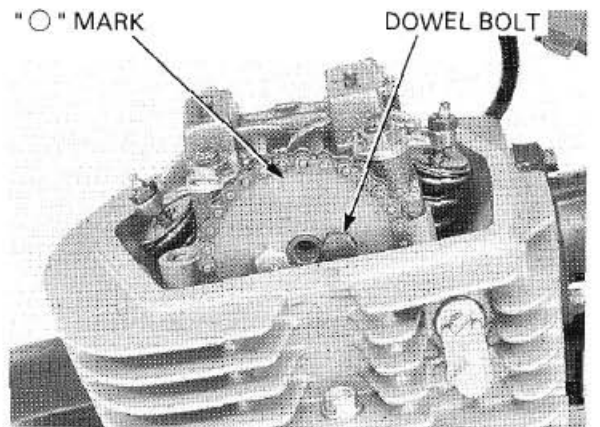


Install and tighten the cam sprocket bolts.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

NOTE:

Install the dowel bolt (black) on the intake side.

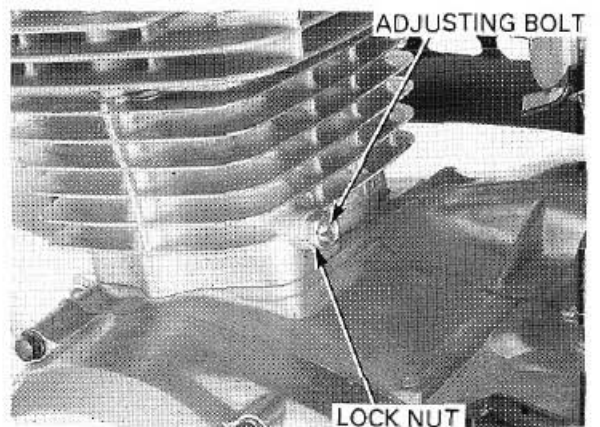


Loosen the lock nut and adjusting bolt.

The cam chain adjuster sets automatically when the adjusting bolt is loosened.
After adjustment, tighten the lock nut to the specified torque.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

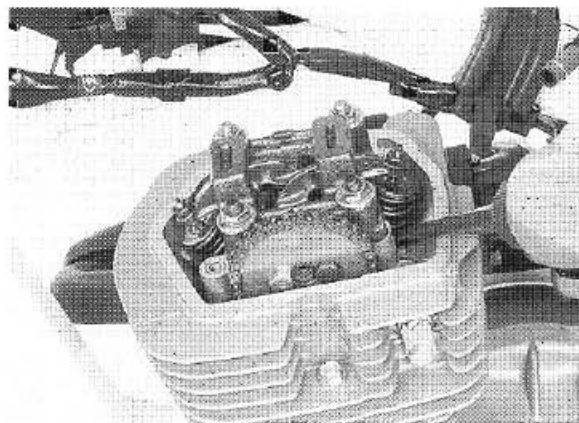
When tightening the lock nut, hold the adjusting bolt to prevent it from turning with the lock nut.



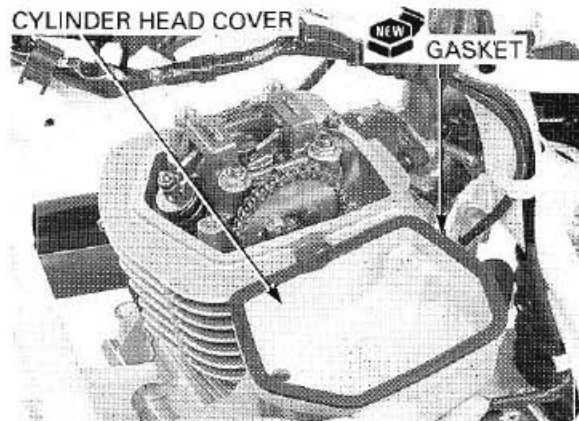
CYLINDER HEAD/VALVES

Pour clean engine oil into the cylinder head oil pocket.

Adjust the valve clearance (page 3-10).



Install a new gasket into the groove of the cylinder head cover.

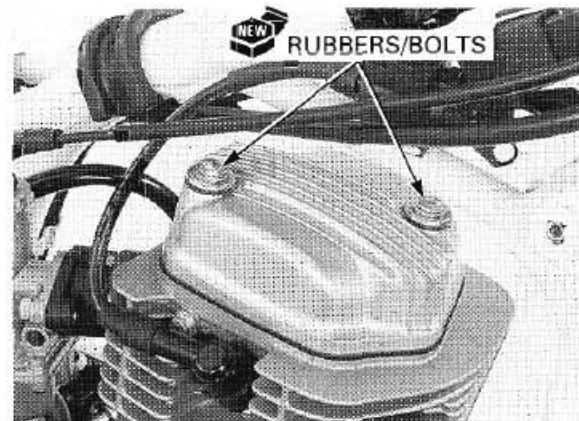


Install the cylinder head cover and new mounting rubbers then tighten the two bolts to the specified torque.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

Install the following:

- Left crankcase cover (page 13-12)
- Fuel tank (page 2-3)
- Seat (page 2-2)
- Side cover (page 2-2)



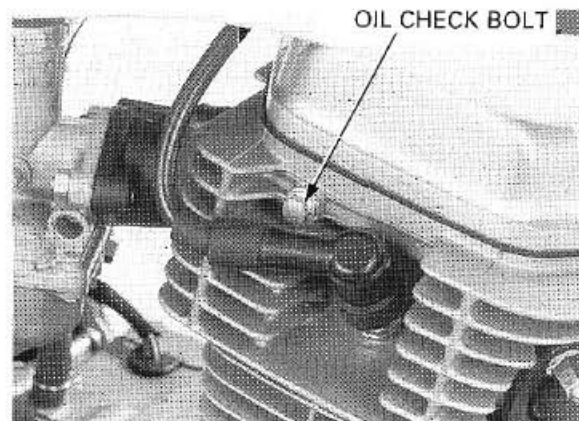
Start the engine and let it idle.

CAUTION:

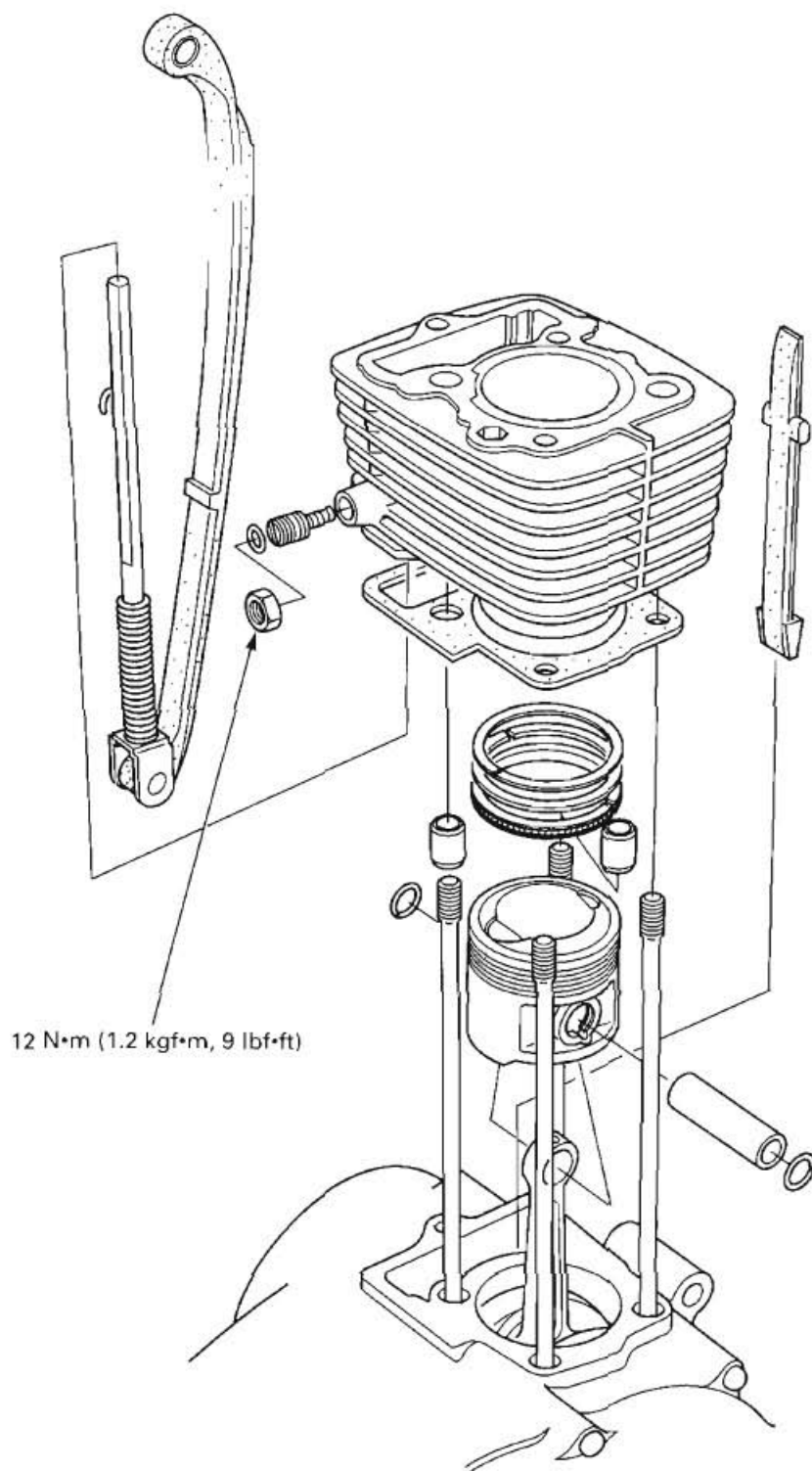
Do not run the engine at high-speed. This will prevent engine damage, if the oil circuit is clogged.

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.



MEMO



8. CYLINDER/PISTON

SERVICE INFORMATION	8-1	CYLINDER/PISTON INSPECTION	8-4
TROUBLESHOOTING	8-2	PISTON INSTALLATION	8-7
CYLINDER REMOVAL	8-3	CYLINDER INSTALLATION	8-7
PISTON REMOVAL	8-3		

SERVICE INFORMATION

GENERAL

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

SPECIFICATIONS

Unit: mm (in)

8

ITEM				STANDARD	SERVICE LIMIT
Cylinder	I.D.	XR100R		53.000 – 53.010 (2.0866 – 2.0870)	53.1 (2.09)
		XR80R		47.500 – 47.510 (1.8701 – 1.8705)	47.6 (1.87)
	Taper			—	0.10 (0.004)
	Out-of-round			—	0.10 (0.004)
	Warpage			—	0.10 (0.004)
Piston, piston rings, piston pin	XR100R	Piston mark direction		"IN" mark facing toward the intake side	—
		Piston O.D.		52.960 – 52.990 (2.0850 – 2.0862)	52.90 (2.083)
		Piston O.D. measurement point		10 mm (0.4 in) from bottom of skirt	—
		Piston pin bore 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)	0.020 (0.0008)
	Piston ring-to-ring groove clearance	Top	'98 – '99	0.015 – 0.045 (0.0006 – 0.0018)	0.10 (0.004)
			After 2000	0.015 – 0.045 (0.0006 – 0.0018)	0.10 (0.004)
		Second	'98 – '99	0.015 – 0.045 (0.0006 – 0.0018)	0.10 (0.004)
			After 2000	0.015 – 0.045 (0.0006 – 0.0018)	0.10 (0.004)
	Piston ring end gap	Top	'98 – '99	0.15 – 0.35 (0.006 – 0.014)	0.5 (0.02)
			After 2000	0.05 – 0.20 (0.002 – 0.008)	0.4 (0.02)
		Second	'98 – '99	0.15 – 0.35 (0.006 – 0.014)	0.5 (0.02)
			After 2000	0.05 – 0.20 (0.002 – 0.008)	0.4 (0.02)
		Oil (Side rail)	'98 – '99	0.3 – 0.9 (0.01 – 0.04)	1.1 (0.04)
			After 2000	0.2 – 0.7 (0.01 – 0.03)	0.9 (0.04)

CYLINDER/PISTON

Unit: mm (in)

ITEM				STANDARD		SERVICE LIMIT	
Piston, piston rings, piston pin	XR80R	Piston mark direction		"EX" mark facing toward the exhaust side		—	
		Piston O.D.		47.465 – 47.490 (1.8686 ~ 1.8697)		47.40 (1.866)	
		Piston O.D. measurement point		7 mm (0.3 in) from bottom of skirt		—	
		Piston pin bore 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)		0.020 (0.0008)	
		Piston ring-to-ring groove clearance	Top	'98 – '99	0.015 – 0.050 (0.0006 – 0.0020)		0.10 (0.004)
				After '99	0.015 – 0.045 (0.0006 – 0.0018)		0.10 (0.004)
			Second	'98 – '99	0.015 – 0.045 (0.0006 – 0.0018)		0.10 (0.004)
				After '99	0.015 – 0.045 (0.0006 – 0.0018)		0.10 (0.004)
		Piston ring end gap	Top	'98 – '99	0.15 – 0.35 (0.006 – 0.014)		0.5 (0.02)
				After '99	0.1 – 0.25 (0.004 – 0.010)		0.4 (0.02)
			Second	'98 – '99	0.15 – 0.35 (0.006 – 0.014)		0.5 (0.02)
				After '99	0.1 – 0.25 (0.004 – 0.010)		0.4 (0.02)
			Oil (Side rail)	'98 – '99	0.3 – 0.9 (0.01 – 0.04)		1.1 (0.04)
				After '99	0.2 – 0.7 (0.01 – 0.03)		0.9 (0.04)
Cylinder-to-piston clearance			XR100R		0.01 – 0.04 (0.0004 – 0.0016)		0.10 (0.004)
			XR80R		0.01 – 0.04 (0.0004 – 0.0016)		0.10 (0.004)
Connecting rod small end I.D.		XR100R		14.012 – 14.030 (0.5517 ~ 0.5523)		14.05 (0.553)	
		XR80R		13.016 – 13.034 (0.5124 ~ 0.5131)		13.04 (0.513)	
Connecting rod-to-piston pin clearance		XR100R		0.016 – 0.040 (0.0006 – 0.0016)		0.03 (0.001)	
		XR80R		0.016 – 0.040 (0.0006 – 0.0016)		0.03 (0.001)	

TORQUE VALUE

Cam chain tensioner adjusting bolt lock nut 12 N·m (1.2 kgf·m, 9 lbf·ft)

TROUBLESHOOTING

- If the performance is poor at low speeds, check for white smoke in the crankcase breather tube. If the tube is smoky, check for a seized piston ring.

Cylinder compression is too low, or engine is hard to start

- Blown cylinder head gasket
- Worn, stuck or broken piston ring
- Worn or damaged cylinder or piston

Cylinder compression is too high, or engine overheats or knocks

- Carbon deposits on the cylinder head and/or piston crown

Piston sounds

- Worn cylinder, piston and/or piston ring
- Worn piston pin hole and piston pin
- Worn connecting rod small end

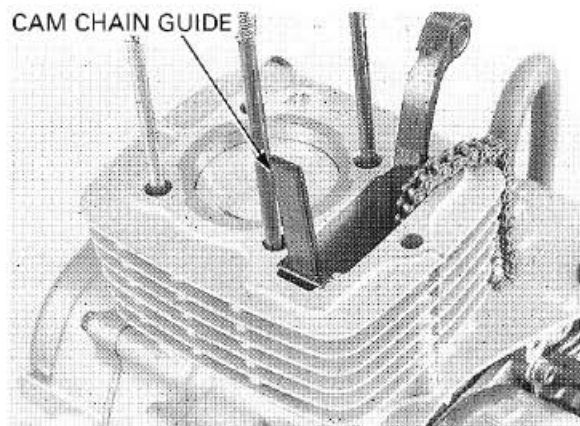
Excessive smoke

- Worn, stuck or broken piston ring

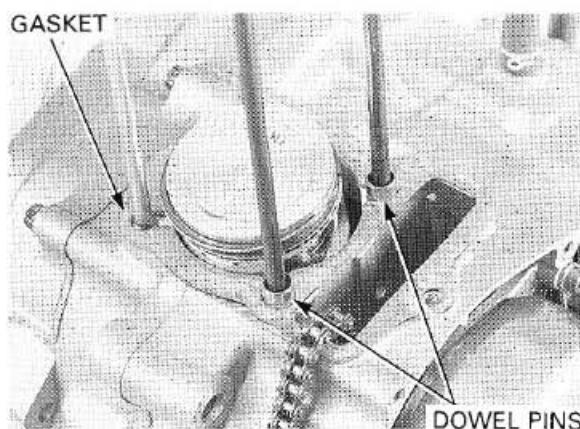
CYLINDER REMOVAL

Remove the cylinder head (page 7-7).

Remove the cam chain guide.
Remove the cylinder.

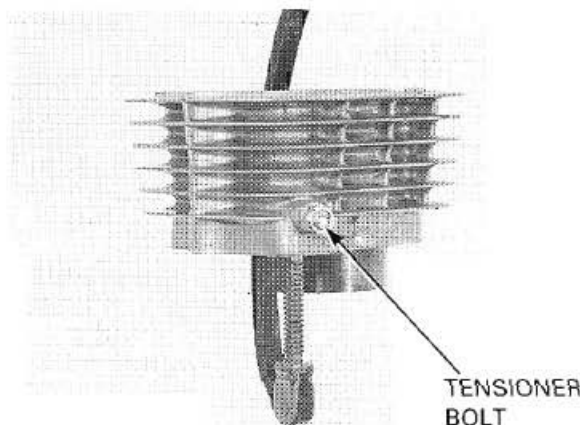


Remove the gasket and dowel pins.



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

Remove the cam chain tensioner, tensioner rod and spring.

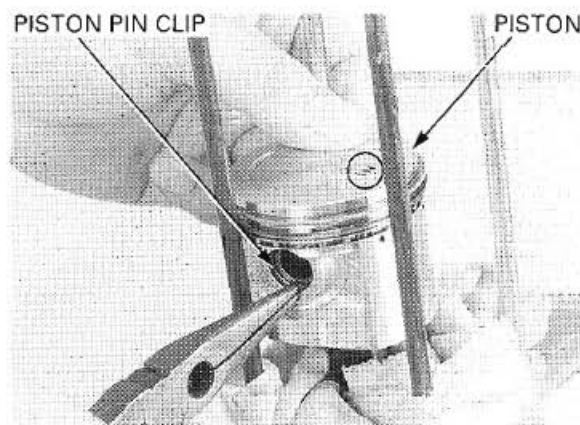


PISTON REMOVAL

Do not let the piston pin clips fall into the crankcase.

Remove the piston pin clip with pliers.

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

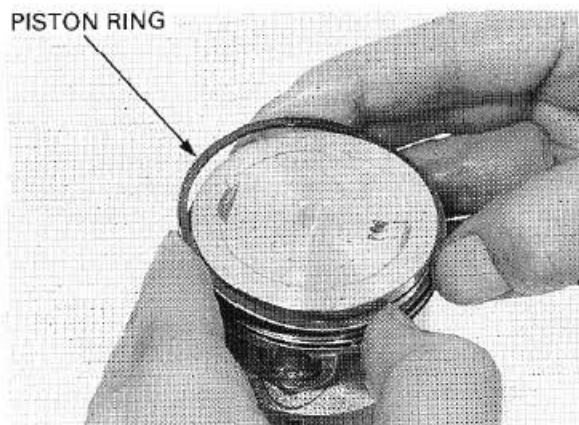


CYLINDER/PISTON

Do not damage the piston rings during removal.

Remove the piston rings.

PISTON RING



CYLINDER/PISTON INSPECTION

CYLINDER

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

Take the maximum reading to determine the cylinder wear.

SERVICE LIMIT:

XR100R: 53.1 mm (2.09 in)

XR80R: 47.6 mm (1.87 in)

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

Refer to page 8-5 for measurement of the piston O.D.

SERVICE LIMIT: 0.10 mm (0.004 in)

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

SERVICE LIMIT:

Taper: 0.10 mm (0.004 in)

Out of round: 0.10 mm (0.004 in)

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

The following oversize pistons are available:

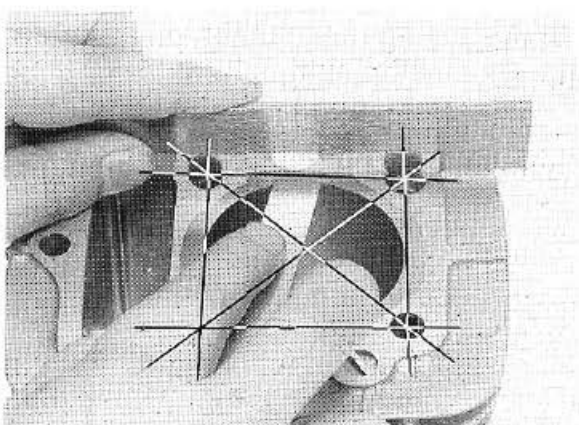
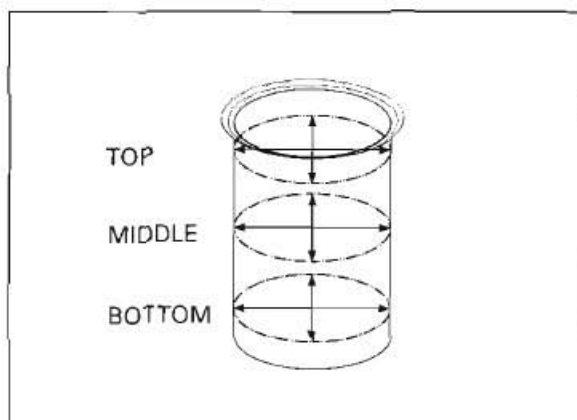
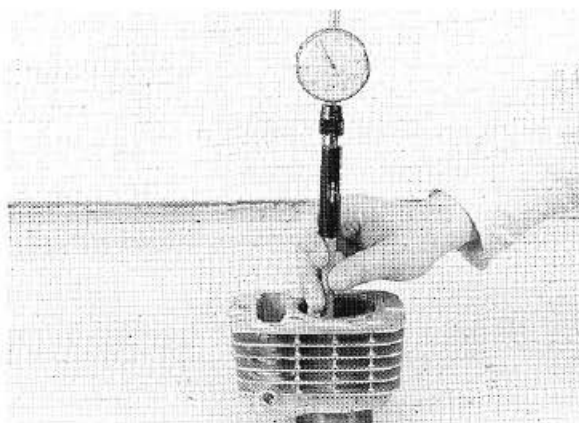
XR100R: 0.25 mm (0.010 in)
0.50 mm (0.020 in)

XR80R: 0.25 mm (0.010 in)
0.50 mm (0.020 in)
0.75 mm (0.030 in)
1.00 mm (0.039 in)

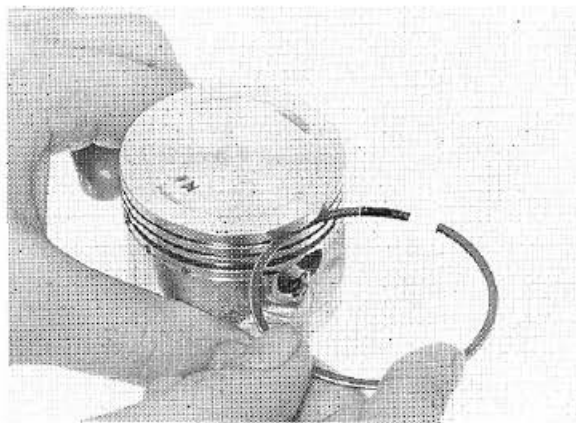
The piston-to-cylinder clearance for the oversize piston must be: 0.010 – 0.040 mm (0.0004 – 0.0016 in)

Inspect the top of the cylinder for warpage.

SERVICE LIMIT: 0.10 mm (0.004 in)



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



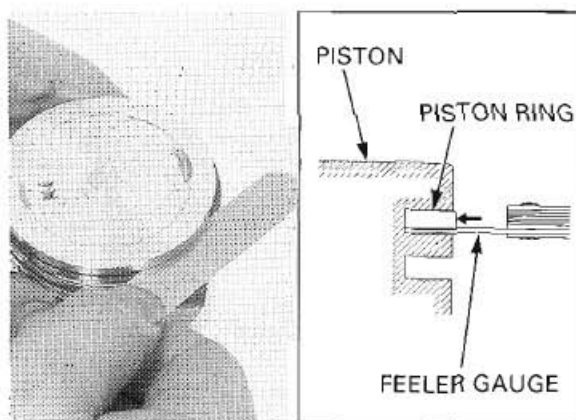
Temporarily install the piston rings to their proper position with the mark facing up.

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

SERVICE LIMITS:

Top: 0.10 mm (0.004 in)

Second: 0.10 mm (0.004 in)



Inspect the piston for wear or damage.

Measure the diameter of the piston at specification given from the bottom and 90 degrees to the piston pin hole.

PISTON O.D. MEASUREMENT POINT

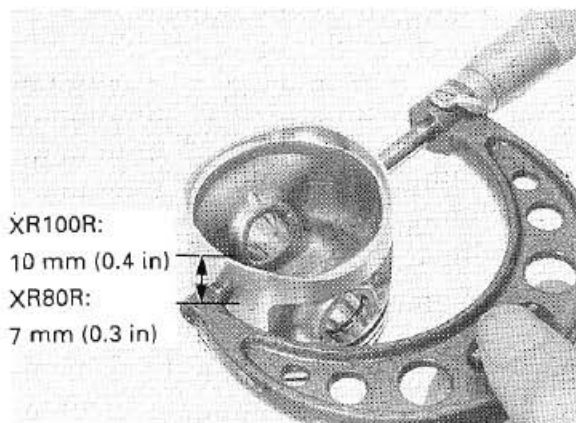
XR100R: 10 mm (0.4 in)

XR80R: 7 mm (0.3 in)

SERVICE LIMIT:

XR100R: 52.90 mm (2.083 in)

XR80R: 47.40 mm (1.866 in)



Measure the piston pin bore.

SERVICE LIMIT:

XR100R: 14.04 mm (0.553 in)

XR80R: 13.04 mm (0.513 in)

Measure the O.D. of the piston pin.

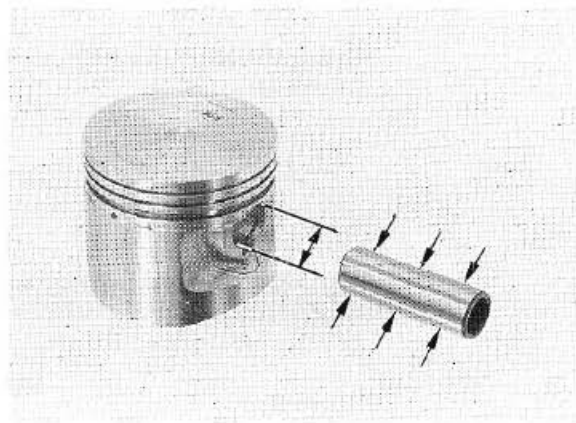
SERVICE LIMIT:

XR100R: 13.96 mm (0.550 in)

XR80R: 12.96 mm (0.510 in)

Calculate the piston-to-piston pin clearance.

SERVICE LIMIT: 0.020 mm (0.0008 in)



CYLINDER/PISTON

Measure the connecting rod small end I.D.

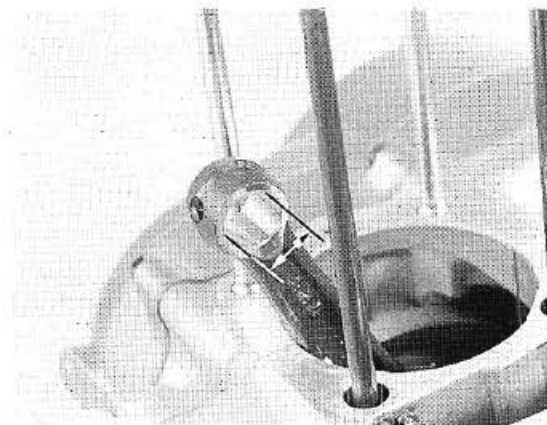
SERVICE LIMIT:

XR100R: 14.05 mm (0.553 in)

XR80R: 13.04 mm (0.513 in)

Calculate the connecting rod-to-piston pin clearance.

SERVICE LIMIT: 0.03 mm (0.001 in)



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

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

SERVICE LIMITS:

Top/Second:

XR100R: '98 – 2000: 0.5 mm (0.02 in)

After 2000: 0.4 mm (0.02 in)

XR80R: '98 – '99: 0.5 mm (0.02 in)

After '99: 0.4 mm (0.02 in)

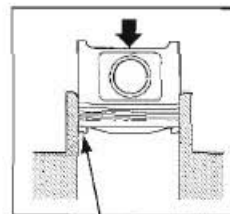
Oil (Side rail):

XR100R: '98 – 2000: 1.1 mm (0.04 in)

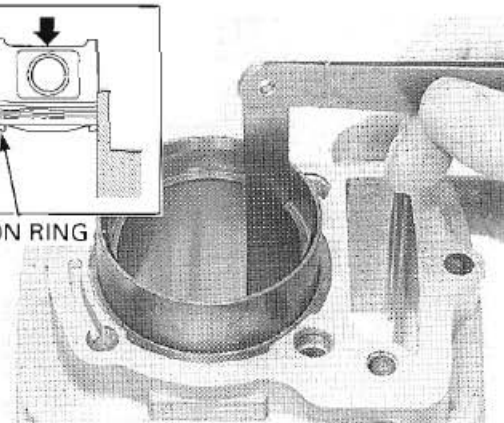
After 2000: 0.9 mm (0.04 in)

XR80R: '98 – '99: 1.1 mm (0.04 in)

After '99: 0.9 mm (0.04 in)



PISTON RING



PISTON RING INSTALLATION

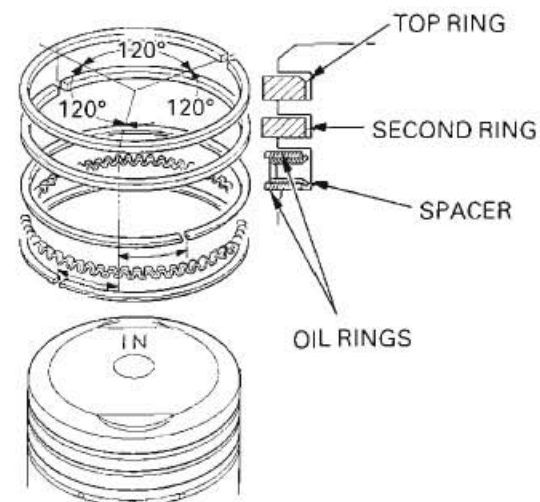
Clean the piston ring grooves thoroughly and install the piston rings.

NOTE:

- Apply oil to the piston rings.
- Avoid piston and piston ring damage during installation.
- Install the piston rings with their marks facing up.
- Do not switch the top and second rings; the top ring is narrower than the second ring in width.

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

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

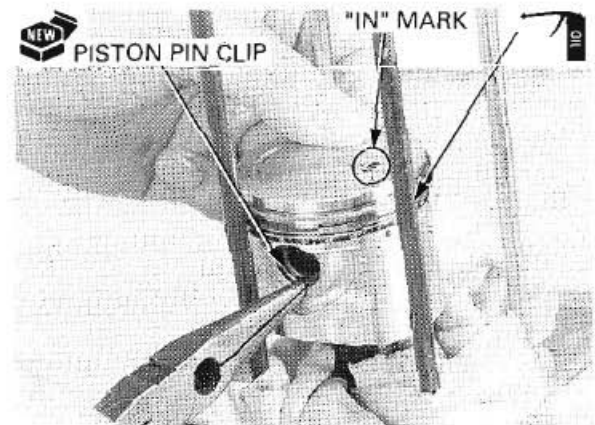


PISTON INSTALLATION

XR80R: Apply oil to the piston pin outer surface.
 Install the piston with its "EX" mark facing the exhaust side.
 Install the piston pin and secure it with new piston pin clips.

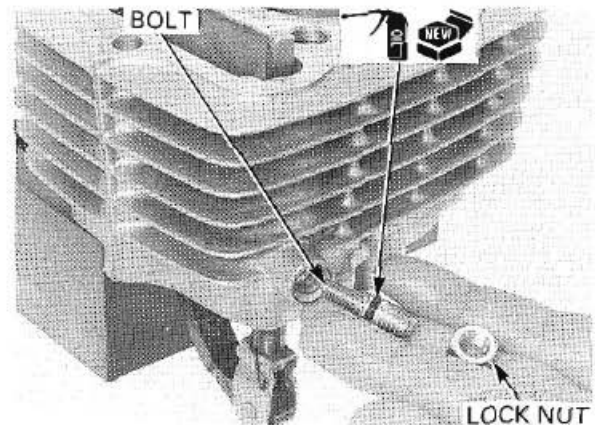
NOTE:

- Do not align the piston pin clips end gap with the piston cut-out.
- Do not let the piston pin clips fall into the crankcase.

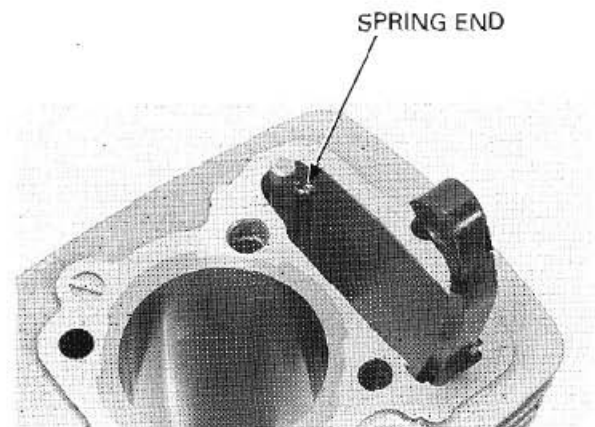


CYLINDER INSTALLATION

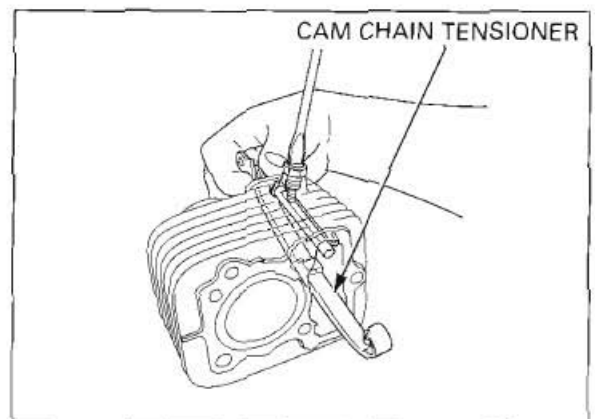
Install a new O-ring on the cam chain tensioner adjusting bolt and lock nut.



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



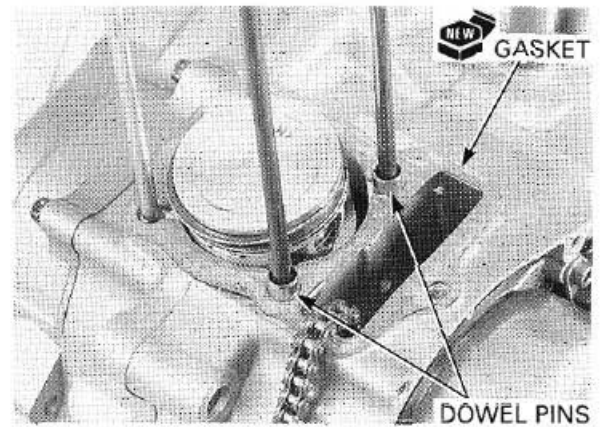
Pull the tensioner down, then tighten the bolt and lock nut.



CYLINDER/PISTON

Clean off any gasket materials from the crankcase surface.

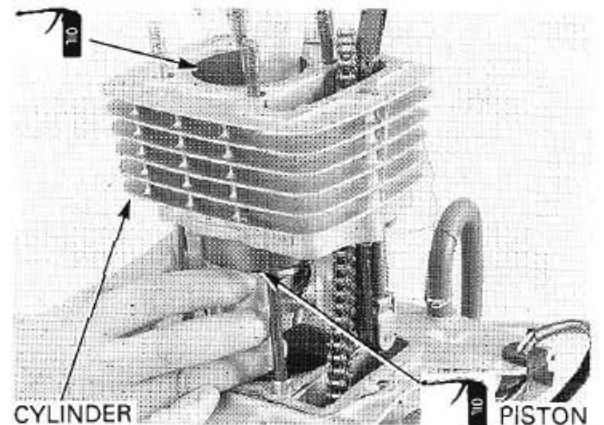
Install the dowel pins and new gasket.



Coat the cylinder bore, piston outer surface and piston ring grooves with clean engine oil. Install the cylinder while compressing the piston rings.

NOTE:

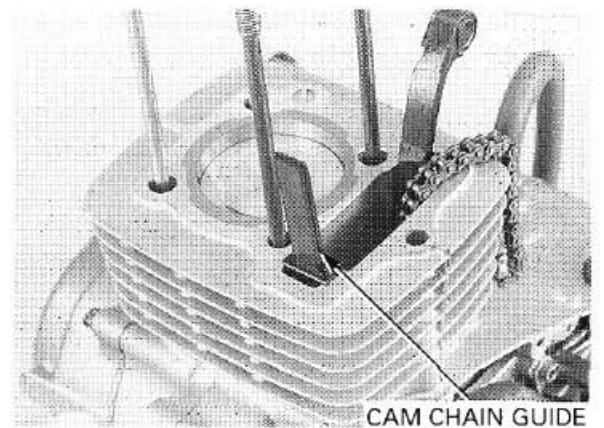
- Avoid piston ring damage during installation.
- Do not let the cam chain fall into the crankcase.



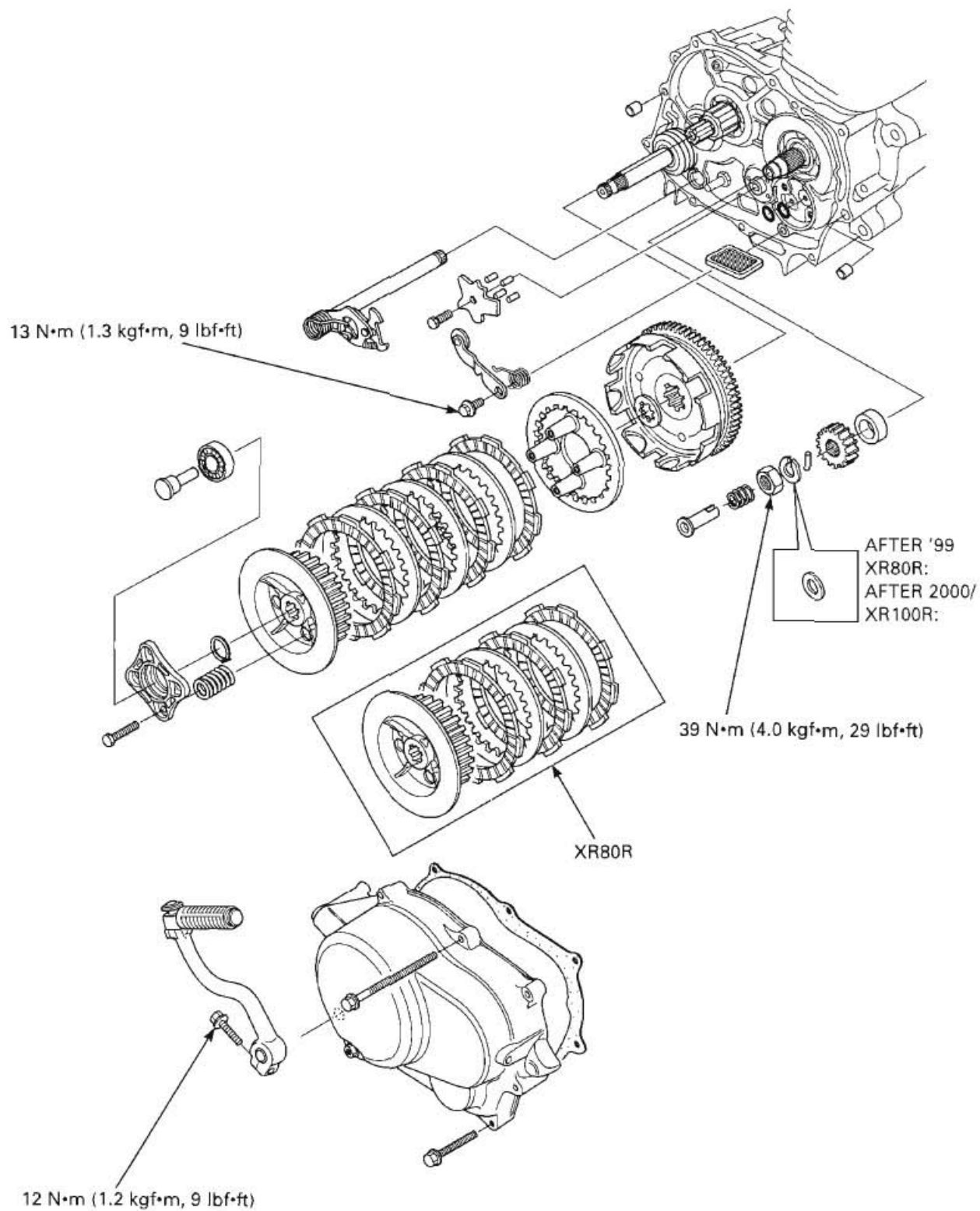
Install the cam chain guide.

Install the following:

- Cylinder head (page 7-15)
- Camshaft (page 7-16)
- Cylinder head cover (page 7-18)
- Carburetor (page 5-12)
- Engine (page 6-5)
- Seat, side cover (page 2-2)



MEMO



9. CLUTCH/GEARSHIFT LINKAGE

SERVICE INFORMATION	9-1	CLUTCH	9-5
TROUBLESHOOTING	9-2	GEARSHIFT LINKAGE	9-10
RIGHT CRANKCASE COVER REMOVAL	9-3	RIGHT CRANKCASE COVER INSTALLATION	9-12

SERVICE INFORMATION

GENERAL

- This section covers service of the clutch and gearshift linkage. All service can be done with the engine installed in the frame.
- Use care not to allow dust or dirt to enter the engine.
- Transmission oil viscosity and level have an effect on clutch disengagement. When the clutch does not disengage or the motorcycle creeps with clutch disengaged, inspect the transmission oil level before servicing the clutch system.

SPECIFICATIONS

Unit: mm (in)

9

ITEM		STANDARD	SERVICE LIMIT
Clutch lever free play		10.0 – 20.0 (3/8 – 3/4)	—
Clutch spring free length	XR100R	31.9 (1.25)	29.5 (1.16)
	XR80R	27.6 (1.09)	25.5 (1.00)
Clutch disc thickness	XR100R	2.92 – 3.08 (0.115 – 0.121)	2.7 (0.11)
	XR80R	2.80 – 2.90 (0.110 – 0.114)	2.5 (0.10)
Clutch plate warpage		—	0.20 (0.008)

TORQUE VALUES

Primary drive gear lock nut	39 N•m (4.0 kgf•m, 29 lbf•ft)
Shift drum stopper arm plate bolt	13 N•m (1.3 kgf•m, 9 lbf•ft)
Shift return spring pin	29 N•m (3.0 kgf•m, 22 lbf•ft)
Foot peg mounting bolt	39 N•m (4.0 kgf•m, 29 lbf•ft)
Kick starter pedal bolt	12 N•m (1.2 kgf•m, 9 lbf•ft)

TOOL

Gear holder	07724-0010100
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TROUBLESHOOTING

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

Clutch lever hard too pull in

- Damaged, kinked or dirty clutch cable
- Improperly routed clutch cable
- Damaged clutch lifter mechanism
- Faulty clutch lifter plate bearing

Clutch will not disengage or motorcycle creeps with clutch disengaged

- Too much clutch lever free play
- Clutch plate warped
- Oil level too high, improper oil viscosity, or additive used
- Check for oil additive

Clutch slips

- Clutch lifter sticking
- Worn clutch discs
- Weak clutch springs
- No clutch lever free play
- Check for oil additive

Hard to shift

- Misadjusted clutch cable
- Damaged or bent shift fork
- Bent shift fork shaft
- Incorrect engine oil viscosity
- Incorrect gearshift spindle assembly
- Damaged shift drum cam grooves

Transmission jumps out of gear

- Worn shift drum stopper arm
- Wear or broken gearshift spindle return spring
- Bent shift fork shaft
- Damaged shift drum cam grooves
- Worn gear dogs or slots

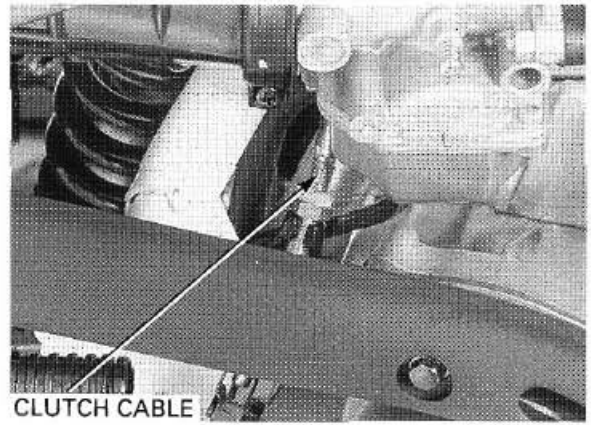
Gearshift pedal will not return

- Weak or broken gearshift spindle return spring
- Bent gearshift spindle

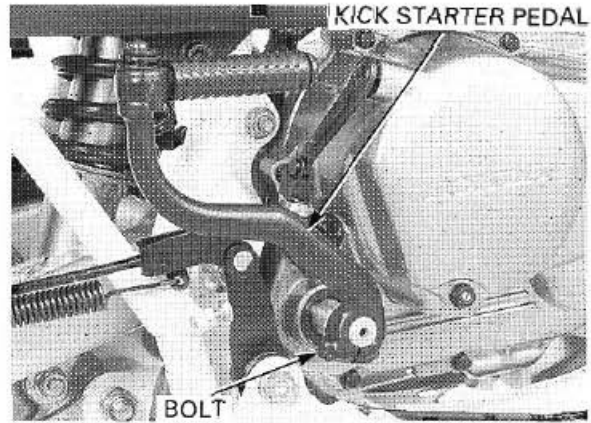
RIGHT CRANKCASE COVER REMOVAL

Drain the engine oil (page 3-12).

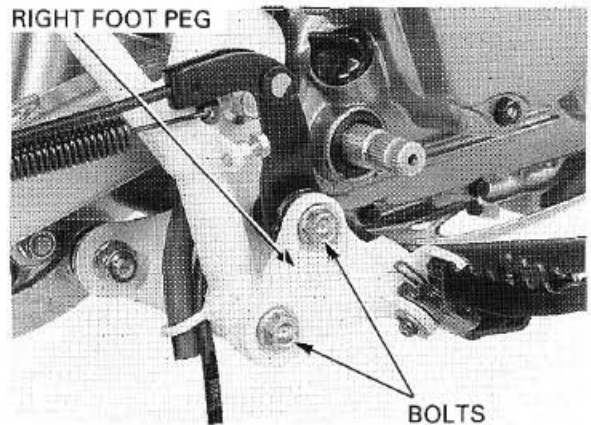
Disconnect the clutch cable.



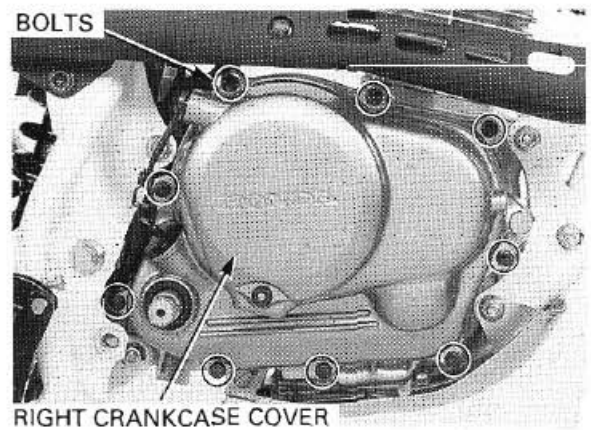
Remove the bolt and kick starter pedal.



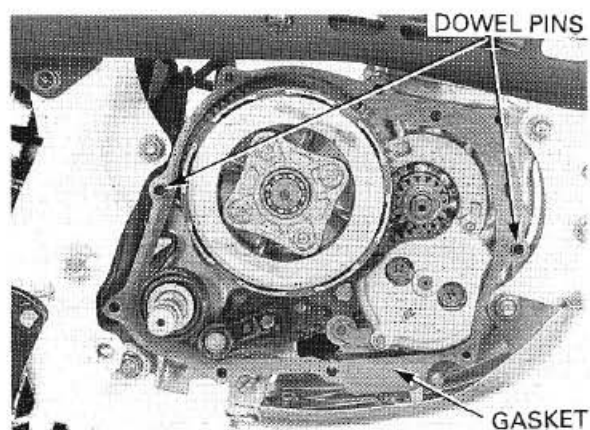
Remove the two bolts and right foot peg.



Remove the nine bolts and right crankcase cover.

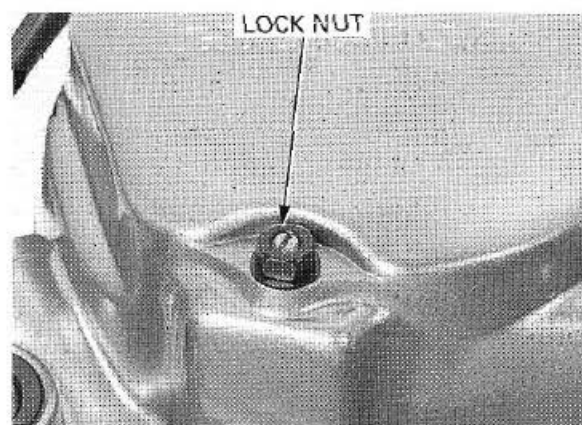


Remove the gasket and dowel pins.

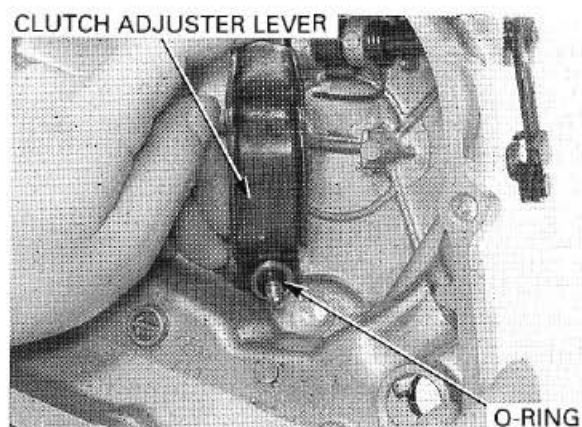


RIGHT CRANKCASE COVER DISASSEMBLY

Remove the clutch adjusting screw lock nut.

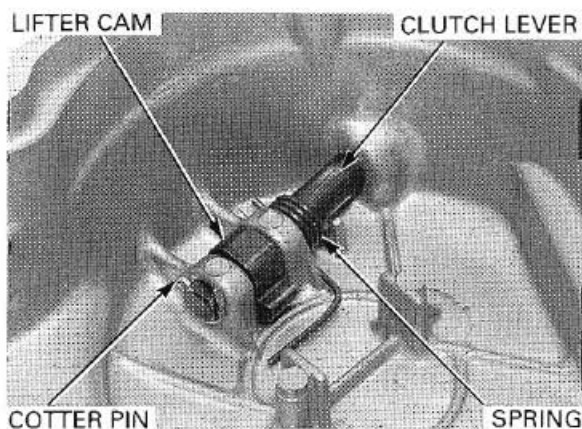


Remove the clutch adjusting lever, O-ring and clutch adjusting screw.



Remove the following:

- Cotter pin
- Clutch lifter cam
- Clutch lever spring
- Clutch lever
- O-ring

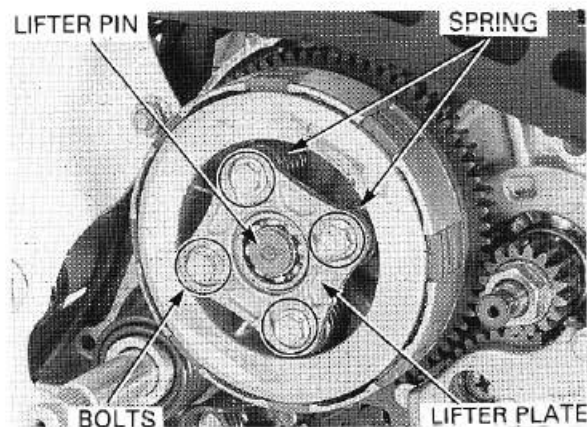


CLUTCH

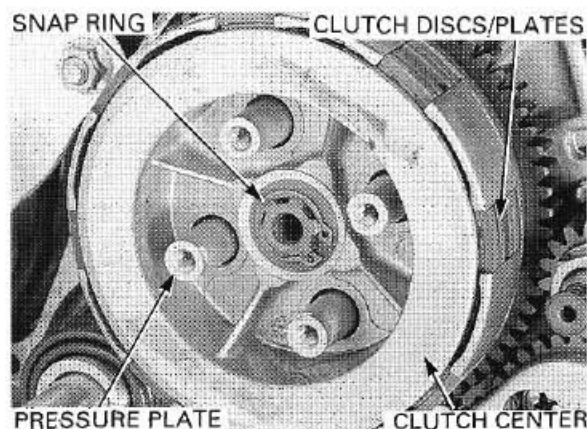
REMOVAL

Remove the following:

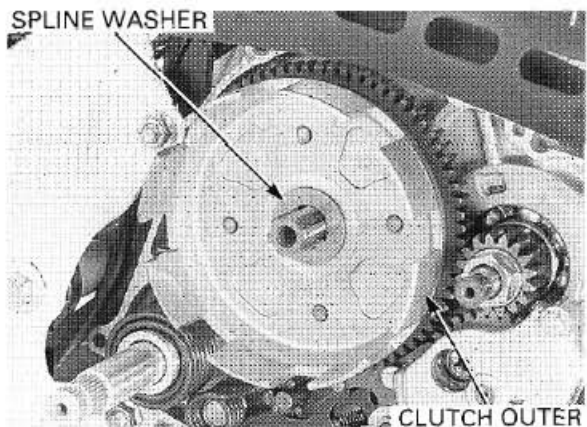
- Clutch lifter pin
- Bolts
- Clutch lifter plate
- Spring



- Snap ring
- Clutch center
- Clutch disc
- Clutch plate
- Clutch pressure plate



- Spline washer
- Clutch outer



INSPECTION

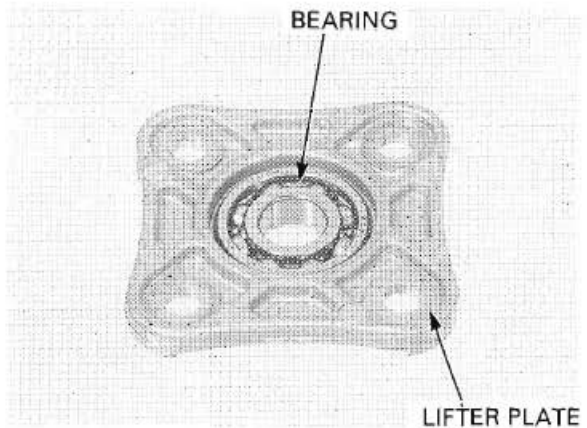
Clutch lifter bearing

Turn the inner race of the lifter bearing with your finger.

The bearing should turn smoothly and freely without excessive play.

Also check that the bearing fits tightly in the clutch outer cover.

If necessary replace the bearing.



CLUTCH/GEARSHIFT LINKAGE

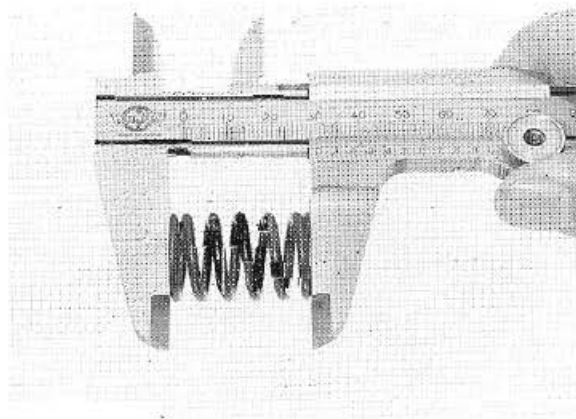
Clutch spring

Measure the clutch spring free length.

SERVICE LIMIT:

XR100R: 29.5 mm (1.16 in)

XR80R: 25.5 mm (1.00 in)



Clutch disc

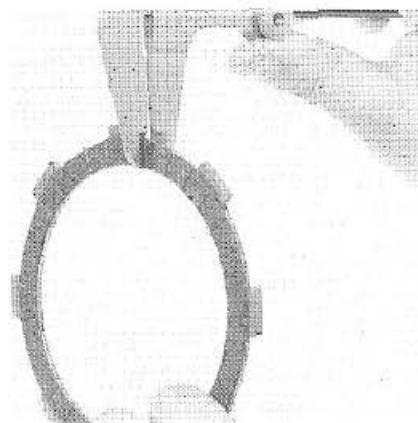
Replace the clutch discs if they show signs of scoring or discoloration.

Measure the disc thickness of each disc.

SERVICE LIMITS:

XR100R: 2.7 mm (0.11 in)

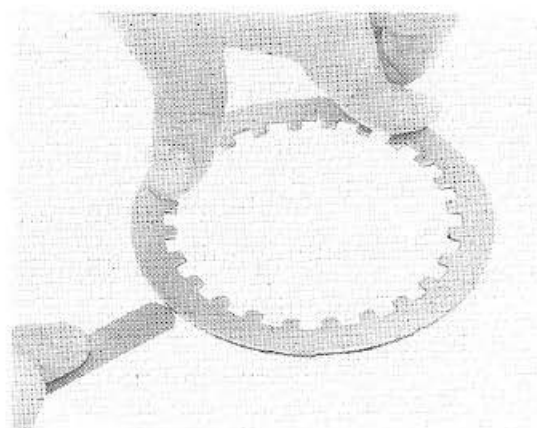
XR80R: 2.5 mm (0.10 in)



Clutch plate

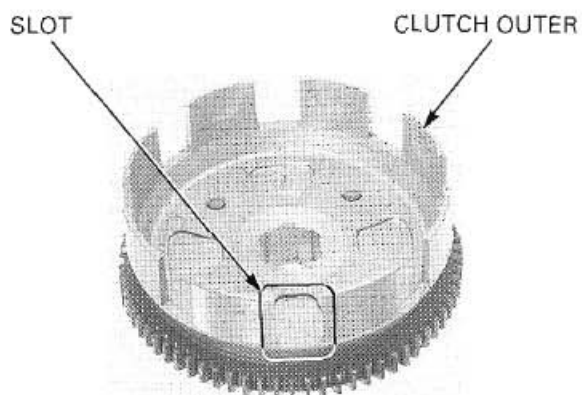
Check each disc plate for warpage on a surface plate using a feeler gauge.

SERVICE LIMIT: 0.20 mm (0.008 in)



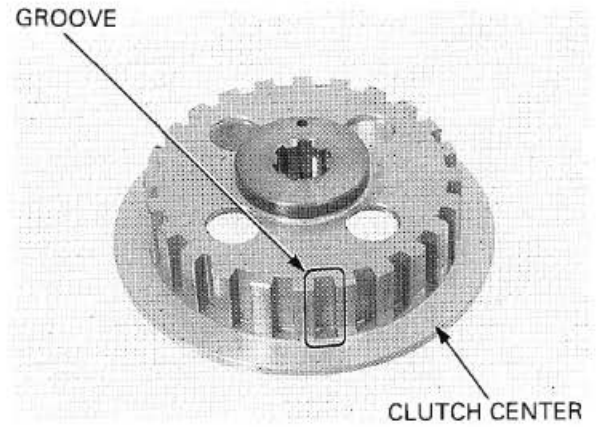
Clutch outer

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



Clutch center

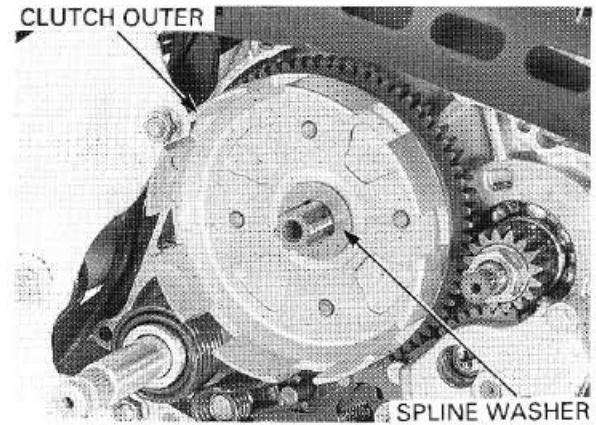
Check the grooves of the clutch center for damage or wear caused by the clutch plates. Replace if necessary.



INSTALLATION

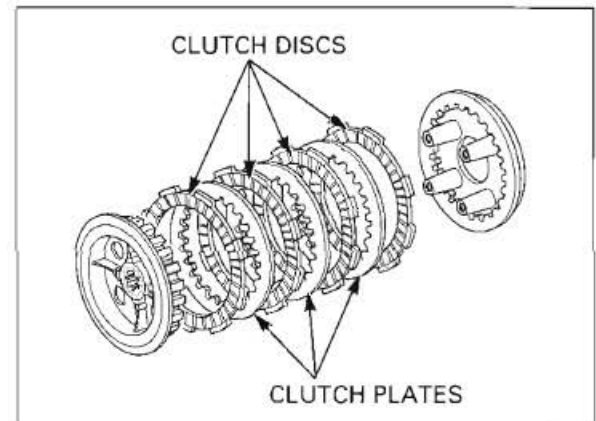
Install the following

- Clutch outer
- Spline washer

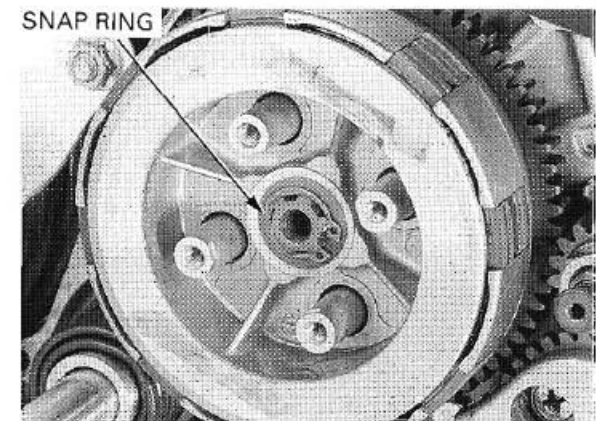


XR100R: Assemble the four clutch discs, three plates and clutch center then install them in the clutch outer.

XR80R: Assemble the three clutch discs, two plates and clutch center then install them in the clutch outer.



Install the snap ring.



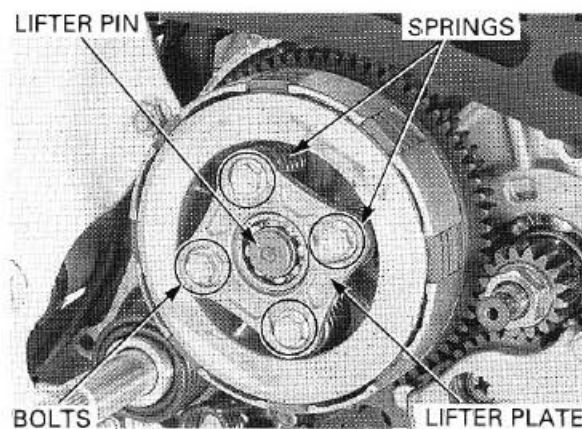
CLUTCH/GEARSHIFT LINKAGE

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

NOTE

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

Install the lifter plate bearing and clutch lifter pin.
Install the right crankcase cover (page 9-12).

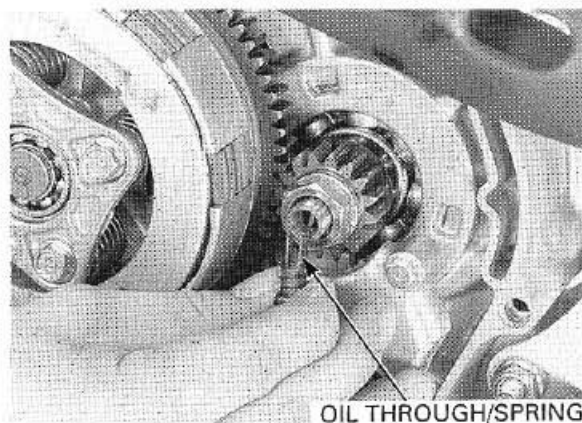


PRIMARY DRIVE GEAR

REMOVAL

Remove the right crankcase cover (page 9-3).
Remove the oil pump (page 4-2).

Remove the oil through and spring from the crankshaft.



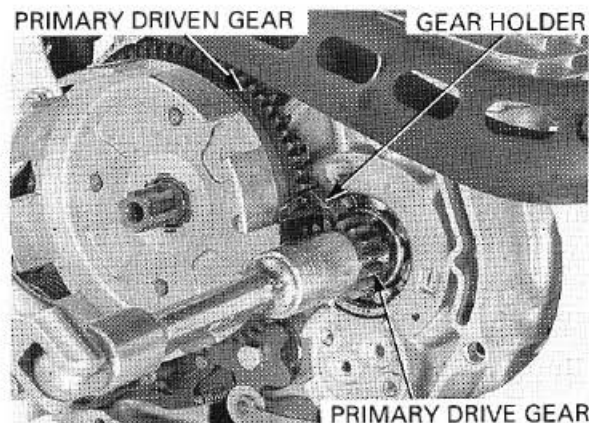
Attach the gear holder between the primary drive and driven gear as shown.

TOOL:

Gear holder

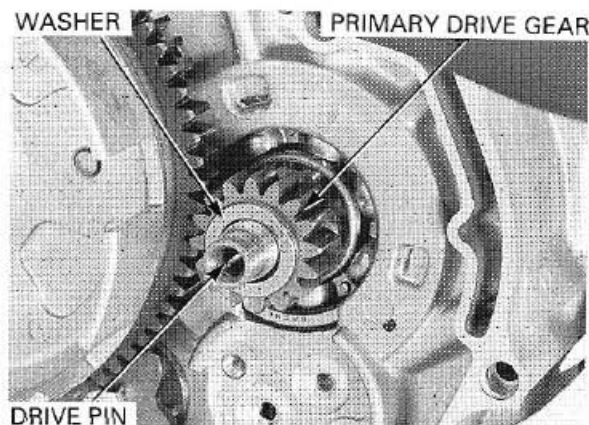
07724-0010100

Remove the lock nut.

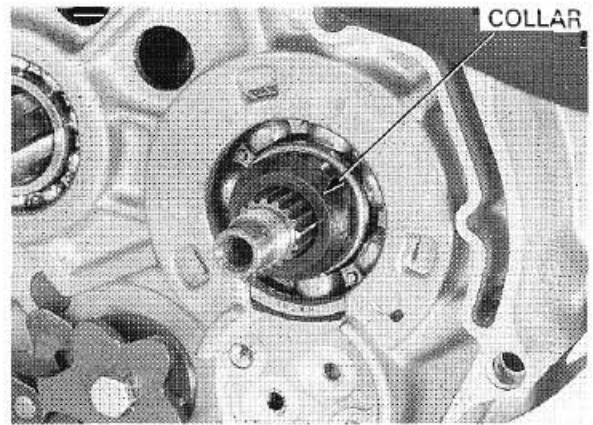


Remove the following:

- Oil through drive pin
- Washer
- Primary drive gear



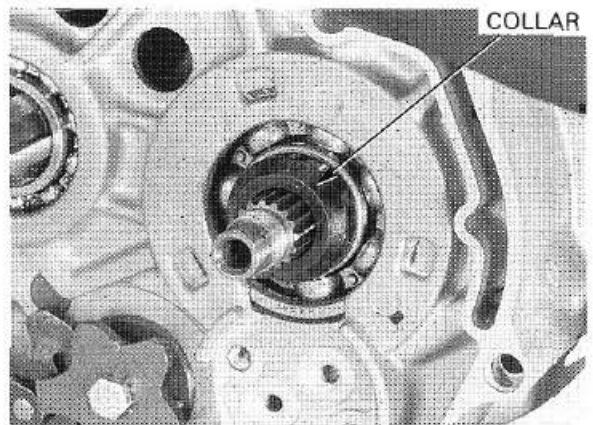
Remove the collar.



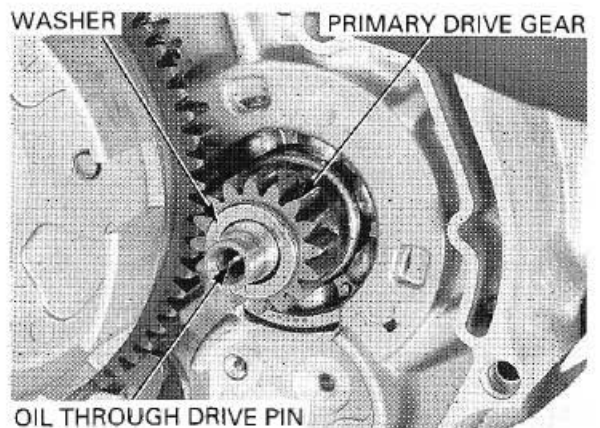
INSTALLATION

Install the following:

- Collar



- Clutch outer
- Primary drive gear
- Washer
- Oil through drive pin



Attach the gear holder between the primary drive and driven gear as shown.

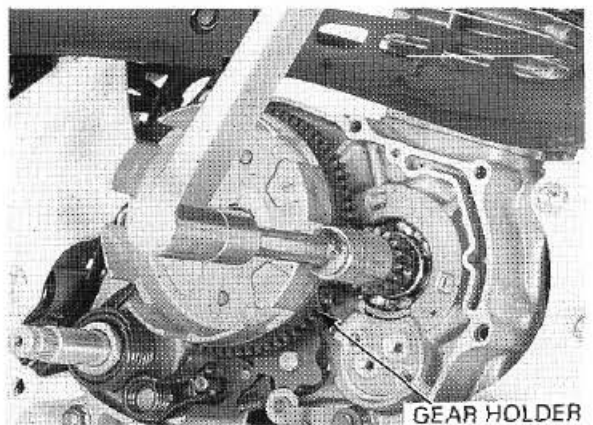
TOOL:

Gear holder

07724-0010100

Install and tighten the lock nut to the specified torque.

TORQUE: 39 N·m (4.0 kgf·m, 29 lbf·ft)

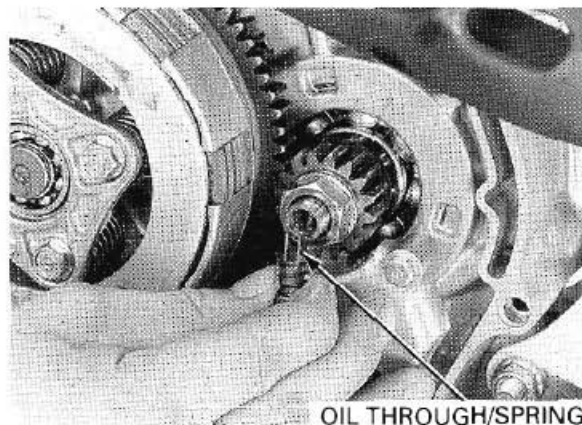


CLUTCH/GEARSHIFT LINKAGE

Install the oil through and spring.

Install the following:

- Oil pump (page 4-5)
- Right crankcase cover (page 9-12)



GEARSHIFT LINKAGE

DISASSEMBLY

Remove the following:

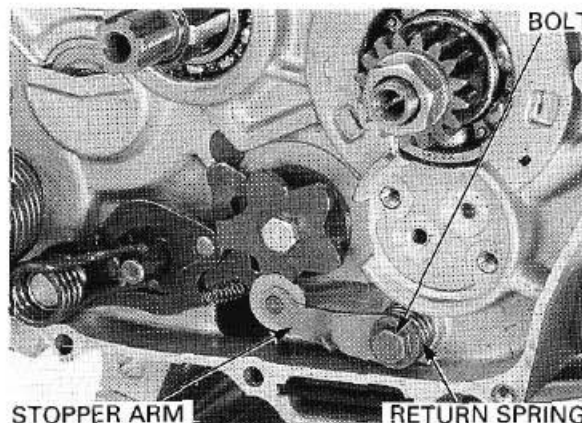
- Right crankcase cover (page 9-3)
- Oil pump (page 4-2)
- Clutch assembly (page 9-5)

Remove the bolt and gearshift pedal.

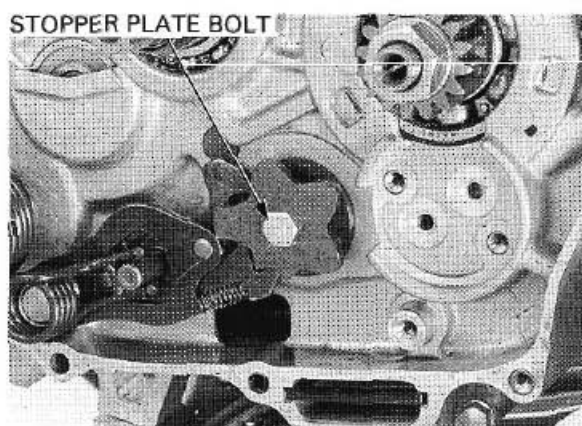


Remove the following:

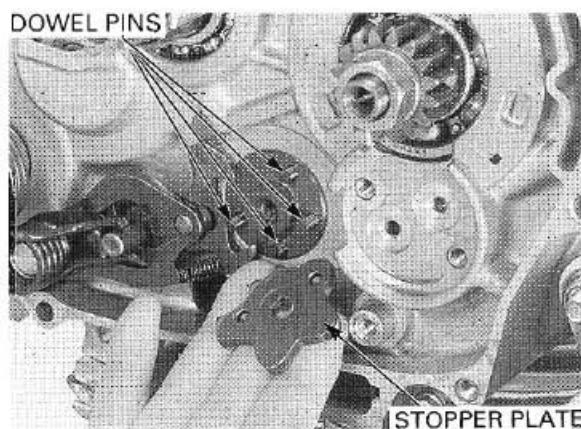
- Stopper arm bolt
- Stopper arm
- Return spring



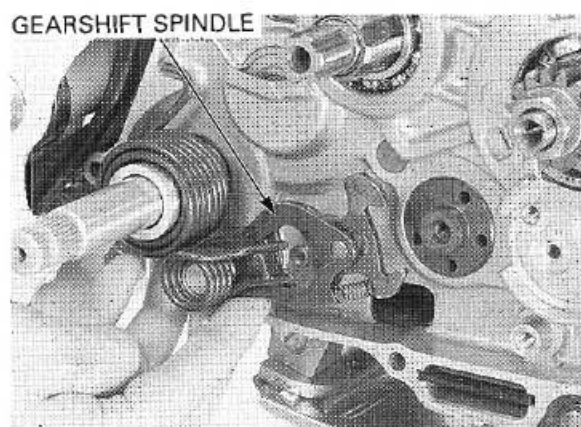
Remove the shift drum stopper plate bolt.



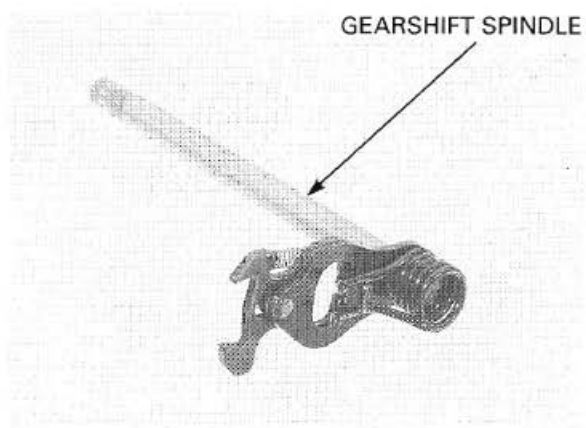
Remove the shift drum stopper plate and dowel pins.



Pull the gearshift spindle out of the crankcase.



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

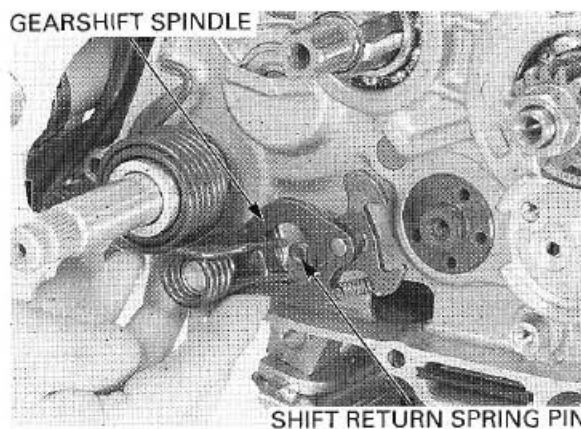


ASSEMBLY

Install the gearshift spindle into the crankcase, so that the return spring pin is positioned between the spring ends.

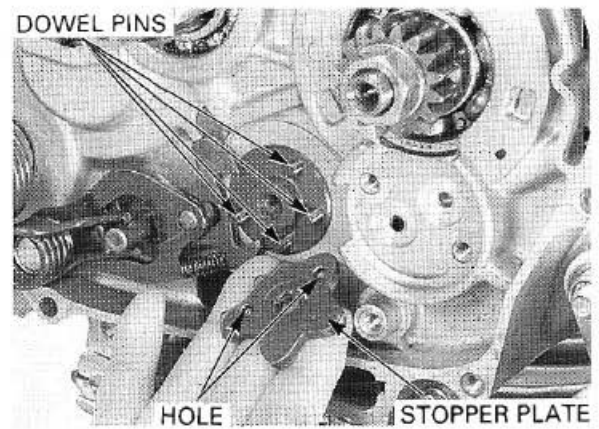
If you remove the shift return spring pin, tighten it to the specified torque.

TORQUE: 29 N•m (3.0 kgf•m, 22 lbf•ft)



CLUTCH/GEARSHIFT LINKAGE

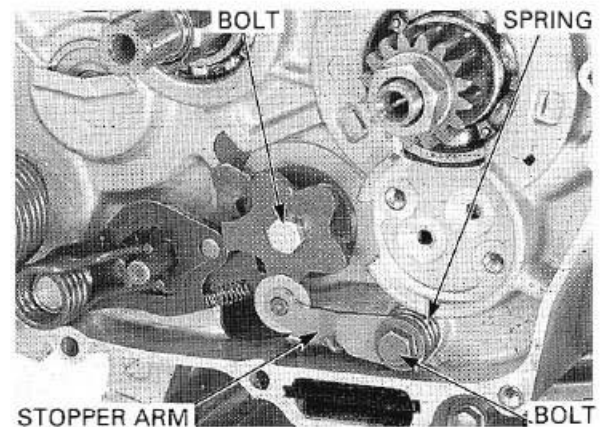
Install the dowel pins into the shift drum, then install the shift drum stopper plate aligning the holes with the dowel pins as shown.



Install and tighten the drum stopper plate bolt.

Install the stopper arm, return spring and tighten with the bolt to the specified torque.

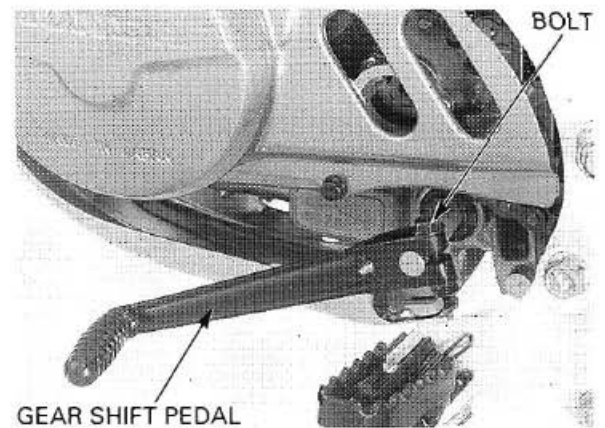
TORQUE: 13 N·m (1.3 kgf·m, 9 lbf·ft)



Install the gearshift pedal and tighten the bolt.

Install the following:

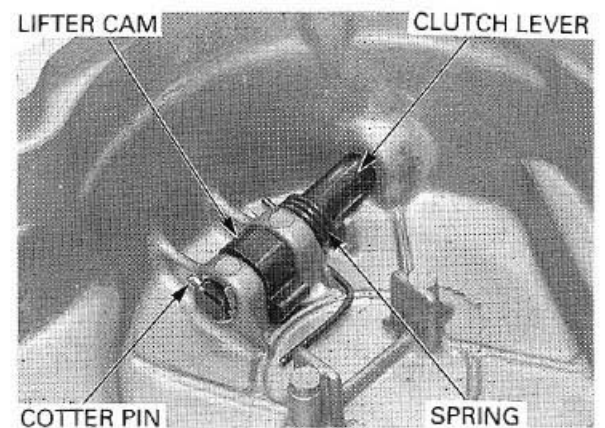
- Oil pump (page 4-5)
- Clutch (page 9-7)
- Right crankcase cover



RIGHT CRANKCASE COVER INSTALLATION

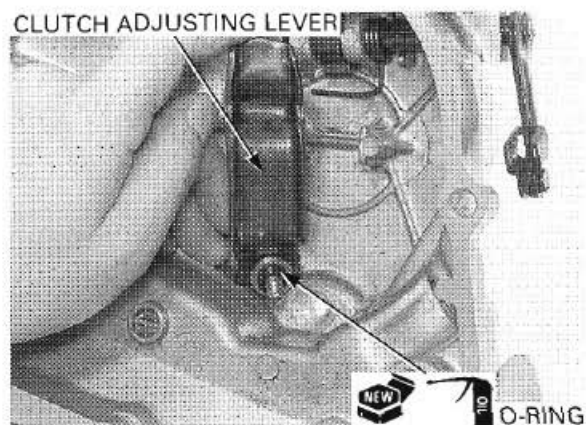
Install the following:

- O-ring
- Clutch lever
- Clutch lever spring
- Clutch lifter cam
- Cotter pin

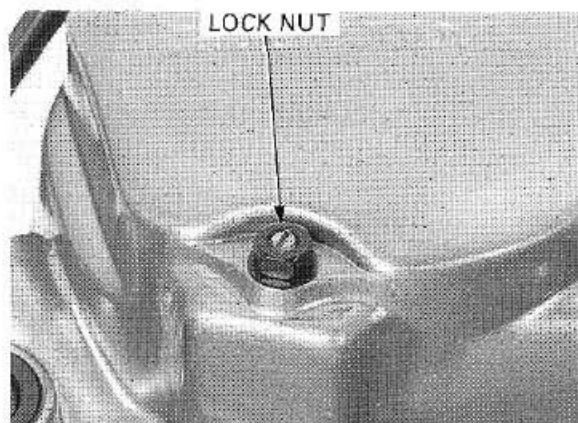


Install the clutch adjusting screw and new O-ring to the clutch adjusting lever.

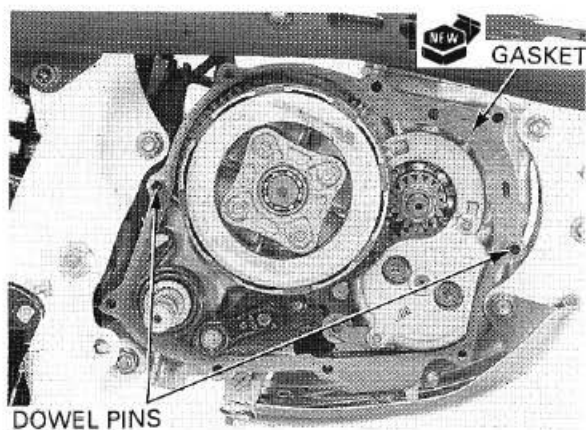
Install the clutch adjusting lever to the right crankcase cover.



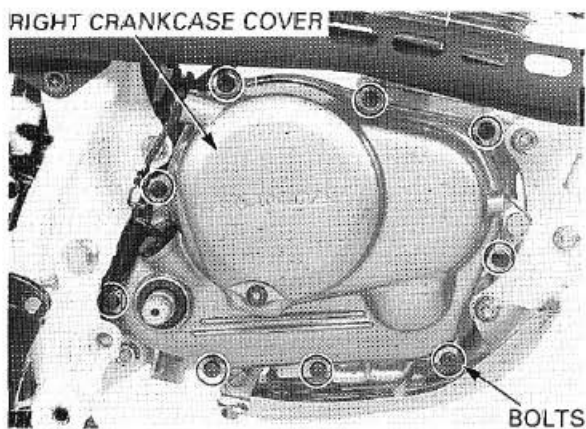
Install the clutch adjusting screw lock nut.



Install the dowel pins and new gasket.



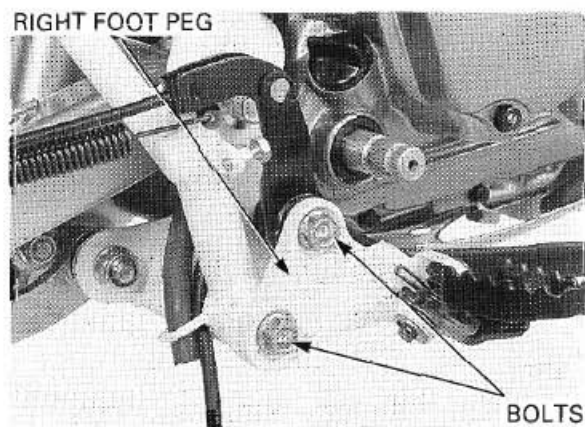
Install the right crankcase cover and tighten the nine bolts.



CLUTCH/GEARSHIFT LINKAGE

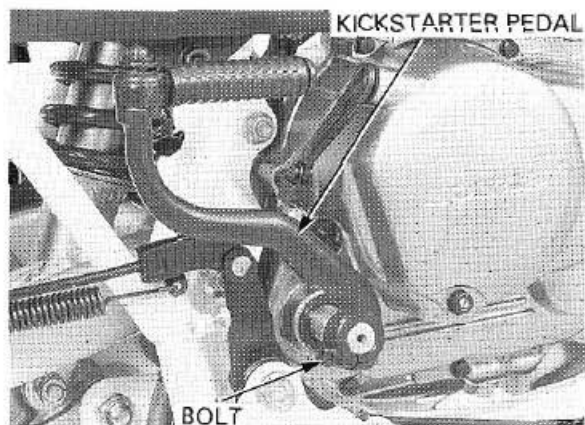
Install the right foot peg and tighten the two bolts to the specified torque.

TORQUE: 39 N·m (4.0 kgf·m, 29 lbf·ft)



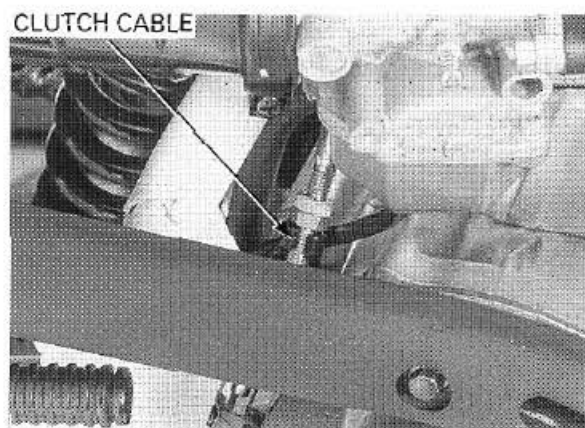
Install the kickstarter pedal and tighten the bolt to the specified torque.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)



Connect the clutch cable.

Pour the recommended engine oil (page 3-12) and make sure there are no oil leaks.
Adjust the clutch (page 3-19).



MEMO

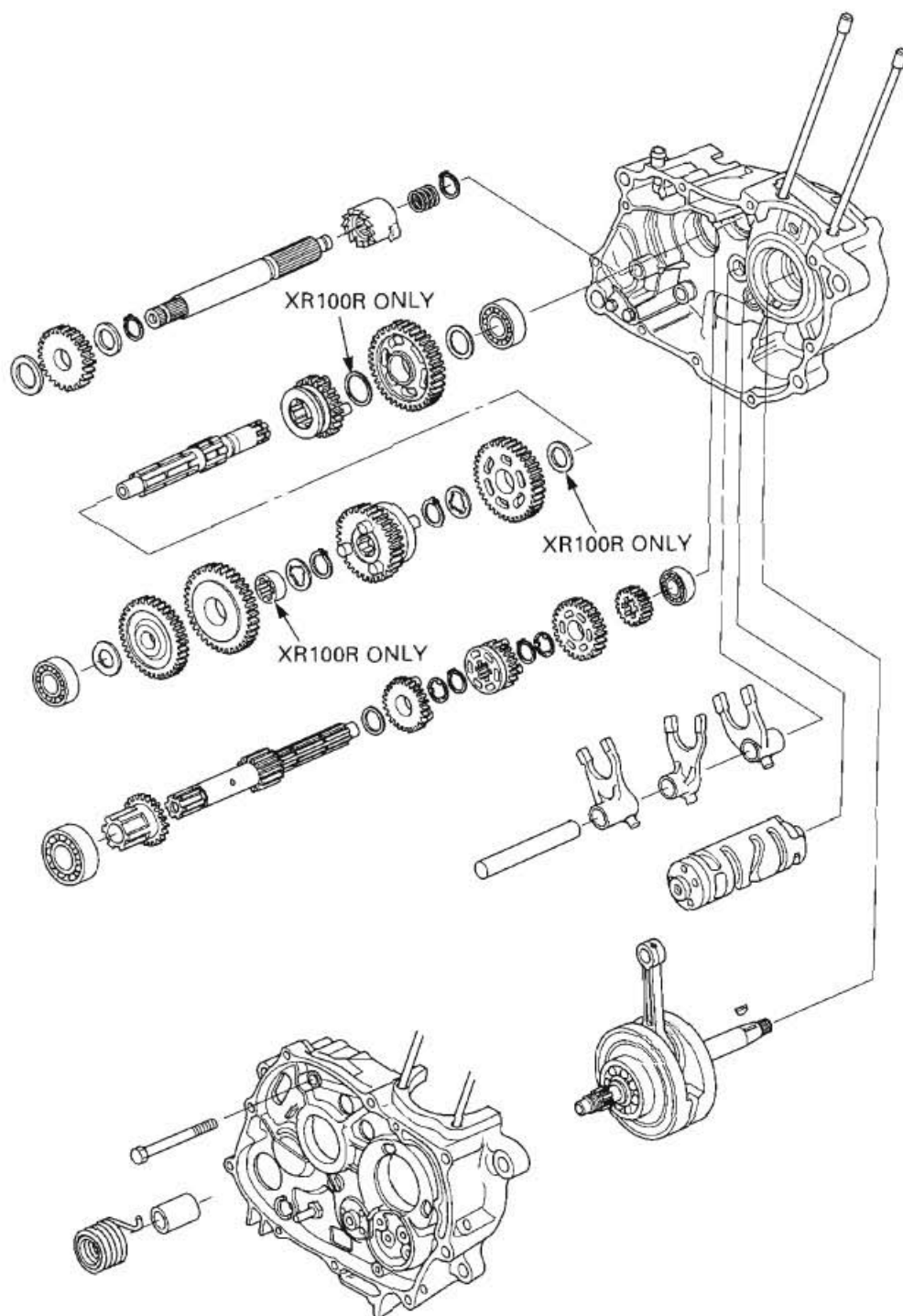
120

10

10

10

100



10. CRANKSHAFT/TRANSMISSION/KICKSTARTER

SERVICE INFORMATION	10-1	TRANSMISSION	10-5
TROUBLESHOOTING	10-2	KICKSTARTER	10-13
CRANKCASE SEPARATION	10-3	CRANKCASE ASSEMBLY	10-14
CRANKSHAFT	10-4		

SERVICE INFORMATION

GENERAL

- The crankcase must be separated to service the crankshaft, transmission and kickstarter.
- The following parts must be removed before separating the crankcase.
 - Alternator (Section 13)
 - Clutch/gearshift linkage (Section 9)
 - Cylinder head (Section 7)
 - Cylinder/piston (Section 8)
 - Engine (Section 6)
 - Oil pump (Section 4)

SPECIFICATIONS

Unit: mm (in)

ITEM				STANDARD	SERVICE LIMIT
Crankshaft	Runout	Right		0.035 (0.0014)	0.085 (0.0033)
		Left		0.020 (0.0008)	0.070 (0.0028)
	Side clearance			0.10 – 0.35 (0.0039 – 0.0138)	0.60 (0.024)
	Radial clearance			0 – 0.008 (0 – 0.0003)	0.010 (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 (0.471)
Transmission	Gear I.D.	M4, M5		17.016 – 17.034 (0.6699 – 0.6706)	17.05 (0.671)
		C1	XR100R	20.662 – 20.643 (0.8119 – 0.8127)	20.66 (0.813)
			XR80R	17.022 – 17.043 (0.6701 – 0.6710)	17.06 (0.672)
		C2	XR100R	19.520 – 19.541 (0.7685 – 0.7693)	19.56 (0.770)
			XR80R	19.520 – 19.541 (0.7685 – 0.7693)	19.56 (0.770)
		C3	XR100R	18.016 – 18.034 (0.7093 – 0.7100)	18.05 (0.711)
			XR80R	17.016 – 17.034 (0.6699 – 0.6706)	17.05 (0.671)
	Bushing O.D.	C1	XR100R	20.559 – 20.580 (0.8094 – 0.8102)	20.54 (0.809)
	Gear-to-bushing clearance (C1)		XR100R	0.042 – 0.084 (0.0017 – 0.0034)	0.12 (0.005)
	Mainshaft O.D.	M4, M5		16.966 – 16.984 (0.6680 – 0.6687)	16.95 (0.667)
	Counter shaft O.D.	C2		19.459 – 19.480 (0.7661 – 0.7669)	19.44 (0.765)
		C3	XR100R	17.966 – 17.984 (0.7073 – 0.7080)	17.95 (0.707)
			XR80R	16.966 – 16.984 (0.6680 – 0.6687)	16.95 (0.667)
	Gear-to-shaft clearance		M4	0.032 – 0.068 (0.0013 – 0.0027)	0.10 (0.004)
			C2	0.040 – 0.082 (0.0016 – 0.0032)	0.12 (0.005)
			C3	0.032 – 0.068 (0.0013 – 0.0027)	0.10 (0.004)
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)

10

TOOLS

Bearing remover set, 12 mm	07936-1660001	Not available in U.S.A. or
Bearing remover, 12 mm	07936-166010A	U.S.A. only
Remover weight	07936-371020A or	U.S.A. only
	07936-3710200	U.S.A. only
Attachment, 32 X 35 mm	07746-0010100	
Pilot, 15 mm	07746-0040200	
Attachment, 37 X 40 mm	07746-0010200	
Pilot, 17 mm	07746-0040400	
Attachment, 42 X 47 mm	07746-0010300	
Pilot, 25 mm	07746-0040600	
Driver	07749-0010000	

TROUBLESHOOTING

Excessive noise

- Worn crankshaft big end bearing
- Worn crankshaft journal bearing

Transmission jumps out of gear

- Worn gear dogs or slots
- Bent fork shaft
- Worn or bent shift forks
- Broken shift drum stopper
- Broken shift linkage return spring

Hard to shift

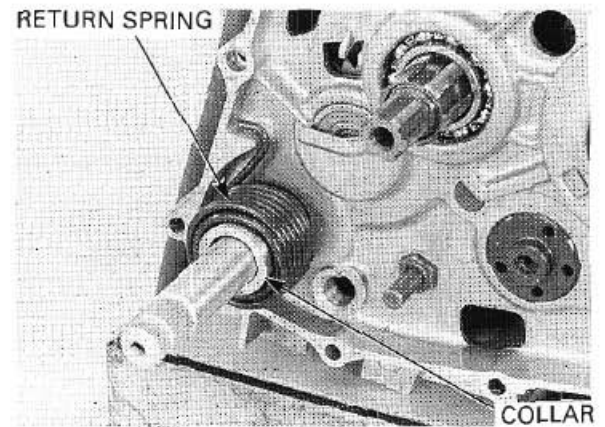
- Improper clutch operation
- Incorrect clutch adjustment
- Incorrect engine oil viscosity
- Bent shift fork
- Bent shift fork shaft
- Bent shift fork claw
- Damaged shift drum cam grooves
- Bent shift spindle

CRANKCASE SEPARATION

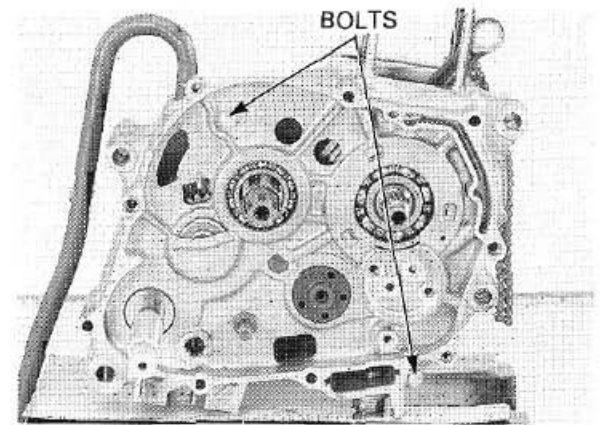
NOTE:

Refer to Service Information (page 10-1) for removal of necessary parts before separating the crankcase.

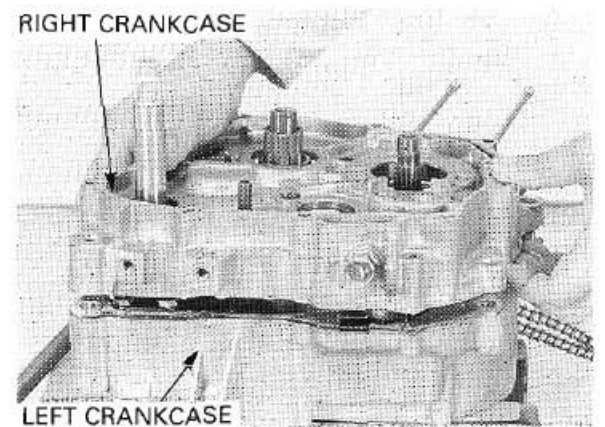
Unhook the return spring and remove the collar and return spring.



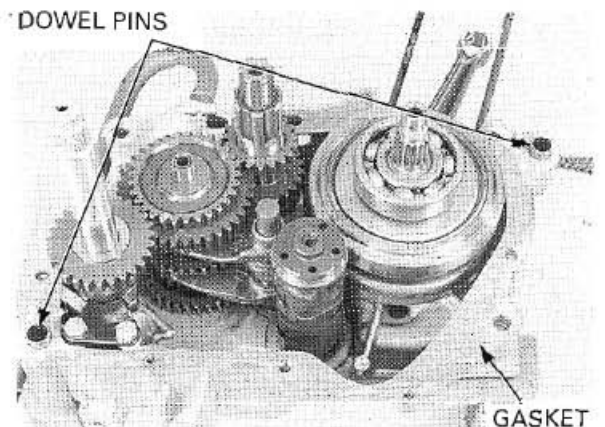
Remove the two bolts.



Place the left crankcase down.
Separate the right and left crankcase halves.



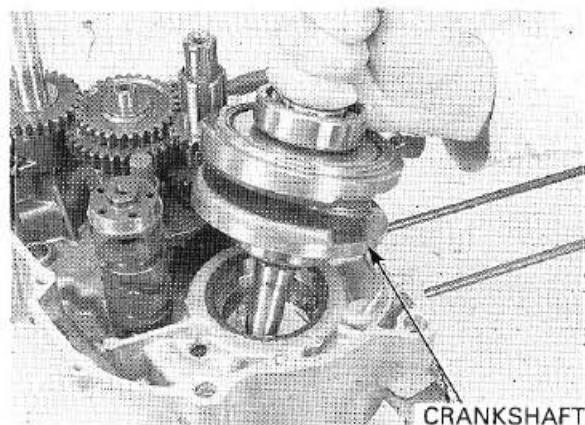
Remove the gasket and dowel pins.



CRANKSHAFT

REMOVAL

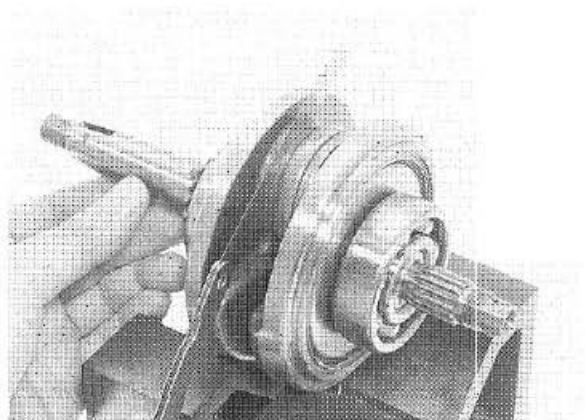
Remove the crankshaft from the left crankcase.



INSPECTION

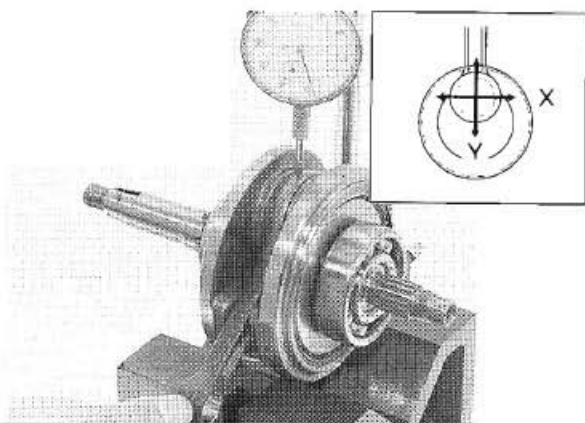
Measure the connecting rod big end side clearance with a feeler gauge.

SERVICE LIMIT: 0.60 mm (0.024 in)



Measure the connecting rod big end radial clearance at symmetrical points as shown.

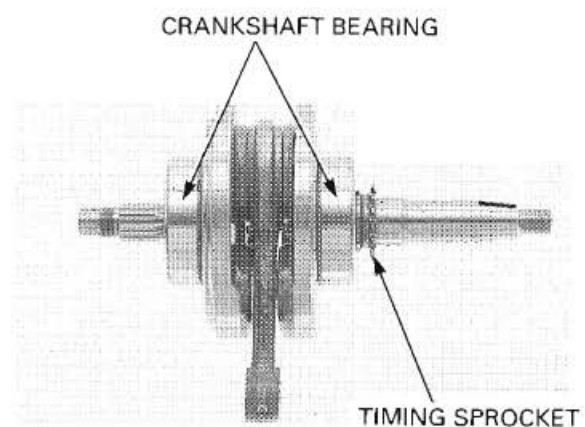
SERVICE LIMIT: 0.010 mm (0.0004 in)



Turn the outer race of the crankshaft bearing with your finger.
The bearing should turn smoothly and quietly.
Also check that the inner race of the bearing fits tightly on the crankshaft.

Check the timing sprocket for wear or damage.

If you replacing the timing sprocket, align the center of the sprocket teeth with the center of woodruff key groove.

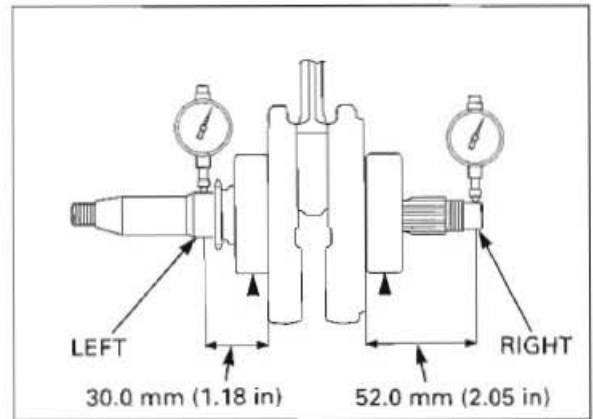


Place the crankshaft on a stand or V-blocks and measure the runout using a dial gauge. The measuring locations are shown in the illustration.

SERVICE LIMIT:

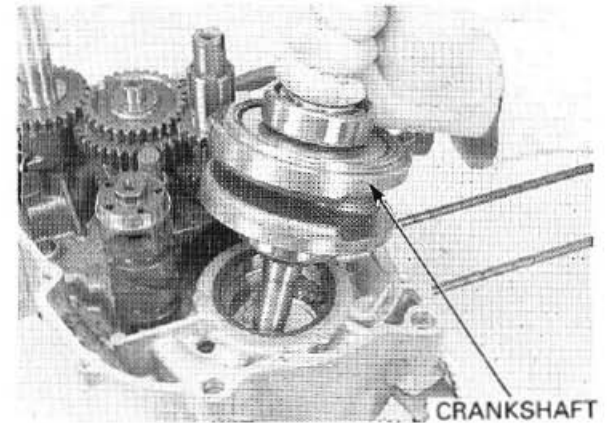
Right: 0.085 mm (0.0033 in)

Left: 0.070 mm (0.0028 in)



INSTALLATION

Install the crankshaft into the left crankcase.

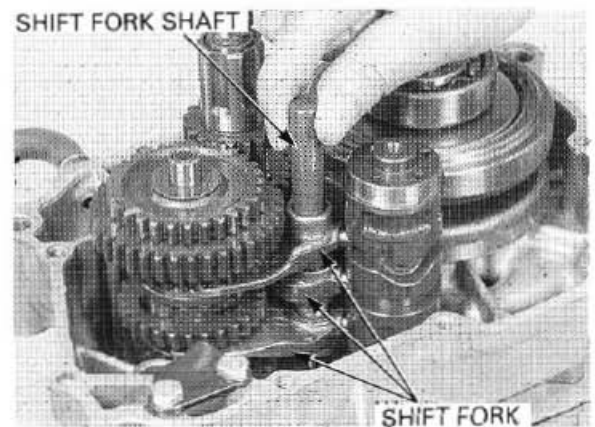


TRANSMISSION

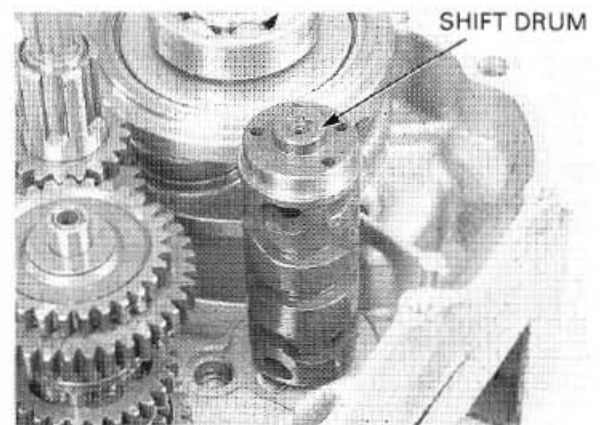
REMOVAL

Remove the kickstarter spindle (page 10-13).

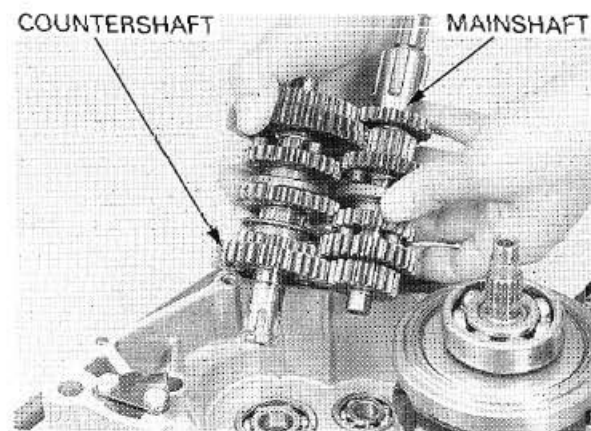
Remove the shift fork shaft and shift fork.



Remove the shift drum.



Remove the mainshaft and countershaft as an assembly.

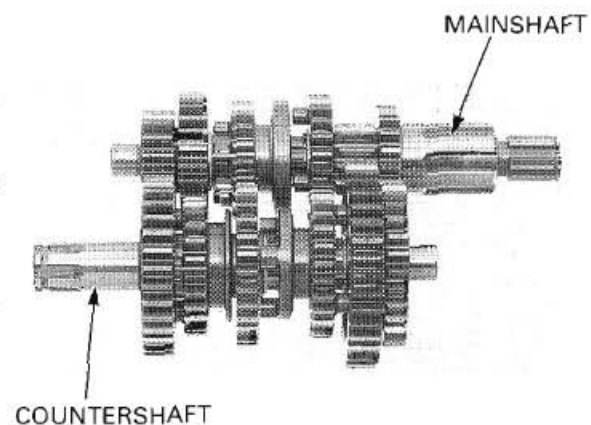


TRANSMISSION DISASSEMBLY

NOTE:

- Keep track of the disassembled parts (gears, bushing, washers, and snap rings) by staking them on a tool or slipping them onto a piece of wire.
- Do not expand the snap ring, expand the snap ring and pull it off using the gear behind it.

Disassemble the mainshaft and countershaft.

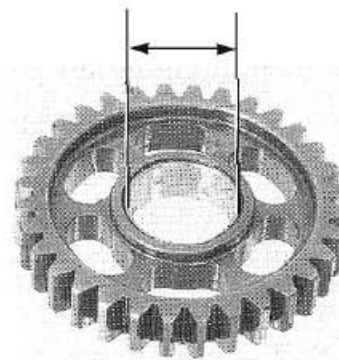


TRANSMISSION INSPECTION

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

SERVICE LIMITS:

Gear I.D. :	M4, M5 :	17.05 mm (0.671 in)
:C1 :	XR100R :	20.66 mm (0.813 in)
	XR80R :	17.06 mm (0.672 in)
:C2 :	XR100R :	19.56 mm (0.770 in)
	XR80R :	19.56 mm (0.770 in)
:C3 :	XR100R :	18.05 mm (0.711 in)
	XR80R :	17.05 mm (0.671 in)



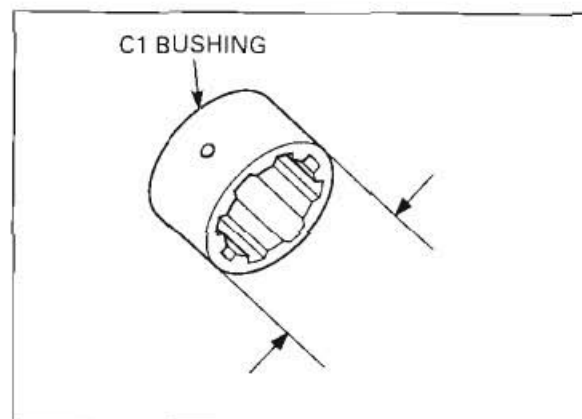
XR100R BUSHING

Check the bushing for damage or excessive wear.
Measure the O.D. of C1 bushing.

SERVICE LIMIT: 20.54 mm (0.809 in)

Calculate the gear to bushing clearance.

SERVICE LIMIT: 0.12 mm (0.005 in)



MAINSHAFT/COUNTERSHAFT

Check the spline grooves and sliding surfaces for damage or abnormal wear.
Measure the O.D. of the mainshaft and countershaft at the gear sliding area.

SERVICE LIMITS:

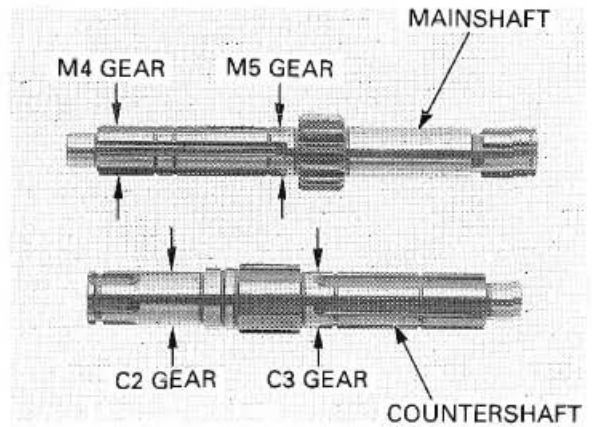
Mainshaft: M4, M5 GEAR : 16.95 mm (0.667 in)

Countershaft: C2 GEAR : 19.44 mm (0.465 in)

C3 GEAR :

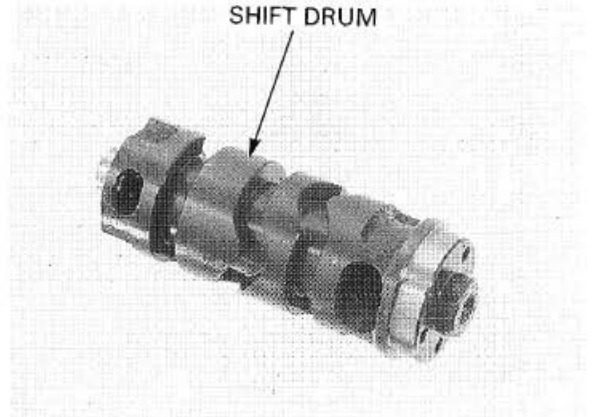
XR100R : 17.95 mm (0.707 in)

XR80R : 16.95 mm (0.667 in)



SHIFT DRUM

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



SHIFT FORK

Check the shift fork for abnormal wear or deformation.
Measure the shift fork I.D. and claw thickness.

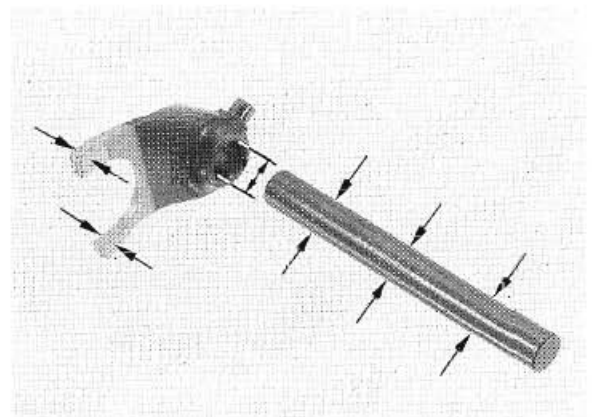
SERVICE LIMITS:

Shift fork I.D. : 12.05 mm (0.492 in)

Fork claw thickness: 4.7 mm (0.19 in)

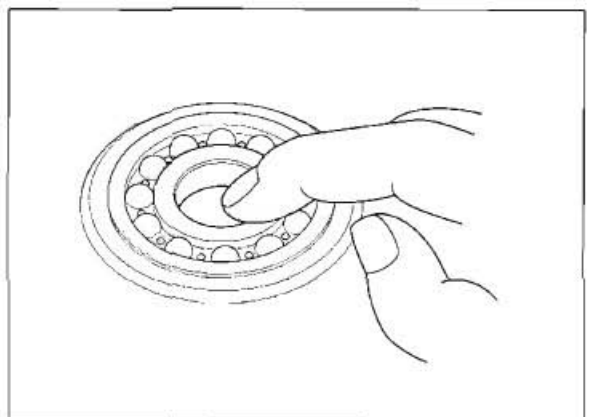
Check the shift fork shaft for abnormal wear or deformation.
Measure the shift fork shaft O.D.

SERVICE LIMIT: 11.96 mm (0.471 in)



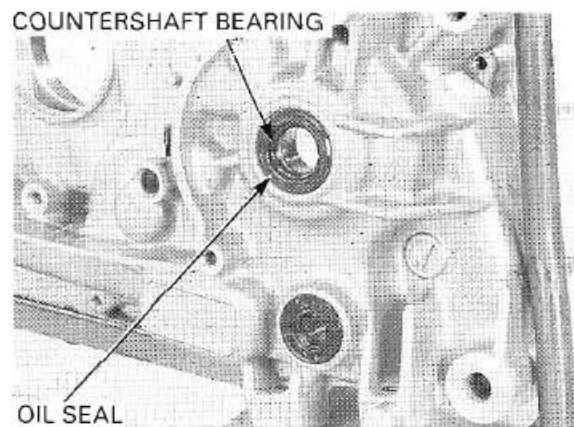
TRANSMISSION BEARING REPLACEMENT

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



LEFT CRANKCASE

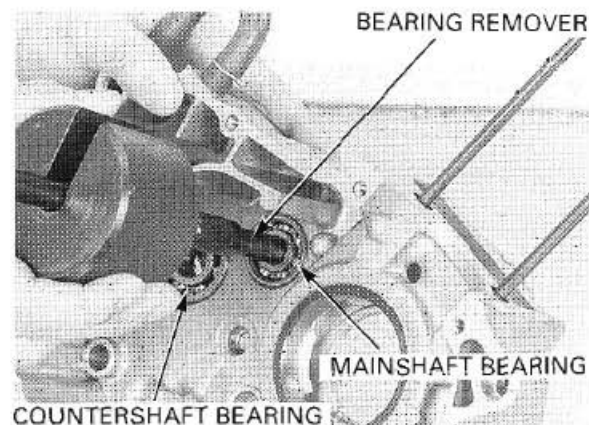
Remove the countershaft oil seal.
Drive the counter shaft bearing out of the left crankcase.



Remove the mainshaft bearing using the special tools as shown.

TOOLS:

Bearing remover set, 12 mm	07936-1660001
	(Not available in U.S.A.) or
Bearing remover, 12 mm	07936-166010A
	(U.S.A. only) and
Remover weight	07936-371020A or
	07936-3710200
	(U.S.A. only)

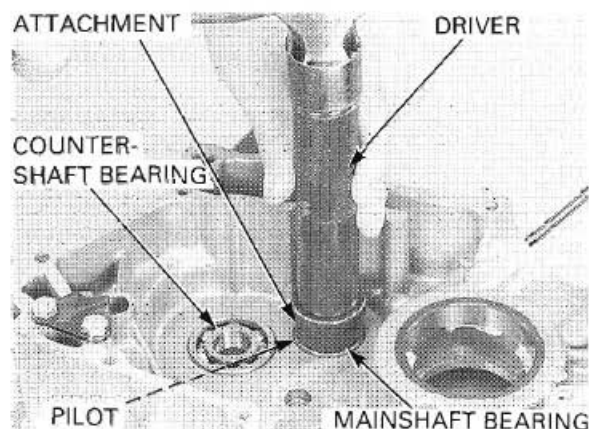


Drive new bearings into the crankcases using the special tools as shown.

TOOLS:

Mainshaft bearing:	
Driver	07749-0010000
Attachment, 32 × 35 mm	07746-0010100
Pilot, 12 mm	07746-0040200

Countershaft bearing:	
Driver	07749-0010000
Attachment, 37 × 40 mm	07746-0010200
Pilot, 17 mm	07746-0040400



RIGHT CRANKCASE

Drive the mainshaft bearing out of the right crankcase.

Remove the countershaft bearing using the special tools as shown.

TOOLS:

Bearing remover set, 12 mm	07936-1660001
	(Not available in U.S.A.) or
Bearing remover, 12 mm	07936-166010A
	(U.S.A. only) and
Remover weight	07936-371020A or
	07936-3710200
	(U.S.A. only)

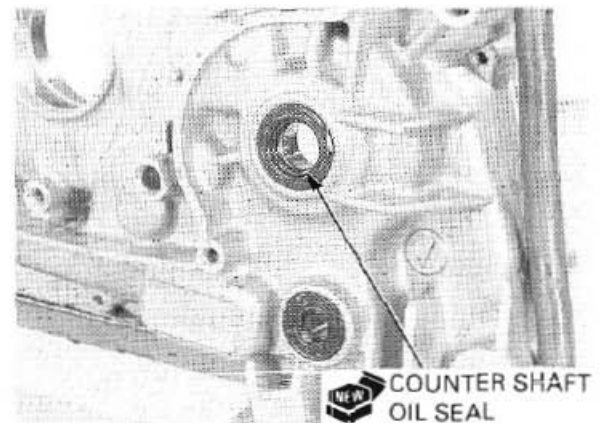
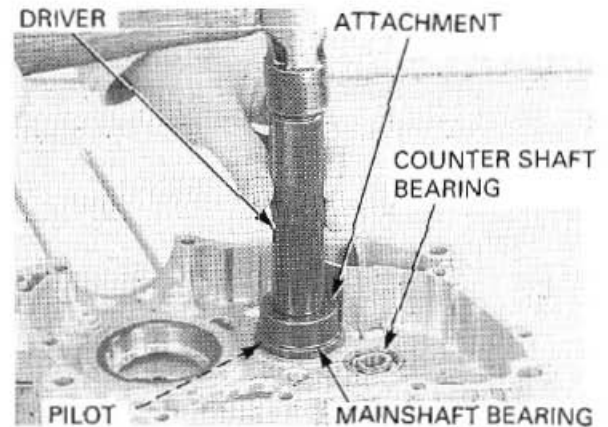
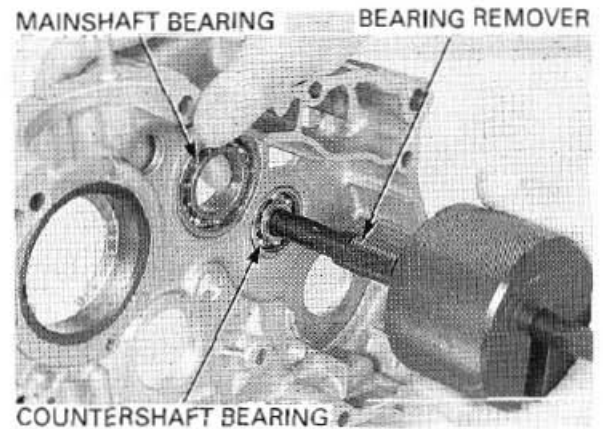
Drive new bearings into the crankcases using the special tools as shown.

TOOLS:

Mainshaft bearing:	
Driver	07749-0010000
Attachment, 42 × 47 mm	07746-0010300
Pilot, 25 mm	07746-0040600

Countershaft bearing:	
Driver	07749-0010000
Attachment, 32 × 35 mm	07746-0010100
Pilot, 12 mm	07746-0040200

Install a new countershaft oil seal.



TRANSMISSION ASSEMBLY

Clean all parts in solvent.

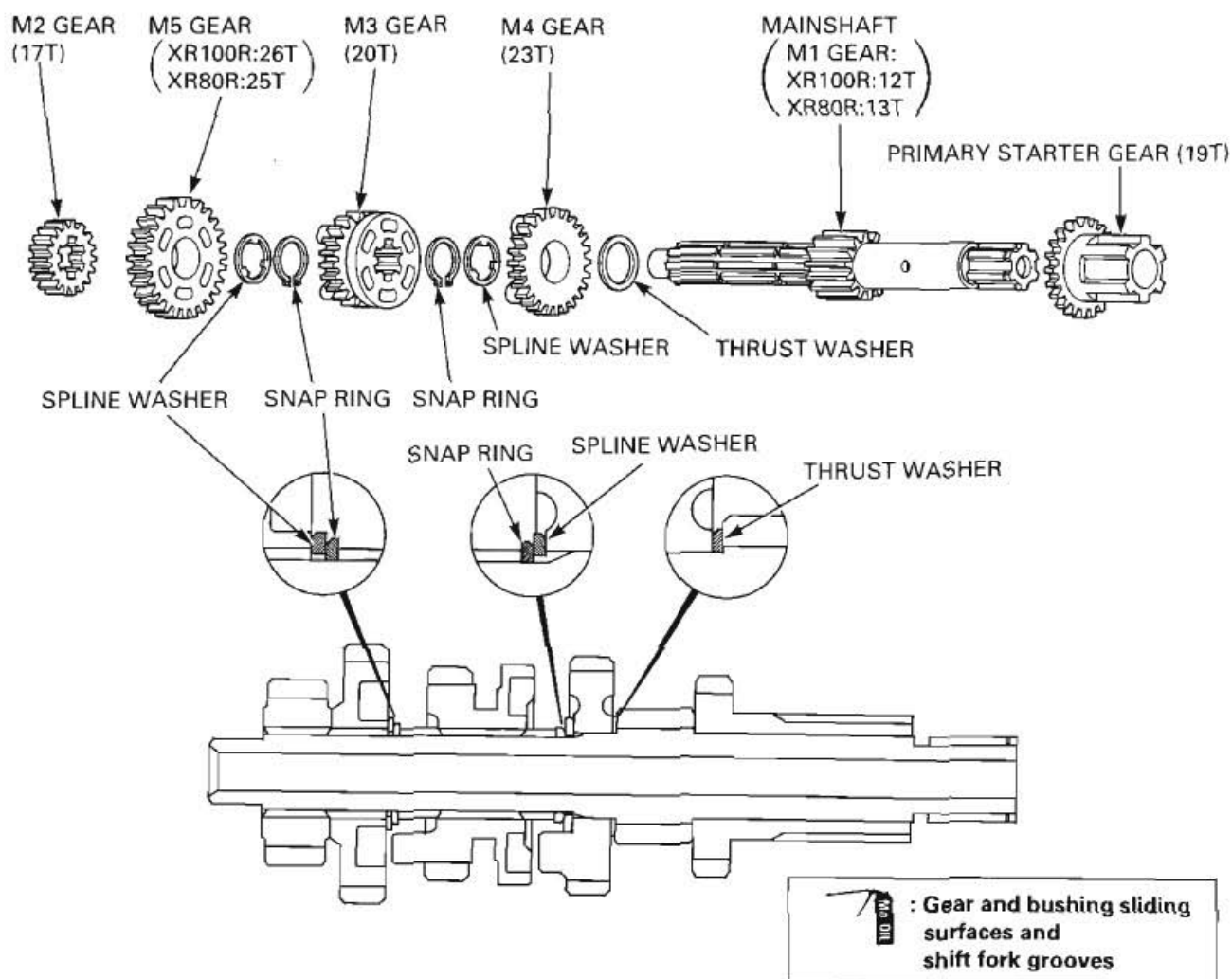
Apply molybdenum oil solution to the gear and bushing sliding surface and shift fork grooves to ensure initial lubrication.

Assemble all parts into their original positions.

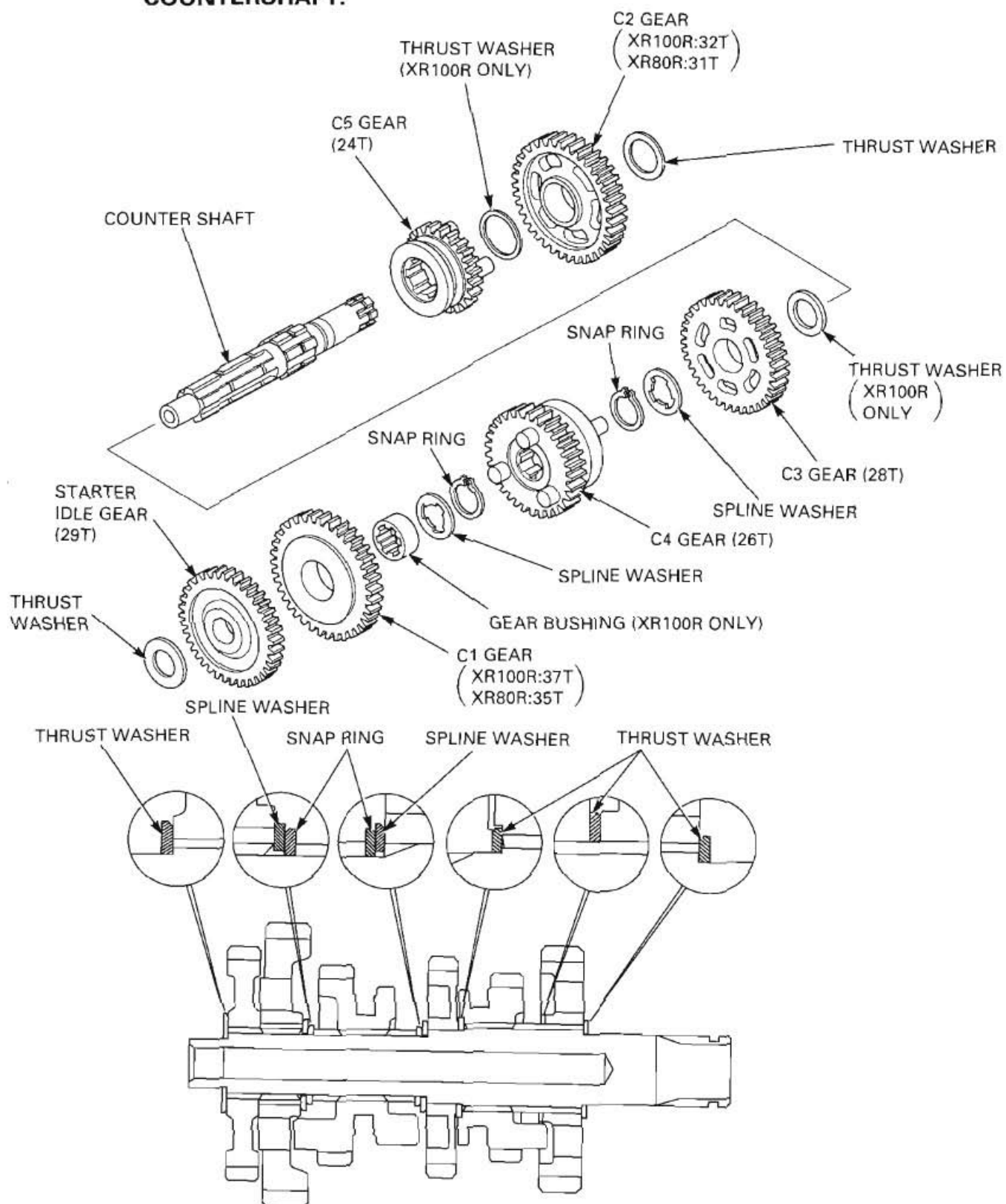
NOTE:


- Check the gears for freedom of movement or rotation on the shaft.
- Install the washers and snap rings with the chamfered edges facing the thrust load side. Do not reuse worn snap rings which could easily spin in the groove.
- Check that the snap rings are seated in the grooves and align their end gaps with the grooves of the spline.

MAINSHAFT:



COUNTERSHAFT:

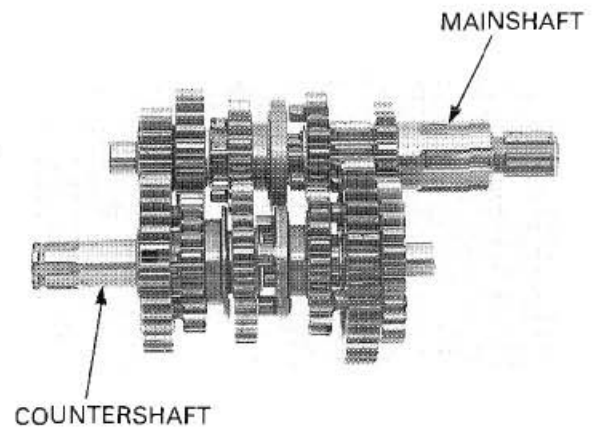


 : Gear and bushing sliding surfaces and shift fork grooves

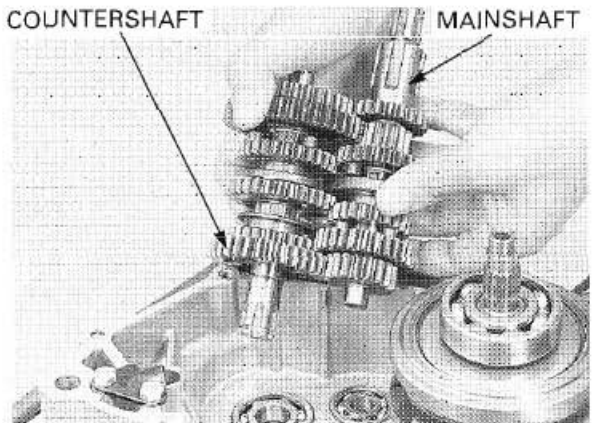
TRANSMISSION INSTALLATION

Apply molybdenum disulfide oil to the transmission gears and shift drum.

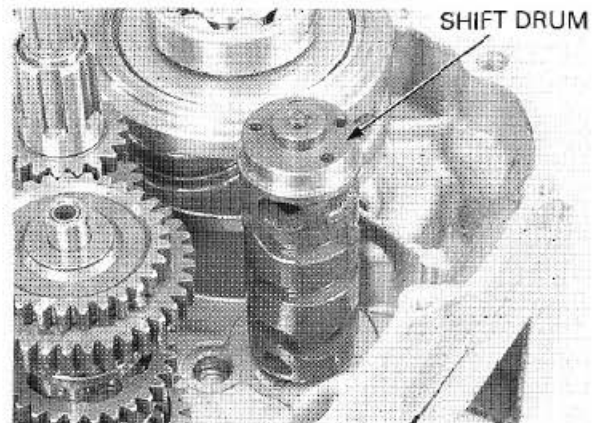
Assemble the mainshaft and countershaft as shown.



Install the mainshaft and countershaft as an assembly into the left crankcase.



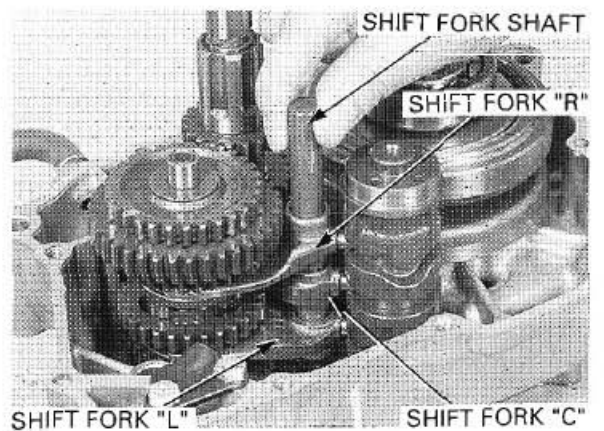
Install the shift drum into the left crankcase.



Install the shift forks and shift fork shaft.

NOTE:

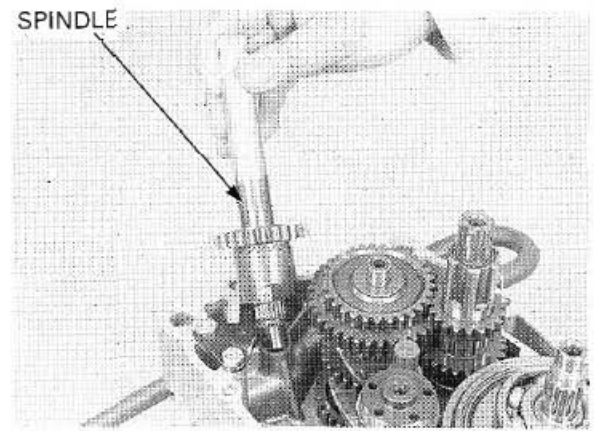
Install the shift forks into the shifter gear grooves with their marks facing up.



KICKSTARTER

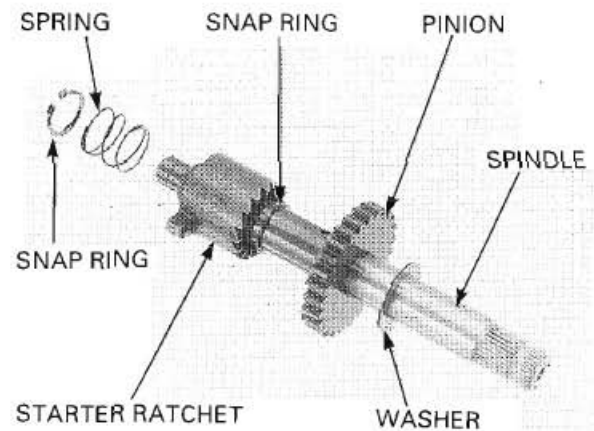
REMOVAL

Remove the kickstarter spindle from the right crankcase.



DISASSEMBLY

Remove the washer and kick starter pinion. Remove the snap ring then remove the starter ratchet and ratchet spring.



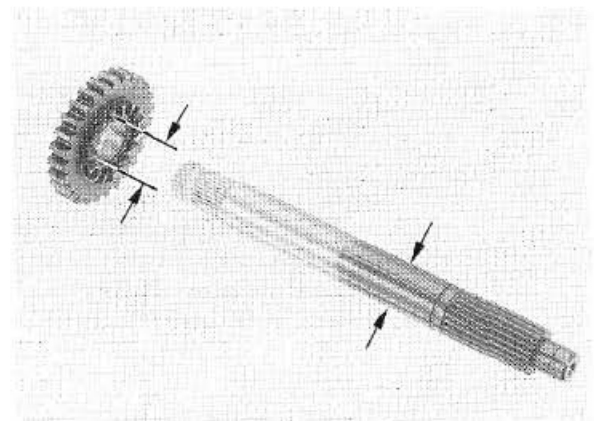
INSPECTION

Check the kickstarter spindle for bent.
Check the friction spring for fatigue.
Measure the I.D. of pinion gear.

SERVICE LIMIT: 18.06 mm (0.711 in)

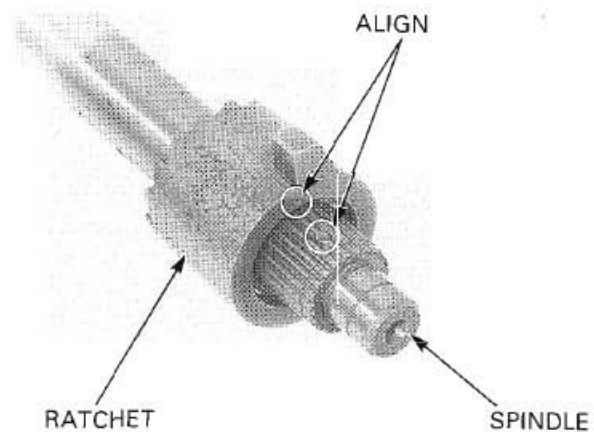
Measure the O.D. of spindle.

SERVICE LIMIT: 17.88 mm (0.704 in)



INSTALLATION

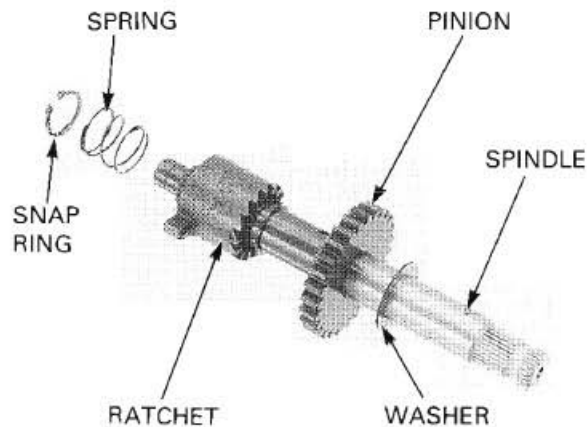
Install the starter ratchet aligning the punch mark on the ratchet and spindle.



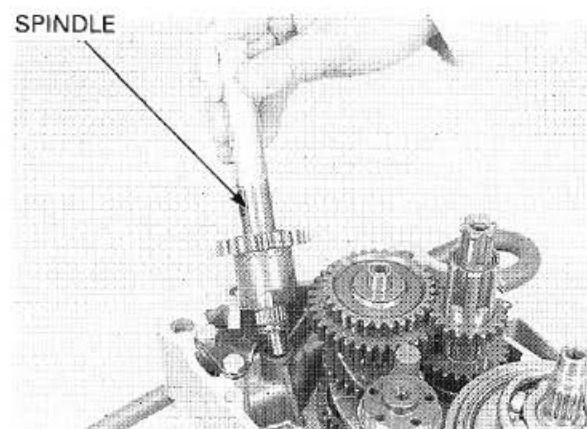
CRANKSHAFT/TRANSMISSION/KICKSTARTER

Install the spring and snap ring.

Install the pinion and washer.



Install the spindle to the left crankcase.



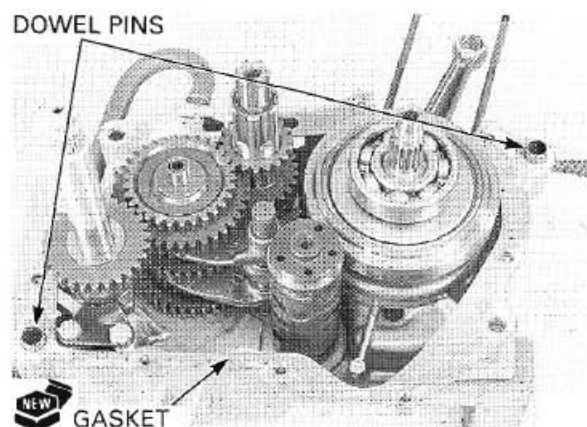
CRANKCASE ASSEMBLY

Clean the crankcase mating surfaces before assembling.

NOTE:

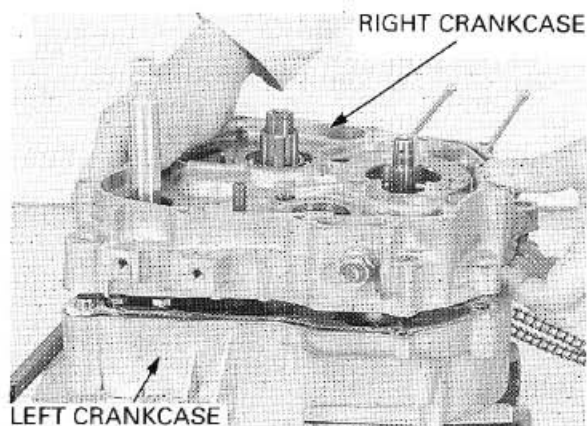
- Dress the surfaces with an oil stone if necessary to correct any minor roughness or irregularities.
- After cleaning, lubricate the crankshaft bearings and other contacting surfaces with clean engine oil.

Install the dowel pins and new gasket onto the left crankcase.

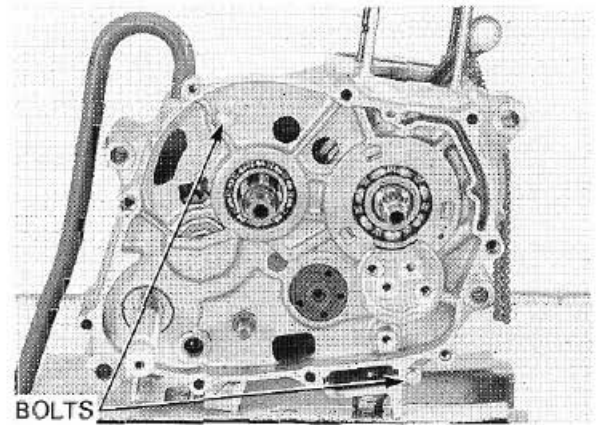


Make sure that the gasket stays in place.

Install the right crankcase over the left crankcase.



Tighten the two bolts.

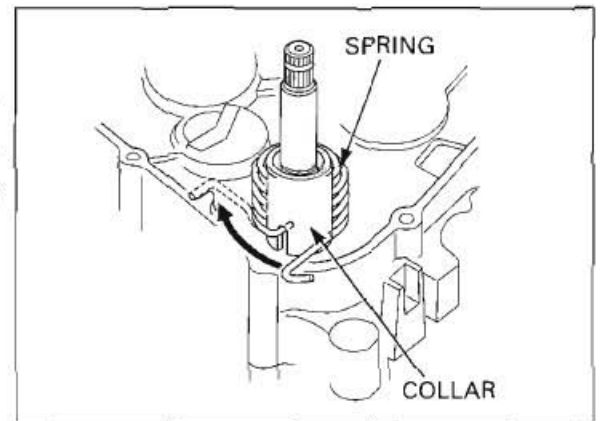


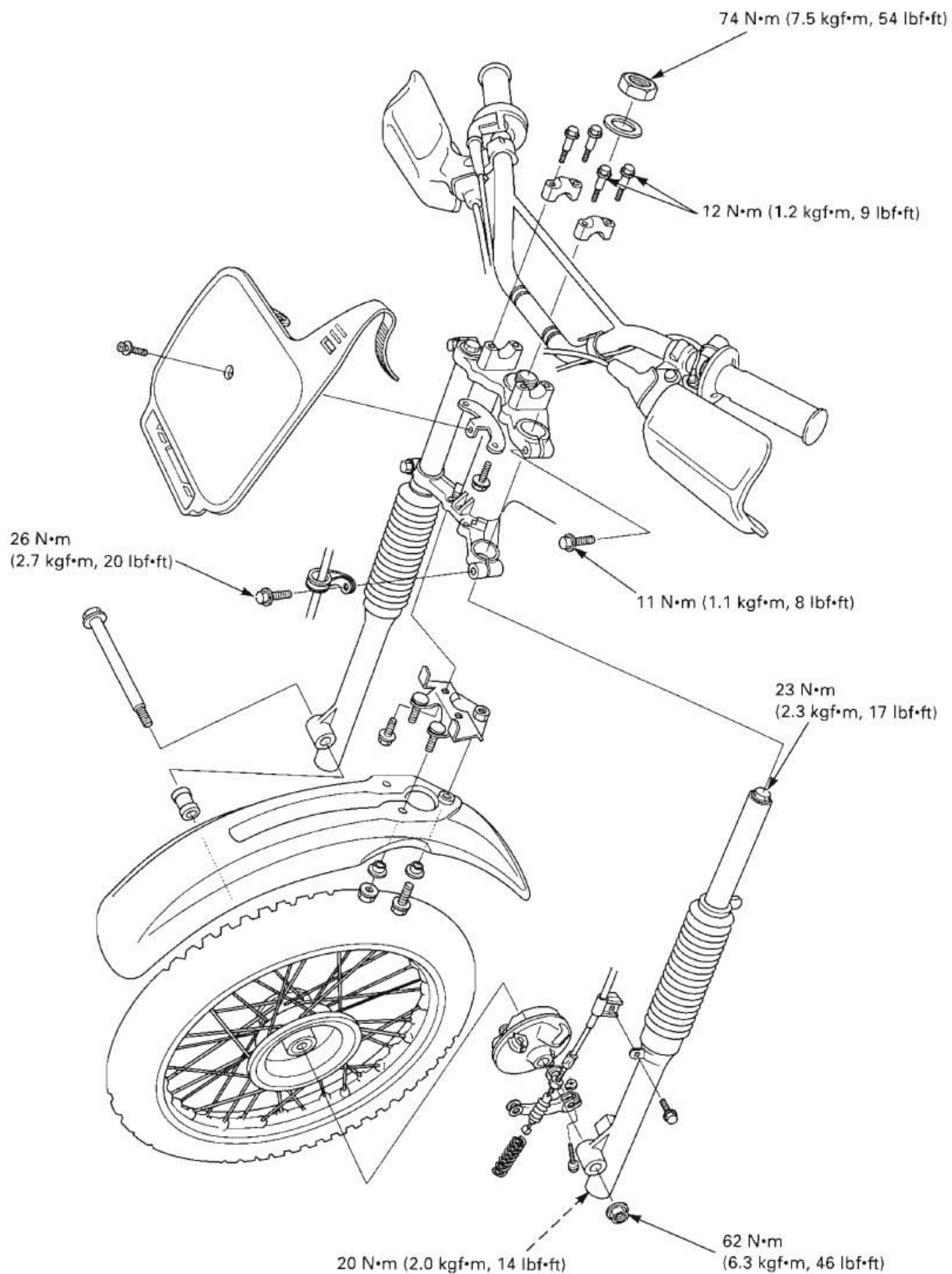
Install the return spring and collar.

NOTE:

Hook the each spring end as shown.

Install the removed parts in the reverse order of removal.





11. FRONT WHEEL/BRAKE/SUSPENSION/STEERING

SERVICE INFORMATION	11-1	FRONT BRAKE	11-11
TROUBLESHOOTING	11-2	FORK	11-14
HANDLEBAR	11-3	STEERING STEM	11-21
FRONT WHEEL	11-7		

SERVICE INFORMATION

GENERAL

⚠ WARNING

A contaminated brake drum or shoe reduces stopping power. Discard contaminated shoes and clean a contaminated drum with a high quality brake degreasing agent.

- When servicing the front wheel, brake, fork or steering stem, support the motorcycle using a safety stand or hoist.

SPECIFICATIONS

Unit: mm (in)

ITEM				STANDARD	SERVICE LIMIT
Front wheel	Minimum tire tread depth			_____	3.0 (0.12)
	Cold tire pressure			100 kPa (1.00 kgf/cm ² , 15 psi)	_____
	Front wheel rim runout	Radial		_____	2.0 (0.08)
		Axial		_____	2.0 (0.08)
	Front axle runout			_____	0.20 (0.008)
Brake	Lining thickness			4.0 (0.16)	2.0 (0.08)
	Drum I.D.			95.0 (3.74)	96.0 (3.78)
Fork	Spring free length	XR100R	'98 – 2000	566.0 (22.28)	554.7 (21.84)
			After 2000	548.0 (21.57)	537.0 (21.14)
		XR80R		525.2 (20.68)	514.7 (20.26)
	Fork tube runout			_____	0.2 (0.008)
	Oil capacity	XR100R	'98 – 2000	88 ± 2.5 cm ³ (3.0 ± 0.02 US oz, 3.1 ± 0.09 Imp oz)	_____
			After 2000	86 ± 2.5 cm ³ (2.9 ± 0.02 US oz, 3.0 ± 0.09 Imp oz)	_____
		XR80R		83 ± 2.5 cm ³ (2.8 ± 0.02 US oz, 2.9 ± 0.09 Imp oz)	_____
		Fluid level	XR100R	'98 – 2000	205.0 (8.07)
	After 2000			200.0 (7.78)	_____
	XR80R		184.0 (7.24)	_____	

11

TORQUE VALUES

Handlebar holder bolt	12 N•m (1.2 kgf•m, 9 lbf•ft)
Steering stem lock nut	74 N•m (7.5 kgf•m, 54 lbf•ft)
Steering stem bearing adjusting nut	2 N•m (0.2 kgf•m, 1 lbf•ft)
Fork top bridge pinch bolt	11 N•m (1.1 kgf•m, 8 lbf•ft)
Fork bottom bridge pinch bolt	26 N•m (2.7 kgf•m, 20 lbf•ft)
Front axle nut	62 N•m (6.3 kgf•m, 46 lbf•ft)
Fork socket bolt	20 N•m (2.0 kgf•m, 14 lbf•ft)
Fork bolt	23 N•m (2.3 kgf•m, 17 lbf•ft)
Spoke	3 N•m (0.3 kgf•m, 2 lbf•ft)

TOOLS

Spoke wrench, 4.5 × 5.1 mm	07701-0020200	Commercially available in U.S.A.
Bearing remover shaft	07746-0050100	
Bearing remover head, 12 mm	07746-0050300	
Driver	07749-0010000	
Attachment, 32 × 35 mm	07746-0010100	
Pilot, 12 mm	07746-0040200	
Fork seal driver	07747-0010100	└ 07947-1180001
Fork seal driver attachment	07747-0010300	
Ball race remover	07944-1150001	
Attachment, 37 × 40 mm	07746-0010200	
Steering stem driver	07946-GC40000	or Steering stem driver 07946-MB00000 Steering stem driver attachment 07946-GC4000A (U.S.A. only)
Steering stem socket wrench	07916-3710101 or 07916-3710100	

TROUBLESHOOTING

Hard steering

- Faulty or damaged steering head bearings
- Insufficient tire pressure
- Steering head bearing adjustment nut too tight

Steers to one side or does not track straight

- Bent fork
- Bent axle
- Wheel installed incorrectly
- Faulty steering head bearings
- Bent frame
- Worn wheel bearing
- Worn swingarm pivot components

Front wheel wobbling

- Bent rim
- Worn front wheel bearings
- Faulty tire
- Unbalanced tire and wheel

Wheel turns hard

- Faulty wheel bearing
- Bent front axle
- Brake drag

Soft suspension

- Insufficient fluid in fork
- Weak fork springs
- Tire pressure too low

Hard suspension

- Incorrect fluid weight
- Bent fork tubes
- Clogged fork fluid passage

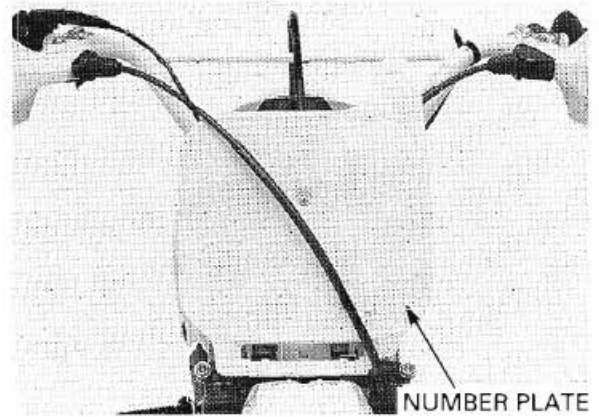
Front suspension noisy

- Insufficient fluid in fork
- Loose fork fasteners

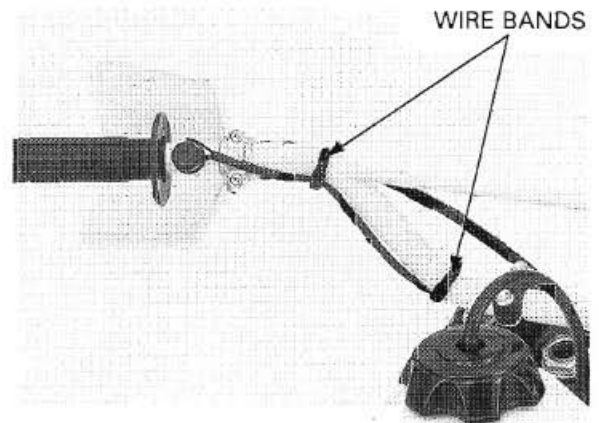
HANDLEBAR

REMOVAL

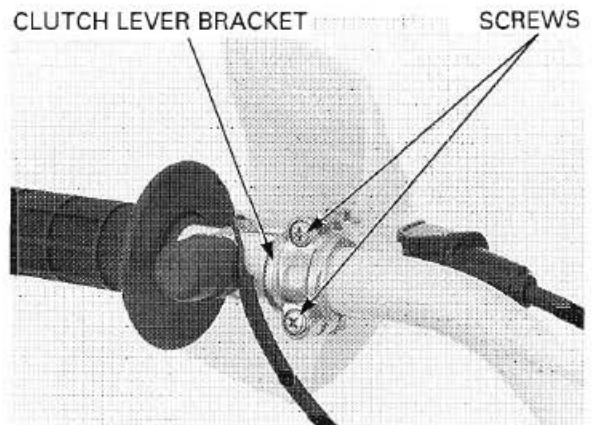
Remove the number plate (page 2-4).



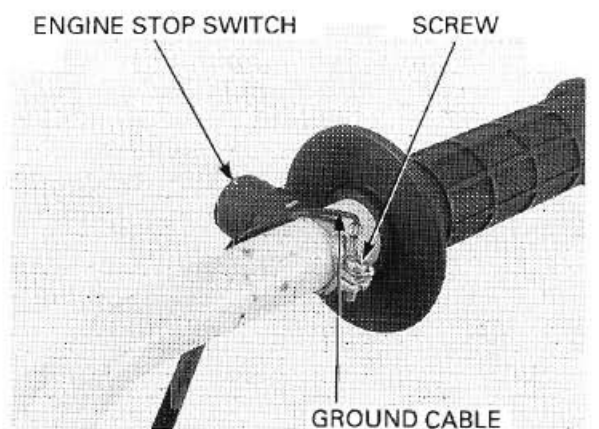
Remove the wire bands.



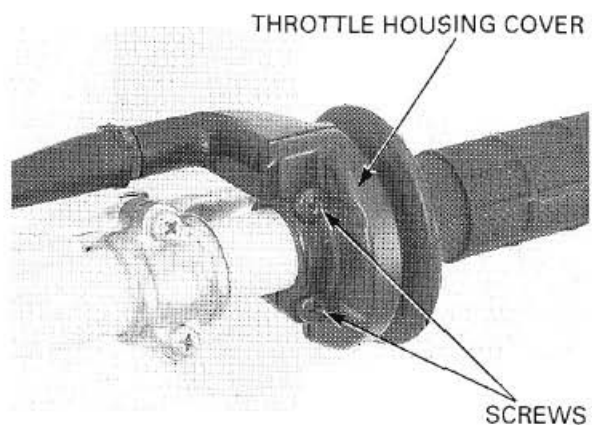
Remove the two screws, holder and clutch lever bracket.



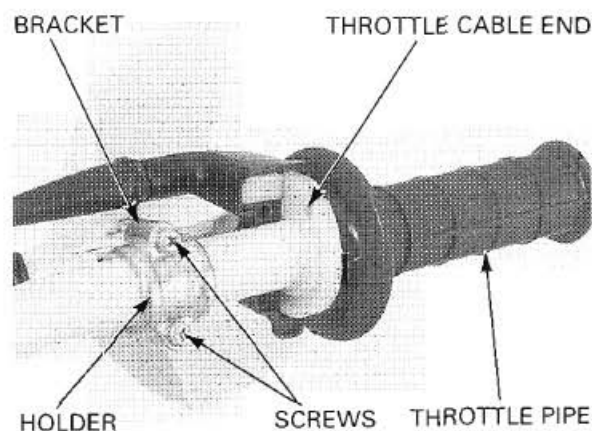
Remove the screw, ground cable and engine stop switch.



Remove the throttle housing screws.

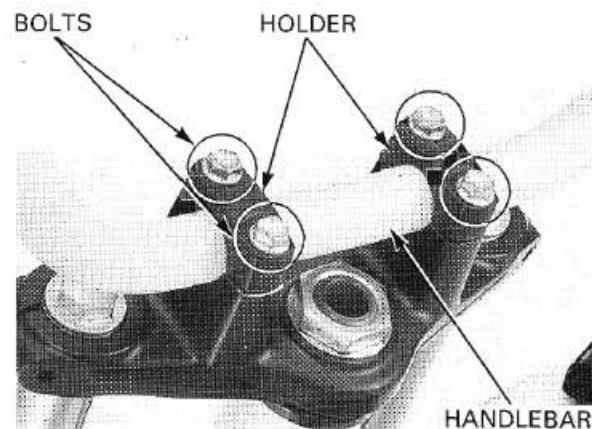


Disconnect the throttle cable end from the throttle pipe and remove the housing.
Remove the throttle pipe from the handlebar.



Remove the screws, holder and brake lever bracket.

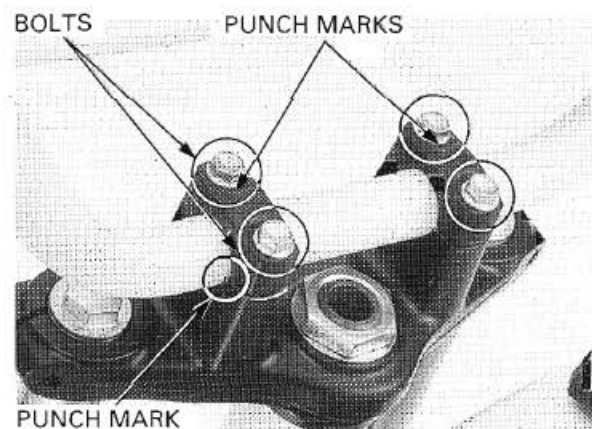
Remove the handlebar upper holder bolts and holder.
Remove the handlebar.



INSTALLATION

Place the handlebar onto the lower holders, aligning the punch marks on the handlebar with the top surface of the lower holder.
Install the upper holders with their punch marks facing forward.

Install the holder bolts.
Tighten the forward bolts first, then the rear bolts.

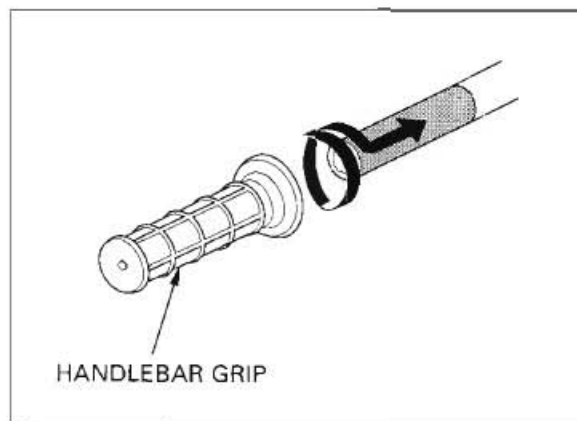


Apply Honda Bond A or Honda Hand Grip Cement (U.S.A. only) to the inside of the grip and to the clean surfaces of the left handlebar and throttle grip.

Wait 3 – 5 minutes and install the grip.

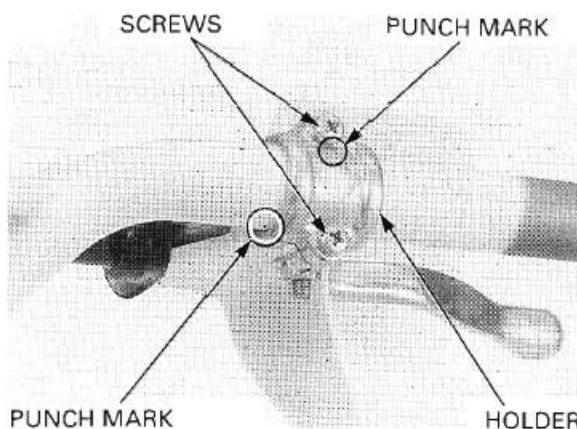
Rotate the grip for even application of the adhesive.

Allow the adhesive to dry for an hour before using.

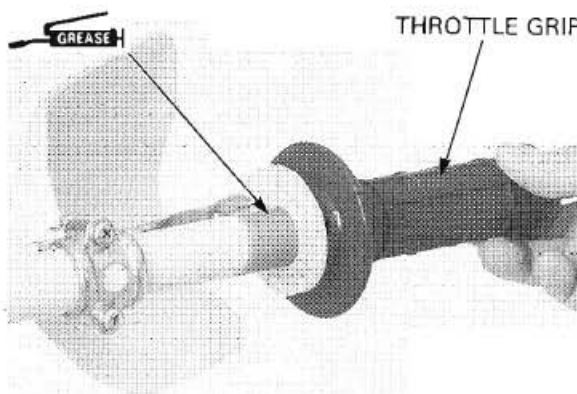


Place the brake lever bracket onto the handlebar. Install the holder with its punch mark facing up. Align the mating surface of the bracket with the punch mark on the handlebar. Tighten the upper screw first, then the lower screw.

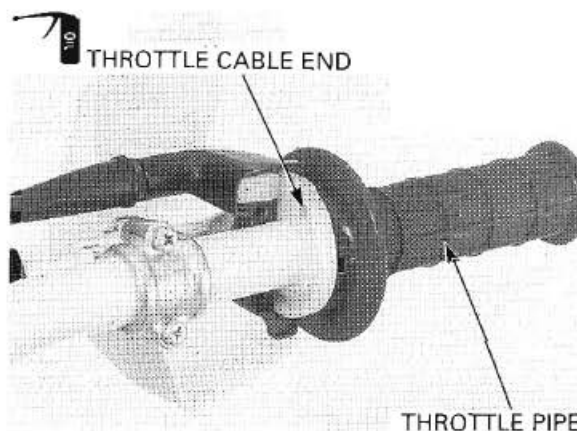
Connect the brake cable to the brake lever.



Apply grease to the sliding surface of the throttle pipe. Install the throttle grip on the handlebar.

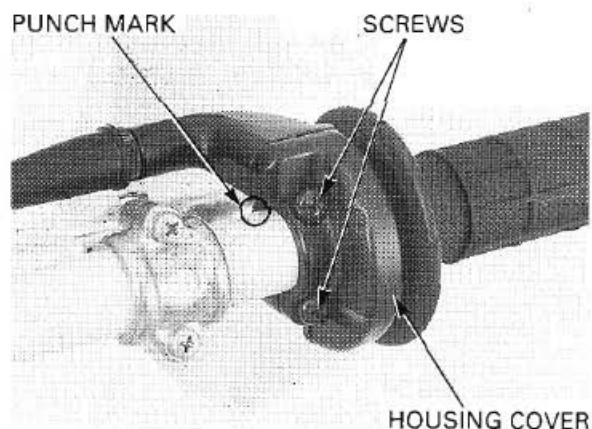


Apply oil to the throttle cable end and sliding surface. Connect the throttle cable to the throttle pipe.

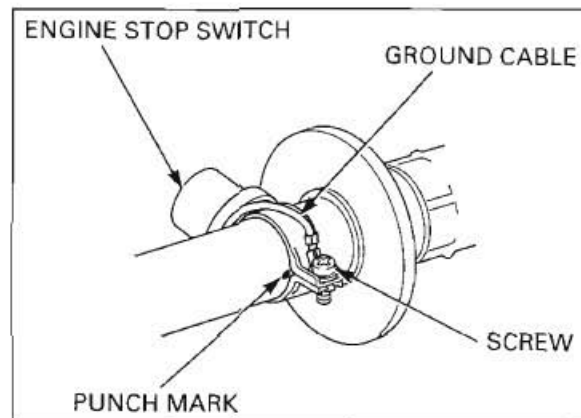


FRONT WHEEL/BRAKE/SUSPENSION/STEERING

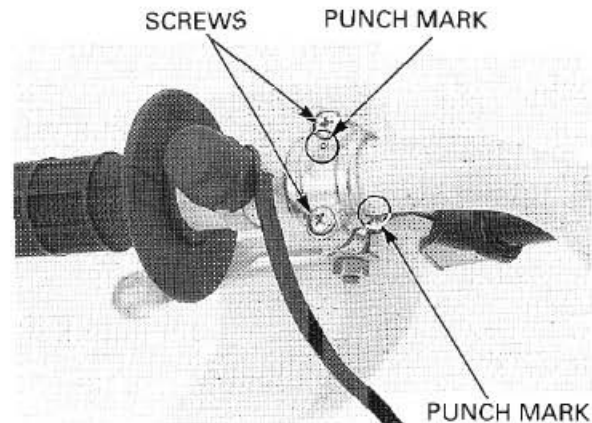
Align the mating surface of the housing with the punch mark on the handlebar.
Tighten the upper screw first, then the lower screw.



Install the engine stop switch and ground cable then align the mating surface of the clamp with the punch mark on the handlebar.
Tighten the screw securely.

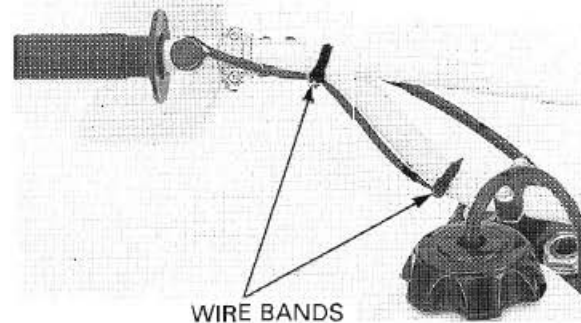


Place the clutch lever bracket onto the handlebar.
Install the holder with its punch mark facing up.
Align the mating surface of the bracket with the punch mark on the handlebar.
Tighten the upper screw first, then the lower screw.



Secure the engine stop switch wire with wire bands.

Install the number plate (page 2-4).



FRONT WHEEL

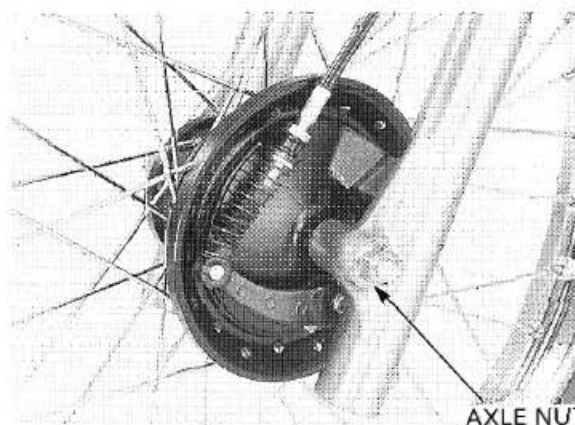
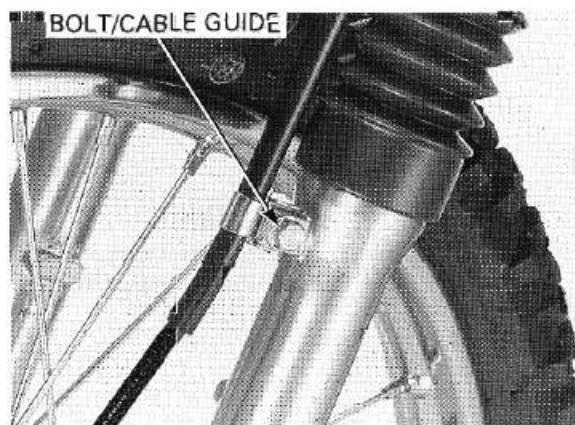
REMOVAL

WARNING

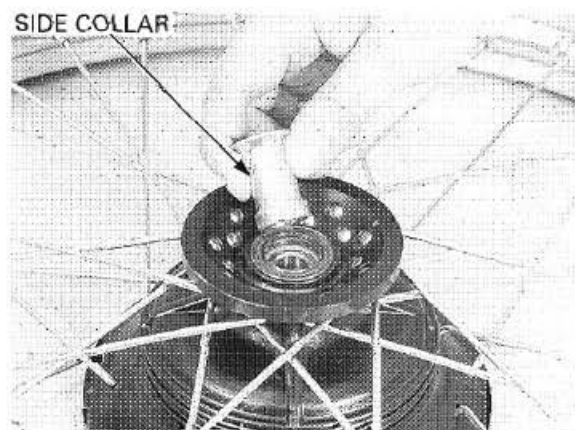
A contaminated brake drum or shoe reduces stopping power. Discard contaminated shoes and clean a contaminated drum with a high quality brake degreasing agent.

Support the motorcycle securely using a safety stand or a hoist.

Remove the bolt and front brake cable guide from the left fork slider.
Disconnect the front brake cable.
Remove the axle nut, axle and front wheel.



Remove the side collar from the right wheel hub.

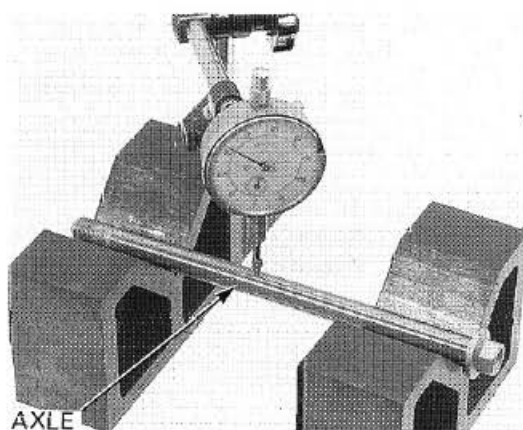


INSPECTION

Axle

Set the axle in V-block and measure the runout. Actual runout is 1/2 the total indicator reading.

SERVICE LIMIT: 0.20 mm (0.008 in)



FRONT WHEEL/BRAKE/SUSPENSION/STEERING

Wheel rim runout

Check the rim runout by placing the wheel in a turning stand.

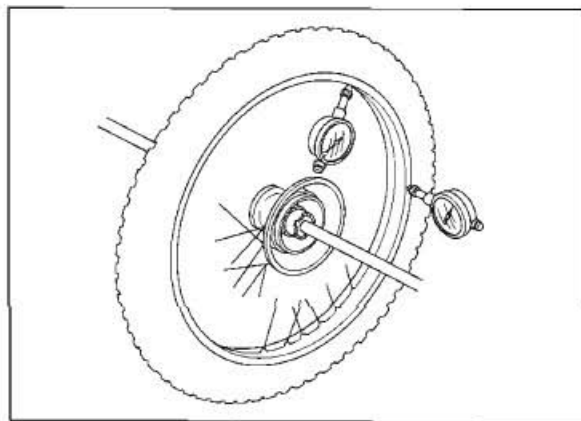
Spin the wheel by hand, and read the runout using a dial indicator.

Actual runout is 1/2 the total indicator reading.

SERVICE LIMITS:

Radial: 2.0 mm (0.08 in)

Axial: 2.0 mm (0.08 in)



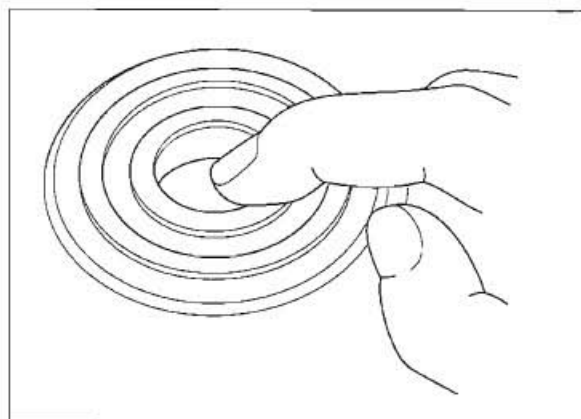
Wheel bearing

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.

Always replace the bearings in pairs.

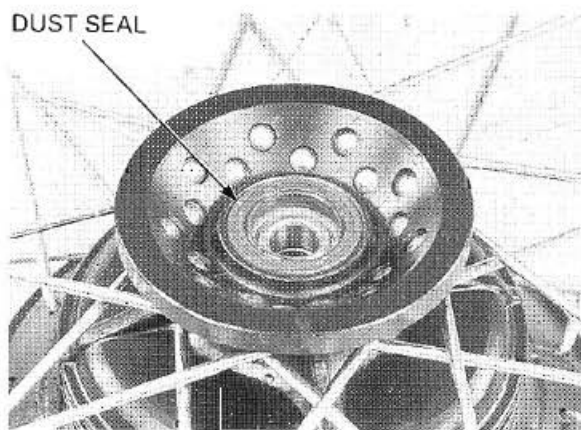
Remove and discard the bearings if they do not turn smoothly, quietly, or if they fit loosely in the hub.

Install the new bearings into the hub using the special tools (page 11-9).



DISASSEMBLY

Remove the dust seal.

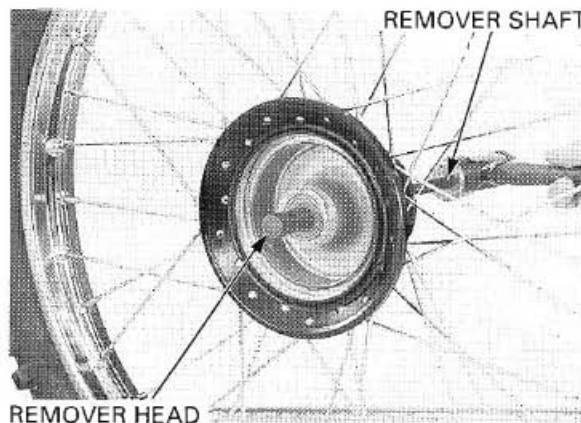


Install the bearing remover head into the bearing. From the opposite side, install the bearing remover shaft and drive the bearing out of the wheel hub. Remove the distance collar and drive out the other bearing.

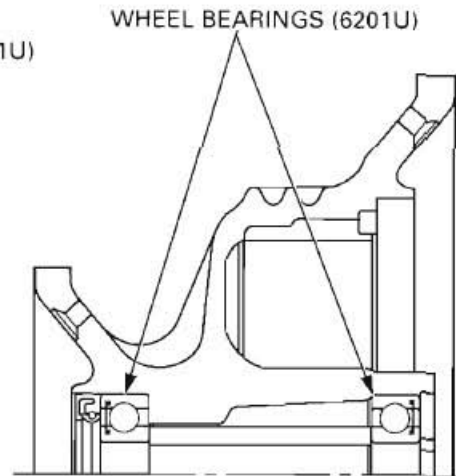
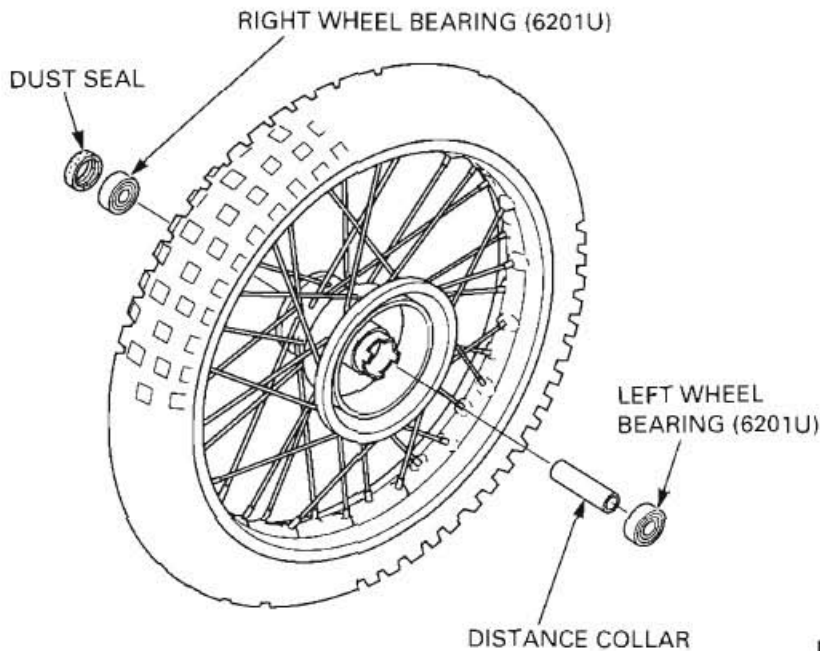
TOOLS:

Bearing remover head, 12 mm 07746-0050300

Bearing remover shaft 07746-0050100



ASSEMBLY



CAUTION:

Never install the old bearings. Once the bearings have been removed, the bearings must be replaced with new ones.

Drive in a new right bearing squarely with its sealed end facing out.
Install the distance collar, then drive in the left bearing using the special tools.

TOOLS:

Driver	07749-0010000
Attachment, 32 × 35 mm	07746-0010100
Pilot, 12 mm	07746-0040200

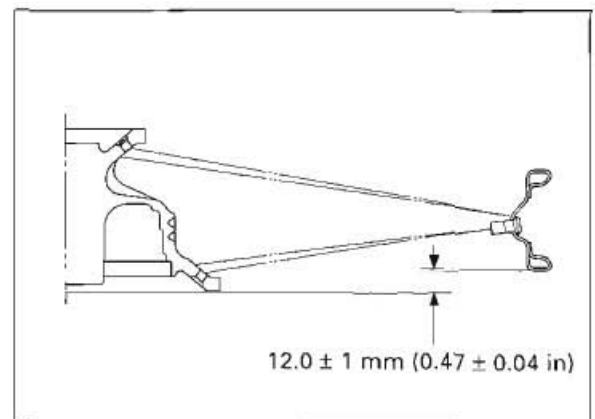
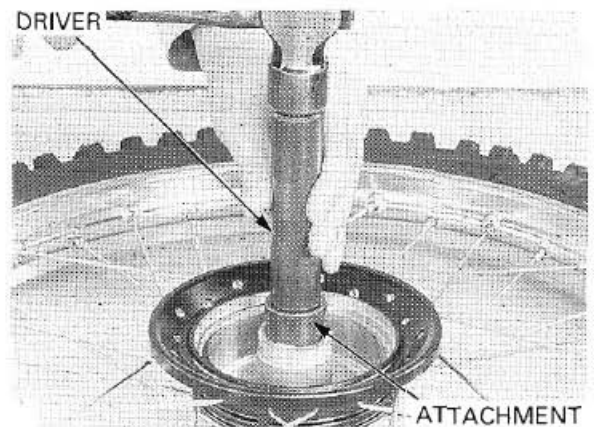
Place the rim on the work bench.
Place the hub with the left side down and begin lacing with new spokes.
Adjust the hub position so that the distance from the hub left end surface to the side of rim is 12.0 ± 1 mm (0.47 ± 0.04 in) as shown.

TOOL:

Spoke wrench, 4.5 × 5.1 mm	07741-0020200 (Equivalent commercially available in U.S.A.)
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TORQUE: 3 N·m (0.3 kgf·m, 2.2 lbf·ft)

Check the rim runout (page 11-8).



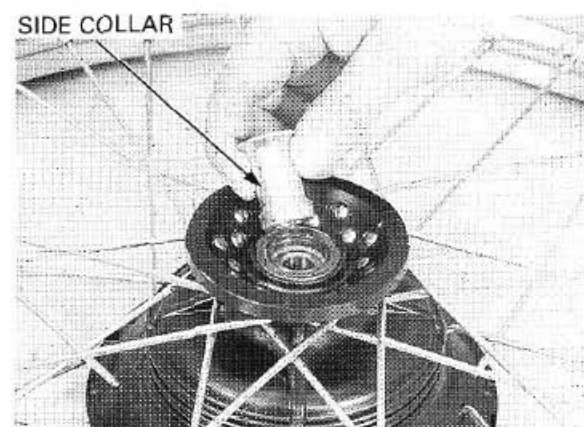
FRONT WHEEL/BRAKE/SUSPENSION/STEERING

Apply grease to the new dust seal lips, then install it into the right wheel hub.



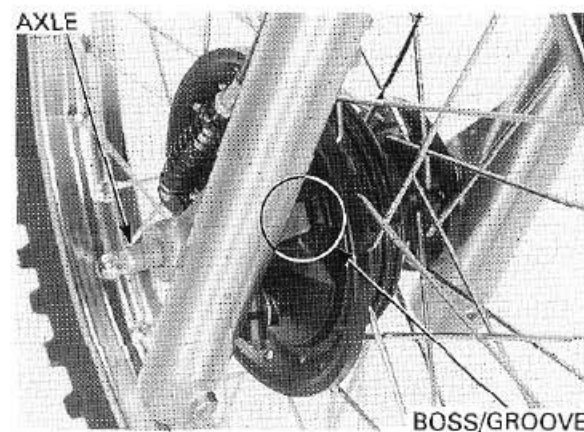
INSTALLATION

Install the side collar into the right wheel hub.

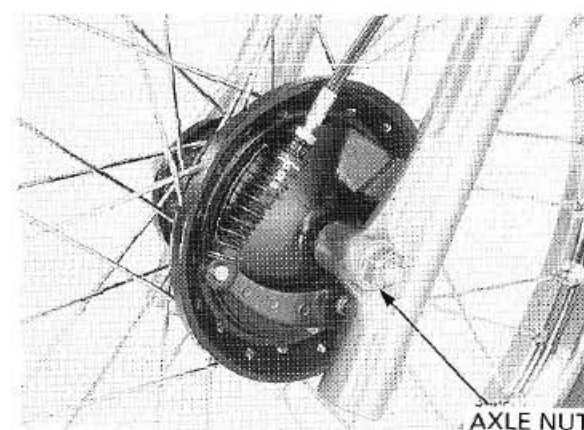


Install the front wheel between the fork legs while aligning the brake panel groove with the boss on the left fork slider.

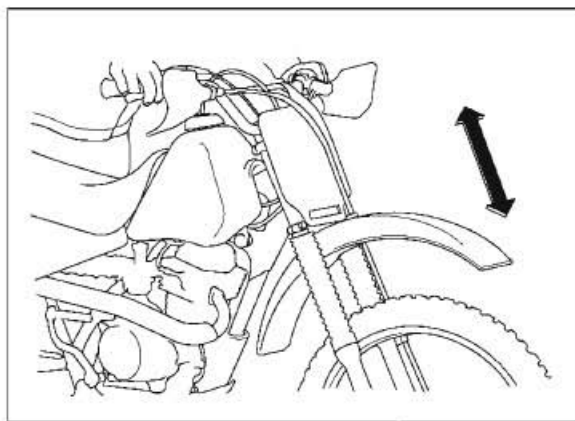
Apply a thin layer of grease to the front axle surface. Install the front axle from the right side.



Hold the axle and temporarily tighten the axle nut. Connect the front brake cable. Adjust the front brake lever free play (page 3-18).

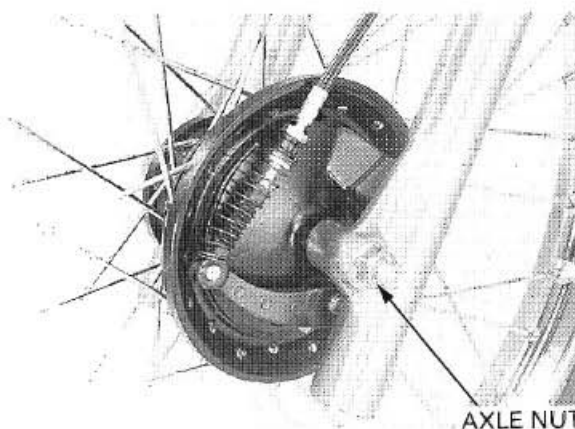


With the front brake applied, pump the fork up and down several times to seat the axle and check brake operation.

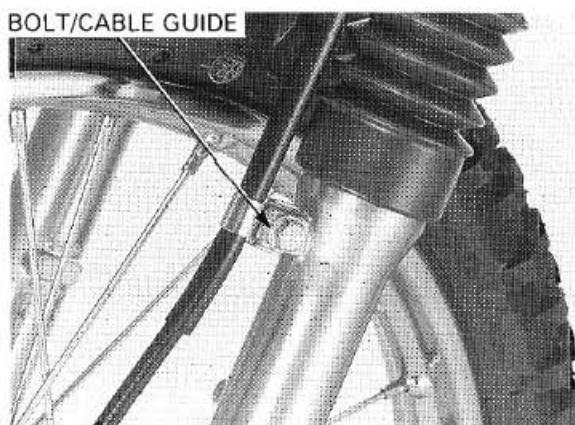


Tighten the axle nut to the specified torque.

TORQUE: 62 N·m (6.3 kgf·m, 46 lbf·ft)



Install the brake cable guide to the left fork slider and tighten the bolt securely.

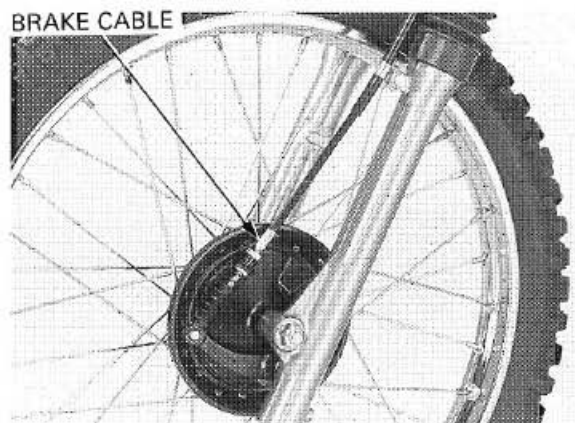


FRONT BRAKE

REMOVAL

Remove the front wheel (page 11-7).

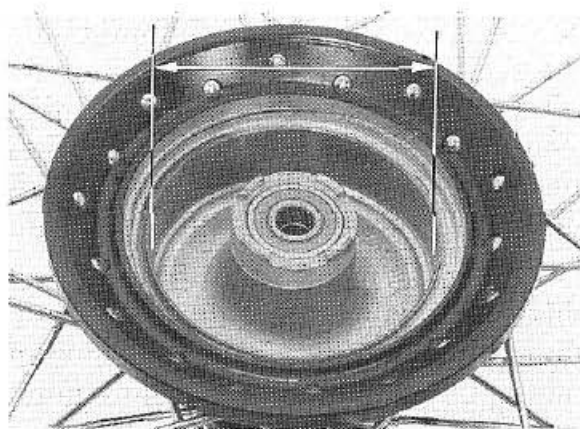
Disconnect the brake cable.



INSPECTION

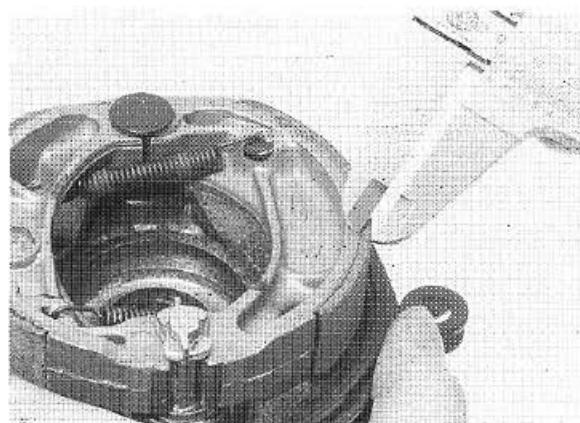
Measure the front brake drum I.D.

SERVICE LIMIT: 96.0 mm (3.78 in)



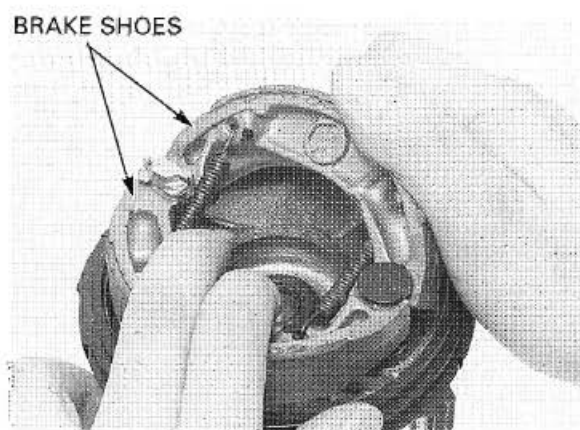
Measure the brake lining thickness.

SERVICE LIMIT: 2.0 mm (0.08 in)



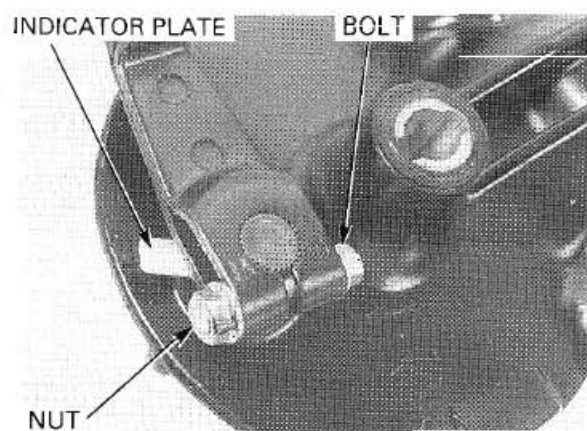
DISASSEMBLY

Remove the brake shoes and springs.

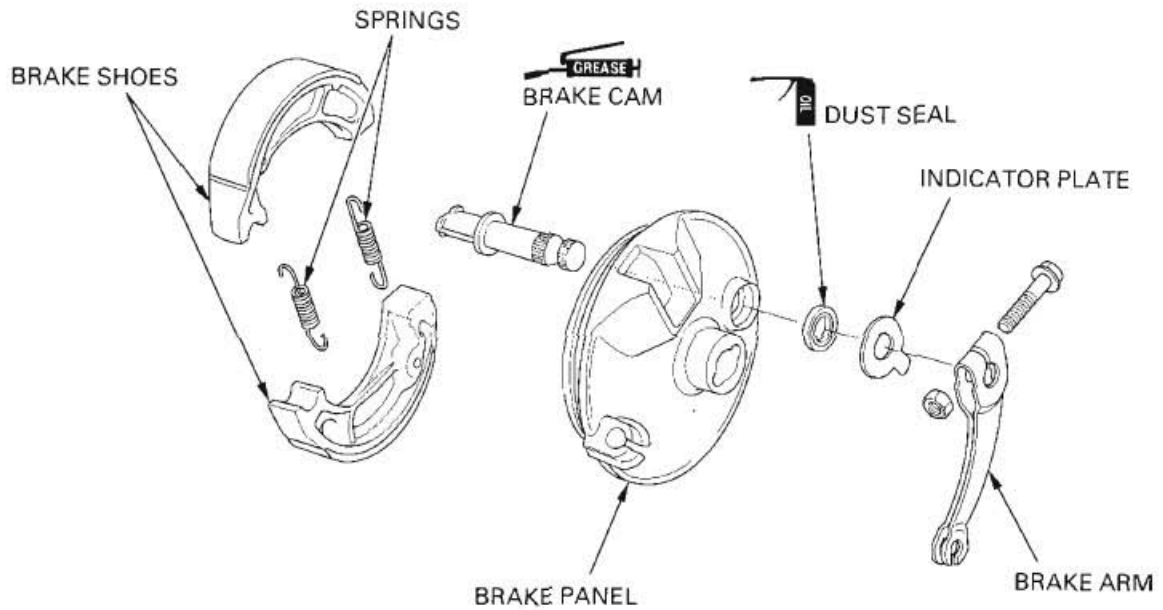


Remove the nut, bolt and brake arm.

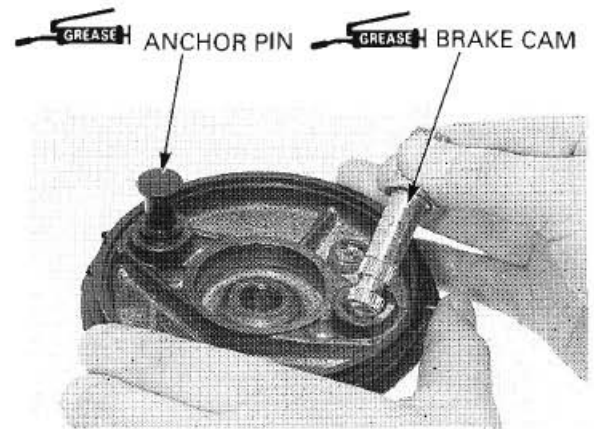
Remove the indicator plate, dust seal and brake cam.



ASSEMBLY

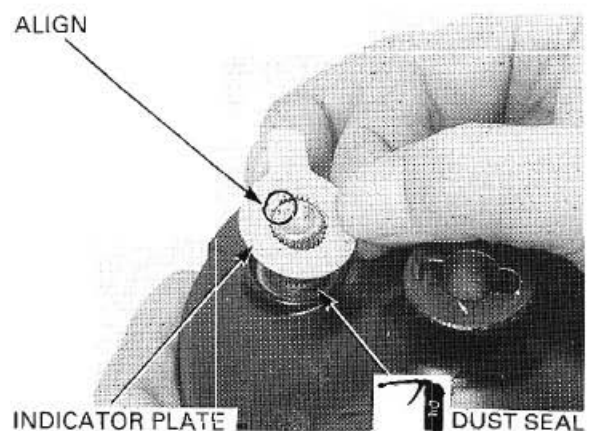


Apply grease to the anchor pin and brake cam. Install the brake cam into the brake panel.

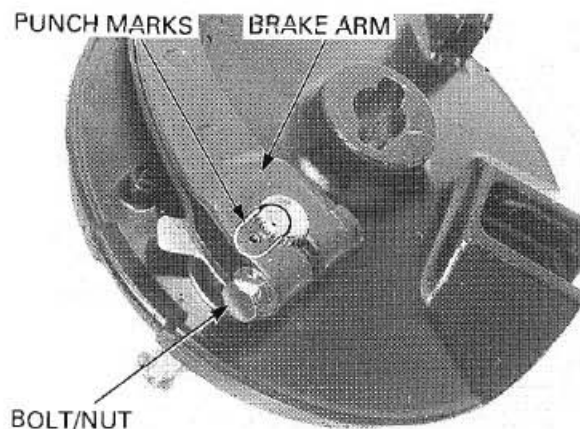


Apply oil to the dust seal and install it onto the brake panel.

Install the wear indicator plate on the brake cam aligning its wide tooth with the wide groove on the brake cam.

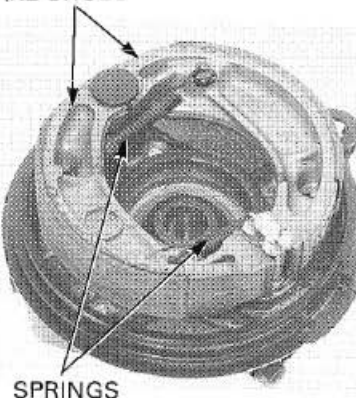


Install the brake arm aligning the punch marks between the arm and the brake cam.
Install the brake arm pinch bolt and tighten the nut.



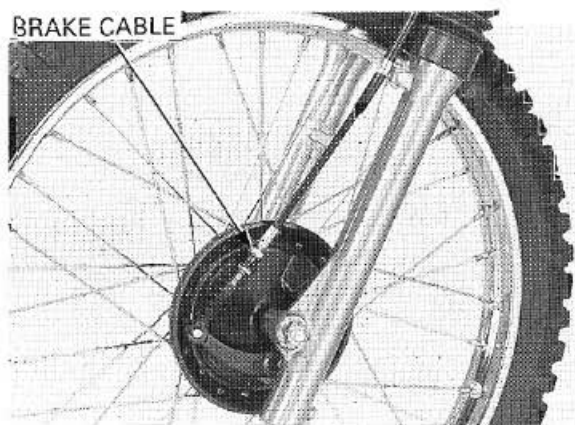
Install the brake shoes and springs.

BRAKE SHOES



INSTALLATION

Connect the brake cable.
Adjust the front brake lever free play (page 3-18).
Install the brake panel into the left wheel hub (page 11-10).

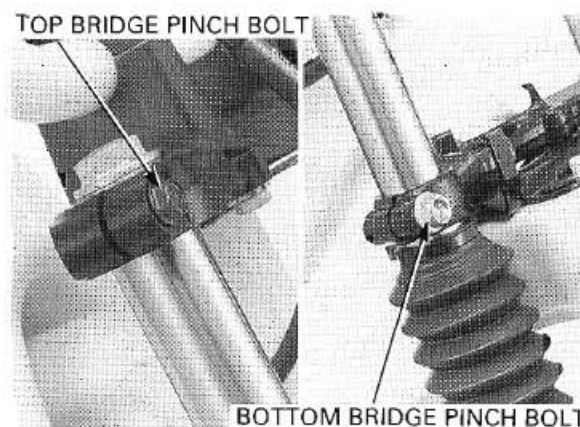


FORK

REMOVAL

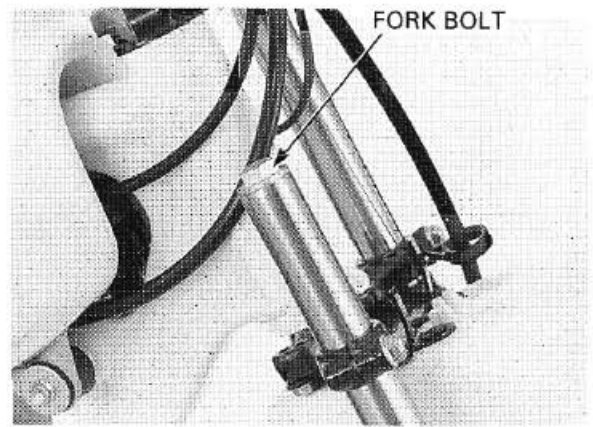
Remove the front wheel (page 11-7).
Remove the number plate (page 2-4).

Loosen the fork top bridge pinch bolt.
Loosen the fork bottom bridge pinch bolt.



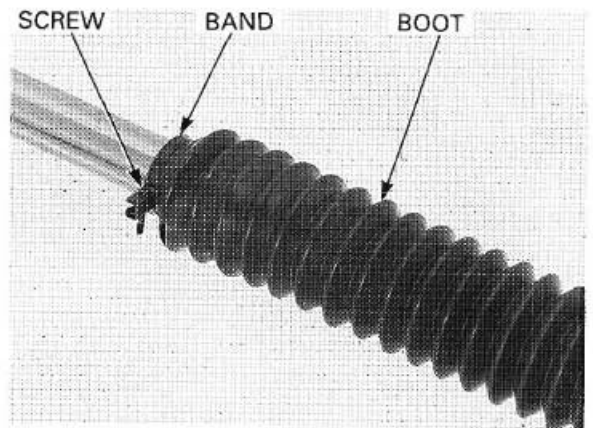
When the fork is to be disassembled, lower the fork leg and tighten the bottom pinch bolt.
Loosen the fork bolt, but do not remove it yet.

Loosen the fork bottom pinch bolt and remove the fork leg.



DISASSEMBLY

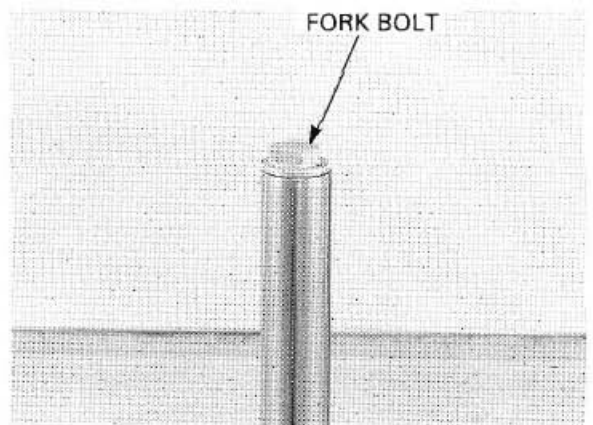
Loosen the screw then remove the band and boot.



Remove the fork bolt.

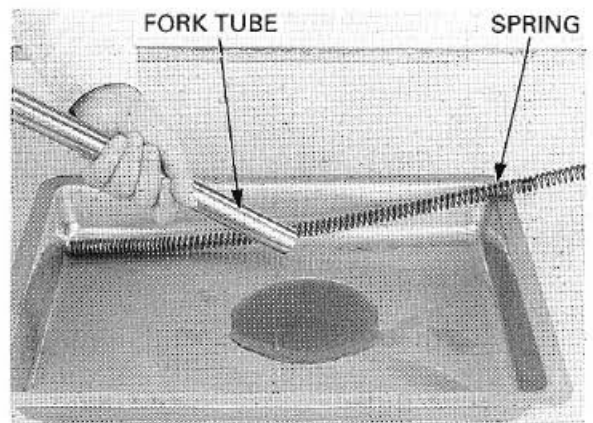
⚠ WARNING

The fork bolt is under spring pressure. Use care when removing it.



Remove the fork spring.

Pour out the fork fluid by pumping the fork tube up and down several times.

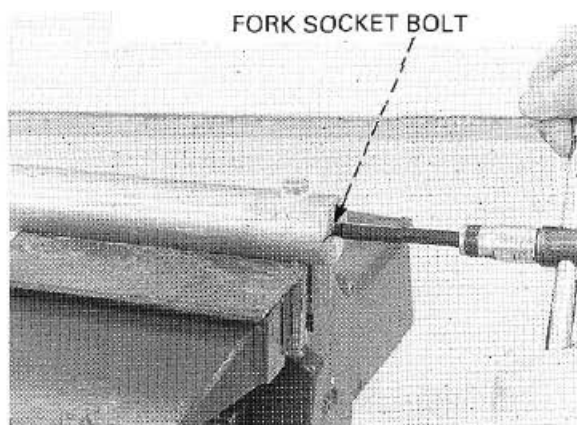


FRONT WHEEL/BRAKE/SUSPENSION/STEERING

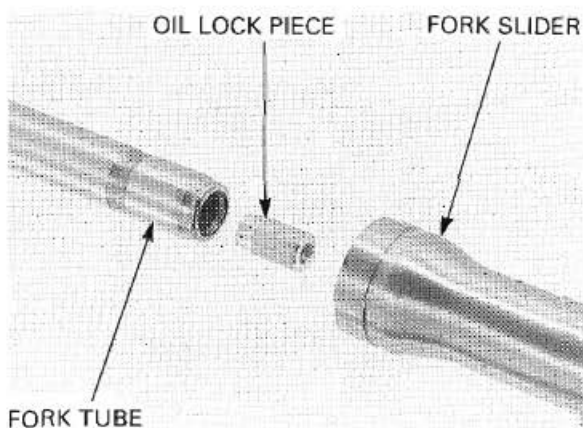
Hold the fork slider in a vice with soft jaws or a shop towel.

If the fork piston turns with the socket bolt, temporarily install the fork spring and fork bolt.

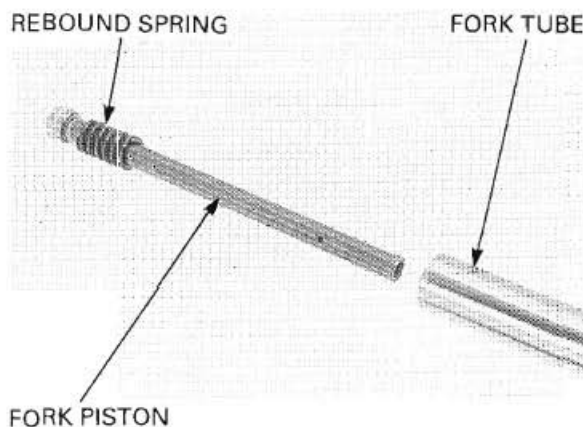
Remove the fork socket bolt with a hex wrench.



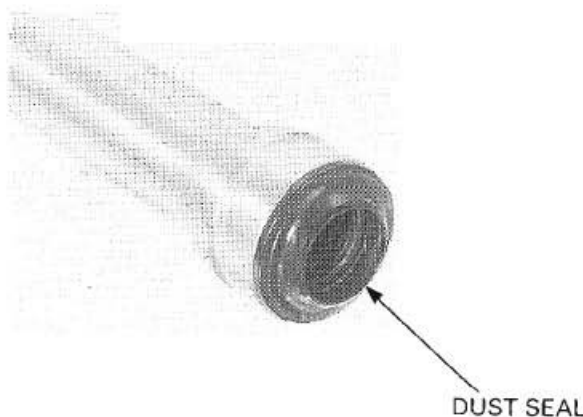
Pull the fork tube out from the fork slider.
Remove the oil lock piece.



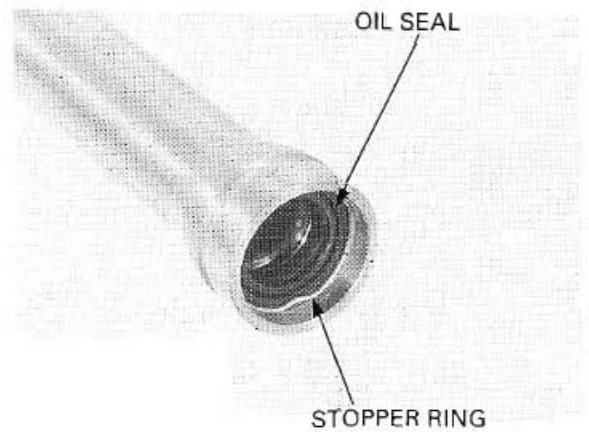
Remove the fork piston and rebound spring from the fork tube.



Remove the dust seal.



Remove the oil seal stopper ring and oil seal.



INSPECTION

Fork spring

Measure the fork spring free length.

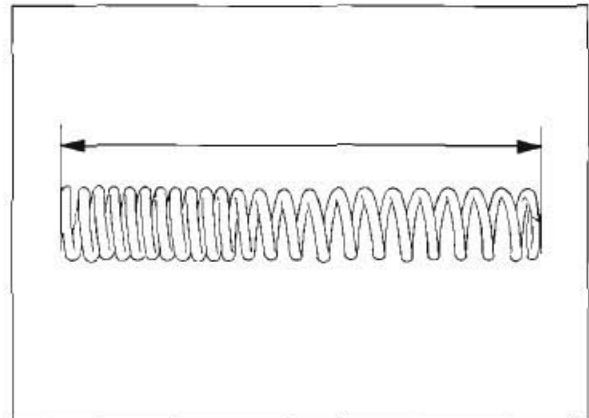
SERVICE LIMITS:

XR100R:

'98 - 2000: 554.7 mm (21.84 in)

After 2000: 537.0 mm (21.14 in)

XR80R: 514.7 mm (20.26 in)

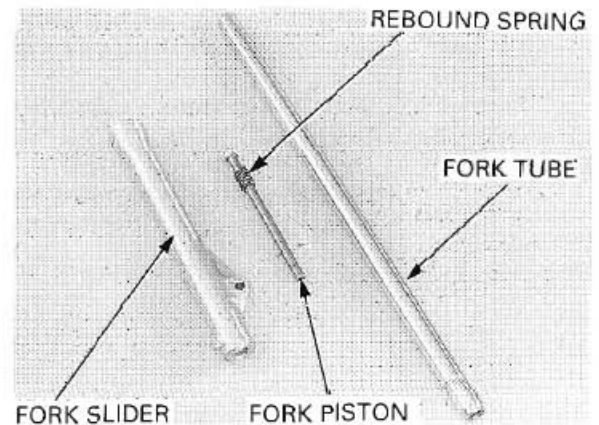


Fork tube/slider/piston

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

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

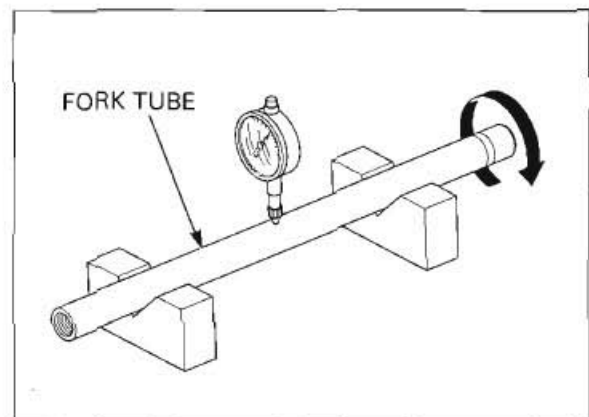
Replace the components if necessary.



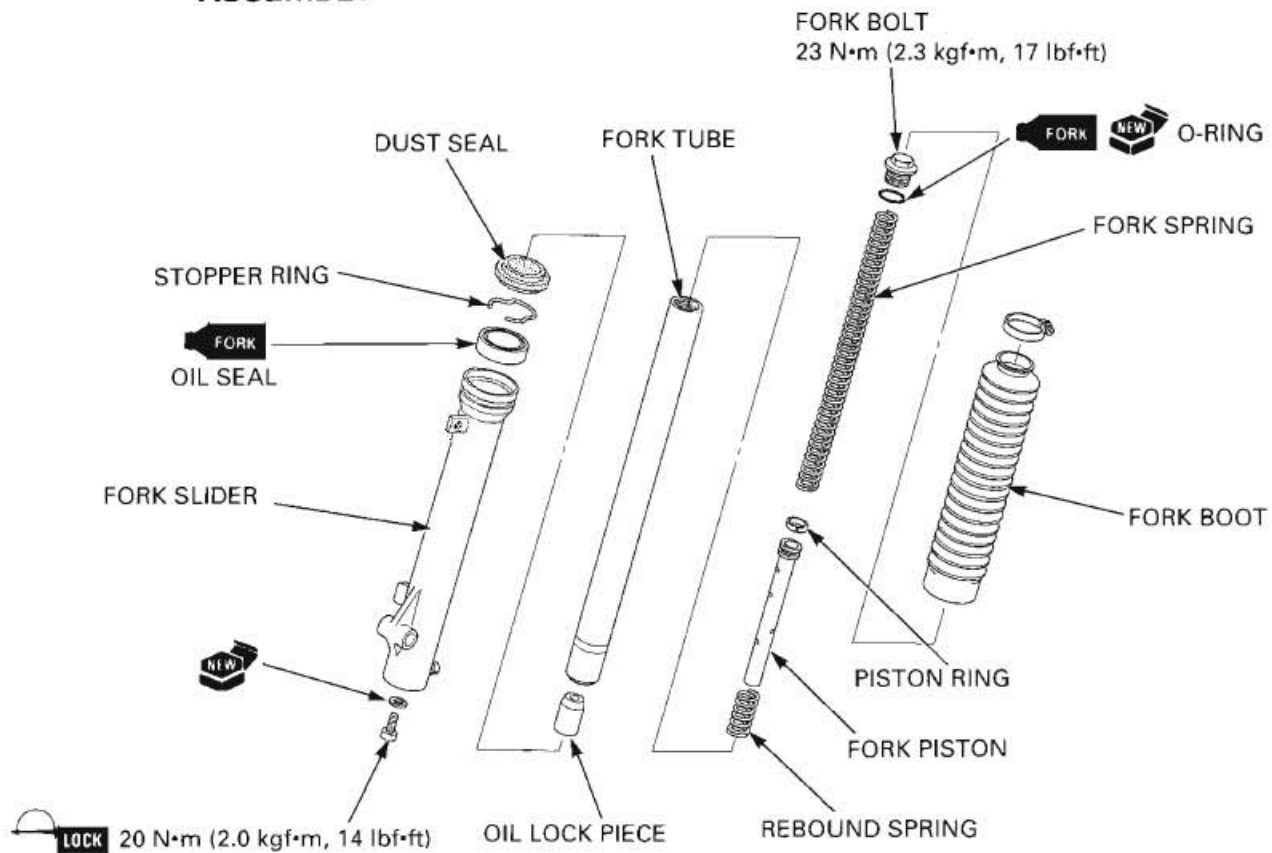
Place the fork tube in V-blocks and measure the runout.

Actual runout is 1/2 the total indicator reading.

SERVICE LIMIT: 0.20 mm (0.008 in)



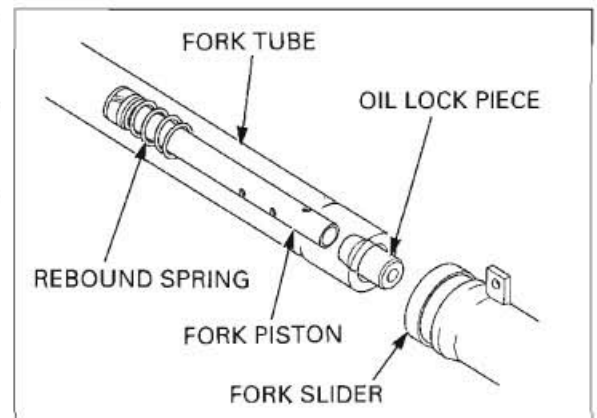
ASSEMBLY



Before assembly, wash all parts with a high flash or non-flammable solvent and wipe them dry.

Install the rebound spring and fork piston into the fork tube.

Install the oil lock piece to the end of the fork piston. Install the fork tube into the fork slider.

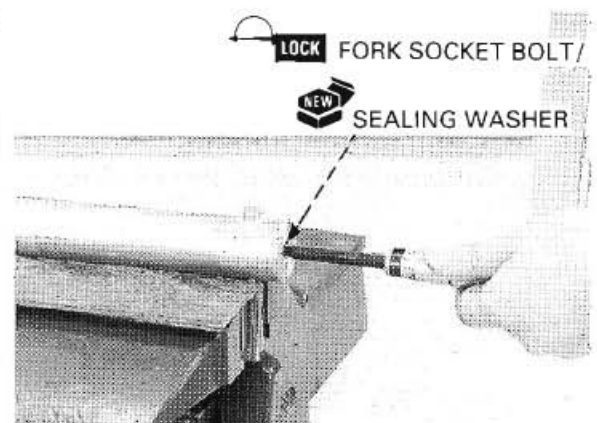


Hold the fork slider in a vise with soft jaws or a shop towel.

If the fork piston turns with the socket bolt, temporarily install the fork spring and fork bolt.

Apply a locking agent to the fork socket bolt threads. Install and tighten the socket bolt with a new sealing washer into the fork piston.

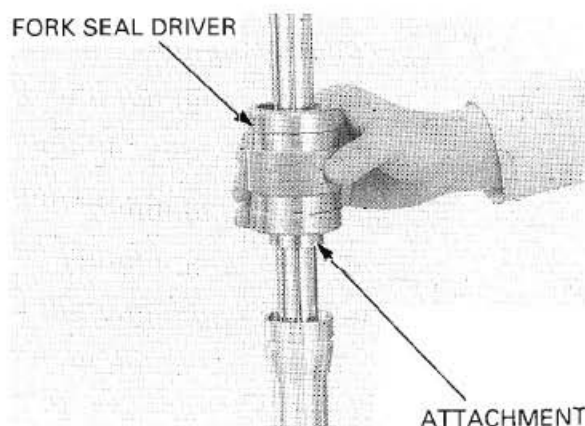
TORQUE: 20 N·m (2.0 kgf·m, 14 lbf·ft)



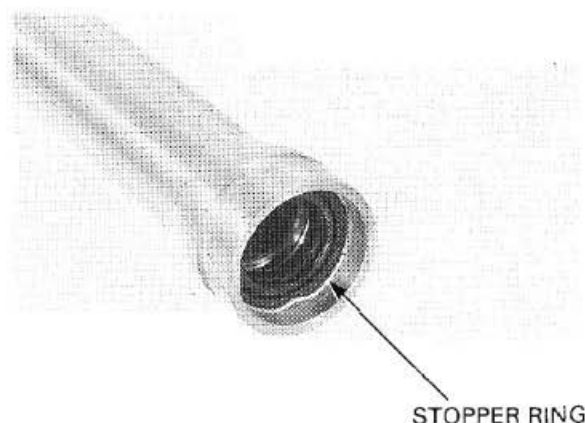
Apply fork fluid to the oil seal lips, then install it into the fork slider with the mark facing up. Drive the oil seal into the fork slider using the special tools.

TOOLS:

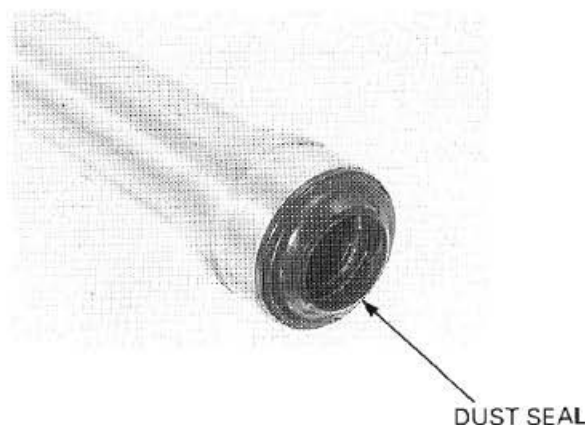
Fork seal driver body	07747-0010100
Fork seal driver attachment	07747-0010300 or
Fork seal driver	07947-1180001
	(U.S.A. only)



Install the oil seal stopper ring into the fork slider groove securely.



Install the dust seal.



Pour the specified amount of fork fluid into the fork tube.

FORK FLUID CAPACITY:

XR100R:

'98 - 2000: $88 \pm 2.5 \text{ cm}^3$
($3.0 \pm 0.02 \text{ US oz}$, $3.1 \pm 0.09 \text{ Imp oz}$)

After 2000: $86 \pm 2.5 \text{ cm}^3$
($2.9 \pm 0.02 \text{ US oz}$, $3.0 \pm 0.09 \text{ Imp oz}$)

XR80R:

$83 \pm 2.5 \text{ cm}^3$
($2.8 \pm 0.02 \text{ US oz}$, $2.9 \pm 0.09 \text{ Imp oz}$)

Pump the fork tube several times to remove trapped air from the lower portion of the fork tube.

Compress the fork leg fully and measure the oil level from the top of the fork tube.

FORK OIL LEVEL:

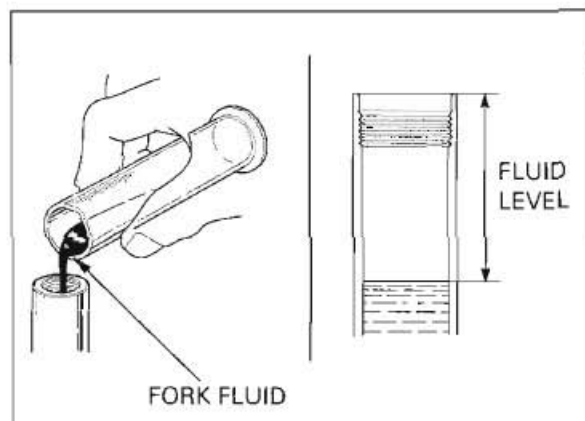
XR100R:

'98 - 2000: 205 mm (8.07 in)

After 2000: 200 mm (7.87 in)

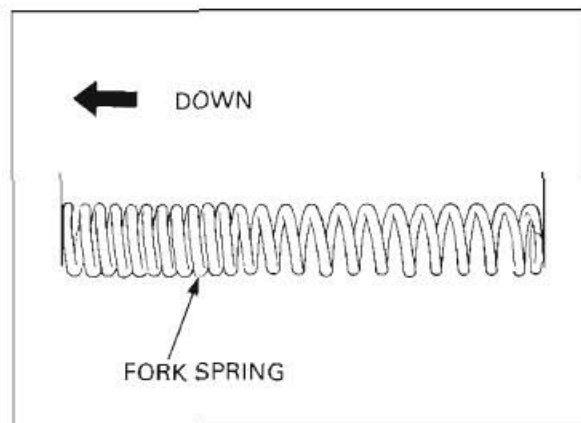
XR80R:

184 mm (7.24 in)

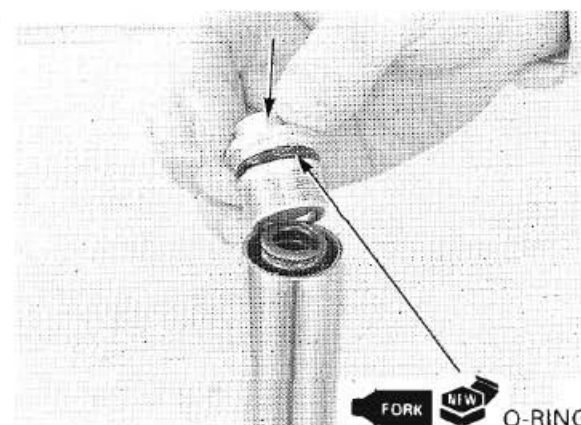


FRONT WHEEL/BRAKE/SUSPENSION/STEERING

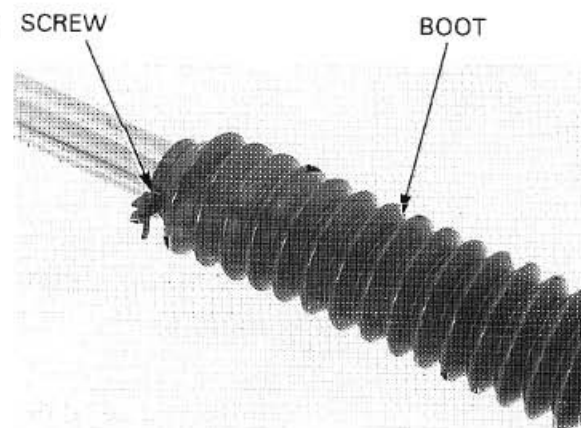
Pull the fork tube up and install the fork spring with its tapered (narrow coil pitch) end facing down.



Apply fork fluid to a new O-ring and install it onto the fork bolt.
Install the fork bolt onto the fork tube.



Install the fork boot and tighten the boot band screw loosely.



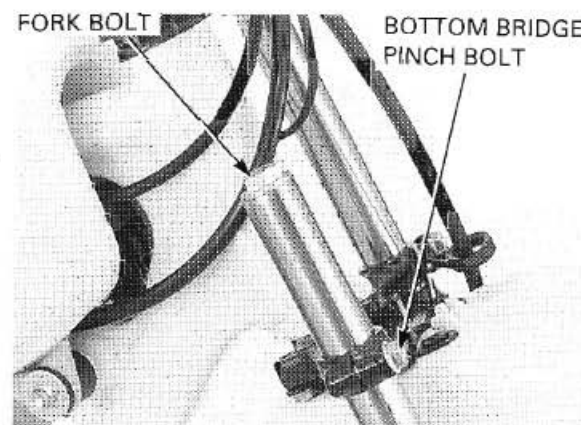
INSTALLATION

Install the fork tube into the steering stem.

Temporarily tighten the fork bottom bridge pinch bolt.

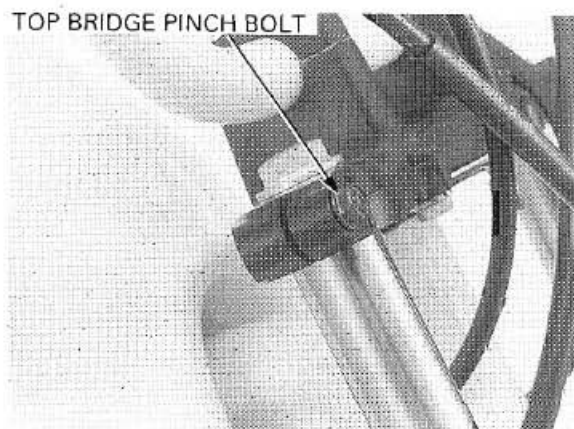
Tighten the fork bolt to the specified torque.

TORQUE: 23 N·m (2.3 kgf·m, 17 lbf·ft)



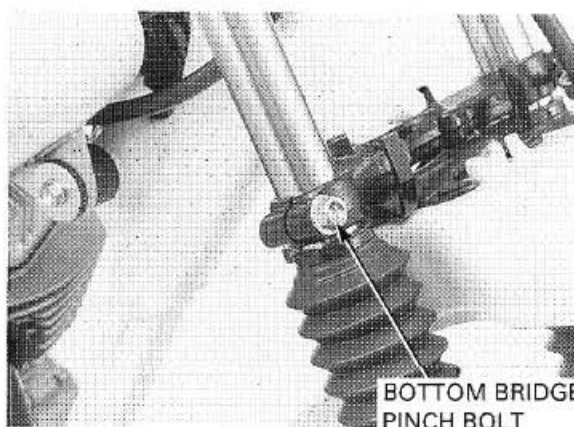
Loosen the fork bottom pinch bolt and pull up the fork leg as shown.
Tighten the fork top bridge pinch bolt to the specified torque.

TORQUE: 11 N·m (1.1 kgf·m, 8 lbf·ft)



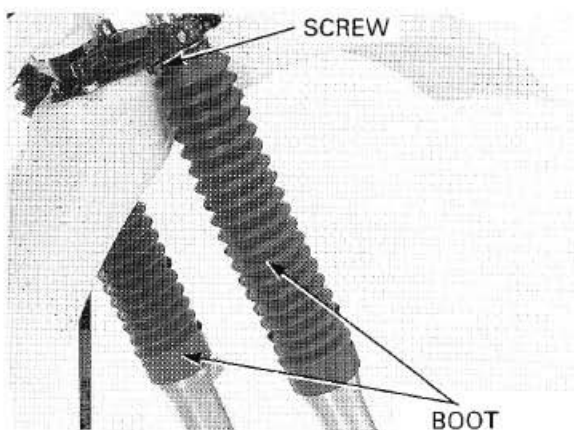
Tighten the fork bottom bridge pinch bolt to the specified torque.

TORQUE: 26 N·m (2.7 kgf·m, 20 lbf·ft)



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

Install the front wheel (page 11-10).
Install the number plate (page 2-4).



STEERING STEM

REMOVAL

Remove the following:

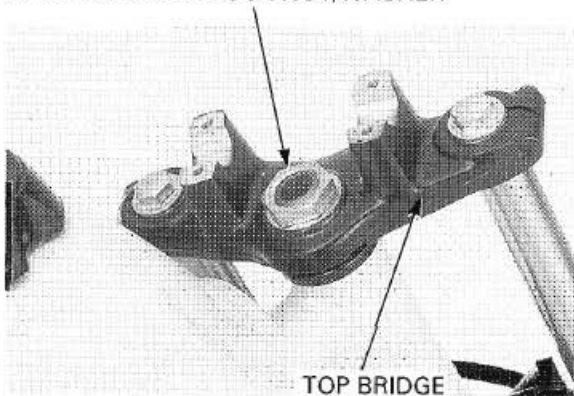
- Handlebar (page 11-3)
- Front wheel (page 11-7)
- Front fender (page 2-4)

Remove the steering stem lock nut and washer.

Remove the fork leg (page 11-14).

Remove the top bridge.

STEERING STEM LOCK NUT/WASHER

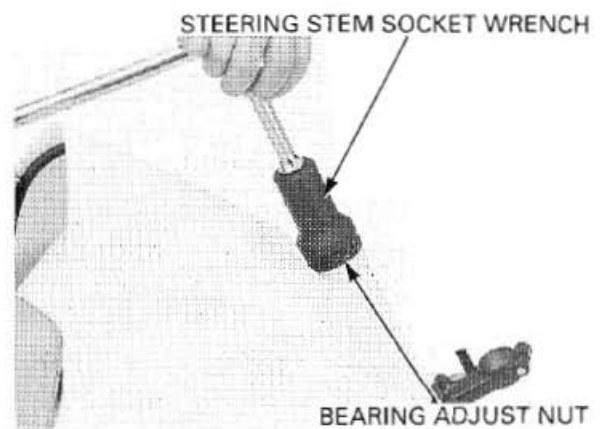


FRONT WHEEL/BRAKE/SUSPENSION/STEERING

Loosen the steering stem bearing adjust nut using the special tool.

TOOL:

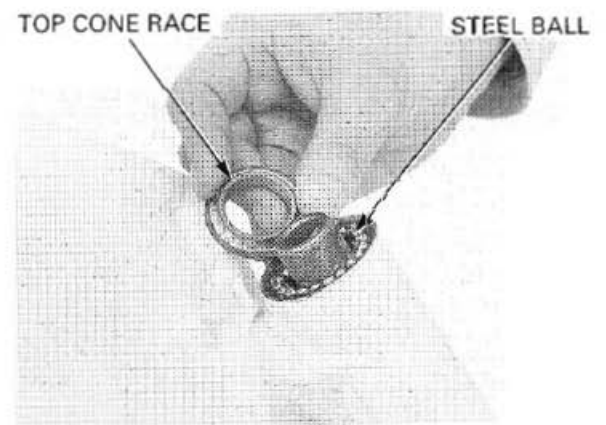
Steering stem socket wrench 07916-3710101 or 07916-3710100



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

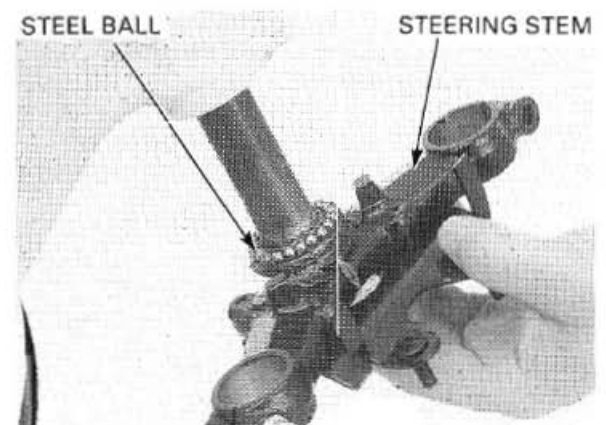
Do not allow the steel balls to fall.

Remove the steering top inner race and steel balls.



Do not allow the steel balls to fall.

Remove the steering stem and steel balls.



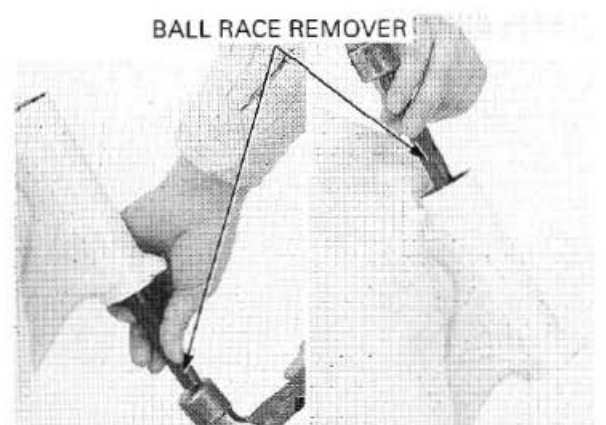
BEARING RACE REPLACEMENT

Always replace the bearings and races as a set.

Drive out the upper and lower bearing outer races using the special tool.

TOOL:

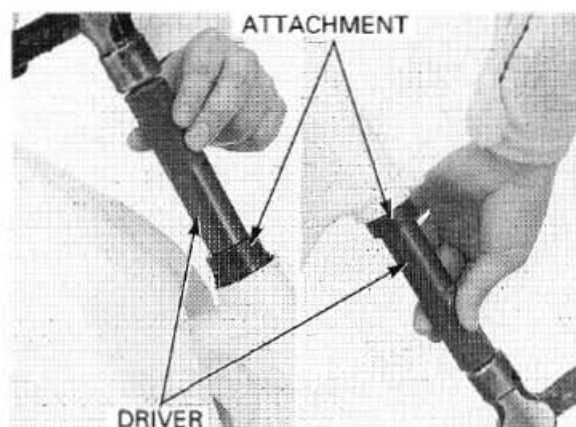
Ball race remover 07944-1150001



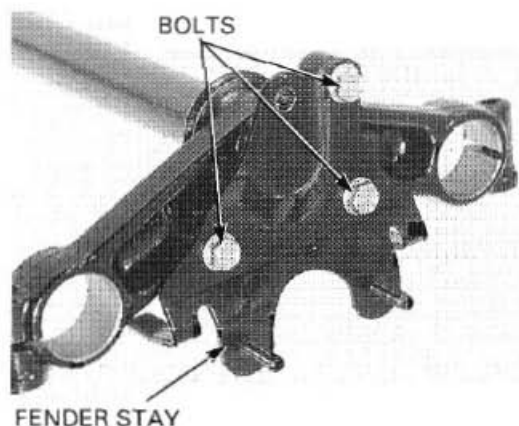
Drive a new lower bearing outer races into the steering head pipe using the special tools as shown.

TOOLS:

Driver 07749-0010000
Attachment, 37 × 40 mm 07746-0010200



Remove the three bolts and fender stay.



Temporarily install the steering stem lock nut onto the stem to prevent the threads from being damaged when removing the lower bearing inner race from the stem.

Remove the lower bearing inner race with a chisel or equivalent tool, being careful not to damage the stem.

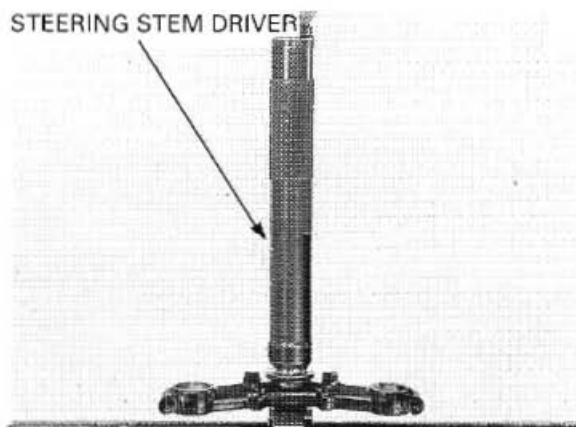
Remove the dust seal and washer.



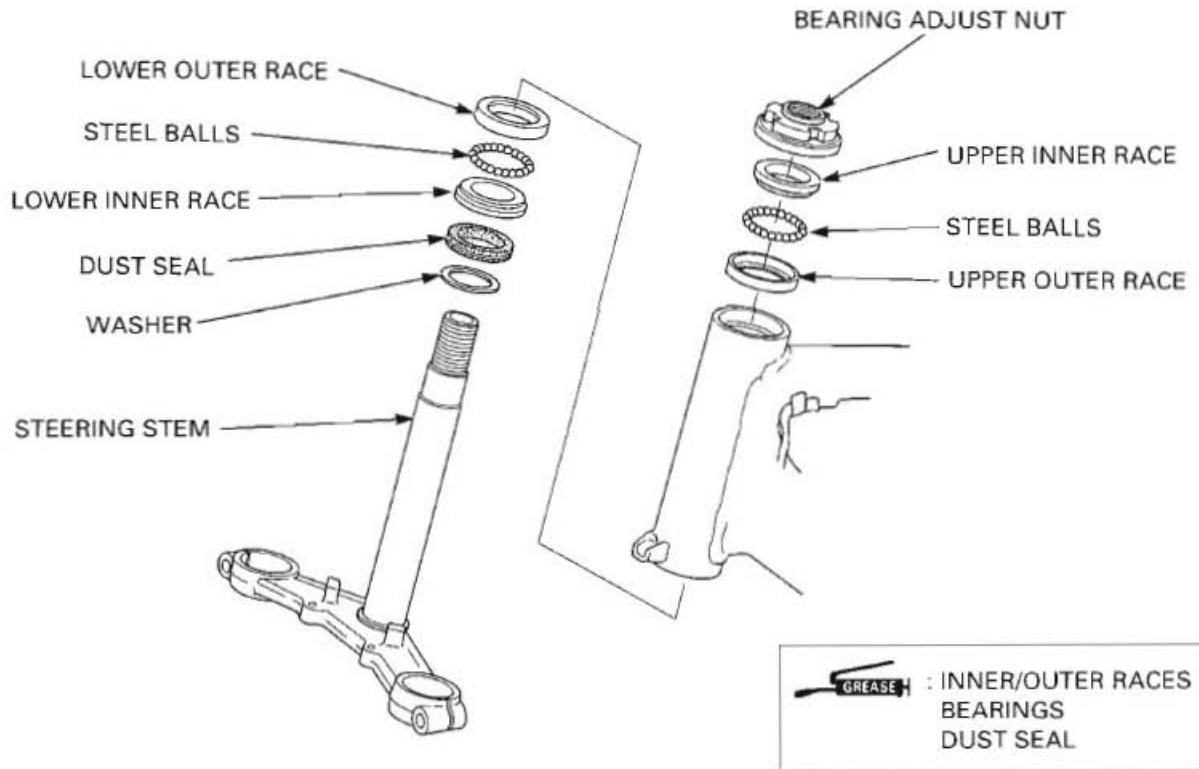
Install the washer over the steering stem.
 Apply grease to new dust seal lips and install it over the steering stem.
 Install a new lower bearing inner race using a special tool and a hydraulic press.

TOOL:

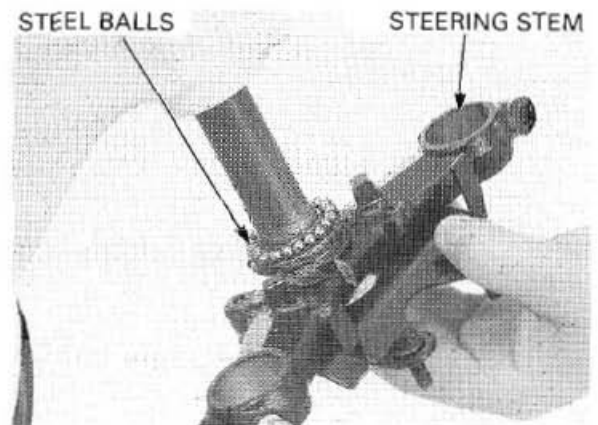
Steering stem driver 07946-GC40000
Steering stem driver 07946-MB00000 with
Steering stem driver attachment 07946-GC4000A
 (U.S.A. only)



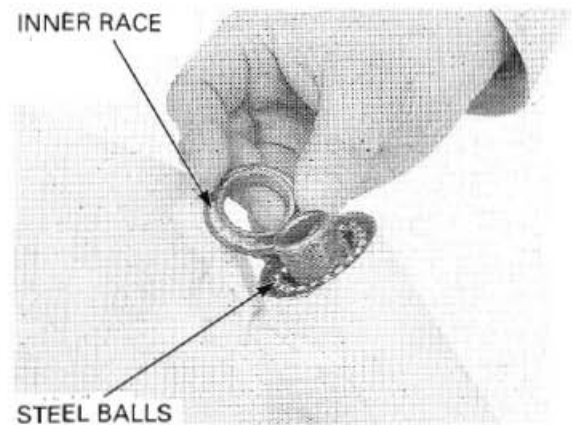
INSTALLATION



Apply grease to the bottom races and 21 steel balls.
Insert the steering stem into the steering head pipe.



Apply grease to the top races and 21 steel balls, then install the upper inner race.

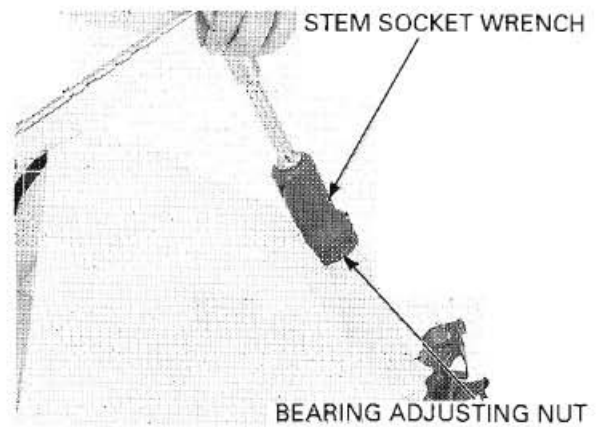


Hold the steering stem and tighten the stem bearing adjusting nut using the special tool to the initial torque.

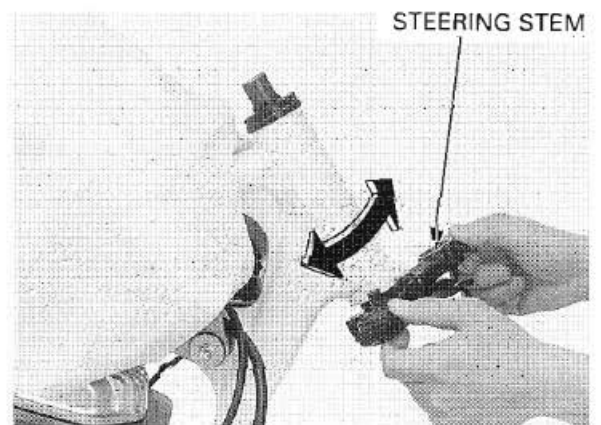
TOOL:

Steering stem socket wrench 07916-3710101 or 07916-3710100

TORQUE: 29 N·m (3.0 kgf·m, 22 lbf·ft)



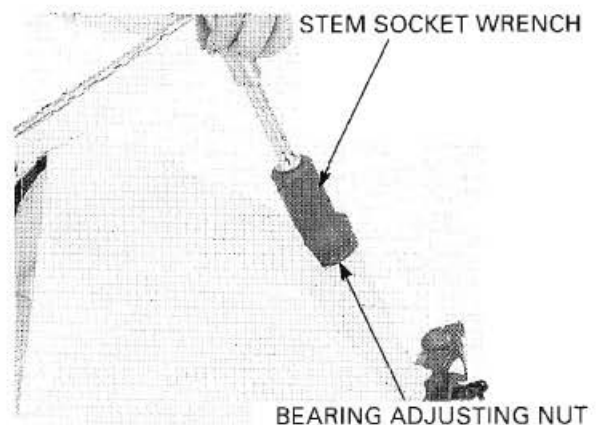
Move the steering stem right and left, lock-to-lock, five times to seat the bearings. Make sure that the steering stem moves smoothly, without play or binding; then loosen the bearing adjust nut.



Retighten the bearing adjusting nut to the specified torque.

TORQUE: 2 N·m (0.2 kgf·m, 1 lbf·ft)

Recheck that the steering stem moves smoothly without play or binding.



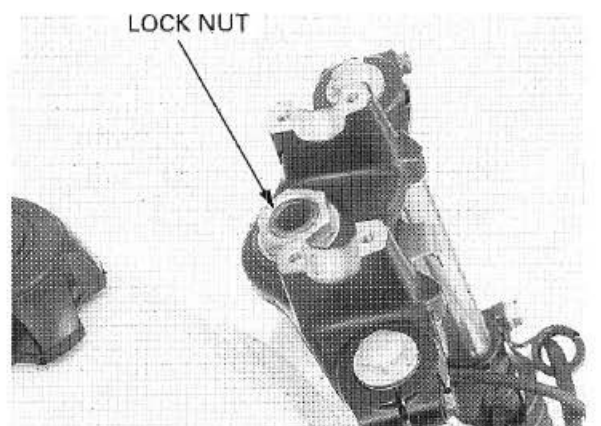
Install the top bridge and fork leg (page 11-20).

Install the washer and stem nut. Tighten the steering stem nut to the specified torque.

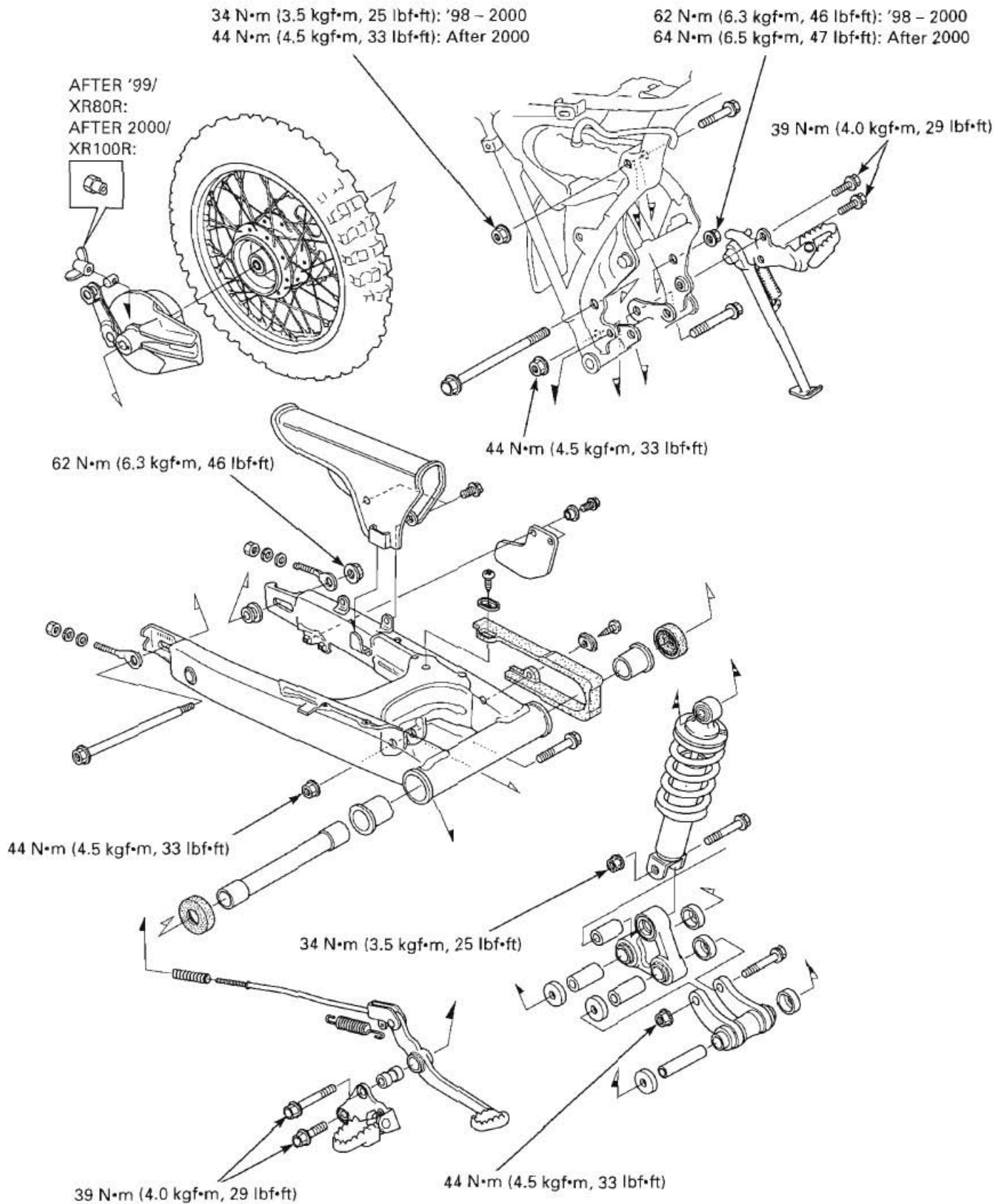
TORQUE: 74 N·m (7.5 kgf·m, 54 lbf·f)

Install the following:

- Front fender (page 2-4)
- Front wheel (page 11-10)
- Handlebar (page 11-4)



REAR WHEEL/BRAKE/SUSPENSION



12. REAR WHEEL/BRAKE/SUSPENSION

SERVICE INFORMATION	12-1	SHOCK ABSORBER	12-10
TROUBLESHOOTING	12-2	SHOCK LINKAGE	12-12
REAR WHEEL	12-3	SWINGARM	12-14
REAR BRAKE	12-8	BRAKE PEDAL	12-17

SERVICE INFORMATION

GENERAL

⚠ WARNING

A contaminated brake drum or shoe reduces stopping power. Discard contaminated shoes and clean a contaminated drum with a high quality brake degreasing agent.

- When servicing the rear wheel, support the motorcycle using a safety stand or hoist.

SPECIFICATIONS

Unit: mm (in)

ITEM				STANDARD	SERVICE LIMIT
Rear wheel	Minimum tire thread depth			_____	3.0 (0.12)
	Cold tire pressure			125 kPa (1.25 kgf/cm ² , 18 psi)	_____
	Rear wheel rim runout	Radial		_____	2.0 (0.08)
		Axial		_____	2.0 (0.08)
	Rear axle runout			_____	0.20 (0.008)
Drive chain	Slack			25 – 35 (1 – 1-3/8)	_____
	Size/link	XR100R	DID ('98 – 2000/After 2000)	428GM-118L/428HGI-118RB	_____
			RK ('98 – 2000/After 2000)	428HS-118RJ/428FD-118RJ	_____
	XR80R	DID ('98 – 2000/After 2000)	420M-110RJ/420M-110RB	_____	
		RK ('98 – 2000/After 2000)	420-110RJ/420MZ-110RJ	_____	
Brake	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	XR100R	'98 – 2000	136.5 (5.37)	133.8 (5.27)
			After 2000	140.4 (5.53)	137.6 (5.42)
		XR80R		136.0 (5.35)	133.3 (5.25)
Shock linkage	Bushing I.D.			18.000 – 18.052 (0.7087 – 0.7107)	18.25 (0.719)
	Collar O.D.			17.941 – 17.968 (0.7063 – 0.7074)	17.91 (0.705)
Swingarm	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)	15.20 (0.598)
	Collar O.D.			17.294 – 17.298 (0.6809 – 0.6810)	17.27 (0.680)

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REAR WHEEL/BRAKE/SUSPENSION

TORQUE VALUES

Rear axle nut	62 N•m (6.3 kgf•m, 46 lbf•ft) U-NUT
Driven sprocket nut	32 N•m (3.3 kgf•m, 24 lbf•ft) U-NUT
Shock absorber upper mounting bolt/nut (‘98–2000)	34 N•m (3.5 kgf•m, 25 lbf•ft) U-NUT
(After 2000)	44 N•m (4.5 kgf•m, 33 lbf•ft) U-NUT
Shock absorber lower mounting bolt/nut	34 N•m (3.5 kgf•m, 25 lbf•ft) U-NUT
Swingarm pivot nut (‘98–2000)	62 N•m (6.3 kgf•m, 46 lbf•ft) U-NUT
(After 2000)	64 N•m (6.5 kgf•m, 47 lbf•ft) U-NUT
Shock absorber arm nut	44 N•m (4.5 kgf•m, 33 lbf•ft) U-NUT
Shock absorber connecting rod nut	44 N•m (4.5 kgf•m, 33 lbf•ft) U-NUT
Foot peg mounting bolt	39 N•m (4.0 kgf•m, 29 lbf•ft)
Spoke	3 N•m (0.3 kgf•m, 2 lbf•ft)
Rim lock	13 N•m (1.3 kgf•m, 9 lbf•ft)

TOOLS

Spoke wrench, 4.5 X 5.1 mm	07701-0020200	Equivalent commercially available in U.S.A.
Bearing remover shaft	07746-0050100	
Bearing remover head, 12 mm	07746-0050300	
Driver	07749-0010000	
Attachment, 32 X 35 mm	07746-0010100	
Attachment, 37 X 40 mm	07746-0010200	
Pilot, 12 mm	07746-0040200	
Spring compressor attachment	07967-KC10001	
– Holder base	07967-KC10100	
– Press attachment	07LME-GE20100	

TROUBLESHOOTING

Soft suspension

- Weak shock absorber spring
- Oil leakage from damper unit
- Tire pressure too low

Hard suspension

- Bend damper rod
- Damaged swingarm pivot bushings
- Bent swingarm pivot
- Tire pressure too high

Steers to one side or does not track straight

- Bent rear axle
- Axle alignment/chain adjustment not equal on both sides

Rear wheel wobbling

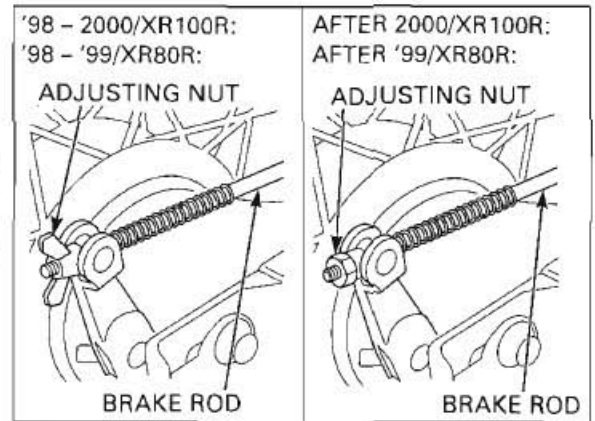
- Bent rim
- Worn rear wheel bearings
- Faulty tire
- Unbalanced tire and wheel
- Tire pressure too low
- Faulty swingarm pivot bushings

REAR WHEEL

REMOVAL

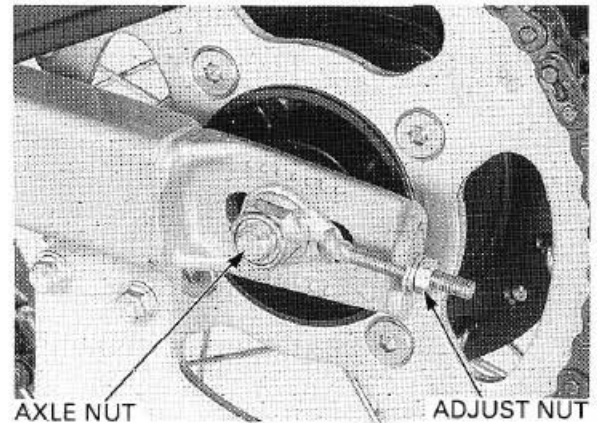
Support the motorcycle securely using a hoist or equivalent and raise the rear wheel off the ground.

Remove the rear brake adjusting nut and disconnect the rear brake rod from the brake arm.



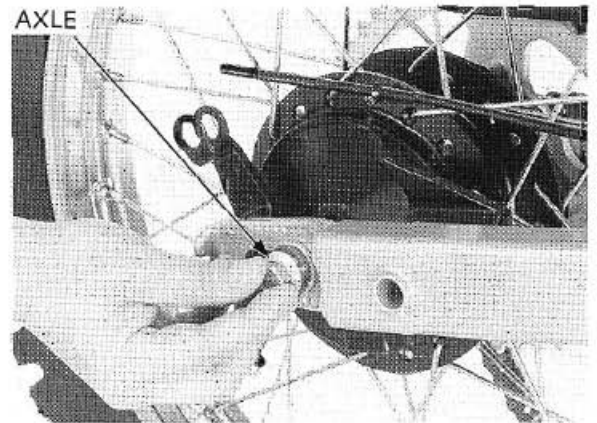
Remove the axle nut.
Loosen the adjust nut.

Push the rear wheel forward.
Remove the drive chain from the driven sprocket.

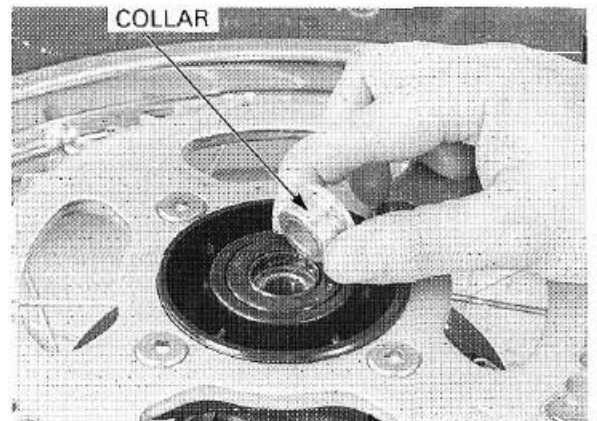


Remove the axle from the right side and remove the rear wheel.

Remove the brake panel from the right wheel hub.



Remove the left side collar and dust seal from the left wheel hub.

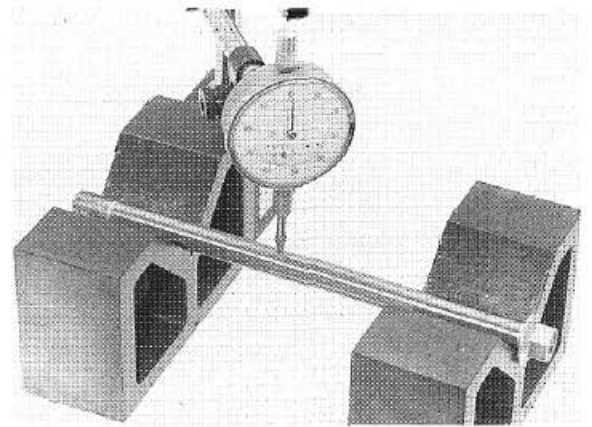


INSPECTION

Axle

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

SERVICE LIMIT: 0.20 mm (0.008 in)



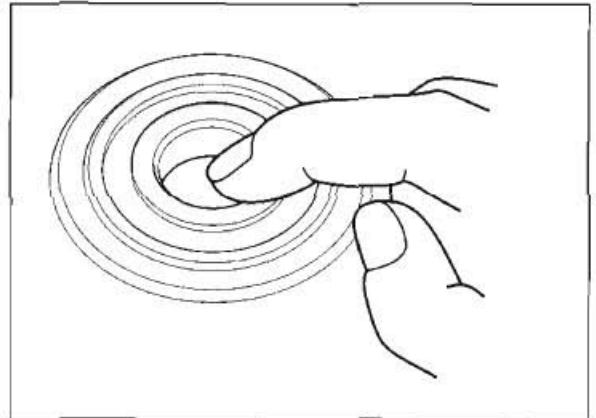
Wheel bearing

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

Replace the wheel bearings in pairs.

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

Install the new bearings into the hub using the special tools (page 12-6).



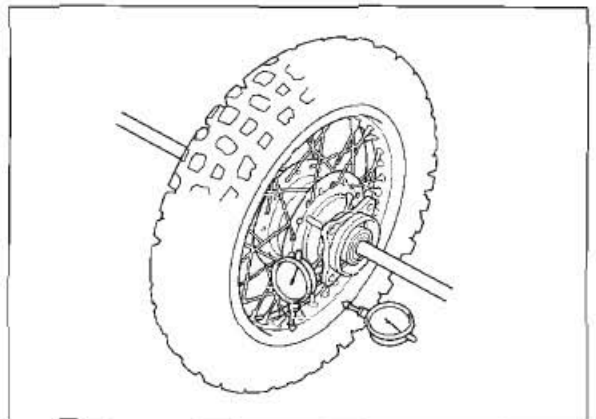
Wheel rim runout

Check the rim runout by placing the wheel in a turning stand.

Spin the wheel slowly and read the runout using a dial indicator.

Actual runout is 1/2 the total indicator reading.

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

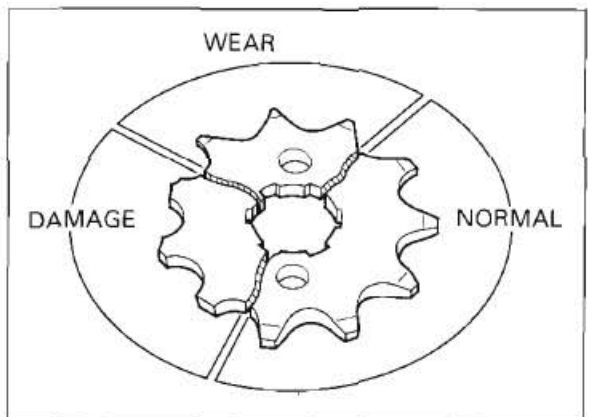


Driven sprocket

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

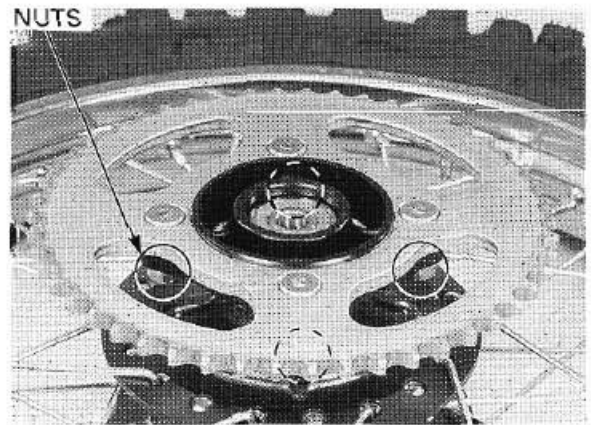
NOTE:

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



DISASSEMBLY

Remove the nuts, bolt and driven sprocket.

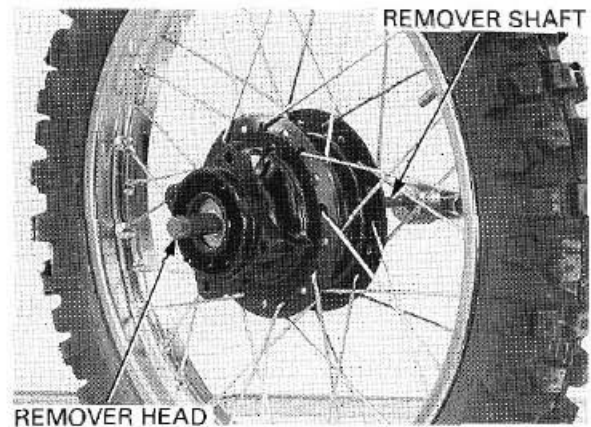


Wheel bearing removal

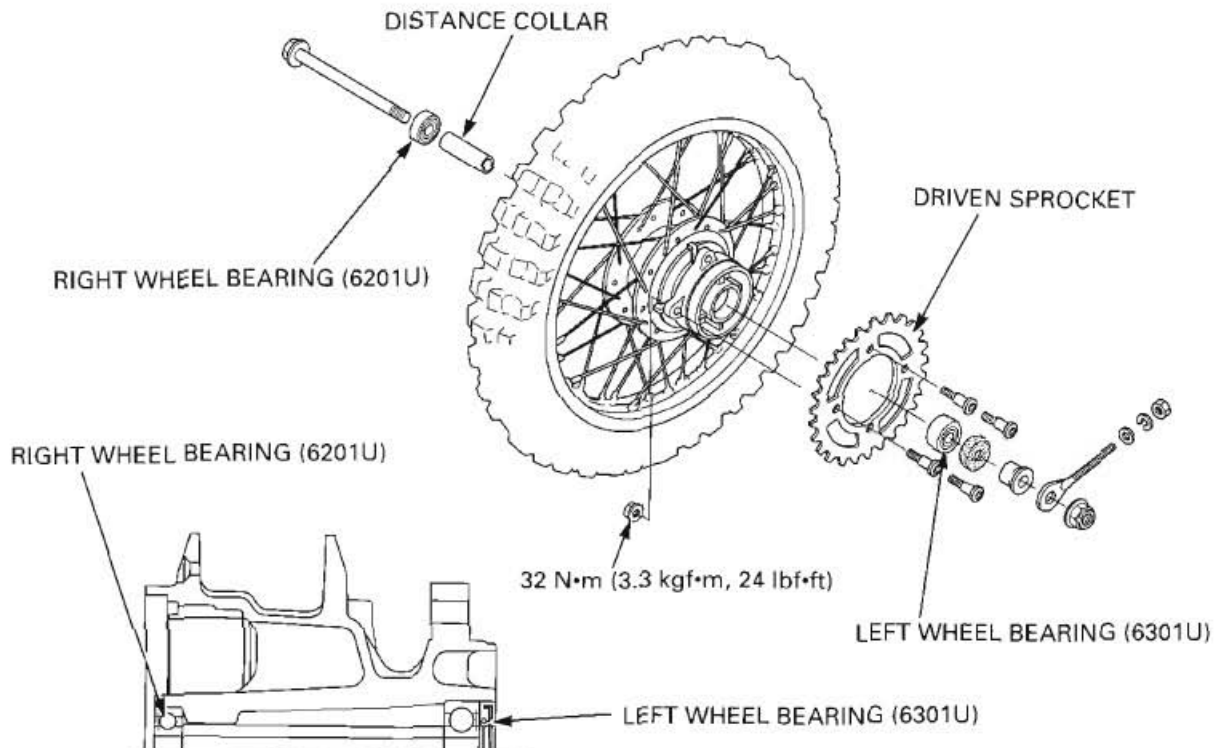
Install the bearing remover head into the bearing. From the opposite side install the bearing remover shaft and drive the bearing out of the wheel hub. Remove the distance collar and drive out the other bearing.

TOOLS:

Bearing remover head, 12 mm 07746-0050300
Bearing remover shaft 07746-0050100



ASSEMBLY



Wheel bearing installation

CAUTION:

Never install the old bearings, once the bearings has been removed, the bearing must be replaced with new ones.

Drive in a new right bearing squarely using the special tools as shown.

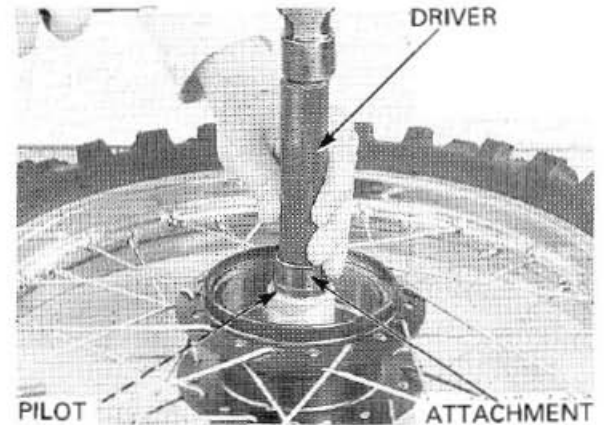
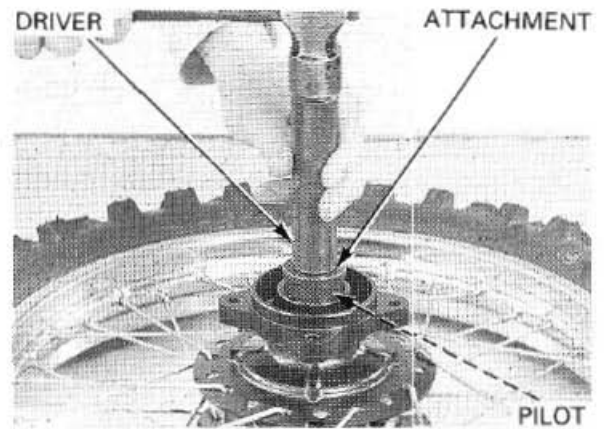
TOOLS:

Driver	07749-0010000
Attachment, 32 X 35 mm	07746-0010100
Pilot, 12 mm	07746-0040200

Install the distance collar, then drive in the new left side bearing using the special tools as shown.

TOOLS:

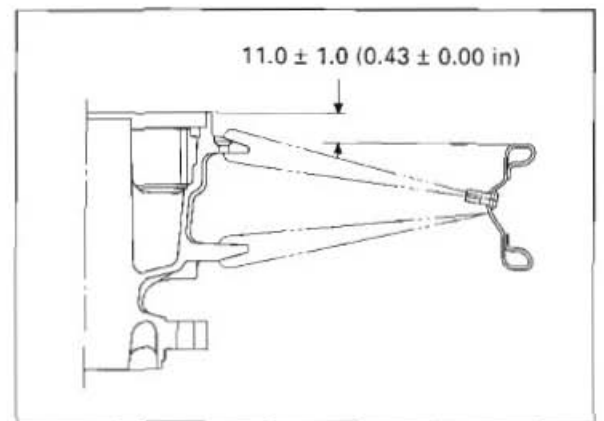
Driver	07749-0010000
Attachment, 37 X 40 mm	07746-0010200
Pilot, 12 mm	07746-0040200



Place the rim on the work bench.
Place the hub with the left side down and begin lacing with new spokes.
Adjust the hub position so that the distance from the hub left end surface to the side of rim is 11.0 ± 1.0 mm (0.43 ± 0.04 in) as shown.

TOOL:

Spoke wrench, 4.5 X 5.1 mm	07741-0020200 (Equivalent commercially available in U.S.A.)
----------------------------	--



TORQUE: 3 N·m (0.3 kgf·m, 2.2 lbf·ft)

Check the rim runout (page 12-4).

Apply grease to the dust seal lips, then install it into the left wheel hub.

Install the driven sprocket, bolts and nuts, then tighten the nuts to the specified torque while holding the bolts.

TORQUE: 32 N·m (3.3 kgf·m, 24 lbf·ft)



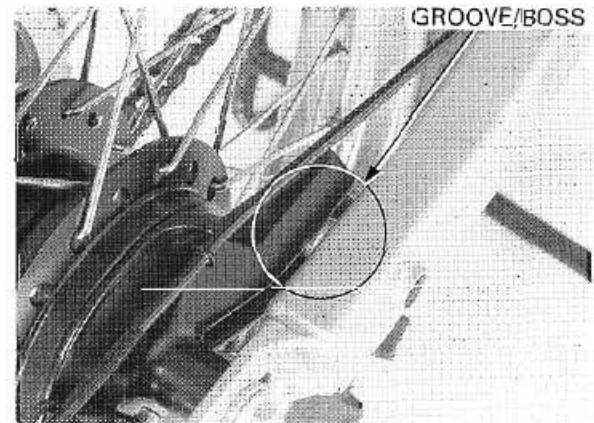
INSTALLATION

Install the left side collar into the left wheel hub.

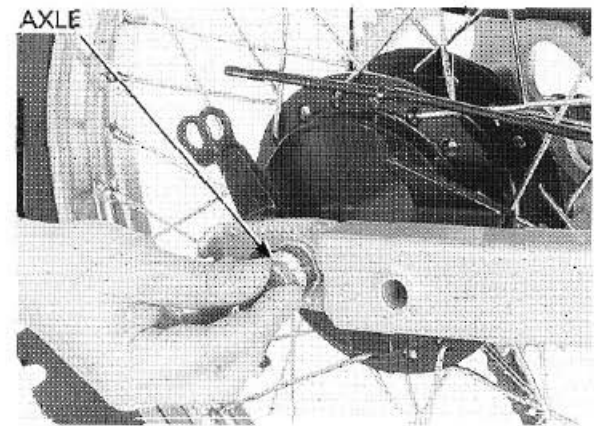


Install the brake panel into the right wheel hub.

Place the rear wheel into the swingarm aligning the brake panel groove with the swingarm boss.



Apply thin layer of grease to the axle.
Install the axle and right drive chain adjuster from the right side.

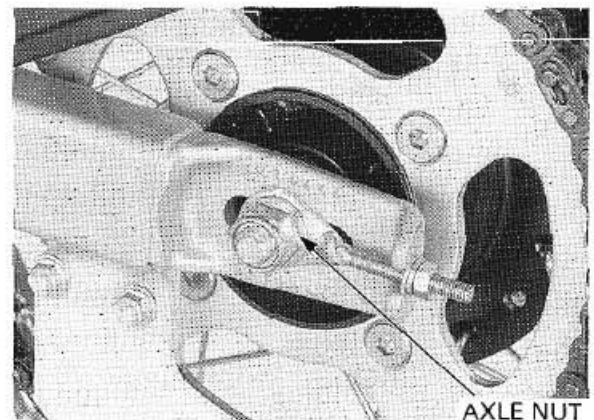


Install the drive chain over the driven sprocket.
Install the left drive chain adjuster and axle nut.

Adjust the drive chain slack (page 3-15).

Tighten the axle nut to the specified torque.

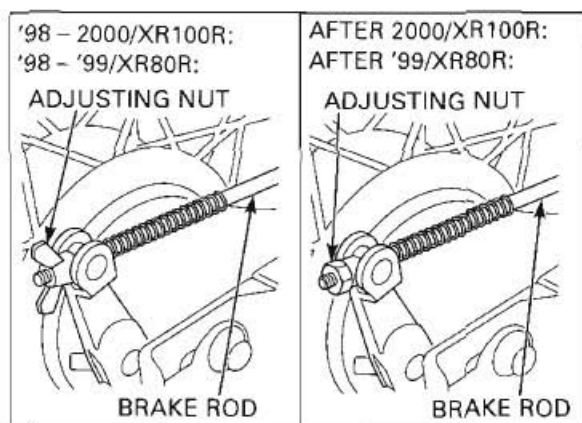
TORQUE: 62 N·m (6.3 kgf·m, 46 lbf·ft)



REAR WHEEL/BRAKE/SUSPENSION

Install the spring onto the brake rod.
Install the joint pin to the brake arm.
Install the brake rod and adjusting nut.

Adjust the brake pedal free play (page 3-19).



REAR BRAKE

REMOVAL

Remove the brake panel from the rear wheel (page 12-3).

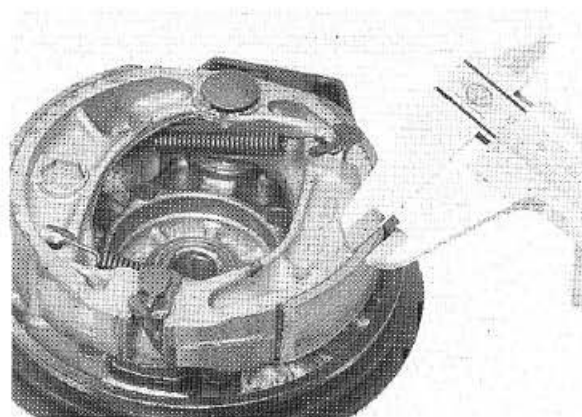
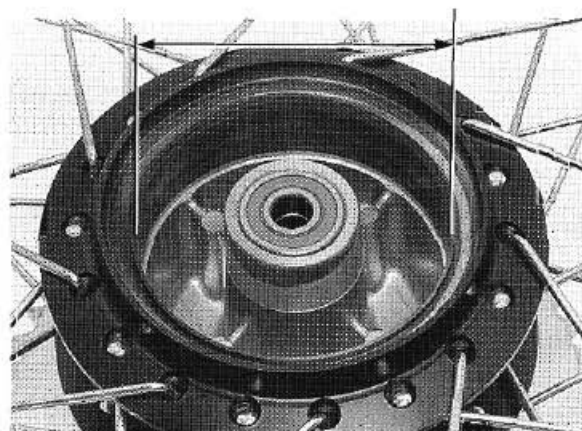
INSPECTION

Measure the rear brake drum I.D.

SERVICE LIMIT: 96.0 mm (3.78 in)

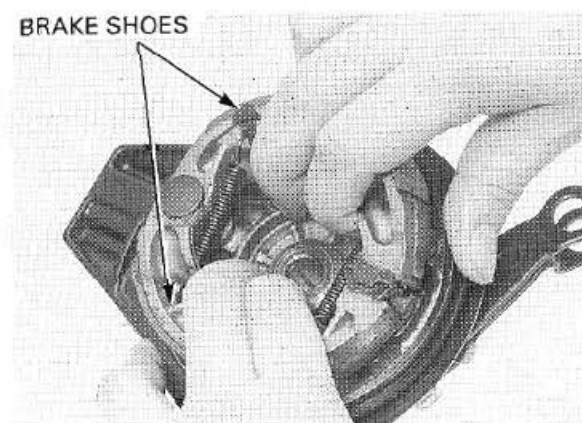
Measure the brake lining thickness.

SERVICE LIMIT: 2.0 mm (0.08 in)



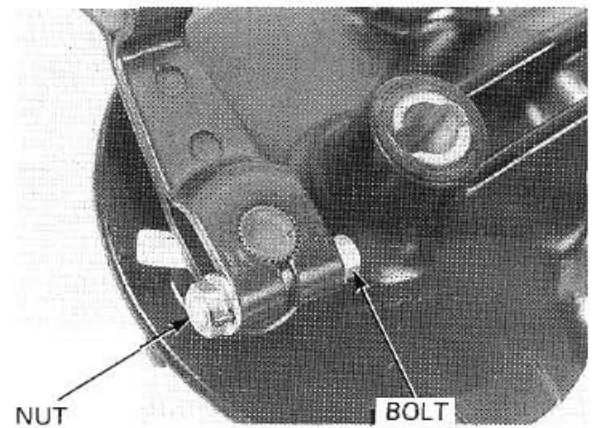
DISASSEMBLY

Remove the brake shoes and springs.

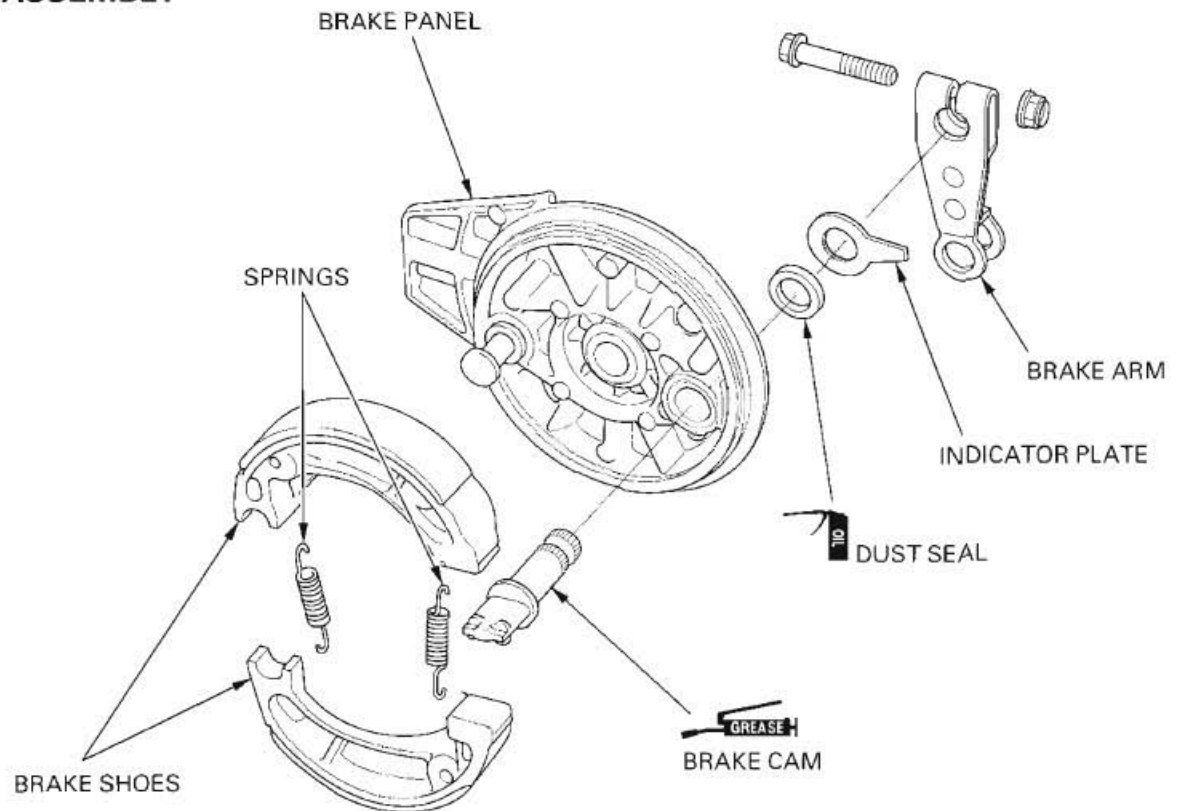


Remove the nut, bolt and brake arm.

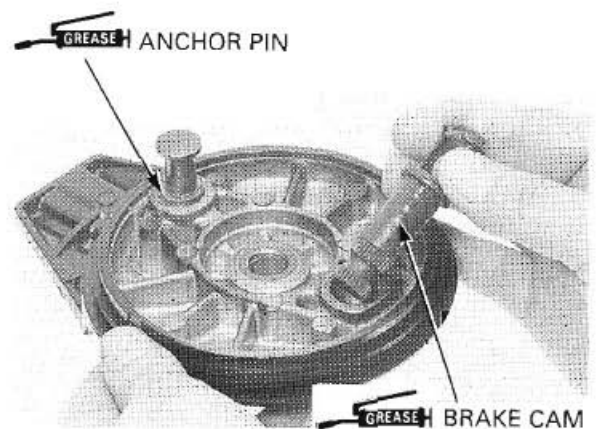
Remove the indicator plate, dust seal and brake cam.



ASSEMBLY



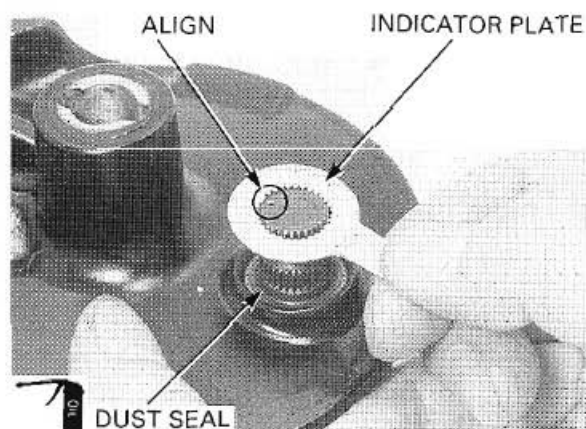
Apply grease to the anchor pin and brake cam.
Install the brake cam into the brake panel.



REAR WHEEL/BRAKE/SUSPENSION

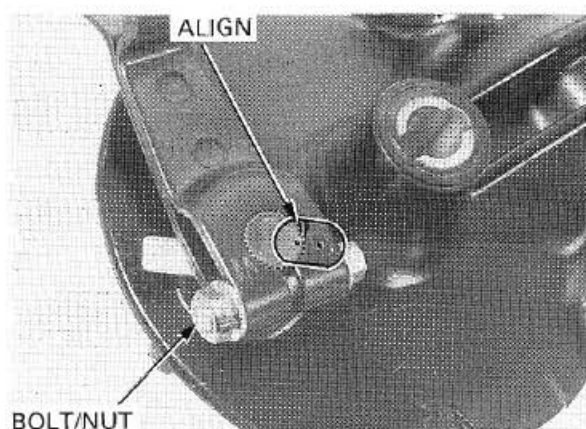
Apply oil to the dust seal and install it onto the brake panel.

Install the wear indicator plate on the brake cam aligning its wide tooth with the wide groove on the brake cam.



Install the brake arm by aligning the punch marks between the arm and the brake cam. Install the brake arm pinch bolt and tighten the nut to the specified torque.

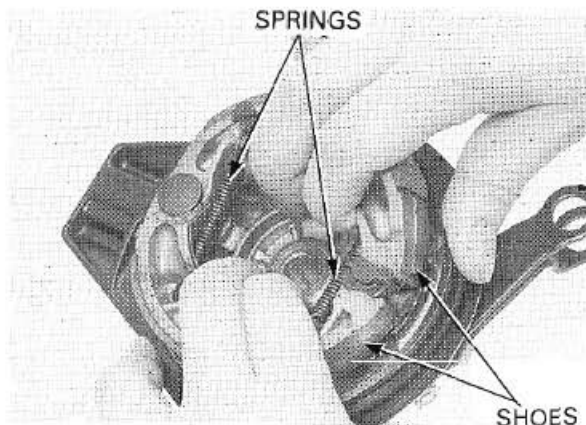
TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)



Install the brake shoes and springs.

INSTALLATION

Install the brake panel into the right wheel hub (page 12-7).

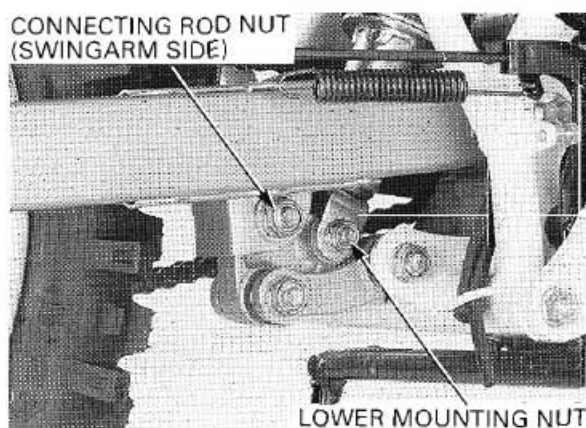


SHOCK ABSORBER

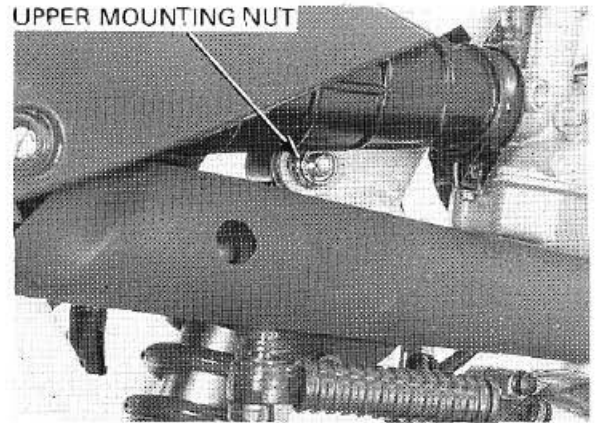
REMOVAL

Support the motorcycle securely using a hoist or equivalent and raise the rear wheel off the ground.

Remove the shock absorber lower and connecting rod (swingarm side) mounting bolts/nuts.



Remove the upper mounting bolt/nut and shock absorber.



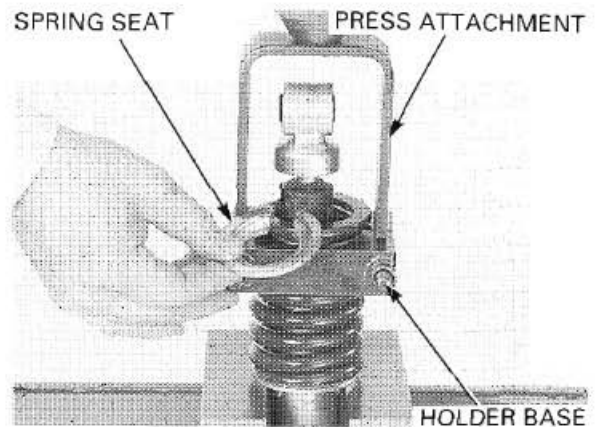
DISASSEMBLY

Compress the shock absorber spring using the special tools and a hydraulic press.

TOOLS:

Spring compressor attachment	07967-KC10001
- Holder base	07967-KC10100
- Press attachment	07LME-GE20100

Remove the spring seat and spring.



INSPECTION

Measure the spring free length.

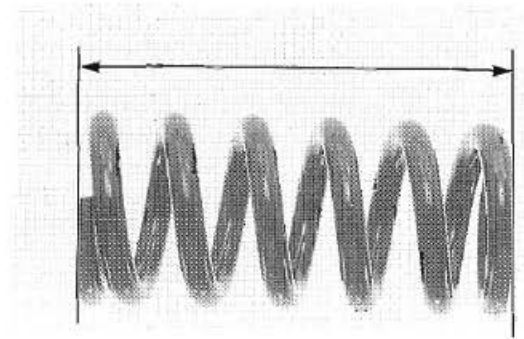
SERVICE LIMITS:

XR100R:

'98 - 2000: 133.8 mm (5.27 in)

After 2000: 137.6 mm (5.42 in)

XR80R: 133.3 mm (5.25 in)

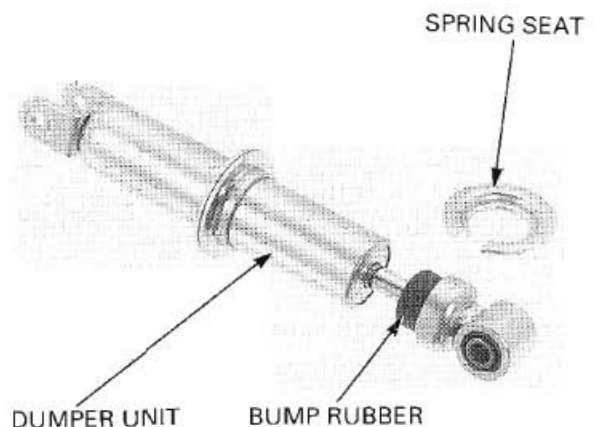


Visually inspect the shock absorber unit for damage.

Check for:

- Damper rod for bends or damage
- Damper unit for deformation or oil leaks
- Bump rubber for wear or damage
- Mounting bushing for damage

Inspect all the other parts for wear or damage.



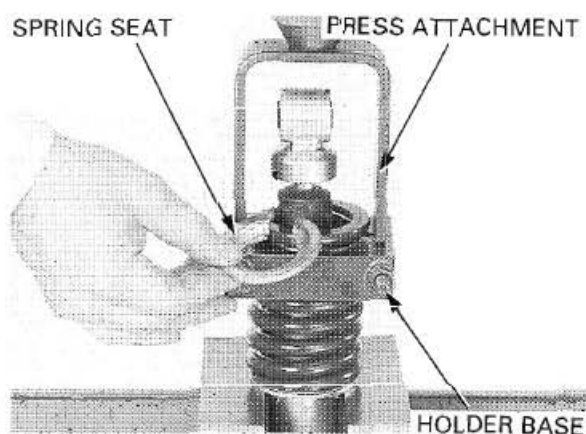
ASSEMBLY

Compress the shock absorber spring using the special tools and a hydraulic press.

TOOLS:

Spring compressor attachment	07967-KC10001
- Holder base	07967-KC10100
- Press attachment	07LME-GE20100

Install the spring seat.



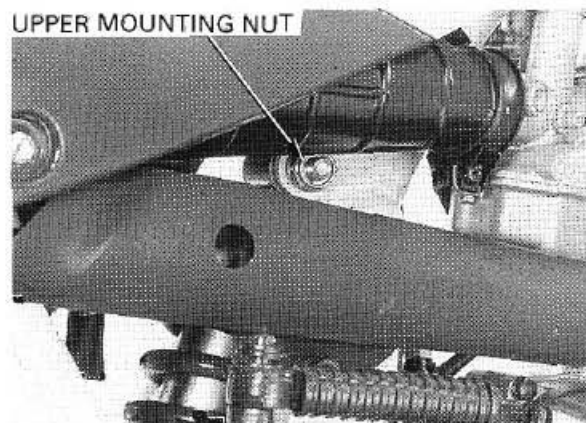
INSTALLATION

Install the shock absorber into the frame.

Install the upper and lower mounting bolts and nuts. Tighten the upper mounting bolts/nuts to the specified torque.

TORQUE:

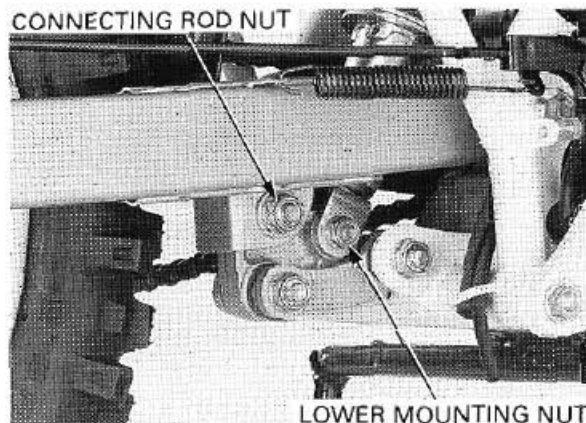
'98-2000: 34 N·m (3.5 kgf·m, 25 lbf·ft)
After 2000: 44 N·m (4.5 kgf·m, 33 lbf·ft)



Tighten the lower mounting and connecting rod (swingarm side) bolts/nuts to the specified torque.

TORQUE:

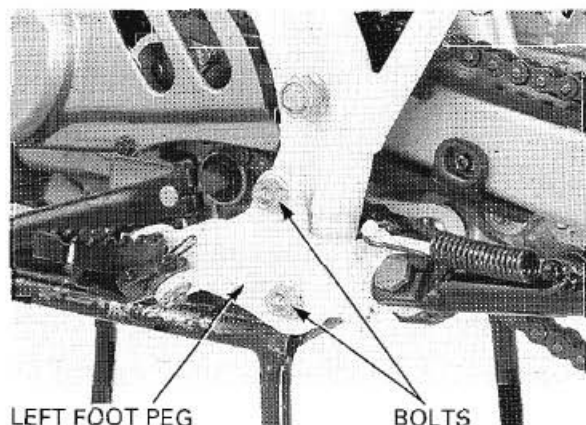
Shock absorber lower mounting nut:
34 N·m (3.5 kgf·m, 25 lbf·ft)
Shock absorber connecting rod:
44 N·m (4.5 kgf·m, 33 lbf·ft)



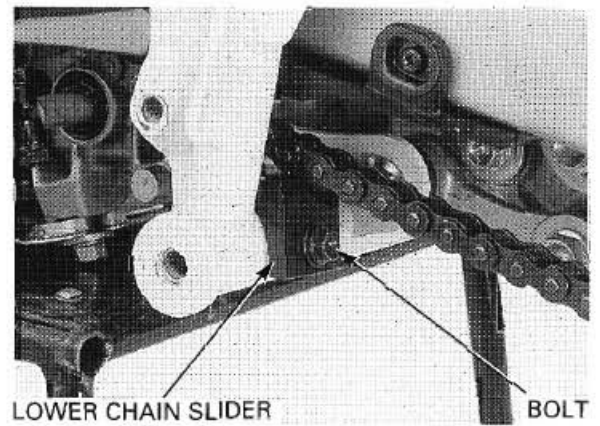
SHOCK LINKAGE

DISASSEMBLY

Remove the two bolts and left foot peg.



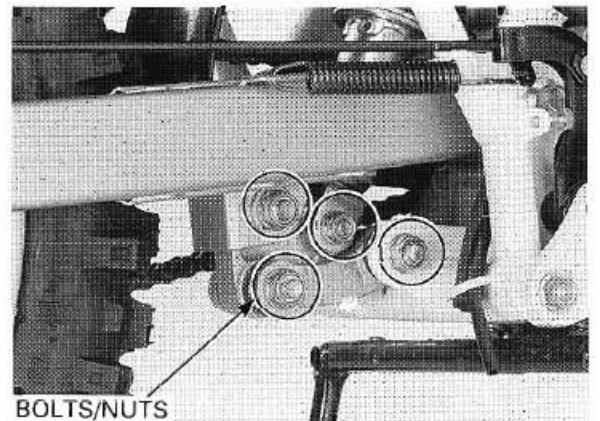
Remove the bolt and lower chain slider.



Remove the following:

- Shock absorber lower mounting nut/bolt
- Shock absorber connecting rod nuts/bolts
- Shock absorber arm nut/bolt

Remove the shock absorber connecting rod and shock absorber arm.



INSPECTION

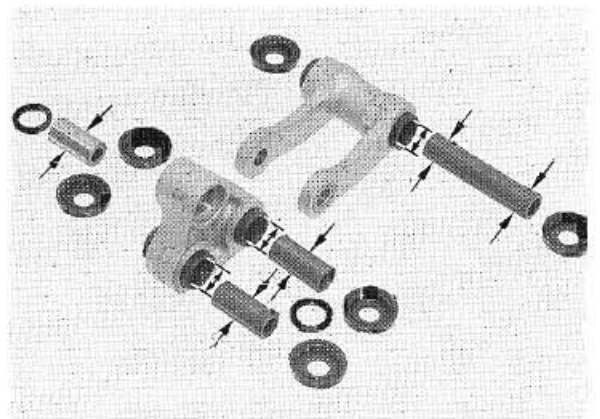
Remove the dust seals and collars and check the bushing for damage.

Measure the bushing I.D.

SERVICE LIMIT: 18.25 mm (0.719 in)

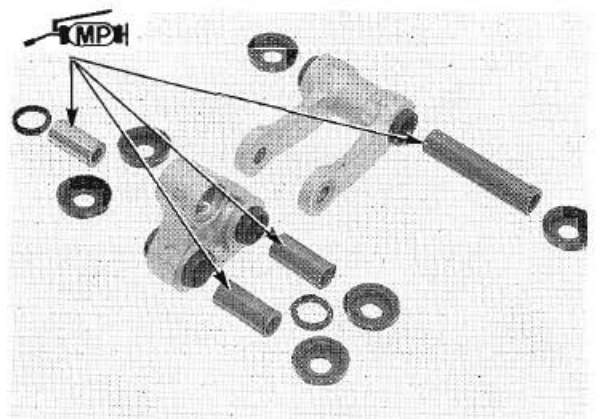
Measure the collar O.D.

SERVICE LIMIT: 17.91 mm (0.705 in)



INSTALLATION

Apply molybdenum disulfide paste to each bushing sliding surface and dust seals.

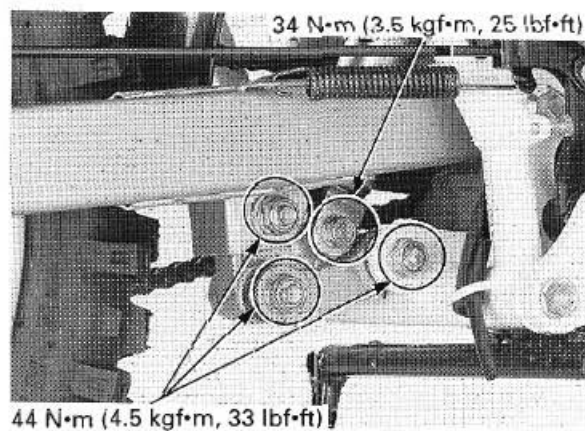


REAR WHEEL/BRAKE/SUSPENSION

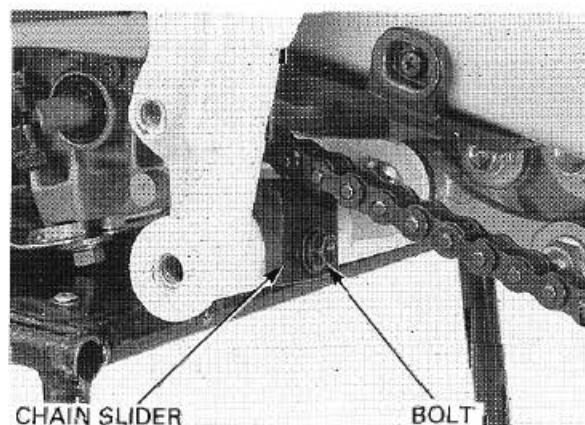
Install the following:

- Shock absorber lower mounting bolt
- Shock absorber connecting rod bolts
- Shock absorber arm bolt

Tighten the each nuts to the specified torque as shown.

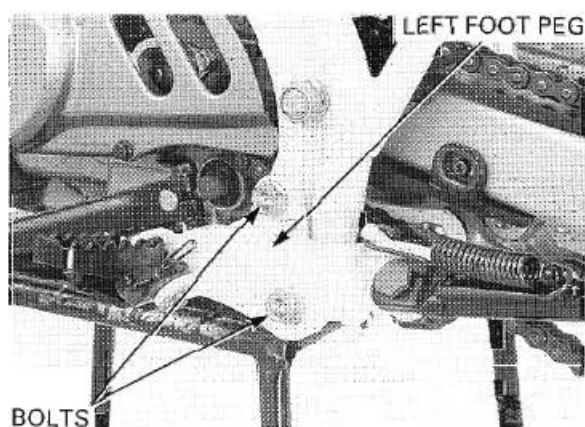


Install the lower chain slider and tighten the bolt.



Install the left foot peg and tighten the two bolts to the specified torque.

TORQUE: 39 N·m (4.0 kgf·m, 29 lbf·ft)

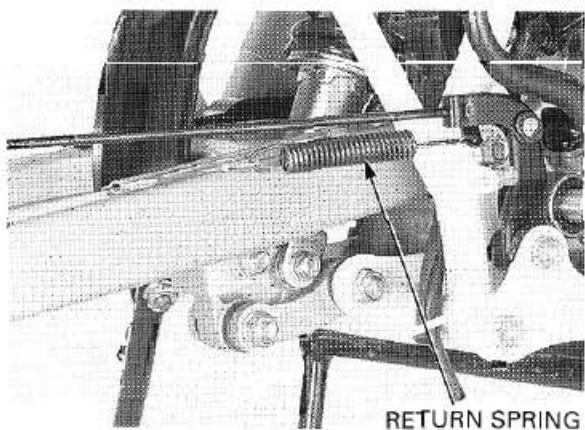


SWINGARM

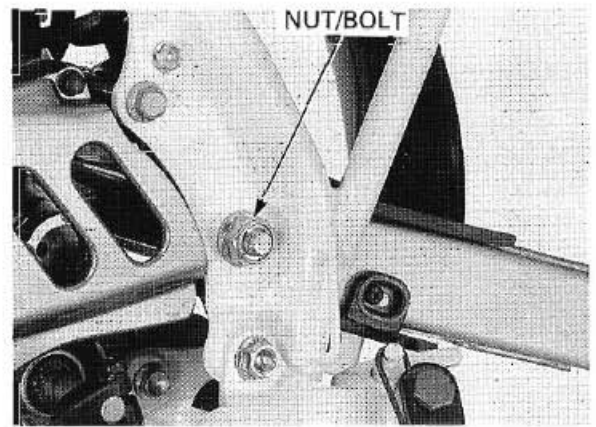
REMOVAL

Remove the following:

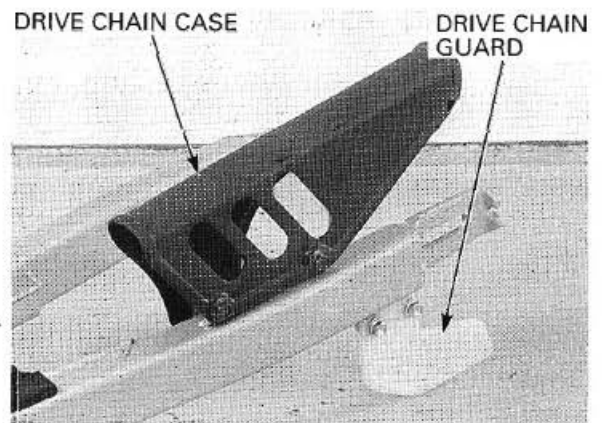
- Rear wheel (page 12-3)
- Shock linkage (page 12-12)
- Rear brake pedal return spring from the swingarm.



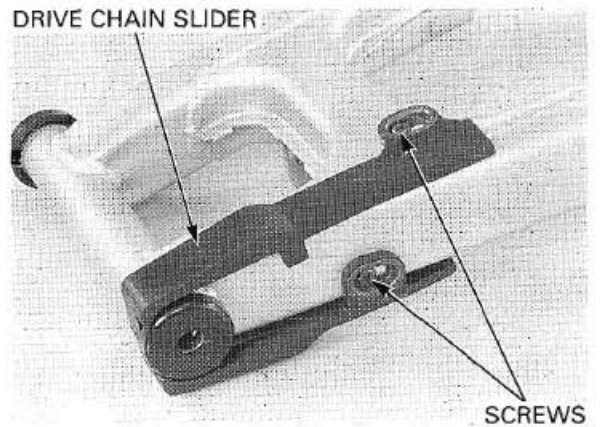
Remove the swingarm pivot nut/bolt and swingarm.



Remove the drive chain case and chain guard.



Remove the two screws and drive chain slider.



Remove the dust seals and pivot collar.

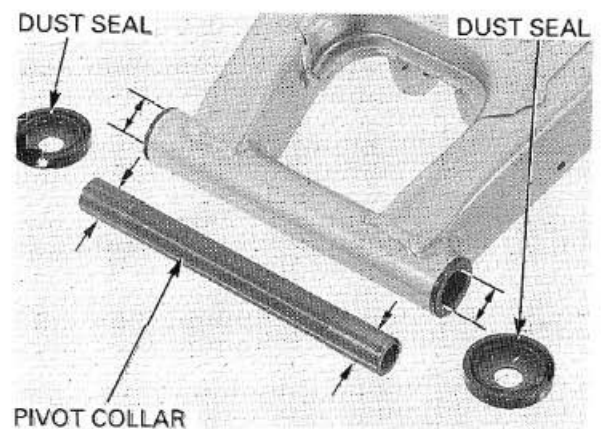
INSPECTION

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

Drive the bushings out of the swingarm.

Drive a new bushing into the swingarm using the special tools.

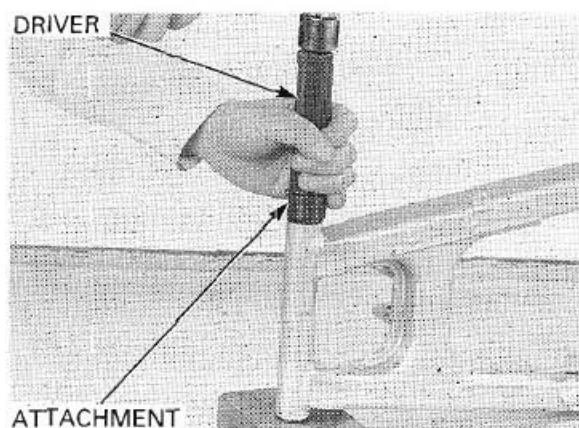
TOOLS:

Driver

07749-0010000

Attachment, 32 X 35 mm

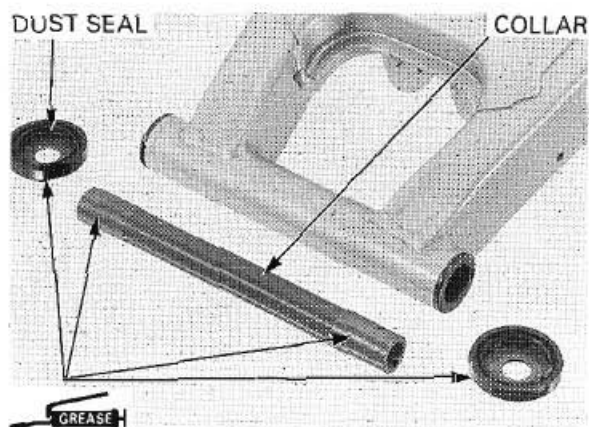
07746-0010100



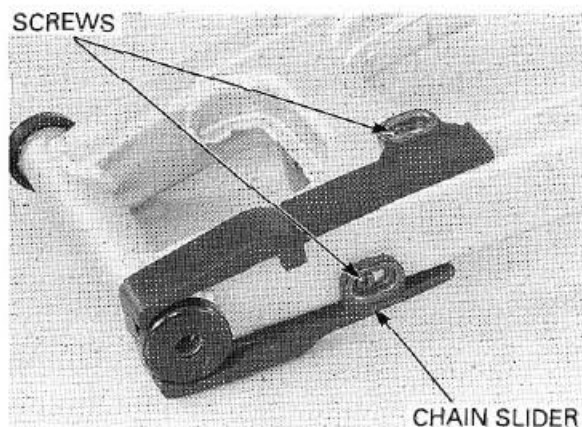
INSTALLATION

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

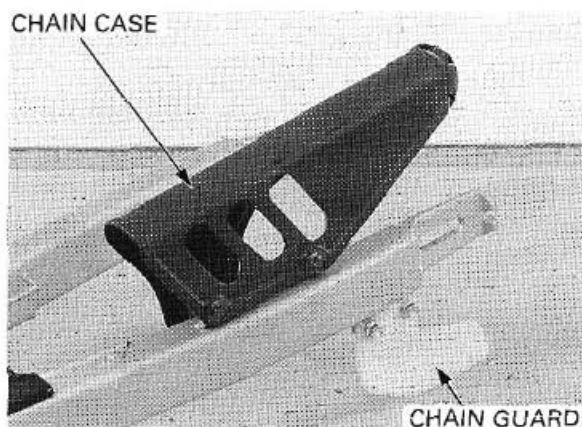
Insert the pivot collar into the swingarm and install the dust seal.



Install the drive chain slider and two screws.

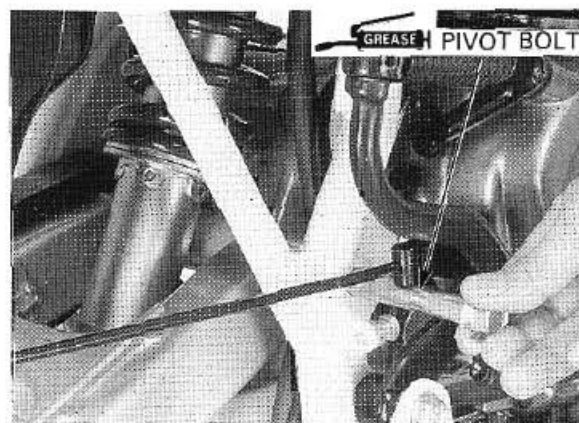


Install the drive chain case and chain guard.



Apply a thin layer of grease to the swingarm pivot surface.

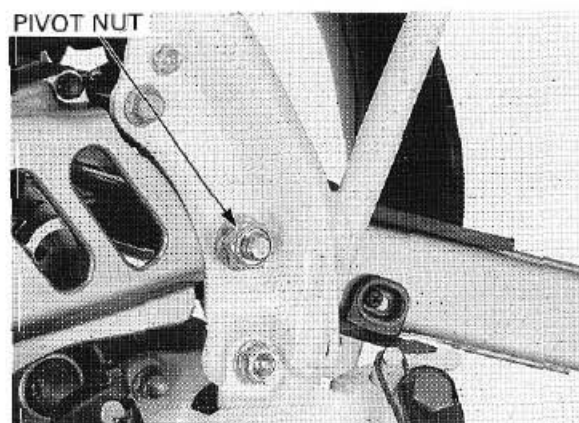
Install the swingarm and pivot bolt.



Tighten the swingarm pivot nut to the specified torque.

TORQUE:

'98-2000: 62 N·m (6.3 kgf·m, 46 lbf·ft)
After 2000: 64 N·m (6.5 kgf·m, 47 lbf·ft)

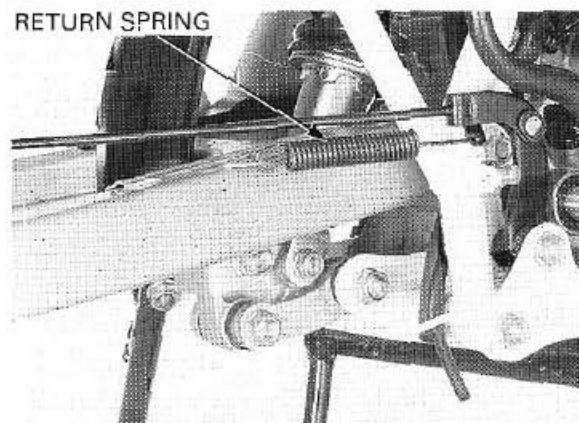


Install the following:

- Shock linkage (page 12-13)
- Rear wheel (page 12-7)
- Rear brake pedal return spring to the swingarm.

After installing the swingarm, inspect and adjust the following:

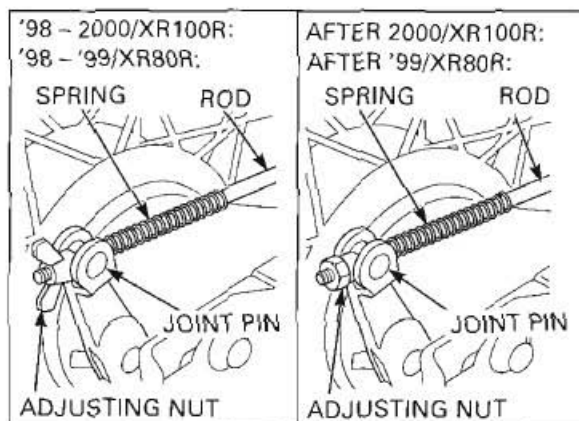
- Drive chain (page 3-15)
- Rear brake (page 3-17)
- Rear suspension (page 3-21)



BRAKE PEDAL

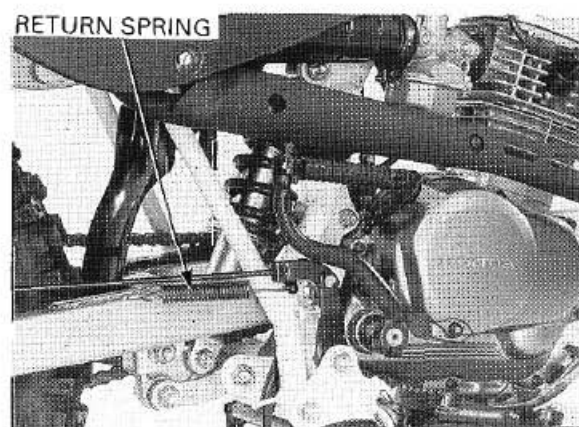
REMOVAL/DISASSEMBLY

Remove the rear brake adjusting nut.
Push the brake pedal down and remove the brake rod from the brake arm.
Remove the spring and joint pin.

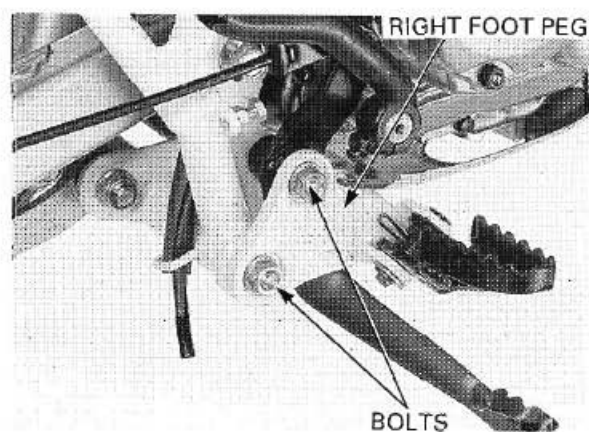


REAR WHEEL/BRAKE/SUSPENSION

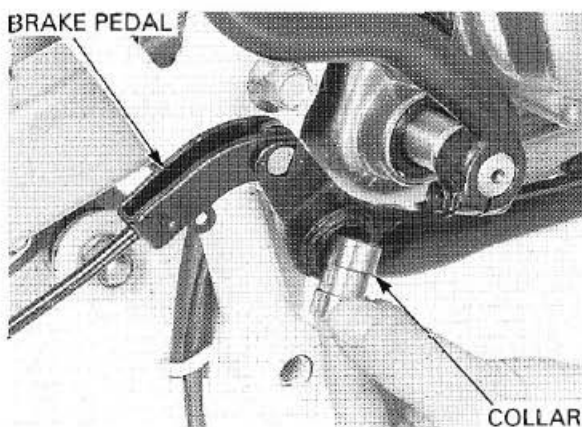
Remove the brake pedal return spring.



Remove the two bolts and right foot peg.

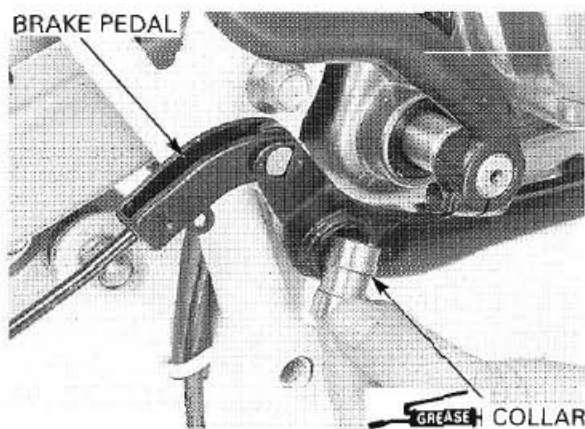


Remove the brake pedal and collar.



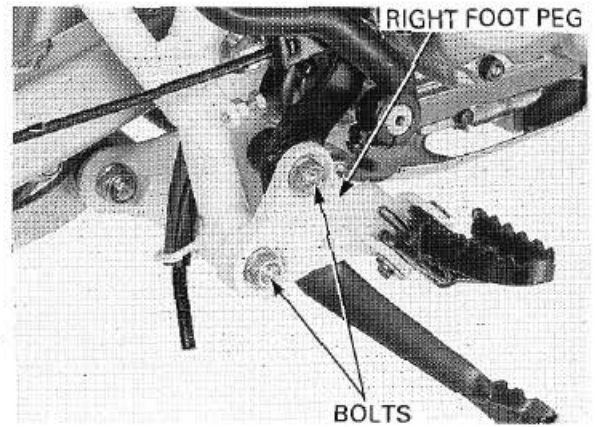
ASSEMBLY/INSTALLATION

Apply grease to the pivot collar sliding surface then install the brake pedal and collar.

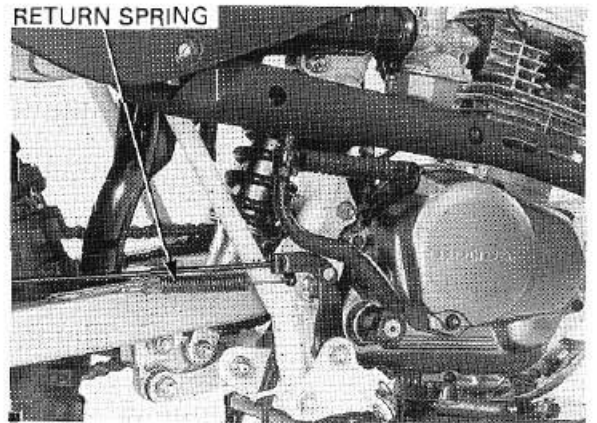


Install the right foot peg and tighten the two bolts to the specified torque.

TORQUE: 39 N·m (4.0 kgf·m, 29 lbf·ft)

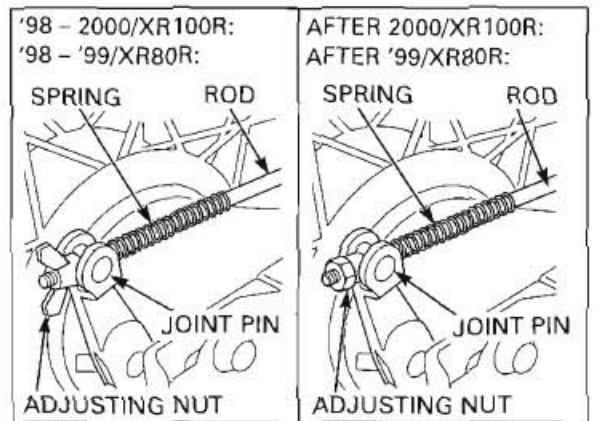


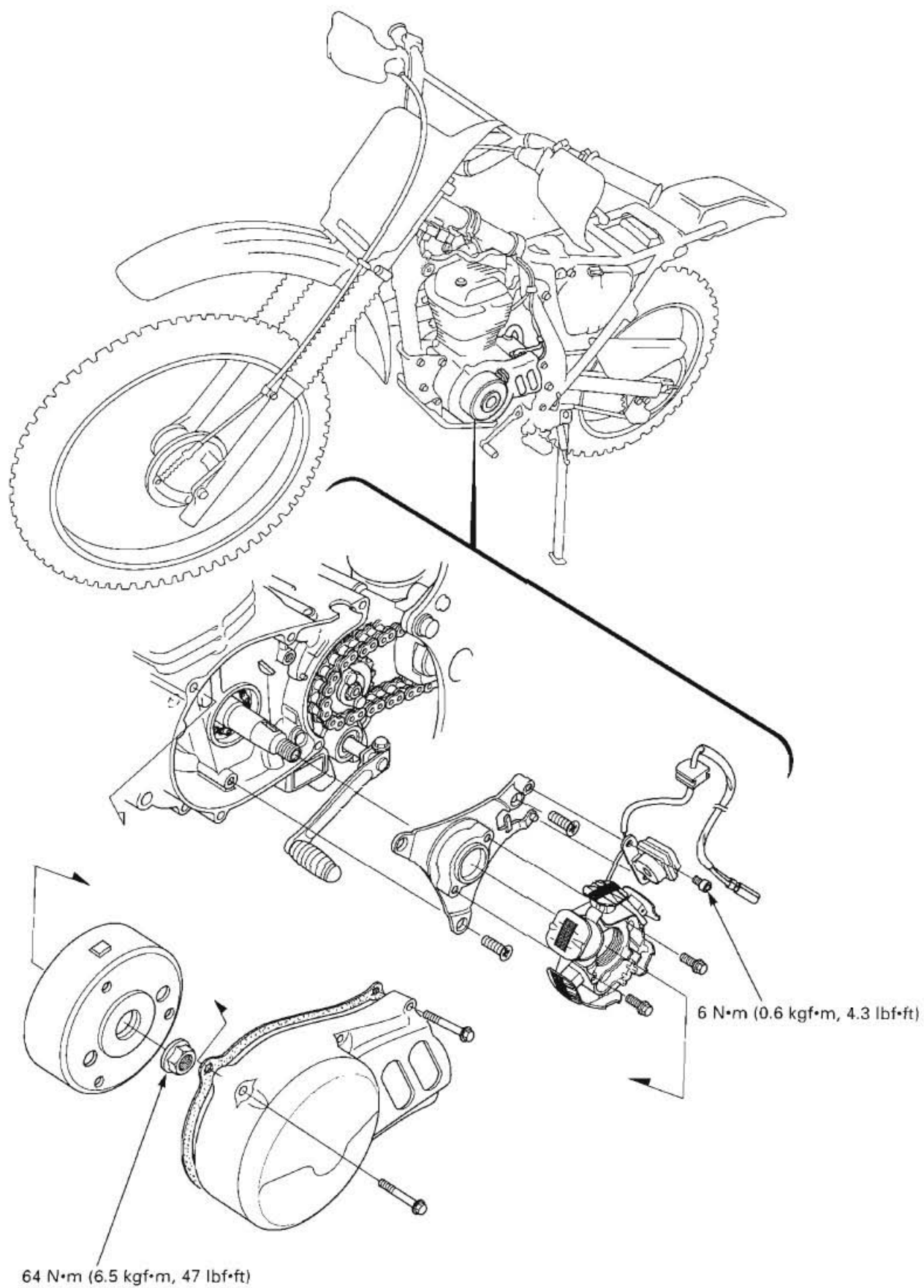
Install the return spring to the swingarm.



Install the spring onto the brake rod.
Install the joint pin onto the brake arm.

Push down the brake pedal, and install the brake rod into the joint pin.
Install the brake adjusting nut and adjust the brake pedal free play (page 3-19).





13. IGNITION SYSTEM

SERVICE INFORMATION	13-1	ENGINE STOP SWITCH	13-8
TROUBLESHOOTING	13-3	IGNITION TIMING	13-8
IGNITION SYSTEM INSPECTION	13-4	FLYWHEEL/STATOR	13-9
IGNITION COIL	13-7	IGNITION SWITCH (AFTER 2000)	13-13
IGNITION CONTROL MODULE	13-7		

SERVICE INFORMATION

GENERAL

⚠ WARNING

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

CAUTION:

Some electrical components may be damaged if terminals or connectors are connected or disconnected while the ignition switch is ON and current is present.

- This section covers service of the flywheel and alternator. All service can be done with the engine installed in the frame.
- When servicing the ignition system, always follow the steps in the troubleshooting sequence on page 13-3.
- The ignition timing does not normally need to be adjusted since the Ignition Control Module (ICM) is factory preset.
- The ICM may be damaged if dropped. Also if the connector is disconnected when current is flowing, the excessive voltage may damage the module. Always turn off the engine stop switch before servicing.
- A faulty ignition system is often related to poor connections. Check those connections before proceeding.
- Use a spark plug of the correct heat range. Using a spark plug with an incorrect heat range can damage the engine.

13

SPECIFICATIONS

ITEM			SPECIFICATIONS
Spark plug	Standard	NGK	CR7HSA
		DENSO	U22FSR-U
	For cold climate/below (5°C/41°F)	NGK	CR6HSA
		DENSO	U20FSR-U
	For extended high speed riding	NGK	CR8HSA
		DENSO	U24FSR-U
	Spark plug gap		0.6-0.7 mm (0.024-0.028 in)
Ignition coil peak voltage			100 V minimum
Ignition pulse generator peak voltage			0.7 V minimum
Alternator exciter coil peak voltage			100 V minimum
Ignition timing ("F" mark)			15.5° at idle

TORQUE VALUES

Flywheel nut	64 N•m (6.5 kgf•m, 47 lbf•ft)
Pulse generator mounting bolt	6 N•m (0.6 kgf•m, 4.3 lbf•ft) Apply locking agent to the threads.

IGNITION SYSTEM

TOOLS

Peak voltage tester (U.S.A. only) or
Peak voltage adaptor

07HGJ-0020100 (not available in U.S.A.) with commercially available
digital multimeter (impedance 10 M Ω /DCV minimum)

Universal holder

07725-0030000

Flywheel puller

07733-0010000 or 07933-0010000

TROUBLESHOOTING

- Inspect the following before diagnosing the system.
 - Faulty spark plug
 - Loose spark plug cap or spark plug wire connection
 - Water got into the spark plug cap (leaking the ignition coil secondary voltage)

No spark at plug

Unusual condition		Probable cause (Check in numerical order)
Ignition coil primary voltage	Low peak voltage	1. The multimeter impedance is too low. 2. Cranking speed is too low. 3. The sampling time of the tester and measured pulse were not synchronized (System is normal if measured voltage is over the standard voltage at least one). 4. Poorly connected connector or an open circuit in ignition system. 5. Faulty exciter coil (Measure the peak voltage). 6. Faulty ICM (when above No.1–5 are normal).
	No peak voltage	1. Incorrect peak voltage adaptor connections. 2. Faulty engine stop switch. 3. Loose or poorly connected ICM connector. 4. An open circuit or loose connection in Green wire. 5. Open circuit or poor connection in ground wire of the ICM. 6. Faulty peak voltage adaptor, or peak voltage tester. 7. Faulty exciter coil (measure the peak voltage). 8. Faulty ignition pulse generator (measure the peak voltage). 9. Faulty ICM (when above No.1–8 are normal).
	Peak voltage is normal, but no spark jumps at plug.	1. Faulty spark plug or leaking ignition coil secondary current. 2. Faulty ignition coil.
Exciter coil	Low peak voltage	1. The multimeter impedance is too low; below 10 MΩ/DCV. 2. Cranking speed is too low. 3. The sampling timing of the tester and measured pulse were not synchronized (system is normal if measured voltage is over the standard voltage at least once). 4. Faulty exciter coil (in case when above No.1–3 are normal).
	No peak voltage	1. Faulty peak voltage adaptor or peak voltage tester. 2. Faulty exciter coil.
Ignition pulse generator	Low peak voltage	1. The multimeter impedance is too low; below 10 MΩ/DCV. 2. Cranking speed is too low. 3. The sampling timing of the tester and measured pulse were not synchronized (system is normal if measured voltage is over the standard voltage at least once). 4. Faulty ignition pulse generator (in case when above No.1–3 are normal).
	No peak voltage	1. Faulty peak voltage adaptor or peak voltage tester. 2. Faulty ignition pulse generator.

IGNITION SYSTEM INSPECTION

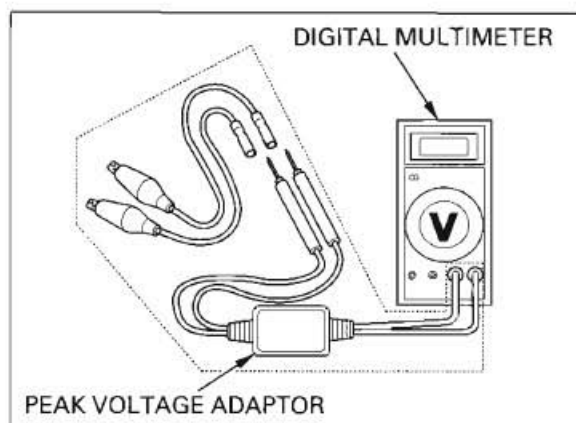
NOTE:

- If there is no spark at plug, check all connections for loose or poor contact before measuring each peak voltage.
- Use recommended digital multimeter or commercially available digital multimeter with an impedance of 10 M Ω /DCV minimum.
- The display value differs depending upon the internal impedance of the multimeter.
- If using peak voltage tester (U.S.A. only), follow the manufacturer's instructions.

Connect the peak voltage adaptor to the digital multimeter, or use the peak voltage tester (U.S.A. only).

TOOLS:

Peak voltage tester (U.S.A. only) or
Peak voltage adaptor 07HGJ-0020100
(not available in U.S.A.) with commercially available digital multimeter (impedance 10 M Ω /DCV minimum)



IGNITION COIL PRIMARY PEAK VOLTAGE

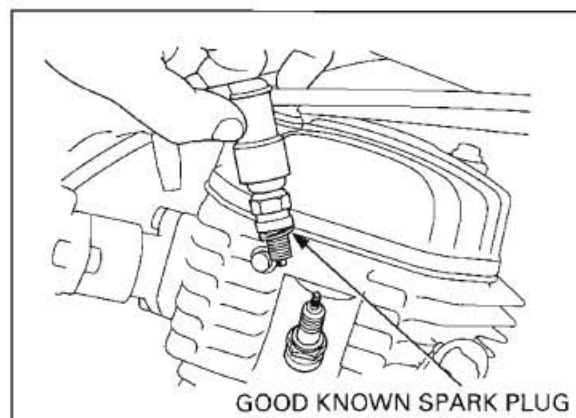
⚠ WARNING

Avoid touching the spark plug and tester probes to prevent electric shock.

NOTE:

- Check all system connections before inspection. If the system is disconnected, incorrect peak voltage might be measured.
- Check cylinder compression and check that the spark plug is installed correctly.

Shift the transmission into neutral and disconnect the spark plug cap from the spark plug. Connect a known good spark plug to the spark plug cap and ground the spark plug to the cylinder as done in a spark test.



With the ignition coil primary wire connected, connect the peak voltage adaptor or peak voltage tester to the ignition coil.

CONNECTION:

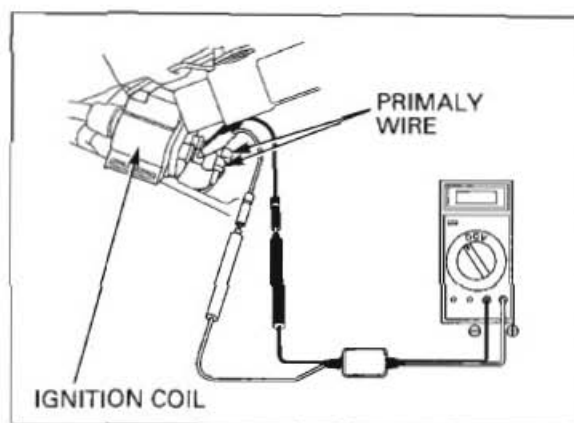
Black/Yellow terminal (+) – Body ground (–)

Crank the engine with the kickstarter and read ignition coil primary peak voltage.

PEAK VOLTAGE: 100 V minimum

If the peak voltage is abnormal, check for an open circuit or poor connection in Black/Yellow wire.

If not defects are found in the harness, refer to the troubleshooting chart on page 13-3.



IGNITION PULSE GENERATOR PEAK VOLTAGE

NOTE:

Check cylinder compression and check that the spark plug is installed correctly.

Remove the fuel tank (page 2-3).

Disconnect the 3P connector from the ICM. Connect the peak voltage adaptor or peak voltage tester probes to the connector terminals of the wire harness side.

TOOLS:

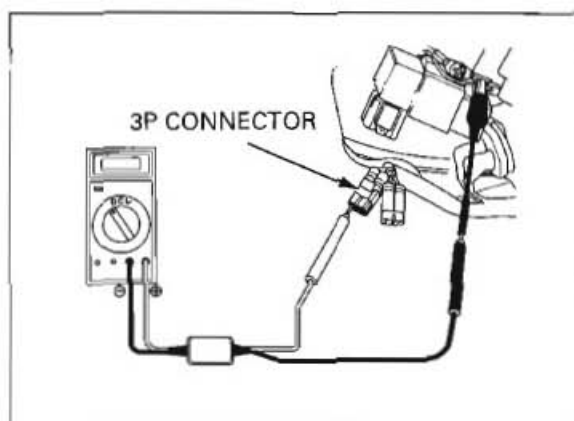
Peak voltage tester (U.S.A. only) or
Peak voltage adaptor 07HGJ-0020100
(not available in U.S.A.) with commercially available
digital multimeter (impedance 10 M Ω /DCV
minimum)

CONNECTION:

Black/Yellow terminal (+) – Body ground (–)

Crank the engine with the kickstarter and read the peak voltage.

PEAK VOLTAGE: 0.7 V minimum



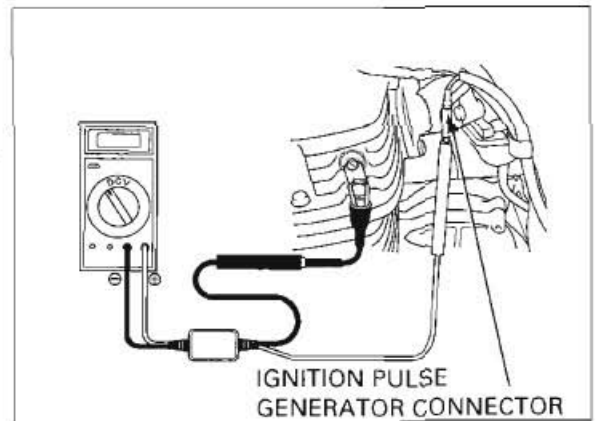
IGNITION SYSTEM

If the peak voltage measured at the ICM connector is abnormal, measure the peak voltage at the pulse generator connector.

Disconnect the ignition pulse generator connector and connect the tester probes to the terminal (Blue/Yellow and Ground).

In the same manner as at the ICM connector, measure the peak voltage and compare it to the voltage measured at the ICM connector.

- If the peak voltage measured at the ICM is abnormal and the one measured at the ignition pulse generator is normal, the wire harness has an open circuit or a loose connection.
- If both peak voltages are abnormal, check each item in the troubleshooting chart on page 13-3. If all items are normal, the ignition pulse generator is faulty. See page 13-10 for ignition pulse generator replacement.



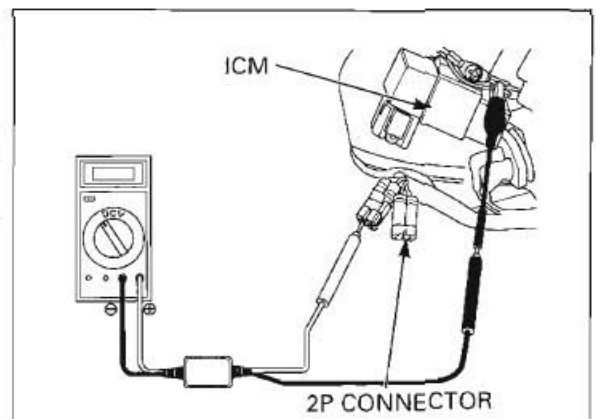
ALTERNATOR EXCITER COIL PEAK VOLTAGE

NOTE:

Check cylinder compression and check that the spark plug is installed correctly.

Remove the fuel tank (page 2-3).

Disconnect the 3P and 2P connectors from the ICM. Connect the peak voltage adaptor or peak voltage tester probes to the connector terminals of the wire harness side.



TOOLS:

Peak voltage tester (U.S.A. only) or
Peak voltage adaptor 07HGJ-0020100
(not available in U.S.A.) with commercially available
digital multimeter (impedance 10 M Ω /DCV
minimum)

CONNECTION:

Black/Red terminal (+) – Body ground (–)

Crank the engine with the kickstarter and read the peak voltage.

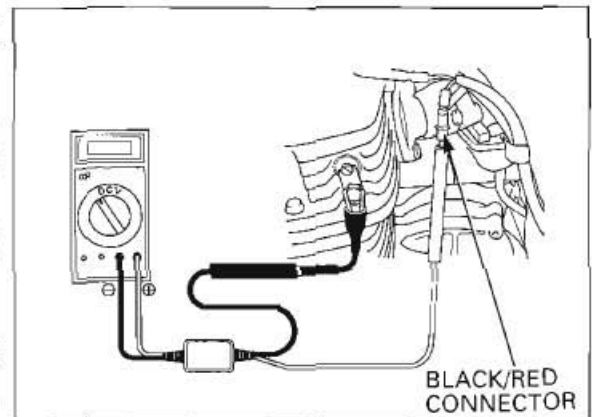
PEAK VOLTAGE: 100 V minimum

If the peak voltage measured at ICM connector is abnormal, measure the peak voltage at the alternator exciter coil connector.

Disconnect the alternator exciter coil connector and connect the tester probe to the Black/Red terminal and Ground.

In the same manner as at the ICM connector, measure the peak voltage and compare it to the voltage measured at the ICM connector.

- If the peak voltage measured at the ICM is abnormal and the one measured at the alternator exciter coil is normal, the wire harness has an open circuit or loose connection.
- If both peak voltages measure are abnormal, check each item in the troubleshooting chart (page 13-3). If all items are normal, the alternator exciter coil is faulty (page 13-10 for stator replacement).



IGNITION COIL

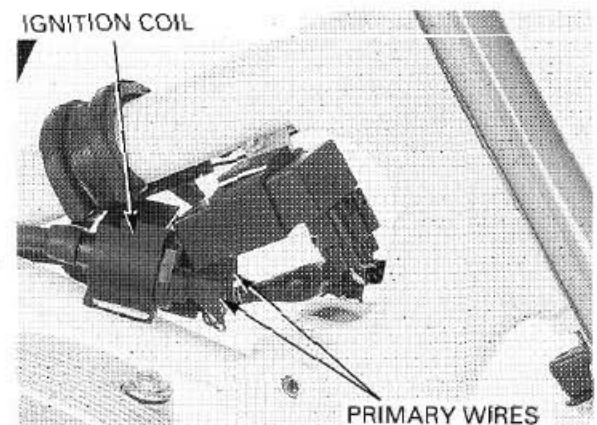
REMOVAL/INSTALLATION

Remove the fuel tank (page 2-3).

Disconnect the spark plug cap from the plug.
Disconnect the primary wires from the ignition coil.

Remove the ignition coil.

Installation is in the reverse order of removal.



IGNITION CONTROL MODULE

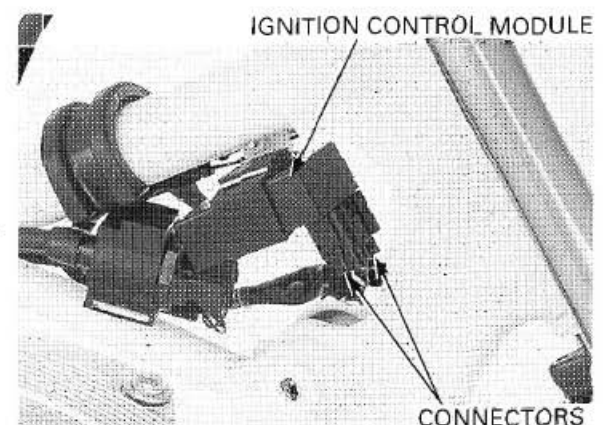
REMOVAL/INSTALLATION

Remove the fuel tank (page 2-3).

Disconnect the Ignition Control Module (ICM) connectors.

Remove the ICM from the frame.

Installation is in the reverse order of removal.



ENGINE STOP SWITCH

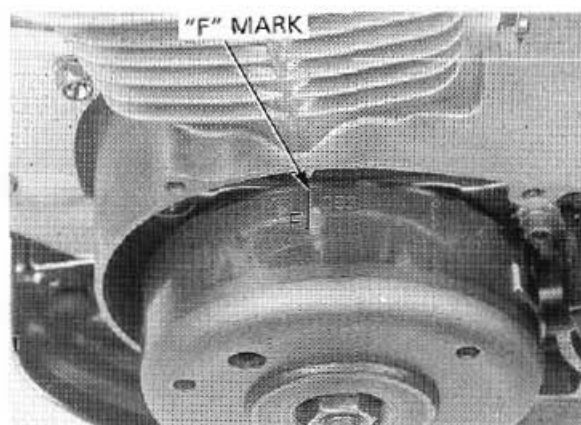
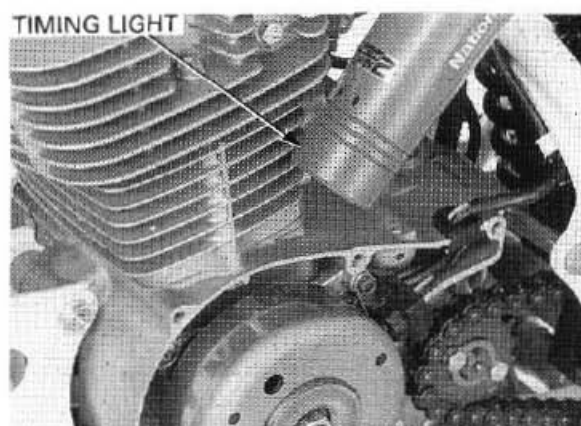
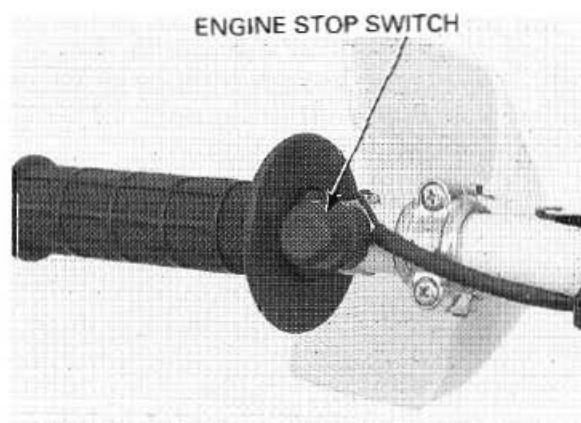
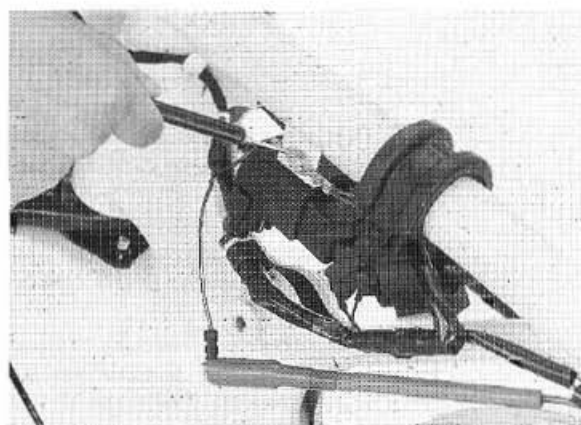
INSPECTION

Remove the fuel tank (page 2-3).

Disconnect the engine stop switch connectors.

Check for continuity between the terminals.

There should be no continuity with the engine stop switch is pushed and there should be continuity with the engine stop switch is released.



IGNITION TIMING

⚠ WARNING

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

Warm up the engine.

Stop the engine and remove the left crankcase cover (page 13-9).

Read the instructions for timing light operation.

Connect the timing light to the spark plug wire.

Start the engine and let it idle.

IDLE SPEED: **XR100R:** 1400 ± 100 rpm
 XR80R: 1500 ± 100 rpm

The ignition timing is correct if the "F" mark aligns with the index notch on the left crankcase.

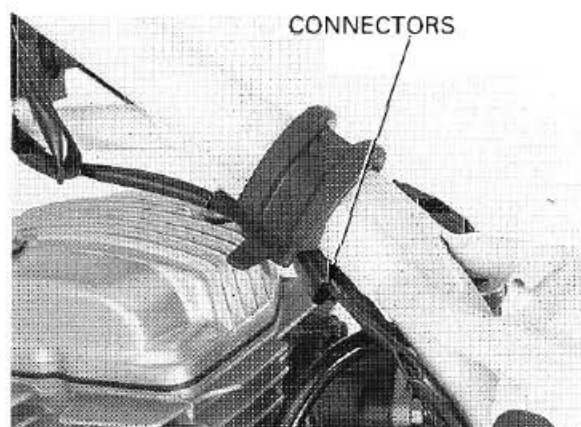
Increase the engine speed by turning the throttle stop screw and make sure the "F" mark begins to move clockwise.

Install the left crankcase cover (page 13-12)

FLYWHEEL/STATOR

REMOVAL

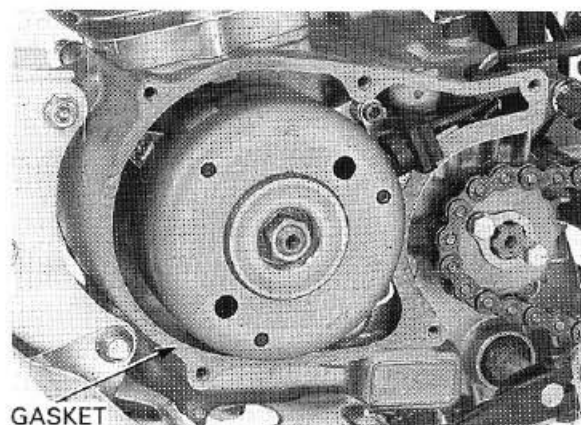
Disconnect the alternator and ignition pulse generator connectors.



Remove the SH bolts and left crankcase cover.



Remove the gasket.



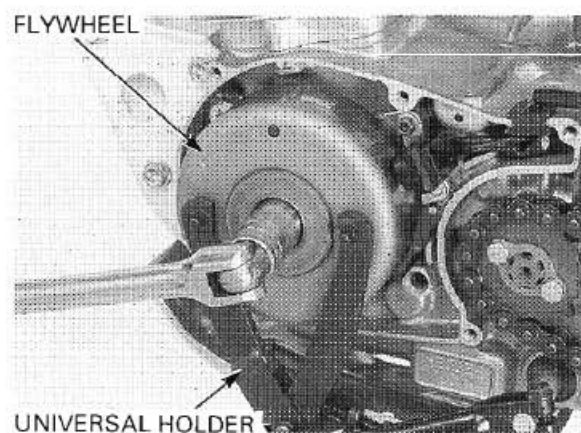
Hold the flywheel using the universal holder, then remove the flywheel nut.

TOOL:

Universal holder

07725-0030000

Remove the washer.



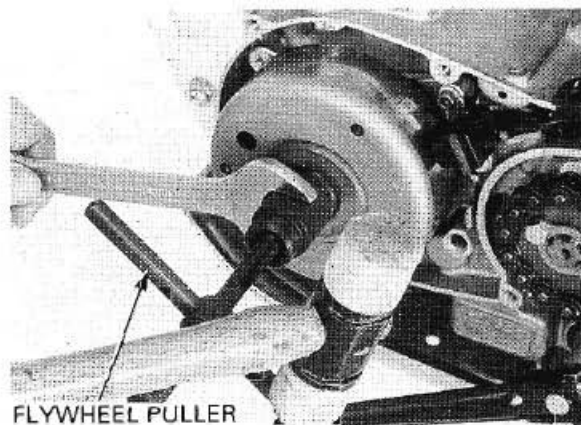
IGNITION SYSTEM

Remove the flywheel using the special tool.

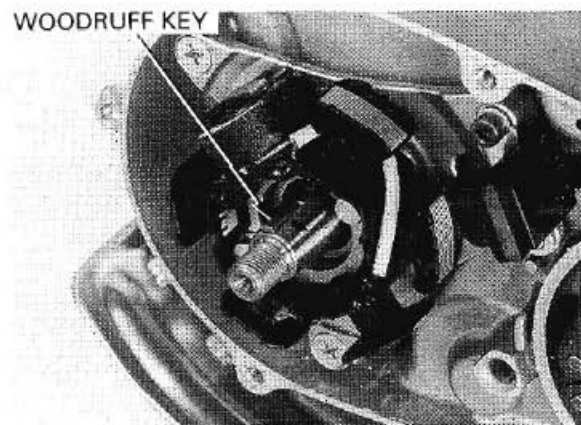
TOOLS:

Flywheel puller

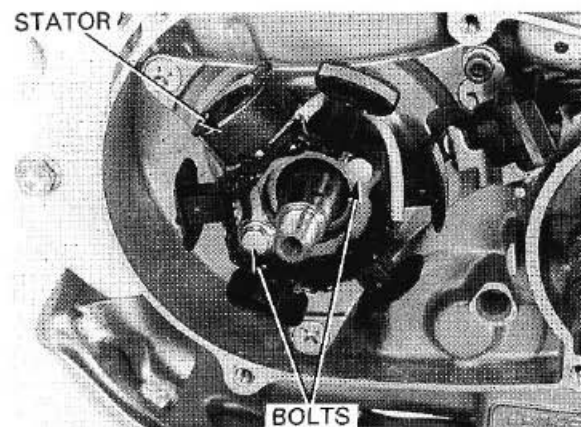
07733-0010000 or
07933-0010000



Remove the woodruff key.



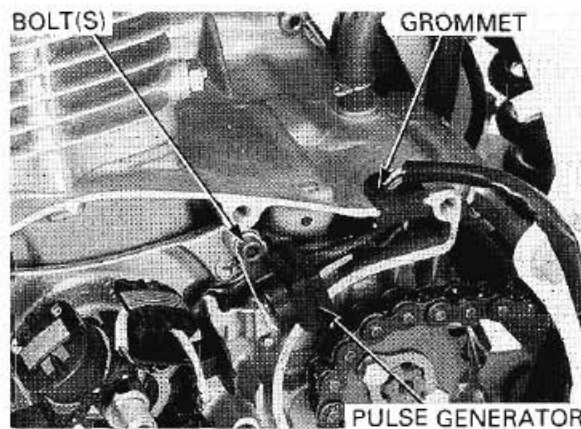
Remove the two stator mounting bolts.



Release the wire grommet from the crankcase groove.

XR100R: Remove the pulse generator mounting bolt, stator and pulse generator.

XR80R: Remove the two pulse generator mounting bolts, stator and pulse generator.

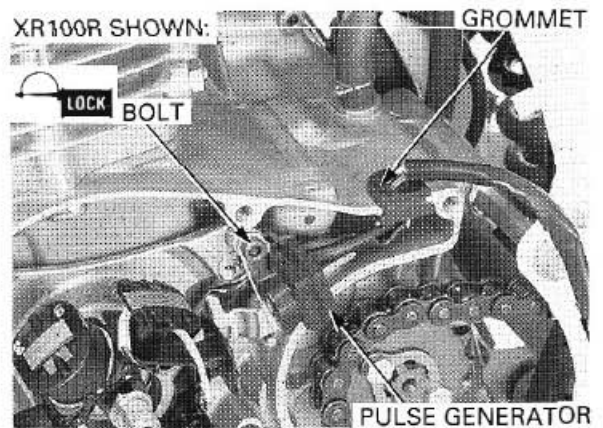


INSTALLATION

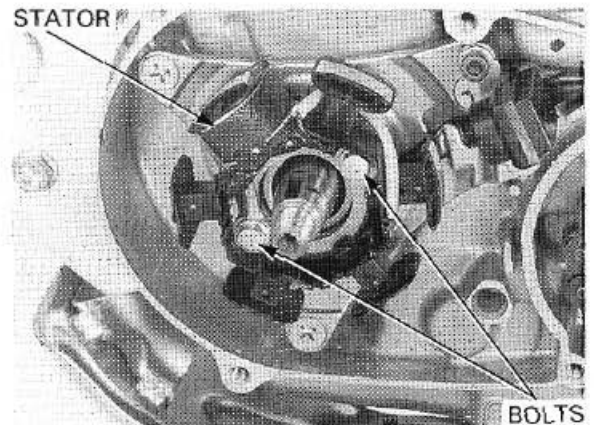
XR100R: Apply a locking agent to the threads.
Install the pulse generator and tighten the bolt to the specified torque, then set the wire grommet into the crankcase groove.

TORQUE: 6 N·m (0.6 kgf·m, 4.31 lbf·ft)

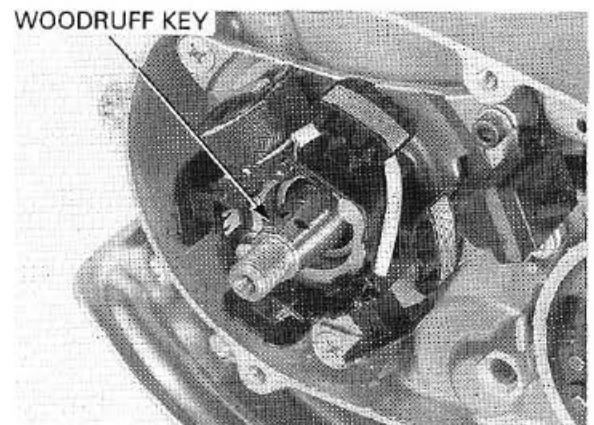
XR80R: Install the pulse generator and two bolts then set the wire grommet into the crankcase groove.



Install the stator and tighten the two bolts.



Clean any oil from the crankshaft taper.
Install the woodruff key on the crankshaft.



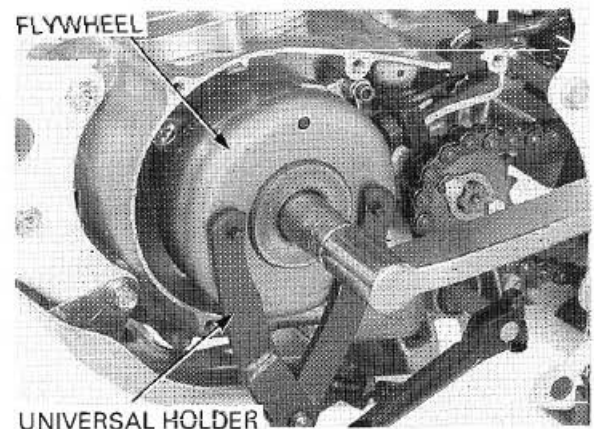
Install the nut.

Hold the flywheel using the universal holder, then tighten the nut to the specified torque.

TOOL:

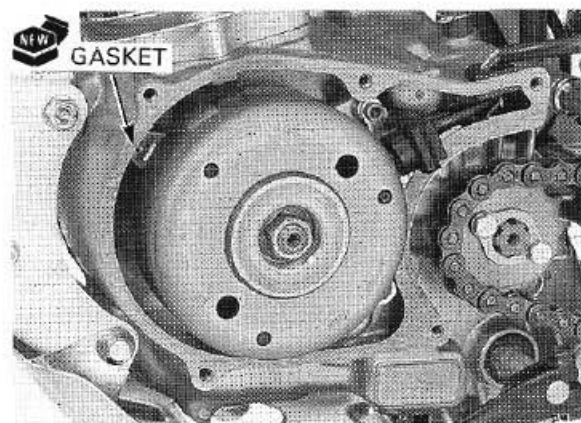
Universal holder 07725-0030000

TORQUE: 41 N·m (4.2 kgf·m, 30 lbf·ft)

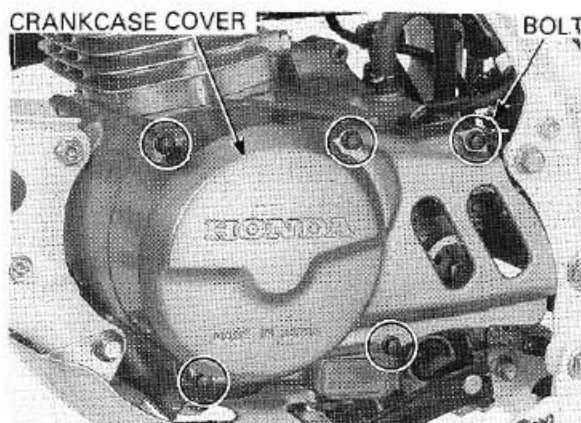


IGNITION SYSTEM

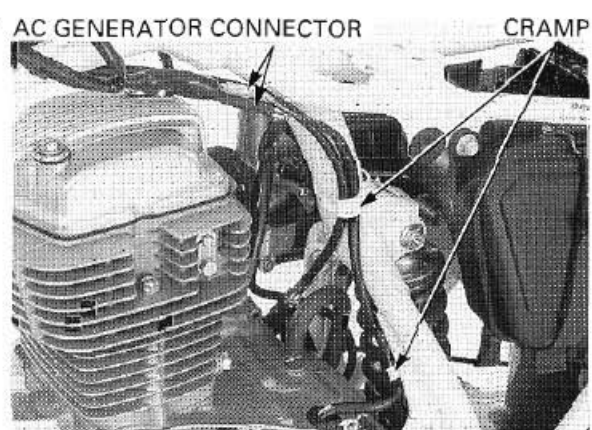
Install the new gasket.



Install the left crankcase cover and tighten the bolts.



Connect the ignition pulse generator and alternator connectors.

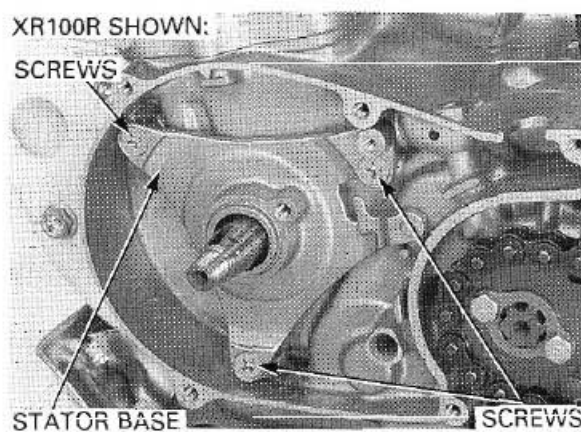


STATOR BASE

REMOVAL

XR100R: Remove the three screw and stator base.

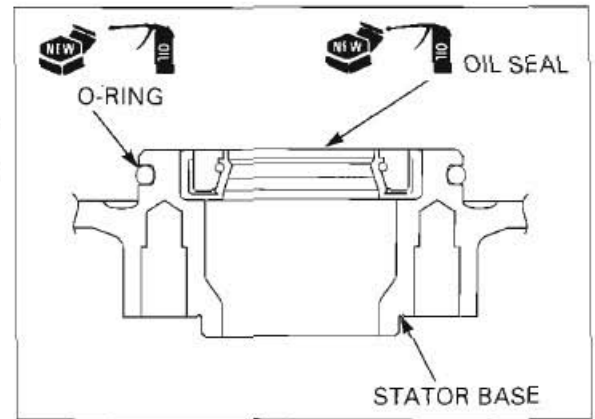
XR80R: Remove the two screw and stator base.



OIL SEAL REPLACEMENT (XR100 ONLY)

Remove the O-ring and oil seal from the stator base.

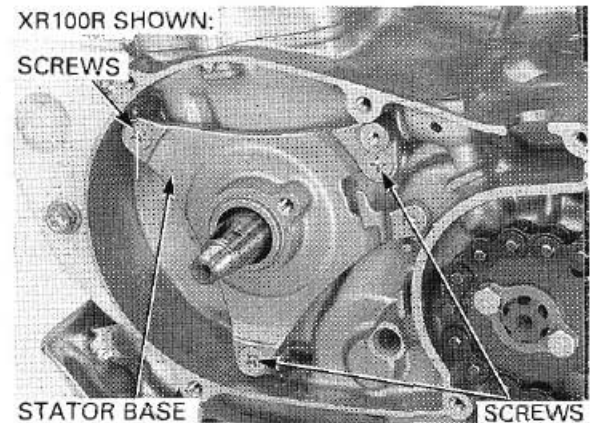
Apply grease to the new oil seal and O-ring, and install them.



INSTALLATION

XR100R: Install the stator base and tighten the three screws.

XR80R: Install the stator base and tighten the two screws.



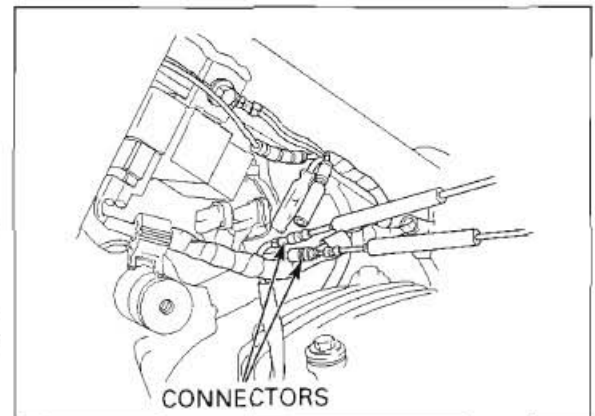
IGNITION SWITCH (AFTER 2000)

INSPECTION

Disconnect the ignition switch connectors.

Check for continuity at the connectors at the ignition switch side.

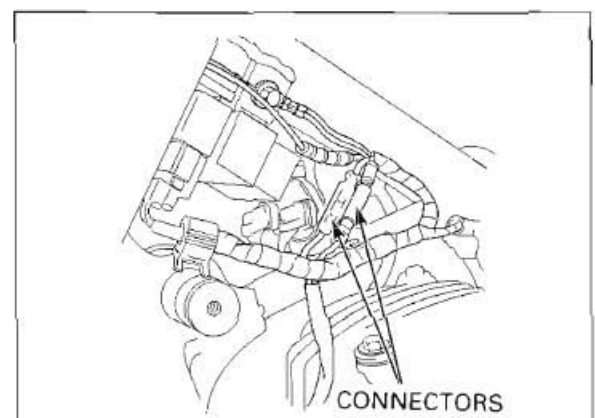
There should be no continuity when the ignition switch is in the "ON" position and continuity when the ignition switch is in the "OFF" position.



REMOVAL/INSTALLATION

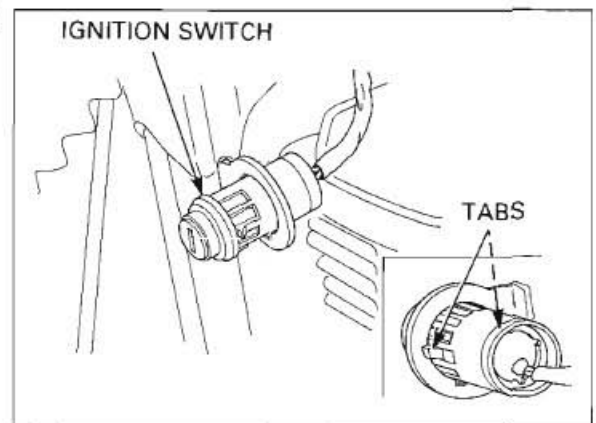
Remove the fuel tank (page 2-3).

Disconnect the ignition switch connectors.



IGNITION SYSTEM

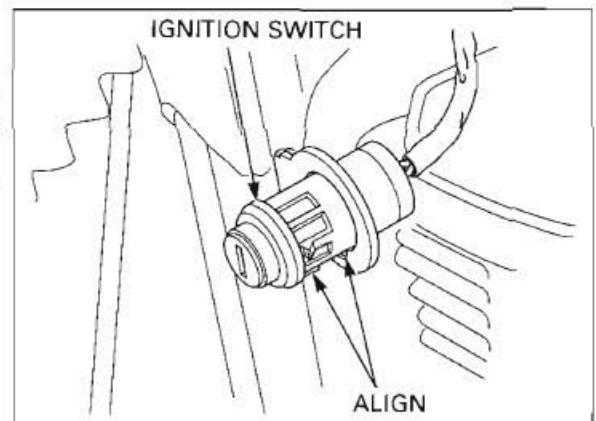
Release the tabs on the ignition switch body and remove the ignition switch.



Installation is in the reverse order of removal.

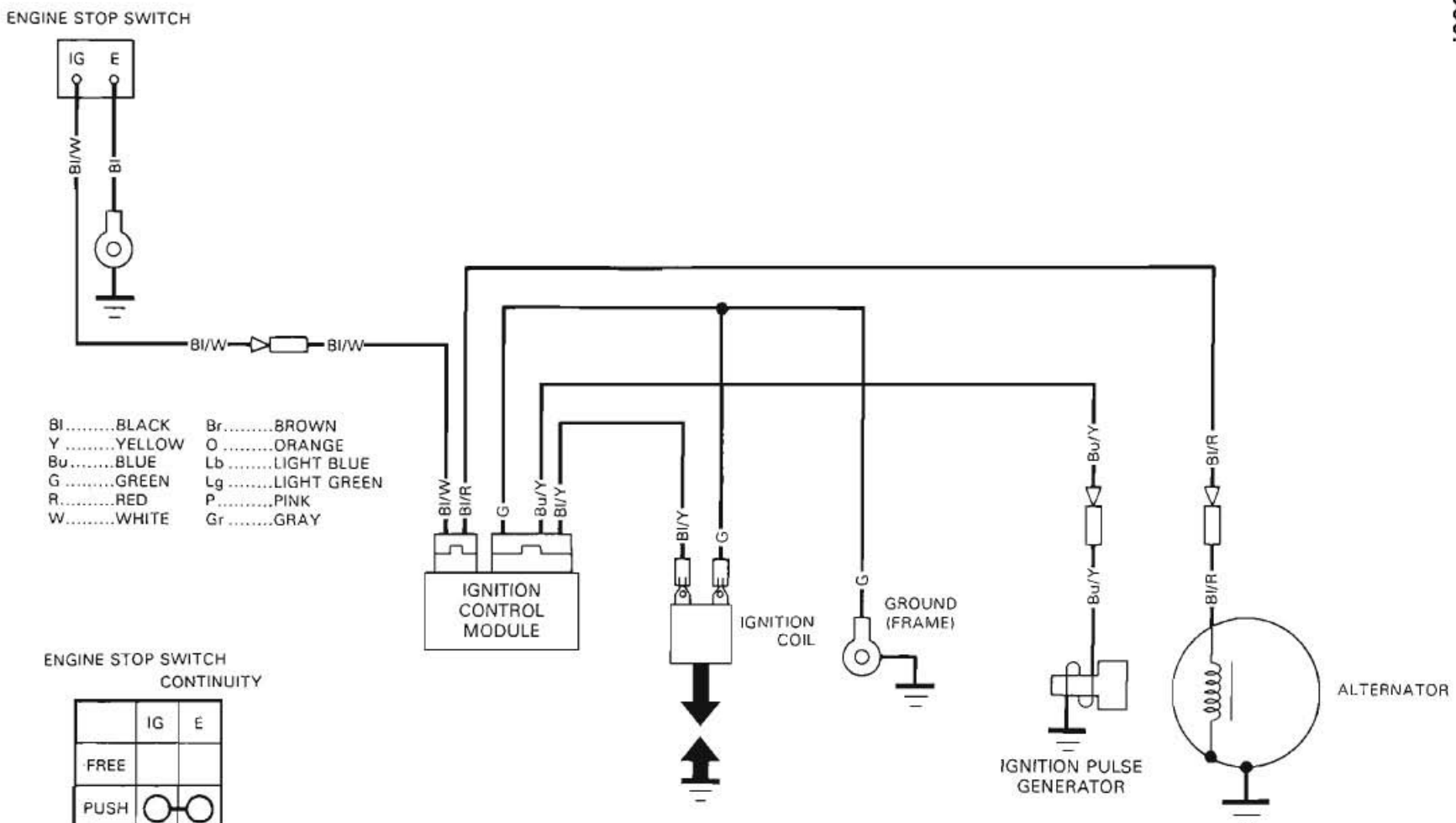
NOTE:

During installation, align the guide on the ignition switch with the groove on the bracket.



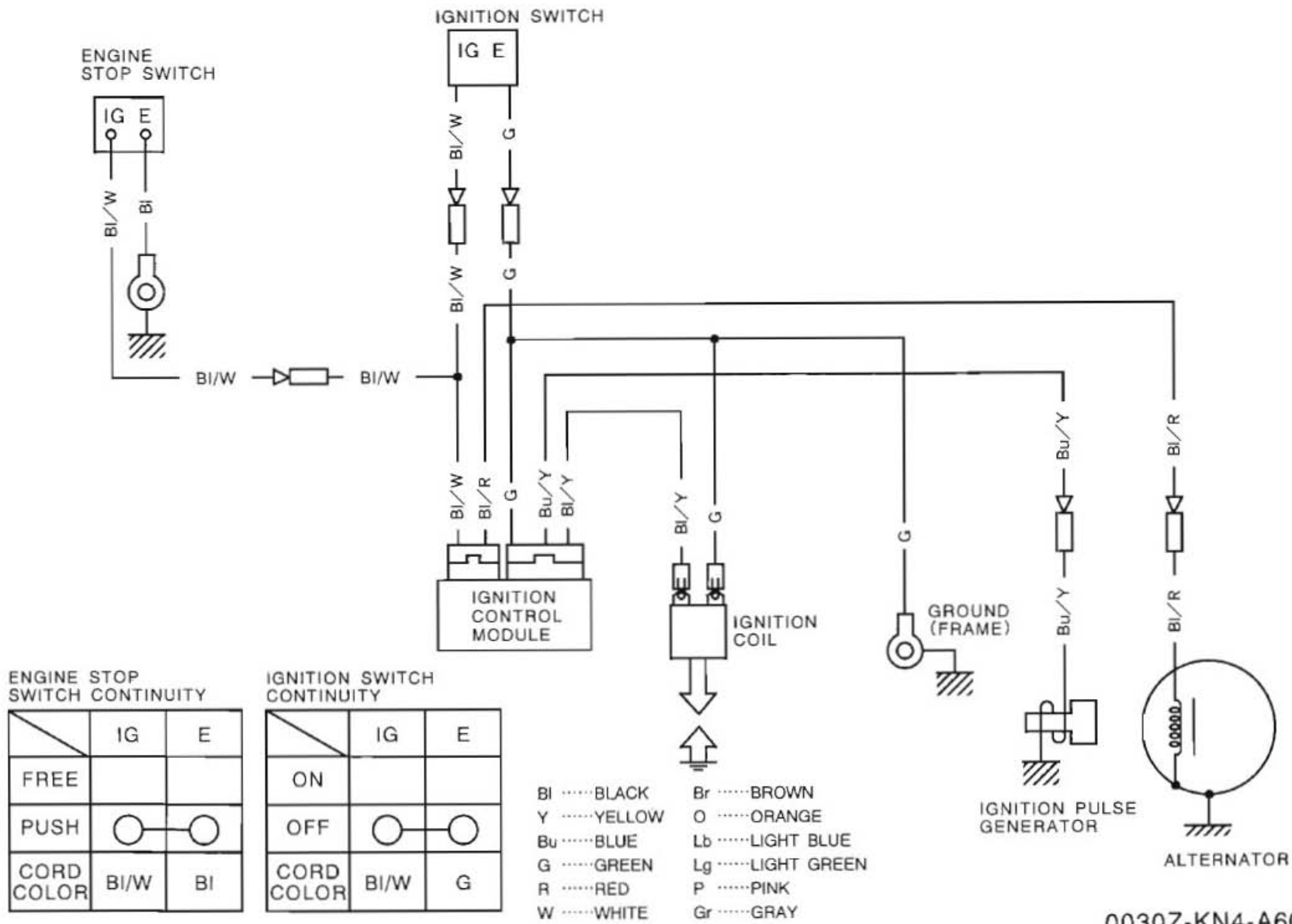
14. WIRING DIAGRAM

'98 - 2000:



0030Z-KN4-8500

After 2000:

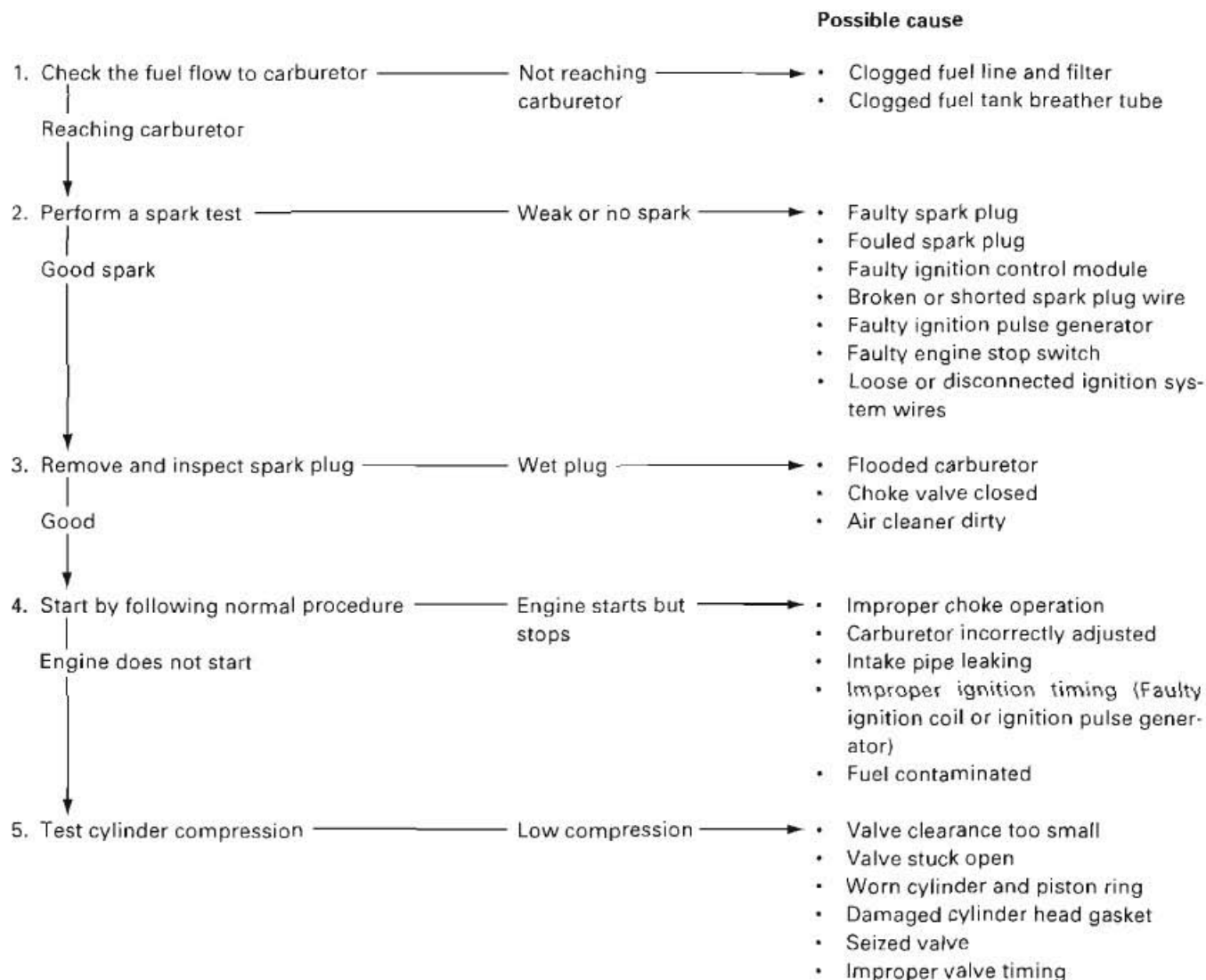


0030Z-KN4-A600

15. TROUBLESHOOTING

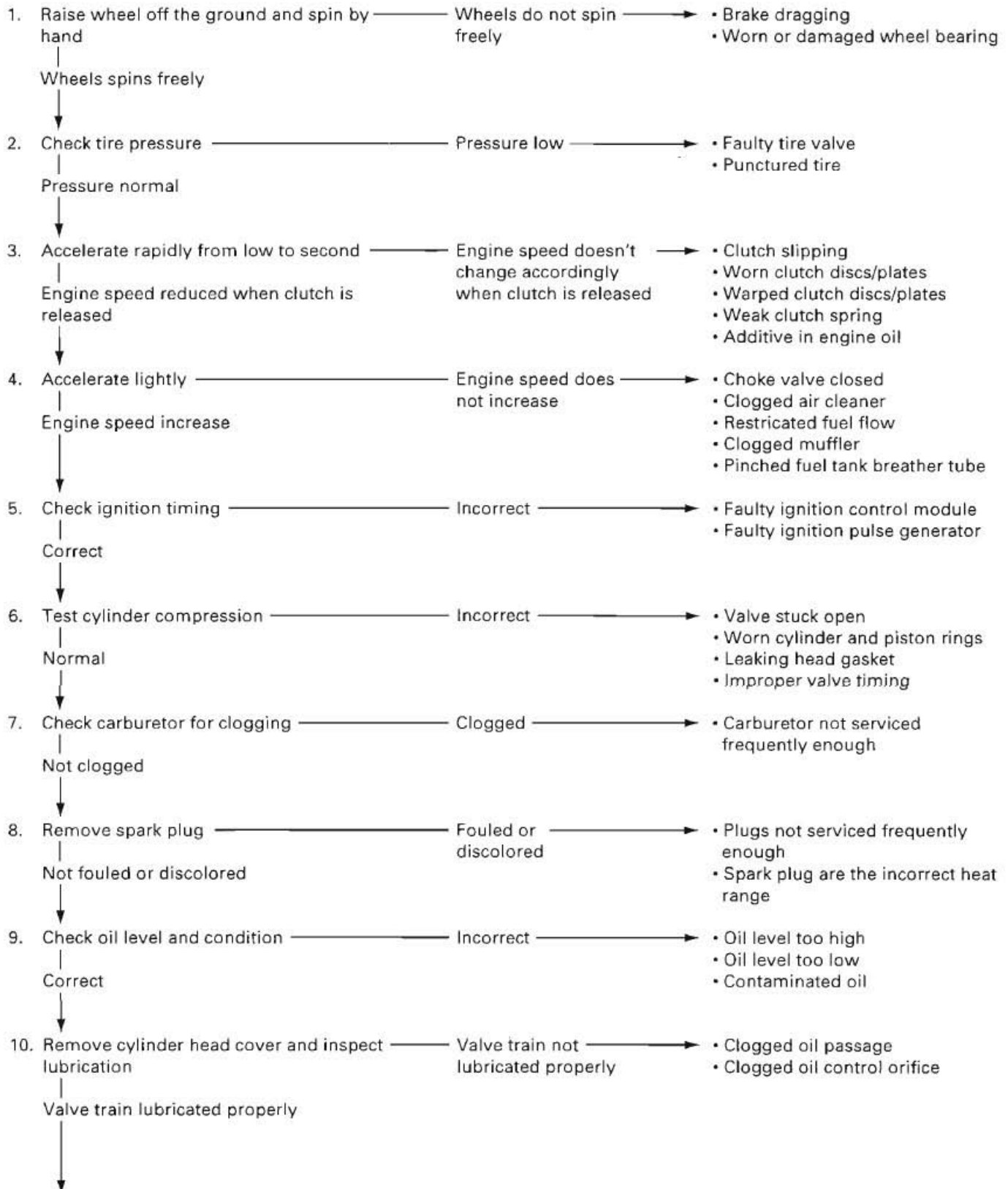
ENGINE DOES NOT START OR IS HARD TO START	15-1	POOR PERFORMANCE AT HIGH SPEED	15-4
ENGINE LACKS POWER	15-2	POOR HANDLING	15-5
POOR PERFORMANCE AT LOW AND IDLE SPEED	15-3		

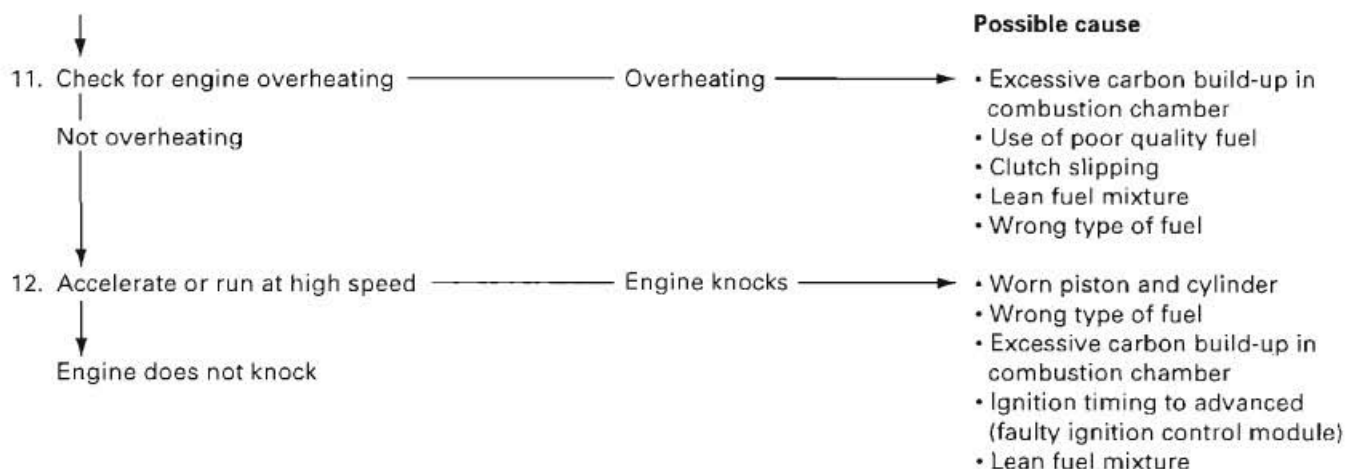
ENGINE DOES NOT START OR IS HARD TO START



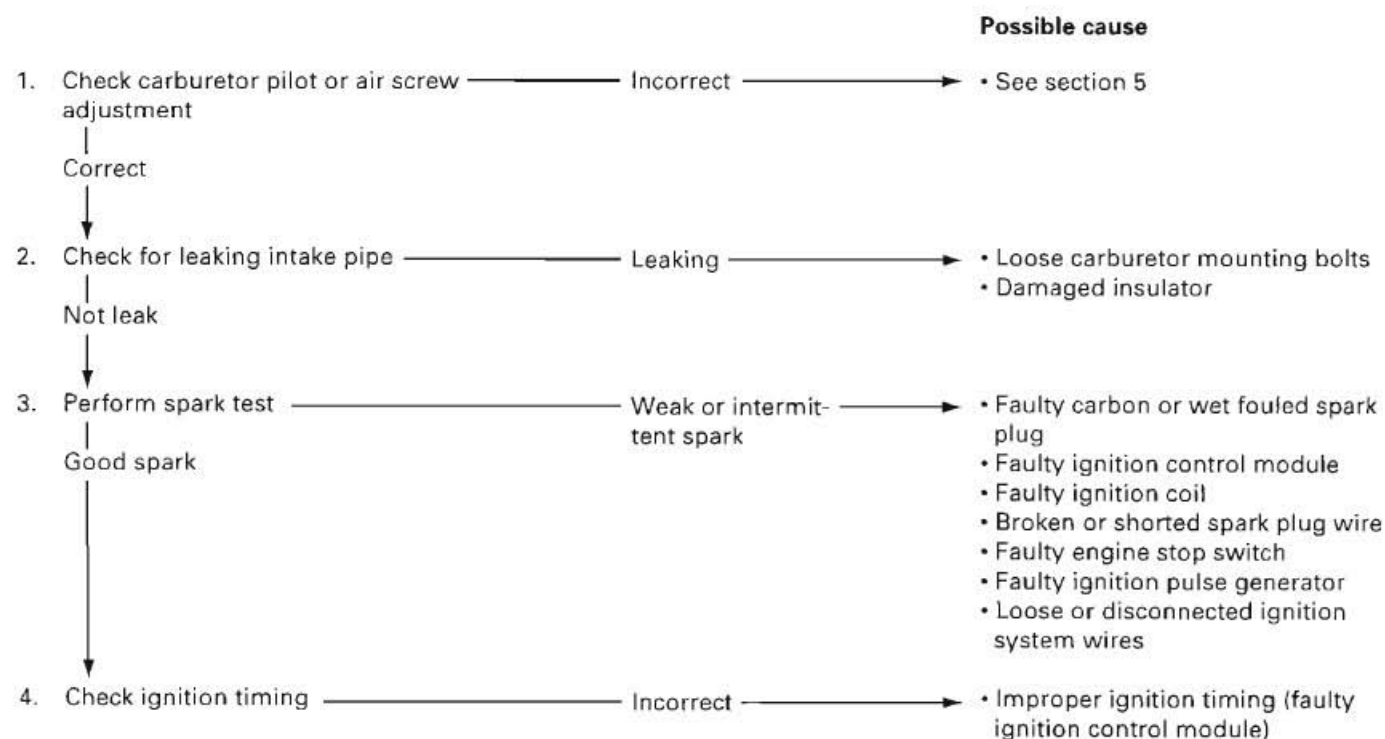
ENGINE LACKS POWER

Possible cause

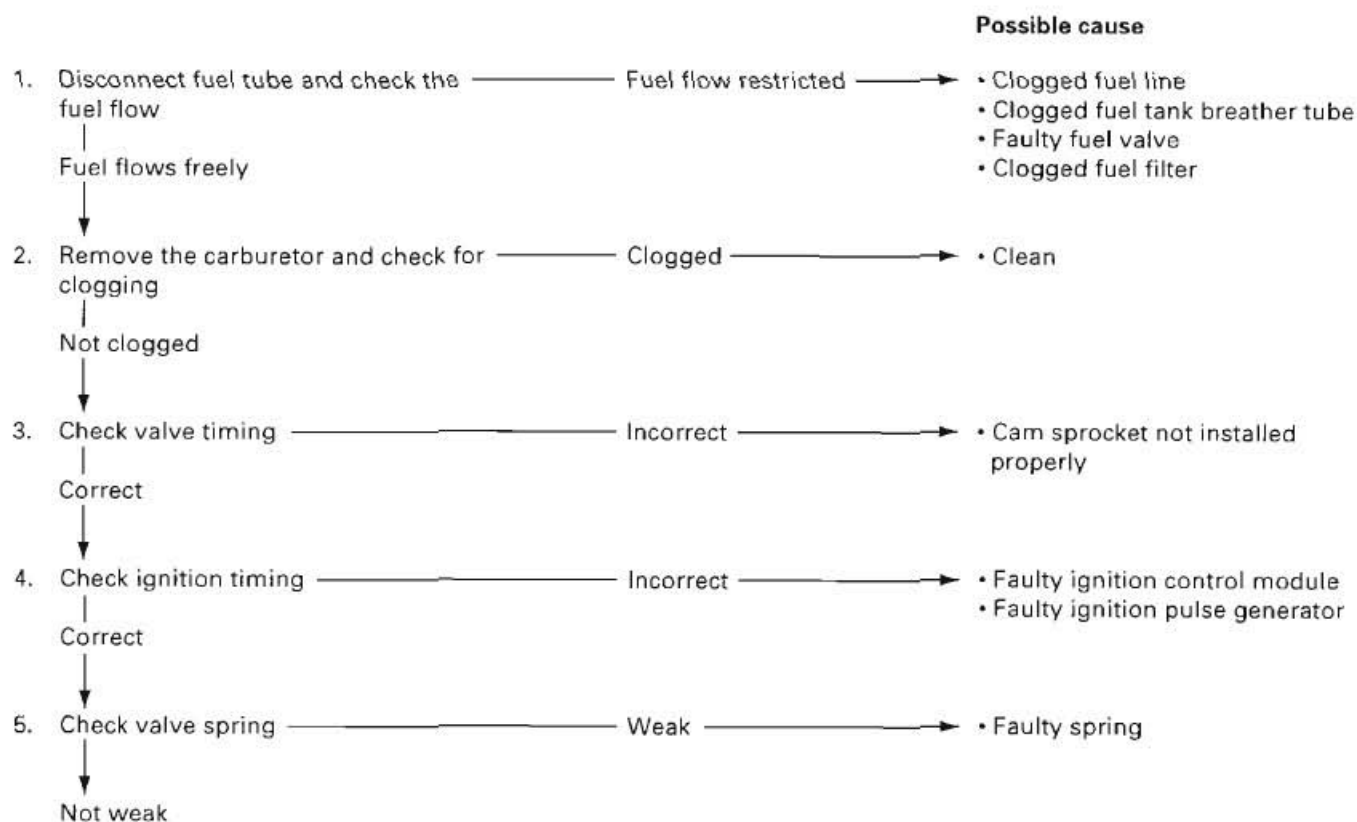




POOR PERFORMANCE AT LOW AND IDLE SPEED



POOR PERFORMANCE AT HIGH SPEED



POOR HANDLING

	Possible cause
1. If steering is heavy	<ul style="list-style-type: none">• Steering stem adjusting nut too tight• Damaged steering head bearings
2. If either wheel is wobbling	<ul style="list-style-type: none">• Excessive wheel bearing play• Bent rim• Improper installed wheel hub• Swingarm pivot bushing excessively worn• Bent frame
3. If the motorcycle pulls to one side	<ul style="list-style-type: none">• Faulty shock absorber• Front and rear wheel not aligned• Bent fork• Bent swingarm• Bent axle

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