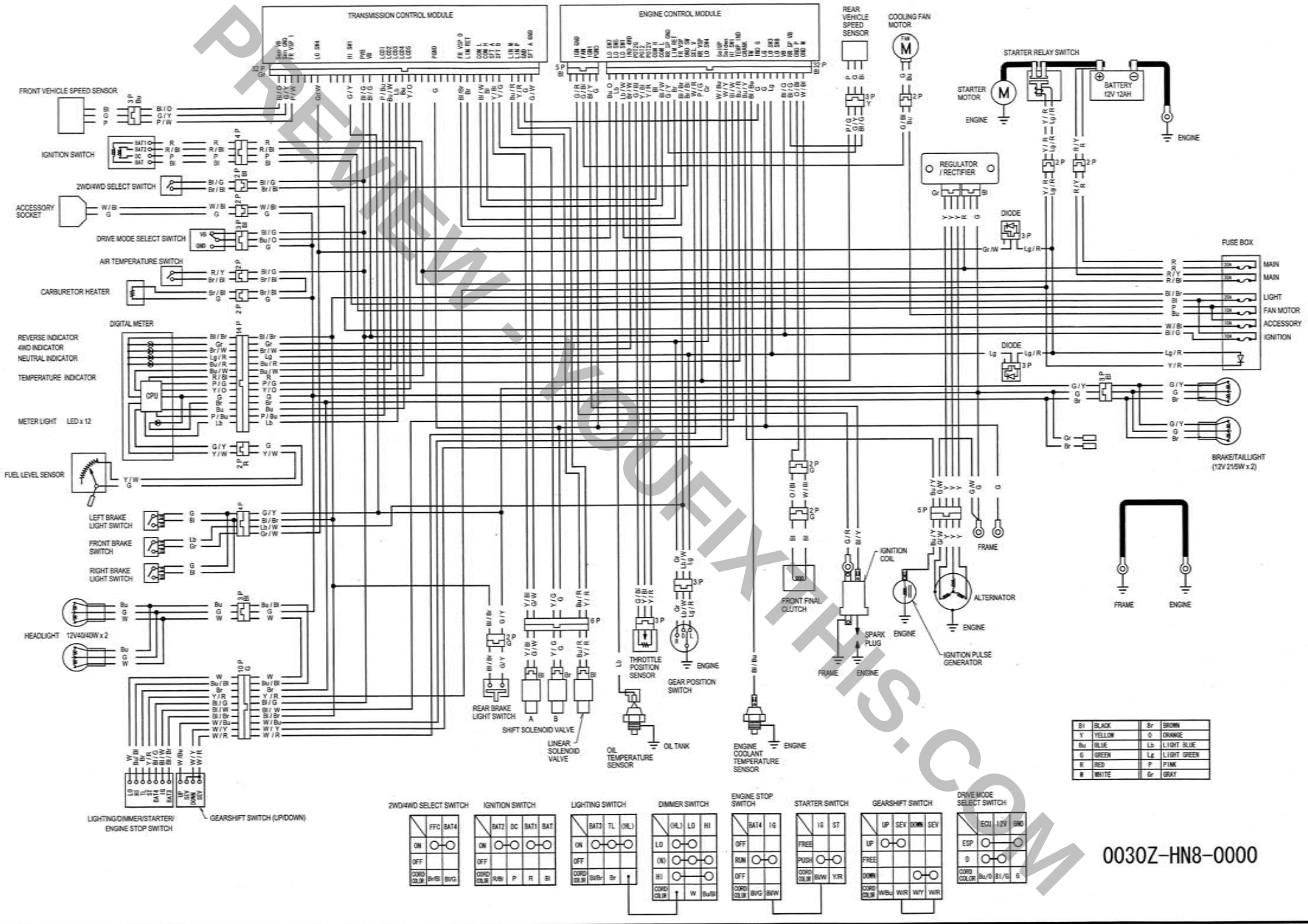
WIRING DIAGRAM



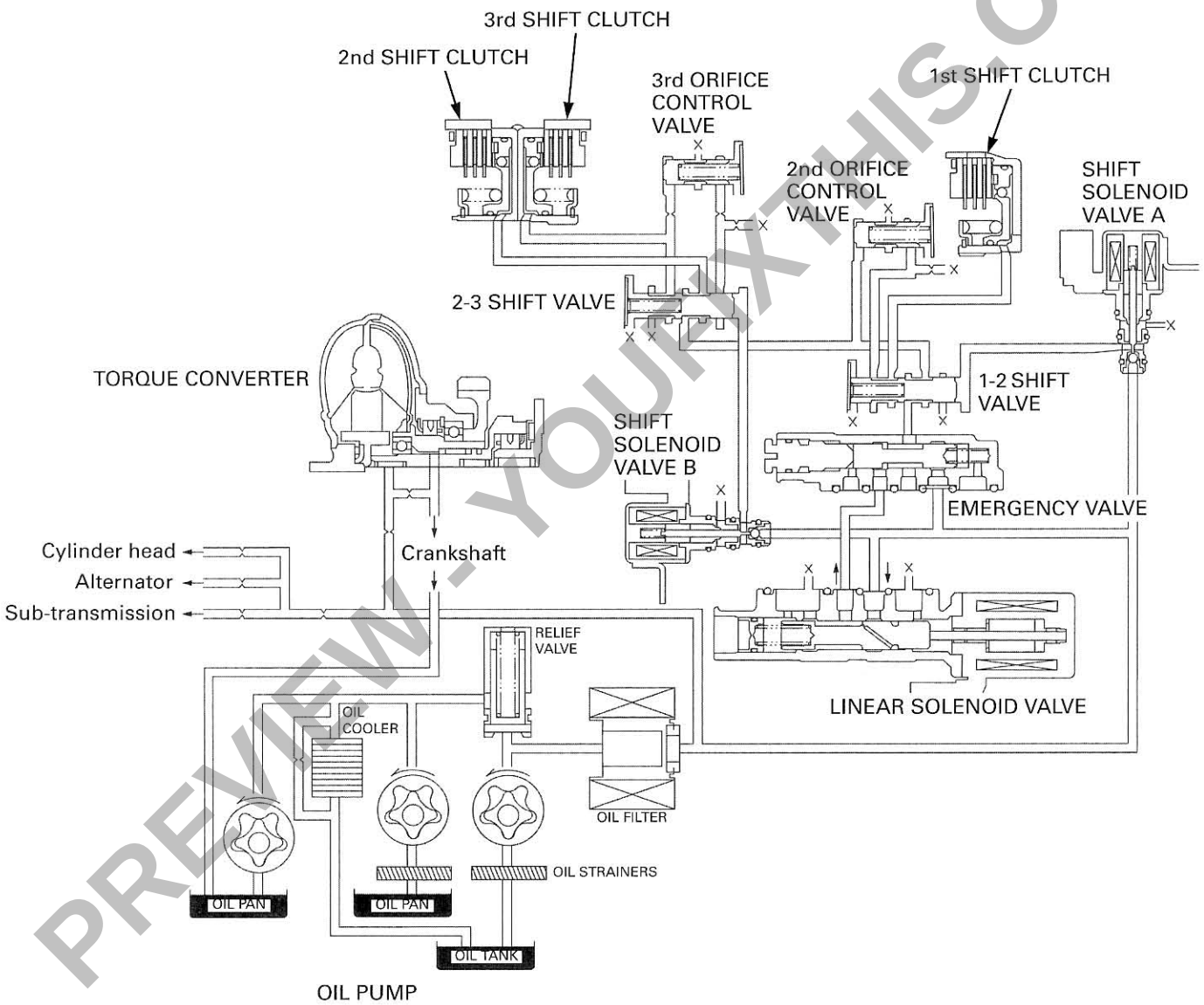
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HYDRAULIC VALVE FUNCTION

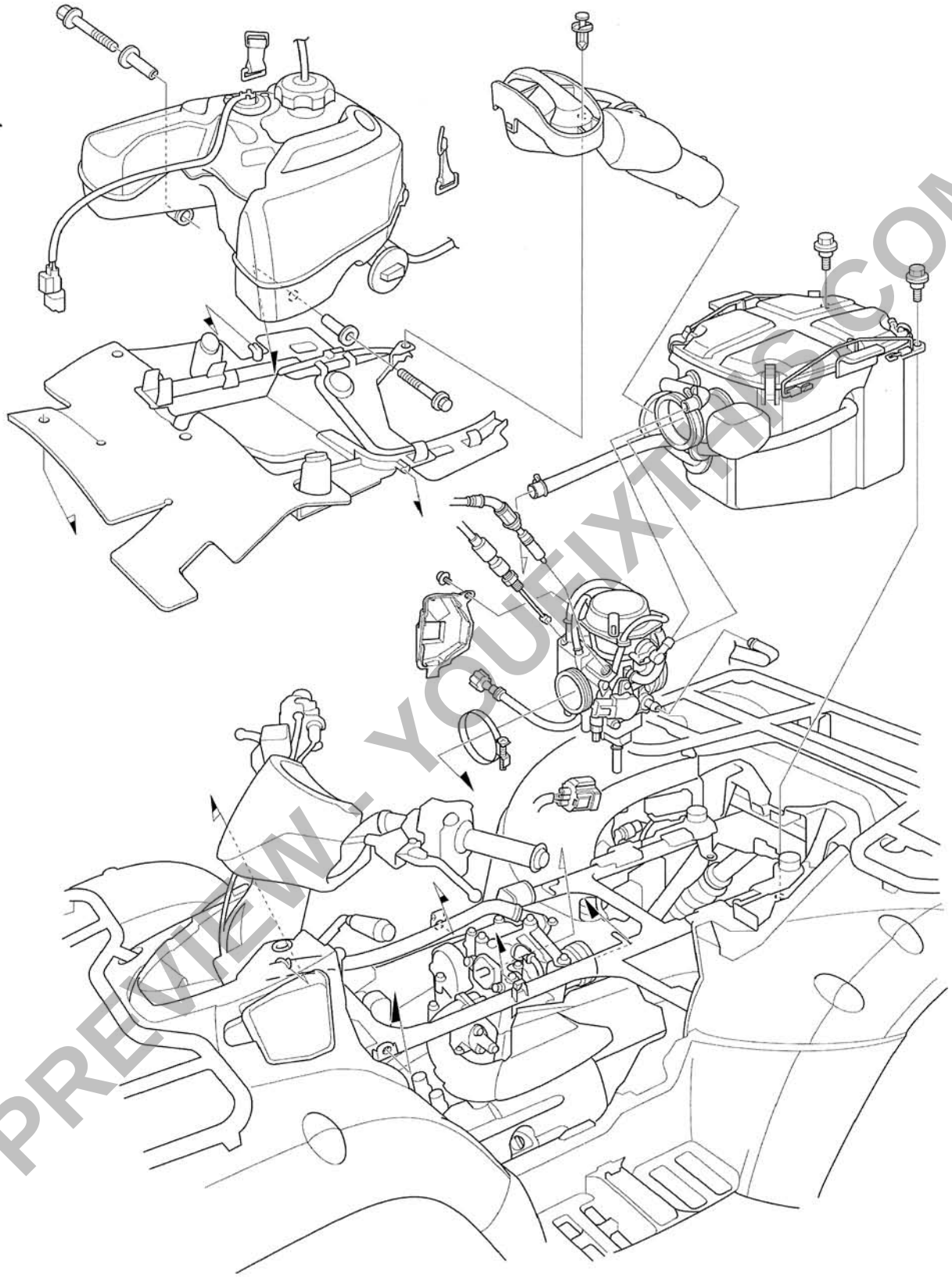
- **Linear Solenoid Valve**
  It controls the vehicle creep by diverting the hydraulic pressure that flows to the entire clutch system to the linear valve.
- **Shift Solenoid Valves (A and B)**
  The shift solenoid valves control the shift timing by supplying and shutting off hydraulic pressure to activate the shift valves.
- **Shift Valves (1-2 and 2-3)**
  The shift valves switch the hydraulic circuits to the three clutches.
- **Orifice Control Valve (2nd and 3rd)**
  The orifice control valves operate when clutch fluid pressure rises during shifting. It releases the pressure to reduce shift shock.
- **Emergency Valve**
  The emergency valve is used when the hydraulic pressure is shut off by the faulty linear solenoid valve (stuck; mechanical lock), and the vehicle is hindered from running. Open the bypass oil circuit manually to supply hydraulic fluid. (In this case, the transmission is held in 2nd range and the vehicle creeps during idling.)



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SYSTEM COMPONENTS



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STANDARD TORQUE VALUES

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

ENGINE & FRAME TORQUE VALUES

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

NOTE:

1. Apply locking agent to the threads.
2. Apply engine oil to the threads and seating surface.
3. Apply grease to the threads and seating surface.
4. ALOC bolt/screw: replace with a new one.
5. Lock nut: replace with a new one.
6. Castle nut: tighten to the specified torque and further tighten until its grooves aligns with the cotter pin hole.
7. Special bolt: replace with a new one.
8. Stake.
9. Apply sealant to the threads.

ENGINE

MAINTENANCE

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Spark plug	1	14	18 (1.8, 13)	
Valve adjusting screw lock nut	4	6	17 (1.7, 12)	
Timing hole cap	1	14	10 (1.0, 7)	
Engine oil drain bolt	1	12	25 (2.5, 18)	
Engine oil filter center bolt	1	20	18 (1.8, 13)	

LUBRICATION SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Oil pump driven sprocket bolt	1	6	12 (1.2, 9)	NOTE 1

FUEL SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Carburetor insulator band screw	2	5	–	page 5-19
Starter enrichment (SE) valve nut	1	–	3 (0.3, 2.2)	

COOLING SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Water pump impeller	4	7	12 (1.2, 9)	

CYLINDER HEAD/VALVE/CAMSHAFT

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Cylinder head cover cap nut	4	10	54 (5.5, 40)	NOTE 2

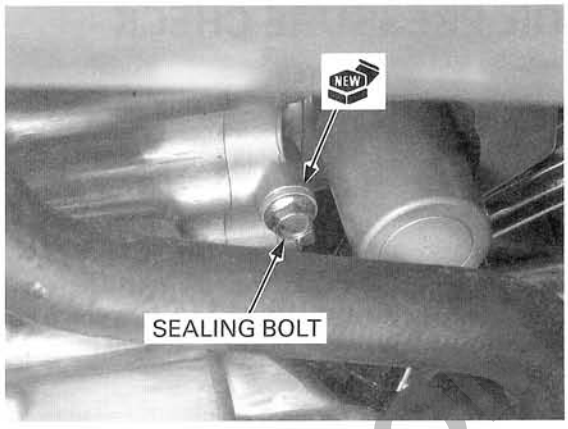
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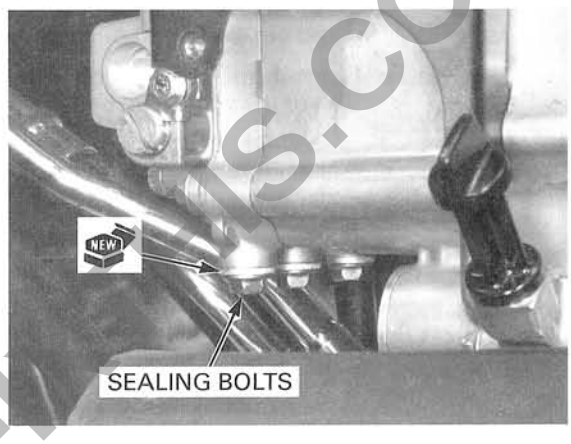
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Remove the pressure gauge and hose(s).

Install each sealing bolt with a new sealing washer and tighten the bolt(s).

After the oil pressure check is completed, start the engine and make sure there are no oil leaks.





TROUBLESHOOTING CHART OF HYDRAULIC CIRCUIT

PRESSURE CHECK SECTION		MEASUREMENT RESULT (■: Abnormal / Blank: Normal)								REFER TO PAGE
Line pressure									■	
1st clutch pressure				■		■	■	■	■	
2nd clutch pressure			■		■		■	■	■	
3rd clutch pressure		■			■	■		■	■	
PROBABLE FAULTY PART (applied to O)	Linear solenoid valve							O		12-12
	Emergency valve							O		
	1-2 shift valve		O	O						
	2-3 shift valve	O	O							
	Shift solenoid valve A		O	O						
	Shift solenoid valve B	O	O							
	2nd orifice control valve									
	3rd orifice control valve									
	Shift valve body				O	O	O	O		
	Orifice control valve body				O	O	O	O		
	1st clutch			O						12-29
	2nd clutch		O							
	3rd clutch	O								
	Feed pipe A			O						12-20
	Feed pipe B	O	O		O					
	Feed pipe C	O	O		O					
	Torque converter								O	12-25
	Oil pump								O	4-5
	Oil pipe setting collar	O	O	O					O	12-19
	Oil filter								O	3-12
	Oil strainer								O	13-5
	Oil level								O	3-10

For function of each component, refer to page 26-2.

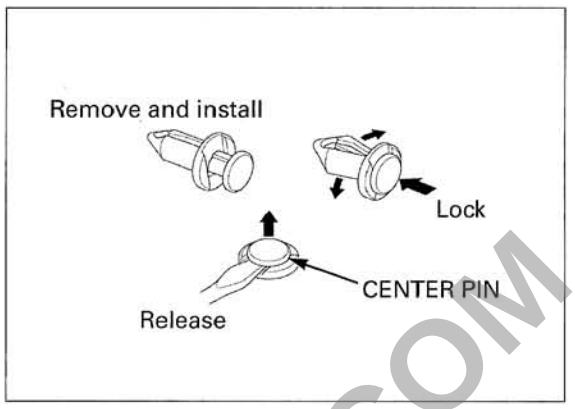
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TRIM CLIP REMOVAL AND RETAINING PROCEDURE:

When installing the trim clip, carefully align the clip holes to avoid damaging the clip.

Release by pulling the center pin up using a snap ring pliers or a flat blade screwdriver and remove the trim clip.
Install the clip and lock it by pushing the center pin securely.



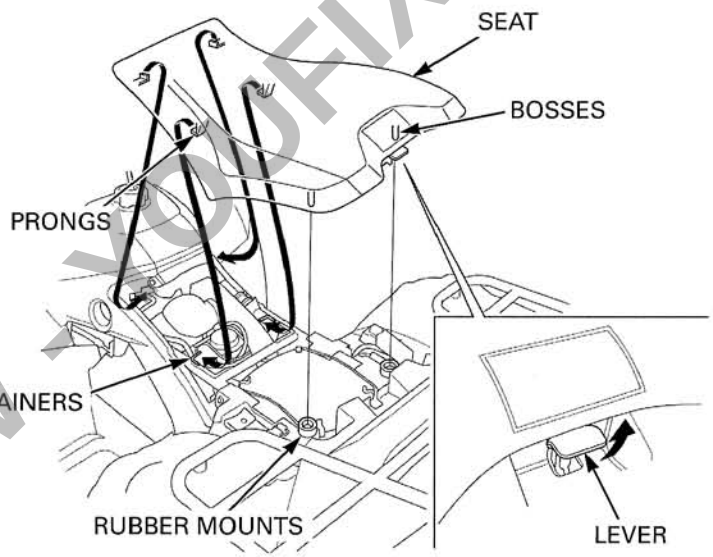
SEAT

REMOVAL

Unlock the seat by pulling the release lever up.
Pull the seat back and remove it.

INSTALLATION

Install the seat by inserting the prongs into the seat retainer on the frame.
Push the seat forward and align the mounting bosses with the rubber mounts, then press down to lock it.

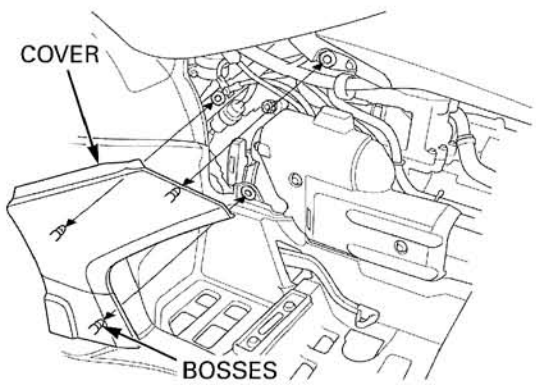


RIGHT SIDE COVER

Remove the right side cover by releasing the three bosses from the grommets.

Be careful not to dislodge the grommets.

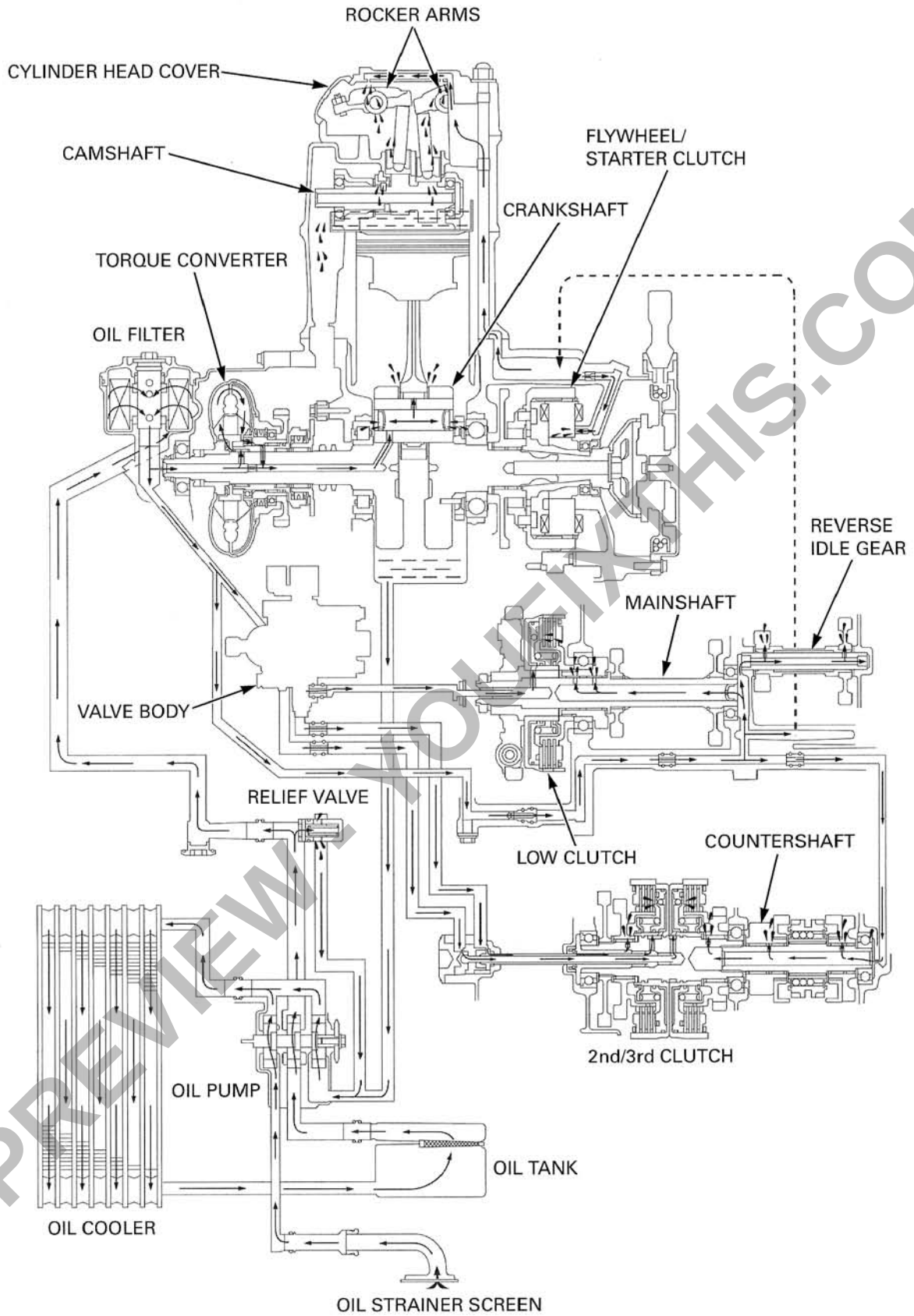
Install the starter cover in the reverse order of removal.



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LUBRICATION SYSTEM DIAGRAM



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27. TROUBLESHOOTING

ENGINE DOES NOT START OR IS HARD TO START 27-2

ENGINE LACKS POWER 27-3

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POOR PERFORMANCE AT HIGH SPEED 27-6

POOR HANDLING 27-6

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GENERAL SPECIFICATIONS

ITEM		SPECIFICATIONS
DIMENSIONS	Overall length	2,125 mm (83.7 in)
	Overall width	1,171 mm (46.1 in)
	Overall height	1,207 mm (47.5 in)
	Wheelbase	1,289 mm (50.7 in)
	Front tread	915 mm (36.0 in)
	Rear tread	945 mm (37.2 in)
	Seat height	875 mm (34.4 in)
	Footpeg height	341 mm (13.4 in)
	Ground clearance	254 mm (10.0 in)
	Dry weight	273 kg (600 lbs)
	Curb weight	286 kg (631 lbs)
	Maximum weight capacity	220 kg (485 lbs)
FRAME	Frame type	Double cradle
	Front suspension	Double wish-bone
	Front wheel travel	175 mm (6.9 in)
	Front damper	Double tube
	Rear suspension	Double wish-bone
	Rear wheel travel	203 mm (8.0 in)
	Rear damper	Single tube
	Front tire size	AT25 x 8R12
	Rear tire size	AT25 x 10R12
	Front rim size	12 x 6.0 AT★★
	Rear rim size	12 x 7.5 AT★★
	Front tire brand	H-TRAK UR101 (OHTSU)
	Rear tire brand	H-TRAK UR301 (OHTSU)
	Front brake	Hydraulic drum brake (Dual leading)
	Rear brake	Hydraulic/mechanical disc brake
	Caster angle	1.6°
	Trail length	2.1 mm (0.08 in)
	Camber angle	0°
	Fuel tank capacity	17 liters (4.5 US gal, 3.7 Imp gal)
	Fuel tank reserve capacity	3.1 liters (0.82 US gal, 0.68 Imp gal)
ENGINE	Cylinder arrangement	Single cylinder, longitudinally installed
	Bore and stroke	100 x 82.6 mm (3.9 x 3.25 in)
	Displacement	649 cm^3 (39.6 cu-in)
	Compression ratio	9.2 : 1
	Valve train	OHV
	Intake valve opens at 1 mm (0.04 in) lift	8° BTDC
	Intake valve closes at 1 mm (0.04 in) lift	35 ABDC
	Exhaust valve opens at 1 mm (0.04 in) lift	40° BBDC
	Exhaust valve closes at 1 mm (0.04 in) lift	5° ATDC
	Lubrication system	Forced pressure (dry sump)
	Oil pump type	Trochoid
	Cooling system	Liquid cooled
	Air filtration	Oiled urethane foam
	Engine dry weight	59.8 kg (131.8 lbs)
CARBURETOR	Carburetor type	Constant Vacuum (VE type)
	Throttle bore	40 mm (1.6 in)

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MAINTENANCE SCHEDULE

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

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

FREQUENCY			WHICHEVER COMES FIRST ⇩	⇨	INITIAL MAINTE-NANCE	REGULAR MAINTENANCE INTERVAL		REFER TO PAGE
				mi	100	600	1,200	
				km	150	1,000	2,000	
ITEMS				HOURS	20	100	200	
EMISSION RELATED ITEMS	*	FUEL LINE					I	3-4
	*	THROTTLE OPERATION					I	3-4
	*	CARBURETOR CHOKE					I	3-5
		AIR CLEANER	NOTE 1			C	C	3-5
		AIR CLEANER HOUSING DRAIN HOSE	NOTE 2			I	I	3-7
		SPARK PLUG					I	3-7
	*	VALVE CLEARANCE			I	I	I	3-8
		ENGINE OIL			R	R	R	3-10
		ENGINE OIL FILTER			R	R	R	3-12
	*	ENGINE IDLE SPEED			I	I	I	3-12
		RADIATOR COOLANT	NOTE 3			I	I	3-13
	*	COOLING SYSTEM	NOTE 2			I	I	3-13
NON-EMISSION RELATED ITEMS		DRIVE SHAFT BOOTS				I	I	3-14
		REAR FINAL GEAR CASE OIL AND DIFFERENTIAL OIL				(R: Every 2 years)	I	3-15
	*	BRAKE FLUID	NOTE 3			I	I	3-17
	*	BRAKE SHOES WEAR	NOTE 1				I	3-18
	*	BRAKE PADS WEAR	NOTE 1, 2				I	3-18
		BRAKE SYSTEM			I	I	I	3-19
		SKID PLATE, ENGINE GUARD				I	I	3-20
	*	SUSPENSION				I	I	3-21
	*	SPARK ARRESTER				C	C	3-21
	*	NUTS, BOLTS, FASTENERS			I		I	3-22
	**	WHEELS/TIRES			I	I	I	3-22
	**	STEERING SHAFT HOLDER BEARING					I	3-22
	**	STEERING SYSTEM					I	3-22

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

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

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

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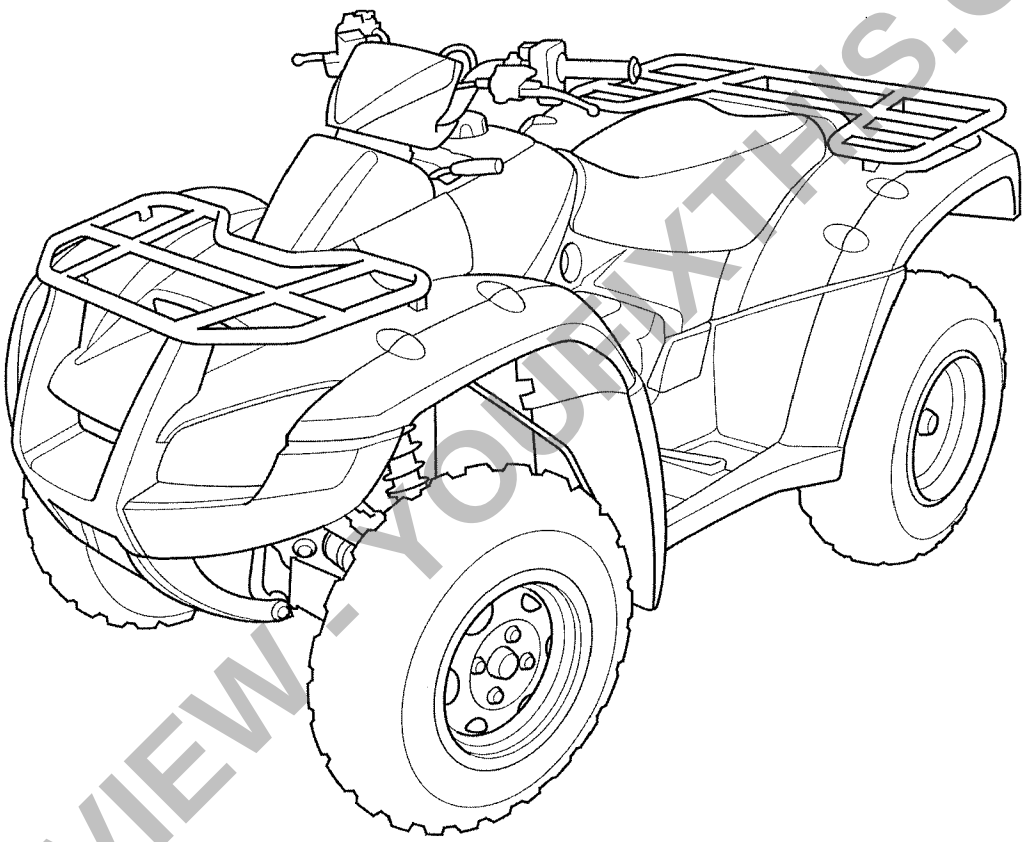
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SERVICE RULES

1. Use genuine Honda or Honda-recommended parts and lubricants or their equivalents. Parts that do not 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 in the Cable and Harness Routing (page 1-21).

MODEL IDENTIFICATION

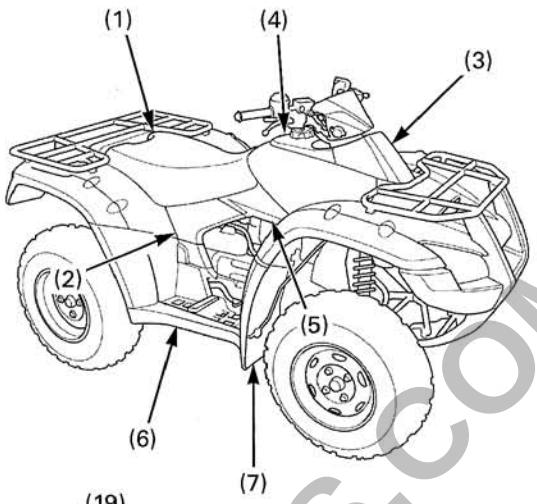


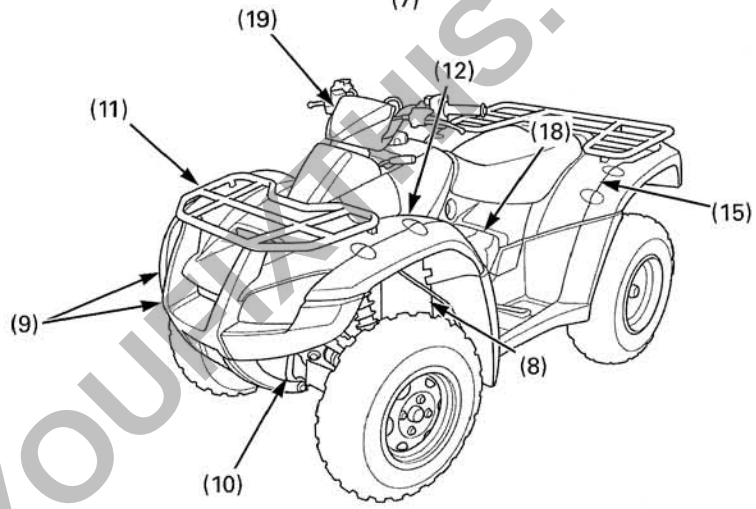
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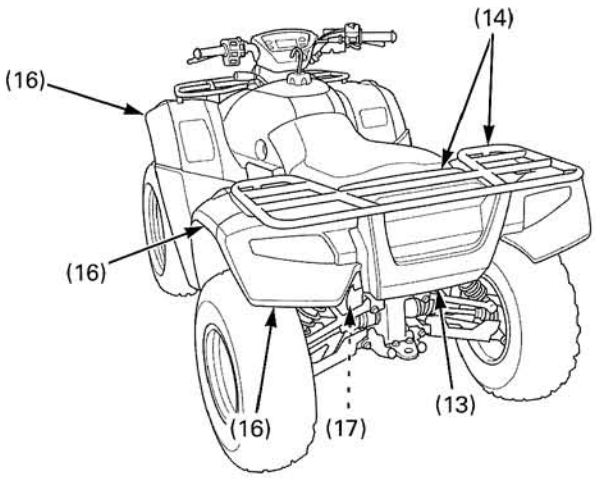
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BODY PANEL LOCATIONS

(1) Seat (page 2-4)
(2) Right side cover (page 2-4)
(3) Steering cover (page 2-5)
(4) Fuel tank top/center cover (page 2-5)
(5) Fuel tank side cover (page 2-6)
(6) Center mud guard (page 2-7)
(7) Front mud guard (page 2-8)
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(9) Front grille (page 2-10)
(10) Front carry pipe (page 2-10)
(11) Front carrier (page 2-11)
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(14) Rear carrier/mud guard (page 2-13)
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(18) Engine side cover (page 2-17)
(19) Meter cover (page 2-18)







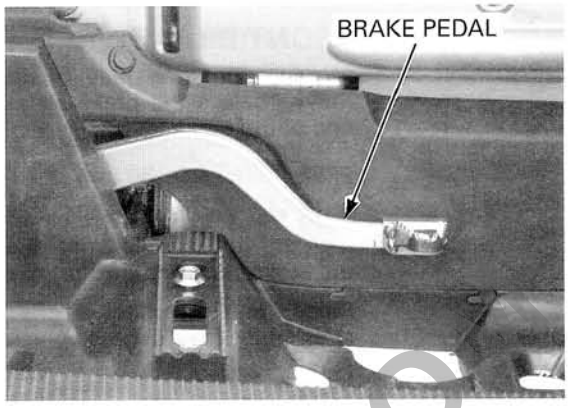
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REAR BRAKE

Firmly apply the brake pedal and check that no air has entered the system.
If the brake pedal feels soft or spongy when operated, bleed the system.
Refer to page 16-8 for air bleeding procedures.

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



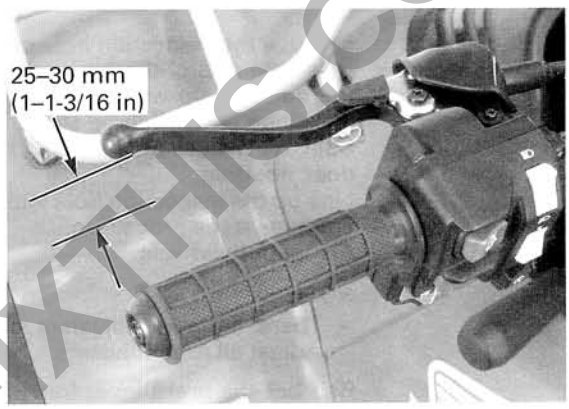
PARKING BRAKE

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

For cable lubrication: Disconnect the brake cable at the brake lever. Thoroughly lubricate the cable and its pivot point with a commercially available cable lubricant or a lightweight oil.

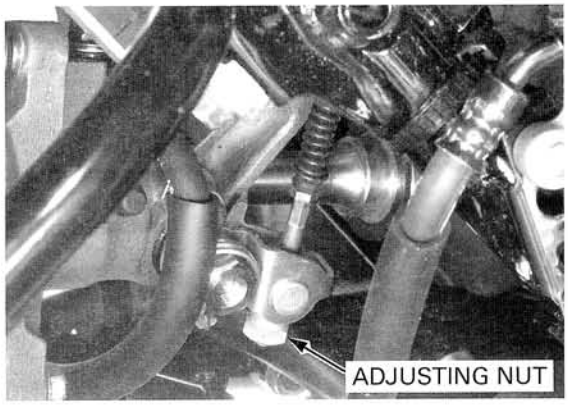
Measure the parking brake lever free play at the end of the lever.

FREE PLAY: 25 – 30 mm (1 – 1-3/16 in)



Make sure the cut-out in the adjusting nut is seated on the brake arm joint.

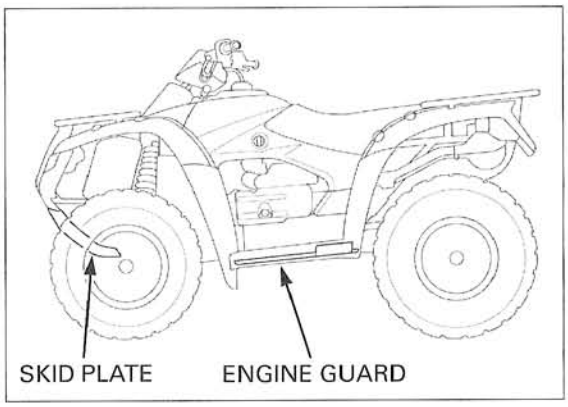
Adjust the parking brake lever free play by turning the adjusting nut at the brake arm.



SKID PLATE, ENGINE GUARD

Check the skid plates and engine guard for cracks, damage or looseness.

Tighten any loose fasteners. Replace the skid plates and engine guard as required.



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Start the engine and warm it up.
Adjust the idle speed at high altitude with the throttle stop screw to ensure proper high altitude operation.

IDLE SPEED: 1,400 ± 100 rpm

Sustained operation below 5,000 ft (1,500 m) with the high altitude setting may cause engine overheating and engine damage. When riding below 5,000 ft (1,500 m), readjust the carburetor as follows:
Screw out the pilot screw the specified number of turns from the high altitude setting.

LOW ALTITUDE PILOT SCREW OPENING:
1/2 turn out from the high altitude setting

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

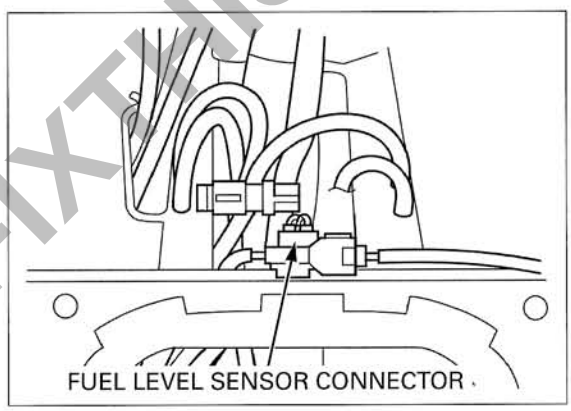


FUEL TANK

REMOVAL/INSTALLATION

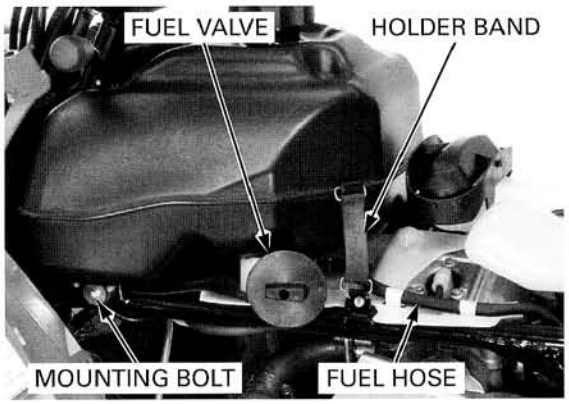
Remove both fuel tank side covers (page 2-6).

Disconnect the fuel level sensor 2P connector.



Remove the two fuel tank holder bands and mounting bolts.

Turn the fuel valve OFF, disconnect the fuel hose and remove the fuel tank.

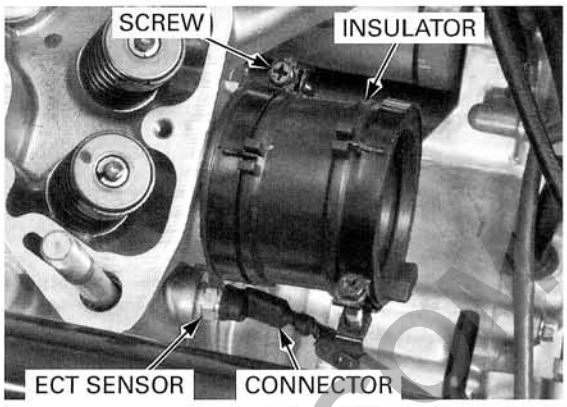


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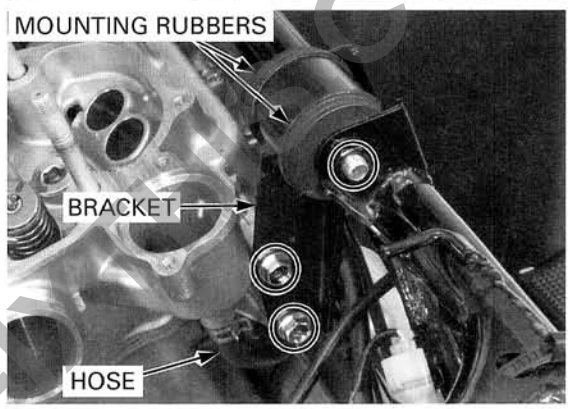
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CYLINDER HEAD REMOVAL

Remove the following:
- thermostat (page 6-8)
- carburetor (page 5-6)
- exhaust pipe (page 2-19)
- cylinder head cover (page 8-5)
- spark plug
- carburetor insulator (loosen the band screw)
- connector and engine coolant temperature (ECT) sensor

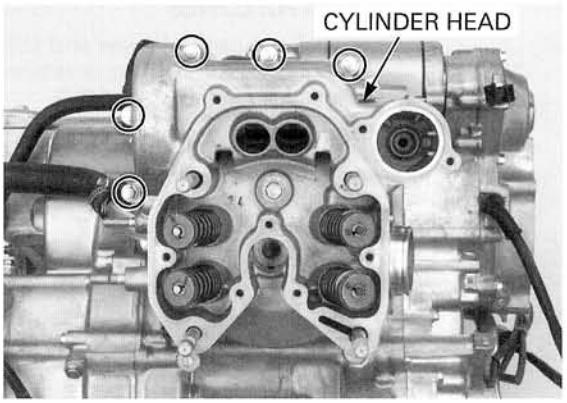


- bypass hose from the cylinder head
- upper engine hanger bolts
- hanger bracket and mounting rubbers

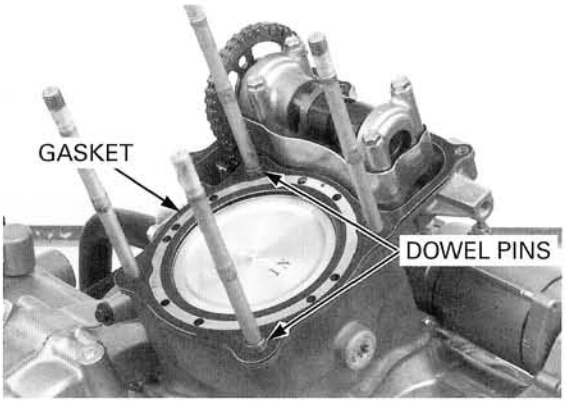


Do not strike the cylinder head too hard and do not damage the mating surface with a screwdriver.

- five bolts
- cylinder head



- gasket
- dowel pins



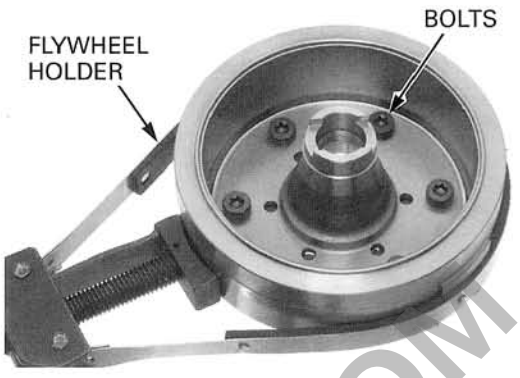
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Hold the flywheel with the special tool and remove the starter clutch bolts (T40).

TOOL:

Flywheel holder	**07725-0040000 or equivalent commercially available in U.S.A.**



Remove the starter clutch assembly from the flywheel.

Remove the sprag clutch from the clutch outer.

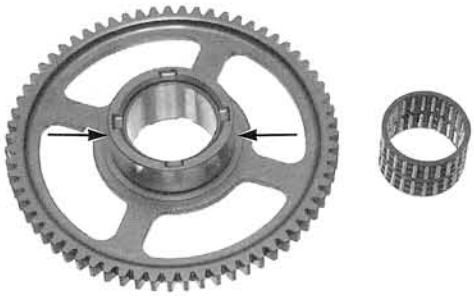
Check the clutch outer and sprag clutch for abnormal wear or damage.



Check the starter driven gear teeth and needle bearing for wear or damage.

Measure driven gear boss O.D.

SERVICE LIMIT: 51.61 mm (2.032 in)



STARTER CLUTCH ASSEMBLY

Lubricate the sprag clutch with engine oil and install it into the clutch outer with the flanged side facing the flywheel side.



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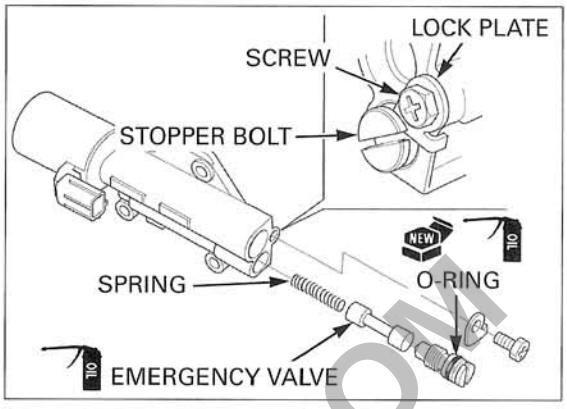
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SOLENOID AND EMERGENCY VALVES

Coat a new O-ring with engine oil and install it into the stopper bolt groove.
Apply engine oil to the emergency valve.

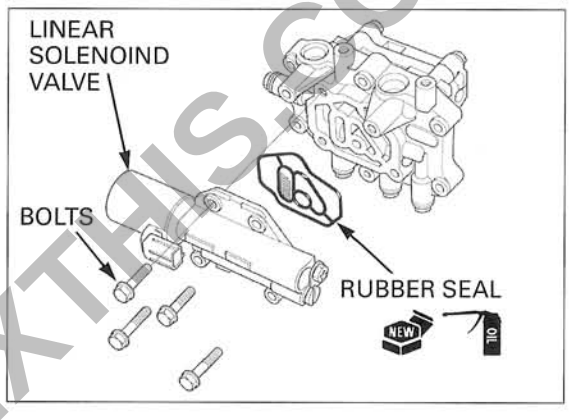
Install the spring and emergency valve into the linear solenoid valve body with the concave head end portion of valve facing in.
Install the valve stopper bolt and screw it in until the groove edge is aligned with the valve body surface.

Install the lock plate and screw as shown.



Coat a new rubber seal with engine oil and install it into the groove in the linear solenoid valve body.

Install the linear solenoid valve assembly with the four bolts.

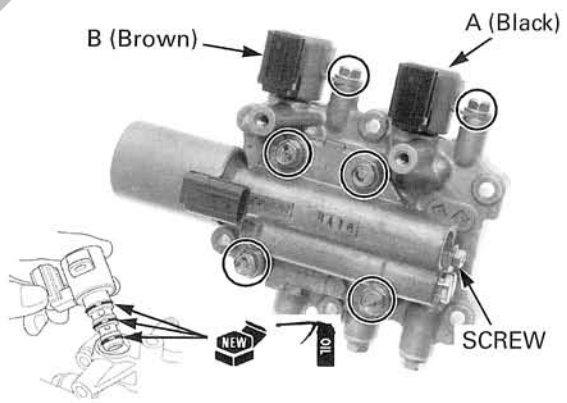


Coat new O-rings with engine oil and install them into the grooves in each shift solenoid valve.

Do not interchange A and B.

Install the shift solenoid valve A and B with the bolts.

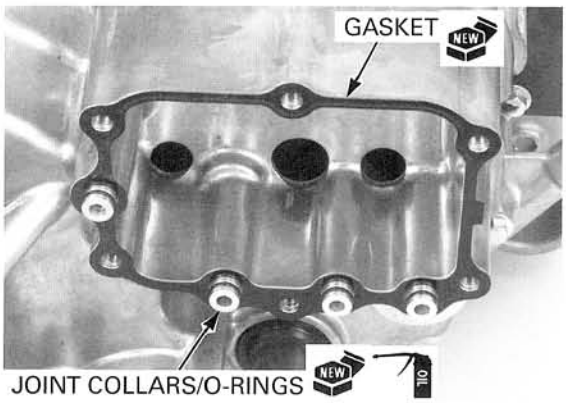
Tighten the six solenoid valve bolts and lock plate screw securely.



INSTALLATION

Clean the mating surface of the valve body assembly and front crankcase cover.

Coat new O-rings with engine oil and install them into the grooves in the oil joint collars.
Install the four joint collars and a new gasket.



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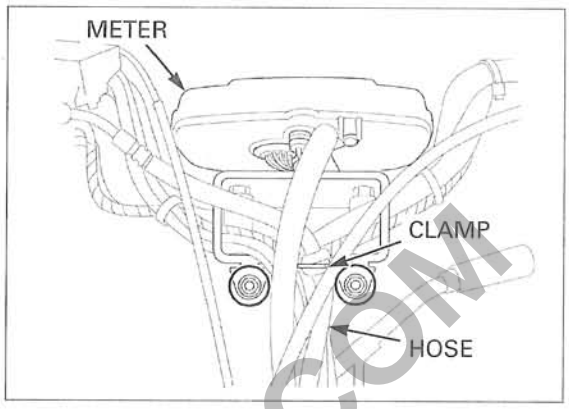
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HANDLEBAR

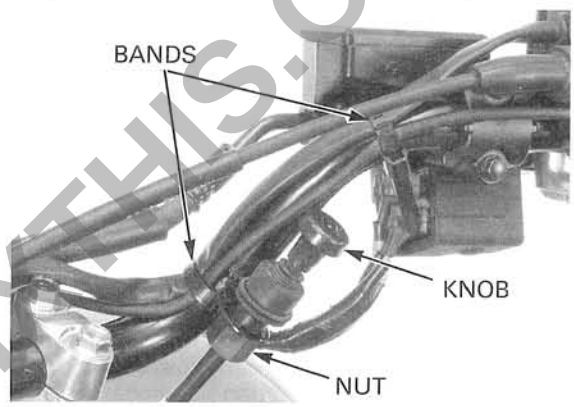
REMOVAL

Remove the meter covers (page 2-18).

Remove the following:
- two nuts
- combination meter/stay assembly
- brake hose (from the hose clamp)

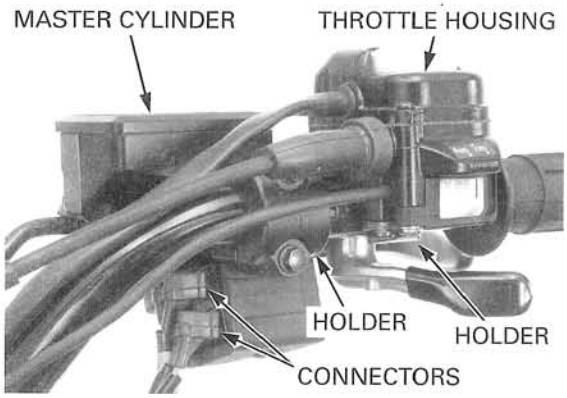


- four wire bands
- choke knob (by loosening the setting nut)

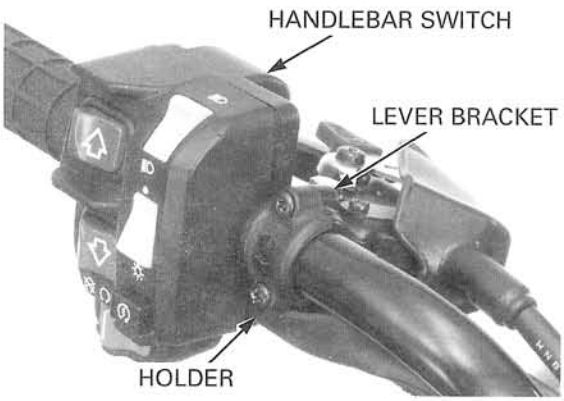


Keep the master cylinder upright to prevent air from entering the hydraulic system.

- two screws
- throttle housing holder
- throttle housing
- connectors
- two bolts
- master cylinder holder
- brake master cylinder



- two screws
- bracket holder
- rear brake lever bracket
- three screws
- handlebar switch



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Check the pivot bushings in the knuckle for wear or damage.



SHOCK ABSORBER

Remove the upper pivot collar.

Check the pivot bushings for wear or damage.
Check the damper unit for leaks or other damage.



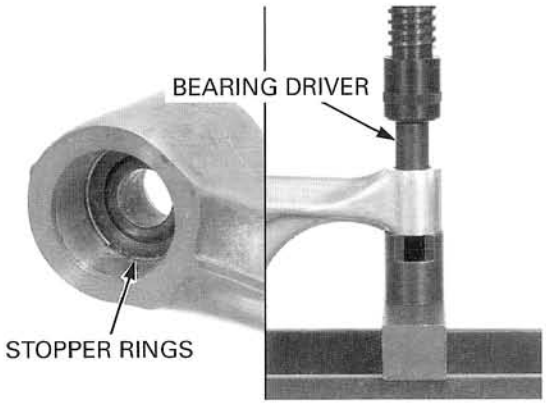
PIVOT BEARING REPLACEMENT

Clean any grease from the upper arm pivot thoroughly.
Remove the stopper rings from the pivot.

Press the bearing out of the upper arm using the special tool.

TOOL:

Spherical bearing driver	**07HMF-HC00100 (not available in U.S.A., use a suitable collar)**



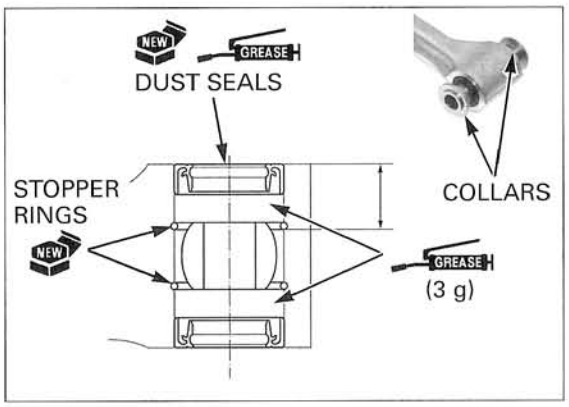
Install a new stopper ring into the inner groove in the pivot securely.

Carefully press in a new bearing until it contacts the stopper ring (the depth from the outer surface is 12.8 mm), using the same tool.

Install a new stopper ring.

Pack each pivot (between bearing and dust seals) with 3 g of grease.
Apply grease to the new dust seal lips and install them until they are flush with the outer surface.

Install the pivot collars.



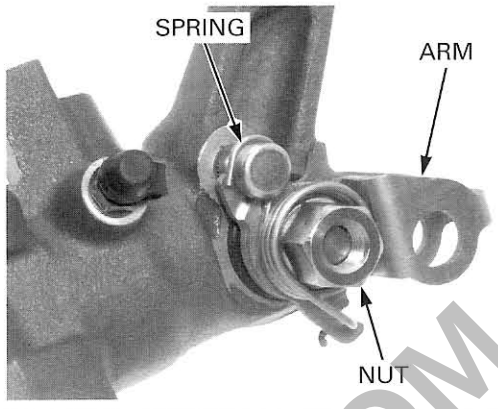
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Install the brake arm, washer and parking nut.
Tighten the parking nut.

TORQUE: 27 N·m (2.8 kgf·m, 20 lbf·ft)

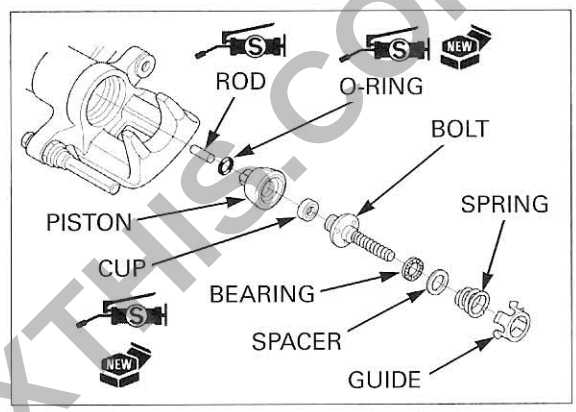
Install the return spring as shown.



Coat a new O-ring with silicone grease and install it into the sleeve piston groove.
Coat a new cup with silicone grease and install it onto the adjusting bolt.
Install the adjusting bolt into the sleeve piston.
Coat the rod with silicone grease and install it into the sleeve piston.

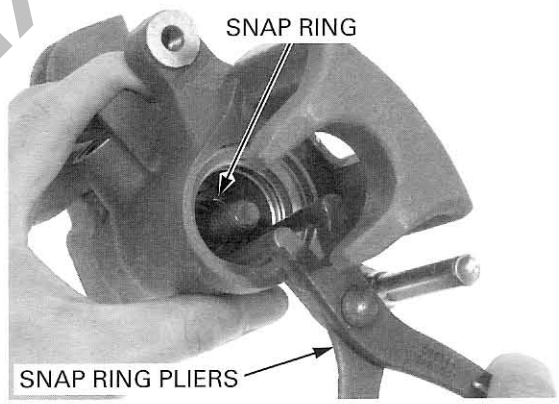
Install the piston assembly in the caliper cylinder by aligning the pins of the piston with the holes in the caliper.

Install bearing A, spacer, adjusting spring B and spring guide onto the adjusting bolt.



Install the snap ring using the snap ring pliers.

TOOL:
Snap ring pliers **07914-SA50001**



Coat a new piston seal with clean brake fluid and install it into the seal groove in the caliper.

Coat the caliper piston with clean brake fluid.
Apply silicone grease to the lips of a new dust cover.
Install the dust cover onto the caliper piston.
Install the dust cover into the groove in the caliper.
Install the caliper piston into the caliper cylinder and onto the adjusting bolt by turning it clockwise.
Install the dust cover into the groove in the caliper piston.



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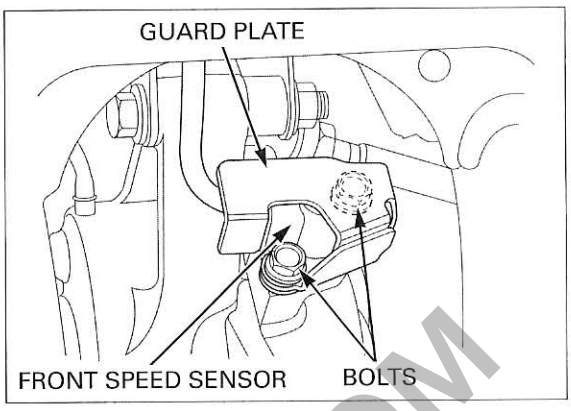
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Install the front speed sensor, guard plate and two bolts, and tighten the bolts.

TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)

Install the following:
- left drive shaft (page 17-10)
- front grille (page 2-10)
- inner fenders (page 2-9)
- left front mud guard (page 2-8)

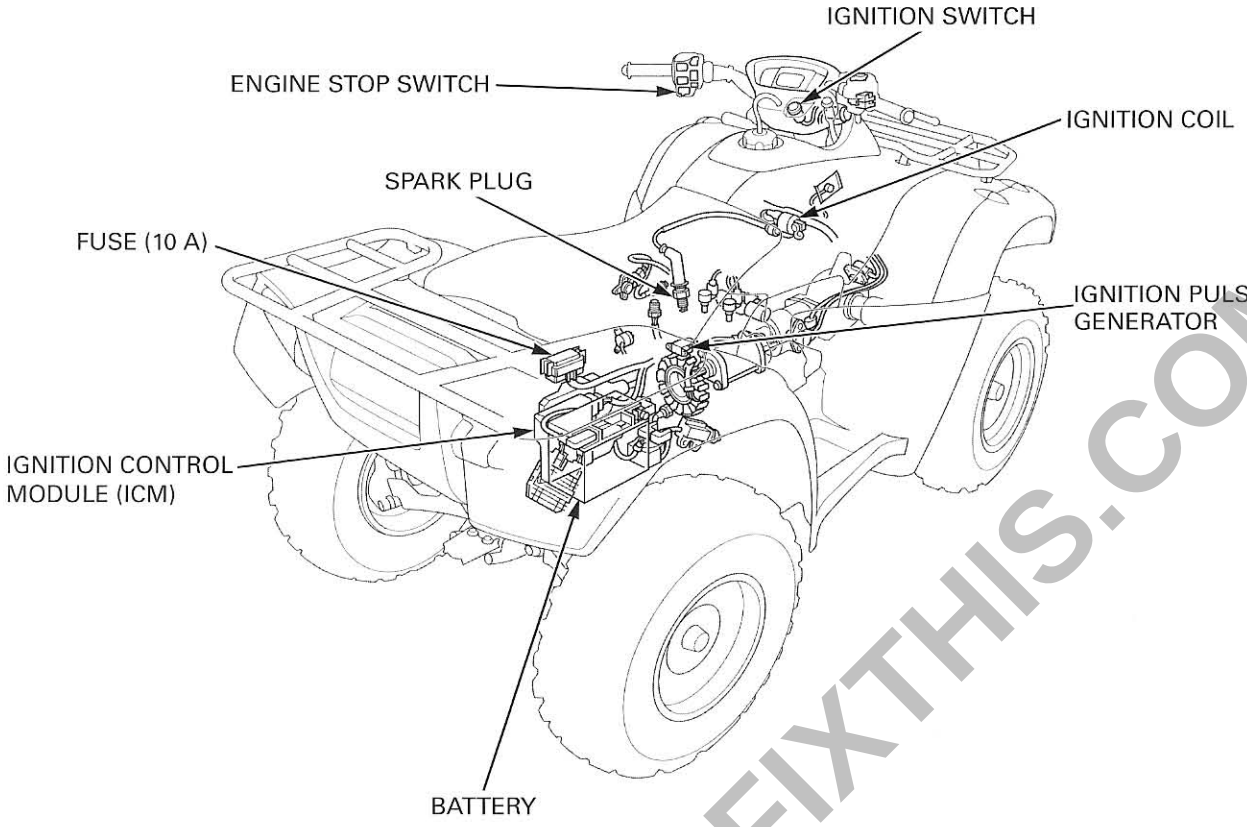
Fill the differential with the recommended oil (page 3-16).



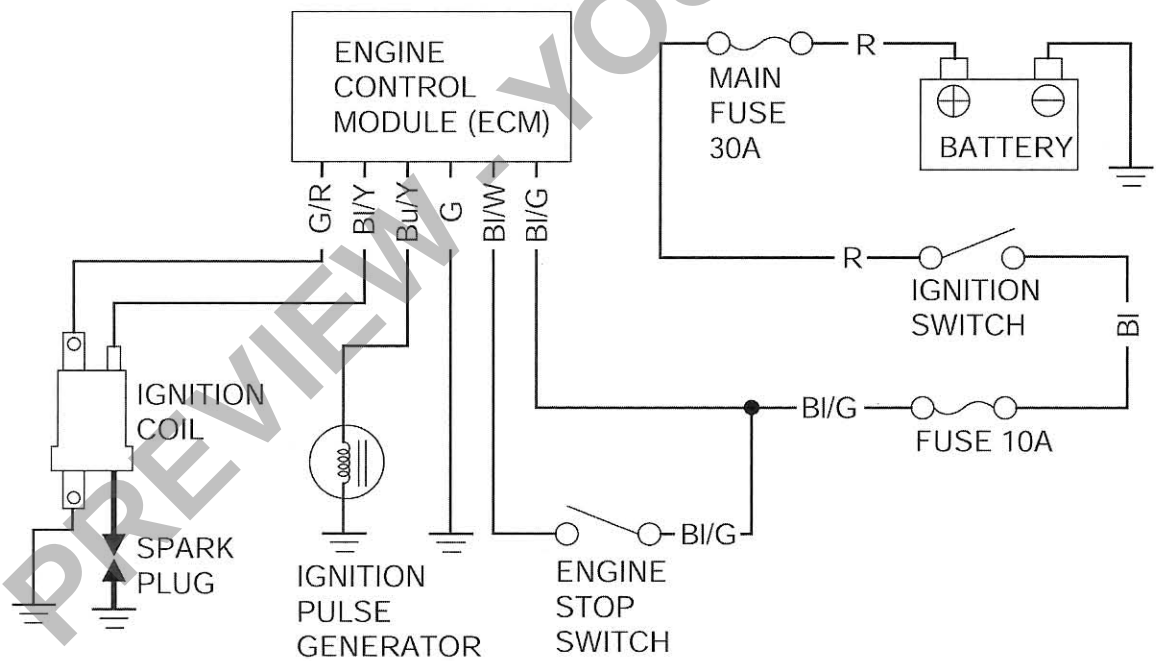
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COMPONENT LOCATION



SYSTEM DIAGRAM



Bl: Black
G: Green
R: Red
W: White
Y: Yellow
Bu: Bleu

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Replace the oil temperature sensor if it is out of specifications by more than 10% at any temperature listed.

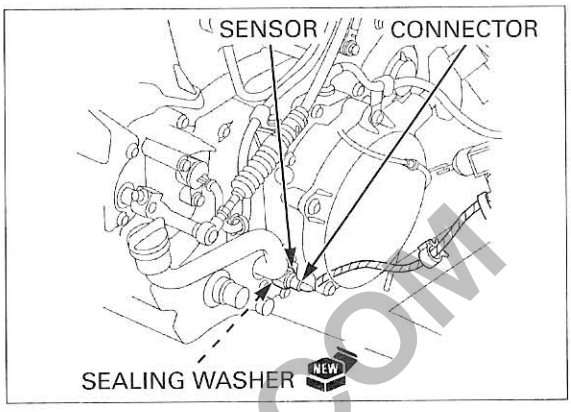
Install the oil temperature sensor with a new sealing washer and tighten it.

TORQUE: 18 N·m (1.8 kgf·m, 13 lbf·ft)

Connect the oil temperature sensor connector.

Install the removed parts in the reverse order of removal.

Fill the recommended engine oil (page 3-11).



BRAKE LIGHT SWITCH

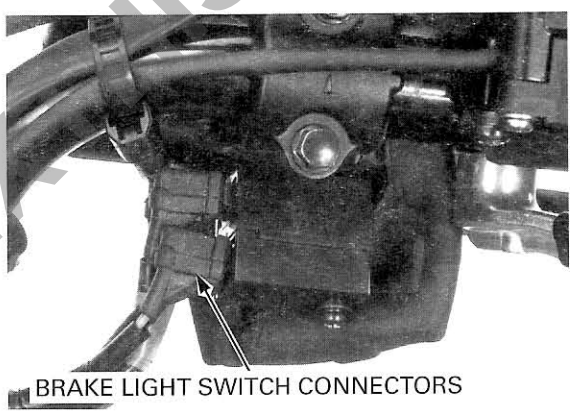
FRONT BRAKE LEVER

NOTE:

- The lower switch is the front brake light switch.

Disconnect the front brake lever switch connectors and check for continuity between the switch terminals.

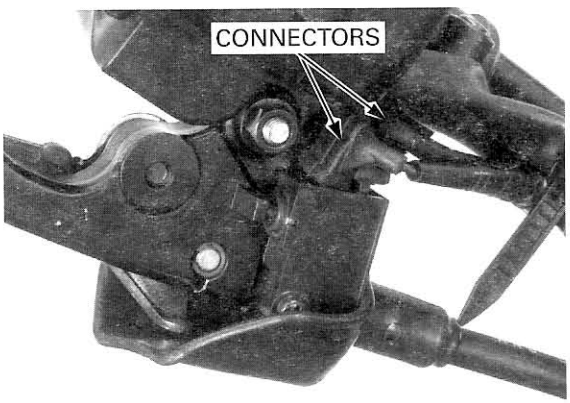
There should be continuity with the front brake lever squeezed and no continuity with the lever released.



REAR BRAKE LEVER

Disconnect the rear brake lever switch connectors and check for continuity between the switch terminals.

There should be continuity with the rear brake lever squeezed and no continuity with the lever released.



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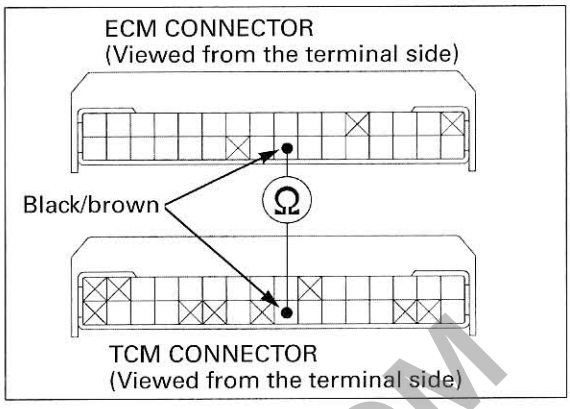
Be careful not to bend the connector terminals.

Check the Black/brown wire for continuity between the ECM and TCM 32P connector terminals.

Is there continuity?

NO – Open circuit in the Black/brown wire.

YES – GO TO STEP 8.



8. Failure Reproduction

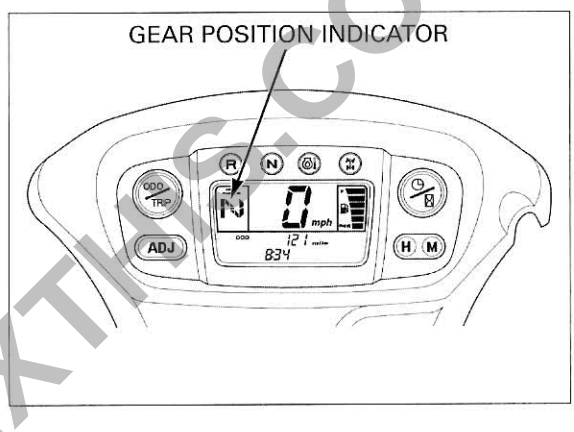
When connecting the ECM and TCM 32P connectors, check that there is no dirt and oil in the connectors.

Connect the ECM and TCM 32P connectors.
Turn the 2WD/4WD select switch to "4WD".
Test-drive the vehicle above 4 mph for more than 5 seconds and check that the gear position indicator blinks.

Does the gear position indicator blink 5 times?

NO – No problem (Temporary failure).

YES – GO TO STEP 9.



9. Failure Reproduction With a New TCM

Replace the TCM with a new one.
Turn the 2WD/4WD select switch to "4WD".
Test-drive the vehicle above 4 mph for more than 5 seconds and check that the gear position indicator blinks.

Does the gear position indicator blink 5 times?

NO – Faulty TCM.

YES – Faulty ECM.

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