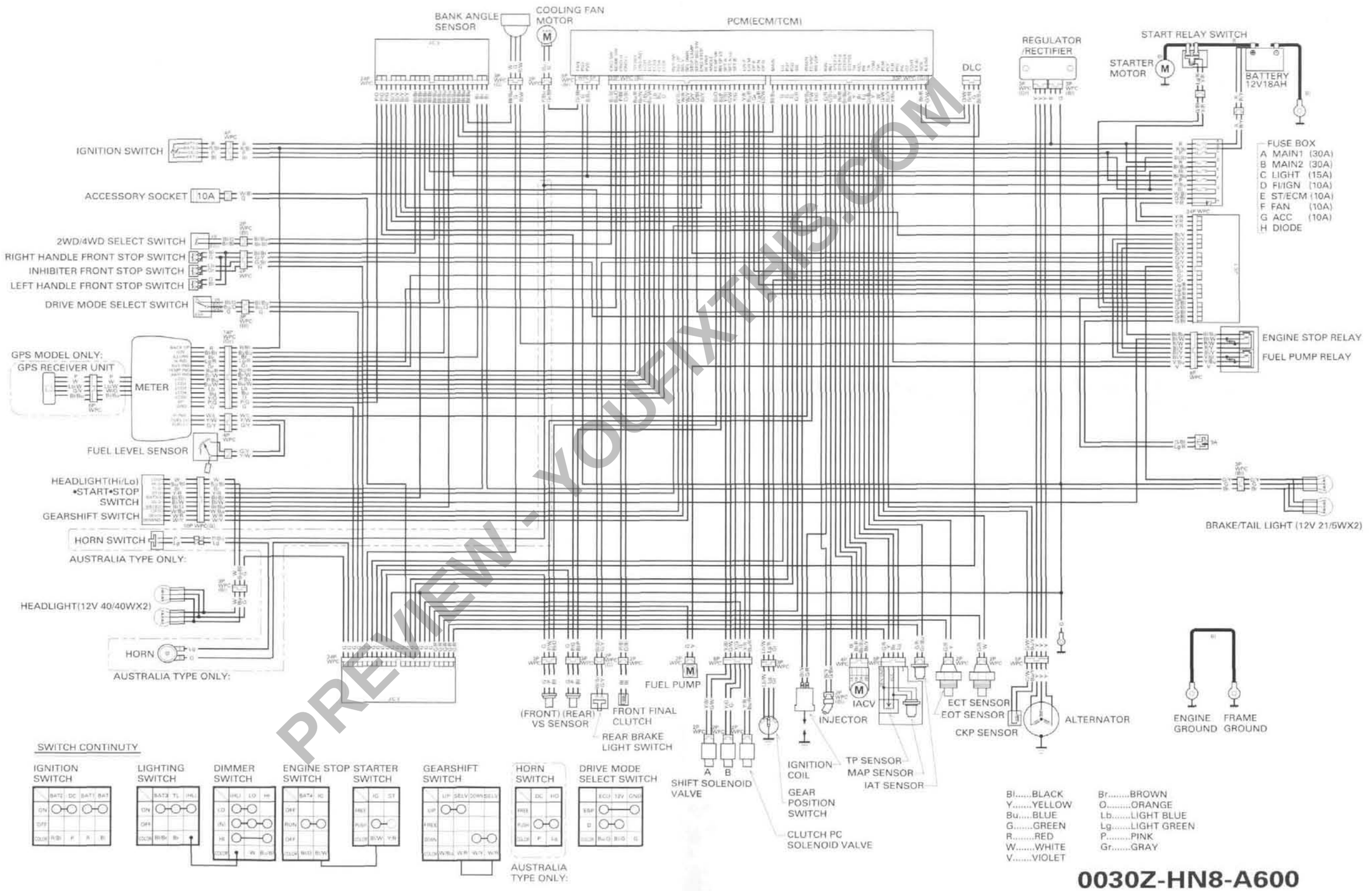
TRX680FA/FGA:



0030Z-HN8-A600

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STANDARD TORQUE VALUES

FASTENER TYPE	N·m (kgf·m, lbf·ft)	FASTENER TYPE	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, small flange)	10 (1.0, 7)
10 mm hex bolt and nut	34 (3.5, 25)	6 mm flange bolt (8 mm head, large flange)	12 (1.2, 9)
12 mm hex 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.

ENGINE

MAINTENANCE

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Spark plug	1	14	22 (2.2, 16)	
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)	Apply locking agent

FUEL SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Insulator band screw (throttle body side)	1	5	–	page 6-42
Insulator band screw (engine side)	1	5	–	page 6-46
Throttle drum cover screw	1	4	1.5 (0.15, 1.1)	
Sensor unit mounting screw	3	5	3.4 (0.35, 2.5)	
Fuel feed hose bracket screw	1	5	4.2 (0.43, 3.1)	
Harness guide bracket screw	1	5	4.2 (0.43, 3.1)	
Fuel injector/feed hose mounting bolt	2	5	5.1 (0.53, 3.8)	
IACV mounting torx screw	2	5	2.1 (0.21, 1.5)	

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	55 (5.6, 41)	Apply engine oil

CYLINDER/PISTON

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Cylinder stud bolt	4	10	–	page 10-7

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SYMPTOM TROUBLESHOOTING

When the vehicle has one of these symptoms, check the DTC or MIL blinking, refer to the DTC index (page 6-17) and begin the appropriate troubleshooting procedure. If there are no DTC/MIL blinking stored in the PCM memory, do the diagnostic procedure for the symptom, in the sequence listed below, until you find the cause.

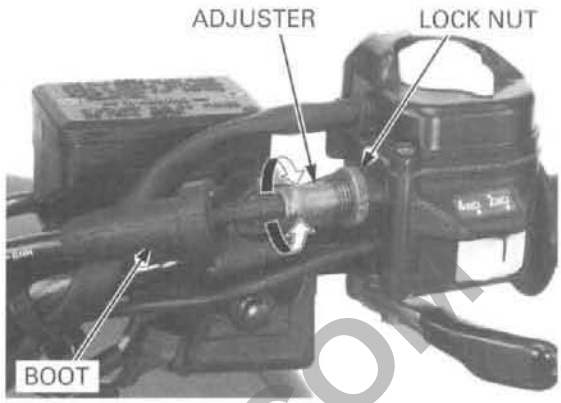
Symptom	Diagnosis procedure	Also check for
Engine cranks but won't start (No DTC and MIL blinking)	1. Inspect the ignition system (page 21-5). 2. Inspect the fuel supply system (page 6-36).	• No fuel to injector – Clogged fuel filter – Pinched or clogged fuel feed hose – Pinched or clogged fuel tank breather hose – Faulty fuel pump – Faulty fuel pump circuits • Intake air leak • Contaminated/deteriorated fuel • Faulty fuel injector • IACV stuck closed
Engine cranks but won't start (No fuel pump operation sound when the turning the ignition ON and engine stop switch "○")	1. PCM power/ground circuits malfunction (page 6-53) 2. Inspect the fuel supply system (page 6-36).	• Open circuit in the power input and/or ground wire of the PCM • Faulty bank angle sensor or related circuit • Faulty engine stop relay or related circuit • Faulty engine stop switch or related circuit • Blown FI/IGN fuse (10 A) • Blown ST./ECM fuse (10 A)
Engine stalls, hard to start, rough idling	1. Check the idle speed (page 6-55). 2. Check the IACV (page 6-56). 3. Inspect the fuel supply system (page 6-36).	• Restricted fuel feed hose • Contaminated/deteriorated fuel • Intake air leak • Restricted fuel tank breather hose • Faulty ignition system
Backfiring or misfiring during acceleration	Check the ignition system.	• Faulty ignition system
Poor performance (driveability) and poor fuel economy	Inspect the fuel supply system (page 6-36).	• Pinched or clogged fuel feed hose • Faulty injector • Faulty ignition system
Idle speed is below specifications or fast idle too low (No DTC and MIL blinking)	1. Check the idle speed (page 6-55) 2. Check the IACV (page 6-56).	• IACV stuck closed • Faulty fuel supply system • Faulty ignition system
Idle speed is above specifications or fast idle too high (No DTC and MIL blinking)	1. Check the idle speed (page 6-55) 2. Check the throttle operation and lever free play (page 4-4) 3. Check the IACV (page 6-56).	• IACV stuck opened • Faulty ignition system • Intake air leak • Engine top end problem • Air cleaner condition
MIL stays on but no DTCs set, or MIL never comes on at all	Troubleshoot the MIL circuit (page 6-31).	• Faulty MIL circuit
MIL stays on at all times (No DTC set)	Check the DLC circuit (Brown/red wire) for short circuit.	• Short circuit in the DLC related wire

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Minor adjustments are made with the upper adjuster.

Slide the rubber boot off the adjuster. Loosen the lock nut, turn the adjuster as required and tighten the lock nut.
Install the rubber boot securely.



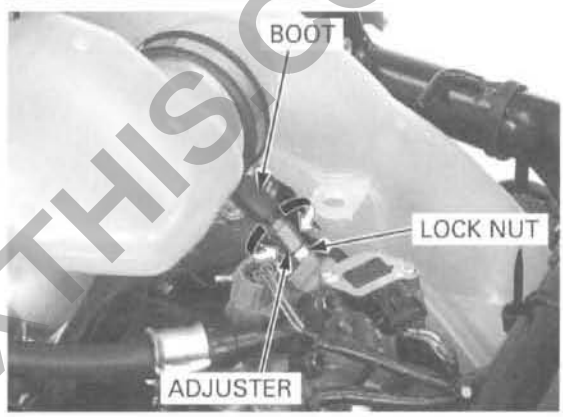
Major adjustments are made with the lower adjuster.

Remove the seat (page 3-4).
Remove the throttle body cover (page 4-4).

Slide the rubber boot off the adjuster. Loosen the lock nut, turn the adjuster as required and tighten the lock nut.
Install the rubber boot securely.

Recheck the throttle operation

Install the throttle body cover (page 4-4).
Install the seat (page 3-4).



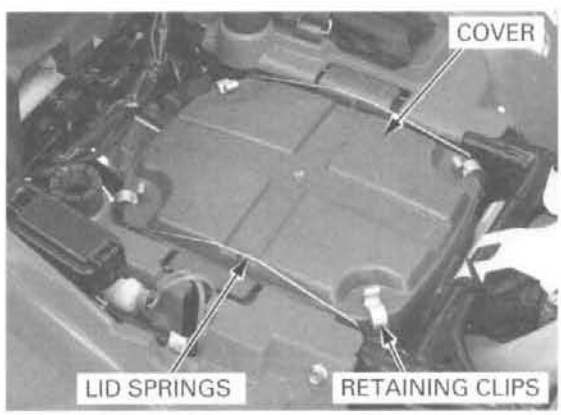
AIR CLEANER

Remove the seat (page 3-4).

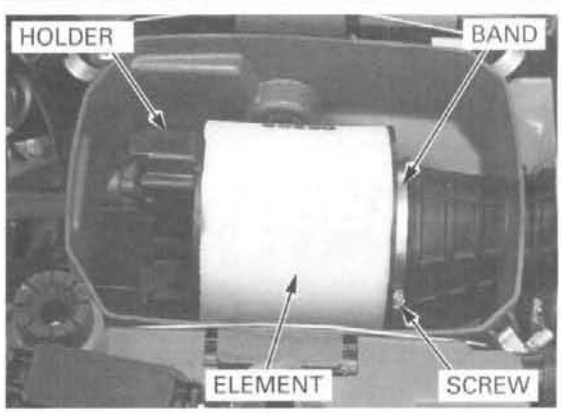
Release the retaining clips and lid springs from the air cleaner housing cover and remove the cover.

NOTE:

- If the vehicle is used in dusty areas, sand or snow, more frequent inspections are required.



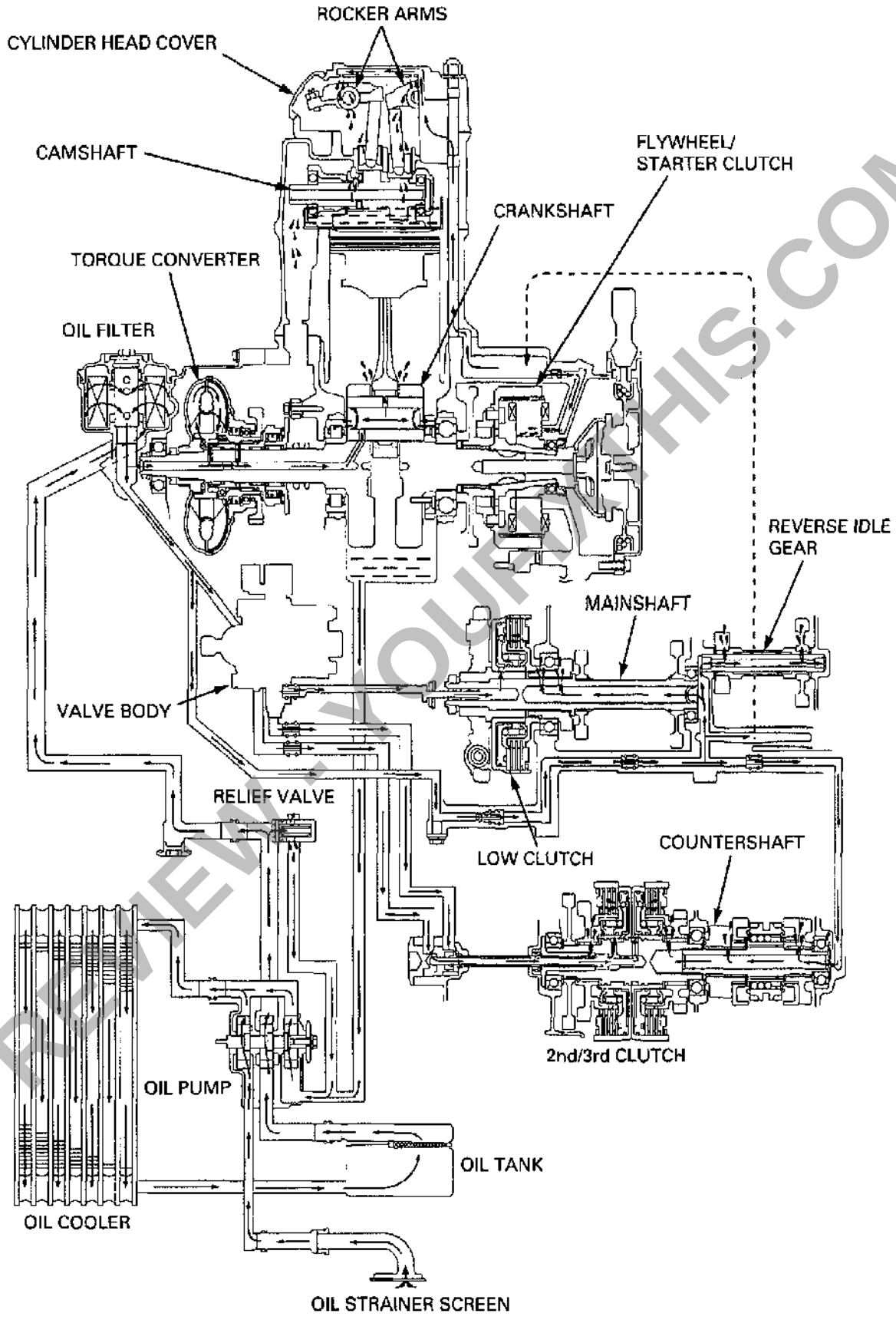
Loosen the air cleaner element band screw.
Remove the air cleaner element holder and then remove the air cleaner element assembly from the housing.



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LUBRICATION SYSTEM DIAGRAM



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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.

	ITEMS	FREQUENCY: WHICHEVER COMES FIRST ⇩	⇨	INITIAL MAINTE-NANCE	REGULAR MAINTENANCE INTERVAL		REFER TO PAGE
			mi	100	600	1,200	
			km	150	1,000	2,000	
			HOURS	20	100	200	
*	FUEL LINE					I	4-4
*	THROTTLE OPERATION					I	4-4
	AIR CLEANER	NOTE 1			C	C	4-5
	AIR CLEANER HOUSING DRAIN HOSE	NOTE 2			I	I	4-7
	SPARK PLUG					I	4-7
*	VALVE CLEARANCE			I	I	I	4-8
	ENGINE OIL			INITIAL = 100 mi (150 km), 20 operating hours or 1 month: R REGULAR = EVERY 600 mi (1000 km), 100 operating hours or 12 month: R			4-10
	ENGINE OIL FILTER			R	R	R	4-12
	RADIATOR COOLANT	NOTE 3			I	I	4-12
*	COOLING SYSTEM	NOTE 2			I	I	4-13
	DRIVE SHAFT BOOTS				I	I	4-14
	REAR FINAL GEAR CASE OIL AND DIFFERENTIAL OIL				(R: Every 2 years)	I	4-15
*	BRAKE FLUID	NOTE 3			I	I	4-17
*	BRAKE PADS WEAR	NOTE 1, 2				I	4-18
*	BRAKE LIGHT SWITCH			I	I	I	4-19
	BRAKE SYSTEM			I	I	I	4-19
	SKID PLATE, ENGINE GUARD				I	I	4-20
*	SUSPENSION				I	I	4-21
*	SPARK ARRESTER				C	C	4-21
*	NUTS, BOLTS, FASTENERS			I		I	4-22
**	WHEELS/TIRES			I	I	I	4-22
**	STEERING SHAFT HOLDER BEARING					I	4-22
**	STEERING SYSTEM					I	4-23

* 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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25. TROUBLESHOOTING

ENGINE DOES NOT START OR IS HARD TO START 25-2

ENGINE LACKS POWER 25-3

POOR PERFORMANCE AT LOW AND IDLE SPEED 25-5

POOR PERFORMANCE AT HIGH SPEED 25-6

POOR HANDLING 25-6

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ALTERNATOR/STARTER CLUTCH

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Starter clutch socket bolt	6	8	30 (3.1, 22)	Apply locking agent
Recoil starter driven pulley bolt	1	12	108 (11.0, 80)	Apply engine oil
Alternator stator bolt	3	6	10 (1.0, 7)	
CKP sensor mounting bolt	2	5	6 (0.6, 4.3)	Apply locking agent

DRIVE TRAIN

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Oil pass bolt	1	20	18 (1.8, 13)	
Primary driven gear lock nut	1	16	108 (11.0, 80)	Apply engine oil, Lock nut: replace with a new one Stake
Stator shaft inner collar stopper pin	1	10	14 (1.4, 10)	Apply locking agent
Torque converter lock nut	1	22	108 (11.0, 80)	Apply engine oil, Lock nut: replace with a new one Stake
Oil feed pipe setting cap	1	24	21 (2.1, 15)	

LIGHTS/METERS/SWITCHES

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
ECT sensor	1	10	12 (1.2, 9)	
EOT sensor	1	10	12 (1.2, 9)	

FRAME

FRAME/BODY PANELS/EXHAUST SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Front carrier and carry pipe bolt	8	8	37 (3.8, 27)	
Rear carrier bolt	6	8	37 (3.8, 27)	
Muffler band bolt	2	8	23 (2.3, 17)	
Front exhaust pipe cover screw	3	5	3.2 (0.33, 2.4)	
Muffler heat protector screw	3	5	5.4 (0.55, 4.0)	
Muffler cover screw	2	5	3.2 (0.33, 2.4)	
Footpeg bracket nut	4	8	32 (3.3, 24)	

MAINTENANCE

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Front differential oil filler cap	1	30	12 (1.2, 9)	
Front differential oil drain bolt	1	8	12 (1.2, 9)	
Rear final gear case oil filler cap	1	30	12 (1.2, 9)	
Rear final gear case oil drain bolt	1	8	12 (1.2, 9)	
Front master cylinder reservoir cap screw	2	4	2 (0.2, 1.4)	
Tie-rod lock nut	4	12	54 (5.5, 40)	

FUEL SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Bank angle sensor mounting bolt	2	4	1.5 (0.15, 1.1)	

ENGINE REMOVAL/INSTALLATION

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Lower engine hanger nut (left and right)	2	10	54 (5.5, 40)	
Upper engine hanger bolt	1	10	54 (5.5, 40)	
Upper engine hanger bracket bolt	2	8	32 (3.3, 24)	

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ENGINE DOES NOT START OR IS HARD TO START

1. **Spark Plug Inspection**

   Remove and inspect spark plug.

   Is the spark plug in good condition?

   NO – • Incorrect spark plug heat range
   • Incorrect spark plug gap
   • Dirty air cleaner

   YES – GO TO STEP 2.

2. **Spark Test**

   Perform spark test.

   Is there weak or no spark?

   YES – • Loose or disconnected ignition system wire
   • Faulty ignition coil
   • Broken or shorted spark plug wire
   • Loose or disconnected ignition system wires
   • Faulty CKP sensor
   • Faulty engine stop switch
   • Faulty ignition switch
   • Faulty PCM

   NO – GO TO STEP 3.

3. **Fuel Pump Inspection**

   Check for operation of the fuel pump and inspect the fuel flow.

   Is the fuel pump unit normal?

   NO – • Faulty fuel pump unit

   YES – GO TO STEP 4.

4. **PGM–FI System Inspection**

   Check the PGM–FI system.

   Is the PGM–FI system normal?

   NO – Faulty PGM–FI system

   Yes – GO TO STEP 5.

5. **Cylinder Compression**

   Test cylinder compression.

   Is the compression low?

   YES – • Valve clearance too small
   • Valve stuck open
   • Worn cylinder and piston rings
   • Damaged cylinder head gasket
   • Seized valve
   • Improper valve timing

   NO – GO TO STEP 5.

6. **Engine Start Condition**

   Start by following normal procedure.

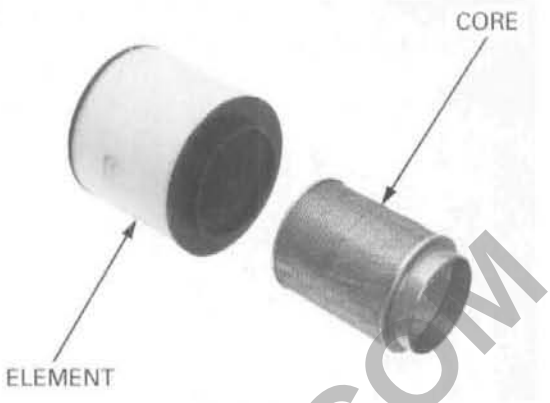
   Did the engine start but stops?

   YES – • Leaking intake manifold
   • Leaking intake pipe
   • Improper ignition timing (Faulty PCM or CKP sensor)
   • Contaminated fuel

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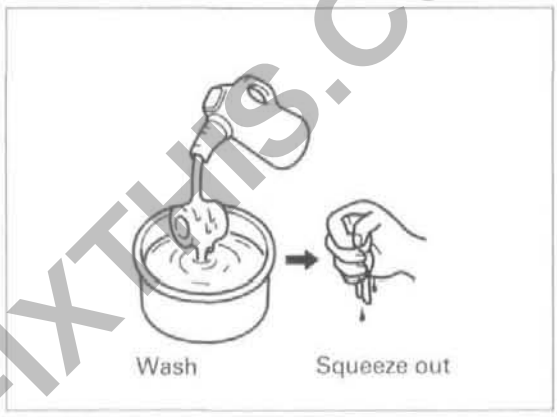
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Remove the element band and the element core from the air cleaner element.



Wash the element and filter in non-flammable or high flash point solvent.
Squeeze out the solvent thoroughly, and allow the element and filter to dry.

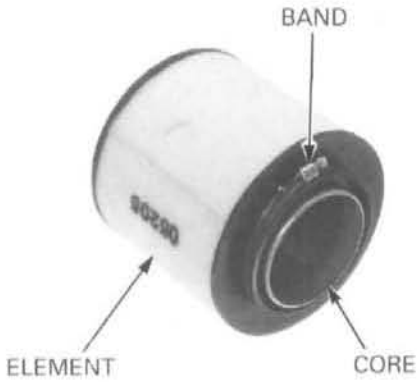
Install the sub-air cleaner filter onto the air cleaner hose joint and secure it with the clip.



Apply approximately 20 g (0.7 oz) of Pro Honda Form Filter Oil or equivalent oil from the inside of the element.
Place the element into a plastic bag and spread the oil evenly by hand.



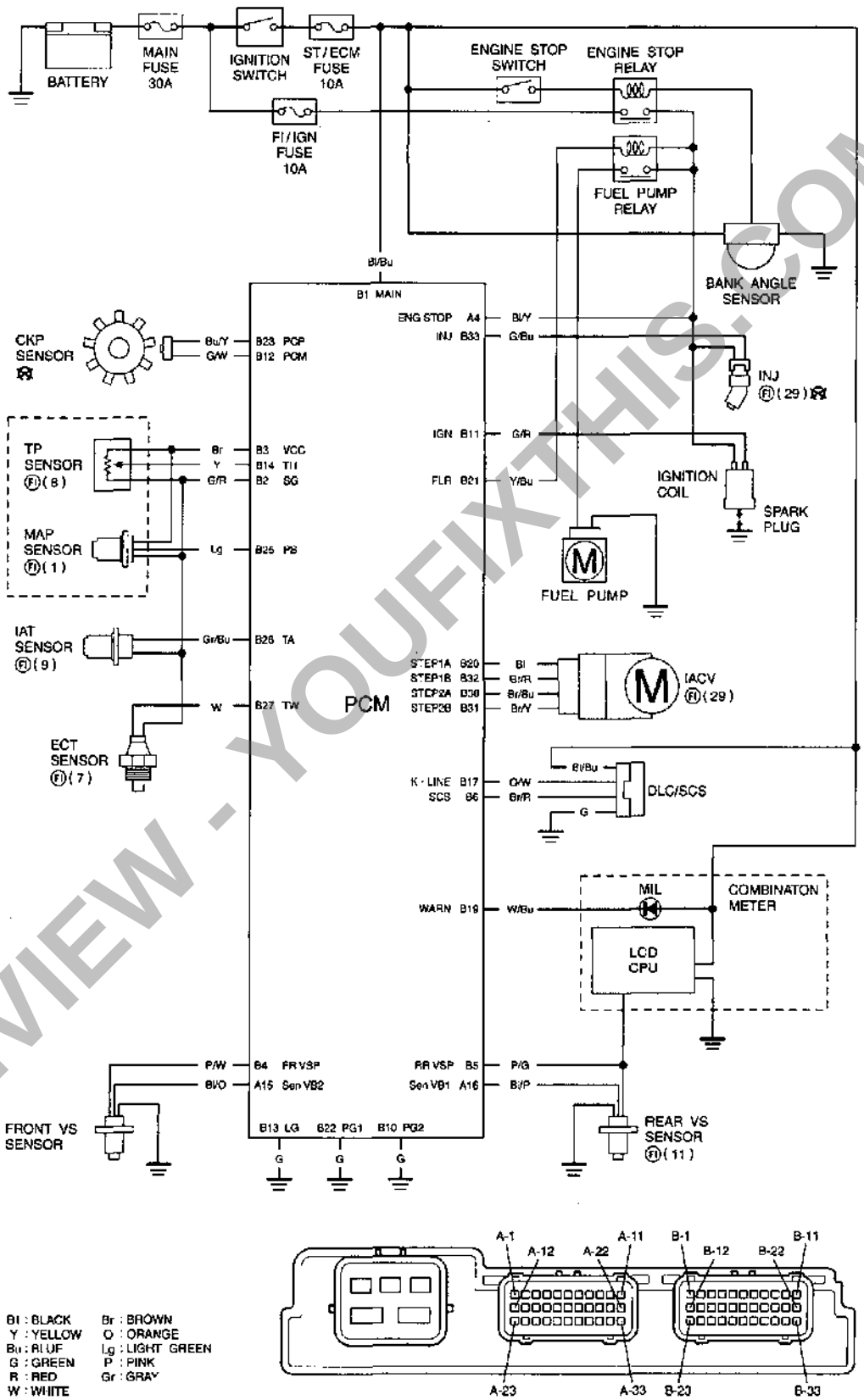
Install the element core into the air cleaner element properly.



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PGM-FI SYSTEM DIAGRAM



Bl : BLACK
Y : YELLOW
Bu : BLUE
G : GREEN
R : RED
W : WHITE
Br : BROWN
O : ORANGE
Lg : LIGHT GREEN
P : PINK
Gr : GRAY

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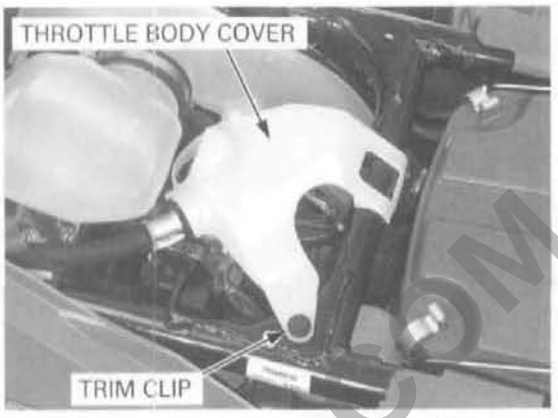
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FUEL LINE

Remove the following:.

- seat (page 3-4)
- fuel tank side covers (page 3-6)

Remove the trim clip and throttle body cover.



Check the fuel lines for deterioration, damage or leakage.
And also check the fuel hose (fuel tank to fuel pump) and fuel vapor return hose.

Replace the fuel hoses if necessary.



THROTTLE OPERATION

Check for any deterioration or damage to the throttle cable. Check that the throttle lever for smooth operation.
Check the throttle opens and automatically closes in all steering positions.

If the throttle lever does not return properly, lubricate the throttle cable and overhaul and lubricate the throttle housing (page 15-10).

Reusing an abnormally bent or kinked throttle cable can prevent proper throttle slide operation and may lead to a loss of throttle control while riding.

If the throttle lever still does not return properly, replace the throttle cable.

With the engine idling, turn the handlebar all the way to the right and left to ensure that the idle speed does not change. If idle speed increases, check the throttle lever free play and the throttle cable connection.



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

THROTTLE LEVER FREE PLAY:
3 – 8 mm (1/8 – 5/16 mm)

Throttle lever free play can be adjusted at either end of the throttle cable.

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SUB-TRANSMISSION/GEARSHIFT LINKAGE

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Gear selector lever pivot nut	1	12	9 (0.9, 6.5)	
Gear selector arm pinch bolt	2	6	16 (1.6, 12)	
Gear selector cable lock nut	1	14	26 (2.7, 20)	

FRONT WHEEL/SUSPENSION/STEERING

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Handlebar lower holder nut	2	10	39 (4.0, 29)	Lock nut: replace with a new one
Front wheel nut	8	10	64 (6.5, 47)	
Front wheel hub nut	2	16	78 (8.0, 58)	Castle nut: tighten to the specified torque and further tighten until its grooves aligns with the cotter pin hole
Front brake caliper bracket flange bolt	4	10	44 (4.5, 33)	ALOC bolt: replace with a new one
Front brake disc bolt	8	8	42 (4.3, 31)	ALOC bolt: replace with a new one
Front brake splash guard flange bolt	6	6	11 (1.1, 8)	ALOC bolt: replace with a new one
Shock absorber mounting nut	4	10	44 (4.5, 33)	Lock nut: replace with a new one
Brake hose clamp flange bolt	5	6	12 (1.2,9)	
Upper arm pivot nut	2	10	34 (3.5, 25)	Lock nut: replace with a new one
Lower arm pivot nut	4	10	44 (4.5, 33)	Lock nut: replace with a new one
Upper and lower arm ball joint nut	4	12	29 (3.0, 22)	Castle nut: tighten to the specified torque and further tighten until its grooves aligns with the cotter pin hole
Tie-rod ball joint nut	4	12	54 (5.5, 40)	Lock nut: replace with a new one
Combination meter stay mounting nut	2	8	25 (2.5, 18)	
Steering shaft end nut	1	14	108 (11.0, 80)	
Steering shaft holder bolt	2	8	32 (3.3, 24)	
Parking lock lever screw	1	6	7 (0.7, 5.1)	
Rear brake lever pivot bolt	1	6	1 (0.1, 0.7)	
Rear brake lever pivot nut	1	6	6 (0.6, 4.3)	
Parking stopper stay screw	1	4	2 (0.2, 1.4)	
Parking stopper stay screw	1	6	2 (0.2, 1.4)	
Brake light switch (left lever side)	1	4	1 (0.1, 0.7)	Apply locking agent

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ENGINE LACKS POWER

1. **Drivetrain Inspection**

   Raise wheel off the ground and spin by hand.

   Does the wheel spin freely?

   NO – • Brake dragging
   • Worn or damaged wheel bearing
   • Damaged differential or final drive bearing
   • Faulty differential or final drive

   YES – GO TO STEP 2.

2. **Tire Pressure Inspection**

   Check tire pressure.

   Are the tire pressures correct?

   NO – • Faulty tire valve
   • Punctured tire

   YES – GO TO STEP 3.

3. **Engine Condition Inspection**

   Accelerate lightly.

   Does the engine speed increase?

   NO – • Clogged air cleaner
   • Restricted fuel flow
   • Clogged muffler
   • Restricted fuel fill cap breather

   YES – GO TO STEP 4.

4. **Engine Condition Inspection**

   Accelerate or run at high speed.

   Is there knocking?

   YES – • Worn piston and cylinder
   • Use of poor quality fuel
   • Excessive carbon build-up in combustion chamber
   • Ignition timing too advance (Faulty PCM)

   NO – GO TO STEP 7.

5. **Spark Plug Inspection**

   Remove and inspect spark plug.

   Is the spark plug fouled or discolored?

   YES – • Plug not serviced frequently enough
   • Incorrect spark plug used

   NO – GO TO STEP 6.

6. **Engine Oil Inspection**

   Check oil level and condition.

   Is there correct level and good condition?

   NO – • Oil level too high
   • Oil level too low
   • Contaminated oil

   YES – GO TO STEP 7.

7. **Ignition Timing Inspection**

   Check the ignition timing.

   Is the ignition timing correct?

   NO – • Faulty PCM
   • Faulty CKP sensor

   YES – GO TO STEP 8.

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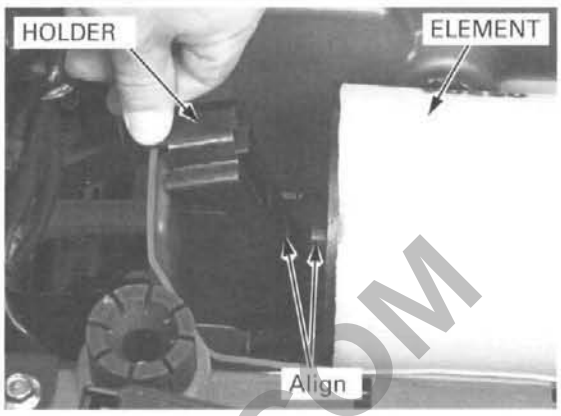
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Install the element band onto the air cleaner element and the element assembly over the connecting tube flange of the housing securely.
Tighten the band screw.

NOTE:

- Failure to properly tighten the band screw will allow the air cleaner element to fall off and engine damage could result.

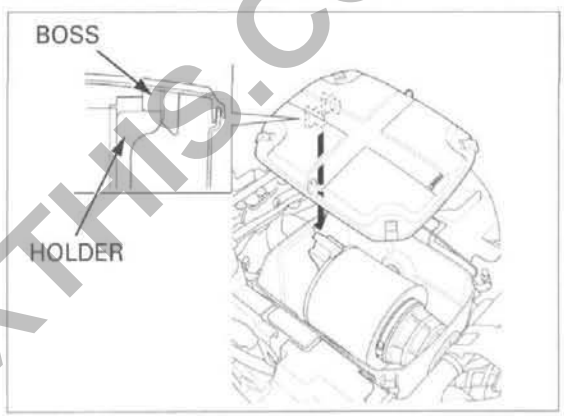
Install the air cleaner element holder while aligning the element core boss with the retainer hole.



Install the air cleaner element housing cover while aligning the cover boss with the element holder as shown.

Secure the air cleaner housing cover with the retaining clips and lid springs.

Install the seat (page 3-4).



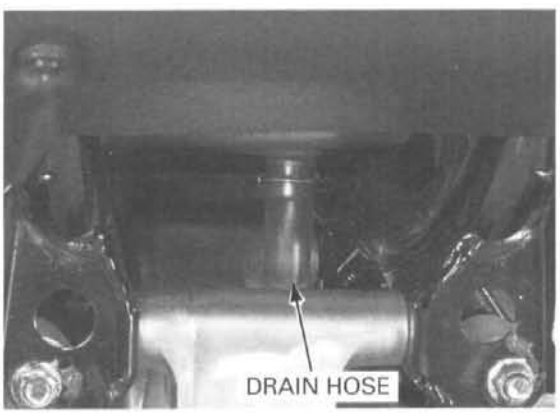
AIR CLEANER HOUSING DRAIN HOSE

Remove the drain hose from the bottom of the air cleaner housing to empty any deposits.

Install the drain hose securely.

NOTE:

- If the vehicle is used in very wet or muddy conditions, more frequent inspections are required.

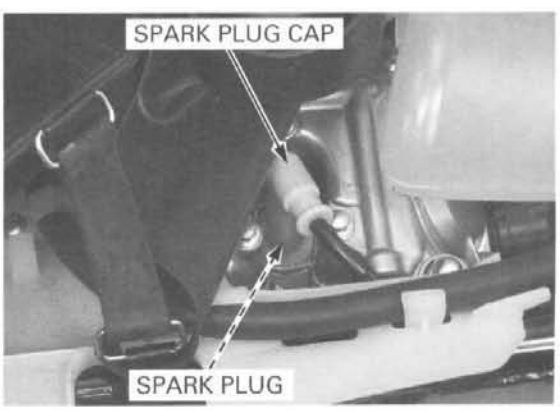


SPARK PLUG

Remove the seat (page 3-4).

Disconnect the spark plug cap and clean around the spark plug base with compressed air.

Remove the spark plug.



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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 1-20).

ABBREVIATION

Throughout this manual, the following abbreviations are used to identify the respective parts or systems.

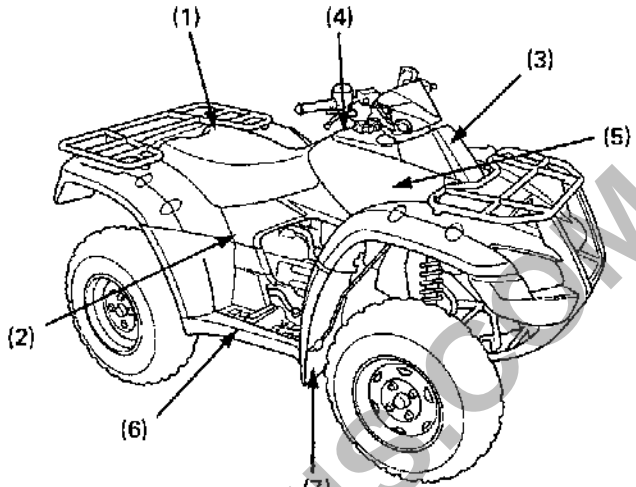
Abbrev. term	Full term
PGM-FI	Programmed Fuel Injection
MAP sensor	Manifold Absolute Pressure sensor
TP sensor	Throttle Position sensor
ECT sensor	Engine Coolant Temperature sensor
IAT sensor	Intake Air Temperature sensor
CKP sensor	Crankshaft Position sensor
VS sensor	Vehicle Speed sensor
EOT sensor	Engine Oil Temperature sensor
IACV	Idle Air Control Valve
PCM (ECM/TCM)	Powertrain Control Module (Engine Control Module/Transmission Control Module)
EEPROM	Electrically Erasable Programmable Read Only Memory
DLC	Data Link Connector
SCS connector	Service Check Short connector
HDS	Honda Diagnostic System
DTC	Diagnostic Trouble Code
MIL	Malfunction Indicator Lamp
A/T	Automatic Transmission
Clutch PC solenoid	Clutch Pressure Control solenoid
4WD	4 Wheel Drive
ESP	Electric Shift Program
GPS	Global Positioning System

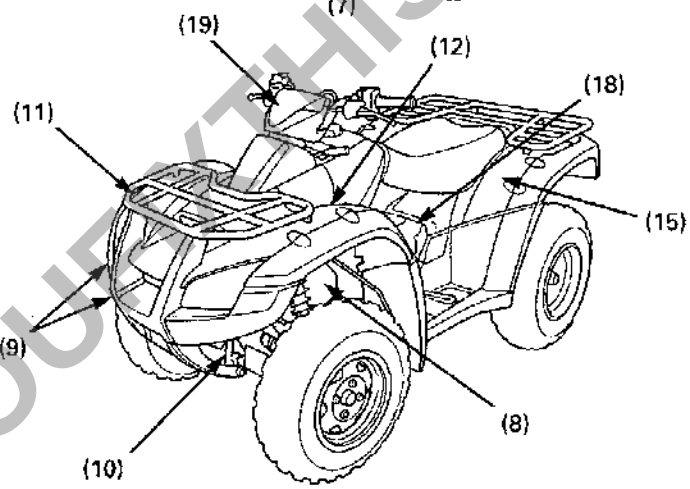
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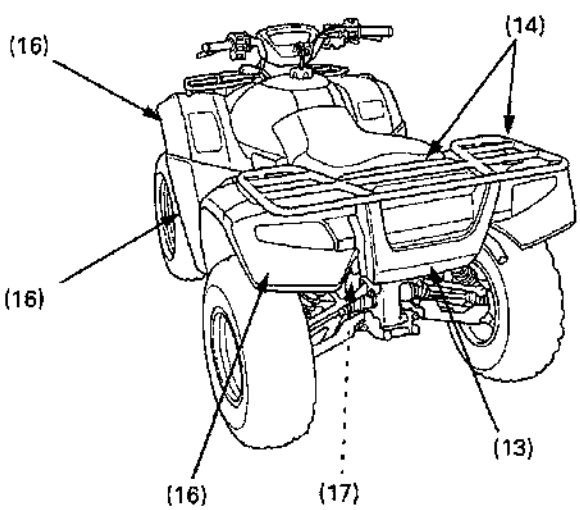
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BODY PANEL LOCATIONS

(1) Seat (page 3-4)
(2) Right side cover (page 3-5)
(3) Steering cover (page 3-5)
(4) Fuel tank top/center cover (page 3-5)
(5) Fuel tank side cover (page 3-6)
(6) Center mud guard (page 3-7)
(7) Front mud guard (page 3-8)
(8) Inner fender (page 3-9)
(9) Front grille (page 3-10)
(10) Front carry pipe (page 3-10)
(11) Front carrier (page 3-11)
(12) Front fender (page 3-11)
(13) Muffler protector (page 3-12)
(14) Rear carrier/mud guard (page 3-13)
(15) Rear fender (page 3-14)
(16) Outer fender (page 3-16)
(17) Engine guard (page 3-17)
(18) Engine side cover (page 3-17)
(19) Meter cover (page 3-18)







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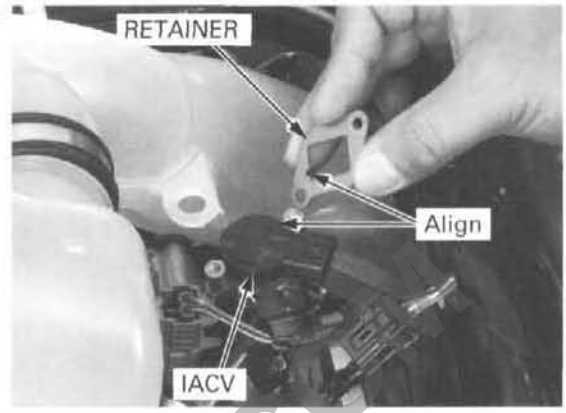
6. FUEL SYSTEM (PGM-FI)

SYSTEM COMPONENTS 6-2
SERVICE INFORMATION 6-3
SYMPTOM TROUBLESHOOTING 6-5
PGM-FI SYSTEM LOCATION 6-6
PGM-FI SYSTEM DIAGRAM 6-7
PGM-FI CONNECTOR LOCATION 6-8
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IACV 6-56

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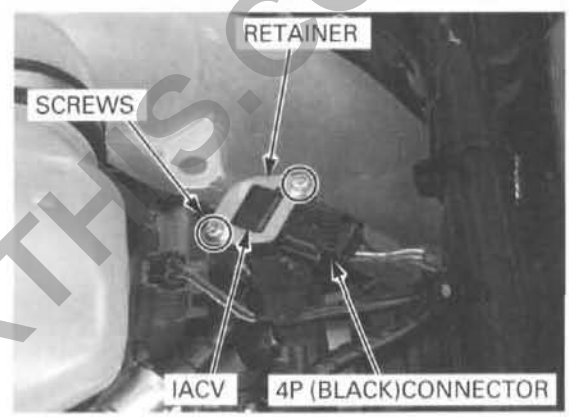
Install the IACV retainer while aligning the valve boss with the groove in the retainer.



Install and tighten the two screws to the specified torque.

TORQUE: 2.1 N·m (0.21 kgf·m, 1.5 lbf·ft)

Connect the IACV 4P (Black) connector.



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SERVICE INFORMATION

GENERAL

- The cylinder and piston can be serviced with the engine installed in the frame.
- Take care not to damage the cylinder wall and piston.
- Be careful not to damage the mating surfaces when removing the cylinder.
- Rocker arm and valve lubricating oil is fed through the oil passage in the cylinder. Clean the oil passage before installing the cylinder.
- When disassembling, mark and store the disassembled parts to ensure that they are reinstalled in their original locations.

SPECIFICATIONS

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Cylinder	I.D.		102.000 – 102.015 (4.0157 – 4.0163)	102.05 (4.018)
	Out-of-round		–	0.05 (0.002)
	Taper		–	0.05 (0.002)
	Warpage		–	0.05 (0.002)
Piston, piston pin, piston ring	Piston O.D. at 20 (0.8) from bottom		101.960 – 101.990 (4.0142 – 4.0153)	101.90 (4.012)
	Piston pin hole I.D.		23.002 – 23.008 (0.9056 – 0.9058)	23.03 (0.907)
	Piston pin O.D.		22.994 – 23.000 (0.9053 – 0.9055)	22.98 (0.905)
	Piston-to-piston pin clearance		0.002 – 0.014 (0.0001 – 0.0006)	0.04 (0.002)
	Piston ring end gap	Top	0.25 – 0.35 (0.010 – 0.014)	0.5 (0.02)
		Second	0.40 – 0.55 (0.016 – 0.022)	0.7 (0.03)
		Oil (side rail)	0.20 – 0.70 (0.008 – 0.028)	0.9 (0.04)
	Piston ring-to-ring groove clearance	Top	0.045 – 0.080 (0.0018 – 0.0031)	0.095 (0.0037)
		Second	0.025 – 0.060 (0.0010 – 0.0024)	0.075 (0.0030)
Cylinder-to-piston clearance			0.010 – 0.055 (0.0004 – 0.0022)	0.19 (0.007)
Connecting rod small end I.D.			23.030 – 23.050 (0.9067 – 0.9075)	23.06 (0.908)
Connecting rod-to-piston pin clearance			0.030 – 0.056 (0.0012 – 0.0022)	0.08 (0.003)

TORQUE VALUES

Cylinder stud bolt	See page 10-7

TROUBLESHOOTING

Compression too low, hard starting or poor performance at low speed
- Leaking cylinder head gasket
- Worn, stuck or broken piston ring
- Worn or damaged cylinder and piston

Compression too high, overheating or knocking
- Excessive carbon built-up on piston head or combustion chamber

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

Abnormal noise
- Worn piston pin or piston pin bore
- Worn connecting rod small end
- Worn cylinder, piston or piston rings

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SERVICE INFORMATION

GENERAL

- This "Drivetrain System" section covers service of the electrical system of the A/T (Automatic Transmission), selectable 4WD system and the mechanical system of the A/T.
- Refer to "Front driving mechanism" for the front final clutch service (page 18-14).
- Refer to "Technical Features" for the control and function of each components by the PCM (page 2-7).
- 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.
- A faulty drivetrain system is often related to poorly connected or corroded connectors. Check those connections before proceeding.
- Read "Drivetrain Troubleshooting Information" carefully, and inspect and troubleshoot the drivetrain system according to the DTC. Observe each step of the procedures one by one. Note the DTC and probable faulty part before starting diagnosis and troubleshooting.
- The PCM may be damaged if dropped. Also, if a connector is disconnected when current is flowing, the excessive voltage may damage the PCM. Always turn off the ignition switch before servicing.
- The drive mode (2WD or 4WD) is changed electrically by operating front final clutch with the 2WD/4WD select switch.
- The torque converter and 1st shift clutch can be serviced with the engine installed in the frame. To service the mainshaft and 2nd/3rd shift clutch (countershaft), the crankcase halves must be separated. For crankcase separation and assembly (page 13-6).
- For sub-transmission (Forward-Neutral-Reverse) service (page 12-2).
- The engine oil is used for A/T oil. For lubrication system service (oil pump and oil cooler) (page 5-2).
- A/T and lubricating oil is fed through the oil passage in the front crankcase cover. Clean the oil passages before installing the crankcase cover.
- Be careful not to damage the crankcase and cover mating surfaces when servicing.
- Replace the torque converter as an assembly, when it is faulty.

For Drivetrain System Troubleshooting

The PCM (Powertrain Control Module) is integrated with the ECM (Engine Control Module), the TCM (Transmission Control Module) and the selectable 4WD system control. Therefore some detection items that are shared in the PGM-FI and drivetrain system and they may affect the operation of both systems.

Before starting any troubleshooting, check the items as follows and refer to the appropriate troubleshooting.

1. MIL blinks or DTC for the Fuel system (page 6-13).
2. Gear position indicator blinks, 4WD indicator or DTC for the Drivetrain system (page 14-20).
3. Symptom of the A/T and selectable 4WD system operation (page 14-6).

Refer to "PGM-FI Troubleshooting Information" for the general troubleshooting information (page 6-13).

SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Oil pressure at 5,000 rpm (min^{-1})	Line	785 kPa (8.0 kgf/cm^2, 114 psi)	–
	1st, 2nd and 3rd clutch	785 kPa (8.0 kgf/cm^2, 114 psi)	–
Shift clutch (1st, 2nd and 3rd)	Initial clearance	0.7 – 0.9 (0.03 – 0.04)	–
	Disc thickness	1.88– 2.00 (0.074 – 0.079)	worn out lining
	Plate thickness	1.95– 2.05 (0.077 – 0.081)	discoloration
	Return spring free length	33.8 (1.33)	31.8 (1.25)

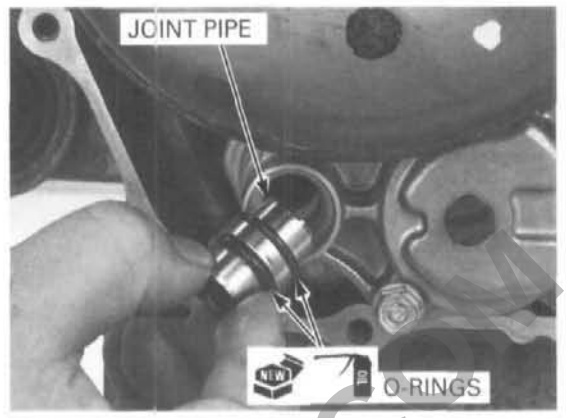
TORQUE VALUES

Oil pass bolt	18 N·m (1.8 kgf·m, 13 lbf·ft)	
Primary driven gear lock nut	108 N·m (11.0 kgf·m, 80 lbf·ft)	Lock nut: replace with a new one. Apply engine oil to the threads and seating surface. Stake.
Stator shaft inner collar stopper pin	14 N·m (1.4 kgf·m, 10 lbf·ft)	Apply locking agent to the threads.
Torque converter lock nut	108 N·m (11.0 kgf·m, 80 lbf·ft)	Lock nut: replace with a new one. Apply engine oil to the threads and seating surface. Stake.
Oil feed pipe setting cap	21 N·m (2.1 kgf·m, 15 lbf·ft)	

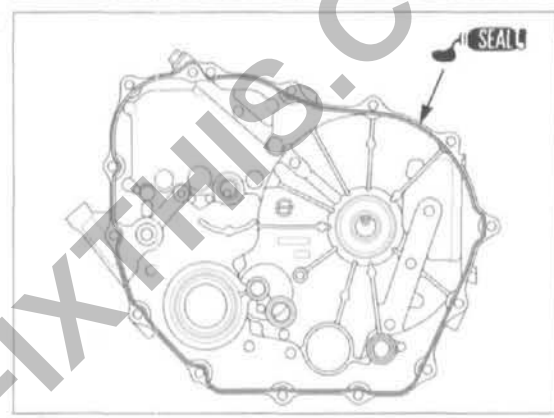
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Coat new O-rings with engine oil and install them onto the joint pipe.
Install the joint pipes into the oil pump.

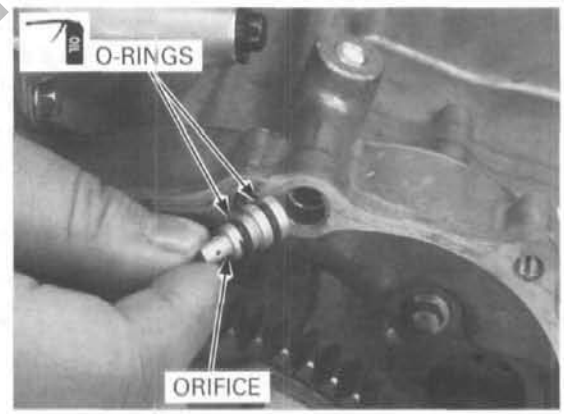


Apply liquid sealant (Three Bond 1215 or equivalent) to the mating surface of the crankcase cover.

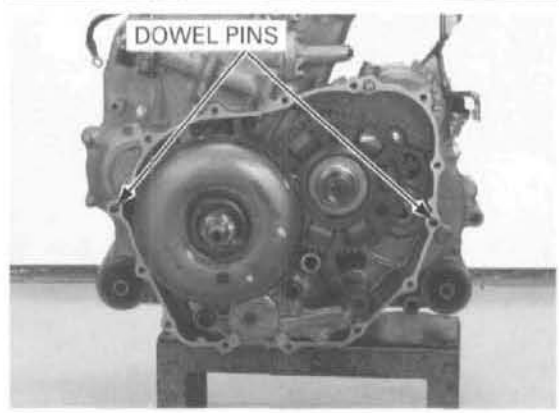


Blow the oil orifice with compressed air to clean the passage.

Coat new O-rings with engine oil and install them into the orifice groove.
Install the oil orifice with the stepped side facing out.



Install the two dowel pins.



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REAR WHEEL

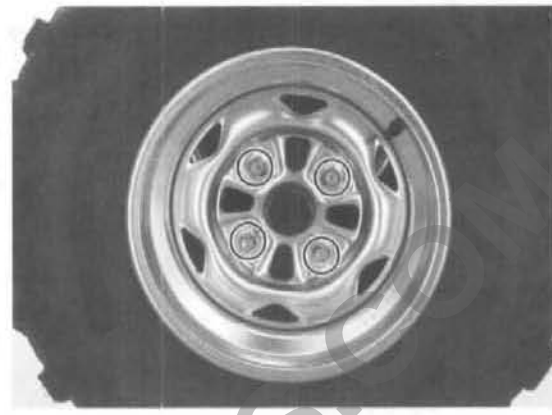
REMOVAL

Loosen the wheel nuts.

Support the vehicle using a hoist or equivalent and raise the rear wheels off the ground.

Remove the nuts and wheel.

For tire removal/installation and repair (page 15-11).



INSTALLATION

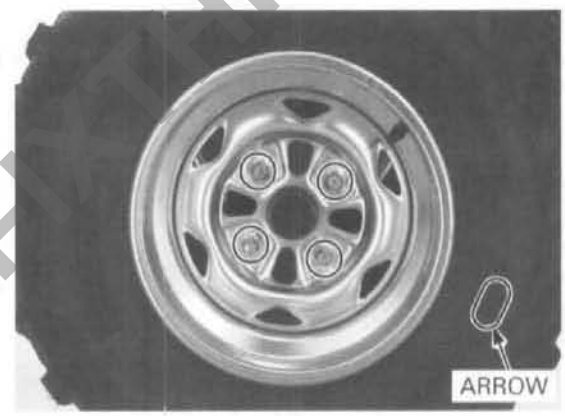
NOTE:

- Do not interchange the left and right tires.

Install the wheel with the arrow mark facing in the normal rotating direction.

Install the wheel nuts and tighten them.

TORQUE: 64 N·m (6.5 kgf·m, 47 lbf·ft)



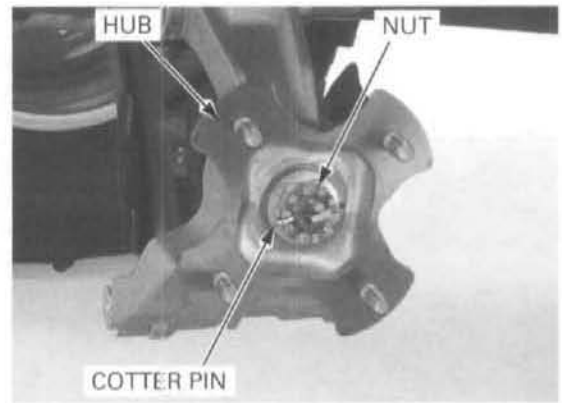
WHEEL HUB/KNUCKLE

REMOVAL

Remove the rear wheel (page 16-6).

Remove the following:

- cotter pin
- hub nut
- wheel hub

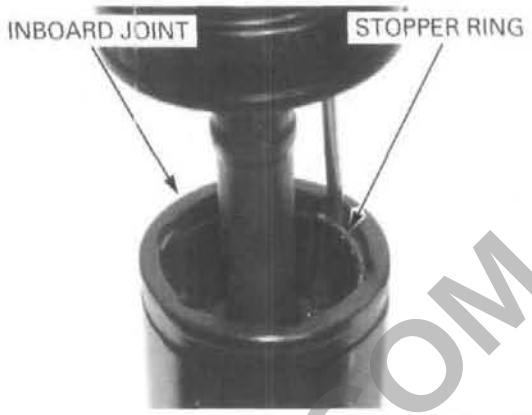


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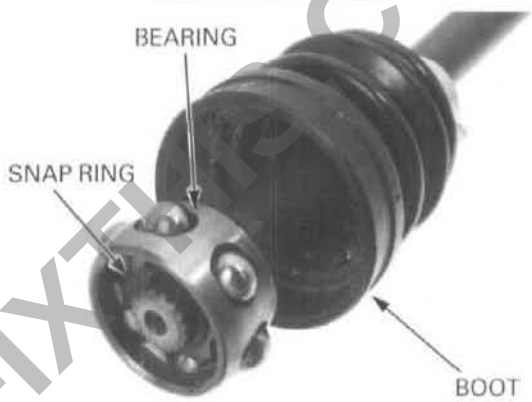
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Remove the following:

- stopper ring
- inboard joint



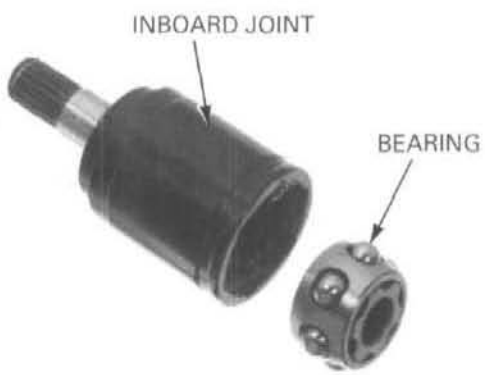
- snap ring
- bearing
- inboard boot
- inboard band A



Replace the components as an assembly.

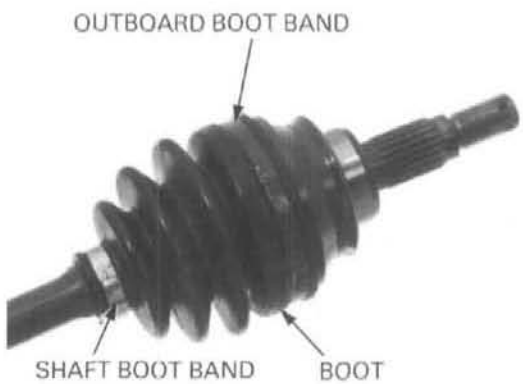
Check the following for wear or damage:

- bearing cage
- race
- steel balls
- inboard joint



Remove the following:

- shaft boot band
- outboard boot band
- outboard boot



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SERVICE INFORMATION

GENERAL

⚠WARNING

- The battery gives off explosive gases; keep sparks, flames and cigarettes away. Provide adequate ventilation when charging.
- The battery contains sulfuric acid (electrolyte). Contact with skin or eyes may cause severe burns. Wear protective clothing and a face shield.
  - If electrolyte gets on your skin, flush with water.
  - If electrolyte gets in your eyes, flush with water for at least 15 minutes and call a physician immediately.
- Electrolyte is poisonous.
  - If swallowed, drink large quantities of water or milk and call your local Poison Control Center or a physician immediately.

- Always turn the ignition switch to OFF before disconnecting any electrical component.
- Some electrical components may be damaged if terminals or connectors are connected or disconnected while the ignition switch is ON and current is present.
- For extended storage, remove the battery, give it a full charge, and store it in a cool, dry space.
- For a battery remaining in a stored vehicle, disconnect the negative battery cable from the battery.
- The maintenance free battery must be replaced when it reaches the end of its service life.
- The battery can be damaged if overcharged or undercharged, or if left to discharge for long period. These same conditions contribute to shortening the "life span" of the battery. Even under normal use, the performance of the battery deteriorates after 2–3 years.
- Battery voltage may recover after battery charging, but under heavy load, the battery voltage will drop quickly and eventually die out. For this reason, the charging system is often suspected as the problem. Battery overcharge often results from problems in the battery itself, which may appear to be an overcharging symptom. If one of the battery cells is shorted and battery voltage does not increase, the regulator/rectifier supplies excess voltage to the battery. Under these conditions, the electrolyte level goes down quickly.
- Before troubleshooting the charging system, check for proper use and maintenance of the battery. Check if the battery is frequently under heavy load, such as having the headlight and taillight on for long periods of time without riding the vehicle.
- The battery will self-discharge when the vehicle is not in use. For this reason, charge the battery every two weeks to prevent sulfation from occurring.
- Filling a new battery with electrolyte will produce some voltage, but in order to achieve its maximum performance, always charge the battery. Also, the battery life is lengthened when it is initially charged.
- When checking the charging system, always follow the steps in the troubleshooting (page 20-5).
- For alternator removal/installation (page 11-9).

BATTERY CHARGING

- Turn power ON/OFF at the charger, not at the battery terminal.
- For battery charging, do not exceed the charging current and time specified on the battery. Using excessive current or extending the charging time may damage the battery.
- Quick charging should only be done in an emergency; slow charging is preferred.

BATTERY TESTING

Refer to the instructions in the Operation Manual for the recommended battery tester for details about battery testing. The recommended battery tester puts a "load" on the battery so that the actual battery condition can be measured.

Recommended Battery Tester: BM-210-AH (U.S.A. only), BM-210, BATTERY MATE (MTP08-0192, U.S.A. only) or equivalent

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