ETON America

150cc Service Manual

Covers:

YXL-150, CXL-150, RXL-150R

200028

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1. INFORMATION
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1.1 Safety

☞ GASOLINE

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

☞ CARBON MONOXIDE

Never run the engine in a closed area. The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and lead to death.

☞ BATTERY ELECTROLYTE

The battery electrolyte contains sulfuric acid. Protect your eyes, skin, and clothing. If you come into contact with the electrolyte, flush the area thoroughly with water. If you get the electrolyte in your eyes, flush with water and contact a doctor immediately.

☞ HOT PARTS

The engine and exhaust pipe become very hot and remain hot for one hour after the engine is run. Wear insulated gloves before handling these parts.

☞ USED ENGINE / GEAR OIL

Used engine oil and gear oil may cause damage after prolonged exposure to the skin. Keep out of reach of children.

1.2 NOTES

All information, illustrations, directions and specifications included in this publication are base on the latest product information available at the time of approval for printing.

ETON America, LLC reserves the right to make changes at any time without notice and without incurring any obligation whatever.

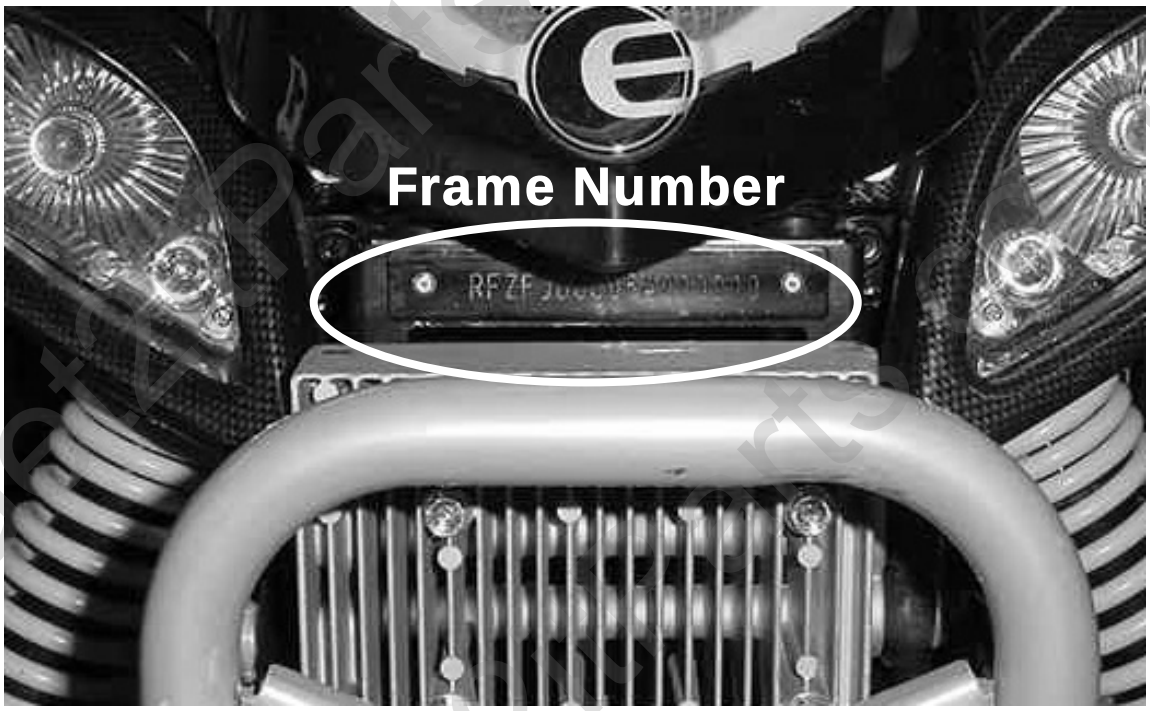
1.3 SPECIFICATION

ENGINE	**Type**	**Air-Cooled 4-Stroke with Oil Cooler**
	Displacement	**149.56 cc**
	Bore and Stroke	**57.4x57.8mm**
	Compression	**9.7:1**
	Maximum Torque	**10.6 ps@7500rpm**
	Carburetor	**Kei-Hin / Electric choke**
	Air Cleaner	**Oil Bathed element type**
	Transmission	**Automatic (C.T.V. V-belt)**
CHASSIS	**Overall Length**	**1730mm/68.1 inches**
	Overall Width	**980mm/38.6 inches**
	Overall Height	**1070mm/42.1 inches**
	Wheel base	**1115mm/43.9 inches**
	Ground Clearance	**140mm/5.5 inches**
	Dry Weight	**172kg / 379lbs**
	Fuel Tank Capacity	**6.5 liters/1.7 gal**
SUSPENSION		
	Front	**Dual A-arm**
	Rear	**Swing Arm**
BRAKES		
	Front	**Dual Mechanical Drum**
	Rear	**Mechanical Drum (YXL only)** **Hydraulic Disc (CXL & RXL-150R only)**
TIRES		
	Front	**21” x 7” - 8”**
	Rear	**22” x 10”**
COLOR		**Red/Black & Silver/Black (YXL-150 only)** **Red, Blue, Green, Silver (CXL-150 only)** **Black/Yellow (RXL-150R only)**

** Specifications subject to change without notice.*

1.4 SERIAL NUMBERS

The frame serial number is stamped on the front frame just above the oil cooler. The engine number is stamped on the left side of the crankcase.



1.5 TORQUE VALUES

STANDARD

5 mm bolt and nut	5 N-m (3.7 ft-lbs)
6 mm bolt and nut	10 N-m (7.4 ft-lbs)
8 mm bolt and nut	22 N-m (16 ft-lbs)
10 mm bolt and nut	35 N-m (26 ft-lbs)
12 mm bolt and nut	55 N-m (41 ft-lbs)

ENGINE

Cylinder head nut	28 N-m (20.7 ft-lbs)
Spark plug	12 N-m (8.9 ft-lbs)
Cylinder head bolt	20 N-m (14.8 ft-lbs)
Alternator bolt	8 N-m (5.9 ft-lbs)

FRAME

Handlebar upper holder bolt	24 N-m (17.7 ft-lbs)
Throttle housing cover screw	4 N-m (2.9 ft-lbs)
Steering shaft nut	50 N-m (36.9 ft-lbs)
Steering shaft holder bolt	33 N-m (24 ft-lbs)
Wheel rim bolt	18 N-m (13.3 ft-lbs)
Tie rod lock nut	35 N-m (25.8 ft-lbs)
King pin nut	40 N-m (29 ft-lbs)
Handlebar lower holder nut	40 N-m (29.5 ft-lbs)
Front wheel bolt	24 N-m (17.7 ft-lbs)
Front axle nut	60 N-m (44 ft-lbs)
Front brake arm nut	4 N-m (3.0 ft-lbs)
Rear brake arm nut	7 N-m (5.2 ft-lbs)
Rear axle nut	60 N-m (44.3 ft-lbs)
Rear wheel bolt	24 N-m (17.7 ft-lbs)
Exhaust muffler mounting bolt	30 N-m (22.1 ft-lbs)
Engine hanger bolt	30 N-m (22 ft-lbs)
Rear axle holder bolt	90 N-m (65 ft-lbs)
Swingarm pivot nut	90 N-m (65 ft-lbs)
Rear shock absorber mounting nut	45 N-m (33 ft-lbs)

2. Maintenance

2.1 Maintenance data
2.2 Maintenance schedule
2.3 Fuel tube
2.4 Throttle operation
2.5 Throttle cable adjustment
2.6 Air cleaner
2.7 Spark plug
2.8 Idle speed
2.9 Drive chain
2.10 Brake system
2.11 Wheels and tires
2.12 Steering system
2.13 Toe-in
2.14 Gear oil

2.1 MAINTENANCE DATA

SPECIFICATION

SPARK PLUG:

Spark plug gap:	0.6-0.7 mm / 0.024 – 0.028”
Recommended spark plugs:	NGK CR7HSA
Throttle lever free play:	5-10 mm / 0.2-0.4”
Idle speed:	1600±100rpm
Brake lever free play:	15-25 mm / 0.6-1.0”
Drive chain slack	10-25 mm / 0.4-1.0”
Front/rear tire size	20*7-8 / 22*10-8
Front/rear tire pressure	2.2± 0.3 psi (0.15 kgf/cm^2)
Toe-in	5±10 mm / 0.2±0.4”

TORQUE VALUES

SPARK PLUG	12-19 N-m / 9-14 ft-lbs
TIE-ROD LOCK NUT	35-43 N-m / 26-32 ft-lbs

ENGINE OIL

Viscosity :	SAE 40 (10W-40)
API service classification	SF or SG

GEAR LUBRICATION OIL

Viscosity:	SAE 90 (80/90 weight gear oil)

WP-0027

Maintenance Schedule
Four Stroke Vehicles

Scheduled Maintenance		300KM	Every 1000KM	Every 3000KM	Every 6000KM	Every 12000KM
		200 Miles	600 Miles	2000 Miles	3700 Miles	7500 Miles
		NEW	1 Month	3 Months	6 Months	1 Year
1	Air cleaner element	I *	C *		R(paper)	R(sponge)
2	Air cleaner	I				
3	Oil filter (Screen)	C			C	
4	Engine oil	Change	I	Change		
5	Tire, pressure	I	I			
6	Battery	I	I			
7	Spark plug	I		I		R
8	Carburetor (idle speed)	I			I	
9	Steering bearing and handles	I		I		
10	Check transmission for leak-age	I	I			
11	Check crankcase for leakage	I	I			
12	Transmission oil	Change			Change	
13	Drive belt/roller				I	R
14	Fuel tank switch and lines	I		I		
15	Throttle valve operation and cable	I	I			
16	Engine bolts and nuts	I		I		
17	Cylinder head, cylinder, and piston				I	
18	Exhaust system/cleaning carbon				I	
19	Cam Chain/ignition time	I		I		
20	Valve clearance	I	I	I	I	I
21	Shock absorbers	I			I	
22	Front/Rear suspension	I			I	
23	Main/Side stands	I			I/L	
24	Crankcase (PCV) Valve	I		I		
25	Brake mechanism/brake lin-ing (pad)	I	I			
26	Tighten all Bolts/Nuts & Fas-teners	I	I			

Code:
I = Inspection, clean, and adjust
R = Replace
C = Clean (replaced if necessary)
L = Lubricate

* = Clean or replace the air cleaner element more often when the vehicle is operated on dusty roads or in a heavily polluted environment.

\# = Maintenance should be performed more often if the vehicle is frequently operated at high speed for prolonged time and after the vehicle has accumulated 50,000 miles.

2.2 MAINTENANCE SCHEDULE

The maintenance intervals in the follow table are based upon average riding conditions. Riding in unusually dusty areas requires more frequent servicing. E-TON recommends that all maintenance and inspections be performed ONLY by a qualified and fully trained technician.

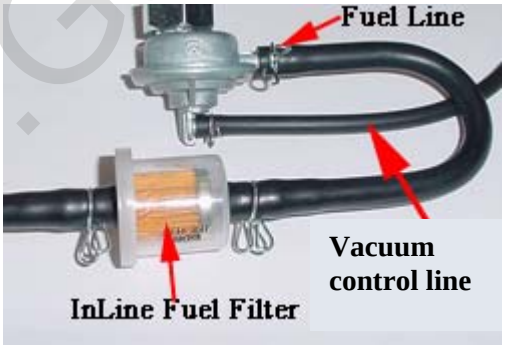
	INITIAL SERVICE (First week)	REGULAR SERVICE (Every 30 operating days)	EVERY YEAR
Fuel Line			I
Throttle Operation	I	I	I
Air Filter system & Element	I	C	R
Spark Plug		I	R
Carburetor Idle Speed	I	I	I
Drive Chain	I, L	I, L	I
Brake Shoe Wear	I	I	I
Brake System	I	I	I
Nut, Bolt, Fastener	I	I	I
Wheels & Wheel Nuts	I	I	I
Steering System		I	I
Suspension System		I	I
Waste Gas Recovery Valve		I	R
Gear & Engine Oil		I	R
Intake & Exhaust Valve Adj.			I

Note –
I: Inspect and Clean, Adjust, Lubricate, or Replace (if necessary)
C: Clean
L: Lubricate
R: Replace

2.3 FUEL TUBE

Inspect the fuel lines for deterioration, damage, or leaks, and replace if necessary.

ETON 150cc models are equipped with a vacuum fuel valve. Fuel is transferred into the carburetor when a vacuum is created from the engine. Fuel should not flow if engine is not running or if vacuum is not applied.



2.4 THROTTLE OPERATION

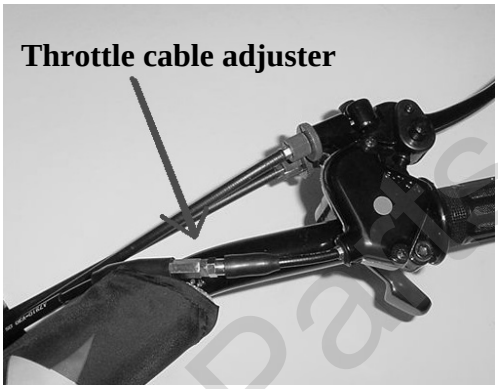
Inspect for smooth lever operation, full opening, and automatic full closing in all steering positions.

Inspect for deterioration, damage, cuts and nicks, or kink in the throttle cable, replace it if necessary.

Check the throttle lever; free play should be no more than 5-10 mm / 0.2-0.4" at the tip of the throttle lever.

Disconnect the throttle cable at the upper end. Lubricate the cable with commercially lubricant to prevent premature wear.

2.5 THROTTLE CABLE ADJUSTMENT



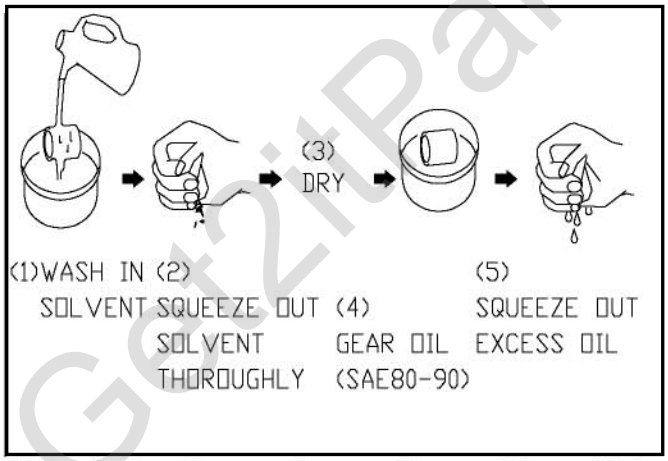
Slide the rubber cap of the adjuster off the throttle housing, loosen the lock nut, and adjust the free play of the throttle lever by turning the adjuster on the throttle housing. Inspect the free play of the throttle lever.

2.6 AIR CLEANER MAINTENANCE

(1) Loosen the screws and remove the air cleaner from carburetor.

(2) Disassemble the air cleaner cover and body.

(3) Clean the air cleaner element and screen. (See Figure below)



(4) Wash the element in non-flammable or high flash point solvent squeeze out the solvent thoroughly and allow it to dry.

(5) Soak the element in gear oil (SAE 80-90) and squeeze out the excess.

(6) Install the air cleaner element and screen in the body.

(7) Assemble the air cleaner body and cover and attach to the carburetor with the screw.

2.7 SPARK PLUG

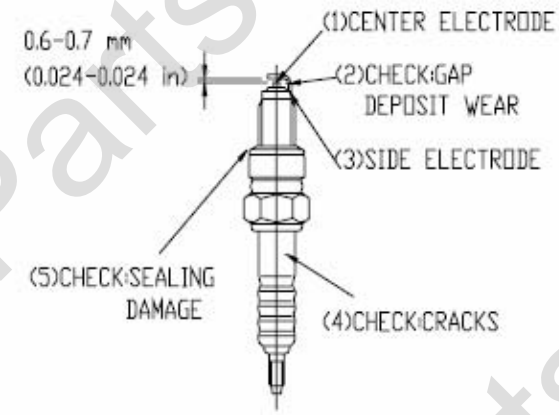
The spark plug is located at the front of the engine.

(1) Disconnect the spark plug cap and remove the spark plug.
(2) Visually inspect the spark plug electrodes for wear or cracks in insulator. Replace if needed.
(3) The center electrode should have square edges and the side electrode should have a constant thickness.

(4) Discard the spark plug if there is apparent wear or if the insulator is cracked or chipped.

(5) Measure the gap with a wire-type feeler gauge and adjust if necessary by carefully bending the side electrode.

SPARK PLUG GAP : 0.6-0.7 mm
Recommended replacement plug: **NGK CR7HSA**



(6) Check the sealing washer and replace with a new one if damaged.

(7) With the sealing washer attached thread the spark plug in by hand to prevent cross threading. Tighten the spark plug.
TORQUE : 12-19 N-m / 9-14 ft-lbs

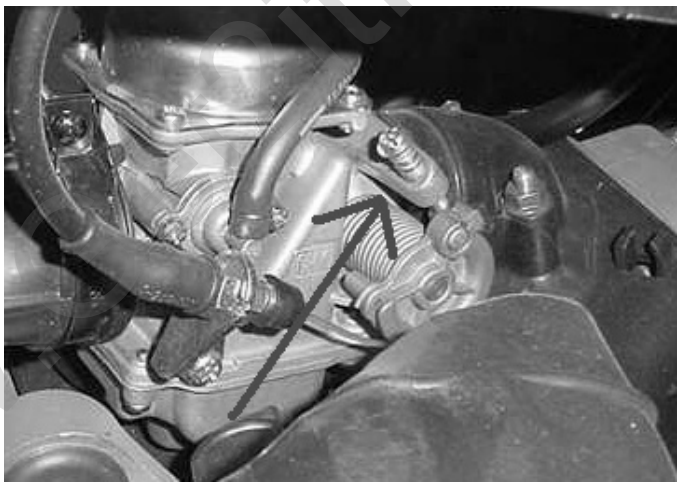
2.8 IDLE SPEED SETTING

(1) Inspect and adjust the idle speed after all other engine maintenance has been performed and is within specifications. The engine must be warm for accurate idle speed inspection and adjustment.

(2) Warm up the engine for about ten minutes and connect a tachometer.

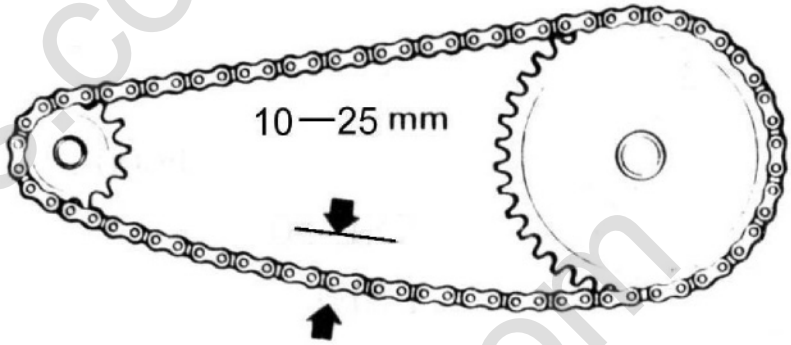
(3) Turn the throttle stop screw as required to obtain the specified idle speed.

IDLE SPEED : 1700 ± 100 rpm



2.9 DRIVE CHAIN ADJUSTMENT

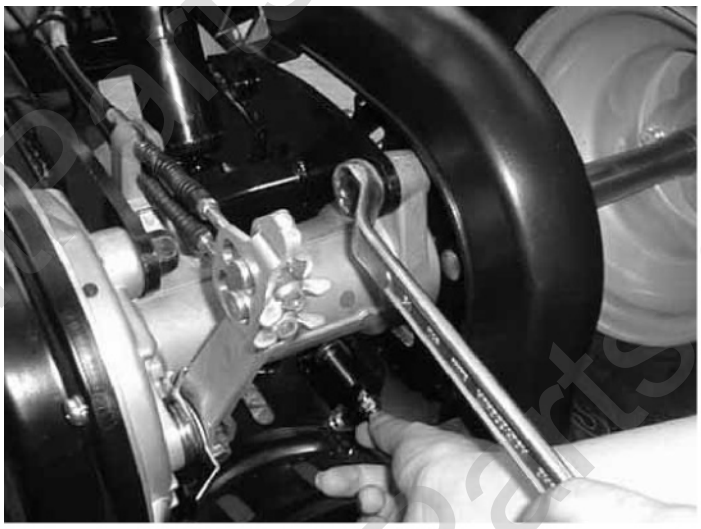
Stop the ATV and shift transmission into neutral. Inspect the chain slack midway between the sprockets. The standard is **10-25mm (5/8 – 1”).**



If needed, remove the chain protective cover and adjust the chain slack.

Loosen the axle holder lock nuts then adjust the drive chain slack by turning the adjusting nut. Tighten the axle holder lock nuts.

Torque = 90N-m (65 ft-lbs)



When the drive chain becomes very dirty, it should be removed, cleaned, and lubricated with commercially available lubricant.

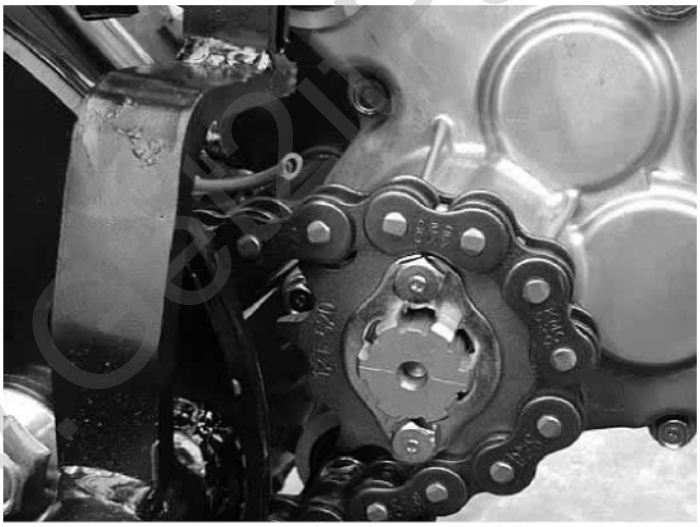
Clean the drive chain with kerosene and wipe it dry.

Inspect the drive chain for possible wear or damage.

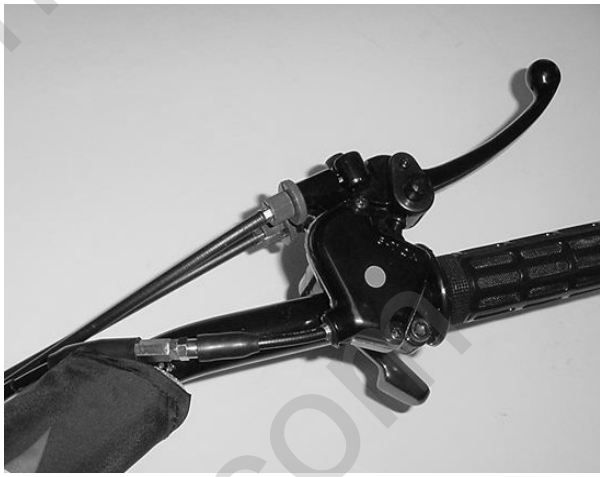
Replace the chain if it is worn excessively or damaged.

Inspect the sprocket teeth; if there is excessive wear or damage, replace.

Use a commercial chain lubricant to lubricate the drive chain; replace and adjust the slack as described above.



2.10 BRAKE SYSTEM ADJUSTMENT



Inspect the front brake lever and cable for excessive play or damage.
Replace or repair if necessary.
Measure the free play of the brake lever at the end of the lever. The standard is **15-25 mm / 0.59-0.98”**.

Adjust the free play of the front brake lever by turning the adjuster on the brake lever assembly.

Inspect the rear brake lever and cable for excessive play or damage.
Replace or repair if necessary.
Measure the free play of the brake lever at the end of the lever.

The standard is **10-20 mm / 0.39-0.78”**.

Adjust the free play of the rear brake lever by turning the adjuster on the rear axle.

BRAKE SHOE WEAR

Front Brake
Loosen the front brake cable and inspect the brake lining thickness.
Service Limit: 2.0mm (0.08”)
If either lining is worn beyond the service limit, replace both brakes shoes.

Rear Brake
Replace the brake shoes if there is uneven wear or if the lining is worn beyond the service limit.

2.11 WHEELS AND TIRES

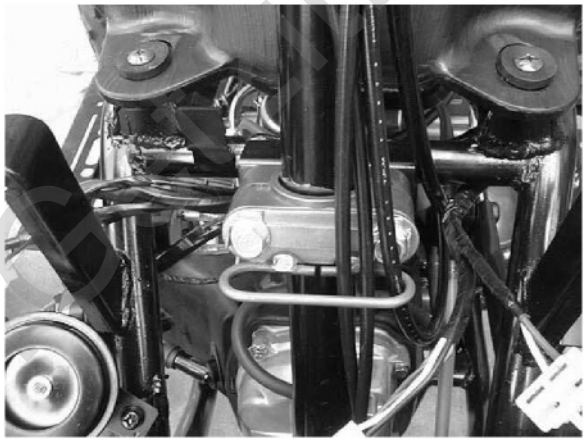
Inspect the tire surfaces for cuts or sharp objects.

Check the tire pressure at cold tire conditions. The standard tire pressure **is 2.2±0.3 psi (0.15 kgf/cm^2).**

2.12 STEERING SYSTEM

Check the free play of the steering shaft with the front wheels turned straight ahead. If there is excessive play, inspect the tie-rod, kingpin bushing, and ball joint.

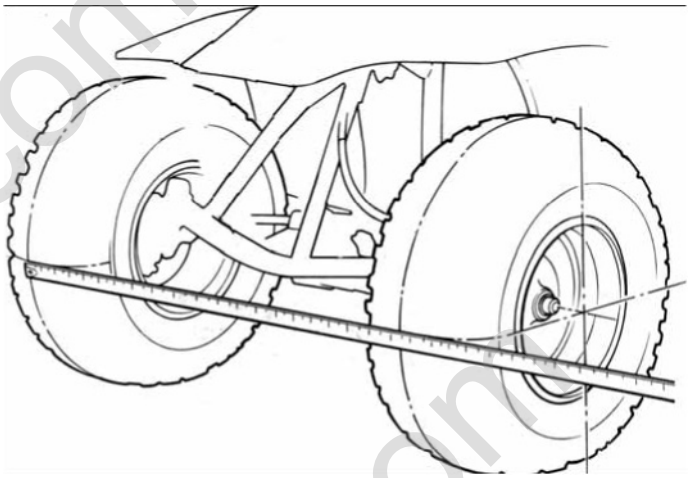
Steering Shaft Holder Bushing



Remove the front fender.
Remove the steering shaft holder and check the steering shaft bushing for wears or damage.
If the bushing is worn or damaged, replace.
Grease the steering shaft bushing and install the parts in the reverse order of removal.

Torque steering shaft holder bolt: **33 N-m (24 ft-lbs)**

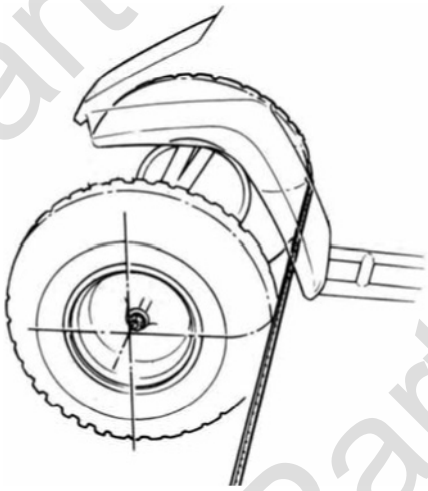
2.13 TOE-IN



Park the vehicle on level ground with the front wheels facing straight ahead.
Mark the centers of the tires to indicate the axle center height.

Measure the distance between the marks.

Carefully moving the vehicle backward, let the wheels turn 180° so the marks on the tires are aligned with the axle center height.



Measure the distance between the marks.
Calculate the difference in the front and rear measurements.

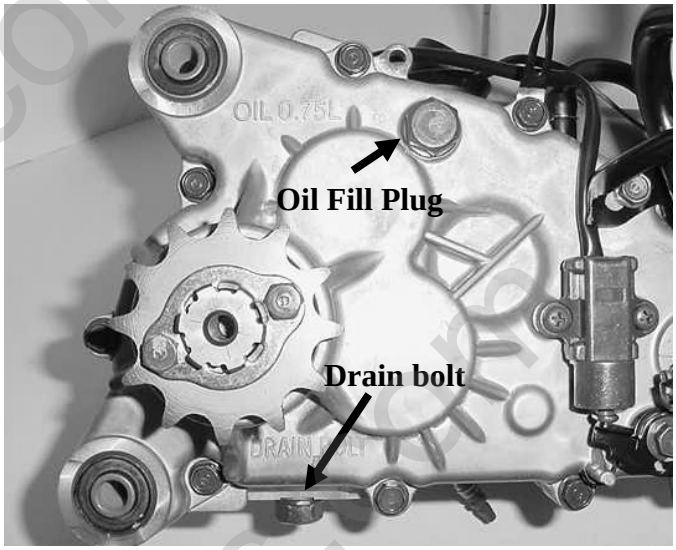
Toe-in: 5±10mm / 0.2±0.4”

If the toe-in is out of standard, adjust it by changing the length of the tie-rods equally by turning the tie-rod while holding the ball joint.
Tighten the lock nuts.

Torque: 35-43 N-m / 26-32 ft-lbs

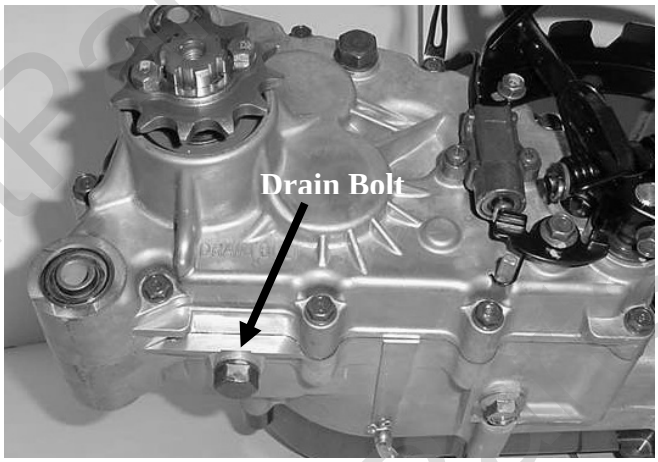
2.14 GEAR OIL MAINTENANCE

Gear oil needs to be changed every year.
There is a gear oil drain hole bolt at the rear of engine.



(STEP 1)
Unscrew this drain hole bolt and let the dirty oil flow out; catch the oil in a proper container for later disposal.

(STEP 2)
Reinsert the drain hole bolt and tighten.



(STEP 3)
Fill with 26oz of 80/90 weight gear oil through the oil fill hole located on the engine case beside the gear box.

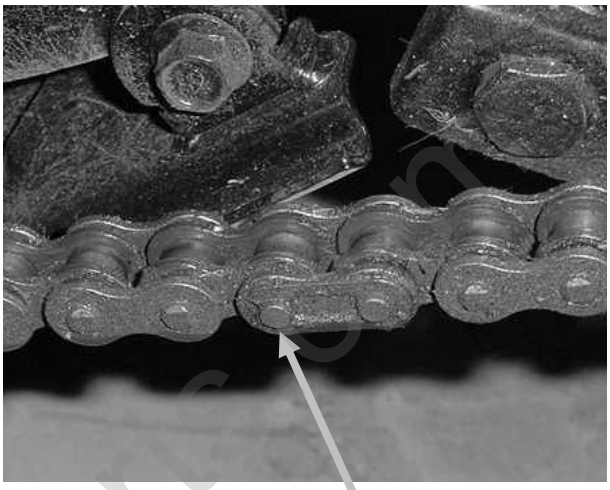
NOTE: for best results, change the oil while the engine is warm.

3.1 ENGINE REMOVAL AND INSTALLATION

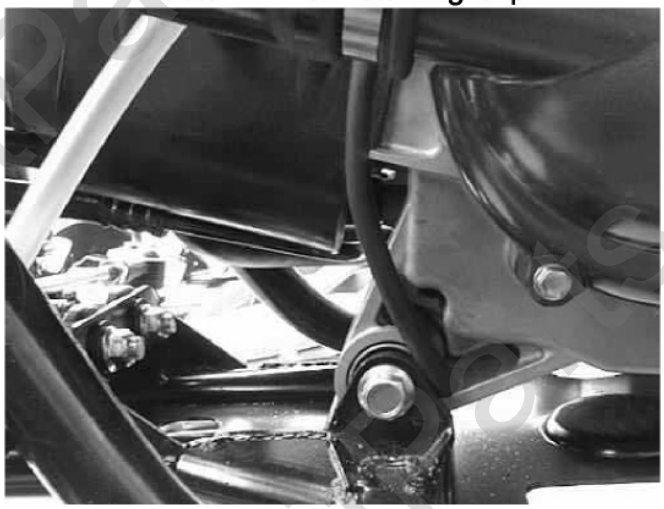
ENGINE SHOULD ONLY BE REMOVED IN THE CONDITIONS OF NECESSARY REPAIRS OR ADJUSTMENT TO THE TRANSMISSION AND COMBUSTION SYSTEM!

3.2 ENGINE REMOVAL

Remove the seat, front and rear fender.
(See Chapter 10)
Remove the footrest.
Remove the spark plug cap from the spark plug.
Remove the exhaust muffler.
Disconnect the carburetor cable by unscrewing the two screws on top of the carburetor.



Master Link & Retaining Clip



Disconnect the carburetor auto-choke (if equipped), starter motor, generator, the neutral safety switch, CDI box, and the ignition coil wire.

Remove the drive chain cover.
Remove the drive chain retaining clip and master link, and remove the drive chain.

Remove the engine hanger bolts under the engine.

Remove the engine and air cleaner together

3.2 ENGINE REPLACEMENT

Engine installation is essentially the reverse order of removal.

The torque of the engine hanger bolt is **30 N-m / 22 ft-lbs.**

Route the wires and cable properly in reverse order of removal.

4. Lubrication

4.1 Service Information
4.2 Trouble Shooting
4.3 Engine Oil Level
4.4 Engine Oil & Filter Change
4.5 Oil Pump Removal / Installation

4.1 SERVICE INFORMATION

GENERAL

1. This section describes cylinder head, valves, camshaft, and other parts maintenance.
2. The engine must be removed from the frame to service the cylinder head.
3. Camshaft lubrication oil is fed to the cylinder head through an oil hole in the engine case.
4. Before installing the cylinder head, be sure the hole is not clogged and the gasket, O-ring, and dowel pins are in place

SPECIFICATIONS

ITEM		STANDARD	SERVICE LIMIT
Cylinder compression		12±0.5 kg/cm^2	--------
Cam lobe height	IN	29.795mm / 1.180”	29.395mm / 1.157”
	EX	29.560mm / 1.16”	29.160mm / 1.148”
Rocker arm I.D.		10.000-10.018mm / 0.394”	10.10mm / 0.398”
Rocker arm shaft O.D.		9.972-9.987mm / 0.393 “	9.91mm / 0.390”
Cylinder head warp		--------	0.05mm
Valve spring free length	IN	32.3mm / 1.27”	31.2mm / 1.23”
	EX	35.0mm / 1.38”	34.1mm / 1.34”
Valve stem O.D.	IN	4.975-4.990mm / 0.196”	4.90mm / 0.193”
	EX	4.955-4.970mm / 0.195”	4.90mm / 0.193”
Valve guide I.D.	IN/EX	5.000-5.012mm / 0.197”	5.30mm / 0.209”
Stem-to-guide clearance	IN	0.010-0.037mm	0.08mm
	EX	0.030-0.057mm	0.10mm
Valve seat width	IN	1.0mm	1.80mm
	EX	1.0mm	1.80mm

TORQUE VALUES

Cylinder head bolts	8 - 12 N-m (6-9 ft-lbs)
Camshaft holder flange nuts	20 - 24 N-m (15-18 ft-lbs)
Tappet adjusting nut	9 - 12 N-m (7-9 ft-lbs)
Oil Drain Bolt	20-30 N-m (15-22 ft-lbs)

4.2 TROUBLE SHOOTING

Engine top-end problems often affect engine performance. These problems can be diagnosed by a compression test, or by tracing engine noise to the top end with a sounding rod or stethoscope.

Low compression (Valve)
- -Incorrect valve adjustment.
- -Worn or damaged valve seats.
- -Burned or bent valve.
- -Incorrect valve timing.
- -Weak valve spring.

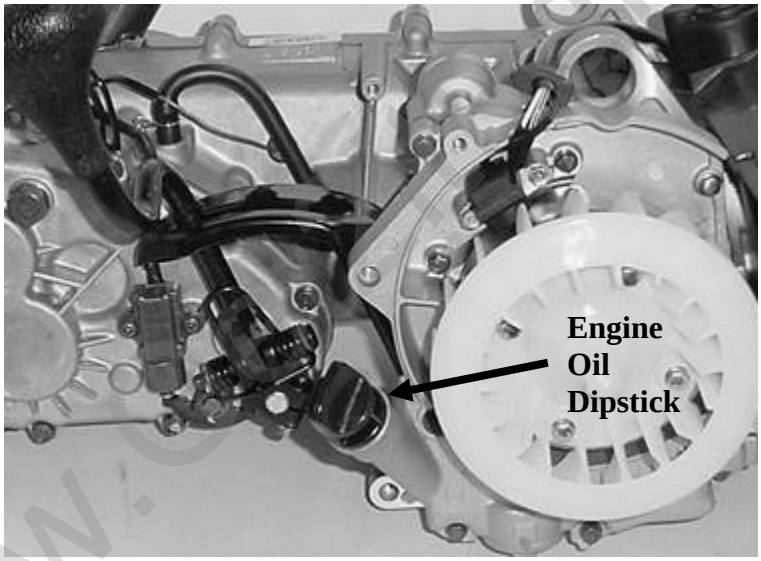
Cylinder head
- -Leaking or damaged head gasket.
- -Warped or cracked cylinder head.
- -Faulty cylinder or piston.

Excessive noise
- -Incorrect valve adjustment.
- -Sticking valve or broken valve spring.
- -Worn or damaged rocker arm or camshaft.
- -Worn or damaged cam chain.
- -Worn or damaged cam chain tensioner.
- -Worn cam sprocket teeth.

Excessive smoke
- -Damaged valve stem seal.
- -Faulty cylinder or piston rings.

4.3 ENGINE OIL LEVEL

Place the engine on the level plane. Check the oil level with the oil level dipstick, but do not screw it in when making this check.



4.3.1 TROUBLESHOOTING

Oil level too low-high oil consumption
- -Typical oil consumption.
- -External oil leaks.
- -Oil not changed often enough.
- -Worn piston rings.

Oil contamination
- -Worn piston rings.
- -Oil or filter not changed often enough.

4.3 ENGINE OIL LEVEL (continued)

Add the recommended oil up to the upper level if the oil level is below or near lower level line on the gauge.

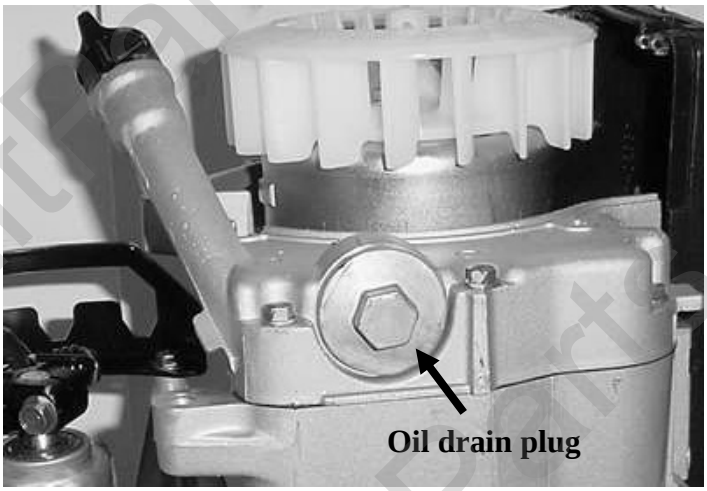
4.4 ENGINE OIL & FILTER CHANGE

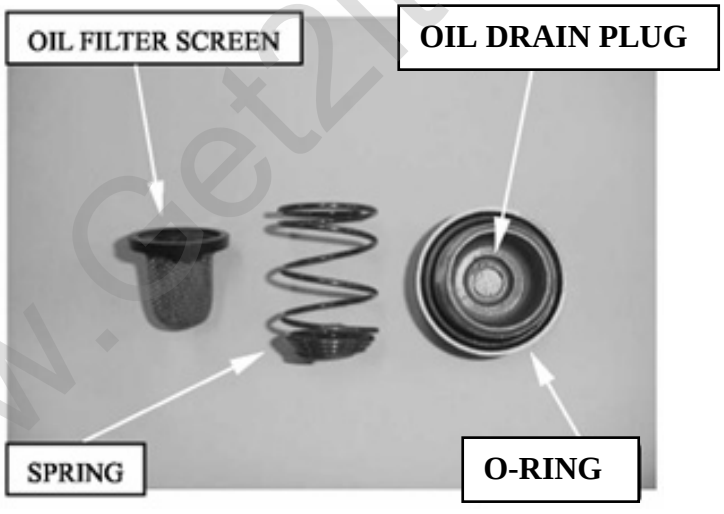
Remove the oil drain plug.

NOTE: Drain the oil while the engine is warm to ensure complete draining.

Remove the oil drain plug, spring, and oil filter screen.

Check the O-ring for damage or wear.
Install a new oil filter screen and spring; then, install the plug.

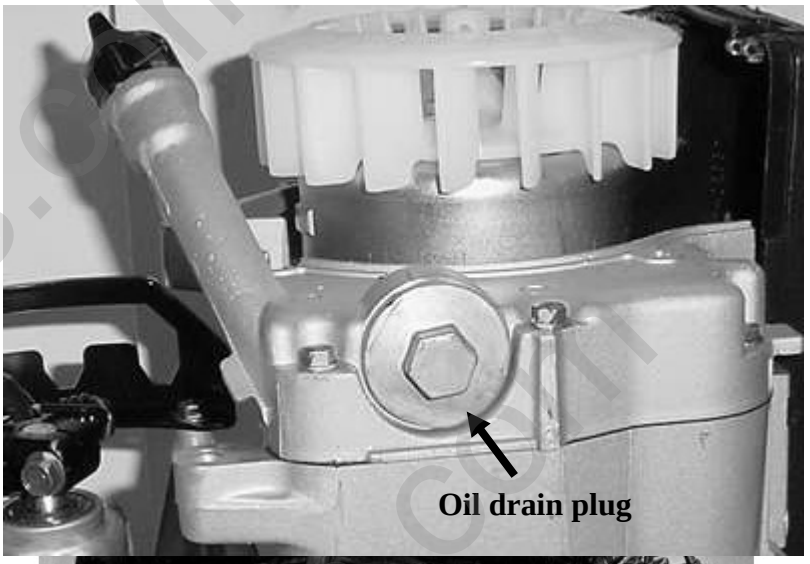




4.4 ENGINE OIL & FILTER CHANGE
(continued)

Install the oil drain bolt with sealing washer.

TORQUE: 20-30 N-m (15-22 ft-lbs)



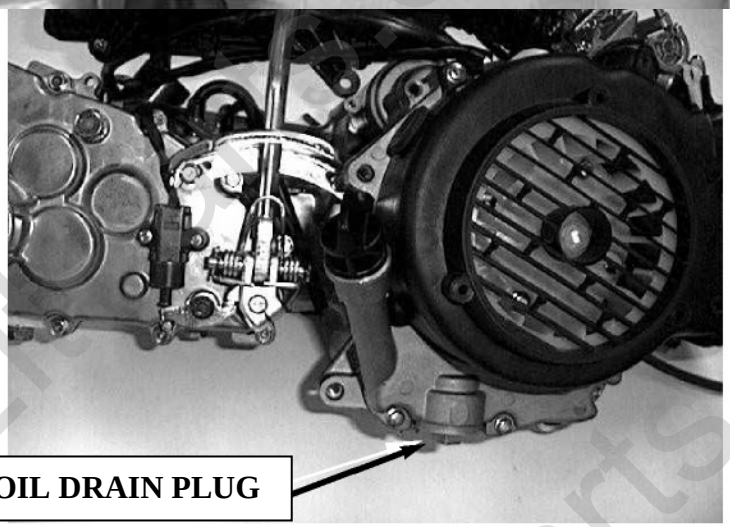
Fill the crankcase with the SAE 10w40 oil.

OIL CAPACITY: 0.8 liter / 0.2 gal at draining.

Install the oil drain plug.

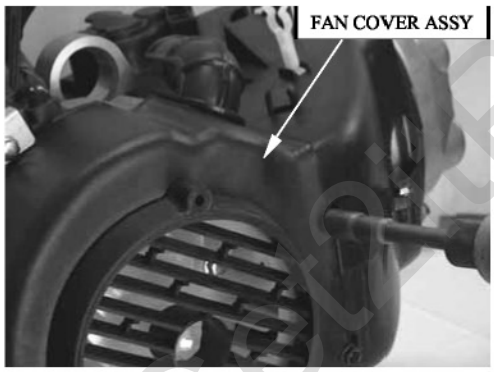
Install the oil level gauge.
Start the engine and let it idle for 2 - 3 minutes.

Stop the engine and check that the oil level is at the upper line on the gauge. Make sure there are no oil leaks.

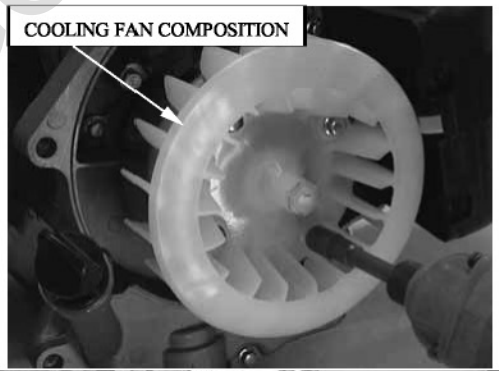


4.5 OIL PUMP REMOVAL

Remove the fan cover assembly.

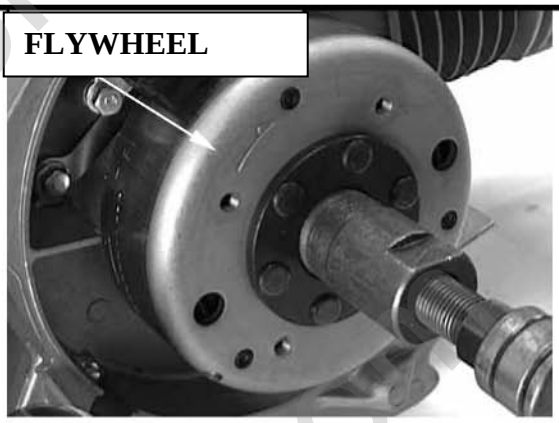


Remove the cooling fan assembly.

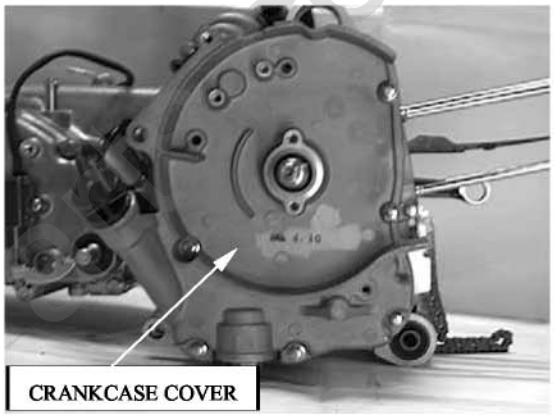


4.5 OIL PUMP REMOVAL (continued)

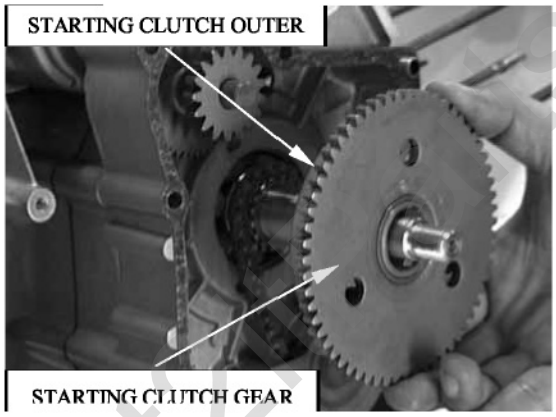
Remove the flywheel and the AC Generator assembly. Flywheel pullers are available from the ETON Parts Department.



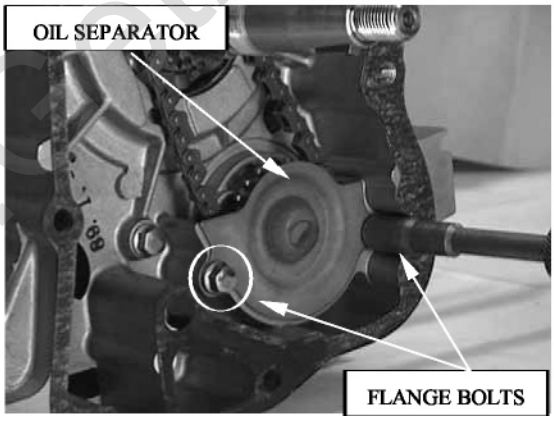
Remove the right crankcase cover.



Remove the starting clutch outer and gear assembly.

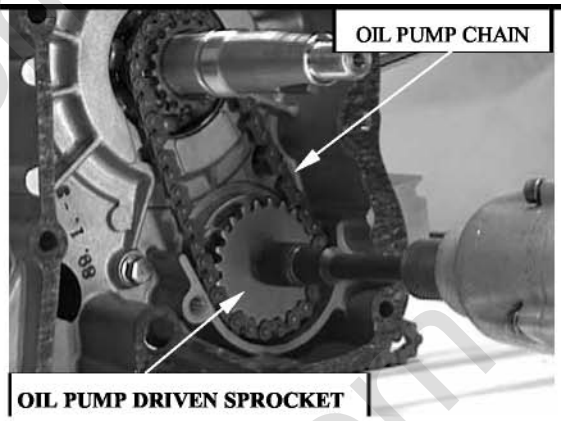


Remove the flange bolts and oil separator.

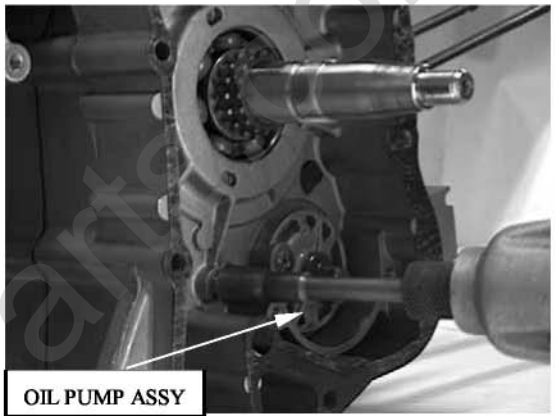


4.5 OIL PUMP REMOVAL (continued)

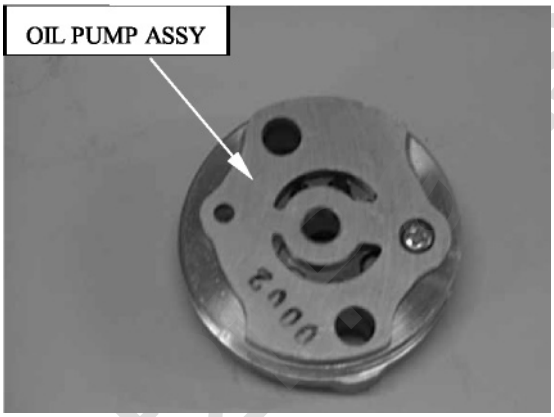
Remove the oil pump chain and oil pump driven sprocket.



Remove the oil pump assembly.

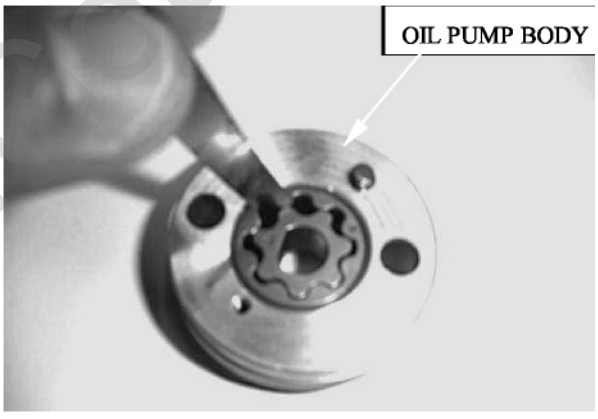


Disassemble the oil pump.



INSPECTION

Measure the oil pump rotor-to-body clearance.
SERVICE LIMIT: 0.12 mm / 0.005”

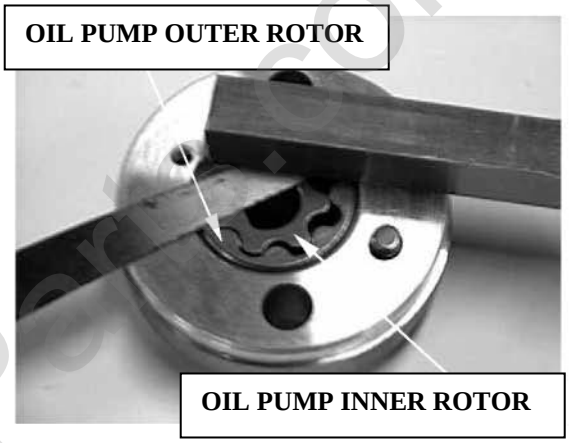


4.5 OIL PUMP REMOVAL

INSPECTION **(continued)**

Install the oil pump shaft and measure the pump rotor tip clearance.
SERVICE LIMIT: 0.12 mm / 0.005”

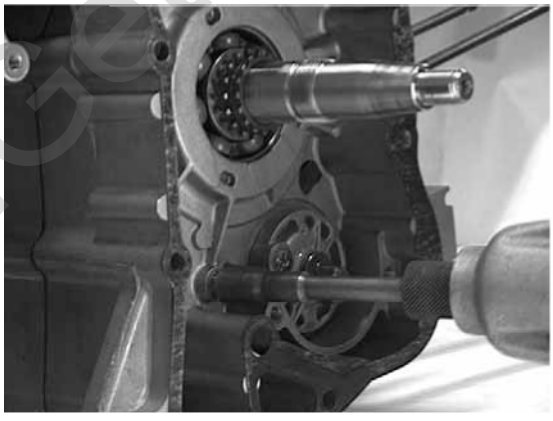
Remove the oil pump shaft and measure the pump end clearance.
SERVICE LIMIT: 0.2 mm / 0.008”



4.5 OIL PUMP ASSEMBLY / INSTALLATION

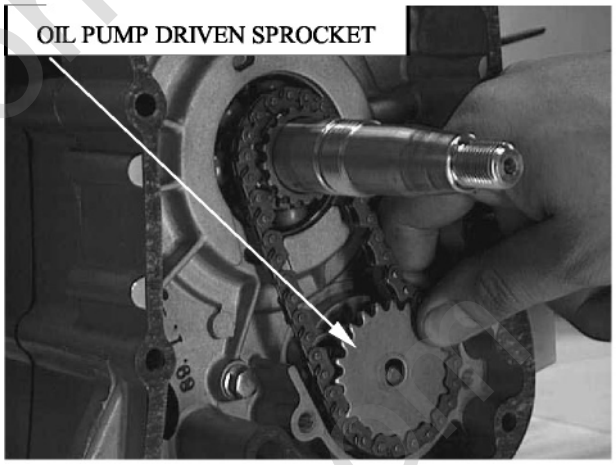
Install the outer rotor, inner rotor and oil pump shaft onto the body.
NOTE: Pour a drop of clean engine oil inside the oil pump.

Install the oil pump assembly.

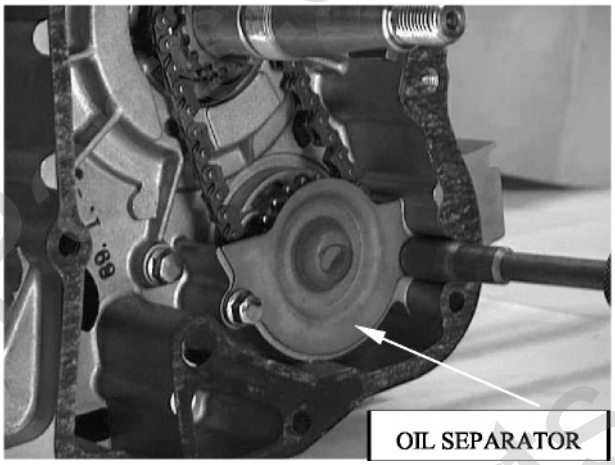


4.5 OIL PUMP ASSEMBLY / INSTALLATION (continued)

Install the oil pump driven sprocket and oil pump chain.



Install the oil separator.

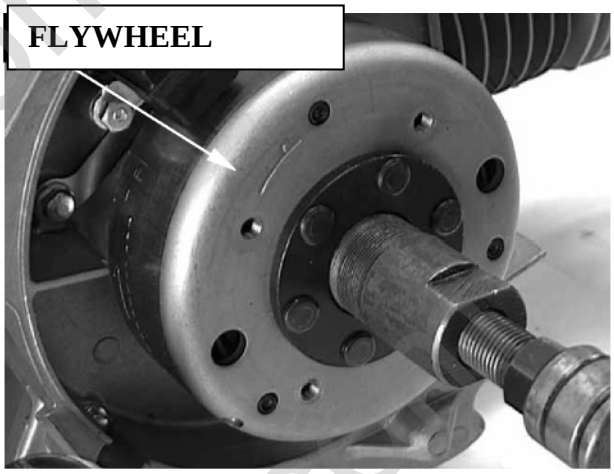


Install the starting clutch outer and gear assembly.

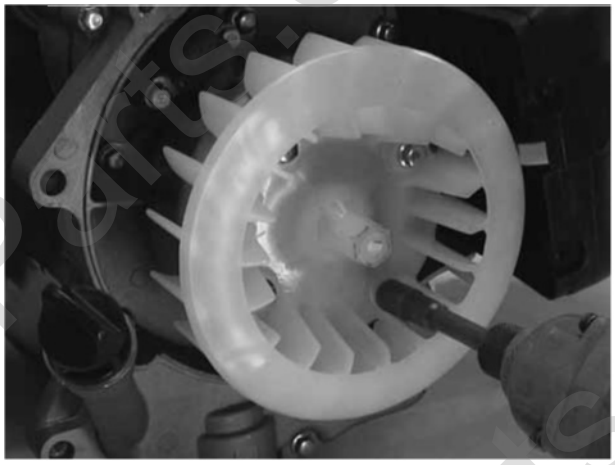
Install the new gasket, dowel pins, and right crankcase cover.

4.5 OIL PUMP ASSEMBLY / INSTALLATION (continued)

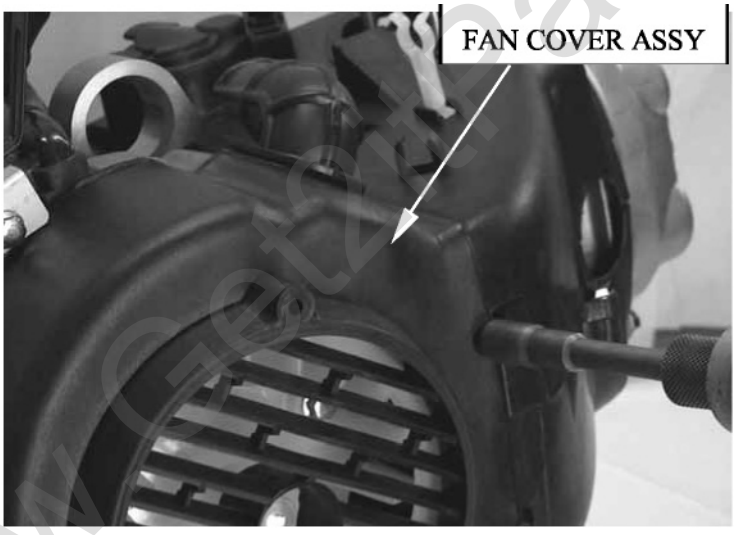
Install the AC Generator and then the outer flywheel.



Install the cooling fan.



Install fan housing cover.



4.6 ENGINE OIL

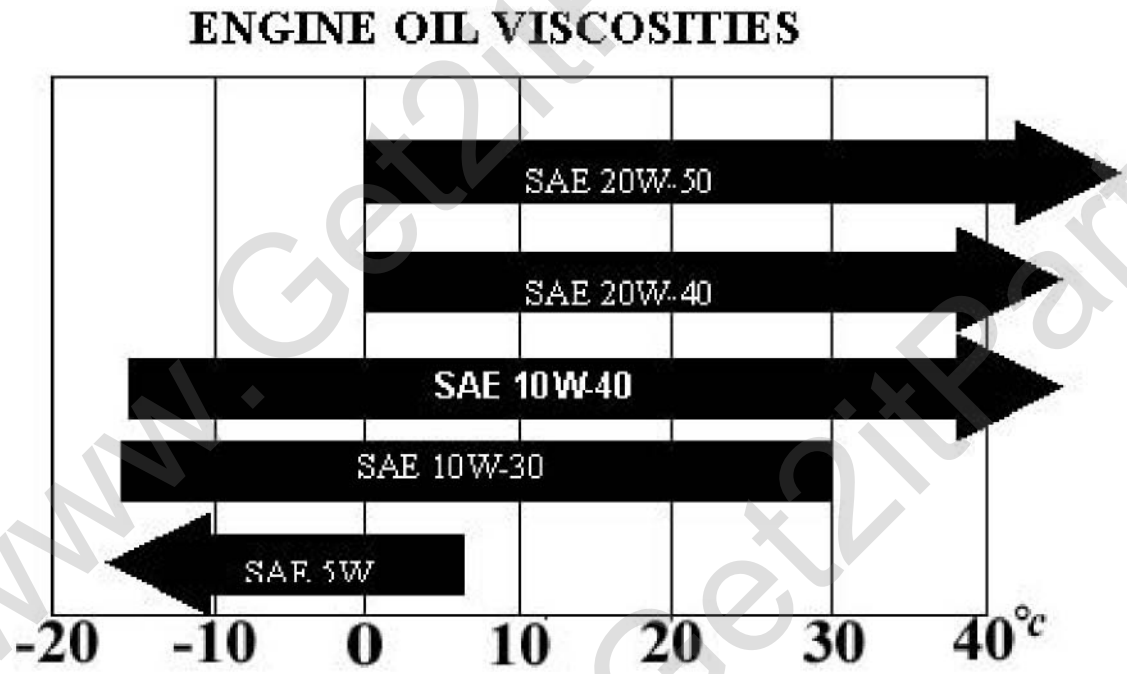
This section describes inspection and replacement of the engine oil, oil filter screen, and assembly of the oil pump.

Fill the oil pump with clean oil when reassembling the pump.

SPECIFICATION

ENGINE OIL CAPACITY	0.8-1.0 liter / 0.2-0.3 gal
API service classification: SF or SG	Viscosity: SAE 20w-40

When the average temperature in your riding area is within the indicated range, you should use the other engine oil viscosity that's shown in the chart.



5. CYLINDER HEAD / VALVES

5.1 SERVICE INFORMATION
5.2 TROUBLESHOOTING
5.3 CAMSHAFT ASSEMBLY REMOVAL
5.4 CYLINDER HEAD REMOVAL
5.5 CYLINDER HEAD INSTALLATION

5.1 SERVICE INFORMATION

GENERAL

This section describes the maintenance of cylinder head, valves, camshaft, and the other parts. The engine must be removed from the frame to service the cylinder head.
Camshaft lubrication oil is fed to the cylinder head through an oil hole in the engine case. Before installing the cylinder head, be sure the hole is not clogged and the gasket, O-ring, and dowel pins are in place.

SPECIFICATIONS

ITEM			STANDARD	SERVICE LIMIT
Cylinder	I.D.		57.400 - 57.410mm / ~2.260"	57.50mm / 2.263"
	TAPER		----------	0.10mm / 0.004"
	OUT OF ROUND		----------	0.10mm / 0.004"
	WARPAGE ACROSS TOP		----------	0.10mm / 0.004"
Piston	PISTON O.D.		57.3075 - 57.3095mm / ~2.256"	56.5mm / 2.22"
Piston pin	PISTON PIN BORE		15.002 - 15.008mm / ~0.0510"	15.04mm / 0.592"
Piston rings	PISTON PIN O.D.		14.994 – 15.000mm / ~0.590"	14.960mm / 0.589""
	PISTON-TO-PIN CLEARANCE		0.002 – 0.014mm/7.8x10^{-5}-0.0006"	0.02mm/0.0008"
	PISTON-TO-PIN CLEARANCE	TOP	0.015 – 0.050mm/0.0006-0.002"	0.12mm/0.005"
	PISTON RING-TO-RING	SECOND	0.015 – 0.050mm/0.0006-0.002"	0.12mm0.005"
	GROOVE CLEARANCE	TOP/SEC	0.10 – 0.25mm/0.004-0.01"	0.5mm/0.02"
	PISTON RING END GAP	OIL	0.2 –0.7mm/0.008-0.03"	----------
CYLINDER-TO-PISTON CLEARANCE			0.0005 – 0.1025mm/2.0x10^{-6}-0.004"	0.1mm/0.004"
CONNECTING ROD SMALL END I.D.			15.010 – 15.028mm / ~0.591"	15.06mm / 0.593"

TORQUE VALUES

Cylinder head bolts	8-12 N-m / 6-9ft-lbs
Camshaft holder flange nuts	20-24 N-m / 15-18 ft-lbs
Tapper adjusting nut	9-12 N-m / 7-9 ft-lbs

5.2 TROUBLE SHOOTING

Engine top-end problems often affect engine performance. These problems can be diagnosed by a compression test, or by tracing engine noise to the top end with a sounding rod or stethoscope.

Low compression Valve

-Incorrect valve adjustment.
-Worn or damaged valve seats.
-Burned or bent valve.
-Incorrect valve timing.
-Weak valve spring.

Cylinder head

-Leaking or damaged head gasket.
-Warped or cracked cylinder head.
-Faulty cylinder or piston.

Excessive noise

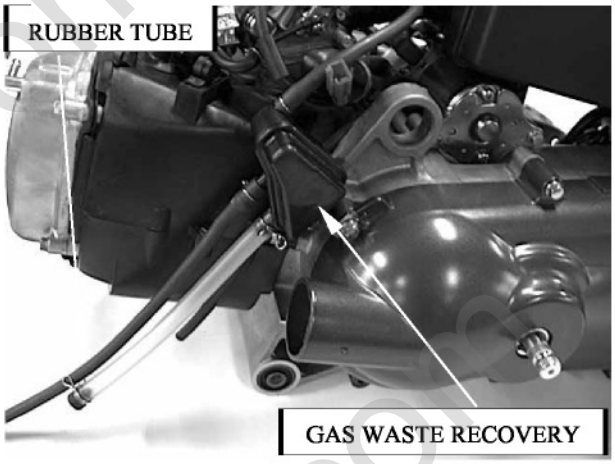
-Incorrect valve adjustment.
-Sticking valve or broken valve spring.
-Worn or damaged rocker arm or camshaft.
-Worn or damaged cam chain.
-Worn or damaged cam chain tensioner.
-Worn cam sprocket teeth.

Excessive smoke

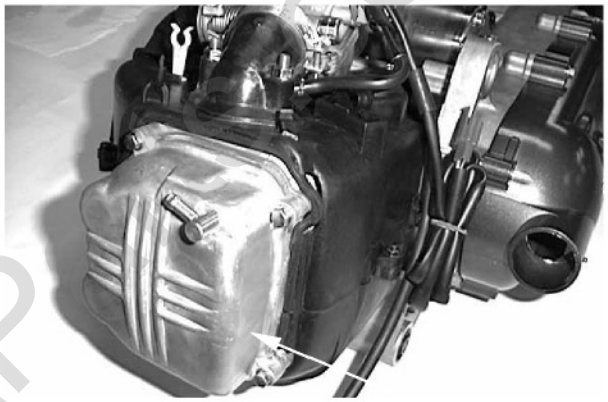
-Damaged valve stem seal.
-Faulty cylinder or piston rings

5.3 CAM SHAFT ASSEMBLY REMOVAL

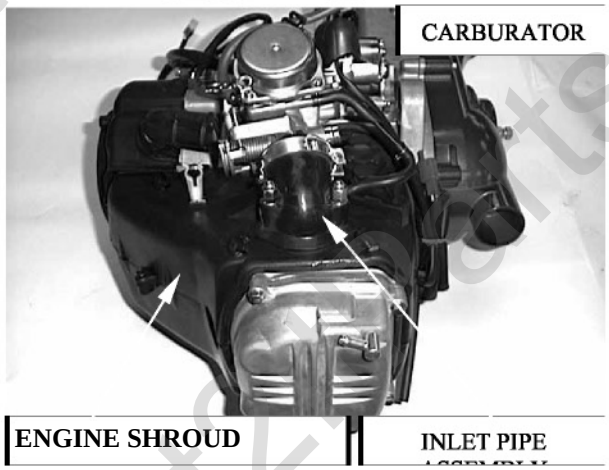
Remove the rubber gas waste recovery tube.



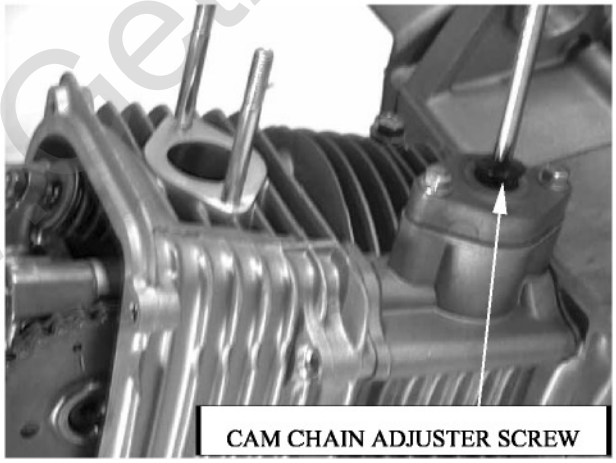
Remove the cylinder head cover.



Remove the air cleaner and carburetor.
Remove the inlet pipe assembly.
Remove the engine shroud.

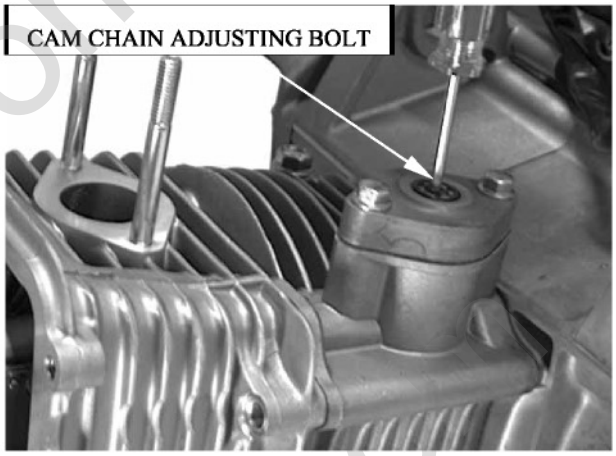


Loosen the cam chain adjuster screw.

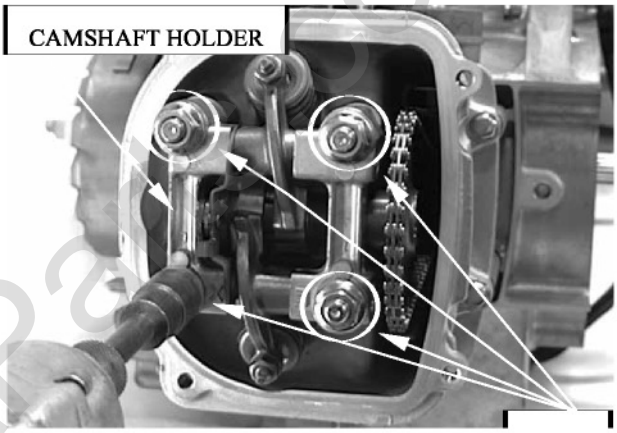


5.3 CAM SHAFT ASSEMBLY REMOVAL (continued)

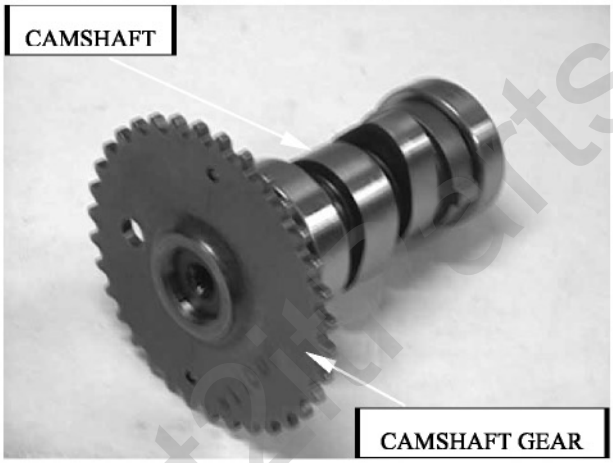
Remove the screw and O-ring and tighten the cam chain-adjusting bolt by turning in the clockwise direction.



Remove the nuts and washers.
Remove the camshaft holder and dowel pins.

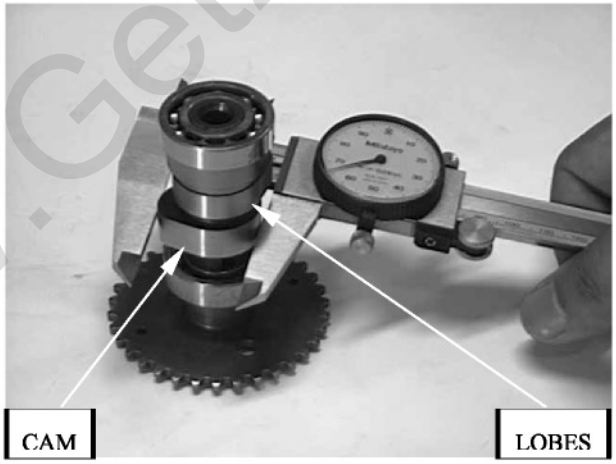


Loosen the camshaft gear from cam chain and remove the camshaft.



INSPECTION

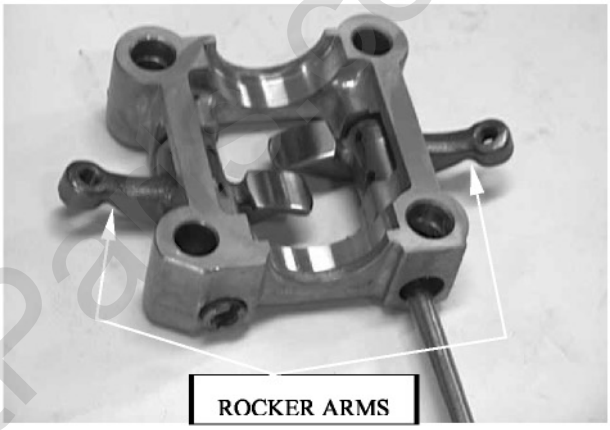
Inspect the cam lobes surface and height of cam lobes for wear or damage.
SERVICE LIMIT: IN 29.395 mm / 1.157”
EX 29.160 mm / 1.148”



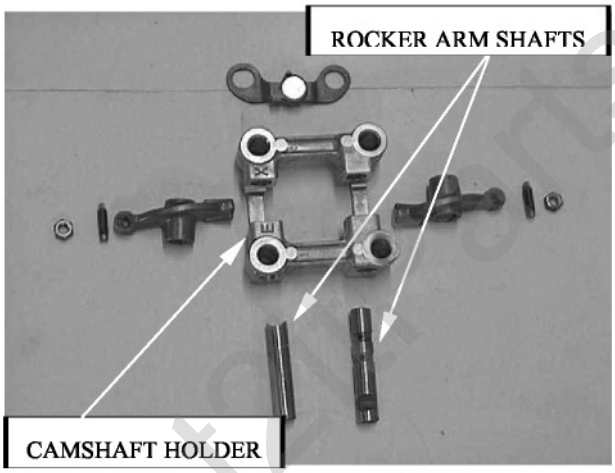
5.3 CAM SHAFT ASSEMBLY REMOVAL (continued)

Inspect the camshaft and bearings for wear or damage and replace them if necessary.

Screw a 5mm bolt into the rocker arm shaft threaded end. Pull on the bolt to remove the shafts and rocker arms.



Inspect the camshaft holder, rocker arms, and rocker arm shafts for wear or damage.



Measure the I.D. of each rocker arm.

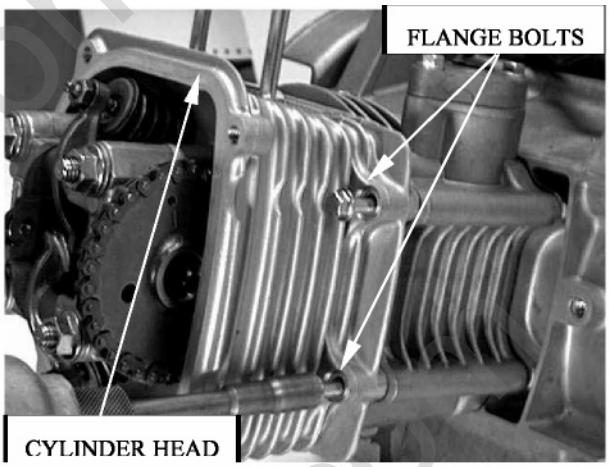
SERVICE LIMIT: 10.10 mm / 0.3976”

Measure the O.D. of each rocker arm shaft.

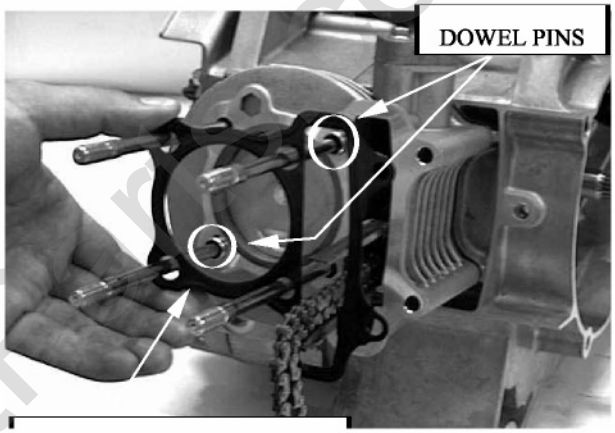
SERVICE LIMIT: 9.91 mm / 0.390”

5.4 CYLINDER HEAD REMOVAL

Remove the flange bolts and cylinder head.



Remove the cylinder head gasket and dowel pins.



Remove the cam chain guide.

CYLINDER HEAD DISASSEMBLY

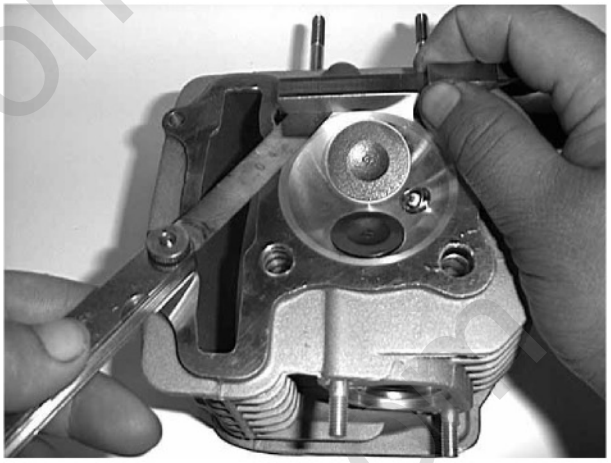
Remove the valve cotters, spring retainers, and valve springs with a valve spring compressor.

5.4 CYLINDER HEAD REMOVAL

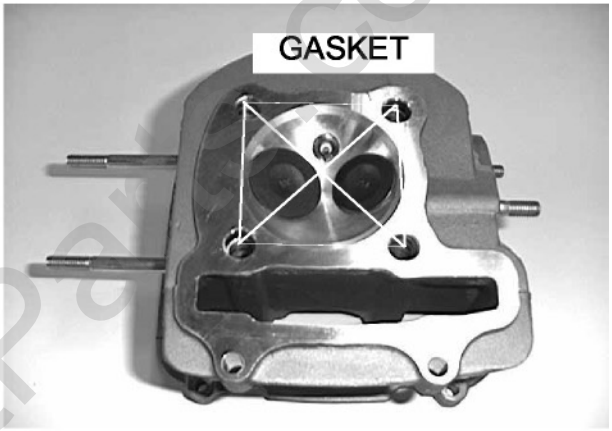
(continued)

INSPECTION

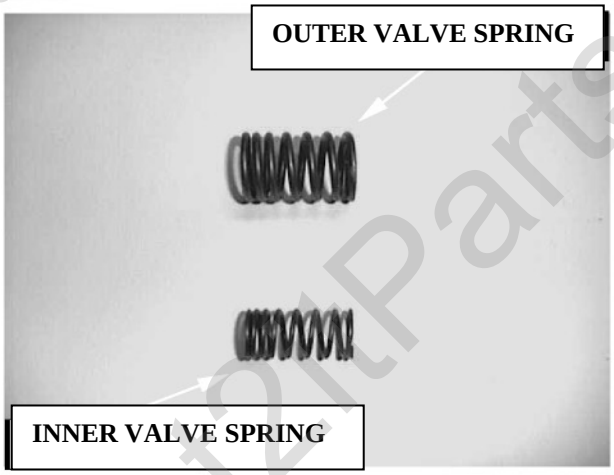
Clean off all carbon deposits from the combustion and check the spark plug hole and valve area for cracks.



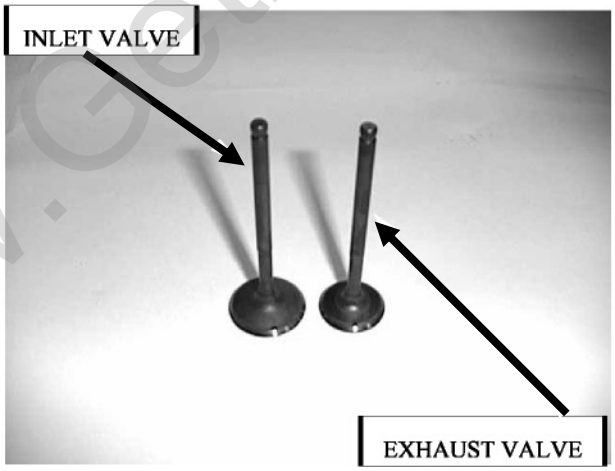
Measure the cylinder head diagonally for warping with a straight edge and feeler gauge.
SERVICE LIMIT: 0.05 mm / 0.002”



Measure the free length of the inner and outer valve springs.
SERVICE LIMITS: Inner 31.2 mm / 1.23”
Outer 34.1 mm / 1.34”



Inspect each valve for turning, burning, scratches, or abnormal stem wear. Check the valve movement in the guide.



Measure and record each valve stem O.D.
SERVICE LIMITS: 4.90 mm / 0.19”

Measure and record the valve guide I.D.
SERVICE LIMITS: IN / EX 5.30 mm / 0.209”

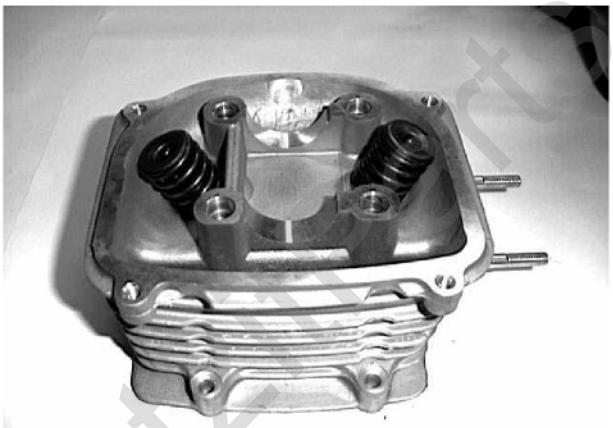
Calculate the stem-to-guide clearance.
SERVICE LIMITS: IN 0.08 mm / 0.003”
EX 0.10 mm / 0.004”

NOTE: If the stem-to-guide clearance exceeds the service limits, determine if a new guide with standard dimensions would bring the clearance within tolerance.

If so, replace guides as necessary and ream to fit. If the valve guide is replaced, the valve seat must be refaced.

5.5 CYLINDER HEAD ASSEMBLY

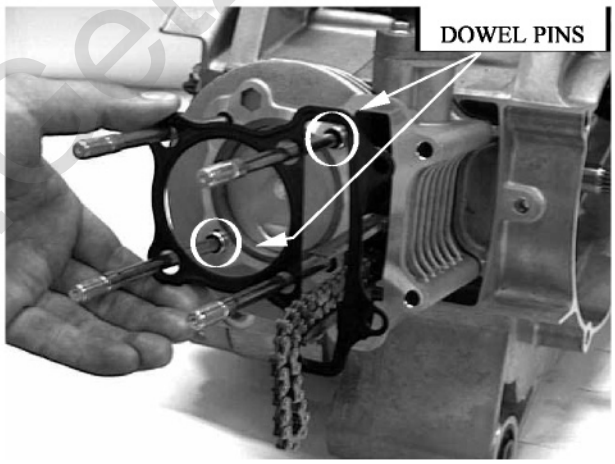
Lubricate each valve stem with oil.
Insert the valves into the guides.
Install the valve springs, retainers, and the cotters.



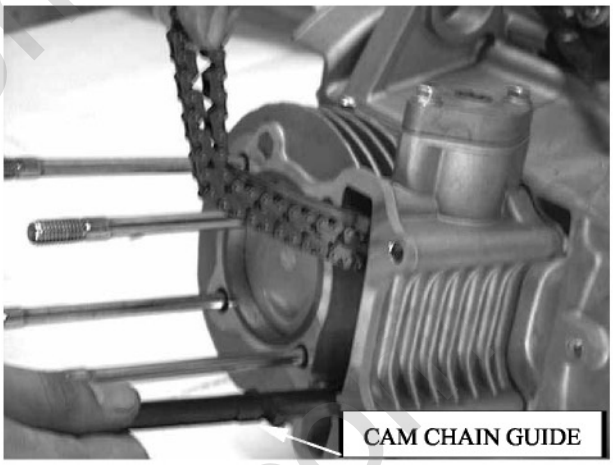
NOTE: To prevent loss of tension, do not compress the valve springs more than necessary.

INSTALLATION

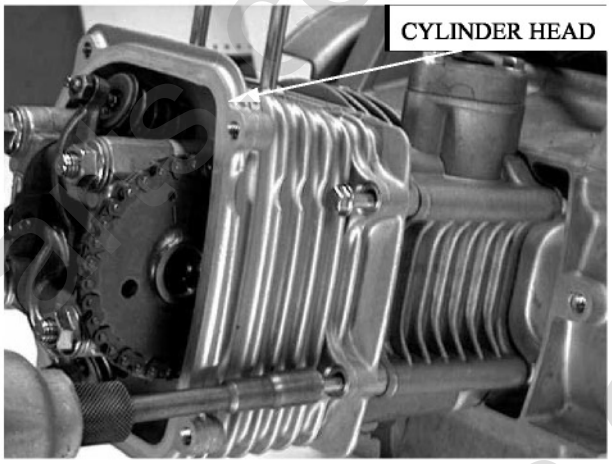
Install the new gasket and dowel pins.



Install the cam chain guide.



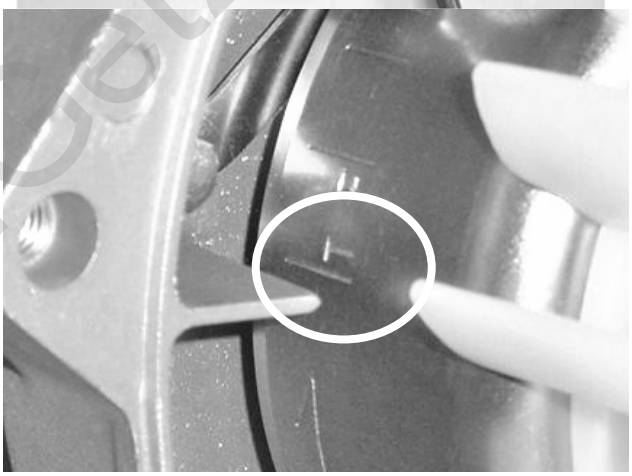
Install the cylinder head.



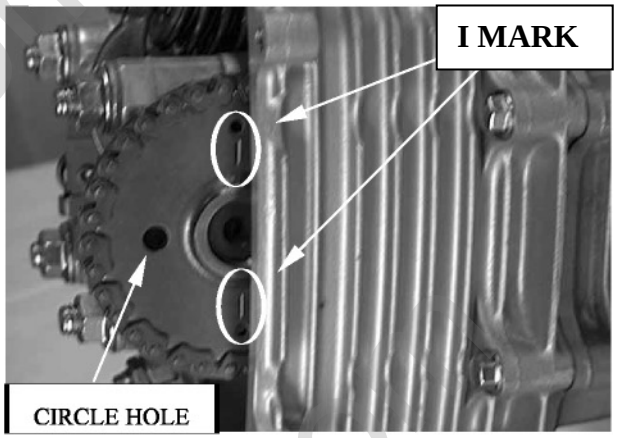
5.6 CAMSHAFT ASSEMBLY INSTALLATION

Install the rocker arms and rocker arm shafts into the camshaft holder.

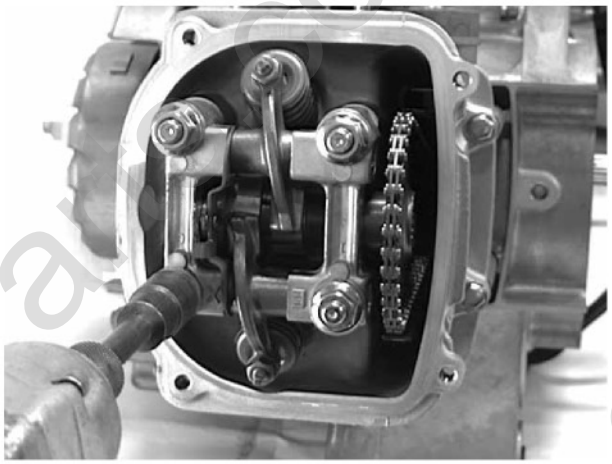
Align the "T" mark (as shown in picture) on the flywheel with the index mark on the alternator cover by turning the flywheel counter-clockwise.



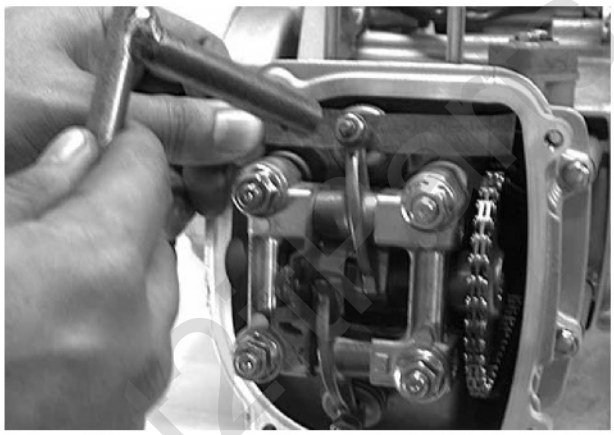
Position the camshaft gear with cam chain so that its "I" mark aligns with the cylinder head surface and the circle hole towards the front.



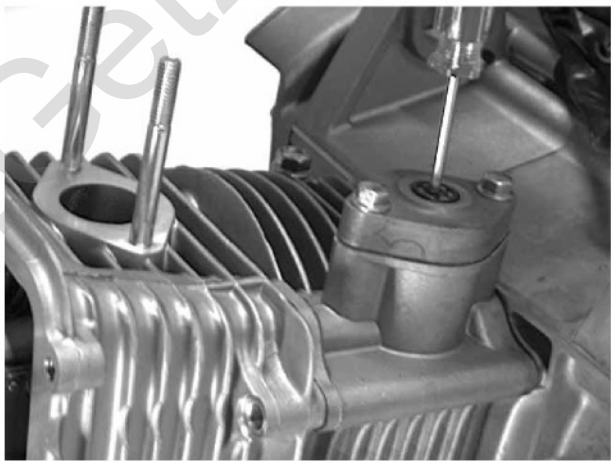
Install the dowel pins and camshaft holder. Tighten the washers and nuts.
TORQUE: 20 N-m (15 ft-lbs)



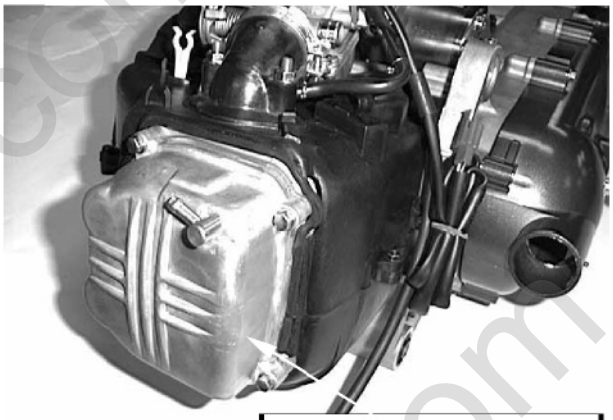
Adjust the clearance between the rocker arm and valve stem by applying a feeler gauge.
STANDARD VALVE: 0.08 – 0.12 mm / 0.003-0.005”



Loosen the cam chain-adjusting bolt by turning in a counterclockwise direction. Install the O-ring and screw.



Install the cylinder head cover.



CYLINDER HEAD COVER

6. CYLINDER AND PISTON

6.1 SERVICE INFORMATION
6.2 TROUBLESHOOTING
6.3 CYLINDER REMOVAL
6.4 PISTON REMOVAL
6.5 CYLINDER INSTALLATION

6.1 SERVICE INFORMATION

GENERAL

Camshaft lubrication oil is fed to the cylinder head through an oil hole in the cylinder head and engine case. Before installing the cylinder head, be sure the hole is not clogged and the gasket, O-ring and dowel pins are in place.

SPECIFICATIONS

ITEM			STANDARD (mm / in)	SERVICE LIMIT (mm / in)
Cylinder	I.D.		57.400 - 57.410 / 2.26"	57.50 / 2.26"
	Taper		----------	0.10 / 0.004"
	Out of round		----------	0.10 / 0.004"
	Warp across top		----------	0.10 / 0.004
Piston	Piston O.D.		57.3075 - 57.3095 / ~2.26"	56.500 / 2.22"
Piston pin	Piston pin bore		15.002 - 15.008 / ~0.59"	15.04 / 0.59"
Piston rings	Piston pin O.D.		14.994 - 15.000 / ~0.58"	14.960 / 0.58"
	Piston-to-pin clearance		0.002 - 0.014 / ~7.2x10^{-5}"	0.02 / 0.0008"
	Piston ring	TOP	0.015 - 0.050 / ~0.0006"	0.12 / 0.005"
		SECOND	0.015 - 0.050 / ~0.0006"	0.12 / 0.005"
	Groove Clearance	TOP/SEC	0.10 - 0.25 / ~0.004"	0.5 / 0.02"
	Piston ring end gap	OIL	0.2 -0.7 / ~0.008"	----------
Cylinder-to-piston clearance			0.0005 - 0.1025 / ~2x10^{-5}"	0.1 / 0.004"
Connecting rod small end I.D.			15.010 - 15.028 / ~0.56"	15.06 / 0.59"

TORQUE VALUES

Cylinder head bolts	8-12 N-m / 6-9 ft-lbs
Camshaft holder flange nuts	20-24 N-m / 15-18 ft-lbs
Tappet adjusting nut	9-12 N-m / 7-9 ft-lbs

6.2 TROUBLESHOOTING

Low or unstable compression

-Worn cylinder or piston rings.

Overheating

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

Knocking or abnormal noise

-Worn piston and cylinder.
-Excessive carbon build-up.

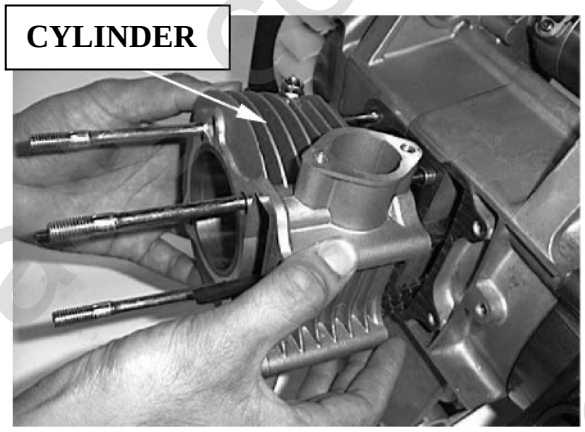
Excessive smoke

-Worn cylinder, piston, or piston rings.
-Improper installation of piston rings.
-Scored or scratched piston or cylinder wall.
-Damaged valve stem seal.

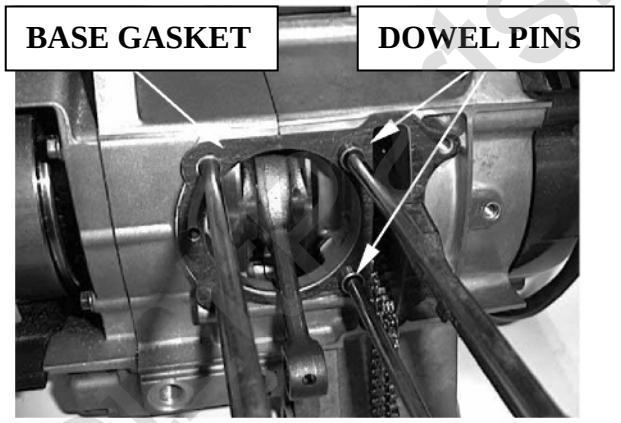
6.3 CYLINDER REMOVAL

Remove the cylinder head.

Remove the cylinder.

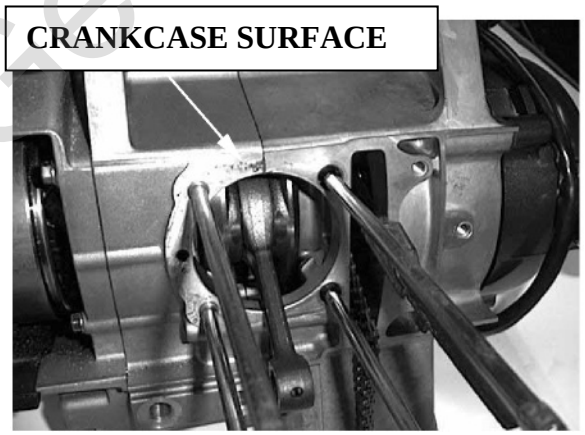


Remove the cylinder gasket and dowel pins.



Clean off any gasket materials from the cylinder surface.

NOTE: Be careful not to damage the gasket surface

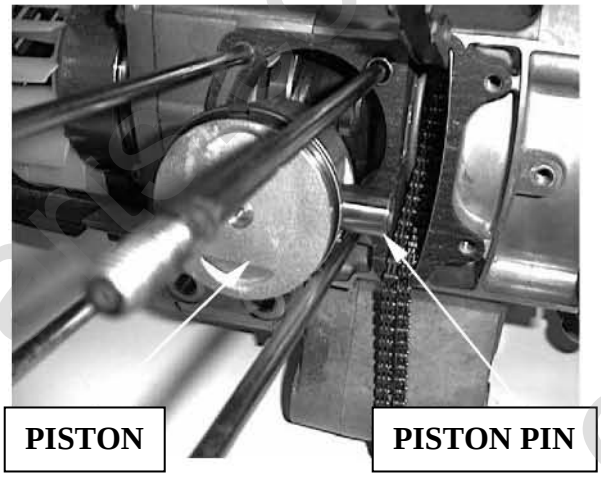


6.4 PISTON REMOVAL

Stuff a shop towel into the crankcase.
Remove the piston pin clip with needle nose pliers.

NOTE: Do not allow the clip fall into the crankcase.

Remove the piston pin from the piston. Remove the piston.



Spread each piston ring and remove it by lifting up at a point opposite the gap.

INSPECTION

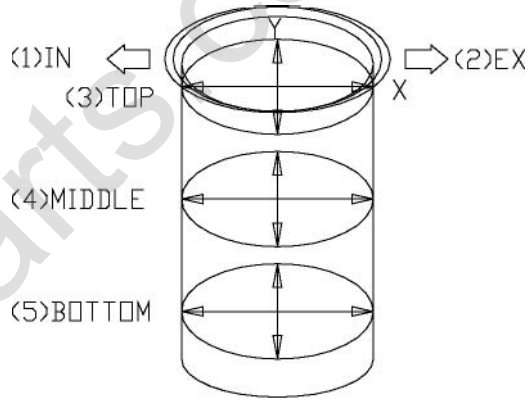
Inspect the cylinder walls for scratches or wear.

Measure and record the cylinder I.D. at three levels in both the X and Y axis. Take the maximum reading to determine the cylinder wear.
SERVICE LIMIT: 57.50 mm / 2.264”

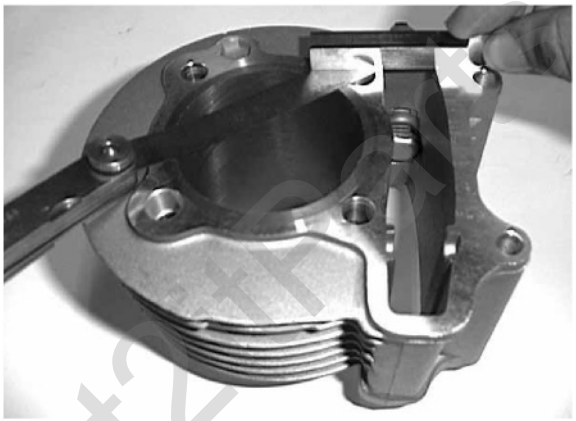
Calculate the piston-to-cylinder clearance.
Take the maximum reading to determine the clearance.
SERVICE LIMIT: 0.10 mm / 0.004”

Calculate cylinder taper at three levels in the X and Y-axis. Take the maximum reading to determine the taper.
SERVICE LIMIT: 0.10 mm / 0.004”

Calculate the cylinder out-of-round at three levels in the X and Y-axis. Take the maximum reading to determine the out-of - round.
SERVICE LIMIT: 0.10 mm / 0.004”



Inspect the top of the cylinder for warp.
SERVICE LIMIT: 0.10 mm / 0.004”



PISTON / PISTON RING INSPECTION
Measure the piston ring-to-groove clearance.
SERVICE LIMITS: **TOP 0.12 mm / 0.005”**
SECOND 0.12 mm / 0.005”

Inspect the piston for wear or damage.

PISTON

Insert each piston ring into the cylinder and measure the ring end gap.

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

SERVICE LIMITS: TOP 0.5 mm / 0.02”
SECOND 0.5 mm / 0.02”

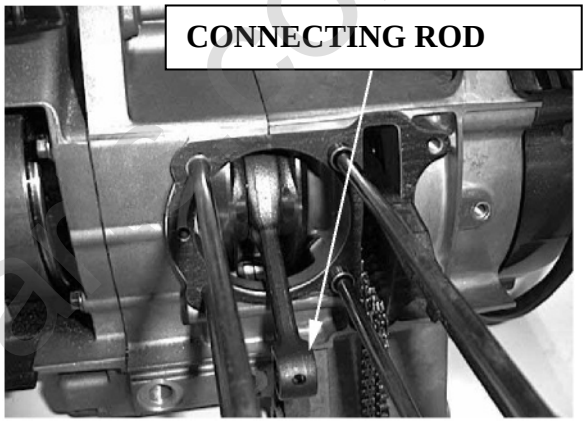
Measure the piston pin O.D.
SERVICE LIMIT: 14.960 mm / 0.589”

PISTON PIN

Measure the piston pin bore.
SERVICE LIMIT: 15.04 mm / 0.592”

Calculate the piston-to-piston pin clearance.
SERVICE LIMIT: 0.02 mm / 0.0008”

Measure the connecting rod small end I.D.
SERVICE LIMIT: 15.06 mm / 0.59”

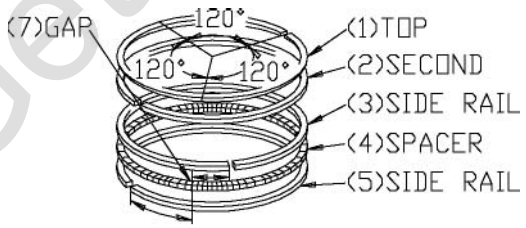


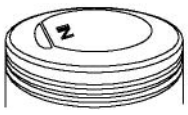
6.5 PISTON & PISTON RING INSTALLATION

Clean the piston ring grooves thoroughly and install the piston ring with the marks facing up.

NOTE: Don't interchange the top and second rings.
Avoid piston and piston ring damage during installation.

Space the piston ring end gaps 120 degrees apart.





PISTON INSTALLATION

Install the piston with its "IN" mark pointing up toward the intake valve side.

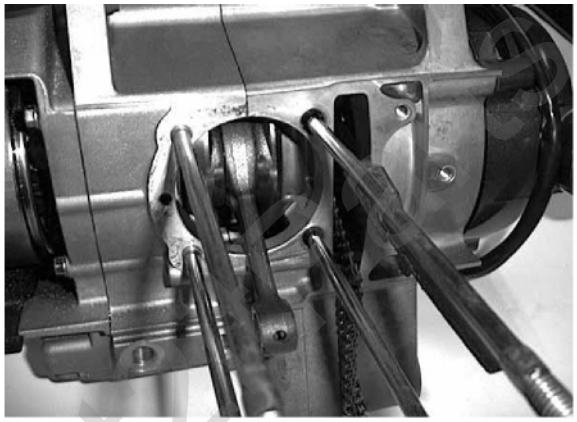
Install the piston pin with new pin clips.
Do not align the piston pin clip end gap with the piston cutout.

NOTE: Do not allow the clip to fall into the crankcase.

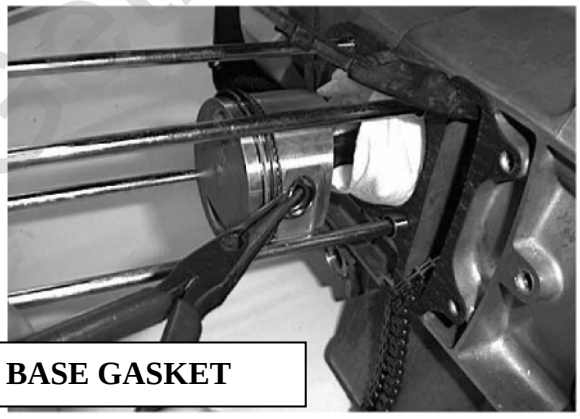
6.6 CYLINDER INSTALLATION

Clean any gasket material from the crankcase surface.

NOTE: Be careful not to damage the gasket surface.



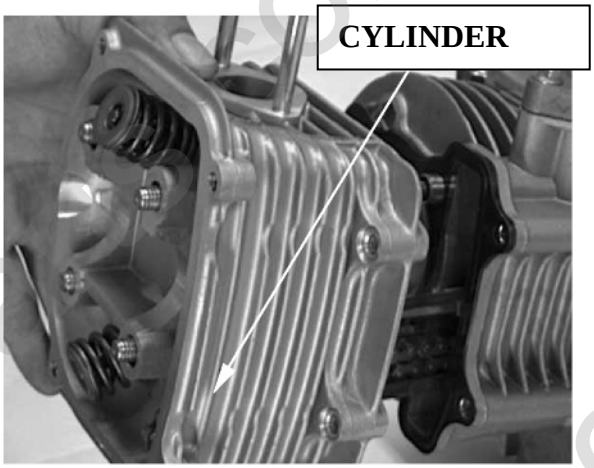
Install the dowel pins and a new gasket.



Coat the cylinder bore and piston rings with engine oil and install the cylinder.

NOTE: Avoid piston rings damage cylinder bore during installation. Do not allow the cam chain fall into the crankcase.

Install the cylinder head.



7. TRANSMISSION & KICK STARTER

7.1 SERVICE INFORMATION
7.2 TROUBLE SHOOTING
7.3 CVT DISASSEMBLY
7.4 KICK STARTER DISASSEMBLY
7.5 KICK STARTER ASSEMBLY
7.6 CVT ASSEMBLY
7.7 TRANSMISSION SYSTEM

7.1 SERVICE INFORMATION

If the drain tube assembly fills with water, the tube should be drained.

If replacing transmission parts for YUKON/YUKON II, refer to the bulletin at the end of this manual first!

Click here to see the service bulletin.

SPECIFICATIONS

ITEM	STANDARD	SERVICE LIMIT
Driven belt width	19.8 - 20.2mm / ~0.780”	19.0mm / 0.75”
Weight roller O.D.	17.9 - 18.1mm / ~0.705”	17.40mm / 0.685”
Movable drive face I.D.	27.98 - 28.0mm / ~1.101”	28.03mm / 1.104”
Drive face collar I.D.	24.06 - 24.09mm / ~0.945”	24.098mm / 0.9487”
Drive face boss O.D.	23.96 - 23.98mm / ~0.944”	23.92mm / 0.942”
Clutch outer I.D	124.8 - 125.2mm / ~4.90”	125.5mm / 4.941”
Clutch weight lining thickness	----------	1.5mm / 0.059”
Driven face spring length	168.4 - 169.4mm / ~6.650”	164.0mm / 6.46”

TORQUE VALUES

Clutch outer nut	55 N-m / 41 ft-lbs
Drive face nut	55 N-m / 41 ft-lbs

7.2 TROUBLE SHOOTING

Engine starts but won't run

-Worn driven belt.
-Worn clutch lining.
-Damaged driven face spring.

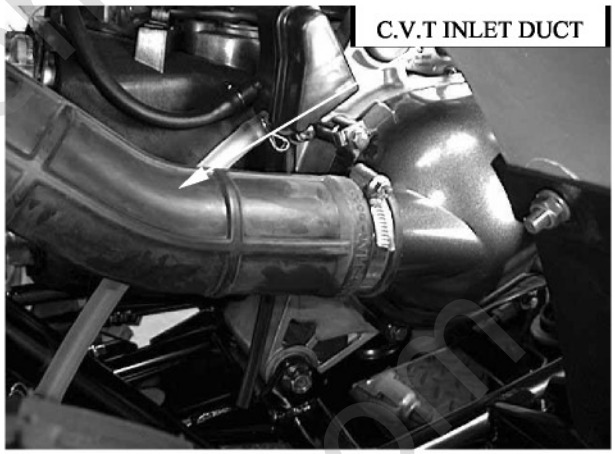
Low engine power

-Worn driven belt.
-Worn weight roller.
-Dirty drive face.

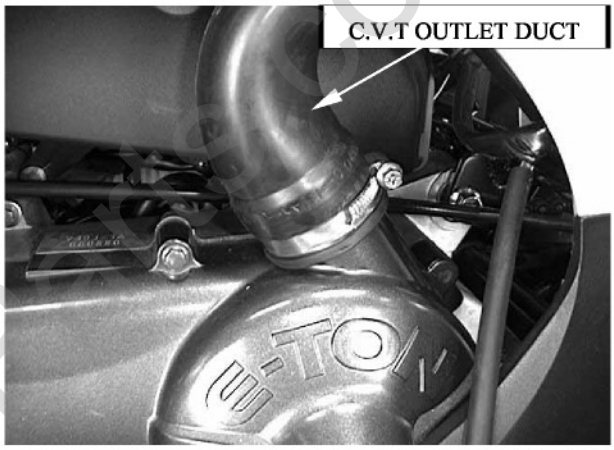
7.3 CVT DISASSEMBLY

LH CRANKCASE COVER REMOVAL

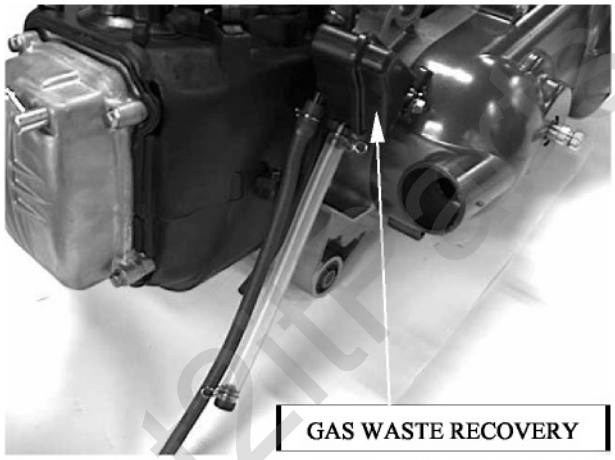
Loosen the band screw and remove the CVT inlet duct.



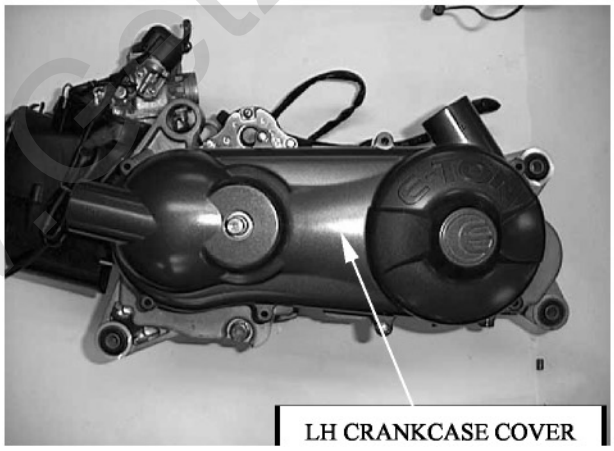
Loosen the band screw and remove the CVT outlet duct.



Remove the gas waste recovery unit.

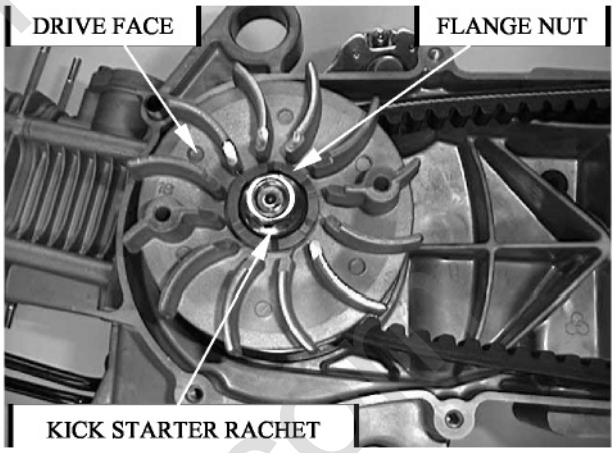


Remove the 8 bolts and the LH crankcase cover.

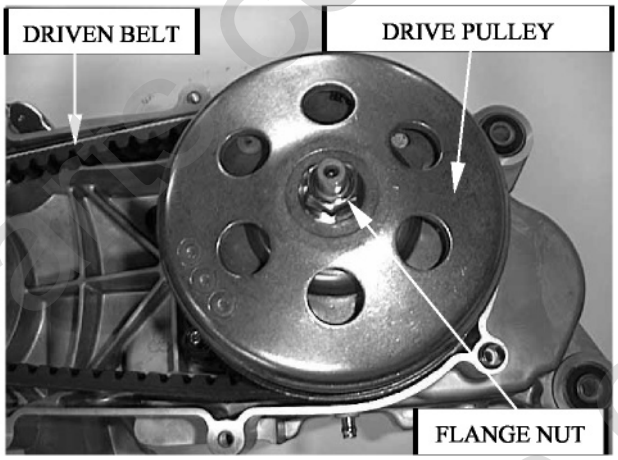


CVT REMOVAL

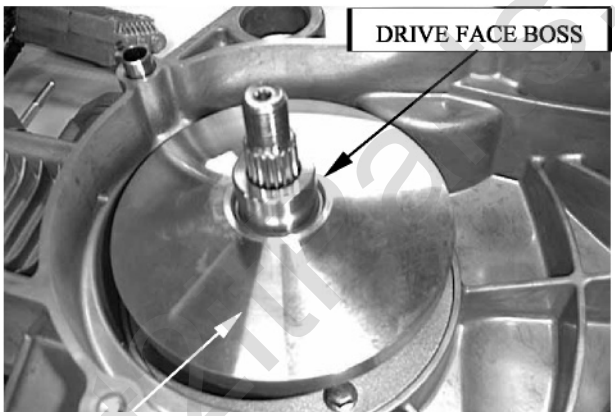
Remove the flange nut and remove the kick-starter ratchet. Remove the drive face and primary clutch sheave.



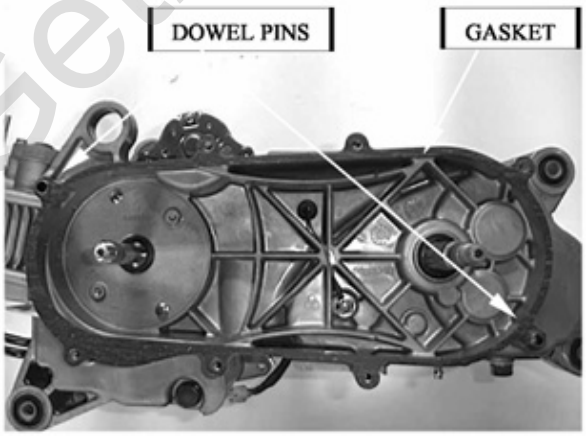
Remove the flange nut.
Remove the drive pulley assembly and driven belt.



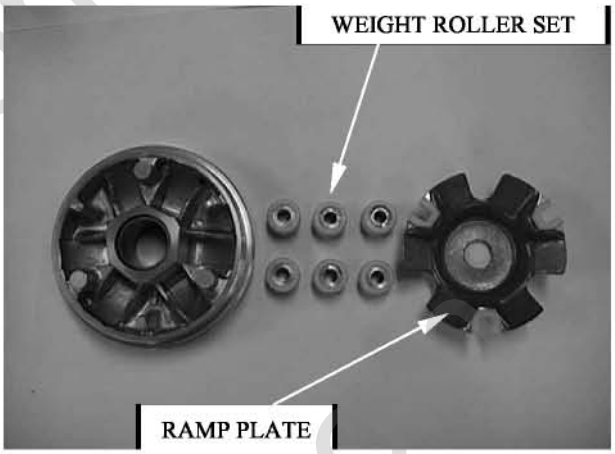
Remove the driven face boss and movable driven face assembly.



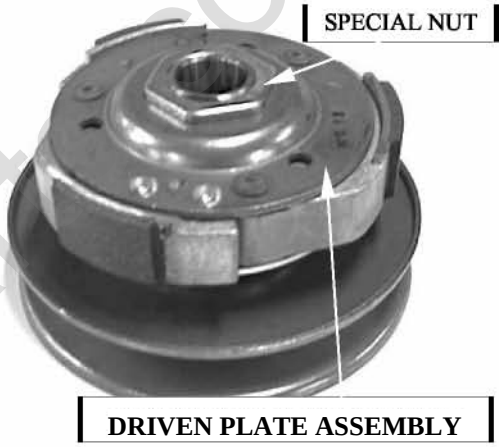
Remove the gasket and dowel pins. Clean off any gasket material from the left hand crankcase surface. Be sure not to damage the clutch cover surface.



Remove the ramp plate and weight roller set.

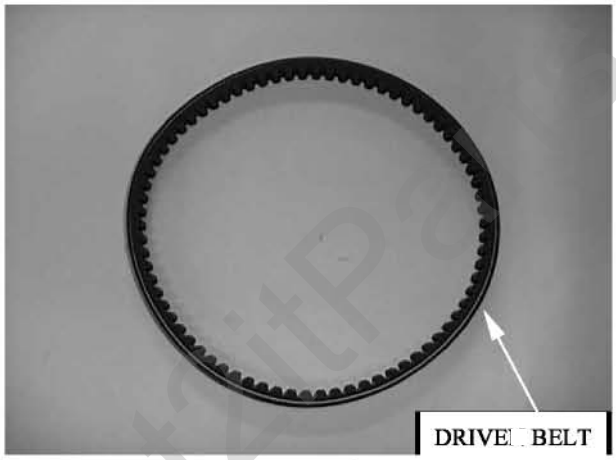


Loosen the special nut and remove the driven plate assembly and driven face spring.

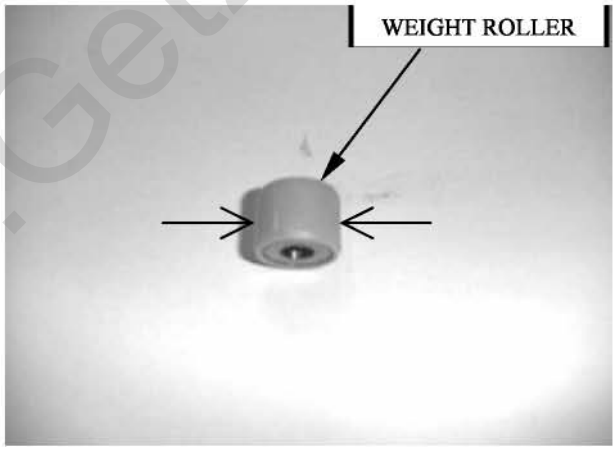


INSPECTION

Inspect the drive belt for wear, tearing, or other damage.
Measure the width of drive belt.
SERVICE LIMIT: 19.0 mm / 0.75”

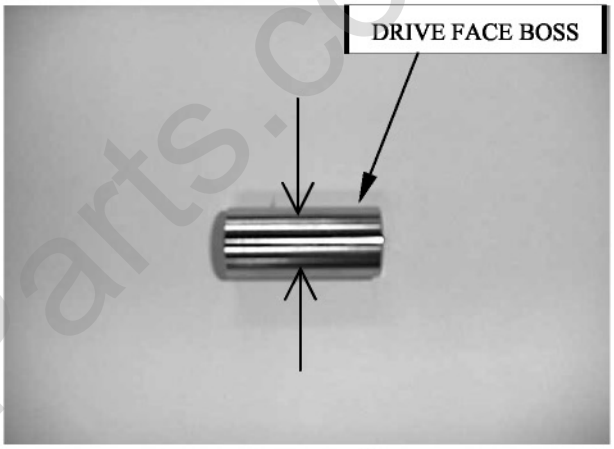


Inspect the weight rollers for wear or damage and replace them if necessary.
Measure the O.D. of weight rollers.
SERVICE LIMIT: 17.40 mm / 0.69”



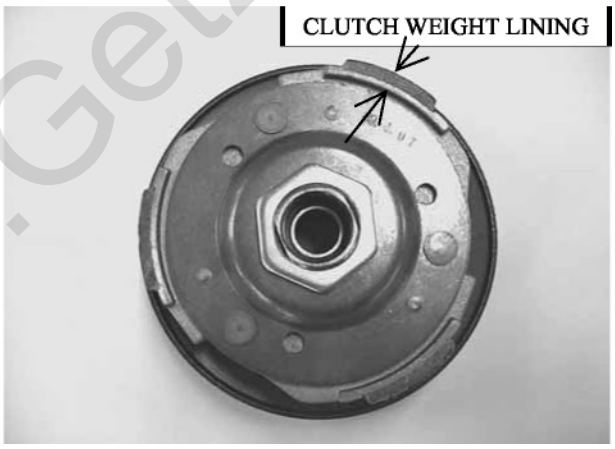
Measure the I.D. of movable driven face.
SERVICE LIMIT: 28.03mm / 1.10”
Inspect the drive face collar for wear or damage.
Measure the I.D. of drive face collar.
SERVICE LIMIT: 24.098 mm / 0.95”

Inspect the drive face boss for wear or damage.
Measure the O.D. of the drive face boss.
SERVICE LIMIT: 23.92 mm / 0.94”

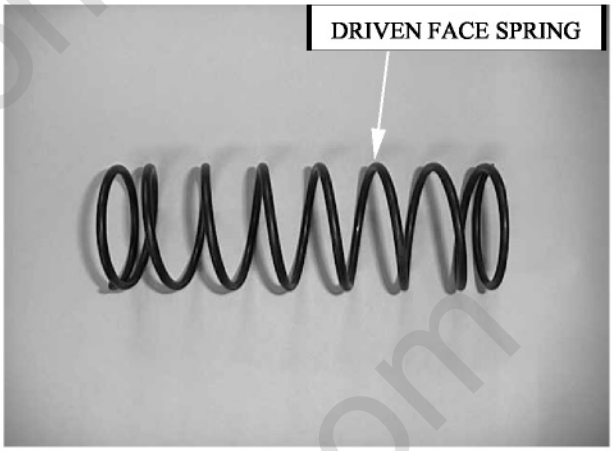


Inspect the clutch outer for wear or damage.
Measure the I.D. of clutch outer.
SERVICE LIMIT: 125.5 mm / 4.94”

Inspect the clutch weight set for wear or damage.
Measure the thickness of the clutch weight lining.
SERVICE LIMIT: 1.5mm / 0.06”



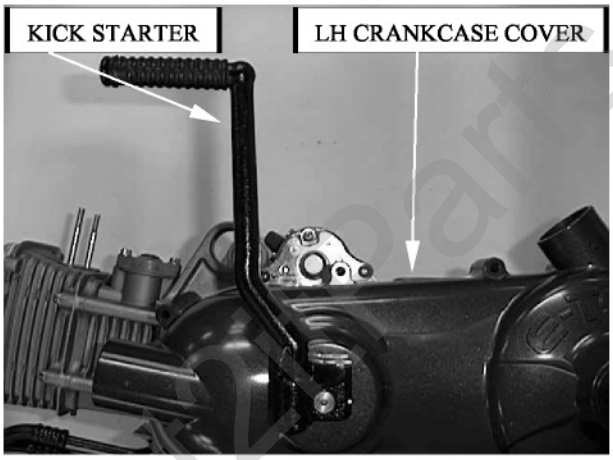
Measure the length of the driven face spring in its natural state.
SERVICE LIMIT: 164.0 mm / 6.46”



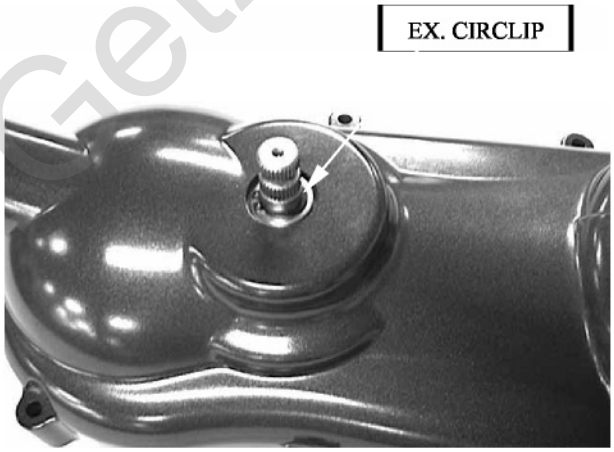
Inspect the driven face assembly and replace if necessary.

7.4 KICK STARTER DISASSEMBLY

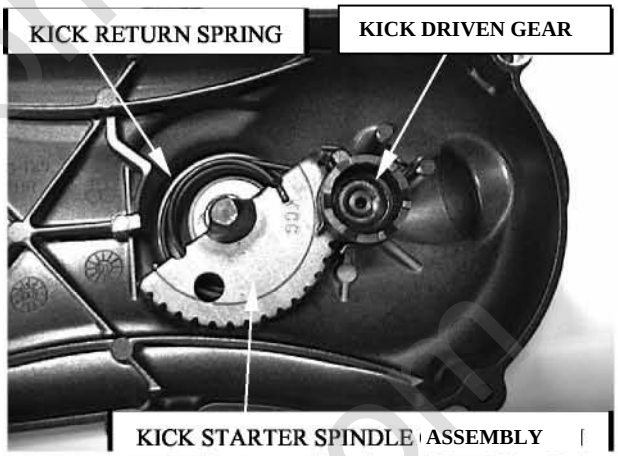
Remove the LH crankcase cover.
Remove the kick starter.



Remove the external circle-clip and washer from the kick starter spindle.

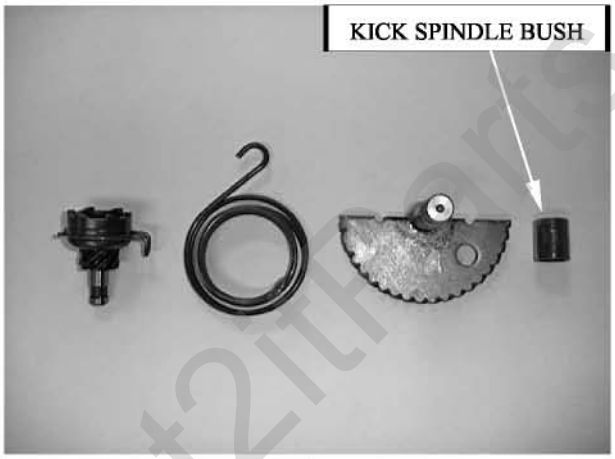


Rotate the kick-starter spindle assembly to remove the kick driven gear and spring.
Remove the kick-starter spindle assembly and return spring.
Remove the kick spindle bush.



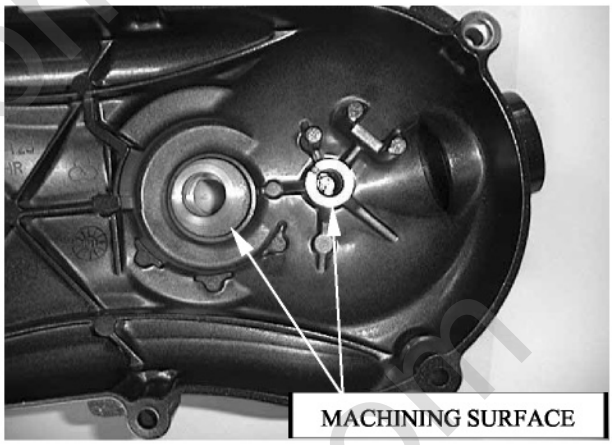
INSPECTION
Inspect the kick-starter spindle assembly for wear or damage.

Inspect the kick-starter return spring for wear or damage.
Inspect the kick-starter spindle bush for wear or damage.



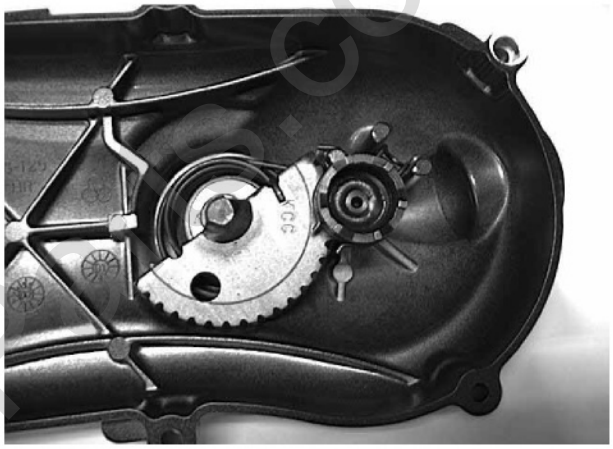
Inspect the kick driven gear and spring for wear or damage.

Inspect the machining surface for wear or damage.

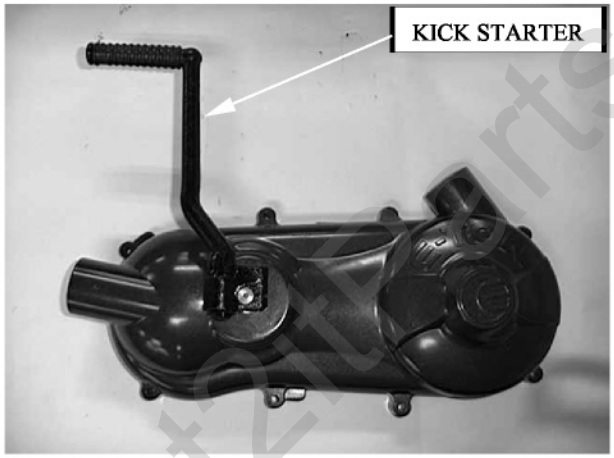


7.5 KICK-STARTER ASSEMBLY

Install the kick spindle bush, return spring, and spindle assembly.
Install the kick driven gear and spring.

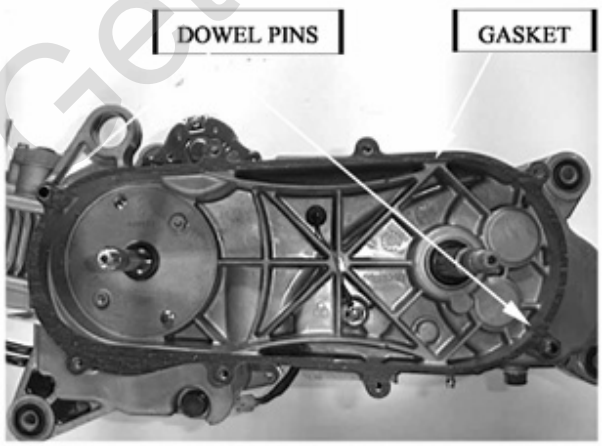


Install the kick-starter.

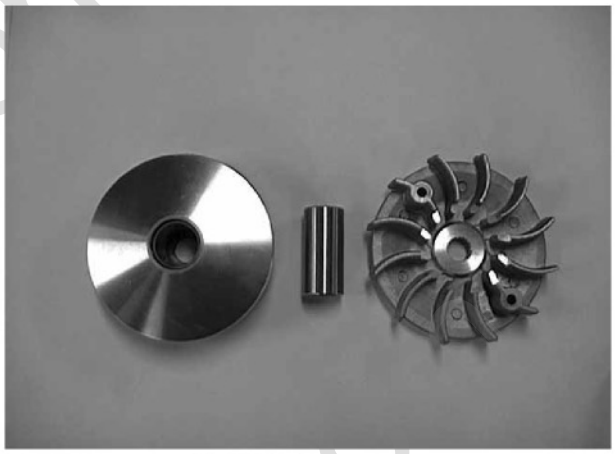


7.6 CVT ASSEMBLY

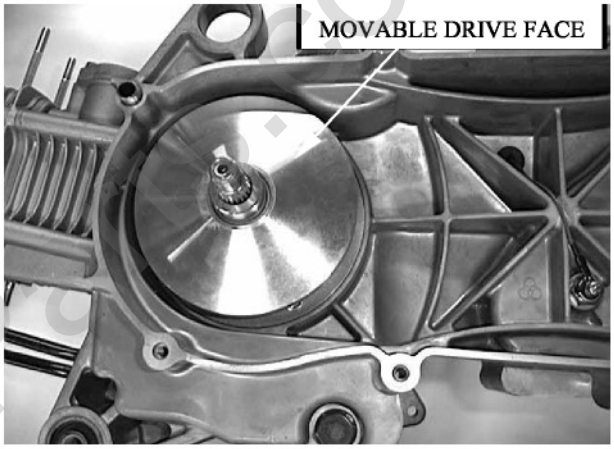
Install the dowel pins and gasket.



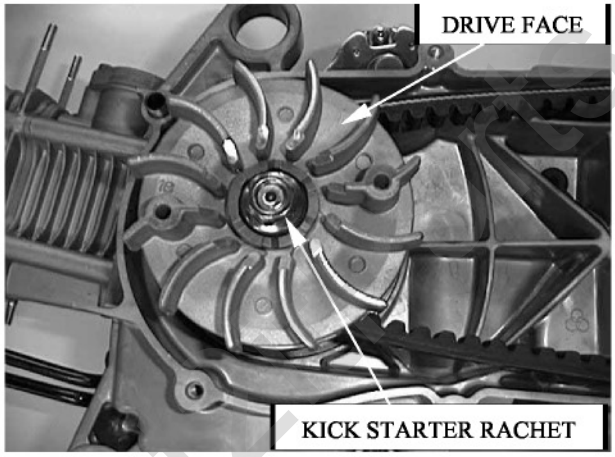
Assemble the driven face assembly, spring, and driven plate. Assemble the movable driven face, weight roller set, and drive face.



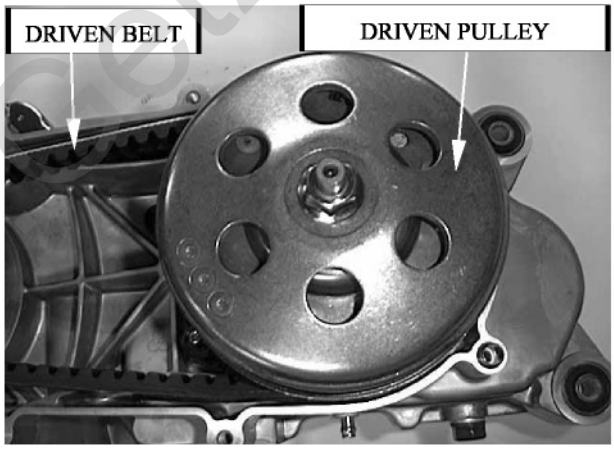
Install the movable drive face assembly and boss.



Install the drive face and kick starter ratchet.

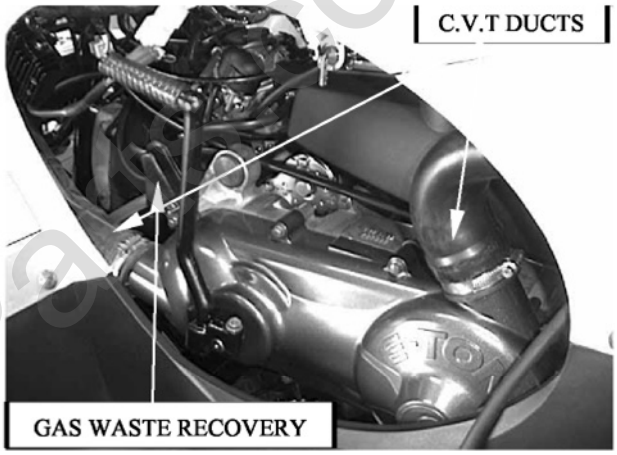


Install the driven belt and driven pulley assembly



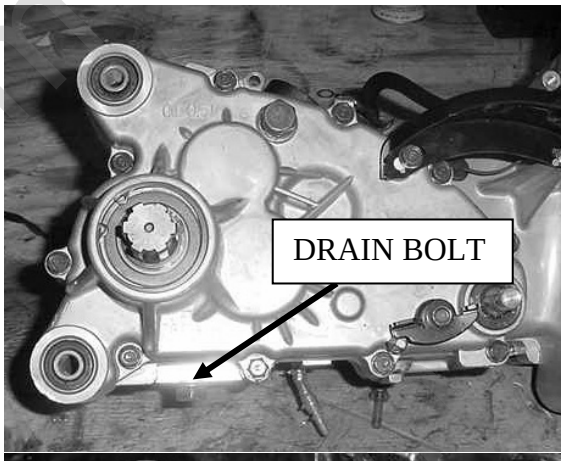
Install the LH crankcase cover.

Install the gas waste recovery system and CVT ducts.

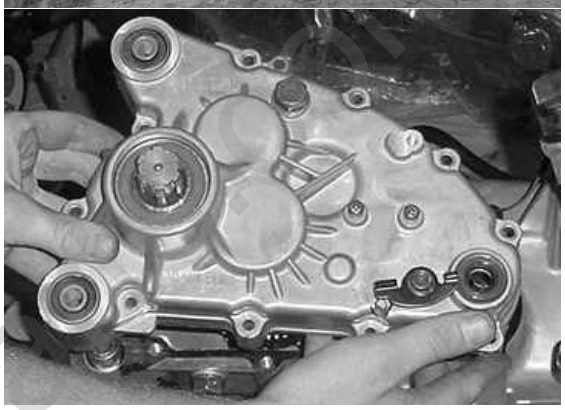


7.7 TRANSMISSION SYSTEM

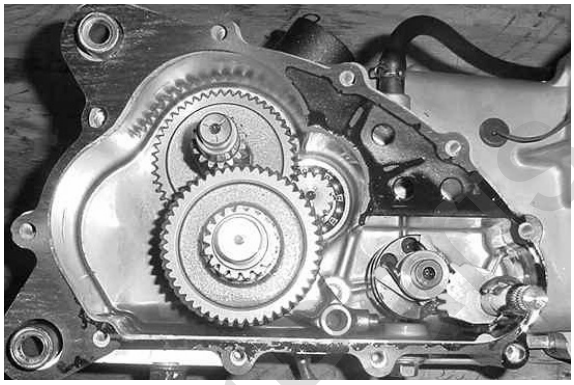
To remove the transmission, we recommend the motor be removed. The transmission can be serviced with the motor still in the frame, but this is not recommended.



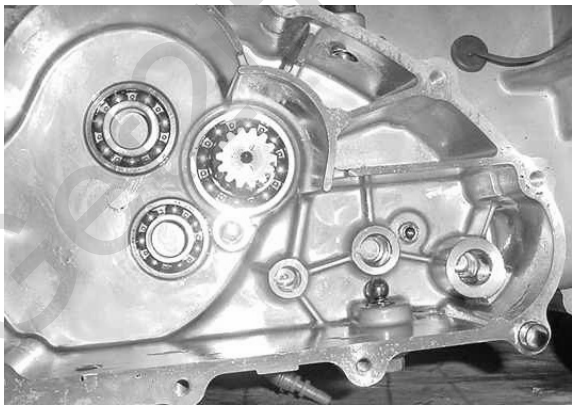
Before servicing transmission, drain the gear oil from the transmission case. First, remove the gear shift lever and the outside bolts of the transmission housing. Remove the retaining clip from the countershaft and remove the transmission cover.



Check the gear shift shaft forward and reverse gears for end play. Check the countershaft teeth for damage, as well as the drive shaft. Check the operation of the shift fork and shift drum.



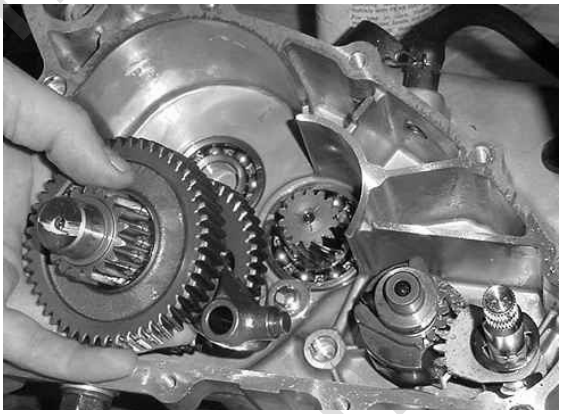
All bearings should be checked, and ball bearing and spring for the shift drum should be removed.



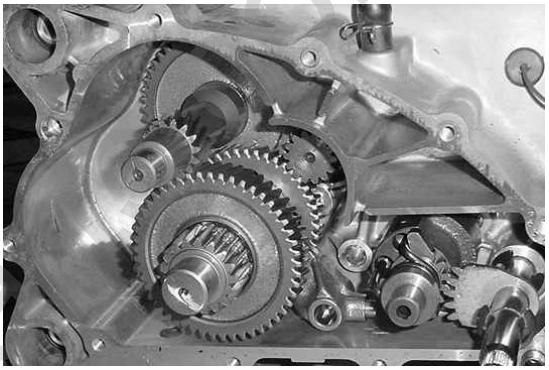
7.7 TRANSMISSION SYSTEM (cont'd)

Installation

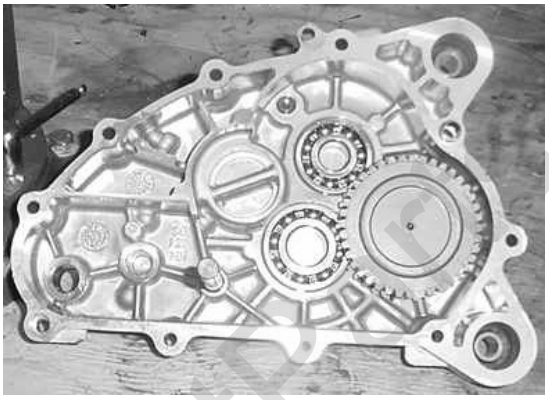
Install the shift guide and shift drum. Insert the shift fork into the slot on the gear shift shaft. Install the gear shift shaft with the forward gear facing the CVT system.



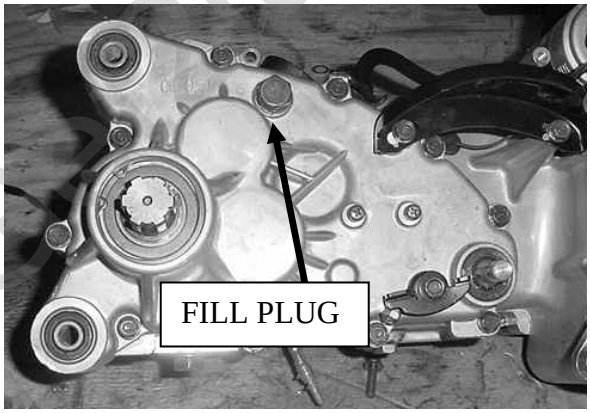
Install the countershaft and the ball bearing and spring under the shift drum.



Inspect the bearings in the transmission cover for wear and replace if necessary. Install the primary shaft in the transmission cover and hold in place by installing a retaining clip.



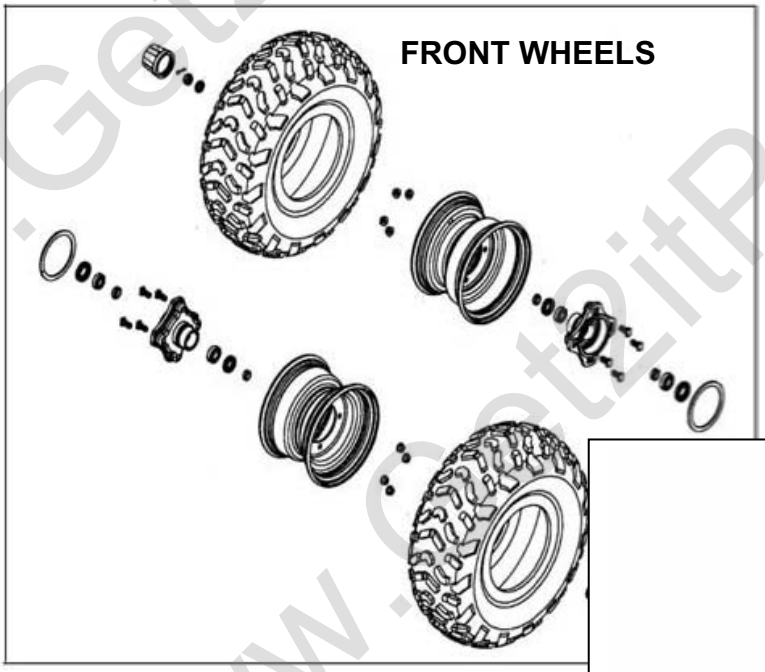
Install the transmission cover on the transmission housing. Torque the outer bolts **(28 N-m / 20 ft-lbs)** and fill the fill plug with 26 oz of 80/90 weight gear oil.

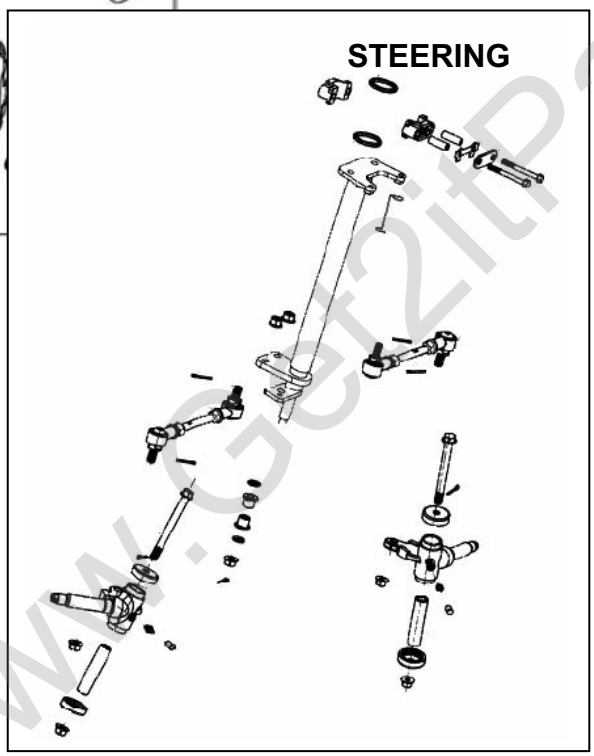


8. FRONT WHEEL, SUSPENSION, AND STEERING

8.1 Parts drawing
8.2 Troubleshooting
8.3 Handlebar
8.4 Throttle housing
8.5 Front wheel
8.6 Front brakes
8.7 Steering system
8.8 Front suspension

8.1 PARTS DRAWING





8.2 TROUBLESHOOTING

HARD STEERING:

-Faulty tire
-Steering shaft holder too tight
-Insufficient tire pressure
-Faulty steering shaft bushing
-Damaged steering shaft bushing

FRONT WHEEL WOBBLING:

-Faulty tire
-Worn front brake drum bearing Bent rim
-Axle nut not tightened properly

BRAKE DRAG:

-Incorrect brake adjustment
-Sticking brake cable

STEERS TO ONE SIDE:

-Bent tie rods
-Wheel installed incorrectly
-Unequal tire pressure
-Bent frame
-Worn swing arm pivot bushing
-Incorrect wheel alignment

POOR BRAKE PERFORMANCE:

-Brake shoes worn
-Worn brake drum
-Brake lining oily, greasy or dirty
-Improper brake adjustment

FRONT SUSPENSION NOISE:

-Loose front suspension fastener
-Binding suspension link

HARD SUSPENSION:

-Faulty front swing arm bushing
-Improperly installed front swing arms
-Bent front shock absorber swing rod
-Weak front shock absorber springs
-Worn or damage front swing arm bushing

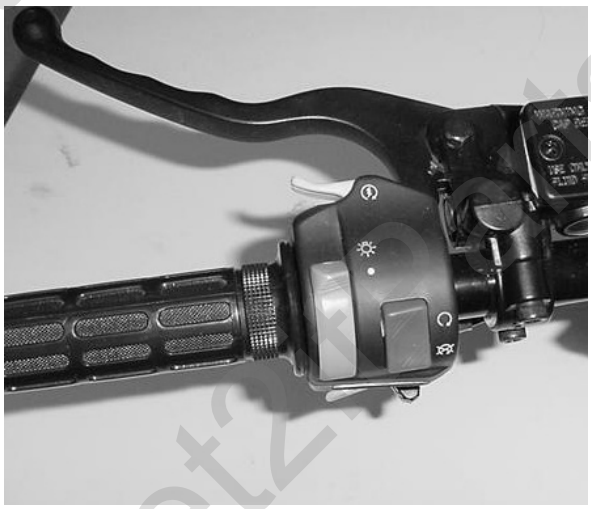
8.3 HANDLEBAR SYSTEM

Removal

Remove the handlebar cover by unscrewing the two fix screws.

Remove the throttle lever housing on the right handle bar.
Remove brake lever bracket assembly.

Remove the handle bar switch on the left handle bar.
Remove rear brake lever bracket assembly.



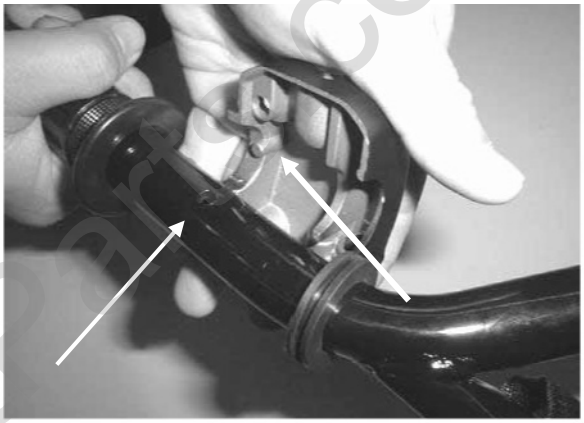
Remove the bolts attaching the handlebar upper holder.
Remove the handlebar.

8.4 HANDLEBAR SYSTEM

Installation

Put the handlebar on the lower holders. Make sure the handlebar punch marks match with the top end of the handlebar lower holders. Install the handlebar upper holders with the L / R marks facing forward. Tighten the forward bolts first; then, tighten the rear bolts. Install the handlebar upper holder's cover.

Install the switch housing, aligning the boss with the hole. Tighten the upper screw first then tighten the lower one.



Install the rear brake lever bracket, aligning the boss with the hole. Tighten the screw securely.

Align the split line of the throttle housing and holder with the punch mark. Tighten the screw securely.

8.5 THROTTLE HOUSING

Disassembly

Unscrew the screws on the throttle housing cover.
Remove the throttle housing cover and gasket.
Disconnect throttle cable from the throttle arm and remove from the throttle housing.

8.6 FRONT WHEEL

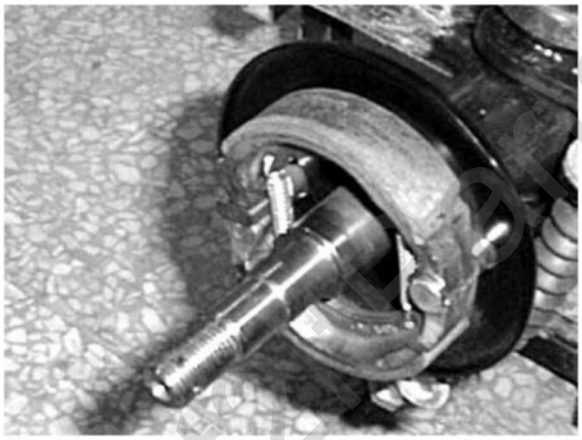
Removal

Raise the front wheels off the ground by placing a jack or other support under the frame.
Remove the front wheel nuts, washer, and wheels.

Installation

Install and tighten the four-wheel nuts
Torque: 60 N-m (44 ft-lbs)
Remember to put a new cotter pin in the castle nut.

8.7 FRONT BRAKES



Front Brake Inspection

Remove the front wheel. Remove the brake drum.
.

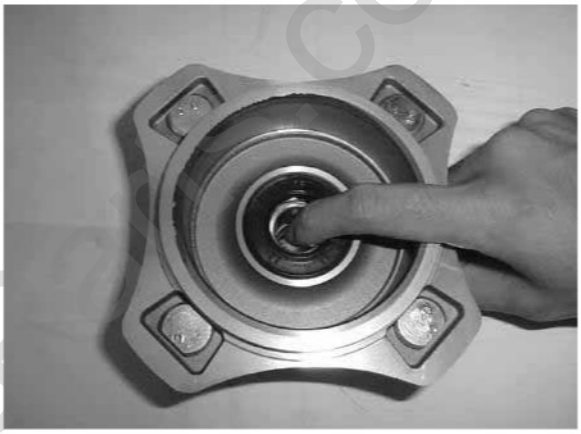
Measure the brake lining thickness.
Minimum limit: 1.5 mm / 0.06”

If the thickness is thinner than the minimum limit, replace the brake lining.

8.7 FRONT BRAKES
(continued)

Measure the brake drum inner diameter. Inspect the brake drum surface for scoring or uneven surfaces.
Maximum limit: 86 mm / 3.39”

Turn the inner race of each bearing with fingers. The bearings should turn smoothly and quietly. If the race does not turn smoothly or quietly, remove and replace the bearings
.



Brake Panel Removal

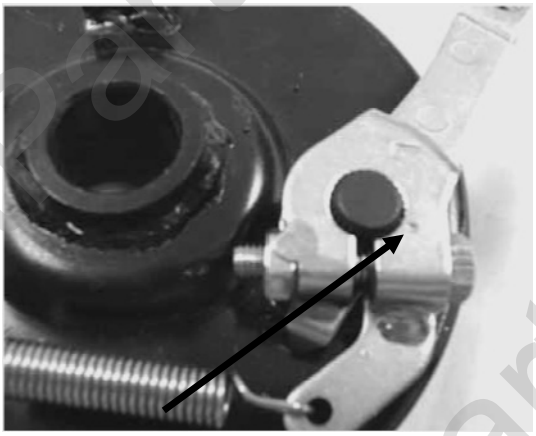
Disconnect the brake cable from the brake arm.
Remove the brake panel from the knuckle.

Remove brake arm and cam.
Remove return spring.
Remove indicator plate and felt seal.

8.7 FRONT BRAKES (continued)

Install Brake Panel

Apply grease to the brake cam and anchor pin and install the cam in the brake panel.
Soak the felt seal in engine oil and install the seal on the brake cam.



Install the brake arm on the cam by aligning the punch mark and the groove on the cam. Tighten the brake arm bolt and nut.
Torque: 4-7 N-m / 3-5 ft-lbs.
Install the return spring.

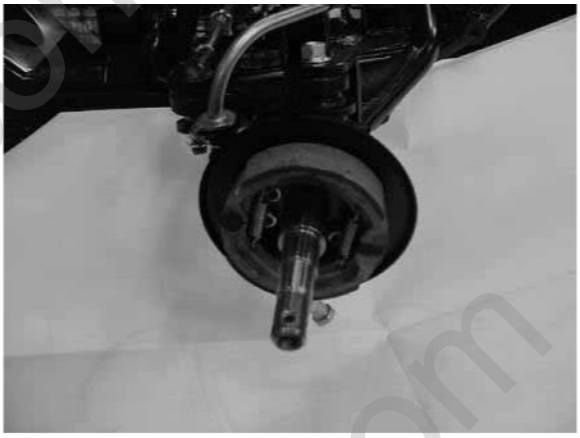
Install the brake panel on the knuckle. Connect the brake cable to the brake arm.

Install the brake arm cover.
Tighten the screws securely.
Position the brake shoes in their original locations and install the brake shoe spring.
Install the brake drum and front wheel.
Install the castle nut and cotter pin.

8.8 STEERING SYSTEM

Kingpin and Tie-rod Removal

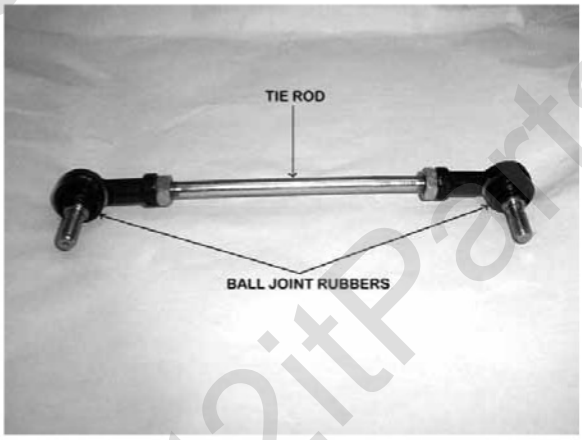
Remove the front wheels and brakes plates.
Remove the two self-lock nuts from the tie-rod ball joints and remove the two tie-rods.



Remove the cotter pin on the kingpin.
Unscrew the bolt and remove the kingpin.

Tie-rod Inspection

Inspect the tie-rod for damage or bending.
Inspect the ball joint rubbers for damage, wear, or deterioration.
Turn the ball joints with fingers. The ball joints should turn smoothly and quietly.

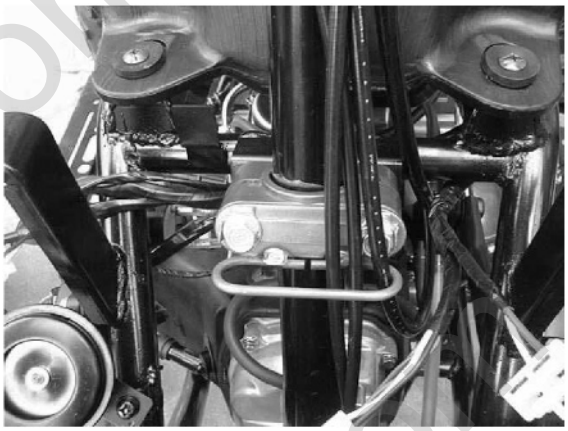


Kingpin Inspection

Inspect the kingpin for damage or cracks.

8.8 STEERING SYSTEM (continued)

Steering Shaft Removal



Remove the handle bar cover and handle bar. (See section 8-3)

Remove the front fender. (See section 10-1)
Remove handlebar lower holder.
Unscrew the steering shaft holder bolt.
Remove the steering shaft holder.

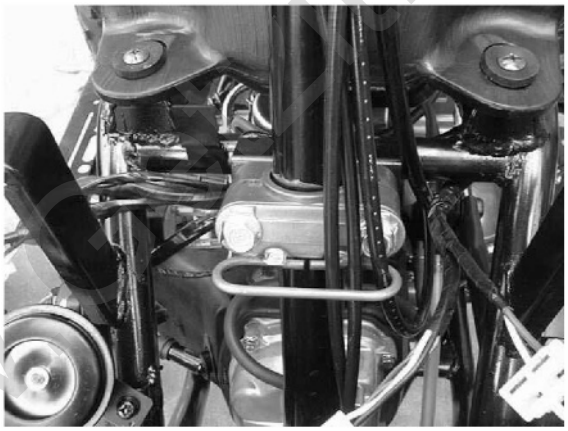
Take off the cotter pin below the steering shaft.
Pull the steering shaft carefully.

Steering Shaft Holder Inspection

Remove the steering shaft.
Remove the bushing from the shaft.
Inspect the bushing for damage or wear, replace if necessary.

Measure the bushing inner diameter.
Maximum limit : 39.5 mm / 1.56”

Steering Shaft Inspection

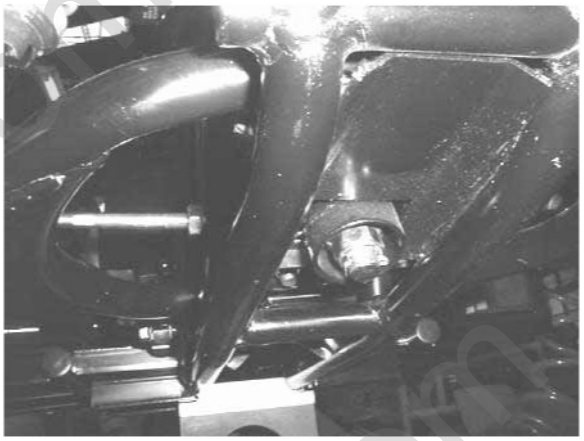


Inspect the steering shaft for damage or cracks.

Installation of Steering Shaft

Apply grease to the holder. Install the holder and oil seal. Tighten the nuts.
Torque: 33 N-m / 24 ft-lbs

8.8 STEERING SYSTEM (continued)



Installation of Steering Shaft

Apply Blue Lock-Tite and install the steering shaft nut (under the steering shaft) and tighten it. Also, install a new cotter pin.
Torque: 50 N-m / 37 ft-lbs

Installation of Tie-rod

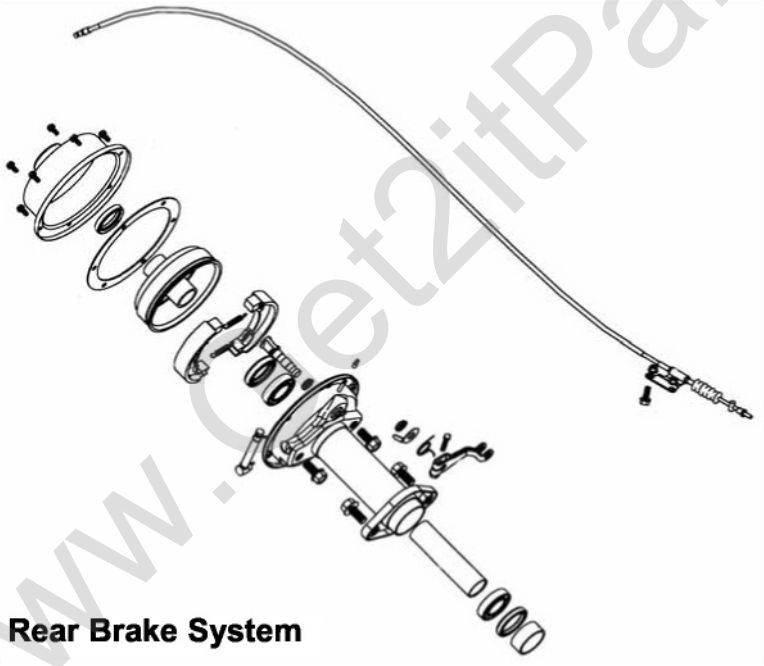
Install the ball joint with the “L” mark on the steering shaft side. Install the tie-rod with the “R” mark on the wheel side. Installation is the reverse order of removal.

9. REAR WHEEL SYSTEM

9.1 Parts drawing
9.2 Troubleshooting
9.3 Rear Wheel and Rear Brake Removal
9.4 Drive Mechanism
9.5 Rear Brake and Wheel Installation
9.6 Shock Absorber
9.7 Swing arm

9.1 Parts Drawings

Rear Wheel Assembly



Rear Brake System

9.2 Trouble Shooting

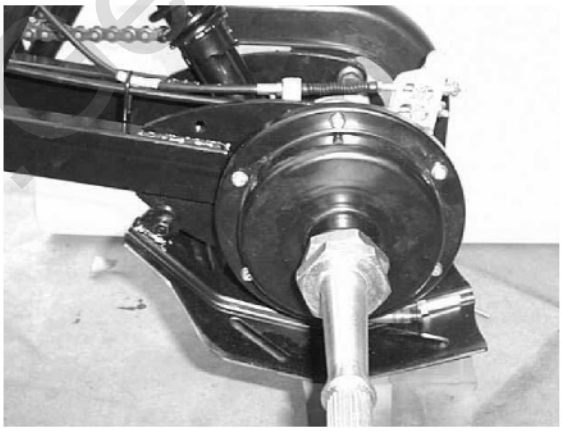
Bad Brake Performance:
-Brake shoes are worn
-Bad brake adjustment
-Brake lining oily, greasy or dirty
-Brake drums are worn
-Brake arm setting is improperly engage
Vibration or Wobble
-Axle is not tightened well
-Bent rim
-Axle bearings are worn
-Faulty tires
-Rear axle bearing holder is faulty
Brake Drag
-Incorrect brake adjustment
-Sticking brake cam
-Sticking brake cable
Hard Suspension
-Bent damper rod
-Faulty swing arm pivot bushing
Soft Suspension
-Weak shock absorber damper
-Weak shock absorber spring

9.3 REAR WHEEL & REAR BRAKE REMOVAL

Loosen the cotter pin and wheel nuts. Raise the rear wheel off the ground by placing a support under the frame.

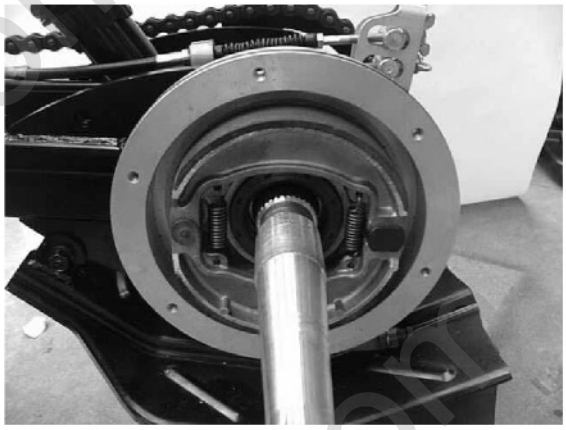
Remove the wheel and wheel hub.

Remove the brake drum cover.



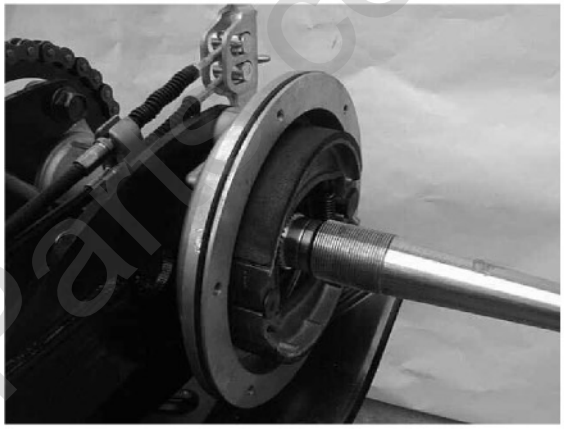
9.3 REAR WHEEL & REAR BRAKE REMOVAL (continued)

Remove the axle collar and brake drum.

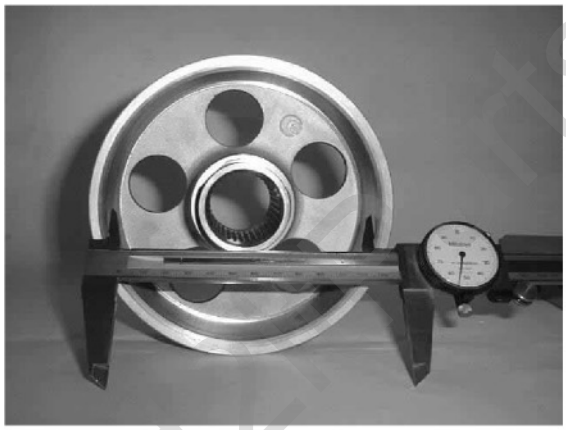


Check the brake lining thickness.
Minimum limit: 2.0 mm / 0.08”

CAUTION:
Do not get grease or oil the brake lining surface and brake drum. Otherwise, braking power will be reduced.

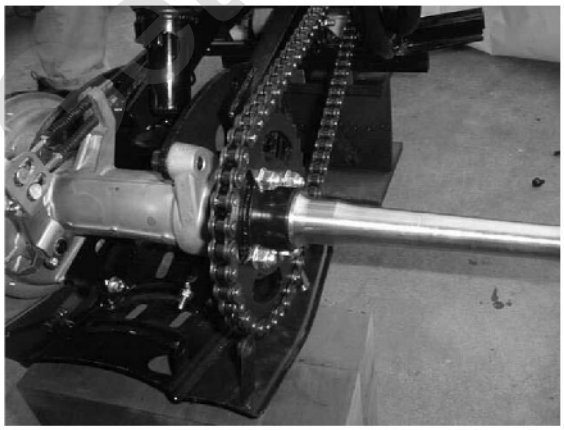


Check the brake drum for damage. Replace if necessary.
Check the brake drum inner diameter.
Maximum limit: 131 mm / 5.16”



9.4 DRIVE MECHANISM

Remove the rear wheel and the rear brake.
Remove the skid plate under the swing arm.
Remove the drive chain cover.



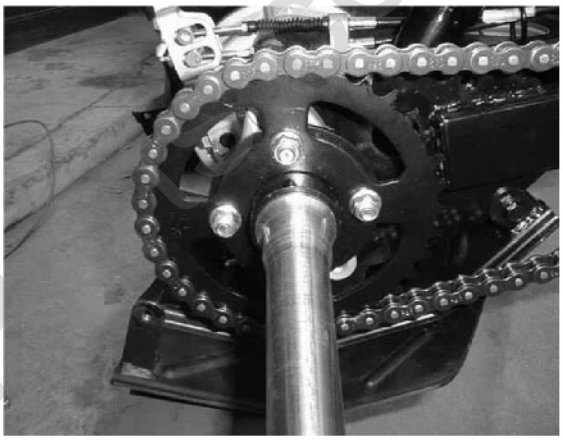
9.4 DRIVE MECHANISM
(continued)

Disassemble the chain retaining clips and master link. Remove the chain.

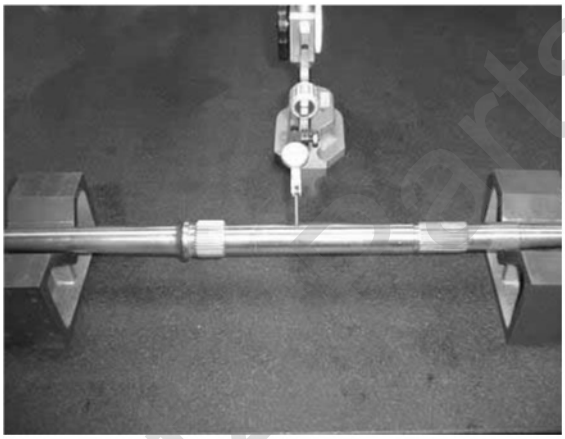
For chain tensioner installation and disassembly, see section 9.6 at the end of this chapter.

Disassemble the driven sprocket, axle, and sprocket collar.

Check the driven sprocket for damage or wear. Replace if necessary.

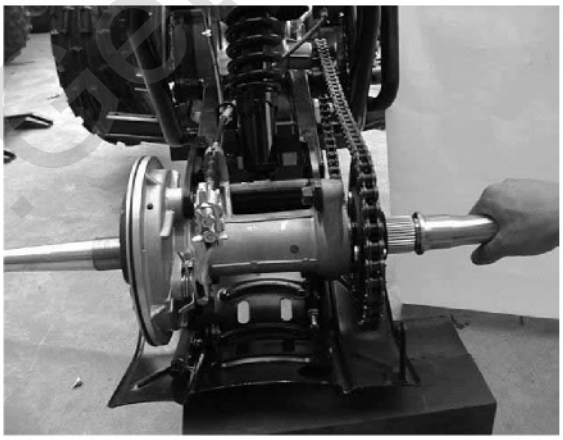


Place the rear axle on V-blocks and check the run out.
The run out limit is 0.5 mm. / 0.02”



Check the turning of inner race of bearing with fingers. The bearings should turn smoothly and quietly. Replace if necessary.
Also check that the bearing outer race fits tightly in the axle holder. Replace if necessary.

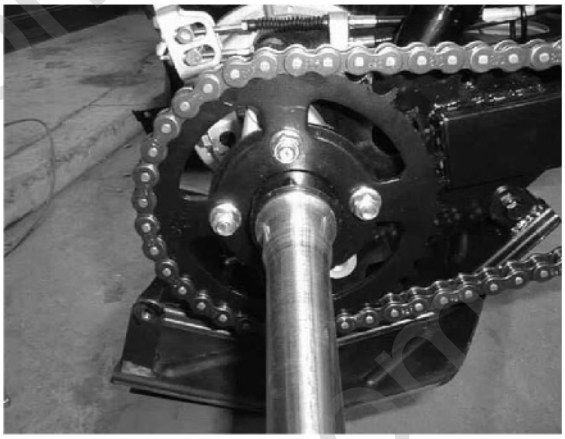
NOTE: *Replace the bearings in pairs.*



9.4 DRIVE MECHANISM (continued)

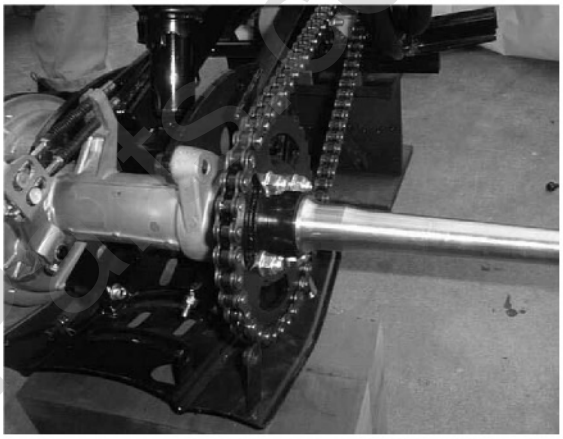
Installation

Add grease to the dust seal lips and install dust seals.
Assemble the rear axle and the driven sprocket.



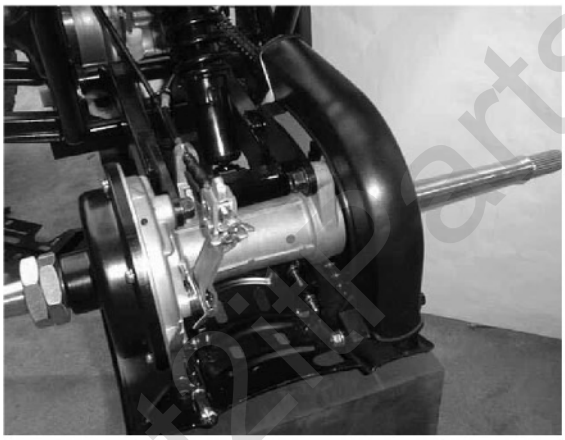
Assembly the drive chains on the driven sprocket.
Assemble the master link and retaining clip.

Note the retaining clip direction.



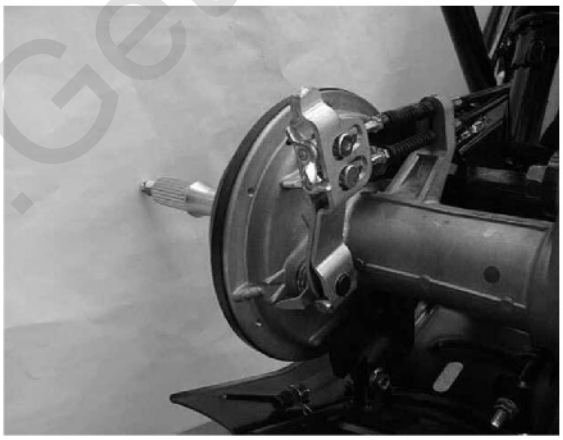
Install the drive chain cover.
Assemble the chain under the cover.

Install the skid plate.
Install the drive chain cover.



9.5 REAR DRUM BRAKE & WHEEL INSTALLATION

Install the wear indicator plate aligning the tab on the axle holder with the slit on the cam. Install the brake arm spring and felt seal.

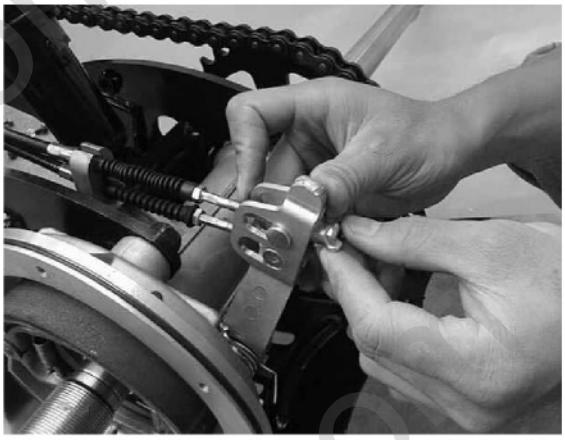


Note: for CXL-150 and RXL-150R hydraulic disc brake, see section 9.7 at the end of this chapter.

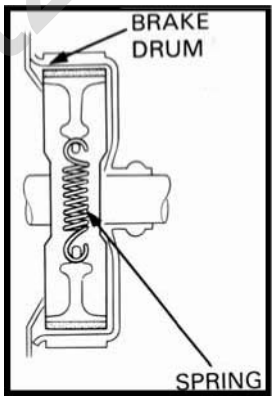
9.5 REAR DRUM BRAKE & WHEEL INSTALLATION
(continued)

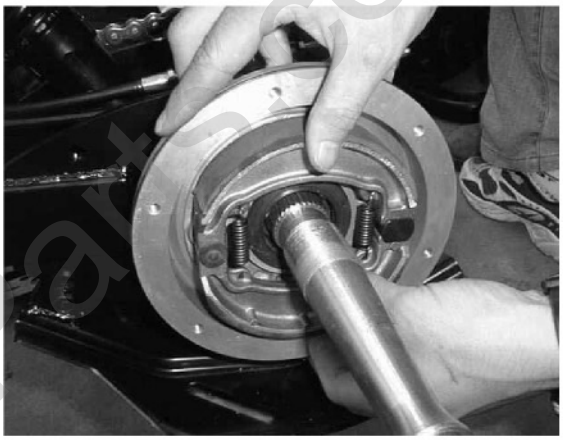
Install the brake arm. Tighten the brake arm bolt and nut with **10 N-m (7.4 ft-lbs)** torque. Install the adjusters.

NOTE: Make sure the rear brake lever and pedal have the proper amount of free play.



Add grease to the brake cam and anchor pin.
Install the brake shoes and springs to their original positions.



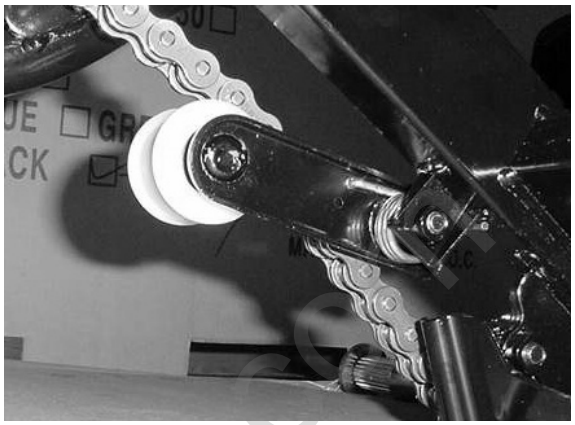


Install the brake drum and brake drum cover.

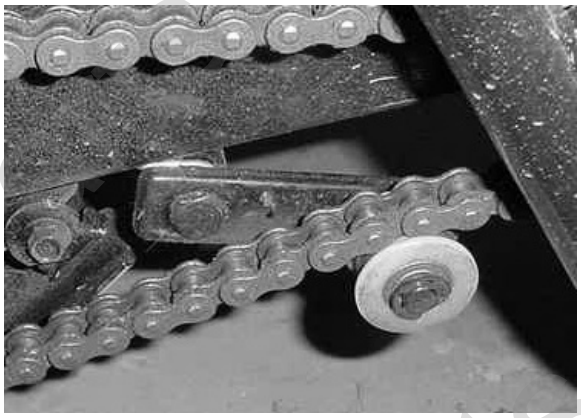
Assemble the wheel.
Torque the rear axle nut to **60-80 N-m / 44-59 ft-lbs.**
Install a new cotter pin.
Adjust rear brake level free play.
Adjust drive chain slack.

9.6 CHAIN TENSIONER (IF EQUIPPED)

To remove the chain tensioner, relax the drive chain.
Remove the chain tensioner bolt and retaining spring.



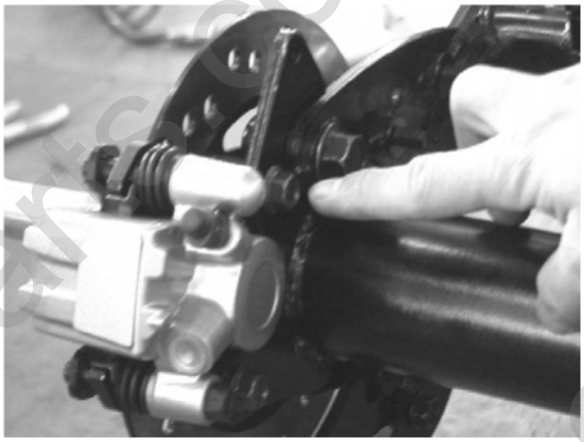
Installation is the reverse order of removal.



9.7 HYDRAULIC DISC BRAKE SYSTEM (CXL-150 & RXL-150R ONLY)

Raise the rear wheel off the ground by placing a block or stand under the frame. Remove the cotter pin, axle nut, and washer. Slide the wheel and hub off the axle.

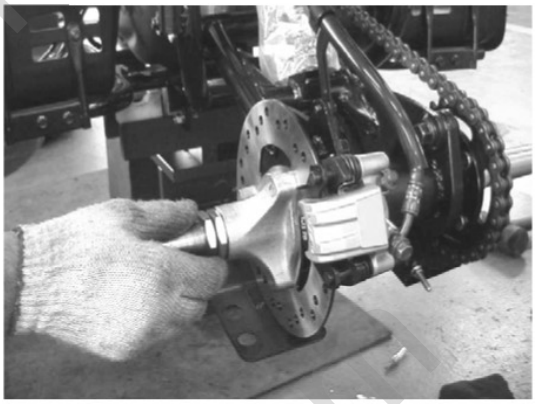
To remove the rear caliper, remove the two bolts that hold the brake caliper to the holder as shown in picture.



Also, remove the rear brake hydraulic line and place into a container for proper draining.

9.7 HYDRAULIC DISC BRAKE SYSTEM (cont'd)

Remove the rear wheel axle nuts and then remove the mounting seat of the disc.

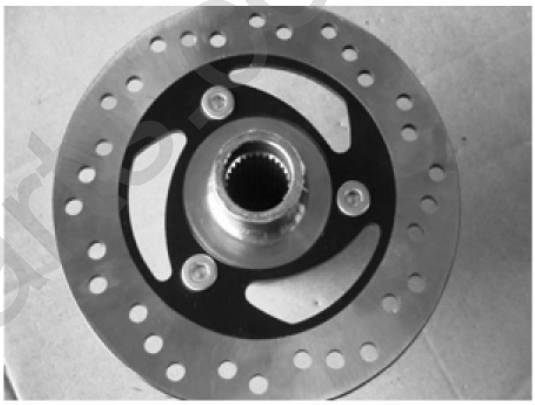


Unscrew the bolts and remove the brake rotor.

Check the thickness of the disc in several places and replace if less than **3mm / 0.12"**.

Check the disc for cracks or large worn grooves. Replace the disc if badly worn or cracked.

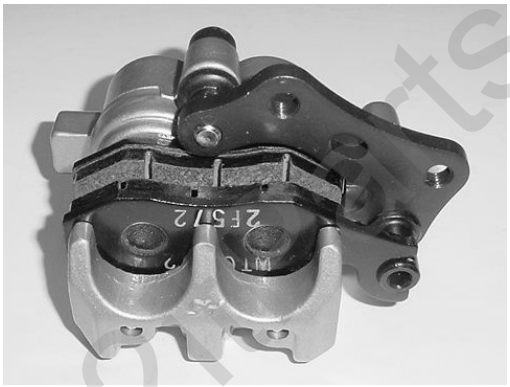
Check whether the disc is bent or warped, and replace if necessary.



Clean the disc of any dirt or oil and grease contamination. Ensure the cooling holes are free of dirt and the friction surface is smooth and even across the entire disc. Replace if necessary.

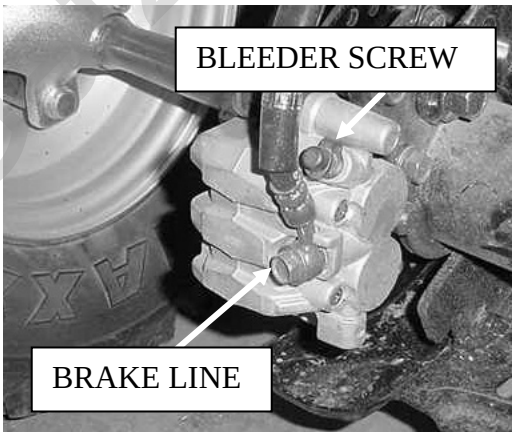
Remove the brake line from the caliper.

Remove the brake pads from the brake caliper by pressing the caliper piston inward fully and removing the static pad from the retaining clips. Then, lift the piston pad from the piston to remove it from the caliper.



Check the thickness of the brake pads and replace if the thickness is less than **1mm / 0.04"**. Also, replace the pads if they show signs of uneven wear or are cracked or otherwise damaged, or have been contaminated with oil, grease, or brake fluid.

Inspect the caliper piston for signs of brake fluid leaks and replace if necessary.

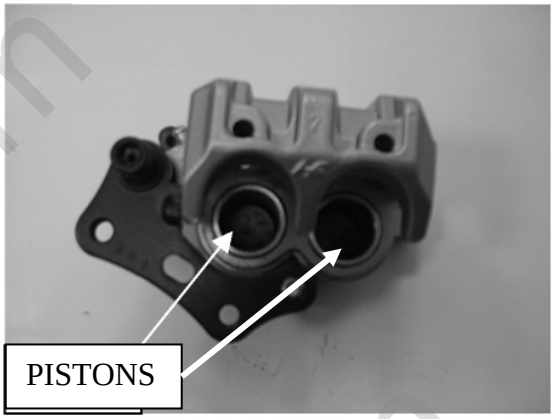


9.7 HYDRAULIC DISC BRAKE SYSTEM (cont'd)

Rear Brake Installation

NOTE: Take great care as to not contaminate the brake pads or rotor with oil, grease, or brake fluid during installation

To reinstall the brakes, first replace the brake rotor on the mounting seat. Reinstall the mounting seat over the axle and secure with the two large axle nuts. Apply Red Lock-Tite and torque to **60-80 N-m / 44-59 ft-lbs.**



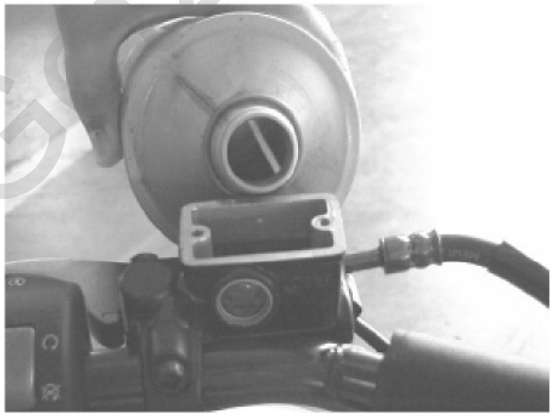
Press the caliper piston inward fully and place the piston pad over the retaining pins and piston. Replace the static pad in the retaining clip and ensure that it is fully engaged and in the proper location.

Slide the caliper back into position over the rotor and replace the two caliper retaining bolts. Torque to **30-40 N-m / 22-30 ft-lbs.**

The brake line will require bleeding of air at this point. Remove the reservoir cap on the handle bars by removing the two cap bolts as shown in picture.

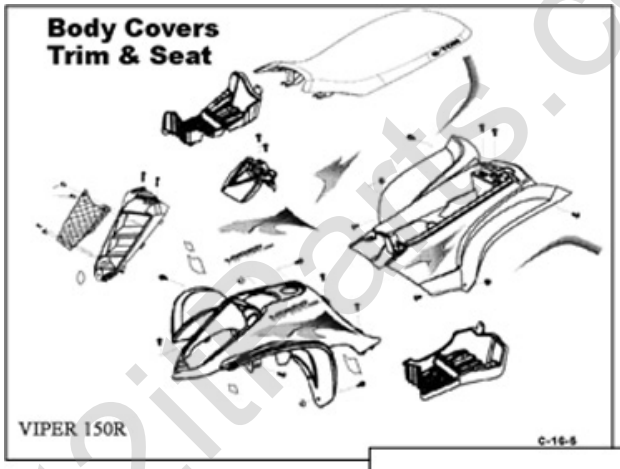
To bleed the brake line of air, first build pressure by pumping the master cylinder lever. Then, while applying the lever, loosen the bleeder screw to release air from the lines. With the lever still applied, tighten the bleeder screw and pump to build pressure again. Repeat this process until all air is expelled from the line and tension is felt on the master cylinder lever.

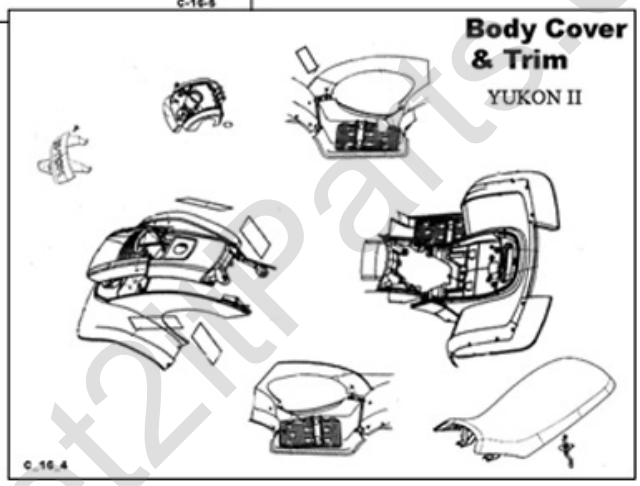
Ensure the volume of brake fluid is at the maximum line of the master cylinder reservoir at all times during the bleeding process.



10. FENDERS AND EXHAUST PIPE

10.1 Parts Drawings





10.2 REAR FENDER REMOVAL

Pull the seat release latch to remove the seat. The seat release latch is under the center of the rear grab bar.

Fender Removal:

Remove the rear rack.
Unscrew the two bolts which connect the front fender and rear fender.
Unscrew the two bolts which connect the rear fender and frame. These two bolts are just below the seat.

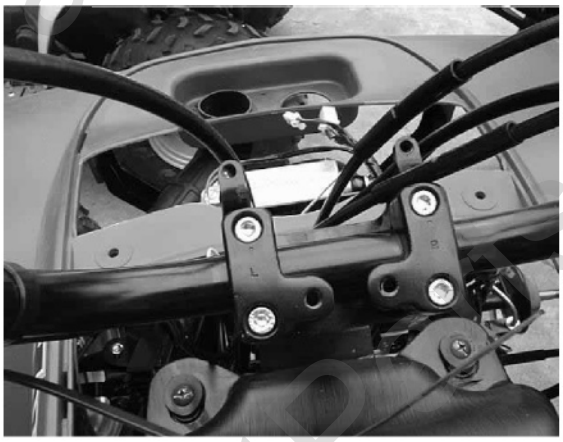
10.2 REAR FENDER REMOVAL
(continued)

Unscrew the six screws which connect with the footrest plate.
Pull the rear fender backward so the rear fender can be removed.

10.3 FRONT-TRIM REMOVAL

Unscrew the two screws just below the headlights of the central-front-trim. Unscrew the two screws between the central-front-trim and central-rear-trim. Then remove them and the headlight together.

10.4 CENTRAL-REAR-TRIM REMOVAL (YXL/CXL ONLY)



Remove the fuel tank cap.
Remove the central-rear-trim two mounting bolts from the fuel tank.
Pull the central-rear-trim upward.

10.5 FRONT FENDER REMOVAL

After removing the rear fender, central-front-trim, and central-rear-trim, remove the two front fender mounting bolts from the front frame.

Remove the mounting bolts and nuts from the front fender and footrest plate.

10.6 EXHAUST PIPE REMOVAL

Do not service the exhaust pipe while hot. Wait at least 15 minutes after turning off the engine to remove the exhaust pipe. Remove the seat, rear fender, and footrest plate before removing the exhaust pipe. Unscrew the two exhaust pipe bolts fixed to the engine.

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10.6 EXHAUST PIPE REMOVAL
(continued)

Remove the exhaust pipe bolts mounted on the frame below the seat.
Remove the exhaust pipe carefully.

10.7 EXHAUST PIPE INSTALLATION

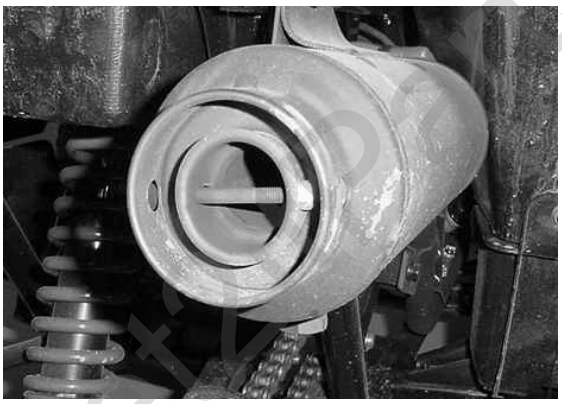
Installation is the reverse order of removal. Be sure to install a new exhaust gasket as well.

Exhaust muffler bolts torque: 30 N-m (22 ft-lbs)

NOTE: *After installation, check the entire system to make sure that there are no exhaust leaks.*

Spark Arrestor Removal & Installation

Later model CXLs and the RXL 150R models are equipped with a spark arrestor. To remove, remove the 4mm hex head bolt and pull the spark arrestor from the end of the pipe. Spark arrestor should be cleaned after every ten hours of riding.



11. ELECTRICAL SYSTEM

11.1 Troubleshooting
11.2 Ignition coil
11.3 Ignition timing
11.4 Alternator exciter coil
11.5 Battery Caution
11.6 Battery voltage
11.7 Charging
11.8 Electric starter
11.9 Light bulbs replacement
11.10 Wiring diagrams

11.1 Troubleshooting

Engine starts but stops:
-Improper ignition timing
-Faulty spark plug

No spark at plug:
-Engine stop switch at "off " position
-Gearshift bar is not at neutral position
-Faulty ignition coil
-Faulty generator
-Faulty CDI unit
-Poor connection:
Between CDI and ignition coil
Between alternator and CDI unit
Between CDI and engine stop switch
Between ignition coil and spark plug
Between generator and CDI unit

Engine starts but runs poorly:
IGNITION PRIMARY CIRCUIT:
-Faulty generator
-Faulty CDI unit
-Faulty alternator exciter coil
-Loose contact terminals
-Faulty ignition coil
IGNITION SECONDARY CIRCUIT:
-Faulty plug
-Loose spark plug wire
IMPROPER IGNITION TIMING:
-Faulty generator
-Faulty CDI unit

Charging system failure:
-Loose, broken, or shorted wire
-Faulty alternator faulty ignition switch

11.1 Troubleshooting (continued)

Intermittent engine power:
-Loose battery connection
-Loose charging system connection

Starter motor will not turn:
-Dead battery
-Faulty ignition switch
-Loose or disconnected wire

Starter motor and engine turn, but engine does not start:
-Faulty ignition system
-Faulty engine stop switch

Headlight malfunction:
-Switch not in ON position
-The light bulb is burned out

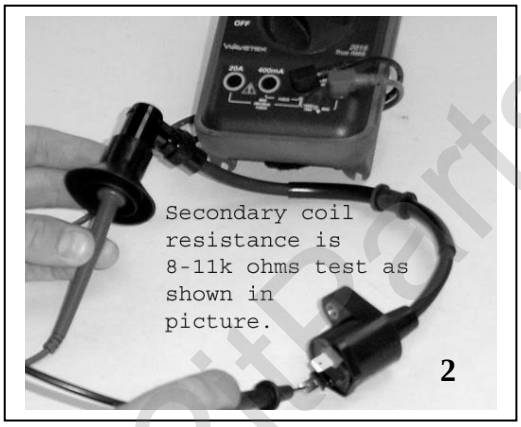

1

11.2 IGNITION COIL

Remove the spark plug cap from the spark plug.
Disconnect the ignition coil primary wire.

Measure the primary coil resistance. (See Ref. 1)
STANDARD: 0.1 - 0.3Ω

Measure the secondary coil resistance with the spark plug cap in place. (See Ref. 2)
STANDARD: 7.4 - 11 kΩ



2

11.3 IGNITION TIMING

The ignition advance is 15°± 3°/4000rpm
The Capacitive Discharge Ignition (CDI) system is factory pre-set and does not require adjustment.

11.4 ALTERNATOR EXCITER COIL

Remove the seat / rear fender and front fender. (See chapter 10) Disconnect the exciter coil wire.
Measure the resistance between the white/red or blue/yellow wire and ground.
STANDARD: 115-135Ω

11.5 BATTERY CAUTION

The battery gives off explosive gases; keep sparks, flames, and cigarettes away. Provide adequate ventilation when charging or using the battery in an open area. The battery contains sulfuric acid (electrolyte). Contact with skin or eyes may cause severe burns. Wear protective clothing and a face shield. ***Electrolyte is poisonous. If swallowed drink large quantities of water or milk and call a physician.***

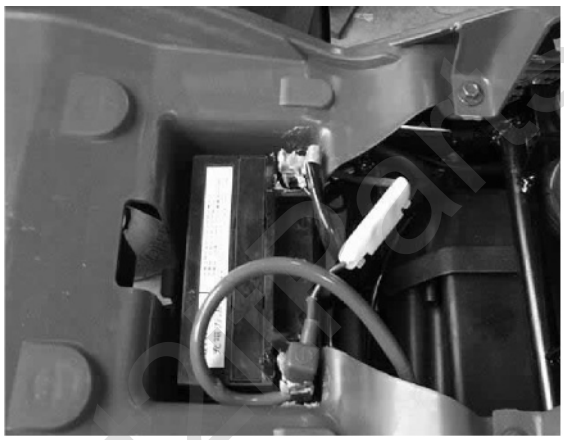
11.6 BATTERY VOLTAGE INSPECTION

The battery is under the seat; you can see this battery after removing the seat.
Measure the battery voltage using a voltmeter.

VOLTAGE : Fully charged : 13.1 V
Undercharged : Below 12.0 V

BATTERY REMOVAL

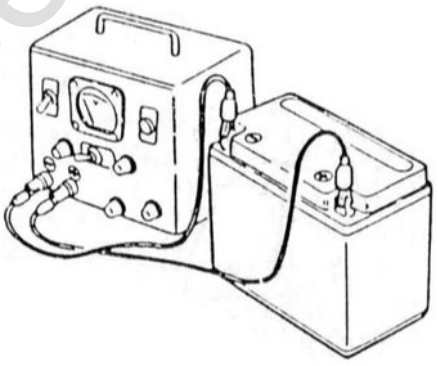
Remove the seat. Disconnect the negative cable and then the position cable and remove the battery.



BATTERY INSTALLATION

Install the battery in the reverse order of removal. After installing the battery, coat the terminals with clean grease.

11.7 CHARGING



Connect the charge positive cable to the battery positive terminal. Connect the charge negative cable to the battery negative terminal. **Use 0.9A charging current about 5 hours *(normal charging)* or using 4A charging current about 1 hour *(quick charging).*** Keep flames and sparks away from a battery being charged. Quick charging should be limited to an emergency; Normal charging is preferred.

11.8 ELECTRIC STARTER

A weak battery may be unable to run the starter motor correctly.

If the battery voltage is sufficient but the engine is not cranking, the starter motor may be damaged.

Troubleshooting

Starter Motor Turns Slowly:

-Weak battery.
-Poorly connected starter motor cable.
-Faulty starter motor.
-Poorly connected battery ground cable.

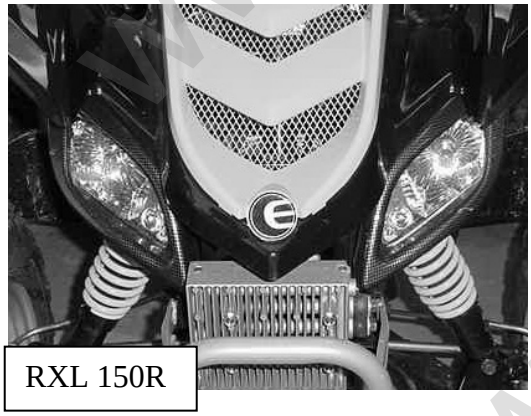
Starter Motor Will Not Turn:

-Engine stop switch at "off "position.
-Gearshift bar is not at neutral position.
-Check for a blown fuse near battery.

Make sure that the battery is fully charged and in good condition.

11.9 LIGHT BULB REPLACEMENT

Remove the handle bar cover.
Remove the central-front cover and headlight together.



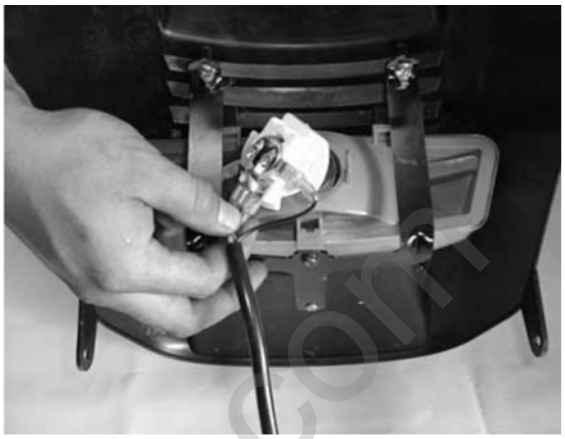
RXL 150R

CXL/YXL

11.9 LIGHT BULB REPLACEMENT

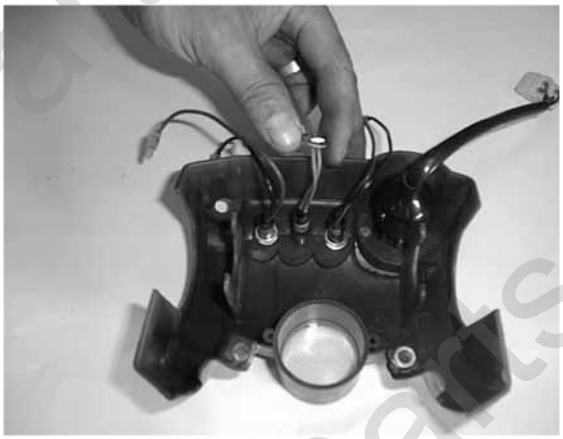
(continued)

Remove the bulb socket by turning it counterclockwise. Replace the bulb with a new one. Install the bulb socket by turning clockwise until secured.



INDICATOR

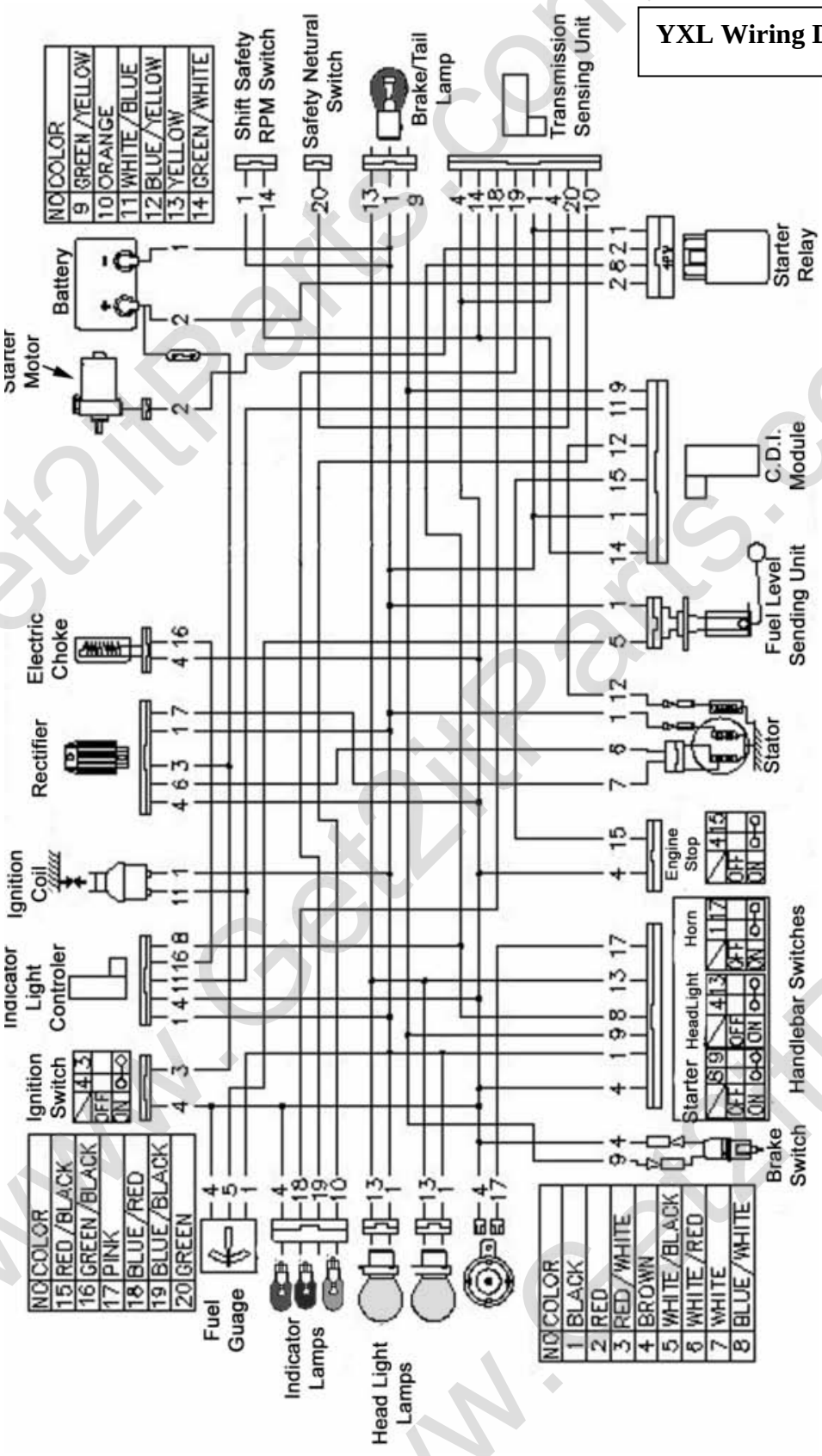
Remove the handle bar cover.
Remove the indicator lamp unit by turning it counter clockwise. Replace with a new one.

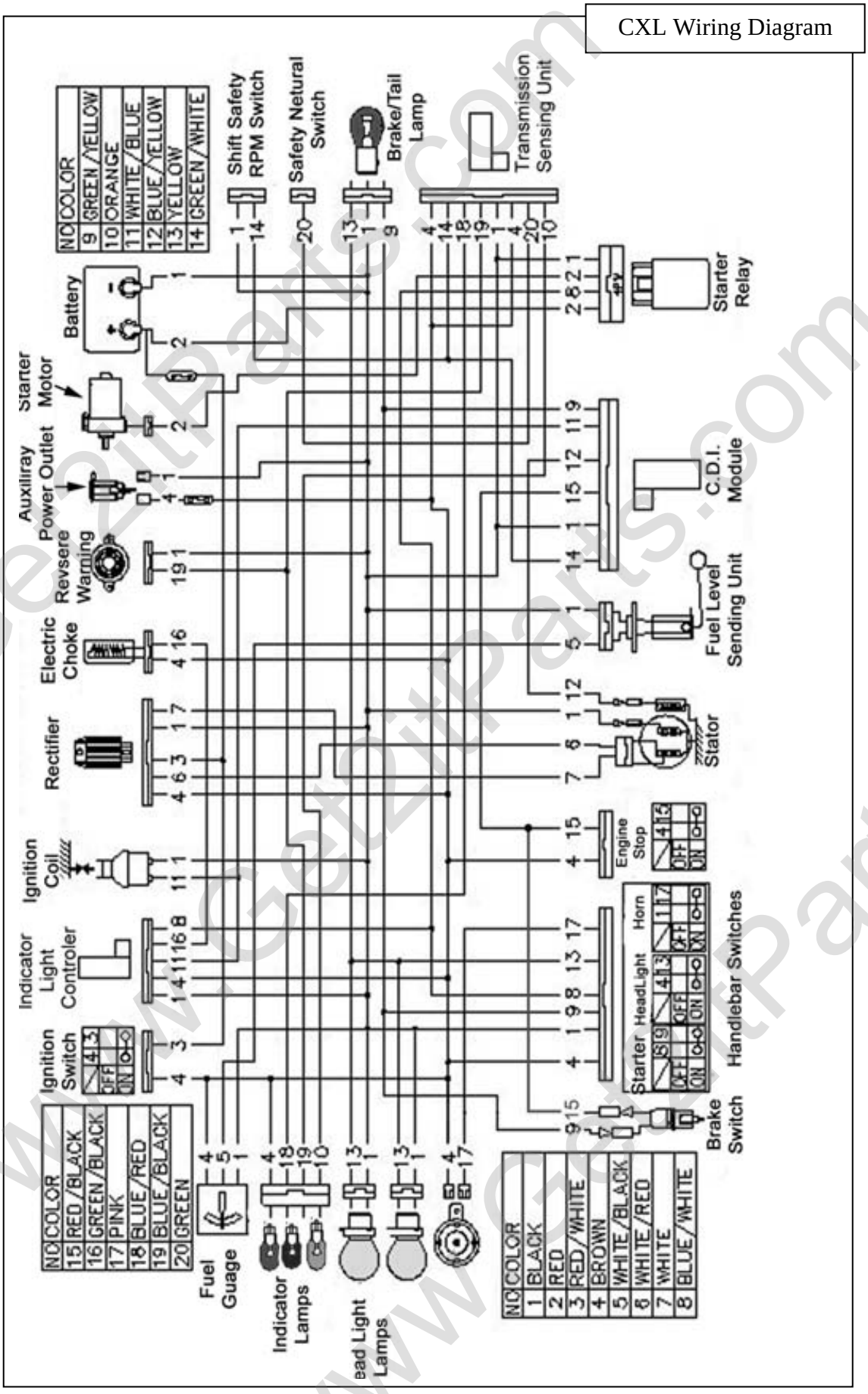


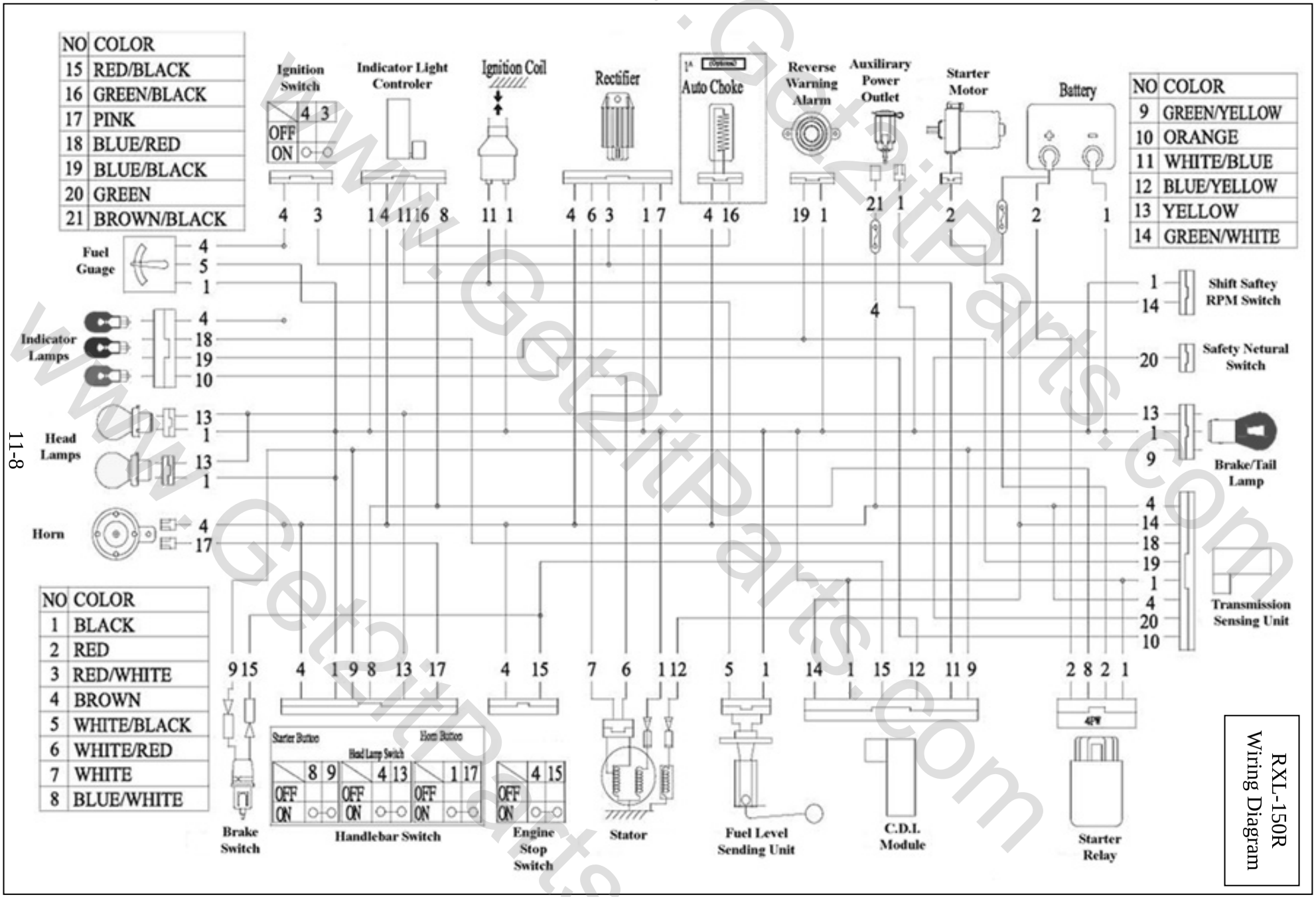
TAIL LIGHT

Remove the taillight lens by removing the 2 screws that secure it. Remove the taillight bulb by turning counter clockwise. Insert a replacement bulb and turn clockwise until secure. Replace the taillight lens and secure with the 2 screws

YXL Wiring Diagram





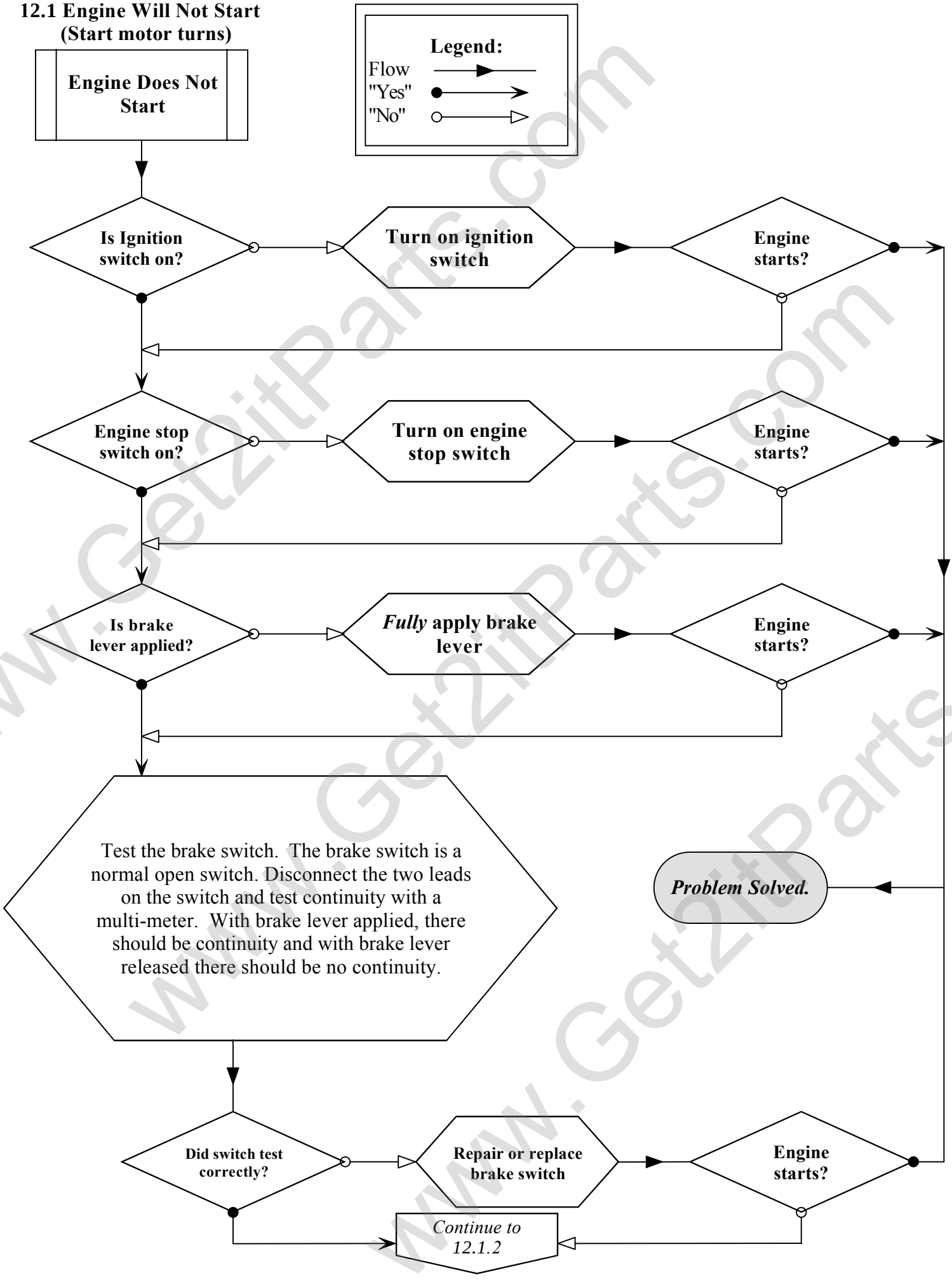


12. TROUBLESHOOTING

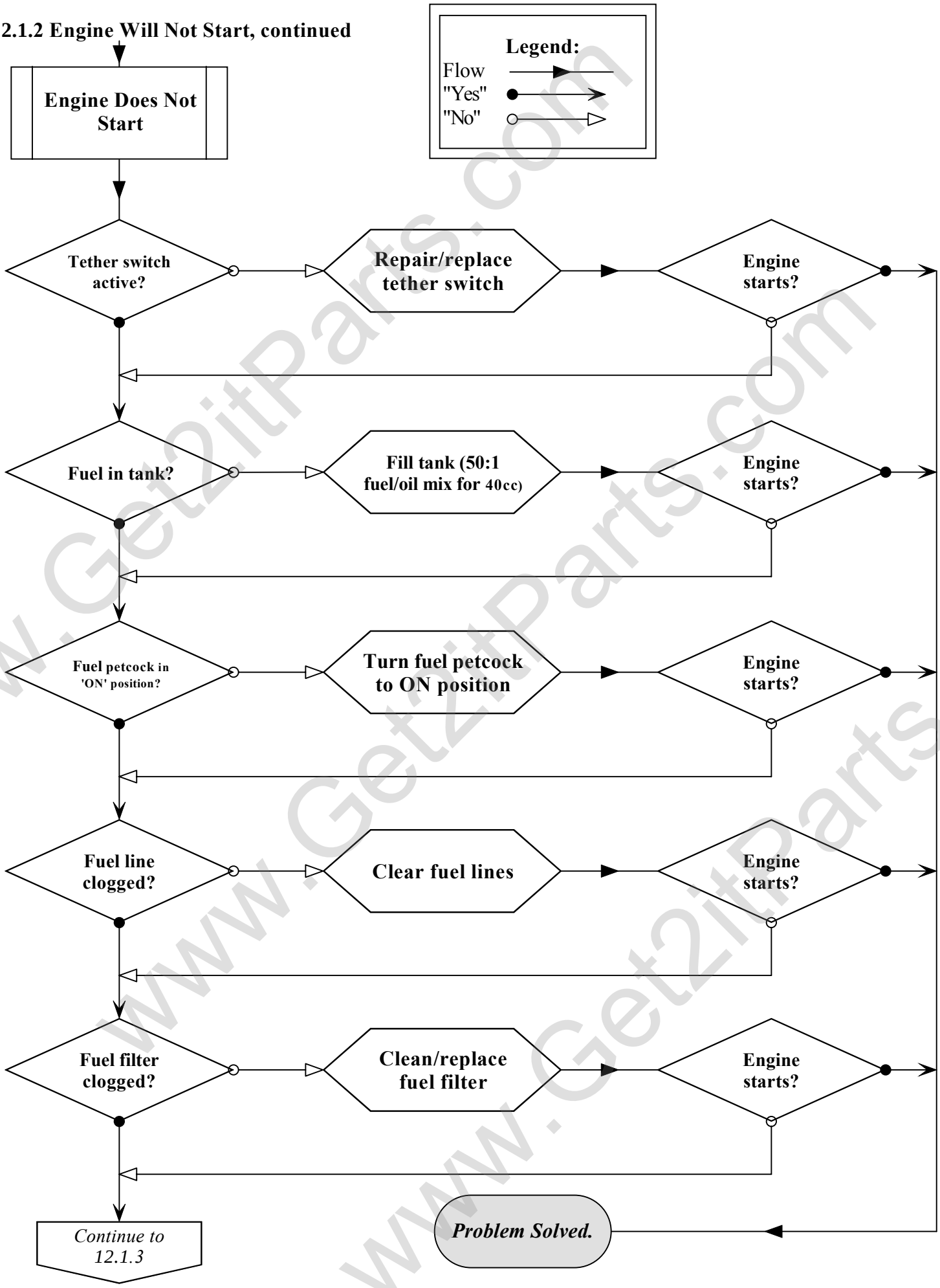
12.1 – Flowchart – Engine Will Not Start

12.2 – Flowchart – Engine Dies After Shifting (150cc)

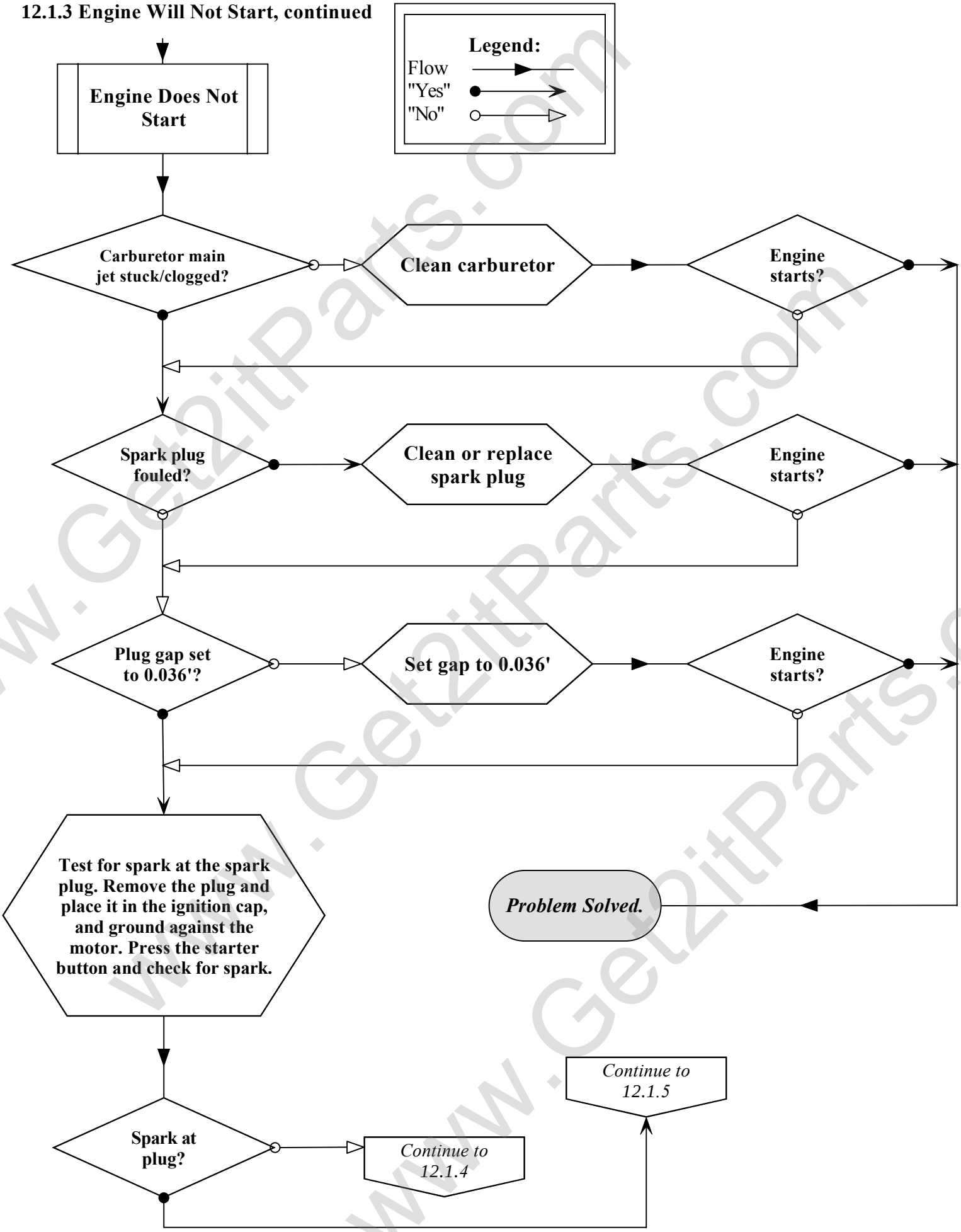
12.1 Engine Will Not Start (Start motor turns)



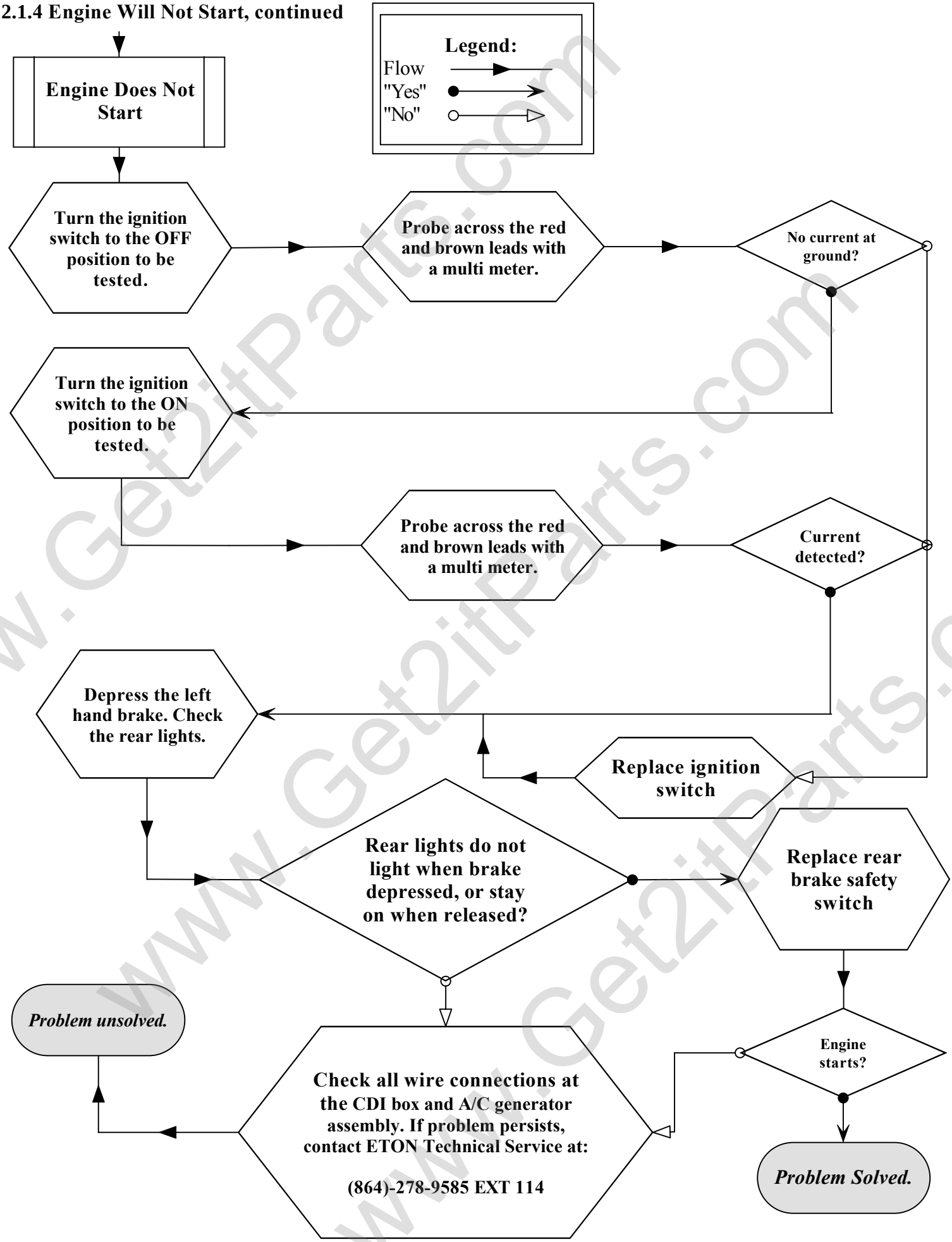
12.1.2 Engine Will Not Start, continued



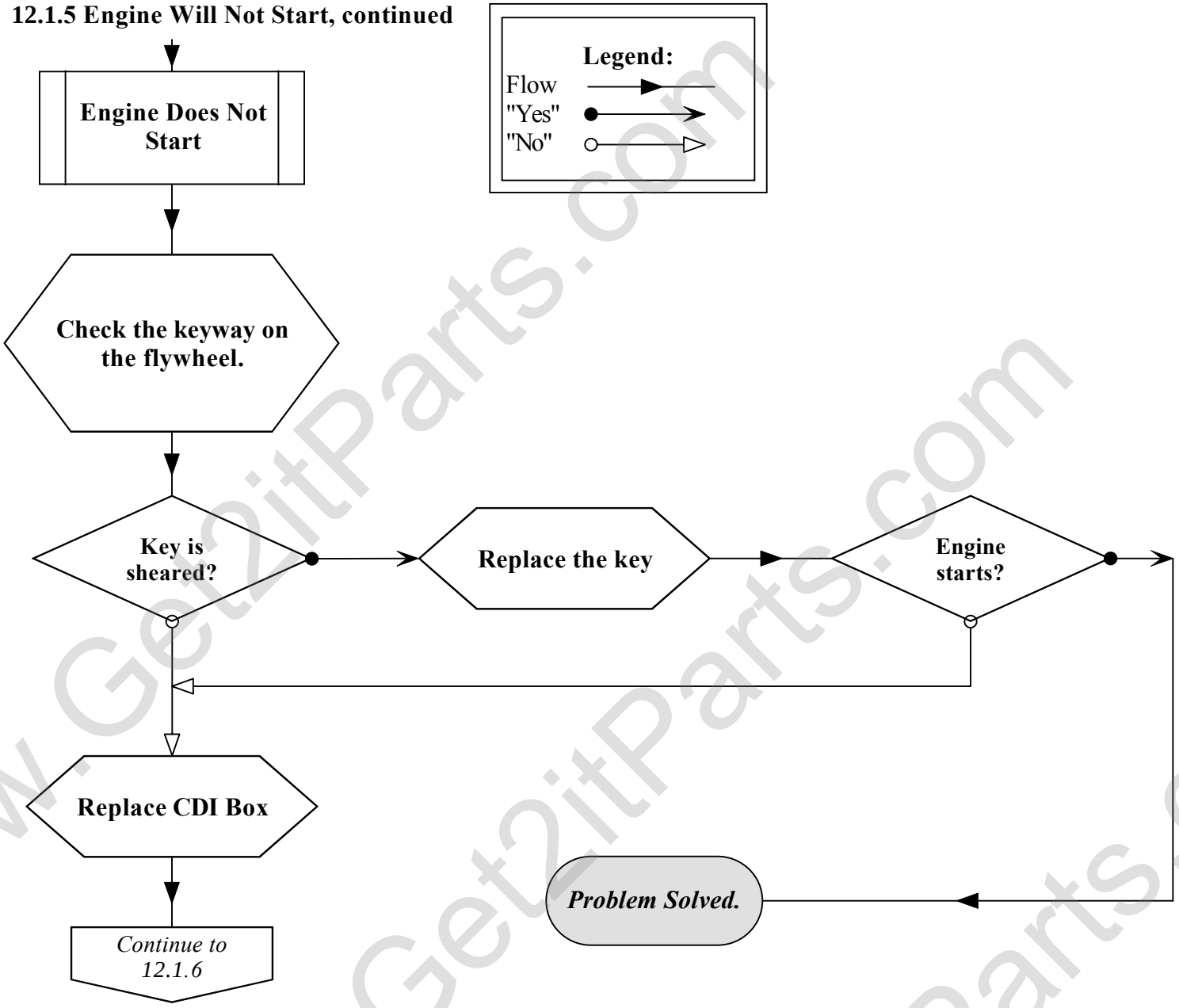
12.1.3 Engine Will Not Start, continued



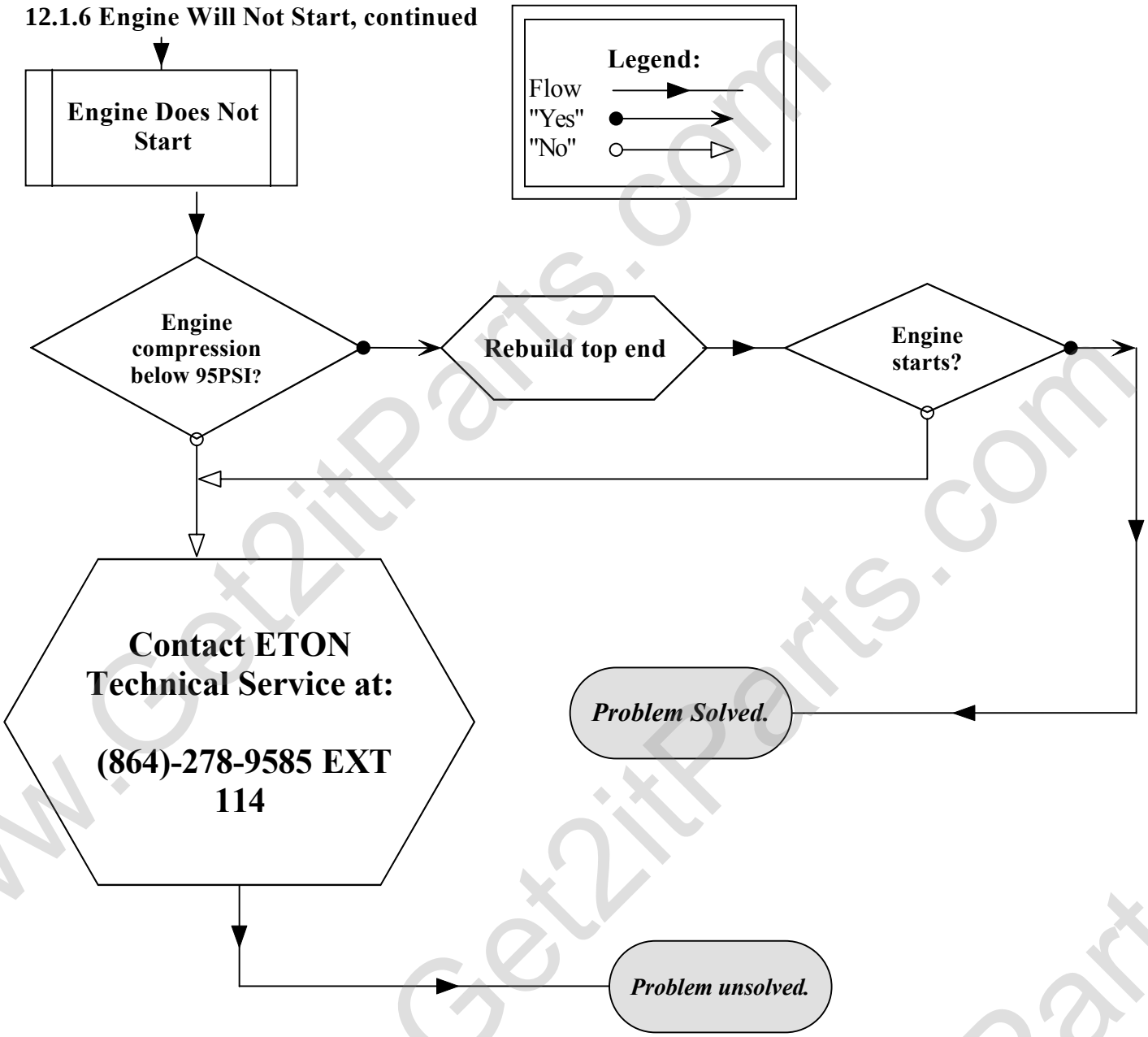
12.1.4 Engine Will Not Start, continued



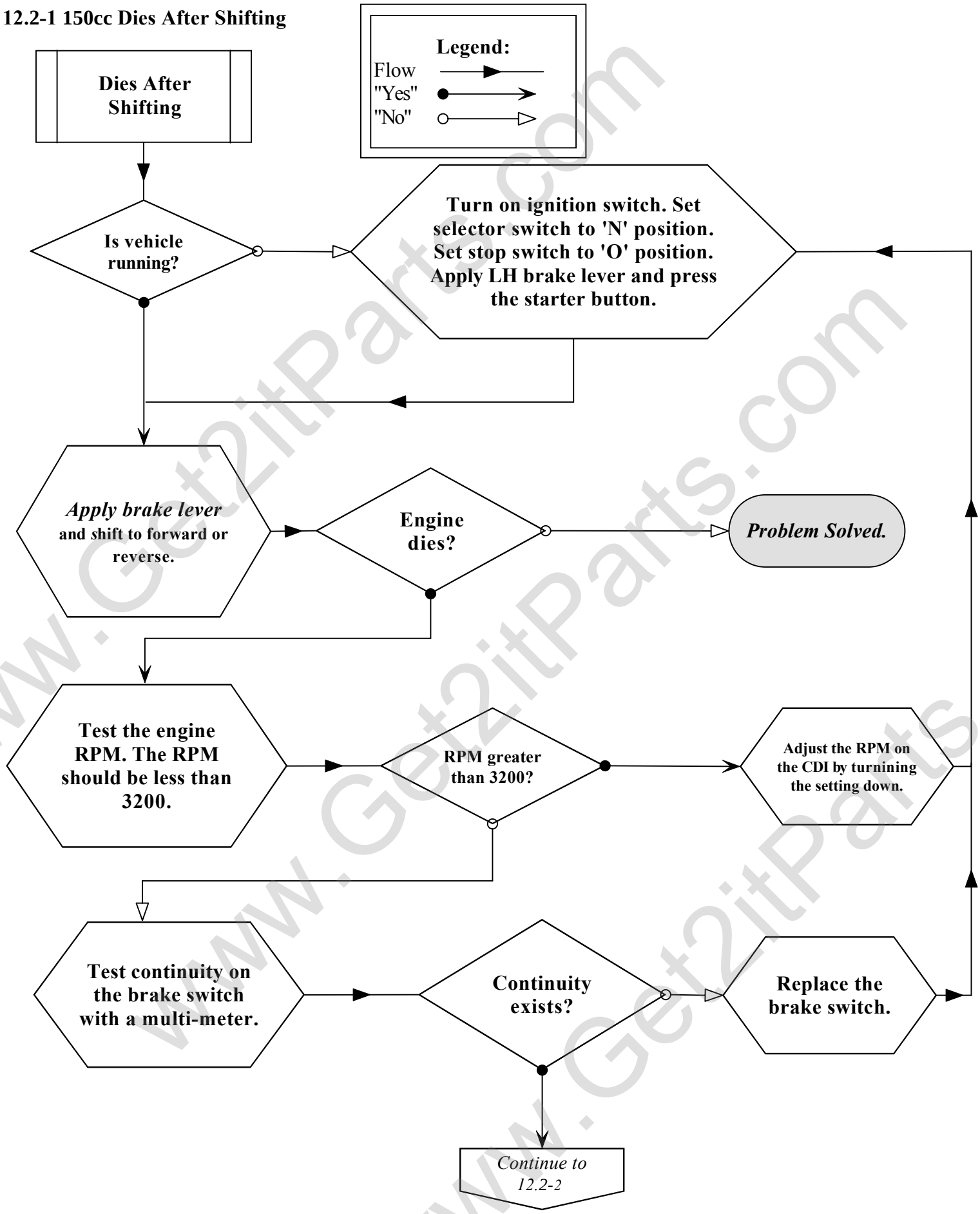
12.1.5 Engine Will Not Start, continued



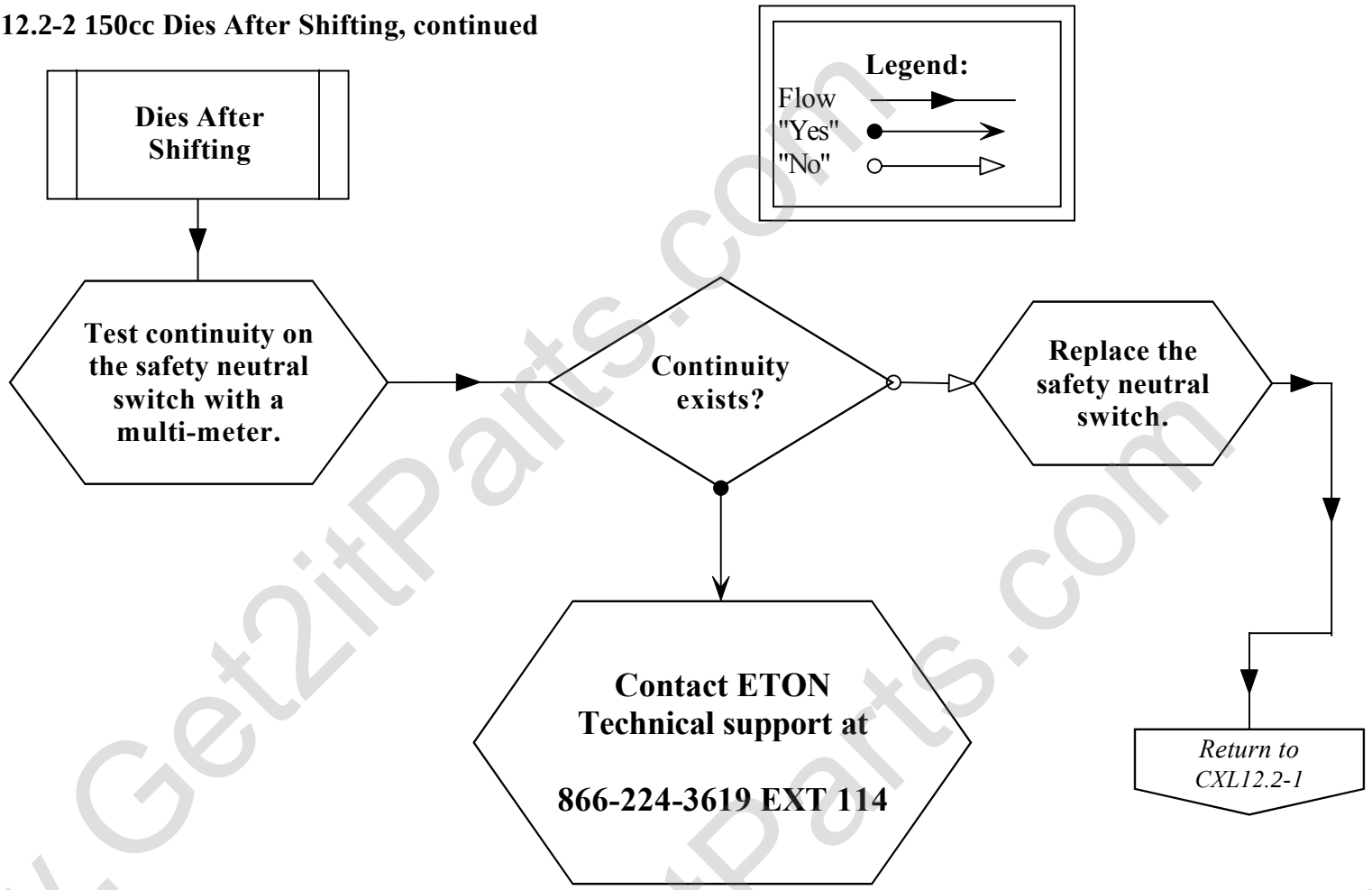
12.1.6 Engine Will Not Start, continued



12.2-1 150cc Dies After Shifting



12.2-2 150cc Dies After Shifting, continued



ETON America, LLC

Service Bulletin

Bulletin No:	**0008**
Date:	**08/25/2000**

Technical Tips

1. PAPER FUEL FILTERS -CAUSE: RESTRICTIVE FUEL FLOW

THEY CLOG EASIER
THEY WILL SHOW FUEL IN FILTER, BUT THERE WILL BE NO FUEL IN CARBURATER BOWL.
REPAIR: REPLACE WITH AN E-Z FLO WITH FILTER OR A STONE TYPE FILTER.

2. EXHAUST RESTRICTERS-CAUSE: LACK OF POWER

LOSS OF POWER
FOULED PLUGS
REPAIR: CLEAN RESTRICTER ONCE A MONTH OR REMOVE RESTRICTER AND USE THROTTLE STOP SCREW.

3. AIR FILTERS ----------CAUSE: LACK / LOSS OF POWER

LEAN CONDITIONS
POOR THROTTLE RESPONSE
REPAIR: CLEAN AFTER EVERY 3-5 RIDES, MORE FREQUENTLY IN DUSTY CONDITIONS.
USE A GOOD QUALITY FOAM FILTER SPRAY.(BEL-RAY FOAM FILTER SPRAY)

4. BATTERIES----THE BATTERIES FOR ALL ETON VEHICLES ARE MAINTANCE-FREE .

PROPER SERVICE PROCEDURES ARE AS FOLLOWS:

1. FILL BATTERY WITH BATTERY PACK SUPPLIED.
2. REMOVE FUNNEL AND LET BATTERY STAND WITH CAP OFF FOR AT LEAST 1 HR.
3. ALL FLUID IN BATTERY SHOULD ABSORBED BY BATTERY PLATES BEFORE CAP IS INSTALLED.
4. BATTERY IS READY TO BE CAPPED WHEN ALL ELECTROLYTE IS ABSORBED. (YOU SHOULD BE ABLE TO TURN BATTERY UPSIDE DOWN AND NO FLUID COME OUT)
5. MEASURE BATTERY VOLTAGE ACROSS TERMINALS AND IT SHOULD BE ABOVE 12.8 VOLTS IF PLATES HAVE ABSORBED ALL ELECTROLYTE.
6. NEVER ADD WATER OR HYDRO-SULFURIC ACID TO BATTERY HYDRO-SULFURIC ACID WILL CAUSE A SERIOUS CHEMICAL REACTION AND COULD CAUSE HARM TO YOU AND WILL DAMAGE BATTERY. ADDING WATER WILL ALSO DAMAGE BATTERY.
7. IF CHARGING IS REQUIRED SLOW CHARGE @ 5 AMPS FOR 5 HRSAND FAST CHARGE @ 5 AMPS FOR 30 MIN.

ETON America, LLC

Service Bulletin

Bulletin No:	**0009**
Date:	**09/05/2000**

Yukon-150 Burnt Ignition switch & Blown Fuse

Yukon 150 BURNT IGNITION SWITCH (YXL-150) OR HARNESS TO SWITCH BLOWN MAIN FUSES

UNITS AFFECTED;

ALL YXL-150 UNITS BUILT BEFORE SEPT. 2000
(VIN Prior to **RFZFJA0Sx0A001501)**

REASON FOR BULLETIN -

POOR GROUND AT ENGINE TO FRAME CONNECTION AND POSSIBLE PINCHEDWIRE HARNESS AT LEFT SIDE FUEL TANK AREA. CONDITION - BLOWN MAIN FUSE OR MELTED IGNITION SWITCH (BROWN WIRE) OR MELTED STATOR WIRE (BLACK WIRE).

REPAIR:

CLEAN PROTECTIVE FILM FROM ENGINE SIDE GROUND BOLT---INSPECT MAIN HARNESS AT LEFT SIDE OF FUEL TANK AREA.

VERIFY REPAIR:

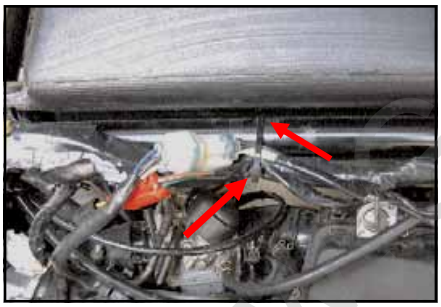
FUSE NO LONGER BLOWING

.

FOLLOW STEPS BELOW

1. INSPECT GROUND BOLT ON LEFT REAR OF ENGINE TO FRAME---IF IT HAS GREEN PROTECTIVE FILM BUFF FILM OFF WITH WIRE BRUSH OR WIRE WHEEL AND RE-INSTALL

2. INSPECT HARNESS ON LEFT SIDE OF UPPER FRAME RAIL BETWEEN FUEL TANK AND UPPER FRAME RAIL.IF FOUND TO BE PINCHED REPAIR WIRES AND RETEST.



Flat Rate Code: **009**
Flat Rate: **0.7 Hours**

ETON America, LLC

Service Bulletin

Bulletin No:	**0010**
Date:	**09/11/2000**

Ground bolt replacement for Yukon 150

Yukon 150 (YXL-150)

UNITS AFFECTED;

ALL YXL-150 UNITS BUILT BEFORE SEPT. 2000
(VIN Prior to **RFZFJA0Sx0A001501)**

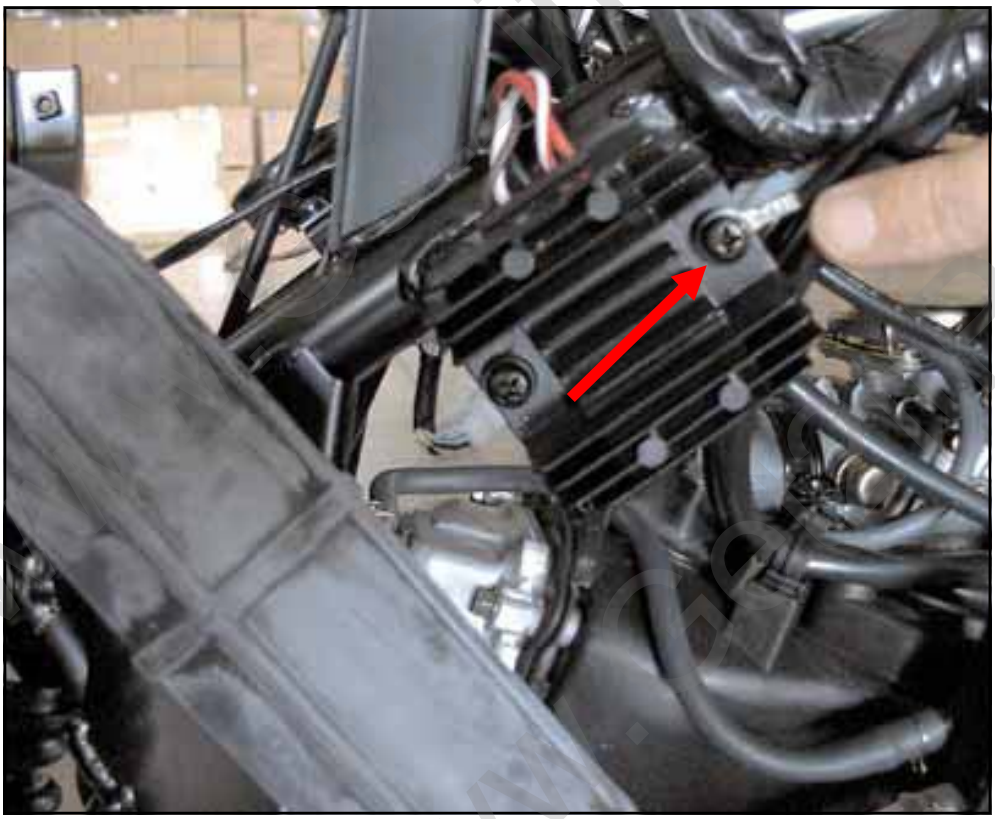
REASON FOR BULLETIN:

POOR GROUND AT REGULATOR

REPAIR:

REPLACE GROUND BOLT AT REGULATOR, (ONLY for Models that have grounding wire on the Regulator)

1. Remove grounding bolt, (see picture), clean contact surface on regulator and ground wire lead with sand paper. Replace grounding with a non-coated (M6 X 20) bolt & washer.
Test for good ground.



ETON America, LLC

Service Bulletin

Bulletin No:	**0016**
Date:	**10/06/03**

Flywheel Nut Coming Loose

Yukon (YXL-150) Flywheel Nut Coming Loose

Units affected:

All Yukon (YXL-150) with VIN's ending in **YA002964** or lower.

Reason for bulletin:

We have found in some cases that the flywheel nut is coming loose and causing severe internal damage, possibly damaging the crankshaft.

Repair:

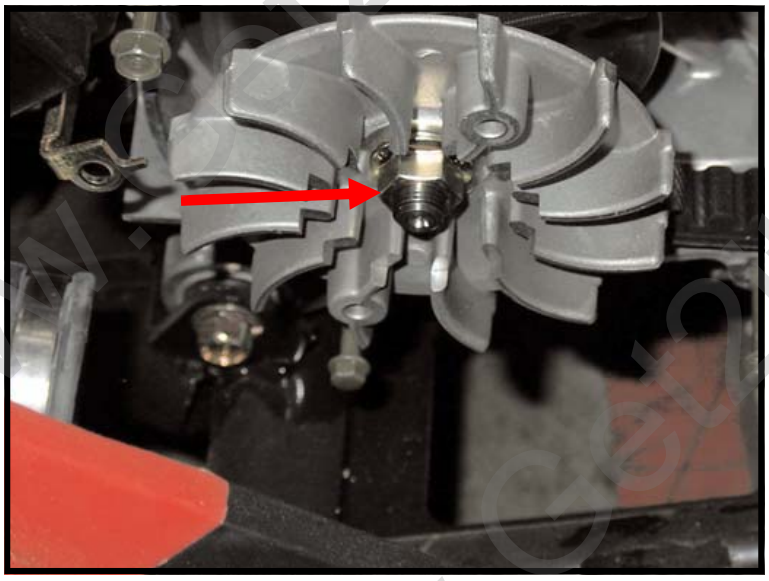
Apply locktight to crankshaft threads and torque nut to 85 ft. lbs.

Verify repair:

Road test and verify no belt slippage or noise from CVT system.

NOTE: This REPAIR MUST BE COMPLETED before unit is sold!

1. Remove left hand CVT cover to gain access to the flywheel assembly.
2. Remove Flywheel nut from crankshaft and **apply Blue locktight** to threads.
3. Re-Install Flywheel nut on crankshaft, torque value **85 ft/lbs**
4. Re-Install CVT Cover.
5. Road test unit to verify correction.



Flat Rate Code: 311A
Flat Rate Time: 1.0 hrs

ETON America, LLC

Service Bulletin

Bulletin No:	**0021**
Date:	**09/10/03**

ATV Break-In Procedure

Your ATV requires a break-In period just as with all other internal combustion engines. This period allows the engine parts to seat and wear properly without undue strain which can cause premature failure.

1. For the first two weeks of operation do not run your ATV at full throttle for extended periods of time.
2. Viper 50M/50/70/90/90R
   Your first tank of fuel should be a pre-mixture of fuel and oil at a 50:1 ratio. This will insure that the oil pump system has been primed and bled of air that may have occurred in shipping.
3. Viper Jr.
   All fuel should be a pre-mixture of fuel and oil at a 50:1 ratio.
4. Do not operate the unit at more than 85% of maximum speed.
5. Do not over rev the engine.
6. Use light braking pressure to allow the brake pads to seat to the rotor and drums.

ETON America, LLC

Service Bulletin

Bulletin No:	0022
Date:	10/06/03

Yukon & Yukon II Transmission Gears

Yukon & Yukon II (YXL & CXL 150's)

ETON America has 2 different styles of gears for the transmission, the old style that comes on the older YXL 150's which we have limited quantities of . And the new style which come on the CXL-150's. To determine the type of gears you have use the vin # chart at the bottom or the figure pictures on the right.

The new Shift Shaft assembly primary drive gear has been increased in size and tooth count.

We have also added a retainer clip to the shaft along with the pressed collar to insure proper alignment. The drive shaft and counter shaft have been geared to match the new shift shaft assembly.

When replacing any of these parts on CXL-150 with a VIN number less than RFZFJB...3A**<u>010360</u>** or any YXL -150, all three parts MUST be replaced.

Part Numbers are:	New Style	Old Style
Shift Shaft Assembly	800290	812323
Drive Shaft	800103	812325
Counter Shaft	800286	812324

Figure 1

Figure 2

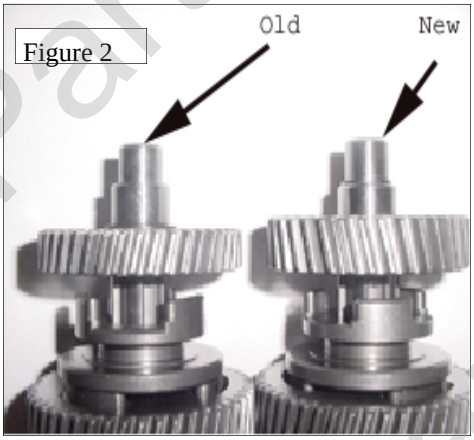


Figure 3

ETON America, LLC

Service Bulletin

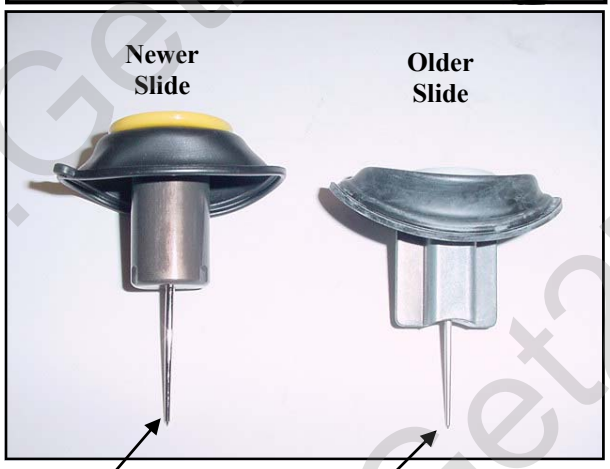
Bulletin No:	**0023**
Date:	**03/01/04**

Yukon (YXL-150) & Yukon II (CXL-150)
Carburetor Update

ETON carburetor for the Yukon & Yukon II has been upgraded.
As a result we have made two rebuild kits available to you to cover both carburetor models.

For Yukon (YXL-150) with VIN numbers ending with numbers greater than **1A004519** and Yukon II (CXL-150) with VIN numbers ending in numbers greater than **3A001769** use Carburetor rebuild Kit Number **810420**.

All others use Carburetor rebuild Kit Number **811202**.



If your slide looks like this use kit # 810420

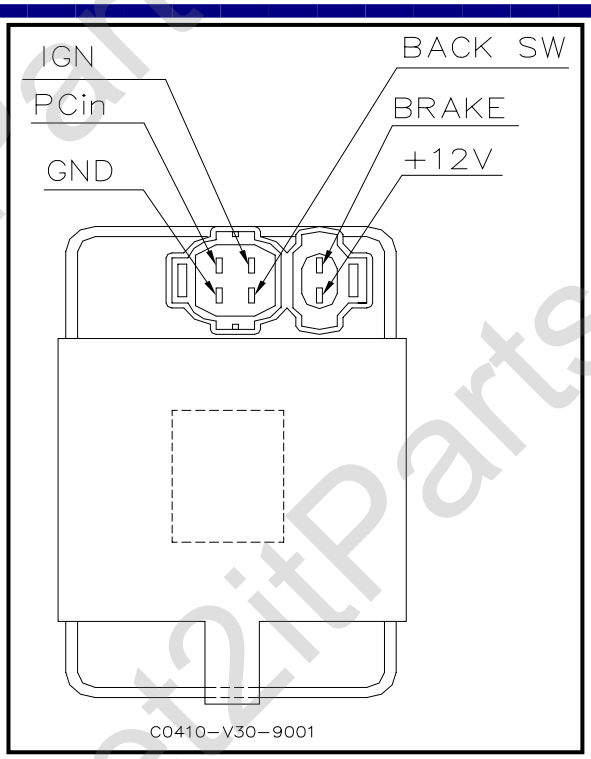
If your slide looks like this use kit # 811202

ETON America, LLC

Service Bulletin

Bulletin No.:	**SB-0038**
Date:	05/01/2006

C.D.I. Module Specifications
Yukon II 150



CXL-150 -- C0410-V30-9001

Electric resistance(Ω) specification

	+12V	BRAKE	BACK SW	IGN	Pcin	GND
+12V		26-30K	20-24K	∞	15-20K	5-6K
BRAKE	30-50K		30-50K	∞	30-50K	20-30K
BACK SW	30-40K	30-50K		∞	30-50K	18-22K
IGN	5-7K	20-50K	30-50K		9-10K	1-3K
Pcin	20-30K	450-550K	40-50K	∞		15-20K
GND	**1-3K**	**30-40K**	**20-30K**	∞	**4-6K**	

Specifications highlighted in yellow are the suggested critical testing points. Test points should be tested first.

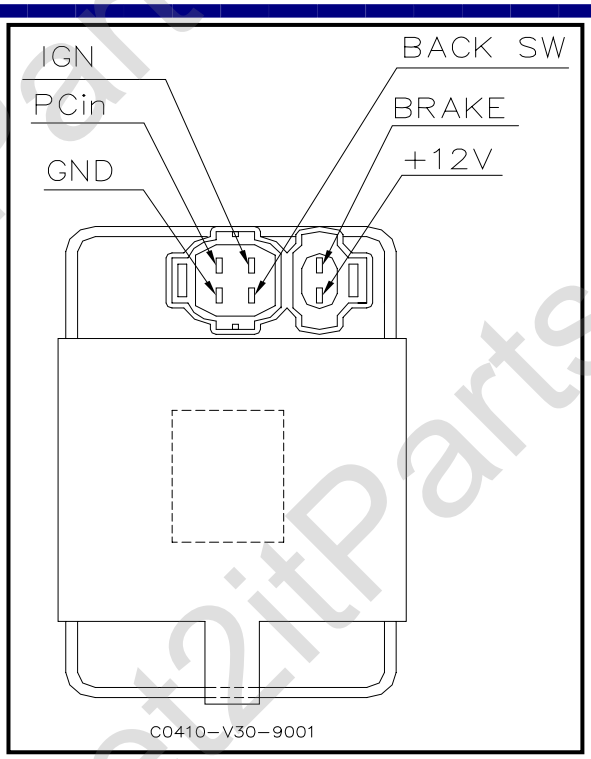
We suggest using analogy type multi-meter to test the electric resistance. We have found using digital type meter produces to many inaccurate readings.

ETON America, LLC

Service Bulletin

Bulletin No.: **SB-0039**
Date: 05/01/2006

C.D.I. Module Specifications
Viper 150R



RXL-150R -- C0410-V30-9001

Electric resistance(Ω) specification

	+12V	BRAKE	BACK SW	IGN	Pcin	GND
+12V		26-30K	20-24K	∞	15-20K	5-6K
BRAKE	30-50K		30-50K	∞	30-50K	20-30K
BACK SW	30-40K	30-50K		∞	30-50K	18-22K
IGN	5-7K	20-50K	30-50K		9-10K	1-3K
Pcin	20-30K	450-550K	40-50K	∞		15-20K
GND	**1-3K**	**30-40K**	**20-30K**	∞	**4-6K**	

Specifications highlighted in yellow are the suggested critical testing points. Test points should be tested first.

We suggest using analogy type multi-meter to test the electric resistance. We have found using digital type meter produces to many inaccurate readings.

ETON America, LLC

Service Bulletin

Bulletin No:	0051
Date:	03/01/2007

E-TON ATV, Scooter and Utility Kart Headlight Wattages

Head Light Wattages

Model	Factory	Maximum
Viper 70-4	10w	12w
Viper 90-4	10w	12w
Viper 150	20w	50w
Yukon 150	20w	50w
Vector 250	35w	90w
Beamer II	18w	24w
Beamer III	18w	24w
Beamer Matrix	18w	24w
Beamer R2	18w	24w
Beamer R4	18w	50w
Rover	N/A	12w
Rover GT	N/A	24w

Per: JI-EE Engineers **5/24/2007**