TECHNICAL INFORMATION

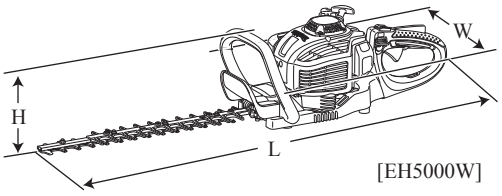
Model No. ► EH5000W, EH6000W, EH7500W

Description ► Petrol Hedge Trimmers

CONCEPT AND MAIN APPLICATIONS

Models EH5000W, EH6000W and EH7500W are Double-sided blade Petrol hedge trimmers equipped with the 22.2mL 2-stroke engine that is in compliance with all known exhaust emission regulations, the same one as used for EH7500S.
The main feature of these models is extra light design with further improvements in noise, vibration and handling for environment and human friendliness. Especially, the anti-vibration system is unique and effective. These models are quipped with floating structure of engine section and handle section; four damper springs absorb vibration from engine to integrated front and rear handles.
Other benefits are:

- Longer lubrication cycle obtained by circulating grease in gear housing
- Shear blade with 3 sharpened edges and stain-free blade surface of glittering silver provide long lasting, smooth cutting.



[EH5000W]

Dimensions: mm (")			
Model No.	**EH5000W**	**EH6000W**	**EH7500W**
Length (L)	1,014 (40)	1,119 (44)	1,259 (49-1/2)
Width (W)	262 (10-3/8)		
Height (H)	216 (8-1/2)		

Specification

Specifications \ Model			**EH5000W**	**EH6000W**	**EH7500W**
Engine	Type		2-stroke		
	Displacement: mL (cu.in.)		22.2 (1.4)		
	Fuel		Mixed gasoline (Mixture ratio of 50:1 [Makita 2-stroke engine oil])		
In compliance with main exhaust emission regulations; CARB Tier 3, EPA Phase 2, EU Stage 2			Yes		
Max. output power: kW (PS)			0.68 (1.0)		
Speed : min.-1 = rpm		at max. output power	7,500		
		No load	10,500		
Stroke rate at No load: min.-1 = spm*1			4,390		
Fuel tank capacity: mL (oz)			400 (13.5)		
Max. cutting capacity: mm (")			483 (19)	588 (23-1/8)	728 (25-5/8)
Carburetor			Diaphragm		
Starting system			Recoil starter		
Primer pump			Yes		
Clutch			Yes		
Rotation limiter			Yes		
Blade	Type		Double-sided		
	Length: mm (")		500 (19-3/4)	600 (23-5/8)	750 (29-1/2)
	Cutting teeth		with 3 sharpened edges		
	Thickness: mm (")		2.0 (1/16)	2.3 (3/32)	2.3 (3/32)
	Blade drive mechanism		Connecting rod drive		
	Tooth spacing: mm (")		35 (1-3/8)		
Max. branch diameter*2: mm (")			ø21.5 (7/8)		
Net weight *3: kg (lbs)			4.8 (10.5)	5.0 (11.0)	5.2 (11.4)

***1:** stroke per minute
***2:** Indicates maximum diameter of the branch that can be received between adjacent two blade teeth. (See the figure on right.)

***3:** Dry weight

Standard equipment

Blade cover 1
Socket wrench 1
Hex wrench (for M5) 1

Note: The standard equipment for the tool shown above may vary by country.

Optional accessories

Shear blade assemblies

Repair

CAUTION: Repair the machine in accordance with “Instruction manual” or “Safety instructions”.

< Note in repair>

* Repair the tool always with gloved hand
* Blades must be covered by Blade cover
* Cool down the engin first before repairing to avoid a skin burn.
* Remove all fuels from fuel tank and carburetor. Avoid any fire from the work shop.
* Repair the tool on the stable work table and keep dust out.
* Record where and how the parts were assembled to avoid mis-assembling.
  Assort and reserve the dismantled parts in the box by section.
* The dismantled parts must be treated carefully and washed clean before reassembling.
* Use Impact driver in case bolts or screws can not be loosen by hand.
* The bolts or screws must be tightened to the designated fastening torque.
* Check the movement, sound and alignment of the main parts just after assembled.
* Replace the removed gasket with the new one.

[1] NECESSARY REPAIRING TOOLS

Code No.	Description	Used for
1R024	Press tool	removing Spur gear 9
1R127	Air density tester	checking air leakage in Carburetor
1R170	T type hex wrench 3-127	removing / tightening M4 Hex socket head bolt
1R171	T type hex wrench 4-130	removing / tightening M5 Hex socket head bolt
1R229	1/4” hex shank bit	removing / tightening Engine section
1R364	Fly wheel puller	removing Fly wheel
1R366	Feeler gauge set	adjusting a proper gap of ignition coil, Spark plug, Shear blade assembly
1R371	Clutch removing tool	removing Clutch
1R373	Clutch drum removing tool	removing Clutch drum
1R374	Pinion gear holding Jig	fixing Spur gear 9
	Hex socket bit 10	removing Fly wheel
	Wire brush	cleaning Spark plug

[2] LUBRICATION

Apply Makita Grease N. No.2 to Spiral spring for recoil starter (approx. 2g) and Gear room (approx. 40g).

Repair

[3] DISASSEMBLY/ASSEMBLY

[3] -1. Engine section

DISASSEMBLING

(1) Disconnect Bullet terminal from the Lead wire of Ignition coil (**Fig. 1**).
(2) Remove Air cleaner cover and disconnect control cable from the swivel of carburetor.
Remove Control cable from cable bracket (**Fig. 2**).
(3) Remove three bolts to separate engine section. Grounding lead wire is fastened with one of the three bolts (**Fig. 3**).

Fig. 1

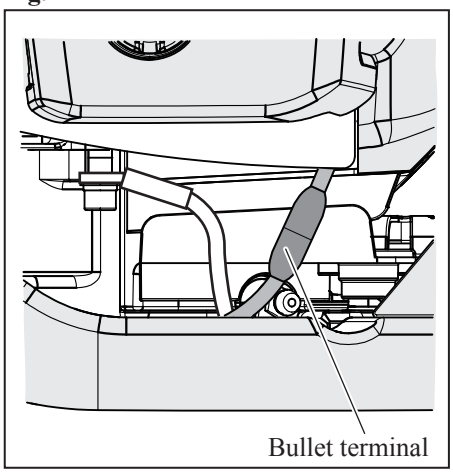


Fig. 2

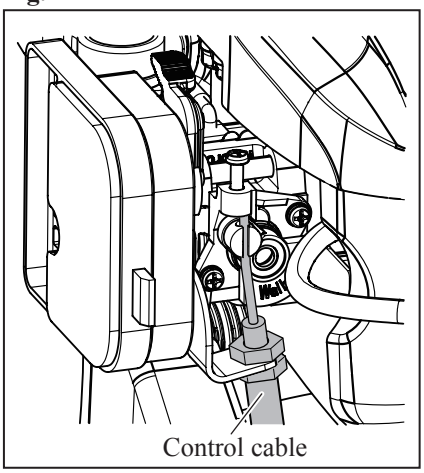
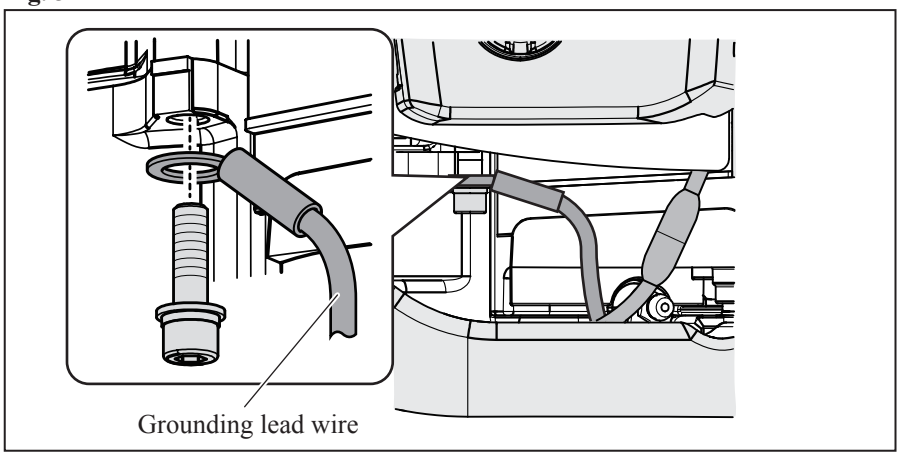


Fig. 3



ASSEMBLING

(1) Assemble engine section to the Gear housing.
Note 1; Do not to pinch the Lead wires between Engine section and Gear housing.
Note 2; Make sure to fasten the terminal of Grounding lead wire with one of three Hex socket head bolts.
(2) Fix Control cable along with Adjust screw in the Cable bracket by clamping it with a Nut.
Hook the Control cable end on the Swivel of Carburetor.
Note; Adjust the Cable tension with a 1 - 2 mm play.
(3) Connect Bullet terminals (**Fig. 1**).

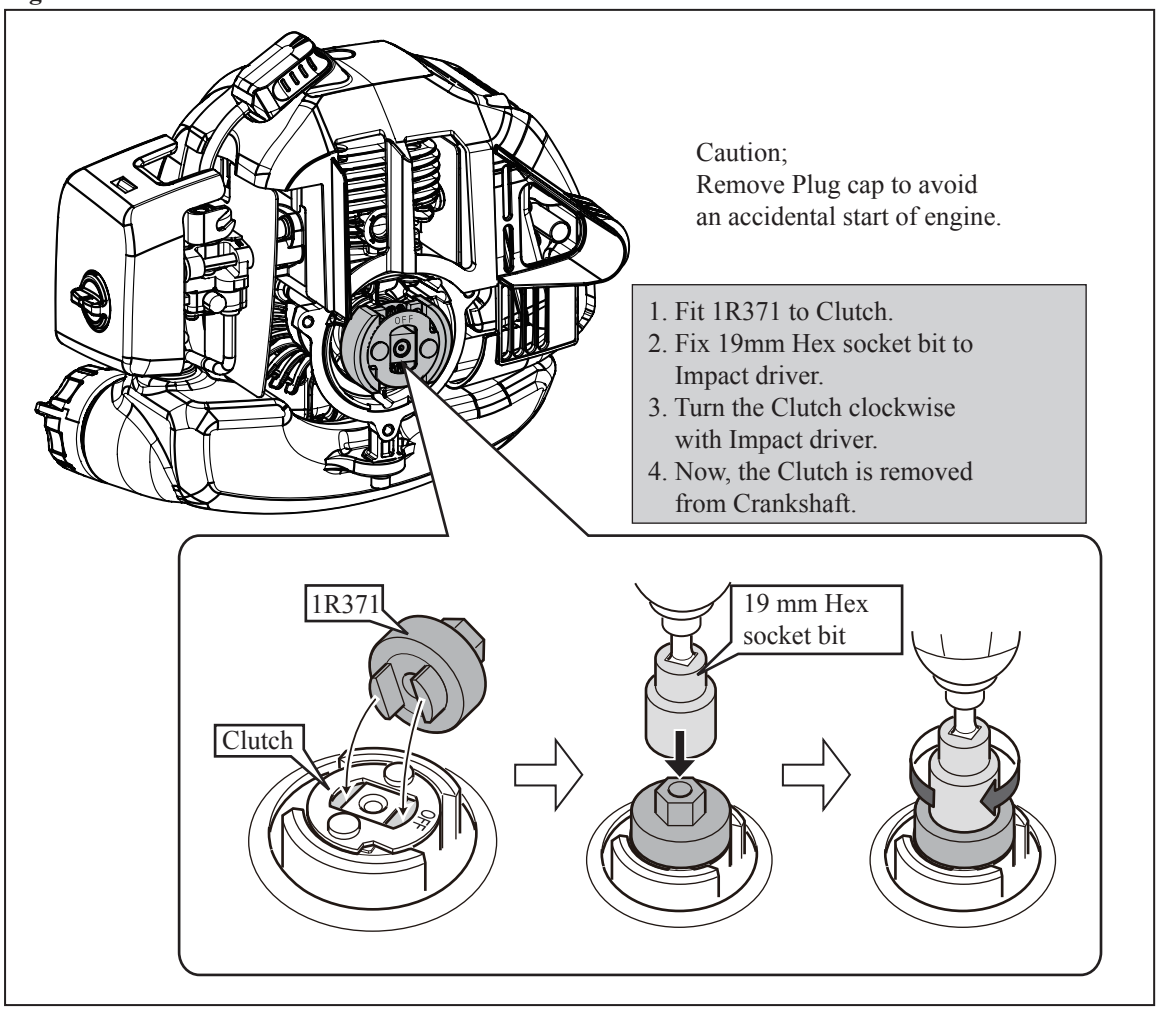
Repair

[3] DISASSEMBLY/ASSEMBLY
[3] -2. Clutch Section

DISASSEMBLING

By using impact driver, Clutch can be loosened without holding Piston by utilizing air pressure in the cylinder.
In order to utilize this air pressure resistant, do not remove Spark plug in this step.
(1) Separate Engine section from Gear housing (**Fig. 1, 2, 3**).
(2) Remove Clutch (**Fig. 4**).

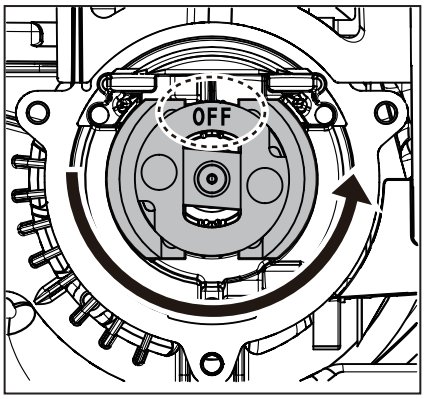
Fig. 4



ASSEMBLING

(1) Drive the Clutch to Crankshaft counterclockwise by hand so that the " OFF" mark can face the upper position (**Fig. 5).**
(2) Set 1R371 and fasten it counterclockwise by Impact driver with 19mm Hex socket bit for approx. 2 seconds (**Fig. 4)**.

Fig. 5



Repair

[3] DISASSEMBLY/ASSEMBLY

[3] -3. Clutch Drum

DISASSEMBLING

(1) Separate Gear case from Engine section (**Fig. 1, 2, 3**).
(2) Remove Gear case cover from Gear case.
(3) Disassemble Clutch drum (**Fig. 6, Fig. 7**).

Fig. 6

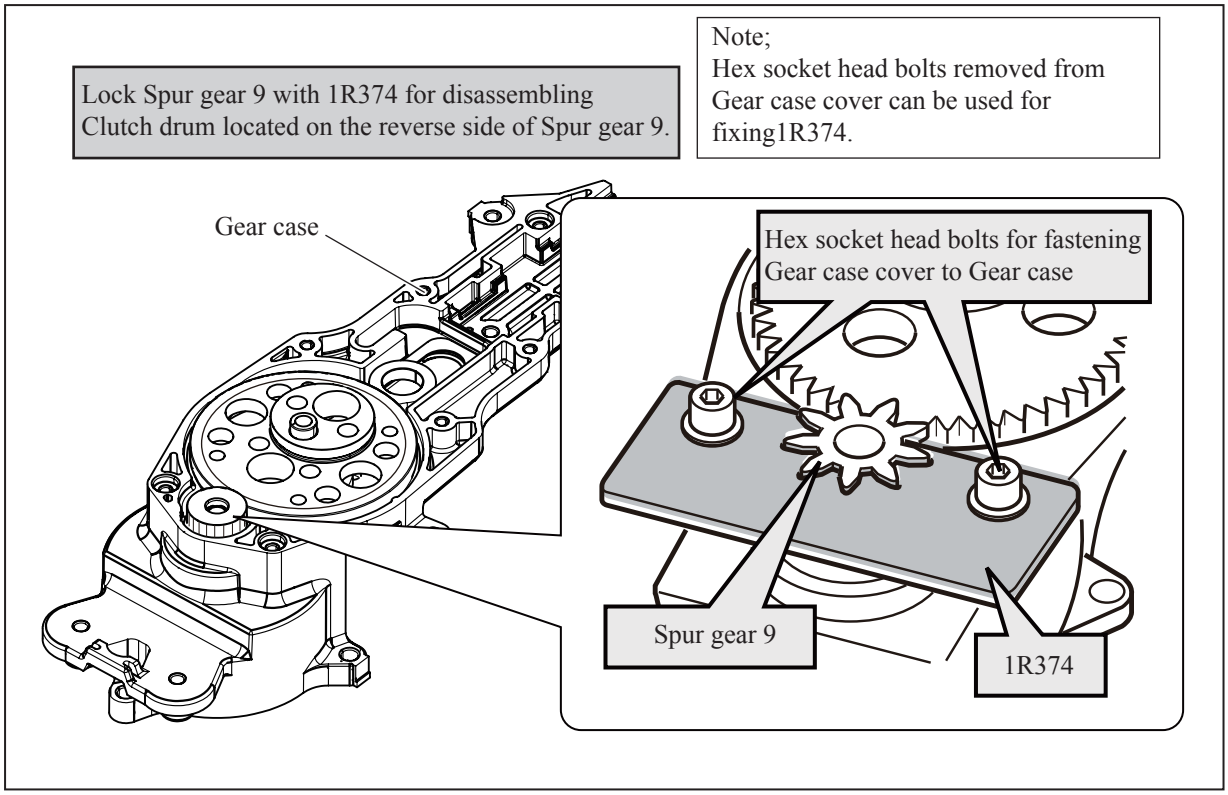
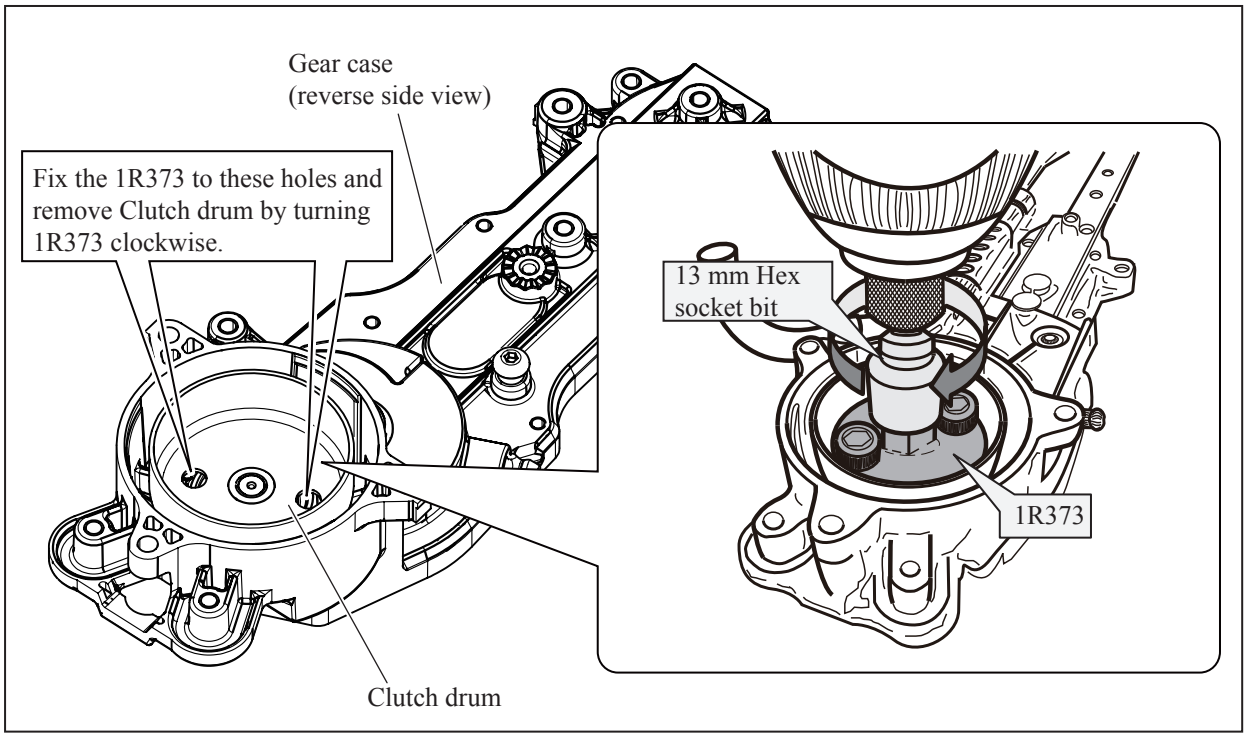


Fig. 7



Repair

[3] DISASSEMBLY/ASSEMBLY

[3] -3. Clutch Drum

ASSEMBLING

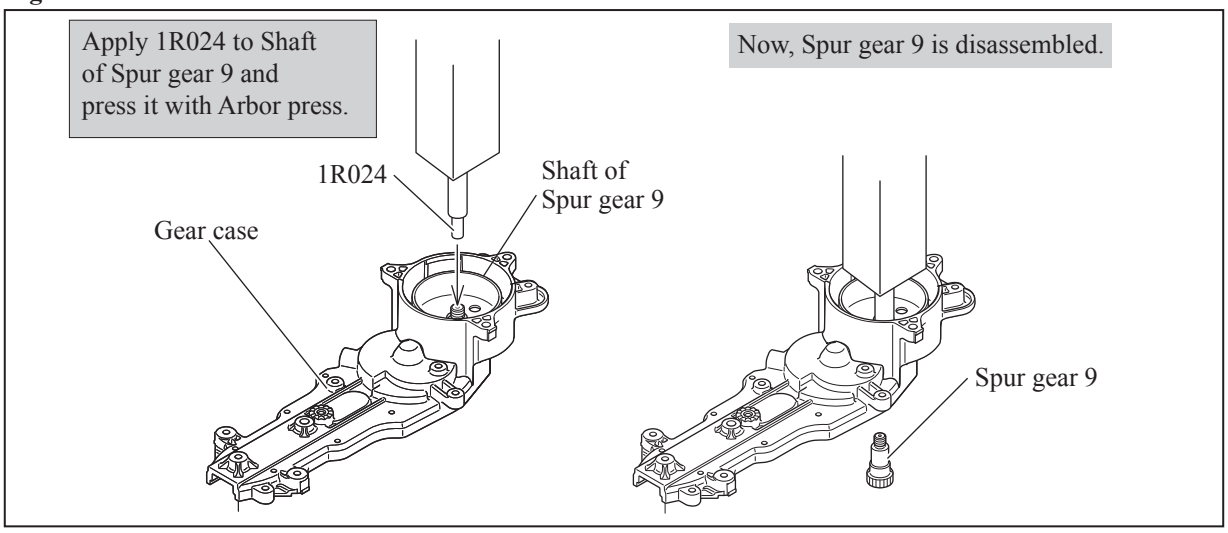
(1) Lock Spur gear 9 with 1R374 (**Fig. 6**).
(2) Drive Clutch drum to the shaft of Spur gear 9 counterclockwise by hand.
(3) Mount 1R373 to Clutch drum and fasten it counterclockwise with impact driver and 13 mm Hex socket bit **(Fig. 7)**.
Note: 1. Do not lose Friction plate next to Rod when mounting Clutch drum.
2. Replace Gear case gasket to the new one.

[3] -4. Spur Gear 9

DISASSEMBLING

Remove Spur gear 9 (**Fig. 8**).

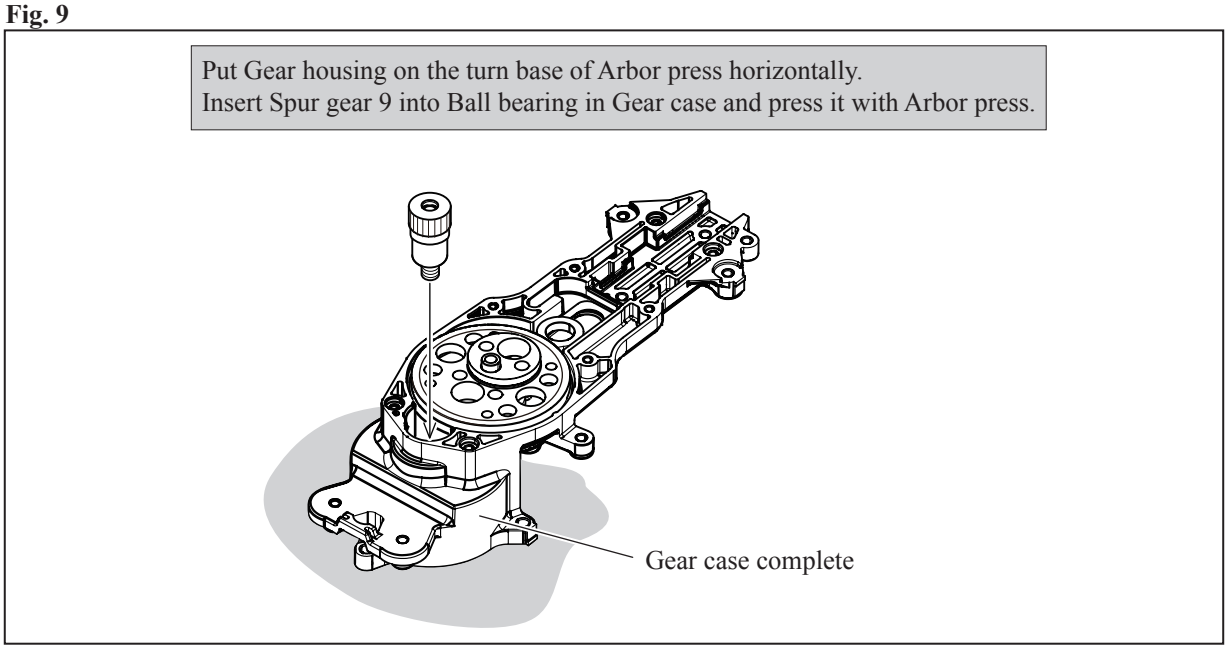
Fig. 8



ASSEMBLING

Assemble Spur gear 9 (**Fig. 9**).

Fig. 9



Repair

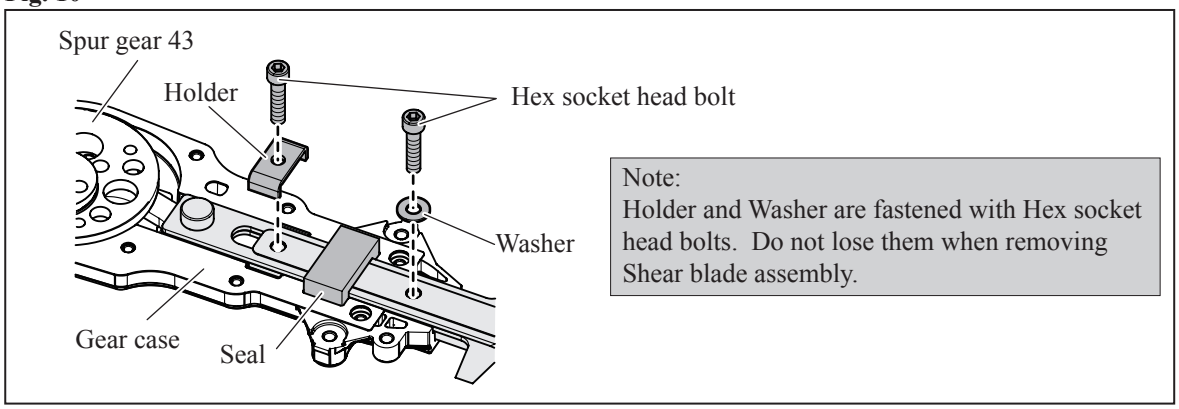
[3] DISASSEMBLY/ASSEMBLY

[3] -5. Shear Blade

DISASSEMBLING

Remove Holder and Shear blade assembly by unscrewing two Hex socket head bolts (**Fig. 10**).
Note: 2 pcs. of Sleeve 5 are mounted under Plate. Do not lose them (**Fig. 12**)

Fig. 10



ASSEMBLING

(1) Align the Shear blade (upper) with the lower one (**Fig. 11**).
(2) Set 2 pcs. of Sleeve 5 under Plate of Shear blade assembly (**Fig. 12**).
(3) Set the position of Spur gear 43 as described in **Fig. 13**.

Fig. 11

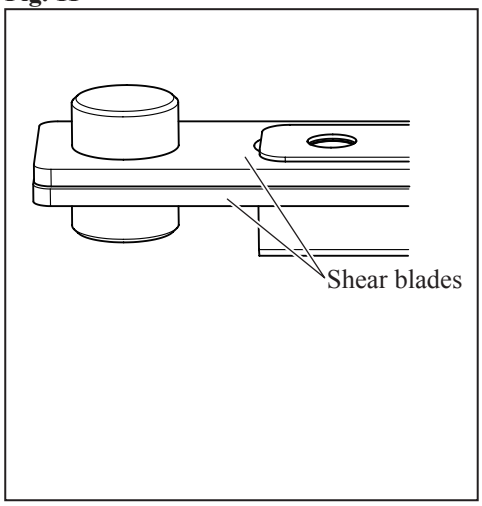


Fig. 12

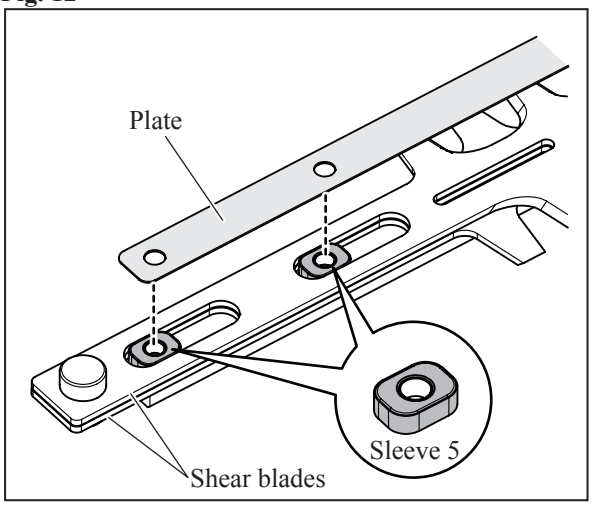
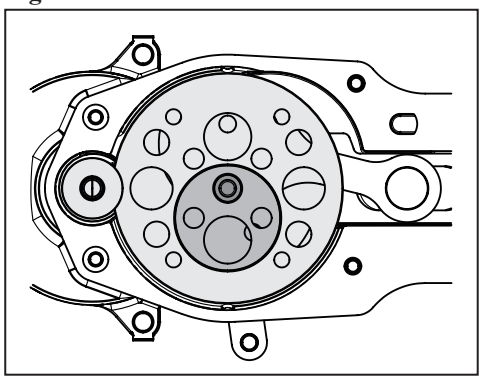


Fig. 13



Repair

[3] DISASSEMBLY/ASSEMBLY

[3] -5. Shear Blade (cont.)

ASSEMBLING

(4) Mount Shear blade assembly in the Gear case while fitting Shear blade' boss into the hole of Connecting rod. Fix the Shear blade assembly to Gear case by driving Hex socket head bolt through the Holder and each Sleeve 5.

Note: *Do not forget to mount Seal (**Fig. 14**).

*Apply Makita grease N. No.2 to the portion designated with black triangle (**Fig. 15**).

Fig. 14

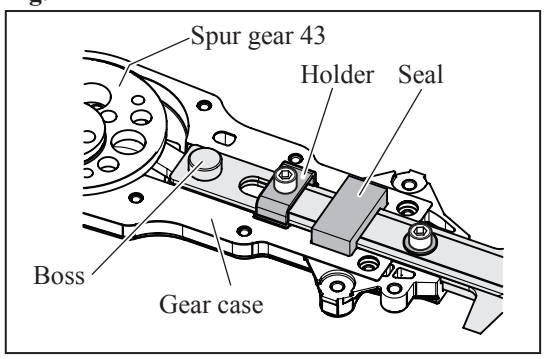
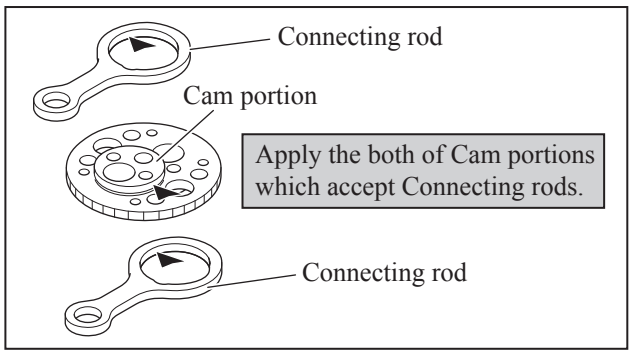


Fig. 15



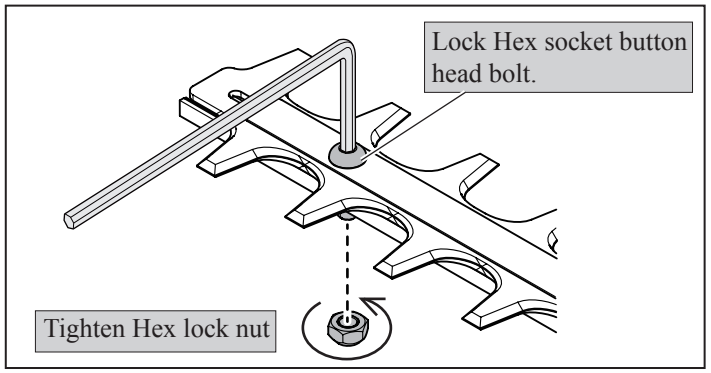
ADJUSTMENT

(1) Loosen Hex lock nut.

(2) After tightening Hex socket button head bolt, turn it back by 1/4 to 3/8 counterclockwise.

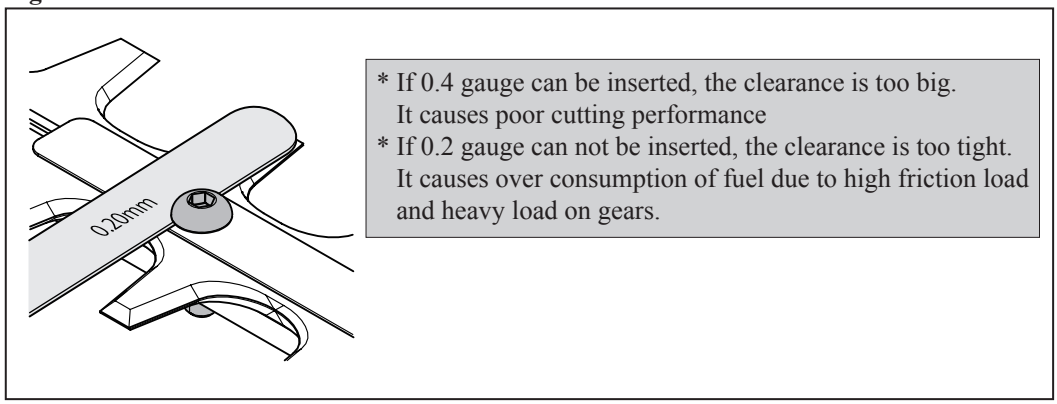
(3) Tighten Hex lock nut fully while locking Hex socket button head bolt with Hex wrench (**Fig. 16**).

Fig. 16



(4) Check the clearance by inserting 1R366 into the gaps of all Hex socket button head bolts (**Fig. 17**).

Fig. 17



Repair

[3] DISASSEMBLY/ASSEMBLY

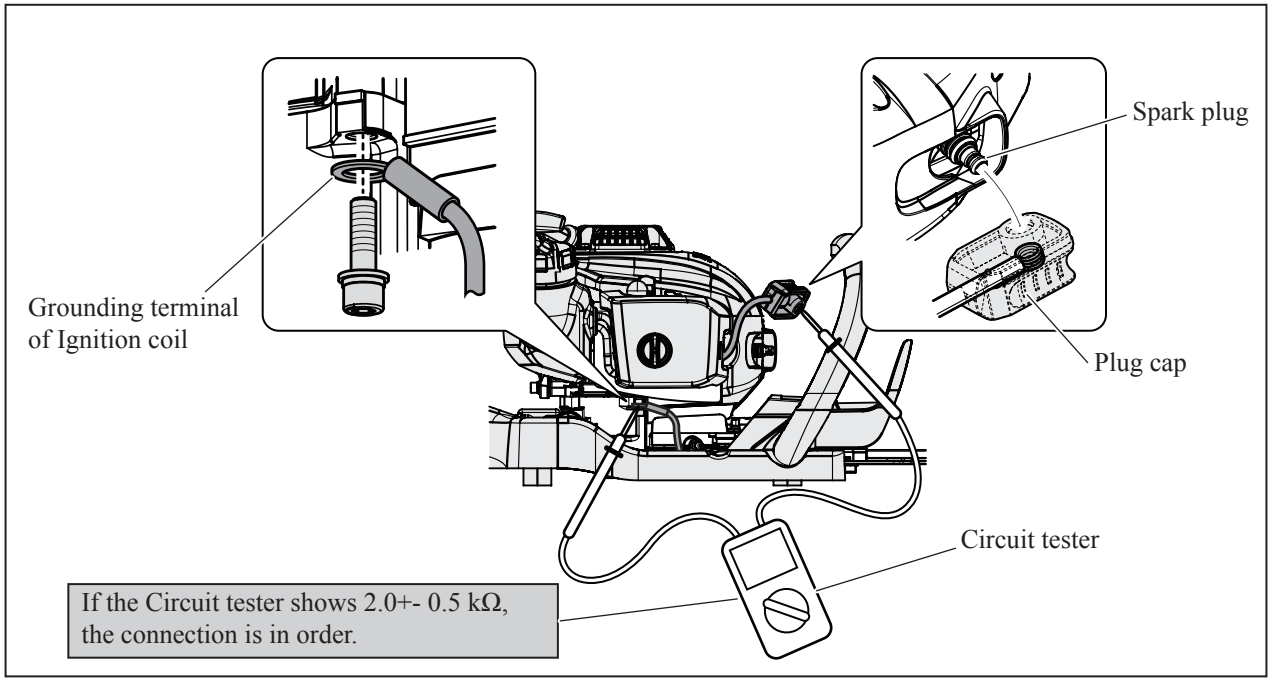
[3] -6. Ignition

MAINTENANCE

Plug Cap

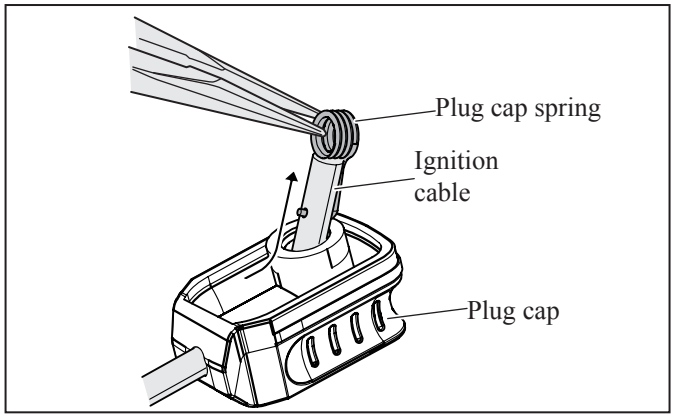
(1) Remove Plug cap from Spark plug and check the resistance between Plug cap spring and Ignition coil with circuit tester (**Fig. 18**).

Fig. 18



(2) Check the connection of Plug cap spring with Ignition cable if Pointer of Circuit tester does not move or does not steadily indicate 2.0 +- 0.5 kΩ.
Spray lubricant into the Plug cap and pull out Plug cap spring together with Ignition cable (**Fig. 19**).

Fig. 19



(3) Check Plug cap if there is any crack, damage or disconnection. Re-fix them or replace the damaged one with the new one if there is any disorder.
(4) Stick a Plug cap spring end into the center of Ignition cable and put them back into Plug cap while holding Plug cap spring with pliers.
(5) Incomplete connection of Plug cap spring with Ignition cable causes the feeble sparking or no sparking from Spark plug. Check the connection by taking the same procedure of (1) to (4).

Repair

[3] DISASSEMBLY/ASSEMBLY

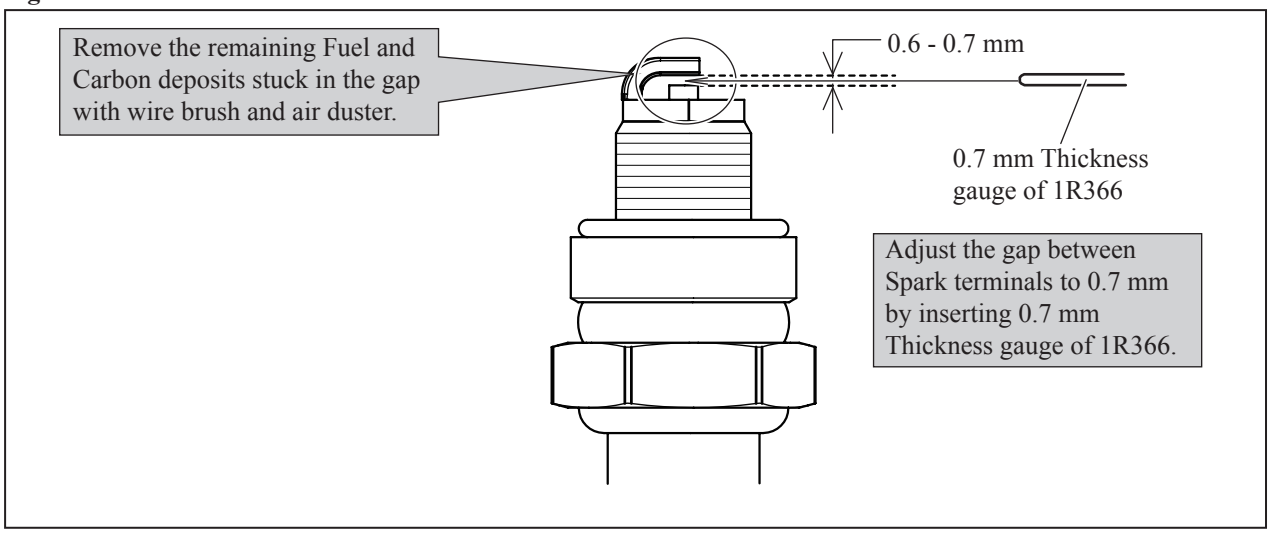
[3] -6. Ignition

MAINTENANCE

Spark Plug

(1) Remove Plug cap with Socket wrench 10-16. Clean the spark terminals of the removed Plug (**Fig. 20**).
And adjust the gap of Spark terminals to 0.6 - 0.7 mm.

Fig. 20



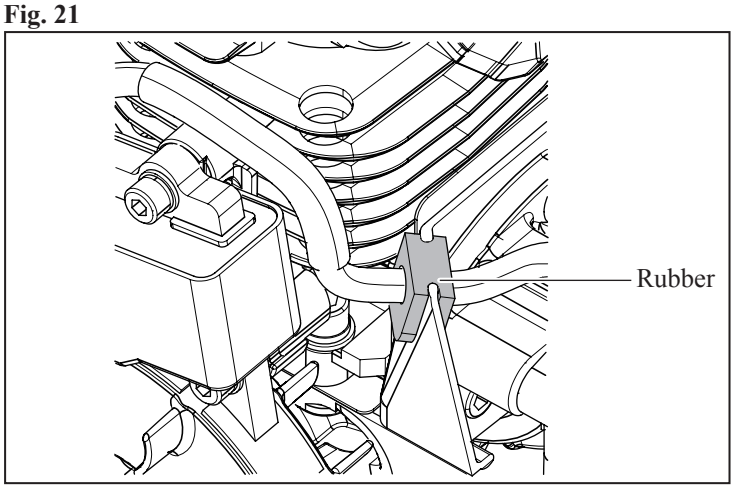
(2) Mount Plug cap on the Plug and contact the Plug's thread portion to the metal portion of engine, and then, pull Starter rope gently. The plug is in order if its terminals have sparking constantly.
In case of no sparking at the terminals, return to "MAINTENANCE in [3]-6. Ignition" and replace the Plug with the new one if the plug is out of order.

DISASSEMBLING

Ignition Coil

(1) Remove Blower housing, Cylinder cover, Muffler cover and Ignition coil.
Note; Do not lose Spacer for insulating Cylinder's heat when removing Cylinder cover.
(2) Remove Rubber from Insulator (**Fig. 21**).

Fig. 21



► Repair

[3] DISASSEMBLY/ASSEMBLY

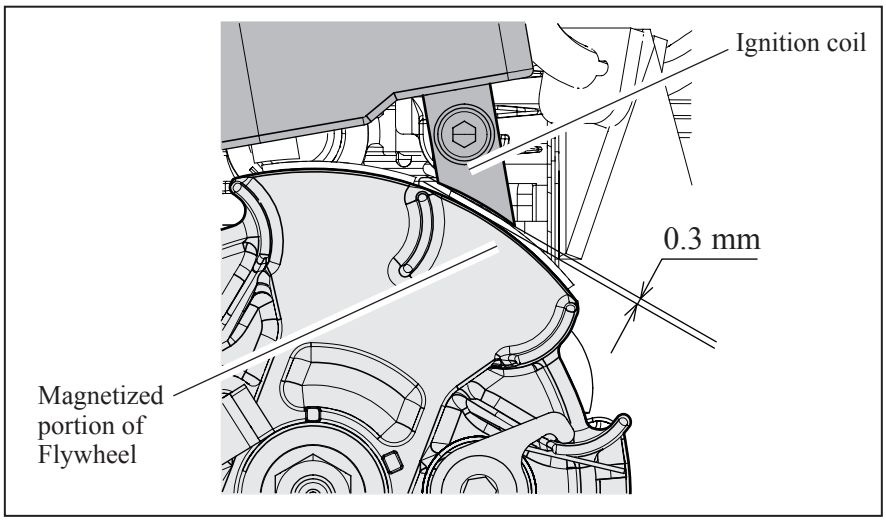
[3] -6. Ignition

ASSEMBLING

Ignition Coil

(1) Set Spacer on Cylinder and assemble Ignition coil on Spacer while inserting 0.3 mm thickness gauge of 1R366 between Fly wheel's magnetized portion and Ignition coil (**Fig. 22)**.
Keep the inserted thickness gauge in this step till the Ignition coil is fully tightened in order to fix the 0.3 mm gap precisely.

Fig. 22



(2) Remove the thickness gauge after Ignition coil is fixed. Make sure that Fly wheel can be turned smoothly by hand without interference by Ignition coil.
Note: Make sure to fix Ignition coil through the Spacer. High voltage cable and Lead wire must be fixed into Rubber. Locate high voltage cable to Cylinder side.

(3) Fix Rubber to Insulator.
Note: Make sure that the assembled High voltage cable does not interfere with throttle in action.

(4) Assemble Cylinder cover.
Note: Tighten Cylinder cover together with Spacer to Cylinder.
Thread locker must be applied to the thread of Hex socket head bolt which tightens that parts.
Apply " ThreeBond 1342" or "Loctite 242" as a thread locker.

(5) Assemble Muffler cover.
Note: Apply ThreeBond 1342 or Loctite 242 as a thread locker.

Repair

[3] DISASSEMBLY/ASSEMBLY

[3] -6. Ignition

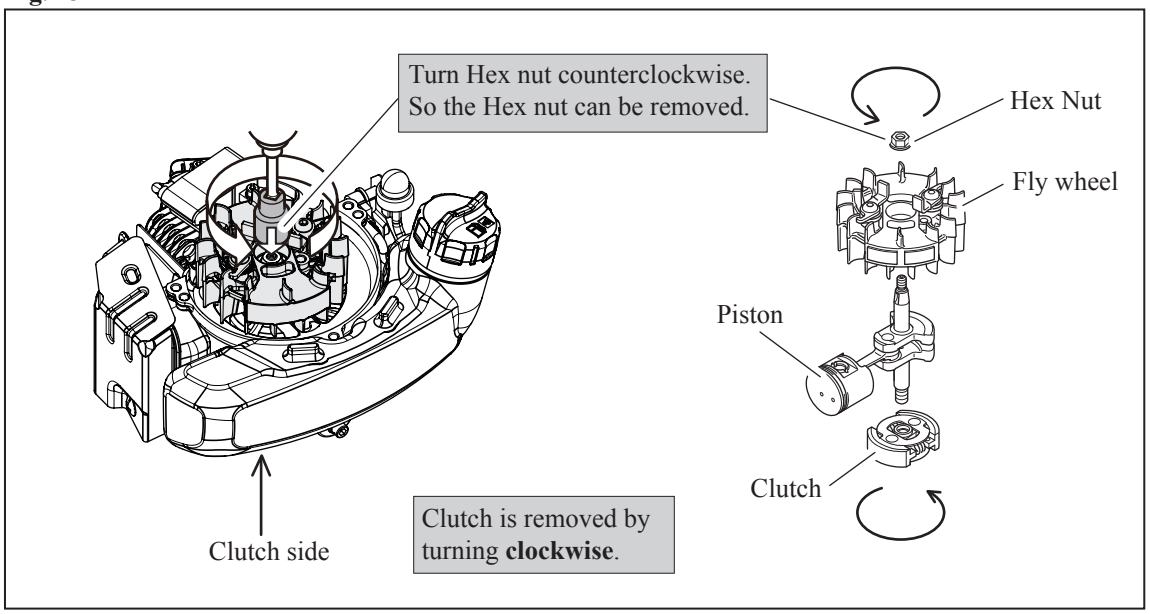
DISASSEMBLING

Fly Wheel

Note: Plug cap has to be removed in order to avoid accidental start of engine.
Do not remove Plug when the nut for tightening Fly wheel is loosened to utilize air resistant in Cylinder.

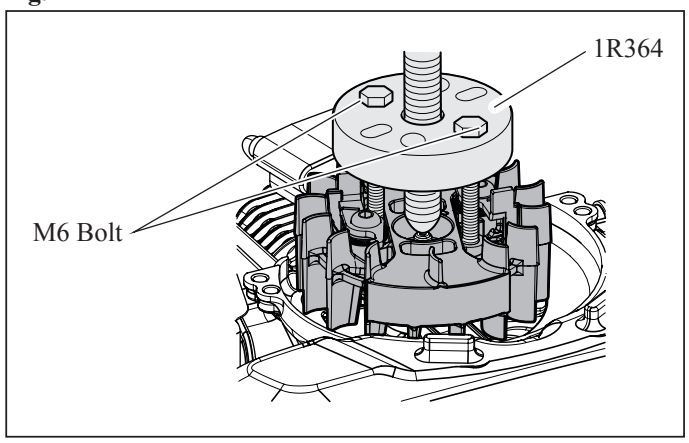
(1) Attach 10 mm Hex socket bit to Impact driver. Turn M6 Hex nut counterclockwise with a Impact driver (Clutch is removed by turning clockwise) (**Fig. 23**).

Fig. 23



(2) Set 1R364 to Fly wheel to Fly wheel with two M6 bolts. Tighten Both of two M6 bolts to the same depth.

Fig. 24



Repair

[3] DISASSEMBLY/ASSEMBLY

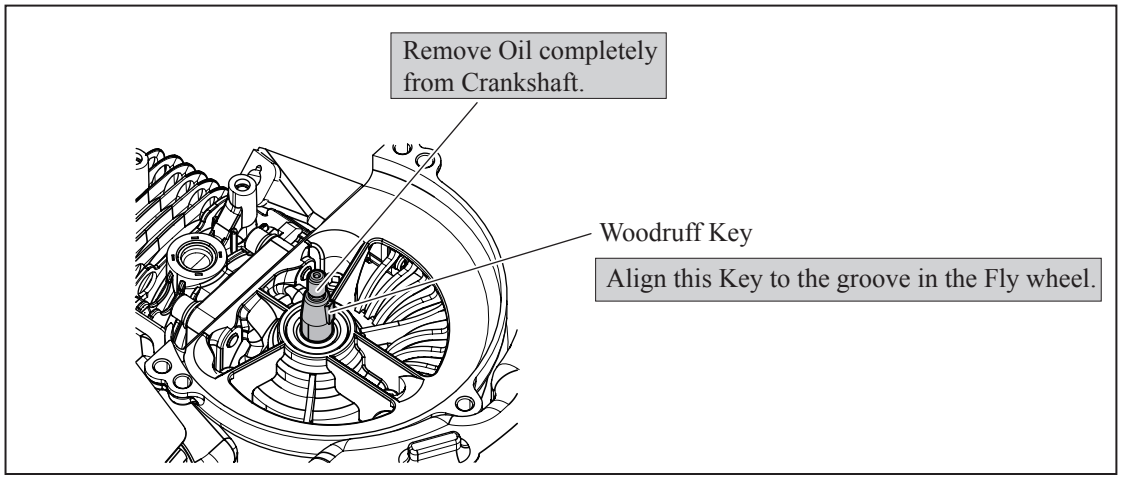
[3] -6. Ignition

ASSEMBLING

Fly Wheel

(1) Remove oil completely from Crankshaft.
(2) Align Woodruff key on Crank shaft to the key groove of Fly wheel and mount Fly wheel to Crankshaft.
(3) Turn M6 Hex nut to Crankshaft clockwise by hand and tighten it with Impact driver with 10 mm Socket bit clockwise for 2 second.

Fig. 25

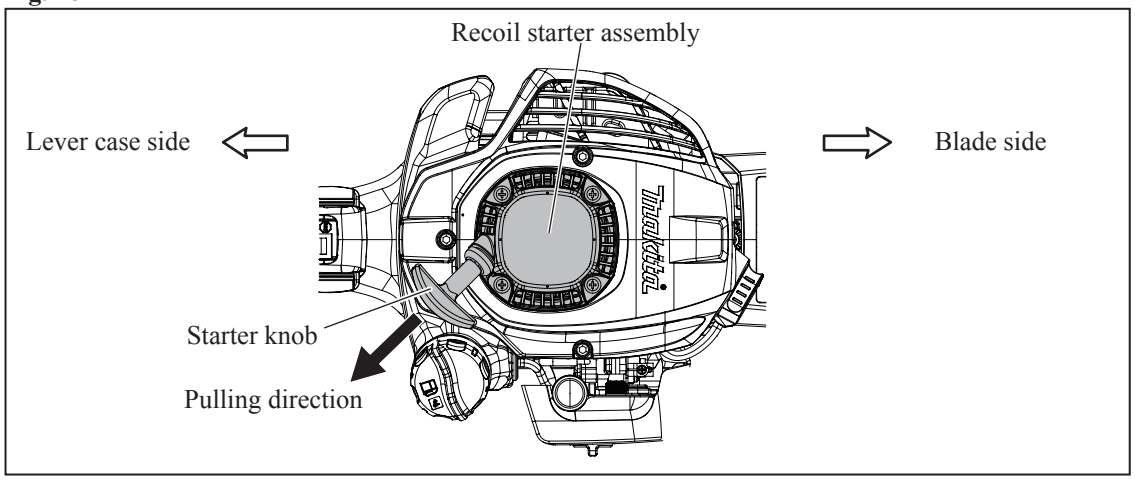


[3] -7. Recoil Starter

DISASSEMBLING

(1) Remove Recoil starter assembly from Blower housing.
Note: Record the position and the pulling direction of Starter knob before disassembling (**Fig. 26**).

Fig. 26



Repair

[3] DISASSEMBLY/ASSEMBLY

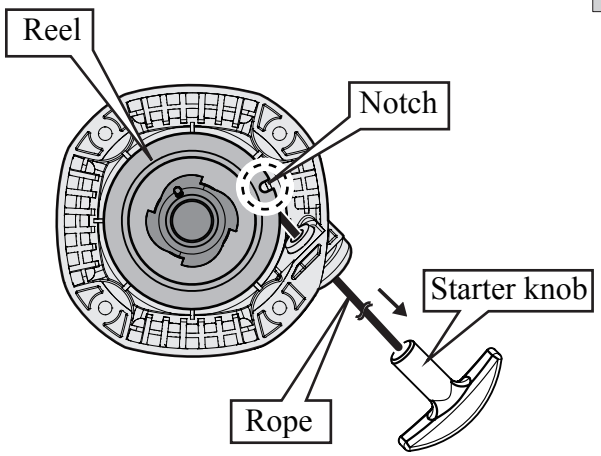
[3] -7. Recoil Starter (cont.)

DISASSEMBLING

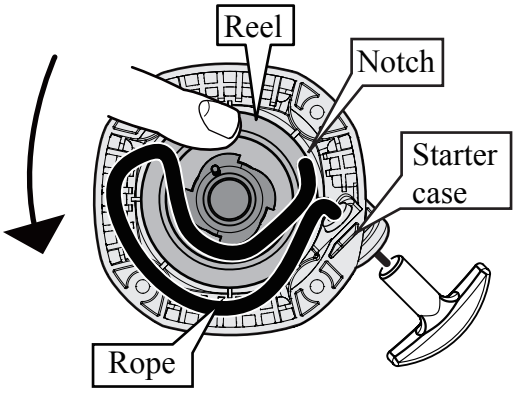
(2) Disassemble Recoil starter (**Fig. 27**).

Fig. 27

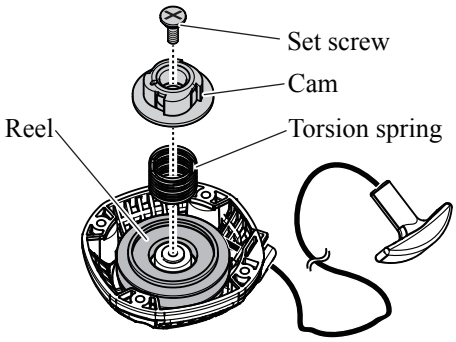
(1) Pull out Rope by the length of one or two times turn of the Reel and hold the Reel.



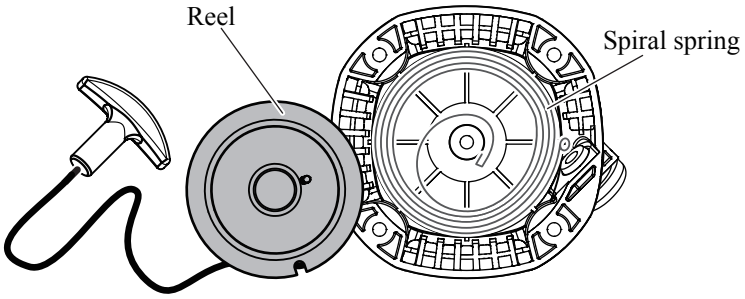
(2) Release Starter knob while holding the Reel with your finger and pull the slack Rope inside. Hook the Rope in the notch and turn the Reel counterclockwise while braking the Reel and holding the Rope. Turn Reel until Spiral spring recoil force is gone.



(3) Remove Set screw, Cam and Torsion spring.



(6) Remove Reel from Starter case.
Note; Do not let Spiral spring leap out in this step.



Repair

[3] DISASSEMBLY/ASSEMBLY

[3] -7. Recoil Starter

ASSEMBLING

Assemble the Recoil starter (**Fig. 28, 29**).

Fig. 28

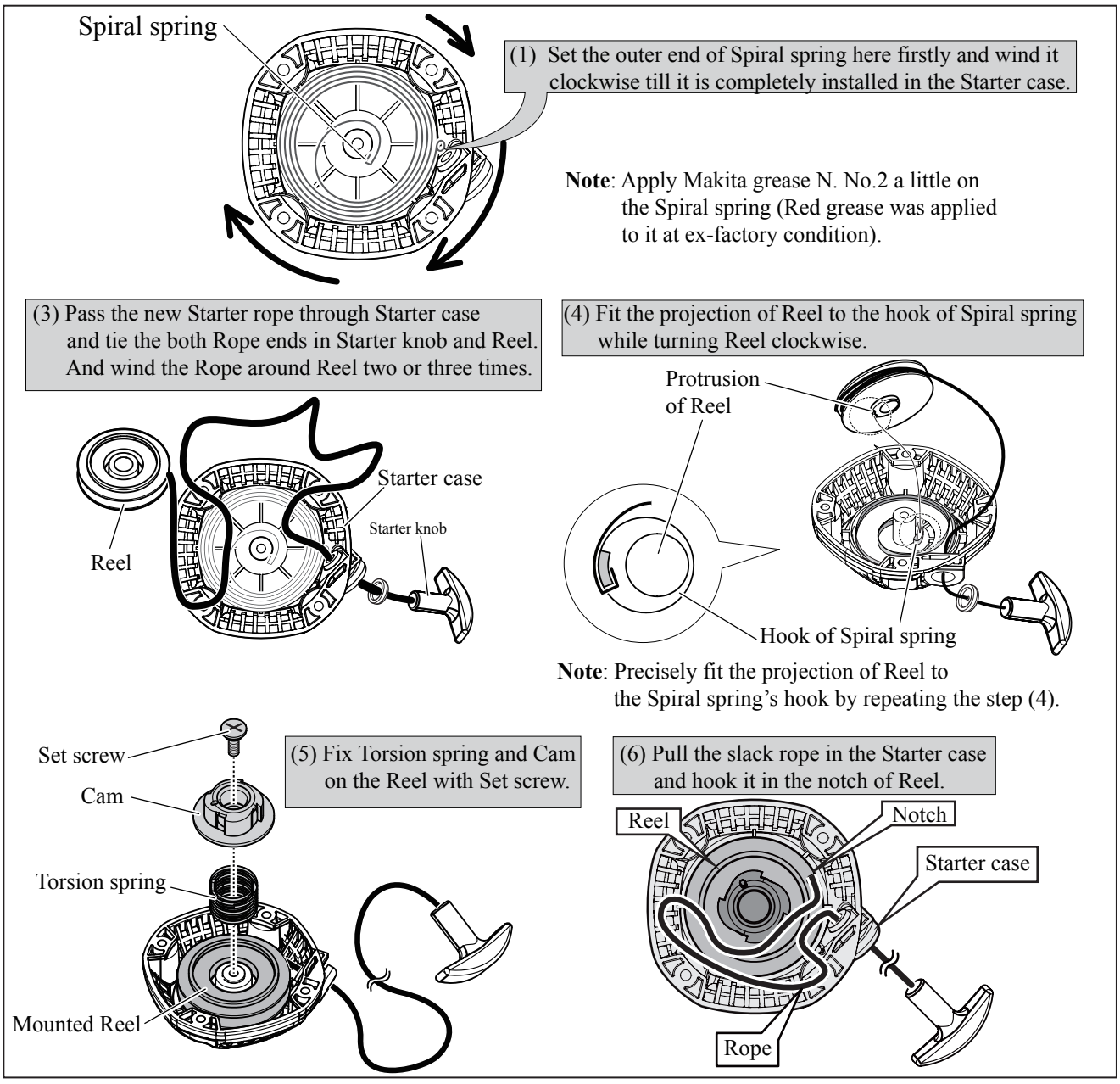
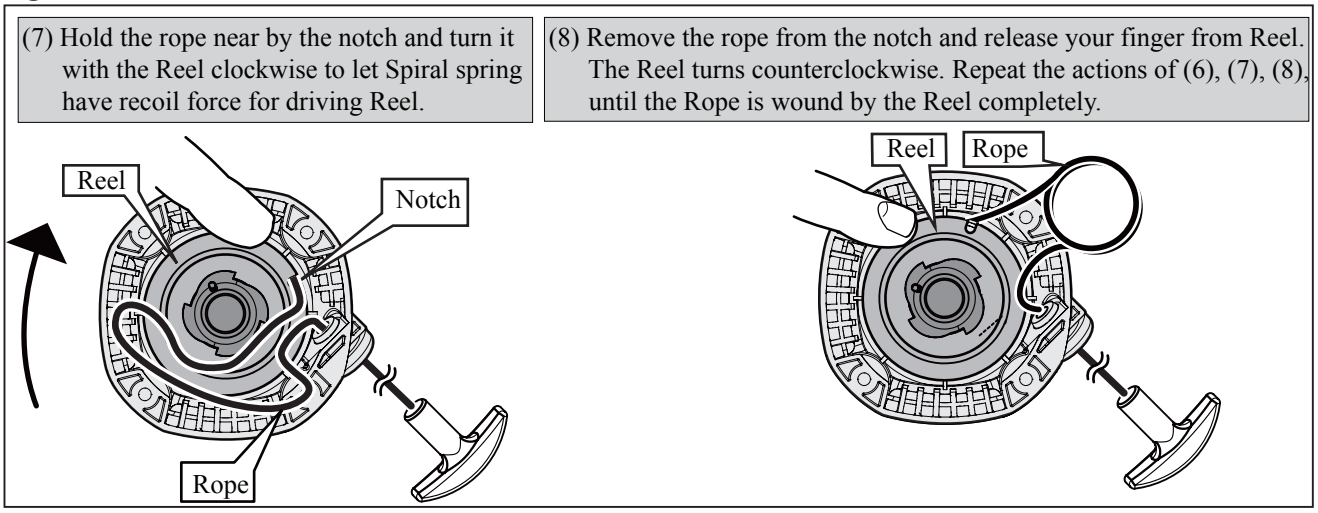


Fig. 29



Repair

[3] DISASSEMBLY/ASSEMBLY

[3] -8. Carburetor

DISASSEMBLING, CLEANING

(1) Remove Air cleaner cover (**Fig. 30**).
(2) Remove Elements; Sponge and Felt (**Fig. 31**).

Fig. 30

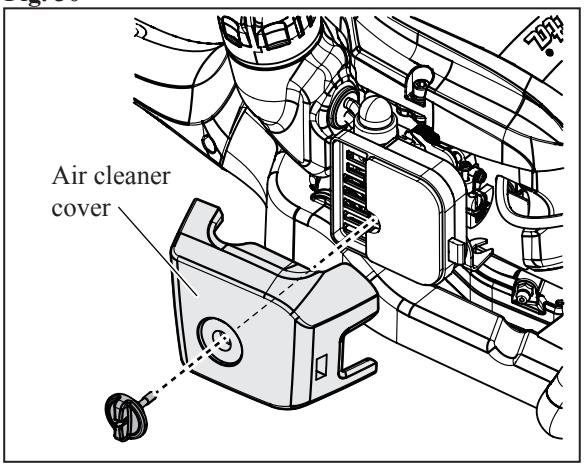
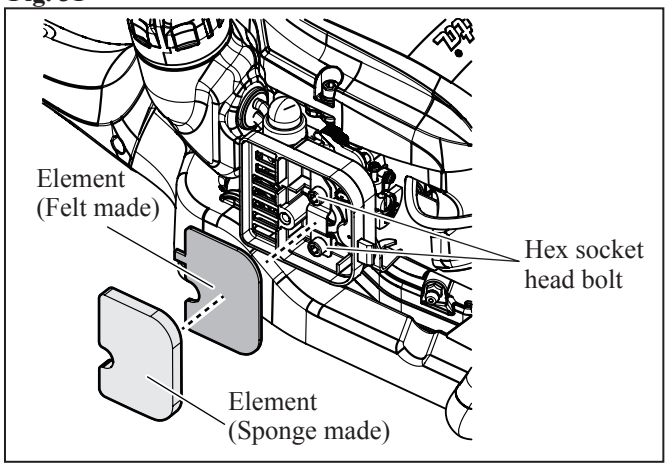
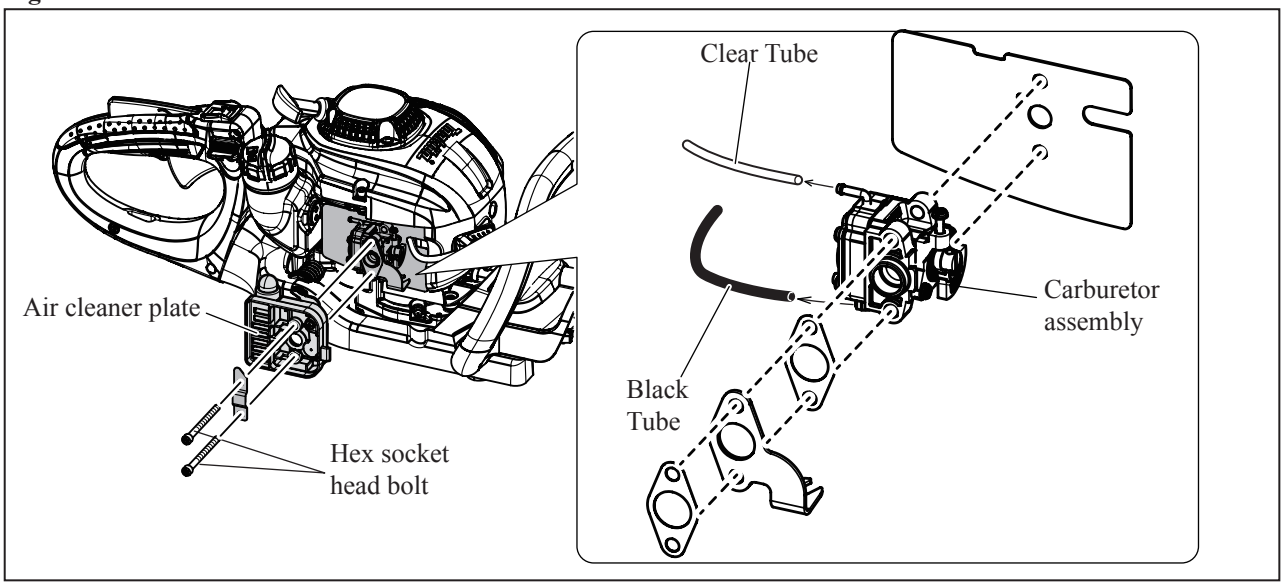


Fig. 31



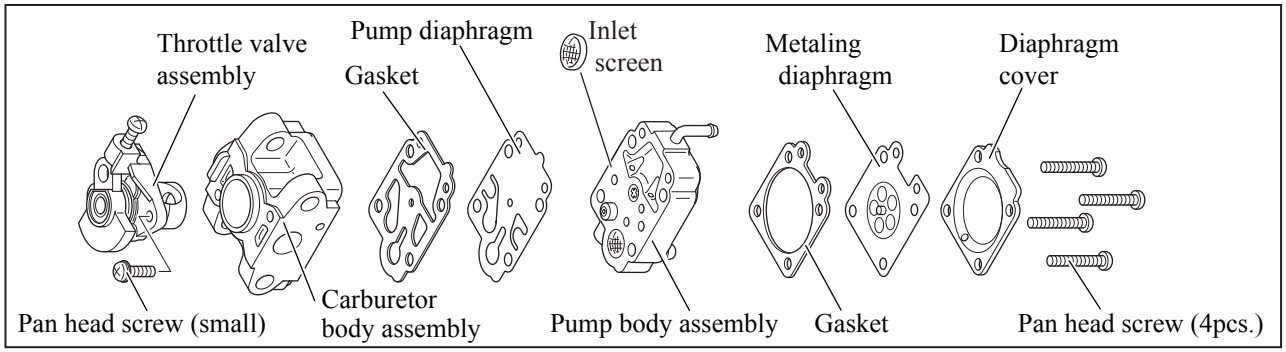
(3) Remove two Hex socket head bolts fixing Air cleaner plate and Carburetor assembly (**Fig. 32**).
Note; Take off the Hex socket head bolts completely from the machine,
otherwise, it's impossible to disassemble Carburetor.
(4) Remove two tubes and disassemble Carburetor assembly (**Fig. 32**).

Fig. 32



(5) Remove Diaphragm cover, Metaling diaphragm, Gasket set by unscrewing four Pan head screws (**Fig. 33**).
Note; Carefully separate Gasket from Metaling diaphragm in case they stick each other as they are fragile.
(6) Replace Metaling diaphragm to the new one if it has any curing, deformation or breakage.

Fig. 33



Repair

[3] DISASSEMBLY/ASSEMBLY

[3] -8. Carburetor (cont.)

DISASSEMBLING, CLEANING

(7) Check Inlet needle in the Pump body assembly if its tip is intact. Replace Controller set including Inlet needle to the new set if Inlet needle tip is damaged. It can be removed by unscrewing M3x4 Set screw.
Check if there is any foreign material stuck on Fuel inlet before fixing Inlet needle (**Fig. 33, 34, 35**).

(9) Fully loosen idling screw, then, remove Pan head screws (small) for fixing Throttle valve assembly to Carburetor body.

(10) Spray carburetor cleaner on the Inlet screen, all fuel inlets, outlets and internal routes. And then, wash them with gasoline (**Fig. 35**).

Fig. 34

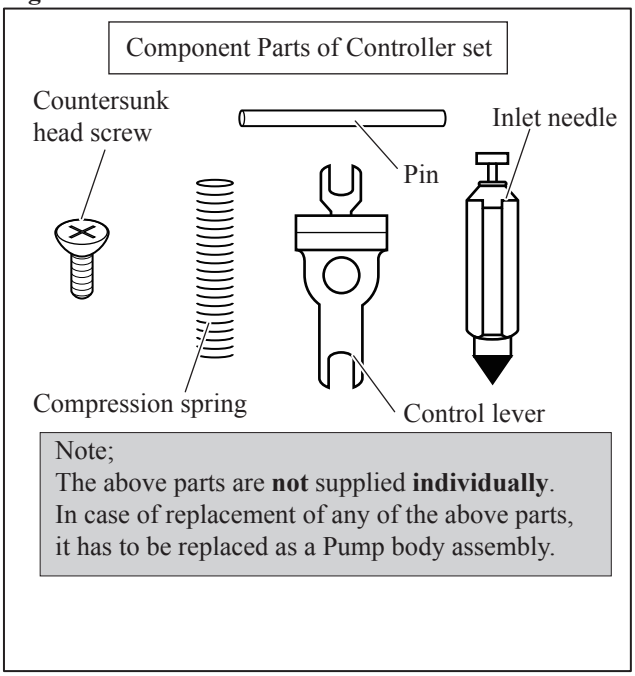
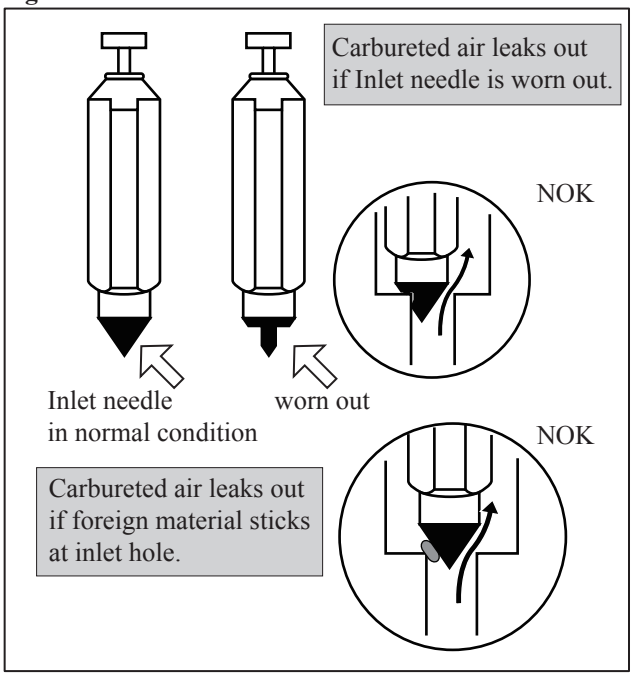


Fig. 35



(11) Make sure that Compression spring fits to the protrusion of Control lever when assembled. (**Fig. 36R**).

Fig. 36R

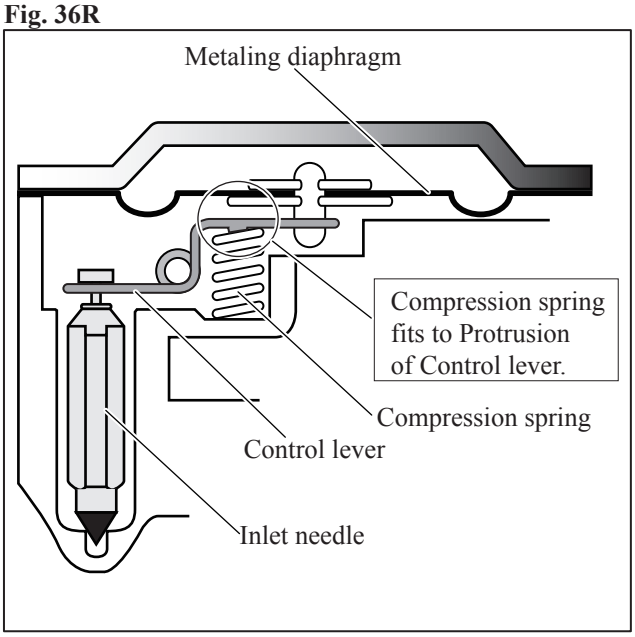
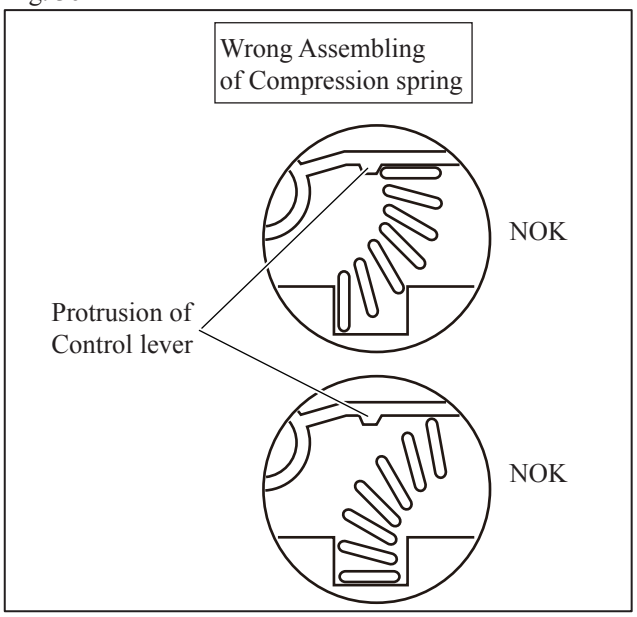


Fig. 36F



Repair

[3] DISASSEMBLY/ASSEMBLY
[3] -8. Carburetor

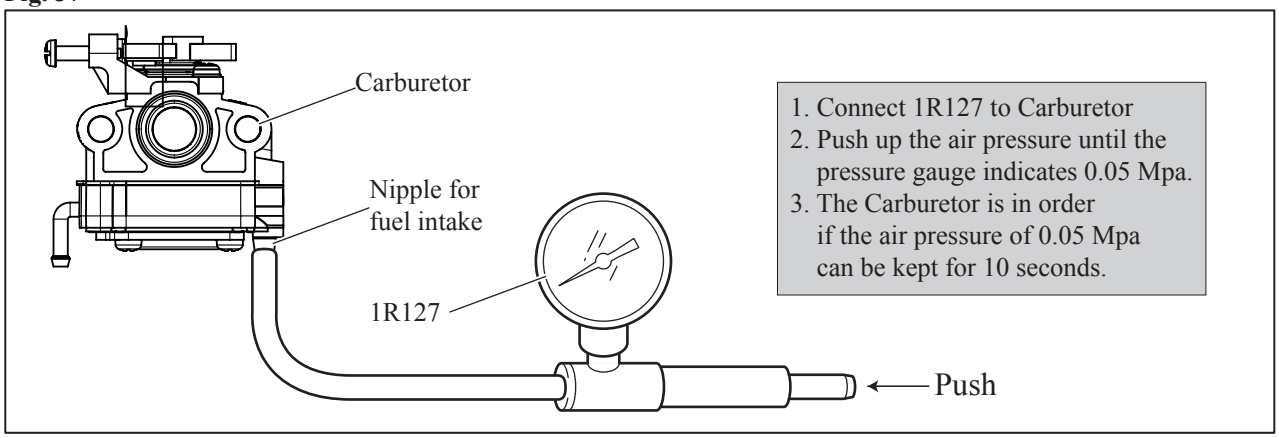
ASSEMBLING

Take the reverse step of Disassembling, Cleaning.

AIR-TIGHT TEST

See **Fig. 37**.

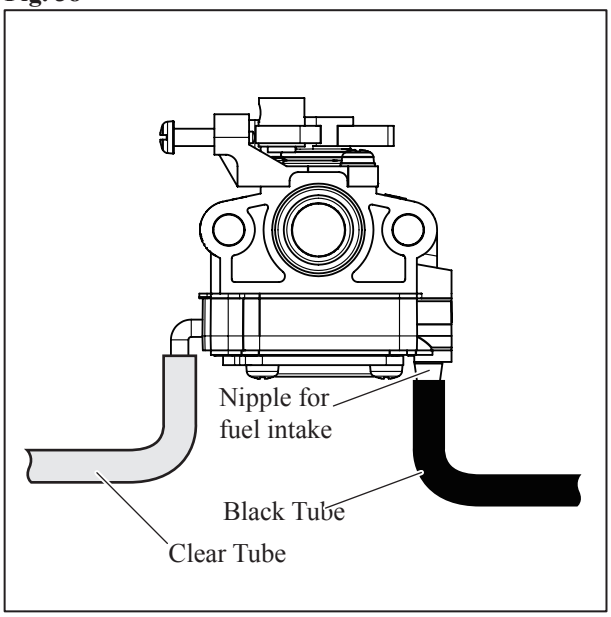
Fig. 37



ASSEMBLING CARBURETOR TO ENGINE

(1) Connect two Tubes to Carburetor (**Fig. 38**).

Fig. 38



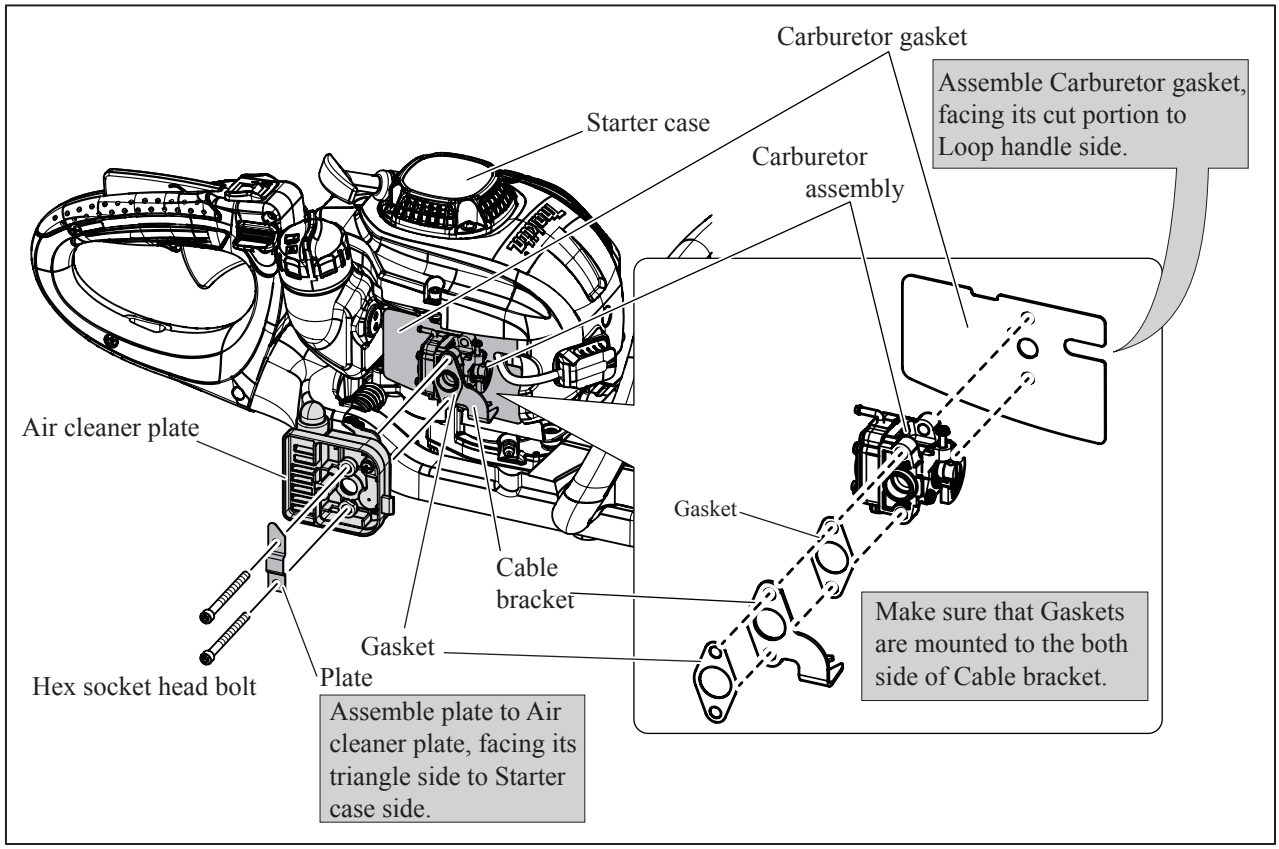
Repair

[3] DISASSEMBLY/ASSEMBLY
[3] -8. Carburetor (cont.)

ASSEMBLING CARBURETOR TO ENGINE

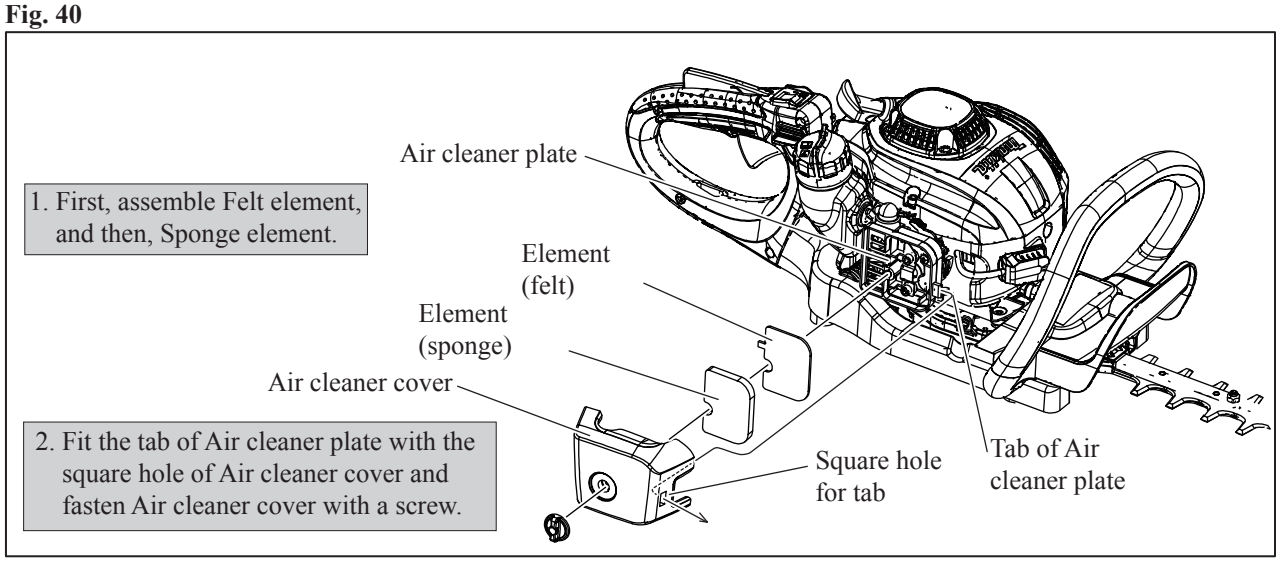
(2) Fasten the following parts with two Hex socket head bolts (**Fig. 39**).
* Plate
* Air cleaner plate
* Gasket
* Cable bracket
* Gasket
* Carburetor assembly
* Carburetor gasket

Fig. 39



(3) Assemble Elements (**Fig. 40**).

Fig. 40



Repair

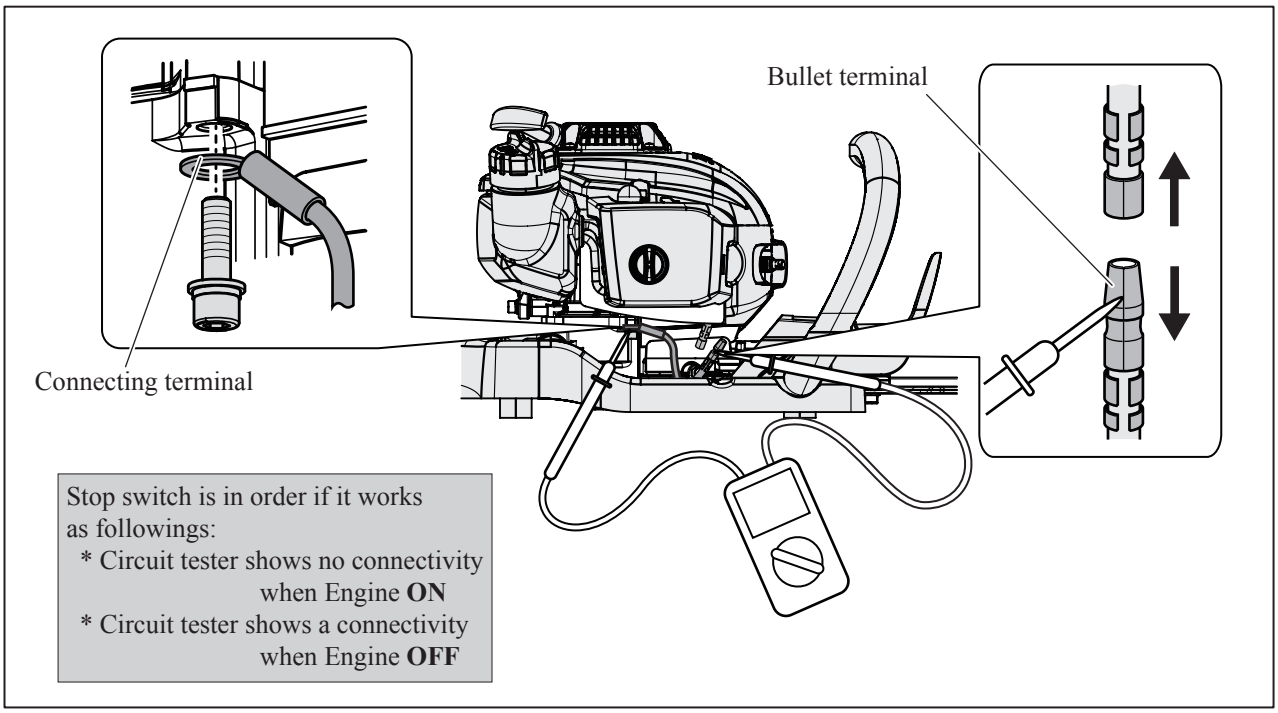
[3] DISASSEMBLY/ASSEMBLY

[3] -9. Stop Switch

MAINTENANCE

(1) Connect Circuit tester for checking Stop switch (**Fig. 41**).

Fig. 41



Repair

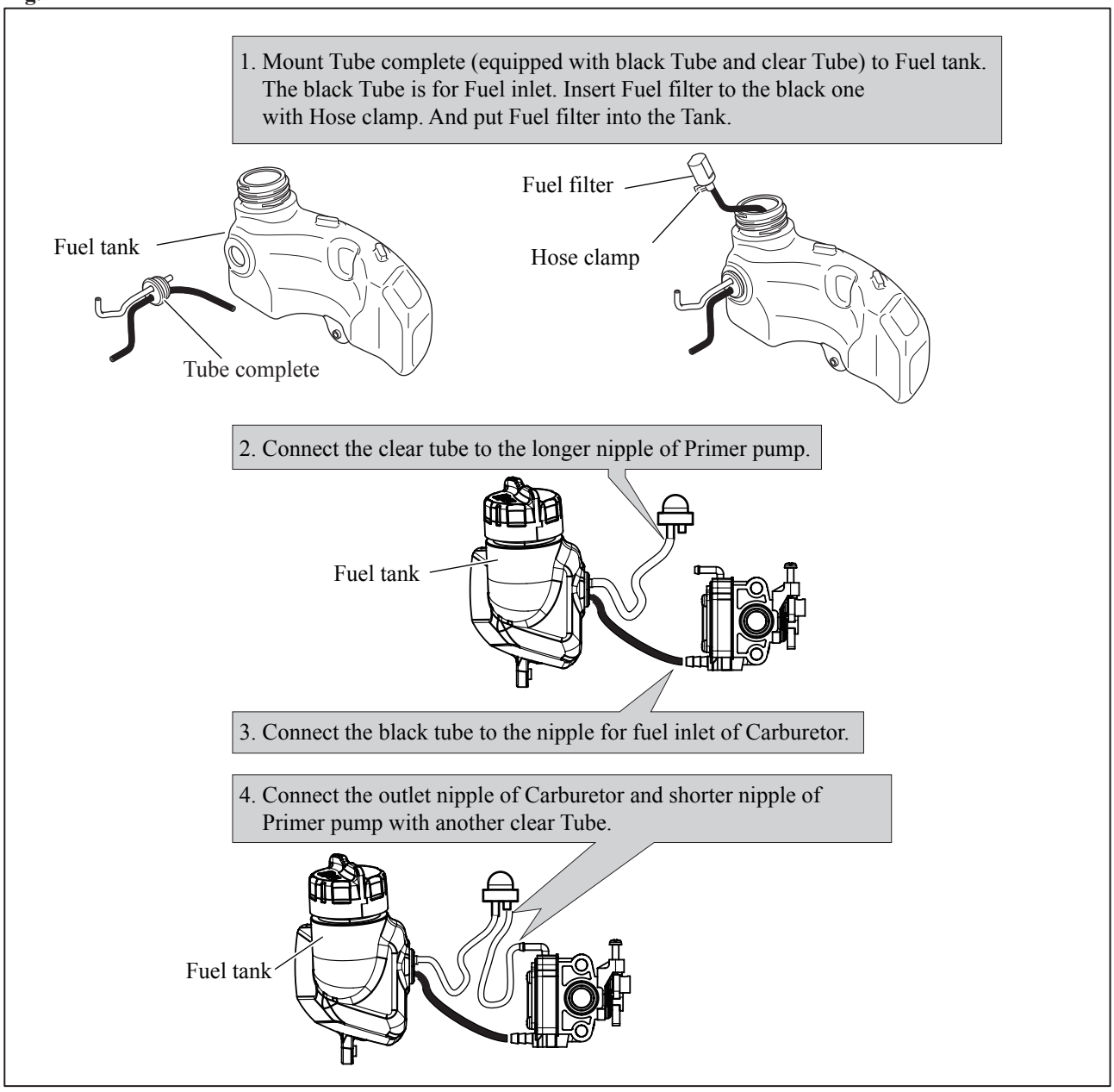
[3] DISASSEMBLY/ASSEMBLY

[3] -10. Fuel Tube

TUBING

Connect Fuel tank, Primer pump, Carburetor with Tubes (**Fig. 42**).

Fig. 42



Repair

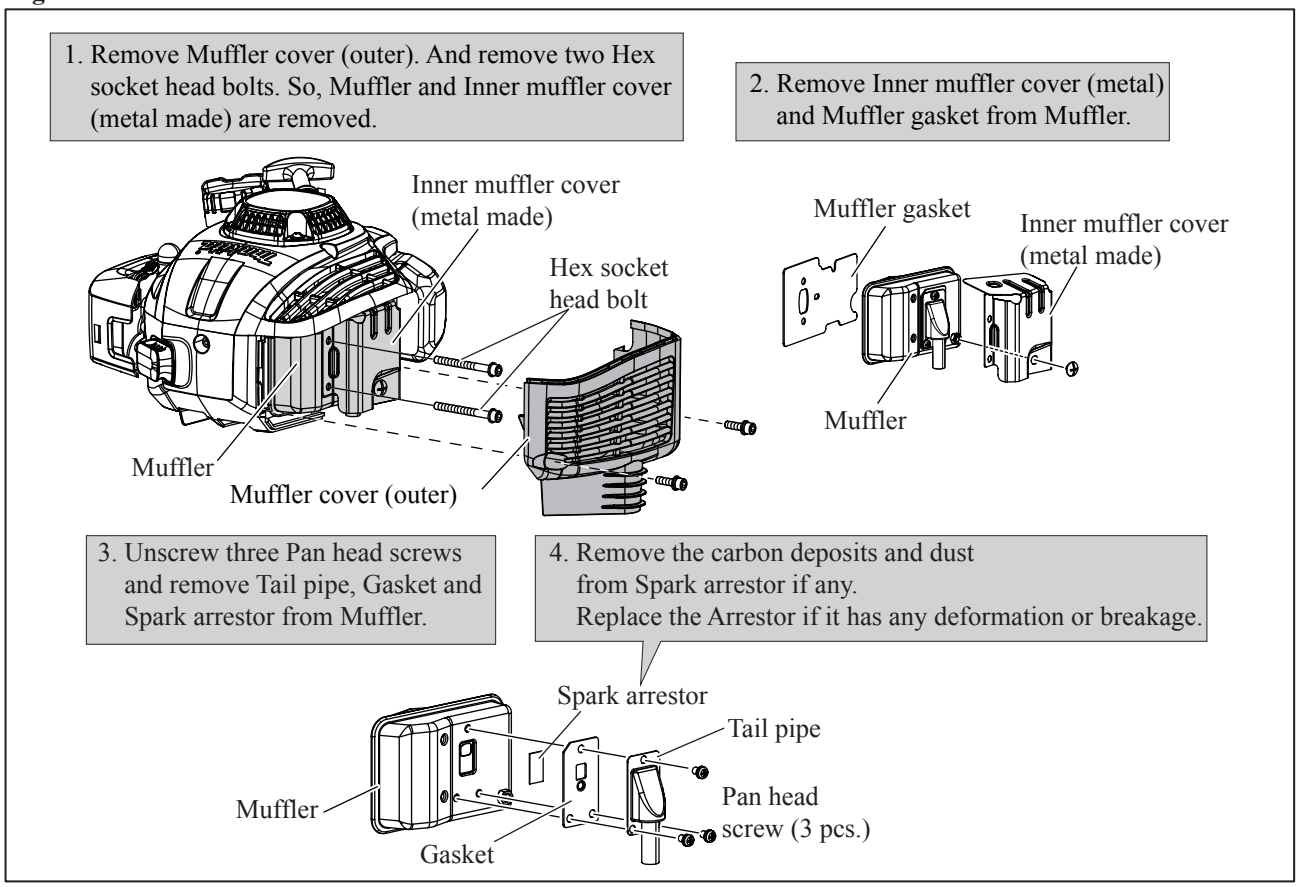
[3] DISASSEMBLY/ASSEMBLY

[3] -11. Spark Arrestor

DISASSEMBLING, CLEANING

(1) Separate Engine from the product (**Fig. 1, 2, 3**).
(2) Disassemble Muffler section (**Fig. 43**).

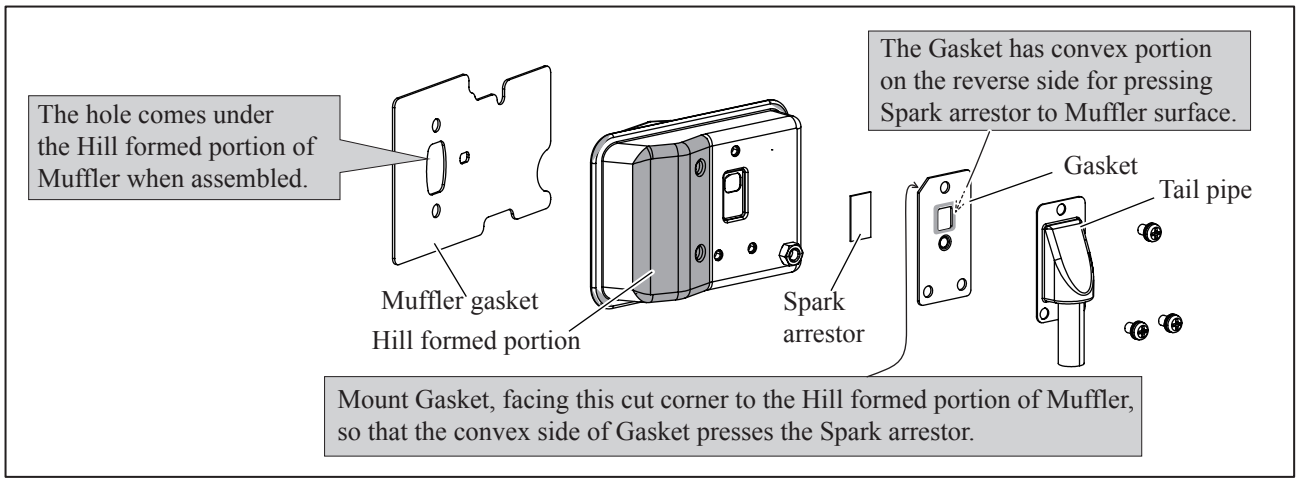
Fig. 43



ASSEMBLING

(1) Set Spark arrestor to Muffler.
(2) Put Gasket on the Spark arrestor, facing its cut corner to the hill formed portion of Muffler (**Fig. 44**).
(3) Assemble Tail pipe through Gasket to Muffler with three Pan head screws (**Fig. 44**).

Fig. 44



(4) Mount Inner muffler cover (**Fig. 43**).
(5) Fix the assembled muffler section to Engine with Hex socket head bolts (**Fig. 43**).
Note: Apply Loctite 242 or ThreeBond 1342 to the thread of Hex socket head bolts.

Repair

[3] DISASSEMBLY/ASSEMBLY

[3] -12. Engine Block

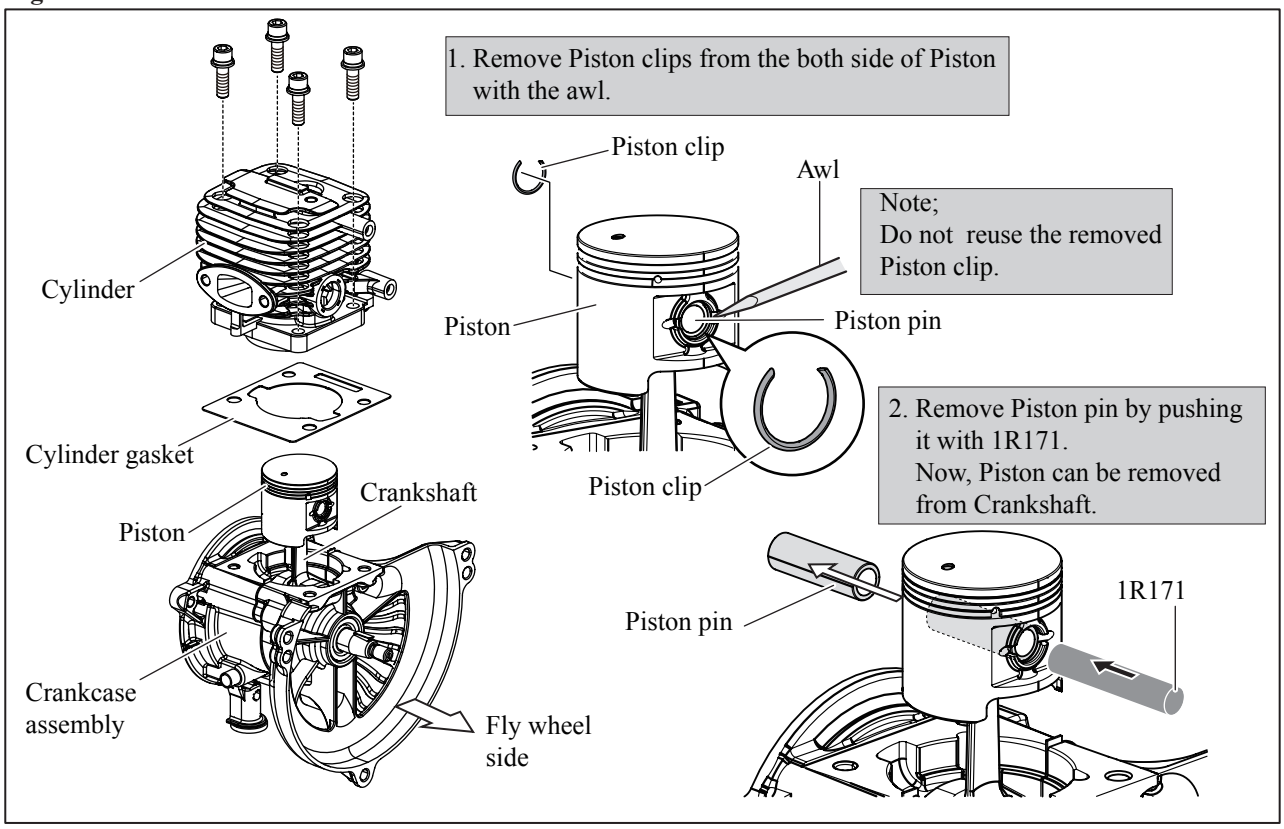
DISASSEMBLING

(1) Disassemble the following parts from Engine.

* Blower housing	* Muffler cover (out side)	* Muffler	* Cylinder cover
* Plug cap	* Spark plug	* Ignition coil	* Carburetor
* Clutch	* Fly wheel		

(2) Remove Fuel tank while paying attention not to lose Spacer which is fixed in between the Tank and Engine.
(3) Remove Insulator with Insulator gasket from Cylinder.
(4) Separate Cylinder from Crankcase assembly and remove Piston (**Fig. 45**).

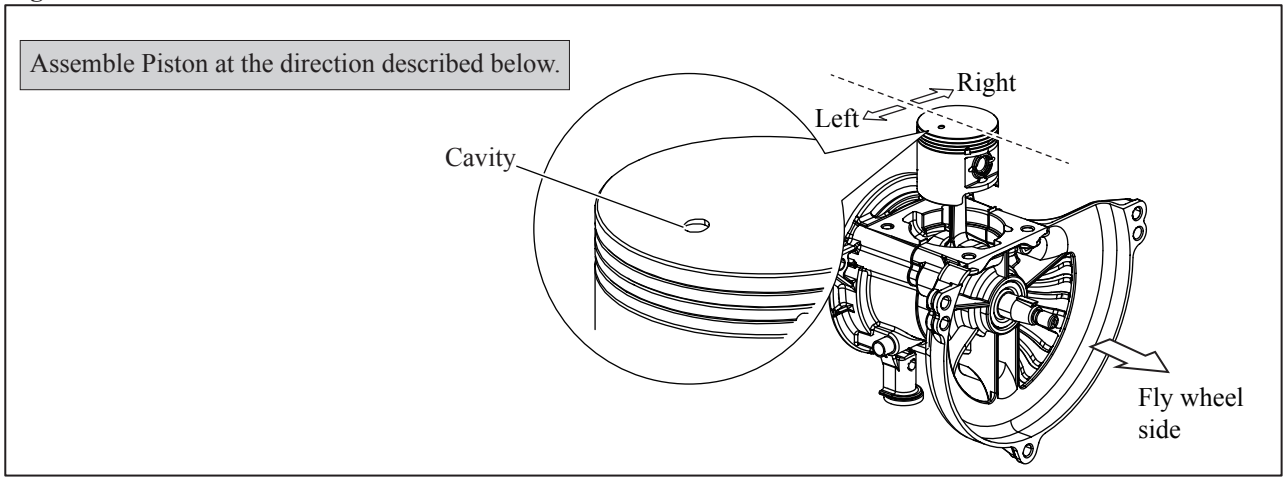
Fig. 45



ASSEMBLING

(1) Before assembling Piston, apply one or two drops 2 stroke engine oil to Needle bearing on Crank shaft.
(2) Assemble Piston to Crank shaft (**Fig. 46**).

Fig. 46



► Repair

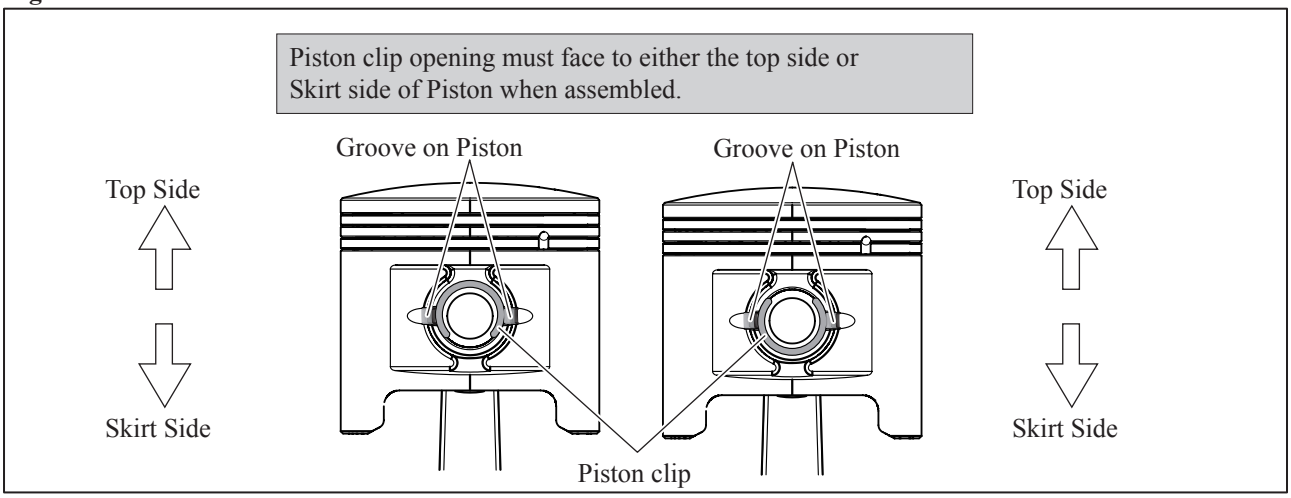
[3] DISASSEMBLY/ASSEMBLY

[3] -12. Engine Block

ASSEMBLING

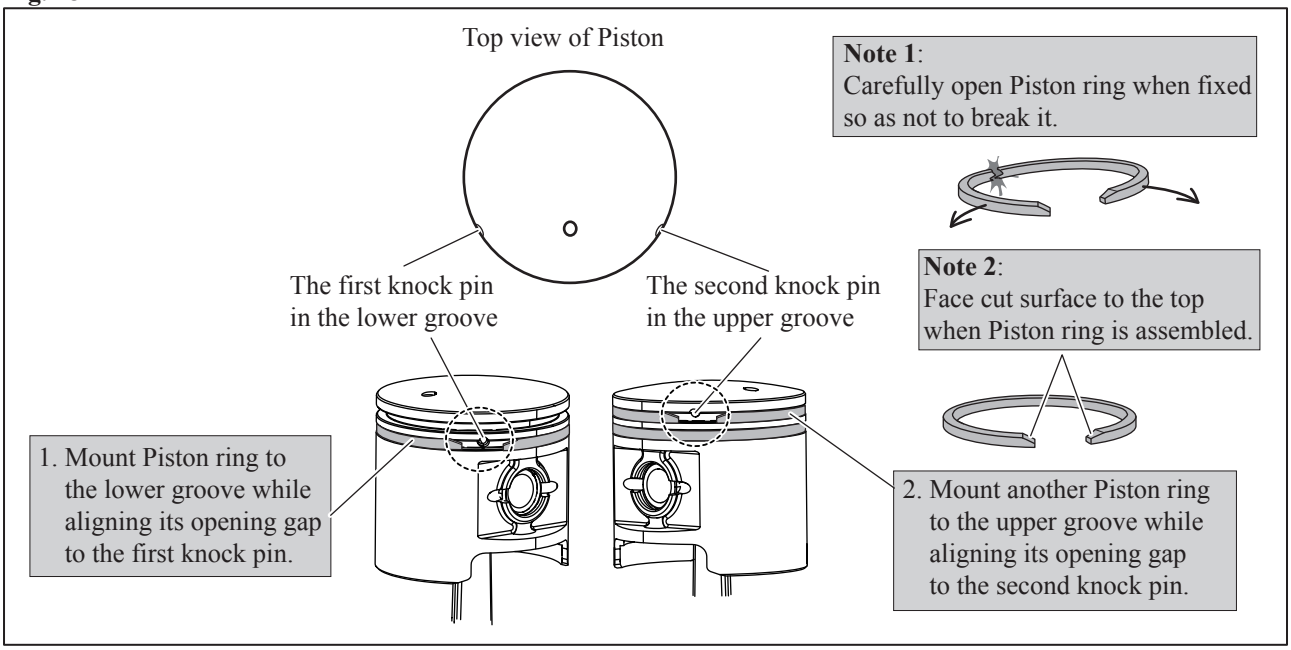
(3) Assemble the new Piston clip with Awl (**Fig. 47**).

Fig. 47



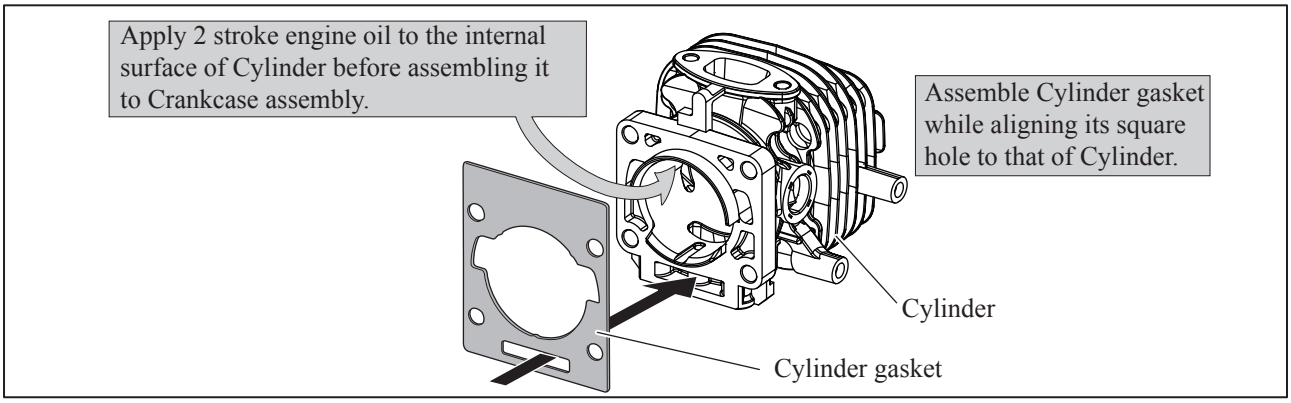
(4) Assemble Piston rings (**Fig. 48**).

Fig. 48



(5) Assemble Cylinder gasket to Cylinder (**Fig. 49**).

Fig. 49



Repair

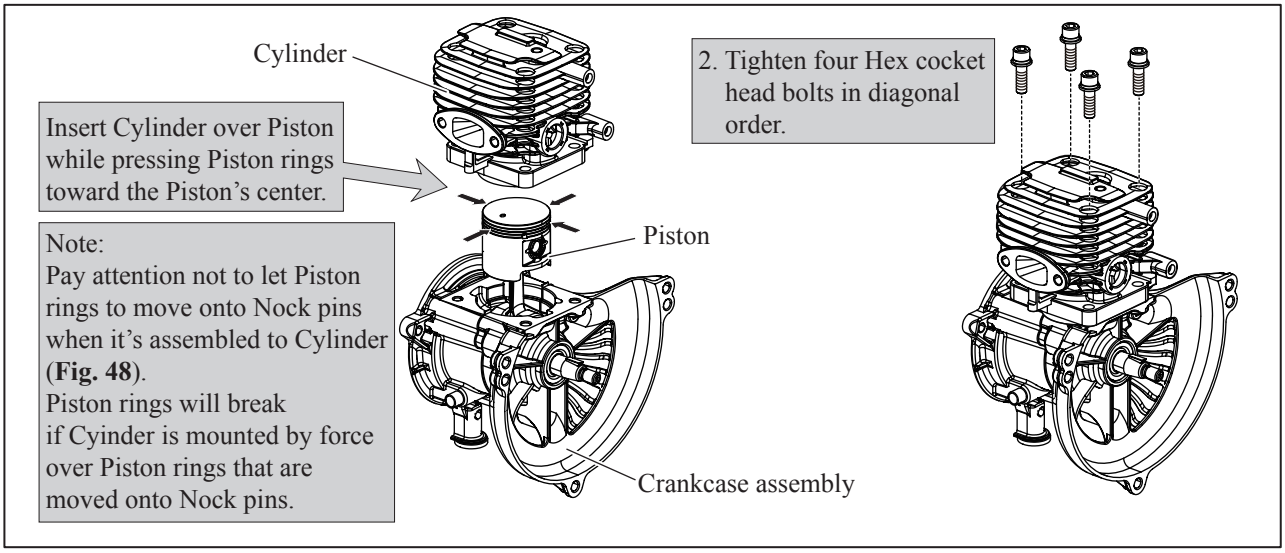
[3] DISASSEMBLY/ASSEMBLY

[3] -12. Engine Block

ASSEMBLIG

(6) Mount Cylinder to Crankcase assembly (**Fig. 50**).

Fig. 50



(7) Assemble Insulator to Cylinder.
Note; Apply ThreeBond 1342 or Locktite 242 to the thread of Hex socket head bolt.

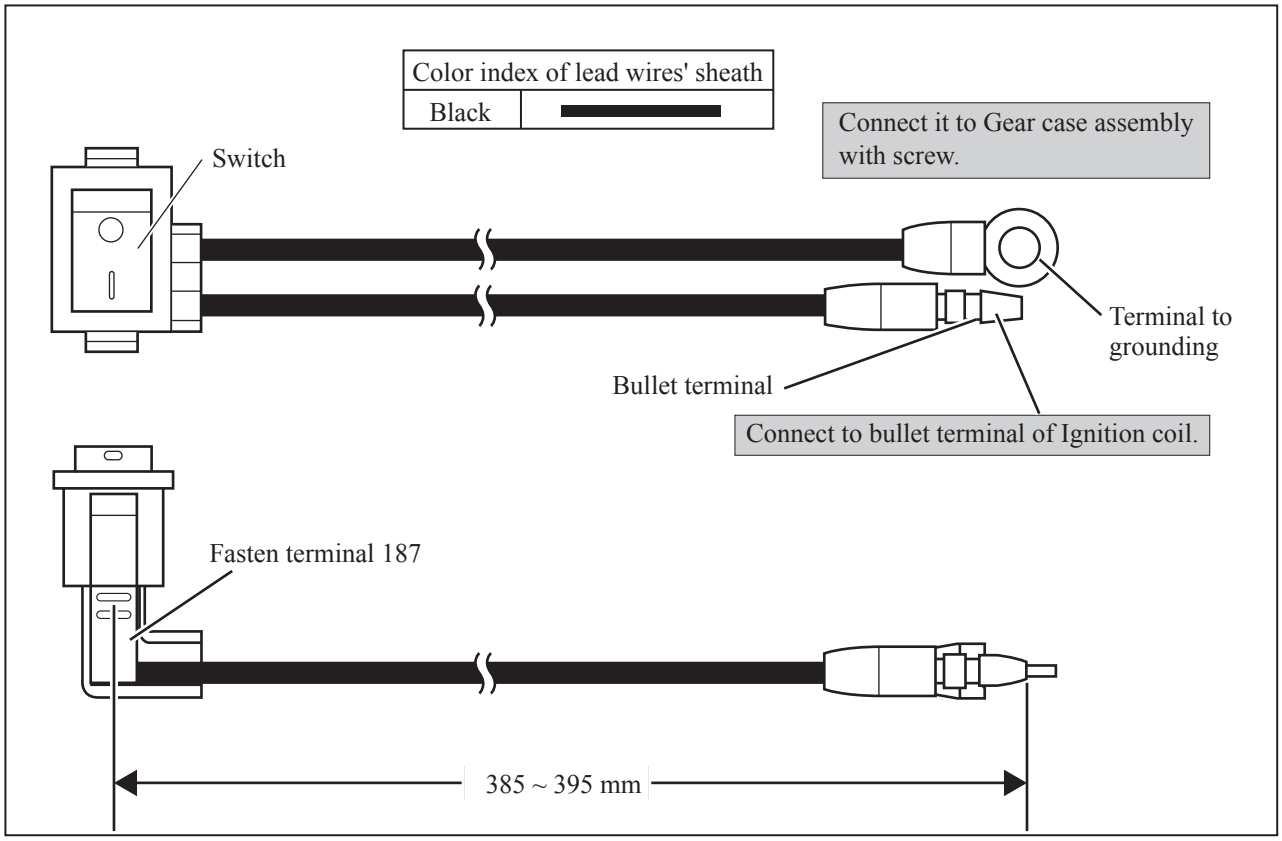
(8) Assemble Fuel tank.
Note: * Do not forget to mount Spacer between Fuel tank and Clutch case assembly.
* Apply ThreeBond 1342 or Loctite 242 to the thread of Hex socket head bolt.

[3] -13.Fastening Torque

Part description			Bolt and Screw	Fastening Torque (N. m)
Crankcase 1	⇔	Crankcase 2	M5x18 Hex Socket Head Bolt	8
Cylinder	⇔	Crankcase	M5x18 Hex Socket Head Bolt	8
Fly wheel	⇔	Crankshaft 1	M6 Nut	12
Coil	⇔	Cylinder	M4x20 Hex Socket Head Bolt	4
Muffler	⇔	Cylinder	M5x50 Hex Socket Head Bolt	8
Muffler cover	⇔	Muffler	M5x5 Screw	4
Clutch	⇔	Crankshaft 2	M8 Screw (Left Hand Thread)	12
Recoil starter	⇔	Blower housing	4.5x14 Tapping Screw	2.5
Plug	⇔	Clynder	M10	10
Spur gear 9	⇔	Clutch drum	M8 Screw (Left Hand Thread)	8
Grease nipple	⇔	Gear case	M6	4
Gear case cover	⇔	Gear case	M4x16 Hex Socket Head Bolt	4
Blade guard	⇔	Guide bar	M5x12 Binding Head Screw	3.5
Plate	⇔	Guide bar	M5x14 Screw	3.5

Circuit diagram

Fig. D-1



Wiring diagram

Fig. D-2