

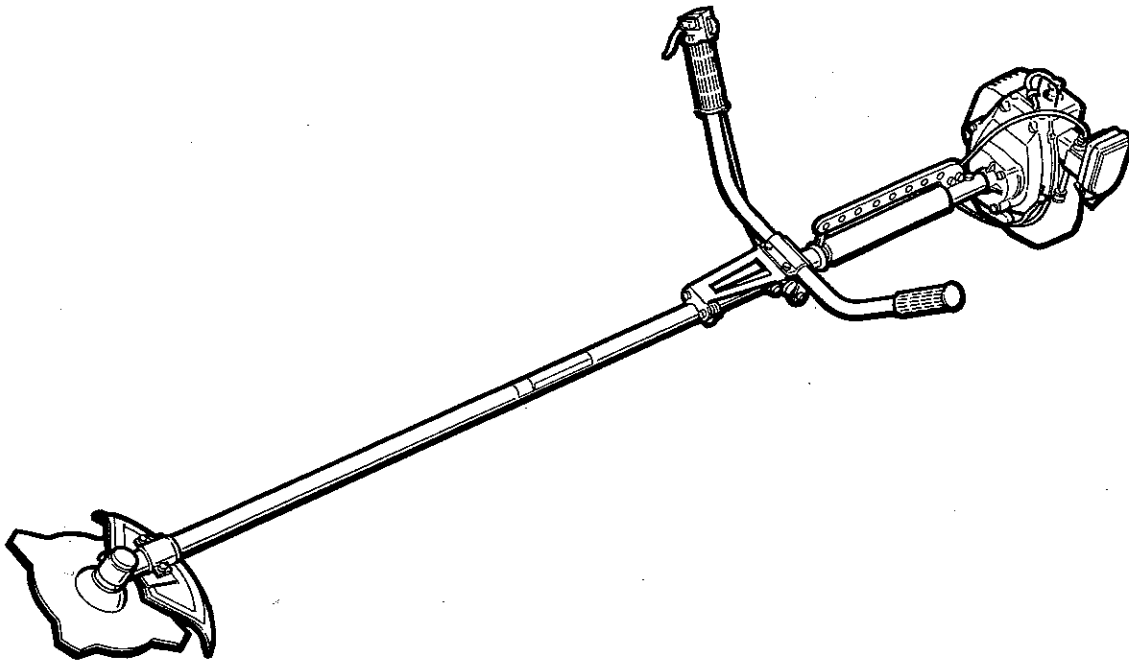


**MARUYAMA**

# **BRUSH CUTTER**

**MODEL BC402  
BC480**

**INSTRUCTION MANUAL**



**MARUYAMA MFG. CO., INC.**

## IMPORTANT SAFETY INSTRUCTIONS

### Safe Operation Practices for Brush Cutter

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#### TRAINING

1. Read the Operating and Service Instruction Manual carefully. Be thoroughly familiar with the controls and proper use of the equipment.
2. Never allow children to operate trimmer.
3. Keep area of operation clear of all persons, particularly small children and pets.
4. Regard your unit as a piece of power equipment and teach this regard to all who operate the equipment.

#### PREPARATION

1. Thoroughly inspect the area where trimmer is to be used, and remove all stones, sticks, wire, bones and other foreign objects which might be picked up and thrown.
2. Do Not operate trimmer when barefoot or wearing open sandals. Always wear substantial foot wear, ear guards, safety glasses, and pants or slacks that cover your legs when operating trimmer.
3. Check the fuel before starting the engine. Do Not fill the fuel tank indoors, when the engine is running, while smoking, or while the engine is still hot. Replace fuel cap securely and wipe up spilled fuel. Dispose of gas saturated rags properly, in a well ventilated area to avoid possibility of spontaneous combustion. Never use fuel as a cleaner.
4. Do Not use trimmer unless line guard is properly in place.
5. Use only in daylight or in good artificial light.
6. Never operate equipment in wet grass. Always be sure of your footing: keep a firm hold on the handle and walk, never run.
7. Do Not attempt to fill fuel tank from fuel container unless the container spout or funnel fits INSIDE the fuel tank filler neck. The use of too large a spout or funnel, or no funnel, may result in spilled fuel, creating highly flammable vapors. This could result in fire and/or explosion, causing severe bodily injury.

#### OPERATION

1. Start the engine carefully. Keep hands and feet well away from cutting line.

2. Do Not change engine governor setting or overspeed engine.
3. Never direct discharge of any material toward bystanders, nor allow anyone near machine while it is in operation.
4. After striking a foreign object, stop the engine and inspect trimmer for damage; repair damage before starting engine.
5. If trimmer should start to vibrate abnormally, stop the engine and check for the cause. Vibration is generally a warning of trouble.
6. Stop the engine whenever you leave the trimmer, and when making repairs or inspections.
7. When repairing or inspecting, make certain all moving parts have stopped. Disconnect spark plug wire and keep wire away from plug to prevent accidental starting.
8. Do Not run engine indoors.
9. Shut engine off and wait until line comes to a complete stop before removing grass that may clog guard.
10. Watch out for traffic when working near roadways.
11. Stay alert for uneven sidewalks holes in terrain or other hidden hazards when operating.

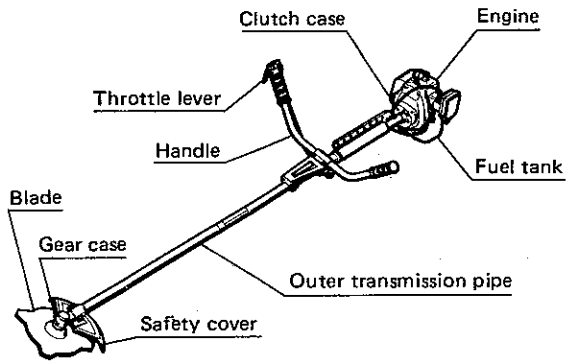
#### MAINTENANCE AND STORAGE

1. Keep all nuts, bolts and screws tight to be sure equipment is in safe working condition.
2. Never store trimmer with fuel in the tank in a building where fumes may reach an open flame or spark. Be sure engine has cooled before storing in any enclosure.
3. To reduce fire hazard, keep engine free of grass, leaves or excessive grease.
4. After operating engine, never touch exhaust muffler until it has cooled completely.
5. Keep trimmer in good operating condition and keep safety devices in place.

## 1. FEATURES:

1. The repulser, a simple device to prevent the cut material from becoming entangled in the gear case, assures the operator of safe and uninterrupted operation.
2. The standard safety blades cut so cleanly that the cut material is not scattered.
3. Our direct coupling system results in a minimum loss of power.
4. In an emergency, the machine is detached from the operator's body by stripping the red lever off.
5. The safety cover attached to the blade protects the operator and bystanders from debris.
6. The anti-vibration device ensures an operator of comfortable work.

## MAIN PARTS



## 2. SPECIFICATIONS

MODEL NAME	BC402	BC408
Length (in./cm)	75.2/191	75.2/191
Width (in./cm)	24.8/63	24.8/63
Height (in./cm)	16.5/42	16.5/42
Weight (lbs./Kg)	18.5/8.4	18.5/8.4
Engine type 2-stroke/air cooled	TD40	TD48
Displacement (c.c.)	40.2	48.6
Electronic Ignition	Standard	
Diaphragm Carburetor	Standard	
Fuel Tank Capacity (US.oz./l.)	33.8/1.0	40.6/1.2
Handle Design	Bull horn (Twin-grip)	

## 3. ACCESSORIES

Nylon cutter Ass'y	1
Mowing blade (φ255 × 4)	1
Tool bag	1
Box spanner (13 × 19 × ⊕)	1
Double ended wrench (10 × 13)	1
Spanner (41)	1
Instruction manual	1

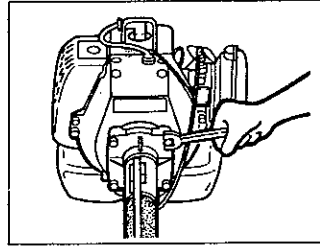
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## 4. HOW TO OPERATE

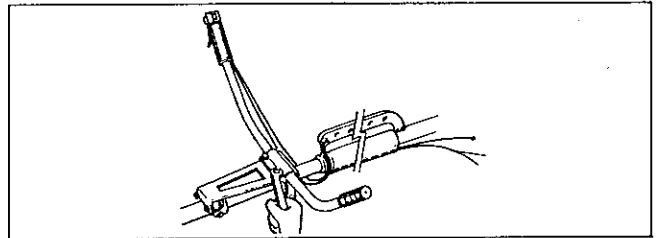
### 4-1 How to Assemble

#### 1) Main Body

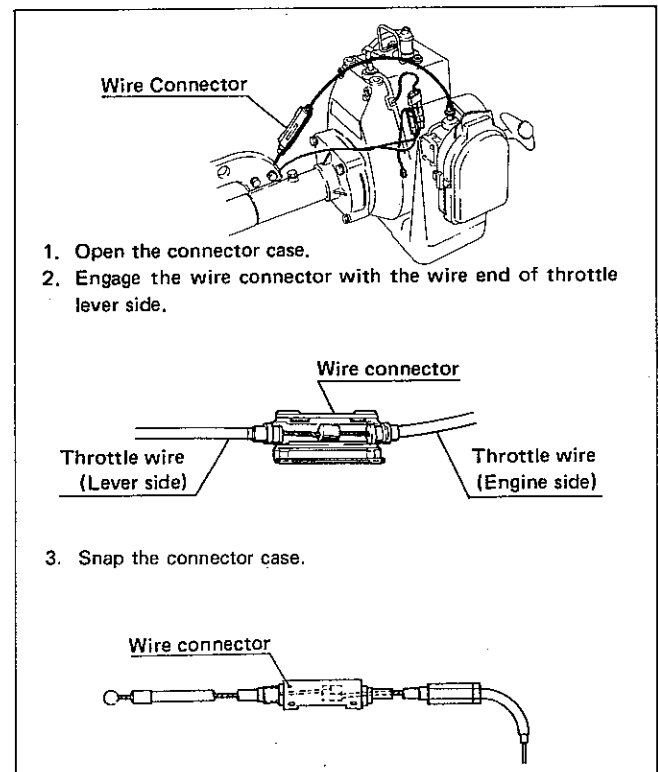
- a) Couple the clutch case with the engine by tightening 4 pcs. of bolts securely.



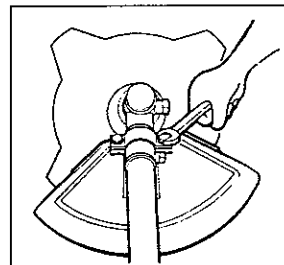
- b) Insert each handle, right (with the throttle lever) and left, into the handle bracket, and tighten securely.



- c) Assemble the throttle wire.

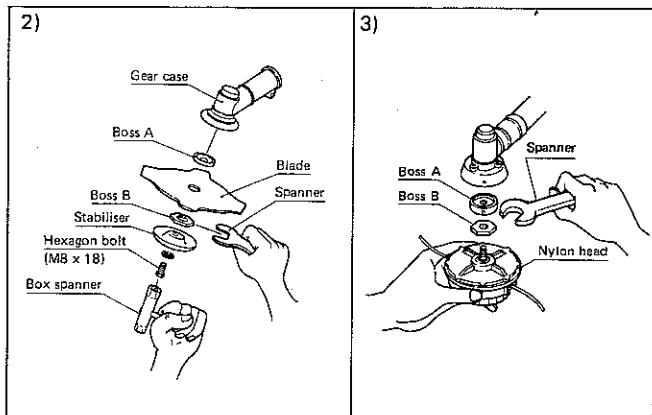


- d) Fit the safety cover to the shaft tightly.

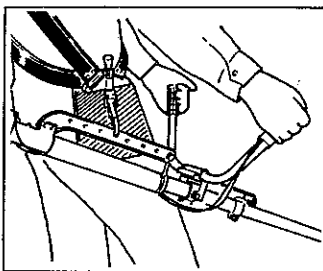


- 2) How to fit up the blade
  - a) Be sure to wear a pair of gloves when fitting the blade.
  - b) Take out the hexagon bolt (counterclockwise), spring washer, plain washer and Boss B, using the box spanner attached.
  - c) Insert the blade between Bosses (A) and (B), ensuring that the spline grooves of the Boss and blade shaft fit each other. Then set the stabilizer if attached and tighten the hexagon bolt securely counterclockwise.
  - d) The blade's surface where a pattern or figure printed should be faced to Boss A.
- 3) How to fit up the nylon head.
 

Now with Boss A and Boss B located on shaft, screw on nylon head assembly. Use spanner as described to finally tighten.



- 4) How to wear the hanging strap
  - a) Apply the hanging strap from your left shoulder to your right waist.
  - b) If there is a waist belt attached, wear the belt securely around your waist.
  - c) The position of hanging strap may affect the ease of operation. For safety and efficiency, adjust the position of hanging strap according to your physique.



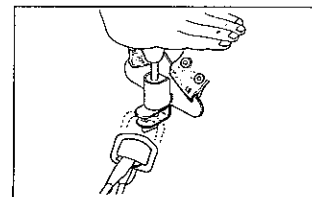
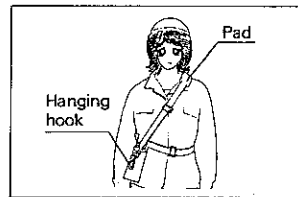
#### 4-2 Preliminaries before operation

- 1) Garments:
  - a) To protect your head, ears and eyes wear a protective caps ear covers and safety glasses which can protect you from branches, pebbles, stones, fallen rocks, noise etc.
  - b) To protect your feet, wear shoes which can protect you from slipping in the field.
  - c) Wear close fitting clothes with no loose sleeves and cuffs.
- 2) Inspection of machine (preparation for starting engine)
  - a) Check that every screw is securely tightened and enough oil and grease is applied.
  - b) Examine the blade for damage or cracking.
  - c) Fit the blade securely, using a spanner.
  - d) Be sure to fit the safety cover.
  - e) Do not run the engine before it is coupled to the main body.
  - f) Always use a sharp blade.
- 3) Other Safety Hints:
  - a) Do not smoke when you add fuel or oil.

- b) Use genuine parts such as blade, plug, etc. If incorrect parts are used they may shorten the life of the machine and cause accidents.
  - c) Do not modify the machine.
- 4) During the job:
    - a) Start the engine in a stable place to prevent it from turning over.
    - b) When you start the engine on the ground, be sure to face the blade upward or not allow the blade to touch the ground. If the blade touches the ground, it could blow up pebbles or sand, or the blade could break — which is very dangerous.
    - c) Watch your step before starting. Look out for by-standers.
    - d) When you move the machine from one working area to another, stop the engine completely.
    - e) In raising the speed of the engine, gradually open the throttle. If opened briskly the machine will be swung in the direction of the blades rotation which may cause an accident.
    - f) Removing the grass with the engine running could suddenly engage the clutch and motor.

#### 4-3 Operation

- 1) Hang the main body onto the hanging strap.
- 2) The length of the hanging strap may affect the ease of operation. Adjust it according to your physique or the job.
- 3) Adjust the speed of the engine with the throttle lever.
- 4) Make sure that the blade will stop when the engine speed is reduced.
- 5) When you push the red knob on the hanging strap, the machine is detached from the strap. In an emergency, push the red knob to prevent danger.

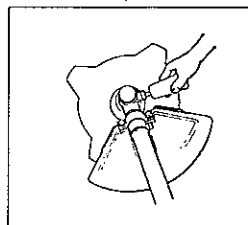


- 6) The technique of operation is to control your direction by your waist, not by your hands. The hands are only holding the handles.
- 7) Do not use the blade roughly to chop down objects as it is very dangerous.
- 8) To cut vines effectively, push the blade into them.
- 9) To cut down a small tree, try one cut with the engine running at high speed.
- 10) The blade must be run at a normal speed. Too much low speed or excessive loading in cutting the tree by force will stop the blade frequently. Such frequent stoppage of the blade will cause the clutch to overheat.

**NOTE:** Non-fog goggles are recommended for use at all times during cutter operation.

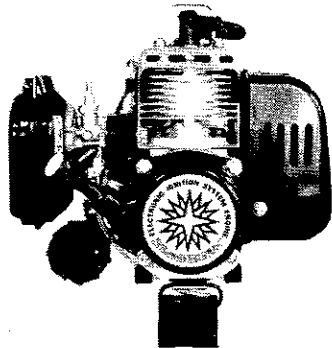
#### 5. MAINTENANCE AND CHECK

- 1) Daily care
  - a) Examine the blade for cracks, flaws, eccentricity, etc.
  - b) Sharpen the blade before operation.
  - c) Examine every bolt, screw and nut to ensure they are tightened securely;



- 2) Monthly care
  - a) Wash and clean the air cleaner
  - b) Grease the gear case every 50 hours of operation. Use a lithium base grease.

# ENGINE

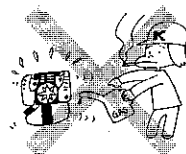
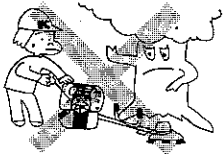


**TD 40  
TD 48**

The TD40/TD48 is fitted with a transistorized (non-contact breaker) ignition control system which eliminates any adjustment of ignition timing.

## 1. FOR MAXIMUM SAFETY, OBSERVE THE FOLLOWING PRECAUTIONS:

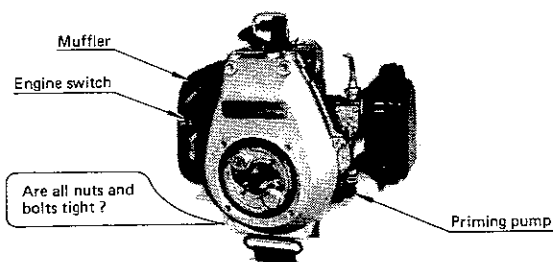
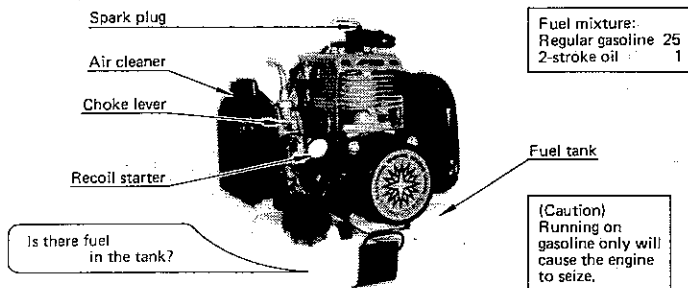
- When using the engine with a cutter always make sure no-one is near the blades before starting up. Take care that the blades do not come in contact with the ground, trees or any other such obstruction.
- To eliminate any risk of fire always stop the engine before putting fuel in the fuel-tank, and make sure there are no naked flames, such as lighted cigarettes, nearby. Also check for fuel leaks before beginning operations.



- To avoid getting an electric shock do not touch the high-tension cable or the spark plug cap while the engine is running.
- To avoid exhaust gas poisoning do not use the engine indoors or in badly ventilated places, such as pits.

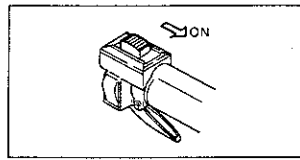


## 2. PRE-OPERATION CHECK:

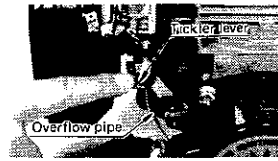


## STARTING:

- Stop switch ON.



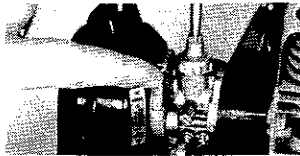
- Prime the Carburetor.  
After the throttle lever is idle positioned with the tickler lever of the carburetor pushed all the way down, pump the priming pump slowly, until fuel comes out of the overflow pipe. When the overflow becomes, stop pumping and release the tickler lever immediately.



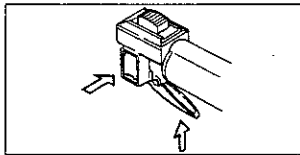
- [CAUTION]  
When operate the tickler lever push half the way down, fuel flows into the engine and causes starting difficulty.  
**MAKE SURE TO PUSH THE TICKLER LEVER ALL THE WAY DOWN.**



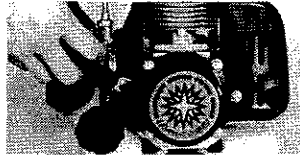
- Use the lever to fully close the choke (In very hot weather or when the engine is warm use half-choke or none at all.)



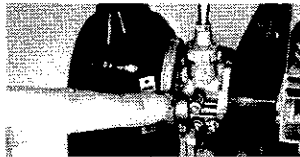
- Open throttle halfway and lock it by the button.



- Give the starter a rapid, vigorous pull until the engine fires.  
[CAUTION]  
Do not pull the starter rope all the way out and slowly let the rope rewinded.

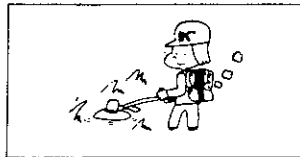


- After the engine fires, open the choke fully. Then give the starter a rapid pull again with choke opened.  
After the engine has started with the choke fully closed, gradually open the choke, to full-open position depending on how the engine is running.



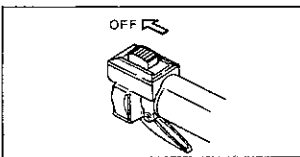
- Set the throttle lever to the position for the desired speed.

- Safe operation.



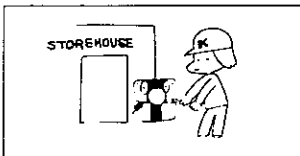
## STOPPING:

- Put the throttle lever to the slow position.



- Stop switch OFF.

- When the engine is not to be used for a while, drain the fuel from the fuel tank. Then start the engine and let it run until all the fuel in the carburetor is used up which will stop the engine.



**[CAUTION]**

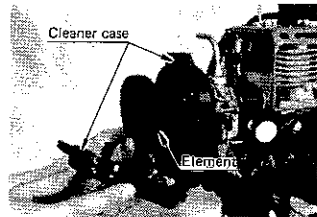
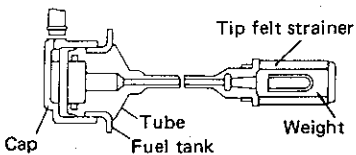
- (1) When the engine does not start successfully, do not try to pull the starter so many times with the choke closed as this will cause flooding the fuel into cylinder and make starting more difficult. So, fully open the choke and start the engine.
- (2) When the engine is still warm with fuel in it, push the tickler lever until the fuel run out of the over flow pipe. In this case, it is not necessary to work the prime pump.
- (3) Whenever possible, try to top up the fuel tank before it runs dry. This will make it easy to restart the engine.
- (4) After starting, operate the throttle lever to vary the engine speed up and down a few times. This is to draw out the remaining air in the carburetor. If air remains in the carburetor, it may cause the engine speed to drop or the engine to stop.
- (5) Do not try to increase the speed immediately after the engine starts. Let it warm up for about 3 minutes.

**3. ADJUSTMENT OF CARBURETOR:**

- If the carburetor needs to be adjusted, please consult your dealer.

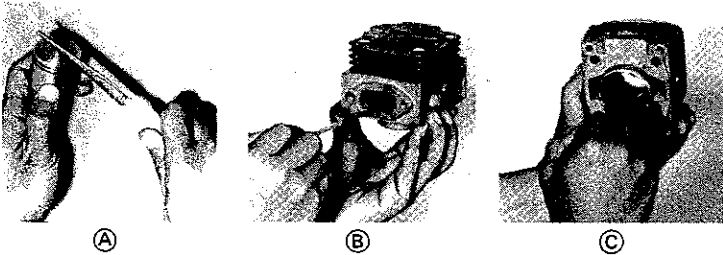
**4. MAINTENANCE AT EVERY 20-HOUR OPERATION:**

- Fuel Strainer Washing  
Removing:  
(1) Remove cap.  
(2) Remove the tube from the tank.  
(3) Remove the weight with the felt from the tube.  
Washing:  
Wash the felt in clean gasoline, and make sure that there is no dirt sticking.
- Clean air cleaner:  
Wash the element in kerosene, soak it in the fuel mixture (gasoline 25 : 1 two-stroke oil) and wring it out.  
(Keep flame away!)
- \* In very dusty locations clean every day or every ten hours of operation.
- \* To open the air cleaner cap, pull the portion marked "PULL" toward you while pressing the hook section on the both sides of the cap.  
(No tool is required)



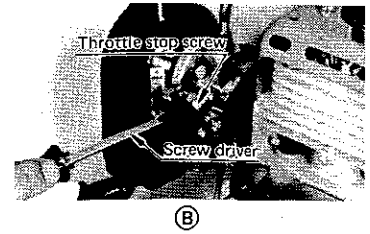
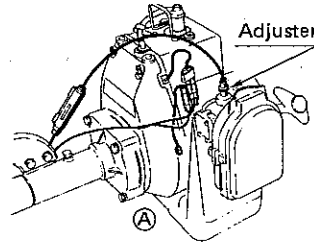
**5. MAINTENANCE AT EVERY 50-HOUR OPERATION:**

- Remove Carbon
  - Ⓐ Remove carbon from top of piston.
  - Ⓑ Remove carbon from cylinder exhaust ports.
  - Ⓒ Remove carbon from combustion chamber.  
Remove carbon from inside muffler tail pipe.
- Retighten nuts and bolts.
- Clean and adjust spark-plug.  
Gap: 0.6 to 0.7mm  
Plug: NGK BM6A



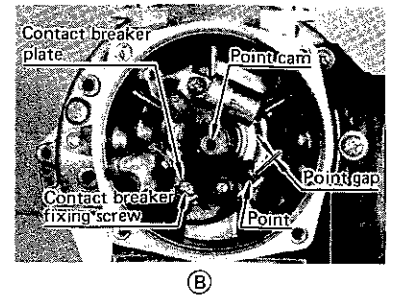
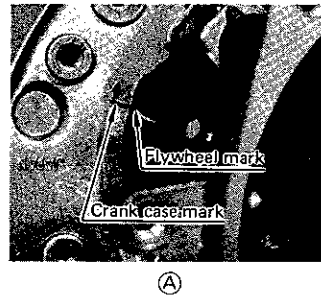
**6. ADJUSTMENTS:**

- Throttle cable
    - Ⓐ The speed can be adjusted by the adjuster nut on the top of the carburetor.
  - Idling
    - Ⓑ After starting the engine, adjust the idling by means of the throttle stop screw.
- [CAUTION]**  
Normal idling should be 2800 rpm.



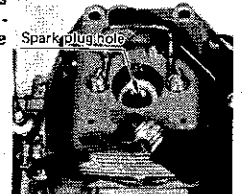
**7. IGNITION TIMING (Only contact breaker system):**

- Ⓐ Join the crank case mark with the flywheel mark.
- Ⓑ Adjust the contact breaker fixing screw until the contact breaker plate moves. After adjust the point gap until the point begins to break up, tighten the screw.  
(Point gap : 0.35mm, Ignition timing : 25° B.T.D.C.)



**8. LONG-TIME LAYING-UP:**

- Remove all fuel from fuel tank and carburetor. (After draining fuel from fuel tank run engine until all remaining fuel in the carburetor is used up which will stop the engine)
- Remove the spark plug, pour in about 5cc of new engine oil through the plug hole, pull the recoil starter several times and replace the spark plug.
- Pull the recoil starter until you feel the piston is on its compression stroke, that is, with both intake and exhaust ports/closed, and leave it like that.
- Store in a clean, dry place.
- Wipe the surface with an oily cloth.



**9. SPECIFICATIONS:**

	TD40	TD48
Type	Air cooled, 2-stroke single cylinder engine	
Displacement	40.2cc	48.6cc
Rotating direction	Counter-clockwise facing power take-off side (clutch side)	
Dry weight	4.2 Kg	

The above items are subject to change without notice.



**MARUYAMA MFG. CO., INC.**

4-15, UCHI-KANDA, 3-CHOME, CHIYODA-KU, TOKYO, 101, JAPAN

PHONE: (3252) 2271 to 2289 (19 LINES)

CABLE ADDRESS: "MARUYAMAPCA TOKYO"

TELEX: 2222161 MMCI J

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