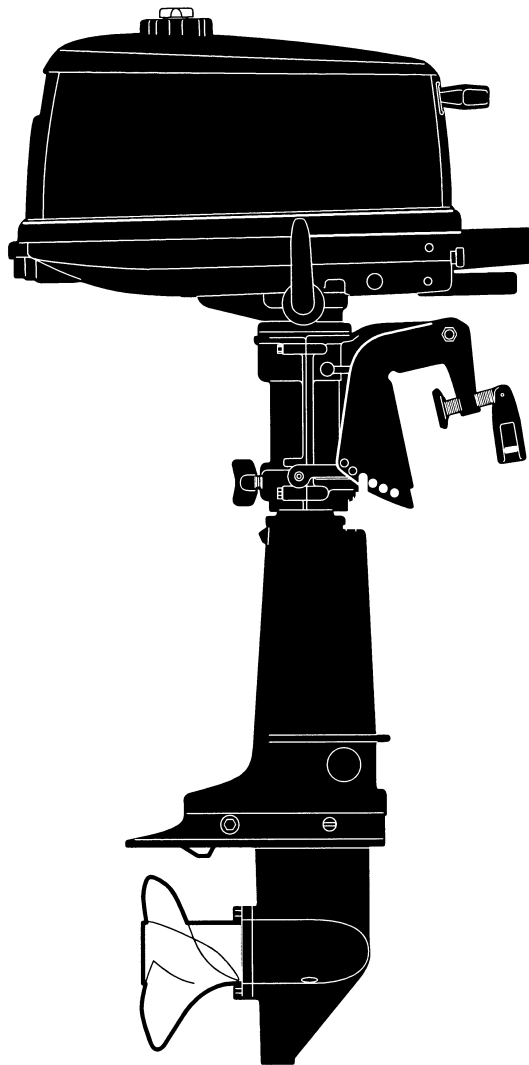


OWNER'S MANUAL

 **TOHATSU**



**M 4
5**

No.003-11068-4

YOUR TOHATSU OUTBOARD MOTOR

OWNER REGISTRATION AND IDENTIFICATION

Upon purchasing this product, be sure your dealer* fills out the WARRANTY CARD correctly, completely and mails it to the distributor. This card identifies you as the legal owner of the product and serves as your warranty registration. If this procedure is not followed, your outboard motor will not be covered by warranty.

* : In this manual, “dealer” always means an authorized TOHATSU dealer.

PRE-DELIVERY CHECK

Be sure that the product has been checked by the dealer before delivery.

Limited Warranty

This TOHATSU product is fully guaranteed against defective materials and workmanship for the period from the date of purchase, provided that the purchase has been registered in accordance with the above.

The limited warranty will not apply to the normal wear and tear of parts, adjustments, tune-ups, or to any damage caused by, but not limited to:

- 1) Use or operation NOT conforming to the instructions described in this owner's manual.
- 2) Participation in or preparation for racing or other competitive activities.
- 3) Water entering the engine.
- 4) Damage from accidents, collisions, contact with foreign materials, or submersion.
- 5) Growth of marine organisms on motor surfaces.
- 6) Any other careless use or operation.
- 7) Normal deterioration.

The limited warranty does not cover maintenance items. The following items are a few examples not covered by the limited warranty:

Spark plugs, Anode, Trim-tab, Propeller, Fuel filter, Oil filter, Carbon brush, Starter rope, Shear-pin, Split-pin, Bolt-nut-washer, Wire cable, Rubber goods: water pump impeller, oil seal, “O”-ring, fuel hose, primer bulb, vinyl tube etc.

The limited warranty will become void if the product has been altered, modified, or repaired by anyone other than a company or service firm authorized by TOHATSU.

The limited warranty will cover only your TOHATSU product and will not cover the boat the product is mounted on, the trailer, equipment, or accessories associated with the product.

Serial Number

In the space below, please record the engine's serial number (indicated both on the lower motor cover and on the cylinder block). This number will come in handy in the event of theft or to help in quickly identifying the product type.

Serial Number : _____

To You, Our Customer:

Thank you for selecting a TOHATSU product. You are now the proud owner of an excellent outboard engine that will service you for many years to come.

We would like to point out that carefree usage can only be assured on condition that this manual is read through in its entirety and the maintenance routines described later in this manual are followed carefully. Should difficulty arise with the engine, please follow the troubleshooting procedures listed at the end of this manual. If the problem persists, contact an authorized TOHATSU service shop or your dealer.

We hope you will get much enjoyment from this product and wish you good luck in your boating adventures.

TOHATSU CORPORATION

NOTICE: DANGER/WARNING/CAUTION/Note

Before operating your outboard motor, be sure to thoroughly read and understand this Owner's Manual and follow all of the instructions shown. Of particular importance is information preceded by the words "DANGER," "WARNING," "CAUTION," and "Note." Always pay special attention to such information to ensure safe and trouble-free operation at all times.

DANGER

Failure to observe will result in severe personal injury or death.

WARNING

Failure to observe could result in severe personal injury or death.

CAUTION

Failure to observe could result in personal injury, or product or property damage.

Note:

This instruction provides special information to facilitate the use or maintenance of the outboard or to clarify important points.

EMERGENCY STOP SWITCH

The Emergency stop switch will stall the engine when the stop switch tether is pulled out. This line can be attached to the body of the operator, effectively preventing injuries from the propeller in case he/she falls overboard.

We highly recommend use of the Emergency stop switch line. However, we would also like to point out the drawbacks of the switch. Accidental activation of the switch (such as the line being pulled out in heavy seas) could cause passengers to lose their balance and even fall overboard, or it could result in loss of power in heavy seas, strong currents, or high winds. Loss of control while mooring is another potential hazard.

To prevent such hazardous situations, the 500 mm (20 inch.) line is coiled and can extended to a full 1,300 mm (51 inch.).

WARNINGS

As the operator/driver of the boat, you are responsible for the safety of those aboard and those in other crafts around yours, and for following local boating regulations. Therefore you should possess thorough knowledge of correct operation of the boat, engine, and accessories. To learn about the correct operation and maintenance of the engine, please read through this manual carefully.

It is very difficult for a person standing or floating in the water to take evasive action should he or she see a power boat heading in his/her direction, even at a slow speed. Therefore, when your boat is in the immediate vicinity of people in the water, the engine should be shifted to neutral and shut off.

SERIOUS INJURY IS LIKELY IF A PERSON IN THE WATER MAKES CONTACT WITH A MOVING BOAT, GEAR HOUSING, PROPELLER, OR ANY SOLID DEVICE RIGIDLY ATTACHED TO A BOAT OR GEAR HOUSING.

It is the operator's responsibility to perform all safety checks and to ensure that all lubrication and maintenance instructions are complied with for safe operation. It is also the operator's responsibility to return the unit to the local dealer for periodic inspection.

Correct periodic maintenance and proper care of this outboard engine will lessen the chance of problems and keep overall operating expenses at a minimum.

SERVICING, REPLACEMENT PARTS & LUBRICANTS

Only let an authorized TOHATSU service shop perform service or maintenance on this product. Be sure to use genuine parts, genuine lubricants, or recommended lubricants.

MAINTENANCE

As the owner of this outboard engine, you must be acquainted with correct maintenance procedures. Please comply with all instructions concerning lubrication and maintenance, and you should return the engine to the dealer, or service shop, for periodic inspection at the prescribed intervals.

Troublefree operation cannot be expected unless the engine receives adequate periodic maintenance. If proper maintenance is performed, it is not likely that a costly repair will ever be required.

USE OF SERVICE SHOP

We recommend that you use only authorized dealers to carry out all of your maintenance and repair needs.

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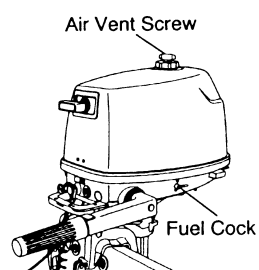
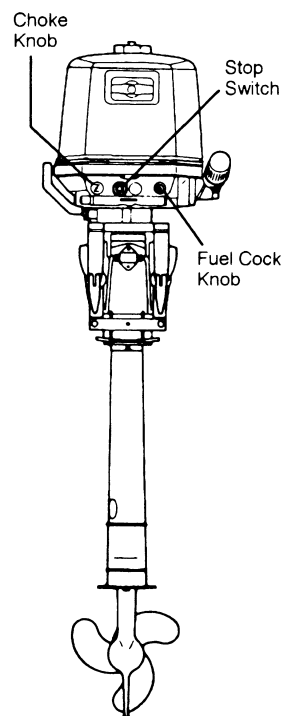
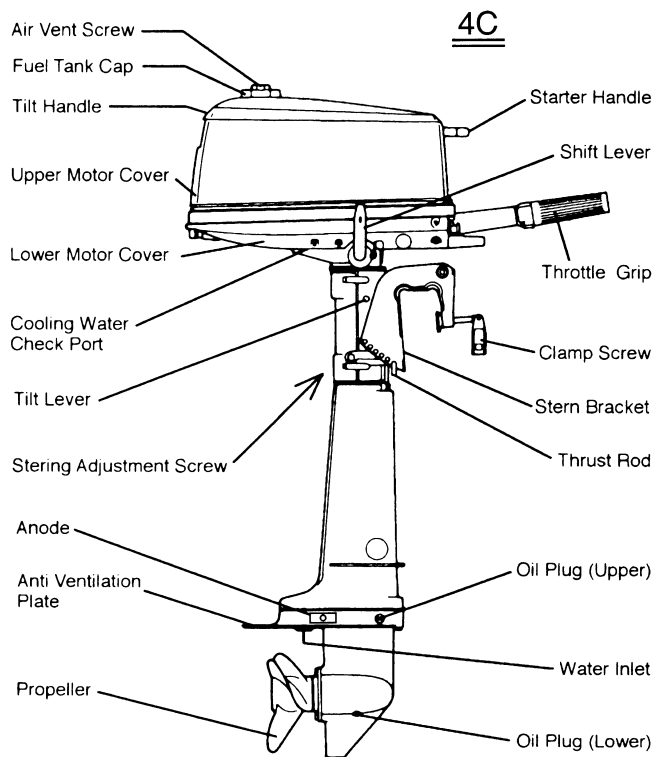
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1. SPECIFICATIONS

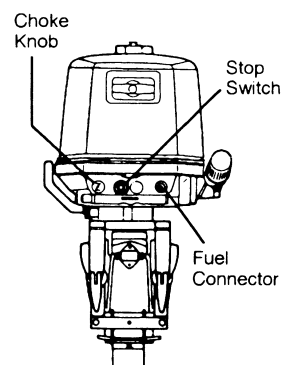
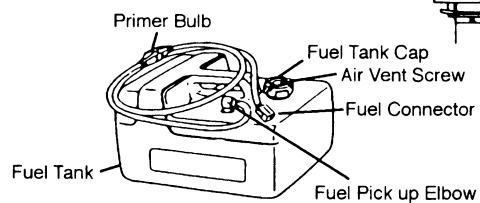
Item \ MODEL		4C	5B-D
Overall Length	mm (in)	700 (27.6)	
Overall Width	mm (in)	310 (12.2)	
Overall Height	S mm (in)	1,007 (39.6)	
	L mm (in)	1,134 (44.6)	
	UL mm (in)	—	1,261 (49.6)
Transom Height	S•L•UL mm (in)	435 (17.1) • 562 (22.1) • 689 (27.1)	
Mass	S kg (lb)	20.0 (44)	
	L kg (lb)	20.5 (45)	
	UL kg (lb)	—	21.0 (46)
Output	kW (HP)	2.9 (4)	3.7 (5)
Max. Operating Range	rpm	4,500—5,500	
Idle Speed in Forward Gear	rpm	850	
Idle Speed in Neutral Gear	rpm	1,000	
Engine Type		2-Stroke	
Number of Cylinder		1	
Bore × Stroke	mm (in)	55 × 43 (2.17 × 1.69)	
Piston Displacement	mL (Cu in)	102 (6.22)	
Exhaust System		Through hub exhaust	
Cooling System		Forced water cooling	
Lubrication System		Engine oil mixed gasoline	
Fuel		Unleaded regular gasoline pump posted 87 Octane (research octane rating of 91)	
Engine Oil		Genuine or recommended 2-stroke engine oil	
Engine Oil Mixing Ratio		Fuel 50 : Engine oil 1	
Starting System		Manual starter	
Ignition System		Flywheel Magneto C.D. ignition	
Spark Plug		NGK BPR7HS-10	
Trim Position		6	
Gear Oil	mL (fl.oz.)	Genuine Gear Oil or API GL5, SAE #80 to #90, Approx. 195 (6.6)	
Fuel Tank Capacity	L (US gal)	2.5 (0.66)	* 2.5 (0.66) 12 (3.17)
Gear Reduction Ratio		2.15 (13:28)	

* In case of dual fuel tank system. Use together with 12L separate tank.

2. NAME OF PARTS



5B-D
Dual fuel tank



3. INSTALLATION

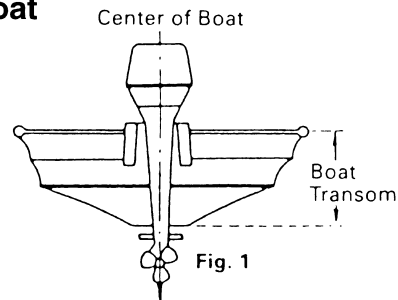
▲ WARNING

Most boats are rated and certified in terms of their maximum horsepower, and this is shown on the boat's certification plate. Do not equip your boat with an outboard that exceeds this limit. If in doubt, contact your dealer.

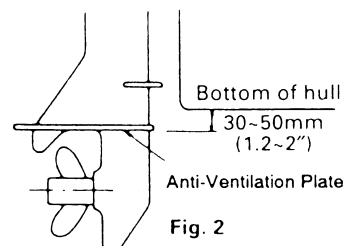
Do not operate the engine unit until it has been securely mounted on the boat in accordance with the instructions below.

3-1. Mounting the engine on boat

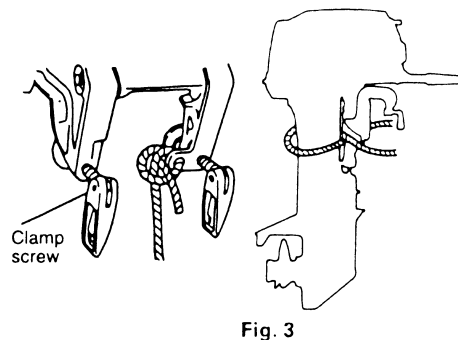
- (1) Position . . . above keel line
● Set engine center of boat.
(Fig. 1)



- (2) Transom matching
Be sure that the anti-ventilation plate of the outboard is below the water surface when running with the throttle wide open.
(Fig. 2)
If the above condition cannot be met due to the shape of the bottom of your boat, please consult the dealer.



- (3) To attach the engine to the boat, tighten the clamp screws by turning their handles.
(Fig. 3)
Secure with a cable, or rope, to prevent loss overboard.



4. PRE-OPERATING PREPARATIONS

4-1. Gasoline and engine oil

DANGER

Gasoline vapors are present, an errant spark could cause an explosion or fire.

- Do not smoke near gasoline.
- Do not overfill gasoline tank.
If any gasoline is spilt, wipe it up immediately.
- Stop the engine before filling gasoline tank.

● Required Gasoline types

Unleaded, minimum pump posted 87 octane gasoline is recommended.
(Octane is based on posted rating.)
(91 based on the research octane rating method)

Note:

Use of low-quality gasoline results in a short engine life as well as starting difficulties and other engine problems.

Note:

- (1) Gasoline containing alcohol {methanol (methyl), or ethanol (ethyl)}, acetone or benzene, may cause:
 - Wear and damage to bearings, cylinder, piston, piston rings.
 - Corrosion of metal parts.
 - Deterioration of rubber parts and plastic parts.
 - Starting, idling, and other engine performance problems.
- (2) Do not use gasoline that contains more than 10% ethanol or more than 5% methanol.
- (3) Damages resulting from the use of gasolines that contain alcohol, acetone or benzene are not covered under the limited warranty.

● Engine Oil

Use genuine engine oil or the other recommended one, that is, TCW3. We can not recommend any other two-stroke engine oil.

- Mixing ratio (50:1)
unleaded gasoline 50: GENUINE ENGINE OIL
or
recommended engine oil (TCW3) 1

Note:

Do not mix different brands of oil. The mixing of different brands, or different kinds even if the same brand, may cause gelling, resulting in blockage of filter screens. This may lead to serious engine damage due to the lack of lubrication.

4-2. Break-in

- Break-in period 10 hours

Note:

You must break-in the engine by operating it for 10 hours according to the chart below.

Time	0	10 min.	2 hrs.	3 hrs.	10 hrs.
Method of operation	Idling or trolling	Throttle open less than 1/2 of the way (about 3,000 rpm)	Throttle open less than 3/4 of the way (about 4,000 rpm)	Throttle open 3/4 of the way (about 4,000 rpm)	Normal operating
Conditions	Cruising at no more than minimum speed		A full-throttle run is allowed for 1 min. every 10 min.	A full-throttle run is allowed for 2 min. every 10 min.	

● Fuel mix ratio for break-in

Gasoline 25: Genuine Engine Oil 1

- 25 : 1 when using genuine engine oil or the recommended one (TCW3)

5. ENGINE OPERATION

5-1. Starting

⚠ WARNING

Be sure to connect the emergency stop hook to your waist clothing. The engine will shut down if the hook's line becomes disconnected from the engine.

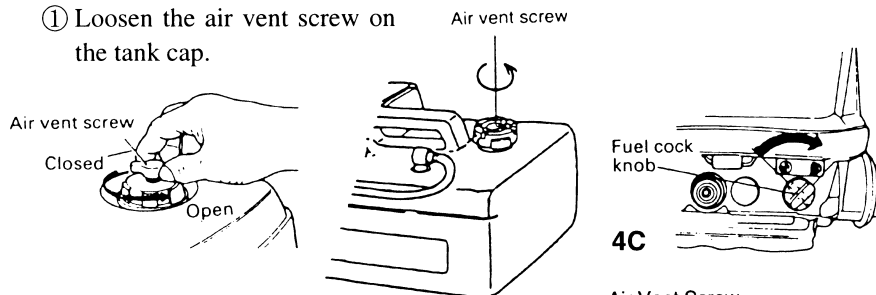
Note:

The engine will not start unless the switch lock has been properly connect into the emergency stop switch.

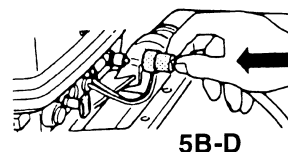
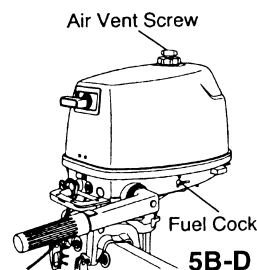
Note:

Do not operate the engine without cooling water.

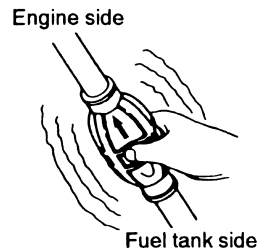
- ① Loosen the air vent screw on the tank cap.



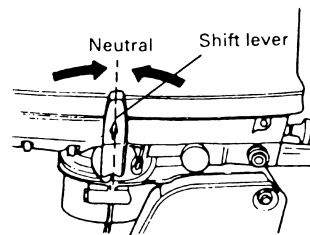
- ② • Attach the fuel connector to the engine connector.
The arrow mark on the primer bulb should be facing the engine. (Separate fuel tank)
• Open the fuel cock. (Integral fuel tank)



- ③ Feed fuel to the carburetor by squeezing the primer bulb until it is firm. (Separate fuel tank)



- ④ Place the shift lever in the Neutral position.

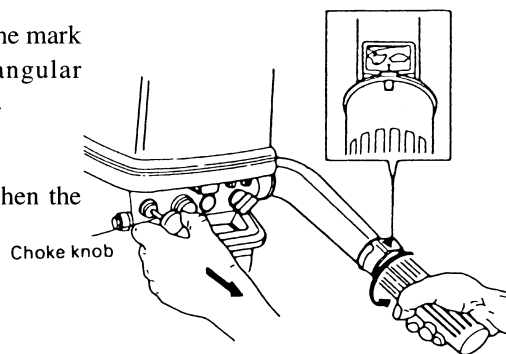


Be sure that the shift is in neutral when starting the engine.
This model is provided with a function that prevents starting in gear protection.

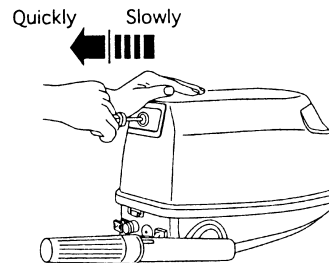
⚠ CAUTION

If the motor somehow does start in gear, do not use it. Contact your authorized dealer.

- ⑤ Turn the throttle grip until the mark on the grip faces the triangular mark on the steering handle.
- ⑥ Pull the choke knob out.
(Choke is not necessary when the engine is warm.)



- ⑦ Pull the starter handle slowly until you feel engagement. Then pull it quickly. Repeat if necessary till started.



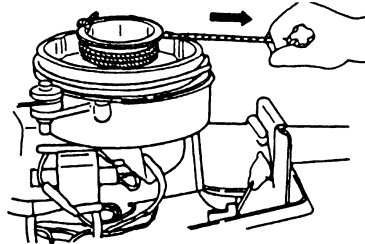
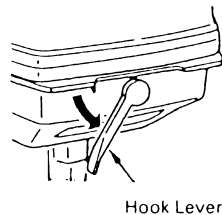
When starting the engine, push the choke knob back then return the grip to SLOW position and run the engine to warm up for several minutes.

Note:

When warming up the engine in cold weather, set the choke knob to half opened position if necessary.

If the recoil starter fails to operate

- Remove the upper motor cover and the recoil starter. Wrap a rope around the starter pulley then pull quickly to start.
- Use a 10 mm socket wrench as a rope handle.



⚠ CAUTION

Be careful that your clothes or other items do not get caught in the rotating engine parts.

To prevent accident and injury, do not re-attach the recoil starter after the engine has been started using the emergency starter rope. Be sure to put the upper motor cover back on.

Immediately contact an authorized service shop when reaching shore.

5-2. Warming up the engine

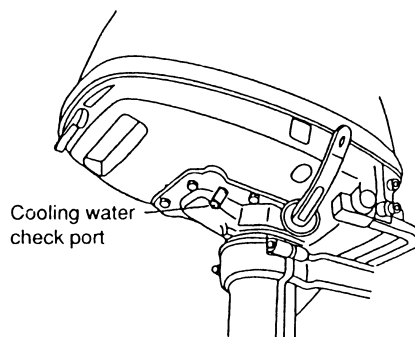
Warm the engine at low engine speeds for about three minutes. This allows the lubricating oil to circulate to all parts of the engine.

Operating the engine without warm up shortens the engine's life.

Be sure to check that cooling water is coming out of the cooling water check port during warm up.

CAUTION

If the engine is operated without water discharging from the check port, the engine may over heat.



● Engine speeds

Idling speed after warming up.

Clutch in	Clutch off
850 rpm	1,000 rpm

PROPELLER SELECTION

Propeller must be selected that will allow the engine to reach recommended rpm when cruising at wide-open throttle.

Wide-open throttle rpm range
4,500—5,500 rpm

Genuine propellers are listed on PROPELLER TABLE of this manual.

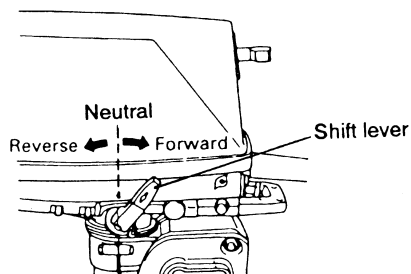
5-3. Forward and reverse

⚠ CAUTION

Severe damage, and personal injury, may occur if shifting at high engine speed.
Engine must be in the slow running position before shifting is attempted.

Note:

Do not increase engine speed more than necessary in reverse.



(1) Forward

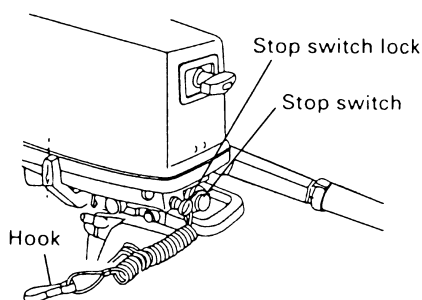
Turn the throttle grip to reduce engine speed. When the engine reaches trolling (or idling) speed, quickly pull the shift lever to the Forward position.

(2) Reverse

Reduce engine speed, when the engine reaches trolling (or idling) speed, quickly push the shift lever to the Reverse position.

5-4. Stopping

- ① Turn the throttle grip to the slow position.
- ② Put the shift lever in Neutral position.
Run the engine for 2 – 3 minutes at idling speed if it has been running at full speed.
- ③ Push the stop switch to stop the engine.



Note:

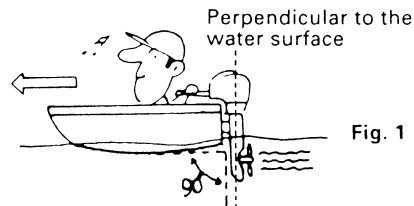
- After stopping the engine, close the air vent screw on the tank cap.
- Close the fuel cock knob. (5B)
- Disconnect the fuel connector of the engine or the fuel tank. (5BS)

5-5. Trim angle

The trim angle of the outboard motor can be adjusted to suit the transom angle of the hull, and load conditions. Choose an appropriate trim angle that will allow the anti-ventilation plate to run parallel to the water surface during operation.

- **Proper trim angle**

The position of the thrust rod is correct if the hull is horizontal during operation. (Fig. 1)



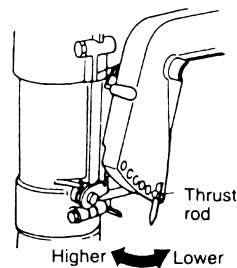
- **Improper trim angle**

Set the thrust rod lower if the bow of the boat rises above horizontal. (Fig. 2)



- **Improper trim angle**

Set the thrust rod higher the bow of the boat is below horizontal. (Fig. 3)



5-6. Tilt up, tilt down

⚠ WARNING

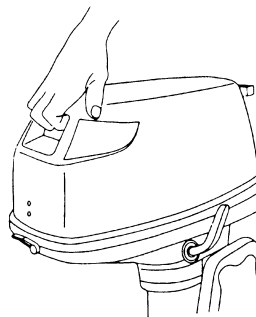
When tilting up or down, be careful not to place your hand between the swivel bracket and the stern bracket.
Be sure to tilt the outboard down slowly.

Note:

Stop the engine before tilting up.

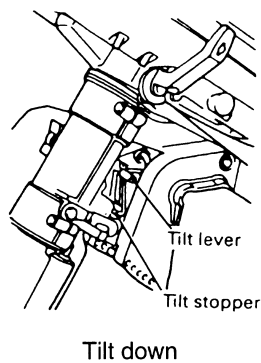
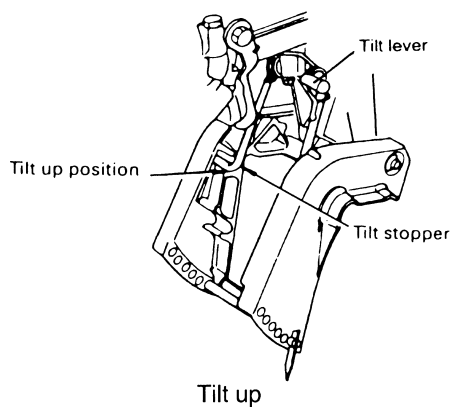
(1) Tilt up

With the shift lever in Neutral or Forward, fully tilt the motor up toward you by holding the tilt handle provided at the rear of the upper motor cover. Then slightly lower the motor for locking at tilt-up position.



(2) Tilt down

Slightly tilt the motor up, and pull up on the tilt lever. Gently lower motor down.



5-7. Shallow water operation

⚠ WARNING

During shallow water operation, be careful not to place your hand between the swivel bracket and the stern bracket. Be sure to tilt the outboard down slowly.

Note:

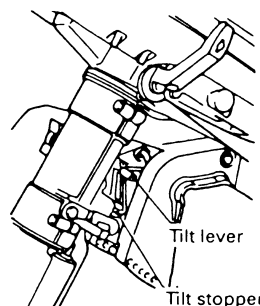
Slow down to trolling speed, and shift to the Neutral or Forward before shallow water operation.

(1) Shallow water running position:

With the shift lever in Neutral or Forward, tilt the motor up slowly, to approximately 40°, then lower the motor it will automatically set in the shallow water operation angle.

(2) Return to normal running position:

Tilt the motor up, approximately 15°, then lower the motor slowly to the normal running position.



⚠ CAUTION

- Be sure that the water inlet is submerged at all times and that water is continuously flowing from the cooling water check port.
- Be sure to run the engine slowly when using the shallow water drive.
Running at higher speeds will result in lack of control and may damage the mounting bracket.
- Care must be taken while running in this tilt position not to come in contact with the bottom, or submerged objects, especially in reverse. This may cause damage to the motor and/or boat.

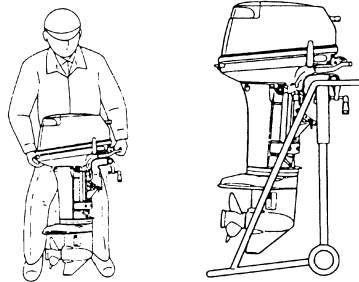
6. REMOVING AND CARRYING THE MOTOR

6-1. Removing the motor

- ① Stop the engine, close the air vent screw.
- ② Close the fuel cock knob. (5B)
Disconnect the fuel connector. (5BS)
- ③ Remove the motor from the hull and completely drain the water from the gear case.

6-2. Carrying the motor

Keep the engine vertical position when carrying.



Note:

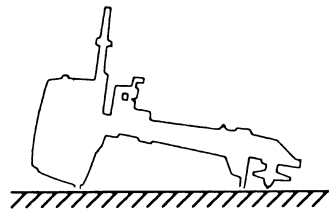
If you carry the motor horizontal posture, keep the power head higher than the propeller.

6-3. Storing the motor

Keep the motor vertical posture when you store it.

Note:

If you store the motor horizontal posture, lay the motor down on the ground with the handles facing upward.

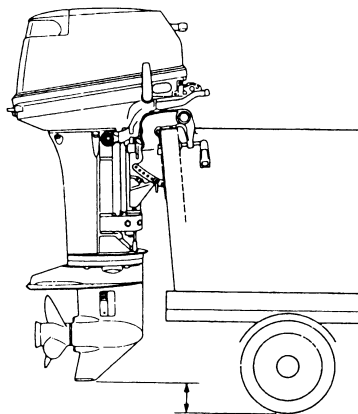


7. TRAILERING

⚠ CAUTION

When trailering the engine should be in a vertical (normal running) position, fully down. Trailering in the tilted position may cause damage to the motor, boat, etc.

If trailering with engine fully down is not available (the gear case skog is too close to the road in a vertical position), fix the motor securely using a device (like a transom saver bar) in the tilted position.



⚠ CAUTION

The tilt support device supplied on your outboard is not intended for towing. It is intended to support the engine while the boat is docked, beached, etc.

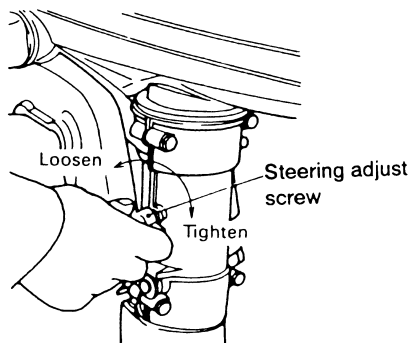
8. ADJUSTMENT

8-1. Steering friction

The steering friction can be adjusted in accordance with your preference by turning the adjustment screw.

For heavier steering Turn clockwise

For lighter steering Turn counterclockwise

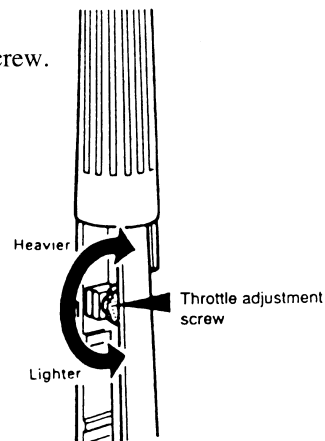


Note:

The steering adjustment screw is used to adjust the friction load of the steering, but not to fix the steering. Excess tightening of the adjustment screw may cause damage to the swivel bracket.

8-2. Throttle grip

Friction adjustment of the throttle grip can be made with the throttle adjustment screw.



9. INSPECTION AND MAINTENANCE

Care of your outboard motor

To keep your motor in the best operating condition, it is very important that you perform daily, and periodic, maintenance as suggested in the maintenance schedules that follow.

CAUTION

- Your personal safety and that of your passengers depends on how well you maintain your outboard motor. Carefully observe all of the inspection and maintenance procedures described in this section.
- The maintenance intervals shown in the checklist apply to an outboard motor in normal use. If you use your outboard motor under severe conditions such as frequent full-throttle operation or frequent operation in brackish water, maintenance should be performed at shorter intervals. If in doubt, consult your dealer for advice.
- We strongly recommend that you use only genuine replacement parts on your outboard motor. Damage to your outboard arising from the use of other than genuine parts is not covered under the warranty.

EPA Emissions Regulations

EPA (United States Environmental Protection Agency) has emission regulations and controlling air pollution from new outboard motors. All new motors manufactured by us are certified to EPA as conforming to the requirements of the regulations. This certification is depends upon factory standards. Therefore, factory specifications must be followed when servicing emission related controls, or making adjustments. **Maintenance, replacement, or repair of the emission control devices and systems may be performed by any marine SI (Spark Ignition) engine repair establishment or individual.**

9-1. Daily Inspection

Perform the following checks before and after use.

Item	Points to Check	Action
Fuel System	<ul style="list-style-type: none">● Check the amount of fuel in the tank.● Check for debris or water in the fuel filters.● Check the rubber hoses for fuel leakage.	Replenish Clean or Replace Replace
Electrical Equipment	<ul style="list-style-type: none">● Check that the stop switch functions normally and make sure the lock plate is there.● Check cords for loose connections and damage.● Check the spark plug for dirt, wear and carbon build-up.	Remedy or replace Correct or replace Clean or replace
Throttle System	<ul style="list-style-type: none">● Check that the carburetor choke valve functions normally.● Check carburetor linkage is working normally when turning the throttle grip.	Replace Correct
Recoil Starter	<ul style="list-style-type: none">● Check the rope for wear and chafing.● Check the ratchet engagement.	Replace Correct or replace
Clutch and Propeller System	<ul style="list-style-type: none">● Check that the clutch engages correctly when operation the shift lever.● Visually check the propeller for bent or damaged blades.● Check that the propeller nut is tightened and the split pin is there.	Adjust Replace
Installation of Motor	<ul style="list-style-type: none">● Check all the bolts attaching the motor to the boat.● Check the thrust rod installation.	Tighten
Cooling Water	<ul style="list-style-type: none">● Check that cooling water is discharged from the cooling water check port after the engine has started.	
Tools and Spares	<ul style="list-style-type: none">● Check that there are tools and spare parts for replacing spark plug, the propeller. etc.● Check that you have the spare rope.	
Steering Devices	<ul style="list-style-type: none">● Check the operation of the steering handle.	
Other parts	<ul style="list-style-type: none">● Check if the anode is securely installed.● Check the anode for corrosion and deformation.	Repair if necessary Replace

A. Washing

After operating the motor in sea water or polluted water, or if it will be stored for a long period, wash all enclosures and the water cooling system with fresh water.

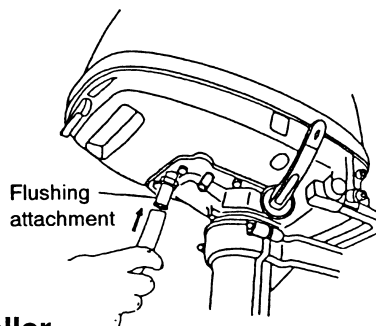
⚠ WARNING

Before flushing, remove the propeller.

⚠ WARNING

Never start or operate the engine indoors or in any space which is not well ventilated. Exhaust gas contains carbon monoxide, a colorless and odorless gas which can be fatal if inhaled for any length of time.

- Remove the water plug from the motor, and screw in the flushing attachment (hose adapter). Connect a hose to the flushing attachment.
- With the shift lever in Neutral (N), run the engine at a low speed while flushing the cooling system to ensure all sea water and mud are removed.



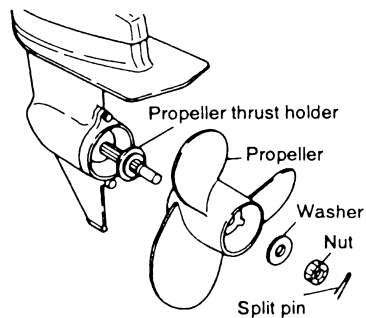
B. Replacing the propeller

A worn-out or bent propeller will lower the motor's performance, and cause engine trouble.

⚠ CAUTION

Before removing the propeller, remove the spark plug cap from the spark plug to protect against personal injury.

- ① Remove the split pin, propeller nut and washer.
- ② Remove the propeller.
- ③ Apply genuine grease to the propeller shaft before installing a new propeller.

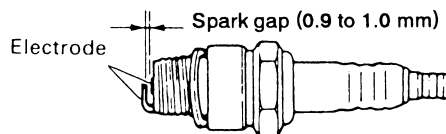


C. Replacing the spark plug

If the spark plug is fouled, has carbon build up, or is worn, it should be replaced.

- ① Stop the engine.
- ② Remove the upper motor cover.
- ③ Remove the spark plug cap.
- ④ Remove the spark plug by turning it counter-clockwise, using a 21 mm socket wrench and handle.

Use spark plug NGK BPR7HS10



D. Replacing the anode

A sacrificial anode protects the outboard from the galvanic corrosion. Anode is located on the gear case. When the anode is eroded more than 2/3, replace it.

Note:

- Never grease or paint the anode.
- At each inspection re-tighten the anode attaching bolt. As it is likely to be subjected to electrolytic corrosion.

9-2. Periodic Inspection

It is important to inspect and maintain your outboard motor regularly. At each interval on the chart below, be sure to perform the indicated servicing. Maintenance intervals should be determined according to the number of hours or number of months, whichever comes first.

Item		Servicing Interval			Action	Remarks
		First 20 hours or 1 month	Every 50 hours or 3 months	Every 100 hours or 6 months		
Fuel System	*Carburetor			○	Strip, clean, and adjust.	
	Fuel filter	○	○	○	Check and clean or Replace.	
	Piping	○	○	○	Check and Replace.	
	Fuel tank	○		○	Clean	
Ignition	Spark plug	○		○	Check gaps. Remove carbon deposits or Replace.	
Starting System	Starter rope	○	○	○	Check for wear or chafing.	
Lower Unit	Propeller	○	○	○	Check for bent blades, damage, wear.	
	Gear oil	Change ○	○	Change ○	Change or replenish-oil and check for water leaks.	
	*Water pump		○	○	Check for wear or damage.	Replace impeller every 12 months.
Bolts and Nuts		○	○	○	Retighten	
Sliding and Rotating Parts. Grease Nipples.		○	○	○	Apply and pump in grease.	
Outer Equipment		○	○	○	Check for corrosion.	
Anode			○	○	Check for corrosion and deformation.	Replace

* Have this handled by the dealer.

Note:

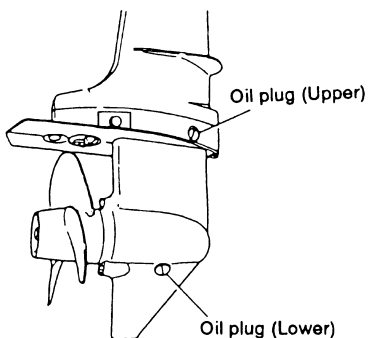
Your outboard motor should receive careful, and complete, inspection at 300 hours. This is the best time for major maintenance procedures to be carried out.

A. Changing gear oil

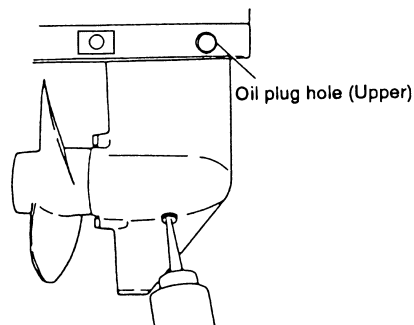
- (1) Remove the oil plugs (upper and lower), and completely drain the gear oil into a pan.

Note:

If water in the oil, giving it a milky colored appearance. Contact your dealer.



- (2) Insert the oil tube nozzle into the lower oil plug hole, and fill with gear oil by squeezing the oil tube until oil flows out of the upper plug hole.



- (3) Replace the oil plug gasket with a new one.
Install the upper oil plug, and then remove oil tube nozzle and install the lower oil plug.

Note:

Use genuine gear oil or the recommended one (API GL-5: SAE #80 to #90).

Required volume: approx. 195 mL.

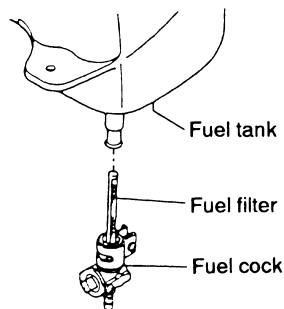
B. Cleaning the fuel filters and the fuel tank

Fuel filters are provided inside the fuel tank (4C & 5B-D) and engine. (5B-D)

■ 4C • 5B-D

Drain all fuel from the fuel tank.

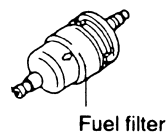
Remove the fuel cock from the fuel tank and clean the fuel filter.



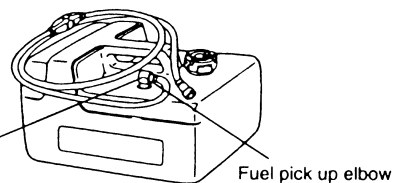
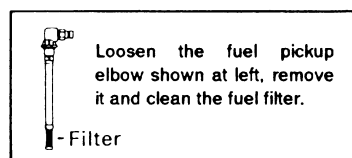
■ 5B-D

① Engine filter

Replace the filter provided inside of engine cover if there is water or dirt inside.



② Fuel tank filter



③ Fuel tank

Water or dirt in the fuel tank will cause engine performance problems.

Check and clean the tank at specified times or after the motor has been stored for a long period of time (over three months).

9-3. Off-season storage

To put your outboard motor in storage, it is a good opportunity to have it serviced and prepared your dealer.

CAUTION

Before servicing the motor for storage:

- Remove the spark plug cap from the spark plug.
- Do not run the motor out of the water.

- ① Wash the engine exterior and flush the cooling water system thoroughly with fresh water. Drain the water completely.
Wipe off any surface water with an oil rag.
- ② Use a dry cloth to completely wipe off water and salt from the electrical components.
- ③ Drain all fuel from the fuel hoses, fuel pump, and carburetor, and clean these parts.
Keep in mind that if gasoline is kept in the carburetor for a long time, gum and varnish will develop, causing the float valve to stick, restrict the jets.
- ④ Remove the spark plug and spray storage oil (a available from your authorized dealer) into the combustion chamber through the spark plug hole while slowly turning the motor over using the recoil starter.
- ⑤ Change the gear oil in the gear case.
- ⑥ Apply grease to the propeller shaft.
- ⑦ Apply grease to all sliding parts, joints, nuts, and bolts.
- ⑧ Stand the engine up vertically in a dry place.

9-4. Pre-season check

Check that the shift and throttle function properly.

(Be sure to turn the propeller shaft when checking the shift function or else the shift linkage may be damaged.)

Note:

The following steps must be taken when first using the engine after winter storage.

1. Fill up the fuel tank completely.

Mixing ratio: Gasoline 25: Engine oil 1

Use unleaded gasoline and genuine Outboard Motor Oil. If this oil is not available, use NMMA TC-W3 certified outboard motor oil.

2. Warm up the engine for 3 minutes in the "NEUTRAL" position.

3. Run the engine for 5 minutes at the slowest speed.

4. Run the engine for 10 minutes at half speed.

: In Steps 2 and 3 above, the oil used for storage inside the engine will be finished out to assure optimum performance.

9-5. Motor submerged in water

After taking your motor out of the water, immediately take it to your dealer.

The following are the emergency measures to be taken for a submerged outboard, if you can not take it to your dealer right away.

- (1) Wash the motor with fresh water to remove salt or dirt.
- (2) Remove the spark plugs, and completely drain the water from the engine by pulling the recoil starter several times.
- (3) Inject a sufficient amount of genuine engine oil through the spark plug hole and into the crank case from the carburetor side.

Pull the recoil starter several times to circulate oil throughout the motor.

9-6. Cold weather precautions

If you moor your boat in cold weather at temperatures below 0°C (32°F), there is the danger of water freezing in the cooling water pump, which may damage the pump, impeller, etc. To avoid this problem, submerge the lower half of the motor into the water, or tilt the motor up above water level and pull the recoil starter several times to drain the water completely.

9-7. Checking after striking underwater object

Striking the sea bottom or an underwater object may severely damage the outboard. Immediately bring the outboard to the dealer and ask for the following checks.

- (1) Looseness or damage of power unit installation bolts, gear case and extension case bolts, propeller shaft housing bolts, upper and lower mount rubber bolts, and/or mount bracket bolts.

Ask the dealer to tighten any loose bolts any nuts, and to replace damaged parts.

- (2) Deformation and damage of mount rubber, the tilt stopper, thrust rod, gears and clutch, and/or propeller.

Ask the dealer to replace damaged or defective parts.

10. TROUBLESHOOTING

If you encounter a problem, consult the check list below to determine the cause and to take the proper action.

Your dealer will always be happy to provide any assistance and information.

	Engine failing to start	Engine starting but stopping soon	Poor idling	Poor acceleration	Engine speed abnormally high	Engine speed abnormally low	Boat speed low	Overheating of engine	Possible cause
FUEL SYSTEM	●	●							Empty fuel tank
	●	●	●	●		●	●	●	Incorrect connection of fuel system
	●	●	●	●		●	●	●	Air entering fuel line
	●	●	●	●		●	●	●	Deformed or damaged fuel hose
	●	●	●	●		●	●	●	Closed air vent on fuel tank
	●	●	●	●		●	●	●	Clogged fuel filter, fuel pump, or carburetor
			●	●		●	●	●	Use of improper engine oil
	●		●	●			●	●	Use of improper gasoline
	●	●	●	●		●	●		Excessive oil in mixture
								●	Shortage oil in mixture
	●			●					Excessive supply of fuel
	●	●	●	●		●	●	●	Poor carburetor adjustment

	Engine failing to start	Engine starting but stopping soon	Poor idling	Poor acceleration	Engine speed abnormally high	Engine speed abnormally low	Boat speed low	Overheating of engine	Possible cause
ELECTRIC SYSTEMS	●	●	●	●		●	●	●	Spark plug other than specified
	●	●	●	●		●	●		Dirt, soot, etc. on spark plug
	●	●	●	●		●	●		No spark or weak spark
	●								Short circuit of engine stop switch
	●		●	●		●	●		Ignition timing incorrect
	●								Lock plate not fitted to stop switch
	●								Disconnection of wire or loose ground connection
OTHERS	●		●	●		●	●		Incorrect adjustment of throttle link
							●	●	Insufficient cooling water flow, clogged or defective pump
				●	●		●	●	Cavitation or ventilation
				●	●	●	●	●	Incorrect propeller selection
			●	●	●	●	●	●	Damaged and bent propeller
				●	●		●	●	Improper thrust rod position
				●	●	●	●	●	Unbalanced load on boat
				●	●	●	●	●	Transom too high or too low
		●	●	●		●			Low compression
			●					●	Carbon deposits in the combustion chamber

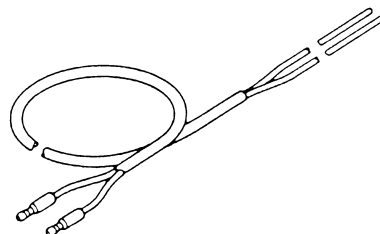
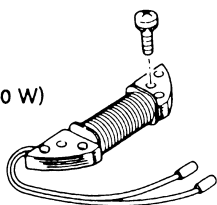
11. TOOL KIT AND SPARE PARTS

The following a list of the tools and spare parts provided with the motor.

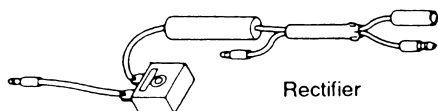
Items		Quantity	Dimensions	Remark
Service tools	Tool bag	1	10 × 13 mm 21 mm	
	Pliers	1		
	Socket wrench	1		
	Socket wrench	1	Cross- and straight-point	
	Socket wrench handle	1		
	Screwdrivers	1		
	Screwdriver handle	1		
Spare parts	Rope	1	1,000 mm	
	Spark plug	1	NGK BPR 7HS10	
	Split pin	1		
Parts Packaged with Engine	Fuel tank 12L Primer bulb	1 1 set		5B-D only

12. OPTIONAL ACCESSORIES

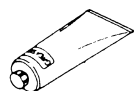
Alternator (12 V, 60 W)



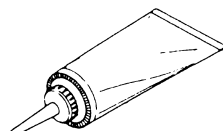
Extension cord for light
(Lights are available on the market.)



Rectifier



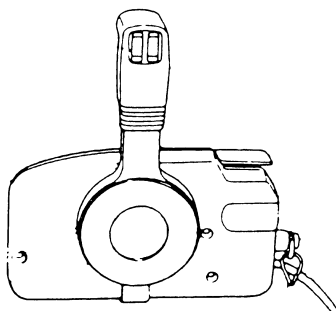
Genuine grease
(250g)



Genuine gear Oil
(500mL)



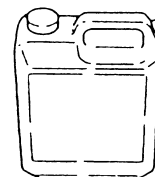
Touch-up paint
(300mL)



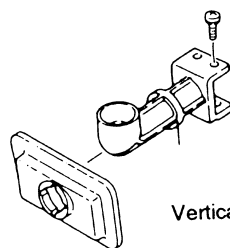
Remote control box
Various kinds of fitting parts are available.
Please consult with your dealer.



Flushing attachment



Genuine engine oil
(0.4L, 1L, 4L, 20L)



Vertical starter

13. PROPELLER TABLE

Use a genuine propeller.

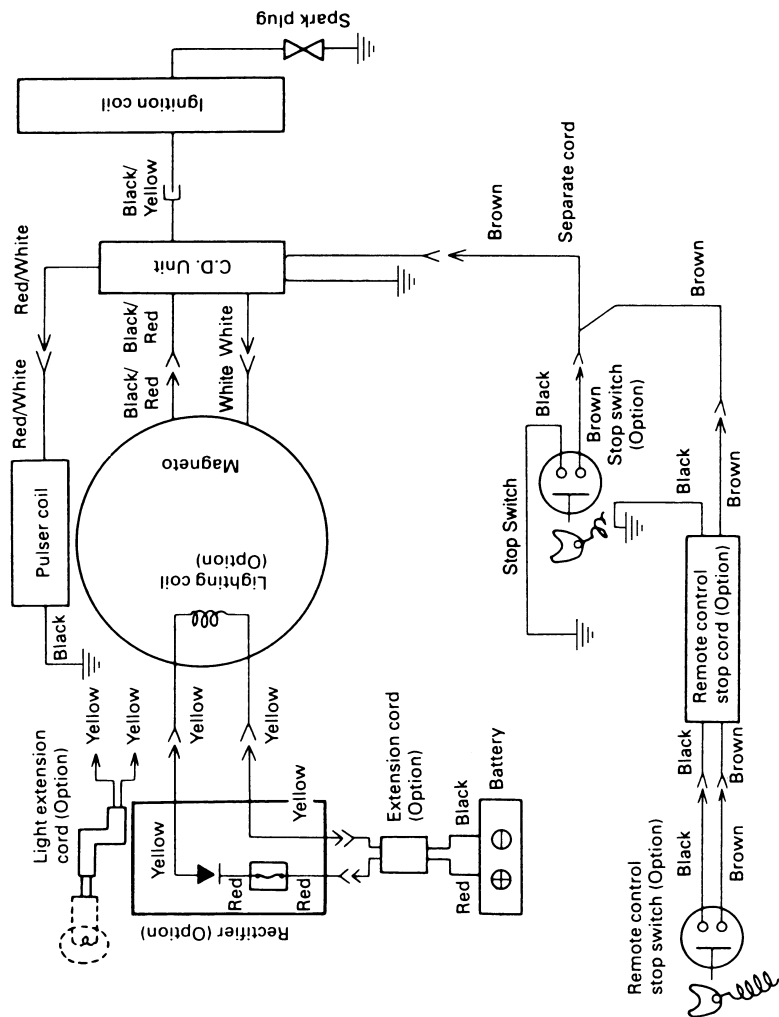
A propeller must be selected so that the engine rpm measured at wide open throttle while cruising is within the recommended range: 4,500 to 5,500 rpm.

	Light boats ————— Heavy boats		
Size as Indicated on propeller	9	8	7
Propeller (mm) Size	200 × 229	198 × 203	198 × 178
Diameter × pitch (inch)	7.9 × 9.0	7.8 × 8.0	7.8 × 7.0
Model	○	5B-D S, L, UL	4C S, L

○ : Option

S (short), L (long), UL (extra long): Transom height

14. WIRING DIAGRAM



WARNING:
The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.



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