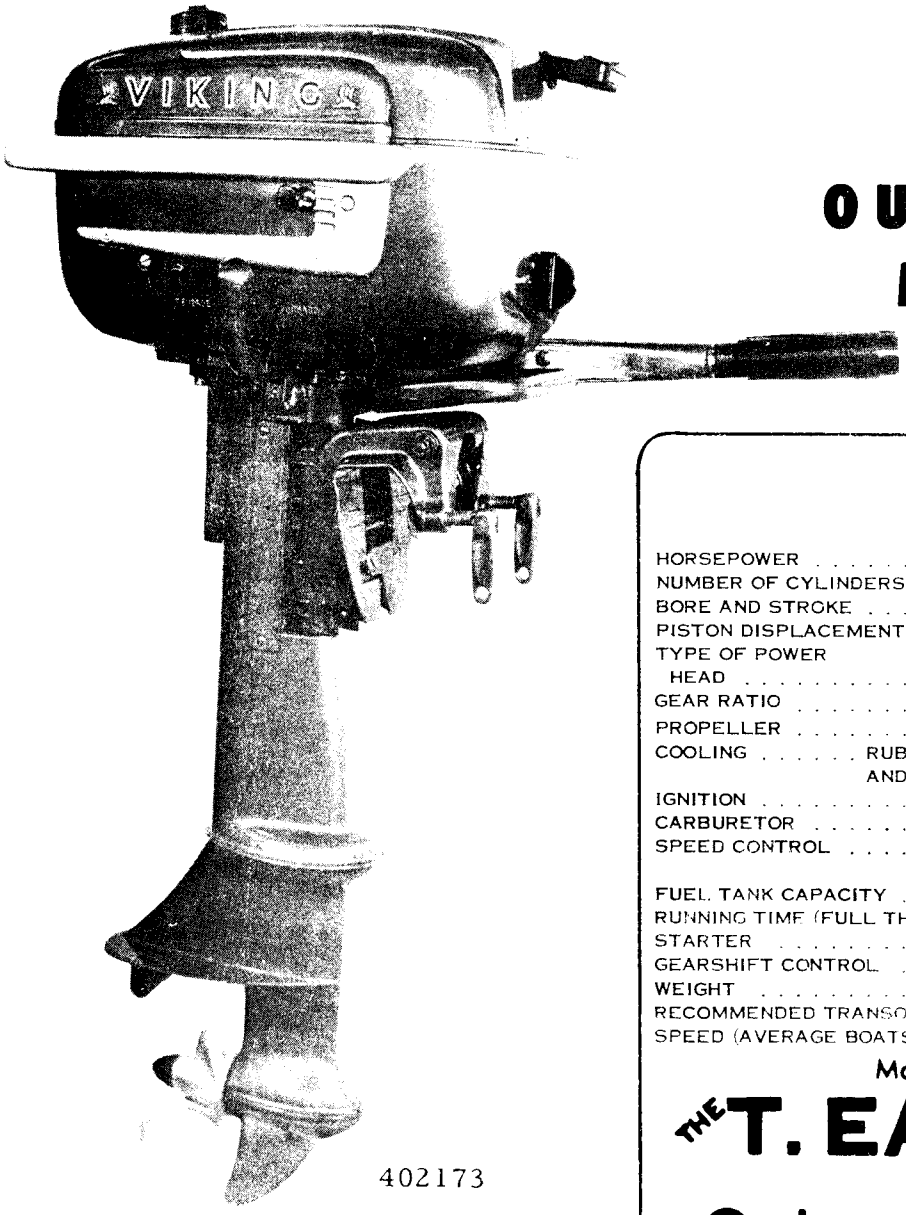
OWNER GUIDE

OPERATION • MAINTENANCE • PARTS LIST

EATON'S VIKING



402173

5 H.P. DELUXE OUTBOARD MOTOR

MODEL
5D11V

SPECIFICATIONS

HORSEPOWER	5.0 AT 4000 R.P.M. O.B.C. CERTIFIED
NUMBER OF CYLINDERS	2
BORE AND STROKE	1 15 16" BORE X 1-1 2" STROKE
PISTON DISPLACEMENT	8.84 CUBIC INCHES
TYPE OF POWER HEAD	2 CYCLE, 2 PORT, ALTERNATE FIRING
GEAR RATIO	15:26
PROPELLER	2 BLADE, 8" DIAMETER X 7-1 4" PITCH
COOLING	RUBBER BLADE COMBINATION DISPLACEMENT AND CENTRIFUGAL WATER PUMP
IGNITION	BUILT IN FLYWHEEL MAGNETO
CARBURETOR	VARIABLE VENTURI
SPEED CONTROL	SYNCHRONIZED SPARK AND THROTTLE, TWIST GRIP CONTROL
FUEL TANK CAPACITY	0.7 GALLONS
RUNNING TIME (FULL THROTTLE)	APPROX. 1 HOUR
STARTER	AUTOMATIC REWIND
GEARSHIFT CONTROL	FORWARD NEUTRAL-REVERSE
WEIGHT	49 POUNDS
RECOMMENDED TRANSOM HEIGHT	15"
SPEED (AVERAGE BOATS)	1-1 2 TO 12 MPH

Manufactured expressly for

THE T. EATON Co LIMITED

by

Outboard Marine
Corporation of Canada Ltd.
PETERBOROUGH — CANADA

CUTAWAY VIEW OF 5 HORSEPOWER MODEL

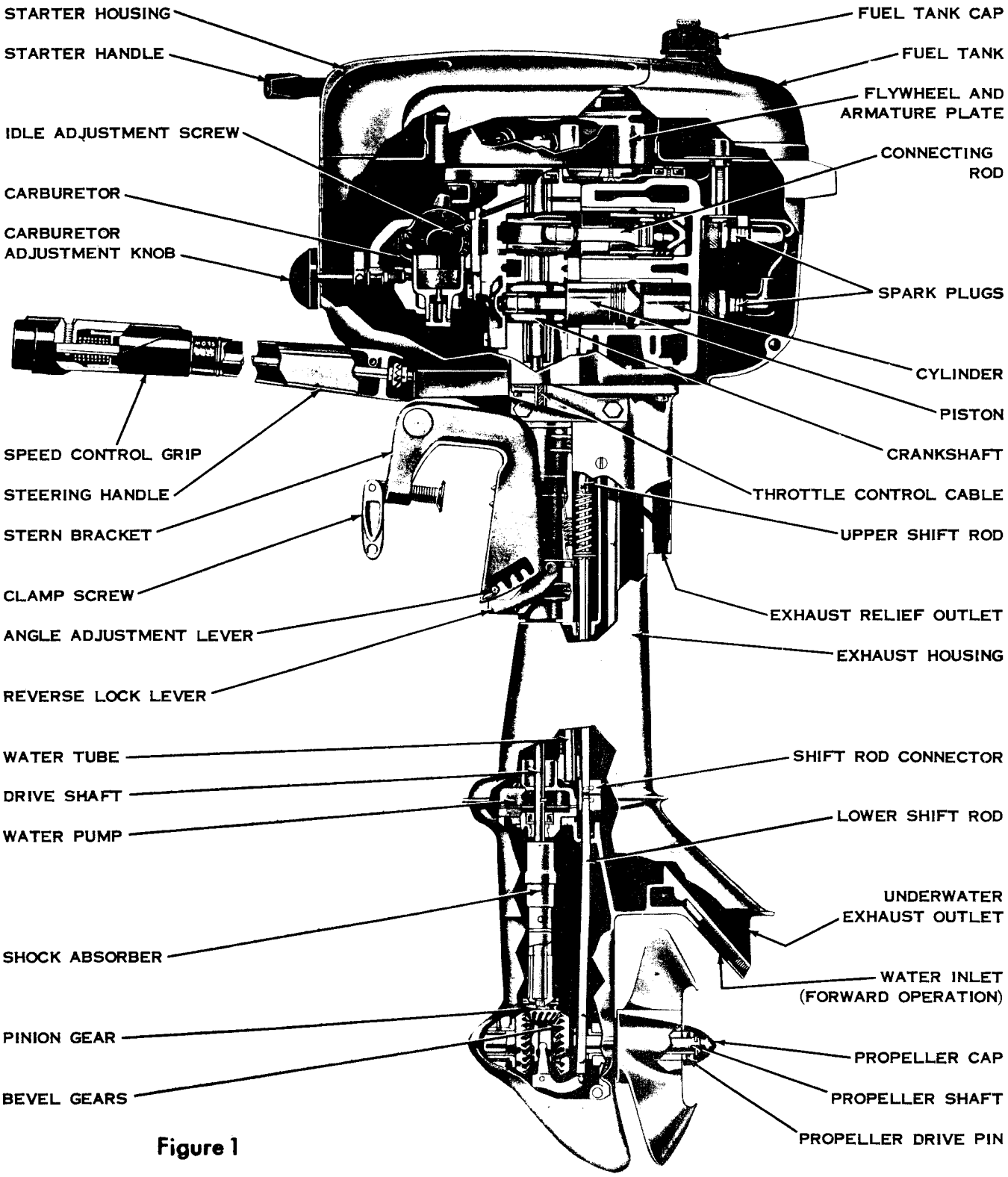


Figure 1

STARBOARD (RIGHT), PORT (LEFT) ARE DESIGNATED WHILE FACING BOW

FOREWORD

You are to be congratulated on your selection of this outboard motor which will give you years of satisfactory service. The fine materials and high standards of workmanship used in the manufacture of this motor assure you of durability and lasting performance.

Read through this manual carefully before operating the motor. You will find complete operating instructions and recommendations for the care and protection of your motor. Extend the same care to this motor you would give to a new automobile or other personal property of even less value and it will be a constant source of satisfaction to you. Care in handling will prevent scratches and nicks which will mar the appearance.

The operating instructions are concise and easy to follow, even for the beginner. But if you have never operated an outboard motor, it will be helpful to practice the step by step procedure a few times before putting the motor in actual operation.

Outboarding is great sport. Always remember, however, that you have friends on the water. Extend to them the courtesy of thoughtful, safe operation of your motor and boat and you will increase your own enjoyment.

ATTACHING MOTOR TO BOAT

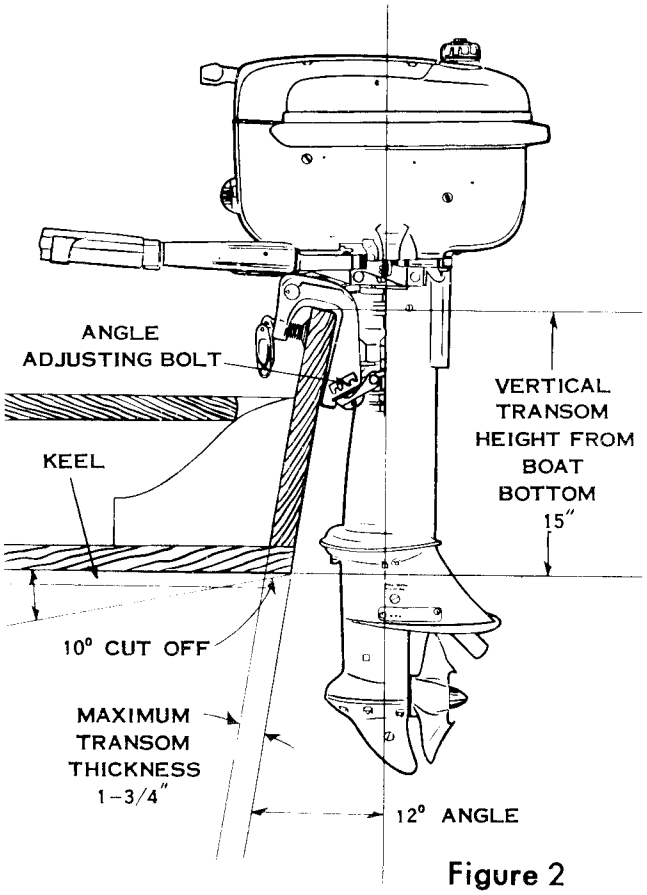


Figure 2

This motor is designed for use on a standard 15-inch transom. If transom is higher, it should be cut down to 15 inches so propeller will be at least 2 inches below bottom of boat. Best performance will be obtained by having the driveshaft vertical to boat travel and the propeller placed below bottom of the boat (see Figure 2). Performance can often be improved by cutting off the keel at a 10° angle as illustrated. This will prevent formation of spray and provide free running performance.

Place motor on stern of boat with stern bracket clamps inside the stern, centered on the transom or stern board. Tighten bracket clamp screws securely by hand.

CAUTION

When motor is running, occasionally check bracket clamp screws to be sure they are tight. We will not be responsible for any motor damaged or lost overboard due to loose clamp screws.

The use of a safety chain or rope attached to motor stern bracket safety chain link (item 1, Figure 5) and boat will guard against loss of motor overboard. Holes are provided in thumb screw handles through which a padlock may be applied to lock the motor on the boat.

OPERATION OF YOUR MOTOR

ANGLE ADJUSTMENT

A simple means is provided for adjusting the motor to a vertical position to make allowance for angle of the transom.

To accomplish this adjustment, tilt the motor slightly (gear shift lever must be in FORWARD or NEUTRAL), then lift up on angle adjustment lever (see item 5, Figure 5) and move it ahead or back in the slots in the stern bracket so that motor is in a vertical position when lower unit rests against the lever. On some boats it may be necessary to correct angle adjustment to maintain motor in a vertical position when changing load from one to more passengers. Always try to arrange load so boat runs on an even keel.

Transom (stern) angles may vary somewhat; however, range of adjustment is sufficient to accommodate angles found in most boats.

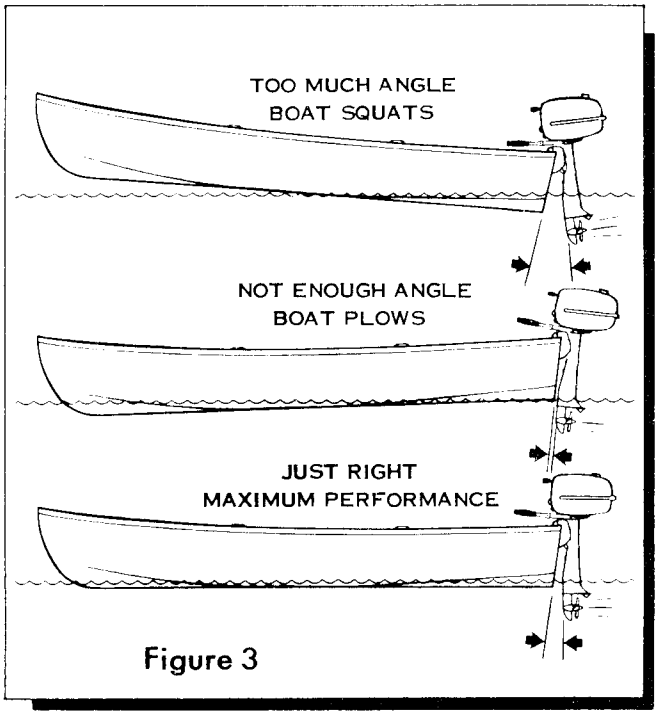


Figure 3

GEAR SHIFT

The motor is equipped with gear shift control to provide operation of the motor in Forward, Neutral, or Reverse by means of a gearshift lever (Figure 4) located on side of motor below the tank. Move the lever as far as possible toward front of tank for "Forward" motion of boat -- toward rear of tank as far as possible for "Reverse" motion of boat. The intermediate position is "Neutral" or out of gear.

When motor is not running the internal gear shift mechanism may be in such a position that gear shift lever cannot be moved from "Neutral" into "Forward" or "Reverse" --- DO NOT FORCE. This may be remedied by pulling on the starter cord with throttle control at STOP to turn gears slightly until the gear shift lever will move to desired position. Extreme care should be taken to prevent bending or striking the lever.

REVERSE

Always retard motor speed to START position of throttle control or slower before shifting. A special reverse lock (item 4, Figure 5) built into the swivel bracket locks the motor against tilting when in reverse. Use extra care when running in reverse to avoid striking any obstruction and damaging lower unit parts. The tilting feature functions only in FORWARD or NEUTRAL gear shift position.

LUBRICATION AND FUEL INSTRUCTIONS

Proper lubrication is an important factor in the performance and life of your outboard motor. The following instructions are therefore very important and should be followed carefully.

The oil and fuel mixture referred to in the following instructions should always be thoroughly mixed in a separate container before pouring into motor fuel tank: NEVER POUR SEPARATELY INTO FUEL TANK. Also, all fuel should be poured through a fine mesh strainer to remove dirt and water which may be present. Use only metal containers.

TYPE OF GASOLINE. Use a good grade of regular gasoline.

TYPE OF OIL. See back cover of this manual for correct oil specifications.

MIXTURE. Mix 1/2 pint of oil with each gallon of gasoline.

PROCEDURE. Pour into the container approximately one-half the amount of gasoline required. Add all the oil required at the ratio of 1/2 pint of oil to each gallon of gasoline. Shake the two together until they are thoroughly mixed. Add the balance of gasoline. Shake container briskly to insure mixing.

LUBRICATION OF GEAR CASE. The gear case has been filled at the factory with the correct lubricant. Check for lubricant after first 5 hours of operation; then every 50 hours. For method of lubrication, see page 5. For type of lubrication, see back cover.

EQUIPMENT NECESSARY WHEN OUTBOARDING

Although the following articles may not always be needed, it is advisable to have them aboard when motoring.

1. An extra can of fuel, properly mixed.
2. Funnel with strainer.
3. Tools.
4. Starting cord.
5. Rope or chain to tie motor to boat.
6. Extra spark plug.
7. Oars and all other equipment required by law when outboarding in Federal waters.

BREAK-IN PERIOD

Reasonable care in the operation of the motor during the first several hours of use will improve its performance and insure longer life. Follow the fuel and lubrication instructions carefully. After operating motor at part throttle for about one hour, it is permissible to run at full throttle for a few seconds followed by a few minutes of part throttle operation. Repeat frequently, gradually increasing the time of full throttle until another two hours of operation are completed. No extra oil is required for the break-in period.

STARTING INSTRUCTIONS

(See Figure 4.)

1. Open air vent screw in fuel tank filler cap.

2. Open fuel tank shut-off valve.

3. Move gear shift lever to NEUTRAL position.

4. Place speed control grip on steering handle to START position.

5. Turn carburetor knob to left or PRIME position and hold down against spring pressure for 10 seconds, then release.

6. Pull starter handle slowly until starter engages, then pull forcibly. If motor does not start after several pulls on starter cord, repeat priming instructions. (Allow starter cord to rewind before releasing handle. Also, do not pull cord out more than 30 inches.)

7. After motor starts, turn carburetor knob slowly to the right until motor runs smoothly. It is advisable to turn speed control grip toward SLOW to avoid excessive idling speed after carburetor is adjusted. Allow motor to operate at SLOW until ready to put the boat into motion.

8. Shift to FORWARD or REVERSE as desired. Move gear shift lever quickly into desired position. DO NOT ease into position.

IMPORTANT

Since this motor can be operated in FORWARD, NEUTRAL or REVERSE by merely using the gear shift provided it is very IMPORTANT that the speed control grip is always moved within the SHIFT RANGE (as indicated on the steering handle) before shifting.

9. WHEN IN FORWARD ONLY, advance speed control to FAST position. Run motor a few minutes to warm up. Turn carburetor knob to left or right until smoothest running is obtained. Slow speed needle is pre-set at the factory for average use. For adjustment, see "Carburetor Adjustments," page 4.

10. Turning speed control grip on steering handle to FAST increases speed and to SLOW decreases speed.

11. To stop motor turn speed control grip to STOP position.

WARM MOTOR

It is not necessary to prime motor when starting if motor has been warmed up. Motor can usually be started with carburetor knob in running position and pulling starter handle with speed control lever at START position.

FLOODING

Flooding may occur by over-priming or priming a warm motor. If this occurs, turn carburetor knob to extreme right (off position) and pull starter handle several times. When motor starts, allow to run until it stops. Then follow instructions for starting cold or warm motor, whichever applies.

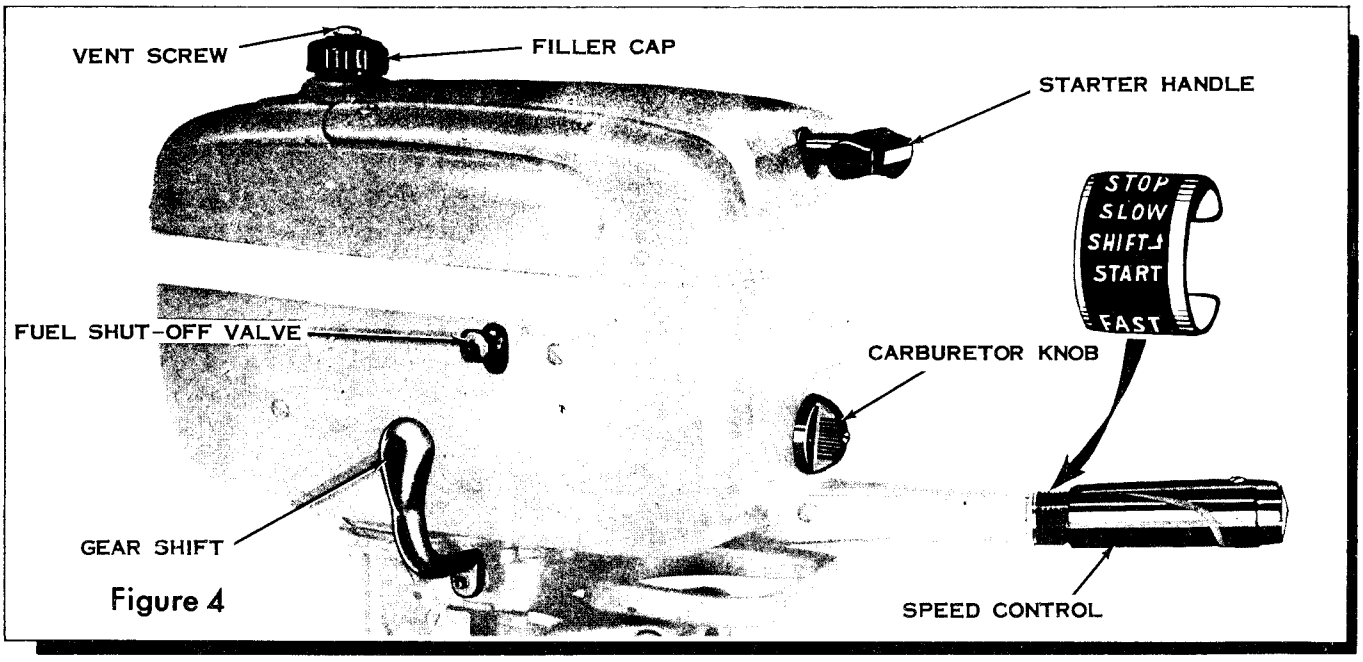


Figure 4

Operation of ycur Motor

CARBURETOR ADJUSTMENT

The carburetor is adjusted for both high and low speed operation at the factory. If further adjustment is necessary proceed as follows: With port motor cover removed, start motor as previously instructed, set gear shift lever in FORWARD and operate at FAST, adjust carburetor knob until motor runs smoothly. Now move speed control grip to SLOW. Turn low speed adjusting screw, located on right hand side of carburetor (item 2, Figure 8) toward RICH or LEAN until satisfactory low speed performance is obtained.

NOTE

Turning low speed adjusting screw or carburetor knob to the left enriches the mixture, that is increases the ratio of fuel to air. Turning to the right leans the mixture reducing the ratio of fuel to air. A rich mixture may cause motor to run "rough" and a lean mixture is indicated by "coughing or spitting" in the carburetor.

The carburetor is now adjusted for average conditions. Special setting may be necessary for best performance with heavy boat loads or very slow trolling.

CO-PILOT

The co-pilot permits the motor to maintain a set course without holding steering handle. It can be adjusted by tightening the screw, located in the center of the pivot bearing (item 2, Figure 5) to the desired tension.

TILTING OF MOTOR

The tilting feature is designed to permit self tilting when striking any submerged object while running in forward position. Care, however, should be taken in obstructed waters, not to operate motor at too high a speed. This tilting feature is also useful in boat launching, beaching or rowing in shallow waters.

To tilt the motor, grasp the carrying handle and rear of gas tank and pull the motor toward you. The motor can be tilted only when gear shift lever is in FORWARD or NEUTRAL position. Never try to tilt motor by bearing down on steering handle.

TILTING FRICTION

Proper tilting friction is set at factory, but through continued use, friction may have to be adjusted. To adjust, loosen or draw up on tilting bolt nut (item 6. Figure 5) as required, using a wrench. Tension of tilt need not be too great, but just sufficient to maintain the motor in any position of tilt.

EMERGENCY STARTING

In case of starter failure, you can still use your motor.

Remove two rear starter housing screws and two long front screws attaching starter housing and fuel tank to bracket. Lift off entire starter housing assembly. Replace front screws to secure tank. To start motor, wind a 3/16 inch rope, with a knot in one end placed in the notch on the flywheel pulley, clockwise on the pulley on top rim of flywheel (Figure 6).

When reassembling the starter housing assembly, set in position and start the mounting screws. Holding starter in position, pull handle slowly until starter engages. Tighten screws and again check engagement.

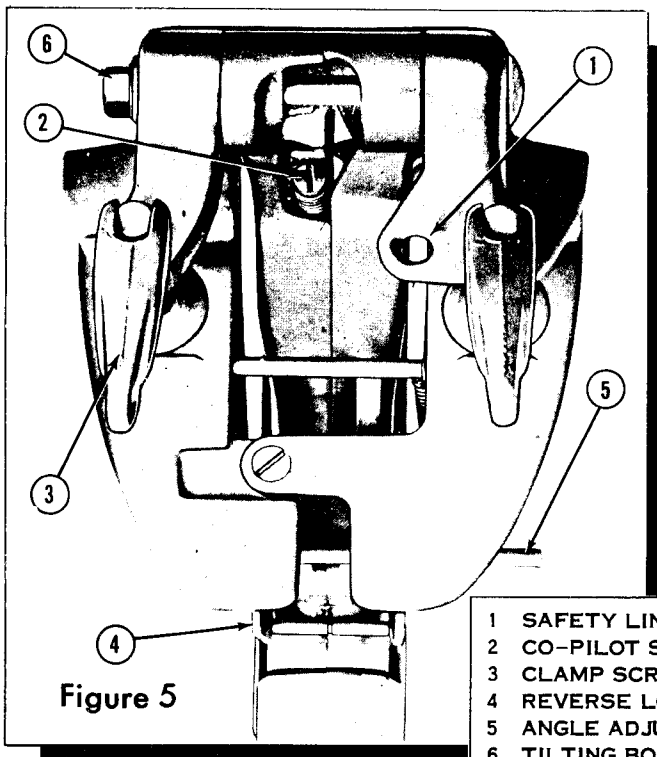


Figure 5

1 SAFETY LINK
2 CO-PILOT SCREW
3 CLAMP SCREW
4 REVERSE LOCK LEVER
5 ANGLE ADJUSTMENT LEVER
6 TILTING BOLT NUT

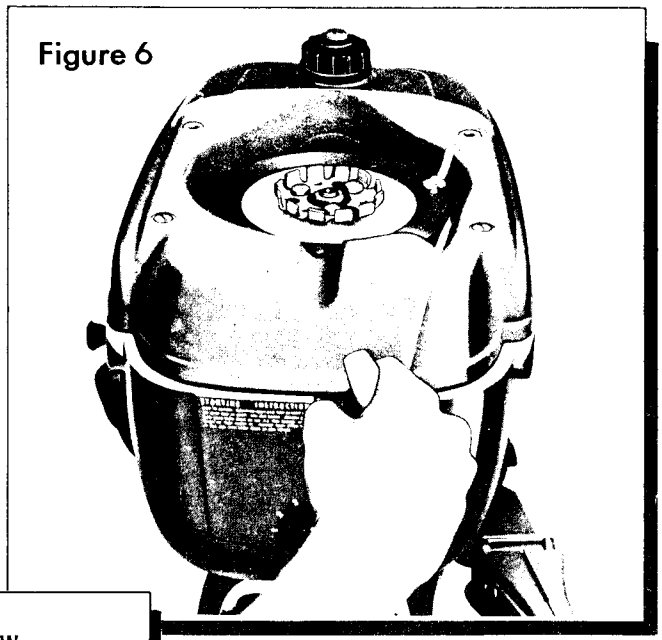


Figure 6

CARE OF YOUR MOTOR

PROPELLER

Motors are equipped with a propeller which gives the best all around performance on the average boat. Adding a high speed propeller to a motor will not increase the speed of the boat unless the boat itself is light and designed to develop higher speed. We cannot be responsible for wear or damage to a motor used for racing or equipped with a racing propeller.

SHOCK ABSORBER

The shock absorber assembly (item 35, page 14) consists of a comparatively strong spring inserted tightly into a retainer and pilot. The retainer is locked to upper driveshaft and pilot pinned to lower driveshaft. Action of the slip clutch assembly is such that when the propeller strikes an underwater obstruction the spring is caused to coil slightly in either the retainer or pilot, or in both, releasing its grip, thereby absorbing shock of sudden impact.

PROPELLER DRIVE PIN

Should the propeller strike an underwater obstruction forcibly, the propeller drive pin may shear. This should rarely, if ever, occur, because of the shock absorber. TURN OFF MOTOR IMMEDIATELY. Remove rubber cap. Remove broken pin by driving parts out with a punch. Examine propeller. A blow forceful enough to shear the drive pin may also have damaged the propeller seriously. Propeller should be replaced if badly damaged. Drive a new pin in place, securing propeller to the shaft. Replace rubber cap.

REMOVING MOTOR FROM BOAT

At end of run, with motor running in NEUTRAL, close fuel shut-off valve and permit motor to run until it stops, draining carburetor. Close air vent screw in filler cap. The motor can then be carried without fuel leakage. For safety, always drain fuel tank before transporting motor. Also drain water thoroughly as in "Care of Motor in Cold Weather." When removing motor from boat, lift motor in a straight upward position and hold this position for a brief period until all water is drained from the underwater exhaust tube and water cooling system. Do not stand motor on top or carry with the top down before draining water, as this may allow water to enter the power head from underwater exhaust tube.

CARE OF MOTOR IN COLD WEATHER

The motor will not freeze while in use, but when it is idle, water in the cylinders or pump might freeze and damage the motor. Drain by setting the motor in an upright position and pulling starter cord several times with speed control grip in STOP position. If the motor is to be stored during cold weather, be sure that no water is left in the motor or it may freeze. (See "Preparation for Storage.")

SALT WATER INSTRUCTIONS

When using a motor in salt water it should be removed from the boat when not in service. Flush the motor thoroughly either by running it in a tank of fresh water or by removing WATER FLUSH plug (Figure 7) and using an adapter (available through your regular Service Parts Source), run fresh water through cooling system. Avoid excessive pressure which might damage gaskets. Wipe the motor dry and go over all parts with an oily cloth. This should be done as soon as possible after removing motor from boat.

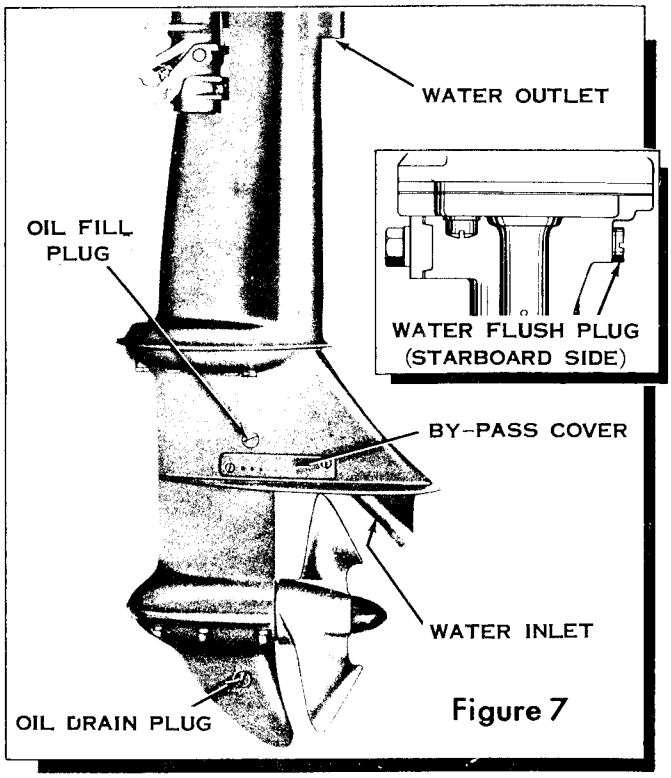


Figure 7

GEAR LUBRICATION

Where a complete change of lubricant is required, remove both the fill and drain plugs (Figure 7) with motor in upright position. Drain out all of the oil, water, or residue, replace the drain plug, then fill the gear case through the fill plug with a pump type oil can. Replace plug.

See back cover of this manual for specifications of correct gear lubricant. In case of emergency it is permissible to use S.A.E. 30 oil, but only until such time as the proper lubricant can be obtained.

The gear case should be checked for presence of water at frequent intervals. When checking, the motor must have been idle for some time to allow oil and water to separate. To check, remove the oil fill plug and loosen the oil drain plug partly to allow enough of the lubricant to drain out to determine whether or not water is present. If no water is present the drain plug may be retightened without excessive loss of lubricant. Be sure to refill the gear case to the fill plug level. If water is present drain gear case and refill. After running motor for several hours, again check for water. If presence of water persists, have seals in gear case checked.

GREASING

There is a Zerk type grease fitting on the motor which should be greased occasionally. This fitting is located on the end of the gear shift lever shaft on the starboard side. A good grade of waterproof grease such as Lubriplate No. 930AA is recommended for this fitting.

COOLING SYSTEM

Water for cooling purposes is provided by action of the single stage rubber impeller centrifugal pump located between the upper and lower housing of the lower unit. This functions as a displacement pump at slow motor speeds and as a centrifugal pump during operation in the higher speed range. There are two water inlets in the gear case. During FORWARD operation of the motor, water enters the slot, equipped with a screen, located directly below exhaust outlet, and is forced through the cooling system, later to be discharged at the outlet in the exhaust tube provided for this purpose. Water enters the cooling system through the holes in the water by-pass cover above the anti-cavitation plate when operating in REVERSE. (See Figure 1 for locations of cooling system parts.)

NOTE

If, while operating motor at full speed, it should show signs of slowing down, immediately check water discharge at water outlet (Figure 7) located at rear of the motor directly below cylinder. In case no water is being discharged, immediately shut off the motor and check water inlet (Figure 7) for obstruction. If no obstruction is found, it may indicate worn pump parts.

PREPARATION FOR STORAGE

No outboard motor should be placed in storage without considering the necessary precautions. Remove all plugs in the gear case and driveshaft housing, marked DRAIN, FILL and WATER FLUSH (Figure 7) to allow water in the gear case and water remaining in the cooling system to drain off. To make certain all water has been drained, rock motor from side to side. If operated in salt water, flush cooling system with fresh water.

Refill gear case with gear lubricant.

Remove spark plugs - pour about a tablespoon of clean oil through each spark plug opening. Turn flywheel slowly to distribute oil on cylinder walls. Replace spark plugs.

Drain all fuel from tank, gas line and carburetor.

Under no circumstances should the motor be stored in an inverted position. It should be hung on a rack similar to the manner in which it is mounted on the boat. Store in a dry place. Wrap the motor in a piece of canvas, old blanket, or heavy paper.

PUTTING MOTOR IN USE AFTER STORAGE

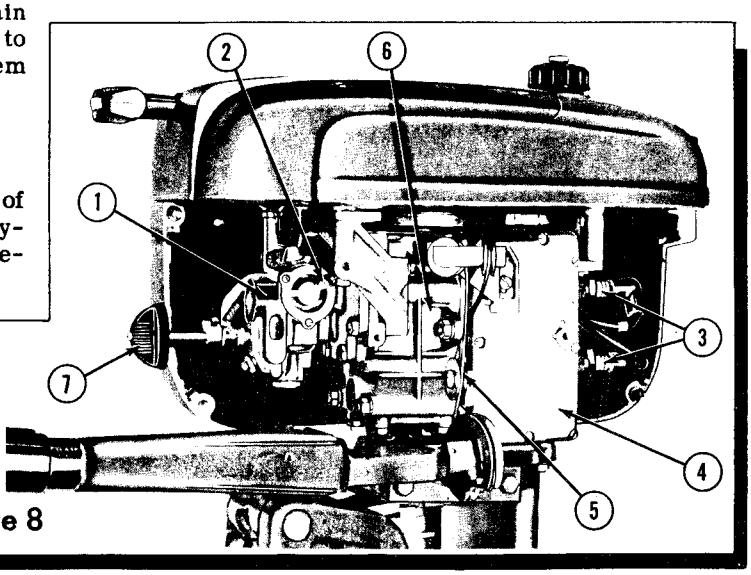
Pull off spark plug leads and remove spark plugs. If rubber spark plug hoods have been removed from ignition leads, be sure to ground leads to some part of motor to prevent possibility of spark. (THIS IS IMPORTANT.) Spin motor by pulling on starter cord to remove excess oil from cylinders. Clean spark plugs, check gap and replace. Install new plugs if they are cracked, broken, or badly burned. Tighten all screws and nuts. Check adjustments such as tilting friction, co-pilot, and carburetor knob.

SPARK PLUG

The correct spark plug gap is .030 inch. Plugs are set properly at the factory and are right when the motor is received. We recommend Champion J6J or Auto Lite A3X spark plugs, or equivalent for replacement. Keep the spark plug cables free from oil and do not permit them to become frayed or broken. Clean the spark plugs periodically and reset to the proper gap setting. Be sure gaskets are intact. For access to spark plugs, remove port motor cover.

RUNNING MOTOR IN TEST TANK

1. Do not run motor out of water.
2. Do not "break-in" motor in tank.
3. Remove water by-pass cover (small metal strip on lower port side of upper pump housing, Figure 7).
4. When running in tank be sure gear housing and propeller are submerged.
5. Do not race motor in tank.
6. Use test propeller when testing motor in tank.
7. Cavitation (air pocket around propeller) may occur when operating motor in tank with regular propeller. Motor will then not perform properly or it may race and be damaged as a result.



1 CARBURETOR
2 LOW SPEED ADJUSTING SCREW
3 SPARK PLUGS
4 CYLINDER SIDE COVER
5 THROTTLE CONTROL CABLE
6 CRANKCASE
7 CARBURETOR KNOB

Figure 8

MOTORS THAT HAVE BEEN SUBMERGED

Precaution should be taken to prevent a motor going overboard (see page 1). However, if a motor has been submerged, it should be recovered as quickly as possible.

Since the motor is temporarily out of working order, do not attempt to operate it until the following procedure has been used to restore it to service.

1. Drain fuel tank by removing fuel tank filler cap and turning motor upside down.

2. Remove plug at very bottom of carburetor (item 6, Figure 11) thereby draining water and fuel from carburetor. Pour enough fresh fuel into gas tank to remove any water from fuel line, by permitting fuel to run out of carburetor drain plug hole (fuel tank shut-off valve should be open). When all traces of water are removed, replace plug.

3. Remove and dry spark plugs. If rubber spark plug hoods have been removed, be sure to ground wires somewhere on motor. Lay motor down on gear shift handle side and crank motor. Turn motor so that spark plug holes are down and again crank motor until no further water is expelled.

4. Check spark by inserting screw or other small metal object into rubber spark plug hood to make contact with terminal spring in hood and holding screw about 1/4 inch from cylinder and cranking motor rapidly. Check spark from both leadwires. If rubber hoods are not on leadwires, be sure to ground one lead while checking the other.

5. Replace all parts removed, fill tank with new fuel mixture, and start motor. It may be necessary to clean water from points of spark plugs several times as there is a possibility of small drops of water remaining in the cylinder which may short the plugs.

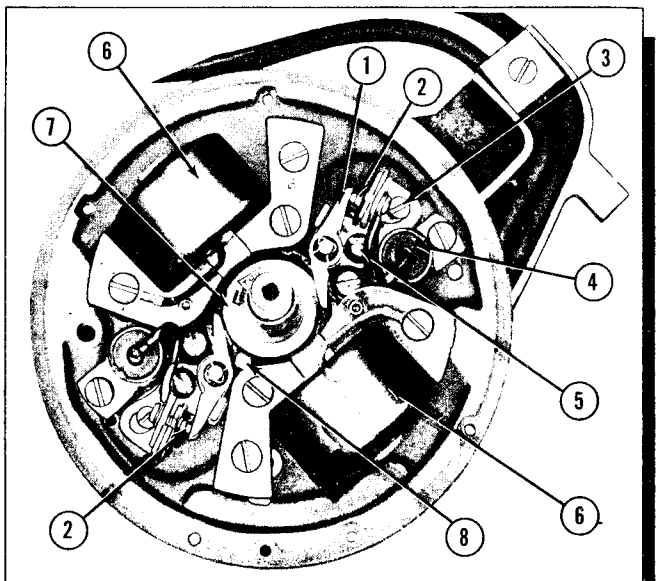
The above instructions are primarily for motors that have been submerged in fresh water. For motors submerged in salt water a few additional precautions, listed below, may be necessary.

1. Remove carburetor and fuel tank, and wash with fresh water. Dry thoroughly.

2. Remove flywheel, and wash magneto with fresh water.

3. It is advisable to wash external working parts, such as the starter mechanism, with fresh water and lubricate. Internal working parts are lubricated by the fuel mixture.

If motor will not operate after the above instructions have been followed, disassemble and wipe all parts dry. Coat with oil to prevent rust and follow instructions under "How to Obtain Service." (See back cover.)



1 BREAKER ARM
2 BREAKER POINTS
3 BREAKER ADJUSTING SCREW
4 CONDENSER
5 BREAKER BASE SCREW
6 COIL AND LAMINATION ASSEMBLY
7 BREAKER CAM
8 FELT OILER

Figure 9

MAGNETO

It may be necessary occasionally to inspect the magneto. If so, it is necessary to remove the gas tank and flywheel. However, if cleaning or adjusting of points only is required, remove the starter housing, (see page 4, "Emergency Starting") and the three screws releasing the starter ratchet and flywheel cover. Access to the points for cleaning or adjusting is possible through the opening on the top of the flywheel.

HOW TO REMOVE FLYWHEEL

Disconnect fuel line and remove fuel tank. Use flywheel puller if available. If not, hold flywheel rigid and unscrew the flywheel nut about two full turns. Have someone lift up on the flywheel and then place a piece of bar solder or a block of lead over the flywheel nut and tap a sharp blow with a hammer. If flywheel does not come off, loosen nut a trifle more and repeat procedure.

When flywheel comes off, use care not to lose key by which flywheel is held in engagement with shaft. When again replacing flywheel, be sure key is in place and fits snugly, then draw up nut as tight as possible. IMPORTANT: Tapers on flywheel and crankshaft must be perfectly clean and dry before reassembling.

MAGNETO LUBRICATION

The magneto is equipped with a felt oiler to lubricate the cam and reduce wear on the cam block of the breaker (Figure 9). A few drops of light oil should be put on the felt once or twice a year.

CHECKING BREAKER POINT GAP

ADJUSTING BREAKER POINT GAP

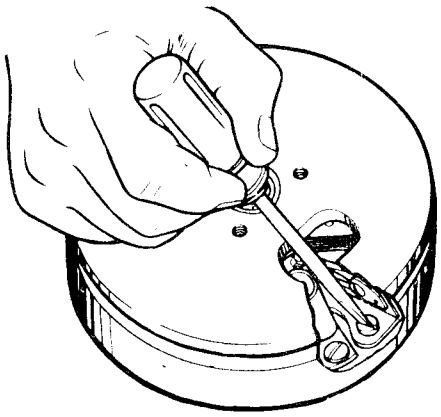


Figure 10

CLEAN AND ADJUST BREAKER POINTS

After removing starter ratchet and flywheel cover, revolve flywheel until opening is directly over breaker (there are two breakers on this magneto). Carefully spread points with small screwdriver. Insert point dresser. (Sandpaper, fine coil file, nail file, etc. NEVER USE EMERY CLOTH.) Release points, work dresser up and down to smooth. Follow same procedure with piece of thick smooth paper to remove traces of foreign particles which might be left on points.

After cleaning, reset point gap to .020 inch maximum opening as follows: When hole in flywheel is directly over the breaker, maximum opening of the breaker is obtained. Check with .020 inch feeler gage. If opening is under or over .020 inch loosen breaker plate screw (item 5, Figure 9) slightly. Turn adjusting screw (item 3, Figure 9) to right or left until required setting is obtained. Tighten breaker plate screw and re-check with gage. See figure 10.

CARBURETOR

It is important that the carburetor be kept clean. Dirt, sediment or water may accumulate in it and cause hard starting or irregular performance.

To clean the carburetor and reed valves, disconnect the fuel line, and remove nuts and screws which attach the carburetor to the crankcase. Remove the carburetor carefully to prevent damage to the gasket between crankcase and carburetor. If the gasket is damaged, replace it with a new one.

Check the reed valves carefully for dirt between the reeds and reed plate, or for damaged reeds. Remove the float bowl drain plug. Remove the float bowl cover. Flush out the float bowl and entire carburetor with a good solvent. Remove adjusting needle and blow out fuel passage with compressed air. (See item 8, Figure 11.)

Reassemble and install the carburetor on the motor with exception of carburetor knob and primer cam. Be sure gasket is in good condition and is in place to form an air tight seal.

It is necessary to make initial adjustment of the adjusting needle before installing carburetor knob or fastening primer cam to adjusting needle. Turn adjusting needle in (clockwise) with screwdriver until seated (DO NOT FORCE). Then back out (counterclockwise) one-half turn. Slip primer cam on adjusting needle leaving 1/16 inch clearance between it and primer lever. Point primer cam up and tighten set screw. Replace motor covers and fasten carburetor knob to adjusting needle with arrow pointing straight up.

Refer to Low Speed adjustment on Page 4 for final adjustment of low speed adjusting screw.

The preceding instructions also apply in the event the adjusting screw is removed to replace packing.

CARBURETOR ADJUSTING NEEDLE FRICTION

Should the carburetor adjusting needle become so loose that the carburetor knob will not remain in a set position, it can be tightened by drawing down on the packing nut (item 7, page 10).

NOTE

Turn carburetor knob to "Prime" position when tightening packing nut to prevent damage to needle seat.

If tightening of the packing nut will not help, it may be necessary to replace the packing. To replace packing, remove the carburetor knob, motor covers, primer cam, adjusting needle, packing nut, washer, packing and spacer. Install new packing and reassemble. Be sure all of old packing is removed before inserting new.

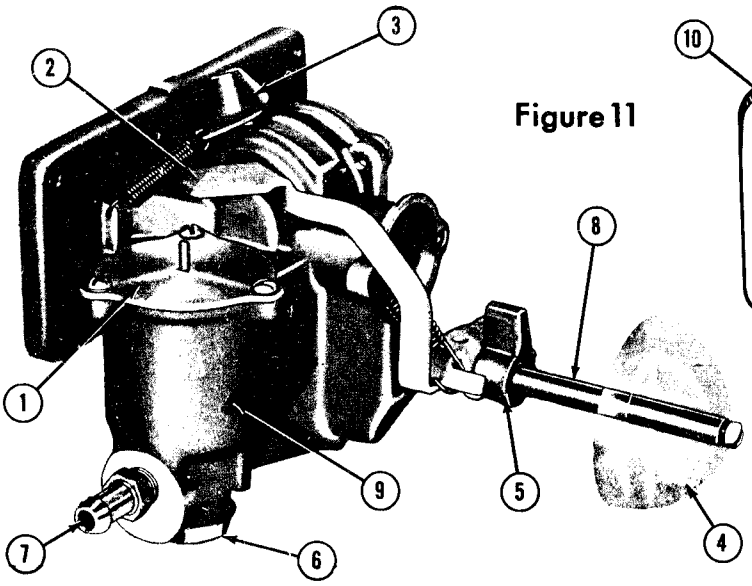
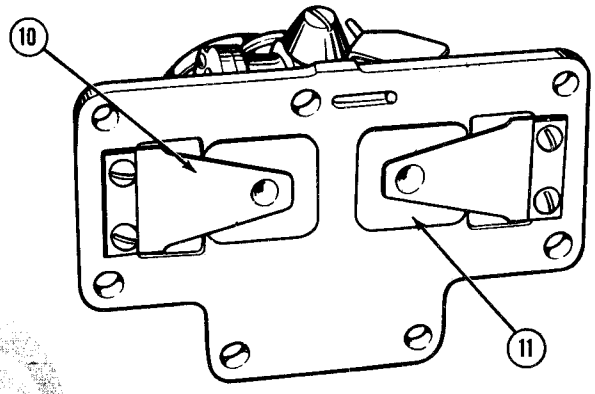


Figure 11



1 BOWL COVER
2 PRIMER LEVER
3 THROTTLE LEVER
4 CONTROL KNOB
5 PRIMER CAM
6 DRAIN PLUG
7 FUEL INLET NIPPLE
8 ADJUSTING NEEDLE
9 FLOAT BOWL
10 UPPER REED
11 LOWER REED

Check Chart

This chart will provide an outline for systematic tracing of operating difficulties. The causes listed are those which the average owner can locate with little difficulty. Once you have located the cause, the remedy is usually self-evident. If faulty motor operation cannot be traced to any of the causes listed, we recommend that you see your dealer.

Always make sure that you have been using the correct gasoline-oil mixture, and are following operating instructions accurately.

Spark plugs are one of the most common sources of trouble. It may save considerable time if spark plugs, then the other ignition parts, are checked first.

MOTOR WILL NOT START

FUEL TROUBLE
Tank empty.
Shut-off valve closed.
Filler cap vent closed.
Water in carburetor, tank or strainer.
Carburetor nozzle or passages clogged.
Strainer screen between shut-off valve and gas tank clogged.
Fuel line clogged.
Improper fuel and oil mixture.

NO SPARK TO PLUG
Lead to spark plug disconnected or grounded.
Breaker points not set at .020 inch gap.
Breaker points corroded.
Loose or broken wire in magneto.

NO COMPRESSION
Leaking gasket or stuck reed valve.

SPARK PLUG TROUBLE
Fouled.
Porcelain cracked.
Center electrode (pole) loose.
Points not set at .030 inch gap.

MOTOR KNOCKS

Flywheel hub loose.
Flywheel nut loose.
Incorrect spark plug pre-igniting.

MOTOR IS STIFF AND CRANKS HARD

No lubricant in gear case.

WATER STOPS CIRCULATING

Clogged water pump inlet.
Gear housing not setting deep enough in water.

MOTOR RUNS BUT PROPELLER DOES NOT TURN

Drive pin sheared.

MOTOR WILL NOT IDLE

Carburetor not adjusted properly.
Improper gasoline and oil mixture.
Throttle stuck open.
Dirty or defective spark plug.
Clogged carburetor.
Improperly set breaker points.

MOTOR MISSES

WIRING
Loose or broken ignition wire.
Broken or oil-soaked insulation on wire.

MAGNETO
Weak or broken breaker point spring.
Corroded or dirty breaker points.
Breaker points not set at .020 inch.

CARBURETOR
Nozzle or feed hole dirty.
Water or foreign matter in strainer.
Carburetor passages clogged.

MOTOR LOSES POWER

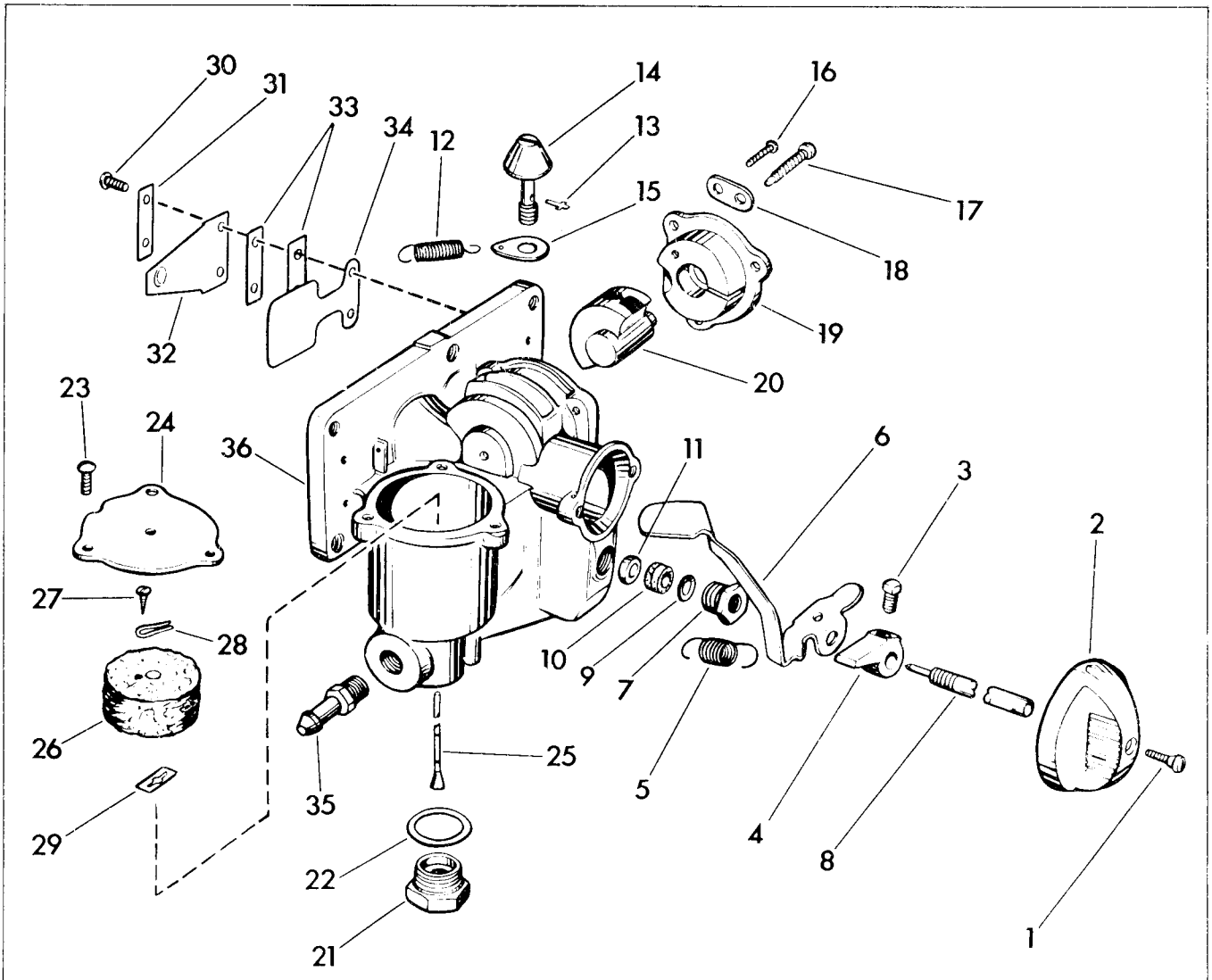
INCORRECT FUEL MIXTURE
Too rich - motor slows down and four cycles (fires every other compression stroke).
Too lean - motor slows down and may back fire.

MOTOR VIBRATES

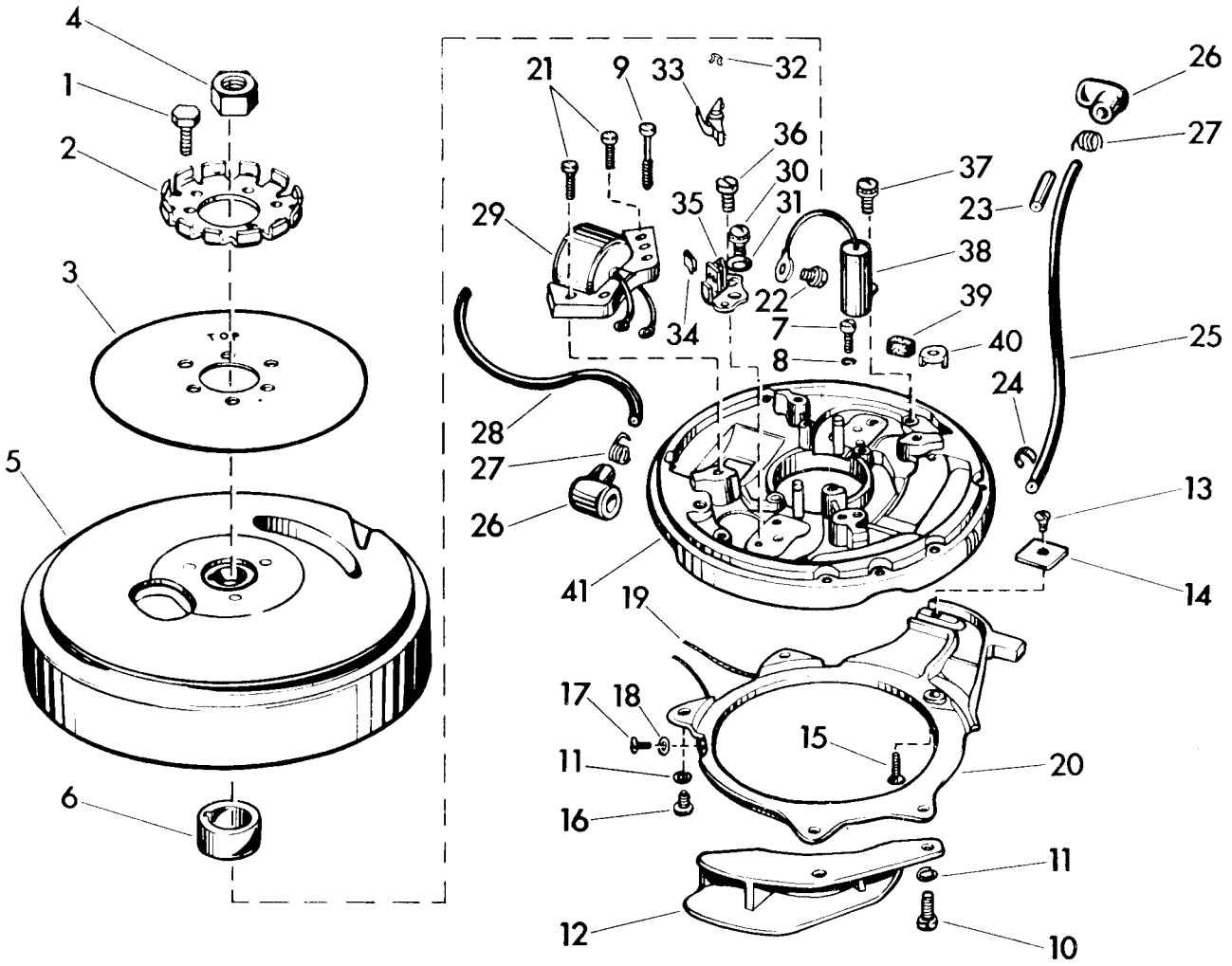
Faulty ignition or carburetion.
Loose pivot bearing.
Bent or broken propeller blade or motor loose on boat.

MOTOR RUNS BUT BOAT MAKES LITTLE OR NO PROGRESS

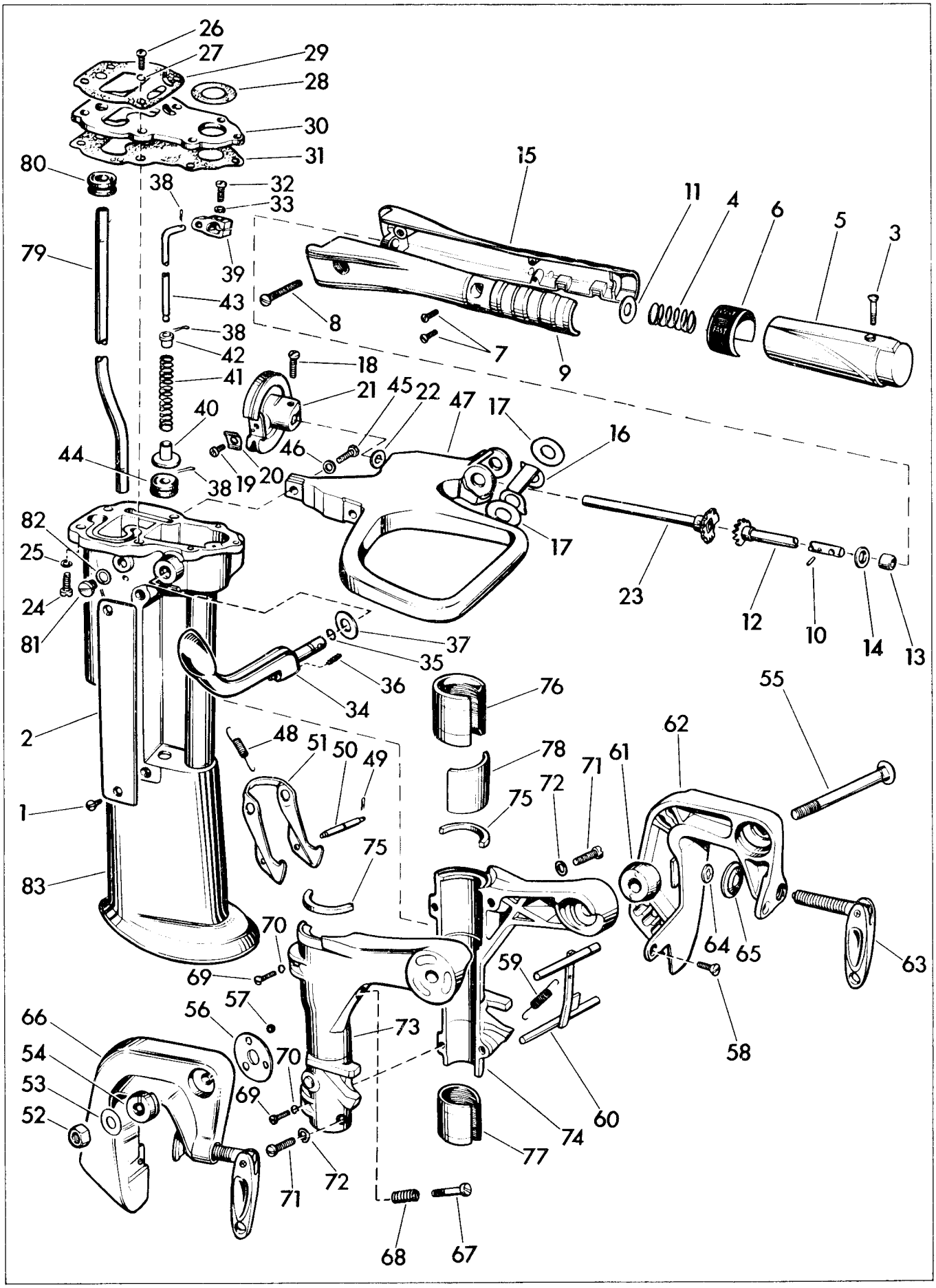
Badly bent propeller blades.
Weeds or rope wound around propeller.
Rope or other obstruction dragging in water.



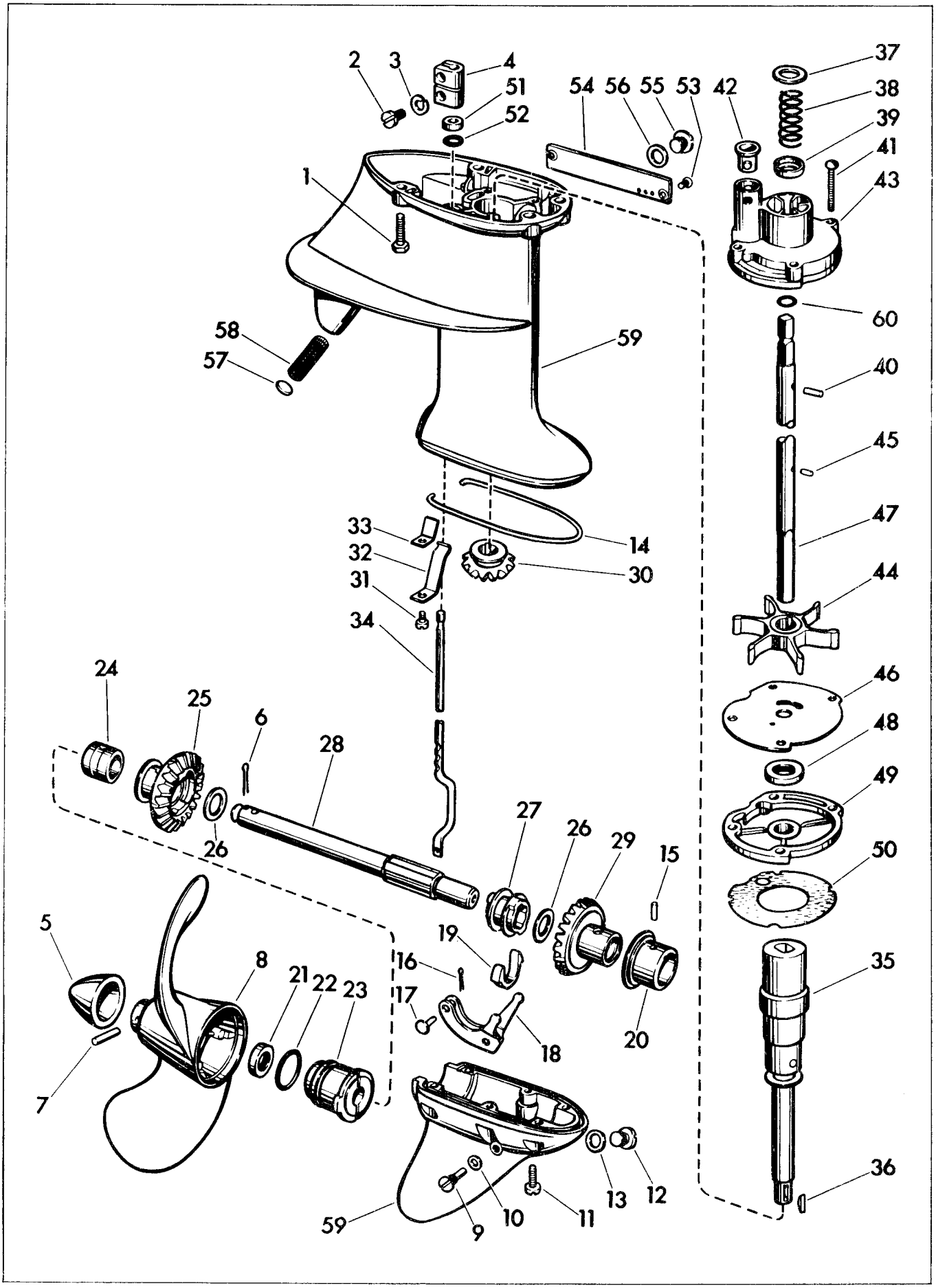
Ref. No.	Part No.	Description		Ref. No.	Part No.	Description	
	591422	Carburetor Assembly - Complete		19	550276	. Cover - Valve	
1	551517	. Screw - Carburetor Knob		20	550275	. Valve - Throttle	
2	552410	. Knob - Carburetor Control		21	133487	. Plug - Strainer	
3	133384	. Screw - Set		22	171318	. Gasket - Plug	
4	550015	. Cam - Primer		23	302227	. Screw	
5	551988	. Spring - Primer Lever		24	550805	. Cover - Bowl	
6	551068	. Lever - Primer		25	132351	. Needle - Inlet	
7	132691	. Gland		26	591188	. Float Assembly	
8	552417	. Needle - Adjusting		27	3-34	. . Screw - Float	
9	551953	. Washer - High Speed Needle		28	3-15	. . Pin - Cotter, Float	
10	550259	. Packing - Adjusting Needle		29	120813	. Lock - Float	
11	551954	. Spacer - High Speed Needle		30	131256	. Screw	
12	550405	. Spring		31	550263	. Plate - Binding, Reed	
13	551149	. Pin - Cotter		32	550271	. Reed - Upper	
14	551251	. Lever - Throttle		33	550262	. Spacer	
15	550564	. Lug - Spring Holding		34	550261	. Reed - Lower	
16	302227	. Screw		35	303492	. Nipple	
17	550280	. Screw - Adjusting		36	591394	. Carburetor Body and Nozzle Assembly	
18	551465	. Plate - Friction, Carb. Adj.					



Ref. No.	Part No.	Description
1	302468	Screw - Ratchet to Flywheel
2	202111	Ratchet - Starter
3	303249	Cover - Inspection Hole
4	301988	Nut - Flywheel
5	580107	Flywheel
6	510168	Cam - Magneto
7	510192	Screw - Armature Plate Mtg
8	3X28	Washer - Lock
9	510191	Screw - Armature Plate Mtg
10	71X765	Screw - Cam to Plate
11	71X1487	Washer - Lock
12	552391	Cam - Throttle
13	302751	Screw - Clamp to Pulley
14	552372	Clamp - Leads to Pulley
15	131024	Screw - Pulley to Armature Plate
16	302812	Screw - Pulley to Armature Plate
17	303852	Screw - Cable to Pulley
18	303851	Washer - Cable to Pulley Screw
19	552366	Cable - Throttle Control
20	552371	Pulley - Armature Plate
	580183	Armature Plate Assembly
21	510195	. Screw - Lamination Mtg
22	510194	. Screw - Breaker Terminal
23	510233	. Sleeve - Insulating
24	120783	. Marker - Upper Lead
25	591436	. High Tension Lead Assembly - Upper
26	510232	. . Cover - Rubber, Sparkplug
27	510231	. . Terminal - Spring, Lead
28	591437	. High Tension Lead Assembly - Lower (Also Includes 26 and 27)
29	580118	. Coil and Lamination Assembly
30	510278	. Screw - Breaker Mounting
31	510208	. Washer - Bow
	580148	. Breaker Assembly
32	71-1052	. . Clip - Spring
33	580123	. . Rocker Arm Assembly
34	510204	. . Clip - Breaker Spring
35	580122	. . Breaker Base Assembly
36	510185	. Screw - Eccentric
37	510193	. Screw - Condenser Mounting
38	510173	. Condenser
39	510189	. Wick - Oiler
40	510188	. Clip - Oiler
41	580121	. Armature Plate and Post Assembly

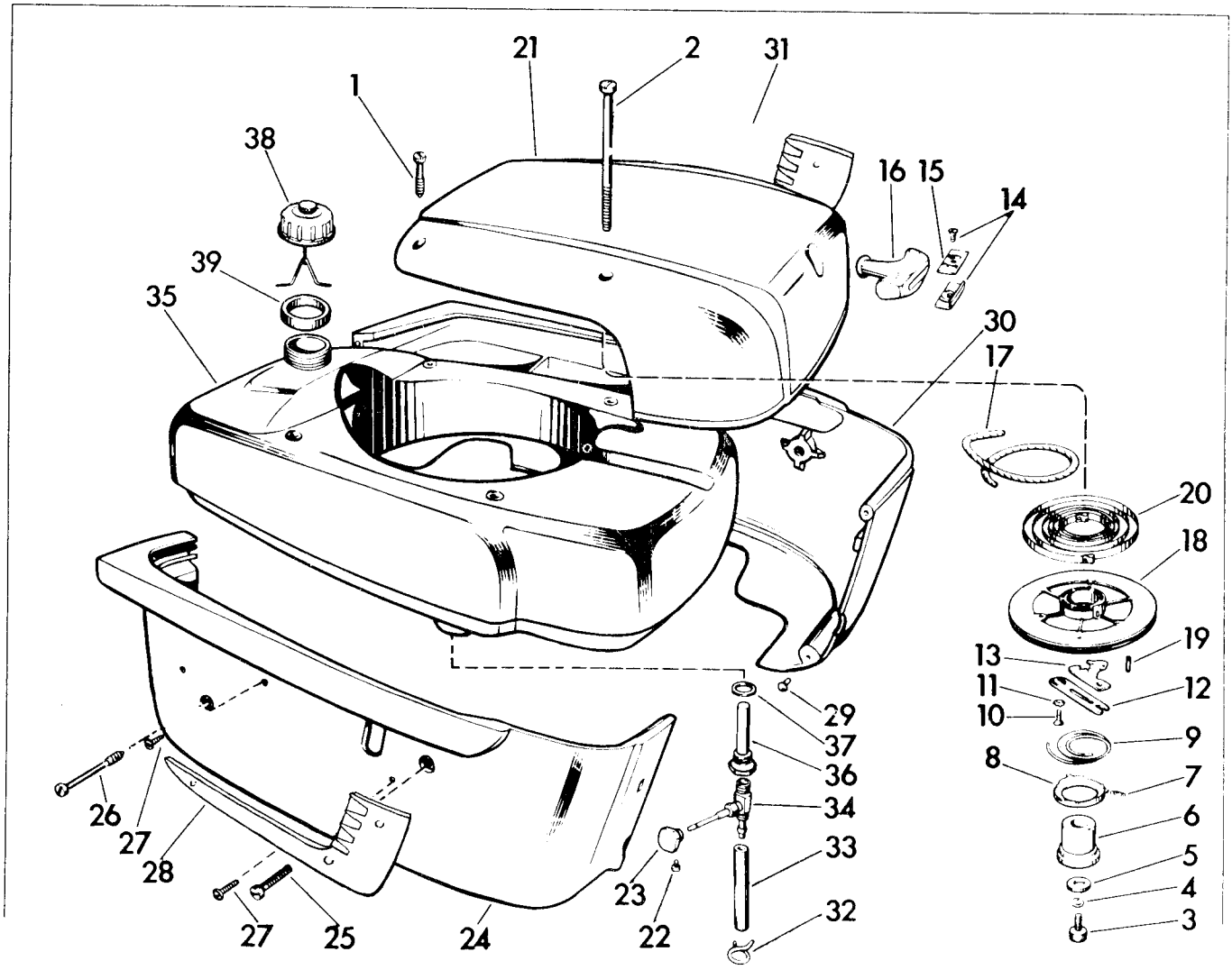

26
27
29
28
30
31
80
38
32
33
79
39
43
8
15
11
4
6
5
3
38
42
41
7
9
18
21
45
22
47
17
16
40
44
46
20
19
38
17
82
25
24
81
23
12
10
14
13
37
35
36
34
76
55
62
2
48
51
50
49
78
71
61
1
75
72
75
83
70
69
59
64
65
63
57
56
73
58
66
54
53
52
70
69
74
60
77
72
71
68
67

Ref. No.	Part No.	Description
1	302681	Screw - Exhaust Housing Cover Plate
2	552361	Plate - Exhaust Housing Cover
	591452	Steering Handle Assembly
3	302710	. Screw - Steering Handle Grip
4	301656	. Spring - Twist Grip
5	552209	. Grip - Steering Handle
6	203260	. Plate - Steering Handle
7	133452	. Screw - Steering Handle Halves
8	303078	. Screw - Steering Handle Halves
9	303093	. Handle - Steering (Inner Half)
10	300346	. Pin - Groove, Gear and Shaft
11	303252	. Washer - Handle to Spring
12	375977	. Gear and Shaft Assembly - Long
13	302717	. Bushing - Steering Handle
14	302712	. Washer - Steering Handle
15	303094	. Handle - Steering (Outer Half)
16	303096	Cover - Steering Handle Gears
17	303079	Washer - Steering Bracket to Handle
18	71-1352	Screw - Pulley to Shaft
19	300181	Screw - Clamp to Pulley
20	552369	Clamp - Cable to Lower Pulley
21	552377	Pulley - Throttle Control, Lower
22	303107	Washer - Pulley
23	591377	Gear and Shaft Assembly - Short
24	7-31	Screw - Exhaust Tube to Powerhead
25	7-227	Washer - Lock
26	71-765	Screw - Exhaust Tube Top Cover Plate
27	71-1487	Washer - Lock
28	552403	Gasket - Lower Bearing to Lower Unit
29	550348	Gasket - Cover Plate to Powerhead
30	552399	Plate - Cover, Exhaust Tube Top
31	552400	Gasket - Cover Plate to Exhaust Tube
32	302342	Screw - Lever to Shaft
33	303715	Washer - Lever to Shaft Screw
34	591374	Shift Lever and Shaft Assembly
35	303191	"O" Ring - Shaft to Exhaust Tube
36	303236	Spring - Shift Lever
37	303864	Washer - Shift Lever Shaft
38	15-268	Pin - Cotter, Shift Rod
39	303354	Lever - Shaft to Shift Rod
40	301915	Sleeve - Reverse Lock
41	552362	Spring - Shift Rod
42	301913	Sleeve - Shift Rod
43	552376	Rod - Shift (Upper)
44	552360	Grommet - Upper Shift Rod Seal
45	21-276	Screw - Steering Bracket to Exhaust Tube
46	7-227	Washer - Lock
47	591376	Steering Bracket and Bushing Assembly
48	552365	Spring - Reverse Lock
49	303049	Pin - Cotter, Reverse Lock Rod
50	303436	Rod - Reverse Lock
51	552363	Lever - Reverse Locking
52	17-182	Nut - Tilting Bolt
53	25-196	Washer - Tilting Bolt Nut
54	302051	Spring - Tilting Bolt
55	303349	Bolt - Tilting
56	202617	Shim - Stern Bracket to Swivel Bracket
57	160084	Ball - Stern Bracket to Swivel Bracket
58	303396	Screw - Stern Bracket
59	202021	Spring - Tilting Lever
60	591375	Tilting Lever Assembly
61	301983	Washer - Conical
62	376081	Stern Bracket Assembly - Port
63	375744	. Clamp Screw Assembly
64	302420	. . Retainer - Swivel Plate
65	41-48	. . Plate - Swivel Clamp Screw
66	376082	Stern Bracket Assembly - Starboard (Also Includes Items 63, 64, 65)
	591451	Swivel Bracket Assembly
67	303850	. Screw - Co-pilot
68	552368	. Spring - Co-pilot Screw
69	13-558	. Screw - Swivel Bracket Halves, Rear
70	120052	. Washer - Lock
71	25-238	. Screw - Swivel Bracket Halves, Front
72	19-124	. Washer - Lock
73	552393	. Bracket - Swivel, Starboard
74	552392	. Bracket - Swivel, Port
75	552401	Washer - Thrust
76	552387	Absorber - Shock, Upper
77	552370	Absorber - Shock, Lower
78	552386	Plate - Co-pilot
79	552373	Tube - Water
80	552364	Grommet - Water Tube, Upper
81	27-283	Plug - Water Flush
82	27-284	Washer - Flush Plug
83	591381	Housing - Exhaust


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
59
60

Ref. No.	Part No.	Description
1	302325	Screw - Exhaust Tube to Gearcase
2	303795	Screw - Shift Rod Connector
3	302290	Washer - Connector Screw
4	303794	Connector - Shift Rod
5	303365	Cap - Propeller
6	13-332	Pin - Cotter, Propeller Shaft
7	302333	Pin - Drive
8	591389	Propeller and Bushing Assembly
9	303358	Pin - Shifting Lever Pivot
10	304083	Washer - Pivot Pin
11	304071	Screw - Lower to Upper Gearcase
12	27-283	Screw - Grease Plug (Drain)
13	27-284	Washer - Grease Plug (Drain)
14	303328	Seal - Upper to Lower Gearcase
15	300611	Pin - Dowel
16	301912	Pin - Cotter, Pivot Pin
17	302504	Pin - Shift Rod
18	303340	Lever - Shifter
19	303381	Cradle - Shifter
20	303380	Bearing - Front, Gearcase
21	303345	Seal - Gearcase Head
22	303360	"O" Ring - Gearcase Head
23	376069	Gearcase Head and Bearing Assembly
24	303998	Bushing - Rear Reversing Gear
25	304010	Gear - Rear Reversing
26	303361	Washer - Thrust
27	376078	Clutch Dog Shifter Assembly
28	303443	Shaft - Propeller
29	376345	Gear and Bushing Assembly - Front
30	304009	Pinion - Drive Shaft
31	43-156	Screw - Detent Spring
32	303466	Spring - Detent
33	303700	Spring - Backup, Detent Spring
34	552375	Shift Rod - Lower
35	376073	Pinion Shaft and Shock Absorber Pilot Assembly
36	1-135	Key - Pinion to Pinion Shaft
37	552465	Washer - Lower Bearing Seal
38	303357	Spring - Lower Bearing Seal
39	303327	Washer - Spring Retaining
40	303261	Pin - Drive
41	303395	Screw - Impeller Housing
42	302497	Grommet - Water Tube, Lower
43	303442	Housing - Impeller
44	277181	Impeller and Insert Assembly
45	300771	Pin - Impeller to Drive Shaft
46	303376	Plate - Impeller Housing
47	552414	Drive Shaft
48	300599	Seal - Bearing Housing
49	376074	Bearing Housing and Bearing Assembly
50	303339	Gasket - Bearing Housing to Gearcase
51	303332	Bushing - Shift Rod, Lower
52	301877	"O" Ring - Shift Rod
53	302681	Screw - By-pass Cover
54	303344	Cover - Water By-pass
55	27-283	Screw - Grease Plug, Fill
56	27-284	Washer - Grease Plug
57	300314	Plug - Water Intake Screen
58	303331	Screen - Water Intake
59	376060	Gearcase Assembly (Also Includes Items 12, 13, 14, 15, 51, 52, 55, and 56)
60	303347	"O" Ring - Seal, Driveshaft

Ref. No.	Part No.	Description
1	302754	Bolt - Fuel Tank to Cylinder . .
2	303905	Screw - Carburetor and Bracket to Crankcase . . . . .
3	552397	Bracket - Fuel Tank Mounting, Starboard . . . . .
4	552396	Bracket - Fuel Tank Mtg., Port
5	302824	Screw - Clamp . . . . .
6	552404	Clamp - H.T. Leads to Cylinder
7	300875	Clip - H.T. Leads . . . . .
8	552379	Pulley - Throttle Control Idler, Upper. . . . .
9	302658	Shaft - Idler Pulley, Upper . .
10	132823	Screw - Pulley Bracket to Cylinder
11	552378	Bracket - Idler Pulley, Upper .
12	41-163	Pin - Cotter, Lower Idler Pulley
13	552405	Shaft - Lower Idler Pulley . . .
14	302659	Pulley - Throttle Control Idler, Lower . . . . .
15	41-223	Screw - Support Plate . . . . .
16	302599	Plate - Armature Support . . .
17	302580	Washer - Wave . . . . .
18	302442	Ring - Retaining . . . . .
19	7-46	Nut - Cylinder to Crankcase . .
20	7-227	Washer - Lock . . . . .
21	15-254	Nut - Carburetor to Crankcase .
22	552062	Screw - Carburetor to Crankcase
23	550109	Gasket - Carburetor. . . . .
24	200322	Spark Plug (Champion J6J) . . .
	376290	Spark Plug (Auto Lite A3X) . . .
25	591393	Cylinder and Cover Assembly .
26	550116	Gasket - Cylinder to Crankcase .
27	41-333	Ring - Piston . . . . .
28	120110	Clip - Ring, Piston Wrist Pin .
29	25-27	Pin - Piston Wrist . . . . .
30	375327	Piston and Dowel Pin Assembly
31	590007	Connecting Rod Assembly . . . .
32	120395	Key - Crankshaft . . . . .
33	37-86	Screw - Lower Crankshaft Bearing
34	552402	Seal - Lower Bearing to Drive Shaft
35	591450	Lower Crankshaft Bearing and Drain Tube Assembly . . . . .
36	550037	Gasket - Lower Bearing to Crankcase . . . . .
37	71-1550	Screw - Crankcase to Center Bearing . . . . .
38	550063	Dowel - Locating . . . . .
39	550062	Screw - Center Bearing . . . .
40	590035	Center Bearing Assembly (Includes Item 39) . . . . .
41	552474	Crankshaft . . . . .
42	550947	Retainer - Oil . . . . .
43	41-362	Slinger - Oil . . . . .
44	591396	Crankcase Assembly . . . . .



Ref. No.	Part No.	Description
1	21-167	Screw - Starter to Tank
2	552389	Screw - Starter to Bracket
	591453	Starter Assembly - Complete
3	131991	. Screw - Hub to Housing
4	13-51	. Washer - Lock
5	202356	. Washer - Starter Spindle
6	276643	. Spindle and Pin Assembly
7	202155	. Spring - Pawl
8	202114	. Cup - Equalizer
9	302222	. Spring - Friction
10	302104	. Screw - Retainer
11	71-1026	. Washer - Lock
12	202317	. Retainer - Starter Pawl
13	202470	. Pawl - Starter.
14	591214	. Clamp and Screw - Rope
15	551205	. Clamp - Rope
16	551226	. Handle - Starter
17	304097	. Rope - Starter
18	376377	. Starter Pulley and Pin Assembly
19	304099	. . Pin - Roll, Starter Pulley
20	41-197	. Spring - Starter
21	591378	. Starter Housing Assembly
22	552461	Screw - Knob to Valve
23	202912	Knob - Shut Off Valve
24	552395	Shroud Assembly - Starboard
25	552224	. Screw - Shroud, Front
26	552424	. Screw - Shroud, Rear
27	552415	. Screw - Applique to Shroud
28	552419	. Applique - Starboard
29	203290	Bumper - Shroud
30	552394	Shroud Assembly - Port
31	552418	. Applique - Port
32	552199	Clamp - Hose
33	552398	Hose - Shut Off Valve to Carburetor
34	591398	Valve - Shut Off
35	591454	Fuel Tank Assembly
36	591380	. Screen and Connector Assembly
37	171318	. Gasket - Tank Outlet
38	590774	. Filler Cap Assembly
39	551463	. . Gasket - Filler Cap

WARRANTY

VIKING OUTBOARD MOTOR

We warrant each new outboard motor to be free from defects in material and workmanship under normal use and when operated according to these instructions. Within 90 days from date of sale to the original purchaser we will exchange free of charge any part which our examination shall disclose to be defective.

This warranty shall not apply to any motor which has been subject to misuse, alteration, or accident; or which has been used for racing or equipped with a racing propeller.

All transportation charges on motors or parts returned to us must be prepaid.

EATON'S OF CANADA

How To Obtain Service

If your **VIKING** motor refuses to operate or perform properly and no instructions in this book cover the probable cause of failure, please follow this procedure.

1. Take your **VIKING** motor to a local outboard motor service station. Most service and repair work can be handled locally.

2. If no local service is available, contact the concern from which you purchased your motor stating type of failure, date of purchase, model number, motor serial number, and horsepower.

Do not return motor to the factory.

How To Order Repair Parts

This book gives you a complete repair parts list for your outboard motor. Should you need to order repair parts, they may be obtained direct from the concern from which you purchased your motor.

If you order repair parts the following information is needed to fill your orders properly:

1. Part number and description of part as shown in this catalog.

2. Complete motor model number and serial number. These numbers will be found stamped on the instruction plate located on the front of the stern bracket.

Do not order parts from the factory.

POWER HEAD. The entire power head of this motor is lubricated by oil mixed with the gasoline. It is important therefore to be sure the correct oil is used and that it is properly mixed.

We recommend Mobiloil Outboard, or other good grade outboard oil, or a regular SAE 30 grade automotive engine oil. Avoid use of low price third grade (ML) oils.

GEAR HOUSING. The gear housing is filled with hypoid gear oil for lubrication of gears and bearings. We recommend Mobilube GX90 or any other good grade of SAE 90 automotive (hypoid) gear lubricant. If hypoid lubricant is not available, in an emergency it is permissable to use Mobiloil Outboard or other SAE 30 engine oil until recommended lubricant can be obtained.