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GENERAL
INSTRUCTIONS
and
PARTS LIST

Antique Boat Museum



OUTBOARD MOTOR

by

KIEKHAEFER CORPORATION
CEDARBURG, WISCONSIN, U.S.A.

KIEKHAEFER
Mercury Outboard Motor

The Kiekhaefer Mercury Outboard is one of the finest motors that superior engineering design, skill and workmanship can produce.

Before leaving the factory the motor is run in, thoroughly tested and inspected to assure efficient and economical performance, dependable service and many years of pleasure to the owner in its operation.

The maximum efficiency and the exceptional performance and satisfaction built into the Kiekhaefer Mercury has been made possible by continuous research and engineering and the testing of these motors in the largest and most modern equipped laboratory for two-cycle engines in the country.

The high standard of quality which identifies the products of the Kiekhaefer Corporation has been recognized by the award of four Army and Navy E's.

All self-contained power units require a certain amount of attention. The Kiekhaefer Mercury requires a normal amount of care and by closely following the instructions contained in this instruction book, a maximum of performance will be obtained.

The amount of attention is small but IMPORTANT.

The powerhead and gear case of your new Kiekhaefer Mercury Outboard Motor are equipped with roller and ball bearings.

The Kiekhaefer Mercury is shipped from the factory ready for operation immediately after filling the gas tank with the recommended gasoline and oil mixture.

NOTE 1: The Warranty Period on your motor begins on date of purchase, but warranty is not valid until you have filled out and mailed in your Registration Card. DO THIS AT ONCE. Be sure to list the CORRECT SERIAL NUMBER.

NOTE 2: Warranty does not apply if motor is operated with a propeller other than a Kiekhaefer propeller of type, diameter, and pitch fitted to engine in original factory assembly.

Yours for Health, Sport and Safety,

THE SERVICE DEPARTMENT
KIEKHAEFER CORPORATION
CEDARBURG, WISCONSIN

Order repair parts from your local Mercury dealer and
always give your motor model number and serial number.

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The First Few Hours of Operation Are Important

Like the finest automobile or aircraft engines, the Kiekhaefer MERCURY requires consideration when new. Follow fuel and lubricant instructions on the following pages carefully, and for the first five hours avoid sustained full speed operation.....Have your official MERCURY Service Station check your motor for adjustments after the first fifteen hours of operation.

Installing Motor On Boat

In order to obtain the best operating results, it is important that the motor be properly mounted on the transom (stern board) of the boat, and that the angle of the motor be adjusted so that the propeller drive is parallel to the travel of the boat when the motor is operated at full throttle.

To accomplish this, hang the motor on the center of the transom and be certain to hand tighten (do not use pliers or wrench) the clamping screws, making sure that the motor is securely attached. After running motor, recheck by hand.

Adjust the motor angle by removing the tilt lock pin and inserting same in the proper hole to hold the motor in position so that the front of the drive shaft housing is perpendicular to the water surface.

Operate the motor at full throttle (when motor is warmed up). If the boat rides with the bow high out of the water, adjust the angle of the motor by tilting the gear case towards the stern of the boat.

If the boat rides with the bow down, adjust the angle of the motor by tilting gear case away from the stern of the boat. The angle of the motor should be adjusted to compensate for varying boat loads (i.e., the number of persons in the boat). For maximum efficiency the boat should 'plane' or ride on an even keel without 'spanking'.



TRANSOM HEIGHT

The correct relation of the motor to the boat is of great importance, therefore instructions for mounting the motor on the boat and recommended transom height should be carefully adhered to. Recommended transom height for the KE-7 is 15 inches.

The transom height is measured from the bottom of the keel to the top of the transom, perpendicular to the keel line.

Other manufacturers have built motors with lower gear cases; however, the MERCURY motors are designed to produce a maximum of efficiency at the recommended transom heights.

The drivers of racing motors maintain this height to within 1/16 of an inch.

Installing Motor On Boat (cont'd)

Lower transoms than recommended will lower the gear case too far below the keel and may cause drag resulting in loss of speed, and will increase the danger of striking submerged objects.....Transoms higher than recommended will raise the gear case too near the surface of the water which may cause cavitation or excessive slippage.

On boats with heavy or high keels, taper the keel from 20" forward of the stern up to a feather edge at the stern.

CAVITATION

The term cavitation as applied to the operation of an outboard motor is a condition whereby the propeller suddenly loses its load or 'push', permitting the engine to rapidly increase its R.P.M. This loss of load or 'push' is usually attributed to a reduced volume of water around the propeller.

This is generally caused by the action of the propeller drawing air from the surface into the slip stream. There are several conditions which may cause cavitation; such as:

1. Transom too high (Propeller too near surface)
2. Rough or turbulent waters.
3. Fast turns (causing turbulent waters)
4. Tilting boat during fast turns (Propeller too near surface).
5. Gear case angled too far from stern of boat (Propeller too near surface).
6. Design of boat, particularly a wide or high keel, causing water to be diverted from slip stream.
7. Using propeller of type, diameter and pitch other than recommended by the manufacturer.
8. Weeds around gear case (disturbing slip stream).

Other conditions that may be mistaken for cavitation:

1. Broken shear pin.
2. Bent or damaged propeller blades (also causes vibration)
3. Lost propeller.

Fuel Mixture

The proper selection and preparation of the fuel mixture to be used in your outboard motor is more important than it may seem to the casual outboard user. There is wisdom in selecting fresh gasoline and the recommended brand and grade of oil mixed in the proper proportion. Uniformity in fuel mixture will insure uniformity of carburetor adjustments and consequently uniform and consistent engine operation. Do not use aviation or "doped-up" fuel mixtures or alcohol-ether fuel mixtures which may be injurious to seals and other composition parts. Usually it is a good policy to use the same grade of gasoline and octane rating you would use in your automobile for the simple reason that the fuel, owing to its ready market in the service station, will be fresh and readily available. It is the factory's recommendation that the fuel you use in your MERCURY Outboard Motor should have an octane rating between seventy (70) and eighty (80).

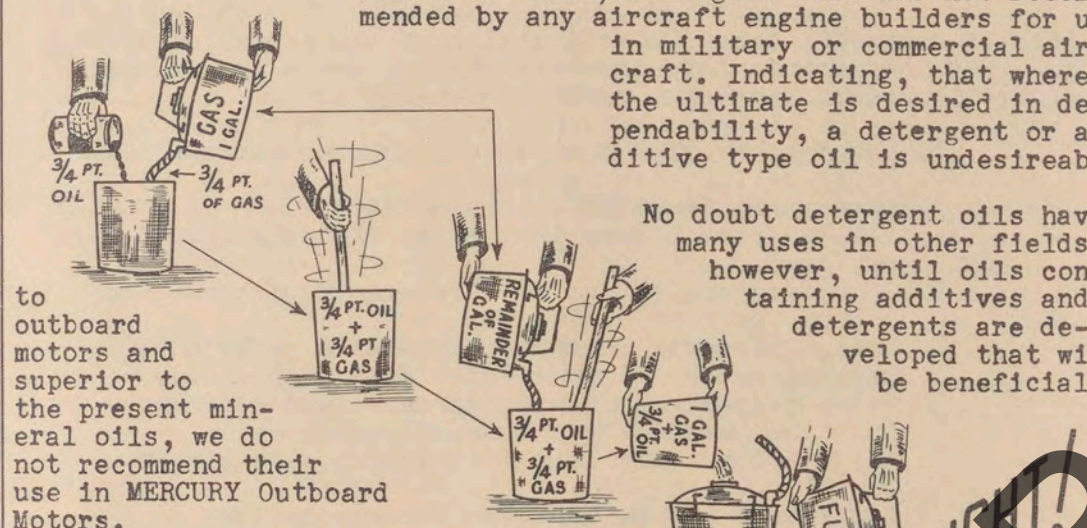
Fuel Mixture (cont'd)

Many oils contain additives and detergents and generally speaking are objectionable for use in the MERCURY Outboard Motors. Detergent oils are objectionable primarily because of their deteriorating effects on spark plugs and a noticeable increase in carbon and chemical deposits. It is generally good policy to select an oil that has the lowest solid carbon residue. To insure smooth operation of your MERCURY Outboard Motor, we recommend the use of Kiekhaefer Aeromarine Two Cycle Engine Oil. In an emergency, when the recommended oil is not available, use only a premium grade S.A.E. 30 pure mineral oil.

Army oil specification No. 2104A contained 14% detergents. This specification was superseded by Army specification No. 2104B which called for only 7% detergents. We understand that the automotive industry now desires an oil with less than 7% detergents, indicating a trend towards oils with lower detergent content. Remember, that detergent type oils were not approved for military aircraft use,

though used in auxiliary ground equipment. As far as we know, detergent oils are not recommended by any aircraft engine builders for use in military or commercial aircraft. Indicating, that where the ultimate is desired in dependability, a detergent or additive type oil is undesirable.

No doubt detergent oils have many uses in other fields; however, until oils containing additives and detergents are developed that will be beneficial



MIXING THE FUEL

Thoroughly mix gasoline and oil in the proportion of 3/4 pint of oil to each gallon of gasoline. To insure proper mixing, cut the oil first with an equal part of gasoline, then add remainder of gallon. However, total oil used is still 3/4 pint of oil per gallon. NEVER pour the gasoline and oil into the fuel tank separately.

To Start Motor

1. Fill fuel tank with recommended fuel mixture.
2. Open fuel shut-off valve (1).
3. Open air vent screw (2) on fuel tank cap.
4. Set throttle control lever (3) at START position.
5. If motor is cold, pull choke knob (4) out while operating starter. Avoid use of chokes when starting warm motor.
6. Start motor by pulling starter cable handle (5).
CAUTION: Do not allow starter cable to snap back, but retain hold on starter cable handle and allow cable to rewind slowly.
7. When motor warms up, push choke knob (4) all the way in.
8. Allow cold motor to warm up at part throttle for a minute or so before applying full throttle.

MAGNETO INSTRUCTIONS

YOUR MERCURY OUTBOARD MOTOR WILL OPERATE MOST EFFICIENTLY WITH THE MAGNETO CONTACT BREAKER POINT GAPS SET AT BETWEEN .016" AND .022", PREFERABLY .020". BE SURE BOTH GAPS HAVE THE SAME SETTING.

1. TO SET CONTACT BREAKER POINTS

- (a) Remove starter.
- (b) Rotate flywheel clockwise and observe the action of the contact points through holes in the flywheel.
- (c) Set the points that are in the process of opening and not closing. When fully open there should be twenty thousandths (.020") of an inch between the point surfaces. This can be checked with a feeler gauge. If the contacts do not open the proper distance, loosen the screws which hold the contact breaker, and shift the assembly slightly so as to obtain the correct clearance of .020" between the point surfaces.
- (d) Rotate flywheel one 1/2 revolution (180°) and adjust the other set of points through the same hole. Use hole marked T.

Note: Low and high speed performance depends greatly on maintaining the correct point setting. A difference of .004" or .005" in point setting may cause unequal spark advance resulting in rough or noisy operation, and a considerable loss of power, as well as idling performance.

Keep the points properly and equally adjusted and the motor will give fine performance.

Difficulty may be experienced in obtaining the correct point setting by using a conventional type of feeler gauge. For best results and to facilitate the setting of the points, use a feeler gauge of the correct thickness, .020", 3/16" wide x 4" long. A feeler gauge of this type will permit clear vision of the points and allow free access to the adjusting screw.

2. TO CHECK COILS AND CONDENSERS

Ordinarily the magneto will operate over extremely long periods of time without the need for adjustment or repair. However if engine operating difficulties are experienced which appear to be caused by the ignition system, the output of either coil can be checked to determine whether this unit is functioning properly.

Disengage the high-tension cable from the spark plug. Hold the cable by its insulation in such a position that the metal terminal is about 3/16" from some grounded part of the engine. While holding the wire in this position, spin the engine over at normal cranking speed. If a spark is obtained, the trouble is not in the particular coil, condenser, or breaker which are connected to the lead used for test.

Test both sides of the magneto in this manner. Should either side fail to spark, inspect.

the contact breaker on that side. If the contact points are dirty they can be cleaned with a little clear gasoline. Make sure no particles of lint are left between the point surfaces if a brush or cloth is used. If the points are severely burned, install a complete new contact breaker assembly. Disassembly or replacement of individual parts of the breaker is not recommended.

3. TO REMOVE COILS AND CONDENSERS

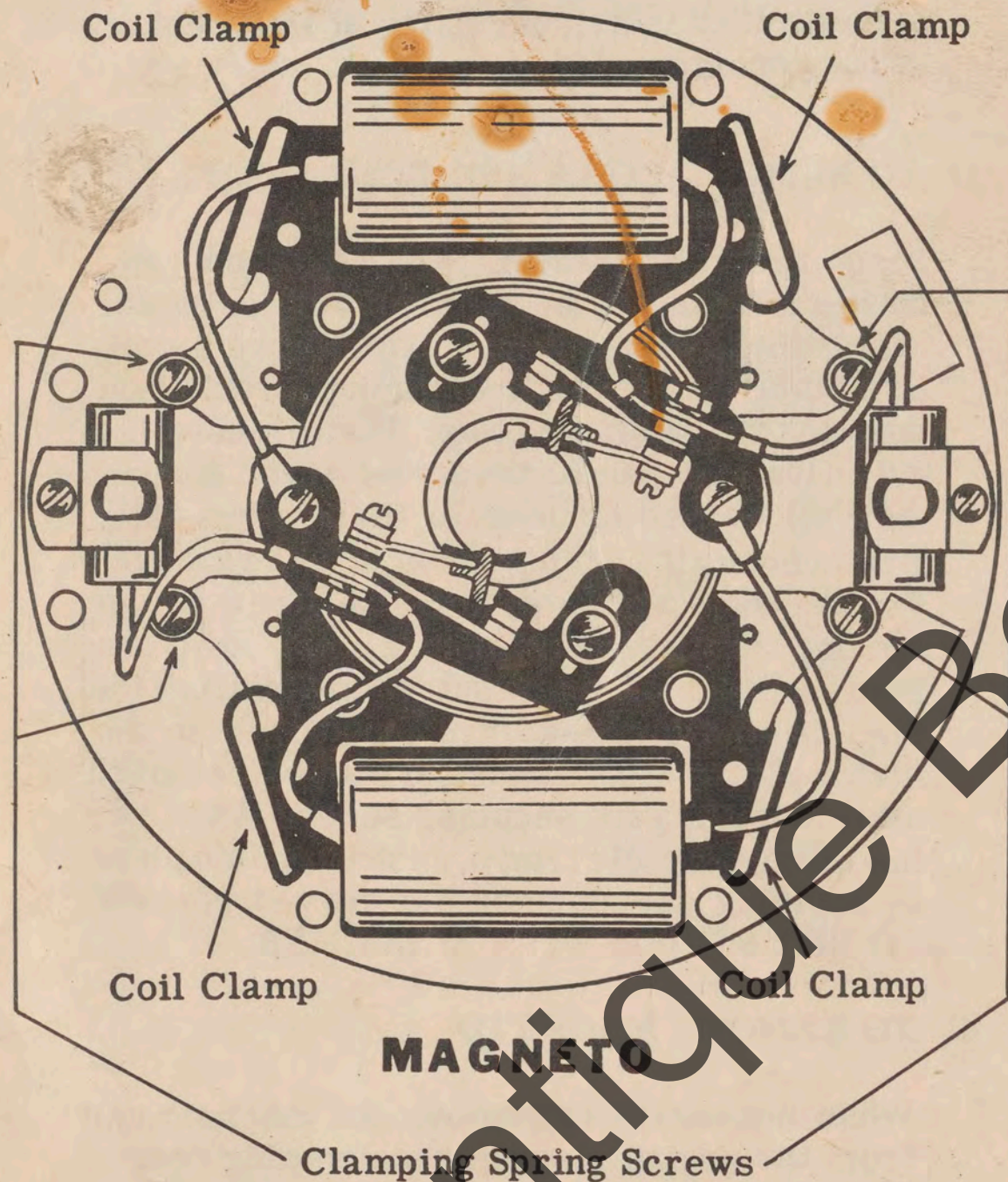
First remove flywheel. The coils and condensers can easily be removed for testing or replacement if necessary. To remove a coil, first take off the cable clamping bracket on the back of the stator plate. Then remove the nut on leads. Remove the screw which secures the coil grounding lead to the stator plate. Disconnect all wires from contact breakers. Pry off the coil clamps using a screw driver applied as shown in figure 3. The coil can then be lifted off, at the same time pulling the high-tension lead out through the hole in the stator plate. The condenser can be removed after loosening its securing screw. When re-installing the coil clamps, push them into place by applying pressure on the curved portion. DO NOT STRIKE WITH A HAMMER.

4. TO REMOVE MAGNETO

When necessary to remove the magneto unit from the engine, loosen tension plug screws on side of stator, loosen the clamping screws which secure each of the clamping springs; pull clamping springs outward so that they are disengaged from their groove in engine pilot. Remove magneto leaving magnet on the shaft. Remove magnet using magnet puller.

OUTBOARD *MERCURY* MOTORS

FIGURE 3



KIEKHAEFER CORPORATION, CEDARBURG, WISCONSIN

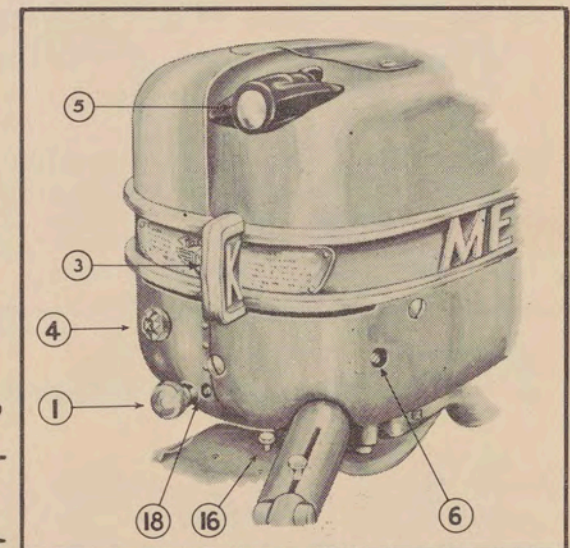
Final Adjustments

1. HIGH SPEED

The carburetor high speed needle valve (18) has been adjusted at the factory. However, it may require resetting for best operation depending on the temperature, altitude, fuel characteristics and the gasoline and oil ratio in the fuel mixture. When making high speed carburetor adjustments, the throttle control lever (3) must be all the way on FAST position. Do not attempt to make high speed adjustments with this lever in any other position. Always allow the engine to warm up before attempting to make final adjustments. Use screw driver and turn high speed needle valve (18) in, clockwise, to a point where engine begins to slow down, due to lean mixture, then turn valve counter-clockwise approximately one-eighth ($1/8$) of a turn to three-eighths ($3/8$) of a turn. This adjustment must be made slowly in order to permit the change in the setting to effect the engine performance. Always leave setting a little on the rich side. REMEMBER: Turn valve clockwise to lean mixture and counter-clockwise to richen mixture. Once in proper adjustment no further attention need be given with the exception of compensation for temperature extremes or a change in the oil content in the gasoline. Of course, a cold engine should be warmed up at part throttle, using choke if engine falters. Never operate a cold engine at full throttle. Give it a few minutes to reach operating temperature.

2. SLOW SPEED

When making slow speed adjustment, the throttle control lever (3) must be all the way on SLOW position. Do not attempt to make slow speed adjustment with lever in any other position. Use screw driver to adjust slow speed valve (6). (Located through hole on right side of cowl.) If motor runs rough with tendency to load, turn valve slowly counter-clockwise until smooth operation is obtained. If motor spits or stops, richen mixture by turning valve clockwise. This adjustment is very fine and only a fraction of a turn is usually required. REMEMBER: Turn valve counter-clockwise to lean mixture and clockwise to richen mixture for slow speed only (opposite to high speed).



3. If adjustments prove to be unstable, check to be sure that the carburetor is free of dirt or other foreign matter. If foreign matter is found in carburetor and removed with no improvement in engine performance, it is fairly certain that the ignition system should be checked for proper point setting, spark gap setting and oil soaked, cracked or frayed ignition wires. (See IGNITION on following page.)

To Stop Motor

1. Move throttle control lever (3) to STOP position.

To Stop Motor (cont'd)

- Motor can also be stopped by closing fuel shut off valve (1) and running carburetor dry.
- If motor is to be removed from boat and transported in a position other than vertical, the fuel shut off valve (1) and the air vent in the fuel tank cap (2) should be closed.

Ignition

- Magneto contact breaker point gap - .020"
- Spark plug gap - .025".
- Check breaker points after first 20 hours and every 100 hours thereafter. Reset if necessary.
- Do not replace spark plugs with any make or type different from original equipment.
- Check spark plug wires periodically and change when frayed or oil soaked.

Lower Unit

- Keep lower unit filled with Kiekhaefer Aeromarine Special Gear Lubricant. (Do not use ordinary automotive grease.)
- Check after every 50 hours of operation.
- To refill, remove filler plug (10) and air vent screw (11) on right side of gear housing, insert nozzle of grease tube in plug opening and fill until grease overflows at vent hole. Replace screw and plug and tighten firmly to prevent entry of water and loss of grease.

Care When Used in Salt Water

- As soon as motor is removed from the boat, the cooling system should be flushed out. This can be done by operating motor in a tank or barrel of FRESH water or by using a flushing attachment attached to a garden hose.
- While water is flowing through motor when using the flushing attachment, turn the crankshaft several times by pulling the starter cable handle.
- Be sure to keep the motor vertical until motor has been flushed out and properly drained.
- Rinse off outside of motor with FRESH water.
- Wipe motor with dry cloth, then wipe with oily cloth.
- Always keep motor clean.
- Remove propeller and wipe the propeller shaft with oily cloth.

PARTS LIST • ORDER BY PART NUMBER AND NAME

Giving Complete Motor Model Number and Serial Number

CRANKCASE

M-10-1000	Crankcase Assembly	M-10-1016	Pin, Push
M-10-1001	Crankcase	M-10-1017	Reed, Inlet Valve
M-10-1002	Bearing, Upper Needle	M-10-1018	Plate, Inlet Valve
M-60-405	Bearing, Upper Ball		Reed Stop
M-10-1004	Seal, Upper Oil	M-60-101	Screw, Inlet Valve
M-10-1005	Stud, Crankcase to Crankcase Bottom		Reed Attaching
M-10-1007	Stud, Carburetor Mounting	M-60-327	Washer, Inlet Valve
M-60-183	Screw, Center Main Bearing Locating Lock		Reed Attaching Screw
M-10-1008	Washer, Center Main Bearing Locating Lock	M-10-1037	Bottom Assembly, Crankcase
M-10-1009	Bracket, Fuel Tank	M-10-1038	Bottom, Crankcase
M-60-177	Screw, Fuel Tank Bracket	M-10-1039	Seal, Lower Oil
M-60-319	Washer, Fuel Tank Bracket Screw Lock	M-60-405	Bearing, Lower Ball
M-10-1010	Crankshaft Assembly	M-10-1021	Gasket, Crankcase Bottom to Crankcase
M-10-1011	Crankshaft	M-10-1022	Gasket, Crankcase Bottom to Crankcase Bottom Plate
M-10-1012	Bearing Assembly, Center Main	M-10-1023	Plate, Crankcase Bottom
M-10-1013	Bearing, Center Main	M-60-203	Nut, Crankcase Bottom Stud
		M-60-319	Washer, Crankcase Bottom Stud Nut

PISTON AND CONNECTING ROD

M-10-2000	Piston and Connecting Rod Assembly	M-10-2005	Ring, Piston Pin Lock
M-10-2001	Piston, Piston Pin and Ring Assembly	M-10-2006	Connecting Rod Assembly
M-10-2013	Piston and Piston Pin Assembly	M-10-2007	Bearing, Piston Pin
M-10-2003	Ring, Piston	M-10-2008	Bearing, Connecting Rod Roller
		M-60-151	Screw, Connecting Rod Cap

CYLINDER AND WATER JACKET

M-10-3025	Cylinder Block Assembly	M-10-3007	Stud, Cylinder Block to Crankcase
M-10-3026	Block, Cylinder	M-60-318	Washer, Crankcase to Cylinder Block Stud Nut
M-10-3002	Cover, Cylinder Block	M-60-205	Nut, Crankcase to Cylinder Block Stud
M-10-3003	Gasket, Cylinder Block Cover	M-10-3027	Cover, Manifold
M-60-188	Screw, Cylinder Block Cover	M-10-3028	Plate, Manifold Baffle
M-60-320	Washer, Cylinder Block Cover Screw	M-10-3029	Gasket, Manifold Cover to Manifold Baffle Plate
M-10-3004	Gasket, Cylinder to Crankcase	M-10-3030	Gasket, Cylinder Block to Manifold Baffle Plate
M-10-3005	Cover, Cylinder Transfer Ports	M-60-187	Screw, Manifold Cover
M-10-3006	Gasket, Cylinder Transfer Ports Cover	M-10-3012	Washer, Crankcase Bottom to Cylinder Block Water Seal
M-60-319	Washer, Transfer Ports Cover Screw Lock	M-10-3031	Seal, Water Pipe "O" Ring
M-60-186	Screw, Transfer Ports Cover		

PARTS LIST • ORDER BY PART NUMBER AND NAME
Giving Complete Motor Model Number and Serial Number

CARBURETOR

M-20-1000 Carburetor Assembly, Complete	M-20-1010 Shutter, Carburetor Throttle Butterfly
M-20-108 Plug, Body Channel Welch	M-60-168 Screw, Carburetor Throttle Butterfly Shutter
M-20-1003 Float, Carburetor	M-60-321 Washer, Carburetor Throttle Butterfly Shutter Lock
M-20-114 Clip, Carburetor Float Retaining Cotter	M-20-156 Spring, Carburetor Throttle Butterfly Shutter Shaft Return
M-20-1005 Cover, Carburetor Float Bowl	M-20-157 Lever, Carburetor Throttle Stop
M-20-1006 Gasket, Carburetor Float Bowl Cover	M-20-159 Screw, Stop Lever Retaining
M-60-107 Screw, Carburetor Float Bowl Cover	M-20-160 Pin, Carburetor Throttle Butterfly Shutter Shaft Stop
M-60-308 Washer, Float Bowl Cover Drain Screw Lock	M-20-1011 Lever Assembly, Throttle
M-60-109 Screw, Carburetor Float Bowl Drain	M-60-126 Screw, Throttle Lever to Carburetor
M-20-144 Gasket, Carburetor Float Bowl Drain Screw	M-20-1012 Gasket, Carburetor Flange
M-20-1007 Screw, Carburetor Idle Adjustment	M-60-314 Washer, Carburetor Mounting Nut
M-20-137 Spring, Carburetor Idle Adjustment Screw	M-60-203 Nut, Carburetor Mounting
M-20-1038 Jet, Carburetor Idle	M-20-1019 Valve Assembly, Fuel Shut-off Complete
M-20-134 Gasket, Carburetor Idle Jet	M-20-1020 Valve, Fuel Shut-off
M-20-111 Valve and Seat, Carburetor Inlet	M-20-1021 Stem, Fuel Shut-off Valve
M-20-115 Gasket, Carburetor Inlet Seat	M-20-1022 Nut, Shut-off Valve Packing
M-20-117 Screw, Carburetor Inlet Valve Channel Plug	M-20-1023 Packing, Fuel Shut-off Valve
M-20-1009 Screw, Carburetor Main Adjustment	M-20-1024 Washer, Fuel Shut-off Valve Packing Nut
M-20-127 Gland, Carburetor Main Adjustment Screw	M-20-1025 Knob, Fuel Shut-off Valve
M-20-128 Gasket, Carburetor Main Adjustment Screw Gland	M-20-1026 Pin, Fuel Shut-off Valve Knob Retaining
M-20-126 Packing, Carburetor Main Adjustment Screw	M-60-402 Plug, Brass Screw
M-20-125 Nut, Carburetor Main Adjustment Screw Packing	M-20-1013 Kit, Carburetor Repair
M-20-151 Shaft, Carburetor Throttle Butterfly Shutter	

CHOKE

M-20-2000 Choke Assembly	M-20-2005 Pin, Choke Lever Retaining Cotter
M-20-2001 Lever, Choke	M-20-2006 Shutter, Choke
M-20-2002 Rod, Choke	M-20-2007 Spring, Choke Shutter
M-20-2003 Pin, Choke Rod Swivel	M-60-155 Screw, Choke Shutter
M-20-2004 Stud, Choke Lever	M-20-2008 Knob, Choke Rod
M-60-307 Washer, Choke Lever Stud	

ORDER REPAIR PARTS FROM YOUR LOCAL MERCURY DEALER

PARTS LIST • ORDER BY PART NUMBER AND NAME
Giving Complete Motor Model Number and Serial Number

FUEL TANK

M-20-3066 Tank Assembly, Fuel	M-20-3009 Spring, Fuel Tank Cap Vent Screw
M-20-3000 Tank, Fuel	M-20-2005 Clip, Fuel Tank Cap Assembly Retaining
M-20-3043 Connector Assembly	M-20-3011 Knob Assembly, Fuel Tank Cap Vent Screw
M-20-3067 Connector and Anchor Assembly	M-60-158 Screw, Protector Rim to Cylinder Block Cover
M-20-322 Filter, Fuel	M-60-319 Washer, Protector Rim to Cylinder Block Cover Screw
M-20-3045 Rim Assembly, Protector	M-60-154 Screw, Protector Rim to Fuel Tank Bracket
M-60-176 Screw, Protector Rim Connecting Plate	M-60-319 Washer, Protector Rim to Fuel Tank Bracket Screw
M-60-162 Screw, Protector Rim to Protector Rim Rear	M-20-3003 Cowl, Left Half
M-60-122 Screw, Fuel Tank to Protector Rim Front	M-20-3004 Cowl, Right Half
M-60-167 Screw, Fuel Tank to Protector Rim	M-20-3024 Grommet, Choke Rod Hole
M-60-319 Washer, Fuel Tank to Protector Rim Screw	M-60-163 Screw, Cowl to Protector Rim
M-20-3005 Cap Assembly, Fuel Tank	M-60-163 Screw, Cowl to Cowl Upper
M-20-3006 Cap, Fuel Tank	M-60-163 Screw, Cowl to Cylinder Block
M-20-312 Gasket, Fuel Tank Cap to Fuel Tank	M-60-164 Screw, Cowl to Cowl Lower Front
M-20-317 Gasket, Fuel Tank Cap Vent Screw	M-60-302 Washer, Cowl to Cowl Lower Front Screw
M-60-327 Washer, Fuel Tank Cap Vent Screw	M-20-3021 Line Assembly, Fuel
M-20-3007 Washer, Fuel Tank Cap Vent Screw Spring	M-20-3022 Line, Fuel
M-20-3008 Chain, Fuel Tank Cap	M-60-411 Nut, Fuel Line Compression
M-20-316 Spring, Fuel Tank Cap Retaining	M-60-410 Sleeve, Compression

MAGNETO

M-30-2000 Magneto, Complete	M-60-307 Washer, Breaker Attaching and Adjust Screw Lock
M-30-2001 Plate Assembly, Stator	M-60-301 Washer, Breaker Adjust Screw Plain
M-30-203 Plate, Stator	M-60-201 Nut, Primary Connectors to Breaker
M-30-204 Coil, Ignition	M-60-306 Washer, Primary Connectors to Breaker Nut
M-30-205 Clamp, Coil Core Fastening	M-30-2005 Magnet, Rotating
M-30-206 Insulator, High Tension Lead	M-30-216 Spring, Stator Plate Tension
M-30-202 Lead, High Tension Short	M-30-217 Plate, Stator Plate Tension Spring
M-30-2003 Lead, High Tension Long	M-60-111 Screw, Stator Plate Tension Spring
M-30-209 Clamp, High Tension Lead	M-60-309 Washer, Stator Plate Tension Spring Screw
M-60-106 Screw, High Tension Lead Clamp	M-30-224 Shoe, Friction
M-60-307 Washer, High Tension Lead Clamp Screw	M-30-225 Spring, Friction Shoe
M-30-210 Condenser	M-30-226 Plug, Friction Shoe Spring
M-60-106 Screw, Condenser Attaching	M-30-2004 Shim, Magneto Stator Plate
M-60-307 Washer, Condenser Attaching Screw	M-30-2006 Flywheel Assembly
M-30-229 Breaker, Complete (Contact Point Set)	M-30-221 Key, Flywheel
M-60-106 Screw, Breaker Attaching and Adjust	

ORDER REPAIR PARTS FROM YOUR LOCAL MERCURY DEALER

PARTS LIST • ORDER BY PART NUMBER AND NAME
Giving Complete Motor Model Number and Serial Number

STARTER

M-30-4000	Starter Assembly, Complete	M-30-462	Pawl Assembly, Starter
M-30-4001	Cover Assembly, Starter	M-30-463	Pawl, Starter
M-30-455	Pin, Spring Anchor	M-30-489	Magnet Assembly, Starter Pawl
M-60-406	Pin, Sheave Shaft Retaining Groove	M-30-4007	Cable Assembly, Starter
M-30-4003	Screw, Starter Sheave Shaft	M-30-465	Handle, Cable
M-30-484	Shaft, Starter Sheave	M-30-466	Bushing, Starter Cable End Cap
M-30-456	Sheave Assembly, Starter	M-30-436	Spring, Starter
M-30-457	Sheave, Starter	M-60-319	Washer, Friction Plate
M-30-458	Bearing, Sheave Hub	M-60-164	Screw, Friction Plate
M-60-138	Screw, Sheave Hub Reinforcing	M-30-467	Plate, Starter Friction
M-30-459	Pin, Sheave Spring Anchor	M-60-161	Screw, Starter Cover Rear
M-30-460	Pin, Retainer	M-60-178	Screw, Starter Cover Front
M-30-4006	Washer, Pawl Retainer Spacing	M-30-4008	Ratchet, Starter
M-30-470	Collar, Sheave Shaft	M-30-416	Plate, Auxiliary Starting
M-30-471	Retainer, Pawl	M-60-309	Washer, Auxiliary Starting Plate Screw
M-30-472	Washer, Pawl Retainer Tension	M-60-175	Screw, Auxiliary Starting Plate

SPARK CONTROL LEVER

M-30-4010	Lever Assembly, Magneto Spark and Throttle Control	M-60-159	Screw, Magneto Spark and Throttle Control Lever Long
M-30-408	Spacer, Control Lever Cam	M-30-4012	Knob, Magneto Spark and Throttle Control Lever
M-60-310	Washer, Control Lever Screw	M-60-160	Screw, Control Lever Knob Attaching
M-60-102	Screw, Magneto Spark and Throttle Control Lever Short	M-30-420	Spark Plug - With Gasket

DRIVE SHAFT HOUSING

M-40-1000	Housing Assembly, Drive Shaft	M-60-203	Nut, Drive Shaft Housing to Cylinder Stud
M-40-1009	Pipe, Water Inlet	M-60-320	Washer, Drive Shaft Housing to Powerhead Stud Nut
M-40-1002	Bushing, Upper Rubber Mounting	M-60-205	Nut, Drive Shaft Housing to Gear Case Long Stud
M-40-1005	Bushing, Lower Rubber Mounting	M-40-1008	Stud, Drive Shaft Housing to Gear Case Short
M-40-1011	Gasket, Drive Shaft Housing to Powerhead	M-60-318	Washer, Drive Shaft Housing to Gear Case Long Stud
M-60-185	Screw, Drive Shaft Housing to Cylinder		
M-60-320	Washer, Drive Shaft Housing to Cylinder Screw		

ORDER REPAIR PARTS FROM YOUR LOCAL MERCURY DEALER

PARTS LIST • ORDER BY PART NUMBER AND NAME
Giving Complete Motor Model Number and Serial Number

STEERING ASSEMBLY, AND CLAMPING BRACKET

M-40-2000	Swivel Bracket and Co-pilot Assembly	M-40-2015	Nut, Clamp Bracket to Swivel Bracket Stud
M-40-2001	Swivel Bracket Assembly	M-40-2016	Bracket Assembly, Steering
M-40-2002	Bracket, Swivel	M-40-2017	Bracket, Steering Handle
M-40-214	Disc, Friction	M-60-164	Screw, Steering Handle Bracket Spring
M-40-2003	Co-pilot Disc Assembly	M-60-319	Washer, Steering Handle Bracket Spring
M-40-2006	Clamp Plate Assembly	M-40-203	Spring, Steering Handle Bracket
M-40-214	Disc, Friction	M-40-207	Bolt, Steering Handle Bracket Clamping
M-60-156	Screw, Plate Clamping	M-40-2015	Nut, Steering Handle Bracket Clamping Bolt
M-60-319	Washer, Clamping Plate Screw Lock	M-40-204	Handle, Steering
M-60-157	Screw, Adjusting	M-40-206	Grip, Steering Handle Rubber
M-40-210	Spring, Co-pilot to Drive Shaft Housing	M-60-156	Screw, Steering Handle Bracket to Co-pilot Disc
M-40-2010	Pin, Swivel Bracket	M-60-319	Washer, Steering Handle Bracket to Disc Screw
M-40-2019	Shim, Swivel Bracket to Clamp Bracket	M-40-2020	Pin Assembly, Tilt Lock
M-40-2011	Bracket Assembly, Clamp		
M-40-2012	Bracket, Clamp		
M-40-2013	Screw Assembly, Clamping		
M-40-220	Disc, Clamping		
M-40-2014	Stud, Clamp Bracket to Swivel Bracket		

GEAR CASE

M-50-1000	Gear Housing Assembly, Complete (Lower Unit)	M-60-405	Bearing, Propeller Gear Ball
M-50-1001	Gear Housing Assembly	M-50-1019	Ring, Propeller Gear Snap
M-50-1002	Housing, Gear	M-50-1020	Washer, Water Pump Cartridge Sealing
M-50-1003	Bearing, Propeller Shaft Roller	M-50-1024	Cartridge Assembly, Water Pump
M-50-1004	Bearing, Drive Shaft Roller	M-50-1025	Cartridge, Water Pump
M-50-1005	Shaft Assembly, Drive	M-50-1010	Seal, Oil
M-50-1006	Shaft, Drive	M-50-1026	Seal, Water Pump Cartridge Rubber Ring
M-50-1007	Bearing, Ball	M-60-407	Key, Water Pump Impeller Drive
M-50-1008	Pilot and Oil Seal Assembly, Drive Shaft	M-50-1028	Impeller Assembly, Water Pump
M-50-1009	Pilot, Drive Shaft	M-50-1029	Cover, Water Pump
M-50-1010	Seal, Oil	M-50-1030	Seal, Water Inlet Pipe
M-50-1011	Gear, Drive Shaft Pinion	M-50-1031	Washer, Water Inlet Pipe Seal
M-50-1012	Washer, Drive Shaft Pinion Gear Screw Tab	M-50-1032	Screw, Grease Filling Hole
M-60-166	Screw, Drive Shaft Pinion Gear	M-50-1033	Washer, Grease Filling Hole Screw
M-50-1021	Shim, Drive Shaft Assembly, (Optional)	M-60-181	Screw, Gear Housing Vent
M-50-1022	Shim, Drive Shaft Assembly (Optional)	M-50-1034	Stud, Drive Shaft Housing to Gear Case Long
M-50-1023	Shim, Drive Shaft Assembly (Optional)	M-50-1035	Propeller
M-50-1014	Shaft and Gear Assembly, Propeller	M-50-1053	Washer, Propeller Nut
M-50-1015	Shaft, Propeller	M-50-1036	Nut, Propeller
M-50-1016	Pin, Propeller Gear	M-50-109	Pin, Propeller Nut Cotter
M-50-1017	Gear, Propeller	M-50-143	Pin, Propeller Shear
M-50-1018	Washer, Propeller Gear Thrust	M-60-326	Washer, Gear Housing Vent Screw

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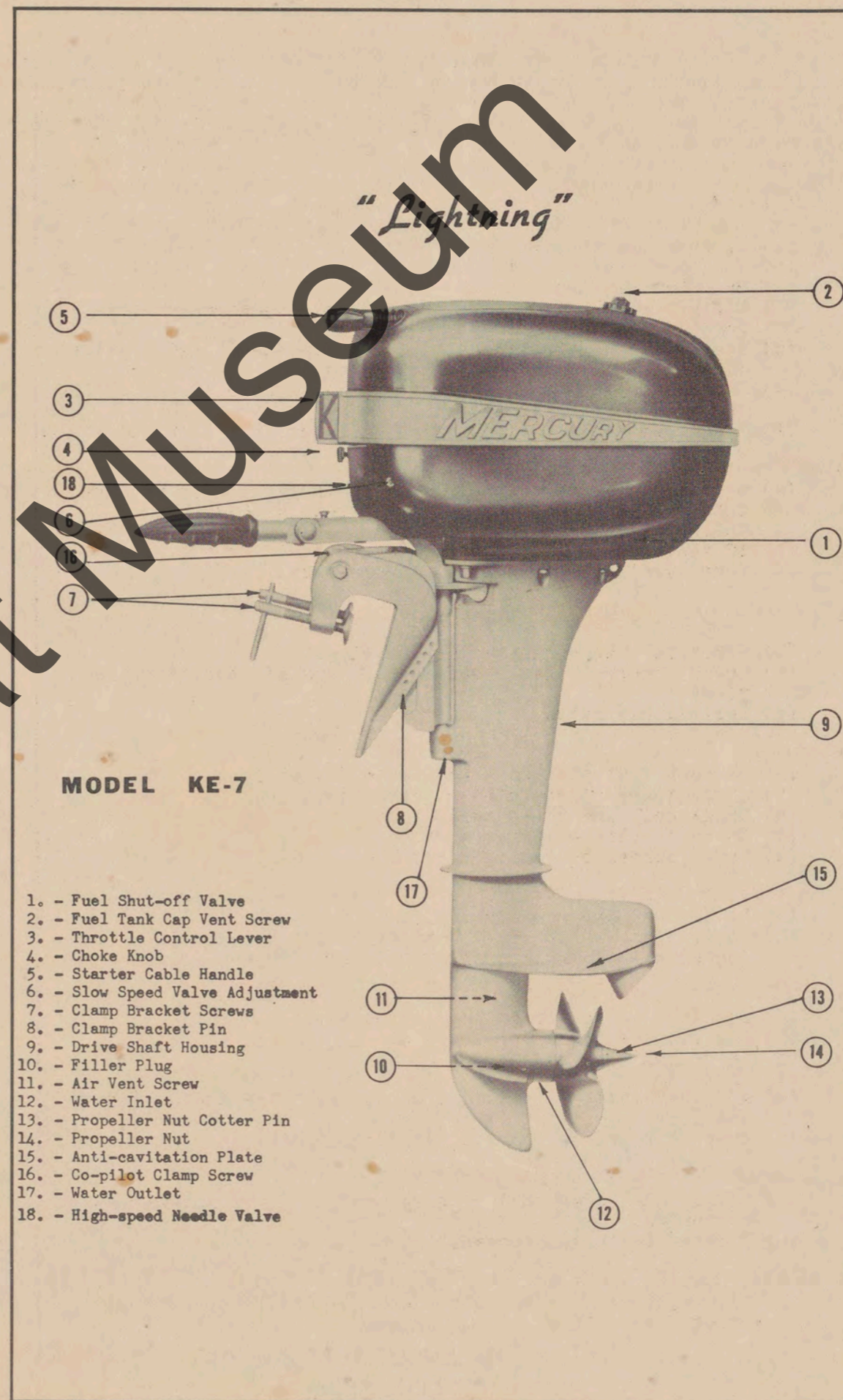
Preparing Motor For Storage

It is important that care be taken in preparing an outboard motor for storage, especially winter storage. The following precautions should be rigidly adhered to:

1. Motor should be flushed thoroughly. (See CARE WHEN USED IN SALT WATER, page 8) Flush outside of lower unit with fresh water.
2. Remove grease plug and vent screw from gear case and allow sufficient time for any water that may have lodged in gear case to drain out.
3. Fill gear case with the recommended gear lubricant. Replace plug and vent screws.
4. Drain fuel tank, fuel line, and carburetor.
5. Remove and clean carburetor and fuel filter.
6. Spray clean oil into crankcase through venturi opening.
7. Remove spark plugs; pour one tablespoon of clean oil into plug openings.
8. Rotate crankshaft several times by pulling starter rope or cable.
9. Replace carburetor, fuel filter, and spark plugs.
10. Wipe all exposed parts with dry rag and oil all polished parts.
11. Turn the propeller over two or three revolutions in reverse direction. This will reverse the impeller vanes and assist in draining the water. Leave the vanes in reverse position.
12. Store in a dry place, in a vertical position, if possible on a rack in the same position as when mounted on a boat.
13. Cover motor with canvas or replace in original shipping box or carton; keep upright.

Valuable Suggestions

1. Always fasten clamping screws (7) securely by hand and as an added precaution, use rope or chain to tie motor to boat.
2. Always have a screw driver, pliers, shear pins, cotter pins, and an extra spark plug handy when motor is being used.
3. Metal plates especially designed on either side of the transom will prevent your boat from becoming marred by the clamp bracket.
4. If your boat is over 16 feet in length and used in navigable waters, you must comply with the Federal Motor Boat Law.



STRICT COMPLIANCE WITH THE OPERATING INSTRUCTIONS CONTAINED IN THIS BOOKLET WILL INSURE AN EFFICIENT OPERATION AND LONG LIFE FOR YOUR MOTOR. FAILURE TO COMPLY WITH THESE INSTRUCTIONS MAY RESULT IN THE FOLLOWING:

1. **Motor Will Not Start:** (Proceed as follows to determine the cause.)
 - (a) Be sure there is fuel in the tank.
 - (b) See that the shut-off valve (1) and air vent on fuel tank cap (2) are open.
 - (c) Mixture may be too lean. (See Final Adjustments, page seven.)
 - (d) Carburetor may be flooded. Close high-speed needle valve (18) and crank engine several times.
 - (e) Remove high-speed needle valve (18) to make sure gasoline is getting to carburetor.
 - (f) If not getting gasoline, remove filter from tank and clean.
2. **Motor Overheats And Stops:**
 - (a) May be caused by insufficient oil in gasoline. Be sure instructions under Fuel Mixture (Page 5) have been followed.
 - (b) If above instructions have been followed, check water pump impeller and replace if necessary.
3. **Motor Develops Low Compression:**
 - (a) Check for loose spark plugs or wires.
 - (b) Check powerhead gaskets for leaks and if necessary, replace.
 - (c) Install new rings.
4. **Motor Misses:**
 - (a) Be sure fuel tank cap vent screw (2) is open.
 - (b) Check spark plugs, wiring, and points.
 - (c) Check coil and condenser.
 - (d) Inspect cylinder for cracks.
 - (e) Check screen on top of float bowl.
5. **Motor Will Not Start When Hot:**
 - (a) Do not use choke excessively.
 - (b) Check spark while coil is warm. A defective coil or condenser will sometimes function normally when cold.
6. **Motor Does Not Produce Full Power Output:**
 - (a) See that propeller is free of weeds.
 - (b) Check spark plugs for fouling.
 - (c) Check contact point gap.
 - (d) Check spark timing.
 - (e) Anti-cavitation plate (15) should be below the bottom of the boat.
 - (f) Check carburetor and fuel filter for dirt.
7. **Lower Unit Develops A Noise:**
 - (a) Refill the lower unit with Aeromarine Lubricant as recommended.
 - (b) Tighten fastening screws.
8. **Motor Swivels Too Easily Or Too Hard:**
 - (a) Adjust tension to suit by turning screw located in copilot clamp (16).

The Antique Boat Museum

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