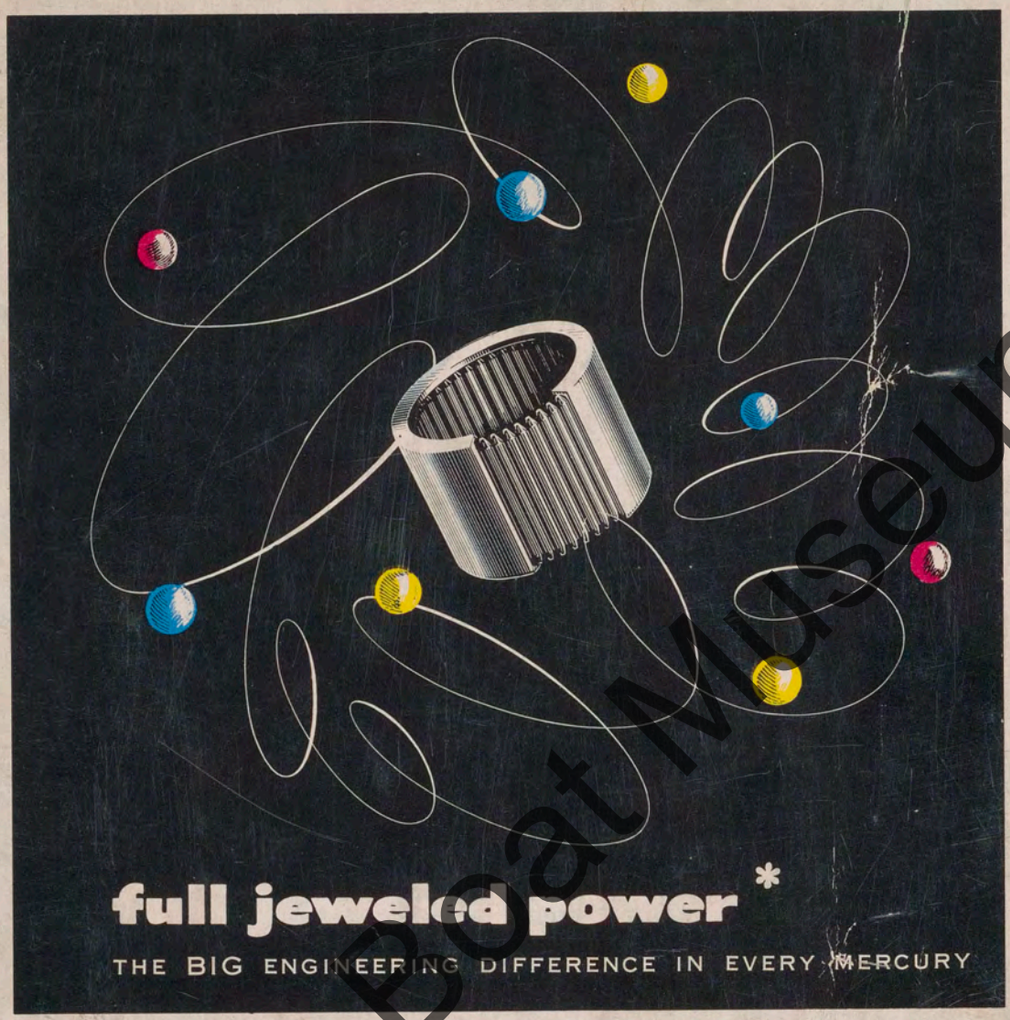


Mark 7

KIEKHAEFER

MERCURY

OWNERS GUIDE

operation · maintenance · repair

* BALL AND ROLLER BEARINGS THROUGHOUT

1953

KIEKHAEFER CORPORATION

CEDARBURG, WISCONSIN, U.S.A.

Manufacturers of KIEKHAEFER MERCURY OUTBOARD MOTORS

In reply please address all correspondence to company . . . not to individual.

MERCURY OUTBOARD OWNER

The Kiekhaefer Corporation takes pride in your particular and distinct selection of one of its superb outboard motors, and welcomes you into that select family of individuals who recognize quality, engineering, and performance.

Your Mercury Outboard is the finest motor that superior research, engineering, design, and workmanship can produce.

Satisfaction of maximum efficiency and top performance are built into every Kiekhaefer Mercury Outboard by continuous factory research and testing, in the largest and finest equipped laboratory for small, two-cycle engines, manufactured in the country.

The wide acceptance of this outstanding motor, by sports enthusiasts and commercial users alike, in such a short time, has marked it as the recognized motor of quality, through its proven record and exclusive, famous "firsts".

Failure to use a normal amount of care and maintenance will result in loss of maximum performance and dependable service, originally built into this engine.

A self-contained power unit, such as your outboard, requires a certain amount of attention. A normal amount of care can be exercised by the operator by closely following the instructions contained in this manual.

Sincerely yours,

KIEKHAEFER CORPORATION

E. C. Kiekhaefer
President

ECK/db

PATRON MEMBER
AMERICAN POWER BOAT ASSOCIATION

 M10353. Litho — U.S.A.

MODEL MARK - 7

CONTENTS

INTRODUCTION

This manual has been compiled by the Kiekhaefer Engineering and Service Departments to assist you in obtaining the utmost pleasure and satisfaction in the operation of your Mercury Outboard Motor.

This publication includes operating and emergency service and repair instructions for the owner.

In the preparation, careful consideration was given to instructions for general adjusting and service as are usually required in normal service. Included are certain repairs which should be done *ONLY IN CASE OF EXTREME NECESSITY,* when Certified Mercury Service facilities are not immediately available.

Unless an owner is definitely equipped with the proper tools, and has some knowledge of mechanics, *NO ATTEMPT* should be made to do major repair operations which are not specifically covered in this manual. Major repairs, requiring complete disassembly for replacement, should be done by your local or nearest available **AUTHORIZED MERCURY DEALER,** having necessary factory - designed tools and equipment, plus the knowledge and experience to do the job correctly and economically.

THERE IS A RIGHT WAY TO OPERATE AND MAINTAIN THIS ENGINE. THIS BOOK TELLS YOU HOW.

ALL KIEKHAEFER MERCURY MOTORS HAVE BEEN CAREFULLY TESTED AND ADJUSTED AT THE FACTORY BEFORE PACKING FOR SHIPMENT, AND, IF CORRECTLY OPERATED, WILL PERFORM EFFICIENTLY AND ECONOMICALLY.

GENERAL CAUTION

It is both a privilege and a pleasure, to lovers of outboard boating, to practice common courtesy on all our beautiful waters. Reckless and thoughtless operating of an outboard has resulted in some unusual experiences. The manufacturer suggests, for your safety and for the good of all outboard enthusiasts, to follow the rules of your particular area in which you are operating. Acquaint yourself with marine rules and regulations, and know your directional guides.

GENERAL MARINE REQUIREMENTS

To the new outboard boating enthusiast: If any travel is to be done on navigable water-ways within the continental limits of the United States, you are subject to the Federal Motor Boat Law, enacted April, 1940.

Navigable waters, under Federal jurisdiction, are interpreted, under the law, as those waters which are customarily used for interstate navigation, including the ocean within the legal limits, gulf coasts, bays, and rivers tributary to them, Great Lakes, and connecting water-ways or other specifically designated locations. Definite rules and regulations concerning the status of your locality can be ascertained by writing the Bureau of Marine Inspection and Navigation, Department of Commerce, Washington, D. C.

A few excerpts of the law require that the following equipment be carried on board at all times:

1. Life preservers to sustain every person on board. These may be either life jackets or some approved floating cushions.
2. An efficient whistle or horn. (This only if boat is over 16 feet long.)
3. A fire extinguisher of at least one pint capacity capable of putting out gasoline fires. (If boat is used for "hire" only.)
4. To be exhibited from sunset to sunrise - - -
   (a) A bright white light aft to show all around the horizon.
   (b) A combined lantern to show green to starboard (right) and red to port (left) carried on the fore (front) part of the boat.

It is also required, under the same law, that all motor driven boats operated on waters under Federal jurisdiction must be numbered.

However, numbering is not required on rowboats, canoes or sailboats not exceeding sixteen feet in length, which are equipped with outboard motors, but which are designed for and used primarily with other means of propulsion.

Numbers assigned upon application to the Collector of Customs for your Customs District, must be displayed on the boat.

DIRECTIONAL REFERENCES

The same directional references are used when referring to the motor.

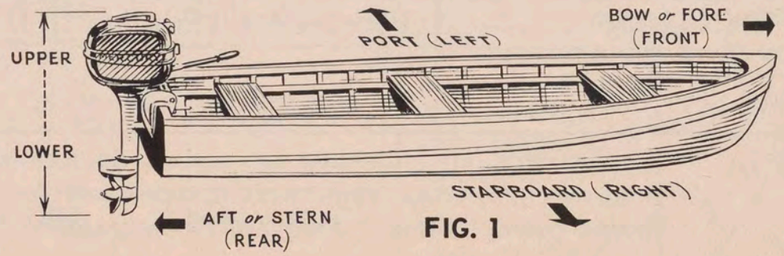


FIG. 1

GENERAL INFORMATION

The Model Mark 7 motor is a twin cylinder, alternate firing, bore 2", stroke 1-3/4". It is rated 7.5 h.p. at 4000 r. p. m. *

NOTE: *Continuous duty, in terms of standard horsepower, according to standard unit of power measurements used internationally by S. A. E., A. I. E. E., A. S. M. E., and the A. S. C. E.

WEIGHT	Approximately 54 lbs.
NO. OF CYLINDERS	2 - Alternate Firing
PISTON DISPLACEMENT	11 cubic inches
MAGNETO	Two coils, two condensers, two sets breaker points, permanent magnet, fly-wheel type.
CARBURETOR	Tillotson
FUEL CAPACITY	12 Pints
PROPELLER PROTECTION	Duo-Flex Clutch
STARTING	Mercury Magna-Pul
CRANKSHAFT	Drop forged, chrome nickel moly, alloy steel - Integral counter weights heat treated, hardened, tempered, precision ground bearing surfaces and faces.
CRANKSHAFT MAIN BEARINGS	Anti-friction ball and roller bearings.
CONNECTING RODS	Drop forged chrome nickel-moly steel, heat treated, hardened, tempered, precision ground. Roller bearings - crank-pin - wrist pin.
DRIVE AND PROPELLER SHAFT BEARINGS	Anti-friction ball and roller bearings.
STEERING	Full - Feathered - Safety.
CO-PILOT	Multiple Disc
WATER PUMP	Variable Volume Rotex (Positive displacement at low speed, clog proof, silt proof, weedproof.)
SPARK PLUGS	Waterproofed, Champion, (J7J) 14 mm.
ESTIMATED BOAT SPEED *	Slowest trolling to 24 m.p.h.

NOTE: * Boat speeds are governed by various factors such as: Boat design, length and weight, trim and load, wind, waves, tides, current and skill of the operator.

MODEL MARK - 7

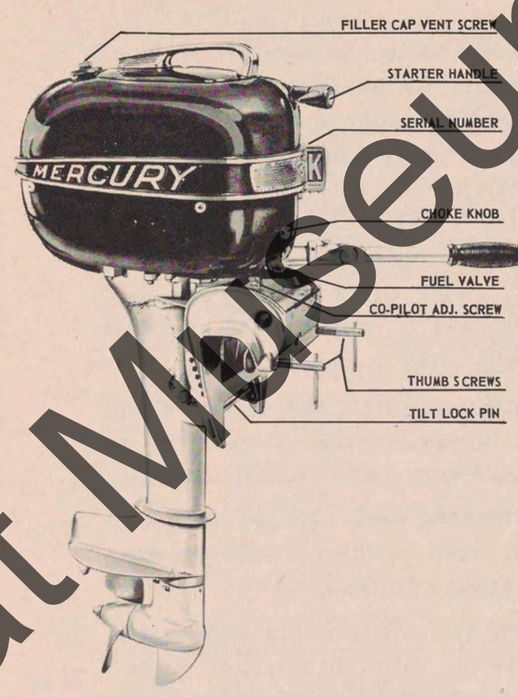
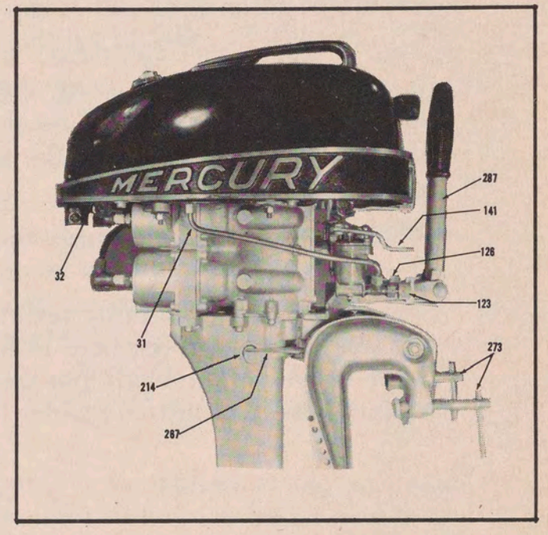
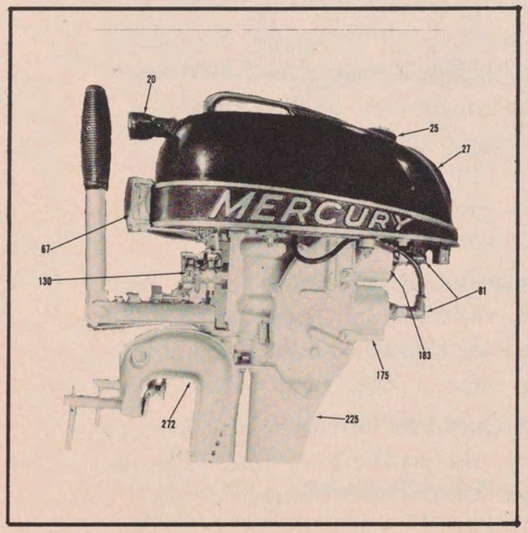


FIG. 2



RIGHT SIDE (Cowl Removed)



LEFT SIDE (Cowl Removed)

20	Handle, Starter Cable
25	Fuel Tank Cap
27	Fuel Tank
31	Fuel Line
32	Protector Rim
67	Throttle Control
81	Spark Plug
123	Fuel Shut Off Valve (Knob)
126	Screw Carburetor Adj.(High Speed)
130	Screw Carburetor Adj.(Slow Speed)
141	Rod Choke
175	Water Jacket (Lower)
183	Water Jacket (Upper)
214	Spring Co-Pilot
225	Drive Shaft Housing
267	Co-Pilot Disc
272	Clamp Bracket
273	Thumb Screw
287	Steering Handle

STARTING AND OPERATING INSTRUCTIONS

1. PREPARATION FOR USE:

(a) Installing Motor on Boat:
For proper boating; installation of the motor on boat transom should be given your careful attention. To avoid damage to transom and to prevent motor from working loose during operation, *IT IS IMPORTANT THAT THE CLAMP BRACKET BE SOLIDLY SEATED ON TRANSOM, AND THAT CLAMP SCREWS ARE SECURELY AND EQUALLY TIGHTENED.* During operation, clamp screws should be checked occasionally for tightness. For additional security, a safety cable or chain may be connected between boat and clamp bracket to prevent loss of motor if clamp bracket should accidentally work loose.

(b) In order to obtain the best operating results, the angle of the motor should be adjusted so the propeller drive is parallel to the travel of the boat when the motor is operated at full throttle.

Place the motor in 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.

Adjust the motor angle by removing the tilt-lock pin and inserting same in the proper hole to hold the motor in position so the front of the drive shaft housing is perpendicular to the water surface. See instructions under (d) tilt-lock adjustment.

FIG. 3

(c) Transom Heights: 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 heights should be carefully adhered to.

The transom height is measured from the bottom of the keel to the top of the transom, perpendicular to the keel line. The recommended transom height for your motor, Model Mark 7, is 15".

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 deep keels, taper the keel from 20" forward of the stern up to a feather edge at the stern.

(d) Tilt Lock Adjustment: Holes are provided in clamp bracket to permit changing position of tilt lock pin for proper adjustment of tilt angle. Under ideal conditions, lower unit operates most efficiently in level position, because entire thrust is then applied parallel to direction of motion. However, with some boats, and under certain unfavorable conditions of loading, there will be a tendency to ride stern high or bow high; this condition can be corrected considerably by adjusting tilt angle so boat rides level. If boat rides stern-high, increase tilt angle; if boat rides bow-high, decrease tilt angle.

It must be considered that operation with excessive tilt will reduce performance noticeably, and may induce cavitation; it is therefore preferable to level boat by proper loading rather than by extreme adjustment of tilt angle. Except on very rough water, if tilt angle is correctly adjusted, and boat is favorably loaded, a properly designed boat will ride level and will plane without "spanking" or "bucking".

(e) Cavitation: The term "cavitation", as applied to the operation of an outboard motor, is a condition which can be caused if the foregoing instructions (a), (b), (c) are not strictly adhered to; or by other adverse conditions. This condition is immediately indicated by an increase in r.p.m. of the motor, whereby the propeller suddenly loses its forward power thrust or "push" in the water, resulting in a sharp reduction in boat speed. Cavitation occurs when slipstream (flow of water past the propeller) changes from a smooth, consistent flow to a turbulent flow by either "bucking" of the boat, which will draw air from the surface into the slipstream, or other conditions, such as

1. Transom too high (propeller too near surface).
2. Rough water.
3. Fast turns (causing turbulent waters).
4. Tilting boat during fast turns (propeller too near surface).
5. Lower unit angled too near stern of boat (propeller too near surface).
6. Design of boat, particularly a wide or high keel, which causes water to be diverted from slipstream.

7. Using propeller of type, diameter, and pitch which was not originally furnished by the manufacturer, or other than recommended.
8. Weeds around the lower unit (disturbing flow of water in slipstream).

A broken shear pin, bent or damaged propeller blades, will undoubtedly cause cavitation and also vibration.

NOTE: When the throttle is moved to "stop" position on excessive cavitation, and the motor fails to shut off - - - PULL CHOKE. This will stop it immediately. Always reduce throttle speed immediately when excessive cavitation in noted.

2. FUEL FOR MOTOR:

The recommendations set forth for the proper selection of the fuel and oil mixture to be used in your outboard motor is more important than it may seem to the casual outboard user. It is advantageous to the owner to use the recommended brand of gasoline and oil, in the proper proportions. Consistency in fuel mixture will insure uniform engine performance and less carburetor adjustment.

(a) We recommend the use of Kiekhaefer Aeromarine Two Cycle Engine Oil, and standard commercial automotive gasoline, of not less than 72 octane rating. In an emergency, when Kiekhaefer Aeromarine Two Cycle Engine Oil is not available, substitute best quality, *non-detergent* S.A.E. 30 automotive engine oil, refined from 100% Pennsylvania crude.

NOTE: Do not use aviation or "doped up" fuel mixtures, or alcohol-ether fuel mixtures, in the belief that better performance may be obtained. These fuels may prove injurious to seals and other composition parts, and add to maintenance and repair costs.

(b) Fuel Mixture: Thoroughly mix the gasoline and oil, in the exact proportions as recommended, in a separate container, as set forth below:

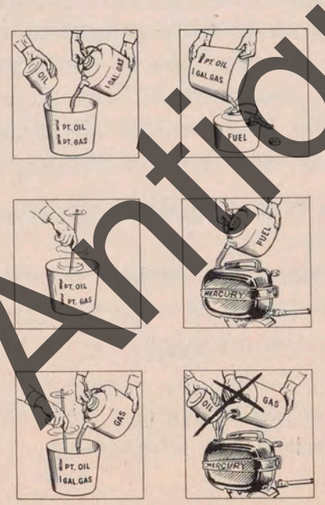


FIG. 4

SIX (6) OUNCES (3/8 PINT) OF KAM OIL TO ONE (1) GALLON OF GASOLINE. (THIS QUANTITY IS EXACTLY 1/2 CAN OF PACKAGED KAM OIL). WHEN USING OTHER TYPES OF NON-DETERGENT OIL - SAE - 30 USE (1/2 PINT) OF OIL TO ONE (1) GALLON OF GASOLINE.

To insure a proper mixture, cut the oil first with an equal part of gasoline, then add the balance of gasoline.

CAUTION

USING LESS THAN THE RECOMMENDED PROPORTION OF OIL MAY RESULT IN VERY SERIOUS ENGINE DAMAGE DUE TO LACK OF SUFFICIENT LUBRICATION. USING MORE THAN THE RECOMMENDED PROPORTION OF OIL WILL CAUSE SPARK PLUG FOULING, ERRATIC CARBURETION, EXCESSIVE SMOKING, AND FASTER THAN NORMAL CARBON ACCUMULATION.

If Emergency Requires Mixing Fuel, And A Separate Container Is Not Available:

1. Use auxiliary container, adding oil and gasoline in the same proportions as previously stated. Shake container so oil and gas is properly mixed.

NOTE: Only in cases of extreme emergency where an additional supply of fuel is required should you pour oil and gasoline into the motor fuel tank separately. Always use auxiliary container, with a spout attached, for refueling, which will enable you to refill fuel tank without spilling. Never refuel while engine is running, or boat is in motion.

The type of gasoline used is also very important, have your dealer recommend the type of gasoline sold in your locality best suited for your Mercury Motor. Occasional damage to the internals of some motors has been due to use of very low grade gasolines.

3. STARTING A NEW MOTOR:

As previously explained, all motors are run-in, tested and adjusted at the factory, therefore no 'break-in' period is required on any model Mercury Outboard Motor.

1. Do not add so-called "break-in" compounds to fuel mixture; these too can be harmful.
2. Fill fuel tank with fuel mixture as recommended.

(a) Starting Motor: It is a good point here to again check the installation as covered in instructions, under "Preparation for use" Page 1.

1. Open air vent valve on fuel tank filler cap.
2. Open fuel shut-off valve.
3. Set throttle lever at START position.
4. Pull out choke knob.
5. Start motor by pulling starter cable handle. (Grasp handle firmly and pull outward slowly until ratchet mechanism engages, then continue with vigorous outward pull. Brace yourself by holding to top of fuel tank on motor when performing the above.) *NEVER STAND UP IN BOAT OR START AT FULL THROTTLE.*

   NOTE: Do not allow starter cable to snap back, but retain hold on starter cable handle to permit cable to rewind slowly.

6. When motor starts, push choke knob in promptly.
7. Allow cold motor to warm up at half throttle (reduced speed) for a minute or two before applying full throttle.
8. After motor warms up, carburetor needle valve can be adjusted for best performance. (See Motor Operating Adjustments.)

   NOTE: Motor flooding is a condition referred to when the motor won't start due to an over accumulation of raw fuel in the crankcase. It is usually due to excessive use of the choke, particularly when the motor is warm. To clear a motor of an accumulation of unburned fuel, proceed accordingly:

   1. Close fuel shut-off valve.
   2. Set choke to fully open position, and throttle in start position.
   3. Operate starter until motor fires.

4. MOTOR OPERATING ADJUSTMENTS:

(A) The carburetor high speed valve 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 carburetor high speed adjustments, the throttle control lever must be 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 clockwise, to a point where engine begins to slow down, due to lean mixture, then turn valve counter-clockwise approximately one-half (½) 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 except to compensate for temperature extremes or a change in the fuel mixture.

NOTE: It is important that the fuel mixture be consistant, to avoid readjusting the carburetor.

(B) SLOW SPEED

When making slow speed adjustment, the throttle control lever must be on *SLOW* position. Use screw driver to adjust slow speed valve. (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. This adjustment is very fine, and only a fraction of a turn is usually required. *REMEMBER:* Turn valve counter-clockwise to lean mixture for slow speed, clockwise to richen.

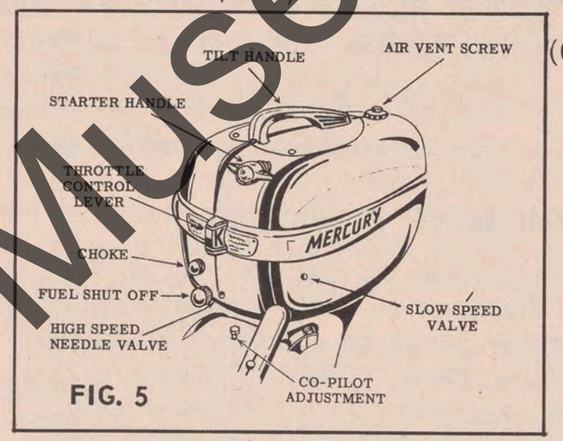


FIG. 5

(C) If adjustments prove to be unstable, check to be sure that 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 plug gap setting, and oil-soaked, cracked or frayed ignition wires. (See *IGNITION SETTING)* Page 1 - Maintenance Section

5. STOPPING MOTOR

1. If motor is to remain installed on boat, ready for immediate restart, move throttle lever to *STOP* position.
2. If motor is to be removed from boat, stop motor by closing fuel shut-off valve, and allow motor to run at idling speed until fuel supply in the carburetor is exhausted.
3. Close air vent valve in fuel tank filler cap.

CAUTION

If motor is to be transported immediately after use, place in an upright position until water has been completely drained off. Do not lay on its side, or inverted, while water remains trapped in drive shaft housing; some water may drain into powerhead through open exhaust ports into cylinders.

6. LUBRICATION OF GEAR HOUSING

Every 25 hours of operation, lubricate lower drive unit with *KIEKHAEFER AEROMARINE SPECIAL OUTBOARD GEAR LUBRICANT,* as follows:

1. Remove air vent screw located on right side of gearcase, just underneath cavitation plate.

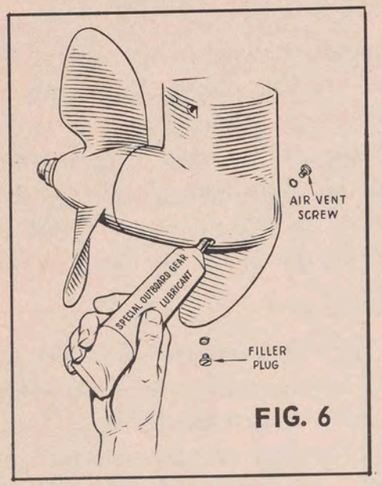


FIG. 6

2. Remove grease filler plug located in lower left side of gearcase.
3. Insert grease tube into filler plug hole and **squeeze tube** until excess grease starts to come out of air vent screw hole, indicating that housing is filled.
4. Replace air vent screw and grease filler plug; be sure gasket is in place under head of each, otherwise water may leak past threads and into gearcase.

CAUTION

Never apply grease to lower unit without first removing air vent screw. The injected grease displaces air which must be allowed to escape. Otherwise gearcase cannot be completely filled as required. *DO NOT USE REGULAR AUTOMOTIVE GREASE IN LOWER DRIVE UNIT;* in an emergency, when Kiekhaefer Aeromarine Special Outboard Gear Lubricant is not available, use best quality waterproof marine gear lubricant. Kiekhaefer Aeromarine Special Outboard Gear Lubricant and *TWO CYCLE ENGINE OIL* are available through your local Mercury dealer.

7. ATTENTION REQUIRED FOLLOWING OPERATION OF MOTOR IN SALT OR SILTY WATER

1. Operation in salt water or silt results in the accumulation of salt deposits or mineral deposits in cooling system water passages and around cylinder water jackets. Unless removed regularly, these deposits will build up to the extent that circulation of cooling water becomes restricted or cut off entirely; also, the deposits act as heat insulators and reduce heat transfer from cylinders to cooling water. This condition may cause overheating, loss of performance, and perhaps serious engine damage. Also to be taken into consideration, are the corrosive effects of salt and the abrasive nature of silt.
2. After operation in salt water or silt, flush cooling system by operating motor in a barrel or tank of clean, fresh water, or by applying special Flushing Attachment (*KIEKHAEFER ACCESSORY* Number M-60-582) which permits forcing fresh water through cooling system with a standard garden hose. While flushing, operate starter to facilitate flow of water through water pump and cooling system. Throttle should be in *STOP POSITION* to prevent engine from starting accidentally.

CAUTION

If motor is placed on its side or inverted while flushing or while water remains trapped in drive shaft housing, some water may drain into powerhead and may enter cylinders through open exhaust ports. Therefore, *KEEP MOTOR IN AN UPRIGHT POSITION WHILE FLUSHING AND UNTIL WATER HAS DRAINED OFF COMPLETELY.*

Occasionally, remove propeller and apply graphite grease, or "Lubriplate" No. 130A to propeller shaft; this will retard corrosive action of salt on propeller shaft and propeller hub.

8. ATTENTION REQUIRED FOLLOWING COMPLETE SUBMERSION

Motor which has been submerged *MUST BE COMPLETELY DISASSEMBLED FOR CLEANING AND INSPECTION; THIS REQUIRES THE FACILITIES AND EXPERIENCE OF A CERTIFIED MERCURY SERVICE SHOP* and should be accomplished as soon as possible after recovery; delayed attention will encourage rust and corrosion of internal parts.

If Certified Mercury Service is not immediately available, follow instructions under Section "Preparation for Storage or Shipment", Items 8 & 9 of maintenance section. This will temporarily prevent internal parts from rusting.

MODEL MARK - 7

MAINTENANCE SECTION

MAINTENANCE

TROUBLE CHART

A - DOES NOT START
B - RUNS IRREGULARLY OR MISSES
C - STARTS MOMENTARILY AND CUTS OUT
D - DOES NOT IDLE PROPERLY
E - MOTOR SPEED FASTER THAN NORMAL
F - MOTOR SPEED SLOWER THAN NORMAL
G - DOES NOT DEVELOP NORMAL BOAT SPEED
H - MOTOR OVERHEATS

A	B	C	D	E	F	G	H	POSSIBLE CAUSE
X		X						Fuel tank empty
X	X	X				X		Fuel filter in need of cleaning
	X		X					Carburetor low speed mixture valve out of adjustment
	X				X	X	X	Carburetor high speed mixture valve out of adjustment
					X	X	X	Wrong oil in fuel mixture
	X				X	X	X	Wrong gasoline in fuel mixture
					X	X	X	Not enough oil in fuel mixture
	X		X		X	X	X	Too much oil in fuel mixture
X								Motor flooded
X	X				X	X		Spark plugs fouled or defective
	X		X		X	X	X	Wrong type spark plugs
X								No spark
	X	X	X		X			Weak or intermittent spark
	X	X	X		X	X	X	Magneto contact points in need of attention
X								Spark plug leads interchanged
							X	Water pump failure *
					X	X	X	Cooling system in need of cleaning
				X		X		Cavitation
					X	X		Propeller damaged **
						X		Tilt angle not correctly adjusted
				X		X		Transom too high
						X		Transom too low
	X	X						Air vent hole in fuel cap clogged ***

* Refer to Certified Mercury Service Shop
** Repair or Replace
*** Open air vent hole

THERE IS AN AUTHORIZED MERCURY OUTBOARD MOTOR DEALER IN YOUR LOCALITY. CONSULT YOUR TELEPHONE DIRECTORY FOR THE NAME AND ADDRESS OF THE MERCURY DEALER NEAREST YOU.

1. IGNITION SYSTEM

The ignition system furnished on this motor is comprised of the magneto and spark plugs. The spark is produced by a magnematic ignition system consisting of a stator, coils, condenser and a magnet mounted inside a flywheel. For parts identification, see Page 5 Parts Section.

The ignition system is a very important component of this motor. Proper maintenance will assure smooth operation. Recommended settings should be maintained for breaker points on the magneto (covered under Item 4, Maintenance Section) and also spark plug gap settings (covered under Item 3, Maintenance Section). Care should be taken not to damage ignition cable leads when repairing motor.

1. Magneto contact breaker point gap -- .018".
2. Spark plug gap -- .030", Champion - J7J.
3. Check breaker points after first 15 hours of operation. (Free - 15 hour service check by dealer).
4. Do not replace spark plugs with any make or type different from original equipment.
5. Check the spark plug wires (high tension leads) periodically and change when frayed, cracked, or oil soaked.

2. CARBURETOR CORECTIONS AND ADJUSTMENTS:

The carburetor installed on this motor is of the float type. The fuel to the motor is regulated by a needle valve. See Parts Section Page 7 for parts identification.

Before adjusting carburetor:
Always check "Trouble Chart" for other possible causes before attempting to correct faulty motor performance by readjusting carburetor.

(a) ADJUSTING THE CARBURETOR:

There are two adjustments readily accessible for motor tuning, namely the high speed mixture adjusting needle and the low speed mixture adjusting needle. The "High Speed" adjustment protrudes through the cowling, and is situated next to the knurled fuel shut-off knob. The "Low Speed" is accessible through an opening on right front side of cowling. Insert long shank screw driver to adjust.

As mentioned previously in the manual, the carburetor has been set correctly at the factory before shipping. However, varying conditions may require readjusting the carburetor. See instructions given under Section 4, Page 5 Motor Operating Adjustments. See Parts Section, Page 7 for identification.

(b) CORRECT USE OF THE CHOKE.

The correct setting gives the engine the best mixture to run on when it is hot. When cold, it is necessary to use the choke to get a rich mixture fast because cold gasoline does not vaporize readily. A warm or hot engine requires very little or no choking. Until you become familiar with the engine, you may make the mistake of either choking too much, or not enough. If engine fails to start after three or four attempts with the choke closed, try a few times with choke full open.

NOTE: WHENEVER CARBURETOR IS TO BE ADJUSTED, WARM MOTOR UP THOROUGHLY, AND BE SURE THAT CHOKE IS IN OPEN POSITION.

(c) INITIAL RESETTING.

If carburetor becomes so badly out of adjustment that motor cannot be started, an approximate initial setting can be obtained as follows:

1. Turn both adjusting needles (High and Low Speed) inward until they seat, *lightly*, do not turn down tight, as this can cause damage to needle seats.
2. Back High Speed adjustment out 1 turn, and Low Speed adjustment 1 turn. This setting will allow starting, but most likely will be found too rich for normal operation; therefore, as soon as motor starts, make final correct adjustments as stated under "High Speed Mixture Adjustment" and "Low Speed Adjustment".

(d) HIGH SPEED MIXTURE ADJUSTMENT

1. While operating motor in forward position, set throttle in *FAST* position, slowly turn High Speed Adjustment Screw inward (Clockwise) until motor starts to slow down (mixture becoming too lean).
2. Determine the critical lean point as accurately as possible - back neddle out exactly 1/2 turn.
3. It is better to set mixture slightly rich when in doubt, rather than too lean, excessively lean mixture will cause overheating and loss of power; sustained full-throttle with this setting may cause motor damage, and burn spark plugs.

(e) LOW SPEED MIXTURE ADJUSTMENT:

After High Speed Adjustment is completed, place the throttle in *SLOW* position and turn low speed mixture adjustment screw inward (Clockwise) until motor starts to 'load up, slow down' or fire unevenly due to (mixture becoming too rich).

Turn adjustment screw out (Counter-Clockwise) until motor picks up speed and fires evenly.

Do not adjust leaner than necessary to attain reasonably smooth idling. Again it is preferable to set mixture a little rich rather than too lean.

3. SPARK PLUG SERVICE

Spark Plugs are a small, but vitally important component of the modern gasoline engine. Without proper spark plug operation, satisfactory engine performance cannot be obtained. Outboard motors are equipped with plugs of special electrode gap design. Therefore, it is absolutely necessary, when replacing worn-out or damaged spark plugs, that they be replaced with the same type that were originally furnished with the motor. The ultimate requirement of a spark plug is its ability to maintain proper temperature in order to burn off normal combustion deposits and avoid fouling. The Model Mark 7 is equipped standardly with a Champion Type - J7J plug.
A casual inspection of a normal operating plug in an Outboard Motor discloses that the porcelain will be coffee colored. If the porcelain remains its natural white color under the conditions the motor is being used it should be replaced with a colder temperature plug, if black, replace with hotter plug.

Operating with defective or wrong type spark plugs will be reflected in erratic engine performance, as indicated by hard starting, fouling, engine missing, overheating, pre-ignition, or lack of normal power.
Whenever engine performance, such as the conditions mentioned above, prevail, it indicates the need for spark plug attention. (See TROUBLE CHART).

TO SERVICE SPARK PLUGS.

1. Remove cowling, by taking out 7 screws and choke knob.
2. Disconnect (by pulling and turning counter-clockwise) the ignition leads at the top of the spark plug.
3. Remove spark plugs, with spark plug wrench, (13/16" hexagon). (Be careful not to break or damage porcelain).
4. Inspect plugs carefully, for the following conditions: Cracked, broken, or blistered porcelain insulator, on top and firing end; Electrodes, if they are burned away to the extent that they are very thin or have rounded center electrode or cannot be satisfactorily adjusted to the recommended .030" gap.
5. Replace with new plugs if above defects are found use Champion Type J7J.
6. If old plugs are found to be OK, but need cleaning, use fine wire brush on threads, scrape away any accumulation of carbon deposits, from electrode points and base of plug, use feeler gage to reset proper spark gap to .030". When replacing a plug, see that gap of both plugs are set the same.
7. Re-install spark plugs; be sure gaskets are in good condition, and seats are clean. Use a little graphite or lubriplate grease on threads to prevent freezing in of plug threads. Start plug into block by turning one of two turns with fingers to avoid cross-threading. Re-tighten with wrench, but no more than necessary to attain a gas-tight seal. (After seating plug, finger tight on gasket, a 1/2 turn will generally be sufficient). (If torque wrench is available, recommended torque value in foot pounds for 14mm plug, is 15 ft. lbs.)
8. Connect spark plug cables; be sure each cable is connected to its respective spark plug; (Looking at rear of motor *"LEFT"* ignition lead goes to *"BOTTOM"* plug *"RIGHT"* to *"TOP"* plug.

NOTE: IGNITION CABLE SHOULD BE INSPECTED FOR DAMAGE OR DETERIORATION, REPLACE WITH NEW CABLE IF DEFECTIVE. DEFECTIVE CABLE WILL CAUSE HARD STARTING OR, SHORTING CONTACT WITH MOTOR PROPER OR COWL.

4. MAGNETO

The Model Mark 7 engine is equipped with a high quality, engineered magneto.
1. It is constructed to give maximum trouble-free performance.
The magneto should operate over an extremely long period of time without the need for adjustment or repair. If engine operating difficulties are experienced, which appear to be caused by the ignition system, it should be inspected by a Certified Service Organization that is equipped to check the performance with electrical testing equipment.
Magneto points are properly set at the factory, and should not require resetting or dressing after free service check for at least 50 - 100 hours of operation, under normal use. However, where unsatisfactory performance indicates that this attention is needed, please consult the *"TROUBLE CHART"* first, Page 1 , to establish the source of trouble.
(a) In order to provide durable and efficient operating service in this magneto, immediate access (while operating) to the internal components is not feasible. Thorough inspection and service require the removal of starter and flywheel. Therefore, it is recommended that the casual user or individual not properly equipped refrain from attempting to repair, service or replace, if trouble in the magneto is finally determined as the cause of faulty operation. Breakdown of the magneto shown in the parts section is for identification of parts only. See your Certified Service Organization for proper service.
Under extreme emergency conditions, the following procedure should be followed where breaker points, condensors, or coils must be serviced.
1. Remove three (3) screws in starter assembly, remove and let the assembly hang by starter rope.

2. Remove spark plug ignition leads.

3. Using service tool No. M-60-537, if available, remove the starter ratchet nut; if tool is not used, hold propeller to prevent turning. Tap with hammer to loosen. Ratchet has right hand thread.
4. To remove flywheel, use service tool No. M-60-502 (Flywheel Puller Tool). Attach puller to flywheel evenly, and secure with three (3) screws into top of flywheel; center plug tool No. M-60-5218 over crankshaft screw end, and turn down on flywheel puller screw.

CAUTION

In mounting flywheel puller, be careful not to turn screws through flywheel so far that they will damage coils. If removal of flywheel is found difficult with fuel tank mounted, remove same by unscrewing four (4) hexagon head nuts on bottom of tank bracket. This will give better access to the magneto flywheel assembly.

5. Examine the magneto contact points. If they are slightly pitted or oxidized, in an emergency they may be conditioned for further use by dressing the face with a clean "Fine-Cut" contact point file, crocus cloth or special abrasive, similar to type made for automobile use. (If using any abrasive besides the recommended file, be careful to blow out any residue left, or draw a piece of hard finish paper between closed points, because emery dust or sand lodged between points can cause ignition failure by preventing proper face contact). If badly oxidized, bent out of alignment, or pitted to the extent that smooth, parallel contact faces cannot be

restored by the above method, new contact points should be installed.
6. To adjust the breaker gap of the points after reconditioning or replacing:
(a) Slowly turn motor in direction of normal rotation to position where points reach maximum separation, on high lobe of cam.
(b) Check with feeler gauge (Kiekhaefer Service Tool No. M-60-5026) or good automotive feeler gauge.
(c) With breaker cam remaining in position of maximum point separation, loosen lock screw and ground wire screw. By applying screwdriver to adjusting slots, shift stationary contact joint bracket as necessary to attain a gap of .018", by slipping feeler gauge between point faces. Lock in this position by tightening lock screw. Recheck gap with feeler gauge after tightening screws to be sure setting has not changed.
7. Replace brass wave washer that was removed in disassembly, on top of cam before replacing flywheel.
8. Replace "Flywheel";
(Replace Fuel Tank if it was removed).
9. Replace ratchet nut. Ratchet must be tightened securely (40-45 foot pounds torque).
10. Replace starter assembly.

NOTE: SHOULD THE MOTOR SOUND UNDULY NOISY AFTER REASSEMBLY, IT IS POSSIBLE THAT THE FUEL TANK AND STARTER ASSEMBLY HAVE BEEN DRAWN DOWN UNEVENLY, CAUSING THE FLYWHEEL TO STRIKE ON THE INSIDE OF THE FUEL TANK OR BOTTOM OF STARTER. THIS CAN BE REMEDIED BY SHIMMING UP WITH WASHERS.

NOTE: IT IS ADVISABLE TO INSPECT THE COILS AND CONDENSERS WHEN FLYWHEEL IS REMOVED FOR ANY POSSIBLE OUTSIDE DEFECTS OR DETERIORATION. IF IN DOUBT ABOUT THEIR OUTPUT EFFICIENCY, THEY SHOULD BE CHECKED BY A RECOMMENDED ELECTRICAL TESTING DEVICE, DEVELOPED FOR THE PURPOSE. A CERTIFIED MERCURY SERVICE ORGANIZATION WILL PROVIDE THIS SERVICE.

To install new condenser:
1. Remove old condenser, by removing screw and washer holding condenser clip; remove screw holding condenser lead to colored post on breaker assembly.
2. Install new condenser; reassemble by reversing the above procedure, using same type condenser as originally furnished. (See parts section for new condenser).
To install new coil:
1. Remove old coil; by removing two large round head screws holding the core to the stator; remove screw holding longer lead to post on breaker assembly remove small screw, and tab holding ground wire to core.
2. Remove screw holding ignition lead wire tube to underside of stator.
3. Remove coil from core by bending down flat tab, which will allow coil to be slipped off of core. (See parts section for new coil)
4. Reassemble by reversing the above procedure, using same type coil as originally furnished. Entire breaker point assembly can be replaced by removing two screws from the old assembly, lift out, and replace with new assembly.

5. SERVICING FUEL FILTER.

The fuel filter assembly inserted in the bottom of the fuel tank can be removed for inspection, renewal, or repair if necessary. (See Fuel Filter, Parts Section, Page 9
For Servicing, proceed as follows:

(a) REMOVE COWLING

1. Remove seven (7) screws holding cowl to protector rim.
2. Remove choke button by unscrewing button from choke lever.
3. Drain fuel tank.
4. Remove fuel line.
5. Remove filter assembly by applying wrench to large hexagon nut. Entire assembly can be taken out for inspection.
NOTE: DO NOT DISASSEMBLE FUEL FILTER UNLESS FILTER ELEMENT REQUIRES REPLACEMENT. WHEN REASSEMBLING, BE CAREFUL NOT TO OVER TIGHTEN STUD NUT TO THE POINT OF STRIPPING THREADS IN FUEL TANK.
6. Flush filter element by rinsing in clean gasoline. Blow out with air hose if available. If badly discolored or clogged, replace.
7. Re-install fuel filter assembly. Be sure that gasket is replaced on face of hexagon nut before inserting into fuel tank. To prevent seizing of threads between service checks, apply a thin coat of grease (Lubriplate No. 130A preferred). Insert entire assembly by threading unit into tank by one or more turns with the fingers in order to avoid danger of cross-threading. Tighten with wrench, but not more than necessary to attain a fuel-tight seal.
8. Install fuel line.
9. Replace cowling and choke knob.

(b) THE FUEL SYSTEM:

Avoid gummy gasoline. If you experience trouble with a gummy, sticky substance, with a sharp, obnoxious odor, change to fresh gasoline. This gum comes from the gasoline and clogs the carburetor, fuel line, tank, etc.

If motor is not being used (6-8) months, drain fuel tank completely and refill when engine is used again. The reason for this is that most cases of gum deposits are caused by evaporation of the gasoline.

6. ADJUSTING CO-PILOT

The Co-Pilot adjusting screw, located at the front of the motor (See Figure 5) and inserted in the center of the swivel bracket provides tension and velvet smooth friction control in the steering mechanism. The adjustment of this screw will enable the motor to remain in a fixed course position without need of holding handle, yet, provides easy steering. For operators' satisfaction, ease and convenience of control, adjustment of this screw either to increase friction or decrease, will be attained by turning down (Clockwise) to increase friction, and upward (Counter-Clockwise) to decrease friction. Lubricate occasionally with Lubriplate No. 130A or SAE-30 oil.

7. PERIODIC INSPECTION.

The best maintenance procedure for any type of mechanical equipment is a systematic inspection period, coinciding with the time use of the equipment. It is most simple and positive way of correcting any possible defects before they can become serious enough to inconvenience or cause extensive damage. Under the average operating conditions in utility service; it is recommended that the motor be inspected approximately after every twenty five (25) hours of operation. If motor is used under severe conditions of continuous rough duty, heavy duty, or high speed operation, the inspection interval should be shortened. The owner or operators good judgment in the way the motor is used should be a guide as to the time interval for inspection in order to receive the maximum hours of trouble-free service.

For Inspection, proceed as follows:

1. Remove cowl.
2. Clean entire unit thoroughly, including accessible powerhead parts.
3. Lubricate lower drive unit as instructed under Page 6 & 7 'Operation' Section.
4. Check, all fittings for leaks.
5. Remove propeller and inspect. Lubricate with graphite grease or "Lubriplate No. 130A".
6. Service spark plugs as in instructions, under Item 3, Page 2 Maintenance.
7. Inspect spark plug cables for damage or deterioration.
8. Service fuel filter as instructed in Item 5, Page 4 Maintenance.
9. Inspect finish for damage or "corrosion" scrape damaged or corroded areas and apply matching finish.
10. Check entire unit for loose, damaged, or missing parts; tighten or replace as required.
11. Reinstall cowling.

8. PREPARATION FOR STORAGE OR SHIPMENT.

In preparing motor for storage or shipment, two precautions must be taken into consideration: First, the unit must be protected from physical damage; second, the unit must be protected from rust, corrosion and dirt. Original shipping carton is ideal for storage or shipment, but, if it is no longer available and a new container must be made, it should be so constructed that weight of unit is supported by clamp bracket. Also, suitable blocking and bracing should be provided to hold motor securely in place, regardless of position in which container might be set. Openings should be sealed against entry of dirt, but air vent should be provided to prevent moisture accumulation due to condensation.

Before placing motor in container, the following preventive measures should be applied to protect external and internal parts from rust and corrosion:

1. Run carburetor dry by operating motor in water tank or barrel, closing fuel shut-off valve and allowing motor to idle until it stops of its own accord. If no tank or barrel is available, remove inlet valve channel plug from bottom of carburetor. This will allow bowl to drain. Be sure to replace fiber washer when replacing plug.
2. Drain fuel tank.
3. Flush cooling system as explained under "Attention Required Following Operation in Salt Water or Silt".
4. Lubricate lower unit as instructed on Page 6 & 7 'Operation' Section.
5. Open cowl and remove spark plugs. Lay motor on its right side, with exhaust manifold side upward.
6. Rotate crankshaft to position where number one (top) piston is at bottom dead center position; this can be checked by inserting a pencil or rod into spark plug hole. Apply about 2 ounces of KIEKHAEFER AEROMARINE TWO-CYCLE ENGINE OIL through spark plug hole, allowing time for some of the oil to drain into crankcase via transfer ports. Repeat this operation on number two cylinder. Replace spark plugs but do not connect spark plug wires. Set motor in vertical position and operate starter rapidly to distribute oil on cylinder walls and inside crankcase.
7. Connect spark plug wires and close cowl.
8. Remove propeller, apply graphite grease or "Lubriplate No. 130A" to propeller shaft and reinstall propeller.
9. Clean exterior of motor thoroughly and apply a thin film of clean, fresh lubricating oil to painted surfaces and to exposed metal parts.

9. PREPARING MOTOR FOR OPERATION AFTER STORAGE.

Care should be exercised in preparing motor for service after extended storage.
1. Remove spark plugs.
2. Pull starter cable several times in order to force out any excess oil.

3. Check and reset contact point and spark plug gaps.
4. Replace spark plugs.(Wash in gasoline to remove oil)
5. Tighten flywheel nut or starter ratchet and all screws and nuts.
6. Check and refill gear case, if necessary.
7. Fill fuel tank with correct fuel mixture.

NOTE: SEE PAGE 4 INSTRUCTIONS COVERING INITIAL STARTING.

NOTE: FOR SPECIAL TYPE KIEKHAEFER OILS, GREASE, OR SERVICE TOOLS MENTIONED IN THE FOREPART OF THIS MANUAL, SEE YOUR LOCAL MERCURY DISTRIBUTOR OR WRITE:

KIEKHARFER CORPORATION
MERCURY PARTS DIVISION
BEAVER DAM, WISCONSIN

OWNERS MOTOR RECORD

Date Purchased .....

Serial No.....Model.....

Hours Operated.....

.....

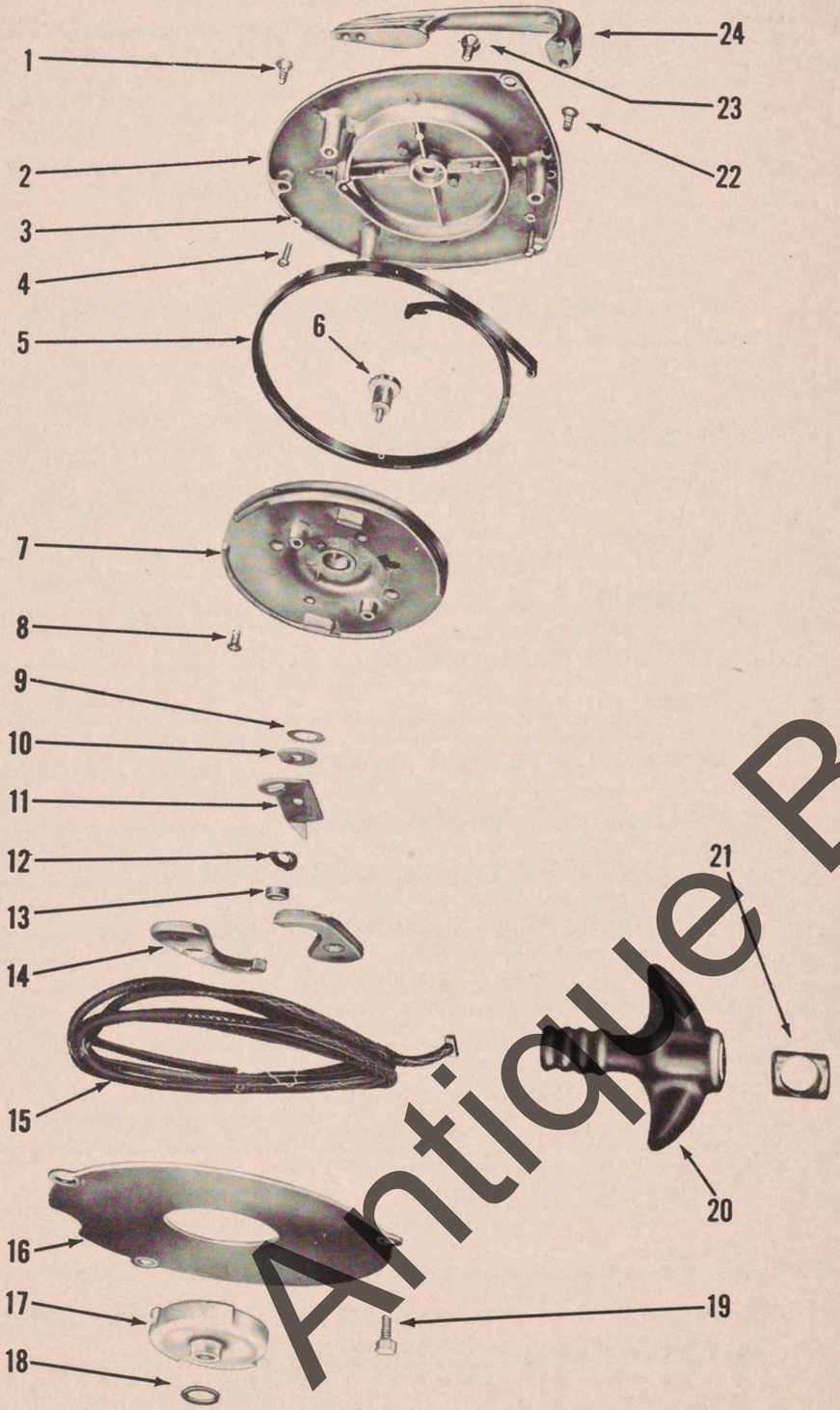
Date Service Check: (Free Dealer Initial 15 hr. Service Check)

MODEL - MARK - 7

PARTS SECTION

Order repair parts from your local Mercury Dealer and always give the model and serial number of your motor. . .

1 STARTER

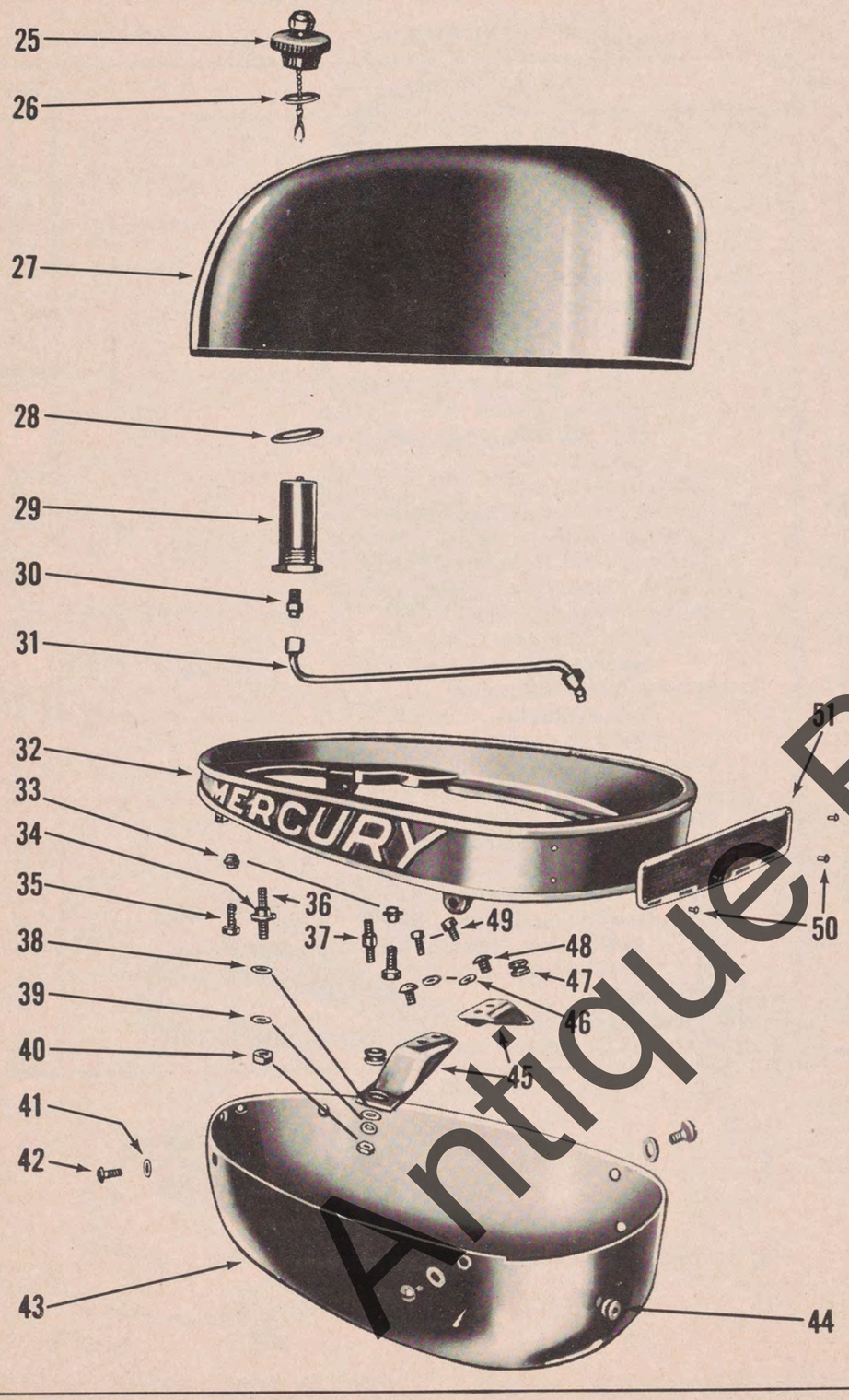


STARTER

REF. NO.	DESCRIPTION	QUAN.
1	Screw, Starter Cover to Tank (Rear)	1
--	Starter Assembly	1
2	Starter Cover Assembly	1
--	Cover, Starter N.S.S.	1
--	Pin, Spring Anchor	1
--	Pin, Sheave Shaft Retaining	1
5	Spring, Starter	1
6	Shaft, Starter Sheave	1
7	Starter Sheave Assembly	1
--	Sheave, Starter N.S.S.	1
8	Screw, Sheave Reinforcing	4
--	Bushing, Sheave Hub N.S.S.	1
--	Pin, Spring Anchor - Sheave End	1
--	Pin, Retainer	1
9	Shim, Sheave Shaft	2
10	Washer, Pawl Retainer Spacer	1
11	Retainer, Pawl	1
12	Washer, Pawl Retainer Tension	1
13	Collar, Sheave Shaft	1
14	Starter Pawl Assembly	2
--	Pawl, Starter N.S.S.	2
--	Magnet, Starter Pawl	2
15	Starter Cable Assembly	1
--	Cable, Starter N.S.S.	1
--	Anchor, Cable N.S.S.	1
16	Plate, Friction	1
19	Screw, Friction Plate to Cover	3
20	Handle, Starter Cable	1
21	Bushing, Starter Handle	1
23	Screw, Sheave Shaft	1
24	Auxiliary Handle Assembly	1
--	Handle, Auxiliary N.S.S.	1
3	Lockwasher, Auxiliary Handle Screw	4
4	Screw, Auxiliary Handle	4
17	Ratchet, Starter	1
18	Washer, Starter Ratchet	1
22	Screw, Starter Cover to Tank (Front)	2

N.S.S. Not Sold Separately

2 FUEL TANK, PROTECTOR RIM & COWL

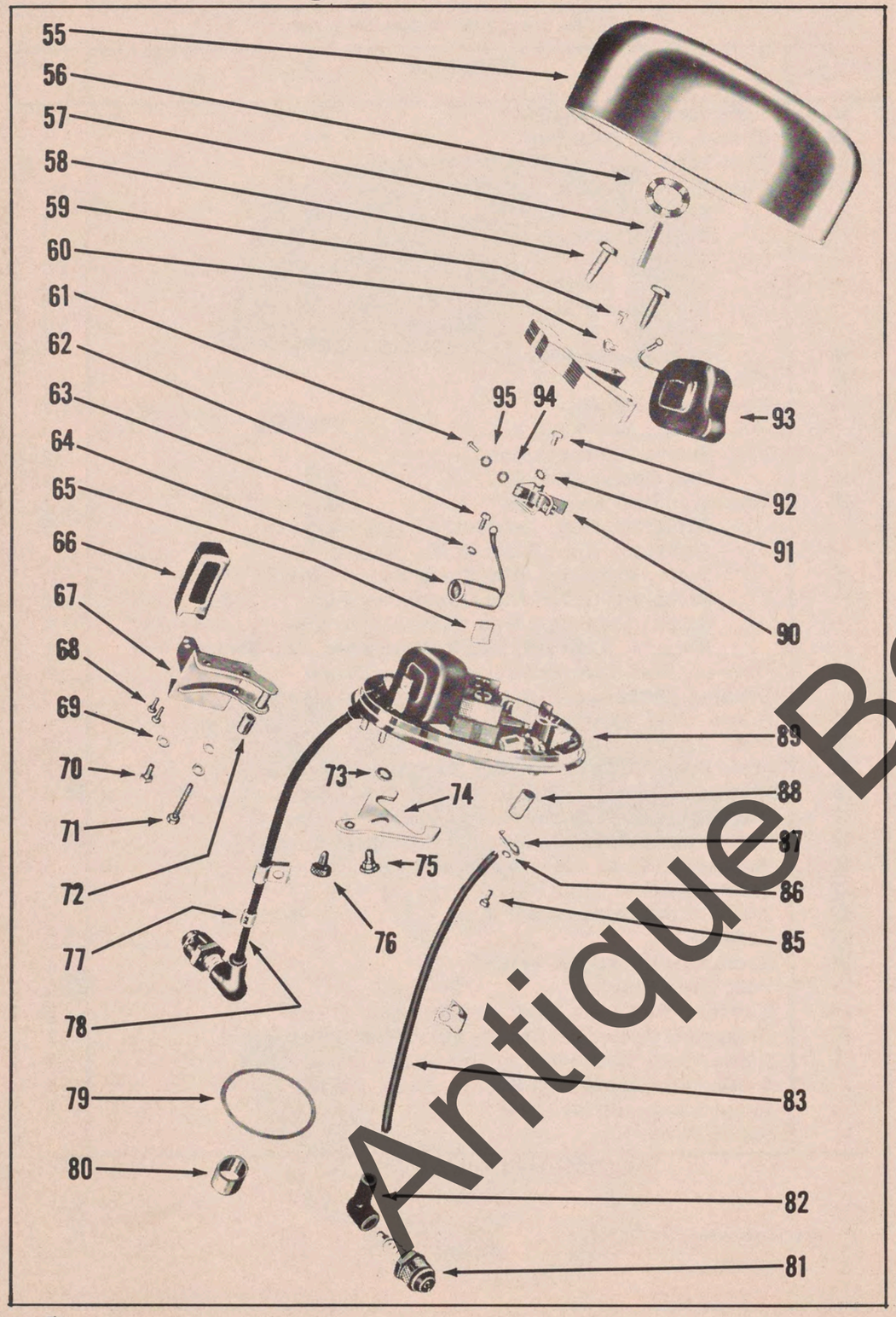


FUEL TANK, PROTECTOR RIM & COWL

REF. NO.	DESCRIPTION	QUAN.
25	Fuel Tank Cap Assembly	1
26	Gasket, Fuel Tank Cap	1
27	Fuel Tank	1
29	Fuel Filter Assembly	1
--	Adapter Nut	1
--	Filter Element	1
--	End Cap	1
--	Washer, Rubber	2
--	Nut, Elastic Stop	1
--	Stud	1
28	Gasket, Filter to Tank	1
30	Connector	1
31	Fuel Line Assembly	1
--	Fuel Line N.S.S.	1
--	Sleeve, Compression	2
--	Nut, Compression	2
32	Protector Rim Assembly	1
--	Protector Rim, Left Half N.S.S.	1
--	Protector Rim, Right Half N.S.S.	1
--	Plate, Protector Rim Connecting N.S.S.	1
--	Rivet, Protector Rim Connecting Plate N.S.S.	6
--	Screw, Protector Rim to Protector Rim	1
--	Washer, Protector Rim to Protector Rim Screw	1
33	Washer, Fuel Tank to Protector Rim Screw	4
34	Bushing, Protector Rim to Rear Bracket (Rubber)	2
35	Screw, Fuel Tank to Protector Rim	4
36	Stud, Protector Rim to Fuel Tank Brkt., Rear	2
37	Stud, Protector Rim to Fuel Tank Brkt., Front	2
38	Washer, Protector Rim to Rear Bracket (Rubber)	4
39	Washer, Fuel Tank Bracket to Protector Rim	4
40	Nut, Protector Rim to Bracket Stud (Self-Locking)	4
41	Washer, Cowl to Protector Rim Screw	7
42	Screw, Cowl to Cowl (Rear)	1
42	Screw, Cowl to Protector Rim	6
43	Cowl	1
44	Grommet, Choke Rod Hole	1
45	Fuel Tank Bracket	2
46	Washer, Fuel Tank Brkt. to Crankcase Screw	2
47	Grommet, Protector Rim to Fuel Tank Brkt., Front	2
48	Screw, Fuel Tank Brkt. to Crankcase (Truss Hd.)	2
49	Screw, Fuel Tank Brkt. to Crankcase (Fill. Hd.)	2
50	Drive Screw, Serial Plate	4
51	Serial Plate	1

N.S.S. Not Sold Separately

3 MAGNETO

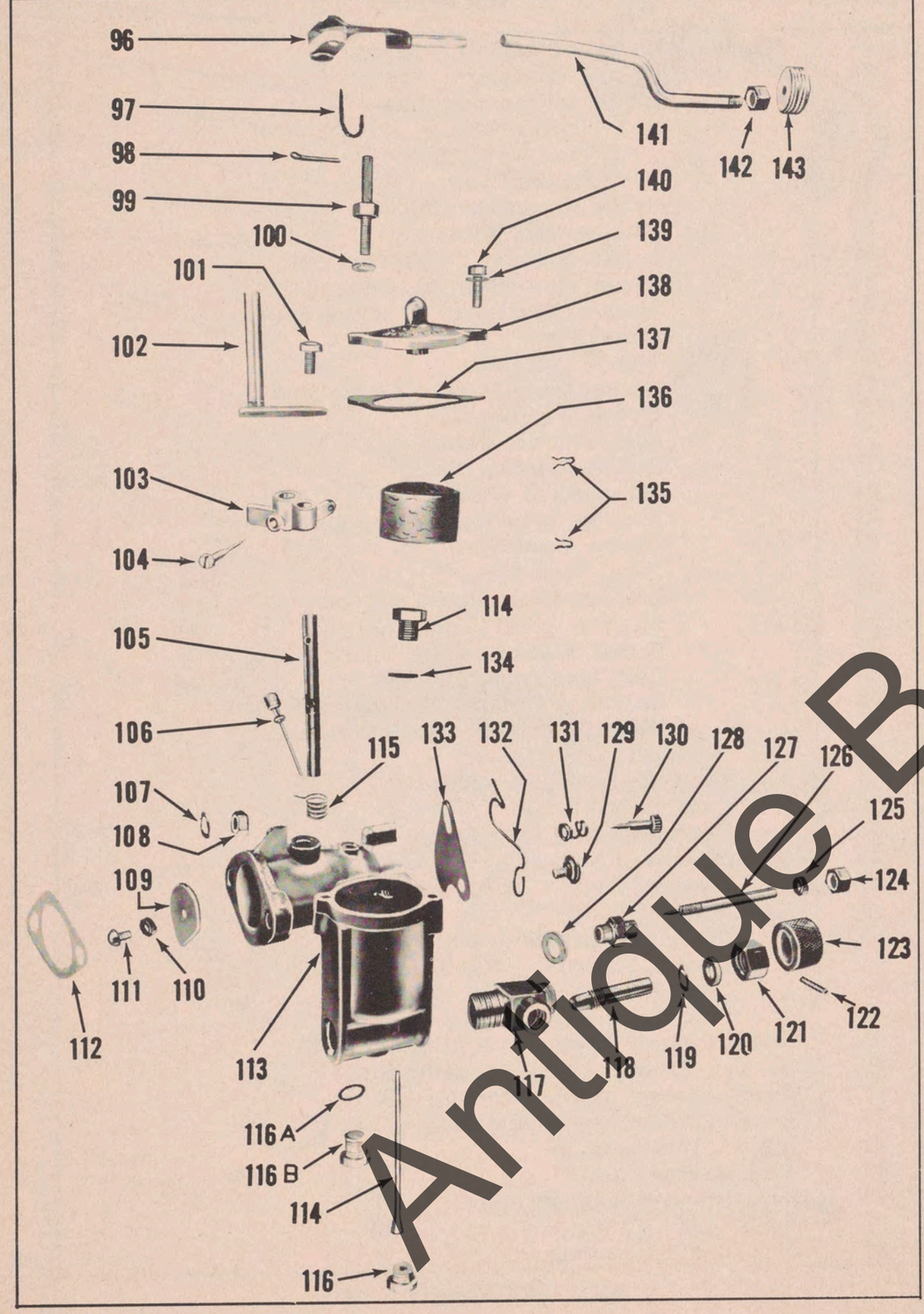


MAGNETO

REF. NO.	DESCRIPTION	QUAN.
--	Magneto Assembly Complete, Phelon	1
89	Stator Plate Assembly	1
--	Stator & Core Assembly	1
--	Stator N.S.S.	1
--	Core N.S.S.	2
58	Screw, Core	4
59	Screw, Ground Terminal	2
60	Clip, Ground Wire	2
61	Screw, Breaker Connection	2
62	Screw, Condenser Attaching	2
63	Washer, Condenser Attaching Screw	2
64	Condenser	2
65	Wiper, Felt Cam	1
73	Lockwasher, Friction Clamp Stud	2
74	Clamp, Friction	2
75	Stud, Friction Clamp	2
76	Screw, Friction Clamp	2
85	Screw, Lead Wire Clamp	2
86	Washer, Lead Wire Clamp Screw	2
87	Clamp, Lead Wire Tube	2
88	Tube, Lead Wire	2
90	Breaker Replacement Assembly	2
91	Washer, Fixed Contact Screw	2
92	Screw, Fixed Contact	2
93	Coil, Ignition	2
94	Insulator, Breaker Connection Screw	2
95	Washer, Breaker Connection Screw	2
55	Flywheel	1
78	Lead, High Tension - Short	1
80	Cam, Breaker	1
83	Lead, High Tension - Long	1
56	Wave Washer, Flywheel	1
57	Key, Flywheel	1
66	Knob, Control Handle	1
67	Throttle Control Handle Assembly	1
--	Handle, Throttle N.S.S.	1
--	Cam, Throttle N.S.S.	1
--	Pin, Throttle Cam N.S.S.	1
68	Screw, Control Handle Knob Attaching	2
69	Washer, Control Handle Attaching Screw	2
70	Screw, Control Handle Attaching - Short	1
71	Screw, Control Handle Attaching - Long	1
72	Spacer, Throttle Cam	1
77	Wire Marker "Top"	1
79	Thrustwasher, Magneto Pilot	1
81	Spark Plug, J7J Champion	2
82	Protector, Spark Plug	2

N.S.S. Not Sold Separately

4 CARBURETOR, SHUT-OFF VALVE & CHOKE

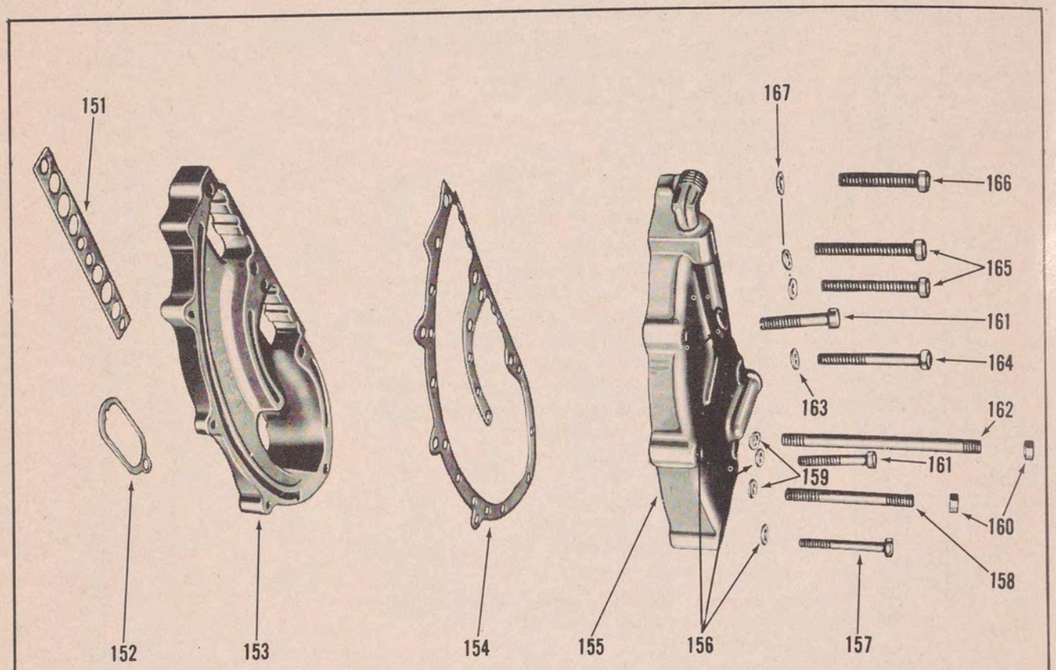


CARBURETOR, SHUT-OFF VALVE & CHOKE

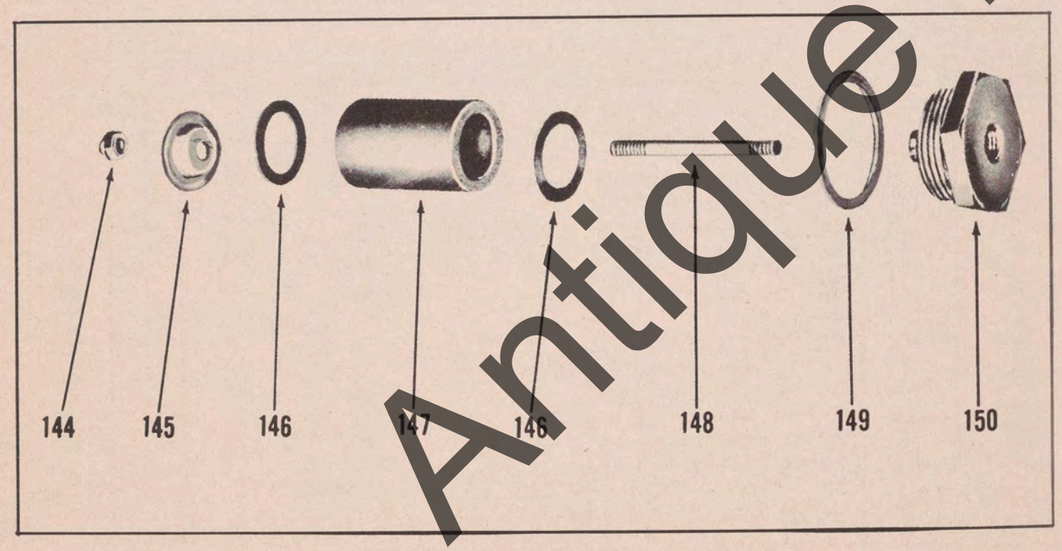
REF. NO.	DESCRIPTION	QUAN.
--	Carburetor Assembly, Complete (AJ-23A)	1
103	Lever, Throttle Stop	1
104	Screw, Throttle Stop Lever	1
105	Shaft, Throttle	1
106	Jet, Idle	1
109	Shutter, Throttle	1
110	Lockwasher, Throttle Shutter Screw	1
111	Screw, Throttle Shutter	1
113	Body N.S.S.	1
114	Inlet Needle & Seat	1
115	Spring, Throttle Shaft Return	1
116	Screw, Inlet Valve Channel Plug	1
124	Nut, Main Adjustment Screw Packing	1
125	Packing, Main Adjustment Screw	1
126	Main Adjustment Screw	1
127	Gland, Main Adjustment Screw	1
128	Gasket, Main Adjustment Screw Gland	1
130	Screw, Idle Adjustment	1
131	Spring, Idle Adjustment	1
134	Gasket, Inlet Valve Seat	1
135	Clip, Float Retainer	2
136	Float, Carburetor	1
137	Gasket, Float Bowl Cover	1
138	Cover, Float Bowl	1
139	Lockwasher, Float Bowl Cover Screw	1
140	Screw , Float Bowl Cover	1
	Welch Plug	1
116B	Screw, Float Bowl Drain	1
116A	Gasket, Float Bowl Drain Screw	1
--	Pin, Throttle Shaft Stop	1
--	Fuel Shut-Off Valve Assembly	1
117	Body, Shut-Off Valve N.S.S.	1
118	Stem, Shut-Off Valve N.S.S.	1
119	Washer, Packing Gland	1
120	Packing, Gland Nut	3
121	Nut, Gland	1
122	Pin, Valve Knob Retaining	1
123	Knob, Valve N.S.S.	1
--	Choke Lever & Rod Assembly	1
96	Choke Lever Assembly	1
--	Lever, Choke N.S.S.	1
--	Pin, Choke Lever N.S.S.	1
97	Pin, Choke Rod Retaining	1
98	Cotter Pin, Choke Lever Stud	1
99	Stud, Choke Lever	1
100	Lockwasher, Choke Lever Stud	1
141	Rod, Choke	1
129	Screw, Choke Shutter	1
132	Spring, Choke Shutter	1
133	Shutter, Choke	1
142	Nut, Choke Rod Stop	1
143	Knob, Choke	1
102	Throttle Lever Assembly	1
--	Lever , Throttle N.S.S.	1
--	Pin, Throttle Lever N.S.S.	1
--	Washer, Throttle Lever Spacer	1
101	Screw, Throttle Lever to Carburetor	1
107	Washer, Carburetor Stud	2
108	Nut, Carburetor Stud	2
112	Gasket, Carburetor Flange	1
--	Repair Parts Kit, Carburetor	1

N.S.S. Not Sold Separately

5 EXHAUST MANIFOLD



6 FUEL FILTER



EXHAUST MANIFOLD

REF. NO.	DESCRIPTION	QUAN.
151	Gasket, Manifold to Cylinder	1
152	Gasket, Exhaust Manifold to Drive Shaft Housing	1
153	Exhaust Manifold, Engine Half	1
154	Gasket, Exhaust Manifold	1
155	Exhaust Manifold Assembly, Outer Half	1
--	Exhaust Manifold, Outer Half N.S.S.	1
--	Elbow, Exhaust Manifold	1
--	Welch Plug, Exhaust Manifold	1
156	Washer, Manifold Attaching Screw	3
157	Screw, Manifold Attaching	1
158	Stud, Manifold to Drive Shaft Hsg. (Short)	1
159	Washer, Exhaust Manifold Stud Nut	2
160	Nut, Exhaust Manifold Stud	2
161	Screw, Manifold Attaching	2
162	Stud, Manifold to Drive Shaft Hsg. (Long)	1
163	Washer, Manifold to Cylinder Screw	1
164	Screw, Manifold to Cylinder (2-1/8 long)	1
165	Screw, Manifold to Cylinder	2
166	Screw, Manifold to Cylinder (1-3/8 long)	1
167	Washer, Manifold to Cylinder Screws	3

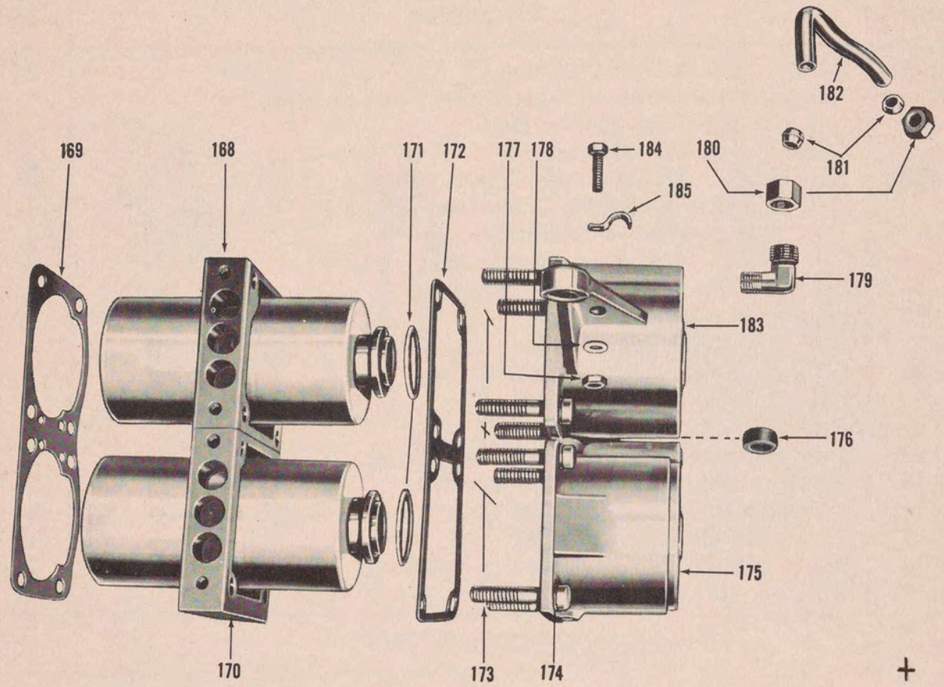
N.S.S. Not Sold Separately

FUEL FILTER

REF. NO.	DESCRIPTION	QUAN.
--	Fuel Filter Assembly	1
144	Nut, Elastic Stop	1
145	End Cap	1
146	Washer, Rubber	2
147	Filter Element	1
148	Stud	1
149	Gasket, Filter to Tank	1
150	Adapter Nut	1
--	Connector	1

N.S.S. Not Sold Separately

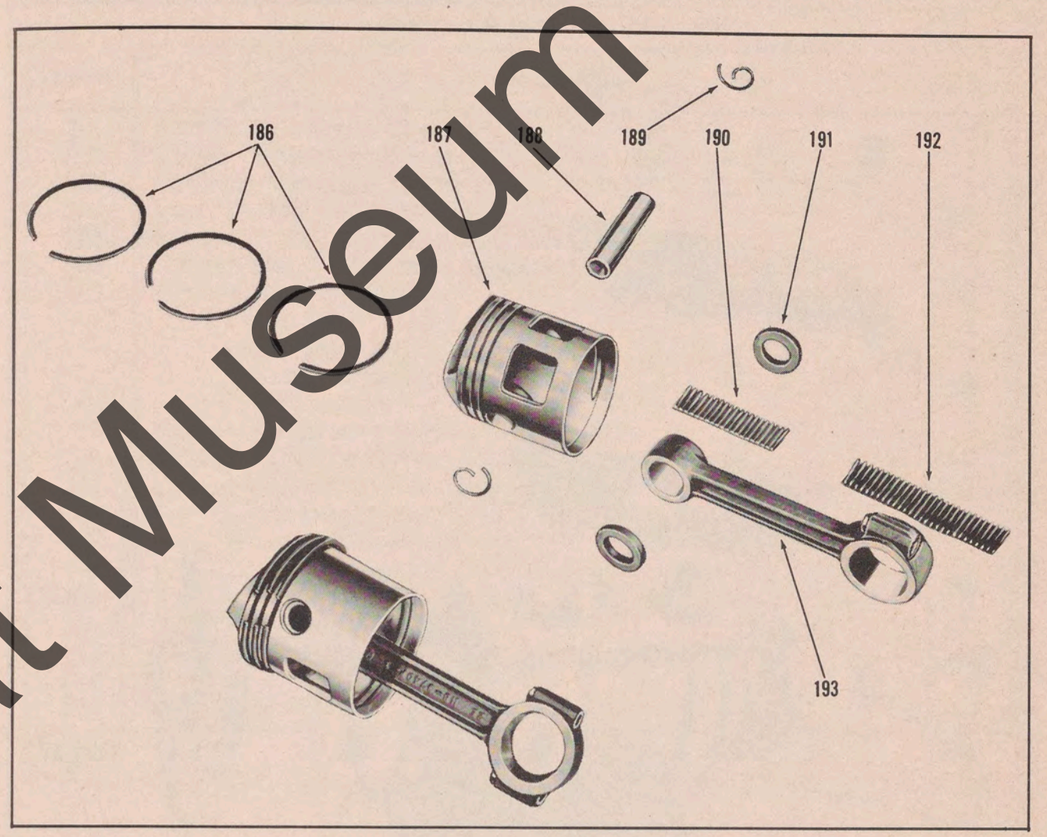
7 CYLINDER & WATER JACKET



REF. NO.	DESCRIPTION	Quan.
168	Cylinder, Upper	1
169	Gasket, Cylinder to Crankcase	1
170	Cylinder, Lower	1
171	Gasket, Water Jacket to Spark Plug Flange	2
172	Gasket, Water Jacket to Cylinder	1
173	Screw, Water Jacket to Crankcase	8
174	Washer, Water Jacket to Crankcase Screw	8
175	Water Jacket Assembly, Lower	1
-	Water Jacket, Lower N.S.S.	1
-	Plug, Water Jacket Pipe Hole	1
176	Gasket, Water Jacket to Water Jacket	1
177	Nut, Clip Fastening Screw	2
178	Washer, Clip Fastening Screw	2
179	Elbow, Water Outlet Pipe to Water Jacket	1
180	Nut, Water Outlet Pipe Compression	2
181	Sleeve, Water Outlet Pipe Compression	2
182	Pipe, Water Outlet	1
183	Water Jacket, Upper	1
184	Screw, Clip Fastening	2
185	Clip, Ignition Cable	2

N.S.S. Not Sold Separately

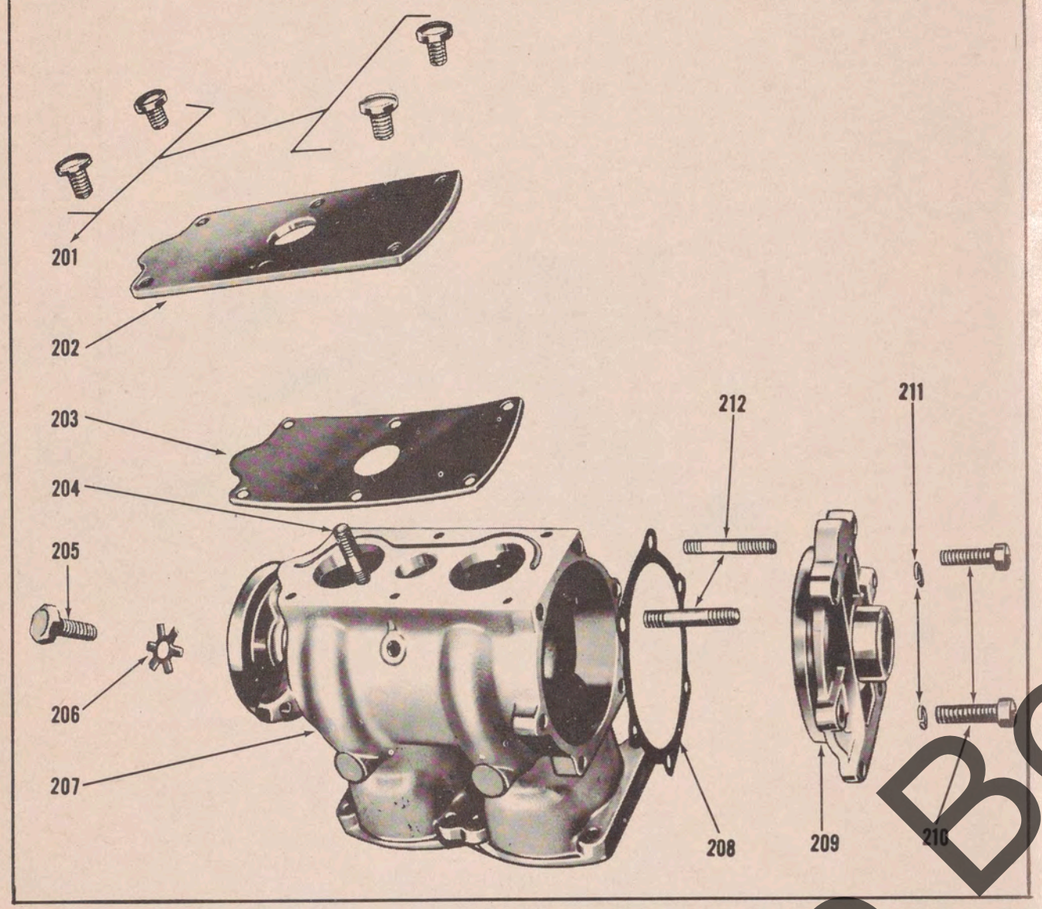
8 PISTON & CONNECTING ROD



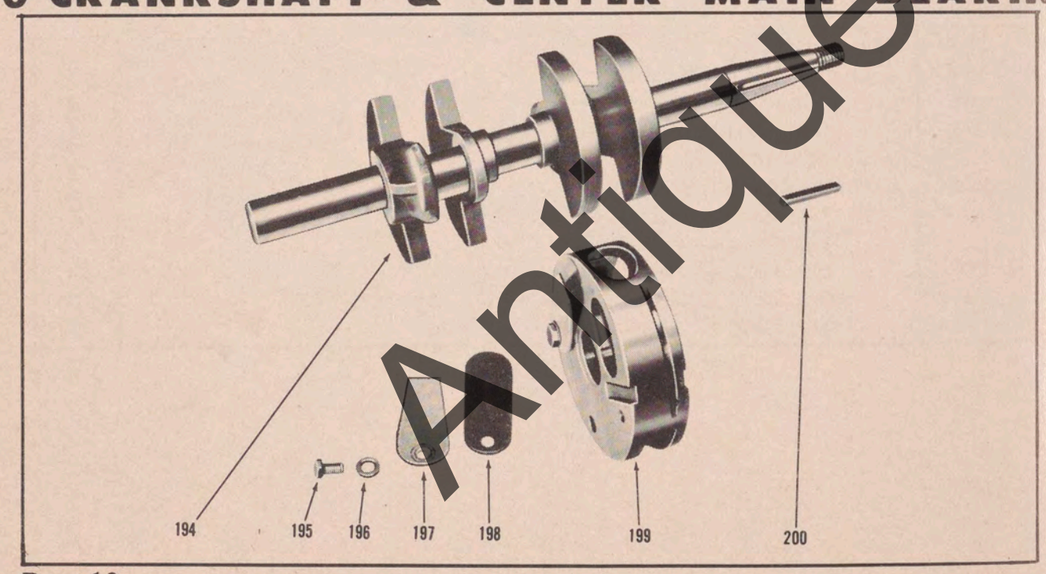
REF. NO.	DESCRIPTION	QUAN.
186	Ring, Piston	6
187	Piston & Pin Assembly	2
188	Pin, Piston N.S.S.	2
189	Ring, Piston Pin Lock	4
--	Piston N.S.S.	2
193	Connecting Rod Assembly	2
--	Connecting Rod & Cap N.S.S.	2
--	Screw, Connecting Rod Cap	4
190	Bearing, Piston Pin Roller	40
191	Washer, Roller Bearing Retaining	4
192	Bearing, Crankpin Roller	56

N.S.S. Not Sold Separately

9 CRANKCASE & CRANKCASE BOTTOM



10 CRANKSHAFT & CENTER MAIN BEARING



CRANKCASE & CRANKCASE BOTTOM

REF. NO.	DESCRIPTION	QUAN.
201	Screw, Crankcase Cover Plate	4
202	Cover Plate, Crankcase	1
203	Gasket, Crankcase Cover Plate	1
204	Stud, Carburetor Mounting	2
205	Screw, Center Main Bearing Lock	1
206	Tabwasher, Center Main Bearing Lock Screw	1
207	Crankcase Assembly	1
--	Crankcase N.S.S.	1
--	Seal, Upper Oil	1
--	Bearing, Upper Roller	2
--	Jet, Bleeder	2
208	Gasket, Crankcase Bottom to Crankcase	1
--	Shim, Crankcase Bottom (Optional)	1
209	Crankcase Bottom Assembly	1
--	Crankcase Bottom N.S.S.	1
--	Bearing, Lower Roller	1
--	Oil Seal Assembly	1
--	Oil Seal N.S.S.	1
--	Retainer, Oil Seal N.S.S.	1
210	Screw, Crankcase Bottom	2
211	Washer, Crankcase Bottom Screw	2
212	Stud, Crankcase to Drive Shaft Housing	2

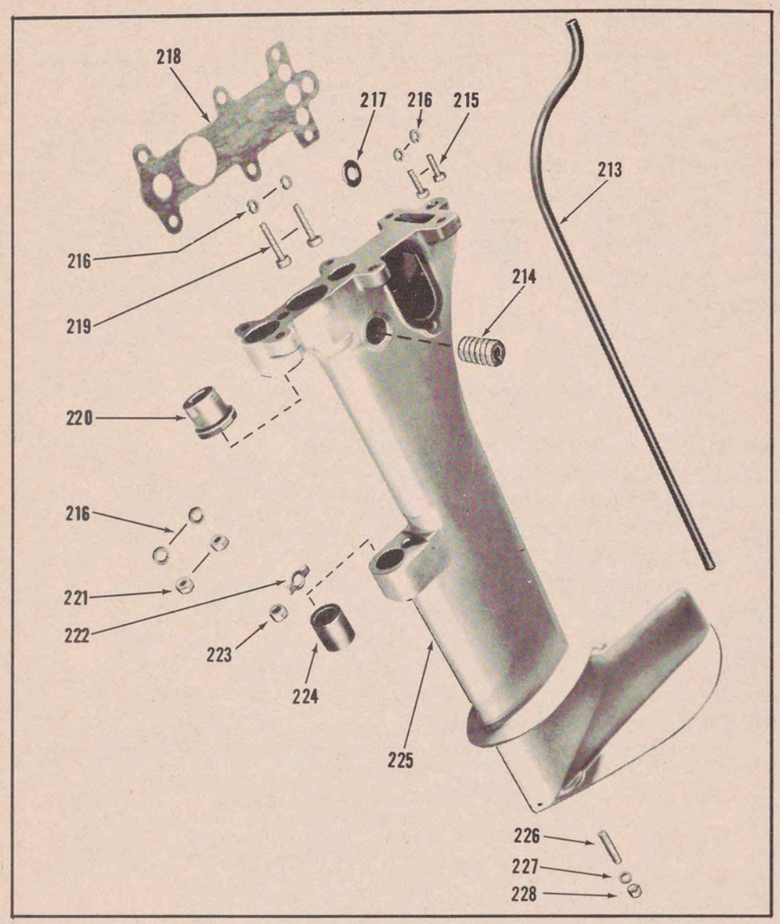
N.S.S. Not Sold Separately

CRANKSHAFT & CENTER MAIN BEARING

REF. NO.	DESCRIPTION	QUAN.
194	Crankshaft	1
195	Screw, Reed Plate	4
196	Washer, Reed Plate Screw	4
197	Plate, Reed Stop	4
198	Reed, Inlet Valve	4
199	Center Main Bearing	1
--	Bearing, Solid Half N.S.S.	1
--	Bearing, Cored Half N.S.S.	1
--	Dowel Pin N.S.S.	2
--	Screw, Center Main Clamping	2
200	Key, Flywheel	1

N.S.S. Not Sold Separately

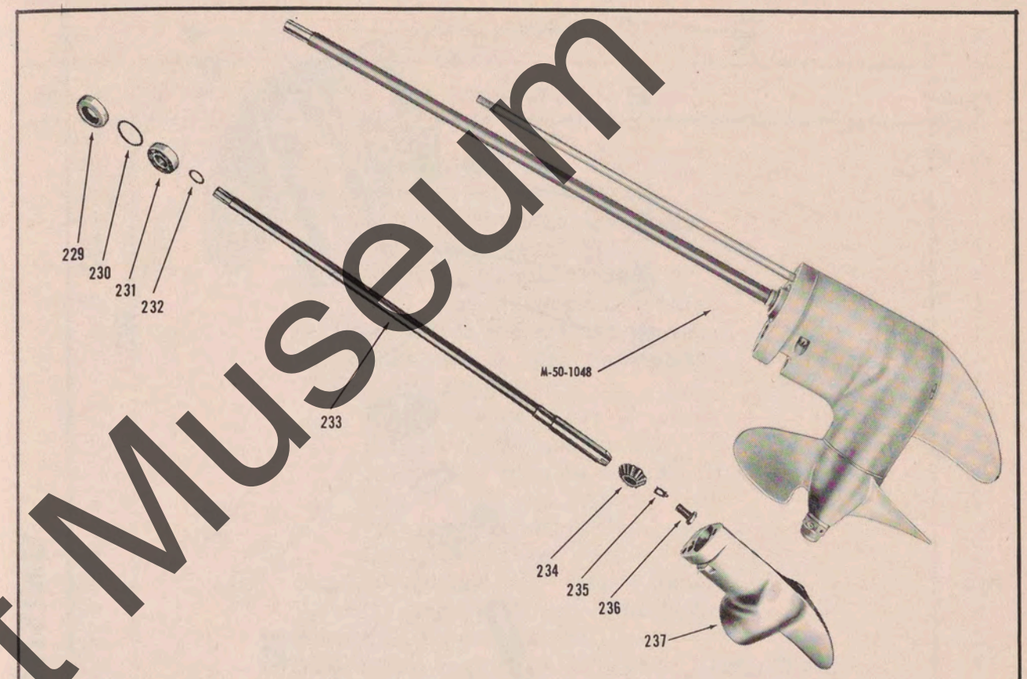
11 DRIVE SHAFT HOUSING



REF. NO.	DESCRIPTION	QUAN.
225	Drive Shaft Housing Assembly	1
--	Housing, Drive Shaft N.S.S.	1
213	Pipe, Water Inlet	1
220	Bushing Assembly, Upper	1
224	Bushing Assembly, Lower	1
214	Spring, Co-Pilot to Drive Shaft Housing	2
215	Screw, Drive Shaft Housing to Crankcase (Short)	2
216	Washer, Powerhead to Drive Shaft Housing	6
217	Gasket, Water Inlet Pipe	1
218	Gasket, Drive Shaft Housing to Powerhead	1
219	Screw, Drive Shaft Housing to Crankcase (Long)	2
221	Nut, Crankcase to Drive Shaft Housing Stud	2
222	Washer, Drive Shaft Hsg. to Long Stud Nut	1
223	Nut, Drive Shaft Housing Long Stud	1
226	Stud, Drive Shaft Housing to Gear Case (Short)	1
227	Washer, Drive Shaft Hsg. to Gear Case Short Stud	1
228	Nut, Drive Shaft Hsg. to Gear Case Short Stud	1

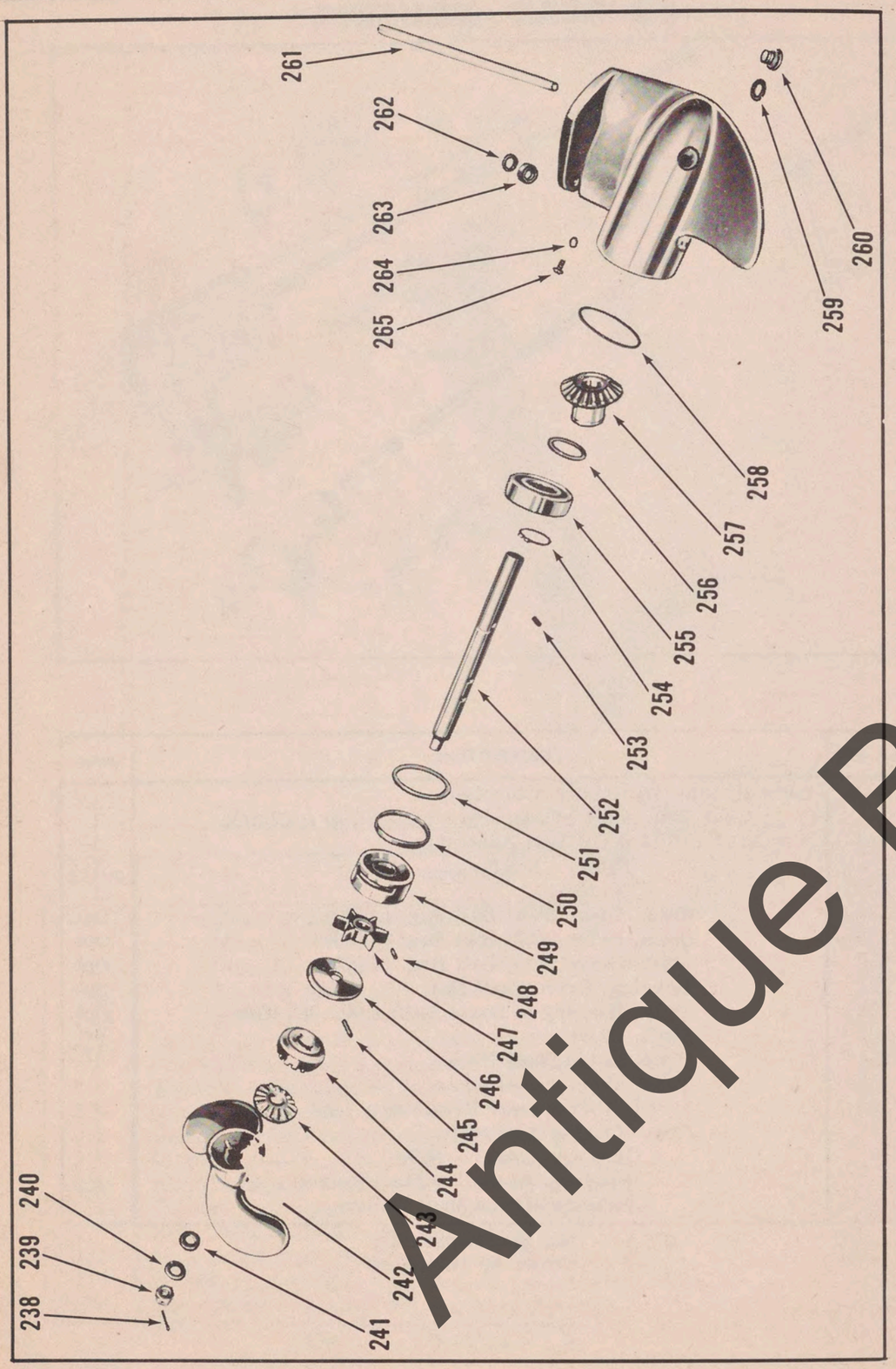
N.S.S. Not Sold Separately

12 GEAR HOUSING



REF. NO.	DESCRIPTION	Quan.
--	Gear Housing Assembly, Complete	1
--	Gear Hsg. Assy., Complete - Less Prop & Clutch	1
229	Pilot & Oil Seal Assembly	1
--	Pilot N.S.S.	1
--	Oil Seal	1
230 *	Shim, Drive Shaft Ball Brg. (.005)	Opt.
230 *	Shim, Drive Shaft Ball Brg. (.002)	Opt.
230 *	Shim, Drive Shaft Ball Brg. (.003)	Opt.
231	Bearing, Drive Shaft Ball	1
232	Shim, Bearing to Drive Shaft (.003.005.010)	Opt.
233	Shaft, Drive	1
234	Gear, Drive Shaft Pinion	1
235	Tabwasher, Pinion Gear	1
236	Screw, Pinion Gear Retaining	1
237	Gear Housing Assembly	1
--	Housing, Gear N.S.S.	1
--	Bearing, Propeller Shaft Roller	1
--	Bearing, Drive Shaft Roller	1

N.S.S. Not Sold Separately
* Order by Shim Size



13 GEAR HOUSING

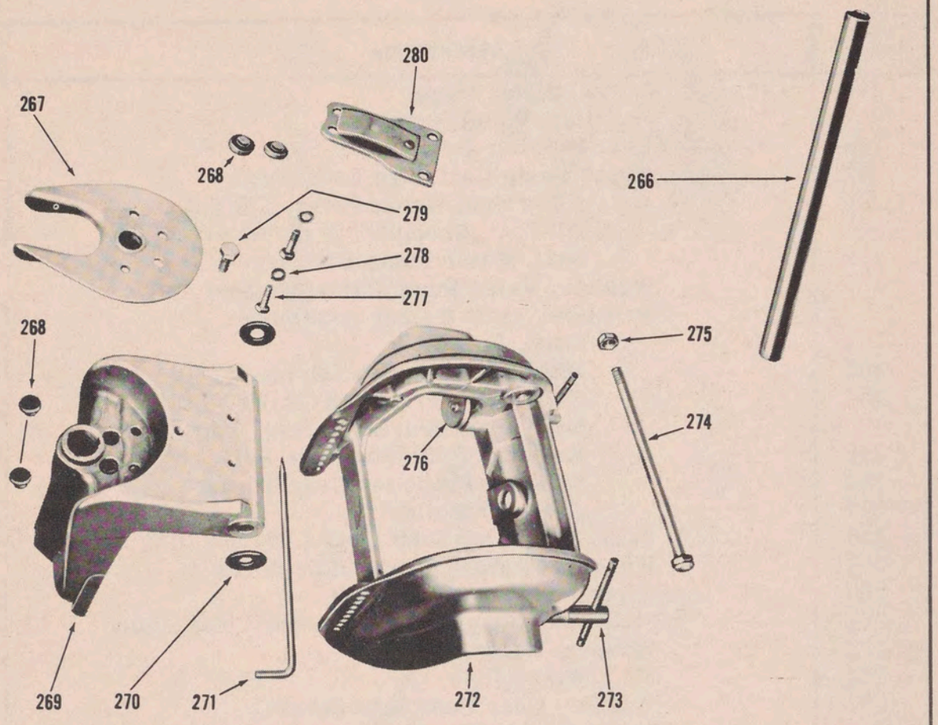
GEAR HOUSING

REF. NO.	DESCRIPTION	QUAN.
246	Cover, Water Pump	1
247	Impeller, Water Pump	1
248	Key, Impeller Drive	1
249	Water Pump Cartridge Assembly	1
--	Cartridge, Water Pump N.S.S.	1
--	Oil Seal, Propeller Shaft	1
250	Seal, Water Pump Cartridge	1
251	Washer, Water Pump Cartridge Seal	1
--	Propeller Shaft & Gear Assembly	1
252	Shaft, Propeller	1
253	Pin, Propeller Gear Drive	1
254	Snap Ring, Propeller Gear	1
-- *	Shim, Ball Bearing to Snap Ring	Opt.
255	Bearing, Propeller Gear Ball	1
256	Washer, Propeller Gear Thrust	1
257	Gear, Propeller	1
258 *	Shim, Propeller Shaft Gear (.005.002.010)	Opt.
259	Washer, Grease Filler Hole Screw	1
260	Screw, Grease Filler Hole	1
261	Stud, Gear Housing to Drive Shaft Hsg. (Long)	1
262	Washer, Water Pipe	1
263	Seal, Water Pipe	1
264	Washer, Gear Case Vent Screw	1
265	Screw, Gear Case Vent	1
238	Cotter Pin, Propeller Nut	1
239	Nut, Propeller	1
240	Washer, Shock Absorber Retaining	1
241	Shock Absorber, Propeller	1
242	Propeller	1
--	Clutch Assembly	1
243	Drive Member, Clutch	1
244	Drive Member, Clutch	1
245	Pin, Clutch Drive	1

N.S.S. Not Sold Separately

* Order by Shim Size

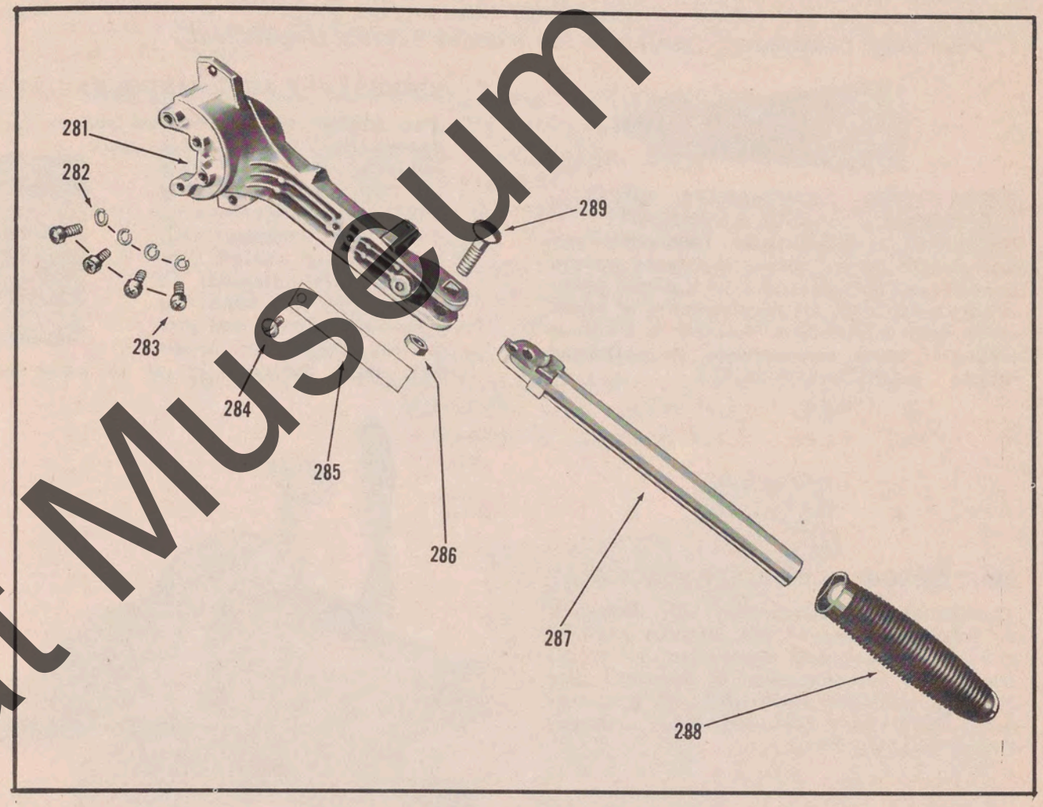
14 CLAMP & SWIVEL BRACKET



REF. NO.	DESCRIPTION	QUAN.
272	Clamp Bracket Assembly	1
--	Bracket, Clamp N.S.S.	1
273	Thumb Screw Assembly	2
--	Thumb Screw N.S.S.	2
--	Pin, Thumb Screw N.S.S.	2
276	Washer, Thumb Screw	2
266	Pin, Swivel Bracket to Drive Shaft Housing	1
267	Co-Pilot Disc. Assembly	1
269	Bracket, Swivel	1
270	Shim, Clamp Bracket to Swivel Bracket	2
271	Tilt Lock Pin Assembly	1
274	Stud, Clamp Bracket to Swivel Bracket	1
275	Nut, Clamp Bracket to Swivel Bracket Stud	2
277	Screw, Clamp Plate to Swivel Bracket	2
278	Lockwasher, Clamp Plate to Swivel Bracket Screw	2
279	Screw, Co-Pilot Adjusting	1
280	Clamp Plate Assembly	1
--	Clamp Plate N.S.S.	1
--	Spring, Clamp Plate N.S.S.	1
--	Rivet, Clamp Plate N.S.S.	1
268	Disc., Friction	4

N.S.S. Not Sold Separately

15 STEERING HANDLE



REF. NO.	DESCRIPTION	QUAN.
281	Steering Handle Bracket Assembly	1
--	Bracket, Steering Handle N.S.S.	1
--	Rivet, Spring Release	1
--	Spring, Anti-Rattle	1
--	Washer, Anti-Rattle Spring	1
282	Washer, Bracket to Co-Pilot Disc. Screw	4
283	Screw, Steering Bracket to Co-Pilot Disc.	4
284	Screw, Handle Bracket Spring	1
285	Spring, Steering Handle Bracket	1
286	Nut, Handle Bracket Bolt	1
287	Handle, Steering	1
288	Grip, Steering Handle	1
289	Bolt, Handle Bracket to Handle	1

N.S.S. Not Sold Separately

KIEKHAEFER MERCURY ACCESSORIES

ENGINEERED **TESTED** **APPROVED**

To operate and maintain your outboard motor as recommended in the forepart of this manual; the following Kiekhaefer accessories are made available through your local Distributor, Dealer, or the Factory Service Department.

KIEKHAEFER AEROMARINE SPECIAL OUTBOARD GEAR LUBRICANT

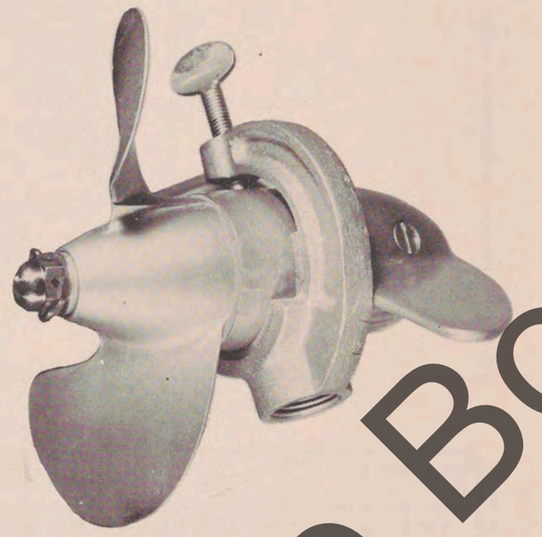
Perfected by Kiekhaefer laboratory and actual use tests, under the most severe conditions. Manufactured to highest specifications to meet all requirements of lower drive unit lubrication. Available for your protection and convenience in packaged tubes. - PART NO. M-60-583.

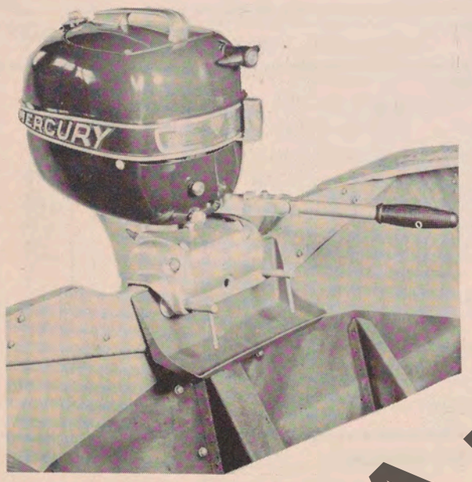
KIEKHAEFER AEROMARINE ENGINE OIL

The quality oil engineered and perfected especially for two cycle engines. We offer this oil with our approval as Kiekhaefer Aeromarine Two-Cycle Engine Oil, sold only in sealed lithographed (illustrated) 12 ounce (3/4 pt.) cans, for your convenience and protection, PART NO. M-60-573, sold individually or in case lots.

SALT OR SILT FLUSHING ATTACHMENT

The illustrated attachment was designed to make flushing of the Mercury cooling system as easy and convenient as practical. Will accommodate a standard garden hose coupling, and fitted with a sponge rubber pad which prevents water leakage. PART NO. M-60-582.





MERCURY SPIC AND SPAN "DRIP PAN"

You can keep the stern of your boat spic and span with this highly finished plastic drip pan, which attaches to the boat transom. PART NO. M-60-5231.

REMOTE CONTROL STEERING BAR

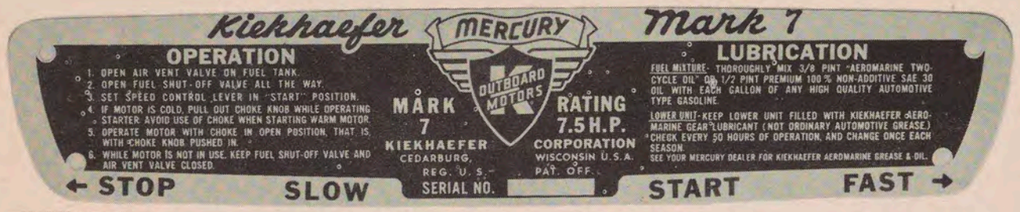
Made of tough, corrosion-resistant steel this remote steering bar is 26" wide and is designed to bolt onto steering handle bracket. PART NO. M-60-578.

OUTBOARD SPORTSWEAR - Mercury Design

The following outdoor sportswear, identified with appropriate Mercury facsimile motors and decals of Mercury trademark, are manufactured to Kiekhaefer high standards of quality by the Victoria Silk Press. Merchandise may be secured through your local Mercury dealer, or he will assist you in ordering your requirements for same.

1. Mercury, long peak sporty cap, heavy twill, white or tropical tan.
   SIZES - 6-1/2 to 7-5/8
2. Crew style cap, snappy brim, sailor type, heavy twill.
   SIZES - 6-1/2 to 7-1/4
3. Mercury Sweatshirt (By Utica), pure white yarn closely knit, absorbent, fleece lined - - SIZES - Small (36), Medium (38 - 40), & Large(42 - 44)
4. & 5. Mercury T - shirts, comfortable and good looking. Tough fibre yarn, three styles available. Ladies (Peter Pan collar), Boys, and Mens
   SIZES - Small (36), Medium (38 - 40), & Large (42 - 44)
6. & 7. Back and shoulder patches, Mercury Emblem, can be sewn on any piece of sportswear, available from Distributors, Dealers, or Factory.
   M-60-605------- Shoulder Patch Price $ .65
   M-60-604------- Large Emblem Price 1.12

WARRANTY INSTRUCTIONS



The facsimile of the motor nameplate, as shown above, is the key to your motor's specifications. Always refer to the serial number, and model, stamped on this nameplate, when calling or writing for service information or parts replacement. For owners of Mercury motors in remote areas, please contact the factory for the name of the distributor in your area for prompt cooperation regarding parts and service information.

RETURNS FOR FACTORY OR CERTIFIED SERVICE ORGANIZATION REPAIR:

1. If motor contains fuel, drain it thoroughly, and carefully close all openings from which any liquid might drain during shipment.
2. Clean the exterior and attach an identification tag showing customer's name and address and motor serial and model number.
3. Package motor properly (in original carton if available), address package plainly to the Kiekhaefer Corporation, attention the Service Department, or the Certified Service Organization in your locality, and prepay all shipping charges. Please notify immediately by letter, indicating date, place, content of shipment, and a copy of the Bill of Lading, or instructions on how shipped and by what method, in order to expedite prompt handling. Be sure to make reference to any prior correspondence with the Company pertaining to the shipment involved, giving the name and date appended to each letter.

KIEKHAEFER CORPORATION
MERCURY PARTS DIVISION
BEAVER DAM, WISCONSIN

A WARRANTY REGISTRATION CARD ACCOMPANIES EVERY MOTOR. THE MERCURY DEALER IS INSTRUCTED TO COMPLETE THIS CARD AND MAIL THE DESIGNATED PORTION TO THE FACTORY AND RETURN THE ATTACHED STUB TO THE PURCHASER.

When sending a motor, parts, or accessories to the factory, for service at the same time, always forward by mail the following information:

SERIAL NUMBER OF MOTOR
MODEL NUMBER
DATE PURCHASED
DEALERS NAME

Also the approximate number of hours the motor has operated since it was bought. Also, give complete report of trouble experienced and special servicing instructions.

FURNISHING THE ABOVE INFORMATION WILL INSURE PROMPT AND PROPER SERVICE.

CERTIFIED SERVICE ORGANIZATION

In order to provide prompt and efficient service on Mercury Outboard Motors, Distributors and Certified Service Organizations are located in principal cities of the United States and Canada.

Each Certified Mercury Service organization or Distributor carries a stock of original Mercury repair parts. Each is equipped with factory service tools and factory trained mechanics, assuring expert repair service on all Mercury Motors.

All labor, on parts replacement is free of charge, FOB factory where examination discloses to our satisfaction that the part in question is defective under the terms set forth in the Warranty.

Genuine Kiekhaefer parts and service will assure continuous motor satisfaction. Our long experience in motor maintenance prompts us to urge all service work be done by our Certified Service Organization or at our factory. Mechanics or individuals not acquainted with Kiekhaefer products, or without proper service tools, should not be permitted to work on or make major repairs.

Standard parts and repair work are FOB factory, or any Certified Kiekhaefer Service Organization. The Distributor nearest you or the factory will be pleased to give you the name of the Service Organization in your locality.

WARRANTY: The Kiekhaefer Corporation warrants each new Mercury Outboard Motor manufactured by it to be free from defects in material and workmanship.

The Company's obligation shall be limited to replacing for the original purchaser Free of Charge, any part or parts found upon examination at our factory at Beaver Dam, Wisconsin, to be defective under normal use and service, on account of defects in material or workmanship, for ninety (90) days from date of purchase by the original purchaser. Provided further that purchaser gives written notice to the Distributor or the Company of such defects, and that during said period the motor is properly cared for, operated under normal conditions, and that all transportation charges on part or parts submitted for replacement under this warranty must be borne by the purchaser.

The correction of such defects by repair or replacement shall constitute a fulfillment of all the Company's obligations to the purchaser.

This warranty is in lieu of all other warranties, expressed or implied, and any and all other obligations or liabilities on its part contractual or otherwise.

No employee, agent, distributor, or dealer of the Kiekhaefer Corporation shall have the right to modify or change this warranty without written authorization signed by an officer of the Kiekhaefer Corporation.

This warranty shall not apply to any motor which shall have been repaired or altered outside of our factory, or authorized repair service facilities in any way so in our judgement effects its operation or reliability or to any motor which has been subject to misuse, negligence, or accident, or which has been used for racing or equipped with a propeller not of our manufacture, or in any other manner than that recommended by the Company.

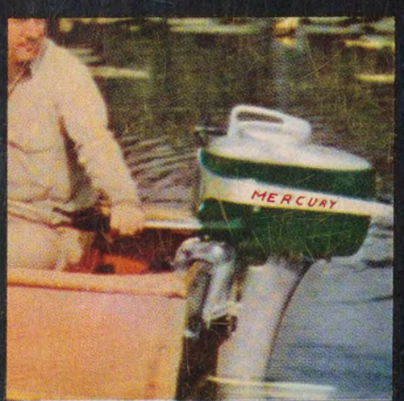
This warranty shall not apply to any motor or accessory part which in the opinion of the manufacturer has been damaged due to mishandling, improper storage, rust, corrosion, deterioration, etc. that may have occurred due to extreme dampness, heat, cold, storage, floods, or conditions beyond the control of the Company, or to any equipment where a grade of fuel or lubricating oil other than that recommended by the Company is used.

This warranty expressly does not cover the free replacement of parts made inoperative because of wear occasioned by use. Further, this warranty shall not apply to any motor which is not registered with the manufacturer.

All rights are reserved to change or improve design in later models at any time without incurring any obligation to install same on any motor previously purchased.

KIEKHAEFER CORPORATION
BEAVER DAM, WISCONSIN

FAST, POWERFUL



RELIABLE

SLEEK

KIEKHAEFER
MERCURY
OUTBOARD MOTORS

KIEKHAEFER CORP., BEAVER DAM, WISC.