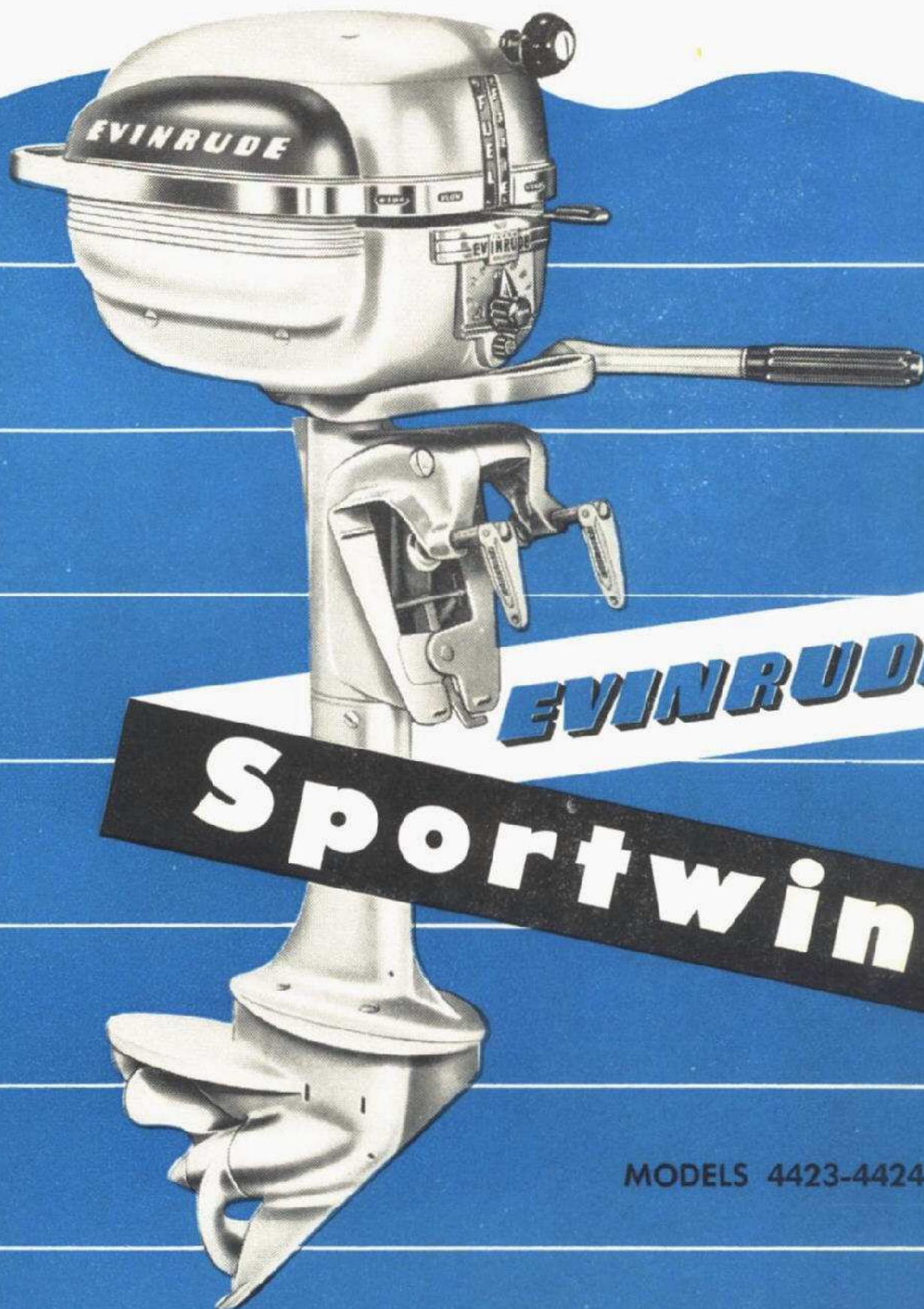


Operating and General

Instructions



EVINRUDE

Sportwin

MODELS 4423-4424

OPERATING AND GENERAL INSTRUCTIONS



ALTERNATE FIRING — FULL REVERSE — WEEDLESS — Models 4423 — 4424 (For Mechanical Specifications See Page 31)

FOREWORD The Evinrude Sportwin is simple to understand, easy to operate, and built to give first-class service, but before you attempt to operate the motor, read pages 2 to 8 carefully. The remaining instructions are for later reference and may be read at leisure.

MAKE WARRANTY EFFECTIVE NOW MAKE OUR WARRANTY ON YOUR MOTOR EFFECTIVE by filling out Registration Card (in envelope accompanying motor) and mailing immediately. BE SURE CORRECT MOTOR NUMBER, located on right side of stern bracket, appears on card.

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ASSEMBLY INSTRUCTIONS (*Right and Left are designated while facing motor on carburetor side*) The motor as packed for shipment, comes completely assembled ready to be attached to boat. The spark plugs are in place in cylinders and wires are properly attached. Gear housing has been filled with OIL.

TOOLS AND EQUIPMENT (*See Fig. 1*)

The STEERING HANDLE is also a screw driver and can be easily unscrewed when needed. Attached to motor under RIGHT SIDE cover are the following articles: A spark plug wrench, a holder with extra propeller shear-off pins and a cotter pin. It is only necessary to loosen the two quick fastener screws to remove cover. (See Fig. 1)

A small feeler gauge for spark plug and breaker point setting is enclosed with this manual.

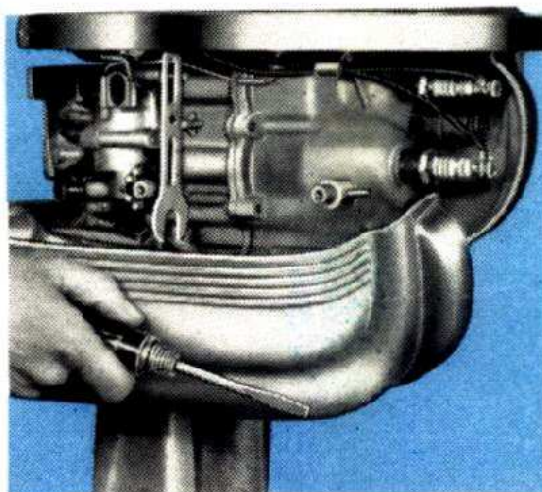


Fig. 1

ATTACHING MOTOR TO BOAT Our motors are designed for transoms that conform to S.A.E. boat standards. See illustration (Fig. 2). "A" denotes pitch or angle; "B", maximum transom thickness; "C", vertical transom height, not including keel.

It is advisable not to use a transom over 15 inches high, as this may cause (cavitation) propeller slippage. However, if boat has an extremely high transom and it is not desirable to cut to 15 inches, a Sportwin with 5 inch longer shaft is offered at moderate extra cost.

With boat afloat, place motor on transom, preferably in center, and SECURELY TIGHTEN CLAMP SCREWS BY HAND. USE NO TOOLS FOR THIS PURPOSE.

CAUTION: It is "good insurance" to tie motor to boat with stout rope so that if motor becomes loose accidentally, rope will prevent it from being lost overboard.

A short $\frac{3}{8}$ inch lag screw can also be screwed into outside of boat transom at a point where the slot in the bottom of the stern bracket will engage the head of lag screw, which should be left protruding about $\frac{3}{8}$ inch.

Holes are provided in thumb screw handles thru which a padlock can be applied.

WEEDLESS HOUSING: The angle of this housing requires that motor be operated in a vertical position; therefore, a provision for adjusting angle has been

made. See Illustration "D" ANGLE ADJUSTING LEVER. By tilting motor slightly and then lifting up on the lever and moving it either ahead or back, motor can be instantly adjusted to the desired angle.

Where weeds are exceptionally thick, it is even better to have housing tilted slightly away from boat transom as this permits weeds to slide downward and not clump or gather on leading edge of housing. It is also best to operate motor at a reduced speed especially in very thick weeds.

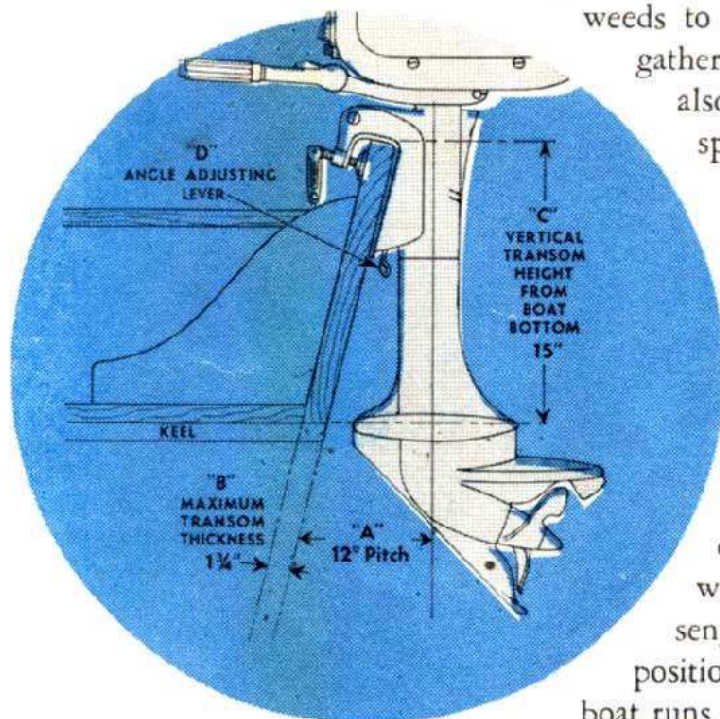


Fig. 2

Should weeds gather on leading point of housing, this indicates that point is too low, thus bringing it below line of boat bottom. Therefore, it is important that boat transom measures not LESS than 15 inches, as illustrated.

On some boats it may be necessary to correct angle adjustment when changing from one to more passengers to maintain motor in a vertical position. Always try to arrange load so boat runs on an even keel.

LUBRICATION AND FUEL INSTRUCTIONS Correct Lubrication is the most important factor in the operation of an internal combustion engine, as it insures longer life and satisfactory performance.

In the Sportwin's two cycle engine, the lubrication of pistons, cylinders, crankshaft and connecting rod bearings is solely supplied by oil which must be thoroughly MIXED into gasoline BEFORE it is poured into fuel tank. NEVER POUR CLEAR GASOLINE OR OIL INTO FUEL TANK.

TYPE OF GASOLINE: Use a good grade of regular gasoline. High octane or leaded fuel gives no advantage.

LUBRICANT: We recommend a high grade oil of S.A.E. 40 body, such as Mobiloil Outboard or comparable straight mineral oil.

QUANTITY OF OIL REQUIRED: For the first four hours of operation, mix $\frac{1}{2}$ pint of oil to each gallon of gasoline, and thereafter reduce quantity of oil to $\frac{1}{3}$ pint to each gallon.

FUEL FILLER PLUG: For convenience, when filling fuel tank, place filler lip in top slot of open filler plug cover.

HIGH ALTITUDE OPERATION



When motor is used in high altitudes, better performance will be obtained by increasing the oil mixtures as follows:

- 4,000 to 5,000 ft. above sea level . . . add 20% more oil.
- 5,000 to 6,000 ft. above sea level . . . add 25% more oil.
- 6,000 to 8,000 ft. above sea level . . . add 30% more oil.

STRAIN ALL FUEL: Due to condensation, water is often present in gasoline when you get it from the vendors. But it may also accumulate in your own fuel container from condensation due to changes in temperature.

Because the presence of water in fuel is a frequent cause of hard starting, all gasoline should be poured through a fine mesh strainer. This will eliminate the water and also the dirt which might otherwise clog fuel passages. **USE METAL CONTAINERS ONLY.**

GEAR LUBRICATION: The Sportwin's new design Weedless Gear Housing **DOES NOT USE GREASE.** Remove plug on right side marked "LUB" (do not lose the plug gasket). Also remove the lower drain or vent plug on same side and with motor in a vertical position, permit housing to drain. Lay motor on its side and after replacing drain plug, fill housing with S.A.E. 40 body oil, same oil as used for running motor. Replace "LUB" plug securely. The housing should be drained and refilled at regular intervals, especially if motor is in constant use.

NECESSARY EQUIPMENT WHEN OUTBOARDING

Besides the tools and equipment that are already attached to motor (see Fig. 1), it is advisable to have aboard when motoring the following articles:

An extra can of fuel properly mixed. The fuel tank capacity is 6½ pts. and should run motor 1½ to 2 hours, depending upon type of boat and also boat load.

A funnel with strainer — an extra spark plug — a rope to tie motor to boat — a piece of ¼" starter rope — this instruction manual.

Oars and any equipment required by law when Evinruding in Federal waters. (See page 26)

TILTING OF MOTOR

The tilting feature becomes very necessary in many situations. It enables mounting of motor onto boat before launching, and prevents possible damage to lower unit when beaching or docking in shallow waters. Tilting is accomplished by grasping rear handle of motor and pulling it toward you.

CAUTION: Never attempt to tilt motor by bearing down on steering handle.

STARTING AND OPERATING INSTRUCTIONS

(See Fig. 3) ALWAYS BE SURE THAT SLOTTED FUEL SHUT-OFF VALVE BELOW COVERS AT CARBURETOR IS FULLY OPEN. TO OPEN, USE SCREW DRIVER TURNING IT LEFT ALL THE WAY. (See Fig. 10, page 11)

1. Turn FUEL KNOB on front of control panel to "RICH".
2. Place SPEED CONTROL LEVER to "START" position as indicated on fuel tank.
3. Push PRIMER BUTTON on control panel below fuel knob 3 times. (In cold weather 4 or 5 times)
4. Pull STARTER HANDLE slowly until starter engages, then pull forcibly. (Do not pull cord out more than about 30 inches). Repeat until motor starts. Allow starter cord to rewind before you release grip. Premature release of grip may injure fuel tank or cord.
5. After motor starts, move SPEED CONTROL LEVER toward "FAST" position, as indicated and slowly turn FUEL KNOB, to the right (clockwise) until motor runs smoothly.
6. To control speed, move SPEED CONTROL LEVER to the right for fast and left for slow.
7. To STOP motor, move SPEED CONTROL LEVER to extreme left to "STOP" position.
8. Starting WARM motor, DO NOT PRIME. Leave FUEL KNOB at best setting and pull STARTER HANDLE.
9. When not running, turn FUEL KNOB to "OFF" position.

CAUTION: For first four hours of operation, do not run motor faster than $\frac{2}{3}$ speed.

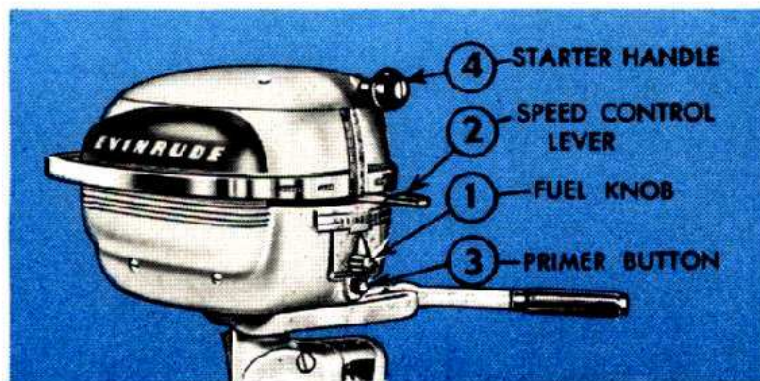


Fig. 3

FLOODING Flooding is a condition which can be created by OVER PRIMING or sometimes cranking a warm or hot motor which may cause too much fuel to be drawn into crankcase and cylinders. The fuel mixture thus becomes too rich for combustion.

To correct, first note the approximate setting of the FUEL KNOB, then close it to "SHUT-OFF" and pull starter handle until motor starts, allowing it to run until it stops. Now, reset FUEL KNOB back to its original setting and pull starter handle.

CARBURETOR LOW SPEED ADJUSTMENT Motor should operate satisfactorily at both high and low speeds, after finding the best running point on the Fuel Knob. There is, however, a low speed air adjusting screw located on top of carburetor which passes through the tension spring. (See Fig. 4) Although this has been properly adjusted at factory, due to different altitudes, climatic conditions and a possible change in fuel mixture, it may be necessary to re-adjust it under actual running conditions to obtain lowest trolling speeds. To do this, first remove LEFT side motor cover, by removing the two screws. Slow motor down by retarding speed control lever to "SLOW" position then with screw driver turn air screw very gradually either in or out until motor runs smoothly at desired slow speed.

Should this air adjusting screw get out of adjustment at any time, to correct it, first turn it to the RIGHT as far as it will go, then back it out six complete turns. This will give the carburetor air lever the approximate opening necessary for idling speeds.

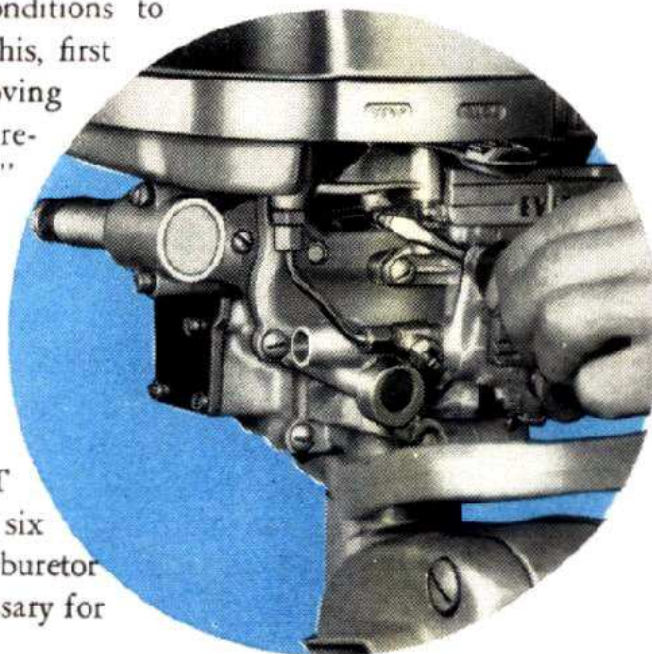


Fig. 4

REVERSE The Sportwin motor permits full 360° Steering. Reversing is accomplished by turning the motor completely around. First swing it around as far as possible by the steering handle, then use the REAR carrying handle to swing to full reverse and for steering in reverse position. A special lock arrangement built into the drive housing locks the motor against tilting while reversing.

PROPELLER SHEAR-OFF PIN The propeller shear-off pin prevents damage to the motor if you strike a submerged rock or other obstruction in the water. This is a soft "safety" pin which passes through the propeller shaft. When propeller strikes a solid obstruction while running at full speed, this pin shears off, disengaging the propeller from the driving mechanism, thus preventing the gears, shafting and other mechanism from being damaged.

When this happens, the motor continues to run without the propeller rotating. Naturally the boat does not move. In such a case, stop motor immediately. Remove the rubber propeller cap from end of shaft (see Fig. 5). Turn propeller so that shear-pin hole lines up same as cotter pin. It is not necessary to remove cotter or washer.

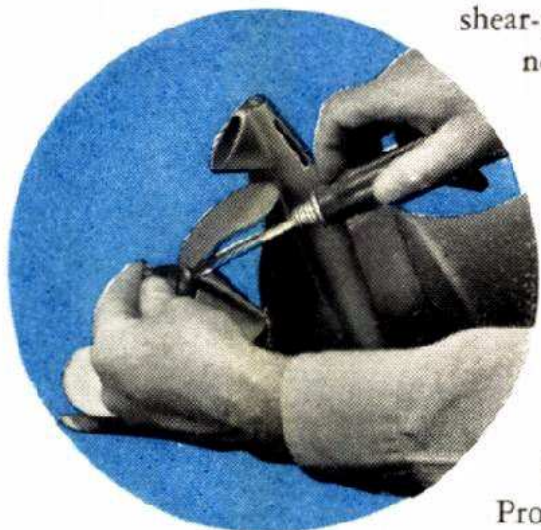


Fig. 5

Drive out the sections of sheared pin and insert a new pin, several of which are attached to motor in holder. If you have no spare shear-off pin, use a nail in emergencies. Fragments of the old pin, may also be used by placing large section in one side of hub hole and the two smaller sections on other side. Replace rubber cap, which holds pin in place.

Propeller shear-off pin size is $\frac{3}{16}$ " x $2\frac{7}{32}$ " long, H.H. brass.

TO AVOID FUEL LEAKAGE WHEN CARRYING OR HANDLING MOTOR

It is important that the Fuel Shut-off Valve is fully closed. This is located below motor cover, where fuel pipe enters carburetor. Valve is slotted for screw driver; turn right to close. (See Fig. 10, page 11) It is also important to turn Fuel Knob on motor panel to "SHUT-OFF" position.

Toward end of run, just before stopping motor, close the Fuel Shut-off Valve at Carburetor and then permit motor to run for a minute or two, until it stops. This will drain carburetor. Now turn Fuel Knob on panel to "SHUT-OFF" and motor can then be handled or transported without leakage. For complete safety always empty fuel tank when transporting motor.

REMOVING MOTOR FROM BOAT

It is important, when removing motor from boat, to keep powerhead higher than lower unit, to prevent water from entering into cylinders and crankcase through exhaust ports.

Therefore, while lifting motor off boat, hold in an upright position until all water has drained from lower unit.

WRITE US . . .

If you are in need of information see your dealer or write us immediately for service on your motor. Our Service Department is ready at all times to cheerfully and promptly answer your letter, and to make helpful suggestions.

When writing, be sure to give Motor Model, Name and Serial Number.

The following instructions to be read at leisure.

CYLINDER CONSTRUCTION The Sportwin cylinder construction is of the hot head type; therefore, the cylinders normally become quite hot, even when cooling system is operating properly.

TILTING FRICTION The motor is designed to permit self-tilting when striking any submerged object, thereby preventing any serious damage to lower unit. Nevertheless, care should be taken in obstructed waters, not to operate motor at too high a speed. This tilting feature is also used when motor is not in operation, as in boat launching, beaching, rowing in shallow water, etc. Tilting is accomplished by grasping rear handle and pulling motor toward you. Never try to tilt motor by bearing down on steering handle.

Proper tilting friction is set at factory, but through continued use, this friction may have to be increased occasionally, so motor will retain a tilted position. To increase friction, first tilt the motor as far as it will go. Then, tighten the friction screws on both sides of stern bracket, using a brace and bit screw driver. It is also necessary to hold the jam nut on the inside while tightening.

SIMPLEX STARTER . . . EMERGENCY STARTING

This starter is built to give the best possible service. However, should starter failure occur, motor can still be continued in service by removing starter. This is accomplished by removing the four screws holding it to fuel tank, two in front and two in rear under filler cap cover. (See Fig. 7) Next remove screw holding filler cap strap and starter can



Fig. 7



Fig. 6

then be lifted off of fuel tank. A piece of $\frac{1}{4}$ " starting cord with a knot tied on one end can be placed into notched pulley atop flywheel, wound clockwise, and motor started in usual manner. (See Fig. 6)

If trouble appears to be in starter, we recommend it be sent to dealer for repairs, and in the meantime, motor can be continued in use.

When again replacing starter, the alignment is taken care of by the two dowel pins on either side of filler cap cover under starter housing, which center it properly over flywheel. (See Fig. 8)

CO-PILOT AND STEERING ADJUSTMENT

The patented Co-Pilot is your relief steersman, helps you keep a true course. It provides a cushioned, yielding grip, holding motor in selected positions, whenever you let go of steering handle.



Fig. 8

Proper adjustment is made at factory. Should Co-Pilot steering become too loose, adjustment can be made by tightening screw on pivot bearing located on upper right side.

SPARK PLUGS The Champion J10 Com. J are the proper spark plugs to be used. They are carefully adjusted to .025 inch gap at factory, but after continued use it may be necessary to reset them. A gauge for this is provided with motor. Use end marked "Spark Plug".

When placing spark plugs back into cylinders, be sure gaskets are intact, and tighten plugs securely. (Wrench furnished attached to motor)

CARBURETOR This requires very little attention, except for occasional cleaning of the visible type sediment bowl, located below carburetor float bowl. (See Fig. 9)

To clean sediment bowl first remove RIGHT side motor cover and then close slotted fuel shut-off valve, using screw driver, (See Fig. 10, page 11). Loosen wing nut holding clamp and swing clamp around permitting bowl to drop down, (Do not

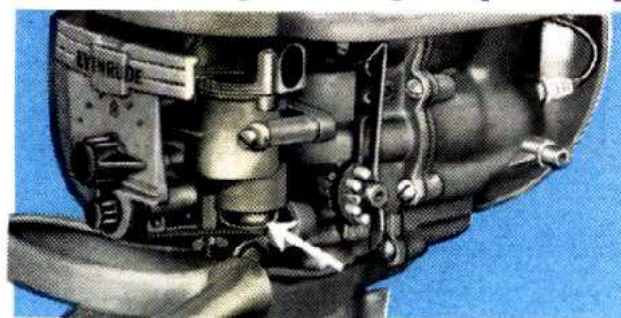


Fig. 9

lose bowl gasket) Fuel screen is located at top of bowl and can be removed if necessary for cleaning. Care must be used in removing it so as not to crush or get it out of shape.

Both the needle valve (Fuel Knob) and Primer are rubber sealed, spring loaded and require no packing.

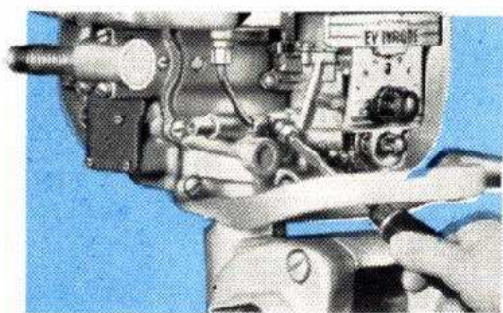


Fig. 10

FUEL KNOB This is primarily the carburetor adjusting needle valve, however, it also shuts off the fuel at the float needle of carburetor and at the same time closes the air vent line to fuel tank, when knob is in "OFF" position, serving a triple purpose.

UNIFIED SPEED CONTROL The spark and throttle are correctly synchronized under a single positive speed control lever, which provides a perfect means of controlling the speed of your motor. It consists of a cam plate fastened beneath the magneto base which travels with any movement of the speed control lever. This plate contacts a roller on the carburetor air control lever, which lever is connected by an adjustable rod to the main air intake lever on cylinder.

This has been properly adjusted at factory and should not be disturbed, however, after considerable usage, any wear should be eliminated.

To determine whether there is any play, first remove the left side cover (2 screws hold it). Directly atop of carburetor is the cam roller lever, which can be easily identified when SPEED CONTROL LEVER is fully advanced to "FAST" position. The adjustable rod is attached to this lever. There is a cast vertical line marking on the cam roller lever directly in line with the roller. There is a similar marking on magneto cam just left of speed control lever. Move speed control lever left until both of these markings line up. Next take hold of carburetor roller lever and push it backwards toward the cylinder lever. If there is any play, disconnect the adjustable rod, by removing pin and washer. With pliers turn rod to the LEFT one turn and re-assemble it on lever. This lengthens the rod and should eliminate the play, by permitting the air shutter valve on cylinder to close against a stop pin.

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COOLING SYSTEM The Sportwin is equipped with a two-stage centrifugal water pump, which consists of two impellers fastened to drive shaft and separated by a stationary deflector. (See Fig. 11) Due to the simplicity of its design, the wearing of all moving parts is entirely eliminated, assuring an ample supply of water even down to slow trolling speeds through many seasons' service.

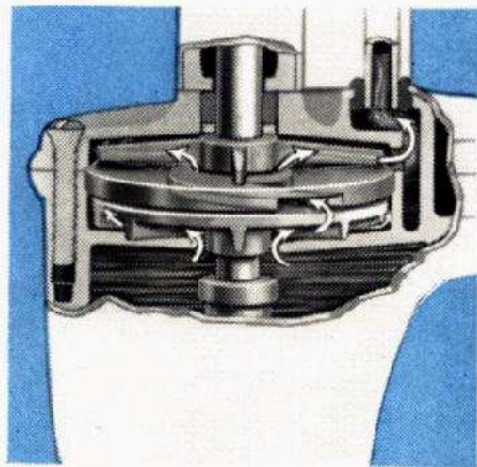


Fig. 11

Water enters pump through four slots, two on each side of gear housing (see illustration, Fig. 17, pages 16-17). When operating at full speed and motor shows signs of slowing down, immediately check water discharge at "Water outlet slots" at back of pivot bearing, also at discharge hole next to screw holding lower section to drive shaft tube. (See Fig. 13) In case of failure, determine whether "inlet slots" in gear housing, are obstructed.

The Sportwin has a double circuit cooling system leading from pump. This consists of a high and low speed circuit of piping. Both operate at high speed, discharging water as mentioned above. At low or trolling speeds water is discharged only at the lower hole.

AUTOMATIC EXHAUST RELIEF (Fig. 12 illustrates principle only) While the motor is being started, the Exhaust Relief automatically provides a

bypass from which exhaust pressure instantly escapes into the air, unchecked by water seal.

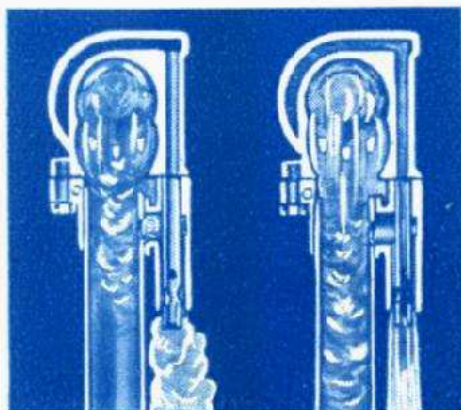


Fig. 12

As quickly as the motor attains normal revolutions, the relief is automatically closed by a flow of circulating water, and the noise and fumes diverted to the watersealed exhaust outlet behind propeller.

At slow speed, therefore, the water will flow only from lower hole. (See Fig. 13) At higher speeds water also flows through the outlet slots.

IGNITION TROUBLES AND HOW TO LOCATE THEM

In locating ignition trouble, the first and most common cause may be spark plugs. Remove plugs, and examine them carefully. Should the points and inner porcelain appear wet from either oil or water, plug is definitely fouled. Also check plugs for dirt across points, proper gap and for cracked porcelain.

If no faulty spark plugs are found, proceed to check strength of spark from magneto. Leaving plugs out of cylinders, ground one high tension wire onto motor, then, holding the other one $\frac{1}{4}$ inch away, pull on starter handle. A good spark should jump this gap. Repeat this procedure on the other wire, and if there is any evidence of spark failure, it will then be necessary to check magneto. Before attempting to do this, read instructions "Adjustment of Magneto Breaker Points", see page 14, and follow them carefully.

If trouble does not appear to be in breaker points, then check over the complete magneto base. Search for any broken or loose wires on coils, condensers, breaker assemblies, etc. If no visible defect is apparent, the trouble may be either in a coil or condenser, in which case it is advisable to send complete magneto to nearest dealer. (See list of Service Stations page 27)

To remove magneto base from motor, it is only necessary to snap off the two friction springs holding it to crankcase. Use a screw driver for this purpose. Lift up magneto base and then remove the screw holding the wire clamp on crankcase. Wires are also held by wire clamp on cylinder.

The magnet, composed of the improved "Alnico" steel, will retain its magnetic charge practically indefinitely. Therefore, the magneto should not be considered to have lost its "pep" until such diagnosis have been made by a competent authority.

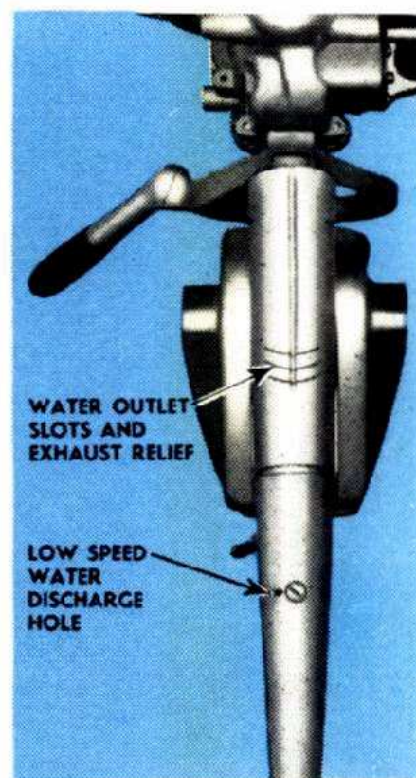


Fig. 13

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Fig. 14

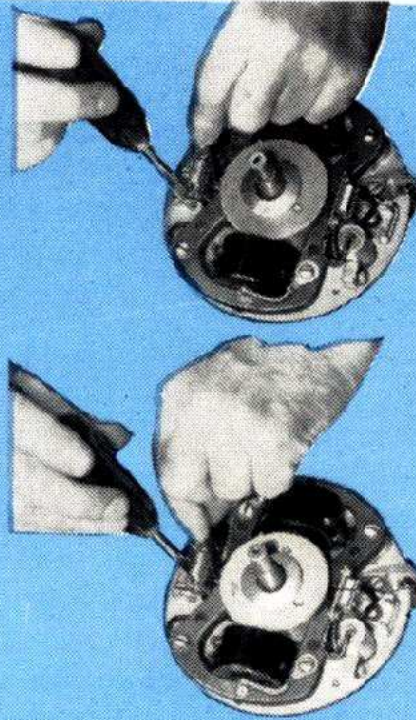


Fig. 16 (above)

Fig. 15 (below)

ADJUSTMENT OF MAGNETO BREAKER POINTS

After extensive service, the breaker points may become dirty or out of adjustment. To check, it is necessary to remove simplex starter. (See Fig. 7) by removing four screws. It is not necessary to remove flywheel, as there is a hole in flywheel for this purpose. (See Fig. 14) After removing starter, turn flywheel until one of the breakers lines up with hole, and then insert gauge (furnished with motor). Use end marked "Breaker". Points should check .020". If necessary to re-adjust, slightly loosen screw holding breaker assembly (See Fig. 15) and then insert screw driver blade into the slot in breaker and also in the base. These slots will be found next to the screw. (See Fig. 16) Turn right to open points, left to close them. Recheck points and tighten screw securely. Next revolve flywheel one-half turn and check the other set of points.

If, after considerable service, points need filing or replacing or if it is necessary to check complete magneto base, flywheel will then have to be removed. (See How to Remove Flywheel page 15). When adjusting points with flywheel removed, turn crankshaft until flywheel key is in line with cam pin of breaker assembly to be checked. In this position, the timer cam pin rides the high point of cam, and breaker points should check .020".

When facing motor, the rear breaker points fire the upper cylinder through the right hand coil and the front breaker points fire the lower cylinder, through the left hand coil.

HOW TO REMOVE FLYWHEEL Never remove the flywheel of your motor unless it is absolutely necessary to do so. The only reasons for removing flywheel are for replacing points, condenser, coil or high tension wires, or for checking for loose or broken wires.

Holding the flywheel rigid, unscrew the flywheel nut several turns, using a $\frac{13}{16}$ " wrench. Pull up on flywheel at the same time tapping flywheel nut several sharp blows with a hammer. When flywheel comes off, use care not to lose the key which holds flywheel in engagement with crankshaft. Next remove the bronze spring washer and then remove the magnet rotor. (See Fig. 16) This is also held in place by a key in crankshaft. Be careful not to lose this key. Note that rotor is marked "TOP" and it is very important to place it in this manner when re-assembling. If magneto base is not going to be removed from motor, it may not be necessary to remove the magnet rotor. Before replacing flywheel, place a few drops of oil on felt oiler and be sure breaker points are clean and dry, also see that bronze spring washer is in place. Make sure flywheel nut is tightened securely by using a hammer on wrench.

HOW TO REMOVE PROPELLER SHAFT BEARING HOUSING AND DRIVE SHAFT ASSEMBLY (See *Illustration Fig. 18, page 18*)

This design differs considerably from most of our previous models. To remove these assemblies, first remove the set screw (1) then loosen clamp screw (2). This permits removal of the entire lower end, including drive shaft, from the motor. Next, remove the four screws (3) holding pump housing together. Housing can then be separated at this point. After separating pump housing, the bearing housing lock screw (4) can be removed. This screw is covered by a slotted cap (5) which must first be removed. There is also a bakelite washer (6) under cap. Do not lose this, as it is a seal for oil leakage. After removing the lock screw, the entire assembly consisting of propeller shaft, gear and shaft housing with bearings can be slipped straight out of gear housing.

To remove drive shaft gear (7) first, remove bakelite thrust bearing (8). This is held in gear case by a turned fit and can be slipped out. The drive gear can then be slipped off of shaft spline and removed.

To examine or replace drive gear thrust ball bearing or oil seal, first remove

SPORTWIN WITH LEFT SIDE COVER REMOVED

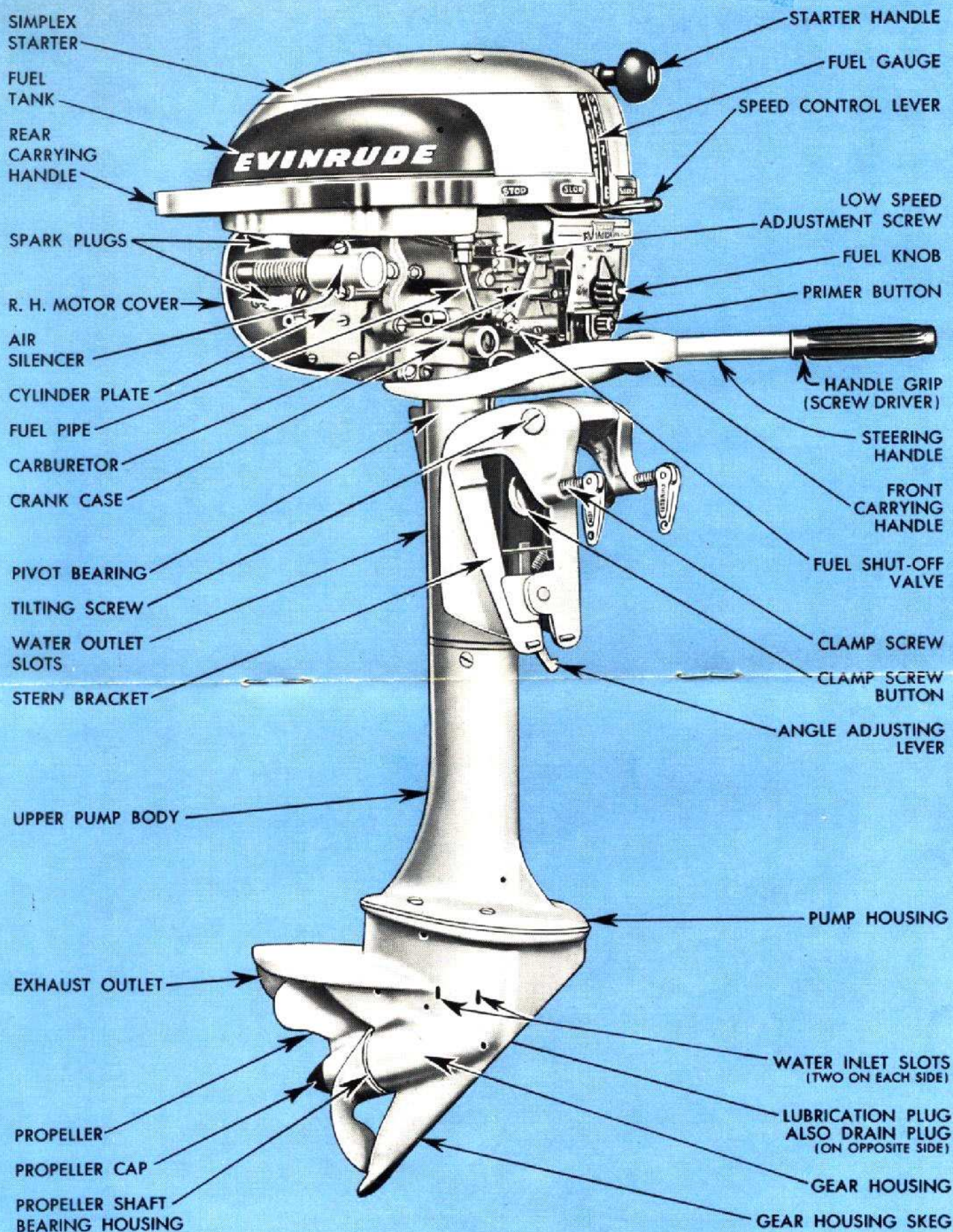


Fig. 17

When writing for information on motor refer to above illustration for names of parts
Right and left hand are designated while facing the motor on carburetor side

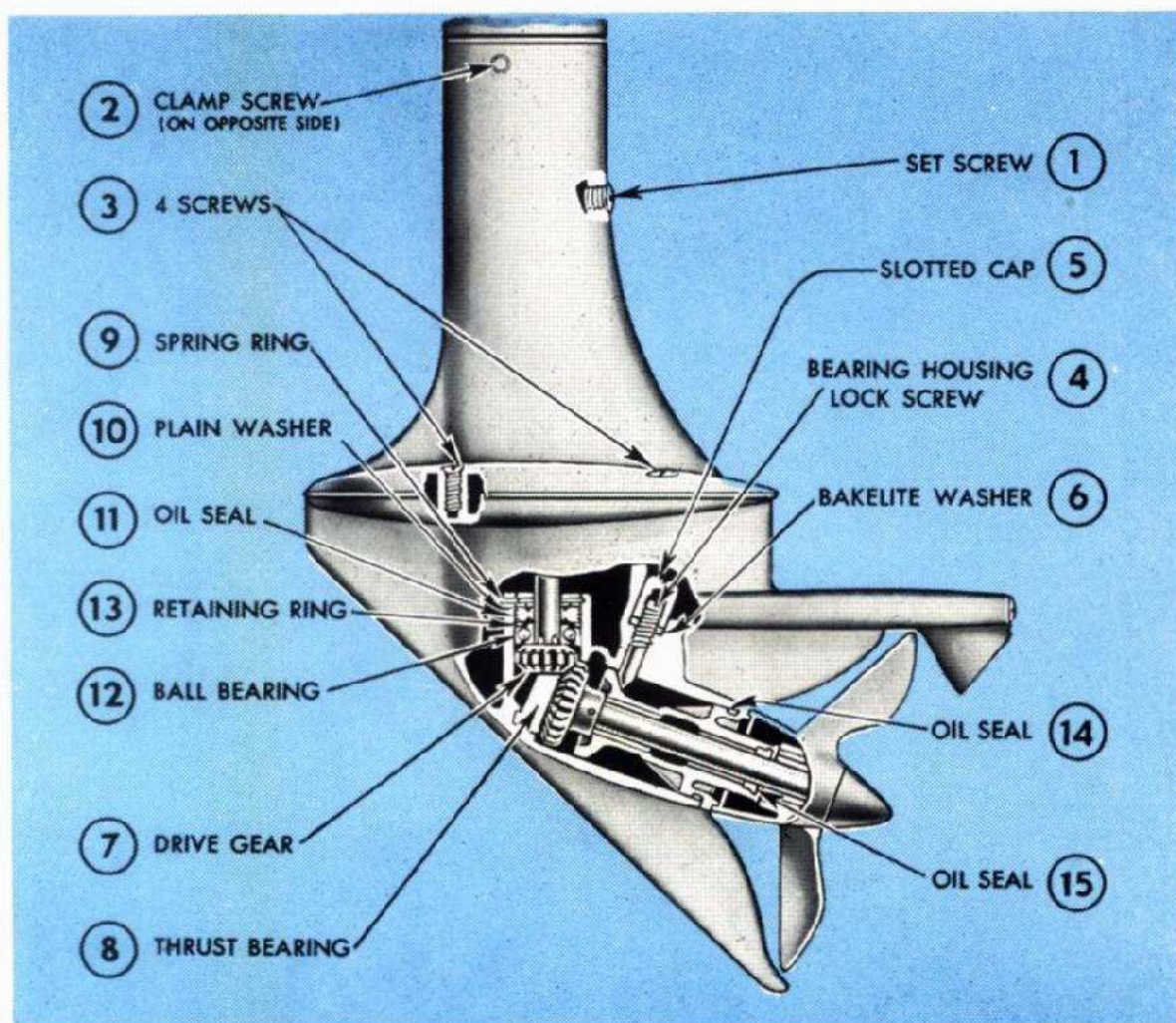


Fig. 18

drive shaft and pump assembly by pulling up on shaft. Then remove the lower pump plate. Remove upper spring ring (9). Next the plain washer (10). Oil seal (11) can then be removed. Ball bearing (12) is held in place by a "TRUARC" retaining ring (13). This requires a special pliers for removal. After removing this ring, ball bearing can be pulled upward out of housing. It is a sliding fit and should pull easily.

Oil seal (15) in rear of propeller shaft bearing housing is easily replaced, as it snaps into place in a recess in housing.

The oil is also sealed by a radial fit oil seal ring (14) at the rear of housing. There is no gasket on face of housing. Always refill housing with S.A.E. 40 oil and NOT GREASE. Permit housing to drain thoroughly before refilling, removing both "LUB" and "DRAIN" plugs in housing.

IN CASE OF TROUBLE Gasoline and ignition troubles are by far the most prevalent ailments among all types of gasoline engines. Therefore, if your motor does not behave properly, it is wise to look for the most common form of trouble before attempting to dismantle the engine—don't try to find something when you don't really know what you're looking for.

If your motor has fuel properly mixed and carefully strained, but refuses to start, or behaves badly, consult the check chart. If you have no idea what the trouble may be, start making a systematic check through the list of symptoms described below. If you do this, the chances are ninety-nine out of a hundred that you'll quickly locate your trouble and be ready to remedy it.

CHECK CHART The following chart aims to provide an outline for the systematic tracing down of trouble with the least amount of effort. Finding the cause of trouble usually suggests the remedy.

Motor won't start—
GASOLINE TROUBLE

- Tank empty.
- Shut-off valve closed.
- Carburetor flooded, if motor is warm.
- Mixture too lean, if engine is cold.
- Too much oil mixed with gasoline.
- Water in carburetor, tank or strainer.
- Pipe clogged.
- Spray nozzle or feedhole in carburetor clogged.

NO SPARK

- Wire to spark plug too close to motor hood.
- Wire to breaker disconnected.
- Wire to spark plug disconnected.
- Water, oil, on breaker points.
- Breaker points do not come together when flywheel is revolved.
- Breaker points do not separate when flywheel is revolved.

SPARK PLUG FAULTY

- Fouled with carbon, oil or moisture.
- Porcelain cracked.
- Center pole loose.

Points not properly adjusted—should be apart .025.

Motor overheats—

- Lack of oil or water.

Motor knocks—

- Spark too far advanced.
- Carbon in cylinders (caused by too much oil in gasoline).
- Motor too hot, causing pre-ignition.
- Bearings loose or worn.
- Piston or cylinder worn.
- Flywheel nut loose.

Motor is stiff or cranks hard—

- Rust in cylinder.
- Bearings out of line.
- Crankshaft bent.
- Coupler broken.
- Gear shaft bent.
- No oil on bearings.

Water stops circulating—

- Obstruction in water intake.
- Leak at water pipe connections.
- Motor not setting deep enough in water.

(continued on next page)

Poor compression—

- Piston rings carbonized and stuck in groove.
- Cylinder scored.
- No oil in cylinder.

Motor misses—**WIRING**

- Spark plug wire shorting on motor hood.
- Broken or loose wiring.
- Poor insulation.
- Wires short circuited with moisture, oil or foreign material.

MAGNETO

- Breaker points corroded.
- Breaker points improperly spaced.
- Weak coil.
- Weak condenser.
- Weak magnet.
- Foreign matter or oil on breaker points.

CARBURETOR

- Foreign matter in spray nozzle or needle valve or feed hole.
- Supply impeded.
- Water in carburetor.

Motor loses power—**IMPROPER MIXTURE**

- Too rich (will slow down and knock).
- Too lean (will knock).

LACK OF COMPRESSION

- Lack of oil.
- Scored cylinder.
- Worn rings.
- Rings stuck in grooves.

Motor runs but propeller does not revolve—

- Propeller pin sheared off.

Motor vibrates—

- No spark in one cylinder.
- Loose pivot bearing.
- Bent propeller wheel.
- Motor loose on boat.
- Too lean a mixture of gas.

Motor runs but boat makes little or no progress—

- Propeller blades bent.
- Rope or other obstruction dragging in water.

SALT WATER INSTRUCTIONS EVINRUDE MOTORS ARE BUILT FOR USE IN EITHER FRESH OR SALT WATER. Yet science has not succeeded in developing any metal which is totally impervious to the corrosive action of salt water. The materials with which your motor is built are commercially "salt water proof".

A few instructions, easily carried out, will extend the life and satisfactory performance of your motor when it is used in salt water.

If you've been out on salt water all day, it isn't much trouble to flush your motor with fresh water when you come ashore. The cylinder jackets, water pipes and muffler jacket can all be easily flushed with fresh water by using the flushing nozzle described in our accessory catalog.

Drain and fill Gear Housing per instructions on page 5 "GEAR LUBRICATION".

CARE OF MOTOR IN COLD WEATHER

Your motor will freeze in cold weather just as the radiator of an automobile will, if not given proper attention. A frozen motor usually means cracked pipes and water jackets.

There is not the slightest danger of your motor freezing while running. But, when your motor is idle, or before storing it away in cold weather, drain the motor by setting it in an upright position and revolving flywheel. This lets the water out of the cylinder jackets and pipes, preventing costly freezing and bursting of parts.

Drain and fill Gear Housing per instructions on page 5 "GEAR LUBRICATION".

STORING THE MOTOR AWAY

If you are not going to use your motor for a while, don't store it away in a cellar or other place where it will be exposed to dampness or dust. No sportsman would do such a thing with his guns or fishing rods, and there is no reason why your motor should not receive the same care that would be accorded to other personal property of even less value. Dampness and dust may injure the magneto of your motor, cause deterioration and do other damage almost beyond repair.

When storing your motor away **PUT IT IN A DRY PLACE**. If it has been used in salt water, flush it thoroughly with fresh water, and let it dry before putting it away. Drain the water out of the pipes and cylinder jackets as instructed under "CARE OF MOTOR IN COLD WEATHER". Drain all fuel from Fuel Tank and Carburetor. It is also a wise precaution to remove the spark plugs, put a couple of teaspoonfuls of pure lubricating oil into the cylinders, and then revolve the flywheel several times to spread the oil over the cylinder walls before putting the spark plugs back. Drain and fill Gear Housing per instructions on page 5 "GEAR LUBRICATION". Wipe the entire motor with a cloth saturated with oil. An exterior film of oil won't hurt any piece of machinery, but dampness and rust **WILL**. When these instructions have been carried out, wrap the motor in a piece of canvas, an old blanket, or in heavy paper, and store in a dry place.

If these simple instructions are carried out, storing will not injure your motor in the least. Further, it will be ready to run faithfully when you are ready to use it again.

WHEN READY TO USE IT AGAIN

If your motor has been idle for some time, or has been stored without following the instructions, "Storing the Motor Away", it is a good plan to squirt a little pure lubricating oil into the cylinders through the spark plug holes. This done, the flywheel should be revolved a few times, to spread the oil around the cylinder walls.



When you take the motor out, clean it up. Inspect the gears, propeller shaft and bearings to see that they are in good condition. Fill Gear Housing per instruction on page 5 "GEAR LUBRICATION".

Clean the contact breaker by running a piece of hard paper or cardboard between them. If they are very dirty or rough, use a very fine file to polish them. See that the points are adjusted to correct gap.

Clean the sediment bowl and screen. Clean out the fuel tank, the fuel feed pipe and the carburetor.

Mix your gasoline and oil in a clean can, and in the right proportion. Strain all fuel; use only metal containers. Fill the tank. See that the fuel is flowing to the carburetor.

Thoroughly clean the spark plugs. Replace with new ones if cracked, broken, or badly burnt.

If, in going over the motor, you find any parts damaged, replace them at once. Tighten up all screws and nuts.

Put the motor on the boat and start it. Carefully adjust the carburetor. See that cooling water is flowing.

After long, continuous, hard service, a very complete overhauling may be advisable. This should be done by an expert. If you desire, return the motor to our distributor or dealer, and you will get a workmanlike job at a fair charge for time and materials. (See page 27)

MOTORS THAT HAVE BEEN SUBMERGED Accidents may happen to the most careful person, and it is by no means impossible to drop an outboard motor overboard. Careful boatmen safeguard themselves against such mishaps by tying a length of rope to their motors and tying the other end to the boat. A motor so secured cannot be lost.

A motor that has been submerged is temporarily out of commission. Such a motor must, of course, be dried out thoroughly before it can be restored to service.

For cleaning and drying motor, proceed as follows:

1. Drain and clean fuel tank, flushing thoroughly with clean gasoline.
2. Remove and clean carburetor, fuel line and spark plugs. Make sure all water has been removed from these parts.
3. Hold motor in position with carburetor opening in crankcase down, and revolve flywheel slowly to remove water from cylinders and crankcase.
4. Check spark, by grounding one wire from magneto to some part of motor, then holding remaining wire about one-quarter inch from cylinder, pull flywheel over rapidly with starter handle. Continue above procedure until both wires will be checked.
5. If no spark or a very faint spark is produced it is an indication that there is some water on the armature base or contact points. Remove magneto. (See instruc-

tions, page 15 — "How to Remove Flywheel".) After flywheel has been removed, thoroughly dry armature base, also breaker points and check points for proper spacing (.020).

6. Replace magneto and again check for spark as above. If still no spark is apparent, again remove flywheel and check complete magneto. (See instructions, page 13 and 14 — "Ignition Troubles and How to Locate Them") If after thoroughly checking magneto a satisfactory spark is not produced, return complete magneto to nearest dealer. (See list of Service Stations on page 27)
7. Reassemble carburetor and fuel line.
8. Put about two to three tablespoonfuls of oil in each cylinder, through each spark plug hole, and with the spark plugs removed and both wires grounded rotate flywheel rapidly by pulling starter handle. Repeat this process several times, then put spark plugs in cylinders, fill fuel tank with new fuel mixture and proceed to start motor.
9. Due to the excess oil in cylinders as well as the possibility of some water which may still remain in cylinders, it may be necessary to remove and clean the spark plugs once or twice during the process of starting.

DON'T HESITATE TO WRITE US We realize that our business success depends largely upon the service that users derive from our products. We want every owner to feel that he is getting MORE THAN HIS MONEY'S WORTH in service out of his Outboard.

If we can be of further help to you in increasing the pleasure you derive from your motor, don't hesitate to write us. Tell us your troubles—if you have any; also your joys. Such correspondence will receive prompt attention. Our Service Department is maintained for your benefit. When writing, give model, name and serial number.

FACTORY WARRANTY WE WARRANT each new unit to be free from defects in material and workmanship under normal use and service, our obligation under this warranty being limited to making good at the factory any part or parts thereof which shall, within three months after delivery of such unit to original purchaser, be returned to us with transportation charges prepaid, and which our examination shall disclose to our satisfaction to have been thus defective; this warranty being expressly in lieu of all other warranties and representations, expressed or implied, and of all other liabilities in connection with the sale or use of any unit.

This warranty shall not apply to any unit which shall have been repaired or altered outside the factory in any way so as to affect its stability or reliability, or in which other than our genuine parts have been installed, or which has been subject to misuse, negligence, accident or racing*, or operation at more than our recommended r.p.m. as expressed in the horsepower designation. We make no warranty

in respect to trade accessories not of our manufacture inasmuch as they are usually warranted separately by their respective manufacturers.

All deliveries are contingent upon conditions beyond our control, but we will make replacements as promptly as the situation will permit.

*The use of the engine for racing voids our warranty. Should you risk the effects of using your motor for racing (resulting in increased revolutions), minimize the injurious effect by mixing 1½ pints of S.A.E. 60 high grade oil, such as Mobiloil Extra Heavy with each gallon of gasoline.

SERVICE POLICY In accordance with our warranty, parts will be repaired or replaced under the following conditions:

1. That permission has been expressly granted by manufacturer for return of parts.
2. That manufacturer's examination discloses actual defect.
3. That customer has paid or will pay transportation charges on replacement or repaired parts.
4. WE WILL NOT BE RESPONSIBLE FOR TIME SPENT AND WORK PERFORMED BY OTHERS THAN THE FACTORY, UNLESS SUCH REPAIRS ARE FIRST AUTHORIZED BY US IN WRITING.

Final decision as to defect rests solely with the factory at Milwaukee, Wisconsin, and no repairs or replacement agreement other than the above will be recognized.

SPURIOUS PARTS AND THE FACTORY WARRANTY

Be sure that you get genuine parts. Your dealer can be relied upon to furnish nothing else. There are, however, spurious parts for outboard motors, just as there are for all makes of automobiles, and nearly everything else mechanical. THE USE OF PARTS OTHER THAN THOSE MANUFACTURED BY US VOIDS OUR WARRANTY.

REPAIR SERVICE Dealers usually carry a complete stock of spare parts. If you need parts, or repair service, consult your dealer. If the name and address of the nearest dealer is not known, write us. See list of Service Stations on page 27.

PARTS BOOKS Parts books for all models are available. If you need a parts book, write us.

INSURE YOUR BOAT AND MOTOR AT SMALL COST

Through the Outboard Boating Club of America you may now insure your boat and/or motor on nearly the same basis as you would your motor car. Members of the Outboard Boating Club of America are entitled to the full privilege of this insurance service. *Premiums are exceptionally low* and include protection against fire, theft and marine perils. For further details write OUTBOARD BOATING CLUB OF AMERICA, 307 North Michigan, Chicago 1, Illinois.



THE IMPORTANCE OF QUIET OPERATION A noisy motor is unwelcome in the boating scene, and gives the sport of boating a black eye.

That is one big reason why Evinrude Motors has spent, and is continuing to spend, thousands of dollars annually to make Evinrude motors run more quietly.

We count on all Evinrude owners to cooperate with all their fellow boatmen and with us by:

Operating their motors as silently as possible.

Refusing to tamper with or removing all or any part of exhaust and silencing mechanisms.

Promptly repairing silencing mechanisms if these become faulty in operation.

Evinrude dealers recognize the desirability of having all outboards operate quietly, and will gladly cooperate with motor owners in reaching this worthy objective.

Your courtesy in conserving the quiet of the great outdoors will be gratefully recognized by all your boating and shoreside neighbors. We also will sincerely appreciate your cooperation.

"RULES OF THE ROAD FOR OUTBOARD OWNERS"

1. Boats under sail always have the right of way.
2. Motor boats must keep clear of sailing craft and row boats at all times.
3. Always keep on the right side of the channel or fairway when possible.
4. Any boat overtaking another boat must keep out of the way.
5. When meeting another boat head on or nearly so, each boat shall alter its course to right so as to pass on the left side of the other and each boat should give one short blast of the whistle. In other words, always keep to the right.
6. If a boat is well over to the right in passing, it should keep straight on and give one toot to the whistle. If you are well over to the left, keep straight on and give two toots to the whistle. The other boat should do the same.
7. When two boats are crossing and approaching obliquely, the one that has the other on her own left side should keep her course and speed, and the one which has the other on her right side should get out of the way as best she can, but, if possible, not by crossing ahead. "The giving away vessel" should give one short toot if she is altering her course to right or two short toots if to left, which the boat that is holding her course should answer.
8. If for any valid reason you cannot comply with the rules or do not understand signals being given by another boat, give the danger signal, which is a number of short blasts, not less than four, and stop if necessary.
9. Never sound a whistle while underway unless necessary.

†Prepared by Outboard Boating Club of America.

EQUIPMENT REQUIRED ON FEDERAL WATERS

NOTE: No all-embracing definition of what constitutes Federal waters can be given. However, in general it may be said that craft operating on navigable waters in or opening into the Great Lakes, an ocean or gulf, and all navigable waters tributary to such waters upstream to the first lockless dam, are under Federal supervision and should carry the proper government equipment.

1. A bright white light aft to show all around the horizon. Visible at least 2 miles.*
2. Combination light in the fore part of boat showing green to starboard and red to port, from right ahead to two points abaft the beam on their respective sides. Visible at least 1 mile.*
3. A whistle or other sound-producing mechanical appliance capable of producing a blast of 2 seconds or more in duration. (On boats 16 feet or more in length.)
4. A life preserver or ring buoy (or approved cushion) for every person on board.
5. An approved fire extinguisher. Motor boats propelled by outboard motors and not carrying passengers for hire are not required to carry fire extinguishers.
6. Persons who operate any motor boat in a reckless or negligent manner so as to endanger life, limb or property of any person shall be termed guilty of a misdemeanor and, on conviction, shall be punished by a fine not to exceed \$2,000 or by imprisonment for a term not exceeding one year or by both such fine and imprisonment.

*From Sunset to Sunrise.

BOAT NUMBERS REQUIRED BY DEPARTMENT OF COMMERCE

We quote from the Department Regulations:

1. Application for numbers will be made by the owner or master to the collector of customs of the district in which the owner resides. The owner will then receive full instructions as to the number awarded, how it is to be placed on the vessel, etc.
* * *
3. The following undocumented vessels are required to be numbered:
 1. All boats equipped with permanently fixed engines.
 2. All boats over 16 feet in length equipped with detachable engines.
 3. All boats not more than 16 feet in length equipped with detachable engines as the ordinary means of propulsion.
4. The following undocumented vessels are not required to be numbered:
 1. All boats not exceeding 16 feet in length equipped with detachable engines and falling within the following classes:
 - (a) Rowboats and canoes designed and intended for the use of oars or paddles as the ordinary means of propulsion.
 - (b) Sailboats.
 - (c) Boats designed and used solely for the purpose of racing or operation incident to racing.

EVINRUDE DISTRIBUTORS AND DEALERS

There are over 4,000 Evinrude distributors and dealers in the United States and Canada. Below are listed a few who have facilities for rendering service. If you desire the name and address of the nearest service dealer, consult the local telephone directory. If no dealer is listed, wire or write to the factory or the nearest distributor.

*Denotes Distributor.

**Denotes Parts Distributor only.

ALABAMA

Birmingham Motors
2501 7th Ave., South
Birmingham 5
Hollock-Scott
716 5th Avenue, No.
Birmingham
Dixie Supply Co.
212 S. Court St.
Florence
Marine Equipment Co.
653-655 St. Louis St.
Mobile 10

ALASKA

Anchorage Service Co.
Anchorage
Marine Sales & Svc.
Fairbanks
Webb-Forbes Marine Repairs
Sitka

ARIZONA

Seth Smith Boat Works
2101 E. Washington
Phoenix

ARKANSAS

Robert's Machine Works
El Dorado
Ted's Outboard Service
1614 Towson Ave.
Fort Smith
Tedford's
700 Broadway
Little Rock
Strahn's Garage
818 State St.
Pine Bluff

CALIFORNIA

Thompson & Ducey
1955 Broadway
Fresno 7
Lester C. Randolph
1102 Woodbridge Rd.
Lodi
Marine Equipment, Inc.
5046 W. Pico Blvd.
Los Angeles
Lakeside Garage
124 Sixth St.
Marysville
Outboard Motor Shop
3260 San Pablo Ave.
Oakland 8
Stevenson Bros. Garage
278 F Street
San Bernardino
Nuttall-Styris Co.
825 Columbia St.
San Diego
*John G. Rapp Co.
123 Second St.
San Francisco 5

CALIFORNIA (Continued)

Stockton Outboard Shop
120 Steam Boat Levee
Stockton

CANADA

Evinrude Motors (Factory)
Peterboro, Ont.

COLORADO

*The Anchorage, Ltd.
431 West Colfax
Denver 4
Silver State Tire Co.
1120 N. Main St.
Pueblo

CONNECTICUT

Harry Johnson
Boston Post Rd.
Branford
*C. E. French Marine Co.
56 Bridgeport Ave.
Devon
Court Colver
Long Hill Rd.
Groton

DISTRICT OF COLUMBIA

S. King Fulton, Inc.
805 Maine Ave., S. W.
Washington 4
Southeast Sales Co.
737 11th St., S. E.
Washington 3

FLORIDA

*Consolidated Automotive Co.
1075 West Forsyth St.
Jacksonville 3
Bruce Boats and Motors
7000 Main Street
Jacksonville
Jansen Sales & Service
1310 Mary Street
So. Jacksonville
Santana Marine Svc.
2760 So. Bayshore Blvd.
Miami 31
Clarence A. Johnson
1807 N. Orange Ave.
Orlando
The D. M. Witherill Co.
713 S. Palafox
Pensacola
Gulfshore Sport Store
811 Central Ave.
St. Petersburg 4
Edwards Motor Co.
2805 Florida Ave.
Tampa 3
Pioneer Tire Co., Inc.
Tampa and Washington St.
Tampa

FLORIDA (Continued)

Bob Kleiser's Sport Shop
125 Datura Street
West Palm Beach

GEORGIA

Pyron & Garrow
594 Luckie St., N. W.
Atlanta
F. Barney Smith
212 Eighth St.
Augusta
The Motor Supply Co., Inc.
1620-22 Newcastle
Brunswick
The Motor Supply Co., Inc.
37 W. Broad St.
Savannah

HAWAIIAN ISLANDS

Williams Equipment Co.
Bishop and Union Sts.
Honolulu 10

IDAHO

Inland Sports Service
619 Main St.
Boise
The Lighthouse
Coeur d'Alene

ILLINOIS

Treadwell Boats & Motors
N. Riverside Dr.
Algonquin
Bricker's Marine Service
763 Milwaukee Ave.
Chicago 22
Harry H. Stern Paint Co.
5945 W. North Ave.
Chicago 39
Russ Leonard Boats & Motors
3537 N. Western Avenue
Chicago 18
Miller Marine Sales & Service
13825 Forest Avenue
Dolton
Lincoln Brothers
7503 Madison Street
Forest Park
T. W. Kannig
Fox Lake
Moline Boat & Motor Works
1706 Third Ave.
Moline
South Side Sales & Service
3301 S. Adams St.
Peoria 6
Ryan's Boat & Motor Sales
403 N. Front
Quincy
Proff's Boat & Motor Sales
220 West 5th St.
Tilton

INDIANA

Claude L. Dobson's
18 W. 14th St.
Anderson
Elkhart Marine Supply
760 E. Beardsley Ave.
Elkhart
Mertens' Boat Agency
202 N. 3rd Ave.
Evansville 10
Charles H. Goodwin
5124 Broadway
Gary
Indianapolis Marine Mart
315-323 Massachusetts Ave.
Indianapolis
Charles E. Kerkhof
3601 West 16th St.
Indianapolis 8
Schnables Boat Mart
224 N. Franklin St.
Michigan City
W. E. Nelson
205 E. Jefferson Blvd.
South Bend 6
Macy's Wawasee Slip
Lake Wawasee
Syracuse

IOWA

Bud's Outboard Motor Service
221 10th St., N. W.
Cedar Rapids
Lorenz & Jones
132 E. Grand Ave.
Des Moines 9
Tegeler's Nash Sales & Service
2307 Central Ave.
Dubuque
Waterloo Outboards
Mullan and Franklin
Waterloo

KANSAS

Les Endres Service
512 S. Third St.
Independence

KENTUCKY

Bill's Servicenter
Eighth and College Sts.
Bowling Green
Marine Sales & Service
127 N. Fourth Street
Louisville 2
Heise's Electric Appliance Co.
616 Broadway
Paducah

LOUISIANA

Sport Service Station
Louisiana Avenue
Bogalusa
Frank C. Winters
Front and Puj
Lake Charles
*Higgins Marine Sales Corp.
521 City Park Ave.
New Orleans
Leo L. LaFleur
Corner Landry and Liberty
Opelousas

LOUISIANA (Continued)

Holmes A. Thurmond
100 Block Thatcher St.
Shreveport 83

MAINE

Asa Gallupe
Fort Fairfield
Paul Hoar and Co.
Grand Lake Stream
W. E. Reed
52 Bates St.
Lewiston
Gray Hardware Co.
40 N. Main St.
Old Town
Peters' Outboard Service
33 Water Street
Randolph

MARYLAND

Jenkins Marine Motor Sales
327-329 N. Calvert St.
Baltimore 2
Cosgrove Cycle Co.
252 N. Center St.
Cumberland
J. Paul Delphey
140 W. Patrick St.
Frederick

MASSACHUSETTS

*Thos. T. Parker, Inc.
655 Summer St.
Boston 10
Lynn Outboard
107 Munroe St.
Lynn
Jesse White
Mendon
Philip Sarro
7 Chestnut St.
Pittsfield
Laurence King
Feeding Hills
Southwick
DeMontigny Sales Co.
832 State St.
Springfield 9
"Doc" Chauwin Motor Mart
275 1/2 Lake Ave.
Worcester

MICHIGAN

Alpena Sporting Goods
104 N. Second Ave.
Alpena
M. G. Forrester
497 West Michigan
Battle Creek
Al's Outboard Service
20154 Livernois
Detroit 21
Clyde Boat Co.
8600 Livernois Ave.
Detroit 4
Erie Boat & Motor Co.
4501 Hamilton
Detroit 1

MICHIGAN (Continued)

Hansen Boat Co.
11201 E. Jefferson
Detroit 14
Michigan Outboard Motor Co.
6330 E. Jefferson
Detroit 7
Triangle Boats & Motors
8501-13 Gratiot
Detroit 13
"Zups" Boat & Motor Sales
River St.
Elk Rapids
L. & R. Sport Shop
411 Ludington St.
Escanaba
Evinrude-Elto Flint Sales
2101 S. Saginaw St.
Flint 3
W. R. Hollenbeck
718 Forest Avenue
Frankfort
Master Outboard Sales
308 Franklin Street
Grand Haven
Wagemaker Co.
566 S. Market Ave. S. W.
Grand Rapids 2
Beach & Heunan
148-150 E. Courtland
Jackson
Van Camp Boat Co.
700 Wildwood Ave.
Jackson
White Brothers Auto Sales
847 Portage St.
Kalamazoo 7
Beck Bros. Sport Shop
615 E. Michigan Ave.
Lansing 29
W. H. Maulbetsch
Portage Lake
Pinckney
Hank Schneider
708 Huron Ave.
Port Huron
William J. Warsin
2350 N. Charles St.
Saginaw
Miller Boat & Motor Sales
247-50 E. Jefferson
St. Clair Shores
Gun Lake Marine Supply
R. R. No. 1
Shelbyville
Meach Bros.
East Bay, R. F. D. 4
Traverse City

MINNESOTA

Madison Sporting Goods Co.
Brainerd
Bay View Boat Works
31st on Park Point
Duluth

MINNESOTA (Continued)

Forest Chevrolet Co.
Ely
Rus-Sells Radio Service
Fairmont
Home Electric Co.
International Falls
Larson Motor Service
First St., N. E.
Little Falls
Ahren's Repair Shop
Mankato
Barclay-Simonson Co.
2209 W. Broadway
Minneapolis 11
*Reinhard Bros. Co., Inc.
11-17 S. Ninth St.
Minneapolis 2
Paul F. Buckley
Ray
Sporting Goods Co.
Red Wing
Ellis Motor Co.
101-3 N. Broadway
Rochester
Burnside Marine Shop
440 Jackson St.
St. Paul
Service Garage
Tower
Jarvi Cycle Co.
Virginia
Central Motor Co.
169 Market St.
Winona

MISSISSIPPI

Dixie Supply Stores
605 Washington Ave.
Greenville
Beaumont Sprtg. Goods Co.
24 Batson St.
Hattiesburg
Addkinson Hdwe. Co.
122 E. Pearl St.
Jackson 102
Oxford Sporting Goods
Oxford

MISSOURI

**Covert Boat & Engine Co.
1400 McGee St.
Kansas City
Gus Lauber Sales & Service
3750 St. Louis Ave.
St. Louis
**Schneider Sales & Service
4919 S. Kingshighway
St. Louis 9
McCracken Marine Supply
219 W. Olive St.
Springfield

MONTANA

Boettcher Hdwe. Co.
Polson
Ole Lee, Jr.
Somers
Don Robertson
350 Dakota Ave.
Whitefish

NEBRASKA

Canfield Outboard Shop
5039 Pinkney St.
Omaha 4

NEVADA

L. Lund
226 Chestnut St.
Reno

NEW HAMPSHIRE

Downing's Auto & Boat Service
Alton Bay
Granz Mower & Marine Svc.
S. Broadway
Salem

NEW JERSEY

Edward L. McCarthy
Absecon Bldg.
Absecon
B. G. Shannon Outboard
Motor Sales
271 Merchant Street
Audubon
Norman Hoffman
R. D. No. 1
Cape May Court House
Ben's Boat House
217 River Dr.
E. Paterson
Lakeland Marine Base
Nolan's Point
Lake Hopatcong
Chapman's Boat Basin
Box 204—Route No. 34
Manasquan
Zuback's
Hi-Way 35
Morgan
Lester Flaskamp
7316 Hudson Blvd.
North Bergen
Frank W. Speer
554 Main Street
Paterson 3
Walt's Outboard Motors
12 Atlantic Avenue
Watson town
Mail Laurel Springs

NEW MEXICO

H. Cook Sporting Goods
523 W. Central
Albuquerque
Scotty's Gun Shop
104 Main
Clovis

NEW YORK

Albany Boating Supply Co.
2 Lexington Ave.
Albany 5
Reggie Pink, Inc.
2077 Southern Blvd.
Bronx, N. Y. 60
Canarsie Outboard
1194 Remsen Ave.
Brooklyn 12
Buffalo Boat & Motor Co.
2300 Niagara St.
Buffalo 7
E. T. Waldorf
23 W. Gibson Street
Canandaigua

NEW YORK (Continued)

J. J. Burck
634 City Island Ave.
City Island
Fred's Boats & Motors
R. D. No. 1
Clay
Davis Boat & Motor Co.
Cuba
Myers-Loven Co.
105 E. First St.
Elmira
George Burt & Son
3103 E. Main St.
Endwell
H. Chalk & Son
Fishers Landing
Smith Marine Sales & Service
175 Woodcleft Ave.
Freeport, L. I.
Charles Humbert
Rockaway Blvd. and 247th St.
Hook Creek, Jamaica, L. I.
Collins Sport Shop
109 E. Third St.
Jamestown
DeGroats Garage
58 Ackley Ave.
Johnson City
Dunham's Bay Boat Storage
R. F. D. 1
Lake George
Higgs Marine Service
300 Zerega Ave.
New York 61
*Oluf Mikkelsen Co., Inc.
393 Fourth Ave.
New York City 16
Schineller Bros.
80-12 Rockaway Blvd.
Ozone Park 17
Peekskill Marine Sales & Service
218 Washington St.
Peekskill
John White
R. F. D. No. 2, South Road
Poughkeepsie
Urick's Quality Tackle
66-85 Forrest Ave.
Ridgewood 27
Mayer Boat Co.
1333 St. Paul St.
Rochester
Towner Bros.
710 University Ave.
Rochester 7
Island Outboard Headquarters
Route 25A
Rocky Point
Harry Duso
Saranac Lake
J. W. Randall Boat Co.
133 Riverside Ave.
Scotia 2
Alvah Goldsmith
Hobart Road
Southold, L. I.
Alexander Boats & Motors
121 Winthrop Rd.
Syracuse

NEW YORK (Continued)

The Potter Co.
365 E. Onondaga St.
Syracuse 2

Walter Siegenthaler
220 Lafayette St.
Utica 2

*Howard H. Vrooman
233 State St.
Watertown

NORTH CAROLINA

Hayes & Hopson, Inc.
Spruce St.
Asheville

Barbour Boat Works, Inc.
Foot of Metcalf
New Bern

Anchor Hdwe. Co.
101 S. Front St.
Wilmington

NORTH DAKOTA

Rand Sporting Goods Co.
Fargo

OHIO

Outboard Sales & Service
433 Turkey, Ft. Lake Rd.
Akron 1

Larson's Auto Electric Shop
State St. & E. 44th St.
Ashtabula

Martin A. Lang Marine Supply
2719 Woodburn Ave.
Cincinnati 6

*Cleveland Yacht & Sup. Co.
3027 Detroit Ave.
Cleveland 13

Seaman Auto Supply
944 S. Parsons Ave.
Columbus

Brock & MacFarlane
11 Ridge Ave.
Dayton

Allison Parts & Equipment
211 North Main Street
Findlay

Havens Marine Sales
604 Arlington
Fremont

Ribar Bros.
Central and Hanover Sts.
Hamilton

William D. Elliott
Marietta

Harrold Brothers
131 Campbell St.
Marion

Green's Motor Clinic
6th and Main Street
Newark

*Schuler Marine Sales
Russells Point
O. V. Nearing
4607 S. Detroit Ave.
Toledo 9

Irvin LeRoy
77 Falls St.
Youngstown

OKLAHOMA

Wylie Hough Electric Service
5 West Broadway
Ardmore

Avon Supply Co.
123 N.W. Third St.
Oklahoma City 2

*Everett Motor Co.
420 E. Second St.
Tulsa 3

OREGON

Englund Marine Supply
Foot of 15th St.
Astoria

Freeman's Tackle Co.
404 E. Third St.
Bend

M. E. Henzler
1493 W. 6th St.
Eugene

*Lee McCuddy's Columbia
Marina
2901 N. E. Marine Drive
Portland 11

Hain's Outboard Shop
1201 S. Commercial St.
Salem

PENNSYLVANIA

R. Clyde King & Son
307 Wilson Pl.
Apollo

Carl A. & Royden Hofberg
Baltimore Ave. and Church
Clifton Heights

Dearbeck & Christensen
17 W. Public Dock
Erie

Earl W. Wolfe
119 Walnut St.
Harrisburg

Warren Henwood Co.
324 E. King St.
Lancaster

*Marine Equipment Co.
107 Federal St.
N. S. Pittsburgh 12
Charles H. Weidman
Delaware Ave. and Levick St.
Philadelphia 35

Reading Boat Works
840 Centre Ave.
Reading

Arthur G. Hedrick & Son
320 Vincent St.
Spring City

Burgard Bros.
West & Philadelphia Sts.
York

RHODE ISLAND

Pawtuxet Marine Corp.
8-10 Aborn St.
Cranston

Smithfield Marine Co.
Douglas Pike
Smithfield

SOUTH CAROLINA

W. A. Brown Motor Service
735 Main St.
Columbia 36

SOUTH CAROLINA (Continued)

George Guy
500 Houston St.
Greenville

SOUTH DAKOTA

Nelson Auto Electric
Aberdeen

Semm's Magneto Shop
Sioux Falls

TENNESSEE

Carl Dietzen Co.
Riverside Drive
Chattanooga

Knoxville Boat Co.
1166 North Broadway
Knoxville 17

Russell Hardwick
655 Marshall Ave.
Memphis 3

Roy Nowlin Boat Co.
900 Church St.
Nashville

TEXAS

W. J. Disch, Jr.
2606 Woodmont
Austin 21

R. L. Brown
1725 College St.
Beaumont

Marine Sales & Service
106 S. Mesquite St.
Corpus Christi

Colonial Motor Co.
3219 Holmes St.
Dallas 2

Worth Boggeman
1301 Jacksboro Road
Fort Worth

*C. B. Delhomme
2101 Leeland Ave.
Houston 1

Shelton Boat Works
302 No. First
Longview

Ausburn's Sporting Goods
Ave. Q and 9th St.
Lubbock

Ray Russell
210 S. Flores St.
San Antonio

UTAH

House of Hopper
140 E. Broadway
Salt Lake City 1

VERMONT

Edgar Chiott & Son
Burlington

Wilson Sports Equip. Co.
38-40 Center St.
Rutland

VIRGINIA

Norfolk Marine Co.
213 E. Water St.
Norfolk 10

Carwich Hdwe.
1711 E. Main St.
Richmond 23

WASHINGTON

Ira Yeager
1313½ State St.
Bellingham

The Motor Boat Mart
419 W. Fourth
Olympia

*Bryant's Marina, Inc.
Evinrude Division
1117 E. Northlake
Seattle

Ware, Cochran & Coultas
416 Sprague Ave.
Spokane 8

Johnny Sheriff Outboard Svc.
Pt. Defiance Boat House
Tacoma 7

WEST VIRGINIA

Parsons-Brindle Tire Co.
1 W. Washington St.
Charleston 2

WISCONSIN

Ashland Tire & Electric Co.
722 W. Front St.
Ashland

Breen's Service
Eagle River

Bob Cammack's Treeland
Pines Resort
Hayward

Elfman Motor Service
208 S. Second St.
La Crosse

Berg's Inc.
2123 Atwood
Madison 4

Mayville Sport Shop
105 S. Main St.
Mayville

Evinrude Motors (Factory
Service)
424 N. Fourth St.
Milwaukee 3

WISCONSIN (Continued)

Tessner Motor Boat Sales Inc.
1404 N. 11th St.
Milwaukee 5

Thompson's Boat Mart
Minocqua

Lem Willemssen
Phillips

Foesch's Marine Service
713 E. Green Bay St.
Shawano

Neuman Automotive Service
Superior

Louis Outboard Motors
9701 W. Greenfield Ave.
West Allis 14

WYOMING

Hays Boat Shop
211 W. Railroad Ave.
Casper

SPORTWIN MECHANICAL SPECIFICATIONS**(ALTERNATE FIRING TYPE)**

MODEL 4423.....	for 15" boat transom (standard length)
MODEL 4424.....	for 20" boat transom (5" longer drive shaft)
HORSEPOWER.....	3.3 O.B.C. Certified B.H.P. at 4000 R.P.M.
NUMBER OF CYLINDERS.....	2
BORE AND STROKE.....	1 5/8" x 1 1/2"
PISTON DISPLACEMENT.....	6.2 cu. inches
TYPE.....	2 cycle, 3 port, alternate firing, with low speed rotary valve
GEAR RATIO.....	13-18
PROPELLER.....	67/8" dia. x 43/4" pitch, 2 blade, rubber cushioned
COOLING.....	2 stage centrifugal pump, double circuit system
IGNITION.....	Evinrude high tension magneto
CARBURETOR.....	Float feed, with primer, one needle adjustment. Compensating type induction system.
CONTROL.....	"Unified Speed Control", spark and throttle linked together into one lever
FUEL TANK CAPACITY.....	6 1/2 pints
STARTER.....	Simplex, self re-winding
REVERSE.....	Full 360° with positive reverse steering
GEAR HOUSING.....	Weedless design including propeller
WEIGHT.....	39 lbs. (standard length)

EVINRUDE

BOATING ACCESSORIES

Good equipment contributes greatly to boating convenience, pleasure and safety. Evinrude offers a wide selection of the most useful accessories, from motor covers and carrying cases to fuel cans and boat cushions. See your Evinrude dealer, or write us for free accessory catalog.



EVINRUDE MOTORS • MILWAUKEE 9, WISCONSIN
In Canada: Evinrude Motors, Peterboro, Ontario

EVINRUDE



Elto

EVINRUDE MOTORS

DIVISION OF OUTBOARD, MARINE & MANUFACTURING COMPANY

MILWAUKEE 9· WISCONSIN· U·S·A·

CABLE ADDRESS: "EVINRUDE"

February 13, 1948

NEW SPORTWIN SALES DOPE

Sportwin deliveries have been delayed considerably by minor last minute production stumbling blocks, which never fail to come up. But those minor items are finally licked and Sportwins are beginning to roll.

So now it's time for you to give this new motor a little advance study. The attached operating and general instruction book on the new Sportwin tells you a great deal about the motor. It is well worth your careful study. But for sales purposes you need a little more specialized information than is given in either the catalog or instruction manual. So we shall briefly talk about such of the various features mentioned in the order in which they appeared in our letter of December 24:

NEW VISIBLE FUEL GAGE -- Made of beautiful lucite plastic; rugged; accurately tells how much gas is left in the tank. No more surprise running out of gas.

NEW TYPE STEERING HANDLE -- It's a screw driver, too. Just turn the handle counter clockwise and then you have the most useful tool in the kit. "TRANSOM TRIGGER" angle adjuster, (brought out on Sportwin last year), instantly adjusts driving angle.

NEW DOUBLE CIRCUIT 2-STAGE CENTRIFUGAL PUMP COOLING -- **OIL-PROOF SYNTHETIC RUBBER ROTOR** -- At high speeds flexible rubber rotor pushes plenty of water through both high and low speed cooling circuits. At trolling speeds when less cooling water volume is wanted, high speed circuit stops functioning, low speed circuit continues to function on fool-proof syphon system. Pump supplies water head at level higher than low speed water outlet, thus permitting cooling system to work by simple fool-proof syphon operation once water starts moving through low speed coil.

NEW LEAK-PROOF FUEL FILLER CLOSURE -- Oil and gas proof synthetic rubber filling closure head type by positive lever adjustment eliminates possibility of fuel leakage.

NEW IMPROVED SIMPLEX STARTER -- No moving parts on flywheel makes new starter quiet, dependable, trouble free.

NEW DESIGN COMPENSATING TYPE FUEL INDUCTION SYSTEM AND CARBURETOR -- Principal purpose of carburetor with small venturi is to admit rich, perfectly atomized fuel through conventional rotary valve. Air to



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burn fuel is admitted through third port controlled by piston and cam operated slide. For trolling, air port is closed and all fuel and air are admitted through smaller vacturi in carburetor which guarantees low speed operating mixture. This assures no "flat spot" in Sportwin carburetor.

NEW INTAKE AIR SILENCER -- Third air port on cylinder is effectually silenced by air silencer which "snubs" sound. Sound tries to find its way out of silencer curlicues and just gets tired and gives up before reaching outside.

NEW UNIFIED SPEED CONTROL -- New fuel induction system cam operated in close combination with timer lever guarantees perfect, full responsive speed control, concentrated in one lever.

NEW DOUBLE CARRYING HANDLES -- Correctly designed loop carrying handles placed fore and aft, guaranteeing unequalled handling ease. Insures easy steering in reverse without having to reach over motor to steering handle. Offers maximum protection to gas tank and power head parts.

NEW VISIBLE CARBURETOR SEDIMENT BOWL -- Owner can tell at a glance if he has water or dirt, or both, in fuel system. To empty and clean, just loosen thumb screw and transparent plastic bowl slips out for easy cleaning. Easy fuel line shut-off between carburetor and fuel tank when necessary to clean carburetor sediment bowl. Transparent sediment bowl enables owner to readily tell if gas is flowing from tank to carburetor. Fuel tank also has separate strainer.

NEW TOOL COMPARTMENT IN MOTOR HOOD -- No more lost shear pins or misplaced cotter keys or spark plug wrench. Synthetic rubber pin and key holder located under motor hood, along with spark plug wrench. These, along with screw driver in steering handle, make all tools instantly available.

NEW GAS TANK PRESSURE COMPENSATOR -- Gas in a closed motor tank expands in the sun and forces its way out through any opening. Evinrude's new pressure compensator provides for expansion of gas vapor expansion under heat so that pressure in tank always remains at atmospheric and will not force through joints, gaskets, etc.

NEW SINTERED BEARINGS -- Sintered bronze bearings on top and bottom crankshaft journals, also on driveshaft and lower housing assure more generous lubrication. Show far longer wear than cast bearing. Replaceable.



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NEW TYPE SEALED CENTER BEARING AND JOURNAL -- No more leaky center bearings--synthetic gas and oil-burn seal insures against crankcase leakage at all times.

NEW SPARK PLUG WIRES STATIONARY OUTSIDE MAGNETO --Cleverly coiled wires inside armature permit full swing of timer without any swinging wires to wear outside armature base.

NEW QUICK REMOVABLE MOTOR COVERS (DZUS FASTENED) --, A quarter turn on airflow type DZUS fasteners releases motor covers instantly for making adjustments, yet hold perfectly when fastened.

NEW CONTROL PANEL -- Simple, completely functional, beautiful and reassuring to the customer in appearance. Only one control knob for all carburetor adjustments.

FISHERMAN DRIVE -- We have saved the best for the last. Although not new--the Fisherman Drive was introduced last year as the "Weedless Drive". It is so much more than just weedless that we have decided to change the name to FISHERMAN DRIVE--Weedless - Shoal Riding - Snagproof. ~~Not Everyone~~ needs a weedless housing, but every boat owner wants the ruggedness of the Fisherman Drive for shallow and obstacle infested waters. You'll find us saying plenty about this in our ads.

Those are just the bigger items. Letters and previous literature have told you the rest of the Sportwin story. The service manual enclosed will give you a complete picture on the motor's construction. Please read it all and be ready to talk Sportwins to any inquirer with complete confidence.

Cordially yours,

EVINRUDE MOTORS

W. C. Clausen
Vice President

W. C. Clausen
IB

Enclosure

P.S. FLASH FROM ADVERTISING DEPARTMENT: New full color Sportwin Window Posters are being mailed to dealers next week! Be sure to post yours -- right up front!