



Installation Instructions

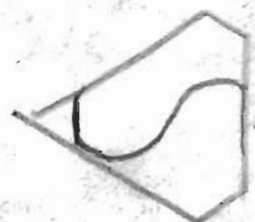
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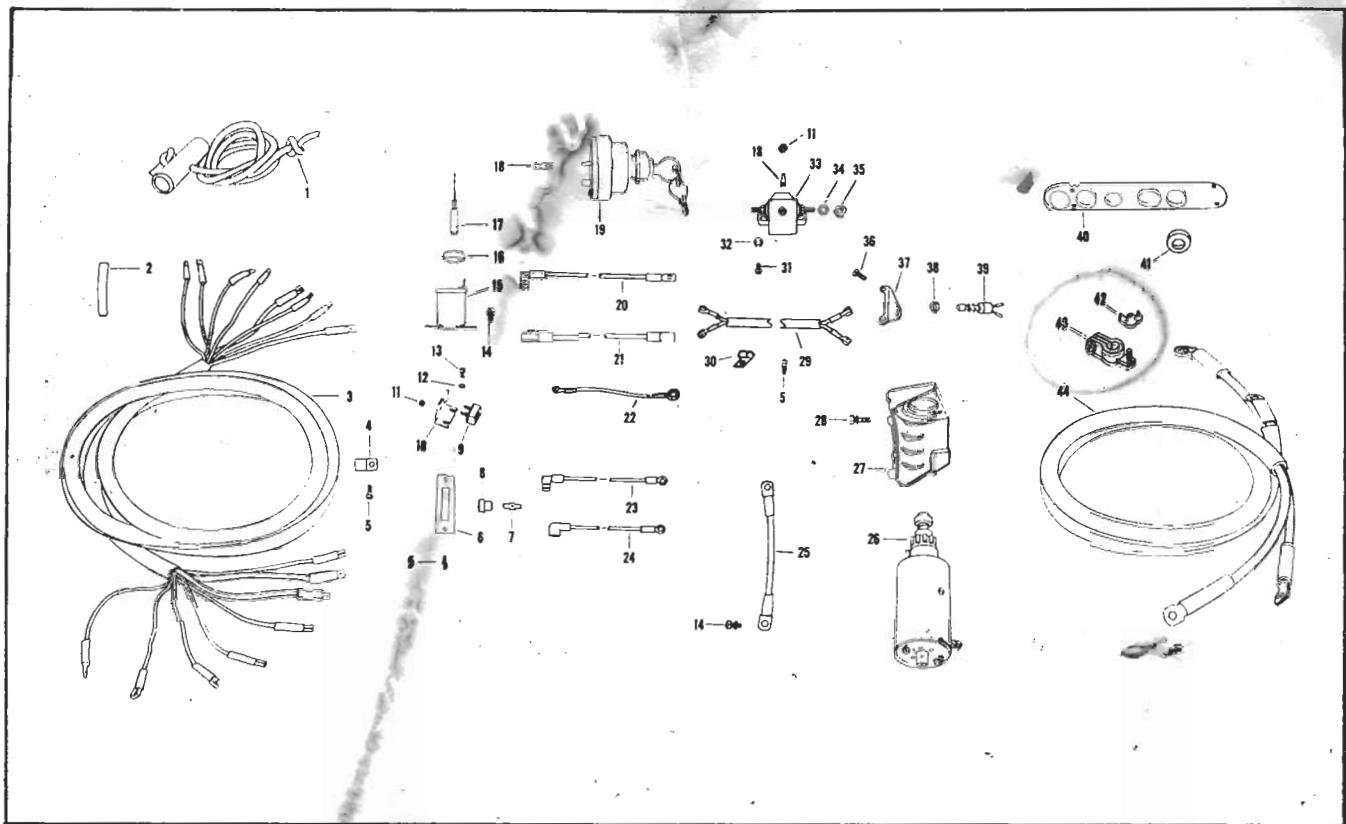
MODEL 136

**ELECTRIC STARTING
KIT**

for

30 HP MOTOR





PARTS LIST

ILLUS. NO.	PART NO.	QTY.	DESCRIPTION	ILLUS. NO.	PART NO.	QTY.	DESCRIPTION
✓ 1	A27232	1	Starter rope w/handle	20	89905	1	Lead wire—CHOKE
✓ 2	901914	4	Sleeve	21	151042	1	Lead wire—JUMPER
✓ 3	89843	1	Remote electric control cable	22	91683	1	Lead wire—CIRCUIT BREAKER
✓ 4	84446	1	Clamp—electric cable	23	89042	1	Lead wire—TERMINAL PLATE
✓ 5	10-24 x 1/2	4	Fillister head screw	24	89907	1	Lead wire—TERMINAL PLATE GROUND
✓ 6	89497	1	Terminal plate	✓ 25	381908-1	2	Starter lead and ground strap
✓ 7	89898	8	Terminal, double male	26	*A90955	1	Starter motor w/drive
8	9058	1	Terminal bushing—RED	27	98427	1	Starter mounting bracket
	9059	1	Terminal bushing—GREEN	28	5/16-18 x 1	3	Hex slotted head screw w/lockwasher
	9060	1	Terminal bushing—BLUE	29	99905	1	Cable—neutral interlock switch
	9061	1	Terminal bushing—PURPLE	30	92446	1	Clamp
	9062	1	Terminal bushing—WHITE	31	1/4-20 x 5/16	2	Fillister head screw
	9063	1	Terminal bushing—YELLOW	32	8069	2	Plain washer
	9064	1	Terminal bushing—BLACK	33	84917-2	1	Starter relay
	9065	1	Terminal bushing—ORANGE	34	5/16 Medium	2	Spring lockwasher
✓ 9	91460-1	1	Circuit breaker	35	5/16-24	2	Hex nut
✓ 10	91446-1	1	Circuit breaker bracket	36	1/4-20 x 5/8	2	Hex slotted head screw
✓ 11	10-32	5	Hex nut	37	98551-1	1	Bracket—neutral interlock switch
✓ 12	8018	2	Plain washer	38	92504	1	Grommet
✓ 13	10-24 x 3/8	2	Round head screw	39	98449-1	1	Switch—neutral interlock
✓ 14	1/4-20 x 1/2	4	Nylox hex slotted head screw w/type "A" external tooth lockwasher	40	89888	1	Control panel plate
✓ 15	92924	1	Choke solenoid	41	381899	2	Grommet
✓ 16	391983	1	Retaining band	42	381797	2	Battery terminal wing nut
✓ 17	A89926	1	Choke solenoid plunger	43	381898	2	Battery terminal
✓ 18	98898	2	Slide terminal—male	44	A381896-2	1	Battery cable assembly
✓ 19	99918	1	Ignition switch w/keys and mounting nuts		58374	1	Decal—switch (not shown)

*ORDER ELECTRIC STARTER MOTOR REPAIR PARTS DIRECTLY FROM YOUR LOCAL DISTRIBUTOR OR DEALER. CONSULT PHONE BOOK FOR NAME AND LOCATION.

INSTALLATION INSTRUCTIONS

For

136 ELECTRIC STARTER CONVERSION KIT

GENERAL INFORMATION

The model 136 Electric Starter Kit is designed to convert a 1963 - 30 H.P. Manual Start motor to Electric starting.

NOTE: The nautical terms "Port" and "Starboard" are used throughout these instructions. For reference, the "Port" side is the left side and the "Starboard" is the right side, facing the motor from the rear.

REMOVING MANUAL STARTER

1. Remove the engine cover by turning the engine cover latch handle 1/2 turn counter clockwise. This handle is located under the engine control panel.
2. Remove the starter rope handle plug button using a screwdriver.
3. Pull starter rope through handle and untie knot in end of rope. Remove plain washer.
4. Allow starter rope to rewind on starter spool.
5. Remove the four (4) starter spool bearing cap screws and remove starter assembly.
6. Remove the three (3) screws and spacers which attach the starter spool mounting bracket to the crankcase cover.

REMOVING MANUAL CHOKE CABLE AND BRACKET

1. Remove the choke cable from the choke arm on the carburetor.
2. Bend the ears on the choke cable bracket which retains the choke cable and remove cable from bracket.
3. Loosen the starboard hex nut which retains the carburetor to the adapter flange. Remove the port hex nut and choke bracket.
4. Re-install hex nut to carburetor and tighten both carburetor nuts securely.
5. Using a 9/16" open end wrench, remove the choke cable from the control panel. Remove nut, lock-washer and flat washer.

REMOVING CONTROL PANEL PLATE

1. Remove the three (3) grommets from the control panel plate.
2. Remove the four (4) cross truss head screws which retain the control panel plate to the control panel. (The original control panel plate can be discarded as a new one will be installed later.)

INSTALLING CONTROL PANEL PLATE

1. Install the new control panel plate using the four (4) cross truss head screws removed above.
2. Install all grommets into the control panel plate except the battery cable entry grommet (second hole, port side.)

ASSEMBLY OF CIRCUIT BREAKER

1. Remove the magneto shorting cable which is attached to the support plate (port side). Discard the cable clamp and screw and lay cable to one side for installation later.
2. Assemble circuit breaker to circuit breaker mounting bracket using two (2) hex nuts furnished with kit.
3. Install the green circuit breaker lead wire to the short terminal of the circuit breaker using one (1) hex nut furnished with kit. Position circuit breaker lead wire so that it will run parallel to the floor of the support plate.
4. Install the black circuit breaker lead wire to the long terminal of the circuit breaker using one (1) hex nut furnished with kit. Position circuit breaker lead wire so that it will run parallel to the floor of the support plate. SEE FIGURE 1.

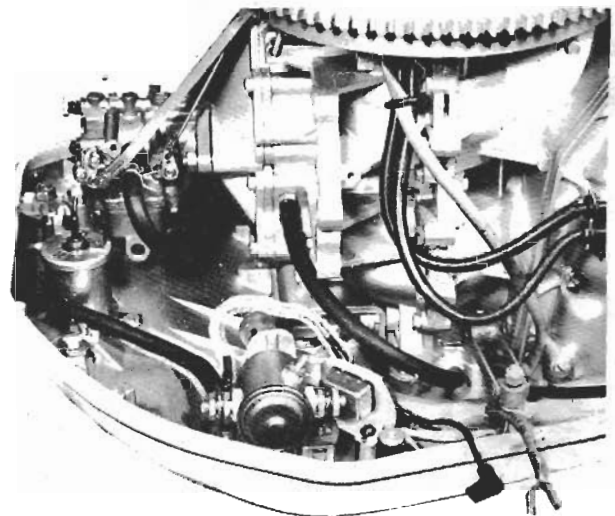


FIGURE 1

5. Using two (2) 10-24 x 3/8 round head screws and two (2) washers (#8018) furnished with kit, install circuit breaker assembly to the support plate as shown in FIG. 1.

ASSEMBLY OF CHOKE SOLENOID

1. Install the choke solenoid to the support plate using two (2) 1/4-20 x 1/2" nylox - hex slotted head screws w/type "A" external tooth lockwashers. SEE FIG. 1.

NOTE: Install the forward screw first, then position the choke solenoid in place, install rear screw, tighten screws securely.

NOTE: It may be necessary to loosen the screw and washer which secures the control panel to the support plate in order to install the choke solenoid.

2. Install the choke solenoid plunger to the choke solenoid.

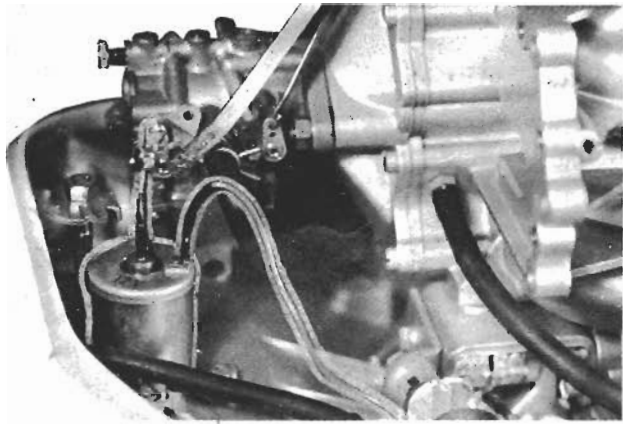


FIGURE 2

3. Install green choke lead wire to the terminal on top of the choke solenoid, as shown in FIG. 2.

4. Route the green choke lead wire down the side of the choke solenoid and install rubber retaining band around choke lead wire and choke solenoid. Be sure to allow a loop to form between the rubber retaining band and the connection point of the lead wire and the choke solenoid. SEE FIG. 3.

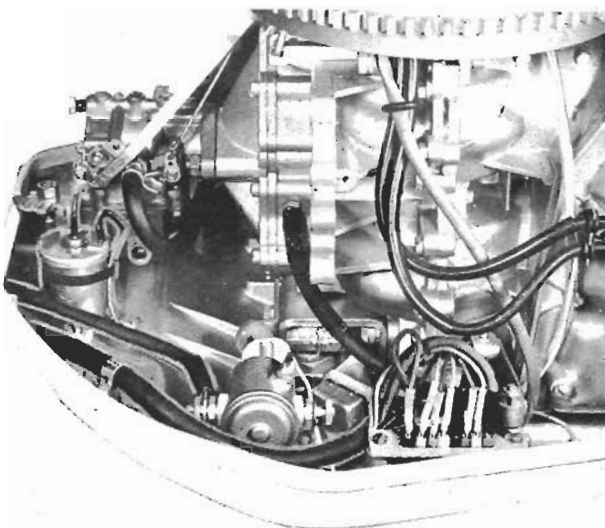


FIGURE 3

5. Install the choke solenoid plunger cable through the hole in the choke arm on the carburetor. With the plunger bottomed in the solenoid, move the choke shutter and arm assembly down on the plunger cable until the choke shutter in the carburetor is from .010 to .040 from being closed. Tighten cable locking screw on the carburetor choke arm. SEE FIG. 3.

ASSEMBLY OF STARTER RELAY

1. Assemble one (1) spade terminal to the small terminal post on top of the starter relay. Position terminal so that blade points to center of engine as shown in FIG. 3.

2. Using two (2) 1/4-20 x 5/16 fillister head screws and two (2) #8069 washers furnished with kit, install starter relay to support plate as shown in FIG. 1. (The washers are installed between the starter relay and support plate.)

3. Install one (1) starter lead wire to the rear terminal of the starter relay. Install so that lead wire is pointed up. SEE FIG. 4.

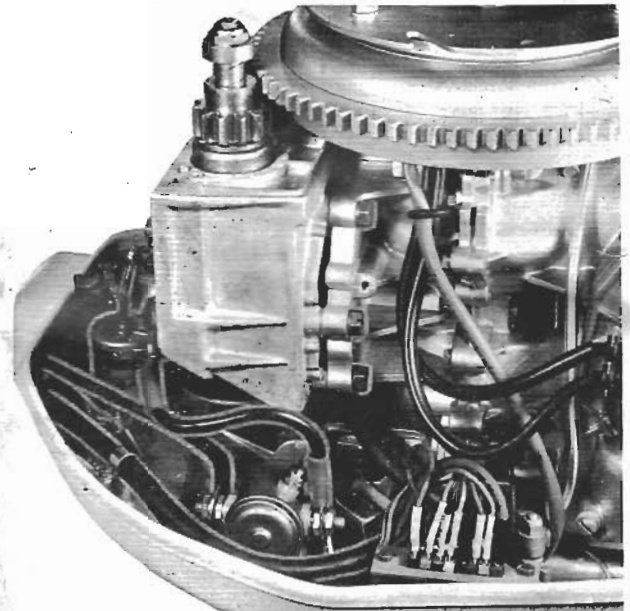


FIGURE 4

ASSEMBLY OF GEAR SHIFT INTERLOCK SWITCH

1. Install the gear shift interlock switch assembly to the rear screw holes in the lower transfer port cover with the plunger of the switch pointing forward. Use two (2) 1/4-20 x 5/8 hex slotted head screws furnished with kit. SEE FIG. 5.

NOTE: With the gear shift control in neutral, there must be 1/16" clearance between the gear shift interlock switch plunger and the shift detent arm.

2. Assemble the two interlock switch cable lead wires to the interlock switch. SEE FIG. 5.

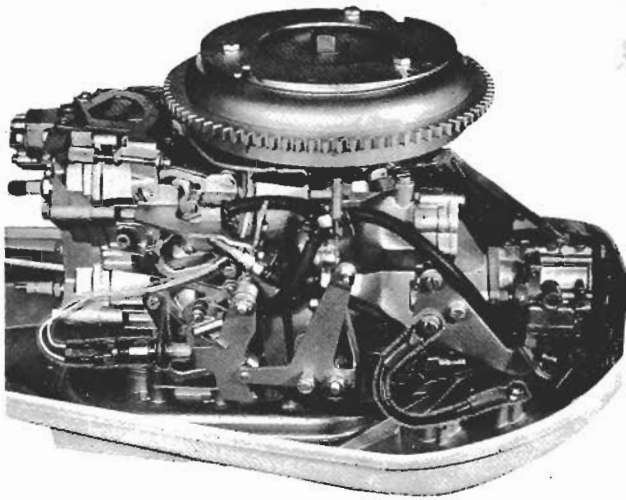


FIGURE 5

3. Dress the interlock switch lead wire forward and upward across the lower portion of the upper transfer port cover on the starboard side of the engine. SEE FIG. 5.

4. Assemble one (1) cable clamp under lower front screw of the upper transfer port cover. Leave a 2" loop between the interlock switch and clamp, as shown in Fig. 5.

5. Dress the interlock switch lead wire directly up and over the cylinder, under the magneto and down the other side of the engine.

6. Route the interlock switch cable down the port side of the cylinder, just ahead of the exhaust chest, under the stabilizer linkage and to the port side of the circuit breaker.

7. One lead of the interlock switch cable is connected to the terminal on top of the starter relay, as shown in Fig. 3.

8. The jumper lead wire is connected to the remaining lead wire of the interlock switch cable and is insulated with one (1) black sleeve furnished with kit.

9. The extended interlock switch lead wire is connected to the lower yellow nylon terminal in the terminal connector plate.

ASSEMBLY OF TERMINAL CONNECTOR PLATE

1. The green choke lead wire from the choke solenoid is dressed along the floor of the support plate, to the rear of the starter relay, starboard of the circuit breaker and connected to the underside, or lower green terminal in the terminal connector plate.

2. Assemble the red terminal connector plate ground lead wire to the lower red terminal.

3. The magneto shorting lead wires are brought down and under the stabilizer linkage, over to the terminal connector plate and connected to the lower blue and white terminals.

4. The black lead wire from the circuit breaker is connected to the lower black terminal.

5. The lower orange and purple terminals are left blank.

6. Assemble the terminal connector plate assembly to the support plate as shown in Fig. 3, using two (2) spacers between the terminal connector plate and support plate and two (2) 10-24 x 1/2" fillister head screws furnished with kit.

NOTE: Assemble the red terminal plate ground lead wire to the rear terminal plate attaching screw.

ASSEMBLY OF BATTERY CABLE

1. Install battery cable grommet to battery cable.

2. Route battery cable through 2nd hole—port side of control panel as shown in Fig. 6.

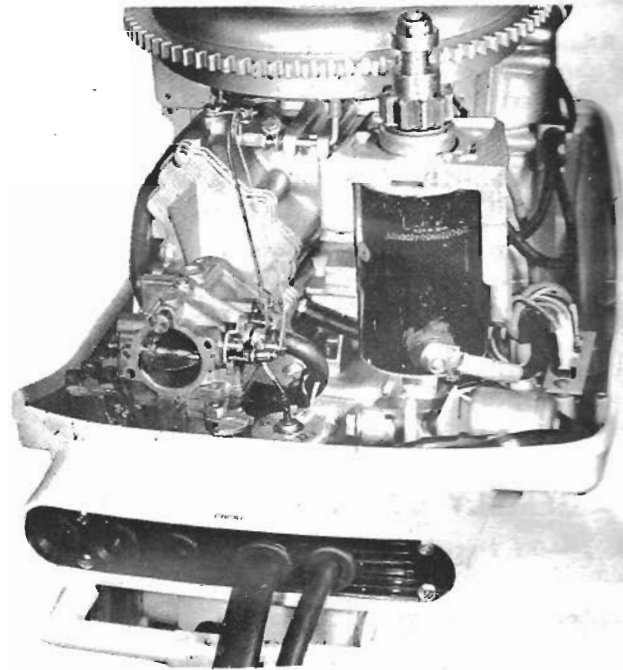


FIGURE 6

3. Assemble black battery cable lead to the forward terminal of the starter relay, as shown in Fig. 3.

4. Assemble the red battery cable lead wire to the support plate using one (1) 1/4-20 x 1/2" nylok hex slotted head screw w/type "A" external tooth lock-washer.

5. Assemble battery cable grommet to control panel.

ASSEMBLY OF REMOTE ELECTRIC CABLE

1. Route the remote electric cable through the port hole in the control panel.

2. Connect the electric cable lead wires to the terminal connector plate by matching the colors of the remote electric cable lead wire ends with the colors of the plastic connectors in the terminal connector plate, as shown in Fig. 3.

3. Assemble one (1) cable clamp and one (1) 10-24 x 1/2" fillister head screw to remote electric cable and secure to support plate as shown in Fig. 3.

ASSEMBLY OF STARTER MOTOR

1. Mount the starter motor to the starter mounting bracket with terminal facing forward and slightly toward the port side of the engine. The starter motor is mounted using the two thru bolts which are part of the starter motor. SEE FIG. 6.

NOTE: When tightening the thru bolts attaching the starter motor to mounting bracket, the armature shaft should be turned by hand as the tightening process continues to make sure that the thru bolts are not tightened unevenly so as to cause binding of the armature shaft.

2. Mount the starter motor assembly to the crankcase cover using three (3) 5/16-18 x 1" hex slotted head screws w/spring lockwashers as shown in Fig. 4.

3. Route the starter lead strap from the rear post of the starter relay forward to the post near the bottom of the starter motor, as shown in Fig. 4.

ASSEMBLING CRANKCASE TO SUPPORT PLATE GROUND STRAP

1. Assemble one end of the ground strap to the lower screw attaching the gear shift conduit bracket to the crankcase cover, as shown in Fig. 5.

2. Assemble the other end of the ground strap to the support plate using one (1) 1/4-20 x 1/2" nylok hex slotted head screw w/type "A" external tooth lockwasher as shown in Fig. 5.

ASSEMBLY OF IGNITION SWITCH

The remote electric cable lead wire ends should be assembled to the ignition switch as follows:

1. Green wire to terminal marked "C" for choke.
2. Black wire to terminal marked "B" for battery.
3. Yellow wire to terminal marked "S" for start.
4. White wire to terminal marked "M" for magneto.
5. Blue wire to terminal marked "M" for magneto.
6. The remaining three (3) lead wires, (Red, Orange and Purple) should be folded back and one (1) black insulating sleeve fitted over each.

