

MERCURY

KIEKHAEFER CORP.

(General Offices)

Fond du Lac, Wisc.

(Parts and Service Division)

Beaver Dam, Wisc.

ELECTRICAL SYSTEMS

Electrical starting systems are available on the larger motors. Four cylinder and six cylinder motors with electric starter are also equipped with an alternator type generator. Refer to the appropriate wiring diagram for installation, and to the components section for overhaul data.

BATTERY

A 12 volt battery is used on all electric starting models. On early two cylinder and four cylinder motors (before 1957), the positive battery terminal was grounded. On

all late models the negative terminal is grounded. CAUTION: On models with alternator-generator, the rectifier will be damaged if battery terminals are reversed. Make certain battery is properly connected. Also make sure battery is safely located in the boat. Refer to the appropriate wiring diagram when performing service on the electrical system.

STARTER

American Bosch starting motors were used on early models. Late models use Delco-Remy units. The two makes are interchangeable

as a complete unit on gear shift models with negative ground.

American Bosch starters should draw 180-240 amperes while cranking a warm engine. The Delco-Remy starter should draw approximately 160 amperes. Armature end play of 0.010-0.020 on American Bosch models is adjusted by means of shimming washers on armature shaft at brush end. End plate bushings are align reamed, if excessively worn renew the end plate. On Delco-Remy models with shock absorbing

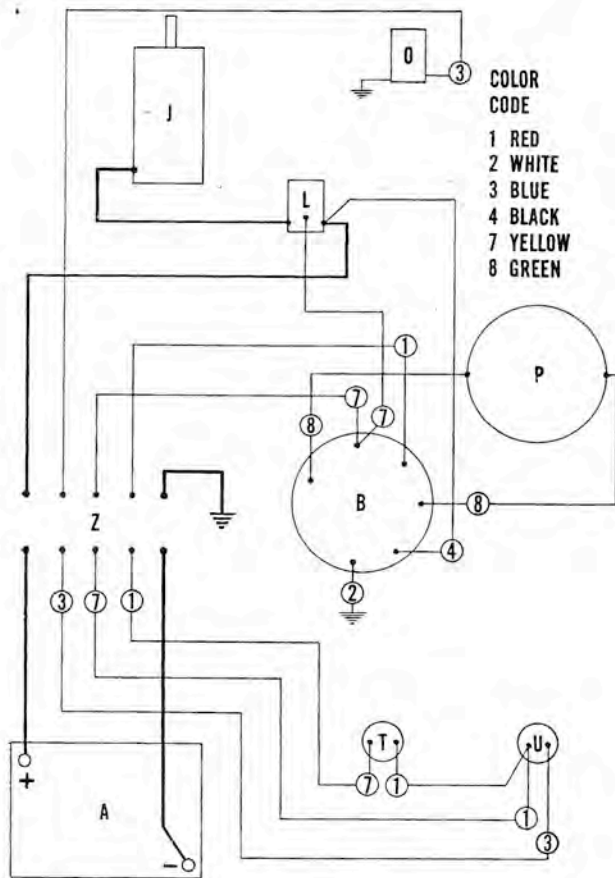


Fig. M110 — Wiring diagram used on Mark 25E motor. Refer to Fig. M114 for legend.

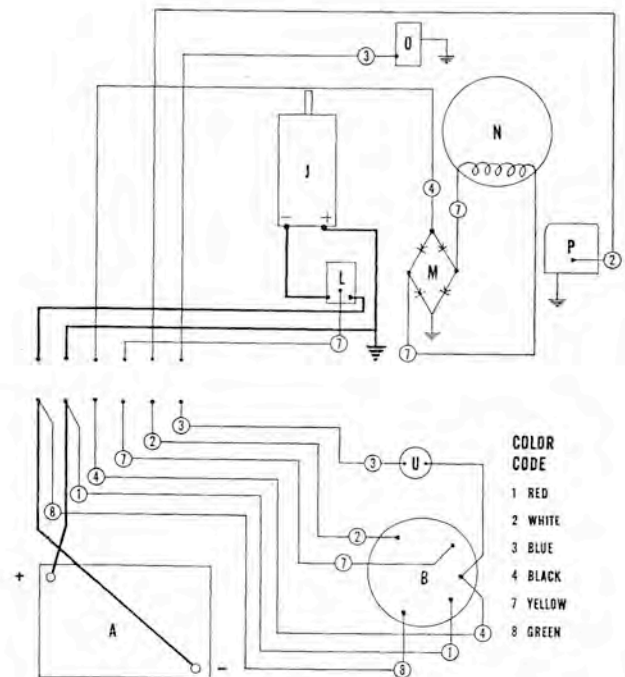


Fig. M111 — Wiring diagram used on early Mark 50E and 55E with positive ground. Refer to Fig. M114 for legend.

rubber cushion in drive mechanism, tighten the drive retaining nut to a torque of 200 inch-pounds; then continue tightening until cotter pin can be installed.

ALTERNATOR

A flywheel type alternator-generator is used on all four cylinder and six cylinder models. Maximum output at full throttle with a partially discharged battery should be approximately 7 amperes for four-cylinder models; 9½ amperes for Mark 75; and 14 amperes for all other six cylinder models. The charging unit is designed to be self-regulating, and a separate regulator is not required.

RECTIFIER

The rectifier assembly is designed to convert the alternating current of the generator to direct current suitable for charging the battery and supplying the other electrical needs of the system. The rectifier is available only as a complete unit.

The rectifier is composed of two positive and two negative wafers which restrict the flow of current to one direction only. A positive and negative wafer is connected to each of the alternator leads, thus channeling the generated alternating current in a single direction.

The rectifier can be damaged by reversing the battery cables, by attempting to "polarize" the generating system, by disconnecting battery cables when motor is in operation, by an open generating circuit caused by a broken wire or loose connection, or by manually breaking the generating circuit by turning the ignition key to "OFF" position when motor is operating at above idle speed. To prevent damage to the rectifier when operating the motor with battery disconnected or removed, disconnect the alternator to rectifier (yellow) leads at the quick-disconnect couplings and tape each lead individually. The alternator will not be damaged by operation with charging circuit open, but the rectifier will if left connected to alternator. NOTE: Disconnect one alternator as outlined above, when operating twin motors from a single battery. Do not attempt to charge the same battery with two motors.

A damaged rectifier usually has a burned or discolored appearance. If output of charging circuit is satisfactory, it can generally be assumed that rectifier is in good condition. If charging circuit does not work, check each component of the system.

The rectifier can be tested with an ohmmeter. Tests can be performed with the rectifier in operating position on the motor; or with rectifier removed. If rectifier is to be tested on the motor, disconnect all rectifier leads.

To make the tests, connect one ohmmeter test lead to either of the yellow alternator leads, touch the other test lead to the output lead and note the ohmmeter reading. Move the test probe from output lead to a suitable ground (or to rectifier through-bolt), and again note the reading. Ohmmeter reading should be very high (or infinity) in one test and very low (or zero) in the other. If readings are the same or nearly the same, the rectifier must be re-

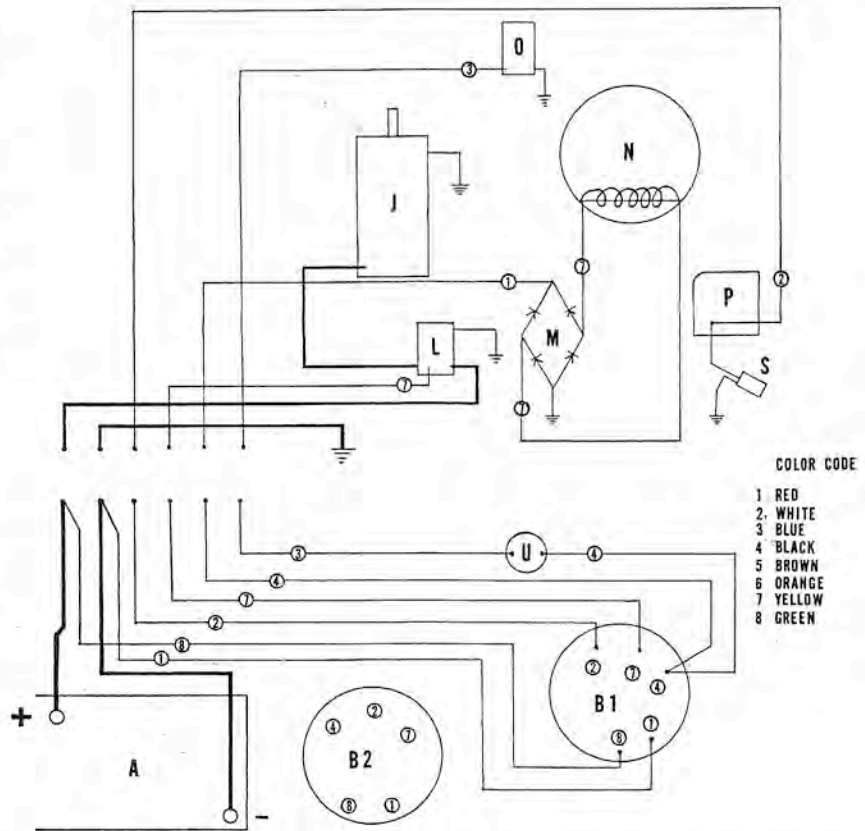


Fig. M112 — Wiring diagram used on four cylinder models with single lever control. Refer to Fig. M114 for legend.

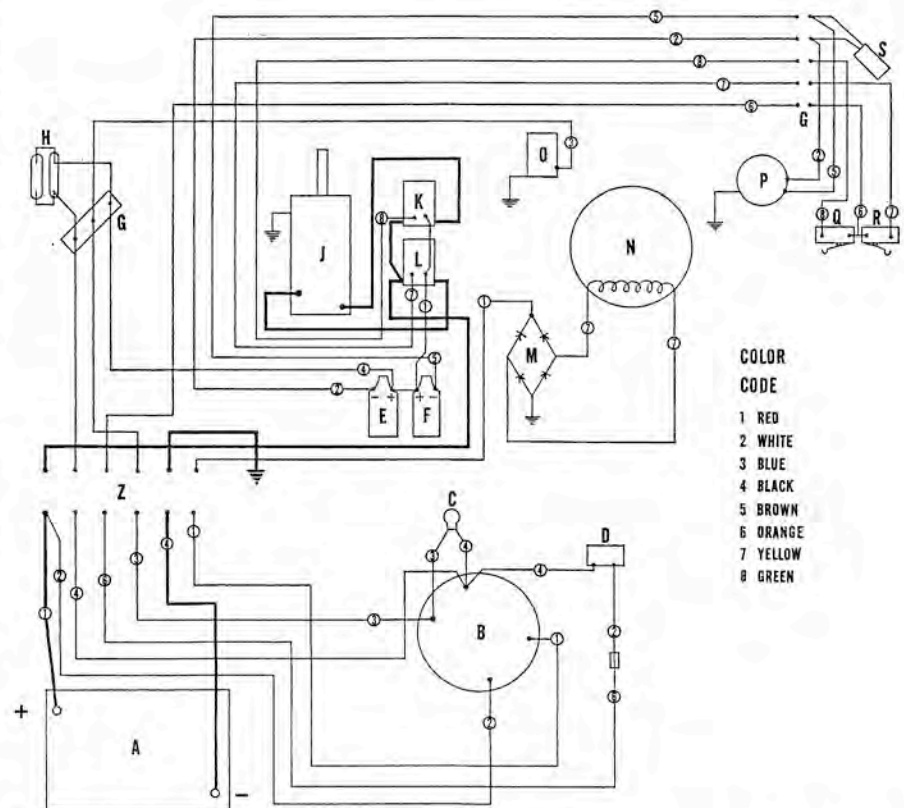


Fig. M113 — Wiring diagram used on Merc 600, 700 and 800 direct reversing models. Refer to Fig. M114 for legend.

OUTBOARD MOTORS

Mercury

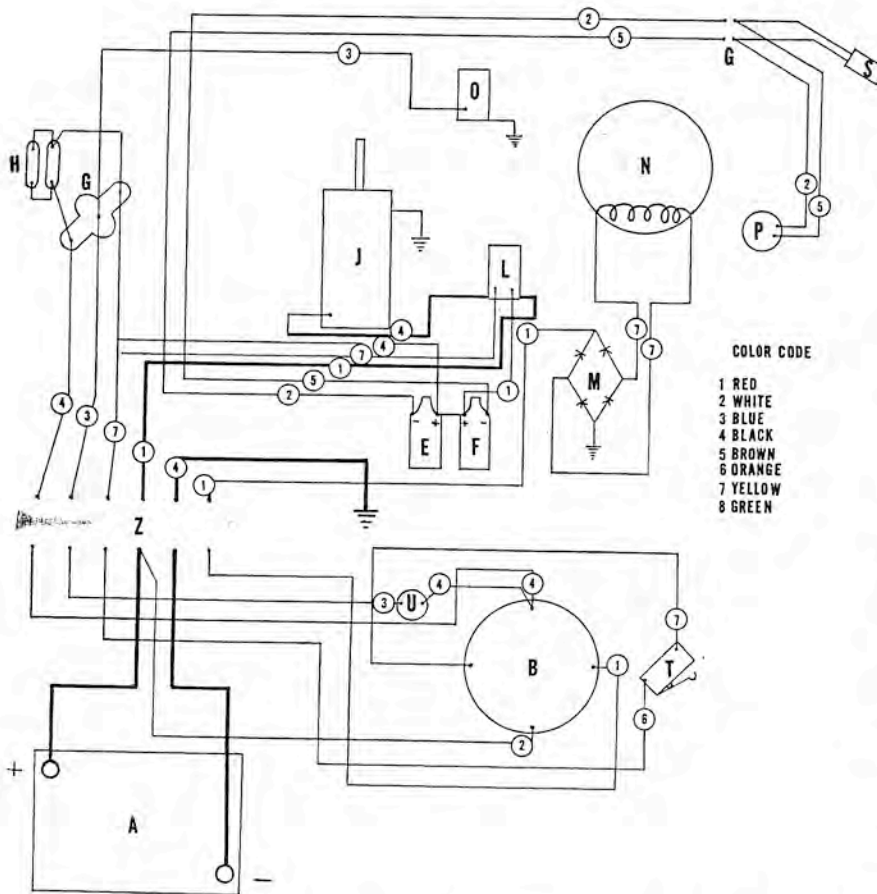


Fig. M114 — Wiring diagram used on Merc 600, 700 and 800 full gear shift models. Later models are similar except for terminal block and resistor wiring shown in Fig. M115.

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|--------------------|---------------------|-------------------|
| A. Battery | H. Resistors | P. Distributor |
| B. Ignition switch | J. Starting motor | Q. Reverse switch |
| C. Pilot light | K. Reverse solenoid | R. Forward switch |
| D. Starter switch | L. Starter solenoid | S. Mercury switch |
| E. Rear coil | M. Rectifier | T. Starter switch |
| F. Front coil | N. Alternator | U. Choke switch |
| G. Terminal block | O. Choke solenoid | Z. Connector |

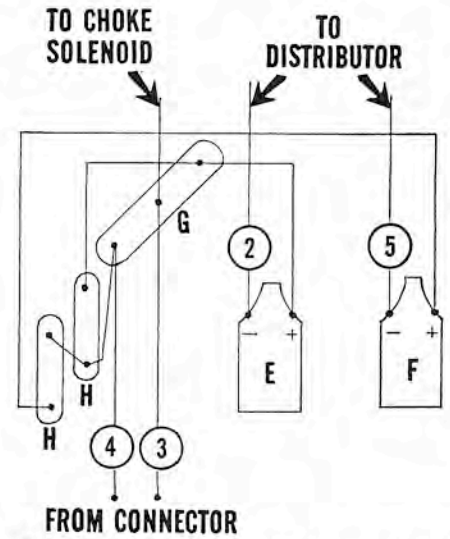


Fig. M115 — Diagram of wiring used for terminal block and resistor on late 700, 850 and 1000. Remainder of wiring is similar to that shown in Fig. M114.

newed. Reverse the test leads and repeat the series of tests. The readings should be similar to the first series of readings except reversed.

Repeat the two series of tests, using the other alternator (yellow) lead. The readings should be similar to those obtained in the first tests. If the two tests within any series result in similar readings, the rectifier must be renewed. High ohmmeter readings indicate an open diode while low readings indicate a burned (shorted) diode.

The positive ground rectifier used on early four-cylinder models is no longer available for service. If renewal is indicated, install the new-type negative ground rectifier, and reverse the battery leads before attempting to start the motor. Leave the yellow warning tag attached to rectifier or attach a warning notice of some sort, so that battery leads will not be again reversed.

PARTS DISTRIBUTION

If name and location of nearest MERCURY dealer is not known, write to Parts & Service Division, KIEKHAEFER CORPORATION, Beaver Dam, Wisconsin, for parts procurement information.