

SCOTT

McCULLOCH CORPORATION
6101 West Century Blvd.
Los Angeles 45, Calif.

ELECTRICAL SYSTEM

BATTERY

A six volt battery is used on some early models with electric starting attachment. Models equipped with alternator-generator use 12-volt battery. The negative battery cable is grounded on all models. Make sure battery is securely fastened and in a safe location in the boat. Battery must be located so it will not be in path of motor when fully tilted.

IMPORTANT: Always remove battery from boat for charging. Disconnect the battery cables when boat is not being used.

STARTER

Delco-Remy starting motors are used. Many motors are equipped with limit, or safety switches which prevent activating the starter when throttle or shift lever is in an improper position. Consider and check such switches when overhauling starting circuits. Test specifications are as follows:

6-Volt Starter

Brush spring tension (oz.).....	22-32
No-Load Test	
Volts	5.9
Maximum Amperes	85
RPM	9750

12-Volt Starter

Brush spring tension (oz.).....	37 min.
No-Load Test	
Volts	11.0
Maximum Amperes	39
RPM	11000

Lock Test

Volts	7.0
Minimum Amperes	305
Torque (Ft.-Lbs.)	4.0

The Starting Motor uses a Delco-Remy Inertia Type Drive as shown in Fig. Mc155. The drive assembly contains a rubber cushion to absorb the shock of pinion engagement. When assembling starter drive on the armature shaft, clean the spiral grooves and lubricate with 30W or 10W-30 motor oil.

Insert lower end of drive return spring in hole in lower end of spiral groove. Install drive assembly to bottom of spiral in full disengaged position while holding spring out of way; then wind the return spring 3/4-turn and insert upper end hook in one of the four holes in lower side of drive plate. This procedure establishes the necessary preload for drive disengagement. Install pinion stop collar and snap ring to complete the assembly. When installing the starter assembly, shim the mounting screws if necessary, to provide 0.025-0.030 clearance between pinion teeth of drive assembly and teeth of flywheel ring gear when starter is engaged.

ALTERNATOR

A flywheel type alternator-generator is used, either in combination with the magneto as shown in Fig. Mc115; or with battery ignition as shown in Fig. Mc117. Generator output is a regulated 18-20 amperes on early 3-cylinder motors; or 10-12 amperes on late 3-cylinder motors without regulator. Output of alternator on 2-cylinder models is 5-6 amperes.

Whenever trouble is encountered anywhere in the charging circuit, the entire system should be checked. Malfunction of one part may damage other components, which could result in early or immediate failure of a newly installed part. Refer to POWERHEAD Section for the particular motor for procedure in removing flywheel, and for re-timing of ignition system when re-installing.

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 a 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 while motor is in operation, or by an open generating circuit caused by a broken wire or a loose or open connection.

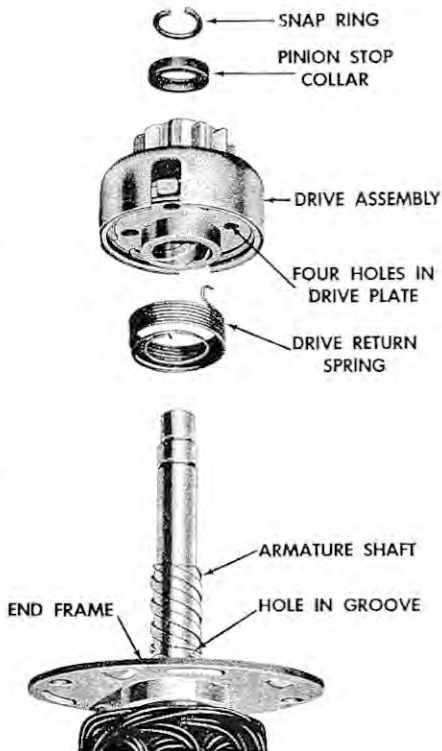


Fig. Mc155 — Exploded view of Delco-Remy Inertia Type starter drive, showing component parts.

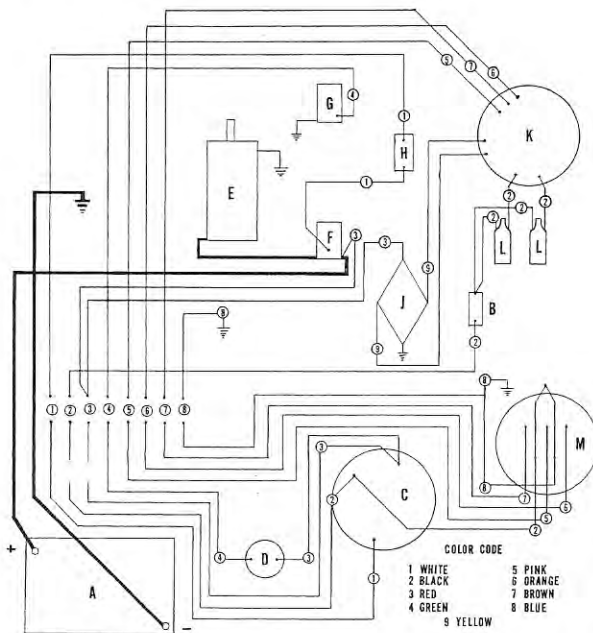


Fig. Mc156—Wiring diagram of electrical system typical of that used on Royal Scott motors. Refer to Fig. Mc157 for legend.

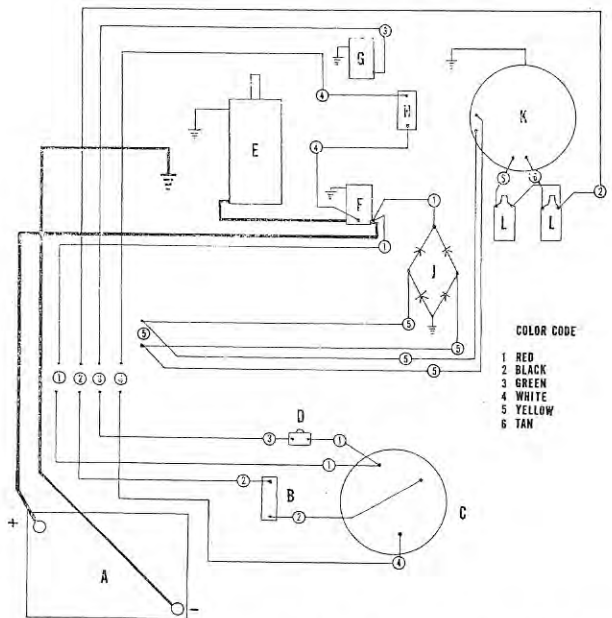


Fig. Mc158 — Wiring diagram of electrical system used on 1961 Sport Scott. Refer to Fig. Mc157 for legend.

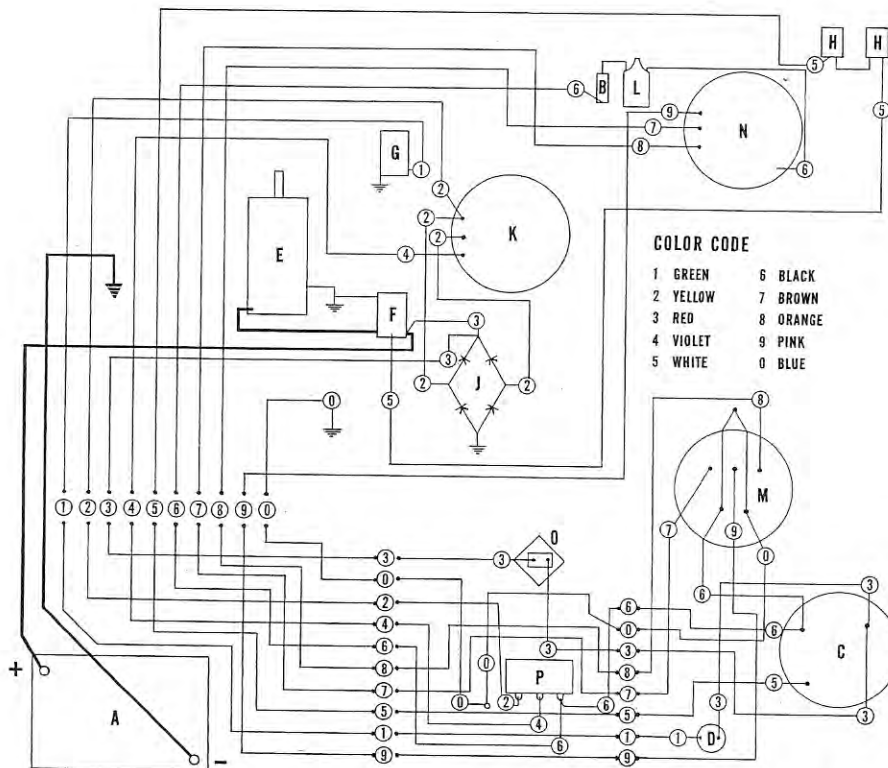


Fig. Mc157 — Wiring diagram used on Flying Scott Electric models with voltage regulator. Except for regulator, other models are similar in most respects.

- | | | | | |
|---------------------|---------------------|-------------------|------------------|--------------------|
| A. Battery | D. Choke switch | G. Choke solenoid | K. Alternator | N. Distributor |
| B. Ballast resistor | E. Starting motor | H. Limit switch | L. Ignition coil | O. Circuit breaker |
| C. Ignition switch | F. Starter solenoid | J. Rectifier | M. Tachometer | P. Regulator |

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 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 probe 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 renewed. Reverse the test leads and repeat the series of tests. The readings should be similar 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 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.

When renewing the rectifier, be careful not to damage the coating of the washers or connections to through-bolt.

ELECTRICAL CIRCUITS

Refer to Figs. Mc156, Mc157 and Mc158 for wiring diagrams typical of those used.