QUICKSILVER®
MARINE PARTS AND ACCESSORIES

service bulletin

No. 91-1

Generator Service Literature – Corrections and Additions

Gas Generator Service Manual 90-813719 688
Diesel Generator Parts Manual 90-19831 Rev. June 89

The February/91 (Volume 5 Issue 2) IQ – Inside Quicksilver announced that Generac will be assuming all sales, marketing, distribution and service for the Quicksilver line of marine generators as of April 1, 1991. In this new capacity, Generac will be responsible for generator service manuals and will be rewriting and re-issueing the service manuals for both the gas and diesel powered generators.

We have noted several errors and omissions in the current gas service manuals. Corrections and additions are underlined. We suggest that you mark the following changes and add the new pages in your Quicksilver Gas Generator Service Manual to assure that you have all of the latest information for the start of the '91 boating season. These corrections will be included in the new Generac service manuals.

Service Manual Number 1
Gas Models 90-813719 688

PAGE 4: 1.2.1

B **Frequency Meter:-** This test device will permit its user to read alternating current (a-c) frequency in HERTZ (cycles per second). Unless the generator frequency is known, precise adjustment of engine and generator speed cannot be accomplished. See Paragraph 1.2.2 ROTOR ROTATIONAL SPEED, and relationship of Voltage and Frequency, Paragraph 1.2.3.

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C **Insulation Resistance Tester:-** Also called a "HI-POT", this device will permit its user to test generator Stator and Rotor winding insulation for breakdown. See Paragraph 1.2.7, EFFECTS OF DIRT AND MOISTURE ON GENERATORS. Use the Hi-Pot to test resistance between parallel stator windings, between isolated windings, and the resistance of all windings to ground.

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C Connect an accurate a-c VOLTMETER and FREQUENCY METER across terminals of Stator a-c power output leads 11 and 22. Make sure leads are not touching any part of generator, then start the generator engine. Let engine stabilize and warm up. Then, read the indicated a-c voltage and frequency. Repeat test with test leads connected across leads 33 and 44. Readings should be as follows:

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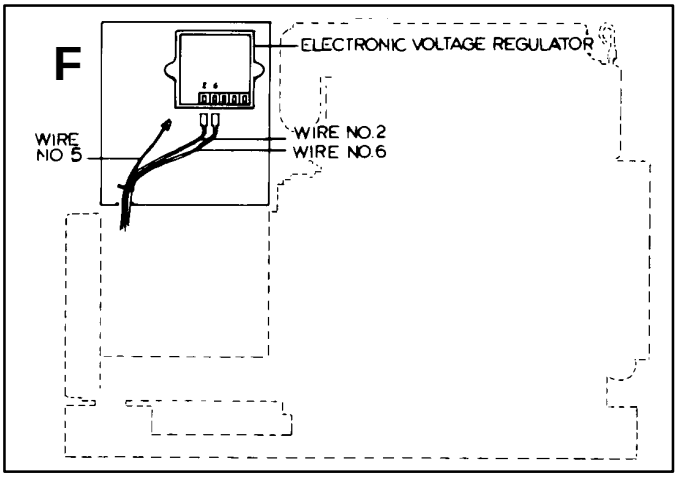

ohmeter across terminal ends of Wires 6 and5. Meter needle should indicate Stator Excitation winding resistance, as follows (plus or minus 10%):-

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J **Test Rotor Resistance:-** To prevent interaction, disconnect Wires 1 and 4 at brushes. Connect positive (+) lead of an ohmmeter to the positive (+) slip ring, common test lead to the negative (-) slip ring. Meter should indicate the following:

Model QS-4.0G ..... 6.6 ohms

Other Models ..... 7.4 ohms

All readings plus or minus 10%

Test for Shorted Slip Rings:- There should be no continuity between slip rings and rotor shaft.

RESULTS:

1. Tests GOOD ..... Go to Step K

2. Checks BAD ..... Replace Rotor & Test

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C If necessary, adjust the engine governor as follows:
-Loosen No-Load Bumper Screw so governor is not preloaded. See illustration C.

1. Adjust the NO-LOAD SPEED ADJUST SCREW to obtain a frequency reading as close as possible to 61.5 Hz (60 Hz units); or to 50.0 Hz (50 Hz units).
2. Adjust the NO-LOAD BUMPER SCREW to obtain a frequency of 62 Hz (60 Hz units); or 51 Hz (50 Hz units).

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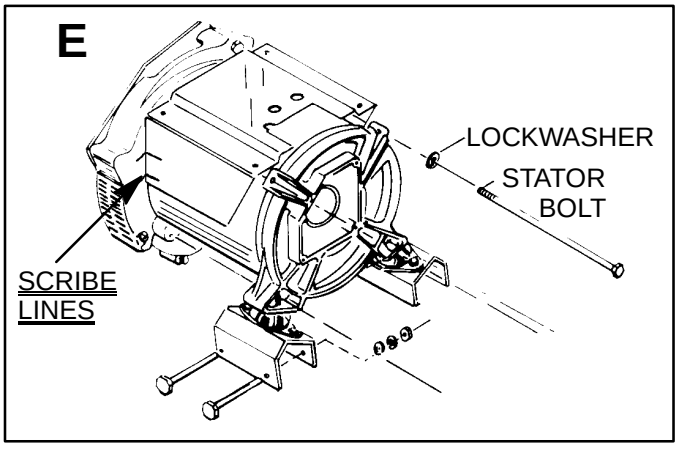
E The STATOR ASSEMBLY is “sandwiched” between the BLOWER HOUSING and the REAR BEARING CARRIER by means of four long STATOR BOLTS. Remove all four STATOR BOLTS, along with four LOCKWASHERS.

Scribe match mark lines on blower housing and stator prior to removal of stator bolts to assure accurate reassembly.



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PAGE 18A: SECTION 1.5

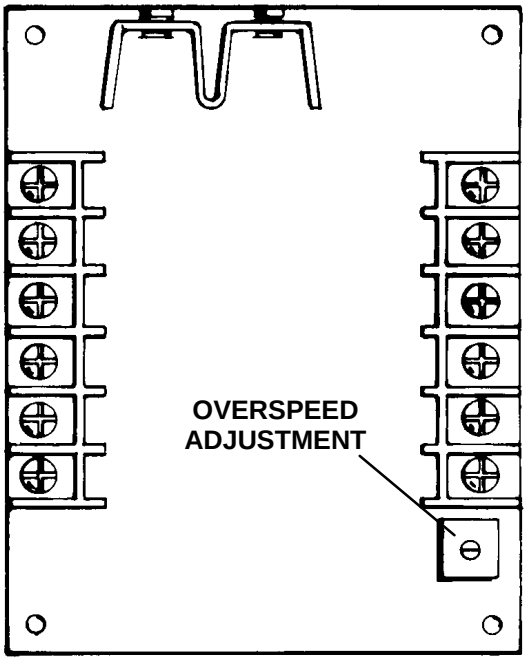
Overspeed Shutdown Adjustment

If the engine governor was reset to 50 Hz , adjustment of the OVERSPEED potentiometer on the Engine Control circuit board is required. This overspeed device is intergrated into the Engine Control circuit board and provides protection against over-frequency and over-voltage, which can damage some electrical devices. To adjust overspeed shutdown, proceed as follows:

Remove connection panel front cover to gain access to the AC POWER OUTPUT TERMINAL STRIP. Connect an a-c frequency meter across terminals 11 and 22.

G To gain access to the Engine Control circuit board, remove six SCREWS and pull the CONTROL PANEL COVER free of the PANEL.

H Use Throttle Lever to slowly manually increase engine speed until the connected frequency meter reads 70 Hz (60 Hz units); or 60 Hz (50 Hz units). Then, turn OVERSPEED potentiometer on Engine Control circuit board slowly counterclockwise (CCW) until the engine shuts down. BE SURE TO TURN SLOWLY. DO NOT PUSH AGAINST POTENTIOMETER WITH EXCESSIVE FORCE.

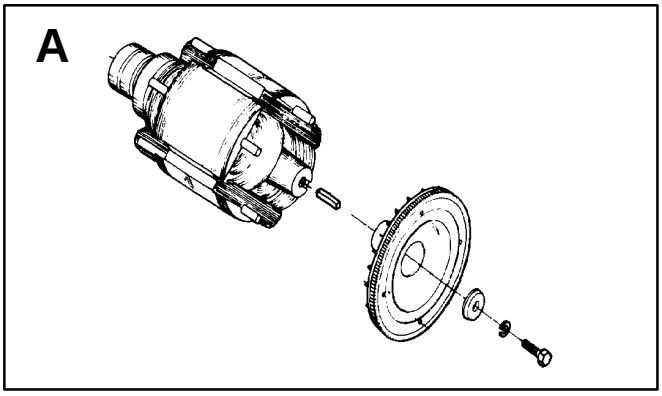


H Overspeed Adjustment

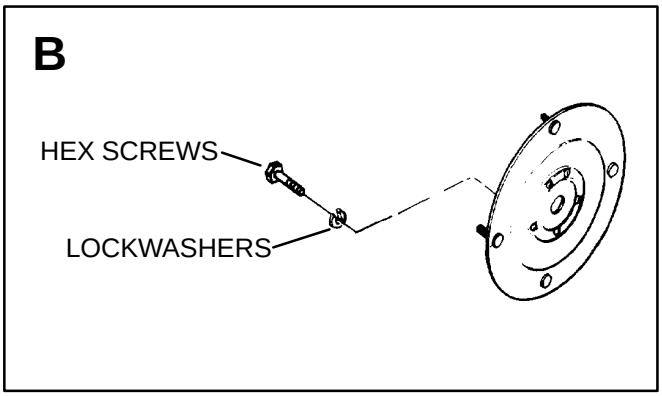
NOTE: The overspeed adjustment must be checked and reset as necessary if the Engine Control circuit board is replaced.

1.9.1 - Install Engine Plate, Fan & Ring Gear and Coupling Plate

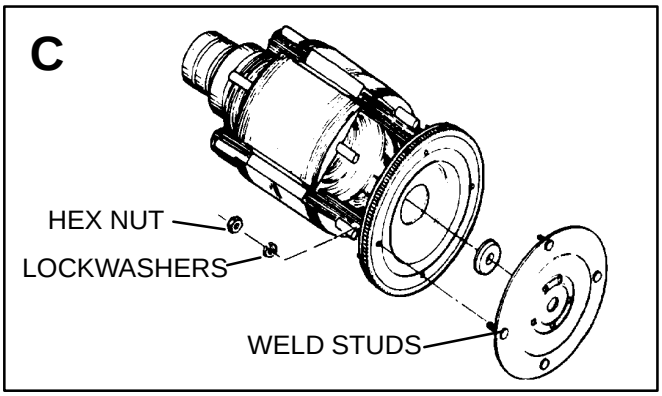
A Install KEY into Rotor Shaft KEYWAY. Carefully align FAN & RING GEAR with ROTOR shaft and install. Install Rotor Shaft SPACER. Retain SPACER and FAN & RING GEAR toROTOR SHAFT with M12 LOCK-WASHER and M12 x 40mm HEX BOLT. Tighten HEX BOLT to 39-41 foot-pounds (53-56 N.m).



B Retain COUPLING PLATE to ENGINE using five M10-1.25 x 20mm HEX SCREWS and LOCKWASH-ERS. Tighten HEX SCREWS to 28-30 foot-pounds (38-42 N.m).



C Secure FAN & RING GEAR to COUPLING PLATE, using four BOLTS, HEX NUTS and LOCKWASHERS. Tighten HEX NUTS to 28-30 foot-pounds (38-42 N.m).



D Retain ENGINE PLATE to ENGINE, using M8-1.25 HEX SCREWS, LOCKWASHERS, FLATWASHERS and HEX NUTS. Note locations of shorter (20mm) and longer (45mm) HEX SCREWS. Tighten to 11-13 foot-pounds (15-18 N.m).

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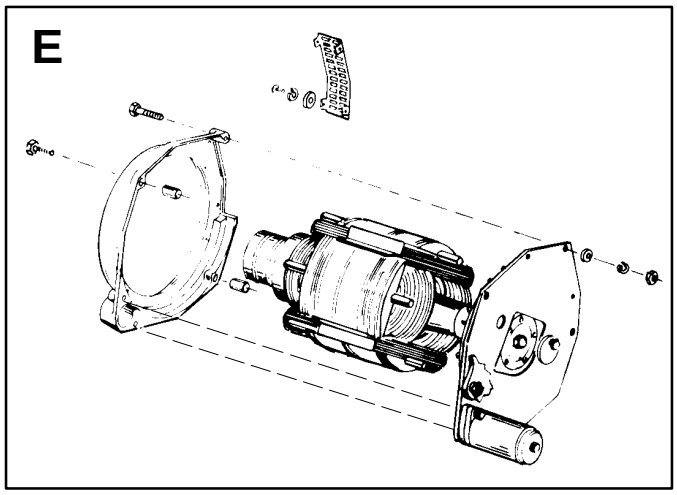
1.9.2 - Install Blower Housing

E Retain BLOWER HOUSING to ENGINE PLATE, using M10-1.50 HEX SCREWS, FLATWASHERS, LOCKWASHERS and HEX NUTS. Dowel sleeves ensure proper alignment. Note locations of shortest (55mm) and longest (70mm) HEX SCREWS. Tighten HEX NUTS to 28-30 foot-pounds (38-41 N.m).

Retain starter adaptor and starter to blower housing (1.2L).



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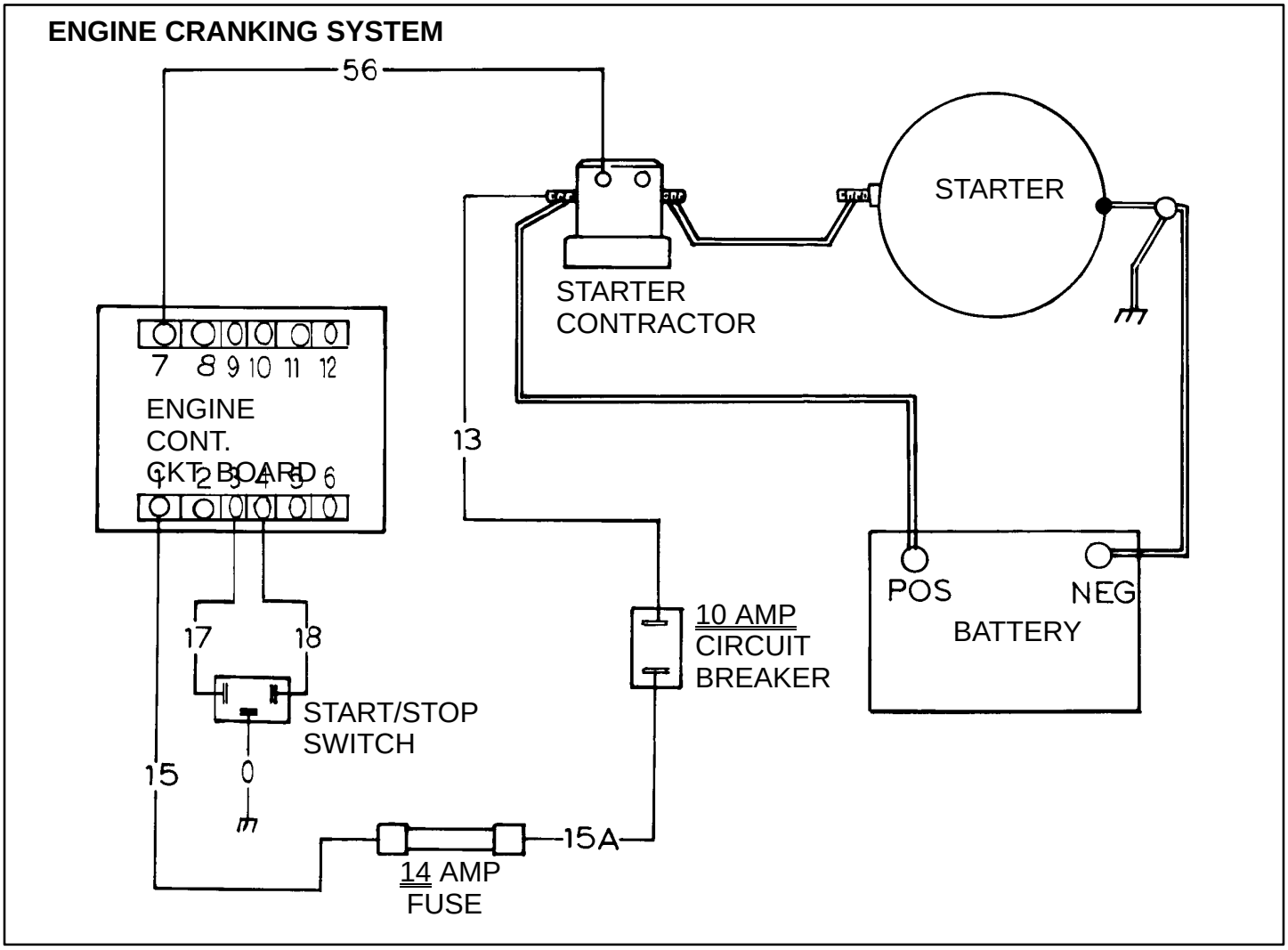

CONTROL PANEL AND CONNECTION BOX

PART NO.	REF. NO.	DESCRIPTION	QUAN.
810676	43	VOLTAGE REGULATOR	1
10-810668	37	SCREW (M4x12MM)	4
11-810674	38	NUT	4
811068	39	SOUND BLANKET, side	2
811066	40	SOUND BLANKET, top and bottom	2
811067	41	SOUND BLANKET, back	1
811064	42	TUBE	1
810658	36	PC BOARD	1
811063	44	CONTROL BOX	1
37-810563	45	DECAL (QUICKSILVER)	1
810549	46	DATA PLATE	1
17-810499	47	POP RIVET	4
10-811061	48	SCREW (M5-0.8x30MM)	2
13-811060	49	LOCKWASHER	1
84-811516	50	WIRING HARNESS	1
810303	51	FUSE HOLDER	1
88-810146	52	FUSE (14AMP)	1
11-811132	53	NUT	2
10-810122	54	SCREW	4
88-810126	55	CIRCUIT BREAKER	1
13-811075	56	LOCKWASHER	2
11-810127	57	NUT	2
11-810703	58	NUT	2
11-810702	59	NUT	2
13-810653	60	LOCKWASHER	2
12-810863	61	WASHER	2
810436	62	RELAY	1
10-810730	63	SCREW	1
13-810714	64	LOCKWASHER	1
84-810145	65	WIRE	2
810304	66	BRACKET — OLD DESIGN	1
10-810437	67	SCREW — OLD DESIGN	2
84-810444	68	WIRE ASSEMBLY, resistor	1