



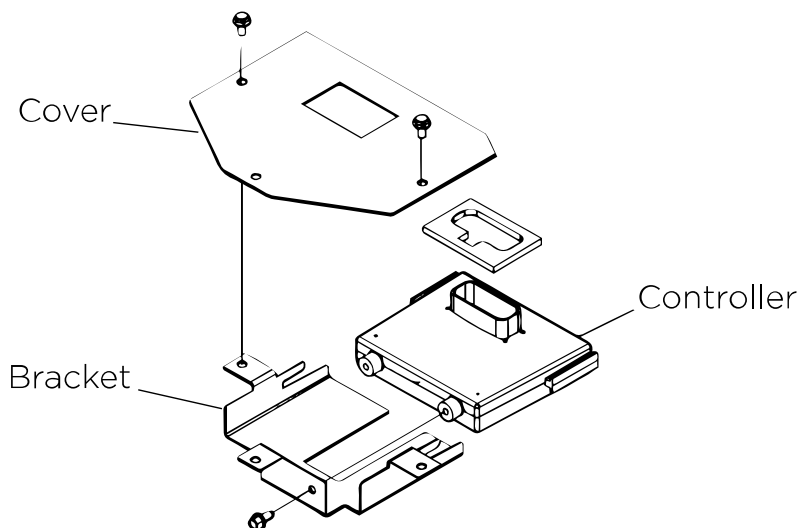
FLIGHT SYSTEMS, INC

56-5961-00

User's Manual

Table of Contents

3	 Installation
	Unpacking and Inspection
	Setup
4	 Voltage Adjust
4	 Overview and Features
5	 Troubleshooting
7	Fault Codes
10	 Warranty Information
11	Repair and Technical Support



Installation

Unpacking and Inspection

Be careful when unpacking your new controller so that nothing is damaged. Do not expose your controller to static shock prior to or following installation. Our products ship with the controller and the users manual.

Setup

The controller is accessible for replacement through the front access door. The housing for the controller is located in the generator intake cover. Start by disconnecting the connector cable to the old control board. Then remove the three 10mm bolts on the cover of the housing. Once the cover has been removed the controller and bracket can be lifted from the generator intake cover. Unbolt the single 10mm hex thread bolt threaded into the plastic foot of the old controller. **DO NOT IMMEDIATELY INSTALL THE 5961 AFTER UNINSTALLING THE OLD UNIT!** Be sure to check the OEM part number on the original unit after uninstalling. If the old unit matches the 56-5961-00 you can install it into the bracket and thread the bolt through the plastic foot. **AFTER THREADING THROUGH THE PLASTIC FOOT ON THE 5961 IT IS CONSIDERED INSTALLED, VOIDING THE 30-DAY RETURN POLICY!**

Voltage Adjust (within 20 seconds after startup)

Press start 6 times; the status light will begin blinking to signal the genset is now in voltage adjust mode.

- Short press the start to increase voltage
- Long press, (more than 2 seconds) the start to decrease voltage

Wait for the status light to stop flashing. If the generator goes into alarm before status light times out the voltage setting will not be saved.

Overview and Features

- Exact replacement for Onan® 300-5961 and 327-1501 control modules
- Improved circuit design over OEMs
- Over-sized heatsink for cooler operation
- Encapsulated in automotive grade urethane and is fully repairable
- Contains fault code system for easy troubleshooting
- Advanced detection system checks condition of brushes, sliprings, and rotor while cranking. Generator will be prevented from running if damage is likely.
- Communication port for connection to Flight Systems 327v2 modem. Allows for remote monitoring and remote start, (may not be available upon initial release).

The 56-5961-00, (as with all Flight System built devices) comes with a 2-year warranty and a 30-day return policy upon initial purchase of the product.

Troubleshooting

Fault Code Blinking

At fault shutdown, the status indicator light will repeatedly blink in sets of 1, 2, 3, or 4. Blinking will continue for 5 minutes and then stop. To restore the blinking press the control switch to STOP until the light comes on, (3-4 seconds). Then press STOP 3 times to restore the blinking.

One Blink indicates a shutdown due to high engine coolant temperature.

Two Blinks indicates a shutdown due to a loss of engine oil pressure.

Three Blinks indicates a service fault. Press STOP once to cause the two-digit second level code to blink. The two-digit code consists of 1-5 blinks, a brief pause, and then 1-9 blinks. The first set of blinks represents the tens digit and the second set of blinks represents the units digit. For example, shutdown code No. 36 would be:

blink-blink-blink

-pause-

blink-blink-blink-blink-blink-blink

-long pause and repeat-

Four Blinks indicates that cranking time exceeded 35 seconds.

Solid Light while Cranking

Causes: open field or high resistance, be sure to check your slip rings and bushes for continuity

No Response at Control Switch

Causes: faulty switch, poor connections, missing connections, or dead battery

Starter Engages and Disengages

Causes: low cranking voltage

Starting Batteries Don't Maintain a Charge

Causes: marginal battery, battery connections, or charging system

No AC Power While Controller is Running

Causes: a circuit breaker is off, tripped or malfunctioning, or there are poor AC harness connections

Engine Surging Without Fault Shutdown

Causes: fuel leaks, restrictions or air bubbles, worn slip rings/brushes, misadjusted or faulty governor, worn generator bearing

Fault Codes

No. 1 – Engine Over Temperature

During normal operation engine coolant temperature exceed 239° F/115° C for 10 seconds.

No. 2 – Low Oil Pressure

During normal operation engine oil pressure dropped to less than 14 psi for 3 seconds.

No. 3 – Service Check

A second-level fault occurred.

No. 4 – Over Crank

First-level fault code, cranking time exceeded 35 seconds.

No. 12 – Over Voltage

After voltage regulation was enabled Output Voltage jumped to more than 150VAC (125% of rated) for 75 milliseconds or to more than 138VAC (115% of rated) for 3 seconds.

No. 13 – Under Voltage

After voltage regulation was enabled Output Voltage fell to less than 108VAC (90% of rated) for 5 seconds.

No. 14 – Over Frequency

After the starter was engaged frequency jumped to more than 70Hz for 40 milliseconds or to more than 66Hz for 6 seconds.

No. 15 – Under Frequency

During normal operation frequency fell to less than 54Hz for more than 8 seconds.

No. 19 – Actuator Shorted or Open

At startup the controller sensed an open or shorted governor actuator/harness.

No. 22 – Actuator Overload

Due to connected overload or low engine performance, the controller maintained the governor actuator at full-duty cycle, (maximum PWM for 60 consecutive seconds).

No. 24 – Faulty Engine Temperature Sender

After 10 minutes of normal operation the controller checked for and sensed an open temperature sender/harness.

No. 27 – VAC Sense Lost

The controller lost VAC sensing during normal voltage regulation when the field was functioning normally and frequency was at least 40Hz.

No. 29 – High Battery Voltage

During startup the controller sensed that battery system voltage was greater than 19.2 volts for 5 milliseconds or greater than 19.2 volts for 1 second while running.

No. 32 – Starting Fault

The controller could not detect cranking speed, (quadrature zero crossing) for 12 seconds.

No. 35 – EE Checksum Fault

During startup the controller detected an EE memory error.

No. 36 – Mechanical Fault

The controller declared this fault because engine speed fell below 1000 RPM for .5 seconds, though not by controller action.

No. 38 – Field Overload

During normal voltage regulation field voltage exceeded 180VAC for 10 seconds.

No. 41 – Generator Rotor Short

While field flashing during cranking, the controller sensed that the rotor circuit was shorted to ground.

No. 42 – ROM Fault

During startup the controller detected a ROM memory error.

No. 43 – RAM Fault

During startup the controller detected a RAM memory error.

No. 45 – Speed Sense Lost

After start disconnect the controller lost speed sense (quadrature zero crossing) for .25 seconds.

No. 48 – Loss of Field Sense

The field sense circuit on the controller circuit board failed during normal voltage regulation.

No. 57 – Over Prime

The local or remote control switch was held in the prime position for more than 3 minutes.

Warranty Information

This Flight Systems manufactured replacement controller is warranted to be free from defects in materials and workmanship for a period of two years from the date it was sold.

Flight Systems Limited Warranty covers the repair or replacement of defective products within the warranty period. It does not cover the cost of installation, removal costs incurred, or possible damage to other equipment (including the generator or parts thereof) as a result of this product.

Flight Systems (or its authorized agent) shall reserve the right to determine the cause of malfunction. If we determine that it was due to abuse, misuse, improper installation, acts of nature (such as storm), failure to perform recommended genset maintenance procedure or problems elsewhere in the genset, the warranty claim shall be dissolved and established standard repair rates apply.

Flight Systems 30-Day Return Policy is only valid for 30 days after initial purchase of any Flight Systems product. Installation of any products will result in termination of the 30-Day Return Policy on that product. Refund/Credit issued shall be less a 25% per item restocking and testing fee as long as the product is in new undamaged condition. Shipping charges are non-refundable.

Repair and Technical Support

If this product suffers a failure when out of warranty it can be rebuilt. As with all generator controllers rebuilt by Flight Systems a one-year warranty will be issued upon repair.

Be sure to fill out then print our Repair Shipping Form at FlightSystems.com and include it with any repairs. Repairs can be shipped to:

Flight Systems
207 Hempt Road
Mechanicsburg, PA 17050 – Attn: Repair

Any repairs not sent with sufficient contact information will remain on a hold shelf for no more than 6 months from the date received before being recycled by Flight Systems.

Technical support is also available by phone or online for all Flight Systems products:

Phone: 717-590-7330
Email: techs@flightsystems.com
Open Monday-Friday, 8am-5pm EST





This manual is provided courtesy of **RV Tech Cheat Sheet**



Professional resources for the whole RV industry — free.

We put manuals, wiring diagrams and hard-won tech knowledge in every technician's hands, so repairs get done right the first time, techs work faster, and RV owners everywhere get better service.



rvtechcheatsheet.com/manuals

Find thousands more RV manuals, wiring diagrams and parts lists

RV techs: share fixes, ask questions and learn from each other.

Join our free Facebook group →



Follow proper safety practices. If in doubt, consult a professional RV technician.