



INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

**AIRCRAFT MANUAL SUPPLEMENT**

**INSTRUCTIONS FOR CONTINUED  
AIRWORTHINESS**

**FOR**

**PLANE POWER, Ltd.**

**CONVERSION KIT TAL12-70**

**for**

**ALTERNATOR and R1224**

**ALTERNATOR REGULATOR**



## INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

### NOTE:

Insert these Instructions for Continued Airworthiness into the Instruction for Continued Airworthiness section of the aircraft's maintenance manual.

Contact Plane Power for revision status of these Instructions for Continued airworthiness.

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<b>Revision Status</b>	<b>Effective Date</b>	<b>Approval</b>
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**Future revisions will be denoted by revision bars at the side of the page.**

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INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

**MODEL TAL12-70  
ALTERNATOR CONVERSION KIT FOR 12 VOLT TWIN ENGINE AIRCRAFT  
WITH LYCOMING ENGINES**

<b>MANUFACTURER</b>	<b>AIRCRAFT MODEL</b>
Alliance Aircraft Group, LLC.	Helio 500
KWAD Co.	Super-V
The New Piper Aircraft, Inc.	Piper PA-23, PA-23-160, PA-23-235, PA-23-250, PA-E23-250
The New Piper Aircraft, Inc.	Piper PA-30



## INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

### INTRODUCTION:

This manual supplement is prepared to provide instructions on the maintenance and adjustment of the Plane Power, Ltd., MODEL TAL12-70 with R1224 Voltage regulator kit: BELT DRIVEN ALTERNATOR CONVERSION FOR TWIN ENGINE AIRCRAFT WITH LYCOMING ENGINES.

### DESCRIPTION:

The Plane-Power, Ltd alternator part number 10-1051 is a light weight alternator with improved power output at lower RPM.

The Plane Power, Ltd., R1224 Voltage Regulator is a solid state electronic alternator voltage regulator with built in over-voltage protection.

### MAINTENANCE INSTRUCTIONS:

Maintenance operations will commence when there is a Pilot report that the voltage level on the aircraft does not meet the aircraft manufacturer's requirement. The alternators should be inspected for loose or broken belts, that the alternator shafts move freely with no unusual noise. If the installation was loose, repair and test for proper operation.

If the alternator outputs are not satisfactory, the voltage settings should be adjusted by following the instructions given on Plane Power Ltd., document 12-1001. This document is in the voltage regulator Instructions for Continued Airworthiness (37003-06).

If the regulators cannot be adjusted to the manufacturers specification, the regulators must be returned to the factory for repair.

### PERIODIC MAINTENANCE:

It is recommended that the operation of the Plane Power, Ltd., 10-1051 alternators be checked every 100 hour inspection or every annual inspection whichever ever comes first.

#### ANNUAL/100 HOUR INSPECTION-

Remove drive belts and turn alternator rotors to check condition of bearings for abnormal noise or roughness.

#### 5 YEAR OR 1000 HOUR INSPECTION

1. Repeat the Annual/100 hour inspection.
2. Remove field brush assemblies and inspect brushes for excess wear. Replace brush assemblies if brushes extend less than 0.250 inches from edge of holder case.



## INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

Each annual/100 hour inspection, the alternators and their associated wiring should be checked for secure electrical connections and physical connection to the airframe. The belt drive tension should be re-set to the aircraft manufacturer's specification.

For re-assembly convenience, the installation instructions are listed on pages 6 and 7.

The voltage regulator maintenance instructions are in Plane Power Ltd. document 37003-6, and those inspections should be concurrent with those of the alternators.

No special tools are required.

## AIRWORTHINESS LIMITATIONS

There are no mandatory replacement limits. There are no mandatory structural inspection intervals.

THE AIRWORTHINESS LIMITATIONS SECTION IS FAA APPROVED AND SPECIFIES MAINTENANCE REQUIRED UNDER SEC. 43.16 AND 91.403 OF THE FEDERAL AVIATION REGULATIONS UNLESS AN ALTERNATIVE PROGRAM HAS BEEN FAA APPROVED.



## INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

### Part 1, Installation of Alternator and Regulator

1. Disconnect aircraft battery.
2. Remove Generators and voltage regulators.
3. Install Alternators per drawing on pages 6 and 7. Tension the belts and torque the AN5H-5A adjusting bolts to 200 in/lb and safety wire with 0.032" diameter safety wire. Torque the AN7-42A mounting bolts to 425 in/lb.
4. **Ensure that internal jumper #1 and internal jumper #2 of each R1224 regulator are set for 14V operation** (See data sheet 12-1001 for location of jumpers). Install the R1224 regulators in a convenient location for wiring, preferably in the location of the removed regulators.
5. If original output circuit breakers are rated at less than 70-amps and you wish to be able to utilize the increased capacity of the alternators, remove the breakers and replace with suitable breakers up to 70amp maximum size. **Ensure wire size from alternator output terminal to output circuit breakers and from output circuit breakers to bus is rated for more than the size of breakers installed per AC43.13-1B.** **Note: If aircraft has been equipped with an Amp Meter, ensure that it is of adequate size to handle the increased output capability before increasing the output wire and breaker.**
6. Wire the system as follows (refer to page 7 of this document) :
  - a. Connect the GRND terminal of each regulator to the common aircraft ground.
  - b. Leave the ground jumper installed on the F2 terminal of the alternator.
  - c. Connect the existing generator output wires to each alternator's 6mm OUTPUT TERMINAL (or install a new wire in accordance with AC43.13-1B) using a MS25171-2S terminal nipple for insulation (Not Supplied). Torque to 50 in/lb. (See step 5 above)
  - d. Use the original generator field wire or install a new wire, minimum 18AWG, from each alternator F1 terminal to the FLD terminal of the corresponding regulator. Torque the alternator's F1 terminal nut to 20 in/lb.
  - e. **ENSURE THAT A 5AMP CIRCUIT PROTECTION DEVICE IS INSTALLED IN SERIES WITH, OR IS PART OF, THE FIELD SWITCH FOR EACH ALTERNATOR.** (This is commonly the original generator Field switch & breaker.) Use the existing wire from the switch/breaker or install a new wire, minimum 18AWG, to the ENABLE terminal of the corresponding regulator. Install, in view of the pilot, placard ALP-1004 (LEFT ALT FIELD) adjacent to the field switch for the left alternator and placard ALP-1005 (RIGHT ALT FIELD) adjacent to the switch for the right alternator.
  - f. Ensure that the other end of each of the FIELD switches/breakers are connected to the aircraft positive bus.
  - g. Connect the OUT terminal of the LEFT alternator regulator to the IN terminal of the RIGHT alternator regulator.

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- h. If the aircraft has "Generator Inoperative" indicator lamps, they may be used in this step. If lamps are not currently installed use the supplied lamps P/n 14-1010 Alternator Inoperative Lamp (14 Volt) and install them in pilots clear field of view.
  - i. Connect one wire of each lamp P/n 14-1010 to a 1 amp fuse or circuit breaker and connect the other wire of each lamp to the LAMP terminal of the corresponding regulator using minimum #22AWG wire. (Note: If the original generator lamps are used either of the lamp wires may be installed to the fused circuit and lamp terminal.) Install, in view of the pilot, placard ALP-1002 (LEFT ALT INOP) adjacent to the lamp for the left alternator and placard ALP1003 (RIGHT ALT INOP) adjacent to the lamp for the right alternator. Also run a new wire, minimum 18AWG, from the AUX terminal of each alternator to the AUX terminal of the corresponding regulator. (See wiring schematic below).
7. Adjust and Test the system:
- a. Set both FIELD switches to OFF.
  - b. Turn on MASTER switch and start the engines. Ensure that both ALT INOP indicators are illuminated.
  - c. Turn on the LEFT FIELD switch. Check proper charging indication. Check left ALT INOP indicator is off. Check aircraft maintenance manual for proper bus voltage (typically  $14.0V \pm 0.3V$ ). Adjust the left (Master) regulator to the desired bus voltage at 1200 engine RPM.
  - d. Turn off the LEFT FIELD switch and turn on the RIGHT FIELD switch. Check proper charging indication. Check right ALT INOP indicator is off. At 1200 engine RPM Adjust the right (Slave) regulator to the same bus voltage as left alternator.
  - e. Turn on the LEFT FIELD switch.
  - f. Check proper charging indication. Check bus voltage.
  - g. Recheck and inspect the entire installation, and make a log book entry.
  - h. For additional troubleshooting information, see the regulator data sheet 12-1001.

### Installation & Wiring Diagram

