

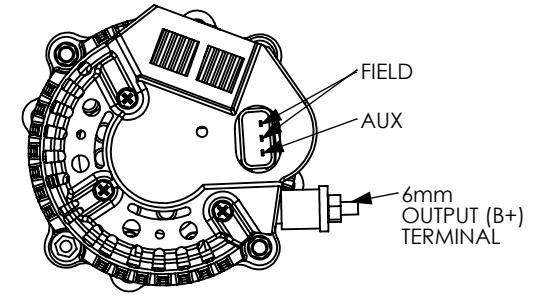
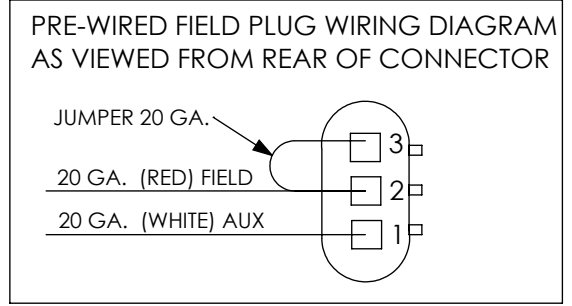
REVISIONS				
ECO	REV	DESCRIPTION	BY	DATE
EN-1409062	D	FIRST RELEASE INTO HET DESIGN DATA	BJ	9/11/14
EN-1409063	E	1) TITLE BLOCK WAS PLANE-POWER, LTD. 2) "HARTZELL ENGINE TECHNOLOGIES LLC" WAS "PLANE-POWER, LTD" 3) MODEL NO. 11-1008 WAS ER14-50 4) ADDED 11-1029 CALLOUT TO DATA TAG 5) REMOVED "PLANE POWER" FROM INSTRUCTIONS WHERE APPLICABLE	BJ	9/11/14
124999	F	1) ADD WIRING DIAGRAM; 2) REMOVE LABEL VIEW	AWB	07/02/18

14 VOLT 50 AMP GEAR DRIVEN ALTERNATOR

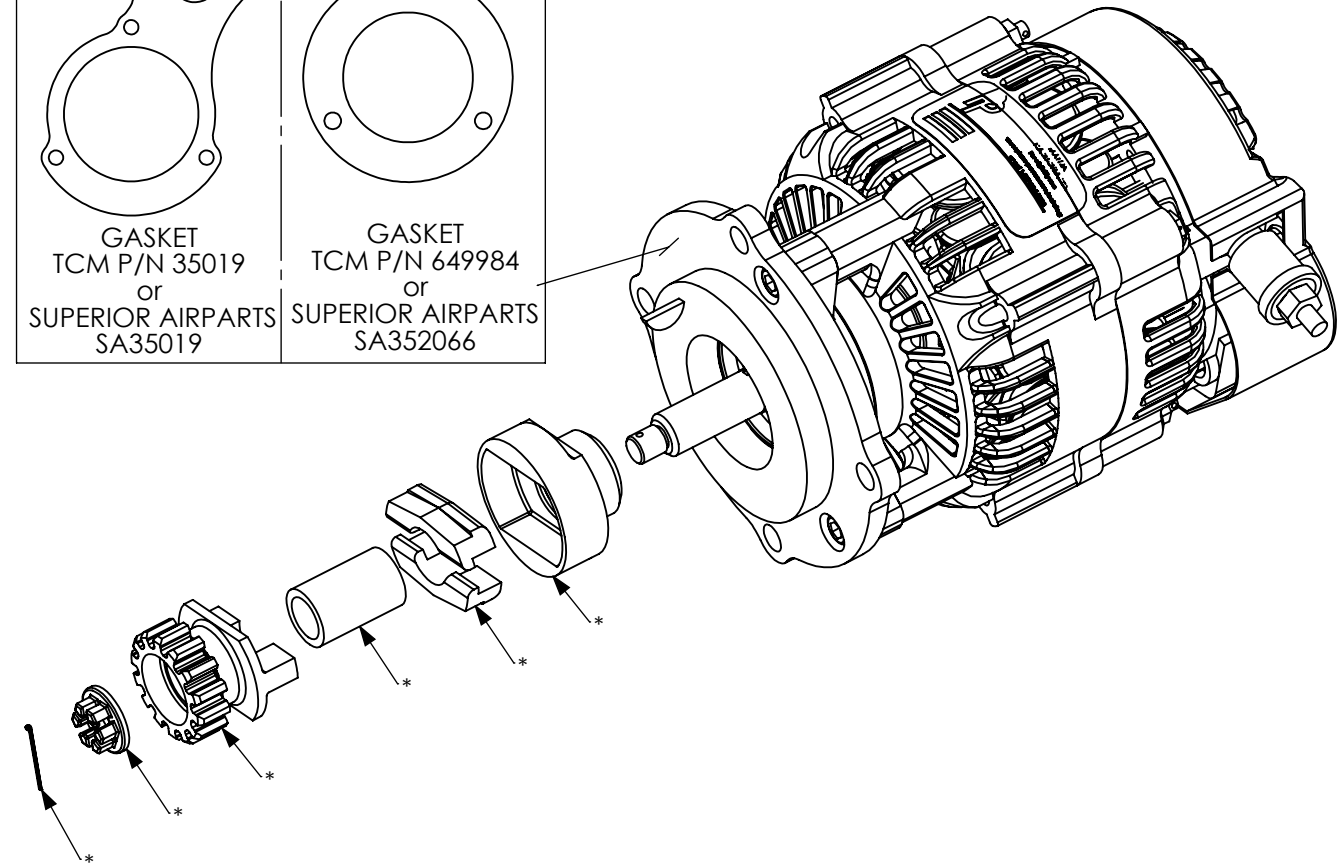
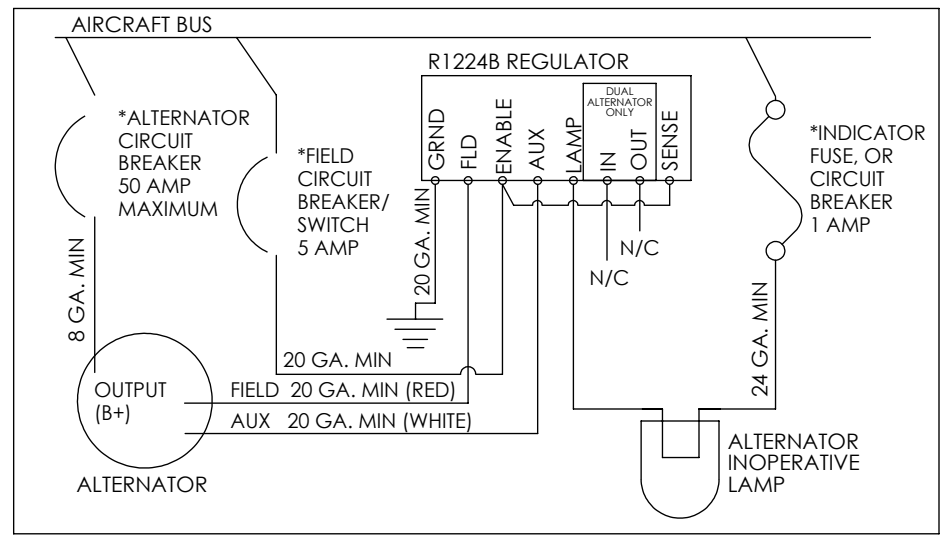
NOTE: BOTH GASKETS SUPPLIED USE APPROPRIATE GASKET FOR YOUR ENGINE

GASKET TCM P/N 35019 or SUPERIOR AIRPARTS SA35019

GASKET TCM P/N 649984 or SUPERIOR AIRPARTS SA352066



WIRING DIAGRAM NOTE: ANY NEW OR REPLACEMENT WIRE MUST CONFORM TO MIL-W-22759/16



USER IS RESPONSIBLE FOR VERIFICATION OF CURRENT REVISION BEFORE USING THIS DOCUMENT. DOCUMENT CONSIDERED "REFERENCE ONLY" IF NOT THE CURRENT REVISION.

SPECIFICATION CLASSIFICATION		
CLASSIFICATION	DIMENSION CONVENTION	NOTE NO. CONVENTION
CRITICAL	<XX.XX>	<#>
MAJOR	[XX.XX]	[#]
MINOR	XX.XX	#
REFERENCE	(XX.XX)	(#)

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND APPLY AFTER HEAT TREAT AND PLATING
 .X = ±.015
 .XX = ±.010 ANGLES ±1°
 .XXX = ±.005
 BREAK ALL EDGES AND MACHINE ALL INSIDE CORNER FILLETS .015 MAX. SURFACE FINISH

THIS DRAWING CONTAINS INFORMATION THAT IS CONFIDENTIAL AND PROPRIETARY TO HARTZELL ENGINE TECHNOLOGIES. THIS DRAWING IS FURNISHED ON THE UNDERSTANDING THAT THE DRAWING AND THE INFORMATION IT CONTAINS WILL NOT BE COPIED OR DISCLOSED TO OTHERS EXCEPT WITH THE WRITTEN CONSENT OF HARTZELL ENGINE TECHNOLOGIES. WILL NOT BE USED TO THE DETRIMENT OF HARTZELL ENGINE TECHNOLOGIES, AND WILL BE RETURNED UPON REQUEST BY HARTZELL ENGINE TECHNOLOGIES.

GEOMETRIC SYMBOLS PER ANSI Y14.5

- FLATNESS
- STRAIGHTNESS
- ROUNDNESS
- CYLINDRICITY
- PROFILE
- PERPENDICULARITY
- POSITION
- CONCENTRICITY
- SYMMETRY
- ANGULARITY
- PARALLELISM
- CIRCULAR RUNOUT
- TOTAL RUNOUT

SCALE 1:1

DRAWN	RFQ	09/12/14
ENGINEER	C. BROUSSARD	
APPRVD.	124999	
FINISH	N/A	
WEIGHT	N/A	
MATERIAL SEE INDIVIDUAL PARTS		
SIZE	SH 1 OF 1	CODE ID 65PY1
B		

2900 Selma Highway
Montgomery, AL 36108

ER14-50 INSTALLATON INSTRUCTIONS

DRAWING NO.	REV
11-1001A	F

- NOTES:
- PARTS MARKED WITH * ARE SHOWN FOR INSTALLATION PURPOSES ONLY AND ARE NOT SUPPLIED WITH KIT, AVAILABLE SEPARATELY AS GEAR ASSEMBLY ER14-GR.

ER14-50 INSTALLATION INSTRUCTIONS

READ AND THOROUGHLY UNDERSTAND ALL OF THE INSTALLATION INSTRUCTIONS BEFORE BEGINNING INSTALLATION OF THIS KIT.

NOTE: IF AIRCRAFT DOES NOT HAVE A CIRCUIT BREAKER OR CURRENT LIMITING DEVICE IN THE GENERATOR OR ALTERNATOR OUTPUT WIRE AND REGULATOR INPUT CIRCUIT THEY MUST BE INSTALLED.

NOTE: IT IS THE RESPONSIBILITY OF THE INSTALLER TO DETERMINE BY CALCULATION THAT THE TOTAL CONTINUOUS ELECTRICAL LOAD OF THE AIRCRAFT DOES NOT EXCEED 80% OF THE OUTPUT LOAD LIMIT OF THE ALTERNATOR AND, IF EXCEEDED, ADDRESS THIS ISSUE PER AC43.12-1B § 11.35 (a) BY REDUCING THE LOAD OR INSTALLING APPROPRIATE PLACARDS.

1. Disconnect aircraft battery.-
2. Remove generator and voltage regulator.
3. Remove drive gear assembly from old generator or alternator. If assembly is in airworthy condition and all part numbers match the TCM part numbers on Figure A page 4 of this manual the drive gear assembly may be re-used. Otherwise purchase a new gear assembly P/N ER14-GR or a TCM gear assembly. (See Fig. A, Page 4) Note: gear assemblies must support alternator drive shaft diameter 0.5in. Gear assemblies for larger diameter drive shafts require G-Pack.
4. If original gear assembly is to be re-used inspect gear, sleeve, retainer and hub for airworthy condition. Replace any worn/damaged parts or assemblies.

NOTE: IT IS THE RESPONSIBILITY OF THE INSTALLER TO THOROUGHLY INSPECT AND PROPERLY INSTALL THE GEAR ASSEMBLY. DAMAGE TO THE ALTERNATOR FROM THE INSTALLATION OF WORN, DEFECTIVE OR IMPROPERLY INSTALLED PARTS WILL VOID ER14-50 WARRANTY AND MAY CAUSE ENGINE DAMAGE.

------(Refer to Pages 1 and 4)-----

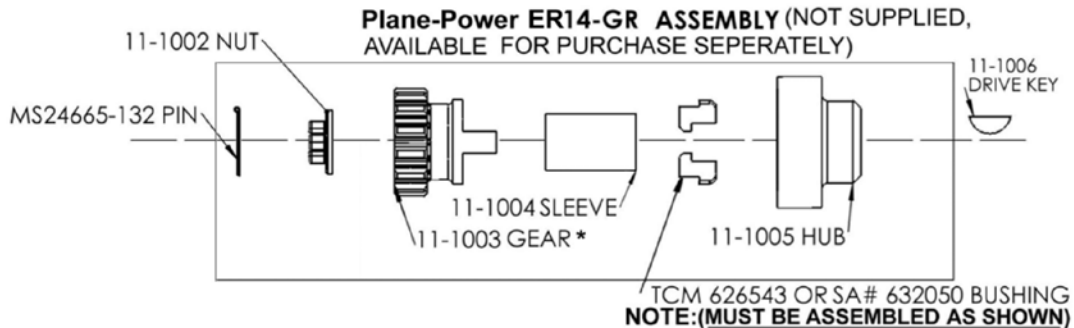
5. **ASSEMBLE DRIVE GEAR ASSEMBLY WITH 2 NEW BUSHINGS TCM P/N 626543 OR SA# 632050** on alternator shaft. Ensure Bushings and Drive Key are properly installed in shaft.
6. Torque Shaft Nut # 11-1002 or TCM P/N 530412 to Minimum torque of 180 inch Lbs. and install cotter pin #MS24665-132. If cotter pin will not pass through drilled hole in shaft slowly increase torque to align hole. **DO NOT EXCEED 220 INCH LBS.**
7. Install alternator on engine with new gasket TCM P/N 35019 (SA35019) or TCM P/N 649984 (SA352066) depending on engine model. Ensure that alternator drive gear meshes to engine gear without forcing or binding.
8. Torque the 3 mounting nuts to 200 Inch Lbs. **Check drive gear lash by carefully moving the ER14-50 cooling fan on rotor back and forth (Typical lash .075" on outer diameter of fan blade). If no lash is detected remove ER14-50 and correct the cause before proceeding.**
9. **Ensure that internal jumper #1 and internal jumper #2 of the R1224B regulator are set for 14V operation** (See regulator instructions for location of jumpers).
10. If original output circuit breaker is rated at less than 50-amps and you wish to be able to utilize the increased capacity of the alternator, remove the breaker and replace with suitable breaker up to 50-amp maximum size. **Ensure wire size from alternator output terminal to output circuit breaker and from output circuit breaker to bus is rated for more than the size of breaker 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.

11. Wire the system as follows:

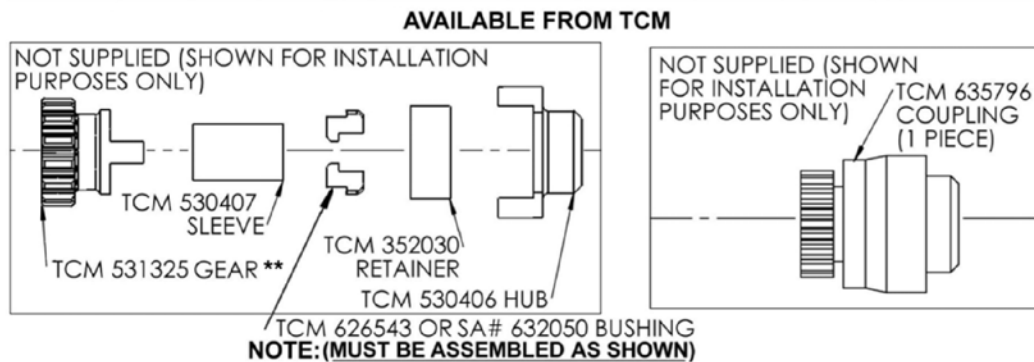
- a. For regulator wiring instructions view the regulator installation instructions.
- b. Connect the GRND terminal of the regulator to the common aircraft ground.
- c. Install output (B+) wire and torque to 50 inch Lbs. **If the output breaker is to be increased to 50 amps ensure that the output wire is of sufficient size to carry more than 50 amps.** (Refer to AC43.13-1B)
- d. Run the Red Field wire of the Enable Plug (P/N 11-1010) to the FLD terminal of the regulator.
- e. **ENSURE THAT A 7.5AMP CIRCUIT PROTECTION DEVICE IS INSTALLED IN SERIES WITH, OR IS PART OF, THE FIELD SWITCH FOR THE ALTERNATOR.** (This is commonly the original generator or alternator Field switch & breaker.) Use the existing wire from the switch/breaker or install a new wire, minimum 20AWG, to the ENABLE terminal of the regulator. Install, in view of the pilot, placard ALP-1001 (ALT FIELD part of 14-1012) adjacent to the field switch for the alternator.
- f. Ensure that the other end of the FIELD switch/breaker is connected to the aircraft positive bus.
- g. If the aircraft has a "Generator Inoperative" indicator lamp, it may be used in this step. If the lamp is not currently installed or is not compatible use the supplied lamp P/N 14-1010 Alternator inoperative Lamp (14 Volt) and install it in pilots' clear field of view.
- h. Install, in view of the pilot, placard ALP-1006 (ALT INOP) adjacent to the indicator for the alternator. Also run a new wire, minimum 18 AWG, from the AUX terminal of the alternator to the AUX terminal of the regulator.

12. Adjust and Test the system:

- a. Set FIELD switch to OFF.
- b. Turn on MASTER switch and start the engine and check for any oil leaks or abnormal sounds. Stop the engine immediately if any are noticed and correct the condition before proceeding.
- c. With FIELD switch in OFF position ensure that ALT INOP indicator is illuminated.
- d. Turn on the FIELD switch. Check proper charging indication. Check ALT INOP indicator is off. Check aircraft maintenance manual for proper bus voltage (typically 14.0V \pm 0.3V). Adjust the regulator to the desired bus voltage at 1200 engine RPM.
- e. Recheck and inspect the entire installation, and make a log book entry. Complete FAA form 337, make log book entry, update aircraft equipment list, and weight and balance.

FIGURE A: ANY OF THE FOLLOWING GEAR ASSEMBLIES MAY BE USED WITH THE ER14-50

***Note: 11-1003 gear for use only on C75,
C85, C90, C125, C145, O-200, and O-300 engines**



****Note: Use TCM 531325 gear on C75, C85, C90, C125, C145, O-200, and O-300 engines. Use TCM 530997 gear on E165, E185, and E225 engines.**

Instructions for Continued Airworthiness:**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 alternator should be inspected to be certain that the alternator shaft moves freely with no unusual noise. If the alternator output is not satisfactory, the voltage setting should be adjusted by following the regulator instructions

PERIODIC MAINTENANCE:

It is recommended that the operation of the ER14-50 alternator be checked every 100-hour inspection or every annual inspection which ever comes first.

Annual / 100-Hour Inspections:

1. Check regulated voltage is within limits per aircraft maintenance manual.

5 Year or 500-Hour Intervals:

1. Repeat: Annual / 100-Hour Inspection
2. Remove Field Brush assembly and inspect brushes for excess wear. Replace Brush assembly if brushes extend less than .250" from edge of brush holder.
3. Replace 2 Drive Coupling Bushings, TCM Part Number 626543 or SA# 632050.
4. Inspect Gear Assembly and Drive Key for wear.

Each annual/100-hour inspection, the alternator and its associated wiring should be checked for secure electrical connections and physical connection to the airframe. For voltage regulator maintenance instructions view the voltage regulator instructions. Voltage regulator inspections should be concurrent with those of the alternator. No special tools are required.