



US Department of Transportation

Federal Aviation Administration

MAJOR REPAIR AND ALTERATION (Airframe, Powerplant, Propeller, or Appliance)

Form Approved

OMB No. 2120-0020

For FAA Use Only

Office Identification

INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C. 1421). Failure to report can result in a civil penalty not to exceed \$1,000 for each violation (Section 901 of Federal Aviation Act of 1958).

1. Aircraft	Make Piper	Model PA-22 Tri-Pacer
	Serial No. 22-2150	Nationality and Registration Mark N3335B
2. Owner	Name (As shown on registration certificate) Anderson, Thomas E. Anderson, Denise C.	Address (As shown on registration certificate) 5401 Crooked Tree Dr. Mason, OH 45040

3. For FAA Use Only

The data identified herein complied with applicable airworthiness requirements and is approved only for the above-described aircraft subject to conformity inspection by a person authorized in FAR 43.7.

APPROVING INSPECTOR *[Signature]*

DATE **5/14/04**

4. Unit Identification

5. Type

Unit	Make	Model	Serial No.	Repair	Alteration
AIRFRAME	~~~~~ (As described in Item 1 above) ~~~~~				
POWERPLANT	Lycoming	O320	L8203-27		X
PROPELLER					
APPLIANCE	Type				
	Manufacturer				

6. Conformity Statement

A. Agency's Name and Address Thomas E. Anderson 5401 Crooked Tree Dr. Mason, OH 45050-9663	B. Kind of Agency <input checked="" type="checkbox"/> U.S. Certificated Mechanic <input type="checkbox"/> Foreign Certificated Mechanic <input type="checkbox"/> Certified Repair Station <input type="checkbox"/> Manufacturer	C. Certificate No. 376447222
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D. I certify that the repair and/or alteration made to the unit(s) identified in item 4 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.

Date June 19, 2006	Signature of Authorized Individual <i>Thomas E. Anderson</i>
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7. Approval for Return To Service

Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is APPROVED REJECTED

BY	FAA Fit. Standards Inspector	Manufacturer	<input checked="" type="checkbox"/> Inspection Authorization	Other (Specify)
	FAA Designee	Repair Station	Person Approved by Transport Canada Airworthiness Group	

Date of Approval or Rejection June 19, 2006	Certificate or Designation No. 376447222	Signature of Authorized Individual <i>Thomas E. Anderson APT/FAA</i>
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NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished

(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

1. Removed original generator, regulator, generator case-mount bracket, belt tensioning bracket and drive belt.
2. Installed B&C Specialty Products L40 40-amp alternator in accordance with B&C installation instructions for Lycoming case-mount using the following parts supplied, as part of the L40 kit: B&C case-mount bracket, B&C belt tensioning bracket and B&C furnished AN hardware. Installed drive belt supplied by B&C with alternator.
3. Installed and placarded aircraft circuit breakers (W23-X1A1G- series): electrical panel mounted 40A pull-type for alternator output; 5A on electrical panel for field, 1A on electrical panel for bus voltage sense. Breaker ratings in accordance with B&C installation instructions and AC43.13-1B Ch. 11, Sec. 4, Par. 11-49.
4. Installed B&C Specialty Products LR3C-14 voltage regulator on the firewall in accordance with B&C instructions. Mounted and placarded B&C low-voltage warning lamp on instrument panel adjacent to the ammeter.
5. Retained existing ammeter which is wired in the battery lead in accordance with AC43.13-1B Ch. 11, Sec. 3, par. 11-36c. A low-voltage warning lamp supplied with the alternator (see above) was added to indicate alternator failure and was wired in accordance with B&C wiring diagram. This warning light meets the requirements of FAR 23.1322 for warning, caution and advisory lights.
6. New alternator and regulator wiring installed following original routing where possible. Regulator wiring in accordance with B&C wiring instructions. Alternator wiring follows original routing where possible and conforms to acceptable methods in accordance with AC43.13-1B, Ch. 11, Sec. 9, 10 and 11 Par. 11-115 thru 11-146 and. Wire sizes selected in accordance with AC43.13-1B, Ch. 11, Sec. 5, Par. 11-66 and 11-67. Wire is stranded tinned copper, #18 MIL-W-22759/16 for bus sense, field and low-voltage warning lamp; MIL-W-22759/ (#10) for alternator output.
7. Electrical load analysis performed in accordance with AC43.13-1B, Ch. 11, Sec. 3, Par. 11-36. The maximum continuous load is less than 80% of the alternator output capacity.
8. The L-40 alternator installed is similar to B&C Model SD-20 alternator which has been installed in Mooney certified production aircraft since 1996. The electrical components in the L-40 are identical to those in the SD-20. The SD-20 alternator has been certified for use in production Bonanzas.
9. Weight and balance and equipment list revised and included in permanent aircraft records.
10. The alteration listed about shall be maintained in accordance with the instructions for continued airworthiness attached..

-----END-----

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

A/C Make: Piper Tri-Pacer Model: PA-22-135/150 S/N: 22-2150 Reg.#: N3335B
 Revision: Initial IAC Date: _____

This sixteen-item checklist is Instructions for Continued Airworthiness (ICA), to comply with FAA Handbook Bulletin for Airworthiness (HBAW 98-18 Dated October 7, 1998), are applicable to the aircraft listed above when the following equipment is installed:

SYSTEM: Alternator (Electrical Charging System)

ITEM	CHECKLIST INFORMATION
1.	<p>Introduction: This section briefly describes the aircraft, engine, propeller, or component that has been altered. Include any other information on the content, scope, purpose, arrangement, applicability, definitions, abbreviations, precautions, units of measurement, referenced publications, and distribution of the ICA as applicable.</p> <p>Comment: <u>Original Delco 20 amp generator replaced with B&C Specialty Products L-40 40-amp alternator; Delco-Remy voltage regulator replaced with B&C LR3C-14 voltage regulator; associated circuit breakers installed on electrical panel.</u></p>
2.	<p>Description: Of the major alteration, its functions, including an explanation of its interface with other systems, if any.</p> <p>Comment: <u>Installation of this alteration replaces only the original generator charging system and does not affect other aircraft systems with which it interfaces.</u></p>
3.	<p>Control: Operation information: Or special procedures, if any.</p> <p>Comment: <u>Turn on the battery master switch – the low voltage warning light should be flashing (if it does not, turn on the landing light or nave lights to add load). Start the engine according to normal procedure. When the engine is running and the battery master is on, turn the alternator field switch on. The bus voltage should rise to 14-14.4 volts depending on RPM and electrical load turned on. The low voltage warning light should no longer be flashing. LOW VOLTAGE warning – continuous rapid flashing of the warning light. OVER VOLTAGE warning – the 5 amp alternator field breaker will open causing the alternator to be shut down. If sufficient loads are operational, the LOW VOLTAGE warning light will begin to flash in a few seconds. If electrical loads are very light, the LOW VOLTAGE light might may take longer before it starts flashing.</u></p>
4.	<p>Servicing information: Such as types of fluids used, servicing points, and location of access panels, as appropriate.</p> <p>Comment: <u>If cracking or fraying of belt is found, replace drive belt with same or equivalent belt as used on certified production aircraft.</u></p>
5.	<p>Maintenance Instructions: Such as recommended inspection/maintenance periods in which each of the major alteration components are inspected, cleaned, lubricated, adjusted, tested, including applicable wear tolerances and work recommended at each scheduled maintenance period. This section can refer to the manufacturers' instructions for the equipment installed where appropriate (e.g., functional checks, repairs, inspections.) It should also include any special notes, cautions, or warnings, as applicable.</p> <p>Comment: <u>The B&C Model L-40 alternator requires no recurrent maintenance during its service life of 2000 hours. It is recommended that at 2000 hours or less time in service or during engine overhaul the alternator be returned to B&C Specialty Products for factory overhaul. At each Annual or 100 hour inspection required check the alternator externally for security of mounting and wiring. Perform an operational test to determine that the alternator maintains the aircraft electrical bus at the approximate regulator set point as loads are added and removed (at high loads, cruise RPM may be required). Belt tension should be checked by making sure that the alternator pulley may not be rotated by hand inside the belt. Alternately, approximately 50 lbs. belt tension may be used. The belt should be checked for cracking or fraying and replaced if these conditions are found. Failure caused by broken wires or damaged connectors may be corrected in the field using repair procedures complying with the latest revisions of AC43.13-1A, Ch. 11, Sec. 7, Par. 514-518.1, and AC43.13-1A, Ch. 11, Sec. 7, Par. 446c. All other repairs are by replacement only.</u> <u>The B&C LR3C-14 regulator requires no recurrent maintenance and has an indefinite service life. At each Annual or 100 hour inspection check the regulator externally for security of mounting, tightness of terminal screws, and chafing or breakage of wiring. Perform an operational check to determine that the regulator maintains the aircraft electrical bus at the approximate set point as loads are added and removed (at high loads, cruise RPM may be required). Field adjustment of the regulated voltage may be accomplished by use of the external adjustment screw if required. The adjustment screw is located under 3/4" diameter black plastic cover along the edge of the regulator. The plastic cover may be pried from the access hole and a small</u></p>

	<p><u>screwdriver used for the adjustment. Turning the screw clockwise increases the set voltage. All other repairs are by replacement only.</u></p>														
6.	<p>Trouble shooting information: Information describing probable malfunctions, how to recognize those malfunctions, and the remedial actions to be taken.</p> <p>Comment: <u>OVERVOLTAGE TEST – to determine that the over-voltage protection is functional, momentarily touch a jumper wire between terminal 2 and terminal 6. This will cause the field breaker to open within 1 second. This test should be performed when the LR3 is first installed and repeated during each annual inspection. See the attached B&C Specialty Products LR3C-14/28 detailed Troubleshooting Guide.</u></p>														
7.	<p>Removal and replacement information: This section describes the order and method of removing and replacing products, parts and any necessary precautions. This section should also describe or refer to manufacturer's instructions to make required tests, trim checks, alignment, calibrations, center of gravity changes, lifting or shoring, etc., if any.</p> <p>Comment: <u>Alternator removal: Disconnect positive lead from battery; remove propeller and nose bowl to gain access to alternator and drive belt. Disconnect the wiring harness Field plug. Replacement: Tighten the long mounting bracket pivot bolt to 225-300 in-lbs; tighten the two belt tension arm bolts to 110-115 in-lbs and safety wire; belt should be tensioned to approximately 50 lbs, or checked by making sure the alternator pulley does not turn by hand inside the belt; reconnect field plug, nosebowl, propeller, and battery lead(s).</u></p>														
8.	<p>Diagrams: Of access plates and information, if needed, to gain access for inspection.</p> <p>Comment: <u>None</u></p>														
9.	<p>Special inspection requirements: Such as X-ray, ultrasonic testing, or magnetic particle inspection, if required.</p> <p>Comment: <u>OVERVOLTAGE TEST – to determine that the over-voltage protection is functional, momentarily touch a jumper wire between terminal 2 and terminal 6. This will cause the field breaker to open within 1 second. This test should be performed when the LR3 is first installed and repeated during each annual inspection.</u></p>														
10.	<p>Application of protective treatments: To the affected area after inspection and/or maintenance, if any.</p> <p>Comment: <u>None</u></p>														
11.	<p>Data: Relative to structural fasteners such as type, torque, and installation requirements, if any.</p> <p>Comment: <u>Alternator Performance Data (Stator Temp: 140degF to 120degF):</u></p> <table border="0"> <tr> <td colspan="2"><u>RPM - Alt. Output (amps)</u></td> </tr> <tr> <td><u>3000 – 12</u></td> <td><u>5500 - 35</u></td> </tr> <tr> <td><u>3500 – 20</u></td> <td><u>6000 - 38</u></td> </tr> <tr> <td><u>4000 – 26</u></td> <td><u>7000 - 41</u></td> </tr> <tr> <td><u>4500 – 26</u></td> <td><u>8000 - 43</u></td> </tr> <tr> <td><u>4500 – 31</u></td> <td><u>9000 - 44</u></td> </tr> <tr> <td><u>5000 – 33</u></td> <td><u>10000 - 45</u></td> </tr> </table> <p><u>Tighten the long mounting bracket pivot bolt to 225-300 in-lbs; tighten the two belt tension arm bolts to 110-115 in-lbs. Drive belt tension of approximately 50 lbs should be checked at each annual or 100 hour inspection. Alternator pulley should not be able to be rotated by hand inside the belt.</u></p>	<u>RPM - Alt. Output (amps)</u>		<u>3000 – 12</u>	<u>5500 - 35</u>	<u>3500 – 20</u>	<u>6000 - 38</u>	<u>4000 – 26</u>	<u>7000 - 41</u>	<u>4500 – 26</u>	<u>8000 - 43</u>	<u>4500 – 31</u>	<u>9000 - 44</u>	<u>5000 – 33</u>	<u>10000 - 45</u>
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<u>5000 – 33</u>	<u>10000 - 45</u>														
12.	<p>List of special tools: Special tools that are required, if any.</p> <p>Comment: <u>None</u></p>														
13.	<p>For commuter category aircraft: The following additional information must be furnished, as applicable:</p> <ol style="list-style-type: none"> A. Electrical loads B. Methods of balancing flight controls C. Identification of primary and secondary structures D. Special repair methods applicable to the airplane. <p>Comment: <u>N/A</u></p>														

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

14.	<p>Recommended overhaul periods: Are required to be noted on the ICA when an overhaul period has been set by the manufacturer of a component, or equipment. If there is no overhaul period, the ICA should state for item 14: "No additional overhaul time limitations."</p> <p>Comment: <u>It is recommended that at 2000 hours or less time in service or during engine overhaul the alternator be returned to B&C Specialty Products for factory overhaul.</u></p>
15.	<p>Airworthiness Limitation Section: Include any "approved" airworthiness limitations identified by the manufacturer or FAA Type Certificate Holding Office (e.g., An STC incorporated in a larger field approved major alteration may have an airworthiness limitation.) The FAA inspector should not establish, alter, or cancel airworthiness limitations without coordinating with the appropriate FAA Type Certificate Holding Office. If there are no changes to the airworthiness limitations, the ICA should state for item 15: "No additional airworthiness limitations" or "Not Applicable."</p> <p>Comment: <u>Not applicable</u></p>
16.	<p>Revision: This section should include information on how to revise the ICA. For example, a letter will be submitted to the local FSDO with a copy of the revised FAA Form 337 and revised ICA. The FAA inspector accepts the change by signing Block 3 and including the following statement: "The attached revised/new Instructions for Continued Airworthiness (date _____) for the above aircraft or component major alteration have been accepted by the FAA, superseding the Instructions for Continued Airworthiness (date _____). " Once the revision has been accepted, a maintenance record entry will be made, identifying the revision, its location, date of the Form 337.</p> <p>Comment: <u>A letter will be submitted to the local FSDO with a copy of the revised FAA Form 337 and revised ICA</u></p>

Note:
Implementation and Record Keeping: For major alterations performed in accordance with FAA Field Approval policy, the owner/operator operating under part 91 is responsible for ensuring that the ICA is made part of the applicable section 91.409 inspection program for their aircraft. This is accomplished when a maintenance entry is made in the aircraft's maintenance record in accordance with section 43.9. This entry records the major alteration and identifies the original ICA location (e.g., Block 8 of FAA Form 337, dated 5/28/98) along with a statement that the ICA is now part of the aircraft's Inspection/maintenance requirements.

For major alterations performed in accordance with a field approval on air carrier aircraft, the air carrier operator is responsible for ensuring that the ICA is made part of the applicable inspection/maintenance program for their aircraft. If a procedure is not currently included in the operator's manual to incorporate ICA, this process will need to be appropriately addressed (i.e. the operator submits a revision to its maintenance program to the applicable certificate-holding district office (CHDO).

For aircraft inspected under an Approved Aircraft Inspection Program (AAIP), the operator will submit a change to the CHDO in accordance with section 135.419 b).

For air carrier aircraft inspected using an annual/100 hour inspection program, a reference to the new ICA will be made in the aircraft's maintenance record in accordance with section 43.9. This entry records the major alteration and identifies the original ICA location (e.g., ICA is located/attached to Block 8 of FAA Form 337, dated 5/28/98). In addition, the operator will request a revision to the operator's Operations Specifications, additional maintenance requirements, which incorporates the ICA into the inspection program.

B & C Specialty Products Inc

123 East 4th St, P.O. Box "B", Newton KS 67114-0894
Telephone (316) 283-8000 ***** Fax (316) 283-7400

LR3C-14/28 Troubleshooting Guide

This troubleshooting guide is not intended to be exhaustive of all possible charging system failures. Following this procedure will, however, locate the most common system problems encountered by B&C's technical staff. When calling for additional factory support, the information gained from these checks should be readily available to aid B&C's technician to narrow the field of possibilities as quickly as possible. Please use the provided blanks to record the various measurements.

Refer to the wiring diagram furnished with the regulator and use a high impedance (preferably digital) volt/ohmmeter (DVM) to make the following checks. Please note that the engine should not be running and the mags should be off:

1. Turn all switches off. Use the lowest resistance scale on the DVM. Check resistance between the battery negative (-) terminal and both pin 7 of the regulator and the engine case. Measurements over 0.5 Ohm to either would be cause for investigation. In this case, check the engine ground strap, battery ground strap, and regulator ground wire for loose or contaminated connections, broken conductors or bad crimp joints. If these measurements are less than 0.5 Ohm, any of these three points may be used as reference (-) for the following measurements.

Resistance from battery to pin 7: _____ Ohms; from battery to engine case: _____ Ohms

2. Turn on the battery master and alternator field switches. Measure the voltage on the battery bus and on pin 3 of the regulator. The voltages should be equal within 0.2 volts. A difference of greater than 0.2 volts may be caused by using a breaker as the source for pin 3 that supplies another device of considerable load. Change to a lightly loaded breaker or a breaker dedicated to pin 3 and the low voltage lamp. It is recommended that pin 3 not be jumpered to pin 6. If pin 3 has no voltage, the regulator will not operate.

Bus voltage: _____ volts Pin 3 voltage: _____ volts

3. Measure the voltage on pin 6 of the regulator. It should be within 0.5 volts of the bus voltage. A difference of greater than 0.5 volts may be caused by poor contacts in the field breaker or field switch, or poor crimp joints/loose screw terminals in the wiring between the bus and pin 6. Absence of voltage on pin 6 will prevent the regulator from operating.

Pin 6 voltage: _____ volts

4. Check the voltage on pin 4 of the regulator. The voltage should be approximately 1.2 volts less than the voltage on pin 6. A difference significantly less than 1.2 volts between pins 4 and 6 may indicate an open field circuit from pin 4 through the alternator to ground (-). Voltage differences of several volts could indicate a bad regulator. An ideal pin 4 voltage would be approximately 10.9 to 11.4 volts on a 12.6 volt bus and 23.5 to 24.0 volts on a 25.2 volt bus.

Pin 4 voltage: _____ volts

5. Move to the engine compartment. Without disconnecting the field connector, measure the field voltage on the

alternator. Use a thin probe or small gage wire wrapped around the probe to reach through the connector body and measure the voltage on the male blade coming out of the alternator. It should measure within 0.5 volts of the measurement on pin 4 of the regulator. A lack of voltage may indicate an open circuit between pin 4 of the regulator and the field terminal. If an open field circuit is suspected, the switches may be turned off, the alternator field connector removed, and a resistance measurement made between the connector and pin 4 of the regulator. Look for near 0 Ohms. Typically the field resistance of the alternator will be between 3 and 10 Ohms from the male field terminal blade to alternator case.

Field terminal voltage: _____ volts Alternator field resistance: _____ Ohms

6. With the switches on, check the voltage between the alternator output post (or "B" lead) and ground. It should be battery voltage. If not, check the wiring between the alternator "B" lead and the battery positive (+) terminal. Look for loose or contaminated connections, broken wires, or an open breaker or fuse.

Alternator "B" lead voltage: _____ volts

7. If all of the voltages in the first 6 steps are close to the value specified, the charging system should be operative. If not, check for a broken or loose alternator belt or it's possible on some installations that the engine speed will have to be near run-up RPM or more for the system to provide useable output.

Intermittent problems are the hardest to find. Temporarily bring small test wires into the cockpit from 2 or 3 of the above points to allow monitoring them with the DVM during periods of system failure. Double check all screw terminals for security. Try a 5 pound pull test on all crimp joints and make sure that the terminal is crimped on the wire, not the insulation. In composite aircraft a popular area of difficulty is poor system grounds.

Noise problems are also difficult to find. A few tips to help with curing noise problems follow:

1. A unitized grounding system helps prevent noise problems by preventing voltage differences between different ground points.
2. The battery acts as a noise filter in the system. Poor connections to the battery or a battery that is going bad can add to or even cause noise problems.
3. Shielding of low level audio leads (especially microphone leads or headset leads) is required. Sometimes the shields in the cables can separate from repeated flexing. Try checking shield continuity with an ohmmeter or substituting another headset, microphone, etc..
4. Wire routing may be important in some installations. Separation of noise carrying conductors such as "P" leads from other wiring may help. Running noisy wiring parallel to other wiring in the same bundle is asking for trouble. Wires at 90 degrees to one another, however, do not couple noise.
5. The best plan is to stop the noise at its source. Once the noise is "loose", it can be difficult to filter it out of all affected systems. Try to locate the offending item and correct the problem at that point. Switching off the alternator, the mags (first one then the other), or any other electrical equipment that generates noise should help to find the offender.

B&C is always ready to assist our customers with technical problems during construction and thereafter. The safety of our friends and reliability of our products are top priority. If this guide has not solved your problem, call us. If we cannot help you find the problem, we may know someone who can.

INSTALLATION OF LR3 VOLTAGE REGULATOR

- When mounting the LR3, try to choose a location that will protect it from heat, vibration, and water. We recommend on the pilot side of the firewall, or inside the cabin somewhere close to the panel, (linear regulators create no noise problem). On a LongEze, you can mount it on F22 under the canard.
- Install the low voltage warning light in your instrument panel. The light should be positioned within the pilots' peripheral vision (generally, a 45 degree angle in front of the pilot). It is best to install the lamp away from direct sunlight. If the lamp is in direct sunlight, be sure to test it on a sunny day to be sure that the lamp is visible while operating. The bulb is a MIDGET FLANGED #330 BULB for the 14V LR3 or a #327 for the 28V LR3. There is a small piece of heat shrink tubing in the plastic bag. Cut this into two (2) pieces and install onto the wires that go to the lamp. Finally, solder the wires onto the lampholder assembly and shrink the heat shrink tubing over the connection.
- Refer to the diagram on the opposite side for wiring the regulator. The wire to the ground stud is to provide a redundant ground to the regulator. A jumper between terminal #7 and the GROUND STUD will not provide this. In the case of the regulator is already grounded by the mounting screws (e.g. on a metal airplane), the ground stud does not need to be grounded with an additional wire.
- The LR3 now senses the bus voltage through terminal #3 instead of terminal #6. This gives the LR3 a more accurate reading of bus voltage. If you are not going to use the low voltage warning light and wish to simplify the wiring as much as possible, you can hook up terminals 4,6, and 7 as shown and then install a jumper wire between terminal #6 and terminal #3. This is not the preferred connection. If terminal #3 is not connected to anything, the LR3 will not work.
- Be sure to use a 5 amp. circuit breaker on pin 6 of the regulator. Connecting pin 6 directly to the bus or using so called "solid-state breakers" (PTC thermistors) will damage the regulator if there is an over voltage trip.
- The regulator is pre-set at 14.4V. If you need to adjust the output voltage of your alternator, just remove the 3/4" round plastic plug from the side of the regulator. Using a small screwdriver, turn the small screw clockwise to increase voltage, counter-clockwise to decrease the voltage (approximately 1/2 turn per .1 volts). Use a digital voltmeter connected to the battery for this measurement.
- If you are on a long approach at night with low engine RPM and a heavy electrical load, the low voltage light may come on. The plastic lens can be unscrewed to turn the light off, or install a dimmer type lamp holder.

OPERATION OF THE LR3 VOLTAGE REGULATOR

After installation is complete, turn on the battery master switch. The low voltage warning light may or may not flash depending on the condition of the battery. If it does not begin flashing, turn on the landing light or the nav lights. This should lower the battery voltage enough to make the warning light start to flash, (between 12.5 and 13 volts is where the light will begin to flash). Now start the engine according to normal procedure. When the engine is running and the battery master switch is on, turn the alternator field switch on. You should notice the bus voltage rise to 14 to 14.4 volts depending on engine RPM, type of alternator used, and amount of electrical load turned on. The low voltage warning light should no longer be flashing.

In normal operation the field breaker will be closed (ON) and the low voltage warning light will not be on. Depending upon battery type, condition and temperature, the LOW VOLTAGE light may flash a few times and then quit when the master switch is turned on and the engine is not running. To verify low voltage sensor operation, momentarily turn on landing lights with the alternator off-line. The LOW VOLTAGE light should begin to flash as soon as the bus voltage drops to 12.5 volts.

LOW VOLTAGE WARNING - continuous rapid flashing of the warning light.

OVER VOLTAGE WARNING - the 5 AMP alternator field breaker will open causing alternator to be shut down. If sufficient loads are operational, the LOW VOLTAGE warning light will begin to flash in a few seconds. If electrical loads are very light, the LOW VOLTAGE light may take longer before it starts flashing.

OVER VOLTAGE TEST - if you desire to verify that the over-voltage protection is functional, momentarily touch a jumper wire between terminal 2 and terminal 6. This will cause the field breaker to open within 1 second. This test should be performed when you first install the LR3 and repeated during your annual inspection.

ALTERNATOR PERFORMANCE DATA

Stator temp: 140°F to 210°F

RPM	Alt. Output [amps]
3000	12
3500	20
4000	26
4500	31
5000	33
5500	35
6000	38
7000	41
8000	43
9000	44
10000	45

B & C Specialty Products Inc

123 East 4th St, P.O. Box "B", Newton KS 67114-0894

Telephone (316) 283-8000 ***** Fax (316) 283-7400

Manufacturer of Lightweight Electrical Systems

Instructions for Continued Airworthiness for

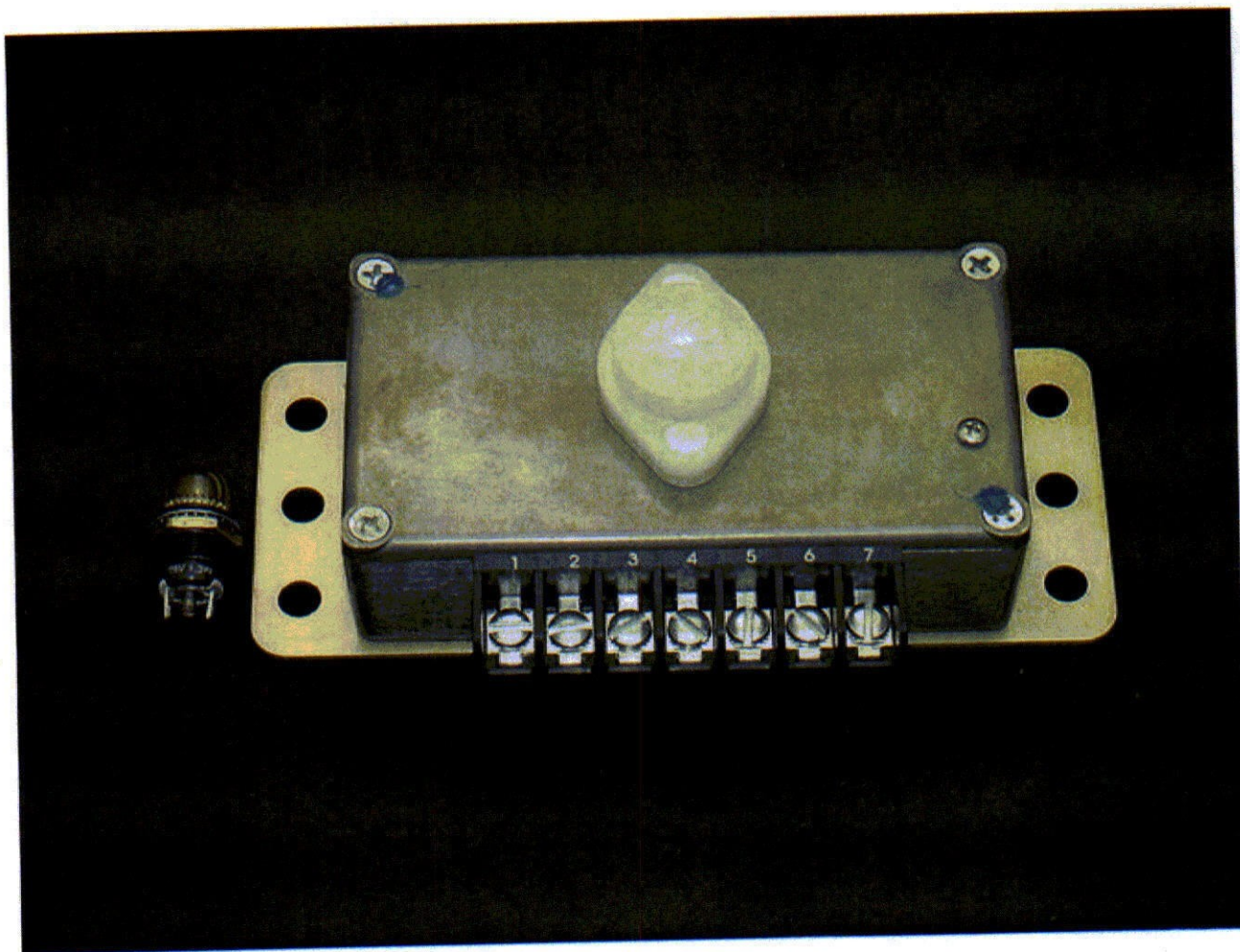
B&C Specialty Products Model L40 Alternator

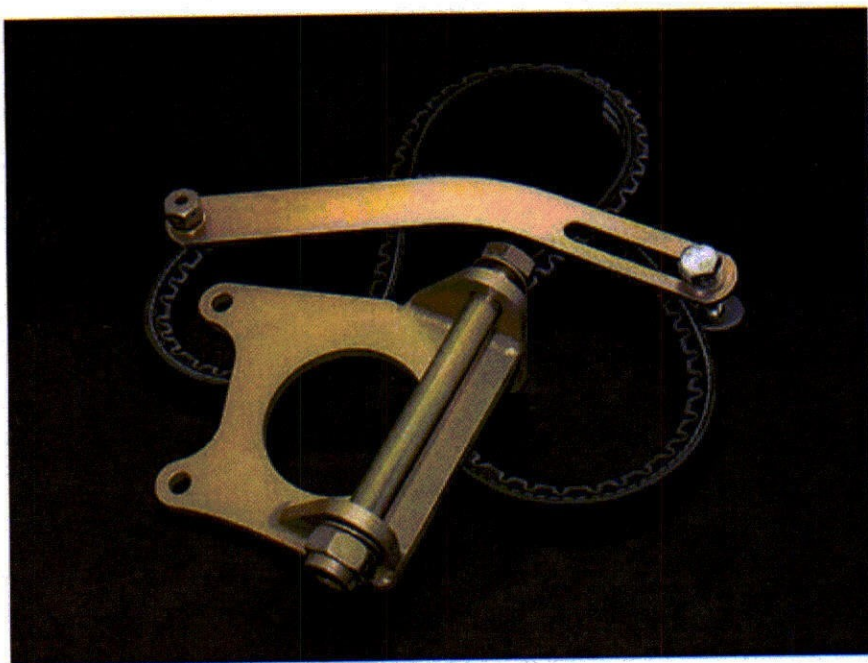
The B&C Model L40 alternator requires no recurrent maintenance during its service life of 2000 hours. It is recommended that at 2000 hours or less time in service or during engine overhaul the alternator be returned to B&C Specialty Products for factory overhaul.

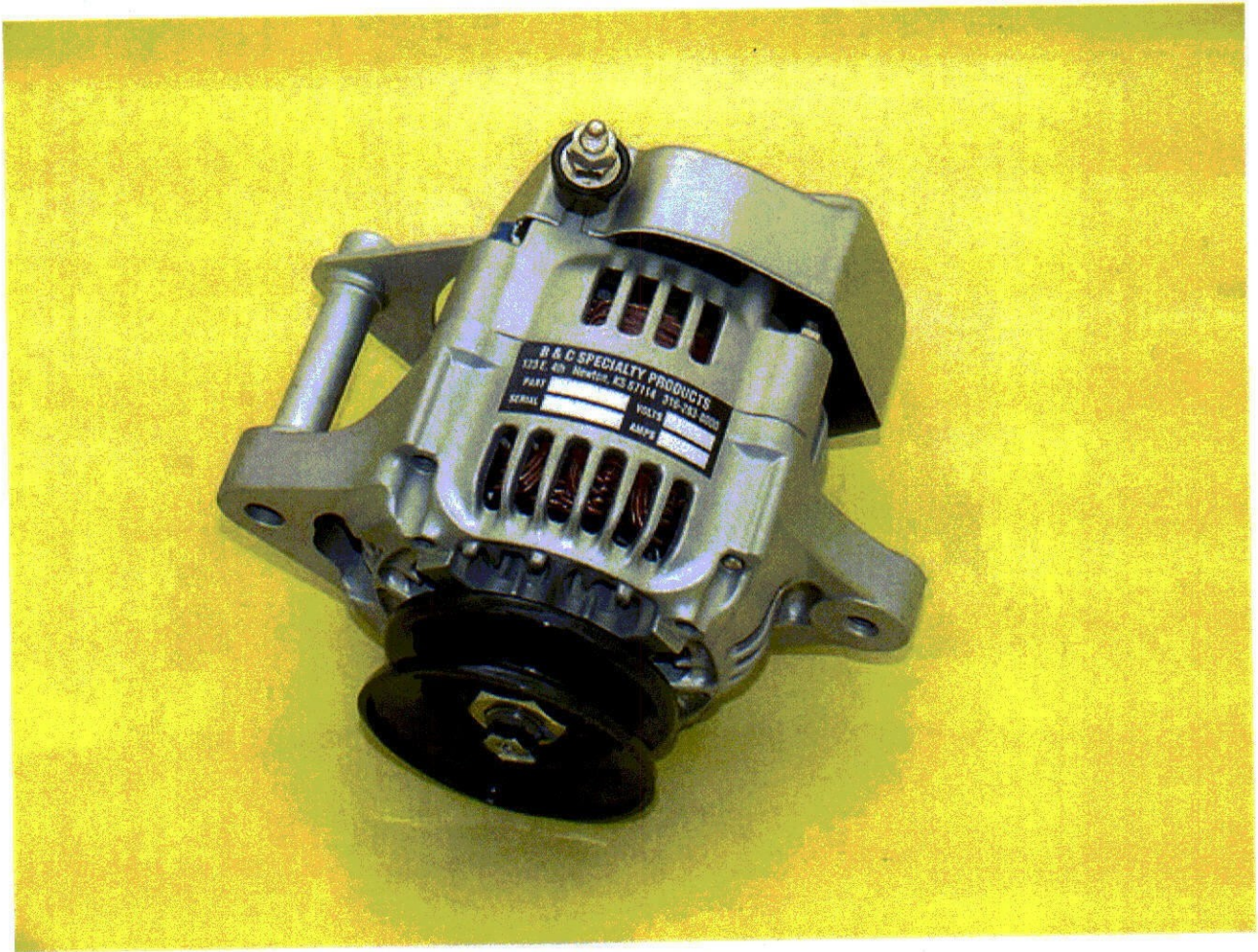
At each Annual or 100 hour inspection required by the FAA, check the alternator externally for security of mounting and wiring. Perform an operational test to determine that the alternator maintains the aircraft electrical bus at the approximate regulator set point as loads are added and removed (at high loads, cruise RPM may be required). Belt tension should be checked by making sure that the alternator pulley may not be rotated by hand inside the belt. Alternately, approximately 50 Lbs. belt tension may be used. The belt should be checked for cracking or fraying and replaced if these conditions are found.

Failure due to broken wires or damaged connectors may be corrected in the field using repair procedures complying with the latest revision of AC43.13-xx. All other repairs are by replacement only.

**THESE UNITS CARRY NO STC OR PMA APPROVAL AND MUST BE
ACCOMPANIED BY A ONE TIME FIELD APPROVAL FOR USE ON A TYPE
CERTIFICATED AIRCRAFT**

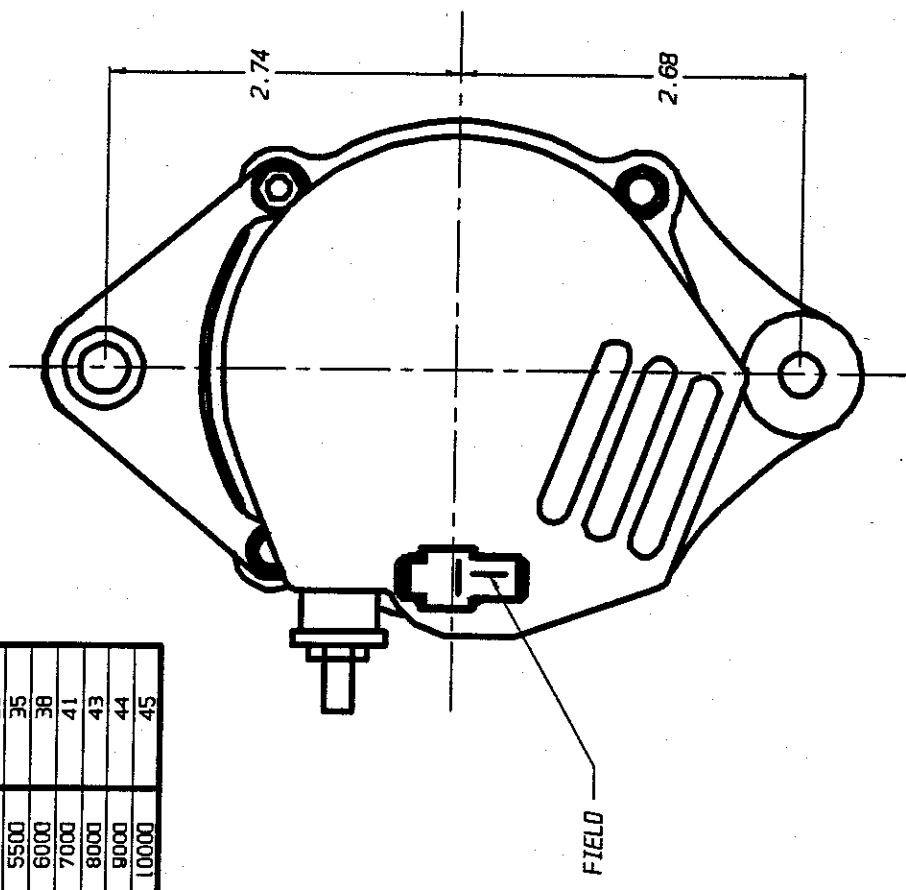
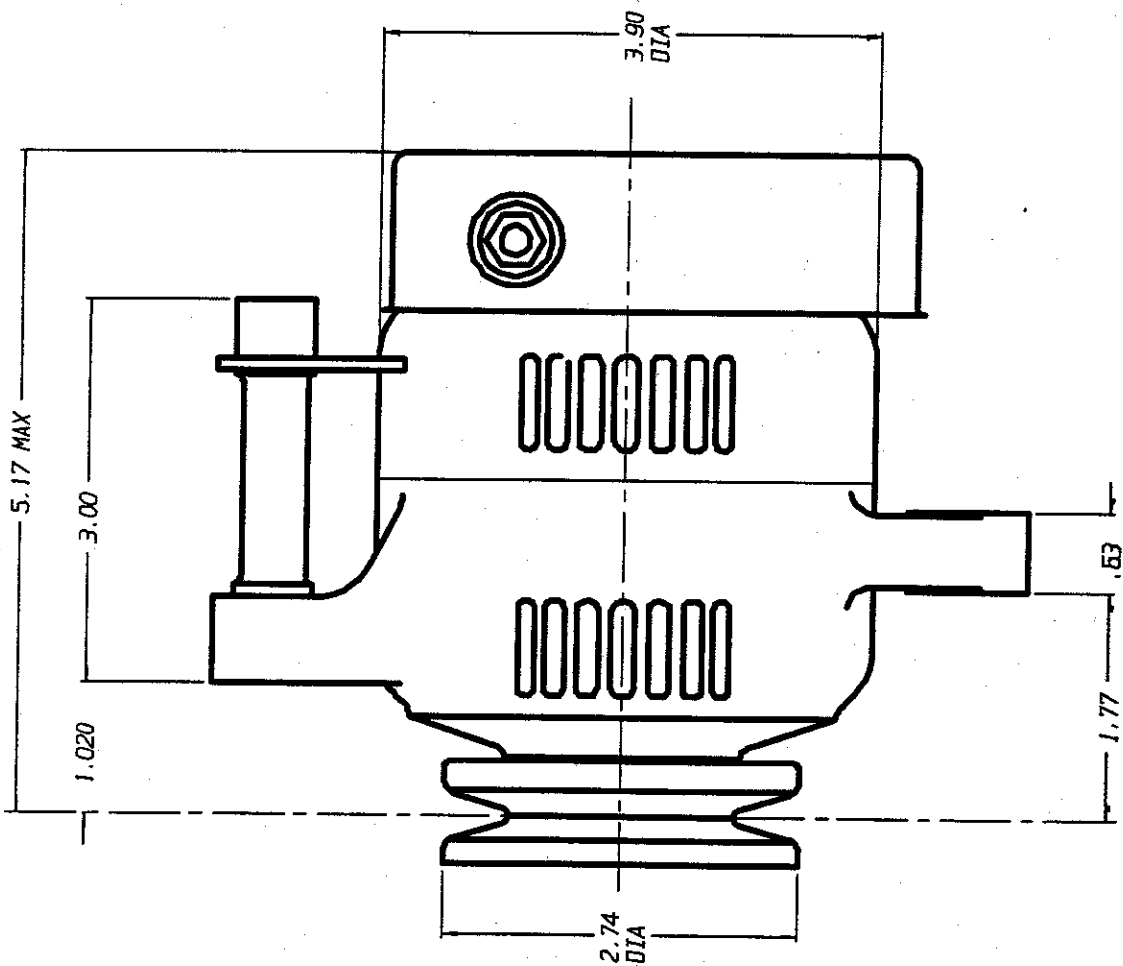






ALTERNATOR PERFORMANCE DATA
Stator Temp: 140°F to 210°F

RPM	Alt. Output (amps)
3000	12
3500	20
4000	28
4500	31
5000	33
5500	35
6000	38
7000	41
8000	43
9000	44
10000	45

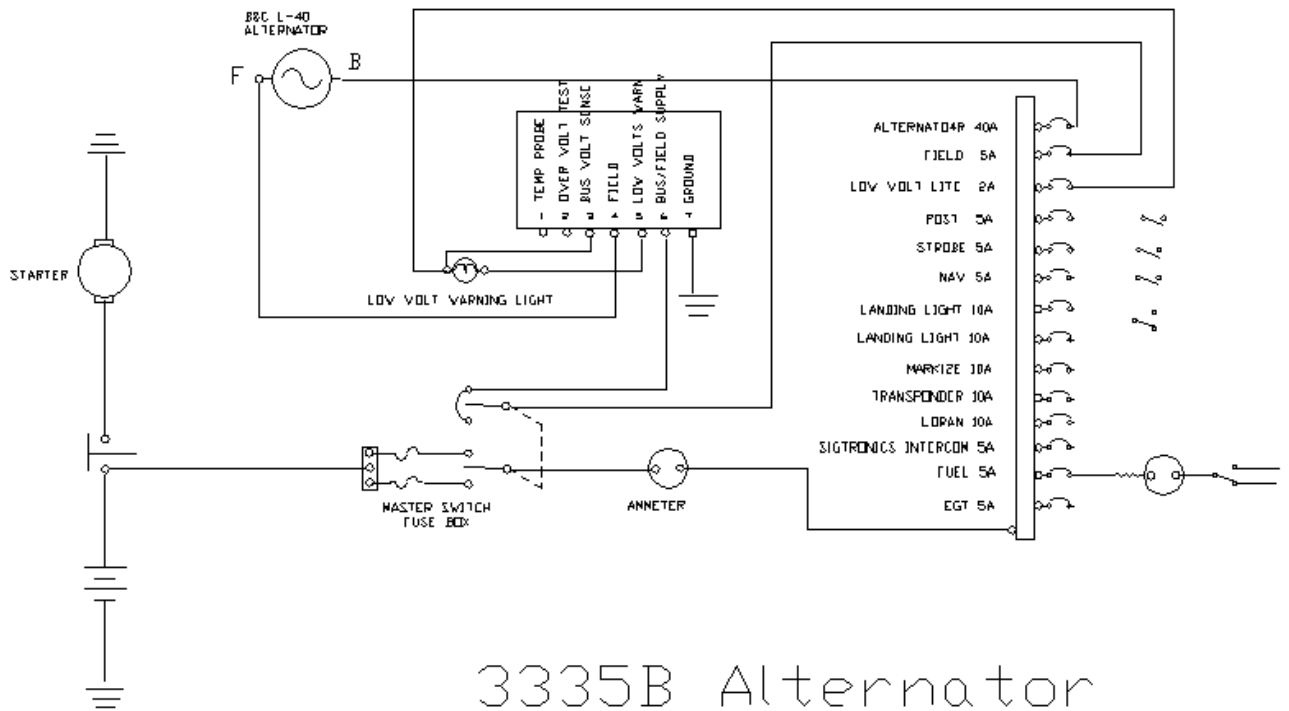


- NOTES**
1. WEIGHT: 6.1 LBS.
 2. REQUIRES AN EXTERNAL REGULATOR
 3. MAXIMUM STATOR TEMPERATURE TO BE 300° F (150° C).

UNLESS OTHERWISE SPECIFIED
TOLERANCES ARE:
DECIMAL IN = 0.09
DECIMAL DIA = 0.010
ANGLES = 0.5 DEGREES

B&L SPECIALTY PRODUCTS
129 E. 4th, NEWTON, KS. 67114 (316) 283-8000
DRAWN BY: DL
SCALE: 1:1
DATE: 11-26-92
FILE NAME: L-40-DUT.DRT
REVISION:

L-40 ALTERNATOR



3335B Alternator
Wiring Diagram

