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# Service Bulletin

## Service Bulletin No. 059

### Alternator Inspection for Burrs in the Rotor Shaft Hex Key Socket

#### 1. Planning Information

##### A. Effectivity

(1) Hartzell Engine Technologies LLC (HET), Alternator models:

(a) ES-10024 (CMI 656802), ALX-9524 (CMI 641670), ALX-9524R and ALV-9610 with serial numbers listed in Table 1. Alternators produced and/or delivered prior to October 29, 2013 are not affected.

**Table 1: Alternator Models ES-10024 (CMI 656802), ALX-9524 (CMI 641670), ALX-9524R, & ALV-9610 Affected Serial Numbers**

H-N101128	H-N101129	H-N101131	H-N101132	H-N101133	H-N101134	H-N101135	H-N101137
H-N101138	H-N101139	H-N101140	H-N101141	H-N101142	H-N101143	H-N101144	H-N101145
H-N101146	H-N101147	H-N101148	H-N101149	H-N101150	H-N101151	H-N101273	H-N101274
H-N101275	H-N101276	H-N101277	H-N101278	H-N101279	H-N101280	H-N101281	H-N101282
H-N101283	H-N101284	H-N101285	H-N101286	H-N101287	H-N101289	H-N101290	H-N101292
H-N101293	H-N101294	H-N101295	H-N101296	H-N101297	H-N101298	H-N101299	H-N101300
H-N101303	H-N101304	H-N101305	H-N101306	H-N101307	H-N101308	H-N101309	H-N101310
H-N101312	H-N101403	H-N101405	H-N101406	H-N101407	H-N101408	H-N101409	H-N101410
H-N101411	H-N101412	H-N110057	H-N110058	H-N110059	H-N110060	H-N110061	H-N110062
H-N110063	H-N110064	H-N110065	H-N110066	H-N110067	H-N110068	H-N110069	H-N110070
H-N110071	H-N110072	H-N110073	H-N110074	H-N110075	H-N110076	H-N110077	H-N110078
H-N110079	H-N110080	H-N110081	H-N110082	H-N110083	H-N110084	H-N110085	H-N110086
H-N110087	H-N110088	H-N110089	H-N110090	H-N110091	H-N110370	H-N110371	H-N110373
H-N110521	H-N110523	H-N110524	H-N110525	H-N110526	H-N110527	H-N110528	H-N110529
H-N110530	H-N110532	H-N110533	H-N110534	H-N110535	H-N110536	H-N110537	H-N110538
H-N110539	H-N110540	H-N110670	H-N110671	H-N110672	H-N110673	H-N110674	H-N110675
H-N110676	H-N110678	H-N110679	H-N110680	H-N110681	H-N110682	H-N110684	H-N110685
H-N110686	H-N110687	H-N110688	H-N110689	H-N110690	H-N110809	H-N110878	H-N110879
H-N110880	H-N110883	H-N110884	H-N111144	H-N111148	H-N120129	H-N120130	H-N120135
H-N120242	H-N120243	H-N120244	H-N120245	H-N120246	H-N120247	H-N120248	H-N120249
H-N120250	H-N120251	H-N120252	H-N120253	H-N120254	H-N120255	H-N120256	H-N120257
H-N120258	H-N120460	H-N120461	H-N120696	H-N120697	H-N120698	H-N120699	H-N120700
H-N120701	H-N120702	H-N120703	H-N120704	H-N120705	H-N120706	H-N120707	H-N120708
H-N120709	H-N120710	H-N120711	H-N120713	H-N120714	H-N120715	H-N120716	H-N120717
H-N120718	H-N120719	H-N120720	H-N120721	H-N120722	H-N120723	H-N120724	H-N120751
H-N120752	H-N120753	H-N120754	H-N120755	H-N120818	H-N120819	H-N120820	H-N120821
H-N120822	H-N120823	H-N120824	H-N120825	H-N120826	H-N120827	H-N120828	H-N120829
H-N120832	H-N120833	H-N120834	H-N120835	H-N120836	H-N120837	H-N120838	H-N120839
H-N120840	H-N120841	H-N120845	H-N120846	H-N120847	H-N120848	H-N120849	H-N120869

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### A. Effectivity (cont'd)

**Table 1 (cont'd): Alternator Models ES-10024 (CMI 656802), ALX-9524 (CMI 641670), ALX-9524R, & ALV-9610 Affected Serial Numbers**

H-N120870	H-N120871	H-N120872	H-N120873	H-N120874	H-N120875	H-N120876	H-N120877
H-N120878	H-N120879	H-N120880	H-N120882	H-N120883	H-N120884	H-N120885	H-N120886
H-N120887	H-N120888	H-N120889	H-N120890	H-N120899	H-N121068	H-N121069	H-N121070
H-N121071	H-N121073	H-N121074	H-N121075	H-O010633	H-O010635	H-O010636	H-O010637
H-O010638	H-O010644	H-O010648	H-O010649	H-O010650	H-O010651	H-O010652	H-O010653
H-O010654	H-O010657	H-O010658	H-O010659	H-O010660	H-O010661	H-O010662	H-O010663
H-O010815	H-O010919	H-O010922	H-O010924	H-O010925	H-O010926	H-O010927	H-O010928
H-O010929	H-O010930	H-O010931	H-O010932	H-O010940	H-O010944	H-O010947	H-O010949
H-O010951	H-O020322	H-O020323	H-O020325	H-O020327	H-O020328	H-O020329	H-O020330
H-O020331	H-O020332	H-O020333	H-O020335	H-O020338	H-O020339	H-O020344	H-O020346
H-O020347	H-O020348	H-O020349	H-O020359	H-O020360	H-O020364	H-O020473	H-O020547
H-O020956	H-O020957	H-O020959					

**WARNING:** DO NOT USE OBSOLETE OR OUTDATED INFORMATION. PERFORM ALL INSPECTIONS OR WORK IN ACCORDANCE WITH THE MOST RECENT REVISION OF THIS SERVICE BULLETIN. INFORMATION CONTAINED IN THIS SERVICE BULLETIN MAY BE SIGNIFICANTLY CHANGED FROM EARLIER REVISIONS. FAILURE TO COMPLY WITH THIS SERVICE BULLETIN OR THE USE OF OBSOLETE INFORMATION MAY CREATE AN UNSAFE CONDITION THAT MAY RESULT IN DEATH, SERIOUS BODILY INJURY, AND/OR SUBSTANTIAL PROPERTY DAMAGE. REFER TO THE HET WEBSITE FOR THE MOST RECENT REVISION LEVEL OF THE SERVICE BULLETIN.

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#### B. Concurrent Requirements

- (1) None

#### C. Reason:

- (1) Burrs formed during the fabrication of the rotor shaft hex key socket may not have been removed at the time of manufacture. If present, the burrs could dislodge and enter the crankcase.
- (2) Advise the field of this condition and require an inspection for and removal of any burrs found in the rotor shaft hex key socket.
- (3) Regulatory action is unknown.

#### D. Description

- (1) This Service Bulletin provides Instructions for Continued Airworthiness (ICA).
- (2) This Service Bulletin is being issued to require an inspection and removal of burrs which may be contained within the rotor hex key socket in ES-10024 (CMI 656802), ALX-9524(R) (CMI 641670) and ALV-9610 alternators.

#### E. Compliance

- (1) For affected alternators in service, at the next maintenance event, remove the affected alternator and perform Accomplishment Instructions.
- (2) For affected alternators in inventory, perform the Accomplishment Instructions in 3.C prior to first installation of the alternator or return the alternator to HET for credit/exchange.
- (3) Compliance with the Accomplishment Instructions in this Service Bulletin is terminating action for this Service Bulletin.

#### F. Approval

- (1) FAA approval has been obtained on technical data in this publication that affects type design.

#### G. Manpower

- (1) If installed, approximately two (2) man hours are required for the following:
  - (a) Gaining access and removing the alternator.
  - (b) Inspection and corrective action.
  - (c) Installing the alternator and Return to Service.

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### H. Weight and Balance

(1) No change.

### I. Electrical Load Data

(1) No change.

### J. References

**CAUTION:** DO NOT USE OBSOLETE OR OUTDATED INFORMATION. PERFORM ALL INSPECTIONS OR WORK IN ACCORDANCE WITH THE MOST RECENT REVISION OF A DOCUMENT.

(1) Applicable Aircraft Service Instructions or Maintenance Manual.

(2) Applicable Aircraft AFM or POH.

(3) Applicable Continental Motors, Inc., engine Installation & Operation Manual.

(4) Applicable Continental Motors, Inc., engine Maintenance/Overhaul Manual and service publications.

(5) Continental Motors, Inc., service bulletin SB11-3.

### K. Other Publications Affected

(1) None.

## 2. Material Information

A. HET parts not required.

B. If required, obtain P/N from the engine manufacturer as applicable.

(1) One (1) each, drive coupling nut cotter pin.

(2) Four (4) each, alternator mounting bolt lock washers.

(3) One (1) each, alternator to engine crankcase gasket.

C. Supplemental materials may be required from non-HET sources.

D. A minimum two (2) inch section 5/16 inch hex stock, ball peen hammer and an awl may be needed. A 5/16 inch Allen wrench can be cut to create the hex stock tool.

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#### 3. Accomplishment Instructions

**WARNING 1:** THIS PROCEDURE MUST BE PERFORMED BY COMPETENT AND QUALIFIED PERSONNEL WHO ARE FAMILIAR WITH ENGINE AND AIRFRAME MAINTENANCE THAT IS SPECIFIC TO THE ENGINE ALTERNATOR SYSTEM. FAILURE TO DO SO MAY RESULT IN ECONOMIC LOSS, EQUIPMENT DAMAGE, AND/OR PHYSICAL INJURY.

**WARNING 2:** DO NOT USE OBSOLETE OR OUTDATED INFORMATION. PERFORM ALL INSPECTIONS OR WORK IN ACCORDANCE WITH THE MOST RECENT REVISION OF THIS SERVICE BULLETIN (SB) AND THE APPLICABLE AIRCRAFT MAINTENANCE MANUAL AND/OR ENGINE SERVICE INSTRUCTIONS. INFORMATION CONTAINED IN THESE MANUALS OR THIS SB MAY BE SIGNIFICANTLY CHANGED FROM EARLIER REVISIONS. FAILURE TO COMPLY WITH THE SB OR THE USE OF OBSOLETE INFORMATION MAY CREATE AN UNSAFE CONDITION THAT MAY RESULT IN DEATH, SERIOUS BODILY INJURY, AND/OR SUBSTANTIAL PROPERTY DAMAGE. REFER TO THE APPLICABLE ENGINE MANUFACTURER'S PUBLICATIONS AND/OR AIRCRAFT MAINTENANCE MANUAL INDEX FOR THE MOST RECENT REVISION LEVELS.

**CAUTION:** DO NOT DEPEND ON THIS SERVICE BULLETIN FOR GAINING ACCESS TO THE AIRCRAFT AND ENGINE. ACCESS REQUIRES THE USE OF THE APPLICABLE MANUFACTURER'S MAINTENANCE MANUALS OR SERVICE INSTRUCTIONS. IN ADDITION, ANY PREFLIGHT OR IN FLIGHT OPERATIONAL CHECKS REQUIRE USE OF THE APPROPRIATE AFM OR POH.

#### A. Identification (Alternators)

- (1) If positive identification of the alternator serial number CAN be made through the aircraft or engine documentation, and the alternator is affected, proceed to section 3.B.
- (2) If positive identification of the alternator serial number CANNOT be made through the aircraft or engine documentation, remove the cowling from the engine airframe as prescribed in the latest revision of the aircraft maintenance manual or service instructions and locate the alternator.
- (3) Locate the alternator data tag (see Fig. 1) and determine if the unit is affected per Effectivity A (1) and per Table 1 serial numbers.
  - (a) If the alternator IS NOT affected, proceed to section 3.D(5) for Return to Service.
  - (b) If the alternator IS affected, proceed with Accomplishment Instructions 3.B.

#### B. Inspection:

- (1) Inspection of the rotor shaft hex key socket is the same for alternators in inventory or installed on an engine.
  - (a) If the affected alternator is installed, it must be removed from the engine so that the rotor shaft is exposed to facilitate an inspection.
  - (b) Some alternators may not have a hex key socket. If the alternator rotor shaft does NOT have a hex key socket, no other corrective action is required.
    - (i) If placed in service and now removed, proceed to 3.D(2), Return to Service.
    - (ii) If it has not been placed in service, proceed to 3.E(2) Maintenance Record.

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- (2) Using a bright white light, inspect the rotor shaft hex key socket for the presence of burrs. Refer to the expanded view of Figure 1. It is not necessary to remove the gear drive coupling, cotter pin, and nut (if installed ) for the inspection.
- (3) Burrs , if present, will appear as curled segments of metal at the bottom of the hex socket.
  - (a) If any burrs are present, proceed to section 3.C Corrective Action.
  - (b) If there are no burrs present in the rotor shaft hex key socket then:
    - (i) If installed, proceed to section 3.C(3).
    - (ii) If not installed, proceed to section 3.E(2).

#### C. Corrective Action:

- (1) Place the alternator on a clean work bench. Using a bright white inspection light, count the number of burrs present in the alternator rotor shaft hex key socket.
  - (a) If all six burrs are present, continue to the next step.
  - (b) If there are less than six burrs, make note that burrs are missing and continue.
- (2) If installed, remove the cotter pin from the alternator rotor shaft drive coupling nut but do not remove nut.
  - (a) Insert the 2 inch hex stock tool into the rotor shaft hex key socket until it bottoms.

**CAUTION:** STRIKING THE HEX STOCK TOOL WITH EXCESSIVE FORCE MAY DAMAGE THE ALTERNATOR.

- (b) Using a ball peen hammer, lightly tap the hex stock tool two or three times, then remove hex stock tool.
  - (c) Remove loose burrs with an awl or equivalent. Capture loose burrs and discard.
  - (d) After the loose burrs are removed, visually inspect the alternator rotor shaft hex key socket again to assure all burrs have been removed. If any burrs are present repeat steps (a) through (d).
  - (e) For affected alternators in inventory, after all burrs are removed, proceed to 3.E(2) Maintenance Record.
- (3) If the alternator was removed from an engine and six burrs were not present, as a precautionary measure, change the engine oil and oil filter using the engine/aircraft manufacturers maintenance instructions.
  - (a) If a standard oil drain plug is installed, remove it to drain the engine oil. Examine the surface of the removed plug for burrs (plug may be magnetic). Remove burrs if observed.
  - (b) If an oil sump quick drain is installed, remove the quick drain to drain the engine oil. Flush the quick drain using mineral spirits in both directions. Examine thoroughly as burrs may have become trapped in the quick drain. Remove burrs if observed.

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#### D. Return to Service

- (1) Check the rotor shaft drive coupling nut torque and reinstall the cotter pin per the engine manufacturer's maintenance instructions. (Refer to CMI SB11-3 or latest.)
- (2) Reinstall the alternator on the engine per the engine/aircraft manufacturer's maintenance instructions using a new alternator to crankcase gasket and new lock washers.
- (3) Inspect the alternator installation on engine/aircraft as prescribed in the latest revision of the engine/aircraft manufacturer's maintenance manual or service instructions.
- (4) Check for oil leaks and perform recommended functional tests in accordance with the appropriate engine/aircraft manufacturer's maintenance manual and AFM or POH.
- (5) Using the applicable aircraft and engine manufacturer's maintenance manuals of the latest revision, install any portion of the aircraft that was removed to gain access.

#### E. Maintenance Record

- (1) For affected installed alternators, the aircraft or engine, as applicable, may be returned to service after making a logbook entry to indicate completion of this Service Bulletin as applicable noting compliance with this Service Bulletin as terminating action.
- (2) For affected alternators in inventory, place a copy of this service bulletin with a written and dated statement that indicates compliance with the applicable section HET SB 059 with the alternator prior to customer delivery.

#### 4. Contact Information

##### A. Contact HET Product Support for all communications regarding the technical content of this Service Bulletin.

- (1) Phone +1.334.386.5441
- (2) Fax +1.334.386.5410.
- (3) E-mail at [techsupport@HartzellEngineTech.com](mailto:techsupport@HartzellEngineTech.com).
- (4) Address

Hartzell Engine Technologies LLC  
2900 Selma Highway,  
Montgomery, AL 36108, USA.

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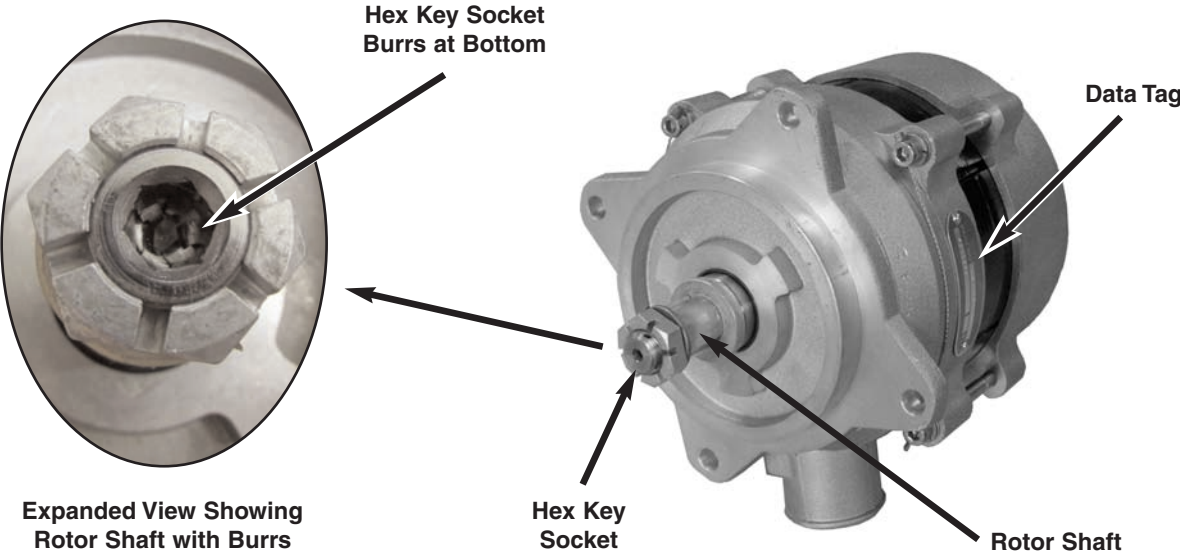


Fig. 1 - Typical Alternator with Rotor Shaft Close-up  
ES-10024 (CMI 656802) Gear Driven Alternator Shown  
(Other alternators affected are similar.)



Fig. 2 - Typical Burrs as Removed from Hex Key Socket



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### Alternator Inspection for Burrs in the Rotor Shaft Hex Key Socket

#### 1. ELIGIBILITY:

- A. ES-10024 (CMI 656802), ALX-9524 (CMI 641870), ALX-9524R and ALV-9610 alternators with serial numbers listed in Table 1 that are installed in aircraft/engines.
- B. ES-10024 (CMI 656802), ALX-9524 (CMI 641870), ALX-9524R and ALV-9610 alternators with serial numbers listed in Table 1 that have not been installed in aircraft/engines.
- C. Alternators produced and/or delivered prior to October 29, 2013 are not eligible.

#### 2. COMMERCIAL ASSISTANCE PROGRAM:

The following will be provided with the submission of a completed SB 059 Claim Form, copies of invoices showing breakdown of labor charges, material and log book entries. **Any commercial assistance or other consideration shall expire twelve (12) calendar months from the original published date of SB 059.**

- A. If an unused affected alternator assembly is returned to HET, it will be replaced under HET's limited warranty for components.
- B. Labor for removal & installation for affected alternators will be paid at a shop rate of \$75 an hour up to the amount specified below:
  - (1) Up to two (2.0) hours labor for CMI IO-520, TSIO-520, GTSIO-520 series engines.
  - (2) Up to two (2.0) hours labor for CMI IO-550, TSIO-550 series engines.
  - (3) Up to two & one half (2.5) hours labor for Lycoming TGIO-541 series engines.(Labor for removal of burrs in the alternator rotor hex key socket is included in the time above. Material allowance for non-HET parts for return to service if applicable, is included in the time above.)

#### 3. COMMERCIAL ASSISTANCE ADMINISTRATION:

- A. Complete the Service Bulletin SB 059 Claim Form attached to this appendix.
  - (1) Mail, e-mail, or fax the SB 059 Claim Form to the attention of Product Support as indicated on the Service Bulletin Claim Form.
- B. Upon receipt of the Service Bulletin Claim Form and affected alternator, Hartzell Engine Technologies LLC will ship a replacement alternator to the service provider indicated.
- C. For labor and material charges:
  - (1) Aircraft/engine service facility to submit an invoice up to the amount specified in section 2.B and copies of logbook entries for reimbursement.

#### 4. WARRANTY STATEMENT:

- (a) The sole warranty for the actions of SB 059 are contained in the HET Limited Warranty Policy issued with the purchase of each new/overhauled alternators (see terms and conditions therein).
- (b) Commercial assistance may apply as stated in this Appendix.
- (c) Issuance of SB 059 in no way constitutes an implied or expressed warranty of any kind.
- (d) This publication does not imply or state any responsibility for the workmanship of any person or entity performing work or maintenance on the engine or aircraft electrical system.

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### 5. CONTACT INFORMATION:

A. Contact HET Product Support for all communications regarding the technical content of this Service Bulletin.

- (1) Phone +1.334.386.5441
- (2) Fax +1.334.386.5410.
- (3) E-mail at techsupport@HartzellEngineTech.com.
- (4) Address

Hartzell Engine Technologies LLC  
2900 Selma Highway, Montgomery, AL  
36108, USA.

### 6. SHIPPING INFORMATION:

If an unused alternator is being returned, the affected parts must be securely packaged so no damage will occur. A copy of the properly completed SB 059 Claim Form for each affected part must be placed inside the shipping container. All parts must be received undamaged and assembled. Address package to Hartzell Engine Technologies LLC, Product Support Department, 2900 Selma Highway, Montgomery, AL 36108, USA. Also mark "PRODUCT SUPPORT DEPT / SB 059 Rev. New" clearly on the outside of the shipping container.

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### SB 059 CLAIM FORM

#### Owner information

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Tel: \_\_\_\_\_ Fax: \_\_\_\_\_

Company Name: \_\_\_\_\_ E-mail: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Postal Code: \_\_\_\_\_

Country: \_\_\_\_\_

#### Aircraft/Engine Service Facility information

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Tel: \_\_\_\_\_ Fax: \_\_\_\_\_

Company Name: \_\_\_\_\_ E-mail: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Postal Code: \_\_\_\_\_

Country: \_\_\_\_\_

Aircraft Mfg: \_\_\_\_\_ Model: \_\_\_\_\_ Time in Service: \_\_\_\_\_ S/N: \_\_\_\_\_

Engine: \_\_\_\_\_ Model: \_\_\_\_\_ Time in Service: \_\_\_\_\_ S/N: \_\_\_\_\_

#### Component Information

Nomenclature: Alternator Assembly \_\_\_\_\_ Part Number: \_\_\_\_\_

Serial Number: \_\_\_\_\_ (Alternator) Date Removed: \_\_\_\_\_

Part Time in Service: \_\_\_\_\_ (Alternator) Original Date Installed: \_\_\_\_\_

Send this SB 059 Claim Form to:

Hartzell Engine Technologies Product Support

Fax: +1.334.386.5450

E-mail: techsupport@hartzellenginetech.com

**Hartzell Use Only - do not write below this line.**

Warranty No: \_\_\_\_\_ Authorized by: \_\_\_\_\_