DOCUMENT NUMBER: ICA-172-33-00001
DOCUMENT TITLE: WHELEN MODEL 71368 LANDING, TAXI, & RECOGNITION LIGHT SYSTEM
SUPPLEMENT

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DOCUMENT NOTES:
1. PRINTS WILL NOT ACcompany THIS RELEASE
2. RELEASING P/L TO REFLECT ESTABLISHED EFPY
3. SERIAL CONFIRMED
4. EXPERIMENTAL RELEASE
5. SUPERSEDED IN ENG FILES ONLY
GENERAL NOTES:
6. CANCELLED
7. INACTIVE
8. NEVER USED
9. OBSOLETE
N DOC NOT REQD FOR CERTIFICATION

DISTRIBUTION:
Whelen Model 71368
Landing, Taxi and Recognition Light System
ICA Supplement

MODEL NO: 172R, 172S, 182T, T182T, 206H, & T206H

SUPPLEMENT NO: ICA-172-33-00001

SUPPLEMENT DATE: 07/13/2010

PREPARED BY: BSP

CHECKED BY: ETP

APPROVED BY: MDM

APPROVED BY: DWW

APPROVED BY: BKR
## REVISIONS

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**ECR 067504**

### Section | Description
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All | Initial Release

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**ECR 067504**

### Section | Description
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3.2 | Updated airborne and on-ground logic for modes of operation and added a note to cover the minimum NAV III System Software Build
3.4.2 | Revised second sentence. Was “Refer to Attachment 1 of this ICA Supplement for wiring definition if Wiring Diagram Manual revision is incomplete or unavailable prior to delivery of aircraft.”.
3.4.2 | Added third sentence.
5.2 | Whelen drawing 71368 was Rev A now Rev B.
5.2 | Removed Cable Clamp and part numbers
5.3 | Revised wording in second sentence. Was “If revision to manual is incomplete at time of delivery of aircraft use the following electrical load data.”.
6.2.3 | Added “This verifies Landing Light function operation.”.
6.2.5 | Added “This verifies Taxi Light function operation.”.
6.2.6.3 | 60 knots was 55 knots.
6.2.6.3 | Added “ensure that True Airspeed (TAS) is also greater than 50 kts in the True Airspeed window”
6.2.7 | Added “This verifies Recognition Light function operation.”.
Table 6.4.2 | Updated troubleshooting table section “One or both light assemblies function as a Recognition light (pulsing on the ground)”.
Table 6.4.3 | Updated troubleshooting table section “Both light assemblies do not pulse.”
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1. INTRODUCTION

1.1. Purpose

1.1.1. The purpose of this Instruction for Continued Airworthiness Supplement is to provide the maintenance technician with the information necessary to ensure the correct functionality and performance of the Whelen Model 71368 Landing, Taxi and Recognition (LTR) Light system on the Cessna Models 172R, 172S, 182T, T182T, 206H and T206H.

1.1.2. This supplemental document is designed to satisfy 14 CFR 23.1529 "Instructions for Continued Airworthiness" requirements associated with this installation. This document is a supplement to the Cessna Aircraft Company Model 172R/172S, 182S/182T/T182T, or 206H/T206H Maintenance Manual and may or may not be incorporated.

1.1.3. If this information is incorporated into the Model 172R/172S, 182S/182T/T182T, or 206H/T206H Maintenance Manual, the maintenance manual shall take precedence over this supplemental document. Refer to the application ATA chapter and section of the respective Maintenance Manual for the status of all ICA Supplements applicable to your model.

**NOTE:** This document must be placed with the aircraft operator's Technical Library CD-ROM or Maintenance Manual and incorporated into the operator's scheduled maintenance program.
2. APPLICABILITY

2.1. Effectivity

This Instruction for Continued Airworthiness (ICA) supplement is effective for the following aircraft models and serials where this Whelen Model 71368 LTR Light system is installed at the factory:

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Table 1 Installation ICA Effectivity

2.2. Complete ICA Documents

2.2.1. The following document(s), in conjunction with this supplement, constitute the Instructions for Continued Airworthiness for the Whelen Model 71368 LTR Light system. All items for the applicable aircraft Model must be available to the operator at initial delivery.

- Model 172R/172S Maintenance Manual
- Model 206H/T206H Maintenance Manual
- Model 172R/172S Wiring Diagram Manual
- Model 172R AFM Pilot Operating Handbook 172RPHBUS-02 or later approved revision
- Model 172S AFM Pilot Operating Handbook 172SPHBUS-02 or later approved revision
- Model 182T AFM Pilot Operating Handbook 182TPHBUS-03 or later approved revision
- Model T182T AFM Pilot Operating Handbook T182TPHBUS-03 or later approved revision
- Model 206H AFM Pilot Operating Handbook 206HPHBUS-04 or later approved revision
- Model T206H AFM Pilot Operating Handbook T206HPHBUS-04 or later approved revision
3. DESCRIPTION AND OPERATION

3.1. Description

ECR 067504 defines the Engineering change requirements for incorporation of the Whelen model 71368 LTR Light system. This standard aircraft production change replaces two High Intensity Discharge (HID) lights (Landing & Taxi) that were located in the leading edge of the left wing with Light Emitting Diode (LED) multi-function Landing, Taxi & Recognition (LTR) lights, one each located in the left and right wings. Refer to Figure 1 for Model T182T LED LTR light system installation.

Figure 1  Model T182T Prototype LED LTR Light Installation
Whelen model 71368 LTR light consists of 18 high intensity LED’s whose light emitting angles are determined by three lenses. (Refer to Figure 2 for LTR light assembly). Each lens diffuses the light for a string of 6 LED’s. The two outboard lenses have a high intensity narrow beam spread while the center lens (known as the spreader lens) has a lower intensity but broader horizontal beam spread.

Figure 2 Whelen 01-0771368-00 LTR Light Assembly
3.2. Operation

Model 71368 LTR light system provides 3 functions for the pilot: Landing light, Taxi light and pulsing Recognition light. All three functions are selected by the pilot using a single three position toggle switch labeled LAND, RECOG/TAXI, OFF. Since two functions share the center position on the toggle switch, selection of Recognition or Taxi functions depends on a discrete electrical input from Garmin G1000 system to the lights that defines when the aircraft is in the Airborne Mode ("In-Air" pin grounded) or in the Ground Mode ("In-Air" pin open). With the toggle switch in RECOG/TAXI position, Airborne Mode activates the Recognition function and Ground Mode activates the Taxi function. Airborne and Ground Mode logic is as follows:

- Aircraft is in Airborne Mode when a valid GPS groundspeed is greater than 30 kts or a valid True Airspeed is greater than 50 kts or both GPS and True Airspeed are invalid.
- Aircraft is in Ground Mode when not in Airborne Mode.

Note: The mode output functionality from the Garmin G1000 system is only available with NAV II System Software Builds 0563.20 or later. The build can be verified on the AUX – SYSTEM STATUS Page, located on the MFD.

3.2.1. Landing Function

Landing function is typically used during Landing and Takeoff operational phases. With the switch in the upward LAND position all 18 LED's on each left and right light assembly's are lit continuously. Power for all LED's is supplied through the LAND LTS circuit breaker.

3.2.2. Taxi Function

Taxi function is typically used for taxiing or ground operational phases. With the switch in the center RECOG/TAXI position and the aircraft on the ground ("In-Air" pin open) the 6 center LED's on each assembly are on steady. Power for these 12 LED's is supplied through the RECOG/TAXI LTS circuit breaker.

3.2.3. Recognition Function

Recognition function is designed for use during flight operational phases (other than Night Landing or Night Takeoff) where there is a desire to increase own-aircraft visibility to other close proximity aircraft. With the switch in the center...
RECOG/TAXI position and the aircraft in flight ("In-Air" pin grounded), all 18 LED's on each light assembly pulse alternately between left and right assemblies. A "Sync" function wire between each assembly controls the synchronization of the system pulsing. The right light assembly is the controlling "master" unit and the left light is the "slave". The total system pulse frequency is 75 pulses per minute with a 75% duty cycle. Power for all pulsing LED's is supplied through the RECOG/TAXI LTS circuit breaker.

The system is designed such that with a complete single system function failure:

- Landing function may be used as a backup for Taxi or Recognition functions
- Recognition and Taxi functions may be used as a backup for Landing function

For the Landing and Taxi functions, both left and right LTR assemblies function independently such that the loss of function of one assembly does not result in functional loss of the other.

3.3. System Components

3.3.1. WHELEN MODEL 71368 LIGHT ASSEMBLY

Figure 2 is a picture of Whelen 01-0771368-00 LTR Light Assembly. Two assemblies are installed in each aircraft; one in the left wing leading edge and one in the right wing leading edge.

3.3.2. LIGHT MOUNTING BRACKET

Figure 3 is a drawing view of a typical LTR Light Installation with mounting bracket. Minor light aiming adjustments can be accomplished via washers between the bracket and wing spar attachment points (3 points).
3.3.3. SWITCH – LANDING/TAXI/RECOGNITION LIGHT

The LTR light switch is located on the pilots Switch Panel and is collocated with the other external lighting switches. Refer to Figure 4 for location and labeling of switch. The single LTR switch replaces two earlier light switches (HID Landing and Taxi Lights).
3.3.4. CIRCUIT BREAKERS

The LTR wiring system is electrically protected by two circuit breakers which are located on the pilot's circuit breaker panel. The 5 amp breakers (LAND LTS and RECOG/TAXI LTS) replace two 10 amp breakers (LAND LT and TAXI LT) that were used on the previous HID Landing & Taxi Light system. Refer to Figure 4 for location and labeling of circuit breakers.

3.4. Aircraft Wiring

3.4.1. Interior Wiring

N/A
3.4.2. Electrical Wiring

Refer to the applicable Model 172R/172S, 182S/182T/T182T, or 206H/T206H Wiring Diagram Manual, Chapter 33 Lights, for wiring definition of the LED Landing, Taxi and Recognition Light system. Refer to Attachment 1 of this ICA Supplement for system wiring definition if Wiring Diagram Manual revision has not been incorporated. If incorporated, the Wire Diagram Manual shall take precedence over this supplemental wiring definition. The wire routing for the system follows existing bundles in the fuselage. The wire routing in the wings follows existing bundles except for a short bundle section near each LTR light where several leading edge rib lightening hole wire anchors were added to support the LTR light bundle.
4. REMOVAL AND INSTALLATION

NOTE: If applicable, make sure that the aircraft is configured for maintenance as defined by the associated system in the maintenance manual or in this document, including the removal of electrical power, avionics power, hydraulic power, etc., prior to removal or installation of aircraft components.

4.1. LED Landing/Taxi/Recognition Light

NOTE: Removal/installation is the same for left and right wing lights

4.1.1. LED Landing/Taxi/Recognition Light Removal (Refer to Figure 201 in Maintenance Manual)

1. Disconnect the main battery from the airplane. Refer to Maintenance Manual Chapter 24, Battery – Maintenance Practices.
2. Set the Landing/Taxi/Recognition light switch to OFF.
3. Remove and retain the screws that attach the lens assembly to the leading edge of the wing and remove the lens assembly from the airplane.
4. Disconnect the electrical connector that connects the light to the wing bundle (JL012 or JR013).
5. Remove and retain the six screws and lock washers that hold the light to the light bracket and remove the light from the airplane.

4.1.2. LED Landing/Taxi/Recognition Light Installation (Refer to Figure 201 in Maintenance Manual)

1. Put the light at the correct wing location (between WS 136.00 and WS 154.00) and put the light wires and connector through the light bracket inboard lightening hole.
2. With six screws and six lock washers, attach the light to the bracket.
   NOTE: Light is symmetrical. There is not a defined top or bottom of the light.
3. Connect the electrical light connector to the connector on with wing bundle (JL012 or JR013). Secure wires as necessary.
4. With screws install the lens assembly to the leading edge of the wing.
5. Connect the main battery to the airplane. Refer to Maintenance Manual Chapter 24, Battery – Maintenance Practices.
6. Do the LED Landing/Taxi/Recognition Light System Test. Refer to the Testing, Return to Service, and Troubleshooting section of this supplement.
5. MAINTENANCE AND SPECIAL TOOLS

5.1. Maintenance – LTR Light Line Replaceable Units (LRU)

There are no specified maintenance requirements for the Whelen model 71368 LTR Light assembly.

5.2. System Wiring

Refer to the Wiring Diagram Manual, Chapter 20, Standard Practices, for wiring maintenance requirements and practices. Whelen model series 71368 light connector is field repairable. Use replacement connector parts defined on Whelen drawing 71368 Rev B or later approved revision:

Connector: Tyco Electronics 206434-1
Pin: Tyco Electronics 205089-1 (Military M39029/64-369) Qty 8

5.3. Load Analysis Data

Refer to the applicable Model 172R/172S, 182S/182T/T182T, or 206H/T206H Maintenance Manual Chapter 24, Electrical Power, Electrical Load Analysis – Description And Operation, Table 3 “Components used only on airplanes that have Garmin G1000 installation” for electrical current consumption of the LED Landing/Taxi/Recognition Lights. If LED LTR light currents have not been incorporated in the appropriate maintenance manual use the following electrical load data:

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<tr>
<td>LED Taxi Lights (qty 2)</td>
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</tr>
<tr>
<td>LED Recognition Lights (qty 2)</td>
<td>1.5</td>
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</tr>
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</table>
6. TESTING, RETURN TO SERVICE AND TROUBLESHOOTING

6.1. LED Landing/Taxi/Recognition Light Aiming Check and Adjustment

The LED Landing/Taxi/Recognition Lights are set to specified positions at the factory, but minor adjustments are possible as necessary. The procedures that follow give checks for the approved aiming of the LED lights.

6.1.1. Vertical Aiming Check and Adjustment

Vertical Aiming Check and Adjustment is the same for left and right wing lights. This procedure requires a digital inclinometer that can measure to the nearest tenth of a degree.

6.1.1.1. Park the airplane on a flat, level surface.

6.1.1.2. Remove the screws that attach the lens assembly to the leading edge of the wing and remove the lens assembly from the airplane.

6.1.1.3. Level airplane to waterline 0 ± 0.1° and wings level 0 ± 2° (Refer to maintenance manual 8-10-00 Leveling Maintenance Practice for lateral and longitudinal leveling procedures).

6.1.1.4. Determine the light vertical aiming angle by use of a digital inclinometer on the center of the light face. Assume the light's center beam emits normal to the face of the light. Record the vertical aiming angle to the nearest tenth of a degree. Record if angle is with light pointing up or down from water line zero. Approved factory-set vertical aiming is with the light pointing down 3.0 ± .5° from waterline zero (Refer to Figure 5 of this ICA supplement).

6.1.1.5. If required, adjust the light vertical aiming to the approved position by adding .016" or .032" thick NAS1149 washers (or equivalent) on upper or lower mounting screws between the light mounting bracket and wing forward spar.

6.1.2. Horizontal Aiming Check and Adjustment

6.1.2.1. Horizontal aiming shall be checked visually at night on a flat, level, light colored surface. With switch selecting LAND position, both left and right
Landing Light Main Beams shall converge equally in front of the center of the aircraft. (Refer to Figure 5 of this ICA supplement).

6.1.2.2. If horizontal portion of the main beams diverge or do not converge equally in front of the center of the aircraft, adjust light horizontal aiming (left or right light) by adding .032" thick NAS1149 washer (or equivalent) on one upper mounting screw as required between light mounting bracket and wing forward spar. To maintain vertical aiming for this adjustment, one washer of half the thickness (0.16") needs to be added on center lower mounting screw.

Figure 5  LED LTR Light Aiming
6.2. LED Landing/Taxi/Recognition Light System Test

**NOTE:** This test requires a controllable pitot pressure source to simulate Garmin G1000 Airborne Mode, to test the Recognition Light function. Refer to Maintenance Manual 34-11-00 Pitot and Static Systems – Maintenance Practices, Pitot System Leak Test/Inspection for a method of pressurizing the pitot system.

**CAUTION:** LED’s are bright to the eye to look at. When verifying LED’s are on, do not look directly into the light face; look from at least a 45° angle.

6.2.1. Connect external power to the airplane.

6.2.2. Set the BAT MASTER switch to ON and the LAND/TAXI/RECOG light switch to LAND.

6.2.3. Do a check of the operation of the landing lights verifying steady illumination of all LED’s on both left and right lights. This verifies Landing Light function operation.

6.2.4. Set the landing/taxi/ recognition light switch to RECOG/TAXI.

6.2.5. Do a check of the operation of the taxi lights verifying steady illumination of the 6 center LED’s on both the left and right light assemblies. This verifies Taxi Light function operation.

6.2.6. Apply pitot system pressure to simulate Airborne Mode.

6.2.6.1. Apply a piece of air tight tape over the small hole in the lower aft end of the pitot tube.

6.2.6.2. Attach a controllable pressure source to the end of the pitot tube.

**CAUTION:** Do not apply a pitot pressure greater than 200 knots or less than 0 knots or damage to the Standby Airspeed indicator may occur.

6.2.6.3. Slowly increase pitot pressure to a minimum of 60 knots as shown on the Garmin primary flight display airspeed indicator; ensure that True Airspeed (TAS) is also greater than 50 kts in the True Airspeed window.

6.2.7. Do a check of the operation of the recognition lights verifying all 18 LED’s on each light assembly’s pulse alternately with left and right assemblies. This verifies Recognition Light function operation.

6.2.8. Set the landing/taxi/ recognition light switch to OFF.
6.2.9. Remove pitot system pressure

6.2.9.1. Slowly decrease pitot pressure to 0 knots.

6.2.9.2. Remove pressure source from the end of the pitot tube.

6.2.9.3. Remove the tape from the small hole in the lower aft end of the pitot tube.

6.2.10. Set the BAT MASTER switch to off.

6.3. Inspection/Check

6.3.1. LED Landing/Taxi/Recognition Lights Inspection

Refer to Maintenance Manual Chapter 5, Time Limits/Maintenance Checks, Inspection Time Limits, Item Code Number 334001. This 100 hour inspection item reads:

Navigation, Beacon, Strobe and Landing Lights – Check operation, condition of lens, and security of attachment.

The following 100 hour inspection item shall be added for LED Landing/Taxi/Recognition Lights:

LED Landing/Taxi/Recognition Lights – Check for condition of lenses and security of attachment. Complete the LED Landing/Taxi/Recognition Light System Test. Refer to Chapter 33, Landing/Taxi Lights – Maintenance Practices. Refer to Pilots Operating Handbook Kinds Of Operations Equipment List for minimum number of LED’s that are required to be operational.

The LED Landing/Taxi/Recognition Light System Test in the maintenance manual Chapter 33 will be the same test as section 6.2 of this ICA supplement.

6.3.2. Essential and Crossfeed Bus Diode Inspection Change

Maintenance manual inspection procedures for checking the Essential and Crossfeed Bus diodes use the independent incandescent or HID Landing and Taxi lights for checking correct operation of the diodes. This procedure is not practical using the integrated LED LTR light system. Maintenance manual section 24-61-01 Essential And Crossfeed Bus Diodes – Maintenance Practices, step 3.C will change to use the Beacon Light in place of the Landing Light and the Navigation Light in place of the Taxi Light. This can be accomplished because
the Beacon and Landing are both on Electrical Bus 1 and the Navigation and Taxi are both on Electrical Bus 2.
6.4. Troubleshooting Procedures

6.4.1. Landing Light Function

### Troubleshooting - Landing Light(s)

<table>
<thead>
<tr>
<th>Aircraft Condition – Landing/Taxi/Recognition Light Switch in the LAND position</th>
<th>Check Or Action Items</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Failure Condition</strong></td>
<td><strong>Check Or Action Items</strong></td>
</tr>
<tr>
<td>Individual or a group of 6 LED's inoperative on a light assy</td>
<td>Replace the light assembly that has inoperative LED's.</td>
</tr>
</tbody>
</table>
| One light assembly is inoperative (no LED's illuminate on one assembly) | 1. Check for 28 volts at inoperative light assy connector (JL012 or JR013) pins 1, 2 and 3. If not, verify wiring between light assy connector and switch panel disconnect (JC026 & JC037).  
2. Check for ground at inoperative light assy connector (JL012 or JR013) pin 4. If not ground, verify wiring between light assy connector pin 4 and ground stud (GL010 or GR010).  
3. With an external 28 VDC power source, power the suspect light assy using connector pin 1 connected to +28 V and pin 4 connected to power supply ground. Replace the light assembly if all LED's on the assembly do not illuminate. |
| Both light assemblies are inoperative (no LED's illuminate) | 1. Check that the LAND LTS and RECOG/TAXI LTS circuit breakers (HI065 & HI066) are engaged and a PFD Main Bus Voltage of approximately 28 volts.  
2. Check for 28 volts at switch panel disconnect PC026 pins 4, 5 and PC037 pin 3. If not 28 volts, verify system wiring in switch and circuit breaker panel wire bundles.  
3. Check for 28 volts at each light assy connector (JL012 & JR013) pins 1, 2 and 3. If not 28 volts, verify wiring between light assy connector and switch panel disconnect (JC026 & JC037). |
| One light assembly functions as a Taxi light (on the ground) or Recognition light (in flight) | 1. Check for 28 volts at inoperative light assy connector (JL012 or JR013) pin 1. If not 28 volts, verify wiring between light assy connector and switch panel disconnect (JC026) pin 4.  
2. With an external 28 VDC power source, power the suspect light assy using connector pin 1 connected to +28V and pin 4 connected to power supply ground. Replace the light assembly if all LED's on the assembly do not illuminate. |
| Both light assemblies function as a Taxi light (on the ground) or Recognition light (in flight) | 1. Check that the LAND LTS circuit breaker (HI065) is engaged.  
2. Check that the Electrical Bus 1 circuit breaker (F2) in the power junction box is engaged.  
3. Check for 28 volts at switch panel disconnect PC026 pin 4. If not 28 volts, verify wiring between PC026 pin 4 and HI065 LAND LTS circuit breaker.  
4. Check for 28 volts at each light assy connector (JL012 & JR013) pin 1. If not 28 volts, verify wiring between light assy connector pin 1 and switch panel disconnect (JC026) pin 4. |
### 6.4.2. Taxi Light Function

#### Troubleshooting - Taxi Light(s)

**Aircraft Condition – Landing/Taxi/Recognition Light Switch in the RECOG/TAXI position & aircraft on the ground**

<table>
<thead>
<tr>
<th>Failure Condition</th>
<th>Check Or Action Items</th>
</tr>
</thead>
</table>
| One light assembly is inoperative (no LED's illuminate on one assembly) | 1. Check for 28 volts at inoperative light assy connector (JL012 or JR013) pins 2 and 3. If not, verify wiring between light assy connector and switch panel disconnect (JC026 & JC037).  
2. Check for ground at inoperative light assy connector (JL012 or JR013) pin 4. If not, verify wiring between light assy connector pin 4 and ground stud (GL010 or GR010).  
3. With an external 28 VDC power source, power the suspect light assy using connector pins 2 & 3 connected to +28V and pin 4 connected to power supply ground. Replace the light assembly if the six center LED's on the assembly do not illuminate. |
| Both light assemblies are inoperative (no LED's illuminate) | 1. Check that the RECOG/TAXI LTS circuit breaker (HI066) is engaged.  
2. Check that the Electrical Bus 2 circuit breaker (F1) in the power junction box is engaged.  
3. Check for 28 volts at switch panel disconnect PC026 pin 5 and PC037 pin 3. If not, verify system wiring in switch and circuit breaker panel wire bundles.  
4. Check for 28 volts at each light assy connector (JL012 & JR013) pins 2 and 3. If not, verify wiring between light assy connector and switch panel disconnect (JC026 & JC037). |
## Troubleshooting - Taxi Light(s)

### Aircraft Condition – Landing/Taxi/Recognition Light Switch in the RECOG/TAXI position & aircraft on the ground

<table>
<thead>
<tr>
<th>Failure Condition</th>
<th>Check Or Action Items</th>
</tr>
</thead>
</table>
| One or both light assemblies function as a Recognition light (pulsing on the ground) | 1. Check for open circuit (no ground) at right light assy connector (JR013) pin 6. If ground, disconnect GEA71 connector PI038 and check again for open circuit at JR013 pin 6. If ground remains, verify wiring between JR013 pin 6 and GEA71 PI038 pin 2A. If open circuit, check Garmin 1000 system per Step 4.  
2. Check that there is no wire in Left light assy connector (JL012) pin 6.  
3. With an external 28 VDC power source, power the suspect light assy using connector pins 2 & 3 connected to +28V and pin 4 connected to power supply ground. Make sure pin 6 is not connected (open). Replace the light assembly if the six center LED's on the assembly do not illuminate steady and the outer 12 LED's illuminate (steady or pulse).  
4. To verify the Garmin G1000 System, perform the following:   - Verify the System Software is 0563.20 (or later).  
   - Verify the GEA71 PI038 pin 2A is open (no ground)  
   - With Pitot-Static Test Box verify pin 2A in the following conditions: Indicated TAS < 50 kts [GEA71 PI038 pin 2A, Open]. Indicated TAS > 50 kts [GEA71 PI038 pin 2A, Ground] – reference section 3.2.  
   - If Indicated Airspeed does not display on the PFD, inspect, repair and replace per the Garmin Line Maintenance Manual 190-00352-00 Rev P (or later).  
   - If pin logic does not follow as provided above inspect, repair and replace the GEA per the Garmin Line Maintenance Manual 190-00352-00 Rev P (or later). |
## 6.4.3. Recognition Light Function

<table>
<thead>
<tr>
<th>Troubleshooting - Recognition Light(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aircraft Condition – Landing/Taxi/Recognition Light Switch in the RECOG/TAXI position &amp; aircraft in flight (or simulated flight mode: pitot pressure greater than 50 knots)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Failure Condition</th>
<th>Check Or Action Items</th>
</tr>
</thead>
</table>
| Left light assembly only does not pulse   | 1. Disconnect right and left light assy connectors JR013 & JL012. Check for continuity between pin 8 on JR013 and pin 8 on JL012. Check for open circuit (not ground, not 28V) on both pins. If no continuity and not open circuit, verify wiring between pin 8 on JR013 and pin 8 on JL012.  
2. Interchange left and right light assemblies on the aircraft and retest the system. |
| Right light assembly only does not pulse  | With an external 28 VDC power source, power the right light assy using connector pins 2 & 3 connected to +28 V and pins 4 & 6 connected to power supply ground. Replace the light assembly if all LED’s on the assy do not pulse. |
| Not all LED’s on one light assembly pulse | With an external 28 VDC power source, power the suspect light assy using connector pins 2 & 3 connected to +28 V and pins 4 & 6 connected to power supply ground. Replace the light assembly if all LED’s on the assy do not pulse. |
| Both light assemblies do not pulse        | 1. Check for ground at right light assy connector (JR013) pin 6. If no ground, disconnect GEA71 connector PI038 and check for ground at P702 pin 2 on the GEA71. If ground on P702 pin 2, verify wiring between JR013 pin 6 and GEA71 PI038 pin 2A. If no ground, check Garmin 1000 system per Step 3.  
2. With an external 28 VDC power source, power the right light assy using connector pins 2 & 3 connected to +28 V and pins 4 & 6 connected to power supply ground. Replace the light assembly if all LED’s on the assy do not pulse.  
3. To verify the Garmin G1000 System, perform the following:  
   - Verify the System Software is 0563.20 (or later).  
   - Verify the GEA71 PI038 pin 2A is grounded (not open)  
   - With Pitot-Static Test Box verify pin 2A in the following conditions: Indicated TAS < 50 kts [GEA71 PI038 pin 2A, Open], Indicated TAS > 50 kts [GEA71 PI038 pin 2A, Ground] – reference section 3.2.  
   - If Indicated Airspeed does not display on the PFD, inspect, repair and replace per the Garmin Line Maintenance Manual 190-00352-00 Rev P (or later).  
   - If pin logic does not follow as provided above inspect, repair and replace the GEA per the Garmin Line Maintenance Manual 190-00352-00 Rev P (or later). |

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## Troubleshooting - Recognition Light(s)

### Aircraft Condition – Landing/Taxi/Recognition Light Switch in the RECOG/TAXI position & aircraft in flight (or simulated flight mode: pitot pressure greater than 50 knots)

<table>
<thead>
<tr>
<th>Failure Condition</th>
<th>Check Or Action Items</th>
</tr>
</thead>
</table>
| Both light assemblies pulse simultaneously (not alternately) | 1. Check that there is no wire in pin 7 on each light assy connector (JL012 & JR013). Pin 7 must be open circuit.  
2. With an external 28 VDC power source, power the right light assy using connector pins 2 & 3 connected to +28 V and pins 4 & 6 connected to power supply ground. Make sure pin 7 is not connected (open). Replace the right light assembly if all LED’s on the assy pulse at approximately 75 pulses per minute (correct output should be approximately 37.5 pulses per minute). An alternative to replacement of light assembly is to interchange left and right light assemblies on the aircraft and retest the system. |
7. AIRWORTHINESS LIMITATIONS

7.1. Limitations and Replacement Intervals


NOTE: The Airworthiness Limitations section is FAA-approved and specifies maintenance required under Section 43.16 and 91.403 of Title 14 Code of Federal Regulations, unless an alternative program has been FAA approved.

The Whelen Model 71368 Landing, Taxi, and Recognition Light system has no mandatory replacement time, inspection interval, or structural inspection procedures, and has no impact on Cessna Aircraft Company Model 172R/172S, 182S/182T/T182T, or 206H/T206H Maintenance Manual, Chapter 5, Time Limits/Maintenance Checks, section 5.00-10 "Airworthiness Limitations – FAA Approved Data".

7.1.1. Mandatory replacement times.

1. None

7.1.2. Mandatory inspection intervals.

1. None

7.1.3. Mandatory inspection procedures.

1. None
ATTACHMENT 1 LTR LIGHT SYSTEM WIRE DIAGRAM
Model 172R/172S shown. Model 182T, T182T, 206H & T206H similar.