Cessna HID Light Assembly Kit

INSTALLATION MANUAL No. HID-C-002

Model Applicability:
Cessna Models - 180J, 180K, 182P, 182Q, 182R, T182, R182, TR182, A185F, U206F, TU206F, U206G, TU206G, 210L, T210L, 210M, T210M, 210N, T210N, 210R, T210R, P210N, P210R, 337G, T337G, 337H, P337H, T337H, T337H-SP.
Reims Aviation S.A. Models – F182P, F182Q, FR182, F337G, FT337GP, F337H, FT337HP.

KNOTS 2U, LTD.
709 Airport Road
Burlington, WI 53105
262 763-5100
www.knots2u.com

REV #	DATE	EFFECT
A	3-21-06	ADDED EMI CHECKLIST AS SECTION 8.0. CHANGED BALLAST PART NUMBERS AS FOLLOWS: RMD-2281-08 BECAME RMD-2281-08A, RMD2281-09 BECAME RMD-2281-09A.
B	9-25-06	Revised Wiring Schematic Section 7 to reflect wire sizes. Revised EMI Checklist. Re-worded Section 1.0 for clarity. Removed words “red or white” and replaced with “white” in Section 2, Paragraph D.
C	11-1-06	Revised Wiring Schematic Section 7, to reflect wire size of HID-1-5-72-CA. Revised EMI Checklist.

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Section 1.0 **Introduction**

This manual describes the installation of cowl mounted HID lights which replace the factory cowl mounted landing and / or taxi lights. This approval extends only to models which are listed on the AML or are included in this manual. The installation must be accomplished in accordance with AC43.13-1B and 2A. The installation requires the mounting of a ballast and bulb. Before installing confirm the voltage of the ballast being installed is correct for the aircraft voltage.

Section 2.0 **Bulb And Ballast Installation**

A) Remove the bulb or bulbs you wish to replace from the cowling, retain the hardware and retainers for re-assembly.
B) Install the HID ballast to the firewall while referencing Figure A for ballast installation details. (Alternate ballast mounting locations may be chosen by the installer, provided that they will withstand the inertia forces stipulated in AC43.13-2A Chapters 1 & 3 to Section 2 A)
C) Connect black lead of cable # RMD-2281-11 to aircraft ground, verify ground continuity per AC43.13 1B/2A section 11. (Lead may be shortened if necessary)
D) Connect white lead of cable # RMD-2281-11 to existing landing / taxi light wire. (Lead may be shortened if necessary)
E) Install HID Light Part No. RMD-2280-08, landing light, and/or RMD-2280-09, Taxi Light in cowling using the same attachment method used with the factory lights.
F) Connect cable # HID-1-5-72-CA from ballast to bulb. Cable may be routed through cowling in the same manner as the factory landing / taxi light wires. (If the ballast is located closer to the light than the firewall, the shorter cable no. RMD-2281-10 may be used)
G) Confirm that all wires are secured with tie wraps or Adel clamps. For further information reference AC43.13-1B section 11-126
H) Test HID light, confirm there are no circuit breakers popped with all electrical equipment turned on. Also check for any electrical/magnetic interference with all radio and navigation equipment per EMI Checklist on page 7 of this manual..

Section 3.0 **Parts List**

See Figure B for Parts List

Section 4.0 **Specifications And Paperwork**

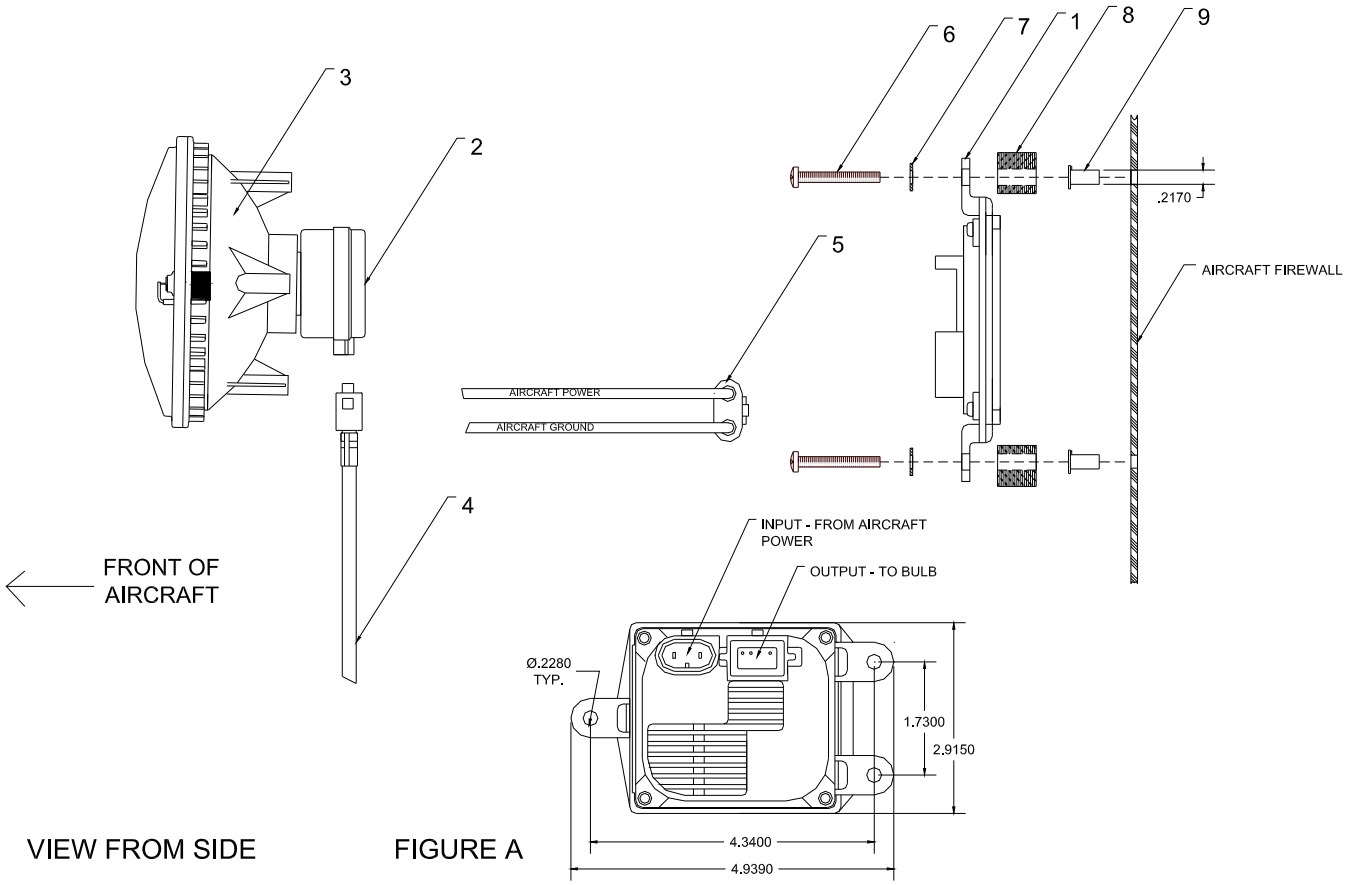
Complete FAA Form 337 for return to service and log book entry. Place a copy of the supplemental type certificate and Instructions for Continued Airworthiness with aircraft logs.

HID Assembly Weight .....……	**.95 lbs. each**
Minus Weight of Assembly Removed…….	**.45 lbs. each**
Weight Change	**.50 lbs. each - Negligible**

HID Amperage 12/14 Volt	**2.9 Amps**
HID Amperage 24/28 Volt	**1.5 Amps**

Amperage chart of stock bulb(s) removed:

12 / 14 Volt Systems		**24 / 28 Volt Systems**	
50 watt	**4.2 Amps**	**50 watt**	**2.1 Amps**
100 watt	**8.3 Amps**	**100 watt**	**4.2 Amps**
150 watt	**12.5 Amps**	**150 watt**	**6.3 Amps**
200 watt	**16.7 Amps**	**200 watt**	**8.3 Amps**
250 watt	**20.8 Amps**	**250 watt**	**10.4 Amps**
300 watt	**25 Amps**	**300 watt**	**12.5 Amps**



VIEW FROM SIDE FIGURE A

INDEX No.	PART No.	DESCRIPTION	UNITS PER ASSY.
1	RMD-2281-08A	BALLAST, HID, 24 VOLT	1
OR	RMD-2281-09A	BALLAST, HID, 12 VOLT	1
2	RMD-2280-06	BULB, D1S	1
3	RMD-2280-08	REFLECTOR HOUSING, HID LIGHT, CLEAR	1
OR	RMD-2280-09	REFLECTOR HOUSING, HID LIGHT, DIFFUSED	1
4	HID-1-5-72-CA	HID CABLE, BALLAST TO LAMP	1
5	RMD-2281-11	CABLE, A/C TO BALLAST	1
6	MS35206-251	MACHINE SCREW – PHILLIPS, PAN HEAD #832	3
7	MS35333-38	LOCKWASHER – INTERNAL TOOTH, #8	3
8	HID-2281-13	SPACER – NEOPRENE	3
9	A8K-75	RIVNUT – KEYED, #832	3

Hardware sizes are recommended, appropriate substitutions may be used.

Section 6.0

Instructions for Continued Airworthiness

Knots 2U, Ltd.
709 Airport Road
Burlington, WI 53105
262.763.5100
www.knots2u.com

Trouble Shooting

Problem	Solution	Comments
Light circuit breaker "pops" frequently.	Check wires for a short circuit. Remove and replace ballast.	Contact Knots 2U, Ltd. for a replacement.
HID Light does not illuminate, illuminates slowly or does not go to full power.	Replace bulb and / or ballast, verify function.	Contact Knots 2U, Ltd. for a replacement.

Maintenance / Inspection Requirements

Scheduled Inspections

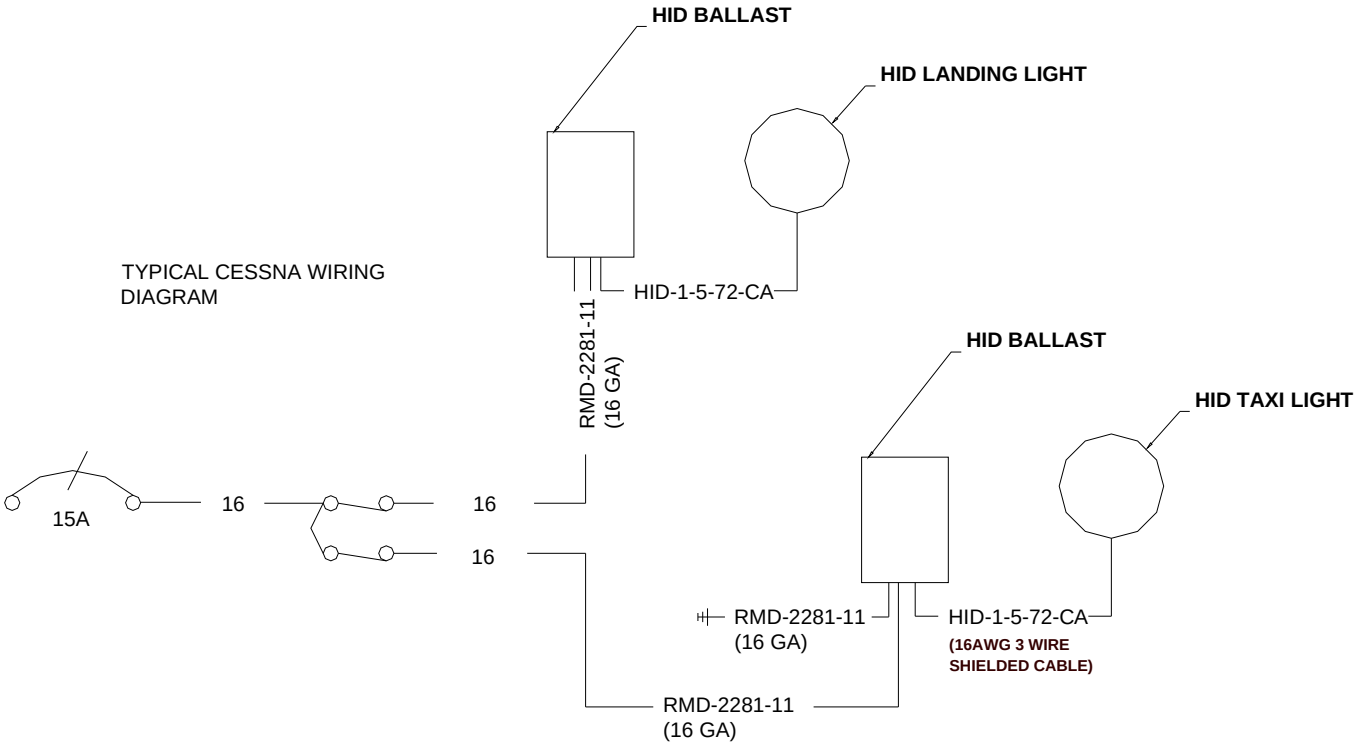
Inspection	Time interval	Comments
Remove landing light retainer and lens, inspect; A) Ballast for mounting security and general condition. B) Bulb housing, bulb and retainer plate for security and general condition.	Annual or 200 hours, whichever comes first.	Contact Knots 2U, Ltd. for a replacement.

Unscheduled Inspections

Inspection	Event	Comments
Remove landing light retainer and lens, inspect; A) Ballast for mounting and security B) Bulb housing, bulb and retainer plate for security and general condition. C) Perform function test.	Hard landing, Lightning Strike.	Contact Knots 2U, Ltd. for a replacement.

Section 7.0 **Typical Wiring Schematic**

This wiring schematic is typical of the aircraft approved by this manual and is shown as reference. See the appropriate Cessna Service Manual for wiring schematics applicable to your aircraft.



Section 8.0 EMI Checklist

1. This EMI checklist must be completed after installation of the HID light(s). The purpose of this checklist is to insure that there is no interference between the HID lighting system, and other systems already installed in the aircraft. If interference is detected, contact Knots 2U, Ltd.

    a. VHF Radio Check

    - With the VHF Radio on, adjust to the squelch activation threshold. Test the following frequencies, 121.7, 122.95, 128.7, and 131.3. Note any normal background noise.
    - Activate HID light(s) and repeat frequency check. Note any deviation in background noise between tests, or any other anomalies.
    - Repeat check on any additional radios.

    b. VOR Check

    - With the nav radio on, tune to a local frequency and center the course needle with valid flag and To/From indication.
    - Activate HID light(s), note any needle movement. (CDI, valid flag To/From) Also check for any other anomalies.
    - Repeat check on any additional nav radios.

    c. ADF Check

    - With the ADF/NDB on. Test at least three frequencies, one near the low ADF/NDB frequency range, one near the middle ADF/NDB frequency range and one in the higher ADF/NDB frequency range. Verify proper needle indication and valid flag.
    - Activate HID light(s) and repeat frequency check. Note any deviation in needle indication or flag. Also check for any other anomalies.
    - Repeat check on any additional ADF/NDB driven equipment.

    d. GPS Check

    - Turn on GPS and set to a way - point at least 100 miles away. Center course needle by selecting “Direct To”. If multi function display is installed, verify valid course on map.
    - Activate HID light(s). Note any deviation in readings. Also check for any other anomalies.
    - Repeat test for each additional GPS.

    e. Additional Equipment

    Operate any other equipment and test for interference with the HID light(s). Individual equipment installation and/or operation manuals may be referenced for specific test procedures.