

HID Light Assembly Kit

APPLICABLE MODELS

Piper PA-24/30/39

KNOTS 2U, LTD.

***709 Airport Road
Burlington, WI 53105
262 763-5100
www.knots2u.com***

Rev #	Date	Page(s) Effected	Effect
A	07/04/03	1, 3, 4 and 6	Replaced Phillips ballast P/N RMD2280-02 and RMD2280-03 with OSHRAM/Sylvania Ballast P/N RMD2281-08 and RMD2281-09
B	01/12/05	1,3	Showed Phillips ballast as obsolete on parts list page 3
C	05/08/05	1,3,4.	Replaced Part No. RMD-2280-01 with Part No. RMD-2280-08.
D	03/21/06		Added EMI Checklist as section 9.0. Revised Dwg. No. RMDHID. Revised section 4.0 to reference Dwg. No. RMDHID for parts list.

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Section 1.0

Introduction

This manual describes the installation of wing mounted HID Landing lights for all Piper PA-24/30/39 aircraft. The installation must be accomplished in accordance with AC43.13-1B and 2A. The installation requires the mounting of a ballast on the outboard side of the end rib of each wing. The bulb is mounted using the same attachment method as the bulb it is replacing. HID Lights may be installed individually or as a set.

Section 2.0

Left Side Installation

- A) Remove the left wing tip and landing light bulb. Install new bulb using original screws.
- B) Locate ballast on an appropriate position on the outboard side of the end wing rib, reference dwg. no. RMDHID. 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.
- C) Mount ballast per drawing # RMDHID.
- D) Connect cable # RMD-2281-10 from ballast to bulb.
- E) Connect black lead of cable # RMD-2281-11 to aircraft ground, verify ground continuity per AC43.13 1B/2A section 11.
- F) Connect white lead of cable # RMD-2281-11 to aircraft power.
- G) Confirm that all wires are secured with tie wraps or Adel clamps. Special care should be taken locating wires in aircraft equipped with tip tanks. With some exceptions, a minimum separation of 6" is required between a power wire and a fuel tank or fuel line. For further information reference AC43.13-1B section 11-126
- H) Replace wing tip confirming all nav/strobe wires are re-secured.
- I) For 12 volt systems use a 10 Amp circuit breaker for two lights, or individual 5 Amp breakers for each light. For 24 volt systems use a 10 Amp breaker for two lights or individual 5 Amp breakers for each light.
- J) Confirm lights are adjusted properly and function test. Confirm there are no circuit breakers popped with all electrical equipment turned on. Also check for any electrical/magnetic interference with radio or navigation equipment per EMI Checklist, section 9.0 of this manual.

Section 3.0

Right Side Installation

Repeat steps A thru J above for right side installation.

Section 4.0

Parts List

See D for parts list.Dwg. No. RMD HI

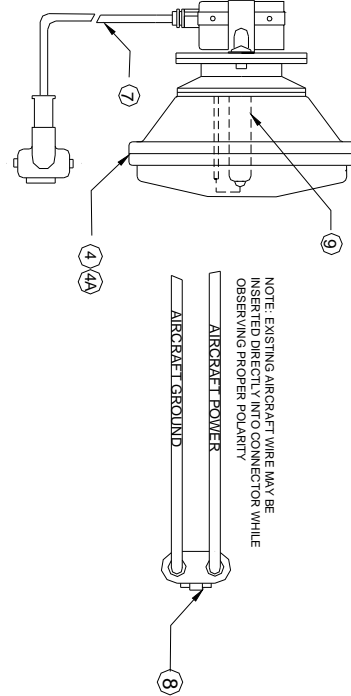
Section 5.0

Paperwork

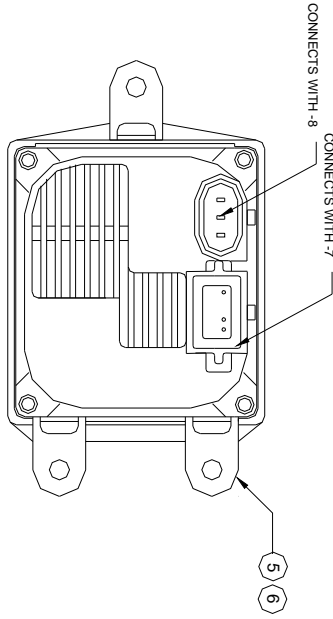
Complete FAA Form 337 for return to service, log book entry and weight and balance. Place a copy of the supplemental type certificate, drawing RMDHID and maintenance / trouble shooting manual with aircraft logs.

Weight	+ 0.95 lbs. each including ballast and cable
Minus weight of bulb removed	- 0.45 lbs. each
Weight Change	+ 0.50 lbs. each
Arm	103.00"
Amperage	3.1 Amps
Amperage of stock bulb removed	7.1 Amps

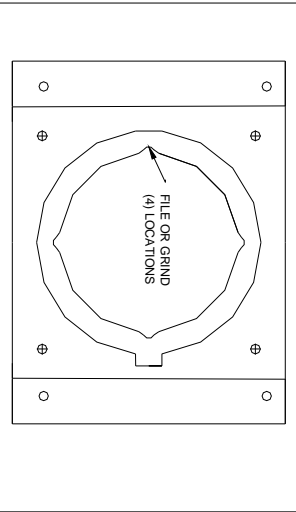
REV.	DATE	EFFECT
A	7-4-03	REPLACED PHILLIPS BALLAST WITH OSRAM SYLVANIA BALLAST
B	3-24-06	REPLACED PART NO. RMD-2280-01 WITH PART NO. RMD-2280-06. ADDED VIEW B
C	3-21-06	REPLACED RMD-2281-08 WITH RMD-2281-09A, REPLACED RMD-2281-09 WITH RMD-2281-09A, REVISED BALLAST INSTALLATION DETAIL. ADDED PART NUMBER HIG-2281-13 WITH ASSOCIATED INSTALLATION INSTRUCTIONS.



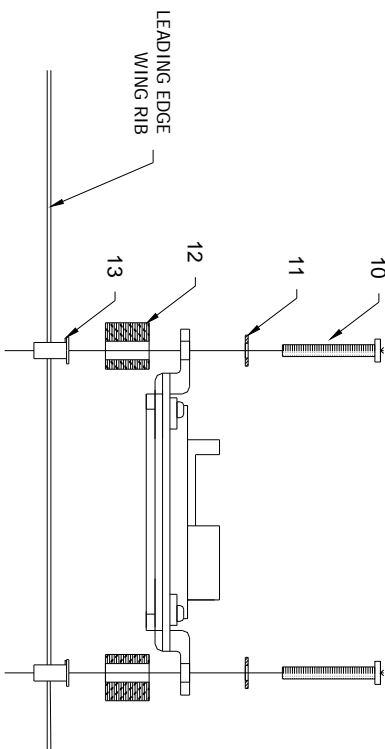
NOTE: EXISTING AIRCRAFT WIRE MAY BE INSERTED DIRECTLY INTO CONNECTOR WHILE OBSERVING PROPER POLARITY



VIEW -B
(FRONT VIEW OF LIGHT RETAINER)



Item No.	Part No.	Nomenclature / Description	Quantity
4	RMD-2280-08	REFLECTOR HOUSING, HID LIGHT, CLEAR (PAR 36)	1
5	RMD-2281-09A	BALLAST, HID, 28 VOLT, 3 MOUNTING HOLES	1
6	RMD-2281-09A	BALLAST, HID, 14 VOLT, 3 MOUNTING HOLES	1
7	RMD-2281-10	CABLE, 3 WIRE, BALLAST TO LAMP	1
8	RMD-2281-11	CONNECTOR, AIRCRAFT TO BALLAST	1
9	RMD-2280-06	BULB, D1S	1
10	MS35206-251	MACHINE SCREW - PHILLIPS, PAN HEAD #832	3
11	MS35333-38	LOCKWASHER - INTERNAL TOOTH, #8	3
12	HID-2281-13	SPACER - NEOPRENE	3
13	A8K-75	RIVNUT - KEYED, #832	3



SIDE VIEW - MOUNTING DETAIL

TOLERANCES UNLESS OTHERWISE SPECIFIED
DIMENSION: +/- .0625
ANGLES N/A REMOVE ALL BURRS, BREAK
HOLE DIA +/- .010 ALL SHARP EDGES

KNOTS 2U, LTD.

703 AIRPORT ROAD BURLINGTON, WI 53105

RMD HID LIGHT INSTALLATION 14 / 28 VOLT

SCALE: NONE DWG DATE: 07/27/02 PAGE 1 OF 1
Dwg By: JMB

Dwg. No. RMDHID

Section 7.0

Maintenance / Troubleshooting Guide

Knots 2U, Ltd.
703 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.	Remove bulb and / or ballast, verify function.	Contact Knots 2U, Ltd. for a replacement.

Maintenance / Inspection Requirements

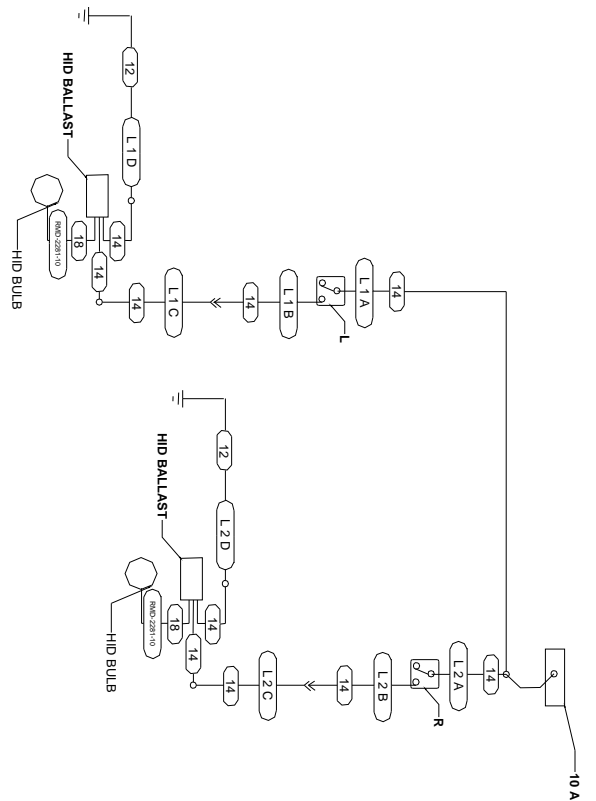
Scheduled Inspections

Inspection	Time interval	Comments
Remove wing tip and 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.	Contact Knots 2U, Ltd. for a replacement.

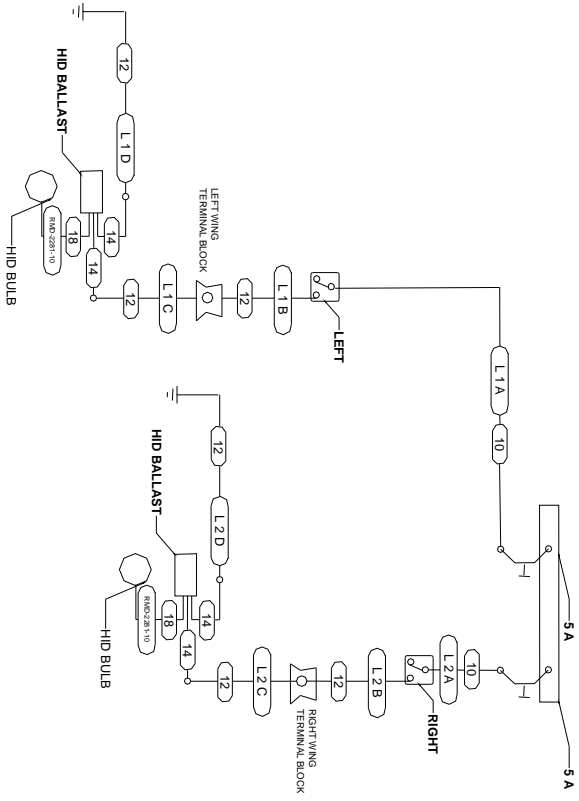
Unscheduled Inspections

Inspection	Event	Comments
Remove wing tip and 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, Wing strike.	Contact Knots 2U, Ltd. for a replacement.

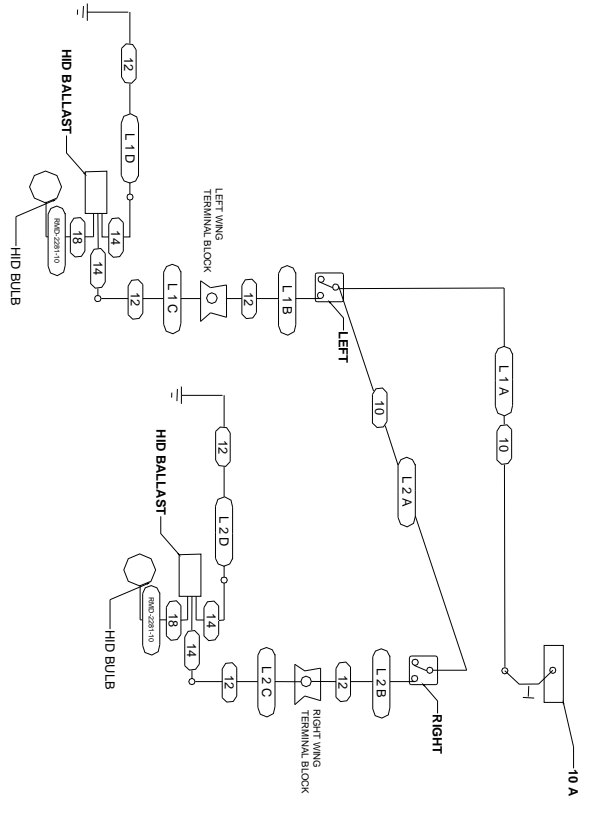
PA-24 ALL MODELS, ALL SERIAL NO'S



PA-30 Serial Nos. 30-1717, 30-1745 and up, PA-39 all models.



PA-30 Serial Nos. 30-2 to 30-1716 inclusive and 30-1718 to 30-1744 inclusive.



KNOTS 2U, LTD.
 HID LIGHT ASSEMBLY KIT
 PIPER PA-24/30/39
 WIRING SCHEMATICS
 SECTION 8.0

Section 9.0

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 out of tolerance interference between the HID lighting system and other systems already installed in the aircraft. If out of tolerance interference is detected, the installation may be modified by adding external filters, re-locating equipment, or re-routing cables as necessary to eliminate interference. For further assistance, the installer may 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 readings between tests.
 - Repeat check on any additional radios.
 - b. VOR Check
 - With the nav radio on adjust squelch to the activation threshold. Test the following frequencies, 108.00, 111.4, 116.4 and 117.95. Note any normal background noise.
 - Activate HID light(s) and repeat frequency check. Note any deviation in readings between tests.
 - Repeat check on any additional nav radios.
 - c. ADF Check
 - With the ADF/NDB on, adjust to the squelch activation threshold. 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. Note any normal background noise.
 - Activate HID light(s) and repeat frequency check. Note any deviation in readings between tests.
 - 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. Note GPS readings
 - Activate HID light(s). Note any deviation in readings between tests.
 - 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.