

# I-Lux Size 4 Owner's Manual

## Distance Remaining Markers

## Arresting Gear Markers

for signs with

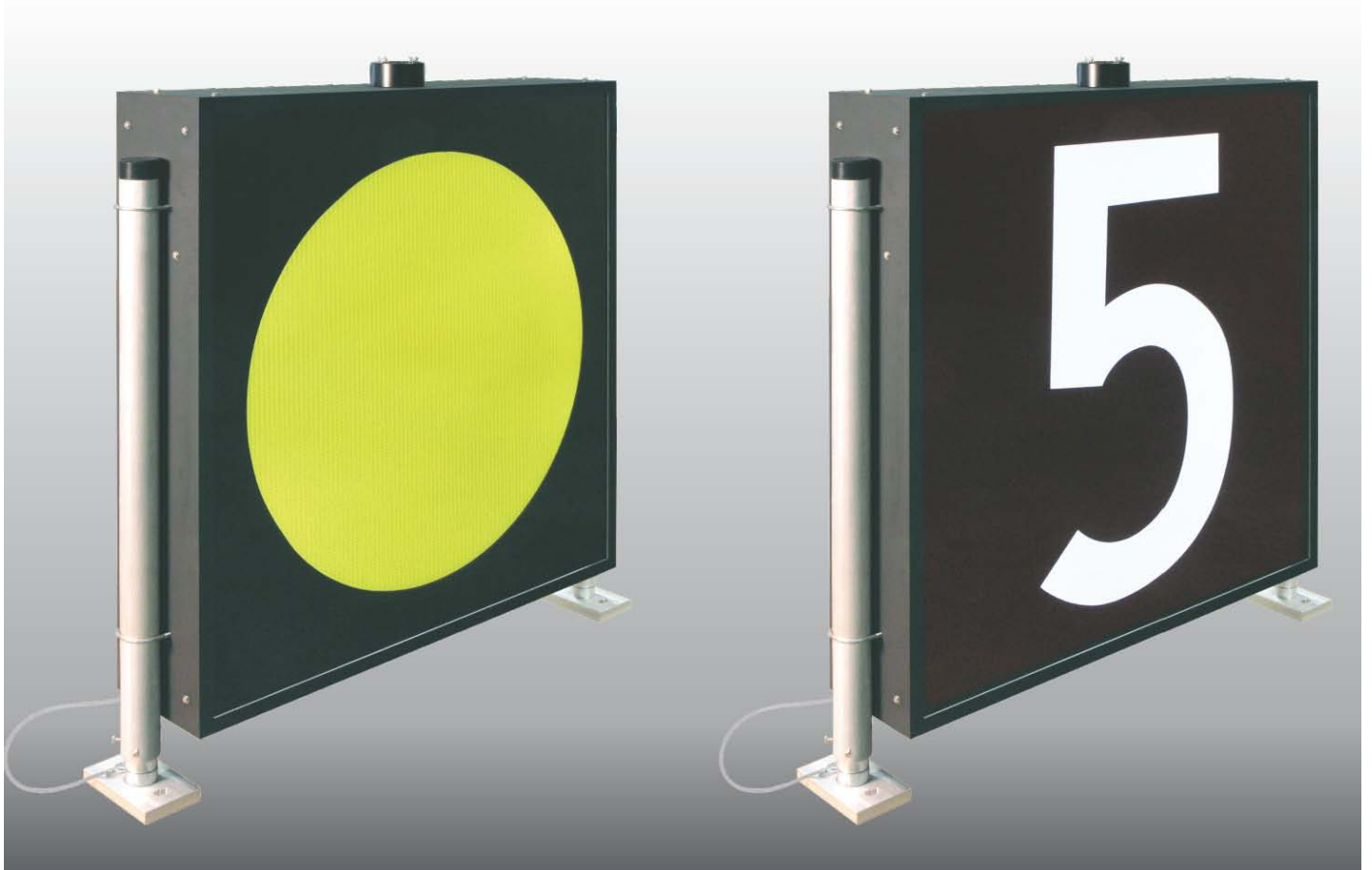
LED Board, Low Voltage Controller, Style 2, 3, & 5

LED Array, Low Voltage Controller, Style 2, 3, & 5

MR16, Coil & Shunt, Style 2

MR16, Coil, Style 5

MR16, TapSwitch, Style 2 & 3





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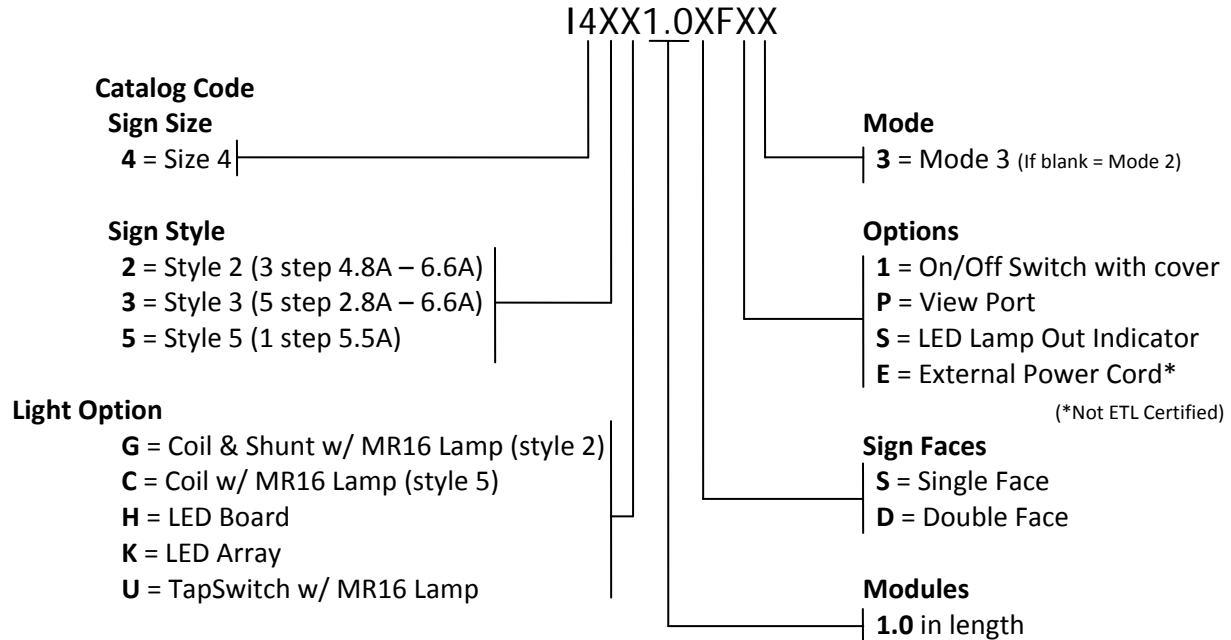
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## 1. I-Lux Size 4 Sign Item Numbers



## 2. I-Lux Size 4 Sign General Information

All AGM signs are tested at the factory and set to function within applicable specifications. Installation and operation issues most frequently trace back to an undersized isolation transformer or to damage during shipping. Before commencing repairs, please contact AGM (315-682-6707 or via email) with the catalog number and serial number from the name plate of the malfunctioning sign to determine warranty coverage.

If following the troubleshooting guidelines below does not resolve the operational issues, we are pleased to assist you via telephone or email. We keep parts in stock, and ship within 24 hours.

Power factors, as illustrated on page 21, are measured on the primary of the corresponding L830 transformer, per FAA Circular 150/5345-44(current edition). This takes into account the inherent deficiencies of the isolation transformer in the values. These ratings are subject to change without notice.

Consider upgrading your coil & shunt and TapSwitch signs to energy efficient LED signs. AGM has retrofit kits for just that purpose – no need to purchase a whole new sign. Please contact AGM to learn more about the possibilities.

## 3. Warranty

AGM L858 Airfield Guidance Signs are warranted against mechanical and physical defects in design or manufacture for a period of 2 years from date of installation per FAA AC 150/5345-44(applicable edition). Where applicable, per FAA EB67(applicable edition), AGM L858(L) Airfield Guidance Signs are warranted against electrical defects in design or manufacture of the LED or LED specific circuitry for a period of 4 years. AGM will correct such by repair or



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replacement, at its option, provided the signs have been properly handled and stored prior to installation, properly installed and operated after installation, and provided further that the buyer has notified AGM in writing within the warranty period and a reasonable time after notice of such defects. Refer to handling, storage, installation and operational instructions for proper procedural guidance that must be followed to maintain warranty provisions.

This warranty is in effect for the specified term as long as the equipment has not been, in AGM's judgment: altered in such a way as to affect the equipment adversely; subjected to accident, negligence, and/or improper storage; and has been operated and maintained in accordance with accepted FAA guidelines as described in AC 150/5340-26(applicable edition) and AGM's published operational guidelines.

AGM reserves the right to examine signs on which a claim has been made. Equipment must be presented in the same condition as when the defect was discovered. AGM also reserves the right to require the return of equipment to establish any claim.

### **Disclaimer**

AGM's obligation under this warranty is limited to repair or replacement of defective equipment sold by AGM. This does not include any other costs such as the cost of removal, shipping, or installation of the defective part or repaired product, including labor or any consequential damages of any kind. AGM shall not be liable for any indirect or consequential damages.

Under no circumstances will AGM's liability exceed its sales price of the signs claimed to be defective. All transportation costs under this warranty are the responsibility of the buyer. Replacement parts and/or equipment provided under this warranty are covered under the same terms until the expiration of the original warranty period that began upon the first installation of the equipment.

This is AGM's sole and exclusive warranty with respect to the equipment sold to the buyer. There are no express or implied warranties of fitness for any particular purpose or any implied warranties other than those made expressly herein.

AGM shall not be liable to the buyer of this product or third parties for indirect or consequential damages, or for damages arising from the use of any options or parts other than those designated by AGM as approved products. Damage caused by lightning, flood and other natural or man-made causes are outside the scope of this warranty.

## **4. I-Lux Size 4 Sign Handling**

AGM I-Lux signs are shipped in a corrugated wrapping to protect against abrasion during shipping. The packaged signs are meant to be hand carried (sling straps are effective) or placed on dolly carts. The packaged sign is NOT designed to be handled by forklifts.

Make sure to note any damage that occurred during shipping when receiving the signs and **be sure to document it with the carrier**. When installing the sign make sure that the correct L830 isolation transformer is connected.

When accessing the sign cabinet, use only hand tools to tighten the bolts.

## 5. I-Lux Size 4 Sign Storage

If the signs are to be stored before installation, keep them in the original corrugated wrapping for protection, and store them upright in a dry location. If the corrugated wrapping becomes wet, it should be removed and recycled because it can cause damage as a result of aggravated humidity. If the corrugated wrapping is removed, keep the protective plastic on the legend panels until installation. This provides the last layer of protection in the absence of the corrugated wrapping. Damage resulting from improper storage is not covered by warranty.

## 6. I-Lux Size 4 Sign Installation

1. Place sign on the pad with long dimension of the floor flanges perpendicular to the length of the sign.
2. Mark anchor bolt locations.
3. Move the sign out of the way.
4. Drill mounting holes for anchor bolts.
5. Install L-830 transformer into the base can.
  - Check the name plate on the side of the sign to ensure correct wattage is used.
6. Secure cable clamp to transformer secondary lead or secondary extension cord.
7. Reposition the sign on the pad and hold at an angle.
8. Pull power cord out of sign leg and plug it into the transformer secondary lead or extension cord.
9. Rotate the sign to the upright position over the anchor holes being careful to not pinch the power cord.
10. Insert the anchor bolts and loosely clamp the floor flanges to the pad.
11. Loosen the pinch bolts in the slip flanges.
12. Tighten the anchor bolts on the floor flanges.
13. Tighten the pinch bolts in the slip flanges against the couplings.
14. Remove the protective plastic on the panels, being careful not to create foreign object debris (FOD).
15. When work is done on the circuit, verify sign operation between dusk and dawn.

## 7. I-Lux Size 4 Sign Maintenance

AGM signs are designed to provide years of trouble-free service. Prior to the performance of any work on the signs, power should be disconnected at the vault. We recommend an annual inspection and cleaning of the sign interior to maintain bright and even light output. Inspection of the signs should also include regular removal of any excess dirt, snow, and avian excrement from the sign exterior to maintain proper visibility of the sign legend.

### 8a. I-Lux Size 4 Sign LED Board Operation

AGM's LED board light engine uses high efficiency LEDs to illuminate the guidance sign. Once the circuit is energized, there is a 4 second delay before the light engine turns on; this is normal. If there is an interruption in power, there could be another identical delay indicating the startup



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sequence has cycled. There are 2 high brightness LEDs on each board. Per FAA Engineering Brief #67, if more than 25% of the alternate lighting devices (LEDs) are not lit, the LED board must discontinue operation and communicate its condition within the sign, causing the whole sign to turn off. The FAA requires this to make sure an incorrect message is not displayed that could cause a safety issue to traffic on the airfield. Each LED board has a monitor circuit to verify operation. The LED board that has detected the problem will illuminate a red LED on the board indicating it has a problem and should be replaced.

## **8b. I-Lux Size 4 Sign LED Board Troubleshooting**

All AGM signs are tested at the factory and set to function within applicable specifications. Installation and operation issues most frequently trace back to an undersized isolation transformer or to damage during shipping. Before commencing repairs, please contact AGM (315-682-6707 or via email) with the catalog number and serial number from the name plate of the malfunctioning sign to determine warranty coverage. If the LED boards and isolation transformer appear functional, and any operating issues have not been resolved after following the troubleshooting guidelines, please contact AGM; we are pleased to assist you. We keep parts in stock and ship within 24 hours.

**BEFORE PERFORMING MAINTENANCE ON AN AIRFIELD GUIDANCE SIGN, VERIFY THE SIGN'S CIRCUIT IS OFF AND LOCKED OUT FROM ACCIDENTAL ENERGIZATION.**

1. Verify that the amp reading (taken on one of the sign input power cords) reflects the amperage of the airfield circuit. If the reading is not identical, then there could be a problem with the isolation transformer or regulator providing power to the sign. Lock out the circuit and verify the condition of the isolation transformer for the sign.
2. Ensure that power to the sign has been turned off, then access the I-Lux cabinet to inspect other components.
  - a. Remove the bolts (7/16" socket) just above the support posts on either side of the sign.
  - b. Slide the sign top up enough to access the LED modules and set it aside. Then disconnect the incoming power from the first LED module.
  - c. For easier access to the sign interior, remove one of the legend panels by pulling it directly up and out of the open top of the sign, then set it aside.
  - d. The low voltage controller (LVC) is mounted on a plate along the side of the sign on the power side. To inspect the LVC, if necessary, unplug the wiring connections, loosen the locking screws on either side of the mounting plate, and rotate the mounting plate to remove it.
3. Inspect the LED boards that are mounted on the mounting brackets. Cycle the power to the sign remotely or by using the optional isolating safety switch on the sign. If there is a fault with an individual LED board, all the LEDs should light up and then shut down within a second. The malfunctioning LED board will have an illuminated red LED directly on the circuit board as an indication that it or the driver circuit has malfunctioned.
  - a. To isolate the malfunction, remove the end loop plug from the end of the LED circuit where the red light was observed. Disconnect that string of LED boards from the driver

and insert the end loop plug in its place on the driver. Cycle the power again and observe whether all remaining lights in the sign illuminate normally.

- i. If all the lights remain on normally, there is a problem with a LED board on the string that was disconnected. Power off the sign, replace the bracket with the malfunctioning LED board, return the end loop to the OUT plug, and connect the LED bracket string to the driver again. Power on the sign, verify normal operation, and take the affected bracket back to the shop to isolate the indicated LED board for replacement. Instructions for replacing the LED board are on the following page.
  - ii. If all the lights go out again and the red light appears on the remaining string plugged into the driver, then the driver needs to be checked. Power off the sign, unplug the power cable that runs from the power control module (PCM) to that driver, cycle the power to the sign, and confirm the other lights and driver circuits in the sign remain lit. If so, the disconnected driver needs to be replaced and the strings of LEDs connected to the new driver to confirm their operation.
- b. If the remaining driver circuits are still not operational on restart, power off the sign, and unplug all the drivers from the PCM. With all driver circuits unplugged, power up the sign and make sure the PCM has both green LEDs. If one or both green LEDs on the PCM are not illuminated, skip the next step below.

**IMPORTANT: DO NOT PLUG IN DRIVER CIRCUITS TO AN ENERGIZED LVC POWER SUPPLY WHEN TROUBLESHOOTING!**

- i. With the sign powered down, plug in the driver circuits individually and power on the sign to confirm their individual operation. If another driver circuit is found to be causing shut down, repeat the previous steps to isolate the cause.
- c. Next, ensure the bridge rectifier is functioning properly by taking a DC voltage reading across the red and black wires exiting the bridge rectifier. With the circuit off and locked out, note the position of where the wires connect on the terminals and then remove them from the connecting posts of the bridge rectifier. The corners with red and black wires are the DC output of the bridge rectifier. The positive red (+) wire is always connected to the terminal that is 90° different in orientation than the others and is located on the small diagonal corner of the bridge rectifier.
- i. Using an RMS multi-meter, set the operation for diode testing and place the black negative lead on the positive terminal of the bridge rectifier, and the red positive lead on the negative terminal of the bridge rectifier in the corner opposite the positive terminal.
  - ii. If the meter reads close to 0.90V<sub>DC</sub> to 1.00V<sub>DC</sub> the bridge rectifier is good. If it reads approximately 0.40V<sub>DC</sub> to 0.60V<sub>DC</sub> the bridge rectifier is bad and needs to be replaced.
- d. If the bridge rectifier is good, the next step is to check the output of the PCM. There are 2 green LEDs on the PCM near the output connections and if both of these are not illuminated when the sign is powered on and all circuits are disconnected, the PCM needs to be replaced. If both are illuminated, check the output voltage by setting a true

RMS meter to DC voltage, and insert the black negative probe where the green wire connects and the red positive probe where the red wire connects. The output voltage should be approximately +50VDC. If there is no voltage here, the PCM needs to be replaced.

- i. After the PCM is replaced, follow the driver circuit checking procedure from the preceding page. Take note of the green LED lights on the PCM; and if on start up, one of the LEDs is not illuminated, turn off the power promptly and replace the driver of the circuit being checked. Do not run a new PCM with a bad driver as damage to the PCM can occur.
4. When reassembling the sign, make sure you have panel suction cups, and on mode 3 signs have a couple of awls or small screwdrivers. As the corner brackets are slid down into the side extrusions, use suction cups to make sure the panel is in position to slide into place in the top extrusion. On mode 3 signs, use awls to find the threaded holes of the support brackets to have them aligned before tamping down the top.
5. Once the top is in place, insert the bolts for the corner brackets and tighten using only hand tools. Insert the bolts into the support brackets on the top center of the mode 3 sign and tighten.

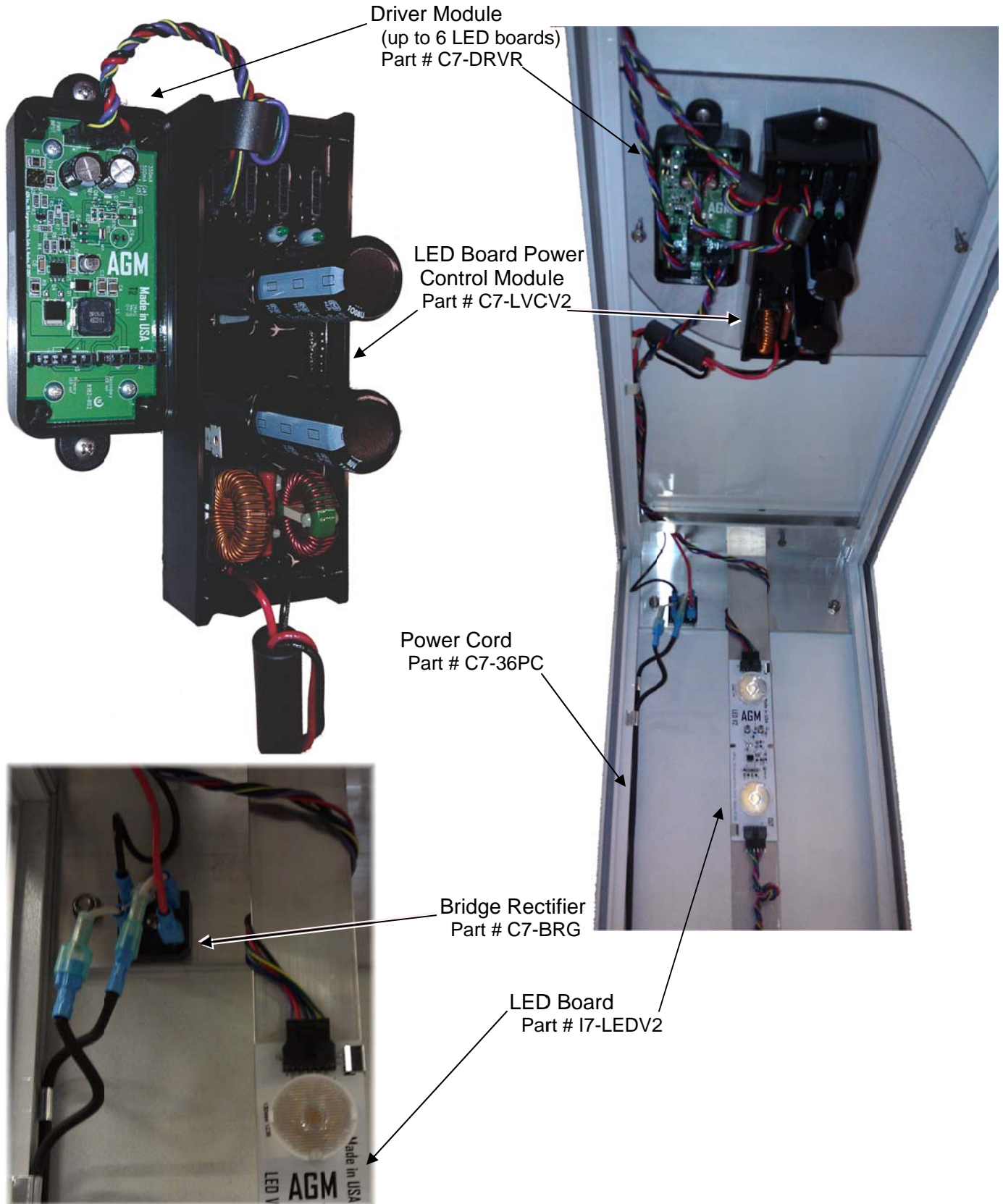
### **8c. I-Lux Size 4 Sign LED Board Replacement**

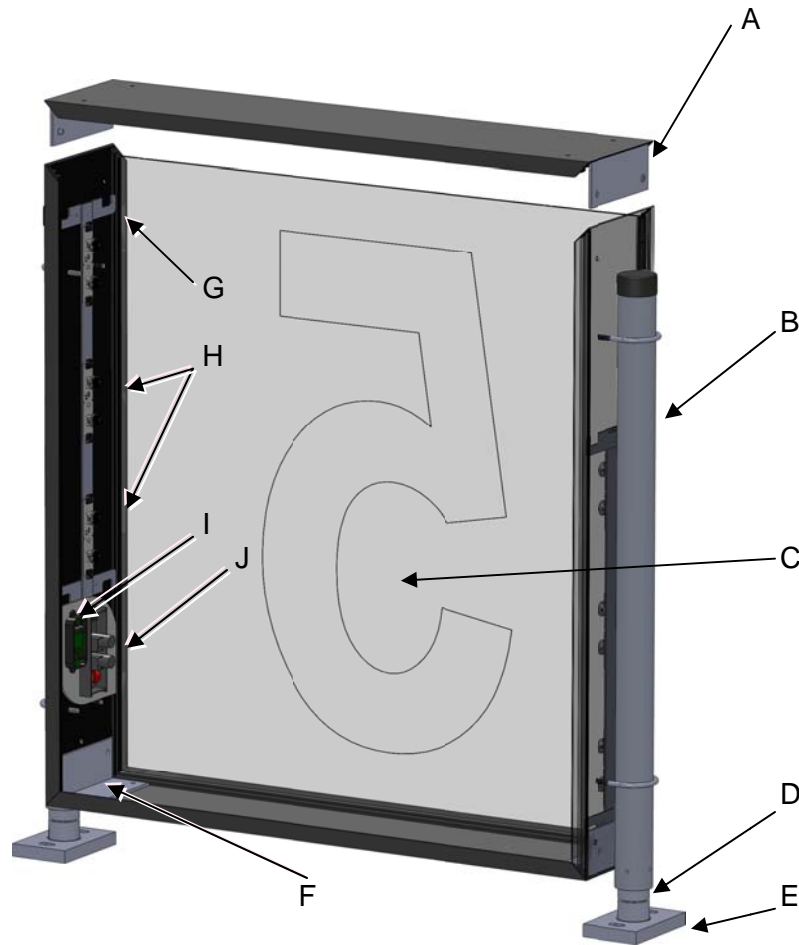
Replacement of a nonfunctioning LED board is best accomplished inside the electrical shop, after swapping out mounting brackets. To replace the LED board, carefully remove the black wire harness plugs, press on the release safety catches of the plugs and pull out along the same plane that the LED is mounted on. Remove the mounting clips on either side of the LED board. Then using a sharp blade, slide under the LED board and pry the LED board off of the mounting bracket where the LED board is held with thermal transfer adhesive. Make sure to clean the area of the mounting bracket where the LED board was mounted before attaching a new one.

On the replacement LED board, strip the protective cover from the thermal adhesive on the back and carefully place the LED board in the same location as the previous LED board. Make sure to align the IN side and OUT side in the same orientation as the other LED boards on the mounting bracket. Replace the wire harness connections; and if the replacement LED board is at the end of the string, insert the green, end loop plug that completes the circuit.

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### 8d. I-Lux Size 4 Sign LED Board Parts List

Part #	Description	Part #	Description
A	I6-CBN	G	I7-LB4
B	I6-4PT	H	I7-LEDV2
C	I8-4LP10	I	C7-DRVR
D	I6-FC4	J	C7-LV2CV2
E	I6-FF4		C7-36PC
F	I6-CB		I9-INP
			C6-THR

When ordering: # = style number



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### **9a. I-Lux Size 4 Sign LED Array Operation**

There are 14 arrays of 4 LEDs arranged in a radial pattern in each lighting element. Per FAA Engineering Brief #67B, if more than 25% of the alternate lighting devices (LEDs) are not lit, the element must discontinue operation and communicate its condition to the other elements within the sign, causing the whole sign to turn off. This FAA requirement ensures an incorrect message is not displayed that could cause a safety issue to traffic on the airfield. The elements can operate at sufficient luminous intensity with up to 3 strings out. If a 4th string has broken, the element will shut down and indicate there is a problem.

### **9b. I-Lux Size 4 Sign LED Array Troubleshooting**

All AGM signs are tested at the factory and set to function within applicable specifications. Installation issues most frequently trace back to an undersized isolation transformer or to damage during shipping. Before commencing repairs, please contact AGM (315-682-6707 or via email) with the catalog number and serial number from the name plate of the malfunctioning sign to determine warranty coverage. If any operating issues have not been resolved after following the troubleshooting guidelines, please contact; we are pleased to assist you. We keep parts in stock and ship within 24 hours.

1. To inspect the operation and determine why an I-Lux sign has malfunctioned, open the top by removing the thumb screw on either side of each modular section of the top of the sign. Remove one legend panel by pulling directly up.
2. Cycle the power to the sign remotely or by using the optional safety switch if one was installed. The LED arrays should light up and then shut down within a couple seconds. If one of the red LED indicator lights on the top corner of the board is lit, that indicates an LED array has malfunctioned and needs to be replaced.
3. If none of the LED arrays illuminate, and no red indicator lights are visible, ensure power is coming into the sign by taking an amperage reading around one of the input power cords. Verify that the amperage reflects the amperage of the airfield circuit.
4. Next, check the output of the low voltage controller (LVC).
  - a. With the sign off, disconnect the power plug with the red and black wires from the first LED array of the string and place the voltage probes (+ to red, - to black) in the backside of the power plug.
  - b. Cycle the power to the sign. The DC voltage output from the LVC should be between 23.5V and 26V. If this voltage is correct, then power down the sign and reconnect the LED array to the LVC. Cycle the power to the sign, and take a reading at the end of the string. This reading can be obtained from the plug sockets of the last LED array plug sockets where no leads are attached.
  - c. The LED arrays will light with voltage anywhere from 16V up to the maximum output of 29V. They will, however, emit RF interference as well as a noticeable whine if the voltage is 22V or lower. The output voltage of the LVC can be adjusted by the potentiometer on the face of the LVC. It is a white slotted circle in a blue square which measures approximately one half inch square. Using a 1/8" flat head screw

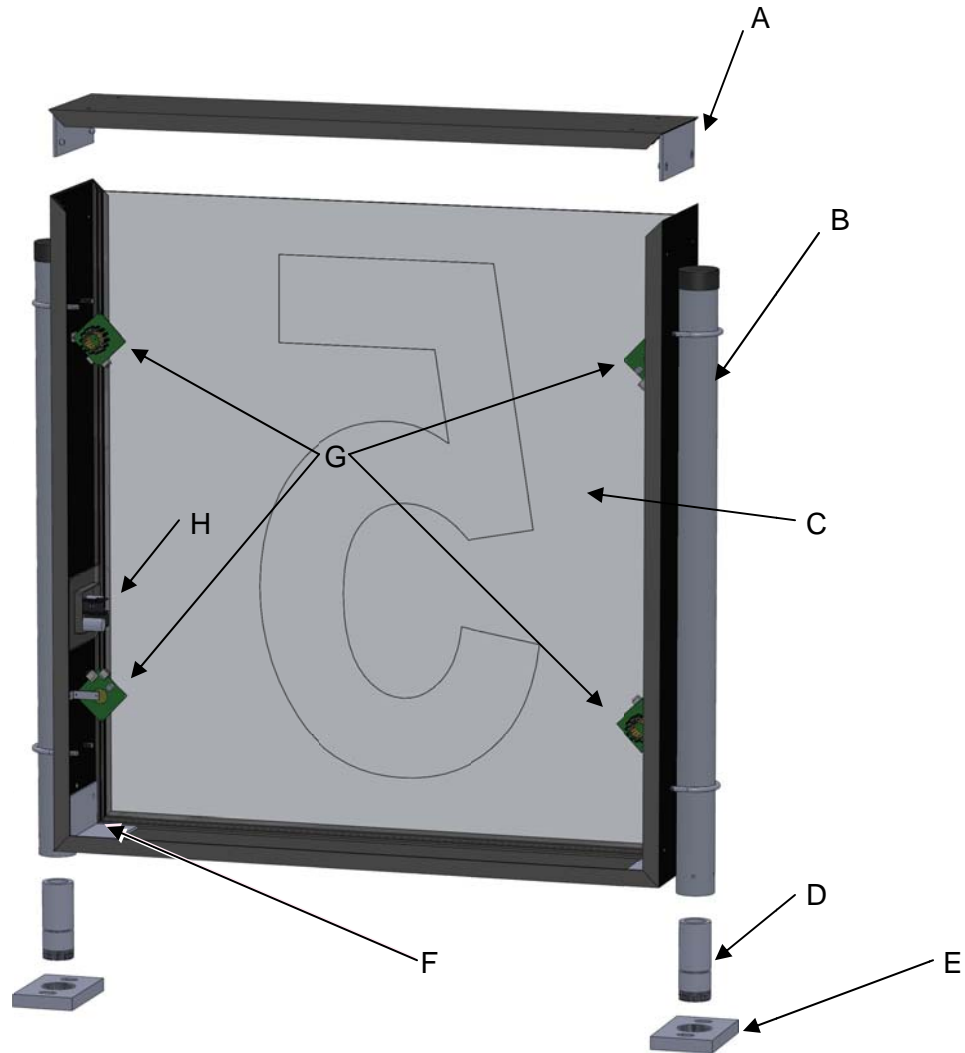


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driver, adjust the output up (clockwise) or down (counterclockwise) to read between 23.5V and 26V.

5. Voltage that cannot be adjusted to the proper readings on the lower steps of the constant current regulator is usually an indication of the wrong size isolation transformer or transformer failure. Replace the isolation transformer and reset the operating voltage.
6. If one or two of the LED arrays light, and remain lit, but the others do not light, and there are no red indicator lights illuminated, there is probably a bad connection on the power cords emerging from the last lit LED array or on the power coming into the first dark LED array. Remove the power connection plug and clean the face of the leads opposite the LED array side and reinsert the plug. Verify that the connection is well seated by taking a voltage reading on the backside of the plug where the wires travel to the next LED array.
7. When reassembling the sign, make sure you have panel suction cups, and on mode 3 signs have a couple of awls or small screwdrivers. As the corner brackets are slid down into the side extrusions, use suction cups to make sure the panel is in position to slide into place in the top extrusion. On mode 3 signs, use awls to find the threaded holes of the support brackets to have them aligned before tamping down the top.
8. Once the top is in place, insert the bolts for the corner brackets and tighten using only hand tools. Insert the bolts into the support brackets on the top center of the mode 3 sign and tighten.

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### 9c. I-Lux Size 4 Sign LED Array Parts List

	Part #	Description		Part #	Description
A	I6-CBN	Corner bracket w/ knurl nut	G	C7-LEDV1	LED element
B	I6-4PT	Support post, size 4	H	C7-LVCV1	Low voltage controller
C	I8-4LP10	Legend panel, size 4			
D	I6-FC4	Frangible coupling, size 4		C7-36PC	Power cord (not pictured)
E	I6-FF4	Floor flange, size 4		I9-INP	Name plate (not pictured)
F	I6-CB	Corner bracket		C6-THR	Tether (not pictured)

When ordering: # = style number

## **10a. I-Lux Size 4 Sign MR16 Coil & Shunt Troubleshooting**

All AGM signs are tested at the factory and set to function within applicable specifications. Installation issues most frequently trace back to a failed lamp, an undersized isolation transformer, or to damage during shipping. Before commencing repairs, please contact AGM (315-682-6707 or via email) with the catalog number and serial number from the name plate of the malfunctioning sign to determine warranty coverage. If the lamps and isolation transformer appear functional, and any operating issues have not been resolved after following the troubleshooting guidelines, please contact; we are pleased to assist you. We keep parts in stock and ship within 24 hours.

1. Lamp failure is the most common reason a sign will not illuminate. The FAA requires all signs to be wired in series so that when one lamp fails, the whole sign goes dark.
  - a. Ensure that power to the sign has been turned off, and examine each lamp for continuity. Sometimes the filament in a failed lamp will appear intact; the continuity check is the easiest way to ensure a speedy lamp change. This is a good time to examine each lamp socket and correct any worn or loose connections.
  - b. If all lamps and sockets appear in good order, remove the top of the sign to gain access to the power control module (PCM).
    - i. Open the top of the sign by removing the two bolts just above the support posts on either side of the sign.
    - ii. For easier access to the PCM, remove one of the panels by pulling it directly up and setting it aside.
    - iii. Remove the two lamp circuit ends from the terminal block and check for continuity through the lamp circuit. Check all connections on the PCM to make sure they are tight.
2. If all connections are tight, there is continuity through the lamp circuit, and the sign will not illuminate, then the voltage regulator may need replacing.
  - a. To verify the operation of the voltage regulator, remove the wire from the terminal on the regulator that is marked "Shunt." Energize the circuit to step one. If the regulator shunt has malfunctioned, the lamps will illuminate.
  - b. Do not continue to operate the sign with the shunt removed as any increase in circuit amperage will cause the lamps to get too much power and burn out.
  - c. Replace the shunt to resume normal operation. If you do not have a replacement shunt, contact AGM to order a replacement.
3. If the sign illuminates but appears dim, follow the shunt adjustment procedure below.
4. If the voltage on step one is too low and there is a pulsation observed in the middle current steps, then the size of the associated L-830 transformer can be increased by one size. This can be necessary on circuits that are approaching the maximum rated load of the constant current regulator.

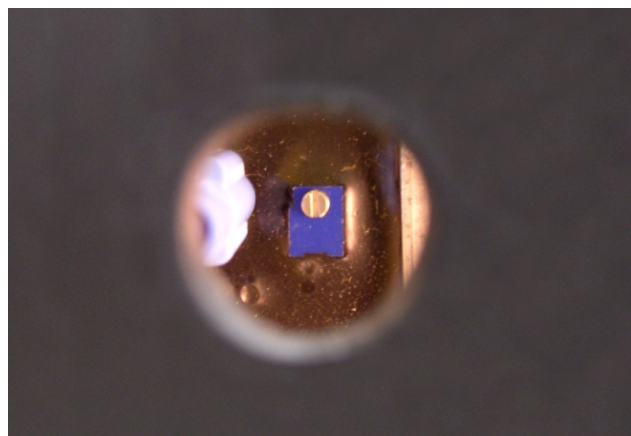
## 10b. I-Lux Coil & Shunt Adjustment

To adjust the voltage regulation shunt on the I-Lux sign, remove the lamp cap on the end of the sign closest to the power leg. Using a true RMS meter, insert the leads into the open butt connectors beside the lamp. Energize the airfield circuit to 6.6A and take note of the voltage value on the meter.

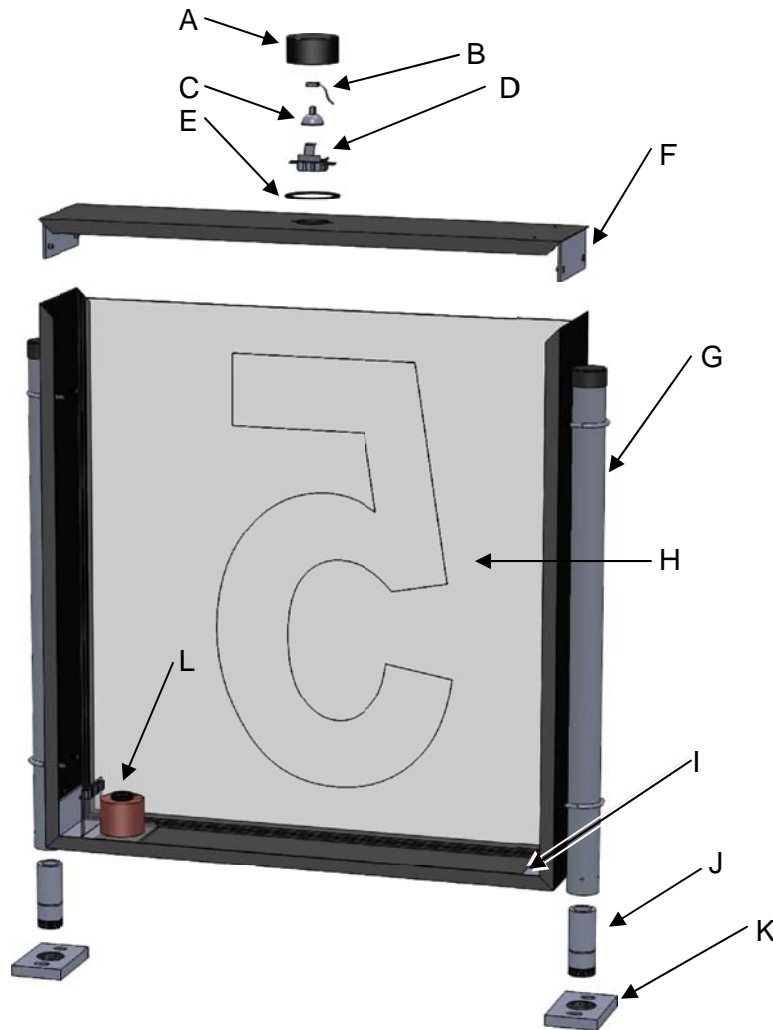


The proper operating voltage is between 11.5VAC and 12.0VAC. We recommend operating at or just below 11.75VAC to extend lamp life and avoid frequent relamping.

If the voltage needs to be adjusted, remove the shunt adjustment plug on the side of the sign closest to the power leg. There is a small slotted adjustment screw on the right side of the voltage regulator shunt (magnified at right) that when turned clockwise, will increase the voltage, and likewise counter-clockwise will decrease the voltage. The shunt adjustment tool in your installation kit is an effective tool to accomplish this. A 3/32" flat head screwdriver is also effective in adjusting the shunt.







### 10c. I-Lux Size 4 Sign MR16 with Coil & Shunt Parts List

Part #	Description	Part #	Description		
A	I7-LCP	Lamp cap	I	I6-CB	Corner bracket
B	I7-6A	MR16 socket	J	I6-FC4	Frangible coupling, size 4
C	I7-9Q	MR16 lamp	K	I6-FF4	Floor flange, size 4
D	I7-LHS	Lamp heat sink	L	I7-PCM	Coil & shunt power control module
E	I7-LCG	Lamp gasket			
F	I6-CBN	Corner bracket w/ knurl nut		C7-36PC	Power cord (not pictured)
G	I6-4PT	Support post, size 4		I9-INP	Name plate (not pictured)
H	I8-4LP10	Legend panel, size 4		C6-THR	Tether (not pictured)

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## 11a. I-Lux Size 4 Sign TapSwitch Sign Troubleshooting

All AGM signs are tested at the factory and set to function within applicable specifications. Installation issues most frequently trace back to a failed lamp, an undersized isolation transformer, or to damage incurred during shipping. Before commencing repairs, please contact AGM (315-682-6707 or via email) with the catalog number and serial number from the name plate of the malfunctioning sign to determine warranty coverage. If the lamps and isolation transformer(s) appear functional, and any operating issues have not been resolved after following the troubleshooting guidelines, please contact AGM; we are pleased to assist you. Note that these troubleshooting instructions apply to signs assembled after October 2012; for further assistance with older signs, contact AGM. We keep parts in stock and ship within 24 hours.

**BEFORE PERFORMING MAINTENANCE ON AN AIRFIELD GUIDANCE SIGN, VERIFY THE SIGN'S CIRCUIT IS OFF AND LOCKED OUT FROM ACCIDENTAL ENERGIZATION.**

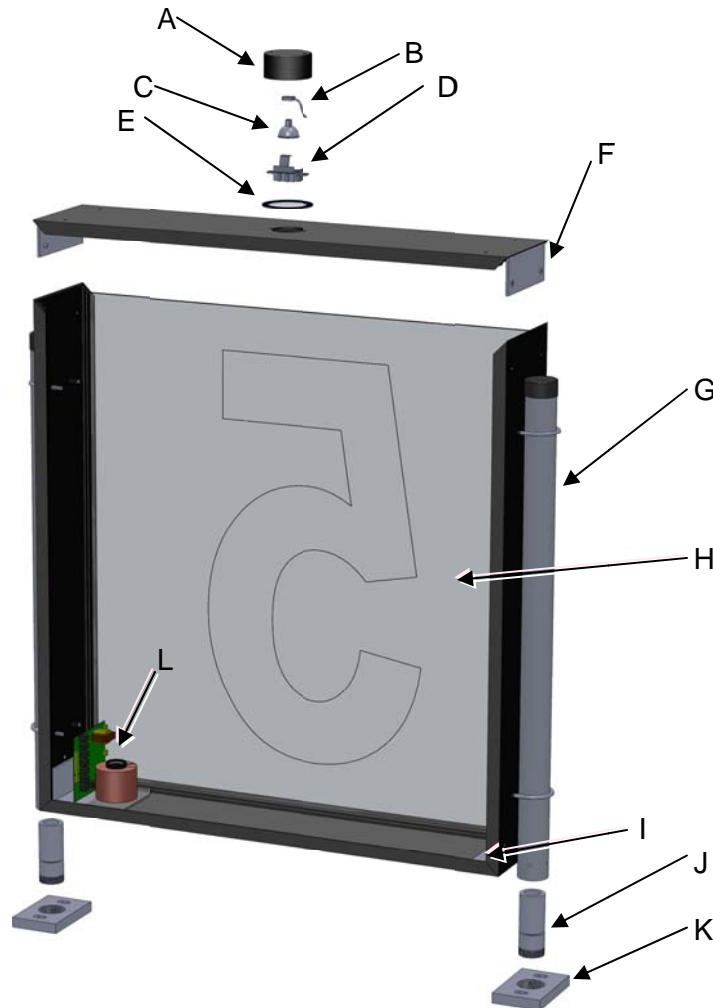
1. Lamp failure is the most common reason a sign will not illuminate. The FAA requires all signs to be wired in series so that when one lamp fails, the whole sign goes dark.
  - a. Ensure that power to the sign has been turned off, and examine the lamp for continuity. Sometimes the filament in a failed lamp will appear intact; a continuity check is the most efficient way to verify the need for a lamp change. While doing this, examine the lamp socket for any worn or loose connections. Replace any lamp or socket that fails a continuity test.
2. Frequently, operational problems result from an incorrect L830 transformer attached to the sign. Verify that the L830 transformer(s) is appropriate for the circuit and the wattage necessary for powering the sign. Connecting a 6.6 - 6.6 transformer to a 20A circuit will cause damage to the TapSwitch board, and connecting a 20 - 6.6 transformer to a 6.6A circuit will not provide enough power for the sign.
  - a. Confirm that the VA load (for all fixtures on the circuit) is within the specified rating for the regulator. An overload situation will cause poor illumination or unusual operation. If calculations indicate this possibility, bypass some of the fixture isolation transformers on the circuit to see if the remaining fixtures improve or operate normally.
3. If all lamps and sockets appear in good order, the proper L-830 isolation transformer is installed, and the circuit is not overloaded, remove the end panel closest to the power cord to gain access to the power control module (PCM) to continue troubleshooting.

**THE FOLLOWING STEPS SHOULD BE CONDUCTED WITH AN OBSERVER WHO IS IN CONTACT WITH AN ASSISTANT LOCATED IN THE VAULT CONTROLLING THE ENERGIZATION OF THE CIRCUIT.**

4. If the sign is equipped with an optional isolating safety switch, turn it off, then re-energize the circuit. Measure the current on the power cord going to the switch. Verify this matches the primary current on the circuit.

5. If the correct isolation transformer(s) is attached, and the proper current is observed on the primary and secondary sides of the L830 isolation transformer, the operation and settings on the TapSwitch board need to be examined.
  - a. Turn off the sign.
  - b. With the sign open and the face of the TapSwitch board visible (see photograph, page 20), make sure the jumper set up is correct for the sign's internal circuit (jumper on pins 2 and 3 of J1 for style 3; open for style 2); and the "fail safe in" J4 always has a jumper. *On versions other than 9 14 12 (written below the row of black cube relays on the TapSwitch board), J2, right of the J1 circuit style pins, should be set for lamp voltage (open for 12V).*
  - c. Verify continuity across the lamp by disconnecting the phoenix connector lamp plug from the TapSwitch and measuring the ohms across the terminals of the plug. If the lamp and socket passed the previous check and no continuity is observed at this step, check the connection of the lamp wires into the phoenix connector lamp plug, and check the wires connecting to the lamp to see if any have been pinched or severed. If continuity is good, then reconnect the phoenix connector lamp plug to the TapSwitch.
  - d. Energize the circuit and turn on the sign isolating switch (if the sign is so equipped) and observe the operation of the TapSwitch board. If the circuit is on step 1 (of five), the LED next to the 6.6 relay will shine steady as will the LED next to the 2.8 relay, the D106 LED will be flashing, indicating the software on the TapSwitch board is cycling. If the circuit is a Style 2, 3 step, then the LEDs next to the 6.6 and 4.8 relays will be illuminated on step 1.
  - e. Cycle the circuit up and down, pausing at each step to verify the LED indicators indicate the right step. It may take a few seconds for the regulator circuit to stabilize on a specific step.
  - f. When the circuit is on 6.6A, all of the LEDs next to the relays will be off and only the D106 operation indicator will be flashing.
  - g. If all steps are operating correctly, check the voltage output to the lamp on the phoenix connector lamp plug (with 2 wires, located on the left side of the board below the coil connection). Signs with MR16 quartz lamps should range from 11.1V to 12.0V.
6. Sometimes noise or an unfamiliar wave form on the circuit can cause problems with operation. If the transformer, power, and continuity have been checked and the board is still not operating correctly, please contact AGM for further assistance.

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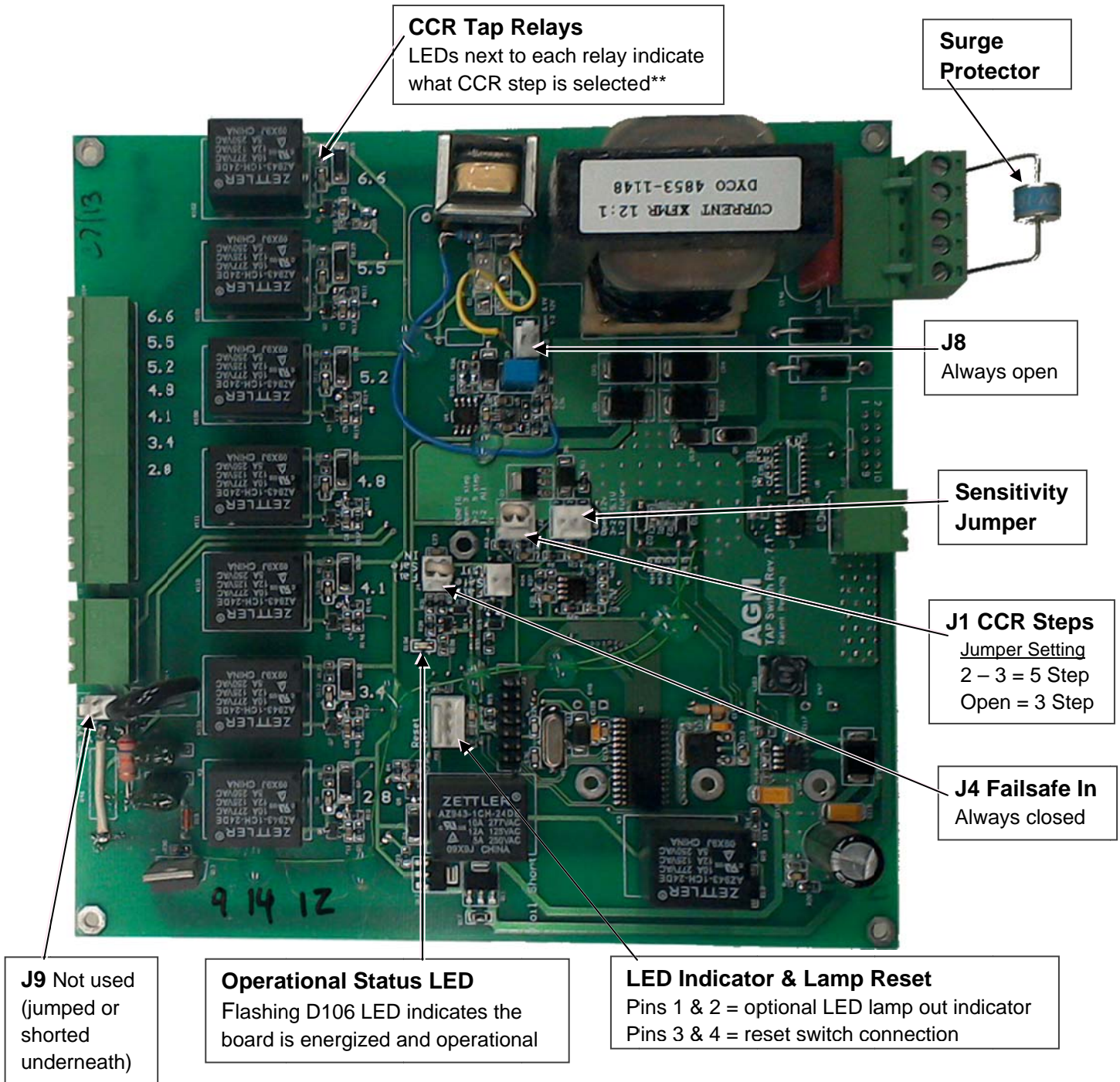


### 11b. I-Lux Size 4 Sign TapSwitch Part List

Part #	Description	Part #	Description
A	I7-LCP Lamp cap	I	I6-CB Corner bracket
B	I7-6A MR16 socket	J	I6-FC4 Frangible coupling, size 4
C	I7-9Q MR16 lamp	K	I6-FF4 Floor flange, size 4
D	I7-LHS Lamp heat sink	L	I7-PCM#U1 TapSwitch power control module
E	I7-LCG Lamp gasket		
F	I6-CBN Corner bracket w/ knurl nut	C7-36PC	Power cord (not pictured)
G	I6-4PT Support post, size 4	I9-INP	Name plate (not pictured)
H	I8-4LP10 Legend panel, size 4	C6-THR	Tether (not pictured)

When ordering: # = style number

## 11c. I-Lux Size 4 TapSwitch Board



If a sign was assembled before October 2012, the TapSwitch board will be different; please call AGM for technical support.

\*\* LED indicator located next to 6.6A is illuminated with all other steps. If the CCR is set to 6.6A step, no LEDs will be visible except operational status indicator.

## 12. L830 Transformer Requirements, VA Loads, Power Factors

Light Option	Style	L830 Transformer	VA*	Power Factor*	Number of Lamps
LED Board	2	65W	49	0.94	6
LED Board	3	65W	44	0.94	6
LED Board	5	65W	44	0.94	6
LED Array	2, 3 & 5	65W	65	0.96	4
MR16 Coil & Shunt	2	100W	96	0.84	1
MR16 Coil & Shunt	5	45W	68	1.0	1
MR16 TapSwitch	2	100W	85	1.0	1
MR16 TapSwitch	3	100W	90	1.0	1

\* These ratings are subject to change without notice.

## 13. I-Lux Size 4 Suggested Concrete Pad Mounting & Floor Flange Dimensions

