



**NHTSA Recall ID: 24V305**

RM-78 Taillight Relocation Work Instructions -  
Allegheny



WORK INSTRUCTIONS  
READING RM-78 CRANE BODY  
TAILLIGHT RELOCATION  
FOR RMS168DRW2EA000260

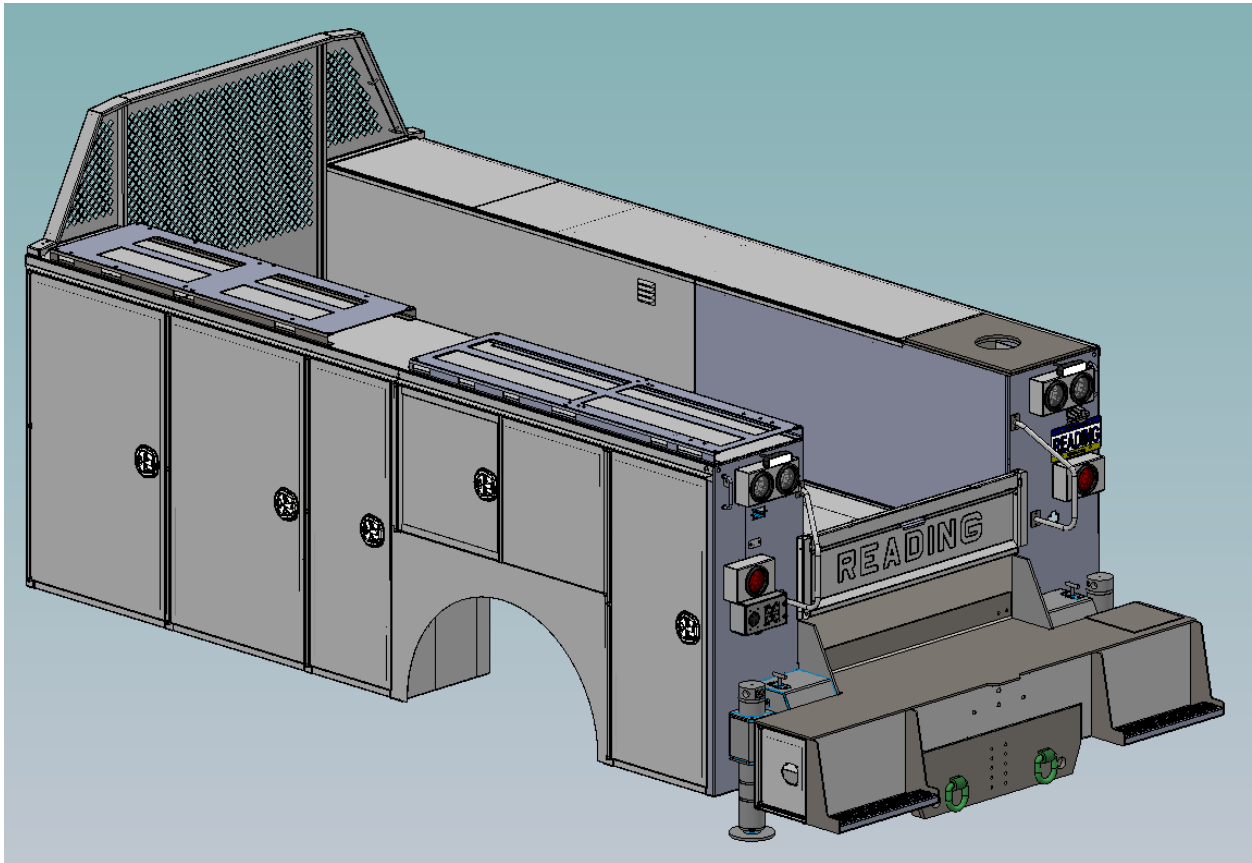
Document Number: T114-A

Revised: 5/10/2024



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## Revisions

<u>DOC NUMBER</u>	<u>DATE</u>	<u>DESCRIPTION OF CHANGE</u>
T114-A	5/17/2024	INITIAL RELEASE

Dimensions are subject to manufacturing tolerances. Specifications and dimensions are subject to change without notice.

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## Important Safety Information

### - Safety Signal Words

You will see the following signal words in this document. They call your attention to various hazards, and proper procedures to avoid them.

Read this entire document before beginning work.

<b>DANGER</b>	DANGER indicates a hazardous situation that, if not avoided, could result in death or serious injury.
<b>WARNING</b>	WARNING indicates a hazardous situation that, if not avoided, could result in death or serious injury.
<b>CAUTION</b>	CAUTION indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.
<b>NOTICE</b>	NOTICE addresses practices not related to physical injury, but may involve product damage, security, hygiene, housekeeping, equipment, and legal requirements.

Table 1: Signal Words

Additional important safety information is found in the latest revision of the Chassis *Incomplete Vehicle Manual and/or Body Builder Manual*, and manuals provided with accessory equipment.

To support our continuous improvement, your comments regarding this documentation are appreciated.

### - General Safety Messages



**Read and follow instructions.** Read and understand this manual fully before proceeding. Misuse, or incorrect installation, could cause death or serious injury.



**Injury hazard.** The following instructions are only for qualified, professionally trained personnel with appropriate supervision, safety precautions and Personal Protective Equipment (PPE).





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### **WARNING**

**Injury hazard.** Operate tools and equipment according to the manufacturers' instructions. Failure to follow proper safety procedures could result in death, serious injury or property damage.



### **WARNING**

**Towing hazard.** Trailer hitch ratings are given for each component only. Never exceed the rating of the lowest-rated component in the system. Always observe GCWR, GAWR, GVWR and legal limits. Exceeding equipment limits can cause an accident or serious injury.



### **WARNING**

**Hydraulic system hazards.** Heat from the truck's exhaust system can cause hydraulic component failure and may lead to a fire which could cause injury or death. Always install equipment in locations where heat from the exhaust system will not damage any hydraulic component.



### **WARNING**

**Welding hazard.** Welding, oxy-fuel cutting, or grinding sparks can cause fuel to ignite which in turn can lead to injury or death. Always take adequate steps to avoid ignition of fuel from fuel tanks when welding, grinding, or oxy-fuel cutting during equipment installation.

### **WARNING**

**Damaged equipment hazard.** Malfunctioning equipment can cause property damage, injury or death. Always have faulty equipment repaired before continuing its use. If required, consult the manufacturer.

### **WARNING**

**Shock and fire hazard.** Do not work on live circuits. Disconnect the vehicle battery prior to installing, servicing or repairing any electrical accessories. Your truck may have more than one service battery.



### **WARNING**

**California Proposition 65 Health Warning (Motor Vehicle).** Operating, servicing and maintaining a passenger vehicle or off-highway motor vehicle can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle in a well-ventilated area and wear gloves or wash your hands frequently when servicing your vehicle. For more information go to [www.P65Warnings.ca.gov/passenger-vehicle](http://www.P65Warnings.ca.gov/passenger-vehicle).



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**⚠️ WARNING**

**California Proposition 65 Health Warning (Diesel Exhaust).** Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. Always start and operate the engine in a well-ventilated area. If in an enclosed area, vent the exhaust to the outside. Do not modify or tamper with the exhaust system. Do not idle the engine except as necessary. For more information go to [www.P65warnings.ca.gov/diesel](http://www.P65warnings.ca.gov/diesel).

**NOTICE**

**Crane reinforcement.** Crane reinforcement (if equipped) is designed as a factory-installed option only, and cannot be performed as a "field upgrade". Reading Truck shall not be responsible for the design and performance of any unit with "crane reinforcement" performed by distributors or by others.

**NOTICE**

**Observe safety requirements for cranes.** Federal, state and local laws and regulations apply to mobile crane equipment. Reading Truck encourages installers and end users to be familiar with proper safety procedures and training. See:

- National Commission for the Certification of Crane Operators, [nccco.org](http://nccco.org).
- United States: Occupational Safety and Health Administration (OSHA), Publication 3433, "Cranes and Derricks in Construction - Small Entity Compliance Guide".  
<https://www.osha.gov/Publications/OSHA3433.pdf>
- Canada: Standards Council of Canada (SCC) and Canadian Standards Association (CSA), Standard Z150, "Safety Code for Mobile Cranes". [csagroup.org](http://csagroup.org).

**NOTICE**

[Crane Equipment] **Modifications or additions.** Modifications or additions which affect the **capacity or safe operation** of the equipment may be restricted or legally prohibited, by U.S. federal regulations and local laws. See U.S. OSHA Standard 1926.1434 and others.



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## Parts Lists:

Allegheny Kit		
Part Number	Description	Qty
53185677	LT BOX ASSY, SNGL LT BLT ON	2
14210189	BOLT,SS,HH,1/4"-20X 1 1/4"	8
14406281	FLAT WASHER,1/4"SS,R	16
14501791	LOCK NUT,NYLON ,1/4-20	8
14650001	LIGHT, 4" REVERSE, WHITE, MM	2
14650008	GROMMET, 4" REV TO PTURN, MM	2
14651914	PLUG, DOT LT, 2 TERMINAL	2
14506371	SCREW,RND HD,PHILIP,10-24X3/4 PS	2
14302002	FLAT WASHER SS,#10 -#92141A011	4
14506375	LOCK NUT,10-24 SS NYLON	2
81085812	LICENSE PLATE COVER PLT	1
14506371	#10-24 X 3/4" LG ROUND HD BOLT, SS	2
14302002	#10 FLAT WASHER SS	2

Additional Items	
Caulk	
Wire	Black - 16 Ga
	Red - 16 Ga
	White - 16 Ga
	Brown - 16 Ga
Splice Crimps	
Heat Shrink	
Convolutd Loom	



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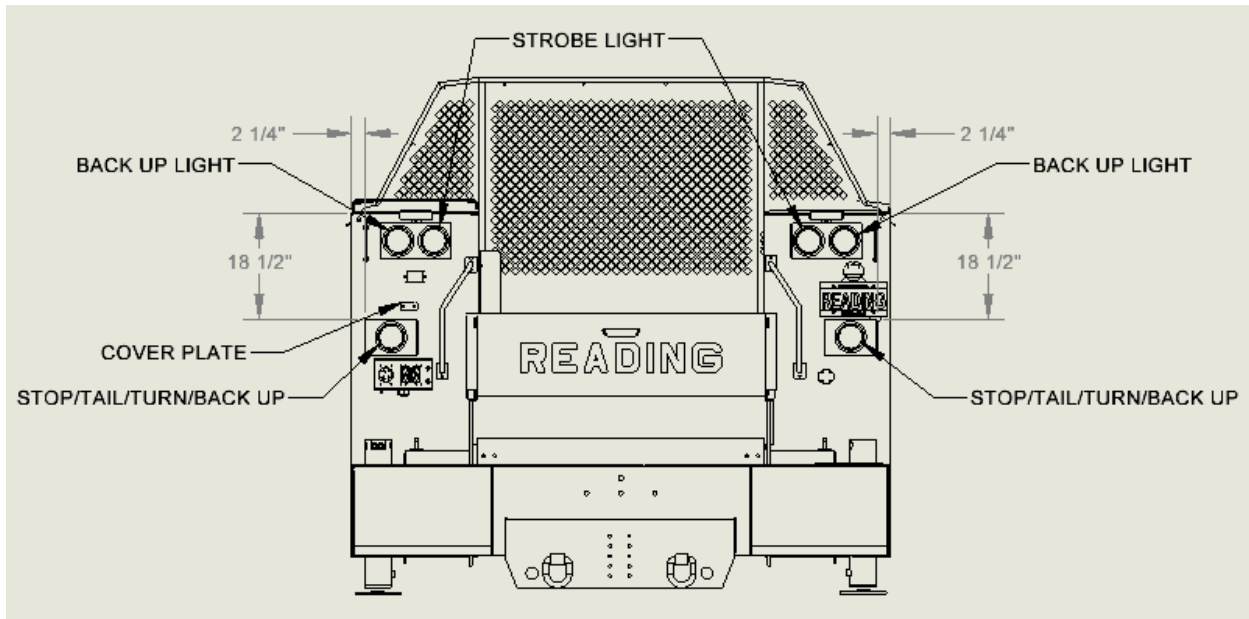
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**Note:** If the body is installed on a chassis, before beginning work, on a level surface with no payload in the vehicle, measure from the ground to the center of the stop/tail/turn/back up light. If the dimension is 72" or less, the light is compliant with FMVSS 108 and no further action is necessary. If the dimension is over 72", follow the work instructions below to relocate the light so it is compliant with FMVSS 108.

## Work Instructions:

Add an additional single light box to R/S and C/S for units where the stop/tail/turn/back up lights are more than 72" above the ground.

1. Drill mounting holes for new light boxes.
  - a. Identify the location for the new light boxes as shown in **Figure 1**.
    - i. Measure from the ground to the center of the light holes to confirm they are no higher than 72".
    - ii. If they are over 72", lower them until they meet this requirement.
  - b. With the new light box located properly and squared, use the holes in the back of the box to mark where to drill the bolt holes.
  - c. Confirm the area behind the marked holes is clear before drilling to prevent damage when the drill bit cuts through the partition.
  - d. Remove box and drill the 3/8" bolt holes.
    - i. The oversized bolt holes allow adjustment to square the box to the body.
    - ii. Deburr the holes to remove any sharp edges.
  - e. Repeat these steps for the curbside light box.
    - i. Use the same height and width dimensions as the roadside box to locate it correctly.

**Figure 1**


2. Locate and drill the new holes for the wire harness pass-thru's and license plate light/bracket as shown in [Figure 2](#).
  - a. Confirm the area behind the marked holes is clear before drilling to prevent damage when the drill bit cuts through the partition.
  - b. Deburr the holes to remove any sharp edges.
3. Paint any bare metal caused by the drilling operations.
4. Apply caulk around the hardware holes, and bolt the new boxes to the rear of the body using the supplied hardware.

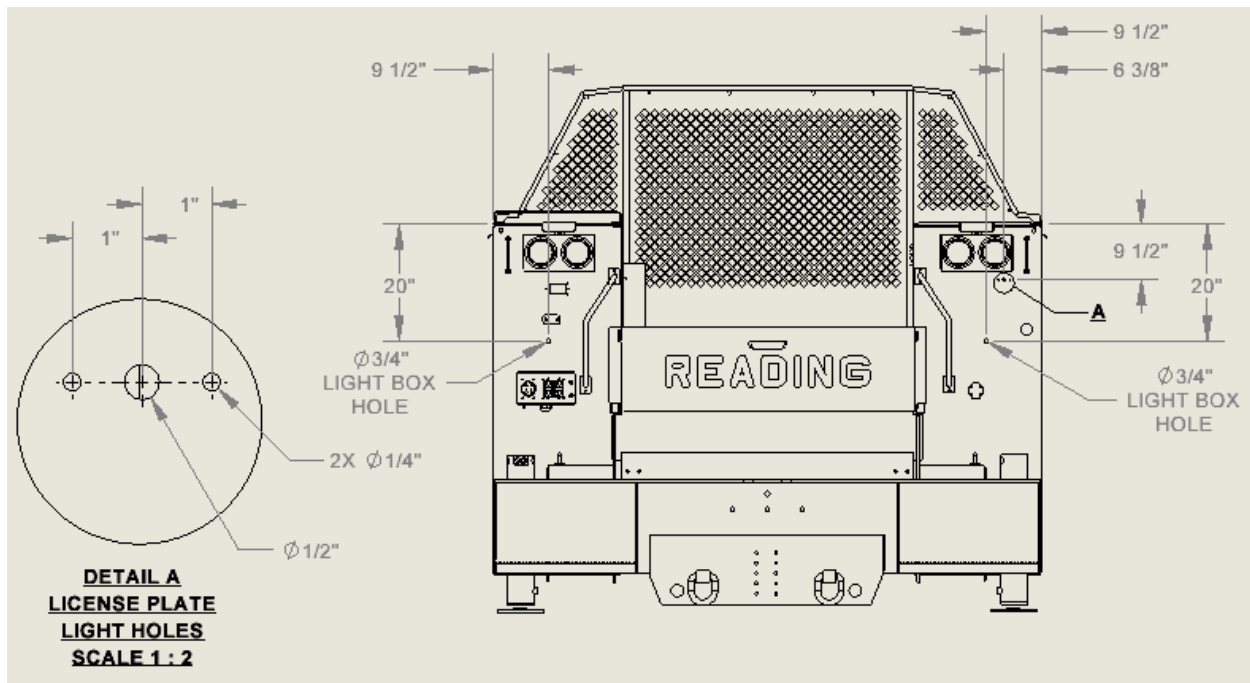
53185677	<b>LT BOX ASSY, SNGL LT BLT ON</b>	<b>2</b>
14210189	<b>BOLT,SS,HH,1/4"-20X 1 1/4"</b>	<b>8</b>
14406281	<b>FLAT WASHER,1/4"SS,R</b>	<b>16</b>
14501791	<b>LOCK NUT,NYLON ,1/4-20</b>	<b>8</b>

5. Install the hardware in this order:
  - a. Bolt / Flat washer
  - b. Light box
  - c. Body panel
  - d. Flat washer
  - e. Lock nut

6. Apply caulk around hardware holes, and bolt the cover plate over the old license plate light/bracket holes.

14506371	<b>SCREW,RND HD,PHILIP,10-24X3/4 PS</b>	<b>2</b>
14302002	<b>FLAT WASHER SS,#10 -#92141A011</b>	<b>4</b>
14506375	<b>LOCK NUT,10-24 SS NYLON</b>	<b>2</b>
81085812	<b>LICENSE PLATE COVER PLT</b>	<b>1</b>

7. Install the hardware in this order:
  - a. Screw / Flat washer
  - b. Cover Plate
  - c. Body panel
  - d. Flat washer
  - e. Lock nut
8. Apply caulk around the new light boxes and cover plate.

**Figure 2**


9. Remove the taillights and strobe lights from the boxes and disconnect the harness.
10. Remove the license plate, light, and bracket and disconnect the harness.
11. Remove the harnesses from the pass-thru holes and let them hang inside the rear compartments.



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## Wiring and Electrical connections

### - Proper workmanship

For the wiring work that follows, follow these best practices and OEM requirements.



#### TIP — WIRE ROUTING STANDARDS

**Follow these standards as closely as possible, OEM requirements, and your local procedures:**

- Wiring should be positively retained every 6—10”.
- All connectors should be positively retained.
- When using cable ties (zip ties), use only ties that are “UV stable” and sufficiently strong.
- Route the wiring so that all wiring runs are “relaxed”. The wiring should never be in tension.
- Do not fasten anything to existing fuel lines, electrical components of the fuel system, wires or fuel lines [including fuel fill and vent tubes].
- All wiring exposed to the weather should be protected by convolute (loom).
- Use **dielectric grease** on plug & socket connections to keep water out.
- Use **drip loops** to help prevent water from entering circuits or the body.

#### **WARNING**

**Electrical failure hazard. Make sure all electrical connections are secure, properly insulated and secured.** Short circuits in the wiring could cause component malfunctions and failure. Open circuits could cause lamp failure that could lead to a crash. Failure to comply could injure or kill.

12. Modify the wire harness to accommodate the additional light and new license plate light location per the “RM78 TAIL LIGHT ADDITION-MODIFICATION” schematic on the last page of this document.
  - a. Confirm wire lengths before cutting and splicing.
  - b. After opening the bundle of wires, cut off connectors P18, P19, P24, and P25 above the splice to leave an approximate 4” pigtail on the connectors.
  - c. Please note, Connectors P18, P19, P24, and P25 cannot be spliced onto the harness until the extended harness is passed through the new wire pass thru holes behind the new light boxes.

**Image 1 – Opened wire bundle**



Image 2 – Approx. 4” pigtail remains on connector



13. Insert the remaining wire harness leads into the pass-thru holes and install all of the lights as shown in [Figure 1](#).
  - d. The upper boxes will house a backup light and a strobe light.
  - e. The new light boxes house the stop/tail/turn/back-up/hazard light.

Image 3 – Roadside wire routing (upper light box)



Image 4 - Roadside wire routing (new light box & license plate light)



Image 5 – Curbside wire routing



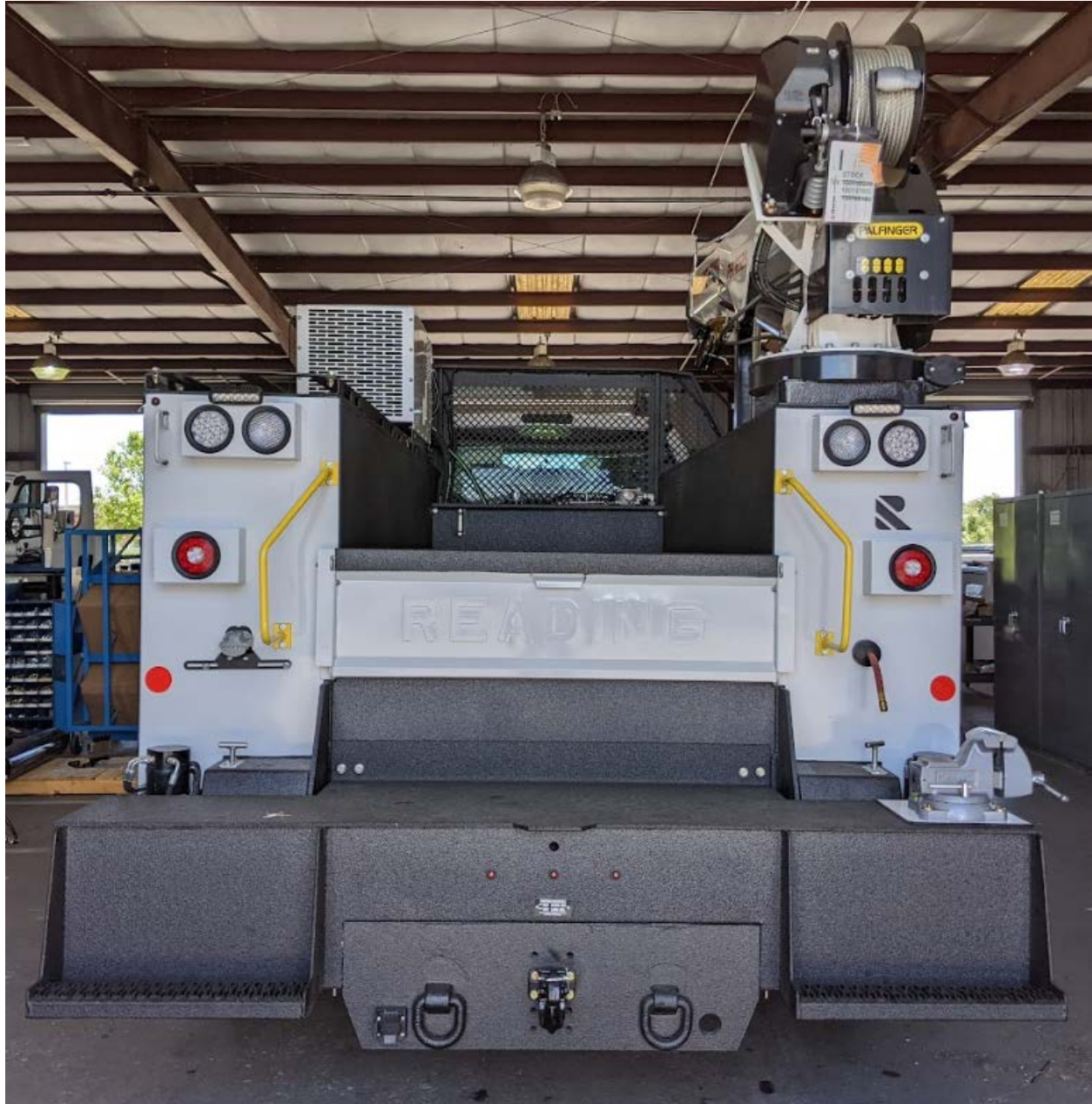
14. Apply caulk around the holes on the license plate bracket and install it in the new location.
15. Test that all lights are functioning properly for compliance with FMVSS 108.



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Image 6 – Completed unit (Standard configuration shown)





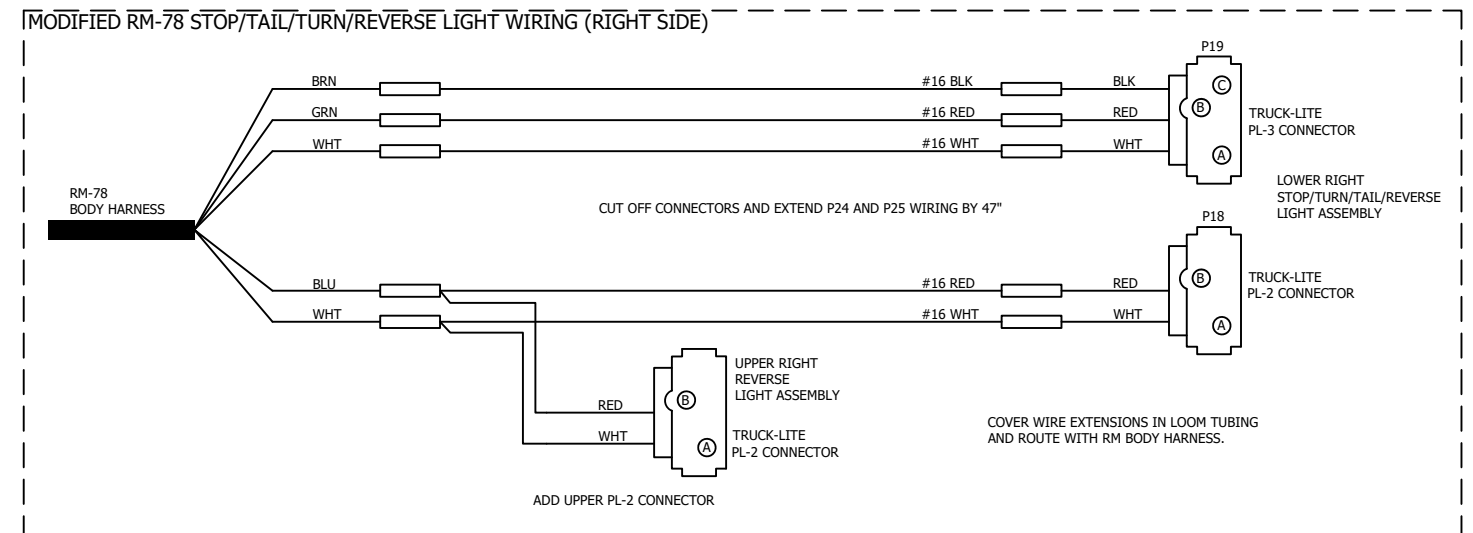
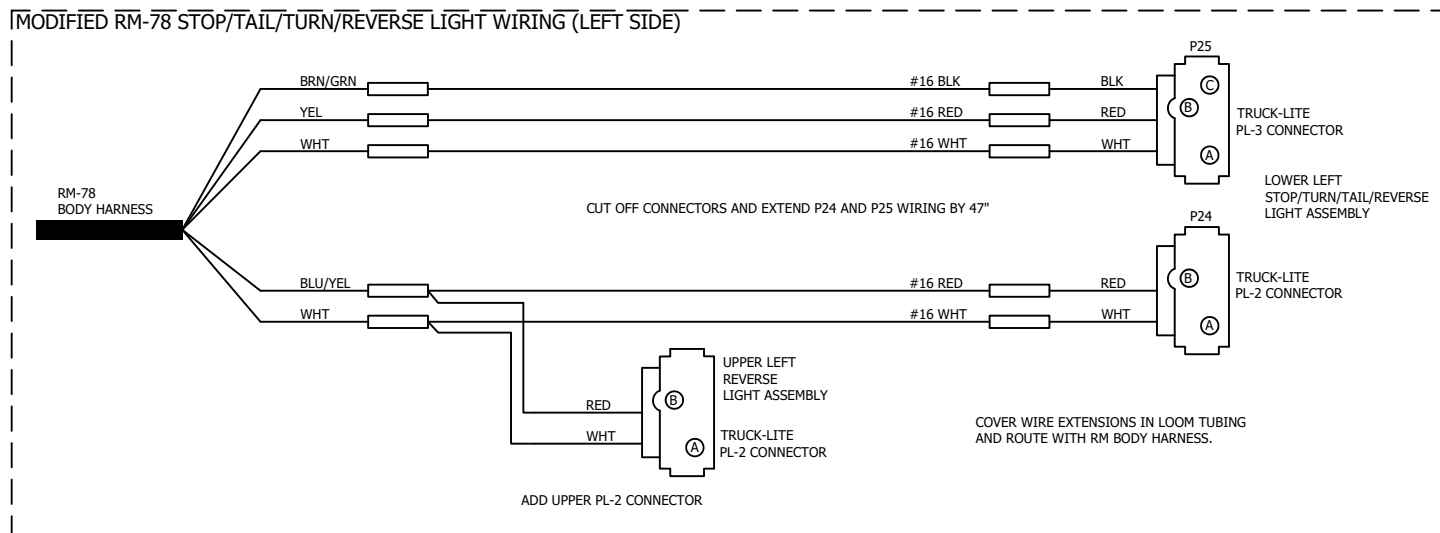
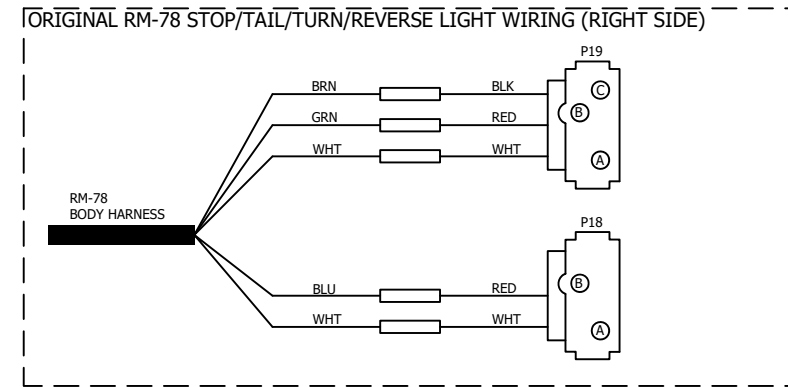
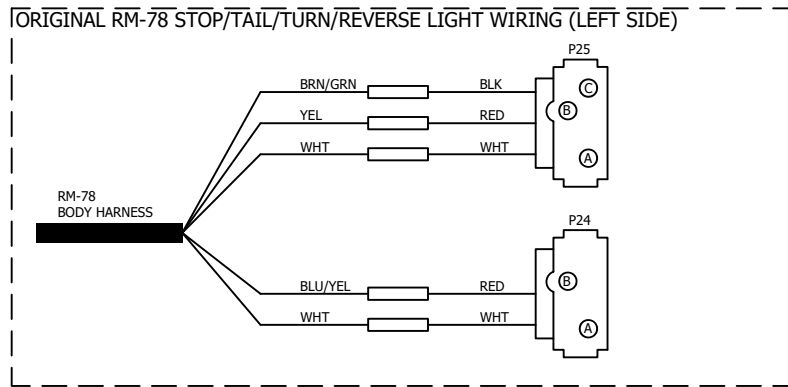
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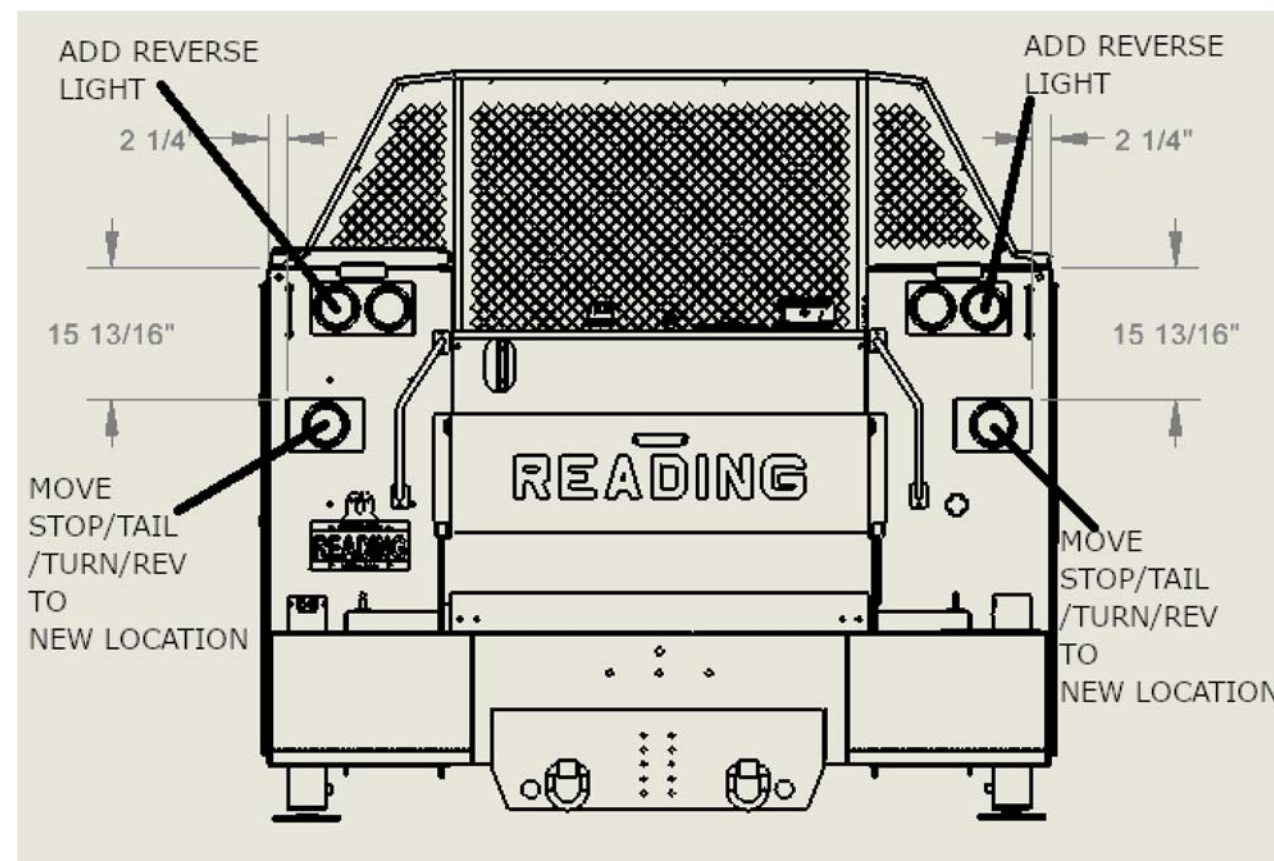
### Suggested Quality Checklist

1. Perform final inspection of the complete vehicle according to local procedures.
2. In addition to your local procedures, ensure the following are checked:

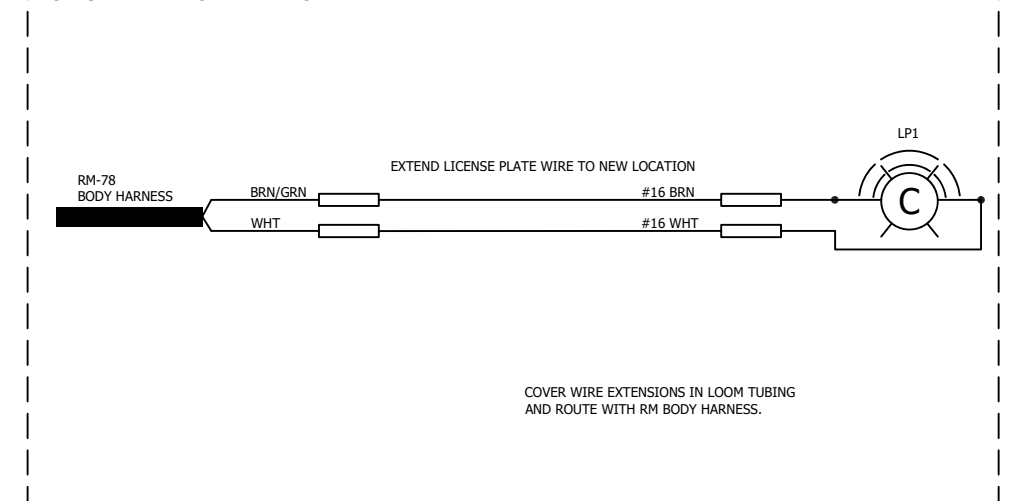
ITEM	Y/N/NA	NOTES
Brake lights		Rear, Red, 2 or more, 15"-72" high
Left turn signal		Rear, Red or Amber, 2 or more, 15"-83" high
Right turn signal		Rear, Red or Amber, 2 or more, 15"-83" high
Hazard lights		Rear, Red or Amber, 2 or more, 15"-83" high
Reverse lights		Rear, White, 1 or more, No height requirement
Marker lights		Rear at widest point, Red, 2, As high as practicable
"Triple" identification lights		Rear spaced 6"-12" on center, Red, 3, As high as practicable
License plate lights		Rear, White, 1 or more, No height requirement
Strobe Lights		
Rear view camera		Verified using FMVSS 111 or NTEA kit procedure.
Final review		



LEFT TAIL LIGHT ORIGINAL WIRING (RIGHT IS SIMILAR)



LICENSE PLATE LIGHT WIRING



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TOLERANCES (EXCEPT AS NOTED)	The Reading Truck Center Reading, PA (610) 775-3301		
DECIMAL	RM-78 TAIL LIGHT ADDITION/MODIFICATION		
FRACTIONAL	ELECTRICAL SCHEMATICS		
+	DRAWN BY	DATE	REV
-	RJA	4/26/2024	0
	CHKD	DATE	BROWING NO.
	rantanavage	4/26/2024	NA
ANGULAR DIMENSIONS IN INCHES	SCALE	REV 0	
UNLESS OTHERWISE NOTED	01 OF 1		