MODEL **9258-0108**
PAN HEATER CONTROL SYSTEM

The RAILWAY EQUIPMENT Co® Pan Heater Control System is a free standing unit that features the ability to monitor rail temperature and a 120VAC control input and control equipment dependent on these conditions.

RAILWAY EQUIPMENT Co®

Instruction Manual for Pan Heater Control System

RAILWAY EQUIPMENT CO.

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Contents

1.0 WARNINGS, CAUTIONS, AND NOTES

Please read the entire instruction manual before using the control panel.

Also, read the warnings, cautions, and notes in Table 1. Failure to observe the warnings and cautions can lead to equipment damage or personal injury.

If you have any questions concerning the manufacture, design, function, installation, operation or maintenance, contact Railway Equipment Company before proceeding.

Table 1. Warnings, Cautions, and Notes

Symbol	Description
	WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
	CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate personal injury. It may also be used to alert against unsafe practices.
NOTE	NOTE indicates explanatory information that applies to the next step in the procedure. It is used to clarify and expand upon the importance of the procedural step when needed.
	If incorrectly wired, monitor can be damaged. Be sure to observe correct polarity on all DC wire connections, check the AC wiring instructions, and connect the ground wire.

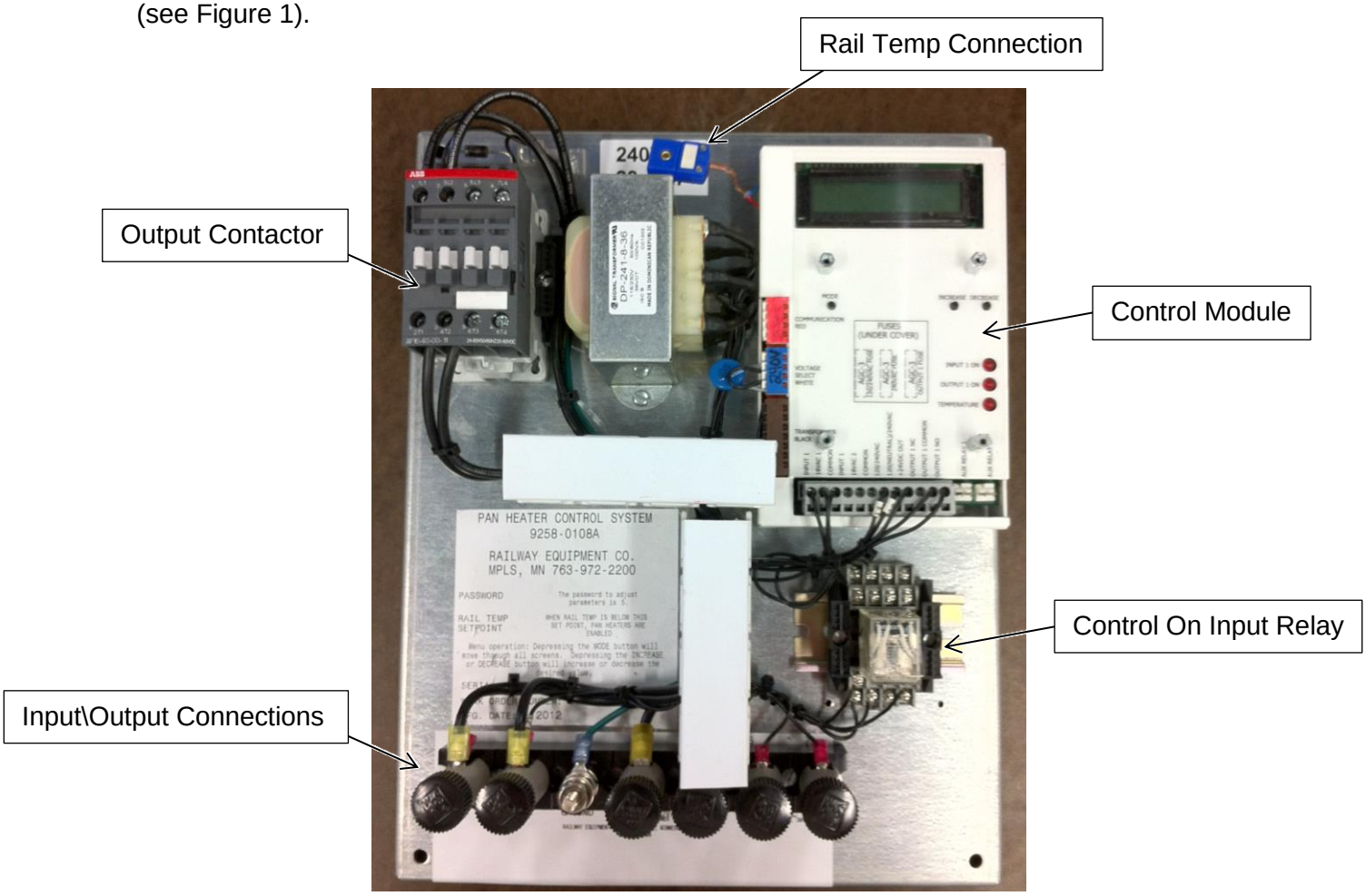
2.0 OPERATION

The model 9258-0108 pan heater control system is equipped to monitor rail temperature and can be equipped with moisture detectors to turn it on, or a 120VAC control signal can be used to power the pan heaters. A contactor output is provided to power pan heaters, and two additional outputs are provided that can be used to power 24VDC relays. The system features programmable temperature high and low set points, requiring sensor temperature to be between the set points to maintain heater operation. Operation continues if temperature and moisture detection remain within the selected parameters, and the heaters will remain powered after a snow event is over for the amount of time selected in the SNOW TIMER SET POINT parameter. The module also has a preset 10 second delay before contact closure to prevent contact chatter in case of control signal issues.

A temperature sensor (thermocouple) is provided. If this sensor is not installed, or is damaged (open), the system will continue to operate with sole control reverting to the moisture detection signal. The temperature sensor is connected to the blue female connector coming out the left side of the control module.

3.0 PANEL FEATURES AND COMPONENTS

This section describes the features and components that are on the pan heater control panel (see Figure 1).



3.1.1 Figure 1. Pan Heater Control System

3.1.2 Digital Display

The idle screen displays the **TEMPERATURE** and **SNOW TIMER**

To scroll through the display screens, press the **MODE** button. To change the values of displayed parameters, use the **INCREASE** or **DECREASE** buttons. The screens are:

PASSWORD ___**-** The password to adjust parameters is **5**. It is entered by pressing the **INCREASE** button until **5** appears in the parameter field.

TEMPERATURE TO COME ON **-** This displays the temperature low limit, below which a moisture detection will cause pan heater activation. It is adjustable between 0F (-18C) and +255F (+124C).

TEMPERATURE TO GO OFF – This displays the temperature high limit. When the sensor reaches this temperature, power is removed from the pan heaters. If the

sensor temperature drops below this set point and is still being called for by moisture detection, the heaters will be powered again.

SNOW TIMER SET POINT – This parameter is used to set the time the unit will run after moisture is no longer detected. It is adjustable between 10 and 999 minutes.

SNOW SENSITIVITY SET POINT – This is used to select the time moisture must be detected, uninterrupted , before the unit starts. It is adjustable between 1 and 10 seconds.

SELECT F OR C
FAHRENHEIT (CELSIUS) – This parameter selects the desired temperature display,

REV LEVEL _____ - Software revision level.

3.1.3 Push Buttons

Below the digital display are three control push buttons:

MODE – This control is used to increment through the available screens.

INCREASE – This is used to increase the value of the displayed parameter, if enabled.

DECREASE – This button will decrease the value of the displayed parameter, if enabled.

3.1.4 LED Status Indicators

Three LEDs are used to indicate:

INPUT 1 ON – Illuminated while control on is being detected.

OUTPUT 1 ON – Indicates the pan heater contactor is activated.

TEMPERATURE – Indicates that the rail temp is below the temperature set point.

3.1.5 RAIL TEMPERATURE SENSOR

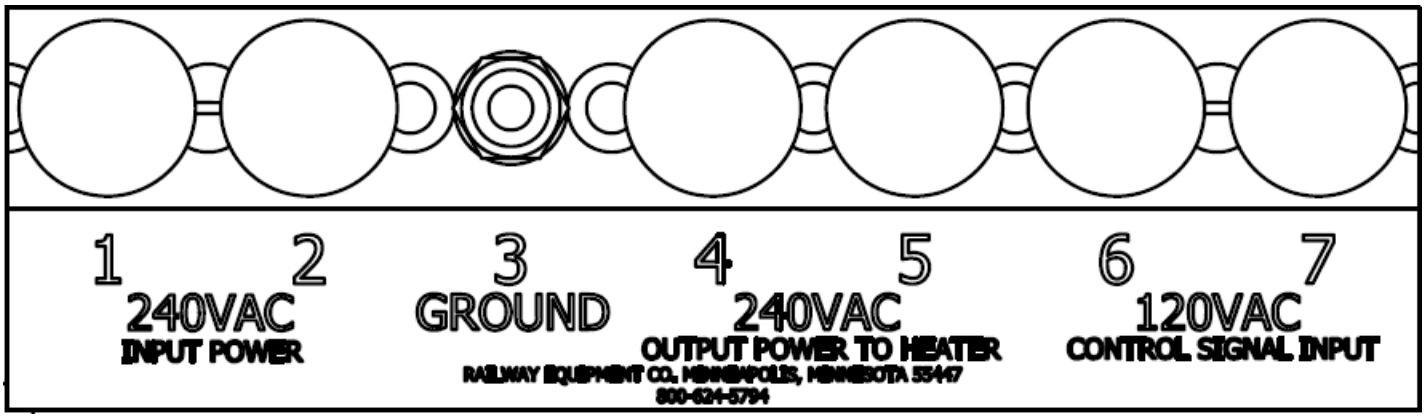
On the top left of the control module case is a temperature sensor jack. The rail temp sensor is a thermocouple that can be placed to monitor rail temperature near the pan heaters.

4.0 SPECIFICATIONS

- Input power is 240 VAC @ 20 Amps AAR connection
- Control On signal is a 120 VAC AAR connection
- 3 – 3A AGC fuses protect the Control Module: 120/240VAC, 240VAC and Output 1
- LED Status Indicators
- Digital Rail Temperature Meter (when Rail Temp Probe is connected)
- Meets or Exceeds AAR/AREMA Specifications

- Panel ready to mount in a bungalow
- 2-Year Warranty

5.0 CONNECTIONS

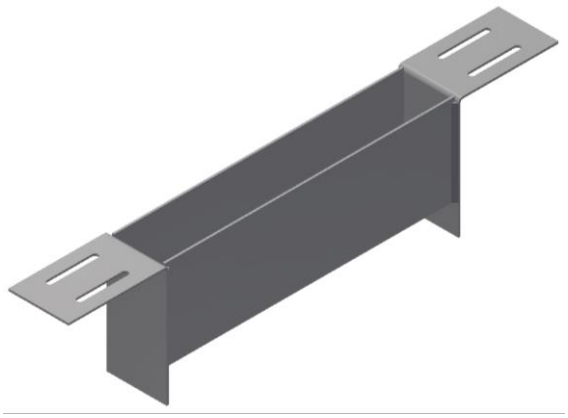


240VAC Input Power | 240VAC to Pan Heaters | 120VAC from Control On Signal

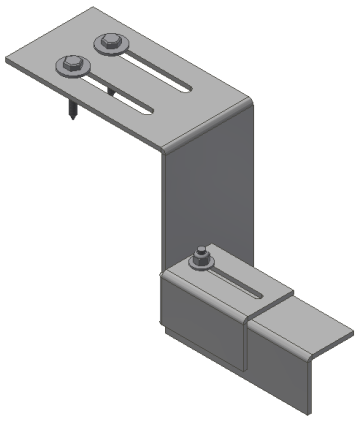
6.0 PAN HEATERS

6.1.1 Pan Heater Bracket Installation:

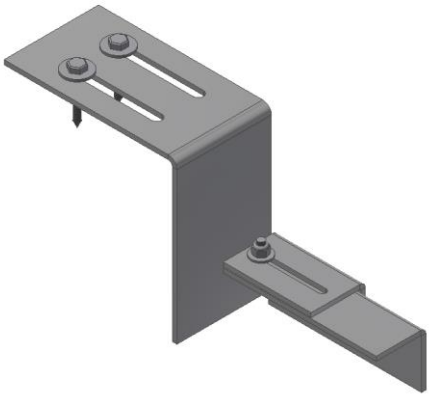
Pan Heaters may come with mounting brackets, lag bolts and washers. Install mounting brackets as shown below



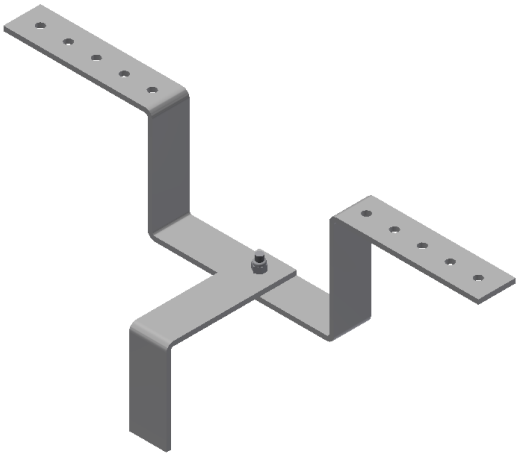
9148-1400 **RETAINER**



9418-1410 **RETAINER, LH ADJUSTABLE**

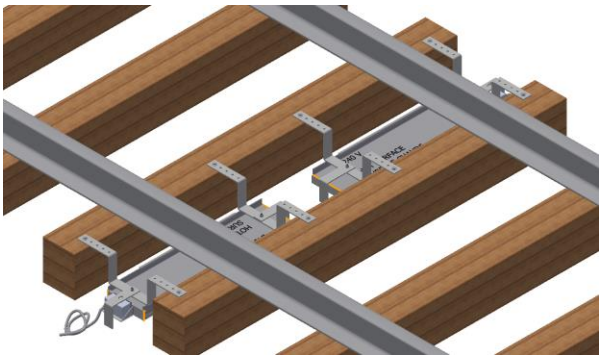


9148-1412 **RETAINER, RH ADJUSTABLE**

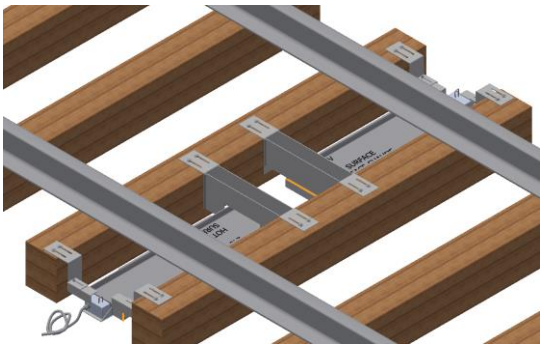


914130 SUPPORT BRKT

NOTE: THERE ARE TWO DIFFERENT PAN HEATER BRACKETS.

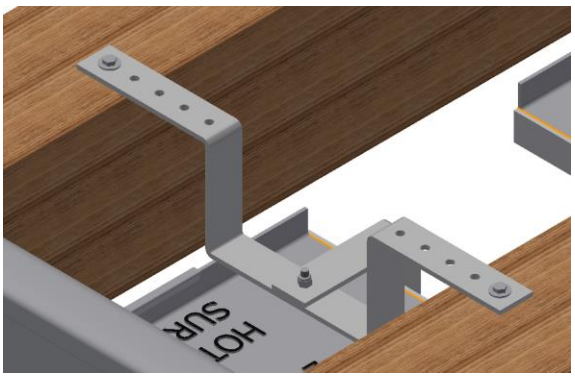


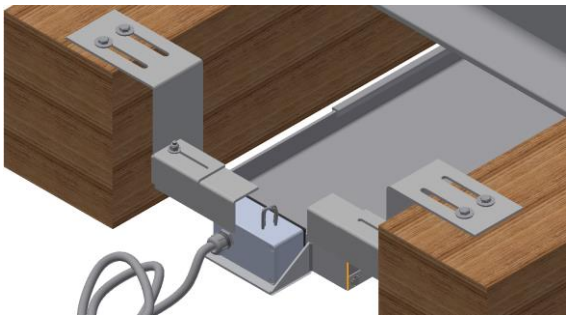
This picture shows 914130

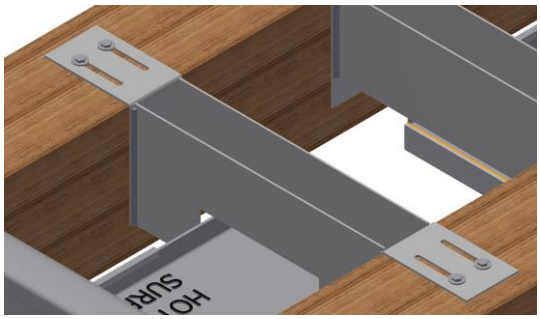


This picture shows 9148-1400, 9148-1410, and 9148-1412

Attach each bracket according to the pictures below. Use at least 2 lag bolts with washers to ensure proper bracket stability.







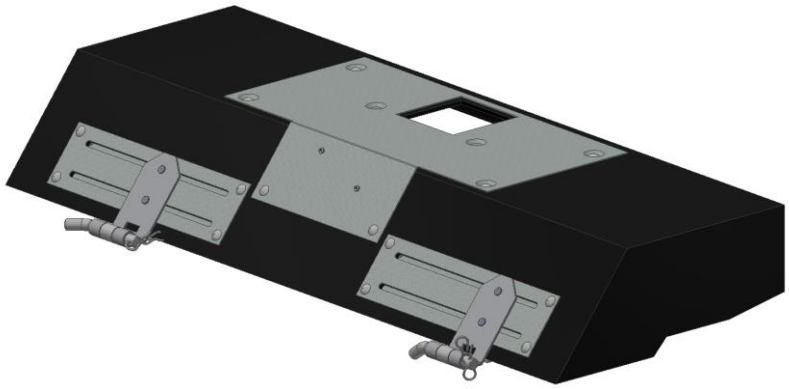
6.1.2 Pan Heater Wiring:

The Pan Heaters need to be wired back to the optionally supplied junction box, and then user supplied wire is connected at the junction box back to the control panel. From the junction box the installer will need to provide the appropriate length of wire back to the Pan Heater Controller.

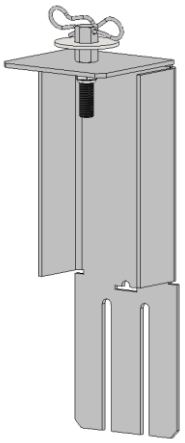
7.0 HOT BOX DETECTOR COVERS (OPTIONAL)

7.1 PART IDENTIFICATION

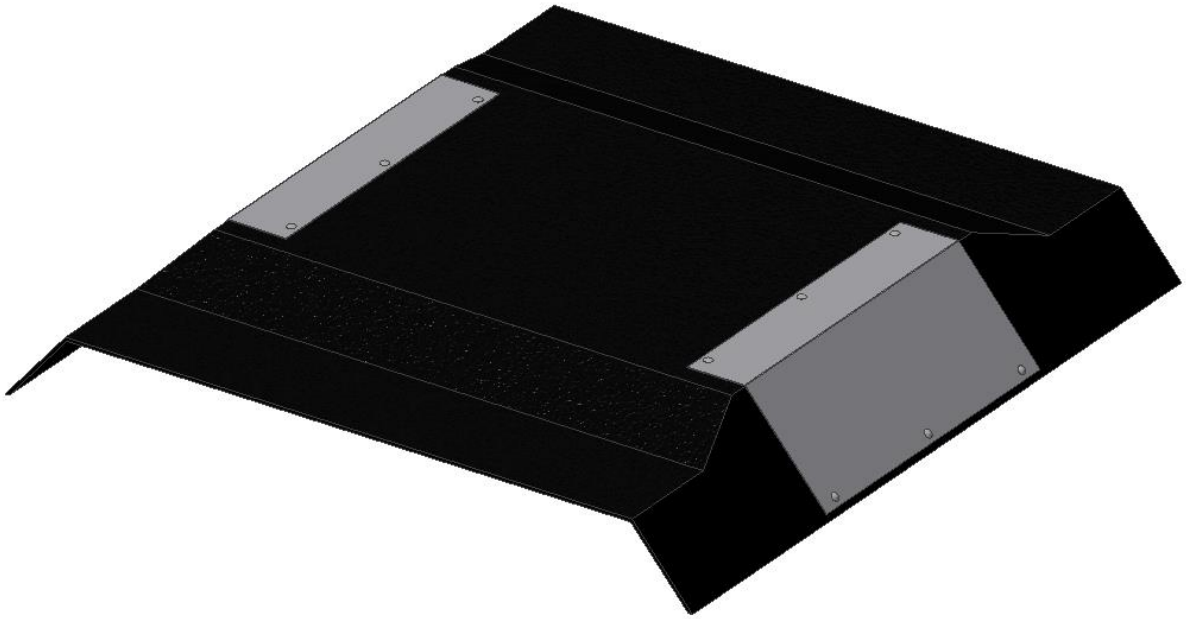
7.1.1 9279465C Hot Box Detector Cover



7.1.2 9279929C Slotted Tie Bracket



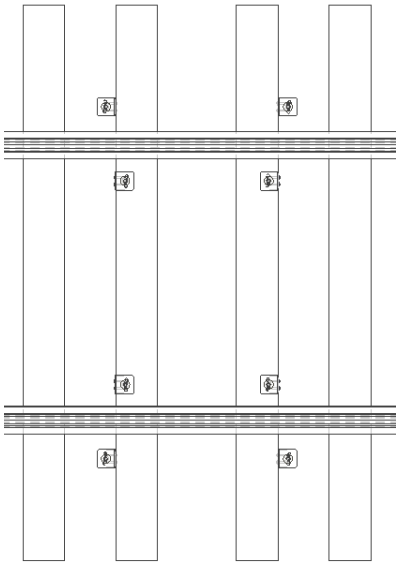
7.1.3 9279468A Center Cover



7.2 INSTALLATION

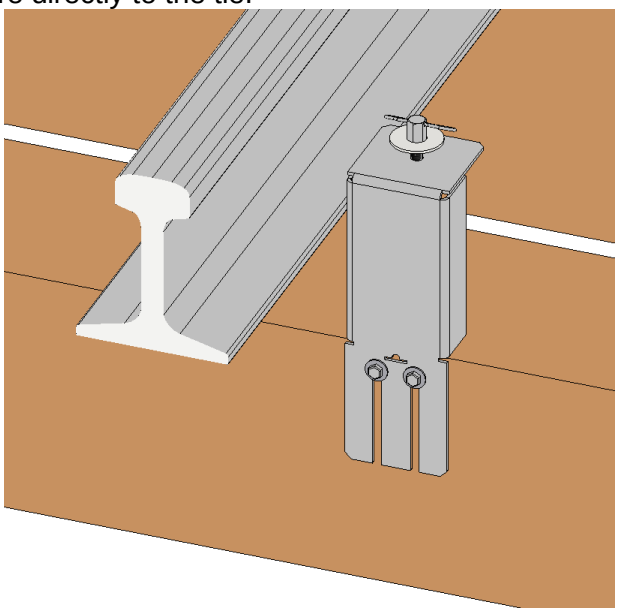
7.2.1 Center Cover Installation and Detector Cover Installation

7.2.1.1
Clear ballast around ties for all 8 bracket locations. See figure below.



7.2.1.2

Use provided lag bolts to fasten brackets to ties. Take care to position the height of the bracket appropriately. In many cases the flanges of the bracket will gauge the proper height for the bracket and support the cover more directly to the tie.



7.2.1.2

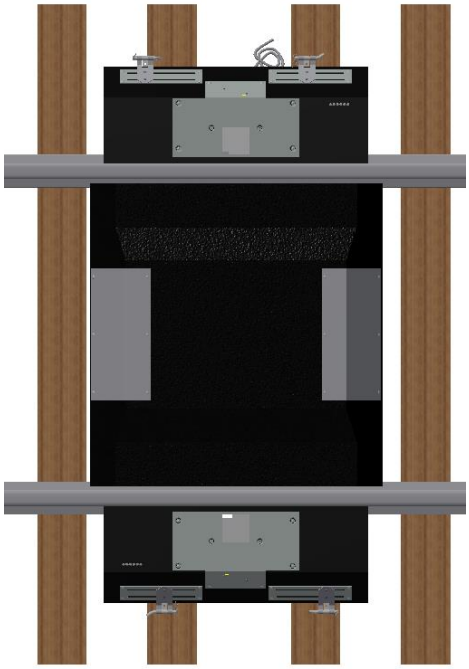
After all brackets have been installed, Place grease on top of all the hex bolts. Place the Center Cover and Detector Cover over the greased hex bolts to mark where holes will be drilled.

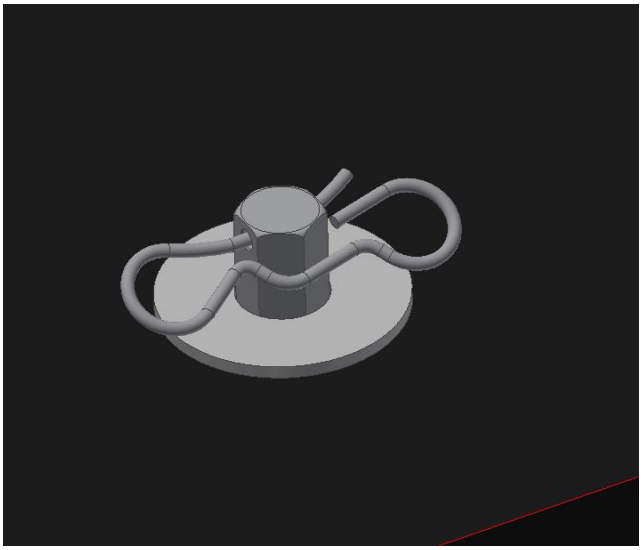
7.2.1.3

With the hole placements marked, take a 1 ½ hole saw and drill the holes

7.2.1.4

Place the Center and Detector Covers, putting the hex bolt through the drilled holes. Place washes on each hex bolt and place pin. (The figure below shows the complete installation)



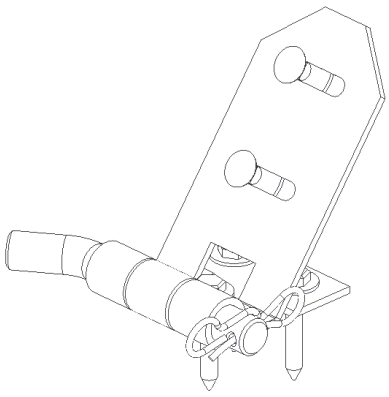


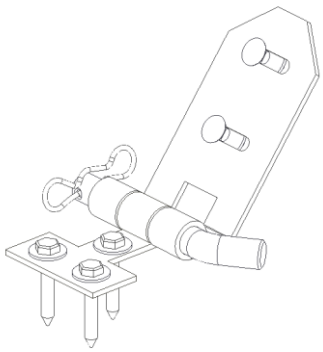
7.2.2 INSTALLING HINGE FOR DETECTOR COVER

Note: The side cover hinge can be utilized 2 different ways as pictured below.

7.2.2.1

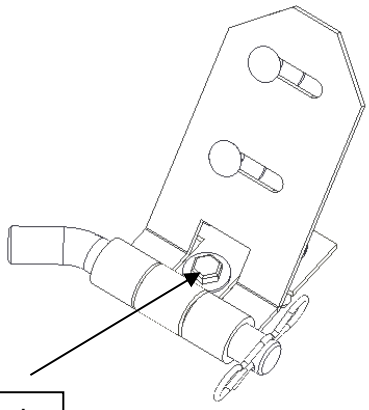
The left side cover hinge arrangement (standard setup) is to be used when there are limitations due to tie length. If the tie is long and has more room, you can remove the pin and flip the bottom piece upside down as shown in the right picture below and reattach the pin.





7.2.2.2

If using the configuration in the above right picture, simply place the side cover into place and lag the lower piece of the bracket to the tie. If using the configuration in the above left picture, use a lag bolt and washer to hold down the bracket once the side cover is in position. Once the first lag bolts are placed, flip the side cover over and install the 2nd and 3rd lag bolts with washers to securely fasten the bracket to the tie.



7.2.2.3
Coat the side cover hinges with penetrating oil to prevent corrosion.

Below is the finished installation.