OPERATING MANUAL

MODEL NO. 934 & NO. 937

ELECTRIC HOT AIR BLOWER

TRACK SWITCH SNOW MELTER

230/460/575 VAC 1 & 3 PHASE
60 KW LOAD CAPACITY

MANUFACTURED

BY

RECO

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1. Warnings and Cautions

CAUTION

GENERAL HAZARD WARNING

FAILURE TO COMPLY WITH THE PRECAUTIONS AND INSTRUCTIONS PROVIDED WITH THIS HEATER, CAN RESULT IN DEATH, SERIOUS INJURY AND PROPERTY LOSS OR DAMAGE FROM HAZARDS OF FIRE, EXPLOSION, BURN, ASPHYXIATION, CARBON MONOXIDE POISONING, AND/OR ELECTRICAL SHOCK.

ONLY PERSONS WHO CAN UNDERSTAND AND FOLLOW THESE INSTRUCTIONS SHOULD USE OR SERVICE THIS HEATER.

IF YOU NEED ASSISTANCE OR HEATER INFORMATION, SUCH AS INSTRUCTION MANUALS, LABELS, ETC., CONTACT THE MANUFACTURER.

CAUTION

WARNING: FIRE, BURN, INHALATION, AND EXPLOSION HAZARD.

KEEP SOLID COMBUSTIBLES, SUCH AS BUILDING MATERIALS, PAPER OR CARDBOARD, A SAFE DISTANCE AWAY FROM THE HEATER AS RECOMMENDED BY THE INSTRUCTIONS. NEVER USE THE HEATER IN SPACES WHICH DO OR MAY CONTAIN VOLATILE OR AIRBORNE COMBUSTIBLES, OR PRODUCTS SUCH AS GASOLINE, SOLVENTS, PAINT THINNER, DUST PARTICLES OR UNKNOWN CHEMICALS.

PLEASE READ THIS INSTRUCTION MANUAL ENTIRELY BEFORE HANDLING THIS MATERIAL OR ATTEMPTING TO INSTALL, OPERATE, OR SERVICE THIS HOT AIR BLOWER SYSTEM.

PLEASE READ THE WARNINGS AND CAUTIONS LISTED BELOW.

CAUTION

SHEET METAL EDGES MAY BE VERY SHARP AND CAN CAUSE SEVERE CUTS OR LACERATIONS. PROTECTIVE GLOVES AND CLOTHING SHOULD BE WORN. USE CAUTION WHEN HANDLING ALL SHEET METAL COMPONENTS.

CAUTION

THE HOT AIR BLOWER TRACK SWITCH SNOW MELTER SYSTEM CAN BE OPERATED REMOTELY OR BY A SNOW DETECTOR SYSTEM. THEREFORE, OPERATION MAY BEGIN UNEXPECTEDLY. USE CAUTION WHEN IN THE AREA.

CAUTION

SYSTEM OPERATES WITH VARIOUS VOLTAGE LEVELS UP TO 600VAC. CONTACT WITH ELECTRICITY CAN BE HAZARDOUS OR LETHAL. MAKE SURE THAT THE MAIN CIRCUIT BREAKER IS TURNED OFF BEFORE ATTEMPTING TO SERVICE THIS SYSTEM. EVEN WITH CIRCUIT BREAKER OFF, LINE VOLTAGE IS PRESENT AT THE TOP CIRCUIT BREAKER CONNECTIONS.

CAUTION

THIS SYSTEM CONTAINS A HIGH SPEED AIR FAN WHICH ROTATES AT UP TO 3600RPM AND CREATES FORCEFUL SUCTION WHEN OPERATING. DO NOT OPERATE THE BLOWER SYSTEM IF ANY OF THE DUCTWORK COMPONENTS HAVE BEEN REMOVED.

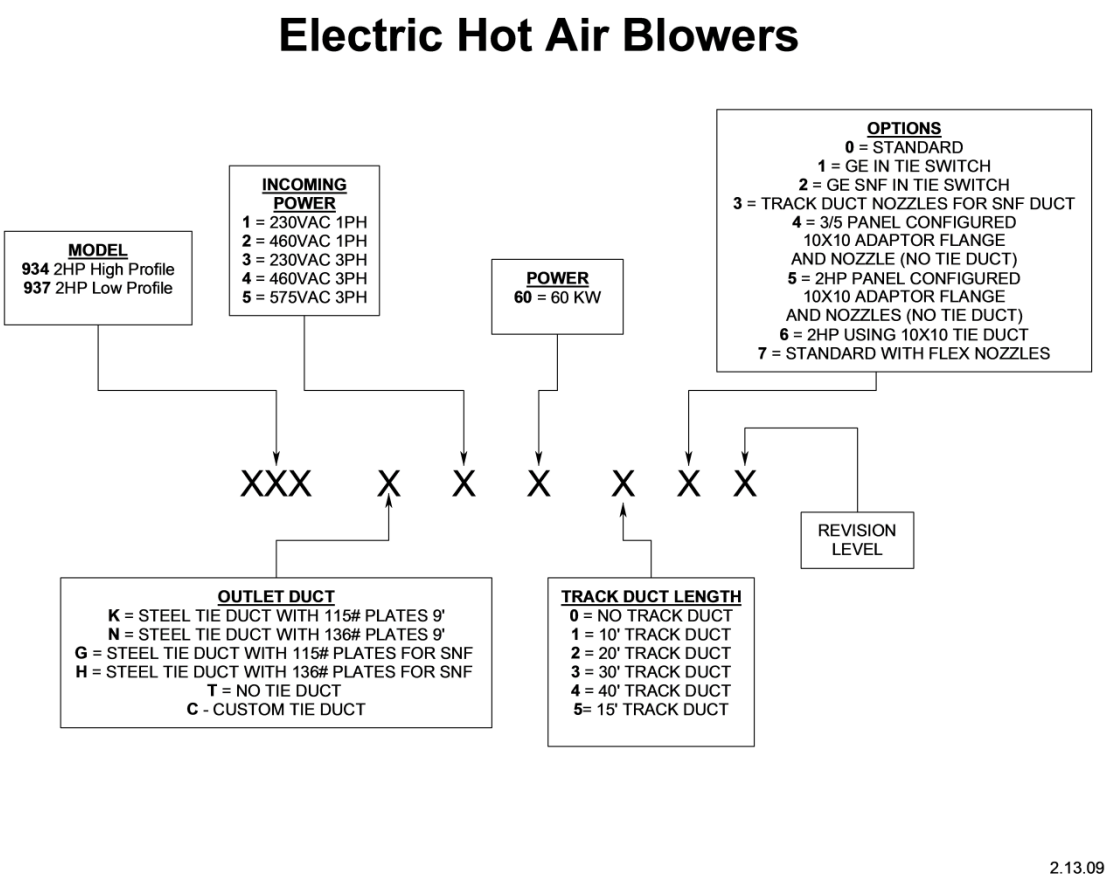
THIS SNOW MELTER SYSTEM HAS BEEN DESIGNED TO PROVIDE DEPENDABLE EFFECTIVE OPERATION IN ALL WEATHER CONDITIONS WITHOUT SWITCH COVERS. SWITCH COVERS MAY CAUSE HIGHER AIR TEMPERATURES. IF SWITCH COVERS ARE USED, YOU MUST DETERMINE A SAFE OPERATING AIR TEMPERATURE AND ADJUST BURNER PARAMETERS ACCORDINGLY. ADJUSTMENT OF BURNER PARAMETERS MAY NEGATIVELY AFFECT BURNER PERFORMANCE AND COMBUSTION CHARACTERISTICS TO THE EXTENT THAT THE BURNER MAY BE UNABLE TO MAINTAIN COMBUSTION. CONSULT RAILWAY EQUIPMENT COMPANY REGARDING BURNER OPERATING PARAMETERS.

TWO (2) COMPLETE INSTRUCTION MANUALS HAVE BEEN INCLUDED WITH THIS SNOW MELTER SYSTEM. PLEASE KEEP ONE OF THE MANUALS WITH THE SYSTEM AFTER INSTALLATION. ANYONE OPERATING OR SERVICING THIS SNOW MELTER SYSTEM SHOULD READ THE MANUAL ENTIRELY BEFORE PROCEEDING.

IF YOU HAVE ANY QUESTIONS CONCERNING THE MANUFACTURE, DESIGN, FUNCTION, INSTALLATION, OPERATION OR MAINTENANCE, CONTACT RAILWAY EQUIPMENT COMPANY BEFORE PROCEEDING.

2. General Information

2.1. Model Number Description



2.13.09 TM

2.2. Standard Features

Here is a list of standard features that come with the EHAB unit:

- HAB Complies with AREMA 12.6.10
- Two stage operation that allows savings on fuel costs. Second stage runs at 50% output of the first stage.
- Direct drive motor, totally enclosed and fan cooled.
- High efficiency, quiet blower.
- Remote operation via contact closure (low voltage, low current) with timed shut off.
- Built-in snow detector system (requires Snow Detector assembly option).
- Auto-Off-Local push button switches.
- High temperatures limit thermostat/shut off.
- Adjustable air temperature control.
- Adjustable rail temperature control.
- Reply indication via HAB contact closure.
- Fail indication via HAB contact closure.

- Main circuit breaker.
- Audible tone before blower startup.
- Weather-tight gasketed control enclosure.
- Status indicating lights for all control functions.
- Start delay timer for sequential startup.
- Run timer for timed operation.
- Selectable "Transparent" snow detector operation.
- Snow detect timer.
- Thermally and electrically isolated ductwork and nozzles.
- Quick-release track duct.
- Blower motor starter with overload protection.
- Elevated air intake.
- Adjustable delay for startup (10 second to 5 minute range).
- All components mounted and wired within main unit – no external wiring required except for remote control, indications, optional snow detectors, and rail temp sensor.
- Galvanized case constructed of 14-gauge steel, high temperature powder coated finish.
- Galvanized steel adjustable mounting foundations.
- Standard ductwork:
    - Heat duct with straight insulated flexible duct
    - Heavy duty insulated offset duct
    - Main tie duct (electrically insulated between rails)
    - 24 inch (minimum) switch point nozzles

3. Component Description

3.1. Main Hot Air Blower (HAB) Unit

a. Main Circuit Breaker

Provides main over-current protection and manual on-off control of electrical power.

b. Motor Contactor

Provides automatic blower motor control, with high current contacts.

c. Motor Overload Relay

Protects the blower motor from an over-current condition.

d. Control Module

Provides complete control of operation. See section 5 for more information.

e. Control Transformer

Provides control power for the control module and other control components. The multi-tapped secondary provides 36VAC CT and 17VAC CT. The primary has 115VAC input plus a 230VAC step-up winding and 12.6VAC CT windings.

f. Airflow Switch

Located in the flame duct, the airflow switch indicates proper airflow before and during burner operation. The differential setting is determined by elevation.

g. Air Temperature Sensor

This is a thermocouple type sensing circuit to monitor the ambient air temperature.

h. Rail Temperature Sensor

This is a thermocouple type sensing circuit to monitor the actual rail temperature.

i. Blower Motor

Totally enclosed and fan cooled motor that spins the blower wheel.

j. Blower Wheel

The high efficiency blower wheel is dynamically balanced for smooth and quiet operation.

k. Buzzer

The buzzer will sound a 10-second tone immediately before the motor contactor is energized.

3.2. Standard Ductwork

a. Heat Duct

The first section of ductwork attached to the main HAB unit. This duct contains the heaters, air flow switch, and high temp sensor.

b. Flex Duct

Connects the heat duct to the offset duct. It is a section of flexible duct, enclosed in an insulated sheet metal wrapper.

c. Heavy Duty Offset Duct

Connects the flex duct to the tie outlet duct. This duct provides an 8” offset.

d. Tie Outlet Duct

The tie outlet duct extends under the rails in place of a tie and directs the airflow to the point nozzles and track ducts. The rail attaches to the duct using tie plates and E clips. The tie plates are electrically insulated from the rail using an insulating kit. There are six openings in the top for point nozzles and track duct nozzles. Refer to the drawing page for the duct layout.

e. Track Ducts

These ducts rest on brackets on the ties and the outlet duct. They are installed over the track duct nozzles. The track ducts consist of a 5’ point, a 5’ mid, and 10’ sections to complete the desired length.

f. Track Duct Nozzle

Attaches to the inner two rectangular openings on the top of the outlet duct. Directs airflow down the length of the switch through the track ducts.

g. Track Duct Nozzle Isolating Kit

This is an electrically insulating gasket with insulating washers and hardware to provide isolation between the nozzles and the outlet duct. Refer to drawing 9278-0027 for proper installation.

h. Quick Change Nozzle Plate

This plate allows for quick removal or installation of nozzles to the tie duct, by simply loosening of four bolts the nozzle assembly can be removed or installed.

i. Track Duct Support Bracket

These brackets are used to secure the track duct in position. Refer to drawing 92774.

j. Switch Point Nozzle

These nozzles direct heated air down the switch point. They are mounted on the outlet duct. They can be adjusted for proper airflow direction. Nozzles may be shortened by up to 10” for proper fit.

k. Point Nozzle Isolating Kit

This is an electrically insulating gasket with insulating washers and hardware to provide isolation between the nozzles and the outlet duct. Refer to drawing 9278-0021 for proper installation.

3.3. Optional Ductwork

a. Extension Ducts

Extension ducts of various lengths are available to meet specific requirements. These are insulated and enclosed in a metal wrapper. Make sure the duct is mounted in the correct orientation, as there is an access opening underneath the insulating wrapper cover. If additional duct extensions are required, this assembly can be added between the outlet duct and the offset duct.

b. 7’ Track Duct

These track ducts are seven feet long. They are often mounted outside of the track near the switch machine. A kit is available (P/N 9278-0270) that includes a 7’ track duct, a track duct nozzle and a track duct isolation kit.

NOTE: OTHER DUCTWORK ASSEMBLIES ARE AVAILABLE. CONSULT THE FACTORY FOR SPECIAL DUCTWORK NEEDS.

4. Installation

NOTE: The installation should be done in this order:

1. Tie Duct Outlet Duct / Offset Duct
2. Main HAB Unit / Flex Duct
3. Point Nozzles and Track Duct
4. Electrical

PLEASE READ THROUGH ALL INSTRUCTIONS

BEFORE BEGINNING INSTALLATION

4.1. Tie Duct

1. Remove the appropriate tie. Choose the tie that will result in the point nozzles being as close to the switch point as possible without interfering with normal switch operation. The distance from the center of the tie duct to the end of the point nozzles is 33". If necessary, up to 10" may be cut off each point nozzle.

2. Remove sufficient ballast to provide at least 14" clearance from the bottom of the rails.

3. Carefully slip the tie duct under the rails and position it so that the rails are directly above the tie plates. Ensure that the tie duct is centered between the adjacent ties.

4. Place a rubber pad on the tie plate, then using a suitable level, raise one end of the tie duct until the rails lies correctly on the pad on the tie plate. Place two (2) e-clip insulators, one (1) on each side of the rail, in place and then fasten the rail to the tie plate using two (2) of the four (4) 927248 rail clips. Use a heavy hammer or maul to drive the clips securely into place.

5. While keeping the tie duct supported in place, firmly pack ballast under the tie duct from the rail out to the end.

6. Repeat steps 4 and 5 for the other end of the tie duct.
7.
    i. Remove the end flange plate nearest the HAB by loosening the six (6) retainer bolts.
    ii. Install the two-foot heavy duty offset duct (P/N 9278-3403) to the tie duct using hardware and gasket supplied with the offset duct.

8. Firmly repack ballast under the entire tie duct.

4.2. Main HAB Unit

1. The base of the main HAB unit has four slotted mounting holes.

2. Refer to foundation assembly drawing (9288-0202) for the assembly of the optional mounting foundation.

3. Use the provided HAB positioning drawings to determine the approximate position and height of the mounting foundation. The top of the foundation should be placed 4"-6" below the height of the ties. This will allow final adjustment of the HAB unit. **NOTE:** The drawing shows a standard HAB unit, but can be used for the low profile series also.

4. Excavate and place the foundation in its proper location.

5. Refer again to the drawing of the foundation assembly, detail A, showing the mounting bolt arrangement. Attach four (4) 3/4-10 x 8" hex bolts in the slotted holes of the blower base, using a washer on each side of the blower base and a hex nut.

6. Thread a hex nut about halfway onto each bolt.

7. Place the blower unit on the foundation using a flat washer on the top and bottom of the foundation and another hex nut on the bottom. The slotted holes in the foundation will allow for side-to-side adjustment, and the slotted holes in the HAB base will allow front-to-back adjustment. However, do not tighten the mounting nuts yet.

8. Install the 30” flex duct onto the HAB flame duct.

9. Adjust the HAB unit side to side, up or down, and forward or backward to obtain the proper alignment of the heat duct to the offset duct. It may be necessary to adjust the position of the offset/outlet duct assembly. The adjustments should be made so that there is no stress on any of the ductwork. Again, leave the mounting nuts loose for now.

10. Connect the other end of the flex duct to the HD offset duct.

11. With all components in the proper position, the foundation nuts may now be tightened.

12. The fill can now be replaced around the mounting foundations.

13. Adjustable air intake screens. To start the HAB in a new location, set the intake screens in the closed position. If there is a moisture problem, where frost builds up on the intake screens, these screens can be set in the open position to improve the airflow into the blower.

4.3. Point Nozzles and Track Ducts

NOTE: Refer to the HAB positioning drawing for track duct and point nozzle positions. LH and RH Point/Track Nozzle Assemblies:

1. Attach point/track nozzle assembly RH (P/N 9508-4000) and point/track nozzle assembly LH (P/N 9508-4001) to the openings in the tie duct. Position assemblies for proper airflow direction.

2. Assemble the individual track duct sections into two complete track duct sections. The mid and heel sections contain splices wrapped around the outside of the duct. Unhook the clips to remove the three cover pieces. The bottom can now be removed from the duct.

NOTE: To assemble the splice:

- **i.** Center the bottom splice piece on the seam between the two track ducts.
- **ii.** Connect the center cover piece over the seam (**NOTE:** the center cover piece has slots to contain the bolts on the track duct).
- **iii.** Finally, connect the two end cover pieces.

3. Lay the track ducts on the rail ties alongside where they will be installed.

4. Refer to the drawing 92774. Place the track duct support brackets in position on the ties so that one is near the heel end and one near each joint. Use the lag bolts to fasten the brackets in place. Lay the track duct on the bracket bases. Place the hold-down straps over the track ducts. Attach the hold-down strap to the track duct support brackets by inserting the spring clip into the strap.

5. Push in the square knockouts in the track ducts where airflow is desired. The knockout should be pushed in and bent completely so that no portion of the knockout obstructs the airflow in the duct. Knockout tabs that are not bent back completely will obstruct the airflow as it moves through the track duct resulting in reduced air pressure and airflow further along the track duct.

4.4. Electrical Connection

a. Knockouts

There are knockouts on the side and bottom of the control enclosure for incoming electrical wires.

b. Incoming Power

The incoming power should be connected directly to the main circuit breaker.

NOTE: When the main hot air blower unit is started for the first time, verify that the motor is turning the correct direction. To do this, remove the bottom air intake cover and check that the fan is rotating in the CCW. There will also be an arrow showing the correct rotation.

c. Ground

The chassis ground TS1-G should be tied directly to earth ground.

CAUTION

THE 230 / 480 / 575 VAC SUPPLY LINES SHOULD BE SIZED TO ALLOW FOR THE AC MOTOR START-UP CURRENT IN ADDITION TO THE HEATER CURRENT. REFER TO THE SPECIFICATIONS PAGE FOR START-UP CURRENT. UNDERSIZED CONDUCTORS OR LONG WIRE RUNS COULD DAMAGE THE MOTOR.

SPECIAL NOTE: THE CONTROL CHASSIS AND THE REST OF THE MAIN HAB UNIT MUST BE CONNECTED TO GROUND. THE RUBBER PAD BETWEEN THE RAIL AND TIE PLATE ALONG WITH THE E-CLIP INSULATORS WILL INSULATE THE MAIN UNIT FROM THE TRACKS.

d. Control Input

Remote operator control can be provided by a circuit closure applied between terminal posts TS1-1 and TS1-2

e. Indication

Reply indication can be done two ways:

- **i.** Dry contact closure: Terminal posts TS1-3 and TS1-4 will provide a dry contact closure for indication when the unit is operating under remote control
- **ii.** +24 VDC: Place a jumper between terminal posts TS1-2 and TS1-4. +24 VDC indication is now present on post TS1-3 with common at terminal post TS1-6.

f. Fail

Reply fail can be done two ways:

- **i.** Dry contact closure: Terminal posts TS1-5 and TS1-4 will provide a dry contact closure for fail when the unit is in a fault mode.
- **ii.** +24 VDC: Place a jumper between terminal posts TS1-2 and TS1-4. +24 VDC fail is now present on post TS1-5 with common at terminal post TS1-6.

g. Rail Temp Sensor (P/N 9508-0415)

- **i.** Attach the sensor to the bottom of the stock rail in front of the point nozzle. Attach conduit to ties using the provided clamps.
- **ii.** Run wires from sensor into enclosure and plug connector into THERMOCOUPLE CONNECTIONS RAIL TEMP (YELLOW) located on the control module.

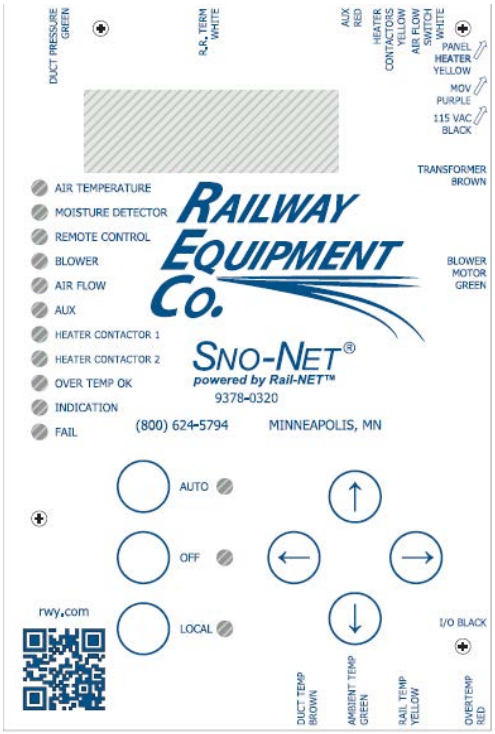
5. Control Module

5.1. Description

The hot air blower control module contains all of the elements and functions necessary for advanced snow melter operation. The unique microcomputer has been programmed with logic and timing sequences to provide complete heater control as well as operational control and system interface. Some of the many features included in the control module are:

Auto-Off-Local push button switches
Adjustable air temperature setting
Built-in snow detector (Requires Optional Snow Detector Head)
Adjustable start-up delay sequence
Adjustable run timer for timed or continuous operation
Adjustable snow detect timer for use with optional snow detector
Operator control and indication
Remote fault reset
Audible tone before blower start-up
Input / Output status indication lights:

- Inputs
  - Air Temperature
  - Moisture Detector One or two snow detector(s) (Optional)
  - Remote Control
  - Air Flow
- Outputs
  - Blower Motor
  - Aux
  - Heater Contactor 1
  - Heater Contactor 2
  - Over Temp OK
  - Indication
  - Fail



Safety Control:

- 10 second tone before blower turn on
- Air flow proving
- 30 second timer before heater contactor energize
- 4 minute post-purge period after heater turn-off
- Automatic reset

5.2. Set-Up and Adjustments

To change settings and adjust times do the following:

Right Arrow Button

Pushing the right arrow button will cycle forward through the menus. Each time you press the right arrow button you will advance one menu selection.

Left Arrow Button

Pushing the left arrow button will cycle back through the menus. Each time you press the left arrow button you will move back one menu selection.

Up Arrow Button

The up arrow button allows you to increase values and switch through menu categories.
NOTE: Values will be saved.

Down Arrow Button

The down arrow button allows you to decrease the values and switch through menu categories.
NOTE: Values will be saved.

NOTE: After you are have finished changing the settings / values and you do not touch any of the buttons for 15 seconds, you will see the following screen. This screen just lets you know that your current settings and values are being saved.

5.3. Password 0 and 5 Menus

NOTE: The following items listed below are for password 5. Password 0 has the same set of menu categories but does not have all the same menu selections in each category. It will be denoted which menu selections you can only see with password 5.

The controller for these passwords has 4 basic menu categories:

1. Status
2. Factory Defaults
3. Set Points
4. Fault History

5.3.1. Status

a. Outside Temp and Preset Value

Displays the current ambient temperature and temperature preset value. If ambient temperature is below the preset value, the unit will start if requested.

b. Rail Temp and Duct Temp

Rail temperature is the actual rail temperature in degrees F or C. Duct temperature is the actual duct temperature in degrees F or C.

c. Hour Meter and Reset Hour

(Password 5)

Hour meter displays the total hours that HAB has been running. Reset hour is the same as hour meter except it can be reset. To reset, press the down arrow button.

d. Name

(Password 5)

This screen tells the date and time.

5.3.2. Factory Defaults

Factory default is used to place all parameters back to factory default settings. To restore to factory default, select FACTORY DEFAULTS in the menu select. Press the right arrow button to display “FOR FACTORY DEFAULTS PRESS DOWN BUTTON,” then press the down arrow button to restore factory defaults.

5.3.3. Set Points

a. Password

The default password is 0. Most setpoints can be changed using 0; critical setpoints require 5 to be entered in. To enter in the password, use the up or down arrow buttons.

b. Select Temperature Setpoint

The ambient temperature below which the unit will energize is set on this screen. When the outside temperature is below this setpoint, the unit will be allowed to operate if requested. The factory default is 38°F (3°C). The range is from 0°F to 100°F (-18°C to 38°C).

c. Select Run Timer Value

The run timer can be set from 0 to 1000 minutes. If zero is selected, the outputs will operate continuously, until control on is disabled. If another value is selected, the unit will run until the run timer counts down to zero, after which the unit will shut down and drop indication. The unit can be restarted by removing the contact closure between TB2-1 and 2, then reinstalling it. If Run Timer Pulse Mode is activated, the minimum run time value is 10 minutes. The factory default setpoint is 60 minutes.

d. Select Snow Timer Value

The snow timer can be set from 10 to 1000 minutes. The snow time starts counting down when the moisture detector no longer sees snow. The factory default setpoint is 60 minutes.

e. Select Snow Sensor Speed

Snow sense speed sets the delay time after the moisture detector sees moisture and starts the snow cycle. The delay time can be set from 1 to 60 seconds. The moisture sensor must see moisture for the entire time to start the cycle.

f. Select Snow Indication

(Password 5)

The choices are OFF or ON. With snow indication off, indication will remain off during snow time if no faults are present. With snow indication on, indication will remain on during snow time if no faults are present.

g. Select Fault Indication

(Password 5)

The choices are OFF or ON. With fault indication off, indication will remain off if faults are present. With fault indication on, indication will remain on if faults are present.

h. Select Start Delay Value

(Password 5)

The start delay timer can be set from 0 to 250 seconds in 10 second increments. It is used to delay the start of HAB so when several blowers are at the same location they do not start at same time.

i. Select Heater Operation

The choices are HIGH, LOW, or AUTO:

- HIGH – 100% HEATER output with or without rail sensor.
- LOW – 50% HEATER output of high with or without the rail sensor.
- AUTO – Switches between high and low dependant on the rail temperature sensor and setpoint.
  NOTE: If no rail sensor is connected, it will run at low (50% output).

j. Select Motor Size

The choices are:

2 HP 230V 1PH, 3 HP 230V 1PH, 5 HP 230V 1PH,
2 HP 460V 3PH, 3 HP 460V 3PH, 5 HP 460V 3PH,
2 HP 575V 3PH, 3 HP 575V 3PH, 5 HP 575V 3PH,
2 HP 3PH Drive, 3 HP 3PH Drive, 5 HP 3PH Drive,
2 HP 230V 3PH, 3 HP 230V 3PH, 5 HP 230V 3PH

k. Rail Temp Setpoint

This can be set from 0°F to 280° F (-18°C to 138°C).

l. Local With/Without Air Temperature

(Password 5)

Sets the local feature to, or not to, be dependent on the air temperature.

m. Remote With/Without Air Temperature

(Password 5)

Sets the remote feature to, or not to, be dependent on the air temperature.

n. Select F or C

(Password 5)

Sets the temperature scale to either Fahrenheit or Celsius.

o. My IP Address

This is the IP address for your HAB unit.

p. Machine Serial Number

(Password 5)

Machine serial number is the serial number of the whole HAB unit.

q. Program Rev and Date

(Password 5)

Shows the program revision and the date it was complied.

r. XBEE Communication

(Password 5)

Sets the XBEE communication to be either unicast or broadcast.

5.3.4. Fault History

NOTE: Some faults may not show in Fault History until there is an actual fault. Press the up or down arrow button to reset fault count.

a. Sail Loss and Sail On

Sail loss counter is total count of sail loss faults. Sail on counter is total count of sail on faults.

b. Comm Reset

Comm reset fault is the total count of communication reset faults.

c. Overload

Overloads counter is the total amount of motor overload faults.

d. Auto Overtemp Reset Counter

Counts the total number of times the Over Temp was reset.

e. Power Up Counter

(Password 5)

Counts the number of times the module has been powered up.

5.4. Push Buttons and LED Status Indicating Lights

5.4.1. Push Buttons

a. Auto

This position will allow operation by placing a circuit closure across terminal posts 1 and 2. It will also allow operation by an optional snow detector.

b. Off

If off, HAB cannot be run from remote or snow detector.

c. Local

If LOCAL WITHOUT AIR TEMP parameter is enabled, selecting the LOCAL position starts the snow melter regardless of outside air temperature. The snow melter will remain on until LOCAL is turned off. This is useful for hot weather testing. If LOCAL WITH AIR TEMP is enabled, pushing the LOCAL button will cause the unit to start only if the ambient temp is below the set point.

5.4.2. LED Status Indicating Lights

a. Air Temperature

On when the ambient air temperature is below set point.

b. Moisture Detector

On when the optional snow detector sensing head(s) senses moisture.

c. Remote Control

On when there is a circuit closure across terminal posts 1 and 2.

d. Blower

On when the controller has turned on the output to the blower motor contactor.

e. Air Flow

On when the sail switch in the air stream is sensing adequate airflow.

f. Aux

g. Heater Contactor 1

On when HC1 is enabled and the unit is on high output.

h. Heater Contactor 2

On when HC2 is enabled. This contactor will be powered for high or low heat output.

i. Over Temp OK

On when the unit is NOT in over temp fault mode.

j. Indication

On when there is a circuit closure across terminal posts 1 and 2 and the unit is operating, or the air temperature is above the set point. Also may be on when there is a fault condition under snow detector.

k. Fail

This LED is on whenever a fault is present.

5.5. Operation

With the “auto” button selected, the unit can be activated by applying a circuit closure between terminals TS1-1 and 2. If the outside temperature is above set point the unit will not start a snow melt sequence but will turn on the “indication” LED and provide a relay contact closure between TS1-3 and 4 to indicate to the remote station that the unit is operational. Setting the “REMOTE WITHOUT AIR TEMP” parameter overrides the outside air temperature, and a snow melt sequence will start whenever there is a contact closure between TS1-1 and 2.

If a circuit closure exists between TS1-1 and 2, and the air temperature is below set point the unit will begin a snow melt sequence. The unit executes a 0 to 300 sec. time delay depending on the setting of the START DELAY TIMER. Then, a 10-sec. audible tone sounds as a warning that the blower motor is about to turn on.

The airflow switch is checked to see if it is closed. If it is, the blower will display SAIL SWITCH ON FAULT.

If the airflow switch is open the motor will turn on. After the blower motor is turned on, the airflow switch is monitored. It closes if airflow is normal. If it does not close within 30 seconds after blower turn-on, the blower displays SAIL SWITCH OFF FAULT. When the airflow switch closes, a 30 second pre-purge time will start. After the pre-purge time is completed HEATER CONTACTOR 2 is energized. If the unit is set to run full power, HEATER CONTACTOR 1 will be energized after a few seconds.

In normal running condition, the “indication” contact closure is established between TS1-3 and 4. The unit will run for a period of time determined by the setting of the RUN TIMER. If the run timer is set at “0” the unit will continue to run until the circuit closure between TS1-1 and 2 is removed.

If the rail temp sensor is installed, then under normal operation when the rail reaches the preset temperature setting, HEATER CONTACTOR 1 will open and the heat output will drop to 50%. When the rail falls below the programmed temperature, HEATER CONTACTOR 1 will close resulting in 100% output.

If the over temp sensor trips (opens), the heater contactors will open and will remain open until the over temp resets (closes).

The heat output can be selected in a SETPOINTS parameter to allow high, low, or auto operation.

SNOW DETECTOR OPERATION: If the unit is operating with one or two optional snow detector assemblies and moisture is detected by either (or both), a snow melt sequence will begin, provided that the air temperature is below the set point. The unit will start as described in section 5.3.3 D (Select Snow Timer).

5.6. Fault Conditions

a. Air Flow Switch On Fault

During startup the processor checks the status of the airflow switch. If the airflow switch is closed or shorted the blower motor will turn on and the blower will run a 6-minute purge to try to clear the airflow switch. The motor will then shut off and sit idle for 1 minute. Upon completion of this 7-minute cycle, the blower will once again check the airflow switch for proper operation. If the airflow switch still shows that it is closed it will run the 7-minute loop again. This will repeat until fault is cleared or blower is no longer called for.

b. Air Flow Switch Off Fault

Sail switch off fault is set when blower is running and air flow switch is open. After the fault is set the blower motor will run a 6-minute purge to try to clear the airflow switch. The motor will then shut off and sit idle for 1 minute. Upon completion of this 7-minute cycle, the blower will once again check the airflow switch for proper operation. If the airflow switch still shows that it is open it will run the 7-minute loop again. This will repeat until fault is cleared or blower is no longer called for. Check to see if the sail switch is free to move and if there are any obstructions in duct work.

c. Check Fuse #1 24 VDC Power

Fuse # 1 is tripped. Check the following circuits:

- Overtemp switch and wiring.
- Check TS1-2 +24 control on wiring.
- After problem is corrected, leave power off for 30 seconds and fuse will reset.

d. Check Fuse #3 HC 1 and HC 2 / Sail Switch

Fuse # 3 is tripped. Check the following circuits:

- Check sail switch and wiring.
- Check HEATER CONTACTOR 1, 2 and wiring.
- After problem is corrected, leave power off for 30 seconds and fuse will reset.

e. Check Fuse #4 Blower Motor

Fuse # 4 is tripped. Check the following circuits:

- Check blower motor contactor and wiring.
- After problem is corrected, leave power off for 30 seconds and fuse will reset.

f. Check Fuse #6 Snow Head #1

Fuse # 6 is tripped. Check the following circuits:

- Check snow detector head # 1 and wiring.
- Check Duct pressure sensor and wiring.
- After problem is corrected, leave power off for 30 seconds and fuse will reset.

g. Check Fuse #7 Snow Head #2

Fuse # 7 is tripped. Check the following circuits:

- Check snow detector head # 2 and wiring.
- Check air flow switch and wiring.
- After problem is corrected, leave power off for 30 seconds and fuse will reset.

h. Check Fuse #9 Analog 5VDC

Fuse # 9 is open. Check the following circuits:

- Check 5V supply for pressure sensor.
- After problem is corrected, **FUSE 9** (P/N 51209) 500mA fuse must be replaced.

i. Check Fuse #10 Pressure

Fuse # 10 is tripped. Check the pressure sensor circuit. After problem is corrected, leave power off for 30 seconds and fuse will reset.

j. Motor Voltage Low

Motor voltage low is caused by inadequate electrical service supply. During motor start up if motor voltage drops below 190VAC, the motor will eventually be damaged. If this under-voltage occurs, an error will be set. Press down arrow button to clear the fault.

k. Motor Voltage High

Motor voltage high is caused by high motor voltage. This can be caused by high voltage from the electric company.

l. Motor Overload, Reset Overload Device

High motor current will trip the motor overload on the control panel. This device is connected to the bottom of the motor contactor on the control panel (if an AC drive is on the panel, the overload is built into the drive). Reset by pressing the reset button on the device. Check unit for high motor current, bad bearings, or obstructions in the blower wheel.

m. Duct Pressure Low

Duct pressure low is caused by not enough duct back pressure. Possible causes are missing flame cover or missing duct work.

n. Duct Pressure High

Duct pressure high is caused by too much duct back pressure. Possible causes are duct work obstructions.

o. Utility Power lost

Utility power lost is caused by no incoming AC voltage. Must have a battery backup in order to receive this fault.

p. Additional Fuses

The control module has 3 additional fuses under the white cover that require replacement if they are open. If these fuses are open, the display will not give a fault.

- **FUSE 5** (P/N 51179) FUSE, MINI 5 AMP is above the display and fuses the indication circuit.
- **FUSE 8** (P/N 51225) MDA 10 AMP is to the right of the display and fuses the 120VAC power to the module.
- **FUSE 11** (P/N 51179) is in the upper left hand corner of the module. It fuses the 24VDC to the control on circuit.

q. Select Fault Indication

The choices are OFF or ON. With fault indication off, indication will remain off if faults are present. With fault indication on, indication will remain on if faults are present.

6. Seasonal Maintenance

Follow the steps listed below, depending on which season you are in, to do maintenance on your EHAB unit(s).

6.1. Spring

1. Turn off electric power at source.
2. Disconnect and remove the control module. Store the module in a clean, dry place.

6.2. Fall

1. Check all ductwork for clear airflow. Ensure that the point and track duct nozzle screens are not damaged and are completely covering the openings. Make sure that no debris or rodents have obstructed any area of the ductwork.
2. Inspect the track duct nozzles for proper operation.
3. Remove the heat duct cover. Check the fuses. Check the wiring to make sure rodent or vibration have not damaged the insulation.
4. Check the airflow sail switch to make sure it is operating properly.
5. Replace the heat duct cover.
6. Install the control module and connect the wires.
7. Turn on the electric power at source.
8. Run unit to test for proper operation.
9. Check the air temperature for proper reading.

7. Output Temp Test

Follow the steps listed below to perform an output temp test.

1. Push the LOCAL button.
2. Wait 30 seconds for the pre-purge period to be done before the heaters will power up.
3. Let the HAB run for 10 minutes.
4. After the 10 minutes, take the temperature at both point nozzles.
5. Determine the ambient temperature at the location and subtract the ambient temperature from the point nozzle reading. This temperature should not exceed 250°F for optimally efficiency.
6. Return all switches to their normal operating positions.

8. Troubleshooting

8.1. Unit Does Not Start

1. Check circuit breaker.
2. Check control fuse.
3. Check for 18VAC between the following points:
    a. TS1-6 and TS1-7
    b. TS1-6 and TS1-8
    c. Change T1 control transformer if either measurement is incorrect.
4. Check for air temperature below set point.
5. Check to see if the control module is programmed for a start-up delay.
6. Monitor the fault display on the control module.
7. Turn off the circuit breaker and then reset the motor overload relay.
    a. The motor overload relay is adjustable
    b. It should be set for the motor name plate current

8.2. Unit Does Not Maintain Operation

1. Make sure the rail temp is above the ambient temp.

8.3. Low Heat Level

1. Check continuity of heater fuses.
2. Check current to each heater with a clamp ammeter.
3. Check to see if the heater control is on low only or if it is in auto and the Rail Temp Sensor setting is forcing it to low output.

8.4. High Heat Level

1. Check for duct work obstructions.
2. Check the gap between the inlet cone and blower wheel. It should be less than 1/8”.

8.5. Low Airflow

1. Check for obstructions in all ductwork and the air intake.
2. If there is frost buildup on the air intake screen, move the screen to the “open” position.
3. Check the voltage and current levels on the blower motor.
4. Make sure knockouts on the track duct are pushed all the way back in the track duct.
5. Check the spacing between the inlet cone and the blower wheel. The gap should be less than 1/16 of an inch.

9. Snow Detector

9.1. Snow Detector Installation

1. The snow detector sensing circuitry is contained within the control module. All that is required for snow detector operation is to connect the sensing head(s).
2. Either one or two sensing heads may be used.
3. Each sensing head has three lead wires; black, white, and green. Connect as follows:
    a. Green: one or both connected to TS1-6
    b. Black #1: Connected to TS1-7
    c. Black #2: Connected to TS1-8
    d. White: one or both connected to TS1-9

    NOTE: Refer to the diagrams when connecting wires for the sensing heads. It is important to properly connect the sensing head wires. Improper connection of the sensing head wires may result in damage to the control module and/or the sensing heads.

4. To operate more than one HAB unit from a HAB unit that is controlled by a snow detector(s), connect terminal posts #6 together and terminal posts #9 together (do not connect terminal post #6 to terminal post #9). When connecting snow detectors to more than one HAB unit, first connect one HAB. Then connect the snow detector to one more HAB. If the snow detector does not operate properly, exchange L1 and L2 on the newest HAB circuit breaker.
    NOTE: BE SURE L1 AND L2 ARE DE ENERGIZED BEFORE EXCHANGING THEM. Continue to add HABs to the snow detector in the same manner until all the desired HABs are connected. DO NOT EXCEED 200’ CABLE LENGTH (18 AWG WIRE).

5. The sensing heads should be mounted in a vertical position.

    NOTE: Experience has shown that positioning a snow detector sensing head in the switch area between the ties and between the switch point and the track duct is effective. A second sensing head is then placed away from the switch area, such as on a bungalow or pole.

9.2. Snow Detector Operation

NOTE: A snow detector sensing head only detects moisture. With temperature sensing capability, the HAB unit assumes moisture is due to snow when the air temperature is below set point. All operating functions are similar to remote operation with the following exceptions:

1. **Indication**

   During normal operation, under snow detector control, the indication contact across terminal posts 3 and 4 will not be closed.

2. **Run Timer**

   During remote operation, if the snow detector senses moisture, the unit will operate according to the settings. The unit will then operate for the duration of the run timer setting.

3. **Fault Condition**

   A fault condition under snow detector control will cause the indication contact across terminal posts TS-3 and TS-4 to close. To reset the unit after a fault condition, momentarily apply a circuit closure between terminal posts TS-1 and TS-2 with the "AUTO" button selected. The unit may now be operated either under remote control or snow detector control.

9.3. Snow Detector Maintenance

The snow detector sensing head contains a small, self-regulating heater that will melt snow or ice into water. The sensing head relies on moisture to create a low resistance circuit path. The heater will also cause the moisture to evaporate within a short period. If the surface becomes non-conductive due to contamination by grease or oil, the sensing head will not operate. To ensure effective and dependable snow detector operation, it is important to inspect the sensing heads frequently and clean them thoroughly if necessary. Use a solution of water and mild detergent or isopropyl alcohol to clean the sensing grid. Use a clean, dry cloth to wipe the grid. Make sure there is no residue left on the surface.

9.4. Snow Detector Troubleshooting

NOTE: A newly-installed snow detector sensing head should operate 15-20 minutes to allow the internal heater to reach normal operating temperature.

9.4.1. No Heat On the Sensing Head

1. Check for voltage between terminal post 6 and 7, and between terminal post 6 and 8. It should be 18VAC (+2VAC). If not:
    - **a.** Check the display on the control module
    - **b.** The control transformer may be defective
    - **c.** There may be a bad circuit connection
2. Remove the black and the green lead wires from the terminal posts. Check resistance between them. If resistance is greater than 10 ohms, the sensing head is defective and should be replaced.

9.4.2. Does Not Detect Moisture

1. Clean the snow detector as described in Section 9.3.
2. If unit still does not detect moisture, check the wiring connections between detector head and terminal posts.
3. If unit still does not detect moisture, replace the control module with a known good control module. If still not operating properly, replace the sensing head.
   NOTE: If a snow detector head becomes saturated with moisture, it can sometimes be restored to normal operation by removing it and "baking" it in a conventional oven for several hours. Do not exceed 150ºF.

9.4.3. Constant Indication of Moisture Detection

1. Clean the snow detector heads as described in section 9.3.
2. Remove white lead(s) from terminal post 9. If moisture indication is still on, the control module is defective and should be replaced.

10.Specifications

Voltage	230VAC, 1PH 60 HZ, 250/300 Amp
	2 HP, 3450 RPM, TEFC
Motor	60 Amp Starting Current
	9 Amp Running Current
Airflow	2000 CFM
KW Output	60 KW
Indication Contacts	30VDC 1A or 125VAC 300mA

Voltage	480VAC, 1PH 60 HZ, 150 Amp
	2 HP, 3450 RPM, TEFC
Motor	39 Amp Starting Current
	6 Amp Running Current
Airflow	2000 CFM
KW Output	60 KW
Indication Contacts	30VDC 1A or 125VAC 300mA

Voltage	480VAC, 3PH 60 HZ, 125 Amp
	2 HP, 3450 RPM, TEFC
Motor	39 Amp Starting Current
	6 Amp Running Current
Airflow	2000 CFM
KW Output	60 KW
Indication Contacts	30VDC 1A or 125VAC 300mA

Voltage	575VAC, 3PH 60 HZ, 100 Amp
	3 HP, 3450 RPM, TEFC
Motor	30 Amp Starting Current
	3 Amp Running Current
Airflow	2000 CFM
KW Output	60 KW
Indication Contacts	30VDC 1A or 125VAC 300mA

11.Drawings

EHAB 480V 60KW 1PH AC DRIVE LOW PROFILE	9378-1352
EHAB 240V 60KW 1PH	9348-1161
EHAB CONTROL 240V 60KW 1PH AC DRIVE	9348-2161
HEATDUCT 240V 60KW 1PH	9348-3170
EHAB 240V 60KW 3PH	9348-1261
EHAB CONTROL 240V 60KW 3PH	9348-2261
EHAB 480V 60KW 1PH	9348-1352
EHAB CONTROL 480V 60KW 1PH AC DRIVE	9348-2370
EHAB 480V 60KW 3PH	9348-1470
EHAB CONTROL 480V 60KW 3PH	9348-2380
HEATDUCT 480V 60 KW 3PH	9348-3480
TIE DUCT ASSEMBLY 136LB E-CLIP	9528-4815
TIE DUCT ASSEMBLY 115LB E-CLIP	9528-4615
POINT / TRACK ASSEMBLY RH	9508-4000
POINT / TRACK ASSEMBLY LH	9508-4001
NOZZLE TRACK DUCT ASSEMBLY	927490
ISOLATION KIT, TIE DUCT POINT NOZZLE	9278-0021
ISOLATION KIT, TRACK DUCT NOZZLE	9278-0027
HAB FOUNDATION	9288-0202
HEAVY DUTY OFFSET DUCT W/O MIXER	9528-3404
2’ INSULATED FLEX DUCT	9528-4223
TRACK DUCT	9278-0233
SWITCH ROD DUCT 7’	9278-0270
FLEX NOZZLE KIT	9278-9500
TRACK DUCT SUPPORT BRACKET ASSEMBLY	92774
FLOW CHART	

12.Limited Warranty

Railway Equipment Co., Inc. (“Railway”) warrants all of its products to be free from defects in material and workmanship when used under specified operating conditions and within specified limits. Railway’s warranty shall extend for a period of two (2) years from the date of shipment to the original purchaser.
This warranty is expressly in lieu of and excludes all other expressed or implied warranties, including but not limited to warranties of merchantability and fitness for a particular purpose.

Railway, its agents, or representatives shall in no circumstance be liable for any direct, indirect, special, penal, or consequential loss or damage of any nature resulting from the malfunction of the product.

Remedies under this warranty are expressly limited to repair or replacement of the product at the sole discretion of Railway.

Before returning any defective product to Railway, contact the factory at the address or telephone number at the bottom of this article for a Return Merchandise Authorization number and instructions as to how and where the return is to be shipped. Materials received without this authorization will be returned at the customer’s expense.

Products returned to Railway under warranty must be shipped freight prepaid, and return freight charges for repaired or replaced products, in or out of warranty, will be at customer’s expense.

Railway reserves the right to reject any warranty claim on a product that has been altered by the user or damaged in shipping due to inadequate packaging or mishandling by freight carrier.

By returning a product to Railway the owner grants permission to Railway to open and disassemble the product as required for evaluation. Railway has the sole responsibility for determining the cause and nature of failure, and Railway’s determination with regard thereto shall be final. Railway reserves the right to repair or replace any unit at its sole discretion.

A returned product that is found, upon inspection by Railway, to be operational within specification is subject to an inspection and testing fee, regardless of its warranty period.

Railway’s liability on any claim of any kind (including negligence) for any loss or damage arising out of or resulting from this agreement, or from the performance of breach thereof, of from the products or services furnished hereunder, shall in no case exceed the price of the specific product or service which gives rise to the claim. All such liability shall terminate upon the expiration of the warranty period of two (2) years, as hereinabove stated.

The furnishing of advice or other assistance without separate compensation therefore will not subject Railway to any liability, either in contract, warranty, tort (including negligence) or otherwise.

Any alteration or modification of the product, or addition on non-Railway components to the product, unless expressly permitted by Railway in its documentation, will void warranty coverage.

This warranty is non-transferable, and warranty coverage is limited to initial user only.

Installation and/or use of the product shall demonstrate acceptance of the terms of this warranty.

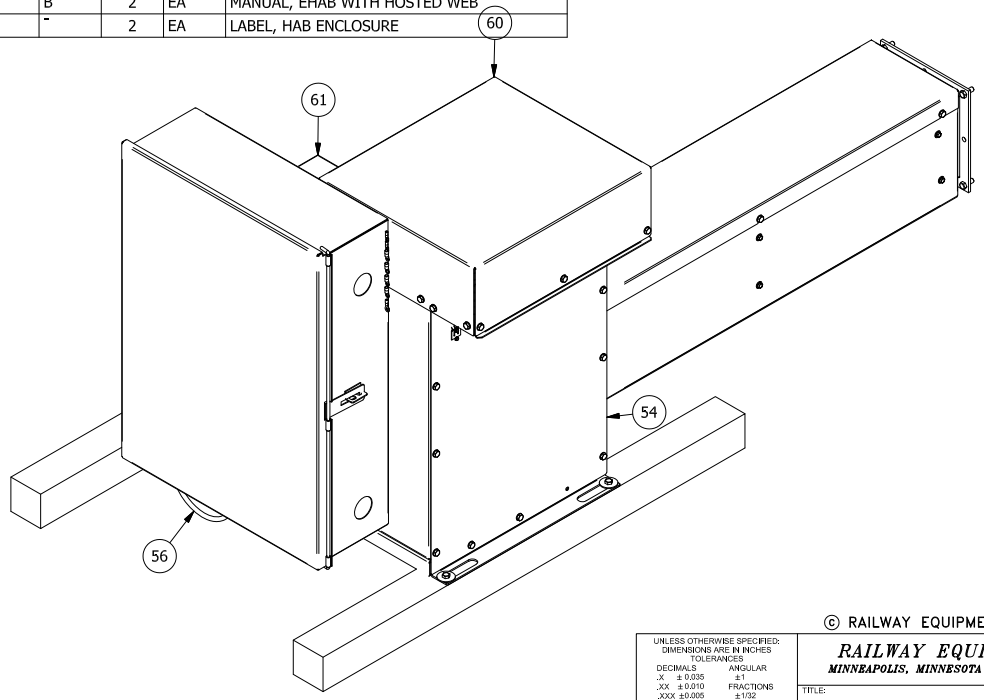
Each of the foregoing paragraphs in this article will apply to the full extent permitted by law. The invalidity, in whole or part, of any paragraph will not affect the remainder of such paragraph or any other paragraph.

RAILWAY EQUIPMENT CO.
525 9th Street South, Delano, Minnesota 55328 USA
Tel. (763) 972-2200 Fax (763) 972-2900
E-Mail - mail@rwy.com

PARTS LIST					
ITEM	PART NUMBER	REV	QTY	UOM	DESCRIPTION
1	14165	-	2	EA	LATCH FOR SCREENS
2	16003	-	0.333	EA	RTV SILICONE CLEAR 10 OZ TUBE
3	1610004600	-	1	EA	CONNECTOR 1.25" STRAIGHT FLEX CONDUIT
4	21027	-	1	EA	CONDUIT, FITTING 1 1/4 90
5	26003C	C	1	EA	INLET CONE, BLOWER
6	26042A	A	1	EA	ASSY, BLOWER WHEEL 2HP 7/8" ID
7	28035	-	6	EA	MOUNT, RUBBER, M/M 1/4-20
8	28045	-	4	EA	BOLT, 3/8 X 2-1/2 HEX LAG
9	2831411112	-	1	EA	SCREW, #10-32 X 3/4 PAN SLT
10	2831651112	-	2	EA	BOLT, 5/16-18 X 3/4 HEX HEAD
11	2831651120	-	4	EA	BOLT, 5/16-18 X 1-1/4 HEX HEAD
12	2831851116	-	8	EA	BOLT, 3/8-16 X 1 HEX CAP
13	2831861112	-	10	EA	BOLT, 3/8-16 X 3/4 CARRIAGE
14	2832-4101	-	2	EA	NUT, #10-32 HEX
15	2832-5101	-	11	EA	NUT, 1/4-20 HEX
16	2832-5901	-	4	EA	NUT, 1/4-20 CENTERLOCK
17	2832-6101	-	4	EA	NUT, 5/16-18 HEX
18	2832-6901	-	2	EA	NUT, 5/16-18 CENTERLOCK
19	2832-8101	-	4	EA	NUT, 3/8-16 HEX
20	2832-8904	-	10	EA	NUT, 3/8-16 CENTERLOCK
21	2833-4210	-	1	EA	WASHER, #10 SPLIT LOCK
22	2833-4310	-	2	EA	WASHER, #10 EXT. STAR
23	2833-5110	-	6	EA	WASHER, 1/4 FLAT
24	2833-5119	-	4	EA	WASHER, 1/4 X 1.5 FENDER
25	2833-5211	-	12	EA	WASHER, 1/4 SPLIT LOCK
26	2833-6210	-	4	EA	WASHER, 5/16 SPLIT LOCK
27	2833-8119	-	4	EA	WASHER, 3/8 X 1-1/2 FENDER
28	2833-8210	-	4	EA	WASHER, 3/8 SPLIT LOCK
29	2900312500	-	1	EA	CARABINER, STEEL, ZINC PLATED, 3/16 OD
30	29017	-	4	EA	BOLT, #8-32 X 3/8 WASHER HEAD
31	29051	-	69	EA	BOLT, 1/4-20 X 1/2 WITH 1/2 HD
32	3000022500	-	1	EA	LATCH, REQUIRES TOOL TO OPEN
33	3100103800	-	8	EA	LUG, FERRULE #6GA 18MM INSULATED
34	32007	-	1	EA	POST, 4 X 4 X 8' TREATED
35	60.001	-	1	EA	CONNECTOR, CORD 3/4IN STRAIGHT
36	60.003	-	1	EA	CONDUIT, LOCK NUT 3/4 IN
37	60030	-	3	EA	CONDUIT, CLAMP
38	60069	-	2	EA	BUSHING, CONNECTOR 1 1/4"
39	60165	-	17	IN	CONDUIT, 1.25 IN LIQUIDTIGHT
40	60185	A	8.9	FT	GASKET, .25X.75 ADHESIVE BACK
41	6093-0102	-	2	EA	TY-RAP
42	9300-2370B	A	1	EA	ENCLOSURE, INNER DOOR, W/MANUAL POCKET, EHAB, 480V, 1PH
43	9300-3356A	A	2	EA	ENCLOSURE, INNER DOOR, HINGE PIN, 3/16 OD, SS, 3"
44	933254B	B	2	EA	INTAKE SCREEN, FLIP DOWN 1"
45	933256A	A	2	EA	DRIP RAIL, HAB WITH LATCHES
46	93358A	A	1	EA	GASKET, 8 X 8 LIFT-OUT DUCT
47	933600A	A	1	EA	BLOWER OUTLET FLANGE, 2HP
48	933603A	A	1	EA	BLOWER SHROUD
49	9348-2370H	H	1	EA	PANEL, EHAB CONTROL ASSY, 480V, 60KW, 1PH, W 2HP DRIVE
50	9348-3360J	J	1	EA	HEATDUCT, EHAB 480V/60KW/1PH

PARTS LIST					
ITEM	PART NUMBER	REV	QTY	UOM	DESCRIPTION
51	93730C	C	1	EA	ENCLOSURE, ASSY, EHAB, LOW PROFILE
52	937417A	A	1	EA	INTAKE BODY, 2HP, LOW PROFILE, EHAB
53	9378-3318B	A	1	EA	MOTOR COVER,EHAB, BOLT-TOGETHER, 2HP, LOW PROFILE
54	9378-3319A	A	1	EA	INTAKE COVER, EHAB, LOW PROFILE, GALV
55	95040B	B	1	EA	BASE, 2HP, HAB BOLT-TOGETHER
56	9508-0404A	A	1	EA	AIR TEMPERATURE SENSOR 4' MAGNETIC
57	95091B	B	1	EA	MOTOR MOUNTING PLATE, 2HP, HAB
58	95092B	B	1	EA	MOUNT, 2HP GHAB MOTOR
59	95096A	A	1	EA	2HP MOTOR SUPPORT BRACKET
60	95108B	B	1	EA	INTAKE TOP, 2HP, LOW PROFILE
61	95143D	D	1	EA	COVER PLATE, 2HP, HAB, LOW PROFILE, MOTOR, EZ ACCESS
62	95149B	B	1	EA	MOTOR SHROUD MNTNG PLATE, 2HP, LOW PROFILE, W/PEMS
63	9538-0049B	B	1	EA	ASSY, AIR FLOW WIRES 5HP HIGH
64	9538-0066A	A	1	EA	ASSY, WIRED MOTOR, 2HP/480VAC/3PH
65	R8039-0807B	B	1	EA	LABEL, ID
66	R8039-0816A	A	1	EA	LABEL, FAN ROTATION
67	R9340-0104B	B	2	EA	MANUAL, EHAB WITH HOSTED WEB
68	R960031	-	2	EA	LABEL, HAB ENCLOSURE

REVISION HISTORY				
REV	ECO #	DESCRIPTION	DATE	BY
E	-	WIDEN ENCLOSURE/INNER DOOR 2"	8/27/2020	AK
-	E21-095	95091A TO B, 95149A TO B, 9378-3318A TO B, 95143C TO D	06/23/2021	AK



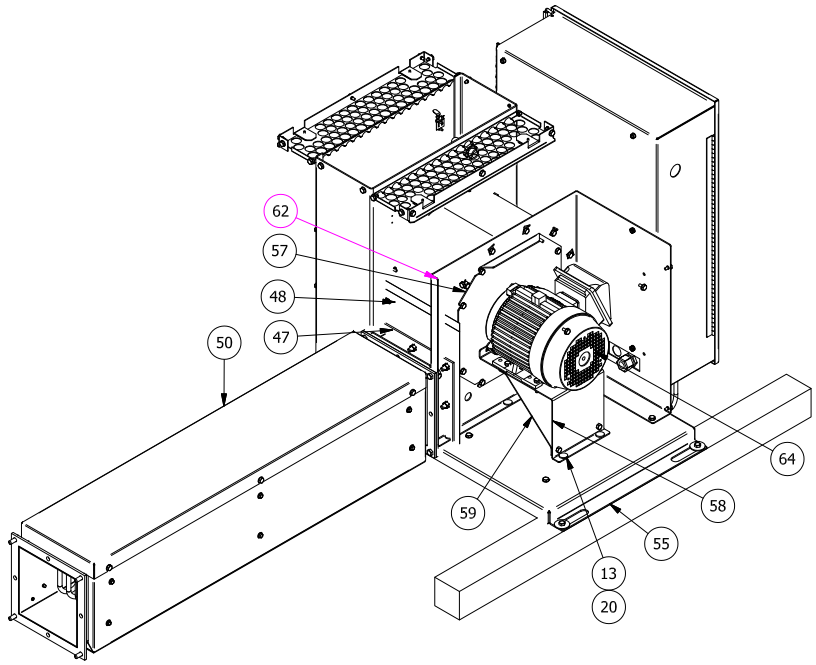
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS ANGULAR
.X ± 0.005 ±1
.XX ± 0.010 FRACTIONS
.XXX ±0.005 ±1/32
DO NOT SCALE DRAWING

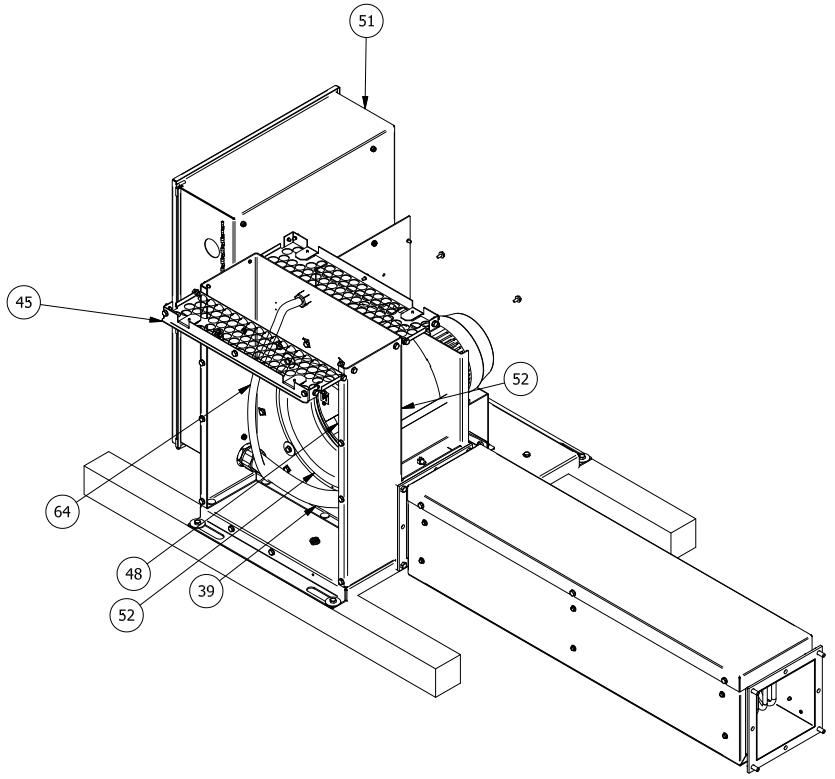
LAST UPDATED: 6/23/2021
BY: akollman
MATL: NA
BEND ALLOWANCE: NA

RAILWAY EQUIPMENT CO.
MINNEAPOLIS, MINNESOTA (763) 972-2200

TITLE: EHAB, MAIN ASSY, LOW PROFILE, 480V, 60KW, 1PH, W 2HP AC DRIVE

DWG NO: 9378-1352E REV: E
SCALE: 1 / 10 DWG SIZE: B SHEET 1 OF 2





UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS ANGULAR
.X ± 0.005 ±1
.XX ± 0.010 FRACTIONS
.XXX ±0.005 ±1/32
DO NOT SCALE DRAWING

LAST UPDATED: 6/23/2021

BY: akollman

MATL: NA

BEND ALLOWANCE: NA

RAILWAY EQUIPMENT CO.
MINNEAPOLIS, MINNESOTA (763) 972-2200

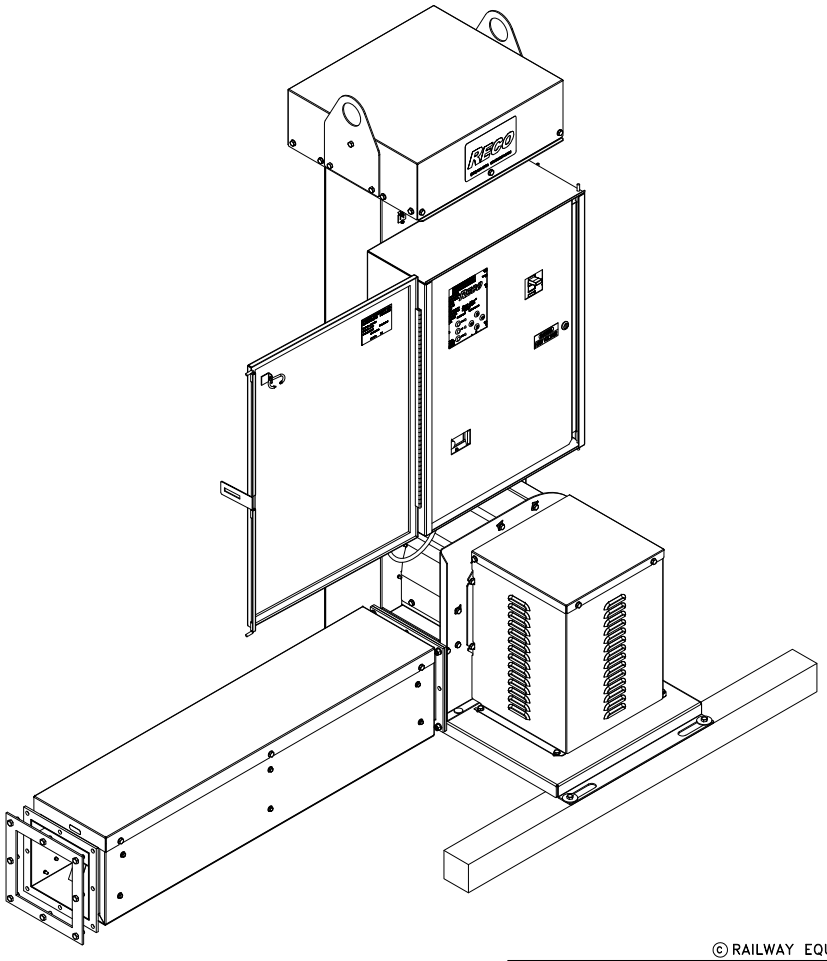
TITLE:
EHAB, MAIN ASSY, LOW PROFILE, 480V, 60KW, 1PH, W 2HP AC DRIVE

DWG NO: 9378-1352E REV: E

SCALE: 1 / 12 DWG SIZE: B SHEET 2 OF 2

Parts List					
ITEM	PART NUMBER	REV	UOM	QTY	DESCRIPTION
1	21027	-	EA	2	CONDUIT, FITTING 1 1/4 90
2	26003C	C	EA	1	INLET CONE, BLOWER
3	26042A	A	EA	1	ASSY, BLOWER WHEEL 2HP 7/8" ID
4	28035	-	EA	7	MOUNT, RUBBER, M/M 1/4-20
5	2831411112	-	EA	1	SCREW, #10-32 X 3/4 PAN SLT
6	2831651120	-	EA	4	BOLT, 5/16-18 X 1-1/4 HEX HEAD
7	2831851116	-	EA	5	BOLT, 3/8-16 X 1 HEX CAP
8	2832-4101	-	EA	2	NUT, #10-32 HEX
9	2832-5101	-	EA	14	NUT, 1/4-20 HEX
10	2832-6101	-	EA	4	NUT, 5/16-18 HEX
11	2832-8101	-	EA	5	NUT, 3/8-16 HEX
12	2833-4210	-	EA	1	WASHER, #10 SPLIT LOCK
13	2833-4310	-	EA	2	WASHER, #10 EXT. STAR
14	2833-5119	-	EA	4	WASHER, 1/4 X 1.5 FENDER
15	2833-5211	-	EA	14	WASHER, 1/4 SPLIT LOCK
16	2833-6210	-	EA	4	WASHER, 5/16 SPLIT LOCK
17	2833-8040	-	EA	4	RIVET, BUTTON HEAD PLATED STL
18	2833-8210	-	EA	5	WASHER, 3/8 SPLIT LOCK
19	2900312500	-	EA	1	CARABINER, STEEL, ZINC PLATED, 3/16 OD
20	29051	-	EA	11	BOLT, 1/4-20 X 1/2 WITH 1/2 HD
21	3000022500	-	EA	1	LATCH, REQUIRES TOOL TO OPEN
22	60030	-	EA	1	CONDUIT, CLAMP
23	60069	-	EA	2	BUSHING, CONNECTOR 1 1/4"
24	60165	-	IN	17.5	CONDUIT, 1.25 IN LIQUIDTIGHT
25	60169	-	EA	2	TY-RAP, 0.30 X 8
26	60185	A	FT	9	GASKET, .25X.75 ADHESIVE BACK
27	8039-0806A	A	EA	1	LABEL, HIGH VOLTAGE
28	8040-0934A	A	EA	1	NAMEPLATE, 934/937 EHAB
29	9300-2161A	A	EA	1	ENCLOSURE, INNER DOOR, W/MANUAL POCKET, EHAB, 240V, 1PH
30	9300-3356A	A	EA	2	ENCLOSURE, INNER DOOR, HINGE PIN, 3/16 OD, SS, 3"
31	93358A	A	EA	1	GASKET, 8 X 8 LIFT-OUT DUCT
32	93430K	K	EA	1	ENCLOSURE, ASSY, EHAB, HIGH PROFILE
33	9348-0049A	A	EA	1	ASSY, HARNESS AIR FLOW SWITCH, EHAB, HIGH PROFILE
34	9348-1100A	A	EA	1	EHAB, HIGH PROFILE, 2HP, SHELL ASSEMBLY
35	9348-2161H	H	EA	1	PANEL, EHAB CONTROL ASSY, 240V, 60KW, 1PH, W 2HP DRIVE
36	9348-3170E	E	EA	1	HEATDUCT, EHAB 240V/60KW/1PH
37	9508-0404A	A	EA	1	AIR TEMPERATURE SENSOR 4' MAGNETIC
38	9538-0065A	A	EA	1	ASSY, WIRED MOTOR, 2HP/230/3PH
39	R8039-0807B	B	EA	1	LABEL, ID
40	R8039-0816A	A	EA	2	LABEL, FAN ROTATION
41	R8039-0980A	A	EA	1	LABEL, DANGER HIGH VOLTAGE
42	R9340-0104B	B	EA	2	MANUAL, EHAB WITH HOSTED WEB
43	R960031	-	EA	2	LABEL, HAB ENCLOSURE

REVISION HISTORY				
REV	ECO	DESCRIPTION	DATE	BY
D	17-0016	PANEL, FLAME WIRE, OVERTEMP, PRESSURE SWITCH	1/5/2017	JT
E	-	CHANGED MODULE, BREAKER, ADDED AC DRIVE	08/27/2019	AK
F	-	ENCLOSURE/INNER DOOR 2.0 WIDER	08/272020	AK
-	E21-069	MODIFIED TO USE SHELL ASSEMBLY 9348-1100A, added 60069	05/24/2021	AK



UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS ANGULAR
.X ± 0.0035" ±1°
.XX ± 0.010" FRACTIONS
.XXX ±0.005" ± 1/32"
DO NOT SCALE DRAWING

DRAWN: akollman

DATE: 8/28/2019

MAT'L: N/A

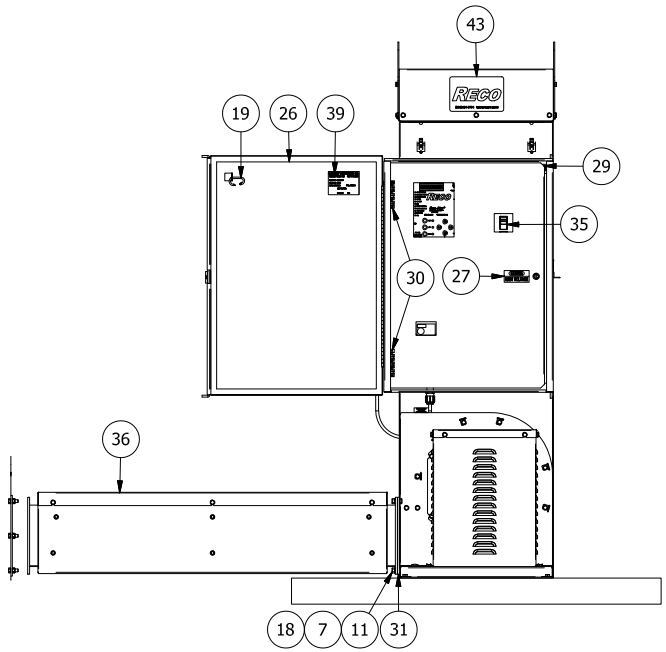
BEND ALLOWANCE: N/A

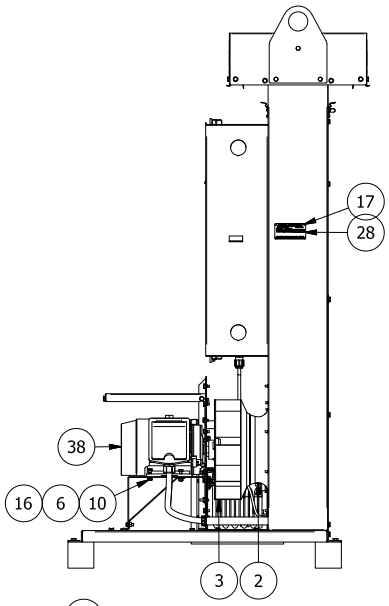
RAILWAY EQUIPMENT CO.
MINNEAPOLIS, MINNESOTA (763) 972-2200

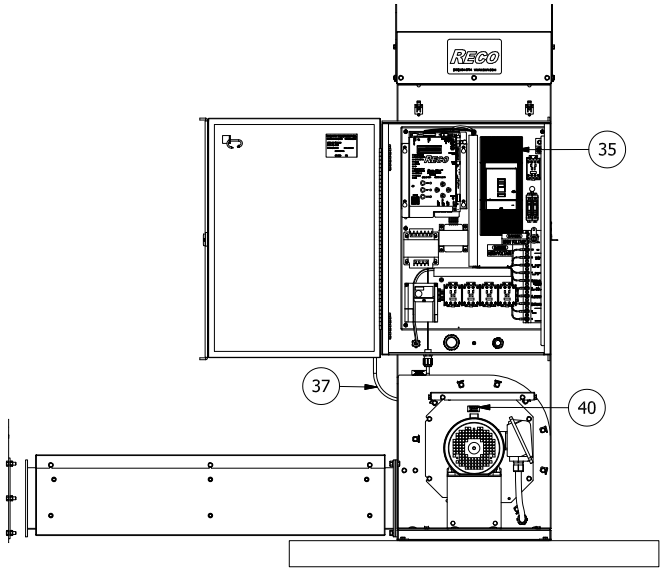
TITLE: EHAB, MAIN ASSEMBLY, 2HP, 230V, 60KW, 1PH, W/AC DRIVE

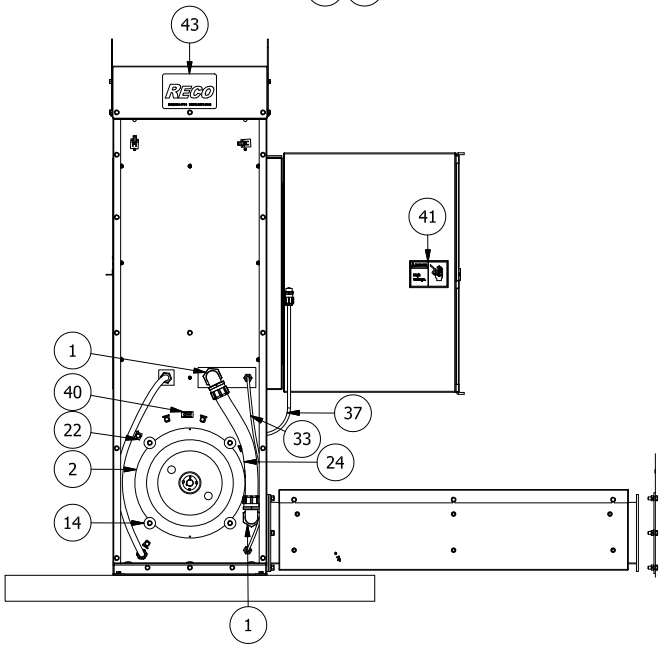
DWG NO: 9348-1161F REV: F

SCALE: 1/16 DWG SIZE: B SHEET 1 OF 2









UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS ANGULAR
.X ± 0.035 ±1
.XX ± 0.010 FRACTIONS
.XXX ±0.005 ± 1/32
DO NOT SCALE DRAWING

DRAWN:

DATE:

MAT'L: NA

BEND ALLOWANCE: NA

RAILWAY EQUIPMENT CO.
MINNEAPOLIS, MINNESOTA (763) 972-2200

TITLE: EHAB, MAIN ASSEMBLY, 2HP, 230V, 60KW, 1PH, W/AC DRIVE

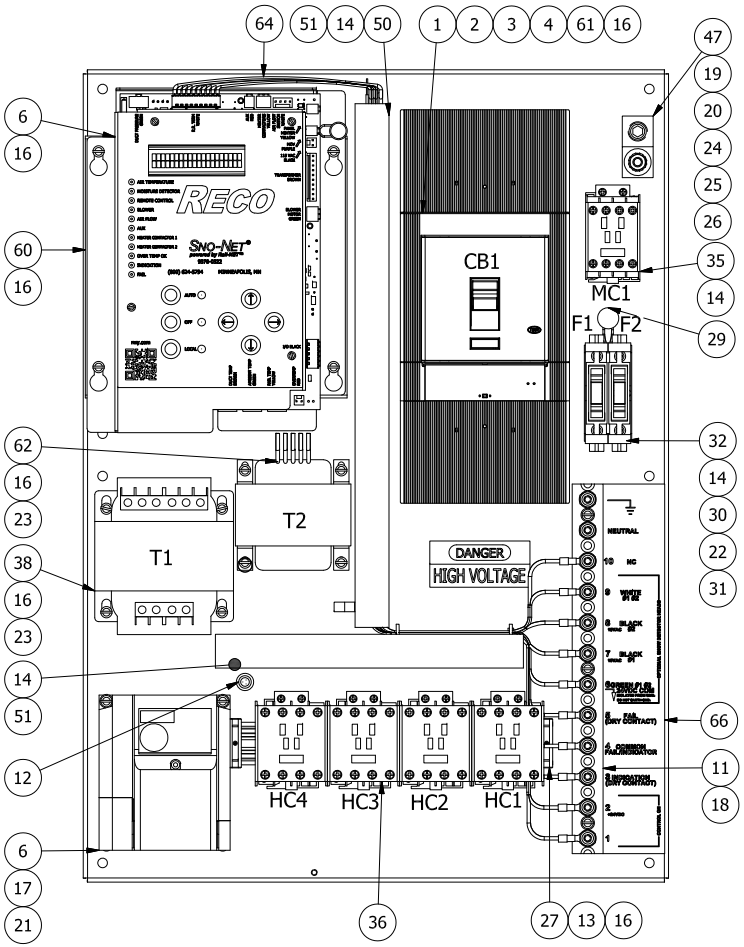
DWG NO: 9348-1161F REV: F

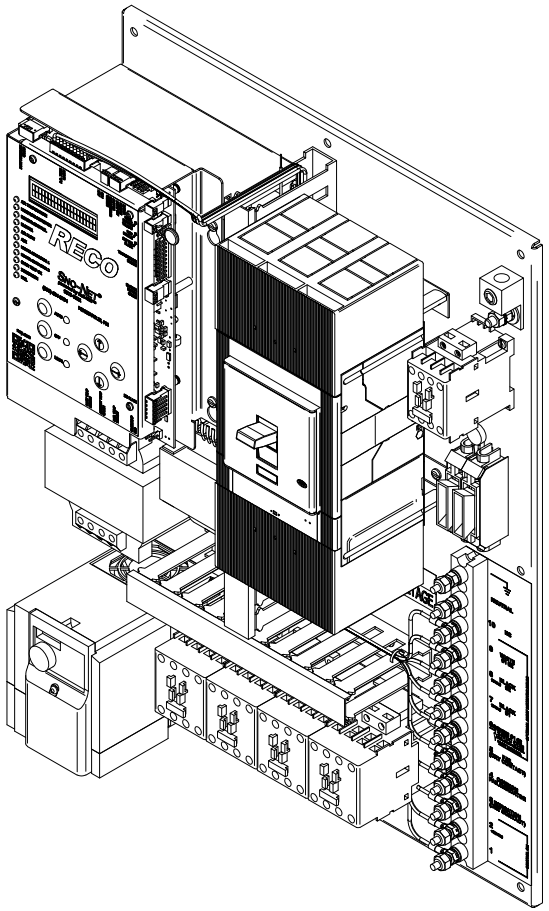
SCALE: DWG SIZE: B SHEET 2 OF 2

PARTS LIST					
ITEM	PART NUMBER	REV	UOM	QTY	DESCRIPTION
1	1300751300	-	EA	1	CIRCUIT BREAKER, 3 POLE, 300A, 600V, 35KA, K FRAME
2	1300751601	-	EA	1	CIRCUIT BREAKER LUG KIT, FRAME K, LOAD SIDE
3	1300751602	-	EA	1	CIRCUIT BREAKER LUG KIT, FRAME K, LINE SIDE
4	1300751603	-	EA	1	CIRCUIT BREAKER TERMINAL COVER, FRAME K
5	14172	-	EA	1	HEATER, PANEL HEATER 100W 120VAC NO THERMOSTAT 30" LEADS
6	2100166400	-	EA	1	DRIVE, AC, 2HP, 230V 1PH INPUT, 3PH OUTPUT
7	21020	-	EA	1	CONNECTOR, HOUSING, 2 POS
8	21021	-	EA	1	STRAIN RELIEF, 2 POS
9	21023	-	EA	2	STRAIN RELIEF, 3 POS
10	21212	-	EA	2	CONNECTOR, HOUSING, 3 POS 18GA
11	28029	-	EA	1	TERMINAL ASSY, 1 X 12 POS
12	28077	-	EA	1	GROMMET, .25 I.D., 9/16 O.D BLACK
13	28104	-	IN	10.5	DIN MOUNTING RAIL 35MM
14	2831311106	-	EA	6	SCREW, #8-32 X 3/8 PAN SLT
15	2831311108	-	EA	2	SCREW, #8-32 X 1/2 PAN SLT
16	2831411106	-	EA	22	SCREW, #10-32 X 3/8 PAN SLT
17	2831411108	-	EA	4	SCREW, #10-32 X 1/2 PAN SLT
18	2831411110	-	EA	3	SCREW, #10-32 X 5/8 PAN SLT
19	2831651120	-	EA	1	BOLT, 5/16-18 X 1-1/4 HEX HEAD
20	2832-6101	-	EA	2	NUT, 5/16-18 HEX
21	2833-3110	-	EA	4	WASHER, #8 FLAT SAE
22	2833-3200		EA	2	WASHER, #8 SPLIT LOCK
23	2833-4210	-	EA	8	WASHER, #10 SPLIT LOCK
24	2833-6110	-	EA	1	WASHER, 5/16 FLAT SAE
25	2833-6210	-	EA	1	WASHER, 5/16 SPLIT LOCK
26	2833-6310	-	EA	3	WASHER, 5/16 EXT. STAR
27	29104	-	EA	2	CLAMP, DIN MOUNT END
28	32008	-	IN	7	EDGE GUARD, RUBBER
29	4861-0102	-	EA	1	MOV, V250LA20A
30	5111-0206	-	EA	2	FUSE, 250V 2.5A
31	5122-0400	-	EA	1	FUSEBLOCK, 600V 30A 2 POLE
32	5122-0401	-	EA	2	FUSEBLOCK COVER 600V 30A
33	51274	-	EA	1	FUSE HOLDER, INLINE 18 GA
34	51275	-	EA	1	FUSE, 2A MDA 250V
35	5400489800	-	EA	1	CONTACTOR, 4POLE 32 AMP 115V COIL 9 AMP INDUCTIVE
36	5400490000	-	EA	4	CONTACTOR, 40A, 4P, 115V AC COIL, AB, SIZE C40
37	5400491000	-	EA	4	RC SUPPRESSOR 110-280V
38	56058	-	EA	1	TRANS, 575 MAX P-115S 300VA
39	60175	-	IN	2	TUBING, 18GA ID
40	60223	-	IN	7	HEATSHRINK, TUBING 3/16 BLACK
41	6031-0100	-	EA	2	LUG, FORK #8 16-14 GA NYLON
42	6031-0107	-	EA	3	LUG, FORK #8 22-18GA NYLON
43	6032-0116	-	EA	1	LUG, RING #10 12-10GA VINYL
44	6032-0117	-	EA	2	LUG, RING 1/4 12-10GA VINYL
45	6032-0120	-	EA	4	LUG, RING 1/4 22-18GA VINYL
46	6032-0123	-	EA	1	LUG, BUTT CONNECTOR 20-18 GA W/HEAT SHRINK SEAL
47	6032-0201	-	EA	1	LUG, BOX SLOTTED SCREW
48	6037-0207	-	EA	1	LUG, RING 5/16" 12-10 VINYL
49	6093-0100	-	EA	32	TY-RAP, 4IN 0.10 WIDTH
50	6093-0302	-	IN	27	WIRE DUCT, COVER 1 IN
51	6100046300	-	FT	2.25	WIRE DUCT, 1" X 4", WHITE
52	681001	-	IN	153	WIRE, 10GA BLACK 600V 105C
53	681205	-	IN	53	WIRE, 12GA GREEN
54	681401	-	FT	7	WIRE, 14GA BLACK 600V 105C
55	681807	-	IN	23	WIRE, 18GA GREEN
56	681812	-	IN	200	WIRE, 18GA THINWALL BLACK 600V
57	681833	-	IN	65	WIRE, 18GA THINWALL WHITE 300V

PARTS LIST					
ITEM	PART NUMBER	REV	UOM	QTY	DESCRIPTION
58	681834	-	IN	59	WIRE, 18GA THINWALL RED 300V
59	8039-0806A	A	EA	1	LABEL, HIGH VOLTAGE
60	9300-3200A	A	EA	1	SPACER, CONTROL MODULE, EHAB, DID
61	9300-3330A	A	EA	1	SPACER, CIRCUIT BREAKER, FRAME K, EHAB, INNER DOOR
62	9338-0015C	C	EA	1	TRANSFORMER, CONTROL MODULE
63	93433F	F	EA	1	PANEL, ELECTRICAL, EHAB
64	9348-0001B	B	EA	1	EHAB MODULE TO AAR HARNESS
65	9378-0322A	A	EA	1	EHAB CONTROL MODULE W DISPLAY WITH WEB PAGE
66	R9340-0040B	B	EA	1	LABEL, TERMINAL POST EHAB CONTROL

REVISION HISTORY				
REV	ECO #	DESCRIPTION	DATE	BY
F	-	UPDATED CONTACTOR/OVERLOAD	12/20/2016	TB
G	-	UPDATED CONTROL MODULE, ADDED AC DRIVE, CHANGED BREAKER	8/27/2019	AK
-	-	9348-0001A TO B	9/14/2020	AK
-	21-056	PN 9378-0320C TO 9378-0322A	4/12/2021	CA





UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS .X ± 0.035" .XX ± 0.010" .XXX ±0.005"
ANGULAR ±1°
FRACTIONS ± 1/32"
DO NOT SCALE DRAWING

DRAWN: AKOLLMAN

DATE: 8/27/2019

MAT'L: N/A

BEND ALLOWANCE: N/A

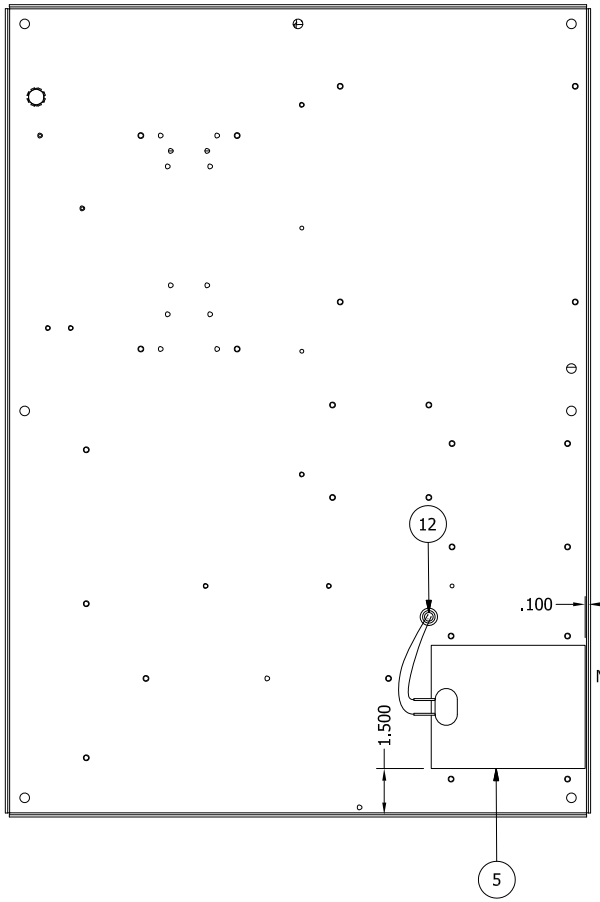
RAILWAY EQUIPMENT CO.
DELANO, MINNESOTA (763) 972-2200

TITLE: PANEL, EHAB CONTROL ASSY, 240V, 60KW, 1PH, W 2HP DRIVE

DWG NO: 9348-2161H REV: H

SCALE: 1/4 DWG SIZE: B SHEET 1 OF 3

BACK VIEW



NOTE: PLACE HEATER PAD SO IT DOES NOT BLOCK MOUNTING HOLES

UNLESS OTHERWISE SPECIFIED:
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TOLERANCES
DECIMALS ANGULAR
.X ± 0.035 ±1
.XX ± 0.010 FRACTIONS
.XXX ±0.005 ± 1/32
DO NOT SCALE DRAWING

DRAWN: AK

DATE: 2/12/2020

MAT'L: NA

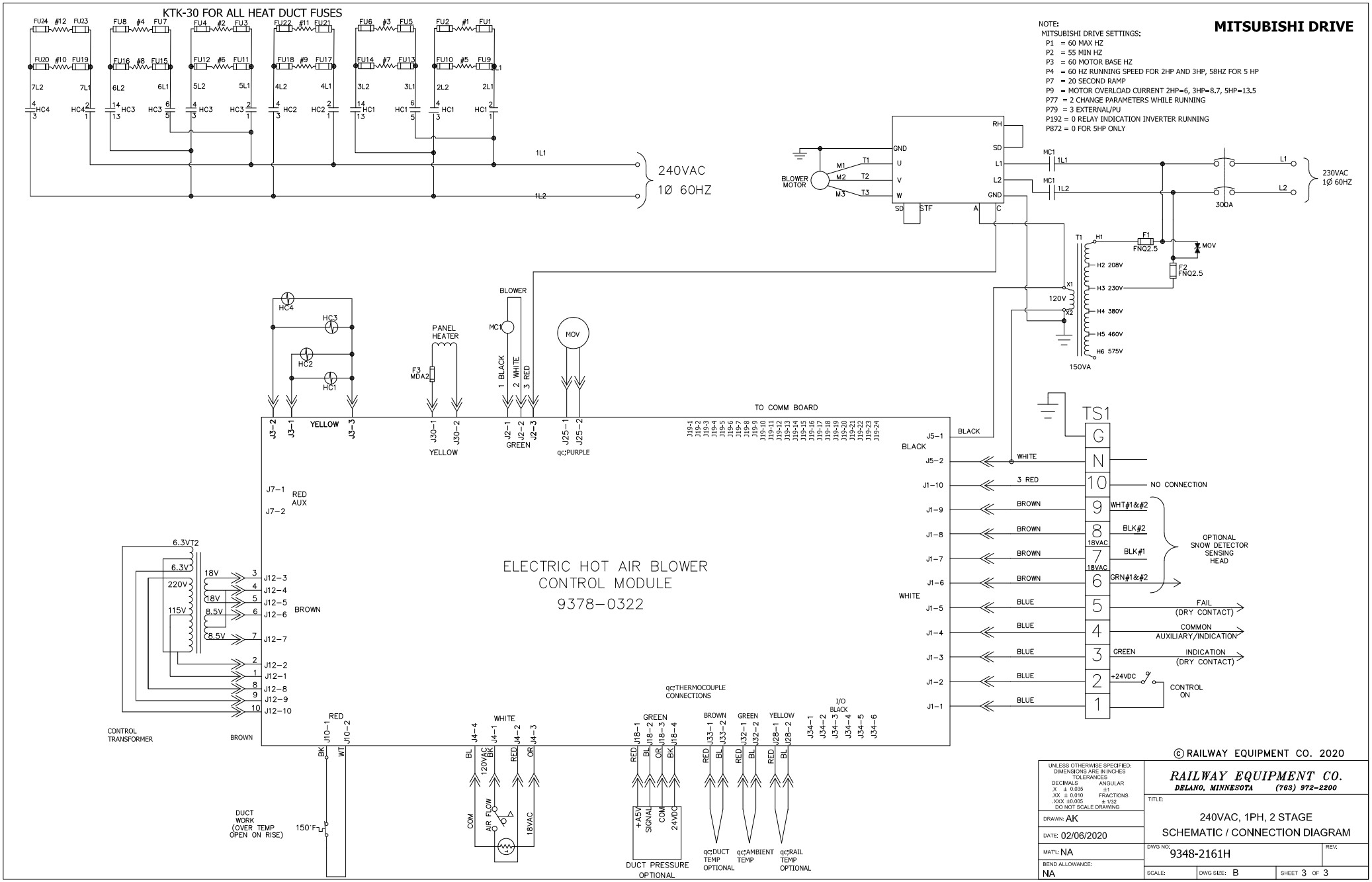
BEND ALLOWANCE: NA

RAILWAY EQUIPMENT CO.
DELANO, MINNESOTA (763) 972-2200

TITLE: PANEL, EHAB CONTROL ASSY, 240V, 60KW, 1PH, W 2HP DRIVE

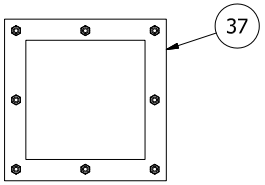
DWG NO: 9348-2161H REV: H

SCALE: DWG SIZE: B SHEET 2 OF 3



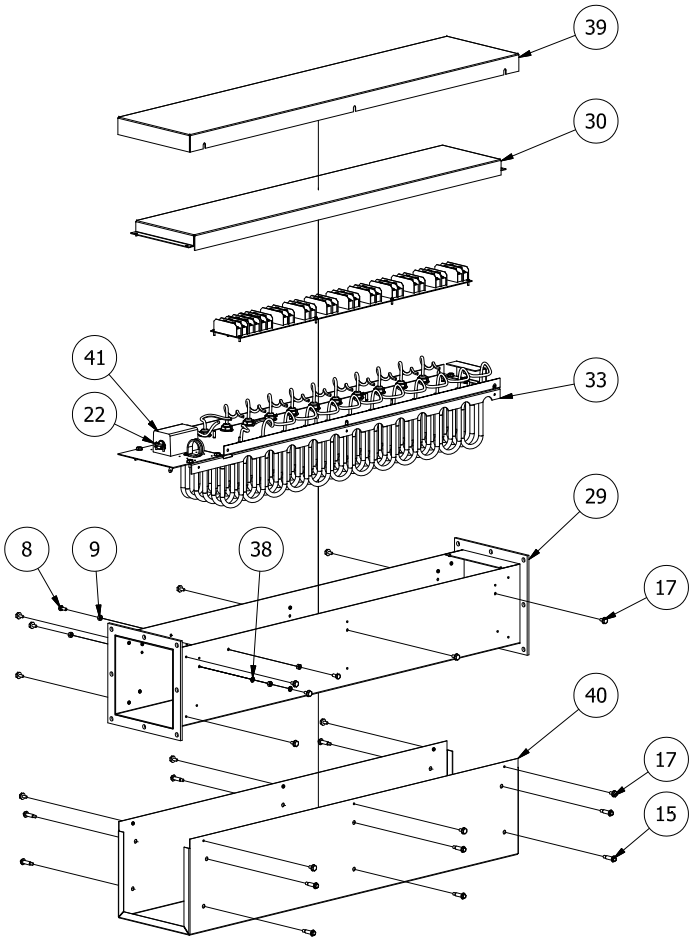
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES DECIMALS .X ± 0.035 .XX ± 0.010 .XXX ±0.005 ANGULAR ±1 FRACTIONS ± 1/32 DO NOT SCALE DRAWING	RAILWAY EQUIPMENT CO. DELANO, MINNESOTA (763) 972-2200
DRAWN: AK	TITLE: 240VAC, 1PH, 2 STAGE SCHEMATIC / CONNECTION DIAGRAM
DATE: 02/06/2020	
MAT'L: NA	DWG NO: 9348-2161H REV:
BEND ALLOWANCE: NA	SCALE: DWG SIZE: B SHEET 3 OF 3

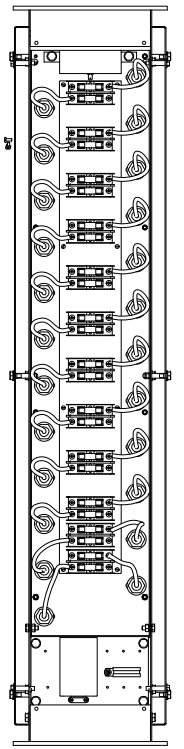
PARTS LIST					
ITEM	PART NUMBER	REV	QTY	UOM	DESCRIPTION
1	21020	-	1	EA	CONNECTOR, HOUSING, 2 POS
2	21021	-	1	EA	STRAIN RELIEF, 2 POS
3	2831211106	-	24	EA	SCREW, #6-32 X 3/8 PAN SLT
4	2831211108	-	8	EA	SCREW, #6-32 X 1/2 PAN SLT
5	2831281103	-	2	EA	SCREW, #6-32 X 3/16 FLSTR SLT
6	2831311104	-	2	EA	SCREW, #8-32 X 1/4 PAN SLT
7	2831311106	-	1	EA	SCREW, #8-32 X 3/8 PAN SLT
8	2831551110	-	2	EA	BOLT, 1/4-20 X 5/8 HEX HEAD
9	2832-5901	-	8	EA	NUT, 1/4-20 CENTERLOCK
10	2833-2210	-	10	EA	WASHER, #6 SPLIT LOCK
11	2833-3110	-	1	EA	WASHER, #8 FLAT SAE
12	2833-3200	-	1	EA	WASHER, #8 SPLIT LOCK
13	2833-3310	-	2	EA	WASHER, #8 EXT. STAR
14	29017	-	8	EA	BOLT, #8-32 X 3/8 WASHER HEAD
15	29019	-	12	EA	BOLT, 1/4-20 X 1.3 SHOULDER THREAD ROLLING
16	29023	-	1	EA	CLAMP, CABLE 25124
17	29051	-	22	EA	BOLT, 1/4-20 X 1/2 WITH 1/2 HD
18	32002	-	11	SQFT	INSULATION, FIBERGLASS
19	51103	-	24	EA	FUSE, 30A 600V FST
20	5122-0400	-	12	EA	FUSEBLOCK, 600V 30A 2 POLE
21	5500083700	-	1	EA	SWITCH, TEMP 120 OPEN/100 CLOSE
22	60002	-	1	EA	3/8 ROMEX BRIDGEPORT# 650-DC2
23	6034-0111	-	4	EA	LUG, PUSH-ON F .250 22-18GA
25	6093-0100	-	20	EA	CABLE TIE, 4IN 0.10 WIDTH
26	6093-0102	-	12	EA	TY-RAP
27	681402	-	200	FT	WIRE, 14GA HIGH TEMP
28	681803	-	19	FT	WIRE, 18GA BELDEN HIGH TEMP
28	91504F	F	12	EA	HEATER, 5KW 240V
29	91505	E	1	EA	DUCT, EHAB HEATDUCT
30	91507G	G	1	EA	COVER, EHAB HEATDUCT
31	91508H	H	1	EA	MOUNTING PLATE, EHAB
32	91509E	E	1	EA	POWER DIST. PLATE
33	91510D	D	1	EA	BRKT, EHAB DUCT, RIGHT
34	91511	C	1	EA	BRKT, EHAB DUCT, LEFT
35	91512D	D	1	EA	HANDLE, EHAB
36	91517A	A	1	EA	FUSE BLOCK MOUNTING PLATE
37	9278-0026C	C	1	EA	ASS, FLEX DUCT BOLT KIT
38	92919A	A	2	EA	WASHER, 1/4 EXT. STAR
39	93388B	B	1	EA	INSUL COVER, 4' LIFT OUT
40	93432	A	1	EA	INSUL BASE, EHAB HEATDUCT
41	9558-0032	A	1	EA	AIR FLOW SWITCH 955



BAGGED GASKET KIT

REVISION HISTORY				
REV	ECO #	DESCRIPTION	DATE	BY
B	11-0004	ADDED OVERTEMP	4/11/2011	MF
C	-	-	-	-
D	-	REMOVED DIS. BLOCKS	1/19/2016	BF
E	18-0006	ADDED STANDOFFS, NEW HEATERS	3/5/2018	TB





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TOLERANCES
DECIMALS .X ± 0.035" .XX ± 0.010" .XXX ±0.005"
ANGULAR ±1°
FRACTIONS ±1/32"
DO NOT SCALE DRAWING

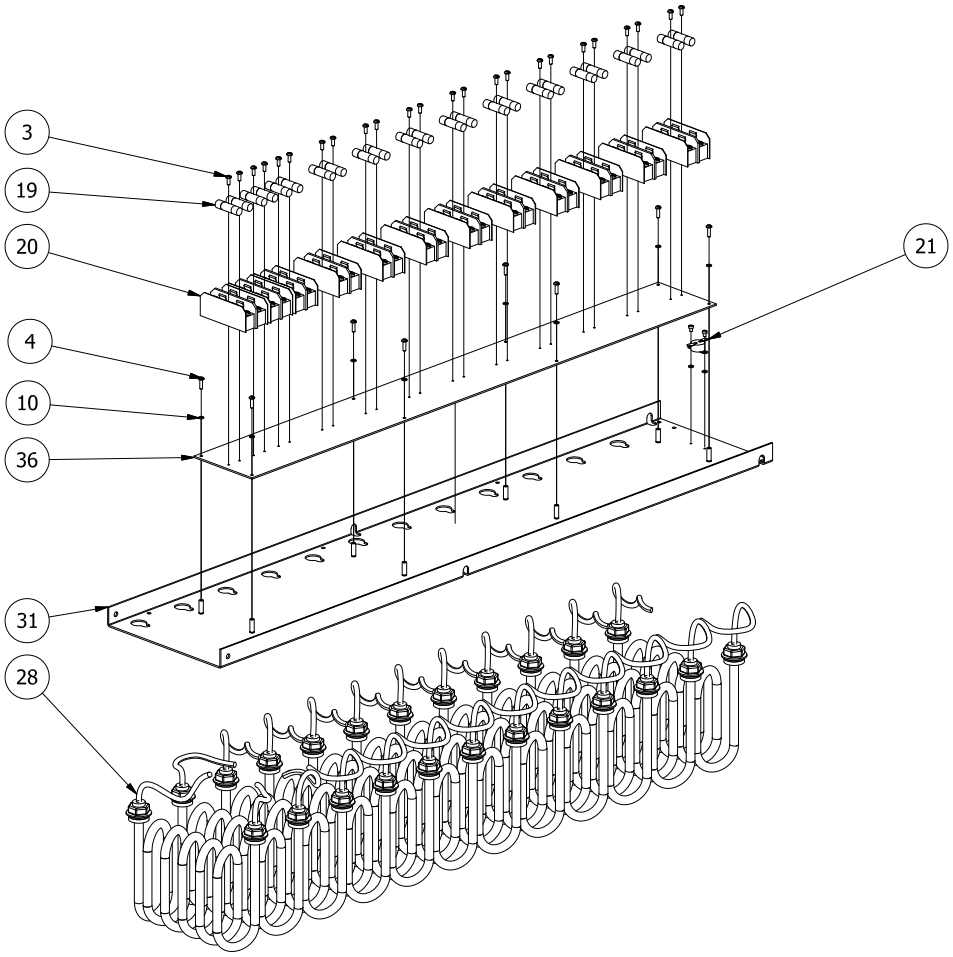
LAST UPDATED: 7/19/2019
BY: akollman
MATL:
BEND ALLOWANCE:

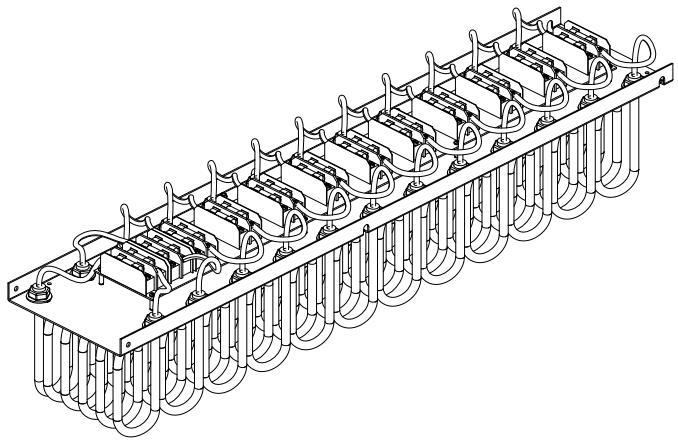
RAILWAY EQUIPMENT CO.
MINNEAPOLIS, MINNESOTA (763) 972-2200

TITLE: HEATDUCT, EHAB 240V/60KW/1PH

DWG NO: 9348-3170E REV: E

SCALE: 1 / 8 DWG SIZE: B SHEET 1 OF 2





UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS ANGULAR
.X ± ±
.XX ± FRACTIONS
.XXX ± ±
DO NOT SCALE DRAWING

LAST UPDATED: 7/19/2019

BY: akollman

MATL:

BEND ALLOWANCE:

RAILWAY EQUIPMENT CO.
MINNEAPOLIS, MINNESOTA (763) 972-2200

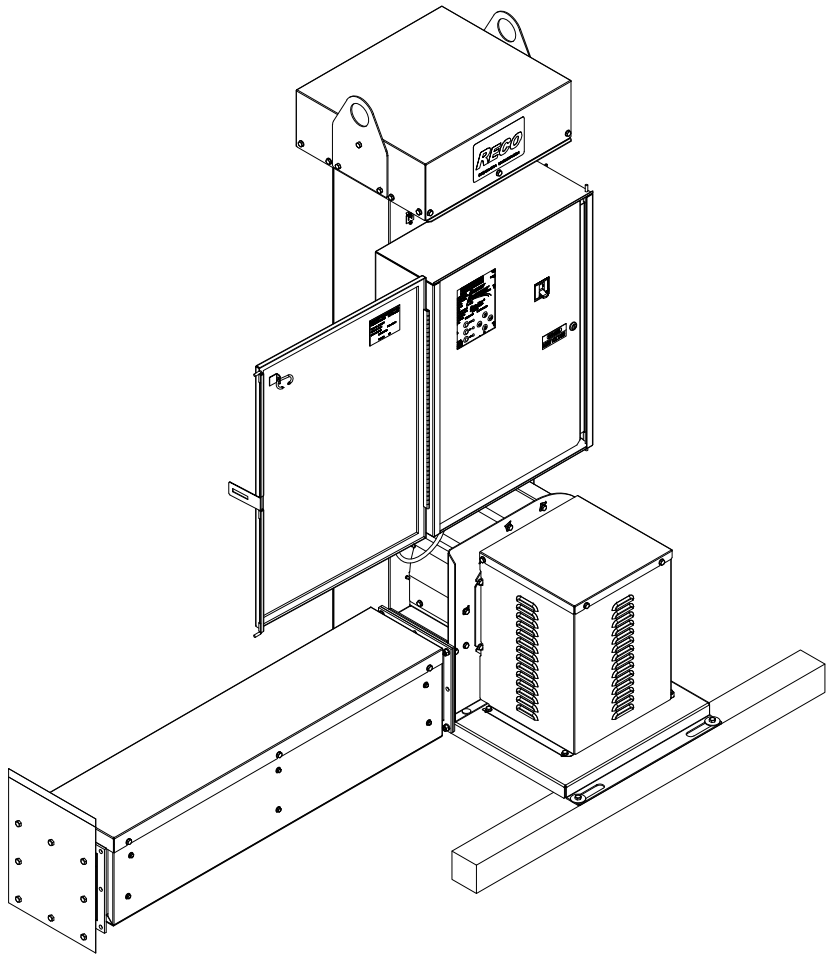
TITLE:
HEATDUCT, EHAB
240V/60KW/1PH

DWG NO: 9348-3170E REV: E

SCALE: 1/6 DWG SIZE: B SHEET 2 OF 2

PARTS LIST					
ITEM	PART NUMBER	REV	UOM	QTY	DESCRIPTION
1	21027	-	EA	2	CONDUIT, FITTING 1 1/4 90
2	26003C	C	EA	1	INLET CONE, BLOWER
3	26042A	A	EA	1	ASSY, BLOWER WHEEL 2HP 7/8" ID
4	28035	-	EA	7	MOUNT, RUBBER, M/M 1/4-20
5	2831411112	-	EA	1	SCREW, #10-32 X 3/4 PAN SLT
6	2831651120	-	EA	4	BOLT, 5/16-18 X 1-1/4 HEX HEAD
7	2831851116	-	EA	5	BOLT, 3/8-16 X 1 HEX CAP
8	2832-4101	-	EA	2	NUT, #10-32 HEX
9	2832-5101	-	EA	14	NUT, 1/4-20 HEX
10	2832-6101	-	EA	4	NUT, 5/16-18 HEX
11	2832-8101	-	EA	5	NUT, 3/8-16 HEX
12	2833-4210	-	EA	1	WASHER, #10 SPLIT LOCK
13	2833-4310	-	EA	2	WASHER, #10 EXT. STAR
14	2833-5119	-	EA	4	WASHER, 1/4 X 1.5 FENDER
15	2833-5211	-	EA	14	WASHER, 1/4 SPLIT LOCK
16	2833-6210	-	EA	4	WASHER, 5/16 SPLIT LOCK
17	2833-8040	-	EA	4	RIVET, BUTTON HEAD PLATED STL
18	2833-8210	-	EA	5	WASHER, 3/8 SPLIT LOCK
19	2900312500	-	EA	1	CARABINER, STEEL, ZINC PLATED, 3/16 OD
20	29051	-	EA	11	BOLT, 1/4-20 X 1/2 WITH 1/2 HD
21	3000022500	-	EA	1	LATCH, REQUIRES TOOL TO OPEN
22	60030	-	EA	1	CONDUIT, CLAMP
23	60069	-	EA	2	BUSHING, CONNECTOR 1 1/4"
24	60165	-	IN	17.5	CONDUIT, 1.25 IN LIQUIDTIGHT
25	60169	-	EA	2	TY-RAP, 0.30 X 8
26	60185	A	FT	9	GASKET, .25X.75 ADHESIVE BACK
27	8039-0806A	A	EA	1	LABEL, HIGH VOLTAGE
28	8040-0934A	A	EA	1	NAMEPLATE, 934/937 EHAB
29	9300-2380B	B	EA	1	ENCLOSURE, EHAB, INNER DOOR, W/MANUAL POCKET, 480V, 3PH
30	9300-3356A	A	EA	2	ENCLOSURE, INNER DOOR, HINGE PIN, 3/16 OD, SS, 3"
31	93358A	A	EA	1	GASKET, 8 X 8 LIFT-OUT DUCT
32	93430K	K	EA	1	ENCLOSURE, ASSY, EHAB, HIGH PROFILE
33	9348-0049A	A	EA	1	ASSY, HARNESS AIR FLOW SWITCH, EHAB, HIGH PROFILE
34	9348-1100A	A	EA	1	EHAB, HIGH PROFILE, 2HP, SHELL ASSEMBLY
35	9348-2261A	A	EA	1	PANEL, EHAB CONTROL ASSY, 240V, 60KW, 3PH, 2HP
36	9348-3170E	E	EA	1	HEATDUCT, EHAB 240V/60KW/1PH
37	9508-0404A	A	EA	1	AIR TEMPERATURE SENSOR 4' MAGNETIC
38	9538-0065A	A	EA	1	ASSY, WIRED MOTOR, 2HP/230/3PH
39	R8039-0807B	B	EA	1	LABEL, ID
40	R8039-0816A	A	EA	2	LABEL, FAN ROTATION
41	R8039-0980A	A	EA	1	LABEL, DANGER HIGH VOLTAGE
42	R9340-0104B	B	EA	2	MANUAL, EHAB WITH HOSTED WEB
43	R960031	-	EA	2	LABEL, HAB ENCLOSURE

REVISION HISTORY				
REV	ECO	DESCRIPTION	DATE	BY
A	-	NEW ASSEMBLY	3/27/2020	AK
	-	MODIFIED TO USE SHELL ASSEMBLY 9348-1100A, ADDED 60069	05/24/2021	AK



UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS ANGULAR
.X ± 0.0035" ±1°
.XX ± 0.010" FRACTIONS
.XXX ±0.005" ± 1/32"
DO NOT SCALE DRAWING

DRAWN: akollman

DATE: 8/28/2019

MAT'L: N/A

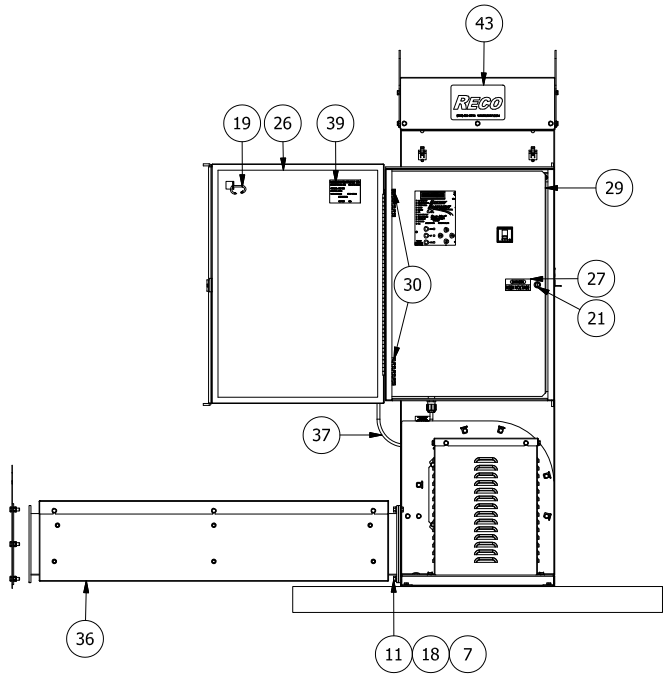
BEND ALLOWANCE: N/A

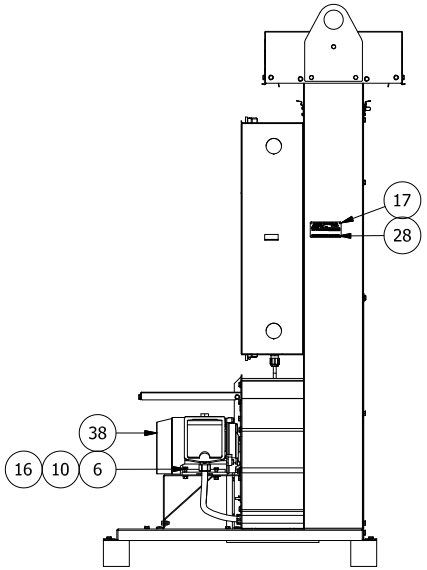
RAILWAY EQUIPMENT CO.
MINNEAPOLIS, MINNESOTA (763) 972-2200

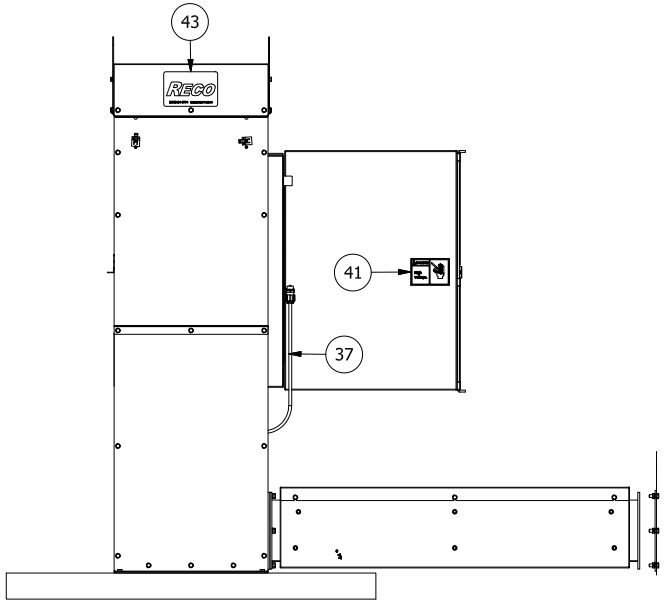
TITLE: EHAB, MAIN ASSEMBLY, 2HP, 230V, 60KW, 3PH

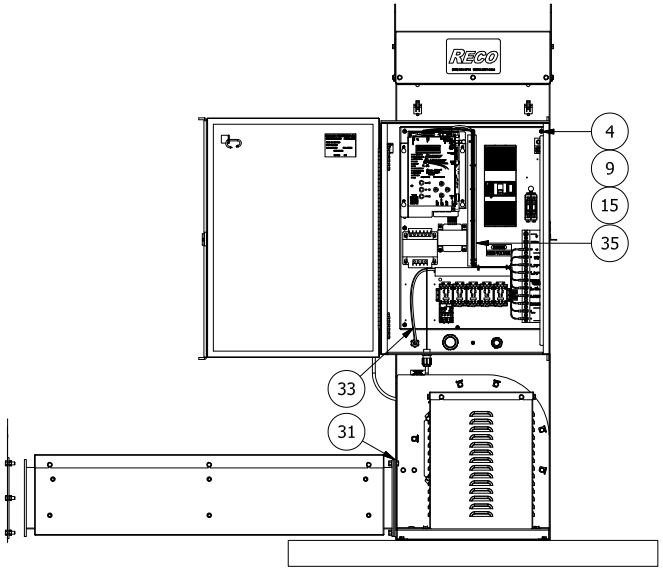
DWG NO: 9348-1261A REV: A

SCALE: 1/16 DWG SIZE: B SHEET 1 OF 2









UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS ANGULAR
.X ± 0.035 ±1
.XX ± 0.010 FRACTIONS
.XXX ±0.005 ± 1/32
DO NOT SCALE DRAWING

DRAWN:

DATE:

MAT'L: NA

BEND ALLOWANCE: NA

RAILWAY EQUIPMENT CO.
MINNEAPOLIS, MINNESOTA (763) 972-2200

TITLE: EHAB, MAIN ASSEMBLY, 2HP, 230V, 60KW, 3PH

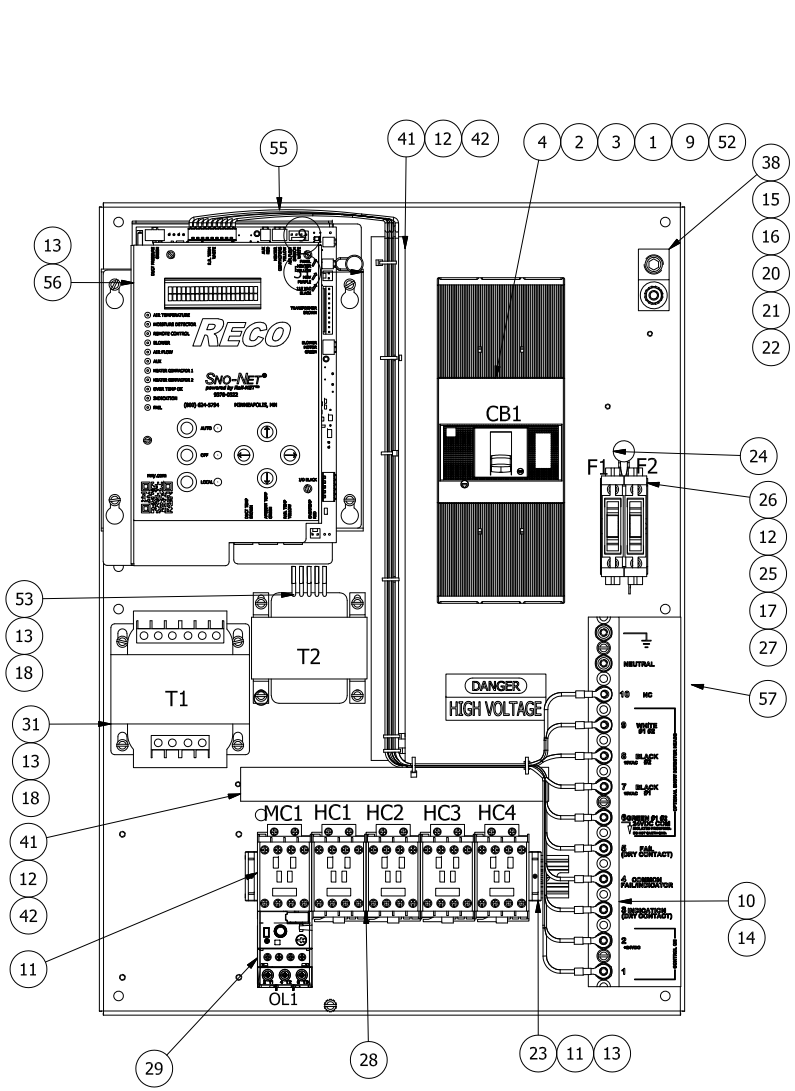
DWG NO: 9348-1261A REV: A

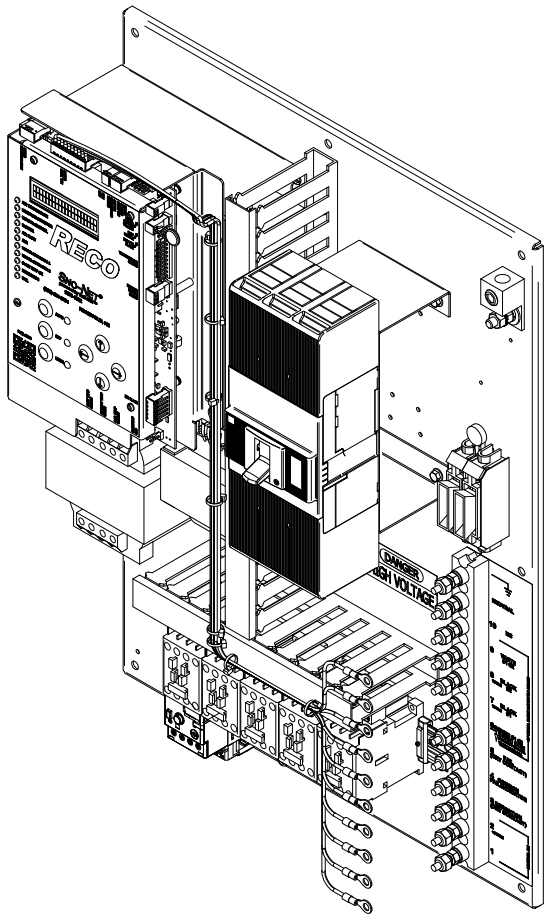
SCALE: DWG SIZE: B SHEET 2 OF 2

PARTS LIST					
ITEM	PART NUMBER	REV	UOM	QTY	DESCRIPTION
1	1300751200	-	EA	1	CIRCUIT BREAKER, 3 POLE, 200A, 600V, 25kA, I FRAME
2	1300751201	-	EA	1	CIRCUIT BREAKER LUG KIT, FRAME I, LOAD SIDE, 3 LUGS INCLUDED
3	1300751202	-	EA	1	CIRCUIT BREAKER LUG KIT, FRAME I, LINE SIDE, 3 LUGS INCLUDED
4	1300751203	-	EA	1	CIRCUIT BREAKER TERMINAL COVER, FRAME I, 2 COVERS INCLUDED
5	21020	-	EA	1	CONNECTOR, HOUSING, 2 POS
6	21021	-	EA	1	STRAIN RELIEF, 2 POS
7	21023	-	EA	2	STRAIN RELIEF, 3 POS
8	21212	-	EA	2	CONNECTOR, HOUSING, 3 POS 18GA
9	2600975000	-	EA	4	BOLT, #10-32 X 3/8, HEX SERRATED FLANGE HEAD, STEEL, GRADE 5, ZINC
10	28029	-	EA	1	TERMINAL ASSY, 1 X 12 POS
11	28104	-	IN	10.5	DIN MOUNTING RAIL 35MM
12	2831311106	-	EA	6	SCREW, #8-32 X 3/8 PAN SLT
13	2831411106	-	EA	19	SCREW, #10-32 X 3/8 PAN SLT
14	2831411110	-	EA	3	SCREW, #10-32 X 5/8 PAN SLT
15	2831651120	-	EA	1	BOLT, 5/16-18 X 1-1/4 HEX HEAD
16	2832-6101	-	EA	2	NUT, 5/16-18 HEX
17	2833-3200		EA	2	WASHER, #8 SPLIT LOCK
18	2833-4210	-	EA	8	WASHER, #10 SPLIT LOCK
19	2833-4310	-	EA	2	WASHER, #10 EXT. STAR
20	2833-6110	-	EA	1	WASHER, 5/16 FLAT SAE
21	2833-6210	-	EA	1	WASHER, 5/16 SPLIT LOCK
22	2833-6310	-	EA	3	WASHER, 5/16 EXT. STAR
23	29104	-	EA	2	CLAMP, DIN MOUNT END
24	4861-0102	-	EA	1	MOV, V250LA20A
25	5111-0206	-	EA	2	FUSE, 250V 2.5A
26	5122-0400	-	EA	1	FUSEBLOCK, 600V 30A 2 POLE
27	5122-0401	-	EA	2	FUSEBLOCK COVER 600V 30A
28	5400489800	-	EA	5	CONTACTOR, 4POLE 32 AMP 115V COIL 9 AMP INDUCTIVE
29	5400490300	-	EA	1	OVERLOAD RELAY, 3.2 – 16.0
30	5400491000	-	EA	4	RC SUPPRESSOR 110-280V
31	56058	-	EA	1	TRANS, 575 MAX P-115S 300VA
32	60175	-	IN	2	TUBING, 18GA ID
33	6031-0100	-	EA	2	LUG, FORK #8 16-14 GA NYLON
34	6031-0107	-	EA	3	LUG, FORK #8 22-18GA NYLON
35	6032-0116	-	EA	1	LUG, RING #10 12-10GA VINYL
36	6032-0117	-	EA	2	LUG, RING 1/4 12-10GA VINYL
37	6032-0120	-	EA	4	LUG, RING 1/4 22-18GA VINYL
38	6032-0201	-	EA	1	LUG, BOX SLOTTED SCREW
39	6037-0207	-	EA	1	LUG, RING 5/16" 12-10 VINYL
40	6093-0100	-	EA	32	TY-RAP, 4IN 0.10 WIDTH
41	6093-0302	-	IN	27	WIRE DUCT, COVER 1 IN
42	6100046300	-	FT	2.25	WIRE DUCT, 1" X 4", WHITE
43	681001	-	IN	153	WIRE, 10GA BLACK 600V 105C
44	681205	-	IN	53	WIRE, 12GA GREEN
45	681401	-	FT	7	WIRE, 14GA BLACK 600V 105C
46	681807	-	IN	23	WIRE, 18GA GREEN
47	681812	-	IN	200	WIRE, 18GA THINWALL BLACK 600V
48	681833	-	IN	65	WIRE, 18GA THINWALL WHITE 300V
49	681834	-	IN	59	WIRE, 18 GA THINWALL RED 300V
50	8039-0806A	A	EA	1	LABEL, HIGH VOLTAGE
51	9300-3200A	A	EA	1	SPACER, CONTROL MODULE, EHAB, DID
52	9300-3315A	A	EA	1	SPACER, CIRCUIT BREAKER, FRAME I, EHAB, INNER DOOR
53	9338-0015C	C	EA	1	TRANSFORMER, CONTROL MODULE
54	93433F	F	EA	1	PANEL, ELECTRICAL, EHAB

PARTS LIST					
ITEM	PART NUMBER	REV	UOM	QTY	DESCRIPTION
55	9348-0001A	A	EA	1	EHAB MODULE TO AAR HARNESS
56	9378-0322A	A	EA	1	EHAB CONTROL MODULE W DISPLAY WITH WEB PAGE
57	R9340-0040B	B	EA	1	LABEL, TERMINAL POST EHAB CONTROL

REVISION HISTORY				
REV	ECO #	DESCRIPTION	DATE	BY
A	09-0025	NEW PART	3/23/2020	AK
-	-	ADDED 9300-3200 AND 9300-3315	4/14/2020	AK
-	21-056	CHANGED PN 9378-0320C TO 9378-0322A	4/12/2021	CA





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TOLERANCES
DECIMALS ANGULAR
.X ± 0.035" ±1°
.XX ± 0.010" FRACTIONS
.XXX ±0.005" ± 1/32"
DO NOT SCALE DRAWING

DRAWN: AKOLLMAN

DATE: 8/27/2019

MAT'L: N/A

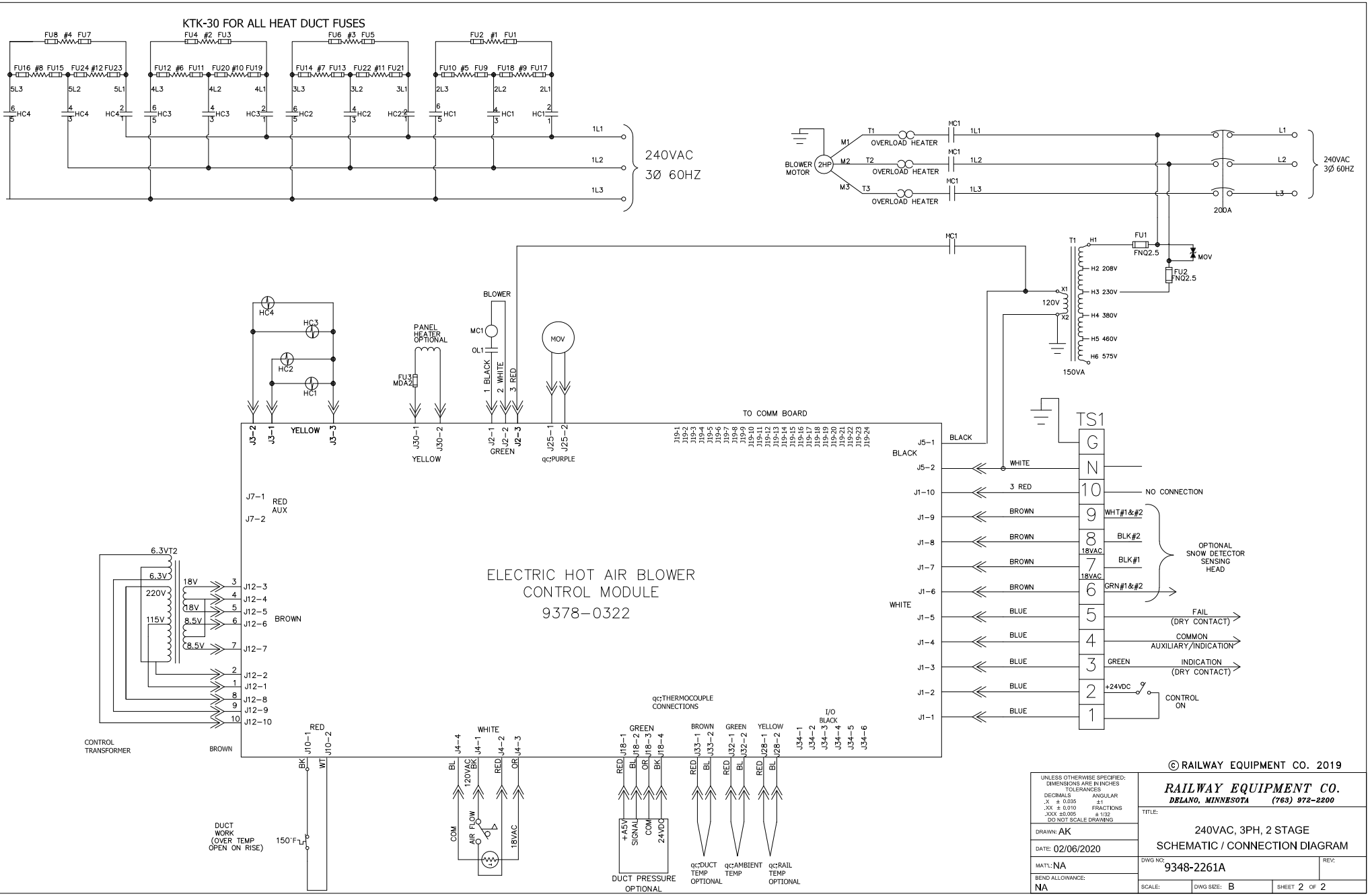
BEND ALLOWANCE: N/A

RAILWAY EQUIPMENT CO.
DELANO, MINNESOTA (763) 972-2200

TITLE: PANEL. EHAB CONTROL ASSY, 240V, 60KW, 3PH, 2HP

DWG NO: 9348-2261A REV: A

SCALE: 1/4 DWG SIZE: B SHEET 1 OF 2



UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES DECIMALS .X ± 0.035 .XX ± 0.010 .XXX ±0.005 ANGULAR ±1 FRACTIONS ± 1/32 DO NOT SCALE DRAWING

DRAWN: AK

DATE: 02/06/2020

MAT'L: NA

BEND ALLOWANCE: NA

RAILWAY EQUIPMENT CO.
DELANO, MINNESOTA (763) 972-2200

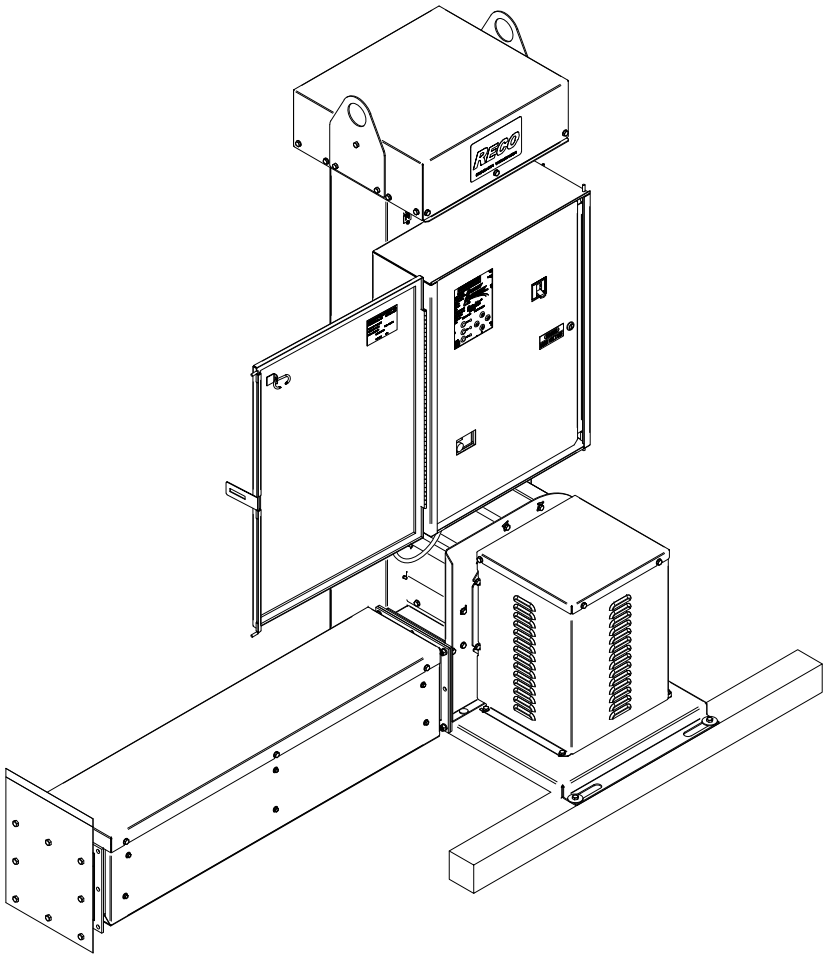
TITLE:
240VAC, 3PH, 2 STAGE
SCHEMATIC / CONNECTION DIAGRAM

DWG NO: 9348-2261A REV:

SCALE: DWG SIZE: B SHEET 2 OF 2

PARTS LIST					
ITEM	PART NUMBER	REV	UOM	QTY	DESCRIPTION
1	21027	-	EA	2	CONDUIT, FITTING 1 1/4 90
2	26003C	C	EA	1	INLET CONE, BLOWER
3	26042A	A	EA	1	ASSY, BLOWER WHEEL 2HP 7/8" ID
4	28035	-	EA	7	MOUNT, RUBBER, M/M 1/4-20
5	2831411112	-	EA	1	SCREW, #10-32 X 3/4 PAN SLT
6	2831651120	-	EA	4	BOLT, 5/16-18 X 1-1/4 HEX HEAD
7	2831851116	-	EA	5	BOLT, 3/8-16 X 1 HEX CAP
8	2832-4101	-	EA	2	NUT, #10-32 HEX
9	2832-5101	-	EA	14	NUT, 1/4-20 HEX
10	2832-6101	-	EA	4	NUT, 5/16-18 HEX
11	2832-8101	-	EA	5	NUT, 3/8-16 HEX
12	2833-4210	-	EA	1	WASHER, #10 SPLIT LOCK
13	2833-4310	-	EA	2	WASHER, #10 EXT. STAR
14	2833-5119	-	EA	4	WASHER, 1/4 X 1.5 FENDER
15	2833-5211	-	EA	14	WASHER, 1/4 SPLIT LOCK
16	2833-6210	-	EA	4	WASHER, 5/16 SPLIT LOCK
17	2833-8040	-	EA	4	RIVET, BUTTON HEAD PLATED STL
18	2833-8210	-	EA	5	WASHER, 3/8 SPLIT LOCK
19	2900312500	-	EA	1	CARABINER, STEEL, ZINC PLATED, 3/16 OD
20	29051	-	EA	11	BOLT, 1/4-20 X 1/2 WITH 1/2 HD
21	3000022500	-	EA	1	LATCH, REQUIRES TOOL TO OPEN
22	60030	-	EA	1	CONDUIT, CLAMP
23	60069	-	EA	2	BUSHING, CONNECTOR 1 1/4"
24	60165	-	IN	17.5	CONDUIT, 1.25 IN LIQUIDTIGHT
25	60169	-	EA	2	TY-RAP, 0.30 X 8
26	60185	A	FT	9	GASKET, .25X.75 ADHESIVE BACK
27	8039-0806A	A	EA	1	LABEL, HIGH VOLTAGE
28	8040-0934A	A	EA	1	NAMEPLATE, 934/937 EHAB
29	9300-2370B	A	EA	1	ENCLOSURE, INNER DOOR, W/MANUAL POCKET, EHAB, 480V, 1PH
30	9300-3356A	A	EA	2	ENCLOSURE, INNER DOOR, HINGE PIN, 3/16 OD, SS, 3"
31	93358A	A	EA	1	GASKET, 8 X 8 LIFT-OUT DUCT
32	93430K	K	EA	1	ENCLOSURE, ASSY, EHAB, HIGH PROFILE
33	9348-0049A	A	EA	1	ASSY, HARNESS AIR FLOW SWITCH, EHAB, HIGH PROFILE
34	9348-1100A	A	EA	1	EHAB, HIGH PROFILE, 2HP, SHELL ASSEMBLY
35	9348-2370H	H	EA	1	PANEL, EHAB CONTROL ASSY, 480V, 60KW, 1PH, W 2HP DRIVE
36	9348-3360J	J	EA	1	HEATDUCT, EHAB 480V/60KW/1PH
37	9508-0404A	A	EA	1	AIR TEMPERATURE SENSOR 4' MAGNETIC
38	9538-0066A	A	EA	1	ASSY, WIRED MOTOR, 2HP/480VAC/3PH
39	R8039-0807B	B	EA	1	LABEL, ID
40	R8039-0816A	A	EA	2	LABEL, FAN ROTATION
41	R8039-0980A	A	EA	1	LABEL, DANGER HIGH VOLTAGE
42	R9340-0104B	B	EA	2	MANUAL, EHAB WITH HOSTED WEB
43	R960031	-	EA	2	LABEL, HAB ENCLOSURE

REVISION HISTORY				
REV	ECO	DESCRIPTION	DATE	BY
F	-	UPDATED PANEL, ENCLOSURE, ADDED INNER DOOR, ENCLOSURE 2" WIDER	09/01/2020	AK
-	E21-069	MODIFIED TO USE SHELL ASSEMBLY 9348-1100A, ADDED 60069	05/24/2021	AK



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.XX ± 0.010" FRACTIONS
.XXX ±0.005" ± 1/32"
DO NOT SCALE DRAWING

DRAWN: akollman

DATE: 8/28/2019

MAT'L: N/A

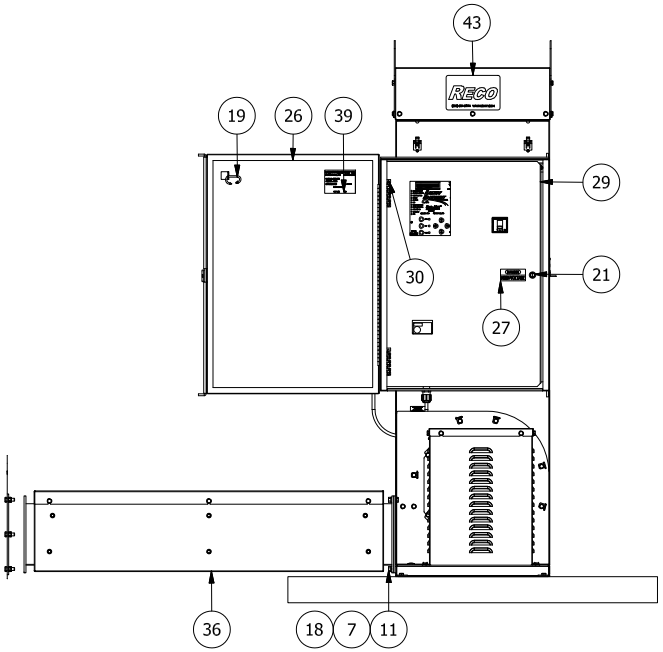
BEND ALLOWANCE: N/A

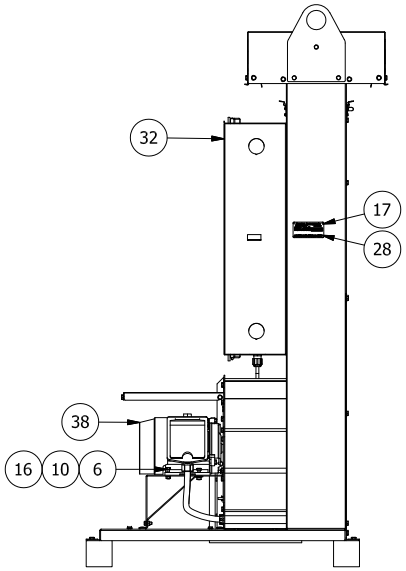
RAILWAY EQUIPMENT CO.
MINNEAPOLIS, MINNESOTA (763) 972-2200

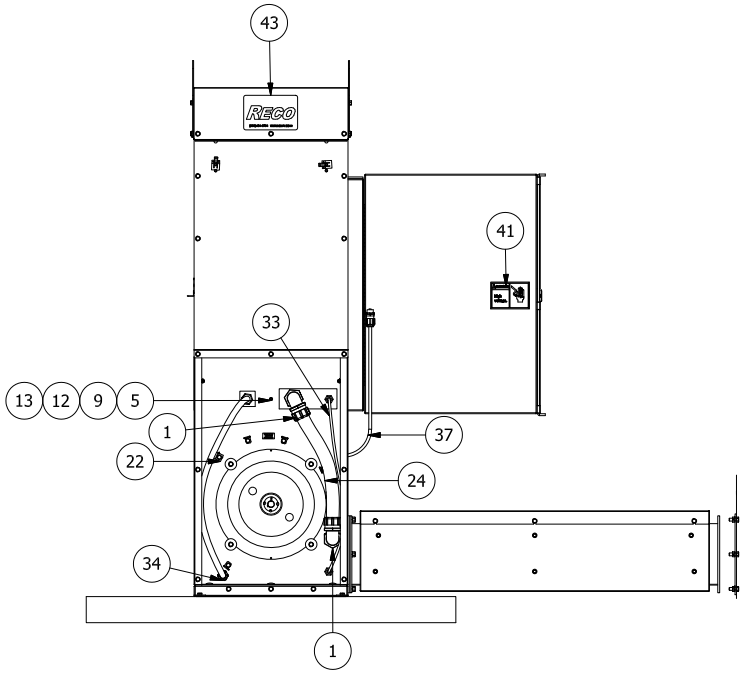
TITLE: EHAB, MAIN ASSEMBLY, 2HP, 460V, 60KW, 1PH. W/AC DRIVE

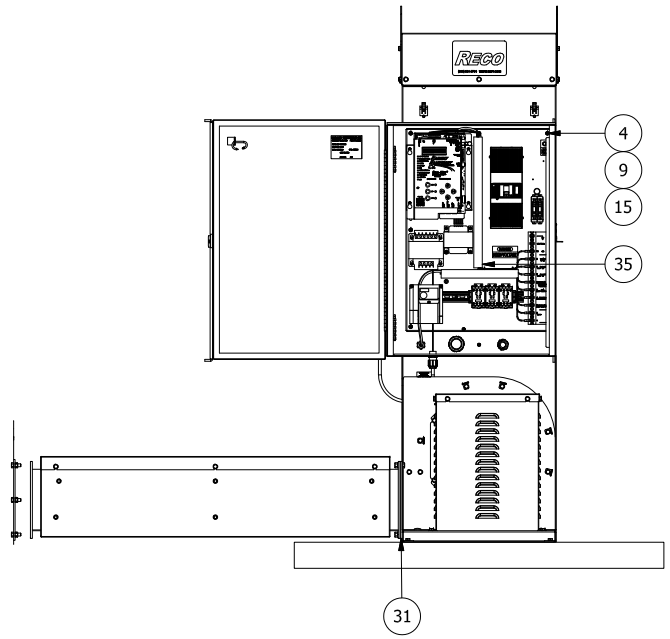
DWG NO: 9348-1352F REV: F

SCALE: 1/16 DWG SIZE: B SHEET 1 OF 2









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DECIMALS ANGULAR
.X ± 0.035 ±1
.XX ± 0.010 FRACTIONS
.XXX ±0.005 ± 1/32
DO NOT SCALE DRAWING

DRAWN:

DATE:

MAT'L: NA

BEND ALLOWANCE: NA

RAILWAY EQUIPMENT CO.
MINNEAPOLIS, MINNESOTA (763) 972-2200

TITLE: EHAB, MAIN ASSEMBLY, 2HP, 460V, 60KW, 1PH. W/AC DRIVE

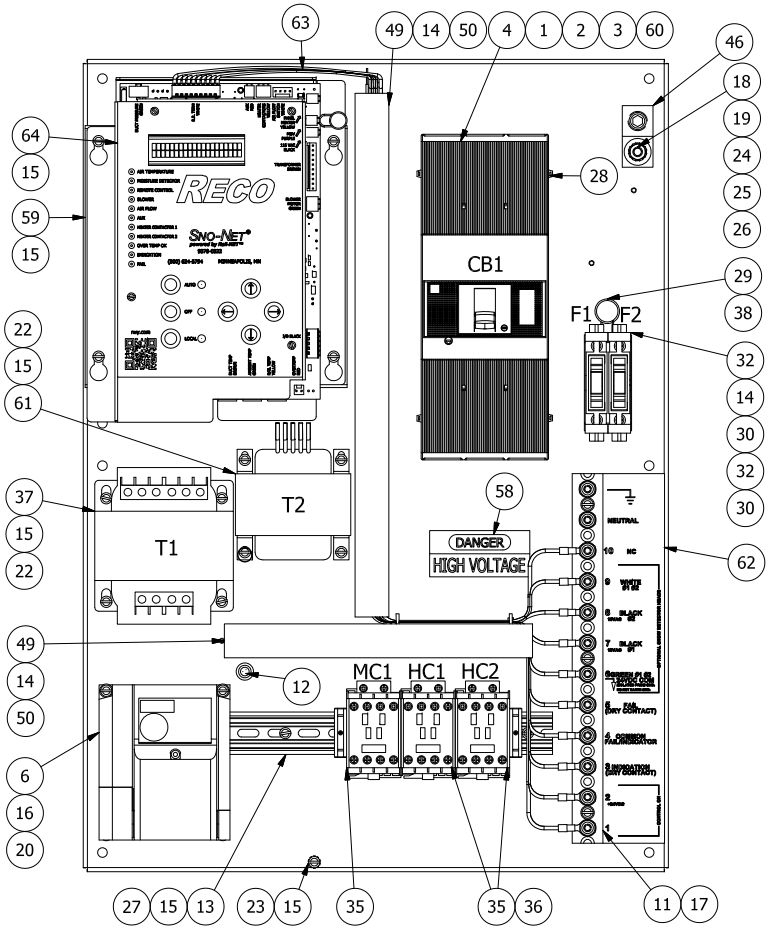
DWG NO: 9348-1352F REV: F

SCALE: DWG SIZE: B SHEET 2 OF 2

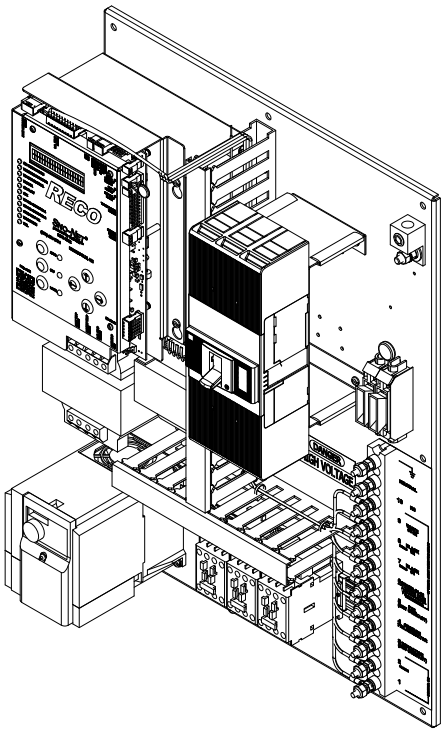
PARTS LIST					
ITEM	PART NUMBER	REV	UOM	QTY	DESCRIPTION
1	1300751150	-	EA	1	CIRCUIT BREAKER, 3 POLE, 150A, 600V, 25kA, I FRAME
2	1300751201	-	EA	1	CIRCUIT BREAKER LUG KIT, FRAME I, LOAD SIDE, 3 LUGS INCLUDED
3	1300751202	-	EA	1	CIRCUIT BREAKER LUG KIT, FRAME I, LINE SIDE, 3 LUGS INCLUDED
4	1300751203	-	EA	1	CIRCUIT BREAKER TERMINAL COVER, FRAME I, 2 COVERS INCLUDED
5	14172	-	EA	1	HEATER, PANEL HEATER 100W 120VAC NO THERMOSTAT 30" LEADS
6	2100166800	-	EA	1	DRIVE, AC, 2HP, 480V 1PH INPUT, 3PH OUTPUT
7	21020	-	EA	1	CONNECTOR, HOUSING, 2 POS
8	21021	-	EA	1	STRAIN RELIEF, 2 POS
9	21023	-	EA	2	STRAIN RELIEF, 3 POS
10	21212	-	EA	2	CONNECTOR, HOUSING, 3 POS 18GA
11	28029	-	EA	1	TERMINAL ASSY, 1 X 12 POS
12	28077	-	EA	1	GROMMET, .25 I.D., 9/16 O.D BLACK
13	28104	-	IN	10.5	DIN MOUNTING RAIL 35MM
14	2831311106	-	EA	8	SCREW, #8-32 X 3/8 PAN SLT
15	2831411106	-	EA	23	SCREW, #10-32 X 3/8 PAN SLT
16	2831411108	-	EA	4	SCREW, #10-32 X 1/2 PAN SLT
17	2831411110	-	EA	3	SCREW, #10-32 X 5/8 PAN SLT
18	2831651120	-	EA	1	BOLT, 5/16-18 X 1-1/4 HEX HEAD
19	2832-6101	-	EA	2	NUT, 5/16-18 HEX
20	2833-3110	-	EA	4	WASHER, #8 FLAT SAE
21	2833-3200		EA	2	WASHER, #8 SPLIT LOCK
22	2833-4210	-	EA	8	WASHER, #10 SPLIT LOCK
23	2833-4310	-	EA	2	WASHER, #10 EXT. STAR
24	2833-6110	-	EA	1	WASHER, 5/16 FLAT SAE
25	2833-6210	-	EA	1	WASHER, 5/16 SPLIT LOCK
26	2833-6310	-	EA	3	WASHER, 5/16 EXT. STAR
27	29104	-	EA	2	CLAMP, DIN MOUNT END
28	32008	-	IN	14	EDGE GUARD, RUBBER
29	48603	-	EA	1	MOV, 600VAC 6500A
30	5111-0601	-	EA	2	FUSE, 500V 1AMP SLO-BLO
31	5122-0400	-	EA	1	FUSEBLOCK, 600V 30A 2 POLE
32	5122-0401	-	EA	2	FUSEBLOCK COVER 600V 30A
33	51274	-	EA	1	FUSE HOLDER, INLINE 18 GA
34	51275	-	EA	1	FUSE, 2A MDA 250V
35	5400489800	-	EA	3	CONTACTOR, 4POLE 32 AMP 115V COIL 9 AMP INDUCTIVE
36	5400491000	-	EA	2	RC SUPPRESSOR 110-280V
37	56058	-	EA	1	TRANS, 575 MAX P-115S 300VA
38	60175	-	IN	2	TUBING, 18GA ID
39	60223	-	IN	7	HEATSHRINK, TUBING 3/16 BLACK
40	6031-0100	-	EA	2	LUG, FORK #8 16-14 GA NYLON
41	6031-0107	-	EA	3	LUG, FORK #8 22-18GA NYLON
42	6032-0116	-	EA	1	LUG, RING #10 12-10GA VINYL
43	6032-0117	-	EA	2	LUG, RING 1/4 12-10GA VINYL
44	6032-0120	-	EA	4	LUG, RING 1/4 22-18GA VINYL
45	6032-0123	-	EA	1	LUG, BUTT CONNECTOR 20-18 GA W/HEAT SHRINK SEAL
46	6032-0201	-	EA	1	LUG, BOX SLOTTED SCREW
47	6037-0207	-	EA	1	LUG, RING 5/16" 12-10 VINYL
48	6093-0100	-	EA	32	TY-RAP, 4IN 0.10 WIDTH
49	6093-0302	-	IN	27	WIRE DUCT, COVER 1 IN
50	6100046300	-	FT	2.25	WIRE DUCT, 1" X 4", WHITE
51	681001	-	IN	153	WIRE, 10GA BLACK 600V 105C
52	681205	-	IN	53	WIRE, 12GA GREEN HOOK-UP
53	681401	-	FT	7	WIRE, 14GA BLACK 600V 105C
54	681807	-	IN	23	WIRE, 18GA GREEN
55	681812	-	IN	200	WIRE, 18GA THINWALL BLACK 600V
56	681833	-	IN	65	WIRE, 18GA WHITE 300V
57	681834	-	IN	59	WIRE, 18GA RED 300V
58	8039-0806A	A	EA	1	LABEL, HIGH VOLTAGE

PARTS LIST					
ITEM	PART NUMBER	REV	UOM	QTY	DESCRIPTION
59	9300-3200A	A	EA	1	SPACER, CONTROL MODULE, EHAB, DID
60	9300-3315A	A	EA	1	SPACER, CIRCUIT BREAKER, FRAME I, EHAB, INNER DOOR
61	9338-0015C	C	EA	1	TRANSFORMER, CONTROL MODULE
62	93433F	F	EA	1	PANEL, ELECTRICAL, EHAB
63	9348-0001B	B	EA	1	EHAB MODULE TO AAR HARNESS
64	9378-0322A	A	EA	1	EHAB CONTROL MODULE W DISPLAY WITH WEB PAGE
65	R9340-0040B	B	EA	1	LABEL, TERMINAL POST EHAB CONTROL

REVISION HISTORY				
REV	ECO #	DESCRIPTION	DATE	BY
G	-	UPDATED CONTROL MODULE, ADDED AC DRIVE, CHANGED BREAKER	8/27/2019	AK
H	-	ADDED SPACERS FOR INNER DOOR	4/10/2020	AK
-	-	9348-0001A TO B	09/15/2020	AK
-	21-056	CHANGED PN 9378-0320C TO 9378-0322A	4/12/2021	CA



3D VIEW



UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS ANGULAR
.X ± 0.05" ±1°
.XX ± 0.010" FRACTIONS
.XXX ±0.005" ± 1/32"
DO NOT SCALE DRAWING

DRAWN: AKOLLMAN
DATE: 8/27/2019
MAT'L: N/A
BEND ALLOWANCE: N/A

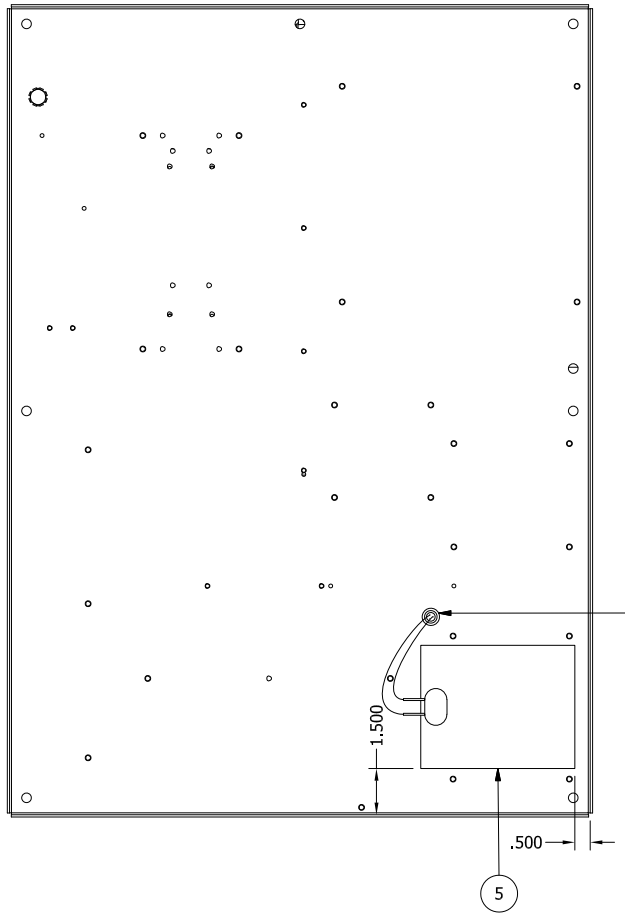
RAILWAY EQUIPMENT CO.
DELANO, MINNESOTA (763) 972-2200

TITLE: PANEL, EHAB CONTROL ASSY, 480V, 60KW, 1PH, W 2HP DRIVE

DWG NO: 9348-2370H REV: H

SCALE: 1/4 DWG SIZE: B SHEET 1 OF 3

BACK VIEW



NOTE: PLACE HEATER SO IT DOES NOT INTERFERE WITH DRIVE HOLES

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS ANGULAR
.X ± 0.035 ±1
.XX ± 0.010 FRACTIONS
.XXX ±0.005 ± 1/32
DO NOT SCALE DRAWING

DRAWN: NA

DATE: NA

MAT'L:

BEND ALLOWANCE:

RAILWAY EQUIPMENT CO.
DELANO, MINNESOTA (763) 972-2200

TITLE:
PANEL, EHAB CONTROL ASSY, 480V, 60KW, 1PH, W 2HP DRIVE

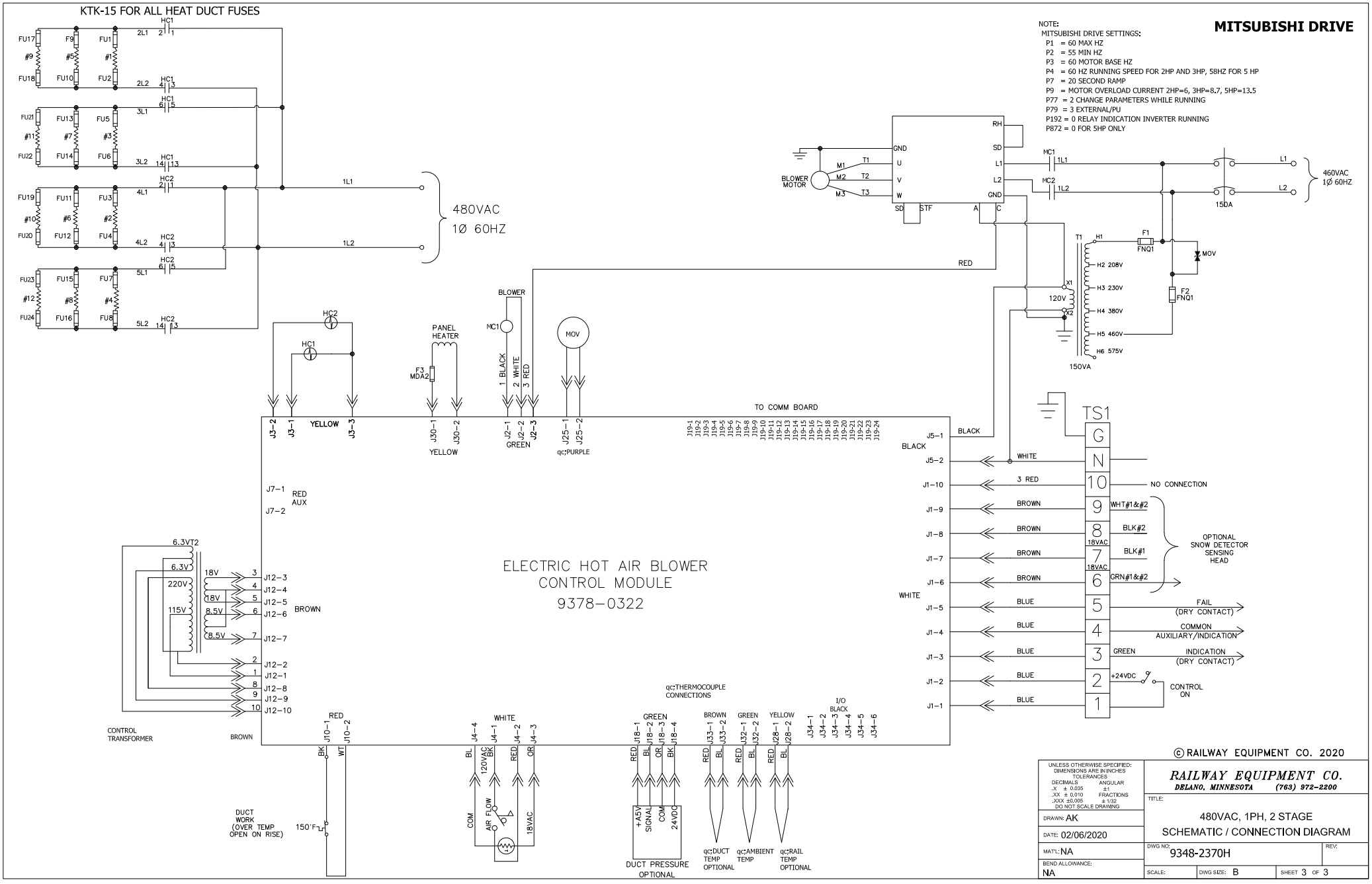
DWG NO: 9348-2370H

REV: H

SCALE:

DWG SIZE: B

SHEET 2 OF 3



UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS ANGULAR
.X ± 0.05 ±1
.XX ± 0.010 FRACTIONS
.XXX ±0.005 ± 1/32
DO NOT SCALE DRAWING

DRAWN: AK
DATE: 02/06/2020
MAT'L: NA
BEND ALLOWANCE: NA

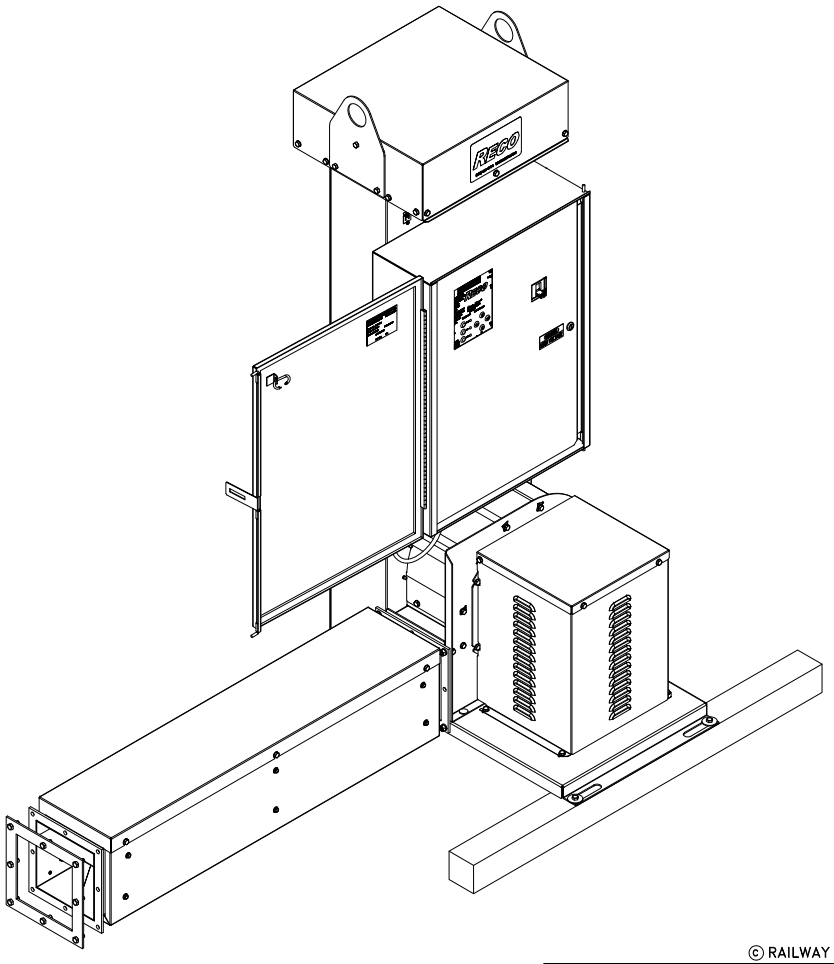
RAILWAY EQUIPMENT CO.
DELANO, MINNESOTA (763) 972-2200

TITLE:
480VAC, 1PH, 2 STAGE
SCHEMATIC / CONNECTION DIAGRAM

DWG NO: 9348-2370H
REV:
SCALE:
DWG SIZE: B
SHEET 3 OF 3

PARTS LIST					
ITEM	PART NUMBER	REV	QTY	UOM	DESCRIPTION
1	21027	-	2	EA	CONDUIT, FITTING 1 1/4 90
2	26003C	C	1	EA	INLET CONE, BLOWER
3	26042A	A	1	EA	ASSY, BLOWER WHEEL 2HP 7/8" ID
4	28035	-	7	EA	MOUNT, RUBBER, M/M 1/4-20
5	2831411112	-	1	EA	SCREW, #10-32 X 3/4 PAN SLT
6	2831651120	-	4	EA	BOLT, 5/16-18 X 1-1/4 HEX HEAD
7	2831851116	-	5	EA	BOLT, 3/8-16 X 1 HEX CAP
8	2832-4101	-	2	EA	NUT, #10-32 HEX
9	2832-5101	-	14	EA	NUT, 1/4-20 HEX
10	2832-6101	-	4	EA	NUT, 5/16-18 HEX
11	2832-8101	-	5	EA	NUT, 3/8-16 HEX
12	2833-4210	-	1	EA	WASHER, #10 SPLIT LOCK
13	2833-4310	-	2	EA	WASHER, #10 EXT. STAR
14	2833-5119	-	4	EA	WASHER, 1/4 X 1.5 FENDER
15	2833-5211	-	14	EA	WASHER, 1/4 SPLIT LOCK
16	2833-6210	-	4	EA	WASHER, 5/16 SPLIT LOCK
17	2833-8040	-	4	EA	RIVET, BUTTON HEAD PLATED STL
18	2833-8210	-	5	EA	WASHER, 3/8 SPLIT LOCK
19	2900312500	-	1	EA	CARABINER, STEEL, ZINC PLATED, 3/16 OD
20	29051	-	11	EA	BOLT, 1/4-20 X 1/2 WITH 1/2 HD
21	3000022500	-	1	EA	LATCH, REQUIRES TOOL TO OPEN
22	60030	-	1	EA	CONDUIT, CLAMP
23	60069	-	2	EA	BUSHING, CONNECTOR 1 1/4"
24	60165	-	17.5	IN	CONDUIT, 1.25 IN LIQUIDTIGHT
25	60169	-	2	EA	TY-RAP, 0.30X8
26	60185	A	9	FT	GASKET, .25X.75 ADHESIVE BACK
27	8039-0806A	A	1	EA	LABEL, HIGH VOLTAGE
28	8040-0934A	A	1	EA	NAMEPLATE, 934/937 EHAB
29	9300-2380B	B	1	EA	ENCLOSURE, EHAB, INNER DOOR, W/MANUAL POCKET, 480V, 3PH
30	9300-3356A	A	2	EA	ENCLOSURE, INNER DOOR, HINGE PIN, 3/16 OD, SS, 3"
31	93358A	A	1	EA	GASKET, 8 X 8 LIFT-OUT DUCT
32	93430K	K	1	EA	ENCLOSURE, ASSY, EHAB, HIGH PROFILE
33	9348-0049A	A	1	EA	ASSY, HARNESS AIR FLOW SWITCH, EHAB, HIGH PROFILE
34	9348-1100A	A	1	EA	EHAB, HIGH PROFILE, 2HP, SHELL ASSEMBLY
35	9348-2380H	H	1	EA	PANEL, EHAB CONTROL ASSY, 480V, 60KW, 3PH, 2HP
36	9348-3480A	A	1	EA	HEATDUCT, EHAB 480V/60KW/3PH DUAL CONTACTOR
37	9508-0404A	A	1	EA	AIR TEMPERATURE SENSOR 4' MAGNETIC
38	9538-0066A	A	1	EA	ASSY, WIRED MOTOR, 2HP/480VAC/3PH
39	R8039-0816A	A	2	EA	LABEL, FAN ROTATION
40	R8039-0980A	A	1	EA	LABEL, DANGER HIGH VOLTAGE
41	R9340-0104B	B	2	EA	MANUAL, EHAB WITH HOSTED WEB
42	R9348-1470C	C	1	EA	LABEL, EHAB, SERIAL
43	R960031	-	2	EA	LABEL, HAB ENCLOSURE

REVISION HISTORY				
REV	ECO #	DESCRIPTION	DATE	BY
F	-	NEW CONTROL MODULE, BREAKER	09/04/2019	AK
G	-	ADDED INNER DOOR PARTS	4/6/2020	AK
-	E21-069	MODIFIED TO USE 9348-1100A	05/24/2021	AK



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TOLERANCES
DECIMALS ANGULAR
.X ± 0.05 ±1°
.XX ± .010" FRACTIONS
.XXX ±.005" ± 1/32"
DO NOT SCALE DRAWING

DRAWN: AKOLLMAN

DATE: 4/6/2020

MAT'L: NA

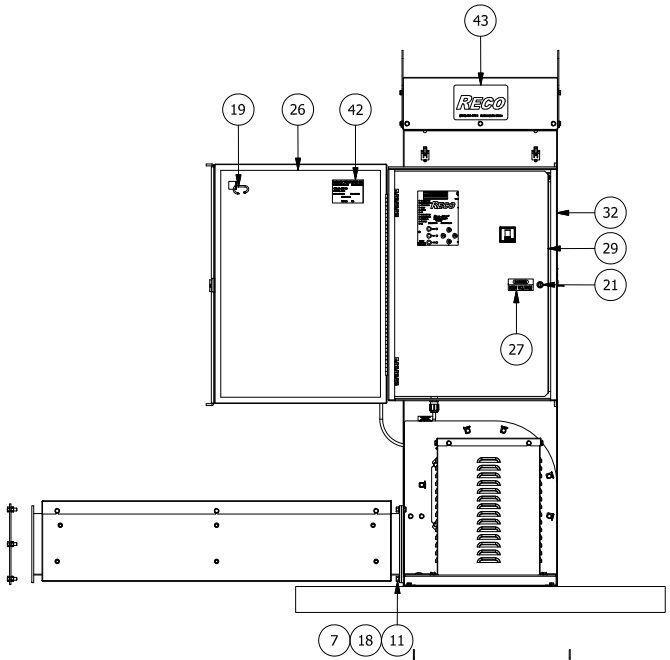
BEND ALLOWANCE: NA

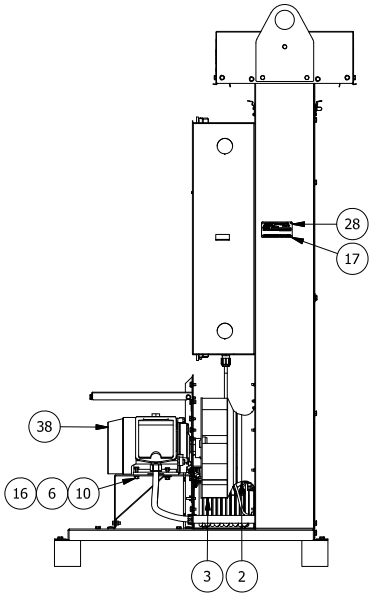
RAILWAY EQUIPMENT CO.
DELANO, MINNESOTA (763) 972-2200

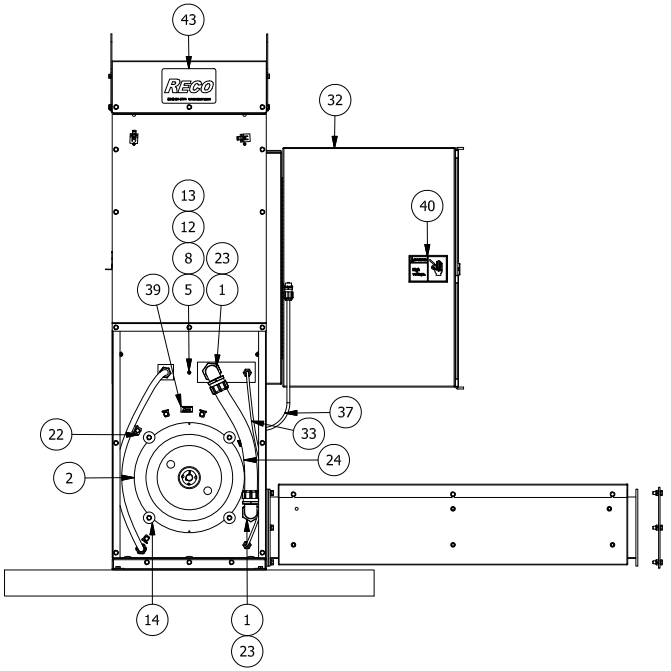
TITLE: EHAB, MAIN ASSY, 480V, 60KW, 3PH

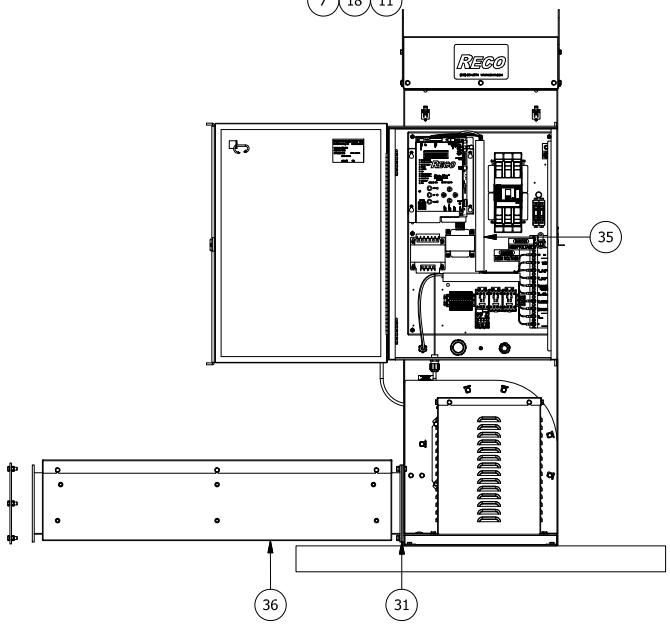
DWG NO: 9348-1470G REV: G

SCALE: DWG SIZE: B SHEET 1 OF 2









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DECIMALS ANGULAR
.X ± 0.035 ±1
.XX ± 0.010 FRACTIONS
.XXX ±0.005 ± 1/32
DO NOT SCALE DRAWING

DRAWN: AK

DATE:

MAT'L: NA

BEND ALLOWANCE:

RAILWAY EQUIPMENT CO.
DELANO, MINNESOTA (763) 972-2200

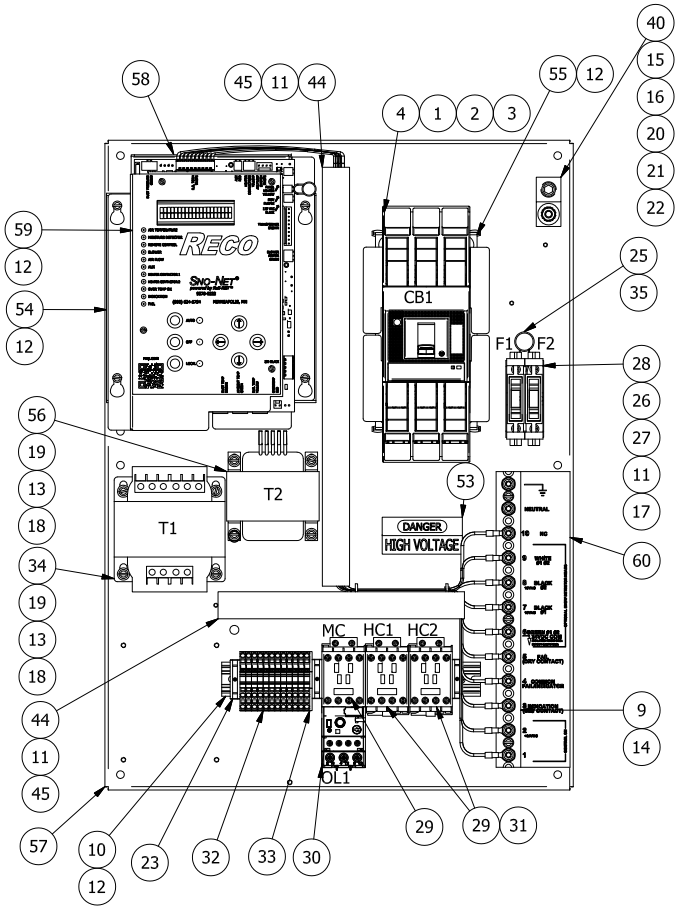
TITLE:
EHAB, MAIN ASSY, 480V, 60KW, 3PH

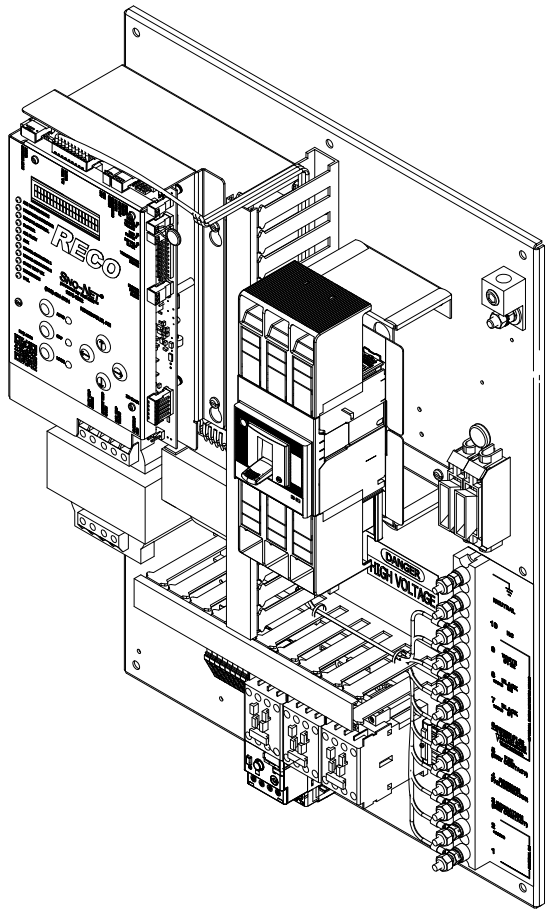
DWG NO: 9348-1470G
REV: G

SCALE:
DWG SIZE: B
SHEET 2 OF 2

Parts List					
ITEM	PART NUMBER	REV	UOM	QTY	DESCRIPTION
1	1300750000	-	EA	1	CIRCUIT BREAKER, 3 POLES 100 AMP 600 VOLT 25 KA, FRAME H
2	1300750100	-	EA	1	CIRCUIT BREAKER LUG KIT, FRAME H, LOAD SIDE
3	1300750200	-	EA	1	CIRCUIT BREAKER LUG KIT, FRAME H, LINE SIDE
4	1300750300	-	EA	1	CIRCUIT BREAKER TERMINAL COVER, FRAME H, HIGH 3P
5	21020	-	EA	1	CONNECTOR, HOUSING, 2 POS
6	21021	-	EA	1	STRAIN RELIEF, 2 POS
7	21023	-	EA	2	STRAIN RELIEF, 3 POS
8	21212	-	EA	2	CONNECTOR, HOUSING, 3 POS 18GA
9	28029	-	EA	1	TERMINAL ASSY, 1 X 12 POS
10	28104	-	IN	10.5	DIN MOUNTING RAIL 35MM
11	2831311106	-	EA	8	SCREW, #8-32 X 3/8 PAN SLT
12	2831411106	-	EA	14	SCREW, #10-32 X 3/8 PAN SLT
13	2831411108	-	EA	8	SCREW, #10-32 X 1/2 PAN SLT
14	2831411110	-	EA	3	SCREW, #10-32 X 5/8 PAN SLT
15	2831651120	-	EA	1	BOLT, 5/16-18 X 1-1/4 HEX HEAD
16	2832-6101	-	EA	2	NUT, 5/16-18 HEX
17	2833-3200		EA	2	WASHER, #8 SPLIT LOCK
18	2833-4110	-	EA	8	WASHER, #10 FLAT SAE
19	2833-4210	-	EA	8	WASHER, #10 SPLIT LOCK
20	2833-6110	-	EA	1	WASHER, 5/16 FLAT SAE
21	2833-6210	-	EA	1	WASHER, 5/16 SPLIT LOCK
22	2833-6310	-	EA	3	WASHER, 5/16 EXT. STAR
23	29104	-	EA	3	CLAMP, DIN MOUNT END
24	32008	-	IN	12	EDGE GUARD, RUBBER
25	48603	-	EA	1	MOV, 600VAC 6500A
26	5111-0601	-	EA	2	FUSE, 500V 1AMP SLO-BLO
27	5122-0400	-	EA	1	FUSEBLOCK, 600V 30A 2 POLE
28	5122-0401	-	EA	2	FUSEBLOCK COVER 600V 30A
29	5400489800	-	EA	3	CONTACTOR, 4POLE 32 AMP 115V COIL 9 AMP INDUCTIVE
30	5400490200	-	EA	1	OVERLOAD RELAY, 1.0 – 5.O
31	5400491000	-	EA	2	RC SUPPRESSOR 110-280V
32	5600242600	-	EA	12	TERMINAL BLOCK, SPRING CLAMP 32A
33	5600242700	-	EA	1	TERMINAL BLOCK, END SECTION 32A
34	56058	-	EA	1	TRANS, 575 MAX P-115S 300VA
35	60175	-	IN	2	TUBING, 18GA ID
36	6031-0100	-	EA	4	LUG, FORK #8 16-14GA NYLON
37	6032-0116	-	EA	1	LUG, RING #10 12-10GA VINYL
38	6032-0117	-	EA	2	LUG, RING 1/4 12-10GA VINYL
39	6032-0120	-	EA	3	LUG, RING 1/4 22-18GA VINYL
40	6032-0201	-	EA	1	LUG, BOX SLOTTED SCREW
41	6034-0111	-	EA	2	LUG, PUSH-ON F .250 22-18GA
42	6037-0207	-	EA	1	LUG, RING 5/16" 12-10 VINYL
43	6093-0100	-	EA	32	TY-RAP, 4IN 0.10 WIDTH
44	6093-0302	-	IN	27	WIRE DUCT, COVER 1 IN
45	6100046300	-	FT	2.25	WIRE DUCT, 1" X 4", WHITE
46	681001	-	IN	170	WIRE, 10GA BLACK 600V 105C
47	681205	-	IN	31	WIRE, 12GA GREEN
48	681401	-	FT	7	WIRE, 14GA BLACK 600V 105C
49	681807	-	IN	23	WIRE, 18GA GREEN
50	681812	-	IN	189	WIRE, 18GA THINWALL BLACK 600V
51	681833	-	IN	76	WIRE, 18GA THINWALL WHITE 300V
52	681834	-	IN	62	WIRE, 18GA THINWALL RED 300V
53	8039-0806A	A	EA	1	LABEL, HIGH VOLTAGE
54	9300-3200A	A	EA	1	SPACER, CONTROL MODULE, EHAB, DID
55	9300-3310A	A	EA	1	SPACER, CIRCUIT BREAKER, FRAME H, EHAB
56	9338-0015C	C	EA	1	TRANSFORMER, CONTROL MODULE
57	93433F	F	EA	1	PANEL, ELECTRICAL, EHAB
58	9348-0001B	B	EA	1	EHAB MODULE TO AAR HARNESS
59	9378-0322A	A	EA	1	EHAB CONTROL MODULE W DISPLAY WITH WEB PAGE
60	R9340-0040B	B	EA	1	LABEL, TERMINAL POST EHAB CONTROL

REVISION HISTORY				
REV	ECO #	DESCRIPTION	DATE	BY
G	-	NEW MODULE, BREAKER	09/04/2019	AK
H	-	NEW PANEL, ADDED SPACERS FOR INNER DOOR	4/3/2020	AK
-	-	ADDED TERMINAL BLOCKS	3/31/2021	CA
-	21-056	CHANGED PN 9378-0320C TO 9378-0322A	4/12/2021	CA





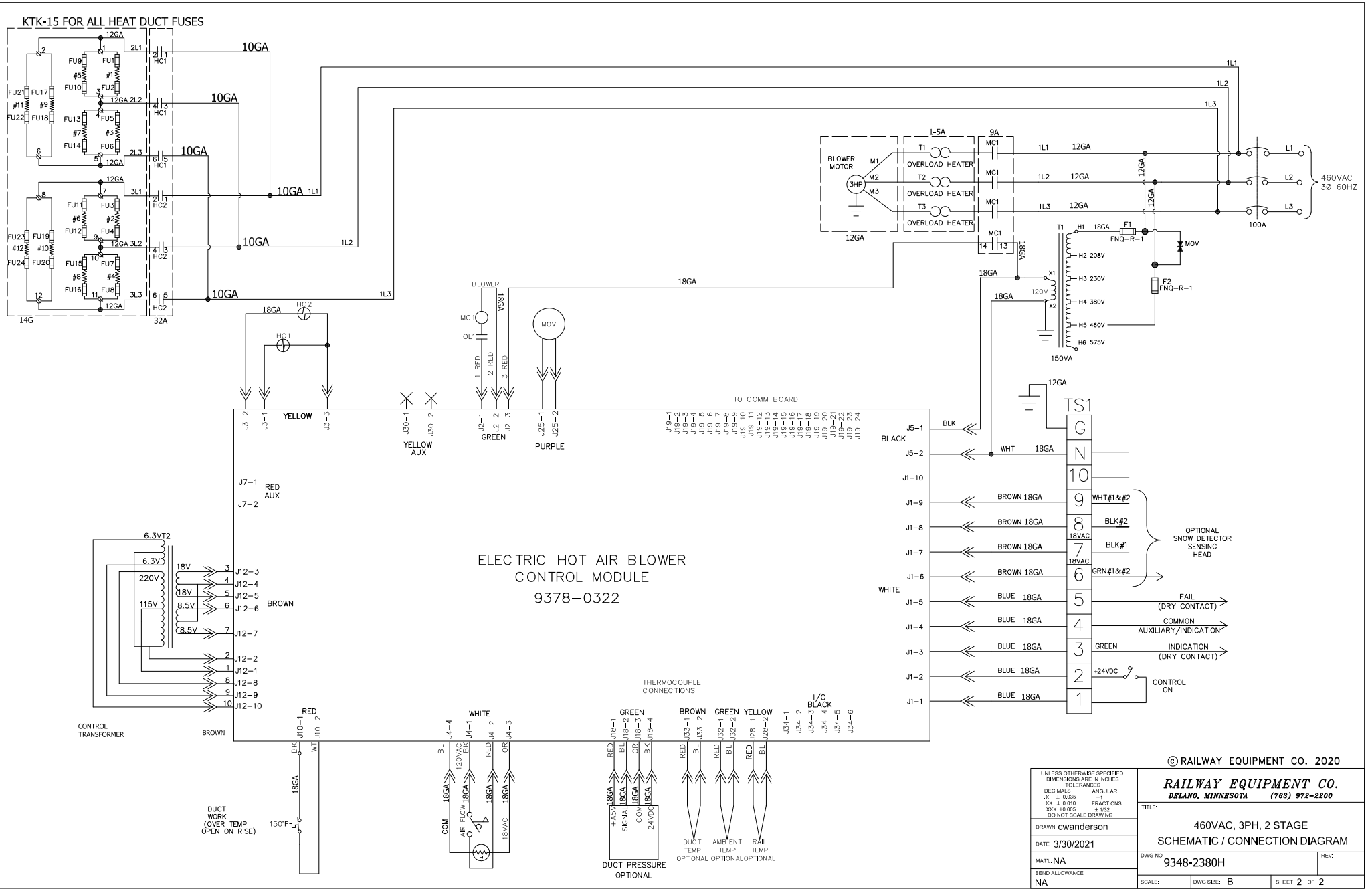
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS: .X ± 0.035", .XX ± 0.010", .XXX ±0.005"
ANGULAR: ±1°
FRACTIONS: ± 1/32"
DO NOT SCALE DRAWING

DRAWN: AKOLLMAN
DATE: 09/04/2019
MAT'L: N/A
BEND ALLOWANCE: N/A

RAILWAY EQUIPMENT CO.
DELANO, MINNESOTA (763) 972-2200

TITLE: PANEL, EHAB CONTROL ASSY, 480V, 60KW, 3PH, 2HP

DWG NO: 9348-2380H
REV: H
SCALE: 1/4
DWG SIZE: B
SHEET 1 OF 2



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TOLERANCES
DECIMALS .X ± 0.035 .XX ± 0.010 .XXX ±0.005
ANGULAR ±1°
FRACTIONS ± 1/32
DO NOT SCALE DRAWING

DRAWN: cwanderson
DATE: 3/30/2021
MAT'L: NA
BEND ALLOWANCE: NA

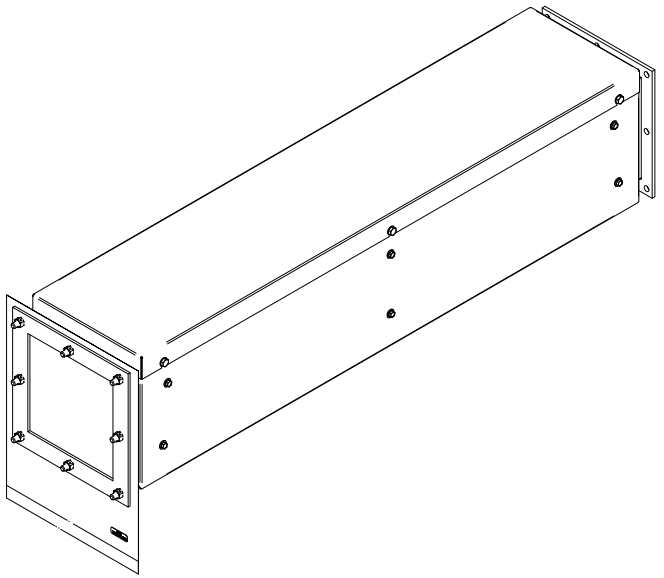
RAILWAY EQUIPMENT CO.
DELANO, MINNESOTA (763) 972-2200

TITLE:
460VAC, 3PH, 2 STAGE
SCHEMATIC / CONNECTION DIAGRAM

DWG NO: 9348-2380H
REV:
SCALE:
DWG SIZE: B
SHEET 2 OF 2

PARTS LIST					
ITEM	PART NUMBER	REV	QTY	UOM	DESCRIPTION
1	21020	-	1	EA	CONNECTOR, HOUSING, 2 POS
2	21021	-	1	EA	STRAIN RELIEF, 2 POS
3	2831211106	-	24	EA	SCREW, #6-32 X 3/8 PAN SLT
4	2831211108	-	8	EA	SCREW, #6-32 X 1/2 PAN SLT
5	2831281103	-	2	EA	SCREW, #6-32 X 3/16 FLSTR SLT
6	2831311104	-	2	EA	SCREW, #8-32 X 1/4 PAN SLT
7	2831311106	-	1	EA	SCREW, #8-32 X 3/8 PAN SLT
8	2831551110	-	2	EA	BOLT, 1/4-20 X 5/8 HEX HEAD
9	2832-5901	-	8	EA	NUT, 1/4-20 CENTERLOCK
10	2833-2210	-	10	EA	WASHER, #6 SPLIT LOCK
11	2833-3110	-	1	EA	WASHER, #8 FLAT SAE
12	2833-3200		1	EA	WASHER, #8 SPLIT LOCK
13	2833-3310	-	2	EA	WASHER, #8 EXT. STAR
14	29017	-	8	EA	BOLT, #8-32 X 3/8 WASHER HEAD
15	29019	-	12	EA	BOLT, 1/4-20 X 1.3 SHOULDER THREAD ROLLING
16	29023	-	1	EA	CLAMP, CABLE 25124
17	29051	-	22	EA	BOLT, 1/4-20 X 1/2 WITH 1/2 HD
18	32002	-	11	SQF	INSULATION, FIBERGLASS
19	5111-0606	-	24	EA	FUSE, 15A 600V FAST
20	5122-0400	-	12	EA	FUSEBLOCK, 600V 30A 2 POLE
21	5500083700	-	1	EA	SWITCH, TEMP 150F OPEN/120F CLOSE
22	60002	-	1	EA	3/8 ROMEX BRIDGEPORT# 650-DC2
23	6034-0111	-	2	EA	LUG, PUSH-ON F .250 22-18GA
24	6093-0100	-	20	EA	CABLE TIE, 4IN 0.10 WIDTH
25	6093-0102	-	12	EA	TY-RAP
26	681402	-	136	FT	WIRE, 14GA, HIGH TEMP
43	681803	-	18	FT	WIRE, 18GA, HIGH TEMP
28	91503F	F	12	EA	HEATER, 5KW 480V
29	91505E	E	1	EA	DUCT, EHAB HEATDUCT
30	91507G	G	1	EA	COVER, EHAB HEATDUCT
31	91508H	H	1	EA	MOUNTING PLATE, EHAB
32	91509E	E	1	EA	POWER DIST. PLATE
33	91510D	D	1	EA	BRKT, EHAB DUCT, RIGHT
34	91511C	C	1	EA	BRKT, EHAB DUCT, LEFT
35	91512D	D	1	EA	HANDLE, EHAB
36	91517A	A	1	EA	FUSE BLOCK MOUNTING PLATE
37	9278-0026C	C	1	EA	ASS, FLEX DUCT BOLT KIT
38	92919A	A	2	EA	WASHER, 1/4 EXT. STAR
39	93388B	B	1	EA	INSUL COVER, 4' LIFT OUT
40	93432A	A	1	EA	INSUL BASE, EHAB HEATDUCT
42	9558-0032A	A	1	EA	AIR FLOW SWITCH 955

REVISION HISTORY				
REV	ECO #	DESCRIPTION	DATE	BY
A	-	NEW PART	2/20/2020	AK



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TOLERANCES
DECIMALS ANGULAR
.X ± 0.030 ±1
.XX ± 0.010 FRACTIONS
.XXX ±0.005 ±1/32
DO NOT SCALE DRAWING

LAST UPDATED: 7/7/2020
BY: atriplett
MATL: NA
BEND ALLOWANCE: NA

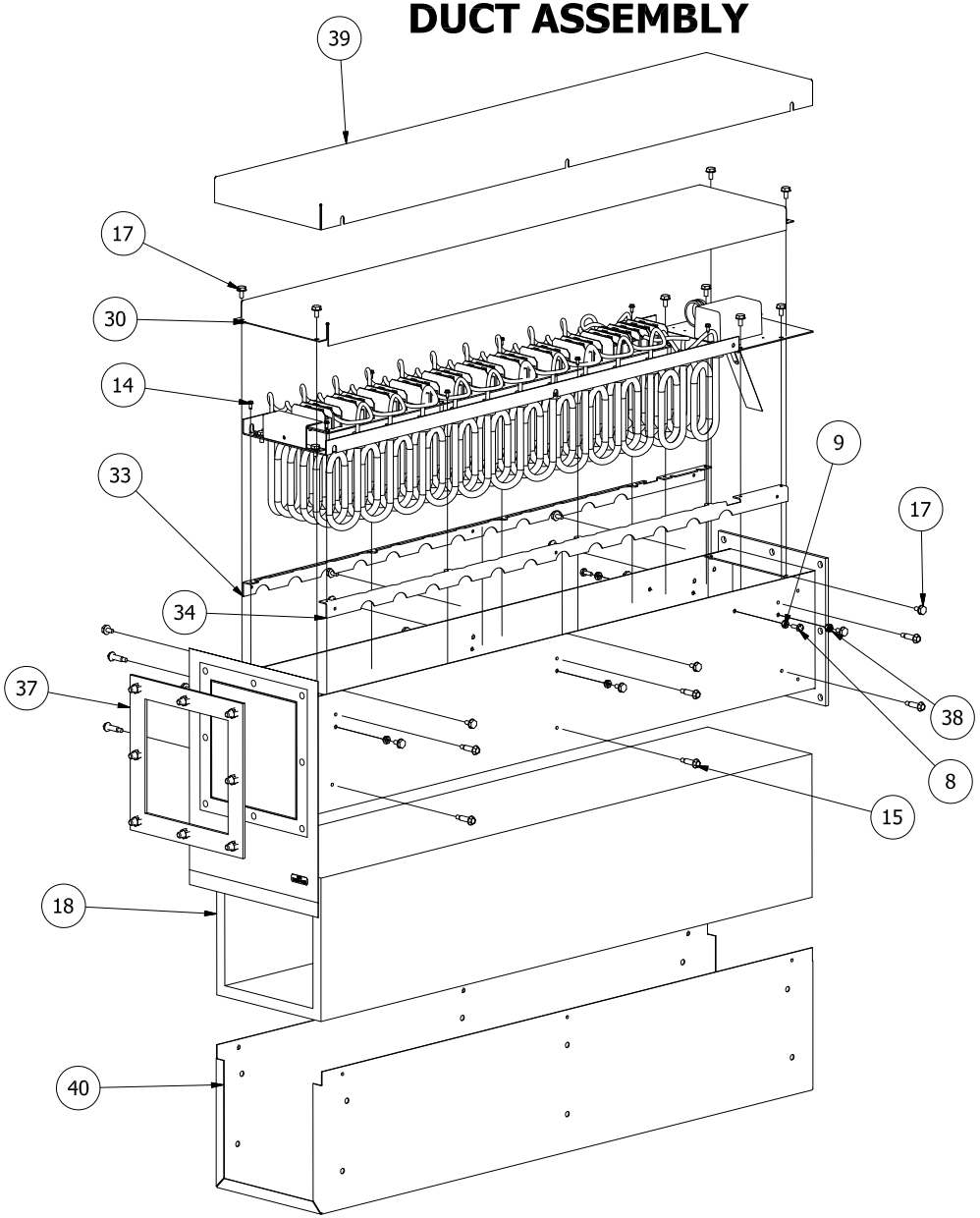
RAILWAY EQUIPMENT CO.
MINNEAPOLIS, MINNESOTA (763) 972-2200

TITLE: HEATDUCT, EHAB 480V/60KW/3PH DUAL CONTACTOR

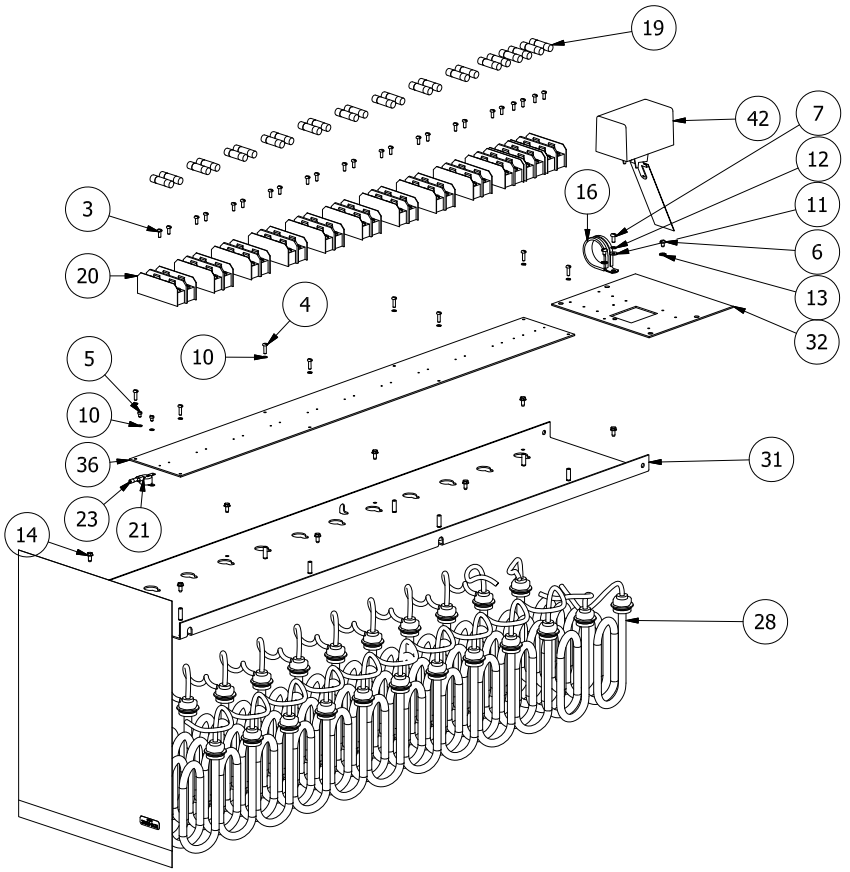
DWG NO: 9348-3480A REV: A

SCALE: 1:8 DWG SIZE: B SHEET 1 OF 2

DUCT ASSEMBLY



HEATING ASSEMBLY



UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES DECIMALS .X ± 0.005 .XX ± 0.010 .XXX ±0.005 ANGULAR ±1 FRACTIONS ±1/32 DO NOT SCALE DRAWING	RAILWAY EQUIPMENT CO. MINNEAPOLIS, MINNESOTA (763) 972-2200
LAST UPDATED: 7/7/2020	TITLE: HEATDUCT, EHAB 480V/60KW/3PH DUAL CONTACTOR
BY: atrlplett	
MATL: NA	DWG NO: 9348-3480A REV: A
BEND ALLOWANCE: NA	SCALE: 1 / 8 DWG SIZE: B SHEET 2 OF 2

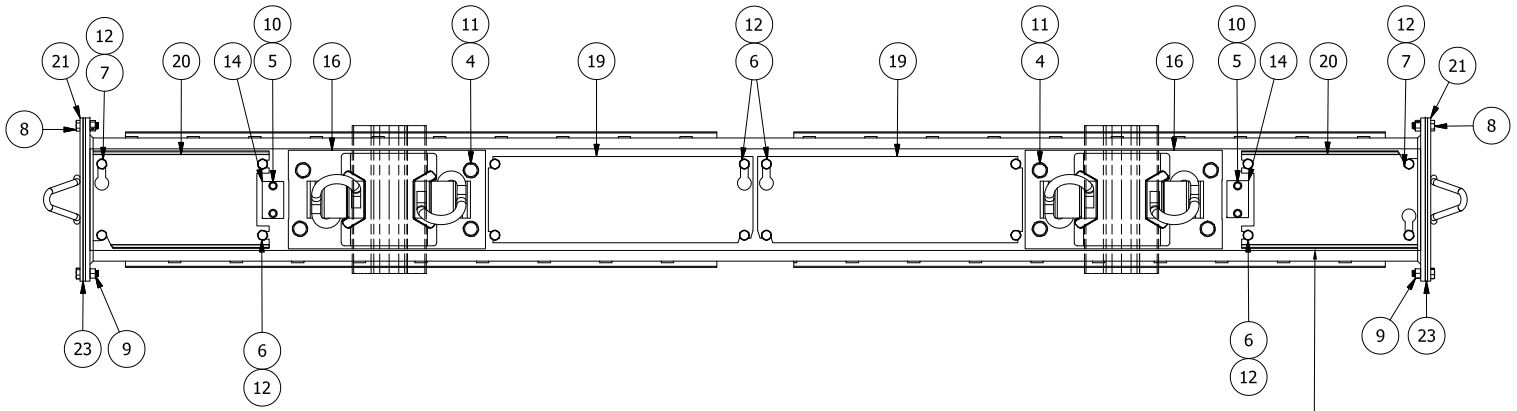
PARTS LIST					
ITEM	PART NUMBER	REV	QTY	UOM	DESCRIPTION
1	12425	-	1080	IN	TAPE ROLL 2 INCH WIDE HEAVY
2	14150	-	1	EA	BAG, BURLAP 10" X 14" 10OZ
3	14151	-	1	EA	WIRE BURLAP BAG CLOSING TIES 6"
4	28121	-	8	EA	BOLT, 3/4-10 X 1-1/2 HEX SS
5	2831851114	-	4	EA	BOLT, 3/8-16 X 1 HEX HEAD, SS
6	2831951121	-	12	EA	BOLT, 1/2-13 X 1.25 HEX SS
7	2831951123	-	4	EA	BOLT, 1/2-13 X 1.75 HEX SS
8	2831951124	-	12	EA	BOLT, 1/2-13 X 1-1/2 HEX HEAD
9	2832-9901	-	12	EA	NUT, 1/2-13 CENTERLOCK GRADE 5 ZINC
10	2833-8210	-	4	EA	WASHER, 3/8 SPLIT LOCK
11	2833-9009	-	8	EA	WASHER, 3/4 SPLIT LOCK
12	2833-9020	-	16	EA	WASHER, M12 SPLIT-LOCK
13	60169	-	2	EA	TY-RAP, 0.30 X 8

PARTS LIST					
ITEM	PART NUMBER	REV	QTY	UOM	DESCRIPTION
14	927237	A	2	EA	COVER PLATE, TEMP SENSOR
15	927248	A	4	EA	RAIL CLIP, TIE DUCT
16	927355	B	2	EA	TIE PLATE 136# E-CLIP-PAD TYPE
17	927366	A	4	EA	E-CLIP INSULATOR
18	927367	B	2	EA	PAD FOR E-CLIP RUBBER 136# TIE
19	927602	A	2	EA	COVER, POINT/TRACK NOZZLE
20	927603	A	2	EA	COVER, OUTSIDE TRACK NOZZLE
21	952572A	A	2	EA	COVER PLATE WITH LIFTING LUG 6-HOLE PATTERN
22	952573B	B	1	EA	ASSY, TIE DUCT QUICK CHANGE, 6-HOLE FLANGE
23	952574A	A	2	EA	GASKET, TIE DUCT 6-HOLE PATTERN
24	R8039-0904D	D	2	EA	CAUTION LABEL, TIE DUCT 136#
25	R8039-0914D	D	1	EA	TAG, ACCESS PARTS FOR TIE DUCT136#

REVISION HISTORY				
REV	ECO #	DESCRIPTION	DATE	BY
A	17-0017	NEW PART	1/22/2018	JT

NOTE: PLACE THE FOLLOWING PARTS INTO BURLAP BAG, SEAL AND LABEL.

Qty	Description	P/N
4	Rail Clip (BUNDLED)	927248
2	Pad for E-clip #136 tie	927367
4	E-clip insulator	927366



UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS ANGULAR
.X ± .035" ±1°
.XX ± .010" FRACTIONS
.XXX ±.005" ± 1/32"
DO NOT SCALE DRAWING

DRAWN: TBERTOLDI

DATE: 1/24/2019

MAT'L: N/A

BEND ALLOWANCE: N/A

RAILWAY EQUIPMENT CO.
MINNEAPOLIS, MINNESOTA (763) 972-2200

TITLE:
TIE DUCT, 136# QUICK CHANGE,
6-HOLE FLANGE

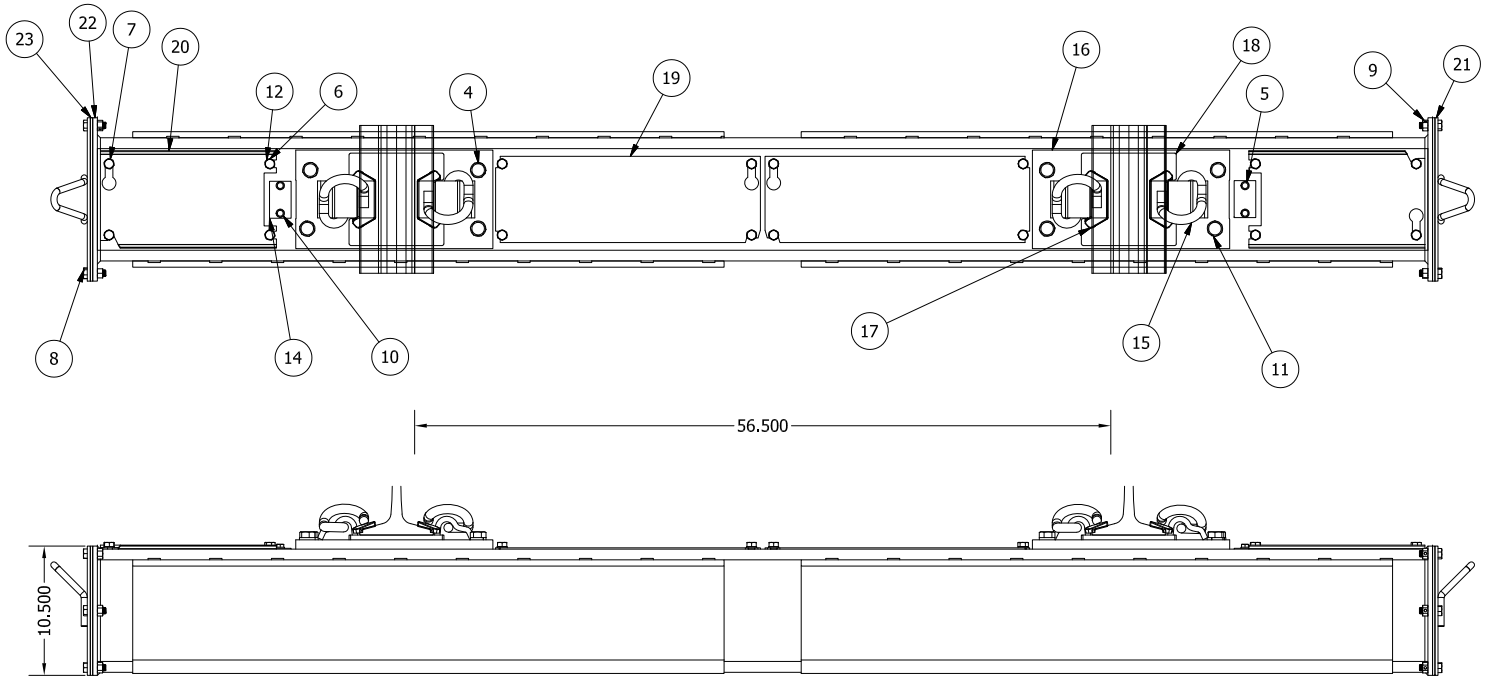
DWG NO: 9528-4815A REV: A

SCALE: 1 / 10 DWG SIZE: B SHEET 1 OF 1

PARTS LIST					
ITEM	PART NUMBER	REV	QTY	UOM	DESCRIPTION
1	12425	-	1080	IN	TAPE ROLL 2 INCH WIDE HEAVY
2	14150	-	1	EA	BAG, BURLAP 10" X 14" 10OZ
3	14151	-	1	EA	WIRE BURLAP BAG CLOSING TIES 6"
4	28121	-	8	EA	BOLT, 3/4-10 X 1-1/2 HEX SS
5	2831851114	-	4	EA	BOLT, 3/8-16 X 1 HEX HEAD, SS
6	2831951121	-	12	EA	BOLT, 1/2-13 X 1.25 HEX SS
7	2831951123	-	4	EA	BOLT, 1/2-13 X 1.75 HEX SS
8	2831951124	-	12	EA	BOLT, 1/2-13 X 1-1/2 HEX HEAD
9	2832-9901	-	12	EA	NUT, 1/2-13 CENTERLOCK GRADE 5 ZINC
10	2833-8210	-	4	EA	WASHER, 3/8 SPLIT LOCK
11	2833-9009	-	8	EA	WASHER, 3/4 SPLIT LOCK
12	2833-9020	-	16	EA	WASHER, M12 SPLIT-LOCK
13	60169	-	2	EA	TY-RAP, 0.30 X 8

PARTS LIST					
ITEM	PART NUMBER	REV	QTY	UOM	DESCRIPTION
14	927237	A	2	EA	COVER PLATE, TEMP SENSOR
15	927248	A	4	EA	RAIL CLIP, TIE DUCT
16	927356	B	2	EA	TIE PLATE 115# E-CLIP PAD TYPE
17	927366	A	4	EA	E-CLIP INSULATOR
18	927368B	B	2	EA	PAD FOR E-CLIP RUBBER 115# TIE
19	927602	A	2	EA	COVER, POINT/TRACK NOZZLE
20	927603	A	2	EA	COVER, OUTSIDE TRACK NOZZLE
21	952572A	A	2	EA	COVER PLATE WITH LIFTING LUG 6-HOLE PATTERN
22	952573B	B	1	EA	ASSY, TIE DUCT QUICK CHANGE, 6-HOLE FLANGE
23	952574A	A	2	EA	GASKET, TIE DUCT 6-HOLE PATTERN
24	R8039-0905D	D	2	EA	CAUTION LABEL, TIE DUCT 115#
25	R8039-0915D	D	1	EA	TAG, ACCESS PARTS FOR TIE DUCT 115#

REVISION HISTORY				
REV	ECO #	DESCRIPTION	DATE	BY
A	17-0017	NEW PART	9/13/2018	TB



UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS ANGULAR
.X ± .035" ±1°
.XX ± .010" FRACTIONS
.XXX ±.005" ± 1/32"
DO NOT SCALE DRAWING

DRAWN: TBERTOLDI

DATE: 1/24/2019

MAT'L: N/A

BEND ALLOWANCE: N/A

RAILWAY EQUIPMENT CO.
MINNEAPOLIS, MINNESOTA (763) 972-2200

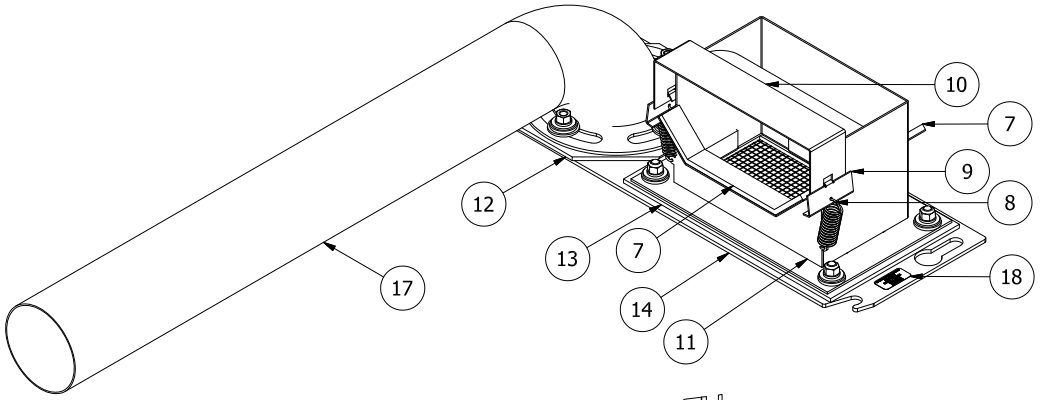
TITLE:
TIE DUCT, 115# QUICK CHANGE,
6-HOLE FLANGE

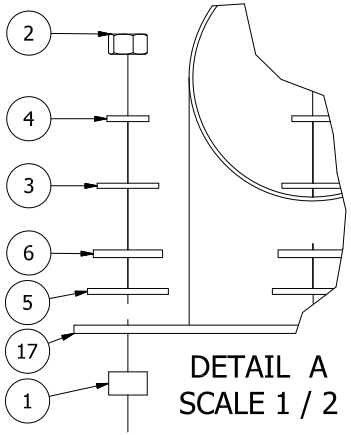
DWG NO: 9528-4615A REV: A

SCALE: 1 / 10 DWG SIZE: B SHEET 1 OF 1

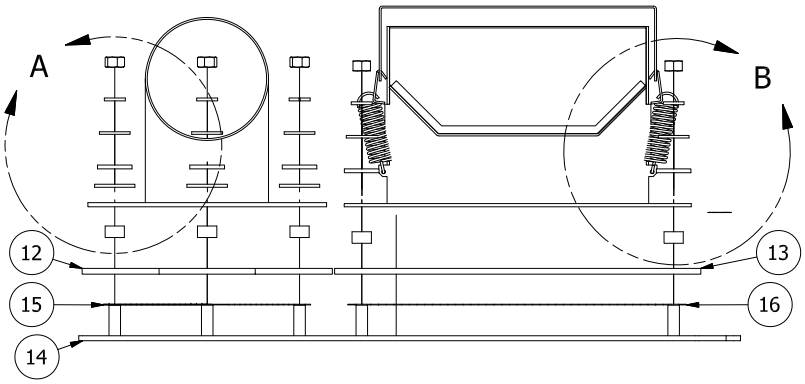
PARTS LIST					
ITEM	PART NUMBER	REV	QTY	UOM	DESCRIPTION
1	28106	-	8	EA	SPACER, .38X.625X.375 ROUND
2	2832-8101	-	8	EA	NUT, 3/8-16 HEX
3	2833-8110	-	8	EA	WASHER, 3/8 FLAT
4	2833-8210	-	8	EA	WASHER, 3/8 SPLIT LOCK
5	2833-9014	-	4	EA	WASHER, 5/8 FLAT SAE
6	2833-9015	B	8	EA	WASHER, ISOLATING NOZZLE
7	60195	-	2	FT	GASKET, .25 X 1.0 ADHESIVE BK
8	92742	-	2	EA	SPRING, TRACK DUCT SUPPORT
9	92743	B	2	EA	CLIP, HOLDDOWN SPRING
10	92745	A	1	EA	HOLDDOWN STRAP, T. DUCT
11	927488	A	1	EA	NOZZLE, TRACK DUCT, NO DAMPER
12	92757	D	1	EA	GASKET, ISO, PT NOZZLE RED
13	92759	B	1	EA	GASKET, ISO, TR NOZZLE RED
14	927600C	C	1	EA	POINT/TD NOZZLE MOUNT PLATE RH
15	927701	A	1	EA	SCREEN, POINT NOZZLE
16	927702	A	1	EA	SCREEN TRACK DUCT NOZZLE LARGE
17	9361-0071A	A	1	EA	POINT NOZZLE, ROUND, 4", GALV
18	R9508-4000C	C	1	EA	LABEL, QUICK NOZZLE ASSY RH

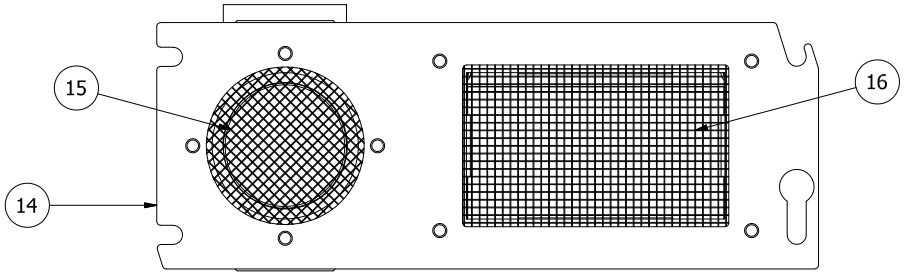
REVISION HISTORY				
REV	ECO #	DESCRIPTION	DATE	BY
B	18-0011	ROUND POINT NOZZLE	10/23/2018	TB
C	-	4" ROUND POINT NOZZLE	8/13/2020	AK
-	-	UPDATES PER REVIEW PROCESS	10/05/2020	AK

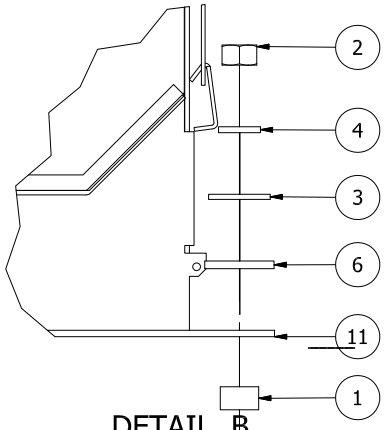




DETAIL A
SCALE 1 / 2







DETAIL B
SCALE 1 / 2

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS ANGULAR
.X ± .035" ±1°
.XX ± .010" FRACTIONS
.XXX ±.005" ±1/32"
DO NOT SCALE DRAWING

LAST UPDATED: 10/5/2020
BY: akollman
MATL: N/A
BEND ALLOWANCE: N/A

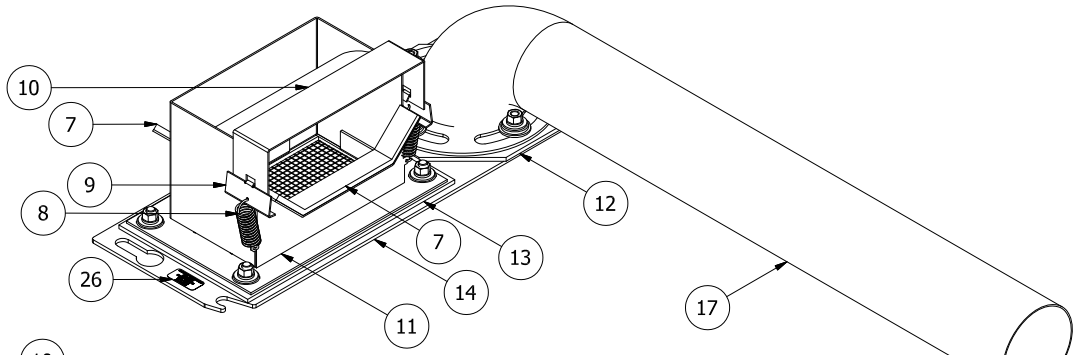
RAILWAY EQUIPMENT CO.
MINNEAPOLIS, MINNESOTA (763) 972-2200

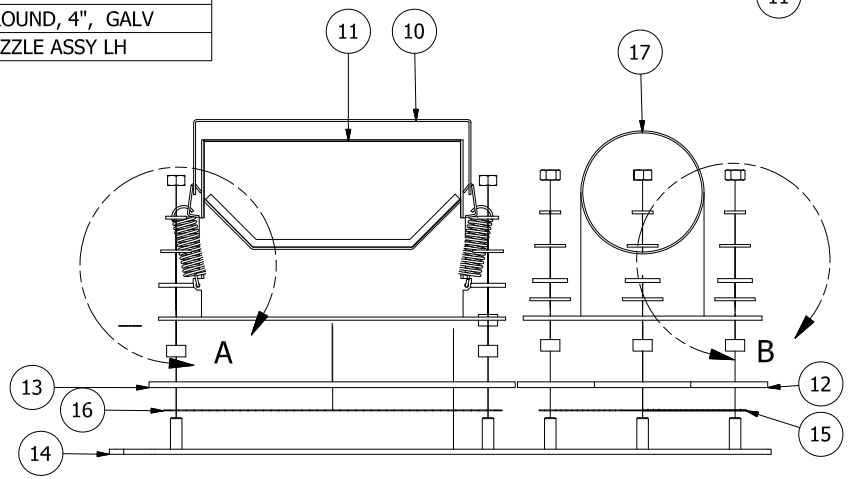
TITLE: POINT/TRACK NOZZLE ASSY RH

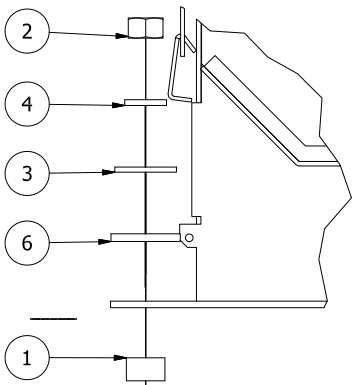
DWG NO: 9508-4000C
REV: C
SCALE: 1/5
DWG SIZE: B
SHEET 1 OF 1

PARTS LIST					
ITEM	PART NUMBER	REV	QTY	UOM	DESCRIPTION
1	28106	-	8	EA	SPACER, .38X.625X.375 ROUND
2	2832-8101	-	8	EA	NUT, 3/8-16 HEX
3	2833-8110	-	8	EA	WASHER, 3/8 FLAT
4	2833-8210	-	8	EA	WASHER, 3/8 SPLIT LOCK
5	2833-9014	-	4	EA	WASHER, 5/8 FLAT SAE
6	2833-9015	B	8	EA	WASHER, ISOLATING NOZZLE
7	60195	-	2	FT	GASKET, .25 X 1.0 ADHESIVE BK
8	92742	-	2	EA	SPRING, TRACK DUCT SUPPORT
9	92743	B	2	EA	CLIP, HOLDDOWN SPRING
10	92745	A	1	EA	HOLDDOWN STRAP, T. DUCT
11	927488	A	1	EA	NOZZLE, TRACK DUCT, NO DAMPER
12	92757	D	1	EA	GASKET, ISO, PT NOZZLE RED
13	92759	B	1	EA	GASKET, ISO, TR NOZZLE RED
14	927606C	C	1	EA	POINT/TD NOZZLE MOUNT PLATE LH
15	927701	A	1	EA	SCREEN, POINT NOZZLE
16	927702	A	1	EA	SCREEN TRACK DUCT NOZZLE LARGE
17	9361-0071A	A	1	EA	POINT NOZZLE, ROUND, 4", GALV
26	R9508-4001C	C	1	EA	LABEL, QUICK NOZZLE ASSY LH

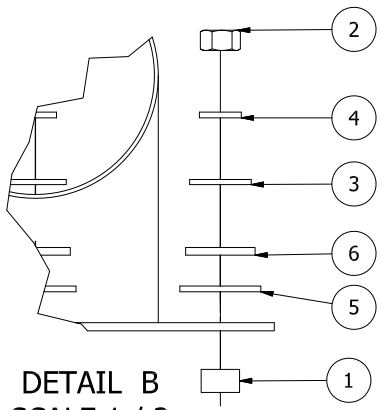
REVISION HISTORY				
REV	ECO #	DESCRIPTION	DATE	BY
B	18-0011	ROUND POINT NOZZLE	10/23/2018	TB
C	-	4" ROUND POINT NOZZLE	8/13/2020	AK
-	-	UPDATES PER REVIEW	10/05/2020	AK



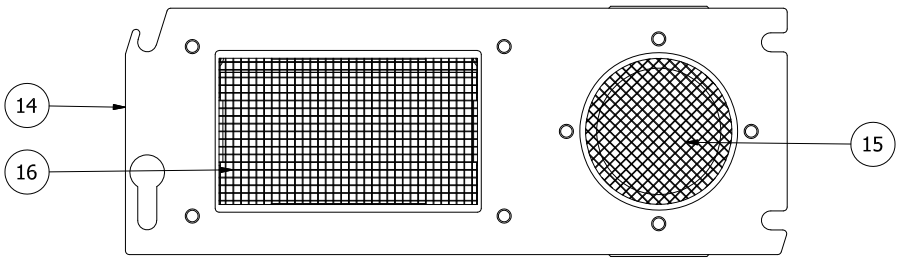




DETAIL A
SCALE 1 / 2



DETAIL B
SCALE 1 / 2



UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS ANGULAR
.X ±.035" ±1°
.XX ±.010" FRACTIONS ±1/32"
.XXX ±.005"
DO NOT SCALE DRAWING

LAST UPDATED: 10/5/2020
BY: akollman
MATL: N/A
BEND ALLOWANCE: N/A

RAILWAY EQUIPMENT CO.
MINNEAPOLIS, MINNESOTA (763) 972-2200

TITLE: POINT/TRACK NOZZLE ASSY LH

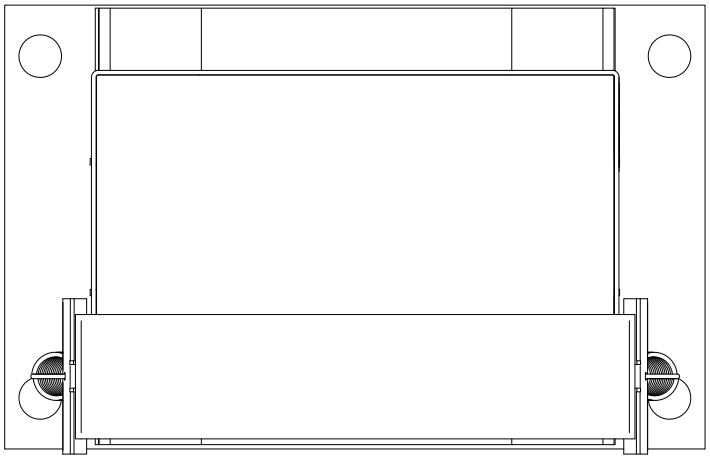
DWG NO: 9508-4001C REV: C

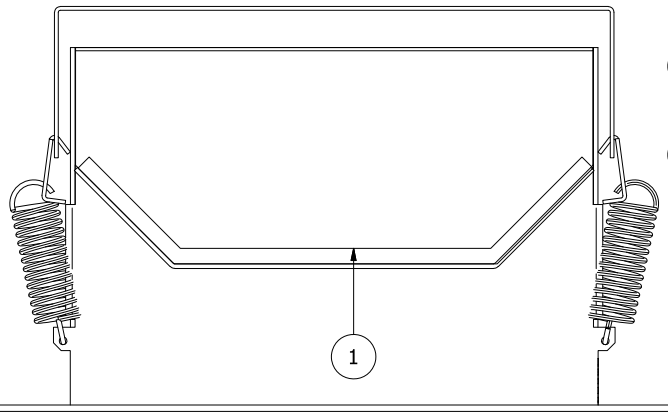
SCALE: 1/5 DWG SIZE: B SHEET 1 OF 1

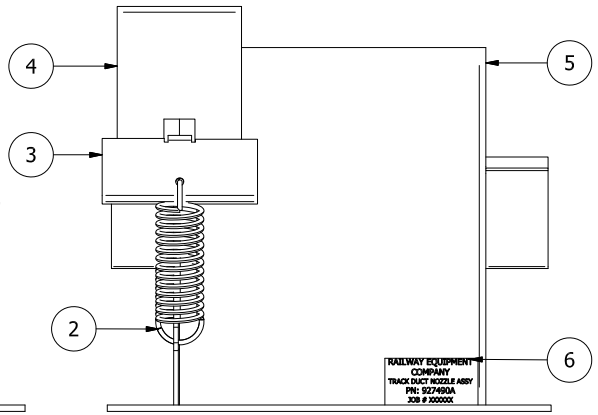
PARTS LIST					
ITEM	PART NUMBER	REV	QTY	UOM	DESCRIPTION
1	60195	-	1.67	FT	GASKET, .25 X 1.0 ADHESIVE BK
2	92742	-	2	EA	SPRING, TRACK DUCT SUPPORT
3	92743	B	2	EA	CLIP, HOLDDOWN SPRING
4	92745	A	1	EA	HOLDDOWN STRAP, T. DUCT
5	927488	A	1	EA	NOZZLE, TRACK DUCT, NO DAMPER
6	R927490A		1	EA	LABEL, ID, TRACK DUCT NOZZLE, ASSEMBLY

REVISION HISTORY				
REV	ECO #	DESCRIPTION	DATE	BY
A	06-0028	NEW PART	11/30/2006	RMJ
-	-	NEW DRAWING WITH REV LETTER	8/25/2020	AK

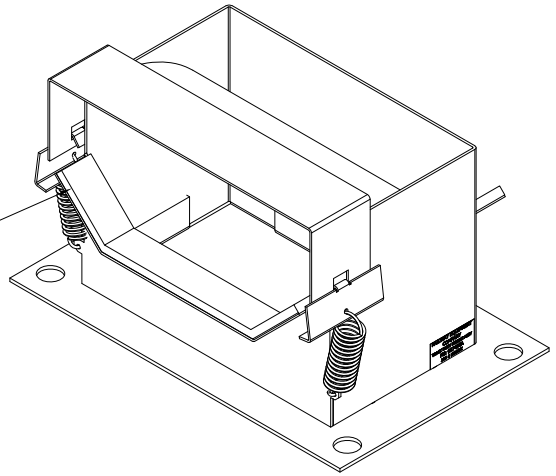
3D VIEW



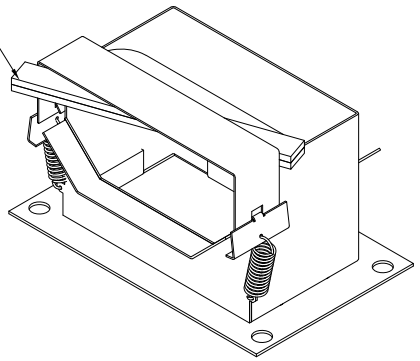




PLACE P/N:60195 ON LEDGE (FRONT & BACK) BEFORE INSTALLING DUCT



PLACE P/N:60195 UNDER STRAP FOR TRANSPORTATION.



UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS ANGULAR
.X ± 0.005 ±1
.XX ± 0.010 FRACTIONS
.XXX ±0.005 ±1/32
DO NOT SCALE DRAWING

LAST UPDATED: 8/25/2020

BY: akollman

MATL: NA

BEND ALLOWANCE: NA

RAILWAY EQUIPMENT CO.
MINNEAPOLIS, MINNESOTA (763) 972-2200

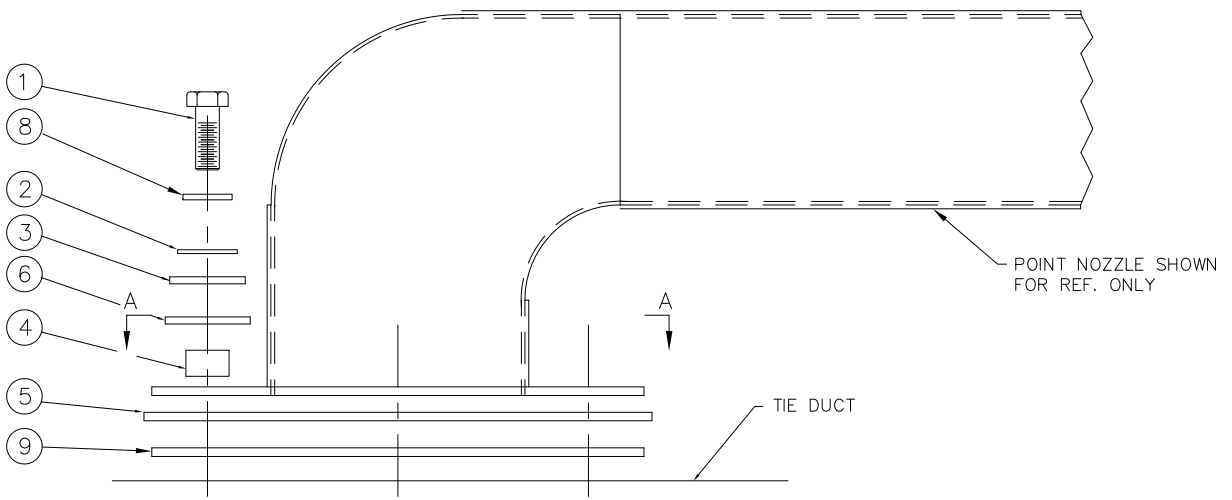
TITLE: NOZZLE, TRACK DUCT ASSY

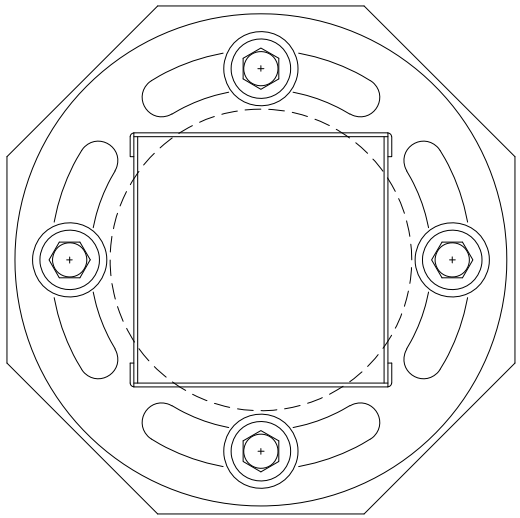
DWG NO: 927490A REV: A

SCALE: 1 / 2 DWG SIZE: B SHEET 1 OF 1

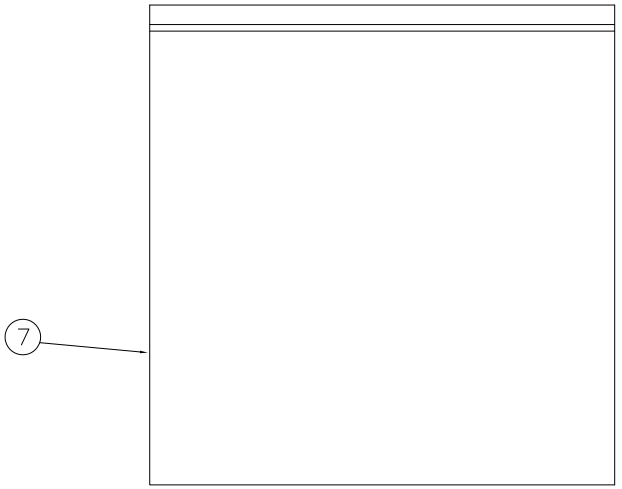
ITEM NO.	PART NO.	UOM	QTY	DESCRIPTION
1	2831851114	EA	4	BOLT, HEX HD 3/8–16 x 1" SS
2	2833–8110	EA	4	WASHER, PLAIN 3/8"
3	2833–9015B	EA	4	WASHER, INSULATOR
4	28106	EA	4	SPACER, ROUND, .38 X .625 X .375
5	92757D	EA	1	GASKET, POINT NOZZLE
6	2833–9014	EA	4	WASHER, 5/8 FLAT PLATED
7	14046	EA	1	BAG, ZIPTOP 9x12 4ml
8	2833–8210	EA	4	WASHER, SPLIT LOCK 3/8"
9	927701A	EA	1	SCREEN, POINT NOZZLE

SYM.	E.C.O.	BY	REVISION DESCRIPTION	DATE	APPROVED
B	___	TB	ADD 927701	10/19/00	---
C	06–0028	RJ	CORNERS CUT OFF ON DUCT	11/29/06	---





SECTION A–A



UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS ANGULAR
.X ± .035 ± 0.5°
.XX ± .010 FRACTIONS
.XXX ± .005 ± 1/32
DO NOT SCALE DRAWING

DRAWN EFK

DATE 04/11/97

MATERIAL N/A

DIE & BEND ALLOWANCE N/A

RAILWAY EQUIPMENT CO.
DELANO, MINNESOTA *(763) 972–2200*

TITLE
ISOLATION KIT ASSEMBLY
POINT NOZZLE
TIE DUCT

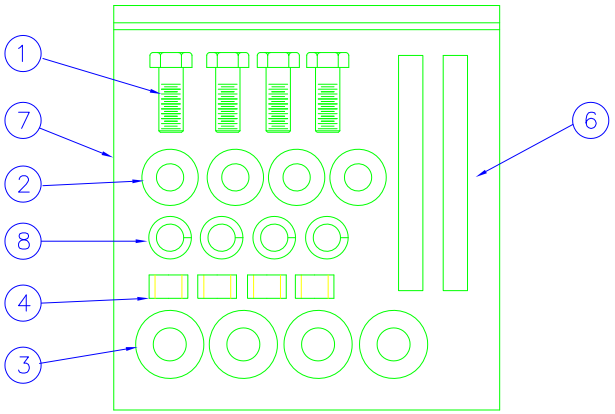
DWG NO. 9278–0021

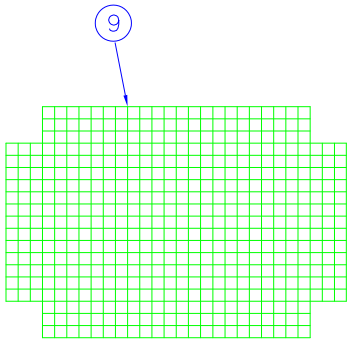
REV C

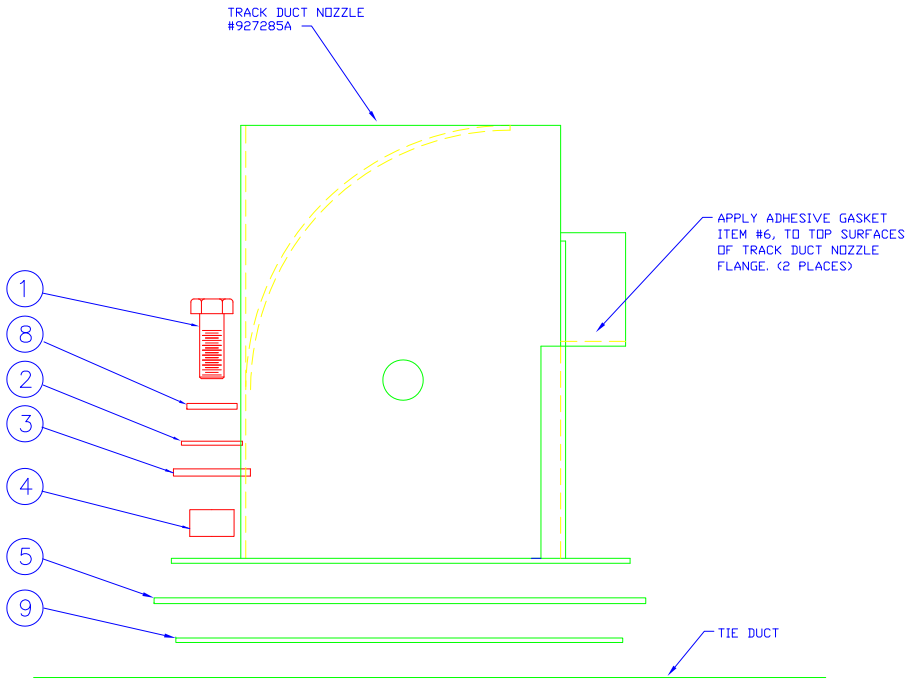
SCALE 1/4 | DRAWING SIZE B | SHEET 1 OF 1

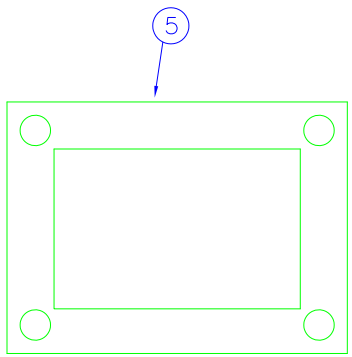
ITEM NO.	PART NO.	UOM	QTY	DESCRIPTION
1	2831851114	EA	4	BOLT, HEX 3/8–16 x 1" SS
2	2833–8110	EA	4	WASHER, PLAIN 3/8"
3	2833–9015	EA	4	WASHER, INSULATOR
4	28106	EA	4	SPACER, ROUND, .38 X .625 X .375
5	92759	EA	1	GASKET, TRACK DUCT NOZZLE
6	60195	FT	1.67	GASKET, ADHESIVE .25 x 1"
7	14045	EA	1	BAG, ZIPTOP 12 x 15 4mil
8	2833–8210	EA	4	WASHER, SPLIT LOCK 3/8"
9	927702	EA	1	SCREEN, TRACK DUCT NOZZLE
10	R9278–0027A	EA	1	DRAWING, ISO KIT, TRACK NOZZLE
11	R92780027A	EA	1	LABEL, BAG LABEL ISO KIT TRACK

SYM.	E.C.O.	BY	REVISION DESCRIPTION	DATE	APPROVED
A	00-0005	TB	NEW PART	12.29.00	









FORMED HOLES
"O" INDICATES FORMED INTO DRAWING
"U" INDICATES FORMED UP FROM DRAWING
REF.SCHEMATIC NO.
REF.CONNECTION DIA.
CAD NO.
MADE FROM

UNLESS OTHERWISE SPECIFIED
ALL BENDS ARE 90°
ALL BENDS HAVE MIN. RADIUS
DIMENSIONS ARE IN INCHES
TOLERANCE ON
FRACTIONS ± 1/32
DECIMALS .xx±.030 .xxx±.010 .xxxx±.005
ANGLES ±1.00°
MATERIAL
FINISH

DRAWN BY T. BUHL
DATE 12.19.00
CHECKED BY
DATE
APPROVED BY
DATE
SHEET 1 OF 1

RAILWAY EQUIPMENT CO.
DELANO, MINNESOTA (763) 972-2200

TITLE
ASS'Y, ISO KIT
TRACK NOZZLE
TIE DUCT

DWG NO. 9278–0027
REV. A

PARTS LIST					
ITEM	PART NUMBER	REV	UOM	QTY	DESCRIPTION
1	12425	-	IN	324	TAPE ROLL 2 INCH WIDE HEAVY
2	14046	-	EA	1	BAG, 9 X 12 4MIL ZIPTOP
3	14150	-	EA	1	BAG, BURLAP 10" X 14" 10OZ
4	14151	-	EA	1	WIRE BURLAPBAG CLOSING TIES 6"
5	14153	-	EA	1	BAG, WOVEN YELLOW 23.5 X 48
6	2831-9511	-	EA	4	BOLT, 3/4-10 X 8 HEX TAP
7	2831951120	-	EA	24	BOLT, 1/2-13 X 1-1/4 HEX HEAD
8	2832-9002	-	EA	24	NUT, 1/2-13 HEX
9	2832-9102	-	EA	12	NUT, 3/4-10 HEX
10	2833-9002	-	EA	24	WASHER, 1/2 SPLIT LOCK
11	2833-9009	-	EA	12	WASHER, 3/4 SPLIT LOCK
12	2833-9010	-	EA	12	WASHER, 3/4 FLAT
13	92852B	B	EA	4	UPRIGHT LEG SHORT FOUNDATION
14	92855B	B	EA	2	BASE FOUNDATION
15	92857C	C	EA	2	TOP 2HP FOUNDATION
16	92860B	B	EA	2	FOUNDATION SUPORT BRACE SMALL
17	R9288-0200A	A	EA	1	INSTRUCT SHEET 2 HP FOUNDATION
18	R9288-0202A	A	EA	1	LABEL, FOUNDATION ASSY 2 HP TAG LABEL

Place the following items into a 10"x14" BURLAP BAG (**P/N 14150**).

(4) 3/4-10x8 BOLT (**P/N 2831-9511**)
(12) 3/4-10 HEX NUT (**P/N 2832-9102**)
(12) 3/4 PLATED FLAT WASHER (**P/N 2833-9010**)
(24) 1/2-13x1.25 BOLT (**P/N 2831951120**)
(24) 1/2-13 HEX NUT (**P/N 2832-9002**)
(24) 1/2 SPLIT LOCK WASHER (**P/N 2833-9002**)
(12) 3/4 SPLIT LOCK WASHER (**P/N 2833-9009**)

Place INSTRUCTION SHEET (**R9288-0200**) in a 9"X12" ZIPLOCK BAG

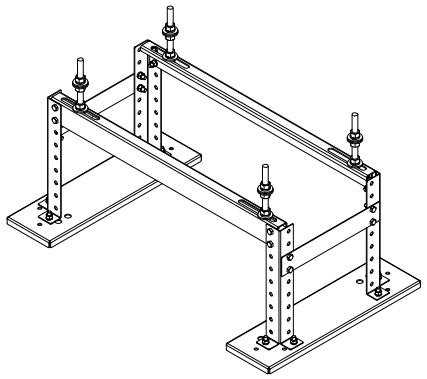
Place the following items in a 23.5"x48" WOVEN YELLOW BAG (**P/N 14153**) and seal both ends with TAPE (**P/N 12425**).

(2) BASE FOUNDATION (**P/N 92855**)
(2) 2HP FOUNDATION TOP (**P/N 92857**)
(2) SMALL FOUNDATION SUPPORT BRACE (**P/N 92860**)
(4) SHORT FOUNDATION UPRIGHT LEG (**P/N 92852**)
(1) BAGGED INSTRUCTION SHEET (**P/N R9288-0200**)
(1) SEALED BURLAP BAG.

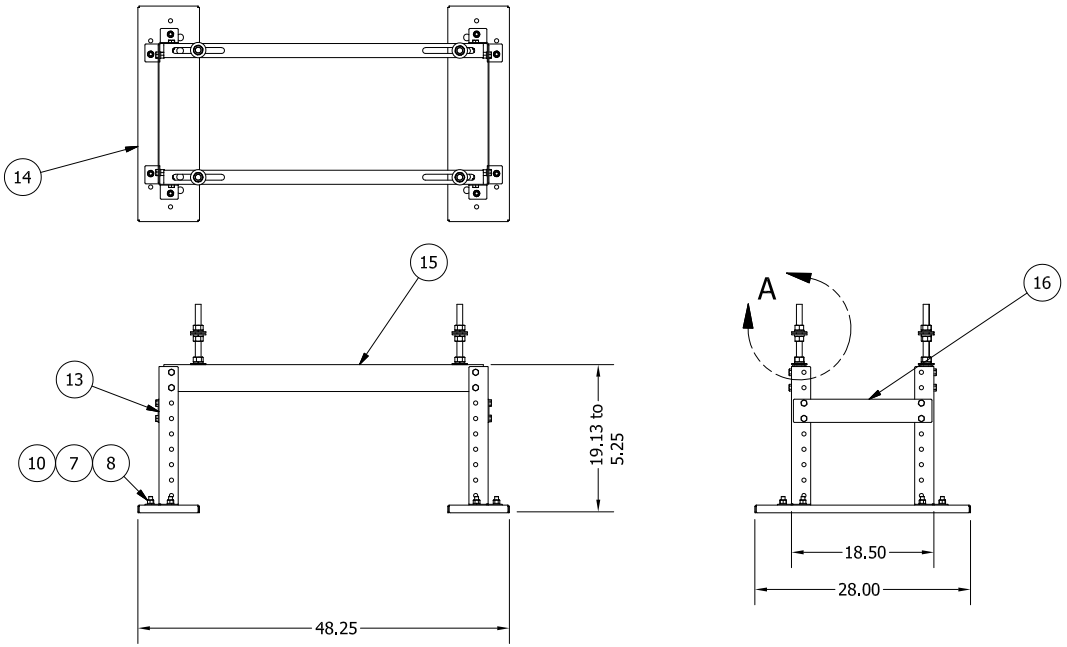
Tag assemblies with Part Number and PWO Number and place the finished assembly in the proper location

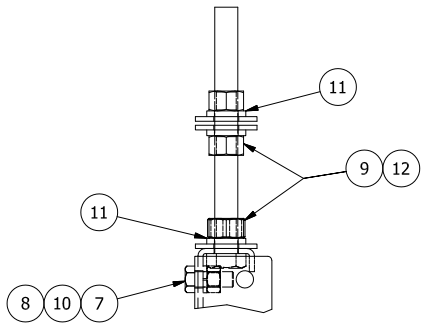
REVISION HISTORY				
REV	ECO	DESCRIPTION	DATE	BY
A	06-0028	NEW PART	10/9/2006	WS
-	-	ADDED INSTRUCTIONS	10/05/2020	AK

3D VIEW



ASSEMBLED VIEW





DETAIL A
SCALE 1/4

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS ANGULAR
.X ± .1 ±1°
.XX ± .06 FRACTIONS
.XXX ±.030 ± 1/32"
DO NOT SCALE DRAWING

DRAWN: JT
DATE: 2/17/2020
MAT'L: SEE B.O.M.
BEND ALLOWANCE: N/A

RAILWAY EQUIPMENT CO.
DELANO, MINNESOTA (763) 972-2200

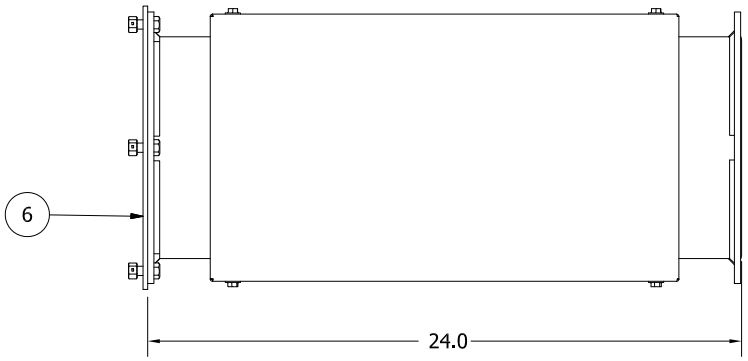
TITLE: FOUNDATION ASSY 2HP HAB BOLTED (ASSEMBLY)

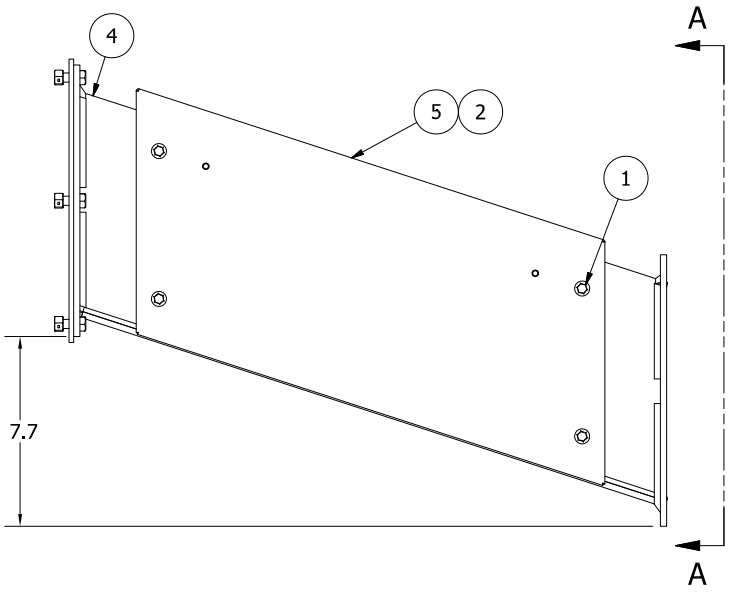
DWG NO: 9288-0202A REV: A

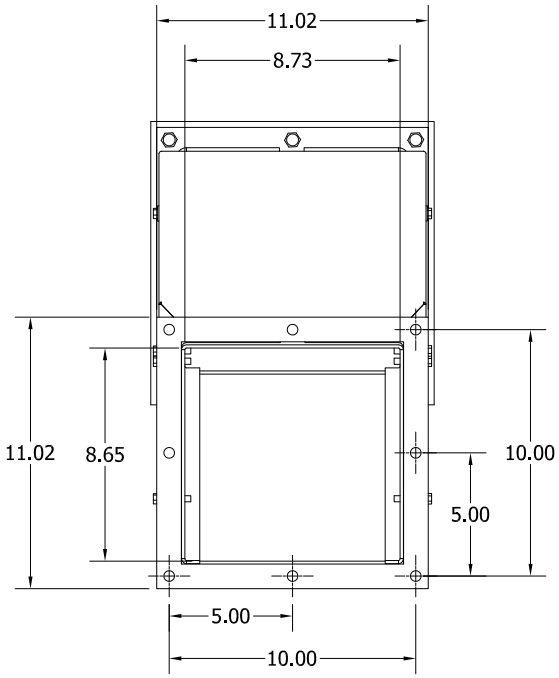
SCALE: 1/16 DWG SIZE: B SHEET 1 OF 1

PARTS LIST					
ITEM	PART NUMBER	REV	QTY	UOM	DESCRIPTION
1	29019	-	8	EA	BOLT, 1/4-20 X 1.3 SHOULDER THREAD ROLLING
2	32002	A	6	SQFT	INSULATION, FIBERGLASS
3	6093-0102	-	1	EA	TY-RAP
4	952224C	C	1	EA	DUCT, OFFSET, WITH HEAVY BASE
5	952226C	C	1	EA	INSUL COVER, OFFSET DUCT
6	9528-0074D	D	1	EA	GASKET KIT, 9X9 5HP FLEX

REVISION HISTORY				
REV	ECO #	DESCRIPTION	DATE	BY
A	05-0008	NEW PART	09/07/05	RF
B	16-0015	DUCT TOP CHANGE	10/10/2016	JT
C	16-0015	SHORTENED WRAP, 1/4" BASE	11/22/2016	BJM
		ADDED DIMENSIONS		







VIEW A-A
SCALE 1 / 5

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES DECIMALS .X ± .035 .XX ± .010 .XXX ±.005 ANGULAR ±1 FRACTIONS ± 1/32 DO NOT SCALE DRAWING

DRAWN: JT

DATE: 10/10/2016

MAT'L:

BEND ALLOWANCE:

RAILWAY EQUIPMENT CO.
MINNEAPOLIS, MINNESOTA (763) 972-2200

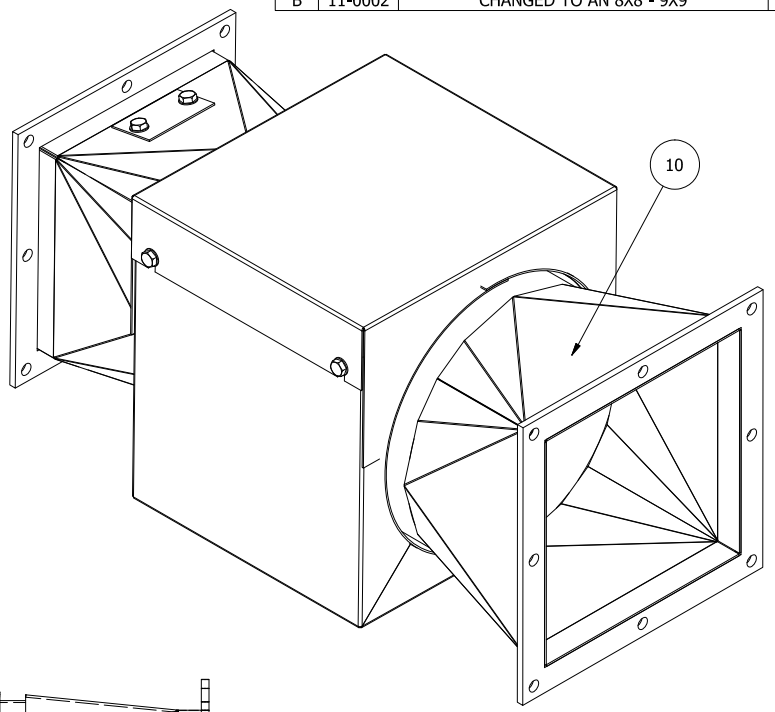
TITLE: DUCT, OFFSET, 2' HD NO MIXER

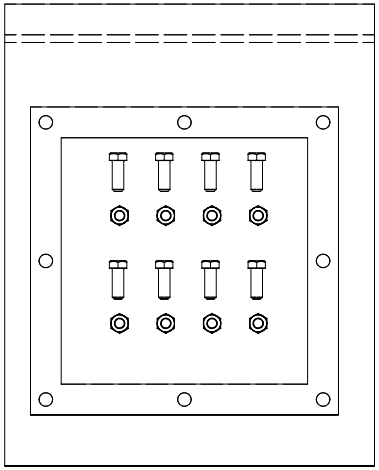
DWG NO: 9528-3404C REV: B

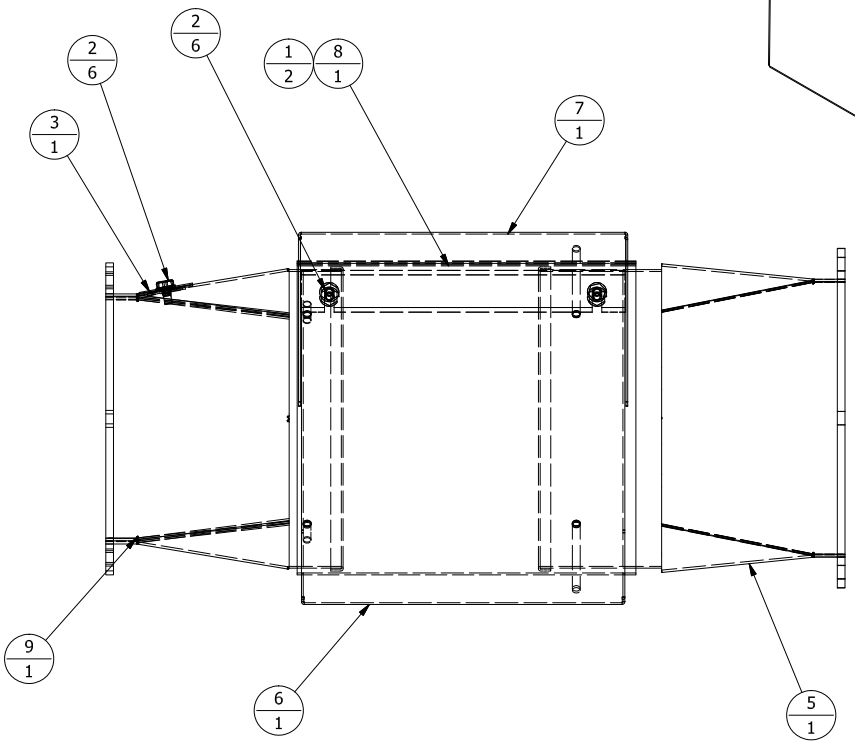
SCALE: DWG SIZE: B SHEET 1 OF 1

PARTS LIST					
ITEM	PART NUMBER	REV	UOM	QTY	DESCRIPTION
1	28105	-	EA	2	CLAMP, HOSE SST 18 INCH
2	29051	-	EA	6	BOLT, 1/4-20 X 1/2 WITH 1/2 HD
3	927237	A	EA	1	COVER PLATE, TEMP SENSOR
4	9278-0026	B	EA	1	ASSY, 8X8 DUCT, BOLT KIT
5	952366	A	EA	1	FLEX DUCT, EHAB TRANSITION WELDMENT WITHOUT MIXER OUTPUT SIDE
6	952388	A	EA	1	FLEX WRAP, BOTTOM 2' 2HP HAB R
7	952389	A	EA	1	FLEX WRAP, TOP 2' 2HP HAB RUBB
8	952394	A	EA	1	RUBBER TUBE 10" ID 11" LONG
9	952400	A	EA	1	FLEX DUCT, 8X8 WELDMENT WITH TEMP SENSOR MOUNT 2HP HAB OR EHAB
10	R9528-4222	A	EA	1	LABEL, FLEX DUCT TO BLOWER

REVISION HISTORY				
REV	ECO #	DESCRIPTION	DATE	BY
A	08-0003	NEW PART	6/23/10	ES
B	11-0002	CHANGED TO AN 8X8 - 9X9	4/7/11	MF







UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS ANGULAR
.X ± 0.035 ±0.5
.XX ± 0.010 FRACTIONS
.XXX ±0.005 ± 1/32
DO NOT SCALE DRAWING

DRAWN: EJS

DATE: 06/22/2010

MAT'L: SEE BOM

BEND ALLOWANCE: N / A

RAILWAY EQUIPMENT CO.
MINNEAPOLIS, MINNESOTA (763) 972-2200

TITLE:
FLEX DUCT 2'ST INS NO MIXER
8 X 8 - 9 X 9
(ASSEMBLY / B. O. M.)

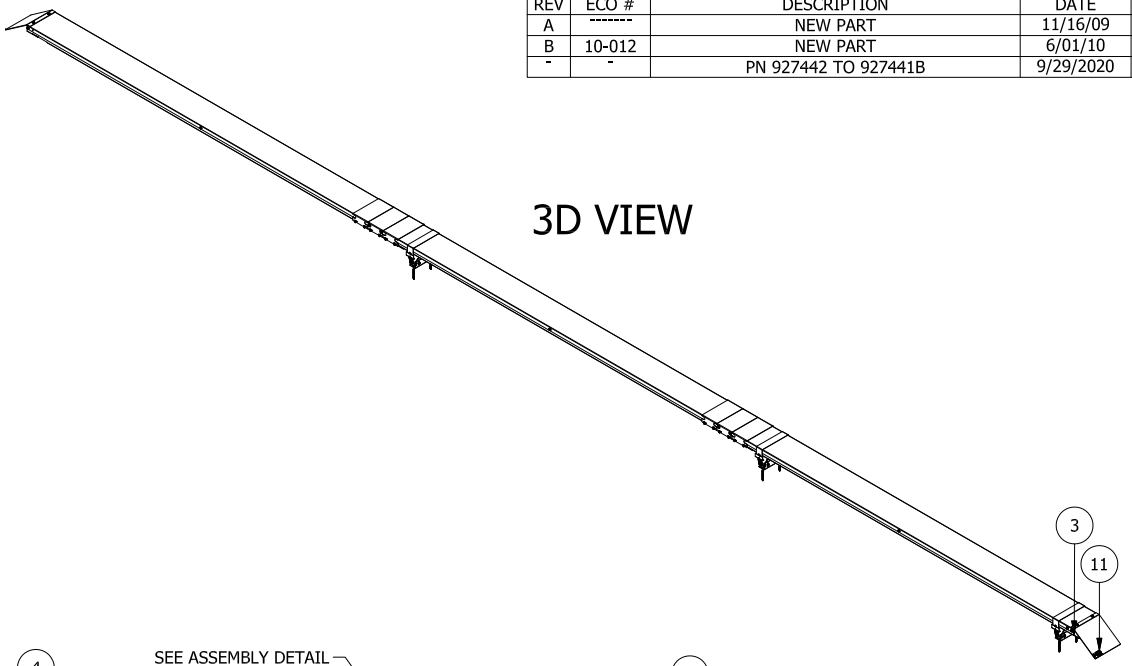
DWG NO: 9528-4223

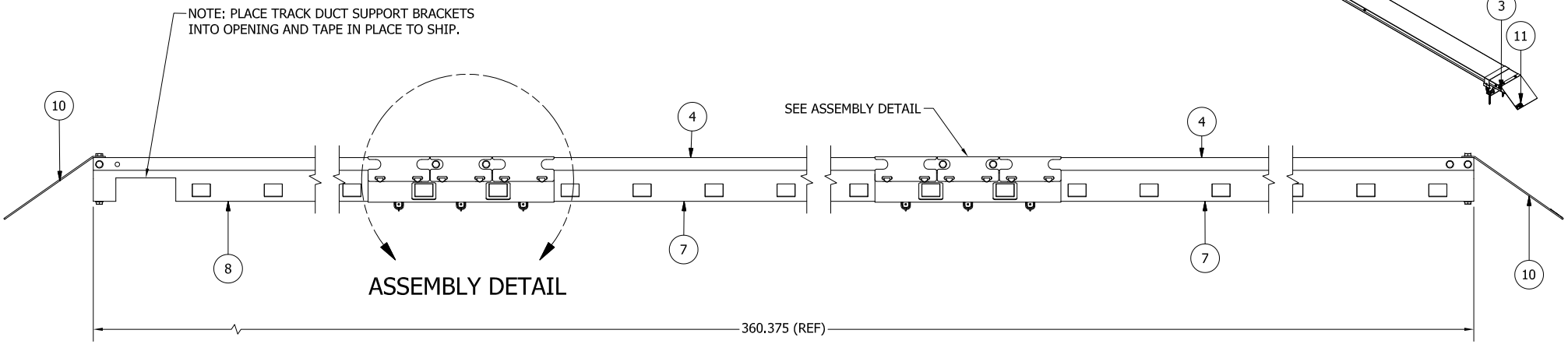
REV: B

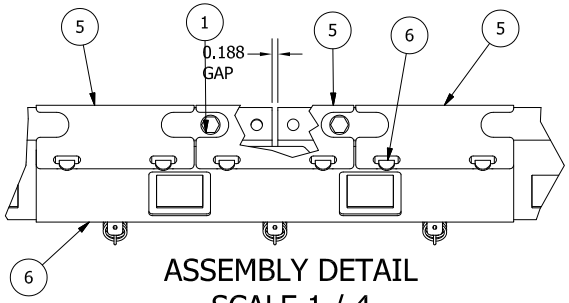
SCALE: 1 : 4 | DWG SIZE: B | SHEET 1 OF 1

PARTS LIST					
ITEM	PART NUMBER	REV	UOM	QTY	DESCRIPTION
1	29051	-	EA	26	BOLT, 1/4-20 X 1/2 WITH 1/2 HD
2	6093-0100	-	EA	3	CABLE TIE, 4IN 0.10 WIDTH
3	92740F	F	EA	2	END PLATE, TRACK DUCT
4	92741E	E	EA	3	TRACK DUCT COVER, 10'
5	927441B	B	EA	6	CENTER COVER, E Z SPLICE
6	927450B	B	EA	2	BASE, E Z SPLICE
7	927538	A	EA	2	TRACK DUCT BASE, 10' NO HOLE
8	927539A	A	EA	1	TRACK DUCT BASE, 10' W/HOLE
9	92774K	K	EA	3	TRACK DUCT SUPPORT BRACKET
10	92785E	E	EA	2	DEFLECTOR, TRACK DUCT SML
11	R9278-0233B	B	EA	1	LABEL, 30' TRACK DUCT

REVISION HISTORY				
REV	ECO #	DESCRIPTION	DATE	BY
A	--------	NEW PART	11/16/09	ES
B	10-012	NEW PART	6/01/10	RH
-	-	PN 927442 TO 927441B	9/29/2020	CA







ASSEMBLY DETAIL
SCALE 1 / 4

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS .X ± 0.035 .XX ± 0.010 .XXX ±0.005
ANGULAR ±0.5
FRACTIONS ± 1/32
DO NOT SCALE DRAWING

DRAWN: EJS

DATE: 11/16/2009

MAT'L: N / A

BEND ALLOWANCE: N / A

RAILWAY EQUIPMENT CO.
DELANO, MINNESOTA (763) 972-2200

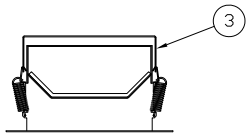
TITLE: TRACK DUCT 30' WIDE TD NOZZLE/10' SECTIONS (ASSEMBLY / B. O. M.)

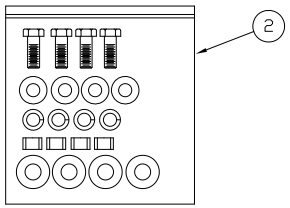
DWG NO: 9278-0233B REV: B

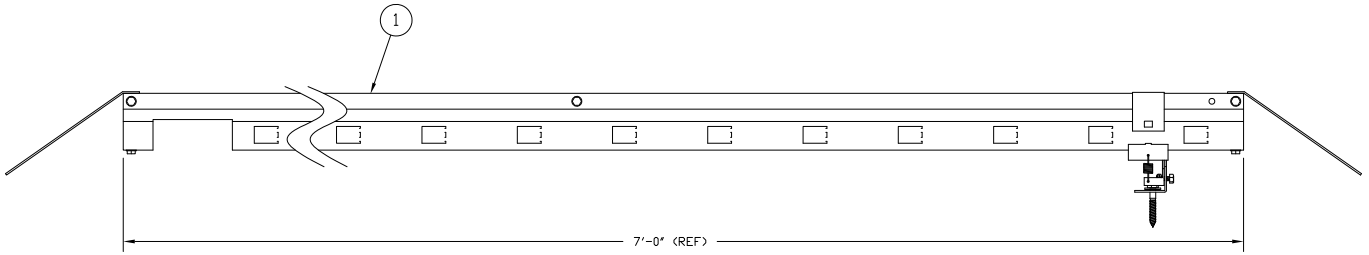
SCALE: 1 : 8 DWG SIZE: B SHEET 1 OF 1

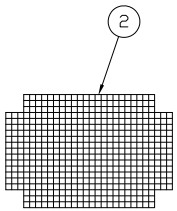
ITEM NO.	PART NO.	UOM	QTY	DESCRIPTION
1	9278-0207	EA	1	TRACK DUCT 7' HEEL
2	9278-0027	EA	1	ISO KIT, TR NOZZLE LARGE
3	927490	EA	1	NOZZLE, TRACK DUCT
4	41023	EA	1	BOX, TRACK DUCT KIT

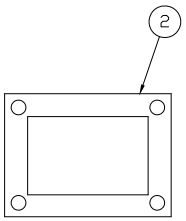
SYM.	E.C.O.	BY	REVISION DESCRIPTION	DATE	APPROVED
A	02-0027	RF	NEW PART	07/03/02	---
B	03-0023	RF	UPDATE NOZZLE	07/29/03	---
C	05-0017	RF	NEW SPLICE DESIGN	05/25/05	---
D	05-0047	RO	NEW TRACK DUCT NOZZLE	11/10/05	---
E	06-0024	RJ	NEW TRACK DUCT NOZZLE	02/02/07	---

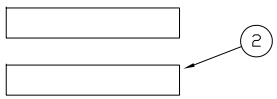












UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS ANGULAR
.X ± .035 ± 0.5°
.XX ± .010 FRACTIONS
.XXX ± .005 ± 1/32
DO NOT SCALE DRAWING

DRAWN: RPF
DATE: 07/03/02
MATERIAL: N/A
DIE & BEND ALLOWANCE: N/A

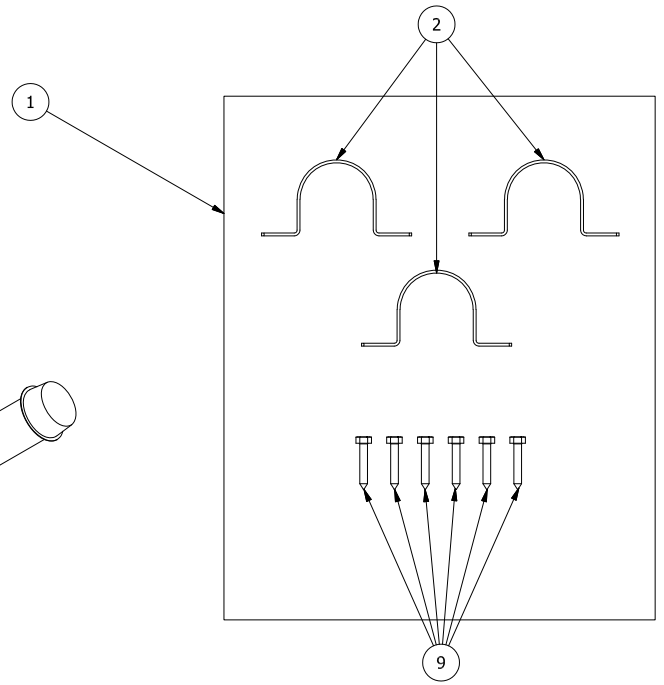
RAILWAY EQUIPMENT CO.
DELANO, MINNESOTA *(763) 972-2200*

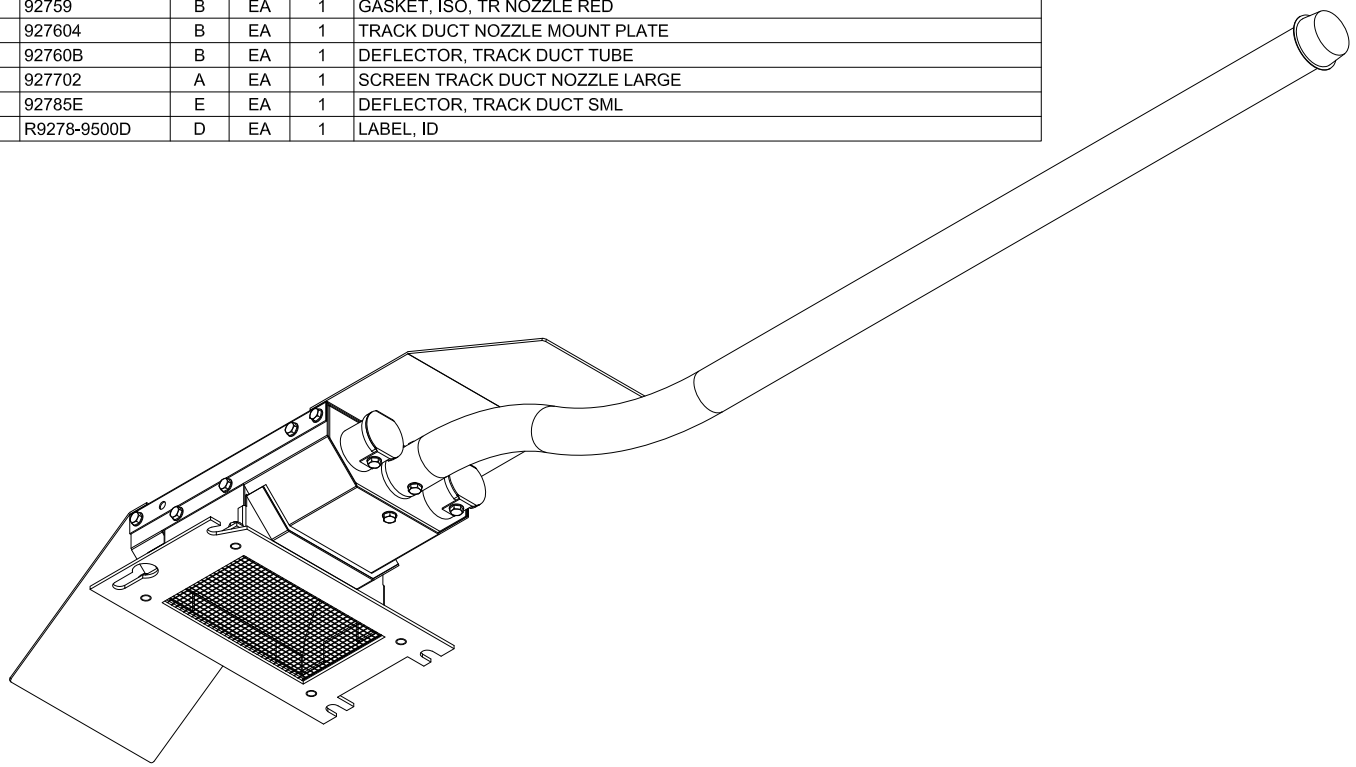
TITLE
TRACK DUCT KIT, 7'
LARGE NOZZLE

DWG NO. 9278-0270
REV E
SCALE N/A | DRAWING SIZE B | SHEET 1 OF 1

Parts List					
ITEM	PART NUMBER	REV	UOM	QTY	DESCRIPTION
1	14045	-	EA	1	BAG, 12 X 15 MIL ZIPTOP
2	1491-0704	-	EA	3	CONDUIT 2IN RIGID 2 HOLE STRAP
3	28039	-	EA	2	CAP, PLASTIC, 2IN TAPERED
4	28106	-	EA	4	SPACER, .38X.625X.375 ROUND
5	2832-8101	-	EA	4	NUT, 3/8-16 HEX
6	2833-8110	-	EA	4	WASHER, 3/8 FLAT
7	2833-8210	-	EA	4	WASHER, 3/8 SPLIT LOCK
8	2833-9015B	B	EA	4	WASHER, ISOLATING NOZZLE
9	29024	-	EA	6	BOLT, 1/4 X 1-1/2 LAG HEX
10	29051	-	EA	22	BOLT, 1/4-20 X 1/2 WITH 1/2 HD
11	32016	-	SQFT	.08	GASKET MATERIAL, 1/4" BLACK SILICONE RUBBER
12	600101	-	FT	1	HOSE, 2IN UNLINED INTERLOCKED GALVANIZED STEEL 12' 6" LONG EACH PIECE
13	60195	-	FT	1.67	GASKET, .25 X 1.0 ADHESIVE BK
14	927155	A	EA	1	WELDMT, END PLATE, TRACK DUCT
15	92740	F	EA	1	END PLATE, TRACK DUCT
16	92747	B	EA	1	TRACK DUCT BOTTOM SECTION
17	92749	A	EA	2	CAP, STEEL, 2IN ID
18	92753	B	EA	1	COVER, TOP TRACK DUCT
19	927588B	B	EA	1	NOZZLE, TRACK DUCT, NO DAMPER
20	92759	B	EA	1	GASKET, ISO, TR NOZZLE RED
21	927604	B	EA	1	TRACK DUCT NOZZLE MOUNT PLATE
22	92760B	B	EA	1	DEFLECTOR, TRACK DUCT TUBE
23	927702	A	EA	1	SCREEN TRACK DUCT NOZZLE LARGE
24	92785E	E	EA	1	DEFLECTOR, TRACK DUCT SML
25	R9278-9500D	D	EA	1	LABEL, ID

REVISION HISTORY				
REV	ECO #	DESCRIPTION	DATE	BY
A	08-0009	NEW PART	6/18/2008	JB
B	11-0036	12,5' HOSE	04/25/11	GLJ
C	-	NOZZLE ASSEMBLY CHANGED	9/25/15	BF
D	-	SHORTENED NOZZLE	3/11/16	BF





UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS ANGULAR
.X ± 0.035 ±1
.XX ± 0.010 FRACTIONS
.XXX ±0.005 ± 1/32
DO NOT SCALE DRAWING

DRAWN: BF

DATE: 3/11/16

MAT'L: N / A

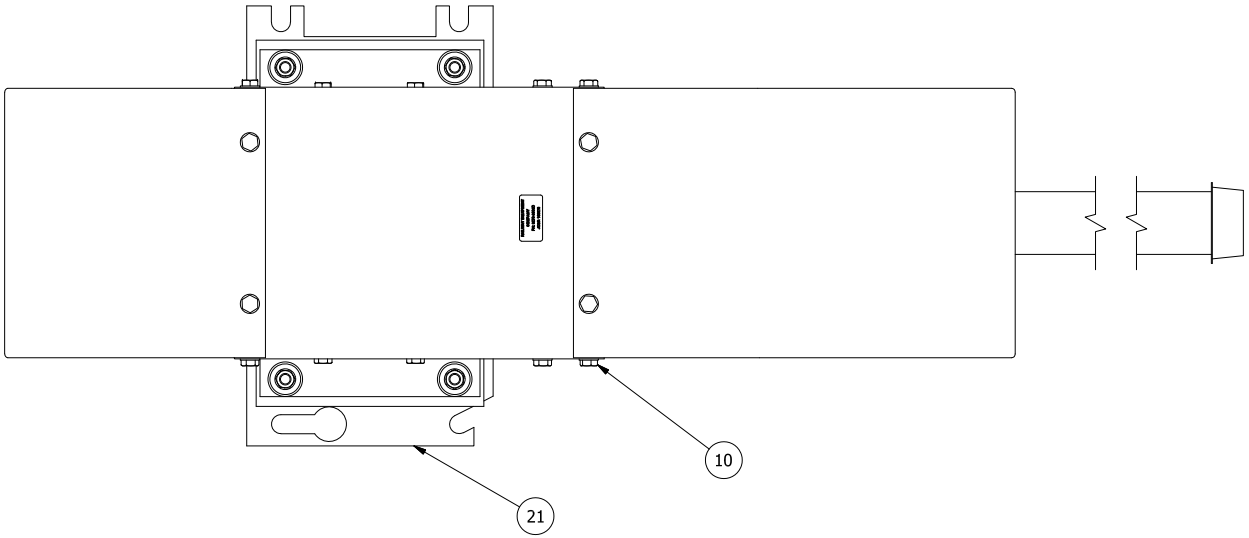
BEND ALLOWANCE: N / A

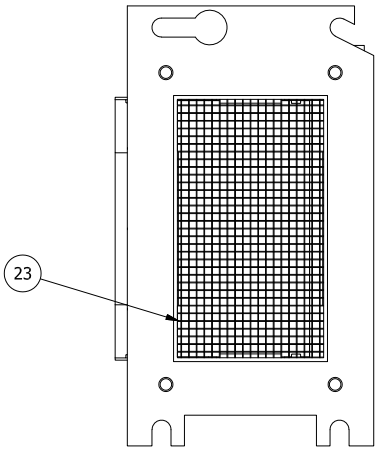
RAILWAY EQUIPMENT CO.
DELANO, MINNESOTA (763) 972-2200

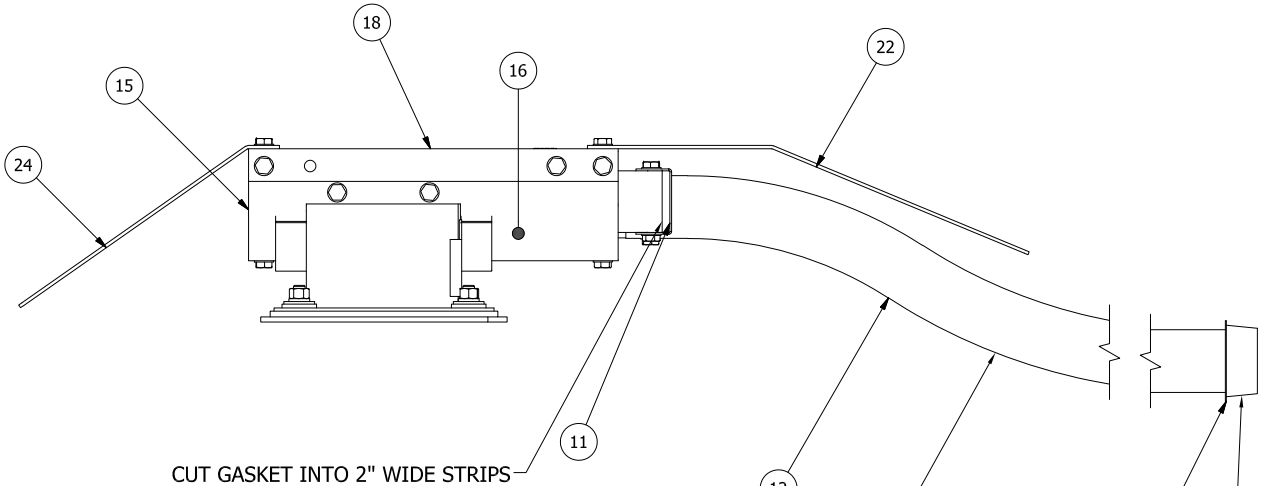
TITLE: FLEX NOZZLE KIT (LTD)

DWG NO: 9278-9500D REV: D

SCALE: 1 : 4 DWG SIZE: B SHEET 1 OF 3



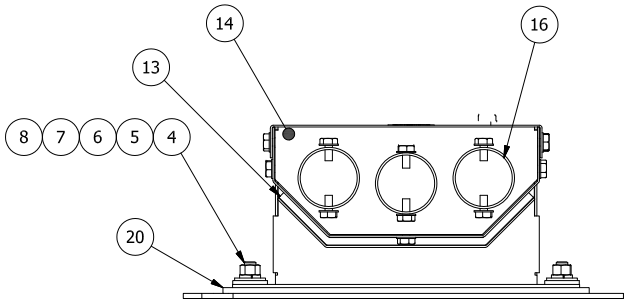




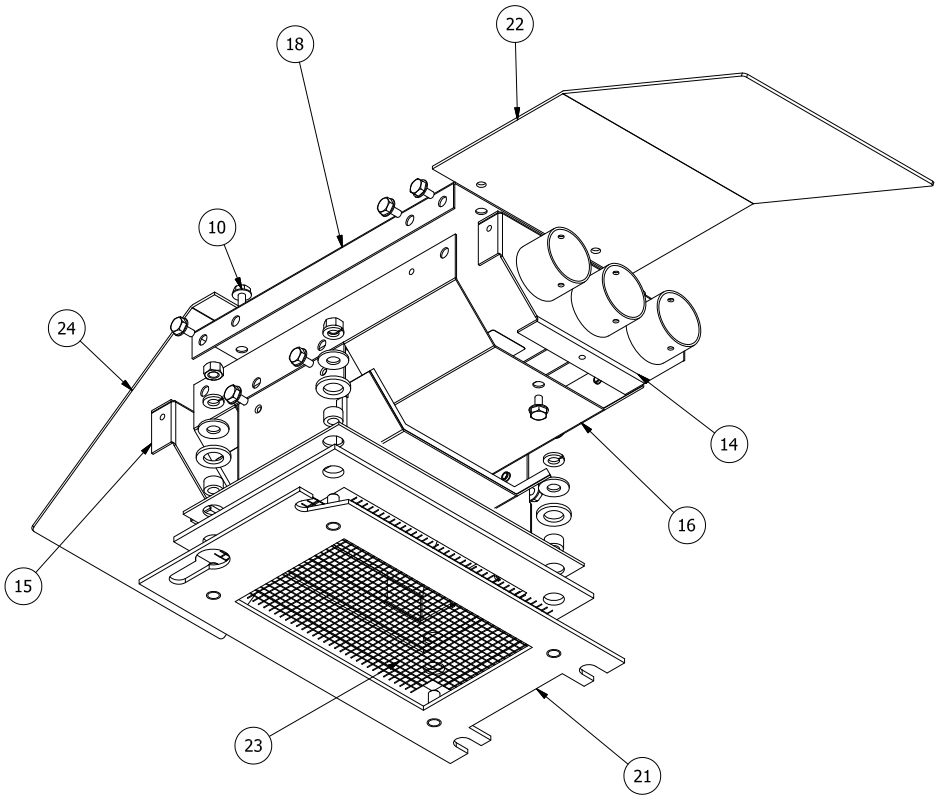
CUT GASKET INTO 2" WIDE STRIPS
AND TRIM TO FIT CAP

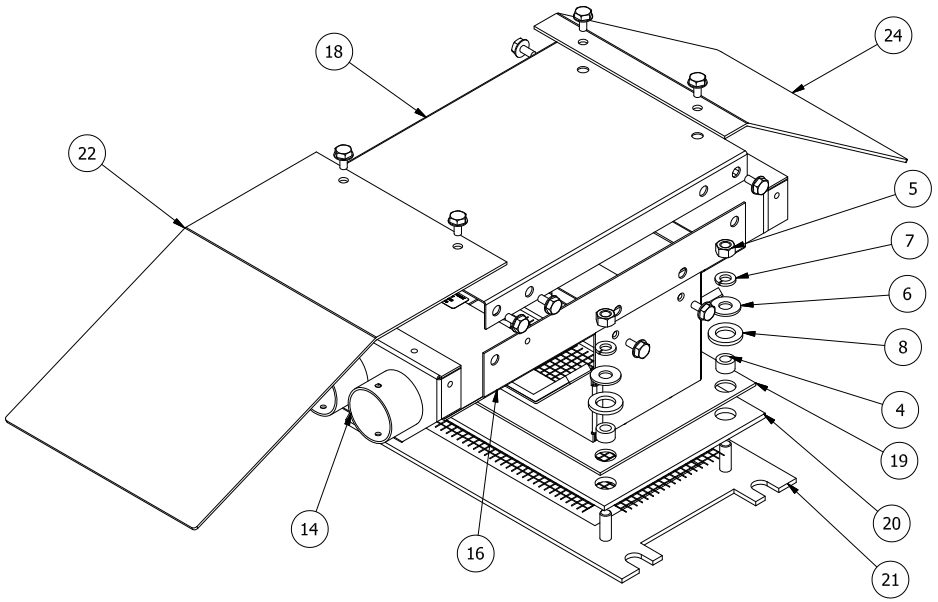
SHIP AS ONE CONTINUOUS ROLL
DO NOT INSTALL

INSTALL CAP ON EACH END
OF TUBE FOR SHIPMENT



UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES DECIMALS .X ± .035 .XX ± .010 .XXX ±.005 ANGULAR ±1° FRACTIONS ± 1/32 DO NOT SCALE DRAWING	RAILWAY EQUIPMENT CO. DELANO, MINNESOTA (763) 972-2200
DRAWN: BF	TITLE: FLEX NOZZLE KIT (LTD)
DATE: 3/11/16	
MAT'L: NOTED	DWG NO: 9278-9500D REV: D
BEND ALLOWANCE: N/A	SCALE: 1/4 DWG SIZE: B SHEET 2 OF 3

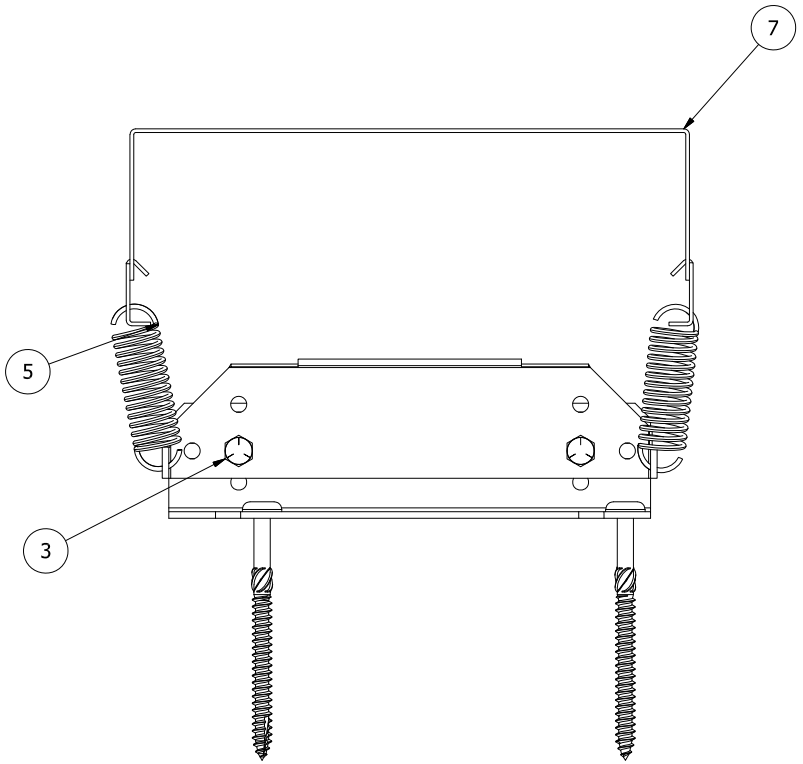


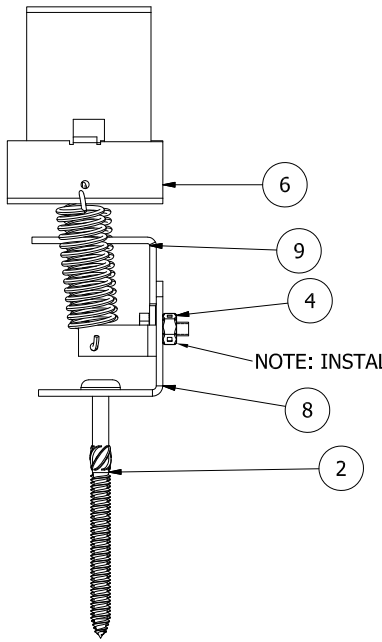


UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES DECIMALS .X ± .035 .XX ± .010 .XXX ±.005 ANGULAR ±1° FRACTIONS ± 1/32 DO NOT SCALE DRAWING	RAILWAY EQUIPMENT CO. DELANO, MINNESOTA (763) 972-2200
DRAWN: BF	TITLE: FLEX NOZZLE KIT (LTD)
DATE: 4/6/16	
MAT'L: N/A	DWG NO: 9278-9500D REV: D
BEND ALLOWANCE: N/A	SCALE: DWG SIZE: B SHEET 3 OF 3

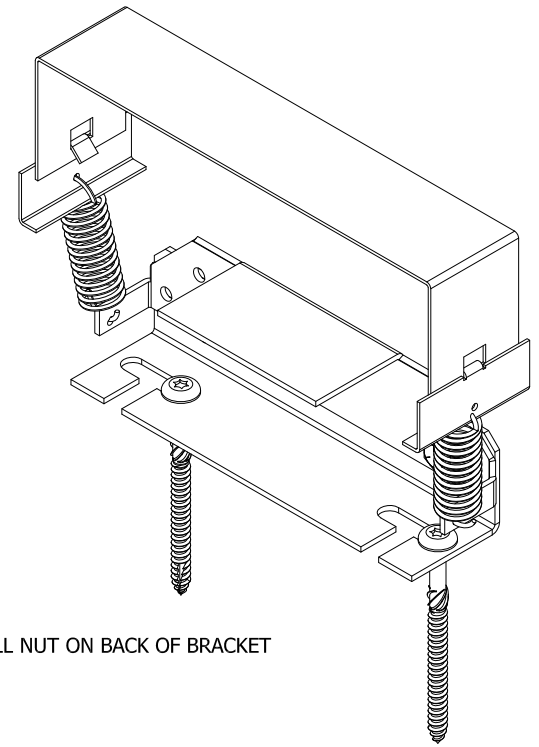
PARTS LIST					
ITEM	PART NUMBER	REV	QTY	UOM	DESCRIPTION
1	14045	-	1	EA	BAG, 12 X 15 4MIL ZIPTOP
2	2600976100	-	2	EA	LAG BOLT, 5/16 X 4, WASHER HEAD, 6 LOBE DRIVE, STEEL, COATED
3	2831551110	-	2	EA	BOLT, 1/4-20 X 5/8 HEX HEAD
4	2832-5901	-	2	EA	NUT, 1/4-20 CENTERLOCK
5	92742B	B	2	EA	SPRING, TRACK DUCT SUPPORT
6	92743	B	2	EA	CLIP, HOLDDOWN SPRING
7	92745	A	1	EA	HOLDDOWN STRAP, T. DUCT
8	927550C	C	1	EA	TRACK DUCT SUPPORT BASE
9	927551	A	1	EA	TRACK DUCT SPRING BRKT NARROW
10	R92774K	-	1	EA	LABEL, TRACK DUCT BRACKET

REVISION HISTORY				
REV	ECO #	DESCRIPTION	DATE	BY
J	05-0017	NEW SPLICE SYSTEM	5/18/2005	RF
K	05-0047	SHORTENED 927550-551	10/27/2005	RO
-	-	PN 927550B TO C	1/20/2020	CA
-	-	REMOVED PN 14042	4/9/2020	CA





NOTE: INSTALL NUT ON BACK OF BRACKET



NOTE: DO NOT FULLY TIGHTEN NUT, ONLY SNUG UP

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES
TOLERANCES
DECIMALS ANGULAR
.X ± 0.035 ±1
.XX ± 0.010 FRACTIONS
.XXX ±0.005 ±1/32
DO NOT SCALE DRAWING

LAST UPDATED: 8/10/2020
BY: cwanderson
MATL: NA
BEND ALLOWANCE: NA

RAILWAY EQUIPMENT CO.
MINNEAPOLIS, MINNESOTA (763) 972-2200

TITLE: TRACK DUCT SUPPORT BRACKET

DWG NO: 92774K
REV: K
SCALE: 1/2
DWG SIZE: B
SHEET 1 OF 1

MENU SELECT STATUS

Outside Temp 0°F
Preset Value 38°F
Displays the current ambient temperature and temperature preset value.

Rail Temp 0°F
Duct Temp 0°F
Displays the rail temperature and duct temperature.

Hour Meter 0
Reset Hour 0
Total hours EHAB has been running. Reset is the same as total but it can be reset.

Name
Shows you the name for your unit.

MENU SELECT FACTORY DEFAULTS

Factory defaults is used to place all parameters back to factory default settings. Follow the message on the screen to do this.

MENU SELECT SET POINTS

Password
Push up or down to change the password. Use password 5 for critical setpoint.

Select Temperature Setpoint 38°F
Push up or down to change the set point.

Select Run Timer
Value 0 Minutes
Push up or down to change the time.

Select Snow Timer
Value 30 Minutes
Push up or down to set time following a snow event.

Select Snow Sensor Speed 1 Seconds
Push up or down to select from 1 to 60 seconds before snow cycle starts.

Select Snow Sensor Indication
OFF / ON

Select Fault Indication
OFF / ON

Select Start Delay
Value 0 Seconds
Push up or down to select start delay (10 sec increments).

Select Heater Operation
LOW, HIGH, AUTO.

Select Motor Size
Push up or down to select the motor you have for your unit.

Rail Temp 0.0 °F
Setpoint 60.0 °F
Push up or down to set the setpoint.

Local With/ Without Air Temp
Push up or down to select.

Remote With/ Without Air Temp
Push up or down to select.

Select F or C
Push up or down to select either °F or °C.

My IP Address
Displays the IP address.

Machine S/N
Displays the S/N for the EHAB unit.

Program Rev
Date
Displays the program revision and the date is was compiled on.

MENU SELECT FAULT HISTORY

Sail Loss 0
Sail On 0
Push up or down to clear.

Comm Reset 0
Push up or down to clear.

Overload 0
Push up or down to clear.

Auto Overtemp Reset Counter 0
Push up or down to clear.

Power Up Counter 0
Push up or down to clear.

Status Log