



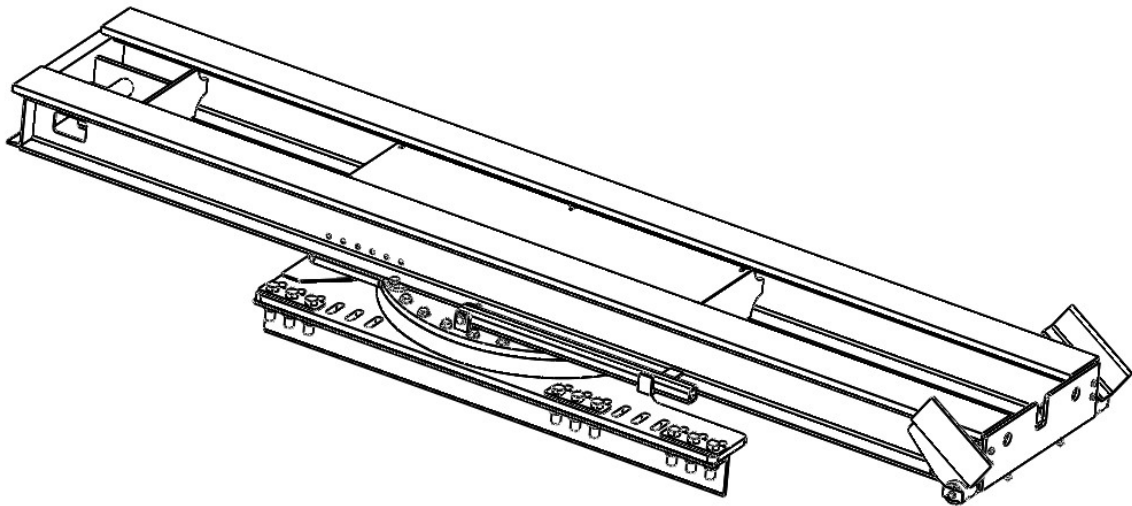
CONTINENTAL
RAILWORKS

RS-14

Rotary Subframe Unit

MANUAL

INSTALLATION – OPERATION – PARTS – SERVICE



April 2021
Revision 2

GENERAL INFORMATION

GENERAL DESCRIPTION

The RS-14 Rotary Subframe is designed for tandem/tridem axle heavy trucks with a CA of 113" min. The RS-14 is designed to work with most 14' 12 Cubic yard bodies. A complete list can be found below. The RS-14 unit is rated for 60,000 lbs. and is designed to rotate 180 degrees.

APPROVED BODIES

Contact Continental Rail works for Approved bodies.

SPECIAL CONSIDERATIONS

VEHICLE CONDITION

Prior to installing RS-14, it should be determined that the vehicle is in good working order. More specifically, the vehicle's suspension and frame need to be inspected and in good condition.

EXHAUST TAILPIPE

If the truck is equipped with a vertical exhaust system, the exhaust tailpipe may need to be modified to make room for the body to rotate. It is recommended to have this performed at a specialized shop, especially for a Diesel engine, where the manufacturer's guidelines are more stringent. This manual does not cover exhaust tailpipe modifications.

! SAFETY WARNING!

DO NOT WELD ON THE VEHICLE FRAME. - TAKE PROPER INSULATION MEASURES IF WELDING ON THE VEHICLE IS REQUIRED, INCLUDING DISCONNECTING BOTH BATTERY CABLES.

REFER TO BOLT TORQUE TABLE IN APPENDIX 1, AND TO MANUFACTURER'S SPECIFICATIONS FOR WHEEL STUDS

NEVER REUSE NYLOC LOCKING NUTS OR STOVER LOCKING NUTS

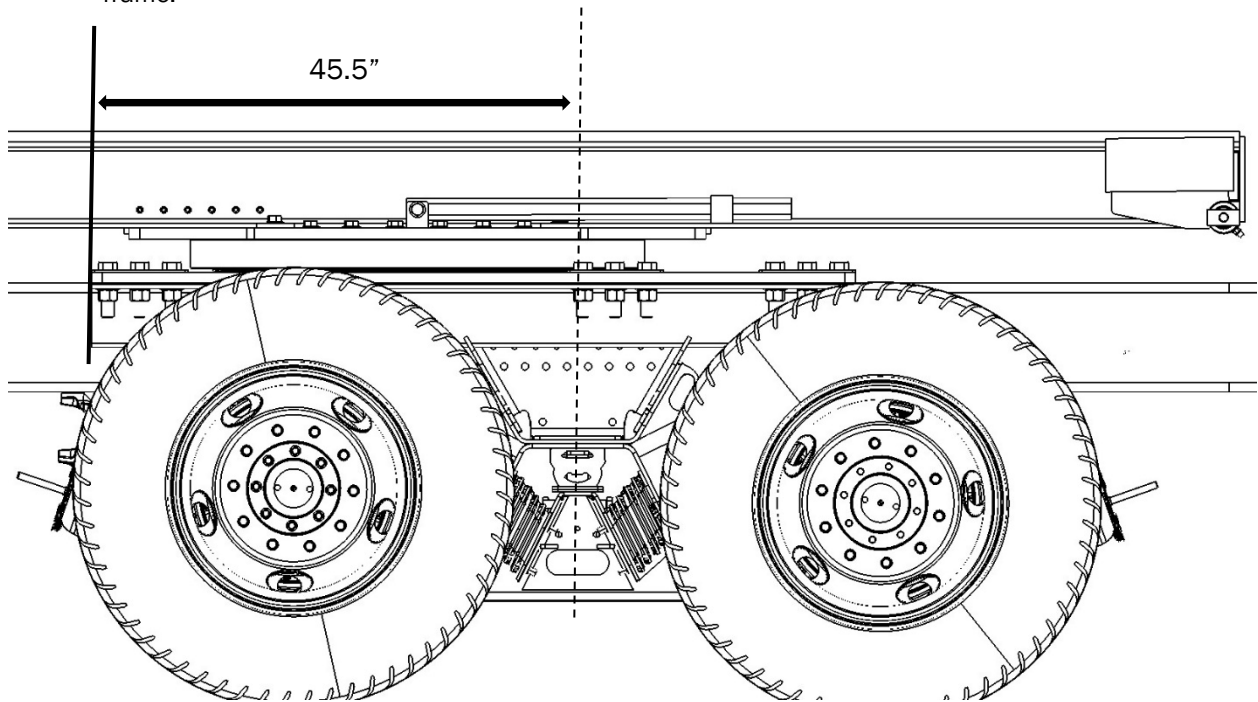
CONTACT THE MANUFACTURER PRIOR TO MODIFYING ANY PART OF THE RS-14 SUBFRAME OR MOUNTING HARDWARE

DO NOT ATTACH OTHER EQUIPMENT OR ACCESSORIES TO THE RS-14 SUBFRAME OR MOUNTING PLATES

SUBFRAME INSTALLATION

The RS-14 is shipped with a universal mounting bracket system that is designed to adapt the RS-14 to any chassis.

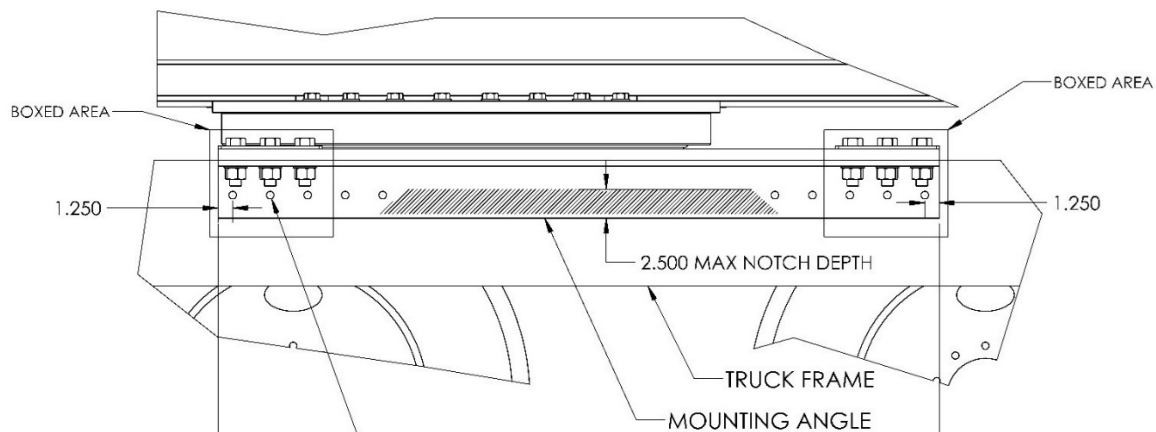
- 1- Mark the center of the axles on frame of the truck. This can be completed by using a 4' level and framing square.
- 2- Once the center of the axles is determined, measure 45.5" forward and make another mark on the frame.



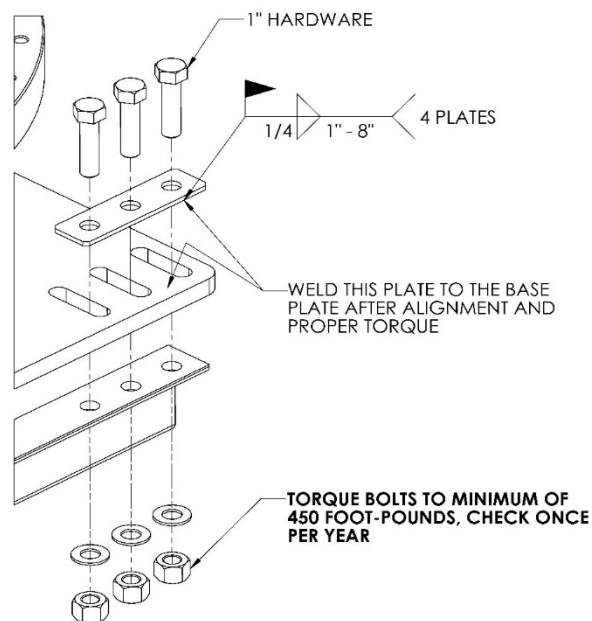
- 3- Remove any bolts and other non-essential components that are within 3 inches of the top of the chassis frame on both sides of the frame that go back 72 inches from the forward mark that was made.
- 4- Using a forklift or overhead crane lower the RS-14 subframe onto the chassis so that the front of the lower plate lines up with the mark of the frame.
- 5- Once the RS-14 subframe is on the chassis check to make sure the subframe is centered side to side on the chassis, adjust if needed.

- 6- Trim supplied mounting angles to fit around suspension components if required and then mark and match drill the mounting angle to match existing hole in the frame.

EXAMPLE MOUNTING ANGLE INSTALLATION



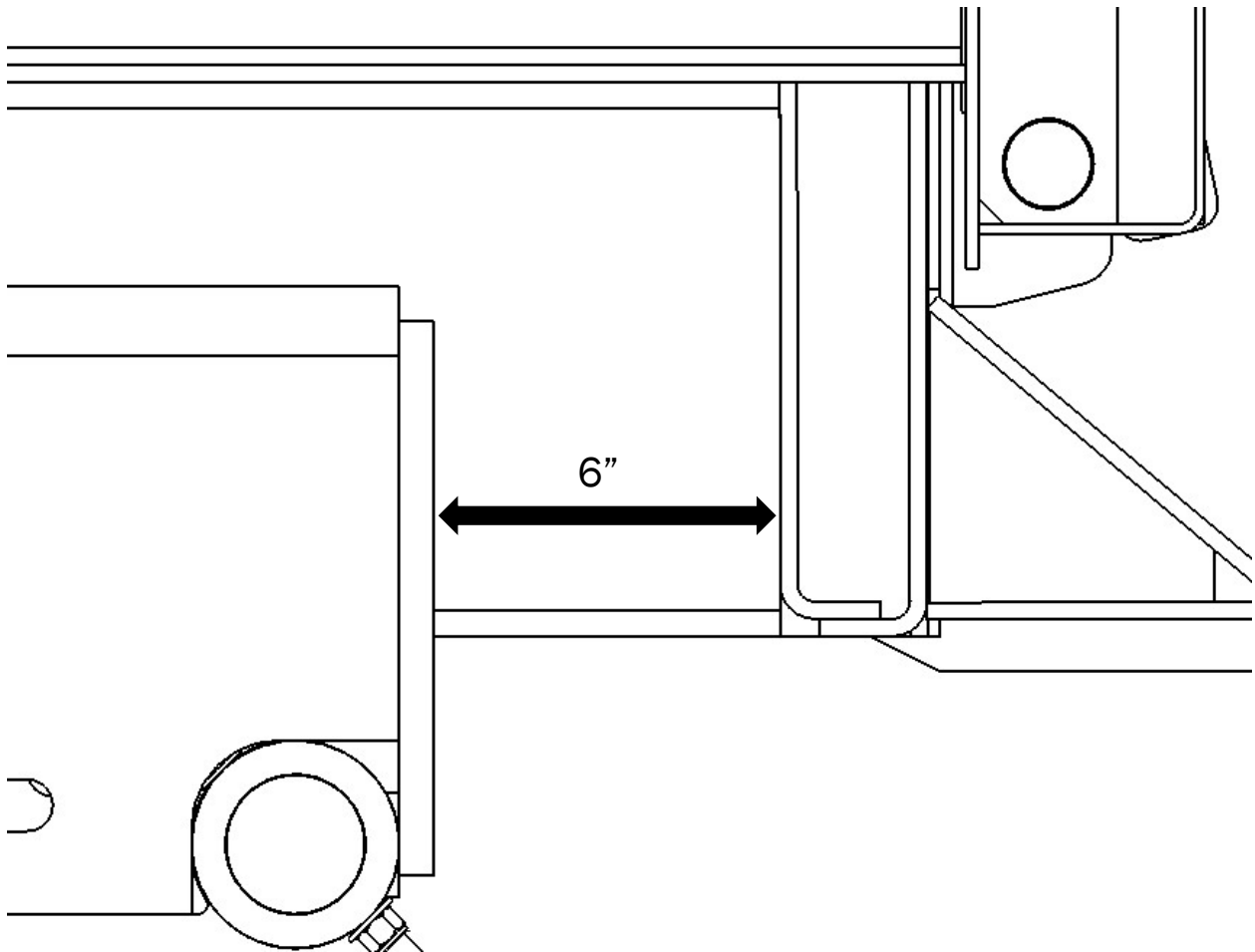
- 7- Six (6-) Grade 8- 5/8"-11 bolts are required on each side. 10 bolts are recommended. Drill remaining holes and space them evenly along the mounting angle.
- 8- Using the supplied Grade 8- 1"-8 bolts, nuts, washers and flat bar bolt the subframe to the mounting angle and torque to 450 ft. lbs.



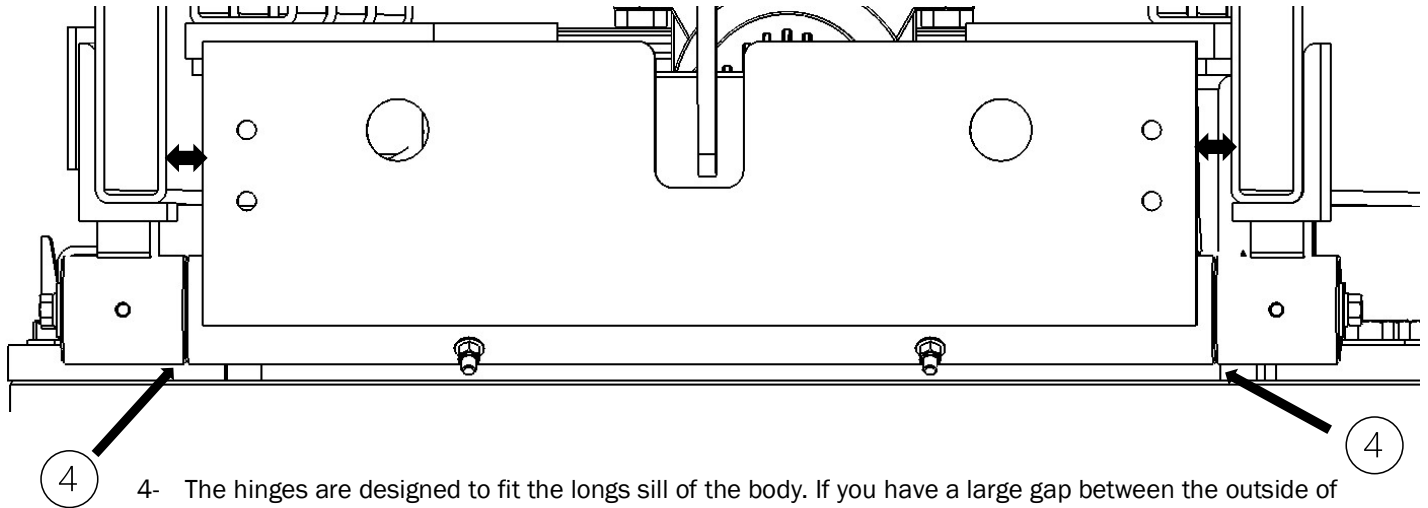
- 9- Repeat step 8 for all 6 sets of bolts that attach the subframe to the mounting angles.
- 10- Re check that the sub frame is aligned properly and the weld flat bars to subframe with a 1/4" fillet weld.

BODY INSTALLATION

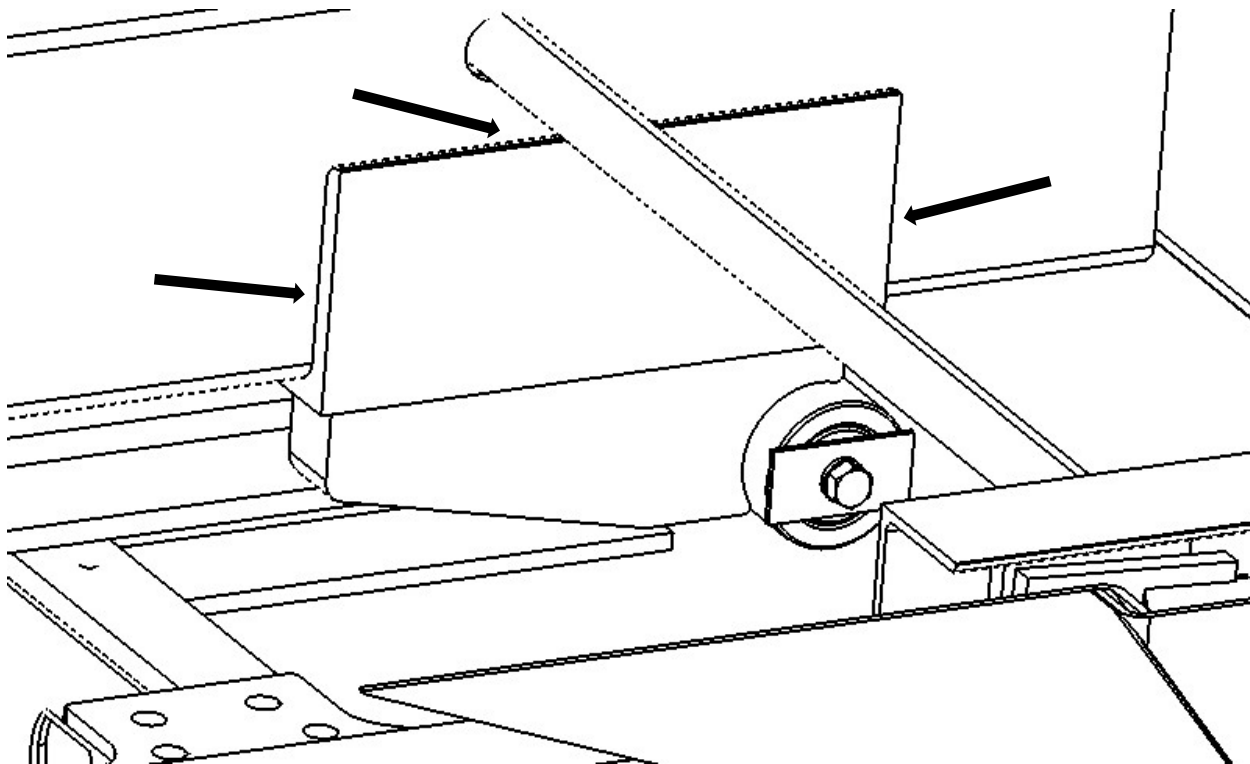
- 1- Use a forklift or overhead crane to lower the body on to the RS-14 Subframe. If using a forklift, follow the steps below:
 - a. First put 4"x4"x6' boards across the front and rear of the subframe then carefully lower the body onto the boards.
 - b. Swing body so the rear can be lifted with a forklift, then lift the body so the 4"x4" board can be removed.
 - c. Lower the body until it is sitting on the subframe and is in between the hinges on the rear.
 - d. Rotate the body and repeat the above steps for the front.
- 2- Once the body is sitting on the subframe adjust the body so that the back of the subframe is 6" from the back of the body cross sill.



- 3- Measure from H- beam to the inside of the body on the front and the rear to make sure it is centered on the subframe and adjust as needed.

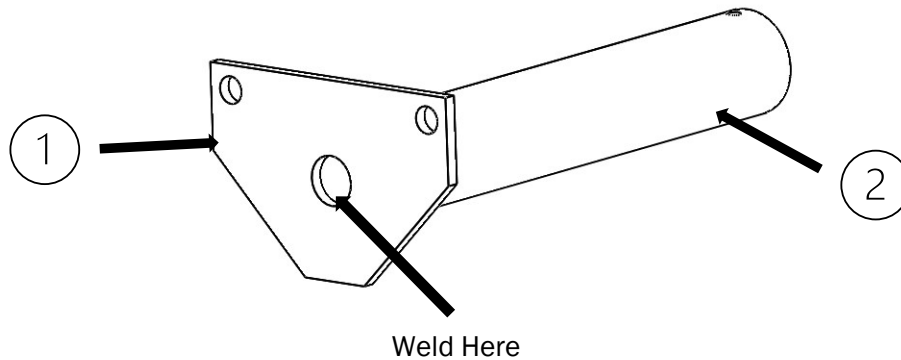


- 5- Weld hinges on to the long sills of the body using a $\frac{1}{2}$ " fillet weld all the way around the hinge angle.

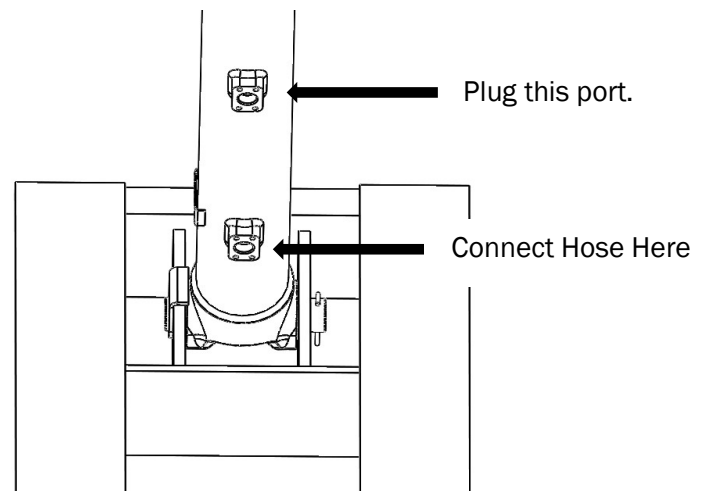
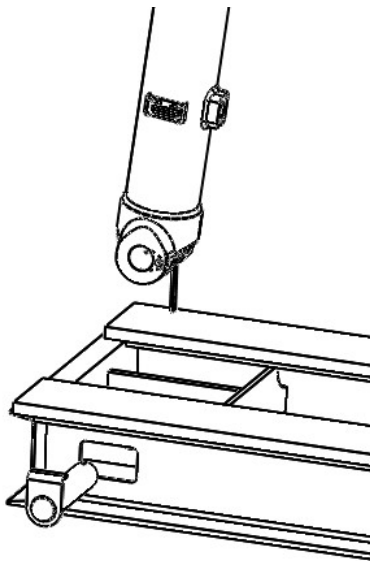


HOIST CYLINDER INSTALLATION

- 1- Start by welding the retainer (Item 1) to the cylinder pin (Item 2),

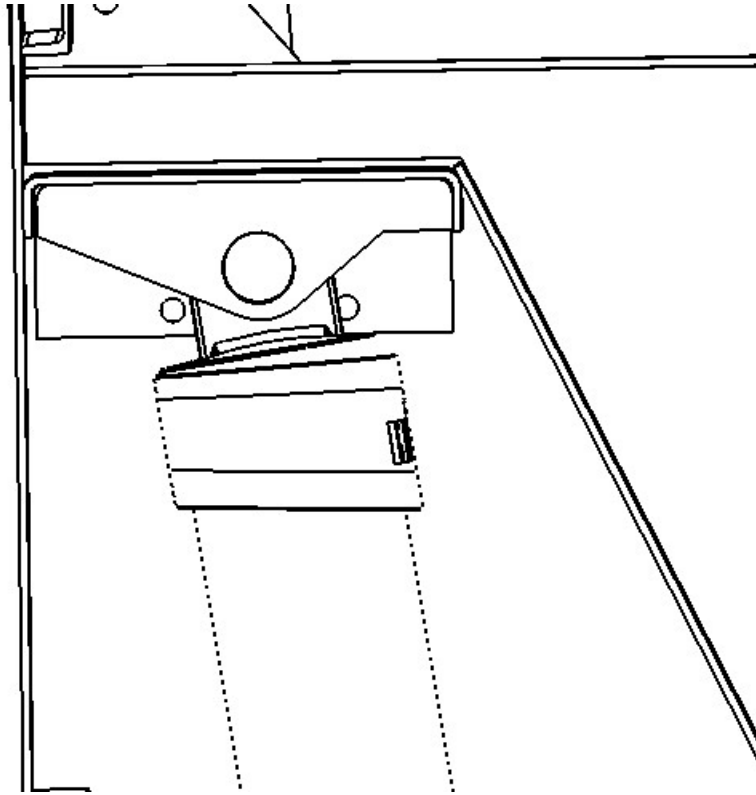


- 2- Rotate the body so the front can be raised with a forklift or overhead crane.
- 3- Raise the front of the body until the body prop can be raised into its receptacle, then set body prop into place and lower the body. It's recommended that a temporary 6"x6"x32" wood block be used along with the body prop.
- 4- Install hoist cylinder and connect the $\frac{3}{4}$ " hoist line. Use a small wood block between the hoist cylinder and the subframe. This will allow the cylinder to assemble into the body easier.

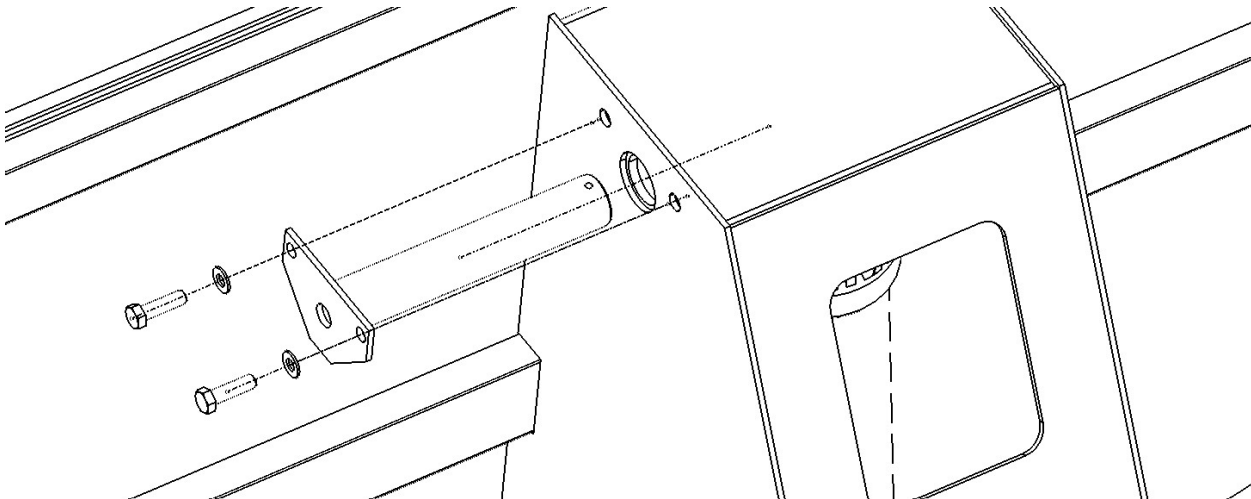


- 5- Raise the body and remove and stow body prop and 6x6. Then lower body until it rests on the subframe.

- 6- Remove cover to the upper cylinder mount in the body. Using a pry bar raise hoist cylinder until it lines up with mounts on body and install pin.



- 7- Install Welded cylinder pin and retainer plate and bolt into place.

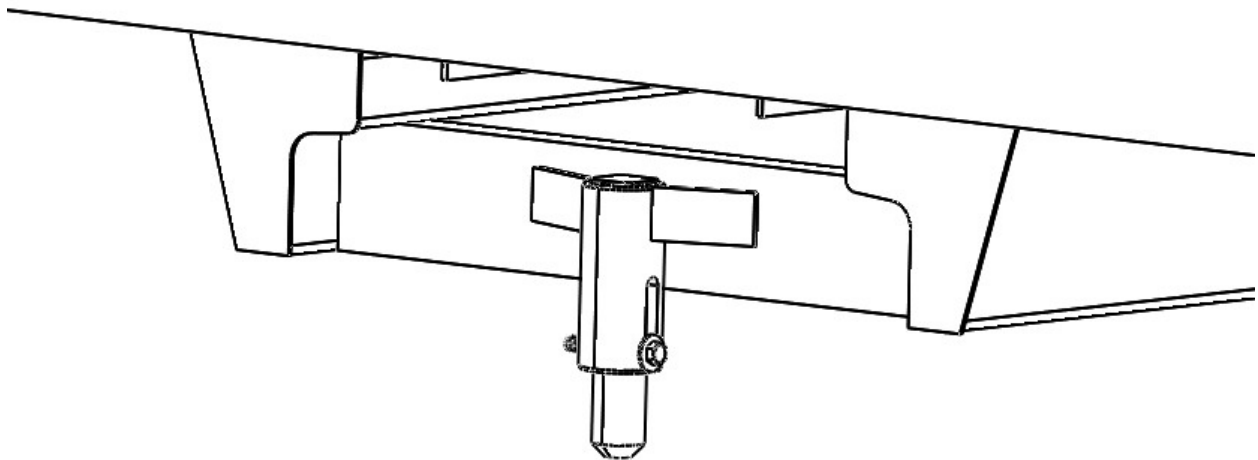


BODY LOCK INSTALLATION

The Upper portion of the body lock comes welded on the body if using a Continental Railworks supplied body. If you are supplying your own body, please follow the steps below:

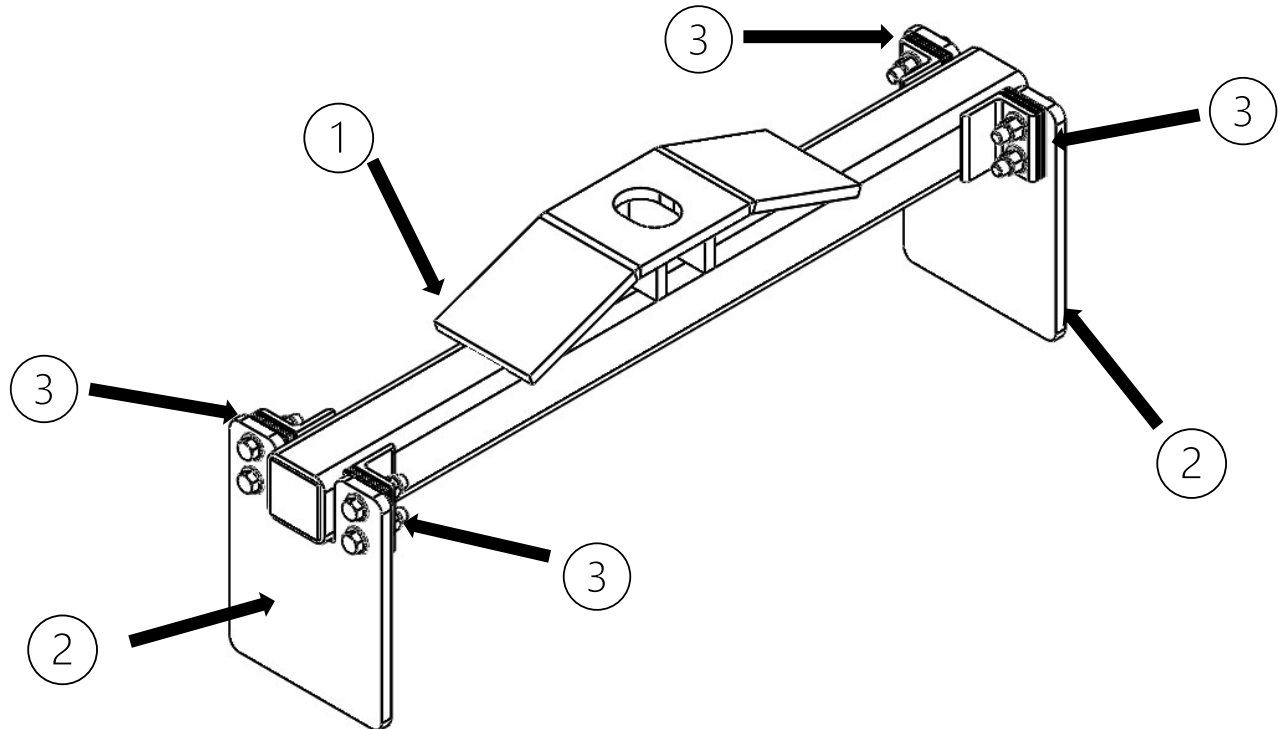
UPPER BODY LOCK

- 1- Rotate the body to one side of the truck.
- 2- Measure inside of the long sills on the front of the dump body.
- 3- Trim the Upper body lock equally on both sides to fit in between the long sills of the dump body
- 4- Place upper body lock in flush with the bottom of the dump body and 2-7/8 "back from the front.
- 5- Place a 1/4" Fillet Weld both sides of the upper body lock both front and rear.

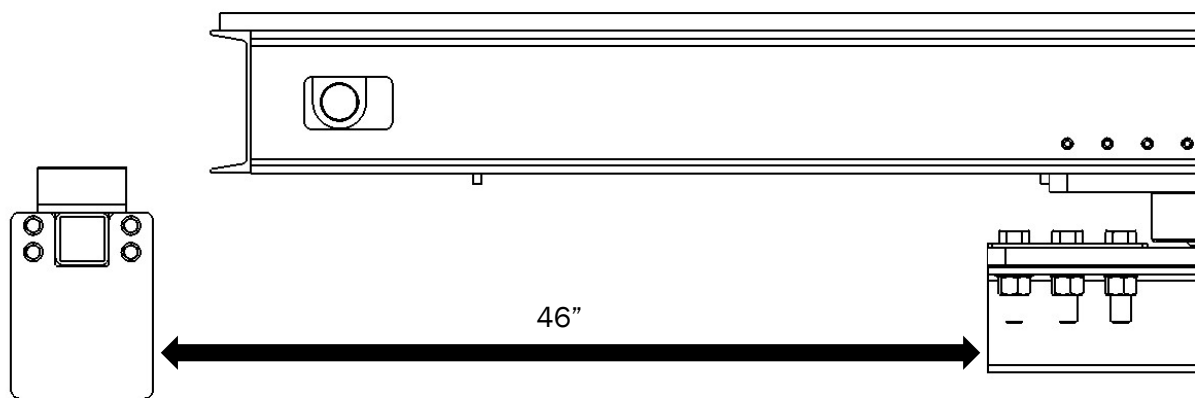


LOWER BODY LOCK

- 1- Measure the width of the frame and adjust the width of the lower body lock by removing the shims (Item 3) installed between the cross tube (Item 1) and the mounting plates (Item 2).



- 2- Measure from the front of the lower subframe plate forward 46 inches on both frame rails and make a mark.



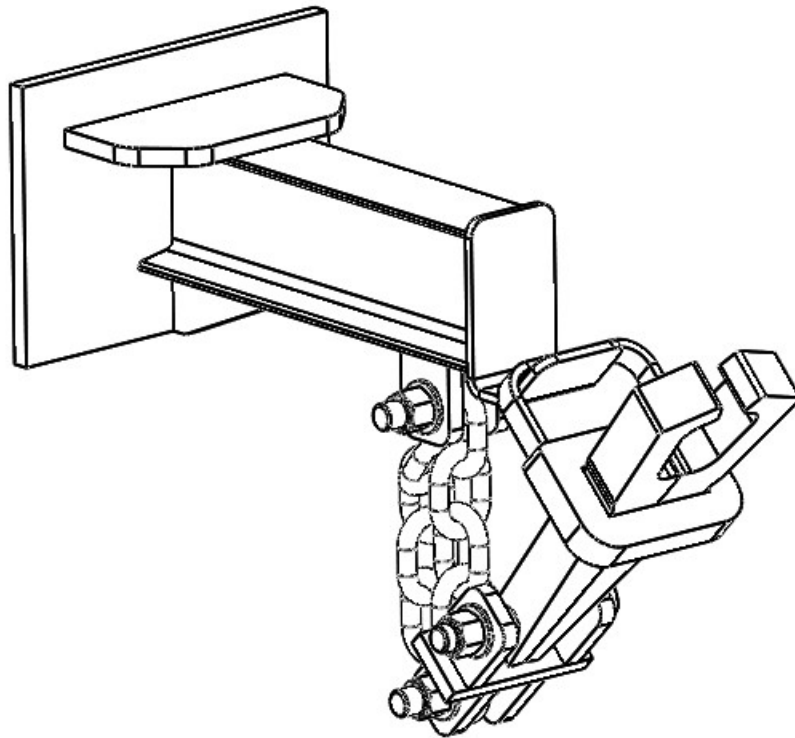
- 3- Place the lower body lock on the frame of the chassis and align the back of the mounting plate to the line made on the frame.
- 4- Mount the lower body lock to the frame using at least 2- 5/8" Grade 8 bolts on each of the mounting plates.

RAILDOGS

! SAFETY WARNING!

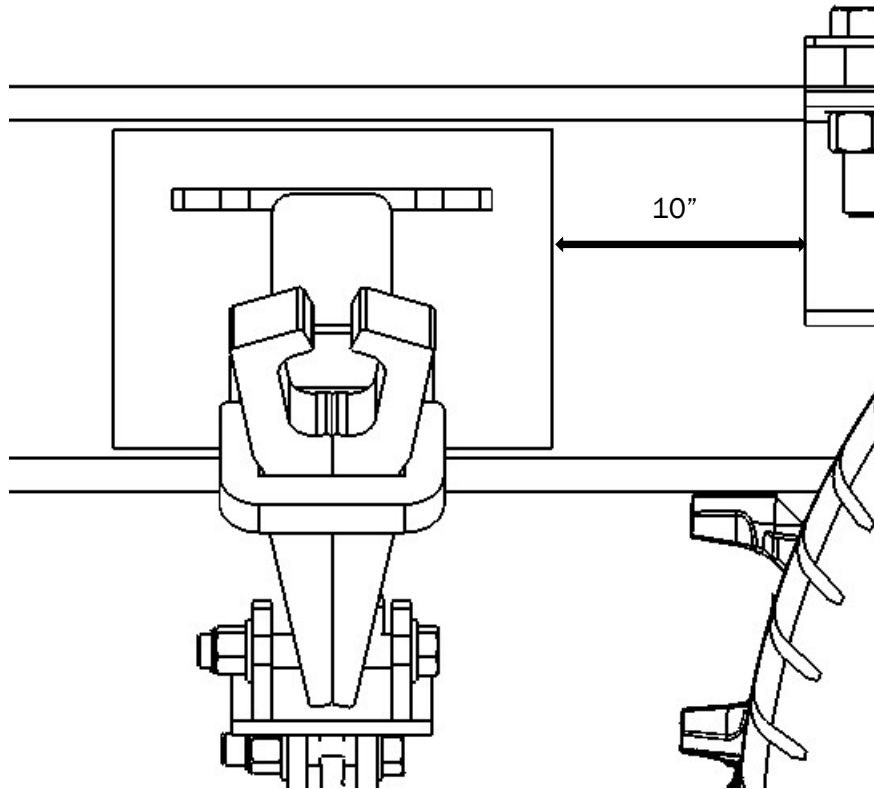
RAIL DOGS MUST BE INSTALLED ON ANY UNIT THAT THE RS-14 SUBFRAME IS INSTALLED ON. THE RAIL DOGS MUST BE INSTALLED IN FRONT OF THE TANDEM. RAIL DOGS MUST BE USED WHEN THE RS-14 SUBFRAME IS TURNED PAST 30 DEGREES IN EITHER DIRECTION. FAILURE TO USE THE RAIL DOGS CAN RESULT THE IN THE CHASSIS ROLLING OVER.

MANUAL RAIL DOGS



MANUAL RAIL DOGS INSTALLATION

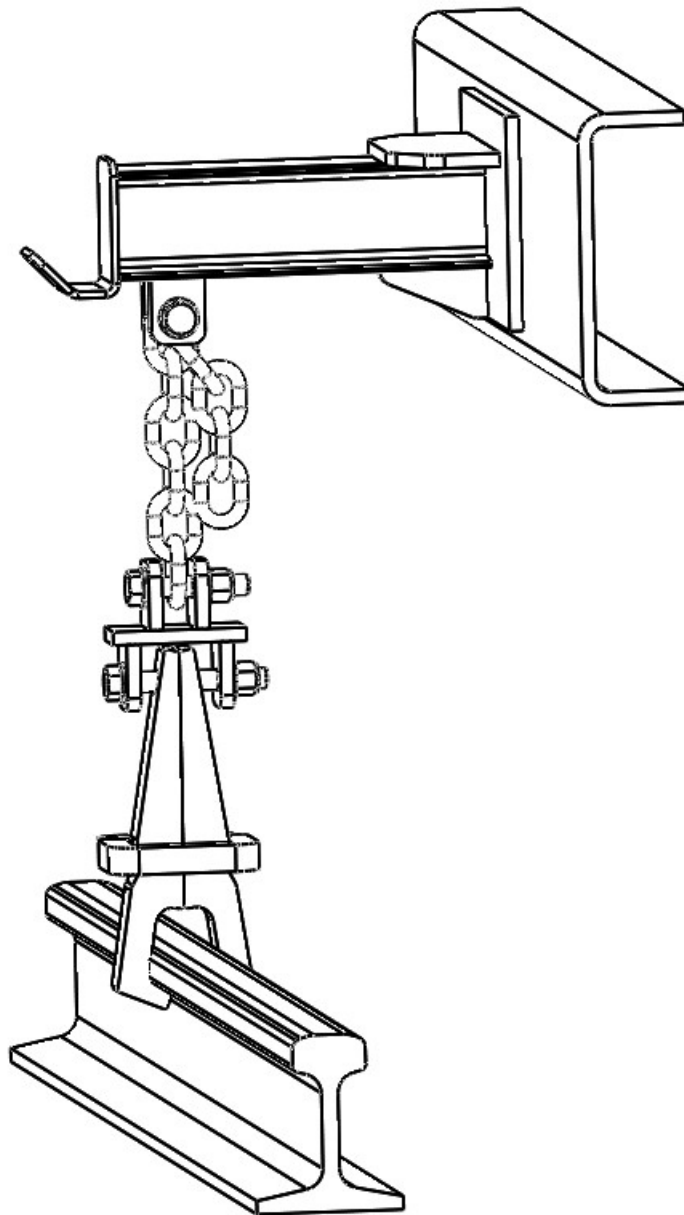
1. Measure from the sub-frame mounting bracket forward 10 inches and mark the frame on each side.



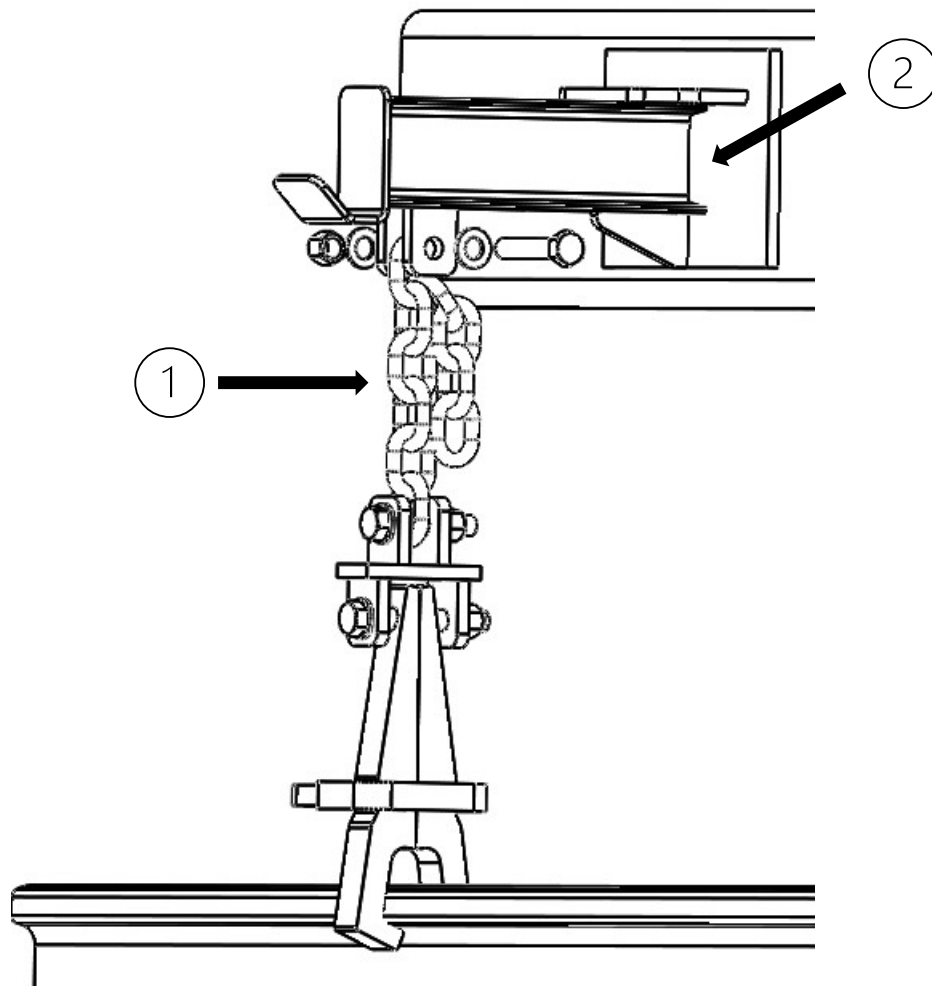
2. Remove any factory bolts that may be in the way of the rail dog mount 11" forward of the mark made at step 1.
3. Align the back edge of the rail dog mounting plate with the line that was made on step 2 and then center the rail dog mounting plate on the frame rail and clamp in place using C Clamps.
4. Mark any existing factory bolts. If there are no factory bolts in the way proceed to step 6.
5. Remove the rail dog and drill the existing factory holes. Then repeat step 3.
6. 4-5/8" bolts are required to hold the rail dog to the frame. Using a frame drill, drill the holes in an equal pattern around the mounting plate. If there are holes drilled for existing factory bolts. Place the remaining hole equally around the plate as well.
7. Repeat steps 1-6 on the opposite side.

MANUAL RAIL DOGS ADJUSTMENT

1. Start by placing the chassis on rail and fully deploying the rail gear. Note: The pressure adjustment on the rail gear must be set before adjusting the Rail Dogs.
2. Remove the Rail dog from its holder and lower the rail dog to the rail.
3. Raise the lock ring up and spread the rail dog open so it can fit around the ball of the rail.
4. Lower the lock ring and this will force the clamps together. If the rail dogs are properly adjusted, they will look like the figure below.



5. If the rail dogs are not fitting like the figure above, they will need to be adjusted.
6. Start by removing the bolt that holds the Chain (Item 1) to the rail dog mount (Item 2).



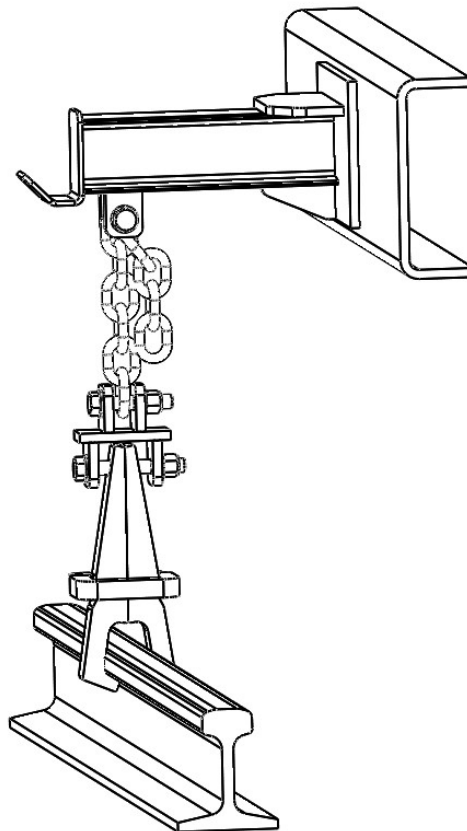
7. Add or Remove chain links to get the rail dogs to fit around the ball of the rail.
8. Reinstall the hardware that holds the chain (Item 1) to the rail dog mount (Item 2).

RAILDOGS OPERATION

Rail dogs must be used when the RS-14 subframe is turned past 30 degrees in either direction. It is recommended to use the rail dogs prior to rotating the body when dumping anything other than dry ballast material. Rail Dogs must be used when rotating the body on super elevation, failure to use the rail dogs can result the in the chassis rolling over.

RAIL DOGS OPERATION BEFORE UNLOADING ON RAIL.

1. Start by placing the chassis on rail and fully deploying the rail gear.
2. Place the chassis in neutral and set the parking brake before exiting the cab.
3. Remove the Rail dog from its holder and lower the rail dog to the rail.
4. Raise the lock ring up and spread the rail dog open so it can fit around the ball of the rail.
5. Lower the lock ring and this will force the clamps together.
6. Repeat the steps 1-5 on the opposite side.



7. Once the unit is fully unloaded and the bed is lowered and locked in the body lock. Remove rail dogs by reversing the steps above before moving the unit on rail.

DO NOT DRIVE WITH THE RAIL DOGS ENGAGED WITH THE RAIL.

HYDRAULICS

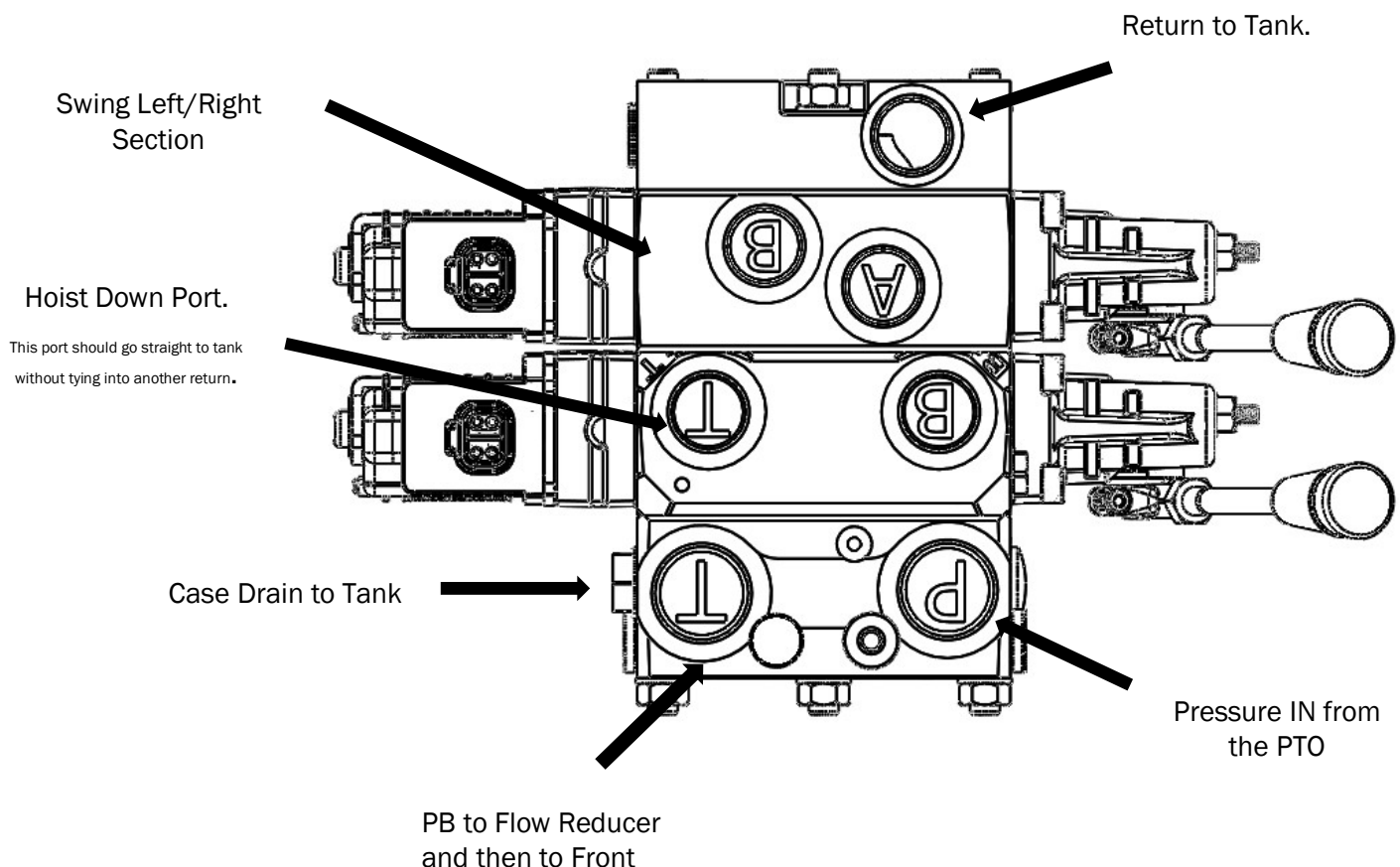
PTO / PUMP SETUP

The RS-14 system requires a working pressure of 2500 psi and a flow rate of 25 gpm. The system may not function adequately at a pressure below 2500 psi. The system will function at a lower flow rate but will function more slowly.

In all cases, the minimum hydraulic hose to be used is a steel braided 1/4" diameter hose, with a minimum working pressure of 4000 psi. Hoses run along the vehicle must be adequately secured to the body or frame of the vehicle and kept well away of any moving or rotating parts.

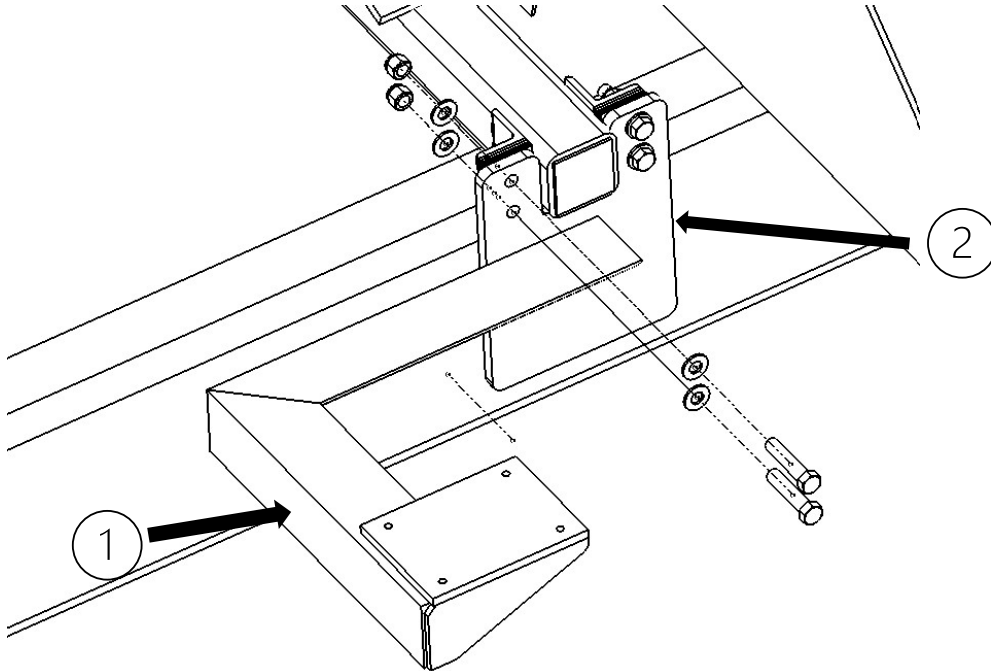
Continental supplies the hose that run from the control valve to the bulkhead on the subframe. All other hoses are the installers responsibility.

RS-14 Control Valve and Port Description

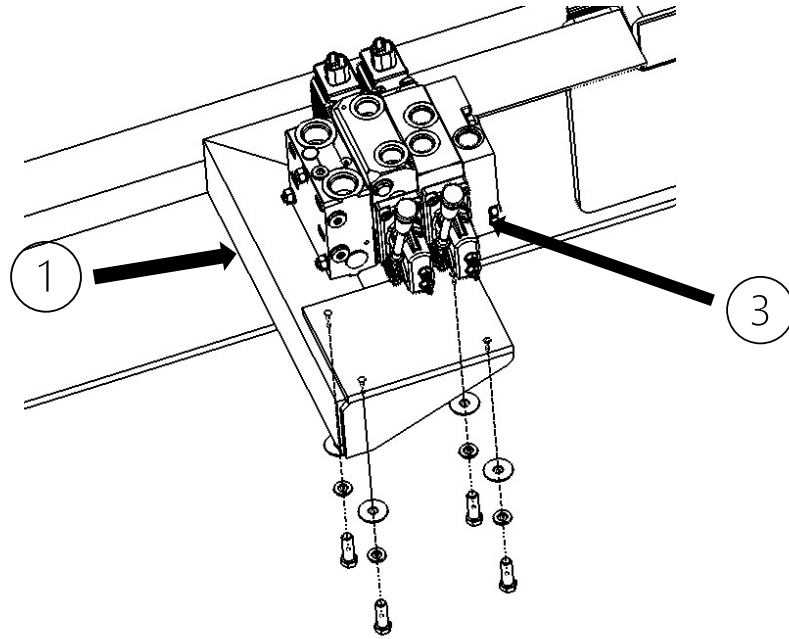


CONTROL VALVE INSTALLATION

1. Mount the RS-14 control valve mounting bracket (Item 1) on to the lower body lock (Item 2) using the supplied mounting bolts on the driver's side.



2. Mount the RS-14 Control valve (Item 3) to the mounting bracket (Item 1) using the supplied 3/8" bolts and hardware.

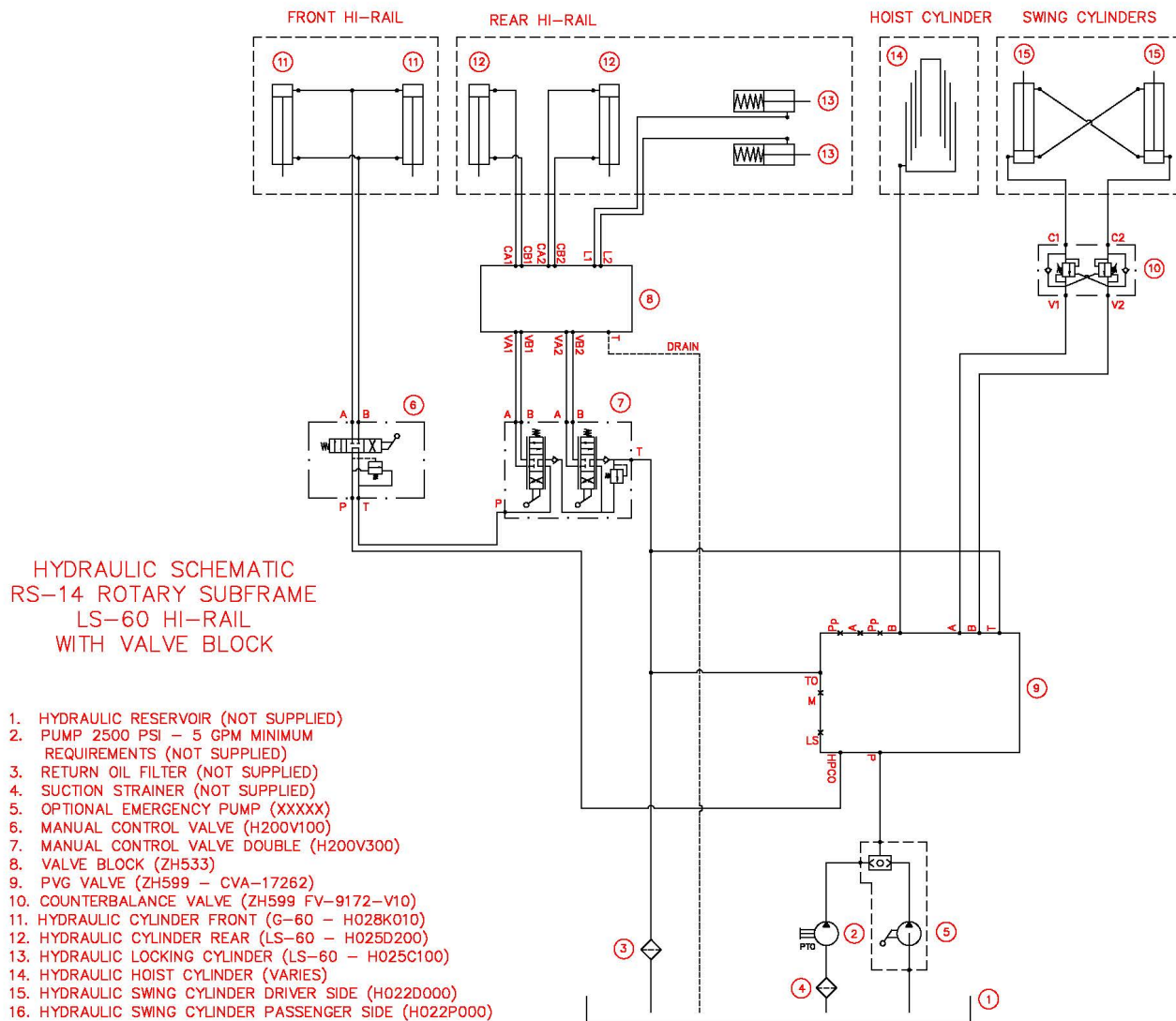


HYDRAULIC HOSE INSTALLATION

Refer to the hydraulic schematic for more details on the routing and plumbing of the RS-14 hydraulic system.

1. Run a 3/4" hydraulic hose from the PTO to the inlet (Port P) of the Control valve.
2. Run a 3/4" hydraulic hose from Port T on the hoist section of the control valve to the hydraulic tank. Note this port can be tie into another return line.
3. Run a 1/4" hydraulic line from the case drain on the control valve to the hydraulic tank.
4. Run a 3/4" hydraulic hose from the discharge port T of the hoist section of the control valve to the hydraulic tank. Note: Do not tie in with another return, this could slow down the lowering of the body
5. Run the supplied 3/4" hose from the B port on the hoist section of the control valve to the 3/4" fitting on the bulkhead attached to the subframe.
6. Connect two supplied 1/4" lines to the A & B ports on the swing cylinder valve section and run them to the connection ports on the bottom of the subframe.
7. Run a 3/4" hose from the PB section of the control valve to a flow reducing valve (not supplied by Continental) set at 10 to 12 GPM and then to the front valve.
8. Secure all hoses in a way to avoid pinching or rubbing.
9. Verify the entire system for leaks.

HYDRAULIC SCHEMATIC

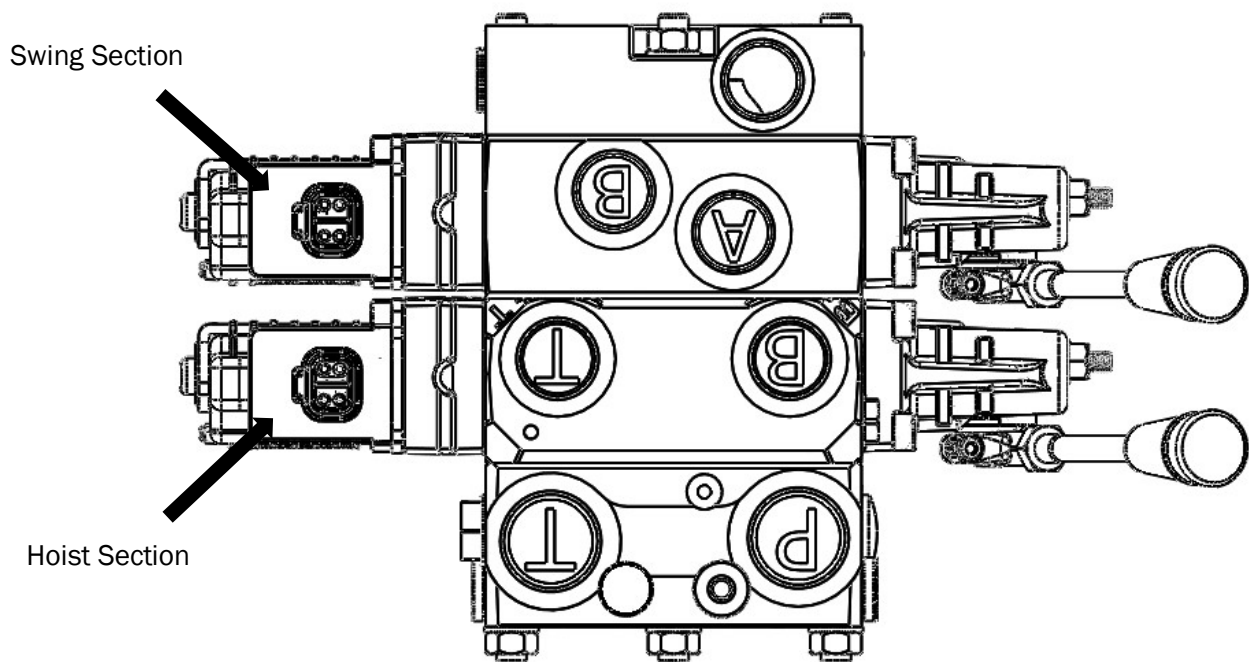


Electrical

Continental Railworks RS -14 subframe comes mostly prewired. However, there are a few Connections that will need to be made. All the connections can be made at the Bulkhead location on the subframe.

Here is what included with the Kit:

- Joystick with mount and Keypad
 - Plug a play cables that go from the Joystick to the Subframe and the Hydraulic control valve.
 - 150-amp breaker
1. Start by mounting the 150-amp breaker near the chassis batteries.
 2. Run 1 AWG cable from the positive side of the battery to the breaker and then run it to the insulated terminal on the bulkhead of the subframe.
 3. Mount the Joystick and keypad stand in the cab of the truck. Time should be taken when placing the stand in cab to make sure:
 - A. The joystick does not interfere with the shifter, steering, air bag deployment envelope (if equipped) or any other vehicle function or feature.
 - B. The operator can easily reach the joystick while seated.
 - C. You can operate the joystick and easily see out the mirrors of the chassis.
 4. Route the cable from the 12-pin connector on the subframe into the cab and then connect the 3-pin connector to the joystick and the 4-pin connector to the keypad.
 5. Route the second cable with the 2- 4-pin connectors from the 12-pin connector to the hydraulic control valve. Insert the connector labeled Hoist to hoist section of the valve and the sing section to the corresponding section.



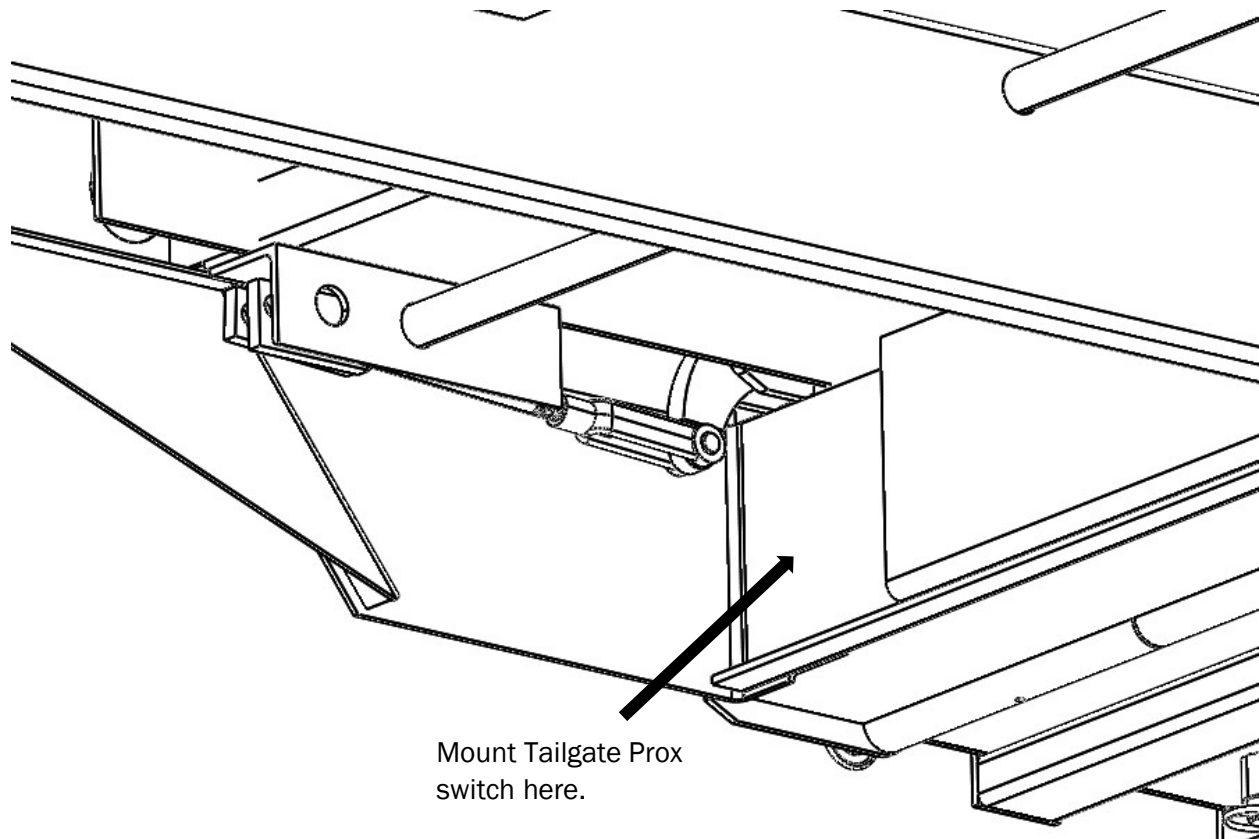
6. The 4-pin connector at the bulkhead is used for: (Note- 4- Pin Deutsch connector required)
- Pin #1 – Keyed 12v power
 - Pin#2 – Roto Enable
 - Pin #3 – Ground
 - Pin #4 – Marker lights

PROXIMITY SWITCHES

There are 3 Proximity switches on the RS-14 subframe. The 22- and 45-degree prox switches come mounted and preset from Continental. The tail gate open proximity switch will need to be installed after the dump body is installed.

TAILGATE OPEN PROXIMITY SWITCH

1. Start by installing the tailgate open proximity switch on the passenger side of the body.
2. The proximity switch needs to be set $\frac{1}{4}$ " from the bar that operates the tailgate.



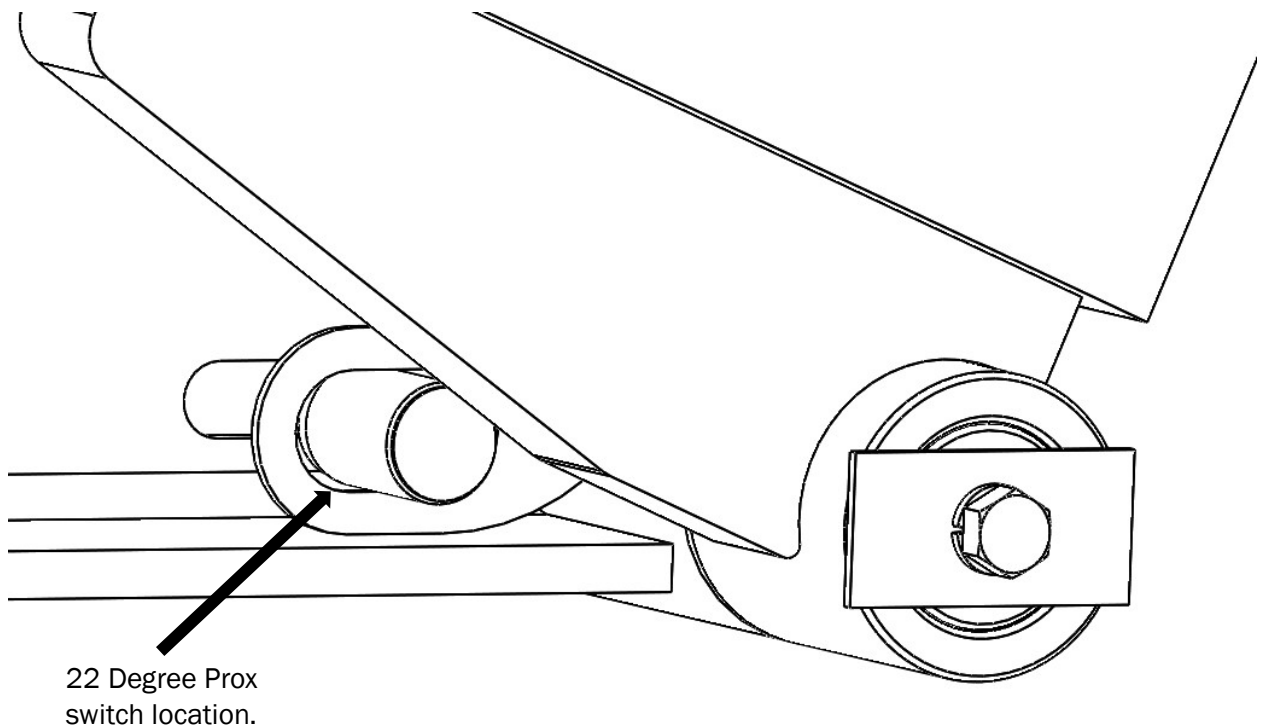
3. Locate the wire labeled TG open and route it out the back of the subframe and over to the prox switch that was installed on the body.

22 DEGREE PROXIMITY SWITCH

The 22-degree proximity switch is installed on the rear of the subframe on the driver's side of the unit. This switch will automatically open the tail gate when the bed is raised to 22 degrees. This can be overridden with a button on the joystick.

If the proximity switch needs to be adjusted follow the steps below:

1. Raise the dump body until the tailgate opens and then stop.
2. Using an angle meter check the angle of the body. Note: when set at Continental the subframe was on a level surface. The angle might be a few degrees different with the rail gear deployed.
3. If the angle is more than 5 degrees more or less than 22 degrees continue to the next steps.
4. Lower or raise the bed until the angle meter gets to 22 degrees.
5. Loosen the nuts that hold the prox switch to the mounting bracket and then slide the prox switch front or backwards. Note the light on the back of the prox switch should be off when the bed is at 22 degrees.



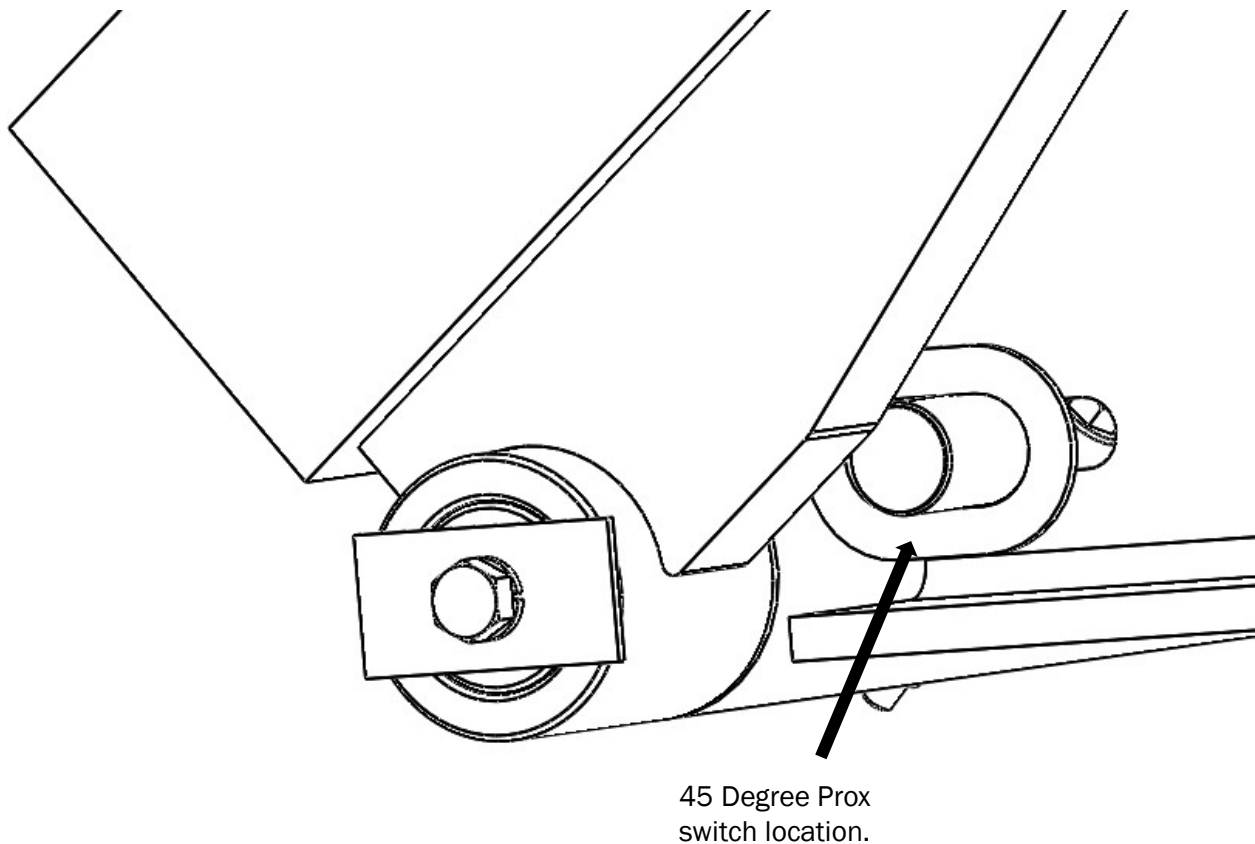
6. Once the prox switch is set, re tighten the nuts.

45 DEGREE PROXIMITY SWITCH

The 45-degree proximity switch is installed on the rear of the subframe on the passenger's side of the unit. This switch will automatically stop the unit when the hinge rotates clear of the prox switch. The hoist cylinder when stroked all the way is designed to stop the body at 45 degrees, however if you need more clearance for hitches and other items mounted on the frame you can adjust this prox switch.

If the proximity switch needs to be adjusted follow the steps below:

1. Raise the dump body until the apron has around 1" clearance from the trailer hitch or fenders.
2. Rotate the subframe around in a 180-degree arc while another person is watching to make sure the body and apron clear.
3. Loosen the nuts that hold the prox switch to the mounting bracket and then slide the prox switch front or backwards. Note the light on the back of the prox switch should be off when the bed is at the correct height.



4. After adjustment retighten the nuts that hold the prox switch to the mounting bracket.

MARKER LIGHTS

The RS 14 Subframe is wired for marker lights only in the factory harness. If you want to use stop turn taillights in the body, you will need to run the correct wiring through the subframe.

1. Start by locating and tying into the factory harness for the marker lights.
2. Run that wire to the 4 – pin connector on the bulkhead of the subframe. This should be pin#4.
3. Locate the wire on the back of the subframe label ML.
4. Locate the 16-gauge wire in the middle of the dump body.
5. Route the ML wire out of the back of the subframe leaving a little extra for movement.
6. Cut and connect the ML wire to the wire coming from the middle of dump body.
7. Secure the wire to the dump body so it does not get pinched or caught on anything.

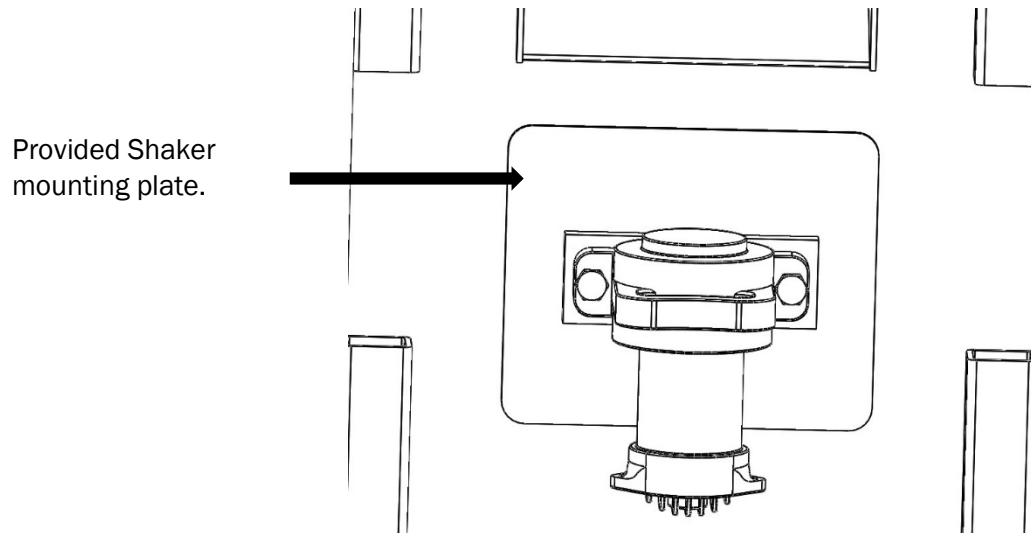
ELECTRIC TARP

If the subframe and body was order with an electric tarp. Continental has pre-installed a tarp control solenoid inside the subframe. You will just need to route the wires supplied with the tarp to the solenoid. See electrical schematic for more details.

SHAKER

If you want to add a shaker to the dump body, follow the following steps.

1. Raise the dump body and engage the body prop.
2. Start by tacking the shaker mount to the provided plate on the bottom on the dump body.



3. Remove the body prop and lower the unit to make sure the shaker will fit inside the sub frame.
4. If everything fits, raise the body, and re-engage to body prop.
5. Follow the shaker manufactures instructions for welding and securing it to the body.
6. Remove the cover plate from the subframe.
7. Route the cable specified by the shaker manufacture down the outside of the long sill and around through the back of the subframe.
8. Mount the shaker manufactures solenoid in the front section of the subframe.
9. The power stud inside the subframe can be used for the main power connection.
10. Locate the 16-gauge wire labeled shaker, this should be tire up with the main wires coming out of the plus one controller.
11. Connect the shaker wire to the solenoid.

RS-14 ELECTRICAL SCHEMATIC

BULKHEAD TO JOYSTICK

BULKHEAD END
– 6 PIN MALE PLUG

JOYSTICK END
– 6 PIN MALE PLUG

BOTH ENDS



- 1 – GROUND
- 2 – POWER
- 3 – CAN+
- 4 – CAN-
- 5 – 30 DEGREE LIGHT
- 6 – TAILGATE OPEN LIGHT

BULKHEAD TO PLC

BULKHEAD END
– 12 PIN FEMALE BULKHEAD CONNECTOR
– 6 PIN FEMALE BULKHEAD CONNECTOR
– 4 PIN FEMALE BULKHEAD CONNECTOR

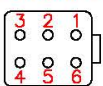
PLC END
– 12 PIN MALE CONNECTOR
– 6 PIN MALE CONNECTOR
– 4 PIN MALE CONNECTOR

BOTH ENDS



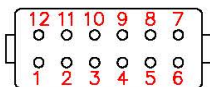
- 1 – IGN+
- 2 – PTO ON (SYSTEM ENABLE)
- 3 – MARKER LIGHTS
- 4 – GROUND (BATT-)

BOTH ENDS



- 1 – GROUND
- 2 – POWER
- 3 – CAN+
- 4 – CAN-
- 5 – 30 DEGREE LIGHT
- 6 – TAILGATE OPEN LIGHT

BOTH ENDS



- 1 – BATT+
- 2 – U+SIG (HOIST)
- 3 – ERROR (HOIST)
- 4 – U+SIG (SWING)
- 5 – ERROR (SWING)
- 6 –
- 7 –
- 8 –
- 9 –
- 10 –
- 11 –
- 12 – GROUND

BULKHEAD TO PVG VALVE

BULKHEAD END
– 12 PIN MALE CONNECTOR

JOYSTICK END
– 4 PIN MALE CONNECTOR
– 4 PIN MALE CONNECTOR

PVG HOIST END



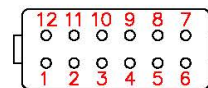
- 1 – U+SIG
- 2 – ERROR
- 3 – GROUND
- 4 – BATT+

PVG SWING END



- 1 – U+SIG
- 2 – ERROR
- 3 – GROUND
- 4 – BATT+

BULKHEAD END



- 1 – BATT+
- 2 – U+SIG (HOIST)
- 3 – ERROR (HOIST)
- 4 – U+SIG (SWING)
- 5 – ERROR (SWING)
- 6 –
- 7 –
- 8 –
- 9 –
- 10 –
- 11 –
- 12 – GROUND

PLC TO REAR BULKHEAD

PLC END
– 8 PIN MALE CONNECTOR
– 2 PIN MALE CONNECTOR

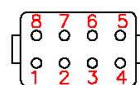
REAR BULKHEAD END
– CONNECTED TO EQUIPMENT

PLC END



- 1 – IGN+
- 2 – GROUND

PLC END



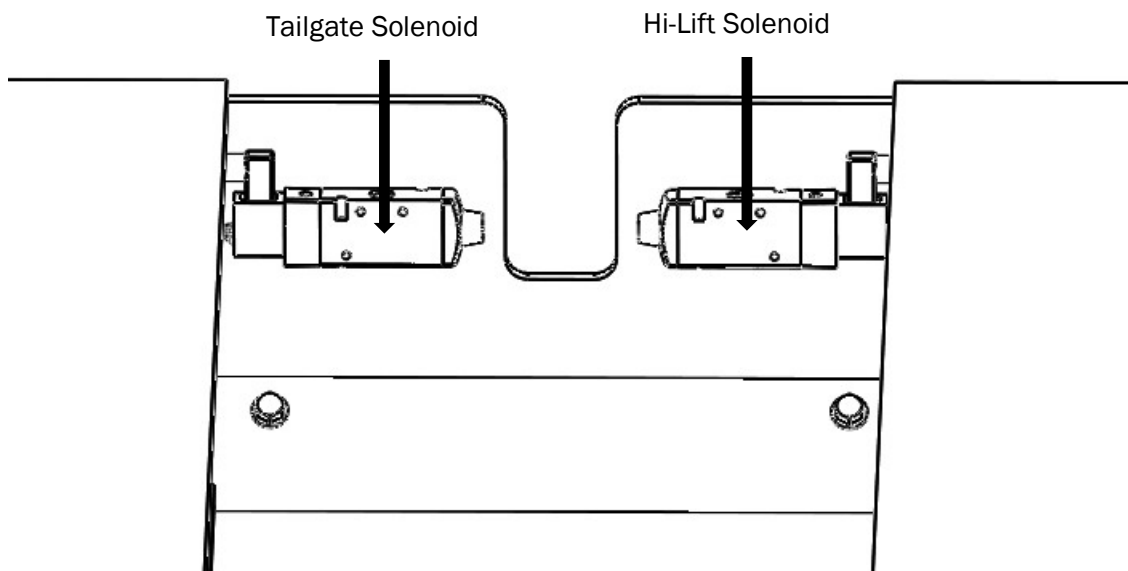
- 1 – TAILGATE OPEN PROX
- 2 – 22 DEGREE PROX
- 3 – 45 DEGREE PROX
- 4 – 30 DEGREE PROX
- 5 – HI-LIFT OPEN SOLENOID
- 6 – SWING ALARM
- 7 – TAILGATE RELEASE SOLENOID
- 8 – MARKER LIGHTS

Pneumatics

Continental uses an air cylinder for the tailgate lock and some bodies are equipped with a Hi-Lift tailgate option. A supply air line will need to be ran to the bulkhead on the subframe.

TAILGATE

1. Start by locating the auxiliary air tank on the chassis and then drain the air from the system.
2. Install and 3/8" air fitting into an empty port on the tank and then route a 3/8" air line from the fitting on the tank to the 3/8" on the bulkhead of the subframe.
3. Raise the body and engage the body prop.
4. Locate the tailgate air solenoid on the back of the subframe. This will be the air solenoid on the passenger's side.

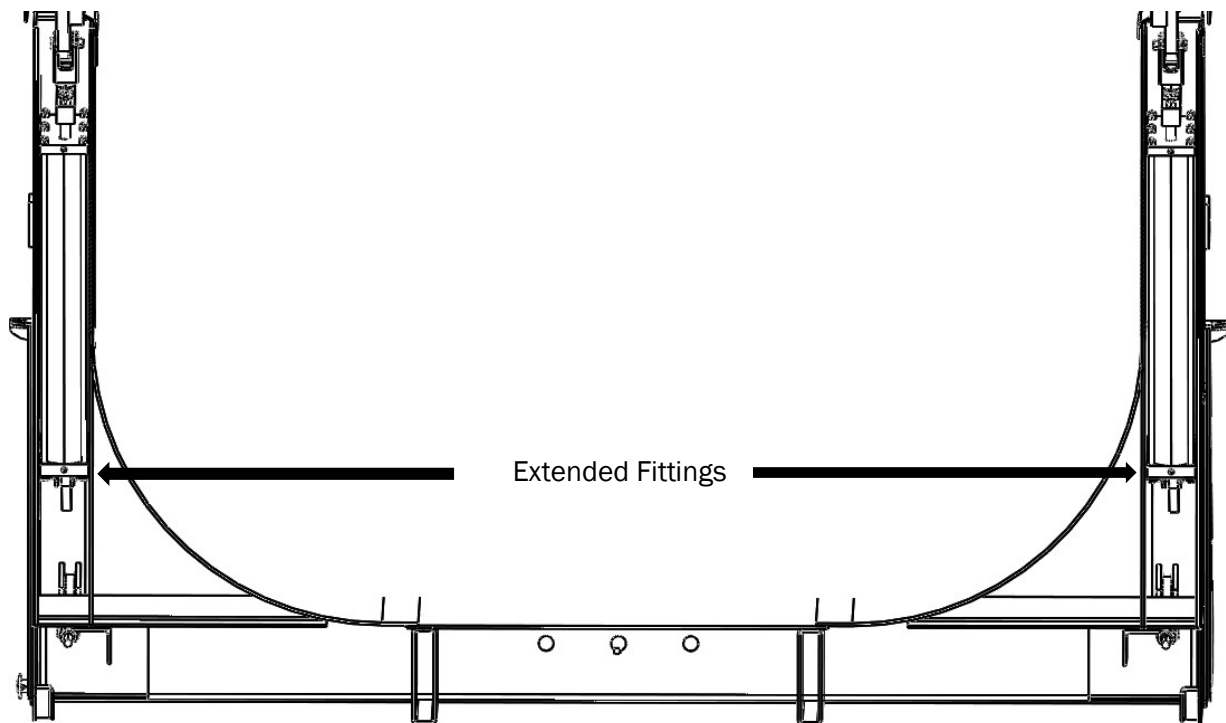


5. Route the hose from the valve out the back of the subframe to the tailgate air cylinder. Refer to the pneumatic diagram for the exact details on connections.

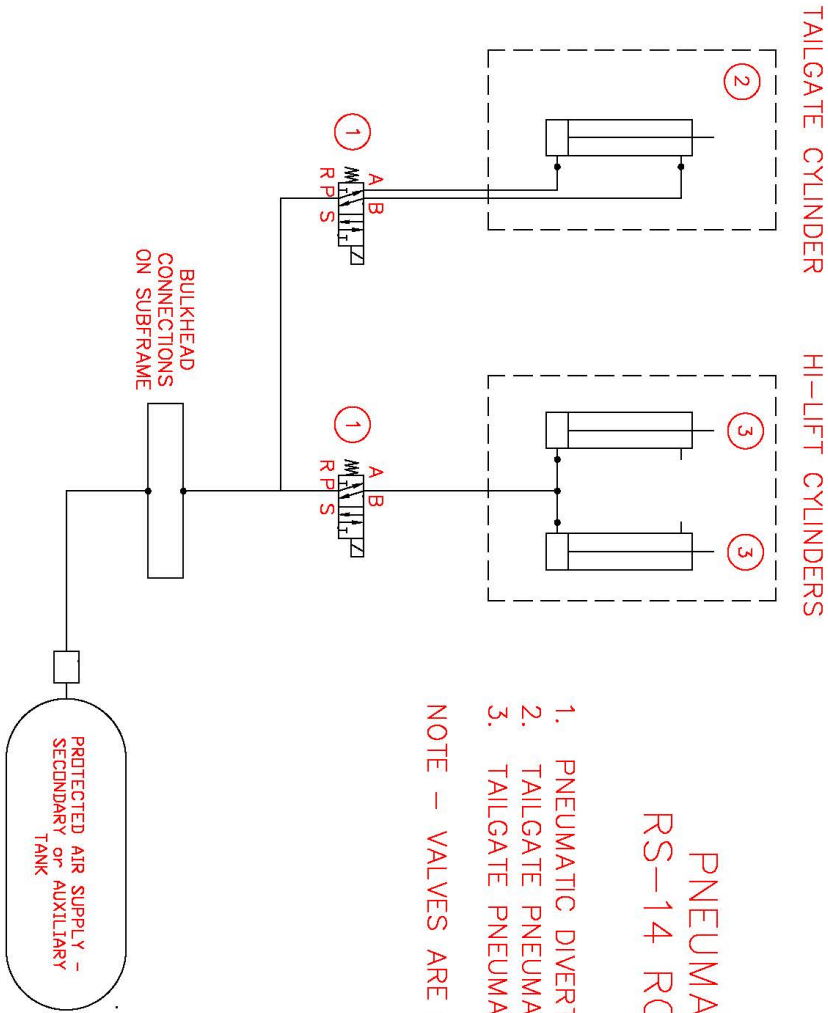
Hi-Lift Option

If you order the body with the hi-lift option, this feature is used for extra clearance when dumping and will need to be plumbed after the body is installed.

1. Start by raising the body and engaging the body prop.
2. Locate the Hi-Lift air solenoid valve on the driver's side rear subframe. Refer to the image in the tailgate section.
3. Route the hose out the back of the subframe and to the body.
4. Use the supplied T fittings to split the air hose to each hi-lift cylinder.
5. The fittings can be accessed from the underside of the body.
6. Refer to the pneumatic schematic for details on the connections.



Pneumatic Schematic



- PNEUMATIC SCHEMATIC
RS-14 ROTARY SUBFRAME
1. PNEUMATIC DIVERTER VALVE (H105C014)
 2. TAILGATE PNEUMATIC LOCK CYLINDER (NOT SUPPLIED)
 3. TAILGATE PNEUMATIC LOCK CYLINDER (NOT SUPPLIED)
- NOTE - VALVES ARE SHOWN NOT ENERGIZED

OPERATION

ON ROAD

A few factors should be taken into consideration when operating a RS-14 vehicle off the rail, follow all dump body manufactures guided lines in addition to the following:

VEHICLE STABILITY

Once modified with RS -14 subframe the chassis does not have stabilizers or outriggers. Use extreme caution when dumping to the side. The load can shift and cause the dump truck to roll over. While on rail the Rail dogs should be used when dumping to the side.

VEHICLE PAYLOAD

The addition of RS-14 to a vehicle reduces its available payload. The operator needs to be conscious of the weight of the vehicle in operating conditions to determine the remaining payload.

ON RAIL

- 1) Set the parking brake and place the transmission in neutral.
- 2) Before operating the system clamp the rail dogs to the rail.
- 3) Return to the cab of the truck and engage the PTO.
- 4) Press the roto enable switch to send power to the RS-14 system.
- 5) Holding the joystick press and hold the operator present switch.
- 6) Pull back on the Joystick to raise the body at least 6" before trying to rotate the body.
- 7) Swing the bed to the position required to dump the load.
- 8) Raise the bed. The tailgate will open automatically at 20 degrees.
 - a. If you wish to delay the automatic opening of the tailgate, press, and hold the tail gate override button on the joystick.
 - b. While holding the tailgate override the tailgate will not open until you release the button
- 9) Once the bed is empty lower the bed completely.
- 10) Swing bed towards the center on the truck until the body lock engages.
- 11) The tail gate will lock automatically lock once the bed is stowed in the body lock.

PARTS

SERVICE

RECOMMENDED MAINTENANCE INTERVALS

ITEM	FREQUENCY	DESCRIPTION
Nuts and Bolts	Every week	Inspect for loose fasteners. Tighten.
Grease Fittings	Every month	Lubricate as required.
Rotation Bearing	Every 50 hours of operation	Visually inspect bearings and lubricate bearings as required.
		When greasing the bearing, grease each fitting and the rotate subframe each way and then repeat 4 times for each grease fitting
Subframe Mounting Bolts	Yearly	Check torque and retorque as needed
Hydraulics	Every day	Inspect for leaks.
	Every month	Inspect for leaking or damaged hoses, fittings or cylinders. Repair or replace as required.
Pneumatic Components	Every week	Inspect for leaks.
	Every month	Inspect for leaking or damaged hoses, fittings or cylinders. Repair or replace as required.
Electrical Components	Every week	Inspect for proper connections or loose wires.
	Every month	Test for proper resistance and functionality of the system.

GREASE POINTS

All pins (pivoting or traveling through a slot) feature a grease fitting.

Pins and slots should be greased every month to ensure a smooth operation and to minimize wear.

RECOMMENDED GREASE

Pyroplex Blue 2 (Product Code: 55178 (US) – 01050-18 (Canada)) is recommend for the RS-14 rotary subframe.

RECOMMENDED HYDRAULIC FLUID

For best performance in cold weather, its recommended for the RS-14 to use a low viscosity – low temperature hydraulic fluid such as Petro Canada Hydrex XV or Shell Tellus S4 VX.

APPENDIX 1

BOLT TORQUE TABLE

Bolt Torque Requirements	
Grade 8 Fasteners	
Bolt Diameter (in)	Torque (Lub.) (ft-lbs)
3/8"	35
1/2"	80
5/8"	170
3/4"	280
1"	680