

Hydraulic Rail Puller
910093
Operating and Maintenance Manual



Hydraulic Rail Puller

910093

Record of Changes

Rev No.	Date	Description of Changes
Rev 2	12.2018	Manual format / branding update
Rev 2.1	10.2021	Update parts list #3 (pg. 25) & #44 (pg. 26) description
Rev 2.2	3.2023	Add environmental section, add PPE section, update hose and hydraulic fluid section.
Rev 2.3	9.2023	Update Technical Support & Service information

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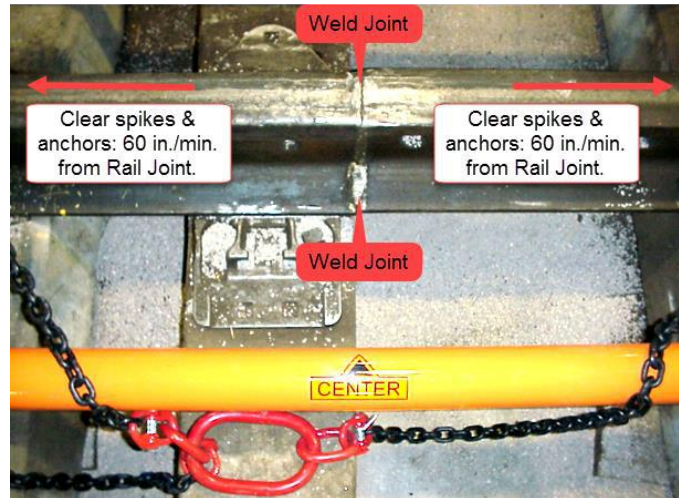
Section 1: Overview and Safety

Hydraulic Rail Puller

RRP designs and manufactures equipment primarily for the repair and new construction of rail and railroad tie track maintenance.

The Racine Railroad Products Rail Puller is a transportable, remotely powered tool designed for rail welding joint tensioning. The Racine Rail Puller accommodates 115 lbs to 141 lbs rail and is positioned on work site using the 3-Point Lifting Sling and truck crane or hoist.

The Racine Railroad Products Rail Puller is designed to pull two lengths of rail together in preparation for thermite and boutet welds. It will pull 120 tons and 6 inches of travel and will accommodate rail size ranging from 115 to 141 lbs. The unit operates on low-pressure 2,000 psi/138 bar so a pressure intensifier is not used on this Rail Puller.



Shields and guards protect all mechanical and hydraulic components. This also provides protection to the operator. All operations are self-contained and automatic. No manual clamping or wedges are used with the Rail Puller

Do not use this machine for other than its intended purpose.

Please read these instructions when using this tool, which can only be used for the specified purpose. This instruction manual should be kept throughout the life of the tool.

The operator of this tool should:

- Have access to this operation instruction.
- Read and understand this operation instruction.

Note: Information in this document is subject to change without notice.

Environmental Protection



Comply with relevant national waste disposal laws and regulations. Waste electronic devices cannot be treated as household waste.

Equipment, accessories, and packaging shall be recyclable.



Do not throw the discarded equipment in trash cans.

Safety Information

For safe installation and operation of this equipment, carefully read and understand the contents of this manual. Improper operation, handling, or maintenance can result in equipment damage and personal injury.

Only trained and authorized personnel should be allowed to operate this machine. In addition, all personnel at the worksite should be aware of the safety concerns and their individual responsibilities prior to working this machine.

Please read and comply with all the safety precautions in this manual **before** operating this machine. Your safety is at risk.

Safety Terms



DANGER indicates a hazardous operating procedure, practice, or condition. If the hazardous situation is not avoided death or serious injury will occur.



WARNING indicates a hazardous operating procedure, practice, or condition. If the hazardous situation is not avoided death or serious injury could occur.



CAUTION indicates a potentially hazardous operating procedure, practice, or condition. If the hazardous situation is not moderate or minor injury could occur.

Machine Use and Safety Precautions



Failure to follow safety precautions when operating this equipment can result in serious injury or death to the operator or other persons in the area.

Observe the following precautions whenever you are operating, working on or near this equipment.

Do not use this machine for other than its intended purpose.

Do not make any modifications without authorization or written approval from Racine Railroad Products. Replace all Racine Railroad Products and OEM parts with genuine Racine Railroad Products and OEM parts. Using non-OEM parts may compromise the safety of the machine.

Do not wear loose clothing, jewelry, radio belts, etc., when operating, working on or near this equipment. They can be caught in moving parts and may result in severe injury.

Always wear appropriate personal protective clothing when operating this equipment: e.g., orange safety vest, hard hat, safety glasses with side shields, hearing protection, steel-toed safety boots, leather gloves, dust respirator, etc.

Always lift heavy objects with the knees and legs, not the arms and back.

Always keep hands, arms, feet, head, clothing, etc., out of the operating area and away from all rotating or moving components when operating, working on or near this machine.

Always make sure that all guards, covers, belts, hoses and operating components are in good working order and that all controls are in the appropriate position before starting the engine.

Always make sure that all safety equipment installed properly and are in good working order. Do not operate the machine until unsafe conditions have been corrected.

Always operate in a well-ventilated area and make sure that the air filters, air filter covers, and muffler are in good condition.

Always keep the machine clean and free of debris. Operate the machine in a safe and responsible manner. Exercise caution when fueling, working on or near rotating or moving components, hot components and fuel systems. Be aware of potential fire hazards and prevent sparks, exhaust, etc., from starting fires on the machine and/or work area.

Always comply with all instructions provided on any decals or placards installed on the machine and with any relevant amplifying information provided in this manual or other general operating procedures.

Always disconnect the power source and make sure that all controls are in a safe position and install all appropriate locking and safety devices before doing any of the following:

- Lubricating
- Adjusting
- Installing Tooling
- Making Repairs
- Performing Service

Section 2: Specifications and Installation

Specifications

Physical

Length:..... 108.00 in. (274cm)
 Width:..... 28.00 in. (71 cm)
 Height, Work Mode: 19.94 in. (50 cm)
 Weight (operation): 1130 lbs (512.5 kg)
 Hydraulic System:..... Open Center

Temperature

Upper ambient operating: 110 °F (43 °C)
 Lower ambient operating: 20 °F (-28 °C)

Mechanical Data

Hydraulic Motor:..... Open center
 Maximum Flow:..... 10 gpm (38 lpm)
 Maximum Pressure:..... 2000 psi (138 bar)
 Maximum Back Pressure:..... 250 psi (14 bar)

Viscosity (Fluid Thickness)

USA	Metric
50 °F 450 SSU Max	10 °C 95 Centistokes
100 °F 130-200 SSU	38 °C 27-42 C.S.
140 °F 85 SSU Min.	60 °C 16.5 C.S., Min.

Pour Point..... 10 °F / 23 °C Minimum (for cold startup)
 Viscosity Index (ASTM D 2220)..... 140 °F Minimum
 Demulsibility (ASTM D-1401) 30 Minutes Maximum
 Flash Point (ASTM D-92) 340 °F / 171 °C Minimum
 Rust Inhibition (ASTM D-665 A & B) ... Pass
 Oxidation (ASTM D943) 1000 Hours Minimum
 Pump Wear Test (ASTM D2882)..... 60 mg Maximum

Installation

The Rail Puller was tested after assembly at our factory. After assembly, the machine should receive a thorough In-Service inspection before initial operation. If you do not feel qualified to perform this In-Service work yourself, contact a competent mechanic or the Racine Railroad Products Service Department for technical support.

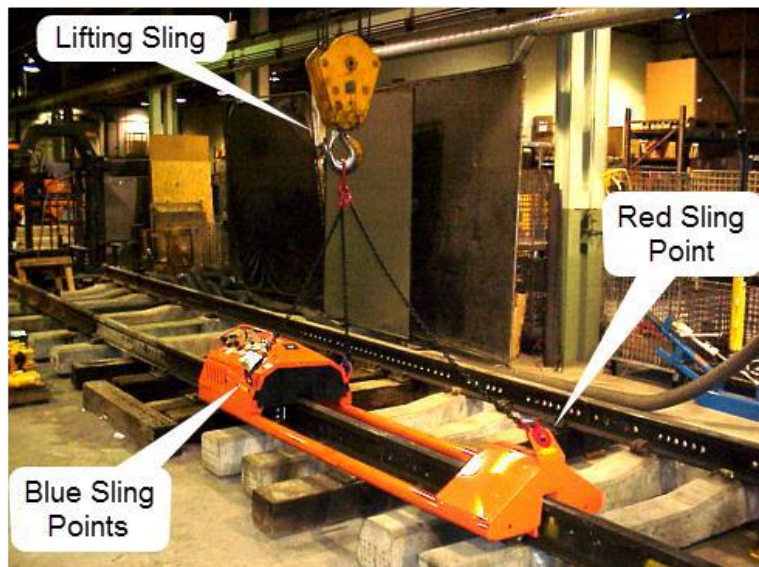
Unpacking

Always lift the Rail Puller with the **3-Point Lifting Sling** and a truck crane or on-rail hoist.

Always use care when transporting the Rail Puller and ensure proper footing and crew coordination when moving or positioning the Rail Puller.

 **WARNING** Never stand under Rail Puller when suspended. Injury or death may occur if Rail Puller is lowered or dropped on personnel.

1. Support the Rail Puller and cut the banding to release the machine from the shipping crate.
2. Use the included 3-point lifting sling and a truck crane or hoist to lift the Rail Puller.
3. The lifting sling points, and the lifting sling (chain assembly with 3 hooks) are color coded.
 - The red donut decal-sling point located on the stationary end of the Rail Puller is for the red colored single sling hook.
 - The two blue donut decal-sling points on the work end of the Rail Puller accommodate the two blue colored sling hooks.
4. Remove Rail Puller, options, and accessories separately clear of the crate and place on a safe surface.



Power Source Requirements

The Rail Puller requires the flow and pressure requirements of the HTMA type RR hydraulic circuit.

- The HTMA defines the type of RR circuit as one nominally rated at 10 gpm / 38 lpm.
- The hydraulic system must provide a flow range of 9-10.5 gpm / 34-40 lpm at 2000 psi/138 bar measured at the power supply, this is an open center system.
- The relief valves should be adjusted for a cracking pressure of 2200-2300 psi / 152-159 bar with full flow pressure not exceeding 2500 psi / 173 bar measured at the power supply outlet.
- The total system back pressure measured at the tool end of the return hose should not exceed 250 psi / 17 bar when operating at the maximum system flow, system conditions for measurements are at maximum fluid viscosity of 400 ssu (82 centistokes) i.e., at minimum expected operating temperature.

Hose Requirements

It is not often necessary or advisable to use long hoses. All hoses must have an oil resistant inner surface and an abrasion resistant outer surface. Each hose must have male pipe ends for most application.

Longer hoses can be used when necessary but can affect the operation of the tool due to resistance in the hose.

If small diameter or long hoses are used, or if restrictive fittings are connected to the supply and return ports, the pressure required to push the fluid through the system and back to the tank will be higher. This will reduce tool power.

Important: Oil should always flow from the male coupler through the female coupler.

Note: The pressure increases in uncoupled hoses left in the sun. This may make them difficult to connect. When possible after use, connect the free ends of the operating hoses together.

Hose Types

Hydraulic hose types authorized for use with the tool are:

1. **Labeled and certified non-conductive.**
 - This is the only hose authorized for use near electrical conductors.
 - Constructed of thermoplastic or synthetic rubber inner tube, synthetic fiber braid reinforcement, and weather resistant thermoplastic or synthetic rubber cover.
2. **Wire braided** (conductive)
 - This hose is conductive and must **never** be used near electrical conductors.
 - Constructed of synthetic rubber inner tube, single or double wire braid reinforcement, and weather resistant synthetic rubber cover
3. **Fiber braided** (not certified or labeled non-conductive)
 - This hose is conductive and must **never** be used near electrical conductors.
 - Constructed of thermoplastic or synthetic rubber inner tube, synthetic fiber braid reinforcement, and weather resistant thermoplastic or synthetic rubber cover.

The rated working pressure of the hydraulic hose must be at least 175 bar (2500 psi).

Hydraulic Hose Recommendation

Hydraulic Hose Recommendation								
Flow Per Circuit		Length Each Hose		Use	Inside Diameter		SAE Spec Hose (Wire Braid)	SAE Spec Hose (Fiber Braid)
GPM	LPM	Feet	Meter		Inch	MM		
5 to 8	19 to 30	To 50	To 15	Both	1/2	13	SAE 100R1-8	100R7-8
5 to 8	19 to 30	51 to 100	15 to 30	Both	5/8	16	SAE 100R2-10	SAE 100R8-10
5 to 8	19 to 30	100 to 300	30 to 90	Pressure Return	5/8	16	SAE 100R2-10	SAE 100R8-10
					3/4	19	SAE 100R1-12	SAE 100R7-12
9 to 12	34 to 45	To 50	To 15	Both	5/8	16	SAE 100R2-10	SAE 100R8-10
9 v 12	34 to 45	51 to 100	15 to 30	Pressure Return	5/8	16	SAE 100R2-10	SAE 100R8-10
					3/4	19	SAE 100R3-12	SAE 100R7-12
9 to 12	24 to 45	100 to 200	30 to 60	Pressure Return	3/4	19	SAE 100R2-12	SAE 100R8-12
					1	25.4	SAE 100R1-16	SAE100R7-16

The rated working pressure of the hydraulic hose must be at least 2500 psi / 173 bar.

Hydraulic Fluid Recommendation

Inspect hoses for cuts, crushing, leaks, or abrasion, which may be a safety hazard or reduce fluid flows.

The following fluids work well over a wide temperature range at startup, allow moisture to settle out, and resist biological growth in cool operating hydraulic circuits.

Others that meet or exceeds the specifications of these fluids may also be used.

Type	Hydraulic fluid
Amsoil	AWH ISO 32
Chevron	Rando HD Premium Oil MV ISO VG 32
	Rando HDZ ISO 32
Gulf	Harmony AW ISO Multi-Grade 32
Mobil	DTE Oil Excel 32
Schaeffer	Dilex Supreme Hydraulic Fluid w/ Dynavis ISO 46.
Shell	Shell Tellus S2 VX 32
Sunoco	Sunvis 1032 HVI Hydraulic Oil

Tool Connecting Procedures

1. Stop the engine before connecting the tool and or hoses to the power unit, and when switching hoses or tools.
2. Turn the hydraulic on/off valve to the off position before starting the engine.

Make sure all hoses are connected for correct flow direction to and from the tool being used.

When routing hose in the work area, position them where personnel will not be at risk of tripping over them where vehicles can run over the hoses. Do not lay hose over sharp objects.



Pressurized fluid escaping from a damaged hose can penetrate the skin and be injected in the body causing injury or death.

Do not pull on hoses to drag the power unit or tool.

Connecting Hoses

1. Wipe quick couplers with a clean lint free cloth before connecting them.
2. Depressurize the system.
3. Allow system and hydraulic fluid to cool if too hot to handle.
4. Securely connect the return (tank "R") hose from the power source to the tool.
5. Securely connect the supply (pressure "P") hose from the power source to the tool.

It is recommended that you connect the return hoses first and disconnect last to minimize or avoid trapping pressure within the tool.

When connecting the quick couplers, the flow should run from male coupler to the female coupler. The female coupler on the tool is the inlet. Quick couplers are marked with a flow direction arrow.



Pressurized fluid escaping from a damaged hose can penetrate the skin and be injected in the body causing injury or death.

Do not pull on hoses to drag the power unit or tool.

Note: When possible, connect the free ends of uncoupled hoses to prevent build up in the hoses. The sun can also increase pressure in the hoses and make connecting them difficult.

Disconnecting Hoses

1. Stop the hydraulic power source.
 2. Depressurize the system.
 3. Allow system and hydraulic fluid to cool.
 4. Disconnect the supply (pressure) hose to the power source (pressure port) from the tool (IN port).
 5. Disconnect the return (tank) hose to the hydraulic power source (return port) from the tool (OUT port).
 6. To prevent contamination, always install dust caps over the hydraulic ports of the tool when disconnected.
1. Make sure the power unit is OFF before connecting or switching a tool and / or hoses.
 2. Turn the hydraulic ON/OFF valve to the OFF position before starting the engine.
 3. Make sure all hoses are connected for correct flow direction to and from the tool being used.
 4. When routing hose in the work area, position them where personnel will not be at risk of tripping over them, or where vehicles can run them over.



Do not pull on hoses to drag the power unit.

Do not lay hose over sharp objects.

Section 3: Tool Operation

Personal Protective Equipment



Before operating this machine, make sure that all general safety precautions are observed, and that proper personal protective clothing is worn as described below.

At a minimum, operators should wear the following Personal Protective Equipment:

1. Safety Glasses
2. Hearing Protection
3. Hard Hat
4. High Visibility Safety Vest
5. Leather Work Gloves
6. Steel Toed Safety Shoes

Controls

A single control panel houses all the controls and monitoring devices required to operate the unit.

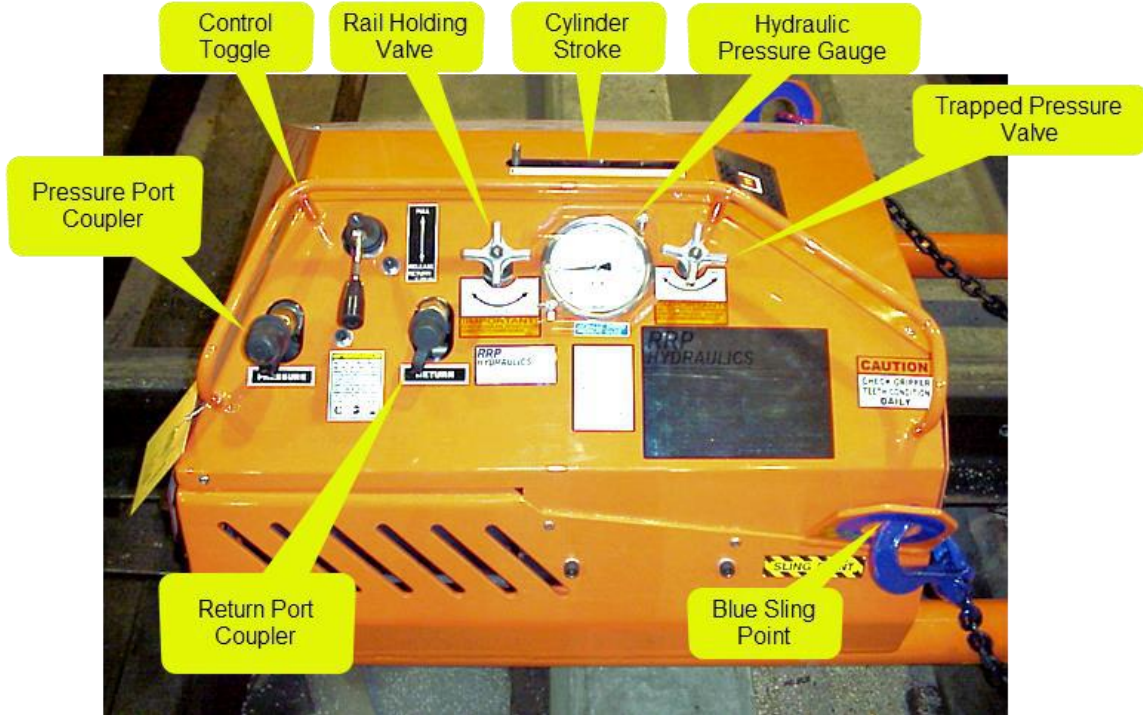
A single control is used to clamp the rail and pull the rail.

A holding valve maintains the rail position and allows the hoses to be disconnected from the Rail Puller and used to operate other tools while welding.

System pressure gauges and tons conversion legend along with the cylinder positioning gauge allows the operator to monitor system functions while making a pull.

The Rail Puller has three lifting eyes locations color coded to match the lifting sling, which is supplied with the Rail Puller. The 3-point system levels and stabilizes the unit for easy positioning on the rail.





Decals

Decals are placed on the tool to aid in its operation and maintenance. The operator should locate and understand them before using the Rail Puller.

Note: Not all decals are listed.

The Caution decal which specifies the rated flow of 10 gpm/40 lpm and pressure of 2000 psi/138 bar.



The control lever is labeled with a decal, which indicates the PULL and RELEASE RETURN direction for operating the Rail Puller.



The Rail Holding Valve decal indicates the direction to rotate the handle to hold the rail in place or release the rail after completing the job.

It also notes the importance of having the hoses connected between the Rail Puller and power source before releasing the rail.



The Trapped Pressure Valve decal indicates the direction in which to turn the valve for releasing trapped pressure in the hydraulic system when connecting to the hydraulic hoses.

It notes the importance of having this valve closed tightly before operating the Rail Puller.

If left open while attempting to use the Rail Puller, oil will drain out the drain hose on the opposite side of the control panel and the Rail Puller will not function correctly.



Clear Spikes and Rail Anchors decal recommends the removal of rail fasteners for a smooth even pull on the rail.



The hydraulic hose connection ports PRESSURE and RETURN are located on the control panel.

The left port is PRESSURE and is equipped with a female coupler. The right port is RETURN and is equipped with a male coupler.



Hydraulic Quick Couplers

A Center decal indicates the center of the work area for ideal positioning when welding.



The *Tons Conversion Legend* chart converts the pressure reading on the gauge to tons of pull on the rail.

TONS CONVERSION LEGEND	
PSI	TONS
1700	120
1554	110
1413	100
1272	90
1130	80
989	70
847	60
706	50

82-399-0

Daily Inspection and Lubrication

At a minimum, perform the following routine daily maintenance on the Rail Puller to keep it in good working condition. Inspect the following and correct any problems as necessary:

- General condition of the machine.
- Check that all guards are in position and securely fastened and are in good condition.
- All controls are operable.
- Inspect hoses, which connect Rail Puller to power source for wear, cracking, fatigue, or leaks before using.
- Routine adjustments and maintenance.
- Remove and clean the protective lens covering the pressure gauge as required. Two wing nuts hold lens in place and are easily removed for servicing. Fasten lens in position before operating the Rail Puller.

Inspect Rail Puller for any hydraulic oil leaks and repair as required do not operate Rail Puller if a leak is present, the ability to hold the rail in position maybe lost if a leak reduces oil pressure. Close the trapped pressure valve completely.

Turn the rail holding valve counterclockwise (release rail direction) to open the hydraulic circuit.

Inspect the gripper pads for wear or damage.

- Replace excessive worn or damaged pads before use.
- Gripper pads that are in poor condition can slip on rail.
- Also check that couplers are in good condition.



Rail Gripper Cams on Working End



Gripper Cams on Stationary End



Synchronized Rail Gripper Cams

Lubricant Type and Locations

- Use lithium complex NLGI #2 grease and apply 3-5 strokes to the gripper arms on a weekly basis.

Before Operating

All operating functions and gauges are located on the control panel that is monitored by a single operator. The controls and gauges are labeled as to their function and operating instructions including a comprehensive operating instruction decal also placed on the control panel.

The Rail Puller is also equipped with a trapped pressure valve to release any pressure, which may accrue due to ambient temperature changes. This feature aids in hose connection.



Read and understand each decal and or tags that are on or attached to the Rail Puller before operating the tool.

Always close the trapped pressure valve before operating the puller to prevent oil leakage.

The Rail Puller hydraulic system pressure is monitored by a pressure gauge located on the control panel. A pressure to tons of pull chart is located below the pressure gauge for quick reference.

The Rail Puller's controls are located on the left side of the control panel. When the control is released, the pressure is maintained.

When the Rail Holding Valve is completely turned to the hold direction, the hoses can be removed from the Rail Puller, and used on another tool.



Never inspect pressurized hoses, coupler, or fittings with hands or at close distances.

Pressurized fluid can puncture the skin and inject oil into the body resulting in death.

Do not use hoses, couplers, or fittings which are damaged, replace immediately.

Position on Rail



Never stand under the Rail Puller when suspended.

Injury or death may occur if Rail Puller is lowered or dropped on personnel. Always stand clear and always maintain firm footing when guiding Rail Puller in place.

1. Use truck crane to lift and position Rail Puller on rail to be welded.
 - Rail must set into openings on each end of the Rail Puller.
2. Align the center of the opening in the rail with the Center decal's on the Rail Puller frame.
 - This position will best utilize the work area provided within the Rail Puller's frame.
3. When the Rail Puller is properly positioned, unhook the lifting sling from the Rail Puller and remove the sling from the work area.

Operating

Important: Trapped pressure valve must be closed when operating Rail Puller.



WARNING

Pinching hazard. Tool parts move at high speed and force and can cause severe personal injury. Keep all body parts away from moving parts of the tool when connected to the hydraulic power source or during operation.

1. Lift control valve handles to close clamping mechanism and pull rail to the required location.
 2. Close the holding valve to maintain rail position.
 - After the holding valve is closed tight the hydraulic fluid flow to the Rail Puller can be turned off, and the power source shut down. If required, the power source can be disconnected from the Rail Puller and used to operate other tools while the rail is being welded.
 3. With the hydraulic flow turned off and the holding valve closed tightly, operate the control lever in both directions to relieve pressure trapped in the hoses.
 - Disconnect the hoses from the Rail Puller and use power source as required.
 4. The Rail Puller must be connected to the power source before opening the Holding Valve.
 5. Start the power source and turn the hydraulic flow to ON.
 6. When the welding process is complete open the holding valve and push down on the control valve handle to release the rail and retract the Rail Puller.
 - The Rail Puller may jump slightly when the rail is released this is normal.
 7. Retract the Rail Puller until the indicator is in the Fully Retracted position on the gauge decal.
- Important:** If the Rail Puller is not retracted completely the pulling distance will be reduced.
8. Before disconnecting the hoses, shut the power source to OFF and operate the control valve in both directions to release any trapped pressure.
 9. Disconnect the hoses from the Rail Puller.
 10. Attach the lifting sling to the lifting eyes of the Rail Puller.
 11. Remove Rail Puller from rail and return it to its storage position.




WARNING

Never stand under Rail Puller when suspended. Injury or death may occur if Rail Puller is lowered or dropped on personnel.

Section 4: Maintenance

This section outlines basic adjustments and maintenance required for daily operation of the Rail Puller. These instructions are intended for operator level, field maintenance and not repair shop or overhaul level procedures.

 **WARNING** Do not perform maintenance on the Rail Puller while the hydraulic power source motor is running or when hoses are connected.

Cold Weather Operation

Hydraulic fluids are thicker in cold weather; therefore, run the engine at low idle long enough to bring the fluid temperature up to minimum of 50 °F / 10 °C or until the top of the hydraulic tank feels warm, before operating tool.

Storage Instructions

Cover male and female couplers with the coupler dust caps. Properly secure the tool to prevent it from moving around. For long term storage place in a horizontal position in a cool dry environment which is not subjected to rapid temperature changes.

Safety Devices

When maintenance is complete, make sure the following:

- The hydraulic control valves are operable.
- The hydraulic quick couplers and hoses are safe to use.
- Weekly lubrication of the gripper cams and gripper arms.
- The gripper pads are in good condition.

Annually

Remove the cover from the opposite end as well as the control panel backside cover. Perform a detailed inspection of the systems hoses and fittings for damage and leaks.

Troubleshooting

The following chart can be used as guide to correct any problems you may be experiencing with the Rail Puller. To determine the problem in operation of the Rail Puller, always check that the hydraulic power source is supplying the correct hydraulic flow and pressure to the tool. Be sure you are using an accurate flow-meter.

Check the flow with the hydraulic fluid temperature at least 80 °F / 27 °C.

Always thoroughly check the power source and hoses before disassembling the Rail Puller.

Problem	Possible Cause	Resolution
Unable to connect hydraulic hoses to Rail Puller.	Pressure trapped in Rail Puller hydraulic systems.	Open trapped pressure valve and lift control lever up while connecting hoses.
	Damaged couplers	Inspect couplers replace if required.
Rail Puller will not set down on rail.	Wrong size rail.	Rail Puller designed to fit 115-141 lbs rail.
	Cams or gripper arm are closed.	Inspect cams and or gripper arms, fully retract Rail Puller so clamping systems opens.
Rail Puller clamping system does not move.	Rail holding valve is closed.	Open rail holding valve.
	Trapped pressure valve open.	Closed trapped pressure valve.
	Hydraulic Flow not turned ON at power source.	Turn flow ON at power source.
	Damaged hose in hydraulic system.	Check for leaks and replace damaged hose.
	Contaminated relief valve on Rail Puller.	Have relief valve checked by qualified technicians.
Rail Puller clamps Rail but does not have enough power to pull rail.	Trapped pressure valve open.	Close trapped pressure valve.
	Damaged hose in hydraulic system.	Check for leaks and replace damaged hose.
	Low setting or contaminated relief valve on power source.	Test power source and make repairs as required.
	Contaminated relief valve on Rail Puller.	Have relief valve checked by a qualified technician.
Rail Puller will not unclamp from rail	Rail holding valve is closed.	Open rail holding valve.
	Excess pressure on Rail Puller from Rail.	Quickly switch control lever between pull and release.

Problem	Possible Cause	Resolution
Gap in rail does not close enough.	Rail Puller is at max pull	Release rail and retract Rail Puller to Fully retracted position. Try pulling rail again.
	Maximum pulling pressure has been achieved.	Check the hydraulic system pressure gauge and determine the ton rate from legend. If reading indicates 120 tons rail has achieved maximum pulling pressure.
	Relief valve set too low at power source.	Check pressure gauge reading on Rail Puller.
	Relief valve defective in Rail Puller.	Test Rail Puller relief valve and repair as required.
Rail Puller slips on rail.	Irregular surface on rail where grippers grab.	Inspect rail and reposition Rail Puller if required.
	Worn or damaged gripper pads.	Inspect gripper pads and replace as required.

Section 5: Parts and Service Support

Technical Support & Service

Telephone and web-based technical support is available for current production models through our Customer Service Department. Service Manuals and limited technical support may be available for models that are no longer in production.

Telephone and E-mail Technical Support

Telephone and e-mail technical support is available on normal U.S. business days from 8:00 AM to 5:00 PM U.S. Central Time Zone (GMT +6 (+5 Daylight Savings Time)).

Phone: (262) 637-9681

Email: custserv@racinerailroad.com

Racine Railroad Products
1955 Norwood Court
Mount Pleasant, WI 53403

Non-Warranty Technical Support

Depending upon the circumstances and availability of technical service personnel, we may provide technical assistance and/or field service support, *at the customer's expense*, to assist in the correction of non-warranty related problems. Contact our Customer Service Department to coordinate Non-Warranty Technical or Field Service Support.

Warranty Support Technical Support

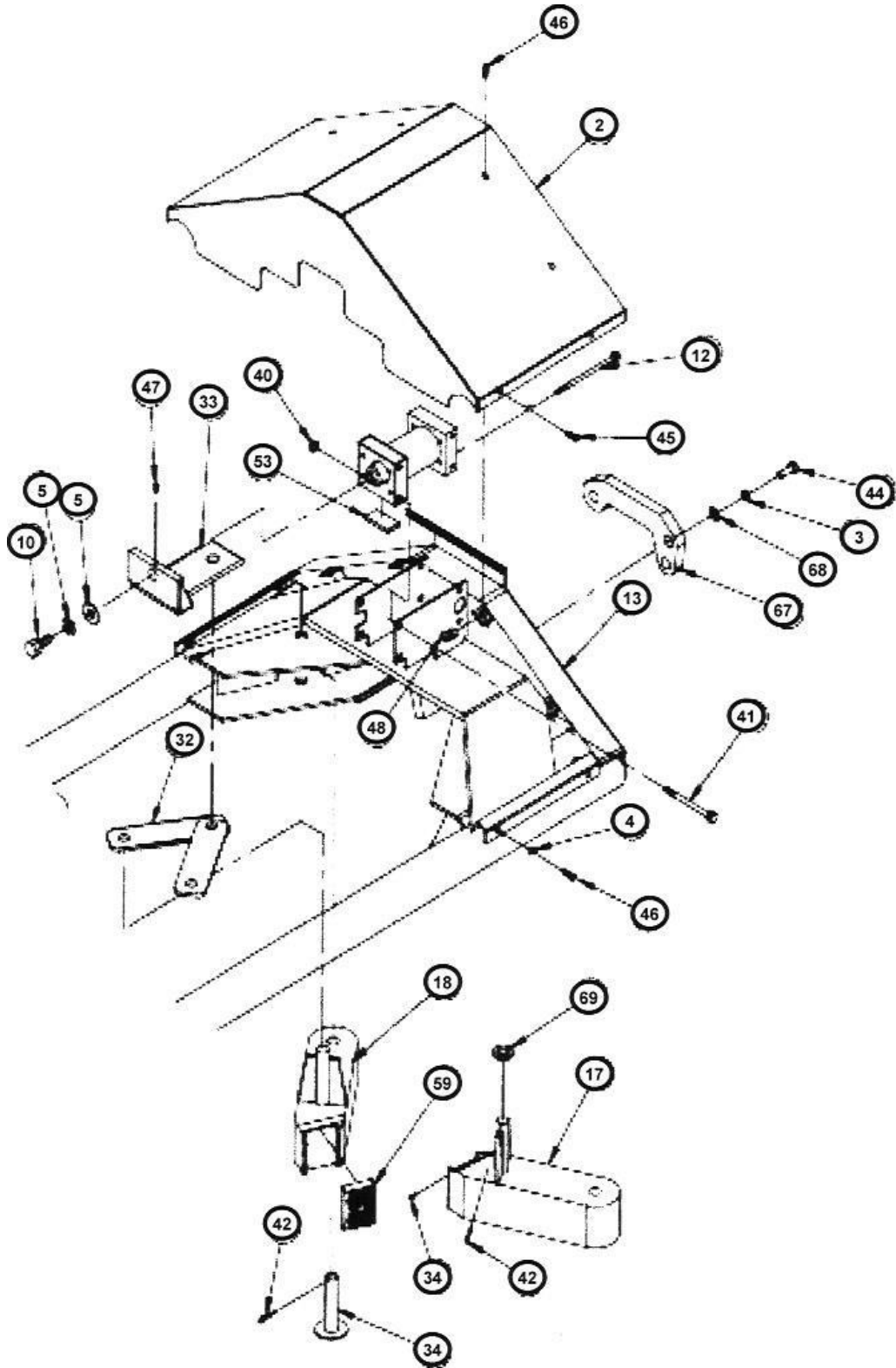
Depending upon the circumstances and availability of technical service personnel, we may provide technical assistance and/or field service support, *at no charge to the customer*, to assist in the correction of warranty related problems. Contact our Customer Service Department to coordinate Warranty Technical or Field Service Support.

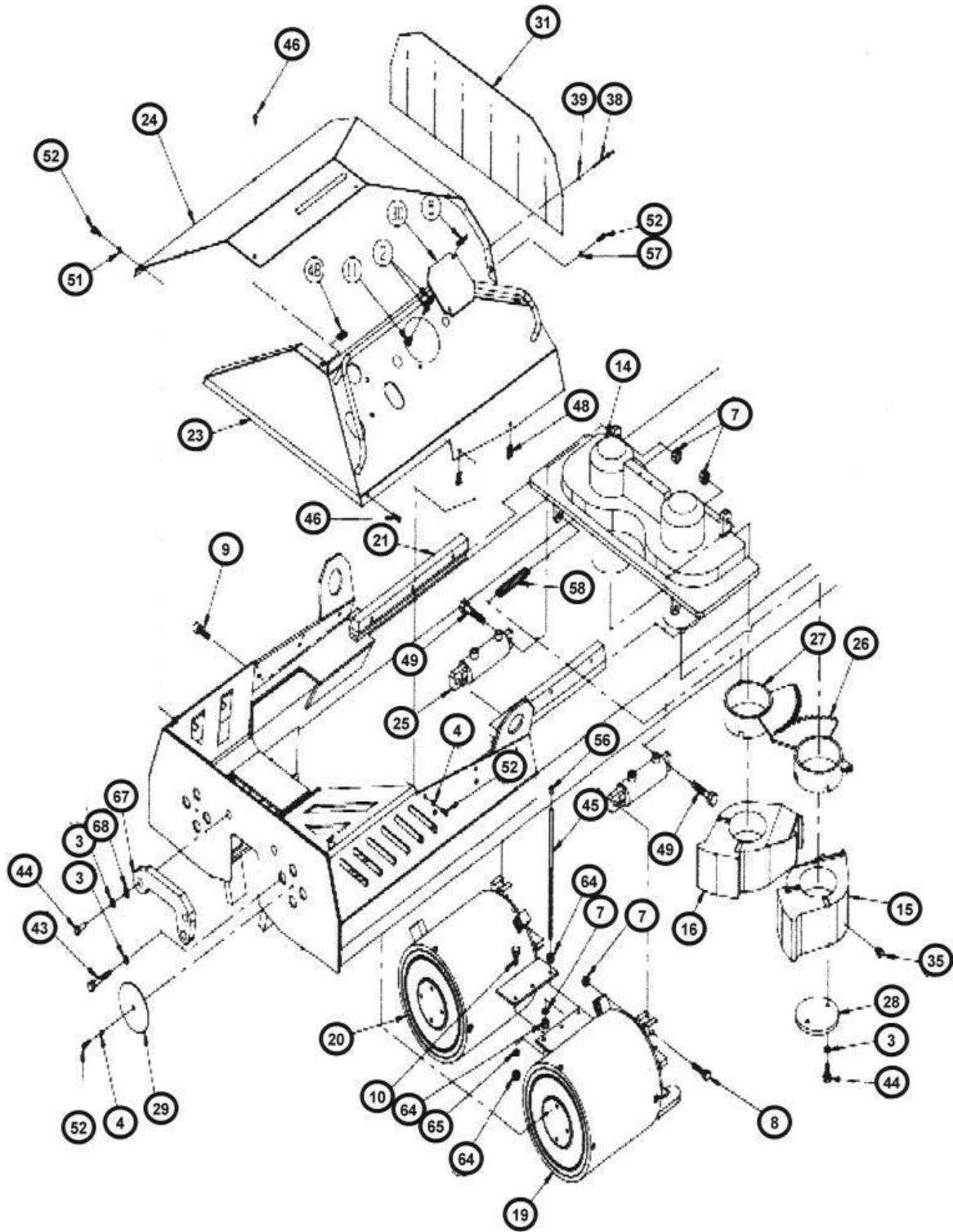
Warranty Parts Claims

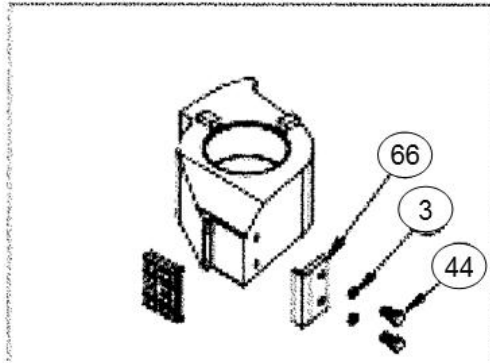
Material claimed to be defective must be returned to our factory for evaluation. Defective materials will be replaced, or your account will be credited if replacement materials have already been purchased. Please contact our Customer Service Department at the address provided below if you have any questions or problems.

Warranty Service Support

Depending upon the circumstances and availability of technical service personnel, we may provide technical assistance and/or field service support, *at no charge to the customer*, to assist in the correction of warranty related problems. Contact our Customer Service Department at the address provided above to coordinate Warranty Service Support.



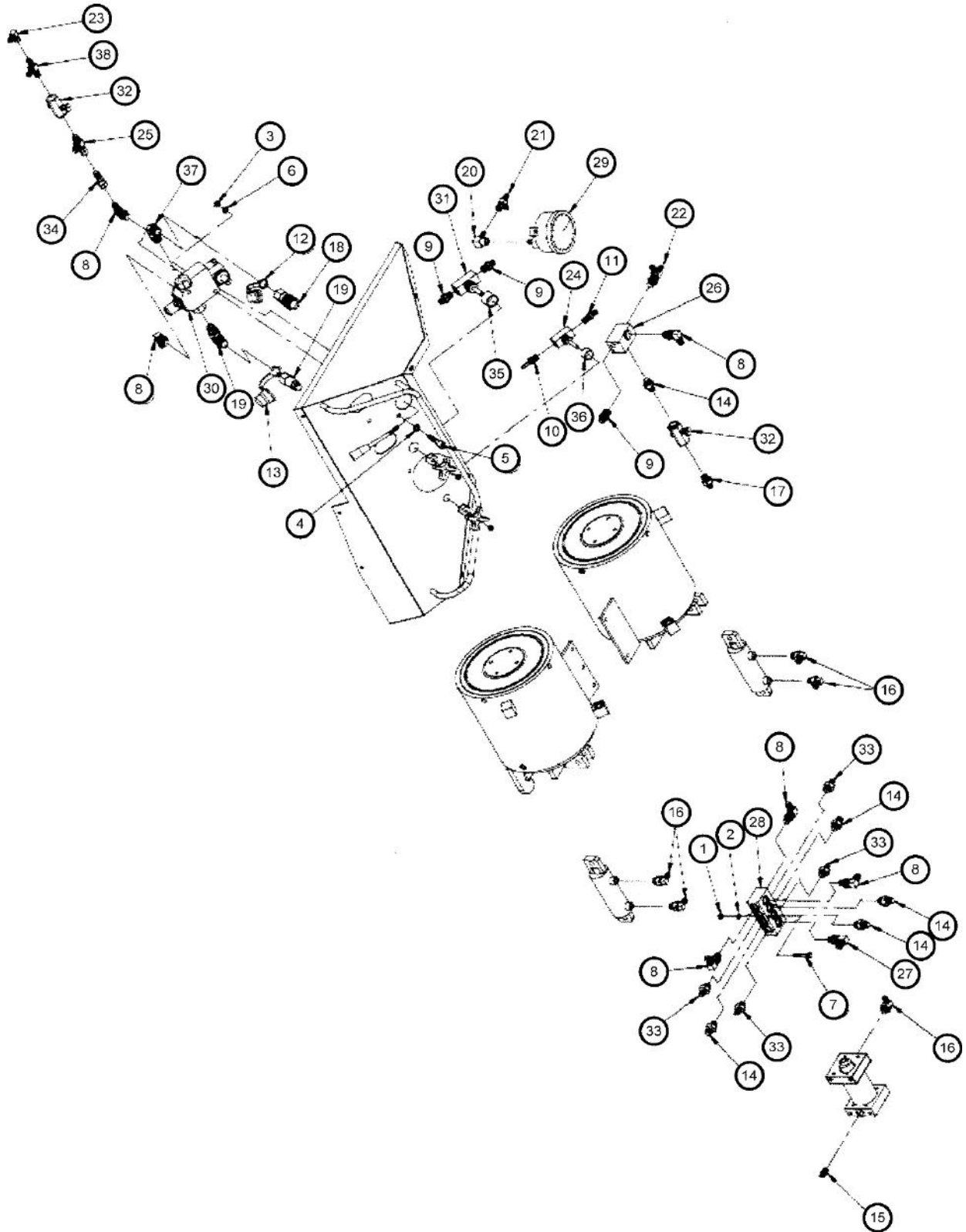




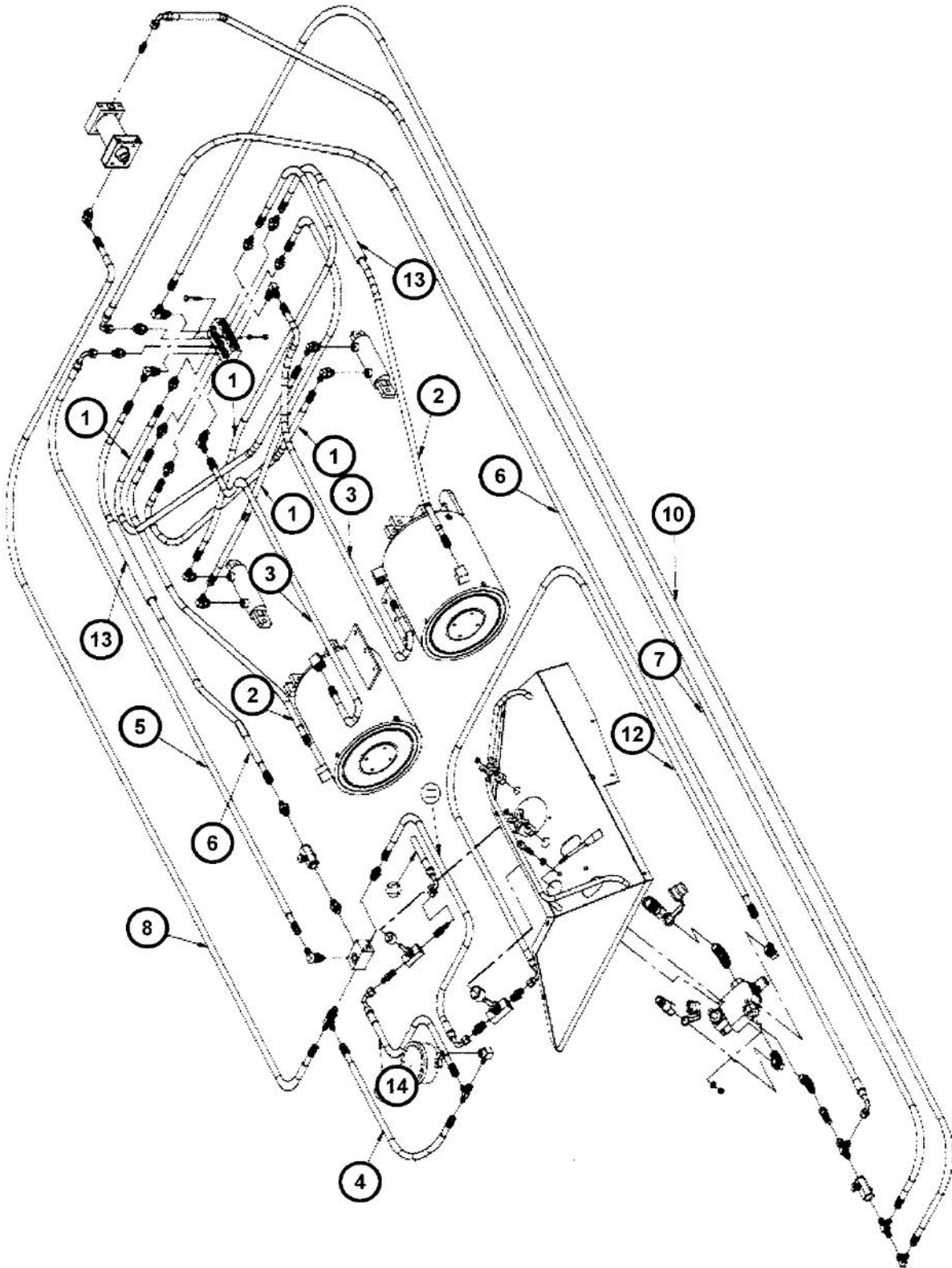
RAIL PULLERS
SERIAL # 021425012 & UP

ITEM #	DESCRIPTION	QTY
1	BOLT 1/2" X 1" GRADE 8	2
2	NUT, 1/4" NC HH PL	4
3	LOCK WASHER .38 SPLIT	30
4	LOCK WASHER 1/4"	10
5	WASHER, FLAT W' PLATED	4
6	NUT, 1/4" NC WING NUT	2
7	NUT 1/2" NC HH SELF LOCKING	2
8	BOLT 1/2" NC X 2 3/4" PL HH #5	2
9	BOLT 3/8" X 1" SHCS	7
10	BOLT 1/2" NC X 1 1/4" HH PL #5	4
11	BOLT 1/4" NC X 1" HH PL #5	2
12	BOLT 1/4" NC X 5 1/2" GRADE 8	4
13	FRAME COMPLETE	1
14	CARRIER CAM COMPLETE	1
15	CAM COMPLETE (R)	1
16	CAM COMPLETE (L)	1
17	ARM GRIPPER (R) COMPLETE	1
18	ARM GRIPPER (L) COMPLETE	1
19	HYD. CYLINDER RIGHT (see exploded view)	
20	HYD. CYLINDER LEFT (see exploded view)	
21	GUIDE CYLINDER LEFT	1
22	PANEL STATIONARY END COMPLETE	2
23	PANEL CONTROL COMPLETE	1
24	PANEL COVER (CONTROL) COMPLETE	1
25	CYLINDER SLAVE COMPLETE	2
26	GEAR TIMING COMPLETE (R)	
27	GEAR TIMING COMPLETE (L)	1

ITEM #	DESCRIPTION	QTY
28	PLATE RETAINING	2
29	GUARD CYLINDER BOLT	2
30	GUARD GAUGE	1
31	FLAP SPARK	1
32	LINK GRIPPER ARM	2
33	ADAPTOR LINK/CYL.	1
34	PINGRIPPER ARM	2
35	ZERC GREASE	2
36	TUBE CYLINDER	1
37	ROD CYLINDER	1
38	RIVET, POP SD46BS 1/4 X 3/8	14
39	#6 SAE FLAT WASHER	14
40	NUT 5/16nc NYLOCK	4
41	BOLT 5/16" X 4" (CYLINDER MOUNT)	4
42	PIN, COTTER 1/8 X 1 1/4	3
43	BOLT 3/8 NC X 2.5 SHCS PL	12
44	SCREW, HEX .31-18 X 1	6
45	ROD INDICATOR	1
46	BOLT 1/4 NC X 1/2 SSBHCS	13
47	SCREW SOCK SET 1/4-20 X 3/8	1
48	NUT JAM	12
49	BOLT 1/2 NC X 2 1/2 HH PL#5	2
51	WASHER, 1/4 FLAT PLATED	1
52	1/4 X 3/4 STAINLESS STEEL	8
53	WEAR PAD @ CYLINDER	
56	CAP	1
57	WASHER, FL 3/16 BLK ZINK	1
58	SPRING CAM RETURN	2
59	GRIPPER PAD	4
60	GREASE ZERK	4
61	COUPLING 1/8" NPT	2
62	NIPPLE 1/8" NPT X 2"	2
63	GUIDE CARRIER RIGHT	
64	NUT W' NC	4
65	WASHER LOCK YI"	2
66	RETAINER GRIPPER PAD	4
67	STOP RAIL	2
68	WASHER FLAT 3/8	4
69	WASHER %	2

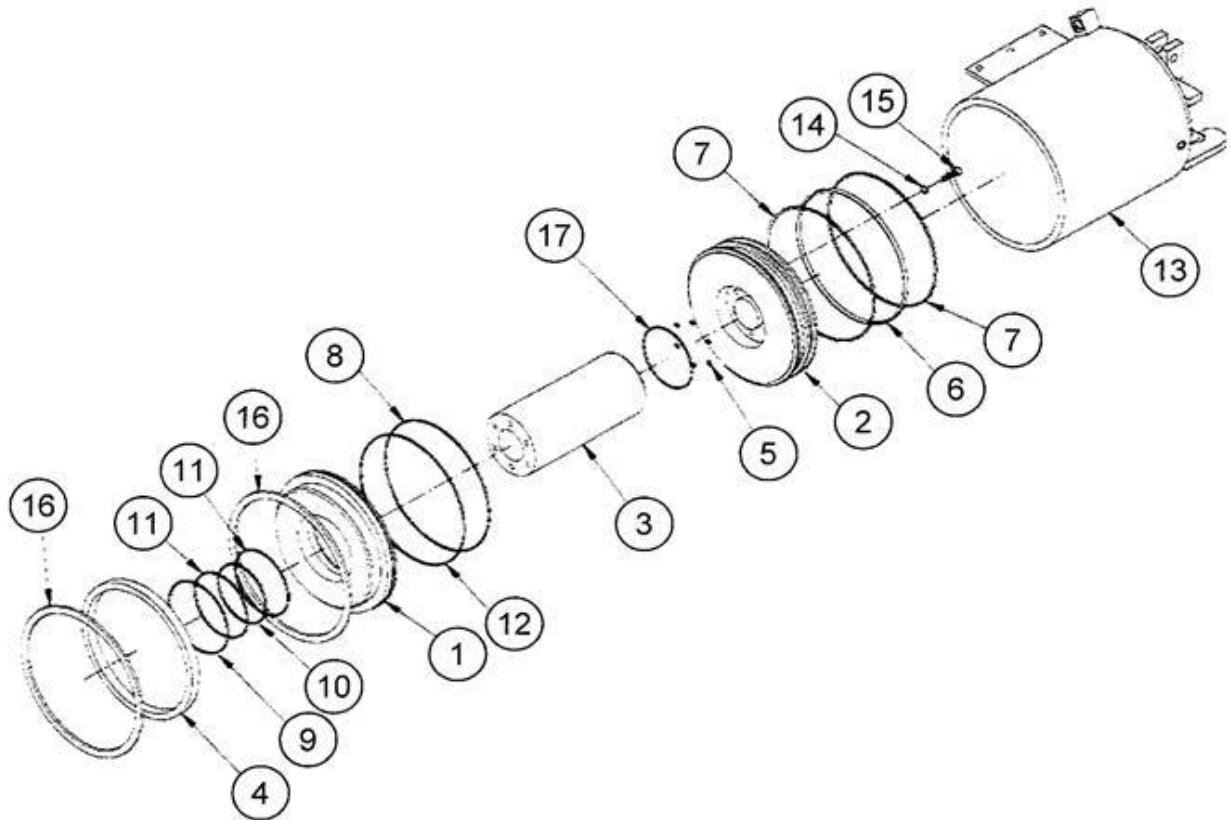


ITEM #	DESCRIPTION	QTY
1	NUT, 1/4 nc HH PL	2
2	LOCK WASHER 1/4	2
3	NUT, 5/16 nc X 2 SHCS	2
4	WASHER, 1/4 FLAT PLATED	2
5	BOLT, 5/16nc X 2 SHCS	2
6	WASHER, LOCK 5/16 PLATED	2
7	BOLT 1/4 nc X 1 3/4 HH PL #5	2
8	FITTING	6
9	FITTING	3
10	FITTING	1
11	FITTING	1
12	COVER COUPLER	1
13	COVER COUPLER	1
14	FITTING	5
15	FITTING	1
16	FITTING	5
17	FITTING	1
18	COUPLER HYO.	1
19	COUPLER HYO.	1
20	FITTING	1
21	FITTING	1
22	FITTING	1
24	VALVE DRAIN	2
25	FITTING TEE	1
26	MANIFOLD HYO. RETURN	1
27	FITTING 90°	1
28	MANIFOLD HYO.	1
29	GAUGE PRESSURE	1
30	VALVE CONTROL	1
31	VALVE HOLDING	1
32	VALVE NEEDLE	1
33	FITTING HYDRAULIC	4
34	6505-6-4 4NPT MALE 6JIC FEMALE	1
35	SPACER HOLDING VALVE	1
36	SPACER NEEDLE VALVE	1
37	FITTING 90°	2



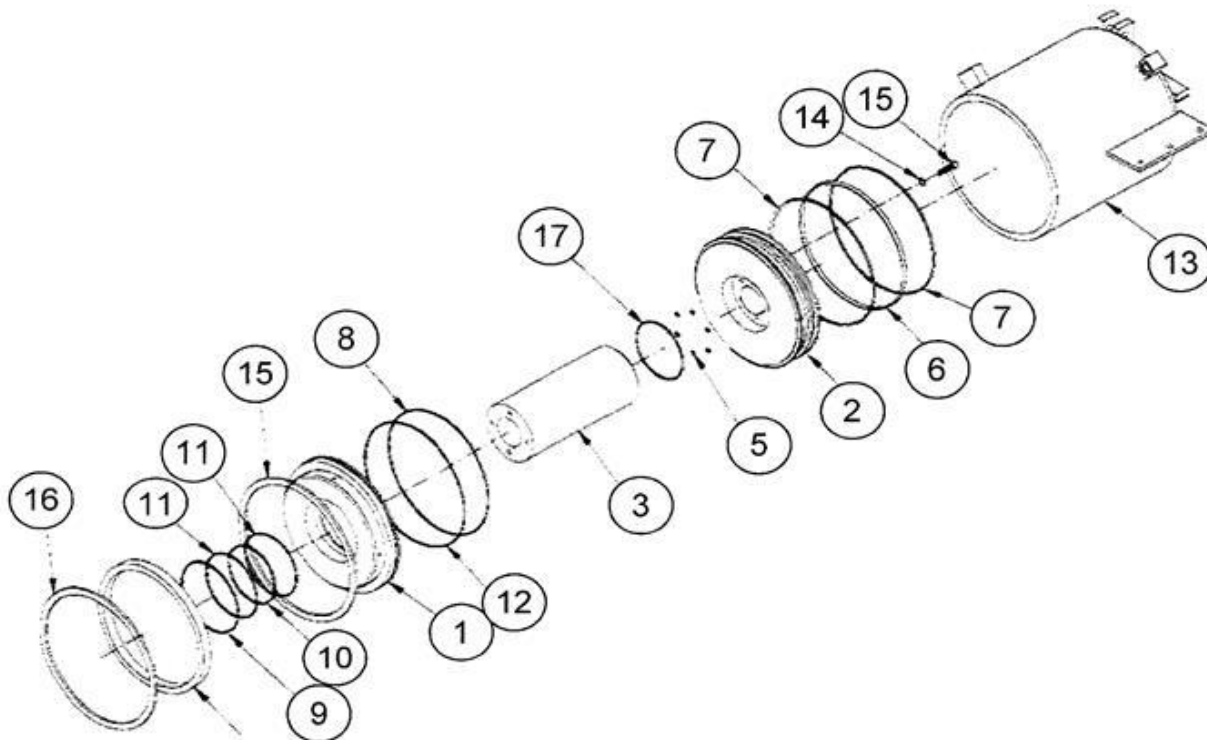
ITEM #	DESCRIPTION	QTY
1	HOSE HYDRAULIC 28"	4
2	HOSE HYDRAULIC 26"	2
3	HOSE HYDRAULIC	2
4	HOSE HYDRAULIC 22"	1
5	HOSE HYDRAULIC 27"	1
6	HOSE HYDRAULIC 18.5"	1
7	HOSE HYDRAULIC 144"	1
8	HOSE HYDRAULIC 142"	1
9	HOSE HYDRAULIC 45"	1
10	HOSE HYDRAULIC 38"	1
11	HOSE HYDRAULIC 13"	1
12	HOSE HYDRAULIC 14.5"	1
13	HOSE GUARD 12" LONG	2
14	HOSE HYDRAULIC 17"	1
15	HOSE DRAIN	1

Right Base Cylinder Assembly



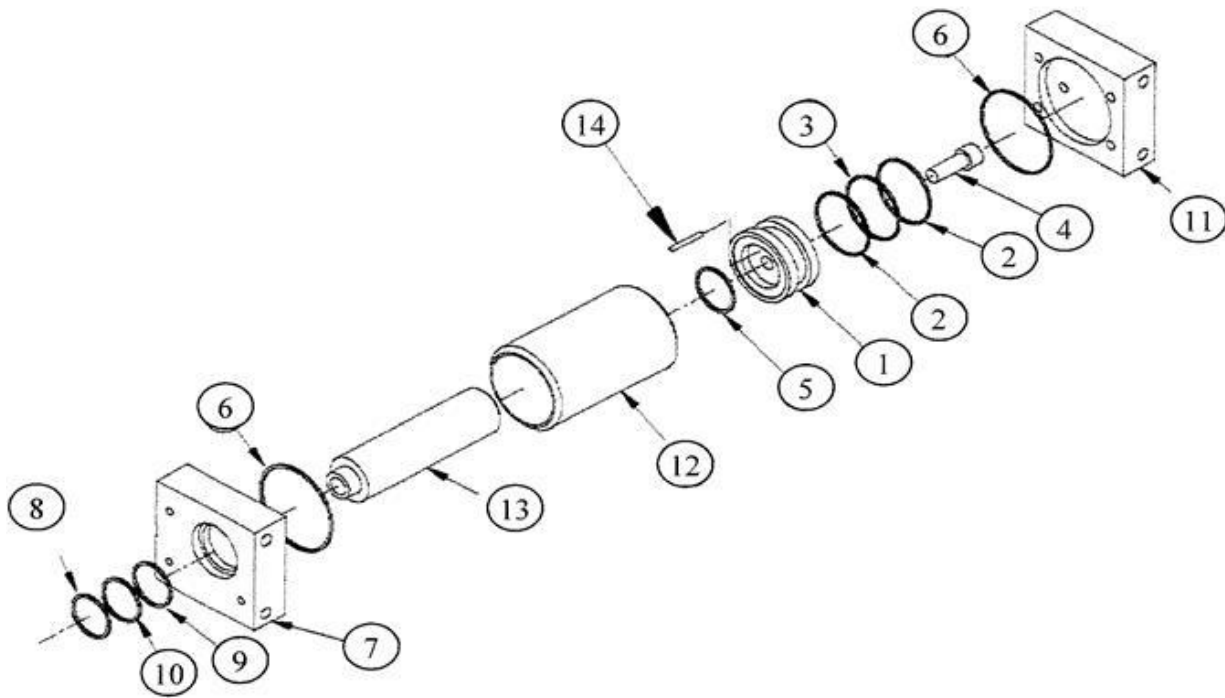
ITEM #	DESCRIPTION	QTY
1	GLAND CYL. END COMPLETE	1
2	PISTON CYLINDER	1
3	ROD CYLINDER COMPLETE	1
4	RING RETAINING	1
5	O-RING -014	6
6	O-RING QR-4448	1
7	BACKUP RING	2
8	O-RING -273	1
9	WHIPPER SEAL ROD	1
10	O-RING -361	1
11	BACKUP RING	2
12	RING BACKUP	1
13	HYDRAULIC CYLINDER (R)	1
14	O-RING -010	6
15	BOLT 3/8 NC X 1 Y. SHCS	6
16	RETAINING RING	2
17	O-RING -258	1

Left Base Cylinder Assembly



ITEM #	DESCRIPTION	QTY
1	GLAND CYL. END COMPLETE	1
2	PISTON CYLINDER	1
3	ROD CYLINDER COMPLETE	1
4	RING RETAINING	1
5	O-RING -014	6
6	O-RING QR-4448	1
7	BACKUP RING	2
8	O-RING -273	1
9	WHIPPER SEAL ROD	1
10	O-RING -362	1
11	BACKUP RING	2
12	RING BACKUP	1
13	HYDRAULIC CYLINDER (L)	1
14	O-RING -010	6
15	BOLT 3/8 NC X 1 1/4 SHCS	6
16	RETAINING RING	2
17	O-RING -258	1

Cylinder Assembly



ITEM #	DESCRIPTION	QTY
1	PISTON CYLINDER	1
2	BACKUP PISTON	2
3	O-RING PISTON	1
4	BOLT 3/8" X 1.00" SHCS	1
5	O-RING	1
6	O-RING	2
7	END CAP ROD	1
8	SEAL WIPER	1
9	SEAL ROD	1
10	BACKUP ROD	1
11	END CAP	1
12	TUBE CYLINDER	1
13	ROD CYLINDER	1
14	ROLL PIN	1

Puller, Hydraulic Rail / RRP# 465389

FOR SERVICE ONLY			
ITEM	QTY	DESCRIPTION	PART NO
1	1	CYLINDER, SLAVE COMPLETE	465845
2	1	ROD, CYLINDER	467057
3	1	SPRING, CAM RETURN	467058
4	1	PAD, GRIPPER	467059
5	2	ELBOW, 90° SWVL: .5 NPT(M) X #8 SAE(M)	467061
6	1	SLING, RAIL PULLER	10000343
7	1	RETAINER, GRIPPER PAD	467576
8	1	KIT, CYLINDER SEAL	467732
9	1	HOSE, HYDRAULIC	467733
10	1	GEAR, RIGHT COMPLETE TIMING	467900
11	1	GEAR, LEFT COMPLETE TIMING	467901
12	1	ARM, LEFT GRIPPER	468367
13	1	CAM, RIGHT COMPLETE	468972
14	1	CAM, LEFT COMPLETE	468973
15	1	CYLINDER, RIGHT BASE	470212
16	1	CYLINDER, LEFT BASE	470213
17	1	FRAME, COMPLETE	470628
18	1	FLAP, SPARK	470629
19	1	PANEL, STATIONARY END COMPLETE	470678
20	1	GUARD, GAUGE	470679
21	1	VALVE, CONTROL	472794
22	1	CYLINDER, LINK	473294

Section 6: Warranty Terms and Conditions

Warranty Period

Each new machine and new parts of our manufacture are warranted against defects in material and workmanship for one year from the date of shipment from our factory.

When contacting customer service for factory parts, service or warranty support please provide the:

- Racine Railroad Products Model
- Serial Number
- Any locally assigned identification

Vendor Parts Warranty Period

Other equipment and parts used, but not manufactured by Racine Railroad Products, Inc., are covered directly by the manufacturer's warranty for their products.

Warranty Parts and Service

We will repair or replace, without charge, F.O.B. factory, Racine, Wisconsin, USA, any part Racine Railroad Products manufactures which is proven to be defective during the warranty period.

Material claimed defective must be returned, if requested, to the factory within 30 days from the date of the claim for replacement. Ordinary wear and tear, abuse, misuse, and neglect are not covered by this warranty. Depending upon the circumstances, we may provide technical assistance and/or technical service support, without charge, to assist in the correction of warranty related problems.

Non-Warranty Parts and Service

Material damaged through normal wear and tear, abuse, misuse and/or neglect are not covered by our warranty and should be ordered directly from our Customer Service.

Note: Parts for models that are no longer in production may not be available.

Non-Warranty Parts Orders

When placing a parts order please provide the following information:

- Company Name and Billing Address
- Purchase Order Number and Issuing Authority
- Shipping Address
- Special Handling Instructions
- Contact Phone Number
- Machine Model and Serial Number
- Part Numbers and Quantities Being Ordered

Note: *Please use Racine Railroad Products part numbers when ordering parts.* Racine Railroad Products part numbers are shown in the parts lists and drawings of this manual and have only six (6) numbers.

Any part number with other than six numbers (e.g., contains alpha-numeric characters) is a Vendor Part Number and **not** a Racine Railroad Products part number