

Rail Aligner
910134
Operating and Maintenance Manual



Rail Aligner

910134

Record of Changes

Rev No.	Date	Description of Changes
Rev 2	11.2018	Manual Update

Contents

Section 1: Overview and Safety 3

Rail Aligner Overview 3

Warranty Terms and Conditions 3

Safety Information 5

 Safety Terms 5

 Machine Use and Safety Precautions 5

 Training Requirements 6

Specifications 6

Section 2: Installation Instructions 7

Unpacking 7

Section 3: Operation Instructions 7

Section 4: Maintenance 9

Trouble Shooting 13

Section 1: Overview and Safety

Rail Aligner Overview

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

Our product line focuses on rail fastening application/removal/adjustment equipment, other tie material (OTM) reclamation, wood and concrete railway tie repair, and tie plate handling/distribution.

The Rail Aligner is designed to quickly position the ends of a rail for welding. The use of the Rail Aligner helps eliminate the use of other methods that increase the likely hood of injury.

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

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 (gang) 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.

Note: Indicates an essential operating procedure, practice, or condition. No personal injury is possible.

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 work area clean and free of debris. Operate 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 in the 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 shut 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

Training Requirements

Operator training for the rail aligner should consist of information found in this manual. In addition, the operator must receive instructions, both verbally and through demonstrations for applications in which the tool is going to be used.

The new operator must start in an area without bystanders and use the tool until able to fully operate the tool under the conditions for the work area.

Specifications

Length 18.00 in / 45.7 cm

Width 6.25 in / 15.9 cm

Height 5.00 in / 12.7 cm

Weight 17.75-lbs / 8.0 kg

Lifting capacity 5 ton / 4536 kg

- The rail aligners feature two 1-1/4" nuts at each end of the frame to position the rail ends vertically and one 1-1/4" nut at one end to position the rail horizontally.
- The jacking assemblies and cross feed are easily removed to perform maintenance and replacement.
- The jack feet accommodate anchor plates in concrete ties and prevent movement from side to side.
- Each aligner has its own handle for ease of transportation ease of transportation.
- Every set of aligners includes one ratchet and 1-1/4 socket for operation.

Section 2: Installation Instructions

Unpacking

Upon receiving your rail aligners promptly remove it from the shipping container.

Always keep top side of the container up.

Inspect unit for damage which may have incurred during shipping and report it to carrier for claim.

Tool Preparations

No special preparations are required, the rail aligners are ready for use after they have been unpacked.

Testing



WARNING Never stick foreign objects, fingers, or other extremities into moving parts. Failure to follow these instruction may lead to sever personal injury or tool damage.

Use the ratchet and socket provided to raise and lower each jack. If the jacks do not move easily check for obstructions or lubricate as required.

Use the ratchet and socket provided to move the cross-feed assembly back and forth. If the assembly does not move easy check for obstructions or lubricate as required.

Section 3: Operation Instructions

Serial Number

The serial number decal is located on the jacking tower. (Figure 1a, arrow A) This decal has the serial number as well as the model number of the tool.

Both aligners in a set have the same serial number. It is important to keep this decal protected and legible. The serial number and model number are required when ordering replacement parts.



Figure 1a

Instructional Decal

An instructional decal is located on the horizontal positioning plate. (Figure 1a, arrow B) This decal instructs the operator to *align red notches to center before positioning under rail*".

Having the horizontal positioning plate centered on the aligner allows for maximum movement in both directions.

Operation of Aligners

1. Set horizontal slide to the center marks.
The center marks are red lines engraved into the edge of the frame (Figure 1b, arrow C).
2. Adjust the end jacks to the most retracted position to make positioning under the rail easier (Figure 1b, arrow D).
3. Remove the tie plate at the end of the rail to be aligned.
4. Place the rail aligner under the rail with the jacks facing away from the end of the rail, and on top of the tie, approximately in the same location as a tie plate (Figure 2, arrow A).

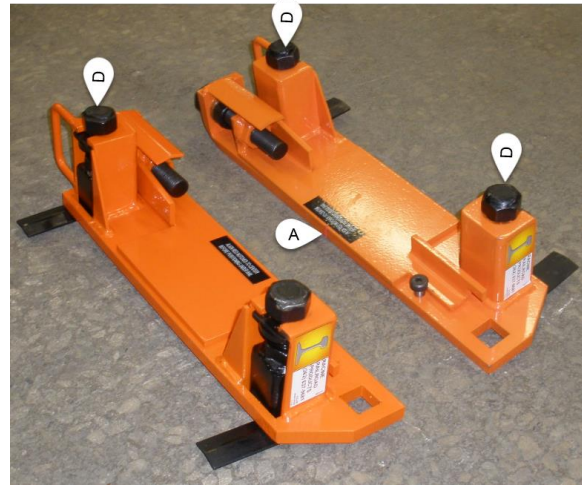


Figure 1b

Use the area that's cribbed out for welding, to position the aligner under the rail.

5. Position the opposite aligner in the same manner with the horizontal adjustment nut on the same side of the rail as the first aligner.
6. Adjust the horizontal position of the rail end using the nut on the side of the aligner (Figure 3).

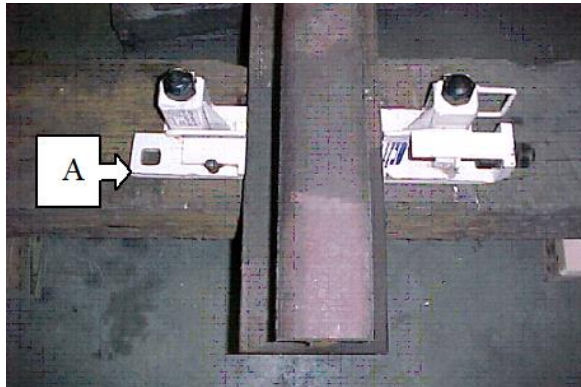


Figure 2



Figure 3

7. Adjust the height and twist as required using the nuts on top of the jack assemblies located at each end of the aligner (Figure 4).
Twist by adjusting one jack higher than the other.

Note: When working on ties, which are in poor condition, it may be required to anchor the rail aligner in position using a spike.

A square hole is located in the end of the frame for this purpose. (Figure 2, arrow A)

8. Leave the rail aligners in position while performing the welding process.



Figure 4

Removing the Rail Aligners

1. Retract both jack assemblies completely.
2. Slide the jacks out from under the rail through the area which is cribbed out.

Section 4: Maintenance

Storage Preparation

When storing the aligners for an extended length of time (over 3 month) apply a light film on the exposed threads on both jacks and the cross-feed screw. Apply a thin layer of grease between the horizontal positioning plate and the frame. Applying the grease will prevent parts from becoming rusty during storage.

Store the aligners in a cool, dry environment which is not subjected to rapid temperature changes

Maintenance Recommendations

Wipe all external surfaces after each use with a clean, lint free cloth to remove surface contaminants from the tool.

Daily

- Wipe all tool surfaces, fittings, and coupling free of grease, dirt, and foreign materials.
- Inspect the tool for excessive wear and damage. Replace any components as necessary.

Monthly

- Lubricate the threads on both jacks and the cross-feed screw for the horizontal positioning plate with a good quality lithium grease.
- Lubricate between the horizontal positioning plate and frame with a good quality lithium grease.
- Perform a detailed inspection of all components for excessive wear and damage. Replace components as required to maintain good working condition.

Jack Replacement and Lubrication

1. Turn the adjustment nut located on top of the jack towers clockwise until the jack is unscrewed from the jacking screw (See Figure 5).
2. Once the jack has been removed, lubricate the threads on the jacking screw as indicated by the arrow in Figure 6.
3. Assemble the jack, replacing the jack with the correct replacement part if required.

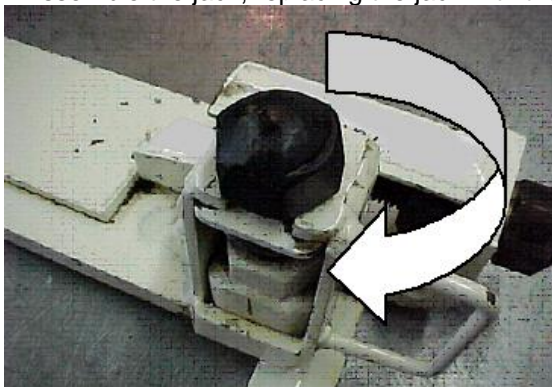


Figure 5

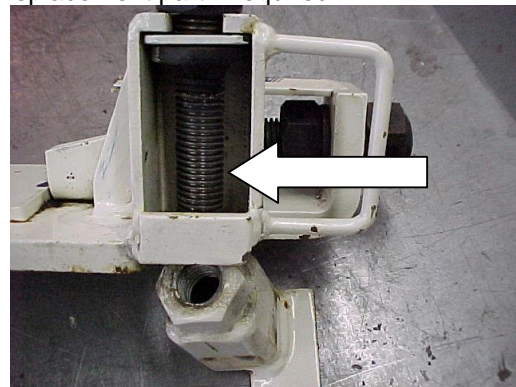


Figure 6

Jack Screw Replacement

1. Follow the instructions for jack lubrication and replacement to remove the jack from the frame.
2. To remove the jack screw complete.
3. Slide the screw assembly to the edge of the housing (See Figure 7).

It may be necessary to tap on the side of the nut with a hammer to remove the assembly.

4. Replace the jack screw assembly with a new one.



Figure 7

5. Insert the threaded portion into the frame and position the assembly so that the nut is on the outside of the frame and the bronze wear plate is below. (See Figure 8 and Figure 9).

It may be necessary to tap on the side of the nut with a hammer to install the assembly completely.

6. Once the screw assembly is installed, lubricate the threads where indicated by the arrow in Figure 6 with a good quality lithium grease.
7. Finish by installing the jack on the screw assembly.



Figure 8



Figure 9

Lubrication of the Cross-Feed Screw for the Horizontal Adjustment Plate

1. To lubricate the screw assembly for the horizontal adjustment plate, turn the screw so the plate moves to one end completely.
2. Lubricate exposed threads with a good quality lithium grease.
3. Turn the screw to move the plate in the opposite direction completely and lubricate the exposed threads again.

Lubrication Between the Horizontal Plate and Frame

1. Remove the shoulder bolt (See Figure 10).
2. Rotate the cross-feed screw until the horizontal positioning plate comes off.
3. Clean the surface between the plates and apply a thin coat of lithium grease to the horizontal positioning plate (See Figure 11).
4. After the parts are cleaned and lubricated, thread the, cross-feed screw into the horizontal positioning plate and draw it across the frame.
5. Install the shoulder bolt.

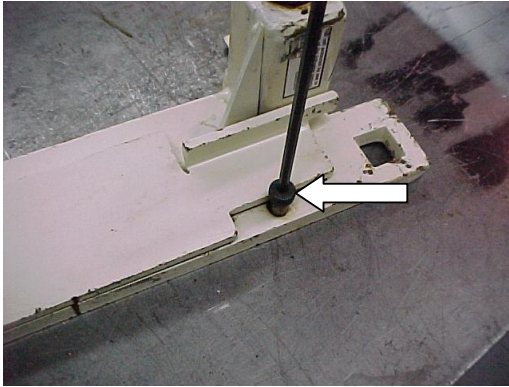


Figure 10

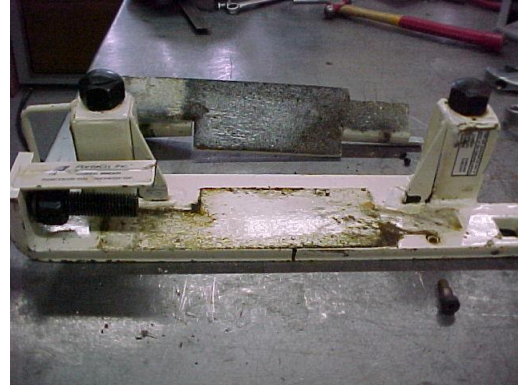


Figure 11

Replacement of the Cross-Feed Screw Assembly

1. Remove the shoulder bolt (See Figure 10).
2. Rotate the cross-feed screw until the horizontal positioning plate comes off.
3. Remove the set screw from the inside nut (See Figure 12).
4. Unscrew the assembly and remove it from the frame.
5. Place the new assembly in position making sure that a bronze washer is on each side of the frame (See Figure 13).
6. Tighten the inside nut until it is snug but loose enough that the whole assembly turns easily by hand. Use a thread locking liquid on the threads of the set screw and install it in the inside nut.
7. Lubricate the threads of the cross screw and the underside of the horizontal positioning plate with lithium grease.
8. Assemble the plate and install the shoulder bolt.



Figure 12

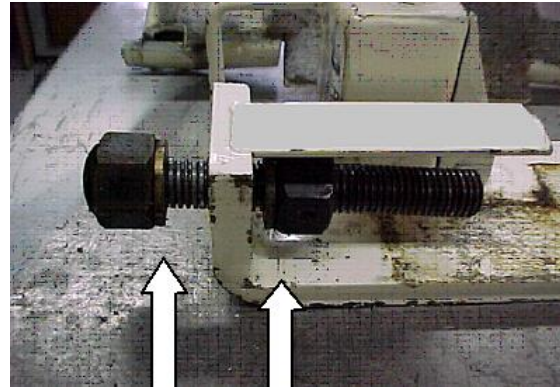


Figure 13

Trouble Shooting

Use the following chart as a guide to correct any problem you may experience with the tool.

Note: After reviewing trouble shooting chart and still unable to determine problem call the service department at Racine Railroad Products (262-637-9681) for assistance.

Problem	Cause	Solution
Cross feed screw turns hard.	Threads need lubrication or contamination.	Clean and lubricate threads.
	Contamination under horizontal positioning plate.	Check for /remove obstruction and lubricate between plate and frame.
	Damaged cross feed screw assembly	Inspect mechanisms replace if required.
Jacks operate hard.	Thread contamination or in need of lubrication.	Clean and lubricate threads.
	Damaged lower jack component.	Replace lower jack component.
	Damaged or worn jack screw assembly.	Replace the jack screw assembly.