



ALIGNMENT TOOL MANUAL FOR USE WITH 60, 35 ,20 AND 12 SERIES RAILGEAR

> NOVEMBER 2020 Revision 1

### **CONTINENTAL RAILWORKS**

7380 Vérité, St-Laurent, QC, Canada, H4S 1C5 Phone : 514-956-8081 Fax : 514-956-0737

## INTRODUCTION

The following manual has been prepared to be used with the Continental Railworks Alignment tool

All Continental Railworks hi-rail kits are designed to make operation and service as simple as possible. There is no adjustment required when varying loads are placed on a vehicle. The use of independent mounting plates provides for easy complete unit removal and re-installation when required, as well as a complete range of adjustment to tailor the hi-rail unit to the vehicle.

At any time technical assistance can be obtained from the hi-rail manufacturer. A simple phone call to Continental Railworks can eliminate many time consuming problems or questions. Technical assistance is available Monday to Friday, from 8:30 a.m. to 4:30 p.m. ET, by calling (514) 956-8081, faxing (514) 956-0737 or emailing admin@continentalrailworks.com. Support personnel are frequently available during off-peak hours as well, so please do not hesitate to call or fax outside the hours listed above, including nights and weekends. It is also possible to leave a message at any time, and your call will be returned as soon as possible.

# **GENERAL DESCRIPTION**

The Continental Railworks Alignment tool was designed to simplify the alignment process for all models of continental rail gear. Continental recommends that all models of our rail gear be check with the string line method. While the standard string line method has been used for many years, we have designed a way to speed up this process. The Continental alignment tools will decrease the amount of time required to setup the string line.

## SPECIAL CONSIDERATIONS

## VEHICLE CONDITION

Prior to installing hi-rail, 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.

## VEHICLE REAR SUSPENSION

If the vehicle is equipped with rear air bag suspension, a Pneumatic Suspension Kit will be required to bypass the chassis' OEM leveling valve. This will ensure that the vehicle provides consistent and reliable traction while on rail. Vehicles equipped with leaf springs or rubber suspension only require proper height and pre-load adjustment.

## **TIRE PRESSURE**

Make sure to check the air pressure in the rear tires and make sure they are properly adjusted.

## VEHICLE LOCATION

When performing the string line on trucks with dual rear wheels the process can be sped up if the chassis is placed on blocks that will allow the rail gear to be lifted off the ground. This allows the rail gear to move without weight on it. You can also use a jack, outriggers or on over head crane to take the weight off the rail gear.

## **! 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

INTRODUCTION General Description

# ALIGNMENT TOOL

Continental Railworks provides an alignment tool to speed up the alignment process. Four alignment tools are need for this way of string lining the Hi-rail. One should be bolt onto each wheel with welded on square tubing facing towards the outside of the truck. Its important prior to installation that the hub caps and gasket be removed.



Figure 1: Alignment Tool

### **INSTALLATION - ALIGNMENT TOOL**

- 1- Make sure the chassis is parked on a level surface.
- 2- Remove the hub cap and hub cap gasket.
- 3- Position the alignment tool where the welded square tubes are facing towards the outside of the truck and align slots in the mounting tool to the hup cab bolts on the rail wheel.



- 4- Use the hub bolts to secure the alignment tool to the wheel
- 5- Position the horizontal bar so its is level with the ground.
- 6- Repeat the steps above on all four (4) wheels.

NOTE - Chassis equipped with tapered leaf springs. The shims should be positioned on the flat sections of the leaf and not hanging over the edge.

## ALIGNMENT PROCEDURE

## **BOLT ON ALIGNMENT METHOD**

## SPINDLE ALIGNMENT

1. Looking down on the string check to see if the hole that is drilled into the alignment tool is centered on the string.



Figure 3: Wheel properly aligned

- 2. If the string is not centered, loosen the bolts that hold the spindle to the axle.
- 3. Using the alignment tool, adjust the wheel until the string is centered in the hole.
- 4. Check the remaining rail wheels and use the steps above to adjust where needed.

## SIDE TO SIDE ADJUSTMENT

- 1. Start at the rear of the truck. Measure from the string to the bead seat on the chassis rear rims on passenger and drivers' side.
- 2. Adjust the rear rail gear until the strings are equal on both the passenger side and drivers' side.
- 3. Go to the front of the chassis.
- 4. Using a 4-foot level measure from the edge of the alignment tool to the frame of the chassis on both the drivers and passengers' side. Note make sure the frame is straight where the measurement is taken from.
- 5. Adjust the rail gear so the measurement is equal to the frame on both the passenger and drivers' side.
- 6. Recheck the rear to make sure the measurements are the same. If they have moved redo the steps above.
- 7. Recheck each wheel to make sure the hole in the alignment tool is still centered on the string. If they have moved, repeat the steps in the spindle alignment.

# TRACK TEST

When putting the vehicle on track, first lower the rear unit and then lower the front unit after re-positioning the vehicle as required (see OPERATION section below for details).

Verify the following items:

- 1- Ensure the units raise and lower easily, and that hydraulic hoses are all of adequate length and that hydraulic fittings have adequate clearance.
- 2- Ensure the hi-rail units deploy completely, forming a straight and linear connection from the top of the unit all the way to the wheel.
- 3- Adjust the front and rear rail sweep brackets as necessary so that the rubber sweeps just contact the rail with the hi-rail in the lowered position.
- 4- Verify that there is 2" to 3" of clearance between the front tires and the rail head.
- 5- Verify that there is an 8" to 10" contact patch on the rearmost tires with the rail, with the vehicle empty. (This dimension will increase with a loaded vehicle).
- 6- Ensure the vehicle tracks properly down the track, and that there is no excessive flanging of the hi-rail wheels.
- 7- Ensure there is no excessive vibration of the vehicle when on track.

# FINALIZING ALIGNMENT / ADJUSTMENT

As explained in the sections above, ensure that the following steps are performed to finalize the alignment and adjustment:

- Weld spindle housing cross bolts Weld the thick washer installed on the ½" spindle housing cross bolt to the spindle housing, on both sides, to transform the gauge adjustment slot into a hole to lock in the gauge adjustment.
- Weld spindle housings Tack weld (about 1") the spindle housing top plate to the axle plate, to lock in the toe adjustment.



Figure 4: Welded spindle housing (toe and gauge adjustment)



7380 Rue Verite, St- Laurent, QC H4S 1C5 Tel: 514-95-8081

#### Annual Rail Gear Inspection Form





Note: If compressed more than 6-3/4" stoppers will to be adjusted. See Manual for Instructions



7380 Rue Verite, St- Laurent, QC H4S 1C5 Tel: 514-95-8081

#### **Annual Rail Gear Inspection Form**

#### CHASSIS

- 1 CHECK VEHICLE BRAKE FLEX LINES FOR SCUFFING AND ENSURE SUFFICIENT CLEARANCE FROM MOVING PARTS.
- 2 CHECK ALL RIMS, STUDS, NUTS FOR ANY OF THESE SHOWING SIGN OF DAMAGE, DEFORMATION, LOOSENESS OR CRACKS.
  - 3 CHECK ALL TIRES INCL. SPARE FOR WEAR & DAMAGE, ADJ, AIR PRES, AS PER MEG RATING FOR OEM WHEELS/TIRES AND TO SPEC.
- 4 CHECK VEHICLE FRAME RAILS, ALL FRAME BRACKETS, CROSS MEMBERS, AXLES, CROSS BRACES, TORQUE AND
- WHEEL ARMS FOR CRACKS, DAMAGES AND STRAIGHTENESS.
- 5 CHECK TO MAKE SURE BACKUP ALARM IS WORKING PROPERLY.
- 6 CHECK TO ENSURE STROBE LIGHT IS INSTALLED AND WORKING PROPERLY.

#### **HI-RAIL BRAKES &**

#### RAIL SWEEPS

- - 1 INSPECT BRAKE PADS AND REPLACE IF WORN TO 5/16" OR LESS. 2 INSPECT BRAKE LINAKAGES FOR WEAR AND ADJUST DO BRAKE PAD HAS 1/8" CLEARANCE TO RAIL WHEEL
  - 3 CHECK TO MAKE SURE ALL BRAKES ARE WORKING CORRECTLY WHEN BRAKE PEDAL IS PRESSED.
  - 4 CHECK RAIL SWEEPS FOR WEAR AND ADJUSTMENT SO THEY CONTACT THE RAIL .

#### **HI-RAIL WHEELS**

#### & BEARINGS

- 1 CHECK ALL RAIL WHEELS FOR FLANGE AND WHEEL FACE CONDITION FOR WEAR OR SEPARATION.
  - 2 REMOVE AND INSPECT BEARINGS FOR ROUGHNESS OR LOOSENESS AND REPACK USING Castrol Pyroplex Blue 2 GREASE.
- 3 INSTALL NEW GREASE SEAL
- 4 INSTALL NEW COTTER PIN FOR WHEEL BEARING NUT.
- 5 CHECK FOR WEAR IN OUTER BEARINGS, TUBE AND SHAFT.
- 6 CHECK ELECTRIC ISOLATION OF EACH GUIDE WHEEL TO FRAME
- 7 CHECK SPINDLES FOR WEAR AND CONDITION.

#### HI-RAIL ASSEMBLIES

- 1 CHECK MOUNTING BOLTS TO ENSURE THEY ARE TIGHT AND NOT BROKEN.
- 2 GREASE FRONT AND REAR ASSEMBLIES
- 3 CHECK MOUNTING PLATES TO MAKE SURE THEY ARE BENT AND NO CRACKED WELDS.
- 4 CHECK LOCKING PINS FOR WEAR AND REPLACE AS NEEDED.
- 5 CHECK FOR CRACKED BENT OR MISSING DERAIL SKIDS.
- 6 INSPECT TRUCK AXLE LOCK UP SYSTEM FOR PROPER OPERATION, IF EQUIPPED.

#### HYDRAULICS

- 1 CHECK HYDRAULIC CYLINDERS FOR LEAKS & PROPER OPERATION.
- 2 CHECK HYDRAULIC FUILD LEVEL.
  - 3 CHECK HYDRAULIC OPERATING PRESSURE AND ADJUST ACCOURDINGLY. (SHOULD BE 2500-3000 PSI)
- 4 CHECK EMERGANCY HAND PUMP IF EQUIPPED FOR PROPER OPERATION.

### **COMMENTS & NOTES**



# ALIGNMENT TOOLS INSTALLED



INTRODUCTION Alignment tools Installed



# ALIGNMENT DIAGRAM

INTRODUCTION Alignment Diagram