Terminal Operations Manual

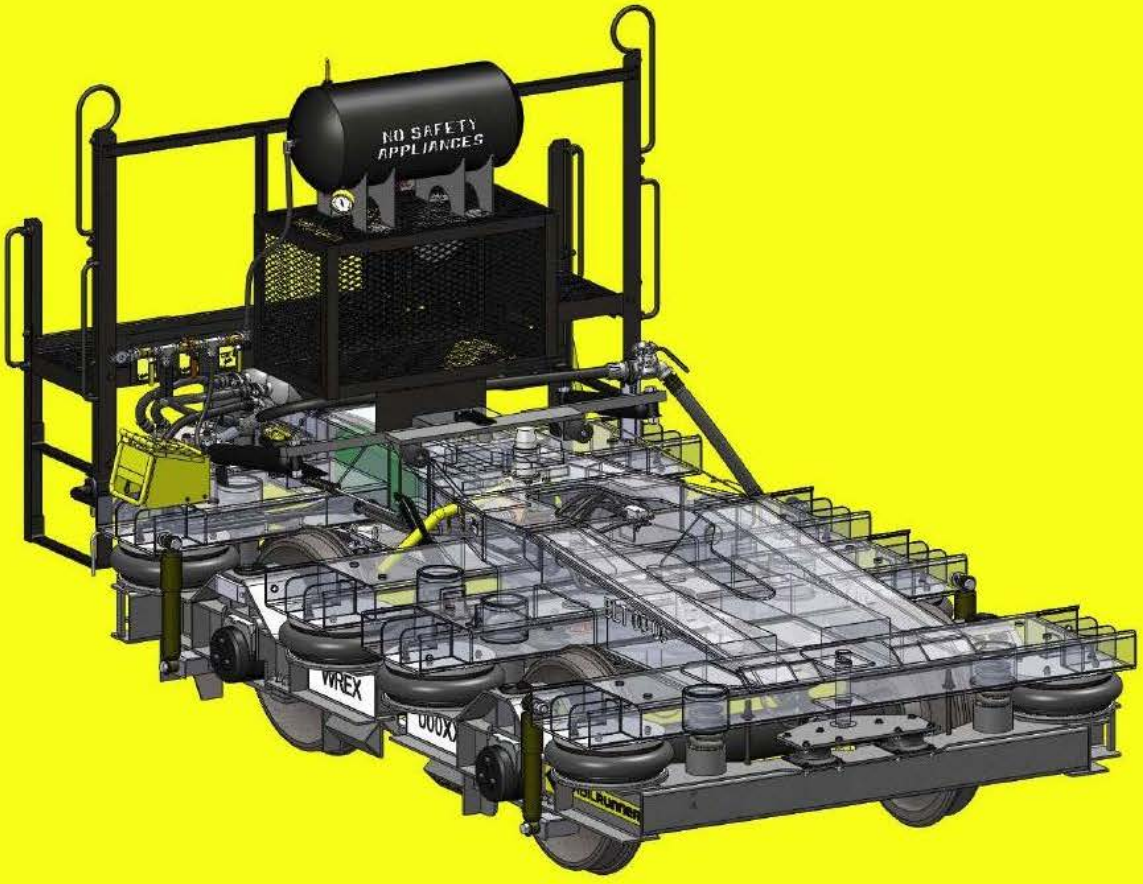

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Table Of Contents

General Equipment Description

Product Overview

RailRunner is a bi-modal system for moving containers. It is comprised of three components:

1. **RailRunner Chassis** - Special RailRunner chassis are designed to operate over the highway or coupled to a RailRunner bogie for over-the-rail operation.

2. **RailRunner Intermediate Unit (IU) -** The RailRunner chassis rides on a rail compatible vehicle freight car rail truck or ***bogie*** called the Intermediate Unit (IU) that attaches to the chassis. IU's are bi-directional.

3. **RailRunner Transition Unit (TU) -** RailRunner's Transition Unit (TU) is a rail bogie used at the front and rear of the block of RailRunner units. The TU provides the interface between the conventional rail knuckle coupler on a locomotive or rail car and the special RailRunner coupling system.

IU's are not equipped with common railroad safety appliances such as sill steps, handholds and crossover platforms. These appliances are found on the TU's at the ends of the RailRunner train.

Caution!
Under no circumstances should rail terminal or operating employees attempt to ride an IU bogie or chassis while in railroad service or on a chassis while in road service.
Be sure to follow all terminal, federal and state safety requirements when operate or making up RailRunner bi-modal system.

The RailRunner Chassis

Front View of the RailRunner Chassis

The front of the RailRunner chassis resembles that of a conventional highway chassis. Highway air and electrical connections and the front container locks are mounted on the front of the chassis similar to traditional over-the-road highway equipment.
In addition, ***there are identical front and rear RailRunner coupler receivers*** that connect to RailRunner bogies.

Figure 1 Front View of RailRunner Chassis

Right (Curb) Side View of the RailRunner Chassis

The forward ***rail brake pipe flex hose connection*** can be accessed from the right side of the RailRunner chassis. The brake pipe hose is routed around the landing gear for storage during highway movement. During rail operations the hose is connected to the brake line of the rail bogie and secured by a chain which is attached to the chassis bulkheads at both the front and rear. The RailRunner brake pipe is of conventional 1- 1/4" ID and equipped with F-head railroad-type glad-hands. Brake pipe is used as a signal line for applying and releasing the rail brakes and to charge the rail brake reservoirs similar to conventional railcars.

The rear brake pipe flex hose connection is accessed from the driver's side of the chassis. The pressure relief valve for the chassis is located at the rear on the drivers' side.

WARNING
Do not attempt to disconnect the train line air hoses when under pressure. Use the relief valve (***Figure 6***) at the rear of the chassis to vent train line air pressure prior to disconnecting the train line air hoses.

The ***landing gear*** is located approximately 12 feet back from the front of the chassis. This gear is used to support the front of the chassis when it is standing alone (not connected to a hostler or tractor).

Continuing towards the rear of the chassis is the ***highway suspension.*** This highway suspension can be mounted in a fixed position or can be mounted on a multi-position slide. For rail movement, the tandem should be located as far forward as possible. This should be done before attempting to connect the chassis to either an IU or TU.

Figure 2 Right (Curb) Side View of RailRunner Chassis

Rear View of the RailRunner Chassis

The rear of the RailRunner chassis is similar to that of a conventional highway chassis. Centered on the rear of the chassis is a rear RailRunner coupler receiver**,** that connects to RailRunner bogies. This is identical to the receiver found on the front of the chassis. The built-in twist locks are designed to interface with standard ISO containers.

The 53 ft chassis is equipped with ***a folding ICC bumper*** that is stored and secured in the up position for rail movement. For highway movement the bumper must be physically lowered and locked using locking pins that are provided and attached by chains on each upright. The rear bumper of the 40 ft chassis is welded to the wheel suspension. For highway service the total suspension system slider must be moved to the rear.

The 40 foot RailRunner chassis is equipped with a sliding tandem suspension with brake interlock. The ICC bumper is a permanent part of the suspension structure. Refer to "***Sliding Suspension for Road or Rail Operation***" on page 68 regarding the operation of the sliding suspension.

***Figure 3** Rear View of RailRunner 53 ft Chassis with ICC Bumper Up*

***Figure 4** Rear View of RailRunner 53 ft Chassis with ICC Bumper Down*

***Figure 5** Rear View of the RailRunner 40 ft Chassis with the bumper fixed to the suspension*

Left (Road) Side View of the RailRunner Chassis

The ***rear brake pipe glad-hand*** can be found on the left side of the RailRunner chassis at the rear. This glad-hand is secured by a chain during movement over the highway. During rail operation, the brake pipeline is connected to the corresponding glad-hand on the rail bogie and suspended by a rubber bungee strap. The pressure relief valve for the chassis train line air is located at the rear of the chassis on the road (drivers) side of the vehicle.

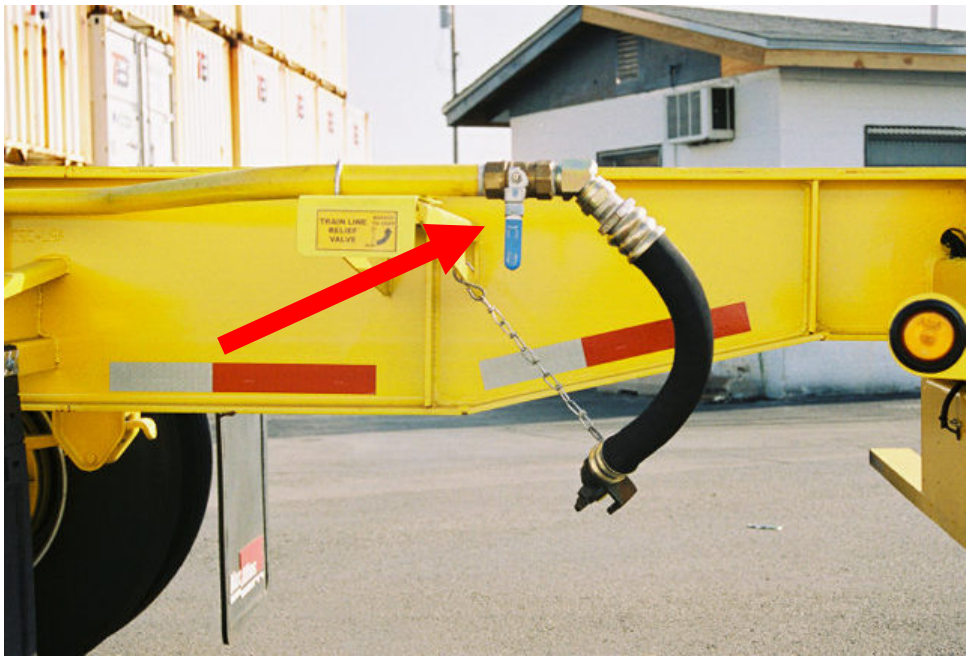


***Figure 6** Train line Vent Valve used to relieve brake pipe pressure*

WARNING

It is dangerous to disconnect train lines when pressurized. Prior to disconnecting the hoses you must first isolate the chassis by closing the cut–off valves on the rail bogies. Once the chassis has been isolated from the rail bogies, close the relief valve to vent the chassis train line air. The glad hand can now be safely disconnected once the pressure has been vented.

RailRunner Intermediate Unit

General Description

The RailRunner chassis rides on RailRunner bogies, either IU's or TU's, which attach to the chassis through a drawbar connected to the receivers located at the front and rear of the chassis. The IU is bi-directional and has a control box side and brake valve side.

The IU bogie consists of two main assemblies:

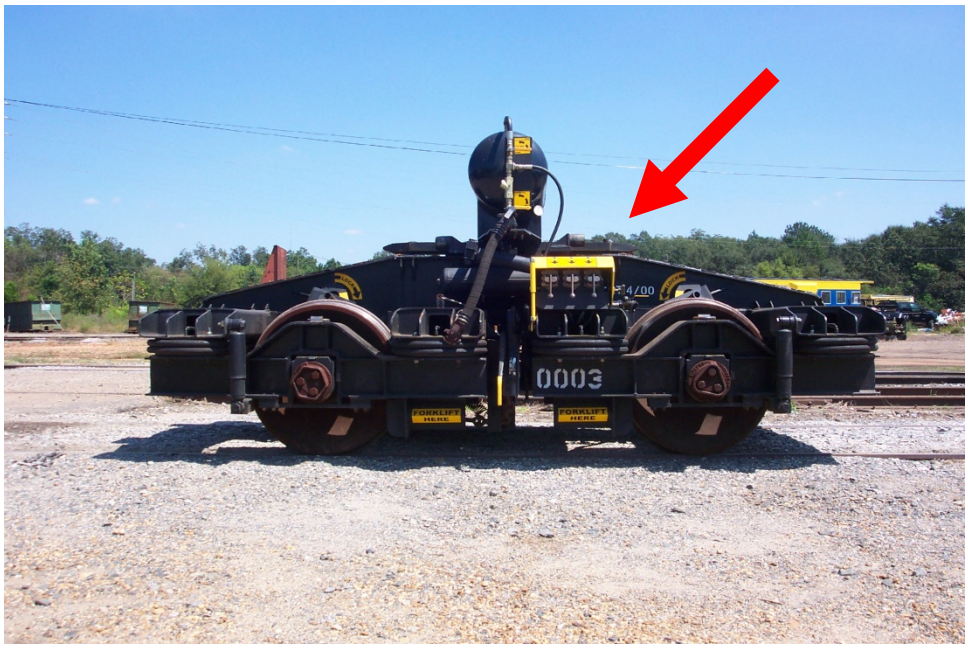
1. A high-performance rail truck with truck-mounted rail brakes
2. An ***upper frame***, which provides a connection to the RailRunner chassis.

The upper frame is raised and lowered by the ***primary air spring suspension system***. There is also a secondary ***coil spring suspension system*** that operates in addition to the primary air spring bogie suspension. This coil spring system is comprised of eight (8) dual coil spring sets located at the corner points of the bogies. These spring sets are engaged by a paddle mechanism activated when the RailRunner system is prepared for over-the-rail operation.

Control Box Side View of the Intermediate Unit

The control box side of the Intermediate Unit provides access to the ***yellow control box*** and ***parking brake assembly***. The yellow control box houses three pneumatic valves that activate the locking pins and raise and lower the upper frame. The curved lid of this box is raised during terminal operation for access to the valves and closed during over-the-rail operations. The lid is also inter-connected to a ***paddle mechanism*** and ***locking pin securement*** through a series of levers and push rods.

The Control Box lid can only be closed when the rail bogie has been raised to the full over-the-rail operating height. It will be necessary to use a compressor to provide sufficient air pressure to raise a loaded chassis to the over-the-rail operating height. To open the control box lid the rail bogie must be in the full up position. The lid is raised by pulling on a ***T-bar*** located on the left side of the control box lid. This disengages the ***control box lock*** and allows for the raising of the lid using the handle provided. Operating instructions for the air valves are visible on the control box lid. The lid remains open during assembly of a RailRunner consist.



<u>Figure 7</u> Control Box Side View of Intermediate Unit

***Figure 8** Control Box in Closed Position (Control Lock, Handle, and Instructions)*

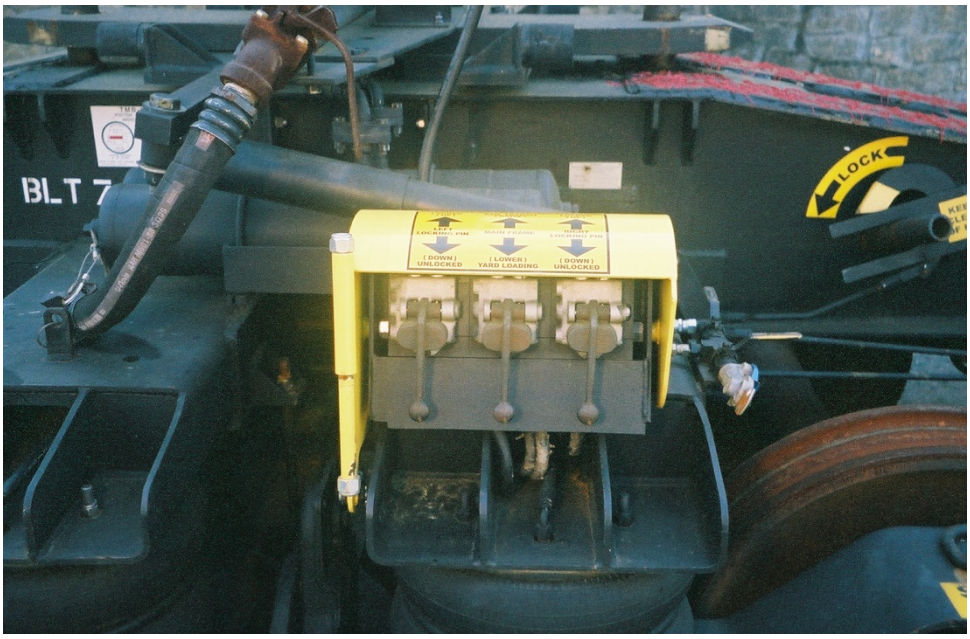


***Figure 9** Control Box in Open Position (Control Lock, Handle, and Instructions*

Adjacent to the control box is the ***parking brake*** assembly that engages and releases the parking brake. This brake is used when staging the IU on the rail during terminal operation. The brake is engaged by ratcheting the handle. The brake is disengaged through ***throw-over handle*** located at the top of the parking brake assembly (See ***Figure 11 Disengaging the Parking Brake***).

***Figure 10** Engaging the Parking Brake*

***Figure 11** Disengaging the Parking Brake*

The ***Truck Mounted Brake Decal*** and ***brake piston stroke indicator*** are visible from the control box side of the IU. The Truck Mounted Brake Decal is referred to during brake inspection. This decal specifies the operating limits of the brake piston stroke indicator that shows if the brake is within operating limits. This indicator is visible beneath the upper frame of the IU at axle level.

Brake System Indicators

The IU utilizes one of two different brake systems:

1. New York Air Brake TMB-60
2. Wabco TMX System

Each system has an appropriate/different decal and brake piston stroke indicator.

Figure 12
NYAB TMB-60 Truck Mounted Brake Decal

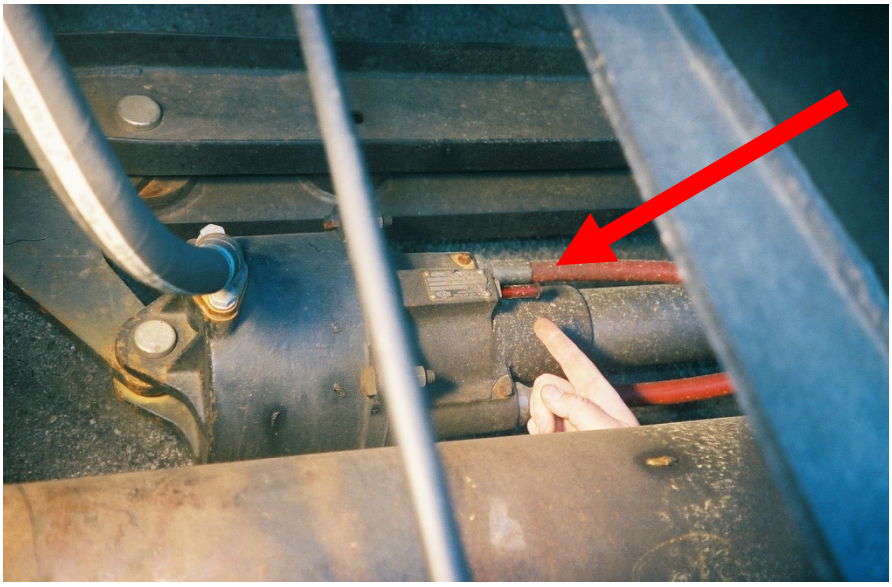


Figure 13
NYAB TMB-60 Piston Stroke Indicator

***Figure 14** WABCO TMX Truck Mounted Brake Decal*

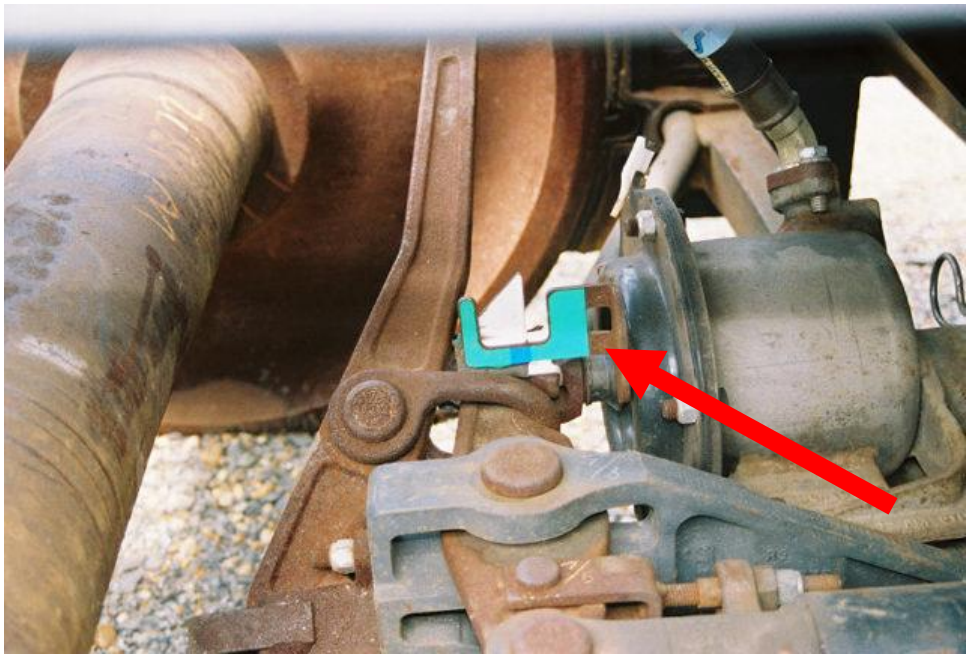


***Figure 15** WABCO TMX Piston Stroke Indicator*

End Views of the Intermediate Unit

The IU is bi-directional with symmetrical ends. Each end begins with a tapered ramp that aligns the chassis for proper connection to the drawbar located at the uppermost portion of the upper frame. Above the drawbar is the suspension system reservoir that stores the air needed to operate the air suspension system that raises and lowers the IU. Beneath the air reservoir, running across the upper frame, is the 1-1/4” train line piping the means by which train line travels the length of the RailRunner consist. These train lines are equipped with standard rail cutout valves and glad-hands.

***Figure 16** End View of Intermediate Unit*

Leveling valves are located beneath the upper frame at both ends of the IU. These valves are mounted to the upper frame and connected to the lower frame via a control rod. The purpose of these valves is to maintain a level ride throughout over-the-rail operations.

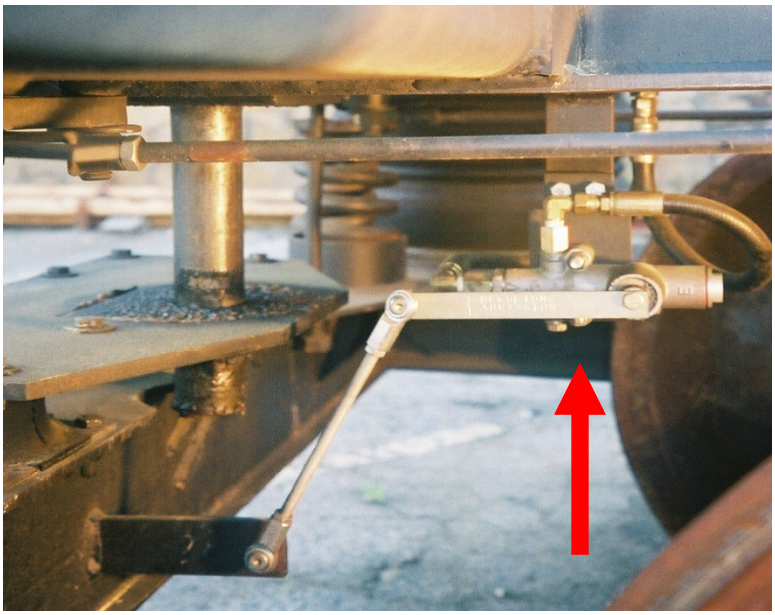


Figure 17 Intermediate Unit Leveling Valve

ABDX Valve Side of the Intermediate Unit

The ABDX valve side of the IU houses the ***ABDX control valve*** and the ***empty/load valve*** components. The ABDX control valve is located at the center of IU below the reservoir. The empty/load valve components are mounted on a sub plate adjacent to the ABDX valve. These components regulate brake force depending on vehicle load.

Figure 18 The ABDX Valve Side of Intermediate Unit

RailRunner Transition Unit

General Description

The Transition Unit (TU) is used at the front and rear of the block of RailRunner units. The TU bogie provides the interface between the conventional rail knuckle coupler on a locomotive or rail car and the special RailRunner coupling system.

Similar to the Intermediate Unit (IU), the TU consists of two main assemblies:

1. A high-performance rail truck with truck-mounted rail brakes
2. An ***upper frame***, which provides a connection to the RailRunner chassis

The upper frame of the TU is raised and lowered by the air spring suspension system.

When assembling a RailRunner train, a TU is placed at the front and back of a RailRunner block. In the front position, the TU is placed beneath the nose of the first RailRunner chassis. The first chassis then rides in a nose-down position to bring the RailRunner coupling height closer to that of the knuckle coupler. The knuckle coupler of the TU faces forward to engage the knuckle coupler of the locomotive in front.

Figure 19 Transition Unit

In the rear position, the TU replaces the IU under the last RailRunner chassis. The last RailRunner chassis is secured to the TU in the same manner as the IU.

NOTE
It is recommended that a TU be positioned at the rear of a RailRunner consist but it is not a requirement. RailRunner trains can be operated with an IU in the trailing position. Refer to ***"Installation of EOT Device"*** on page 43.

Coupler End View of the Transition Unit

One end of the TU is the coupler end that contains a conventional ***type "E" bottom-shelf knuckle coupler*** with draft gear attached to the coupler assembly. A conventional ***brake pipe hose, glad hand and cutout cock*** arrangement is found adjacent to the knuckle coupler assembly.

Also, on this end is the ***crossover platform***, which is equipped with conventional safety appliances. The ***ABDX control valve, branch pipe dirt collector, cut-off cock, and bleed valve crow's foot*** are all found adjacent to this platform. A ***toolbox*** is also located across the front of the TU bogie adjacent to the crossover platform (see the section "Transition Unit Toolbox Contents" later in this manual). Access to this toolbox is only from one side.

The TU is also equipped with a ***wheel type hand brake.*** This brake is engaged by rotating the wheel in a counter clockwise direction. A quick release throw over lever to release the brake can be found at the top of the wheel type hand brake.

Figure 20 End View of Transition Unit

Control Box Side View of the Transition Unit

The ***yellow control box*** and the ***empty/load valve*** are located adjacent to the cross over platform and beneath the tool box. The yellow control box houses two pneumatic valves that activate the locking pin and raise and lower the upper frame. The front of this box is raised during terminal operation for access to the valves and closed during over-the-rail operations. The door of this box is interconnected to a ***locking pin securement*** through a series of levers and push rods. Disengaging a latch on the right side of the box and pulling up on the handle raises the door. Operating instructions for the air valves are visible on the top of the control box. The door remains open during assembly of RailRunner trains.

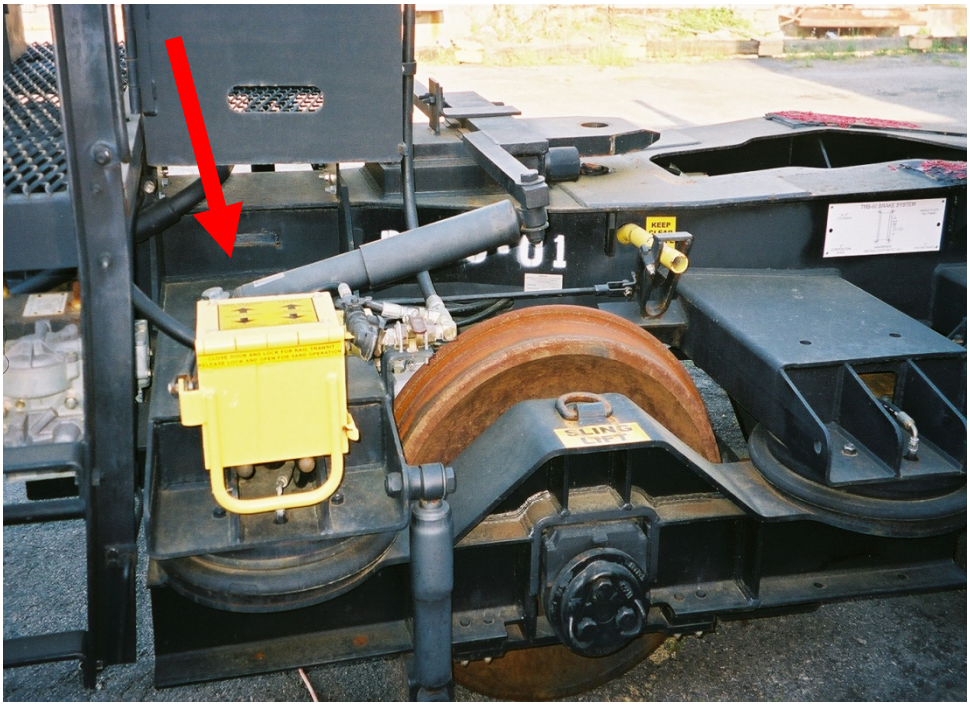


Figure 21 ***Transition Unit Control Box in Closed Position (Control Lock, Handle, and Instructions)***

The Ramp End View of the Transition Unit

Opposite the coupler end of the TU is the ramp end that couples to the leading or trailing chassis of a RailRunner train. The ramp end of a TU is different from an IU bogie is that the ramp end of a TU couples only to the “gooseneck” end of a RailRunner chassis.

***Figure 22* Ramp End View of Transition Unit**

The ramp end of the TU begins with a tapered ramp that aligns the chassis for proper connection to the drawbar located at the uppermost portion of the upper frame. Above the tool box on the TU is the suspension system reservoir that stores the air needed to operate the air suspension system that raises and lowers the TU. Beneath the cross over platform is the 1-1/4” train line piping the means by which train line air travels the length of the RailRunner consist. These train lines are equipped with standard rail cutout cocks and glad-hands.

Leveling valves are located beneath the upper frame at both ends of the TU. These valves are mounted to the upper frame and connected to the lower frame via a control rod. The purpose of these valves is to maintain a level ride throughout over-the-rail operations.

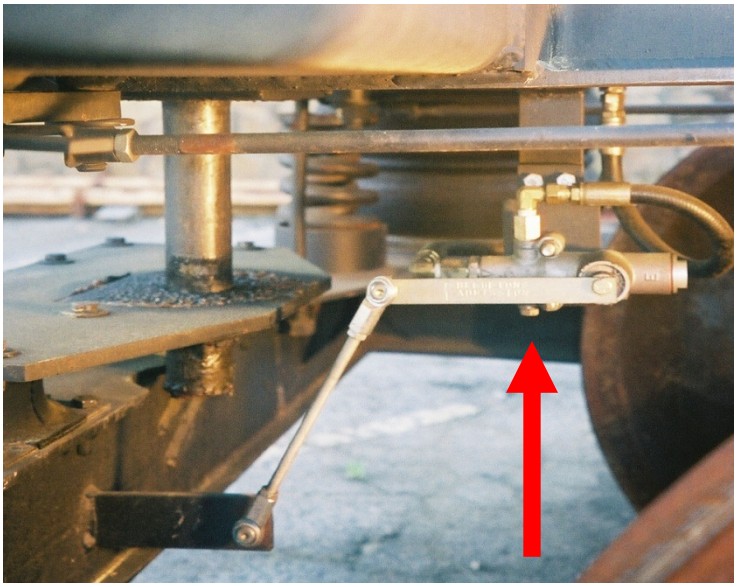


***Figure 23** Transition Unit Leveling Valve*

Caution!
All standard railroad operating safety rules and instructions governing defective brakes apply to RailRunner bogies.

Transition Unit Tool Box Content

It is recommended that the following items be kept in the toolbox on each of the TU's:

Instruction Manuals

- RailRunner Operations Manual
- Wabco TMX Brake Manual
- NYAB TMB-60 Brake Manual

Tools

- Hammer -16 oz. ball peen
- Crescent wrench – 10"
- Pipe Wrench – 24"
- Box end wrench 3/4"
- Pry bar 36"
- Box end wrench 15/16"

Spare Parts

- 50 ft. run-around hose for chassis
- Brake shoes (4) 2" composition with lugs
- Brake hoses 1-1/4" (2) with glad-hand, 22"long
- Bungee straps (6)
- Glad-hand gaskets (4)

Terminal Operations

General RailRunner Chassis 40ft road Service Guidelines

The Chassis has been designed to carry 57,100 lbs (Include container weight and cargo) over the road legally according the load limits and bridge formula.
The payload is:

- Container weight 8,000lb = 49,100 lbs
- Container weight 8,500lb = 48,600 lbs
- Container weight 9,000lb = 48,100 lbs

In any case cargo should be uniformly distributed / loaded over the length of the container.

In Case of "heavy" Loads over the 45,000 lbs (Payload) the following data has to specify:

- Total Truck weight may not exceed 15,000 lbs
- 3,000 lbs of cargo has to be loaded from rear to front half of the container in order not to exceed allowable axle load.

After deramping from the hauled bogie and before being transported over the road, the driver has to make sure that the wheel suspension is located and secured to the rear position of the chassis

General RailRunner Chassis 53ft road Service Guidelines

The Chassis has been designed to carry 52,100 lbs (Include container weight and cargo) over the road legally according the load limits and bridge formula.
The payload is:

- Container weight 10,000lb = 42,100 lbs
- Container weight 10,500lb = 41,600 lbs
- Container weight 11,000lb = 41,100 lbs

In any case cargo should be uniformly over the length of the container.

In Case of "heavy" Loads over the 45,000 lbs (Payload) the following data has to specify:

- Total Truck weight may not exceed 15,000 lbs.

General RailRunner Train Makeup Guidelines

RailRunner trains are subject to **Federal Railroad Administration (FRA)** guidelines. No more than 150 chassis may be operated in a single train. RailRunner equipment may not be intermixed with conventional railcars. RailRunner equipment may be operated behind conventional railcars under certain circumstances. Consult your railroad operating rules. Although RailRunner bogies are designed to accept buff and draft in-train force loads of 400,000 lbs, actual operating in-train forces should not exceed 225,000 pounds at any time.

When building a RailRunner train, it is necessary to have heavier containers at the head end of the train and lighter or empty containers in the trailing position. Specifications and allowable load tables are specified in applicable FRA waiver documents.

RailRunner train make-up generally begins at the rear of a consist and builds forward to the front. The general sequence for building a RailRunner train is as follows:

1. First, anchor the trailing RailRunner Transition Unit (TU) with the last RailRunner chassis (see "Rear Transition Unit and the Last RailRunner Chassis" section below).
2. Once the trailing RailRunner TU is coupled with the last RailRunner chassis, subsequent IU bogie/chassis combinations are coupled in sequence (see the "Intermediate Unit and Chassis" section below).
3. When all IU bogie/chassis combinations are coupled, the RailRunner train is completed by coupling the Lead/Head End TU bogie to the consist (see the "Lead/Head End Transition Unit" section below).

NOTE
It is necessary to inspect each RailRunner bogie and chassis to insure that they are in the conditions stated above. Inspection can be done as each individual unit is being coupled or once the entire RailRunner train has been built.

Use of Wheel Chocks during train build operations

It may be necessary to use wheel chocks to secure an Intermediate Unit during train build and train disassembly. Wheel chocks should be used when the wheel to rail contact is poor due to inclement weather or lubrication on the railhead.

It is recommended that wheel chocks be used during the coupling and uncoupling of heavily loaded road vehicles. The use of wheel chocks is also recommended during train build operations where multiple blocks are being assembled without the benefit of the "anchor block" and transition unit.

Figure 24 Wheel chocks installed on the control box side of the Intermediate Unit

The wheel chocks are wedged against the wheel on the side to be loaded.

NOTE:
All railroad safety rules must be followed when placing the wheel chocks.

- Only use chocks supplied with handles
- Keep hands clear of wheel and rail
- Remove chocks and store away from rail after chassis coupling/uncoupling has been completed

The wheel chocks are most effective when they are located on the wheel set closest to the chassis to be loaded. Placing the wheel chock opposite the side being loaded usually results in the sliding of the chocks on the rail due to reduced down force at the wheel rail interface.

Figure 25 Photo sequence showing the loaded chassis being coupled to the bogie from the left

Wheel chock is placed on the loading side of the intermediate unit.
Sequence is reversed for uncoupling chassis from Intermediate unit.

Remove the wheel chocks once the coupling / uncoupling has been completed. Store the chocks away from the rail to eliminate a trip hazard and to prevent damaging tires or the steel wheel flange.

Building a RailRunner Train on a Single Track

Rear Transition Unit and the Last RailRunner Chassis

1. Position the Rear TU on rail at the proper location on straight track for last chassis in the RailRunner block. Ensure the upper frame of Rear TU bogie is in the lowered position with control the valves set accordingly. Set the brake using the wheel at the front of the TU to prevent the bogie from rolling.

2. Obtain a RailRunner chassis. For chassis equipped with a sliding suspension the chassis tandem should be in the most forward position. If not, remove supply air to the emergency glad hand, causing container brakes to lock. Pull the slider pin release handle located at the front of the sub frame and engage into slot on sub frame rail. Slowly back the chassis body rearward until the suspension engages the forward stops. Place pin release handle back into the "***locked***" position. (See "***Sliding Suspension for Road or Rail Operation***" on page 68).

3. Go to rear of the chassis. Remove the two locking pins from the lowered folding bumper and raise the bumper into the over-the-rail position. Insert the two locking pins to secure the bumper. It is not necessary to crank chassis landing gear to its lowest position.

Figure 26 Insertion and Removal of Bumper Locking Pins

4. Position the chassis over the rails using hostler tractor. The tires and landing gear must be properly aligned with rail to facilitate the chassis coupling to the Rear TU. The hostler tractor must be facing the Rear TU as close as possible (i.e. the gooseneck of the chassis should be pointing towards the Rear TU). Disconnect the hostler from the chassis.

5. Drive the hostler to front of the Rear TU facing the railroad coupler. Release the brake on the TU. Using the hostler tractor push the TU toward the parked chassis until the chassis slides up the ramp on the Rear TU and chassis receiver fully engages the coupling drawbar on the Rear TU. Make sure ramps of the TU are greased.

***Figure 27** Pushing Transition Unit under Front of Chassis*

***Figure 28** Positioning the Transition Unit beneath the Chassis*

***Figure 29** Chassis Receiver Fully Engaged with Drawbar*

6. Lock the Rear TU to the chassis using the appropriate control box air valves.
7. Set hand wheel brake on the Rear TU to anchor the RailRunner chassis for additional RailRunner train building
8. Connect brake pipe glad-hand at the right (road) side rear of the chassis to the Rear TU.

***Figure 30** Connecting the Train Line Air*

9. Check the pressure gauge on the air reservoir on the Rear TU located above the toolbox. The gauge should read 90psi. Use the hostler tractor to charge the air reservoir to 110 PSI so that the loaded chassis can be raised to the Up/Rail position. On lightly loaded or empty chassis 90psi will be sufficient to raise the bogie, on heavier loads 100psi will be required to raise the unit. An auxiliary compressor may also be used.

Intermediate Units and Chassis

1. Position the IU on a section of straight track ahead of the rear assembled TU bogie/chassis (see previous section).

Caution!
IU's must be positioned on track so all control boxes are located on the same side of the rail for ease of operation and inspection.

2. The control box should be in the ***"open"*** position. Using the forklift or Hostler to push the IU toward the connected chassis and TU. Continue to push the IU until contact is made with the chassis Receiver Box.

***Figure 31** View of Intermediate Unit Parking Brake and Control Box*

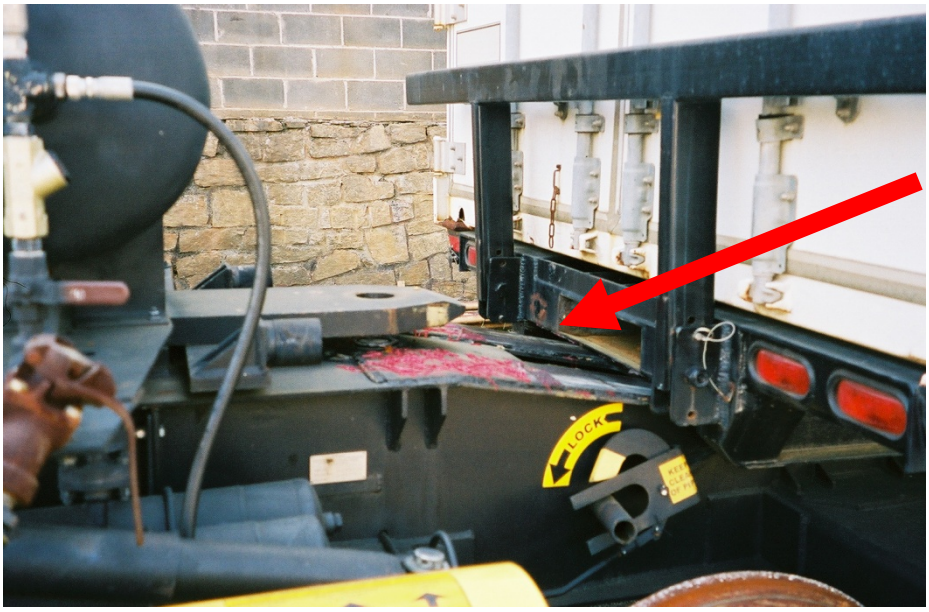
3. Using a hostler, position a RailRunner chassis centered over the tracks. On chassis equipped with sliding tandem suspensions check that the sliding tandem on the chassis is in the full forward position. If the tandem axles have to be slid, pull the slider lock pin handle and direct the hostler driver to slowly back the chassis body rearward until the suspension engages the forward stops. Release the slider lock handle so lock pins re-engage. Chassis equipped with fixed position suspensions are designed with sufficient clearance to couple to the rail bogie. Note: If equipped with a folding bumper be sure to fold it into the locked rail position (see item 3 of the previous section. Remove the two locking pins from the lowered folding bumper and raise the bumper into the over-the-rail position. Insert the two locking pins to secure the bumper.

4. The RailRunner chassis should be centered over the tracks and aligned with the IU. The inside tires and landing gear sand shoes should split the rail tracks as close as possible. This alignment with the rail tracks should be maintained as each subsequent chassis is backed rearward up the ramp of the IU.

***Figure 32* Yard hostler positioning Chassis on the rail for train build**

5. Once the RailRunner chassis is fully aligned to the tracks and the IU, back the chassis up the IU ramp until it contacts the rubber stops. The drawbar coupler tongue should be fully engaged in the rear chassis receiver.

Caution!
The Ramp and the Coupling Pins should be properly lubricated prior to each loading. Both ramps require a generous application of moly grease or similar product, along the loading surfaces. The locking pins should be lubricated with a spray lubricant such as graphite or similar product.



Grease application

***Figure 33* Chassis Moving Up Ramp towards Intermediate Unit**

6. Secure the chassis to the IU by activating the air valve in the control box to engage the locking pin. It may be necessary to "bump" the IU using the fork truck to fully engage the locking pin. To do this engage the fork in the fork pocket and gently push the IU slightly. This will result in the Locking Pin fully seating into the chassis bushings.

7. Position the locking pin control valve to engage the locking pin mechanism.

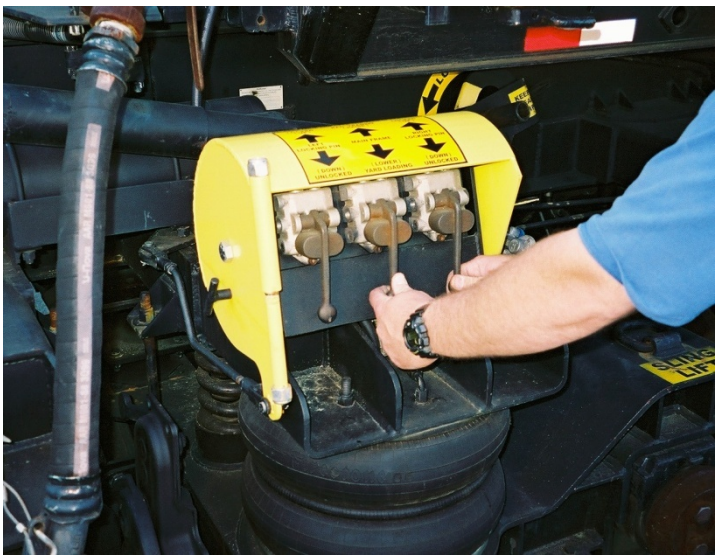


***Figure 34* Setting the Intermediate Unit Air Valves**

Caution!
While the chassis (road vehicles) are assembled to IU or TU the operator should always stay in the Secure Operating Area.

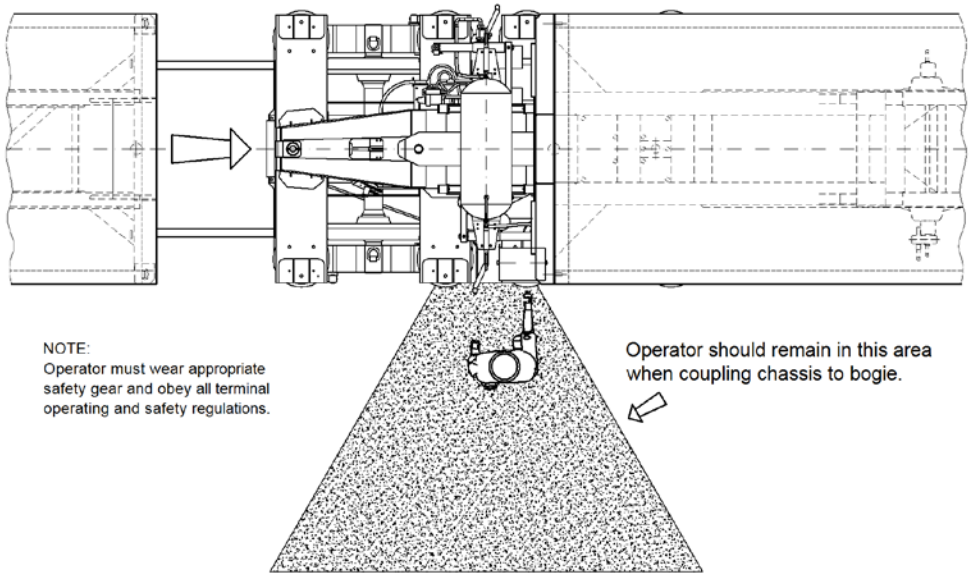


***Figure 35* Safe Operating Area**

8. Set the parking brake on the IU. Lower the landing gear and adjust its height for proper connection with the next IU.

Figure 36 ***Adjust Landing Gear as required***

9. Connect both brake pipe glad-hand on either side of the IU to the corresponding train line pipe on the chassis.

Figure 37 ***Connecting Train Line Air***

10. Inspect the pressure gauge on the air reservoir located at the center of the IU. Use compressor to charge reservoir as instructed.

NOTE

The over-the-rail operating pressure for RailRunner equipment is 90psi. The air spring suspension valves will not function at pressures below 30psi. The reservoir is equipped with an over-pressure relief valve set to 125psi. A compressor or hostler tractor will be required to pressurize the air spring suspension reservoir to 110psi when raising the bogie with a loaded chassis. Refer to "***Charging the Air Suspension Reservoir***" on page 35.

Lead/Head End Transition Unit

1. Position the Lead/Head End TU on the rail directly in front of the first or lead RailRunner chassis. The chassis should already be positioned with the gooseneck forward. The rear of this chassis will already be connected to an IU.

2. The parking brake on the IU already coupled to the chassis should be set. This allows the Lead/Head End TU to slide beneath the front gooseneck end of the chassis for coupling.

3. Push the Lead/Head End TU bogie toward the chassis with a hostler tractor or forklift. The tractor or forklift should be positioned to push against the coupler knuckle of the Lead/Head End TU. Push the Lead/Head End TU toward parked chassis until chassis slides up the Lead/Head End TU and fully engages the coupling drawbar on the Lead/Head End TU.

4. Lock the Lead/Head End TU to the chassis using the appropriate control box air valves.

5. Set hand wheel brake on the Lead/Head End TU. Connect brake pipe glad-hand at the right (curb) side rear of the chassis to the Lead/Head End TU.

6. Inspect the pressure gauge on the air reservoir on the Lead/Head End TU located above the toolbox. The gauge should read at least 90psi. If the gauge reads less than 90psi then charge the reservoir. See on page 35 "***Charging the Air Suspension Reservoir***".

NOTE
The over-the-rail operating pressure for RailRunner equipment is 90psi. The air spring suspension valves will not function at pressures below 30psi. The reservoir is equipped with an over-pressure relief valve set to 125psi. A compressor or hostler tractor will be required to pressurize the air spring suspension reservoir to 110psi when raising the bogie with a loaded chassis. Refer to "***Charging the Air Suspension Reservoir***" on page 35.

7. Check to ensure that the entire RailRunner consist on the track is interconnected as follows:
   a. The trailing (last) TU coupled to the trailing (last) chassis with the locking pin in the ***"locked"*** position.
   b. The train line air hoses connected and train line cocks set to the ***"open"*** position.
   c. The trailing (last) chassis connected to both the trailing (last) TU and an IU. Locking pin(s) in the ***"locked"*** position. Train line air hoses connected with the train line cocks in the ***"open"*** position.

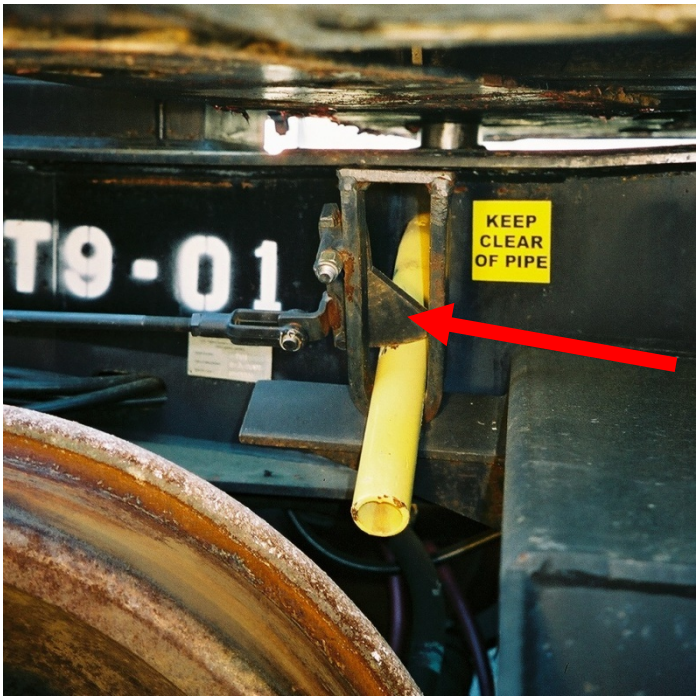


***Figure 38* Transition Unit Locking Pin Fully Engaged**

Locking Pin Interlock

d. Subsequent RailRunner chassis in the RailRunner consist are interconnected to the IU bogies. All locking pins in the ***"locked"*** position. Train line air hoses connected and train line cocks open.

e. The Lead/Head End TU connected to the front of the lead RailRunner chassis. The locking pin should be locked and train line air hoses connected. All train line air cocks in the ***"open"*** position.

f. Parking/ hand brakes on all RailRunner bogies set (i.e. under tension).

g. All large air system reservoirs on every TU and IU charged to a minimum of 90psi.

h. All IU control boxes visible from the same side of the train. Control box covers in the ***"open"*** position.

i. All RailRunner bogies in the train in the ***"down"*** position (i.e. airbags on bogies should not be full).

☝ **The RailRunner consist is now ready to be raised and secured for over-the-rail operation.** (See following "Charging the Air Suspension Reservoir" and "Securing a RailRunner Train for Over-the-Rail Operations")

NOTE

The above procedure is for building a RailRunner train on a single track. For building a RailRunner train on multiple tracks, refer to the section "Building a RailRunner Train on Multiple Tracks" below.

Charging the Air Suspension Reservoir

It is necessary to add air to the suspension reservoir when lifting loaded chassis' into the over-the-rail position. A fully loaded chassis will require 110psi in the suspension system to fully raise the bogie.

NOTE
The suspension system must have a minimum of 30psi indicated on the gauge in order for the valves to work. This is a precautionary measure to prevent uncoupling or tampering with unattended bogies that have had the suspension system compromised.

Connect the supply side glad-hand to the bogie glad-hand and set the valves to "RAPID FILL". The air suspension reservoir can now be charged to 110psi. While the reservoir is charging the rail bogie can be raised to the over-the-rail position. Raising the bogie while the reservoir is being charged will expedite the train building process.

***Figure 39* Glad-hand from compressor coupled to glad-hand on bogie. Set ball valve to "Rapid Fill". Charge the air reservoir to 110psi.**

NOTE
It is not necessary to wait until the entire train has been connected to raise each of the bogies. To expedite the building of the train each of the bogies should be raised to the over-the-rail position as soon as the chassis/container is coupled to the bogie.

Securing a RailRunner Train for Over-the-Rail Operations

NOTE
Begin raising the chassis by inflating the air suspension as soon as three or more of the units are coupled together. It is not necessary to wait until the entire train consist is built to begin raising the bogies to over-the-rail position. Raising the bogies as soon as possible will expedite the building of the train prior to coupling to the locomotive.

1. Ensure that the hand wheel brake on the Lead/Head End Transition Unit (TU) is set. The hand wheel brake must remain **ON** until the consist is connected to the locomotive.

2. Open the control box cover on the Lead/Head End TU and activate (push in) the control valve to raise the upper frame of the Lead/Head End TU. The time it takes to raise the bogie to over-the-rail operating height is dependent on the weight of the container and the capacity of the compressor.

Figure 40
Activating Transition Unit Controls

3. Close the control box cover after the Lead/Head End TU is fully raised. The cover is interconnected to the locking pin locking mechanism that is visible from the control box. Check the locking mechanism to confirm that the locking pin is in the ***"locked"*** position. Latch the control box cover closed.

***Figure 41** Latching the Transition Unit Control Box*

4. Set the three (3) air control ball valves to the ***"run"*** position as identified by the operating decals immediately adjacent to each of the valves. These valves are accessible from the control box side of the Lead/Head End TU.

***Figure 42** Setting the Transition Unit Air Ball Valves*

5. Walk down the RailRunner train to the first IU and then to all subsequent IU's the length of the train while performing the following operations.

NOTE
Complete the operational sequence following instructions 6 thru 10 for all of the Intermediate Units in the consist.

6. At each IU, the round control box door will be in the ***"open"*** position. The three control valves will be visible. The left side and right side control valve will be in the ***"locked"*** position (i.e. they are pushed in as directed on the control lid decal). Push the center valve to the ***"raised"*** position as indicated on the operating decal.

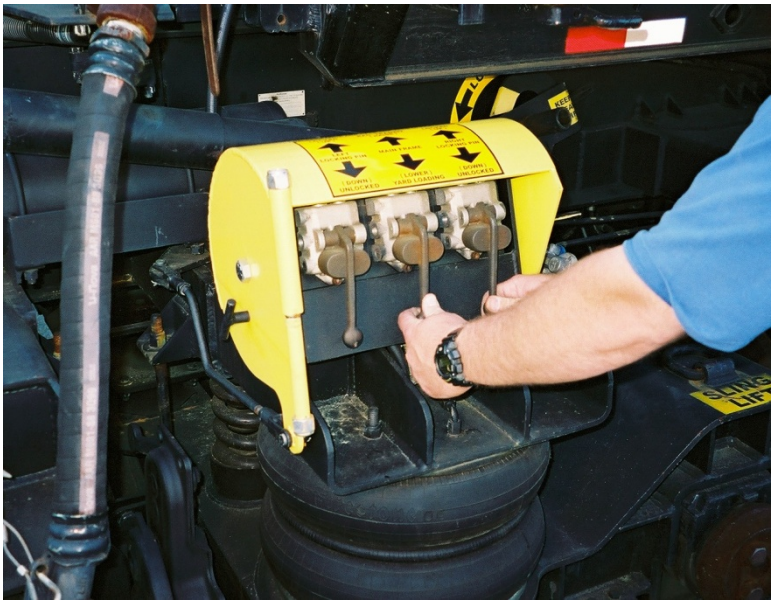


Figure 43 Setting the Intermediate Unit Air Valves

7. After each IU and chassis has been raised, close the round control box door until the **T- handle lock** has been engaged.

NOTE
As a safety feature, the Control Box Door cannot be closed until the IU is fully raised. The door is interconnected to the secondary suspension and locking pin(s) locking mechanism to prevent inadvertent uncoupling of chassis in transit and to provide a level of security against vandalism. The door will not close unless all of the operating mechanisms are properly set and functioning.

NOTE
If it is necessary to force the door closed, it indicates that there is a problem with the configuration of the chassis/ IU bogies. This problem must be identified and rectified before proceeding to the next RailRunner bogie.

8. Set the ball valve on each IU after the IU and chassis are fully raised and the control box door closed and locked. There are four (4) ball valves. Each valve is visible and accessible from the control box. Set the valves to the ***"run"*** position as instructed on the operating decal immediately adjacent to each of the valves.

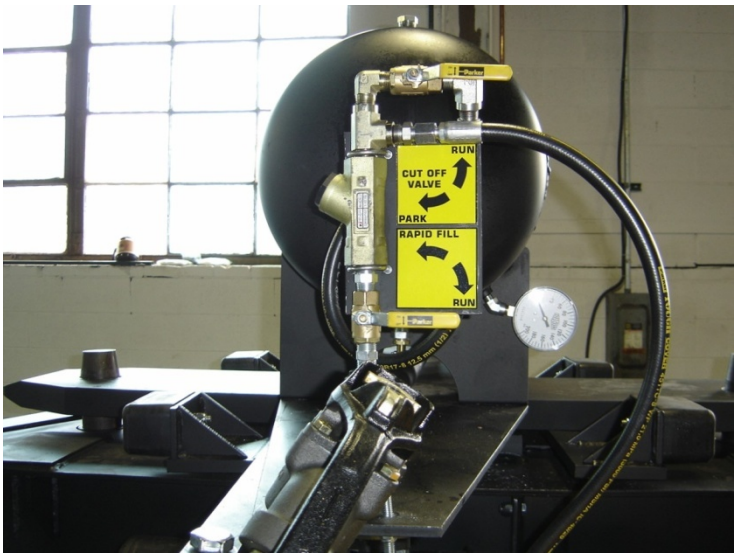


***Figure 44** Set Ball Valves to "RUN" position*

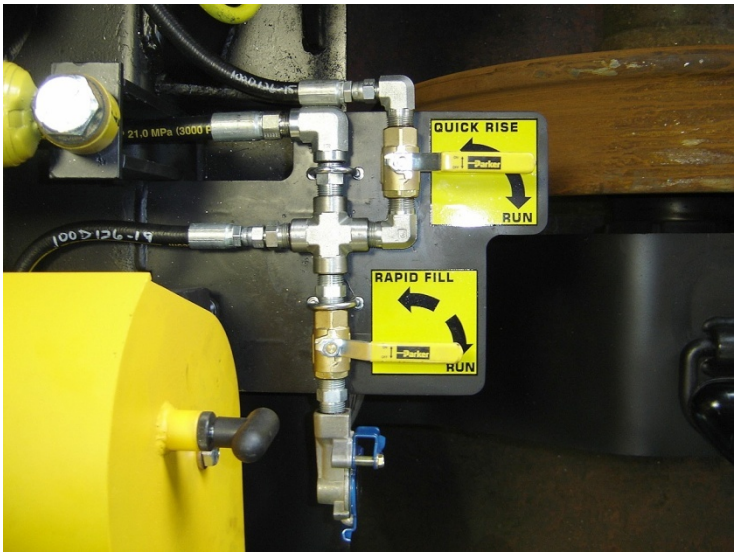


***Figure 45** Quick/Rapid Rise Valve*

NOTE

The Intermediate Unit is equipped with a "Quick / Rapid Rise" air circuit. The valve is used to facilitate raising the upper frame in less than one minute. Connect the compressor to the bogie glad-hand. Open the ***"Rapid Fill"*** valve to begin charging the reservoir.

Position the ***"Quick /Rapid Rise"*** valve to begin lifting the upper frame. Once the upper frame has been raised, position the valve to the ***"Run"*** position. The raised height of the upper frame will be adjusted to the proper over-the-rail operating height by the leveling valve circuit.

9. Release the parking brake by manipulating the throw-over lever at the top of the brake housing. This releases tension in the brake system thereby preventing wheel damage due to inadvertent skidding of the wheel sets.

Caution!
If the handbrake is not released, the wheel sets will be damaged when the locomotive pulls the RailRunner train.

10. Once all IU's are in the ***"raised"*** over-the-rail position, ensure that each IU is checked for the following
    a. Ball valves set to the run position
    b. Control box doors latched and closed
    c. Parking brakes **OFF**.
11. Confirm that the Trailing/End TU is configured for over-the-rail operation. Confirm the hand wheel brake on the Trailing/End IU is set. Do not release the hand wheel, brake until the entire RailRunner consist is connected to the locomotive and the train is ready to depart the yard.
12. Set the three (3) air control ball valves on the TU to the ***"run"*** position as identified by the operating decals immediately adjacent to each of the valves. The valves are all accessible from the control box side of the Trailing/End TU and within easy reach.
13. The entire RailRunner consist is now in the raised over-the-rail position. Check to make sure of the following:
    a. Hand wheel brakes on the TU's are set
    b. IU parking brakes are **OFF**
    c. Ball valves on all RailRunner bogies are in the "***run***" position
    d. Train line air hoses are connected throughout the length of the train.

The RailRunner train is now ready to be coupled to the locomotive.

Coupling a RailRunner Consist to the Locomotive

1. Move the locomotive to the Lead/Head End TU and position the rail coupler on the Lead/Head End TU so that it is in line with the coupler on the locomotive. Couple the locomotive to the RailRunner consist.

2. Install the End of Train (EOT) device on the coupler of the Rear / Trailing Transition unit. See page 43 for ***Installation of EOT Device***.

3. Connect the train line air hose to the locomotive and charge the train line piping. Charge the train line piping to bring the system to proper brake system operating pressure (until now, the train line piping on the chassis has been empty). The time required to charge the trail will depend on the length of the train.

4. Conduct a thorough inspection of the brake system to assure proper operation. When conducting a brake inspection, note that a RailRunner bogie can be equipped with either the Wabco TMX system or the New York Air Brake TMB system. Each system has a different indicator. There is an operating decal that specifies the operational limits of the system as installed. The decal is visible on the upper frame of the rail bogie and is visible from the control box.

5. The indicators for either brake system are visible at axle level on the lower frame of the RailRunner bogie:

    a. **Wabco Brake Systems**. The indicator for the Wabco system is a yellow flag. The piston travel at the initial terminal shall be 1-1/4”to 3-1/2”. The Wabco brake shall be considered ineffective at 3-5/8.”

Figure 46 Wabco TMX Brake Indicator instructional decal

b. NYAB – TMB-60 Brake Systems. The indicator for the NYAB-TMB system is a red rod/piston protruding from the top of the cylinder. The piston travel at the initial terminal shall be 2” to 3-1/8” for the NYAB system. The NYAB brake system shall be considered ineffective at 3-1/4”.

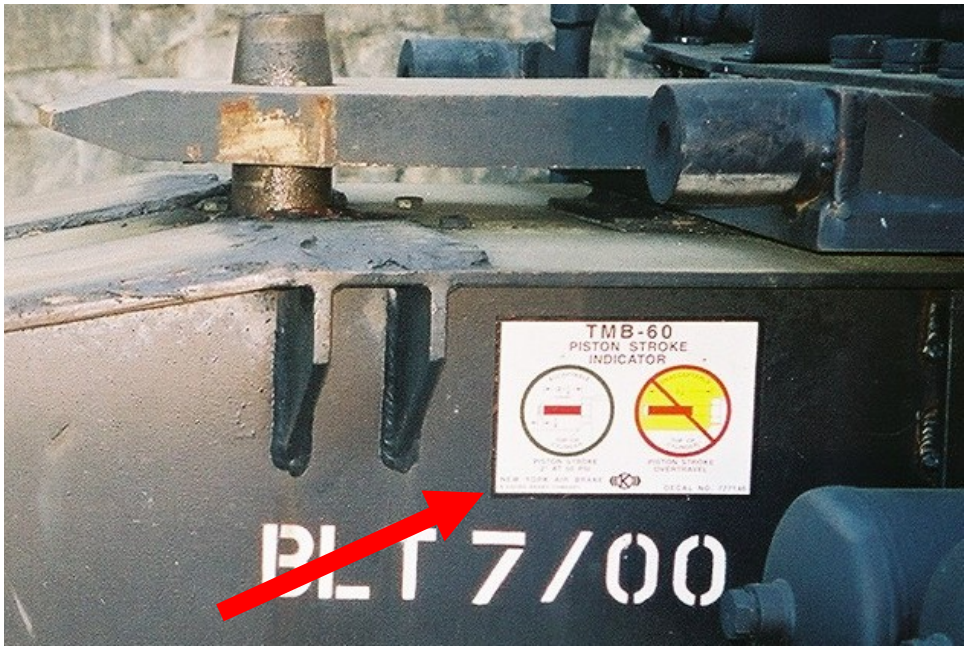


***Figure 47* NYAB TMB-60 piston stroke instructional decal**

6. Conduct a **Final Inspection** of the entire RailRunner train as follows:

   a. Train line air cocks in the proper position.
   b. All RailRunner bogies in the raised position.
   c. Control box doors/lids are closed and secured.
   d. RailRunner chassis and bogies appear to be in proper working order.
   e. Locomotive is coupled.
   f. Hand wheel brakes on the Lead/End and Trailing/End TU bogies must be released for over-the-rail operation.
   g. Parking brake on all IU bogies is released for Over-The-Rail operation.
   h. EOT Properly Installed on Rear/Trailing TU.
   i. Train Line Brake Pipe charged to 90psi.

The train is now ready for operation.

Installation of EOT Device

The RailRunner consist must have an End of Train (EOT) device installed on the rear/trailing Transition Unit. Refer to FRA/AAR requirements for EOT installation and operation.

FRA waiver conditions allow for a RailRunner Intermediate Unit to be the last bogies in a RailRunner consist. If an IU is at the rear of the consist an EOT device must be installed using the EOT bracket provided by RailRunner. The yellow EOT bracket can be found in the tool box on each Transition Unit.

The EOT bracket is positioned on the drawbar and tightened in place using the screw on the side of the bracket. Once the bracket has been secured the EOT device can be installed. Installation of the EOT device onto the bracket is done in the same manner as installation on the coupler. The bracket is further secured by the locking pin in the raised/rail position. The locking pin will prevent loss of the bracket and EOT should the screw that secures the bracket work loose.

Once the EOT device has been secured in place next, couple the train line air hose to the brake pipe train line and open the train line cut off cock to allow for air pressure to travel to the EOT.

***Figure 48* EOT device installed on Rear/Trailing Transition Unit**

<u>Figure 49</u> EOT bracket and EOT device installed on the rear/trailing intermediate unit

Building a RailRunner Train on Multiple Tracks

For longer RailRunner trains or commingled trains, it may be necessary to build short RailRunner "blocks" or consists on multiple tracks. When building trains on multiple tracks, it is necessary to refer to the proper loading specifications for allowable trailing tonnage. Blocks of heavier containers must be positioned ahead of lighter or empty containers behind the locomotive.
It is suggested that when building a consist on multiple tracks, the track furthest from the chassis staging area be built first. This first block can be either the Head End or Trailing End. The sequence or positioning behind the locomotive must be determined prior to building the block to assure that heavier containers are ahead of lighter containers. In this manual, it is assumed that track farthest away from the chassis staging area will be the light/trailing block. The track closest to the staging area will be the heavy/leading block. If blocks are being built in between these tracks, the position of chassis within each intermediate block will be determined by positioning heavier chassis toward the lead end.

Rear Transition Unit and the Last RailRunner Chassis on Multiple Tracks

1. Position the Rear TU on rail at the proper location on straight track for last chassis in the RailRunner block. Ensure the upper frame of Rear TU bogie is in the lowered position with control the valves set accordingly. Set the brake using the wheel at the front of the TU to prevent the bogie from rolling.

2. Obtain a RailRunner chassis. For chassis equipped with a sliding suspension the chassis tandem should be in the most forward position. If not, remove supply air to the emergency glad hand, causing container brakes to lock. Pull the slider pin release handle located at the front of the sub frame and engage into slot on sub frame rail. Slowly back the chassis body rearward until the suspension engages the forward stops. Place pin release handle back into the "***locked***" position.

3. Go to rear of the chassis. Remove the two locking pins from the lowered folding bumper and raise the bumper into the over-the-rail position. Insert the two locking pins to secure the bumper. It is not necessary to crank chassis landing gear to its lowest position.

Figure 50 Insertion and Removal of Bumper Locking Pins

4. Position the chassis over the rails using hostler tractor. The tires and landing gear must be properly aligned with rail to facilitate the chassis coupling to the Rear TU. The hostler tractor must be facing the Rear TU as close as possible (i.e. the gooseneck of the chassis should be pointing towards the Rear TU). Disconnect the hostler from the chassis.

5. Drive the hostler to front of the Rear TU facing the railroad coupler. Release the brake on the TU. Using the hostler tractor push the TU toward the parked chassis until the chassis slides up the ramp on the Rear TU and chassis receiver fully engages the coupling drawbar on the Rear TU.

***Figure 51** Pushing Transition Unit under Front of Chassis*

***Figure 52** Positioning the Transition Unit beneath the Chassis*

***Figure 53** Chassis Receiver Fully Engaged with Drawbar*

6. Lock the Rear TU to the chassis using the appropriate control box air valves.
7. Set hand wheel brake on the Rear TU to anchor the RailRunner chassis for additional RailRunner train building
8. Connect brake pipe glad-hand at the right (road) side rear of the chassis to the Rear TU.

***Figure 54** Connecting the Train Line Air*

9. Check the pressure gauge on the air reservoir on the Rear TU located above the toolbox. The gauge should read 90psi. Use the hostler tractor to charge the air reservoir to 110 PSI so that the loaded chassis can be raised to the Up/Rail position. On lightly loaded or empty chassis 90psi will be sufficient to raise the bogie, on heavier loads 100psi will be required to raise the unit. An auxiliary compressor may be used.

Intermediate Unit and the RailRunner Chassis on Multiple Tracks

When building blocks of RailRunner, bogies on multiple tracks, the positioning and sequencing of IU's is the same as that used for a single track assembly. Refer to the procedure for ***"Building a RailRunner train on a Single Track p.26-40"*** position the IU on a section of straight track ahead of the rear assembled TU bogie/chassis.

Lead/Head End Transition Unit on Multiple Tracks

1. Position the Lead/Head End TU on the rail directly in front of the first or lead RailRunner chassis. The chassis should already be positioned with the gooseneck forward. The rear of this chassis will already be connected to an IU.

2. Set the parking brake on the IU already coupled to the chassis. Setting the parking brake allows the Lead/Head End TU to slide beneath the front gooseneck end of the chassis for coupling.

3. Using a hostler or forklift, push the Lead/End TU toward the chassis. Position the hostler or forklift truck to push against the coupler knuckle of the Lead/Head End TU.

4. Drive to front of Lead/Head End TU facing the railroad coupler. Push the Lead/Head End TU by hostler toward parked chassis until chassis slides up the Lead/Head End TU and chassis receiver fully engages the coupling drawbar on Lead/Head End TU.

5. Lock the Lead/Head End TU to the chassis using the appropriate control box air valves.

6. Set the hand wheel brake on the Lead/Head End TU to anchor the RailRunner consist for additional RailRunner train building.

7. Connect brake pipe glad-hand at the right (road) side rear of the chassis to the Lead/Head End TU.

8. Inspect the pressure gauge on the air reservoir on the Lead/Head End TU located above the toolbox.

NOTE
The over-the-rail operating pressure for RailRunner equipment is 90psi. The air spring suspension valves will not function at pressures below 30psi. The reservoir is equipped with an over-pressure relief valve set to 125psi. A compressor or hostler tractor will be required to pressurize the air spring suspension reservoir to 110psi when raising the bogie with a loaded chassis. Refer to "***Charging the Air Suspension Reservoir*** on page 35.

9. Check to ensure that the entire RailRunner consist on the track is interconnected as follows:

   a. Trailing TU coupled to the trailing (last) chassis.

b. Locking pin in the "***locked***" position and train line air hoses connected. Train line cocks set to the "***open***" position.

c. Trailing (last) chassis connected to both the Lead/Head End TU and IU. Locking pin(s) in the "***locked***" position. Train line air hoses connected with the train line cocks in the "***open***" position.

d. All chassis in the RailRunner consist interconnected to IU's. Locking pins in the "***locked***" position. Train line air hoses connected and train line cocks open.

e. The Lead/Head End TU bogie coupled to the front of the consist. Locking pin locked. The train line air hoses connected and train line air cocks in the "***open***" position.

f. The parking and/or hand brakes on all of the rail bogies set (i.e. under tension).

g. The large air system reservoirs on every TU and IU charged to a minimum of 90psi.

h. All IU control boxes visible from the same side of the train. All control box covers in the "***open***" position.

The RailRunner consist is now ready and secured for over-the-rail operation. (See "Coupling Multiple RailRunner consists on Multiple Tracks for over-the-rail Operation" below.)

Coupling Multiple RailRunner consists on Multiple Tracks for over-the-rail Operation

This section continues terminal operations when building a RailRunner train on multiple tracks and the entire RailRunner consist is connected, charged and parked as described in the "Building a RailRunner Train on Multiple Tracks" section earlier in this manual. Below is the procedure to raise and secure a RailRunner consist to connect with other RailRunner blocks on multiple tracks.

1. Confirm that the hand wheel Brake is set on the Lead / Head End TU. The hand wheel brake must remain **ON** until the RailRunner consist is connected to the locomotive.

2. Open the control box cover on the Lead / Head End TU and activate (Push In) the control valve to raise the upper frame of the Lead / Head End TU.

3. Close the control box cover after the Lead / Head End TU is fully raised. The cover is interconnected to the locking pin locking mechanism which is visible from the control box. Check the locking mechanism to confirm that the locking pin is in the "***locked***" position. Latch the control box cover closed.

4. Set the three (3) air control ball valves to the "***run***" position as identified by the operating decals immediately adjacent to each of the valves. The valves are accessible from the control box side of the Lead / Head End TU.

5. Walk down to the first IU and to all subsequent IU's the length of the RailRunner train.

6. Raise each IU using the round control box. The box door will be in the "***open***" position. The three control valves will be visible. The left side and right side control valve will be in the "***locked***" position (i.e. they will be pushed in as directed on the control lid decal). Push the center valve "in" to the "***raise***" position as indicated on the operating decal. The upper frame of the IU and the attached chassis will rise to over-the-rail operating height in less than one minute.

7. After each IU and chassis is fully raised, close the round control box door until the ***T-HANDLE*** lock has been engaged.

NOTE
As a safety feature, the Control Box door cannot be closed until the IU is fully raised. The door is interconnected to the secondary suspension and locking pin(s) locking mechanism to prevent inadvertent uncoupling of chassis in transit and to provide a level of security against vandalism. The door will not close unless all of the operating mechanisms are properly set and functioning. If it is necessary to force the door closed, it indicates that there is a problem with the configuration of the chassis/IU. This problem must be identified and rectified before proceeding to the next RailRunner bogie.

8. Set the ball valve on each IU for over-the-rail operation after each IU and chassis are fully raised and the control box door closed and "***locked***". There are four (4) ball valves. Each valve is visible and accessible from the control box. Set the valves to the "***run***" position as instructed on the operating decal immediately adjacent to each of the valves.

9. Release the parking brake by manipulating the ***throw-over lever*** at the top of the brake housing. This releases tension in the brake system thereby preventing wheel damage due to inadvertent skidding of the wheel sets.

Caution!
If the handbrake is not released, the wheel sets will be damaged when the RailRunner consist is pulled by the locomotive.

10. Ensure all IU's fully functional in the raised over-the-rail position:
    a. Ball valves are set to the run position
    b. Control box doors latched closed
    c. Parking brakes **OFF**.

11. Prepare the Trailing/End TU for over-the-rail operation. Ensure the hand wheel brake on the Trailing/End IU is set. Do not release the hand wheel brake until the consist is connected to the locomotive and the train is ready to depart the yard.

12. If the TU has not been raised, open the control box cover on the Trailing/End TU and activate (push in) the control valve to raise the upper frame of the Trailing /End TU. Raising the Trailing/End TU and chassis to full over-the-rail operating height takes less than a minute.

13. After the Trailing/End TU is fully raised, close the control box cover. The cover is interconnected to the locking pin locking mechanism. This mechanism is visible from the control box. Check the locking mechanism to confirm that the locking pin is in the "***locked***" position. Latch the control box cover closed.

14. Set the four (4) air control ball valves to the "***run***" position as identified by the operating decals immediately adjacent to each of the valves. The valves are all accessible from the control box side of the Trailing/End TU and within easy reach.

15. The entire RailRunner consist is now in the raised over-the-rail position. Check to make sure of the following:

    a. Hand wheel brakes on the TU bogies are set,

    b. IU bogie parking brakes are **OFF**,

    c. Ball valves on all RailRunner bogies are in the "***run***" position, and

    d. Train line air hoses are connected throughout the length of the consist.

Use of Locomotive to couple Multiple Consists / Blocks on Multiple Tracks

It will be necessary to use a locomotive to pull the first RailRunner consist into position on the adjacent/next track to continue building the larger consist.

1. Release the hand wheel brake on the Lead/Head End TU to allow the locomotive to pull the head end block without skidding the wheels.

2. Pull the RailRunner consist to the appropriate location to allow for track switching so that the lead RailRunner consist can be backed into the trailing RailRunner consist.

3. Back the RailRunner train toward the next consist / block in the train. The IU at the rear of the consist will connect to the chassis at the head end of the trailing block. The chassis must be positioned properly on the tracks to allow the IU to slide beneath the chassis and connect to the receiver.

4. Stop the train when the lead RailRunner bogie reaches the parked second RailRunner consist. It is necessary to lower the IU at the rear of the first consist in order to connect to the RailRunner chassis.

5. After the train is stopped, open the control box lid on the IU at the rear of the first consist and lower the IU by pulling the center air valve as indicated on the operating instruction decal. The IU will begin to lower. The locking pin on the IU must be lowered to allow for connection to the chassis.

NOTE
As a safety feature, both locking pins on the IU's go into the full ***"up and locked"*** position when the controls are set to raise the frame. The operation is internal to the air control circuit and cannot be overridden.

6. Back the train slowly until the IU slides beneath the chassis and the chassis bumps against the rubber stops on the upper frame.

7. Activate the air valve to lock the chassis to the IU using the control box. The control box lid is in the "***open***" position.

8. Connect the train line glad-hands, open the ball cock to allow the locomotive to begin charging the train line in the second RailRunner consist.

9. Walk down the length of the second RailRunner consist to inspect it for over-the-rail operations. Confirm that the center air valves in the control box are in the "***raised***" position. When the upper frame is fully raised, close and secure the control box lid. Closing and locking the lid will engage the interconnected locking pin locks and position the secondary suspension paddle mechanism for over-the-rail operation.

10. Set the ball valves to the proper "***run***" position.

11. Release the parking brake on each of the IU's. The brake is released by throwing the lever at the top of the brake housing located adjacent to the control box on the lower frame.

12. Repeat steps 1-11 for each consist (block) until the train building is completed.

Configuring Trailing RailRunner Consist(s) / Block(s) for over-the-rail Operation

Once the IU's are ready for over-the-rail operation, the Trailing/End TU on the second RailRunner consist must also be configured for over-the-rail operation as follows:

1. Open the control box cover on the Trailing/End TU and activate (push in) control valve to raise the upper frame of the TU. Raising the TU and chassis to full over-the-rail operating height takes less than a minute.

2. Once the Trailing/End TU is fully raised, close the control box cover. The cover is interconnected to the locking pin locking mechanism. This mechanism is visible from the control box. Check the locking mechanism to confirm that the locking pin is in the "***locked***" position. Latch the control box cover closed.

3. Set the three (3) or four (4) air control ball valves to the "***run***" position as identified by the operating decals immediately adjacent to each of the valves. The valves are all accessible from the control box side of the Trailing/End TU and within easy reach.

4. Install the End of Train (EOT) device on the coupler of the Rear/Trailing Transition unit. See page 43 for ***Installation of EOT Device***.

5. Once the RailRunner consist is connected to the locomotive, release the hand wheel brake on the Trailing/End TU.

NOTE
It may be necessary to set the hand wheel brakes on the TU's and some of the parking brakes on the IU's during train building operations or due to grade/elevation of the track when the train is parked. If the parking brakes are set, caution must be used to prevent damage to the wheels. ***Failure to release this brake prior to train movement will result in damaging the wheels.***

6. Conduct a thorough inspection of the brake system to assure proper operation. When conducting a brake inspection on RailRunner bogies, it is important to note that a RailRunner bogie can be equipped with either the Wabco TMX system or the New York Air Brake TMB system. Each system has a different indicator. There is an operating decal that specifies the operational limits of the system as installed. The decal is visible on the upper frame of the rail bogie and is visible from the control box. The indicators for either brake system are visible at axle level on the lower frame of the RailRunner bogie:
   a. **Wabco Brake Systems**. The indicator for the Wabco system is a yellow flag. The piston travel at the initial terminal shall be 1-1/4"to 3-1/2". The Wabco brake shall be considered ineffective at 3-5/8."
   b. **NYAB-TMB Brake Systems**. The indicator for the NYAB-TMB system is a red rod/piston protruding from the top of the cylinder. The piston travel at the initial terminal shall be 2" to 3-1/8" for the NYAB system. The NYAB brake system shall be considered ineffective at 3-1/4".
7. Conduct a **Final Inspection** of the entire RailRunner consist as follows:
   a. Train line air cocks in the proper position.
   b. All RailRunner bogies in the "***raised***" position.
   c. Control box doors/lids are closed and secured.
   d. RailRunner chassis and bogies appear to be in proper working order.
   e. Locomotive is coupled to the train
   f. Hand wheel brakes on the Lead/End and Trailing/End TU bogies must be released for over-the-rail operation.
   g. Parking brake on all IU bogies is released for Over-The-Rail operation.
   h. EOT Properly Installed on Rear/Trailing TU.
   i. Train Line Brake Pipe charged to 90psi.

The train is now ready for operation.

Disassembling a RailRunner Train

The procedure for disassembling a RailRunner train, whether on a single track or multiple tracks, is essentially the same. The hand wheel brake of the End/Trailing Transition Unit (TU) is set when parking the train. The train will be separated and the parking brake(s) on selected Intermediate Units (IU's) set to prevent inadvertent train movement due to sloping grade track elevation.

WARNING
When a RailRunner train is parked, the train line air will be fully charged. It is dangerous to uncouple train line glad-hands with the train line under pressure. The train line air pressure must be bled off before uncoupling glad-hands. Release all pressure in the train line using the relief valve located at the rear of each chassis.

The train line air supplies both the brake system and the air spring suspension system. A check valve is installed at the suspension reservoir to prevent backflow of air into the train line while allowing the reservoir to be charged by the locomotive. Bleeding off the train line air will not adversely affect the operation of RailRunner bogies.

After disassembling the train, set the ball valves on the large air reservoirs to the **"Closed"** position. By closing the ball valves on the air reservoirs, the air in the reservoir will be captured at 90psi. This will facilitate building the next train without having to charge the reservoir to 90psi starting from 0psi.

Parking and Securing a RailRunner Train for Disassembly

IMPORTANT
It is required that all FRA rules and regulations pertaining to the parking of a train be strictly adhered to, specifically, the placement of "Blue Flags" prior to the locomotive leaving the consist. Ground personnel are prohibited from working on RailRunner equipment unless the track on which the equipment is parked has been secured and the track has been "Blue Flagged".

1. Park the train by setting the hand wheel parking brake on the End/Trailing TU. Set the parking brakes on the selected IU's to prevent inadvertent train movement once the locomotive is uncoupled from the train.

2. Uncouple locomotive from consist. Vent the brake pipe train line pressure from the consist. Remove the End of Train device from the rear/trailing transition unit.

3. Lower all IU's in a RailRunner train moving from the end of the train to the front. Open the control box cover and pull the center air valve lever. The upper frame of the unit will begin to move downward as the air spring suspension is deflated. Continue to move forward, opening the control box covers and lowering all IU's in the train.

4. While moving forward in the RailRunner consist and lowering the IU's, set the parking brake on each IU to prevent inadvertent train movement. With the control box open and the valve in the "***down***" position, pull up on the ratcheting handle located just to the left of the control box.

5. Move forward in the train until the Lead/Head End TU is reached. This TU is coupled to the locomotive.

Disassembling the Lead/Head End Transition Unit

1. Lower the chassis landing gear while the locomotive is connected to the Lead/Head End TU and the Lead/Head End TU is fully raised. This provides proper vertical clearance for connecting to the hostler tractor. Adjusting the landing gear is only required for the TU's.

2. Open the control box cover and activate (pull) the air valve to lower the frame while the Lead/Head End TU is still connected to the locomotive. While the frame is moving downward, activate (pull) the lever to "***Unlock***" the Locking Pin. Lowering the Lead/Head End TU and unlocking the locking pin will free the Lead/Head End TU from the chassis and allow the locomotive to pull the Lead/Head End TU away from the consist.

3. After the Lead/Head End TU is fully down, pull the Lead/Head End TU away from the train with the locomotive to provide access for a hostler. The suggested distance for clearance is 100-125 feet.

4. Set the hand wheel parking brake on the Lead/Head End TU after it is pulled away. Uncouple from the locomotive.

Disassembling the Intermediate Unit

1. Disassemble the first IU in the RailRunner consist using the control box. The control box cover will be in the full "***open***" position, the RailRunner chassis in the "***down***" position, and the parking brake set. Do not unlock the lead chassis from the IU. First unlock the trailing chassis by pulling on the appropriate lever in the control box. Release train line air pressure by pulling on the brake release lever located to the right side of the control box. Releasing the train line air will free the truck mounted brake system.

2. Uncouple the train line glad-hands only after the train line air pressure has been released.

3. Couple the hostler to the chassis kingpin. Connect the glad-hands and electrical system.

4. Release the parking brake on the left side of the control box. The brake is released by moving the lever at the top of the mechanism to the release position.

5. Pull the IU forward approximately 75 feet using a hostler. This provides clearance for the next IU in the consist.

6. After the IU is clear of the train, reset the parking brake by pulling several times on the ratcheting handle to the left of the control box. Setting the parking brake will allow the IU to park for reassembly of the next train.

7. Unlock the chassis from the IU by pulling on the appropriate valve located inside the control box. The hostler can now pull clear of the IU.

8. If the chassis is equipped with a folding bumper then it will be necessary to place the bumper in the ***"down/road"*** position.

Caution!
The bumper can fall freely once the locking pins are removed. Take necessary precautions against being struck by the bumper as it rotates downward.

Remove the two locking pins from the bumper. Rotate the bumper to the down/road position. Insert the two locking pins to secure the bumper for over-the-road operation.

Figure 55 Insertion and Removal of Bumper Locking Pins

9. If the chassis is equipped with sliding suspension reposition the sliding tandem wheels on the chassis to the rearmost position. Set the tandem wheel brakes and release the locking pins that secure the tandem to the chassis. Move forward until the sliding tandem is "***locked***" into position. Inspect the locking pins to assure that the chassis frame is properly locked to the sliding tandem axles. (Refer to ***"Sliding Suspension for Road or Rail Operation"*** on page 68 for additional information)

10. Disassemble the other IU's using the above steps until the entire RailRunner train has been separated.

Disassembling the End/Trailing Transition Unit

The last unit in the RailRunner consist to be disassembled is the End/Trailing TU. Prior to disassembly, the End/Trailing TU should be in the **"raised"** position. The chassis will be facing away from the rest of the RailRunner train. A hostler will be used to pull the End/Trailing TU away from the chassis.

1. Lower the landing gear on the chassis while the End/Trailing TU is in the raised position. This makes it easier for the hostler to back under the chassis for connecting to the kingpin.

2. Open the control box lid and pull the air valve lever to lower the chassis. While the unit is moving downward, pull the air valve lever to unlock the chassis from the End/Trailing TU.

3. Confirm that the End/Trailing TU is fully lowered and the Locking Pin is unlocked.

NOTE
It is recommended that the hostler be equipped with a rail coupler to facilitate the movement of the TU bogies on the rail. If such equipment is not available, a chain of sufficient strength is required to pull the TU free of the chassis.
Precautions must be taken when applying tension to the chain. **DO NOT** snap or jerk the chain when pulling the TU as this could cause the chain to break possibly resulting in injury to ground personnel.

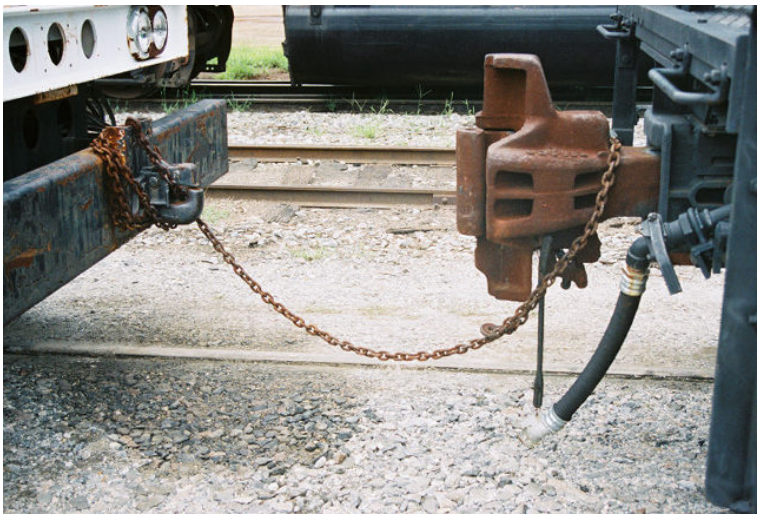


***Figure 56** Hostler connected to TU by high tensile chain*

4. Position the hostler on the tracks directly in front of the End/Trailing TU. Couple the hostler to the TU.

5. Release the hand wheel brake on the End/Trailing TU. Train line air must be bled off to release the brake system and prevent injury when uncoupling the glad-hands.

6. Pull the End/Trailing TU from beneath the chassis. Move the End/Trailing TU far enough down the track to provide access for the hostler to connect with the chassis.

7. Set the hand wheel brake on the End/Trailing TU. Close the air valve at the main reservoir to contain the air necessary to build the next train.

8. Connect the hostler to the chassis. Connect the glad-hands and electrical connection. On chassis equipped with folding bumpers you will need to configure the bumper from the rail to the road position. Remove the locking pins. Lower the bumper and reinsert the locking pins into the bumper in the "***down"*** over-the-road position.

9. On chassis equipped with a sliding suspension it will be necessary to reposition the suspension for over-the-road operation. Set the brakes on the sliding tandem after the hostler is connected to the chassis. Reposition the sliding tandem axles to the rearmost position for over-the-road operation. Pull the chassis forward until the pins on the sliding tandem are positioned to lock the axles to the frame of the chassis. Inspect the pins to assure that the chassis and sliding tandem axles are properly "***locked***". (Refer to "***Sliding Suspension for Road or Rail Operation"*** on page 68 for additional info.)

The RailRunner train is now completely disassembled and the RailRunner bogies positioned for the building of the next train.

RailRunner Terminal Gate Inspection

Below is a recommended checklist for a terminal gate inspection of a RailRunner highway chassis both inbound and outbound. This list is organized as a clockwise inspection around the chassis.
Instruct the driver to set the tractor brakes and maintain air supply to the chassis during inspection. All chassis lights and emergency flashers should be **ON** while inspecting.

	ITEM	WHAT TO LOOK FOR:
Front of Chassis	Corner Caps	Cracks, loose mounting
	Glad-hands	Secure mounting
	Document Holder	Secure mounting and documents in place
	DOT Sticker 7	In-date DOT Inspection
	3 Way Connector	Damage, secure mounting
	Lights	Both upper marker lights are on, no light burnt out
Curb Side of Chassis	Landing Gear	Legs, support bars, mounting plates and sand shoes for distortion and secure mounting and structural damage. Ensure legs have adequate ground clearance.
	Lights/Reflectors	Secure mounting and proper operation
	Bottom Rails	Cuts, holes, tears, scrapes & distortion
	Aluminum Plate	Cuts, holes, tears, scrapes
	Cross members	Distortion, Secure mounting, exterior mount bolts
	Sliding Tandem	Slid to proper position (full forward for rail movement). All locking pins fully engaged.
	Tires/Wheels	Flats, low inflation, tread depth, cracking, loose or missing studs or rim clamps, leaking hubs, theft or swapped out.
	Mud Flaps	Damage to flap or mount
	Highway Shocks	Damage or leaking oil
	Rail Brake Pipe	Wear, condition of fittings, crimping, installed properly in the storage brackets.
Back of Chassis	Lights/Reflectors	Secure mounting and proper operation
	Doors and Hardware	Holes, distortion, missing components, proper seal
	Door Holdback	Damaged or missing
	Folding ICC Bumper	Locked in proper position (down for highway, up for rail). Both pins installed.
	Brake Shoes	Excessive wear below 3/8" inch of lining or overheating.
	License Plate	Secure mounting and legible
	Seal	Unbroken and unaltered cargo seal, record numbers.

	ITEM	WHAT TO LOOK FOR:
Road Side of Chassis	Highway Shocks	Damage and leaking oil around outside surfaces
	Mud Flaps	Damage to flap or mount, missing components
	Sliding Tandem	Slid to proper position (full forward for rail movement). All locking pins fully engaged.
	Tires/Wheels	Flats, low inflation, tread depth, cracking, loose or missing studs or rim clamps, leaking hubs.
	Lights/Reflectors	Secure mounting and proper operation
	Bottom Rails	Cuts, holes, tears, scrapes and distortion
	Aluminum Plate	Cuts, holes, tears, scrapes
	Cross members	Distortion and secure mounting
	Landing Gear	Legs, support bars, mounting plates and sand shoes for distortion and secure mounting and structural damage. Ensure legs have adequate ground clearance. Crank handle stored in clip.
	Brake Pipe	Wear, condition of fittings, crimping, chaffed hoses and condition of storage brackets.

Handling the RailRunner Bogie

It will be necessary during yard operations to lift RailRunner bogies off the rail. RailRunner bogies can be lifted using one of two methods:

1. From the side, beneath the lower frame, using a forklift.
2. From overhead using ***"D" rings*** and chain slings or steel ropes.

NOTE
A forklift cannot pick up a RailRunner bogie from its end (parallel to the rails). RailRunner bogies must be picked up from the side or overhead. Fork lift pockets are clearly identified on both the TU and IU. Be sure forks are completely under bogie and end of fork shows on the side opposite from truck.

Figure 57 Forklift pockets

RailRunner bogies are heavier than other rail compatible vehicles.
A TU weighs **18,500 lbs**. An IU weighs **15,000 lbs**. The lateral location of the center of gravity is 49 inches from the side of the bogie. Longitudinal center of gravity for the IU's center is between the wheel sets. The TU's longitudinal center of gravity is forward of the center wheels, i.e. the TU is nose heavy.

Both the TU and the IU have instructional decals identifying where the forklift forks should be positioned and where the sling lift ***"D"*** rings are located. When lifting a RailRunner bogie from the side by a forklift, it is important to position the lift truck forks as low as possible and parallel to the ground to prevent spearing the side of the bogie, causing damage to the structural frames and/or components.

Uneven Terrain

It may also be necessary to secure a RailRunner bogie to a forklift using chains or similar restraining devices in order to prevent the bogie from sliding off the forks when traversing rough or uneven terrain. Particular care must be taken when lifting a TU due to the forward center of gravity.

Travel Speed

Due to the weight of RailRunner bogies, the speed of the forklift should be no faster than walking speed. This will minimize tipping if it is necessary to stop the lift tuck abruptly.

Positioning the Transition Unit (TU) on the Rail

The Trailing End TU must be placed at the end of the train with the coupler facing away from the RailRunner consist. The Lead/Head End TU is positioned with the coupler facing the locomotive.

Figure 58
Lifting a TU Bogie with a Forklift

Positioning the Intermediate Unit (IU) on the Rail

IU's are bi-directional, i.e. they can be positioned on the rail in either direction. However, to facilitate train make-up, all IU's should be placed on the rail with the control boxes on the same side. This ensures that yard personnel and train crew have access to all controls and indicators from the same side of the train.

Figure 59
Lifting an IU Bogie with a Forklift

Fork Lift Truck Operations

Forklift Specifications

The forklift handling requirements/specifications for RailRunner bogies are similar to other rail compatible vehicles. Forklift specifications are as follows:

- 35,000lb lift capacity
- Eight foot fork blade length
- Engine driven air compressor to charge the bogie reservoir
- Provisions for securing the bogie to the mast when traversing rough terrain.
- Lights on the mast to illuminate the bogie during night operations, and
- Recommended long wheelbase and possible extra counterweights to improve handling heavy loads.

Fork Lift Truck Safety

As with any movement of heavy equipment, precautions must be taken to prevent damage or causing injury to personnel:

- Do not use the lift truck to push RailRunner bogies while on the ground. The bogies must be carried by forklift from one yard position to another.
- Position the RailRunner bogie carefully on the centerline of the rail to prevent catching the wheel flange.
- Keep the fork blades positioned directly beneath the lifting areas as indicated by the operating decals.
- Move the fork lift as far forward as possible so that the RailRunner bogie rests against the mast for transport.
- Tilt the mast backward to prevent losing a RailRunner bogie during transport or when making a “hard” stop.
- Use chains or other devices to secure the RailRunner bogie when traveling over rough terrain.
- Keep traveling speed low to minimize the chance for injury or damage.
- When using a fork lift to push the RailRunner bogie on the rail, use the counterweight at the rear of the lift truck and keep centered on one of the rubber bumpers on the bogie
- Carry a RailRunner bogie as low the ground as possible with the forks/mast tipped back.

Reach Stacker Operations

Reach Stacker Specifications

- Sufficient capacity to lift and carry loaded container weighing 67,200 lbs.
- Equipped with spreader beam or similar device to facilitate cable sling attachment at four corners for load distribution.
- Cable Slings (4) of sufficient length and minimum 10,000lb capacity having hook/clevis or hook/hook end terminations to safely facilitate connection to the bogie “D” rings and spreader beam.
- Lights on Stacker to provide illumination during low light/night operations.

***Figure 60** Reach Stacker loading container onto positioned chassis*

***Figure 61** Engaged Twist Lock on chassis in container corner casting*

Reach Stacker Safety

When connecting cable slings to the spreader bean and to the “D” ring on the bogie take care not to cross or twist the cables. Be sure that the hooks are properly positioned in the “D” ring so as not to slip out during the lift.

WARNING
Under No Circumstances whatsoever should any personnel walk under the bogie being carried by the reach Stacker. Keep the bogies as close to the ground as possible during transport. Ground personnel must keep clear of bogie and reach stacker.

***Figure 62* Reach Stacker carrying Intermediate Unit**

***Figure 63** Reach Stacker carrying Transition Unit*

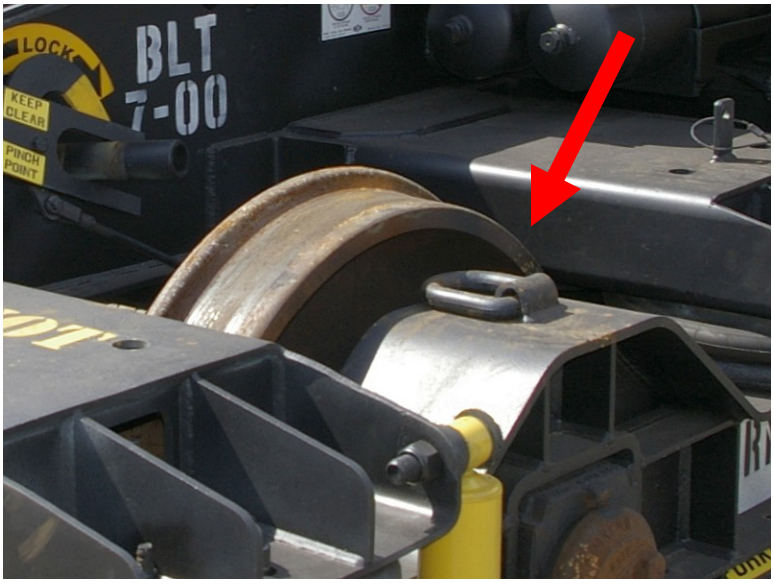


***Figure 55** Close up of "D" ring*

Sliding Suspension for Road or Rail Operation

Some models of RailRunner chassis such as the 40 foot Stoughton tandem axle version are equipped with a sliding suspension. The sliding suspension is designed to accommodate both Over-the-Road and Over-the-rail operation.

***Figure 65** Chassis Sliding Suspension at rear location for Over-the-Road operation*

***Figure 66** Chassis Sliding Suspension at forward location for Over-the-Rail operation*

It is necessary to reposition the suspension when going from road to rail or vice versa. To assure safe and legal over-the-road operation a brake-suspension interlock is part of the chassis suspension mechanism. This interlock sets the brakes on the suspension in the rail mode and prevents the chassis from moving from the rail to road until the suspension has been moved to the rear or road position (See Figure 67 Rail-to-Road Air Brake Interlock on the next page).

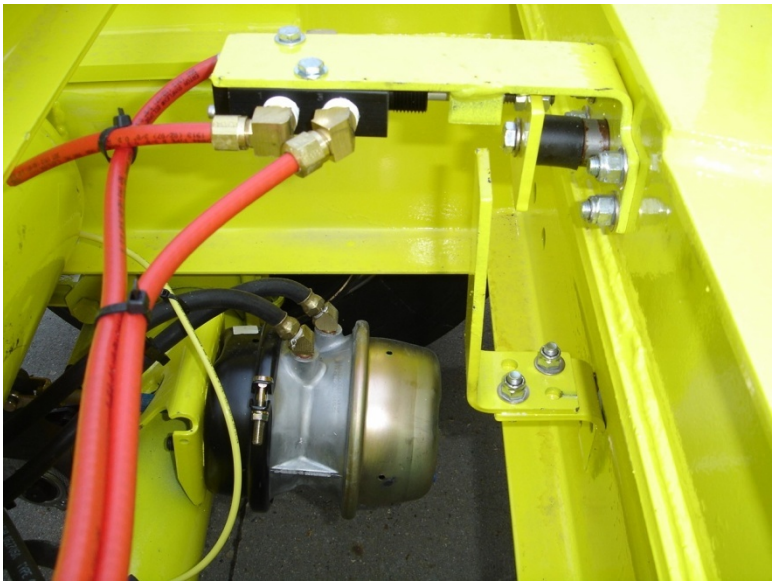


***Figure 67** Rail-to-Road Air Brake Interlock*

With the suspension at the rear or road position the bumper which is an integral part of the suspension serves as under ride protection compliant with DOT specifications.

WARNING
Under no circumstances should the chassis be moved over the road with the suspension in the forward or rail position as this would be in violation of DOT requirements.

Operating the Sliding Suspension

Operation of the Suspension Control Lever unlocks the Sliding Suspension and allows for repositioning of the slider. The lever is operated by lifting the lever from the locking slot and pulling to re-engage the slot allowing the suspension to slide.

***Figure 68** Operation of the Suspension Control Lever*

***Figure 69** Suspension Control Lever in the "UNLOCKED" position*

Once the suspension is positioned for road or rail operation, the lever must be locked to engage the Suspension Locking Pins.

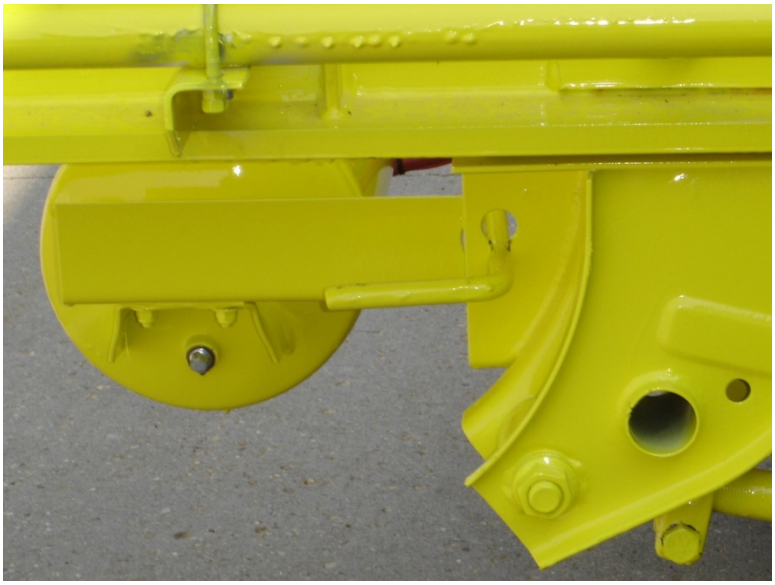
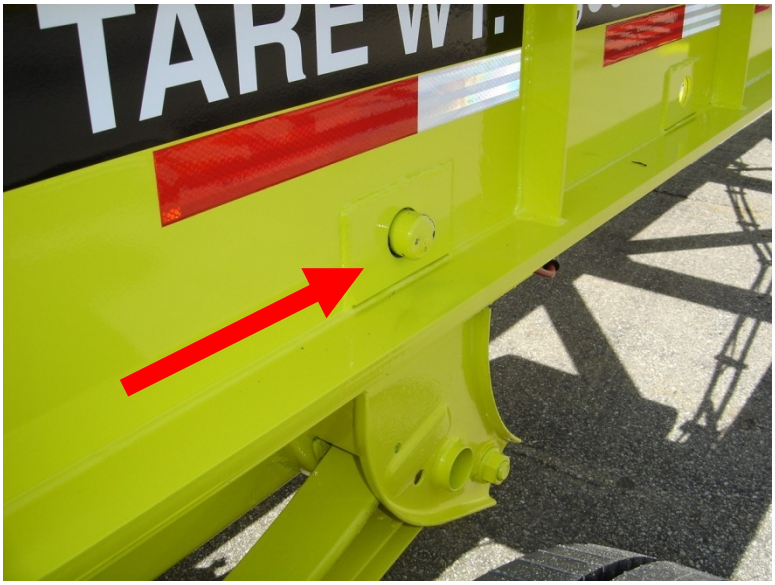


***Figure 70** Suspension Control Lever engaged in the keyhole slot in the "LOCKED" position*

NOTE
Check pins to assure proper locking before moving chassis. The Locking Pin should extend <u>through</u> the side frame to properly lock the suspension in place.

<u>Figure 71</u> The Suspension Locking Pin does not sufficiently extend through the side frame and is NOT properly engaged and locked



<u>Figure 72</u> The Suspension Locking Pin in the proper locking position

Optional Equipment

Container Spacers

The RailRunner chassis is designed to accommodate both ISO and Domestic containers. The chassis gooseneck is equipped with fold away spacers to accommodate different container box tunnel depths. The spacers are positioned as necessary prior to loading of the container.

***Figure 73** Chassis Gooseneck w/ Fold-away Spacers*

Bronze Shoe

Some models of RailRunner chassis are equipped with a Bronze Shoe on the Rear Bolster.

***Figure 74** Bronze Shoe*

NOTE
Check wear and tear of Bronze Shoes regularly and replace them if necessary.

Tire Inflation System

A Tire Inflation System is installed on some RailRunner chassis.
It maintains tire pressure at preset levels by routing air from the trailer's air supply to the tire increasing its life expectancy.

***Figure 75* Tire Inflation System**

NOTE:
Operating pressure for tires can vary with manufacturer specifications. It is necessary to inspect the pressure from the tractor to the chassis to assure proper inflation and prevent tire damage.
Improper under/over inflation may result in voiding of the OEM tire warranty.

Appendix

Chassis

Intermediate Unit

Transition Unit

Other

Written and Formatted by:
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