



G&B Specialties, Inc.
A Global Railway Industries Company



Bulletin MO-B89XVX003 (Rev A)

OPERATION, SERVICE AND PARTS OF AIR BRAKE KIT

SAFETY PRECAUTIONS

If any operating, service or parts problems are encountered, please call G&B Specialties, Inc. for technical assistance.



- Failure to heed to any of the following warnings could result in severe bodily injury and/or equipment damage.
- Read and understand this manual completely before attempting operation of the railgear-equipped vehicle.
- Operating instructions provided below only address the Rafna railgear equipment. Applicable railway company procedures and policies must be adhered to.
- Railway company rules governing rail travel must be observed at all times.
- Before performing any work under the vehicle or railgear, ensure the engine is turned off and the parking brake is set.
- Ensure all body parts and loose clothing are clear of any moving parts of the railgear. Be aware of all pinch points.
- Despite the added braking power provided by the railgear air brakes, braking distance while on rail is greater than when on road.
- Do not turn the air brake control valve “On” or “Off” while the vehicle service brakes are applied.
- Never operate the vehicle if the Gross Vehicle Weight Rating (GVWR), Gross Axle Weight Rating Front or Rear (GAWR), or the wheel or tire load ratings are exceeded.



OPERATION OF AIR BRAKE KIT

With the air brake kit installed on this vehicle, it may be operated as normal, however the railgear air brakes must be turned “Off” during road travel and “On” during rail travel. The railgear air brake kit provides additional braking power when on rail for both service brakes and parking brakes. Braking distance on rail is much greater than when on road and will be adversely affected by inclement weather.

Never operate the vehicle if the Gross Vehicle Weight Rating (GVWR), Gross Axle Weight Rating Front or Rear (GAWR), or the wheel or tire load ratings are exceeded.

A dash mounted railgear air brake control valve is provided to turn “Off” and isolate the railgear service and parking air brakes from the vehicle’s air brakes while on road. When travelling on rail, with the air brake control valve in the “On” position, the railgear air brakes act together with the vehicle’s air brakes to provide added braking power through the rail wheels for both service and parking brakes.

To Operate The Vehicle On Road:

1. Engage the vehicle parking brake and release the vehicle service brakes.
2. Turn the dash mounted railgear air brake control valve to the “Off” position. **Do not turn the control valve “Off” while the vehicle service brakes are applied.**
3. Apply the vehicle service brakes and release the vehicle parking brakes.
4. Proceed with road travel. The railgear air brakes will remain in-active.

To Operate The Vehicle On Rail:

1. Engage the vehicle parking brake and release the vehicle service brakes.
2. Turn the dash mounted railgear air brake control valve to the “On” position. **Do not turn the control valve “On” while the vehicle service brakes are applied.**
3. Apply the vehicle service brakes and release the vehicle parking brakes.
4. Proceed with rail travel. The railgear service and parking air brakes will function with the vehicle air brakes when the vehicle brake pedal is pressed.
5. If rail wheels skid or if more braking force is desired, refer to the Railgear Air Brake Pressure Reduction Valve Adjustment procedure.



SERVICE OF AIR BRAKE KIT

The air brake kit must be serviced regularly to avoid damage to the equipment. Table 1 below provides the Recommended Service Schedule and the detailed service procedures follow.

Do not torque the ½” fasteners which pass through the brake linkage. These fasteners must remain slightly loose to allow the air brakes to function freely. Table 2 provides all other Standard Fastener Torque Values.

A ball valve is provided directly on the vehicle air tank to allow for shutting off the service air to the railgear brake system if needed.

Table 1: Recommended Service Schedule

Service Required	Initial 100 km (62 Miles) of road and/or rail use	Daily	Weekly	Monthly
Inspect air brake kit fasteners (re-torque if required)		✓	✓	✓
Check air brake kit for air leaks (repair if required)		✓	✓	✓
Check / adjust brake shoe to rail wheel clearance (see procedure)				✓
Check brake shoe wear (see procedure)				✓

Table 2: Standard Fastener Torque Values

Fastener Size	Fastener Torque Value (ft-lbs) Dry
1” UNC Gr. 8 Fasteners	250
¾” UNC Gr. 8 Fasteners	175
⅝” UNC Gr. 8 Fasteners	150
½” UNC Gr. 8 Fasteners	100
⅜” UNC Gr. 8 Fasteners	40
¼” UNC Gr. 8 Fasteners	12



BRAKE SHOE TO RAIL WHEEL CLEARANCE ADJUSTMENT

The clearance between the brake shoe and the rail wheel must be correctly adjusted to prevent brake drag and to ensure proper braking ability. Check and adjust the brake shoe to rail wheel clearance as follows:

1. Block the vehicle from rolling. Release the service brakes and the parking brakes.
2. With the air brake control valve turned “Off” and the railgear air brakes in the retracted position, visually inspect the railgear air brake components for excessive damage and/or wear and measure the brake shoe to rail wheel clearance.

Acceptable Brake Shoe To Rail Wheel Clearance	$\frac{1}{8}'' - \frac{1}{4}''$
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3. If the brake shoe to rail wheel clearance is not within specifications, adjust as follows:
 - a) Loosen the jam nut above the yoke on the air brake actuator rod.
 - b) Disconnect the yoke from the brake linkage by removing the bolt.
 - c) Turn the yoke on the air brake actuator rod up to increase the clearance or down to decrease the clearance. Note that due to the leverage ratio on the brake linkage, the yoke must be moved up or down twice the desired distance of the brake shoe.
 - d) When moving the yoke down on the brake actuator rod, do not move the yoke down beyond the point at which the inside bottom face of the yoke is flush with the end of the actuator rod. This is the wear limit of the brake shoe. Replace the brake shoe and re-adjust.
 - e) Re-install the yoke onto the linkage. Do not torque the $\frac{1}{2}''$ fasteners which pass through the brake linkage. These fasteners must remain slightly loose to allow the air brakes to function freely.
 - f) Tighten the jam nut above the yoke on the air brake actuator rod.
4. Re-check the brake shoe to rail wheel clearance and re-adjust as necessary.



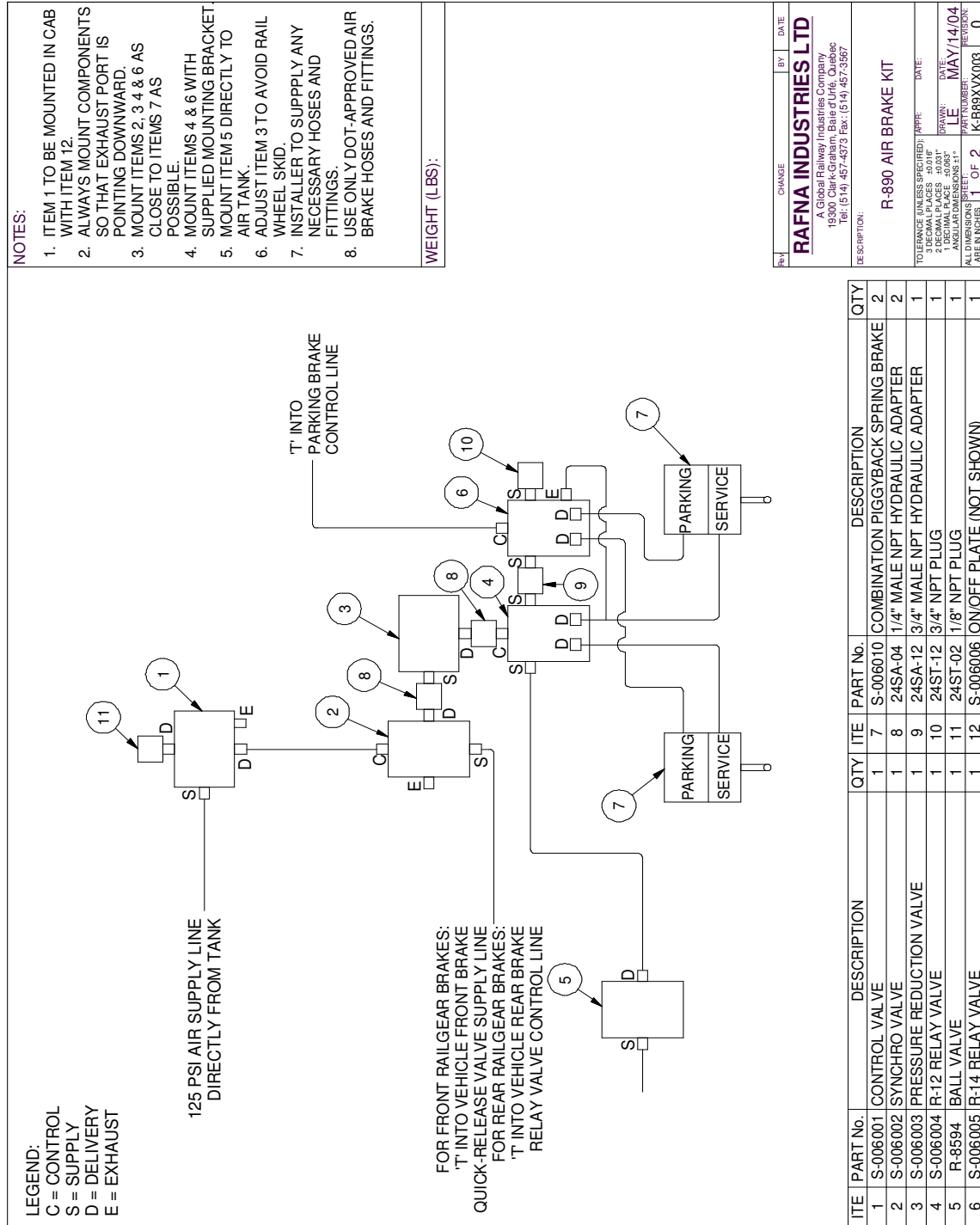
RAILGEAR AIR BRAKE PRESSURE REDUCTION VALVE ADJUSTMENT

The pressure reduction valve limits the amount of control air sent to the railgear air brakes and therefore limits the amount of brake force. The pressure reduction valve is supplied set at approximately 50 PSI and can be increased or decreased by up to 50 % (+/-25 PSI) by adjusting the pressure reduction valve setting as follows:

1. Loosen the locknut under the pressure reduction valve cap by turning it counter-clockwise.
2. Turn the pressure reduction valve cap clockwise to increase the braking force or counter-clockwise to decrease the braking force.
3. Turn the locknut clockwise to tighten the locknut against the cap.
4. Test the air brakes and readjust if necessary.



PARTS OF AIR BRAKE KIT





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ITEM	PART No.	DESCRIPTION	QTY
13	R-8970A	AIR BRAKE ASSEMBLY W/ SPRING BRAKE	2
14	-	1/2" UNC GR. 8 BOLT X 1.5" LONG	4
15	-	1/2" UNC GR. 8 BOLT X 2.5" LONG	4
16	-	1/2" SPLIT LOCK WASHER	8
17	-	1/2" GR. 8 WASHER	8
18	-	RAILGEAR AXLE	1

Rev	CHANGE	BY	DATE

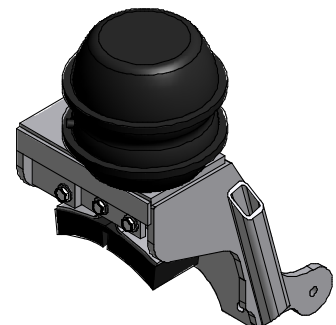
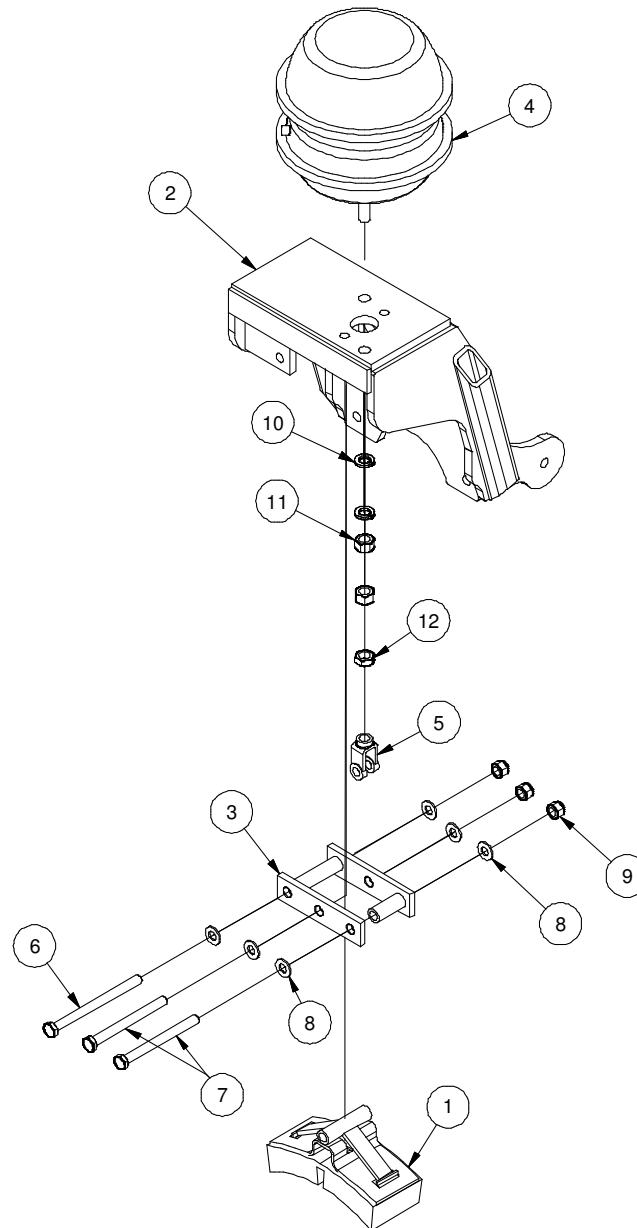
RAFNA INDUSTRIES LTD
A Global Railway Industries Company
1900 Clark-Graham, Baie d'Urfe, Quebec
Tel: (514) 457-4373 Fax: (514) 457-3567

R-890 AIR BRAKE KIT

DESCRIPTION:

TOLERANCE (UNLESS SPECIFIED):
3 DECIMAL PLACES ±0.016"
2 DECIMAL PLACES ±0.031"
HOLE DIMENSIONS ±0.015"
ANGULAR DIMENSIONS ±1°

DATE: MAY/06/04
DRAWN: LE
PART NUMBER: K-B89XVX003
REVISION: 0



ITEM	PART No.	DESCRIPTION	QTY
1	R-5599A	BRAKE SHOE ASSEMBLY	1
2	R-8971	BRAKE HOUSING	1
3	R-8977	LINK ASSEMBLY	1
4	S-006010	SPRING BRAKE ACTUATOR	1
5	-	YOKE (INCL W/S-006010)	1
6	-	1/2" UNC GR. 8 BOLT X 6.5" LONG	1
7	-	1/2" UNC GR. 8 BOLT X 5.5" LONG	2
8	-	1/2" GR. 8 WASHER	6
9	-	1/2" UNC GR. 8 NYLOCK NUT	3
10	-	5/8" LOCK WASHER (INCL W/S-006010)	2
11	-	5/8" UNC GR. 8 NUT (INCL W/S-006010)	2
12	-	5/8" UNF GR. 8 JAM NUT	1

Rev	CHANGE	BY	DATE
RAFNA INDUSTRIES LTD A Global Railway Industries Company 19300 Clark-Graham, Baie d'Urfé, Quebec Tel: (514) 457-4373 Fax: (514) 457-3567			
DESCRIPTION: AIR BRAKE ASSEMBLY WITH SPRING BRAKE			
TOLERANCE (UNLESS SPECIFIED): 3 DECIMAL PLACES ±0.016" 2 DECIMAL PLACES ±0.031" 1 DECIMAL PLACE ±0.063" ANGULAR DIMENSIONS ±1°		APPR: DATE: DRAWN: LE DATE: MAY/17/04 PART NUMBER: R-8970A REVISION: 0	
ALL DIMENSIONS ARE IN INCHES		1 OF 1	