Installation and Maintenance Guide
Slack Adjuster Model KRD-482-E and KRD-482-R
P/N 783901, 790196
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## Revision History

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<th>Date</th>
<th>Name</th>
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<td>T. Baty</td>
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<td>02</td>
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<td>D. Call</td>
<td>Sec. 2.2 &amp; 3.0</td>
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<td>Pg. 6</td>
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<td>03</td>
<td>7/9/10</td>
<td>D. Call</td>
<td>Pages 6 &amp; 7</td>
<td>Added detail information.</td>
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<td>04</td>
<td>2/11/14</td>
<td>V. Moore</td>
<td>Title &amp; Sec. 2</td>
<td>Added P/N 790196 and Note for proper orientation of drain holes.</td>
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<td>05</td>
<td>12/3/15</td>
<td>V. Moore</td>
<td>Title &amp; Sec. 1.1</td>
<td>Added reference to Group “R”.</td>
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<td>06</td>
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<td>Para. 1.4: removed ‘KRD-482-E’.</td>
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<td>Pg. 9</td>
<td>Para. 3.1.2: removed handbrake instruction.</td>
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<td>Pg. 10</td>
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<td>Pg. 12</td>
<td>Para. 4: clarified third Notice w/picture.</td>
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<td>Pg. 14</td>
<td>Para. 4.3: inserted view of drawing.</td>
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<td>Para. 4.10: removed 7-8” and 5-6” piston stroke length.</td>
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<td>Para. 6: removed ‘and return to NYAB for replacement’.</td>
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<td>Sec. 7: removed 7.1, 7.2, 7.3 and added reference to AAR standards.</td>
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<td>07</td>
<td>3/9/16</td>
<td>V. Moore</td>
<td>Sec. 7</td>
<td>Replaced 7.1, 7.2 and 7.3 with: ‘Test per the requirements of Chart “A” in Rule 3 of the AAR field manual’.</td>
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The original document was issued in English language.
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1 General Information

1.1 Introduction

This manual contains particulars specific to Slack Adjuster Model KRD-482-E and Model KRD-482-R. This document defines the steps for proper installation of the Slack Adjusters P/N 783901 and 790196.

1.2 Technical Changes

New York Air Brake reserves the right to change the equipment or this document at any time without giving special notice.

1.3 Target group for this document

This document is intended for use by trained service technicians who:

- Have the skill, experience, safety awareness and professional ability to install or replace air brake products
- Have read and understand this document in its entirety
- Are familiar with the safety codes and accident prevention regulations for these activities

NOTE

This document will be useful to other target groups as well, e.g. project engineers.

However, it does not claim to provide complete information for such target groups.
1.4 Referenced Documents

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<td>/5/</td>
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1.5 Danger, Warning, Caution, and Notice Messages

These symbols indicate that important personal safety information follows. Carefully read and understand each safety related text message and apply the message to the operation and maintenance of the system as defined in the safety alert message.

The following are definitions associated with the different safety alert message categories.

The words DANGER, WARNING, and CAUTION are used to identify levels of hazard seriousness for the safety of the personnel and the equipment.

The word DANGER is used to signify an immediate hazard and is used throughout this manual in the following manner:

**DANGER**

Indicates an imminently hazardous situation, which if not avoided, will result in death or serious injury. This word is to be limited to the most extreme situations.

The word WARNING is used to signify hazards or unsafe practices and is used throughout this manual in the following manner:

**WARNING**

Failure to comply with these instructions may lead to irreversible physical injuries which may have fatal consequences.

The word CAUTION just like the word WARNING is used to signify hazards or unsafe practice in addition to equipment damage and is used throughout this manual in the following manner:
CAUTION
Failure to comply with these instructions may lead to personal injuries and/or to damage to the unit or the environment.

The NOTE (NOTICE) messages are used throughout this manual in the following manner:

NOTE
Notes do not contain any messages relevant to safety.

NOTICE
Notes contain useful hints and additional information used to highlight suggestions which will result in enhanced installation, reliability, or operation.

Safety messages/notes have a specific structure which is explained here for DANGER (This also applies to WARNINGS and CAUTIONS):

DANGER
Source of the danger
Consequences of the danger
Remedial measures

Notes do not contain any messages relevant to safety and are included only for the sake of completeness.

NOTICE
Notes contain useful hints and additional information about the unit.
2 Product Identification

2.1 General Description

Slack adjusters are most commonly located in the center rod (Fig. 8-1) or top rod position (Fig. 8-2) of conventional foundation brake rigging. In any case, they must be installed with reference to the applicable installation drawing (NYAB P/N 784600) and the appropriate AAR standards for Group E Slack Adjusters. (S-400, S-420, S-421, S-422)

2.2 Installation Drawings

Refer to Figures 8-1 and 8-2 at the end of this document.
3 Safety Awareness

3.1 General Safety Awareness

3.1.1 Observe all rules and regulations of the railroad where the equipment is being used. Whenever there is a conflict between the instructions given in this manual and the instructions of the user railroad, the rules and regulations of the user railroad will govern.

3.1.2 When performing any test work on devices or equipment while they are on the vehicle (on vehicle test, etc.) special precautions must be taken to ensure that vehicle movement will not occur which could result in injury to personnel and/or damage to equipment. Make sure the wheels are chocked to prevent vehicle from moving. Verify that the vehicle and/or track where work is being conducted, is properly flagged to prevent injury from movement of other vehicles.

3.1.3 De-pressurize air system before loosening connections or components. Before removing any component from its mountings, the train must be safely parked. To prevent personal injury, all main reservoir, brake supply reservoir, and brake cylinder air pressure on the affected vehicle must be vented.

3.1.4 The use of an air jet, which must be less than 2.11 (30 PSI), to blow parts clean or to blow them dry after being cleaned with a solvent will cause particles of dirt and/or droplets of the cleaning solvent to be airborne. These particles and droplets may cause skin and/or eye irritation. Personal eye protection must be worn to protect the eyes from possible injury. When using an air jet do not direct it toward another person.

3.1.5 If degreasing fluids are used for cleaning purposes, the current local safety regulations plus the safety precautionary statements of the manufacturer of the cleaning agent must be adhered to. Otherwise, physical harm could result from the inhalation of toxic fumes. Make sure the area is well ventilated when working with materials that produce harmful fumes.

3.1.6 Personal eye protection must be worn when doing any work to protect eyes from possible injury.

3.1.7 When performing maintenance procedures on system components, assemblies may be under a spring load. Exercise caution during disassembly so that no parts “Fly Out” and cause bodily injury.

3.1.8 Where fasteners removed from the equipment are not satisfactory for reuse, care must be taken to select replacements that match the originals. Mismatched or incorrect fasteners can result in equipment damage or malfunction, or possible personal injury.

3.1.9 Follow all WARNINGS, CAUTIONS and NOTES found throughout this Manual. If you must use a work procedure or tool which is not recommended, you must first satisfy yourself that neither your safety, nor your fellow workers safety, nor that of the equipment, will be jeopardized by the method selected.

3.1.10 To ensure the correct functioning of each component, use only the manufacturers genuine spare parts as replacements.
3.1.11 Appropriate tool selection is required when performing all maintenance operations to avoid personal injury.

3.1.12 Person(s) having the appropriate job skill level, as governed by the user railroad, are required when performing maintenance and/or operational tasks with the brake system and system components.

3.1.13 Whenever a valve or system component is removed from a vehicle for any reason, and it is reinstalled or replaced with a new or repaired and tested component, a stationary vehicle air brake test and an equipment test must be performed to ensure that the component functions properly within the system.
4 Installation

NOTE
Slack adjusters are most commonly located in the center rod (Figure 8-1) or top rod position (Figure 8-2) of conventional foundation brake rigging. In any case, they must be installed with reference to the applicable installation drawing (NYAB P/N 784600) and the appropriate AAR standards for Group E Slack Adjusters. (S-400, S-420, S-421, S-422)

(See Figures 8-1 and 8-2)

NOTE
NYAB recommends installing NEW brake shoes when a Slack Adjuster is installed.

NOTE
For installation of P/N 790196, drain holes in housing must be facing down (see Figure 4-1).

As Installed, Side View

Drain hole in sealing ring is facing down (towards the rail)

Figure 4-1 Slack Adjuster KRD-482-R
4.1 Attach Front Clevis (21) to Cylinder Lever of brake rigging using an AAR Type “A” Pin - 1-7/32" dia. X 3-1/2" long.

4.2 Adjust length of Slack Adjuster as required by turning Adjuster Spindle (18) using the Spindle Clevis (23), so that the hole in Spindle Clevis (23) lines up with the hole in the fulcrum lever of the brake rigging.

4.3 Once a proper length is acquired, attach Rear Clevis (23) to Fulcrum Lever of brake rigging using an AAR Type “A” Pin 1-7/32" dia. X 3-1/2" long pin.

NOTE
Control lever must conform to the requirements of AAR Standard S-420, S-421, and S-422.
4.4 Install clevis of Control Rod (22) onto Control Lever of the brake rigging using an AAR Type “B” Pin - 1-3/32” dia. X 2-1/2” long.

4.5 Adjust sliding Actuating Collar (20) on Control Rod (22), securing with Locking Bolt (20.1).

4.6 Using 50 psi brake cylinder pressure, check piston stroke. A minimum of (2) applications is required to verify piston stroke. (See steps 4.10 through 4.13)

4.7 Install safety hanger, per AAR Standard S-400, approximately 44"-52" from center pin on Cylinder Lever of the brake rigging.

4.8 Maintain 1” clearance around Slack Adjuster under ALL conditions per AAR standard S-400.

4.9 If this is a first car in a series, measure the length of the Control Rod to allow “pre-setting” of the Control Shaft on subsequent cars. Piston stroke must be measured on ALL cars prior to welding of Actuating Collar (20) to Control Rod (22).

**Setting proper piston stroke (See Figures 8-1 and 8-2):**

4.10 Proper piston stroke for an 8-1/2" or 10" cylinder must be set per Section 3 of the AAR Field Manual.

4.11 Apply and release the brakes using 50 psi brake cylinder pressure, then apply the brakes again. While brakes are applied, measure the piston stroke on the brake cylinder. Release the brakes.

4.12 Adjust the piston stroke by adjusting the length of the Control Rod (22) via the Actuating Collar (20). Shorten the Control Rod to increase piston stroke, and lengthen the Control Rod to decrease piston stroke. The adjustment necessary is a multiple of the car’s lever ratio.

**EXAMPLE:** A car with a 2:1 Lever Ratio will need a 1/2” adjustment on the Control Rod to create a 1” difference on the piston stroke.

4.13 Once proper piston stroke is achieved, weld Actuating Collar (20) to Control Rod (22) with 3/16" Fillet welds, minimum (2) sides for a minimum total weld length of 2”.
5  Removal

NOTE
Release the brakes and insure that all tension is out of the brake rigging before attempting to remove a Slack Adjuster. Follow all safety guidelines for working on or around railroad equipment.

5.1 Remove the pin attaching the Control Rod (22) to the Control Lever on the brake rigging.

5.2 Remove pin connecting the Rear Clevis (23) from the Fulcrum Lever on the brake rigging.

5.3 Support the loose end of the Slack Adjuster, and remove the pin connecting the Front Clevis (21) to the Cylinder Lever on the brake rigging.

5.4 Remove the Slack Adjuster unit from the car.
6 Maintenance Plan

NYAB Slack Adjusters do not require any special maintenance or servicing. Maintenance consists of checking for proper piston stroke per section 4, and visual inspections for damage or malfunctions during normal car servicing. If any of the visual inspection conditions are found, remove the unit from the car and return to New York Air Brake for replacement.

7 Testing

WARNING
Secure, and properly flag, any car where personnel will be under and/or near. Follow all safety procedures for working on or around railroad equipment. Failure to follow these procedures could result in injury or death.

7.1 Test per the requirements of chart “A” in Rule 3 of the AAR field manual.
8 Supporting Documentation

8.1 Drawings

TYPICAL CENTER ROD INSTALLATION
(SEE AAR STANDARD 2-221 FOR FURTHER INFORMATION)

NOTE:
PIN "A" TO BE 1-7/8" Ø AND NOT TO EXCEED 3-1/2" LONG.
PIN "B" TO BE 1-3/32" Ø AND NOT TO EXCEED 2-1/2" LONG.
"L" MUST BE SUCH THAT SOME OF CONTROL LEVER & CYLINDER LEVER ARE ON THE SAME VERTICAL PLANE WITH BRAKES, SET AT PROPER PISTON TRAVEL.

NOTE:
TO PREVENT INTERFERENCE WITH PUSH ROD PIN

NOTE:
IF 3" MIN. DIMENSION CANNOT BE OBTAINED, SUITABLE STOP TO BE APPLIED TO PREVENT DISENGAGEMENT OF CONTROL LEVER WITH FULCRUM (EXAMPLE SHOWN)

IMPORTANT: LEVER RATIO= A:B: C:D
DIMENSION "E" MUST BE SUCH THAT THE ABOVE RATIO BE MAINTAINED.

Figure 8-1  Installation of Slack Adjuster (Center Rod Position)
Figure 8-2  Installation of Slack Adjuster (Top Rod Position)
## 8.2 List of Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation or Acronym</th>
<th>Definition</th>
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<tr>
<td>AAR</td>
<td>Association of American Railroads</td>
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<td>Dia.</td>
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