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ASSOCIATION OF
AMERICAN RAILROADS

Single Car Air Brake Test



ASSOCIATION OF
AMERICAN RAILROADS



S-486 – Code of Air Brake System Tests for Freight Equipment – Single Car Test

AAR CIRCULARS - Print

Page 1 of 3

Thomas J. Stahura
Executive Director, Rules and Standards



Wednesday, May 22, 2013

C-11956

Circular Letter

Subject: Implementation of 2013 Revisions to AAR MSRP Section E, BRAKES AND BRAKE EQUIPMENT, S-486 CODE OF AIR BRAKE SYSTEM TESTS FOR FREIGHT EQUIPMENT—SINGLE CAR TEST

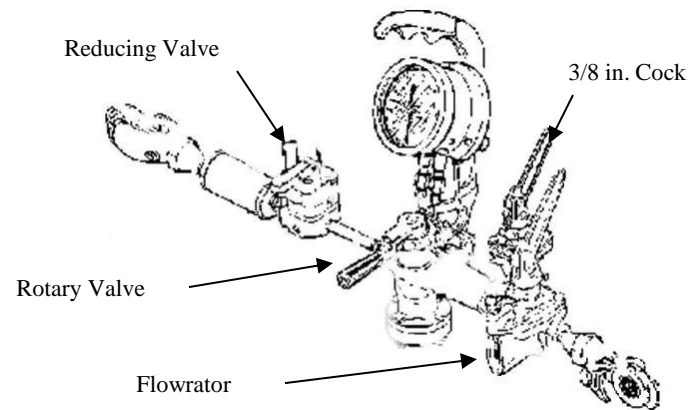
To: ALL SUBSCRIBERS

File Number: BSC File 10.19.10

The AAR Brake Systems Committee (BSC) in cooperation with the Federal Railroad Administration (FRA) and major airbrake suppliers have implemented a new revision to S-486. Comments were previously solicited with C-11590 and C-11900. All industry comments were discussed and some resulted in revisions to the procedure. The main objective of the revision was to editorially change sections for clarification and organize steps within the procedure to improve efficiency. Details of the revisions to each section are listed below. Significant technical revisions are highlighted in the attached PDF file.

The revised cost benefit analysis for this procedure is provided below after the details of the revisions.

Section #	Description of Revision
2.1.3	Choke diameters of Position 5 and the 3/8 cock have changed: <ul style="list-style-type: none"> Position 5 diameters changed from 0.147" to 0.136" reducing the discharge rate to prevent undesired emergency on cars with short brake pipes. The choke in the 3/8 cock valve changed from 0.266" (17/64) to 0.313" (5/16) increasing the discharge rate to ensure emergency application on cars with long brake pipes. <p>All changes to the choke sizes must be performed during the next scheduled 92 day calibration of the test device. The calibration certificate should include documentation showing that the rotary valve modifications have been performed per Section 5.0 (stamp "13" and "F"). All devices must be modified within 1 year of the implementation date of this circular. For specific machining procedures regarding the test device modifications please contact the respective OEM.</p>
2.2.4 – 2.2.6	Revised for clarification with no technical changes
2.2.7	Added a reference to use RP-5599 (Hook-and-Eye) as the adjustment procedure
2.3	No technical changes, revised into step-by-step procedure.
3.1	Steps related to safety were moved up in the procedure so they could be performed first. Appendix A was added for troubleshooting. The specific location for the BC gage was added. Setup instruction for the retaining valve was added.
3.1.1	Details regarding operation of the Empty/Load valve designs clarified and added
3.2	Revised for clarification with no technical changes
3.5.2	Added a requirement to soap all fittings to check for leakage during the system leakage test.
3.6.4	More detail added to check for slack during handbrake release.
3.7	New section added to condition slack adjuster at the beginning of the test with blocks. (2 application and 2 release)



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S-486 – Code of Air Brake System Tests for Freight Equipment – Single Car Test

IMPLEMENTED 06/2013

AAR Manual of Standards and Recommended Practices
Brakes and Brake Equipment

S-486

CODE OF AIR BRAKE SYSTEM TESTS FOR FREIGHT EQUIPMENT—SINGLE CAR TEST

Standard
S-486

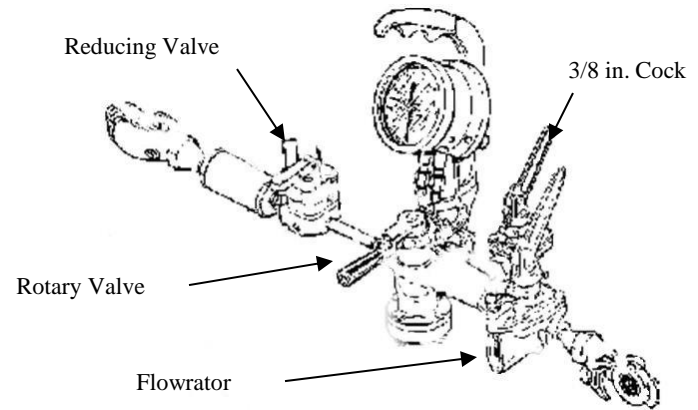
Adopted: 1991; Last Revised: 2013

TABLE OF CONTENTS

Paragraph or Appendix	Topic	Page
1.0	Scope	E[S-486]2
2.0	Single Car Testing Device	E[S-486]2
2.1	Description	E[S-486]2
2.1.1	General	E[S-486]2
2.1.2	Capacity of the By-Pass Reducing Valve	E[S-486]3
2.1.3	Positions and Chokes of Freight Test Device	E[S-486]3
2.2	Pratest Instructions	E[S-486]4
2.3	Daily Test for Testing the Single Car Testing Device	E[S-486]5
3.0	Tests—Standard Freight Brake Equipment	E[S-486]6
3.1	Preliminary Procedures, Inspections, and Car Set-Up	E[S-486]6
3.2	Connecting the Device to the Car	E[S-486]7
3.3	Brake Pipe Leakage Test	E[S-486]8
3.4	Separate Brake Pipe Venting Devices	E[S-486]8
3.4.1	Continuous Quick Service Valve (if Equipped)	E[S-486]8
3.4.2	A-1 Reduction Relay Valve (if Equipped)	E[S-486]8
3.4.3	Separate Vent Valve Test (if Equipped)	E[S-486]8
3.5	System Leakage Test	E[S-486]9
3.6	Hand Brake Inspection	E[S-486]9
3.7	Slack Adjuster Conditioning (with Blocks)	F[S-486]10
3.8	Service Stability Test	E[S-486]10
3.9	Piston Travel (with Block(s)) and Rigging and Brake Cylinder Pressure	E[S-486]11
3.10	Emergency Test	E[S-486]12
3.11	Release Test after Emergency	E[S-486]12
3.12	Retaining Valve Test	E[S-486]12
3.13	Minimum Application and Quick-Service Limiting Valve Test	F[S-486]12
3.14	Brake Cylinder Leakage Test	E[S-486]13
3.15	Slow-Release Test (with Variations for Car Length)	E[S-486]13
3.16	Slack Adjuster Conditioning (without Blocks)	E[S-486]14
3.17	Accelerated Application Valve (AAV) Test	E[S-486]14
3.18	Recheck of Piston Travel (without Block(s)), if Car Is Equipped with Automatic Slack Adjuster	E[S-486]14
3.19	Manual Release Valve Test	E[S-486]15
3.20	Empty/Load Test	E[S-486]15
3.21	Disconnecting the Single-Car Test Device	E[S-486]16
4.0	Special Tests	E[S-486]17
4.1	Slack Adjuster Test and Piston Travel Adjustment	E[S-486]17
4.2	Retaining Valve Test	E[S-486]18
4.3	Auxiliary Devices	E[S-486]19

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E [S-486] 1





S-486 – Code of Air Brake System Tests for Freight Equipment – Single Car Test

The mandatory implementation date of S-486-2013 is June 1, 2014

The calibration certificate must include documentation showing that the rotary valve modifications have been performed per Section 5.0 (stamp “13” and “F”). All devices must be modified by June 1, 2014

Page 1 of 3

AAR CIRCULARS - Print

Thomas J. Stahura
Executive Director, Rules and Standards

Wednesday, May 22, 2013
C-11956
Circular Letter

Subject: Implementation of 2013 Revisions of BRAKE SYSTEM TESTS FOR FREIGHT EQUIPMENT
To: ALL SUBSCRIBERS

The AAR Brake Systems Committee of airbrake suppliers have implemented a revision to S-486-2013, effective May 22, 2013. The objective of the revision was to edit and improve efficiency. Details of the revision are highlighted in the attached PDF file.

The revised cost benefit analysis for the changes is attached.

Section #	Description of Revision
2.1.3	Choke diameters <ul style="list-style-type: none"> Position 5 discharge brake pipes The choke diameter is 0.313" (5/16") application
2.2.4 - 2.2.6	Revised for clarification
2.2.7	Added a reference procedure
2.3	No technical change
3.1	Steps related to test to be performed first at specific location for retaining valve work
3.1.1	Details regarding test and added
3.2	Revised for clarification
3.3.2	Added a requirement for system leakage test
3.6.4	More detail added
3.7	New section added for test with blocks.

All changes to the scheduled 92 day calibration certificate should be stamped with "13" and "F". All devices implementing the new procedures regarding the respective O-ring must be stamped with "13" and "F".

Page 1 of 2

Thursday, August 08, 2013
C-11997
Circular Letter

Subject: Update to AAR Circular Letter C-11956 Regarding AAR MSRP Section E, BRAKES AND BRAKE EQUIPMENT, S-486 CODE OF AIR BRAKE SYSTEM TESTS FOR FREIGHT EQUIPMENT—SINGLE CAR TEST
File Number: BSC File 10.19.10

To: EVERYONE
The AAR Brake Systems Committee issued Circular Letter C-11956 implementing S-486 on May 22, 2013. Updated details on dates and modification of test devices are listed below for clarification:

- Circular Letter C-11956 made S-486-2013 effective: **June 1, 2013.**
- The mandatory implementation date of S-486-2013 is **June 1, 2014.**
- The sunset date for the current S-486 procedure is **June 1, 2014.**
- Until the mandatory implementation date of **June 1, 2014**, either device can be used in any combination with the current and new (2013) test procedure. All changes to the device choke sizes must be completed for use by **June 1, 2014.**
- Mandatory date when both updated devices and new procedure must be used is **June 1, 2014.**
- The calibration certificate must include documentation showing that the rotary valve modifications have been performed per Section 5.0 (stamp "13" and "F"). All devices must be modified by **June 1, 2014.**
- FRA and AAR (MID) will accept either procedure or device in any combination to be used up until **June 1, 2014.**

Questions should be directed to Steven Belpert, – Brake Systems Committee Manager via email at Steven_Belpert@aar.com

Sincerely,
Thomas J. Stahura

8/8/2013

<http://aarcirculars.aar.org/print.aspx?id=2890&source=1>



S-4027 – AUTOMATED SINGLE-CAR TEST PROCEDURE, CONVENTIONAL BRAKE EQUIPMENT -DESIGN AND PERFORMANCE REQUIREMENTS

AAR Manual of Standards and Recommended Practices
Brakes and Brake Equipment

S-4027

AUTOMATED SINGLE-CAR TEST PROCEDURE, CONVENTIONAL BRAKE EQUIPMENT—DESIGN AND PERFORMANCE REQUIREMENTS

Standard
S-4027

Adopted: 2003; Revised: 2009

Paragraph or Appendix	Topic	Page
1.0	Introduction	E[S-4027]1
2.0	Daily Test for Testing the Single-Car Test Device	E[S-4027]2
3.0	Single-Car Test Requirements	E[S-4027]2
4.0	Special Tests	E[S-4027]8
5.0	Annual Calibration	E[S-4027]9
6.0	Design Calibration Validation and Performance Repeatability	E[S-4027]12
7.0	Automated Test Device Validation Procedure	E[S-4027]16
8.0	Environmental and Operational Considerations	E[S-4027]19
9.0	Software Configuration Control	E[S-4027]20
10.0	Automated Single-Car Test Software and Hardware Upgrades	E[S-4027]21
11.0	Upgrade Notification	E[S-4027]21
12.0	AAR Approval Process	E[S-4027]22
13.0	Definitions	E[S-4027]22

1.0 INTRODUCTION

1.1 This standard is intended to produce performance uniformity between automated single-car test devices (ASCTD) regardless of manufacture. It describes the recommended single-car test procedure and the minimum performance that must be demonstrated to achieve AAR approval.

Note: Maintain the main air supply pressure as recommended by the manufacturer of the automated single-car test device. If the manufacturer's recommendation is unknown, maintain the main air supply between 100 psi and 110 psi.

1.2 The use of a hose or a combination of hose and pipe between the test device and the end hose of the car is permitted. If such a hose or hose/pipe combination is used, it is recommended that it be a minimum of 3/4-in. ID with 1/2-in. pipe connections. The test device and hose in combination must pass all requirements of this standard. The ASCTD must have a label affixed indicating the length of hose that must be used with that particular device during calibration and testing.

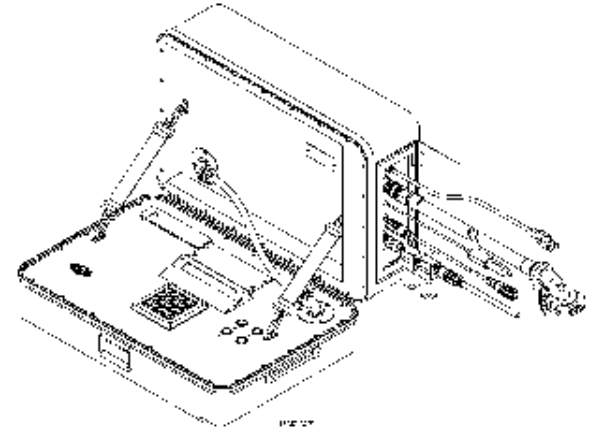
1.3 When making tests of cars having two or more sets of brake equipment, test each set, with the section of brake pipe it controls, separately. **Note:** Long car valves require at least 75 ft, 90 ft preferred, of brake pipe to operate properly during the single-car test.

1.4 The ASCTD will internally store the date of test with the daily test, annual test, or car test record that is created.

1.5 Minimum operator inputs must include but are not limited to some form of operator ID and the car number of the car being tested.

02/2010

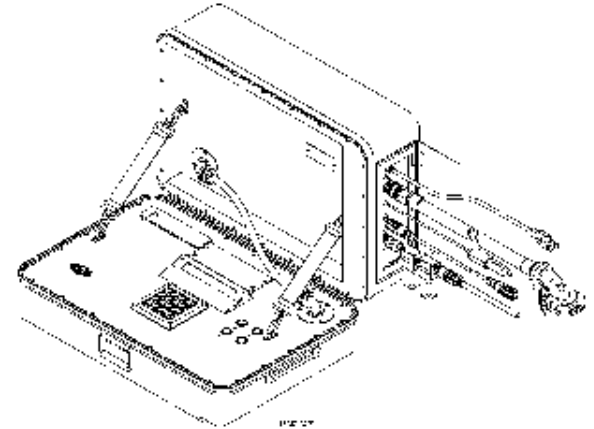
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AUTOMATED SINGLE-CAR TEST PROCEDURE, CONVENTIONAL BRAKE EQUIPMENT -DESIGN AND PERFORMANCE REQUIREMENTS

- ❖ Automatic Single car tests statistically demonstrates much lower rates of repeat defects than do manual Single Car tests as illustrated in the attached graphs.
- ❖ Single car tests using the ASCTD are a safer testing methodology than the manual test because the ability to skip or forget part of the test code has been eliminated.
- ❖ A significant risk reduction results from eliminating craftsman exposure from the performance of manual tests that can't discover the root cause failure of the air brake system.





AUTOMATED SINGLE-CAR TEST PROCEDURE, CONVENTIONAL BRAKE EQUIPMENT -DESIGN AND PERFORMANCE REQUIREMENTS



Dana Maryott
Director Air Brakes
OOB-2
2600 Lou Menk Drive
Fort Worth, TX 76131

Rex Beck
General Manager Frt. Car
Union Pacific Railroad
1400 Douglas St
Stop 1050
Omaha, NE 68179

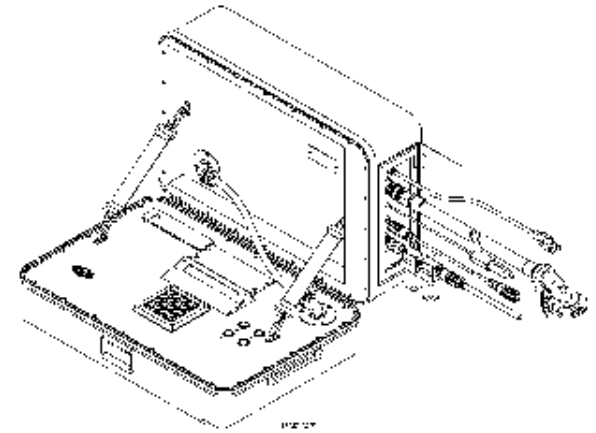
February 14, 2013

Robert C. Lauby
Deputy Associate Administrator
For Regulatory and Legislative Operations
Federal Railroad Administration
1200 New Jersey Ave SE
Washington DC 20590

Dear Mr. Lauby:

The BNSF and Union Pacific Railroad Companies (BNSF/UP) respectfully requests the FRA for permission pursuant to 49 C.F.R. part 211 for a waiver of 49 C.F.R. section 232.305(2) for cars tested with Automatic Single Car test devices (ASCTD). The current rule stipulates if a car is on a shop or repair track for any reason and has not had a single car air test within the previous 12 month period a single car test must be performed. When this rule was crafted the new Automatic Single Car Test Devices were not in widespread use. BNSF and UP believe FRA was not in a position at that time to differentiate between the old manual tester and the advances in the new computer controlled devices. BNSF and UP feel that sufficient time has passed and enough industry experience has been gained to establish beyond a doubt the advance in testing technology the ASCTD has over the old manual device. BNSF and UP comparisons of the manual vs the automated tester show a 11.5% improvement in solving air brake related issues. This is a clear demonstration of how the new automated device brings a greater margin of safe repair in testing methodology than the manual tester could ever achieve.

- BNSF/UP would like to make the following points for FRA to consider:
- 85% of cars tested with a manual or automatic device under this 1 year rule discover no brake related defects according to AAR records.
- 98% of cars tested under this rule with an ASCTD within the preceding year discover no brake related defects according to AAR records.
- Automatic Single car tests statistically demonstrate much lower rates of repeat defects than do manual Single Car tests as illustrated in the attached graphs.





AUTOMATED SINGLE-CAR TEST PROCEDURE, CONVENTIONAL BRAKE EQUIPMENT -DESIGN AND PERFORMANCE REQUIREMENTS



U.S. Department
of Transportation
**Federal Railroad
Administration**

1930 New Jersey Avenue, SE
Washington, DC 20590

JUL 29 2013

Mr. Dana Maryott
Director Air Brakes
BNSF Railway Company
2600 Lou Menk Drive
Fort Worth, TX 76131

Mr. Rex Beck
General Manager Fri. Car
Union Pacific Railroad
1400 Douglas St, Stop 1050
Omaha, NE 68179

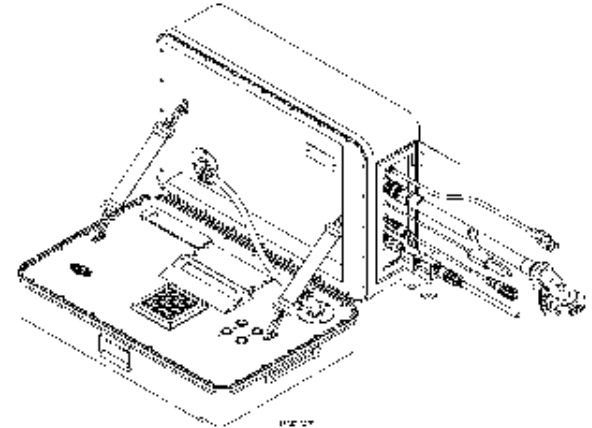
Re: **Docket Number FRA-2013-0030**

Dear Messrs. Maryott and Beck:

This reply is in response to the February 14, 2013, petition to the Federal Railroad Administration (FRA) from the BNSF Railway (BNSF) and Union Pacific Railroad (UP) (jointly referred to as the "Petitioners"). The petition requests a waiver of compliance from certain provisions of the Federal railroad safety regulations contained at 49 Code of Federal Regulations (CFR) Part 232, Brake System Safety Standards for Freight and Other Non-Passenger Trains and Equipment, End-of-Train Devices. Specifically, the Petitioners seek a waiver of compliance from 49 CFR Section 232.305(b), *Single car air brake tests*, for railroad cars tested with automatic single car test devices (ASCID). This request was assigned Docket Number FRA-2013-0030.

The Petitioners request that relief be granted to railroad cars tested within the previous 2 years if placed on a shop or repair track for any non-air brake-related reason, as defined in 49 CFR § 232.305(b). The Petitioners propose a test waiver where all cars tested with the ASCID machine will be tracked through Association of American Railroads (AAR) billing records for repeat air brake repairs within the 2-year period from the last ASCID. In addition, the Petitioners will scan data from the wheel impact load and hot and cold wheel detector reports to see if the test cars develop any detector exceptions within the 2-year time period from the last ASCID test. The Petitioners believe that data from this test will clearly demonstrate the effectiveness of the ASCID device.

FRA received comments via the public docket from representatives of the Brotherhood of Locomotive Engineers and Trainmen (BLETF) and the Brotherhood of Railway Carmen (BRC) in opposition to the petition. These statements were considered by FRA's Railroad





QUESTIONS