



NEW YORK AIR BRAKE

748 Starbuck Ave, Watertown, NY 13601
Phone: +1-315-786-5200 Engineering Fax: +1-315-786-5673

TEST SPECIFICATION NYT-1199-C

CODE OF TESTS FOR TESTING DB-10 SERVICE PORTION
P/N I85200/001D(769140) & 775868

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SPEC. NYT-1199-C
12 PAGES

WARNING: HIGH PRESSURE AIR IS PRESENT IN THE TEST RACK AND ASSEMBLY BEING TESTED. PRESSURE WILL VENT FROM COCKS AND/OR VALVE EXHAUST PORTS WHEN TEST RACK COCKS ARE MANIPULATED OR WHEN CONTROL DEVICES ARE OPERATED. TO MINIMIZE THE RISK OF PERSONAL INJURY FROM PRESSURE EXHAUSTING, ENSURE THAT ALL PERSONS STAND CLEAR OF THE EXHAUST PATH AND THAT HEARING PROTECTION AND EYE PROTECTION ARE WORN AT ALL TIMES.

Diagrammatic view and arrangement of test item and test rack is shown on Drawing NYT-1199.

To properly test the valve, the following items are necessary:

ABD-1 Test Plate, Complete	P/N 746955 (TA-2972-C)
Gasket	P/N 746125 (TA-1302A)

PRELIMINARY

Fasten the ABD-1 test plate with gasket to the test rack pipe bracket.

Fasten the DB-10 service portion with gasket to the test plate.

Adjust the test rack feed valve pressure to 100 psi.

The supply pressure must remain constant at no less than 120 psi during the entire test procedure.

If it is necessary to partially or completely disassemble the valve during the course of the test, adequate retest of the valve must be performed in order to insure proper leakage and function of the valve portion.

NOTE: The leakage test is conducted by soaping the items listed below and by checking the appropriate pressure gage after thermal equalization (temperature effect).

NOTE: In order to allow repetition of any specific test during this test procedure, and/or to perform a specific test independently, the exact condition of the 'AB' Test Rack is described at the end of this procedure.

1.0 TEST NO. 1 - LEAKAGE

1.1 RELEASE POSITION

Commence test with all Cocks closed and Valve "A" handle in Position No. 8.

Move Valve "A" handle to Position No. 1. Open Cocks 1, 2, 5, 8, 9 and 16 and allow Brake Pipe, Auxiliary Reservoir and Emergency Reservoir to charge to 100 psi. Close Cock 16.

Move Valve "A" handle between Position No. 1 and Position No. 8 four times noting an increase and venting of BC pressure each time, finally leave Valve "A" handle in Position No. 1.

1.1.1 EXHAUST PORT - Soap Test - No leakage allowed for 5 seconds.

This checks:

Balancing Valve: Valve seat V1.9 and K-ring from AR to exhaust port.
Balancing Piston: K-ring from AR to exhaust port.
QS-Valve: K-ring from AR to exhaust port.
Main Piston System: Valve seat V1.3 from BP to QS and exhaust port.

1.1.2 COCK 8 - Soap Test - No leakage allowed for 5 seconds, OR FLOWRATOR Meter No float rise.

This checks:

Main Piston System: Valve seat V1.1 from AR to BC and RET.
Emergency Release AR
Reduction Valve: Valve seat V4.1 from BP to BC and RET.

Close Cock 8 and open Cocks 16 and 19.

1.1.3 RELEASE PORT - Soap Test - No leakage allowed for 5 seconds.

This checks:

Release Valve: Valve seat V6.2 from BC to release port.

1.1.4 EXHAUST PORT - Soap Test - No leakage allowed for 5 seconds.

This checks:

Main Piston System: O-ring from RET to QS and exhaust port.
QS Limiting Check Valve: Valve seat V3.1 from BC to QS and exhaust port.
Release Valve: Valve seat V6.4 from BC to exhaust port.
QS Limiting Valve: Diaphragm

1.2 SERVICE LAP POSITION

Commence test with Cocks 1, 2, 5, 9, 16 and 19 open and Valve "A" handle in Position No. 1.

Close Cocks 16 and 19. Open Cock 8. Wait for Brake Cylinder pressure to completely vent to 0 psi, then open Cock 3.

Move Valve "A" handle to Position No. 5 to reduce Brake Pipe pressure to 88 psi, then place Valve "A" handle to Position No. 3 (LAP).

Slowly open Cock 13 to increase B.C. pressure, or Cock 4 to decrease B.C. pressure to 30 psi, then close Cock 13 or 4. Close Cocks 3 and 5.

1.2.1 B.C. GAGE - No increase or decrease of pressure allowed for 15 seconds.

This checks:

Main Piston System: Valve seat V1.1 from AR to BC.
Valve seat V1.2 from BC to RET.
QS Limiting Valve: Valve seat V3.2 from QS to BC.
Emergency Release
AR Reduction Valve: Valve seat V4.1 from BP to BC.

1.2.2 E.R. GAGE - No decrease of pressure allowed for 15 seconds.

This checks:

Main Piston System: Valve seat V1.6 from ER to AR.
Service Accelerated
Release Valve: Valve seat V2.2 from ER to BP.

1.2.3 COCK 8 - Soap Test- No leakage allowed for 5 seconds, OR FLOWRATOR Meter No float rise.

This checks:

Main Piston System: O-ring from QS to RET.
K-ring from BC to RET.
Valve seat V1.2 from BC to RET.
Retaining Check Valve: Valve seat V4.2 from BC to RET.

1.2.4 EXHAUST PORT - Soap Test - No leakage allowed for 5 seconds.

This checks:

Balancing Valve: Valve seat V1.10 from AR to exhaust port.
Balancing Piston: K-rings from AR to exhaust port.
QS Valve: K-rings from AR to exhaust port.
O-ring from AR to exhaust port.
Valve seat V5.1 from QS to exhaust port.

Close Cock 1.

1.2.5 B.P. LINE GAGE - No decrease of pressure allowed for 10 seconds.

This checks:

Emergency Release
AR Reduction Valve: Valve seat V4.1 from BP to BC.
QS Valve: Valve seat V5.1 from QS to exhaust port.

Slowly open Cock 6 and reduce ER gage pressure to 65 psi, then close Cock 6.

1.2.6 B.P. LINE GAGE - No decrease of pressure allowed for 10 seconds.

E.R. GAGE - Maximum increase of 5 psi allowed in 10 seconds.

This checks:

Service Accelerated
Release Valve: Valve seats V2.1 and V2.2 from BP to ER and V1.8.

1.3 SERVICE POSITION

Commence test with Cocks 2, 8 and 9 open, and Valve "A" handle in Position No. 3 (LAP).

Open Cocks 1, 3 and 5. Move Valve "A" handle to Position No. 8.

1.3.1 COCK 8 - Soap Test - No leakage allowed for 5 seconds, OR FLOWRATOR Meter No float rise.

This checks:

Main Piston System: Valve seat V1.2 from BC to RET.
K-ring from BC to RET.
Retaining Check Valve: Valve seat V4.2 from BC to RET.

Close Cocks 2, 3 and 5.

1.3.2 E.R. AND A.R. GAGES - No decrease of pressure allowed for 10 seconds.

This checks:

Main Piston System: Valve seat V1.8 from AR to BP.
Stability port from AR to BP.

Service Accelerated
Release Valve: Valve seat V2.2 from ER to BP.

Open Cocks 2, 3 and 5.

Pull and hold the release valve handle for three seconds to vent BC pressure, then close Cocks 2, 3 and 5.

NOTE: Under normal conditions there is momentary air flow out the exhaust port prior to the release valve tripping.

1.3.3 E.R. AND A.R. GAGES - No decrease of pressure allowed for 10 seconds.

This checks:

Release Valve: Valve seat V6.5 from AR to exhaust port.
Valve seat V6.6 from ER to exhaust port.

Emergency Release
AR Reduction Valve: Valve seat V4.1 from AR to BP.

1.3.4 RELEASE AND EXHAUST PORTS - Soap Test - No leakage allowed for 5 seconds.

This checks:

Release Valve: K-ring from AR to exhaust port.
Valve seat V6.1 from AR to release port.

Place Valve "A" handle to Position No. 1. Open Cocks 2, 3, 5, 12 and 16 and charge BP, AR and ER to 100 psi.

2.0 TEST NO. 2 - BRAKE CYLINDER APPLICATION TIME

Commence test with Cocks 1, 2, 3, 5, 8, 9, 12 and 16 open, and Valve "A" handle in Position No. 1.

Close Cocks 12 and 16. Move Valve "A" handle to Position No. 7 to reduce BP to 50 to 60 psi, then place Valve "A" handle into Position No. 3 (LAP) and note:

2.1 B.C. GAGE - Charges from 0 to 50 psi in 3 to 5 seconds.

3.0 TEST NO. 3 - RELEASE SENSITIVITY AND BRAKE CYLINDER RELEASE TIME

Commence test with Cocks 1, 2, 3, 5, 8 and 9 open and Valve "A" handle in Position No. 3 (LAP).

Close Cock 5. Partially open Cock 6 and reduce E.R. to 45 psi, then close Cock 6. Open Cock 16 and Cut-In Valve "B". Close Cock 16 and open Cock 18.

3.1 DIFFERENTIAL PRESSURE MANOMETER - Exhaust of the BC Reservoir pressure commences between 1.2 and 1.7 psi.

Immediately thereafter, cut out Valve "B" and close Cock 18.

3.2 B.C. Gage - Reduces from 40 to 20 psi in 8 to 11 seconds.

Place Valve "A" handle to Position No. 1. Open Cocks 5, 12 and 16 to charge AR pressure to 100 psi, then close Cocks 16 and 12.

4.0 TEST NO. 4 - PRELIMINARY QUICK SERVICE AND RELEASE STABILITY

Commence test with Cocks 1, 2, 3, 5, 8 and 9 open, and Valve "A" handle in Position No. 1.

4.1 Place Valve "A" handle to Position No. 4 and note a brief release of air pressure from the exhaust port.

Allow BP to reduce to 87 psi, then move Valve "A" handle to Position No. 3 (LAP). Open Cock 16 and Cut in Valve "B".

Open Cock "A" and adjust leakage at Cock "B" opening to 18 to 19 cu. in. per minute on the FLOWRATOR Meter.

When the pressure in BP and AR is between 84 and 85 psi (if necessary, adjust with Valve "A" handle in Position No. 2 or No. 4), close Cock 5, then close Cocks 2 and 16. Observe the manometer until the differential pressure has stabilized.

NOTE: Valve failure occurs anytime pressure exceeds 0.9 psi maximum, including the stabilization period

4.2 DIFFERENTIAL PRESSURE MANOMETER - Stabilizes between 0.2 to 0.9 psi

Close Cock "A" and Cut out Valve "B". Open Cocks 2 and 5 and move Valve "A" handle to Position No. 1. Open Cocks 12 and 16 and charge AR to 100 psi, then close Cocks 12 and 16.

5.0 TEST NO. 5 - APPLICATION SENSITIVITY AND MINIMUM BRAKE CYLINDER PRESSURE MAINTAINING FEATURE

Commence test with Cocks 1, 2, 3, 5, 8 and 9 open and Valve "A" handle in Position No. 1.

Reduce BP by 2 psi with Valve "A" handle in Position No. 4 and initiate a minimum reduction, then place Valve "A" handle in Position No. 3 (LAP).

5.1 B.C. GAGE - Pressure must increase.

Open Cocks 16 and 12 and vent B.C. reservoir pressure, then close Cock 12 and note:

5.2 B.C. GAGE - Charges from 0 to 7 psi in 4 to 9 seconds and stops increasing between 8 and 12 psi.

Slowly open Cock 4, reduce B.C. pressure by 3 psi, then close Cock 4 and note:

5.3 B.C. GAGE - Pressure must increase to between 8 to 12 psi.

EXHAUST PORT - Soap Test - No leakage allowed for 5 seconds.

Close Cock 16. Place Valve "A" handle to Position No. 1. Open Cocks 12 and 16 and charge AR to 100 psi.

6.0 TEST NO. 6 - SERVICE ACCELERATED RELEASE VALVE SENSITIVITY AND CAPACITY

Commence test with Cocks 1, 2, 3, 5, 8, 9, 12 and 16 open, and Valve "A" handle in Position No. 1.

Close Cocks 5 and 12. Move Valve "A" handle to Position No. 5 and reduce B.P. pressure to 93 psi, then move Valve "A" handle to Position No. 3 (LAP).

Cut in Valve "B". When the pressure in AR reaches 92 psi (if necessary, adjust with Valve "A" handle in Position No. 2 or No. 4), close Cock 16. Open Cocks 5 and "C" simultaneously and note:

6.1 DIFFERENTIAL PRESSURE MANOMETER - Between 1.6 and 2.1 psi when BP commences to increase.

6.2 B.P. VOLUME GAGE - Charges from 92 to 99 psi in 2 seconds maximum.

Immediately cut out Valve "B". Close Cock "C". Move Valve "A" handle to Position No. 1. Open Cock 16. Charge AR to 100 psi. Close Cocks 3 and 16.

7.0 TEST NO. 7 - AR AND ER EXHAUST CAPACITY

Commence test with Cocks 1, 2, 5, 8 and 9 open, and Valve "A" handle in Position No. 1.

Close Cock 9. Place Valve "A" handle to Position No. 8, then pull the release valve handle to its full extent and hold for 8 seconds and note:

7.1 A.R. GAGE - Pressure must reduce to at least 55 psi.

7.2 E.R. GAGE - Pressure must reduce to at least 65 psi.

Open Cocks 4, 6 and 16 and reduce AR and ER reservoirs to 0 psi. Close Cocks 4, 5, 6 and 16.

8.0 TEST NO. 8 - AR AND ER CHARGING CAPACITY

Commence test with Cocks 1, 2 and 8 open, and Valve "A" handle in Position No. 8.

Move Valve "A" handle to Position No. 1 and note:

8.1 A.R. GAGE - Charges from 10 to 20 psi in 12 to 19 seconds.

Open Cock 16 and charge AR to 100 psi. Close Cock 16 and open Cock 5 and note:

8.2 E.R. GAGE - Charges from 15 to 25 psi in 5 to 8 seconds.

Close Cock 8. Open Cocks 3, 9, 13, 16, 19 and 20 and charge BC to 100 psi. Close Cocks 13, 16, 19 and 20. Place Valve "A" handle to Position No. 8.

9.0 TEST NO. 9 - RELEASE VALVE ACTIVATING TIME, AUTOMATIC LOCK-UP AND RELEASE PORT CAPACITY

Commence test with Cocks 1, 2, 3, 5 and 9 open, and Valve "A" handle in Position No. 8.

Pull the release valve handle to its full extent of travel and hold for approximately 1 second.

9.1 After a brief delay of approx. 0.5 seconds, B.C. pressure commences to reduce.

9.2 B.C. GAGE - Reduces from 100 to 10 psi in 4 seconds maximum.

Open Cock 4 and drain B.C., then close Cocks 3 and 4.

10.0 TEST NO. 10 - RETAINING CHECK VALVE CAPACITY AND PRESSURE DIFFERENCE

Commence test with Cocks 1, 2, 5 and 9 open and Valve "A" handle in Position No. 8.

Open Cock 20. Partially open Cock 8 to reduce Q.A. Chamber Gage to 22 psi, then close Cock 8.

10.1 Q.A. CHAMBER GAGE - Reduces from 20 to 15 psi in 7 to 10 seconds and stops reduction between 1 and 4 psi.

Open Cock 8 and vent Q.A. Chamber pressure. Close Cocks 8 and 20.

11.1 TEST NO. 11 - EMERGENCY RELEASE AIR REDUCTION VALVE CUT-IN POINT, CAPACITY AND PRESSURE DIFFERENCE

Commence test with Cocks 1, 2, 5 and 9 open, and Valve "A" handle in Position No. 8.

Move Valve "A" handle to Position No. 2 and commence charging B.P. pressure and note:

11.1 B.P. VOLUME GAGE - Accelerated increase of pressure between 17 and 29 psi.

Immediately upon this increase, move Valve "A" handle to Position No. 3 (LAP).

11.2 B.P. VOLUME GAGE - Charges from 32 to 37 psi in 3 seconds maximum.

11.3 B.P. AND A.R. GAGES - Final pressure difference between 3 and 10 psi.

12.0 TEST NO. 12 - RELEASE VALVE RESET FEATURE

Commence test with Cocks 1, 2, 5, and 9 open, and Valve "A" handle in Position No. 3 (LAP).

Move Valve "A" handle to Position No. 1. Wait 15 seconds. Move Valve "A" handle to Position No. 8 and note:

12.1 B.C. GAGE - Pressure must increase.

At the completion of all tests, close Cocks 2 and 5. Open Cocks 6, 4 and 16. Wait until the valve is completely drained of pressure, then close all cocks.

ENGINEERING DEPARTMENT

REVISION PAGE

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ISSUE NO. 1
OCTOBER 18, 2000

ORIGINAL ISSUE

ISSUE NO. 2
DECEMBER 8, 2005

Test 4.2 - 0.2 to 0.9 was 0.2 to 0.7 and "Observe the manometer..." was "Wait 30 seconds..."
Added Note at test 4.2

ISSUE NO. 3
DECEMBER 1, 2008

Page 1 - P/N 746955 (TA-2972-C) was TC-11247 (Now (obsolete); P/N 746955 was Pc. 569058; P/N 746125 TA-1302A) was Pc. 96716 (TA-1302).
4.1 - para. 3 - "close Cock 5, then Close Cocks 2 and 16" was "close Cocks 2 and 16"
4.2 - "Open Cocks 2 and 5" was "Open Cock 2"

ISSUE NO. 4
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Para. 6.1 – 1.6 – 2.1 was 1.6 – 1.9.

**INITIAL CONDITIONS FOR RETESTING/REPEATING A SECTION
OF THE DB-10 SERVICE PORTION**

This section describes the exact condition of the "AB" Test Rack, necessary to allow repetition of any specific test during the test procedure, and/or independent performance of any specific test.

INITIAL CONDITION FOR TEST NO. 1 LEAKAGE

RELEASE POSITION

All cocks closed and Valve "A" handle in Position No. 8.

INITIAL CONDITION FOR TEST NO. 2 BRAKE CYLINDER APPLICATION TIME

Cocks 1, 2, 3, 5, 8, 9, 12 and 16 open, and Valve "A" handle in Position No. 1.

INITIAL CONDITION FOR TEST NO. 3
RELEASE SENSITIVITY AND BRAKE CYLINDER RELEASE TIME

Cocks 1, 2, 3, 5, 8, 9, 12 and 16 open, and Valve "A" handle in Position No. 1.
Charge AR to 100 psi. Close Cocks 12 and 16.

Move Valve "A" handle to Position No. 7 to reduce B.P. to approx. 50 psi, then move Valve "A" handle to Position No. 3 (LAP).

INITIAL CONDITION FOR TEST NO. 4
PRELIMINARY QUICK SERVICE AND RELEASE STABILITY

Cocks 1, 2, 3, 5, 8, 9 and 16 open, and Valve "A" handle in Position No. 1.
Charge AR to 100 psi, then close Cock 16.

INITIAL CONDITION FOR TEST NO. 5 APPLICATION SENSITIVITY AND
MINIMUM BRAKE CYLINDER PRESSURE MAINTAINING FEATURE

Cocks 1, 2, 3, 5, 8, 9 and 16 open, and Valve "A" handle in Position No. 1.
Charge AR to 100 psi, then close Cock 16.

INITIAL CONDITION FOR TEST NO. 6
SERVICE ACCELERATED RELEASE VALVE SENSITIVITY AND CAPACITY

Cocks 1, 2, 3, 5, 8, 9, 12 and 16 open, and Valve "A" handle in Position No. 1.

INITIAL CONDITION FOR TEST NO. 7 AR AND ER EXHAUST CAPACITY

Cocks 1, 2, 5, 8, 9 and 16 open, and Valve "A" handle in Position No. 1.
Charge AR to 100 psi. Close Cock 16.

INITIAL CONDITION FOR TEST NO. 8 AR AND ER CHARGING CAPACITY

Cocks 1, 2, 4, 5, 6, 8 and 16 open, and Valve "A" handle in Position No. 8.
Vent BP, AR, ER. Close Cocks 4, 5, 6 and 16.

INITIAL CONDITION FOR TEST NO. 9 RELEASE VALVE ACTIVATING TIME,
AUTOMATIC LOCK-UP, AND RELEASE PORT CAPACITY

All Cocks closed. Open Cocks 6, 7, 8 and 4, and place Valve "A" handle in Position No. 8.
Open Cocks 1 and 16. Wait 10 seconds, and close Cocks 6, 7, 16, 8 and 4.
Open Cocks 3, 14, 2, 13, 5, 9, 19 and 20 and charge AR, ER, BC and QA Ch. to 100 psi.
Close Cocks 13, 14, 19 and 20

INITIAL CONDITION FOR TEST NO. 10
RETAINING CHECK VALVE CAPACITY AND PRESSURE DIFFERENCE

All cocks closed. Open Cocks 1 and 8. Valve "A" handle to Position No. 1. Wait 10 seconds.
Close Cock 8. Move Valve "A" handle to Position No. 8.
Open Cocks 2, 3, 14, 5, 9, 19, 20 and 24. Charge AR and QA Ch. to 100 psi.
Close Cocks 14, 19, 20 and 24. Pull release handle to its full travel for approx. 1 second.
Open Cock 4 and vent BC. Close Cocks 3 and 4.

INITIAL CONDITION FOR TEST NO. 11 EMERGENCY RELEASE
AR REDUCTION VALVE - CUT-IN POINT, CAPACITY, AND PRESSURE DIFFERENCE.

All cocks closed. Open Cocks 1 and 8. Valve "A" handle to Position No. 1. Wait 10 seconds.
Close Cock 8. Move Valve "A" handle to Position No. 8.
Open Cocks 2, 3, 14, 5 and 9. Charge AR to 100 psi.
Close Cock 14. Pull release handle to its full travel for approx. 1 second.
Open Cock 4 and vent BC. Close Cocks 3 and 4.

INITIAL CONDITION FOR TEST NO. 12 RELEASE VALVE RESET FEATURE

All cocks closed. Open Cocks 1 and 8. Valve "A" handle to Position 1. Wait 10 seconds.
Close Cock 8. Move Valve "A" to Position 8.
Open Cocks 2, 3, 14, 5 and 9. Charge AR to 100 psi.
Close Cock 14. Pull release handle to its full travel for approx.1 second.
Open Cock 4 and vent BC. Close Cocks 3 and 4.



