NOTICE: Motive Power & Equipment Technical Bulletin MP&E 04-01

SUBJECT: Air Flow Indicator Calibration Guidance

INFORMATION DATE: 12/13/2004

Memorandum

U.S. Department of Transportation
Federal Railroad Administration

Date: December 13, 2004

Reply to the Attn. of: MP&E-04-01

Subject: Air Flow Indicator Calibration Guidance

From: Edward W. Pritchard
Director, Office of Safety Assurance and Compliance

To: All Regional Administrators, Deputy Administrators, Motive Power & Equipment Specialists and MP&E Inspectors

FRA recently discovered that a major railroad was not complying with the required periodic air flow indicator calibration requirements, prescribed in § 232.205(c)(1)(iii). The non-compliance was the result of either using the wrong test orifice, testing at the wrong brake pipe and/or main reservoir pressure, or simply not performing the calibration test.

Air flow indicators [mechanical (figure1) or electronic (figures 2 & 3)] used to conduct air flow method tests are to be tested and calibrated every 92-days. The following guidance is written for FRA Inspectors to use when observing railroad personnel qualifying air flow indicators:

1. Brake pipe (BP) leakage must be below 2 psi, in order for the air flow indicator to be accurately tested and calibrated.

2. Air Flow Method (AFM) indicators shall be tested and calibrated at 90 psi BP, utilizing the

correct calibrated orifice. The calibrated orifice should be marked with the 90 psi BP pressure, serial number, and manufacturer's part number. Verify that the correct calibration orifice is being used to perform the test. Since the manufactures recommend that test orifices should be calibrated annually, inquire about the last calibration date. If it is beyond one year, advise the railroad supervisor in charge that the orifice should be calibrated as recommended by the manufacturer and notify the regional MP&E Specialist.

- Currently, there are two calibration orifice products that are available for testing and calibrating AFM indicators at 90 psi BP. They are: Wabtec's Model # 0650756-0090 and Strato's Model # BOC500-20-70.

- There is also a calibrated orifice supplied by Wabco, Model # 0650756-0100, which is used for BP pressure set at 100 psi. If this orifice is being utilized for testing and calibration, the feed valve setting must be set at 100 psi and then verify that BP is being maintained at 100 psi.

NOTE: Strato makes six other calibrated orifices that do not comply with current Federal Regulations. These orifices are designed to be used at temperatures below 20 degree Fahrenheit, which Federal Regulations do not allow.

3. To conduct the test, the correct test orifice must be applied to the BP hose glad hand (preferably the front.) The angle cock is then opened to allow BP to exhaust through the orifice.

4. It is very important that BP be maintained at 90 psi (or 100 psi if using the 100 psi test orifice) during the test. Therefore, it may be necessary to adjust the feed valve setting in order to maintain BP at 90 psi. NOTE: The railroad should be testing at BP pressure it normally uses for train operations.

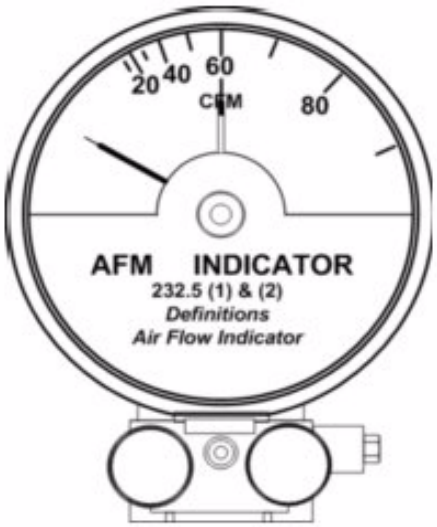
5. It is also critical that the main reservoir is capable of obtaining a main reservoir (MR) pressure of 130 psi during the test. Ideally, the test reading should when taken at 130 psi MR on the MR pressure rise. It may be necessary to increase engine speed on locomotives that have mechanical driven air compressors, in order to achieve a MR pressure of 130 psi.

6. The air flow indicator must read 60 cubic feet per minute (CFM) and be accurate within ±3 CFM. On mechanical indicators that is equivalent to the width of the pointer.

7. If the air flow indicator is not accurate within ±3 CFM, the indicator must be calibrated. The railroad may elect to perform this function on the locomotive or remove the indicator and send it out for calibration.

Examples of Air Flow Indicato

Mechanical Indicator



Electronic Indicators

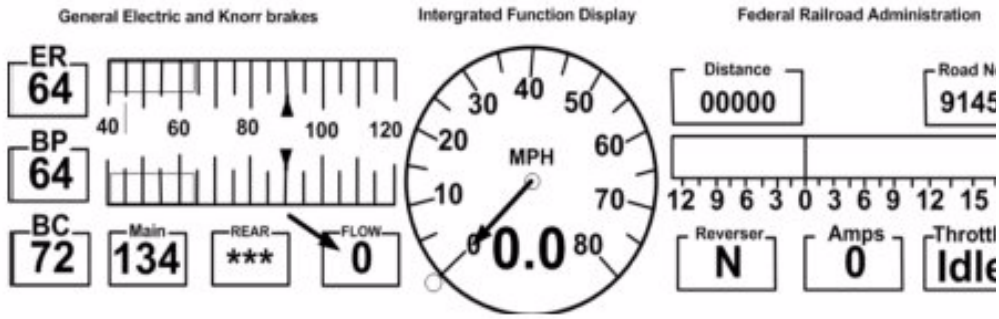
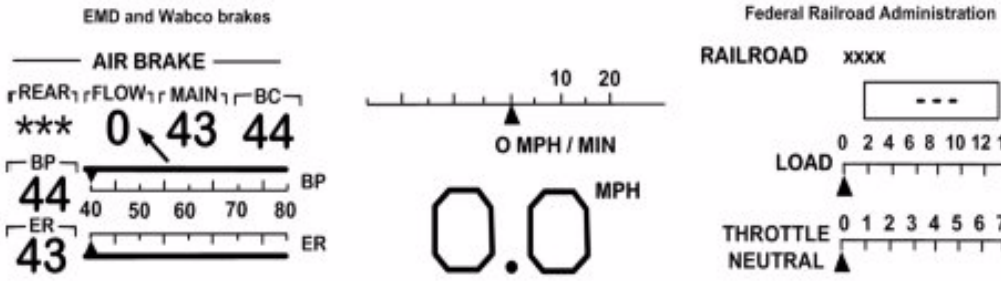


Figure 2



When conducting inspections at locations that perform periodic locomotive maintenance, special attention should be given to performance of air flow indicator testing and calibration procedures, as well as the testing and calibration of locomotive air gauges and displays. Inspectors should verify that the tests are properly performed by randomly checking locomotives that are released from the shop after undergoing a

periodic maintenance. On the random checks, request that the railroad properly perform a re-test, and if the air flow indicator is not in compliance, appropriate enforcement action should be taken. If a location has a high incidence of non-compliance with air flow indicators and/or air gauges, immediately notify the Regional MP&E Specialist to determine what additional enforcement action(s) should be taken.

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