SUBJECT: Alternate Flow Bench Test Fluid - MIL-PRF-7024* Type II.

PURPOSE: To provide repair shops with a suitable substitute for the Naphtha calibrating fluid currently specified in RS and RSA overhaul manuals.

Revision 1. To clarify acceptable test fluids and use of calibration and service limits flow sheets that call out specific test fluids. Stoddard specification was MIL-C-7024.

A) Current RS and RSA Calibration and Service Limits flow sheets may specify either Naphtha base calibration fluid or Stoddard calibrating fluid. These fluids may be used interchangeably.

B) Either fluid can be used with the existing flow meter limits as published in the applicable overhaul manual or service bulletin. Changing the fluid type will require recalibration of flow bench fluid flow meters and Inches of Fuel gauge. The accuracy of all flow meters shall be verified after conversion to a new fluid type.

NOTE: FLUID TYPES SHALL NOT BE MIXED. FLOW BENCH SHOULD BE DRAINED AND CLEANED PRIOR TO THE ADDITION OF A NEW FLUID.

C) Precision Airmotive has confirmed the flow values as stated on the Calibration and Service limits flow sheets remain the same whether Naphtha or Stoddard fluids are used as long as the flow meters and gauging have been calibrated for the type of fluid in use.

D) Burette time limits must be revised to accommodate this new fluid. Flow meter to burette conversion factors for Naphtha and Calibrating Stoddard are shown in Table 2.

E) Test fluid should be replaced if contaminated to the extent that accuracy of servo metering or service life is affected. The extent of contamination can usually be determined by change in specific gravity, viscosity, and visual inspection.

F) Fluid should meet the following requirements:

* NOTE- MIL-PRF-7024E IS THE CURRENT REVISION OF MIL-PRF-7024 AND SUPERCEDES MIL-C-7024. MIL-PRF-7024E OR LATER REVISIONS SHALL BE CONSIDERED SUITABLE ALTERNATES.
**NAPHTHA**

Specific Gravity 60°F (15.5°C) 0.738-0.742
Viscosity, Centistokes 70°F (21.1°C) 0.740-0.770
Color Water White
Doctor (A.S.T.M.) Negative
Copper Stripe (A.S.T.M.) Negative
Initial Boiling Point (A.S.T.M.) 66°C (150°F)
10% Distillation (A.S.T.M.) at or over 93°C (200°F)
End Point (A.S.T.M.) 204°C (400°F) Max.
Material must be lead-free
Material must be 100% paraffin base

**STODDARD CALIBRATION FLUID**

Military Specification MIL-PRF-7024E Type II*
Specific Gravity @ 60°F (15.5°C) 0.770 ± 0.005
Viscosity, Centistokes @ 77°F (25°C) 1.17 ± 0.05
Distillation Range
Initial Boiling Point 300°F min
Final Boiling Point 410°F max
Recovery 98.5%
Flash Point 100°F min
Residue, per 100ml. air jet 5.0 mg. max

*Or later superseding revision

**Test Fluid Specifications**

**Table 1**

<table>
<thead>
<tr>
<th>FLOWMETER LIMITS (lbs/hr)</th>
<th>VOLUME TO BE TIMED (cc)</th>
<th>NAPHTHA CONSTANT</th>
<th>STODDARD CAL FLUID CONSTANT</th>
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Minimum Time Limit (in seconds) = Constant
Maximum Flow Constant
Minimum lbs/hr = Maximum Time Limit (in seconds) Constant
Maximum lbs/hr = Minimum Time Limit (in seconds)

**Flow meter to Burette Conversion Factors**

**Table 2**