

# Service Information Letter - Fuel Systems

**SUBJECT: Alternate Flow Bench Test Fluid - MIL-C-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.

A) It has come to our attention that calibrating naphtha meeting the requirements of RS and RSA overhaul manuals is becoming increasingly difficult to obtain. Calibrating Stoddard meeting the requirements of MIL-C-7024\* Type II has been in use at Bendix and at Precision Airmotive since 1987. This fluid has proven satisfactory for servo calibration.

B) MIL-C-7024\* Type II fluid can be used with the existing flowmeter limits as published in the applicable overhaul manual or service bulletin. Use of this fluid will require recalibration of flow bench fluid flow meters. The accuracy of all flow meters shall be verified after conversion to this new fluid.

**\*\* NOTE \*\*** Fluid types shall not be mixed. Flow bench should be drained and cleaned prior to the addition of a new fluid.

C) Burette time limits must be revised to accommodate this new fluid. Flowmeter to burette conversion factors for Naphtha and Calibrating Stoddard are shown in Table 1.

D) Fluid per MIL-C-7024D\* Type II should meet the following requirements:

|   |             |
|---|-------------|
| 1) Specific Gravity 60°F (15.5°C)       | 0.765-0.775 |
| 2) Viscosity, Centistokes 70°F (21.1°C) | 1.120-1.220 |
| 3) Initial Boiling Point (A.S.T.M.)     | 300°F Min.  |
| 4) Final Boiling Point (A.S.T.M.)       | 410°F Max.  |

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. Replace the test fluid when the following maximum values are exceeded.

|   |       |
|---|-------|
| 1) Specific Gravity 60°F (15.5°C)       | 0.775 |
| 2) Viscosity, Centistokes 70°F (21.1°C) | 1.220 |

Note\* - MIL-C-7024D is the current revision of MIL-C-7024. MIL-C-7024C, MIL-C-7024D, or later revisions shall be considered suitable alternates.

| 1<br>FLOWMETER LIMITS<br>(lbs/hr) |      | 2<br>VOLUME TO<br>BE TIMED<br>(cc) | 3<br>NAPHTHA<br>CONSTANT | 4<br>STODDARD CAL<br>FLUID<br>CONSTANT |
|-----------------------------------|------|------------------------------------|--------------------------|--|
| Min.                              | Max. |                                    |                          |  |
| 0                                 | 6    | 50                                 | 291.5                    | 305.1                                  |
| 6                                 | 20   | 100                                | 583                      | 610.2                                  |
| 20                                | 40   | 200                                | 1166                     | 1220.4                                 |
| 40                                | 60   | 300                                | 1749                     | 1831                                   |
| 60                                | 100  | 500                                | 2915                     | 3051                                   |
| 100                               | 165  | 850                                | 4955                     | 5187                                   |
| 165                               | 195  | 1000                               | 5830                     | 6102                                   |
| 195                               | 250  | 2000                               | 11660                    | 12204                                  |
| 250                               | 390  | 2500                               | 14575                    | 15255                                  |
| 390                               | 650  | 3000                               | 17490                    | 18306                                  |
| 650                               | 1000 | 5000                               | 29150                    | 30510                                  |
| 1000                              | 1400 | 7000                               | 40810                    | 42714                                  |
| 1400                              | up   | 9000                               | 52470                    | 54918                                  |

  

Minimum Time Limit (in seconds) =  $\frac{\text{Constant}}{\text{Maximum Flow}}$

Maximum time Limit (in seconds) =  $\frac{\text{Constant}}{\text{Minimum Flow}}$

Minimum lbs/hr =  $\frac{\text{Constant}}{\text{Maximum Time Limit (in seconds)}}$

Maximum lbs/hr =  $\frac{\text{Constant}}{\text{Minimum Time Limit (in seconds)}}$

Flowmeter to Burette Conversion Factors.  
Table 1