SAE Aerospace
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AEROSPACE RECOMMENDED PRACTICE

SAE ARP581

REV. A

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Superseding ARP581

Universal Horizontal Field Maintenance Stand for 10,000 pound Weight Class Propulsion Units (48 inch and 30 inch Rail Gage)

FOREWORD

Changes in this revision are format/editorial only.

1. SCOPE:

This recommended practice covers a rail concept stand that may be used for horizontal disassembly and reassembly, and maintenance, incorporating certain design features which are defined herein. These features include the rail dimensions and width, length and height of stand to insure compatibility with rail concept type transport and positioning trailers.

1.1 Purpose:

To provide a recommended practice for the design of a horizontal field maintenance stand which will be adaptable to all engines of the specified classes.

2. REFERENCES:

The following Military and Federal Standards may be applicable and provide useful information.

Fed. Std. No. 245
MIL-P-6906
MIL-S-8512
MIL-D-8513

3. GENERAL REQUIREMENTS:

3.1 Material and Workmanship:

3.1.1 Material specified for use in fabrication shall be of best commercial quality and suitable for the purpose.

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3.1.2 Workmanship: All details of workmanship specified on the drawings shall be in accordance with high-grade commercial practices. Instructions shall provide that the article produced shall be free of defects which might affect its serviceability.

4. DETAIL REQUIREMENTS:

4.1 Design configuration shall consist of two main rails and necessary support structure.

4.1.1 Rails:

4.1.1.1 The width of the upper rail surface shall be 3.33 inches as specified in Table 14, Fed. Std. 245, with the top flange configuration as defined by the solid lined portion of Figure 1 conforming to the Steel Products Manual, published by the American Iron and Steel Institute, and/or Fed. Std. 245.

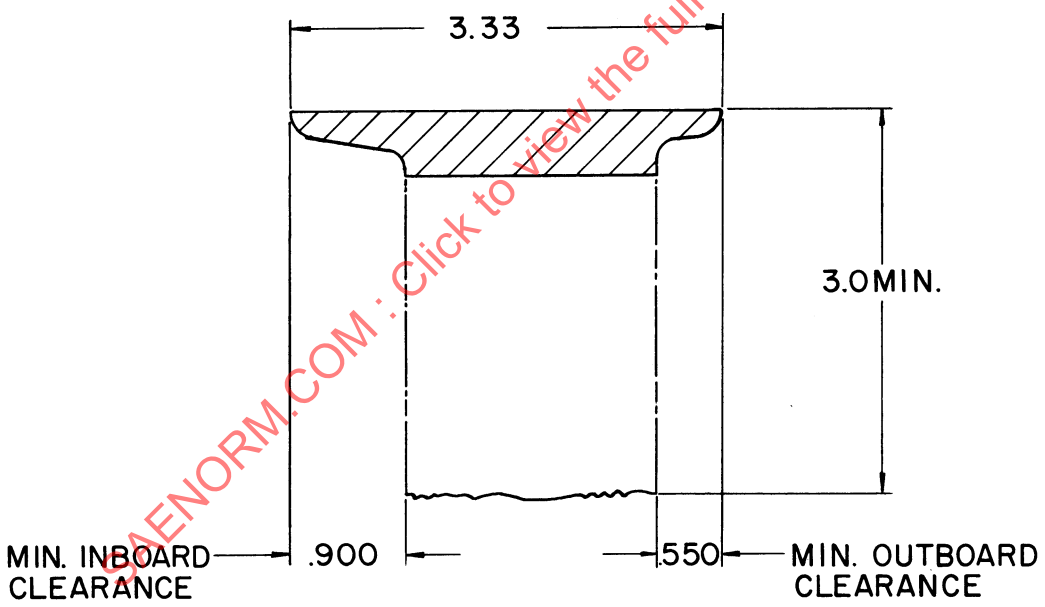

FIGURE 1

4.1.1.2 The remaining rail configuration and attaching hardware shall not exceed the envelope indicated by the phantom lined portion of Figure 1 to depth shown.

4.1.1.3 The flatness, squareness and surface finish shall be in accordance with the intended application.

4.1.1.4 Each rail of the two shall support a load of 5,000 pounds with a design safety factor of 3:1 based on the yield strength of the material. The load shall be applied at the most critical condition on the top surface through a single line roller contact across the rail. The maximum allowable deflection under the 5,000 pound load shall not exceed .150 inch.

4.1.2 Couplings:

4.1.2.1 The ends of the rails are to have a coupling feature to permit attachment of a series of stands. Couplings are to be attached to the rails so that stands and trailers can be joined together at either end. The center lines of the male and female coupling shall be central within .015 inch of the center line of the flange. Locate male coupler and guide on right rail, and female coupler and guide on left rail when facing rail ends. (See Figures 2 and 3)

4.1.2.2 The ends of rail shall be square with the top surface as indicated in Figure 2.

4.1.2.3 Joining of rails shall be accomplished by use of .750 inch quick disconnect pins attached to each female coupler.

4.1.3 Retractable safety locks a minimum of .500 inch high shall be provided on top of both ends of both rails as near to the ends as is practicable.

4.1.4 Supporting Structure:

4.1.4.1 The supporting structure shall consist of two or more legs for each rail. Legs shall be adjustable to permit supporting the upper surface of the rail at a height of 28.5 to 40.5 inches. A continuous adjustment feature shall be incorporated to permit a minimum movement of ±1.5 inches under capacity load from any fixed rail position between 30 and 39 inches.

4.1.4.2 The stand shall be capable of providing a minimum longitudinal clear distance between any two legs of 60 inches exclusive of foot pads.

4.1.4.3 The foot pad hole configuration attaching to the leg of the supporting structure is shown in Figure 4.

4.1.4.4 The structure shall be capable of maintaining the rails at widths of 48 and 30 inches center line ±.030 inch at the coupling locations, all other points can be ±.125 inch.

4.1.4.5 For the 48 inch rail gage, the supporting structure shall not enter the cylindrical envelope of 22 inch radius, the center line of which is midway between and parallel to the rails in the plane defined by the upper surface of the rails.

4.1.4.6 The method of attaching supporting structure to rail shall permit “knockdown” for storage or shipment of stand.

PREPARED BY SAE COMMITEE EG-1, ENGINE TOOLING

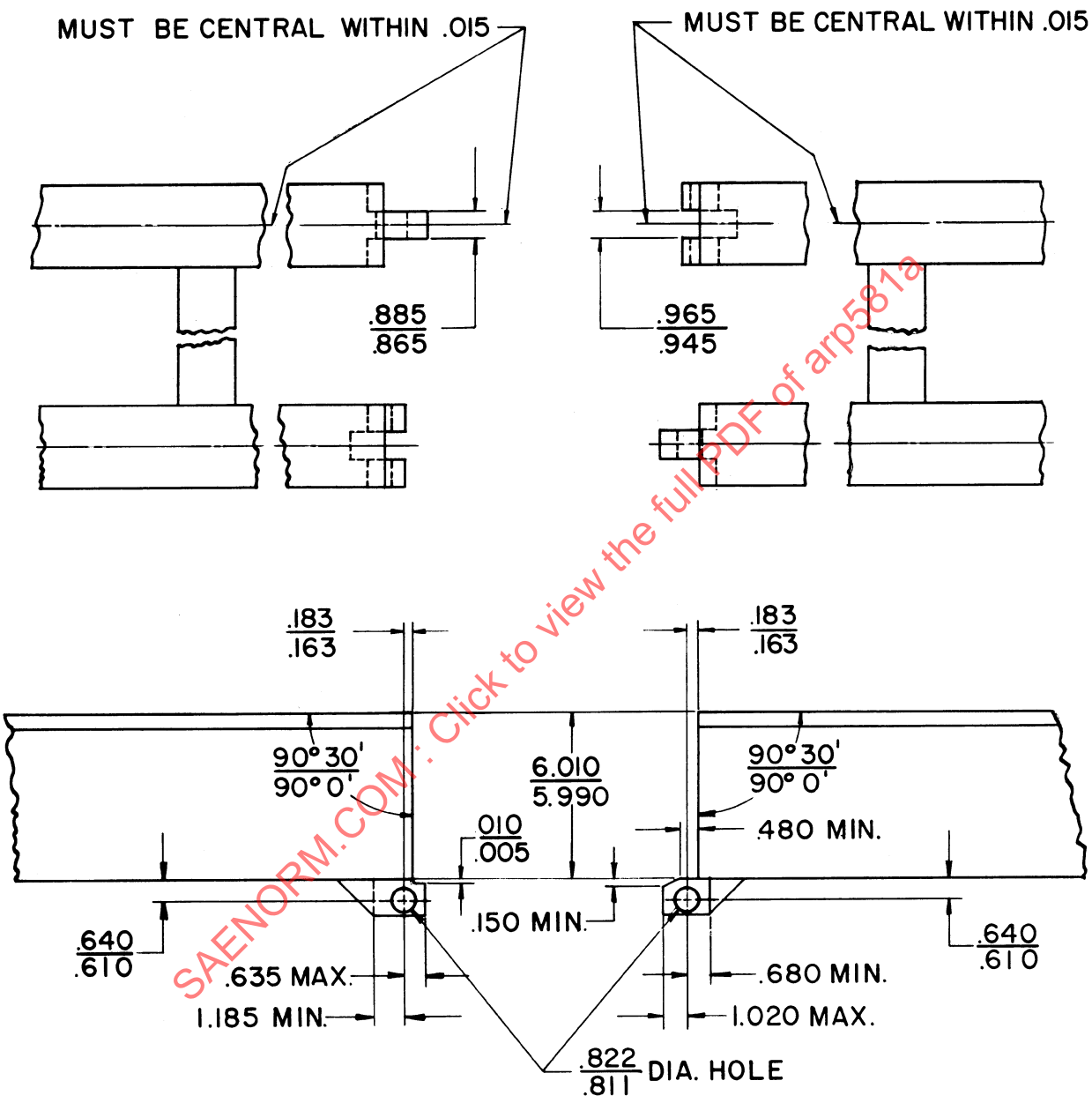

FIGURE 2