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AEROSPACE RECOMMENDED PRACTICE

SAE ARP680 REV. C

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Superseding ARP680B

Universal Turnover Build-Up Stand Series for Propulsion Units and/or Components

FOREWORD

Changes in this revision are format/editorial only.

1. SCOPE:

This recommended practice covers a series of stands that may be used for assembly, disassembly and maintenance; incorporating the following design criteria: a collapsible frame construction, envelope dimensions, attachment shear pad configuration and gear box and caster specifications.

1.1 Purpose:

To provide a recommended practice for the design of a series of build-up stands which will be adaptable to small propulsion units (excluding those units requiring special assembly) and/or all propulsion unit components for the specified classes.

2. REFERENCES:

The following Military Specifications may be applicable and provide useful information:

2.1 U.S. Government Publications:

Available from DODSSP, Subscription Services Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

MIL-S-8512	Support Equipment, Aeronautical, Special, General Specification For The Design Of
MIL-D-1000	Drawings and Data Lists; Preparation of, For Special Support Equipment
MIL-C-4751	(USAF) Casters, Rigid and Swivel, Precision, Heavy Duty, Shock Absorbing
MIL-C-7474	(USAF) Casters, Industrial
MIL-M-8090	Mobility Requirements, Ground Support Equipment, General Specification For

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
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SAE WEB ADDRESS: http://www.sae.org

2.2 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

ARP863 Universal Turnover Build-Up Stand for Small Propulsion Units Requiring Vertical Assembly

3. DETAIL REQUIREMENTS:

3.1 Design configuration shall be of a collapsible concept consisting of two (2) "A" frame assemblies and two (2) or more interchangeable connecting members.

3.1.1 Stand Assembly:

3.1.1.1 The stand assembly shall support a 1350 pound static load equally distributed through the attachment shear pads. Design stress shall be one third the yield stress or one fourth the ultimate stress if no yield stress is given.

3.1.1.2 The stand assembly shall withstand static proof loads of 200 percent without failure or permanent deformation.

3.1.1.3 The stand assembly shall be designed to provide a minimum floor clearance of 5.000 inches. Exception: 4.000 inch minimum floor clearance within a 12.000 inch radius from center (swivel point) of caster. See Figure 1.

3.1.2 "A" Frames:

3.1.2.1 The "A" frame assemblies shall be of two (2) designs as follows:

One (1) frame assembly shall consist of an "A" type structure, a gear box, an attachment shear pad, connecting member attaching flanges and two (2) casters.

The second frame assembly shall consist of an "A" type structure, a pillow block, an attachment shear pad, connecting member attaching flanges and two (2) casters.

3.1.2.2 All physical dimensions of the "A" frame assemblies shall be such that they will clear all envelope dimensions called out in Figure 1 for all stand classes.

3.1.3 Attachment Shear Pads:

3.1.3.1 The attachment shear pads shall be of two (2) designs as follows:

One (1) shear pad is to be rotating, non-adjustable and attached to a gear box.

The second shear pad is to be rotating, adjustable (1.000 inch minimum axial travel for loading components) and supported in a pillow block.

3.1.3.2 The attachment shear pads shall be designed such that the pilot diameters, pilot lengths, flange diameters, hole sizes and hole locations will conform to dimensions shown on Figure 1.

3.1.4 Casters:

3.1.4.1 Casters shall be shock absorbing, full swivel with four (4) position lock and equipped with an integral foot operated tread contact brake that must be effective through the full range of deflection of the caster and capable of rendering the stand completely immobilized with lock readily accessible. Wheel shall be 6 inch minimum diameter, single, 1-1/2 inches minimum tread width and non-sparking. The rated load for each caster shall be 338 pounds plus one fourth the weight of the stand.

3.1.5 Gear Box and Associated Hardware:

3.1.5.1 The gear box shall have a minimum ratio of 60 to 1, have non-locking gear set(s) and be capable of resisting a minimum torque of 2200 pound inches when applied at the output shaft without shaft rotation.

3.1.5.2 The gear box or associated hardware shall be equipped with a retractable mechanical safety locking feature that is spring loaded to the safety position.

3.1.6 Pillow Block:

3.1.6.1 The pillow block shall be equipped with self-aligning, double roller bearings.

3.1.7 Connecting Members:

3.1.7.1 Interchangeable connecting members shall be designed to meet the specified weight requirement. The length of these members shall meet all envelope dimensions called out in Figure 1.

3.1.7.2 The attaching ends of the connecting members shall be controlled dimensionally to allow for interchangeability between all stand classes of the same manufacture.

3.1.7.3 Connecting member attachment hardware shall not invade envelope dimensions shown in Figure 1.

3.1.7.4 The connecting members shall have a 2.875 ± .010 diameter in center of stand for distance of B' minimum as called out in Figure 1.

3.1.8 Adapters, Cradles, Stabilizers, Etc.:

3.1.8.1 All adapters, cradles, stabilizers, drip pans, etc. shall be designed separately to adapt various units and/or components to the stand classes. Consideration should be given to positioning the center of gravity of each unit or component during its assembly or disassembly to prevent overload to gear box. See paragraph 3.1.5.1.

3.1.8.2 All adapters, cradles, stabilizers, drip pans and attachment hardware shall be mounted so as not to invade shear pads and stand envelope dimensions. See Figure 1.

3.2 Inspection:

3.2.1 Alignment: The rotational axis of the gear box and the pillow block shear pad pilots shall lie in a common axis within .015 inches.

TABLE 1 - Tabulated Dimensions for Figure 1

Class No.	A Gage	B Min	B' Min	C Min	C' Min	D ±.12	E +2° –0°	Weight Capacity[1]
I	30.000	40.000	16.000	28.000	34.000	12.750	18°	1350
II	44.000	40.000	30.000	28.000	48.000	12.750	18°	1350
III	60.000	45.000	46.000	28.000	64.000	24.500	18°	1350
IV	70.000	45.000	56.000	28.000	74.000	24.500	18°	1350
V	44.000	40.000	30.000	28.000	48.000	12.750	28°	1350

[1]Weight capacity includes combined weight of component and tooling (adapters, cradles, etc.).

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