Society of Automotive Engineers, Inc.
TWO PENNSYLVANIA PLAZA, NEW YORK, N.Y. 10001

AEROSPACE RECOMMENDED PRACTICE

ARP 1134

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Revised

ADAPTER INTERFACE - TURBINE ENGINE BLADE MOMENT WEIGHING SCALE

1. PURPOSE

To provide a standard Adapter Interface and establish accuracies for different sizes of blade classification instruments to permit moment weighing of two blades which when placed 180 deg apart in a perfect disc, will produce no appreciable static unbalance. The standard Adapter Interface will provide interchangability of adapters between instruments of different manufacturers. The moment weighing scales sizes covered by this document are intended to cover the full range of blades in common use and to detect moment variations from blade to blade when it is positioned at the same radius as in its associated wheel.

2. SCOPE

To provide a standard interface adapter flange on any blade classification instrument capable of meeting the sensitivity requirements for the specific class.

3. DEFINITION

For the purposes of this Recommended Practice, the following definition shall apply:

MOMENT WEIGHT - The torque produced by a blade about its rotational axis when the blade is mounted with its radial centerline horizontal and otherwise positioned in the same mean position it would occupy in its associated wheel with its rotational axis also horizontal.

4. REFERENCE STANDARD

ARP 510 Moment Weight of Turbine and Compressor Rotor Blades

5. GENERAL

To satisfy the sensitivity requirements for measuring the true moment weight values for the full range of blades in common use the following sizes of scales are established:

Class of Scale	Smallest Measurable Moment	Maximum Measurable Moment
1	.05 oz-in (35 gmm)	500 oz-in (.35 Kg m)
2	.10 oz-in (75 gmm)	2,000 oz-in (1.5 Kg m)
3	.20 oz-in (150 gmm)	10,000 oz-in (7.5 Kg m)

6. REQUIREMENTS

6.1 The scale's blade holder interface shall conform to Fig. 1 for the Class 1 and Class 2 scales and Fig. 2 for Class 3 scale.

6.2 Extension arms may be of incremental lengths ending in the same interface to which will be mounted the blade holder. To position blades at the operating radius see Fig. 3 for typical arrangement.

6.3 Counterweights may be attached to the scale opposite to the extension arm as required. See also Fig. 3 for typical arrangement.

6.4 The readout instrumentation shall be capable of measurements equal or better than specified in paragraph 5 above or .05% of the total blade moment weight, whichever is the larger.

7. MEASUREMENT

7.1 The scale shall read in oz-inches (g mm) and have sufficient increments within the moment weight range being measured, so that it may be read or reliably estimated to the accuracy specified in 6.4.

7.2 All combined measurement errors (including equipment, extension arm, scale readout precision, repeatability, operation, etc.) shall not exceed ±0.1% of the mean moment weight value.

7.3 Figure 3 illustrates a typical tooling configuration for moment weighing. Other configurations may be used if they meet the requirements of 6.4, 7.1 and 7.2.

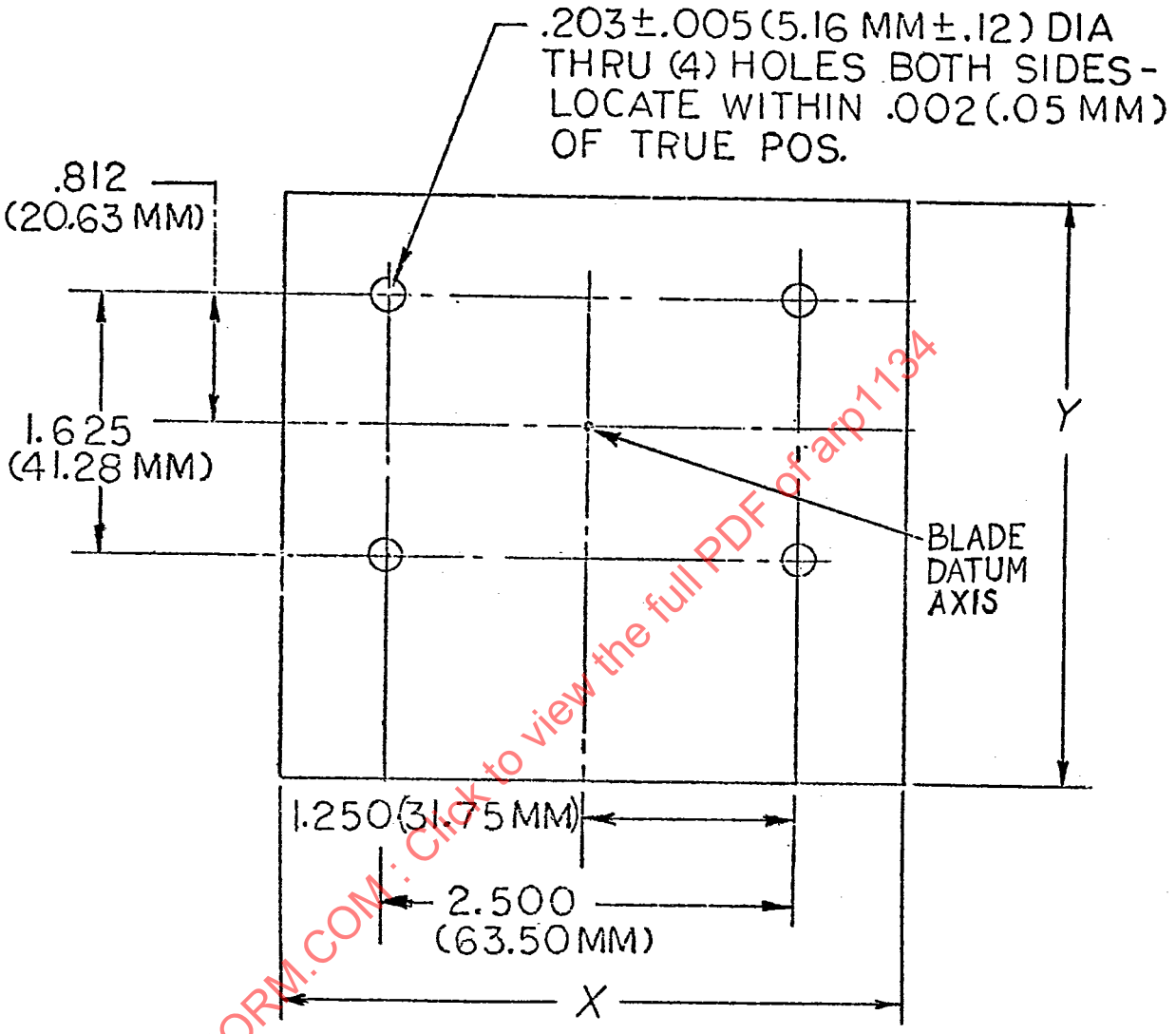
8. MARKING

The measured moment weight shall be marked on each blade in accordance with ARP 510.

8.1 The method and the area for marking the blade shall be as specified on the product drawing.

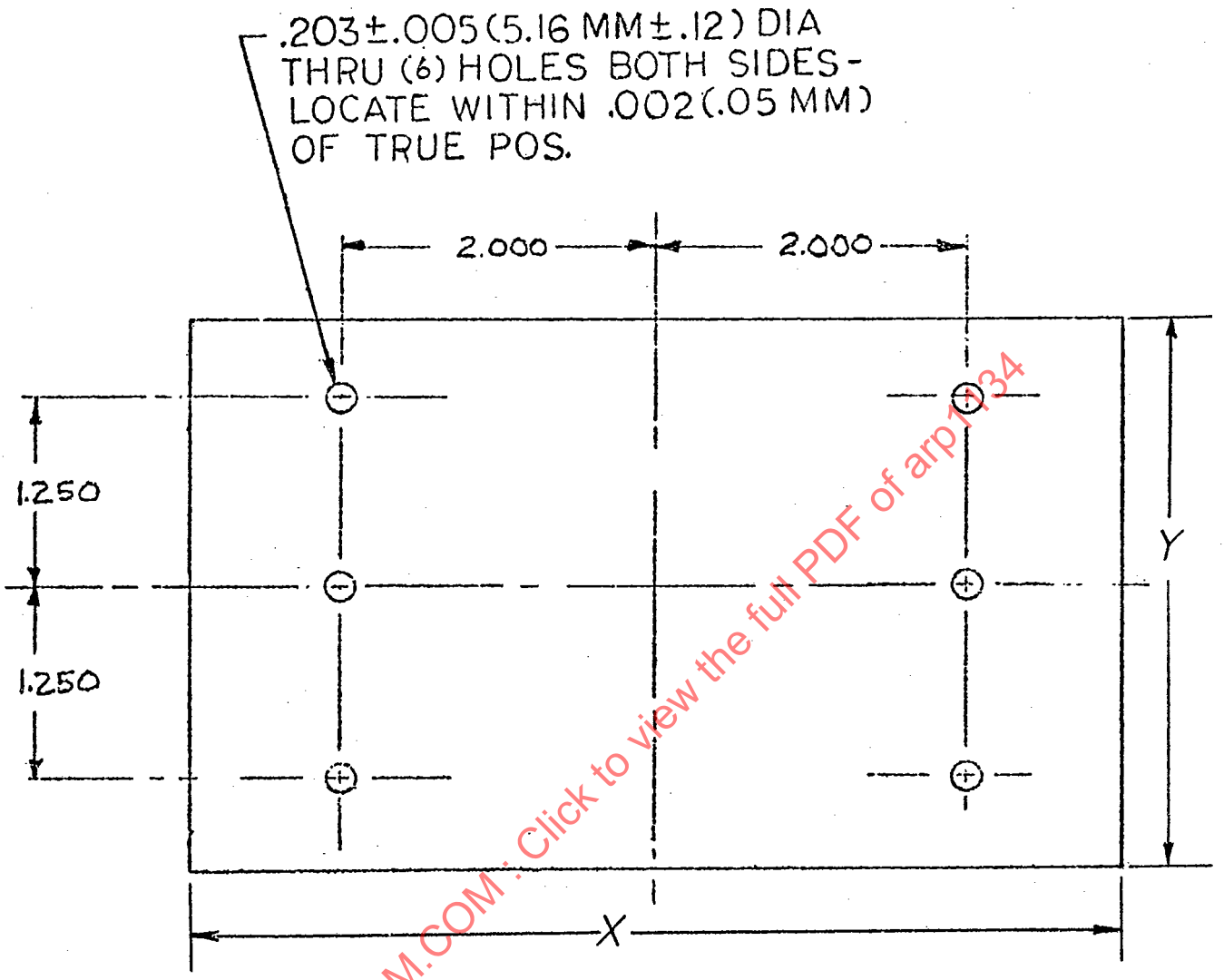
8.2 Only one moment weight number shall appear on a blade. Obsolete numbers may be obliterated by X's using the marking method specified on the product drawing.

PREPARED BY SAE COMMITTEE EG-1,
AEROSPACE PROPULSION SYSTEMS SUPPORT EQUIPMENT



NOTE: X and Y Dimensions to Suit Application.

Figure 1. Blade Holder Interface for Class 1 and Class 2 Scales.



NOTE: X and Y Dimensions to Suit Application.

Figure 2. Blade Holder Interface for Class 3 Scale.