SAE INTERNATIONAL

SURFACE VEHICLE RECOMMENDED PRACTICE

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Superseding J661 NOV2012

Brake Lining Quality Test Procedure

RATIONALE

The SAE J661 Recommended Practice was developed in the 1950s as a quality control test for friction material manufacturers. Since that time, significant variation has been found in test results, making it difficult to assign a friction coefficient identification per SAE J866. This revision specifies the permissible variation for recertification testing as compared to the original certification results.

1. SCOPE

The purpose of this SAE Recommended Practice is to establish a uniform laboratory procedure for securing and reporting the friction and wear characteristics of brake linings. The performance data obtained can be used for in-plant quality control by brake lining manufacturers and for the quality assessment of incoming shipments by the purchasers of brake linings.

2. REFERENCES

There are no referenced publications specified herein.

3. EQUIPMENT

A typical, commercially available machine as used in the preparation of this test procedure and known as a friction materials test machine is shown in Figures 1 and 2. The friction materials test machine shall be equipped with suitable means for:

a. Measuring the drum temperature.

b. Heating the drum.

c. Controlling the drum heating rate.

d. Cooling the drum from the back side only.

e. Controlling the drum cooling rate.

f. Measuring friction force.

g. Measuring drum rotational speed.

Means shall be provided for measuring specimen thickness and mass.

The temperature measuring means shall incorporate a welded thermocouple, coin silver slip rings, silver-graphite brushes, and an indicator and/or recorder having a high input impedance.

The drum heating means shall be adjusted as follows and remain so during the test, with the drum rotating at 417 rpm, cool from 149 to 93 °C (300 to 200 °F) with cooling air on. Then cool to 82 °C (180 °F) with cooling air off. Turn on heaters at 82 °C (180 °F) and start timing. Heat for 10 minutes. Drum temperature shall be 221 °C ± 14 °C (430 °F ± 25 °F) at 10 minutes.

The drum cooling means shall be adjusted as follows with the drum rotating at 417 rpm, and after having heated the drum with the heater elements to 371 °C (700 °F), turn off the heaters and turn on cooling air. Cool to 343 °C (650 °F) and start timing. Cool for 10 minutes. Drum temperature shall be 93 °C ± 14 °C (200 °F ± 25 °F) at 10 minutes.

The temperature measuring system shall have ±2% full-scale accuracy.

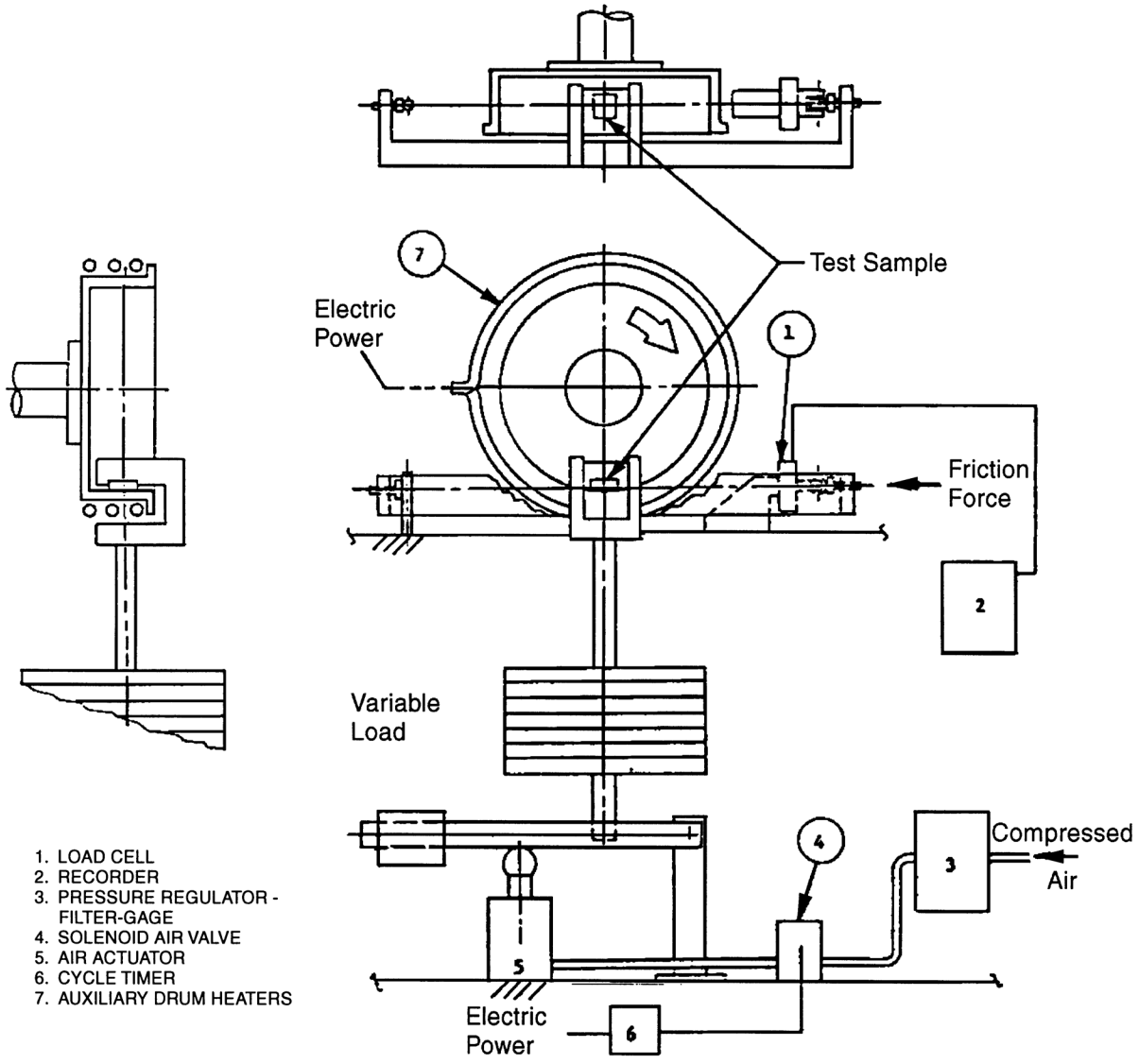

Figure 1 - Schematic diagram of friction materials for test machine

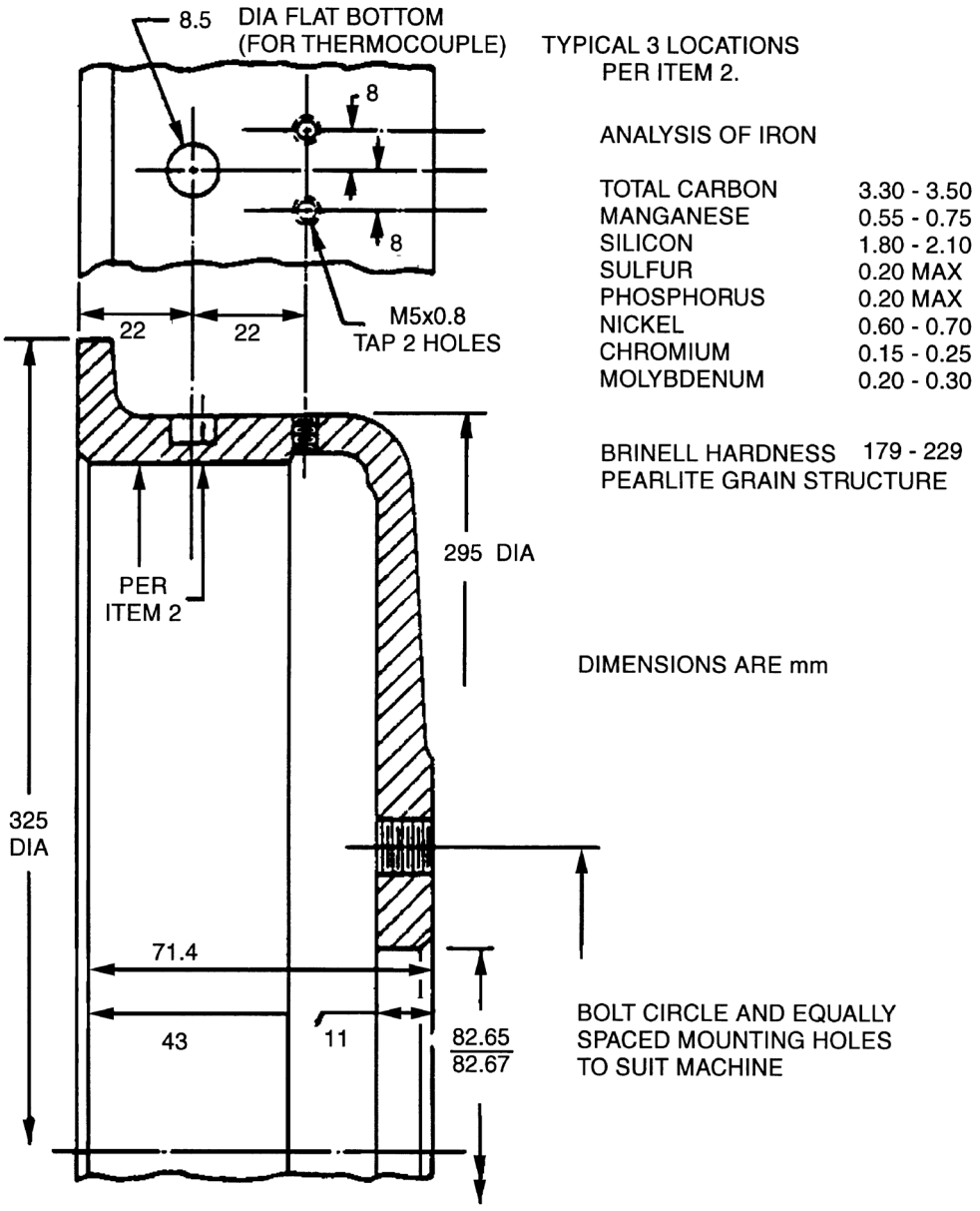

Figure 2 - Friction materials test machine drum

The friction force measuring system shall have ±2% full-scale accuracy.

The drum speed measuring system shall have ±2% full-scale accuracy.

The drum shall be used only between the inside diameter limits of 277.4 to 279.9 mm (10.920 to 11.020 inches) and have three thermocouple locations, one each at depths of 2.55 mm (stamped number 1), 3.05 mm (stamped number 2), and 3.55 mm (stamped number 3) from the new drum surface diameter of 277.4 mm (10.920 inches).

The thermocouple should be mounted in the position indicated in Table 1:

Table 1 - Thermocouple positions

Drum Inside Diameter	Location in Drum
277-278 mm	1
278-279 mm	2
279-280 mm	3