

CHIP RESISTANCE TEST FOR PAINTED PANELS

Apparatus Required

Gravelometer

The Gravelometer (see attached sketch) consists of an elongated box with a hopper on one end and a slot for the insertion of a test panel in the other end. Steel shot is poured into the hopper where a stream of air propels the shot onto the test panel. The volume of air is regulated with a flowmeter positioned as indicated in the sketch. Hoses and fittings which contribute to the air velocity and turbulence are standardized and substitutions are not permitted.

Brooks Full View Rotometer

1112-A - Size 10
Tube No. R-10M-25-7
Float No. 10-RS-138 (316 stainless)
Range 11.6 - 116 SCFM air at 80 PSIG and 70 °F
Scale to read in SCFM and to be accompanied by pressure correction curve from 30 - 100 PSIG
316 stainless steel end fitting - Buna N "O" ring
Front safety shielding with blow-out plug in back plate

Source: Brooks Instrument Division of
Smith Instrument & Equipment Co.

Steel Shot

30 lbs of SAE 780 shot with the following additional requirements:

Size: 100 % to pass through a No. 8 screen (.0937)
100 % to be retained on a No. 10 screen (.0787)

Shape: To be as near 100 % round as possible. No voids, heads, cracks or tails permitted.

Hardness: 90 % to be Rc 42-48

1 qt. of water containing 5 g of potassium dichromate is used to prevent rusting of the shot in storage.

Steel Test Panels

The panels used in this test shall be 4 x 12 x .036 - .042 inches flat CRLC steel.

Date	Action	Revisions
2001 03 02	Revised	Editorial – no technical change A. Cockman
1992 06 10		

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Standardization of the Gravelometer

1. Using a test panel prepared by and obtained from Body Materials Laboratory, test per para 2 through 5 of the procedure.
2. Compare the test panel with the standard supplied by Body Materials Laboratory. If the test panel and standard are equivalent in appearance, the Gravelometer may be considered standardized. If the test panel and standard are not equivalent, the Gravelometer must be adjusted by repositioning the air inlet pipe and orifice and subsequent panels tested until standardization is achieved.
3. It is recommended that a periodic restandardization be conducted.

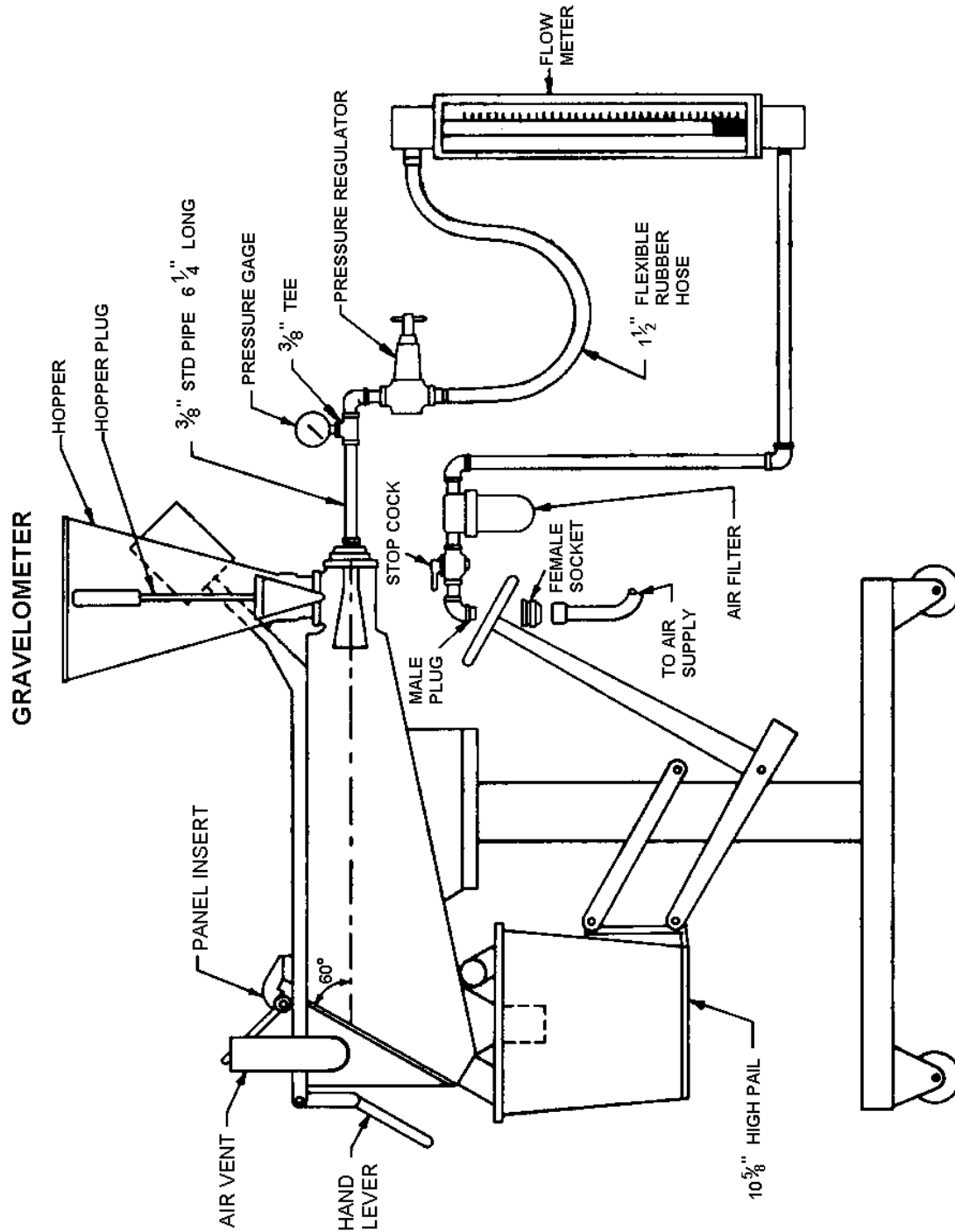
Conditioning and Test Conditions

All test values indicated herein are based on material conditioned in a controlled atmosphere of 23 +/- 2 °C and 50 +/- 5 % relative humidity for not less than 24 h prior to testing and tested under the same conditions unless otherwise specified.

Procedure

1. Prepare the panels with the paint to be tested per FLTM BI 103-02. Test results are extremely sensitive to total paint film thickness. Thickness determinations shall be made on each panel tested per FLTM and recorded.
2. After aging, mask off 3 inches on each end of the panel. This will leave 24 sq. inches of panel exposed to the shot blast.
3. Insert the panel into the Gravelometer as shown in the sketch.
4. Pour 30 lbs. of wet shot into the hopper with the plug in place.
5. Main line air supply should be at 80 psi prior to and during the test. Open the line valve and adjust so that air flow through the flowmeter indicates a volume of 80 cu ft/minute is obtained. Note the open line pressure at the indicating gage. This pressure should indicate 9 - 12 psi, however, it is not critical if all hoses and fittings are standard.
6. Pull the plug allowing the shot to fall into the air stream. When the panel has been abraded with the full 30 lbs. of shot, shut off the valve, remove the panel, rinse in warm water and blot dry.
7. Compare the test panel with the standard panels in Figure 1 through Figure 10 and report the number of the test panel as the result.

Chemicals, materials, parts, and equipment referenced in this document must be used and handled properly. Each party is responsible for determining proper use and handling in its facilities.



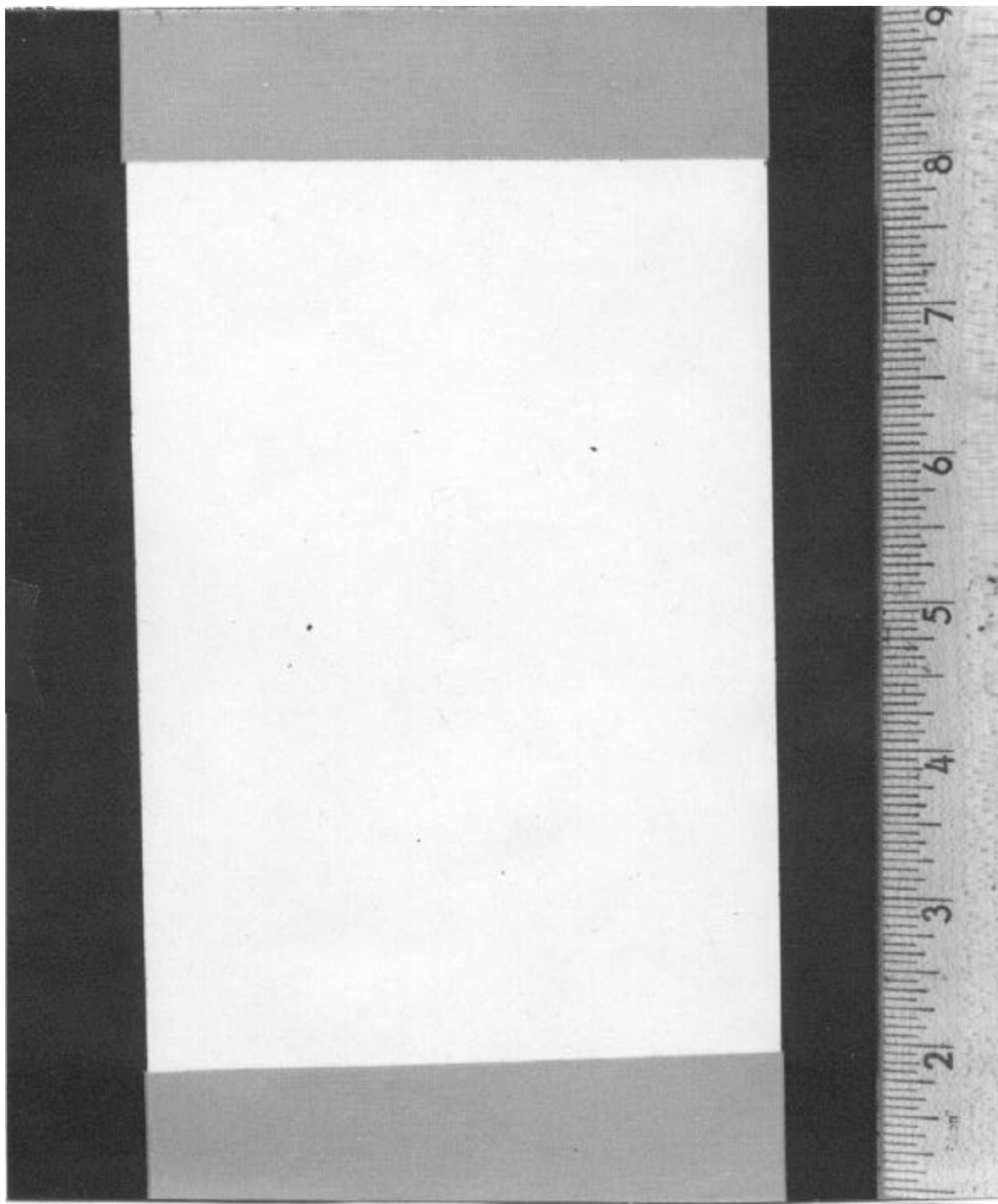


Figure 1