

(c) *Test Specimens.* (1) For each test, one set of cushion specimens representing a seat bottom and seat back cushion must be used.

(2) The seat bottom cushion specimen must be $18 \pm \frac{1}{8}$ inches (457 ± 3 mm) wide by $20 \pm \frac{1}{8}$ inches (508 ± 3 mm) deep by $4 \pm \frac{1}{8}$ inches (102 ± 3 mm) thick, exclusive of fabric closures and seam overlap.

(3) The seat back cushion specimen must be $18 \pm \frac{1}{8}$ inches (432 ± 3 mm) wide by $25 \pm \frac{1}{8}$ inches (635 ± 3 mm) high by $2 \pm \frac{1}{8}$ inches (51 ± 3 mm) thick, exclusive of fabric closures and seam overlap.

(4) The specimens must be conditioned at 70 ± 5 °F (21 ± 2 °C) $55\% \pm 10\%$ relative humidity for at least 24 hours before testing.

(d) *Test Apparatus.* The arrangement of the test apparatus is shown in Figures 1 through 5 and must include the components described in this section. Minor details of the apparatus may vary, depending on the model burner used.

(1) *Specimen Mounting Stand.* The mounting stand for the test specimens consists of steel angles, as shown in Figure 1. The length of the mounting stand legs is $12 \pm \frac{1}{8}$ inches (305 ± 3 mm). The mounting stand must be used for mounting the test specimen seat bottom and seat back, as shown in Figure 2. The mounting stand should also include a suitable drip pan lined with aluminum foil, dull side up.

(2) *Test Burner.* The burner to be used in testing must—

- (i) Be a modified gun type;
- (ii) Have an 80-degree spray angle nozzle nominally rated for 2.25 gallons/hour at 100 psi;
- (iii) Have a 12-inch (305 mm) burner cone installed at the end of the draft tube, with an opening 6 inches (152 mm) high and 11 inches (280 mm) wide, as shown in Figure 3; and
- (iv) Have a burner fuel pressure regulator that is adjusted to deliver a nominal 2.0 gallon/hour of # 2 Grade kerosene or equivalent required for the test.

Burner models which have been used successfully in testing are the Lennox Model OB-32, Carlin Model 200 CRD, and Park Model DPL 3400. FAA published reports pertinent to this type of burner are: (1) Powerplant Engineering Report No. 3A, Standard Fire Test Apparatus and Procedure for Flexible Hose Assemblies, dated March 1978; and (2) Report No. DOT/FAA/RD/76/213, Reevaluation of Burner Characteristics for Fire Resistance Tests, dated January 1977.

(3) *Calorimeter.*

(i) The calorimeter to be used in testing must be a (0–15.0 BTU/ft²-sec. 0–17.0 W/cm²) calorimeter, accurate $\pm 3\%$, mounted in a 6-inch by 12-inch (152 by 305 mm) by $\frac{3}{4}$ -inch (19 mm) thick calcium silicate insulating board which is attached to a steel angle bracket for placement in the test stand during burner calibration, as shown in Figure 4.

(ii) Because crumbling of the insulating board with service can result in misalignment of the calorimeter, the calorimeter must be monitored and the mounting shimmed, as necessary, to ensure that the calorimeter face is flush with the exposed plane of the insulating board in a plane parallel to the exit of the test burner cone.

(4) *Thermocouples.* The seven thermocouples to be used for testing must be $\frac{1}{16}$ - to $\frac{1}{8}$ -inch metal sheathed, ceramic packed, type K, grounded thermocouples with a nominal 22 to 30 American wire gage (AWG)-size conductor. The seven thermocouples must be attached to a steel angle bracket to form a thermocouple rake for placement in the test stand during burner calibration, as shown in Figure 5.

(5) *Apparatus Arrangement.* The test burner must be mounted on a suitable stand to position the exit of the burner cone a distance of $4 \pm \frac{1}{8}$ inches (102 ± 3 mm) from one side of the specimen mounting stand. The burner stand should have the capability of allowing the burner to be swung away from the specimen mounting stand during warmup periods.

(6) *Data Recording.* A recording potentiometer or other suitable calibrated instrument with an appropriate range must be used to measure and record the outputs of the calorimeter and the thermocouples.

(7) *Weight Scale.* Weighing Device—A device must be used that with proper procedures may determine the before and after test weights of each set of seat cushion specimens within 0.02 pound (9 grams). A continuous weighing system is preferred.

(8) *Timing Device.* A stopwatch or other device (calibrated to ± 1 second) must be used to measure the time of application of the burner flame and self-extinguishing time or test duration.

(e) *Preparation of Apparatus.* Before calibration, all equipment must be turned on and the burner fuel must be adjusted as specified in paragraph (d)(2).

(f) *Calibration.* To ensure the proper thermal output of the burner, the following test must be made:

(1) Place the calorimeter on the test stand as shown in Figure 4 at a distance of $4 \pm \frac{1}{8}$ inches (102 ± 3 mm) from the exit of the burner cone.

(2) Turn on the burner, allow it to run for 2 minutes for warmup, and adjust the burner air intake damper to produce a reading of 10.5 ± 0.5 BTU/ft²-sec. (11.9 ± 0.6 W/cm²) on the calorimeter to ensure steady state conditions have been achieved. Turn off the burner.

(3) Replace the calorimeter with the thermocouple rake (Figure 5).

(4) Turn on the burner and ensure that the thermocouples are reading 1900 ± 100 °F (1038 ± 38 °C) to ensure steady state conditions have been achieved.