SFI FOUNDATION INC.™

QUALITY ASSURANCE SPECIFICATIONS™

SFI SPECIFICATION 14.5 EFFECTIVE: AUGUST 29, 2014*

PRODUCT: Manifold Blankets

1.0 GENERAL INFORMATION

1.1 This SFI Specification establishes uniform test procedures and minimum standards for evaluating and determining performance capabilities for Manifold Blankets used by individuals engaged in competitive motorsports.

1.2 The procedures, test evaluations and standards contained herein, are intended only as minimum guidelines for construction and evaluation of products. Certification that products meet such minimum standards is made by the product manufacturer and products are not certified, endorsed or approved by SFI under this program.

1.3 Use of the "This Manufacturer Certifies That This Product Meets SFI Specification 14.5" logo/designation, the authorized artwork style, or conventional lettering by a manufacturer, on a subject product, is intended only to indicate that the manufacturer of the product has represented that they have submitted the product to the recommended tests, with positive results, in compliance with the standards established herein.

1.4 This SFI Specification requires a demonstration that the product of a manufacturer meets or exceeds the requirements when the manufacturer enters the program; and on a periodic basis thereafter. Any manufacturer may participate in the program by providing Manifold Blankets that meet or exceed the SFI Specification 14.5 test standards, by complying with the requirements of the SFI Specification 14.5 program, and by signing a licensing agreement with the SFI Foundation, Inc.

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1.5 Compliance with this specification is entirely voluntary. However, when a manufacturer provides Manifold Blankets in compliance with all requirements of the SFI Specification 14.5 and enters into the licensing agreement with the SFI Foundation, Inc., they may certify that compliance with such standards is in accordance with the guidelines established herein.

1.6 Manufacturers wishing to participate in the program, in addition to the other requirements of this specification, must label each of their products with the manufacturer's name, trademark or symbol as well as the date of manufacture of the product.

1.7 No manufacturer may display the SFI logo/designation on their product unless the manufacturer has signed a licensing agreement with SFI and has successfully complied with all the requirements of this specification and the self-certification program.

2.0 DEFINITIONS

2.1 Manifold Blankets shall be made in the form of a cover that shall be capable of being securely attached to the coverage area and provide protection from manifold fragments.

2.2 The Manifold Blanket shall cover the surface of the intake manifold forward of the supercharger.

2.3 All hardware and buckles must be retained by the blanket or straps when the Manifold Blanket is normally removed from the vehicle.

2.4 The useful life of the Manifold Blanket shall not exceed two (2) years. It shall be replaced at or before that time due to environmental factors.

2.5 Any blanket pertaining to this specification shall remain as constructed by the original manufacturer and not modified.

3.0 CONSTRUCTION

The blanket shall be constructed such that the installation and fastening method will secure the blanket in place and sustain fragment containment in case of an explosion.

4.0 MODEL CLASSIFICATION

Any change of materials or method of construction shall be considered a model change and will require additional testing.

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5.0 TESTING

5.1 PENETRATION RESISTANCE

This test is based on Military Standard 662D, "Ballistic Test for Armor" (MIL-STD-662D).

5.1.1 SAMPLES

One square sample, 15 by 15 ±1 inch (38.1 by 38.1 ±2.5 centimeters) shall be supplied. The sample shall have the identical layer fabric, layer order and construction, thread and stitch composition, and overall assembly as that of the blanket that is being evaluated.

5.1.2 APPARATUS

The apparatus shall comply with MIL-STD-662D.

A. PROJECTILE

Caliber .22 - Type 2, fragment simulators conforming to MIL-P-46593A shall be used.

5.1.3 PROCEDURES

The sample shall be tested in accordance with MIL-STD-662D for the Limit, V_{50} BL(P). The maximum velocity span shall be 150 feet per second {fps} (46 meters per second {mps}).

5.1.4 INTERPRET RESULTS

The V_{50} BL(P) shall be calculated by taking the arithmetic mean of the two highest partial, and the two lowest complete, penetration impact velocities within the allowable velocity span.

5.2 BLANKET ASSEMBLY TENSILE STRENGTH

This test shall be conducted on the Manifold Blanket assembly. Each configuration shall be tested.

5.2.1 SAMPLES

Test samples shall be fully processed new components which are representative of Manifold Blankets currently produced or to be produced. All necessary mounting hardware along with mounting instructions shall be supplied with the test samples.

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5.2.2 APPARATUS

A. TEST MACHINE

The test machine shall be capable of applying a minimum tensile load of 4,500 pounds {lb} (20,017 newtons {N}) with an excursion travel of two (2) to ten (10) inches per minute {ipm} (5.08 to 25.4 centimeters per minute {cmpm}), and shall have adequate instrumentation to verify the test load. The test machine shall also be in calibration and traceable to the National Institute of Standards and Technology (NIST).

B. TEST FIXTURE

The test fixture shall duplicate the mounting method of the Manifold Blanket and retention straps, per figures 1 and 2.

Figure 1

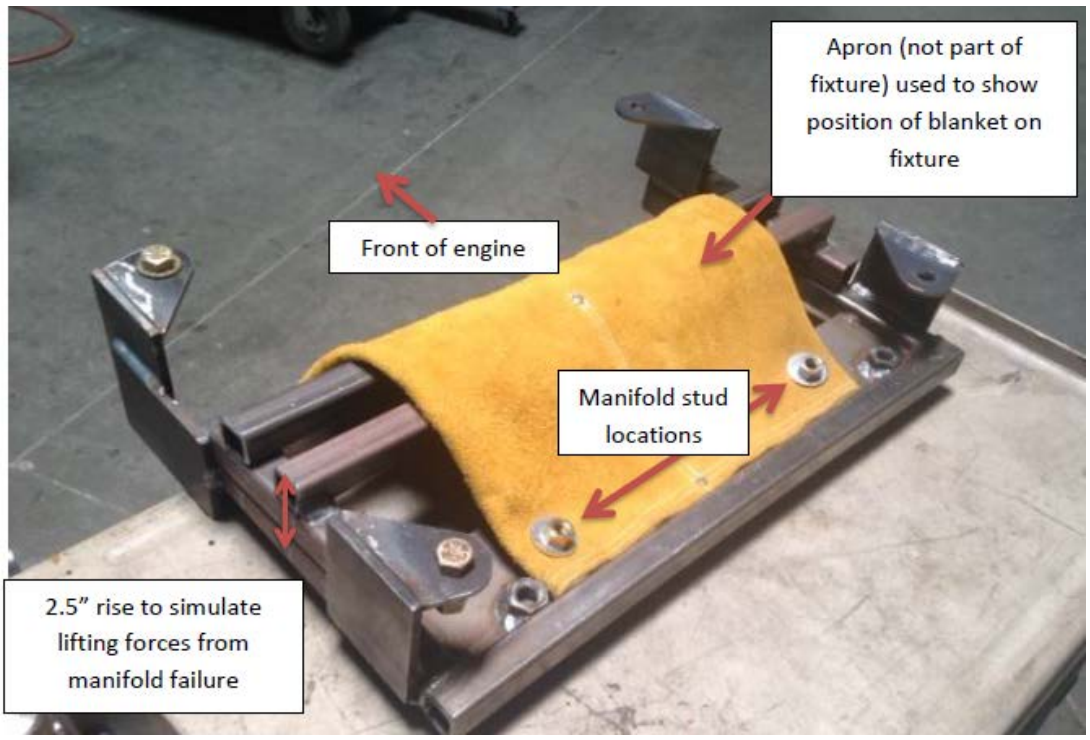

Figure 2

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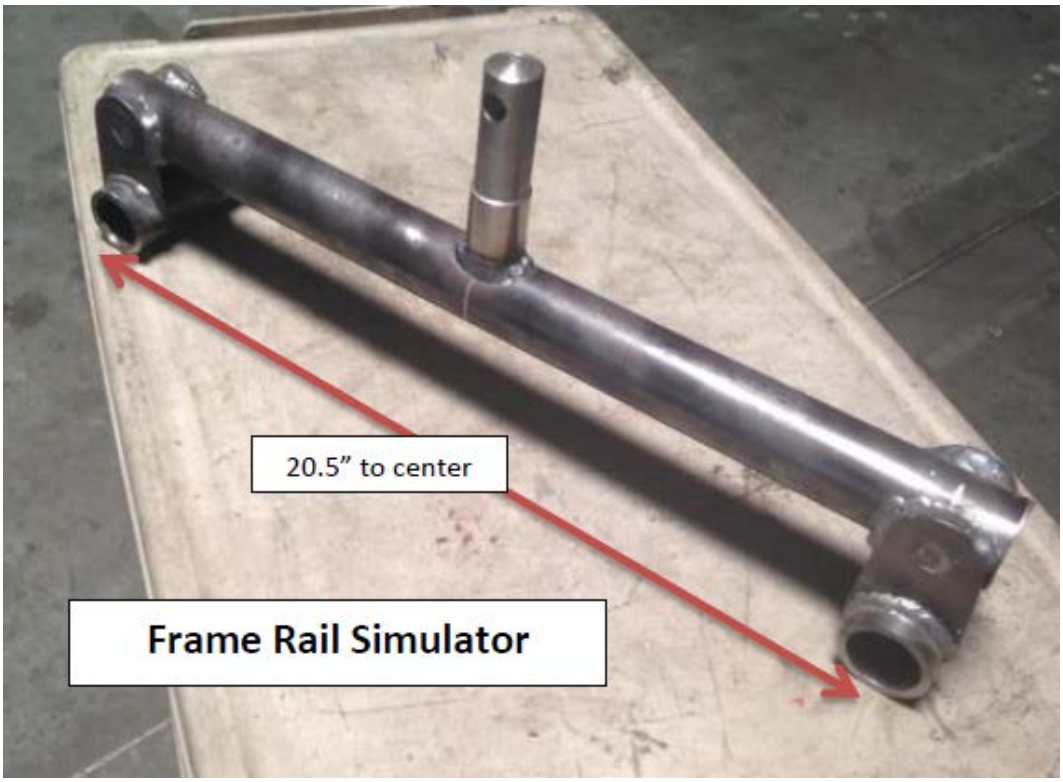

5.2.3 PROCEDURES

A. Mount the Manifold Blanket on the test machine using the test fixture and hardware representative of that used on the installed product. Every configuration of attachment and strap hardware used in the finished product must be tested.

B. Using an excursion rate of twenty (20) ipm (5.08cmpm), apply an increasing load to the restraint device. Continue until a load of 4,500 +40/-0 lb (20,017 +178/-0 N) is applied. Hold at that level for ten seconds, and then release the load.

5.3 STRAP FLAME RESISTANCE

The test shall be conducted at an ambient temperature between 10°C (50°F) and 30°C (86°F).

5.3.1 SAMPLES

One Manifold Blanket strap sample at ambient temperature shall be tested.

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5.3.2 APPARATUS

A. THERMAL LOAD

The thermal load shall be applied by a gas Bunsen burner, with an inside diameter of 0.4 inch (9.5mm).

B. TIMING DEVICE

A timing device with an accuracy of ±0.5 seconds shall be used to measure combustion rates.

C. FIXTURE

The test must be conducted in a draft free horizontal cabinet in accordance with Federal Test Method Standard 191 Model 5906 or equivalent.

5.3.3 PROCEDURE

The strap sample shall be mounted horizontally in the test cabinet. The Bunsen burner flame height shall be adjusted to 1.5 inches (38mm) and located in the test cabinet so that the Bunsen burner nozzle is positioned below one end of the strap sample as shown in Figure 3. The strap shall be subjected to the thermal load at a distance of 0.75 inch (19mm) from center of Bunsen burner nozzle to the center of the bottom edge of the strap for a period of 15 ±1 seconds and immediately removed. Measurement of the speed of combustion shall start simultaneously with the removal of the flame.

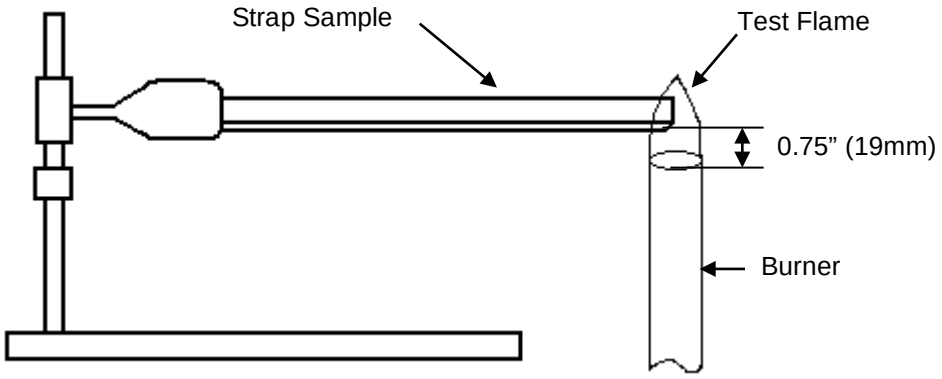

Figure 3
Test Flame Fixture inside Test Cabinet

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6.0 PROOF OF COMPLIANCE

Manifold Blanket manufacturers are required to provide the following information to enroll in this program:

6.1 TEST RESULTS

Test results shall be documented in a test report.

6.1.1 PENETRATION RESISTANCE

The resistance of the sample shall be greater than or equal to a V_{50} BL(P) of 1125 fps (343 mps).

6.1.2 BLANKET ASSEMBLY TENSILE STRENGTH

The Blanket Assembly shall pass the tensile strength test if, for each assembly tested, it is able to maintain the test load for ten seconds.

6.1.3 STRAP FLAME RESISTANCE

The speed of combustion of the strap per paragraph 5.3.3 shall be less than or equal to 0.50 inches/minute (12.7 mm/minute).

7.0 TEST REPORTS

A separate test report, or set of test reports if required, shall be submitted for each product model. If more than one test facility is required to complete all necessary tests, then a separate test report shall be submitted from each one. A test report shall be submitted for each component, if tested separately. The test facility shall assign a unique number to each test report. This number along with the report date and page number shall appear on each page. Each test report shall include:

7.1 RELEVANT INFORMATION

7.1.1 Manufacturer's name, contact name, address and telephone number.

7.1.2 Name, address and telephone number of the test facility.

7.1.3 Name and signature of the responsible test supervisor.

7.1.4 Actual date of the test.

7.1.5 Specification number and effective date.

7.1.6 Product name, description and model designation.

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7.1.7 Component name and description.

7.1.8 Photographs of the submitted assembly, pre and post-test photographs of submitted ballistic samples.

7.2 TESTS

Each test conducted shall be listed showing the test name, apparatus used, procedure used and test results obtained along with any other appropriate information.

7.3 AUTHENTICATION

Test reports shall be authenticated and stamped by a Professional Engineer who is registered in the state in which the testing is conducted. If necessary, SFI may allow an equivalent entity to provide authentication.

8.0 INITIAL DESIGN VALIDATION

To receive initial recognition from SFI as a participant in the SFI Specification 14.5 Program, the manufacturer must submit to SFI all information delineated in the Proof of Compliance section. This information shall be provided for each Manifold Blanket model offered by the applicant that is to be included in the program. Any change in design, materials and/or methods of manufacturing not specifically excluded is considered a model change and, therefore, requires initial design validation.

9.0 PERIODIC REVALIDATION

Test reports with successful test results must be submitted to SFI at least once every 12 month period following the date of the initial design validation test for each model of Manifold Blanket manufactured by the participant. After the second retest cycle following the initial design validation test (a total of three test occurrences), successful test results must be submitted to SFI at least once every 24 months. If multiple test reports are required to obtain all test results, then the earliest test date shall be used to determine when the periodic revalidation reports are due. Also, SFI shall retain the option to conduct random audit reviews. SFI shall purchase the product on a commercial basis and test for compliance to the specification. The submitting manufacturer shall reimburse SFI for all audit costs.

10.0 CERTIFICATION OF COMPLIANCE

Upon demonstration of successful compliance with all the requirements of the specification and the self-certification program and upon entering the licensing agreement with SFI, the manufacturer may advertise, present and offer the Manifold Blankets for sale with the representation that their product meets the SFI Specification 14.5. Continuing certification is contingent upon the following additional considerations: (1) the product shall be resubmitted for testing following any change in design, materials and/or methods of

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manufacturing not specifically excluded, and (2) periodic revalidation test reports are submitted when due to SFI.

11.0 CONFORMANCE LABELS

The conformance label is a patch that shall be placed on the outside surface of the blanket.

12.0 DECERTIFICATION

Participating manufacturers are subject to decertification when not in compliance with the requirements of this program or when their products are not in compliance with the requirements of this specification. Decertification will provide SFI the right to effect any and all remedies which are available to SFI in the licensing agreement.

13.0 APPEAL PROCEDURE

In the event of decertification, the manufacturer is entitled to an appeal of the decision of SFI. Requests for appeal must be received by SFI no later than thirty days following receipt of the notice of decertification. Appeals of such decisions will be heard at the next meeting of the Board of Directors of SFI.

14.0 STATEMENT OF LIMITATIONS

Testing procedures and/or standards contained in this specification are intended for use only as a guide in determining compliance with the minimum performance requirements as defined herein. The granting and assignment of the "This Manufacturer Certifies That This Product Meets SFI Specification 14.5" logo/designation is in no way an endorsement or certification of product performance or reliability by SFI. SFI, its officers, directors and/or members assume no responsibility, legal or otherwise, for failure or malfunctions of a product under this program.

15.0 COSTS

All costs involved in this program will be absorbed by the submitting manufacturer.

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16.0 COMPLIANCE PERIOD

As this specification is revised to reflect changes in technology and/or field conditions, to remain current, participating manufacturers in the SFI Specification 14.5, Manifold Blankets, Program, must demonstrate full compliance with the requirements of this specification within ninety (90) days of the latest effective date.

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	Reviewed:	December 11, 2014
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