



# QUALITY ASSURANCE SPECIFICATIONS™

SFI SPECIFICATION 14.6

EFFECTIVE: MARCH 16, 2015\*

PRODUCT: Engine Blankets-Rear

## 1.0 GENERAL INFORMATION

- 1.1 This SFI Specification establishes uniform test procedures and minimum standards for evaluating and determining performance capabilities for Engine Blankets-Rear 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 14.6" 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 Engine Blankets-Rear that meet or exceed the SFI Specification 14.6 test standards, by complying with the requirements of the SFI Specification 14.6 program, and by signing a licensing agreement with the SFI Foundation, Inc.

- 1.5 Compliance with this specification is entirely voluntary. However, when a manufacturer provides Engine Blankets-Rear in compliance with all requirements of the SFI Specification 14.6 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 Engine Blankets-Rear 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 and head gasket fragments.
- 2.2 The Engine Blanket-Rear shall cover the rear surfaces of the: cylinder heads, head gaskets, and intake manifold.
- 2.3 All hardware and buckles must be retained by the blanket or straps when the Engine Blanket-Rear is normally removed from the vehicle.
- 2.4 The useful life of the Engine Blanket-Rear 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.
- 2.6 Any blanket pertaining to this specification must be used as intended by its manufacturer, and not be used as a mounting point, or mounted to another certified part unless the combination is intended and approved by the manufacturers of all parts in the combination.

## 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.

## 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  $\pm$ 1 inch (38.1 by 38.1  $\pm$ 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 testing in accordance with MIL-STD-662D for the Ballistic 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 RAPID IMPACT RESISTANCE

#### 5.2.1 SAMPLES

Test samples shall be fully processed new components which are representative of Engine Blankets-Rear currently produced or to be

produced. All necessary mounting hardware along with mounting instructions shall be supplied with the test samples.

## 5.2.2 APPARATUS

### A. FIXTURE

The fixture shall be a steel frame constructed from round tubing, using the dimensions in Figure 1.

Figure 1

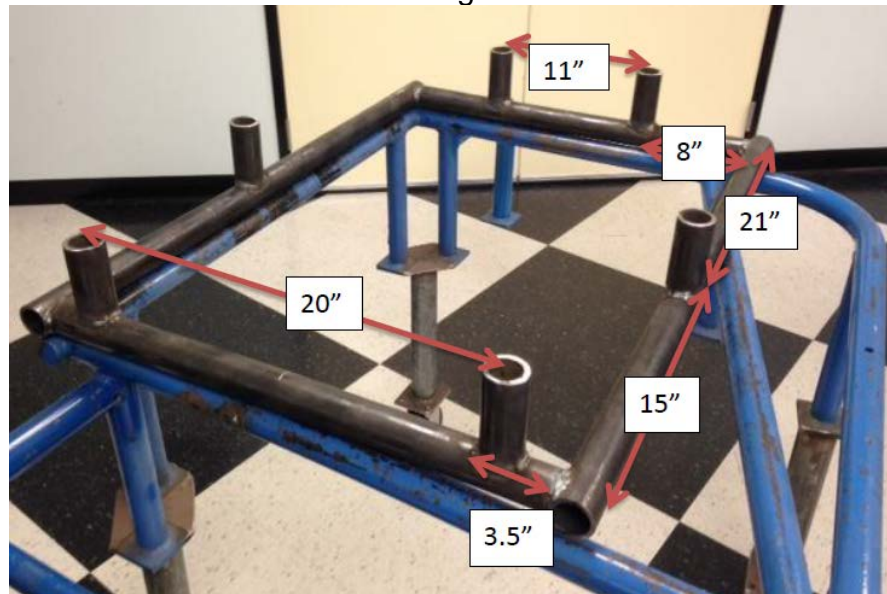


Figure 2

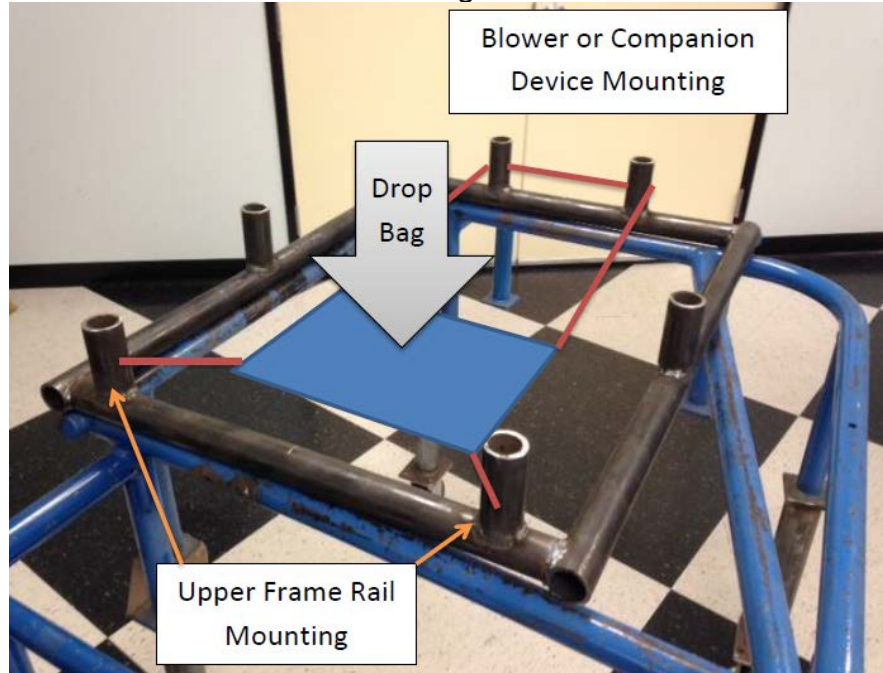
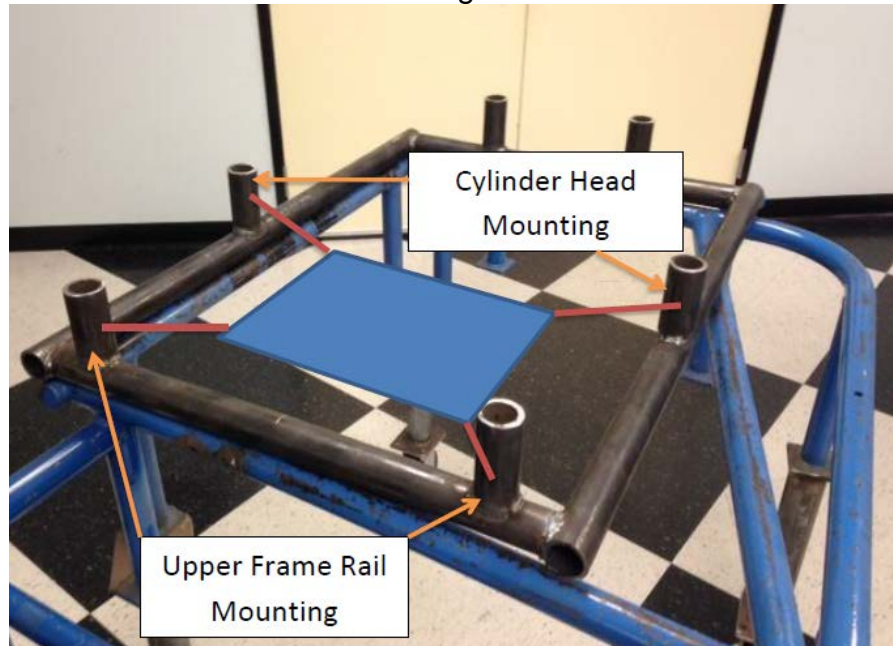


Figure 3



## B. IMPACT BAG

The impact bag shall be made of leather and/or any other heavy weight material. The bag shall be  $10.00 \pm 0.25$  inches ( $254 \pm 6$  mm) in diameter at the bottom, impact side and shall be long enough to allow 175 lb (778.4 N) of "OO" or smaller lead shot pellets to be placed inside the bag. The opening shall be capable of being closed off tightly to prevent spillage of the shot during testing.

### 5.2.3 PROCEDURE

Install the Blanket into the frame, forward facing up, per the manufacturer's instructions, using the mounting lugs in Figure 2 or Figure 3. If the model requires tabs not shown in Figure 1, they may be added to the existing frame. Drop the impact bag from a height of  $42 -0/+0.5$  inches ( $1067 -0/+13$  mm) directly over the center of the blanket. The bag shall be allowed to fall freely without interference.

### 5.2.4 INSPECTION

Inspect the blanket for contact with the floor or detachment of straps from blanket or frame.

## 5.3 STRAP FLAME RESISTANCE

The test shall be conducted at an ambient temperature between  $10^{\circ}\text{C}$  ( $50^{\circ}\text{F}$ ) and  $30^{\circ}\text{C}$  ( $86^{\circ}\text{F}$ ).

### 5.3.1 SAMPLES

One Engine Blanket-Rear strap sample at ambient temperature shall be tested.

### 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  $\pm 0.5$  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  $15 \pm 1$  seconds and immediately removed. Measurement of the speed of combustion shall start simultaneously with the removal of the flame.

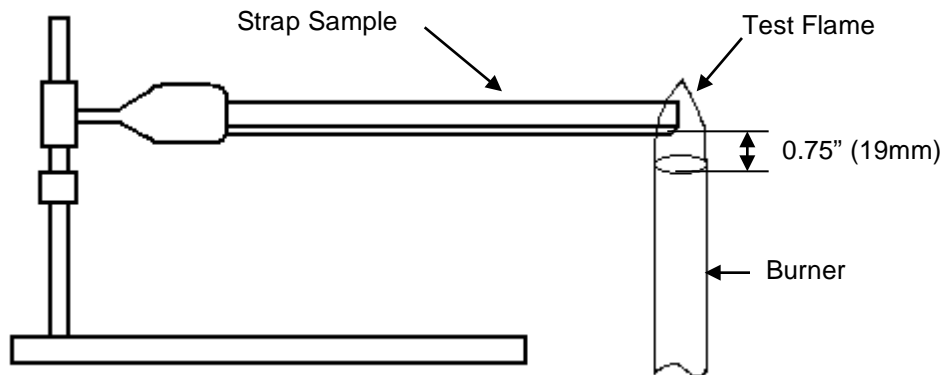


Figure 3  
Test Flame Fixture inside Test Cabinet

## 6.0 PROOF OF COMPLIANCE

Engine Blanket-Rear 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 ballistic resistance of the sample shall be greater than or equal to a V50 BL(P) of 1385 fps (425 mps).

#### 6.1.2 RAPID IMPACT RESISTANCE

Any of these conditions constitutes a failure of the test:

- A. The impact bag or blanket contacts the floor below the frame.
- B. Any strap completely detaches from the blanket or frame.

#### 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.

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 14.6 Program, the manufacturer must submit to SFI all information delineated in the Proof of Compliance section. This information shall be provided for each Engine Blanket-Rear 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 Engine Blankets-Rear 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 Engine Blankets-Rear for sale with the representation that their product meets the SFI Specification 14.6. 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 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 14.6" 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.

## 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 14.6, Engine Blankets-Rear, Program, must demonstrate full compliance with the requirements of this specification within ninety (90) days of the latest effective date.

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