

INCH-POUND

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SUPERSEDING  
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## PERFORMANCE SPECIFICATION

TIRES, RIBBED TREAD, PNEUMATIC, AIRCRAFT



Comments, suggestions, or questions on this document should be addressed to 984 CSUG/GBCL, 6040 Gum Lane, Bldg 1216, Hill AFB, UT 84056-5825 or [CSUG.GBCL.Workflow@HILL.af.mil](mailto:CSUG.GBCL.Workflow@HILL.af.mil). Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database <http://assist.daps.dla.mil>.

AMSC: N/A

FSC: 2620

## MIL-PRF-5041K

## 1. SCOPE

1.1 Scope. This specification covers requirements for aircraft pneumatic tube type and tubeless ribbed tread tires intended for use on aircraft wheels.

## 2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are cited in Section 3 and 4 of this specification. These lists do not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of these lists, document users are cautioned that they must meet the requirements specified in the document cited in Sections 3 and 4 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

## DEPARTMENT OF DEFENSE MS SHEETS

See Table I for the list of associated MS sheets.

(Copies of these documents are available online at <http://assist.daps.dla.mil/quicksearch> or <http://assist.daps.dla.mil> or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.2.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

## FEDERAL AVIATION ADMINISTRATION PUBLICATION

TSO-C62                      Technical Standard Order – Aircraft Tires

(Copies of this document is available from the Federal Aviation Administration, 800 Independence Ave, SW, Washington DC 20591 or [www.faa.gov/regulation\\_policies/](http://www.faa.gov/regulation_policies/).)

2.2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

## SOCIETY OF AUTOMOTIVE ENGINEERS INTERNATIONAL (SAE)

SAE AS4833                      Aircraft New Tire Standard – Bias and Radial

## MIL-PRF-5041K

(Copies of this document is available from [www.sae.org](http://www.sae.org) or from the Society of Automotive Engineers International, 400 Commonwealth Drive, Warrendale, PA 15096-1001.)

### AMERICAN SOCIETY FOR QUALITY (ASQ)

ANSI/ASQC Z1.4                      Sampling Procedures & Tables for Inspection by Attributes

(Copies of this document is available from [www.asq.org/](http://www.asq.org/) or American Society for Quality, 600 N. Plankinton Avenue or P.O. Box 3005, Milwaukee, WI 53203.)

### AMERICAN SOCIETY FOR TESTING & MATERIALS (ASTM)

ASTM D 746                      Standard Test Methods for Brittleness Temperature of Plastics & Elastomers by Impact

ASTM D 413                      Rubber Property – Adhesion to Flexible Substrate

(Copies of these documents are available from [www.astm.org](http://www.astm.org) or ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.)

### THE TIRE AND RIM ASSOCIATION, Inc (TRA)

Aircraft Yearbook

(Copies of this document is available from [www.us-tra.org](http://www.us-tra.org) or The Tire & Rim Association, Inc, 175 Montrose West Avenue, Suite 150, Copley OH 44313.)

2.3 Order of precedence. In the event of a conflict between the text of this document and the reference cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

## 3. REQUIREMENTS

3.1 Qualification. The tires furnished under this specification shall be products that are authorized by the qualifying activity for listing on the applicable qualified products list before contract award (see paragraphs 4.2 and 6.3). Changes in plants, construction, materials or processes that affect performance of the tire shall require re-qualification per this specification.

3.2 General requirements. Unless otherwise specified, tires shall be suitable for use on military aircraft, on all types of improved and unimproved runways and on ships, usually aircraft carrier decks, under all conditions of weather. For tires not found in Table I, Tire Drawing & Slash Sheet Matrix, the procuring activity is required to provide the performance and interface requirements.

3.2.1 Ambient temperature range. The ambient temperature range over which the tire is required to operate is: -58°F to 125°F (-50°C to 52°C). All tire compounds shall

## MIL-PRF-5041K

maintain their fracture toughness and strength characteristics with this temperature range.

3.2.2 Tire sizing and classification. Tire shall be sized and classified in accordance with the TRA Aircraft Yearbook.

3.3 Materials. Materials shall be of a quality that will meet the performance requirements specified either herein or in the Table I. The use of toxic chemicals, hazardous substances, and ozone depleting chemicals shall be avoided, whenever possible.

### 3.4 Interface

3.4.1 Tire dimensions and weight. Dimensions and weight of the tire shall be as specified in Table I. All lettering and decorative ribs and designs shall be included in the dimensions. The definition of the tire shoulder, for use in shoulder height and width requirements found in the drawing or slash sheet, is found in the TRA Aircraft Yearbook.

3.4.1.1 Tire dimensions for helicopters. The maximum allowable increase in dimensions for helicopter application of a tire, given that the maximum allowable inflation pressure for this application is 1.80 times normal rated inflation pressure, is 4 percent.

3.4.1.2 Tire bead width. The tire bead width shall be in accordance with the TRA Aircraft Yearbook.

3.4.2 Rim interface. Each tire shall interface with the rim as specified in Table I.

### 3.5 Performance

3.5.1 Basic tire performance. Unless otherwise specified, the basic performance of the tire shall be as specified in Table I.

3.5.2 Tire speeds. Unless otherwise specified in Table I, the tire shall have a minimum velocity capability of 120 MPH at the rated load and rated inflation pressure.

#### 3.5.3 Tread.

3.5.3.1 Tread pattern. The tread shall be a ribbed tread pattern having a minimum of three grooves for tires with a cross-sectional width greater than 6.0 inches, and minimum of two grooves for tires with a cross-sectional width of 6.0 inches or less. The grooves shall be continuous and circumferential.

3.5.3.2 Fabric-reinforced tread. Fabric material in fabric tread tires shall not contribute to the failure of the tread.

3.5.4 Sidewall. The sidewall shall protect the carcass against abrasion and weathering.

3.5.4.1 Venting. Means shall be provided to vent any trapped gases in the sidewall. If vent holes are used, there shall be at least eight functioning vent holes per sidewall located above the rim flange.

## MIL-PRF-5041K

3.5.4.1.1 Tube type tires. If vent holes are used, they shall be marked with a white or aluminum colored dot. Vent holes may penetrate the liner of the tire.

3.5.4.1.2 Tubeless tires. If vent holes are used, they shall be marked with a bright green dot. Vent holes shall not penetrate the liner of the tire.

3.5.5 Bead.

3.5.5.1 Bead seating pressure. A bead seating pressure within the range specified in Table II shall be required to accomplish the initial seating of the tire bead on the rim ledge of a wheel having contour conforming to Table I. This shall be achieved without using a lubricant on either bead or rims.

3.5.5.2 Chafing resistance. The bead shall be protected so as to prevent chafing of the tire in the rim area under normal operating conditions.

3.5.6 Maximum wear limit (MWL) indicator. The tire shall provide a visual means to indicating when the tire has reached the MWL of the tread. Either a colored MWL indicator or a ply count indicator may be used; a ply count indicator shows the maximum number of fabric layers to the outermost structural ply that may be exposed before the tire must be removed from service. Tires for the Department of Navy use shall not incorporate a MWL indicator.

3.5.7 Retreadability. Unless otherwise specified, tires shall have a retread buff line (RBL) visible in the cross sectional cut.

3.5.8 Burst pressure. The tire shall be designed to withstand a minimum burst pressure as specified in Table I. If the tire is not listed in Table I, the tire shall be designed to withstand the minimum of 100 cycles of taxi, takeoff, and landing. In addition, for the Department of Navy aircraft with carrier-based requirements, tires shall withstand normal catapults, landing arrestments, and cable strikes without failure.

3.5.9 Dynamic durability. Unless otherwise specified, excluding wear, tire for fighter, attack, and trainer aircraft shall withstand a minimum of 50 cycles of taxi, takeoff, and landing; tires for other aircraft shall withstand a minimum of 100 cycles of taxi, takeoff, and landing. In addition, the Department of Navy aircraft with carrier-based requirements, tires shall withstand normal catapults, landing arrestments, and cable strikes without failure.

3.5.9.1 Cord fraying. During the dynamic life of the tire, as defined in paragraph 3.5.9; cord fraying, if present in the groove of the tire, shall be only of the outer layer or cord.

3.5.9.2 Tread chunking. During the dynamic life of the tire, as defined in paragraph 3.5.9, and tread chunk shall not exceed one square inch in area or 75 percent of the skid' there shall be no more than 3 chunks, each ½ to one inch in area; and there shall be no more than 10 chunks totaling more than four square inches in area.

3.5.9.3 Groove cracking – rubber and fabric tread tires. During the dynamic life of the tire, as defined in paragraph 3.5.9, there shall be no groove cracking in tires having

## MIL-PRF-5041K

all rubber tread. In tires with fabric tread, any void in the bottom of the groove shall be no deeper than a void caused by the outer layer of cord being pulled through the rubber stock in bottom of the groove. There shall be no rib undercutting.

3.5.9.4 Bead separation. During dynamic life of the tire, as defined in paragraph 3.5.9, the walls of the bead bundle shall not show evidence of separating from the carcass plies. If bead wires are used, individual wires shall not show evidence of separating for each other or of being kinked, broken, or exposed.

3.5.9.5 Cable bruise (carrier based tires only). A tire to be used on carrier based aircraft shall withstand the minimum cable bruise load specified in Table I without pressure loss.

3.5.10 Wheel/tire slippage. A mounted tire inflated to rated inflation pressure shall not slip on the rim to such an extent that would damage the tube or valve in a tube type tire or the inflation seal of a tubeless tire.

3.5.11 Inflation pressure retention – tubeless tire. After an initial twelve hour growth starting at rated inflation pressure, the pressure loss from rated inflation pressure in a tubeless tire assembly during the subsequent 24 hour period shall not exceed five percent of rated inflation pressure specified in Table I.

3.5.12 Balance. Tires shall be balanced, when not inflated, within tolerances specified in Table I. Out-of-tolerance conditions may be corrected by utilizing balance pads affixed to the inside of the tire. In tube type tires, the pads shall not chafe the tubes. Balance pad adhesion values shall be as follows: 8 pound force per inch – width minimum for tubeless tires and 1.5 pounds force per inch – width minimum for tube type tires.

3.6 Product identification and marking. Unless otherwise specified, the following information, as applicable, and as further identified in the paragraphs below, shall be marked legibly and permanently on the tire sidewall for the life of the casing. Markings on the tire sidewall shall be located so that they will not be removed during buffing for re-treading.

- a. Date of manufacture and serial number.
- b. Manufacturer's name or trademark, or both, to be located by the manufacturer.
- c. Color dots for vent holes, if used.
- d. The MWL marking shall be either "MWL-RC" for tires with a colored indicator or "MWL-#" for tires with a ply count indicator to be shown in a separate molded box (See Figure 1). Tires for the Department of Navy use shall not incorporate a MWL marking.
- e. Size.
- f. Tube Type (if applicable).
- g. Ply Rating (PR is permissible).

## MIL-PRF-5041K

- h. Cut – limit dimension (See Figure 1).
- i. National Stock Number (NSN).
- j. Manufacturer's qualification test (QTR) number, prefixed by "QTR."
- k. Tires with fabric tread shall be marked: FABRIC TREAD.
- l. Country of manufacture (if other than USA).
- m. Manufacturer's mold number.
- n. Additional markings as required by Table I.

3.6.1 Date of manufacture and serial number. The date of manufacture of the tire shall be included in the serial number of the tire. The serial number shall consist of a maximum of 10 digits. The first five digits shall be the date of manufacture in the form of a Julian date. The remaining digits, not to exceed five, selected by the manufacturer, may be numbers, letters, or a combination thereof.

3.6.2 Maximum wear limit identification. For tires with an outside diameter greater than 26 inches, the MWL marking shall be molded in a minimum of two places equally spaced on each sidewall of the tire. For tires with an outside diameter less than or equal to 26 inches, the MWL marking shall be molded once on each sidewall, 180 degrees from the cut limit marking, as shown in Figure 1. Tires for the Department of Navy use shall not incorporate a MWL marking.

3.6.3 Cut-limit dimension identification. For tires with an outside diameter greater than 26 inches, the cut-limit dimension identification shall be molded in a minimum of two places equally spaced on each sidewall of the tire. For tires with an outside diameter less than or equal to 26 inches, the cut-limit dimension identification shall be molded once on each sidewall, 180 degrees from the cut-limit marking on the opposite sidewall, as shown in Figure 1.

3.6.4 National Stock Number (NSN). The NSN shall be molded on one side of the tire, on the same side as the serial number. The prefix NSN shall be included. The NSN shall not contain dashes or spaces (Example: 2620XXXXXXXXXX).

3.7 Interchangeability. All parts having the same manufacturer's part number shall be functionally and dimensionally interchangeable.

3.8 Age. The tire shall not be more than 36 months old from the date of manufacture to the initial date of delivery.

#### 4. VERIFICATION

4.1 Classification of inspection. The inspection requirements specified herein are classified as follows:

- a. Qualification inspection, see paragraph 4.2.

## MIL-PRF-5041K

- b. Conformance inspection, see paragraph 4.3.

4.2 Qualification inspection. Qualification inspection shall be performed on tires when qualification is required. This inspection shall include all the tests listed in paragraph 4.6. The qualification test samples shall consist of at least one tire of each construction, size, and type. The samples shall be identified and marked as specified in paragraph 3.6. A waiver of the marking requirements on tires supplied for qualification tests may be granted when agreed to between the procuring activity and the contractor.

4.3 Conformance inspection. Conformance inspection shall include the individual tests of paragraph 4.3.1 and sample tests of paragraph 4.3.2.

4.3.1 Individual tests. Each tire shall be subject to the following tests:

- a. Examination of product (paragraph 4.6.1).
- b. Balance (paragraph 4.6.2).

4.3.2 Sample tests. Unless otherwise specified, tires shall be sampled in accordance with ANSI/ASQC Z1.4 at an initial inspection level or normal and the following tests shall be performed:

- a. Tire dimensions, weight, and rim interface (paragraph 4.6.3).
- b. Balance pad adhesion (paragraph 4.6.4).
- c. Inflation pressure retention for tubeless tires (paragraph 4.6.8).
- d. Burst pressure (paragraph 4.6.9).

4.4 Test conditions. Unless otherwise specified in the individual test description, all tests shall be conducted at ambient temperature and pressure as specified in applicable paragraphs below.

4.5 Requirement cross-reference matrix. Table III provides a cross-reference matrix of the Section 3 requirements tested or verified in the paragraphs below.

#### 4.6 Test.

4.6.1 Examination of product test. The tire and associated documentation shall be examined to determine compliance with size, material, dimensions, weight, bead width, tread pattern, sidewall, venting, identification, interchangeability, and age requirements.

4.6.2 Balance test. The tire shall be balance checked to determine that the moment required to static balance the tire does not exceed the limits specified in Table I.

4.6.3 Tire dimensions, weight, and rim interface test. The tires shall be mounted on its rim, inflated to rated inflation pressure specified in Table I, allowed to stand for 12 hours minimum at room temperature, and then re-adjusted to rated inflation pressure. The tire dimensions and weight shall then be determined and compared to the values in Table I or in the TRA Aircraft Yearbook. Tire weight may be measured un-mounted



## MIL-PRF-5041K

4.6.4 Balance pad adhesion test. Balance pad adhesion shall be tested in accordance with ASTM D413, to determine compliance with the requirements specified in paragraph 3.5.12.

4.6.5 Bead seating pressure test. Without the use of lubricant on either the bead or rim, the pressure at which the tire bead in initially and properly seated against the wheel flange shall be measured. This pressure shall be within the range specified in Table II.

4.6.6 Dynamic durability test. A dynamic durability test shall demonstrate satisfactory tire performance during the taxi, takeoff, and landing cycles. Unless otherwise specified, test parameters for taxi, takeoff, and landing are specified in Table I. A suggested test method for 120 MPH and 160 MPH tires, entitled: Alternate Qualification Procedures – 120 MPH Rated Tires is provided in SAE AS4833.

4.6.6.1 Dynamic durability test temperature. Unless otherwise specified, the inflation medium temperature or highest casing temperature at the start of 80 percent of the taxi, takeoff, and landing cycles shall be no less than  $105^{\circ}\pm 5^{\circ}\text{F}$  ( $41^{\circ}\pm 3^{\circ}\text{C}$ ).

4.6.6.2 Cable bruise test (carrier based aircraft tires only). Unless otherwise specified, the tire shall be inflated to carrier pressure, see paragraph 6.6, and vertically loaded against a 1.625 inch diameter length of plain round steel stock or equivalent diameter arresting gear cable to the specified vertical load in Table I. Immediately following the release of this load, the tire shall be subjected to the same loading conditions 180 degrees from the application of the first load.

4.6.6.3 Post-test inspection. At the conclusion of the dynamic durability test, the examination of product test, see paragraph 4.6.1, shall be performed with the tire at rated inflation pressure. In addition, the tire and associated documentation shall be examined to determine compliance with the fabric material, chafing resistance, MWL indicator, tread chunking groove cracking, cord fraying, bead separation, cable bruise (for carrier-based aircraft tires), RBL, and wheel/tire slippage requirements. The post-test inspection shall include examination of a cross-sectional cut.

4.6.6.4 Bead separation test. If bead bundle or wire separation is found in the cross-sectional cut, the material around the bead bundle shall be stripped back at least one inch to determine if the separation was caused by the cross-sectional cut of the post-test inspection or during the dynamic durability test. If no separation is found in the stripped area, the bead construction shall be considered satisfactory.

4.6.7 Low temperature test. Samples of the tread, carcass, and liner compounds shall be tested in accordance with ASTM D746 at  $-58^{\circ}\text{F}$  ( $-50^{\circ}\text{C}$ ). An alternate test method may be utilized provided that data is submitted substantiating an equivalent test method and the alternate method is approved by the responsible procurement activity.

4.6.8 Inflation pressure retention test for tubeless tires. The tire shall be inflated to rated inflation pressure specified in Table I and allowed to stand for a minimum of 12 hours, at which time the pressure loss due to stretch shall be replaced. The tire shall then stand for an additional 24 hours, at which time the pressure shall be recorded. Ambient temperature shall be measured at the start and finish of the test to assure that

## MIL-PRF-5041K

any pressure change was not caused by ambient temperature change. At no time shall the tire be inflated above rated inflation pressure.

4.6.9 Burst pressure test. The minimum burst pressure specified in Table I shall be applied to the mounted tire and held to a minimum of 3 seconds. The tire shall not fail under this pressure. The burst pressure test of a tubeless tire may be conducted with a tube in the same manner as for tube type tires.

4.6.10 Retreadability test. The verification of retreadability shall be the presence of a RBL when inspecting the tire cross-sectional cut during the post-test inspection, see paragraph 4.6.6.3.

4.6.11 Maximum wear limit indicator test. If a colored indicator is used, it shall be visible when observing the cross-sectional cut made during paragraph 4.6.6.3.

## 5. PACKAGING

5.1 General. For acquisition purposes, the packaging requirements shall be as specified in the contract or order. When actual packaging of materiel is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point packaging activity with the Military Department or Defense Agency, or within the Military Department or Defense Agency automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

## 6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. Tires covered by this specification are intended for use on all military aircraft.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number and date of this specification.
- b. The referenced applicable documents should be cited in the solicitation. (see paragraphs 2.2.1, 2.2.2 and 2.3).
- c. Operational environment, if different from that identified in paragraph 3.2.
- d. Performance or interface requirements for tires not found in Table I.
- e. Basic tire performance requirements, if different from paragraph 3.5.1.
- f. Retreadability requirements, if different from that in paragraph 3.5.7.
- g. Taxi, takeoff, and landing cycle conditions to be met by the tire, if different from those in paragraph 3.5.9.
- h. Identification requirements, if different from those in paragraph 3.6.

## MIL-PRF-5041K

- i. Initial inspection level or sample tests, if different than paragraph 4.3.2.
- j. Test conditions, if different from those in paragraph 4.4.
- k. Dynamic durability test requirements (see paragraph 4.6.6), test temperature requirements if different from those in paragraph 4.6.6.1, and cable bruise test requirement if different from paragraph 4.6.6.2.
- l. Packaging requirements (see paragraph 5.1).
- m. Data required.

6.3 Qualification. The attention of the contractor is called to the requirements of this document with respect to products requiring qualification. Awards will be made only on products that are, at the time of the award of contract, qualified for inclusion in the Qualified Products List - QPL No. 5041, whether or not such products have actually been so listed by that date. In order that the manufacturers may be eligible to be awarded contracts or purchase orders for products covered by this specification, they are urged to arrange to have the product that they propose to offer to the Government to be tested for qualification. Information pertaining to qualification of products or qualification test reports may be obtained from 84 CSUG.GBCL, 6040 Gum Lane, Hill AFB, UT 84056-5825 (see paragraph 3.1). For information regarding qualification procedures, applicants proposing to submit a product for qualification approval should refer to Defense Standardization Document, SD-6, Provisions Governing Qualification.

#### 6.4 Additional Information

6.4.1 Use of tubeless tire in tube type application. In tube type applications, tubeless tires (with a tube installed) may be used in lieu of tube type tires.

#### 6.4.2 Suggested marking nomenclature and/or lettering height.

- a. Serial Number. The lettering should be a minimum of 3/16 inch in height.
- b. Cut – limit dimension identification. The cut – limit dimension should be expressed in increments of 1/32 inch and should be rounded to the next smaller increment of 1/32 inch when a fraction of 1/32 inch is involved. The lettering should be a minimum of ¼ inch in height and the diameter of the circle should be a minimum of 1 inch.
- c. Maximum wear limit marking. The letter should be a minimum of 3/8 inch in height and the dimensions of the rectangle should be a minimum of ½ inch by 1 ¼ inch.
- d. National Stock Number (NSN). The lettering should be a minimum of ¼ inch in height.

#### 6.5 Suggested Test Methods.

- a. Bead seating pressure test. The bead seating pressure can be measured by employing an electrical contact system to determine when the bead has been seated

## MIL-PRF-5041K

against the wheel flange. After placement of shim stock at three locations at 120 degrees apart around the tire, the tire is inflated. The pressure at which the last shim makes electrical contact can be considered the bead seating pressure. The test is accomplished without using lubricant on either bead or rims (see paragraph 4.6.5).

## 6.6 Definitions.

6.6.1 Carrier pressure. Unless otherwise specified in Table I for testing purposes, carrier pressure is a minimum of 1.3 times the rated inflation pressure.

6.6.2 Casing. The structural part of the tire.

6.6.3 Fabric-reinforced tread. A fabric reinforced tread is one with a fabric ply or plies constructed in the material between the outer carcass ply and the bottom of the tread grooves.

6.6.4 Fabric tread. A fabric tread is one with a fabric ply or plies constructed in the tread ribs above the bottom of the tread grooves.

6.6.5 Julian date. The Julian date is a five digit alphanumeric code indicating the year and number of the day of the year. As an example: the Julian date for May 23, 1996 – the number of the day is 143 of 1996, it would appear as 96143. An acceptable variation of the Julian date using a decade identifier may be used and assigned by the manufacturer. This variation is also a five digit alphanumeric code indicating the year, the number of the day of the year, and a decade identifier. As an example: the Julian date of May 23, 1996 – the number of the day is 143 of 1996, would appear as 6143J, “J” being the decade identifier.

6.6.6 Rated inflation pressure. The rated inflation pressure is the specified inflation pressure corresponding to the rated load for the tire.

6.6.7 Rated load. Rated load is the maximum permissible load at the specified inflation pressure. Rated loads are established and standardized by TRA. The rated load combined with the rated inflation pressure will be utilized when selecting tires for application to an aircraft and for testing to the performance requirements of this document.

6.6.8 Retread buff line (RBL). The RBL is a definitive, continuous, circumferential layer of uninterrupted rubber, 0.060 inch minimum thickness, extending shoulder to shoulder in the finished tire.

6.6.9 Skid depth. Skid depth is the radial distance, measured along the centerline of the tire mold, from the line enveloping the outer cross section of the tread to the line enveloping the outer cross section of the under tread of the deepest groove.

## 6.7 Subject term (key word) listing:

Bead seating pressure  
Cut – limit dimension  
Fabric reinforced tread  
Fabric tread

## MIL-PRF-5041K

Ply rating  
Rated inflation pressure  
Rated load  
Skid depth  
Tread chunking  
Tubeless  
Tube type

6.8 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

## MIL-PRF-5041K

TABLE I

Tire Drawing & Slash Sheet Matrix

| WHEEL TYPE<br>1/ | SIZE       | PLY<br>RATING | OLD DWG or<br>MS NUMBER<br>2/ | NEW DWG or<br>SLASH SHEET<br>NUMBER 4/ |
|------------------|------------|---------------|-------------------------------|--|
| TL               | 8.50 – 10  | 10            | 54C763                        | N/A                                    |
| TL               | 8.50 – 10  | 12            | 3/                            |  |
| TL               | 12.50 – 16 | 12            | 64F1880                       | N/A                                    |
| TL               | 20.00 – 20 | 26            | 65D1542                       | N/A                                    |
| TL               | 18 X 4.4   | 6             | 56D1172                       | N/A                                    |
| TL               | 18 X 5.5   | 14            | MS26535                       |  |
| TL               | 20 X 4.4   | 10            | MS26538                       |  |
| TL               | 20 X 4.4   | 10            | MS26538                       |  |
| TL               | 20 X 4.4   | 12            | 56D1171                       | N/A                                    |
| TL               | 20 X 4.4   | 14            | 8631427                       | N/A                                    |
| TL               | 20 X 5.5   | 12            | MS26540                       |  |
| TL               | 20 X 5.5   | 14            | MS26540                       |  |
| TL               | 20 X 5.5   | 8             | MS26539                       |  |
| TT               | 24 X 5.5   | 12            | MS26526                       |  |
| TL               | 24 X 5.5   | 12            | MS26526                       |  |
| TT               | 24 X 5.5   | 14            | MS26526                       |  |
| TL               | 24 X 5.5   | 14            | MS26526                       |  |
| TT               | 24 X 5.5   | 16            | MS18060                       |  |
| TT               | 24 X 7.7   | 10            | MS26558                       |  |
| TL               | 24 X 7.7   | 14            | 58D510                        | N/A                                    |
| TT               | 25 X 6.0   | 16            | MS26543                       |  |
| TL               | 26 X 6.6   | 14            | 60C4280                       | N/A                                    |
| TL               | 28 X 7.7   | 14            | MS17838                       |  |
| TT               | 32 X 8.8   | 18            | MS26537                       |  |
| TL               | 36 X 11    | 22            | 8631526                       | N/A                                    |
| TL               | 36 X 11    | 24            | MS14482                       |  |
| TL               | 36 X 11    | 28            | MS90346                       |  |
| TL               | 38 X 11    | 14            | 61D3069                       | N/A                                    |
| TL               | 39 X 13    | 16            | 63D30091                      | N/A                                    |
| TL               | 40 X 14    | 26            | MS26563                       |  |
| TL               | 44 X 13    | 26            | MS26557                       |  |
| TL               | 44 X 16    | 28            | 61F4307                       | N/A                                    |
| TL               | 46 X 16    | 28            | TS0C62                        | N/A                                    |
| TL               | 49 X 17    | 26            | 60D2561                       | N/A                                    |
| TL               | 49 X 17    | 26            | 71203                         | N/A                                    |
| TL               | 56 X 16    | 38            | 60D510                        | N/A                                    |

## MIL-PRF-5041K

TABLE I

Tire Drawing & Slash Sheet Matrix  
(continued)

| WHEEL TYPE<br>1/ | SIZE               | PLY<br>RATING | OLD DWG or<br>MS NUMBER<br>2/ | NEW DWG or<br>SLASH SHEET<br>NUMBER 4/ |
|------------------|--------------------|---------------|-------------------------------|--|
| TL               | 13 X 6.0-4         | 14            | MS14224(AS)                   |  |
| TL               | 18 X 5.7-8         | 14            | MS14196                       |  |
| TL               | 18 X 5.7-8         | 18            | GD16VI027                     | N/A                                    |
| TL               | 18 X 5.7-8         | 20            | GD16VL036                     | N/A                                    |
| TL               | 18 X 6.5-8         | 12            | 63J4242                       | N/A                                    |
| TL               | 21 X 7.25-10       | 20            | 72318                         | N/A                                    |
| TL               | 22 X 6.6-10        | 18            | 8412568                       | N/A                                    |
| TL               | 22 X 6.6-10        | 22            | MS14168                       |  |
| TL               | 22 X 6.75-10       | 18            | MS14161                       |  |
| TL               | 22 X 7.75R9        | 22            | PS68-4500068                  | N/A                                    |
| TL               | 22 X 7.75-9        | 26            | PS68-450068                   | N/A                                    |
| TL               | 22 X 8.5-11        | 16            | 63J4241                       | N/A                                    |
| TL               | 23.5 X 7.5R10      | N/A           | 5PTA3065                      | N/A                                    |
| TL               | 24 X 6.5-14        | 18            | MS14178                       |  |
| TL               | 24 X 8.0-13        | 18            | 73453                         | N/A                                    |
| TL               | 25.5 X 8.0-14      | 20            | GD16VL028                     | N/A                                    |
| TL               | 25.5 X 8.0-14      | 20            | 9235498                       | N/A                                    |
| TL               | 26 X 7.75R13       | 10            | MS14483                       |  |
| TL               | 26 X 7.75-13       | 10            | MS14225                       |  |
| TL               | 26 X 8.75R11       | 16            | MS14223                       |  |
| TL               | 26 X 10.0-11       | 10            | 3/                            |  |
| TL               | 26 X 10.0-11       | 12            | 3/                            |  |
| TL               | 27.75 X 8.75-14.5  | 24            | GD16VL032                     | N/A                                    |
| TL               | 27.75 X 8.75R14.5  | 24            | GD16VL032                     | N/A                                    |
| TL               | 28 X 9.0 – 14      | 22            | 74201                         | N/A                                    |
| TL               | 30 X 11.50 – 14.50 | 26            | MS14171                       |  |
| TL               | 30 X 11.5 – 14.5   | 26            | MS21781                       |  |
| TL               | 34.5 X 9.75 -18    | 26            | 8412569                       | N/A                                    |
| TL               | 34 X 14.0 – 12     | 24            | DAA3221P508                   | N/A                                    |
| TL               | 35 X 11.5 -16      | 22            | L194C2003                     | N/A                                    |
| TL               | 36 X 11.0 – 18     | 20            | PS68-410065                   | N/A                                    |
| TL               | 36 X 11.0R18       | N/A           | PS68-410065                   | N/A                                    |
| TL               | 37 X 11.5 -16      | 28            | MS14152                       |  |
| TL               | 37 X 11.5R18       | N/A           | 5PTA3066                      | N/A                                    |

## MIL-PRF-5041K

TABLE I

Tire Drawing & Slash Sheet Matrix  
(continued)

| WHEEL TYPE<br>1/ | SIZE                | PLY<br>RATING | OLD DWG or<br>MS NUMBER<br>2/ | NEW DWG or<br>SLASH SHEET<br>NUMBER 4/ |
|------------------|---------------------|---------------|-------------------------------|--|
| TL               | 40 X 16 – 14        | 26            | PS17026                       | N/A                                    |
| TL               | 43 X 16.0 – 20      | 28            | DAA3222P508                   | N/A                                    |
| TL               | B46 X 16.0-<br>23.5 | 30            | L194C2025                     | N/A                                    |
| TL               | 47 X 18.0 – 18      | 30            | 69E177                        | N/A                                    |
| TL               | 50 X 21.0 – 20      | 30            | PS17046                       | N/A                                    |

1/ TL – Tubeless; TT – Tube Type

2/ The above listed Air Force drawings contain only performance data and do not contain detail drawings.

3/ The MS number has not yet been identified by the Department of Navy.

4/ Department of Navy – AS will convert the existing MS drawings for which it is the preparing activity to slash sheets after the issuance of this document.

TABLE II

Bead Seating Pressures

| Rated Inflation Pressure<br>(psi) | Minimum Bead Seating<br>Pressure (psi) | Maximum Bead Seating<br>Pressure (psi) |
|-----------------------------------|--|--|
| 40 or less                        | 25                                     | 40                                     |
| 40 to 100                         | 25                                     | *                                      |
| Over 100                          | 50                                     | *                                      |

- In no case shall the maximum bead seating pressure exceed the rated inflation pressure or 200 psi, whichever is less.



## MIL-PRF-5041K

TABLE III

Paragraph Cross-Reference Matrix

| Section 3 – Requirements Paragraphs      | Qualification Examination or Test Paragraph |
|--|---|
| 3.1 Qualification                        | 4.2 and 4.6                                 |
| 3.2 General requirements                 | 4.6   |
| 3.2.1 Ambient temperature range          | 4.6.6 and 4.6.7                             |
| 3.2.2 Tire sizing and classification     | 4.6.1                                       |
| 3.3 Materials                            | 4.6.1                                       |
| 3.4.1 Tire dimensions and weight         | 4.6.1 and 4.6.3                             |
| 3.4.2 Rim interface                      | 4.6.3                                       |
| 3.5.1 Basic tire performance             | 4.6   |
| 3.5.2 Tire speeds                        | 4.6.6                                       |
| 3.5.3.1 Tread pattern                    | 4.6.1                                       |
| 3.5.3.2 Fabric-re-enforced thread        | 4.6.6                                       |
| 3.5.3.3 Fabric tread                     | 4.6.6                                       |
| 3.5.4 Sidewall                           | 4.6.1                                       |
| 3.5.4.1 Venting                          | 4.6.1                                       |
| 3.5.5.1 Bead seating pressure            | 4.6.5                                       |
| 3.5.5.2 Chafing resistance               | 4.6.6                                       |
| 3.5.6 Maximum wear limit (MWL) indicator | 4.6.11                                      |
| 3.5.7 Retreadability                     | 4.6.10                                      |
| 3.5.8 Burst pressure                     | 4.6.9                                       |
| 3.5.9 Dynamic durability                 | 4.6.6                                       |
| 3.5.10 Wheel/tire slippage               | 4.6.6                                       |
| 3.5.11 Inflation pressure retention      | 4.6.8                                       |
| 3.5.12 Balance                           | 4.6.2 and 4.6.4                             |
| 3.6 Product identification & marking     | 4.6.1                                       |
| 3.7 Interchangeability                   | 4.6.1                                       |
| 3.8 Age                                  | 4.6.1                                       |

MIL-PRF-5041K

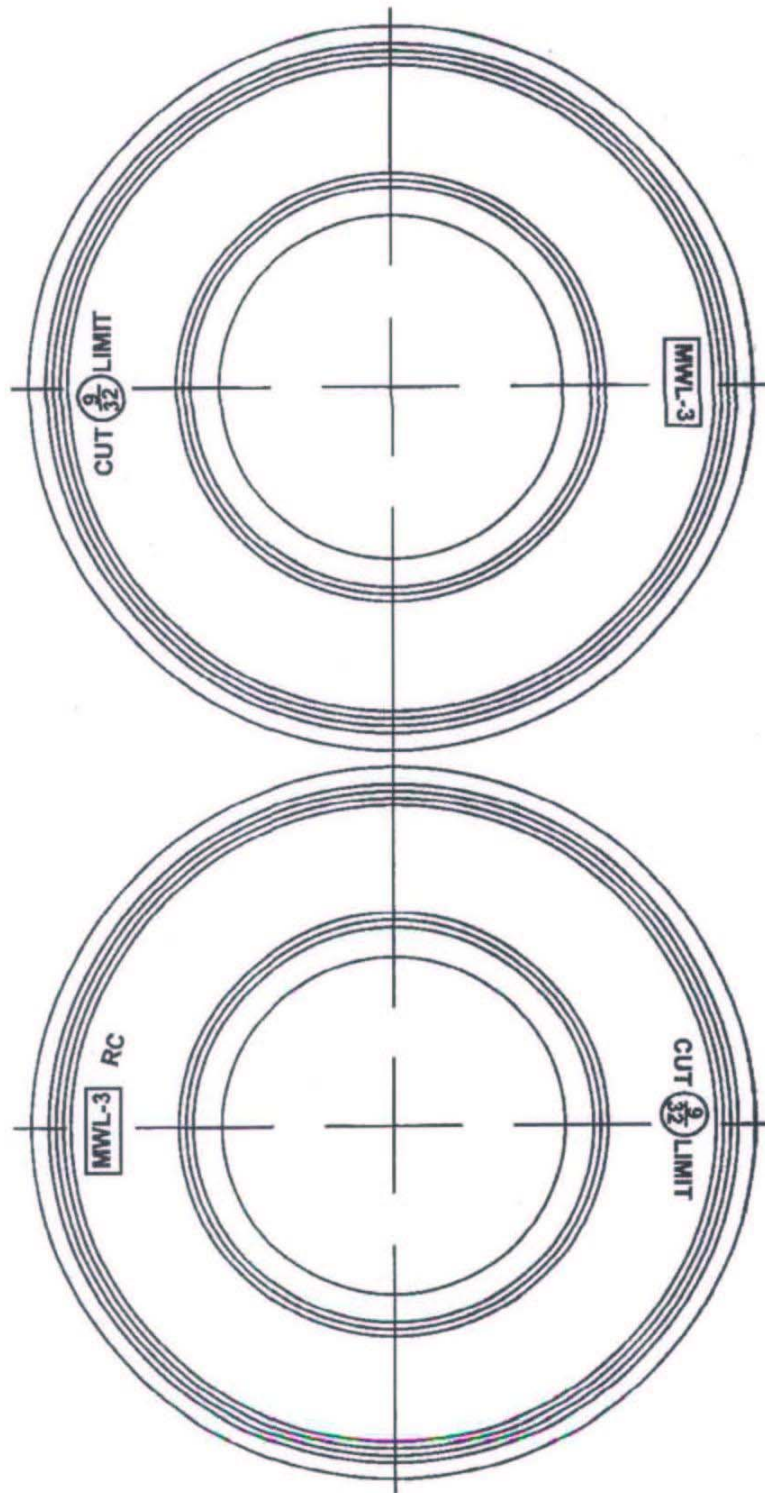


FIGURE 1: Cut-limit dimensions & maximum wear limit identification

MIL-PRF-5041K

CONCLUDING MATERIAL

Custodians:

Army – AV

Navy – AS

Air Force - 70

Preparing Activity:

Air Force – 70

Review Activities:

Navy – MC

Project 2620-2006-006

NOTE: The activities listed above were interested in this document as of the date of this document. Some organizations and responsibilities can change verification of this currency of the information above by using ASSIST Online database or <http://assist.daps.dla.mil>.