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SUPERSEDING
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MILITARY SPECIFICATION

TIRES, PNEUMATIC, AIRCRAFT

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers the requirements for aircraft pneumatic tube-type and tubeless tires.

1.2 Classification. Tires for aircraft main and auxiliary wheels shall be of the following types, as specified (see 6.2):

Type I	-	Smooth contour (SC) (inactive for new design)
Type II	-	High pressure (inactive for new design)
Type III	-	Low pressure
Type VI	-	Low profile (inactive for new design)
Type VII	-	Extra high pressure
Type VIII	-	Extra high pressure, low profile.

1.2.1 New tires will be assigned a type as specified in 1.2 and a size designation. The nominal size shall be based on maximum new tire inflation (after 12-hour stretch period at rated inflation pressure), outside diameter, maximum cross-sectional width, and the rim diameter listed in the following examples:

Examples:	Types I, II, III, and VI	Types VII and VIII
	17.5-6.25-6	45x16.00-20

In establishing new tire sizes, the following size increments shall apply:

a. Outside diameter (maximum) - 0.50 inch

b. Cross-sectional width (maximum)

Up to 10 inches	- 0.25 inch
10 inches and over	- 0.50 inch

c. Bead seat diameter - 1.00 inch.

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2. APPLICABLE DOCUMENTS

2.1 The following documents, of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein.

STANDARDS

Federal

FED-STD-601	Rubber; Sampling and Testing

Military

MIL-STD-105	Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-129	Marking for Shipment and Storage
MIL-STD-698	Quality Standards for Aircraft Pneumatic Tires and Inner Tubes
MIL-STD-878	Method of Dimensioning and Determining Clearance for Aircraft Tires and Rims
MS14113	Color Code Tape for Age Identification

(Copies of specifications, standards, publications, and drawings required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

* 2.2 Other publications. The following document forms a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

American Society for Testing and Materials Publication

D746-73	Brittleness Temperature of Plastics and Elastomers by Impact

(Copies of ASTM publications may be obtained from the American Society of Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.)

3. REQUIREMENTS

3.1 Qualification. The tires furnished under this specification shall be products which are qualified for listing on the applicable qualified products list at the time set for opening of bids (see 4.3 and 6.3).

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 aircraft carrier decks, under all conditions of weather, and within the temperature range specified herein.

3.3 Materials. Materials shall conform to applicable specifications and to the requirements specified herein. The materials used in the manufacture of aircraft tires shall be of a quality that will meet the performance requirements specified either herein and on the applicable MS standards or drawings, or both. The compounds used shall be suitable and properly vulcanized in order to age without failure under the specified service conditions specified in the contract (see 6.5).

* 3.3.1 Conductive material. All aircraft tires shall be constructed of materials that will cause the dissipation of static electricity into the ground.

3.4 Design and construction. Design and construction shall conform to the requirements specified herein and on the applicable MS standard or drawing. For all GFAE tires which are specifically identified by drawing or MS standard number, the drawing or MS standard requirements shall take precedence over MIL-T-5041.

3.4.1 Tire characteristics. The size, construction, and weight characteristics of the tires shall conform to the requirements specified in the following tables:

Table I	- Type I Smooth contour (SC)
Table II	- Type II High pressure
Table III	- Type III Low pressure
Table IV	- Type VI Low profile
Table V	- Type VII Extra high pressure
Table VI	- Type VIII Extra high pressure, low profile.

3.4.1.1 Helicopter applications. The load rating and inflation factors for helicopter tire use shall be as follows:

3.4.1.1.1 Load rating. The load rating of airplane tires, when used for helicopter applications, shall be obtained by multiplying the airplane tire static and dynamic load ratings by one of the following factors, depending upon the outside diameter of the tire:

a. 26-inch diameter and under - factor of 1.67

b. Over 26-inch diameter - factor of 1.50.

3.4.1.1.2 Tire inflation. The tire inflation pressure at helicopter rated load shall be approximately 1.50 times the airplane tire rated inflation with a maximum allowable inflation of 1.80 times the airplane tire rated inflation pressure, or 45 percent of the specified airplane tire burst pressure, whichever is less.

3.4.1.1.3 Tire dimensions. The increase in dimensions allowed when the inflation pressure increase is 1.80 times above normal airplane tire inflation shall not exceed 4 percent in section height, section width, and shoulder dimension.

* 3.4.1.1.4 Tire speeds. The tire shall have a velocity capability of 60 knots at helicopter rated load and inflation pressure.

* 3.4.1.2 Tubeless tires - bead width. The bead width of tubeless tires shall not exceed by more than 0.15 inch the values specified for the same size and ply rating of tube-type tires, excluding the bead toe flash, and shall be limited so as not to cover the inflation source hole in the application wheel.

* 3.4.2 Tire dimensions. Dimensions of inflated tires shall conform to the requirements specified in the following tables. All lettering and decorative ribs and designs shall be included in these dimensions. Tire dimensions shall conform to the requirements of MIL-STD-878 and figure 4 of this specification.

Table VII	- Type I Smooth contour (SC) Inactive for New Design
Table VIII	- Type II High pressure Inactive for New Design
Table IX	- Type III Low pressure
Table X	- Type VI Low profile Inactive for New Design
Table XI	- Type VII Extra high pressure
Table XII	- Type VIII Extra high pressure, low profile.

3.4.3 Rim dimensions. Tires shall be designed and constructed to fit the rims as specified in the following tables or on the applicable MS standard or drawing:

Table XIII	- Type III Low pressure
Table XIV	- Type VII Extra high pressure
Table XV	- Type VIII Extra high pressure, low profile.

3.4.4 Tire dimensioning. Tire dimensioning shall comply with the requirements of MIL-STD-878 and 1.2 of this specification.

3.4.5 Tread

3.4.5.1 Tread pattern. The tread pattern (see 6.4.2) shall be one of the following types as specified in tables I through VI or on the applicable MS standard or drawing:

a. Pattern R, ribbed tread

b. Pattern N, nonskid

c. Pattern P, plain.

3.4.5.1.1 Rib-tread configuration. The tread pattern shall be a rib tread having a minimum of five grooves for tires having a cross-section width greater than 11.50 inches, and a minimum of three grooves for tires having a cross section width of 11.50 inches or less. The grooves shall be continuous, circumferential, and have a uninterrupted mold skid depth as specified in tables I through VI unless otherwise specified.

3.4.5.2 Underskid thickness. For tires having ribbed or nonskid-tread patterns, the thickness of the material between the carcass and the bottom of the tread pattern shall be not less than 30 percent of the actual mold skid depth (excluding wear depth indicators which are not a part of the tread pattern). There shall be a minimum of 1/16-inch rubber base included in the under portion of the tire between the carcass and the bottom of the tread pattern so that when the tire is retreaded there will be adequate material for buffing operations.

3.4.5.3 Skid depth. The mold skid depth (see 6.4.3) shall be measured as close to the centerline of the mold as possible.

3.4.5.4 Reinforced tread (see 6.4.4). Reinforcing material must be proven satisfactory for aircraft tire use as specified in 4.5.7.

3.4.6 Sidewall. The sidewall shall protect the carcass against abrasion and weathering. The sidewall rubber thickness shall be a minimum of 1/8 inch for future design.

3.4.6.1 Venting

* 3.4.6.1.1 Tube-type tires. All tires with inflation pressures greater than 100 pounds per square inch (psi) shall be suitably vented to prevent blistering. There shall be at least eight vents per sidewall located above the wheel-rim flange. All ventholes shall be marked with an aluminum or white dot. Where air-bleed ridges or grooves are molded into the bead face and inner surface of tires, ventholes and markings will not be required.

3.4.6.1.2 Tubeless tire. Tubeless tires shall be suitably vented to prevent blistering. All ventholes shall be marked with a bright green dot. Ventholes shall not penetrate the inner liner of the tire.

3.4.7 Bead

3.4.7.1 Bead fit. Without using a lubricant on either bead or rim, the inflation pressures specified in table XVI shall be required to accomplish the initial seating of all tire beads on the rim ledge of a wheel having a contour in accordance with the applicable MS standard or drawing.

* 3.4.8 Chafing resistance. The bead shall be so protected as to prevent chafing of the tire in the rim area under operating conditions. The protecting material in tubeless tires shall not wick air or nitrogen.

3.4.9 Colored wear indicators. Colored wear indicators, when required, shall be in accordance with the applicable drawing or MS standard.

3.4.10 Cut-limit dimensions. Cut-limit dimensions shall be shown on the tires in accordance with 3.8.2.2 and figure 1. The cut-limit dimensions shall be equal to the distance from the bottom of the tread groove which is closest to the outermost carcass ply (centermost tread groove in most cases) to a depth to be determined as follows:

Tires Rated 139 Knots and Below		Tires Rated 140 Knots and Above	
No. of Carcass Plies in Tire	No. of Carcass Plies That Can Be Cut	No. of Carcass Plies in Tire	No. of Carcass Plies That Can Be Cut
2	0	2	0
4	1	4	0
6	1	6	1
8	2	8	1
10	3	10	2
12	3	12	2
14	4	14	2
16	5	16	3
18	5	18	3
20	6	20	4
22	7	22	4
24	7	24	4
26	8	26	5
28	9	28	5
30	9	30	6

The cut-limit dimensions shall be expressed in 1/32 of an inch and shall be rounded to the next smaller 1/32 of an inch increment when a fraction of a 1/32 inch is involved.

3.4.11 Retreadability. Tires shall be designed and manufactured so that the carcass structure, innerliner, sidewall, beads, and bead seat cover will be satisfactory for repeated retreading.

3.5 Performance. The tires shall meet the following performance requirements when tested in accordance with the applicable tests in section 4.

* 3.5.1 Wheel/Tire slippage. Mounted tires shall show no evidence of slippage on the wheel rim that would damage the tube or valve in tube-type tires or the air seal of tubeless tires.

* 3.5.2 Low temperature. All tire compounds shall withstand a temperature of -54°C (-65°F).

* 3.5.3 Air retention - tubeless tires. The air pressure loss in tubeless-tire assemblies shall not exceed 5 percent of rated pressure during any 24-hour period after the 12-hour stretch period. The tire shall show no performance of appearance defects, such as sidewall blisters, tread separation, et cetera.

3.5.4 Deflection. Unless otherwise specified, the vertical deflection at rated static load and inflation shall be as follows:

	Deflection limit
Type I	35 percent +1, -4
Type II	27.5 percent +3, -4
Type III	35 percent +1, -4
Type VI	As determined
Type VII	32 percent +3, -4
Type VII	27.5 percent +3, -4 channel tread
Type VIII	32 percent +3, -4

3.5.4.1 In determining percent deflection, the vertical distance from the top of the rim flange to the supporting surface of the tires at no load shall be considered the distance equivalent to 100 percent deflection. The deflection shall be determined by the method specified in 4.5.5.

3.5.5 Burst pressure. Unless otherwise specified, the tires shall be capable of withstanding a burst pressure equal to the rated inflation pressure times 1 of the following factors, as applicable:

a. All types I, II, III, and VI, low pressure - factor of 4

b. USAF type VII, extra high pressure - factor of 3.5

c. Navy type VII, extra high pressure - factor of 4

d. USAF type VIII, extra high pressure, low profile - factor of 3.5

e. Navy type VIII, extra high pressure, low profile - factor of 4.

* 3.5.6 Balance. Tires shall be balanced, when not inflated, with tolerances as specified in tables I through VI. Out of tolerance may be corrected by utilizing balance pads affixed to the inside of the tire. Pads shall be removable without injuring the carcass or inner liner material. The pads shall be such that they will not chafe the innertubes. Adhesion values shall be as follows: 8 pounds minimum for tubeless tires and 1-1/2 pounds minimum for tube-type tires.

3.5.7 Bead separation. No bead separation shall be permitted.

3.6 Age. Tires shall be not more than 12 months old from the date of manufacture to the date of delivery.

3.7 Trimming. The bead toe shall be inspected on all tires being used as, or converted to, a tube-type application for evidence of excessive toe flash or sharp edges protruding above the base of the bead area which would result in tube cutting or chafing. If this condition is present, the toe shall be trimmed and buffed. If trimming of the bead toe is necessary, the trimming shall be accomplished so that no sharp edges are exposed above the base of the bead area and the flash does not protrude further than 1/8 inch from the face contour of the bead. If trimming the bead toe results in a sharp edge, this edge shall be buffed so that a minimum radius of 1/16 inch is left for a rubber surface. This edge shall not be buffed down to the tire cord material since carcass plies shall not be cut. If a step-off exists at the end of the toe flash or trimmed toe flash, the step-off shall be buffed to conform to the same requirements. If the tire application is unknown, it shall be the responsibility of the manufacturer to establish the type of application by requesting such information from the procuring activity.

3.8 Product identification and marking

3.8.1 Balance marker. A balance marker consisting of a red dot shall be branded or stamped into the sidewall of the tire immediately above the bead to indicate the lightweight point of the tire. This marking shall last through one service life of the tire.

* 3.8.2 Identification of product. Except as otherwise specified, the following information, as applicable, shall be engraved or embossed on the tires. Markings on the tire sidewall shall be located so they will not be removed during buffing for retreading, excluding sidewall veneer.

a. Size.

b. On tubeless tires, add TUBELESS.

c. Ply rating (PR is permissible).

d. Date of manufacture and serial number in accordance with 3.8.2.1.

e. Manufacturer's name or trademark, or both (to be located by the manufacturer).

f. Cut-limit dimension in accordance with 3.4.10 and 3.8.2.2.

g. Type of material used in carcass if other than nylon.

h. Country of manufacture (if other than USA).

i. Manufacturer's mold number.

j. Tires with fabric reinforced tread shall be marked FABRIC TREAD.

k. National stock number in accordance with 3.8.2.3.

l. Manufacturer's qualification test report (QTR) number.

m. Color dots for ventholes (see 3.4.6.1.1 and 3.4.6.1.2).

n. Additional markings as required by applicable MS standards or drawings.

* 3.8.2.1 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 positions. The first four positions shall be the date of manufacture in the form of a Julian date (last digit of the year followed by the day of the year, i.e., 23 May 1974 shall be written 4143). The next positions (not to exceed six) selected by the manufacturer may be either numbers or letters, or a combination thereof.

3.8.2.2 Cut-limit identification. The cut-limit identification shall be molded in a neat legible manner in a minimum of two places equally spaced on each sidewall of the tire. It shall be molded so that the identification is not in the wear area of the tire as shown on figure 1. The lettering shall be 1/4 inch in height and the diameter of the circle shall be 1 inch. (See 3.4.10.)

* 3.8.2.3 National stock number. The National stock number shall be located on one side of the tire, on the same side as the manufacturer's name. The prefix NSN shall be included. The height of the letters and the numbers shall be not less than 1/4 inch for tire sizes ranging in outside diameter up through the 26 x 6.6 tire and not less than 5/16 inch for tire sizes above the 26 x 6.6 size. The NSN stock number shall not contain dashes or spaces (example: NSN 2620XXXXXXXXX).

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.2 Classification of tests. The inspection and testing of tires shall be classified as follows:

a. Qualification tests (4.3)

b. Quality conformance tests (4.4).

4.3 Qualification testing

* 4.3.1 Qualification test samples. The qualification test samples shall consist of one tire of each construction, size, and type. The samples shall be identified as specified in 3.8.2, unless otherwise specified by contractor or Government specifications.

4.3.2 Qualification test report (QTR). The manufacturer shall prepare test reports in the general format shown on figures 2 and 3 and furnish six copies of each to the Government approving activity.

4.3.2.1 If bead-seating pressure tests are conducted on steel or non-aircraft wheels, this shall be specified in the QTR.

4.3.2.2 Load deflection curves. The QTR shall be accompanied by a chart showing load-deflection curves prepared on regular lettersize (8-1/2 by 11 inches) sheets. Plotting paper shall be of the type commonly used having 20 spaces per inch. The deflection shall be plotted in inches on the ordinate and the load on the abscissa. If larger paper is used, it shall be reduced to 8-1/2 by 11 inches. The chart shall include the following:

a. There shall be seven inflation pressure curves on the chart. One of these curves shall be for rated inflation pressure, and three for less than the rated inflation pressure curve, in increment multiples of 5 at approximately 85, 70, and 55 percent of the rated inflation pressure. Three of the curves shall be greater than the rated inflation pressure curve and in increment multiples of 5 at approximately 115, 130, and 160 percent of the rated inflation pressure.

b. All seven inflation pressure curves shown on the chart shall have a range of from 16 percent deflection to the tire bottoming point.

c. The following percent deflection lines shall be plotted horizontally across the inflation pressure curves based on dimensions at rated inflation pressure: 16, 20, 24, 28, 32, 35, 37, 40, 44, and 48.

d. Load and inches of deflection scales shall be selected as follows:

$$\frac{200 \text{ (Spaces on Abscissa)}}{\text{Maximum load in kips to be reported}} = X$$

Reduce X to the nearest multiple of 5 (but less than X) = Y.
Y = number of spaces equal to 1,000 pounds (1 kip).
Inches of deflection scale.
Subtract inches of deflection at 16 percent from inches for bottoming. Divide the resultant inches in 150 (spaces) = X.
Reduce the quotient to the nearest multiple of 5 (but less than X) = Y.
Y = number of spaces equal to 1 inch deflection. (1)

Note: In selecting scales, consideration should be given to ease of interpolation. When scales of 15 (or a multiple thereof) spaces per inch of deflection or per 1,000 pounds are used, then at least each 0.20 inch of deflection or 200-pound increments shall be marked with a dot or short line along the applicable axis to facilitate interpolation.

e. The following data shall be listed in the lower right-hand corner of the load-deflection charts:

Size_____ PR_____ Type_____
Mfr_____
(Location of name optional)

Ref QTR No._____
Rated Static Load (lb) _____ at _____ psi
Rated Speed _____ _____ mph
Rim Dia (in.)_____ Flange Ht (in.) _____
Flat Tire Radius (in.) _____
Data at Rated Static Load or Inflation (or both)
OD (in.) _____Section width (in.)_____
Shoulder Dia (in.) _____
Shoulder Width (in.) _____
Loaded Radius (in.) _____
Contact Area (sq in.) _____
Energy Capacity (Bottomed) _____ ft-lb
Bottomed Pressure _____psi _____ Bottom Load _____ lb.

4.3.2.3 Footprints. Prints indicating the actual shape and total gross contact and the net contact area in square inches of the tire footprint at rated static load and inflation shall be submitted with each QTR. The prints shall include data at rated pressure and also at increments of approximately 15, 30, and 45 percent above rated pressure at increments of approximately 15, 30, 45, and 60 percent below rated pressure. For tires used by the Navy on carrier-based aircraft, a footprint at (bottomed) condition at carrier inflation pressure shall also be submitted. The minimum appropriate paper size for footprints shall be selected from the following paper sizes:

Recommended	Alternate
8-1/2 x 11	--
11 x 17	12 x 18
17 x 22	18 x 24
22 x 34	24 x 36

4.3.2.3.1 The following additional information shall be included on the footprints:

a. Tire size

b. Ply rating

c. Rated load and inflation

d. Net and gross contact area

e. Date

f. Manufacturer's name

g. QTR No.

4.3.2.4 Inflated profiles. Inflated profiles indicating actual inflated shape of the tire at rated and carrier (Navy) inflation pressures shall be submitted with each (Navy) quarter.

4.3.3 Qualification tests. The qualification tests shall consist of all the tests specified under 4.5.

4.3.3.1 Qualification approval. Qualification approval shall apply to a specific construction and size, specific materials, and values as defined in the manufacturer's QTR. The construction shall be identified by the manufacturer's QTR number. Changes in plants, construction, materials, or processes that affect performance or appearance of the tire shall be cause for retest. A full description of such changes shall be submitted to the approving activity to determine status of change for proper procurement.

4.3.3.2 In order that the construction of tires in service may be positively identified by means of the date brand, only one construction for any manufacturer and only one item in tables I through VI shall receive qualification approval on the latest issue of the Qualified Products List, unless otherwise authorized by the approving activity. Subsequent approval of different constructions for such manufacturer and such item shall supersede and cancel the approval given to the previous construction, except that approval of the manufacturer's tubeless-type construction shall not supersede and cancel previous approval for such item in a tube-type tire construction. Unless otherwise specified by the approving activity, any manufacturer having approval for any one item in tables I through VI in a tubeless-type tire construction shall also be approved for manufacture of a tube-type tire of otherwise identical construction without further qualification testing other than those requirements specifically applicable to the tube-type tire construction as specified herein. The QTR number for a tubeless tire shall be the same as the number for the corresponding approved tube-type tire construction, followed by the letters TL.

* 4.3.4 Qualification inspection. When the supplier dynamically tests a tire, he shall section the tire for examination by the approving activity to determine any evidence of failure. The section shall be a full section, 2 inches in width, representative of the worst area, and shall be submitted on all tires. When the approving activity tests the tire, that activity reserves the right to section the tire in any manner necessary for the examination. When the supplier tests the tire, he shall hold the tire remains and all the test data until final qualification approval is granted.

4.3.4.1 The supplier shall submit 8- by 10-inch photographs taken perpendicular to and showing clearly the complete cross section of the tire with adequate contrast between the ends and body of the carcass, breaker, and tread reinforcement cords and the remainder of the tire section. The cross section shall completely fill the photograph, except for those tires where width is less than the paper size. The tire section shall be photographed against a plain white background with the beads spread so that the distance from heel-to-heel is the same as the flange-to-flange distance for the tire. A steel tape or ruler divided in 1/32-inch increments shall be laid at the base of the beads of the tire to show the distance between the bead heels. The photographs shall be submitted along with the QTR to the approving activity.

4.4 Quality conformance tests. Quality conformance tests shall consist of:

a. Individual tests (4.4.1)

b. Sampling tests (4.4.2).

4.4.1 Individual tests. Each tire shall be subjected to the following tests as specified under 4.5:

a. Examination of product (4.5.1)

b. Balance check (when limits are specified) (4.5.2).

4.4.2 Sampling plans and tests

4.4.2.1 Tires rated 174 knots and above

4.4.2.1.1 Cured tire sampling plan and controls. Unless otherwise specified (see 6.2), a sample shall be selected from the first 100 tires produced. Subsequent samples shall be selected at approximately equal intervals throughout the balance of the production lot in accordance with MIL-STD-105. Each sample shall be subjected to the following tests at the inspection level indicated:

Required Test	Inspection Level
a. Dimensions	S-2
b. Weight	S-2
c. Bead width	S-2
d. Balance check 1/	S-2
e. Air retention (tubeless)	S-2
f. Tread-to-carcass adhesion	S-2
g. Sidewall-to-carcass adhesion	S-2
h. Balance patch adhesion	S-2
i. Burst pressure	S-2

1/ Does not remove requirement for 100-percent balance check.

4.4.2.1.1.1 Production lot. For sampling purposes, a production lot shall be defined as all tires of a particular size and type produced under substantially the same conditions as one continuous run regardless of purchase order number. A break in production of more than 2 months shall require the redesignation of the new production as a separate lot. If production exceeds a 6-month period, and the production is not sufficient to require sampling in accordance with MIL-STD-105, a separate lot shall be formed with an immediate selection of one sample. Subsequent production shall constitute a new lot.

4.4.2.1.1.2 Test procedure, inspection values, and test controls. The detailed test procedure, minimum acceptable inspection values, and test controls for the cured tire sampling plan shall be established by the contractor. These data shall be included in the tire QTR.

4.4.2.1.1.3 Destructive tests. Tires selected for destructive tests shall be representative of the production process. The first tire that is selected for a destructive test shall be inspected after sectioning to determine that the construction is identical to that of the original qualified tire for which construction details were submitted on the QTR.

4.4.2.1.1.4 Rejection and retest. When a sample tire fails to pass the required cured tire tests, the following action shall be taken:

a. Shipment of the questionable lot shall be stopped, and the lot shall be held pending additional tests. The questionable lot for the purposes herein is defined as in-process, production, and finished tires which have not been shipped from the contractor's facility.

b. Tires selected for additional tests shall be selected at random.

c. Shipments of questionable lots will not be released until the cause of failure has been isolated and corrected. An analysis of the cause of failure and the required corrective action shall be submitted to the procuring activity for engineering evaluation and approval by the responsible activity.

4.4.2.1.2 Adhesion and cure controls of materials. The following raw material tests and records shall be required:

a. Bead wire adhesion tests shall be conducted on bead wire used in production with mixes of insulation compounds or controlled laboratory mixes of these stocks. Adhesion values shall be determined at jaw separation of 2 inches (maximum) per minute, per 1 linear inch cured into rubber. Either a single wire or multiwire mold may be used. Bead wire meeting the acceptable minimum values shall be coded and properly stored to assure no change in adhesion values.

b. Bead insulation stock shall be checked for adhesion to bead wire to assure no change in adhesion values.

c. Calendered fabric - Adhesion tests shall be conducted on samples of bead wrap, bead flipper, inner plies, outer plies, and breaker and tread ply calendered fabric material. Each sample taken shall be tested for adhesion to itself or mating material.

4.4.2.1.2.1 Cure controls. Control procedures and records for assuring proper time, pressure, and temperature relating to cure shall be established by the contractor.

4.4.2.1.2.2 Test and record procedures, frequency, and inspection values. The detailed test and record procedures, frequency, and minimum acceptable inspection values relative to adhesion and cure controls shall be included in the tire QTR or referenced therein.

4.4.2.1.2.3 Rejection. Material lots represented by samples which do not meet the minimum requirements shall be rejected.

4.4.2.2 Tires rated below 174 knots

4.4.2.2.1 Sampling plan A. Unless otherwise specified (see 6.2), a certificate from the manufacturer stating conformance to this specification will be acceptable for production runs of 50 tires, or less.

4.4.2.2.2 Sampling plan B. Unless otherwise specified (see 6.2), one tire of each type and construction shall be selected at random from each 51 to 500 tires and one from each additional 1,000, or fraction thereof, produced and shall be subjected to the following tests as specified under 4.5:

a. Tire measurements (4.5.3)

b. Weight (4.5.3.2)

c. Bead width (4.5.3.2)

d. Balance (when limits are specified) (4.5.3.2)

e. Air retention (where applicable) (4.5.10).

4.4.2.2.3 Sampling plan C. Unless otherwise specified (see 6.2), one tire of each type and construction shall be selected at random from each 51 to 5,000 produced and shall be subjected to the following tests as specified under 4.5:

a. Bead width (4.5.3.2)

b. Dimensions (measurements of tires) (4.5.3)

c. Total tread thickness (4.5.3.2)

d. Weight (4.5.3.2)

e. Air retention (where applicable) (4.5.10)

f. Balance pad adhesion (4.5.4)

g. Burst pressure (4.5.12).

4.4.2.2.3.1 Each sample selected in accordance with sampling plan C shall also be examined or tested to determine conformance of the construction details to those reported for the qualification test sample.

4.4.2.2.4 Rejection and retest (sampling plans B and C). When a sample tire fails to pass the required tests, rejection and retest shall be as specified in 4.4.2.1.1.4.

4.5 Test methods

4.5.1 Examination of product. The tire shall be visually examined to determine compliance with the requirements specified in MIL-STD-698 and herein with respect to workmanship and marking.

4.5.2 Balance. The tire shall be balance checked by determining that the moment required to static balance the tires does not exceed the limits specified in tables I through VI.

4.5.3 Tire measurements. The tire shall be mounted on its rim, inflated to the specified rated inflation pressure, allowed to stand for 12 hours minimum at room temperature and then readjusted to rated pressure. The tire dimensions, as specified in the applicable table (see section 3), shall then be determined.

4.5.3.1 Outside diameter. The outside diameter shall be determined by dividing the outside circumference by 3.1416.

4.5.3.2 Other measurements. The weight, total tread thickness, balance, and bead width shall be determined and shall be in accordance with the applicable table specified in section 3.

4.5.3.3 Shoulder measurement. The point at which the maximum shoulder width and diameter is measured for new, unused, inflated tires must lie on or within one or two arcs that meet at the shoulder dimension point designated by columns C and D in table XI. Using figure 4 for a reference, the center of the first of these arcs (arc X) shall be determined as follows:

a. Measure a distance of $\frac{D}{2}$ from the diametral extremity of the tire on the vertical centerline of the wheel towards the hub of the wheel. From this point, construct a line perpendicular to the vertical centerline of the wheel, then construct an arc from point C, D with radius $\frac{D}{2}$ so that it intersects the perpendicular line. This point of intersection is the center for arc X. The radius of arc X is $\frac{D}{2}$.

b. The center of the second arc (arc Y) shall be determined as follows: Construct another perpendicular line to the vertical centerline of the wheel so that it intersects the midpoint of the maximum tire section height (H) 1/. Then construct the perpendicular bisector of a line joining point C, D and a point located vertically at the midpoint of the maximum tire section height and horizontally at the right-hand extremity of the maximum section width shown on figure 4. The point where the perpendicular bisector and the perpendicular line through the midpoint of the section height of the tire intersects shall be the center of arc Y. The radius of arc Y shall extend from this point to point C, D.

4.5.4 Balance pad adhesion. Balance pad adhesion shall be tested to determine compliance with the requirements specified in 3.5.6.

4.5.5 Deflection. The tire shall be inflated to rated static inflation pressure and allowed to stretch for a minimum of 12 hours. The tire pressure shall then be adjusted to compensate for air loss and tire growth by adding only enough air to bring the pressure up to the rated static pressure, and the tire shall then be measured.

4.5.5.1 The tire and wheel assembly shall be mounted on a load deflection machine and, using a loading rate not in excess of 2 inches per minute, the tire shall be deflected to 50-percent deflection three times. These three deflections, as well as those which follow, shall be run on the same location on the tire.

4.5.5.2 The tire shall be placed on a flat plate and deflected with rated static pressure at a loading rate of 2 inches per minute, or less, until the rated static load is reached. This load shall be held constant for 1 minute to allow for drift. The tire deflection shall then be measured and shall be within the limits specified in 3.5.4.

4.5.6 Bead fit. The bead seating pressures shall be measured by placing a sheet of carbon paper between two sheets of thin paper and placing these sheets on the bead seat of the wheel and under the bead of the tire. The tire shall be inflated and the pressure at which the heel of the bead touches the vertical flat of the rim flange, as shown on the thin paper, shall be considered the seating pressure (see table XVI). The tire shall retain air at bead-seating pressure. This test shall be accomplished without using lubricant on either bead or rim. An alternate method may be used when authorized by the approving activity.

1/ H = Maximum tire radius minus wheel ledge radius.

* 4.5.7 Dynamic durability test. The tire shall be subjected to the following dynamic tests. There shall be no failure or visible deterioration other than normal tread wear. Tires for qualification test shall be balanced to the same requirements as the production tires. Unless otherwise specified, the contained air or carcass temperature at the start of 80 percent of the test cycles shall not be less than 41° ±3°C (105° ±5°F). The manufacturer shall provide details of the method of obtaining the temperature and shall record the temperatures in the QTR. Use of critical carcass temperature is preferred over use of contained air.

4.5.7.1 Tires rated 139 knots and under. Tires shall withstand at least 200 cycles of the dynamic test when tested on a dynamometer as follows:

4.5.7.1.1 The flywheel weight shall be set up in such a manner that at 104 knots, the kinetic energy (KE) value, computed as follows, shall be stored up in the dynamometer:

$$KE = CWV^2, \text{ where } KE = \text{Kinetic energy - ft-lb}$$
$$W = \text{tire load - lb}$$
$$V = 104 \text{ knots}$$
$$C = 0.015 \qquad (2)$$

Note: The tire shall be forced against the flywheel at the specified load as listed in tables I through VI.

4.5.7.1.2 Landing cycles. The landing cycles shall be divided into two speed ranges. In the first series of 100 landings, the landings shall be at 78 knots and the unlandings at 0 knot. In the second series of 100 landings, the landings shall be at 104 knots and the unlandings at 78 knots.

4.5.7.1.3 Tire test inflation pressure. The test inflation pressure shall be that as specified in the applicable table I through VI, adjusted for flywheel curvature by multiplying by the appropriate ratio obtained from figure 5. The inflation pressure shall be checked and corrected if necessary after every five test cycles. Tires shall be inflated and checked with no load on the tire.

4.5.7.1.4 In the event that a whole number of flywheel plates cannot be used to obtain the calculated KE value or proper flywheel width, a higher number of plates shall be selected. The landing speed of the 78- to 0-knot series of landings shall be decreased as necessary so that 56 percent of calculated KE is absorbed by the tire during this series.

4.5.7.1.4.1 If this results in landing speeds less than 70 knots, the following shall apply: Landing speed shall be determined by adding 28 percent of the test KE to the flywheel KE at 55.6 knots. Unlanding speed shall then be determined by subtracting 28 percent of the test KE from the flywheel KE at 55.6 knots.

4.5.7.1.4.2 The unlanding speed of the 104- to 78-knot series of landings shall be increased as necessary so that 44 percent of calculated KE is absorbed by the tire during this series.

4.5.7.2 Tires rated above 139 knots. The tires shall be subjected to and satisfactorily pass tests equal to the expected aircraft operating conditions. These tests shall include complete load and time information for all taxi-takeoff and landing-taxi conditions. Yaw and camber tests may be required; configuration test conditions shall be defined in drawings, standards, or other documents as approved by the responsible Government activity. Unless otherwise specified, tires for fighter and attack aircraft shall withstand a minimum of 50 such test cycles. Unless otherwise specified, other aircraft shall withstand at least 100 test cycles. Requirements for more than one successful test unit shall be identified in the individual specification document and approved by the responsible procuring activity.

4.5.7.3 At the conclusion of the dynamic test, the following shall apply:

4.5.7.3.1 Cord fraying fabric (reinforced) tread construction. Cord fraying, if present in the groove of the tire, shall be only on the outer layer of cord. Unless otherwise specified, the maximum allowable broken and frayed cords shall be as follows:

Broken cords	One groove	30 percent of one tire circumference
Broken cords	All grooves (accumulative)	40 percent of one tire circumference
Frayed cords	One groove	65 percent of one tire circumference
Frayed cords	All grooves (accumulative)	95 percent of one tire circumference
Broken and frayed cords	One groove	65 percent of one tire circumference
Broken and frayed cords	All grooves (accumulative)	95 percent of one tire circumference

The edges of the fabric cord inserts shall remain firmly anchored and shall not be exposed. The tire circumference shall be measured at rated pressure and in the groove which contains the fault.

4.5.7.3.2 Tread chunking. The maximum amount of tread chunking allowed in any one spot shall not exceed 1 square inch in area or 75 percent of the mold skid depth. There shall be not more than three chunks 1/2 to 1 square inch in area or 10 chunks totaling more than 4 square inches in area out of the tread. Tread chunking around the wear depth holes shall not be included unless the chunkout exceeds 1 square inch in size.

4.5.7.3.3 Groove cracking - rubber and fabric tread tires. There shall be no groove cracking in tires having all rubber tread. In tires of fabric treads, 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 the bottom of the groove. There shall be no rib undercutting. The tire shall be inspected when inflated to rated pressure.

4.5.7.3.4 Bead separation. If bead wire or bundle separation is found in the cut section of a tire that has completed the required test, the fabric around the bead bundles shall be stripped back at least 1 inch to determine if separation was caused by sectioning the tire or was due to testing. If no separation is found in the stripped area, the bead will be considered satisfactory.

4.5.8 Physical and chemical properties. Tests for tread and sidewall adhesion shall be conducted in accordance with FED-STD-601.

4.5.9 Torsion recovery at low temperature

4.5.9.1 Preparation of samples. Samples shall be multiple compound type, consisting of the various tread carcass compounds used in the tire (tubeless tire innerliner compound omitted). Dimensions shall be as follows:

Length - 6 ±1/16 inch
Width - 1 ±1/32 inch
Tread compound thickness of the sample - 0.30 +.03, -0.00 inch
Total sample thickness - 5/8 +0, -1/16 inch.

Carcass compounds shall occur in the same order and equivalent thickness as used in the 26 x 6.6-14 PR construction. Thickness of carcass compounds shall be adjusted proportionately to suit required sample thickness. Samples shall be cured to provide a minimum cure equivalent to 30 minutes at 145°C (293°F). Each sample shall be identified by a construction or serial number. A minimum of three samples shall be conditioned and tested as follows.

4.5.9.2 Torsion recovery. Unless otherwise specified, a given construction will be considered acceptable if the average angular recovery, in 60 seconds, for three samples is not less than 16.5°C at (-65°F). The torsion test may be conducted by the manufacturer who shall submit results to the approving activity. Qualification test reports for specific tire sizes shall show reference to the applicable low temperature approval.

4.5.9.2.1 Apparatus. The test unit shall be in accordance with Drawing 61F4001 (0.030 diameter bearing clearance). The following preparation shall be made:

Use a standard 5-gallon container for the acetone dry ice liquid conditioning bath. (Approximate dimensions - ID 11-1/4 inches, depth 12-3/4 inches.) Insulate the sides and bottom of the container to keep heat transfer to a minimum. Provide mild power agitation. Elevate the test unit so that the lower end of the sample is 2 inches above the floor of the container. Allow circulation of the bath under the unit. Use a total-immersion-type glass thermometer, properly calibrated, for measuring the bath temperature. A toluene thermometer, such as Princo Catalogue 163 (Precision Thermometer and Instrument Company), or equal, is recommended. Locate the temperature control point 1/2 inch from the torque plate (2-3/4 inches from axis of sample) and 90° from the release pin.

4.5.9.2.2 Procedure. The procedure shall be performed in the following manner:

Bring the acetone dry ice bath to optional temperature below -54°C (-65°F). Prior to immersing the test apparatus, bring the acetone dry ice bath to a temperature below -54°C (-65°F) so that equilibrium temperature after immersion will be -54°C (-65°F). The level of the bath shall be 1 inch above the lower bearing support. Be sure that the test apparatus is completely dry before immersing and clamp securely in place. The length of the sample between clamps shall be 4 ±1/32 inch. Make sure the upper clamp and shaft are floating freely. Preflex the sample gently 10 times to 180°. Do not allow the sample to snap back. Twist and lock the sample in the 180° notch (this will be considered zero position). Let stand 10 minutes before immersing. Set the pointer to zero position. Immerse the unit so that the sample is in the center of the bath. Maintain the bath temperature at -54°C (-65° ±1/2°F) and soak 1 hour. Use isopropyl alcohol on the release pin and top bearing 15 minutes before releasing to avoid frosting and facilitate releasing. Release and record the angular recovery after 60 seconds.

* 4.5.9.3 Tubeless tire, low temperature qualification. The torsion recovery test limits will qualify both tubed and tubeless tires with respect to the carcass and tread compound construction. The qualification of a tubeless tire inner liner shall be obtained by the sample satisfactorily passing a test in accordance with ASTM D746-73, or equivalent, at -54°C (-65°F). An alternate test method may be utilized provided data is submitted substantiating an equivalent test method and is approved by the responsible procuring activity.

4.5.10 Air retention tests for tubeless tires. The tire shall be inflated to the pressure specified below 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 measured to determine if loss is within the limits of 3.5.3. Unless otherwise specified, the test pressure for tires shall be the rated pressure specified in tables I through VI. At no time shall the tire be inflated above rated inflation pressure to obtain air retention.

4.5.11 Conductive material. The determination of the allowable conductivity of the exterior tire surface (tread and sidewall) shall be measured between probes placed at opposite exterior points, within an inch above the bead seat area. Test results shall be obtained by placing the test probe points of a high quality voltohmmeter (in the 100,000 ohm/volt class) at six circumferential points around the tire approximately evenly spaced at positions relative to the bead as stated above. The tire area to be probed should be free of dirt or grease, and the test probes should be cleaned immediately prior to the test to insure good contact. Also, the pressure of the probes against the tire should be fairly high and constant (as applied by hand) without damaging the tread material. The average of the six readings so made on each tire shall be 50,000 ohms or less in order to be acceptable.

4.5.12 Burst pressure. The minimum burst pressure as determined in accordance with 3.5.5 shall be applied to the mounted tire and held for 10 seconds minimum. The tire shall not fail under this pressure. The pressure shall then be increased until the tire bursts or the limit of the equipment is reached, provided the limit of the equipment is over the minimum burst pressure. Burst pressure test of tubeless tires may be conducted with an inner tube in the same manner as for tube-type tires. The testing agency shall report whether failure was a carcass or a bead failure.

4.5.13 Service tests. The procuring activity may conduct service tests consisting of flight or taxi tests at a Government Laboratory or field installation if deemed necessary to determine compliance with the actual usage requirements.

5. PREPARATION FOR DELIVERY

5.1 Packaging. Unless otherwise specified (see 6.2), tires shall not require packaging.

* 5.2 Marking for shipments. Each tire shall be labeled in accordance with MIL-STD-129. The identification shall consist of the following information, listed in the order shown:

NSN _____.
Tire, Pneumatic, Aircraft
Specification MIL-T-5041G.

* 5.2.1 Color coding, age identification. The tire shall be color-code taped for age identification using the color of tape in accordance with MS14113. Color used shall reflect year of carcass manufacture, with the date of year superimposed on the tape.

6. NOTES

6.1 Intended use. Tires covered by this specification are intended for use on aircraft main, nose, tail, beaching, and auxiliary wheels.

6.2 Ordering data. Procurement documents should specify the following:

a. Title, number, and date of this specification

b. Type, size, and ply rating (see 1.2 and 3.4.1)

c. Sampling plans, if other than specified (see 4.4.2)

d. When packaging is required (see 5.1).

6.2.1 If the tires which are ordered for helicopter or beaching gear use have been qualified as regular airplane tires, they must not be marked (Helicopter) or (Beaching Gear) and the order should so indicate.

6.3 Qualification. With respect to products requiring qualification, awards will be made only for such products which are at the time set for opening of bids, qualified for inclusion in the applicable Qualified Products List whether or not such products have actually been so listed by that date. The attention of suppliers is called to this requirement, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or orders for the products covered by this specification. The activity responsible for the Qualified Products List is the Aeronautical Systems Division, Attn: ENFL, Wright-Patterson Air Force Base, Ohio 45433, and information pertaining to qualification of products may be obtained from that activity.

6.3.1 Dynamometer testing at the AFFDL Landing Gear Test Facility, designated a DOD facility by Department of Defense Instruction 4151.13, is available to responsible activities within the Army, Navy, Air Force, and other Government Agencies. Testing services may also be made available to industry when the testing is in direct support of Military/Government programs, and when the responsible department, agency, or other activity specifically authorizes, requests, or sponsors the test support. Test requests should include a detailed description of the test plan and the time period during which the requesting organization desires the test to be conducted. Correspondence relating to requests for test support or information on specific test capabilities should be addressed to: AFFDL/FEM, Wright-Patterson AFB, Ohio 45433, ATTN: Manager, Landing Gear Test Facility.

6.3.2 For further information regarding qualification procedures, applicants proposing to submit a product for qualification approval should refer to Defense Standardization Document SD-6 entitled, Provisions Governing Qualification.

6.4 Definitions

6.4.1 Ply rating. The term ply rating (PR) is used to identify a given tire with its maximum recommended load when used in a specific type of service. It is an index of the tire strength and does not necessarily represent the number of cord plies. The ply ratings appearing in tables I through VI are not to be interpreted as limiting the number of plies that may be used in a given tire construction.

6.4.2 Tread patterns

6.4.2.1 Ribbed tread. Unless otherwise specified, a ribbed-type tread pattern is one having three or more continuous circumferential ribs.

6.4.2.2 Nonskid. Any grooved tread pattern that does not meet the requirements of the ribbed tread pattern will be considered nonskid.

6.4.2.3 Plain. A plain tread is one that has no tread design. The tire tread area presents a smooth surface except for wear indicator holes.

6.4.3 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 undertread.

6.4.4 Reinforced tread. A reinforced tread is one constructed with fabric cord or other reinforcing materials as an integral part of the assembled tread.

6.4.5 Deflection. The vertical distance from the top of the rim flange to the supporting surface of the tire at no load will be considered the distance equal to 100 percent deflection. See figure 4.

6.5 Storage. Storage procedures for tires are specified in Air Force T.O. 4T-1-3 and Navy NAVWEPS 04-10-506. Copies are available upon request from the procuring activity.

6.6 Marginal indicia. The outside margins of this specification have been marked to indicate where changes, deletions, and additions from the previous issue have been made. This has been done as a convenience only, and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content as written irrespective of the marginal notations and relationship to the last previous issue.

Custodians:
Army - AV
Navy - AS
Air Force - 11

Review activities:
Army - AV
Navy - AS
Air Force - 70

User activity:
Navy - MC

Preparing activity:
Air Force - 11

Project No. 2620-0079

TABLE I. Size, Construction, and Performance Characteristics of Type I (Smooth Contour) Tires 1/

Wheel Type 2/	Size	Ply Rating (PR)	Static Load Rating (Max)	Inflation Pressure 3/	Bead Width (Max)	Weight of Tire (Max)	Moment of Static Unbalance (Max)	Mold Skid Depth for R & N Tread Pattern	Total Tread Thickness for P Tread Pattern (Min) 4/
			Lb	PSI	In.	Lb	In.-Oz	In.	In.
T-TT	8.00	6	450	55	.63	2.0	---	.07	.10
T-TT	10.00	8	650	45	.70	3.5	---	.08	.12
T-TT	14.50	8	2,000	80	.88	7.5	---	.09	.15
M-TT	27	10	5,500	70	1.14	29.0	12	.26	---
M-TT	33	10	8,000	70	1.38	45.0	22	.30	---
M-TT	36	12	10,500	70	1.50	64.0	32	.32	---
M-TT	44	12	15,000	70	1.75	105.0	50	.38	---
M-TT	56	20	35,000	100	2.50	230.0	80	.37	---
M-TL	56	20	35,000	100	2.65	245.0	80	.37	---

1/ Inactive for new design.
2/ T represents tailwheel; M - main wheel; TT - tube-type; TL-- tubeless tire.
3/ Vertical deflection at inflation pressure under static load for beaching wheel tires shall be 40 +1, -4 percent. Minimum deflection limits not mandatory for tailwheel tires.
4/ Total tread thickness. (Minimum for nonskid or ribbed tires includes mold skid depth plus underskid thickness.)

TABLE II. Size, Construction, and Performance of Type II (High Pressure) Main Wheel Tires 1/

Size	Ply Rating	Static Load Rating (Max)	Inflation Pressure	Bead Width (Max)	Weight of Tube Type Tire (Max)	Moment of Static Unbalance (Max)	Tread Pat. R & N Mold Skid Depth (Min)
		Lb	PSI	In.	Lb	In.-Oz	In.
26 x 6	10	5,150	130	1.10	26.0	16	.21

1/ Inactive for new design.

* TABLE III. Size, Construction, and Performance of Type III (Low Pressure) Tires

Wheel Type 1/	Size	Ply Rating (PR)	Static Load Rating (Max) 2/	Inflation Pressure (Max) 3/	Bead Width (Max)	Weight of Tire (Max)	Moment of Static Unbalance (Max)	Mold Skid Depth for R or N Tread Pat. (Min)	Total Tread Thickness for P Tread Pat. (Min) 4/	USAF Drawing or MS No.
			Lb	PSI	In.	Lb	In.-Oz	In.	In.	
T-TT	5.00-4	6	1,200	55	.70	6.5	14	.09		
M-TT	5.00-5	4	800	31	.70	5.0	14	.11	---	53D917
M-TT	5.00-5	6	1,260	49	.70	5.0	14	.11	---	
M-TT	5.00-5	10	2,150	88	.90	7.5	14	.16	---	
T-TT	5.50-4	8	1,225	50	.875	9.0	5	NA	---	62C31331
M-TT	6.00-6	6	1,750	42	.75	8.5	8	.18	---	
M-TL	6.00-6	8	2,350	55	.90	10.5	8	.18	---	
M-TL	6.50-8	6	2,300	51	.85	11.5	16	.20	---	
M-TT	6.50-8	6	2,300	51	.75	11.5	16	.20	---	53D916
M-TT	6.50-8	8	3,150	75	.95	12.0	16	.20	---	
M-TL	6.50-8	8	3,150	75	.95	12.0	16	.20	---	
M-TT	6.50-10	6	2,770	62	.75	12.0	16	.20	---	
M-TL	6.50-10	6	2,770	62	.85	12.5	16	.20	---	
M-TL	6.50-10	10	4,750	100	.95	17.5	16	.20	---	
M-TT	7.00-6	6	1,900	38	.75	10.0	16	.19	---	
M-TL	7.00-8	16	6,650	125	1.30	24.0	16	.15	---	67J1951
M-TT	7.50-10	6	3,000	46	.80	16.0	16	.21	---	
N-TT	7.50-10	12	1,800	80	1.50	31.0	16	.90	Channel TR	
M-TT	7.50-14	8	5,700	87	1.00	30.0	16	.37	---	
M-TT	8.00-4	4	900	18	.65	8.7	16	.06	.12	
M-TT	8.00-6	8	2,800	54	.64	10.5	16	.17	---	
M-TT	8.50-10	6	3,250	41	.90	20.0	16	.33	---	
M-TL	8.50-10	6	3,250	41	.90	20.0	16	.33	---	
M-TT	8.50-10	8	4,400	55	1.05	22.0	16	.12	---	
M-TT	8.50-10	10	5,500	70	1.20	21.0	16	.12	---	54C763
M-TL	8.50-10	10	5,500	70	1.35	24.0	16	.12	---	54C763

See footnotes at end of table.

★ TABLE III. Size, Construction, and Performance of Type III (Low Pressure) Tires (Cont)

Wheel Type 1/	Size	Ply Rating (PR)	Static Load Rating (Max) 2/	Inflation Pressure (Max) 3/	Bead Width (Max)	Weight of Tire (Max)	Moment of Static Unbalance (Max)	Mold Skid Depth for R or N Tread Pat. (Min)	Total Tread Thickness for P Tread Pat. (Min) 4/	USAF Drawing or MS No.
			Lb	PSI	In.	Lb	In.-Oz	In.	In.	
M-TL	8.50-10	12	8,000	100	1.50	29.5	16	.33	---	
M-TT	8.50-10	12	8,000	100	1.50	29.0	16	.33	---	
T-TT	9.00-6	10	4,500	58	1.00	24.0	16	.28	---	
M-TT	9.50-16	10	9,250	90	1.40	55.0	20	.41	---	
T-TT	10.00-7	12	7,100	80	1.65	34.0	18	.35	---	
M-TT	29x11.00-10	8	5,000	45	1.25	28.0	20	.15	---	MS90444
M-TT	29x11.00-10	10	7,070	60	1.40	34.0	20	.35	---	MS90444
M/H-TT	11.00-12	6	6,900	55/66	1.00	38.0	24	.23	---	
M-TT	11.00-12	8	6,300	45	1.20	45.0	24	.30	---	
M-TL	11.00-12	8	6,300	45	1.35	46.0	24	.30	---	
M-TL	12.50-16	12	12,800	75	1.90	86.0	34	.45	---	64F1880
M-TT	15.00-16	10	12,200	53	1.65	90.0	44	.33	---	64D30454
M-TT	15.50-20	14	20,500	90	2.38	132.0	52	.46	---	
M-TT	15.50-20	20	29,900	135	2.60	170.0	52	.46	---	
M-TT	17.00-16	12	16,000	60	1.90	126.0	52	.48	---	
M-TT	17.00-20	16	25,500	95	2.50	173.0	80	.51	---	
M-TT	17.00-20	22	34,500	130	2.70	190.0	80	.51	---	
M-TT	19.00-23	16	29,000	85	2.75	210.0	80	.47	---	
M-TT-TL	20.00-20	22	38,500	95	3.375	232.0	90	.40	---	64D30452
M-TT-TL	20.00-20	26	46,500	125	3.50	270.0	90	.40	---	65D1542
M-TT	25.00-28	30	55,000	85	3.75	530.0	400	.55	--	45M58

1/ M - main wheel; T - tailwheel; TT - tube-type tire; TL - tubeless tire.
2/ For nosewheel application, multiply the static load rating of main wheel tires by 1.45 to obtain the maximum allowable load during braking.
3/ Vertical deflection under the static loads and inflation pressures specified for beaching wheel tires shall be 40 +1, -4 percent.
4/ Total minimum tread thickness for nonskid and ribbed tires includes mold skid depth plus underskid thickness.

TABLE IV. Size, Construction, and Performance of Type VI (Low Profile) Tires 1/

Size	Ply Rating (PR)	Dynamic Load Rating (Max) 2/	Inflation Pressure	Weight of Tire (Max)	Moment of Static Unbalance (Max)	Tread Pattern	Total Tread Thickness (Min) 3/
		Lb	PSI	Lb	In.-Oz		In.
15 x 6.0-6	4	1,250	45	8.0	8	R	.30
17.50 x 6.25-11	8	2,750	140	11.0	10	R	.22
22 x 7.25-11.50	8	4,600	80	16.0	12	R or P	.19

1/ Inactive for new design.
2/ For nosewheel applications, the dynamic load is the sum of the static nosewheel reaction and the reaction resulting from braking at a deceleration of 10 feet per second per second.
3/ Total tread thickness for nonskid or ribbed tires includes mold skid depth plus underskid thickness.

* TABLE V. Size, Construction, and Performance of Type VII (Extra High Pressure) Tires 1/

Wheel Type 2/	Size	Ply Rating (PR)	Static Load Rating (Max) 3/	Inflation Pressure (Rated)	Bead Width (Max)	Weight of Tire (Max)	Moment of Static Unbalance	Mold Skid Depth (Min)	Drawing or MS No.	Speed Rating (Knots)
			Lb	PSI	In.	Lb	In.-Oz	In.		
T-TT	10.5x4	8	1,200	85	.75	4.7	5	0.07	---	---
T-TT	12.5x4.5	14	3,000	165	1.25	8.0	10	.25	65D30091	139
M-TT	16x4.4	6	1,700	85	0.70	9.5	9	.20	57D793	139
M-TL	16x4.4	8	2,300	120	1.125	8.0	9	.20	59C520	139
M-TL	18x4.4	6	2,100	100	1.00	11.0	5	.17	56D1172	174
M-TT	18x4.4	12	4,350	225	1.15	13.5	5	.17	58D514	217
M-TL	18x5.5	8	3,050	105	1.25	12.5	10	.17	MS26535	139
M-TL	18x5.5	12	5,050	170	1.40	17.5	10	.17	MS26535	139
M-TL	18x5.5	14	6,200	215	1.50	18.5	5	.17	66D1895	239
M-TL	18x5.5	14	6,200	215	1.50	21.5	5	.17	MS26535	139
M-TT	20x4.4	10	4,250	190	1.15	13.5	11	.26	MS26538	139
M-TL	20x4.4	10	4,250	190	1.30	15.6	11	.26	MS26538	139
M-TL	20x4.4	12	5,150	225	1.30	15.0	11	.26	56D1171	174
M-TL	20x5.5	12	6,150	180	1.38	20.0	12	.18	MS26540	140
N-TL	21x7.25-10	20	12,000	320	2.10	30.0	16	.22	67J2186	196
M-TL	22x5.5	8	4,350	135	1.25	16.0	13	.19	MS26539	139
M-TT	22x5.5	12	7,100	235	1.30	20.0	13	.19	MS26539	139
M-TL	22x5.5	12	7,100	235	1.45	22.5	13	.19	MS26539	139
M-TL	22x6.6-10	16	9,150	190	2.00	23.0	15	.22	EC76301A328A651	195
M-TL	22x6.6-10	20	12,000	270	2.00	29.0	15	.22	AS1DCVBG005	190
M-TT	24x5.5	12	7,500	230	1.30	23.0	8	.20	48F84	174
M-TT	24x5.5	12	8,070	250	1.25	22.5	8	.20	MS26526	139
M-TL	24x5.5	12	8,070	250	1.35	25.0	8	.20	MS26526	139
M-TT	24x5.5	14	9,700	300	1.375	25.0	8	.20	MS26526	139
M-TL	24x5.5	14	9,700	300	1.50	27.5	15	.20	MS26526	139
M-TL	24x5.5	16	11,500	355	1.40	27.0	15	.20	MS18060	174

See footnotes at end of table.

* TABLE V. Size, Construction, and Performance of Type VII (Extra High Pressure) Tires (Cont) 1/

Wheel Type 2/	Size	Ply Rating (PR)	Static Load Rating (Max) 3/	Inflation Pressure (Rated)	Bead Width (Max)	Weight of Tire (Max)	Moment of Static Unbalance	Mold Skid Depth (Min)	Drawing or MS No.	Speed Rating (Knots)
			Lb	PSI	In.	Lb	In.-Oz	In.		
M-TT	24x7.7	10	5,100	85	1.25	22.5	17	.30	---	139
M-TT	24x7.7	10	5,100	85	1.25	25.0	17	.30	MS26558	140
M-TL	24x7.7	14	8,200	135	1.50	30.0	17	.12	58D510	217
M-TT	25x6.0	16	12,000	330	1.65	32.0	15	.21	MS26543	139
M-TL	25x6.75	18	13,000	300	2.00	38.0	17	.21	59D502	239
M-TL	26x6.6	12	8,000	180	1.60	31.6	17	.30	MS26564	174
M-TT	26x6.6	14	10,000	225	1.60	32.0	17	.30	53C11	174
M-TL	26x6.6	14	10,000	225	1.625	36.5	17	.30	60C4280	174
M-TL	26x6.6	14	10,000	225	1.75	36.5	17	.30	MS26533	139
M-TL	26x6.6	16	12,000	270	1.85	38.0	17	.30	MS26533	174
M-TL	28x7.7	14	11,000	195	1.75	40.0	17	.30	MS17838	174
M-TL	28x9.0	22	16,650	235	2.25	50.0	20	.25	MS90443	174
M-TT	29x7.7	16	13,800	220	1.75	46.0	20	.31	51F601	174
M-TT	30x6.6	14	12,950	320	1.60	46.0	20	.30	63D31622	174
M-TT	30x7.7	18	16,500	270	2.00	51.0	20	.23	MS26536	139
M-TL	30x7.7	18	16,500	270	2.15	53.5	20	.23	MS26536	139
M-TL	30x7.7	22	21,300	360	2.25	---	20	.23	MS26536	139
M-TL	30x8.8	22	21,000	295	2.40	75.0	20	.28	60D90767	217
M-TT	32x8.8	12	11,000	135	1.75	44.1	20	.24	---	139
M-TT	32x8.8	16	15,100	200	1.90	50.0	20	.40	---	139
M-TT	32x8.8	18	15,800	200	2.00	60.0	20	.24	MS26537	139
M-TL	32x8.8	18	15,800	200	2.15	65.1	20	.24	MS26537	139
M-TT	32x8.8	22	22,000	290	2.50	73.0	20	.28	58D512	217
M-TL	32x8.8	24	23,300	355	2.75	80.0	20	.24	63D31707	239
M-TT	34x9.9	14	14,000	150	1.75	60.0	25	.31	---	139
M-TL	34x9.9	14	14,000	150	1.90	66.0	25	.31	---	139

See footnotes at end of table.

* TABLE V. Size, Construction, and Performance of Type VII (Extra High Pressure) Tires (Cont) 1/

Wheel Type 2/	Size	Ply Rating (PR)	Static Load Rating (Max) 3/	Inflation Pressure (Rated)	Bead Width (Max)	Weight of Tire (Max)	Moment of Static Unbalance	Mold Skid Depth (Min)	Drawing or MS No.	Speed Rating (Knots)
			Lb	PSI	In.	Lb	In.-Oz	In.	MCAIR	
M-TL	54x9.75-18	22	23,400	260	2.55	68.5	20	.26	EC76301A328A657	174
M-TL	36 x 11	22	23,300	200	2.70	88.0	16	.28	61D4306	174
M-TL	36 x 11	24	26,000	235	2.90	92.0	30	.26	61D3065	217
M-TL	36 x 11	28	31,500	290	2.80	99.0	30	.28	MS90346	174
M-TL	37x11.5-16	28	31,200	245	3.15	95.0	30	.30	MS14152	190
M-TL	38 x 11	14	15,400	130	2.20	90.0	18	.25	61D3069	195
M-TL	39 x 13	16	17,200	115	2.30	97.0	10	.30	63D3009	195
M-TT	40 x 12	14	14,500	95	2.38	95.0	40	.37	---	---
M-TL	40 x 14	26	30,500	175	3.10	133.0	35	.30	MS26563	174
M-TT	44 x 13	26	35,000	210	3.00	155.0	50	.31	---	---
M-TL	44 x 13	26	35,000	210	3.15	165.0	50	.31	64D30453	174
M-TL	44 x 13	26	35,000	200	3.15	155.0	50	.26	MS26557	174
M-TL	44 x 16	28	38,400	185	3.25	167.0	50	.38	61F4307	174
M-TL	46 x 16	28	41,800	210	3.10	186.0	52	.33	63D3008	195
M-TL	47x18-18	30	43,700	175	3.50	170.0	50	.30	69E177	195
M-TL	47x18-18	36	54,000	215	3.90	205.0	50	.30	65J1971	217
M-TL	49 x 17	26	39,600	170	3.05	215.0	50	.40	60D2561	195
M-TL	56 x 16	24	45,000	178	3.88	275.0	75	.35	68D29340	174
M-TL	56 x 16	32	60,000	250	3.95	319.0	90	.35	57D908	217
M-TL	56 x 16	38	76,000	315	4.60	355.0	90	.35	60D510	217

1/ Main wheel tires shall conform to the contour outlined on figure 4.
2/ T - tailwheel; M - main wheel; TT - tube type; TL - tubeless type.
3/ For nosewheel application, multiply the static load rating of main wheel tires by 1.5 to obtain the dynamic (braking) load rating for normal landing aircraft gross weight.

TABLE VI. Size, Construction, and Performance of Type VIII Extra High Pressure Low Profile Tires 1/

Wheel Type	Size	Ply Rating (PR)	Static Load Rating (Max) 2/	Inflation Pressure (Max)	Bead Width (Max)	Weight of Tire (Max)	Moment of Unbalance (Max)	Mold Skid Depth (Min) 3/	Drawing No.	Speed Rating (Knots)
			Lb	PSI	In.	Lb	In.-Oz	In.		
TL	18x6.5-8	12	5,000	150	1.50	12.0	6	.20	63J4242	217
M-TL	22x7.7-12	16	10,500	280	1.94	27.0	14	.17	61D3037	239
M-TL	22x8.5-11	16	10,000	210	1.875	27.0	14	.20	63J4241	217
M-TL	24x8.0-13	18	12,500	285	2.05	29.0	13	.21	73453	217
M-TL	26x8.0-14	16	12,700	235	2.10	44.0	14	.20	61D3001	239
M-TL	28x9.0-14	22	18,100	280	2.25	61.0	15	.30	74201	186
M-TL	30x11.5-14.5	24	25,000	243	2.75	75.0	19	.26	62J4031	210
M-TL	31x11.50-16	22	23,300	275	2.65	80.0	19	.25	57F794	239

1/ Main wheel tires shall conform to the contour outlined on figure 6.
2/ For nosewheel applications, multiply static load rating of main wheel tires by 1.4 to obtain the dynamic (braking) load rating.
3/ Skid depth shall be measured at the approximate centerline of the tread.

TABLE VII. Dimensions of Type I (Smooth Contour) Inflated Tires 1/ (See Figure 7)

Wheel Type	Size	A OD Dia (Min)	A OD Dia (Max)	B Section Width (Min)	B Section Width (Max)	C Shoulder Dia	D Shoulder Width Dia (Min)	D Shoulder Width Dia (Max)	E Intermediate Dia	F Intermediate Width (Min)	F Intermediate Width (Max)	G Max Sect. Dia	H Nominal Bead Seat Dia
		In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
Main Wheel	27	27.22	28.16	9.14	9.66	26.30	4.06	5.70	23.10	7.68	8.40	18.66	14.00
	33	32.06	33.06	10.84	11.30	31.30	4.50	6.60	27.42	8.92	9.72	22.12	16.50
	36	35.40	36.86	12.56	13.08	34.84	4.80	7.02	30.38	10.42	11.30	24.24	17.75
	44	43.64	44.94	15.12	15.76	42.50	6.00	8.52	37.14	12.48	13.54	29.78	22.00
	47	47.02	47.98	16.32	17.00	44.24	9.22	10.66	39.62	13.86	14.62	31.80	23.50
	56	55.44	56.62	19.12	19.92	53.44	9.02	11.44	46.50	16.40	17.68	37.04	27.00
Tail Wheel	8.00	7.86	8.10	2.94	3.06	7.32	1.52	1.88	6.06	2.54	2.72	4.82	2.875
	10.00	9.76	10.06	4.00	4.18	9.00	2.10	2.52	7.30	3.46	3.74	5.60	3.188
	14.50	14.26	14.70	5.98	6.24	13.14	3.06	3.70	10.58	5.08	5.56	8.04	4.682

1/ Inactive for new design.

TABLE VIII. Dimensions of Type II (High Pressure) Main Wheel Tires 1/

Size	A Inflated Outside Diameter (Inches)		B Inflated Section Width (Inches)	
	(Min)	(Max)	(Min)	(Max)
26 x 6	25.10	25.75	6.25	6.65

1/ Inactive for new design

TABLE IX. Dimensions of Type III (Low Pressure) Tires (See Figure 4)

Wheel Type 1/	Size	A Inflated Outside Diameter (Inches)		B Inflated Section Width (Inches)		C Inflated Shoulder Diameter (Inches) (Max)	D Inflated Shoulder Width (Inches) (Max)
		(Min)	(Max)	(Min)	(Max)		
T	5.00-4	12.99	13.47	5.26	5.54	13.47	4.27
M	5.00-5	13.65	14.20	4.65	4.95	12.55	4.20
H	5.00-5	13.65	14.55	4.65	5.15	12.85	4.35
M	6.00-6	16.80	17.50	5.90	6.30	15.45	5.35
H	6.00-6	16.80	17.95	6.18	6.55	15.85	5.55
M	6.50-8	19.15	19.85	6.55	6.95	17.70	5.90
M	6.50-10	21.35	22.10	6.25	6.65	19.90	5.65
H	6.50-10	21.35	22.60	6.25	6.90	20.50	5.90
M	7.00-6	18.00	18.75	5.90	7.00	16.45	5.95
H	7.00-6	18.00	19.25	6.60	7.30	16.85	6.20
M	7.50-10	23.30	24.15	7.20	7.65	21.60	6.50
H	7.50-10	23.30	24.70	7.20	7.95	22.05	6.75
M	7.50-14	27.00	27.75	7.20	7.65	25.30	6.50
M	8.00-4	17.15	18.00	7.80	8.30	15.50	7.05
M	8.50-10	24.70	25.65	8.20	8.70	22.80	7.40
H	8.50-10	25.30	26.30	8.20	9.05	23.25	7.70
T	9.00-6	21.40	22.40	8.70	9.25	19.45	7.85
M	9.50-16	32.50	33.35	9.10	9.70	30.25	8.25
T	10.00-7	24.30	25.45	9.65	10.25	22.15	8.70
M	29x11.00-10	28.10	29.00	10.40	11.00	25.60	9.35
M	11.00-12	31.00	32.20	10.50	11.20	28.55	9.50
H	11.00-12	31.00	33.00	10.50	11.65	29.25	9.90
M	12.50-16	37.50	38.45	12.00	12.75	34.40	10.85
M	15.00-16	41.40	42.40	14.40	15.30	37.65	13.00
M	15.50-20	44.30	45.25	15.05	16.00	40.70	13.60
M	17.00-16	43.70	45.05	16.35	17.40	39.80	14.80
M	17.00-20	47.70	48.75	16.40	17.25	43.60	14.65
M	19.00-23	53.15	55.10	18.25	19.38	49.30	16.50
M	20.00-20	54.30	56.00	19.20	20.10	49.50	17.10
M	25.00-28	69.30	71.15	24.70	25.70	63.40	21.85

1/ T - Tailwheel; M - Main wheel; H - Helicopter.

TABLE X. Dimensions of Type VI (Low Profile) Tires 1/ (See Figure 8)

Size	A Inflated Outside Diameter (Inches)		B Inflated Section Width (Inches)	
	(Min)	(Max)	(Min)	(Max)
15 x 6.0-6	14.55	15.20	5.90	6.30
17.50 x 6.25-11	17.30	17.70	5.70	6.10
22 x 7.25-11.50	21.75	22.34	7.00	7.43

1/ Inactive for new design.

TABLE XI. Dimensions of Type VII (Extra High Pressure) Tires (See Figures 4 and 9)

Wheel Type 1/	Size	A Inflated Outside Diameter (Inches)		B Inflated Section Width (Inches)		C Inflated Shoulder Diameter (Inches)		D Inflated Shoulder Width (Inches)	
		(Min)	(Max)	(Min)	(Max)	(Min)	(Max)	(Min)	(Max)
T	10.5x4	10.15	10.60	3.30	3.55	10.10	10.50	3.85	4.10
T	12.5x4.5	12.10	12.85	4.45	4.85	11.90	12.40	3.95	4.20
M	16x4.4	15.50	16.00	4.15	4.45	--	14.55	--	3.90
M	18x4.4	17.40	17.90	4.15	4.45	--	16.50	--	3.79
M	18x5.5	17.30	17.90	5.35	5.70	--	16.20	--	5.00
M	20x4.4	19.50	20.00	4.15	4.45	--	19.45	--	3.95
M	20x5.5	19.55	20.15	5.35	5.70	--	19.30	--	4.75
M	22x5.5	21.55	22.15	5.35	5.70	--	21.30	--	4.95
M	24x5.5	23.55	24.15	5.35	5.70	--	23.30	--	4.95
M	24x7.7	23.00	23.75	7.20	7.65	--	21.28	--	6.75
M	25x6.0	24.35	25.00	5.80	6.15	--	23.70	--	5.00
M	25x6.75	24.80	25.50	6.45	6.85	--	23.44	--	6.03
M	26x6.6	25.05	25.75	6.25	6.65	--	23.55	--	5.85
M	28x7.7	26.60	27.40	7.40	7.85	--	24.90	--	6.95
M	28x9.0-12	26.80	27.60	8.35	8.85	--	24.80	--	7.80
M	29x7.7	27.60	28.40	7.40	7.85	--	25.90	--	6.95
M	30x6.6	29.40	30.12	5.95	6.50	--	28.20	--	5.50
M	30x7.7	28.60	29.40	7.40	7.85	--	26.90	--	6.95
M	30x8.0-16	29.40	29.80	7.76	7.96	--	26.90	--	6.95
M	30x8.8	29.50	30.40	8.35	8.90	--	27.40	--	7.90
M	32x8.8	30.05	31.00	8.35	8.90	--	28.05	--	7.90
M	34x9.75-18	33.70	34.50	9.15	9.75	--	31.55	--	8.60
M	34x9.9	32.45	33.40	9.55	10.20	--	30.10	--	8.80
M	36x11	34.00	35.10	10.80	11.50	--	31.65	--	10.10
M	37x11.5-16	36.10	37.00	10.90	11.50	--	33.20	--	10.10
M	38x11	36.00	37.10	10.80	11.50	--	33.65	--	10.10

See footnotes at end of table

TABLE XI. Dimensions of Type VII (Extra High Pressure) Tires (See Figures 4 and 9) (Cont)

Wheel Type 1/	Size	A Inflated Outside Diameter (Inches)		B Inflated Section Width (Inches)		C Inflated Shoulder Diameter (Inches)		D Inflated Shoulder Width (Inches)	
		(Min)	(Max)	(Min)	(Max)	(Min)	(Max)	(Min)	(Max)
M	39x13	37.30	38.25	12.25	13.00	--	34.25	--	11.45
M	40x12	38.55	39.70	11.70	12.35	--	35.50	--	10.90
M	40x14	38.85	39.80	13.25	14.00	--	35.10	--	12.00
M	44x13	42.30	43.55	12.80	13.50	--	39.45	--	11.80
M	44x16	42.30	43.25	15.05	16.00	--	38.20	--	13.70
M	46x16	44.30	45.25	15.05	16.00	--	40.70	--	14.10
M	47x18-18	46.00	46.90	17.75	17.90	--	41.60	--	15.75
M	49x17	47.70	48.75	16.40	17.25	--	43.00	--	14.50
M	56x16	54.95	56.40	15.40	16.20	--	51.40	--	14.30
M	56x16	54.80	55.90	15.50	16.20	--	50.85	--	14.26

1/ T - Tailwheel; M - main wheel.

TABLE XII. Dimensions of Type VIII (Extra High Pressure Low Profile) Tires (See Figure 4)

Wheel Type	Size	A Inflated Outside Diameter (Min)	A Inflated Outside Diameter (Max)	B Inflated Section Width (Min)	B Inflated Section Width (Max)	C Inflated Shoulder Diameter	D Inflated Shoulder Width
		In.	In.	In.	In.	In.	In.
	16x6.5-8	17.45	18.00	6.2	6.5	15.95	5.70
	22x7.7-12	21.75	22.35	7.25	7.7	20.25	6.80
	22x8.5-11	21.40	22.00	8.1	8.5	19.65	7.50
	24x8.00-12	21.5	22.00	7.55	8.00	22.00	7.05
	26x9.00-14	25.35	26.00	7.50	8.00	23.65	6.20
	28x9.00-14	27.35	27.95	8.60	9.00	25.25	6.90
	37x11.50-15	--	31.00	--	11.95	27.54	10.30
	37x12.50-16	30.75	31.00	10.80	11.50	29.30	10.20

1/ Tire clearance and groove dimensions.

TABLE XIII. Rim Dimensions for Type III (Low Pressure) Tires

Wheel Type 1/	Size	Standard No.
M & H	5.00-5	AND10578
M & H	6.00-6	AND10562
M	6.50-8	
M & H	6.50-10	AND10562
M	7.00-8	
M & H	7.50-10	AND10562
M	7.50-14	
M	8.00-4	AND10562
M & H	8.50-10	AND10562
T	9.00-6	AND10567
M	9.50-16	
T, N & B	10.00-7	AND10571
M & H	11.00-12	AND10562
M	12.50-16	
M	15.00-16	
M & B	15.50-20	AND10566
M	17.00-16	AND10563
M & B	17.00-20	AND10566
M	19.00-23	AND10562
M	20.00-20	
M	25.00-28	AND10583

1/ M - main wheel; H - helicopter wheel; T - tailwheel; N - nosewheel; B - beaching wheel.

TABLE XIV. Rim Dimensions for Type VII (Extra High Pressure) Tires

Wheel Type	Size	Standard No.
Main wheel	16 x 4.4	
	18 x 4.4	
	18 x 5.5	MS24370
	20 x 4.4	AND10581
	22 x 5.5	MS24370
	24 x 5.5	MS24370
	24 x 7.7	AND10576
	24 x 7.7 (14 PR)	
	25 x 6.0	
	26 x 6.6	AND10573
	29 x 7.7	
	30 x 7.7	AND10573
	30 x 8.8	MS24369
	30 x 8.8	AND10573
	32 x 6.6	
	32 x 8.8 (22 PR)	
	34 x 9.9	AND10573
	36 x 11	AND10573
	36 x 11 (20 PR)	
	38 x 11	
	39 x 13	
	40 x 12	AND10573
	44 x 13	AND10573
	46 x 9	
	46 x 16	
	49 x 17	MS24368
	56 x 16	MS24368
Tailwheel	10-1/2 x 4	
	12-1/2 x 4-1/2	

TABLE XV. Rim Dimensions for Extra High Pressure Tires, Type VIII

Size	Drawing No.
18 x 6.5-8	63J4242
22 x 7.7-12	61D3037
22 x 8.5-11	63J4241
24 x 8.0-13	73453
26 x 8.0-14	61D3001
28 x 9.0-14	74201
30 x 11.5-14.50	62J4031
31 x 11.50-16	57F794

TABLE XVI. Bead Seating Pressures

Normal Rated Inflation Pressure	Minimum Bead Seat Pressure (PSI)	Maximum Bead Seat Pressure (PSI)
40 or less	25	40
40 to 100	25	1/
Over 100	50	1/

1/ In no case shall the maximum bead seat pressure exceed either the rated tire inflation pressure or 200 psi, whichever is the lesser.

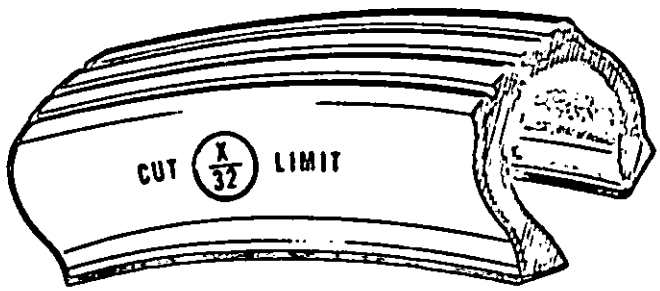

FIGURE 1. Cut-Limit Identification

DATE_____
QTR NO._____
Effective Date of Manufacture
_____

MANUFACTURER_____

AIRCRAFT TIRE

QUALIFICATION TEST REPORT

Size_____Type_____ No. Plies_____ Cord Material_____
Ply Rating_____Approved Low Temp No._____ Tread Design_____

	Item	Requirements	Qualification Results
(A)	Balance----------	_____in.oz	_____in.oz
(B)	Bead seating pressure--	max_____psi	_____psi
		min_____psi	
(C)	Bead width ----------	max_____in.	_____in.
(D)	Burst pressure---------	min_____psi	_____psi
(E)	Deflection ----------	Load__lb defl___%	Load___lb defl____%
		Press_____psi	Press_____psi
(F)	Dimensions		
	A ----------	max____in. min___in.	_____in.
	B ----------	max____in. min___in.	_____in.
	C Refer to ----------	max____in. min___in.	_____in.
	D applicable ----------	max____in. min___in.	_____in.
	E tables in ----------	max____in. min___in.	_____in.
	F MIL-T-5041 ----------	max____in. min___in.	_____in.
	G ----------	max____in. min___in.	_____in.
(G)	Mold skid depth -------	min_____in.	_____in.
(H)	Total tread thickness--	min_____in.	_____in.
	(1.3 x Actual mold skid depth)		
(I)	Weight ----------	max_____lb	Actual_____lb
(J)	Dynamic test result (see fig 3) ---------	Calculated max wt	_____lb
(K)	Air retention (tubeless)	max 5.0 percent loss	_____%
(L)	Strength of union Between sidewall and plies ----------	(as determined) 1/	_____lb
	Between tread and plies	(as determined) 1/	_____lb
	For tire rated 200 mph and above Cord body adhesion between top 3rd & 4th ply		_____lb
(M)	Number of wires per bead bundle----------	(as determined) 1/ (as determined) 1/	1st_____ 2d _____ 3d _____ 4th_____

FIGURE 2. General Format of Qualification Test Report (Sheet 1 of 2)

	Item	Requirements	Qualification Results
(N)	Chafing strips ---------	(as determined)	No._____
(O)	Bead tie-in		
	Heel ply turnups -------	(as determined)	No._____
	Toe ply turnups --------	(as determined)	No._____
	Flippers per bead bundle ----------	(as determined)	No._____
(P)	Min tensile of cord ----	(as determined)	_____lb
(Q)	Cord count in crown ---- (measured at 90° angle to cord path)	(as determined)	Plies_____Count_____
(R)	Total crown thickness --	(as determined)	_____in.
(S)	Number of breaker plies ----------	(as determined)	_____
(T)	Number of tread reinforcement plies ------	(as determined)	_____
(U)	Sidewall vents per side-	(as determined)	No._____Type_____
(V)	Durometer hardness (shore) (rubber tread only) ----------	(as determined)	_____
(W)	Inside crown diameter --	(as determined)	_____in.
(X)	Inside toe-to-toe, peripheral dimension--	(as determined)	_____in.
(Y)	Toe-to-toe diameter ----	(as determined)	_____in.
(Z)	Balance pad adhesion ---	Min-8 lb tubeless	_____lb
		Min-1-1/2 lb tube type	_____lb

1/ The term "as determined" as used in this table denotes that the value shall be determined and reported even though requirements are not specified for such values. Minimum acceptable values are to be shown for tires to be manufactured under quality assurance requirements of 4.4.2.1.

FIGURE 2. General Format of Qualification Test Report (Sheet 2 of 2)

MANUFACTURER_____ QTR No._____
AIRCRAFT TIRE DATE_____
QUALIFICATION TEST REPORT

Test completion date Test specifications Size, ply rating, and type Serial number Tire weight (actual)		
DIMENSIONS Rated inflation_____psi_____ Outside diameter_____in._____ Cross section_____in._____ Shoulder width dimension____in._____	After 12 Hrs Minimum	Remarks
Flat-plate deflection_____% _____	Break-In Before After	Curved surface inflation before break-in
Bead seat pressure_____psi_____		
HIGH SPEED TAKEOFF Flywheel OD_____in._____ Test inflation_____psi_____ Acceleration_____ft/sec^2____ Speed range_____mph_____	Taxi Takeoff	
Taxi time_____sec_____ Time programmed T. O._____sec_____ Load range_____lb _____ Avg start and peak con AirOrCarc temp_____°F _____ Number of takeoffs_____		
HIGH SPEED LANDING Flywheel OD_____in._____ Test inflation_____psi_____ Deceleration rate_____ft/sec^2____ Speed range_____mph_____	Landing Taxi	

FIGURE 3. General Format of Qualification Test Report (Sheet 1 of 2)

Time programmed_____sec_____ Taxi time_____sec_____ Load range_____lb_____ Start and avg peak: AirOrCarc temp_____°F_____ Number of landings_____			
CAMBER TAXI OR MIL-T-5041 TESTS Flywheel OD_____in._____ Tire load_____lb_____ Test inflation_____psi_____ Speed range_____mph_____ Distance_____ft_____ KE (MIL-T-5041 test only) ft-lb_____ Avg start and avg temp: Contained air_____°F_____ or carcass_____°F_____ IE (MIL-T-5041 test only) lb_____ Number of cycles_____	Landing	Taxi	
TEST RESULTS			

REMARKS: Any blemishes as described in 4.5.7.3 through 4.5.7.3.4 shall be reported in "Remarks" column opposite the test condition where blemish was first noticed. (Include a description of the condition of the tire assembly after each test stage and at completion of test.)

FIGURE 3. General Format of Qualification Test Report (Sheet 2 of 2)

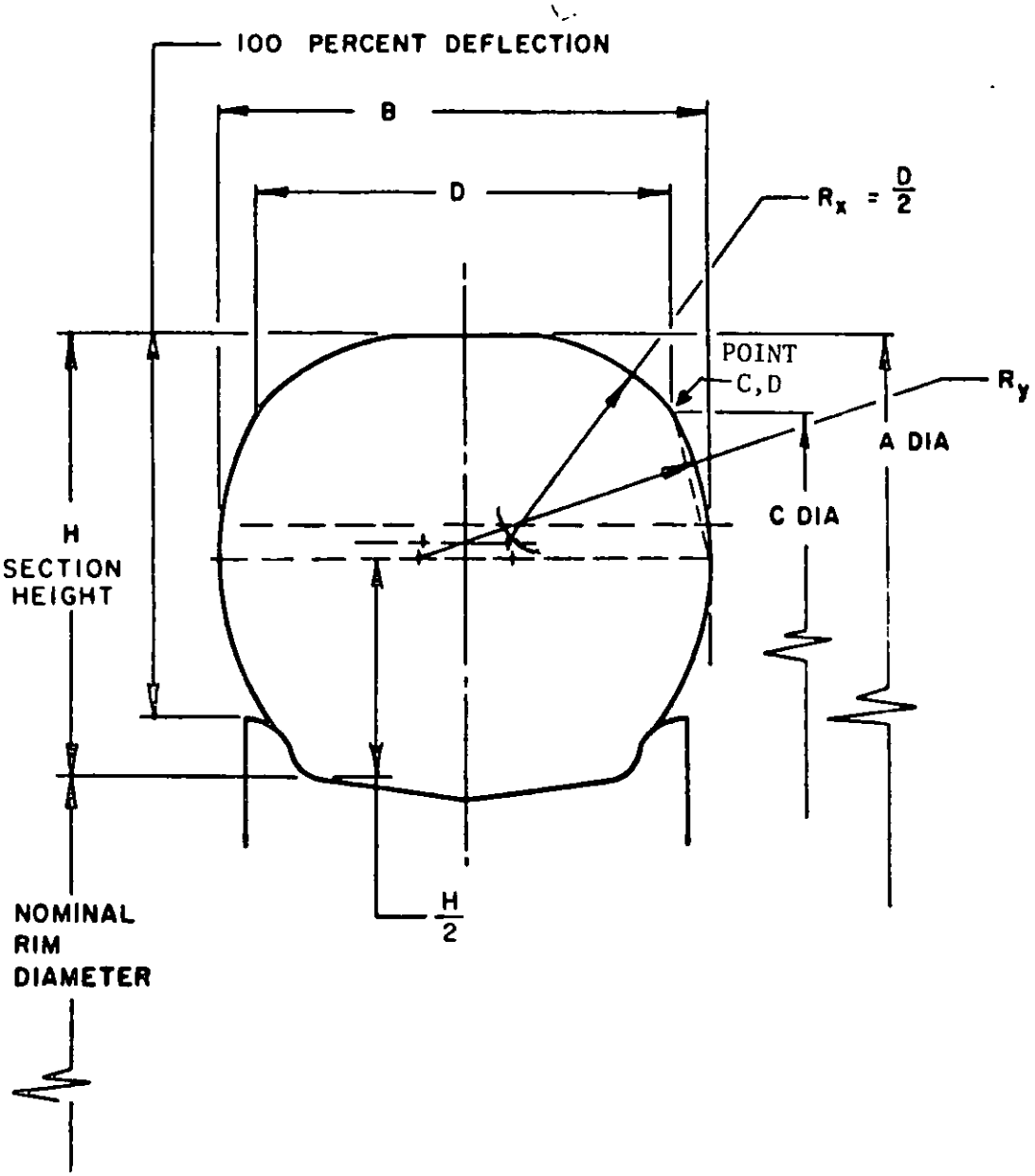

FIGURE 4. Extra-High-Pressure Main and Nose Wheel Tires

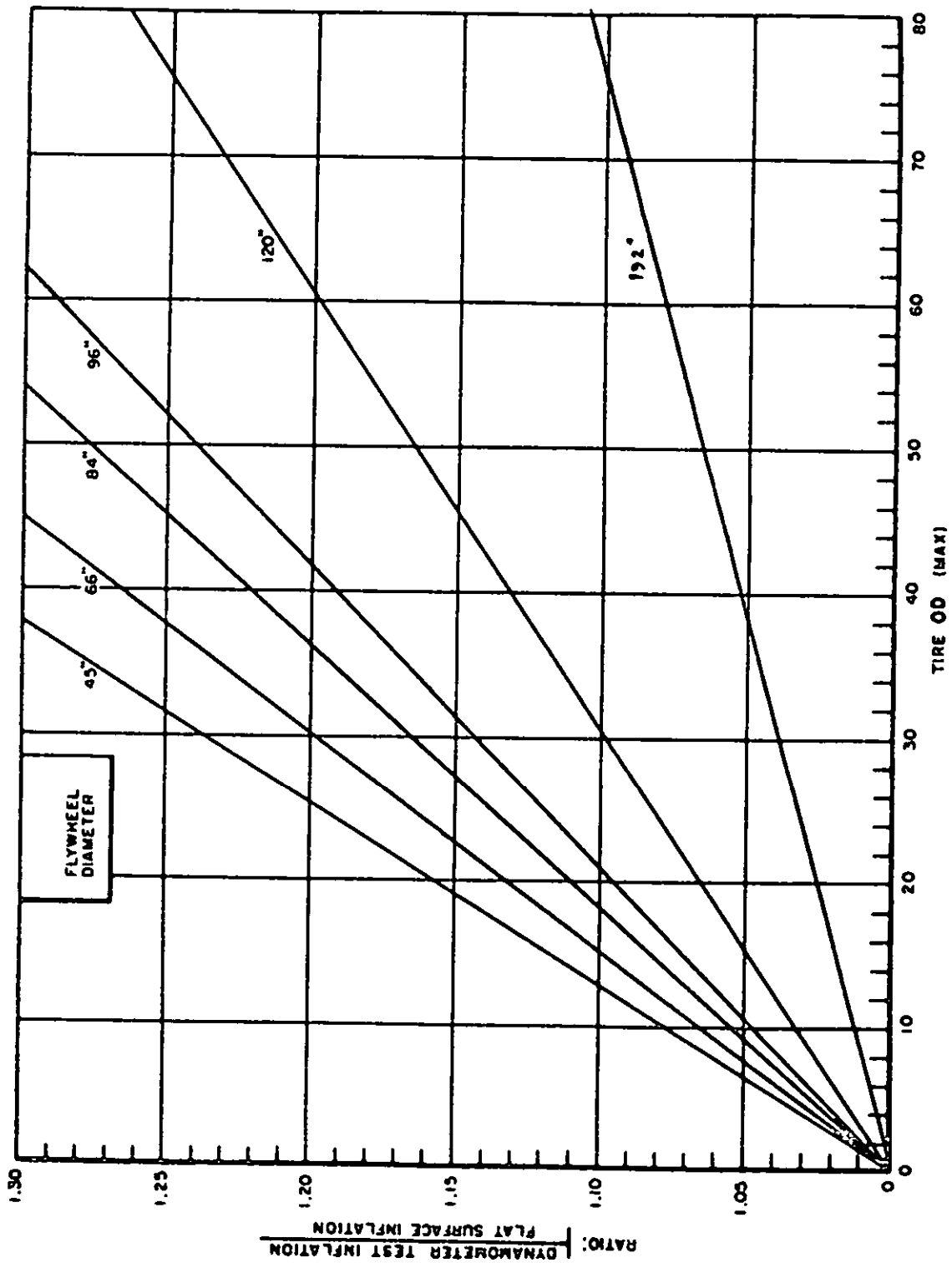

FIGURE 5. Chart for Adjusting Aircraft Tire Test Inflation Pressures for Flywheel Curvature

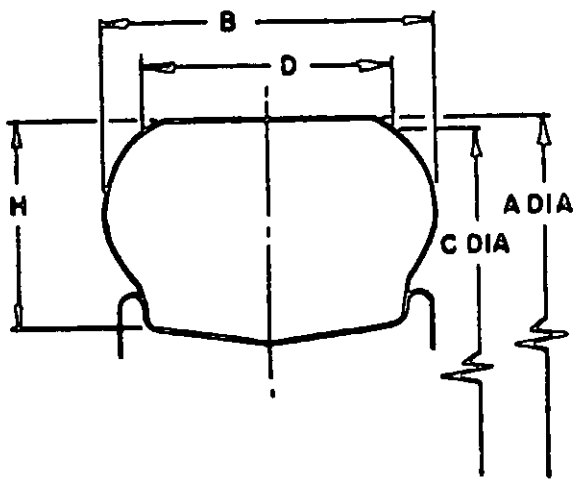

FIGURE 6. Extra-High-Pressure Low Profile Tires

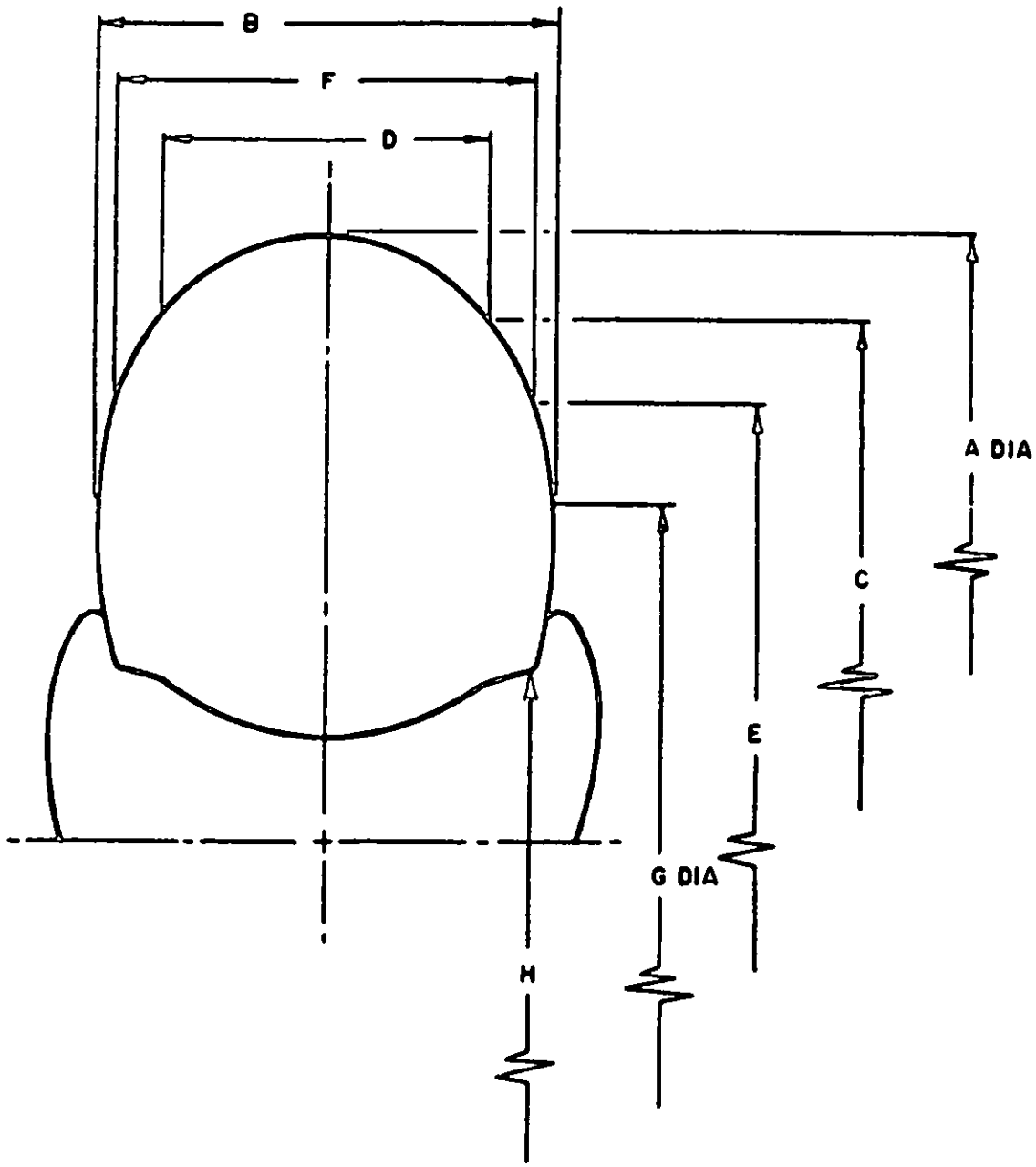

FIGURE 7. Dimensions of Type I (Smooth Contour) Tires

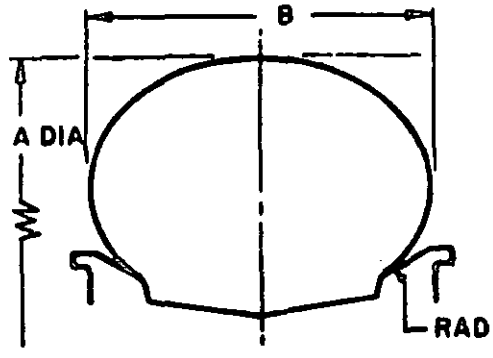

FIGURE 8. Type VI (Low Profile) Tires

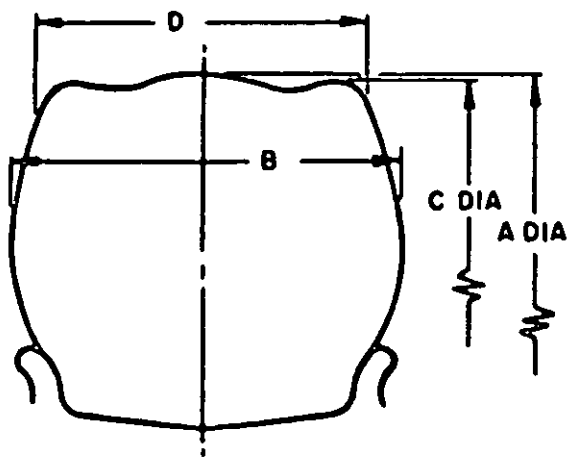

FIGURE 9. Type VII Channel (Extra High Pressure) Tailwheel Tires