INCH-POUND
MIL-DTL-3100H
1 December 1998
SUPERSEDING
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DETAIL SPECIFICATION

WHEEL ASSEMBLIES, SOLID ELASTOMER TIRED; FOR TRACK LAYING VEHICLES

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

1. SCOPE

1.1 Scope. This specification covers road wheels, track support rollers, and idler wheels for use on military track laying vehicles. These are metal wheels with bonded solid elastomer tires (see 6.1).

1.2 Classification. (See 6.5.)

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does 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 this list, document users are cautioned that they must meet all specified requirement documents cited in sections 3 and 4 of this specification, whether or not they are listed.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-TR-E/BLUE, Warren, MI 48397-5000, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document, or by letter.

AMSC N/A FSC 2630

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 listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation (see 6.2).

SPECIFICATIONS

DEPARTMENT OF DEFENSE

MIL-DTL-45301	- Tread Elastomer: Solid Tire, For Track Laying Vehicles.

(Unless otherwise indicated, copies of the above specifications, standards, and handbooks are available 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 are those cited in the solicitation.

DRAWINGS

ARMY

5636637	- Disc and Tire Track Support Roller.
7013976	- Disc Assembly, Road Wheel, Complete.
8706067	- Wheel Assembly.
8762739	- Wheel, Rubber Tire.
8763030	- Wheel, Rubber Tire.
8763350	- Wheel, Solid Rubber Tire.
9092158	- Wheel, Solid Rubber Tire.
10887252	- Wheel, Rubber Tire.
10891631	- Wheel, Solid Rubber Tired.
10919004	- Wheel, Road.
10925778	- Wheel Assembly, Road.
10954693	- Wheel, Road.
11636140	- Wheel, Road.
11678270	- Wheel, Solid Rubber Tire.
12269415	- Wheel, Solid Rubber Tire.

12274482	- Wheel, Rubber Tire.
12290876	- Wheel, Rubber Tire.
12292059	- Wheel Support Roller.
12296928	- Wheel Support Roller.
12313083	- Wheel, Rubber Tired.
12324548	- Wheel, Assembly.
12358464	- Wheel, Solid Rubber Tire.
13211E9207	- Wheel, Solid Rubber Tired.

(Copies of these drawings are available from the U.S. Army Tank-automotive and Armaments Command, AMSTA-TR-E/BLUE, Warren, MI 48397-5000.)

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 the documents which are DoD adopted are those listed in the issue of the DoDISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DoDISS are the issues of the documents cited in the solicitation (see 6.2).

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI/ASQC Z1.4	- Sampling Procedures and Tables for Inspection by Attributes (DoD Adopted).

(Application for copies may be obtained from the American National Standards Institute, 11 West 42nd Street, New York, NY 10036.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D518	- Rubber Deterioration - Surface Cracking (DoD Adopted).
ASTM D573	- Rubber Deterioration in an Air Oven (DoD Adopted).
ASTM D1149	- Rubber Deterioration - Surface Ozone Cracking in a Chamber (DoD Adopted).
ASTM D1415	- Rubber Property - International Hardness (DoD Adopted).
ASTM D2137	- Rubber Property - Brittleness Point of Flexible Polymers and Coated Fabrics (DoD Adopted).
ASTM D2240	- Rubber Property-Durometer Hardness (DoD Adopted).
ASTM D3182	- Rubber - Materials, Equipment, and Procedures for Mixing Standard Compounds and Preparing Standard Vulcanized Sheets (DoD Adopted).

ASTM D3183 - Rubber - Preparation of Pieces for Test Purposes from Products (DoD Adopted).

(Application for copies may be obtained from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.)

2.4 Order of precedence. In the event of a conflict between the text of this document and the references 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 First article. When specified (see 6.2), a first article sample shall be subjected to first article inspection in accordance with 4.4.

3.2 Materials.

3.2.1 Tires. Solid tires shall consist of elastomeric compounds which are black in color, and conform to applicable drawings, specifications and standards. Tires for rebuilt wheels shall be molded from elastomer conforming to MIL-DTL-45301 (see 4.6.1).

3.2.2 Wheels. Materials used in metal wheels shall conform to applicable drawings, specifications, and standards (see 4.6.1).

3.2.3 Bonding materials. Adhesives, bonding agents, cements, gum compounds, and vulcanizing materials furnished under this specification shall produce bonded elastomer tires that meet or exceed the requirements of the applicable drawing and this specification (see 4.6.1).

3.2.4 Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmentally preferable materials should be used to the maximum extent possible provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs (see 6.4).

3.3 Construction. Wheel assemblies furnished under this specification shall be in accordance with the applicable drawings or as specified by the contracting authority (see 4.6.1, 4.6.2 and 6.2).

3.3.1 Date of origin. Wheel assemblies furnished under this specification shall have been cured and bonded within 6 months immediately preceding date of submission for acceptance (see 4.6.1).

3.4 Physical and mechanical properties.

3.4.1 Hardness. The hardness [durometer Shore A or International Rubber Hardness Degrees (IHRD)] of elastomer compounds shall be 70 ±7 when tested in accordance with 4.6.3.

3.4.2 Accelerated aging characteristics. After aging 166 hours at 158 degrees Fahrenheit (°F), within any one specimen, the change in tensile strength shall be not more than ±25 percent (%) and the change in elongation shall be not more than ±35% when tested in accordance with 4.6.3.

3.4.3 Low temperature flexibility. At a temperature of -40°F, the specimen shall show no evidence of cracks, fissures, or holes visible to the naked eye, or complete separation into two or more pieces when tested in accordance with 4.6.3.1.

3.5 Performance.

3.5.1 Endurance requirements. The wheel assembly shall evidence no internal or external failure after rolling under the following conditions; however, no one sample shall be required to withstand operation under both condition sets a and b (see 4.6.4).

a. For 48 continuous hours at not less than 10 miles per hour (mph) under 100% load specified in table I and tested as specified in 4.6.4.1.
b. For 6 continuous hours at not less than 30 mph under 120% load specified in table II and test as specified in 4.6.4.2.

The tires shall exhibit no cracking, chunking, blowout, separation, blister, contamination, porosity, delamination, or lack of adhesion. Any undercutting shall be not more than 0.25 inch (in.) deep.

TABLE I. Wheel assembly loads - 10 mph. 1/

Assembly		Pounds per inch of width	100% load total pounds (min.)
Size (nominal)	Part number		
11 x 3	5636637	385	1155
11 x 3-7/16	12296928	385	1155
12-1/2 x 2-1/2	12292059	452	1582
13-1/2 x 3-1/2	8763030	495	1732
13-1/2 x 3-3/4	8706067	495	1856
22 x 1-3/4	10925778	885	1548
23 x 1-1/4	9092158	935	1168
24 x 2-1/8	11678270	985	2093
24 x 2-1/8	8763350	985	2093

TABLE I. Wheel assembly loads - 10 mph 1/ - Continued.

Assembly		Pounds per inch of width	100% load total pounds (min.)
Size (nominal)	Part number		
24 x 2-1/8	12269415	985	2093
24 x 2-3/8	12313083	985	2344
24 x 3-3/4	11636140	985	3693
24 x 3-3/4	10919004	985	3693
25 x 5-19/32	12274482	1035	5789
25 x 6	12324548	1035	6510
26 x 5-3/4	10887252	1085	6238
26 x 5-3/4	8762739	1-85	6238
26 x 6	7013976	1-85	6510
26 x 6	12290876	1-85	6510
28 x 2-3/4	10954693	1185	3258
28 x 3-5/16	13211E9207	1185	3910.5
32-1/4 x 3-1/2	10891631	1390	4865
24 x 3-3/4	12358464	985	3693

1/ Maximum speed or load shall not exceed the specified values by more than 5% without contractor agreement.

TABLE II. Wheel assembly loads - 30 mph. 1/

Assembly		Pounds per inch of width	120% load
Size (nominal)	Part number		Total pounds (minimum)
11 x 3	5636637	155	558
11 x 3-7/16	12296928	155	639
12-1/2 x 2-1/2	12292059	185	555
13-1/2 x 3-1/2	8763030	205	861
13-1/2 x 3-3/4	8706067	205	923
22 x 1-3/4	10925778	385	809
23 x 1-1/4	9092158	410	615
24 x 2-1/8	11678270	435	1109
24 x 2-1/8	8763350	435	1109
24 x 2-1/8	12269415	435	1109
24 x 2-3/8	12313083	435	1242
24 x 3-3/4	11636140	435	1957
24 x 3-3/4	10919004	435	1957
24 x 3-3/4	12358464	435	1957
25 x 5-19/32	12274482	455	3054
25 x 6	12324548	455	3456
26 x 5-3/4	10887252	480	3312
26 x 5-3/4	8762739	480	3312

TABLE II. Wheel assembly loads - 30 mph 1/ - Continued.

Assembly		Pounds per inch of width	120% load
Size (nominal)	Part number		Total pounds (minimum)
26 x 6	7013976	480	3456
26 x 6	12290876	480	3456
28 x 2-3/4	10954693	530	1749
28 x 3	13211E9207	530	2099
32-1/4 x 3-1/2	10891631	630	2646

1/ Maximum speed or load shall not exceed the specified values by more than 5% without contractor agreement.

3.5.2 Adhesion. Wheel assemblies shall exhibit complete adhesion of tire to wheel. There shall be no areas of deficient adhesion. The load required to separate the tread from a wheel shall be not less than 100 pounds per inch of width on any line of separation around the circumference (see 4.6.5).

3.5.3 Ozone resistance. The elastomer used in solid tires shall evidence no cracks when inspected at 7 power magnification per ASTM D1149 after being subjected to the tests specified in 4.6.6.

3.6 Finish. Unless otherwise specified (see 6.2), portions of the wheel assembly not covered by the elastomer shall be treated and painted in accordance with the manufacturer's standard practice (see 4.6.2).

3.7 Identification and marking. Unless otherwise specified in the contract order (see 6.2), the elastomer portion of the wheel assembly shall have the following information molded or branded into only the outboard side of tire (see 4.6.2):

a. Manufacturer's name or approval symbol.
b. Military assembly part number.
c. Wheel size: for example, 26 x 6.
d. Construction identification (see 6.3).
e. Week and year of manufacture (see 6.3.1).
f. OZ (symbol to indicate ozone resistant).

3.8 Workmanship. Workmanship shall be such quality as to assure that solid-tired wheel assemblies furnished under this specification are, and appear to be, free of defects (see 4.6.2).

4. VERIFICATION

4.1 Inspection equipment. Inspection equipment must be capable of repetitive measurements to an accuracy of 10 percent of the measurement tolerance.

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

a. First article inspection (see 4.4).
b. Conformance inspections (see 4.5).

4.3 Inspection conditions. Unless otherwise specified (see 6.2), all inspections shall be conducted under the following conditions:

a. Air temperature: 73 ±18°F.
b. Barometric pressure: 28.5 (+2, - 3) in. mercury (Hg).
c. Relative humidity: 50 ±30%.

4.4 First article inspection. Unless otherwise specified (see 6.2), the Government shall select 12 wheel assemblies produced under the production contract for first article inspection (see 6.6). Four wheel assemblies shall undergo the 48-hour drum test, four shall undergo the 6-hour drum test, and four shall undergo the adhesion test. No one sample shall undergo more than one of these three tests. First article samples shall be inspected as specified in table III. Approval of the first article sample by the Government shall not relieve the contractor of his obligation to supply wheel assemblies that are fully representative of those inspected as a first article sample. Any changes or deviation of the production units from the first article sample shall be subject to the approval of the contracting officer.

TABLE III. Classification of inspections.

Title	Requirement	Inspection	First article	Conformance	
				Examination	Tests
Materials and construction	3.2 thru 3.3.1	4.6.1	X		
Defects (see table IV) 1/	3.3, 3.6, 3.7 and 3.8	4.6.2	X	X	
Hardness 1/	3.4.1	4.6.3	X		
Accelerated aging 1/	3.4.2	4.6.3	X		
Low temperature flexibility 1/	3.4.3	4.6.3.1	X		
Endurance (48-hour drum)	3.5.1	4.6.4.1	X		X
Endurance (6-hour drum)	3.5.1	4.6.4.2	X		X
Adhesion	3.5.2	4.6.5	X		X
Ozone resistance 1/	3.5.3	4.6.6	X		

1/ Test specimens shall be taken from units selected for adhesion test.

4.5 Conformance inspection. Conformance inspection shall include the examination of 4.5.2 and the tests of 4.5.3.

4.5.1 Sampling. Unless otherwise specified (see 6.2), samples for examination and tests, from an inspection lot, shall be selected in accordance with ANSI/ASQC Z1.4. A minimum of three specimens shall be required for tests.

4.5.2 Examination. Samples shall be examined for defects in accordance with table IV. Any redesign or modification of the contractor's standard to comply with specified requirements shall receive particular attention for adequacy and suitability. This element of inspection shall encompass all visual examinations and dimensional measurements of requirements of section 3 as listed in table IV. Noncompliance with any specified requirement or presence of one or more defects preventing or lessening maximum efficiency shall constitute cause for rejection. The sample units shall be examined for the defects specified in table IV.

TABLE IV. Classification of defects.

Category	Defect	Method of examination
Critical	None	
Major:		
101	Tire dimensions affecting interchangeability, out of tolerance (see 3.3).	Visual and SIE 1/
102	Wheel dimensions affecting interchangeability, out of tolerance (see 3.3).	Visual and SIE
103	Open splice tire (see 3.3).	Visual
104	Identification marking, improper (see 3.7).	Visual
105	Faulty workmanship affecting performance (see 3.8).	Visual
Minor:		
201	Tire dimensions not affecting interchangeability, out of tolerance (see 3.3).	Visual and SIE
202	Wheel dimensions not affecting interchangeability, out of tolerance (see 3.3).	Visual and SIE
203	Chips, cuts, or blisters on tire (see 3.3).	Visual
204	Poor buff on tire (see 3.3).	Visual
205	Flow cracks on tire (depth over 1/32 inch) (see 3.3).	Visual and SIE
206	Edge separation of tire (may be buffed out if not more than 1/8 inch under body of tire (see 3.3).	Visual and SIE
207	Wheel finish not as specified (see 3.6).	Visual
208	Improper or incomplete marking of tire (see 3.7).	Visual
209	Faulty workmanship on wheel assembly (see 3.8).	Visual

1/ SIE = Standard Inspection Equipment.

4.5.3 Tests. Samples selected in accordance with 4.5.1 shall be subjected to the conformance tests specified in table III. One third of the wheel assemblies selected for the tests shall undergo the 48-hour drum test (see 4.6.4.1), one third shall undergo the 6-hour drum test (see 4.6.4.2), and one third shall undergo the adhesion test (see 4.6.5). No one wheel assembly shall undergo more than one of these three tests.

4.6 Methods of inspection.

4.6.1 Materials and construction. Conformance to 3.2 through 3.2.3, 3.3 and 3.3.1 shall be determined by inspection of contractor records providing proof or certification that materials conform to requirements. Applicable records shall include drawings, specifications, design data, receiving inspection records, processing and quality control standards, vendor catalogs and certifications, industry standards, test reports, and rating data.

4.6.2 Defects. Conformance to 3.3, 3.6, 3.7 and 3.8 shall be determined by examination for the defects listed in table IV. Examination shall be visual, tactile, or by measurement with standard inspection equipment.

4.6.3 Physical and mechanical properties. To determine conformance to 3.4.1 tires shall be tested in accordance with ASTM D1415 or ASTM D2240. To determine conformance to 3.4.2, tires shall be tested in accordance with ASTM D573. A contractor's alternative test method may be used provided that it is an accepted industry practice, that it is completely described, and that it is approved by the Government.

4.6.3.1 Low temperature flexibility test. To determine conformance to 3.4.3, type B specimens shall be subjected to the tests and specified in ASTM D2137, method A. Five specimens shall be tested and inspected. In the event one specimen fails an additional five specimens shall be prepared and tested. If two or more of the initial five, or any of the last five specimens fail, it shall be cause for rejection.

4.6.4 Endurance test.

4.6.4.1 Forty-eight hour drum test. To determine conformance to 3.5.1.a, the wheel assemblies shall be tested as follows.

4.6.4.1.1 Apparatus. The apparatus shall consist of a rotating steel drum having a smooth, flat-faced rim. The wheel assemblies for testing shall be individually mounted so as to apply test loads radially. The wheel assemblies shall turn freely. The steel drum shall have a diameter of 67.23 $\pm$0.50 in. The width of the drum rim shall provide full contact with the tire under the loads specified herein (see table I). The test shall be conducted in ambient air temperature of 100 $\pm$5°F measured at the same height above the floor as the tires being tested.

The apparatus shall be equipped with automatic devices to make a permanent record of ambient temperature, speed, applied load and hours (elapsed time) of operation.

4.6.4.1.2 Procedure. The wheel assembly shall be mounted and centered for minimum runout. The tire may be ground, if necessary, to assure a radial runout of not more than 0.031 in. total indicator reading. The wheel shall be loaded radially against the drum, and run continuously for 48 hours at loads specified in table II at not less than 10 mph.

4.6.4.2 Six-hour drum. To determine conformance to 3.5.1.b, the wheel assemblies shall be tested as follows.

4.6.4.2.1 Apparatus. The apparatus shall be as specified in 4.6.4.1.1.

4.6.4.2.2 Procedure. The wheel assembly shall be mounted and centered for minimum runout. The tire may be ground, if necessary, to assure a radial runout of not more than 0.031 in. total indicator reading. The wheel assembly shall then be loaded radially against the drum and run continuously for 48 hours at not less than 30 mph in accordance with the specified load schedule (see 3.5.1.b and table II). The test may be stopped for not more than 5 minutes to change loading.

4.6.4.3 Tire inspection. At the conclusion of the test in 4.6.4.1 or 4.6.4.2, the tire shall be removed from the wheel in a way that will allow for the detection of defects specified in 3.5.1. The tire shall be sectioned to determine conformance to 3.5.1. The wheel shall be inspected for signs of loss of adhesion per 3.5.1.

4.6.5 Adhesion. To determine conformance to 3.5.2, the wheel assemblies shall be tested as specified herein.

4.6.5.1 Apparatus. A tension testing machine, or apparatus having a power actuated clamp, shall be used to apply, measure and permanently record the amount of force required to strip the tire from the metal wheel to which it is bonded. The clamp shall travel at a rate of not more than 6 inches per minute maximum. The machine shall be provided with means for measuring, and permanently recording the amount of tension applied. The hub and spindle assembly shall be provided for mounting the tire and permitting it to rotate freely about a fixed axis of rotation.

4.6.5.2 Procedure. The tire shall be prepared for testing by cutting and clamping in accordance with figures 1 and 2. The tire shall then be mounted on the hub and spindle assembly, and positioned in such a manner that its axis of rotation will remain parallel tot he line of separation during testing, and that the applied force will be normal to the wheel at the line of separation. The tire bonded to curved axial surfaces may be cut to not less than the width that is normal to the applied force. With the free end of the tire gripped by the machine clamp, the

machine shall be started and the tire stripped from the metal base. The tire shall be stripped from not less than 75% of the circumference of the wheel. If, during the test, the tire begins to tear instead of separating wholly from the wheel, the tire shall be cut to the metal base with a knife. Force measurements shall be permanently observed throughout the test. Any force less than 100 pounds per inch of width shall be cause for rejection. The ambient temperature during the test shall be not less than 70°F and not more than 110°F, and the actual temperature shall be noted.

4.6.6 Ozone resistance test. To determine conformance to 3.5.3, the tires shall be tested as follows.

4.6.6.1 Specimen. The size of the specimens shall be in accordance with procedure B of ASTM D518 and smoothly finished in accordance with methods specified in ASTM D3182 and ASTM D3183.

4.6.6.2 Procedure. The specimen shall be tested in accordance with procedure B of ASTM D518, except the length of clamping strips shall facilitate placement within the ozone test chamber. The specimens shall be placed in the chamber and exposed for 7 days to a temperature of 104°F $\pm$3.6°F in an air-ozone mixture having a partial ozone pressure of 50 $\pm$5 millipascals (mPa) per ASTM D1149.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). 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's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's 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 which may be helpful, but is not mandatory.)

6.1 Intended use. The wheel assemblies described in this specification are intended for vehicle or track support on track laying military vehicles. Since these wheel assemblies must operate with loads commensurate with tactical battlefield conditions (see tables I and II), under which commercial items would experience catastrophic failure, they are military unique.

6.2 Acquisition requirements. Acquisition documents must specify the following:

a. Title, number, and date of this specification.
b. Issue of DoDISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.2.1 and 2.3).
c. When first article is required (see 3.1).
d. Drawing number and size of wheel assembly to be furnished (see 3.3).
e. If finish is to be other than as specified (see 3.6).
f. If marking is to be other than as specified (see 3.7).
g. If inspection conditions are other than as specified (see 4.3).
h. If first article inspection is other than as specified (see 4.4).
i. If samples are other than as specified (see 4.5.1).
j. Packaging requirements (see 5.1).

6.3 Construction identification. Construction identification (see 3.7) is a contractor generated number or letter, or combination thereof, which completely identifies specific processing, materials and compounds (metal preparations, bonding agents, cements, tie gums and tire compounds), as approved by the Government, used in manufacturing submitted tires. Construction identification will be made available to the Government.

6.3.1 Week and year of manufacture. Requirement specified herein (see 3.7) may be met by a molded mark which consists of the 2 final digits of the number of the year enclosed by a circle. Twelve segments, equally spaced, formed by lines radiating outward from the circle, signify months. One punch mark, pricked each week in the segment, signifies the week of manufacture (see figure 3).

6.4 Recovered materials. “Recovered materials” means materials that have been collected or recovered from solid waste.

6.4.1 Solid waste. “Solid waste” means (a) any garbage, refuse, or sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility; and (b) other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities. It does not include solid or dissolved material in domestic sewage, or solid or dissolved material in irrigation returns flows or industrial discharges which are point sources subject to permits under section 402 of the Clean Water Act, (33 U.S.C. 1342 et seq.), or source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 U.S.C. 2011 et seq.). (Source: Federal Acquisition Regulations, section 23.402).

6.5 Classification deleted. Previous classifications of types I and II, styles 1 and 2 are no longer needed. Performance requirements of this specification no longer distinguish between types and styles (see 1.2).

6.6 Comparative data. Historically, elastomer material property values were required to be determined on first article samples as specified in 6.6.1, 6.6.1.1 and 6.6.2, and furnished to the Government as comparative data. After first article approval was granted, these values were maintained during subsequent production as evidence of constancy of materials, formula, and manufacturing processes. This comparative data was used by the Government in quality control evaluation of production items furnished subsequent to first article approval.

6.6.1 Elastomer compounds. The contractor should furnish comparative data as specified in table V, in accordance with applicable ASTM methods.

Table V. Comparative data – elastomer physical and mechanical properties.

Hardness (durometer Shore A or IHRD) (per ASTM D1415 or D2240)	Specific gravity (per ASTM D945 or D575)
Tensile strength (per ASTM D412)	Tear strength (per ASTM D624)
Elongation (per ASTM D792)	Load compression & recovery (per ASTM D573)
Tensile stress (modulus) (per ASTM D2137)	Low temperature flexibility (per ASTM D2137)
	Accelerated aging characteristics (per ASTM D573)

6.6.1.1 Tolerances. Property values should be maintained as specified in table VI.

Table VI. Tolerances.

Physical and mechanical properties	Tolerances
Hardness (durometer Shore A or IHRD)	± 5
Tensile strength value (TSV)	
% (before aging)	± 10
% (after aging)	-10 from aged TSV to +10 of before aged TSV
Elongation, % (before and after aging)	± 17
Tensile stress, %	± 17
Specific gravity	± 0.015
Tear strength, %	- 15 (minimum only)
Load compression and recovery, %	± 10

6.6.2 Infrared absorption. The contractor should also furnish infrared absorption spectrum recordings, taken prior to each endurance test, from specimens granted first article approval. A chart showing the attenuated total reflectance spectrum for a range from approximately 2.5 to 15 microns wave length, as a function of absorbance, should be prepared by

pyrolysis of the extracted rubber in a stream of nitrogen per ASTM D3677, or other approved method. Spectrum recordings taken during acceptance test should be superimposed over like recordings which were taken from successful specimens in connections with first article approval. New recording should not vary more than 5% in wave length position and 25% in percent transmission (see ASTM D2702).

6.7 Subject term (key word) listing.

Adhesion
Idler, metal
Rollers, support
Rubber
Tread

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.

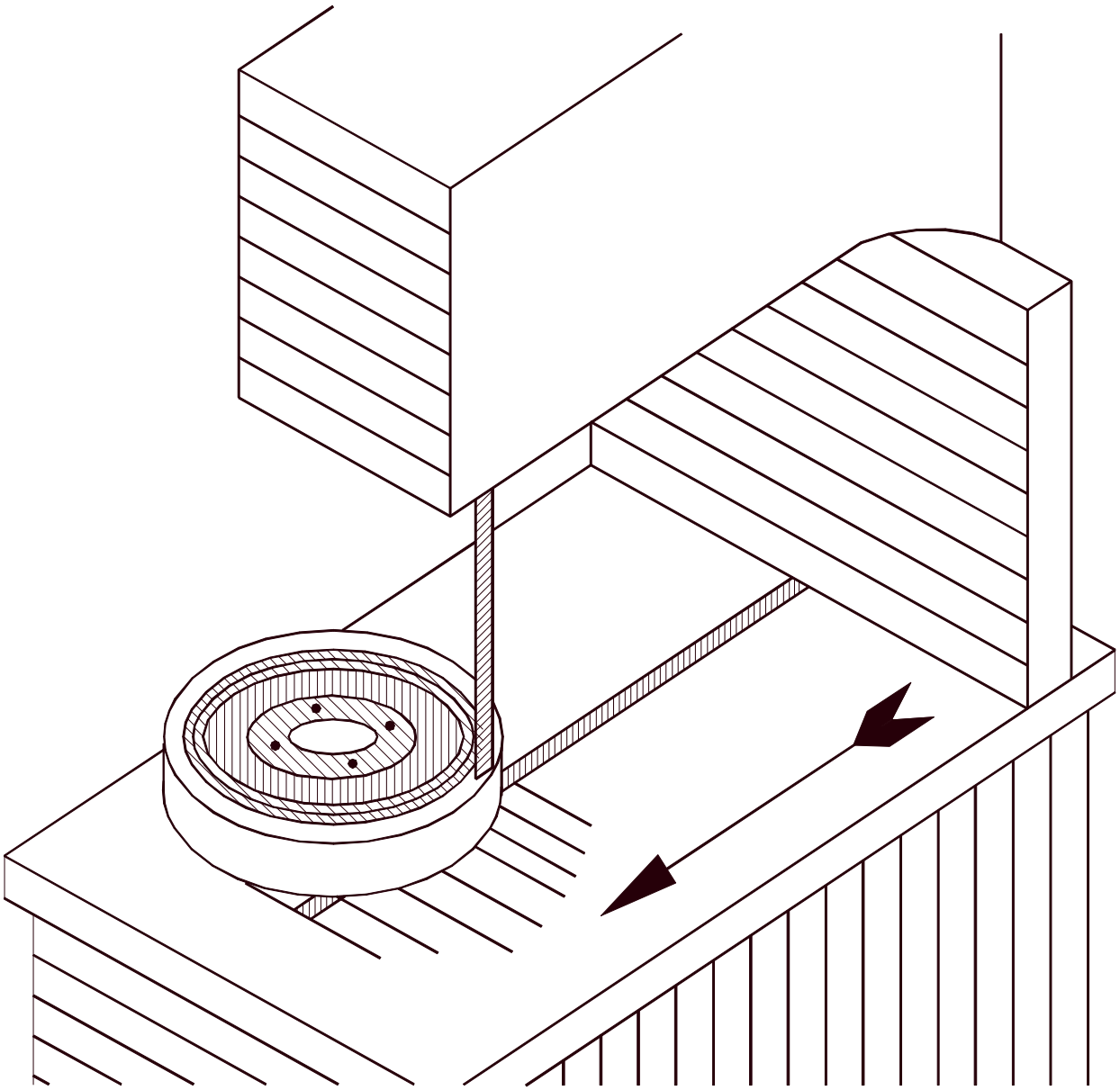


FIGURE 1. Direction of cut for adhesion test.

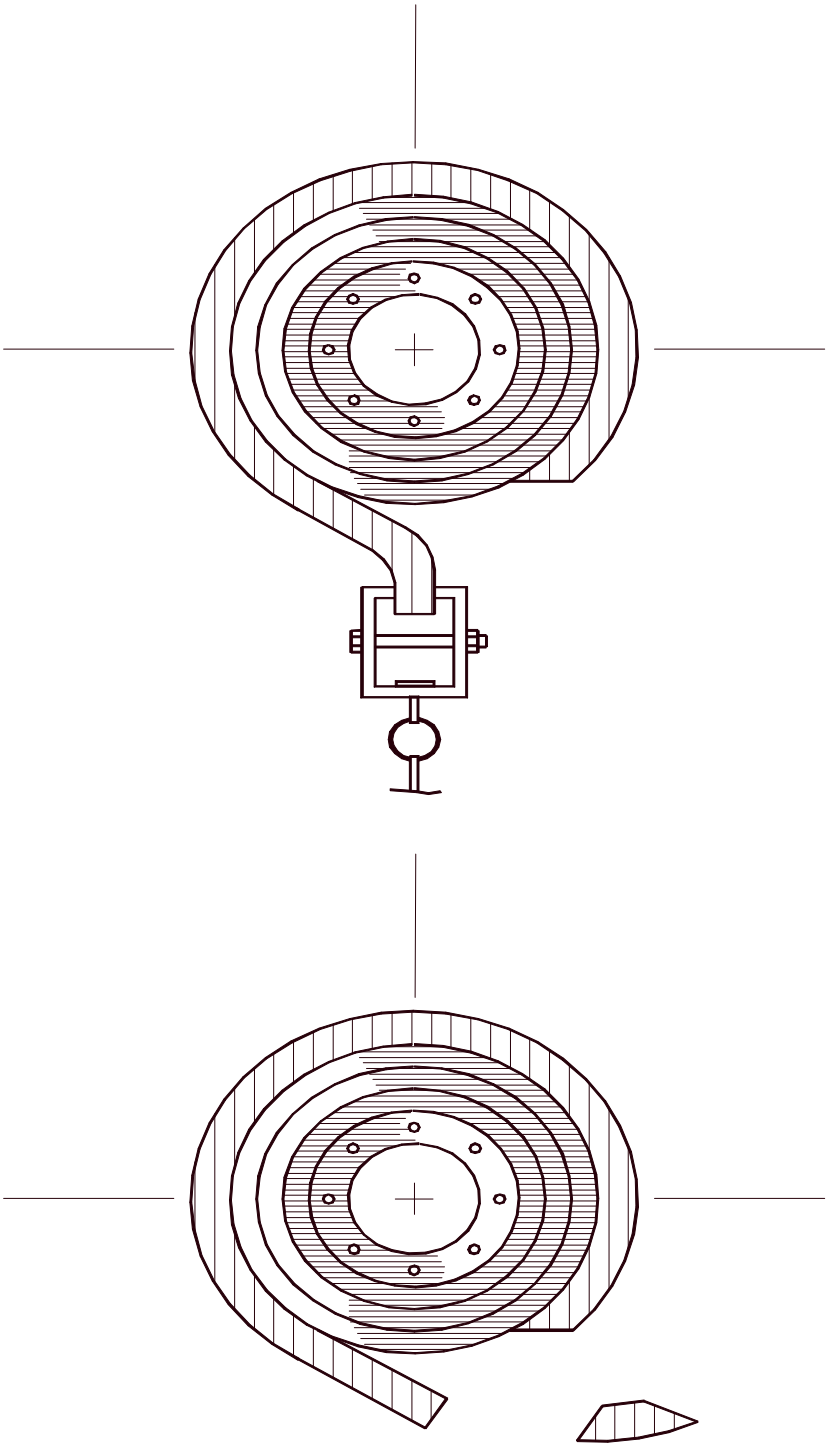
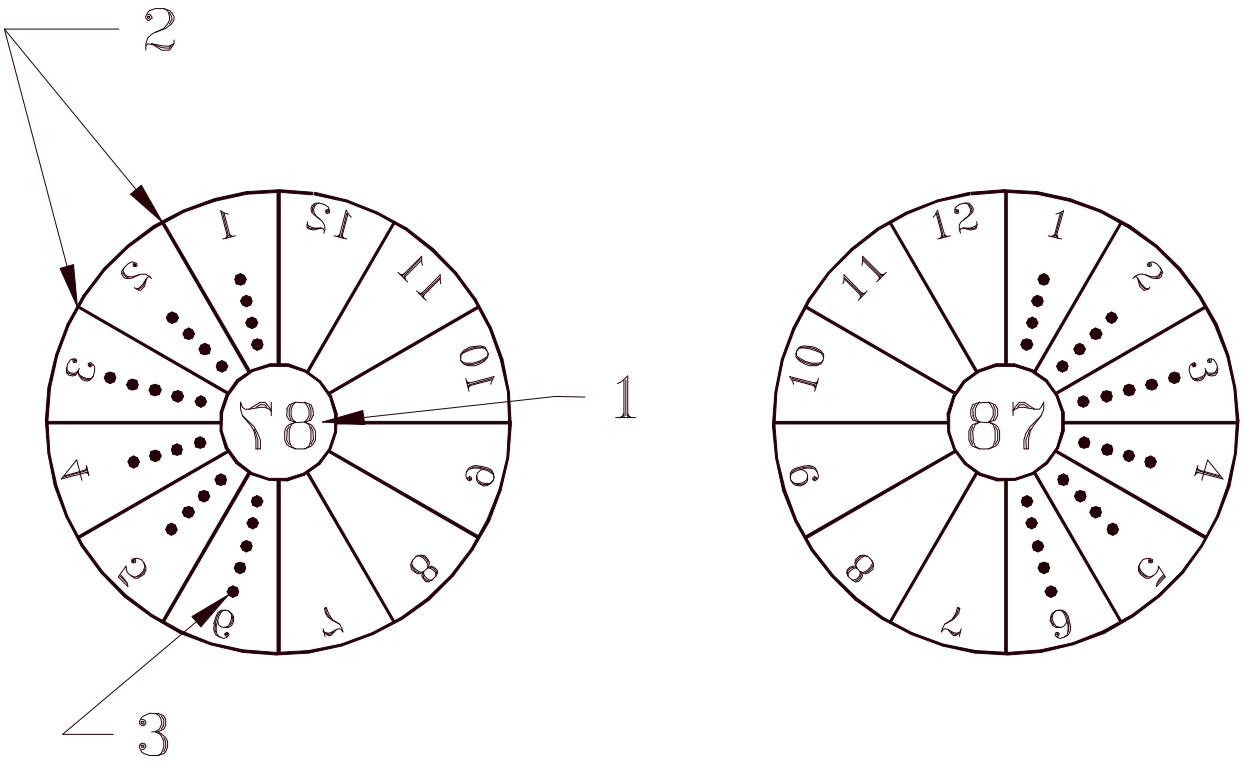


FIGURE 2. Preparation and clamping of tire for adhesion test. Wheel and fixture orientation is optional.



A

MOLD INSERT TO BE USED
PLAN VIEW

B

MOLDED IMPRESSION ON OUTBOARD
SIDE OF TIRE – RAISED CHARACTERS

INTERPRETATION CODE:

1. Numbers in the inside center circle represent the last two digits of the calendar year and should be updated to represent current production year.
2. The torus is divided into twelve (12) equal segments to represent the months of the year. The monthly progression rate moves in a clockwise direction, starting with No. 1 as January and ending with No. 12 as December.
3. Punch mark is added before production resumes either Sunday or Monday and should be valid no more than seven (7) days after which another punch mark should be required. Under no circumstances should a segment bear more than five punch marks.

NOTES:

1. To illustrate above interpretation code, figure B denotes a tire produced at the start of the production either Sunday or Monday on the 5th week of June, the year of 1987.
2. Note that in all cases mold inserts are mirror images of actual products.

FIGURE 3. Week and year of manufacture.

Custodians:
Army - AT
Navy - MC

Preparing Activity:
Army - AT

(Project 2630-0040)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

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I RECOMMEND A CHANGE:	1. DOCUMENT NUMBER	2. DOCUMENT DATE *(YYMMDD)*
	MIL-DTL-3100H	981201

3. DOCUMENT TITLE

WHEEL ASSEMBLIES, SOLID ELASTOMER TIRED; FOR TRACK LAYING VEHICLES

4. NATURE OF CHANGE ***(Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)***

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME *(Last, First, Middle Initial)*	b. ORGANIZATION	
c. ADDRESS *(Include Zip Code)*	d. TELEPHONE *(Include Area Code)* (1) Commercial (2) AUTOVON *(If applicable)*	7. DATE SUBMITTED *(YYMMDD)*

8. PREPARING ACTIVITY

a. NAME	b. TELEPHONE *(Include Area Code)*
	(1) Commercial (810) 574-8745 (2) AUTOVON 786-8745
c. ADDRESS *(Include Zip Code)* Commander U.S. Army Tank-automotive and Armaments Command ATTN: AMSTA-TR-E/BLUE Warren, MI 48397-5000	IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403 Falls Church, VA 22041-3466 Telephone (703) 756-2340 AUTOVON 289-2340