

INCH-POUND

MIL-DTL-45334E

30 September 1998

SUPERSEDING

MIL-PRF-45334D

23 July 1997

## DETAIL SPECIFICATION

COMPRESSOR ASSEMBLIES, AIRBRAKE SYSTEM;  
WHEELED VEHICLE

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

## 1. SCOPE

1.1 Scope. This specification covers eight types of air compressors for airbrake systems of military wheeled vehicles. This specification also covers accessory governors and air cleaners for type I and type II compressors (see 6.1).

1.2 Classification.

1.2.1 Reciprocating compressors. Reciprocating compressors will be of the following types, with normally rated displacement in cubic feet per minute (ft<sup>3</sup>/min) at 1250 revolutions per minute (rpm), as specified (see 6.2):

Type I	-7.25 cubic feet per minute (ft <sup>3</sup> /min) (3.4 liters per second (L/s)), air-cooled, engine-lubricated, reciprocating compressor.
Type II	-12 ft <sup>3</sup> /min (5.6 L/s), air-cooled, engine-lubricated, reciprocating compressor.
Type III	-7.25 ft <sup>3</sup> /min (3.4 L/s), water-cooled, engine or self-lubricated, reciprocating compressor.
Type IV	-12 ft <sup>3</sup> /min (5.6 L/s), water-cooled, engine or self-lubricated, reciprocating compressor.

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 2530

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- Type V - 24 ft<sup>3</sup>/min (11.3 L/s), water-cooled, engine-or self-lubricated, reciprocating compressor.

1.2.2 Rotating compressors. Rotating compressors will be of the following types, as specified (see 6.2):

- Type VI - Nominal rating of 9 ft<sup>3</sup>/min (4.2 L/s), at 1850 rpm, air-cooled, engine-lubricated, rotary compressor.
- Type VII - Nominal rating of 9 ft<sup>3</sup>/min (4.2 L/s), at 1850 rpm, water-cooled, engine-lubricated, rotary compressor.
- Type VIII - Nominal rating of 12 ft<sup>3</sup>/min (5.6 L/s), at 1550 rpm, water-cooled, engine-lubricated, rotary compressor.

## 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.

### 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).

## STANDARDS

### DEPARTMENT OF DEFENSE

- MIL-STD-810 - Environmental Test Methods and Engineering Guidelines.
- MS35756 - Key, Woodruff, Steel Alloy, with Keway and Key Slot Dimensions.

(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.)

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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.)

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 sample shall be subjected to first article inspection in accordance with 4.3.

3.2 Materials. Materials used shall be in accordance with the manufacturer's materials specifications for compressors. The materials shall be capable of meeting all the operational and environmental requirements specified herein. Recovered materials shall be used to the maximum extent practicable (see 4.5.1).

3.3 Design and construction. The design and construction of compressors and accessories shall be as specified in figures 1 through 4, and shall conform to the applicable drawings as specified (see 4.5.1 and 6.2):

Type I compressor	- M45334-1 (see figure 1).
Type II compressor	- M45334-2 (see figure 2).
Air cleaner for types I and II compressors	- M45334-9 (see figure 3).
Governor for types I and II compressors	- M45334-10 (see figure 4).

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3.4 Performance. Compressor assemblies, governors, and air cleaners shall conform to the following performance requirements, as applicable:

- Compressors - 3.4.1 and 3.4.4
- Governors - 3.4.2 and 3.4.4
- Air cleaners - 3.4.3 and 3.4.4

3.4.1 Compressor performance.

3.4.1.1 Power input. Power input to the compressor under designated load and speed conditions, shall not exceed that specified in table I, or the applicable drawing or figure (see 3.3 and 4.5.3.1).

TABLE I. Maximum horsepower input.

Load	Speed rpm	Types I & III	Types II & IV	Type V	Types VI & VII	Type VIII
At 100 psig <u>1/</u>	2400	3.4	4.75	7.0	4.3	6.4
Unloaded	2400	1.5	2.25	2.75	1.3	1.4

1/ psig = pounds per square inch gauge.

3.4.1.2 Oil flow. Oil flow at 1775-1825 rpm, and 37.5 psig (258 kPa), shall not exceed 650 cubic centimeters per minute (cm<sup>3</sup>/min) for types I and III compressors, 1000 cm<sup>3</sup>/min for types II, IV and V compressors, and 440 cm<sup>3</sup>/min for types VI, VII and VIII compressors (see 4.5.3.2).

3.4.1.3 Discharge air temperature. Discharge air temperature, measured at the compressor discharge fittings, shall not exceed the inlet air temperature by more than that specified in table II (see 4.5.3.3).

TABLE II. Discharge air temperature.

Speed rpm	Maximum discharge air temperature above the intake air temperature, °F (°C)	
	Types I, III, VI and VII	Types II, IV, V and VIII
600	150 (65.5)	195 (90.5)
1200	235 (112.7)	295 (146)
1800	305 (151.6)	375 (190.5)
2400	350 (176.6)	435 (224)

3.4.1.4 Life. Compressor shall withstand 1000 hours of operation with load conditions, in alternate 24 hour periods, at no-load and 100 psig (690 kPa). The rate of oil consumption during any 100 hour period shall not exceed 5 cm<sup>3</sup>/hr for types I, II, III and IV, 10 cm<sup>3</sup>/hr for type V, 16 cm<sup>3</sup>/hr for types VI and VII, and 20 cm<sup>3</sup>/hr for type VIII. Bearing wear or burnout, oil or air leakage, or distorted parts, considered detrimental to the continued operation of the compressor, shall be cause for discontinue of the life test (see 4.5.3.4).

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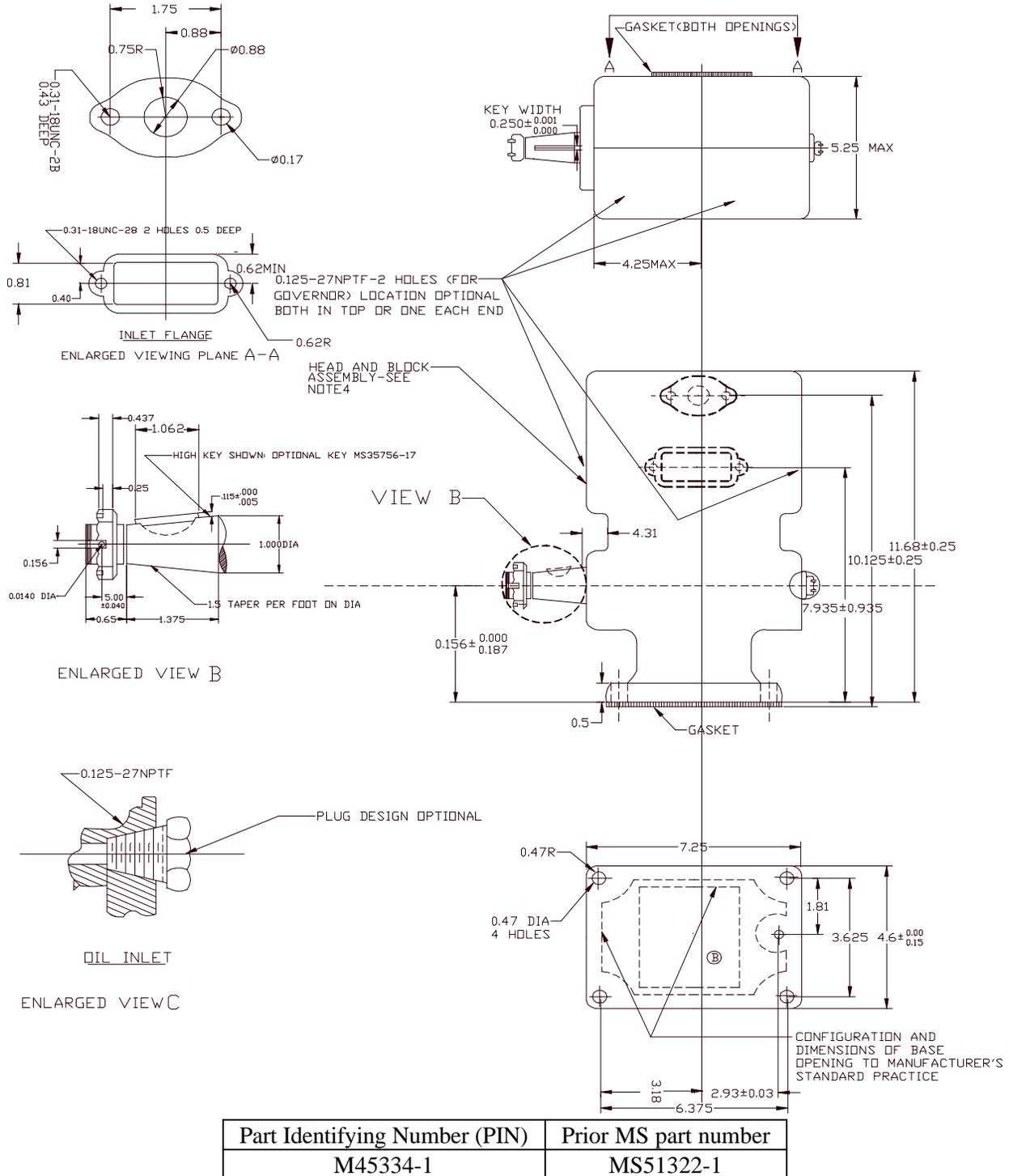


FIGURE 1. Compressor, reciprocating, power driven: air cooled, 7.25 ft<sup>3</sup>/min unloader.

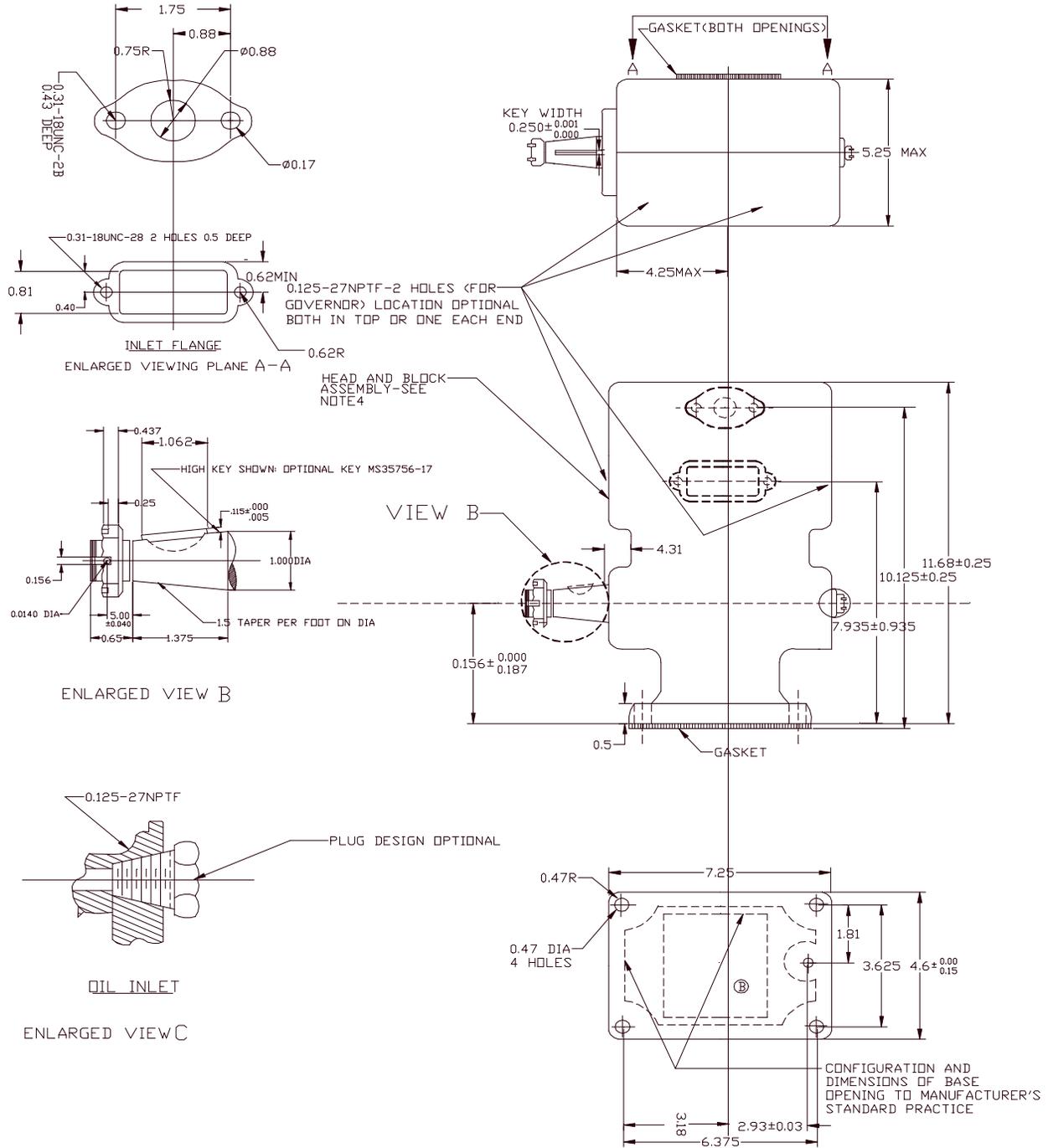
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NOTES:

1. Recommended maximum operating speed - 2400 rpm.
2. Maximum build-up time to pump a 1000 cubic inch reservoir to 100 psig (690 kPa):  
35 seconds at compressor speed of 2400 rpm.  
55 seconds at compressor speed of 1200 rpm.
3. Compressor shall be constructed to allow 180° rotation of the head and block assembly to provide for right or left hand location of the inlet and discharge flanges. Manufacturer shall furnish required instruction sheet together with necessary spare gasket for each compressor ordered for field replacement.
4. Maximum weight: 24 pounds (lb) (10.87 kilograms (kg)).
5. Dimensions are in inches. Unless otherwise specified, tolerances are  $\pm 0.02$  on 2 place fractions and  $\pm 0.005$  on 3 place fractions,  $\pm 1^\circ$  angular, casting dimensions shall be  $\pm 0.006$ .

FIGURE 1. Compressor, reciprocating, power driven: air cooled, 7.25 ft<sup>3</sup>/min unloader - Continued.

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Part Identifying Number (PIN)	Prior MS part number
M45334-2	MS53032-1

FIGURE 2. Compressor, reciprocating, power driven: air cooled, 12 ft<sup>3</sup>/min w/unloader.

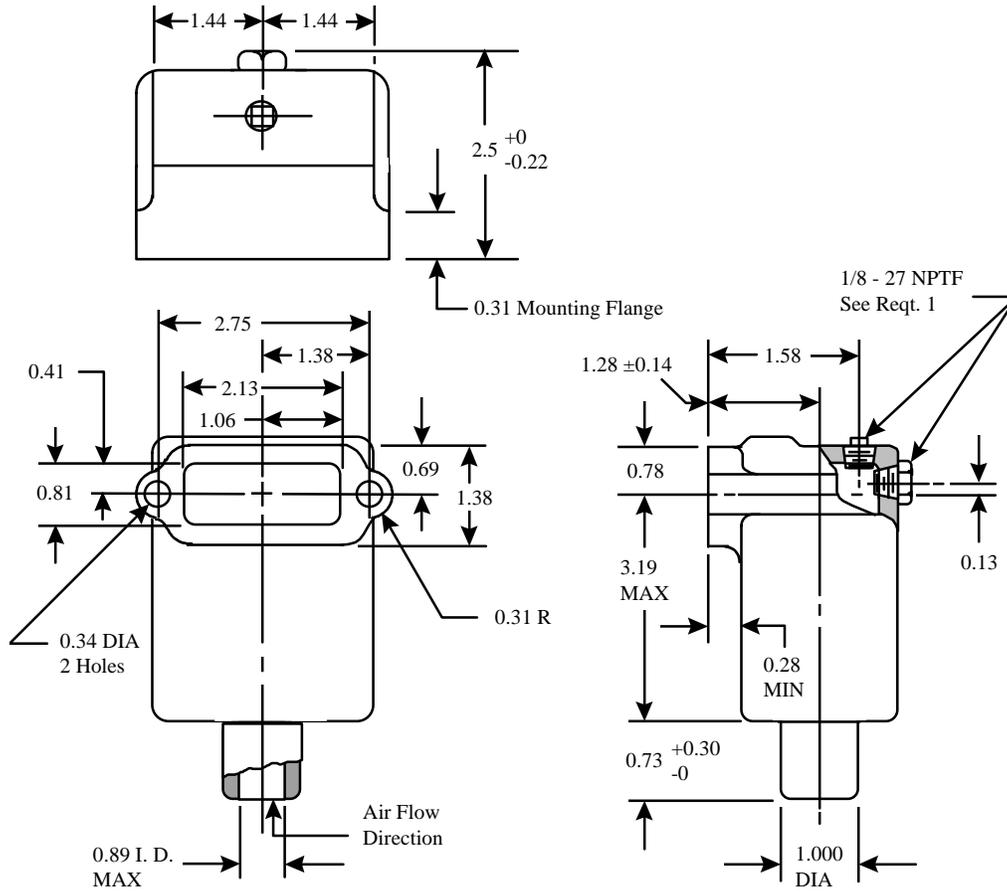
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NOTES:

1. Recommended maximum operating speed - 2400 rpm.
2. Maximum build-up time to pump a 1000 cubic inch reservoir to 100 psig (690 kPa):  
35 seconds at compressor speed of 2400 rpm.  
55 seconds at compressor speed of 1200 rpm.
3. Compressor shall be constructed to allow 180° rotation of the head and block assembly to provide for right or left hand location of the inlet and discharge flanges. Manufacturer shall furnish an instruction sheet, together with necessary spare gasket for each compressor.
4. Maximum weight: 37 lb (16.76 kg).
5. Dimensions are in inches. Unless otherwise specified, tolerances are  $\pm 0.02$  on 2 place fractions and  $\pm 0.005$  on 3 place fractions,  $\pm 1^\circ$  angle casting dimensions shall be  $\pm 0.006$ .

FIGURE 2. Compressor, reciprocating, power driven: air cooled, 12 ft<sup>3</sup>/min w/unloader - Continued.

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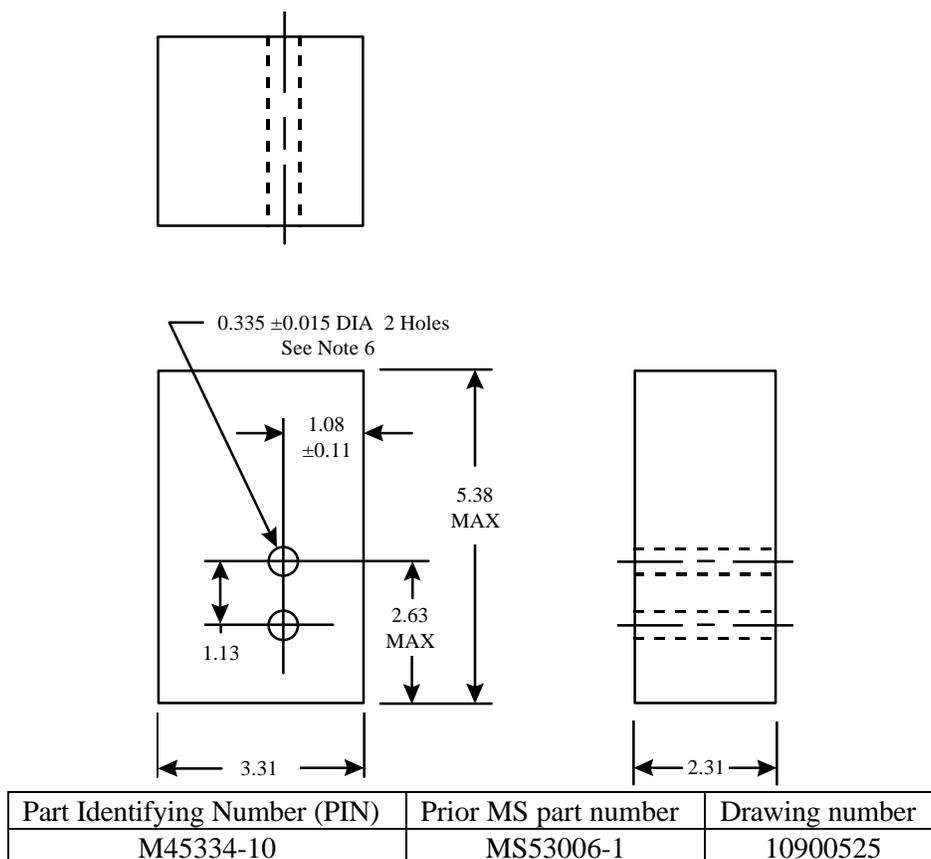
Part Identifying Number (PIN)	Prior MS part number
M45334-9	MS53005-1

## NOTES:

1. Pipe thread must extend into air flow opening and may be located at either end of the positions shown.
2. Unless otherwise specified, dimensions are in inches.  
Tolerances:  $\pm 1/64$  on fractions and  $\pm 0.005$  on decimals.

FIGURE 3. Air cleaner, intake: compressor.

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## NOTES:

1. Pressure settings: Governors shall be capable of adjustment within a pressure range of 85 to 140 psi (586 to 965 kPa) cut-out pressures.
2. Unless otherwise specified, governors shall be factory preset to cut-in at 105 to 110 psi (723 to 758 kPa), and cut-out at 120 to 140 psi (827 to 965 kPa).
3. Governors shall have a minimum of one (1) reservoir port and two (2) unloader ports, additional ports shall be optional.
4. All ports, except one (1) reservoir and one (1) unloader, shall be fitted with metallic dryseal (NPTF) pipe plugs. Unplugged ports shall be fitted with closures to prevent intrusion of dust and moisture and to prevent damage to threads.
5. Provision shall be made for governor to exhaust to atmosphere.
6. Governors shall have a minimum of two (2) mounting holes located as shown. Additional mounting holes shall be optional.
7. Port identification shall be marked with letters of 0.09 minimum height by means of steel stamping, casting, or molding.
8. All ports shall be tapped 1/8-27 NPTF.
9. Unless otherwise specified, dimensions are in inches. Tolerance:  $\pm 1/64$  on fractions.

FIGURE 4. Governor assembly: air brake for tactical vehicles.

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3.4.1.5 Pressure buildup time. The pressure buildup time from 0 to 100 psig (690 kPa) shall not exceed that specified in table III (see 4.5.3.5).

TABLE III. Pressure buildup time.

Speed rpm	Time, seconds per 1000 in <sup>3</sup>				
	Type I and III	Type II and IV	Type V	Type VI and VII	Type VIII
600	105	67	36	129	87
1200	55	33	17	50	36
1800	40	24	13	44	24
2400	35	21	11	26	20

3.4.2 Governor performance.

3.4.2.1 Pressure settings. Pressure settings and tolerances shall be as specified on figure 4 or on the applicable drawing (see 4.5.4.1).

3.4.2.2 Life. The governor shall withstand 100 000 cycles of cut-in and cut-out operation (see 4.5.4.2).

3.4.3 Air cleaner performance.

3.4.3.1 Air flow restrictions. The static pressure drop across the air cleaner shall not exceed 12 inches (in.) (30.48 centimeters (cm)) of water at rated air flow of applicable compressor (see 4.5.5.2).

3.4.3.2 Efficiency. The efficiency of the air cleaner shall not be less than 95 percent (see 4.5.5.3).

3.4.3.3 Dust capacity. The air cleaner shall have a minimum dust capacity of 15 grams (g) of coarse dust, without exceeding a restriction of 20 in. (50.8 cm) of water (see 4.5.5.4).

3.4.4 Environmental requirements. For fungus resistance, corrosion resistance, vibration, and shock testing, accessories may be installed on the compressor and tested as a single unit (see 4.5.6).

3.4.4.1 Fungus resistance. Compressor, governor, and air cleaner shall exhibit no deterioration after undergoing procedure specified in 4.5.6.1.

3.4.4.2 Corrosion resistance. Compressor, governor, and air cleaner shall exhibit no corrosion after undergoing procedure specified in 4.5.6.2.

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3.4.4.3 Vibration resistance. Compressor, governor, and air cleaner shall operate as in intended use after undergoing procedure specified in 4.5.6.3.

3.4.4.4 Shock resistance. Compressor, governor, and air cleaner shall operate as in intended use after undergoing procedure specified in 4.5.6.4.

3.5 Finish. Unless otherwise specified, all interior metal surfaces, other than the shaft and mounting flange, shall be treated and painted in accordance with the standard practice of the manufacturer. When specified (see 6.2), the finish coat shall be forest green enamel (see 4.5.2).

3.6 Identification markings. The complete compressor and each major component shall be marked as specified on applicable drawings (see 4.5.2). If not specified on the applicable drawing, marking shall include:

- a. Manufacturer's identification.
- b. National Stock Number (NSN).
- c. Part of Identifying Number (PIN).

#### 4. VERIFICATION

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

- a. First article inspection (see 4.3).
- b. Conformance inspections (see 4.4).

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

- a. Air temperature:  $77 \pm 10$  degrees Fahrenheit ( $^{\circ}\text{F}$ ) ( $25 \pm 5.5$  degrees Celsius ( $^{\circ}\text{C}$ )).
- b. Barometric pressure: 28.5 (+2, - 3) in. of mercury (Hg)  
(96.24 (+6.75, -10.13) kPa).
- c. Relative humidity:  $50 \pm 30$  percent.

4.3 First article inspection. First article inspection shall be performed on three compressors of each type or three compressor accessories when a first article is required. Inspection shall consist of examination for the defects specified in table IV and testing as specified in table V.

4.3.1 Examination. Each sample selected in accordance with 4.4.1.2 shall be examined and shall be free from any defects as listed in table IV.

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TABLE IV. Classification of defects.

Category	Defect	Method of examination
Critical	None	
<u>Major:</u> 101	Dimensions affecting interchangeability, not within tolerance (see 3.3.1).	SIE <u>1/</u>
<u>Minor:</u> 201	Dimensions not affecting interchangeability not within tolerance (see 3.3).	SIE
202	Improper finish (see 3.5).	Visual
203	Improper marking (see 3.6).	Visual

1/ SIE = Standard Inspection Equipment.

4.4 Conformance inspections. Conformance inspection shall include the examinations of 4.4.2 (see table IV) and the test of 4.5.3.5, 4.5.4.1 or 4.5.5.2, as applicable (see table V).

TABLE V. Classification of inspections.

Compressor	Title	Requirement	Inspection	First article	Conformance
A, B, & C	Power input	3.4.1.1	4.5.3.1	X	
A, B, & C	Oil flow	3.4.1.2	4.5.3.2	X	
A, B, & C	Discharge air temperature	3.4.1.3	4.5.3.3	X	
A	Life test	3.4.1.4	4.5.3.4	X	
A	Pressure buildup time	3.4.1.5	4.5.3.5	X	
B	Fungus	3.4.4.1	4.5.6.1	X	
B	Power input	3.4.1.1	4.5.3.1	X	
B	Oil flow	3.4.1.2	4.5.3.2	X	
B	Discharge air temperature	3.4.1.3	4.5.3.3	X	
B	Pressure buildup time	3.4.1.5	4.5.3.5	X	
B	Vibration	3.4.4.3	4.5.6.3	X	
B	Power input	3.4.1.1	4.5.3.1	X	
B	Oil flow	3.4.1.2	4.5.3.2	X	
B	Discharge air temperature	3.4.1.3	4.5.3.3	X	
B	Pressure buildup time	3.4.1.5	4.5.3.5	X	X
C	Corrosion	3.4.4.2	4.5.6.2	X	
C	Power input	3.4.1.1	4.5.3.1	X	
C	Oil flow	3.4.1.2	4.5.3.2	X	
C	Discharge air temperature	3.4.1.3	4.5.3.3	X	
C	Pressure buildup time	3.4.1.5	4.5.3.5	X	

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TABLE V. Classification of inspections - Continued.

Compressor	Title	Requirement	Inspection	First article	Conformance
C	Shock	3.4.4.4	4.5.6.4	X	
C	Power input	3.4.1.1	4.5.3.1	X	
C	Oil flow	3.4.1.2	4.5.3.2	X	
C	Discharge air temperature	3.4.1.3	4.5.3.3	X	
C	Pressure buildup time	3.4.1.5	4.5.3.5	X	
Governor A, B, & C	Pressure setting	3.4.2.1	4.5.4.1	X	X
A	Life test	3.4.2.2	4.5.4.2	X	
A	Pressure setting	3.4.2.1	4.5.4.1	X	
B	Fungus	3.4.4.1	4.5.6.1	X	
B	Pressure setting	3.4.2.1	4.5.4.1	X	
B	Vibration	3.4.4.3	4.5.6.3	X	
B	Pressure setting	3.4.2.1	4.5.4.1	X	
C	Corrosion	3.4.4.2	4.5.6.2	X	
C	Pressure setting	3.4.2.1	4.5.4.1	X	
C	Shock	3.4.4.4	4.5.6.4	X	
C	Pressure setting	3.4.2.1	4.5.4.1	X	
Air cleaner A, B, & C	Air flow restriction	3.4.3.1	4.5.5.2	X	X
A	Efficiency	3.4.3.2	4.5.5.3	X	
A	Dust capacity	3.4.3.3	4.5.5.4	X	
B	Fungus	3.4.4.1	4.5.6.1	X	
B	Air flow restriction	3.4.3.1	4.5.5.2	X	
B	Vibration	3.4.4.3	4.5.6.3	X	
B	Air flow restriction	3.4.3.1	4.5.5.2	X	
C	Corrosion	3.4.4.2	4.5.6.2	X	
C	Air flow restriction	3.4.3.1	4.5.5.2	X	
C	Shock	3.4.4.4	4.5.6.4	X	
C	Air flow restriction	3.4.3.1	4.5.5.2	X	

4.4.1 Sampling. Samples for conformance inspection shall be selected in accordance with ANSI/ASQC Z1.4.

#### 4.5 Methods of inspection.

4.5.1 Materials. Conformance to 3.2 shall be determined by inspection of contractor records providing proof or certification that materials conform to requirements. Applicable

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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.

4.5.2 Defects. Conformance to 3.3 and 3.5 through 3.6, shall be determined by examination for the defect listed in table IV. Examination shall be visual, tactile, or by measurement with standard inspection equipment.

4.5.3 Compressor performance tests. Unless otherwise specified herein, the compressor shall be tested for performance with a discharge pressure of 100 psig (690 kPa), at speeds of 600, 1200, 1800 and 2400 rpm. Tests shall be made in accordance with table VI. The compressor shall be allowed to stabilize to ambient air temperature as specified in 4.2 for at least one hour prior to start of test. Tests shall be run and data recorded progressively from lowest to highest specified test speeds. At each test speed, discharge temperature shall be allowed to stabilize until the rate of temperature change does not exceed 1°F (0.5°C) per minute, before the data is recorded.

TABLE VI. Test deviations and fluctuations.

Variable	Deviation value	From value
Discharge pressure	100 psig (690 kPa)	5%
Speed	-	3%
Oil temperature	140°F (60°C)	10°F (5.5°C)
Oil pressure	37.5 psig (259 kPa)	2.5 psig (17 kPa)
Cooling air	500 ft <sup>3</sup> /min (236 L/s)	20 ft <sup>3</sup> /min (9.4 L/s)
Coolant	-	18 gal/min (1.13 L/s)

During testing, the rate of oil flow, air temperature and pressure at the compressor discharge, and power input shall be measured and recorded at each speed.

4.5.3.1 Power input test. While operating as specified in 4.5.3, power input to the compressor shall be measured and recorded at 2400 rpm, and 100 psig (690 kPa) load. Test shall be repeated at no load. Maximum horsepower input shall not exceed value specified in table I to determine conformance to 3.4.1.1.

4.5.3.2 Oil flow test. While operating as specified in 4.5.3, oil flow at 1775-1825 rpm, and 37.5 psig (259 kPa), shall be measured and recorded. Values shall not exceed those specified to determine to 3.4.1.2.

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4.5.3.3 Discharge air temperature test. While operating as specified in 4.6.1, discharge air temperature shall be measured and recorded. Values shall not exceed those specified to determine conformance to 3.4.1.3.

4.5.3.4 Life test. To determine conformance to 3.4.1.4, the compressor shall be cycled for 1000 hours in accordance with table VII. During the complete life test compressors shall be operated at no load and 100 psig (690 kPa) in alternate cycles. The rate of oil consumption (including leakage) shall be determined each 100 hours during the last 800 hours. The compressor may be driven by a gear drive, a coupling, or a belt drive. Belt drive shall produce a torque of  $240 \pm 30$  inch-pounds (in-lb), ( $27.12 \pm 3.4$  Newton-meters (N-m)), on the crankshaft toward the compressor base measured from the centerline of the compressor. If the belt drive is not used, this torque shall be maintained on the crankshaft toward the base of the compressor.

TABLE VII. Life cycle test.

Speed, rpm	Time, hours
1800	17
2400	6
0 (idle)	1

4.5.3.5 Pressure buildup time test. The compressor shall be driven, loaded, at a speed of 600 rpm for a half hour when it is a reciprocating type, or for 15 minutes for a rotating type. The compressor shall then be connected to discharge into a tank with a capacity of 2000 cubic inches (in.<sup>3</sup>) +5 percent. The time required for the compressor to raise the tank pressure to 100 psig (690 kPa), and the temperature of air at 100 psig (690 kPa), shall be recorded. The test shall be repeated at compressor speeds of 1200, 1800, and 2400 rpm, except the initial warm-up at each speed is not required. The pressure buildup time, in seconds per 1000 in.<sup>3</sup> of reservoir volume, shall be computed to determine conformance to 3.4.1.5.

4.5.4 Governor tests.

4.5.4.1 Pressure settings test. To determine conformance to 3.4.2.1, average pressure shall be obtained as follows: The governor shall be conditioned at temperatures of  $125^{\circ}\text{F} \pm 5^{\circ}\text{F}$  ( $51.6 \pm 2.8^{\circ}\text{C}$ ) for 24 hours, and  $-65 \pm 5^{\circ}\text{F}$  ( $-53 \pm 2.8^{\circ}\text{C}$ ) for 24 hours. Average cut-in and cut-out pressures shall then be determined from a series of 10 cycles at  $72 \pm 10^{\circ}\text{F}$  ( $22.2 \pm 5.5^{\circ}\text{C}$ ). Subsequent pressure setting tests will be performed at  $72^{\circ}\text{F} \pm 10^{\circ}\text{F}$  only. Average pressures shall not vary more than  $\pm 5$  percent from specified values.

4.5.4.2 Life test. To determine conformance to 3.4.2.2, the governor shall be subjected to 100 000 cycles of cut-in and cut-out operation. The supply pressure shall range from at least 5 psi (34 kPa) below cut-in pressure to at least 5 psi (34 kPa) above cut-out pressure, at 20 cycles per minute, as determined in 4.5.4.1.

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4.5.5 Air cleaner tests.

4.5.5.1 Air flow test. The air cleaner shall be tested at the rated air flow of the applicable compressor, at atmospheric conditions of 29.92 in. (76 cm) of mercury barometric pressure, and temperature of 80°F (26.6°C).

4.5.5.2 Air flow restriction test. To determine conformance to 3.4.3.1, with a clean unused air filter element installed in the air cleaner housing, the static pressure drop across the air cleaner shall be determined, at the rated air flow of the applicable compressor.

4.5.5.3 Efficiency test. To determine conformance to 3.4.3.2, the fine test dust shall be fed into the air cleaner at a concentration of 0.025 grams of dust per ft<sup>3</sup> of air.

4.5.5.4 Dust capacity test. To determine conformance to 3.4.3.3, the course test dust shall be fed into the air cleaner at a concentration of 0.025 grams of dust per ft<sup>3</sup> of air.

4.5.6 Environmental tests.

4.5.6.1 Fungus resistance test. To determine conformance to 3.4.4.1, the compressor, air cleaner, and governor shall be tested for fungus resistance as specified in method 508.4 of MIL-STD-810, except the performance tests shall be conducted after 90 days only.

4.5.6.2 Corrosion resistance test. To determine conformance to 3.4.4.2, the compressor, air cleaner, and governor shall be tested for resistance to corrosion in accordance with MIL-STD-810, except the length of the test shall be 200 hours.

4.5.6.3 Vibration test. To determine conformance to 3.4.4.3, the compressor, air cleaner, and governor shall be subjected to the method 514.4 vibration test of MIL-STD-810, except the duration of vibration shall be 24 hours in each direction of each of the 3 major axes (total of 72 hours). The compressor in addition to vibration shall be operated at a speed of 1750 ±50 rpm, with the unloading valve open, and lubricating oil supplied at a pressure of 20 psig (138 kPa).

4.5.6.4 Shock test. To determine conformance to 3.4.4.4, the compressor and accessories shall be subjected to shock test as specified in method 516.4 of MIL-STD-810.

## 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

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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 compressors and accessories covered by this specification are intended for use in military wheeled vehicles to supply compressed air for airbrake systems and accessories. These compressor assemblies are military unique due to the specific nature of their design, and the special environmental conditions they should meet which exceed commercial requirements.

6.2 Acquisition requirements. Acquisition documents must specify the following:

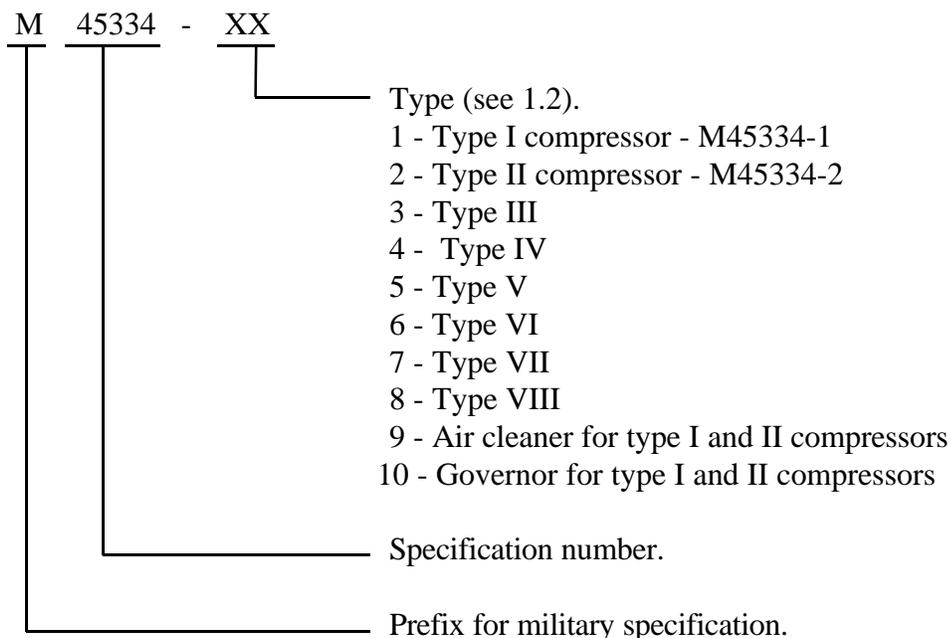
- a. Title, number, and date of this specification.
- b. Type of compressor required (see 1.2).
- c. Issue of DoDISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.2.1 and 2.3).
- d. When first article is required (see 3.1).
- e. Applicable drawings (see 3.3).
- f. Surface finish and color (see 3.5).
- g. Packaging requirements (see 5.1).
- h. PIN and quantity items is required (see 6.3).

6.3 Subject term (key word) listing.

Air cooled  
Air flow restrictions  
Power input  
Pressure buildup time  
Pressure setting  
Water cooled

6.4 Part identification number (PIN). The PINs to be used for compressor assemblies acquired to this specification are created as follows:

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6.5 Airbrake system evaporator. The evaporator assembly should be used in conjunction with types I, II, III, IV and V compressor systems. As this assembly is not an essentially integral part of any compressor system and is to be utilized only in cold (below -35°F (-37°C)) atmospheric conditions, no qualification of this assembly is required. However, prior to installation on any vehicles, the following precautions should be followed:

- a. Fill the jar two-thirds full with 188 proof commercial pure methyl alcohol.
- b. The compressor to alcohol evaporator line shall be less than 5 ft long and protected from excessive heat, where applicable.
- c. Activate the compressor and note air bubbles in alcohol evaporator. Presence of bubbles indicates unit is operating properly.

6.6 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.

## Custodians:

Army - AT  
Navy - YD2  
Air Force - 99

## Preparing Activity:

Army - AT

(Project 2530-0421)

## Review Activities:

Army - MI  
Navy - MC  
DLA - CC

## 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.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

<b>I RECOMMEND A CHANGE:</b>	1. DOCUMENT NUMBER MIL-DTL-45334E	2. DOCUMENT DATE (YYMMDD) 980930
3. DOCUMENT TITLE COMPRESSOR ASSEMBLIES, AIRBRAKE SYSTEM; WHEELED VEHICLE		
4. NATURE OF CHANGE <i>(Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)</i>		
5. REASON FOR RECOMMENDATION		
6. SUBMITTER		
a. NAME <i>(Last, First, Middle Initial)</i>	b. ORGANIZATION	
c. ADDRESS <i>(Include Zip Code)</i>	d. TELEPHONE <i>(Include Area Code)</i> (1) Commercial (2) AUTOVON <i>(If applicable)</i>	7. DATE SUBMITTED (YYMMDD)
8. PREPARING ACTIVITY		
a. NAME	b. TELEPHONE <i>(Include Area Code)</i> (1) Commercial (810) 574-8745 (2) AUTOVON 786-8745	
c. ADDRESS <i>(Include Zip Code)</i> 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	