

Price Evaluation Spreadsheet

Firing Device, Manual
DAAE20-00-R-0209

Minimum Guaranteed Quantity: 300
 (To be awarded in Pricing Period 1)

	Order Qty	Unit Price	Wgt						
CLIN 0001:									
Firing Device, Manual	100 - 199		5%		20%		20%		20%
NSN: 1025-00-997-2431	200 - 299		5%		70%		70%		70%
Part Number: 11599606	300 - 399		80%		10%		10%		10%
	400 - 500		100%		100%		100%		100%
First Article (FA) Test									
Weighted Unit Price		\$ -		\$ -		\$ -		\$ -	
Estimated Quantity		500		200		200		200	
Evaluated CLIN Price Without FA		\$ -		\$ -		\$ -		\$ -	
Plus FA Test		\$ -							
Evaluated CLIN Price With FA		\$ -							
Total Evaluated CLIN Price Without FA		\$ -						\$ -	
Total Evaluated CLIN Price With FA		\$ -						\$ -	

20. ITEM IDEN CODE(S)	21. ITEM SIZE	22. ITEM WT	23. APPROVED
JH	.72 X .39 X .33	6.60	EUGENE FARRELL
+-----+			
24. NOMENCLATURE			
FIRING DEVICE			PAGE 1 OF 2 PAGES
+-----+			

DISTRIBUTION STATEMENT A: UNLIMITED

CONTRACT DATA REQUIREMENTS LIST
(2 Data Items)

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 220 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503. Please DO NOT RETURN your form to either of these addresses. Send completed form to the Government Issuing Contracting Officer for the Contract/PR No. listed in Block E.

A. CONTRACT LINE ITEM NO. 0001	B. EXHIBIT	C. CATEGORY: TDP _____ TM _____ OTHER <input checked="" type="checkbox"/>	
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D. SYSTEM/ITEM Manual Firing Device	E. CONTRACT/PR NO.	F. CONTRACTOR
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1. DATA ITEM NO. A001	2. TITLE OF DATA ITEM Configuration Change Control *	3. SUBTITLE Engineering Actions
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4. AUTHORITY (Data Acquisition Document No.) DI-CMAN-81554	5. CONTRACT REFERENCE Section "C"	6. REQUIRING OFFICE AMSTA-AR-ES
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7. DD 250 REQ NO	9. DIST STATEMENT REQUIRED NO	10. FREQUENCY	12. DATE OF FIRST SUBMISSION ASREQ	14. DISTRIBUTION		
8. APP CODE	**	11. AS OF DATE --	13. DATE OF SUBSEQUENT SUBMISSION ASREQ	a. ADDRESSEE	b. COPIES	
					Draft	Final
					Reg	Repro

16. REMARKS PREPARE ENGINEERING ACTIONS IAW DI-CMAN-81554 AND SUBMIT ELECTRONICALLY VIA ECALS WORLDWIDE WEB PAGE HTTP://EDMD4.PICA.ARMY.MIL/ . * DATA INFORMATION PACKET ** DISTRIBUTION STATEMENT WILL BE ASSIGNED AND IMPLEMENTED BY THE DOD CONFIGURATION MANAGER. THE POC FOR ECALS IS LEE SADAUSKAS, AMSTA-AR-QAW, EMAIL ADDRESS LEES@PICA.ARMY.MIL	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>15. TOTAL</td> <td align="right">→</td> <td>0</td> <td>0</td> <td>0</td> </tr> </table>	15. TOTAL	→	0	0	0
15. TOTAL	→	0	0	0		

1. DATA ITEM NO. A002	2. TITLE OF DATA ITEM Special Inspection Equipment Descriptive	3. SUBTITLE Acceptance Inspection Equipment Design Document
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4. AUTHORITY (Data Acquisition Document No.) DI-QCIC-81006 *	5. CONTRACT REFERENCE Section "E"	6. REQUIRING OFFICE AMSTA-AR-QA
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7. DD 250 REQ XX	9. DIST STATEMENT REQUIRED N/A	10. FREQUENCY	12. DATE OF FIRST SUBMISSION **	14. DISTRIBUTION		
8. APP CODE A		11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION When Revised	a. ADDRESSEE	b. COPIES	
					Draft	Final
					Reg	Repro

16. REMARKS * DO NOT ADDRESS PARAGRAPHS 10.1, 10.2, 10.4.1(F) AND 10.4.2. IGNORE ALL REFERENCE TO THE WORD "SPECIAL" IN DID. SUBMIT FOR ALL CRITICAL, SPECIAL AND MAJOR CHARACTERISTICS IN SPECIFICATION OR QAP. ** SUMBIT 30 DAYS PRIOR TO FIRST ARTICLE OR PRODUCTION (IF FA IS WAIVED). THE GOVT WILL RESPOND W/IN 30 DAYS OF RECEIPT OF SUBMISSION. REVISIONS ARE TO BE SUBMITTED W/IN 10 DAYS OF RECEIPT OF GOVT RESPONSE. IF DOCUMENTATION WAS APPROVED ON PRIOR CONTRACT AND NO CHANGES WERE MADE, SUBMIT ONLY EVIDENCE OF PRIOR APPROVAL. EMAIL: AIE-QAC@PICA.ARMY.MIL - AMSTA-AR-QA-CDRL@RIA.ARMY.MIL TEXT: MICROSOFT OFFICE 97 DRAWINGS: AUTOCAD-RELEASE 14 (HARD COPIES WILL BE ACCEPTED). FILES MAY BE COMPRESSED USING ZIP PROGRAM. WARNING: LARGE PKGS MAY CAUSE DELAYS IN DELIVERY USING MAIL INTERNET. EMAIL SUBJECT LINE MUST CONTAIN END ITEM NOMENCLATURE.	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>15. TOTAL</td> <td align="right">→</td> <td></td> <td>3</td> <td></td> </tr> </table>	15. TOTAL	→		3	
15. TOTAL	→		3			

G. PREPARED BY	H. DATE	I. APPROVED BY SHELLEY SCHABILION	J. DATE 29 DEC 1999
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17. PRICE GROUP
18. ESTIMATED TOTAL PRICE

17. PRICE GROUP
18. ESTIMATED TOTAL PRICE

INSTRUCTIONS FOR COMPLETING DD FORM 1423
(See DoD 5010.12-M for detailed instructions.)

FOR GOVERNMENT PERSONNEL

- Item A. Self-explanatory.
- Item B. Self-explanatory.
- Item C. Mark (X) appropriate category: TDP - Technical Data Package; TM - Technical Manual; Other - other category of data, such as "Provisioning," "Configuration Management," etc.
- Item D. Enter name of system/item being acquired that data will support.
- Item E. Self-explanatory (to be filled in after contract award).
- Item F. Self-explanatory (to be filled in after contract award).
- Item G. Signature of preparer of CDRL.
- Item H. Date CDRL was prepared.
- Item I. Signature of CDRL approval authority.
- Item J. Date CDRL was approved.
- Item 1. See DoD FAR Supplement Subpart 4.71 for proper numbering.
- Item 2. Enter title as it appears on data acquisition document cited in Item 4.
- Item 3. Enter subtitle of data item for further definition of data item (optional entry).
- Item 4. Enter Data Item Description (DID) number, military specification number, or military standard number listed in DoD 5010.12-L (AMS DL), or one-time DID number, that defines data content and format requirements.

~~Requirement for the data item (e.g., 18 characters with 6 characters after).~~

of the data item.
- Item 6. Enter technical office responsible for ensuring adequacy data item by the Government.
- Item 7. Specify requirement for inspection/acceptance of the preparation of the final data item.
- Item 8. Specify requirement for approval of a draft before mark the appropriate distribution statement on the data (ref. DoDD 5230.24).
- Item 9. For technical data, specify requirement for contractor to
- Item 10. Specify number of times data items are to be delivered.
- Item 11. Specify as-of date of data item, when applicable.
- Item 12. Specify when first submittal is required.
- Item 13. Specify when subsequent submittals are required, when delivered to each addressee. Explain reproducible copies in Item 16.
- Item 14. Enter addressees and number of draft / final copies to be
- Item 15. ~~Examples are: number of copies to be delivered; Clarification of submittal dates in Items 12 and 13; Explanation of reproducible copies in Item 14.; Desired medium for delivery of the data.~~ ~~Examples are: number of copies to be delivered; Clarification of submittal dates in Items 12 and 13; Explanation of reproducible copies in Item 14.; Desired medium for delivery of the data.~~ Clarification of submittal dates in Items 12 and 13; Explanation of reproducible copies in Item 14.; Desired medium for delivery of the data.

FOR THE CONTRACTOR

Item 17. Specify appropriate price group from one of the following groups of effort in developing estimated prices for each data item listed on the DD Form 1423.

a. Group I. Definition - Data which is not otherwise essential to the contractor's performance of the primary contracted effort (production, development, testing, and administration) but which is required by DD Form 1423.

those applicable to the contractor's performance of the primary contracted effort in conformance with Government requirements, and the administration and other expenses related to reproducing and delivering such data items to the Government.

performance of the primary contracted effort but the contractor is required to perform additional work to data which Government requirements with regard to depth of content, format, frequency of submittal, preparation, control, or quality of the data item.

those incurred over and above the cost of the essential data item without conforming to Government requirements, and the administrative and other expenses related to the data item.

develop for his internal use in performance of the primary contracted effort and does not require any substantial change to conform to Government requirements with regard to depth of content, format, frequency of submittal, preparation, control, and quality of the data item.

the administrative and other expenses related to reproducing and delivering such data item to the Government.

Estimated Price - Costs to be included under Group III are contractor as part of his normal operating procedures and his effort in supplying these data to the Government is minimal.

d. Group IV. Definition - Data which is developed by the shown on the DD Form 1423 at no cost.

Estimated Price - Group IV items should normally be portion of the total price which is estimated to be attributable to the production or development for the Government of that item of data. These estimated data prices shall be developed only from those costs which will be incurred as a direct result of the requirement to supply the data, over and above those costs which would be incurred in the normal course of business if the data were required. The estimated data prices shall not include any amount for rights in data. The Government's right to use the data shall be governed by the pertinent provisions of the contract.

DOCUMENT SUMMARY LIST

Item: M60 SERIES TANK, FIRING DEVICE
 NSN: 1025-00-997-2431
 Control Number/PRON: P205LJX2

Identifies all first tier documents (cited in SOW) (applicable DIDs). Also included are all referenced documents (2nd, (includes DID block 10 references), 3rd and lower tier) which have been tailored.

DOCUMENT CATEGORY:

CATEGORY 0 - Unless otherwise specified in the solicitation, contract, or contract modifications, all documents are for guidance and information only.

CATEGORY 1 - The requirements contained in the directly cited document are contractually applicable to the extent specified. All referenced documents are for guidance and information only.

CATEGORY 2 - The requirements contained in the directly cited document and the reference documents identified in the directly cited document are contractually applicable to the extent specified. All subsequently referenced documents are for guidance and information only.

CATEGORY 3 - Unless otherwise specified in the solicitation, contract or contract modification, all requirements contained in the directly cited document and all reference and subsequently referenced documents are contractually applicable to the extent specified.

Document Number (Contract Reference) Applicable Tailoring	Document Title	Document Date/ Document Category
1a. MIL-STD-2549 Table DIP4-1	Configuration Management Data Interface	30 Jun 97 Cat 2
1b. DI-CMAN-81554 (seq A001)	Configuration Change Control Data Information Packet	30 Jun 97 Cat 2
2. ANSI/ISO/ASQC Q9002 or equivalent	Model for Quality Assurance in Production, Installation & Servicing	18 Jul 94
3a. NCSL Z540-1 (ES7010)	General Requirements for Calibration Laboratories and Measuring and Test Equipment	30 Aug 1994
OR		
ISO 10012-1 (ES7010)	Quality Assurance Requirements for Measuring Equipment, Part 1: Metrological Confirmation System	1992

3b. DI-QCIC-81006
(DD Form 1423)

Special Inspection Equipment
Description Documentation

11 Sep 89
Cat 2

GUIDANCE ON DOCUMENTATION OF CONTRACT REQUIREMENTS LIST (CDRL)

The following information is furnished to provide guidance with respect to the abbreviations and codes utilized in various blocks of DD Form 1423, Contract Data Requirements List.

Block 1. Sequence Number. This number is specified by DOD components in accordance with FAR Supplement Subpart 4.71.

Block 2. Title of Description of Data. This represents the title or brief description of the data. This title should be identical to the Data Item Description (DID) title with Block 3 being used for further identification, if required.

Block 3. Subtitle of Data. If the title requires further identification, a subtitle is entered.

Block 4. Authority, Data Item Number. Data item number of the DID which provides the data preparation instructions.

Block 5. Contract Reference. The specific paragraph number of the contract procurement request, system specification, or other applicable document which identifies the effort associated with the data item authorized by Block 4 above.

Block 6. Technical Office. The office that is responsible for assuring the adequacy of the data item unless this responsibility is delegated elsewhere in the contract or in Block 7 on the DD Form 1423.

Block 7. DD Form 250 Requirement. This block designates the location (contractor's facility or destination) for performance of Government inspection and acceptance. The applicable codes for inspection and acceptance are cited below. The Government activity to perform the destination acceptance task is entered in Block 14 as the first addressee.

Code	Inspection	Acceptance
SS	*Source(DD Form 250)	*Source(DD Form 250)
DD	Destination(DD Form 250)	Destination(DD Form 250)
SD	*Source(DD Form 250)	Destination(DD Form 250)
DS	Destination(DD Form 250)	*Source(DD Form 250)
LT	Letter of Transmittal only	
NO	No inspection or acceptance required	
XX	Inspection/acceptance requirements specified elsewhere in the contract.	

*Source indicates contractor's facility,

Block 8. Approval Code. Items of critical data requiring specified advanced written approval, such as test plans, are identified by an "A" in this field. This data requires submission of a preliminary draft prior to publication of the final document. When advanced approval is not required, this field is blank.

Block 9. Distribution Statement Required. The code letter corresponding to the distribution statement to be marked on the technical data item by the contractor, in accordance with DoD Directive 5230.24 and the guidance in DoD 5010.12-M.

Block 10. Frequency. The codes that appear in this block are cited below:

ANNLY	Annually	ASGEN	As generated*
ASREQ	As required*	BI-MO	Every 2 months
BI-WE	Every 2 weeks	DAILY	Daily
DFDEL	Deferred Delivery	MTHLY	Monthly
ONE/P	One Preliminary	ONE/R	One time with revisions
QRTLY	Quarterly	R/ASR	Revision as required*
SEMI	Every 6 months	WEKLY	Weekly
XTIME**	Number of time to be submitted (1TIME, 2TIMES, etc.)		

*Use of these codes requires further explanation in block 16 to provide the contractor with guidance necessary to accurately price the deliverable data item.

**A number must be inserted in place of the "X".

Block 11. As of Date (AOD). When data is submitted only once, this block indicates the number of days the data is to be submitted prior to the end of the reporting period; e.g., "15" would place the AOD for this report as 15 days before the end of each month, quarter, or year depending on the frequency established in Block 10; "0" places the AOD at the end of the month, quarter, or year. Further guidance is shown in Block 13 or 16 as required.

Block 12. Date of First Submission. This block indicates the initial data submission date (Year/Month/Day). When the contract start date has not been established, this block indicates the number of days after the contract start date that the data is due; e.g., 30 days after contract (DAC). Further information, if required is contained in Block 13. "DFDEL" indicates deferred delivery.

Block 13. Date of Subsequent Submission/Event Identification. When data is submitted more than once, the date(s) of subsequent submission(s) is indicated in this block. Example: "Not later than (NLT) 15 days before start of production"; "45 days before first article", etc.

Block 14. Distribution and Addressees. Addressees and number of copies (draft/regular/reproducible) to be forwarded to each addressee as cited in this block. Addressees are indicated by office symbols (i.e., AMSIO-XYZ). A list explaining these symbols and their addressees is attached to the form. When reproducible copies are required, the type of copies required will be cited in this block or Block 16.

NOTE: Unless otherwise cited in Block 10 of DD Form 1664, entries in Blocks 3 through 9 on DD Form 1664, Data Item Descriptions, are for information purposes only and are not contractually binding.

NOTE: It is required that data items be delivered using electronic media. Where possible electronic transmission (e-mail) is the most preferred method. Refer to the Contract Data Requirements List (CDRL), DD Form 1423 for more specific information (i.e., e-mail addresses, etc.)

For narrative kinds of reports, submission of a 3 1/2 inch disk in Rich Text Format (RTF), Microsoft Word or by e-mail is acceptable.

For spreadsheets or database kinds of reports, the acceptable software packages would be Microsoft Office products, i.e., Access or Excel. If these packages are not available, the information could be forwarded using a word processing kind of document saved in a Rich Text Format (RTF).

Address List

Director

Armament and Chemical Acquisition, and Logistics Activity

ATTN: (See Block 14 of DD Form 1423 for symbols that apply)

Rock Island, IL 61299-8630

Director

U.S. Army, Armament, Research, Development & Engineering Center

ATTN: (See Block 14 of DD Form 1423 for symbols that apply)

Rock Island, IL 61299-7300

Commander

U.S. Army, Armament, Research, Development & Engineering Center

ATTN: (See Block 14 of DD Form 1423 for symbols that apply)

Picatinny Arsenal, NJ 07806-5000

METRIC

MIL-DTL-46789C(AT)

4 September 1998

SUPERSEDING

MIL-B-46789B(AT)

23 January 1991

DETAIL SPECIFICATION

BLASTING MACHINE, AUXILLARY FIRING, EMERGENCY

This specification is approved for use by the U.S. Army Tank-automotive and Armaments Command, Department of the Army, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers an auxiliary firing blasting machine, hereinafter to be referred to as "assembly", which produces an electric output through generator action for emergency firing of fire power on full tracked combat vehicles.

1.2 Classification. Blasting machines furnished are of the following classes (see 6.2).

Class 1 - 8675771
Class 2 - 11599606
Class 3 - 11637536
Class 4 - 11679045
Class 5 - 12282970
Class 6 - 12918973

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 2590

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

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 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).

SPECIFICATIONS

FEDERAL

TT-E-489 - Enamel, Alkyd, Glass, Low Voc Content.

STANDARDS

DEPARTMENT OF DEFENSE

MIL-STD-202 - Tests Methods for Electronic and Electrical Component Parts.
MIL-STD-810 Environmental Test Methods.

(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 specification to the extent specified herein. Unless otherwise specified, the issues are those cited in this solicitation.

DRAWINGS

ARMY

8675771	- Blasting Machine, Basic Unit.
11599606	- Blasting Machine, Basic Unit.
11637536	- Blasting Machine.
11679045	- Blasting Machine Assembly.
12282970	- Blasting Machine Assembly.
12918973	- Blasting Machine Assembly.

(Copies of drawings may be obtained from U.S. Army Tank-Automotive and Armaments Command, ATTN: AMSTA-TR-E/BLUE, Warren, MI 48397-5000.)

NUCLEAR REGULATORY COMMISSION

Code Of Federal Regulations (CFR) - Title 10, Parts 30 and 40.

(Application for copies may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.)

2.3 Non-Government publications. The following document(s) 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 issue of the documents cited in the solicitation (see 6.2).

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM G21	- Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi (DoD Adopted).
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(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 sample shall be subjected to first article inspection in accordance with 4.1.1.

3.2 Materials. Materials shall be as specified herein and as in the referenced drawings, specifications, and standards and shall be free from all defects and imperfections that might affect the serviceability and function of the finished product (see 4.5).

3.2.1 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.

3.2.2 Corrosion resistance. Function parts exposed to the environment shall be fabricated from suitable corrosion resistant material or treated to prevent corrosion (see 4.5).

3.2.3 Threads. All internal and external threads shall conform to commercial American Standards (see 4.5 and 6.5).

3.2.4 Finish. Non-functional metal parts exposed to the environment shall be painted white with an enamel conforming to TT-E-489 or equivalent (see 4.5.1).

3.3 Design and construction. The design, construction and assembly of the blasting machine shall conform to Drawings 8675771, 11599606, 11637536, 11679045, 12282970 or 12918973, as applicable (see 4.5, and 6.2).

3.4 Operating requirements. Each assembly shall provide the following functional, operational, and performance capabilities.

3.4.1 Electrical output. The assembly shall generate an electrical output not less than that listed in table I at each of the conditions specified (see 4.6.1, 4.6.1.1 and 6.2). (Not applicable to blasting machines covered by Drawings 12282970 or 12918973; for which the electrical output requirements shall be as specified on their respective drawing (see 4.6.1.2 and 6.2).

3.4.2 Operating position. The assembly shall meet the electrical performance requirements of table I (Assemblies 12282970 and 12918973, as appropriate per their respective drawing requirements) when operated in any of the following positions (see 3.4.1 and 4.6.2):

- a. Shaft in a vertical position with handle down.
- b. Shaft in a vertical position with handle up.
- c. Shaft in a horizontal position.

MIL-DTL-46789C(AT)

TABLE I. Electrical output.

Condition	Rotor shaft input ^{1/} torque (N·m) ± 10%	Resistive loads (ohms) ^{2/}	Peak output voltage (minimum)
A	7.9	1.47 ± 1%	3.1 ^{3/}
B	7.9	20.50 ± 1%	27.0
C	7.9	Open circuit	44.0
D	11.3	1.47 ± 1%	3.8
E	11.3	20.50 ± 1%	38.7
F	11.3	Open circuit	60.0
G	14.7	1.47 ± 1%	4.4
H	14.7	20.50 ± 1%	49.4
I	14.7	Open circuit	74.0

^{1/} Specified torque is the applied torque at the start of the stroke measured after 5° of shaft rotation when the backlash of the gear drive mechanism is eliminated. Torque should be sufficiently constant throughout the stroke so that neither maximum nor minimum values of torque deviate from average torque by more than 15%. Torque at no point in the power stroke may exceed the maximum specific value of torque.

^{2/} Pure resistive load with no more than 1% inductive impedance component at 1000 Hertz (Hz).

^{3/} Shall be 0.9 volts minimum 50 milliseconds after peak voltage.

NOTE: N·m = Newton meters, % = percent

3.4.3 Dielectric strength. The assembly shall operate safely at its rated voltage and withstand momentary overpotentials due to switching, surges, and similar phenomena (see 4.6.3).

3.4.4 Insulation resistance. The assembly shall have an insulation resistance of not less than 100 megohms between the internal wiring and the case (see 4.6.4).

3.4.5 Rotation. The direction of rotation of the handle to produce the electrical output shall be clockwise when viewed from the handle end. One cycle of rotation shall be 150 ± 5° and return to original position (see 4.6.5).

3.4.6 Torque. The assembly shall show no evidence of failure, electrically or mechanically, after repeated operation at 14.7 N·m of torque throughout the complete rotation of the rotor shaft (see 4.6.5.1).

3.4.7 Operational stability. The assembly shall withstand 10 000 cycles of operation without failure (see 4.6.5.1).

3.5 Interface requirements. The assembly shall conform to the interface envelope dimensions, mounting and electrical interfaces in the applicable drawing (see 4.7).

3.6 Support and ownership requirements. The assembly shall possess the following life cycle ownership characteristics (see 4.8).

3.6.1 Safety. The assembly shall pose no hazards, physically or electrically to personnel operating the blasting machine (see 4.8.1).

3.6.2 Identification marking. The assembly shall prominently display at least, the item's name, manufacturer's name or trademark, manufacturer's part number, cage code serial number and PIN (military part identification number) on the outer surface, in permanent, easily visible, straight simple letters and numbers (see 4.8.2).

3.7 Operating environment requirements. Each assembly shall operate under the following environmental conditions, without degradation in performance.

3.7.1 Waterproofness. The assembly shall be capable of withstanding 41 kilopascals (kPa) differential while submerged in water (see 4.9.1).

3.7.2 Sand and dust resistance. The assembly shall be capable of withstanding blowing sand and dust at a velocity of 762 ± 152 meters per minute (m/min) (see 4.9.2).

3.7.3 Fungus. The assembly shall be capable of withstanding a fungus environment at 93 to 100 % relative humidity (see 4.9.3).

3.7.4 Shock. The assembly shall be capable withstanding a sawtooth wave shock pulse of 75 gravity units (g) (see 4.9.4).

3.7.5 Corrosion resistance. The assembly shall be capable of withstanding a 5% salt solution spray (see 4.9.5).

3.7.6 Vibration. The assembly shall be capable of withstanding the severe vibration profile as specified in figure 2 with sweep times of 16 min/cycle and the total cycling time per axis shall be two hours in each of the three mutually perpendicular axes (see 4.9.6).

3.7.7 Temperature stability. The assembly shall meet the requirements specified herein at ambient temperatures ranging from -32°C to 52°C and shall show no evidence of failure, electrical or mechanical, after storage at an ambient temperature ranging from -54°C to -8°C (see 4.9.7 and 4.9.8).

4. VERIFICATION

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

- a. First article inspection (see 4.1.1).
 1. Preproduction inspection (see 4.1.2).
 2. Initial production (see 4.1.3).
- b. Conformance inspection (CI) (see 4.2).
 1. Examinations (see 4.2.2).
 2. Tests (see 4.2.3).

4.1.1 First article inspection. First article inspection shall be performed on preproduction and initial production units as specified herein. Approval of the first production units by the Government shall not relieve the contractor of the obligation to supply assemblies that are fully representative of those inspected as a first article (see 6.3).

4.1.2 Preproduction inspection. When specified (see 6.2), the preproduction sample shall consist of 2 units. Preproduction inspection shall consist of inspection as specified in table II.

4.1.3 Initial production inspection. Unless otherwise specified (see 6.2), the Government shall select two units from the first ten produced under the production contract for the initial production inspection. The initial production samples shall be inspected as specified in table II.

4.1.4 First article test sequence. First article tests shall be conducted on the sample in accordance with the test sequence specified in table III.

4.2 Conformance inspection. Conformance inspection shall include the examination of 4.2.2 and the tests of 4.2.3. Noncompliance with any of the specified requirements shall be cause for rejection of the sample and the inspection lot. Following this test the assembly shall be subjected to and pass the electrical output test of 4.6.1 (see 6.4).

4.2.1 Sampling plan. The sampling plan shall be as specified in the contract or work order.

4.2.2 Examination. The sample selected in accordance with 4.2.1 shall be examined as specified in table II. The major defects are safety, identification markings and interface while the minor defect is the finish. The acceptance number in all cases is zero.

4.2.3 Test (100% inspection). Each item shall be subjected to the CI tests specified in table II.

TABLE II. Classification of inspection.

Title	Requirement	Inspection	First article		CI	
			Preproduction	Initial production	Exam	Test (100%)
Group A:						
Materials, design & construction	3.2, 3.2.1, 3.2.2, 3.2.3, 3.3	4.5	X	X		
Finish	3.2.4	4.5.1	X	X	X	
Operational requirements						
Electrical output	3.4.1	4.6.1	X	X		
Electrical output (100%) inspection		4.6.1.1				X
Operation position	3.4.2	4.6.2	X	X		
Dielectric strength	3.4.3	4.6.3	X	X		
Insulation resistance	3.4.4	4.6.4	X	X		
Rotation	3.4.5	4.6.5	X	X		
Torque & operational stability	3.4.6 & 3.4.7	4.6.5.1	X	X		
Interface requirements	3.5	4.7			X	
Support and ownership requirements	3.6	4.8				
Safety	3.6.1	4.8.1	X	X	X	
Identification marking	3.6.2	4.8.2	X	X	X	
Operating environment requirements	3.7	4.9				
Waterproofness	3.7.1	4.9.1	X	X		
Sand & dust proof	3.7.2	4.9.2	X	X		
Fungus resistance	3.7.3	4.9.3	X			
Shock resistance	3.7.4	4.9.4	X	X		
Corrosion resistance	3.7.5	4.9.5	X	X		
Vibration	3.7.6	4.9.6	X	X		
High temperature	3.7.7	4.9.7	X	X		
Low temperature	3.7.7	4.9.8	X	X		

4.3 Verification methods. The types of verification methods included in this section are visual, inspection, measurement, sample tests, full scale demonstration tests, or equivalent tests, simulation modeling, engineering evaluation, component properties analysis, and similarity to previously-approved or previously-qualified designs.

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TABLE III. First article test sequence. 1/

Title	Requirement	Test	Preproduction sample		Initial production sample	
			1	2	1	2
Design & construction	3.3	4.5	X	X	X	X
Operating requirements	3.4	4.6	X	X	X	X
Electrical output	3.4.1	4.6.1	X	X	X	X
Physical characteristics	3.4.5, 3.5	4.6.5, 4.7	X	X	X	X
Waterproofness	3.7.1	4.9.1	X	X	X	X
Sand & dust proof	3.7.2	4.9.2	X		X	
Fungus resistance	3.7.3	4.9.3		X		
Shock resistance	3.7.4	4.9.4	X	X	X	X
Corrosion resistance	3.7.5	4.9.5	X		X	
Vibration resistance	3.7.6	4.9.6	X	X	X	X
High temperature	3.7.7	4.9.7	X	X	X	X
Low temperature	3.7.7	4.9.8	X	X	X	X

1/ Perform tests in the order listed.

4.3.1 Verification alternatives. The manufacturer may propose alternative test methods, techniques, or equipments including the application of statistical process control, tool control, or cost-effective sampling procedures, to verify performance. See the contractor for alternatives that replace verifications required by this specification.

4.4 Test fixture. When specified herein, the blasting machine assembly shall be mounted in a test fixture as illustrated in figure 1.

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

4.5.1 Finish. To determine conformance to 3.2.4, the assembly shall be visually checked for smoothness, uniformity, and free from wrinkling, orange peel and any irregularities.

4.6 Operating requirements verification.

4.6.1 Electrical output. To determine conformance to 3.4.1, the assembly shall be mounted in the test fixture and connected to the resistive loads of table I and subject the rotor

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handle to the corresponding specified torques. Measure the peak output voltage to verify that it is not less than the specified value.

4.6.1.1 Electrical output (100% inspection) (not applicable to PIN 12282970 or 12918973). To determine conformance to 3.4.1 (condition D), each assembly shall be mounted in the test fixture and connected with a $1.47 \Omega \pm 1\%$ resistive load across the output terminals as described in table I, condition D. The electric output shall be minimum 3.8 volts at peak and 1.1 volts, 50 ms later with a rotor shaft input torque not greater than 11.3 N-m applied throughout the $150 \pm 5^\circ$ shaft rotation (see 3.4.5).

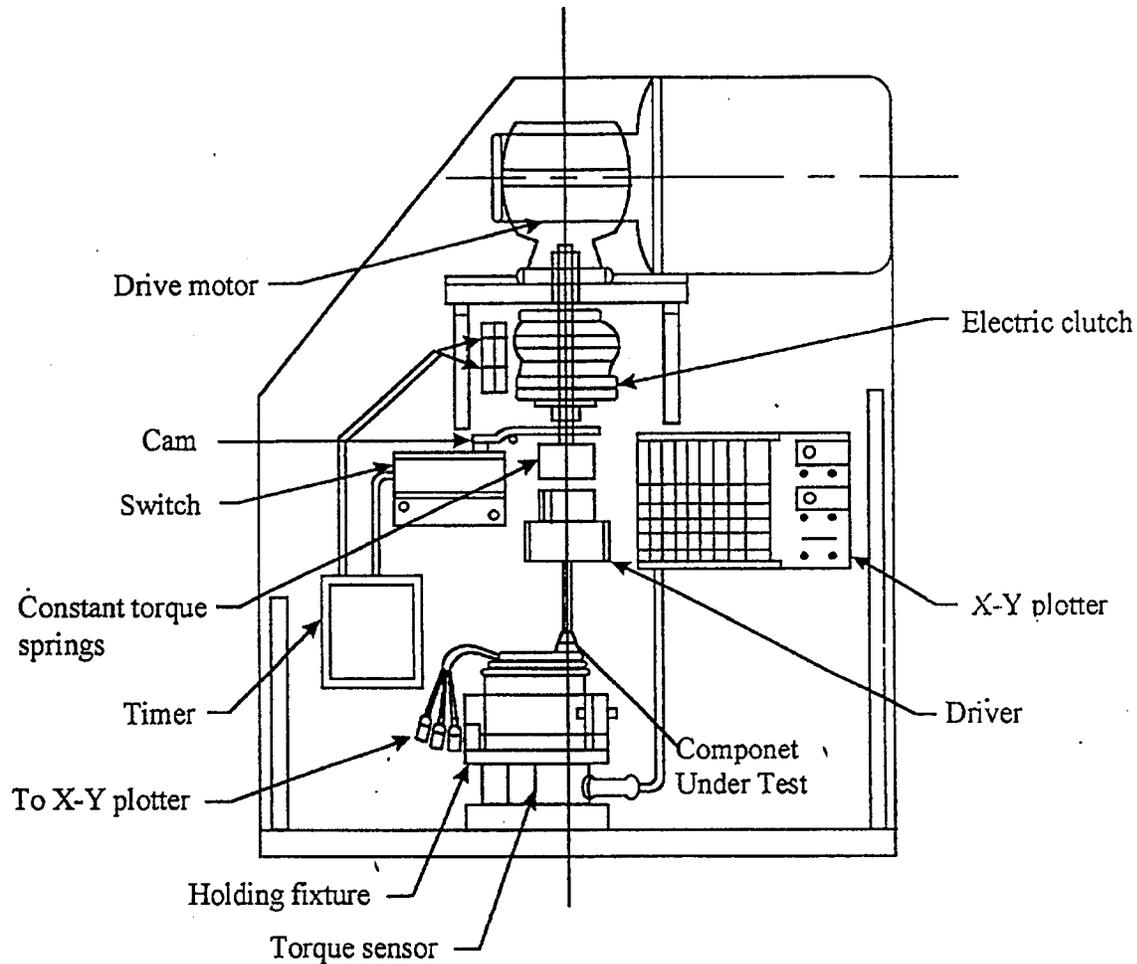
4.6.1.2 Electrical output (100% inspection) for PINs 12282970 and 12918973. To determine conformance to 3.4.1 each assembly shall be tested as per the appropriate assembly drawing.

4.6.2 Operating position. To determine conformance to 3.4.2, the assembly shall be mounted in the test fixture and subjected to the electrical output test of 4.6.1 at each specified operating position.

4.6.3 Dielectric strength. To determine conformance to 3.4.3, perform the dielectric strength test between the case and output leads in accordance with MIL-STD-202, Method 301 or equivalent (see 4.3.1), using 500 volts rms at a frequency of 60 Hz for a period of 60 ± 5 seconds. During this test, verify that the assembly shows no evidence of loosening, cracking, charring, or arcing.

4.6.4 Insulation resistance. To determine conformance to 3.4.4, measure the insulation resistance between each conductor and case in accordance with MIL-STD-202, Method 302, Test Condition B or equivalent (see 4.3.1). Verify that the resistance is not less than 100 megohms.

4.6.5 Rotation. To determine conformance to 3.4.5, the assembly shall be mounted in the test fixture (see figure 1) or equivalent and the direction and angular rotation of the handle shall be verified.

FIGURE 1. Test fixture.

4.6.5.1 Torque and operating stability. To determine conformance to 3.4.6 and 3.4.7, the assembly shall be mounted in the test fixture (see figure 1) and subjected to 10 000 cycles of operation at the rate not in excess of 10 cycles per minute. Perform the test as follows:

- a. 990 cycles at condition B
 - b. 10 cycles at condition H
 - c. Perform the electrical output test of 4.6.1.
 - d. Repeat for a total of 10 000 cycles
- } Not for assemblies
12282970 and 12918973.

NOTE: For Assemblies 12282970 and 12918973, perform the tests per their respective assembly drawing.

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4.7 Interface requirements verification. Verify the envelope dimensions and mounting interface by measurement and placement, and the electrical interface by connection and disconnection of cables and connectors, in the existing location on different types of fully tracked combat vehicles.

4.8 Support and ownership requirements verification.

4.8.1 Safety inspection. To determine conformance to 3.6.1, assemblies shall be inspected for hazardous burrs, nicks, sharp edges, foreign materials, or other imperfections that pose physical danger to an installer/operator. Inspect the assembly for exposed, frayed, unsecured, or otherwise improperly protected circuits that pose electrical danger to the installer/operator (see 6.8).

4.8.2 Identification. To determine conformance to 3.6.2, assemblies shall verify the presence of the required markings on the assembly. After performing all environmental tests in 4.9, re-inspect the assembly markings for readability.

4.9 Operating environment requirements verification.

4.9.1 Waterproofness. To determine conformance to 3.7.1, submerge the assembly in distilled water contained in a vacuum vessel. Observe for air leakage while holding a vacuum differential of 41.4 kPa for not more than 30 minutes. Repeat the test after inverting the assembly. A steady stream of bubbles from any surface shall be cause for rejection. Following this test the assembly shall be subjected to and pass the electrical output test of 4.6.1.

4.9.2 Sand and dust proof. To determine conformance to 3.7.2, subject the assembly to the sand and dust proof test of MIL-STD-202, Method 110, test condition A or equivalent (see 4.3.1), using a sand and dust velocity of 762 ± 152 m/min for 6 hours at 25°C and 762 ± 152 mpm for 6 hours at 71°C. Following this test the assembly shall be subjected to and pass the electrical output test of 4.6.1.

4.9.3 Fungus resistance. To determine conformance to 3.7.3, subject the assembly to the fungus resistance test of ASTM G21. Following this test the assembly shall be subjected to and pass the electrical output test of 4.6.1.

4.9.4 Shock resistance. To determine conformance to 3.7.4, subject the assembly to the shock test specified in MIL-STD-810, Method 516.4, procedure I or equivalent (see 4.3.1), for a total of 18 sawtooth wave shock pulses. Peak amplitude shall be 75.0 ± 7.5 g with a time duration of 6.0 ± 0.6 ms measured at the 10 percent amplitude points. Following this test the assembly shall be subjected to and pass the electrical output test of 4.6.1.

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4.9.5 Corrosion resistance. To determine conformance to 3.7.5, subject the assembly to the corrosion resistance test of MIL-STD-202, Method 101, test condition B or equivalent (see 4.3.1). Following this test the assembly shall be subjected to and pass the electrical output test of 4.6.1.

4.9.6 Vibration resistance. To determine conformance to 3.7.6, subject the assembly to the vibration test specified in MIL-STD-810, Method 514.4, procedure VIII or equivalent (see 4.3.1), except vibration level shall be as shown in figure 2. Sweep time shall be 16 minutes per cycle and the total cycling time per axis shall be two hours in each of the three mutually perpendicular axes. Resonance search shall be conducted at room temperature. After resonance (if any) has been determined place the assembly in a 52°C ambient environment and subject it to vibration sweeps with resonance, dwell at points (if any) detected. At the conclusion of this test, return the assembly to room temperature. Following this test the assembly shall be subjected to and pass the electrical output test of 4.6.1.

4.9.7 High temperature. To determine conformance to 3.7.7, subject the assembly to the high temperature test specified in MIL-STD-810, Method 501.3, Procedure II or equivalent (see 4.3.1), except storage temperature of step 4 shall be 71°C. At the conclusion of the storage temperature test, stabilize the assembly at 52°C and subject it to the electrical output test of 4.6.1. After testing, return the assembly to room ambient temperature. Following this test the assembly shall be subjected to and pass the electrical output test of 4.6.1.

4.9.8 Low temperature. To determine conformance to 3.7.7, subject the assembly to the low temperature test specified in MIL-STD-810, Method 502.3, Procedure I or equivalent (see 4.3.1). Maintain the temperature at -54°C for a period of 12 hours minimum. At the conclusion of this time, stabilize the assembly at -32°C and subject it to the electrical output test of 4.6.1. After testing, return the assembly to room ambient temperature. Following this test the assembly shall be subjected to and pass the electrical output test of 4.6.1.

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 material 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 of 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.

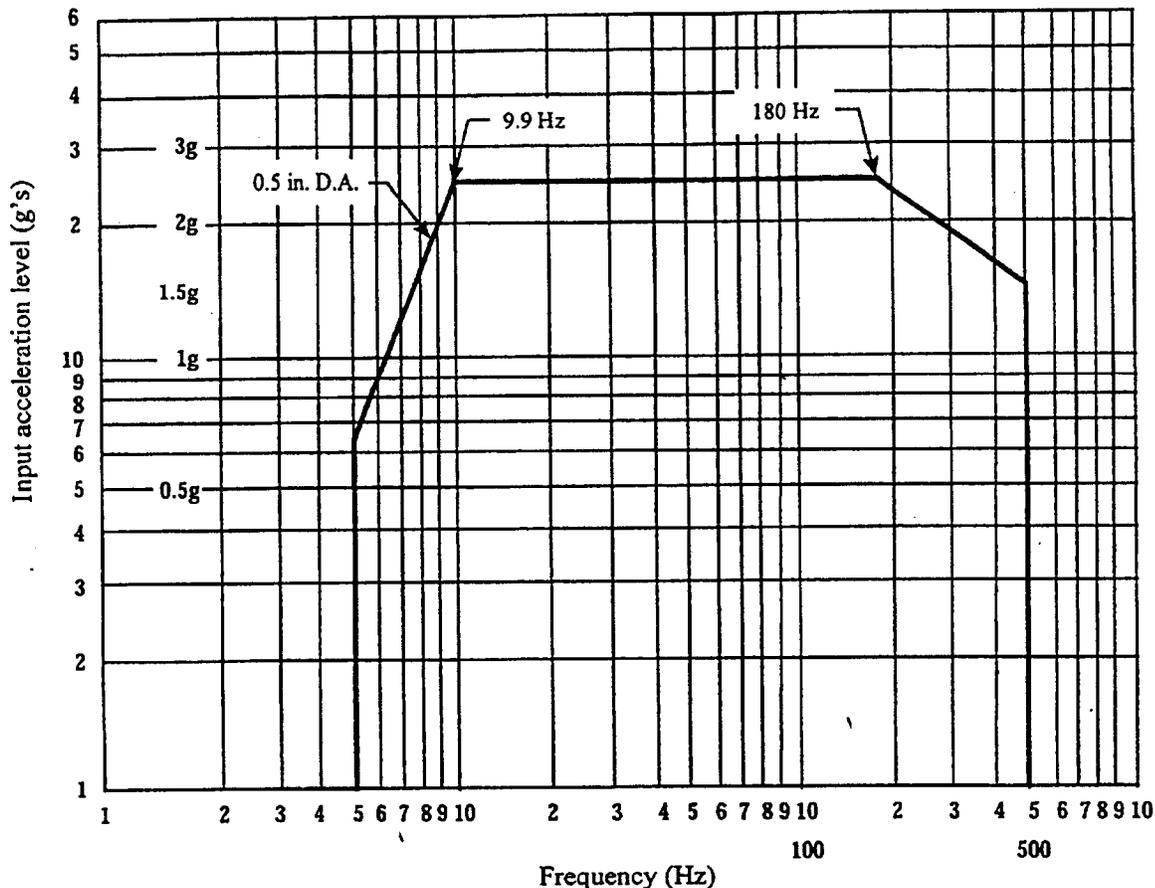


FIGURE 2. Vibration profile.

6. NOTES

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

6.1 Intended use. The assembly covered by this specification is for emergency use as an alternate firing method in the event of power failure in the vehicle. It is a manually operated device which produces an electrical output through generator action. These assemblies are military unique because they are used for the manually emergency firing of military weapons and must be able to operate satisfactorily and reliably after being stored at the extreme ambient temperatures of -54 to 71°C.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of this specification.
- b. Class of the blasting machine (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. If first article inspection is required (see 3.1).
- e. PIN or drawing number (see 3.3 and 6.7).
- f. Electrical output requirements for 12282970 (see 3.4.1).
- g. If preproduction inspection is required (see 4.1.2).
- h. If initial production is other than as specified (see 4.1.3).
- i. Sampling plan (see 4.2.1).
- j. Packaging requirements (see 5.1).

6.3 First article. When requiring a first article inspection, contracting documents should provide specific guidance to offerors. This guidance should cover whether the first article is a first article sample, a first production item, or a standard production item from the contractor's current inventory and the number of test items. These documents should also include specific instructions regarding arrangements for examinations, approval of the first article test results, and disposition of first articles. Pre-solicitation documents should provide Government waiver rights for samples for first article inspection to bidders offering a previously acquired or tested product. Bidders offering such products who wish to rely on such production testing must furnish evidence with the bid that prior Government approval is appropriate for the pending contract (see 4.1.1).

6.4 Conformance inspection. Affordable conformance inspection with confidence varies depending upon a number of procurement risk factors. Some of these factors include: Contractor past performance, government schedules and budget, product material and design maturity, manufacturing capital equipment and processes applied, the controlled uniformity of those processes, labor skill and contracting documents should indicate those tests desired from table II and their designated frequency based on risk assessment for the procurement (see 4.2).

6.5 Threads. FED-STD-H28 or ASME B1.1 can be used for guidance on thread design (see 3.2.3).

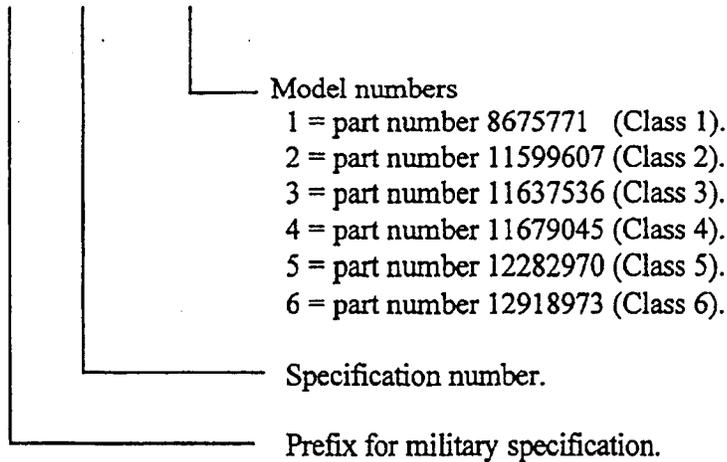
6.6 Subject term (key word) listing.

Electrical generator
Hand generator
Manual generator
Rotary generator

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6.7 Part or Identifying Number (PIN). The PINs to be used for the blasting machines acquired to this specification are created as follows:

M 46789 - X



6.8 Safety. MIL-HDBK-454 may be used as a guide for safety (see 4.8.1).

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

Custodian:
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Preparing Activity:
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