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SPECIFICATION

FOR

FUZE ISD FOR 30MM HE GRENADE-RUDRA
(FILLED ASSY)

TO

DRG.NO. 9102 00 03 00 00 000 00DA

SPECIFICATION NO.ARDE / PS / 603

MF/R-6/CB-7

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SPECIFICATION NO.ARDE / PS / 603

PREPARED BY

SS POL, Scientist 'D'

VD GANDHE, Tech. Officer 'B'

RECOMMENDED BY

GL GOKLANI, Scientist 'F'

APPROVED BY

KN PANDEY, Scientist.'G'

1. FOREWORD

- 1.1 This specification is the property of the Ministry of Defence and must be returned to the Director, ARDE, Pune -21, immediately after the tender has been declined or on completion of the contract or on demand.
- 1.2 This specification or any other information issued in connection therewith, may be used for specific inquiries, tenders, or orders placed by a competent authority on behalf of Ministry of Defence. It is not to be used for any other purpose whatsoever without the written sanction of the Director ARDE, Pune-21.
- 1.3 Any inquiry relating to the drawing, pattern or this specification should be referred to the Director ARDE, Pune-21 or other Quality Assurance Officer, duly authorized to act on behalf of him.
- 1.4 This document supersedes all other documents issued in this regard and all future correspondence should be carried out with reference to this document only.

Prepared by :

The Director,
Armament Res & Dev Estt.,
Armament Post,
Pune - 411 021.

Obtainable from :

The Controller,
Controllerate of Quality Assurance (Ammn)
Kirkee,
PUNE - 411 003.

2 **SCOPE :**

2.1 This specification governs the filling, assy, painting, marking, Quality Assurance, proof, packing and supply of Fuze ISD for 30mm HE Grenade - Rudra (filled) to drg. No. 9102 00 03 00 00 000 00DA.

3. **RELATED DOCUMENTS :**

3.1 This specification is to be read in conjunction with the drawings quoted in the contract / order.

3.2 Wherever a reference is made to any document in this specification, it should be taken as a reference to the latest specification of the document unless otherwise stated.

3.3 Copies of the following related documents are obtainable as follows :

- (a) Indian Standard Specifications : Bureau of Indian Standard,
Manak Bhavan,
9, Bahadur Shah Zafar Marg,
New Delhi - 110 002.
- (b) British Standard Documents : Bureau of Indian Standard,
Manak Bhavan,
9, Bahadur Shah Zafar Marg,
New Delhi - 110 002.
- (c) IND/ME Specification : The Controller,
Controllerate of Quality Assurance
(Military Explosives) , Aundh Road,
Kirkee, Pune - 411 003.
- (d) Joint Service Specifications : The Controller,
Controllerate of Quality Assurance
(Military Explosives) , Aundh Road,
Kirkee, Pune - 411 003.
- (e) Def Specifications : The Manager. H.M.S.O.,
Sales Section,
British Information Service,
Chanakyapuri,
New Delhi - 110 002.

(f) IA Specifications : The Controller,
Controllerate of Quality Assurance (Ammunition)
Kirkee, Pune - 411 003.

(g) CQA(A) Specifications : The Controller,
Controllerate of Quality Assurance (Ammunition)
Kirkee, Pune - 411 003.

(h) HEMRL Specifications : The Director,
High Energy Material Research Lab ,
Sutarwadi,
Pune - 411021

4 MATERIALS

<u>NOMENCLATURE</u>	<u>DRGS / SPECIFICATIONS</u>
1) Fuze ISD for 30mm HE Grenade-Rudra (Empty Assy)	9102 00 03 00 01 000 00DA
2) Composition ME-461	HEMRL/Pyro/PS/228
3) Composition ME-452(A)	HEMRL/Pyro/PS/215(A)
4) Composition AGS-306	HEMRL/Pyro/PS/256(A)
5) Composition AGS-335	HEMRL/Pyro/PS/257
6) Composition AGS-339	HEMRL/Pyro/PS/303 (a)
7) Detonator(MG-8)	CQA(A) Drg.No. 6254.00.00
8) Detonator - 100mg LZ	9102 00 03 08 14 000 00DA
9) S.D. Delay Detonator	9102 00 03 02 09 000 00DA
10) Detonator (A-30-T)	CQA(A) Drg.No. 3.076760.00
11) Cement ANR 136	Under Brand Name Fevicol
12) APC - 219	JSS-8010-48
13) Aluminium Sheet	IS 737 Gd 19000-H8 OR BS1470 Gd 1200-0
14) Aluminium Disc	IS 737 Gd 13000-H4

15 Aluminium Alloy	IS 733-1983-64430
16) Service Lead Azide	IND/ME/411(d)
17) L Mix	RD-1651-CS 5038(a)
18) Lead Styphnate ME-300	SS:1375-06:1993
19) PETN TYPE 'A'	JSS-1376-06:1986
20) APC-217	JSS 8010-48
21) Toluene	IS 537-1967

5 ASSEMBLY & SYSTEM INTEGRATION

5.1 Various explosive sub-assemblies and assembly of the fuze and its system integration is described in the following paragraphs.

5.2 ASSEMBLY OF PYRO DELAY SHUTTER RELEASE ASSEMBLY (FILLED)

9102 00 03 02 06 000 00DA

- 5.2.1. Hold the Housing SRD (filled) to Drg.9102 00 03 06 12 000 00DA filled in accordance with Appendix 'A' of specification HEMRL/PYRO/PS/233 in a suitable fixture.
- 5.2.2. Insert Cup II^{SPV} to drg.No. 9102 00 03 00 01 004 00DA into filled housing so that the bottom of Cup II rests on filling. Ensure that Cup II slides down freely in the housing.
- 5.2.3. Assemble the Spring to Drg.No. 9102 00 03 00 01 007 00DA over Detent to drg.No. 9102 00 03 00 01 006 00DA so that dia 2.45 of Spring rests on flange of detent.
- 5.2.4. Place the Detent and Spring assembled as above into Cup II in the housing.
- 5.2.5. Assemble the Spring Seating to Drg.No. 9102 00 03 00 01 008 00DA into Cup I Drg. No. 9102 00 03 00 01 009 00DA as shown in the drg. with proper tool, to ensure hole of Cup I and Spring Seating are concentric.
- 5.2.6. Place Cup I assembled with Spring Seating over the Housing and ensure that Detent comes out through the hole of Cup .
- 5.2.7. Keep the fixture with SRD assembly under suitable calibrated press and

press the Cup I with suitable tool over the Housing by applying a load of 80 kg for 5 sec.

NOTES :-

1. Ensure coat of APC-219 as shown on the drawing 9102 00 03 06 12 000 00DA
2. Ensure the Cup I is firmly fixed over Housing against spring force.
3. Check the protrusion of Detent over Cup I. It should be $2.6 + 0.5$.
4. Keep the filled SRD assembly in airtight container, until it is taken for further assembly.
5. Once the complete Batch / Lot of Pyro Delay Shutter Release Assy (Filled) is assembled as above the same is to be proved as stipulated in Appendix ' C ' of specification HEMRL / PYRO / PS / 233.

5.3 ASSEMBLY OF DETONATOR 100 mg LZ WITH SHUTTER

TO DRG. NO. 9102 00 03 02 08 000 00DA

- 5.3.1 Take Detonator 100 mg LZ 9102 00 03 08 14 000 00DA and check for its correct varnishing on the disc side and insert it in the detonator cavity of the shutter to 9102 00 03 00 01 012 00DA.
- 5.3.2 Insert the Detonator into the Detonator cavity of Shutter ensuring face colored red (Disc side) of Detonator downwards.
- 5.3.3 Hold this assembly in a suitable fixture. Carry out stabbing of the Shutter with a suitable punch properly guided by applying a load of 275 kg for 5 seconds as shown on the drawing. 9102 00 03 02 08 000 00DA.
- 5.3.4 Movement of the stabbing punch to be restricted to 0.3 to 0.4mm over Shutter face so as to avoid any undue pressure on the detonator.
- 5.3.5 Check that detonator is not protruding above the Shutter surface and firmly held in position. Also ensure that varnished face of the detonator is downward.

5.4 ASSEMBLY OF SHUTTER HOUSING ASSEMBLY (FILLED)

9102 00 03 00 02 000 00DA

5.4.1 ASSEMBLY OF FULMINATING DETONATOR MG8

CQA Drg.No. 6254 00 000

- 5.4.1.1 Hold the Shutter Housing (filled) to Drawing.No. 9102 00 03 02 07 000 00DA (Filled)in accordance with Appendix & specification HEMRL/PYRO/PS.233 in proper fixture so that SD delay column faces upwards.

- 5.4.1.2 Insert Detonator MG-8 to CQA(A) Drg.No.6254 00 00 into its cavity so that face colored red of detonator could be seen. Ensure the detonator slides down in the cavity freely.
- 5.4.1.3 Insert the Spring ID to Drg. No. 9102 00 03 00 01 010 00DA over the detonator in the cavity.
- 5.4.1.4 Striker ID to Drg.No. 9102 00 03 00 01 011 00DA to be placed as shown in the drg. ensuring proper square seating of striker flange over the step of the cavity.
- 5.4.1.5 Striker to be held in position by stabbing at three places as shown in Drg.No. 9102 00 03 00 02 000 00DA with proper punch applying load of 400 kg for 5 sec. under calibrated press.
- 5.4.1.6 Ensure that the Striker is firmly stabbed and there is no movement of the Striker and it is seated squarely.

5.5 ASSEMBLY OF S.D. DELAY DETONATOR

Drg.No. 9102 00 03 00 02 000 00DA

- 5.5.1 Place the Shutter Housing assembled with MG-8 Detonator in a proper fixture, facing shutter groove upward. Insert the S.D Delay Detonator to Drg.No. 9102 00 03 02 09 000 00DA into its cavity with delay cup/sleeve facing downward. Ensure the detonator has gone fully inside. Stabbing to be carried out as shown in the Drg.No. 9102 00 03 00 02 000 00DA to hold the detonator in place using suitable punch, by applying 240 kg load for 5 sec. Movement of the punch to be restricted to 0.3 to 0.4mm from the surface of the shutter housing so as to avoid any undue pressure on the detonator.

5.6 ASSEMBLY OF SHUTTER (FILLED) WITH SHUTTER HOUSING

Drg.No. 9102 00 03 00 02 000 00DA

- 5.6.1 Assemble the Shutter Spring to Drg.No. 9102 00 03 00 01 013 00DA to Shutter (filled) Drg.No.9102 00 03 02 08 000 00DA.
- 5.6.2 Place the Shutter assembled with spring in the groove of Shutter Housing so that the Springs arms rest properly on the side faces of the Shutter Housing.
- 5.6.3 Place the Cover-Shutter Housing to Drg.No. 9102 00 03 00 01 014 00DA over the Shutter Housing.

- 5.6.4 Cover Shutter Housing to be assembled by stabbing as shown in Drg.No. 9102 00 03 00 02 000 00DA so that the side cuts aligned properly with the vertical groove of the shutter housing and the Cover rest squarely over the upper face of the Shutter Housing. Proper fixture to be used to ensure these features.
- 5.6.5 Stabbing of the Cover at two places as shown on the Drg. to be carried out by applying a load of 40 kg for 5 sec. in calibrated press.
- 5.6.6 Check the firmness of Cover after stabbing and its alignment. Also check the movement of Shutter in Shutter cavity of Shutter Housing.
- 5.6.7 There should not be any gap between the Cover-Shutter Housing and the Shutter Housing. There should not be any movement of Cover Shutter Housing. Shutter should be free in the cavity and should get locked in half armed position, by the Centrifugal bolt.
- 5.7 **PYRO-DELAY SHUTTER RELEASE ASSEMBLY (FILLED) WITH SHUTTER HOUSING ASSEMBLY (FILLED) NO. 9102 00 03 00 02 000 00DA**
- 5.7.1 Assemble Pyro delay shutter release assembly (filled) to Drg.No. 9102 00 03 02 06 000 00DA into the Shutter Housing filled upto assembly of Shutter filled as described above by pushing the Shutter to unarmed position as shown in the drawing. Detent should hold the Shutter (filled) in unarmed position. Also ensure that PYRO SRD assembly (filled) falls freely when the Shutter (filled) is further pushed towards unarmed position.
- 5.8 **FILLING OF FUZE ISD FOR 30mm HE GRENADE FOR RUDRA NO.9102 00 03 00 00 000 00DA**
- 5.8.1 Place two Paper Discs to drawing No. 9102 00 03 00 01002 00DA in the Body lower to Drg.No. 9102 00 03 00 01 001 00DA.
- 5.8.2 Insert the Shutter Housing filled to Drg.No. 9102 00 03 00 02 000 00DA in the Body lower as shown in drawing.
- 5.8.3 Hold the Body-lower with assembled Shutter Housing (Filled) in suitable fixture.
- 5.8.4 Take Body Upper and Striker Sleeve Assembly to Drg.No. 9102 00 03 01 04 000 00DA and apply thin coat of cement Fevicol ANR-136 on to the threads of Body Upper.

5.8.5 Screw the Body Upper and Striker Sleeve Assembly on to the Body Lower assembled with Shutter Housing (filled) with torque of 25NM.

5.8.6 Care should be taken that cement is not excess in quantity which would spread over the Shutter Hsg. Assembly (filled) housed inside the Body lower.

5.9 ASSEMBLY OF DETONATOR A-30-T

CQA(A) DRG.NO.3.076760.0

5.9.1 Hold the fuze (filled) as described in earlier in an adaptor open from bottom.

5.9.2 Place detonator A-30-T to Drg.No. CQA (A) 3.07 67 60.00 in its cavity and secure it firmly with Detonator holder to Drg.No. 9102 00 03 00 01 003 00DA.

5.9.3 Apply a thin coat of cement ANR-136 all round over the threads of Detonator holder before screwing with torque of 5 NM.

5.9.4 Apply a thin coat of APC 219 NC Red in the region of flared rivet upto dia 3 mm.

6. SAFETY INSTRUCTIONS

6.1 The explosive safeties are to be followed by contractor during assembly of the fuze at all stages. Tools fixtures used should provide adequate explosive safeties for various sub-assemblies and assembly of fuze.

7. SAMPLES & QUALITY ASSURANCE

7.1 Arrangement for Quality Assurance.

7.1.1 The manufacturer shall notify the Quality Assurance Officer when he is in a position to start the work and shall inform him of all sub-orders placed in connection with the order as and when these are placed.

7.1.2 The Quality Assurance Officer shall have access at all times, to all departments of manufacturing plants which are concerned with the production and storage of materials or components under the order, at the work either of the manufacturer or the sub-manufacturer and shall arrange for Quality Assurance to be carried out by his representatives.

7.2 Quality Assurance of Materials

7.2.1 Before proceeding to manufacture, all materials shall be submitted to the Quality Assurance Officer in batches. Each batch shall contain a quantity of material prepared under uniform condition in respect of composition and manufacturing processes.

7.2.2 The manufacturer shall not take into use any material or component until it has been accepted for its purpose by the Quality Assurance Officer, who may require the bulk of the material or the components to be sealed or bonded until results of the test or analysis of samples are available.

7.3 Samples for testing

7.3.1 The manufacturer shall prepare and supply, free of charge, the materials or components required by the Quality Assurance Officer for testing purposes and shall provide the necessary facilities and apparatus which may be required for carrying out the test called for by the drawing or by this specification and other standard specifications.

7.3.2 Test pieces or samples will invariably be selected by the Quality Assurance Officer or his representative and will remain the property of the Government.

7.4 Submission and Quality Assurance

7.4.1 The manufacturer is expected to submit for Quality Assurance only satisfactory materials and components and he shall be required to assume full responsibility for any material or component submitted which is found to be unsatisfactory.

7.4.2 The manufacturer shall submit for acceptance the materials, components or assemblies called for in the order in suitably sized batches. The amount of material or number of units that comprises a batch will be decided by the Quality Assurance Officer after consultation with the manufacturer.

7.4.3 If the Quality Assurance Officer's examination of a proportion of batch of material, components or assemblies submitted reveals any departure from the drawings and/or specification, the whole batch may be rejected.

7.5 Resubmission of Rejected Batches

7.5.1 Rejected batches may be resubmitted with the approval of the Quality Assurance Officer. Where resubmission is permitted and the manufacturer selects to resubmit, the manufacturer shall first inspect the rejected batch thoroughly either for the particular types or class of defects that caused the batch to be rejected or for all types and classes of defects, as directed by the Quality Assurance Officer, and shall repair or remove all defectives of these types or classes. The Quality Assurance Officer shall assure quality of a

resubmitted batch for these types of classes of defects, using normal or tightened inspection at his discretion.

7.6 Replacement by Manufacturer

7.6.1 Formal acceptance of material or components, by Quality Assurance Officer, shall not relieve the manufacturer of his responsibility for any parts which may subsequently prove to be defective. If material or components from batches accepted after sampling inspection proved to be subsequently defective during examination or assembly, the manufacturer shall be required to replace defective material or components free of cost.

7.6.2 If the materials or finished or partly finished stores are expended or damaged in examination or test as stipulated in this specification or elsewhere on a condition of acceptance, the manufacturer shall be required to replace or repair, free of charge the number so expended or damaged which becomes the property of the Government.

7.6.3 Where finished stores are expended in proof or second proof as stipulated in this specification or elsewhere as a condition of acceptance, the cost of the samples so expended will be borne by the consignee if the samples representing the lot have passed satisfactorily at proof. Wherever a special proof is requested by the manufacturer, a written request for such special proof should be obtained by the manufacturer including his willingness that the total quantity expended in proof will be supplied by him free of cost.

7.7 Method of Quality Assurance

7.7.1 The inspection for acceptance shall be in accordance with specification IS 2500. Extracts from the relevant tables from this specification used by the QA Authority may be supplied to the manufacturer on request. A list showing classification of defects and AQLs to be adopted is attached as Appendix 'A'.

7.7.2 The Quality Assurance Authority reserves the right to assure Quality of any unit of product within the batch.

7.7.3 The Quality Assurance Authority reserves the right to reject any batch which found, during Quality Assurance, to contain a critical defective.

7.7.4 The Quality Assurance Authority may draw one or more samples from each batch, or, at his option, draw samples from the production intermittently.

7.7.5 The manufacturer shall provide and maintain an effective Quality Control System acceptable to the Quality Assurance Officer covering the supplies against the order. The written description of the system will be considered acceptable when as a minimum it provides the Quality Assurance required by this specification and the related documents and also provides 100 percent examination of product for each critical defect. Results of all examinations and test performed under this Quality Assurance System shall be made available to the Quality Assurance Officer. The manufacturer shall notify the Quality Assurance Officer and obtain approval for any change to the written procedure that affects the degree of assurance required by the specification or other documents referred to therein.

7.7.6 The designation of an AQL shall not imply that the supplier has the right to supply knowingly any defective unit of product.

7.7.7 In case of disputes about the Quality Assurance characteristics of an item, the verdict of the Quality Assurance authority shall be final and binding upon the manufacturer.

QUALITY ASSURANCE PROVISIONS FOR VISUAL, DIMENSIONAL AND TEST DEFECTS WITH ACCEPTANCE QUALITY LEVELS

1. DEFECT - DEFINITIONS

- 1.1 Defect - A defect is any non-conformance of the Unit of product to specified requirements.
- 1.2 Critical Defect - A critical defect is a defect that judgment and experience indicate, is likely to result in hazardous or unsafe conditions for individuals using, maintaining or depending upon the product, or a defect that judgment and experience indicate is likely to prevent performance of the tactic... function of a major end item viz. weapon.
- 1.3 Major Defect - A major defect is a defect, other than critical that is likely to result in failure, or to reduce materially the usability of the unit of product for its intended purpose.
- 1.4 Minor defects - A minor defect is a defect that is not likely to reduce materially the usability of the unit of product for its intended purpose, or is a departure from established standards having little bearing on the effective use or operation of the unit.

2 EXAMINATION

- 2.1 Critical Defects - One hundred percent examination shall be performed for critical defects. All stores containing such defects shall be rejected. Similarly a batch or a lot shall be rejected if it fails in a test classified as critical.
- 2.1.2 Major and Minor Defects - Examination for major and minor defects shall be performed on a class basis in accordance with classification of defects using applicable sampling plans and acceptance criteria of specification IS 2500, General Inspection Level II (Initially).

3 ACCEPTANCE QUALITY LEVELS

3.1 The Acceptance Quality Levels for defects shall be as follows:-

Defect Class	AQL
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Major	0.25
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Minor	1.50
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4 CLASSIFICATION OF DEFECTS

4.1 The visual and dimensional defects shall be classified as follows. The AQL for major and minor defects are applicable group wise.

4.2. Detonator 100 mg LZ (Drawing .No. 9102 00 03 08 14 000 00DA)

Major Defects - AQL 0.25

Visual - i) Cracked cup.
ii) Absence of disc.

Minor Defects - AQL 1.5

Visuals - i) Absence of disc.
ii) Improper turnover.
iii) Varnishing not on proper face.

Gauging - i) Dia

ii) Height

4.3. Assembly of Shutter (Filled) (Drg.No. 9102 00 03 02 08 000 00DA)

Major Defects - AQL 0.25

Minor Defects - AQL 1.5

Visual - i) Incorrect Assembly of Detonator.
ii) Improper stabbing.
iii) Loose detonator.
iv) Detonator protruding above the surface of shutter.
v) Detonator seating below the surface of the shutter more than 0.3mm.

4.4. Pyro Delay Shutter Release Assembly (filled)
(Drg.No.9102 00 03 02 06 000 00DA)

Major Defects - 0.25

- Visual : i) Detent not concentric with Housing.
ii) Loose Assembly of Cup I with Housing.
iii) Detent protrusion lower than low.

4.5 Fulminating Detonator MG-8 CQA Drg.No. 6254 00 0000

Major Defects - AQL 0.25

Visual Defects - Absence of foil.

Gauging - i) Dia

Minor Defects - AQL 1.5

Visual defects - i) Varnishing on bottom of detonator cup.

4.6 SD Delay Detonator Drg.No. 9102 00 03 02 09 000 00DA

Major Defect - AQL 0.25

Gauging - i) Dia

ii) Height.

Minor Defects - AQL 1.5

Visual defect - Loose sleeve.

4.7 Shutter Housing Assembly (filled) with MG-8 Detonator and S.D Delay.
(Drg.No. 9102 00 03 00 02 000 00DA).

Major Defects - AQL 0.25.

Visual Defects - i) Improper stabbing of striker I.D.

ii) Improper Seating of Striker I.D.

(Tilted surface of striker I.D.)

iii) Burrs / Foreign Material in the flash channel.

iv) Improper stabbing of S.D. Delay Detonator.

v) Incorrect Assy of S.D. Delay Detonator.

vi) Loose S.D. Delay Detonator.

vii) Chipped/Cracked S.D. filling.

4.8. Shutter Housing Assembly (filled) (Drg.No. 9102 00 03 00 02 000 00DA)

Major Defects - AQL 0.25

- Visual Defects -
- i) Incorrect Assy of Shutter Spring.
 - ii) Incorrect Assy of Shutter
 - iii) Loose / Improper assy of cover shutter housing.
 - iv) Insufficient protrusion of Pyro Delay Shutter Release assembly Detent in Shutter Housing Slot.
 - v) Absence of Centrifugal Bolt assembly.

4.9. Detonator: A-30.T CQA Drg.No. 3.076760.00

Minor Defects - AQL 1.5

- Visual Defects -
- i) Damaged flange.
 - ii) Foreign material in the cavity of detonator.

4.10. Assembly of fuze (Filled) (Drg.No.9102 00 03 00 00 000 00DA)

Major Defects - AQL 0.25

- Visual -
- i) Lifted cover fuze.
 - ii) Loose Detonator A-30-T.
 - iii) Loose Upper body assembly.
 - iv) Damaged fuze threads.

Note:- i) If the fuze is dropped accidentally from height more than 1.5 meters it should be discarded for further use.

ii) Such dropped fuzes should be demolished / salvage with proper precautions.

iii) Filled fuzes should be packed in transit container (. 9102 00 03 01 03 000 00DA) and placed in wooden box / package for further transport.

5 SCHEDULE OF PROOF AND SENTENCING CONDITIONS FOR FUZE ISD FOR 30mm HE GRENADE-RUDRA (FILLED)

5.1 After entire lot is filled it will be bonded and proof samples will be drawn at random by the competent authority. Proof samples will be serially numbered in 3mm type letter for identification. The lot size will be 1000 Nos. plus qty. required for the proof for the first 5 consecutive lots of new manufacture and 2000 Nos. plus qty. required for proof for subsequent lots. The weapon used should have barrel not beyond second quarter of life. Conduct of proof and sentencing is to be carried out as laid down in the Table 'A'. For dynamic proof sampling plan adopted is - double sampling, normal inspection, inspection level S-3 code letter-E AQL-2.5

S. No.	Type of Proof	Sample size	Method of proof	Observation	Type of Defects	Acceptance criteria.
1.	Detonation proof	5 Nos.	Fuze without A-30-T detonator to be assembled By keeping the Shutter (filled) in fully armed position (Dummy explosive components are to be used in place of other explosive components) Body upper to be carefully screwed in. The above assembly is to be housed in a suitable adapter and dropped in SDTA/Masset Impact test M/C from a suitable height so that Shutter/Detonator is initiated by striker.	Fuze to be opened and septum to be checked for puncturing.	Septum not punctured.	Ac 0 Re 1

2. Non-arming 10 Nos. Fuze (filled) proof.	to be assembled to grenade filled inert and fired. against 2mm thick Aluminium plate kept at a distance of 10m from the muzzle.	Functioning of fuze on plate.	i) Fuze functioning on plate *ii) Fuze functioning before 10m.	Ac 0	Re 1
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* Note : This observation is to be carried out for all further proofs and above acceptance criteria to be applied.

3. Arming Proof	i) 20-For first 5 lots of new manufacture. ii) 13-For subsequent lots.	Fuze filled to be assembled to the grenade filled inert and fired against 2mm thick Aluminium plate kept at a distance of 80m from the muzzle.	i)Functioning of fuze on hitting the plate. ii) Non-Functioning of Fuze on hitting the plate.	i)Non-Functioning of fuze on hitting the plate.	For first five lots Ac 0 Re 3 For subsequent lots. Ac 3 Re 4
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Note : For sentencing round which has missed the target should not be considered. Additional rounds can be fired .

0 3

4. Functioning Proof at ambient temp.	i)50-For first lot of new manufacture ii)13-For subsequent lots.	Fuze filled to be assembled with grenade(filled) and to be fired at QE 200 +10 mils.	i)Functioning of Fuze on ground. ii)Functioning of fuze in air. iii)Time to function	i)Functioning of fuze before impact ii)Non functioning of fuze (blind)	For first lot Ac 2 Re 5 6 7 Ac 0 Re 2 1 2
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Note : In case the first lot gets subjected to reproof and becomes acceptable with blinds more than 4 special proof may be carried out at the discretion of AHSP

5.	Functioning Proof at Hot condition.	13-For every 10th lot.	Fuze filled to be assembled with grenade (filled) and fired at QE 200 + 10 mils after the rounds are conditioned at +50 deg C for 8 hours.	Same as given for functioning proof at S.No. 4	Same as given for functioning proof at S.No.4	Ac 0 1	Re 2 2
6	Functioning proof at cold condition.	13 for first and every 10 th lot.	Fuze filled to be assembled with grenade(filled) and fired at QE 200 + 10 mils after the rounds are conditioned at - 20° C for 8 hrs.	Same as given for functioning proof at S.No4	Same as given for functioning proof at S.No4	Ac 0 1	Re 2 2
7	Functioning proof under bump and jolted condition	13 for first and every 10 th lot.	Fuze filled to be assembled with inert filled grenade and cartridge case and packed in approved package and subjected bump and jolt test as given in annexure I. After the test the fuzes should be inspected for lifting/loosening of Cover Fuze/Body Upper and any other visual defects, if any.	i)Lifting / Loosening of Cover Fuze after the bump and jolt test. ii) Any other visual defect / damage	Same as S.No4	Ac 0 1	Re 2 2

Fuzes are to be
assembled with
HE
grenade(filled)
and fired at QE
200 + 10 mils.

* Lifting / Loosening of cover is attributed to Bump & Jolted conditioning and if found the fuze is not to be fired. Cause for the defect is to be ascertained and heavy proof at the descretion of the Inspecting authority to be carried out.

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ANNEXURE - I

ENVIRONMENTAL TESTING OF FUZES FOR ACCEPTANCE LEVEL

1 BUMP TEST - (Test No. 15U - JSG 0102)

1000 bumps at a rate not exceeding 4 per sec, with a free fall of 25 ± 3 mm and a peak acceleration of ~~400~~⁴⁰ ± 40 ~~mm~~^m/sec² (The fuze be mounted in nose up condition).

2 VIBRATION TEST - (Test No.17U - JSG 0102)

Vibrate the store for 1/2 hour in each of 3 mutually perpendicular planes with the vibration frequently swept continuously and logarithmically over the frequency range 5 to 350 Hz at a rate not exceeding 1 octave per minute. The vibration level shall be controlled at a constant peak to peak displacement of 12 mm over the frequency range 5 to 11 Hz and a constant peak acceleration of 30 m/s^2 over the frequency range 11 to 350 Hz.