

DC NO. 36247 A
26 FEB 97

| Authy | Previous DC and Dt: | Designation/Details | DC No. & Dt |
|---|------------------------|---|----------------------|
| CQA(A) approval IAFC 2282 No. QA13643/ SSS/PV/950657 dt 10-2-97. | 35648 dt 12 Jan 94 | CHARGER 7.62mm AMN B SPECN No. : CIA 4205(c) <u>advanced to CIA 4205(d) as follows:-</u> <u>AMENDMENT</u> IN PARA 2 OF APPX 'A' OF SPECN CIA 4205(c). | 36247-A 26 Feb 97 |

FOR : The AQL listed for
each defect shall be
applied to the group
defect.

READ : The AQL listed for
each defect shall be
applied to the
individual defect.

the dish and the contents for three hours in a suitable oven maintained at $100^{\circ} \pm 2^{\circ} \text{C}$. Allow the dish and its contents to cool to room temperature and weigh again.

26.2 Calculate and express the result as percentage of the weight of the material taken for the test.

27. PIGMENT AND NON-VOLATILE MATTER CONTENT

27.0 Outline of Method — The pigment content is determined by treating the material with extraction mixture and then separating it in a centrifuge and drying. The non-volatile content is determined by distillation of the separated liquid.

27.1 Procedure

27.1.1 Pigment Content — Weigh accurately 15 to 20 g of the well-mixed material into a weighed centrifuge tube. Add 20 to 30 ml of appropriate extraction mixture mentioned below and mix thoroughly using a glass rod:

- | | | |
|---|-------------------|-----------------------------------|
| a) Benzene (conforming to IS : 534-1955*) | 5 parts by volume | } dehydrated over sodium sulphate |
| Methyl alcohol (conforming to IS : 517-1954†) | 4 " " | |
| Acetone (conforming to IS : 170-1950‡) | 1 part " " | |
| | | |

This solvent mixture ensures maximum retention of pigment but does not fully extract resins and bodied oils.

b) A mixture of equal parts of benzene and petroleum hydrocarbon solvent 145/205 low aromatic (conforming to IS : 1745-1961§). This is a good solvent for resins and bodied oils, but extra fine pigments do not settle well in this mixture.

c) A suitable mixture of solvents (a) and (b) above. This is recommended for enamels and ready mixed paints containing resins and bodied oils.

After mixing, rinse the glass rod thoroughly with the extraction mixture in the centrifuge tube. Fill the tube and place it in the container of the centrifuge, counterbalance the container of the opposite arm and whirl at a minimum speed of 3 000 rev/min, until maximum separation is effected.

*Specification for benzene, ordinary.

†Specification for methanol (methyl alcohol).

‡Specification for acetone.

§Specification for petroleum hydrocarbon solvent.



SPEC No. CIA4205 (d)
DC. 36247-A
26/2/97

DC No. 32963-A

SPECIFICATION NO. CIA4205 (c)(d)
DC No. 35648-A Dt 12 JAN 94

Dt. 11 MAR 80

[superseeds specification No. IA 1146(h)]

GOVERNMENT OF INDIA

MINISTRY OF DEFENCE

CONTROLLERATE OF QUALITY ASSURANCE (AMMUNITION)

CHARGER, 7.62 mm, AMMUNITION, B.

Specification to govern manufacture, inspection and supply

Approved on 26-2-80

THIS SPECIFICATION IS THE PROPERTY OF MINISTRY OF DEFENCE AND MUST BE RETURNED TO THE CONTROLLER, CQA(A) KIRKEE PUNE-411 003 IMMEDIATELY AFTER THE TENDER HAS BEEN DECLINED OR ON COMPLETION OF THE CONTRACT OR ON DEMAND.

This specification or any other information issued in connection therewith, may be used for specific enquiries, tender or order placed by a competent authority on behalf of the Ministry of Defence. It is not to be used for any other purpose whatsoever without the express written sanction of the Controller, CQA(A) Kirkee, Pune 411 003.

Any question relating to the drawing, pattern or this specification should be referred to the Controller, CQA(A) Kirkee, Pune 411 003 or other Quality Assurance Officer duly authorised to act on behalf of him.

Copy of this specification is obtainable from :-

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

1. SCOPE

1.1 This specification govern manufacture, assembly, inspection, proof and supply of CHARGER, 7.62 mm AMMUNITION 'B' to drawing No. IQV 10A.

2. RELATED SPECIFICATIONS AND DOCUMENTS

2.1 The related documents as mentioned in clause 2.2 are those applicable at the date of publication of this specification. It is contractor's/manufacturer's responsibility to confirm their current applicability and to obtain from CQA(A) Kirkee, information concerning any change that may be necessary due to cancellation, replacement or supersession of any of these documents.

2.2 The following related specifications have been referred to in this specification.

- (i) Protective finish - JSS 0465-01-1988
- (ii) Supplementary finish - DEF 2332
- (iii) Phosphate coating - JSS 0465-01-1988
- (iv) Sampling procedure - DEF 131 A

NOTE : Reference in the standard or in drawing to a National or another department standard or specification or drawing (without date issue number) means, in any tender or contract the edition current at the date of such tender or contract.

2.3 Copies of the related documents are obtainable as follows:-

- a) Indian Standard Documents () Bureau of Indian Standard
- b) British Standard () Manak Bhavan,
() 9, Bahadur Shah Zafar Marg
() New Delhi - 110 001.
- c) IND/ME Specifications () The Controller,
() Controllerate of Quality
() Assurance (Mily Expl),
() Kirkee, Pune - 411 003.
- d) Joint Service SPEC () The Director of Standard-
() isation, Govt of India,
() Ministry of Defence,
() NEW DELHI - 110 011
- e) DEF Specifications () The Manager,
() HMSO Sales Section,
() British Information
() Services, Chanakyapuri,
() New Delhi - 110 002.
- f) IA SPECIFICATIONS & () The Controller
CQA(A) SPECIFICATIONS () Controllerate of Quality
() Assurance (Ammunition)
() KIRKEE ; PUNE; 411 003

3. STANDARD PATTERN

3.1 Any pattern on sample ammunition/components issued to the contractor or manufacturer must be taken as general guide to workmanship and finish and NOT as a guide to dimensions.

4. TERMINOLOGY

4.1 AQLs - Acceptable Quality levels is the maximum percent defective (or the maximum number of defects per hundred unit) that, for purposes of sampling inspection, can be considered satisfactory as a process average.

4.1.1 PROCESS AVERAGE - Process average is the average percent defective or average number of defects per hundred units (whichever is applicable) of product submitted by supplier or original inspection. Original inspection is the first inspection of the particular quality of product as distinguished from the inspection product which has been resubmitted after prior rejection.

4.2 DCL - Defect Classification List.

4.3 DEFECT - A defect is non conformance of the unit of product to specified requirements.

4.3.1 CRITICAL DEFECT - A critical defect is a defect that judgement 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 judgement and experience indicate is likely to prevent performance of the tactical function of a major end item such as ship, aircraft, tank or a space vehicle.

4.3.2 MAJOR DEFECT - A major defect is a defect, other than critical that is likely to result in failure or to reduce materially the usability or the the unit of product for its intended purpose.

4.3.3 MINOR DEFECT - A minor defect is a defect that is not likely to reduce materially of the unit of product for its intended purpose, or a departure from established standards having little bearing on the defective use or operation of the unit.

5. MATERIAL/FINISH

5.1 The store is to be made of the materials specified in this specification or quoted on the drawings must be in conformity with the relevant material specifications. Should the contractor or manufacturer desires to utilise any material differing from a specification he must obtain prior sanction from QA Officer, on the deviation form, stating the chemical and physical properties of the proposed substitute material. Where no detailed instructions are given, both material and workmanship must be of the highest standard and to the satisfaction of the QA Officer. The contractor or the manufacturer should at once bring to the notice of the QA Officer any defect which he may find in the material during or after machining the material and should not attempt for rectification without the approval of the QA Officer. Wherever specifications are quoted, the latest issues are implied.

6. MANUFACTURE/CONSTRUCTION

6.1 The store is to be manufactured from materials as specified in the current drawing.

6.2 The dimensions and form of the store and its components are to be in conformity with the drawing issued.

6.3 Neither the completed store nor any component part shall be altered or rectified in any way not provided for in the drawing or specification without the prior sanction of the QA Officer.

6.4 Where the drawing or specification permits a choice of alternative materials or form for particular components, the manufacturer is required to notify the QA Officer, in writing which of the permitted alternatives he chooses to produce. If the choice of alternatives is changed during the course of the order, the manufacturer shall again notify the QA Officer of such change.

6.5 No mechanical work, heat treatment or other operation which may modify the physical properties of the material will be carried out after it has been submitted for mechanical tests, unless authorised by the QA Officer.

6.6 SPRING - The spring is to be manufactured in accordance with the current drawing complying with the relevant requirement of the material as specified on the drawing.

6.6.1 The hardness of the spring should be maintained as specified on the drawings.

6.6.2 A suitable material duly approved by the AHSP having carbon content $\varnothing.50/\varnothing.60$ and Mn $\varnothing.50/\varnothing.90$ may be used as an alternative material to the specified for spring.

6.7 CLIP - The clip is to be manufactured in accordance with the current drawing complying with the requirements of the material on specified on the drawing.

6.8 Before assembly spring and clip are to be phosphated as stated on relevant drawings in phosphate coating bath for which proper records for composition and concentration shall be maintained by the manufacturer and submitted to the QAO when demanded.

6.8.1 The store shall be treated for supplementary finish as specified on the drawings.

7 QUALITY ASSURANCE

7.1 INSPECTION OF MATERIALS

7.1.1 Before proceeding to manufacture, material shall be submitted to the QA Officer in batches. Each batch shall contain a quantity of material prepared under uniform conditions in respect of composition and manufacturing processes.

7.1.2 The Manufacturer shall not take into use any materials until it has been accepted for its purpose by the QA Officer who may require the bulk of the material to be sealed or bonded until results of test or analysis are available.

7.2 The Manufacturer shall notify to the QA Officer when he is in a position to start work and shall inform him of all suborders placed in connection with the order at the same time as they are placed.

7.3 The QA Officer shall have an access at all times, to all departments of manufacturing plants which are concerned with the production and storage of material under the order, at the works either of the manufacturer or of the sub-manufacturers and shall arrange for inspection to be carried out by his representatives as he considers necessary.

7.4 SAMPLES FOR TESTING

7.4.1 The Manufacturer shall supply and prepare, free of charge, the material required by the QA 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.

7.4.2 Test pieces or samples will invariably be selected by the QA Officer or his representative and will remain the property of the Government.

7.5 SUBMISSION AND INSPECTION

7.5.1 The manufacturer is expected to submit for inspection only satisfactory material and he shall be required to assume full responsibility for any material submitted which is found to be satisfactory.

7.5.2 The manufacturer will submit for acceptance the material called for in the order in suitably sized batches. The amount of material or number of units that comprise a batch will be decided by the QA Officer after consultation with the Manufacturer. Preferably the lot size should be 35001 to 1,50,000.

7.5.3 If the QA Officer's examination of a proportion of batch of materials submitted to him reveals departures from the specification, the whole batch may be rejected.

7.6 RE-SUBMISSION OF REJECTED BATCHES

7.6.1 Rejected batches may be resubmitted with the approval of the QA Officer. Where resubmission is permitted and the Manufacturer elects to resubmit, the Manufacturer shall first inspect the rejected batch, either for the particular types of classes of defects that caused the batch to be rejected or for all types and classes of defects as directed by the QA Officer, and shall repair or remove all defectives of these types or classes. The QA Officer shall inspect a resubmitted batch for these types or classes of defects, using normal or tightened inspection at his discretion.

7.7 REPLACEMENT BY MANUFACTURE

7.7.1 Formal acceptance of material or store by the QA Officer, shall not relieve the Manufacturer or his responsibility which may subsequently prove to be defective. If material or store from batch accepted after sampling inspection prove to be subsequently defective during examination or assembly, the Manufacturer shall be required to replace the defective material or store free of cost.

7.7.2 If the materials or finished or partly finished stores are expended or damaged in examination or test as stipulated in this specification or elsewhere as condition of accept-

ance , the manufacturer will be required to replace or repair, free of charge the number so expended or damaged , which becomes the property of the government.

7.7.3 Where finished stores are expended in proof, re-proof or DRP 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. Where a reproof, DRP or special proof is requested by the Manufacturer, a written request for such reproof/DRP, special proof should be obtained from the Manufacturer, including his willingness to bear the entire cost of such proof including that of all proof stores. In the case of rejected lots , cost of all the samples spent in all the proof should be borne by the Manufacturer.

7.8 METHOD OF INSPECTION

7.8.1 The acceptance inspection shall be in accordance with DEF 131 A Extracts from the relevant tables from this specification used by the Inspection 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'

7.8.2 The Inspection Authority reserves the right to inspect any unit of product within the batch in addition to operating sampling plan or plans associated with the specified AQL or AQLs.

7.8.3 The Inspection Authority reserves the right to reject any batch which is found, during inspection , to contain defect of serious nature because of which the store cannot be used whether that defective forms part of a sample or not.

7.8.4 The Inspection Authority will draw one or more samples from each batch, or at his option, draw samples from the production intermittently .

7.8.5 The Manufacturer shall provide and maintain an effective quality assurance system acceptable to the QA Officer covering the supplies against the order. The written description of the systems will be considered acceptable when as a minimum it provides the quality assurance required by this specification and the related documents. Results of all examination and tests performed under this quality assurance system shall be made available to the QA Officer. The Manufacture shall notify the QA Officer and obtain approval for any change to the written procedure that affects the degree of assurance required by this specification or other documents referred to there in.

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

7.8.7 In case of dispute about the inspection characteristics of an item the verdict of the QA Authority shall be final and binding upon the Manufacturer.

7.9 TESTS

7.9.1 Phosphate Coating Mass Test : The test shall be carried out for every batch as per Appendix 'B' to specification JSS-0465-01-1988. If the sample is found satisfactory ,chargers

shall be rephosphated to get the required phosphate coating mass.

7.9.2 Salt droplet spray test : 10 chargers from every lot shall be tested for salt droplet test for 24 hours as per specification JSS-0465-01-1988. Salt water immersion test is not acceptable . The component must be free from rust .

7.9.2.1 Failure to comply with the requirement shall entail rejection of the lot.

7.9.3 Hardness test : 10 samples of springs , per lot will be tested for hardness requirements as specified on the drawing. In case of any failure, the lot will merit rejection .The manufacturer will however , maintain a record of hardness test of each heat treated batch and submit the same to Inspector when demanded . Hardness load is 5 kg for 15 seconds .

7.9.4 Load test : 125 chargers from each lot will be tested for load test using a load test apparatus to drawing No.IG Equipment 429 (sheet 1 & 2) . The test will be carried out as follows .

7.9.4.1 A charger will be assembled with five cartridges , SA 7.62 mm , Inspection UA and a load of 1.4 kg will be applied to the cartridges as near as possible to the charger. The charger is to be supported rigidly during application of the load . The cartridges should not get discharged with a load of 1.4 kg . The load will then be increased and the cartridges must be discharged with a maximum load of 3.7 kg.

7.9.4.2 A failure in this test will be considered as a major defect. (AQL 0.65).

7.9.4.3 In case more than one failure to comply with the specified requirements occurs at test , a retest with the same quantity (i.e. 125) will be undertaken . If four or more failures at test or five or more at test and retest put together (i.e. cumulative) occur , the lot merits rejection .

7.9.5 Functioning test : Quantity 20 charger under test will be loaded and functioned in a test apparatus which represents loading a magazine , 7.62 mm 1A with the help of filler , Magazine 1A. Each charger will be functioned five times in similar manner , , after which , the chargers will be subjected to load test as prescribed in clause 7.9.4.1 only for a load of 1.4 kg . The load of 1.4 kg must be supported at each end of the charger .

7.9.5.1 The test being to check the re-usability of the store, any failure will be treated as a minor defect (AQL 1.5).

7.9.5.2 If one failure to comply with the specified requirements occurs at test , a retest with the same quantity (i.e. 20) will be undertaken . If two or more failures at first test and test and retest put together (cumulative) , occur the lot merits rejection .

7.9.6 Cramp test : Quantity 10 chargers will be subjected to cramp test for 8 hours . The chargers will then be subjected to load test . All chargers should satisfy the requirements of load test

8.1 The store will be delivered in lots (suitable sizes) as agreed between the manufacturer and the QA Officer .

8.2 The first lot produced in each calendar year shall be lot one , thereafter lots will be numbered consecutively .

8.3 Lot number produced in the same calendar year in respect of subsequent manufacture shall continue in sequence from the point at which lot numbers for the previous manufacture ended.

8.4 The store will be packed in current approved packages to give an effective protection during transit from damage , dirt or moisture and to ensure that the store will reach the consignee end in perfectly serviceable condition .

8.4.1 Each package will be clearly marked in accordance with the current approved drawings with nomenclature, lot numbers, quantity in the package , manufactureres monogram or recognised trade mark , month and the year of manufacture etc and any other marking which the QA Officer may direct.

8.5 RESPONSIBILITY OF SAFETY

8.5.1 Nothing in this specification shall relieve the manufacturer of the responsibility for the safety of his operations.

9. MARKING

9.1 This stores shall be stamped as shown on the drawing.

9.2 A monogram oor symbol used by the manufacturer for making the store shall be subjected to the approval of the QA Officer and shall not be changed without his approval.

10. DEFENCE STORE CATALOGUE

10.1 Defence store catalogue number allotted to this store i.e. is 1305-000234

11. APPENDIX - Appendix "A"

KIRKEE PUNE 411003
Dated 26-2-80

sd/xxxx
(MK NANGIA)
Major
DACI(A)
for CONTROLLER OF INSPECTION(AMN)

Correct copy of sealed specification at this date :

KIRKEE PUNE 411003
Dated

Abir Kulkarni
(ABIR KULKARNI)
DSS
ASST CONTROLLER
for CONTROLLER OF QUALITY ASSURANCE(AMMN)

07 June 84

APPENDIX 'A'

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

DEFECTS DEFINITIONS- Para 4.3 of the specification refers.

EXAMINATION

1. Examination shall be performed as indicated below
 - 1.1 Critical defects-One hundred percent examination shall be performed for critical defects . All chargers/components containing such defects shall be rejected , Similarly , a batch or a lot shall be rejected , if it falls in a test classified as critical.
 - 1.2 Major and Minor defects- Examination for major and minor defects shall be performed on a class bases in accordance with classification of defects using applicalble sampling plans and acceptance criteria of specification DEF 131-A, General Inspection TWO (Initially).

CLASSIFICATION OF DEFECTS AND ACCEPTABLE QUALITY LEVELS .

2. The classification of defects and the acceptable quality levels for defects shall be as follows . The AQL listed for each defect shall be applied to the group defects .

INDIVIDUAL

| DEFECT CLASS | PERCENT |
|--------------|---------|
| Major | 0.25 |
| Minor | 1.50 |

| COMPONENT | DEFECT | INSPECTION METHOD |
|----------------|---|-------------------|
| CLIP IQV 62 | Major | |
| | 1. Cracks | Visual |
| | 2. Burrs | Visual |
| | 3. Rusty | Visual |
| | 4. Excessive supplementary finish | Visual |
| | 5. Internal width of channel H & L | Gauge |
| | 6. Width of turnover H | Gauge |
| | 7. Position of oblong holes length H and outer form | Gauge |
| | Minor | |
| | 1. Tool marks | Visual |
| | 2. Width at mouth H & L | Gauge |

- 3.Width over embossing H & L Gauge
- 4.Height H & L Gauge
- 5.Height over embossing H Gauge
- 6.Position ,length and width of pip Gauge

SPRING (IQV 61)

Major

- 1. Cracks Visual
- 2. Burrs Visual
- 3. Rusty Visual
- 4. Excessive supplementary finish Visual
- 5. Width H & L Gauge

Minor

- 1. Tool mark Visual
- 2. Form 'H' Discretionary gauge

ASSEMBLY (IQV 18A)

Major

- 1. Gauge checking charger inserting spring (Gauge represents cartridge)

Major/Minor (For defects as indicated for components)

Visual

Visual

NOTE: The acceptance criteria for various tests, visual examination and gauging is based on lot size of 35,001 to 1,50,000. In the event of an increase/decrease of a lot size the acceptance criteria will be finalised in consultation with the AHSP.