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भारत सरकार  
रक्षा मंत्रालय  
गुणता आश्वासन महानिदेशालय  
GOVERNMENT OF INDIA  
MINISTRY OF DEFENCE  
(DGQA ORGANISATION)  
SPECIFICATION

FOR

KARABINERS SCREW TYPE MK - 2  
D. S. Cat. No. 8465 - 000164

Amendment vide

D.No. 794-65

dat 12/8/04

12/8/04

G0/G-3

ISSUED BY

नियंत्रक  
गुणता आश्वासन नियंत्रणालय (सामान्य वस्तु)  
रक्षा उत्पादन तथा आपूर्ति विभाग  
रक्षा मंत्रालय  
(गुणता आश्वासन महानिदेशालय)  
पोस्ट बॉक्स संख्या 127  
कानपुर 208 001

CONTROLLER  
CONTROLLERATE OF QUALITY ASSURANCE (GENERAL STORES)  
DEPARTMENT OF DEFENCE PRODUCTION & SUPPLIES  
MINISTRY OF DEFENCE (DGQA)  
POST BOX No. 127  
KANPUR - 208 001

PRICE : Rs. 70/-

YEAR : 1997



M/M  
G/G-9CONTENTS

Srl No.	Contents	Page No.
0.	Foreword	1,2
1.	Scope	2
2.	Related Specifications / References Drawings and Sketches	2
3.	Standard Pattern	2
4.	Materials	2,3
5.	Processing	3
6.	Dimensions and Tolerances	3,4
7.	Workmanship and finish	4
8.	Pre-inspection of Supplies by producer	4
9.	Quality Assurance	4
10.	Sampling Procedure	4,5
11.	Scale of Sampling	5
12.	Criteria for conformity	5,6,7
13.	Marking	7
14.	Packaging	7,8
15.	Technical Literature/Documents	8
16.	Warranty	9
17.	Drawing/Sketch wherever applicable or list of drawings	9
18.	Suggestions for improvement	9

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## 0.0 FOREWORD

0.1 This specification has been prepared by Controllerate of Quality Assurance (General Stores), Kanpur on behalf of the Director General Quality Assurance, Ministry of Defence, New Delhi.

0.2 This specification supersedes Specification No. IND/GS/1492(c).

0.3 This specification shall be used to guide procurement, manufacture & Quality Assurance of the store for which it is intended.

0.4 The Quality Assurance Authority for the store covered by this specification is the Controller, Controllerate of Quality Assurance (General Stores), P.B.No.127, Kanpur-208 001. Enquiries regarding this specification related to technical or any other contractual conditions shall be referred to the Quality Assurance Authority named in the purchase document viz. tender or contract.

0.5 This Specification is a live document and is, therefore, likely to undergo changes. Any major change in design should have the approval of General Staff/Users, financial concurrence in the form of DGQA approval. Thus, it may involve some price difference. Therefore, a specification issued holds good only for the supply order for which it is issued.

0.6 Copies of any other reference documents such as specification/drawing/instructions/guides etc. can be obtained on payment from the addresses as shown below :-

Specification	Source
I.S. Series	Director General Bureau of Indian Standards, Manak Bhawan 9, Bahadur Shah Zafar Marg, NEW DELHI-110 002.  Or its Regional Offices at Bombay, Calcutta, Madras and Kanpur.
IND/GS/series JSS & Supple. Schedule in COA(GS)/SS Series	Or their Regional Establishments  1. Sr. Quality Assurance officer S. Q. A. Estt. ( GS ) Hastings, CALCUTTA - 700 022.
IND/SL series	2. Sr. Quality Assurance officer S. Q. A. Estt. ( GS ) DGQA Complex, LBS Marg Vikhroli, BOMBAY - 400 083.
IND/TC series	3. Sr. Quality Assurance Officer S. Q. A. Estt. ( GS ) P. B. No. 307, KANPUR-208 001.
IND/SL series for petroleum products (if required).	4. Sr. Quality Assurance Officer S. Q. A. Estt ( GS ) DGQA Complex, Pazhavanthangal, MADRAS-600 114.

'DMSRDE' series The Director,  
(if required) DMSRDE, GT Road,  
KANPUR-208 013.

5. Sr. Quality Assurance Officer  
S. G. A. Estt(GS), Anand Parbat  
NEW DELHI-110 005.

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6. Sr. Quality Assurance Officer  
S. G. A. Estt(GS),  
Shahjahanpur - 242 001.

## 1.0 SCOPE

1.1 This specification covers the requirements of Karabiners Screw Type MK- 2 (D.S. Cat No. 8465 - 000164) and provides guidance to contractors/suppliers, manufacturers, Quality Assurance Agencies and stockists/indentors etc.

## 2.0 RELATED SPECIFICATIONS AND DOCUMENTS

Srl.No.	Specification No.	Title / Subjects
(a)	IS:1570-1961 Reaffirmed 1993 (Amendment 5)	Schedule for Wrought steel for general Engineering purposes.
(b)	IS:1572-1986 Second Rev Reaffirmed 1991	Electroplated coatings of cadmium on Iron & steel.
(c)	IS:1732-1989 First Revision	Dimensions for round and square steel bars for structural and General Engineering purposes.
(d)	IS:4454 (Pt-I) -1981 (2nd Rev), Reaffirmed 1992	Steel wires for cold formed springs (Pt-1) and cold drawn steel wires - Unalloyed.
(e)	IS:4454 (Pt-II) -1975	Steel wires for cold formed springs (Pt-2), Oil hardened and tempered spring steel wires and valve spring wires - Unalloyed.
(f)	BSS:84-1956	Specification for plated threads.

## 3.0 STANDARD PATTERN

3.1 Standard pattern of Karabiners Screw Type MK-2 (DS Cat No. 8465-000164) held by the Controllerate of Quality Assurance (General Stores), Post Box No. 127, Kanpur shall constitute the standard as regards any particulars or properties, not noted or defined in this specification.

## 4.0 MATERIAL

4.1 The item shall be manufactured from the following materials :

Srl No.	Store/component	Material & Grade if any	Specification
(a)	Body and moving arm	Carbon, Manganese Molybdenum steel conforming to grade C35 Mn2 Mo28.	IS:1570-1961
(b)	Sleeve	Mild Steel Round.	IS:1732-1989
(c)	Bit	Carbon steel to grade C55	IS:1570-1961
(d)	Spring	Spring Steel wire 1.6 mm to Grade 3.	IS:4454(Pt-I)-1981
(v)	Pin	Spring steel wire to Grade SW Hardened and Tempered to 200-250 VPN. 480-545 VPN	IS:4454(Pt-II) -1975 Table-I

-(a)

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4.2 - Test certificates of materials from recognised laboratories shall be obtained showing physical and chemical properties if the manufacturer does not have his own laboratory.

## 5.0 PROCESSING

5.1 The Karabiners Screw Type MK-2 shall be manufactured to the shape and design as shown in the relevant plate attached to this specification.

### 5.2 Processing

5.2.1 The Karabiners shall be manufactured strictly to shape and design as shown in the plates attached to the specification. The bent ends of the body shall be opposite & coaxial. One of the bent ends of the body shall be reduced from both the sides to allow the moving arm to be properly hinged and the other end shall be notched and grooved to closely house the tip of the moving arm in the closed position. The moving arm on one end shall be slotted to permit it to be properly hinged to the body by a pin passing through both and the pin burred over at both end. The moving arm shall be provided with a blind hole to accommodate the spring and the Bit end shall be threaded from out side to take the sleeve. The free end of the moving arm shall be accurately formed to shape and shall closely mesh with the notched portion of the body when in a closed position. The sleeve shall be knurled and the internal threads and the recesses at either side shall be neatly cut as shown in the plate attached to the specification. The ends of the spring shall be ground flat and parallel to each other for proper sitting & function.

5.2.2 After manufacture the components of the Karabiner shall be hardened and tempered to hardness as shown below :

Body and Moving Arm	350 HV to 450 HV
Spring and Bit	425 HV to 525 HV

5.2.3 After heat treatment and before plating each component of Karabiner shall be individually subjected to crack detection test by the manufacturer to ensure freedom from cracks.

5.2.4 The Karabiner's Body, Moving Arm, Sleeve and Bit shall be cleaned free from scale, dirt and greese and shall then be given following plating :-

Cadmium Plating to Specn No. IS:1572-1986 Class 2 with Chromium passivation.

5.2.5 The finished components of the Karabiner shall be assembled in the manner as shown in the plate attached to this specification so that the moving arm and sleeve functions efficiently.

## 6.0 DIMENSIONS AND TOLERANCES

### 6.1 DIMENSIONS

6.1.1 The store shall conform to the dimension shown in the plates attached to this specification.

(a)  
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## 6.2 Tolerances

6.2.1 Unless otherwise specified, general tolerances to IS:2102 (Pt-I)-1993 as given below shall apply.

Tolerance	class	
Designation :	Description	: Applicable on Components/Parts
c	: Coarse	: All components

## 7.0 WORKMANSHIP AND FINISH

7.1 The Karabiners and its components shall be free from cracks, pits, burrs, sharp edges and any other forging/manufacturing defects. The threads shall conform to BSS:84-1956 (Plated threads). The engagement of the sleeve and the moving arm shall be such that there is no play or wobbling of the sleeve during operation. The Knurling of the sleeve shall be deep to afford a firm grip during tightening and opening. The moving arm shall not show any undue play and when fully opened shall not stick or jam & shall spring back quickly and fully when released. The moving arm shall not strike the sides of the notch in the body during closing and its tip shall rest on the notch.

7.2 The general workmanship and finish shall be of a high standard and similar to sealed pattern.

## 8.0 PRE-INSPECTION OF SUPPLIES BY THE PRODUCER

8.1 ADVANCE SAMPLE : If required the manufacturers shall submit 5 Nos. of advance samples of acceptable quality fabricated from specified material for approval by COA(GS) prior to commencement of bulk production.

8.2 Manufacturers/contractors must satisfy themselves first that the store manufactured are in accordance with the contract and fully conform to the specification, by carrying out thorough pre-inspection of each lot/batch before actually tendering the same for inspection to the Quality Assurance Officer nominated under the terms of the contract.

8.3 A declaration by the Contractor that necessary pre-inspection tests have been carried out on the stores tendered and the same are fit for inspection and test, shall be rendered along with the challan. The declaration shall include the method followed in pre-inspection showing features checked/tested.

## 9.0 QUALITY ASSURANCE

9.1 Examination of samples taken from any portion of the consignment or during surveillance inspection, shall conform to the requirement when tested in accordance with the methods mentioned against each in this specification.

9.2 Control samples shall be forwarded to COA(GS) from bulk supplies to check/monitor the quality whenever required.

## 10.0 SAMPLING PROCEDURE

10.1 The suppliers shall arrange the units of the homogeneous lot in such a way that all the units are easily accessible to the Quality Assurance Officer to enable him to draw samples from any portion of the homogeneous lot.

10.2 Sampling of stores shall be done adopting appropriate sampling method as per IS: 4905-1968 so that samples drawn as per Table I and II given for assessing various quality requirements, are truly representative of the lot.

#### 11.0 SCALE OF SAMPLING

11.1 The number of sample-units to be drawn for assessing the quality of the store, characteristic wise, should be in accordance with the Table I for dimensional/non destructive/visual inspection and Table II for detailed laboratory testing.

#### 12.0 CRITERIA FOR CONFORMITY

12.1 All the sample units as specified in Table I and II are required to be tested / inspected irrespective of the rejection number ( $= Ac+1$ ) being achieved earlier.

12.2 The Quality Assurance Officer shall draw samples as per Table I for dimensional/nondestructive/visual inspection to assess the quality of the lot. If the quality of the lot indicates conformity to the standard as laid down in Table I, sampling for laboratory testing will be done. Otherwise the lot shall be straightway rejected.

#### 12.3 Sampling for Laboratory Testing

12.3.1 If the lot is considered conforming to the quality standards as specified in Table I, sampling for laboratory tests shall be carried out as per Table II and the samples shall be subjected to the laboratory tests.

#### 12.4 Bulk Sentencing

12.4.1 If the laboratory test report indicates that the lot does not conform to the standards as specified in Table II, the whole lot shall be rejected.

12.4.2 The lot shall be considered conforming to the specified quality if the number of defective units observed in the sample is not more than the respective acceptance number of each class of defects.

12.4.3 When the sample size equals to the lot size, do 100% Quality Assurance.

12.4.4 The number of sample units to be sampled for laboratory testing should be a multiple of the number of Characteristics / tests which can not be carried out simultaneously on the same sample units.

#### 12.5 Sampling and Formation of Lot

12.5.1 The delivery shall be visually inspected by the Quality Assurance Officer at the spot in the first instance to ascertain its homogeneity in respect of nature, size, shape, source and year of manufacture. If it is homogeneous, the delivery shall be treated as one lot. If not, it shall be segregated by the supplier into separate groups so that each group which is homogeneous within itself forms a lot.



## 12.6. Sampling Tables

Table I  
Sampling plan for visual inspection  
(Based on General Inspection Level II, AQL 2.5%)

Max  
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Lot Size	Sample Size (n)	Acceptance Number (Ac)
Up to 50	8	0
51 to 90	13	1
91 to 150	20	1
151 to 280	32	2
281 to 500	50	3
501 to 1200	80	5
1201 to 3200	125	7
3201 to 10000	200	10
10001 to 35000	315	14
35001 to 150000	500	21
150001 to 500000	800	21

Table II  
Sampling plan for Laboratory Testing, AQL 2.5%

Lot Size	Sample Size (n) S-3	Acceptance Number (Ac) for	
		Physical test (AQL 1.5%)	Chemical test (AQL 2.5%)
Up to 50	3	0	0
51 to 90	5	0	0
91 to 150	5	0	0
151 to 280	8	0	0
281 to 500	8	0	0
501 to 1200	13	0	1
1201 to 3200	13	0	1
3201 to 10000	20	1	1
10001 to 35000	20	1	1

Note : i) When the sample size equals lot size do 100 % inspection/non-destructive testing with zero acceptance number.

ii) The rejection number (Re) will always be one more than the acceptance number (Ac).

Source : IS:2500 (Pt-I)-1992:(Attribute Sampling Plans indexed by Acceptance Quality Level (AQL) for lot by lot inspection).

## 12.7 Test Methods

12.7.1 Physical tests : Design, shape and dimensions etc.

12.7.2 Chemical Tests : Chemical analysis, thickness/amount of plating/coating.

12.7.3 Performance test : Karabiners shall be subjected to the following performance tests :-

(a) Load Test - Each Karabiner with sleeve tightly screwed in closed position shall be subjected to a longitudinal pull of 1400 kg for 5 minutes. The Karabiner shall show no damage or distortion as a result of the test and there shall be no adverse affect on the performance and engagement of the moving arm with the body at the conclusion of this test. Karabiners which fail in this test shall be rejected.

(b) Test for Spring - As per the sampling Plan attached to this specn, the Karabiners shall be subjected to test for ascertaining the suitability of the spring as given below :-

The moving arm of each karabiner shall be fully opened and released 200 times. After completion of the test, the spring fitted inside the moving arm shall not take a permanent set in that the moving arm, shall function efficiently and shall spring back without sticking or jamming as soon as it is released from the opened position at the conclusion of the test.

The general workmanship and finish of the Karabiner shall be similar to the sealed/certified pattern held by the AHSP.

### 13.0 MARKING

#### 13.1 Marking by the supplier

13.1.1 Each Karabiner shall be stamped with the manufacturer's name, initials or recognised trade mark. Each box rigid collapsible shall be legibly and indelibly marked with :

- (a) Manufacturer's name, initials or recognised trade mark.
- (b) The year of manufacture.
- (c) D. S. Catalogue number of the store

#### 13.2 Marking by the Quality Assurance Officer

13.2.1 Each inner package shall be sealed by a continuous piece of gummed tape such that ends overlap each other. Acceptance marks shall be affixed on the joint of the tape end partly covering the package.

13.3 The final rejections may be marked by Quality Assurance Officer by stamping the letter 'X' on both sides of the manufacturer's marking thus :

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### 14. PACKAGING

#### 14.1 Packing Materials

Material	Conforming to
(a) Boxes Rigid Collapsable covered Type 'D'.	JSS:8115-1 with Amdt.No.1 and Supp.Sch.No.CIGS/SS/27(e).
(b) Polythene bags	Made from polythene film 0.08 mm thick to JSS:9330-2.
(c) Tape Paper Brown Gummed	IS:4185-1989 First Revision.
(d) Boxes Fibre Board Rigid Corrugated Triple walled 7 ply	Unsealed Specification No. CGA(GS)/US/460.
(e) Polypropylene strappings (0.55 mm thick x 12 mm width)	Specn No.IND/GS/1683(a).
(f) Label carton 50 x 25 mm	JSS 7530-1 ( Aug 86 ) and Supp. Sch. No. CIGS/SS/427.

14.2.1 Each Karabiner shall be individually packed in a polythene bag and sealed and shall then be packed in a Box Rigid Collapsible Covered Type 'D' and sealed with tape paper brown gummed 25 mm wide. One hundred such boxes Rigid collapsible covered type 'D' shall then be packed in a Box fibre board Rigid corrugated, Tripple walled 7 ply. Each inner/package shall be affixed with a label Carton 50 x 25 mm bearing, D.S. Cat. No., Nomenclature, Qty packed and year of manufacture. The label shall be coated by Varnish Clear.

14.2.2 Empty space in each Box shall be filled adequately by cushioning material.

14.2.3 Each final package shall be strapped at two places as mentioned below :

- (i) Box Fibre Board, Rigid, Corrugated - Polypropylene Strapping.

NOTE - (i) The Polypropylene strappings are further sealed with a crimped metal seal or permacel seal.

14.2.4 Mass of any Box, Fibre Board, Rigid Corrugated shall not exceed 30 kg. In order to maintain the limit of mass, the number of items in the package may be altered at the discretion of the Quality Assurance Officer.

14.3 Marking on package

14.3.1 Each final package shall be legibly and indelibly marked as under.

(a) Front and Top

- i) D.S. Cat. No. and designation of the store.
- ii) Qty packed, preceded by the abbreviation 'QTY'.

(b) Back

- i) Name and address of the consignee as given in the contract.
- ii) Mass of the package in Kilogram preceded by the abbreviation 'Kg'.
- iii) Number of the individual package and total number of packages in the consignment i.e. 1 of 4, 2 of 4, 3 of 4 and 4 of 4 when the consignment consists of 4 packages.

(c) Left end

- i) Consignor's name, initials or recognised Trade Mark.
- ii) Month and year of packing.
- iii) A/T, S/D or Extract No. and Date.
- (iv) I/Note No. and Date.

#### 15.0 TECHNICAL LITERATURE / DOCUMENTS

15.1 Illustrated spare parts list History sheet/maintenance manual shall be supplied with each store wherever required/demanded.

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## 16.0 WARRANTY

16.1 Stores supplied against this specification shall be deemed to bear the warranty of the contractor against defective design material, workmanship and performance for period of twelve months from the date of receipt of store at consignee end, and if during the specified period, the store supplied are found to be defective, the same shall be replaced immediately with serviceable store by the contractor at site free of any charges as may be decided by the purchasing officer, on recommendation of consignee/Quality Assurance Authority.

## 17.0 DRAWINGS / SKETCHES

Sl.No.	Sheet No.	Detail No.	Component/Assembly	Cost
1	1	-	Assembly	-
2	2	4	Moving arm, sleeve, spring and bit	-

## 18.0 SUGGESTIONS FOR IMPROVEMENT

18.1 This specification is a live document and subject to change/updating. Any suggestions for improvement of this document may be sent to the Controller, CQA(GS) Kanpur.

22/4/83  
(K.K. GHAI)  
CONTROLLER JAG(SG)

CONTROLLERATE OF QUALITY ASSURANCE (GS)

POST BOX NO.127.

KANPUR - 208 001

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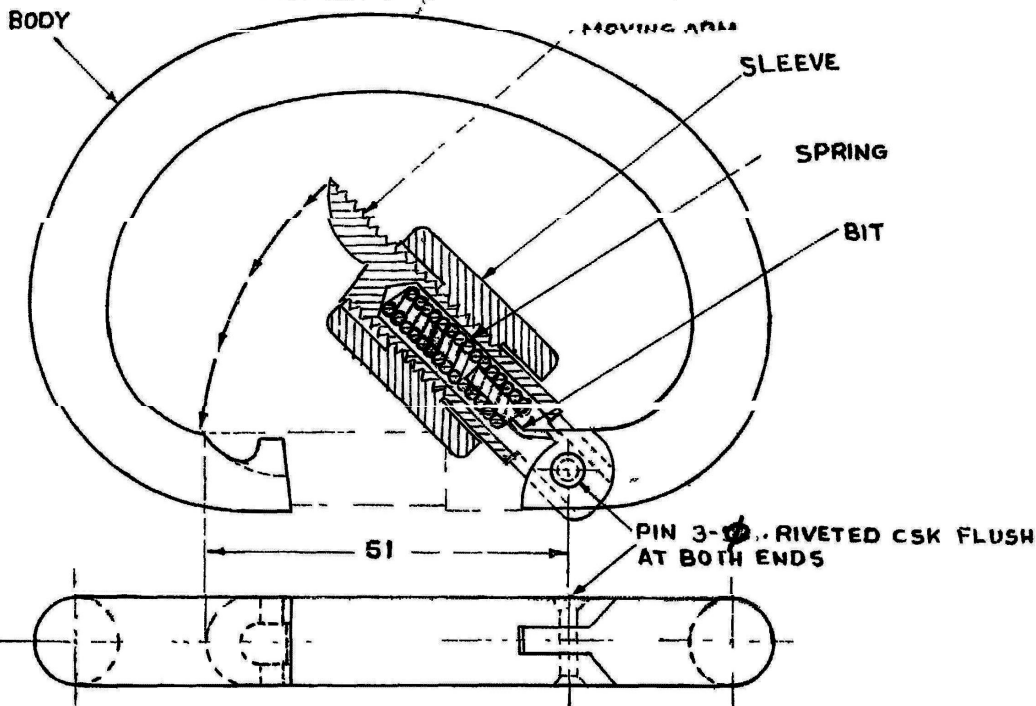
4

3

2

SHEET 1 OF 2

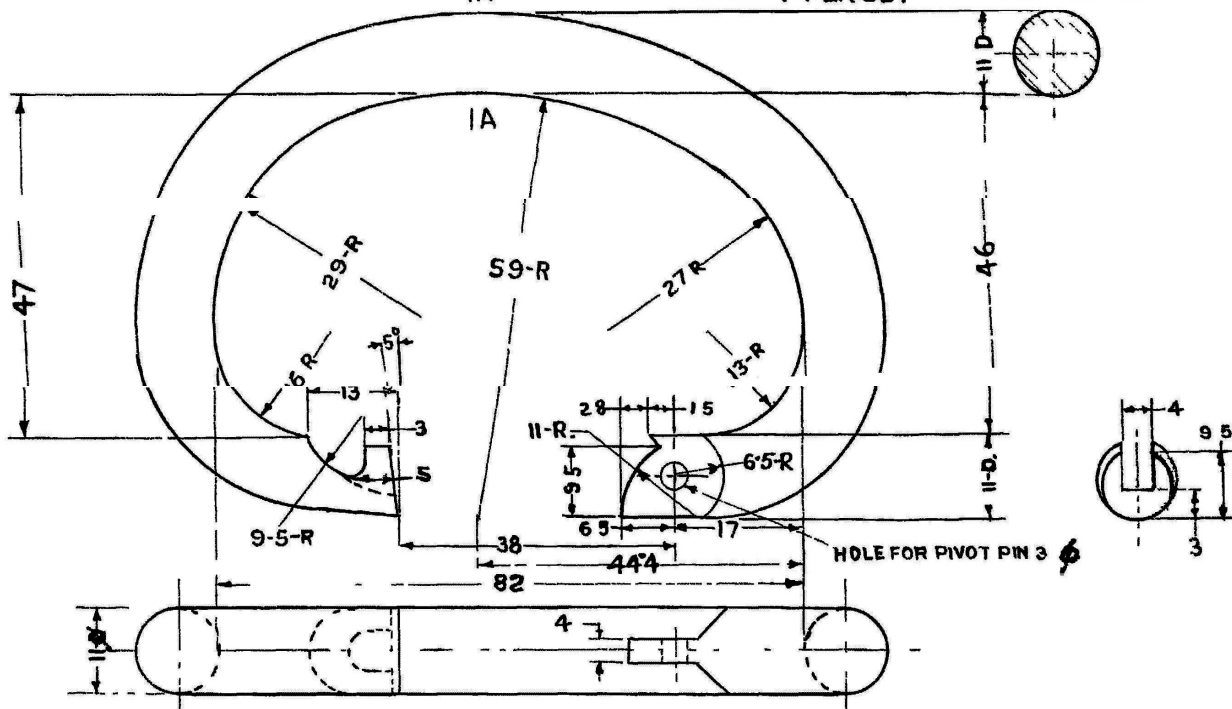
### ASSEMBLY



IA

BODY 1-PERSET

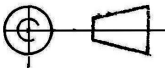
SECTION-AA



## KARABINERS

D.S. CAT. No. ~~A-3/8465-000164~~ - - -

SCREW TYPE, MK 2

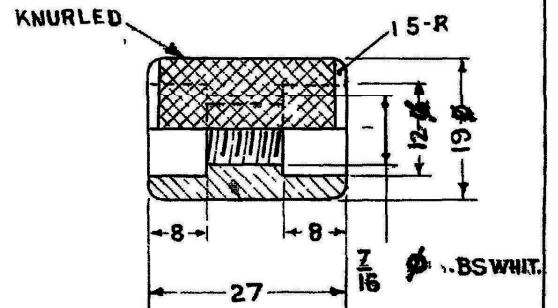
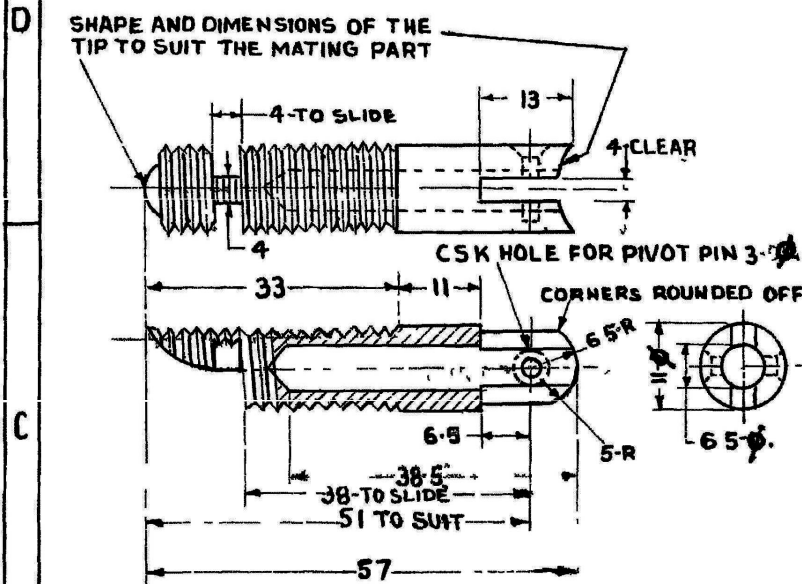
PASSED BY  GO/GS-5/AHSP	DATE	NAME	CAT. No. <del>A-3/1AC-0303</del> <b>KARABINERS SCREW</b> <b>TYPE MK 2</b>	 APPD PLATE ATTACHED TO SPECN No IND/GS/1677(a)
	DGN			
	DRN			
	CHD			
	TRD	<i>K. S. ...</i>		
COMP	<i>Sulva</i>	TOLERANCE		
CHIEF D/MAN				1677(a)

MOVING ARM

1-PER SET

SLEEVE

1-PER SET

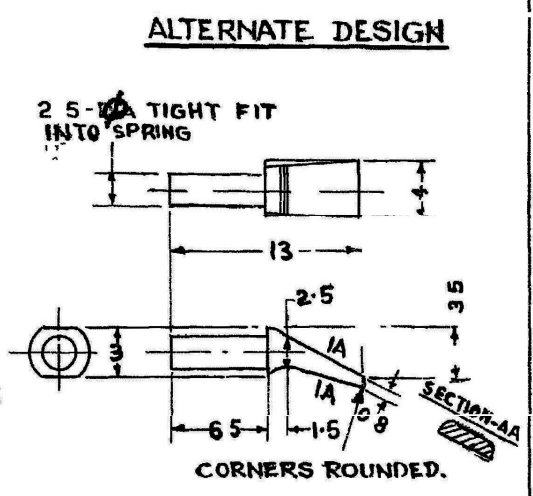
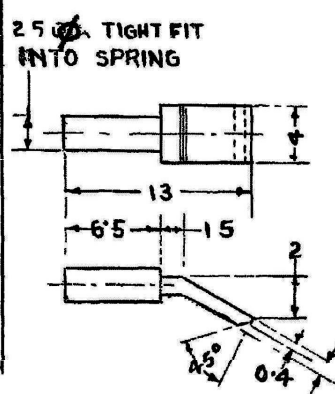
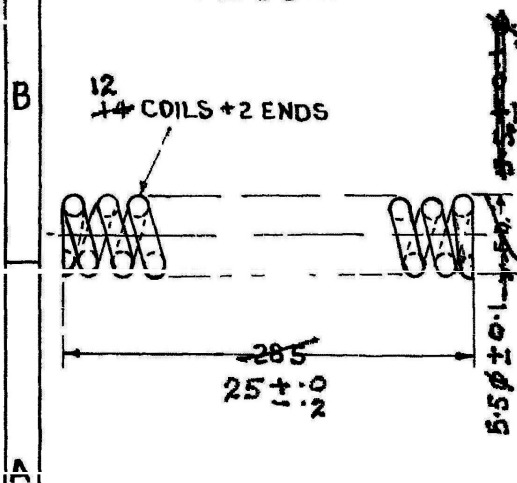


SPRING

1-PER SET

BIT

1-PER SET



NOTE:-  
DIMENSIONS IN MILLIMETRES

KARABINERS

D.S. CAT. No. 78465-000164 SCREW TYPE, MK 2

PASSED BY	DATE	NAME	C.R.A. (GS) KANPUR
	DGN		
GO/GS-5/AHSP	DRN		
	CHD.		
CHIEF D/MAN	TRD	Kabir	APPD PLATE ATTACHED TO SPECN. No IND/GS/... 1677-(a)
	COMP	Subraman	
TOLERANCE			CAT No. A-3/IAC-0303 KARABINERS SCREW TYPE MK 2