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Specification No. IND/GS/1726(c)

**GOVERNMENT OF INDIA
MINISTRY OF DEFENCE
(DGQA ORGANISATION)**

SPECIFICATION

FOR

**SKID BOARD 1500MM X 750MM X 12MM
FOR PRATAP (MI-8) HELICOPTER
(DS CAT No. 1670 - 000335)**

Issued By

Controller

Controllerate of Quality Assurance (General Stores)

Department of Defence Production & supplies

Ministry of Defence (DGQA)

Ashok Path

Kanpur - 208004

FOR CONTROLLER

FOR CONTROLLER

पूजा आश्वासन निदेशालय (सामान्य वस्तु)

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Bom

1.0 **SCOPE**

1.1 This specification covers the requirements of Skid Board 1500mm x 750mm x 12mm for Pratap (MI-8) Helicopter (DS Cat No. 1670-000335) and provides guidance to contractors/suppliers, manufacturers, Quality Assurance Agencies and stockiest/ indentors etc.

2.0 **RELATED SPECIFICATIONS AND DOCUMENTS**

Sl. No.	Specification No.	Title / Subjects
(a)	IS: 280:2006 Amd-1 (Reaffirmed-2010)	Mild Steel wire for General Engineering purpose.
(b)	IS: 303-1989 Amd-1 (Reaffirmed-1993)	Plywood for general purposes.
(c)	IS: 707-2011	Timber Technology and utilization of wood, Bamboo and cane-Glossary of Terms
(d)	IS:723-1972 Amd-3 (Reaffirmed-2011)	Steel Countersunk head wire Nails.
(e)	IS: 2016-1967 Amd-4 (Reaffirmed-2011)	Plains Washers.
(f)	IS: 2062-2011 Amd-1	Hot Rolled Medium and High Tensile Structural Steel.
(g)	IS: 2102 (Pt-I)-1993 (Reaffirmed-2008)	General Tolerances: Part 1 Tolerances for linear & angular dimensions without individual tolerance indications.
(h)	IS: 2771(Pt-1)-1990 Amd-3 (Reaffirmed-2008)	Corrugated Fibre Board boxes General requirements
(j)	IS: 2998-1982 Amd-3 (Reaffirmed 2008)	Cold forged steel rivets for cold closing (1 to 16 mm dia)
(k)	IS: 4905-1968 Amdt.1 (Reaffirmed-2011)	Methods for Random sampling.

(l)	IS: 8982-1991 Amd-2 (Reaffirmed-2012) & CQA (M)/SS/95(a)	Ready mixed paint, finishing air drying for v equipment.
(m)	JSS: 7530-01:2014(Revision No. 3)	Label carton 50X25 mm
(n)	Best Trade Quality	Label Card Board 45x25 with tie on tag

3.0 STANDARD PATTERN

3.1 Standard Pattern of Skid Board-1500mm x 750mm x 12mm for Pratap (N Helicopter (DS Cat No. 1670-000335) held by the AHSP shall constitute the standa 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:-

Sl. No.	Store / Component	Material & Grade If any	Specification
(a)	Plywood Board	Plywood MR/AA 12 mm thick, 7-ply	IS:303-1989, Am Reaff.-1993
(b)	Batten Frame	Any one of the timber listed in Appendix to this specification. The attached Battens shall be well seasoned to a moisture content not exceeding 15% and the slope of grain shall not exceed 1 in 10. The Batten shall be free from centre heart (pith), any kind of decay (rot), insect attack, objectionable knots, cracks, splits, warping and any other defect which would reduce the life of the fabricated skid Board or affect its utility.	As per appendix
(c)	Nails	Counter sunk head nails 45mm x 2.50mm dia	IS:723-1972, A Reaff.-2011

(d)	Rivets	Cold forged steel flat counter sunk head rivet 6 mm dia.	IS: 2998-1982 Ist Rev. Amd-3 Reaff. - 2008
(e)	Washers	Steel Bolt Washers 6 mm holes 14mm OD, 1.6 mm thick.	IS:2016-1967, Reaff.-2011
(f)	Link	i) Mild steel rod 6mm dia ii) Mild steel sheet 16mm thick	IS:2062-2011, Amd-1
(g)	Paint	Paint RFU War Equipment Air Drying Brushing/Spraying Olive green Scamic ISC No. 294.	IS:8982-1991Amd-2 Reaff-2012 & SS No. CQA(M)/SS/95(a)

4.2 Objectionable knots :

4.2.1 A live knot in a batten shall be considered objectionable, if its diameter along the major axis exceeds 50% of the width of the batten, provided such knots are not so numerous or grouped or located as to affect unduly the strength of the batten or are situated within 25mm from a place through which a nail/screw will be driven.

4.2.2 A dead knot in a batten shall be considered objectionable if its diameter along the major axis exceeds 6mm in the case of an unplugged knot or 25mm in the case of a glued and plugged knot, provided such knots are not so numerous or grouped or located as to affect unduly the strength of the batten or are situated with 25mm from a place through which a nail/screw will be driven.

5:0 PROCESSING

5.1 The Skid Board-1500mm x 750mm x 12mm for Pratap (MI-8) Helicopter (DS Cat No: 1670-000335) manufactured to the shape and design as shown in the plate attached to this specification.

5.2 Only one piece of plywood shall be used for the manufacture of skid board.

Ram

6.0 DIMENSIONS AND TOLERANCES

6.1 Dimensions

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

6.2 Tolerances

6.2.1 A tolerance ± 3 mm shall only be permissible on length and width of skid board.

6.2.2 Unless otherwise specified, general tolerances to IS:2102 as given below shall apply.

Tolerance	Class
Designation	Description : Applicable on Components/Parts
C	Coarse : Complete Store

7.0 WORKMANSHIP AND FINISH

7.1 The Batten shall be of even thickness reasonably smooth and trimmed square at the ends. The Battens if manufactured from non coniferous timber shall be treated with copper naphthanate solutions in mineral turpentine or for one minute in 10% copper naphthanate dispersion in ammonia.

7.2 The nails shall be driven flush through the plywood into the Batten. The Nails shall be well clinched and the clinching shall be done along the grain of the timber over driving of nails shall be avoided & no case shall it exceed 1mm.

7.3 The links shall be rivetted on the Battens into the position and in the manner as shown in the plate attached to this specification.

7.4 After inspection the skid Board shall be properly painted all over with the paint RFU war equipment; Matt finish, Olive green scamic No. 294. The quality of paint shall be duly approved as per governing specification.

7.5 The general workmanship and finish shall be of a high standard.

7.6 The Skid Board shall be practically free from visual defects viz. Warp, cracks.

Ramp

8.0 PRE-INSPECTION BY PRODUCER

8.1 Manufacturers/contractors must satisfy themselves first that the ^{ice with} 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.

8.2 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 and will have the test certificate attached to the challan / declaration.

8.3 If the quality assurance officer finds that pre inspection of the consignment, as required above has not been properly carried out, the consignment is liable for rejection.

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 Tests

9.2.1 Physical Tests – Design, Shape, Dimensions and Weight.

9.2.2 Chemical Tests – Identification of metal components, nature of coating and Preservative treatment.

9.2.3 Performance Tests- A load distributed with the help of sand bags totaling using 450 Kg will be kept on the battened face of Skid Board for a period of 30 minutes in suspended condition. The board shall not show any sign of deformation or damage during or after the tests.

10.0 SAMPLING PROCEDURE

10.1 Formation of Lot- 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.

10.2 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.

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

10.4 Scale of Sampling

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

10.4.2 Sampling Table

Table
Sampling Inspection PLAN BASED ON GENERAL INSPECTION
LEVEL II, AQL 2.5%

Lot Size Sample unit	For Visual inspection		For Laboratory Testing			
	Sample Size (n)	Acceptance Number (Ac)	Sample Size (n)		Acceptance Number (Ac)	
			S-3	S-4	S-3	S-4
Up to 50	8	0	3	5	0	0
51 to 90	13	0	5	5	0	0
91 to 150	20	1	5	8	0	0
151 to 280	32	2	8	13	0	1
281 to 500	50	3	8	13	0	1
501 to 1200	80	5	13	20	1	1
1201 to 3200	125	7	13	32	1	2
3201 to 10000	200	10	20	32	1	2

- 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).
 - iii) Level S-3 for Chemical test (Individual sample to be tested).
 - iv) Level S-4 for Physical test (Individual sample to be tested).
 - v) Lot size more than 3200 Nos. offered for inspection shall be split in to sub-lots of 3200 Nos. or less.

10.5 Sampling for visual inspection - The Quality Assurance Officer shall draw samples as per Table 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, sampling for laboratory testing will be done. Otherwise the lot shall be straightway rejected.

10.6 Sampling for Laboratory Testing - If the lot is considered conforming to the quality standards as specified in Table, sampling for laboratory tests shall be carried out as per Table and the samples shall be subjected to the laboratory tests.

10.7 Bulk Inspection - If the laboratory test report indicates that the lot does not conform to the standards as specified in Table, the whole lot shall be rejected. Otherwise the lot shall be inspected 100% thoroughly for workmanship, finish and other critical and visual defects. All items found defective shall be rejected.

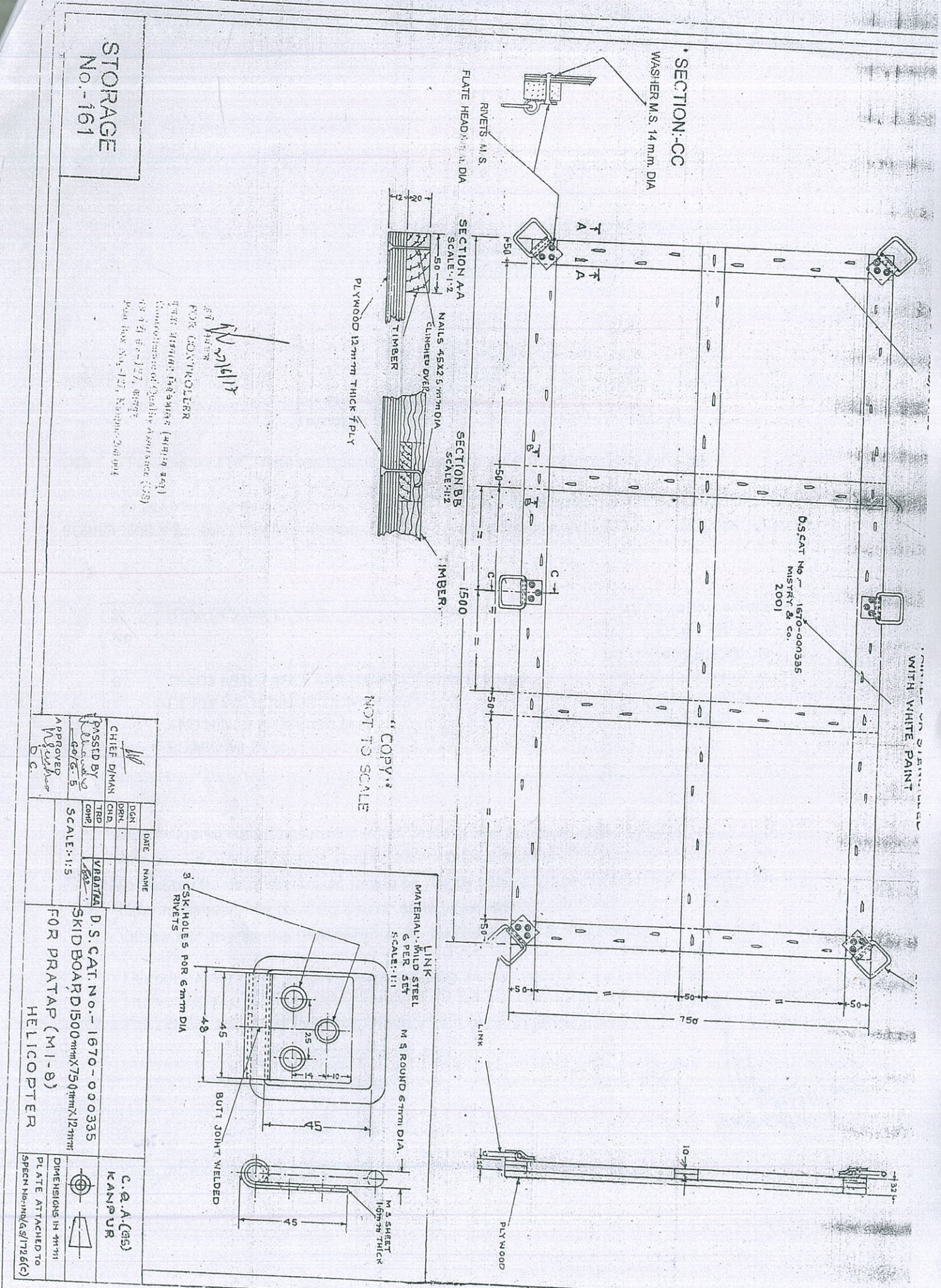
11.0 CRITERIA FOR CONFORMITY

11.1 All the sample units as specified in Table of Clause 10.4 are required to be tested / inspected irrespective of the rejection number ($= Ac+1$) being achieved earlier.

11.2 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 for each class of defects.

11.3 When the sample size equals or exceeds the lot size, do 100% inspection.

11.4 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.



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D.S.CAT No. 1670-000335
MUSTRY & Co.
2001

SECTION-CC
WASHER M.S. 14mm. DIA

RIVETS M.S.
FLATE HEAD 12mm DIA

SECTION AA
SCALE: 1:2

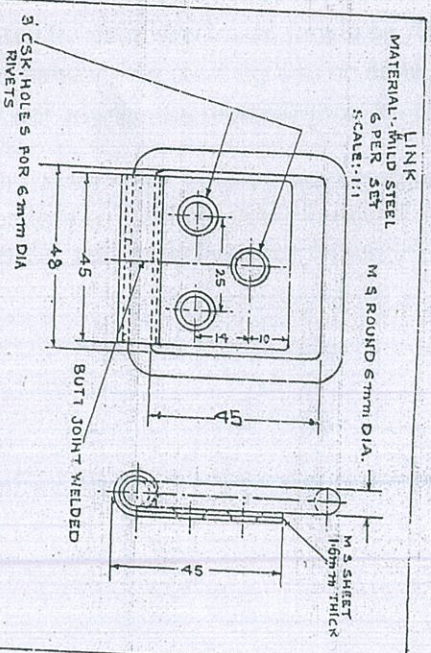
SECTION BB
SCALE: 1:2

PLYWOOD 12mm THICK 7 PLY

NAILS 45x2.5mm DIA
CLINCHED OVER
TIMBER

TIMBER

COPY
NOT TO SCALE



3 CSK HOLES FOR 6mm DIA RIVETS

STORAGE
No.-161

FOR CONTROLLER
FOR DESIGNING ENGINEER (MUSTRY & Co.)
CONSTRUCTION OF QUALITY ASSURANCE (CQA)
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Post Box No. 117, Bangalore-560004

CHIEF DIMAN	DATE	NAME	
PASSED BY	DATE	NAME	
APPROVED	DATE	NAME	
D.S. CAT. No.- 1670-000335		C.A.A. (G.S.)	
SKID BOARD 1500mm X 750mm X 12mm		KANPUR	
FOR PRATAP (M1-8)		DIME HEIGHTS IN 4mm	
HELICOPTER		PLATE ATTACHED TO	
		SPECN No. IN (G.S./1726(C))	