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GOVERNMENT OF INDIA

MINISTRY OF DEFENCE

RESEARCH AND DEVELOPMENT ORGANISATION

PP-3

CARTRIDGE ELECTRIC OPERATING FIRE EXTINGUIHSER

(~~INDIGENOUS~~) FOR RUSSIAN AIRCRAFT

ARDE/SPECN/23

ARDE/SPECN/24

ARDE/PS/9

Issued by

ARMAMENT RESEARCH & DEVELOPMENT ESTABLISHMENT

PASHAN, POONA 21.

ARDE/SPECN/23
ARDE/SPECN/24
ARDE/PS/9

AMENDMENT RECORD SHEET

Sl. No.	Brief details of Amendments	Authority letter No. & date	Signature & Date
1	**ARDE/SPEC/24**: Page 1 & 2 As per CRE(AA)/1404/2/Tech dat 8.6.88	CRE(AA)/1404/2/Tech dated 8.6.88	----Sd------
2	**ARDE/SPEC/24**: Page 2, Section For : ARDE/1707 Read : AAIW 1147	RCMA(AA)/1404/2/Tech dated 16th May 2008	(MK GUPTA) 10.9.11

[illegible] 3 ELECTRIC OPERATING FIRE EXTINGUISHER FOR RUSSIAN AIRCRAFT (EMPTY) ASSEMBLY

[redacted] SPECIFICATION TO GOVERN MANUFACTURE AND INSPECTION

ARDE/Specn/23 dated MAY'66.

SECTION I - DESCRIPTION

1. The cartridge shall consist of the following components :-

Nomenclature	Drg No.	Material & specification	Qty per cartridge
a) Case	ARDE/1231 Detail No.2	Copper to specn IS.1972 Grade [redacted] ETP, Annealed Condition	One
b) Contact Bolt Assembly	ARDE/1231 Detail No 3	-	One

The contact bolt assembly shall consist of the following :-

i) Piece Insulating	ARDE/1231 Detail No.4	Moulding powders, moulded plastics (Phenolic) Grade 'A' to specn.JSS 1097. ~~with water soluble. Phenol content of not more than 0.1%~~	One.
ii) Bridge wire	-	Nichrome steel 80/20, 0.18 dia (R 20 to IS 1137) 45.0 mm long. Resistance 39.4 ohms per metre	-

The Piece Insulating shall consist of the following :-

i) Insulating material	-	Moulding powders, moulded plastics (phenolic) Grade 'A' to specn. JSS 1097. ~~with water soluble. Phenol content of not more than 0.1%.~~	-
ii) Contact Bolt ~~Oxxxxilxxx~~	ARDE/1231 Detail No.5	Brass to specn IS : 8364 -1977 (*8364-1989) Type I Grade 2	One.

* ARDE/17/6/(i)/84-T/A DT 10 Oct. 2013

2. For general (empty) assembly of the cartridge, see drawing ARDE/1231 Detail No.1.

SECTION II - MANUFACTURE

1. Cartridge case shall be cleaned and given tin coating to approved specification before assembly.

SECTION III - ASSEMBLY

1 Moulding of piece Insulating shall be carried out to the satisfaction of the Inspecting Officer.

2. The soldering of Bridge Wire shall be done without using an acid flux or soldering compound. Powdered Ammonium chloride shall be used as flux. Pure tin shall be used as solder.

3. Solder drop shall not be too big. Minimum quantity of solder shall be used.

4. The bridge wire shall be soldered at the centre of the total length. Free ends of the wire shall reach upto the turned over end of the cartridge case. A positive contact of the wire with the cartridge case ~~should be~~ ~~ensured~~ excess length of Nichrome wire shall be trimmed off after turn-over.

5. After soldering, the soldered portion shall be rinsed or sprayed with an aqueous 2% solution of Ammonia. The assembly shall then be allowed to dry at ambient temperature.

6. Contact Bolt Assembly shall be assembled in the cartridge case and the case turned over as shown in drawing No ARDE/1231 Detail No.1.

7. It shall be ensured that the contact bolt is not capable of any rotation or axial play within the piece insulating.

8. It shall be ensured that the contact bolt assembly is not capable of any rotation or axial play within the cartridge case.

9. It shall be ensured that solder drops adhere firmly to the contact bolt.

10. Soldering shall be done quickly to avoid excessive heating of insulating material.

SECTION IV - TESTS & ANALYSIS

After the assembly of the cartridge case, the electrical resistance of the complete cartridge shall be checked. This must be between 0.09 to ~~0.15 ohm.~~ 0.2 ohm

SECTION V - LOTTING & DELIVERY

The cartridges shall be delivered in lots as required. The lot will include the cartridges required for proof.

Sd/- x x

Wg Cdr
Asst Director (Air)
(KULDEEP SINGH)

Sd/- x x x
Sqn Ldr
(PC BUGGA)

COUNTERSIGNED

Sd/- x x
Brig
(PRITAMPAL SINGH)
DIRECTOR ARDE

[illegible] ELECTRIC, OPERATING FIRE EXTINGUISHER ([illegible])
FOR RUSSIAN AIRCRAFT (FILLED) ASSEMBLY

~~DRAFT~~ SPECIFICATION TO GOVERN FILLING AND INSPECTION

ARDE/Specn/24 dt May '66

1 The cartridge shall consist of the following components :-

	Nomenclature	Specification	Drg No.	No.off/Qty
a)	Cartridge PR3 electric Operating, Fire Extinguisher for Russian A/C (Empty) assembly	-	ARDE/1231 detail 1	One
b)	Lead styphnate	RD 1302 to IND/ME/514(a) OR ME 300 to IND/ME/684	-	0.2 gram per cartridge

2. The components shall conform to the relevant drawings and specification governing their individual manufacture.

SECTION II - PREPARATION OF COMPONENTS

1 The cartridges with the nichrome wire bridge soldered, shall be first washed in carbontetra-chloride and then dried in an oven at 55°C-60°C for one hour.

2 The resistance shall then to be checked. Only those which are giving a resistance within the specified limits shall be accepted for filling.

SECTION III - MATERIAL

The following materials/stores shall be supplied by the manufacturer and must conform to the requirements laid down in the respective currect approved specifications :-

a) Lead styphnate.

b)* ~~Polyvinyl alcohol, pure grade, 5% solution in distilled water as a binder (viscosity at 20°C should be 58 ± 2 centipoises)~~

c) Varnish adhesive Nitro cellulose to specification IND/ME/359(c) for water-proofing.

d) Sable hair brush No 6 - Artists quality

e) Special Aluminium sheet stand with a small aluminium funnel. The stand is earthed by a thick copper wire.

* b) Prepare fresh polyvinyl alcohol solution (5% w/v aqueous) used as binder as given below :-

Soak 5 gms of polyvinyl alcohol pure grade in 80-90 ml of distilled water in a suitable conical flask or beaker for 12-15 [illegible] the container being properly covered. Warm the mixture till all the polyvinyl ~~alc~~ alcohol dissolves. Allow to cool, transfer to a 100 ml measuring flask and make up the volume with distilled water and store in a suitable glass container.

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NOTE - The mixture thus prepared should be used with in one week.