ЭД25.071

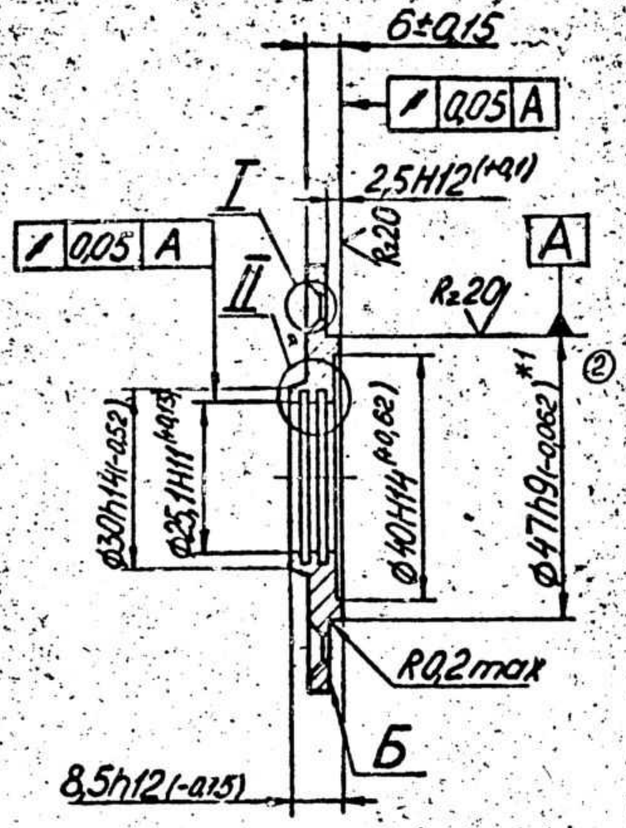
Перв. примен. ЭД25.030

Инв.№ подл. | Подп. и дата | Взам. инв.№ | Инв.№ дубл. | Подп. и дата

18.8.82

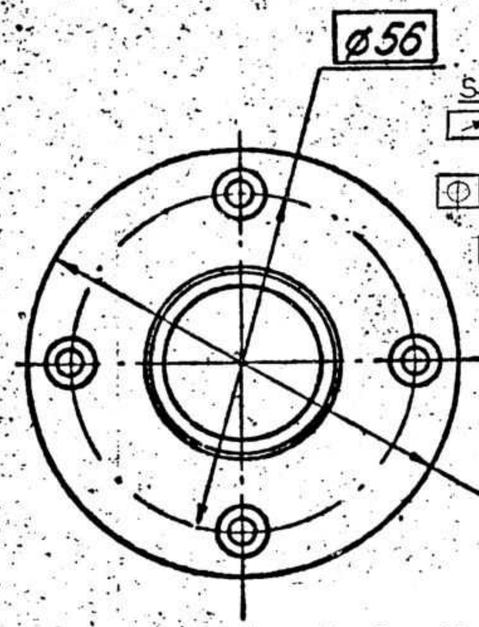
1864

$R_z 80/(\surd)$



I
Scale 2:1

II
Scale 4:1



SYMBOLS

0.05 A :- REPRESENTS RUN OUT OF INDICATED DIMENSIONS TO BE WITHIN 0.05 mm WITH REFERENCE TO BASE 'A'

⌖ R0.1 Ⓜ A Ⓜ :- POSITIONAL TOLERANCE OF HOLES IS 0.1 mm ON RADIUS FROM BASE 'A' AT MAXIMUM METAL CONDITION

Ø56 :- ON THE DIMENSION Ø56, TOLERANCE IS NOT SPECIFIED BUT IT IS NOT A "FREE DIMENSION"

A :- BASE INDICATED AS 'A'

SURFACE FINISH

R_z 20/ :- REPRESENTS SURFACE FINISH TO BE OBTAINED BY ANY PRODUCTION METHOD IN R_z VALUE 20 μ max

R_z 80/(√) :- REPRESENTS SURFACE FINISH TO BE OBTAINED BY ANY PRODUCTION METHOD IN R_z VALUE 80 μ max ON THOSE SURFACES WHERE SURFACE FINISH IS NOT SPECIFIED.

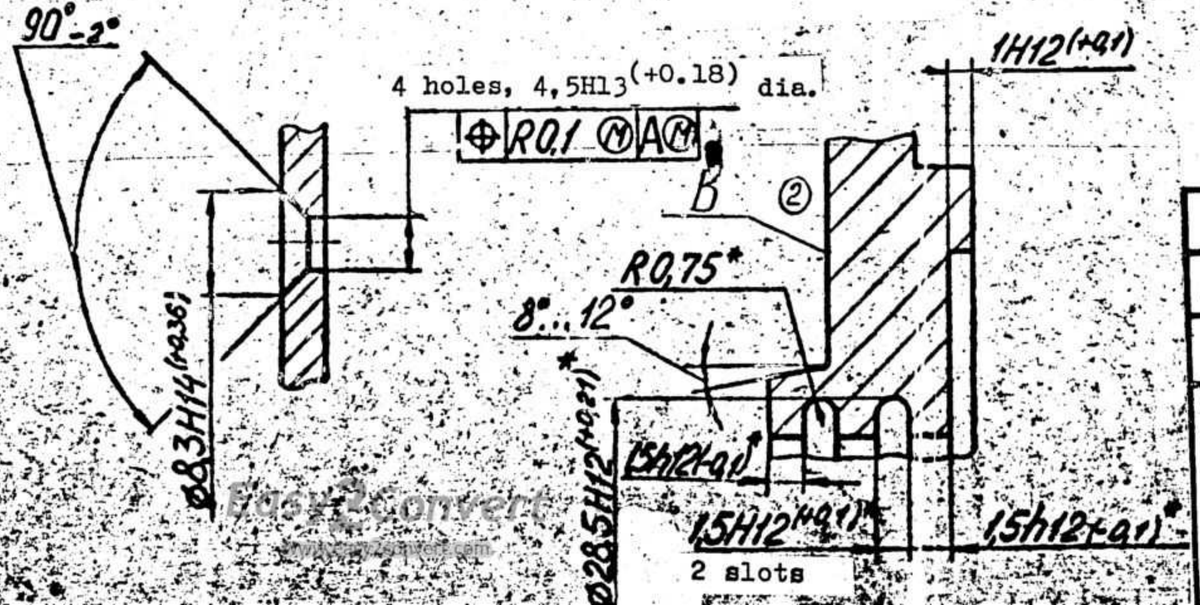
Ø68h15(-1.2)

TECHNICAL CONDITIONS

1. Provide for sizes by appropriate tools.
2. Round off sharp edges to radius 0.1 to 0.5 mm or chamfer 0.1 to 0.5 mm x 45°.
3. It is allowed to cut into surfaces A, Б and B to a depth of 0.5 mm, maximum.
4. Coating: zinc plating 15 followed by chromate treatment.
6. *1 Size after coating.

"REFER TO DRG No ЭД 20.011 FOR EXPLANATORY NOTES STEEL 10 OF GOST-1050-74

(R VEERARAGHAVAN)
SSO-II



72/D2073

APPROVED	ЭД 25·071		
CHECKED			
CONTROLLERATE OF INSPECTION FE, (I C V) PUNE	FLANGE	WEIGHT	SCALE
		0·11	1:1
		SHT	SHTS 1
	STEEL 10 ГОСТ 1050-74		1-4-4

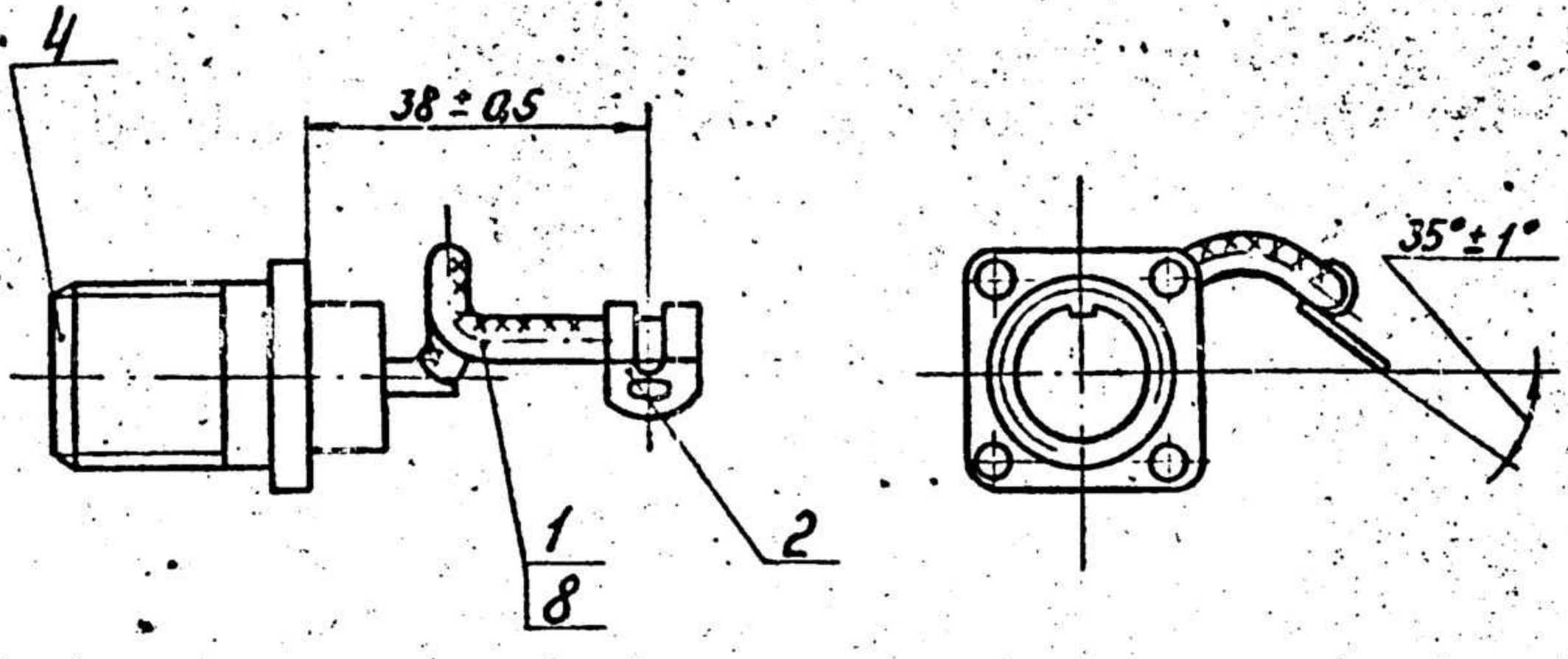
No.	Designation	Description	Qnty	Remark
		Documentation		
	ЭД25.090 СБ	Assembly drawing		
		Parts		
1	ЭД25.011	Lead	1	
2	1ИГФ-78	End piece	1	
		Miscellaneous		
4		Connector ШРГ16П1Э1Ш3 ГЕО.364.108 ТУ	1	
		Materials		
8		Tubing 1.11ТЛВ3 ГОСТ 9614-75	45 mm	

21/D 2073

APPROVED		ЭД25.090		
CHECKED		PLUG CONNECTOR WITH LEAD	WEIGHT	SCALE
CONTROLLERATE OF INSPECTION FE (ICV) PUNE			SHT	SHTS
				1-4-4

ЭД25.090 СБ

Перв. примен. ЭД 25.090



1. Solder the lead to the pin of the plug connector and end piece using tin 03 ГОСТ 860-75.

" REGARDING GOST 860-75 REFER TO DRG.NO. ЭД 25·180 СБ "

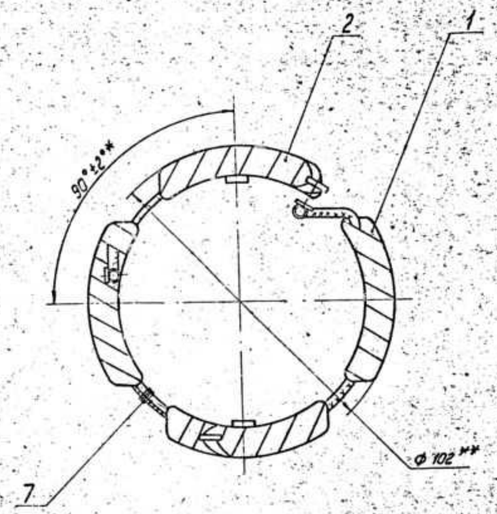
(R.VEERARAGHAVAN)
SSO-II

Справ. № | Инв. № дубл. | Подпись и дата | Инв. №

22/D2033

APPROVED	ЭД25·090 СБ		
CHECKED		WEIGHT	SCALE
CONTROLLERATE OF INSPECTION FE [redacted] PUNE	PLUG CONNECTOR WITH LEAD ASSEMBLY DRAWING	0·026	1:1
		SHT	SHTS 1

1-4-4



TECHNICAL CONDITIONS

1. *The size is provided by the use of appropriate tools.
2. **Size for reference.
3. Attach the lead connecting the shunt coils, Ref. No. 1, to the jumper, connecting the series coils, Ref. No. 2, by means of threads, Ref. No. 7.
4. Coat the attachment points with varnish HII-286, black, ТУ6-10-1290-78. Site the knot using butvar-phenolic adhesive БФ-4 ГОСТ 12172-74.

APPROVED		ЭД 25·100 СБ			
CHECKED		SERIES AND SHUNT COILS	WEIGHT	SCALE	
			0.45	1:1	
			SHT	SHTS 1	

ЭД 25.100 СБ

EXPLANATORY NOTES TO TECHNICAL CONDITIONS

ADHESIVE GRADE БФ-4 TO GOST 12172-74 IS A PHENOL-POLYVINYLACETAL GLUES WHICH ARE SOLUTIONS OF PHENOL - POLYVINYLACETAL AND RESOL PHENOL-FORMALDEHYDE RESINS IN ALCOHOL

BF-4	
PROPERTIES AS PER GOST 12172-74	
1) APPEARANCE	TRANSPARENT OR SLIGHTLY TURBID FLUID FROM LIGHT YELLOW UP TO REDDISH COLOUR
2) VISCOSITY AS PER VISCOMETER B3-1 (NOZZLE 54) AT 20°C	30 – 60 Sec.
3) CONTENT OF DRY RESIDUE %	10 – 13
4) SHEAR STRENGTH OF GLUED JOINT IN kg/cm^2 NOT LESS THAN AT 20°C & 60°C	200 100
5) BENDING OF GLUE FILM AFTER SOLIDIFICATION & AGEING	1
6) HEAT RESISTANCE OF GLUE FILM AFTER SOLIDIFICATION AND AGEING	ABSENCE OF CRACKS
7) OPERATING TEMPERATURE FOR GLUE OF GRADE BF-4 FROM -60 TO +60 °C	—

VARNISH HII-286, BLACK
AS PER TY 6-10-1290-78
PHYSICAL & CHEMICAL PROPERTIES GIVEN BELOW:

	DESCRIPTION OF THE INDICES	REQUIREMENTS
1)	APPEARANCES & COLOUR OF VARNISH.	HOMOGENEOUS LIQUID OF BLACK COLOUR WITHOUT FOREIGN INCLUSIONS A SLIGHTLY VIOLETE TINT IS ALLOWED
2)	APPEARANCES OF COAT OF VARNISH	AFTER DRYING THE COATING SHOULD BE UNIFORM & SMOOTH.
3)	CONVENTIONAL VISCOSITY AS PER VISCOMETER B3-4 AT 20° SEC.	30 – 60
4)	CONTENTS OF SUBSTANCES %	11 – 15
5)	ACID NUMBER OF AQUEOUS EXTRACT MG KOH MAX.	0·5
	TIME OF DRYING AT 20 ± 2°C	
	a) UP TO DEGREE 3	1
	b) UP TO DEGREE 4	4·8
6)	HARDNESS OF COATING AS PER PENDULUM DEVICE M-3 IN CONVENTIONAL UNITS IS MIN.	0·4
7)	BENDING OF COATING MAX.	1
8)	RESISTANCE OF COATING TO THE EFFECT OF BENZINE AT 20±2° MIN.	24
9)	RESISTANCE COATING TO THE EFFECT OF MINERAL OIL AT 20±2°C MIN.	24

						INSCRIBED	
						CHECKED	
						APPROVED	
						DATE	
						TOLERANCE UNLESS OTHERWISE SPECIFIED. GEN. DEC. ANG.	
DCN	DT.	ZONE	BRIEF RECORD.	SIGN.			

DRG. NOT TO BE SCALED
ALL SHARP CORNERS & EDGES TO BE ROUNDED OFF
ALL DIMENSIONS ARE IN MM. UNLESS OTHERWISE SPECIFIED

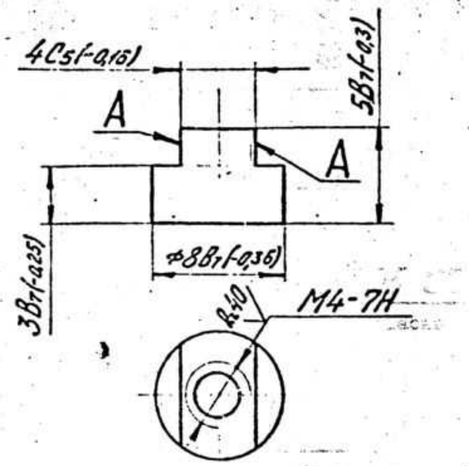
PERTAINS TO: SERIES AND SHUNT COILS ЭД25·100 СБ

SCALE:-

CONTROLLERATE OF INSPECTION FIRE FIGHTING EQPT. PUNE

ЭД25.101

Rz 80 ✓



TECHNICAL CONDITIONS

1. Thread may be opened on surfaces A.
2. Coating: zinc plating 6 followed by chromate treatment.

74/02074

APPROVED		ЭД 25.101	
CHECKED		NUT	WEIGHT 0.00% / SCALE 4:1
			SHT SHTS. 1
		STEEL A12 ГОСТ 1414-75	

ЭД25.101

EXPLANATORY NOTES TO TECHNICAL CONDITIONS

1. NUT SHOULD BE MANUFACTURED FROM SIZED STEEL OF GRADE A12 AS PER GOST 1414-75 AND HAVING CHEMICAL COMPOSITION:

STEEL GROUP	STEEL GRADE	CONTENTS OF ELEMENTS %				
		CARBON	SILICON	MANGANESE	SULPHUR	PHOSPHORUS
CARBON SULPHUR CARBON STEEL	A 12	0.08 - 0.16	0.15 - 0.35	0.70 - 1.00	0.08 - 0.2	0.08 - 0.15

2. MECHANICAL PROPERTIES:—

STEEL GROUP	STEEL GRADE	TYPE OF PROCESSING.	TENSILE STRENGTH GTH kg/mm²	PERCENTAGE ELONGATION	REDUCTION OF AREA %
			MINIMUM		
CARBON SULPHUR STEEL.	A12	HOT-ROLLED WITHOUT HEAT-TREATMENT	42	22	34

3. B HN. (MAX.) — 160

4. SURFACE FINISH:—

Rz 40 ✓ : REPRESENTS SURFACE FINISH TO BE OBTAINED BY ANY PRODUCTION METHOD IN Rz VALUE 40 µ MAX.

Rz 80 ✓ : REPRESENTS SURFACE FINISH TO BE OBTAINED BY ANY PRODUCTION METHOD IN Rz VALUE 80 µ MAX. ON THOSE SURFACES WHERE SURFACE FINISH IS NOT SPECIFIED.

DCN	AT.	ZONE	BRIEF RECORD	SIGN.

INSCRIBED.	
CHECKED	
APPROVED	
DATE	17.11.74
TOLERANCE UNLESS OTHERWISE SPECIFIED. GEN. | DEC. | ANG.	

DRG. NOT. TO BE SCALED.
ALL SHARP EDGES & CORNERS TO BE ROUNDED OFF.
ALL DIMENSIONS ARE IN MM. UNLESS OTHERWISE SPECIFIED.
SCALE:

PERTAINS TO

NUT

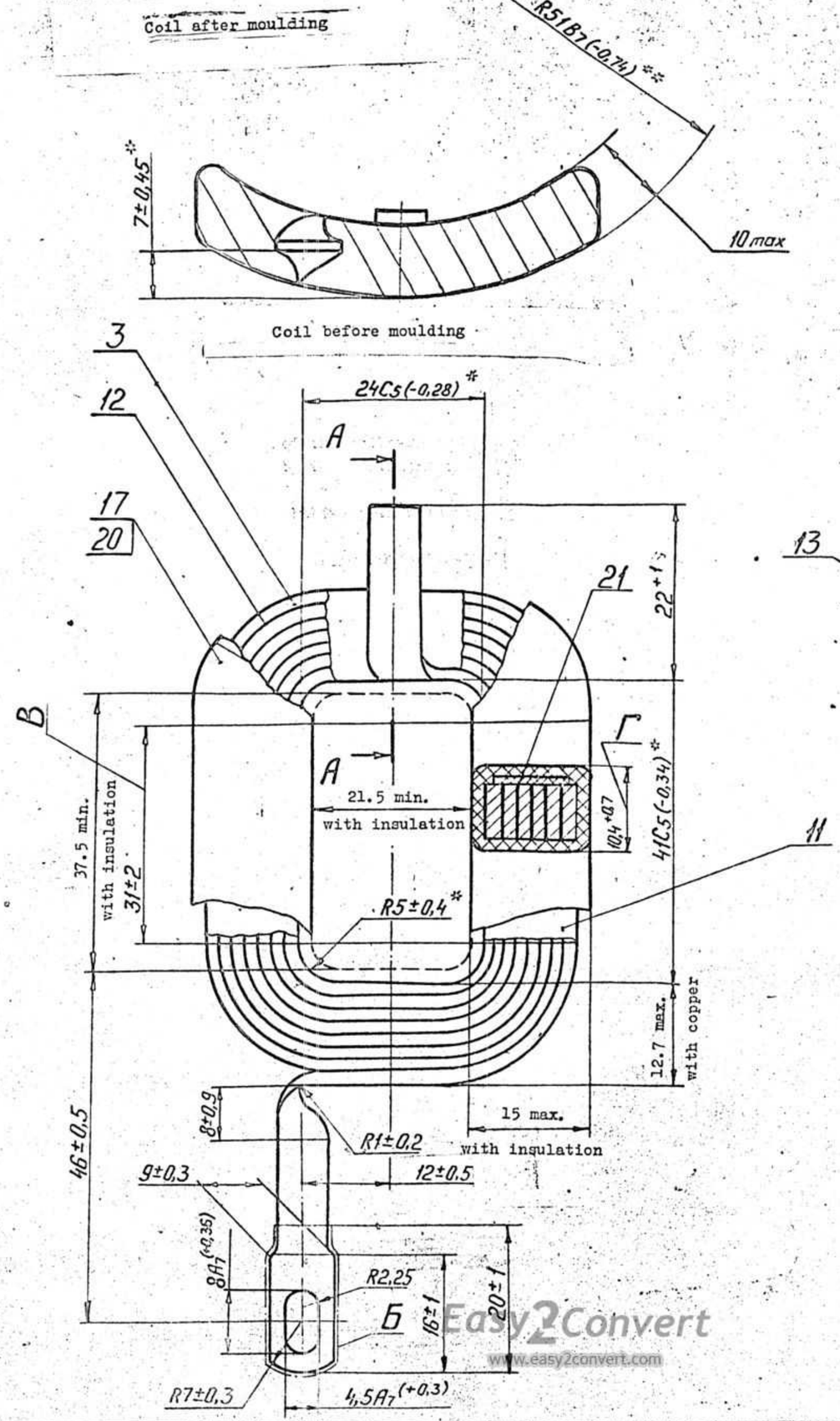
ЭД 25.101

CONTROLLERATE OF INSPECTION FIRE FIGHTING EQPT. PUNE

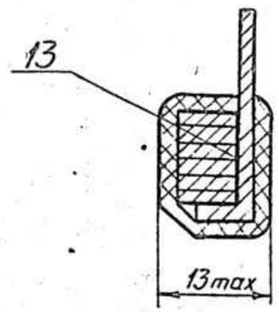
1-4-4

Восстановленный подлинник №1

ЭД25.110СБ



A-A



TECHNICAL CONDITIONS

(7) 1. *Size for gauge.
2. **The size is provided by means of appropriate tools.
3. Number of turns is 6.5.
4. Put electrical insulating board, Ref. No. 12, between the turns.
5. Coating of surface Б, .03.
6. The coil has half-lapped insulation with varnished cloth, Ref. No. 17. Then, it is insulated with cambric tape, Ref. No. 20. Seven or eight layers of insulation are allowed at some places.
7. Insulate the coil finish with hole separately. Start insulating from flatenned finish to the center of large side of the coil.
8. No turn-to-turn short circuit is allowed in the coil.
9. All sizes for insulation after impregnation.
10. Upon insulating and impregnating, the coil should have thickness Г at length B.
To ensure the above-mentioned size, it is allowed to put board, Ref. No. 21, or underwind cambric tape, Ref. No. 20.

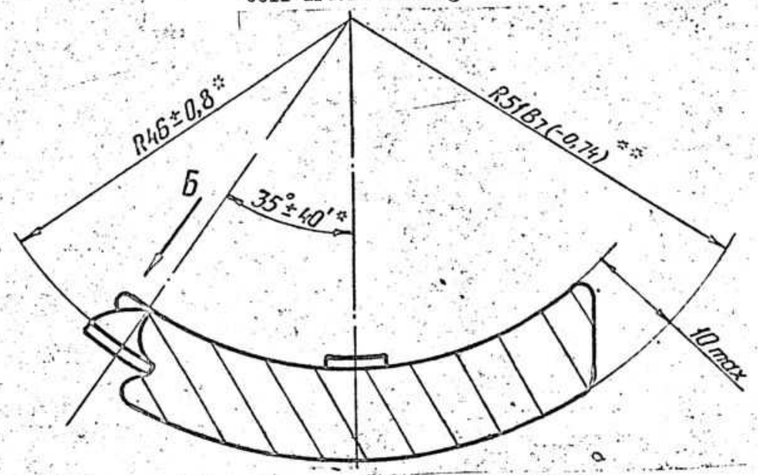
APPROVED		ЭД25-110СБ	
CHECKED		SERIES COIL ASSEMBLY DRAWING	WEIGHT 0.11 · SCALE 2:1 · SHT · SHTS 1
CONTROLLERATE OF INSPECTION (I C V)			

Восстановлен с подлинника.

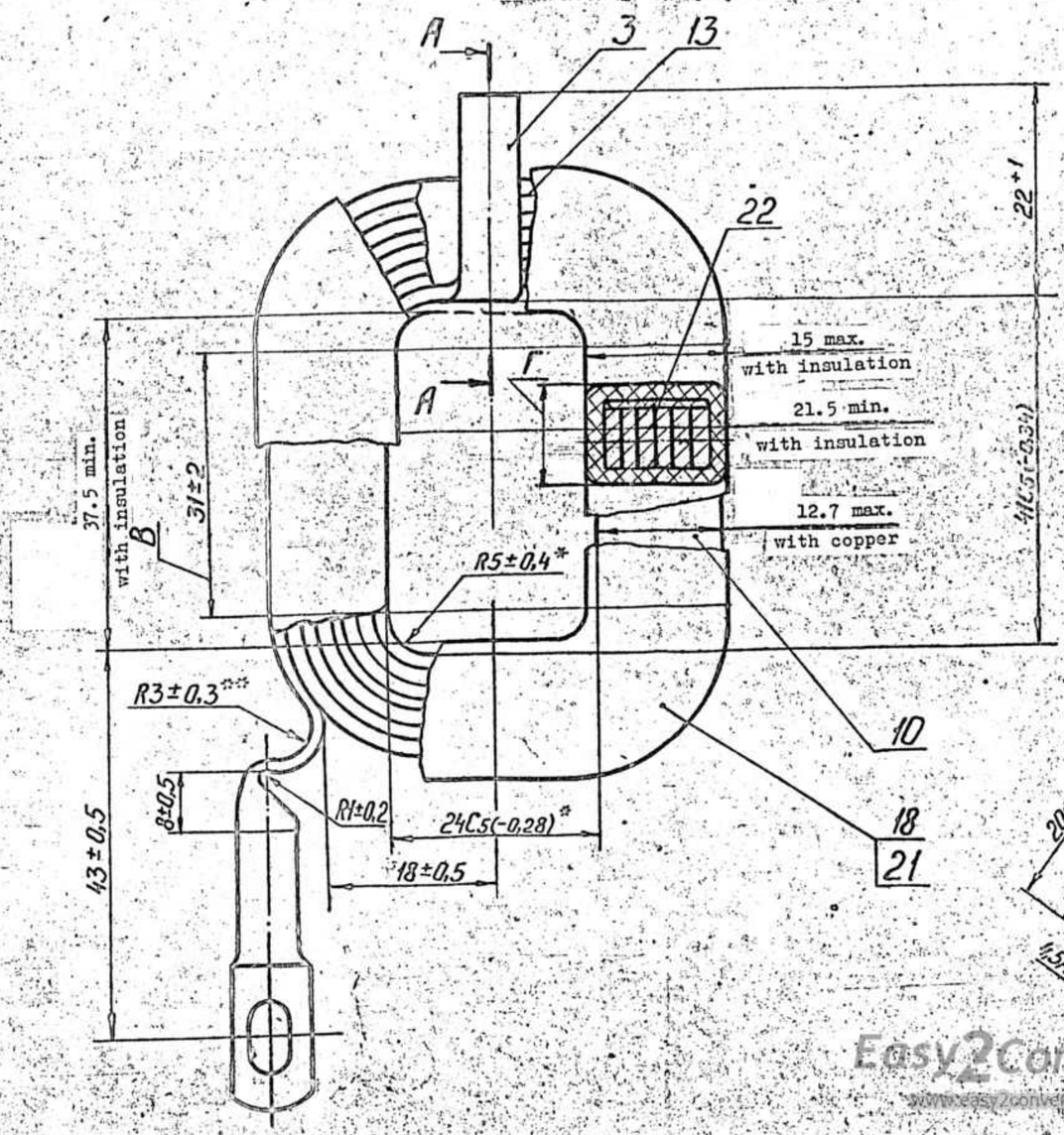
Инв.№ подл.	Подп. и дата	Взам. инв.№	Инв.№ дубл.	Подп. и дата
13609	(подп.) 11.4.72			

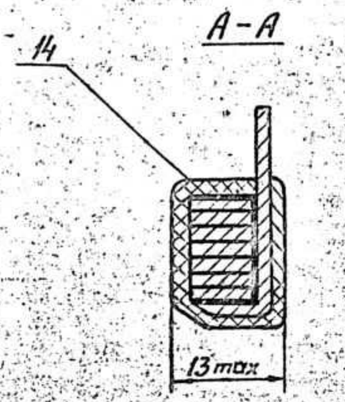
Справ.№	Перв. примен.
	ЭД25.110СБ

Coil after moulding

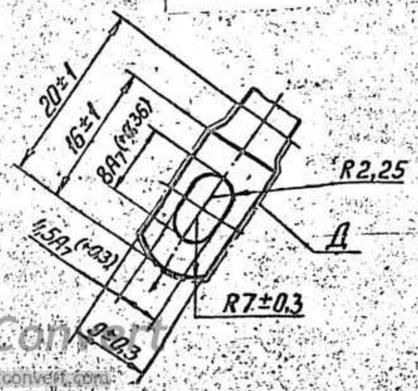


Coil before moulding





View Б



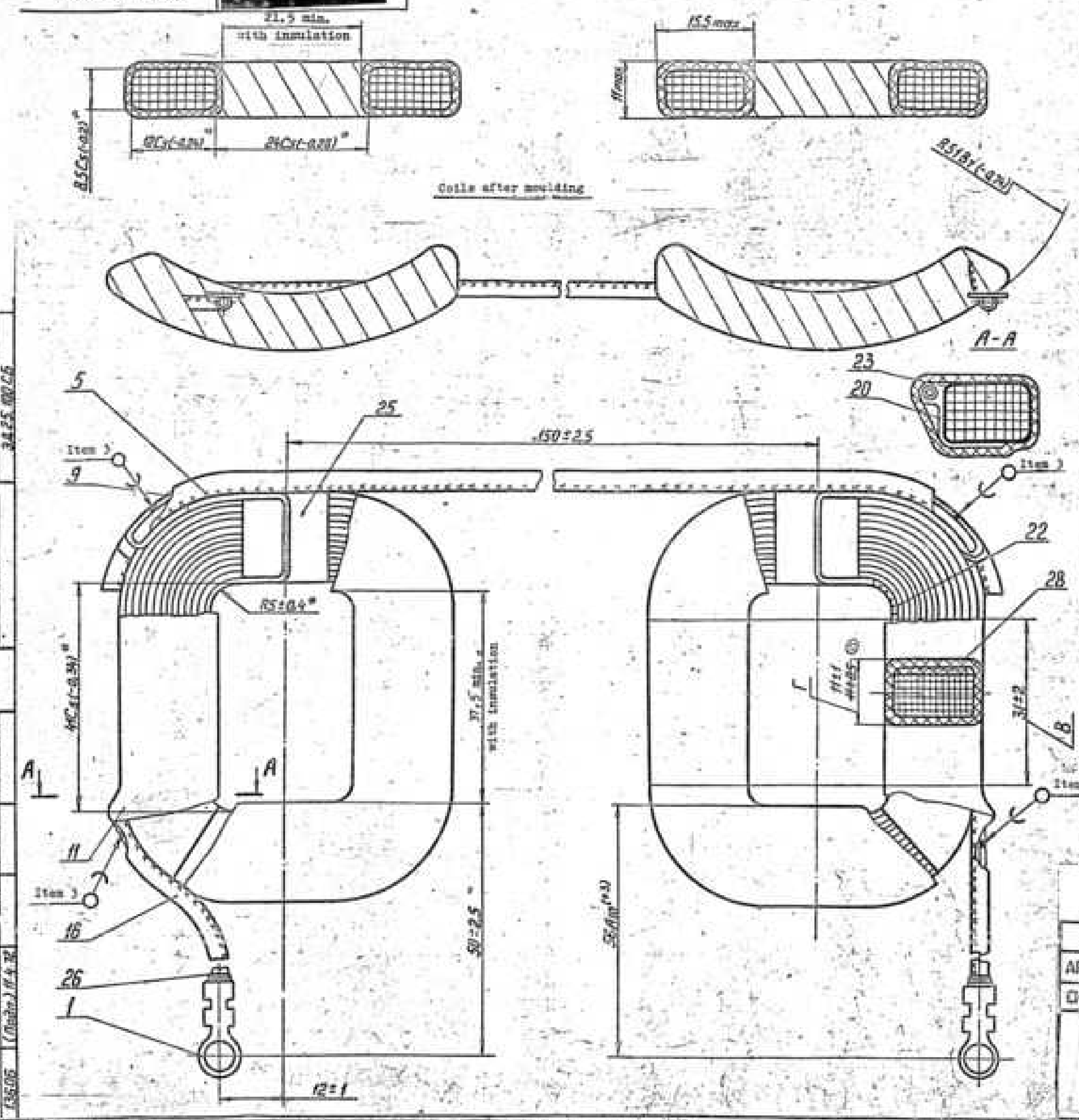
TECHNICAL CONDITIONS

1. *Size for gauge.
2. **The size is provided by means of appropriate tools.
3. Number of turns is 6.5.
4. Put board, Ref. No. 13, between the turns.
5. Coating of surface Д, 0.3.
6. The coil is half-lapped with varnished cloth, Ref. No. 18, then, it is insulated with cambric tape, Ref. No. 21. Seven or eight layers of insulation are allowed at some places.
7. Insulate the coil finish with hole separately. Start insulating from flattened finish to the center of large side of the coil.
8. No turn-to-turn short-circuit is allowed in the coil.
9. All sizes for insulation after impregnation.
10. Upon insulating and impregnating, the coil should have thickness Г at length В.
    To ensure the above-mentioned size, it is allowed to put board, Ref. No. 22, or underwind cambric tape, Ref. No. 21.

			20/02073
APPROVED		ЭД25·120СБ	
CHECKED		SERIES COIL ASSEMBLY DRAWING	WEIGHT 0·11 SCALE 2:1
CONTROLLERATE OF INSPECTION (ICV)			SHT SHTS 1

Инв.№ подл. | Подп. и дата | Взам.инв.№ | Инв.№ дубл. | Подп. и дат
3691 | (подп.)17.4.72 | | | Справ.№ | Перв. примен. 3425.140СБ
Копировал: С. подлинника.

ЭД25.130СБ [redacted]



TECHNICAL CONDITIONS

1. Number of turn in each coil is 770±10; turns are wound with wire, Ref. No. 5.
2. To fasten the coils, use tape, Ref. No. 23, at four places.
3. Strip the starts and finishes of the coils, twist them and solder to wire, Ref. No. 9 using tin 03 ГОСТ 860-75. Put tubing, Ref. No. 16, on soldered joint and insulate with varnished cloth, Ref. No. 20.
4. Twine the leads of the coils near the end piece with 4 or 5 turns of threads, Ref. No. 26, and size with adhesive БФ-4 ГОСТ 12172-74.
5. Insulate the coils with one insulation layer overlapping two thirds the width of tape, Ref. No. 11. Four or five insulation layers are allowed at some places.
6. Impregnate the coils twice with varnish БТ-988 ГОСТ 6244-70 and let them dry.
7. Resistance of coils at a temperature of 20 °C is 55 to 63 ohms.
8. All sizes for insulation after impregnation.
9. No turn-to-turn short circuit is allowed.
10. Wire ПЭТОО 0.5 ТУ16-505.967-77 may be used instead of wire, Ref. No. 9, and tubing, Ref. No. 16.
11. Tubing ТКС2 ГОСТ 10699-63 may be used instead of tubing, Ref. No. 16.
12. Size for gauge.
13. Upon insulating and impregnating, the coils should have thickness Г at length В.
To ensure the above size, it is allowed to put board, Ref. No. 28, or underwind cambric tape, Ref. No. 11.

APPROVED		ЭД25.130СБ		
CHECKED	V. Rabindranath	SHUNT COILS ASSEMBLY DRAWING	WEIGHT 0-2	SCALE 2:1
			SHT	SHTS 1

ЭД25.130СБ

SRL.NO.3

EXPLANATORY NOTES TO TECHNICAL CONDITIONS

1. CHEMICAL COMPOSITION OF TIN GRADE 03 CONFORMING TO GOST 860-75 :-

MAIN ELEMENT % TIN (NOT LESS THAN)	ARSENIC	IMPURITIES % (MAX.)						
		IRON	COPPER	LEAD	BISMUTH	ANTIMONY	SULPHUR	TOTAL OF DETERMINABLE IMPURITIES
98.49	0.03	0.02	0.10	1.0	0.06	0.3	0.02	1.51

SRL.NO.4

2. ADHESIVE БФ-4 (БФ-4) (GOST 12172-74): ADHESIVE БФ-4 IS A PHENOL-POLYVINYLACETAL GLUE, WHICH IS A ALCOHOL SOLUTION OF POLYVINYLACETAL WITH RESOL PHENOL FORMALDEHYDE RESIN.

PHYSICO-MECHANICAL & CHEMICAL PROPERTIES OF ADHESIVE БФ-4 SHOULD CORRESPOND TO THE REQUIREMENTS & NORMS GIVEN BELOW: —

PROPERTIES	NORMS БФ-4 (SUPERIOR GRADE)
1) APPEARANCE	TRANSPARENT OR SLIGHTLY TURBID FLUID FROM LIGHT YELLOW UP TO REDDISH COLOUR.
2) VISCOSITY AS PER VISCOSIMETER ВЗ-1 (NOZZLE 5.4) AT 20 °C	30 - 60 SEC.
3) CONTENT OF DRY RESIDUE	10 - 15 %
4) SHEAR STRENGTH OF GLUED JOINT AT 20 °C — AT 60 °C —	300 kg/cm² (MIN) 100 kg/cm² (MIN)
5) BENDING OF GLUE FILM AFTER SOLIDIFICATION	1 mm (MAX)
6) HEAT RESISTANCE OF GLUE FILM AFTER SOLIDIFICATION AND AGEING.	ABSENCE OF CRACKS.

SRL.NO.6 - VARNISH БТ-988 (GOST 6244-70)

VARNISH БТ-988 IS A SOLUTION OBTAINED BY MELTING PETROLEUM, ASPHALTS (OR MIXTURES OF PETROLEUM ASPHALTS WITH ASPHALTITES) AND VEGETABLE OILS IN ORGANIC SOLVENTS WITH ADDITION OF SICCATIVE.

PHYSICO-CHEMICAL & ELECTRICAL CHARACTERISTICS OF VARNISH GRADE БТ-988 SHOULD CONFORM TO THE REQUIREMENTS AND NORMS GIVEN BELOW:

INDICES	NORMS
1) PRESENCE OF MECHANICAL IMPURITIES	ABSENT
2) COLOUR AND EXTERNAL APPEARANCE OF VARNISH FILM.	AFTER DRYING THE VARNISH SHOULD FORM A BLACK, GLOSSY SMOOTH, HOMOGENEOUS FILM.
3) VISCOSITY AS PER VISCOSIMETER ВЗ-4 AT 20 °C	30 - 60 SECS.
4) CONTENT OF DRY RESIDUE	40 % (MIN.)
5) DRYING TIME AT 105-110 °C NOT EXCEEDING	3 HOURS.
6) THERMOELASTICITY OF FILM AT 150 °C NOT LESS THAN	5 HOURS.
7) STABILITY OF FILM AGAINST SPATTERING AT 150 °C	SHOULD WITHSTAND TEST.
8) DIELECTRICAL STRENGTH OF FILM AT- 20 ± 2 °C — AT- 38 ± 2 °C — AFTER ACTION OF WATER FOR 24 HRS AT 20 ± 2 °C —	55 kV/mm (MIN.) 25 kV/mm (MIN.) 20 kV/mm.
9) ELECTRICAL VOLUMETRIC SPECIFIC RESISTANCE OF FILM (i) AT 20 ± 2 °C AT 90 ± 2 °C AFTER ACTION OF WATER FOR 24 HOURS AT 20 ± 2 °C	1×10^{14} Ohm-Cm (MIN.) 1×10^{11} Ohm-Cm (MIN.) 1×10^{12} Ohm-Cm.

SRL.NO.10 WIRE П ОГООО-5 (ТУ 16-505.967-77):

SPECIAL FLEXIBLE WIRE, INSULATED WITH ONE WINDING LAYER AND ONE BRAIDING LAYER MADE OF COTTON THREAD (ГОСТ ...) WITH NOMINAL CROSS-SECTION OF CURRENT CONDUCTING CORE OF 0.5 MM².

1) MAXIMUM DIAMETER OF WIRE SHOULD BE AS FOLLOWS:

NOMINAL SECTION OF COPPER CORE	MAX. EXTERNAL DIA. OF WIRE.
0-50	2.5 MM.

2) CURRENT-CONDUCTING CORE SHOULD BE INSULATED WITH COTTON THREADS.
3) INSULATION IN THE FORM OF WINDING AND BRAIDING MADE OF COTTON THREAD SHOULD BE TIGHTLY WOUND.
4) INSULATION IN THE FORM OF BRAIDING MADE OF COTTON THREADS SHOULD HAVE DENSITY FACTOR OF BRAIDING OF NOT LESS THAN 85%.
5) MATERIAL USED FOR MAKING THE WIRES SHOULD CORRESPOND TO CURRENT-CONDUCTING CORE TO THE WIRES OF GRADES ММ AND ММС, GOST 2112-71.

SRL.NO.11.

TUBING ТКС2 (GOST 10699-63)

FIBRE GLASS INSULATING TUBING GRADE TKC NOMINAL INNER DIA. 2.00 MM. TKC INDICATE T - TUBE, K - SILICON LACQUER, C - GLASS-CORDTHREAD.

1) DIMENSIONS : DIMENSIONS OF TUBE SHOULD CONFORM TO FOLLOWING NORMS:

INNER DIA (MM)		WALL THICKNESS (mm)	
NOMINAL	LIMIT DEVIATION	NOMINAL	LIMIT DEVIATION
2.00	± 0.20	0.40	± 0.15

TECHNICAL REQUIREMENTS :

THE TUBE GRADE TKC SHOULD SATISFY THE FOLLOWING REQUIREMENTS IN ACCORDANCE WITH GOST 10699-80

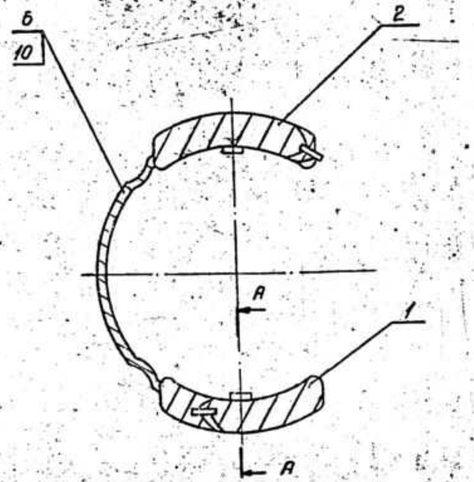
i) TUBE SHOULD BE ELASTIC AND SHOULD ENSURE 5 NOS. OF EXCESSIVE BENDS WITHOUT THE OCCURANCE OF CRACKS AND DAMAGE OF LACQUER LAYER.
ii) TUBE SHOULD BE ABRASION RESISTANT AND SHOULD ENSURE 20 NOS. OF DOUBLE STROKES (MINIMUM) OF AFFECTING WIRE WITHOUT DAMAGE OF OUTER SURFACE.
iii) TUBE SHOULD BE RESISTANT TO THE EFFECTS OF LOW TEMPERATURE (FROST-RESISTANT.)
iv) TUBE SHOULD BE RESISTANT TO EFFECTS OF LIQUID CORROSIVE MEDIUM (TO EFFECTS OF MIXTURE OF XYLENE WITH WHITE-SPIRIT & TO THE EFFECTS OF TRANSFORMER OIL.)
v) TUBE SHOULD BE RESISTANT TO THE CORROSIVE METAL IN CONTACT WITH TUBE.
vi) BREAK DOWN ALTERNATING VOLTAGE OF FREQUENCY 50 Hz OF TUBE IN THE INITIAL CONDITION AND AFTER THE EFFECTS SHOULD CONFORM TO THOSE INDICATED IN TABLE GIVEN BELOW.
vii) ELECTRICAL VOLUME RESISTIVITY OF TUBES IN THE INITIAL CONDITION SHOULD NOT BE LESS THAN 1×10^{7} Ohm-METER AT A CONSTANT VOLTAGE OF 500 V.
viii) BASIC LIFE OF TUBES AT TEMPERATURE 130 °C & 180 °C SHOULD NOT BE LESS THAN 20000 Hrs.

-TABLE-

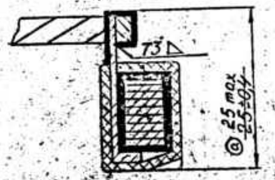
TYPE OF EFFECT	BREAK DOWN VOLTAGE, KV MIN. FOR TUBES OF GRADE WITH WALL THICKNESS 0.4 MM.
a) IN THE INITIAL CONDITION	6.0
b) BEND TO ANGLE π/2 RAD.	3.0
c) HOLDING IN CONSTANT TEMP. CABINET FOR 48 HRS. AT TEMPERATURES 200 ± 5 °C	4.0
d) HOLDING AT TEMPERATURE 40 ± 2 °C RELATIVE HUMIDITY OF AIR 95 ± 3 % FOR 48 Hrs.	2.0
e) ABRASION OF INNER SURFACE.	3.0
f) HOLDING FOR 2 HOURS AT TEMP. -50 ± 2 °C	1.0

DESIGNED		NOT TO BE SCALED. ALL SHARP EDGES & CORNERS TO BE ROUNDED OFF. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED.	PERTAINS TO
CHECKED			
DATE	1/2/4.86	SHUNT COIL	ЭД25.130СБ
TOLERANCE UNLESS OTHERWISE SPECIFIED GEN. | SEC. | ANG.		SCALE	
ALT. | DT. | ZONE | BRIEF PARTICULARS | SIGN.		CONTROLLERATE OF INSPECTION FIRE FIGHTING EQPT. PUNE	

ЭД25.140СБ



A - A
Scale 2:1



TECHNICAL CONDITIONS

1. Weld jumper, Ref. No. 5, and the ends of the coils using copper phosphide solder as prescribed by the pertinent instructions.
2. The welded joints and jumper are to be half-lapped with tape, Ref. No. 10.
3. Impregnate the coils twice with varnish БТ-988 ГОСТ 6244-70 and let them dry.

		82/D2073	
APPROVED		ЭД25-140 СБ	
CHECKED		SERIES COILS ASSEMBLY DRAWING	WEIGHT 0.24 SCALE 1:1
			SHT. SHTS 1

ЭД25.140СБ

EXPLANATORY NOTES TO TECHNICAL CONDITIONS

1. ELECTRO-INSULATING IMPREGNATING VARNISHES TO GOST 6244-70 WHICH ARE SOLUTIONS OBTAINED BY MELTING PETROLEUM ASPHALTS & VEGETABLE OIL IN ORGANIC SOLVENTS WITH SOLDTION OF SICCATIVE.

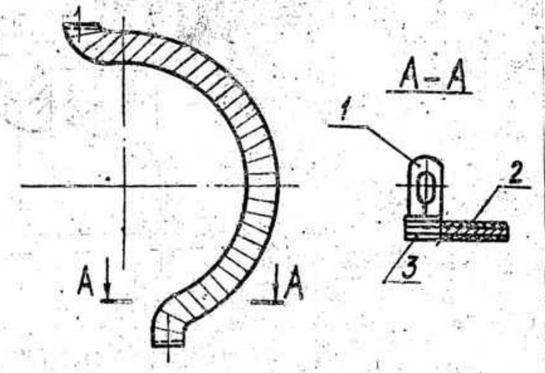
AS PER PHYSICO-CHEMICAL AND ELECTRICAL CHARACTERISTICS VARNISHES OF GRADE БТ-988 OF GOST 6244-70 IS AS GIVEN BELOW:

	INDICES	NORMS FOR GRADE БТ-988
1)	PRESENCE OF MECHANICAL IMPURITIES IN THE VARNISH	ABSENT
2)	COLOUR & EXTERNAL APPEARANCE OF VARNISH FILM	AFTER DRYING, THE VARNISH SHOULD FORM A BLACK GLOSSY SMOOTH HOMOGENEOUS FILM.
3)	VISCOSITY AS PER VISCOSIMETER 83-4 AT 20°C IN SECS.	30 - 60
4)	CONTENT OF DRY RESIDUE IN % NOT LESS THAN.	40
5)	DRYING TIME AT 105 - 110°C IN Hrs, NOT EXCEEDING.	3
6)	THERMOELASTICITY OF FILM AT 150°C IN Hrs, NOT LESS THAN.	5
7)	DIELECTRICAL STRENGTH OF FILM IN KV/mm, NOT LESS THAN AT 20 ± 2°C AT 90 ± 2°C AFTER ACTION OF WATER AT 24 Hrs. AT 20 ± 2°C	 55 25 20

8)	ELECTRICAL VOLUMETRIC SPECIFIC RESISTANCE OF FILM IN Ohm, Cm NOT LESS THAN AT 20 ± 2°C — 1×10^{14} AT 90 ± 2°C — 1×10^{11} AFTER ACTION OF WATER FOR Hrs. AT 20 ± 2°C — 1×10^{12}

							INSCRIBED.		DRG. NOT TO BE SCALED. PERTAINS TO
							CHECKED		ALL SHARP EDGES & CORNERS TO BE ROUNDED OFF
							APPROVED		ALL DIMENSIONS ARE IN MM. UNLESS OTHERWISE SPECIFIED.
							DATE	13-11-82	SERIES COILS ASSY. DRG. ЭД 25-140 СБ
DC(D)	D.T.	ZONE	BRIEF RECORD	SIGN.			TOLERANCE UNLESS OTHERWISE SPECIFIED. GEN. | DEC. | ANG.		SCALE:
							CONTROLLERATE OF INSPECTION FIRE FIGHTING EQPT. PUNE.		

1-A-4



TECHNICAL CONDITIONS

1. To be half-lapped with tape, Ref, No. 2, and impregnated with varnish BT-988 ГОСТ 6244-70.
2. Twine the ends of tape, Ref. No. 2, with threads, Ref. No. 3.

Ref. No.	Designation	Description	Qnty	Remarks
1	3Д25.017	Jumper	1	
2		Tape M-12-44, grade 1, ГОСТ 4514-78	450 mm	
3		Threads, extra strong, 12-fold, No. 00, glossy, any colour, grade 1, ГОСТ 6309-80	150 mm	

33/D2013

APPROVED	3Д25-150	WEIGHT	SCALE
CHECKED	JUMPER ASSEMBLY	0.016	1:1
		SHT	SHTS

EXPLANATORY NOTES TO TECHNICAL CONDITIONS

TAPE IS MADE FROM CALICO M-12-44 OF GRADE 1 AS PER GOST 4514-78
TECHNICAL REQUIRMENTS OF TAPE M-12-44 AS PER GOST 4514-78, AREGIVEN BELOW

1) CONVENTIONAL DESIGNATION	M-12-44
2) TAPE WIDTH m·m	12 ± 0.5
3) TAPE THICKNESS, mm	0.22±0.02
4) BREAKING LOAD ALONG THE WARP	12 kgf min
5) ELONGATIONATRUPTURE %	5% min
6) NO OF THREADS IN WARP OVER THE FULL WIDTH OF TAPE	40
7) DENSITY ALONG WEET PER cm	23
8) WARP THREAD	
a) TYPE OF RAW MATERIAL	COTTON THREAD
b) TEXTURE	11.8 TEX X 2
9) WEET THREAD	
a) TYPE OF RAW MATERIAL	COTTON THREAD
b) LINEAR DENSITY TEX	10
10) INTER WEAVING	EQUILATRAL LINERA SERGE
11) ~~WEIGHT PER OF TEP kg~~	~~0.150~~

THREADS

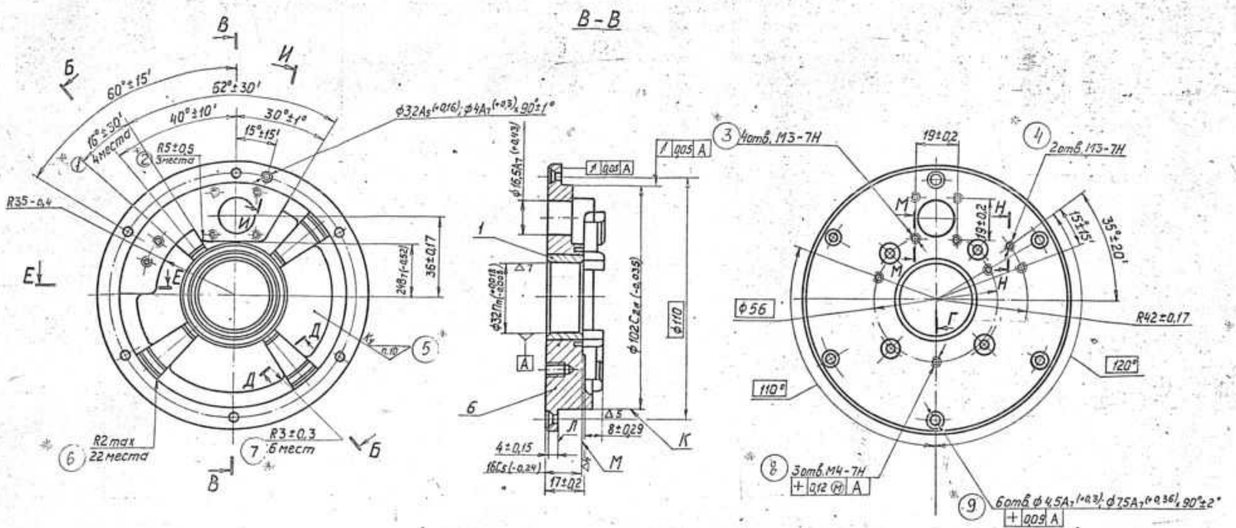
THREAD MUST BE MANUFACTURED OF GRADE EXTRA STRONG 12 COUNT COTTON SEWING THREAD AS PER GOST 6309-80

PHYSICAL & MECHANICAL PROPERTIES

1) STRUCTURE OF COURSE THREAD	29·0 TEX X 3 X 4 - TRH 356·4 TEX NO 37·0/3/2
2) BREAKING POINT ON TESTRING A SINGLE THREAD (MIN)	g.F. 7450 MIN 73085
3) COEFFICENT OF VARIATION IN BREAKING POINT % NOT MORE THAN	7.5
4) ELONGATION THREAD AT RUPTURE % NOT LESS THAN	% NOT 8.5

VARNISH BT-988 (GOST 6244-70) FOR EXPLANATORY NOTES REFER TO DRG NO 3Д 25-130 СБ.

								INSCRIBED		DRG NOT TO BE SCALED	PERTAINS TO
								CHECKED		ALL SHARP EDGES AND CORNERS TO BE ROUNDED OFF	
								APPROVED		ALL DIMENSION ARE IN m·m· UNLESS OTHERWISE SPECIFIED	
								DATE	24.11.86	JUMPER ASSEMBLY	3Д25-150
D.CH	D.T.	ZONE	BRIEF RECORD			SIGN		TOLERANCE OTHERWISE GEN: DEC : ANG	UNLESS SPECIFIED	SCALE:-	
										CONTROLLERATE OF INSPECTION FIRE FIGHTING EQPT PUNE	



(14) TECHNICAL CONDITIONS

(14) 2. Casting radii 1 mm, max. unless otherwise specified.
3. It is allowed to manufacture from aluminum alloy АЛ-9 ГОСТ 2685-63.
4. Casting slope gradients are 2° in increasing order of body.
5. Rocking of bushing, Ref. No. 1, is not allowed.
6. When machining, the cutting tool may cut in surfaces K and L to a depth and width of 1 mm, maximum.
7. The out-of-roundness tolerance of surface A should not exceed 0.013 mm.
8. The sinks left on surface K by the pushers should not exceed 0.5 mm.
9. Bushing, Ref. No. 1, may be sunk relative to plane M to 0.5 mm, maximum.
10. Place for QCD stamp.

(1) 4 places
(2) 3 places
(3) 4 holes, М3-7Н
(4) 2 holes, М3-7Н
(5) Item 10
(6) R2 max. 22 places
(7) R3±0.3 6 places
(8) 3 holes, М4-7Н
(9) 6 holes, 4.5A7 (+0.3) dia.; 7.5A7 (+0.36) dia. 90°±2°
(10) Б - Б, revolved
(11) Scale 2:1
(12) И - И, revolved Scale 2:1
(13) 4 holes, 4.5A7 (+0.3) dia.

APPROVED	ЭД25-160 СБ		
CHECKED	COVER ON COMMUTATOR SIDE ASSEMBLY DRAWING	WEIGHT 0.37	SCALE 1:1
		SHT	SHTS. 1

EXPLANATORY NOTES TO TECHNICAL CONDITIONS

COVER ON COMMUTATOR SIDE SHOULD BE MANUFACTURED BY PRESSURE DIECASTING ALLOY OF GRADE АЦ9 TO GOST 2685-75.

① CHEMICAL COMPOSITION

BASIC COMPONENTS %			ADMIXTURES % NOT MORE THAN								
ALUMINIUM	MAGNESIUM	SILICON	IRON	MANGANESE	COPPER	ZINC	TIN	LEAD	BERYLLIUM	ZIRCONIUM	TOTAL OF CALCULATED ADMIXTURES
BASE	0.2 - 0.4	4.0 - 5.0	1.50	0.50	0.20	0.30	0.01	0.05	0.15	0.15	2.00

② MECHANICAL PROPERTIES

PARTIAL RESISTANCE Ω g/mm²	SPECIFIC ELONGATION %	HARDNESS AS PER BRINELL MS
NOT MORE THAN		
17	1	50

SURFACE FINISH

▽3 (▽) :- REPRESENTS THE SURFACE FINISH OF Ra VALUE OF 2.0 MICRONS ON THOSE SURFACES WHERE SURFACE FINISH IS NOT SPECIFIED.

+ 0.12 A :- DISPLACEMENT OF HOLE ON AXES AND WITH RESPECT TO BASE 'A' TO BE WITH IN 0.12 m.m.

+ 0.08 A :- DISPLACEMENT OF HOLE ON AXES AND WITH RESPECT TO BASE 'A' TO BE WITH IN 0.08 m.m.

⌭ 0.05 A :- REPRESENTS RUNOUT OF INDICATED DIMENSIONS TO BE WITHIN 0.05mm WITH RESPECT TO BASE INDICATED AS "A"

⌭ 0.1 A :- REPRESENTS THE RUNOUT OF INDICATED DIMENSIONS TO BE WITHIN 0.1 m.m. FROM THE BASE INDICATED AS "A"

Ø 62, Ø 66, 110°, 120° :- ON THE DIMENSION GIVEN IN RECTANGULAR, TOLERANCE IS NOT SPECIFIED, BUT IT IS NOT A 'FREE' DIMENSIONS

WIO :- SYMBOL MEANS " REFER NOTE NUMBER 10

A :- INDICATED BASE "A"

▽4 :- INDICATES Ra VALUE OF 1.0 MICRONS

▽5 :- INDICATES Ra VALUE OF 5 MICRONS

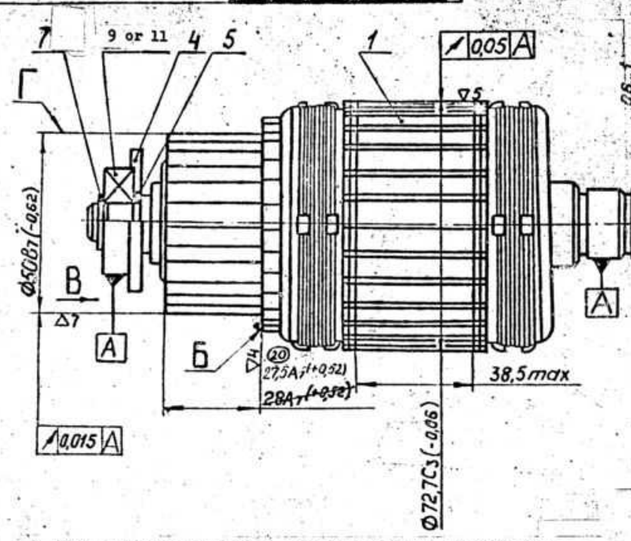
▽7 :- INDICATES Ra VALUE OF 1.25 MICRONS

PILOT SAMPLE

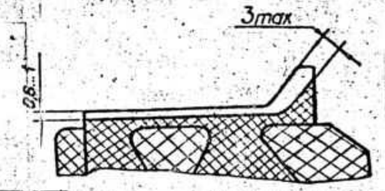
THREE SAMPLES SHOULD BE SUBMITTED TO CIFE PUNE FOR THEIR TEST AND APPROVAL BEFORE THE COMMENCEMENT OF BULK SUPPLY.

INSCRIBED		DRG. NOT TO BE SCALED	PERTAINS TO		
CHECKED		ALL SHARP EDGES & CORNERS TO BE ROUNDED OFF			
APPROVED		ALL DIMENSIONS ARE IN m.m. UNLESS OTHERWISE SPECIFIED	COVER ON COMMUTATOR SIDE ASSEMBLY DRAWING		ЭД25-160 СБ
DATE		SCALE:			
DCN DT. ZONE BRIEF RECORD SIGN		TOLERANCE UNLESS OTHERWISE SPECIFIED GEN: DEC: ANG	CONTROLLERATE OF INSPECTION FIRE FIGHTING DEPT PUNE		

ЗД25.180СБ



Sketch for slotting the commutator



View B
Scale 2:1

7. When machining surface Г, undercut of 3 mm, maximum, to plane Б is allowed.
8. Upon polishing, apply grey enamel ГФ-92ХС ГОСТ 9151-75 to the armature iron, commutator face and face parts.
9. Set washer, Ref. No. 4, upon setting washer, Ref. No. 5.
10. Test the armature for breakdown at an AC test voltage of 550 V for 1 second.
11. In cool state, the insulation resistance is at least 50 megohms.

TECHNICAL CONDITIONS

1. Balance dynamically by soldering tin 03 ГОСТ 860-75 to the binding with an accuracy of 0.3 gcm. Protrusion of tin above the armature iron diameter is not allowed.
2. Test the armature for racing at n = 14,000 r/min for two minutes in a hot state. (Reheat temperature is 150±5 °C, holding time is 1 h). Protrusion of some bars of the commutator should not exceed 0.003 mm.
3. Slot the segment-to-segment insulation along the commutator length in compliance with the sketch. Upon slotting, the groove width should be 0.8 to 1.2 mm. The segment-to-segment insulation may be slotted at a length of at least 25 mm.
4. Machine the commutator using the diamond tool.
5. Use of emery paper for polishing is not allowed.

APPROVED		3Д25·180 СБ		
CHECKED			WEIGHT	SCALE
		ARMATURE ASSEMBLY DRAWING		1:1
			SHT	SHTS. 1

37/D2·73

ЗД25·180СБ

EXPLANATORY NOTES TO TECHNICAL CONDITIONS

1) TIN GRADE 03 (GOST 860-75) CHEMICAL COMPOSITION:-

MAIN ELEMENT TIN (min) %	IMPURITIES NOT MORE THAN %							
	ARSENIC	IRON	COPPER	LEAD	BISMUTH	ANTIMONY	SULPHER	TOTAL DETERMINABLE IMPURITIES
98-49	0·03	0·02	0·10	Nil	0·06	0·3	0·02	1·51

2) COATING
UPON POLISHING APPLY ENAMEL DOVE GREY CONFORMING TO IS: 2932-74 (SHADE No 694 OF IS:5-78)

3) SURFACE FINISH
∇7:- INDICATES SURFACE FINISH OF Ra VALUE 1·26 MICRONS.
∇4:- INDICATES SURFACE FINISH Ra VALUE 10 MICRONS.
∇5 :-INDICATES SURFACE FINISH Ra VALUE 5 MICRONS.

| 0·05 | A | :- RUNOUT OF INDICATED DIMENSIONS TO BE WITHIN 0·05 MM WITH RESPECT TO BASE 'A'

| 0·015 | A | :— RUNOUT OF INDICATED DIMENSIONS TO BE WITHIN 0·015 MM WITH RESPECT TO BASE 'A'

A :- INDICATED BASE "A"

PILOT SAMPLE :- THREE SAMPLES SHOULD BE SUBMITTED TO CIFE PUNE FOR HIS TEST AND APPROVAL BEFORE COMMENCEMENT OF BULK SUPPLY

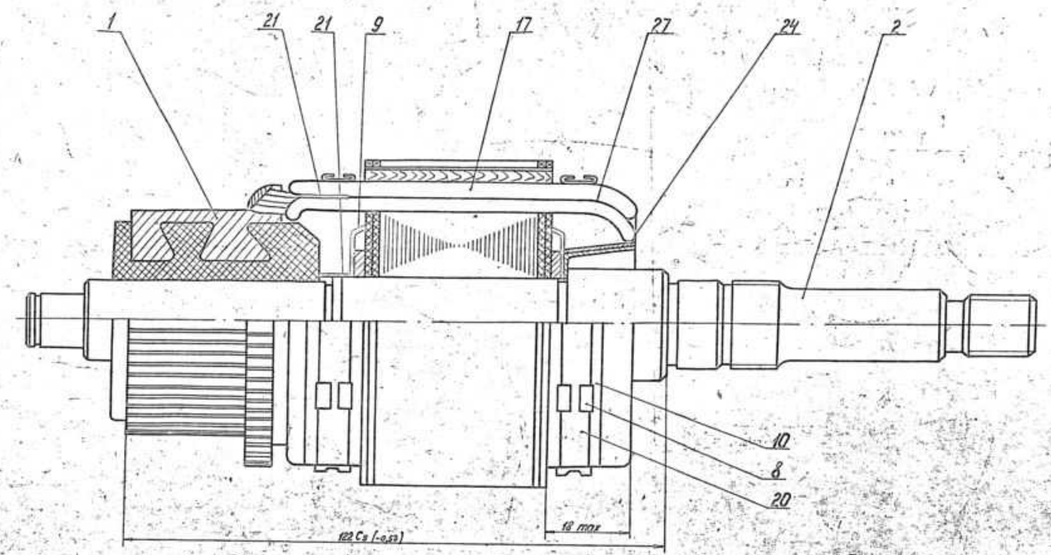
D·CH	D·T	ZONE	BRIEF RECORD	SIGN			
					INSCRIBED		DRG NOT TO BE SCALED
					CHECKED		ALL SHARP EDGES & CORNERS TO BE ROUNDED OFF
					APPROVED		ALL DIMENSION ARE IN mm UNLESS OTHERWISE SPECIFIED
					DATE	17-11-85	ARMATURE ASSEMBLY DRAWING
					TOLERANCE UNLESS OTHERWISE SPECIFIED GEN: DEC: ANG.		SCALE:

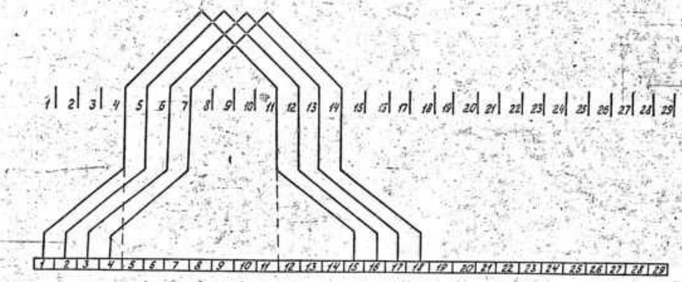
PERTAINS TO: ЗД25·180СБ

CONTROLLERATE OF INSPECTION FIRE FIGHTING EQPT PUNE

Инв. № 399 | Подпись и дата 11.4.72 (подп.) | Взам. инв. № | Инв. № дубл. | Подпись и дата | Инв. № подл. 3Д25.000СБ

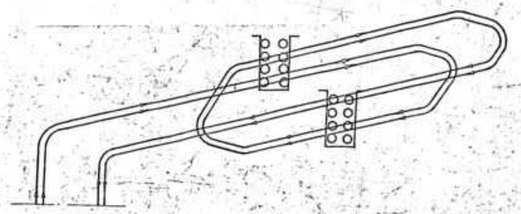
Восстановлен с подлинника №2.



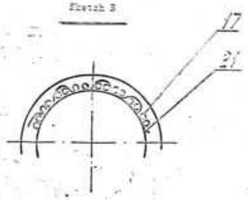


Armature Winding Pattern

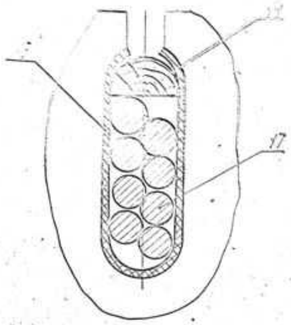
Pattern for laying the wires into the armature grooves



Sketch 3



Armature groove
Scale 2:1



TECHNICAL CONDITIONS

1. Deviation of the iron groove center from the segment-to-segment insulation center is within ±0.2 mm.
2. Grooves - 29, groove pitch - 1 to 8. Commutator bars - 29; commutator pitch - 1 to 15. Number of turns in section - 2.
3. Winding is simple wave one. The right-hand and left-hand winding is allowed.
4. Insulate the lower layer of the front portion from the upper layer on the drive side. For insulation, use board, Ref. No. 27.
5. Sections of the lower layer and the upper layer of the armature winding are to be insulated from each other on the commutator side. For insulation, use varnished glass cloth, Ref. No. 21, 14±1 mm wide and 1650±20 mm long (see Sketch 3).
7. Bind with wire, Ref. No. 20. The number of turns in each wire binding is 16±2.
8. Reduce clamps, Ref. No. 8, spaced uniformly along the periphery, and solder with tin 03 ГОСТ 860-75.
9. If required, put adhesive tape, Ref. No. 29, under the wire binding on the commutator side to set upright the front portion.
10. Impregnate the armature with sealing compound КП-103 ТУ16-504.011-76.
11. Sections of the upper layer of the armature winding are to be insulated from sections of the lower layer by means of varnished glass cloth, Ref. No. 21.
12. The shaft between commutator, Ref. No. 1, and washer, Ref. No. 9, is to be insulated with varnished glass cloth, Ref. No. 21, 300±2.7 mm long and 14±1 mm wide.
13. Secure commutator, Ref. No. 1, with butvar-phenolic adhesive БФ-4 ГОСТ 12172-74.
14. The ends of the armature winding are to be welded to the commutator risers. Blisters are allowed on the welded surface in compliance with the standard.

APPROVED	ЭД25-190 СБ		
CHECKED	ARMATURE ASSEMBLY DRAWING	WEIGHT	SCALE 2:1
		SHT	SHTS 1

EXPLANATORY NOTES TO TECHNICAL CONDITIONS

TIN GRADE 03 CONFORMING TO GOST 860-75 SHOULD BE AS GIVEN BELOW

CHEMICAL COMPOSITION

QUALITY CATAGORY	HIGH SELDOM NOT MORE THAN	IMPURITIES NOT MORE THAN							
		ARSENIC	IRON	COPPER	LEAD	BISMUTH	ANTIMONY	SULPHUR	TOTAL OF IMPURITIES
FIRST	99.10	0.03	0.02	0.10	1.0	0.06	0.3	0.02	1.51

NO-13 :- BUTVAR - PHENOLIC ADHESIVE БФ-4 (GOST 12172-74)

ADHESIVE БФ-4 IS A PHENOL-POLY VINYLACETED WHICH IS A ALCOHOL SOLUTION OF POLY VINYLACETAL WITH RESOL PHENOL FORMALDEHYDE RESIN

PHYSICO - MECHANICAL AND CHEMICAL PROPERTIES OF ADHESIVE БФ-4 SHOULD CORRESPOND TO THE REQUIREMENTS AND NORMS GIVEN BELOW

	PROPERTIES		NORMS
I)	APPEARANCE	——	TRANSPARENT OR SLIGHTLY TURBID FLUID FROM LIGHT YELLOW UP TO REDDISH COLOUR
II)	VISCOSITY AS PER VISCOMETER VS-1 (NOZZLE 5-4) AT 20°C	——	30-60 SEC
III)	CONTENT OF DRY RESIDUE	——	10 -13%
IV)	SHEAR STRENGTH GLUED JOINT AT 20°C AT 50°C	—— ——	200 KG/CM² (MIN) 100 KG/CM² (MIN)
V)	BENDING OF GLUED FILM AFTER SOLIDIFICATION	——	1 MM (MAX)
VI	HEAT RESISTANCE OF GLUE FILM AFTER SOLIDIFICATION AND AGEING		ABSENCE OF CRACKS

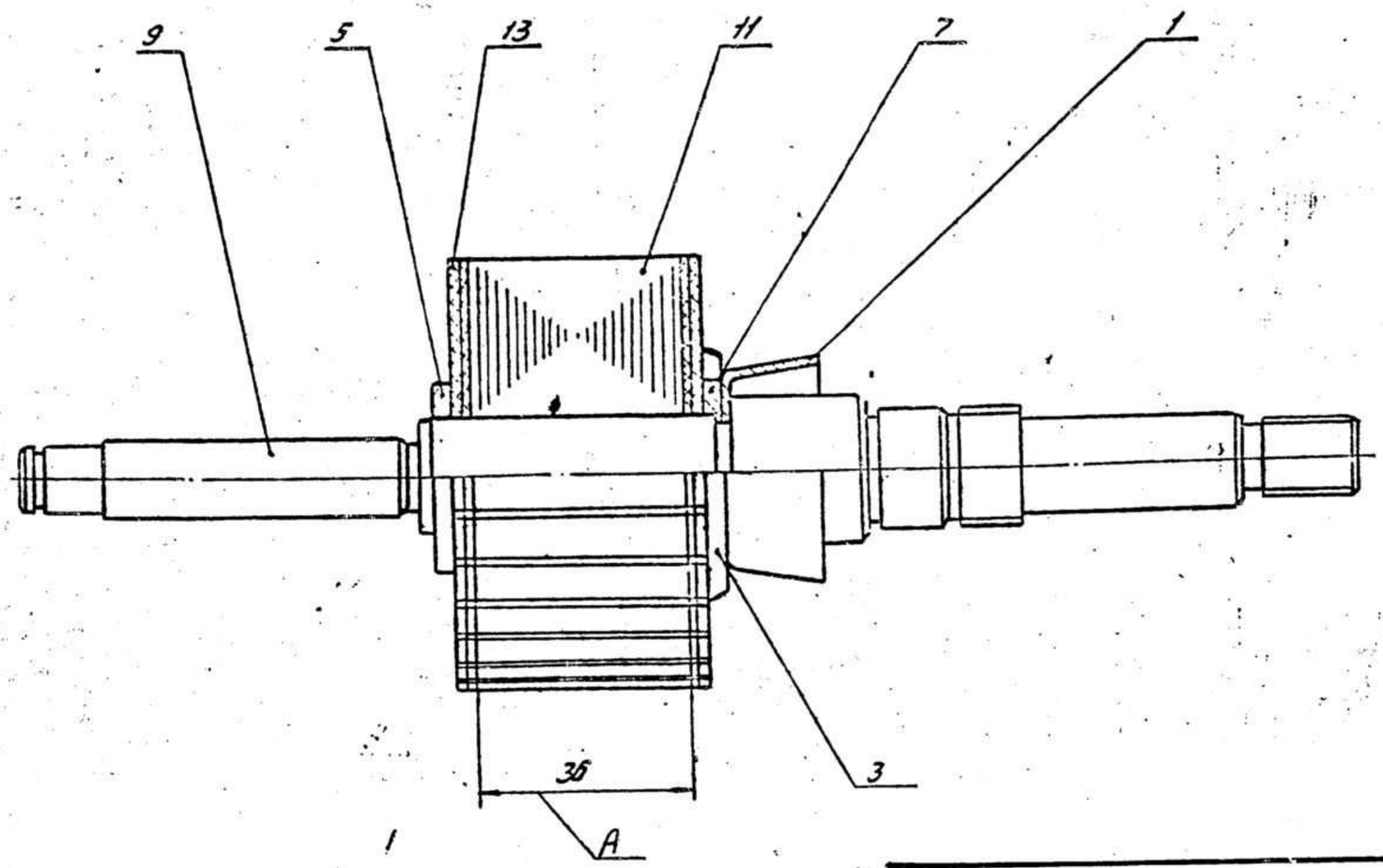
PILOT SAMPLE

THREE SAMPLES SHALL BE SUPPLIED TO CIE PUNE FOR HIS TEST AND APPROVAL BEFORE COMMENCEMENT OF BULK SUPPLY

		INSCRIBED		DRG NOT TO BE SCALED	PERTAINS TO
		CHECKED		ALL SHARP EDGES AND CORNERS TO BE ROUNDED OFF	
		APPROVED		ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED	
		DATE		ARMATURE ASSEMBLY DRAWING	ЭД25-190 СБ
DCN	DT	ZONE	BRIE RECORD	SIGN	TOLERANCE UNLESS OTHERWISE SPECIFIED DEC. ± ANG. ±	SCALE: —

CONTROLLERATE OF INSPECTION FIRE FIGHTING EDPT PUNE

1. Liberation of bars along the outer diameter should not exceed 1 mm above size A.



APPROVED MVABU	ЭД25·200 СБ		
CHECKED		WEIGHT	SCALE
CONTROLLERATE OF INSPECTION FE [redacted] PUNE	ARMATURE IRON ASSEMBLY DRAWING		1:1
		SHT	SHTS 1

4/D2023

1-4-4

Восстановленный подлинник №

ЭД25.210СБ

Перв. примен. ЭД25.210

Справ. №

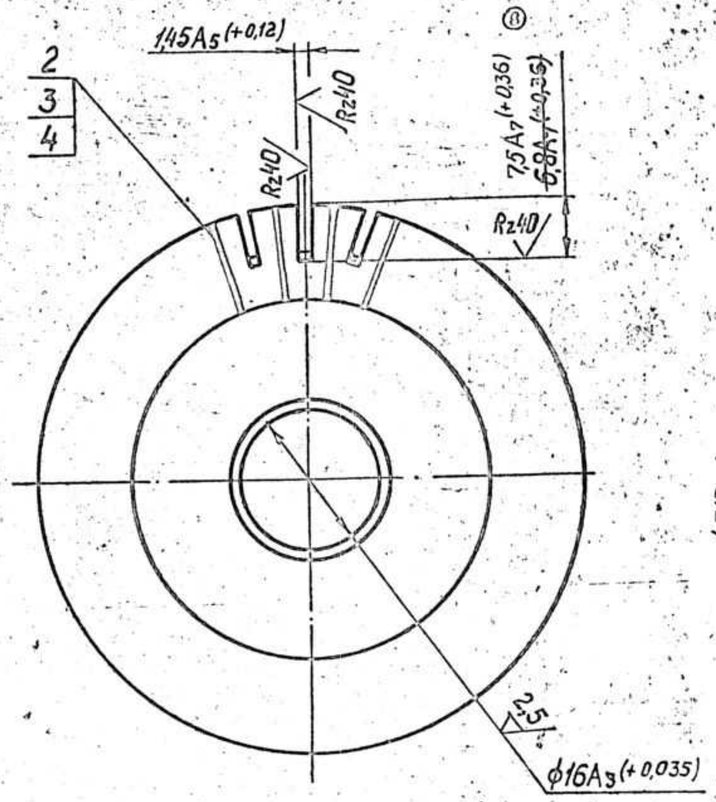
Подпись и дата

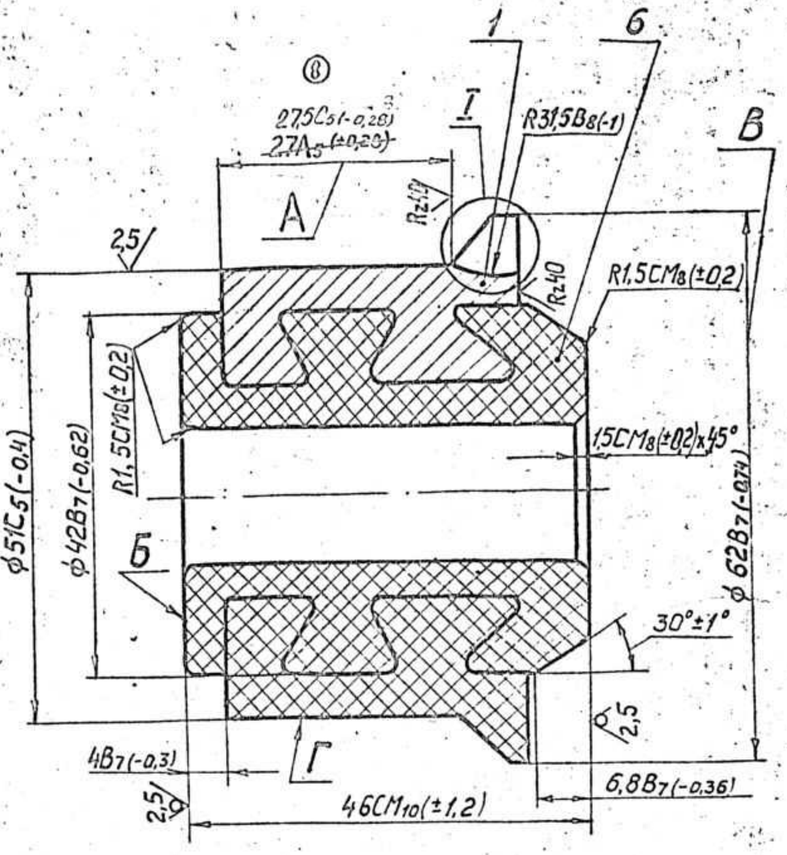
Инв. № дубл. | Подп. и дата

Взам. инв. № | 6

Инв. № подл. | Подп. и дата | (Подп.) 18.10.79

28130





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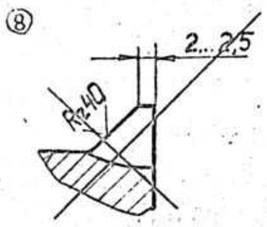


TECHNICAL CONDITIONS

1. When assembling, usually use insulating plate, Ref. No. 3. If the commutator diameter is less than diameter B, use insulating plate, Ref. No. 4; if it exceeds diameter B, use insulating plate, Ref. No. 2.
2. The parallelism tolerance of the commutator bar axis should be within 0.4 mm relative to the commutator axis at length A.
3. The misalignment tolerance of the slot relative to the commutator bar axis should be within 0.5 mm.
4. When milling the slot of the commutator risers, it is allowed to cut in surface Г at a distance of 2 mm, maximum, from risers.
5. The number of the mould seat may be marked with lettering 3, 0.3 to 0.6 mm high at surface Б.
6. The commutator should withstand the following tests:
   (a) test for racing at n = 17,000 r/min for two minutes. This done, the segment-to-segment runout should be within 0.005 mm;
   (b) test for breakdown at an AC voltage of 110 V (effective value) 50 Hz for 1 second.

SURFACE FINISH

2,5 ▽ REPRESENTS SURFACE FINISH TO BE OBTAINED BY ANY PRODUCTION METHOD IN Ra VALUE 2·5 μ MAXIMUM.

2,5 ▽ REPRESENTS SURFACE FINISH TO BE OBTAINED WITHOUT REMOVAL OF MATERIAL IN Ra VALUE 2·5 μ MAXIMUM.

Rz40 ▽ REPRESENTS SURFACE FINISH TO BE OBTAINED BY ANY PRODUCTION METHOD IN Rz VALUE 40 μ MAXIMUM.

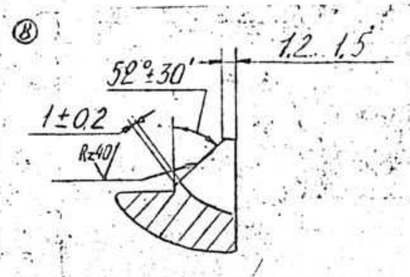
PILOT SAMPLE

THREE SAMPLES SHALL BE SUBMITTED TO CIFE, PUNE, FOR THEIR TEST AND APPROVAL BEFORE COMMENCEMENT OF BULK SUPPLY

(R VEERARAGHAVAN)
SSOII

I

Replacing crossed-out figure



44D2073

APPROVED	ЭД25·210 СБ		
CHECKED	COMMUTATOR ASSEMBLY DRAWING	WEIGHT	SCALE
CONTROLLERATE OF INSPECTION (ICV) PUNE		0·62	2:1
		SHT	SHTS 1