

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
RESEARCH DESIGNS & STANDARDS ORGANISATION**

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No.EL/3.2.11
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(Enclosed).

Dated 4.1.2000

**MODIFICATION SHEET NO. ELRS/MS/0255
AMENDMENT NO. - 1**

Paras No. 3.0, 5.0, 6.0 and 8.0 of the above modification sheet No. ELRS/MS/0255 dated 30.3.99 are being amended as under and para 9 is added.

3.0 Work to be carried out -

3.1 On old Arnos (with six terminal arrangement)

- a) In six terminal arrangement, winding wires are directly brazed to the terminal studs from back side. To use 3+1 terminal arrangement as per drawing No. 3EK4037, star point is to be made on the over hang of the winding and from the star point a lead cable 10 sq.mm is to be brought out side on the terminal block.
- b) U,V and W main terminals are to be brought out from the winding to the terminal block by brazing 70 sq.mm 1100V silicon rubber insulated fiber glass covered flexible copper cable conforming to Specification No. IS:9968 Pt.I. Alternatively, use flexible insulated fiber glass copper connecting lead wire with fire retardant silicon elastomer for temperature -50 deg. C to + 180 deg. C as per BSS 6195 -1969 type 8 'b', voltage category 'D' in line with SMI-185.
- c) Remove the existing chamber box and cover.
- d) Fit the adopter plate as per drawing No. 3EK-4165 on Arno.
- e) On adopter plate, fit the Epoxy moulded terminal plate as per drawing No.3EK4037 using counter sunk head screw M10x40 mm .
- f) Fit the terminal lugs on the cable.
- g) Put heat shrinkable sleeve to S.No. 25 of Jyoti drawing No. 2EK-3030R4

- h) Fix the U, V, W and neutral terminal on the terminal block.
- i) Fit the terminal box chamber as per Jyoti drawing No.2M621-456 on the adopter plate using M8x30 bolts.
- j) Fit the terminal cover as per Jyoti drawing No. 4M621-301 on terminal box chamber using bolts M8x16 and B8 washer.

Please also refer terminal box layout to drawing No. 4EK-4134.

3.2 On present version Arnos (with 3+1 terminal arrangement supplied after 1992) as per M/s Jyoti Drg. No. 2EK 3030R4 :

- i) Remove the terminal box chamber.
- ii) Remove dough moulded terminal stud block.
- iii) Remove the insulating closing plate.
- iv) Fit the epoxy moulded terminal plate as per drawing No. 3EK4037.
- v) Fix the U,V,W and Neutral cables on their respective terminal studs of new terminal plate.
- vi) Fit the same terminal box chamber using M8x30 bolts and terminal box cover using M8x16 bolts..

Please also refer to terminal box layout to drawing No. 4EK-4134.

5.0 Material required :

5.1 For Old Arnos :

1. Adopter plate as per drawing 3 EK-4165.
2. Epoxy moulded terminal plate as per drawing 3EK 4037.
3. Terminal box chamber as per drawing No. 2M621-456. Terminal box chamber cover as per Drg.No. 4M621-301.
4. Lugs suitable for 70 sq. mm cable – 3 Nos. Lug for 10 sq.mm cable – 1 No.
5. Heat shrinkage sleeves to S.No. 25 of Jyoti drawing No. 2EK3030 R4 – 4 nos.
6. Bolts M8x30 - 4 nos.
7. Bolts for cover M8x16 and B8 washer - 4 nos. each.
8. Counter shunk head screws M10x40 mm for fixing adopter plate – 4 nos.

5.2 For present Arnos.

Epoxy moulded terminal plate as per drawing No. 3EK4037.

8.0 Modification drawing Nos.: (enclosed herewith)

M/s Jyoti Drawing Nos. :

- (i) 2EK 3030R4 for terminal box lay out for Arno convertor presently in use.

- (ii) 3EK 4037 for Epoxy moulded terminal plate assembly.
- (iii) 3EK 4165 for adopter plate.
- (iv) 4EK-4134 for proposed general lay out of terminal box for arno converter.
- (v) 2M-621-456 for terminal box chamber
- (vi) 4M-621-301 for terminal box cover

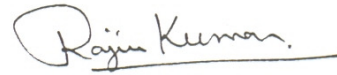
Drawings (v) and (vi) above are not enclosed here and these are common items of Arnos with terminal box to Drg. No. 2EK3030R4.

9.0 Sources for procurement of Epoxy moulded terminal plate :-

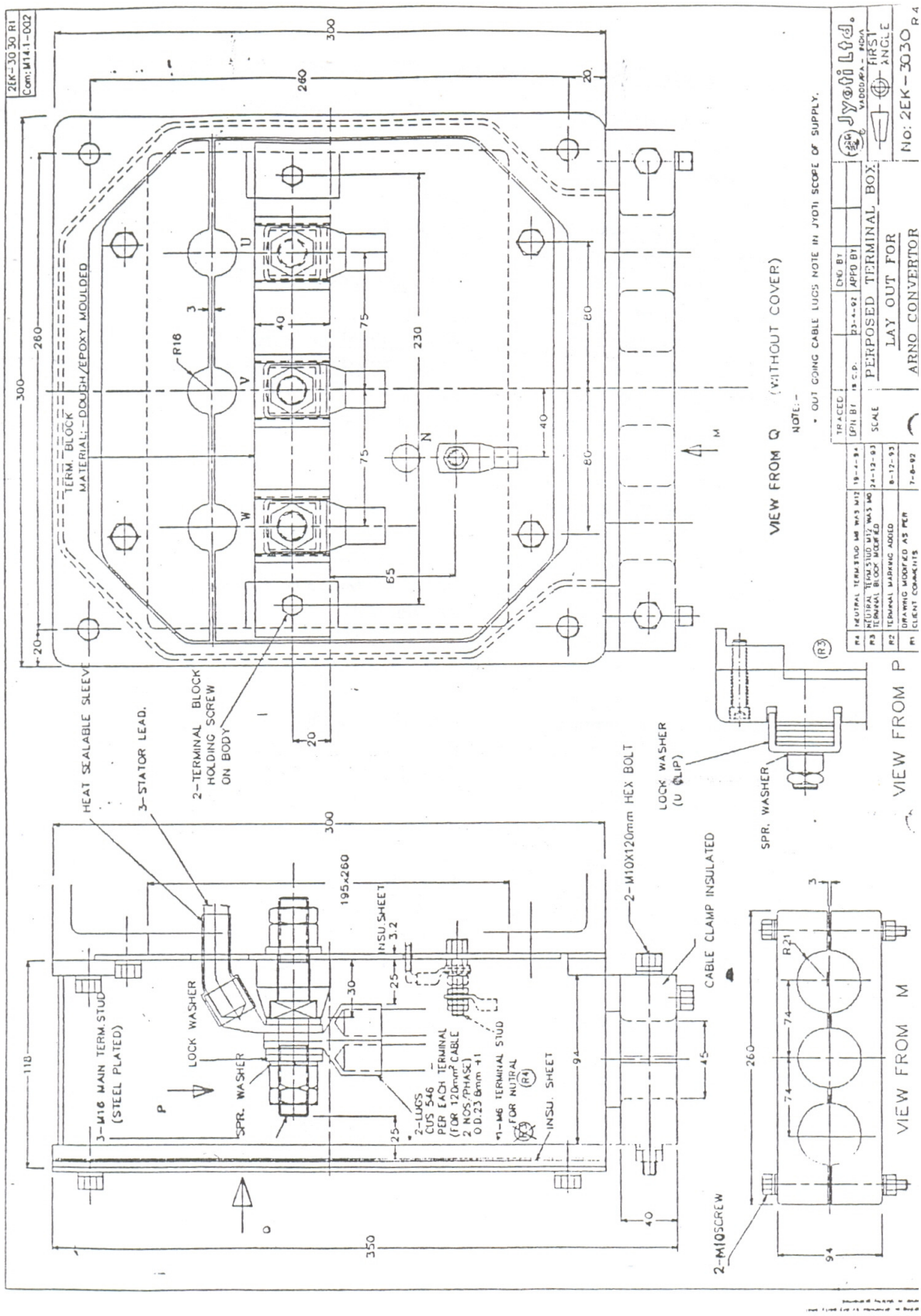
- (i) M/s Jyoti Ltd., Vadodara.
- (ii) M/s Baroda Bushings & Insulators, 746/1-2, GIDC Estate Makarpura, Vadodara, FAX 0265-641060, Phone 0265 – 642878.
- (iii) M/s Atul Industries, E-925, Dabua Colony, 'NIT', Faridabad-121001 (Haryana) .

Terminal box chamber, terminal box cover, cable lugs, heat shrinkable sleeves and fasteners may be procured from existing sources for such items.

DA: As above.



(R K Kulshrestha)
for Director General (Elec.)

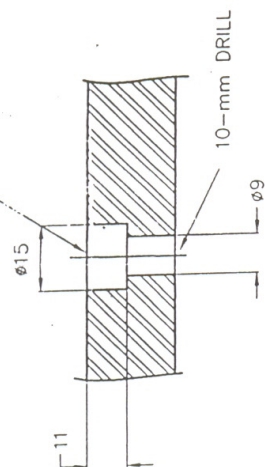


BILL OF MATERIAL FOR TERMINAL BOX AS PER DRG. NO 2EK-3030(R4)

S.no	Components	Material specification	Drawing No.	QTY
1	Terminal box chamber	Steel -Fe-410 as per IS :2062	2M621-456	1
2	Terminal box cover	-DO-	4M621-301	1
3	Gasket	Neoprene rubber -3mm	4M621-317	2
4	Terminal Studs supporting flat	Dough moulding compound	3M623-051	1
5	Terminal studs - M16 Size	Black square bar-40C8- IS7283	4M628-180	3
6	Closing plate	Epoxy laminated Sheet-3.2 mm	4M621-376	1
7	Insulation sheet	- DO- 1.6 mm	4M621-326	1
8	Bottom cable bracket	Dough moulding compound	4M623-049A	1
9	Top cable bracket	Dough moulding compound	4M623-50A	1
10	'U' Clamp for lug holding	Steel sheet - Fe -410	4M623-421	3
11	Connection diagram plate	Aluminium sheet	NM -8C	1
12	Neutral terminal stud	Brass hexagonal screw-M6X45	4M628-193	1
13	Screw and washer closing plate	M8 X 16 & B8	-	4
14	Terminal flat fixing screw & Spring Washer	Hexagonal socket screw M10 X 35 - 12.9 grade & B10	-	2
15	Cover fixing Screw and washer	Hex.Screw M8 x 16 & B8	-	4
16	Bottom cable bracket fixing bolts, nuts & washer	Hex. Bolts M10 x 60 & spring Washer B10	-	2
17	Top cable bracket fixing bolts, nuts & washer	Hex. Bolts M10 x 120 & spring Washer B10 & Nut M10	-	2
18	Nut for Neutral terminal	Hex. Nut M6	-	1
19	Lock for Neutral terminal	Hex. Thin nut M6	-	2
20	Punched washer for Neutral terminal	Punched brass washer A6.6 IS : 2016	-	2
21	Punched washer for main terminals	Punched brass washer A18.0 IS : 2016	-	6
22	Nut for main terminal	Hex. Nut M16	-	6
23	Lock for main terminal	Hex. Thin nut M16	-	6
24	Spring washer main terminals	Spring lock washer B16 IS:3063	-	3
25	Heat shrinkable sleeve(Black)	PVC Heat shrinkable sleeve 15 x 0.2 x 100 (Black)	-	1
25	Heat shrinkable sleeve(Red)	PVC Heat shrinkable sleeve 25 x 0.2 x 100 (Red)	-	1
25	Heat shrinkable sleeve(Yellow)	PVC Heat shrinkable sleeve 25 x 0.2 x 100 (Yellow)	-	1
25	Heat shrinkable sleeve(Blue)	PVC Heat shrinkable sleeve 25 x 0.2 x 100 (Blue)	-	1

M505-008

COUNTER BOR KM8 IS: 3406
FOR A & B



DETAILS OF COUNTER BORE

A = 4-COUNTRY BORE FOR BODY FIXING BODY.DRG.NO.2M861-007

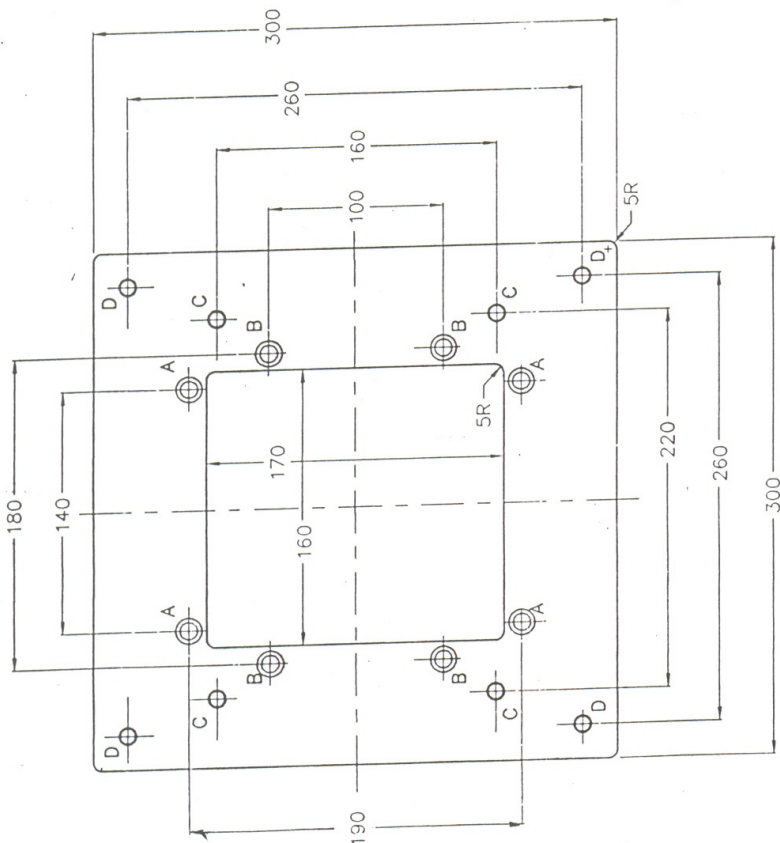
B = 4-COUNTER BORE FOR BODY FIXING BODY.DRG.NO.2M861-007A

C = 4-6.75mm DRILL FOR M8THRDS. FOR TERM.BLOCK FIXING.

TERMINAL BLOCK DRG.NO.3EK-4037

D = 4-6.75mm DRILL FOR M8THRDS. FOR TERM.BOX CHAM. FIXING.

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MATERIAL	WT. IN Kg.
CASTING	CALCULATED ACCEPTED
FABRI.	NET WT. IN Kg.
FREE DIMENSION TOLERANCES	
FROM	— 6.1 30.1 120.1 315.1 1000.1
TO	6 30 120 315 1000 2000

ISPL Fe 410WA	IS:2062	MATERIAL		20 X 300 X 300	
TREATMENT: -		Jyoti Ltd. [®]		VADODARA - INDIA	
APPD BY	24/11/95	FIRST		ANGLE	
CHD BY	24/11-95	—		—	
DRN BY	SCF	23-11-98		No: 3EK-4165	
SCALE		DISTANCE		PIECE FOR	
		TERM. BOX		ARNO	
		CONVERTER		Register No.	

No: 3EK-4165

Replaces No.

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