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The design and development of a light-weight aluminium semi-trailer

Elston, Malcolm John Mac Gregor

1991

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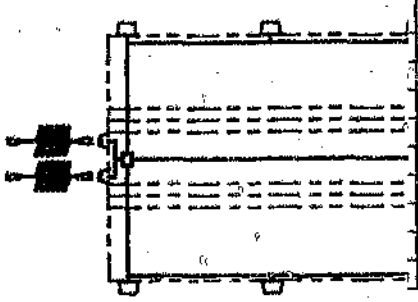
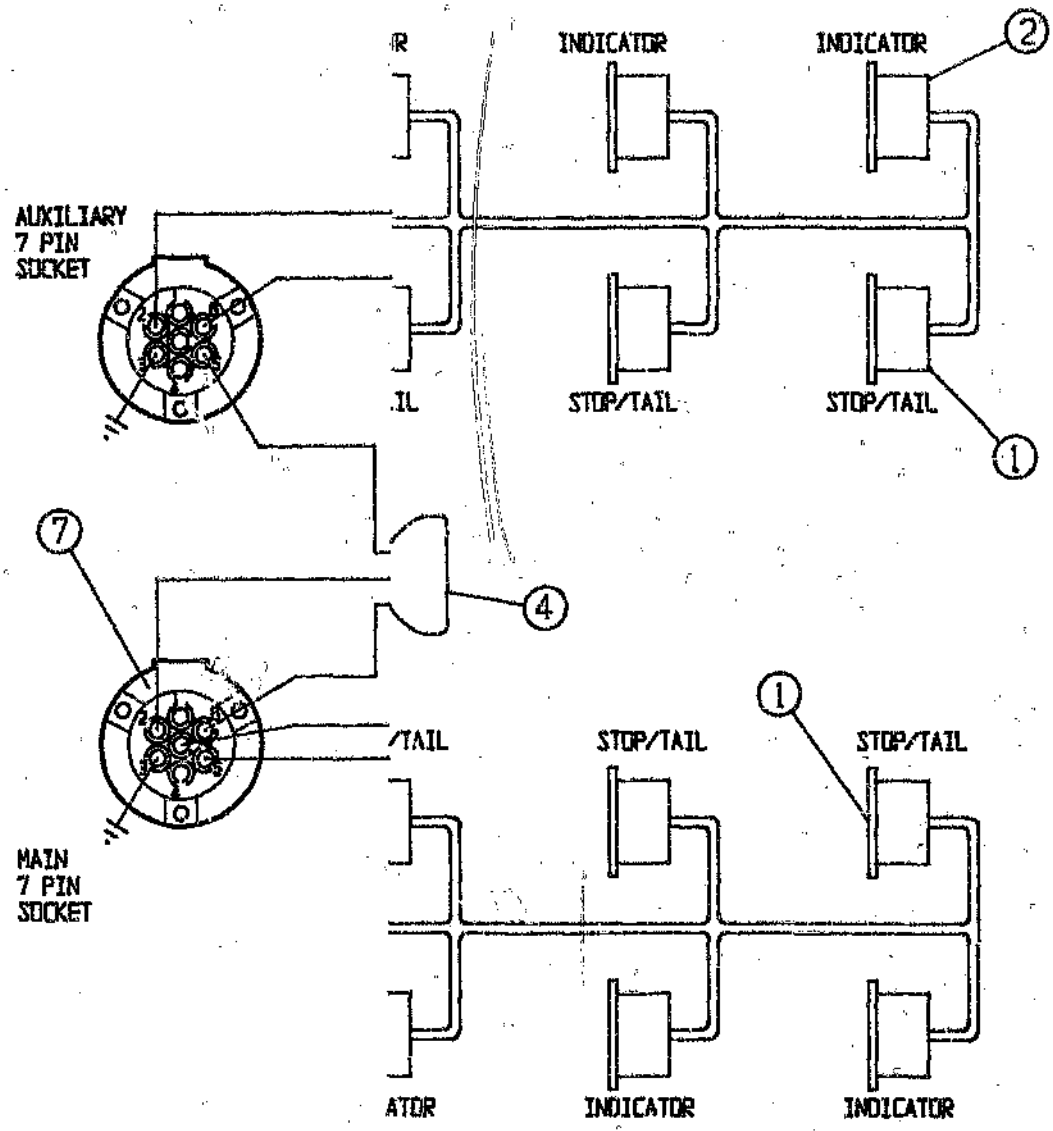


AUX. PLUG CONTACT No	MAIN HARNESS CABLE COLOUR	L.H. HARNESS CABLE COLOUR	R.H. HARNESS CABLE COLOUR
—	RED	—	—
—	BLACK	—	—
—	BLUE	RED	RED
—	YELLOW	RED	RED
2	GREEN	—	—
6	BROWN	—	—
5	WHITE	—	—
—	—	BLACK	BLACK
3	—	—	—

ROUTING OF



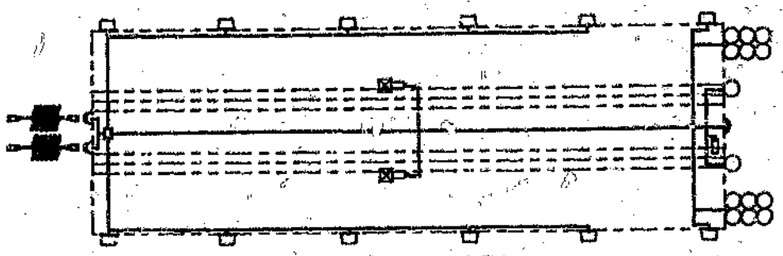
ITEM	DESCRIPTION
9	2 CORE CABLE (1.6mm SQ WIRE)
8	7 - WAY CONNECTOR BLOCK
7	METAL 7 - PIN SOCKET
6	REVERSE BUZZER (12V)
5	SIDE FLASHER AND MARKER LAMP
4	NUMBER PLATE LIGHT
3	REVERSE LAMP
2	DIRECTION INDICATOR LAMP
1	STOP/TAIL LAMP

UNIVERSITY OF THE WITWATERSRAND

LIGHTWEIGHT ALUMINIUM SEMI-TRAILER PROJECT

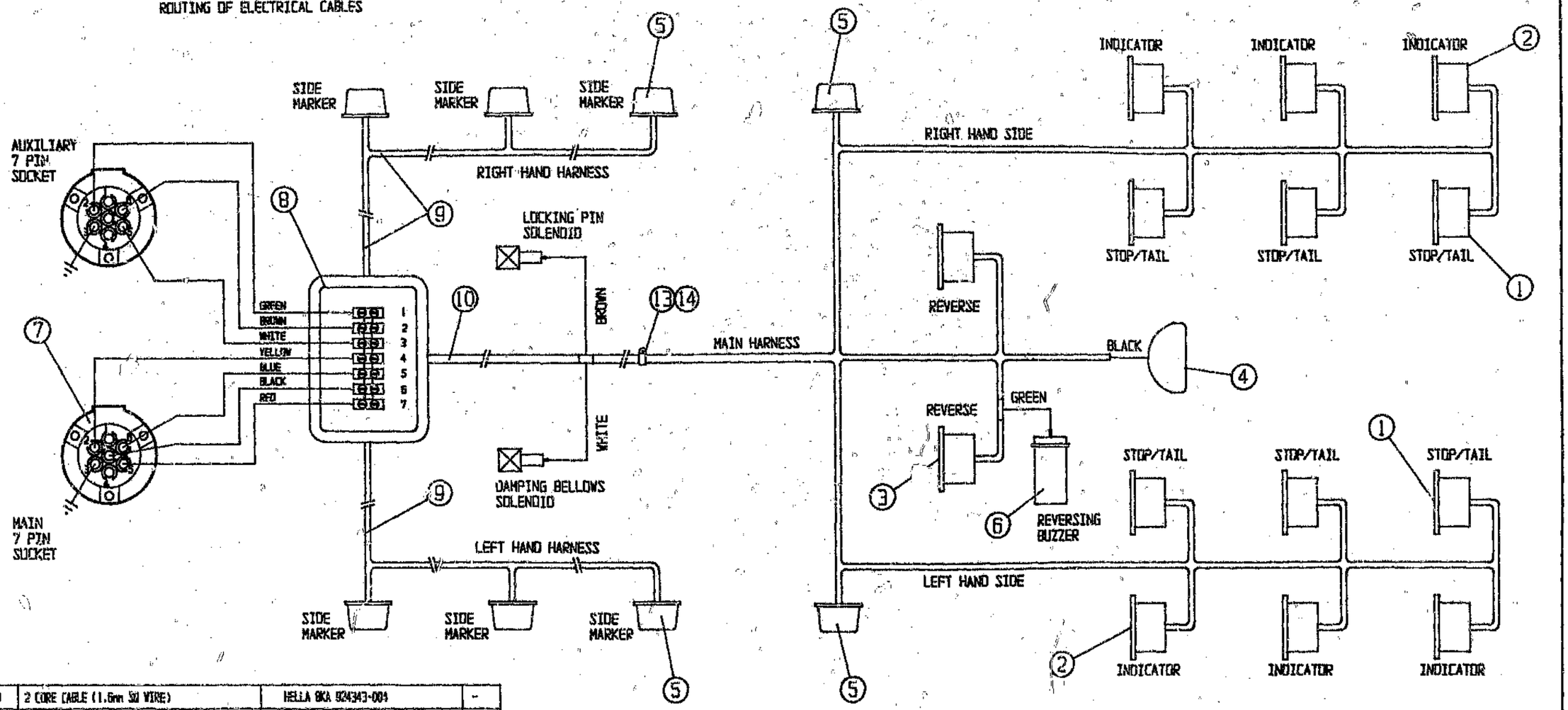
TITLE: ELECTRICAL LAYOUT

ORG. No: EL-01



ROUTING OF ELECTRICAL CABLES

FUNCTION	MAIN PLUG CONTACT No.	AUX. PLUG CONTACT No.	MAIN HARNESS CABLE COLOUR	L.H. HARNESS CABLE COLOUR	R.H. HARNESS CABLE COLOUR
STOP LIGHT	5	—	RED	—	—
TAIL & NO PLATE	7	—	BLACK	—	—
R.H. INDICATOR	6	—	BLUE	RED	RED
L.H. INDICATOR	2	—	YELLOW	RED	RED
REVERSE LIGHT	—	2	GREEN	—	—
LOCK PIN SOLENOID	—	6	BROWN	—	—
BELLOWS SOLENOID	—	5	WHITE	—	—
SIDE MARKER LIGHT	7	—	—	BLACK	BLACK
RETURN	3	3	—	—	—



ITEM	DESCRIPTION	PART NUMBER	QTY	ITEM	DESCRIPTION	PART NUMBER	QTY
9	2 CORE CABLE (1.6mm SQ WIRE)	HELLA BKA 924343-004	-	16	INSULATED CRIMPING ROUND CONNECTOR	HELLA BKN 916468-612	-
8	7 - WAY CONNECTOR BLOCK	HELLA E 2005	1	15	INSULATED CRIMPING ROUND PLUG	HELLA BNK 916437-612	-
7	METAL 7 - PIN SOCKET	BOSCH 773 S-L	2	14	Ø4mm ALUMINIUM POP RIVET	-	-
6	REVERSE BUZZER (12V)	HELLA B 3800	1	13	P-TYPE CABLE CLIPS	-	-
5	SIDE FLASHER AND MARKER LAMP	HELLA BE 1575 AMBER	3	12	METAL 7 - PIN PLUG	BOSH 774 P-L	4
4	NUMBER PLATE LIGHT	HELLA KA 0207	1	11	7 CORE ELECTRICAL SUZIE (BLACK)	BOSCH BAR 9117	2
3	REVERSE LAMP	HELLA A 9167 CLEAR	2	10	7 CORE CABLE (1.6mm SQ WIRE)	HELLA BKA 924351-004	-
2	DIRECTION INDICATOR LAMP	HELLA BA 9162 AMBER	6				
1	STOP/TAIL LAMP	HELLA SB 9167 RED	6				

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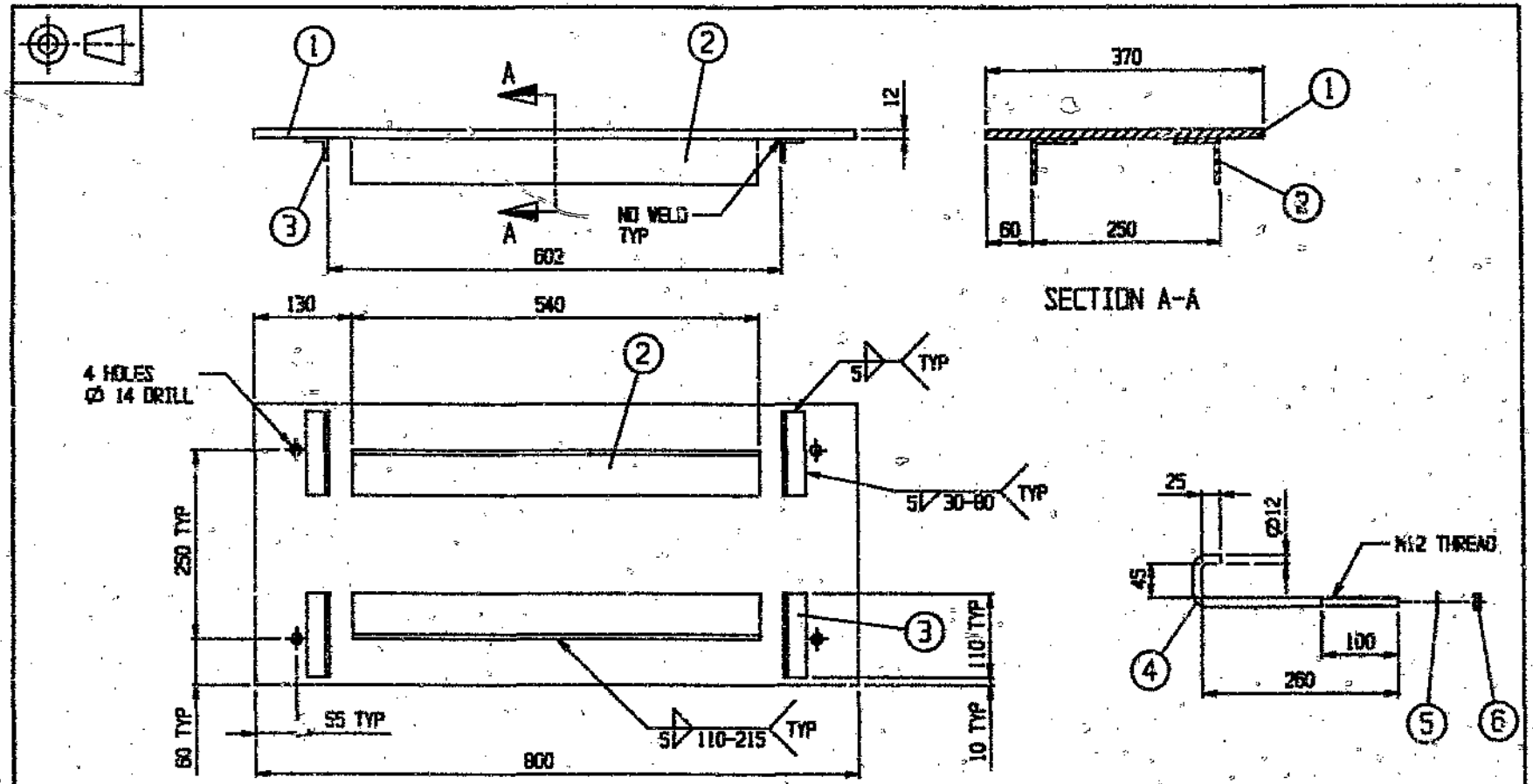
LIGHTWEIGHT ALUMINIUM SEMI-TRAILER PROJECT

MATERIAL:	
SCALE:	
DATE:	20-01-84
DRAWN:	M. ELSTON

TITLE: ELECTRICAL LAYOUT

DRG. No: EL-01



ITEM	DESCRIPTION	MATERIAL	DRG. NUMBER	QTY
6	NUT	M12 HEX NUT (GD 4)	-	4
5	WASHER	M12 MS FLAT WASHER	-	4
4	HOOK BOLT	Ø12 ROUND BAR x 325 LG, BS 970 GR 080 M40 COND N	-	4
3	ANGLE	30 x 30 x 5 RSA x 110 LG, BS 4360 GD 43A	-	4
2	ANGLE	60 x 60 x 6 RSA x 540 LG, BS 4360 GD 43A	-	2
1	BASE PLATE	12mm STEEL PLATE 800 x 370, BS 4360 GD 43A	-	1

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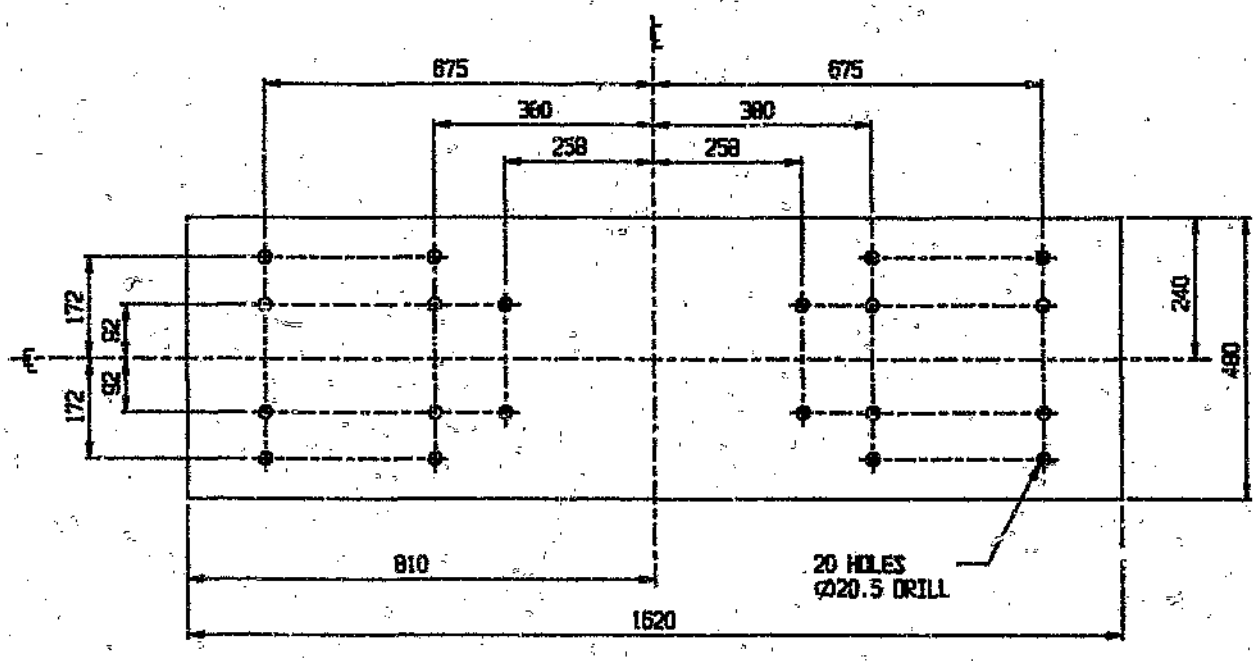
LIGHTWEIGHT ALUMINIUM SEMI-TRAILER PROJECT

MATERIAL:	
SCALE:	1:5
DATE:	26-3-84
DRAWN:	M. ELSTEIN

TITLE: DRILLING PLATFORM FOR MAGNETIC BASE PILLAR DRILL

DRG. No: JG-01



MATERIAL: 10mm STEEL PLATE 1620 x 480
BS 4360 GD 43A STEEL.

ITEM	DESCRIPTION	MATERIAL	DRG. NUMBER	QTY

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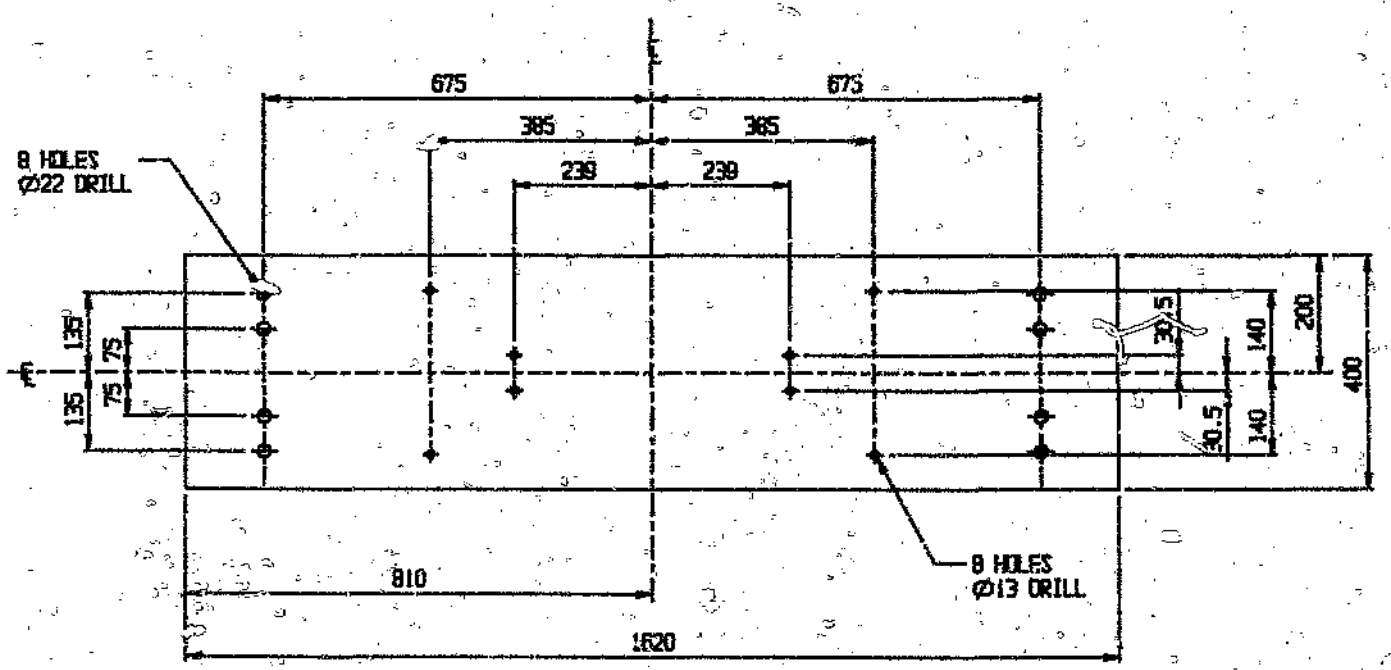
LIGHTWEIGHT ALUMINIUM SEMI-TRAILER PROJECT

MATERIAL:	
SCALE:	1:7.5
DATE:	03-05-04
DRAWN:	M.ELSTON

TITLE:
SUSPENSION HANGER MOUNTING - WELDING JIG

DRG. No:
JG-02



MATERIAL: 10mm STEEL PLATE 1620 x 400
BS 4360 GD 43A STEEL.

ITEM	DESCRIPTION	MATERIAL	DRG. NUMBER	QTY

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MATERIAL:	
SCALE:	1:7.5
DATE:	09-05-04
DRAWN:	M.ELSTON

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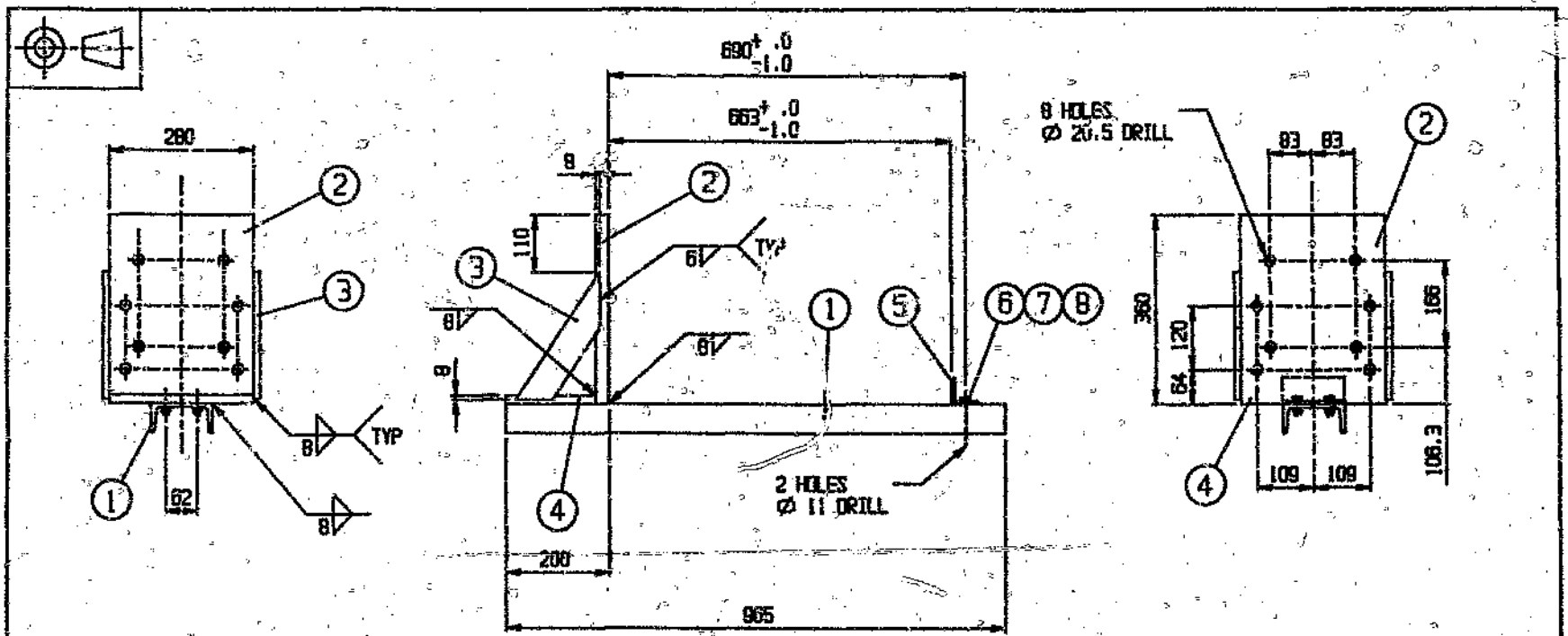
LIGHTWEIGHT ALUMINIUM SEMI-TRAILER PROJECT

TITLE:
SUSPENSION AIR BAG MOUNTING - WELDING JIG

DRG. No:
JG-03



ITEM	DESCRIPTION	MATERIAL	DRG. NUMBER	QTY
8	WASHER	M12 MS FLAT WASHER	-	2
7	NUT	M12 HEX NUT (GD 4)	-	2
6	BOLT	M12 x 25 HEX BOLT (GD 4.8)	-	2
5	ANGLE	50 x 50 x 6 RSA x 120 LG, BS 4360 GD 43A	-	1
4	PLATE	280 x 200 x 16 PLATE, BS 4360 GD 43A	-	1
3	FLAT BAR	60 x 12 FLAT BAR x 292 LG, BS 4360 GD 43A	-	2
2	FLANGE PLATE	280 x 360 x 25 PLATE, BS 4360 GD 43A	-	1
1	CHANNEL	120 x 55 x 13 RSC x 965 LG, BS 4360 GD 43A	-	1

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LIGHTWEIGHT ALUMINIUM SEMI-TRAILER PROJECT

MATERIAL:	
SCALE:	1:7.5
DATE:	20-3-04
DRAWN:	M.ELSTON

TITLE: ASSEMBLY AND WELDING JIG FOR [illegible]

DRG. No: JG-04

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