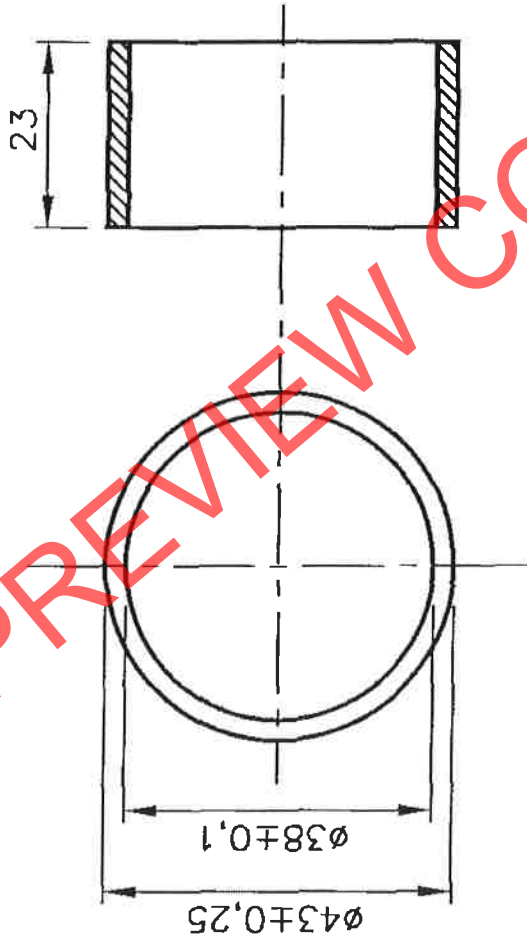


"PREVIEW COPY ONLY"



NOTE
THIS DRAWING TO BE READ IN CONJUNCTION WITH SPECIFICATION CEE.0166.

MATERIAL: SYNTHETIC RESIN BONDED GLASS-FIBRE FABRIC (WOVEN) TO SPEC BS 3396 OR EQUAL AND APPROVED			
DO REF: T94/031	GEN TOL: $\text{LIN} \pm 0,5$	ANG \pm —	
DRN: C de Koker	CKD: JVT	DATE: 94-07-06	
ENG: F SLIER	L O BORCHARD for CHIEF ENG		
CENTRAL DRAWING OFFICE INFRASTRUCTURE (ELECTRICAL)			
SPOORNET			

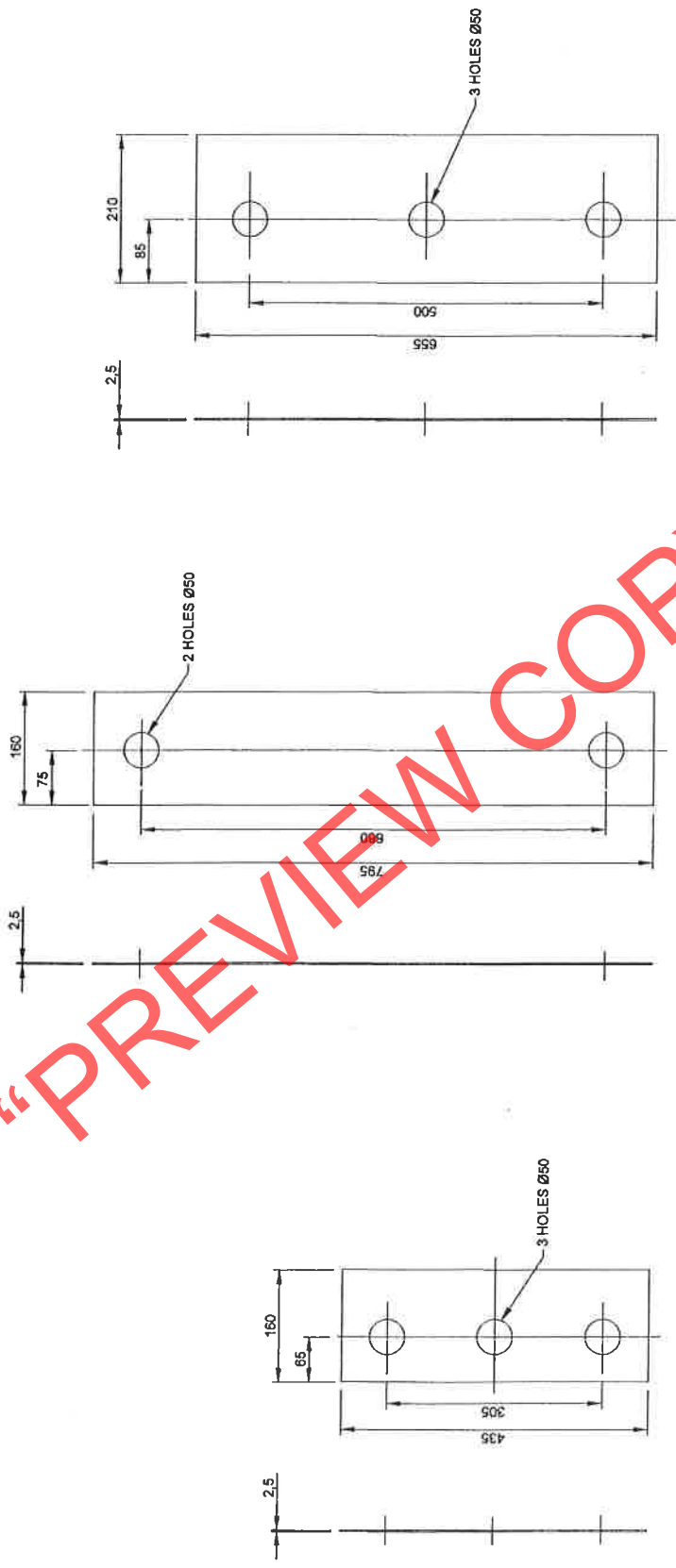
INSULATING BUSH

MAST BASE ANTI-ELECTROLYSIS ARRANGEMENT
4 OR 6 x M36 BOLT GROUP UC MASTS

AMENDMENTS		
NO	NAME	DATE
1	JVT	95-04-13
SPECIFICATION IN NOTE WAS CEE-13B-4. DO REF: G95/008.		
2	---	---
STORES ITEM NO ADDED. DO REF: CDO/977		
STORES ITEM NO. 54/438		
DIMENSIONS: mm SCALE: 1:1		
		A4
DRG NO CEE-		TU-143
SHT 4		OF 4

AMENDMENTS		
NO	NAME	DATE
3		14/6/2006

REDRAWN I-BEAM AND RAIL MAST PADS ADDED. DATA TABLES ADDED AND TITLE CHANGED.
DO REF C001977



MAST	SIZE	BOLT GROUP	MAST BASE ASSEMBLY	INSULATION PAD ITEM NO
UC	254 x 254	6 BOLT	TMB-105	54/32819
UC	260 x 256			

RAIL	BOLT GROUP	MAST BASE ASSEMBLY	INSULATION PAD ITEM NO
RAIL	4 BOLT	TMB-35	54/32807

MAST	SIZE	BOLT GROUP	MAST BASE ASSEMBLY	INSULATION PAD ITEM NO
I-BEAM	203 x 152	4 BOLT	TMB-31	
I-BEAM	228 x 178	6 BOLT	TMB-37	
UC	206 x 204	4 BOLT	TMB-87	54/31713
UC	218 x 206	6 BOLT	TMB-68	

DIMENSIONS: mm
SCALE: 1:5

A2

DRAWING NO CEE-TU-143
SHEET 2 OF 4

MATERIAL: SYNTHETIC RESIN BONDED GLASS-FIBRE FABRIC (WOVEN) TO SPEC BS 3398 OR EQUAL AND APPROVED

DO REF: TM4/031 GEN TOL: LIN ± 0.5 ANG ± .

DRN: C de KOKER CKD: JVT DATE: 94-07-06

ENG: F SLIER L O BORCHARD for CHIEF ENG

CENTRAL DRAWING OFFICE

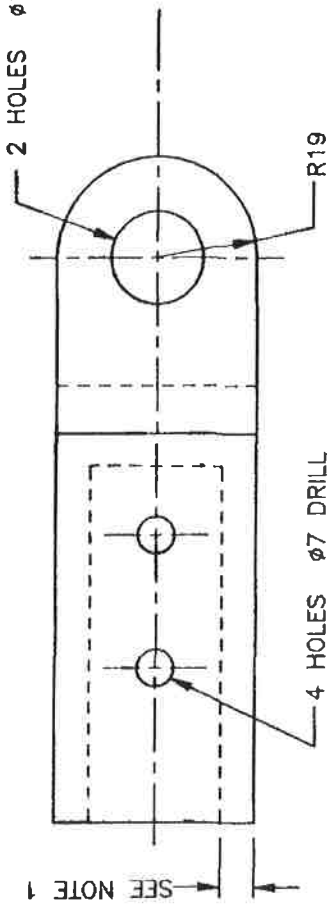
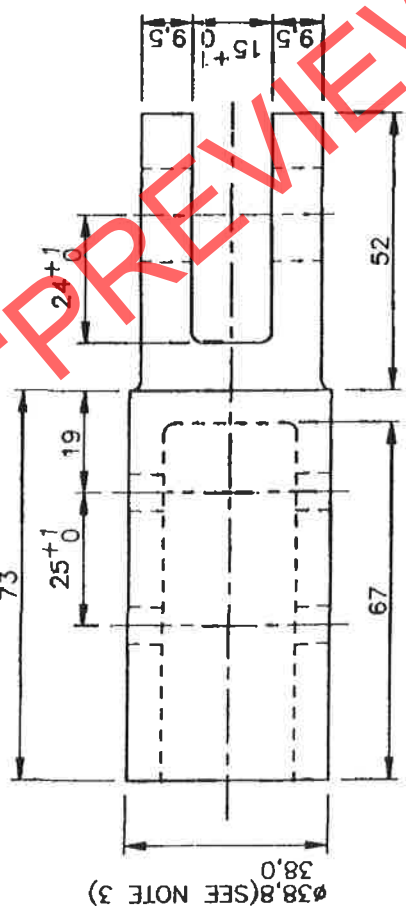
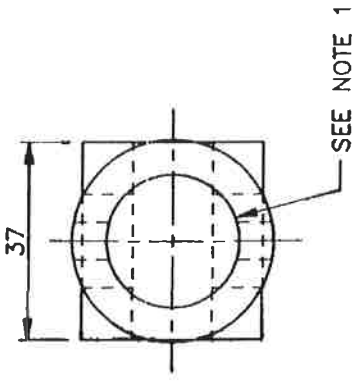
INFRASTRUCTURE (ELECTRICAL) SPOORNET

INSULATING PADS
MAST BASE ANTI-ELECTROLYSIS ARRANGEMENT
4 OR 6 x M38 BOLT GROUP UC, RAIL AND I-BEAM MASTS

"PREVIEW COPY ONLY"

AMENDMENTS		
NO	NAME	DATE
1	JVT	95-09-11

REVISED, DRG NO WAS CEE-TN-408.
DO REF: T95/051



NOTES

1. SHOULD FITTING BE CORED THEN WALL THICKNESS MUST NOT BE LESS THAN 6,5.
2. O. D. MUST BE TO DIMENSION SHOWN AFTER COATING.
3. THE FOLLOWING PERMANENT MARKINGS MUST APPEAR ON THIS ARTICLE:
g) SPOORNET BY MAKER'S IDENTIFICATION
c) BATCH NUMBER.
4. ZINC COAT TO SABS 763 FOR CONDITIONS IN SITU.

STORES ITEM NO	54/1420
DIMENSION: mm	SCALE: 1:1
	A3
DRAWING NO	CEE--
	TNB-40
SHEET -	OF -

MATERIAL: SPHEROIDAL GRAPHITE IRON TO SPEC SABS 936 GRADE SG 50

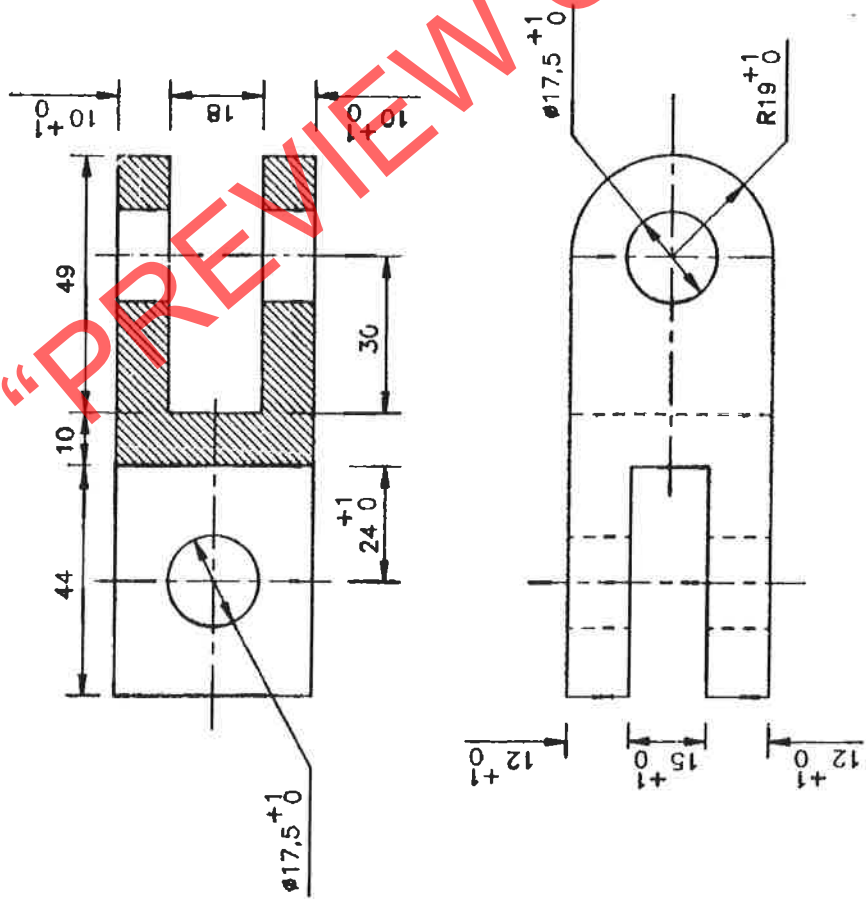
DO REF: J71/228	GEN TOL: LINE 1,0 ANG±
DRN: J.V.S.	CKD: DATE: 56-10-22
ENG: F. P.	W. LEHMAN for CHIEF ENG
INFRASTRUCTURE (ELECTRICAL)	SPOORNET

CLEVIS SOCKET
PUSH-PULL-OFF TUBE

PREVIEW COPY

AMENDMENTS		
NO	NAME	DATE
1	JVT	97-04-07

REVISED, DRG NO WAS CEE-TN-351.
DO REF: T96/001



- NOTES
- MECHANICAL STRENGTH 44.5KN. OTHER SUITABLE MATERIAL MAY BE OFFERED BY TENDER FOR CONSIDERATION. THIS ITEM IS USED ON OVERHEAD TRACK EQUIPMENT AND MUST BE CORROSIVE RESISTANT.
 - THE FOLLOWING PERMANENT MARKINGS MUST APPEAR ON THIS ARTICLE:
 - (a) SPOORNET
 - (b) MAKER'S IDENTIFICATION.
 - (c) BATCH NUMBER.
 - FINISH: ZINC COAT TO SABS 763 FOR CONDITIOS IN SITU.

STORES ITEM NO	54/1521
DIMENSIONS: mm	SCALE: 1:2
DRAWING NO	CEE--
TNB-60	SHEET -- OF --

MATERIAL: SPHEROIDAL GRAPHITE IRON TO SPEC SABS 936 GRADE SG 50

CLEVIS FITTING

TWISTED 'H'

DO REF: C227/68	GEN TOL: LIN ± 1	ANG ±
DRN: P L W	CKD:	DATE: 80-02-13
ENG: K L K	TC BROOK	for CHIEF ENG

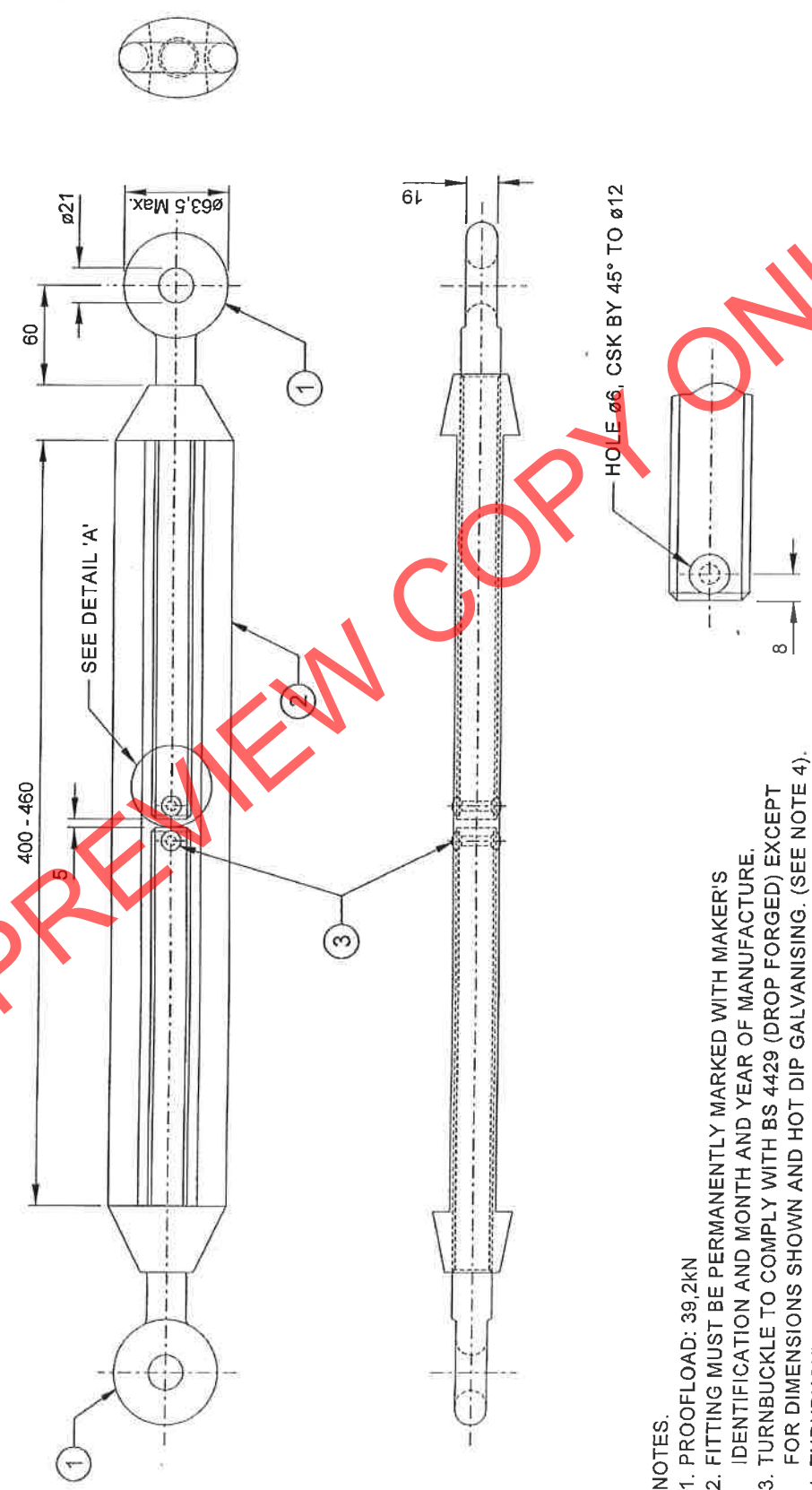
INFRASTRUCTURE (ELECTRICAL)



SPOORNET

ITEM	DESCRIPTION	QTY	STORES ITEM NO	DRAWING NO	CEE-	AMENDMENTS
1	EYE BOLT, LEFT AND RIGHT THREADS, M24	2	-	-	-	NO NAME DATE
2	BUCKLE	1	-	-	-	1 W BRIGHT 93-01-13
3	RIVET, PAN HEAD, STAINLESS STEEL, M6	2	-	-	-	REVISED AND REDRAWN. DIMENSIONS ADDED. TAKE-UP WAS 460mm ONLY.

2	21/06/2008	REVISED AND REDRAWN. NOTE 4 WAS ZINC COAT TO SPEC. SABS 763. ECP REF: BBC1787 DO REF: CDO5065
---	------------	---



- NOTES.
1. PROOFLOAD: 39,2kN
 2. FITTING MUST BE PERMANENTLY MARKED WITH MAKER'S IDENTIFICATION AND MONTH AND YEAR OF MANUFACTURE.
 3. TURNBUCKLE TO COMPLY WITH BS 4429 (DROP FORGED) EXCEPT FOR DIMENSIONS SHOWN AND HOT DIP GALVANISING. (SEE NOTE 4).
 4. TURNBUCKLE TO BE HOT DIP GALVANISED TO SANS 121.
 5. THIS DRG. IS ALSO REFERRED TO IN ENGINEERING INSTRUCTION B.007.

DETAIL 'A'

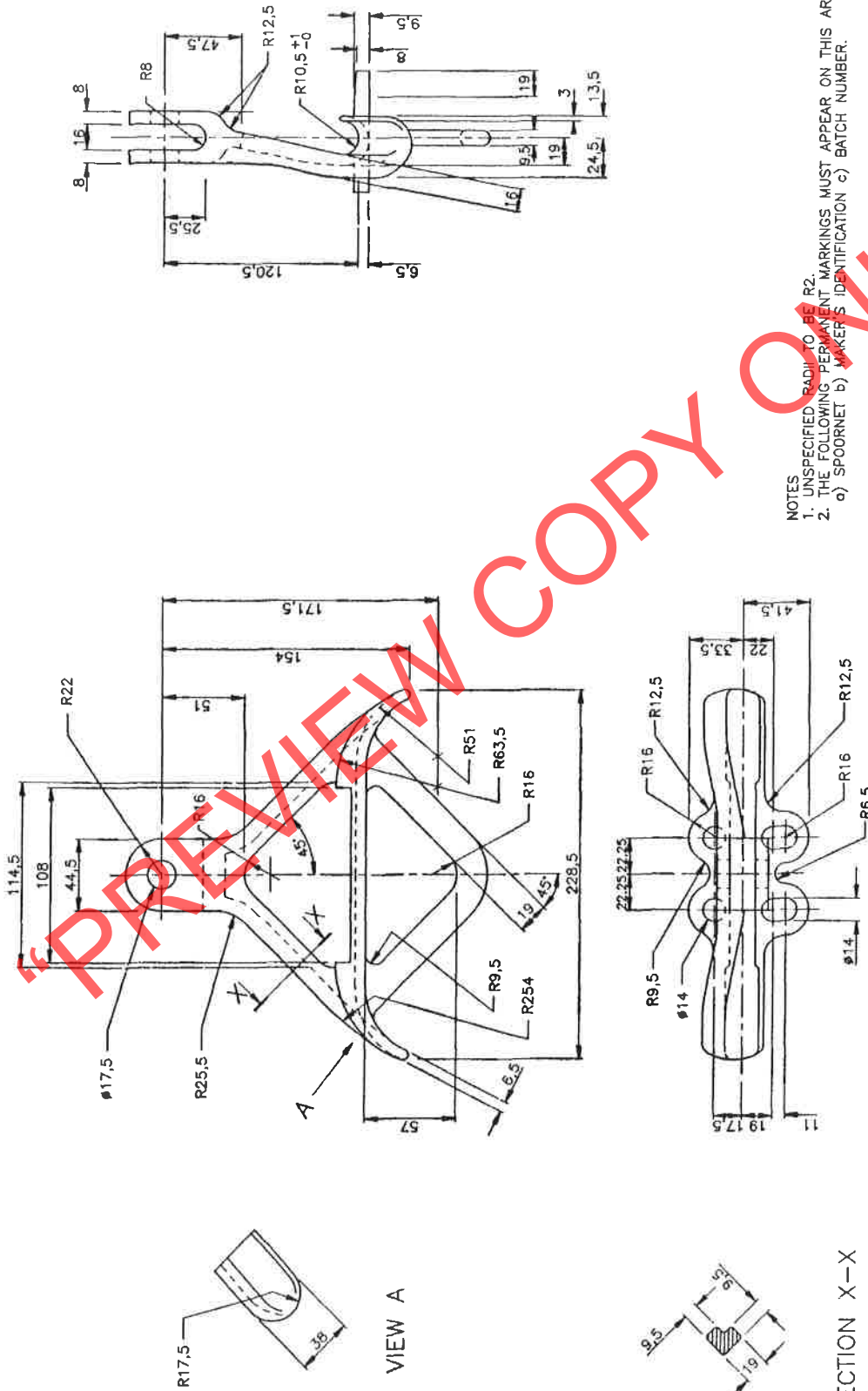
DO REF: J71/307	GEN TOL: LIN± 1	ANG±
DRN: E.G. LOUW	CKD: C. HARROD	DATE: 71-12-23
ENG: D.H.	T.C. BROOK	for CHIEF ENG
CENTRAL DRAWING OFFICE		
TURNBUCKLE		
400mm - 460mm TAKE-UP, M24 SCREWS		
STORES ITEM NO	54/1925	
DIMENSIONS: mm	SCALE: NTS	
		A3
DRAWING NO	CEE-	
	TNB-19	
SHEET	-	OF

AMENDMENTS	
NO	NAME DATE
1	JVT 87-04-07

REVISED DRG NO WAS
TN-349 SHT 2
DO REF: T96/001

DIMENSIONS: mm
SCALE: 1:2

A2
DRAWING NO CEE--
TNB-73
SHEET 2 OF 2



NOTES
1. UNSPECIFIED RADII TO BE R2.
2. THE FOLLOWING PERMANENT MARKINGS MUST APPEAR ON THIS ARTICLE:
a) SPOORNET b) MAKER'S IDENTIFICATION c) BATCH NUMBER.

FINISH
ZINC COAT TO SPEC SABS 763 FOR CONDITIONS IN SITU.

PREVIEW COPY ONLY

MATERIAL: ITEM NO. — Spheroidal Graphite Iron to Spec SABS 936 Grade SG 50
DO REF: N74/68 GEN TOL: LINE 1 ANG ± 1°
DRN: W J N CKD: — DATE: 68-05-20
ENG: — W PHILLIPS for CHIEF ENG

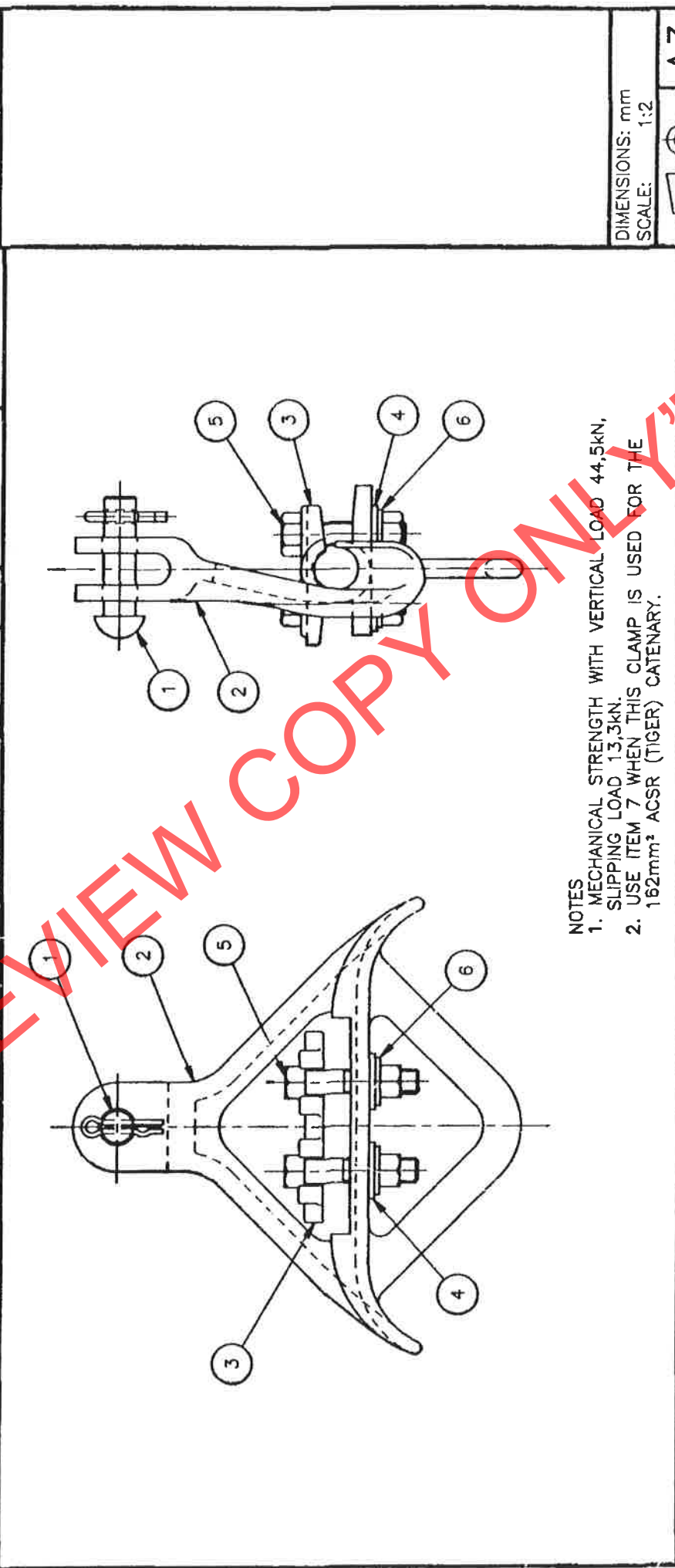
CLAMP BODY
WITH TIE DOWN FACILITY

INFRASTRUCTURE (ELECTRICAL) SPOORNET

SECTION X-X

VIEW A

ITEM	DESCRIPTION	QTY	STORE ITEM NO.	DRG NO CEE--	AMENDMENTS		
					NO	NAME	DATE
1	CLEVIS PIN ϕ 16	1	54/4020	TX-66	1	JVT	97-07-04
2	CLAMP BODY WITH TIE DOWN FACILITY	1		TNB-73 SHT 2			
3	SADDLE	1		TNB-72 SHT 3			REVISED. DRG NO. WAS TNB-349 SHT 1. DO REF: T96/001
4	STRAP	2		TNB-72 SHT 4			
5	BOLT AND NUT M12	4		TX-68			2 HA SLIER 98-02-25
6	WASHER, STEEL, LOCK, SINGLE COIL SQ SECTION, GALV, M12	4	1/33850				ITEM 7 AND NOTE 2 ADDED. DO REF: T98/011
7	LOWER LINER, 162mm ² ACSR CATENARY WIRE (SEE NOTE 2)	1		TNB-89			



NOTES
 1. MECHANICAL STRENGTH WITH VERTICAL LOAD 44.5kN, SLIPPING LOAD 13.3kN.
 2. USE ITEM 7 WHEN THIS CLAMP IS USED FOR THE 162mm² ACSR (TIGER) CATENARY.

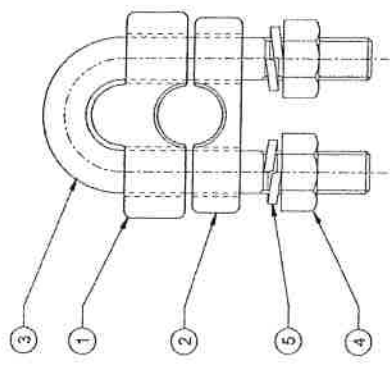
DO REF: N74/68	GEN TOL: LIN \pm 1,0	ANG \pm 1'
DRN: WJN	CKD: HN	DATE: 68-05-20
ENG: J SAMUEL	W PHILLIPS for CHIEF ENG	
INFRASTRUCTURE (ELECTRICAL)		
SPOORNET		
SUSPENSION CLAMP		
CLEVIS TYPE WITH TIE DOWN FACILITY		
DIMENSIONS: mm		A3
SCALE: 1:2		
DRAWING NO CEE--		SHEET 1 OF 2
TNB-73		

AMENDMENTS		
NO	NAME	DATE
4		

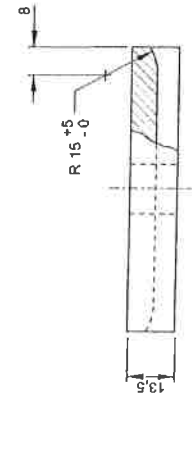
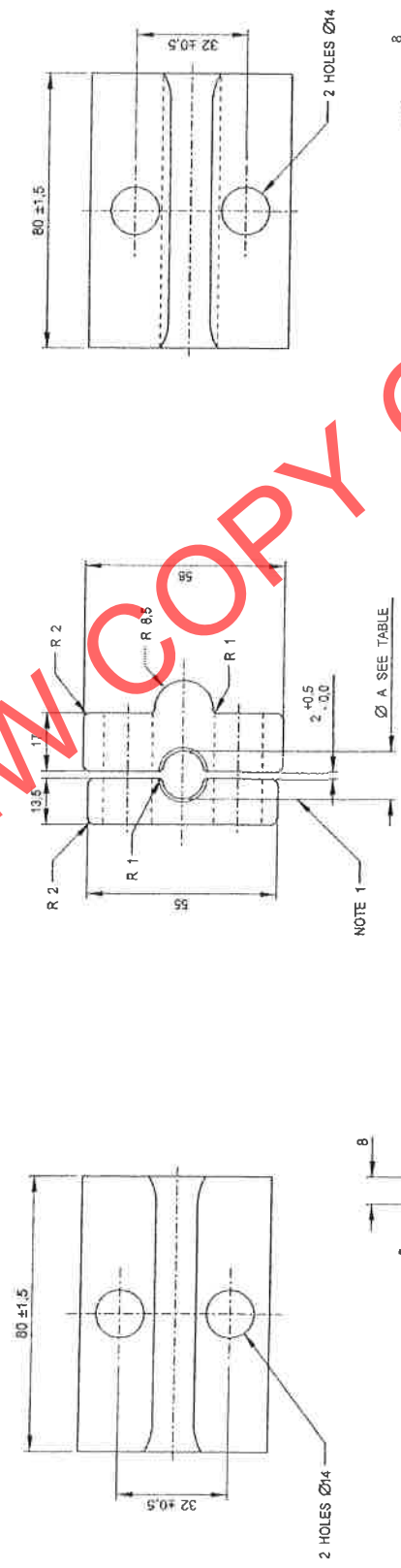
6S 1474 IN ITEMS 1 & 2 REMOVED, TABLE REVISED AND TITLE CHANGED.
 CP REF. 2002002
 DO REF. CDO/1668

ITEM NO	DESCRIPTION	QTY	STORES ITEM NO	DRG NO CEE-
1	ALUMINIUM	1		
2	ALUMINIUM	1		
3	U-BOLT	1		
4	NUT, STEEL, BLACK, HEXAGON M12	2		TN - 82
5	WASHER, SPRING, STEEL, SQUARE SECTION M12	2		

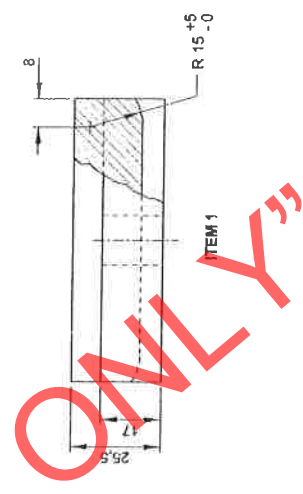
TABLE		
STORES ITEM NO	DIAMETER A (mm)	WIRE SIZE (mm ²)
54/2033	10 ^{+0.5} -0.0	50 AL
54/15147	12 ^{+0.5} -0.0	50B ACSR
54/10496	16.5 ^{+0.5} -0.0	100
		160 AL



ASSEMBLY



ITEM 2



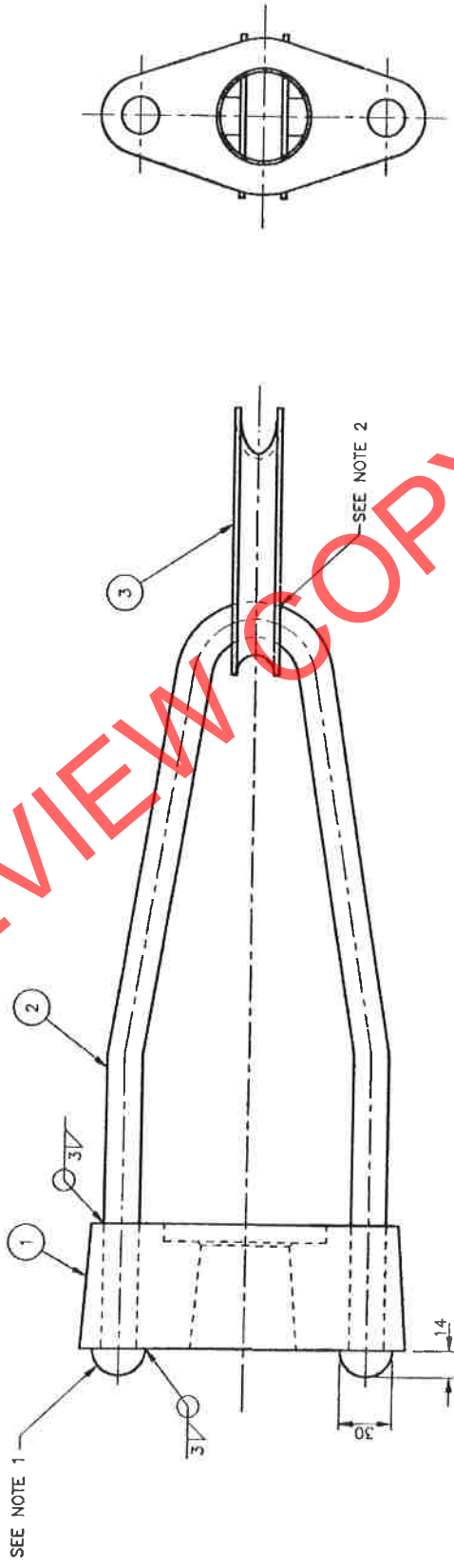
ITEM 1

- NOTES
1. USE BRIGHT STEEL DISTANCE PIECES WHEN CHECKING HOLE SIZE.
 2. ITEMS 1 & 2 MUST BE PERMANENTLY MARKED WITH MAKERS IDENTIFICATION AND MONTH AND YEAR OF MANUFACTURE.
 3. ITEMS 4 & 5 TO BE ZINC COATED TO SABS ISO 1461.

DO REF: C38069	GEN TOL: UN ± 1	ANG: -
DRN: P L W	CHKD: -	DATE: 68-04-18
ENG: K L K	TC: BROOK	for CHIEF ENG
CENTRAL DRAWING OFFICE		

EARTH WIRE CLAMP
 EARTH WIRES 50mm², 50mm², 100mm² OR 160mm²

ITEM	DESCRIPTION	QTY	STORES ITEM NO	DRG NO CEE--	AMENDMENTS
1	CROSSHEAD	1		TNB-48	NO NAME DATE
2	BOW	1		TNB-47	1 JP du P 86-02-07
3	ROPE THIMBLE	1		TNB-39	REVISED DIRS NO WAS CEE-TN-269 DO REF: T96/003



- NOTES
1. FORM RIVET HEADS "HOT"
 2. INSERT ITEM 2 THROUGH ITEM 3 BEFORE ASSEMBLY.
 3. STRENGTH: MINIMUM ULTIMATE TENSILE STRENGTH 222KN.
 4. ZINC COAT TO SABS 765 (TABLE 2) AFTER WELDING.

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STORES ITEM NO 54/2437	A2
DIMENSIONS: mm SCALE: 1:2	
DRAWING NO CEE-- TNB-50	
SHEET -- OF --	

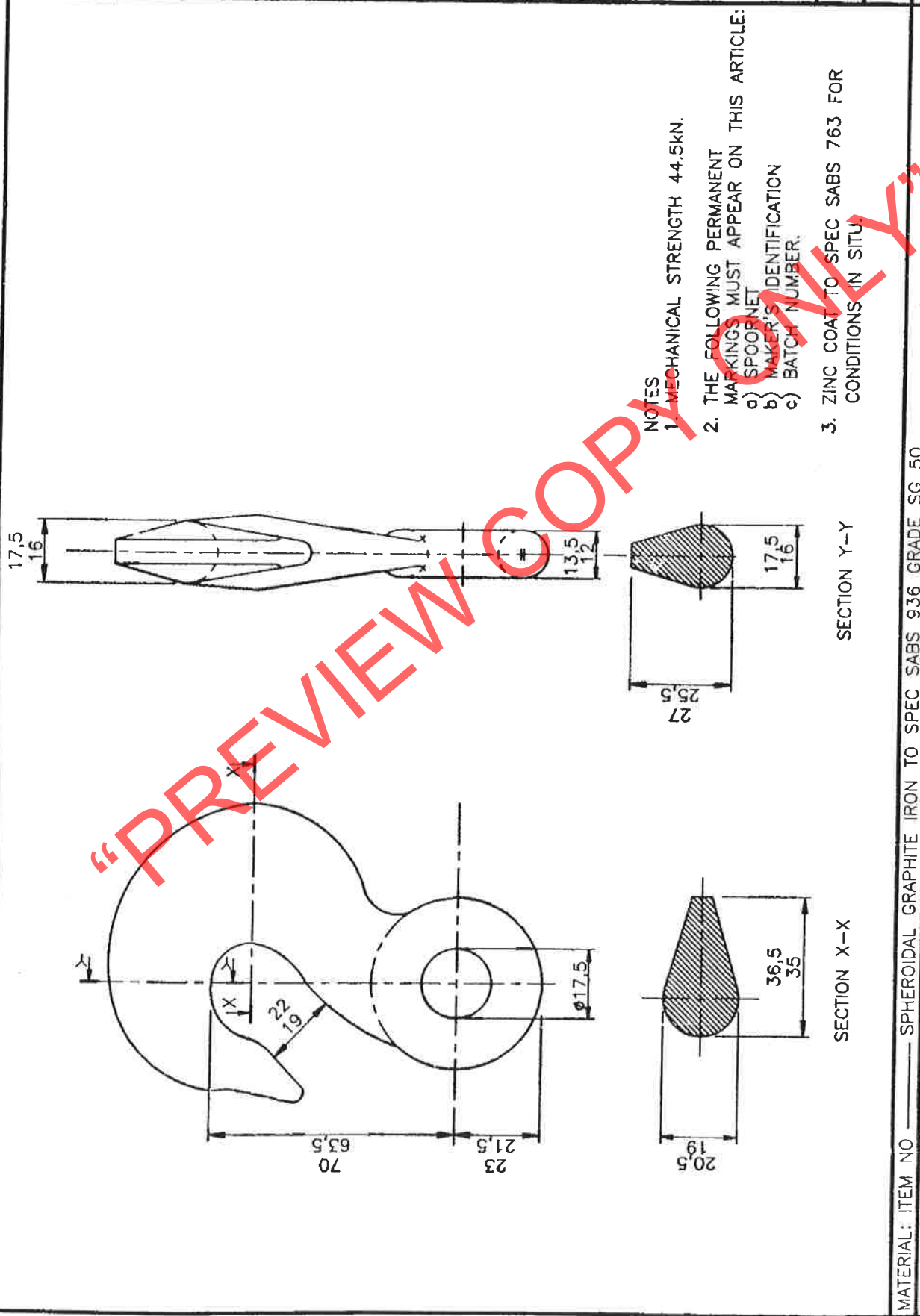
DO REF: C221/73		GEN TOL: LINE 1	ANG±
DRN: E. G. LOUW	CKD: J. JACKSON	DATE: 74-02-06	
ENG: ---	F. PIENMAAR	for CHIEF ENG	
INFRASTRUCTURE (ELECTRICAL)			
SPOORNET			
BOW AND CROSSHEAD ASSEMBLY STAY WIRE ARRANGEMENT			

AMENDMENTS		
NO	NAME	DATE
1	JVT	95-09-11

REVISED, DRG NO WAS
CEE-TN-361.
DO REF: T95/051

STORES ITEM NO
DIMENSION: mm
SCALE: 1:1

	A3
DRAWING NO CEE--	
TNB-41	
SHEET -	OF -



"PREVIEW COPY"

MATERIAL: ITEM NO _____ SPHEROIDAL GRAPHITE IRON TO SPEC SABS 936 GRADE SG 50


DO REF: J71/228	GEN TOL: LINE 0.5	ANG ± 1°
DRN: C. S.	CND: _____	DATE: 62-06-13
ENG: _____	W PHILLIPS	for CHIEF ENG
INFRASTRUCTURE (ELECTRICAL)		

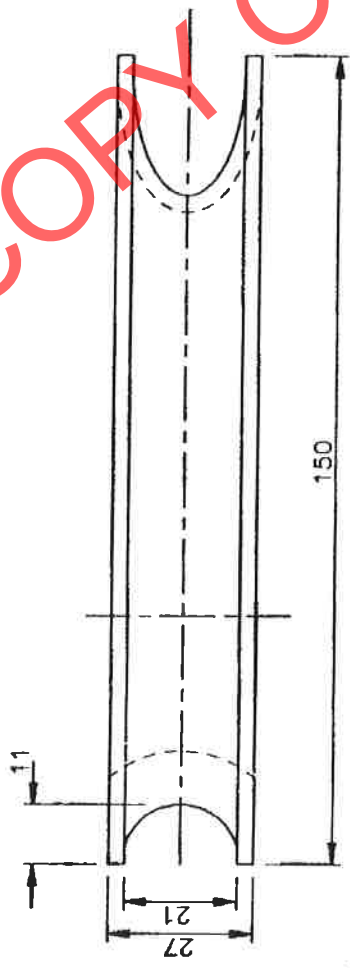
TOWER HOOK

AMENDMENTS		
NO	NAME	DATE
1	JVT	95-09--11

REVISED, DRG NO WAS CEE-TN-394.
DO REF: T95/052

DIMENSIONS: mm
SCALE: 1:1

 A3
DRAWING NO CEE--
TNB--39
SHEET -- OF --



FINISH
ZINC COAT TO SABS 763 FOR CONDITIONS IN SITU

PREVIEW COPY ONLY

MATERIAL: ITEM NO 11/ ---, STEEL SEE SPEC SABS 811

DO REF: J27/68 GEN TOL: LIN ± 0,4 ANG ± --
 DRN: L. N. CKD: E.F.J. DATE: 68-03-27
 ENG: D.D.M.C. W PHILLIPS for CHIEF ENG

ROPE THIMBLE
ø22mm WIRE

INFRASTRUCTURE
(ELECTRICAL)

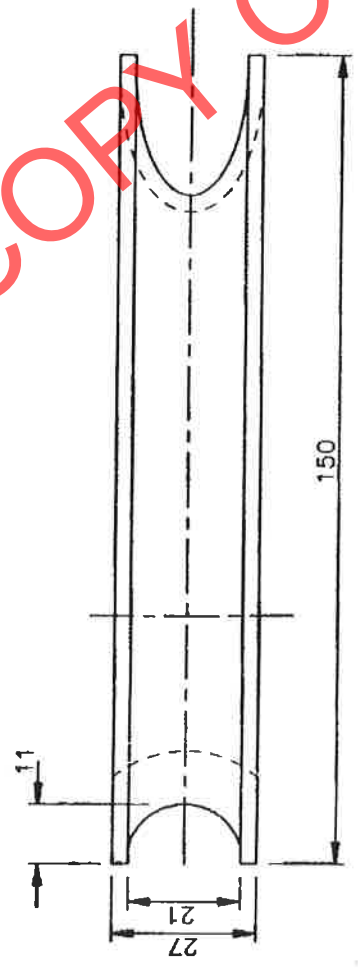
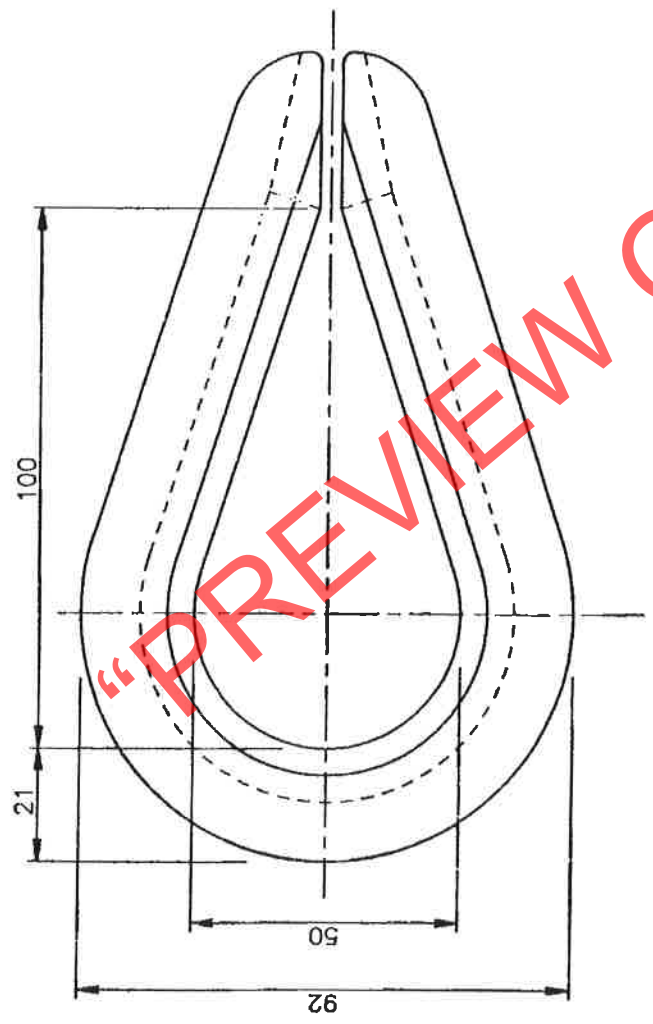


SPOORNET

AMENDMENTS		
NO	NAME	DATE
1	JVT	95-09-11

REVISED, DRG NO WAS CEE-TN-394.
DO REF: T95/052

DIMENSIONS: mm	A3
SCALE: 1:1	
DRAWING NO CEE-	
TNB-39	
SHEET -- OF --	



PREVIEW COPY ONLY

FINISH
ZINC COAT TO SABS 763 FOR CONDITIONS IN SITU

MATERIAL: ITEM NO 11/ ---, STEEL SEE SPEC SABS 811

DO REF: J27/68	GEN TOL: LIN ± 0,4	ANG ± --
DRN: L. N.	CKD: E.F.J.	DATE: 68-03-27
ENG: D.D.M.C.	W PHILLIPS for CHIEF ENG	

ROPE THIMBLE
ø22mm WIRE

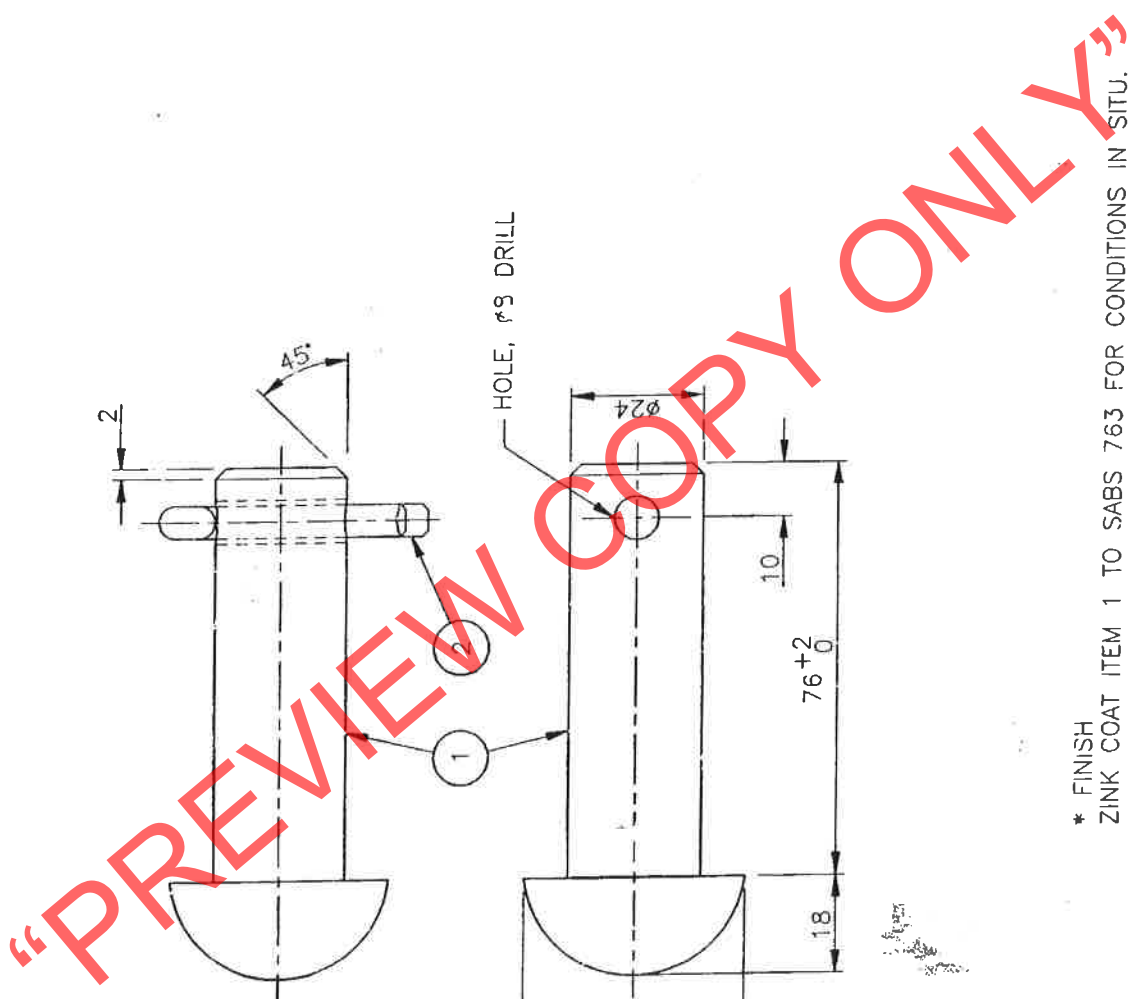
INFRASTRUCTURE
(ELECTRICAL)



SPOORNET

ITEM	DESCRIPTION	QTY	STORES ITEM NO	DRG NO CEE-	AMENDMENTS
1	PIN, STRAIGHT, HEADED, MILD STEEL, $\phi 24$ *	1	1/		NO NAME DATE
2	PIN, COTTER, BRASS, $\phi 6.3 \times 36$ LG	1	54/3795		3 JVT 97-09-05

DRAWING REVISED:
DO REF: T96/021



* FINISH ZINK COAT ITEM 1 TO SABS 763 FOR CONDITIONS IN SITU.

STORES ITEM NO
54/4007

DIMENSIONS: mm
SCALE: 1:1

A3

DRAWING NO CEE--
TX-59

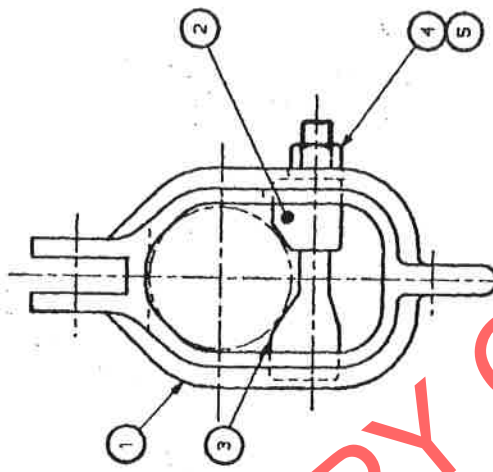
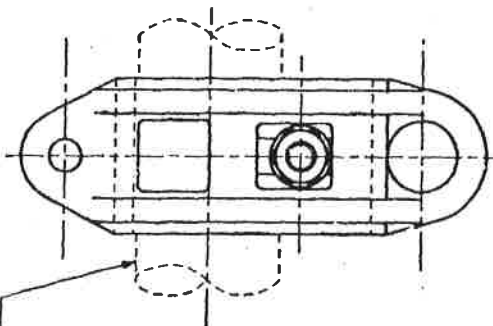
SHEET -- OF --

DO REF: C227/68	GEN TOL: LIN \pm 0.5	ANG \pm 1°	PIN, STRAIGHT, HEADED, $\phi 24 \times 76$ LG
DRN: M.K.	CKD: F.W.C.	DATE: 69-04-18	COMPLETE WITH COTTER PIN.
ENG: R.C.K.	W ROGERS	for CHIEF ENG	
INFRASTRUCTURE (ELECTRICAL)			SPOORNET

ITEM	DESCRIPTION / BESKRYWING	QTY HYLD	STORES, ITEM NO MAGASYNITHEM	DRG NO CEE TEK	REVISIONS WYSIGINGS
1	CLAMP BODY KLAMPROMP	1	54/	TNB-5 VEL 2	NO DATE MAAN DATUM
2	WEDGE BLOCK WIGBLOK	1	54/	TX-85	5 8 REVISED REDEWANN AND RENUMBERED. DRG NO WAS CEE-54/110234
3	WEDGE BOLT WIGBOUW	1		TX-85	EN HERNOEMER. TEK NO WAS CEE-54/110234
4	SPRING WASHER M16 VEERWASHER M16	1			DO REF TK-VERW T87/103
5	NUT STEEL M16-7H MOER, STAAL M16-7H	1			6 J.V.T. 89-10-16

ITEM NOS (54/4890/54/10234)
REMOVED/VERWYDER.
D O REF T 89/005
TK-VERW

TUBULAR CANTILEVER ARM
BUIJSVORMIGE-VRYDRAERARM



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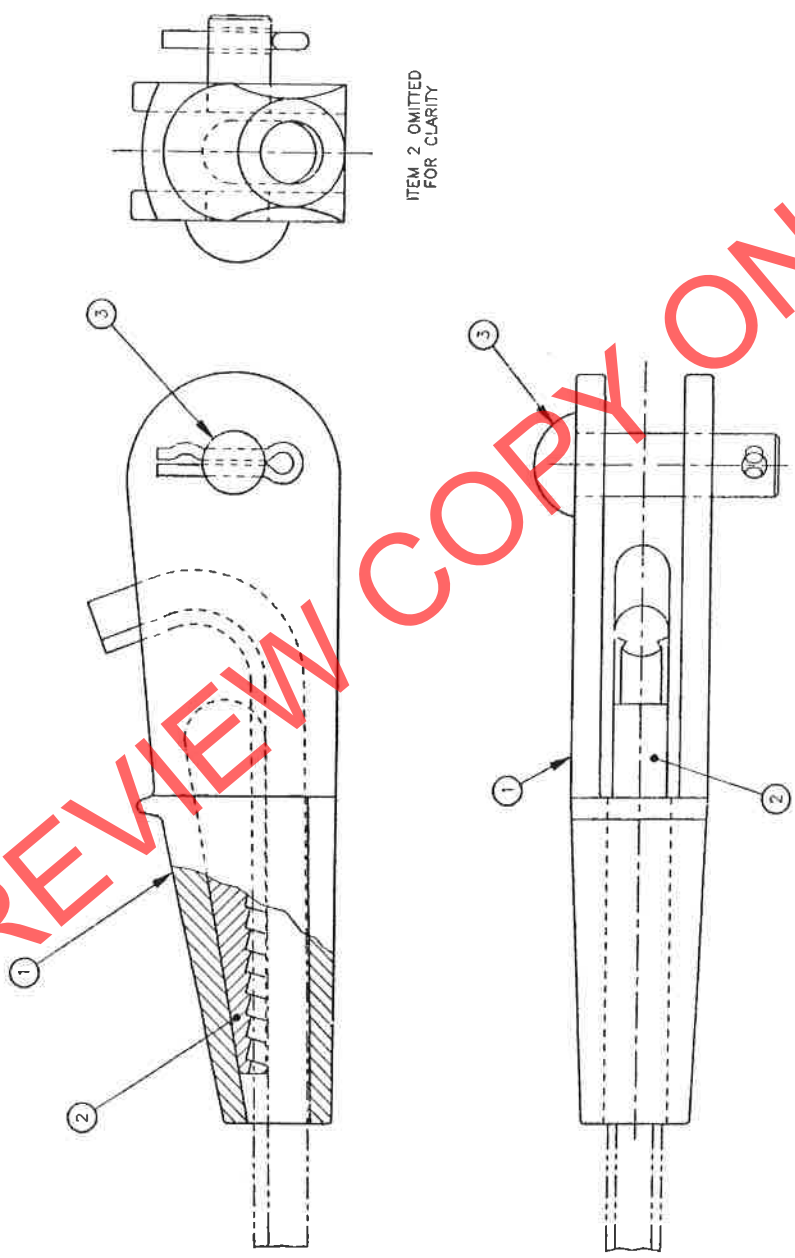
DIMENSIONS, MILLIMETRES
AFMETINGS, MILLIMETER

DRN	GEN TOLERANCES/TOLIE	ANG/HOEK#
GET	ALG TOLERANSIES	ENG
TRCD	DO REF	IR
NGT	TK-VERW	
CRD	DATE	85/03/18
NGS	DATUM	R. BARNES FOR
CHIEF ELECTRICAL ENGINEER ELEKTRIESE HOOFINGENIEUR		
JOHANNESBURG		
SOUTH AFRICAN TRANSPORT SERVICES		
SUID-AFRIKAANSE VERVOERDIENSTE		

ELECTRIFICATION TYPE A, B & C
CLAMP ASSEMBLY-DUAL PURPOSE
TUBULAR CANTILEVERS
ELEKTRIFIKASIE TIEPE A, B & C
KLAMPASAMESTEL-TWEEDEOELIG
BUIJSVORMIGE VRYDRAERARMS

ASSY DRG
SAHEG-TEK
ELECTRIFICATION TYPES
REFERENCE DRG NO
CEE-MA-26 SH 7B
ELEKTRIFIKASIE TIEPE
VERWYSINGS-TEK-NO
CEE-MA-369 VEL 7B
STORES ITEM NO
MAGASYNITHEM
54/4889
DRAWING NO CEE-
TEKENING NO CEE-
TNB-5
SHEET 1 OF 2
VEL 1 VAN 2

ITEM	DESCRIPTION	QTY	STORES	ITEM NO	DRG NO	CEE--	AMENDMENTS
1	CONE BODY	1			TNB-37		NO NAME DATE
2	WEDGE	1			TNB-38		1 J HARCUS 95-07-04
3	PIN, STRAIGHT, HEADED, $\phi 16$	1	54/4020		TX-86		NOTE 2 REVISED DRG NO. WAS TN-403 DO REF T95/039



NOTES
 1. MINIMUM ULTIMATE TENSILE STRENGTH = 90KN
 2. TEST SAMPLES OF EACH BATCH SHALL BE ROUTINE TESTED IN TENSION WITH A STEEL BAR TO 63KN.


STORES ITEM NO	54/4978
DIMENSIONS:	m
SCALE:	1:1
	A2
DRAWING NO	CEE--
	TNB-36
SHEET	OF


WIRE ENDING CONE ASSEMBLY

107mm² / 161mm² Cu CONTACT WIRE


DO REF: C37/71	GEN TOL: LIN±	ANG±	
DRN: A ACKERMAN	CKD: FWC	DATE: 71-03-16	
ENG: F PIENAAR	for CHIEF ENG		
INFRASTRUCTURE (ELECTRICAL)			SPPOORNET


PREVIEW COPY ONLY

ITEM	STORES ITEM NO	USE FOR CONDUCTOR:	AMENDMENTS
1	-	50mm ² AL	NO NAME DATE
2	54/8560	250mm ² AL	1 JVT 97-09-05
3	54/9706	80mm ² Cu	REVISED, DRAWING NO WAS TN-143. DO REF: T96/021
4	54/5506	160mm ² AL	2  09/03/05 STORES ITEM NO'S REVISED. ECP REF: BBB8549 DO REF: CDO/4013



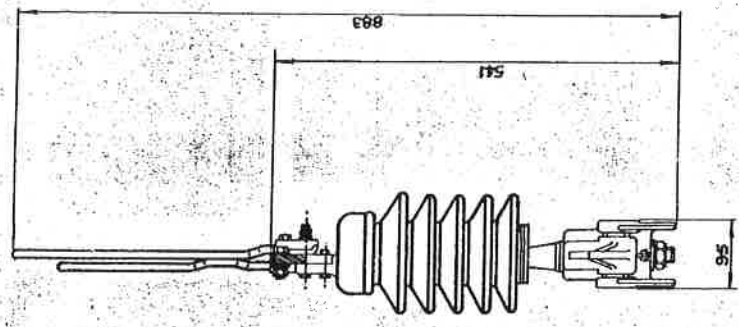
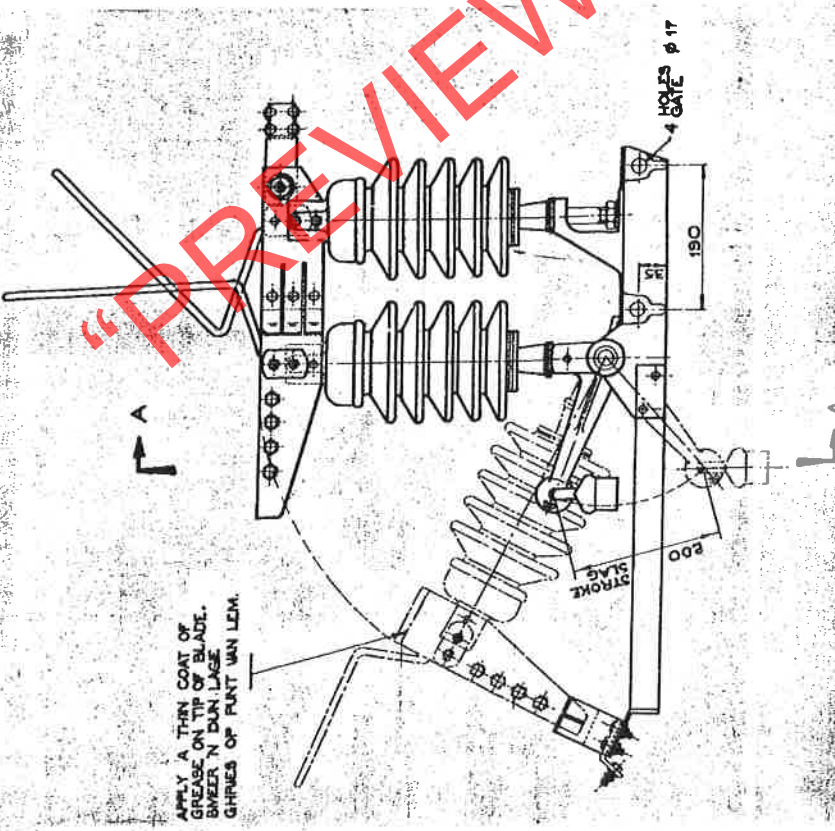
"PREVIEW COPY ONLY"

DO REF: Y78/54	GEN TOL: LIN± -	ANG± -
DRN: A VORSTER	CKD: J JACKSON	DATE: 79-02-12
ENG: I DE VILLIERS	F PIENAAR	for CHIEF ENG
CENTRAL DRAWING OFFICE		 SPOORNET

STORES ITEM NO.	-
	A4
DRG NO	CEE- TNB-77
SHT	- OF -

AMENDMENTS WYSIGINGS		
NO	NAME NAAM	DATE DATUM
2.	J. STEYN	27.03.73

REDRAWN & REVISED.
OORGETEKEN EN HERSIEN.
DRG. NO. WAS CEE-54/112228
TEK. NO. WAS CEE-54/112228
DO REF. T86/48
TK-VERW



ELEVATION A-A
DEURSNEE A-A

- NOTES / OPMERKINGS
1. DRG. TO BE READ IN CONJUNCTION WITH SPEC. CEE.0117.85
TEK. MOET SAAM MET SPES. CEE.0117.85 GELEES WORD.
 2. FOR TRACK SWITCH ARRANGEMENT SEE DRG. NO. CEE-TLB-37
VIR BOBAANSKAKELARRANGKIKKING KYK TEK. NO. CEE-TLB-37
 3. FOR SWITCH ROD ADAPTOR SEE DRG. NO. CEE-TLB-34
VIR SKAKELAARSTANG-PASSTUK KYK TEK. NO. CEE-TLB-34

CLASS/ASSY DRG KLAS/SAMEST-TEK	MODULUS ITEM NO (M)54/1331
ELECTRIFICATION TYPES ELEKTRIKASIE TYPES	PREVIOUS ITEM NO VORIGE 54/112228
REFERENCE DRG NO CEE-MA-26 SH 7B ELEKTRIKASIE TYPES VERWYSINGSTYK-NO CEE-MA-389 VEL 7B	DRAWING NO CEE- TEKENING NO CEE- TLB-38
SHEET OF VEL VAN	

DIMENSIONS, MILLIMETRES
Afmetings, MILLIMETER

DRN E.G. LOUW	GEN TOLERANDES L'INE	ALG TOLERANSIES LANG/HOEK
TRGD L. WOOD	DO REF J72768	ENG K. KALMER
NGT	TK-VERW	IR
CKD	NGSEFF. JURGENSEN	DATE
	CHIEF ELECTRICAL ENGINEER	ns.
	ELEKTRIESE HOOFINGENIEUR	JOHANNESBURG
	SOUTH AFRICAN TRANSPORT SERVICES	
	SUID-AFRIKAANSE VERVOERDIENSTE	

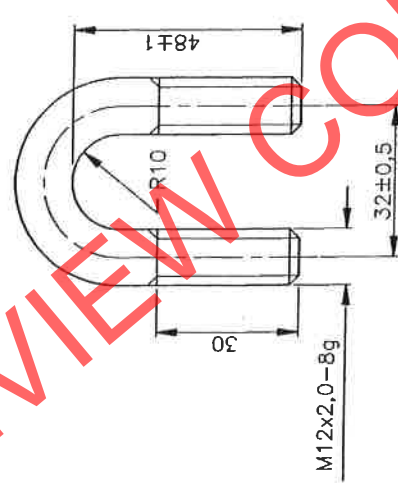
ELECTRIFICATION TYPES / ELEKTRIKASIE TYPES: A, B, F.
SWITCH KNIFE.
 TYPICAL SIDING SWITCH.
 (GENERAL ARRANGEMENT)
SKAKELAAR, LEM-
 TIPIESE SYLYNSKAKELAAR.
 (ALGEMENE RANGSKIKKING)

PREVIEW COPY ONLY

"PREVIEW COPY ONLY"

AMENDMENTS	
NO	NAME DATE
4	L O BIRCHARD 95-05-11

REDRAWN, STAINLESS
STEEL ADDED,
DO REF T95/003



NOTE
ZINC COAT MILD STEEL TO SPEC SABS 763 FOR CONDITIONS IN SITU

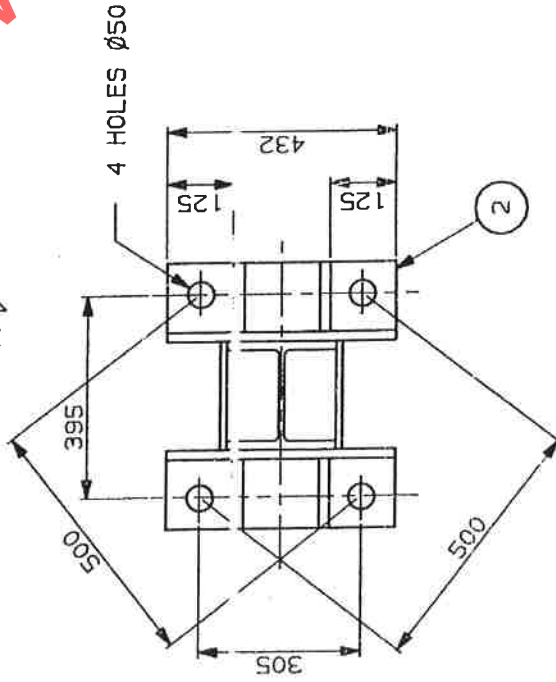
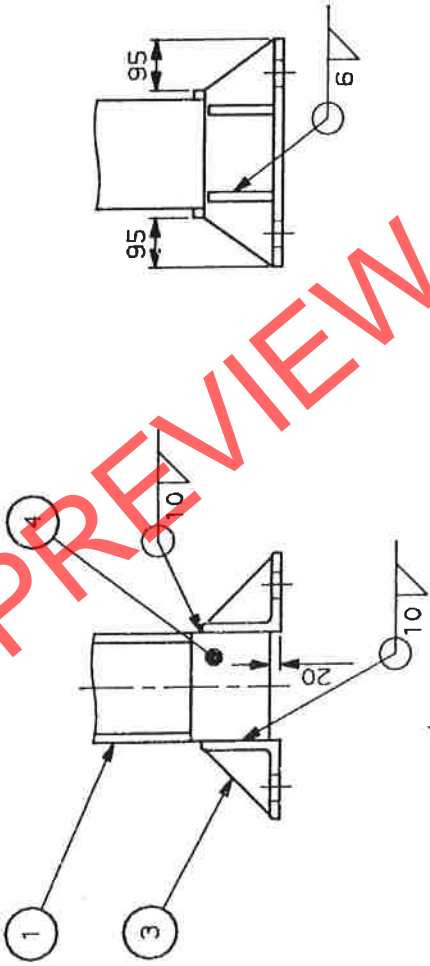
MATERIAL: ITEM NO 11/ — STEEL, ROUND, Ø12 X 127 LG OR STAINLESS STEEL		DIMENSIONS: mm	
DO REF: C29/71	GEN TOL: LIN±	SCALE: 1:1	A4
DRN: G N	CKD: —		
ENG: —	F PIENNAAR for CHIEF ENG	DRG NO CEE— TX-89	
INFRASTRUCTURE (ELECTRICAL)		SHT — OF —	
SPOORNET		U-BOLT M12	

10000776

3 4 3 4 3 4

ITEM	DESCRIPTION ~ BESKRYWING	QTY HVLD	STORES MAGASYN NO.	AMENDMENTS WYSIGINGS
1.	STEEL, ROUND $\phi 12 \times 225$ L TO SPEC CME 9 SYM 7 STAAI, ROND	1.	(M)1/2740	NO. NAME DATE NAAM DATUM
2.	NUT, PLAIN, HEX, STEEL, GALV. MOER, GEWONE, SEK, STAAL, GEGALV. M12	2.	(M)1/32856	2. B. Stewart 82-04-22
3.	WASHER, FLAT, STEEL, ROUND, NORMAL, GALV. WASTER, PLAT, STAAL, ROND, NORMAAL, GEGALV. M12.	2.	(M)1/33659	REDRAWN IN INK. OORGETEKEN IN INK.
<p>FINISH ~ AFWERKING.</p> <p>ZINC COAT TO SPEC. SABS 763.</p> <p>SINKBEDEK VOLG. SPES.</p>				DO. REF. T1/81/74 TK.-VERW.
				3. J. SWIEGERS. 83-03-10
<p>DIMENSIONS : MILLIMETRES AFMETINGS : MILLIMETER</p>				ASSY. DRG. NO. ADBEDEN SAMEST. TEK. NO. BYGEVOEG. D.O. REF. T2/82/129 TK.-VERW.
<p>DRN. B. v. d. WEST. GET.</p>				CEE - TMG - 126 CEE - TMG - 99 & 100 CEE - TMG - 101 & 102 CEE - TMG - 108 & 10, CEE - TMG - 110 & 111 CEE - TMG - 8A ASSY. DRG. SAMEST. - TEK.
<p>TRCD. K. HUGHES NGT.</p>				DRAWING NO. CEE- TEKENING
<p>GKD. R. A. MACMILLAN NGS.</p>				
<p>DATE 80-02-13 DATUM</p>				
<p>CHIEF ELECTRICAL ENGINEER ELEKTRIESE HOOFINGENIEUR</p>				
<p>SOUTH AFRICAN TRANSPORT SERVICES SUID - AFRIKAANSE VERVOERDIENSTE</p>				
<p>JOHANNESBURG</p>				
<p>U - BOLT</p>				
<p>M12</p>				
<p>U - BOUT</p>				
<p>TX-23</p>				

ITEM	DESCRIPTION	QTY	STORES ITEM NO	DRG NO CEE-	AMENDMENTS
1	STEEL, UNIVERSAL COLUMN, 206 X 204 X 52,1kg/m	1			NO NAME DATE
2	STEEL, ANGLE, 150 X 150 X 18 X 432L, SPEC CME-9 SYM 8 (11/2032)	2			1 H V V 92-04-01
3	GUSSET PLATES, OFF-CUTS FROM ITEM 2	4			REDRAWN. FINISH
4	STEEL, FLAT, 150 X 12 X 204L, SPEC CME-9 SYM 7 (11/13705)	2			ADDED. ITEM 4, STORES ITEM NO WAS 11/2283 DO REF T92/011



NOTES

1. WHEN ERECTED ON A LEVEL SURFACE, BASE ANGLES TO BEAR FULLY AND TOP OF MAST TO BE WITHIN 10mm OF VERTICAL
2. WELDING TO CONFORM TO BS 5135

FINISH

ZINC COAT TO SABS 763 AFTER WELDING

STORES ITEM NO	
DIMENSIONS: mm	
SCALE	1:10
	A3
DRAWING NO	CEE-
	TMB-67
SHEET	-- OF --

MAST BASE ASSEMBLY

(4 BOLT GROUP)

206 X 204 UNIVERSAL COLUMNS

DO REF Y76/43	GEN TOL, LIN +0 -2 ANG±
DRN J HIBBERS	CKD WRG DATE 78-03-31
ENGde VILLIERS	F PIENAAR for CHIEF ENG
INFRASTRUCTURE (ELECTRICAL)	

ORIGINAL FRAME SIZE
OORSPRONKLIKE RAAMGROOTTE 390 x 267.



ITEM:

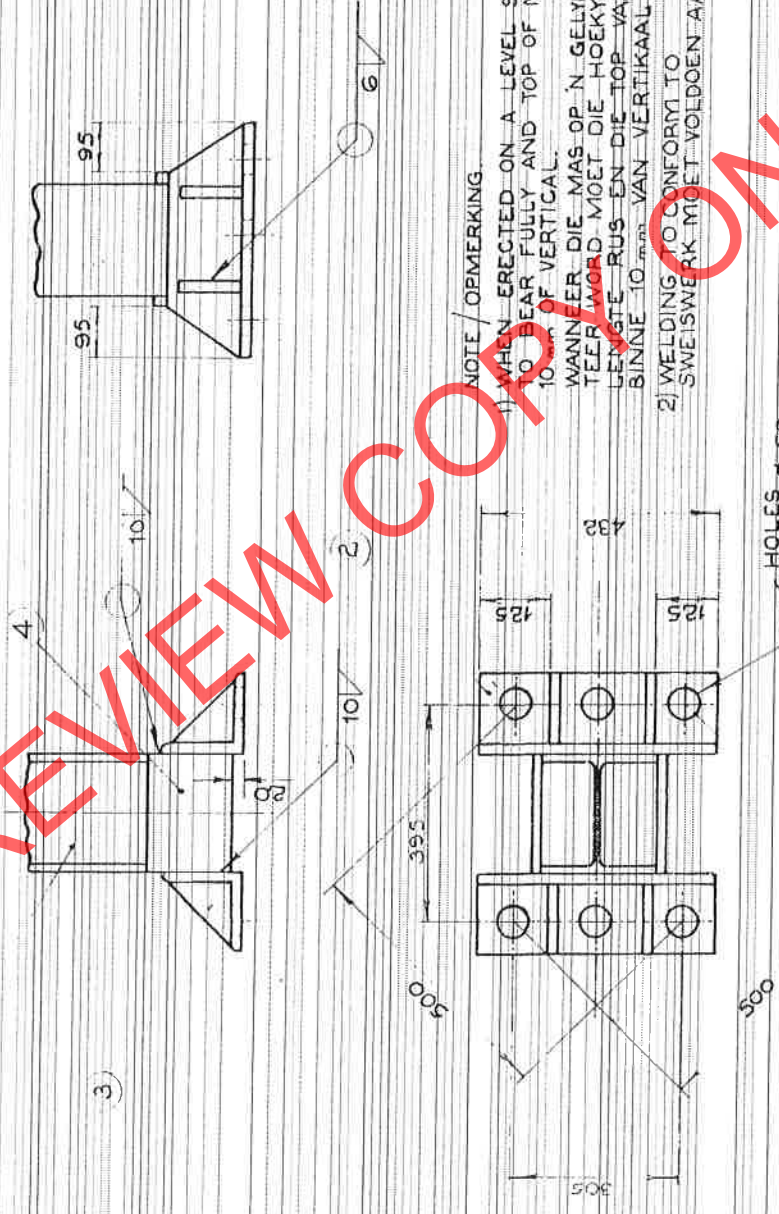
DESCRIPTION - BESKRYWING

STORES ITEM
MAGASYNITEM NO.

DRG. NO. CEE
TEK.

AMENDMENTS.
WYSIGINGS.

ITEM:	DESCRIPTION - BESKRYWING	STORES ITEM MAGASYNITEM NO.	DRG. NO. CEE TEK.	AMENDMENTS. WYSIGINGS.
1	STEEL, UNIVERSAL COLUMNS. 216 x 206 x 71,5 kg/m STAAL, UNIVERSELE KOLOM	1		NAME NAAM
2	STEEL ANGLE 150 x 150 x 12 SPEC CMES 9 SYM 8 STAAL, HOEK	2	(M)/2002	DATE DATUM
3	GUSSET PLATES, OFF-CUTS FROM ITEM 2. KNOOPPLATE, AFSNYSTUKKE VAN	4		
4	STEEL, FLAT 150 x 20 x 214 SPEC CMES 9 SYM 7 STAAL, PLAT	2	(M)/2223	



NOTE / OPMERKING.

1) WHEN ERECTED ON A LEVEL SURFACE BASE ANGLES TO BE FULLY AND TOP OF MAST TO BE WITHIN 10 mm OF VERTICAL.
WANNER DIE MAS OP 'N GELYKE OPPERVLAK GEMON-TEER WERD MOET DIE HOEKYSTERS OOR DIE HELE LENGTE RUS EN DIE TOP VAN DIE MAS MOET BINNE 10 mm VAN VERTIKAAL WEES.

2) WELDING TO CONFORM TO SWEISWERK MOET VOLDOEN AAN B.S. 5135

DIMENSIONS: MILLIMETRES.
AFMETINGS: MILLIMETER.

DRN J. HIBBERS.	GEN TOLERANCES: LIN +0 ALG TOLERANSIES: ANG. 7 HOEK
TRCD G. GOETZEE	DO REF. 1.76/43. ENG IR
CKD NGS W/24	DATE 7-03-71 DATUM
CHIEF ELECTRICAL ENGINEER ELEKTROEGNIESE ROOFINGENIEUR	S. R. JOHANNESBURG S. S.

MAST BASE ASSEMBLY. (6 BOLT GROUP).
216 x 206 UNIVERSAL COLUMNS

MASVOETSTUKSAMESTEL. (6 BOUTGROEP).
216 x 206 UNIVERSELE KOLOMME

CEE-TQ-17 FOUNDATION
FONDAMENT

CEE-TQ-29 BOLT GROUP
BOUTGROEP

CEE-TU 30 INSULATION
ISOLASIE

ASSOCIATED DRG.
VERWANTE TEK.

DRAWING NO. CEE
TEKENING. No. CEE

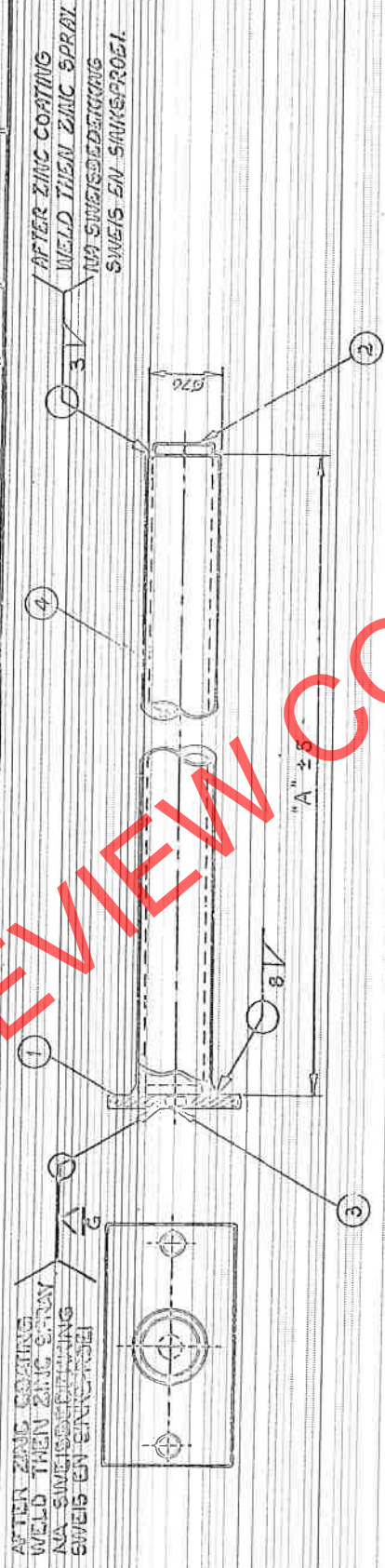
TMB-68

ORIGINAL FRAME SIZE
 OORS-PRONKING-DARMSBOOTJE 350-267



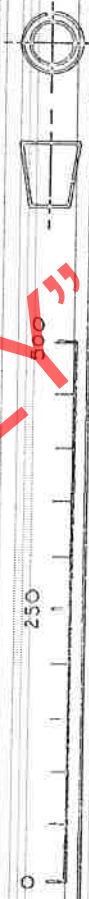
DESCRIPTION OF DRAWING:

ITEM	DESCRIPTION OF DRAWING	QTY	STORES	DRG. NO. CEE	AMENDMENTS
		WLD	MAGASYN NO.	TEK.	NAME
					NO.
					DATE
					DATUM
1	LARGE PLATE STEUPLAAT	1		70011F-52	
2	ZINC CAP BINTOOP	1		70011F-29	
3	PLUS STEEL ROUND AS PER SPEC. ON COM. GRADE.	1	(M)11/2776		
4	PLUS STEEL, ROUND NOMINAL SIZE 203 (4,8 INCH) NOMINAL BORE 193 (4,8 BIK)	1	(M)19/1261		



NO.	TRACK & SPQR II	DIMENSIONS (A) DIMETINGS
1	2750	2790
2	3200	3200
3	3700	3740

FINISH / AFWERKING
 ZINC COAT TO SPEC. S.A.B.S. 763.
 SWEISWERK MOET VOLDOEN AAN SPEC. BS. 5135.

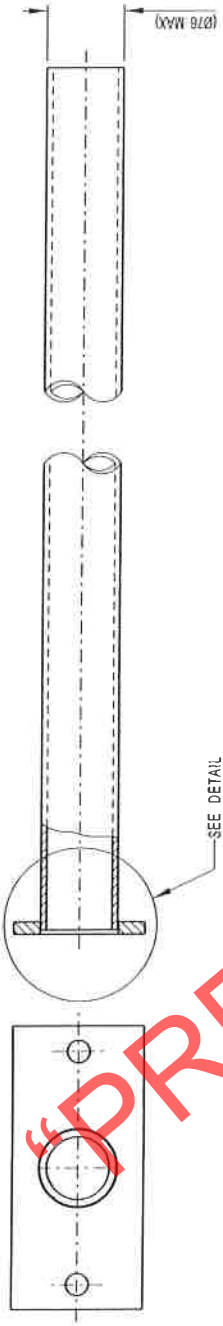


TUBULAR CANTILEVER
 203-253 UNIVERSAL COLUMNS.
 PYF-RIJDRADER.
 203-253 UNIVERSELE KOLOMME.

CEE-TING - 29, 60, 61
 ASSY DRG./SAMEN. TEK.
 TEKENING NO. CEE

CHIEF ELECTRICAL ENGINEER 5 AR JOHANNESBURG.
 ELEKTROTEGNIESE HOOFINGENIEUR 5 AR JOHANNESBURG.

TMC-42.

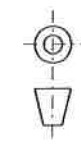


MAST ϕ - TRACK ϕ	DIMENSION "A"
2 750	2 800
3 200	3 250
3 700	3 750

FINISH
HOT DIP GALVANISE TO SANS 121 AFTER WELDING.

NOTES
JOINING OF CANTILEVER TUBE SEE DRG NO CEE-TMC-101.
1. FOR WALL THICKNESS MAY BE USED AS LONG AS THE OUTER DIAMETER OF 70mm IS NOT EXCEEDED.

DETAIL
SCALE 1:1



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DIMENSIONS : mm SCALE : 1:5
 TOLERANCE : LIN ± 0.5 ANG ± ITEM NO
 MATERIAL : REDRAWN AND REVISED. NOTE 2 ADDED.

Digitally signed by
Ludwig Borchard
Date: 2012.03.30
13:20:32 +02'00'
APPROVED

Digitally signed by
Ludwig Borchard
Date: 2012.03.30
13:20:53 +02'00'
AUTHORISED

ITEM NO	DESCRIPTION	QTY	STORES ITEM NO	DRAWING NO
2	PIPE, STEEL, 065 x 5.5 WALL THK x 10 LONG TO SPEC SANS 62-1 (SEE NOTE 2)	1	13/7261	CEE-TMFB-135
1	BASE PLATE	1		

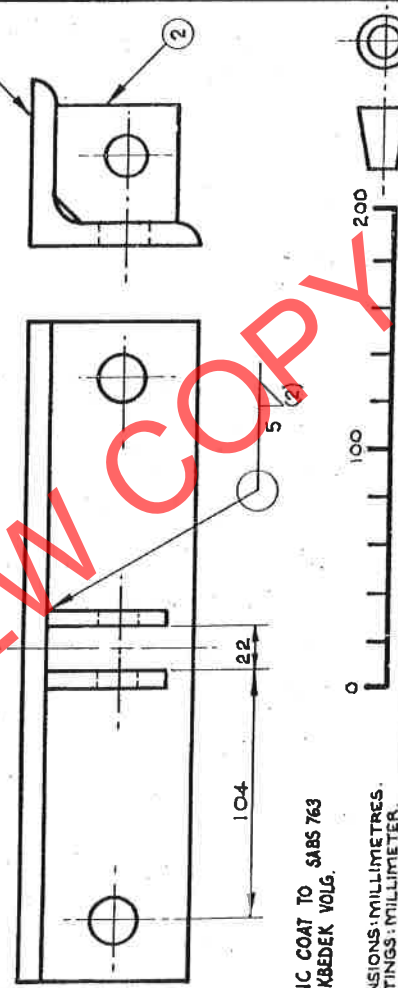
TUBULAR CANTILEVER
203 x 203 UNIVERSAL COLUMN MAST

TRANSNET
Freighttrail
CEE-TMC-42
AMENDMENT 7

ORIGINAL FRAME SIZE
OORSPRONKLIKE RAAMTEGOTE 267 X 180

ITEM	DESCRIPTION BESKRYWING	QTY. STORES ITEM HVL.D. MAGASYNITEM	DRG. NO. CEE TEK.	AMENDMENTS WYSIGINGS
1.	CLAMPING BRACKET KLAMPSTEUN	1	TMHA - 84 ITEM 1	NAME DATE NAAM DATUM
2.	CLEVIS PLATE VURKPLAAT	2	TMHF - 21	J. JACOBSON 78-05-23

NOTE / OPMERKING.
WELDING TO CONFORM TO
1. SWEISWERK MOET VOLDOEN AAN S. S. 5135



2. ZINC COAT TO SABS 763
2. SINKBEDEK VOLG.

DIMENSIONS: MILLIMETRES.
AFMETINGS: MILLIMETER.

DRN. B.V. RENSBURG	GEN. TOLERANCES: LIN. ±1 ALG. TOLERANSIES: ANG./HOEK —
TRCD. B.V. RENSBURG	D.O. REF. Y76/43
NGT:	ENG. J. J. J. J.
CKD. 1/8/81	TK. VERW. IR.
NGS:	DATE 78-03-31
CHIEF ELECTRICAL ENGINEER. ELEKTROTEGNIESE HOOFINGENIEUR, S.A.S.	S. R. JOHANNESBURG

BRACKET-TIE BAR CLEVIS.
TUBULAR CANTILEVER ON
203X203 UNIVERSAL COLUMNS
STEUNSTUK-VIRBINDINGS-ANGVURK
BUISVORMIGE VRYDRAERARM OP
203X203 UNIVERSELE KOLOMME

CEE - TMG - 60.61.
ASST. DRG./SAAMES-TEK.
DRAWING
TEKENING NO. CEE

TMF-206

A4
A4

3

4

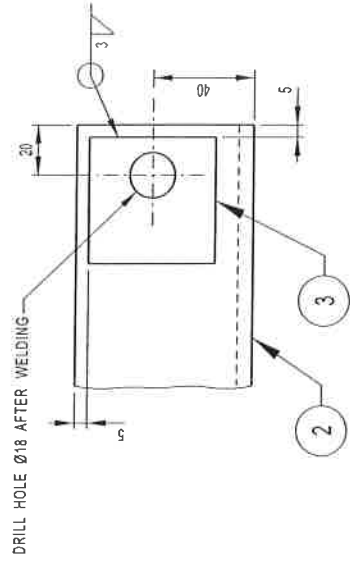
4

4

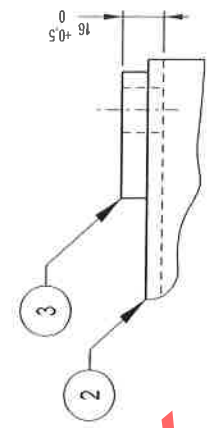
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3

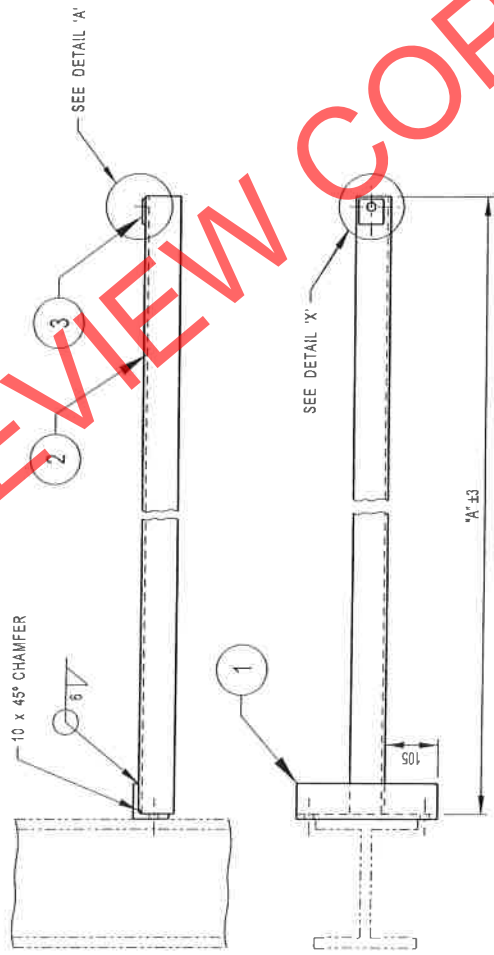
DETAILS OF USE	DIMENSION "A"
2,75m MAST & TRACK &	1 000
3,2m MAST & TRACK &	1 450
3,7m MAST & TRACK &	1 950
WITH HOCKEY STICK	600



DETAIL 'X'
SCALE 1:2



DETAIL 'A'
SCALE 1:2



FINISH
HOT DIP GALVANISE TO SANS 121 FOR CONDITIONS IN SITU.

- NOTES
- 1) WELDING TO CONFORM TO SPEC BS 5153.
 - 2) FOR STEADY ARM ATTACHMENT EXTENSION BRACKET FOR NON-STANDARD MAST-TO-TRACK CENTRES SEE DRG NO CEE-TMFB-123.



Digitally signed by
Ludwig Borchard
Date: 2011.09.08
13:50:27 +02'00'

APPROVED

Digitally signed by
Ludwig Borchard
Date: 2011.09.08
13:50:09 +02'00'

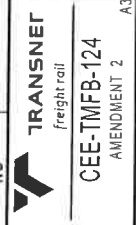
APPROVED

DESIGNED: *
DRAWN: C L BUCKLE
ECP REF: 88F215

ITEM NO	DESCRIPTION	QTY	STORES ITEM NO	DRAWING NO
3	FLAT STEEL 50 x 10 x 50 L	1		
2	ANGLE STEEL 70 x 70 x 6 x 70 L	1		
1	CLAMPING BRACKET	1	CEE-TMFB-138	CEE-TMFB-138

STEADY ARM AND HOCKEY STICK ATTACHMENT

203 x 203 UNIVERSAL COLUMNS.



CEE-TMFB-124
AMENDMENT 2

REVIEW COPY ONLY

PREVIEW COPY ONLY

AMENDMENTS	
NO	NAME DATE

2 HOLES $\phi 26$

3 HOLES $\phi 18$

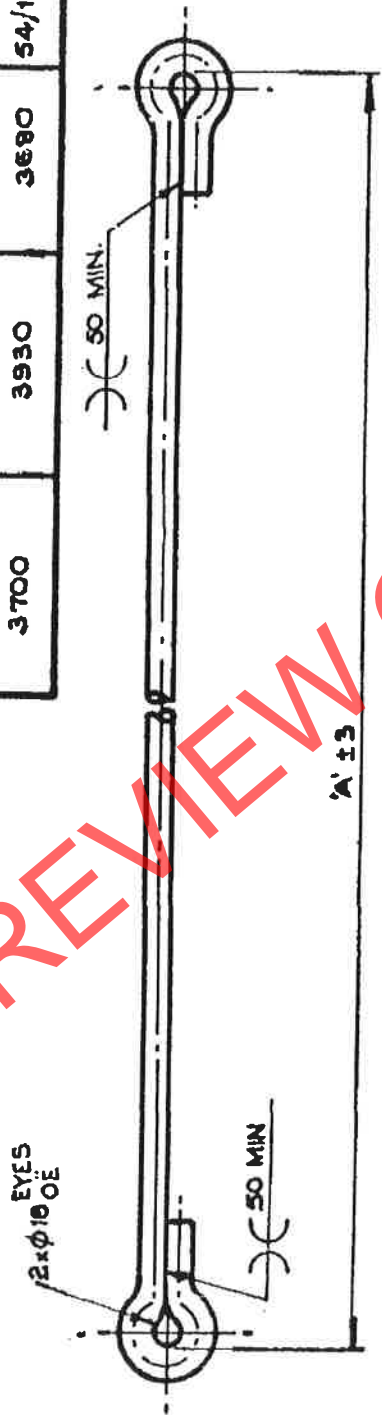
FINISH
ZINC COAT TO SPEC SABS 763

<p>MATERIAL, ITEM NO 11/14570 STEEL, ANGLE 100x100x15THK x315L SPEC CHE 8 SYM 8</p> <p>DO REF T92/002 GEN TOL, LIN# 1 ANG# -</p> <p>DRN J VON ABO (CKDH v VUUREN) DATE 92-03-03</p> <p>ENG HA SLIER A VERSTEEG For CHIEF ENG</p>	<p>ANCHOR FITTING, CONTACT & CATENARY</p> <p>UNIVERSAL COLUMNS STAY WIRE CONSTRUCTION</p>
<p>INFRASTRUCTURE (ELECTRICAL)</p> <p style="text-align: right;">SPOORNET</p>	<p>A4</p> <p>DRG NO CEE-TMFB-50</p> <p>SHT -- OF --</p>

ORIGINAL FRAME SIZE 867 x 180
 OORSPRONKLIKE RAAMGROOTTE



MAST Ø - TRACK Ø MAS H - SPOORH	DEVELOPED LENGTH ONTWIKKELDE LENGTE	DIMENSION A AFMETING	STORES ITEM NO MAGASTN
2750	3015	2765	54/110227
3200	3450	3200	54/110283
3700	3930	3680	54/110231



NOTE : WELDING TO CONFORM TO
 OPMERKING : SWEISWERK MOET VOLDOEN AAN S.S. 5135
 FABRICATION : FORM EYES AT 850°-900°C AND ALLOW TO COOL
 FREELY IN AIR.
 VERVAARDIGING : VORM OË TEEN 850°-900°C EN LAAT
 VRYLUK IN LUG AFKOEL.
 FINISH : ZINC COAT TO SPEC
 AFWERKING: SINKBEDEK VOLGENS SPES. S.A.P.S. 763.

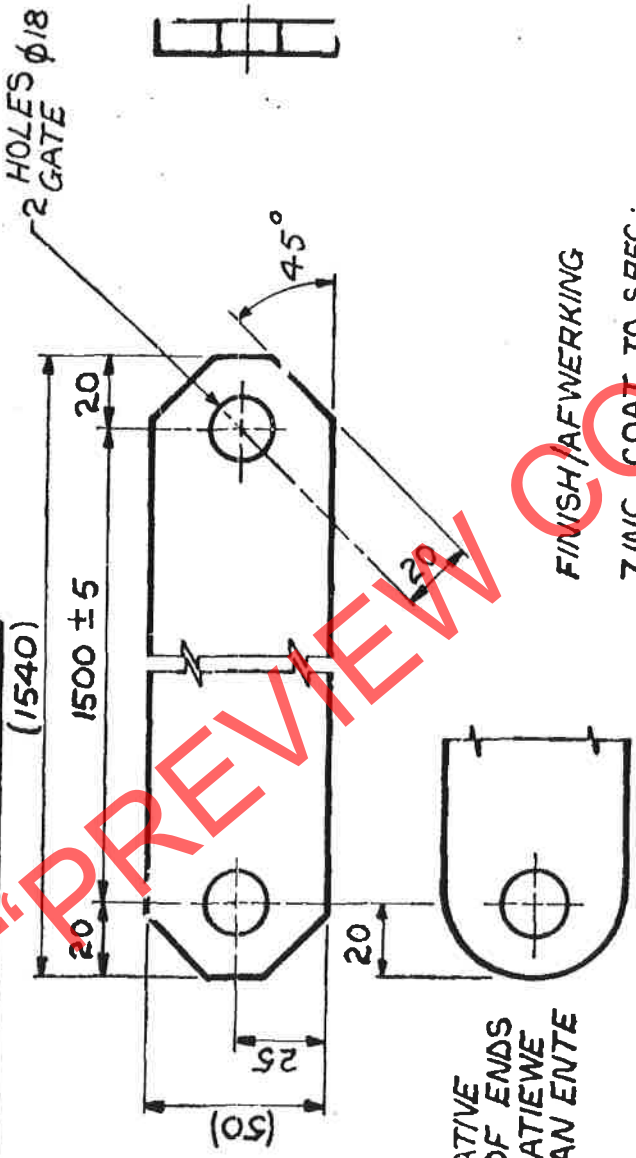
DIMENSIONS : MILLIMETRES
 AFMETINGS : MILLIMETER.
 MATERIAL : MATERIAL
 STEEL, ROUND. Ø 16
 STAAL, ROND.
 SPEC. CME 9 SYM 7
 SPES. CME 9 SYM 7
 STORES ITEM NO. 11/21532
 MAGASYNITEM NO. 11/21532
 OF COMMERCIAL GRADE.
 OF HANDELSGRAAD.

DRN GET.	A. J. S.	GEN. TOLERANCES: LIN. ± 1 ALG. TOLERANSIES: ANG/HOEK. —
TRCD. NGT.	Y. SWART	D.O. REF. — TK-VERW. — ENG. IR. —
CKD. NGS.	F. W. C.	DATE. 8-4-65 DATUM.
R. BARNES, for		ns
CHIEF ELECTRICAL ENGINEER, ELEKTROTEGNIESE HOOFINGENIEUR, S.A.S		JOHANNESBURG

TIE-BAR FOR TUBULAR CANTILEVERS.
 NON STAGGERED GATENARY
 KOPPELSTAAF VIR BUISVORMIGE VRYDRAERARMS
 NIE - GESLINGERDE DRAKABEL

AMENDMENTS. WYSIGINGS.		
NO. NO.	NAME. NAAM.	DATE. DATUM.
6	W.R.G.	28-3-78
REDRAWN, ASSY. NO'S FOR UNIVERSAL COLUMNS ADDED. WELDING NOTE ADDED. OORGETEKEN. SAMESE NO'S. VIR UNIVERSELE KOLONNE. BYGEVOEG D.O. REF. TK-VERW. Y76/43		
7	W.R.G.	78-06-30
ASSY. DRG. NO'S 40 AND 51 REMOVED. SAMESE-TEK. NO'S 40 EN 51 VERWYDER. D.O. REF. TK-VERW. Y77/108		
CEE TMG 60 CEE TMG 39, 49		ASSY. DRG./SAMESE-TEK. DRAWING. NO. CEE TEKENING.
TMHB 3		

ORIGINAL FRAME SIZE
OORSPOONLIKKE RAAMGROOTTE 267 x 180.



ALTERNATIVE
SHAPE OF ENDS
ALTERNATIEWE
VORM VAN ENTE

DIMENSIONS: MILLIMETRES.
AFMETINGS: MILLIMETER.

MATERIAL-MATERIAL
STEEL, FLAT 1540 x 50 x 10 THK.
STAAL, FLAT
SPEC: CME 9 SYM-7
SPES:
STORES ITEM (NO. (M)) 11/2381
MAGASYNITEM

FINISH/AFWERKING
ZINC COAT TO SPEC:
SINK BEDEK VOLG. SPES: SABS 763
NOTE / OPMERKING
FOR INSULATED STRAP SEE DRG. NO.
VIR CEISOLEERDE STANG SIEN TEK. NO.
CEE - 54 / 102173



SOUTH AFRICAN TRANSPORT SERVICES
SUID - AFRIKAANSE VERVOERDIENSTE

DRN. W.J.N.	GEN. TOLERANCES: LIN ±1
TRCD. MGT.	ALG. TOLERANSIES: ANG./HOEK ±1°
CHKD. H.N.	D.O. REF. N 37/68
	TK-VERW. N 37/68
	DATE: 68/03/18
	DRUM. 68/03/18
	W. PHILLIPS for
	CHIEF ELECTRICAL ENGINEER
	ELEKTRIESE HOOFINGENIEUR
	JOHANNESBURG

CATENARY STRAP (BAR ONLY)
FOR USE WITH SECTION
INSULATOR
HANGDRAADSTANG(SLEGS
STAAF) VIR GEBRUIK MET
SEKSIE - ISOLATOR.

1500

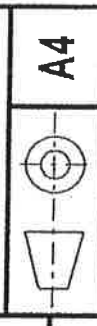
A4
A4

AMENDMENTS. WYSIGINGS.	
NO.	NAME. NAAM.
5	WRG.
	DATE. DATUM.
	80-04-02
REDRAWN DRG. NO. WAS CEE - 54/110214. OORGETEKEN. TEK. NO. WAS. CEE-54/110214 DO. REF. T80/40 TK. VERW.	
ASSY. DRG. / SAAMES. TEK.	
MODULE'S ITEM NO.	
PREVIOUS VORIGE	
ITEM NO.	
54/100214	
DRAWING NO. CEE- TEKENING NO. CEE-	
TN-255	

AMENDMENTS	
NO	NAME DATE
2	J V Dýk 2003/02/18
REVISED, RENUMBERED AND REDRAWN. DRG NO WAS CEE-TMHH-16 DO REF: CDO/2354	
3	<i>[Signature]</i> 19/05/05
PIPE DIA. WAS $\varnothing 48,7/47,9$ AND LENGTH WAS 3 050. ECP REF: BBB8668 DO REF: CDO/4179	

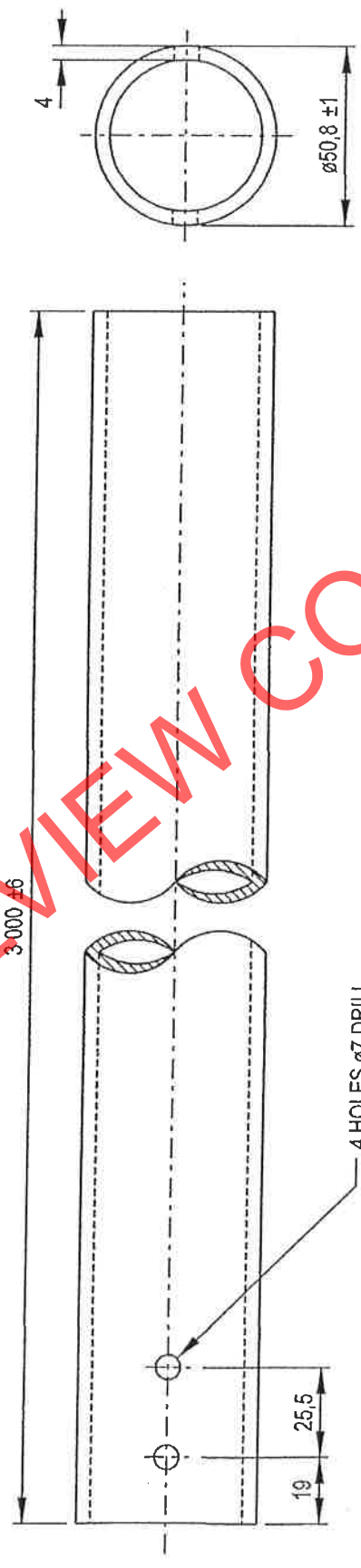
STORES ITEM NO
54/1407

DIMENSIONS mm
SCALE: 1:2



DRAWING NO **CEE-**
TND - 38

SHEET - OF -

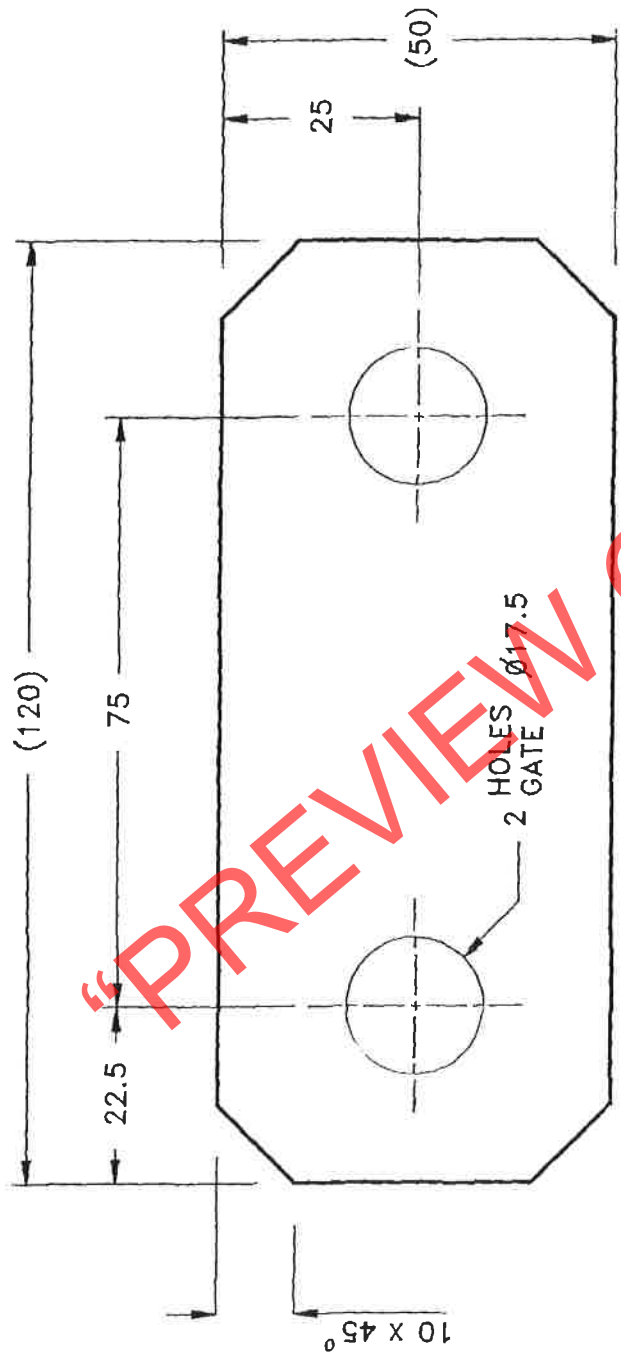


FINISH
ZINC COAT TO SPEC SANS 121

MATERIAL: METAL TUBE, STEEL TO SPEC SANS 657 - 1	
DO REF: J71/228	GEN TOL: LIN $\pm 0,5$ ANG \pm
DRN: J V S	CKD: E L S
ENG: E P A	DATE: 56-10-16
W LEHMAN for CHIEF ENG	
SPOORNET	
CENTRAL DRAWING OFFICE	

PUSH- PULL- OFF TUBE

AMENDMENTS WYSIGINGS	
NO	NAME NAAM
	DATE DATUM



DIMENSIONS: MILLIMETRES
AFMETINGS: MILLIMETER

MATERIAL/MATERIAAL

STEEL, FLAT 50 x 6 x 120L
STAAL, PLAT

STORES ITEM NO (M)11/-----
MAGASYNITEM

SPEC BS 4360 GRADE 43A
SPES

FINISH/AFWERKING
ZINK COAT TO SPEC SABS 763
SINKBEDEK VOLG SPES

DO REF 94/01/16 GEN TOLERANCES: LIN ± 1
TK-VERW ALG TOLERANSIES: ANG/HOEK ± 0.5°
DRN HP OOSTHUIZEN ENG DATE 18/01/94
GET AUTOCAD IR

REGIONAL ENGINEER STREEKINGENIEUR
ELECTRICAL ELEKTRIS
PRETORIA PRETORIA

SPOORNET

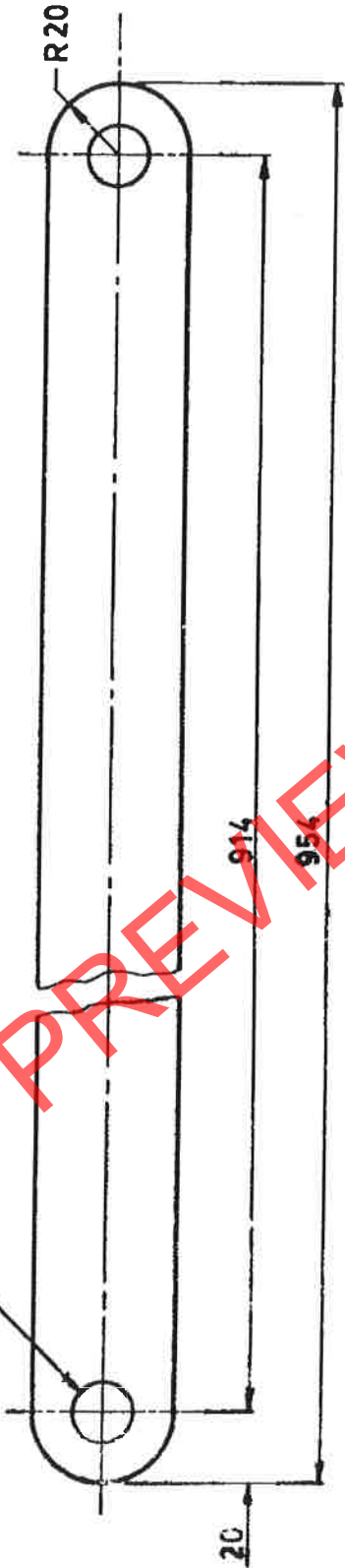
25KV AC ELECTRIFICATION
PLATE, LINK

PLAAT, SKAKEL-
25KV WS ELEKTRIFIKASIE

DRAW NO 1
LAAI

DRG NO PRE-
TEK TNE-1
SHEET OF
VEL VAN

2 HOLES $\phi 17.5$ DRILL GATE BOOR



DIMENSIONS : MILLIMETRES
AFMETINGS : MILLIMEETER

ELANDSFONTEIN DRG/TEK NO.
TW 568 / 26 / 23

MATERIAL - MATERIAAL

STEEL, FLAT
STAAL, PLAT
40 x 12 = 954 L
STORES ITEM
MAGASYNITEM NO. 11 / 12494
SPEC. CME 9 SYM. 7
OR COMMERCIAL GRADE
OF HANDELSGRAAD

FINISH / AFWERKING
ZINC COAT TO SPEC.
SINKBEDEK VOLG. SPES. S.A.B.S. 763



DRN. GET.	M. K.	GEN. TOLERANCES: LIN. $\pm 0,5$ ALG. TOLERANSIES: ANG/HOEK
TRCD. NGT.	W. F. MANS	D.O. REF. C 227/68 TK-VERW IR
KCD. NGS.	F.W.C.	DATE 18-04-69 DATUM
		for. ns.

CHIEF ELECTRICAL ENGINEER
ELEKTRIESE HOOFINGENIEUR
JOHANNESBURG

SOUTH AFRICAN TRANSPORT SERVICES
SUID-AFRIKAANSE VERVOERDIENSTE

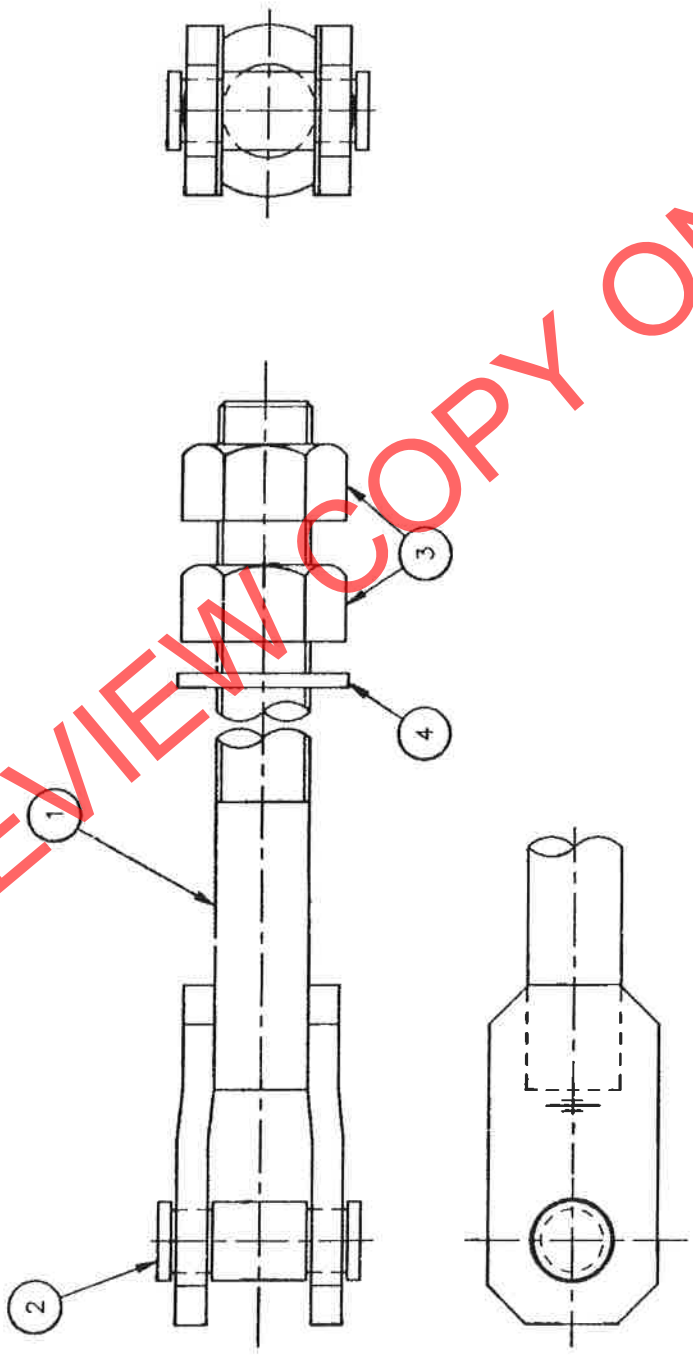


EXTENSION STRAP.
914 HOLE CENTRES.

VERLENGSTROOK.
914 GATSENTERS.

AMENDMENTS WYSIGINGS		
NO.	NAME NAAM	DATE DATUM
1.	B.J.vd.W.	87-07-03
REDRAWN AND REVISED DRG. NO. WAS CEE-54/110216. OORGETEKEN EN HERSIEN. TEK. NO. WAS CEE-54/110216. D. O. REF. T87/36 TK-VERW.		
CEE-IP-72 CEE-TPB-1 CLASS/ASSY. DRG. KLAS/SAMEST.-TEK.		
STORES ITEM NO. MAGASYNITEM NO.		
54 / 2247		
DRAWING NO. CEE-TEKENING NO.		
TNE-1		
SHEET 1 OF 1 VEL VAN 1.		

ITEM	DESCRIPTION	QTY	STORES ITEM NO	DRG NO CEE-	AMENDMENTS
1	STAY BOLT	1		TNE-31 SHT 2	NO NAME DATE 1 J HARCUS 95-08-21
2	FIN	1		TNE-31 SHT 3	REVISED, DRG NO WAS CEE-TMF-332. DO REF T95/050
3	NUT, STEEL, GALV, HEX, M36	2	1/32921		
4	WASHER, FLAT, STEEL, GALV, ROUND, M36	1	1/33700		



STORES ITEM NO	
DIMENSION: mm	
SCALE: 1:2	
	A3
DRAWING NO	CEE-
	TNE-31
SHEET	1 OF 3

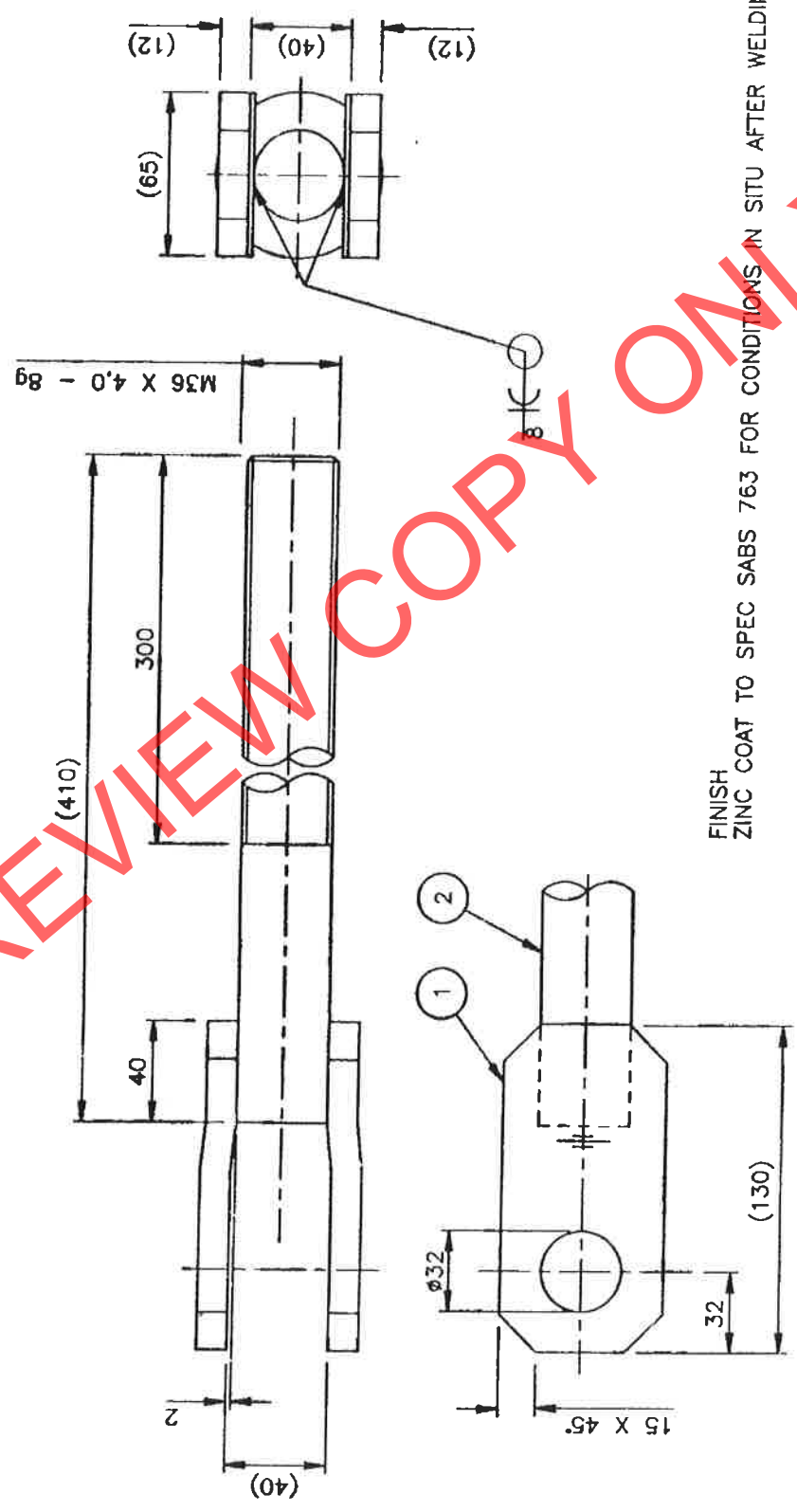
DO REF: T79/20	GEN TOL: LINE -	ANG± -	
DRN: B v d WESTH	CKD: J SWIEGERS	DATE: 80-07-28	
ENG: -	GA WILLIAMS	for CHIEF ENG	
INFRASTRUCTURE (ELECTRICAL)	SPOORNET		
STAY BOLT ASSEMBLY			
STAY WIRE			

ITEM	DESCRIPTION	QTY	STORES ITEM NO	DRG NO CEE--
1	STEEL, FLAT, 65 X 12 THK X 130 LG (11/1961)	2		
2	STEEL, ROUND, $\phi 36$ X 410 LG	1		

AMENDMENTS

NO	NAME	DATE
1	J HARCUS	95-08-21

REVISED, WAS PART OF
DRG NO CEE-TMF-332.
DO REF T95/050



FINISH
ZINC COAT TO SPEC SABS 763 FOR CONDITIONS IN SITU AFTER WELDING

PREVIEW COPY ONLY

DIMENSION: mm
SCALE: 1:2

A3
DRAWING NO CEE--
TNE-31
SHEET 2 OF 3

STAY BOLT
STAY WIRE

DO REF: T79/20	GEN TOL: LIN±	1	ANG±	-
DRN: B v d WESTH	CKD: J SWIEGERS	DATE: 80-07-28		
ENG: -	GA WILLIAMS	for CHIEF ENG		
INFRASTRUCTURE (ELECTRICAL)		SPOORNET		

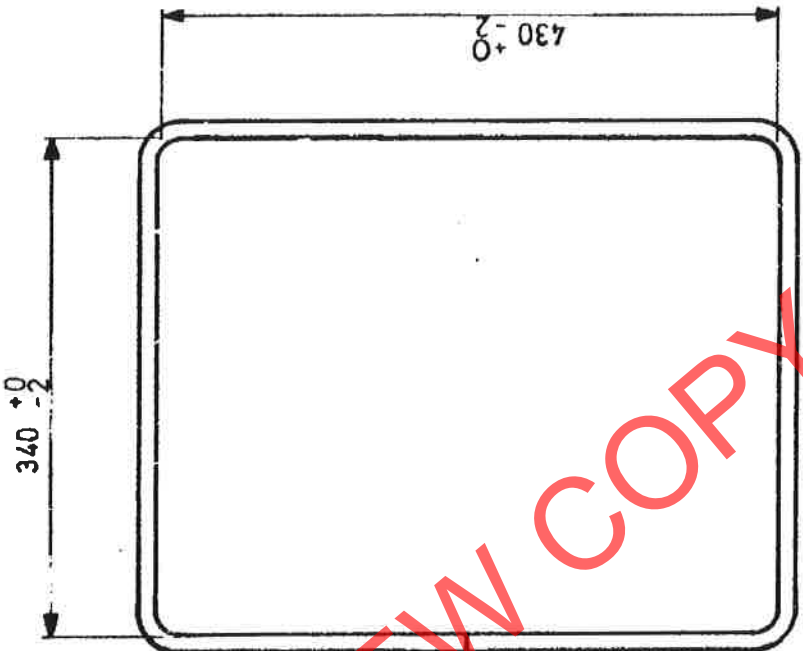
340 ±0.2

430 ±0.2

500

250

0



NOTE /OPMERKING
 ALL RADIi R18.
 ALLE RADIUSSE

DIMENSIONS: MILLIMETRES.
 AFMETINGS: MILLIMETER.

MATERIAL - MATERIAAL
 STEEL, ROUND φ12 X1547L
 STAAL, ROND φ12 X1547L
 SPEC. QME 9 SYM. 7
 SPES. QME 9 SIM. 7
 STORES ITEM NO.(M)11/2740
 MAGASYN ITEM NO.(M)11/2740

DRN. / M. VERMEULEN : LIN. _____
 GEN. TOLERANCES : ANG./HOEK. _____
 T/200
 D.C. REF. T2/80/15
 NGT. M. VERMEULEN : IK-VERB. T2/80/15
 ENG. IR.
 CHK. & ST. J. J. C. _____
 DATE: APRIL 1981
 LBL/UM BC 41-03
 CHIEF ELECTRICAL ENGINEER
 ELEKTRIESE HOOFINGENIEUR

SOUTH AFRICAN TRANSPORT SERVICES.
 SUID-AFRIKAANSE VERVOERDIENSTE.

RING, RETAINING:
 FOUNDATION BOLT GROUP
 I MASTS AND UNIVERSAL COLUMNS
 RING, KEER-
 FONDAMENTBOUTGROEP
 I MASTE EN UNIVERSELE KOLOMME

AMENDMENTS. WYBESKRYWINGS.	
NO.	NAME. NAAM.
DATE. DATUM.	

CEE - TQ - 25
 ASSY. DRG. / SAAMES: TEK.
 MODULUS ITEM NO.

PREVIOUS
 WAGIGE
 ITEM NO.

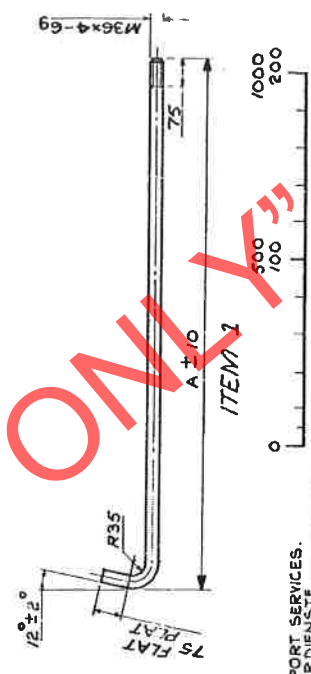
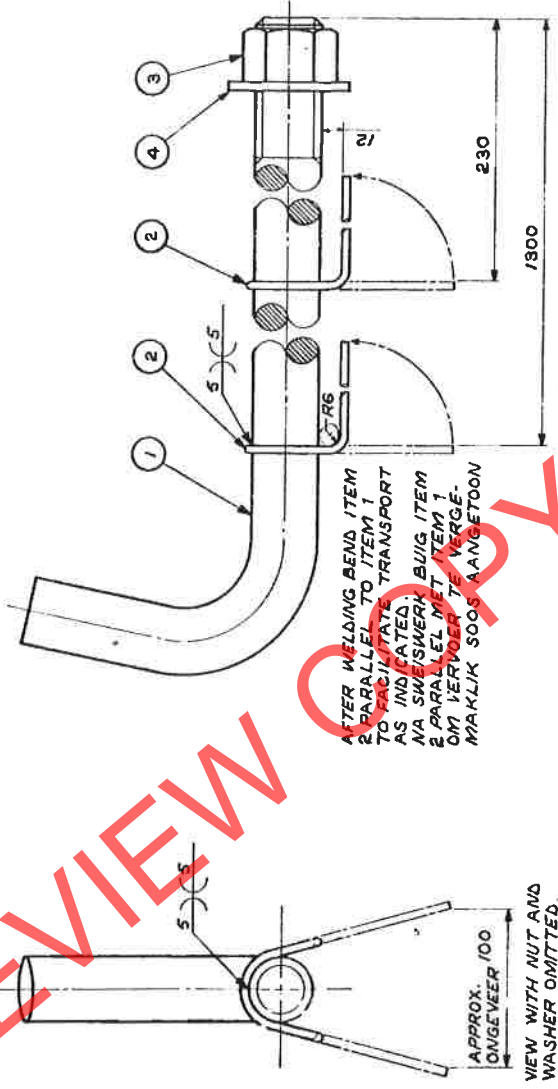
DRAWING NO. CEE-
 TEKENING NO. CEE-
TQ-48

ORIGINAL FRAME SIZE 554 x 380.
 OORSKOUKLIKKE RAAMSGROOTTE

TYPE OF FOUNDATION HOLE	TYPE FONDAMENTGAT
A	A
ALL HOLES EXCEPT THOSE IN ROCK.	1750
ALLE GATE BEHALWE DIE IN KLIP.	1450
HOLE IN ROCK.	1750
GATE IN KLIP.	800
A FRAME TENSION LEG.	
A RAAM SPANNINGSBEEN.	
A FRAME COMPRESSION LEG.	
A RAAM KOMPRESSIEBEEN.	

NOTE / OPMERKING.
 COAT THREADS WITH ANTI-CORROSIVE PASTE TO SPEC. CEE-T-P4A-S STORES ITEM NO. (M) S/2/545.
 BEDEK SKROEFDRAAD MET KORROSIEWE-RENDE PASTA VOLG. SPES. CEE-T-P4A-S MAGASYNITEM NO. (M) S/2/545.

ITEM	DESCRIPTION / BESKRYWING	QTY HVLD	STORES MAGASYN NO.	ORG. TEK. NO. CEE-	APPROVALS. HYSGEVENS.
1	STEEL ROUND ϕ 36 VOLG. BS 4360 GRADE 43A (FOR LENGTH SEE TABLE.) STAAL ROND ϕ 36 VOLG. BS 4360 GRADE 43A (VIR LENGTE KYK TABEL.)	1			NO. NAME. DATE. DATUM.
2	WIRE STEEL ϕ 4mm x 480L. DRAAD STAAL ϕ 4mm x 480L.	2			1. J. SWIEGERS 82-01-23.
3	NUT STEEL ROUND, HEX. M36. (GALVANISED TO SPEC.) MOER, STAAL ROND, SESK. (GEGALVANISEERD VOLG. SPES. SABS 763.)	1	(M)/32921		ITEM 3 & 4: REVISED HERSIEEN.
4	WASHER STEEL ROUND, M36. (GALVANISED TO SPEC.) WASER, STAAL ROND, M36. (GEGALVANISEERD VOLG. SPES. SABS 763.)	1	(M)/33700		DO. REF. T2 / B3 / 5 TK-VERW.



DIMENSIONS: MILLIMETRES.
 AFMETINGS: MILLIMETER.

SA. TRANSPORT SERVICES.
 S.A. VERVOERDIENSTE.

DRY. M. VAN MEULEN
 TREC. MEST. VAN MEULEN
 MGS. B. S. C. - art.

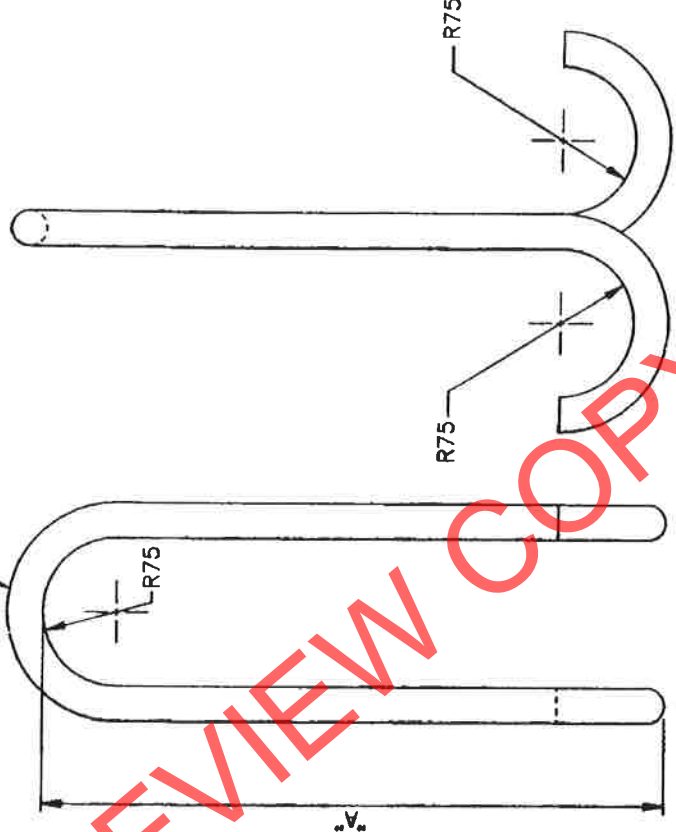
CHIEF ELECTRICAL ENGINEER
 ELEKTRIESE AANLEWERSLEUR

JOHANNESBURG

DATE: 80-11-03
 DATUM: 80-11-03

BOLT, FOUNDATION M36.
 WITH SECURING WIRE.
 BOUT-, FONDAMENT M36.
 MET VASHEGTINGSDRAAD.

ZINC COAT TO SABS 763 FOR CONDITIONS IN SITU.



FOUNDATION	DIMENSION "A"
K	1 700
L	1 800
M	2 100
N	2 500

NOTE
THIS DRAWING TO BE READ IN CONJUNCTION WITH DRG NO CEE-TQ-43.

MATERIAL: STEEL, ROUND Ø36 TO SPEC BS 4360 GRADE 43A.

DO REF: T1/81/38 GFN TOL: L IN ± 1 ANG: ±

DRN: J KRÜGER CKD: B STEWART DATE: 81-08-20

ENG: L RICHARDS for CHIEF ENG

INFRASTRUCTURE (ELECTRICAL) **SPOORNET**

AMENDMENTS	
NO	NAME DATE
2	JVT 97-09-05

DRAWING REVISED.
DO REF: T96/021

DIMENSIONS: mm
SCALE: 1:5



DRAWING NO CEE-TQ-53

SHEET — OF —

HOOK, FOUNDATION, STAYWIRE

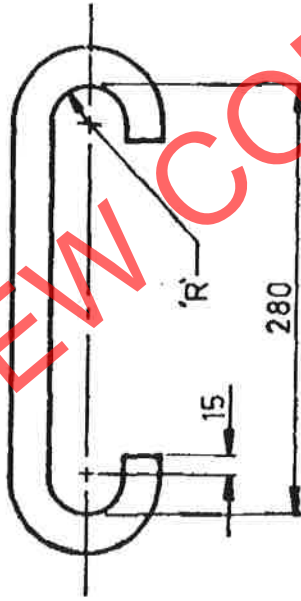
STEEL, ROUND STAAL, ROND	Ø25	Ø36
STORES ITEM MAGASYNITEM NO. (M)	11/2804	11/—
DEVELOPED LENGTH UITGEBREIDE LENGTE	470	535
RADIUS 'R'	25	35

DIMENSIONS: MILLIMETRES
AFMETINGS: MILLIMETER

MATERIAL-MATERIAAL

STEEL, ROUND. (SEE TABLE)
STAAL, ROND. (KYK TABEL)

SPEC. CME 9 SYM. 7
SPES.



DRN. N. COOKE GET.	GEN. TOLERANCES : LIN. ± 5 ALG. TOLERANSIES : ANG./HOEK —
TRCD L. WOOD. NGT.	D. O. REF. J73/41 TK-VERW. ENG. — IR.
CKD. F. HEYL. NGS.	DATE 73-08 - 24 DATUM
CHIEF ELECTRICAL ENGINEER ELEKTRIESE HOOFINGENIEUR	F. H. PIENAAR for JOHANNESBURG
SOUTH AFRICAN TRANSPORT SERVICES SUID - AFRIKAANSE VERVOERDIENSTE	

EXTENSION HOOK.
M36 FOUNDATION BOLT GROUP.
VERLENGHAAK.
M36 FONDAMENTBOUTGROEP.

NOTES / OPMERKINGS

1. STEEL Ø36 TO BE USED WHERE OFF-CUTS OF FOUNDATION BOLT GROUP MATERIAL (M36) IS AVAILABLE. STAAL Ø36 MOET GEBRUIK WORD WAAR AFVALSTUKKE VAN FONDAMENTBOUTGROEPMATERIAAL (M36) BESKIKBAAR IS.
2. STEEL TO BE Ø25 WHERE NEW MATERIAL IS USED. STAAL MOET Ø25 WEES WAAR NUWE MATERIAAL GEBRUIK WORD.

AMENDMENTS WYSIGINGS		
NO.	NAME NAAM	DATE DATUM
2.	<i>[Signature]</i>	84-07-20

REDRAWN & REVISED.
Ø36 STEEL INCLUDED.
ASSY. DRG'S ADDED.
OORGETEKEN EN HER-
SIEN. Ø36 STAAL
BYGEVOEG. SAMEST-
TEK'S BYGEVOEG.
D.O. REF. T1/84/49
TK-VERW.

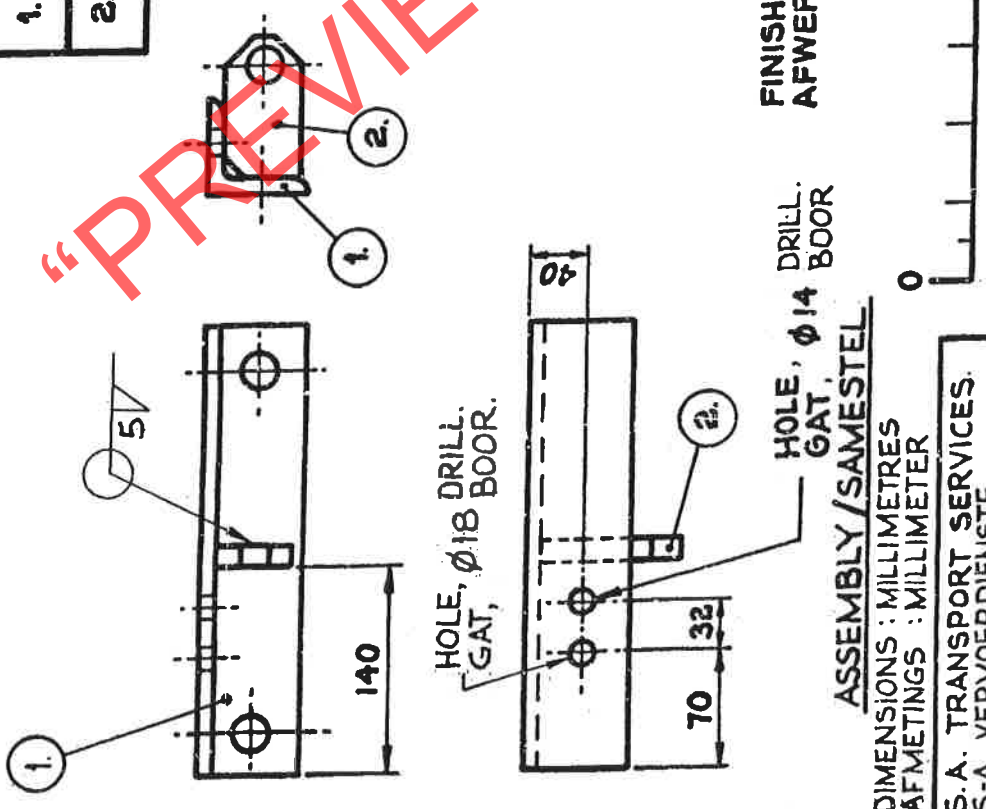
CEE-TQ-21,23,25,27,
28,29,34,36,37.

ASSY. DRG.
SAMEST.-TEK.

DRAWING NO. CEE-
TEKENING

TQ-30

ITEM	DESCRIPTION / BESKRYWING:	QTY. HYLD.	DRG. NO. CEE TEK.	AMENDMENTS. WYSIGINGS.
1.	CLAMPING BRA. VET. KLAMPSTEUN.	1.	TMHA-90. ITEM 2.	NO. NAME. NAAM. DATE. DATUM.
2.	50 x 12 M.S. FLA S.S. P. (M) 11/12509	1.		1. E. Louw 82-03-23



ASSY. DRG. NOS ADDED. SAMEST. TEK. NOS. BY GEVOEG.	1.	E. Louw	82-03-23
D.O. REF. TK. VERW.	2.	T. Human	85-7-31
Ø 18 GAT HOLE WAS Ø 14. DOREF TK. VERW.			T2/85/35

CEE - PFB - 18, 19, 20.
 CEE - PFC - 83.
 ASSY. DRG. / SAMEST-TEK.
 DRAWING NO. CEE
 TEKENING NO. CEE
 PFC-84.

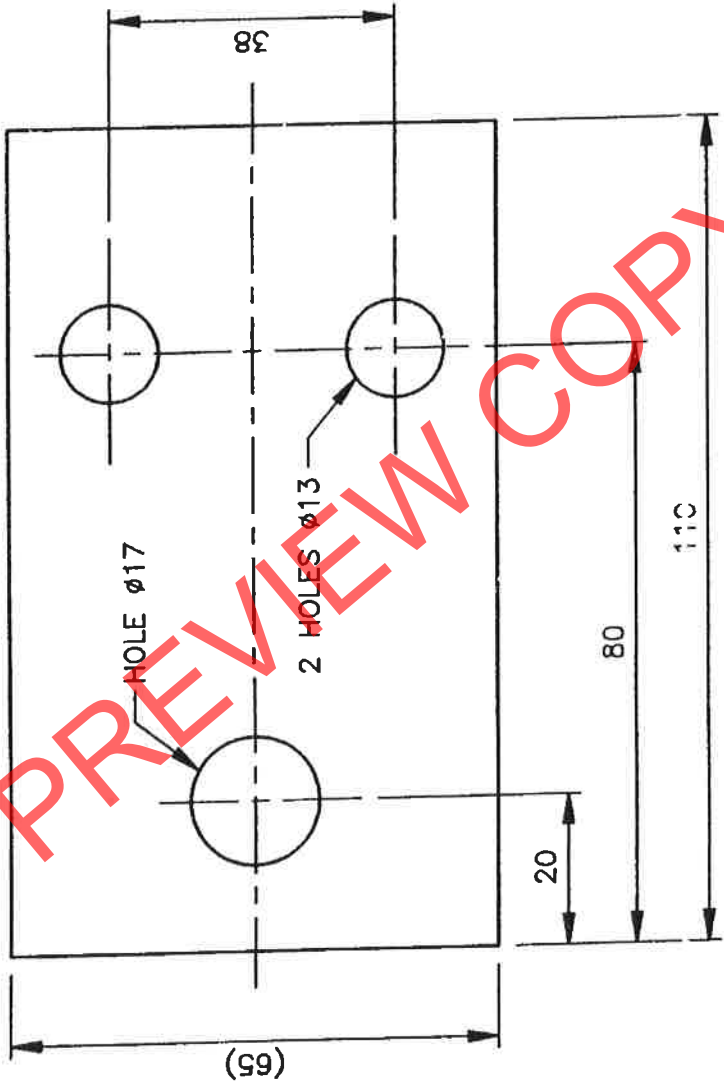
BRACKET; EARTH WIRE MAKE-OFF.	UNIVERSAL COLUMNS. UNIVERSELE KOLOMME.
STEUN; AARDRAADAFHEGTING.	

AMENDMENTS		
NO	NAME	DATE
1	L O BORCHARD	95-05-11
REDRAWN, DRG NO. WAS TMHF-83. 3CR12 ADDED. DO REF T95/003		

DIMENSIONS: mm
SCALE: 1:1



DRG NO CEE-
TLC-47
SHT -- OF --



NOTE
ZINC COAT MILD STEEL TO SPEC SABS 763 FOR CONDITIONS IN SITU

MATERIAL: ITEM NO11/ --- STEEL, FLAT, 65 X 10 THK OR STEEL, FLAT 3CR12

DO REF: Y77/16	GEN TOL: LIN± 0,5	ANG± -
DRN:H COETZEE	CKD: J JACKSON	DATE: 79-06-06
ENG: -	G A WILLIAMS	for CHIEF ENG

INFRASTRUCTURE
(ELECTRICAL)



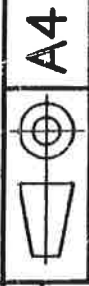
SPOORNET

PLATE, CLAMP, CONDUCTOR

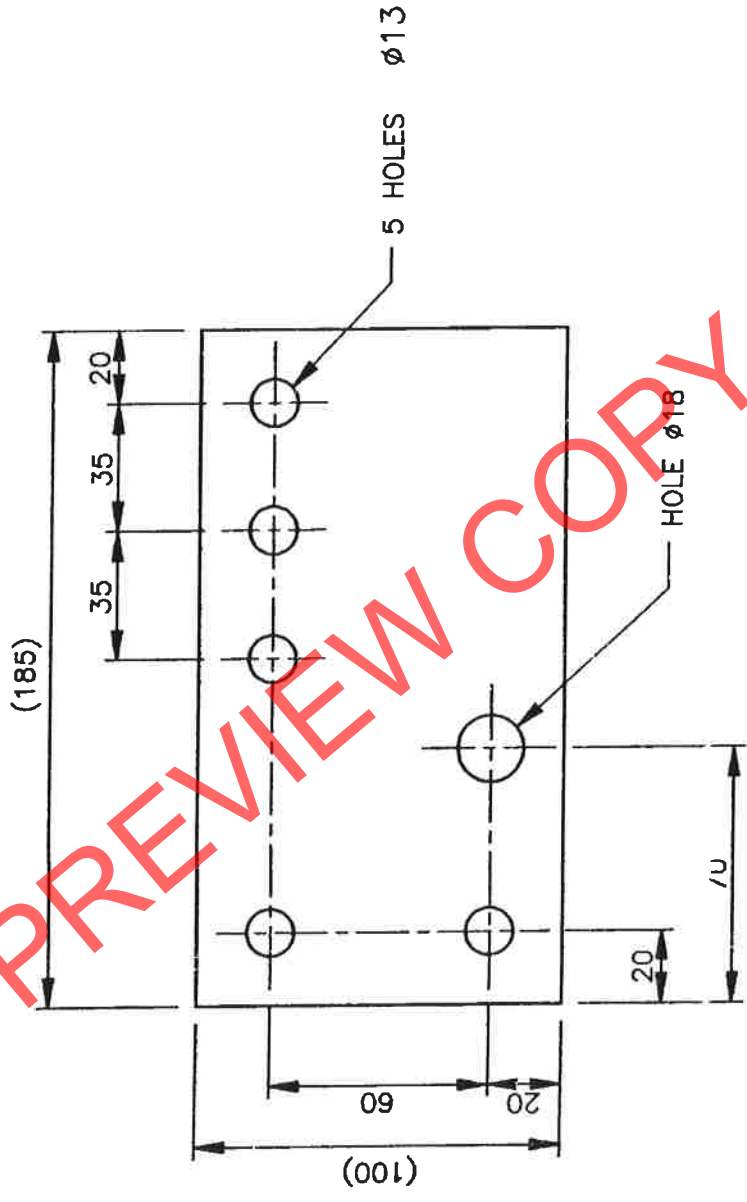
STAND-OFF INSULATOR, SOLID CORE

AMENDMENTS		
NO	NAME	DATE
1	L E WOOD	96-08-01
REDRAWN. DRG NO WAS CEE-TN-144. DO REF: T96/009		

STORES ITEM NO. _____
 DIMENSIONS: mm
 SCALE: 1:2



DRG NO CEE-
TLC-51
 SHT -- OF --



NOTE
 TIN BOTH FACES.

MATERIAL: ITEM NO _____, COPPER, FLAT, 100 x 10 THK x 185 LG, SPEC. BS.4608

DO REF: Y77/16 GEN TOL: LIN \pm 1 ANG \pm _____
 DRN: B STEWART CKD: J JACKSON DATE: 79-06-06
 ENG: _____ GA WILLIAMS for CHIEF ENG

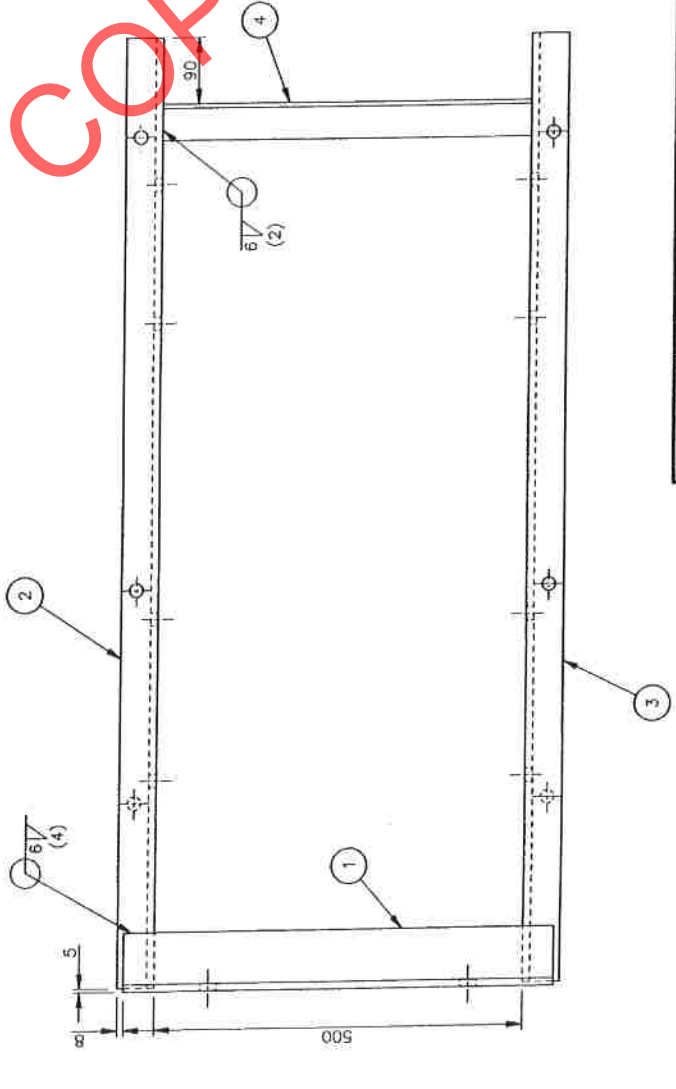
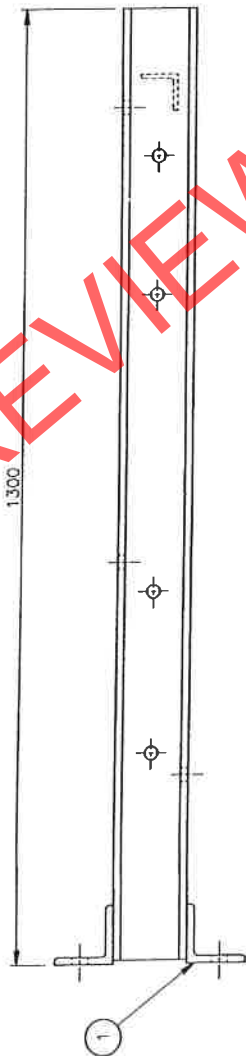
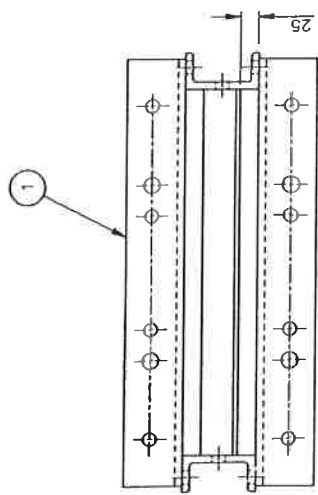
ADAPTOR PLATE, INSULATOR
 OHTE SWITCH STRUCTURES

INFRASTRUCTURE
 (ELECTRICAL)



PREVIEW COPY ONLY

ITEM	DESCRIPTION	QTY	STORES ITEM NO	DRG NO CEE-	AMENDMENTS		
					NO	NAME	DATE
1	CLAMPING BRACKET, SWITCH MOUNTING PLATFORM	2		TMC-103 ITEM 1	1	E WOOD	96-08-01
2	CHANNEL FOR SWITCH MOUNTING PLATFORM	1		TMC-104 ITEM 1	REDRAWN. DRG NO WAS CEE-TMF-300.		
3	CHANNEL FOR SWITCH MOUNTING PLATFORM	1		TMC-104 ITEM 2	DO REF: T96/009		
4	STEEL, ANGLE, 50 x 50 x 6 THK x 500 LG	1	11/14481				



NOTES

- 1. WELDING TO CONFORM TO BS 5135.
- 2. ZINC COAT TO SABS 763 FOR CONDITIONS IN SITU.

“PREVIEW COPY ONLY”

STORES ITEM NO	
DIMENSIONS: mm	
SCALE:	1:5
	A2
DRAWING NO	CEE-
	TMC-102
SHEET	— OF —

DO REF: Y77/16	GEN TOL: LINE 1	ANG±	
DRN: B GORDON	CHKD: J JACKSON	DATE: 79-06-06	
ENG:	GA WILLIAMS	for CHIEF ENG	
INFRASTRUCTURE (ELECTRICAL)			
SPOORNET			

SWITCH MOUNTING PLATFORM
 OHTE SWITCH STRUCTURES

"DEVELOPMENT COPY"

ITEM	DESCRIPTION	QTY	STORES ITEM NO	DRG NO CEE-	AMENDMENTS
1	STEEL PLATE, 300 x 50 x 2 THK	1	11/12509		NO NAME DATE
2	STEEL, ROUND, Ø20 x 4.75 LG	1	11/2776		1 E WOOD 86-08-01
3	STEEL, ROUND, Ø12 x 170 LG	1	11/2776		REDRAWN. DRG NO WAS
4	NUT, STEEL, GALV. HEX. M6	2	1/32881		CEE-TMF-299, NOTE 3
		(300)			ADDED. NOTE 2 REVISED.
					DO REF: T96/009

ITEM 1

ITEM 2

ITEM 3

SCALE 1:5

- NOTES
1. WELDING TO CONFORM TO BS. 5135.
 2. ZINC COAT ITEM 1 TO SABS 763 FOR CONDITIONS IN SITU.
 3. ZINC COAT ITEMS 2 & 3 TO SABS 763, AFTER WELDING, FOR CONDITIONS IN SITU.

DO REF: Y77/16	GEN TOL LINE 1	ANG 1"
DRN: B GORDON	CHK: J JACKSON	DATE: 79-08-06
ENG: GA WILLIAMS	for CHIEF ENG	
INFRASTRUCTURE (ELECTRICAL)		
SWITCH ROD GUIDE ASSEMBLY		
OHTE SWITCH STRUCTURE		
UNIVERSAL COLUMNS 204 x 206 & 206 x 216		

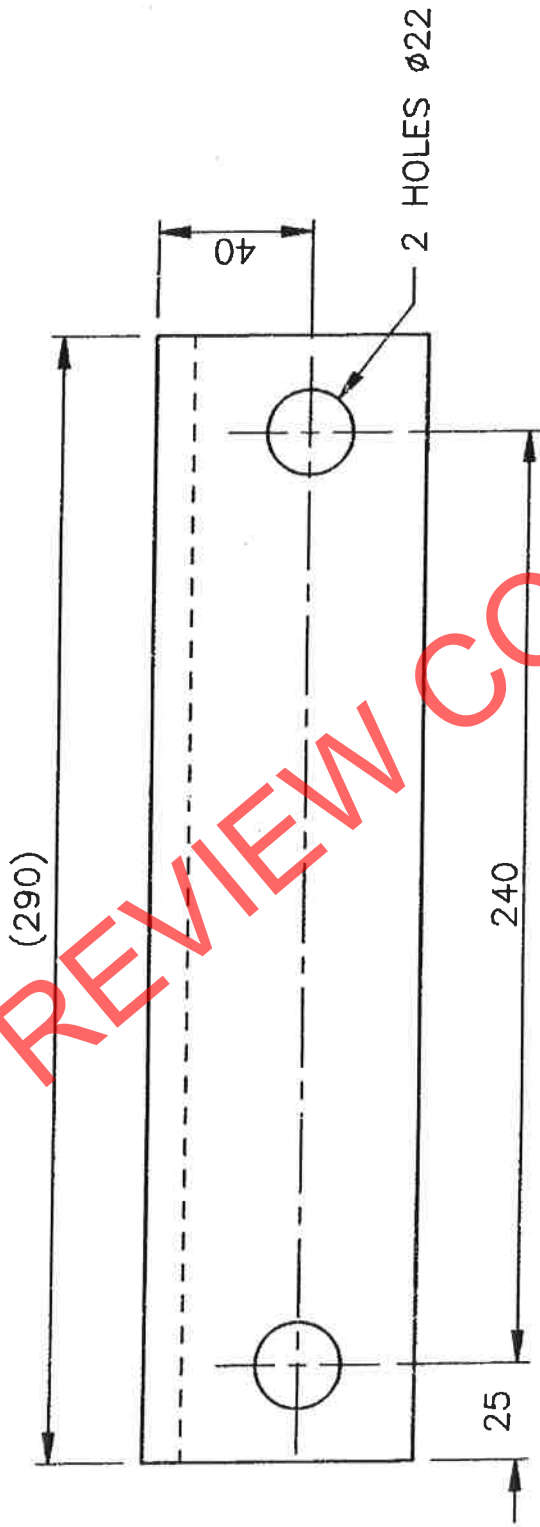
DIMENSIONS: mm	A3
SCALE: 1:2	
DRAWING NO CEE-	
TMFB-144	
SHEET	OF

AMENDMENTS		
NO	NAME	DATE
1	JVT	97-09-05
REVISED, DRAWING NO WAS TMHA-90. DO REF: T96/021		

DIMENSIONS: mm
SCALE: 1:2



DRG NO CEE-
TMFB-145
SHT -- OF --



FINISH
ITEM 1: ZINC COAT TO SABS 763 FOR CONDITIONS IN SITU.
ITEM 2: NOT ZINC COATED.

MATERIAL: STORES ITEM NO: 11/14508, STEEL, ANGLE, 70 x 70 x 10 x 290 LG.

DO REF: Y76/43	GEN TOL: LIN±	1,5	ANG±	-
DRN: B v RENSBURG	CKD:	W.R.G.	DATE:	78-03-31
for ENG: I DE V	F PIENAAR	for CHIEF ENG		

CLAMPING BRACKET

203 x 203 UNIVERSAL COLUMNS

INFRASTRUCTURE
(ELECTRICAL)



SPOORNET

PREVIEW COPY ONLY

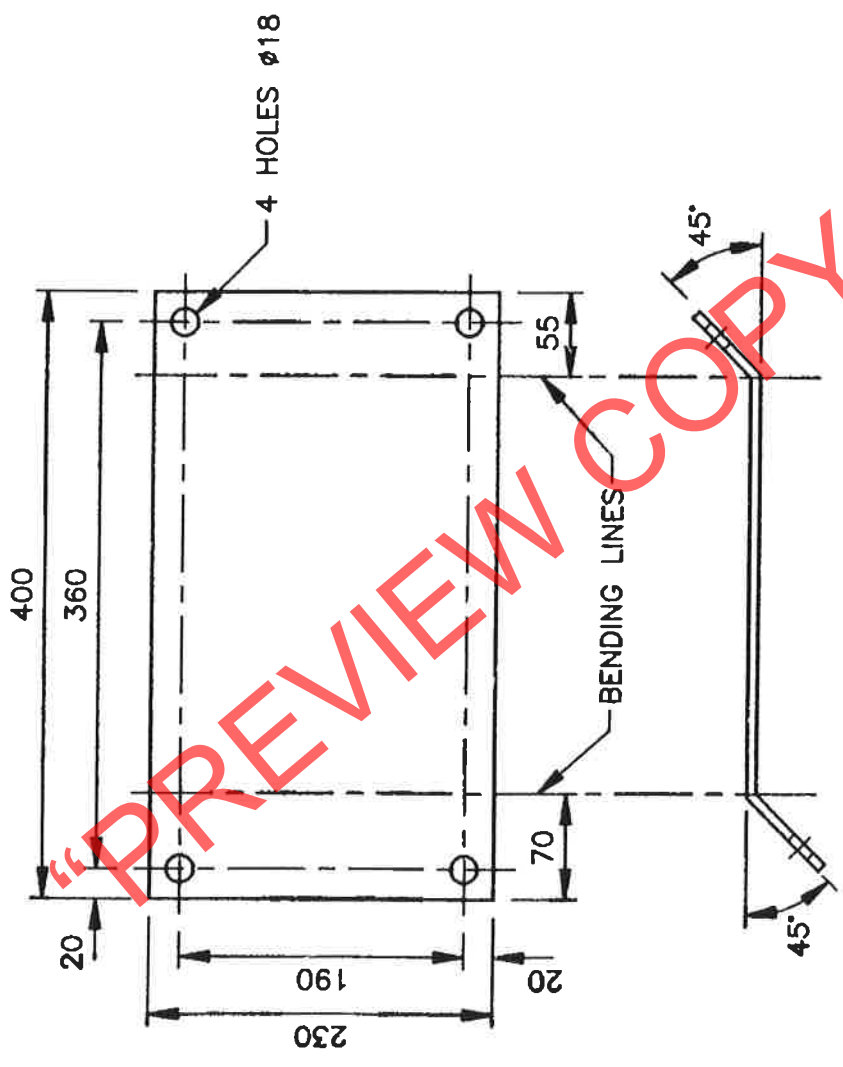
AMENDMENTS		
NO	NAME	DATE
1	L O BORCHARD	95-05-11

REDRAWN, DRG NO. WAS TMHF-75. 3CR12 ADDED. DO REF T95/003

DIMENSIONS: mm
SCALE: 1:5



DRG NO CEE-
TMFC-35
SHT — OF —



NOTE
ZINC COAT MILD STEEL TO SPEC SABS 763 FOR CONDITIONS IN SITU

MATERIAL: ITEM NO 11 / --- STEEL, FLAT, 6 THK OR STEEL, FLAT 3CR12

DO REF: Y77/16	GEN TOL: LIN±	1	ANG±	1°
DRN: B GORDON	CKD: J JACKSON	DATE: 79-06-06		
ENG: -	G A WILLIAMS		for CHIEF ENG	

INFRASTRUCTURE
(ELECTRICAL)



SPOORNET

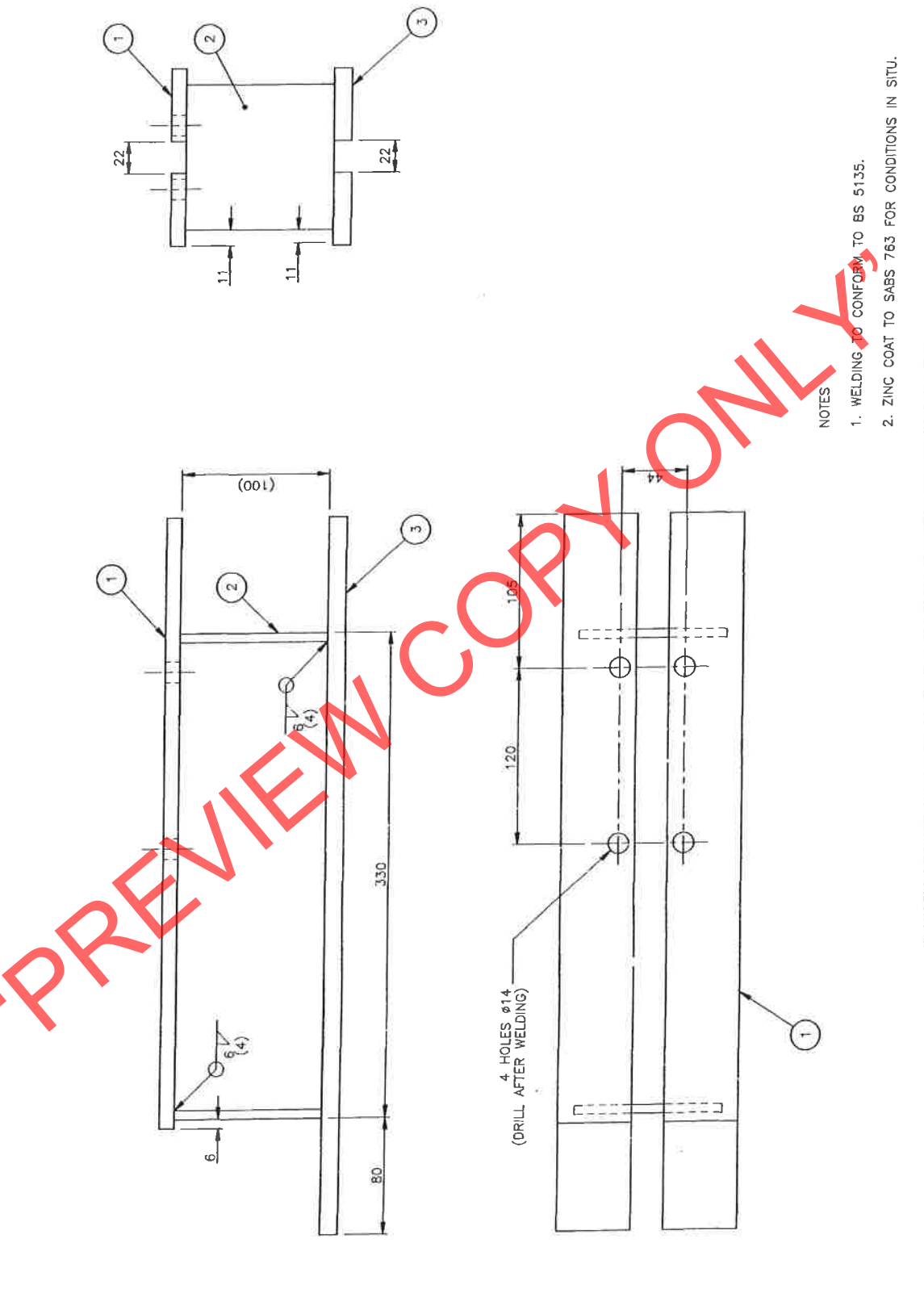
BRACKET, SWITCH MOUNTING

TRACK SWITCH STRUCTURES

AMENDMENTS		
NO.	NAME	DATE
1	E WOOD	96-08-01

REDRAWN. DRG NO WAS
CEE-TMF-298.
DO REF T96/009

ITEM	DESCRIPTION	QTY	STORES ITEM NO	DRG NO CEE-
1	STEEL, FLAT, 50 x 10 THK x 415 LG	2	11/12381	
2	STEEL, FLAT, 100 x 6 THK x 100 LG	2	11/12319	
3	STEEL, FLAT, 50 x 12 THK x 490 LG	2	11/12509	



- NOTES
1. WELDING TO CONFORM TO BS 5135.
 2. ZINC COAT TO SABS 763 FOR CONDITIONS IN SITU.

DIMENSIONS: mm
SCALE: 1:2

A2

DRAWING NO CEE-
TMFB-143

SHEET — OF —

DO REF: Y77/16	GEN TOL: LIN±	1	ANG±	—
DRN: B GORDON	SKD: J JACKSON	DATE: 79-06-06		
ENG: —	GA WILLIAMS for CHIEF ENG			
INFRASTRUCTURE (ELECTRICAL)		SPOORNET		
OPERATING HANDLE MOUNTING ASSEMBLY				
SWITCH STRUCTURES				
UNIVERSAL COLUMNS				

"PREVIEW COPY ONLY"

ITEM	DESCRIPTION	QTY	STORES ITEM NO	DRG NO CEE-	AMENDMENTS
1	BRACKET	1		TMFB-174	NO NAME DATE
2	GUSSET PLATE	2		TMFB-175	1 JVT 97-09-05

REVISED, DRAWING NO WAS TMF-358. DO. REF: T96/021

DIMENSIONS: mm
SCALE: 1:2

FINISH: ZINC COAT TO SABS 763 FOR CONDITIONS IN SITU.

DRG NO CEE-
TMFB-173

SHT -- OF --

DO REF: -	GEN TOL: LINE 1 ANGE -	A4
DRN: T HUMAN	CKD: R. McMILLAN DATE: 80-04-30	
ENG: -	GA WILLIAMS for CHIEF ENG	

INFRASTRUCTURE (ELECTRICAL)

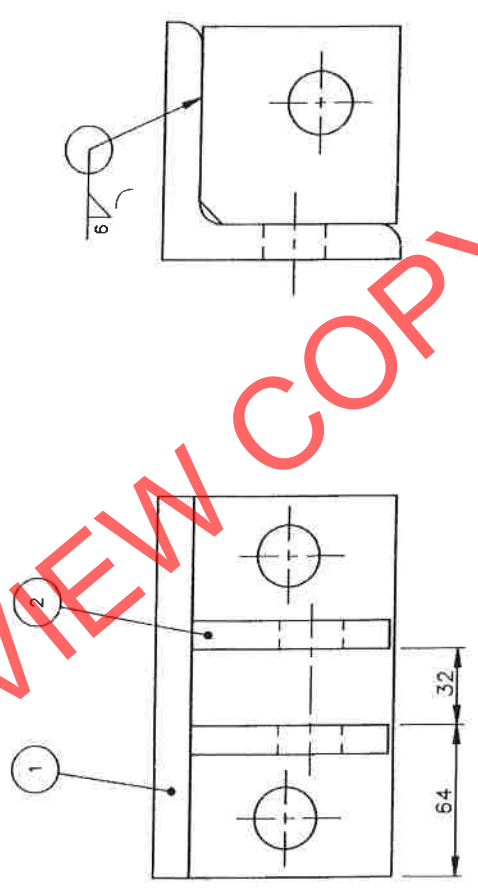
SPOORNET

STAY WIRE ATTACHMENT

203 x 203 UNIVERSAL COLUMNS

DRG NO CEE-
TMFB-173

SHT -- OF --



3
4
4
3

PREVIEW COPY ONLY

AMENDMENTS		
NO	NAME	DATE
1	JVT	97-09-05
REVISED, DRAWING NO WAS TMHF-93. DO REF: T96/021		
STORES ITEM NO: _____		
DIMENSIONS: mm SCALE: 1:2		
FINISH: ZINC COAT TO SABS 763 FOR CONDITIONS IN SITU.		
MATERIAL: STORES ITEM NO 11/12408, STEEL, FLAT, 80 x 10 x 160 LG. DO REF: T80/65 GEN TOL: LINE ±5 ANG± 1' DRN: T HUMAN CKD: J SWIEGERS DATE: 80-08-07 ENG: — GA WILLIAMS for CHIEF ENG		
BACKING PLATE STAY WIRE ARRANGEMENT		 SPOORNET
INFRASTRUCTURE (ELECTRICAL)		

A4	
DRG NO CEE-172	
TMFB-172	
SHT	OF

3

4

4

4

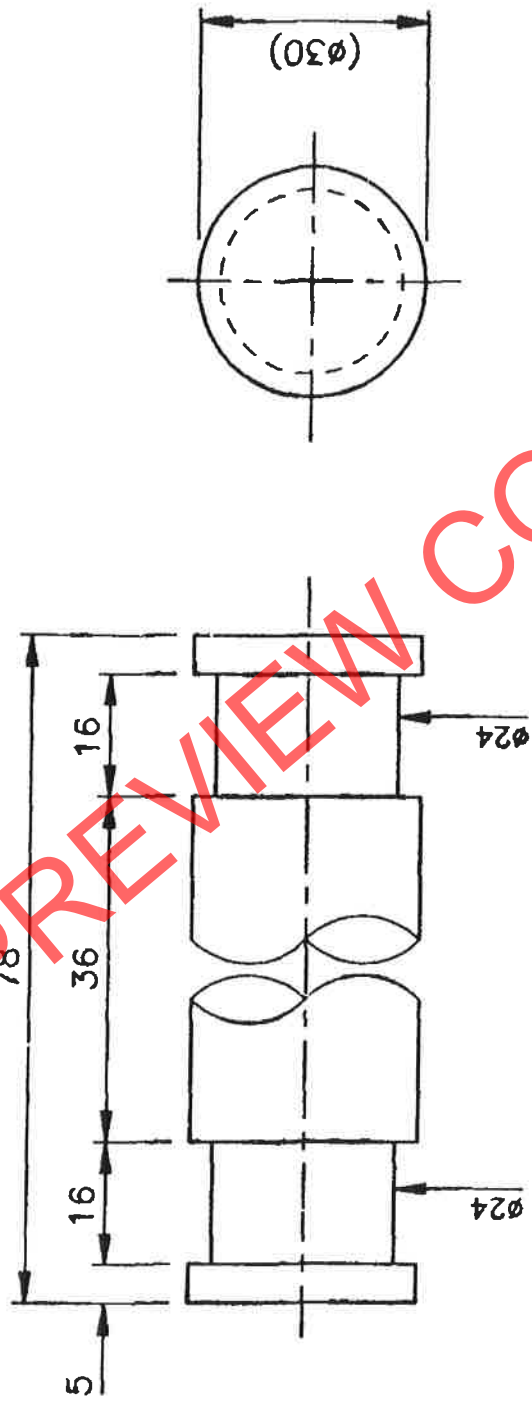
3

AMENDMENTS	
NO	NAME DATE
1	J HARCUS 95-08-21
REDRAWN. DRG NO WAS TMHB-8. DO REF T95/050	

DIMENSIONS: mm
SCALE: 1:1



DRG NO CEE--
TNE-31
SHT 3 OF 3



- FINISH
1. MACHINE THUS
 2. ZINC COAT TO SPEC SABS 763 FOR CONDITIONS IN SITU.

"PREVIEW COPY ONLY"

MATERIAL: ITEM NO 11/002816 STEEL, ROUND, ø30 X 80 LG

DO REF: T79/20 GEN TOL: LIN± 1 ANG± -
DRN: B v d WEST CKD: J SWIEGERS DATE: 80-07-28
ENG: - GA WILLIAMS for CHIEF ENG

PIN

STAY WIRE



SPOORNET

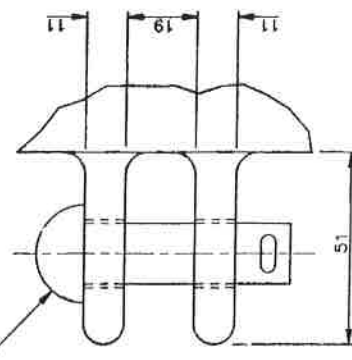
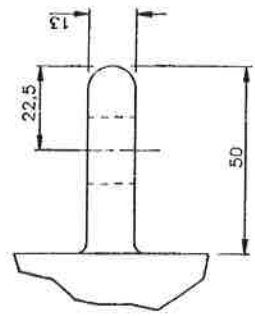
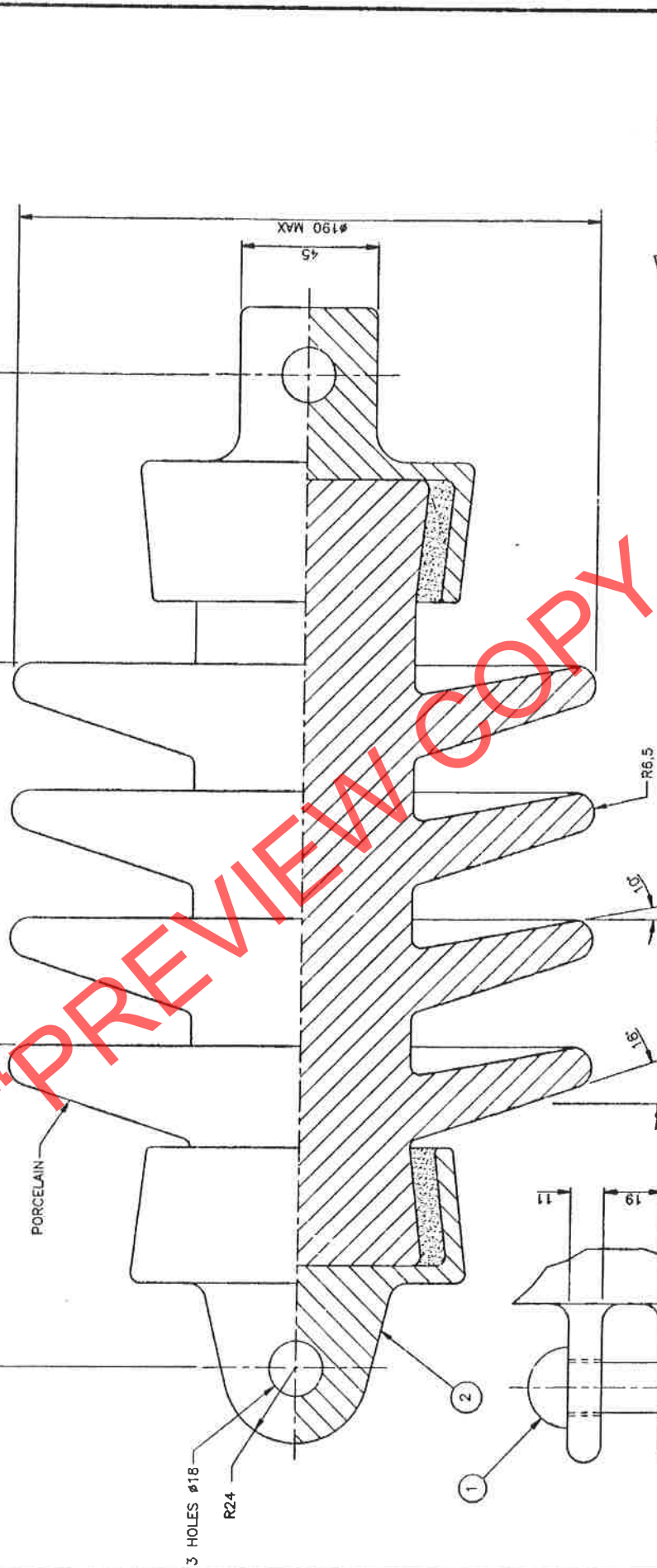
INFRASTRUCTURE
(ELECTRICAL)

AMENDMENTS		
NO	NAME	DATE
1	E. E. ...	196-08-01

REDRAWN, DRG NO WAS CEE-TN-345, DO REF: 196/009

ITEM	DESCRIPTION	QTY	STORES ITEM NO	DRG NO CEE--
1	CLEVIS PIN $\phi 16$ WITH LOCKING SPLIT PIN	1	54/4020	TX-66
2	INSULATOR (PORCELAIN)	1		

320
3 SPACES OF 41 = 123



DETAIL OF TONGUE

DETAIL OF CLEVIS

MINIMUM INSULATOR REQUIREMENTS

- TENSILE BREAKING LOAD: 54kN
- BENDING LOAD: 6kN
- CREEPAGE PATH: 520mm
- ARCING DISTANCE: 221mm
- LIGHTNING IMPULSE WITHSTAND VOLTAGE: 130kV
- WITHSTAND ALTERNATING VOLTAGE UNDER RAIN: 40kV

NOTES

- FOR DISC INSULATOR SEE DRG NO CEE-TNC-19.
- INSULATORS TO BE COATED WITH MUNSELL BLUE GLAZE.
- CAP MATERIAL: BLACKHEART MALLEABLE CAST IRON TO SABS 1190 GRADE B340 AND ZINC COAT TO SABS 763.
- COMPLETE INSULATOR MUST CONFORM TO SABS 177.
- PACKING: ONE INSULATOR PER CRATE.

STORES ITEM NO	54/1141
DIMENSIONS:	mm
SCALE:	1:1

DRAWING NO CEE--
TNC-17
SHEET --- OF ---

SOLID CORE STANDOFF INSULATOR
WITH TONGUE AND CLEVIS FOR 3,3kV D.C.

DO REF: T1/83/88	GEN TOL: LINE 1	ANG \pm 1'
DRN: WF MANS	CKD: J SWIEGERS	DATE: 83-10-28
ENG: JD KRUGER	JD KRUGER	for CHIEF ENG

INFRASTRUCTURE
(ELECTRICAL)

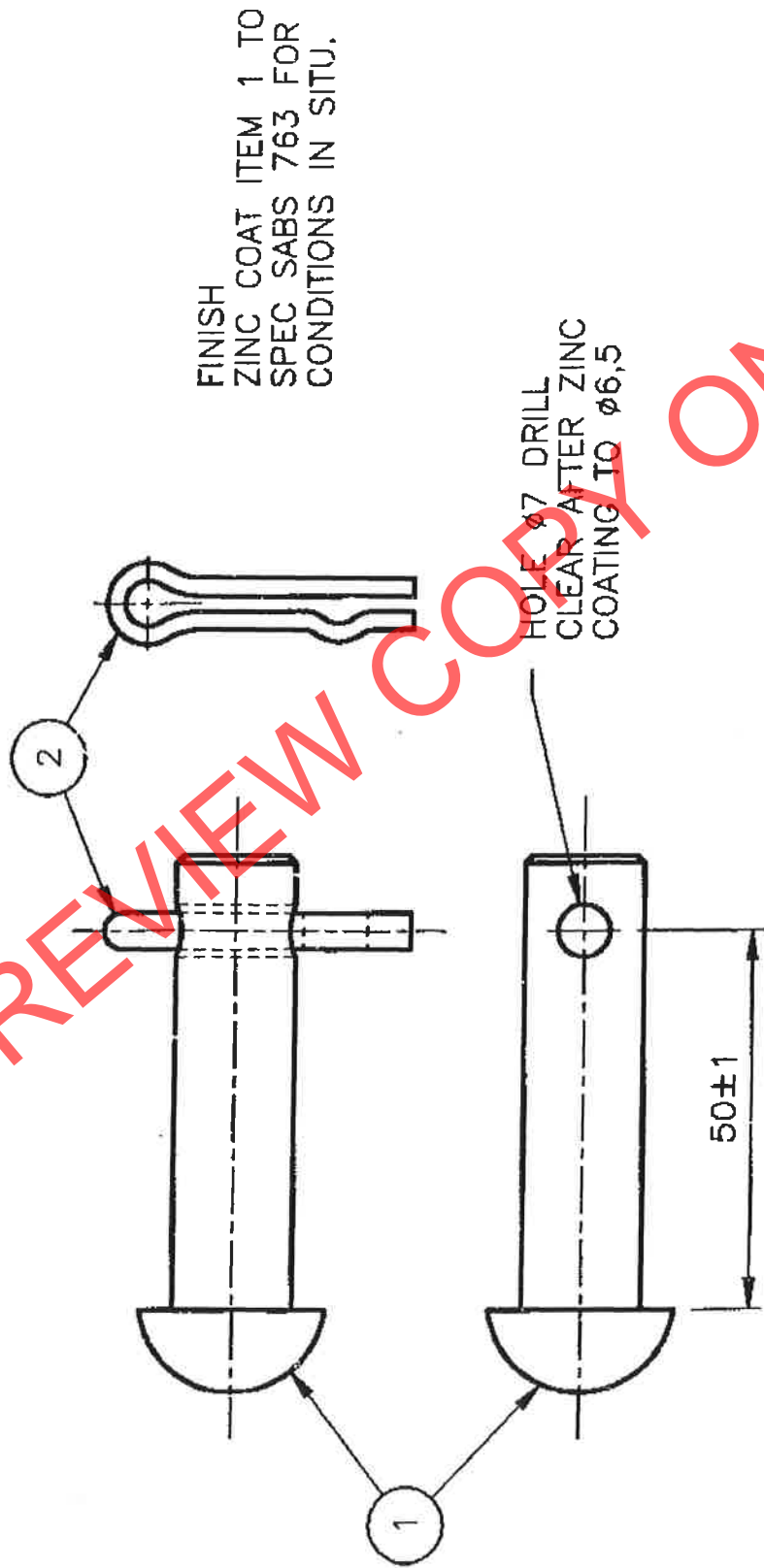
SPOORNET

PREVIEW COPY ONLY

ITEM	DESCRIPTION	QTY	STORES ITEM NO	DRG NO CEE--	AMENDMENTS
1	RIVET, STEEL, SNAP HEAD, $\phi 16 \times 60$ LG	1	01/22722		NO NAME DATE
2	LOCKING SPLIT PIN	1	54/3734	TX-54	3 J v DvK 94/8/4

DIMENSION 50 WAS
46. TOL REVISED.
ITEM 1 STORES ITEM
NO WAS 01/22710.
DO REF T94/046

FINISH
ZINC COAT ITEM 1 TO
SPEC SABS 763 FOR
CONDITIONS IN SITU.



STORES ITEM NO.
54/4020


DIMENSIONS: mm
SCALE: 1:1



DRG NO CEE--
TX-66

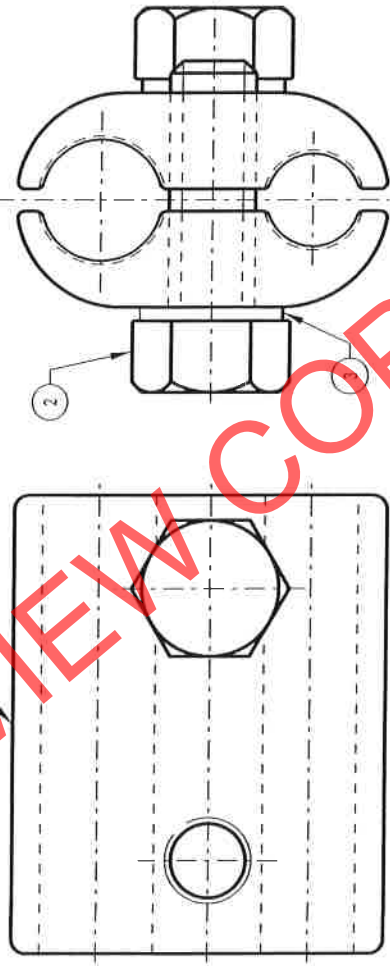
SHT — OF —

PREVIEW COPY ONLY

DO REF: C84/70	GEN TOL: LIN ± 0,5	ANG ± —
DRN: G.J. v G.	I.T.	DATE: 70-09-09
ENG: —	T.C. BROOK	for CHIEF ENG
INFRASTRUCTURE (ELECTRICAL)		
 SPOORNET		
PIN, STRAIGHT, HEADED, $\phi 16$ WITH LOCKING SPLIT PIN		

PREVIEW COPY

STORES ITEM NO	CONDUCTOR SIZES
54/000766	100mm ² / 80mm ² - 50mm ²
54/000791	100mm ² / 80mm ² - 100mm ² / 80mm ²
54/002728	160mm ² - 50mm ²
54/002753	160mm ² - 100mm ² / 80mm ²
54/002777	160mm ² - 160mm ²
54/000843	250mm ² - 50mm ²
54/000867	250mm ² - 100mm ² / 80mm ²
54/000880	250mm ² - 160mm ²
54/000907	250mm ² - 250mm ²



NOTE
Use Item 4 on the 250mm² side when this clamp is used for the 162mm² ACSR (Tiger) Catenary.

Item 3 Alternative material: Stainless steel to Specification AISI Grade 304.

ITEM NO	DESCRIPTION	QTY	STORES ITEM NO	DRAWING NO
4	Conductor splice liner, 162mm ² ACSR, Catenary Wire (See Note)	2	-	CEE-TNB-0090
3	Washer, Lock, Phosphor Bronze, Internally Threaded, M12 to Specification BS-407.	2	54/002704	-
2	Screw, Machine, Cu-Ni-Si, Hex. Head, M12 x 35 to Specification CEE-0063.	2	54/003670	-
1	Parallel rail clamp.	2	-	CEE-TNB-0054

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DIMENSIONS : mm SCALE : 1 : 1
 TOLERANCE : LIN ± - ANG ± - ITEM NO : -
 MATERIAL : -
 VERSION INFO : TITLE REVISED.

Digitally signed by
Ludwig Borchard
Date: 2011.11.25
08:35:57 +02'00'

APPROVED

Digitally signed by
Ludwig Borchard
Date: 2011.11.25
08:36:12 +02'00'

AUTHORISED

**PARALLEL CLAMP FOR
VARIOUS CONDUCTOR SIZES.**

TRANSNET
freight rail

CEE-TNB-0055
AMENDMENT 5

Box 8523 and 10533, JOHANNESBURG Tel. Add.: "PORINSUL" Telax: 8-8379 JHB, Telephone: 724-8456 and 724-3828

LH 205

ELECTRICAL LINE COMPONENTS (PTY.) LTD.

Type No.	Fig. No.	Conductor Size (dia in mm)		U Bolts	Dimensions			Working Load Newtons	Minimum Failing Load Newtons	Weight Per Unit Kg.	
		Min.	Max.		No.	Size	A				B
EA12	1	19	28.6	3	12	355	32	150	28,000	70,000	4.3
EA14	1	32	42	3	16	460	46	204	28,000	70,000	4.9
EA16	2	B	14	4	16	390	18	28	48,000	120,000	3.4

Fig. 2 STRAIGHT LINE CLAMP EA16

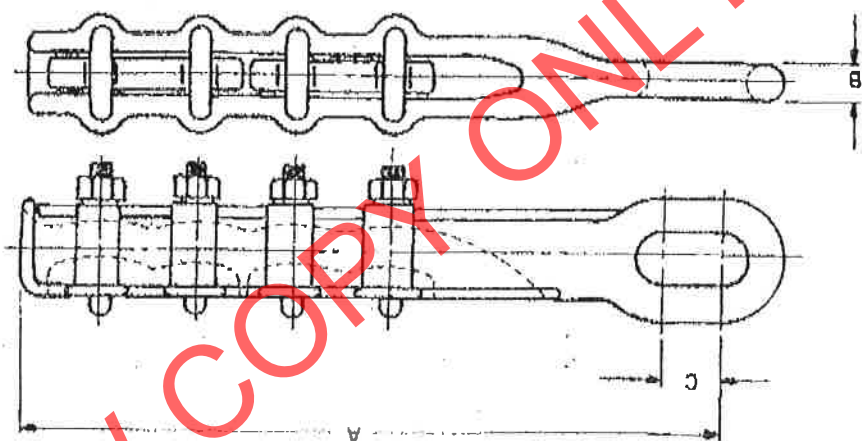
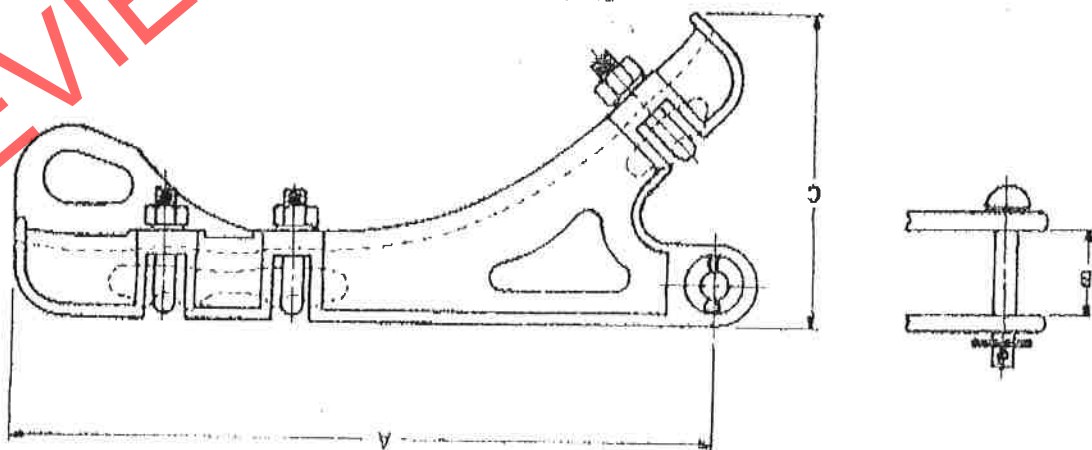


Fig. 1 STRAIN CLAMP EA12 & EA14



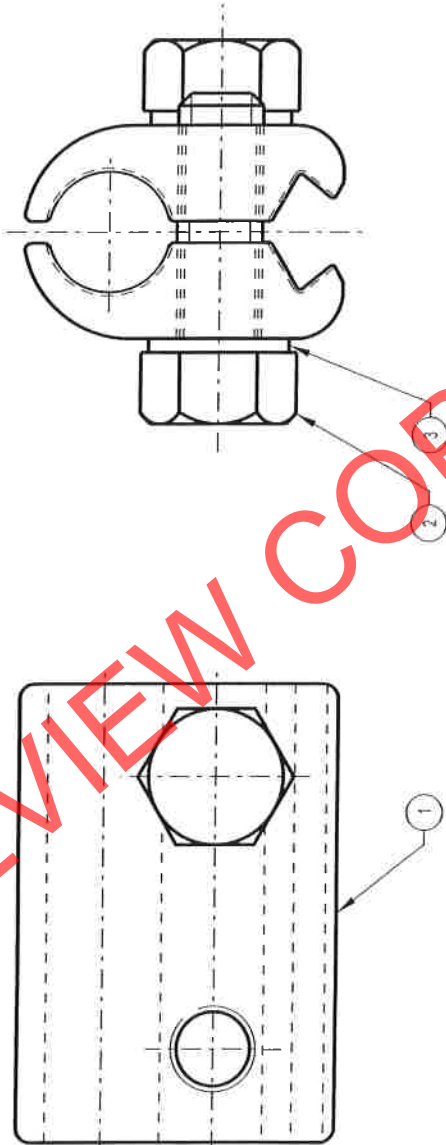
"PREVIEW COPY ONLY"



ATRIAL/MALLEABLE CAST IRON B.S. 310
 D. GALVANISED TO S.A.B.S. 763 - 1966
 IAN. CTURED IN COMPLIANCE WITH S.A.B.S. 178 - 1970

Cannot find s414764 this is just a description.

PREVIEW COPY



STORES ITEM NO	CONDUCTOR SIZES
54/000920	50mm ²
54/001949	100mm ² / 80mm ²
54/004930	160mm ²
54/004954	250mm ²

Item 3 Alternative material: Stainless steel to Specification AISI Grade 304.

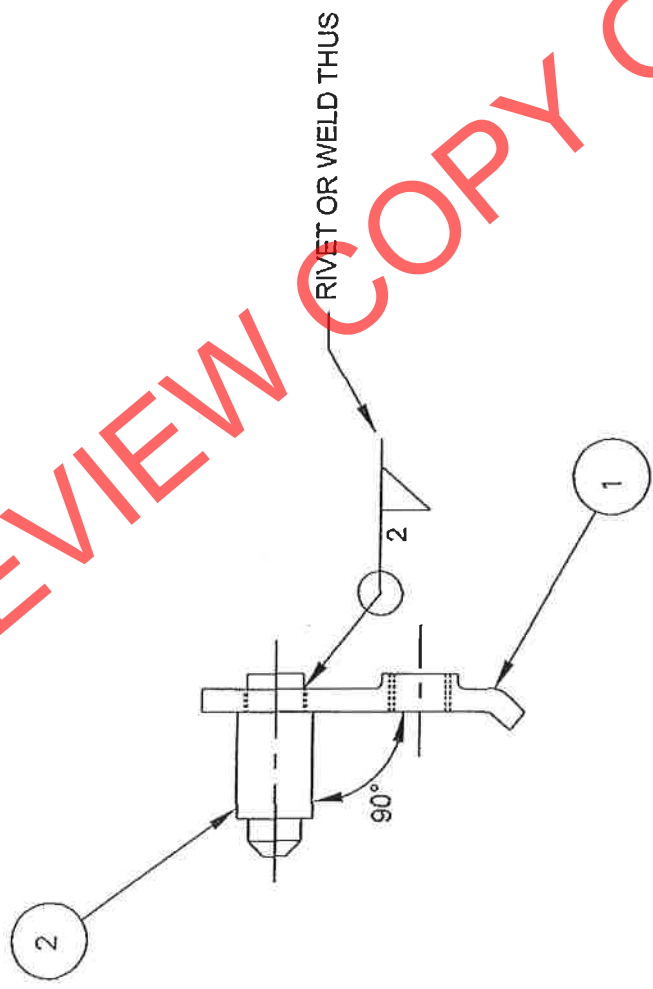
3	Washer, Lock, Phosphor Bronze, Internally Toothed, M12 to Specification BS 407.	2	54/002704	-
2	Screw, Machine, Cu-Ni-Si, Hex. Head, M12 x 60, to Specification CEE-0063	2	54/003670	-
1	Parallel half clamp.	2	-	CEE-TNB-0056

ITEM NO	DESCRIPTION	QTY	STORES ITEM NO	DRAWING NO
---------	-------------	-----	----------------	------------

DIMENSIONS : mm TOLERANCE : LIN± - ANG± - MATERIAL : VERSION INFO : TITLE REVISED.	SCALE : 1 : 1 ITEM NO : -	Digitally signed by Ludwig Borchard Date: 2011.11.25 08:40:01 +02'00'	Digitally signed by Ludwig Borchard Date: 2011.11.25 08:40:21 +02'00'	PARALLEL CLAMP FOR 161mm² Cu. CONTACT WIRE	
APPROVED AUTHORIZED				CEE-TNB-0057 AMENDMENT 4	A4

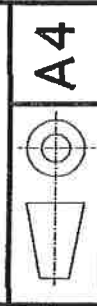
ITEM	DESCRIPTION	QTY	STORES ITEM NO	DRG NO CEE-	AMENDMENTS
1	CLAMP, ELECTRICAL, WITH THREAD	1		TND-0022 SHT 4	NO NAME DATE
2	PIN, SPACER	1		TND-0022 SHT 5	3 <i>[Signature]</i> 13/02/02

REVISED AND REDRAWN.
ECP REF: BBC5700
DO REF: CDO/5261



STORES ITEM NO

DIMENSIONS: mm
SCALE: 1:1



DRG NO CEE-
TND-0022
SHT 2 OF 5

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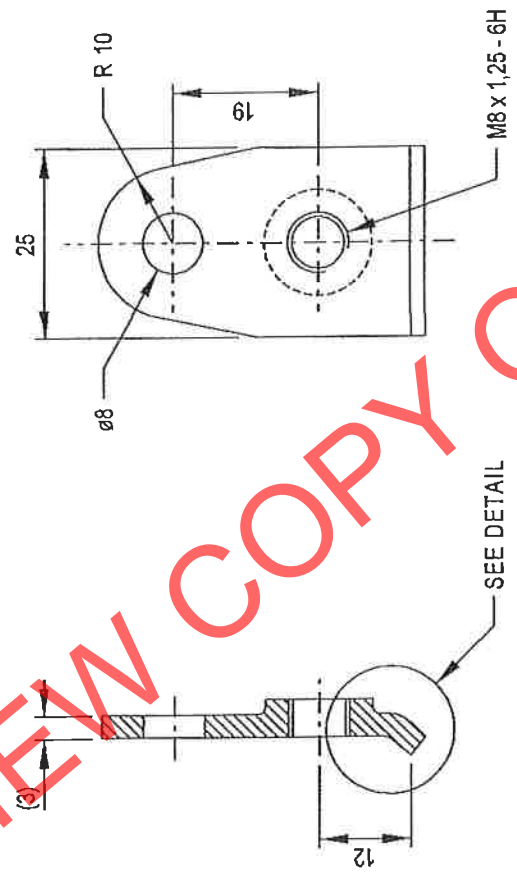
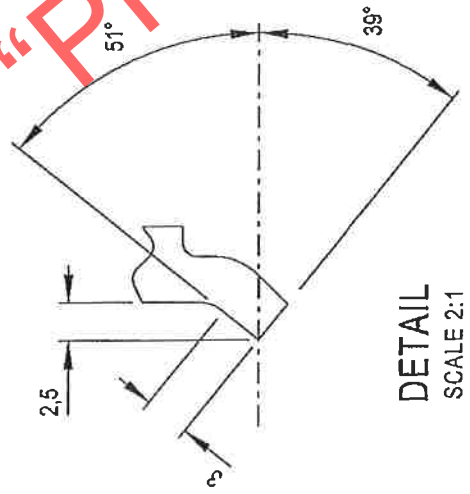
DO REF: N4170	GEN TOL: LIN#	ANG# 1°
DRN: H F	CKD: H NIEHAUS	DATE: 70-05-04
ENG: PIENAAR	PHILLIPS	for CHIEF ENG
CENTRAL DRAWING OFFICE		SPOONET

CLAMP, ELECTRICAL
ASSEMBLY: HALF DROPPER CLIP WITH THREAD AND SPACER PIN.

AMENDMENTS		
NO	NAME	DATE
2	<i>[Signature]</i>	13/02/07

REDRAWN AND REVISED.
M8 THREAD WAS M10.
ECP REF: BBC5700
DO REF: CDO/5261

STORES ITEM NO	
DIMENSIONS: mm	
SCALE:	1:1
DRAWING NO	CEE-
	TND-0022
SHEET	4 OF 5



PREVIEW COPY ONLY

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MATERIAL: STAINLESS STEEL, 25 x 3 x 43L TO SPEC AISI GR 304	
DO REF: N41/70	GEN TOL: LIN ± 0,5 ANG ± 1°
DRN: H F	CKD: H NIEHAUS DATE: 70-05-04
ENG: PIENAAR	PHILLIPS for CHIEF ENG
SPOURNET	
CENTRAL DRAWING OFFICE	

CLAMP, ELECTRICAL
HALF DROPPER CLIP WITH THREAD.

AMENDMENTS		
NO	NAME	DATE
2		13/2/02

REDRAWN AND REVISED.
HOLE $\varnothing 10$ WAS $\varnothing 11$.
ECP REF: BBC5700
DO REF: CDO/5261

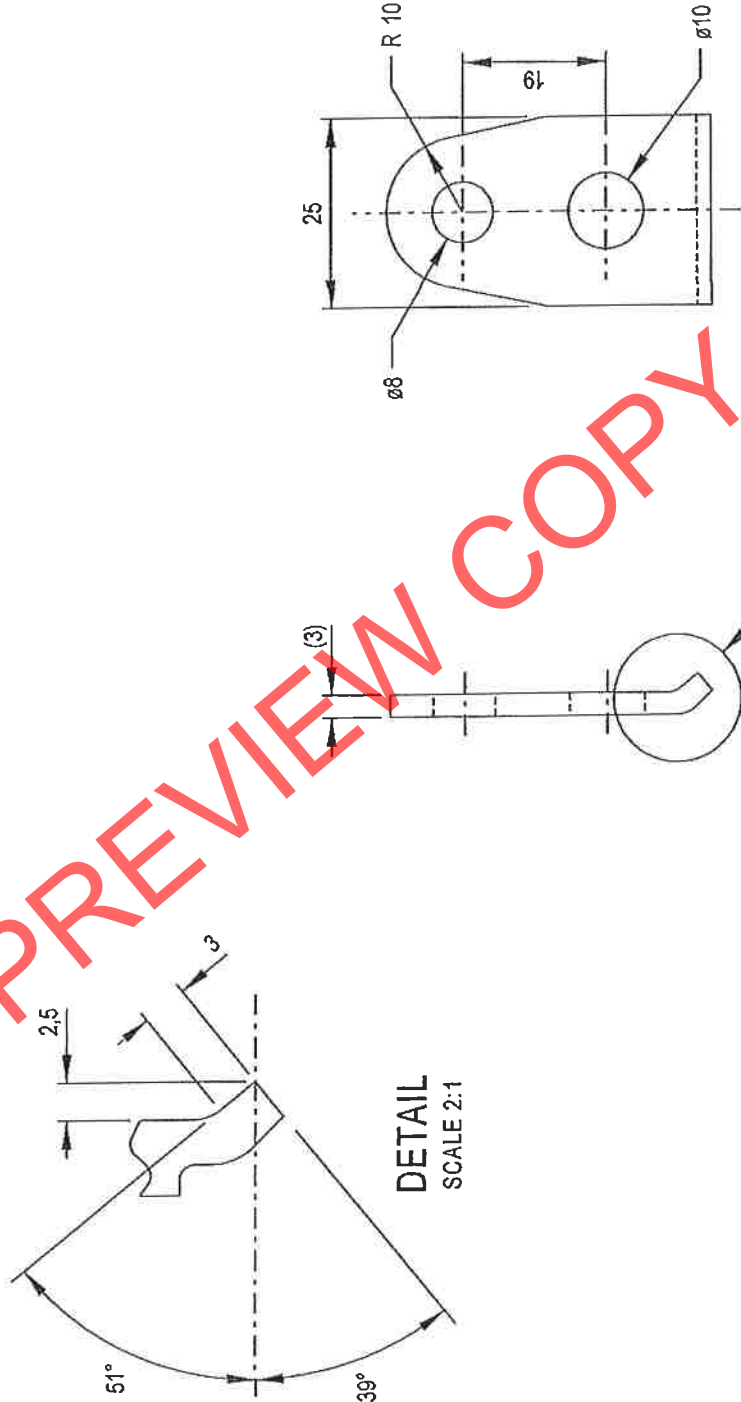
STORES ITEM NO

DIMENSIONS: mm
SCALE: 1:1



DRAWING NO **CEE-**
TND-0022

SHEET 3 OF 5



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MATERIAL: STAINLESS STEEL, 25 x 3 x 43L TO SPEC AISI GR 304	
DO REF: N41/70	GEN TOL: LIN \pm 0,5 ANG \pm 1°
DRN: H F	CKD: H NIEHAUS DATE: 70-05-04
ENG: PIENAAR	PHILLIPS for CHIEF ENG
CENTRAL DRAWING OFFICE SPOORNET	

CLAMP, ELECTRICAL
HALF DROPPER CLIP WITHOUT THREAD.

AMENDMENTS		
NO	NAME	DATE
3	<i>[Signature]</i>	13/02/07

REDRAWN AND REVISED.
ECP REF: BBC5700
DO REF: CDO/5261

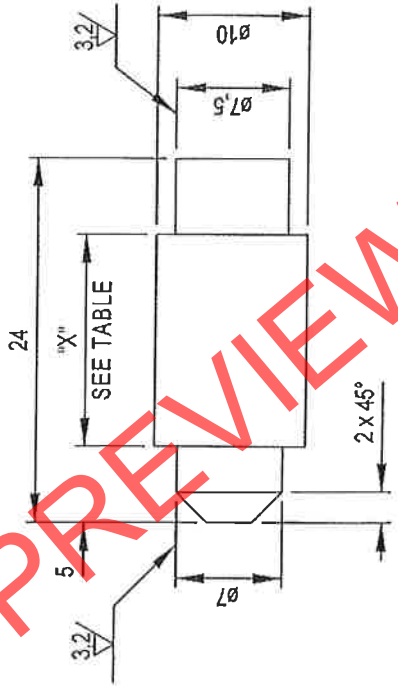


TABLE	"X"
CONTACT WIRE	14
161mm ² Cu.	11
107mm ² Cu.	

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MATERIAL: STAINLESS STEEL, ø10 x 24L TO SPEC AISI GR 304.

DO REF: N41 / 70 GEN TOL: LIN ± 0,5 ANG ± 1°

DRN: H.F. CKD: H. NIEHAUS DATE: 70-05-04

ENG: PIENAAR PHILLIPS for CHIEF ENG

CENTRAL DRAWING OFFICE **SPOORNET**

STORES ITEM NO

DIMENSIONS: mm
SCALE: 2:1



DRAWING NO **CEE-**
TND-0022

SHEET 5 OF 5

PIN, SPACER
DROPPER CLIP FOR CONTACT WIRE

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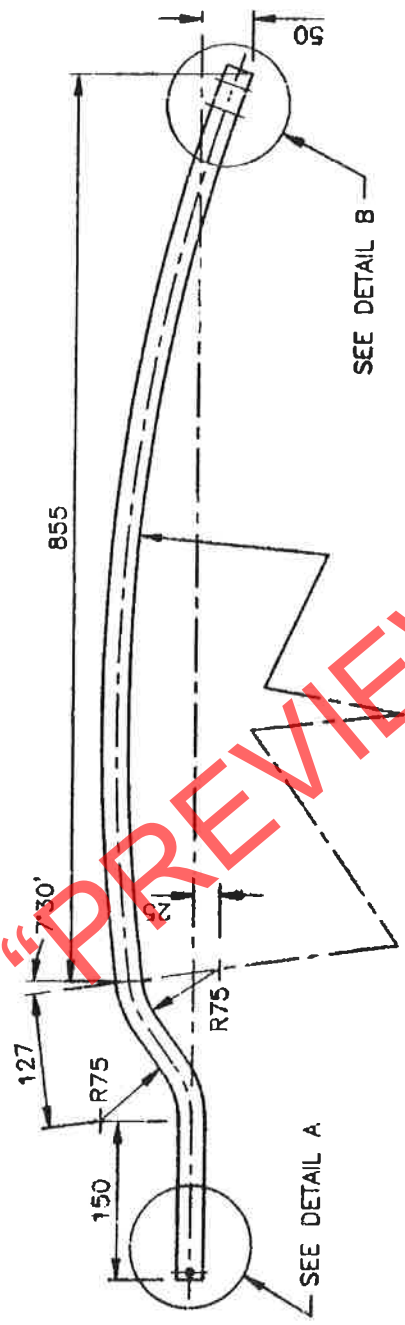
AMENDMENTS		
NO	NAME	DATE
1	W. BRIGHT	92-09-28
16 DIM WAS 19. DRG. NO. WAS CEE-TN-150. DO REF: T92/045		
2	J van Dyk	94-06-23
REVISED AND UPDATED. DO REF: T94/025		

STORES ITEM NO
54/9314

DIMENSION: mm
SCALE: 1:5

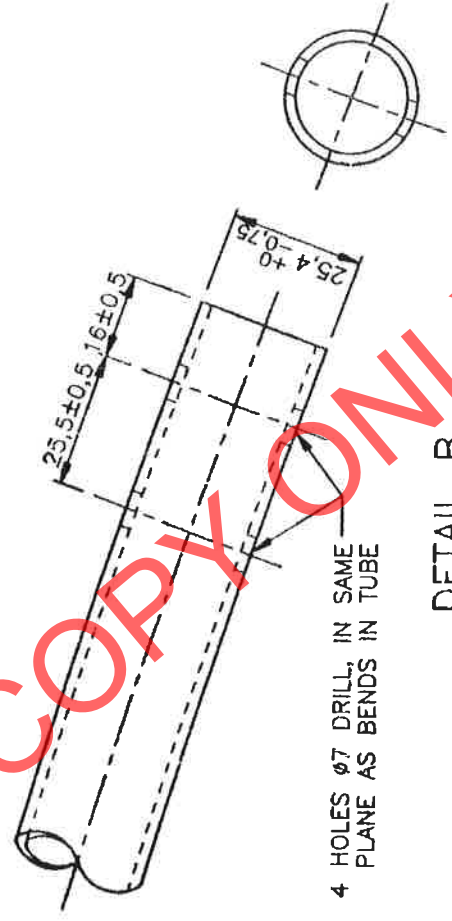


DRAWING NO CEE-
TND-19
SHEET -- OF --



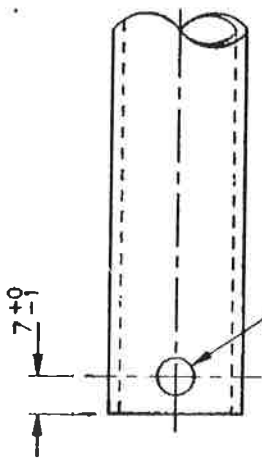
SEE DETAIL B

R1780



DETAIL B
SCALE 1:1

4 HOLES Ø7 DRILL, IN SAME
PLANE AS BENDS IN TUBE



DETAIL A
SCALE 1:1

2 HOLES Ø7 DRILL

MATERIAL: STAINLESS STEEL TUBE 2.03 WALL THK TO SPEC AISI GRADE 304.

DO REF: T79/9	GEN TOL: LIN ± 3	ANG ± 0'30"
DRN: A. JOUBERT	CKD: J. JACKSON	DATE: 79-11-22
ENG: _____	F. PIENAAR	for CHIEF ENG

INFRASTRUCTURE
(ELECTRICAL)



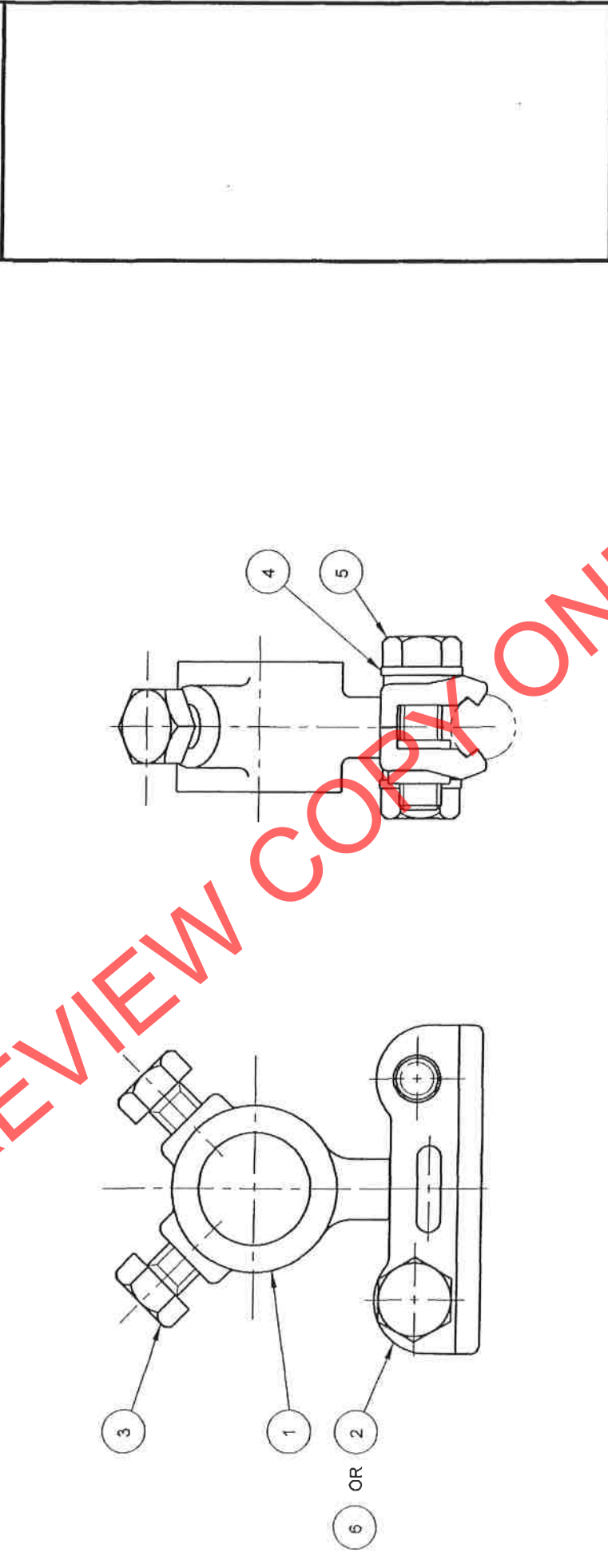
SPOORNET

STEADY ARM: CURVED TYPE

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ITEM	DESCRIPTION	QTY	STORES ITEM NO	DRG NO CEE-	AMENDMENTS
1	SWIVEL FITTING, KNUCKLE OR STEADY ARM	1		TND-1	
2	CHEEK, 161mm ² Cu. CONTACT WIRE SWIVEL CLAMP	2	54/33583	TN-330	NO NAME DATE 1 JVT 97-11-24
3	BOLT, HEX. HEAD, M10 x 20L Cu-Ni-Si TO SPEC. CEE.0063 (SEE NOTE)	2	54/3645		REDRAWN DRG NO WAS CEE-TN-366.
4	LOCK WASHER, INTERNAL TOOTH TYPE, M10 PHOSPHOR BRONZE (SEE NOTE)	2	54/2688		DO REF T95/067
5	BOLT, HEX. HEAD, M10 x 35L Cu-Ni-Si TO SPEC. CEE.0063 (SEE NOTE)	2	54/3657		
6	CHEEK, 107mm ² Cu. CONTACT WIRE SWIVEL CLAMP	2	54/28819	TND-37	2 <i>[Signature]</i> 2003/11/26

REVISED. ITEM 6 ADDED AND SUB-TITLE CHANGED.
ECP REF: 2003-091
DO REF: CDO/2883



STORES ITEM NO
54/690

DIMENSIONS: mm
SCALE: 1:1

NOTE
ITEMS 3,4 & 5: FOR ALTERNATIVE MATERIAL USE STAINLESS STEEL TO SPEC. AISI GR 304.

GEN TOL: LIN± - ANG± -
CKD: G W MALONE DATE: 70-11-19
ENG: PIENAAR - for CHIEF ENG

CENTRAL DRAWING OFFICE **SPOURNET**

DRAWING NO **CEE-TND-35**

SHEET - OF -

SWIVEL TYPE CONTACT WIRE CLAMP ASSEMBLY
161mm² Cu OR 107mm² CONTACT WIRE KNUCKLE OR STEADY ARM

DO REF: M118/70
DRN: D W
ENG: PIENAAR


GEN TOL: LIN± - ANG± -
CKD: G W MALONE DATE: 70-11-19
ENG: PIENAAR - for CHIEF ENG

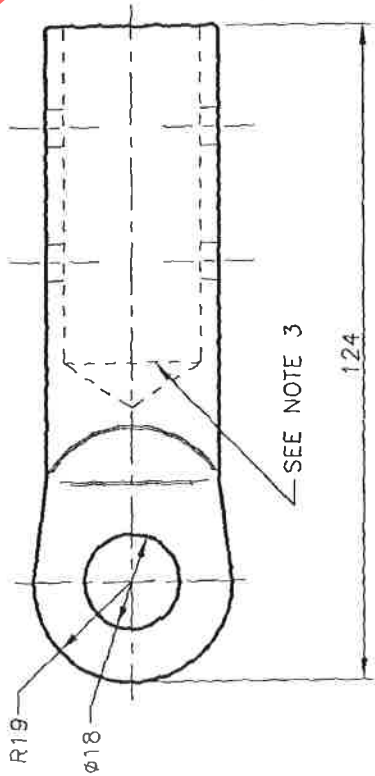
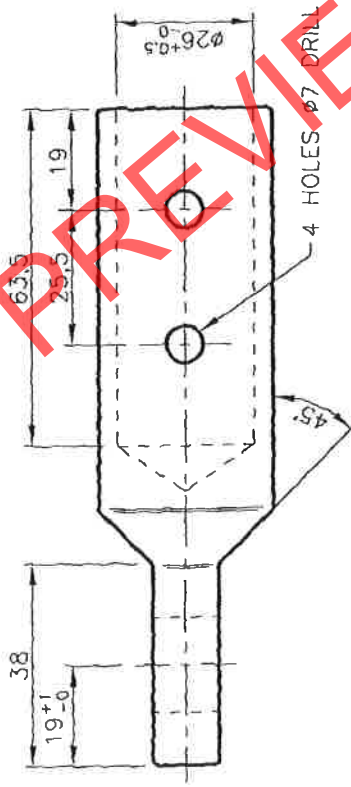
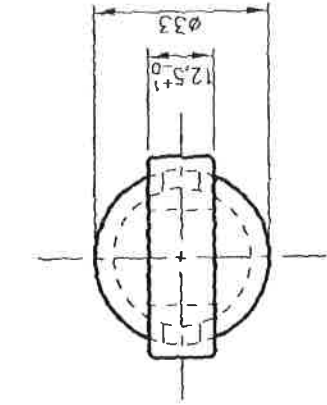
CENTRAL DRAWING OFFICE **SPOURNET**

AMENDMENTS		
NO	NAME	DATE
1	J v DYK	2000-10-30

REDRAWN, DRG NO WAS
CEE-TN-402
DO REF T95/067


DIMENSIONS: mm
SCALE: 1:1

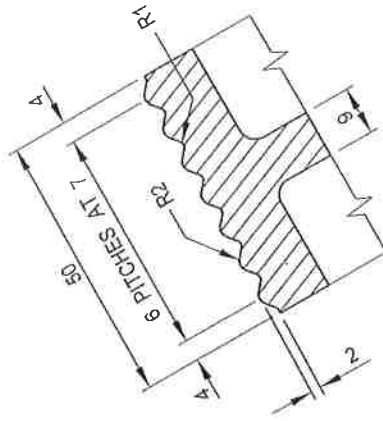
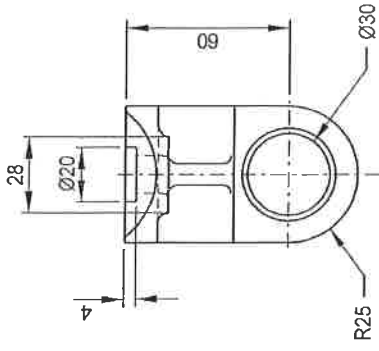
 A3
DRAWING NO CEE--
TNB-76
SHEET -- OF --



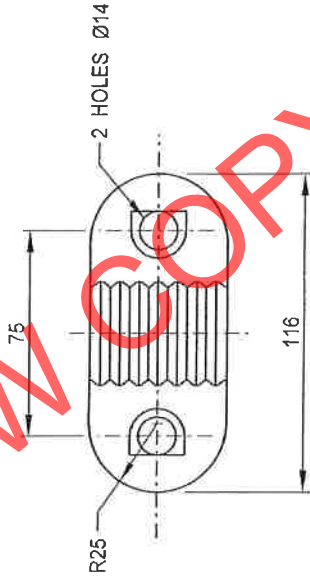
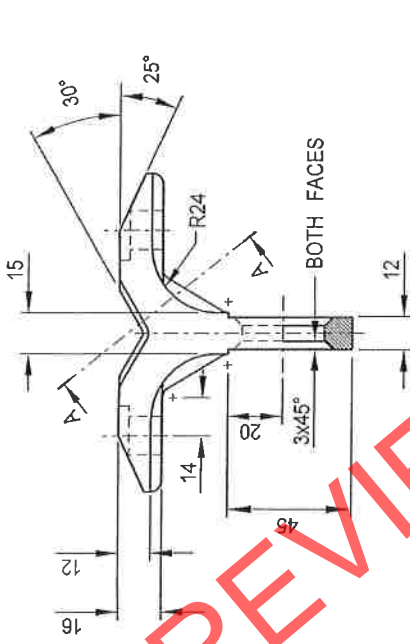
- NOTES
- ALL UNSPECIFIED RADII R3
 - THE FOLLOWING PERMANENT MARKINGS MUST APPEAR ON THIS ARTICLE:
 - a) SPOORNET
 - b) MAKER'S IDENTIFICATION
 - c) BATCH NUMBER
 - BOTTOM OF HOLE: FLAT OR DRILL POINTED
- FINISH
ZINC COAT TO SPEC. 763 FOR CONDITIONS IN SITU

PREVIEW COPY ONLY

MATERIAL: ITEM NO --, SPHEROIDAL GRAPHITE IRON TO SPEC SABS 936 GRADE SG 50	
DO REF: J71/228	GEN TOL: LIN± 1 ANG± 1°
DRN: J W N	CKD: - DATE: 68-03-18
ENG: D C	W PHILLIPS for CHIEF ENG
INFRASTRUCTURE (ELECTRICAL)	 SPOORNET
<h2>ADAPTER, INSULATOR</h2> <h3>STEADY ARM SOCKET</h3>	



SECTION A-A
SCALE 1:1



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NOTES

1. ALL UNSPECIFIED RADII TO BE R4.
2. THE FOLLOWING PERMANENT MARKINGS MUST APPEAR ON THIS ARTICLE:
 - a) TRANSNET.
 - b) MAKER'S IDENTIFICATION.
 - c) BATCH NUMBER.
3. FINISH: HOT DIP GALVANISE TO SANS 121.



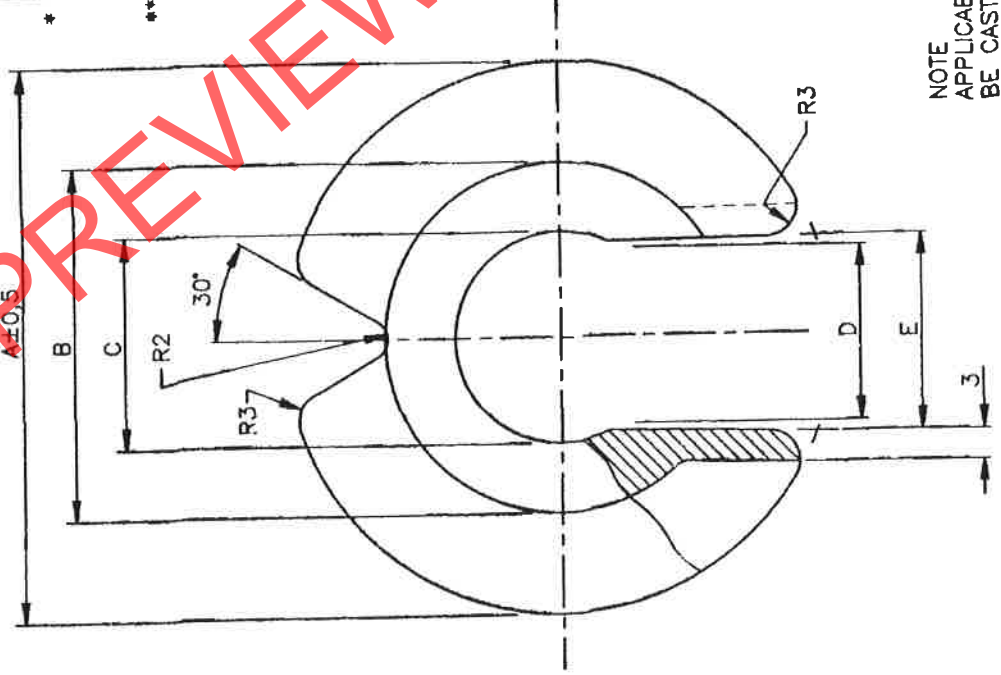
ATTACHMENT FITTING.
CANTILEVER STRUT, TOWER HOOK.

DATE: 20/02/2009
APPROVED: [Signature]
AUTHORISED: [Signature]

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DIMENSIONS : mm	SCALE : 1 : 2
TOLERANCE : LINA 1	ANG: 1°
MATERIAL : SPHEROIDAL GRAPHITE IRON, TO SPEC SANS 936	ITEM NO : 54/11376
VERSION INFO : REDRAWN AND REVISED. TONGUE TAPER REMOVED.	GRADE SG 50.
DO REF : CDD/6517	DESIGNED : J VAN DYK
ECP REF : BBD5402	CHECKED : J VAN DYK
DRAWN : C L BUCKLE	

CATEGORY	A	B	C	D	E	ITEM NO
80mm ²	ø38	ø15	ø10,8	9,6	9 ⁺¹ ₀	54/6840
100mm ²	ø40	ø20,1	ø12,1	10,7	10 ⁺¹ ₀	54/16861
160mm ²	ø46,5	ø26,4	ø15,9	14,1	13 ⁺² ₀	54/16836
250mm ²	ø54	ø33,9	ø20,5	18,2	16 ⁺³ ₀	54/16848
530mm ²	ø68	ø48,1	ø29,4	26	25 ⁺⁴ ₀	54/31701

* ALSO FOR CONDUCTOR (ACSR) CODE NAME "TIGER"
 ** FOR CONDUCTOR (ACSR) CODE NAME "DEER"



NOTE
 APPLICABLE CONDUCTOR SIZE 80-, 100-, 160-, 250- OR 530mm² TO
 BE CAST OR PUNCHED IN POSITION SHOWN (3mm CHARACTER HEIGHT).

AMENDMENTS	
NO	NAME DATE
1	I DE VILJERS 90-02-14
REDRAWN, INFORMATION ADDED.	
DO REF: T90/009	
2	I DE VILJERS 91-03-04
INDICATION OF CONDUCTOR SIZE MOVED.	
DO REF: T91/010	
3	W BRIGHT 92-06-22
DIMENSION "E" WAS 10,1 ; 11,3 ; 14,8 AND 19.	
DO REF: T92/027	
4	H A SLIER 98-06-04
DRAWING REVISED AND INFORMATION ADDED.	
DO REF: T98/024	

DIMENSIONS: mm
 SCALE 2:1

A3
 DRAWING NO CEE-
 TND-5
 SHEET -- OF --

DROPPER CLIP
 CLIP-ON TYPE
 80-, 100-, 160-, 250- & 530mm² CATENARIES

MATERIAL: NYLON 66, PIGMENT: BLACK
DO REF T90/001 GEN TOL: LIN± 0,2 ANG± 0'30"
DRN J VON ABO CKD J H SWIGERS DATE 90-01-29
ENG A VERSTEEG A VERSTEEG for CHIEF ENG
INFRASTRUCTURE (ELECTRICAL)
SPOORNET

AMENDMENTS		
NO	NAME	DATE
1	JVT	2000-10-30

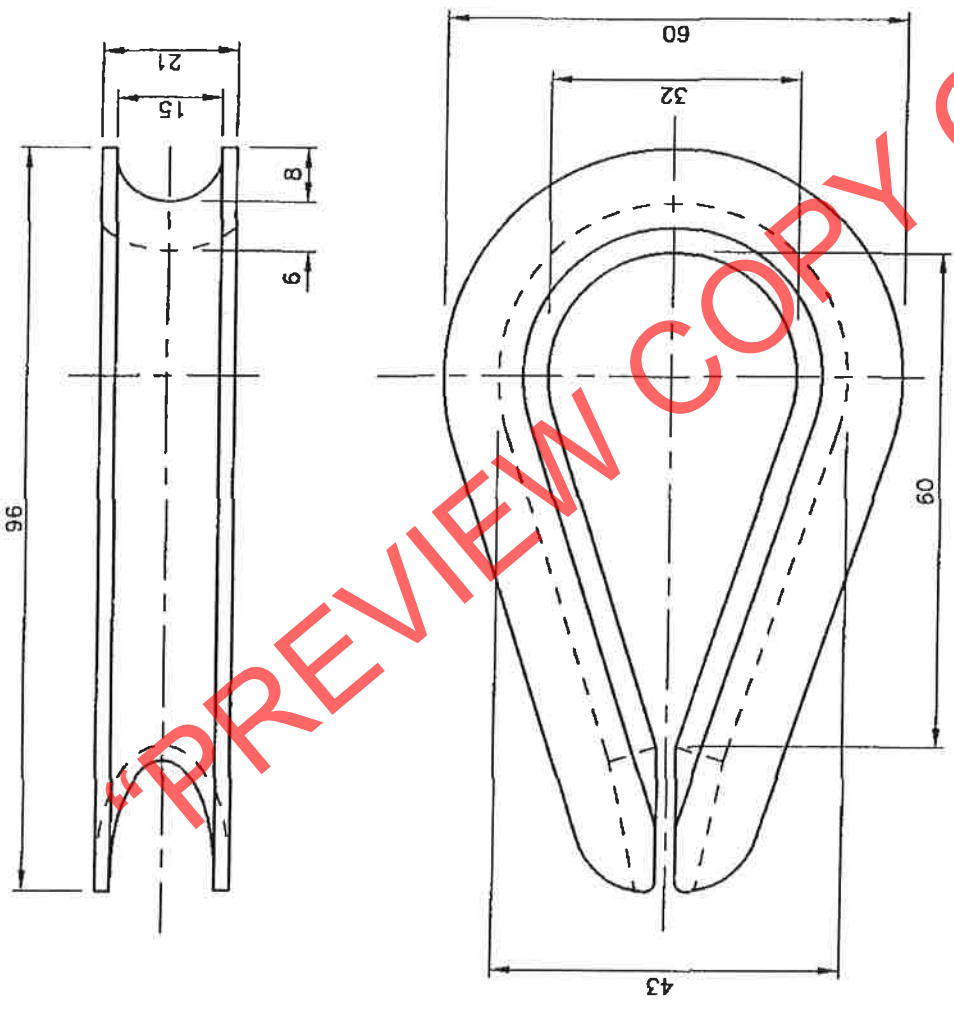
REVISED, DRG NO WAS CEE-TN-292. DO REF: T96/001

STORES ITEM NO.
54/5264

DIMENSIONS: mm
SCALE: NTS



DRG NO CEE--
TNB-85
SHT -- OF --



PREVIEW COPY ONLY

FINISH

ZINC COAT TO SABS 763 FOR CONDITIONS IN SITU.

MATERIAL: ITEM NO 11 / _____, STEEL SEE SPEC SABS 811

DO REF: J27/68 GEN TOL: LIN± 0,5 ANG± 1°

DRN: L N CKD: E F J DATE: 68-03-27

ENG: D MCKAY W PHILLIPS for CHIEF ENG

ROPE THIMBLE

WIRE SIZE -- 100mm²

CENTRAL DRAWING OFFICE



SPOORNET

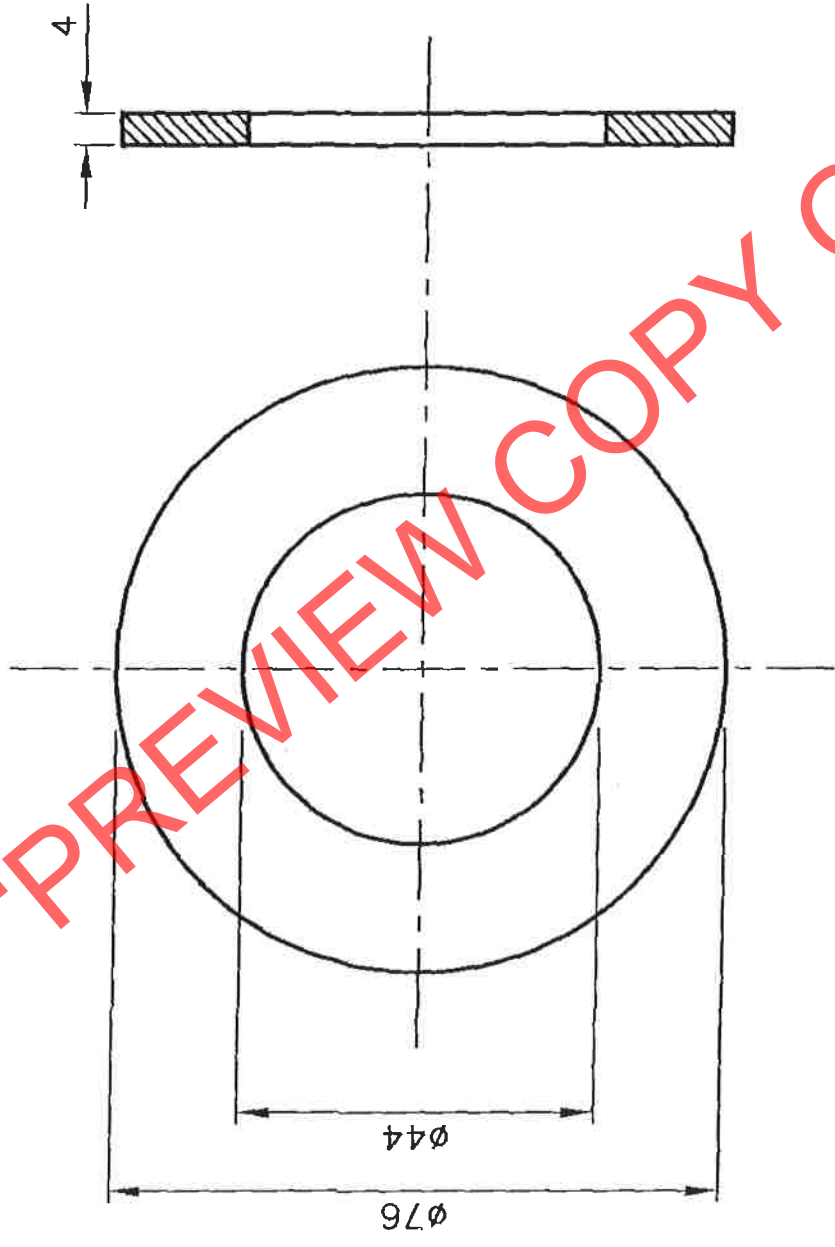
AMENDMENTS	
NO	NAME DATE
1	JVT 95-04-13
SPECIFICATION IN NOTE WAS CEE-13B-4. DO REF: 695/008.	
2	<i>[Signature]</i> 16/11/2000
STORES ITEM NO ADDED. DO REF: CDO/977	

STORES ITEM NO.
54/414

DIMENSIONS: mm
SCALE: 1:1



DRG NO CEE--
TU-143
SHT 3 OF 4



NOTE
THIS DRAWING TO BE READ IN CONJUNCTION WITH SPECIFICATION CEE.0166.

MATERIAL: SYNTHETIC RESIN BONDED GLASS-FIBRE FABRIC (WOVEN) TO SPEC BS 3396 OR EQUAL AND APPROVED
DO REF: T94/031 GEN TOL: ± 0.5 ANG \pm _____

DRN: C de Koker CKD: JVT DATE: 94-07-06
ENG: F SLIER L O BORCHARD for CHIEF ENG

INSULATING WASHER

MAST BASE ANTI-ELECTROLYSIS ARRANGEMENT
4 OR 6 x M36 BOLT GROUP UC MASTS

CENTRAL DRAWING OFFICE
INFRASTRUCTURE (ELECTRICAL)



SPOORNET