

	Type	Description	Drawing Number	Estimated Quantity for 2 years	Material number on plant 7800	Ver
1	Manufacturing	Sliding cylinder	BBB0381	9,000	34004439	5
2	Manufacturing	Piston rod (Anti bounce/long)	BBB0382	26,000	34004452	5
3	Manufacturing	Piston Ring	BBB0391	8,000	34004491	2
4	Manufacturing	Back-up washer	BBB0393	24,000	34004504	2
5	Manufacturing	Bush for refurbished sliding cylinder	BBB0394	8,000	34004517	1
6	Manufacturing	M27 stud Long	BBB0395	16,000	34004530	3
7	Manufacturing	Bottom bush	BBB0399	5,000	34004543	2
8	Manufacturing	Gland nut	BBB0404	13,000	34004556	3
9	Manufacturing	Anti - Bounce collar	BBB0406	8,000	34004569	3
10	Manufacturing	Stud M27 Short	BBB1378	10,000	34004582	3
11	Manufacturing	Pot Short	BBB1394	1,000	34004608	4
12	Manufacturing	Top bush	BBB1395	4,000	34004621	2
13	Manufacturing	Exhaust valve	BBB1441	1,000	34004647	2
14	Manufacturing	Short piston rod	BBB1834	24,000	34004660	4
15	Manufacturing	Anti-bounce pot	BBB2251	1,000	34004673	3
16	Spring	Internal circlip	BBB0397	48,000	34004686	1
17	Standard	"E" Circlip	SD01	24,000	34004751	
18	Standard	Cleve lock nut M14	SD03	48,000	34004764	
19	Standard	f 4 x 12 mm flared spiral pin	SD09	48,000	34004816	
20	Standard	Lock nut M 27 Galvanised	SD05	6,000	34004777	
21	Standard	Nut M 27Galvanised	SD06	6,000	34004790	
22	Standard	Spring washer M 27	SD07	6,000	34004803	
23	Standard	Standerd M14 Nut	SD10	6,000	34004829	
24	Manufacturing	Piston Head 1.5B m/s	BBB0385	500	34004958	4
25	Manufacturing	Piston Head 1.5 m/s	BBB0385	2,000	34004893	4
26	Manufacturing	Piston Head 2 m/s	BBB0385	500	34004898	4
27	Manufacturing	Piston Head 2.5 m/s	BBB0385	500	34004903	4
28	Manufacturing	Piston Head 3 m/s	BBB0385	500	34004908	4
29	Manufacturing	Piston Head 3.5 m/s	BBB0385	500	34004913	4
30	Manufacturing	Piston Head 4 m/s	BBB0385	500	34004918	4
31	Manufacturing	Piston Head 4.5 m/s	BBB0385	1,000	34004923	4
32	Manufacturing	Bush shim 0.07 mm	BBB0388	16,000	34004818	2
33	Manufacturing	Bush shim 0.1 mm	BBB0388	16,000	34004823	2
34	Manufacturing	Bush shim 0.2 mm	BBB0388	16,000	34004828	2
35	Manufacturing	Bush shim 0.3 mm	BBB0388	16,000	34004833	2
36	Manufacturing	Bush shim 0.4 mm	BBB0388	16,000	34004838	2
37	Manufacturing	Spring shim 0.1mm	BBB0390	16,000	34004813	2
38	Manufacturing	Spring shim 0.2mm	BBB0390	16,000	34004808	2
39	Manufacturing	Spring shim 0.5mm	BBB0390	16,000	34004858	2
40	Manufacturing	Spring shim 0.8mm	BBB0390	16,000	34004853	2
41	Refurbish	Short Piston Rod	BBB1909	6,000	34003382	2
42	Refurbish	Piston rod Long Anti-Bounce	BBB1908	6,000	34003381	2
43	Refurbish	Cut + groove sliding	BBB1381	6,000	34003383	2
44	Manufacturing	Catcher Piston Rod	BBB1387	3,000	34004592	4
45	Manufacturing	Catcher Shims	BBB1397	8,000	34004634	1
46	Standard	Glandnut Glazier Bush	SD11	22,000	34000442	
47	Manufacturing	Helical Heavy Duty Spring	BBB0408	30,000	34004712	1
48	Manufacturing	Helical Medium Duty Spring	BBB1384	1,000	34004738	2
49	Manufacturing	Helical lighth Duty Spring	BBB1383	18,000	34004725	1





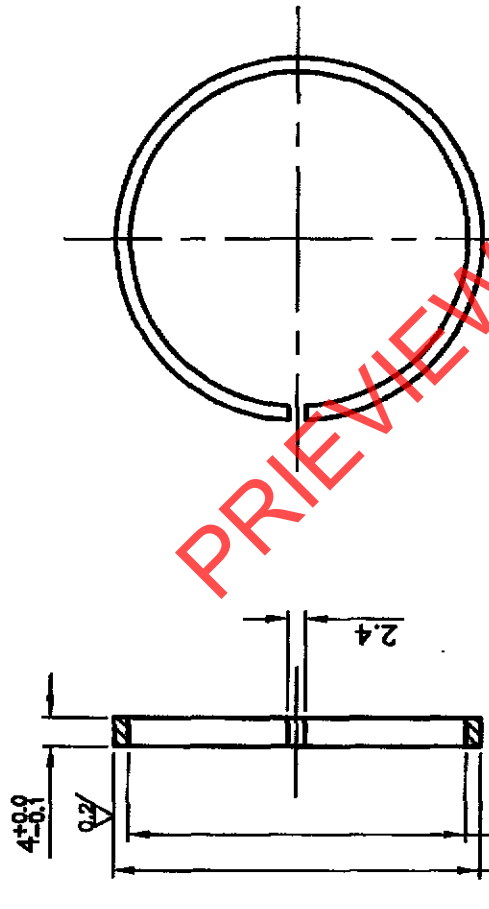
VERSION		
NO	NAME	DATE
2		08/24/12

PROTOTYPE REMOVED  
DO REF CDO/5939  
ECP REF BBC8475

STORES ITEM NO. -  
DIMENSIONS: mm.  
SCALE: 1:1



DRG NO  
**BBB0391**  
VERSION 2



PREVIEW COPY ONLY

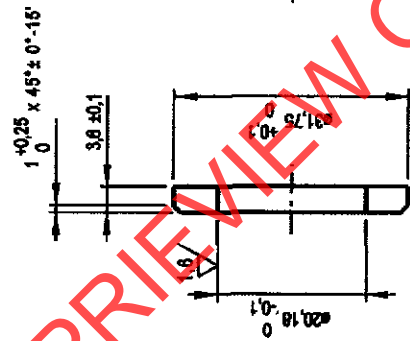
NOTE:  
REMOVE ALL SHARP EDGES

MATERIAL: COPPER ALLOY TO BS 1400 GRADE PB1

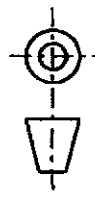
DO REF: CDO/222 GEN TOL: LIN± 0.1 ANG± -  
DRN: CJ Marais CKD: J v Dyk DATE: 2001/05/17  
ENG: P.J. Visser H. Esterhuysen for CHIEF ENG

CENTRAL DRAWING OFFICE  
 TRANSNET  
freight rail

**PISTON RING**  
RETARDER, CATCHER & BOOSTER RETARDER  
SENTRARAND MARSHALLING YARD



PREVIEW COPY ONLY



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DIMENSIONS : mm SCALE : 1 : 1  
 TOLERANCE : LIN ± - ANG ± - ITEM NO. :-  
 MATERIAL : Copper alloy to BS 1400 Grade PCB1  
 VERSION INFO : Redrawn, Overall diameter dimension changed

DO REF : CDO/5839  
 CP REF : BB08475  
 DRAWN : D.A. Baislabie  
 DESIGNED :  
 CHECKED : J.D. van Dyk

DATE: 2008/04/22  
 APPROVED  
 AUTHORIZED

**BACK - UP WASHER**  
 RETARDER, CATCHER & BOOSTER RETARDER  
 SENTRARAND MARSHALLING YARD

**TRANSNET**  
 freight rail  
**BBB0393**  
 VERSION 2

VERSION

NO NAME DATE

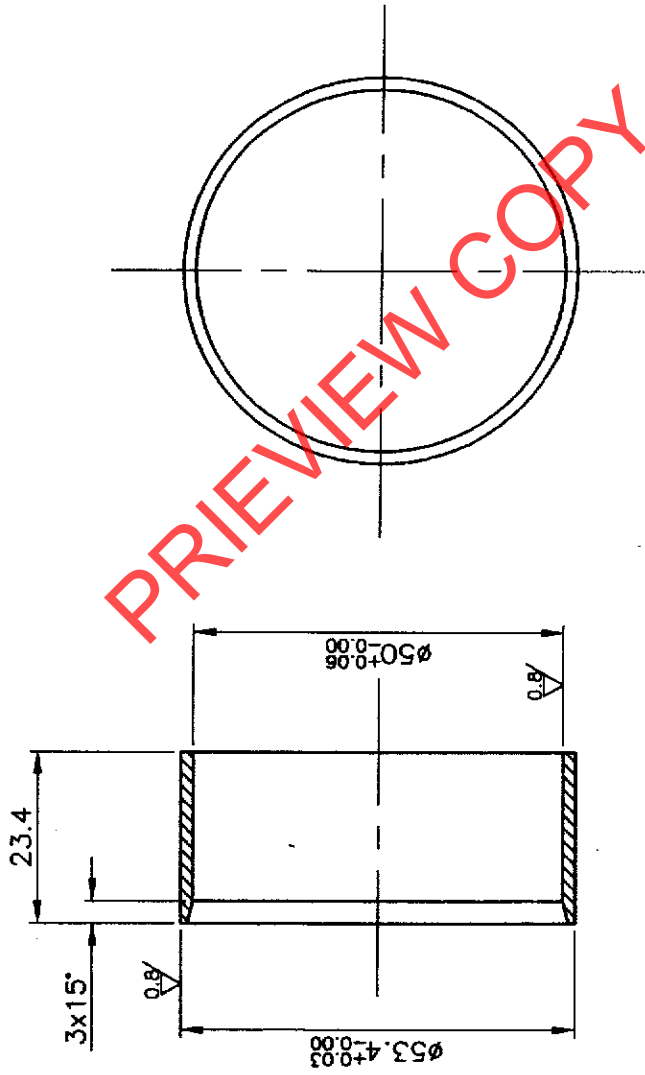
STORES ITEM NO.

DIMENSIONS: mm.  
SCALE: 1:1



A4

DRG NO  
**BBB0394**  
VERSION 1



PRIEVIEW COPY ONLY

MATERIAL: COPPER ALLOY TO BS 1400 GRADE LG2


# BUSH FOR REFURBISHED SLIDING CYLINDER

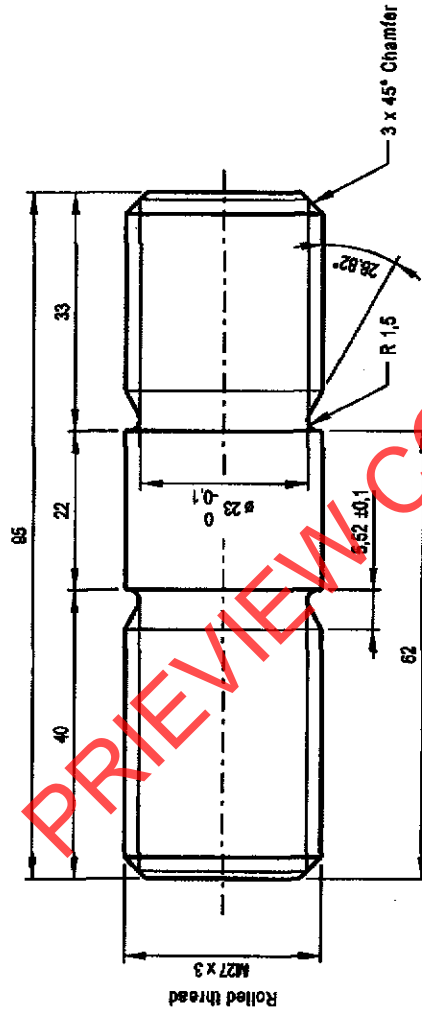
RETARDER, CARCHER & BOOSTER RETARDER  
SENTRARAND MARSHALLING YARD

DO REF: CDO/820 GEN TOL: LIN± 0.1 ANGE -

DRN: CJ Marais CKD: J v Dyk DATE: 2001.05.15

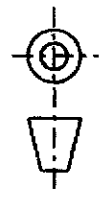
ENG: [Signature] for CHIEF ENG

CENTRAL DRAWING OFFICE  SPOONET



Note  
Machined diameter to be  $\varnothing 26.8 \begin{matrix} +0.0 \\ -0.1 \end{matrix}$

PREVIEW COPY ONLY



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DIMENSIONS : mm SCALE : 1 : 1  
 TOLERANCE : LIN ± 1 ANG ± 0.2 ITEM NO : -  
 MATERIAL : Alloy steel to BS 970 Grade 080M40  
 \* condition "R"  
 VERSION INFO : Redrawn, dimensions changed and thread note added

DO REF : GDO/5938  
 CP REF : BBC8474  
 DRAWN : D.A. Ballabic  
 DESIGNED : -  
 CHECKED : J.D. van Dyk

DATE: 2008/02/22  
 APPROVED  
 AUTHORIZED

M27 STUD (LONG)  
 POT  
 SENTRAND MARSHALLING YARD

**TRANSNET**  
 freight rail  
 BBB0395  
 VERSION 3  
 A4







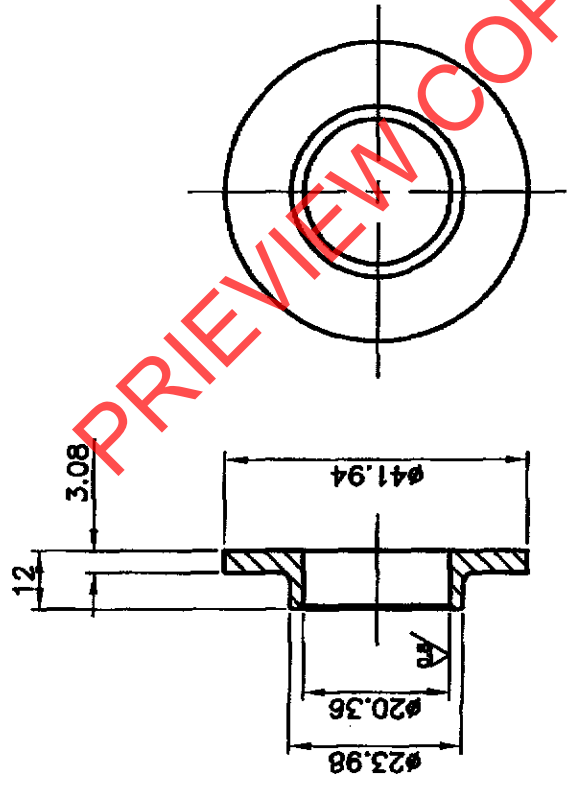
VERSION	
NO	DATE
2	H. Esterhuysen 2004/1/21
MACHINING SYMBOLS	
MATERIAL CONDITION	
ADDED	
DO REF CDO/3230	
CP REF 2004-003	
NO	DATE
3	2008/6/22
PROTOTYPE REMOVED	
DO REF CDO/5939	
ECP REF BBC8475	

STORES ITEM NO. -

DIMENSIONS: mm.  
SCALE: 1:1



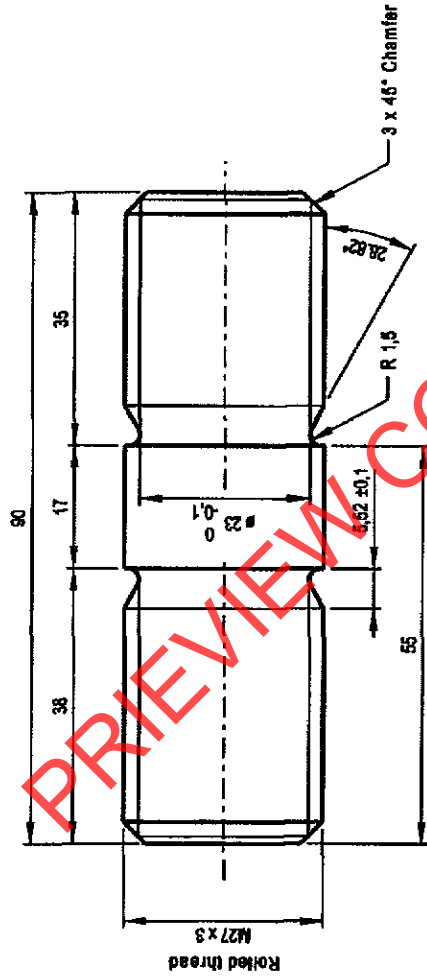
DRG NO  
**BBB0406**  
VERSION 3



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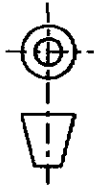
**NOTES:**  
✓ EXCEPT WHERE OTHERWISE SHOWN  
REMOVE ALL SHARP EDGES

MATERIAL: ALLOY STEEL TO BS 970 GRADE 080M40 (CONDITION "R")	
DO REF: CDO/222	GEN TOL: LIN± 0.1 ANG± -
DRN: CJ Mardis	CKD: J v Dyk
ENG: PJ Visser	H Esterhuysen for CHIEF ENG
<b>ANTI-BOUNCE COLLAR</b> RETARDER SENTRARAND MARSHALLING YARD	
CENTRAL DRAWING OFFICE	



Note  
Machined diameter to be  $\text{Ø}26.6 \begin{matrix} +0.0 \\ -0.1 \end{matrix}$

PREVIEW COPY ONLY



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DIMENSIONS : mm SCALE : 1 : 1  
 TOLERANCE : LIN ± 1 ANG ± 0.2 ITEM NO :  
 MATERIAL : Alloy steel to BS 970 Grade 080M40  
 A. condition "R"  
 VERSION INFO : Redrawn, thread undercut and note added


DO REF : CDO/5937  
 CP REF : BBC8473  
 DRAWN : D.A. Bellabio  
 DESIGNED :  
 CHECKED : J.D. van Dyk

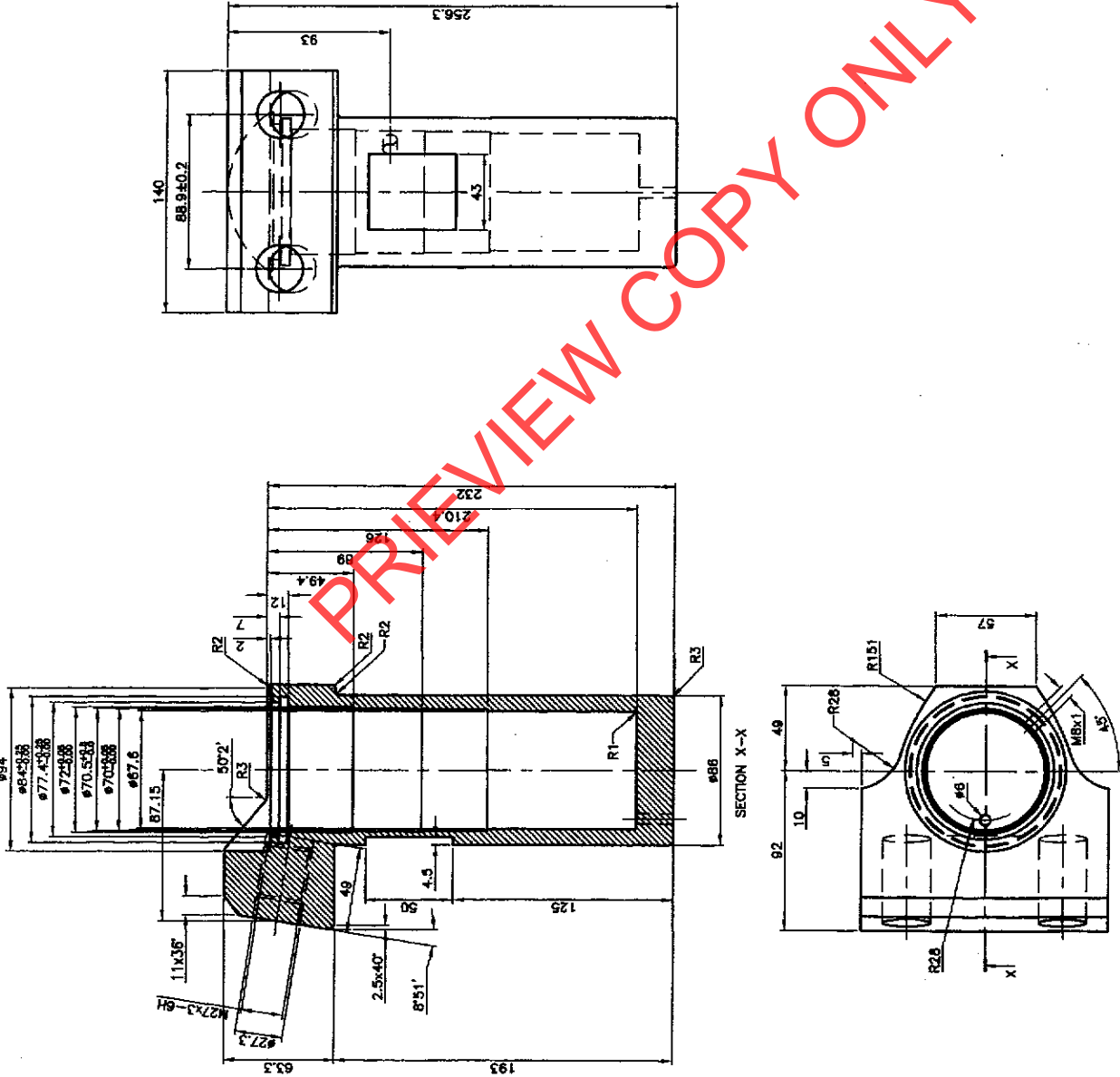
DATE: 2008/02/22  
 APPROVED  
 AUTHORIZED

M27 STUD (SHORT)  
 POT, ELEMENT & BOOSTER  
 SENTRARAND MARSHALLING YARD


**TRANSNET**  
 freight rail  
 BBB1378  
 VERSION 3

VERSION		NO	NAME	DATE
1	H Esterhuysen	2004-02-05		
2			DIAMETER B4 WAS SHORTENED BY 30.6mm	
3	H Esterhuysen	2004-11-01	POT LENGTHENED BY 30.6mm	
4			DO REF CDO/3782 ECP REF BBB8063	
PROTOTYPE REMOVED				
DO REF CDO/5939				
ECP REF BBC8475				

STORES ITEM NO	
DIMENSIONS: mm	
SCALE:	1:2
	
	<b>A2</b>
DRAWING NO	<b>BBB1394</b>
VERSION 4	



PREVIEW COPY ONLY

MATERIAL:	MODULE SG CAST IRON WITH A COURSE FERRITE MATRIX			
DO REF: CDO/798	GEN TOL: LINE 1	ANG±	1°	
DRN: CJ Marais	CKD: J v Dyk	DATE: 2001-05-30		
ENG: PJ Visser	H Esterhuysen	for CHIEF ENG		
CENTRAL DRAWING OFFICE		 <b>TRANSNET</b> <small>Freightnet</small>		

**VH RETARDER POT FOR 48 & 57kg RAIL**  
 SENTRAPAND MARSHALLING YARD

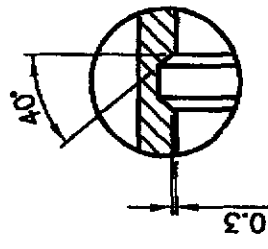
VERSION	
NO	DATE
2	08/04/18
PROTOTYPE REMOVED	
DO REF CDO/5939	
ECP REF BBC8475	

STORES ITEM NO. -

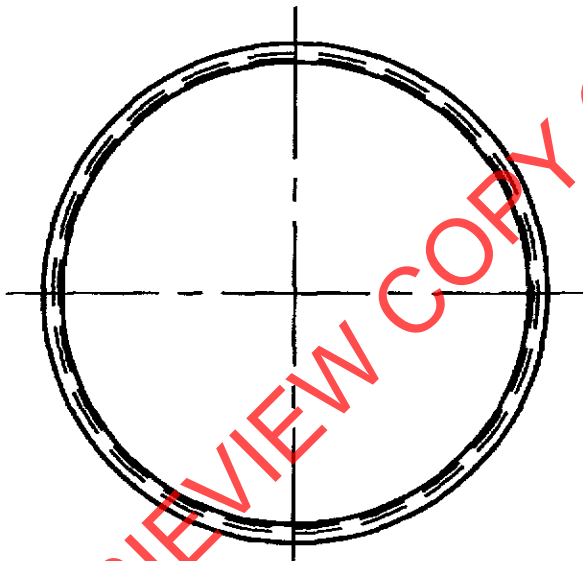
DIMENSIONS: mm.  
SCALE: 1:1



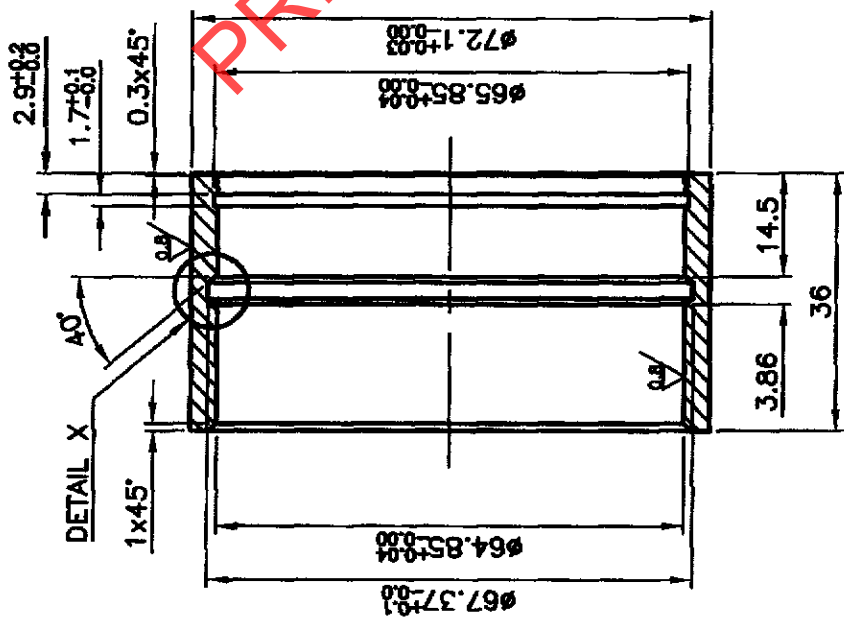
DRG NO  
**BBB1395**  
VERSION 2



DETAIL X  
SCALE 2:1



NOTE:  
EXCEPT WHERE OTHERWISE STATED



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MATERIAL: COPPER ALLOY TO BS 1400 GRADE PB4

DO REF: CDO/798	GEN TOL: LINE 0.1 ANG± 0.5°
DRN: CJ Marais	CKD: J v Dyk
ENG: PJ Visser	H Esterhuysen for CHIEF ENG

CENTRAL DRAWING OFFICE

**TOP BUSH**  
 POT  
 SENTRARAND MARSHALLING YARD

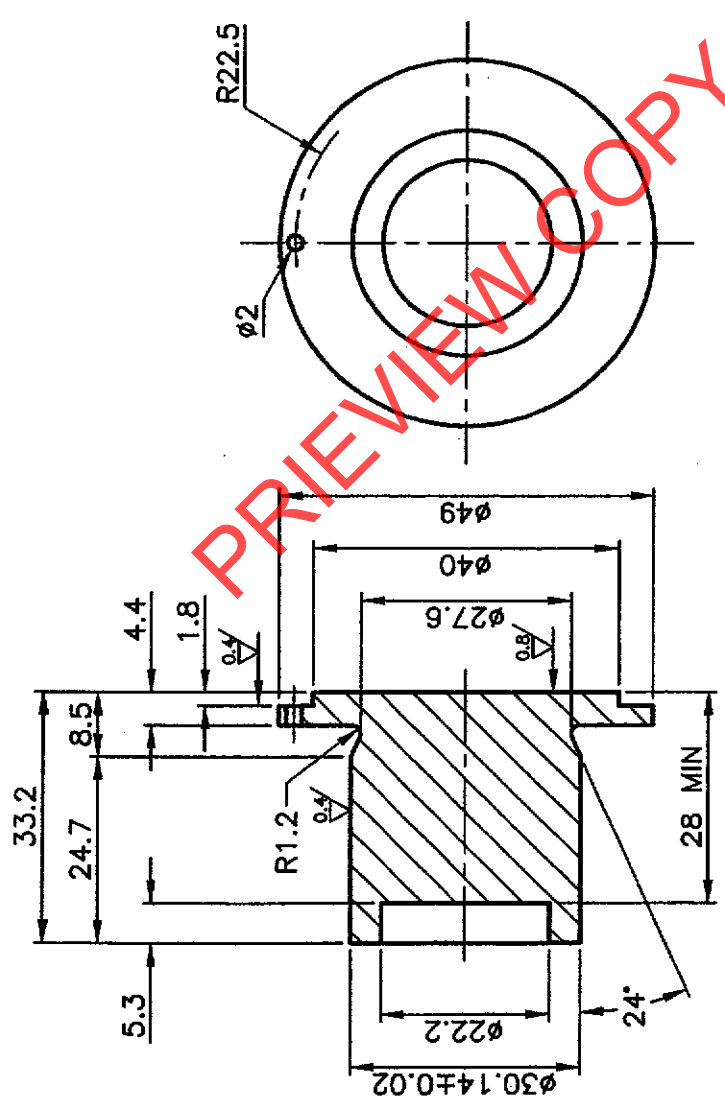
VERSION	
NO	DATE
2	24/11/14

DIMENSION 1.5  
 CHANGED TO 1.8  
 DIMENSION 28 MIN  
 ADDED  
 DO REF CDO/3230  
 CP REF 2004-003

DIMENSIONS: mm  
 SCALE: 1:1



DRG NO  
**BBB1441**  
 VERSION 2



PREVIEW COPY ONLY

MATERIAL: ALLOY STEEL TO BS 970 GRADE 605H32

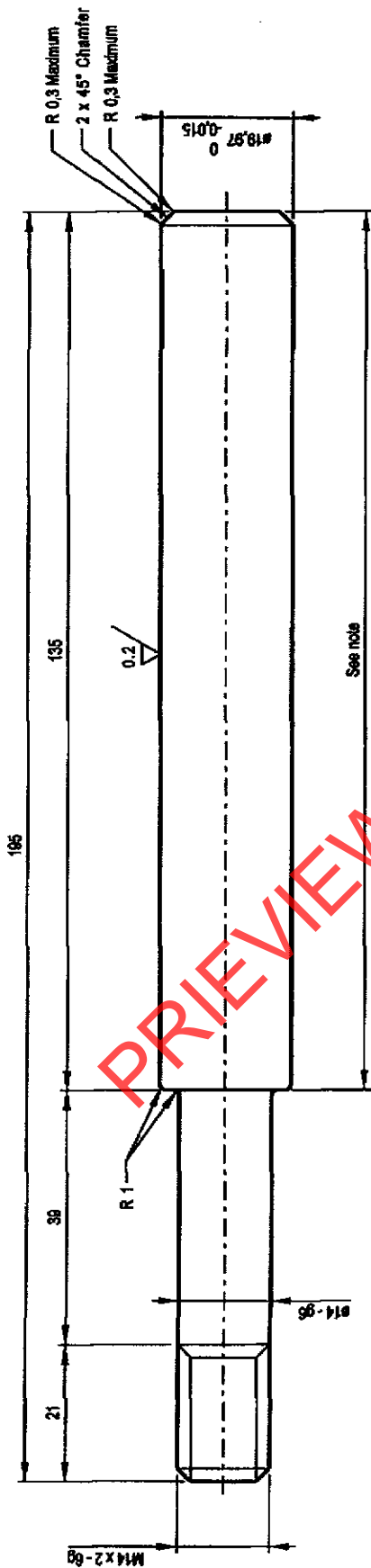
DO REF: CDO/821 GEN TOL: LN± 0.1 ANG± -

DRN: CJ Marais CKD: J v Dyk DATE: 2001-05-28

ENG: PJ Visser H Esterhuysen for CHIEF ENG

CENTRAL DRAWING OFFICE

**EXHAUST VALVE**  
 ELEMENT  
 SENTRARAND MARSHALLING YARD



Note  
 Induction harden to a case depth of 1.2mm and Vicker hardness of 700



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DIMENSIONS : mm SCALE : 1 : 1  
 TOLERANCE : LIN  $\pm 0.1$  ANG  $\pm 0.2^\circ$  ITEM NO : -  
 MATERIAL : Alloy steel to BS 970 Grade 817M40  
 condition "v"  
 VERSION INFO : Redrawn, changed radii and chamfer,  
 removed "Prototype"


DO REF : CDO/5938  
 CP REF : BBC8474  
 DRAWN : D.A. Ballabio  
 DESIGNED :  
 CHECKED : J.D. van Dyk

DATE: 2008/06/22  
 APPROVED  
 AUTHORIZED

SHORT PISTON ROD  
 VH2 RETARDER  
 SENTRAND MARSHALLING YARD

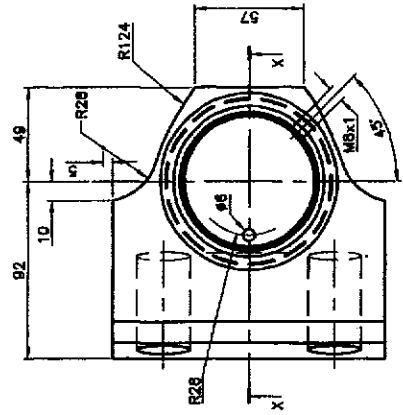
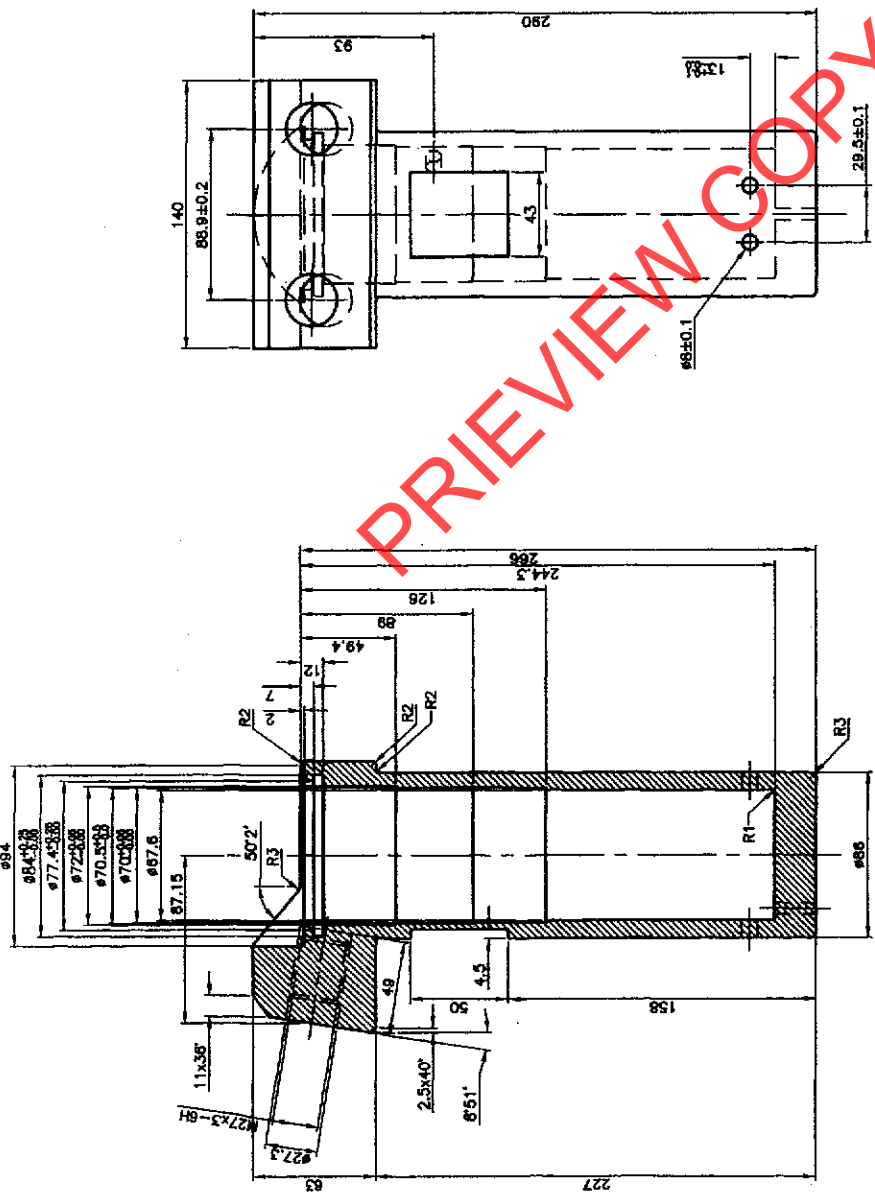
**TRANSNET**  
 freight rail  
**BBB1834**  
 VERSION 4

VERSION		
NO	NAME	DATE
2	H Esterhuysen	2004/02/05
DIAMETER #83.5 CHANGED TO DIAMETER #84		
DO REF CDO/3230 ECP REF 2004-003		
NO	NAME	DATE
3	J v Dyk	2007/04/22
PROTOTYPE REMOVED		
DO REF CDO/5839 ECP REF BBC8475		

STORES ITEM NO	
DIMENSIONS: mm	
SCALE: 1:2	
 A2	

DRAWING NO	BBB2251
VERSION 3	

PREVIEW COPY ONLY



MATERIAL:	MODULE SQ CAST IRON WITH A COURSE FERRITE MATRIX
DO REF: CDO/1390	GEN TOL: LIN± 1 ANG± 1°
DRN: CJ Marais	EKD: J v Dyk
ENG: PJ Visser	H Esterhuysen
CENTRAL DRAWING OFFICE	for CHIEF ENG
	TRANSNET
	Professional

**ANTI-BOUNCE RETARDER POT  
FOR 48 & 57kg RAIL**  
SENTRAND MARSHALLING YARD



VERSION	
NO	DATE

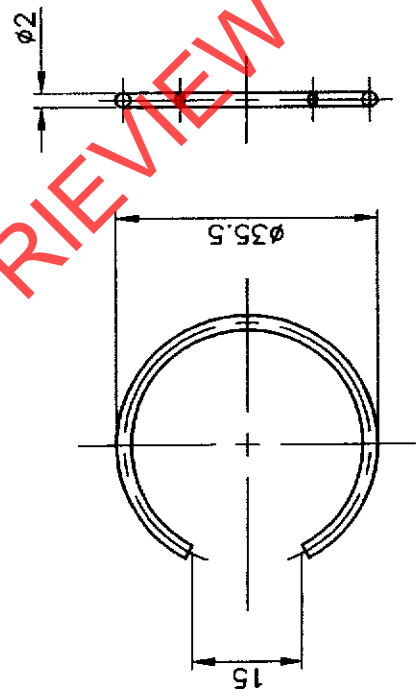
STORES ITEM NO.	—
DIMENSIONS: mm.	
SCALE: 1:1	

DRG NO	BBB0397
VERSION	1



INTERNAL "C" CLIP
RETARDER
SENTRARAND MARSHALLING YARD

PREVIEW COPY ONLY



MATERIAL: SPRING STEEL phi 2
DO REF: CDO/222 GEN TO: LINE 0.1 ANGE —
DRN: CJ Marais CKD: N Dyk DATE: 2001-05-15
ENG: <i>[Signature]</i> for CHIEF ENG
CENTRAL DRAWING OFFICE
SPOORNET


VERSION	
NO	NAME DATE
2	H ESTERHUYSE 04-01-21
MATERIAL CHANGED FROM BS 970 GRADE 653M31 (EN23) TO BS 970 GRADE 817M40 (EN24)	
DO REF CDO/3230 ECP REF 2004-003	

NO	NAME DATE
3	H ESTERHUYSE 04-02-19
DIMENSION CHANGED ON 20xØ4 HOLES. TOLERANCE ON CENTRE HOLE CHANGED	
DO REF CDO/3278 ECP REF 2004-009	

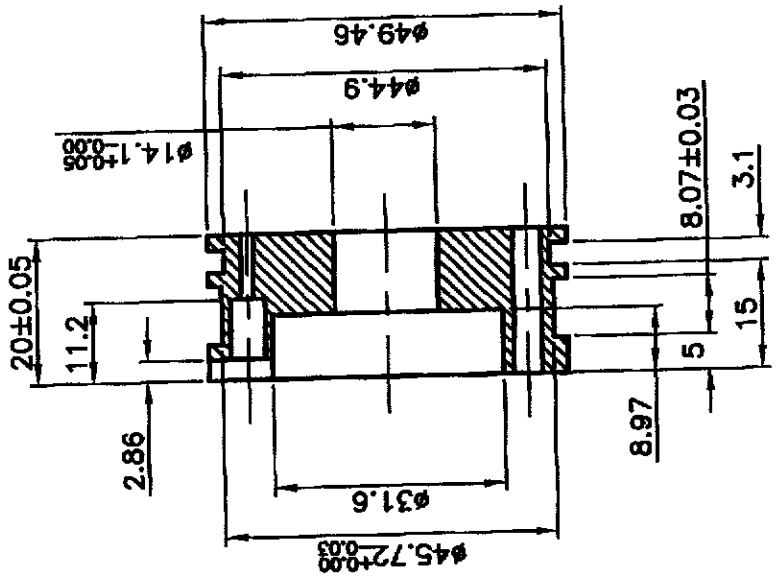
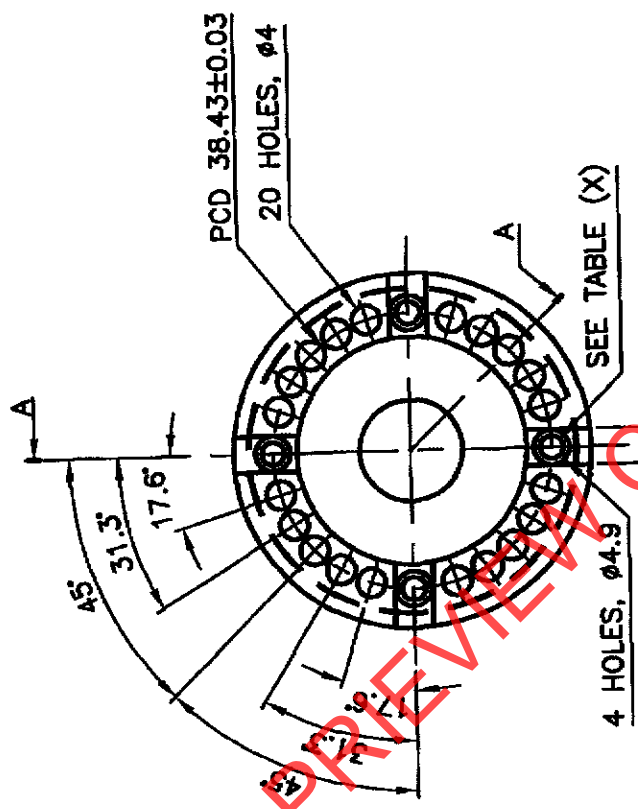
NO	NAME DATE
4	H ESTERHUYSE 2003/04/16
REMOVED PROTOTYPE	
DO REF CDO/5939 ECP REF BBC8475	

STORES ITEM NO. \_\_\_\_\_

DIMENSIONS: mm.  
SCALE: 1:1

 A4

DRG NO **BBB0385**  
VERSION 4



SECTION A-A

NOTES:  
∇ ALL OVER

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MATERIAL: ALLOY STEEL TO BS 970 GRADE 817 M40 (EN24)

DO REF: CDO/222 GEN TOL: LIN± 0.01 ANG± 0.1°

DRN: CJ Marais CKD: J v Dyk DATE: 2001-03-15

ENG: PJ Visser H Esterhuysen for CHIEF ENG

CENTRAL DRAWING OFFICE

 **TRANSNET**  
freight rail

SPEED	DIA X	APPLICATION	SPEED	DIA X	APPLICATION
1.5 m/s	1.7 mm	BOOSTER	3.0 m/s	2.6 mm	RETARDER
1.5 m/s	2.3 mm	RETARDER	3.5 m/s	2.9 mm	RETARDER
2.0 m/s	2.4 mm	RETARDER	4.0 m/s	3.0 mm	RETARDER
2.5 m/s	2.5 mm	RETARDER	4.5 m/s	3.2 mm	RETARDER


**PISTON HEAD**  
**VH2 RETARDER AND BOOSTER RETARDER**  
**SENTRARAND MARSHALLING YARD**

VERSION	
NO	NAME DATE
2	19/11/16

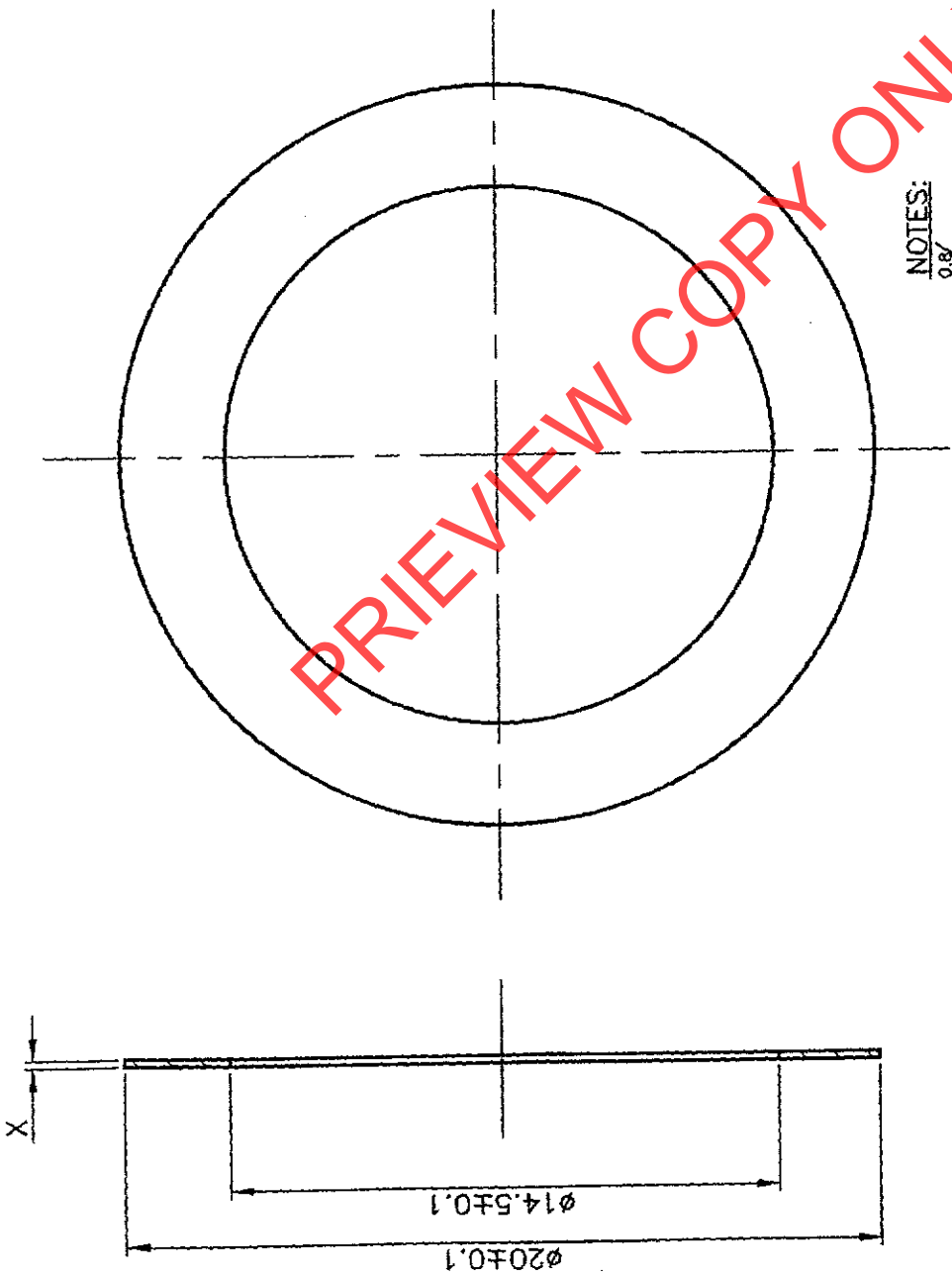
INSIDE DIMENSION  
CHANGED FROM  $\phi 14$   
TO  $\phi 14.5$   
DO REF CDO/2443  
CP REF 2003-038

STORES ITEM NO. -

DIMENSIONS: mm.  
SCALE: 5:1

 A4

DRG NO  
**BBB0388**  
VERSION 2



NOTES:  
 $\frac{0.8}{\sqrt{X}}$  ALL OVER  
X = 0.07, 0.1, 0.2, 0.3 OR 0.4

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MATERIAL: ALLOY STEEL TO BS 970 GRADE 040A12

DO REF: CDO/222	GEN TOL: $\pm 0.01$	ANG $\pm$	-
DRN: CJ Marais	CKD: J v Dyk	DATE: 2001-05-15	
ENG: P Visser	H Esterhuysen for CHIEF ENG		

**BUSH SHIM**  
VH2 RETARDER  
SENTRARAND MARSHALLING YARD

CENTRAL DRAWING OFFICE

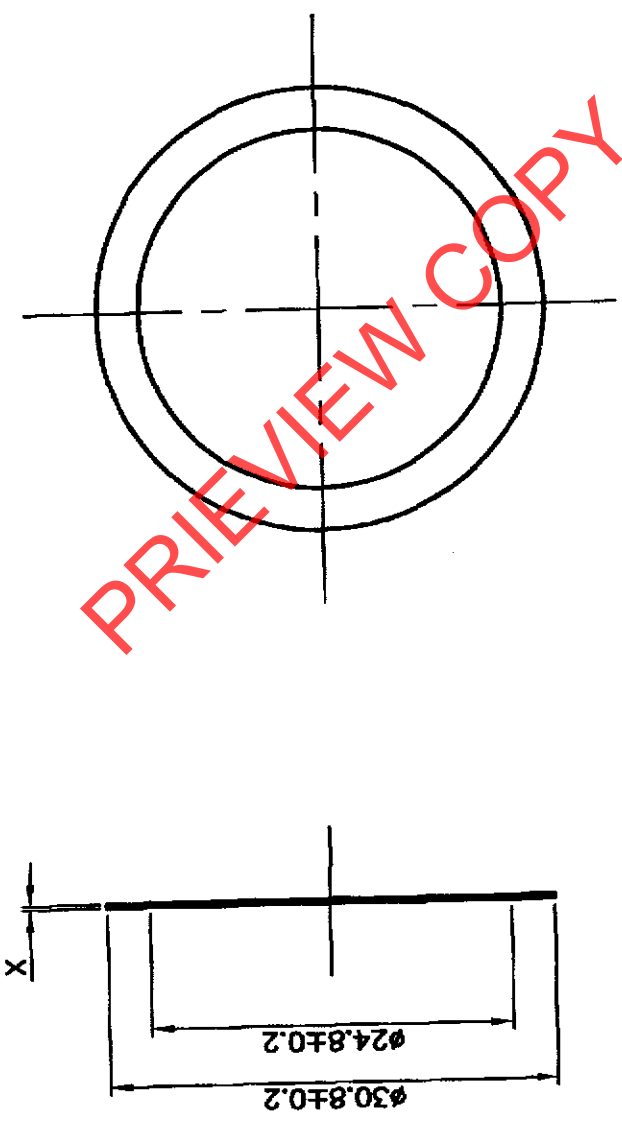
 **SPOORNET**

VERSION		
NO	NAME	DATE
2		03/04/11
REMOVED PROTOTYPE DO REF CDO/5939 ECP REF BBC8475		

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



DRG NO  
**BBB0390**  
VERSION 2



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**NOTES:**  
 $\nabla$  ALL OVER  
 X = 0.1, 0.2, 0.5 OR 0.8

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MATERIAL: ALLOY STEEL TO BS 970 GRADE 040A12

DO REF: CDO/222	GEN TOL: LIN ± 0.01	ANG ± -
DRN: CJ Marais	CKD: J v Dyk	DATE: 2001/05/15
ENG: P.J. Visser	H. Esterhuysen for CHIEF ENG	

CENTRAL DRAWING OFFICE

**TRANSNET**  
freight rail

**SPRING SHIM**  
 VH2 RETARDER  
 SENTRARAND MARSHALLING YARD

VERSION	
NO	NAME / DATE
2	08/04/13

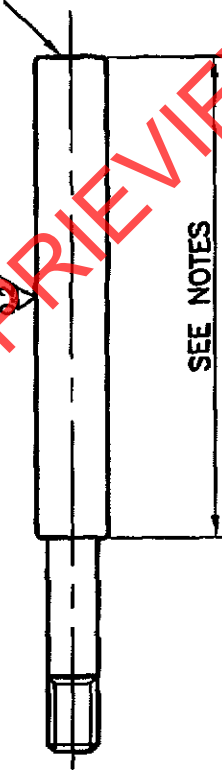
PROTOTYPE REMOVED  
DO REF CDO/5938  
ECP REF BBC8475

STORES ITEM NO. \_\_\_\_\_  
DIMENSIONS: mm.  
SCALE: 1:2



DRG NO  
**BBB1909**  
VERSION 2

THIS FACE TO BE FLAT AND SQUARE  
BUILD UP OF CHROME TO BE REMOVED



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- NOTES:
1. GRIND PISTON TO  $\phi 19.63^{+0.06}_{-0.03}$  BEFORE PLATING
  2. DAMAGED PISTON ROD THAT FAIL TO CLEAN UP TO  $\phi 19.63^{+0.06}_{-0.03}$  TO BE REJECTED
  3. HARD CHROME OVER THIS AREA, THICKNESS OF DEPOSIT 0.20mm TO 0.24mm (BEFORE GRINDING)
  4.  $\phi 19.97^{+0.000}_{-0.015}$  AFTER CHROMING AND GRINDING
  5. POLISH ALL SHARP EDGES

**REFURBISHMENT OF SHORT  
RETARDER PISTON ROD**  
VH2 RETARDER  
SENTRARAND MARSHALLING YARD

DO REF: cdo/1158	GEN TOL: LINE - ANG± -
DRN: CJ Marais	CKD: J v Dyk
ENG: PJ Visser	H Esterhuysen for CHIEF ENG

CENTRAL DRAWING OFFICE

**TRANSNET**  
freight rail

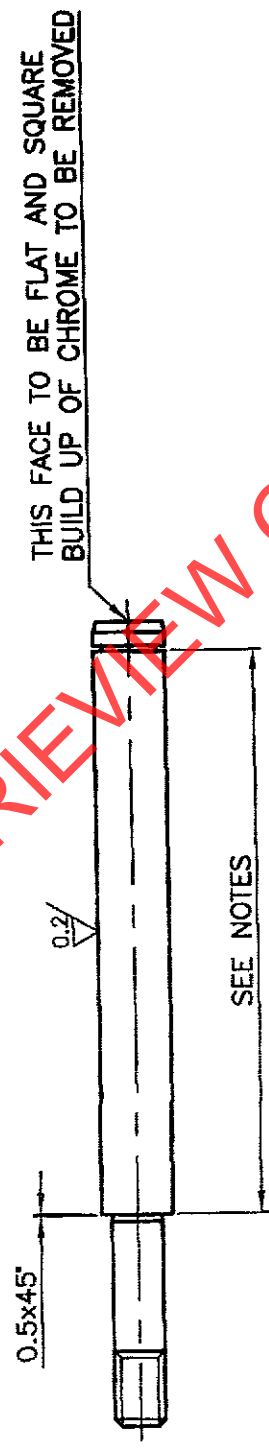
VERSION		
NO	NO	DATE
2	1	10/04/12

PROTOTYPE REMOVED  
DO REF CDO/5939  
ECP REF BBC8475

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



DRG NO  
**BBB1908**  
VERSION 2



PREVIEW COPY ONLY

- NOTES:
1. GRIND PISTON TO  $\phi 19.63^{+0.00}_{-0.03}$  BEFORE PLATING
  2. DAMAGED PISTON RODS THAT FAIL TO CLEAN UP TO  $\phi 19.63^{+0.00}_{-0.03}$  TO BE REJECTED
  3. HARD CHROME OVER THIS AREA, THICKNESS OF DEPOSIT 0.20mm TO 0.24mm (BEFORE GRINDING)
  4.  $\phi 19.97^{+0.000}_{-0.015}$  AFTER CHROMING AND GRINDING
  5. CLEAN CIRCLIP GROOVE AND POLISH ALL SHARP EDGES

**REFURBISHMENT OF LONG ANTI-BOUNCE RETARDER PISTON ROD**  
VH2 RETARDER  
SENTRARAND MARSHALLING YARD

DO REF: cdo/1156	GEN TOL: LIN± -	ANG± -
DRN: CJ Marais	CKD: J v Dyk	DATE: 2001/06/17
ENG: Pj Visser	H Esterhuysen for CHIEF ENG	

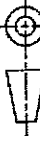
CENTRAL DRAWING OFFICE

**TRANSNET**  
freight rail

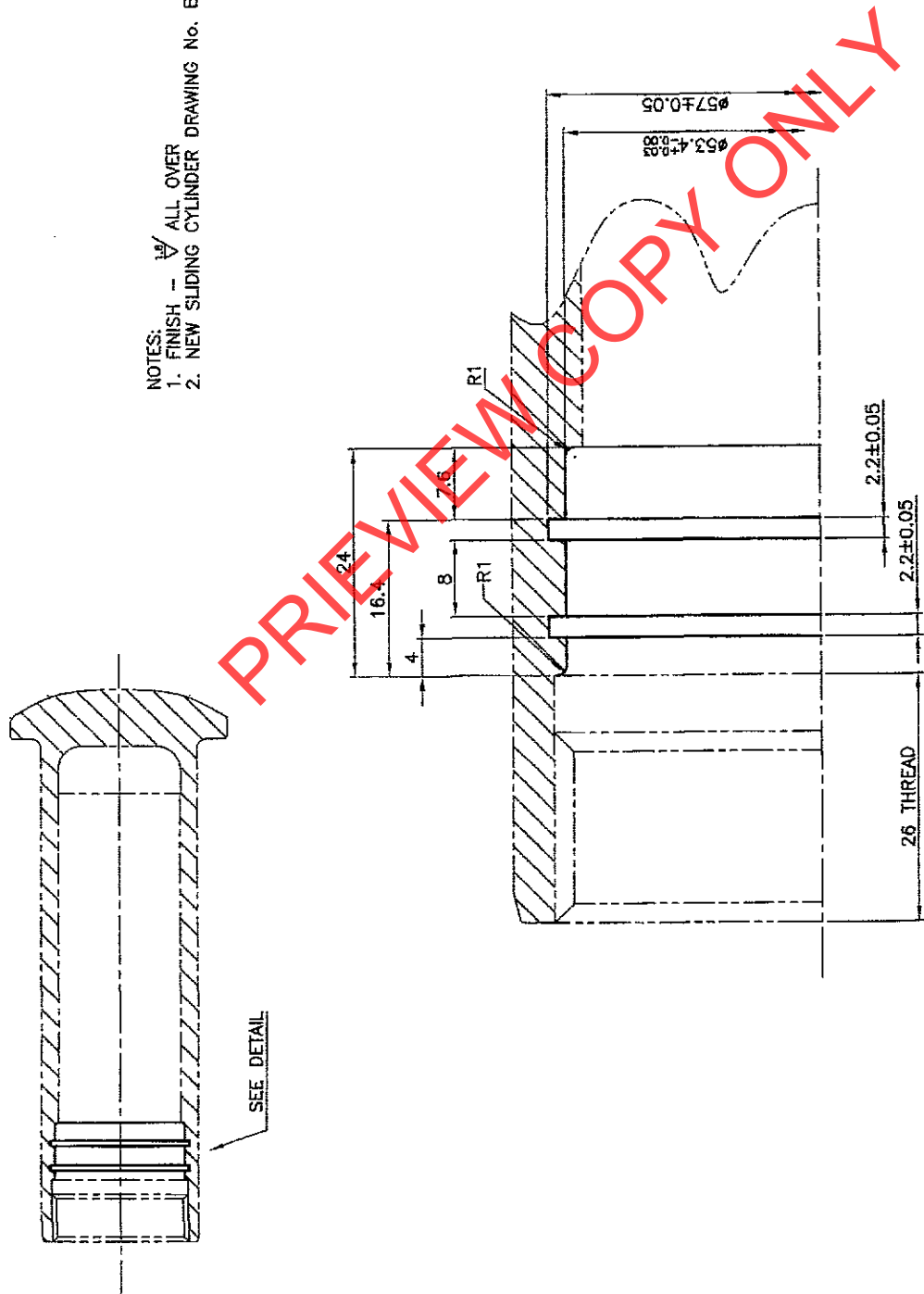
VERSION		
NO	NAME	DATE
2	<i>[Signature]</i>	2008/04/17

PROTOTYPE REMOVED  
DO REF CDO/5939  
ECP REF BBC8475

DIMENSIONS: mm  
SCALE: 1:2


 **A3**  
DRAWING NO  
**BBB1381**  
VERSION 2

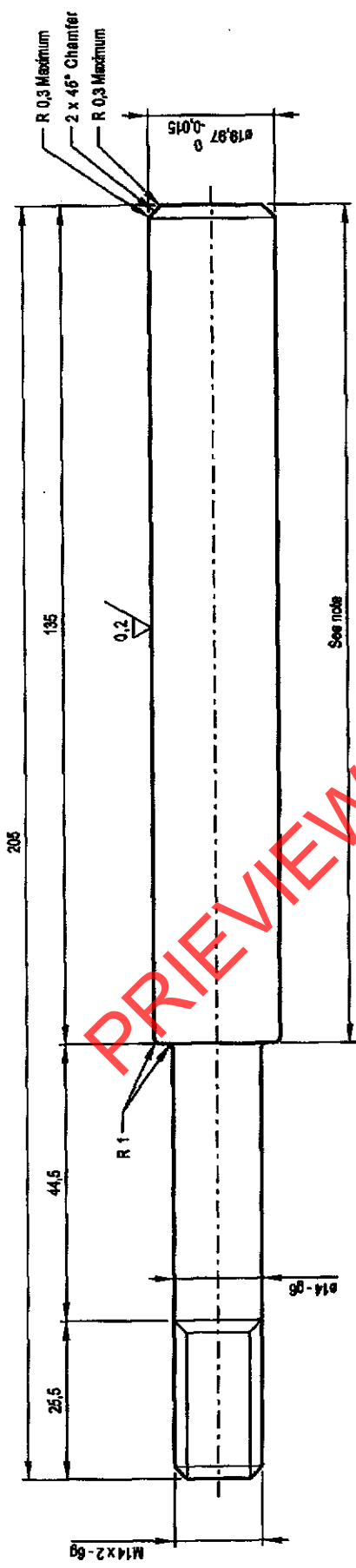
NOTES:  
1. FINISH -  $\forall$  ALL OVER  
2. NEW SLIDING CYLINDER DRAWING No. BBB0381



DETAILED VIEW  
SCALE 2:1

**MACHINING OF SLIDING CYLINDER  
REFURBISHMENT**  
RETARDER  
SENTRA RAND MARSHALLING YARD

DO REF: CDO/820	GEN TOL: LIN± 0.1	ANG± -
DRN: CJ Marais	CKD: J v Dyk	DATE: 2001/05/17
ENG: PJ Visser	H Esterhuysen for CHIEF ENG	
CENTRAL DRAWING OFFICE		
		 <b>TRANSNET</b> freight rail



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Note  
Induction harden to a case depth of 1.2mm and Vickers hardness of 700



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DIMENSIONS : mm SCALE : 1:1  
 TOLERANCE : LIN ± 0.1 ANG ± 0.2° ITEM NO. :-  
 MATERIAL : Alloy steel to S6 970 Grade S17M40  
 (EN24) condition "V"  
 VERSION INFO : Redrawn, changed radii and chamfer,  
 removed "Prototype"

DO REF : CDO/5938  
 CP REF : BBC8474  
 DRAWN : D.A. Ballabio  
 DESIGNED :-  
 CHECKED : J.D. van Dyk

DATE: 2008/04/22  
 APPROVED  
 AUTHORIZED

SHORT PISTON ROD  
 CATCHER  
 SENTRAND MARSHALLING YARD



BBB1387  
 VERSION 4

A4



VERSION	
NO	DATE

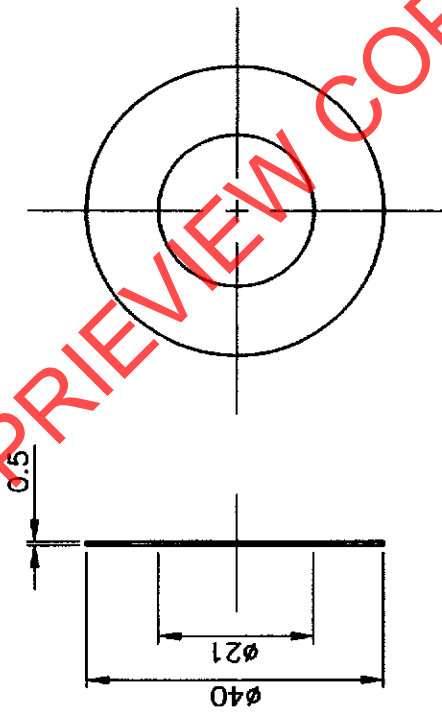
STORES ITEM NO. \_\_\_\_\_

DIMENSIONS: mm.  
SCALE: 1:1

DRG NO  
**BBB1397**  
VERSION 1



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NOTE:  
▽ ALL OVER

MATERIAL: ALLOY STEEL TO BS 1449 GRADE 95 HS AND CS

DO REF: CDO/798 GEN TOL: LIN± 0.1 ANG± -

DRN: CJ McGrath CKD: [Signature] v Dyk DATE: 2001/05/28

ENG: [Signature] for CHIEF ENG

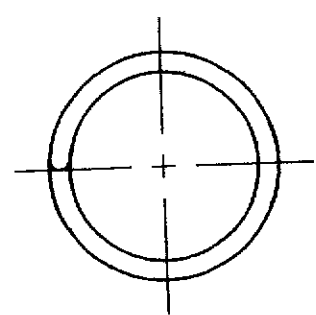
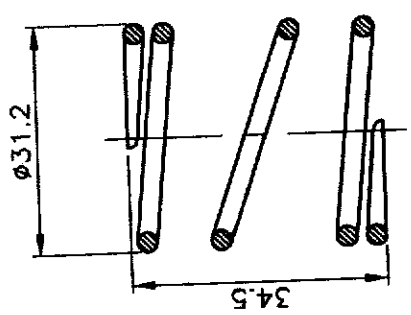
CENTRAL DRAWING OFFICE

SPOONET

SHIM (SPRING)  
CATCHER  
SENTRARAND MARSHALLING YARD

VERSION	
NO	NAME
	DATE

SPRING DATA	
NOMINAL WIRE DIAMETER	2.7
DIAMETER: OUTSIDE	31.2
FORM OF END COILS	±3° WITHIN AXIS, CLOSED AND GROUND
TOTAL No. OF COILS	4 ± 0.25
INDEX	10.556
FREE LENGTH	34.5 ± 1.5
No. OF WORKING COILS	±2.15
MATERIAL	BS 2803, 685A55 ND 970 - 2010 MPa
HEAT TREATMENT	TEMPER AT 400°C FOR 30 MINUTES WITHIN 2 HOURS
FINISH	NATURAL
SPRING CONSTANT	10.808N/mm ± 0.162N/mm
SOLID HEIGHT	10.3 MAX
HELIX	RIGHT HAND
F1 AT 16 mm.	196.2 N/mm ± 2.94 N/mm



STORES ITEM NO. -

DIMENSIONS: mm.  
SCALE: 1:1

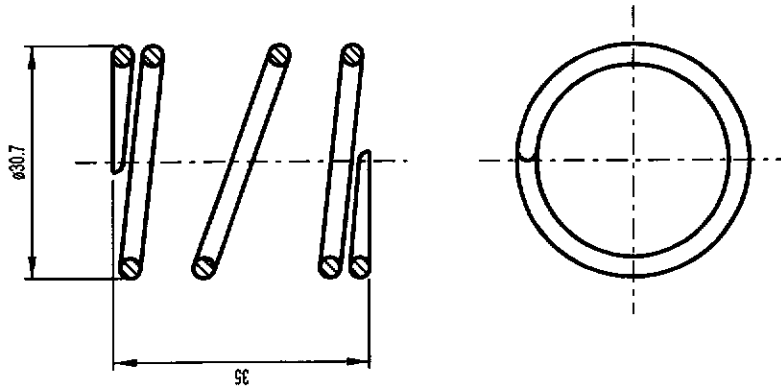


DRG NO  
**BBB0408**  
VERSION 1

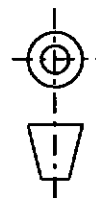
**HELICAL HEAVY DUTY  
COMPRESSION SPRING  
FOR RETARDERS 4.5 m/s**  
SENTRARAND MARSHALLING YARD

DO REF: CDO/222 GEN TOL: LIN ± 0.3 ANG ± -  
 DRN: CJ Marais CKD: J V Dyk DATE: 2001/03/29  
 ENG: [Signature] for CHIEF ENG

CENTRAL DRAWING OFFICE  
 SPOONNET



SPRING DATA	
NOMINAL WIRE DIAMETER	2.04
DIAMETER: OUTSIDE	30.7 ± 0.1
FORM OF END COILS	CLOSED AND GROUND
TOTAL No. OF COILS	3.9
INDEX	10.629
FREE LENGTH	35 ± 1
NUMBER OF WORKING COILS	2.3
MATERIAL	BS 2803, 685A55 ND 1970 - 2010MPa
HEAT TREATMENT	TEMPER AT 400°C FOR 30 MINUTES
FINISH	NATURAL
SPRING CONSTANT	1 kg/mm
SOLID HEIGHT	10.3
HELIX	RIGHT HAND
F1 AT 16mm	181.48 N/mm 2.94 N/mm



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DIMENSIONS : mm SCALE : 1 : 1  
 TOLERANCE : LIN±0.3 ANG± - ITEM NO. :  
 MATERIAL : SEE SPRING DATA  
 VERSION INFO : PROTOTYPE REMOVED

APPROVED

AUTHORISED

HELICAL MEDIUM DUTY  
 COMPRESSION SPRING  
 RETARDERS 3.5m/s & 4.0m/s  
 SENTRARAND MARSHALLING YARD

**TRANSNET**  
 freight rail  
**BBB1384**  
 VERSION 2

A4

DO REF: CDO/6929

ECP REF: -

DRAWN: CJ Marais

DESIGNED: CJ Marais

CHECKED: JD v Dyk

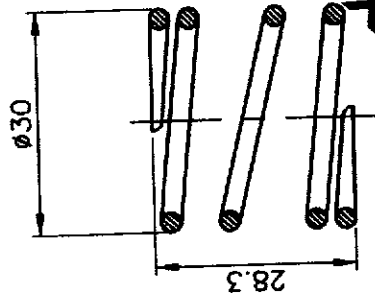


PHOTO BY  
 M. J. V. Dyk

DO REF: CDO/820 GEN TOL: LIN± 0.3 ANG± -  
 DRN: CJ Maitais OKD: J. V. Dyk DATE: 200/05/30  
 ENG: *[Signature]* for CHIEF ENG

CENTRAL DRAWING OFFICE  
**SPOORNET**

**HELICAL LIGHT DUTY  
 COMPRESSION SPRING**  
 RETARDERS 1.5, 2.0, 2.5 & 3.0m/s  
 SENTRARAND MARSHALLING YARD

SPRING DATA	
NOMINAL WIRE DIAMETER	2.3
DIAMETER: OUTSIDE	30±0.1
FORM OF END COILS	CLOSED AND GROUND
TOTAL No. OF COILS	4.66
INDEX	11.821
FREE LENGTH	28.3±1
No. OF WORKING COILS	2.66
MATERIAL	BS2803, 685A55, ND, 1950 - 2100MPA
HEAT TREATMENT	TEMPER AT 480°C FOR 30 MINUTES
FINISH	NATURAL
SPRING CONSTANT	0.7kg/mm.
SOLID HEIGHT	10.9
HELIX	RIGHT HAND
F1 AT 16mm	64.74N/mm ± 2.94N/mm

PREVIEW COPY ONLY

VERSION	
NO	NAME
	DATE

STORES ITEM NO. -  
 DIMENSIONS: mm.  
 SCALE: 1:1



DRG NO  
**BBB1383**  
 VERSION 1

### Standard Items

Part no	Description	Detail
SD01	Circlip "E"	1.5mm thick for inner diameter 15mm
SD03	Cleve lock nut M14	H.T. M14
SD05	Galvanised Lock nut M 27	H.T. M27 Galvanised
SD06	Galvanised Nut M 27	H.T. M27 Galvanised
SD07	Spring washer M 27	Spring washer M 27
SD09	Spiral pin	Prym Flurred Roll Spiral pin 4 x 14
SD10	Standard M14 Nut	Standard M14 Nut Mildsteel
SD 11		

*Sample could be collected if needed*

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