













PEN SETTINGS FOR PLOTTING	
COLOUR/No.	
 1	PEN WIDTH .18
 7	PEN WIDTH .2
 2	} PEN WIDTH .25
 4	
 6	
 3	PEN WIDTH .3

ApT ENGINEERS AXLE STAND	
TITLE: BASE	
SCALE: 1:3	
DRAWN: ABATEC	PAGE: 1 of 3
CAD No: APT-11-1	

No.	DESCRIPTION	QUANTITY	DIMENSIONS
A	TUBE	1	36mm INSIDE DIAMETER x 50 LONG
B	ANGLE	3	25 x 25 x 3 x 280 LONG
C	FLAT	3	20 x 3 x 170 LONG
D	TUBE	1	34 OUT DIAMETER x 250 LONG
E	FLAT	1	30 x 6 x 100 LONG
F	ROUND BAR	1	10 x 75 LONG

PEN SETTINGS FOR PLOTTING

COLOUR/No.

	1	PEN WIDTH .18
	7	PEN WIDTH .2
	2	} PEN WIDTH .25
	4	
	6	
	3	PEN WIDTH .3

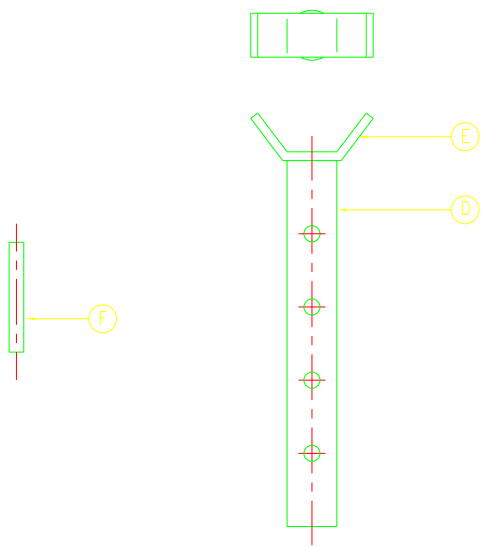
ApT AXLE STAND

TITLE: PARTS LIST

SCALE:

DRAWN: ABATEC PAGE: 2 of 3

CAD No: APT-11-2



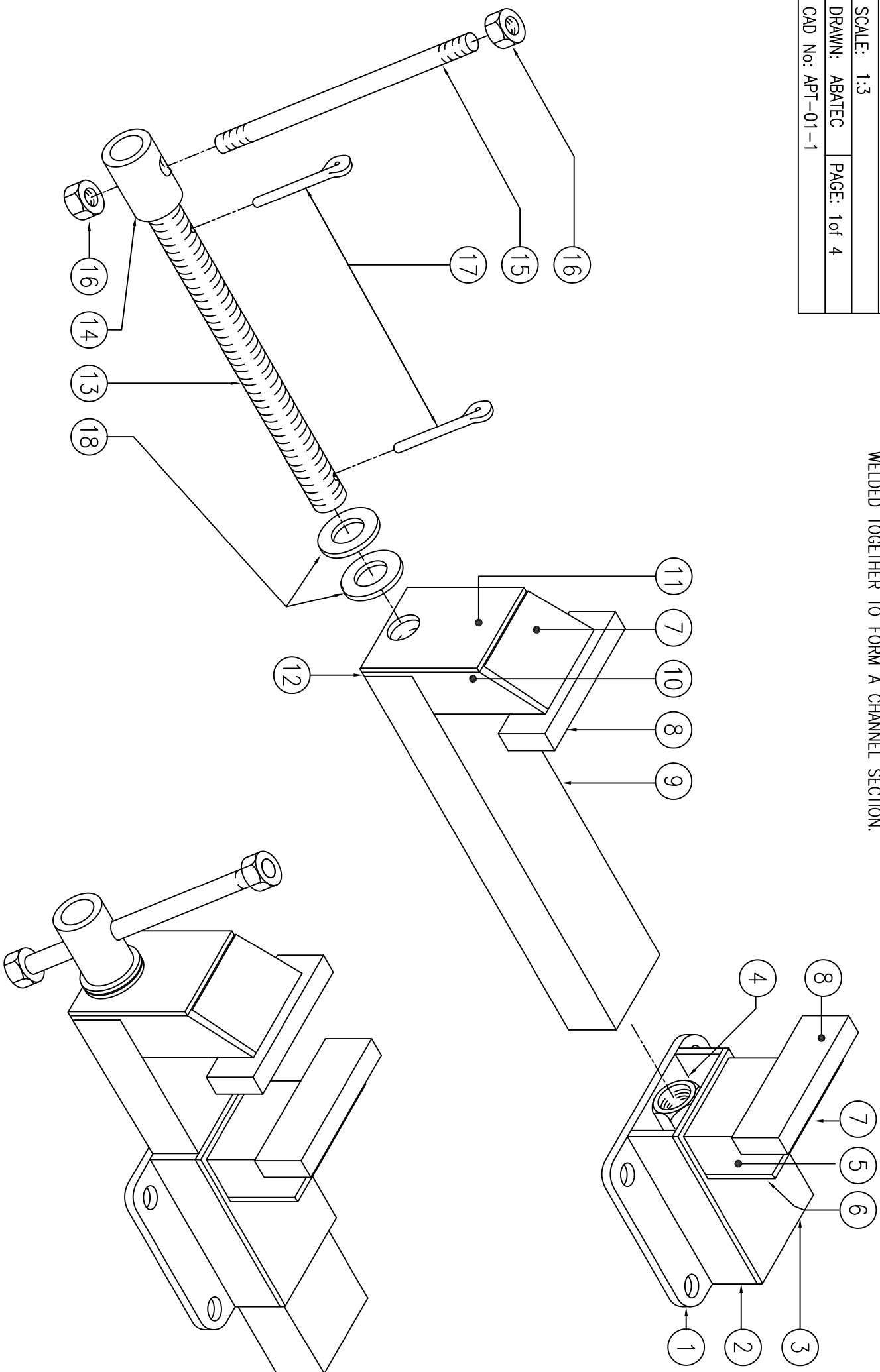
PEN SETTINGS FOR PLOTTING

COLOUR/No.

	1	PEN WIDTH .18
	7	PEN WIDTH .2
	2	} PEN WIDTH .25
	4	
	6	
	3	PEN WIDTH .3

ApT ENGINEERS AXLE STAND	
TITLE: SHAFT AND PIN	
SCALE: 1:3	
DRAWN: ABATEC	PAGE: 1 of 3
CAD No: APT-11-3	

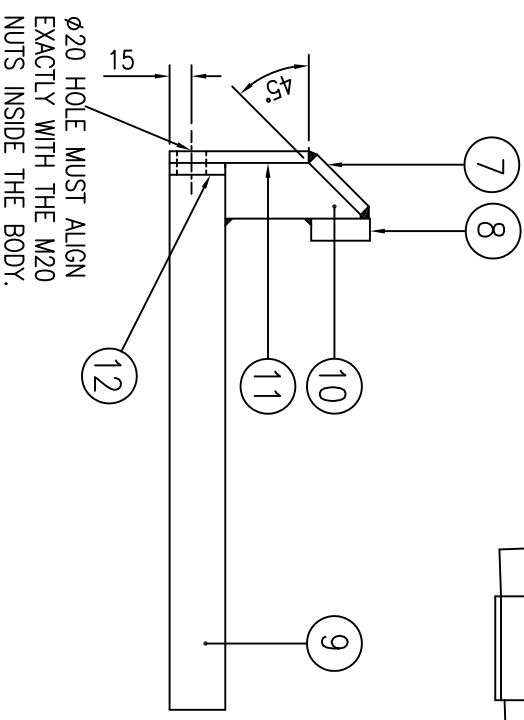
THE DESIGN IS BASED ON CHANNEL SECTION FOR THE SLIDE, SLIDE TOWER AND BODY TOWER. IF THIS IS UNAVAILABLE, IT CAN BE REPLACED USING PLATE OR TWO LENGTHS OF ANGLE IRON WELDED TOGETHER TO FORM A CHANNEL SECTION.



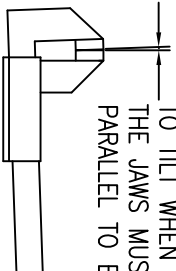
No.	DESCRIPTION	QUANTITY	DIMENSIONS
1	BASE	1	8 x 150 x 150
2	BODY SIDE	2	8 x 150 x 38
3	BODY TOP	1	8 x 150 x 95
4	NUT	2	M20 NUT
5	BODY TOWER	1	38 x 77 CHANNEL SECTION x 85
6	BODY BACK	1	8 x 77 x 50
7	TOWER TOP	2	8 x 77 x 50
8	JAW	2	15 x 40 x 120
9	SLIDE	1	38 x 77 CHANNEL SECTION x 365
10	SLIDE TOWER	1	38 x 77 CHANNEL SECTION x 90
11	SLIDE BACK	1	8 x 77 x 95
12	BACK SUPPORT	1	8 x 77 x 38
13	THREAD	1	M20 STUDDING x 350
14	BOSS	1	∅30 (∅20 BORE) x 70
15	HANDLE	1	∅12 x 200
16	NUT	2	M12 NUT
17	SPLIT PIN	2	∅5 x 50 SPLIT PIN OR NAIL
18	WASHERS	2	M20 WASHER

ApT ENGINEERS BENCH VICE	
TITLE: PARTS LIST	
SCALE:	
DRAWN: ABATEC	PAGE: 2 of 4
CAD No: APT-01-2	

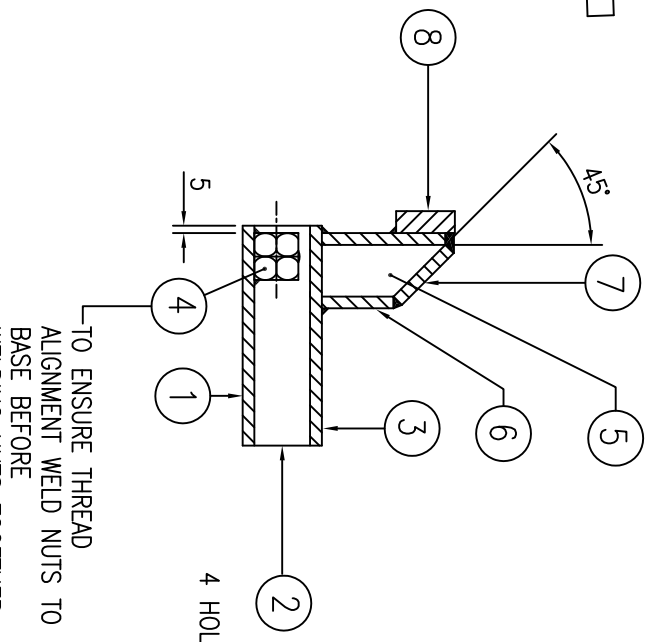
ApT ENGINEERS BENCH VICE	
TITLE: VICE SUB-ASSEMBLIES	
SCALE: 1:5	PAGE: 3 of 4
DRAWN: ABATEC	CAD No: ApT-01-3



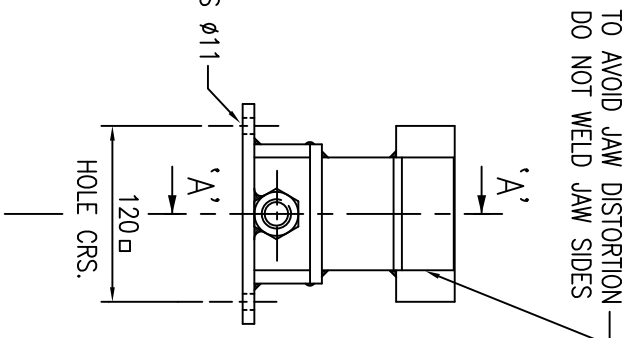
φ20 HOLE MUST ALIGN EXACTLY WITH THE M20 NUTS INSIDE THE BODY.



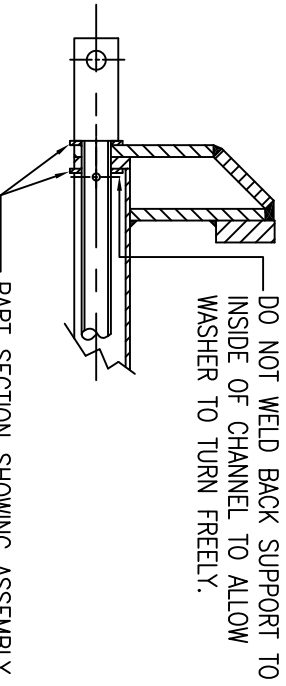
THE CHANNEL SECTION SLIDE MUST BE A GOOD SNUG FIT INSIDE THE BODY SO AS NOT TO TILT WHEN TIGHTENED. THE JAWS MUST CLOSE PARALLEL TO EACH OTHER.



TO ENSURE THREAD ALIGNMENT WELD NUTS TO BASE BEFORE WELDING NUTS TOGETHER.

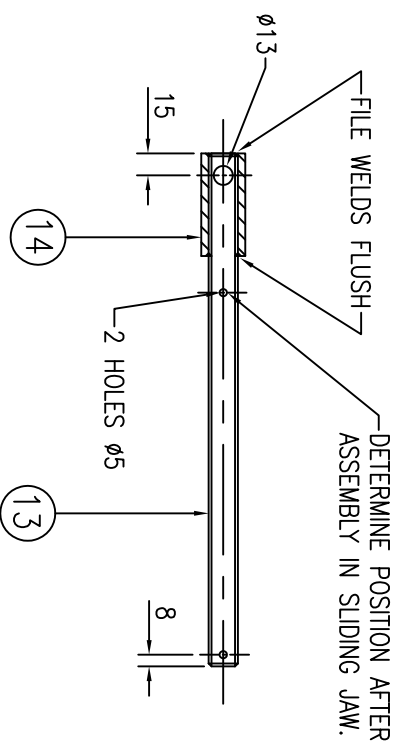
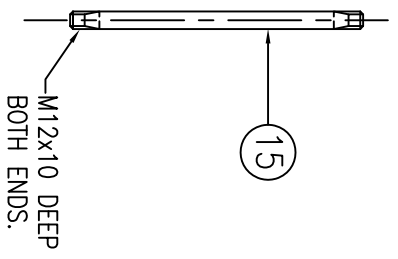


TO AVOID JAW DISTORTION DO NOT WELD JAW SIDES.



DO NOT WELD BACK SUPPORT TO INSIDE OF CHANNEL TO ALLOW WASHER TO TURN FREELY.

PART SECTION SHOWING ASSEMBLY OF THREAD INTO SLIDING JAW. THE SPLIT PIN SECURES THE TWO WASHERS EITHER SIDE OF THE SLIDE BACK.



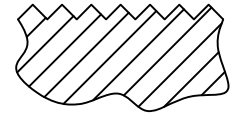
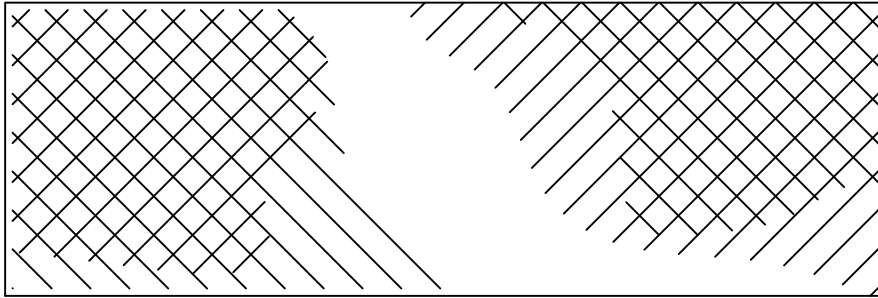
DETERMINE POSITION AFTER ASSEMBLY IN SLIDING JAW.

KNURLED JAW SURFACE

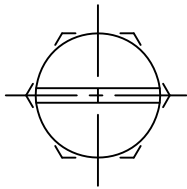
1. SCRIBE LINES
AT 45° AS
A GUIDE.

2. USE A COLD CHISEL
TO PRODUCE A
KNURLED GRIPPING
SURFACE.

ENLARGED SECTION
OF KNURLED SURFACE.
NOTE TOP SURFACE
MUST BE FLAT TO
CLAMP EFFECTIVELY
WITH OPPOSITE JAW.

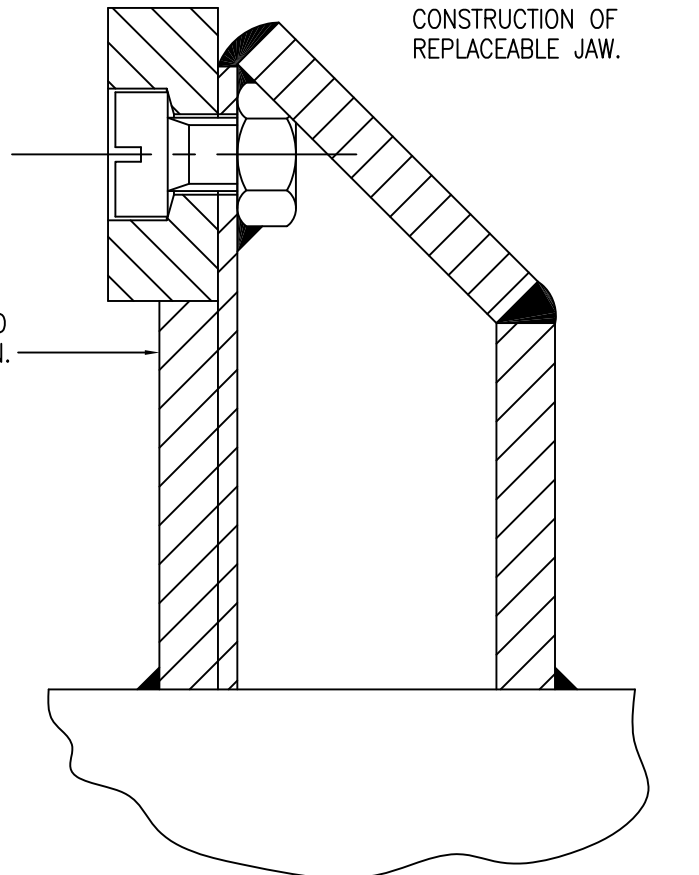


REPLACEABLE JAWS



ROUND OFF THE HEADS
OF FOUR M10 BOLTS
AND SAW A SLOT
ACROSS.

JAW SUPPORT PLATE WELDED
TO TOWER CHANNEL SECTION.



PART SECTION SHOWING
CONSTRUCTION OF
REPLACEABLE JAW.

HARD JAWS

IF HARD JAWS ARE REQUIRED, THESE CAN
BE MADE FROM LORRY LEAF-SPRING:

1. ANNEAL BEFORE CUTTING JAWS (HEAT TO
DULL RED AND COOL VERY SLOWLY).
2. AFTER MAKING THEM, RE-HARDEN BY
HEATING TO DULL RED AND QUENCHING IN OIL.

ApT ENGINEERS BENCH VICE

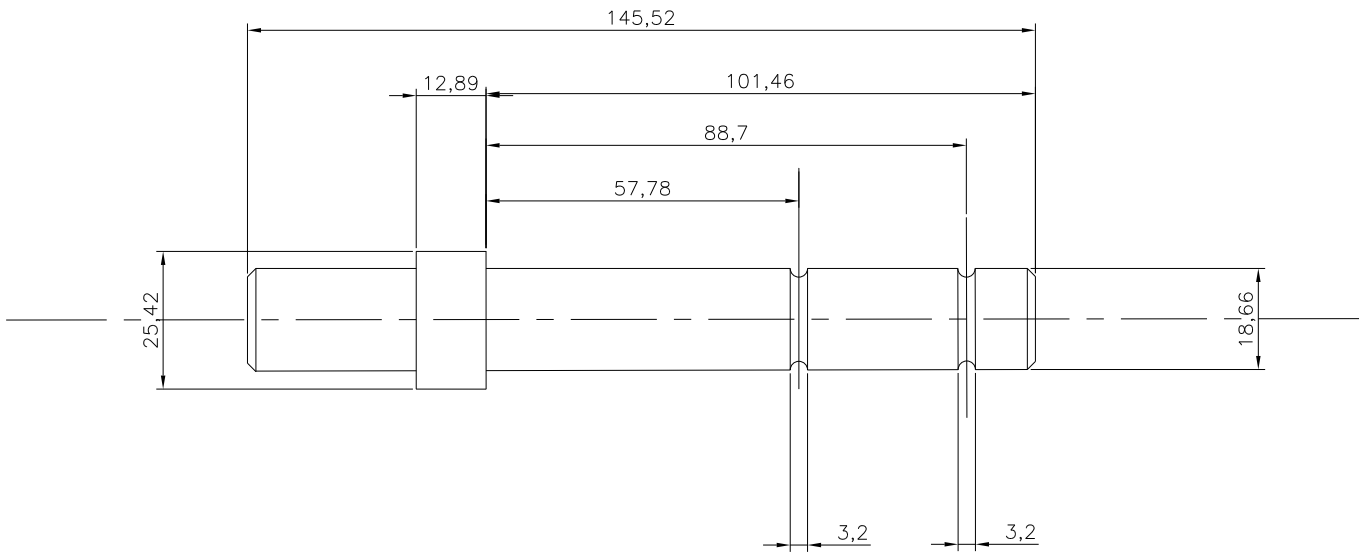
TITLE: JAW OPTIONS

SCALE: 1:1

DRAWN: ABATEC PAGE: 4 of 4

CAD No: APT-01-4

DO NOT SCALE



01 SHAFT - MILD STEEL - 1 OFF

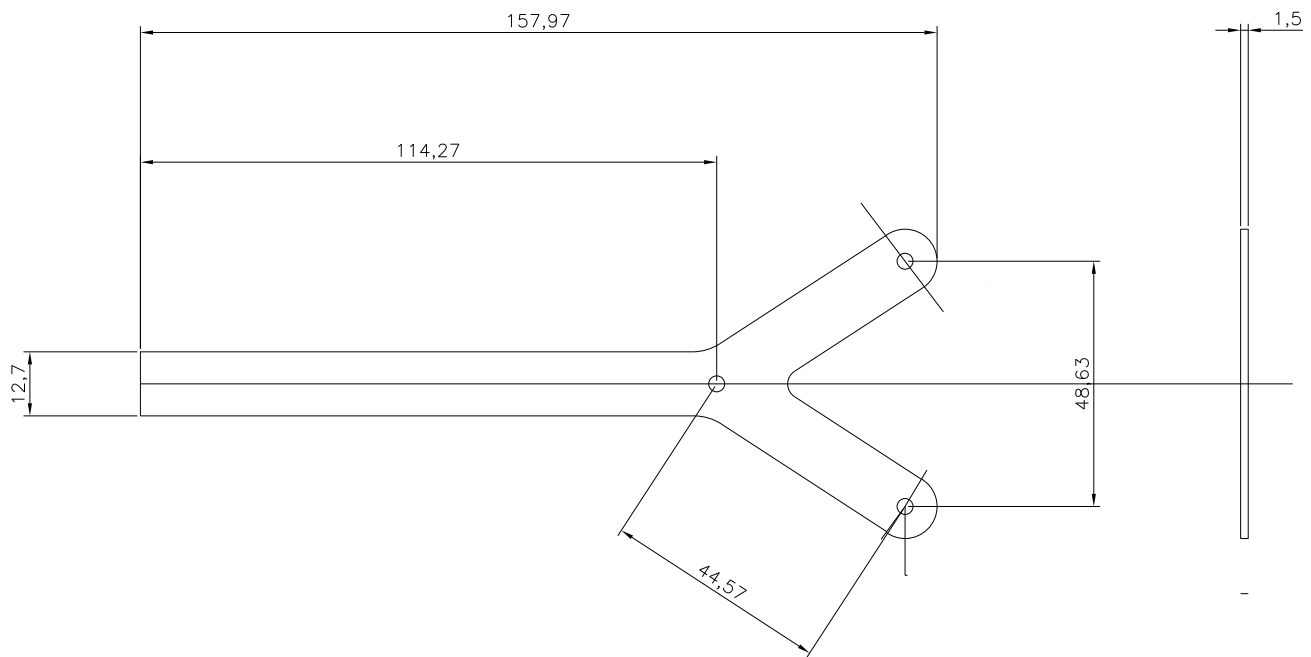
TOLERANCES
UNLESS OTHERWISE
STATED ± 0.25

No.	Description	CHK	AP'D	DATE

Practical
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info@practicalaction.org.uk

TITLE	ROPP BOTTLE CAPPER	DRAWN	A.R	TRACE	-	CHK	-		NOT TO SCALE
DIMENSIONS IN MM		DRAWING No. ROPP-001							

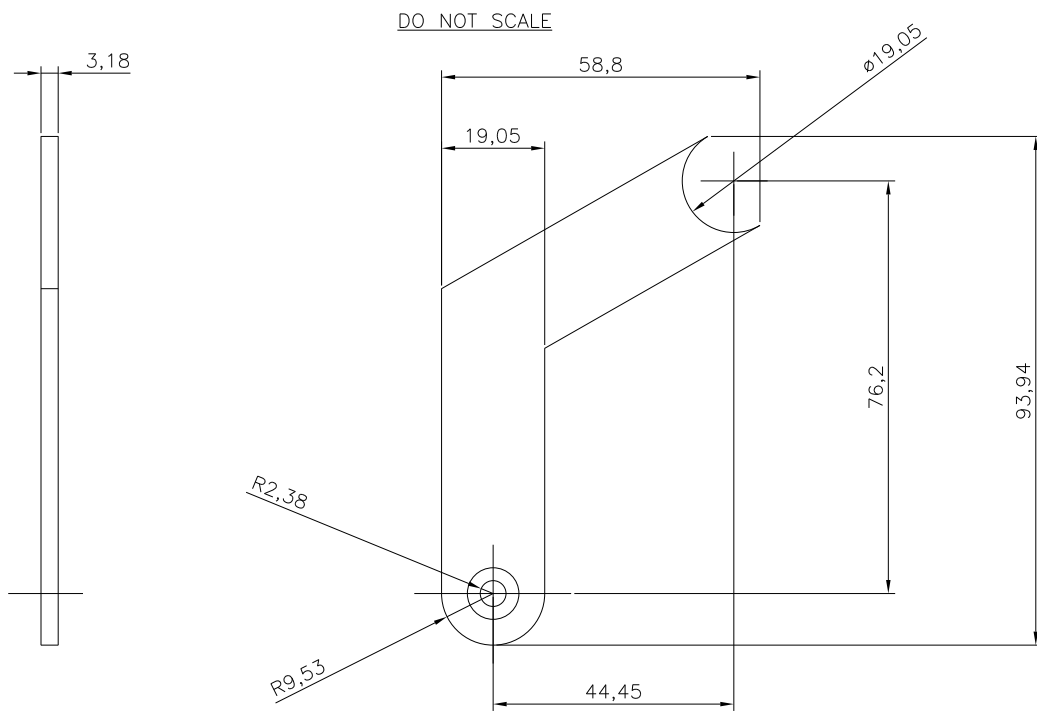
DO NOT SCALE



17 M. S. STRIP - MILD STEEL - 1 OFF

TOLERANCES
UNLESS OTHERWISE
STATED ± 0.25

					Practical Action www.practicalaction.org infoserv@practicalaction.org.uk	TITLE	ROPP BOTTLE CAPPER	DRAWN	A.R	TRACE	-	CHK	-		NOT TO SCALE
No.	Description	CHK	AP'D	DATE		DIMENSIONS IN MM	DRAWING No.	ROPP-017							
REVISIONS															



03 GUIDE STRIP – MILD STEEL – 1 OFF

TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

No.	Description	CHK	AP'D	DATE

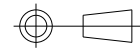
Practical
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TITLE ROPP BOTTLE
CAPPER
DIMENSIONS IN MM

DRAWN
A.R

TRACE
-

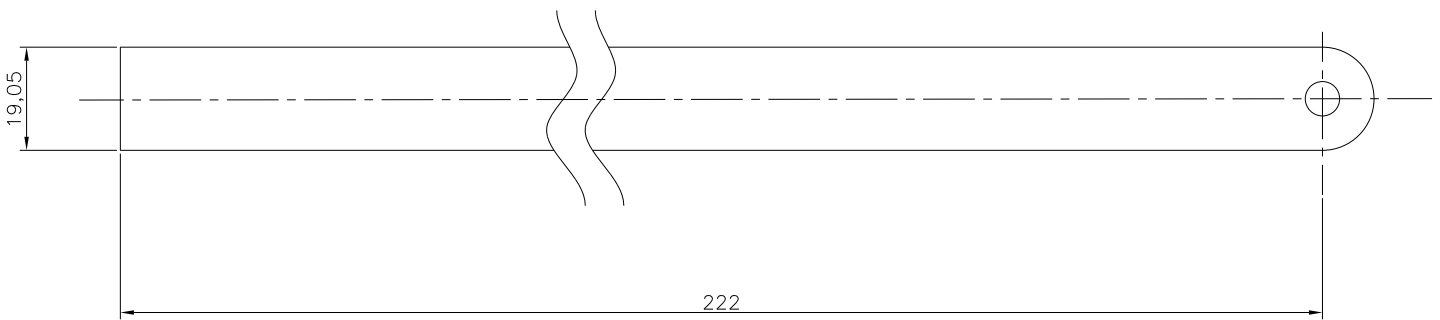
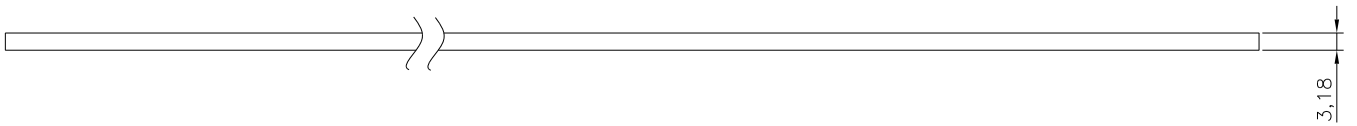
CHK
-



NOT TO
SCALE

DRAWING No. ROPP-003

DO NOT SCALE



04 STRIP - MILD STEEL - 1 OFF

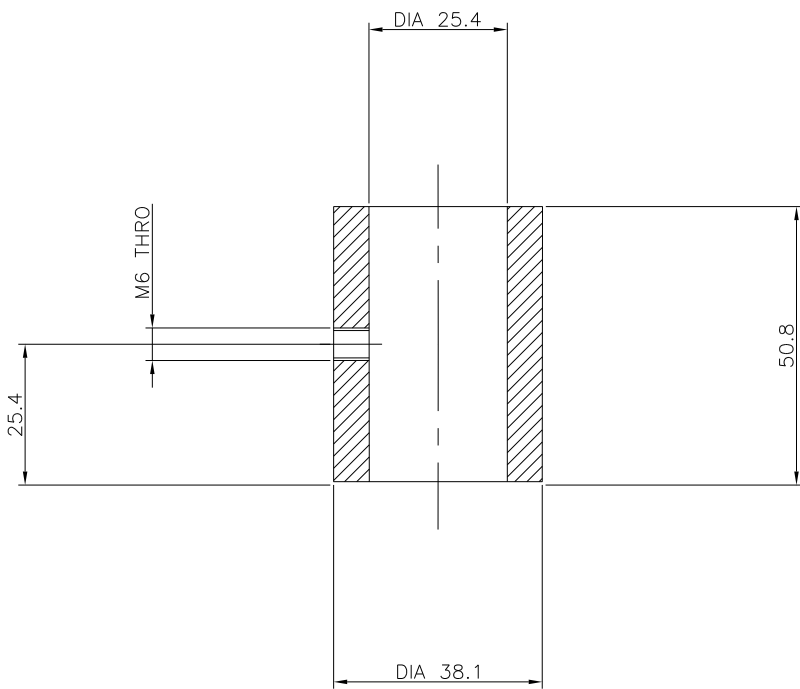
TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

No.	Description	CHK	AP'D	DATE

Practical
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TITLE	ROPP BOTTLE CAPPER	DRAWN	A.R	TRACE	-	CHK	-			NOT TO SCALE
DIMENSIONS IN MM		DRAWING No. ROPP-004								

DO NOT SCALE



TOLERANCES
UNLESS OTHERWISE
STATED ± 0.25

5 BUSH - 1 OFF - MILD STEEL

No.	Description	CHK	AP'D	DATE
REVISIONS				

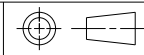
Practical
Action

TITLE ROPP BOTTLE
CAPPER
DIMENSIONS IN MM

DRAWN
A.R

TRACE
-

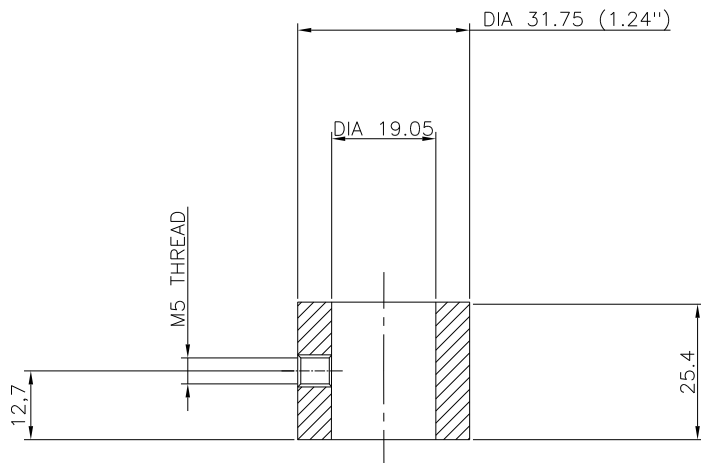
CHK
-



NOT TO
SCALE

DRAWING No. ROPP -005

DO NOT SCALE



TOLERANCES
UNLESS OTHERWISE
STATED ± 0.25

6 BUSH - 1 OFF - MILD STEEL

No.	Description	CHK	AP'D	DATE
REVISIONS				

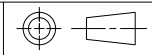
Practical
Action

TITLE ROPP BOTTLE
CAPPER
DIMENSIONS IN MM

DRAWN
A.R

TRACE
-

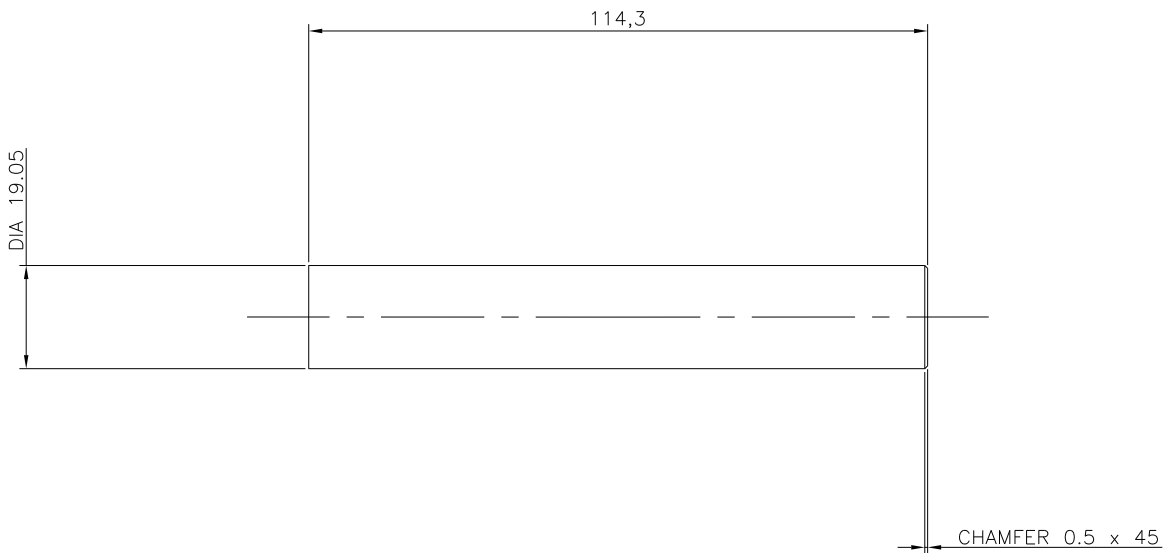
CHK
-



NOT TO
SCALE

DRAWING No. ROPP -006

DO NOT SCALE



7 SHAFT - 1 OFF - MILD STEEL

No.	Description	CHK	AP'D	DATE
REVISIONS				



Practical
Action

TITLE ROPP BOTTLE
CAPPER
MATERIAL MILD STEEL

DRAWN
A.R

TRACE
-

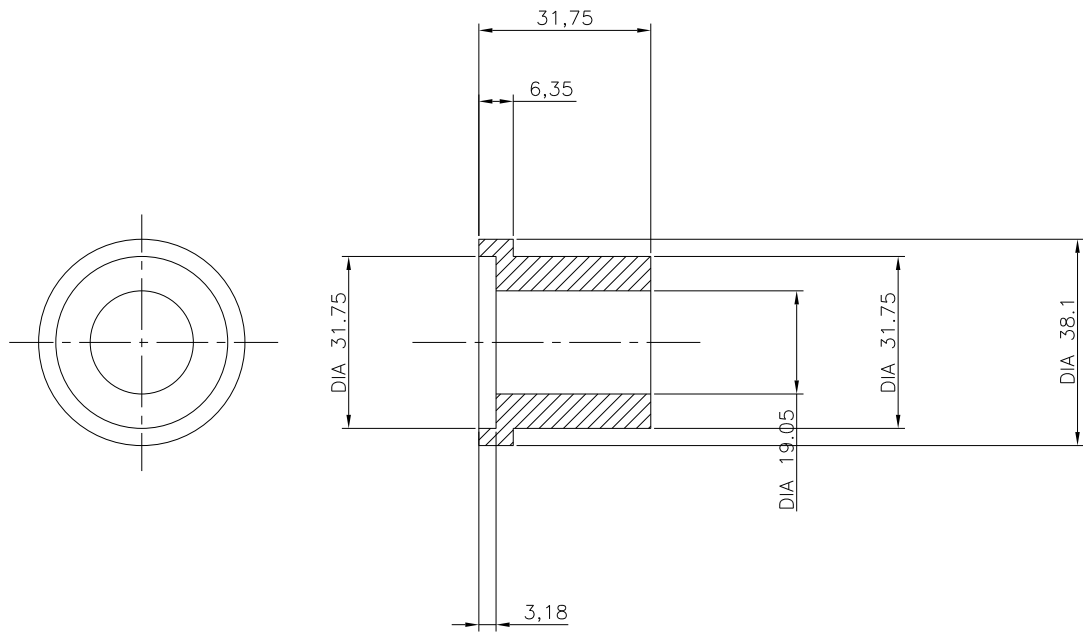
CHK
-

NOT TO
SCALE

DRAWING No. ROPP -007

DO NOT SCALE



08 GUIDE BUSH – MILD STEEL – 1 OFF

TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

No.	Description	CHK	AP'D	DATE

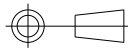
Practical
Action
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TITLE ROPP BOTTLE
CAPPER
DIMENSIONS IN MM

DRAWN
A.R

TRACE
-

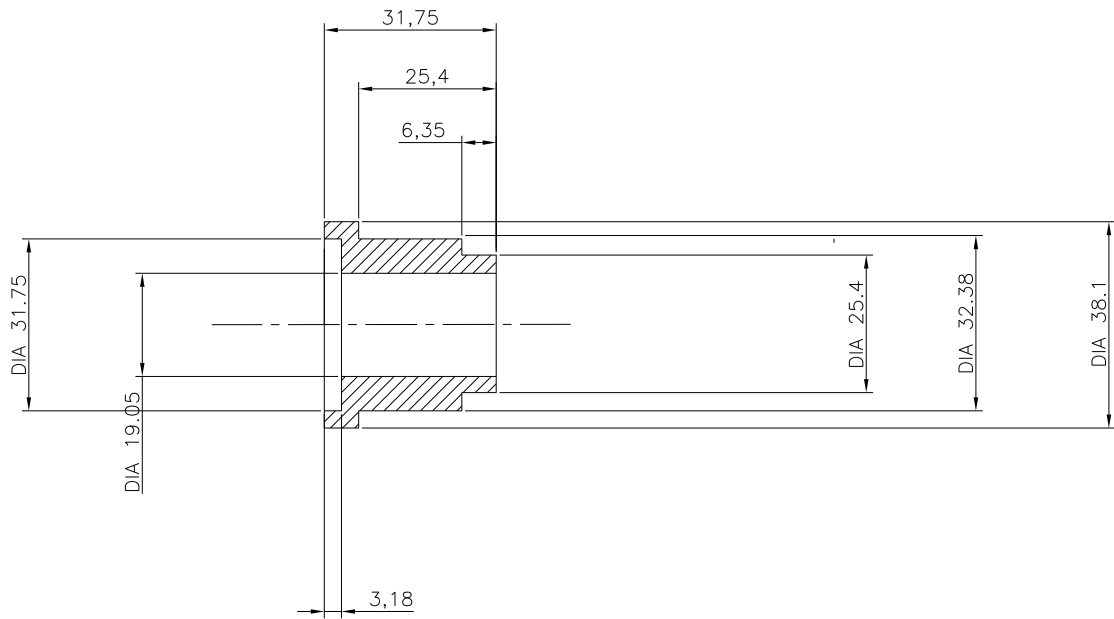
CHK
-



NOT TO
SCALE

DRAWING No. ROPP-001

DO NOT SCALE



09 GUIDE BUSH – MILD STEEL – 1 OFF

TOLERANCES
UNLESS OTHERWISE
STATED ± 0.25

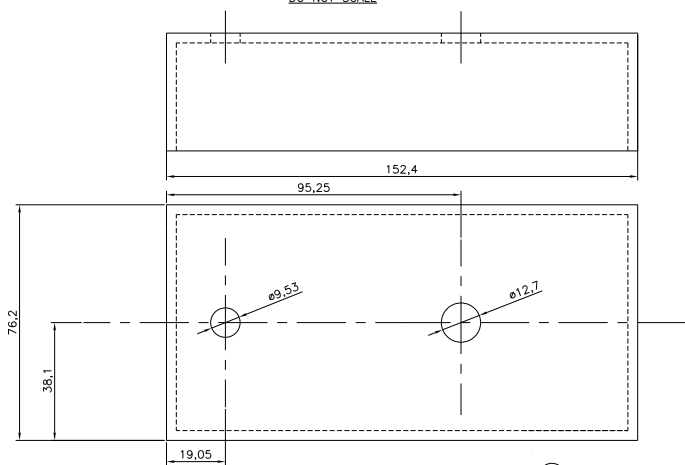
No.	Description	CHK	AP'D	DATE

Practical
Action
www.practicalaction.org
info@practicalaction.org.uk

TITLE	ROPP BOTTLE CAPPER	DRAWN	A.R	TRACE	-	CHK	-		NOT TO SCALE
DIMENSIONS IN MM		DRAWING No. ROPP-009							

STAND - MILD STEEL - 1 OFF

DO NOT SCALE



NOTE
ALL JOINTS TO
BE FULLY WELDED

10 STAND - 1/4 INCH MILD STEEL PLATE - 1 OFF

TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

Practical
Action
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TITLE ROPP BOTTLE
CAPPER

DRAWN
A.R

TRACE
-

CHK
-

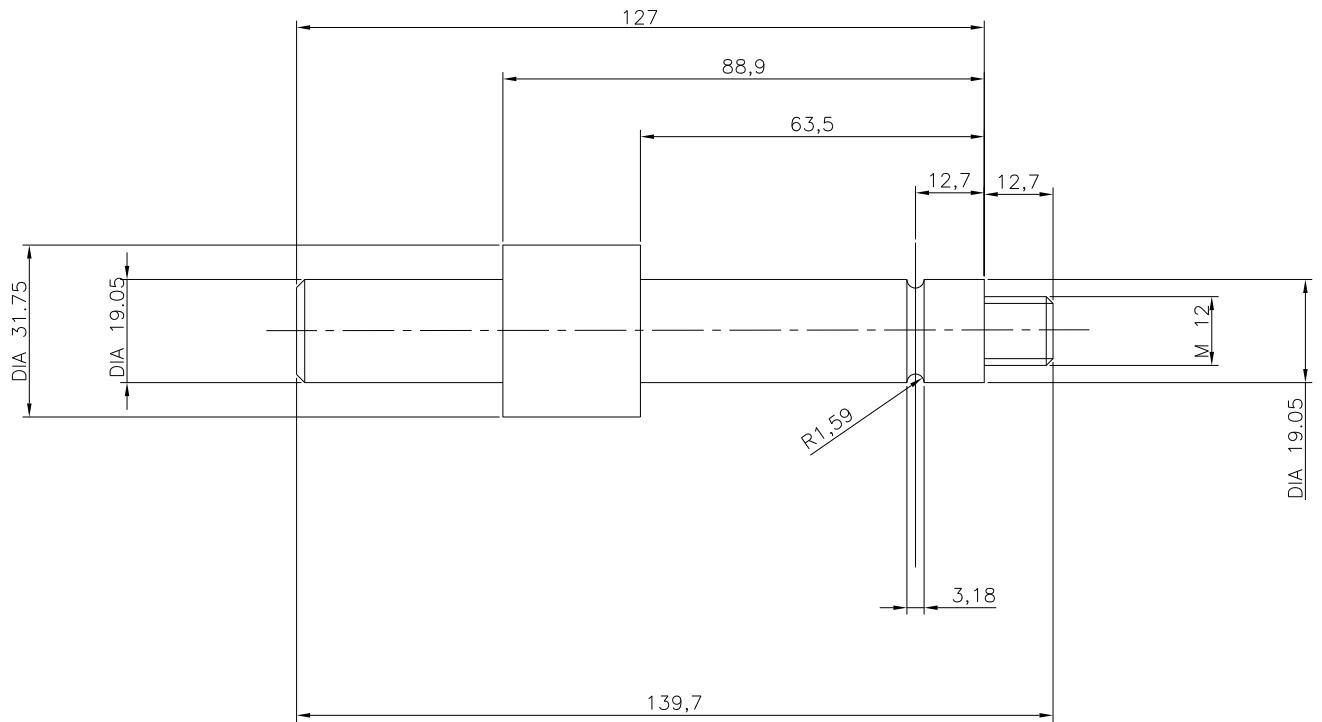
NOT TO
SCALE

DRAWING No. ROPP-001

DIMENSIONS IN MM

No.	Description	CHK	AP'D	DATE
REVISIONS				

DO NOT SCALE



① SHAFT – MILD STEEL – 1 OFF

TOLERANCES
UNLESS OTHERWISE
STATED ± 0.25

No.	Description	CHK	AP'D	DATE
REVISIONS				

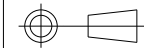
Practical
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TITLE ROPP BOTTLE
CAPPER
DIMENSIONS IN MM

DRAWN
A.R

TRACE
-

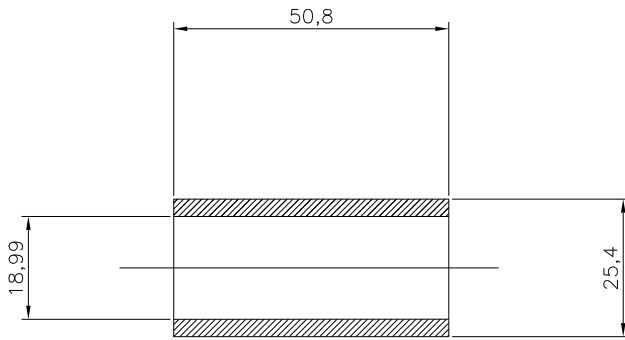
CHK
-



NOT TO
SCALE

DRAWING No. ROPP-011

DO NOT SCALE

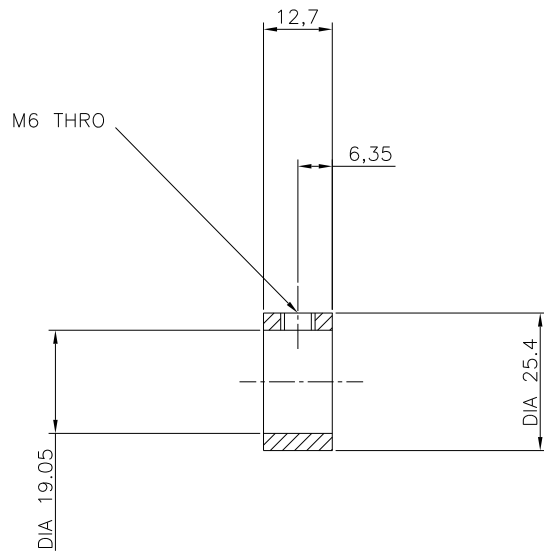


TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

12 HANDLE FRAME - MILD STEEL - 1 OFF

					Practical Action	TITLE ROPP BOTTLE CAPPER	DRAWN A.R	TRACE -	CHK -		NOT TO SCALE
No.	Description	CHK	AP'D	DATE		DIMENSIONS IN MM	DRAWING No. ROPP - 012				
REVISIONS											

DO NOT SCALE



13 BUSH - MILD STEEL - 1 OFF

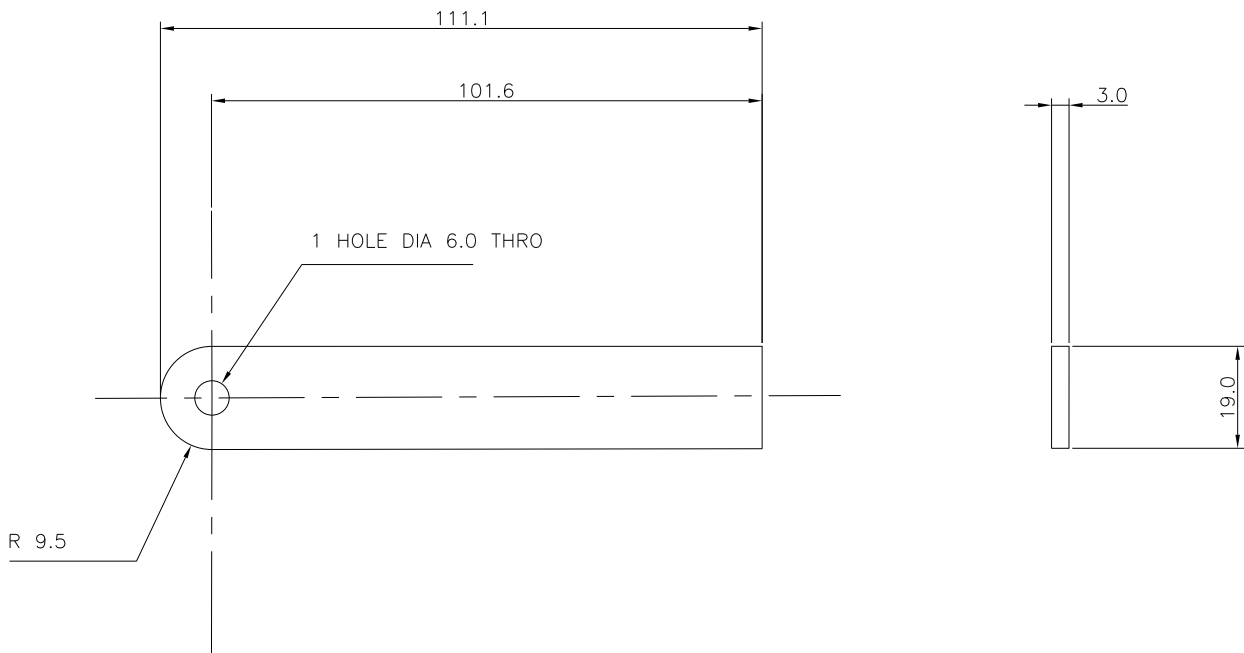
TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

No.	Description	CHK	AP'D	DATE
REVISIONS				

Practical
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TITLE	ROPP BOTTLE CAPPER	DRAWN	A.R	TRACE	-	CHK	-		NOT TO SCALE
DIMENSIONS IN MM		DRAWING No. ROPP-013							

DO NOT SCALE



14 M. S. STRIP – MILD STEEL – 2 OFF

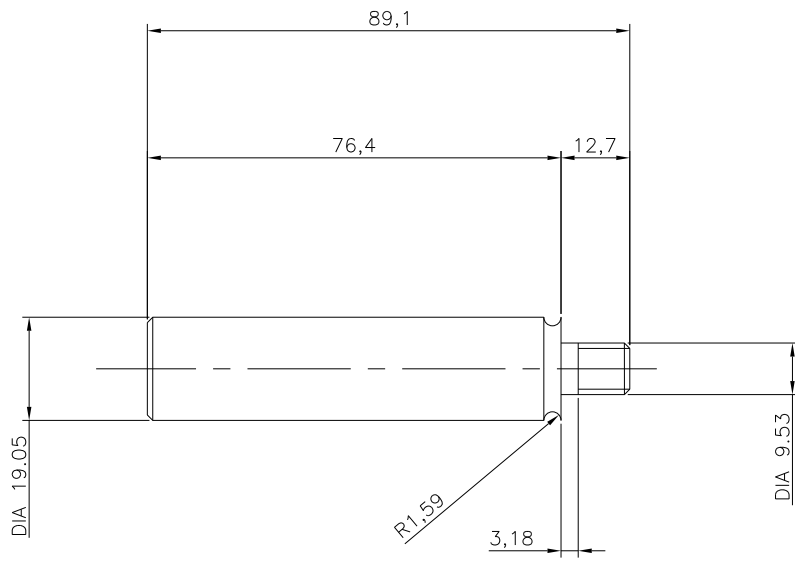
TOLERANCES
UNLESS OTHERWISE
STATED ± 0.25

No.	Description	CHK	AP'D	DATE

Practical
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TITLE	ROPP BOTTLE CAPPER	DRAWN	A.R	TRACE	-	CHK	-		NOT TO SCALE
DIMENSIONS IN MM		DRAWING No. ROPP-014							

DO NOT SCALE



15 ARM - MILD STEEL - 1 OFF

TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

No.	Description	CHK	AP'D	DATE

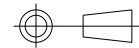
Practical
Action
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TITLE ROPP BOTTLE
CAPPER
DIMENSIONS IN MM

DRAWN
A.R

TRACE
-

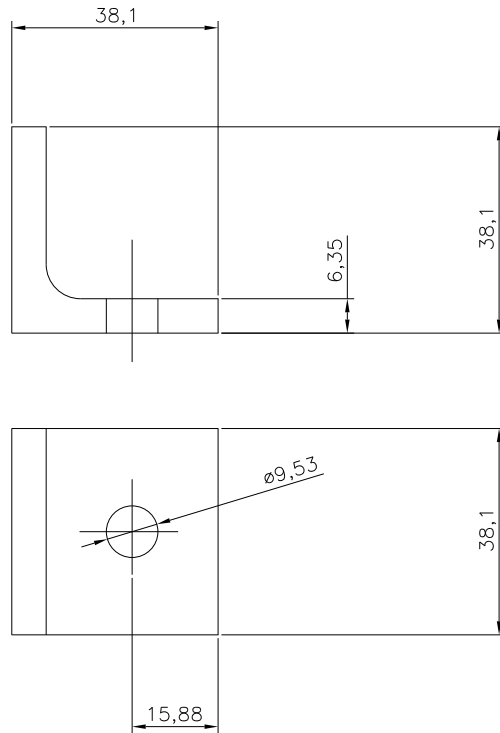
CHK
-



NOT TO
SCALE

DRAWING No. ROPP-015

DO NOT SCALE



16 SUPPORT (STAND) – MILD STEEL ANGLE – 1 OFF

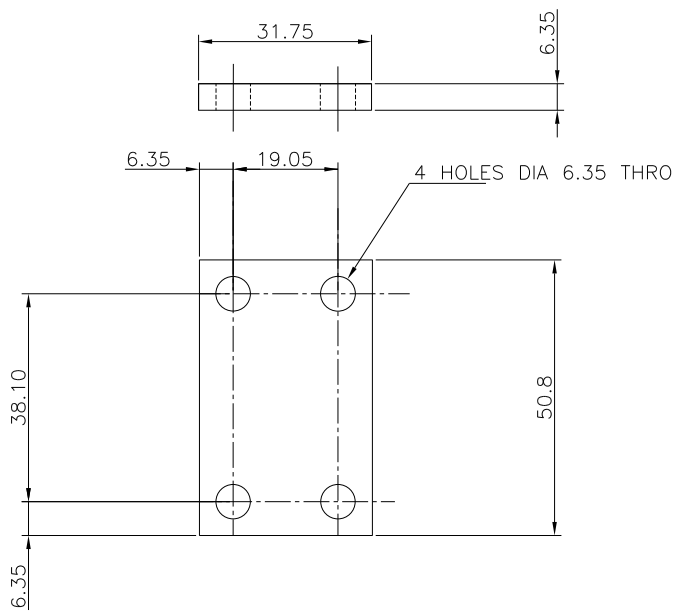
TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

No.	Description	CHK	AP'D	DATE
REVISIONS				

Practical
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TITLE	ROPP BOTTLE CAPPER	DRAWN	A.R	TRACE	-	CHK	-		NOT TO SCALE
DIMENSIONS IN MM		DRAWING No. ROPP-016							

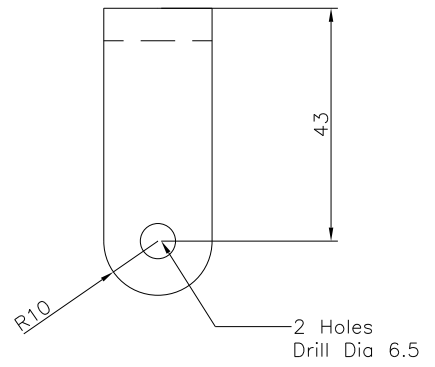
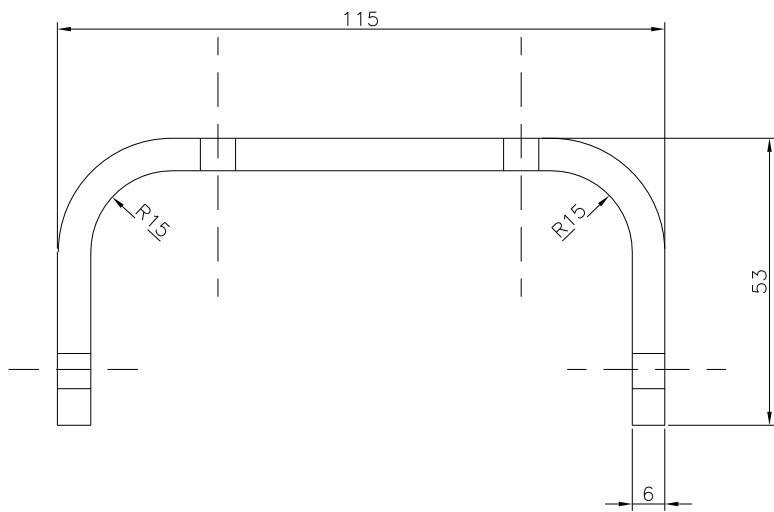
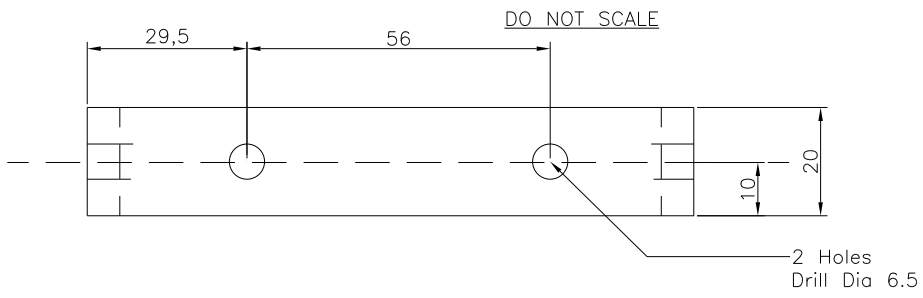
DO NOT SCALE



17 M. S. STRIP - MILD STEEL - 1 OFF

TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

					Practical Action	TITLE ROPP BOTTLE CAPPER	DRAWN A.R	TRACE -	CHK -		NOT TO SCALE
No.	Description	CHK	AP'D	DATE		DIMENSIONS IN MM	DRAWING No. ROPP-017				
REVISIONS											



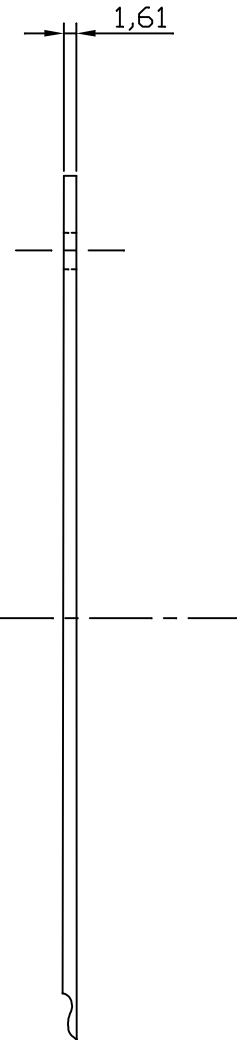
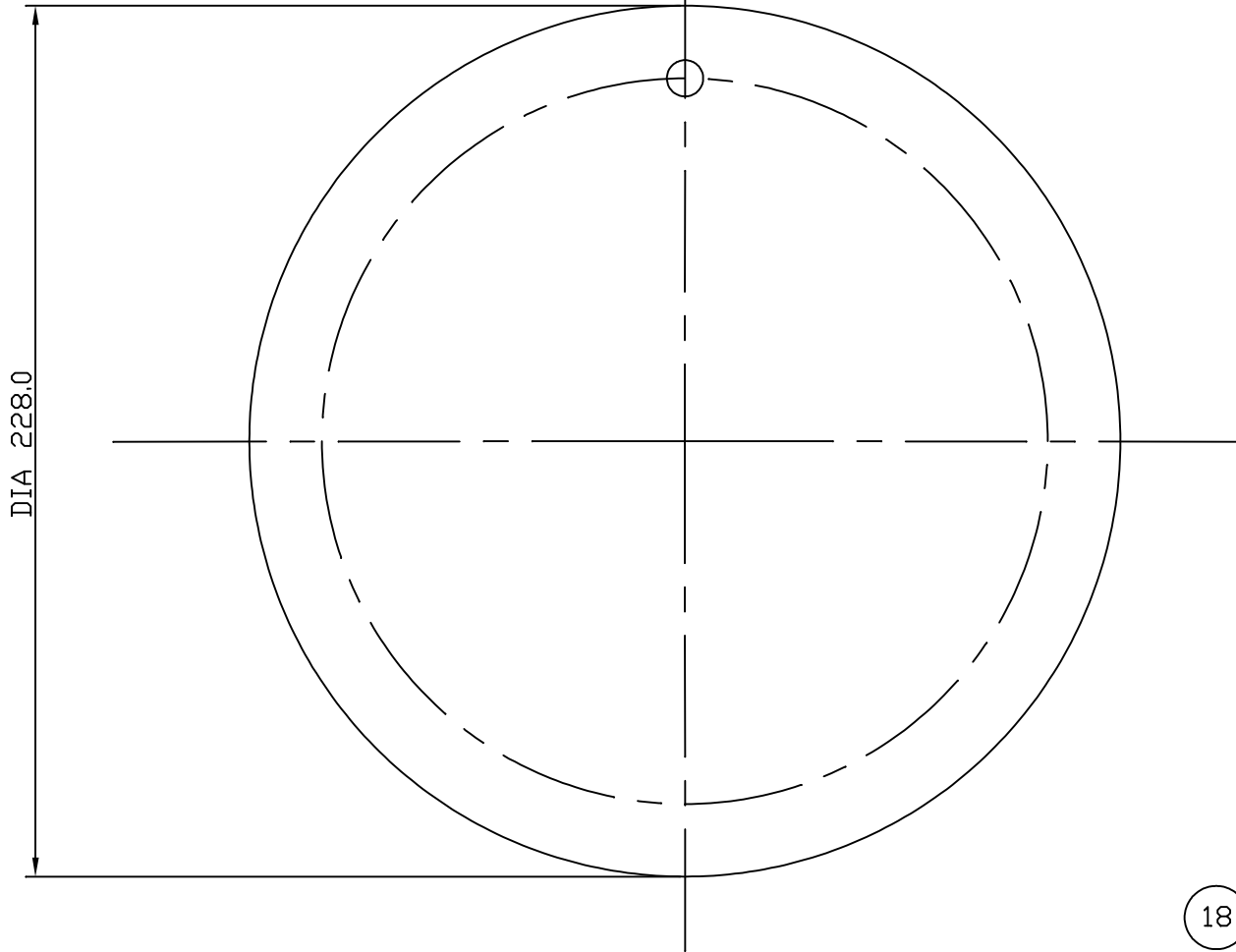
No.	Description	CHK	AP'D	DATE

REVISIONS

TITLE	Handle Frame	DRAWN	A.R	TRACE	-	CHK	-		SCALE	1:1
MATERIAL	Mild Steel	DRAWING No.		JBS104						

DO NOT SCALE

1 HOLE DIA 10.0 THRO
ON PCD 190.0



18 HAND WHEEL - MILD STEEL - 1 OFF

TOLERANCES
UNLESS
OTHERWISE
STATED +/- 0.25

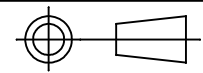
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TITLE ROPP BOTTLE
CAPPER

DRAWN
A.R

TRACE
-

CHK
-



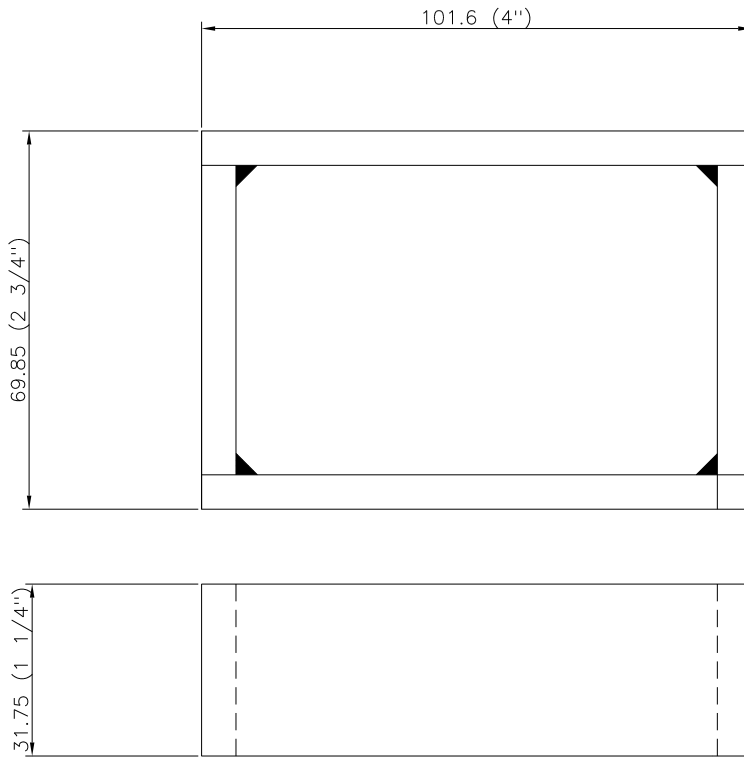
NOT
TO
SCALE

No.	Description	CHK	AP'D	DATE

DIMENSIONS IN MM

DRAWING No. ROPP-018

DO NOT SCALE



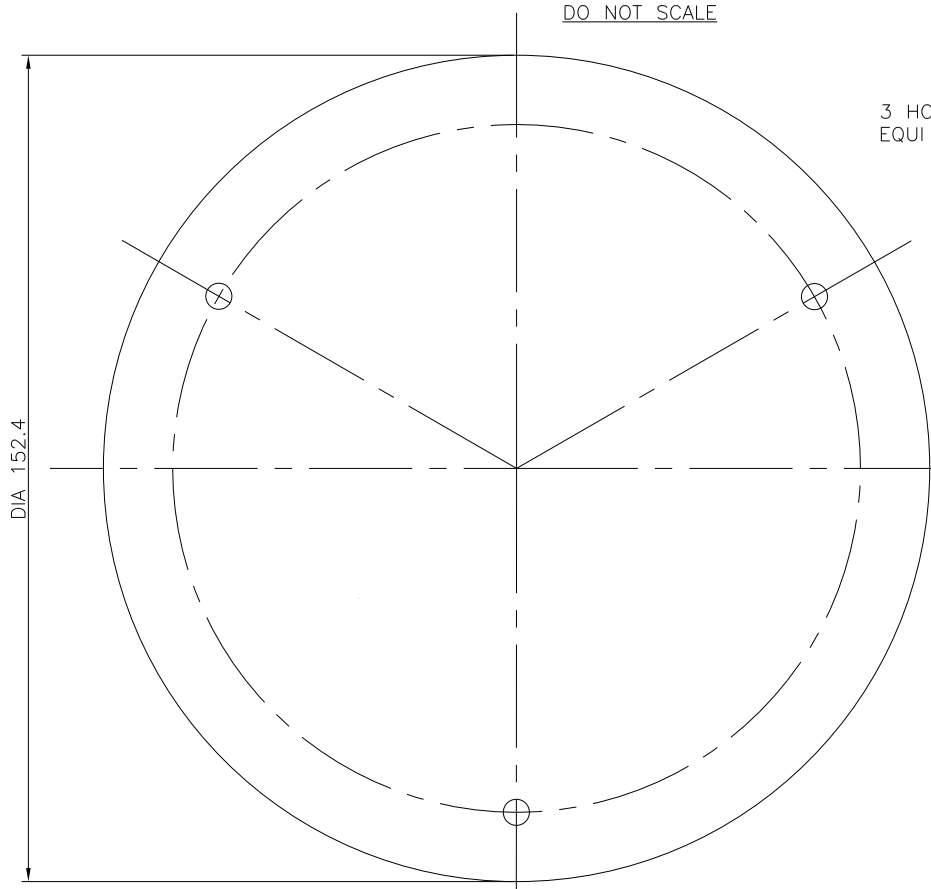
NOTE!
ALL JOINTS TO BE
FULLY WELDED

19 RECTANGULAR SET -
1/4 INCH THICK MILD
STEEL PLATE - 1 OFF

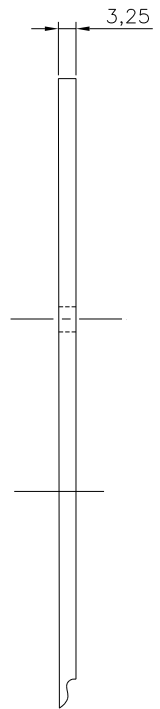
TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

					Practical Action <small>www.practicalaction.org info@practicalaction.org.uk</small>	TITLE ROPP BOTTLE CAPPER	DRAWN A.R	TRACE -	CHK -		NOT TO SCALE
No.	Description	CHK	AP'D	DATE		DIMENSIONS IN MM	DRAWING No. ROPP-019				
REVISIONS											

DO NOT SCALE



3 HOLES DIA 5.0 THRO
EQUI SPACED ON PCD 604.8



20 BOTTLE STAND - 1 OFF - MILD STEEL

No.	Description	CHK	AP'D	DATE
REVISIONS				

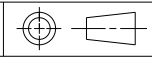
Practical
Action

TITLE ROPP BOTTLE
CAPPER
MATERIAL MILD STEEL

DRAWN
A.R

TRACE
-

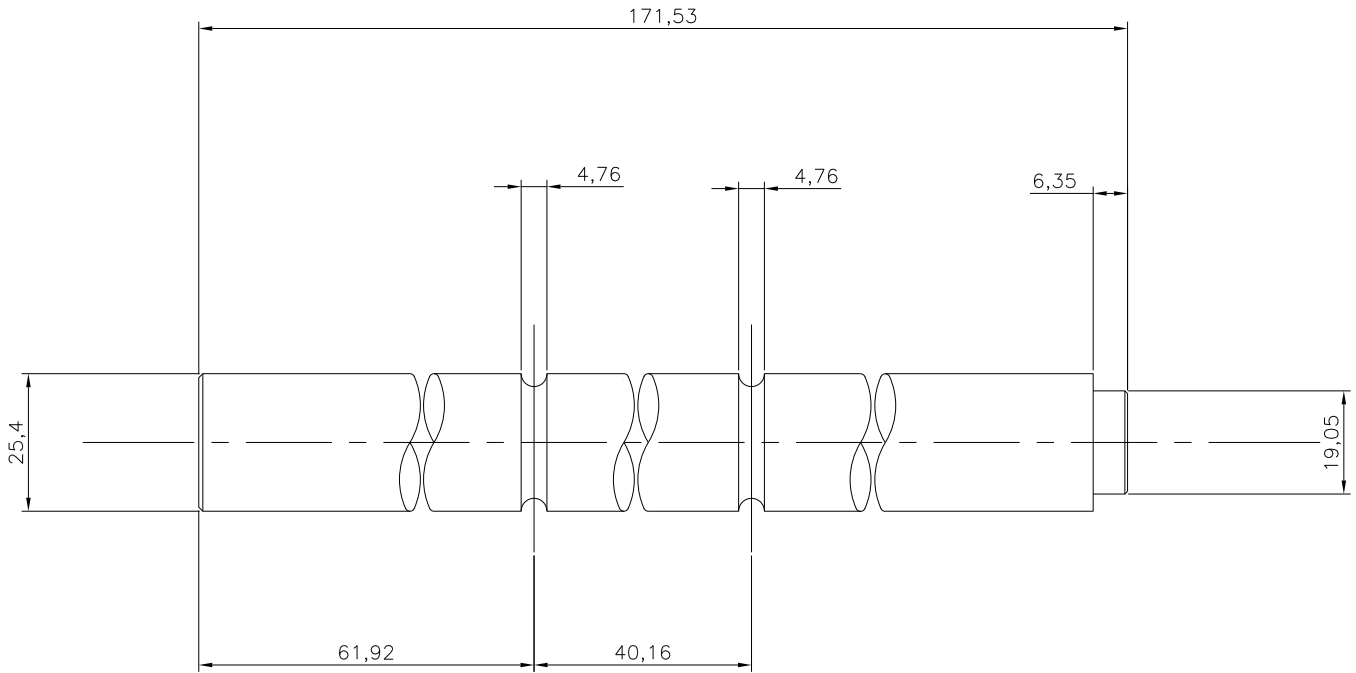
CHK
-



NOT TO
SCALE

DRAWING No. ROPP -020

DO NOT SCALE



21 SHAFT - MILD STEEL - 1 OFF

TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

No.	Description	CHK	AP'D	DATE

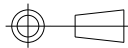
Practical
Action
www.practicalaction.org
info@practicalaction.org.uk

TITLE ROPP BOTTLE
CAPPER

DRAWN
A.R

TRACE
-

CHK
-

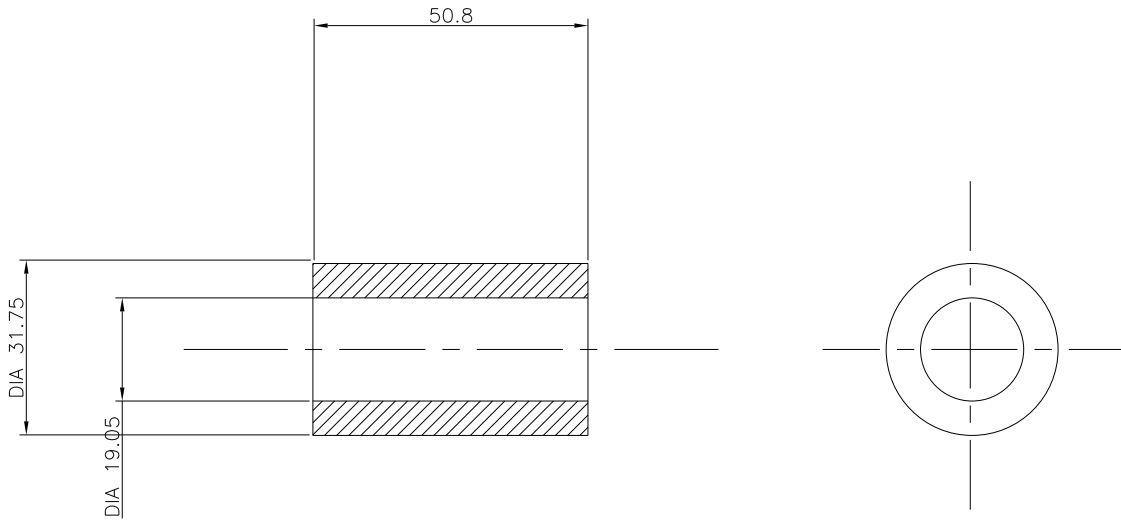


NOT TO
SCALE

DIMENSIONS IN MM

DRAWING No. ROPP-021

DO NOT SCALE



22 BUSH - MILD STEEL - 1 OFF

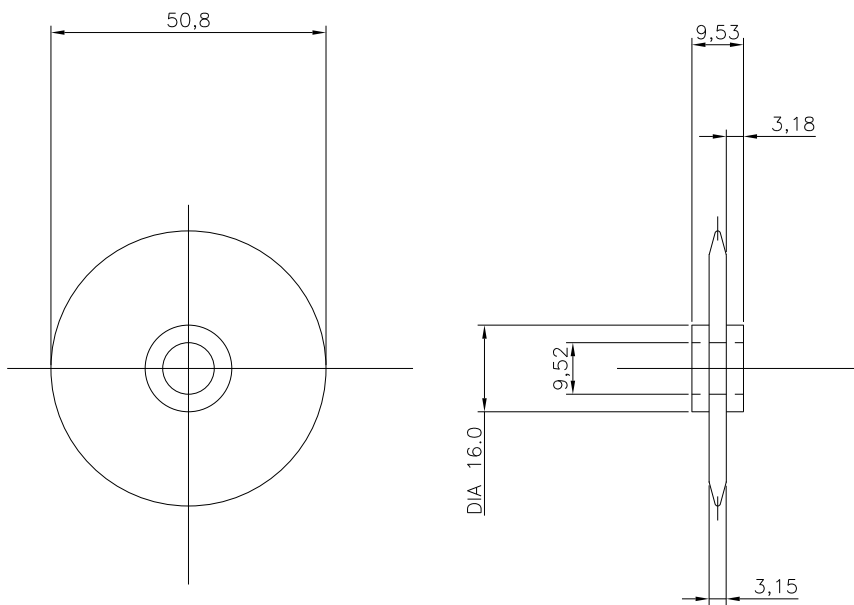
TOLERANCES
UNLESS OTHERWISE
STATED ± 0.25

No.	Description	CHK	AP'D	DATE

Practical
Action
www.practicalaction.org
info@practicalaction.org.uk

TITLE	ROPP BOTTLE CAPPER	DRAWN	A.R	TRACE	-	CHK	-		NOT TO SCALE
DIMENSIONS IN MM		DRAWING No. ROPP-022							

DO NOT SCALE



23 THREAD ROLLER – MILD STEEL – 1 OFF

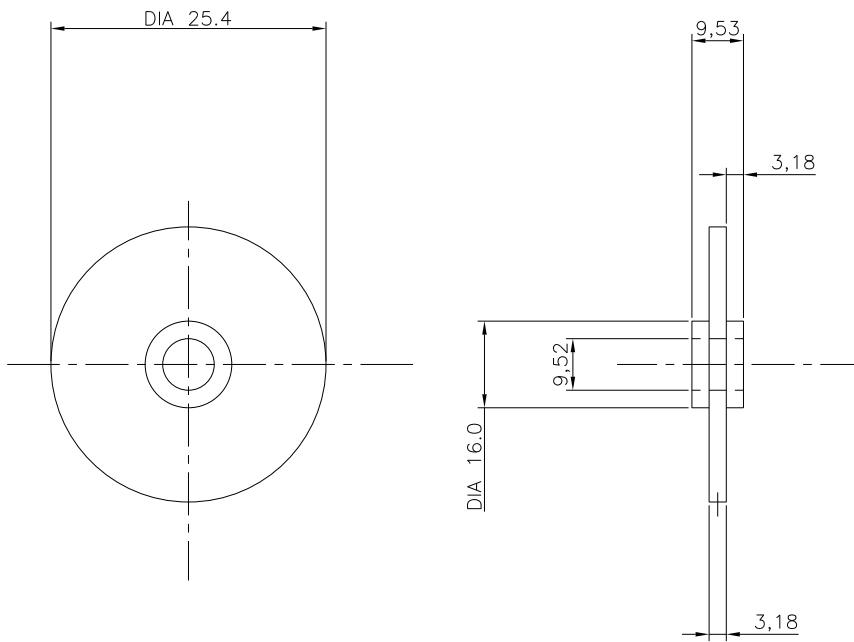
TOLERANCES
UNLESS OTHERWISE
STATED ± 0.25

No.	Description	CHK	AP'D	DATE

Practical
Action
www.practicalaction.org
info@practicalaction.org.uk

TITLE	ROPP BOTTLE CAPPER	DRAWN	A.R	TRACE	-	CHK	-		NOT TO SCALE
DIMENSIONS IN MM		DRAWING No. ROPP-023							

DO NOT SCALE



24 SKIRT ROLLER – MILD STEEL – 1 OFF

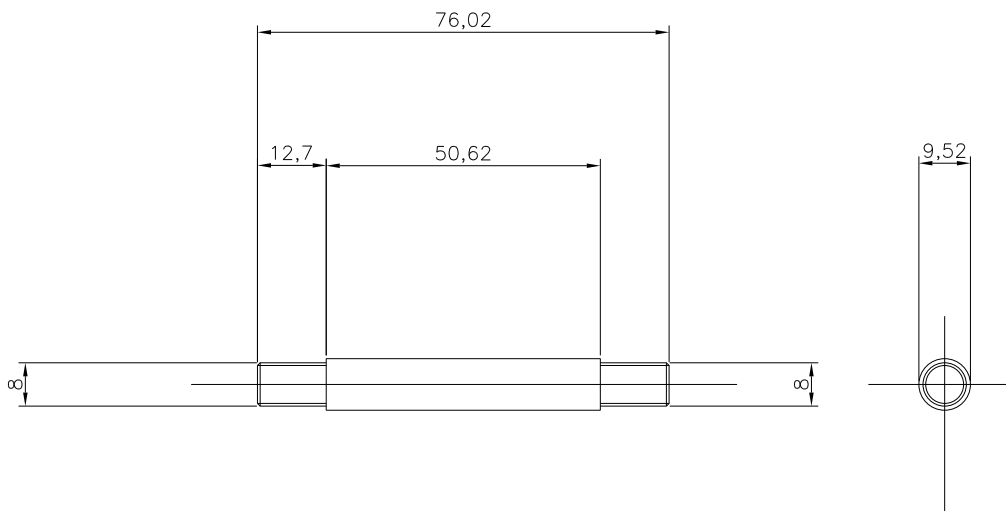
TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

No.	Description	CHK	AP'D	DATE

Practical
Action
www.practicalaction.org
info@practicalaction.org.uk

TITLE	ROPP BOTTLE CAPPER	DRAWN	A.R	TRACE	-	CHK	-		NOT TO SCALE
DIMENSIONS IN MM		DRAWING No. ROPP-024							

DO NOT SCALE



25 PIN - MILD STEEL - 1 OFF

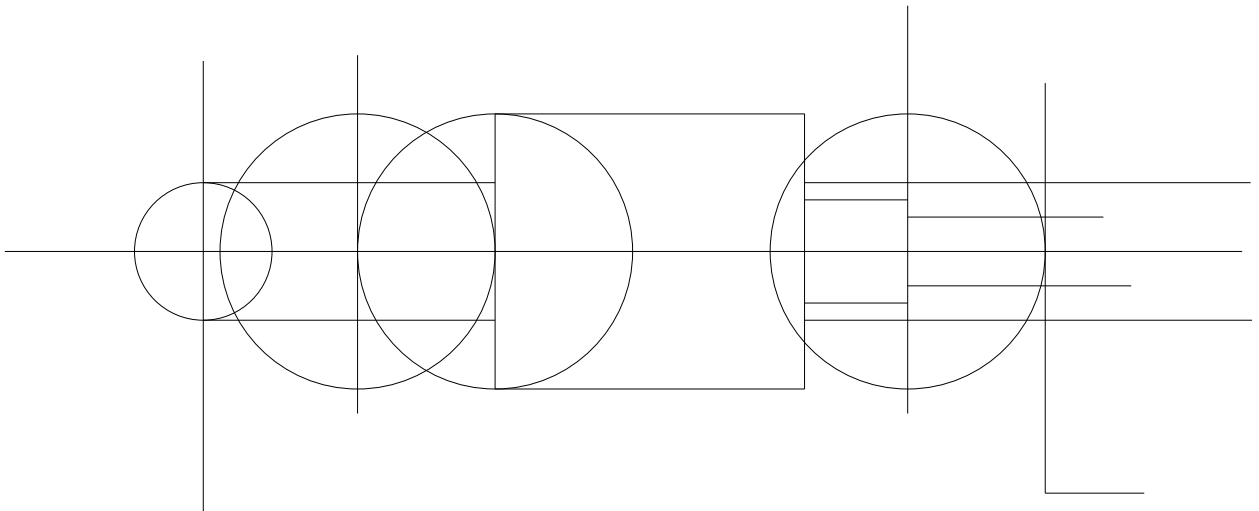
TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

No.	Description	CHK	AP'D	DATE
REVISIONS				

Practical
Action
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info@practicalaction.org.uk

TITLE	ROPP BOTTLE CAPPER	DRAWN	A.R	TRACE	-	CHK	-		NOT TO SCALE
DIMENSIONS IN MM		DRAWING No. ROPP-025							

DO NOT SCALE



17 M. S. STRIP – MILD STEEL – 1 OFF

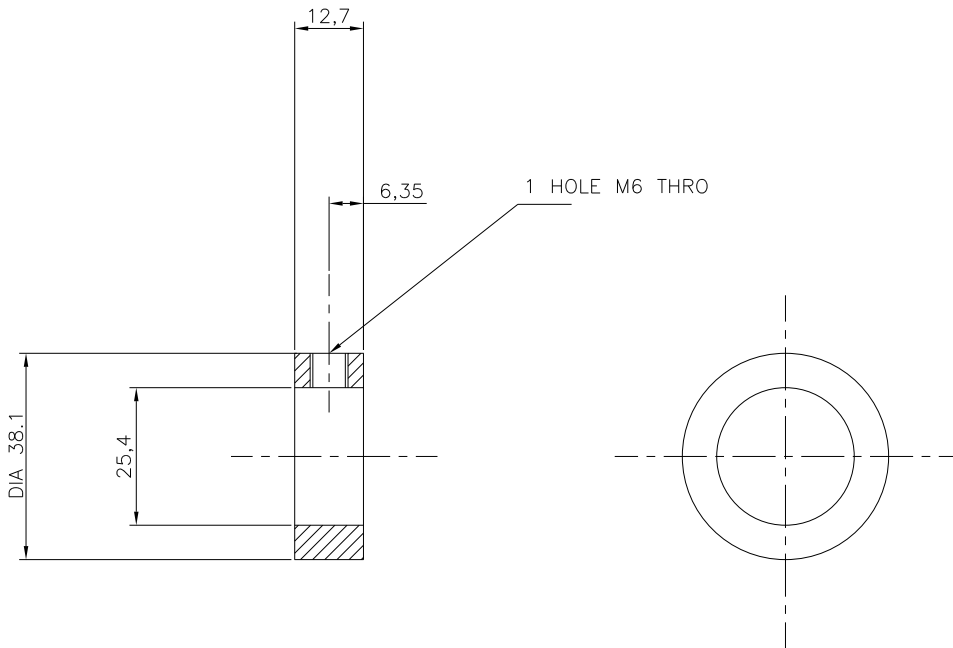
TOLERANCES
UNLESS OTHERWISE
STATED ± 0.25

No.	Description	CHK	AP'D	DATE

Practical
Action
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info@practicalaction.org.uk

TITLE	ROPP BOTTLE CAPPER	DRAWN	A.R	TRACE	-	CHK	-		NOT TO SCALE
DIMENSIONS IN MM		DRAWING No. ROPP-017							

DO NOT SCALE



30 BUSH - MILD STEEL - 1 OFF

TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

No.	Description	CHK	AP'D	DATE

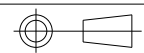
Practical
Action
www.practicalaction.org
info@practicalaction.org.uk

TITLE ROPP BOTTLE
CAPPER

DRAWN
A.R

TRACE
-

CHK
-

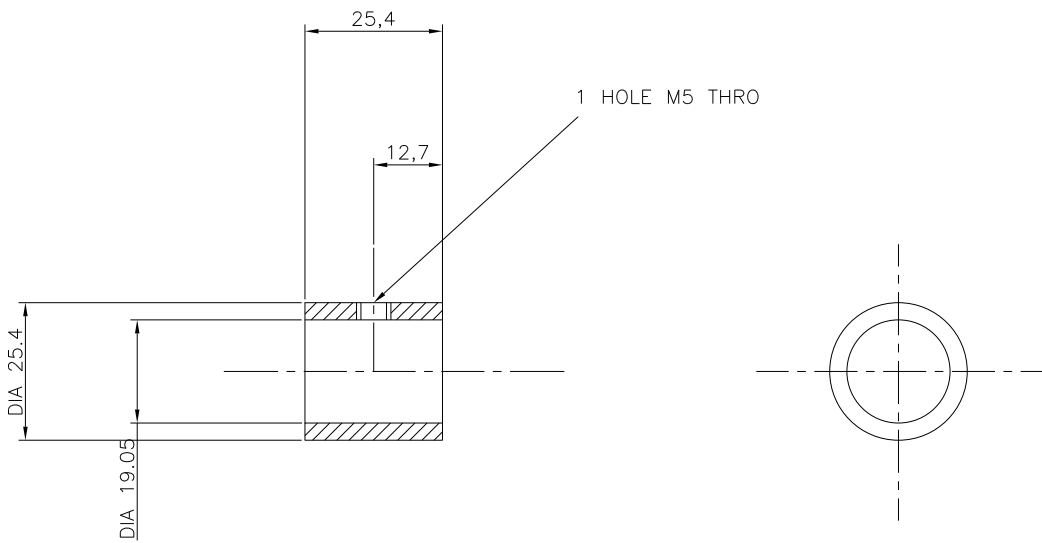


NOT TO
SCALE

DIMENSIONS IN MM

DRAWING No. ROPP-030

DO NOT SCALE



31 BUSH - MILD STEEL - 1 OFF

TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

No.	Description	CHK	AP'D	DATE

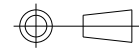
Practical
Action
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TITLE ROPP BOTTLE
CAPPER
DIMENSIONS IN MM

DRAWN
A.R

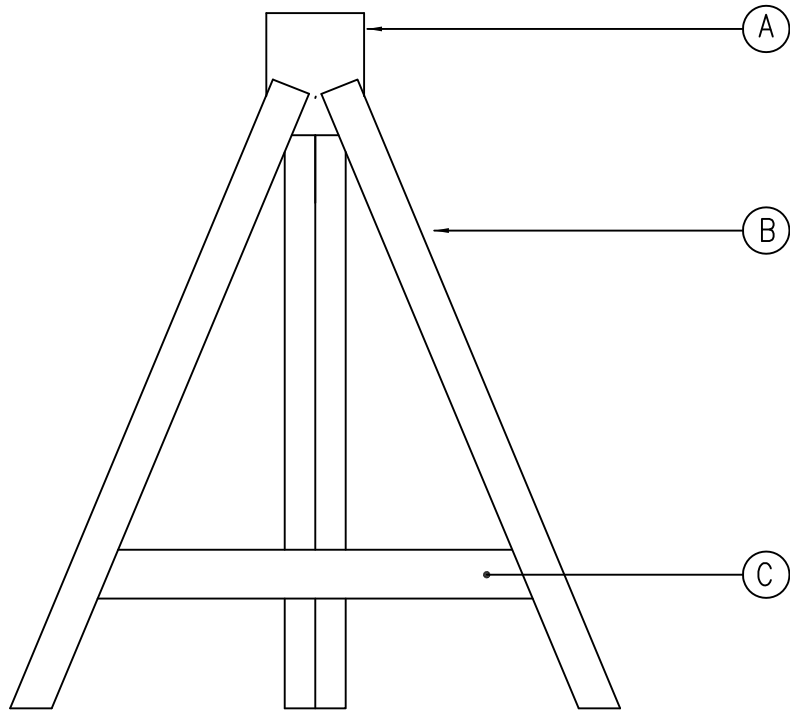
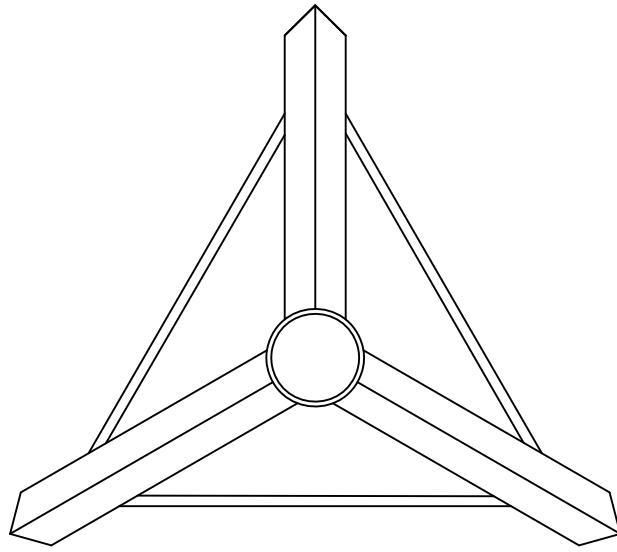
TRACE
-

CHK
-



NOT TO
SCALE

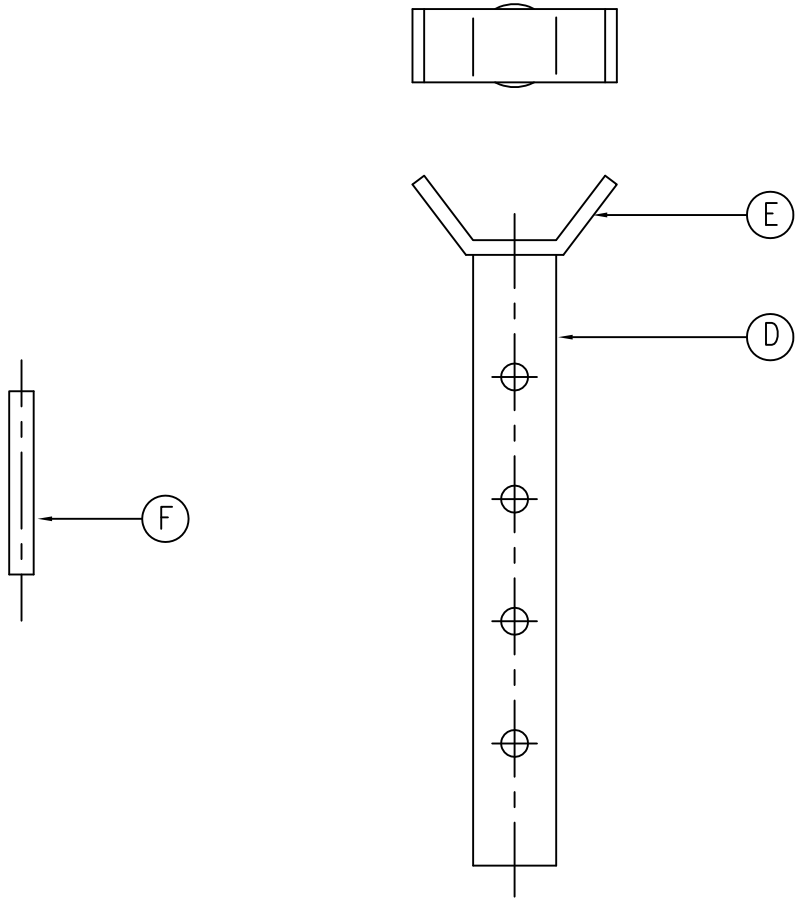
DRAWING No. ROPP-031



ApT ENGINEERS AXLE STAND	
TITLE: BASE	
SCALE: 1:3	
DRAWN: ABATEC	PAGE: 1 of 3
CAD No: APT-11-1	

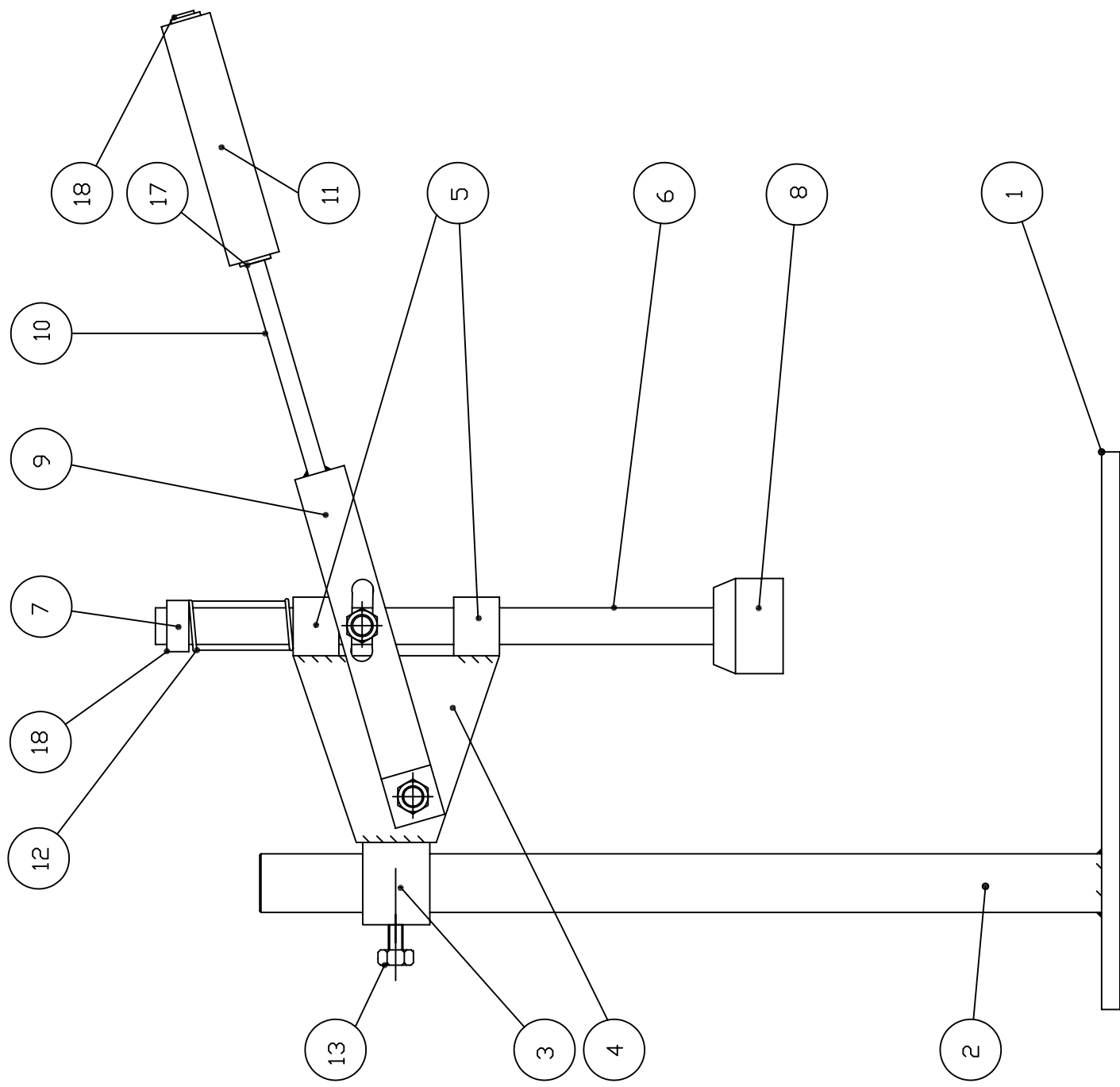
No.	DESCRIPTION	QUANTITY	DIMENSIONS
A	TUBE	1	36mm INSIDE DIAMETER x 50 LONG
B	ANGLE	3	25 x 25 x 3 x 280 LONG
C	FLAT	3	20 x 3 x 170 LONG
D	TUBE	1	34 OUT DIAMETER x 250 LONG
E	FLAT	1	30 x 6 x 100 LONG
F	ROUND BAR	1	10 x 75 LONG

ApT AXLE STAND	
TITLE: PARTS LIST	
SCALE:	
DRAWN: ABATEC	PAGE: 2 of 3
CAD No: APT-11-2	



ApT ENGINEERS AXLE STAND	
TITLE: SHAFT AND PIN	
SCALE: 1:3	
DRAWN: ABATEC	PAGE: 1 of 3
CAD No: APT-11-3	

DO NOT SCALE



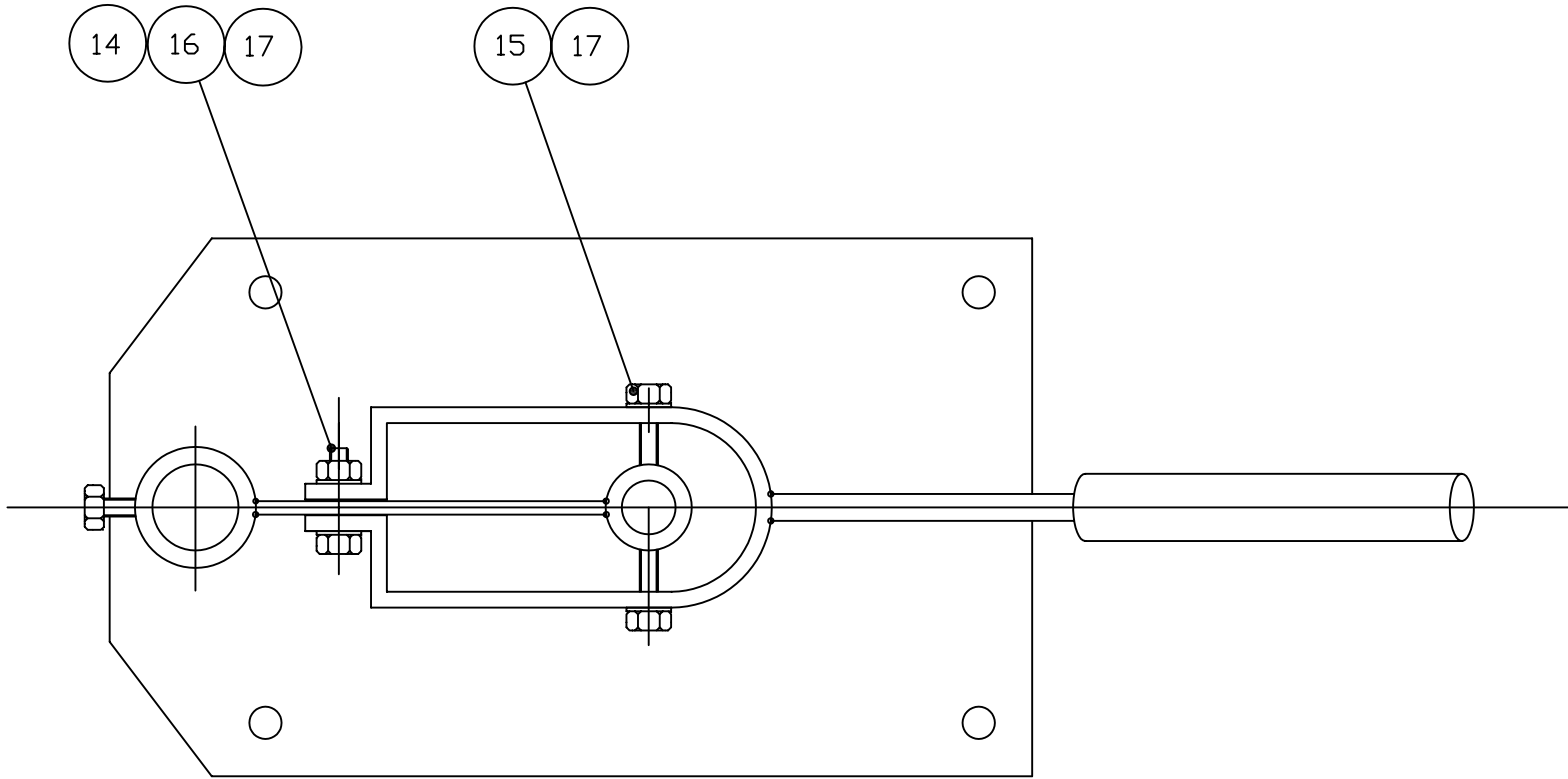
<SEE DRAWING CCM001-A FOR PLAN VIEW>

WELD AT  & 

CCM001	SIDE ELEVATION	-	-	-	-
No.	Description	CHK	AP'D	DATE	
REVISIONS					

Practical Action <small>www.practicalaction.org</small> <small>info@practicalaction.org.uk</small>	TITLE	CROWN CAP MACHINE	DRAWN	TRACE	CHK	NOT TO SCALE
	DIMENSIONS IN MM		A/R	-	-	SCALE
DRAWING No. CCM001						

DO NOT SCALE



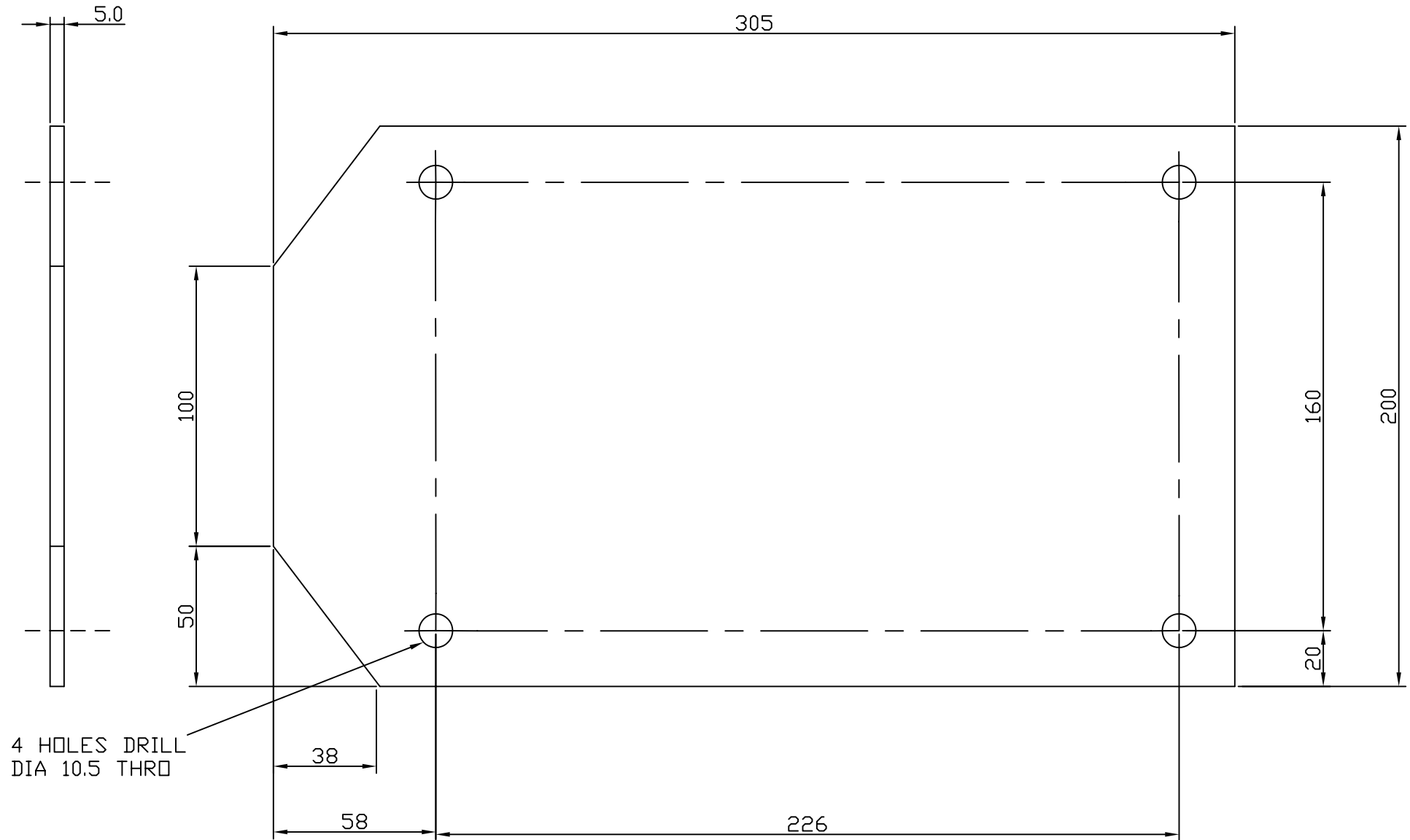
<SEE CCM001 FOR SIDE ELEVATION>

No.	Description	CHK	AP'D	DATE
CCM001a	Plan View			
REVISIONS				

Practical
Action
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TITLE	CROWN CAP MACHINE	DRAWN	A.R	TRACE	-	CHK	-		NOT TO SCALE
DIMENSIONS IN MM		DRAWING No. CCM001a							

NOT TO SCALE - DO NOT SCALE



4 HOLES DRILL
DIA 10.5 THRU

TOLERANCES
UNLESS OTHERWISE
STATED ± 0.25

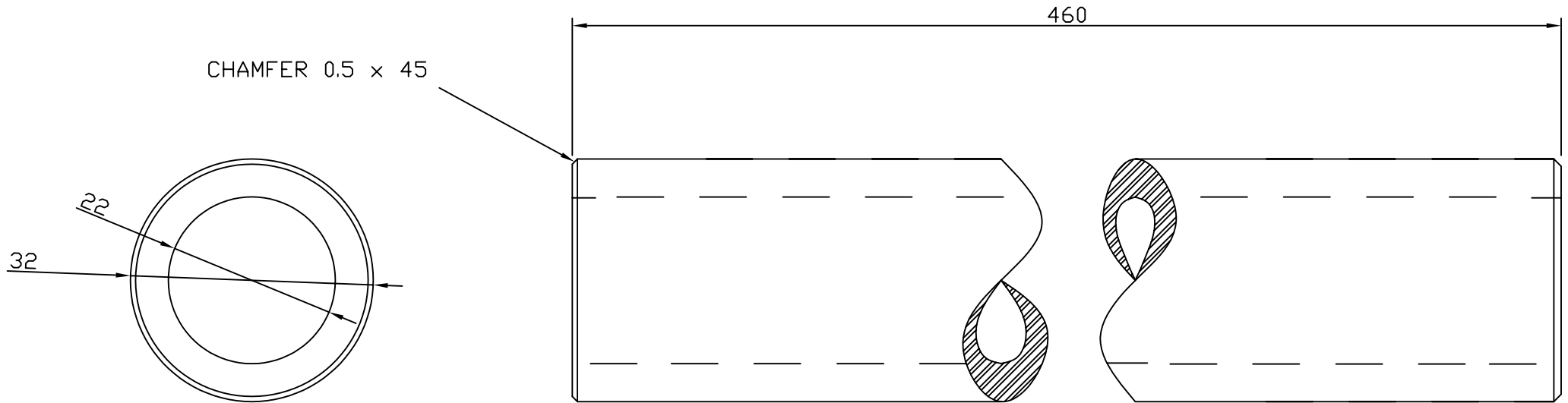
① BASE PLATE - MILD STEEL - 1 OFF

No.	Description	CHK	AP'D	DATE

Practical
Action
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infoserv@practicalaction.org.uk

TITLE	CROWN CORK MACHINE	DRAWN	A.R	TRACE	-	CHK	-		NOT TO SCALE
DIMENSIONS IN MM		DRAWING No. CCM201							

NOT TO SCALE - DO NOT SCALE



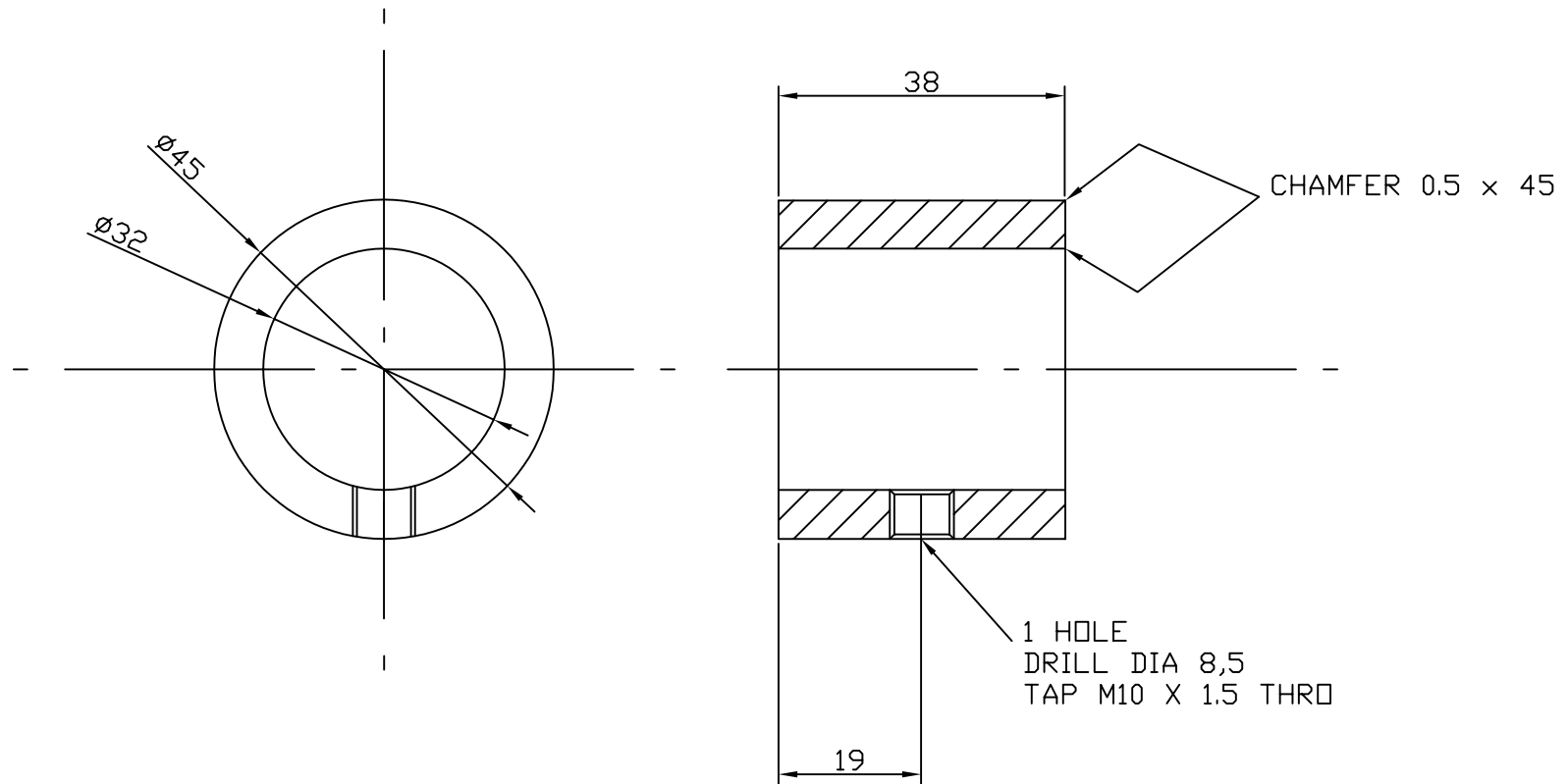
NOTE- USE MILD STEEL or GLAVANISED PIPE WITH MIN WALL THICKNESS 2mm

TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

② COLUMN - MILD STEEL - 1 OFF

					Practical Action www.practicalaction.org infoserv@practicalaction.org.uk	TITLE	CROWN CAP MACHINE	DRAWN	TRACE	CHK		NOT TO SCALE
						DIMENSIONS IN MM	A.R	-	-	DRAWING No. CCM201		
No.	Description	CHK	AP'D	DATE								
REVISIONS												

NOT TO SCALE - DO NOT SCALE



TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

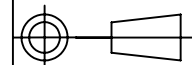
3 BUSH FOR HEIGHT ADJUSTMENT - MILD
STEEL - 1 OFF

No.	Description	CHK	AP'D	DATE
REVISIONS				

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Action
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infoserv@practicalaction.org.uk

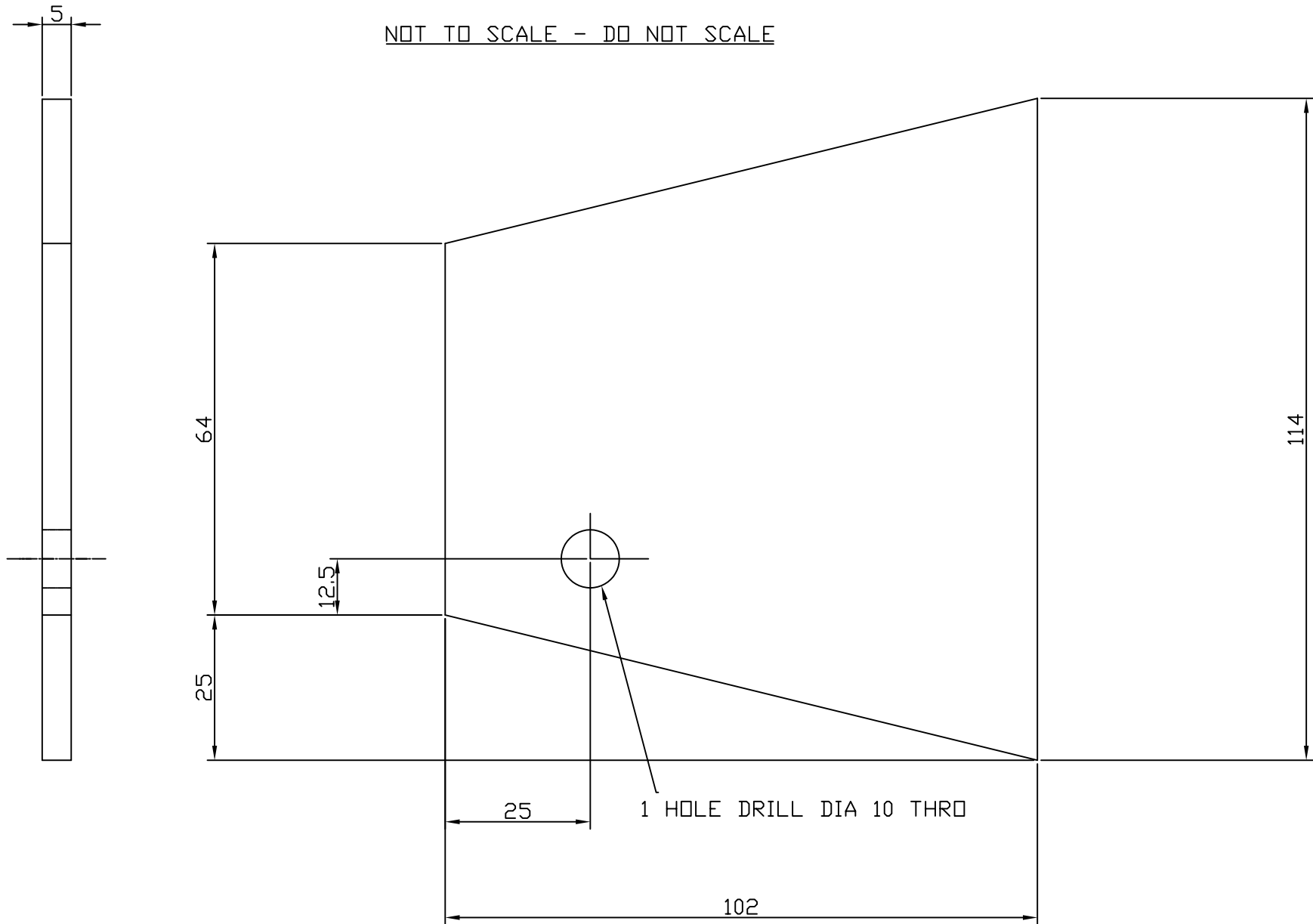
TITLE CROWN CAP
MACHINE
DIMENSIONS IN MM

DRAWN A.R
TRACE -
CHK -
DRAWING No. CCM203



NOT TO
SCALE

NOT TO SCALE - DO NOT SCALE



1 HOLE DRILL DIA 10 THRO

TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

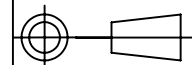
4 BRACKET - MILD STEEL - 1 OFF

No.	Description	CHK	AP'D	DATE

Practical
Action
www.practicalaction.org
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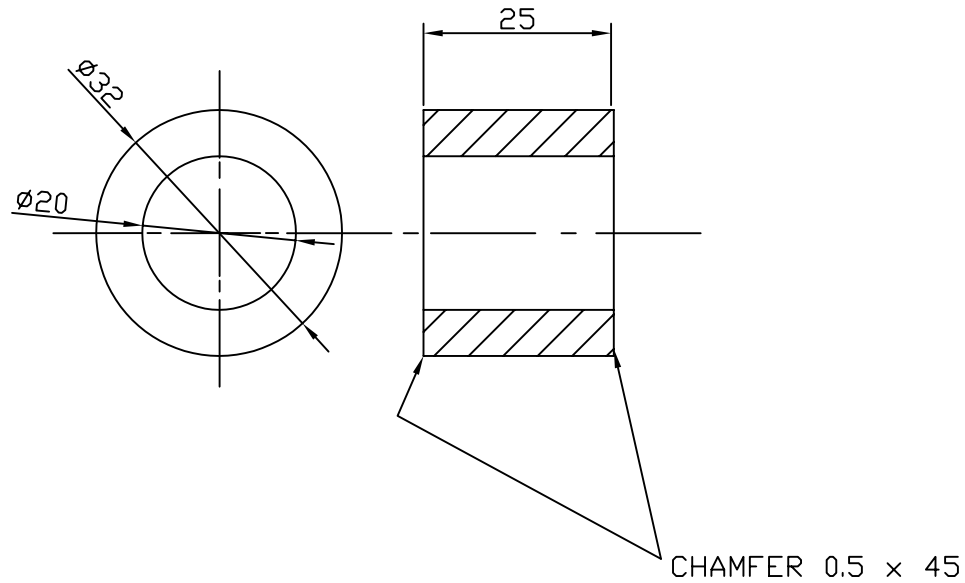
TITLE CROWN CAP
MACHINE
DIMENSIONS IN MM

DRAWN A.R
TRACE -
CHK -
DRAWING No. CCM204



NOT TO
SCALE

NOT TO SCALE - DO NOT SCALE



TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

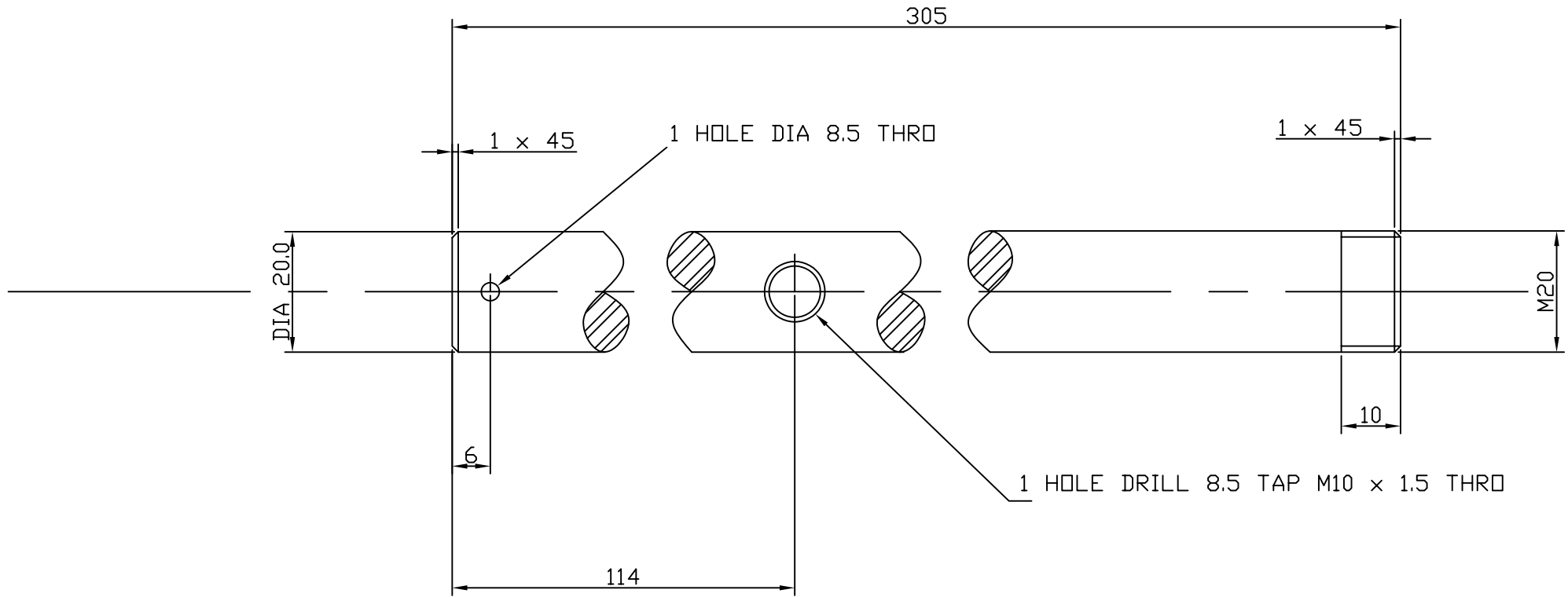
5 BUSH - MILD STEEL - 2 OFF

Practical
Action
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infoserv@practicalaction.org.uk

TITLE	CROWN CAP MACHINE	DRAWN	TRACE	CHK		NOT TO SCALE
DIMENSIONS IN MM	DRAWING No. CCM205	A.R	-	-		

No.	Description	CHK	AP'D	DATE
REVISIONS				

NOT TO SCALE - DO NOT SCALE

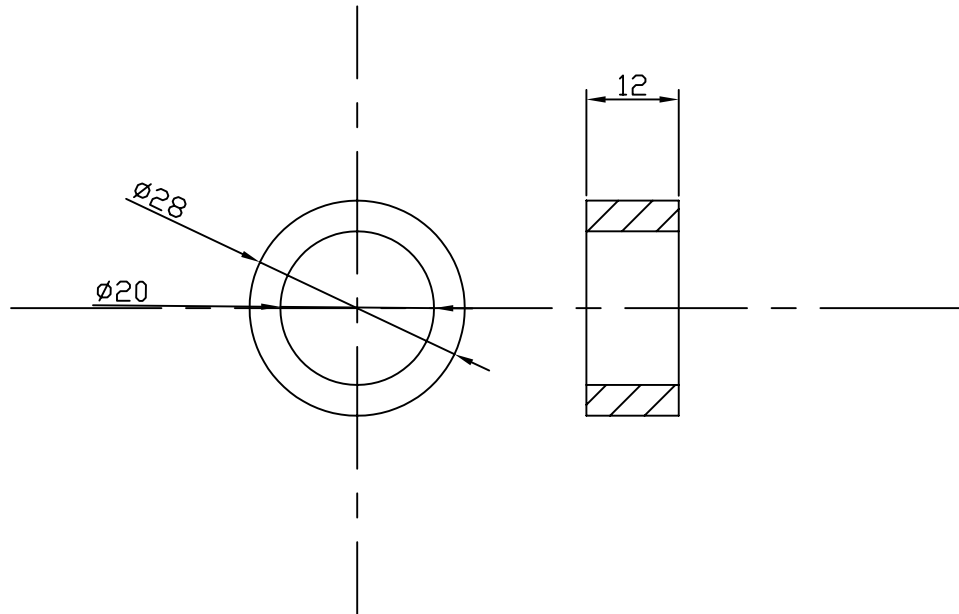


TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

6 SHAFT - MILD STEEL - 1 OFF

					Practical Action www.practicalaction.org infoserv@practicalaction.org.uk	TITLE CROWN CAP MACHINE	DRAWN A.R	TRACE -	CHK -		NOT TO SCALE
No.	Description	CHK	AP'D	DATE		DIMENSIONS IN MM	DRAWING No. CCM206				
REVISIONS											

NOT TO SCALE - DO NOT SCALE

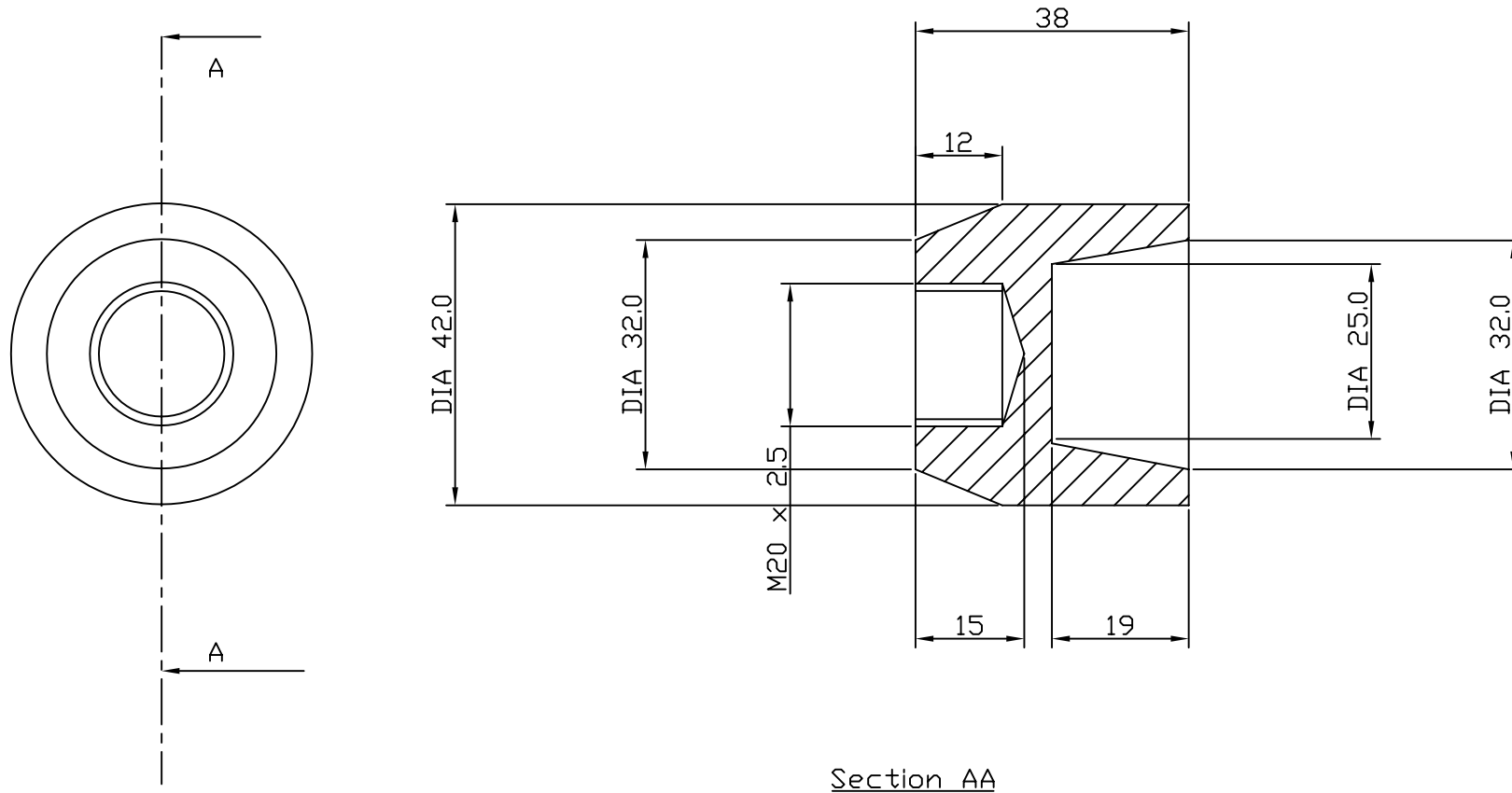


TOLERANCES
UNLESS OTHERWISE
STATED ± 0.25

7 STOP - MILD STEEL - 1 OFF

					Practical Action <small>www.practicalaction.org</small> <small>infoserv@practicalaction.org.uk</small>	TITLE	CROWN CAP MACHINE	DRAWN	A.R	TRACE	-	CHK	-		NOT TO SCALE
REVISIONS							DIMENSIONS IN MM	DRAWING No. CCM207							
No.	Description	CHK	AP'D	DATE											

NOT TO SCALE - DO NOT SCALE

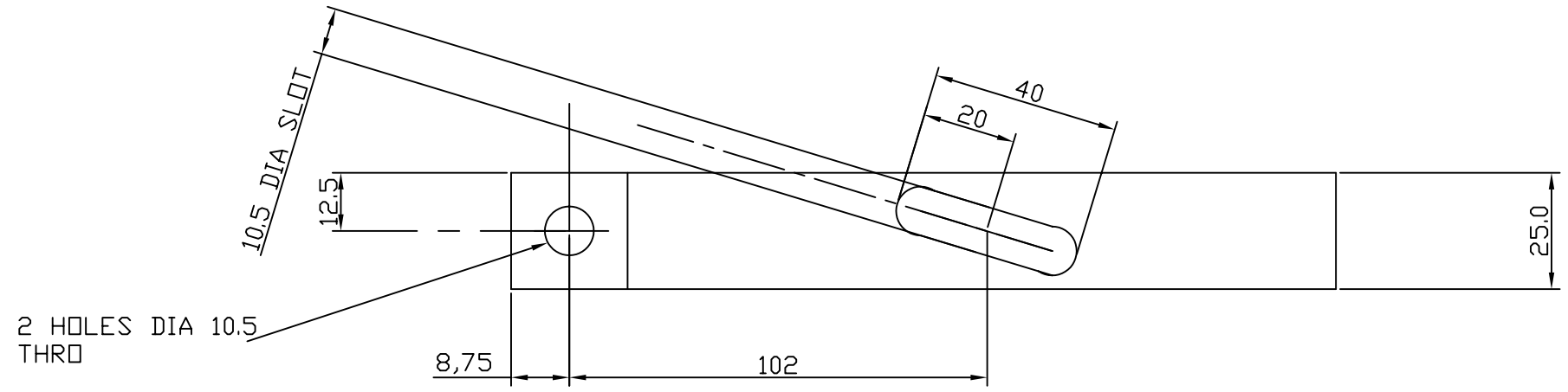
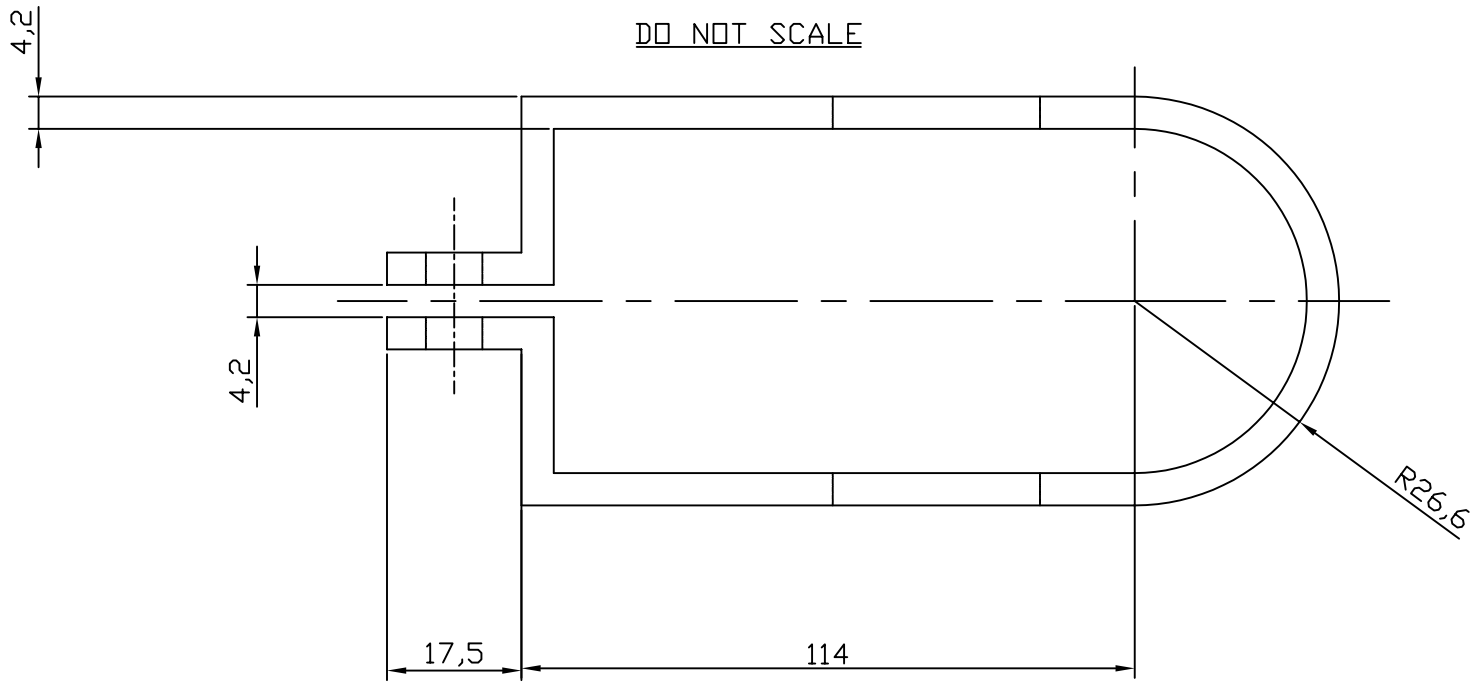


Section AA

TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

8 CAP HOLDER - MILD STEEL - 1 OFF

					Practical Action <small>www.practicalaction.org</small> <small>infoserv@practicalaction.org.uk</small>	TITLE	CROWN CAP MACHINE	DRAWN	A.R	TRACE	-	CHK	-		NOT TO SCALE
No.	Description	CHK	AP'D	DATE		DIMENSIONS IN MM	DRAWING No. CCM208								
REVISIONS															

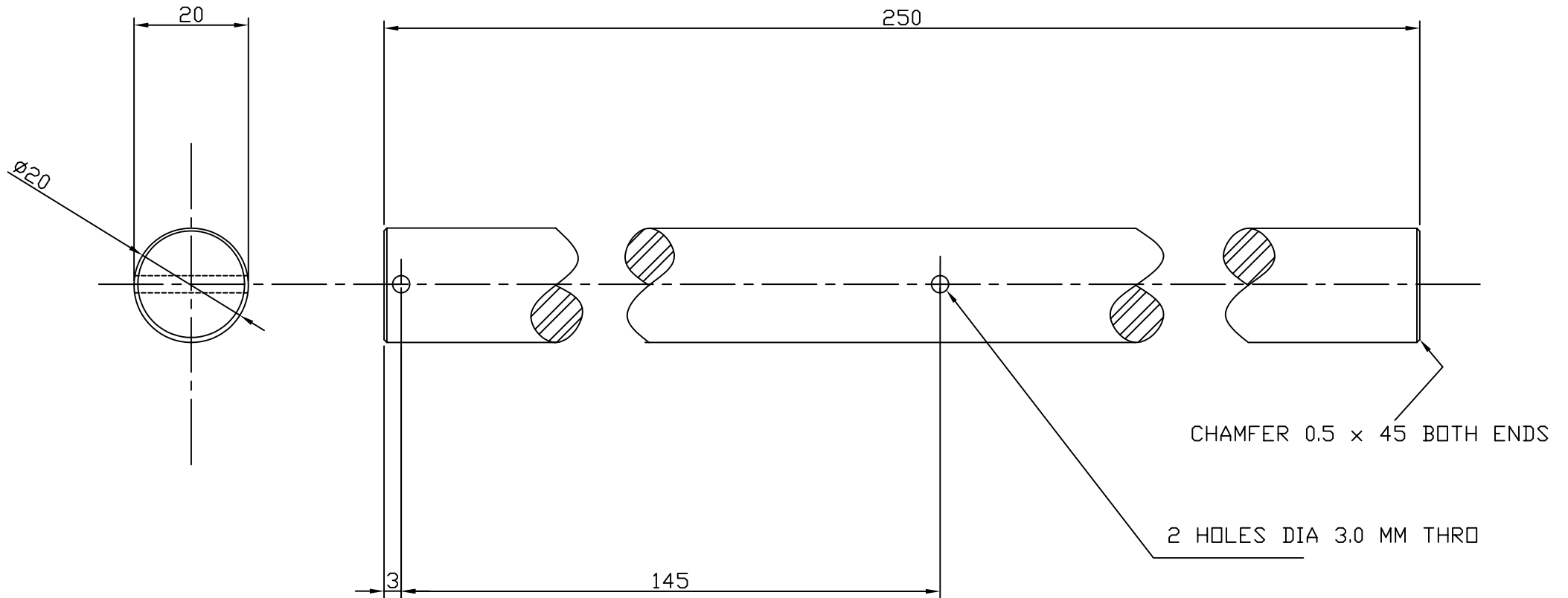


TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

9 HOLDER -
MILD STEEL
- 1 OFF

					Practical Action www.practicalaction.org infoserv@practicalaction.org.uk	TITLE	CROWN CAP MACHINE	DRAWN	TRACE	CHK		NOT TO SCALE
No.	Description	CHK	AP'D	DATE		DIMENSIONS IN MM	A.R	-	-	DRAWING No. CCM209		
REVISIONS												

NOT TO SCALE - DO NOT SCALE



CHAMFER 0.5 x 45 BOTH ENDS

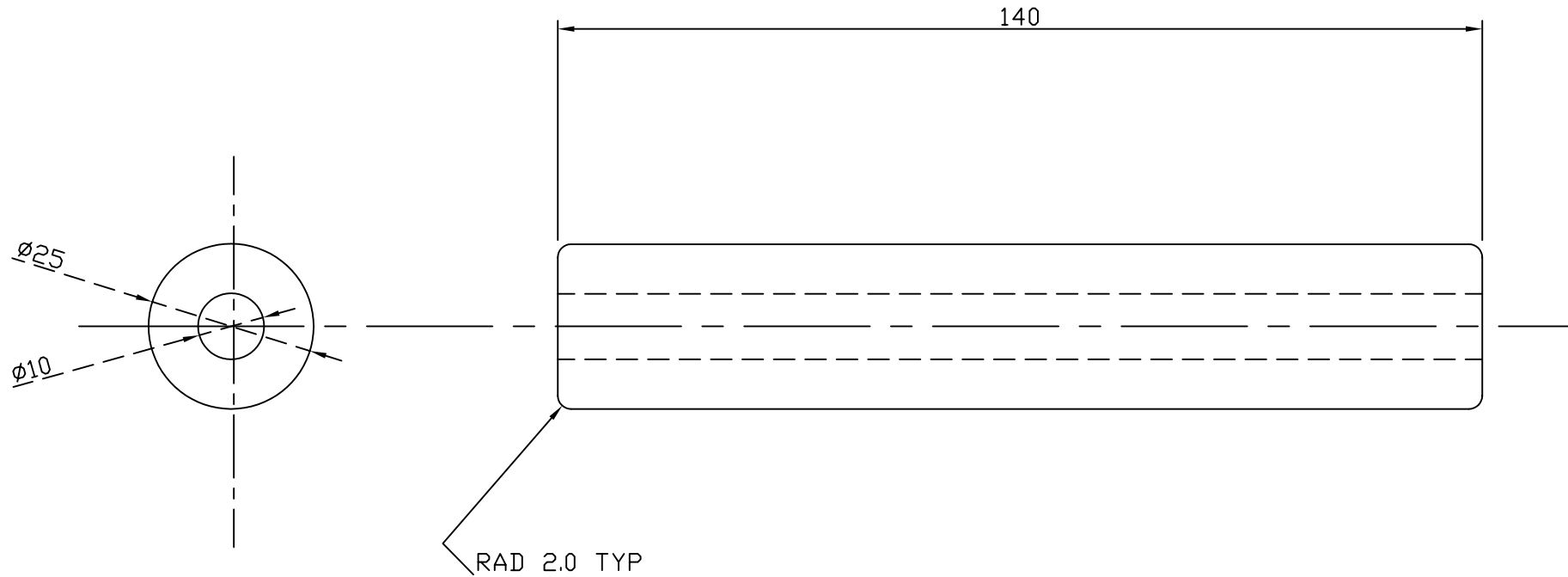
2 HOLES DIA 3.0 MM THRO

TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

10 LEVER - MILD STEEL - 1 OFF

					Practical Action <small>www.practicalaction.org infoserv@practicalaction.org.uk</small>	TITLE CROWN CAP MACHINE	DRAWN A.R	TRACE -	CHK -		NOT TO SCALE
No.	Description	CHK	AP'D	DATE		DIMENSIONS IN MM	DRAWING No. CCM210				
REVISIONS											

NOT TO SCALE



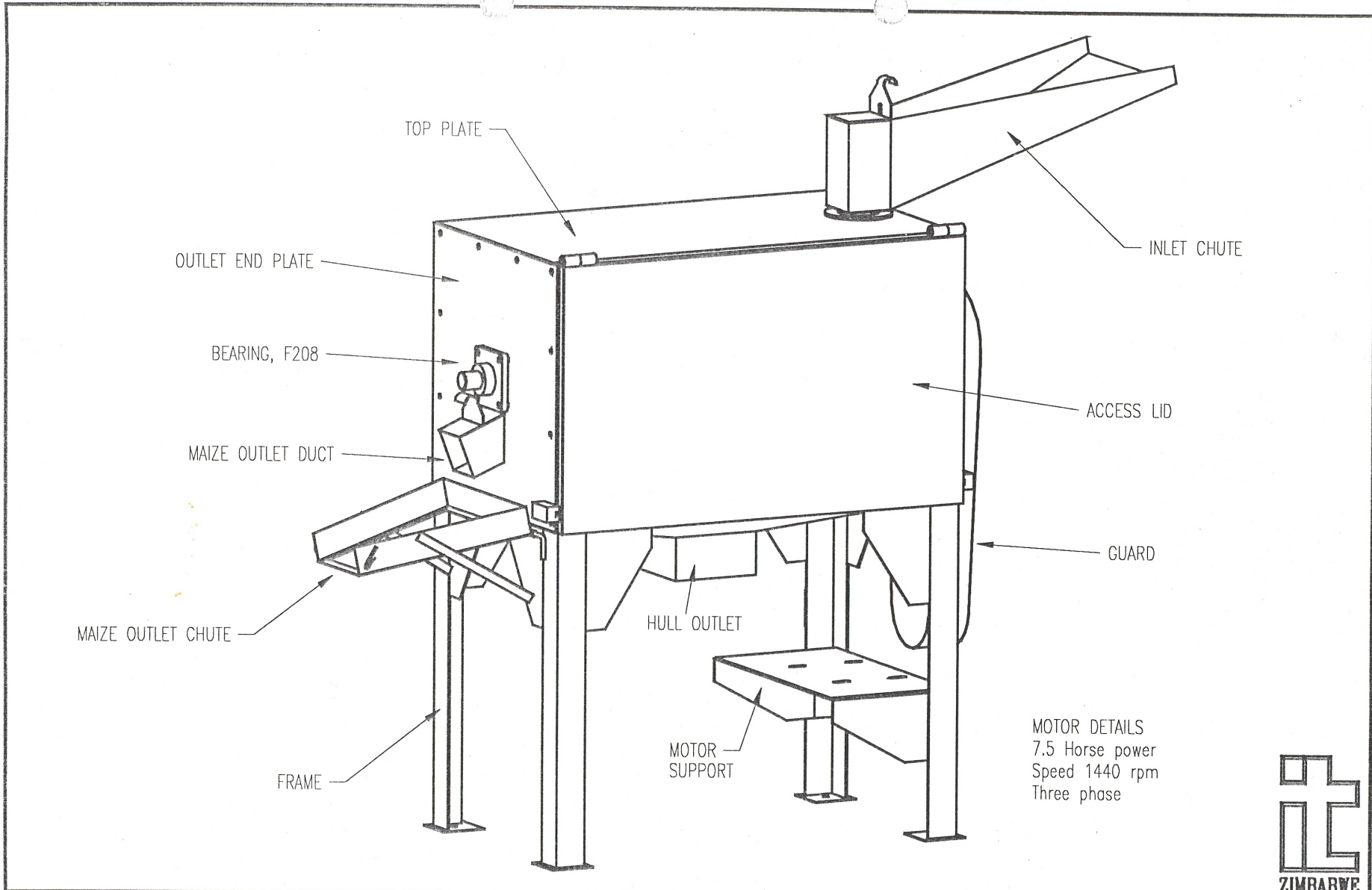
TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

11 HANDLE - HARD WOOD - 1 OFF

No.	Description	CHK	AP'D	DATE

Practical
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infoserv@practicalaction.org.uk

TITLE	CROWN CAP MACHINE	DRAWN	TRACE	CHK		NOT TO SCALE
	DIMENSIONS IN MM	A.R	-	-		
DRAWING No. CCM211						

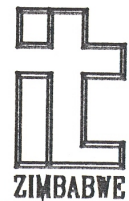
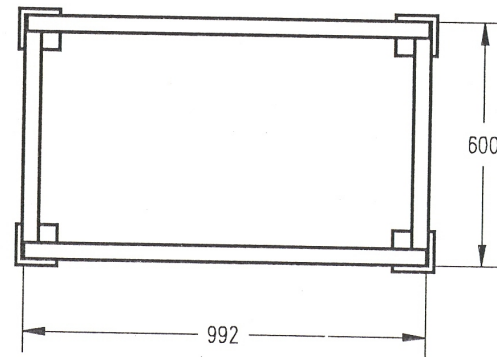
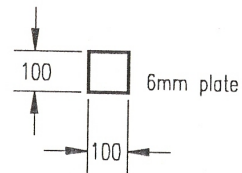
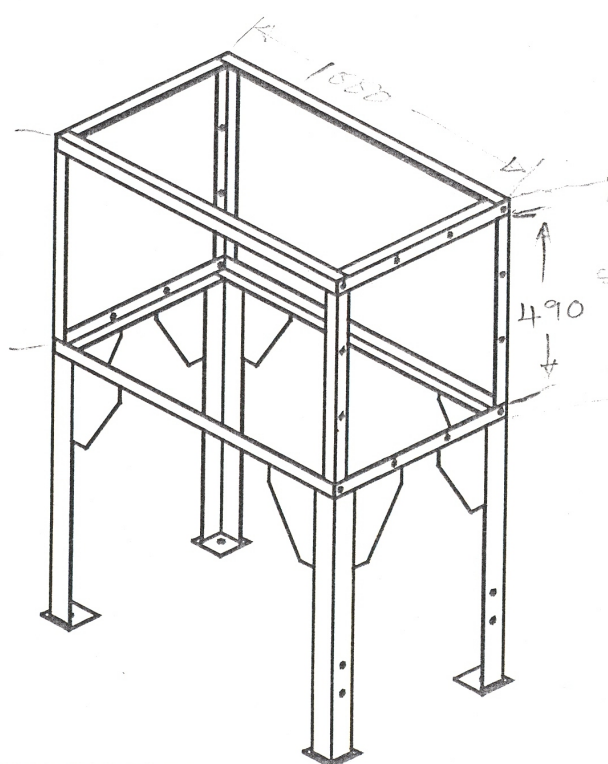
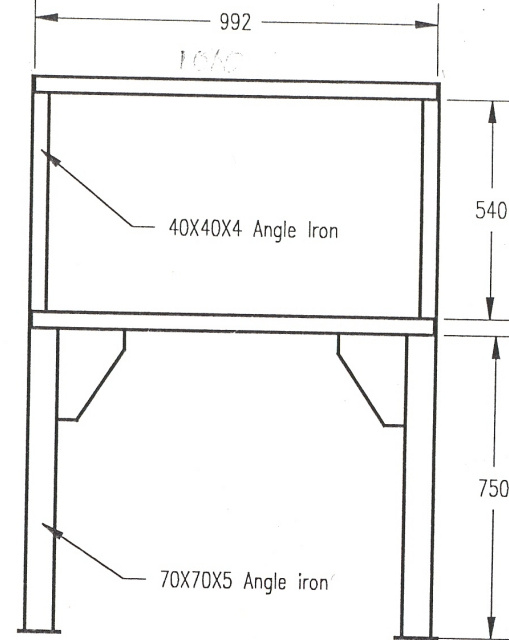
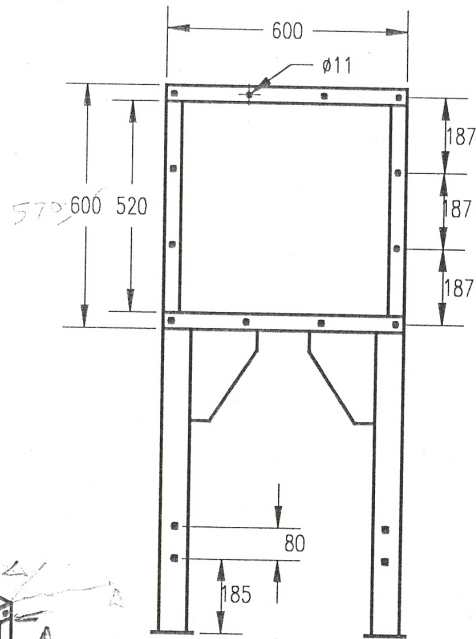
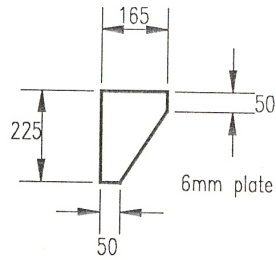


TOP PLATE
 INLET CHUTE
 OUTLET END PLATE
 BEARING, F208
 MAIZE OUTLET DUCT
 ACCESS LID
 MAIZE OUTLET CHUTE
 GUARD
 HULL OUTLET
 MOTOR SUPPORT
 FRAME

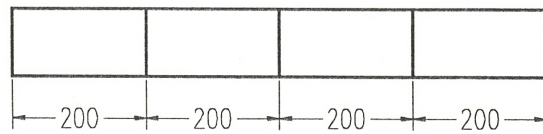
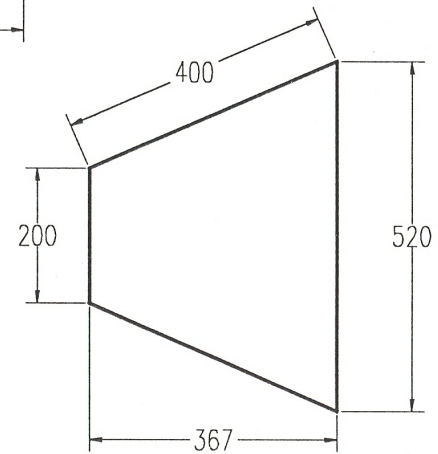
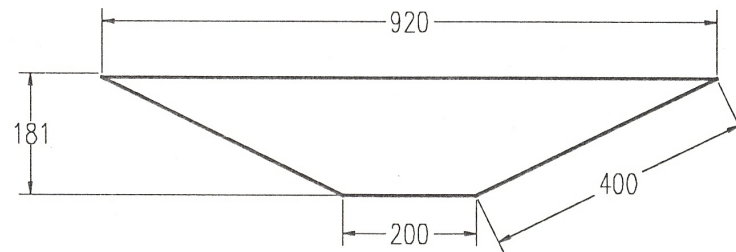
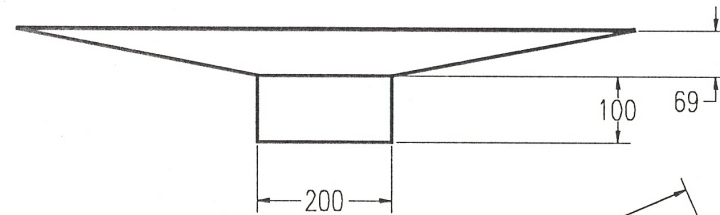
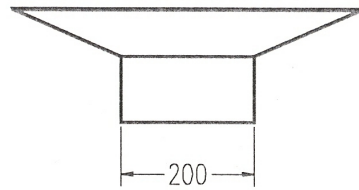
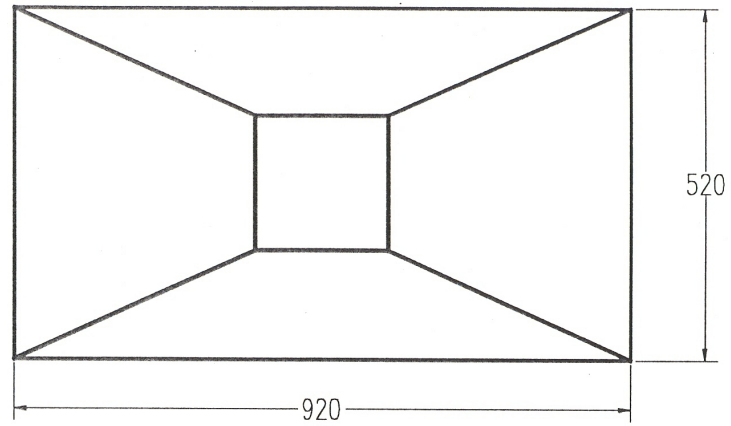
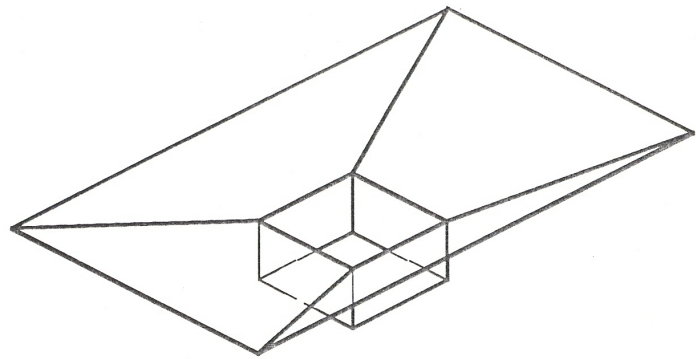
MOTOR DETAILS
 7.5 Horse power
 Speed 1440 rpm
 Three phase



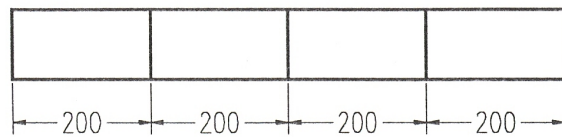
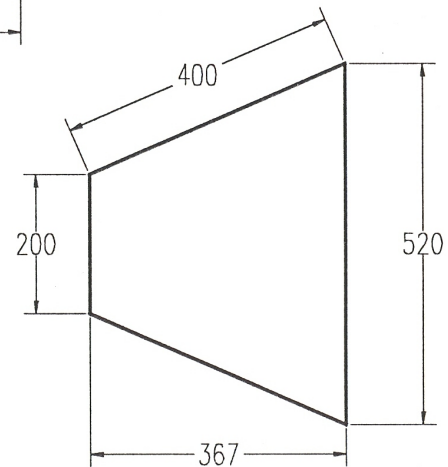
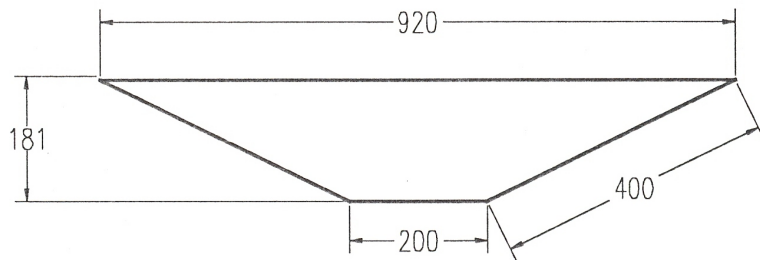
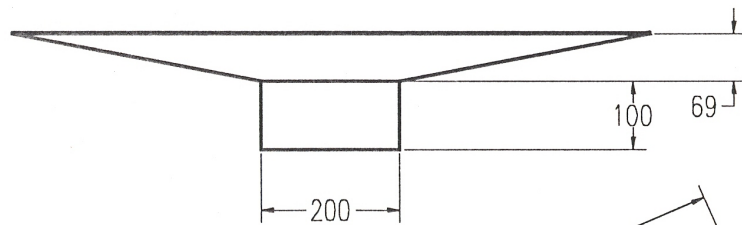
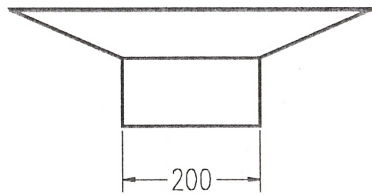
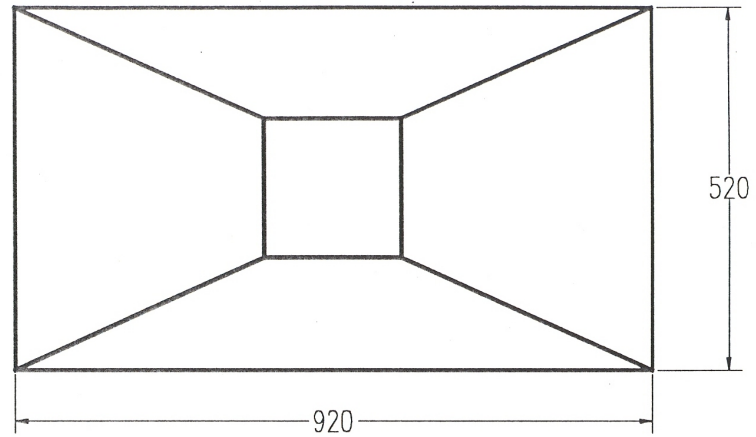
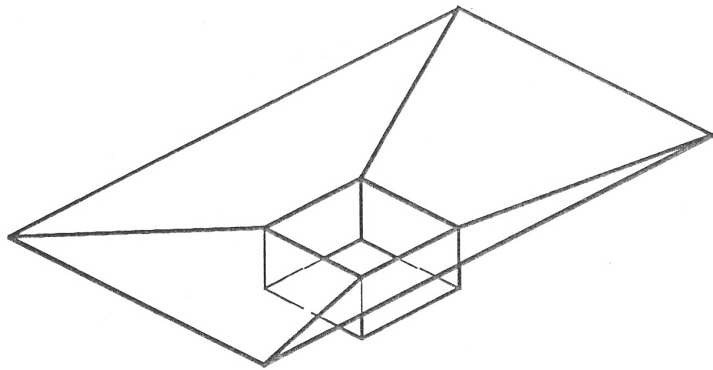
TITLE DEHULLER, ASSEMBLY PICTORIAL	CHECKED A.BREWIS	DRAWN A.CHISADZA	SCALE _____	DATE 23/01/99	DWG No. DHUL 01
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TITLE	CHECKED	DRAWN	SCALE	DATE	DWG No.
DEHULLER, FRAME DETAILS	A.BREWIS	A.CHISADZA	3:50	23/01/99	DHUL 02



TITLE DEHULLER, HULL OUTLET DETAILS	CHECKED A.BREWIS	DRAWN A.CHISADZA	SCALE 1:10	DATE 23/01/99	DWG No. DHUL 03
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TITLE
DEHULLER, HULL OUTLET DETAILS

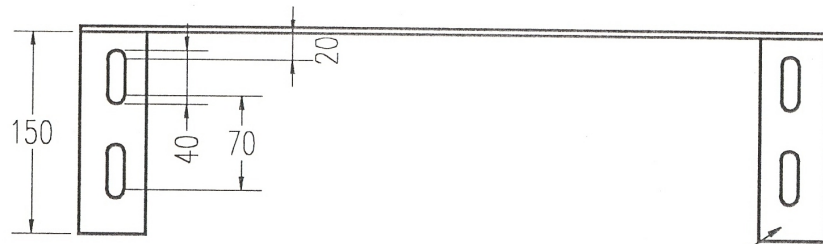
CHECKED
A.BREWIS

DRAWN
A.CHISADZA

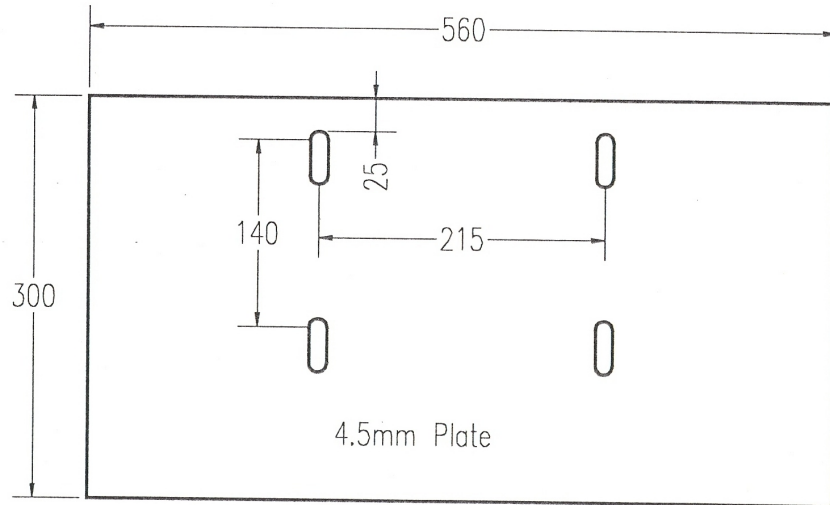
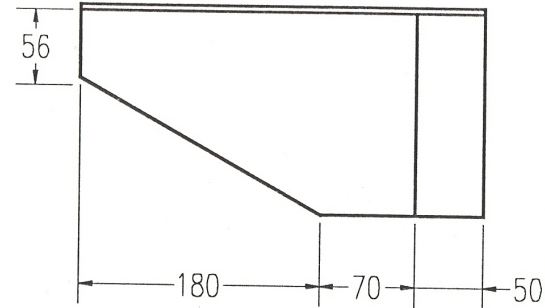
SCALE
1:10

DATE
23/01/99

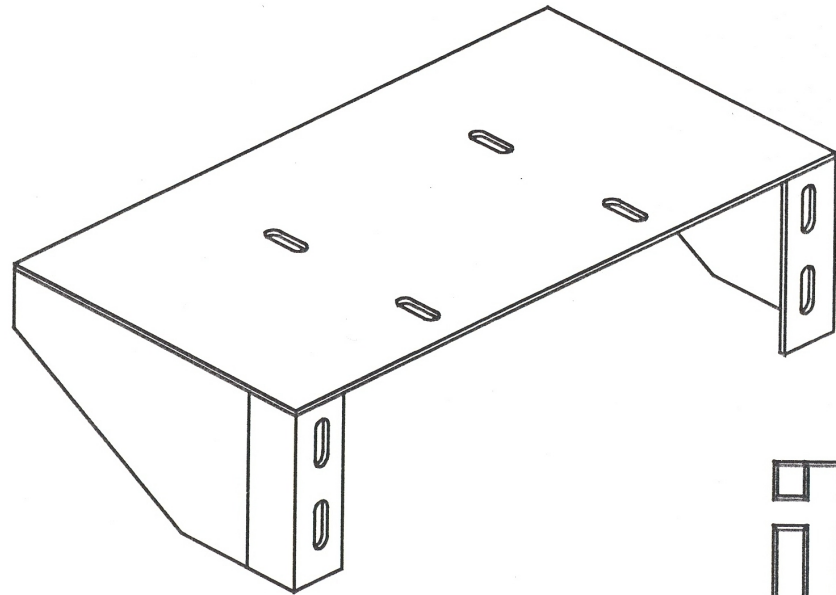
DWG No.
DHUL 03



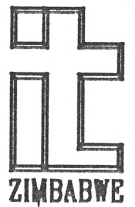
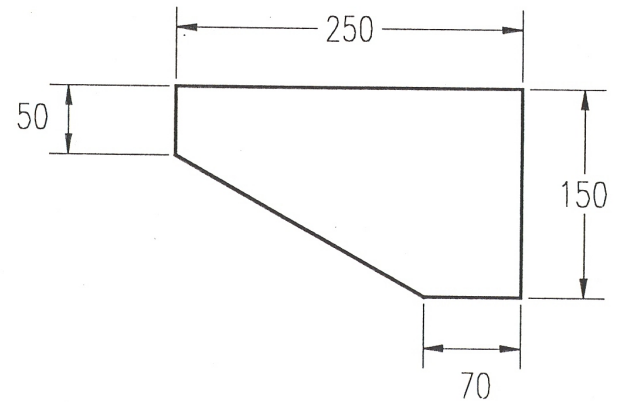
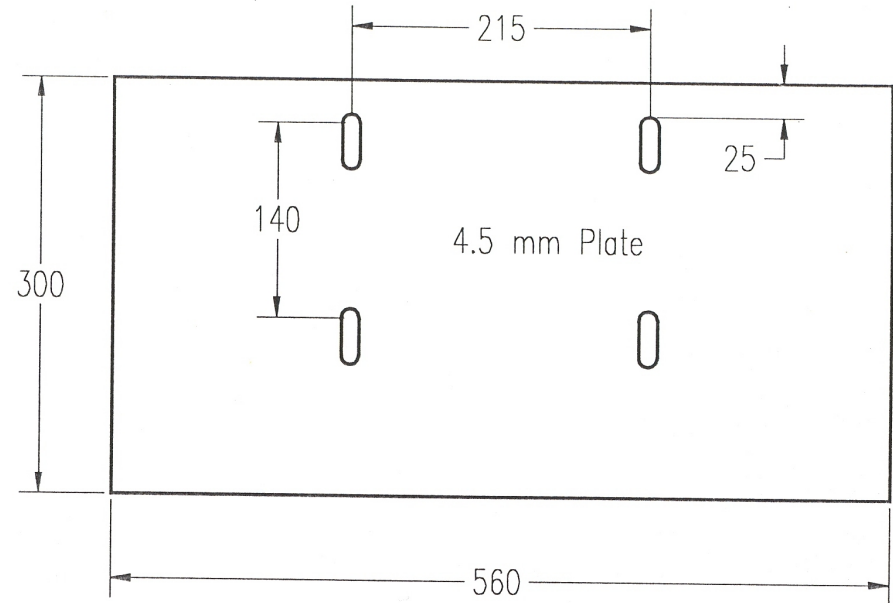
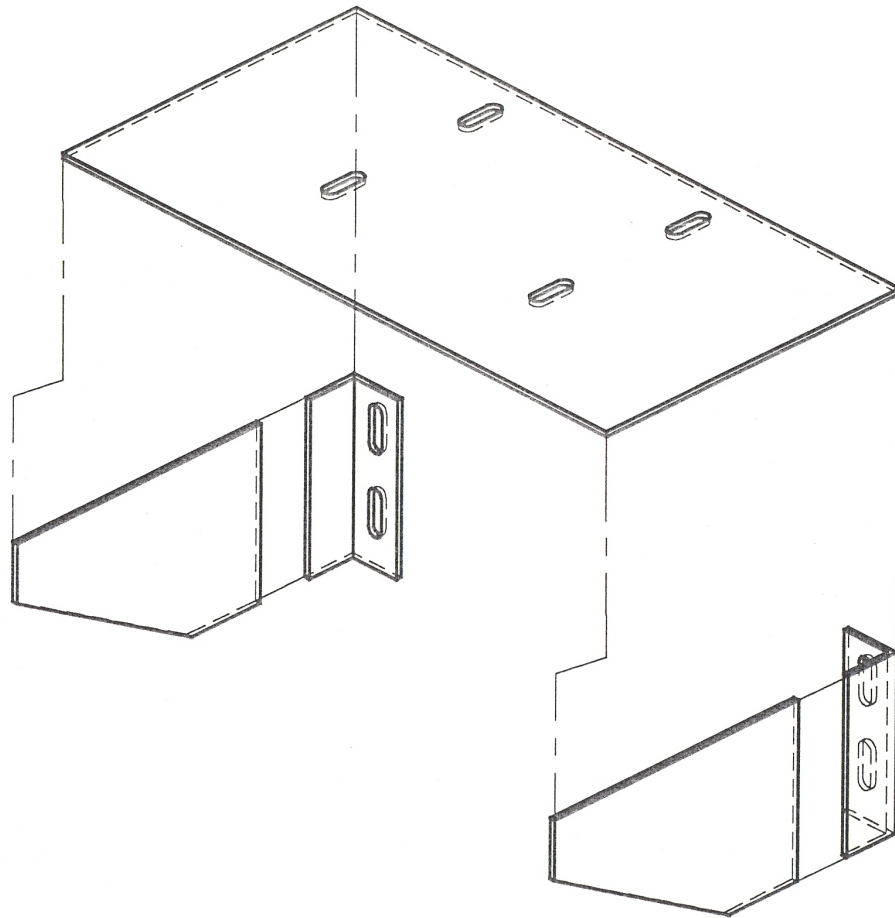
50X50X5 angle plate



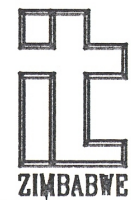
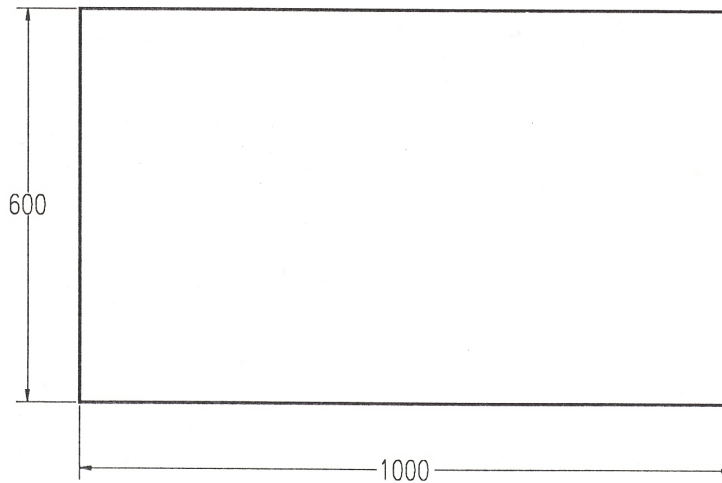
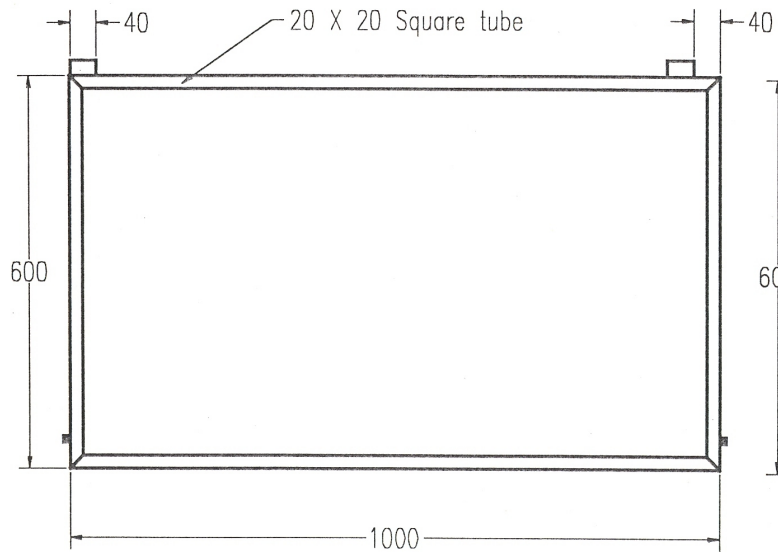
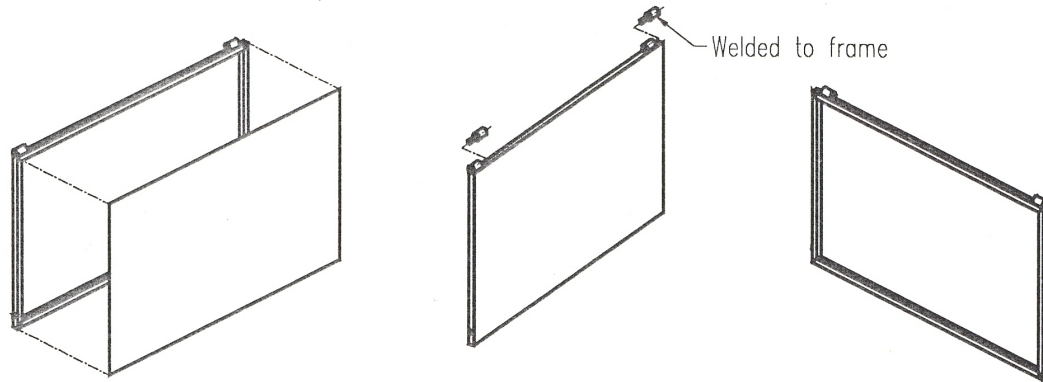
4.5mm Plate



TITLE	CHECKED	DRAWN	SCALE	DATE	DWG No.
DEHULLER, MOTOR SUPPORT DETAILS	A.BREWIS	A.CHISADZA	1:5	23/01/99	DHUL 04



TITLE DEHULLER, MOTOR SUPPORT PLATE	CHECKED A.BREWIS	DRAWN A.CHISADZA	SCALE 1:5	DATE 23/01/99	DWG No. DHUL 05
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ZIMBABWE

TITLE
DEHULLER

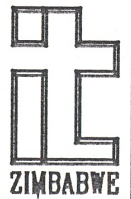
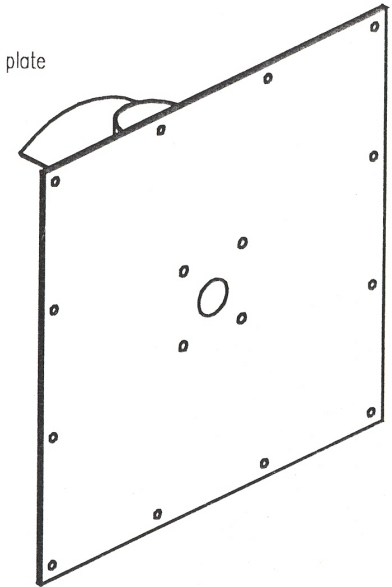
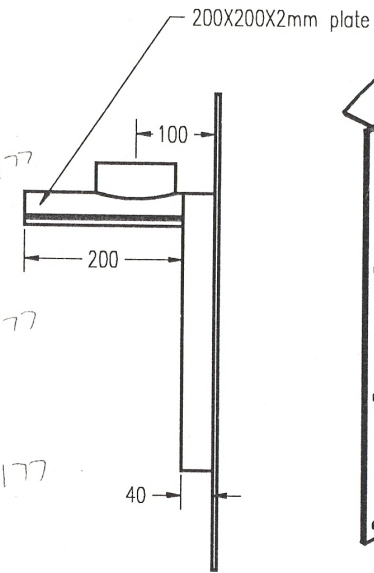
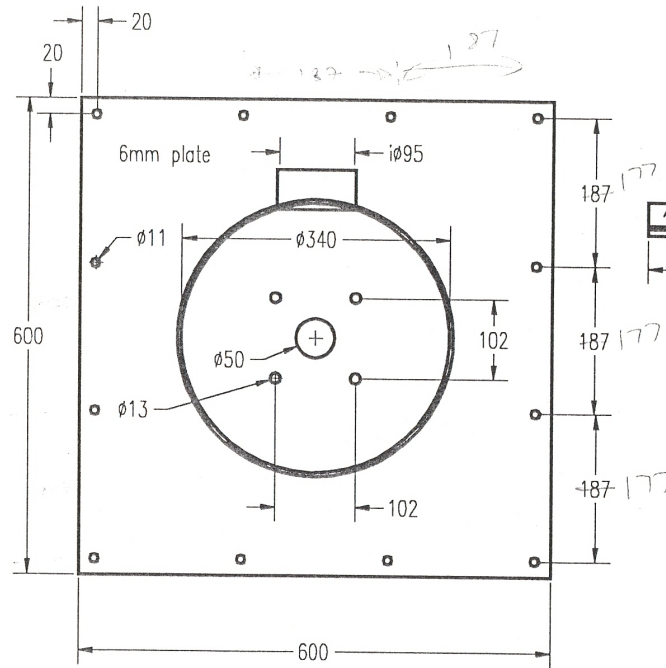
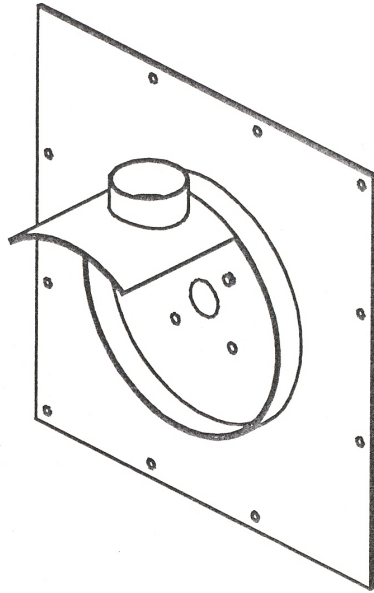
CHECKED
A.BREWIS

DRAWN
A.CHISADZA

SCALE
1:10

DATE
23/01/99

DWG No.
DHUL 06



TITLE
DEHULLER, DRIVE END PLATE

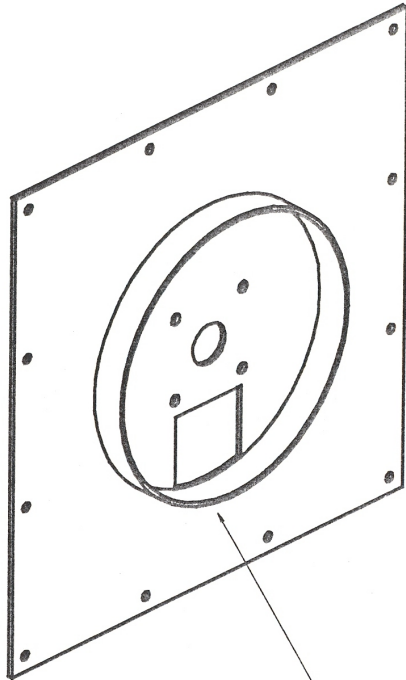
CHECKED
A. BREWIS

DRAWN
A. CHISADZA

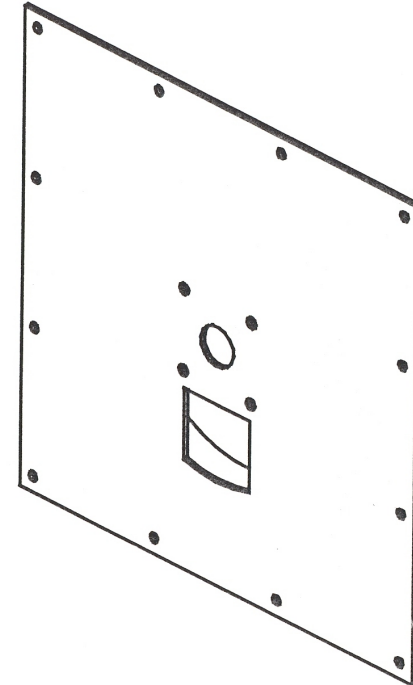
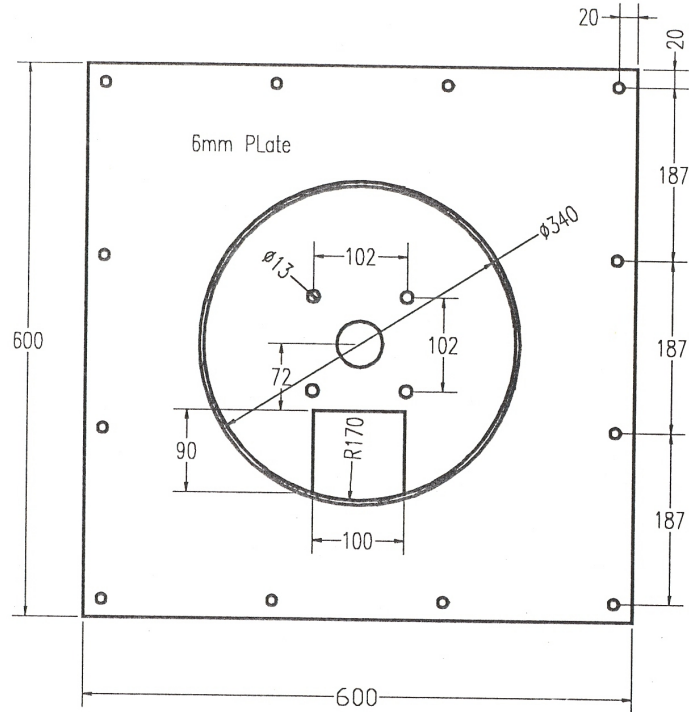
SCALE
0.12

DATE
23/01/99

DWG No.
DHUL 07



40X2 flat bar



TITLE
DEHULLER, OUTLET END PLATE

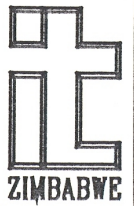
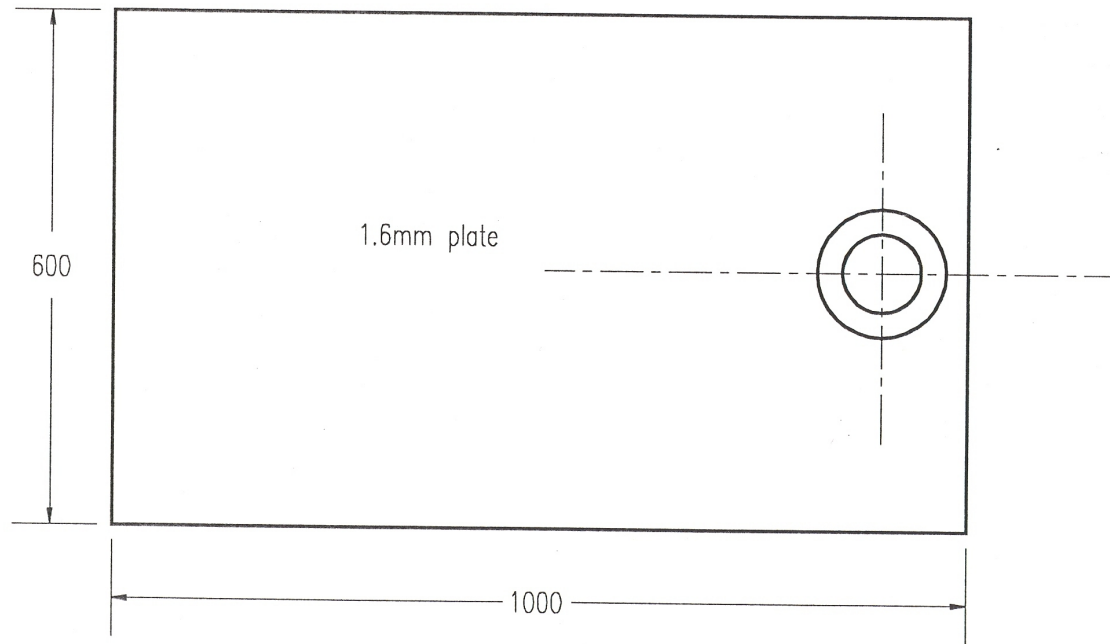
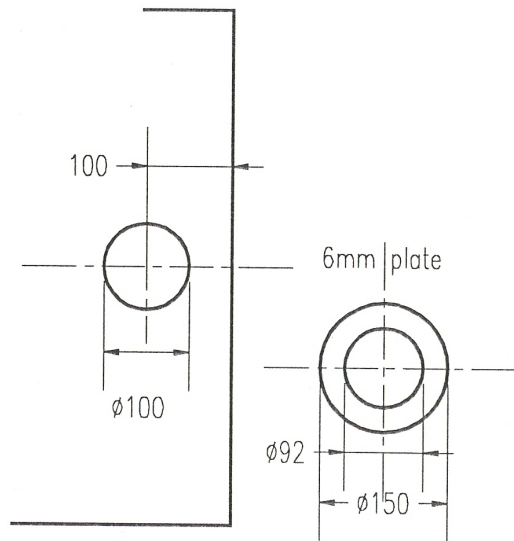
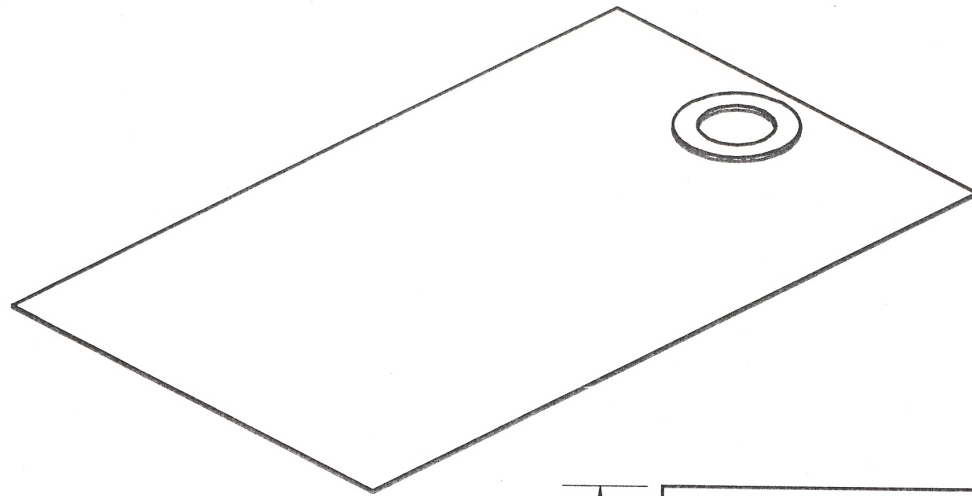
CHECKED
A.BREWIS

DRAWN
A.CHISADZA

SCALE
0.14

DATE
23/01/99

DWG No.
DHUL 08



ZIMBABWE

TITLE
DEHULLER, TOP PLATE

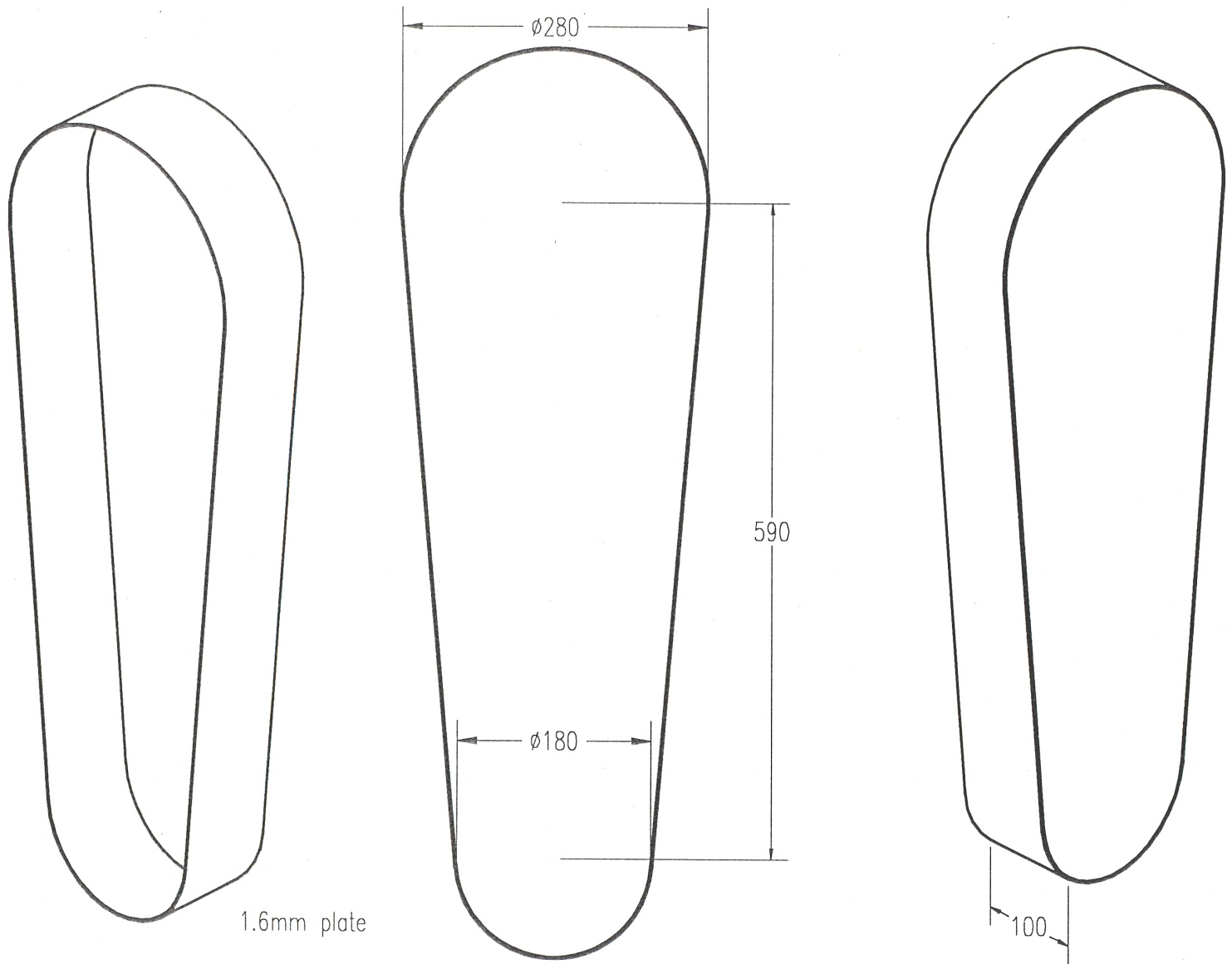
CHECKED
A.BREWIS

DRAWN
A.CHISADZA

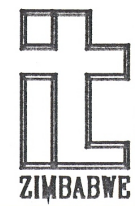
SCALE
1:8

DATE
23/01/99

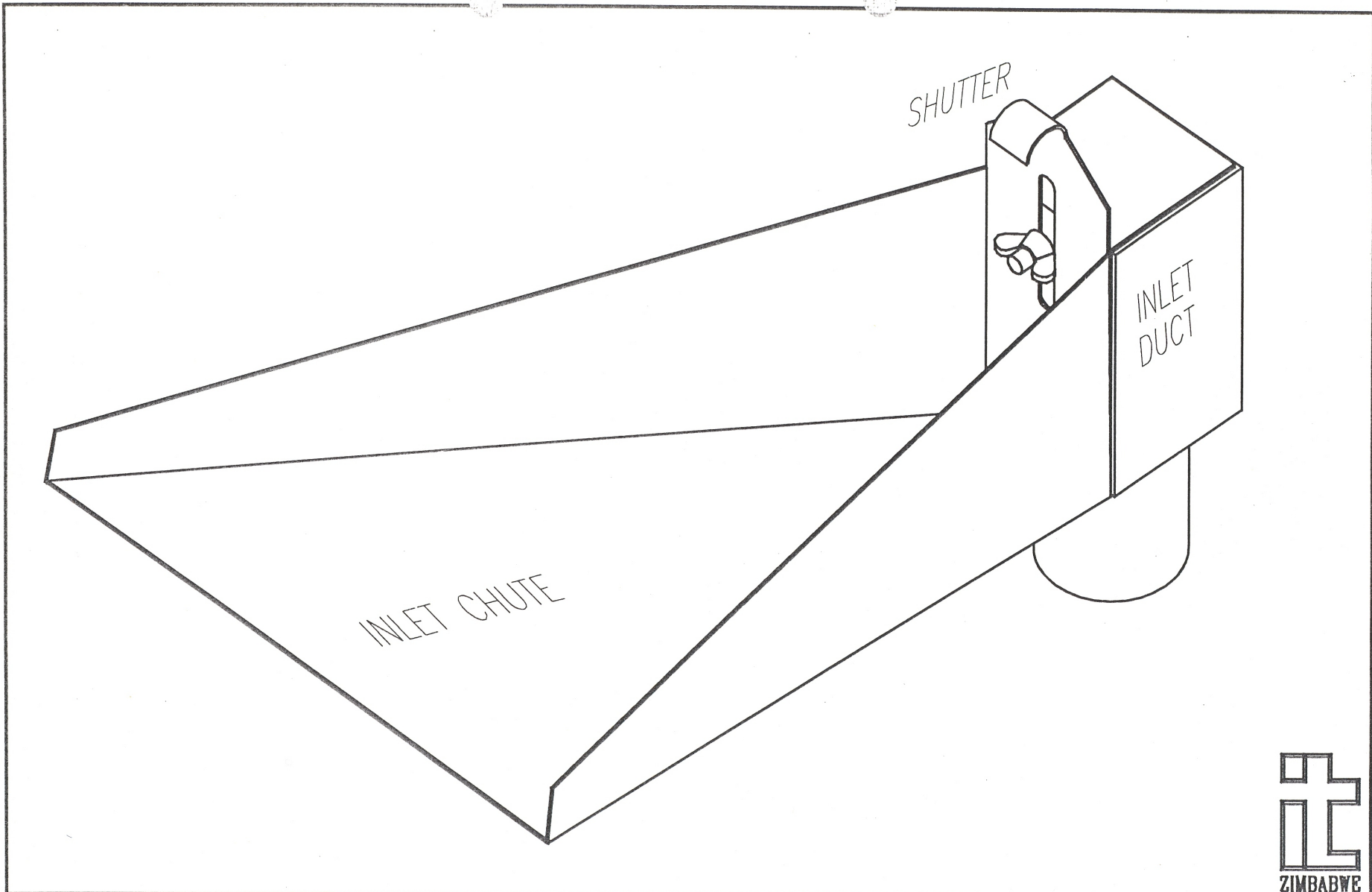
DWG No.
DHUL 09



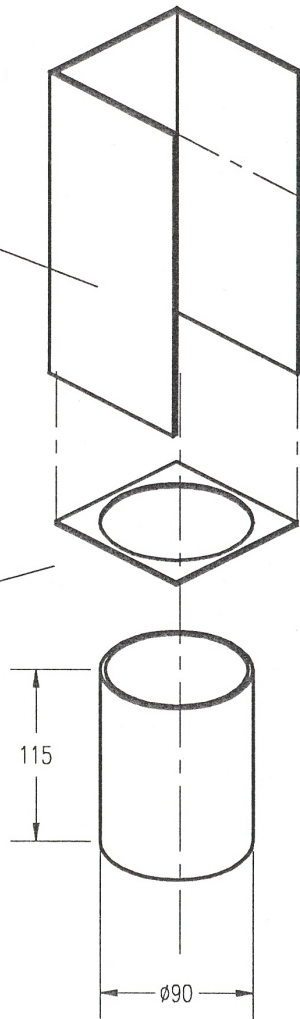
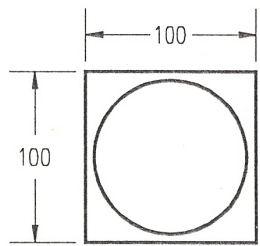
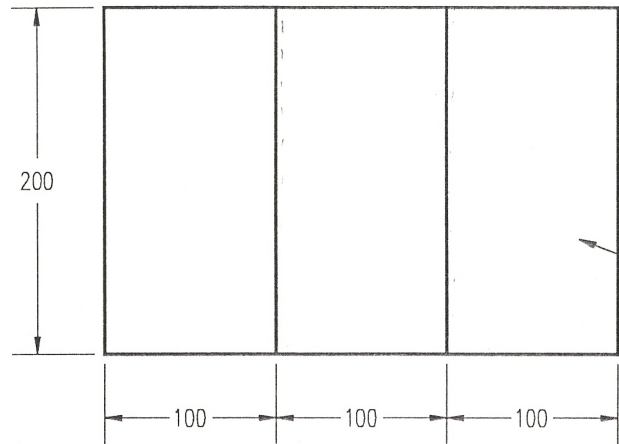
1.6mm plate



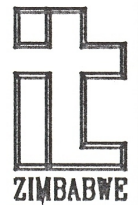
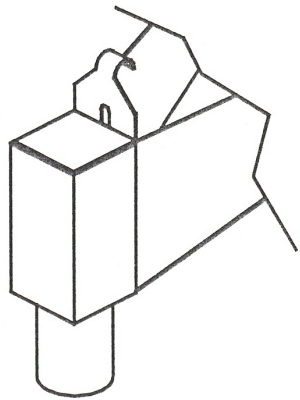
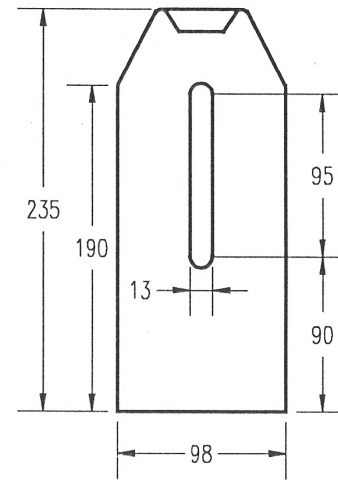
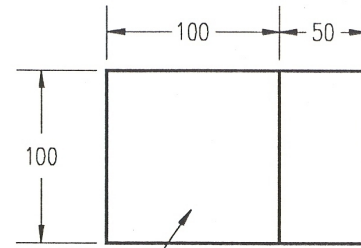
TITLE DEHULLER, GUARD	CHECKED A.BREWIS	DRAWN A.CHISADZA	SCALE 1:5	DATE 23/01/99	DWG No. DHUL 10
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TITLE DEHULLER, INLET ASSEMBLY DETAILS	CHECKED A.BREWIS	DRAWN A.CHISADZA	SCALE _____	DATE 23/01/99	DWG No. DHUL 11
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M12X30



TITLE
DEHULLER, INLET DUCT DETAILS

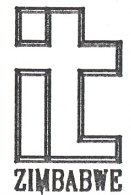
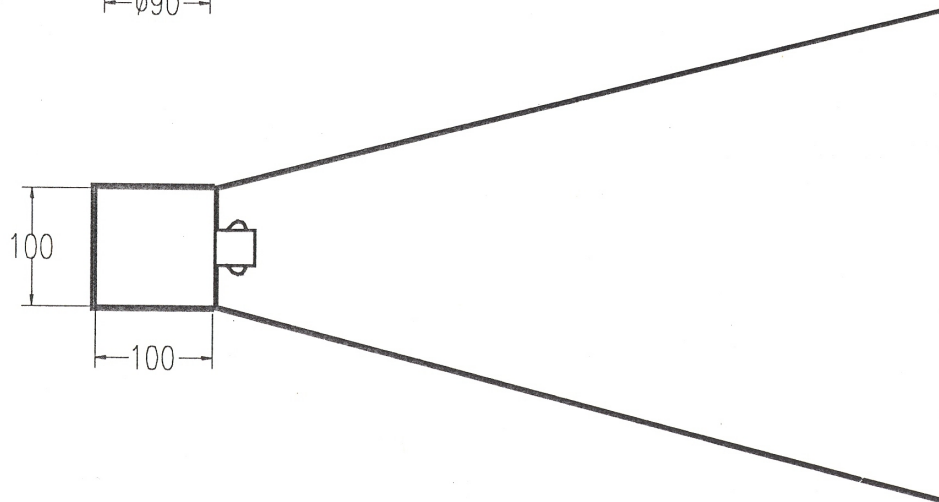
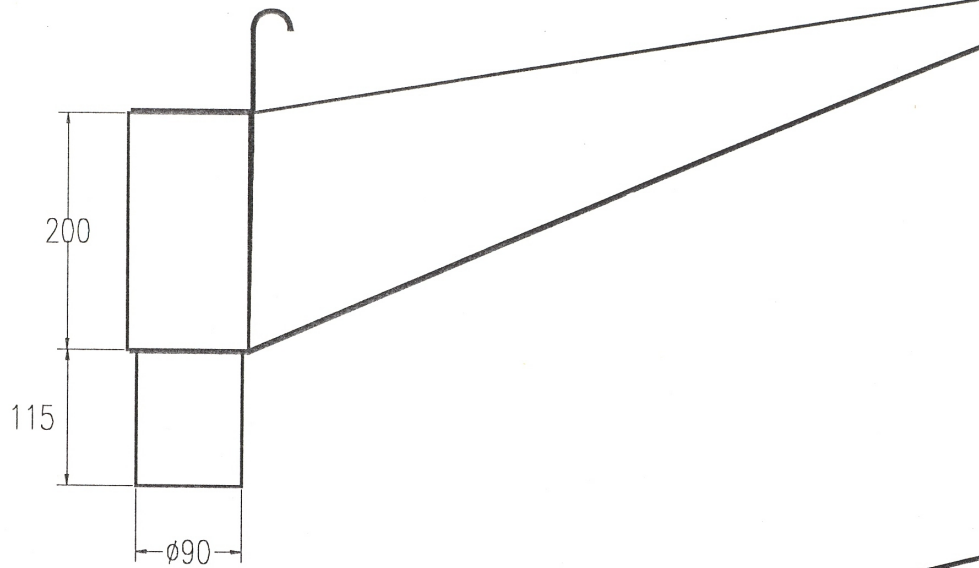
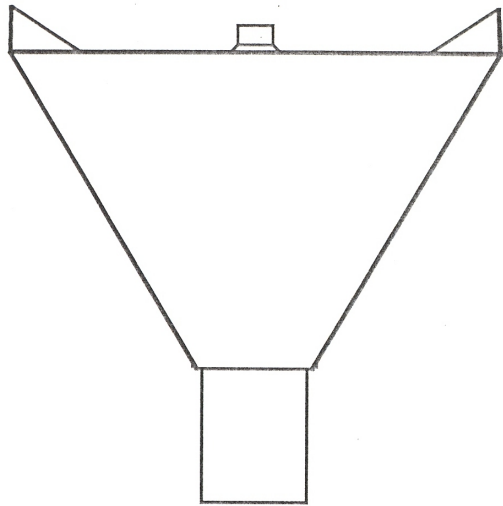
CHECKED
A.BREWIS

DRAWN
A.CHISADZA

SCALE
1:4

DATE
23/01/99

DWG No.
DHUL 13



ZIMBABWE

TITLE
DEHULLER, INLET DETAILS

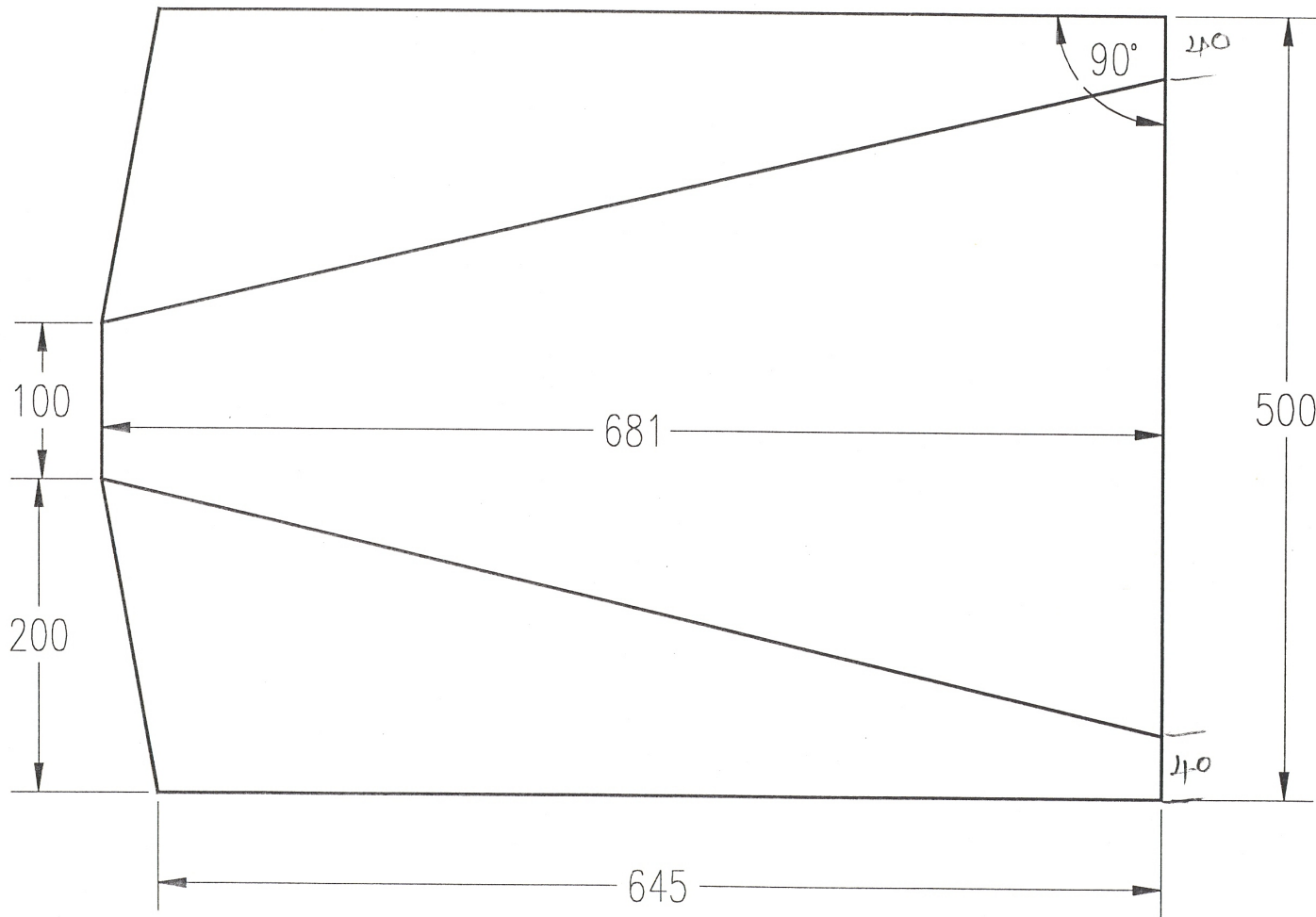
CHECKED
A.BREWIS

DRAWN
A.CHISADZA

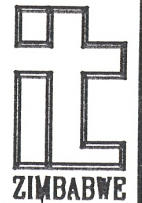
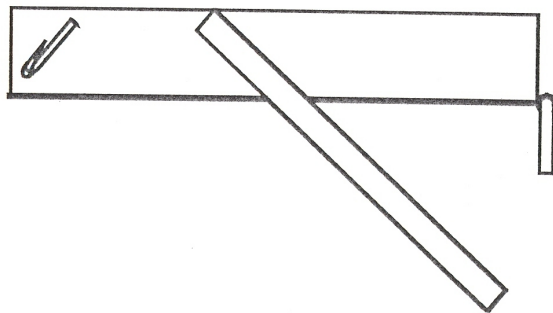
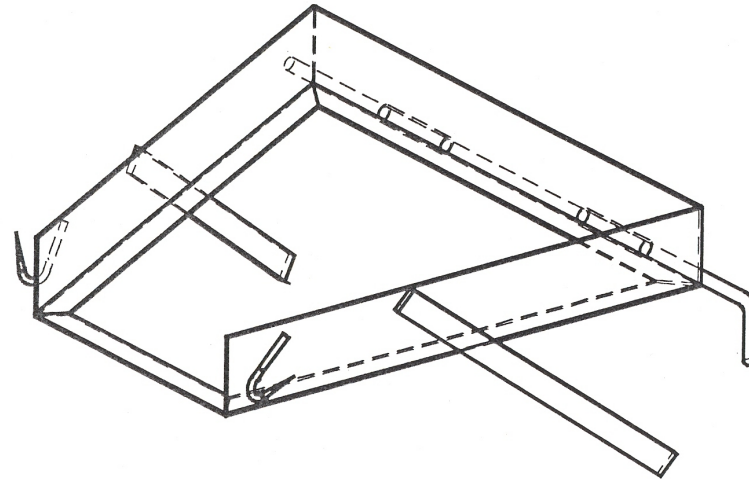
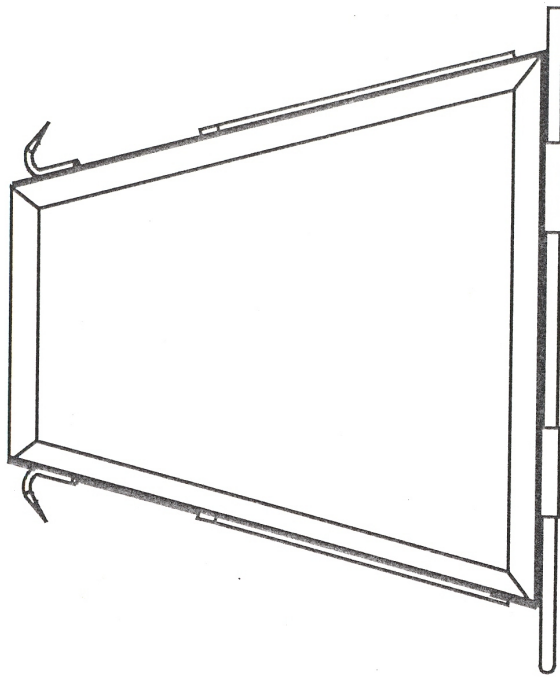
SCALE

DATE
23/01/99

DWG No.
DHUL 13^b



TITLE DEHULLER, INLET CHUTE	CHECKED A.BREWIS	DRAWN A.CHISADZA	SCALE 1:4	DATE 23/01/99	DWG No. DHUL 14
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ZIMBABWE

TITLE
DEHULLER, OUTLET CHUTE DETAILS

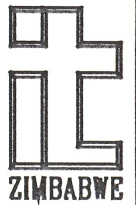
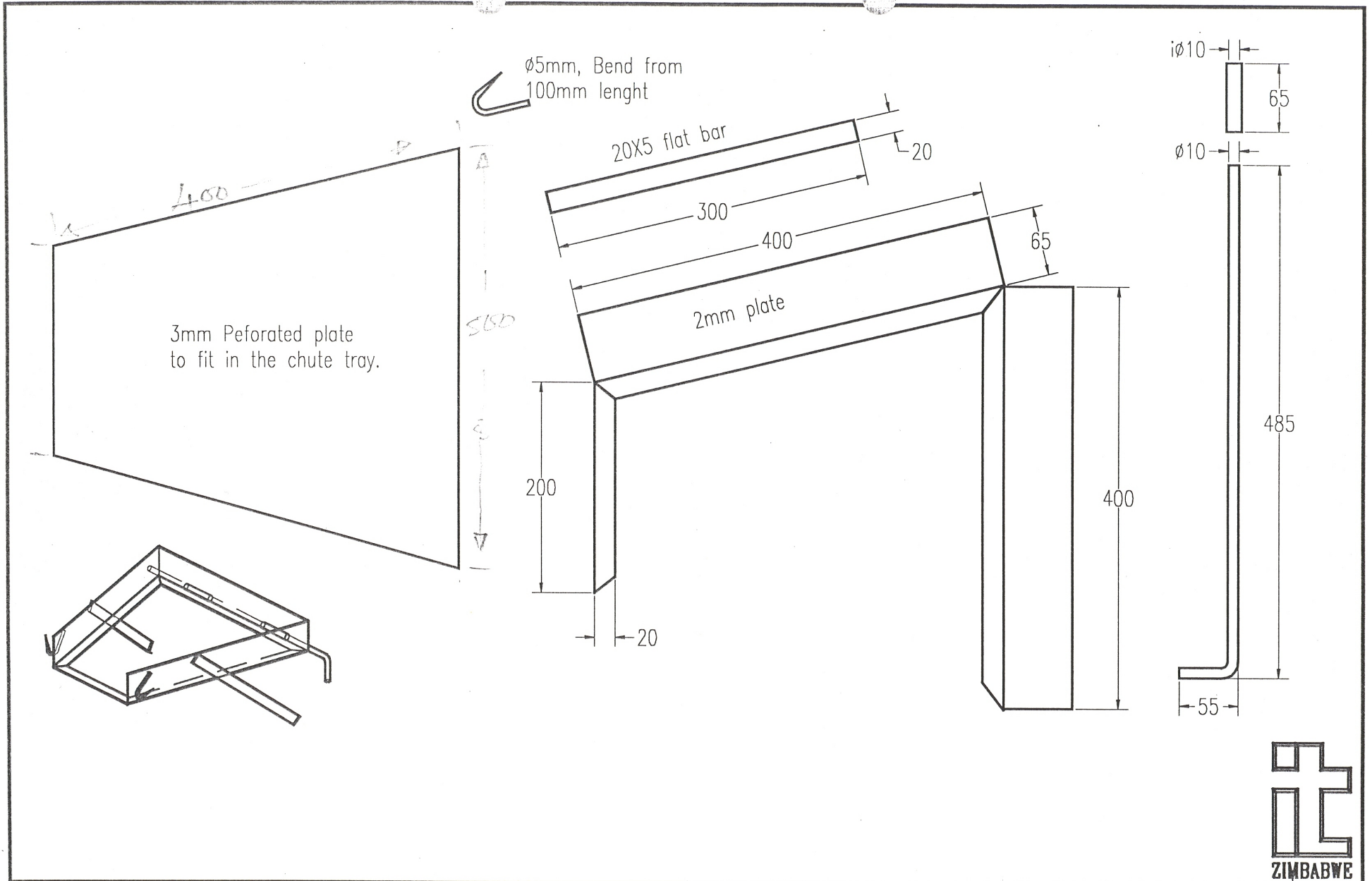
CHECKED
A.BREWIS

DRAWN
A.CHISADZA

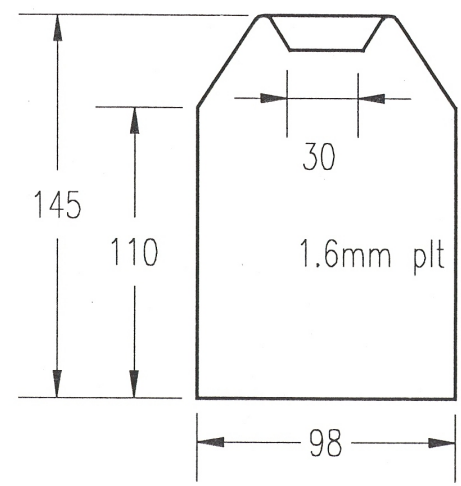
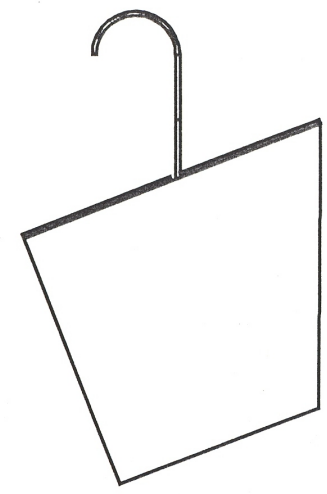
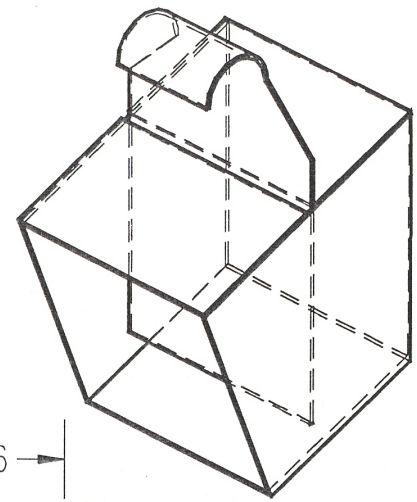
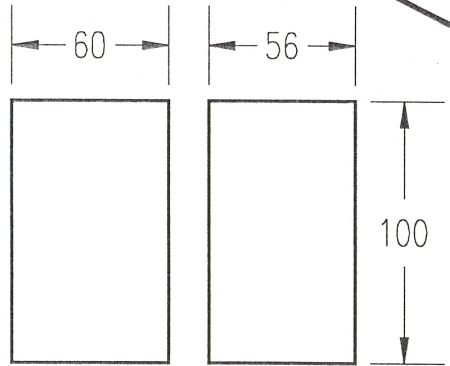
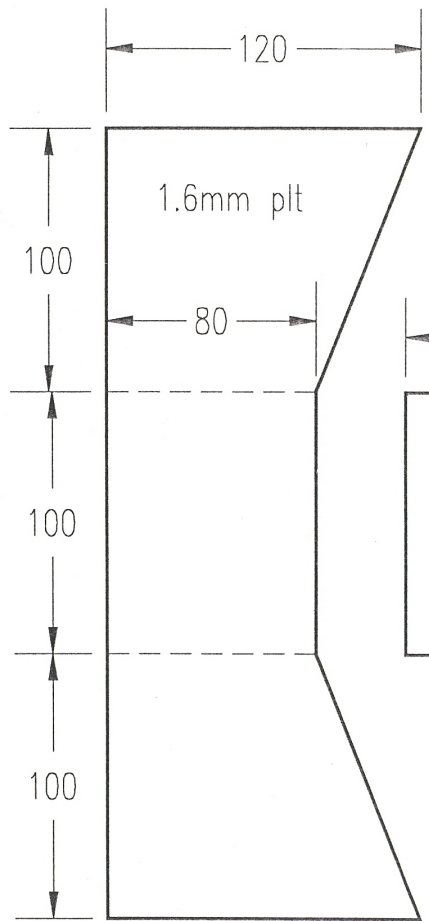
SCALE

DATE
23/01/99

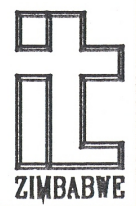
DWG No. 15
DHUL -16



TITLE	CHECKED	DRAWN	SCALE	DATE	DWG No.
DEHULLER, UTLET CHUTE DETAILS	A.BREWIS	A.CHISADZA	----	23/01/99	DHUL 15

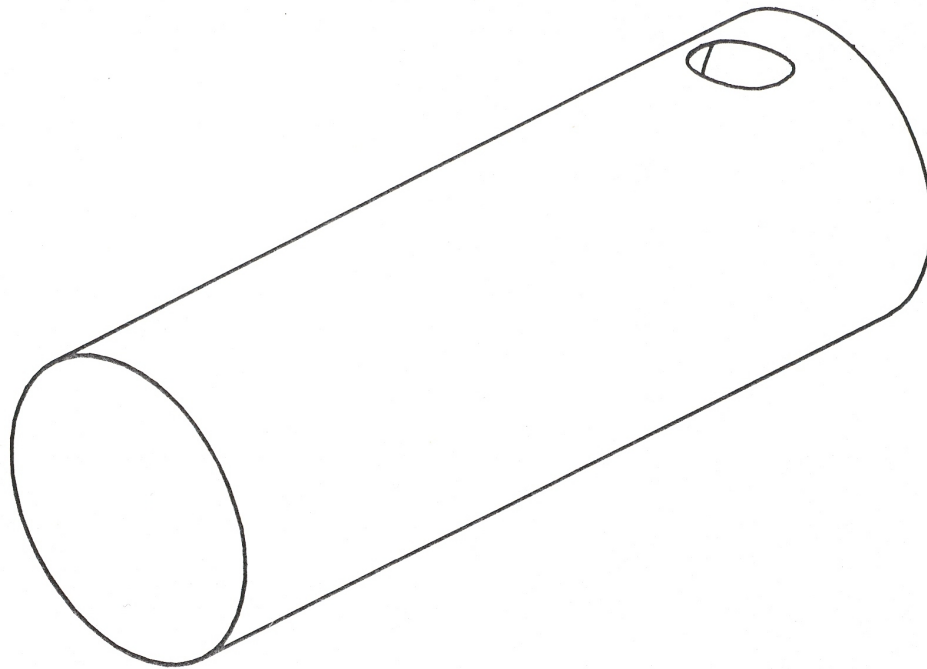


Bend from length 160

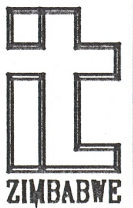
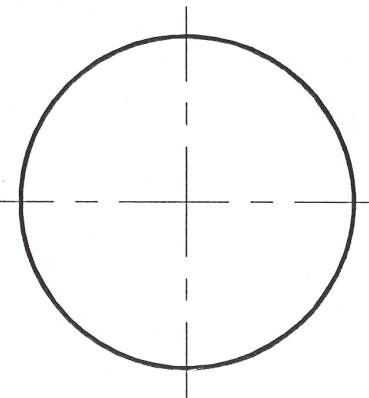
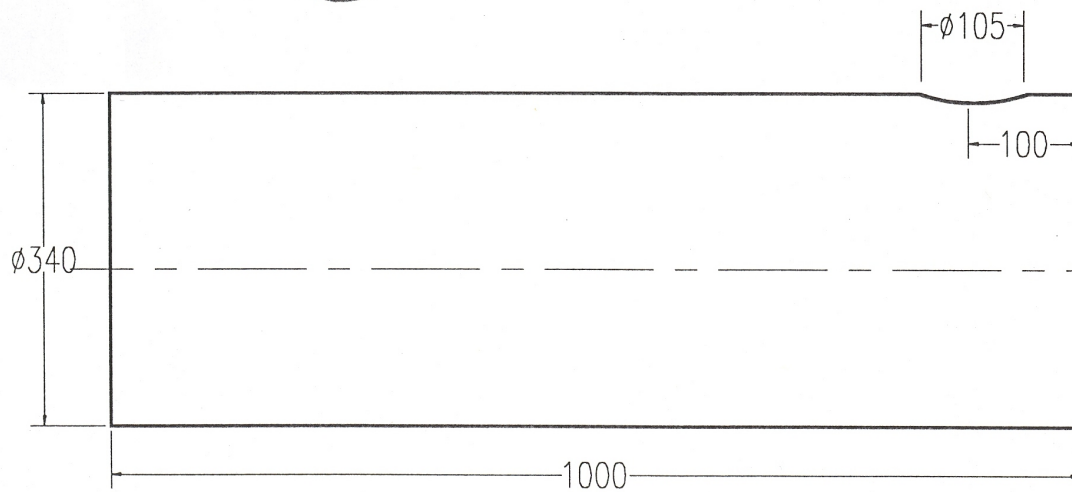


ZIMBABWE

TITLE DEHULLER, OUTLET DUCT DETAILS	CHECKED A.BREWIS	DRAWN A.CHISADZA	SCALE 2:5	DATE 23/01/99	DWG No. DHUL 17
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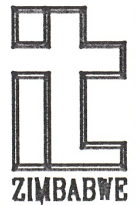
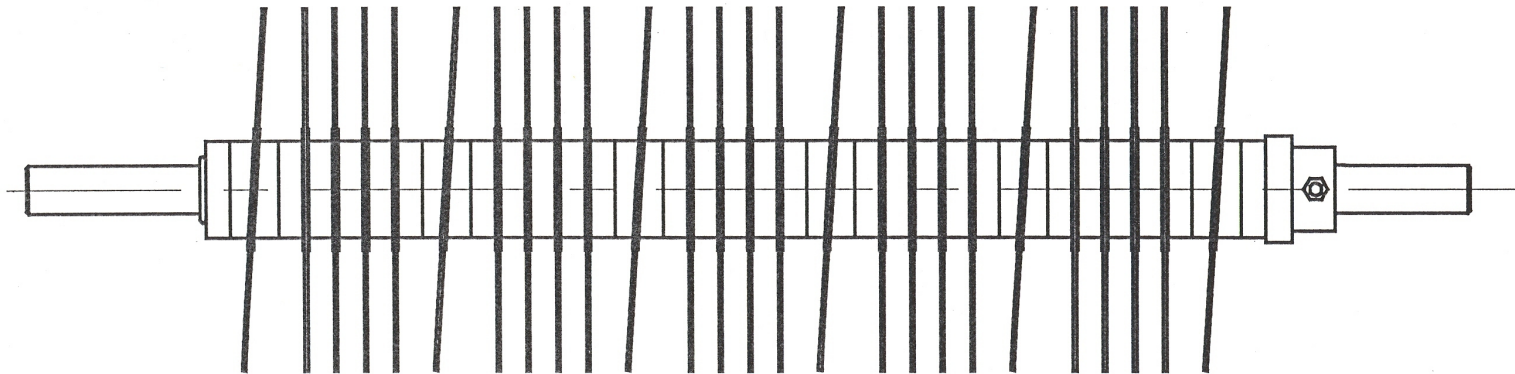
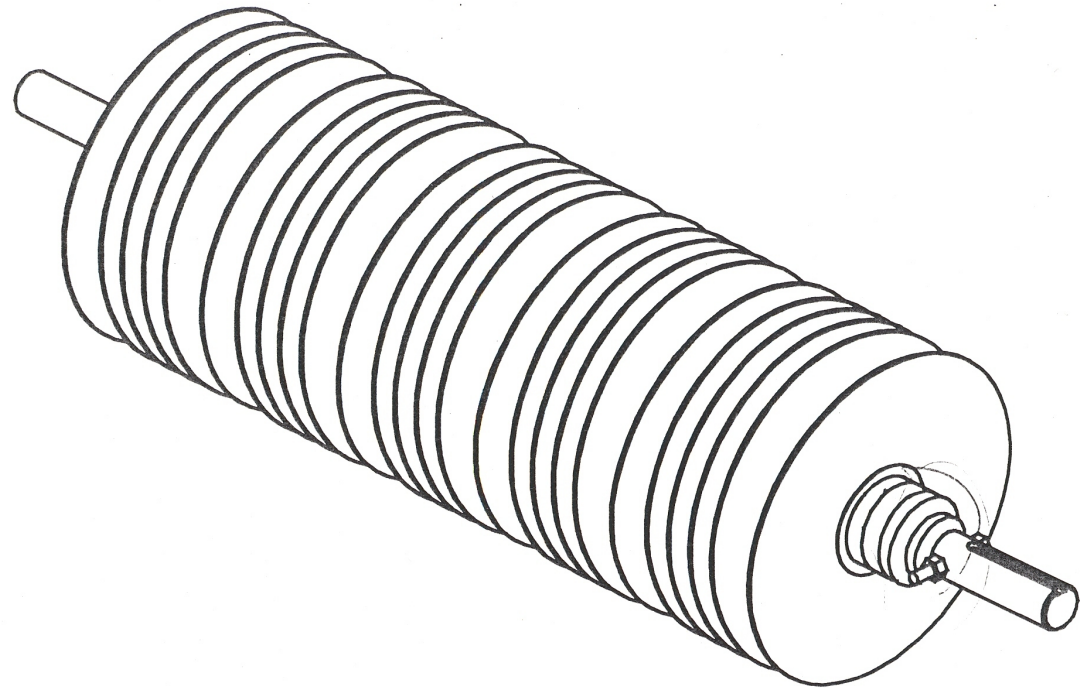
3mm perforated plate



TITLE DEHULLER	CHECKED A.BREWIS	DRAWN A.CHISADZA	SCALE _____	DATE 23/01/99	DWG No. DHUL 18
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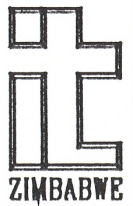
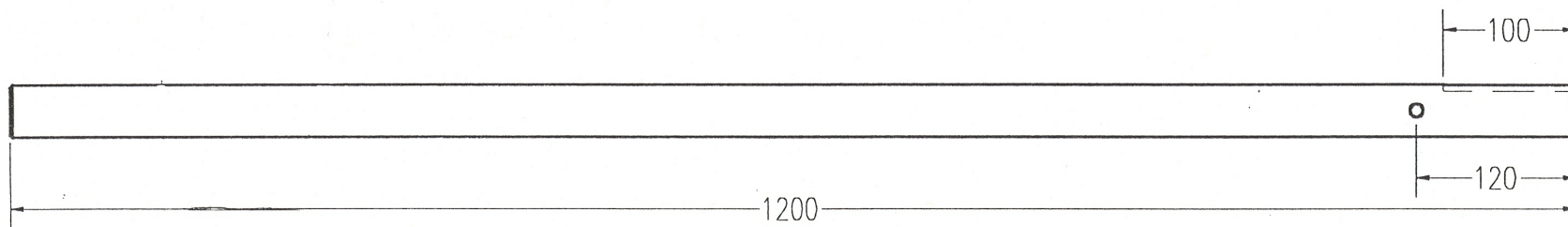
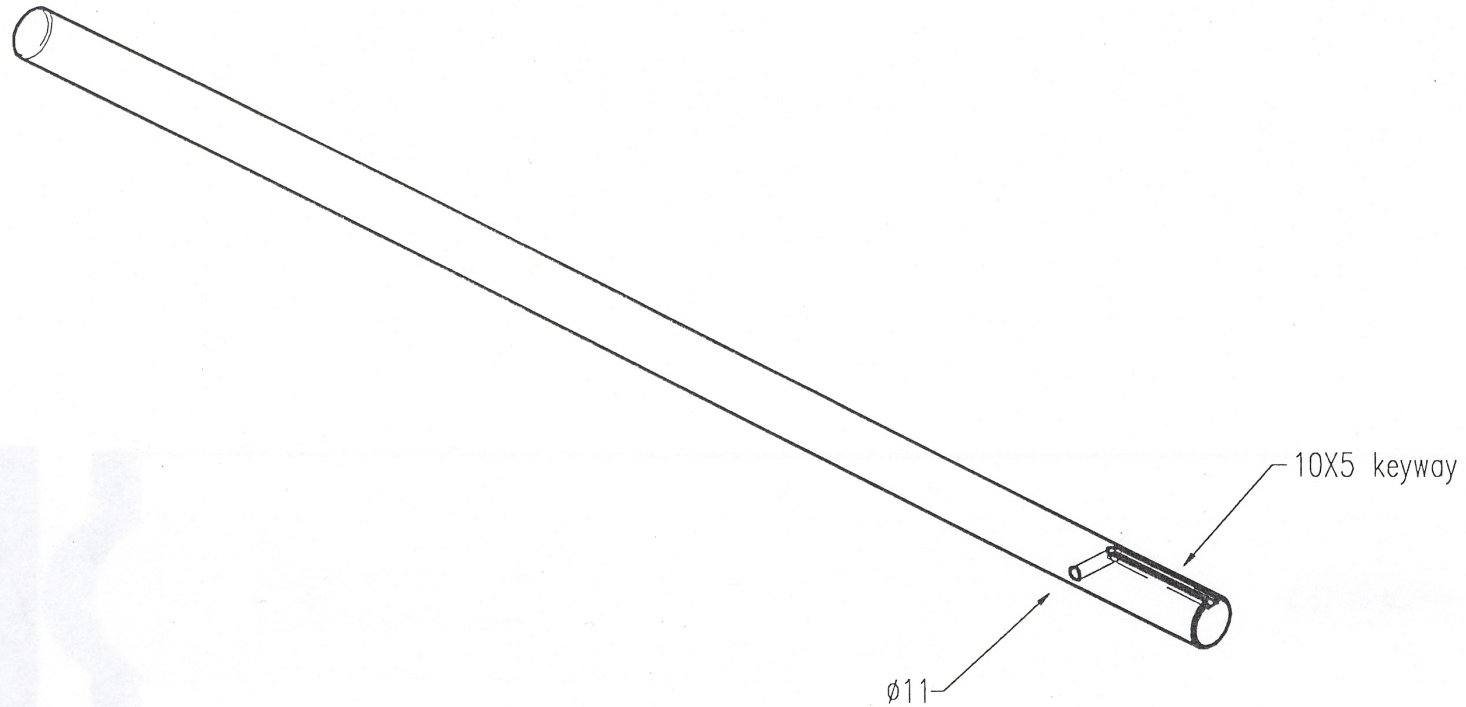
What size & type are
the disks?

300(20) X 40(10) ^{bore} thickness
X 3m thickness OD
type.
Cutting Disc X 26 of.

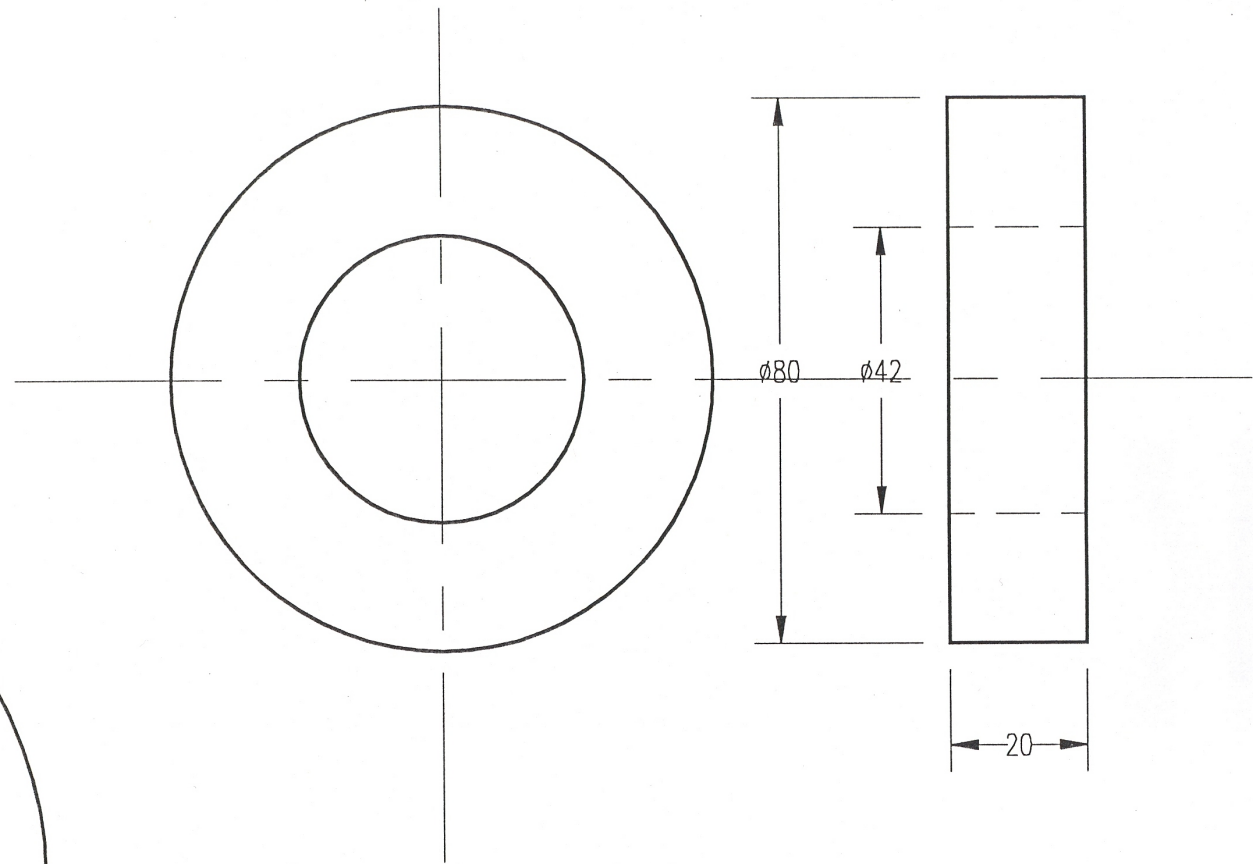
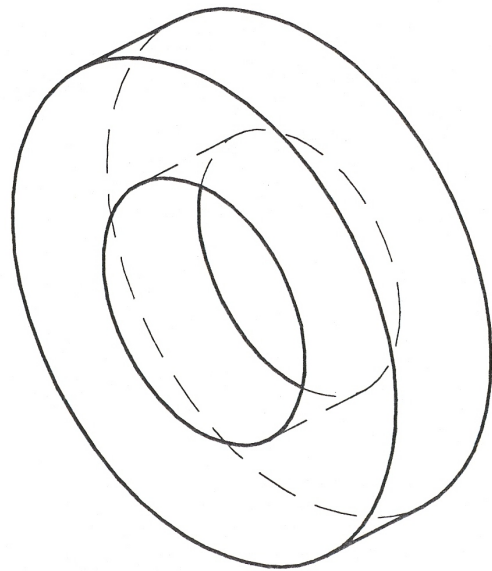


ZIMBABWE

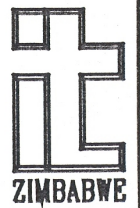
TITLE DEHULLER, SCRUBBER DETAILS	CHECKED A.BREWIS	DRAWN A.CHISADZA	SCALE 0.175	DATE 23/01/99	DWG No. DHUL 19
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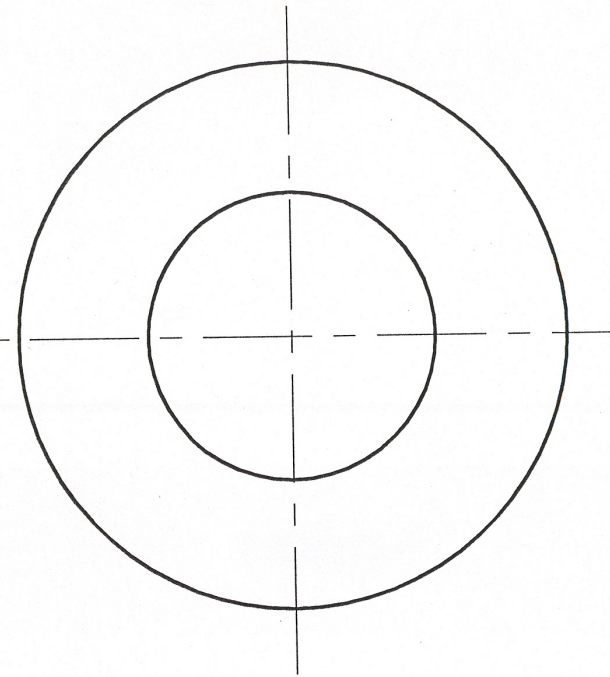
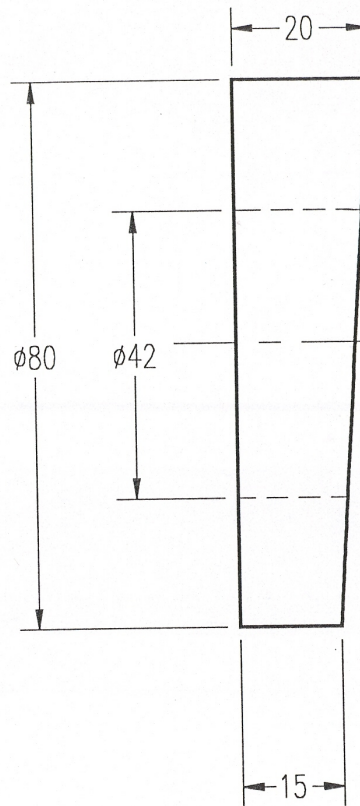
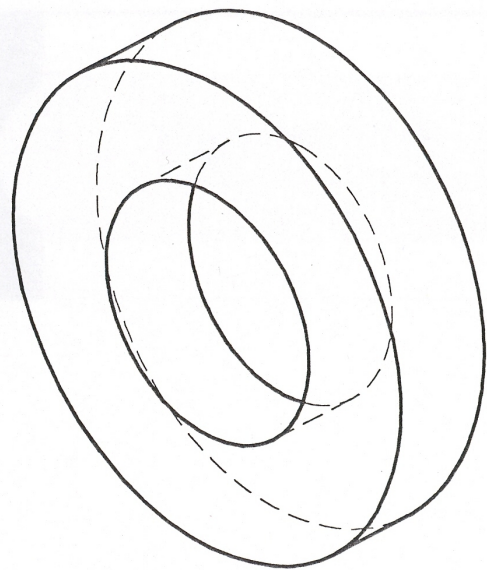
TITLE DEHULLER, SHAFT	CHECKED A.BREWIS	DRAWN A.CHISADZA	SCALE 1:5	DATE 23/01/99	DWG No. DHUL 20
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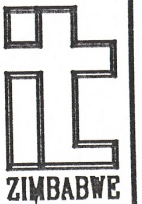
All spacers are aluminium



TITLE DEHULLER, FLAT SPACER	CHECKED A.BREWIS	DRAWN A.CHISADZA	SCALE 1:1	DATE 23/01/99	DWG No. DHUL 21
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Aluminium spacer



TITLE
DEHULLER, INCLINING SPACER

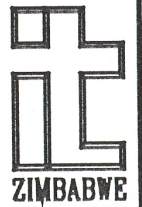
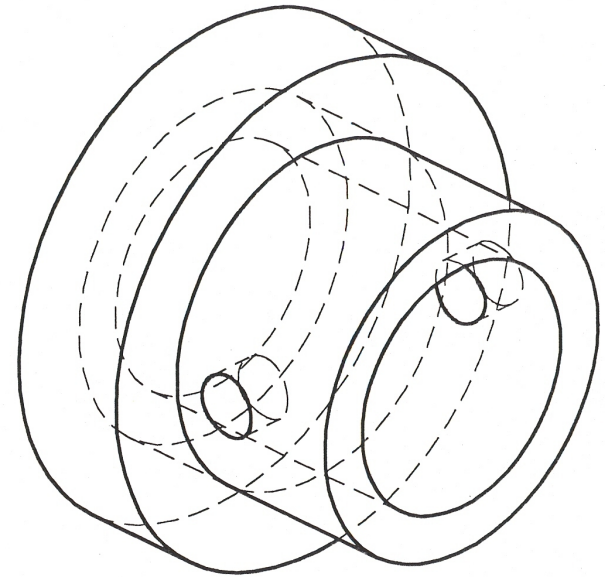
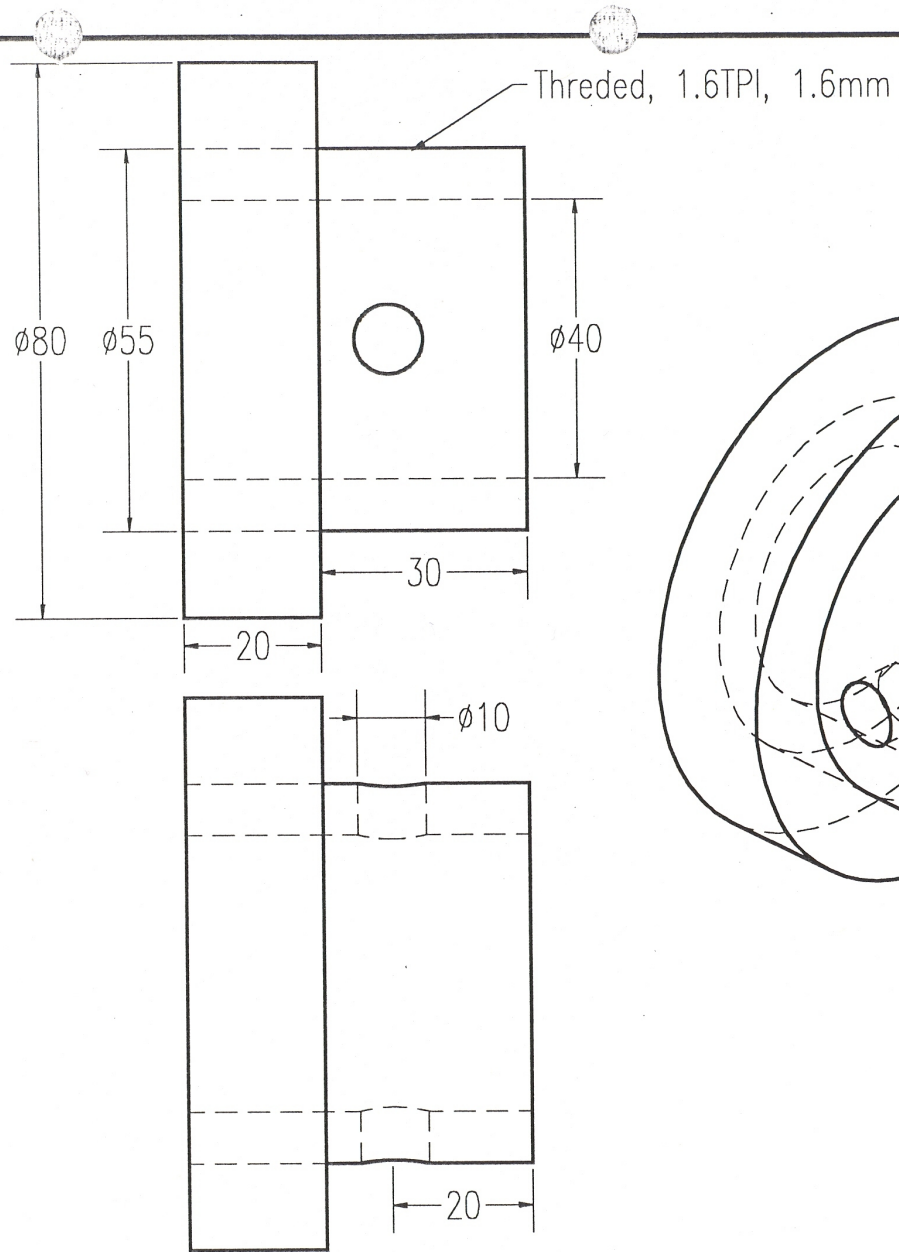
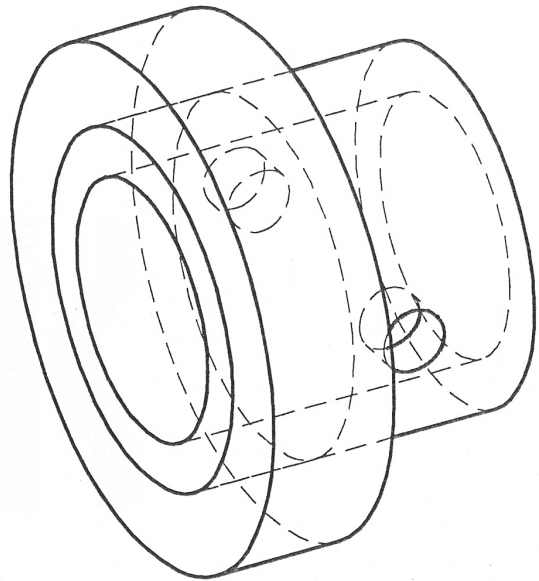
CHECKED
A.BREWIS

DRAWN
A.CHISADZA

SCALE
1:1

DATE
23/01/99

DWG No.
DHUL 22



ZIMBABWE

TITLE
DEHULLER, CLAMPING NUT DETAILS

CHECKED
A.BREWIS

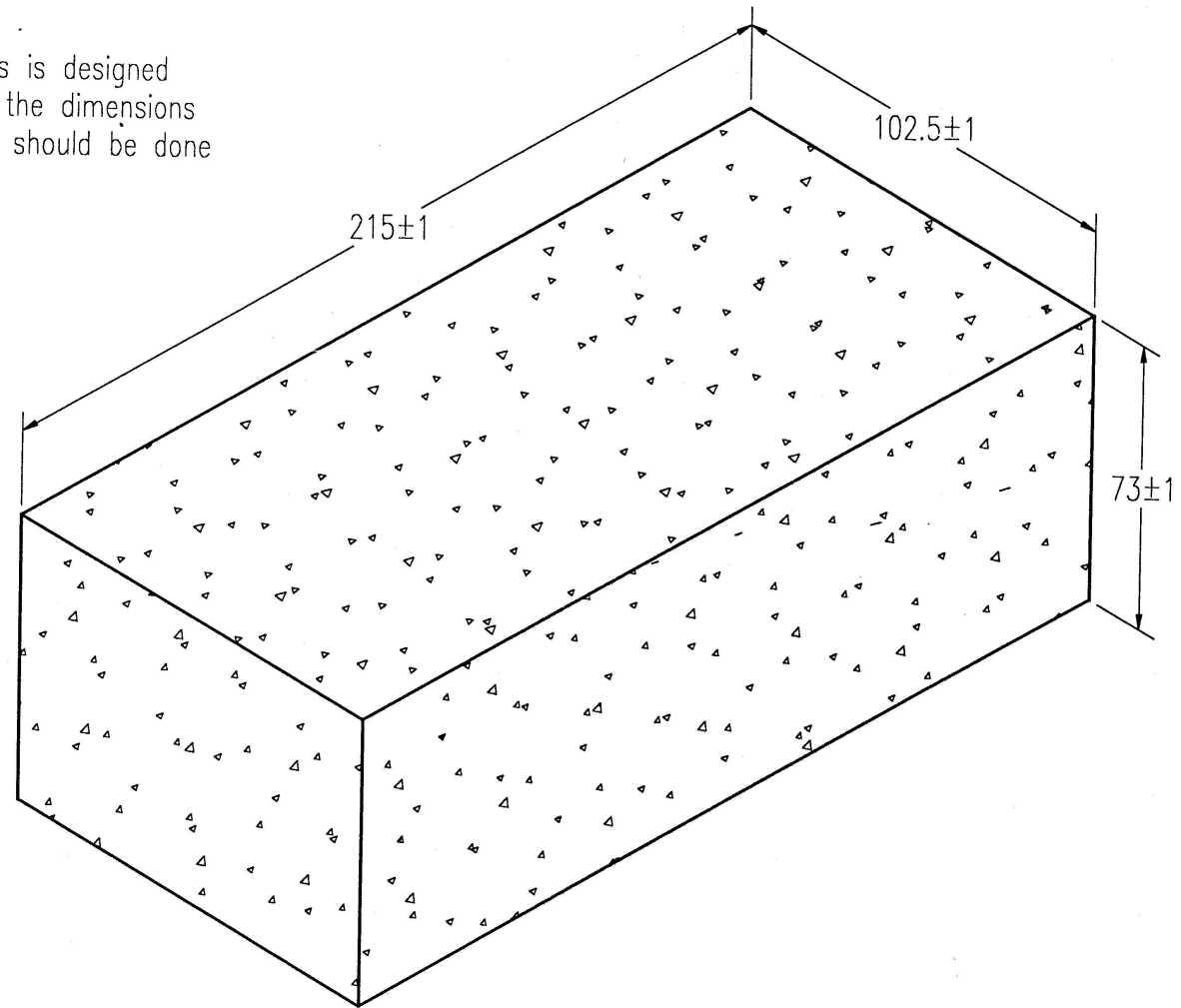
DRAWN
A.CHISADZA

SCALE
1:1

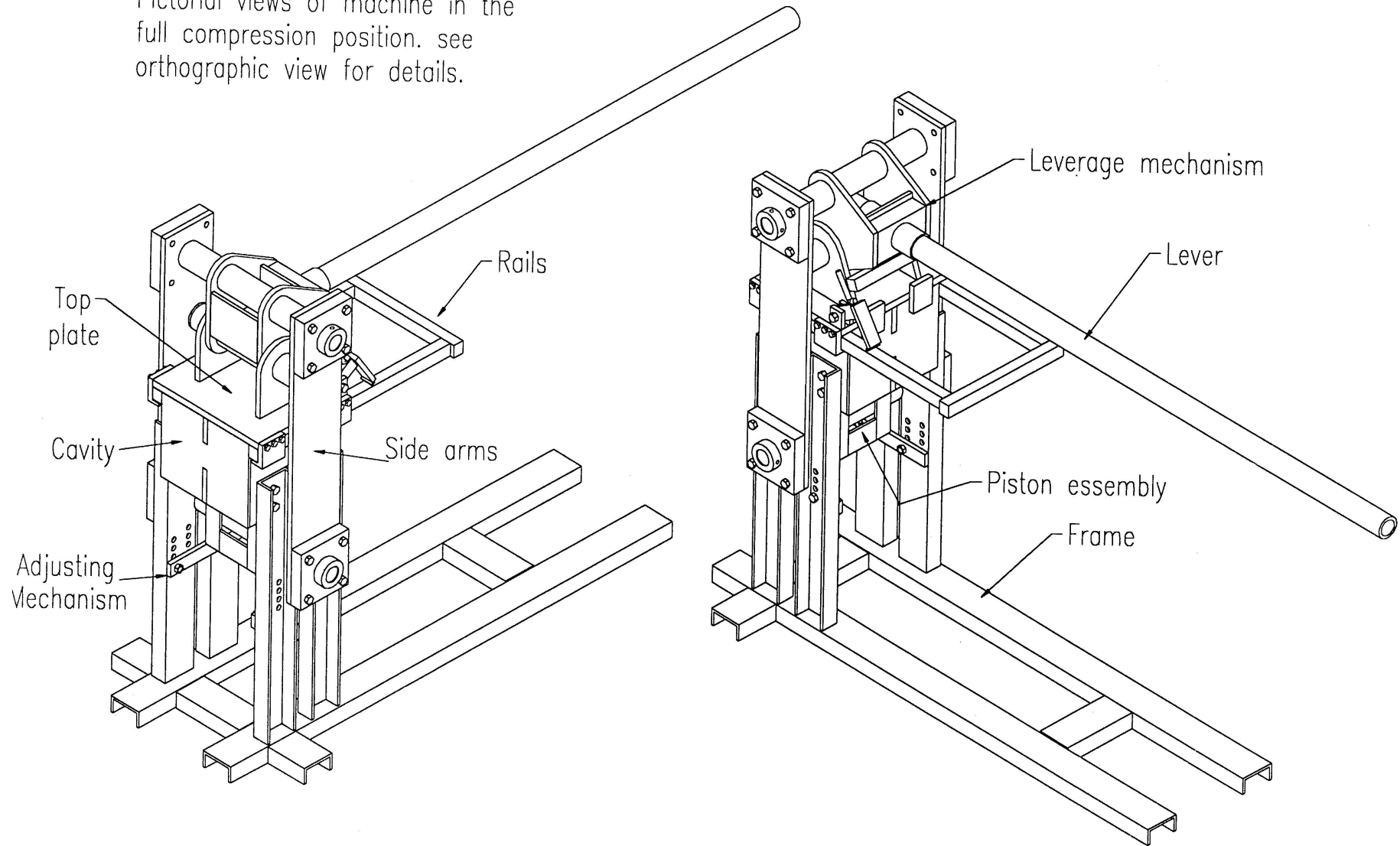
DATE
23/01/99

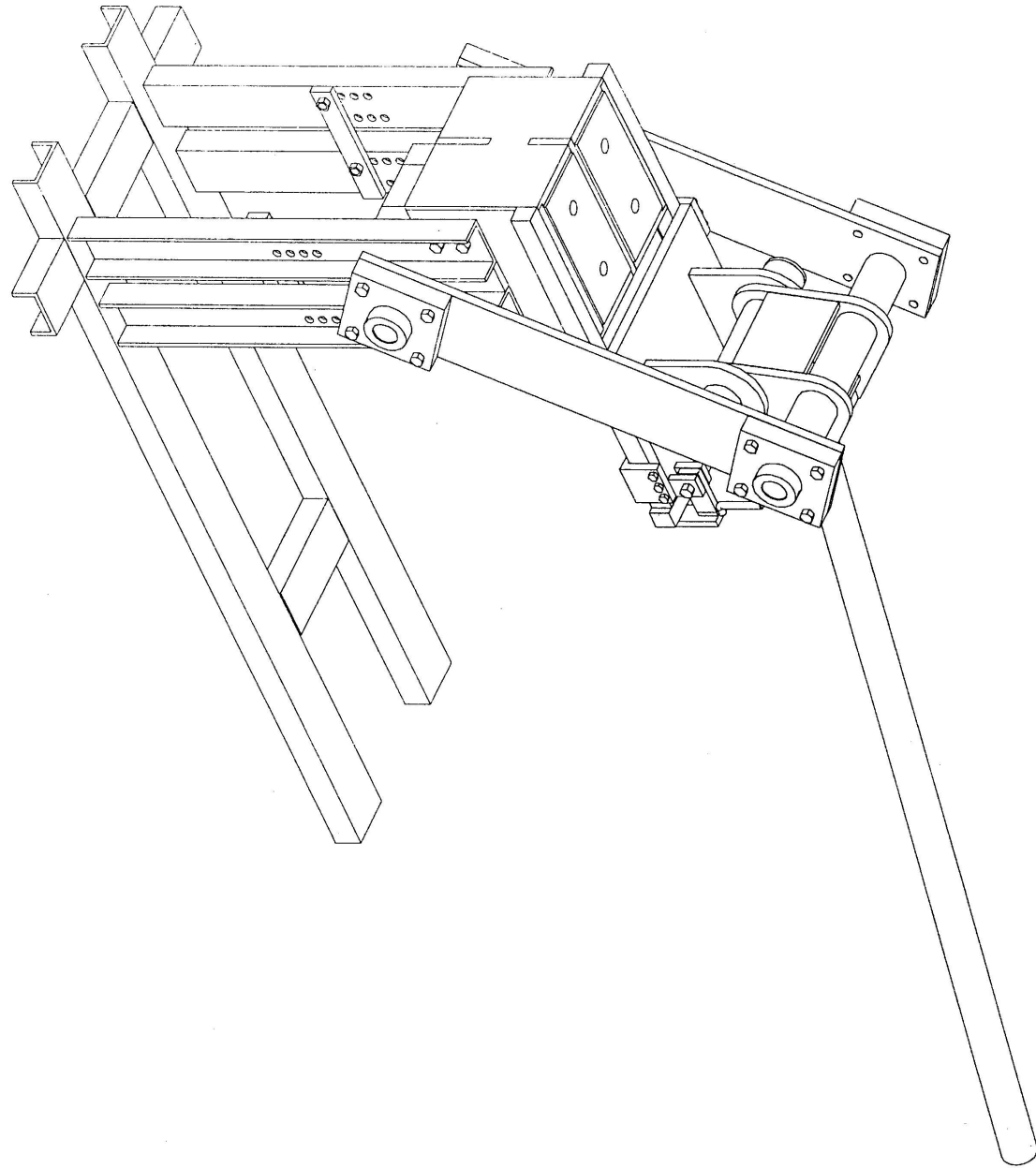
DWG No.
DHUL 23

This double cavity press is designed to produce bricks with the dimensions shown here. fabrication should be done with this in mind.



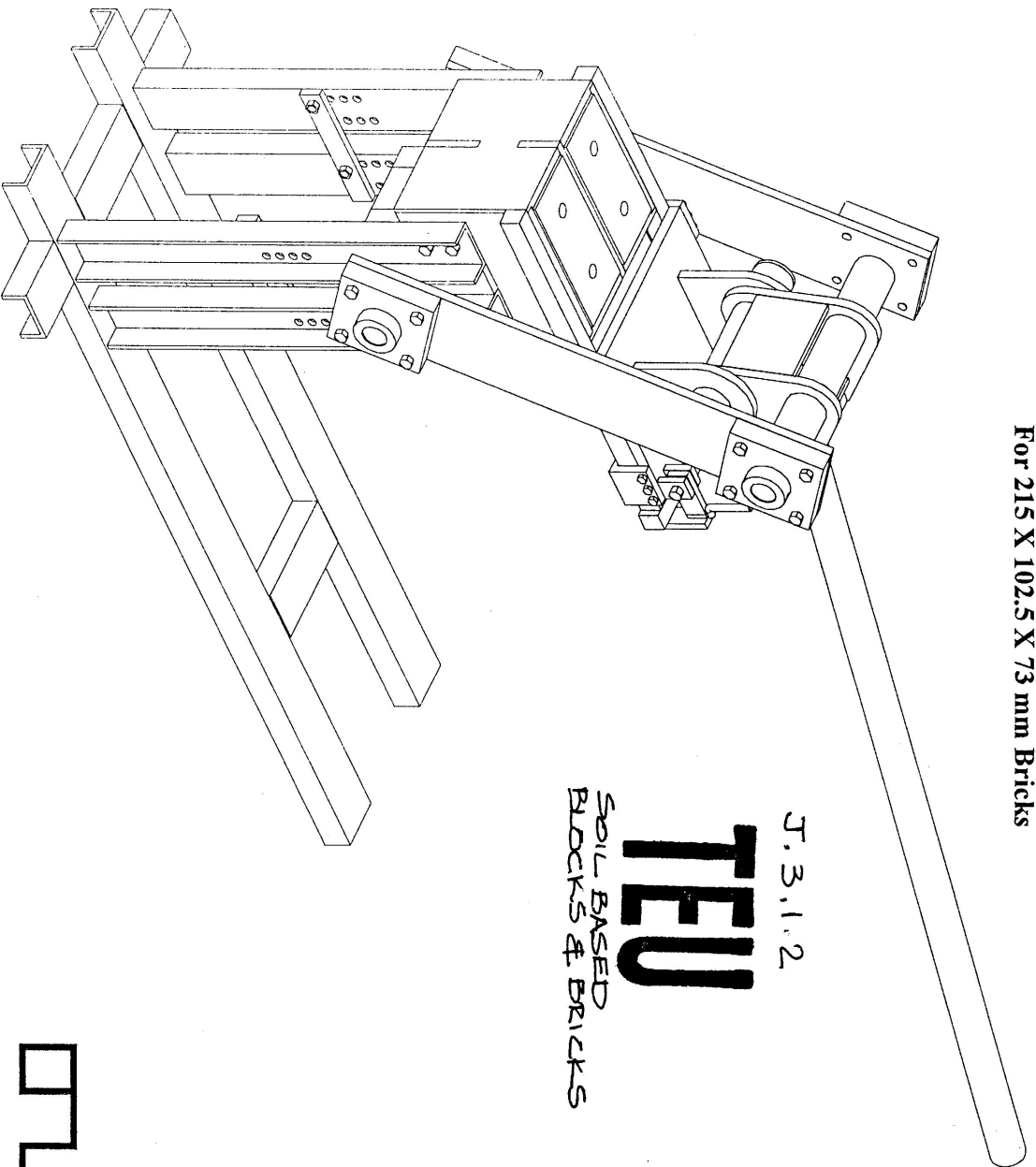
Pictorial views of machine in the full compression position. see orthographic view for details.





Double Cavity Press Production Drawings

For 215 X 102.5 X 73 mm Bricks

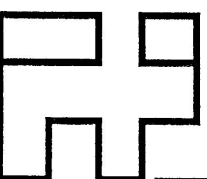


J. 3.1.2

TEU

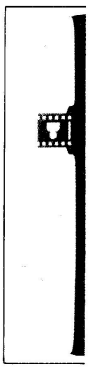
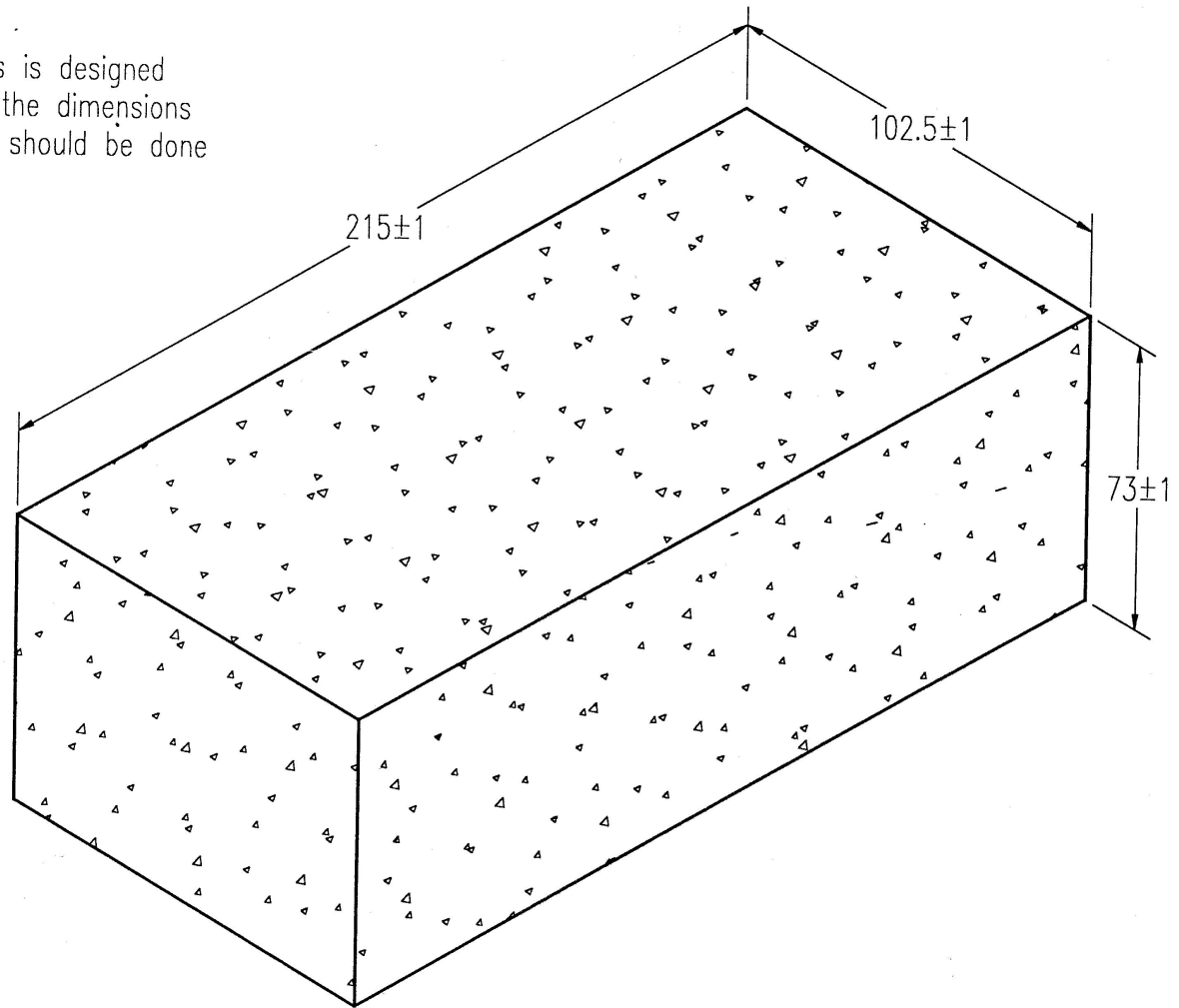
SOIL BASED
BLOCKS & BRICKS

BUSINESS SHOP
May 1999



Pdv

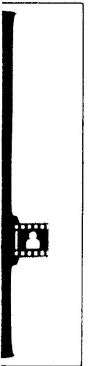
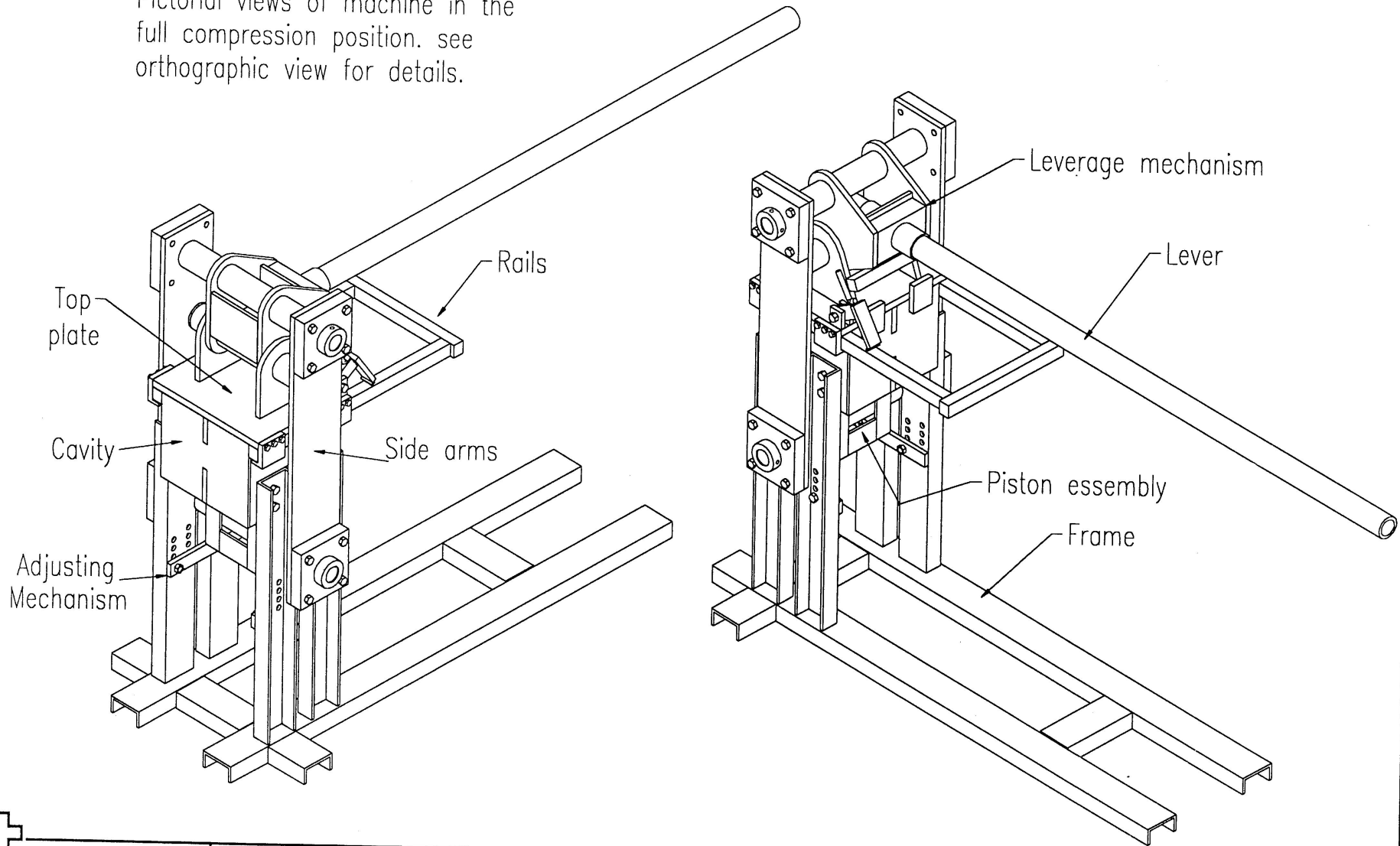
This double cavity press is designed to produce bricks with the dimensions shown here. fabrication should be done with this in mind.



I	BUSINESS SHOP	TITLE THE THICK BRICK	CHCKD A.BREWIS	DRWN A.CHISADZA	SCALE	DATE 31/05/99	DWG No. DCP 01

Pdv

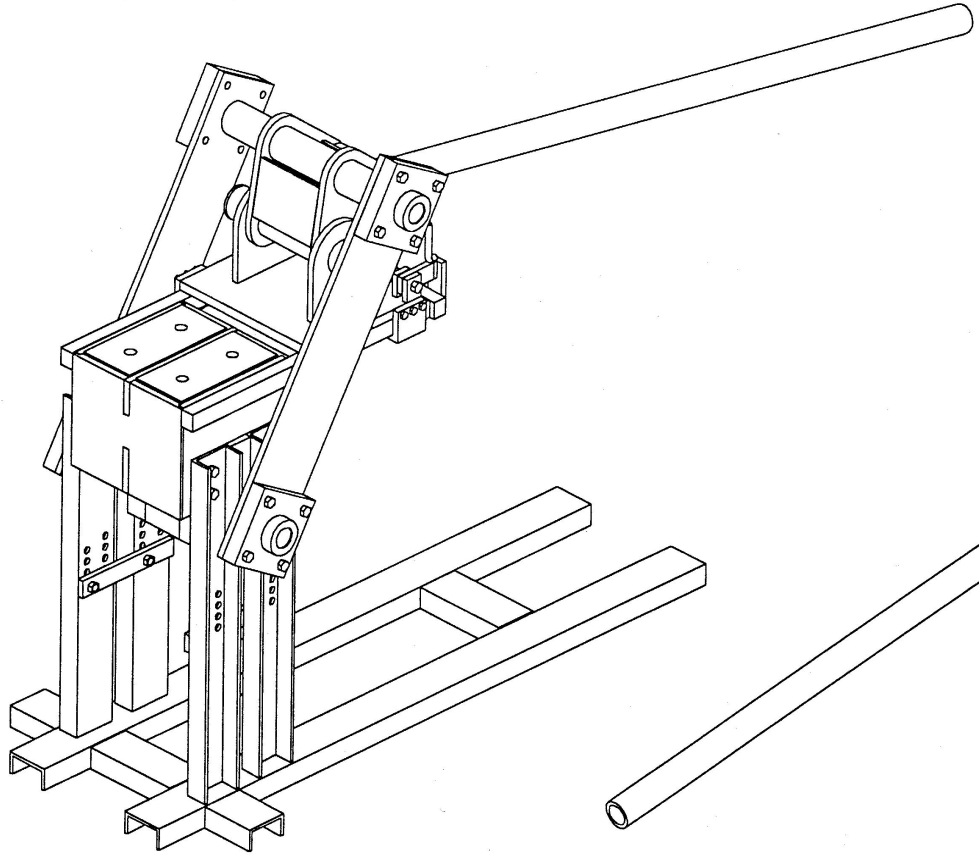
Pictorial views of machine in the full compression position. see orthographic view for details.



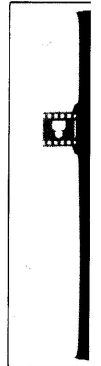
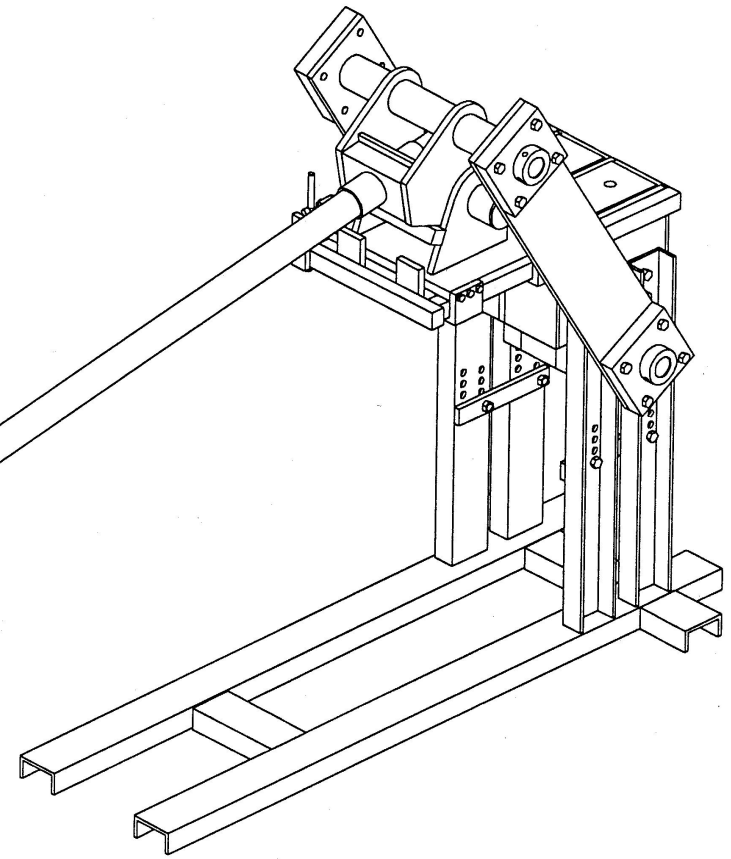
 BUSINESS SHOP	TITLE PICTORIAL; COMPRESSION	CHKD A.BREWIS	DRWN A.CHISADZA	SCALE _____	DATE 31/05/99	DWG No. DCP 02
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Pdv

Isometric views of the machine
in the full ejection position.

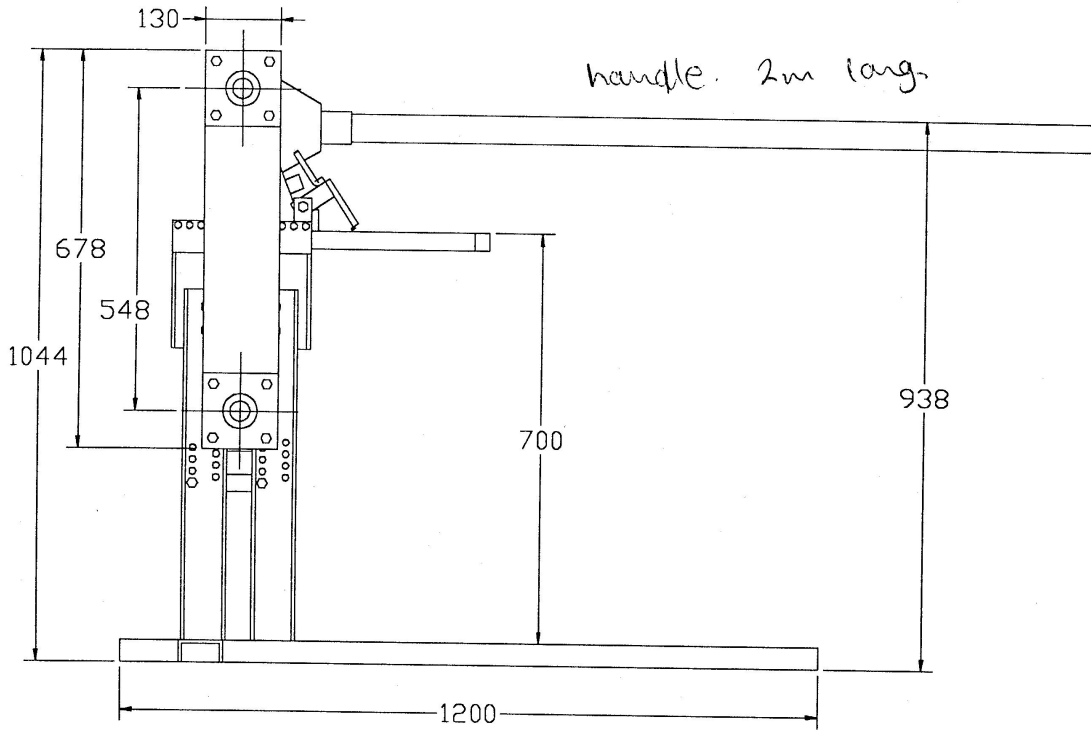


On ejection, the piston plates
protrude above the mould cavity
by 3 ± 2 mm

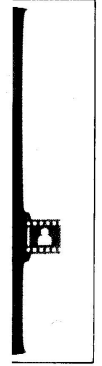
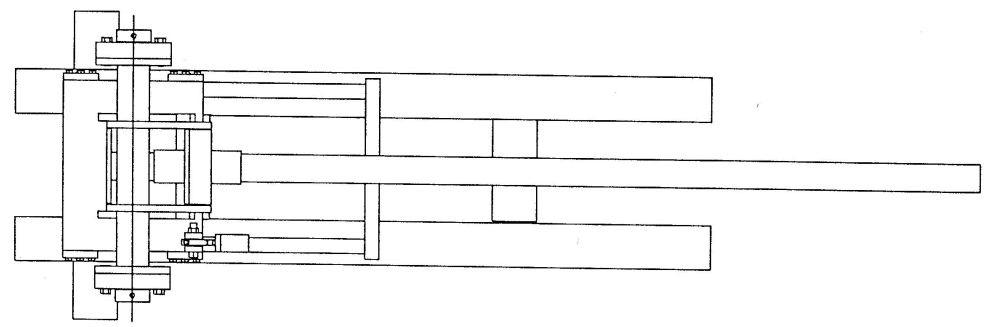
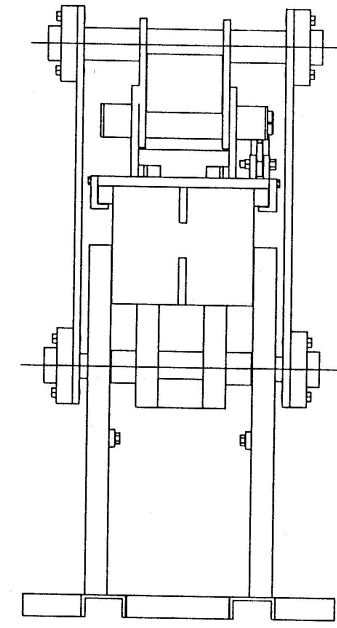


	BUSINESS SHOP	TITLE PICTORIAL; EJECTION	CHCKD A.BREWIS	DRWN A.CHISADZA	SCALE _____	DATE 31/05/99	DWG No. DCP 03
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Pdv



handle. 2m long.

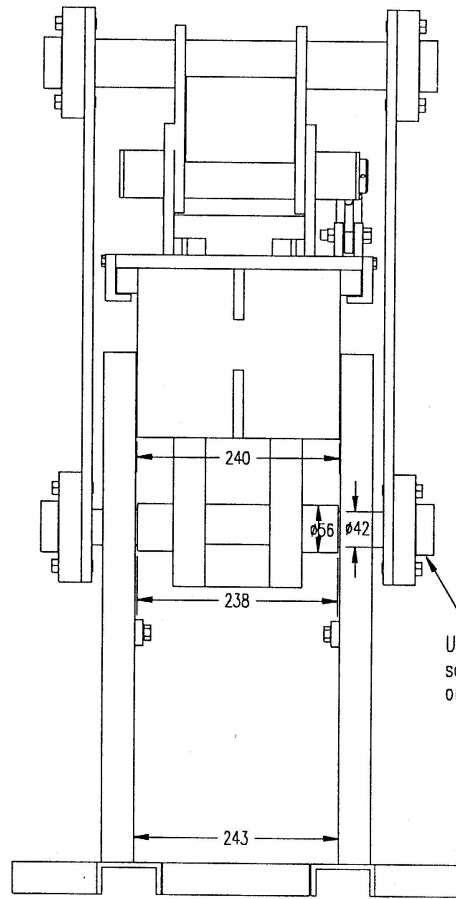
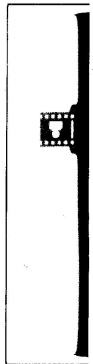


BUSINESS SHOP	TITLE ORTHOGRAPHIC; COMPRESSION	CHCKD A.BREWIS	DRWN A.CHISADZA	SCALE _____	DATE 31/05/99	DWG No. DCP 04
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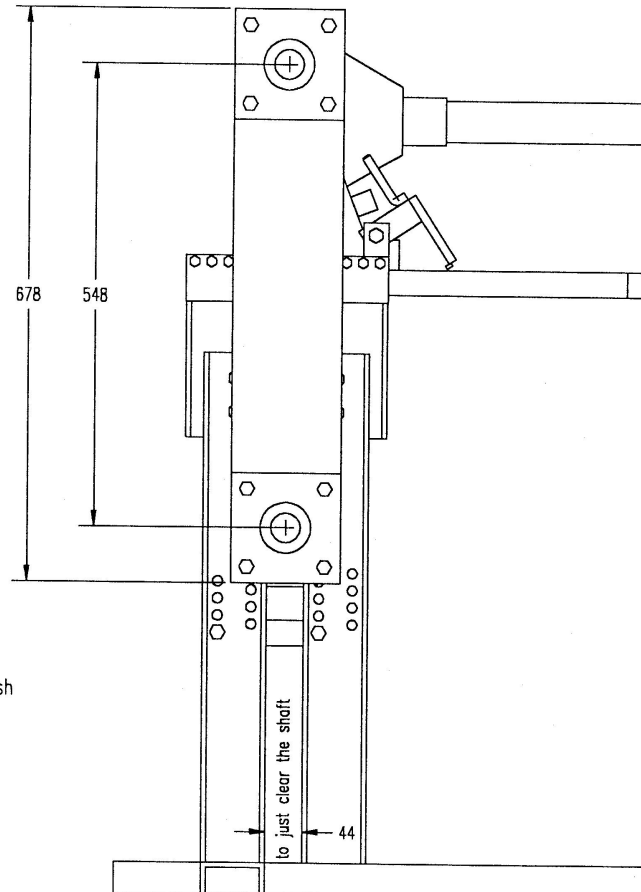
Pdv

Note the shaft diameters;
the $\phi 56$ down to $\phi 42$ shoulder
slides on the channel sections.
This is to prevent the shaft moving axially.

The $\phi 42$ part slides between the channels,
leaving a gap of 1mm on either side.



M8
Use 2 M8 grub
screws at 90°
on the locking bush



BUSINESS SHOP

TITLE PISON GUIDANCE

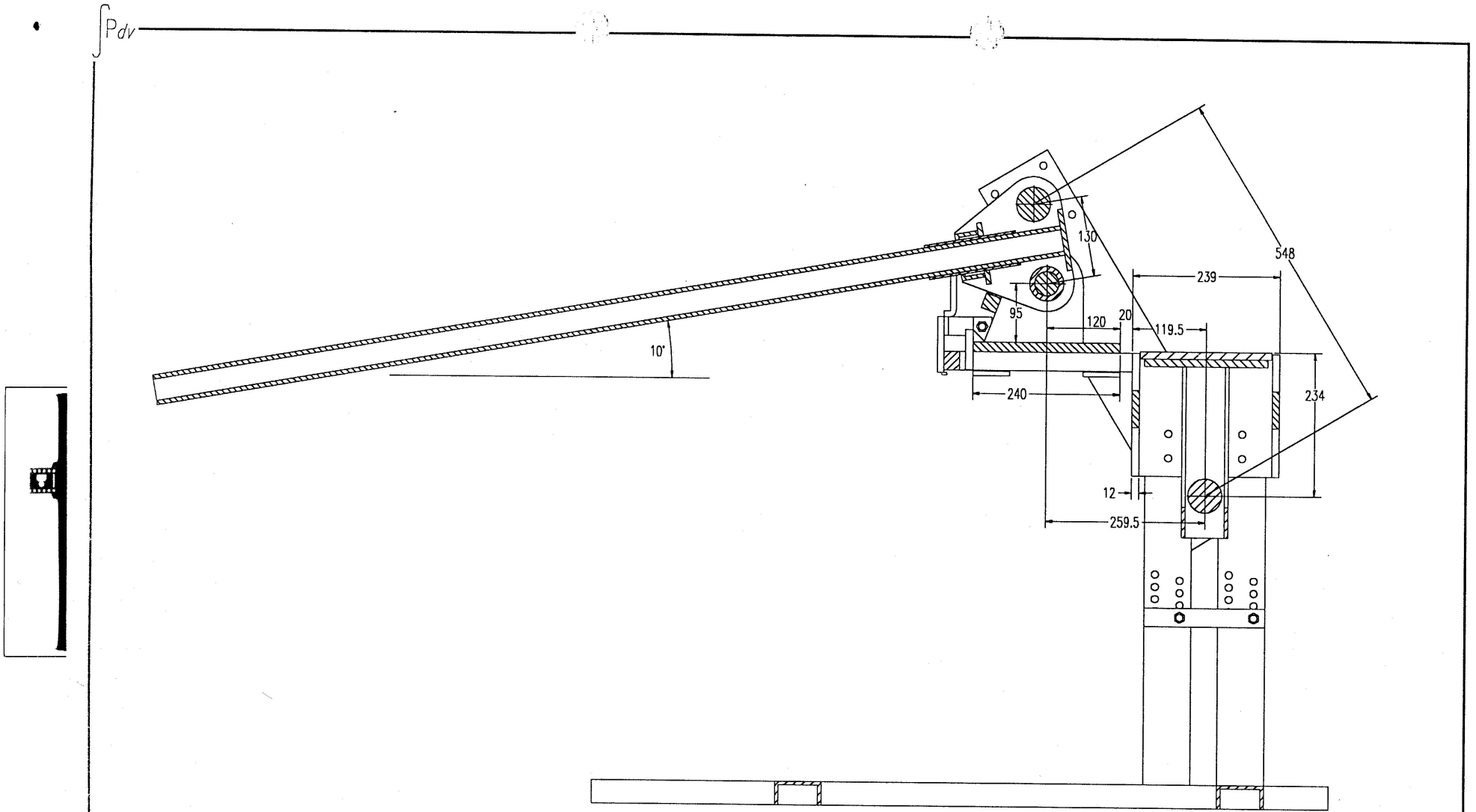
CHCKD A.BREWIS

DRWN A.CHISADZA

SCALE

DATE 31/05/99

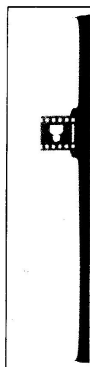
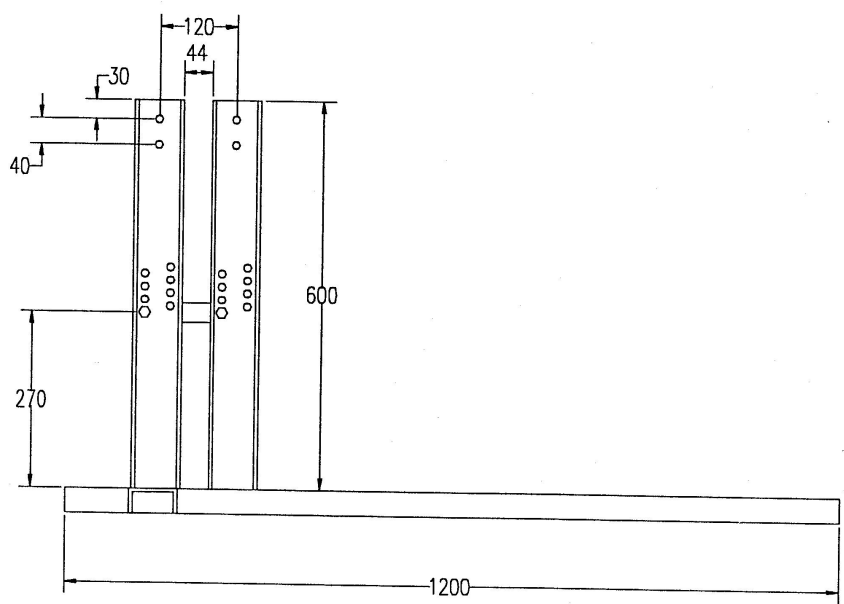
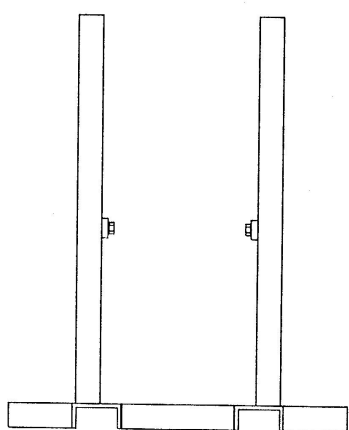
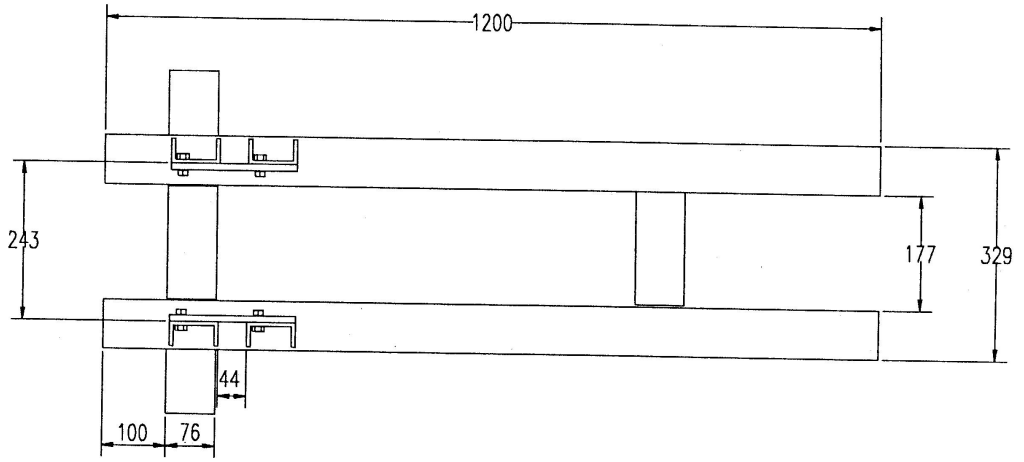
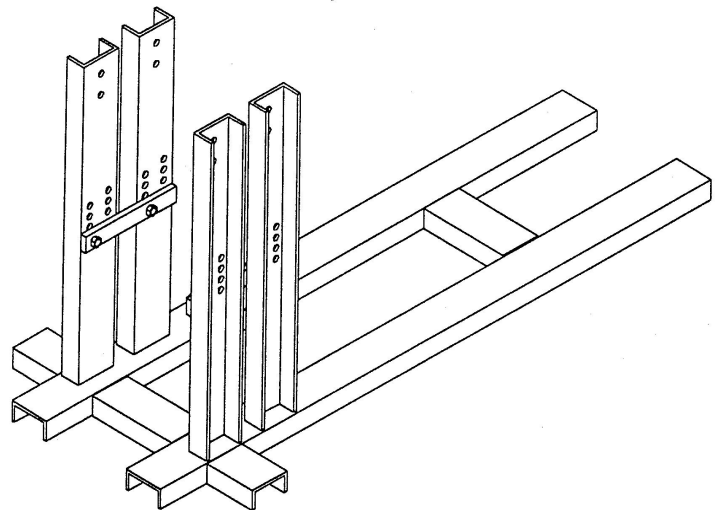
DWG No. DCP 05




BUSINESS SHOP	TITLE FULL EJECTION MODE	CHKD A.BREWIS	DRWN A.CHISADZA	SCALE _____	DATE 31/05/99	DWG No. DCP 08
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Pdv

76X38 channel construction

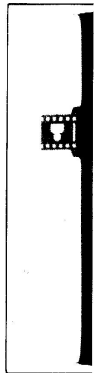
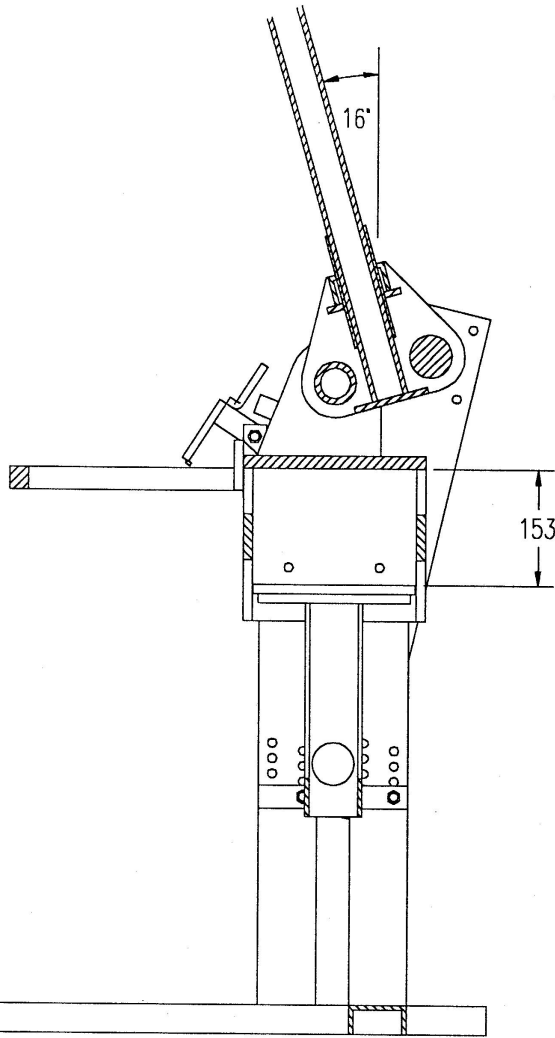


	BUSINESS SHOP	TITLE	FRAME DETAILS	CHCKD	A.BREWIS	DRWN	A.CHISADZA	SCALE	_____	DATE	31/05/99	DWG No.	DCP 08
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Pdv

The initial volume should be just over twice the final brick volume, to give a maximum stroke of just over one brick thickness.

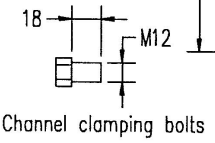
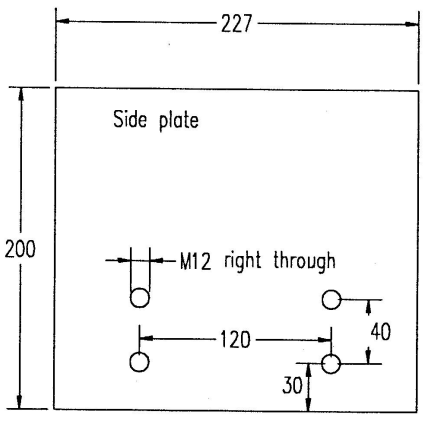
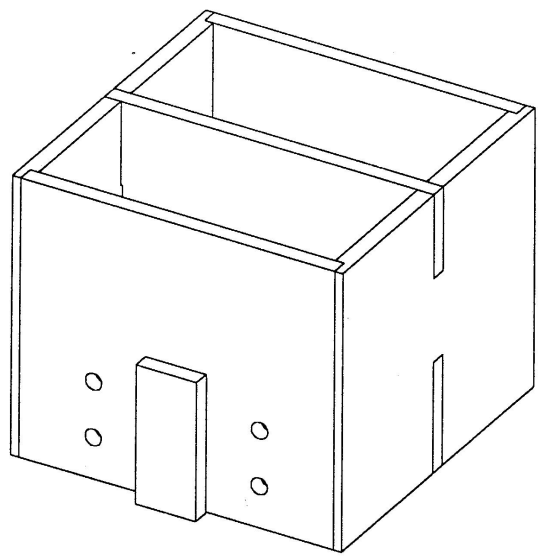
The start of compression.



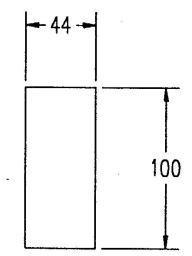
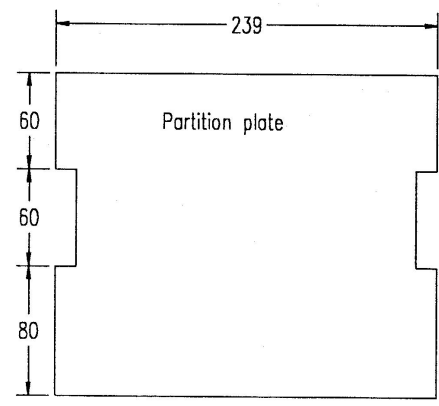
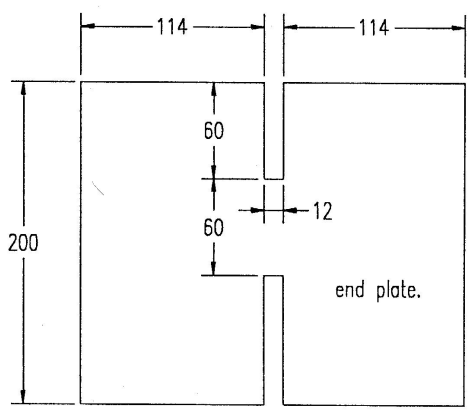
BUSINESS SHOP	TITLE DOUBLE CAVITY PRESS	CHCKD A.BREWIS	DRWN A.CHISADZA	SCALE _____	DATE 31/05/99	DWG No. DCP 11
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Pdv

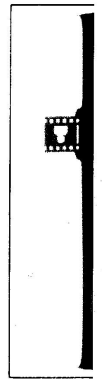
All 12mm plate.



Channel clamping bolts

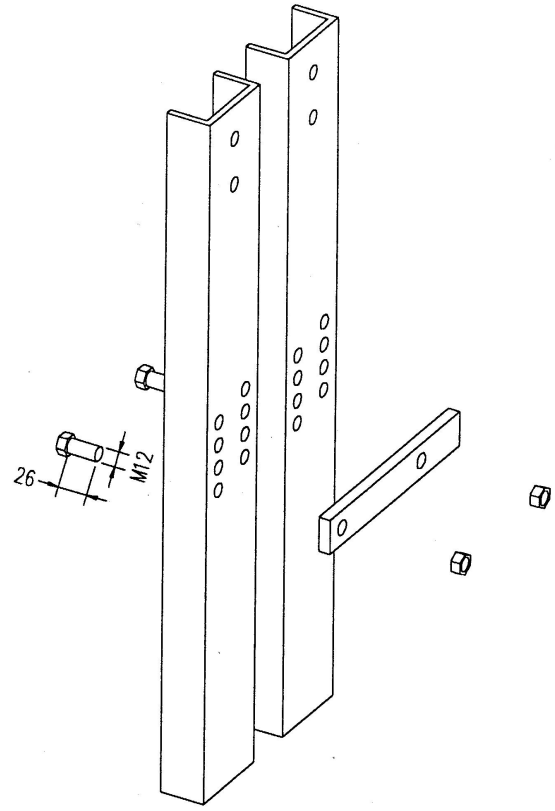
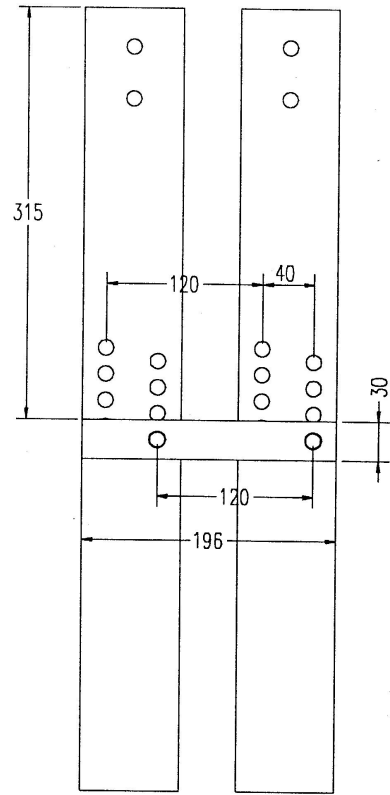
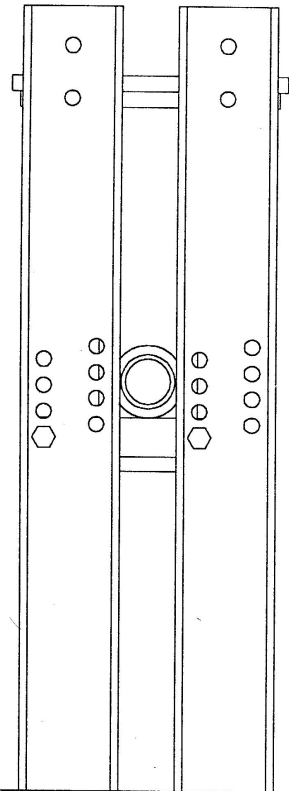
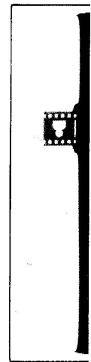


Channel spacer



BUSINESS SHOP	TITLE THE CAVITIES	CHCKD A.BREWIS	DRWN A.CHISADZA	SCALE _____	DATE 31/05/99	DWG No. DCP 12
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Pdv



BUSINESS SHOP

TITLE ADJUSTING MECHANISM

CHCKD A.BREWIS

DRWN A.CHISADZA

SCALE _____

DATE 31/05/99

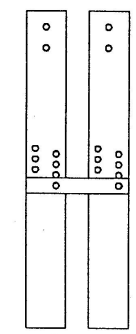
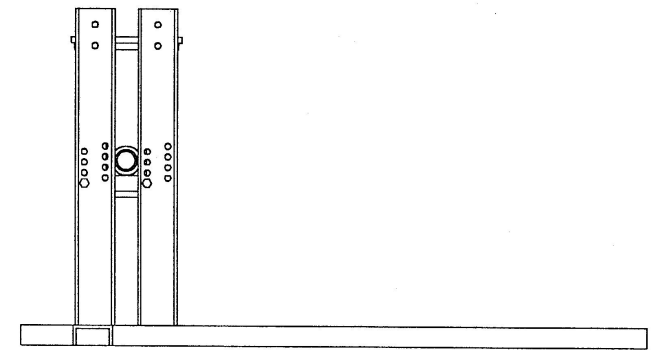
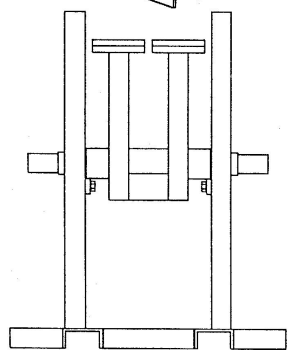
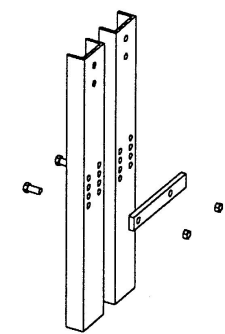
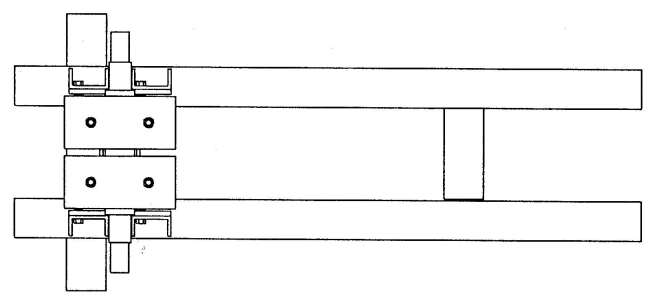
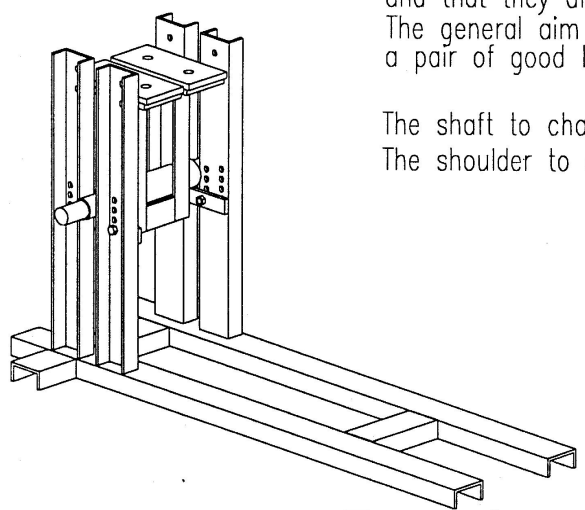
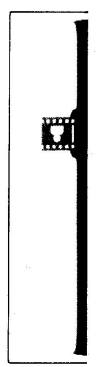
DWG No. DCP 13

Pdv

Clearances between the shaft and the vertical channels serve to guide the piston assembly. This guidance is in two directions, axially along the shaft and across it. The clearances should therefore not be too great.

There have been cases where block presses produced tapered bricks, bricks with the top and bottom faces not parallel. Make sure the pistons are at 90° to the cavity walls in all positions and that they are both at exactly the same height. The general aim is to produce a durable machine which produces a pair of good bricks, in terms of dimensions, squareness and compression

The shaft to channel clearance is not to exceed 1mm.
The shoulder to channel clearance is not to exceed 2mm.



BUSINESS SHOP

TITLE PISTON GUIDANCE

CHCKD A.BREWIS

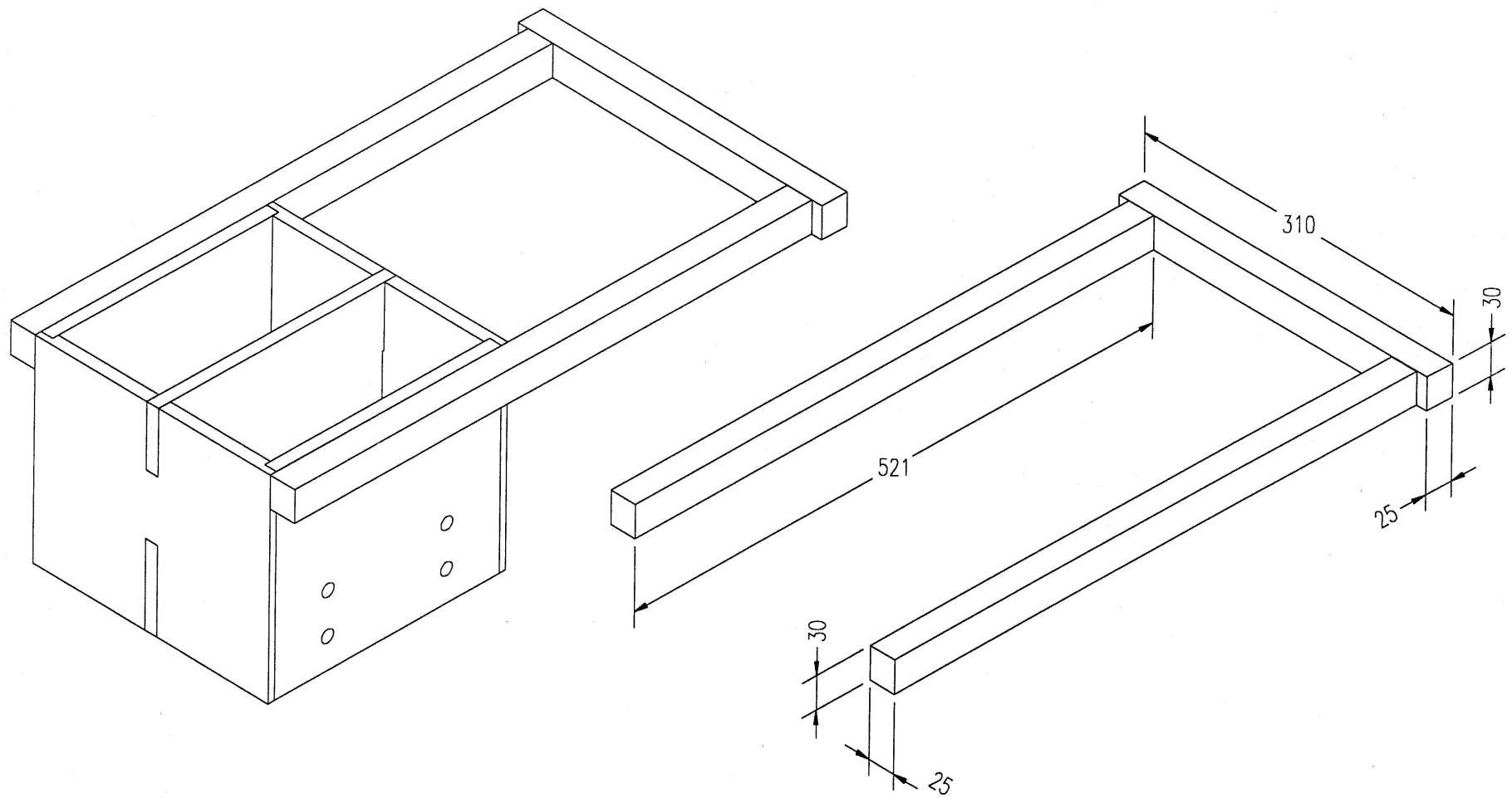
DRWN A.CHISADZA

SCALE _____

DATE 31/05/99

DWG No. DCP 14

Pdv



BUSINESS SHOP

TITLE SLIDE RAILS

CHCKD A.BREWIS

DRWN A.CHISADZA

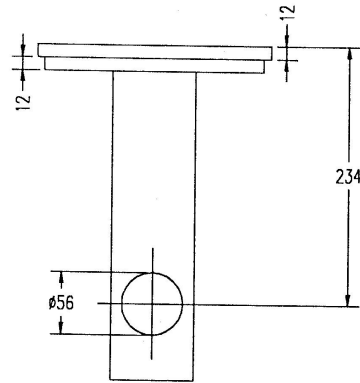
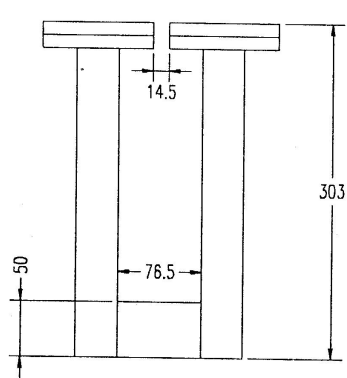
SCALE _____

DATE 31/05/99

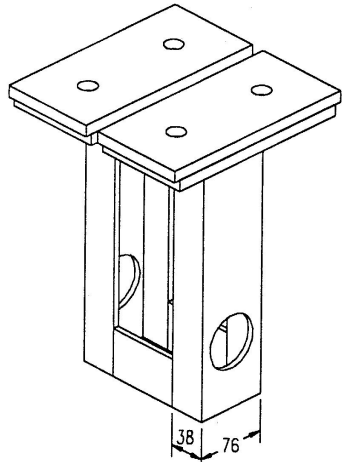
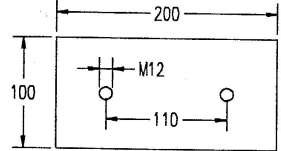
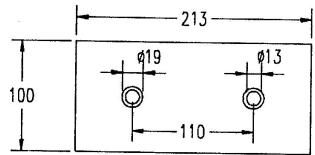
DWG No. DCP 15

Pdv

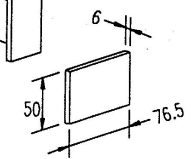
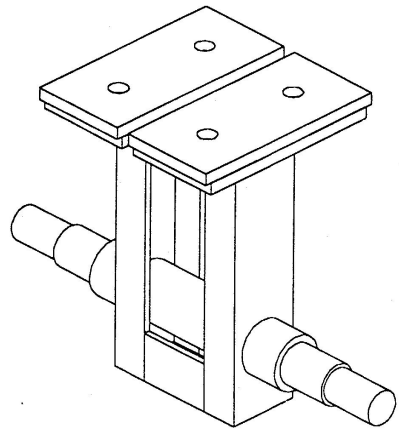
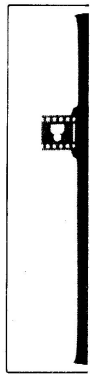
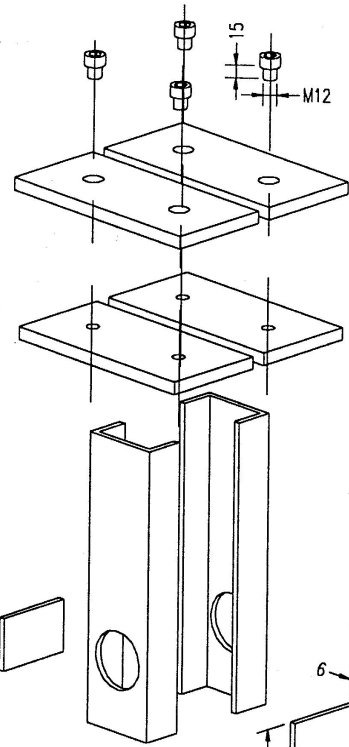
Flat bar on channel section construction.



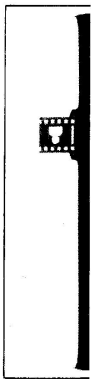
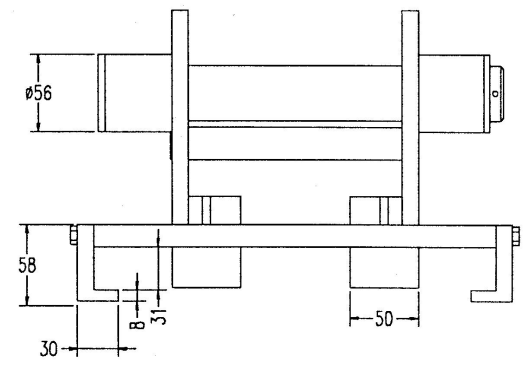
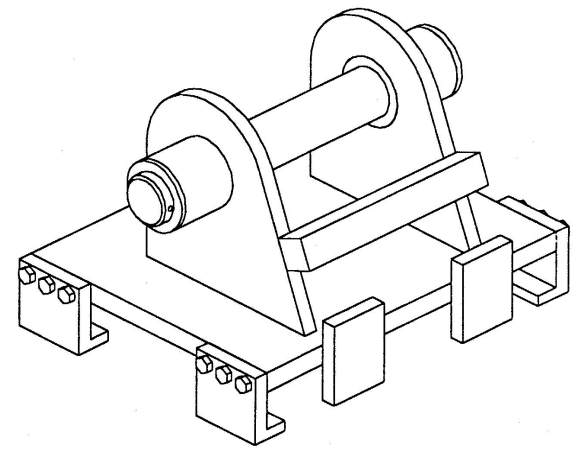
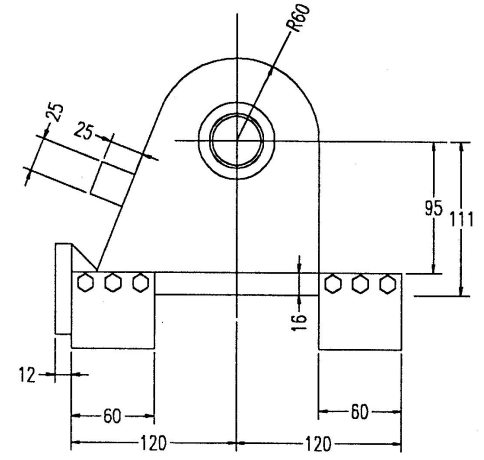
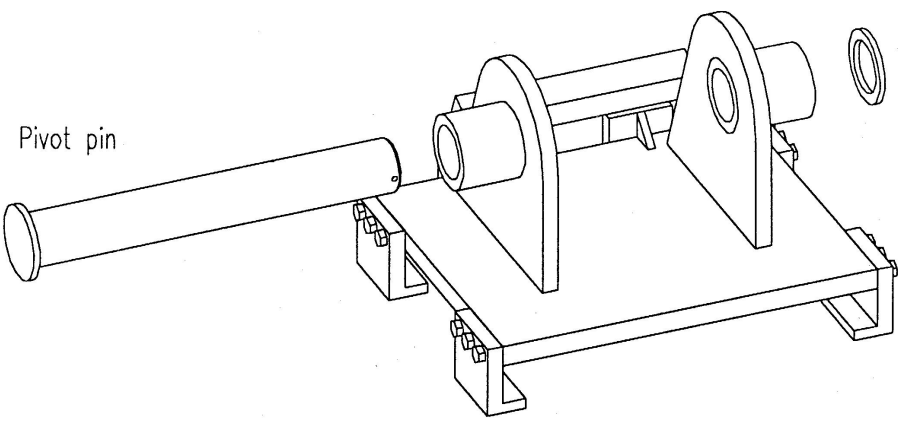
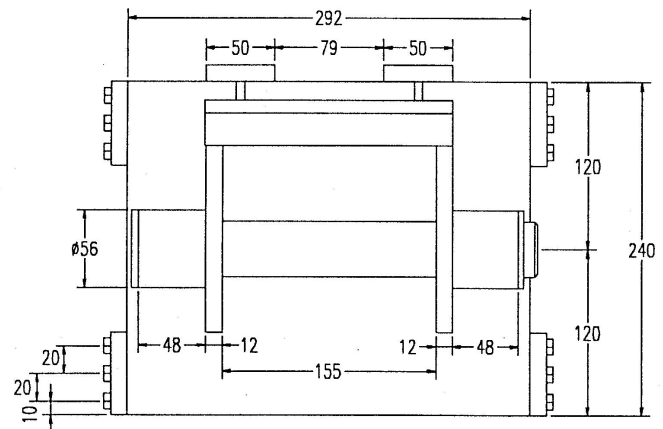
Very critical dimension



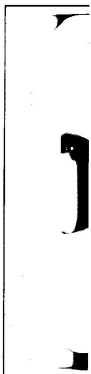
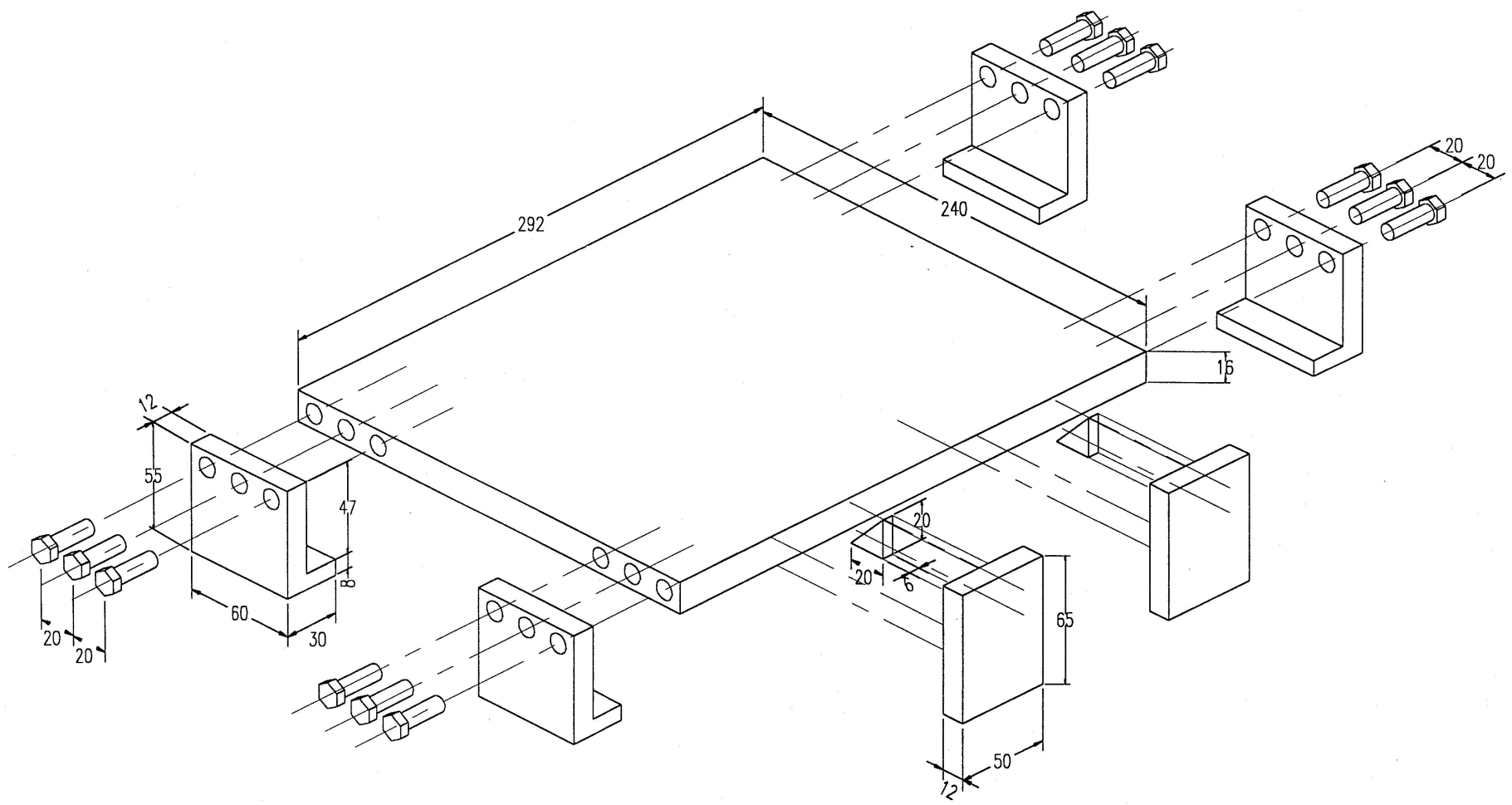
Channel section



Pdv

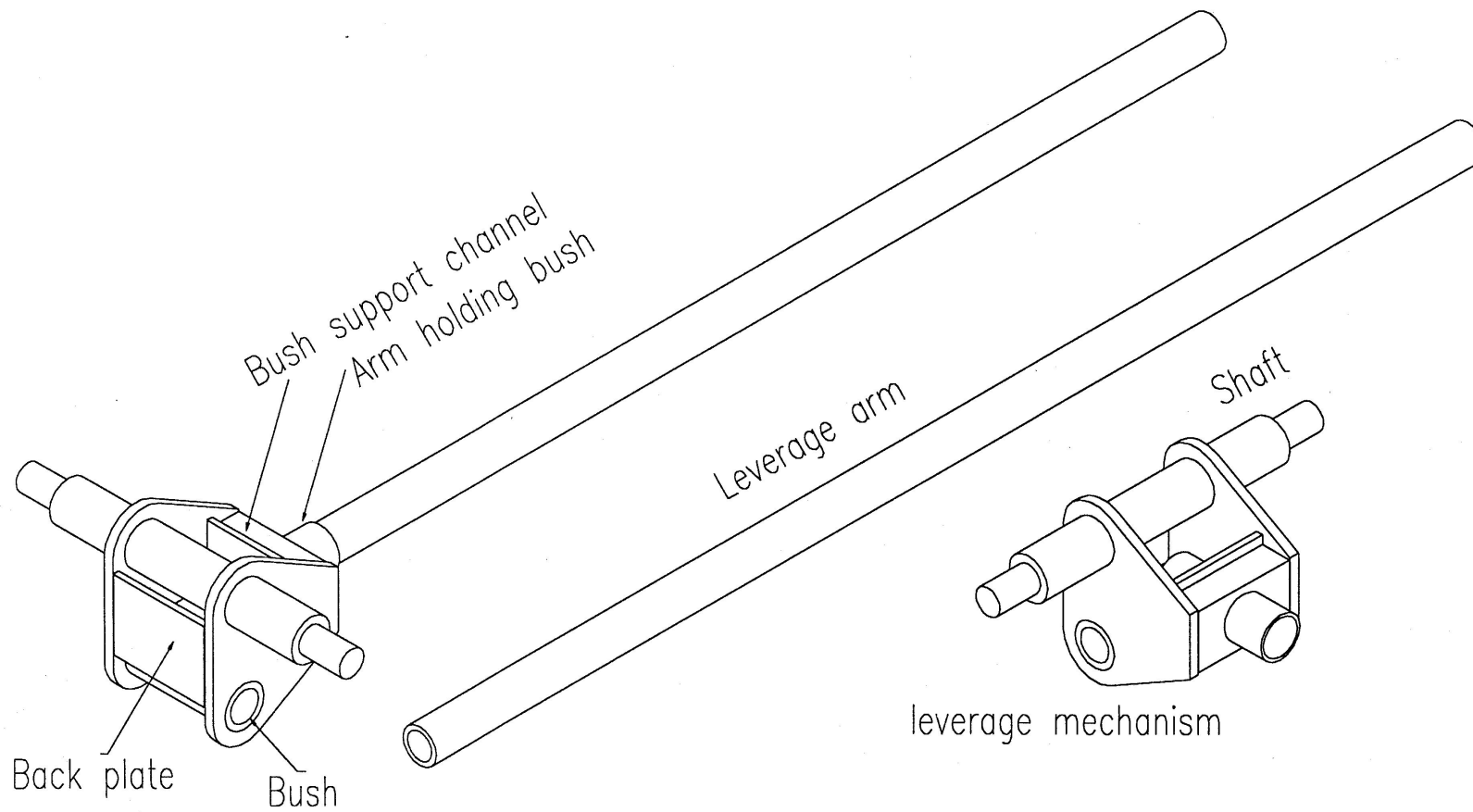


Pdv



	BUSINESS SHOP	TITLE TOP EXPLODED	CHCKD A.BREWIS	DRWN A.CHISADZA	SCALE _____	DATE 31/05/99	DWG No. DCP 18
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Pdv



BUSINESS SHOP TITLE LEVERAGE DETAILS

CHCKD A.BREWIS

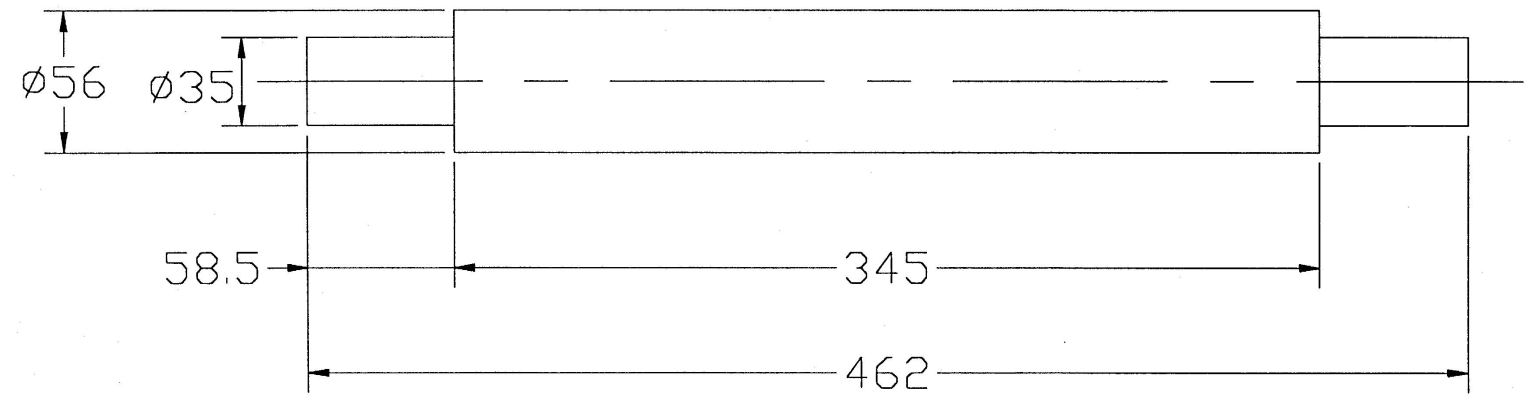
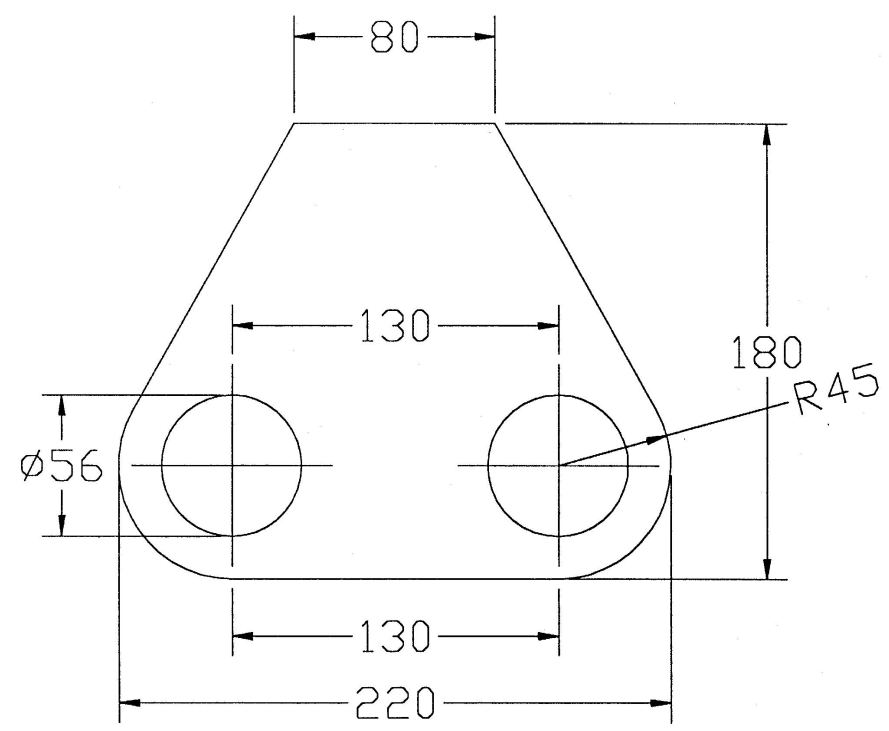
DRWN A.CHISADZA

SCALE _____

DATE 31/05/99

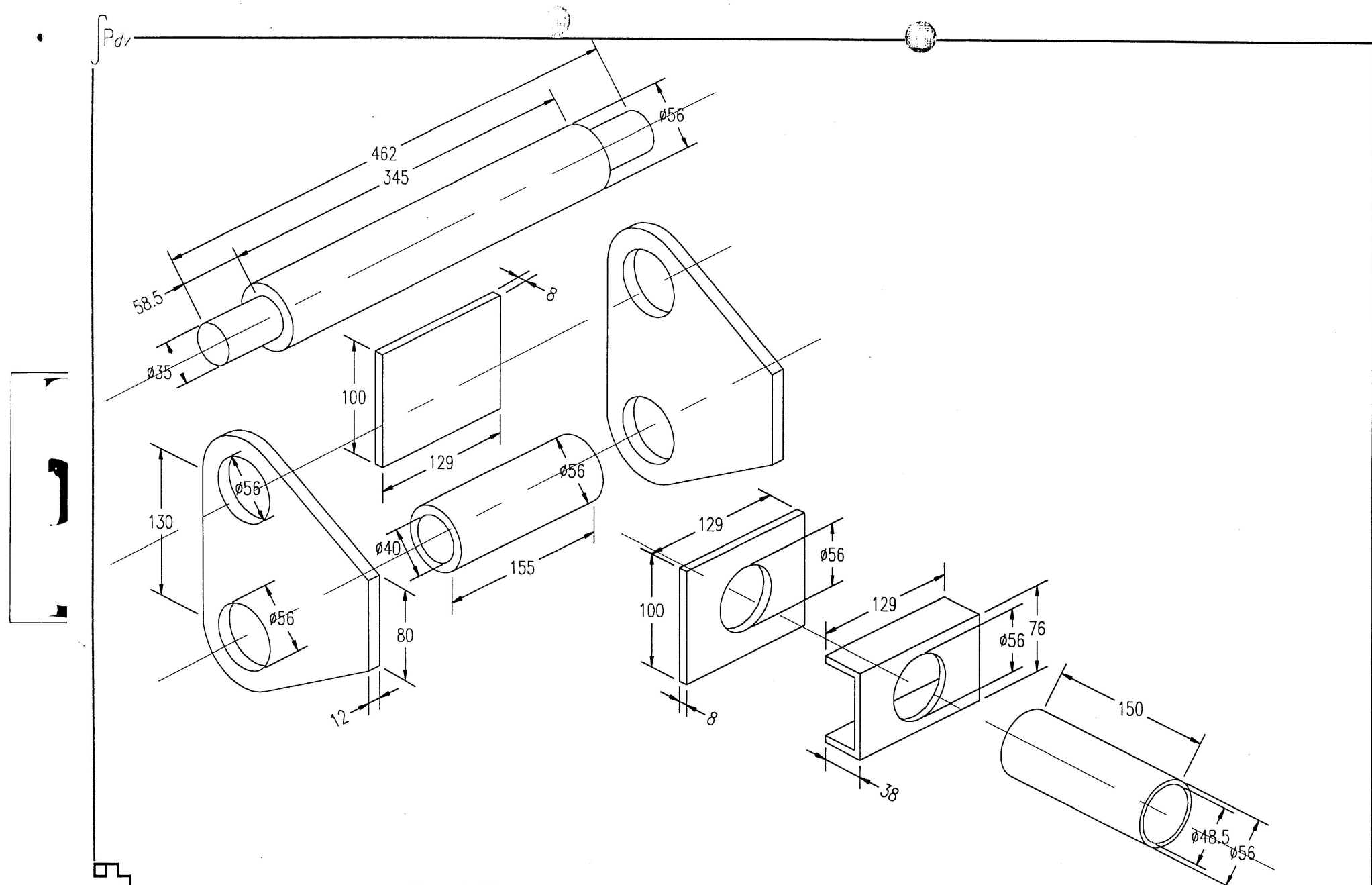
DWG No. DCP 19

Pdv



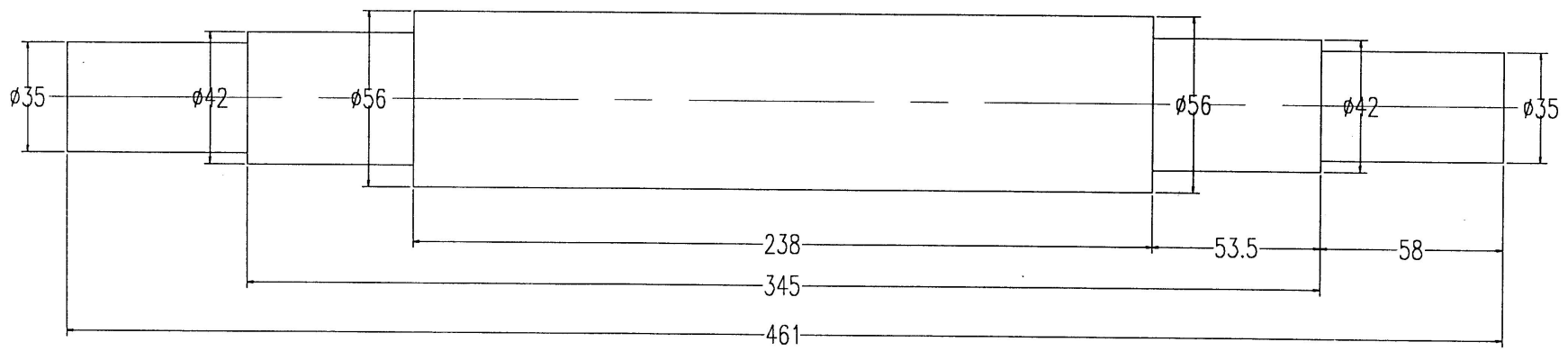
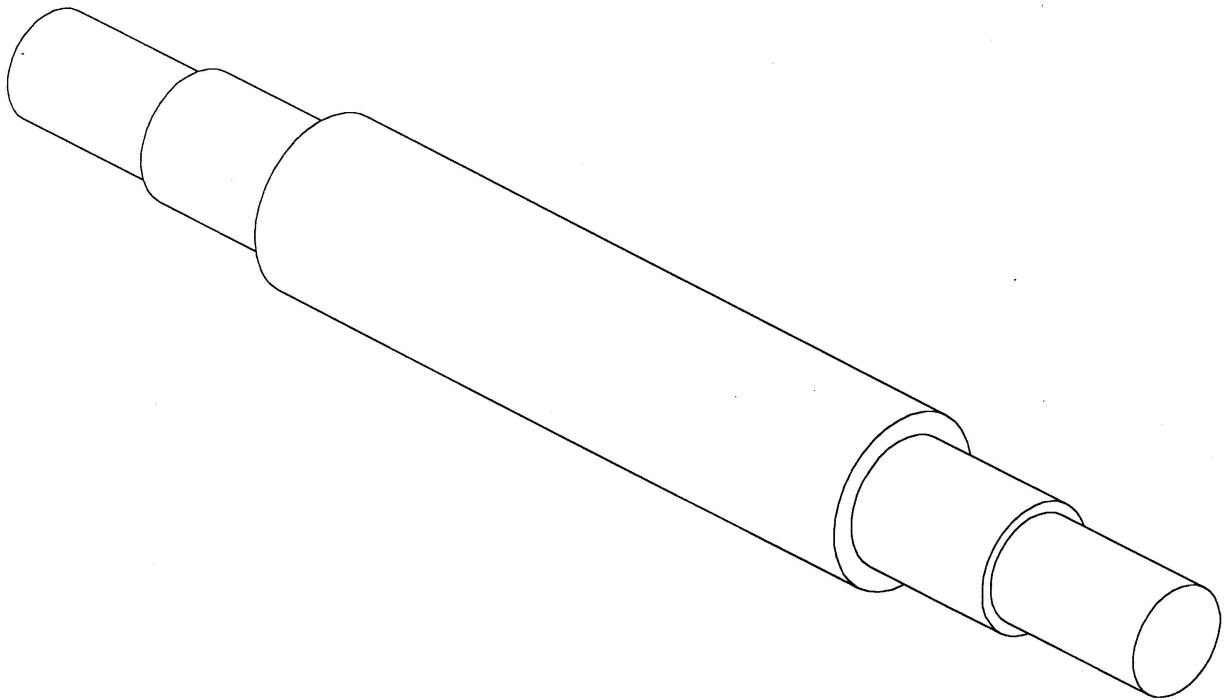
	BUSINESS SHOP	TITLE LEVERAGE PLATE & SHAFT	CHCKD A.BREWIS	DRWN A.CHISADZA	SCALE _____	DATE 31/05/99	DWG No. DCP 20
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Pdv



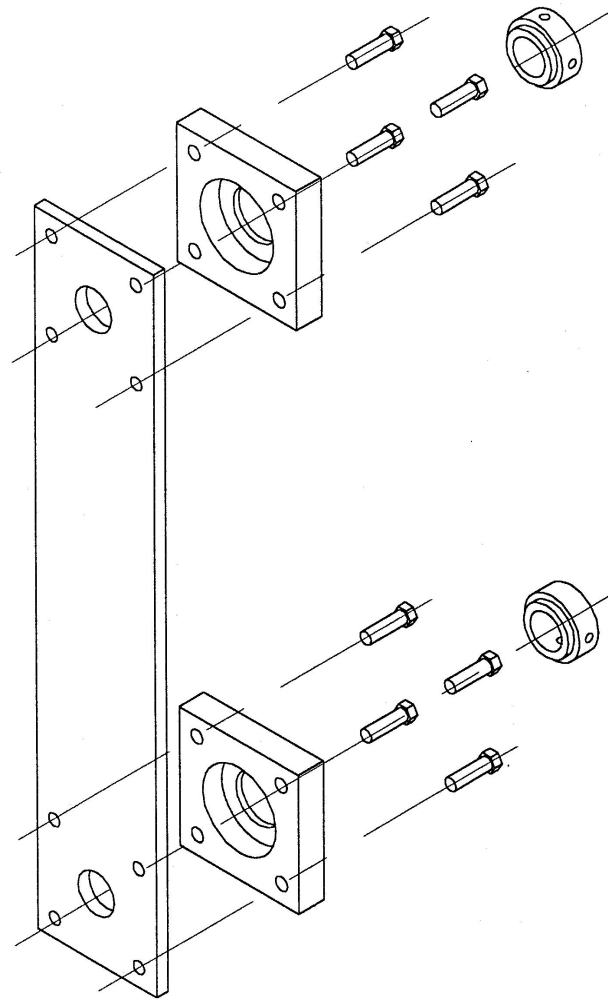
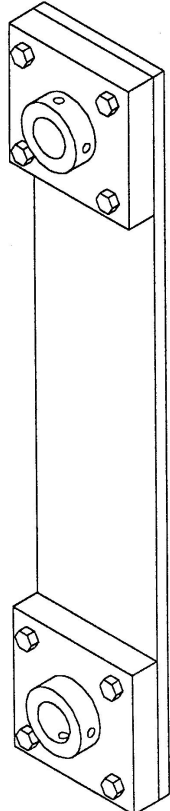
BUSINESS SHOP	TITLE LEVERAGE DETAILS	CHCKD A.BREWIS	DRWN A.CHISADZA	SCALE _____	DATE 31/05/99	DWG No. DCP 21
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Pdv



	BUSINESS SHOP	TITLE LOWER SHAFT	CHCKD A.BREWIS	DRWN A.CHISADZA	SCALE _____	DATE 31/05/99	DWG No. DCP 22
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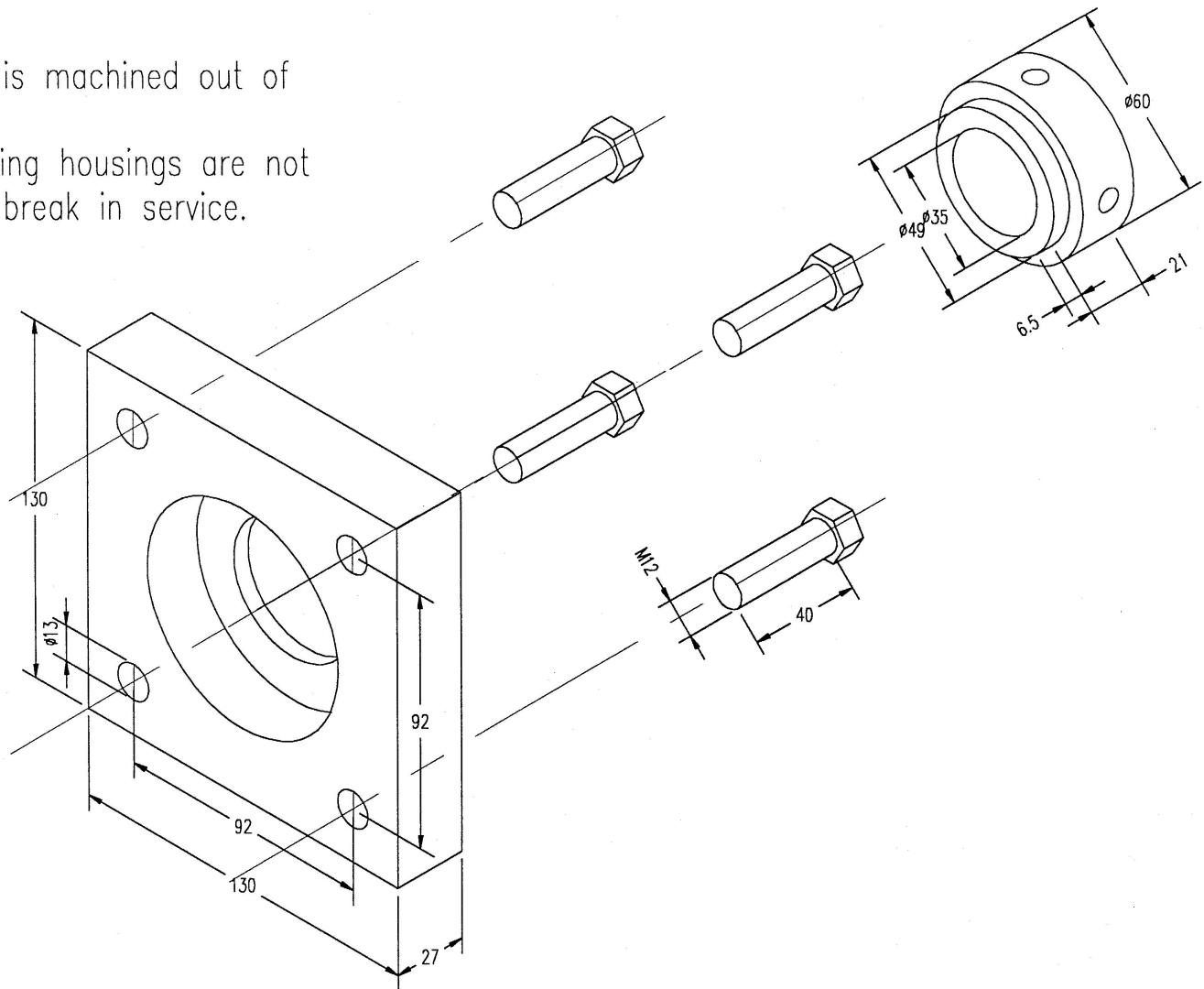
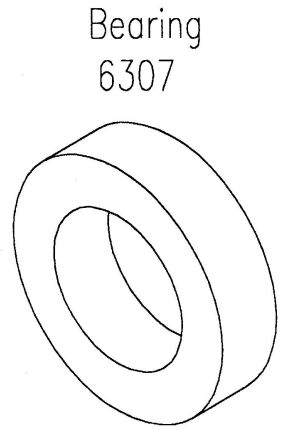
Pdv



	BUSINESS SHOP	TITLE SIDE ARMS, EXPLODED VIEW	CHCKD A.BREWIS	DRWN A.CHISADZA	SCALE _____	DATE 31/05/99	DWG No. DCP 23
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Pdv

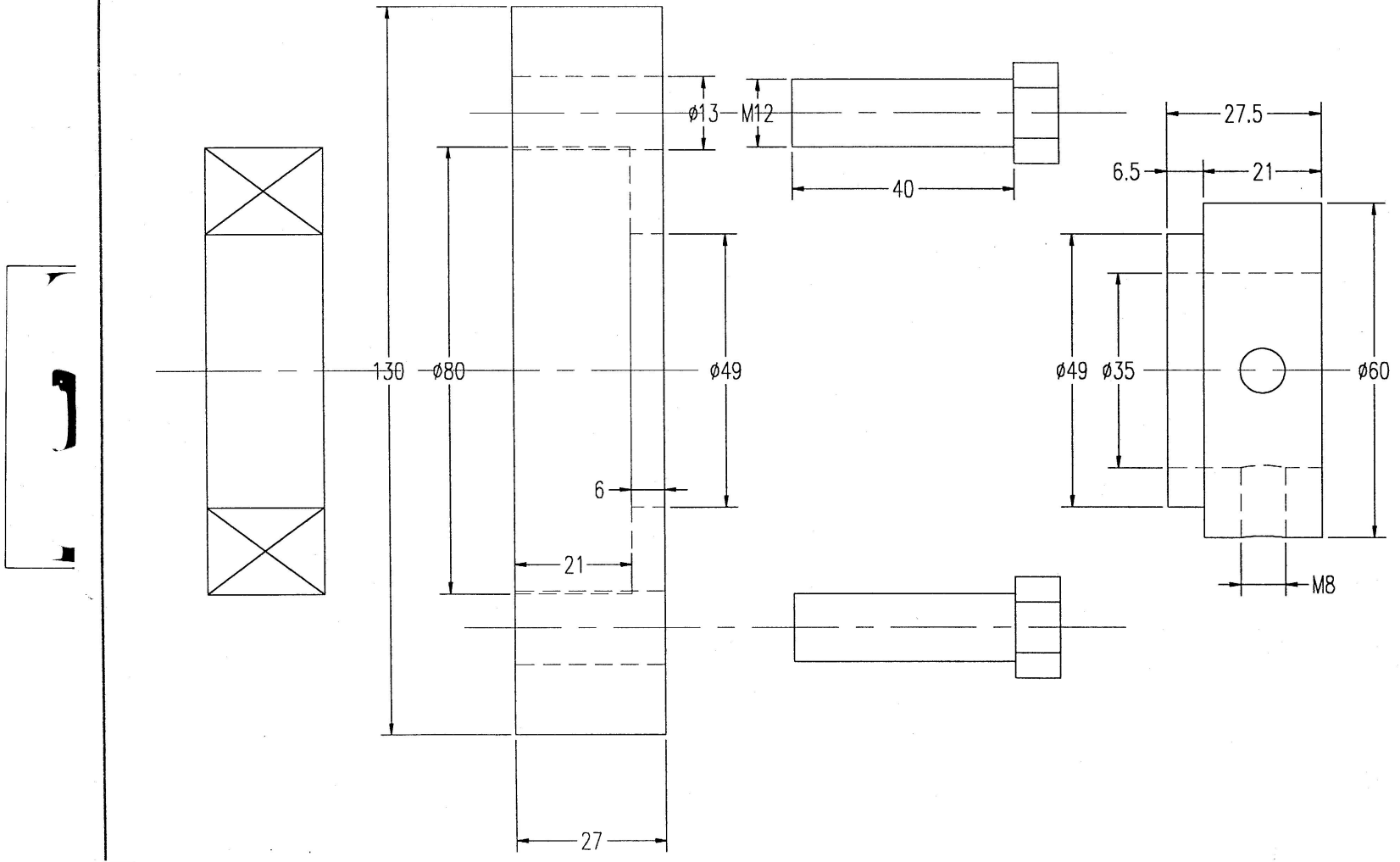
The bearing housing is machined out of mild steel plate.
The cast flange bearing housings are not strong enough, they break in service.



	BUSINESS SHOP	TITLE BEARING HOUSING	CHCKD A.BREWIS	DRWN A.CHISADZA	SCALE _____	DATE 31/05/99	DWG No. DCP 24
--	---------------	-----------------------	----------------	-----------------	-------------	---------------	----------------

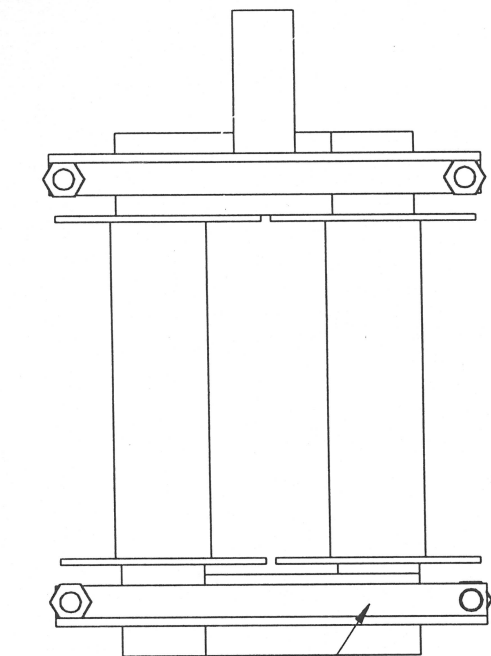
Pdv

Exploded.

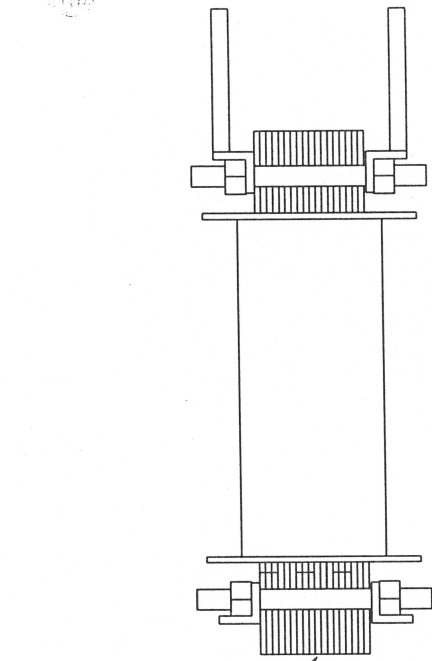


BUSINESS SHOP	TITLE DOUBLE CAVITY PRESS	CHCKD A.BREWIS	DRWN A.CHISADZA	SCALE _____	DATE 31/05/99	DWG No. DCP 25
---------------	---------------------------	----------------	-----------------	-------------	---------------	----------------

Pdv

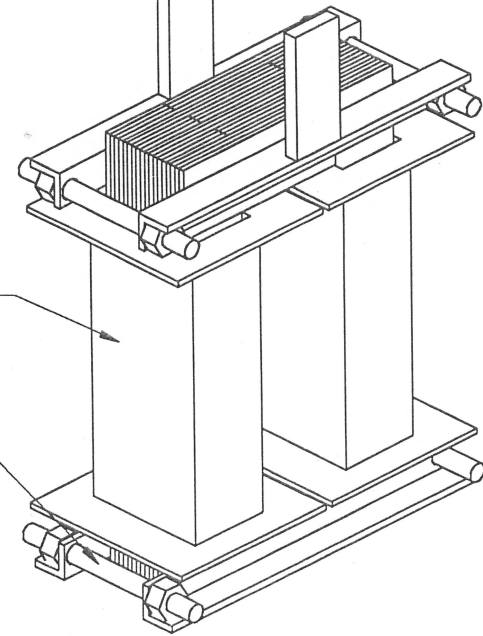


Clamping bars



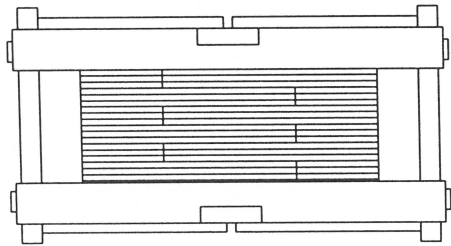
Laminations

Coil support
Welded to
top plate



Former

Jack bolts



TITLE
WELDING MACHINE, CORE DETAILS

CHECKED
A.BREWIS

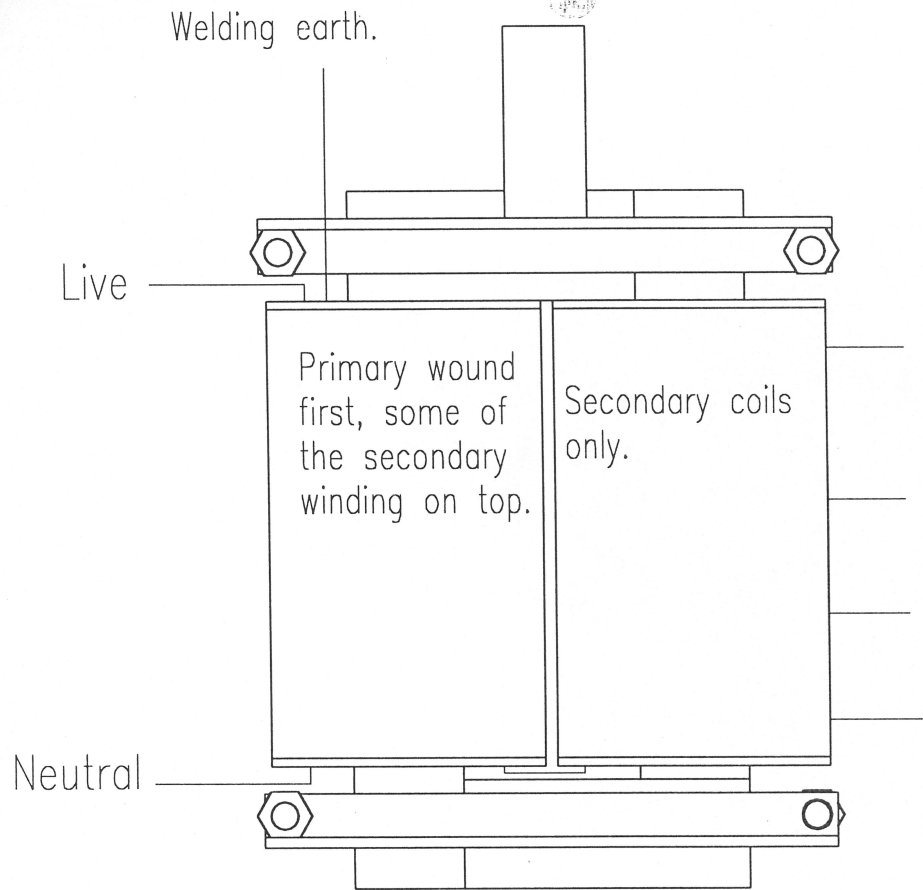
DRAWN
A.CHISADZA

SCALE
3:10

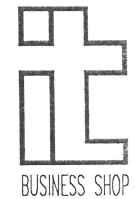
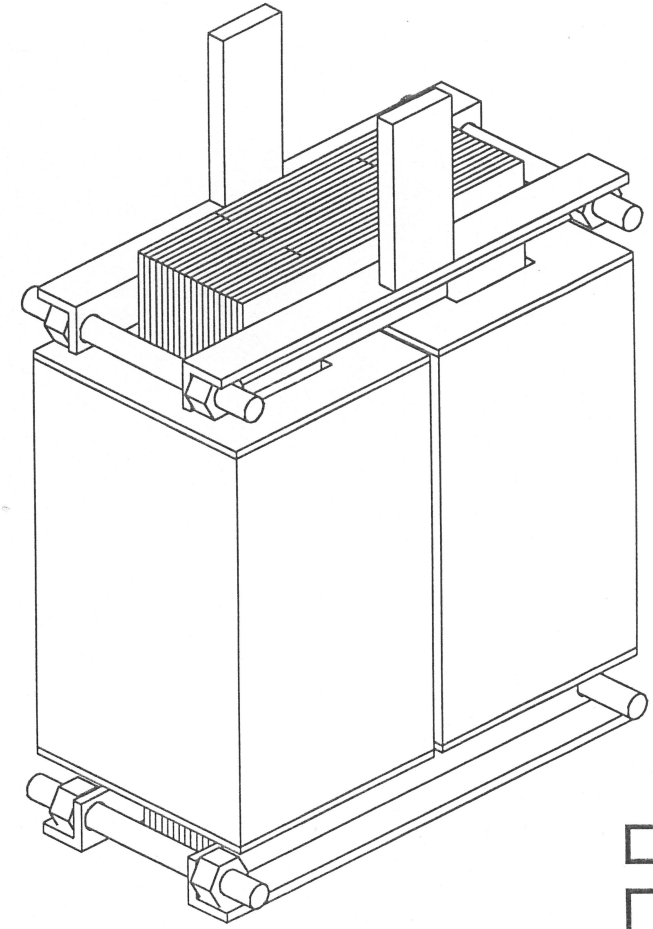
DATE
17/02/99

DWG No.
WLD 17

Pdv

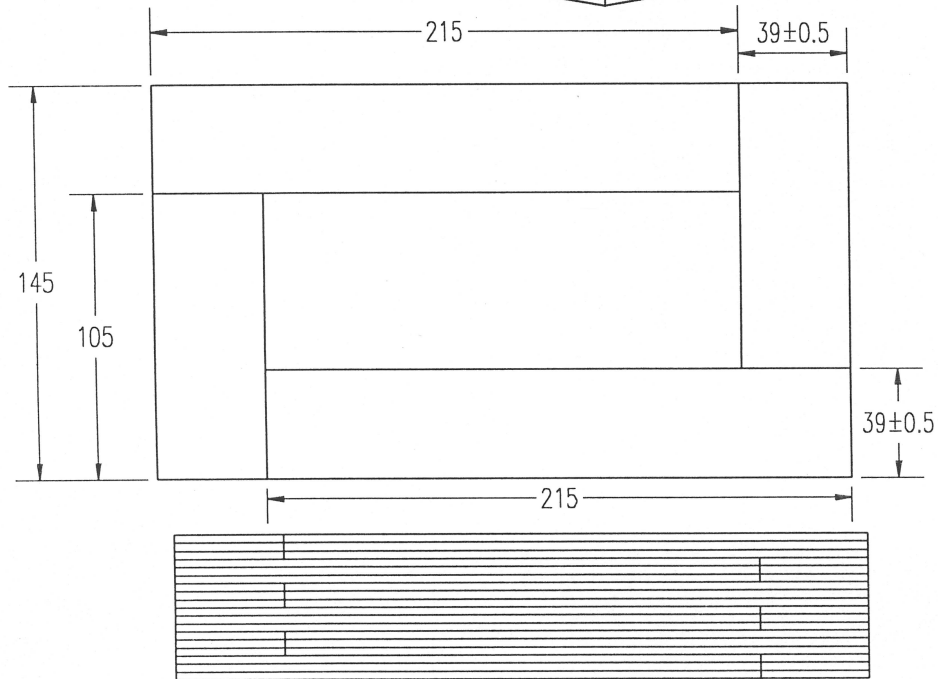
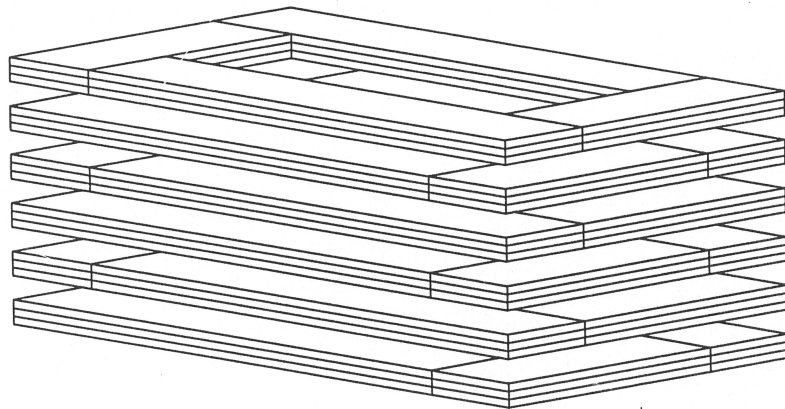


Welding terminals, to be brased onto the lugs.

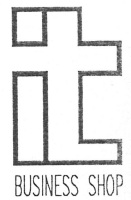
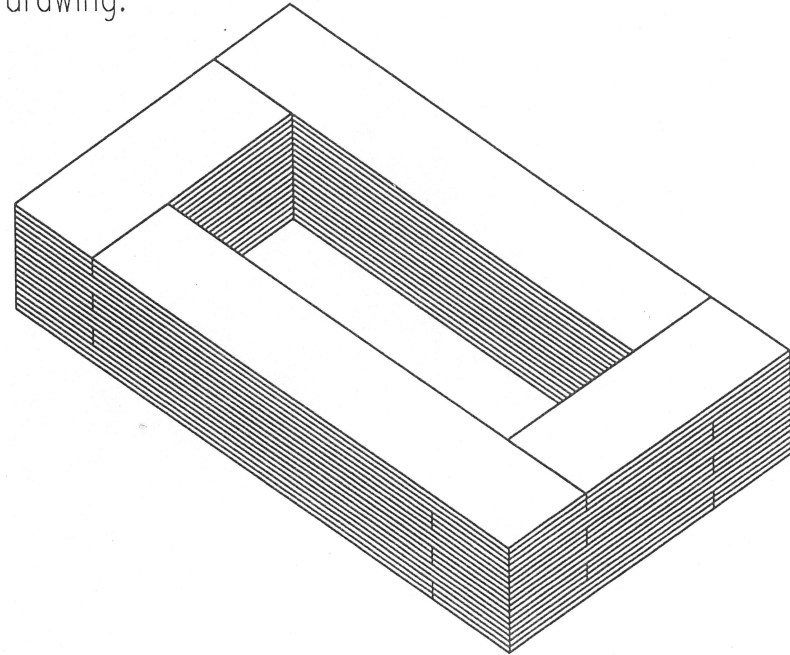


TITLE	CHECKED	DRAWN	SCALE	DATE	DWG No.
WELDING MACHINE, TRANSFORMER DETAILS	A.BREWIS	A.CHISADZA	3:10	17/02/99	WLD 17B

Pdv



0.5mm laminations stacked in the manner shown, until they fill the inside of the bobbins (former), disregard the actual number of laminations in the drawing.



TITLE
CORE LAMINATIONS

CHECKED
A.BREWIS

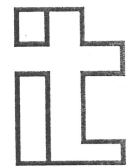
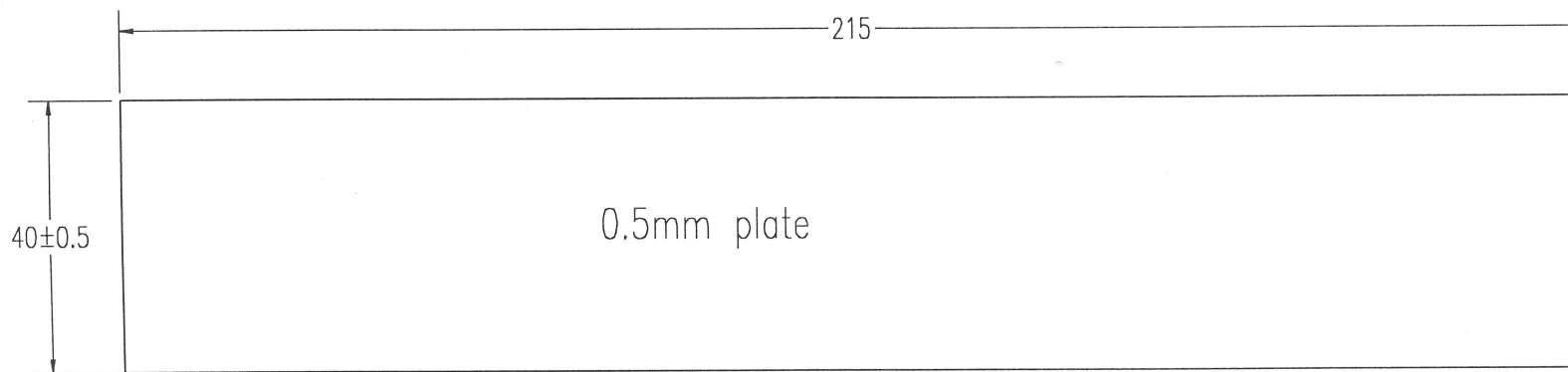
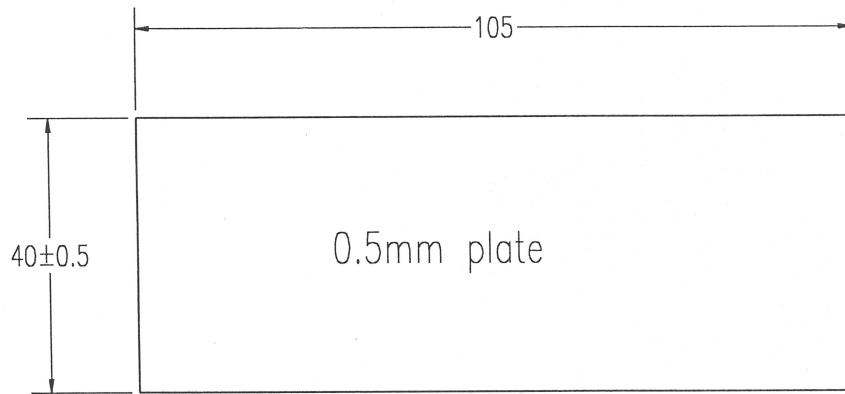
DRAWN
A.CHISADZA

SCALE
2:5

DATE
27/06/98

DWG No.
WLD 18

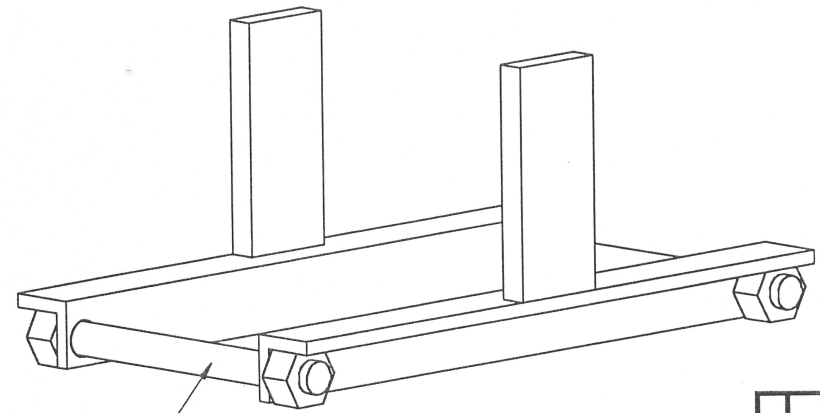
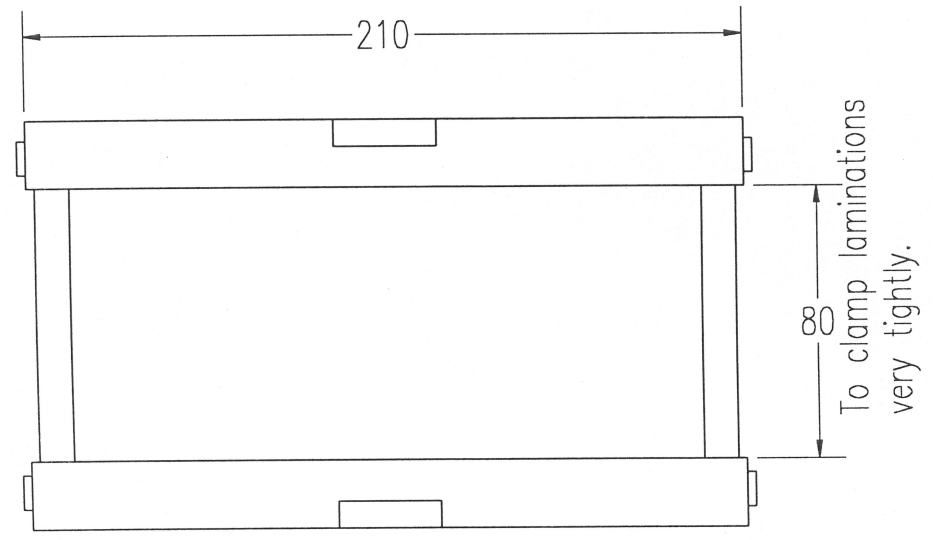
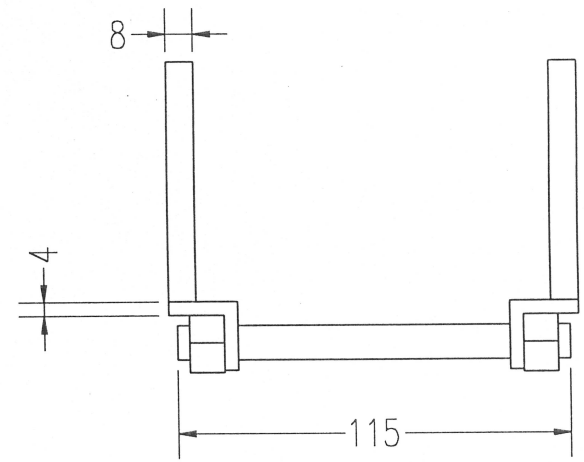
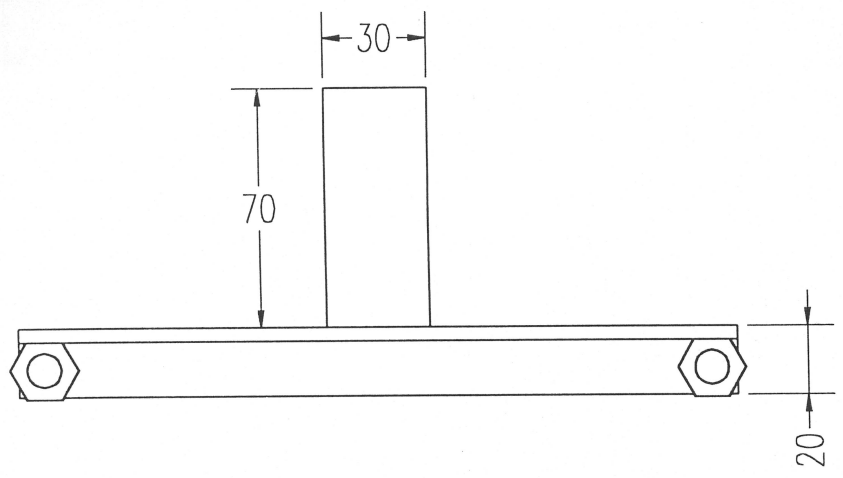
Pdv



BUSINESS SHOP

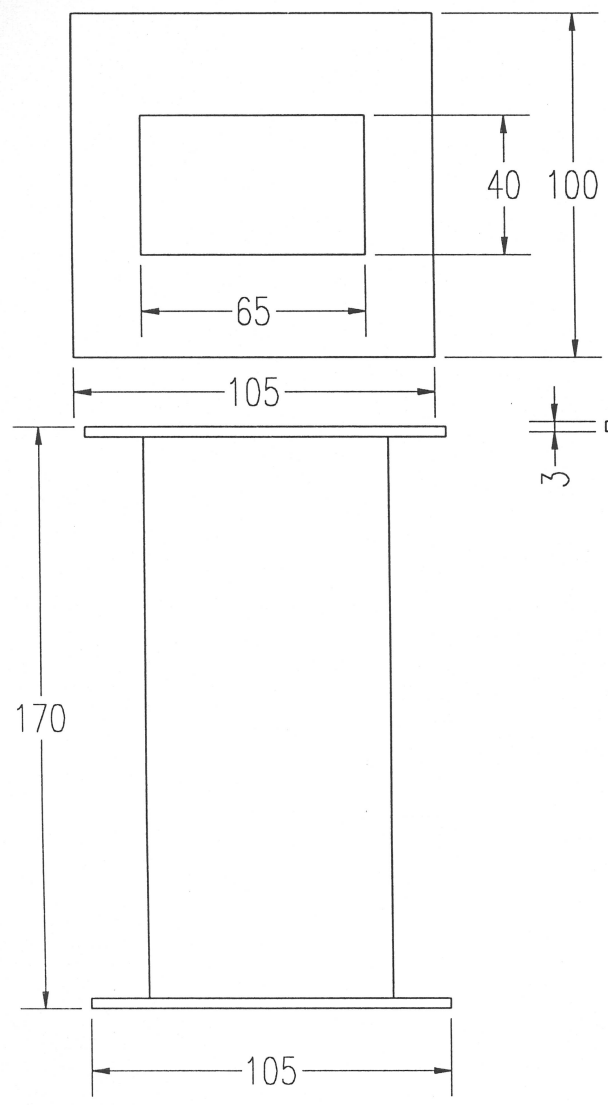
TITLE WELDING MACHINE, LAMINATION PLATE	CHECKED A.BREWIS	DRAWN A.CHISADZA	SCALE 1:1	DATE 27/06/98	DWG No. WLD 18b
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Pdv

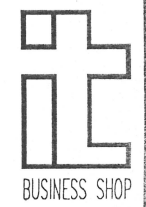
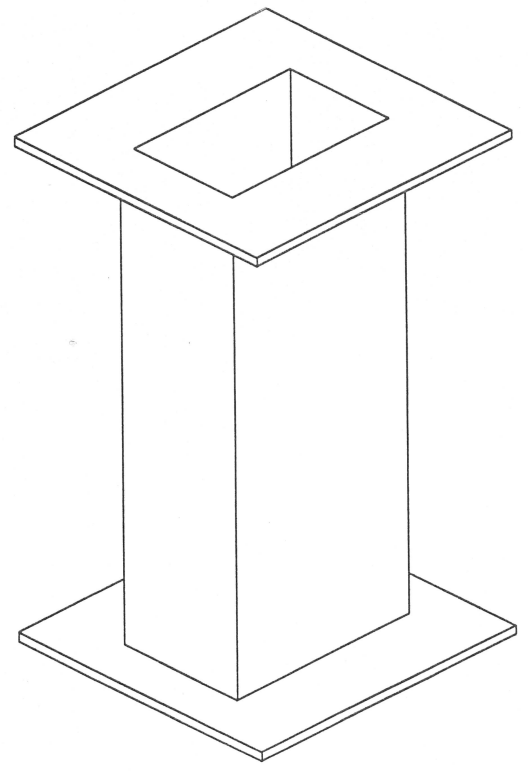
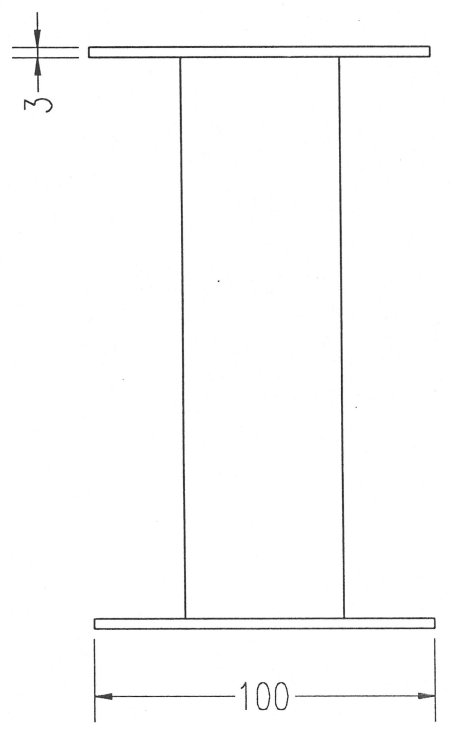


TITLE WELDING MACH., LAMINATION CLAMPING	CHECKED A.BREWIS	DRAWN A.CHISADZA	SCALE 1:2	DATE 17/02/99	DWG No. WLD 19
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Pdv



Thickness 3-4mm



TITLE WELDING MACHINE, BOBBIN (FORMER)	CHECKED A.BREWIS	DRAWN A.CHISADZA	SCALE 1:2	DATE 17/02/99	DWG No. WLD 20
---	---------------------	---------------------	--------------	------------------	-------------------

Pdv

Primary has 360 turns

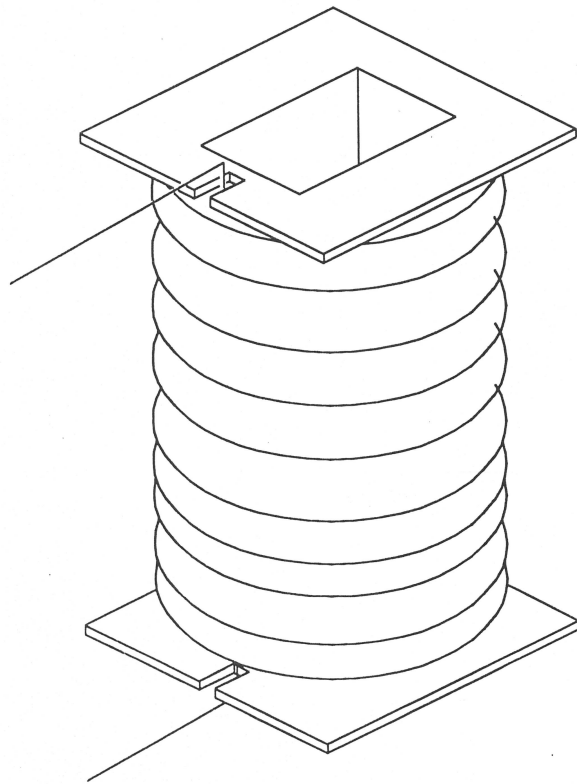
secondary:

89 turns => 140A

97 turns => 125A

108 turns => 100A

116 turns => 80A



Secondary earth terminal

Primary terminals

The first 60 secondary turns wound on the linen cloth using 4mm enameled copper wire.

Primary turns 2mm enamel copper wire 360 turns

Linen cloth insulation between prim. and sec. turns

80A terminal

8 more turns

100A terminal

11 more turns

125A terminal

8 more turns

140A terminal

From the initial 60, 29 more turns



BUSINESS SHOP

TITLE
WELDING MACHINE, BOBBIN (FORMER)

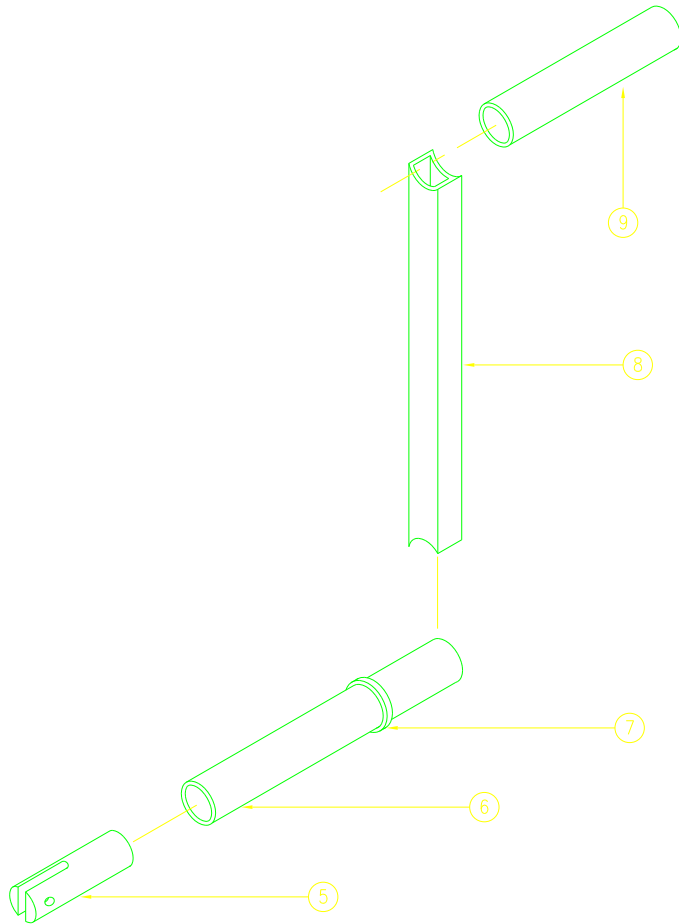
CHECKED
A.BREWIS

DRAWN
A.CHISADZA

SCALE
1:2

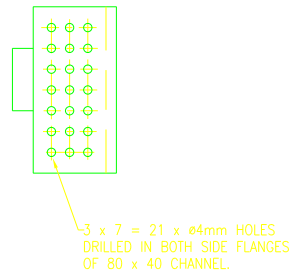
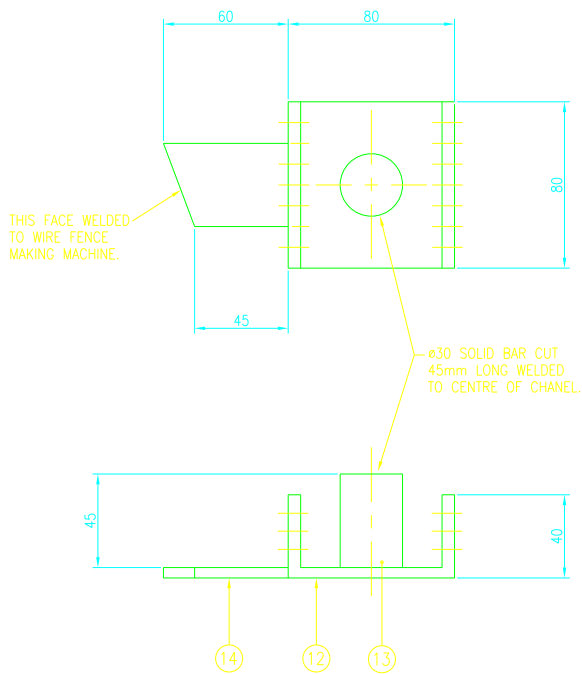
DATE
17/02/99

DWG No.
WLD 20



PEN SETTINGS FOR PLOTTING	
COLOUR/No.	
— 1	PEN WIDTH .18
— 7	PEN WIDTH .2
— 2	} PEN WIDTH .25
— 4	
— 6	
— 3	PEN WIDTH .3

ApT FENCE MAKING MACHINE	
TITLE: VICE SUB-ASSEMBLIES	
SCALE: DO NOT SCALE	
DRAWN: ABATEC	PAGE: 10 of 11
CAD No: APT-08-10	



ApT FENCE MAKING MACHINE	
TITLE: WIRE FEEDER	
SCALE: 1:2	
DRAWN: ABATEC	PAGE: 11 of 11
CAD No: APT-08-11	







PEN SETTINGS FOR PLOTTING

COLOUR/No.

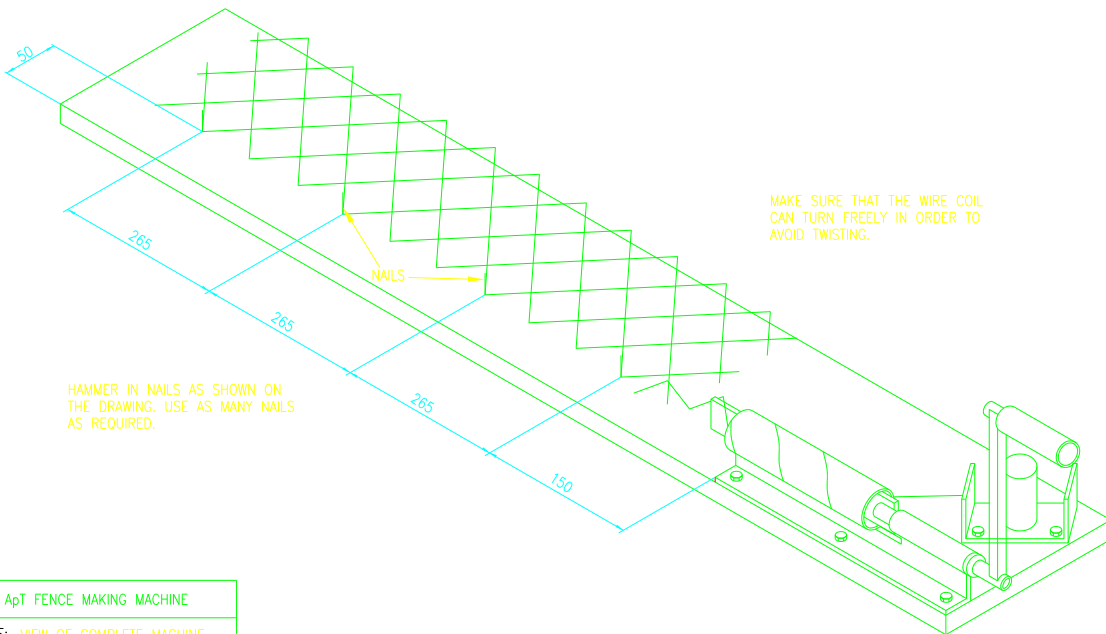
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- 7 PEN WIDTH .2
- 2 } PEN WIDTH .25
- 4 }
- 6 }
- 3 PEN WIDTH .3

PEN SETTINGS FOR PLOTTING

COLOUR/No.

	1	PEN WIDTH .18
	7	PEN WIDTH .2
	2	} PEN WIDTH .25
	4	
	6	
	3	PEN WIDTH .3

THE FENCE MAKING MACHINE CAN BE FIXED ON A PLANK WITH A STAND OR SIMPLY ON A WORKBENCH.



MAKE SURE THAT THE WIRE COIL CAN TURN FREELY IN ORDER TO AVOID TWISTING.







HAMMER IN NAILS AS SHOWN ON THE DRAWING. USE AS MANY NAILS AS REQUIRED.

ApT FENCE MAKING MACHINE	
TITLE: VIEW OF COMPLETE MACHINE	
SCALE:	
DRAWN: ABATEC	PAGE: 1 of 11
CAD No: APT-08-1	

No.	DESCRIPTION	QUANTITY	DIMENSIONS
1	FRAME	1	50 x 50 x 6 ANGLE IRON x 450
2	BEARING	1	ø26.8 x 2.6 STEAM TUBE x 150
3	SCROLL	1	ø60 x 3.5 STEAM TUBE x 270
4	BLADE	1	52 x 6 CAR LEAF SPRING x 360
5	COUPLING	1	ø19 ROUND BAR x 70
6	SHAFT	1	ø21.4 x 2 STEAM TUBE x 200
7	SHAFT STOP	1	ø26.8x 2.6 STEAM TUBE x 5
8	ARM	1	□20 x 2 SQUARE TUBE x 250
9	HANDLE	1	ø21.4 x 2 STEAM TUBE x 150
10		1	M8 BOLT x 30
11		1	M8 NUT
12	WIRE FEEDER	1	80 x 40 CHANNEL x 80
13		1	ø30 ROUND BAR x 45
14		1	40 x 6 FLAT BAR x 60

PEN SETTINGS FOR PLOTTING

COLOUR/No.

	1	PEN WIDTH .18
	7	PEN WIDTH .2
	2	} PEN WIDTH .25
	4	
	6	
	3	PEN WIDTH .3

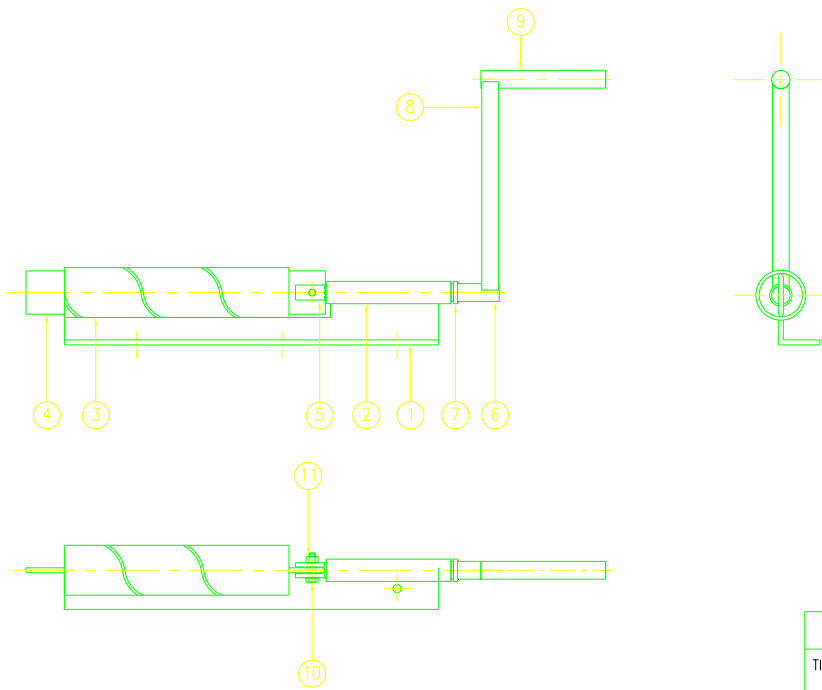
ApT FENCE-MAKING MACHINE

TITLE: PARTS LIST

SCALE:

DRAWN: ABATEC PAGE: 2 of 11

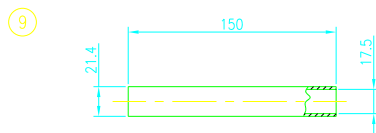
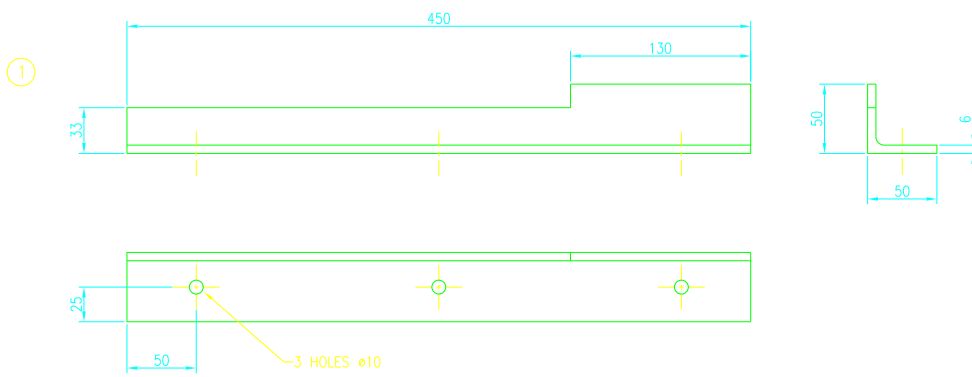
CAD No: APT-08-2



PEN SETTINGS FOR PLOTTING

COLOUR/No.	PEN WIDTH
1	.18
7	.2
2	.25
4	
6	
3	.3

ApT FENCE MAKING MACHINE	
TITLE: ASSEMBLY DRAWING	
SCALE: 1:5	
DRAWN: ABATEC	PAGE: 3 of 11
CAD No: APT-08-3	



PEN SETTINGS FOR PLOTTING

COLOUR/No.

1	PEN WIDTH .18
7	PEN WIDTH .2
2	} PEN WIDTH .25
4	
6	
3	PEN WIDTH .3

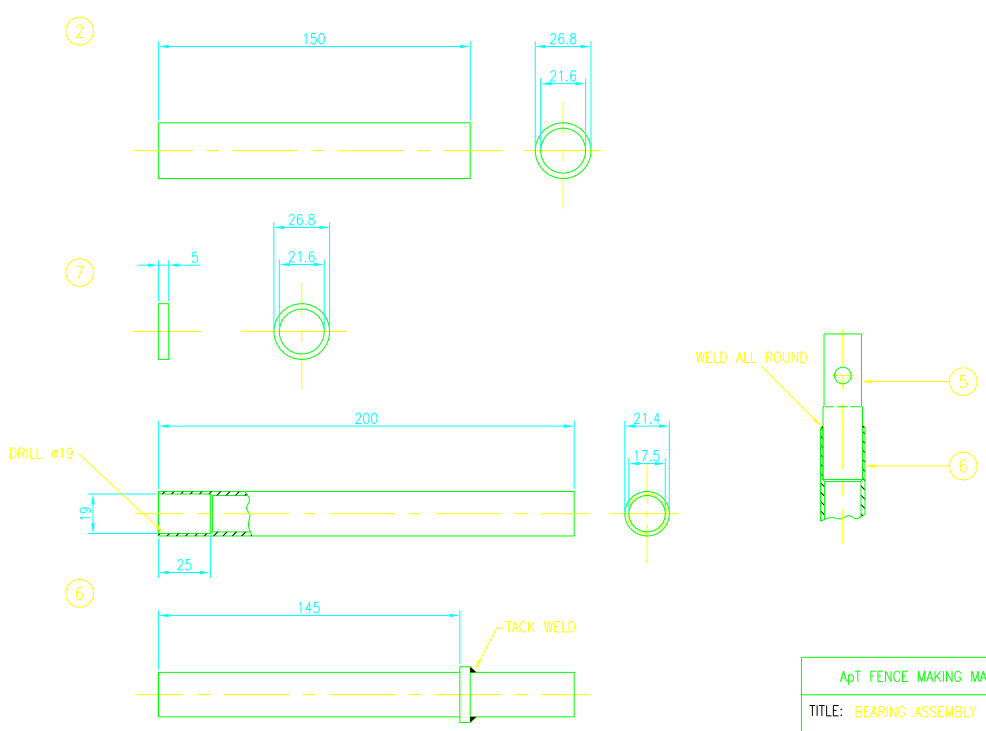
ApT FENCE MAKING MACHINE

TITLE: VICE SUB-ASSEMBLIES

SCALE: 1:3

DRAWN: ABATEC PAGE: 4 of 11

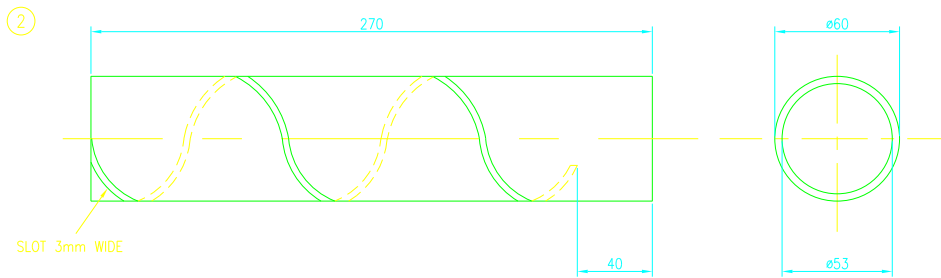
CAD No: APT-08-4



ApT FENCE MAKING MACHINE	
TITLE: BEARING ASSEMBLY	
SCALE: 1:2	
DRAWN: ABATEC	PAGE: 5 of 11
CAD No: APT-08-5	

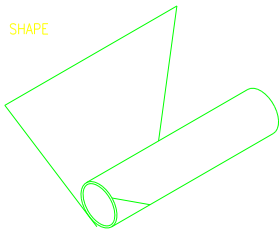
PEN SETTINGS FOR PLOTTING

COLOUR/No.	PEN WIDTH
1	.18
7	.2
2	.25
4	
6	
3	.3

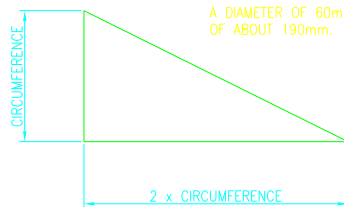


HOW TO MAKE THE SCROLL: WRAP A TRIANGULAR PIECE OF PAPER AROUND A TUBE (SEE SHAPE BELOW) AND MARK THE SLOT. THE SLOT CAN BE CUT USING 3 BLADES IN A HACKSAW FRAME.

NOTE: IT IS IMPORTANT THAT THE TRIANGULAR PIECE OF PAPER IS WRAPPED IN THE RIGHT DIRECTION. THE SCROLL BELOW IS FOR RIGHT-HANDED PEOPLE.



SHAPE



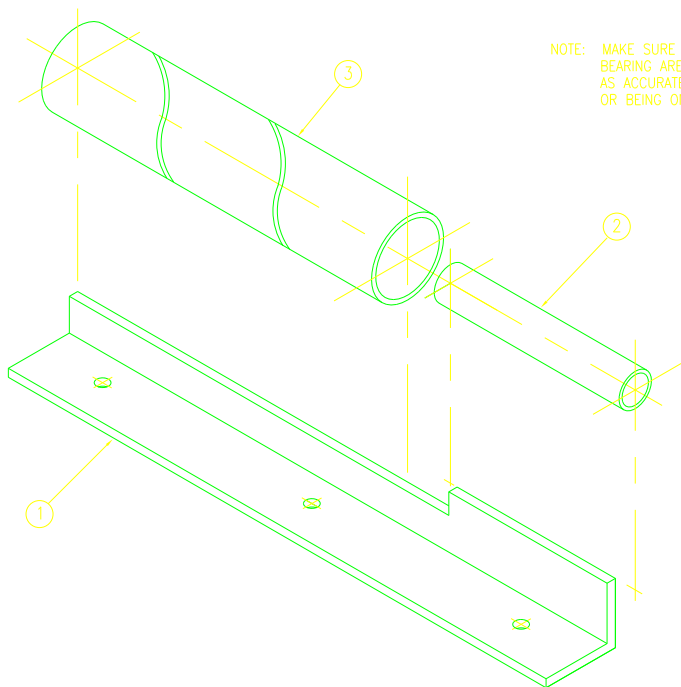
A DIAMETER OF 60mm RESULTS IN A CIRCUMFERENCE OF ABOUT 190mm.

ApT FENCE MAKING MACHINE	
TITLE: SCROLL	
SCALE: 1:2	
DRAWN: ABATEC	PAGE: 6 of 11
CAD No: APT-08-6	

PEN SETTINGS FOR PLOTTING

COLOUR/No.

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- 7 PEN WIDTH .2
- 2 } PEN WIDTH .25
- 4 }
- 6 }
- 3 PEN WIDTH .3



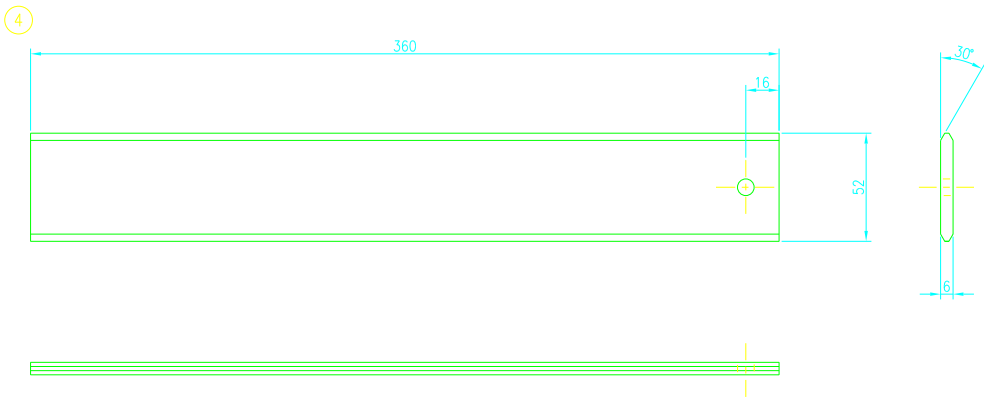
NOTE: MAKE SURE THAT THE SCROLL AND THE BEARING ARE LINED UP WITH EACH OTHER AS ACCURATELY AS POSSIBLE (i.e. CO-AXIAL, OR BEING ON THE SAME CENTRELINE).

PEN SETTINGS FOR PLOTTING

COLOUR/No.

—	1	PEN WIDTH .18
—	7	PEN WIDTH .2
—	2	} PEN WIDTH .25
—	4	
—	6	
—	3	PEN WIDTH .3

ApT FENCE MAKING MACHINE	
TITLE: EXPLODED VIEW	
SCALE: 1:3	
DRAWN: ABATEC	PAGE: 7 of 11
CAD No: APT-08-7	



NOTE: MAKE SURE THAT THE BLADE IS A GOOD FIT INSIDE THE SCROLL. TOTAL CLEARANCE BETWEEN BLADE AND TUBE MUST BE LESS THAN 1mm.

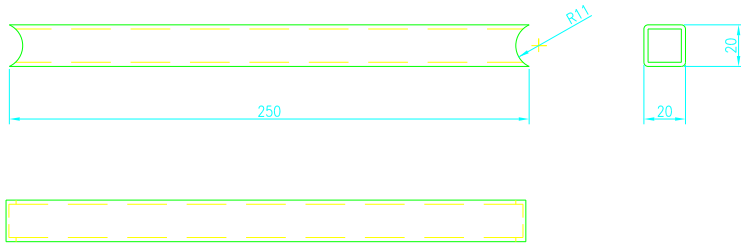
ApT FENCE MAKING MACHINE	
TITLE: BLADE	
SCALE: 1:2	
DRAWN: ABATEC	PAGE: 8 of 11
CAD No: APT-08-8	

PEN SETTINGS FOR PLOTING

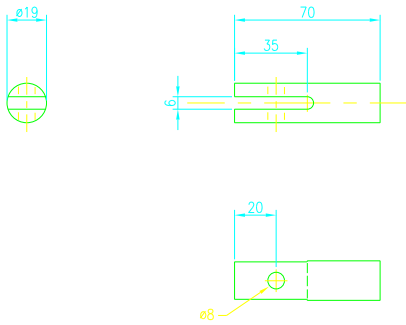
COLOUR/No.

- 1 PEN WIDTH .18
- 7 PEN WIDTH .2
- 2 } PEN WIDTH .25
- 4 }
- 6 }
- 3 PEN WIDTH .3

8



5

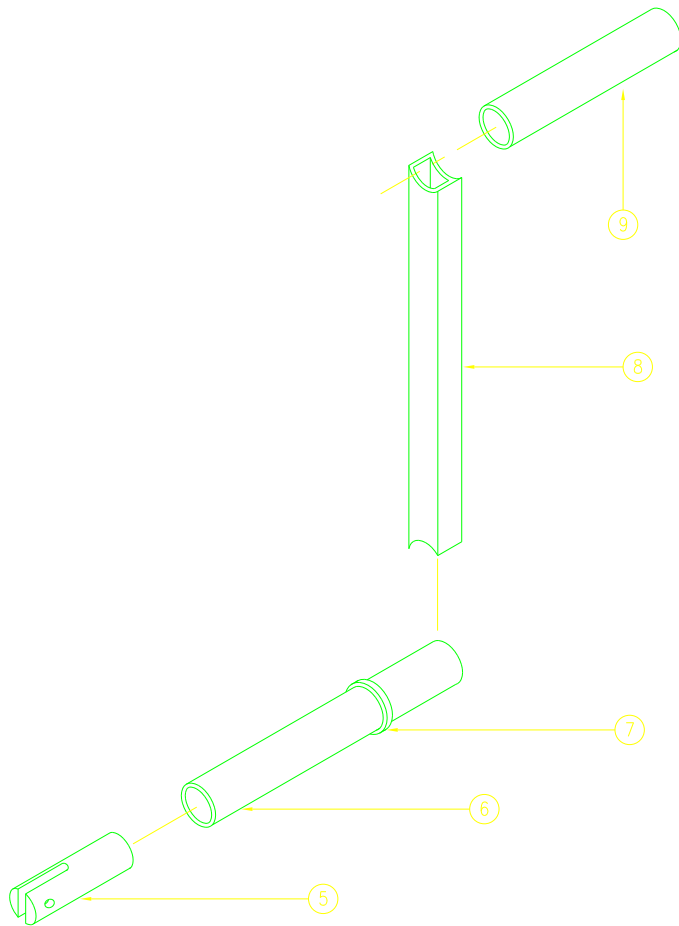


ApT FENCE MAKING MACHINE	
TITLE: ARM AND COUPLING	
SCALE: 1:2	
DRAWN: ABATEC	PAGE: 9 of 11
CAD No: APT-08-9	

PEN SETTINGS FOR PLOTTING

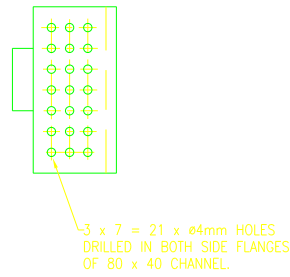
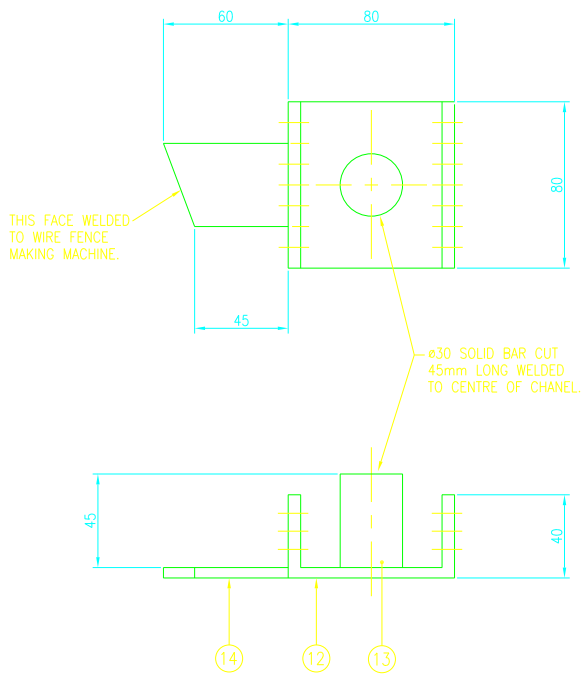
COLOUR/No.

- 1 PEN WIDTH .18
- 7 PEN WIDTH .2
- 2 } PEN WIDTH .25
- 4 }
- 6 }
- 3 PEN WIDTH .3



PEN SETTINGS FOR PLOTTING	
COLOUR/No.	
— 1	PEN WIDTH .18
— 7	PEN WIDTH .2
— 2	} PEN WIDTH .25
— 4	
— 6	
— 3	PEN WIDTH .3

ApT FENCE MAKING MACHINE	
TITLE: VICE SUB-ASSEMBLIES	
SCALE: DO NOT SCALE	
DRAWN: ABATEC	PAGE: 10 of 11
CAD No: APT-08-10	

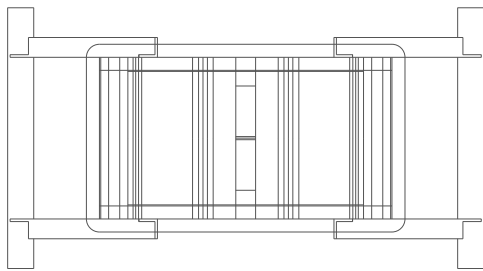
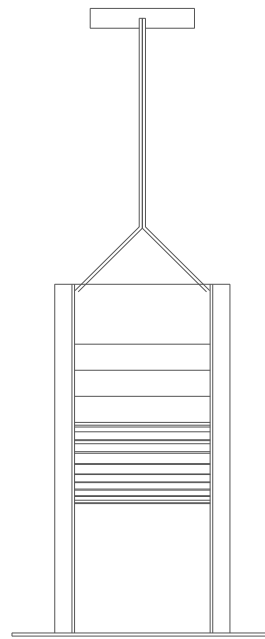
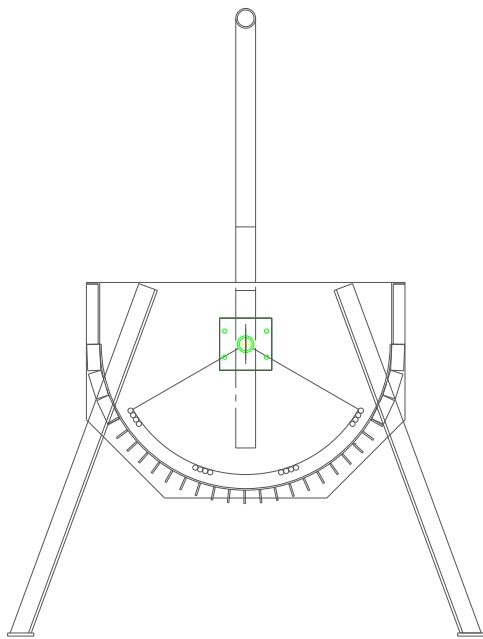


ApT FENCE MAKING MACHINE	
TITLE: WIRE FEEDER	
SCALE: 1:2	
DRAWN: ABATEC	PAGE: 11 of 11
CAD No: APT-08-11	

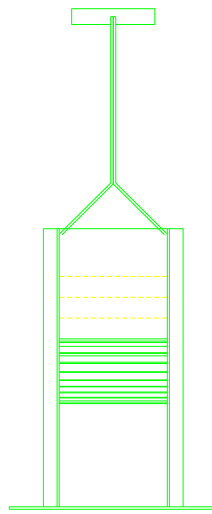
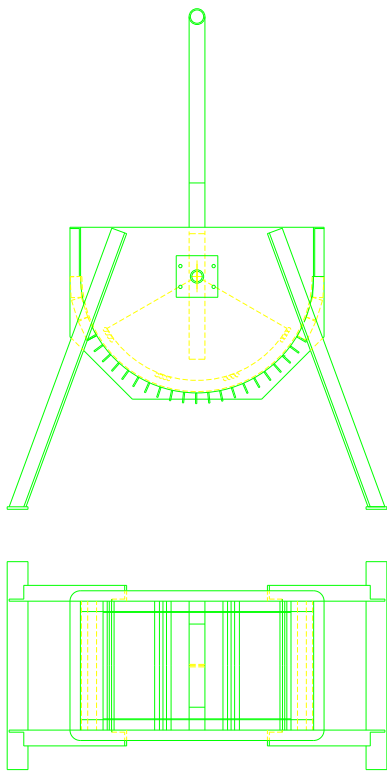
PEN SETTINGS FOR PLOTTING

COLOUR/No.

- 1 PEN WIDTH .18
- 7 PEN WIDTH .2
- 2 } PEN WIDTH .25
- 4 }
- 6 }
- 3 PEN WIDTH .3



ApT GROUNDNUT HULLER	
TITLE: ASSEMBLY	
SCALE: 1:10	
DRAWN: ABATEC	PAGE: 1 of 7
CAD No: APT-10-1	



PEN SETTINGS FOR PLOTTING

COLOUR/No.

1	PEN WIDTH .18
7	PEN WIDTH .2
2	} PEN WIDTH .25
4	
6	
3	PEN WIDTH .3

ApT GROUNDNUT HULLER

TITLE: ASSEMBLY

SCALE: 1:10

DRAWN: ABATEC PAGE: 1 of 7

CAD No: APT-10-1







No.	DESCRIPTION	QUANTITY	DIMENSIONS
1	SIDES	2	611 x 435 x 1.5mm PLATE
2	ENDS	2	360 x 285 x 1.5mm PLATE
3	GRILL BARS	22	25 x 3 x 305 FLAT BAR
4	RETAINING RINGS	2	25 x 3 x 305 FLAT BAR
5	SPINDLE	1	∅25 BAR x 340
6	PLATE	2	100 x 140 x 3mm PLATE
7	COLLAR	1	∅32 PIPE (BORE 25 MIN.) x 10
8	CRUSHER BAR	16	∅10 M.S. BAR x 305
9	PIVOT	1	∅32 PIPE (BORE 25 MIN.) x 307
10	HANDLE	2	40 x 6 x 872 FLAT BAR
11	SIDE PLATE	2	1.5mm PLATE-1/4 CIRCLE @ ∅500
12	HANDLE 'T' BAR	1	∅38 PIPE x 200
13	FEET	2	50 x 6 FLAT BAR x 500
14	LEGS	4	38 x 38 ANGLE x 714
15	JIG	1	25 x 3 FLAT BAR x 175

ApT GROUNDNUT HULLER	
TITLE: PARTS LIST	
SCALE:	
DRAWN: ABATEC	PAGE: 2 of 7
CAD No: APT-10-2	

No.	DESCRIPTION	QUANTITY	DIMENSIONS
1	SIDES	2	611 x 435 x 1.5mm PLATE
2	ENDS	2	360 x 285 x 1.5mm PLATE
3	GRILL BARS	22	25 x 3 x 305 FLAT BAR
4	RETAINING RINGS	2	25 x 3 x 305 FLAT BAR
5	SPINDLE	1	ø25 BAR x 340
6	PLATE	2	100 x 140 x 3mm PLATE
7	COLLAR	1	ø32 PIPE (BORE 25 MIN.) x 10
8	CRUSHER BAR	16	ø10 M.S. BAR x 305
9	PIVOT	1	ø32 PIPE (BORE 25 MIN.) x 307
10	HANDLE	2	40 x 6 x 872 FLAT BAR
11	SIDE PLATE	2	1.5mm PLATE-1/4 CIRCLE @ ø500
12	HANDLE 'T' BAR	1	ø38 PIPE x 200
13	FEET	2	50 x 6 FLAT BAR x 500
14	LEGS	4	38 x 38 ANGLE x 714
15	JIG	1	25 x 3 FLAT BAR x 175

PEN SETTINGS FOR PLOTTING

COLOUR/No.

	1	PEN WIDTH .18
	7	PEN WIDTH .2
	2	} PEN WIDTH .25
	4	
	6	
	3	PEN WIDTH .3

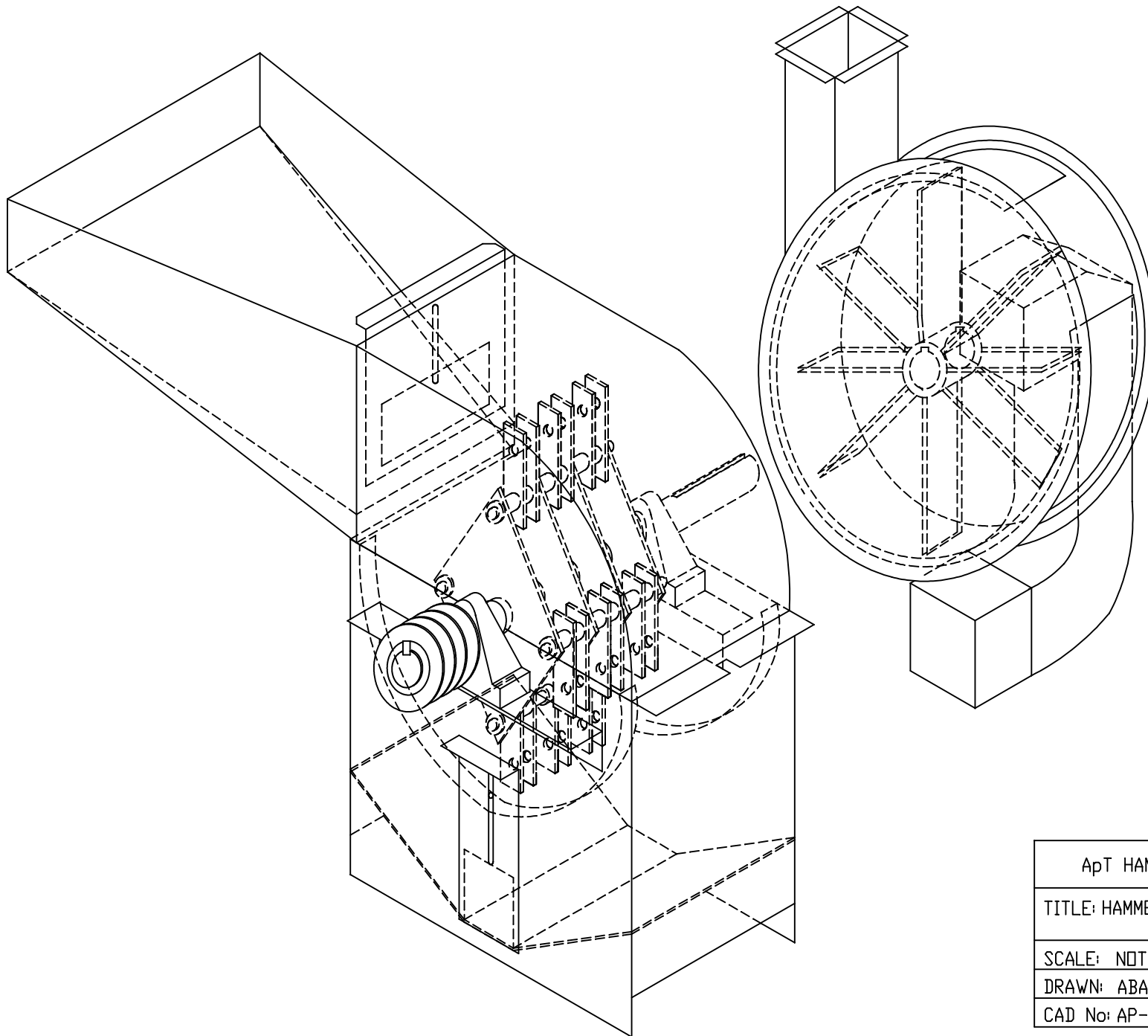
ApT GROUNDNUT HULLER

TITLE: PARTS LIST

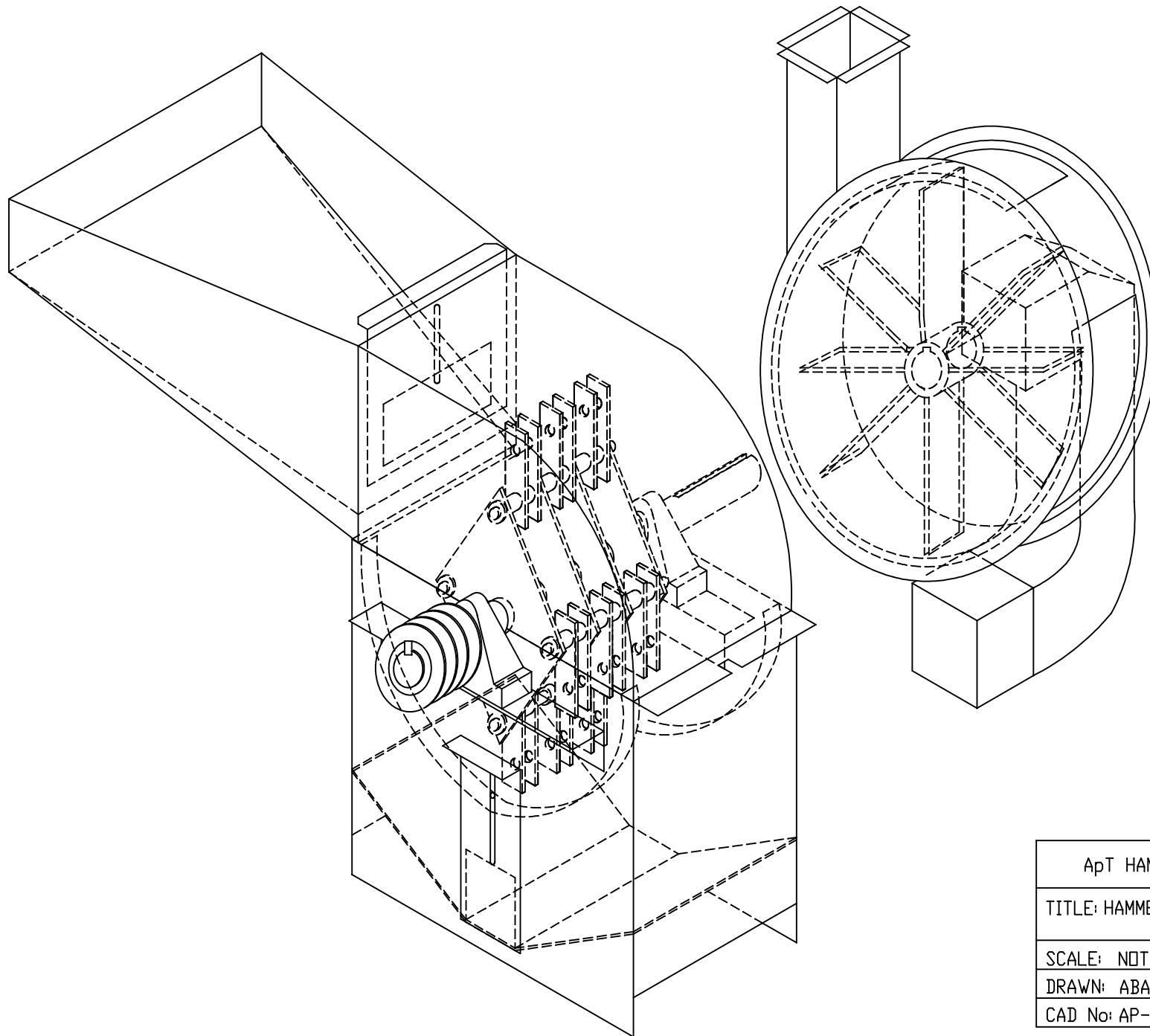
SCALE:

DRAWN: ABATEC PAGE: 2 of 7

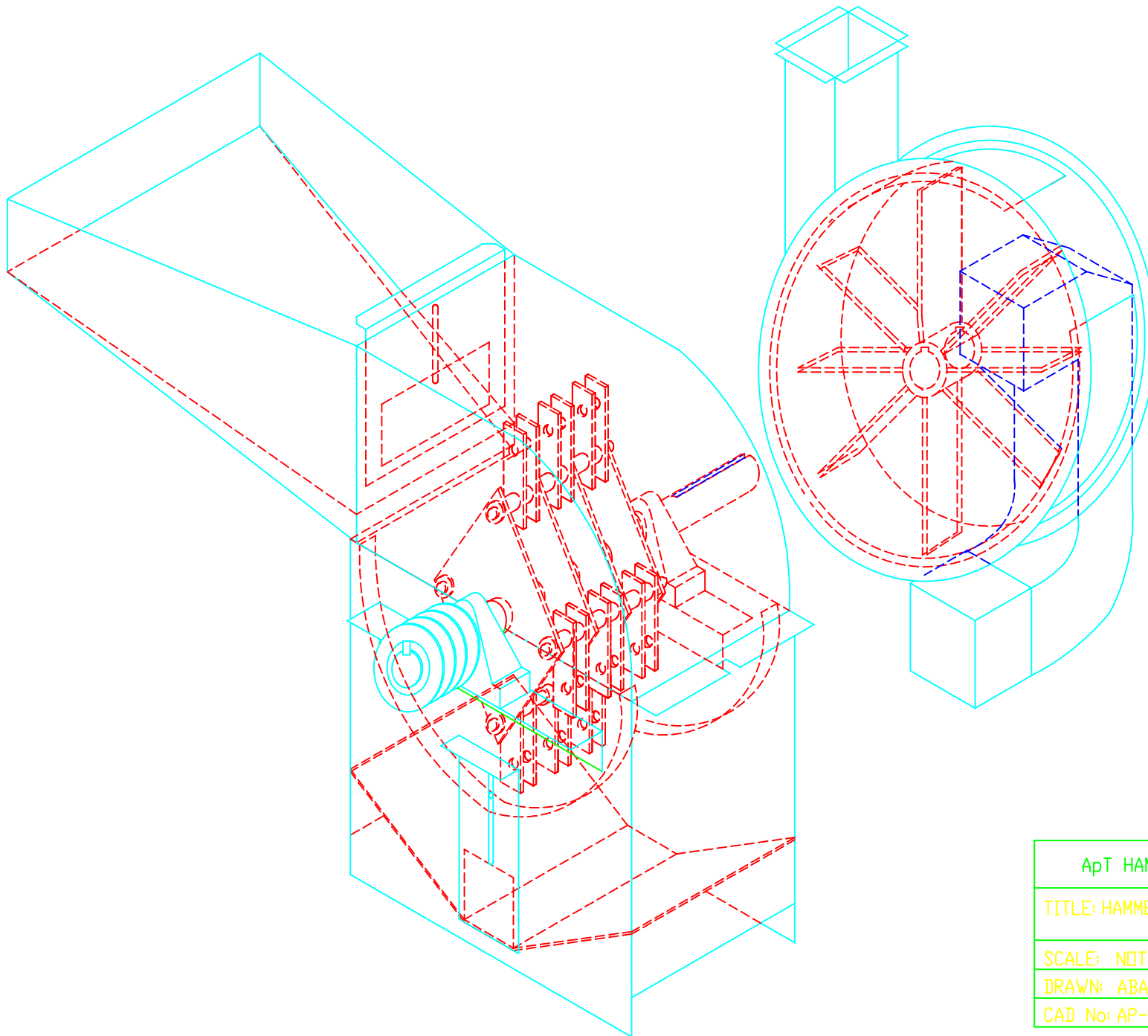
CAD No: APT-10-2



ApT HAMMER MILL	
TITLE: HAMMER MILL ASSEMBLY	
SCALE: NOT TO SCALE	
DRAWN: ABATEC	PAGE: 01 of 21
CAD No: AP-18-01	



ApT HAMMER MILL	
TITLE: HAMMER MILL ASSEMBLY	
SCALE: NOT TO SCALE	
DRAWN: ABATEC	PAGE: 01 of 21
CAD No: AP-18-01	



ApT HAMMER MILL	
TITLE: HAMMER MILL ASSEMBLY	
SCALE: NOT TO SCALE	
DRAWN: ABATEC	PAGE: 01 of 21
CAD No: AP-18-01	



(A) ROTOR ASSEMBLY -

PART	QUANTITY	DIMENSIONS
A1	1	Ø2" MILD STEEL BAR x 610mm
A2	4	Ø 5/8" MILD STEEL BAR x 235mm
A3	24	40 x 130 x 6mm PLATE
A4	24	Ø24mm x 20mm LONG
A5	2	255 x 255 x 6mm MILD STEEL PLATE
A6	1	-

(B) FAN ASSEMBLY

PART	QUANTITY	DIMENSIONS
B1	1	6mm MILD STEEL PLATE
B2	8	6mm MILD STEEL PLATE
B3	1	100 x 139 x 1.5mm PLATE
B4	2	1.5mm PLATE

(C) TOP ASSEMBLY -

PART	QUANTITY	DIMENSIONS
C1	1	250 x 40 x 6mm PLATE
C2	2	100 x 40 x 6mm PLATE
C3	1	245 x 220 x 1.5mm PLATE
C4	1	250 x 270 x 6mm PLATE
C5	1	250 x 695 x 3mm PLATE
'	8	12 SQUARE BAR x 250 LONG
C6	1	400 x 714 x 3mm PLATE
C7	2	1147 x 270 x 6mm PLATE

(D) FAN HOUSING ASSEMBLY

PART	QUANTITY	DIMENSIONS
D1	1	805 x 120 x 1.5mm MILD STEEL PLATE
D2	1	400 x 180 x 1.5mm MILD STEEL PLATE
D3	1	1.5mm MILD STEEL PLATE
D4	2	515 x 215 x 1.5mm MILD STEEL PLATE
D5	1	504 x 120 x 1.5mm MILD STEEL PLATE
D6	1	392 x

(E) LOWER ASSEMBLY -

PART	QUANTITY	DIMENSIONS
E1	1	262 x 50 x 6mm MILD STEEL PLATE
E2	1	262 x 25 x 3mm MILD STEEL PLATE
E3	3	250 x 100 x 6mm MILD STEEL PLATE
E4	1	120 x 250 x 1.5mm MILD STEEL PLATE
E5	2	566 x 460 x 6mm MILD STEEL PLATE
E6	2	406 x 250 x 6mm MILD STEEL PLATE
E7	2	25 x 445 x 3mm FLAT BAR
E8	2	81x 40 x 6mm MILD STEEL PLATE

ApT HAMMER MILL	
TITLE: PARTS LISTS	
SCALE:	
DRAWN: ABATEC	PAGE: 2 of 21
CAD No: AP-18-02	

(A) ROTOR ASSEMBLY -

PART	QUANTITY	DIMENSIONS
A1	1	Ø2" MILD STEEL BAR x 610mm
A2	4	Ø 5/8" MILD STEEL BAR x 235mm
A3	24	40 x 130 x 6mm PLATE
A4	24	Ø24mm x 20mm LONG
A5	2	255 x 255 x 6mm MILD STEEL PLATE
A6	1	-

(B) FAN ASSEMBLY

PART	QUANTITY	DIMENSIONS
B1	1	6mm MILD STEEL PLATE
B2	8	6mm MILD STEEL PLATE
B3	1	100 x 139 x 1.5mm PLATE
B4	2	1.5mm PLATE

(C) TOP ASSEMBLY -

PART	QUANTITY	DIMENSIONS
C1	1	250 x 40 x 6mm PLATE
C2	2	100 x 40 x 6mm PLATE
C3	1	245 x 220 x 1.5mm PLATE
C4	1	250 x 270 x 6mm PLATE
C5	1	250 x 695 x 3mm PLATE
*	8	12 SQUARE BAR x 250 LONG
C6	1	400 x 714 x 3mm PLATE
C7	2	1147 x 270 x 6mm PLATE

(D) FAN HOUSING ASSEMBLY

PART	QUANTITY	DIMENSIONS
D1	1	805 x 120 x 1.5mm MILD STEEL PLATE
D2	1	400 x 180 x 1.5mm MILD STEEL PLATE
D3	1	1.5mm MILD STEEL PLATE
D4	2	515 x 215 x 1.5mm MILD STEEL PLATE
D5	1	504 x 120 x 1.5mm MILD STEEL PLATE
D6	1	392 x








(E) LOWER ASSEMBLY -

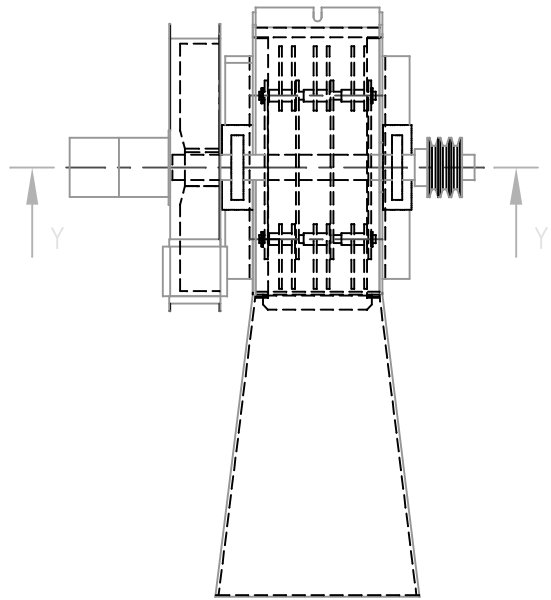
PART	QUANTITY	DIMENSIONS
E1	1	262 x 50 x 6mm MILD STEEL PLATE
E2	1	262 x 25 x 3mm MILD STEEL PLATE
E3	3	250 x 100 x 6mm MILD STEEL PLATE
E4	1	120 x 250 x 1.5mm MILD STEEL PLATE
E5	2	566 x 460 x 6mm MILD STEEL PLATE
E6	2	406 x 250 x 6mm MILD STEEL PLATE
E7	2	25 x 445 x 3mm FLAT BAR
E8	2	81x 40 x 6mm MILD STEEL PLATE

ApT HAMMER MILL	
TITLE: PARTS LISTS	
SCALE:	
DRAWN: ABATEC	PAGE: 2 of 21
CAD No: AP-18-02	

PEN SETTINGS FOR PLOTTING

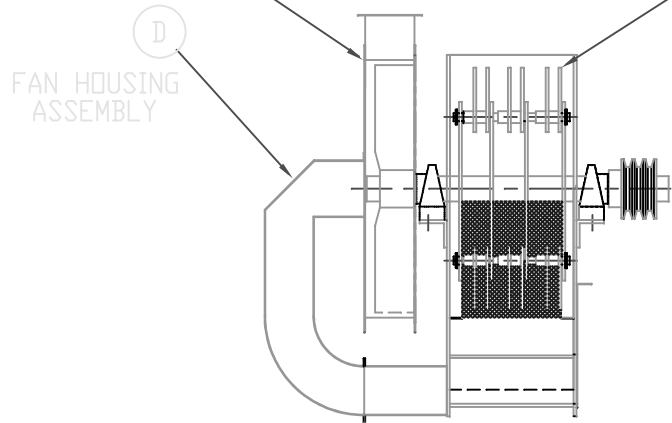
COLOUR/No.

	5	PEN WIDTH .1
	1	PEN WIDTH .2
	7	PEN WIDTH .2
	2	} PEN WIDTH .25
	6	
	3	PEN WIDTH .3
	4	PEN WIDTH .5

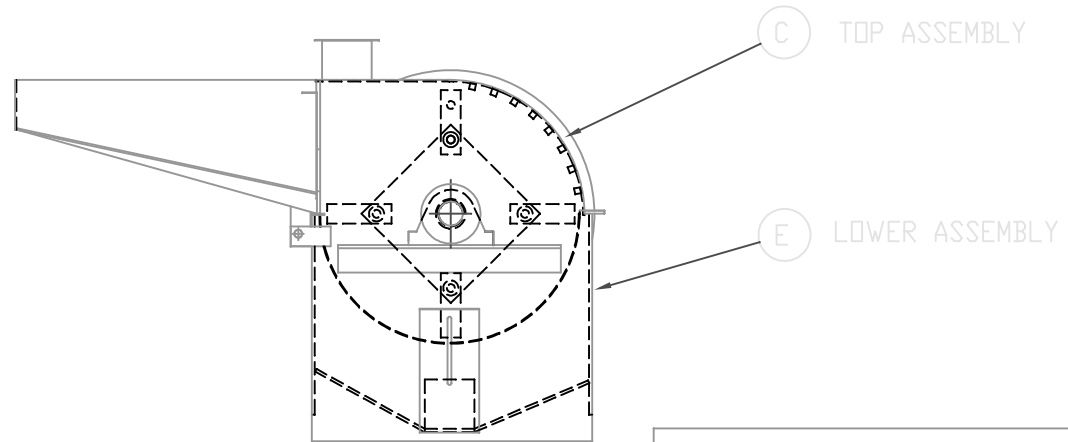


B FAN ASSEMBLY

A ROTOR ASSEMBLY



SECTION 'Y - Y'

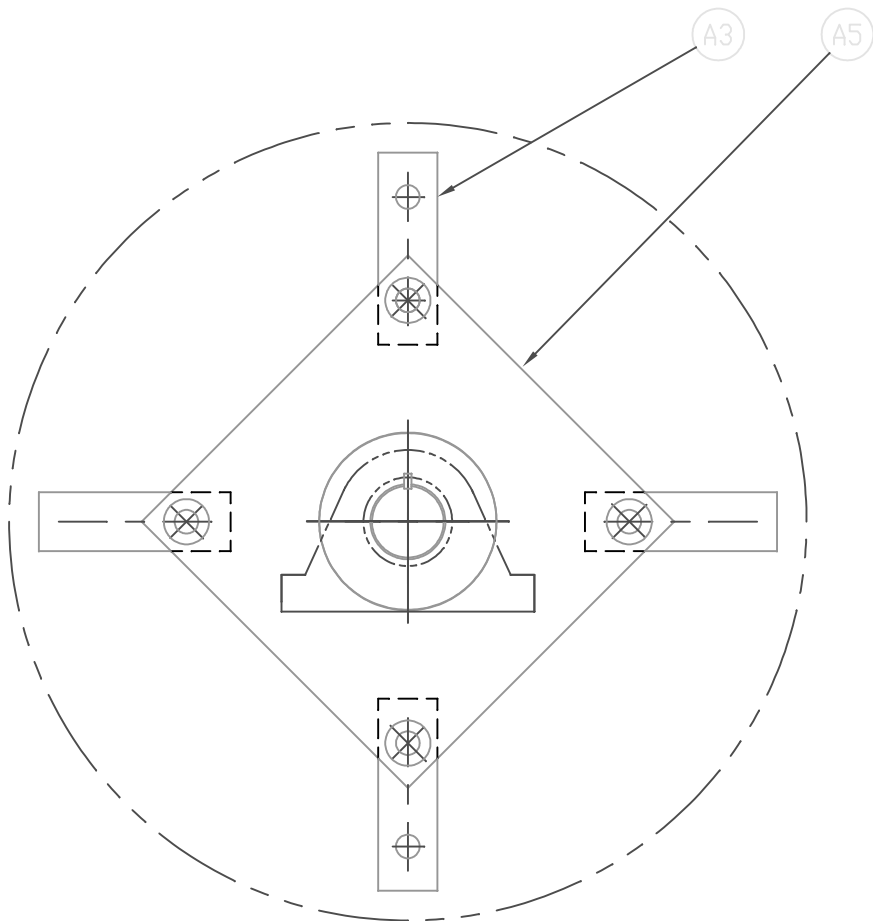
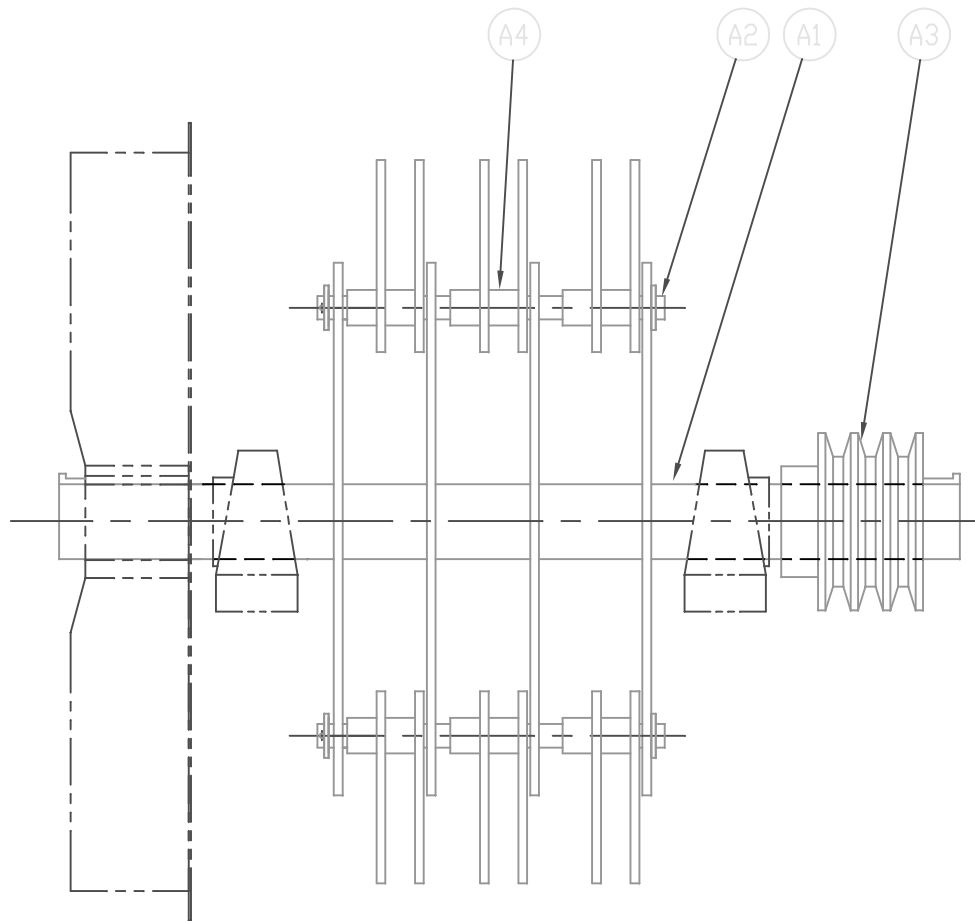


C TOP ASSEMBLY

E LOWER ASSEMBLY

ApT HAMMER MILL	
TITLE: HAMMER MILL ASSEMBLY	
SCALE: NOT TO SCALE	
DRAWN: ABATEC	PAGE: 03 of 21
CAD No: AP-18-03	

A ROTOR ASSEMBLY



ApT HAMMER MILL	
TITLE: ROTOR ASSEMBLY	
SCALE: 1:5	
DRAWN: ABATEC	PAGE: 04 of 21
CAD No: AP-18-04	

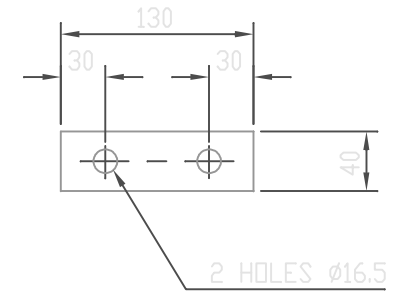
A1 SHAFT

MAT'L: $\phi 2"$ MILD STEEL BAR
2 OFF



A3 HAMMER

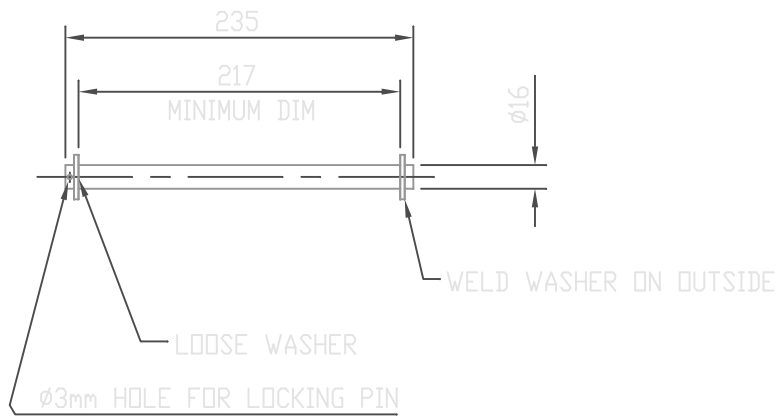
MAT'L: 6mm PLATE
24 OFF



NOTE:
HOLES MUST BE JIG DRILLED

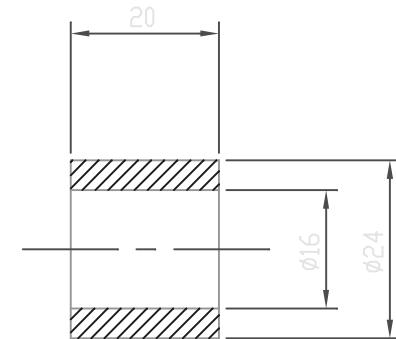
A2 HAMMER PIN

MAT'L: $\phi 5/8"$ MILD STEEL BAR
4 OFF



A4 SPACER

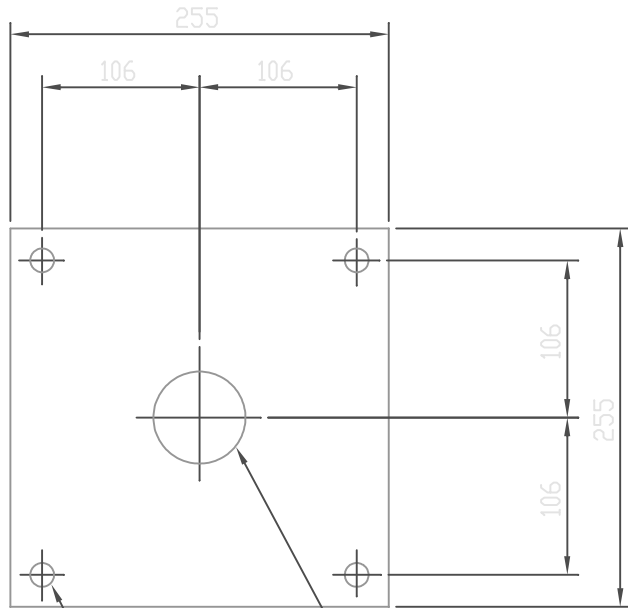
MAT'L: $\phi 24$ BAR
SCALE 1:1
24 OFF



ApT HAMMER MILL	
TITLE: COMPONENTS FOR ROTARY ASSEMBLY	
SCALE: 1:5	
DRAWN: ABATEC	PAGE: 05 of 21
CAD No: AP-18-05	

A5 ROTOR PLATE

MAT'L: 6mm M/S PLATE
2 OFF

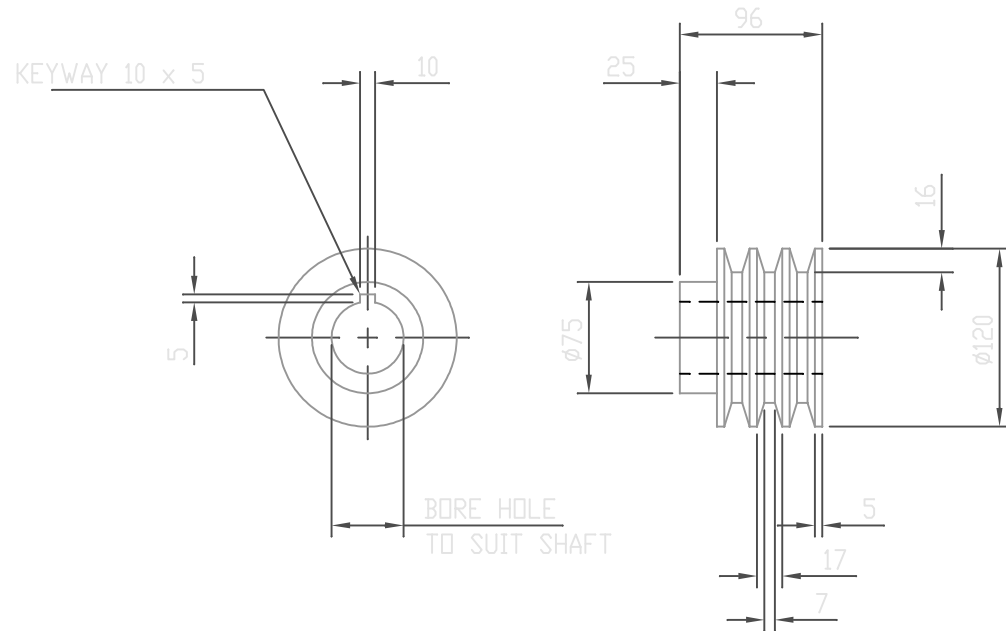


4 HOLES Ø16

Ø62 HOLE TO SUIT
2" WATER PIPE

A6 PULLEY

1 OFF



KEYWAY 10 x 5

10

5

BORE HOLE
TO SUIT SHAFT

96

25

Ø75

16

Ø120

5

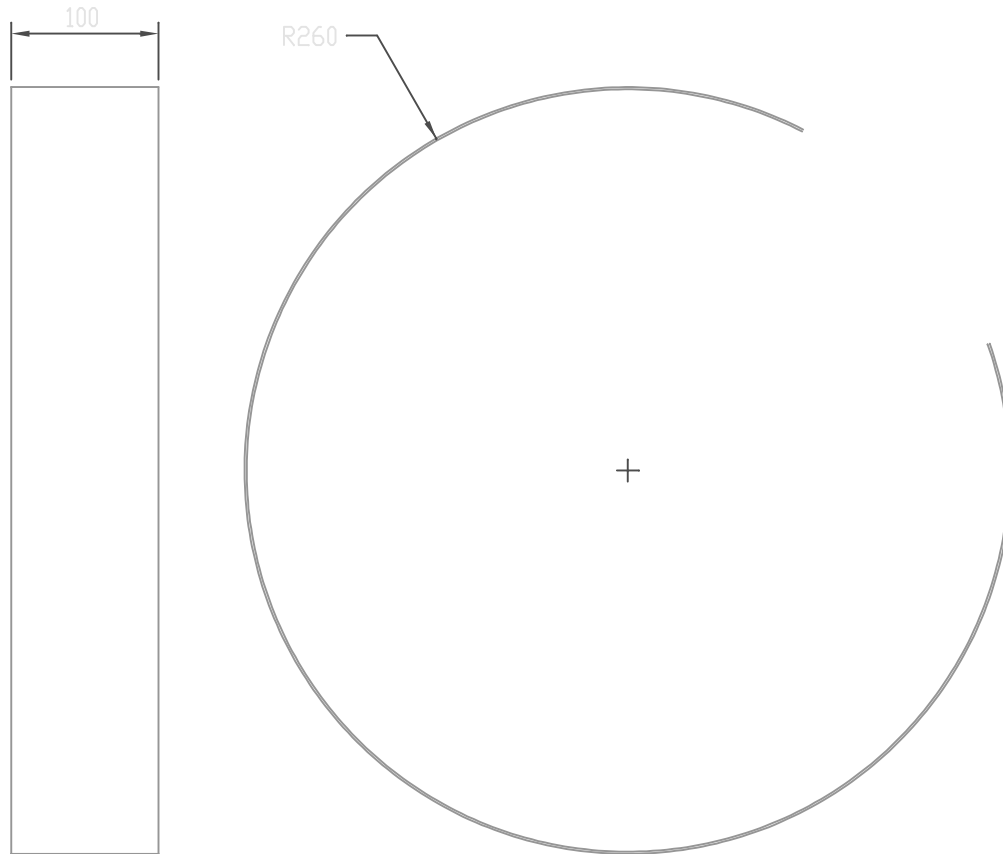
17

7

ApT HAMMER MILL	
TITLE: COMPONENTS FOR ROTARY ASSEMBLY	
SCALE: 1:5	
DRAWN: ABATEC	PAGE: 06 of 21
CAD No: AP-18-06	

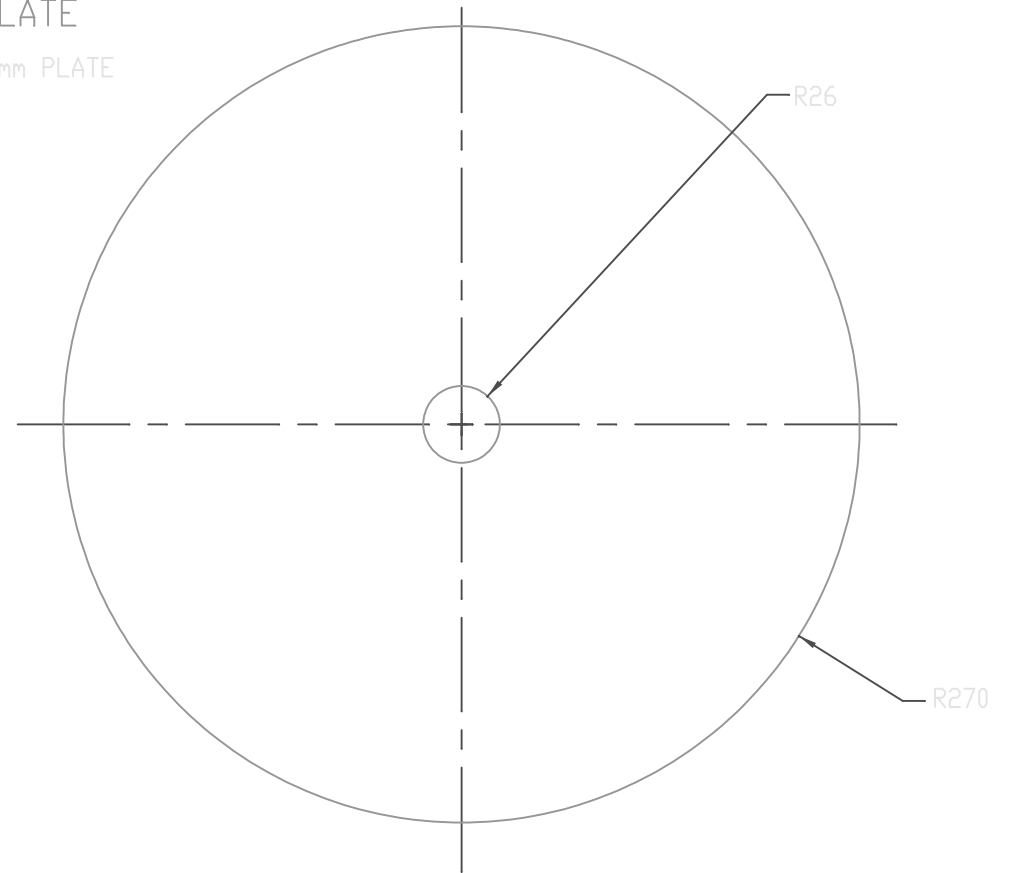
B3 HOUSING COVER

MAT'L: 1.5mm PLATE (CUTTING LENGTH 1394 LONG)
1 OFF



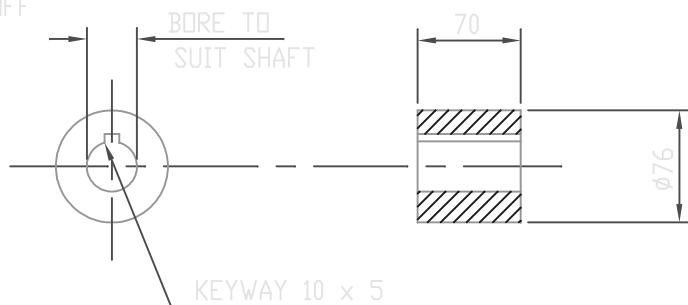
B4 BACK PLATE

MAT'L: 1.5mm PLATE
2 OFF



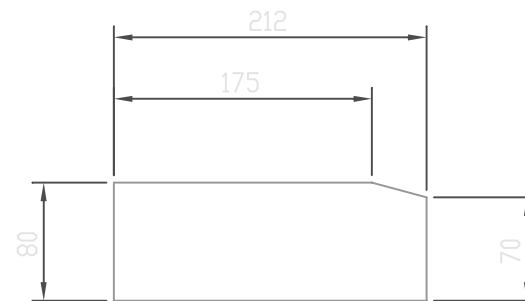
B1 HUB

MAT'L: MILD STEEL
1 OFF



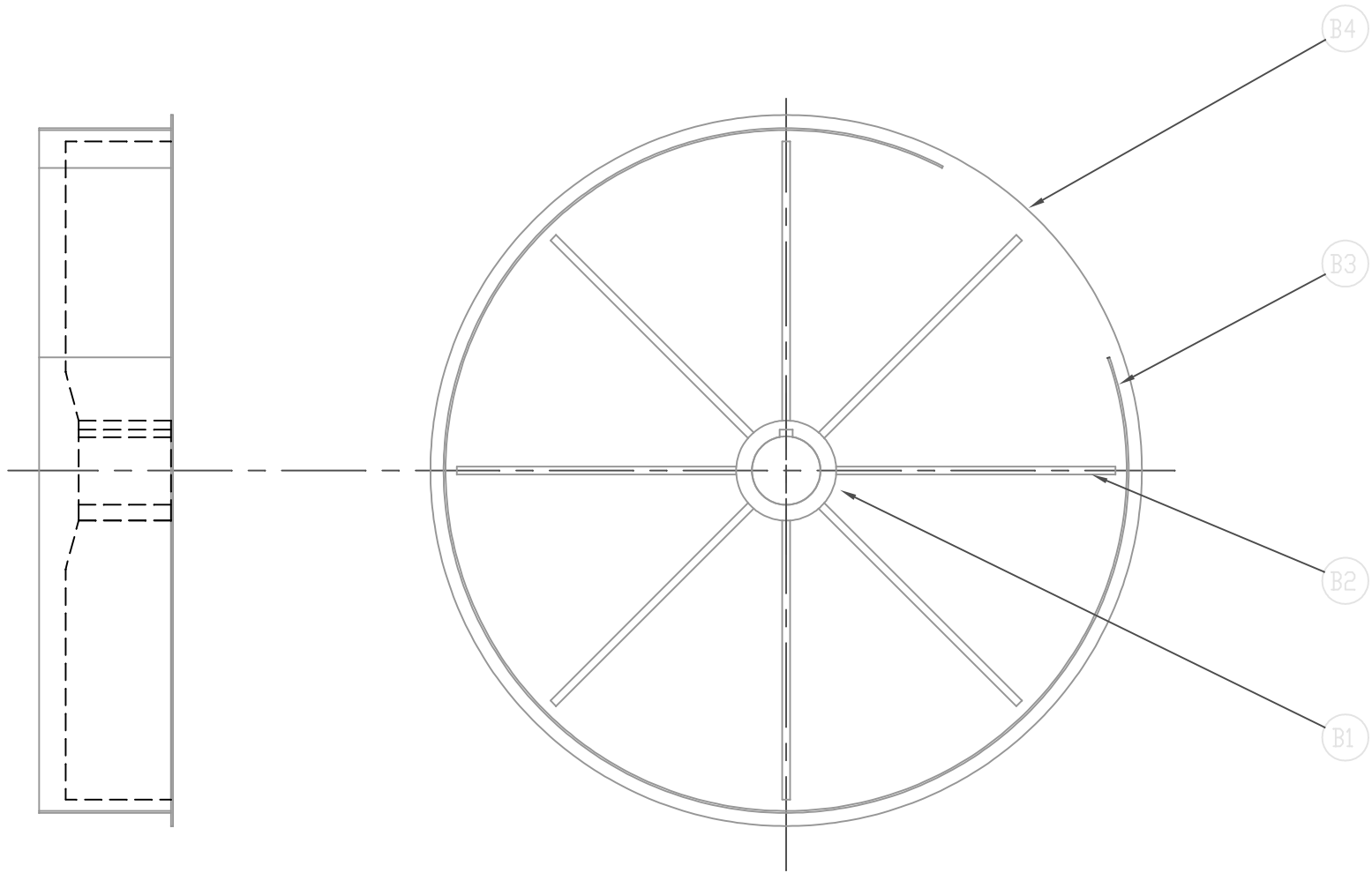
B2 BLADE

MAT'L: 6mm MILD STEEL
8 OFF



ApT HAMMER MILL	
TITLE: COMPONENTS FOR FAN	
SCALE: 1:5	
DRAWN: ABATEC	PAGE: 07 of 21
CAD No: AP-18-07	

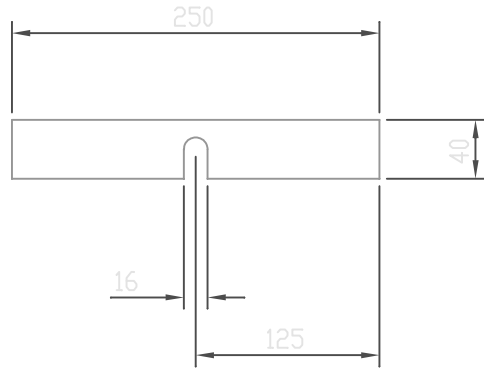
B FAN ASSEMBLY



ApT HAMMER MILL	
TITLE: FAN ASSEMBLY	
SCALE: 1:5	
DRAWN: ABATEC	PAGE: 08 of 21
CAD No: AP-18-08	

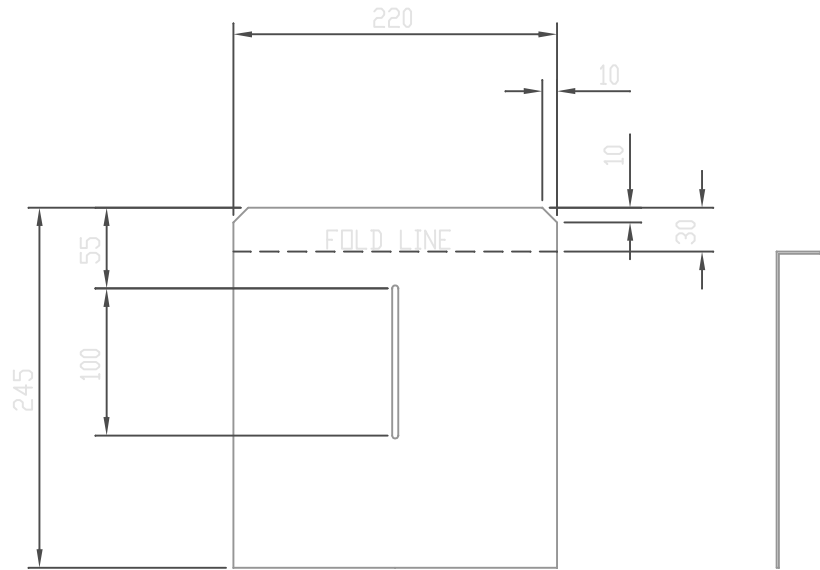
C1 -

MAT'L: 6mm PLATE
1 OFF



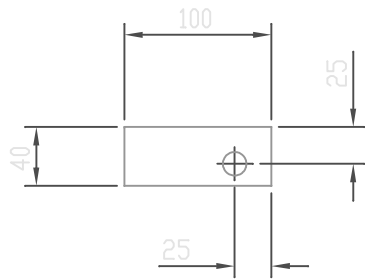
C3 FEED SLIDE

MAT'L: 1.5mm PLATE
1 OFF



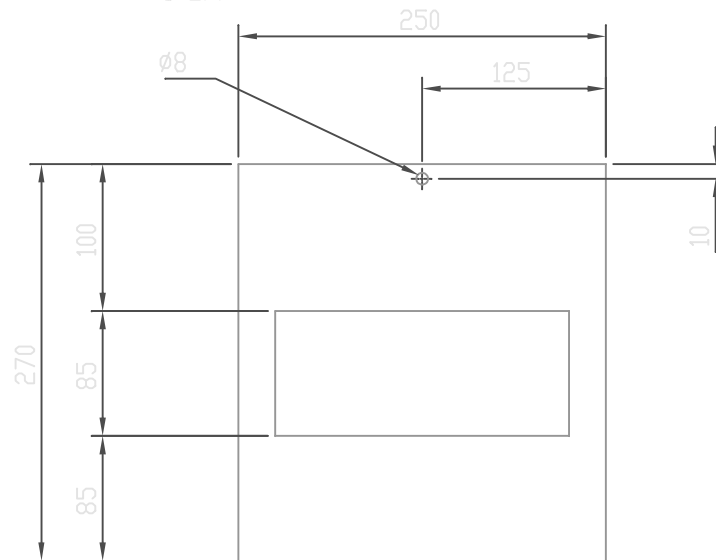
C2 HINGE PLATE

MAT'L: 6mm PLATE
2 OFF



C4 END PLATE

MAT'L: 6mm PLATE
1 OFF



FORMED VIEW

ApT HAMMER MILL

TITLE: COMPONENTS FOR TOP
ASSEMBLY

SCALE: 1:5

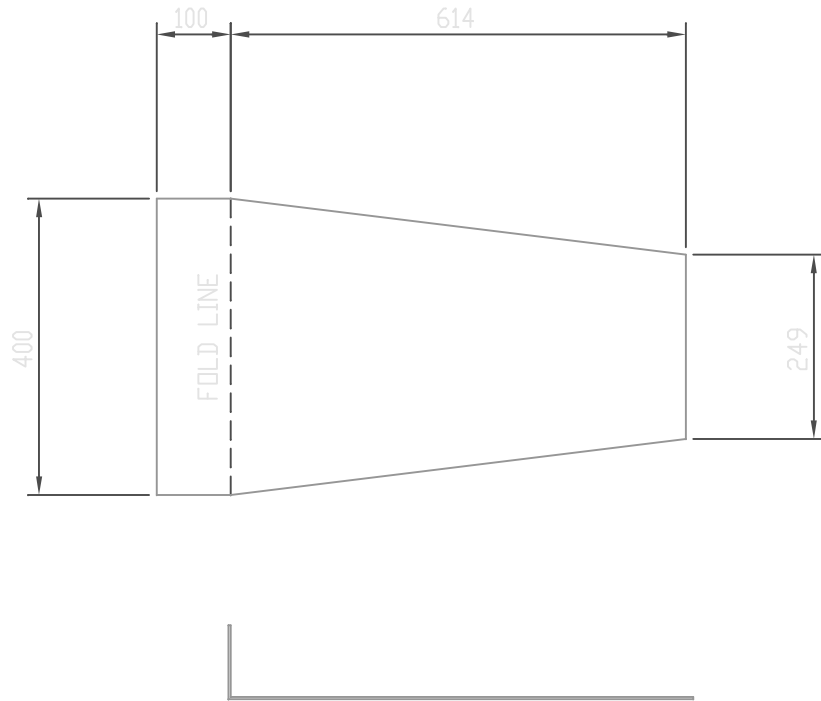
DRAWN: ABATEC

PAGE: 09 of 21

CAD No: AP-18-09

C6 BASE AND FEED TRAY

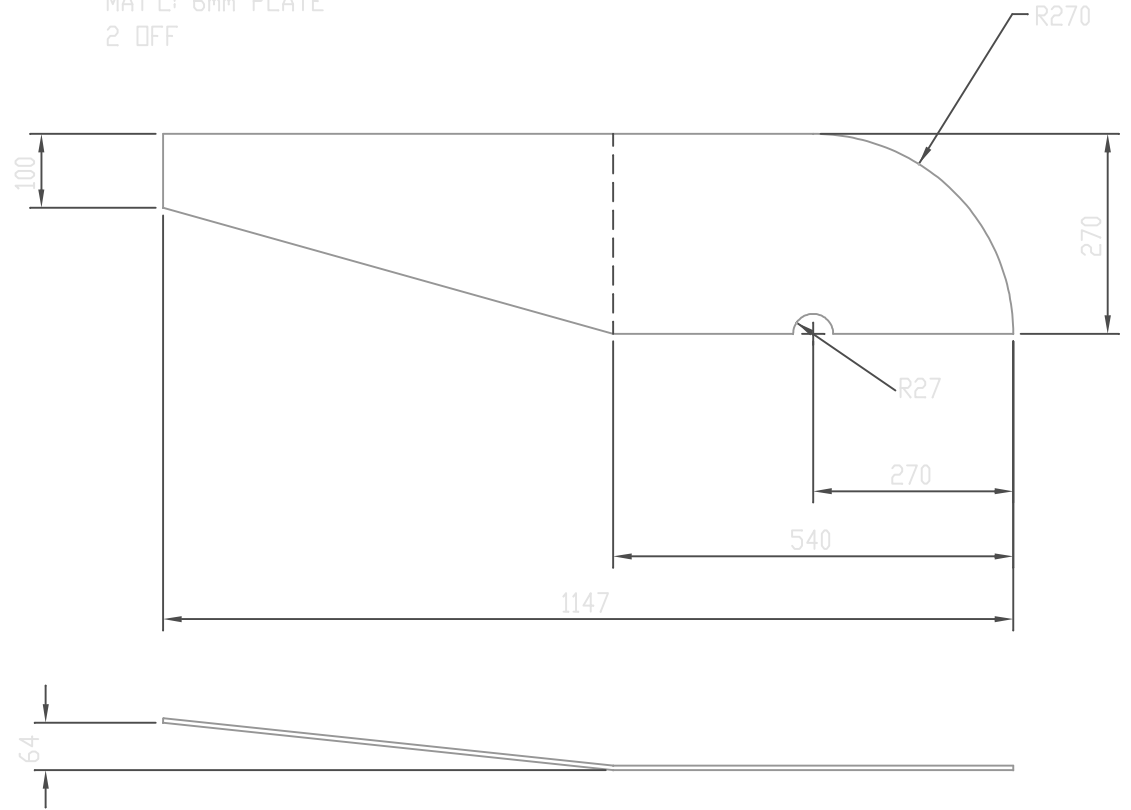
MAT'L: 3mm PLATE
1 OFF



FORMED VIEW

C7 BASE AND FEED TRAY

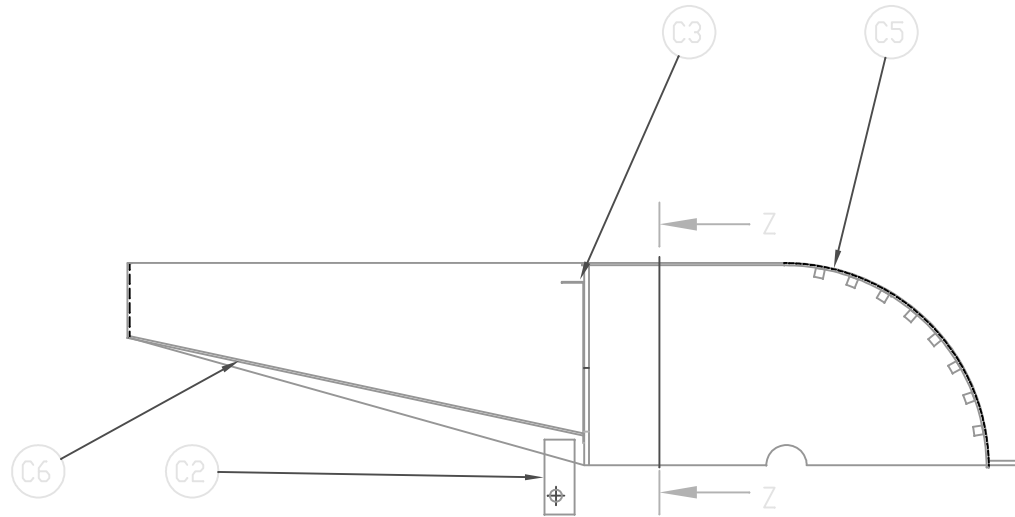
MAT'L: 6mm PLATE
2 OFF



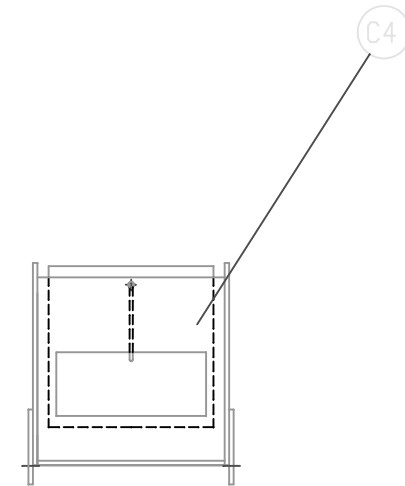
FORMED VIEW

ApT HAMMER MILL	
TITLE: BASE AND FEED TRAY	
SCALE: 1:10	
DRAWN: ABATEC	PAGE: 11 of 21
CAD No: AP-18-11	

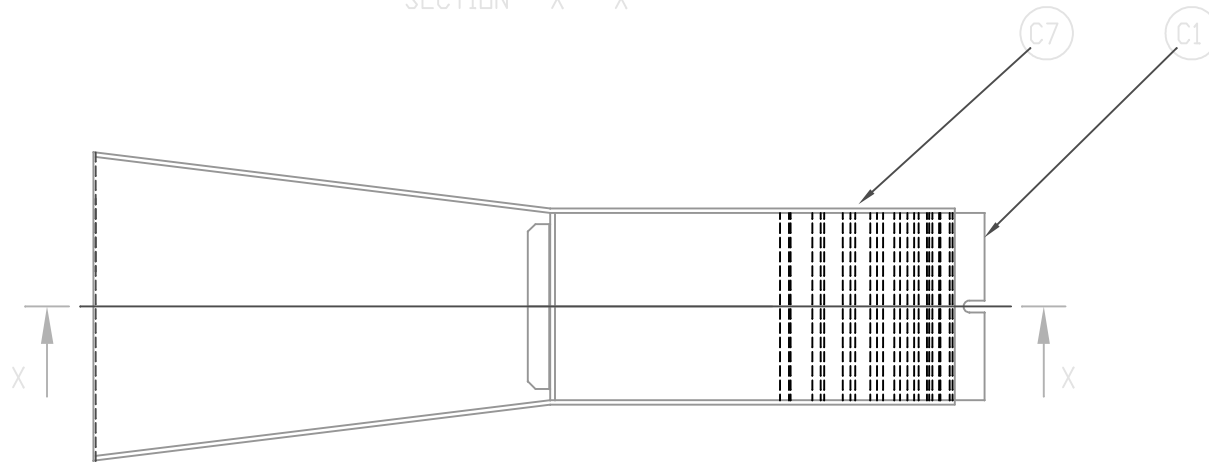
© TOP ASSEMBLY



SECTION 'X - X'



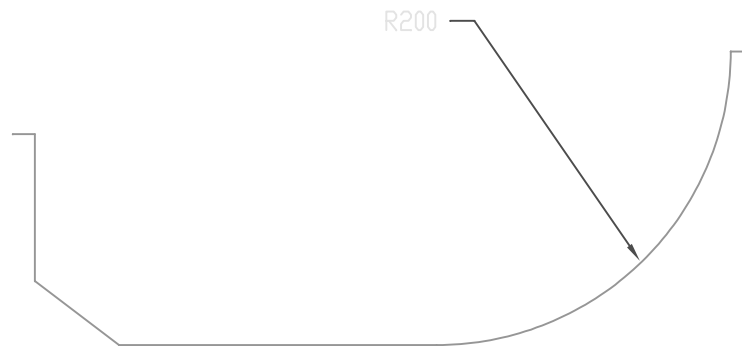
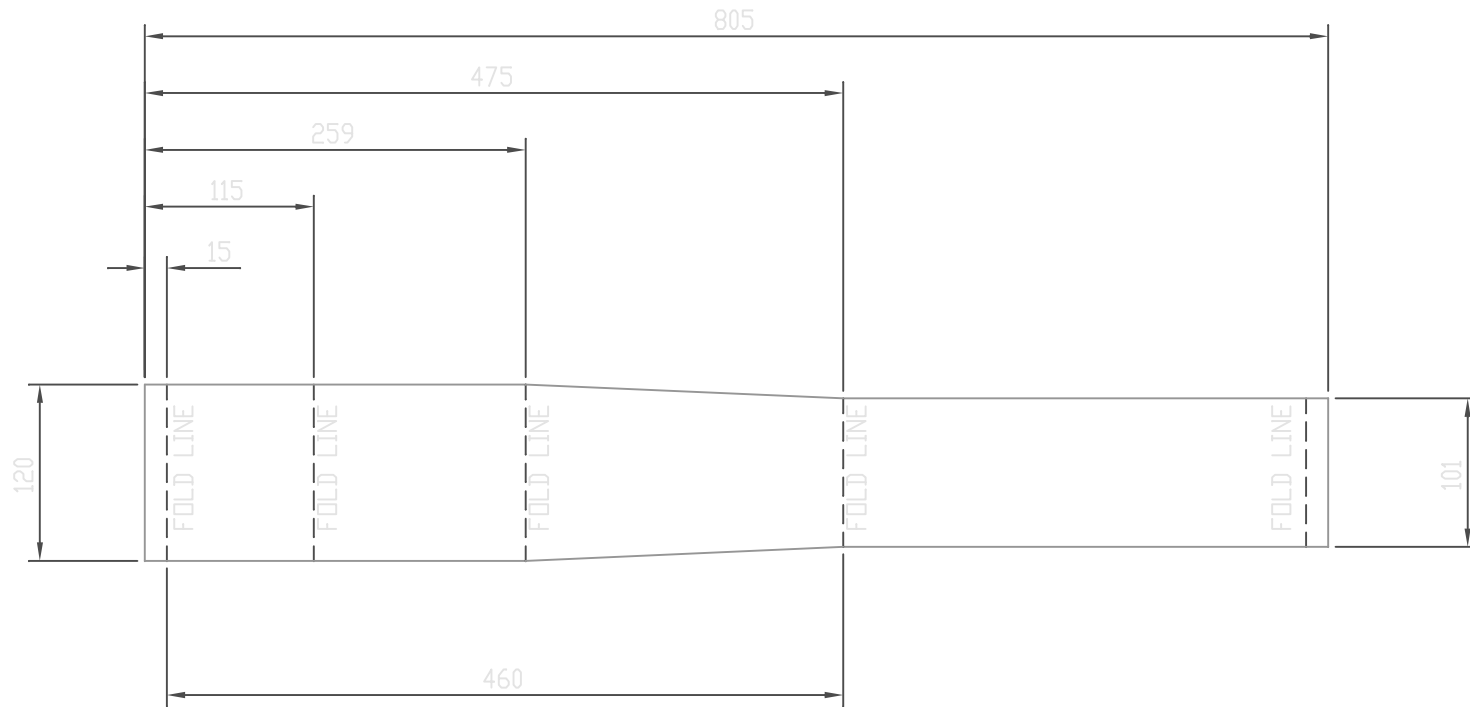
SECTION 'Z - Z'



ApT HAMMER MILL	
TITLE: TOP ASSEMBLY	
SCALE: 1:10	
DRAWN: ABATEC	PAGE: 12 of 21
CAD No: AP-18-12	

D1 OUTER COVER FOR VENT PIPE

MAT'L: 1.5mm M/S PLATE
1 OFF

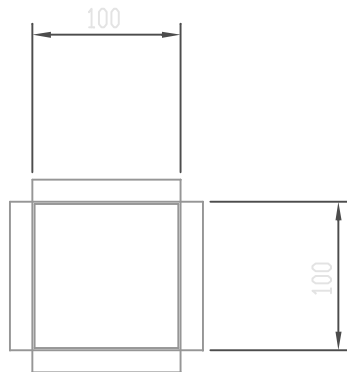
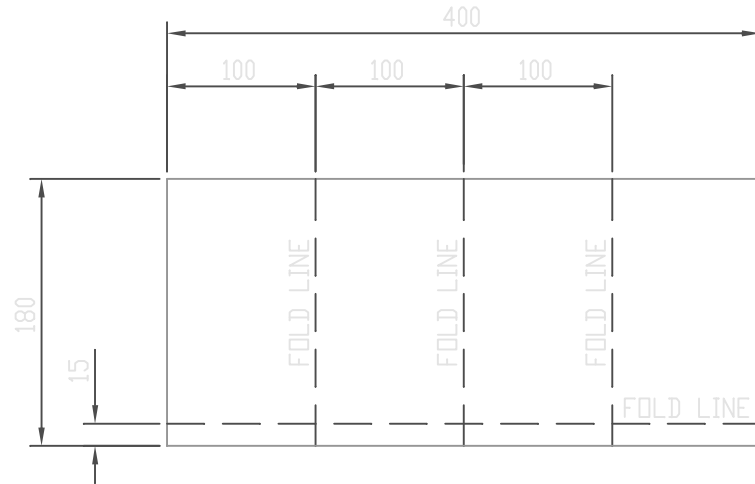


FORMED VIEW

ApT HAMMER MILL	
TITLE: OUTER COVER FOR VENT PIPE	
SCALE: 1:5	
DRAWN: ABATEC	PAGE: 13 of 21
CAD No: AP-18-13	

ⓓ2 MILL EXIT PIPE

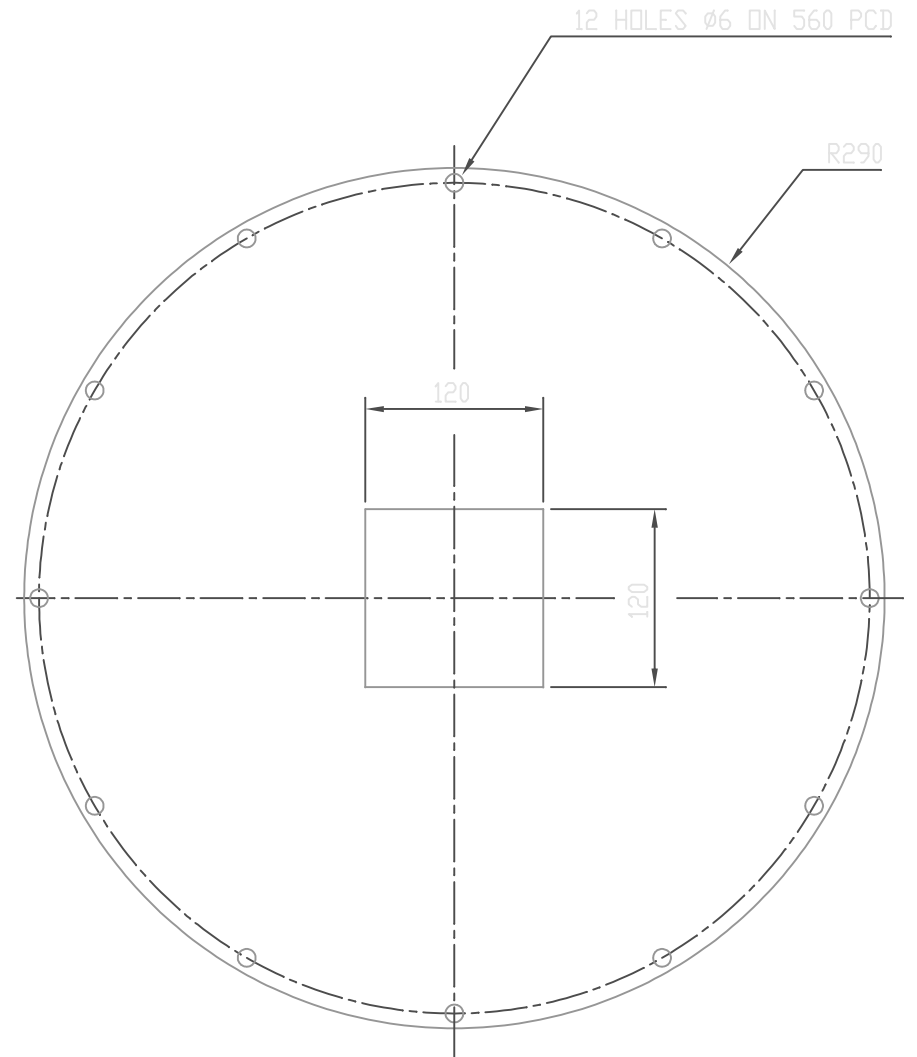
MAT'L: 1.5mm M/S PLATE
1 OFF



FORMED VIEW

ⓓ3 FRONT PLATE

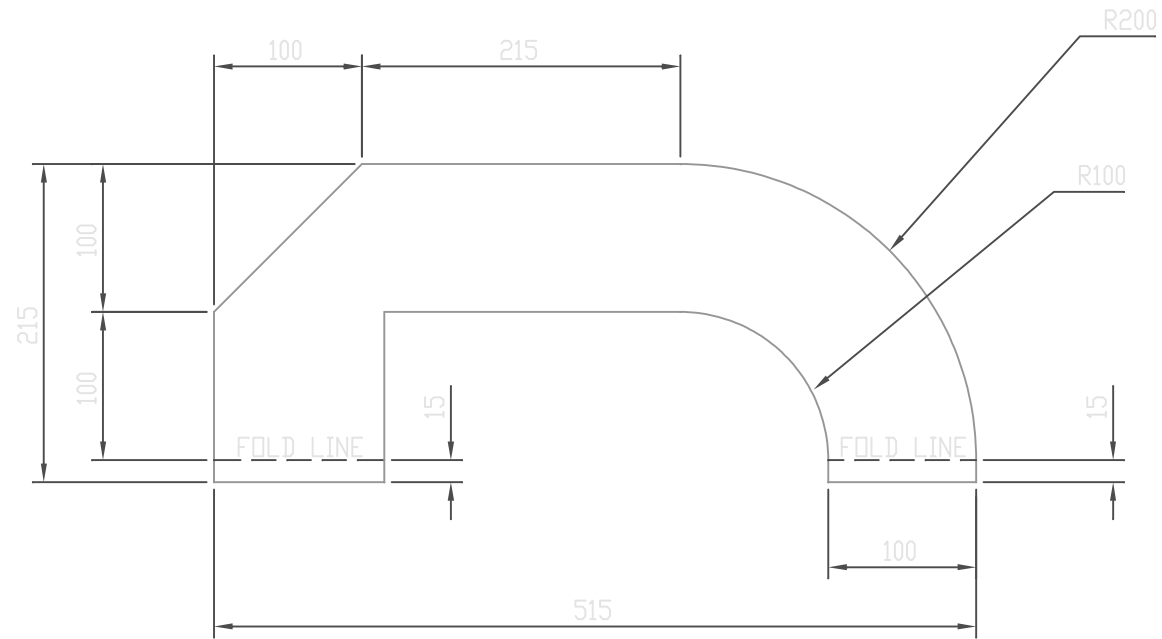
MAT'L: 1.5mm M/S PLATE
1 OFF



ApT HAMMER MILL	
TITLE: FRONT PLATE AND MILL EXIT PIPE	
SCALE: 1:5	
DRAWN: ABATEC	PAGE: 14 of 21
CAD No: AP-18-14	

D4 OUTER COVERS FOR OUTLET PIPE

MAT'L: 1.5mm M/S PLATE
2 OFF

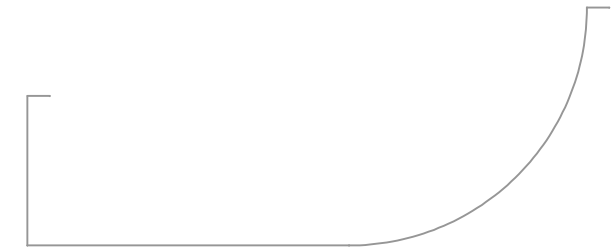
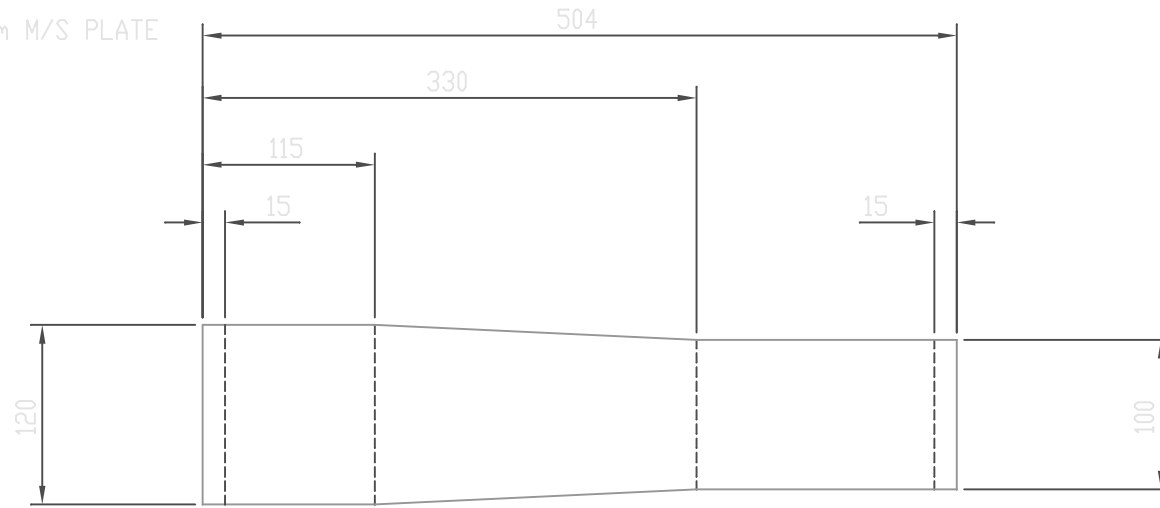


ApT HAMMER MILL	
TITLE: OUTER COVERS FOR OUTLET PIPE	
SCALE: 1:5	
DRAWN: ABATEC	PAGE: 15 of 21
CAD No: AP-18-15	

D5 INNER COVER FOR BEND

MAT'L: 1.5mm M/S PLATE

1 OFF

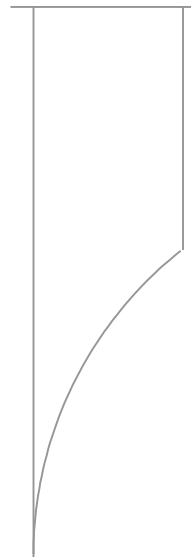
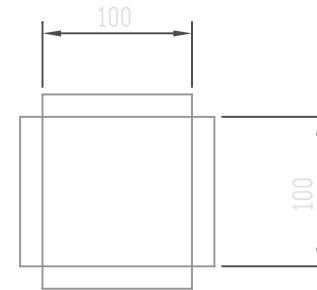
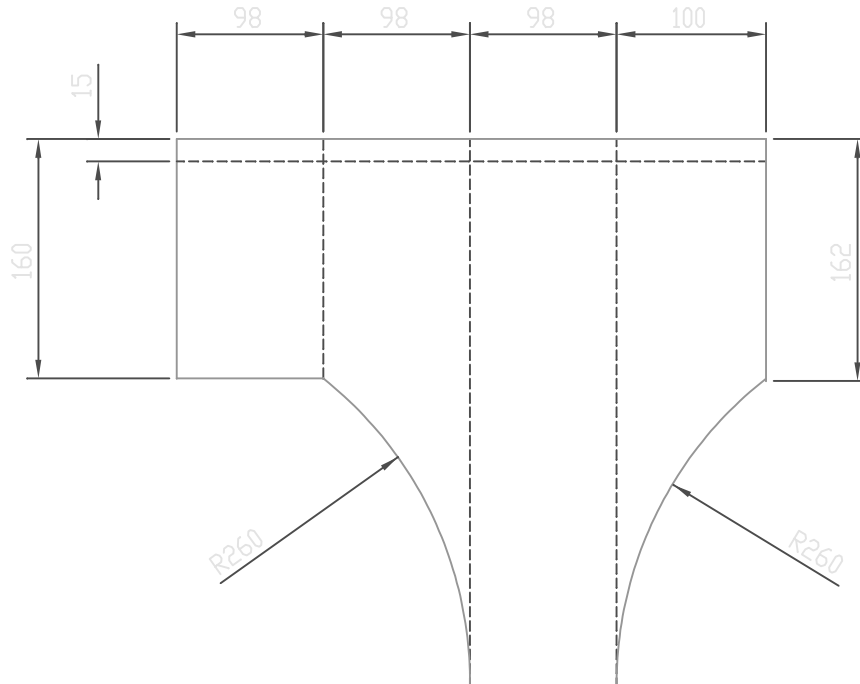


FORMED VIEW

D6 OUTLET PIPE FOR FAN HOUSING

MAT'L: 1.5mm M/S PLATE

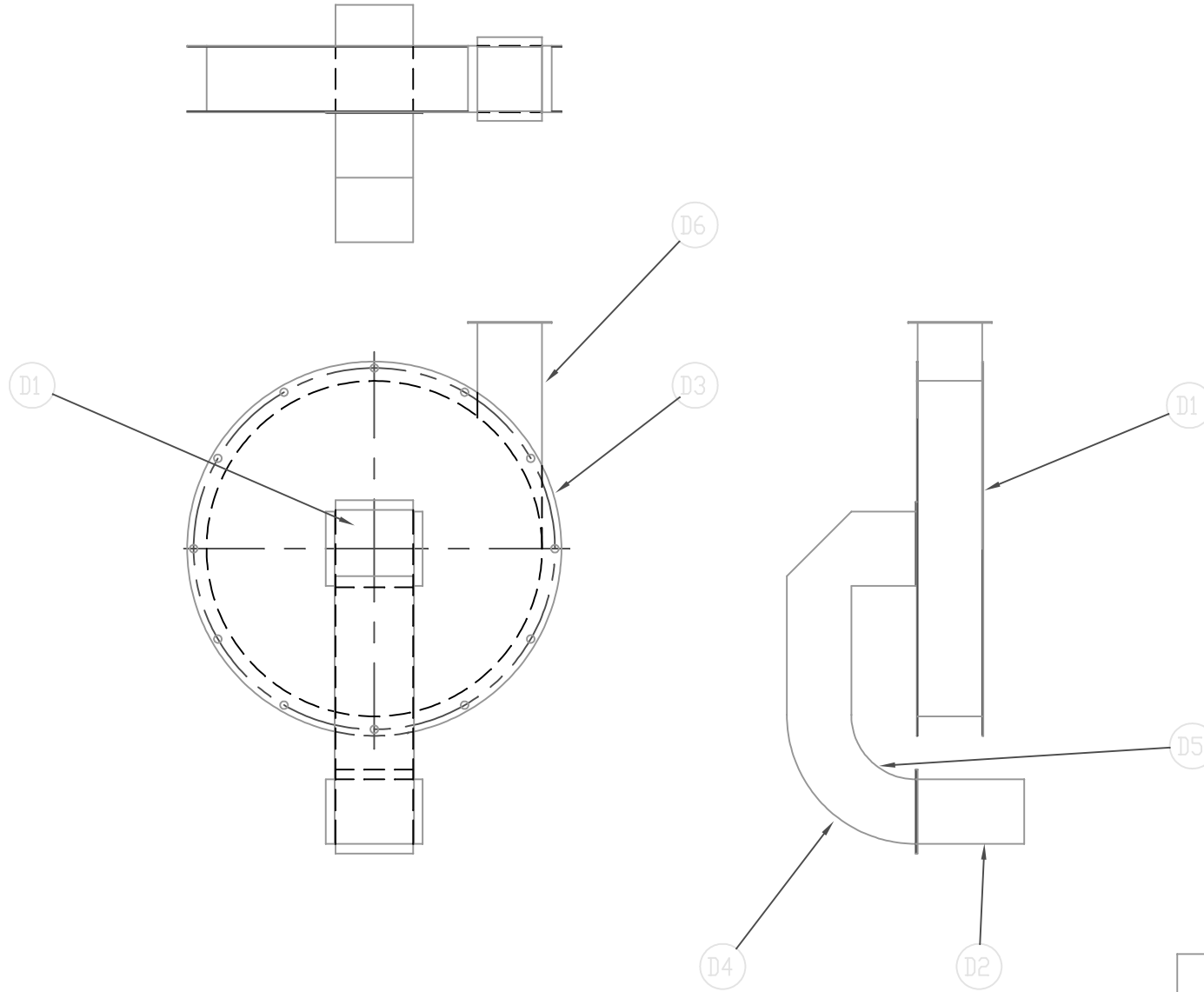
1 OFF



FORMED VIEW

ApT HAMMER MILL	
TITLE: INNSER COVER FOR BEND AND OUTLET PIPE	
SCALE: 1:5	
DRAWN: ABATEC	PAGE: 16 of 21
CAD No: AP-18-16	

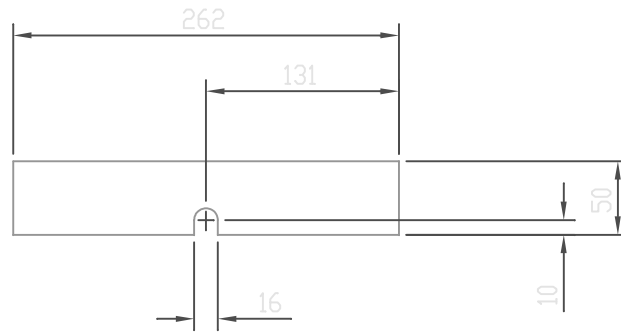
D FAN HOUSING ASSEMBLY



ApT HAMMER MILL	
TITLE: FAN HOUSING ASSEMBLY	
SCALE: 1:10	
DRAWN: ABATEC	PAGE: 17 of 21
CAD No: AP-18-17	

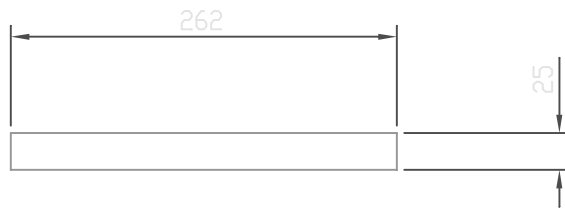
E1 CLOSING HATCH

MAT'L: 6mm M/S PLATE
1 OFF



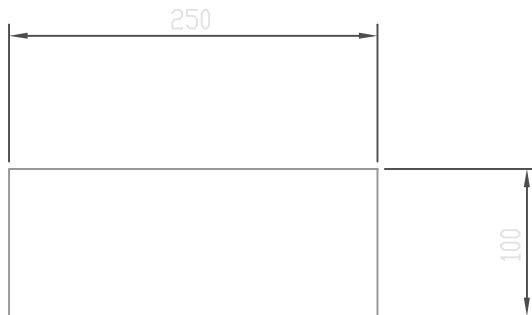
E2 SCREEN STOP

MAT'L: 3mm M/S PLATE
1 OFF



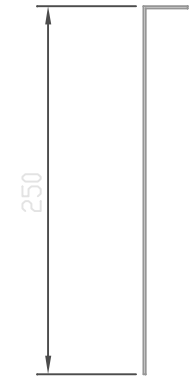
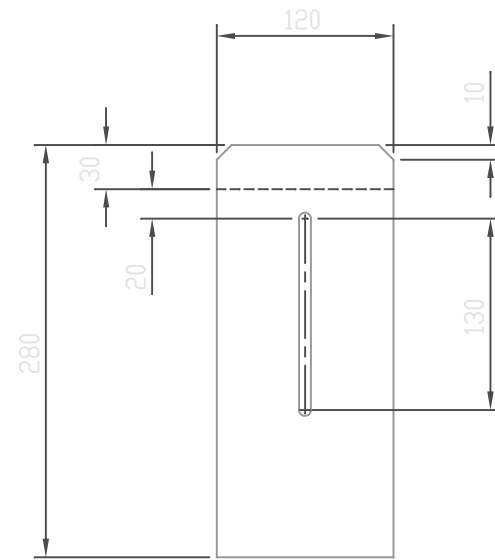
E3 VENT BASE

MAT'L: 6mm M/S PLATE
3 OFF



E4 VENT COVER

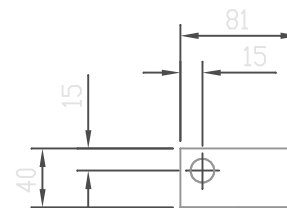
MAT'L: 1.5mm M/S PLATE
1 OFF



FORMED VIEW

E8 HINGE BRACKET

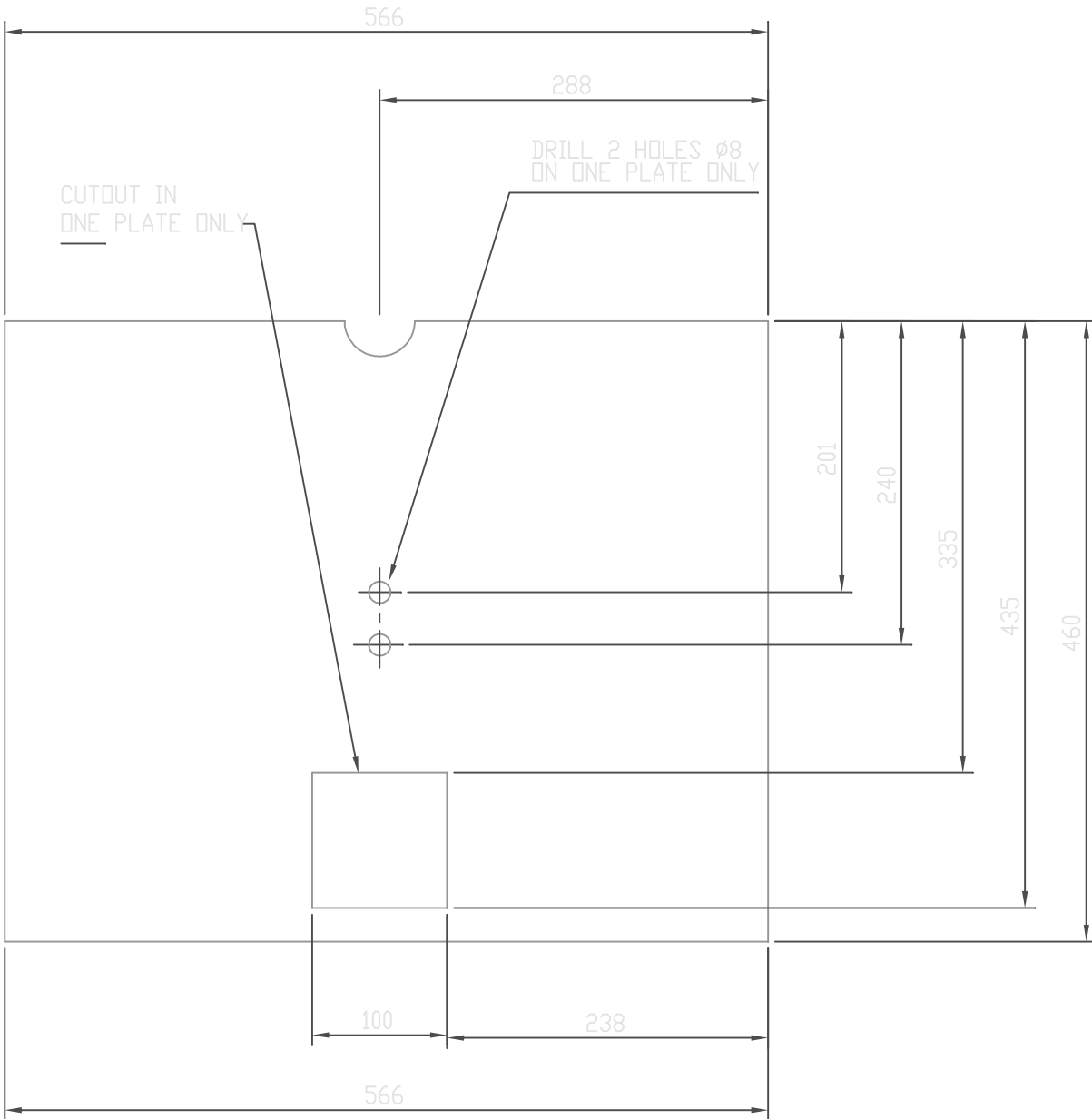
MAT'L: 6mm M/S PLATE
2 OFF



ApT HAMMER MILL	
TITLE: COMPONENTS FOR LOWER ASSEMBLY	
SCALE: 1:5	
DRAWN: ABATEC	PAGE: 18 of 21
CAD No: AP-18-18	

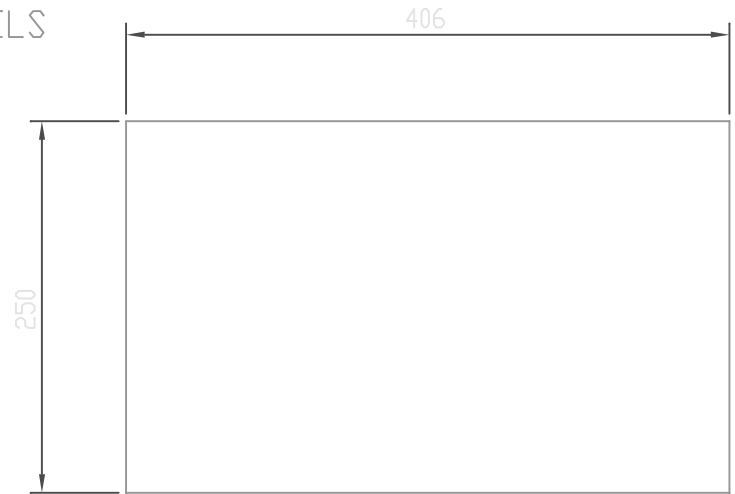
E5 SIDE PANEL

MAT'L: 6mm M/S PLATE
2 OFF (1 WITH CUTOUT, 1 WITH OUT CUTOUT)



E6 UPPER SIDE PANELS

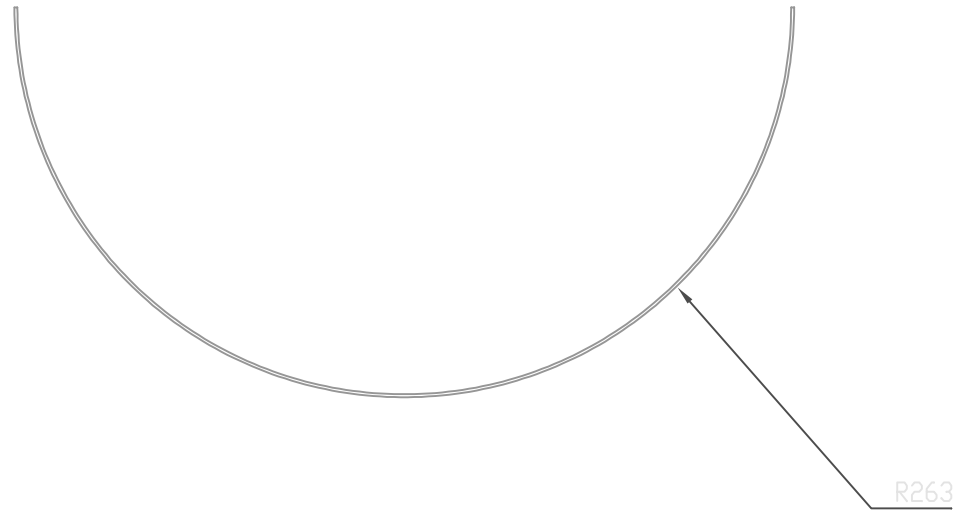
MAT'L: 6mm M/S PLATE



ApT HAMMER MILL	
TITLE: SIDE PANELS	
SCALE: 1:5	
DRAWN: ABATEC	PAGE: 19 of 21
CAD No: AP-18-19	

E7 LOWER SCREEN SUPPORT

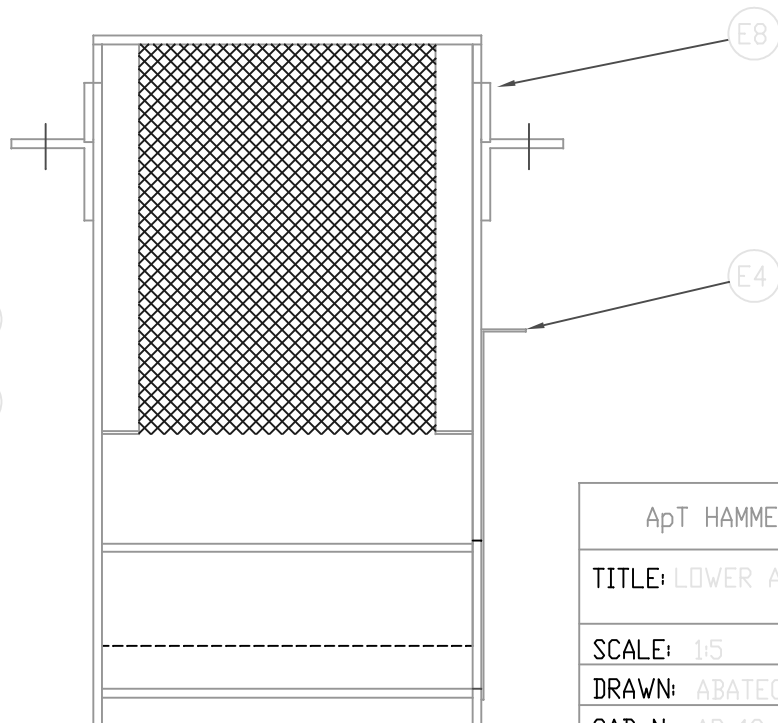
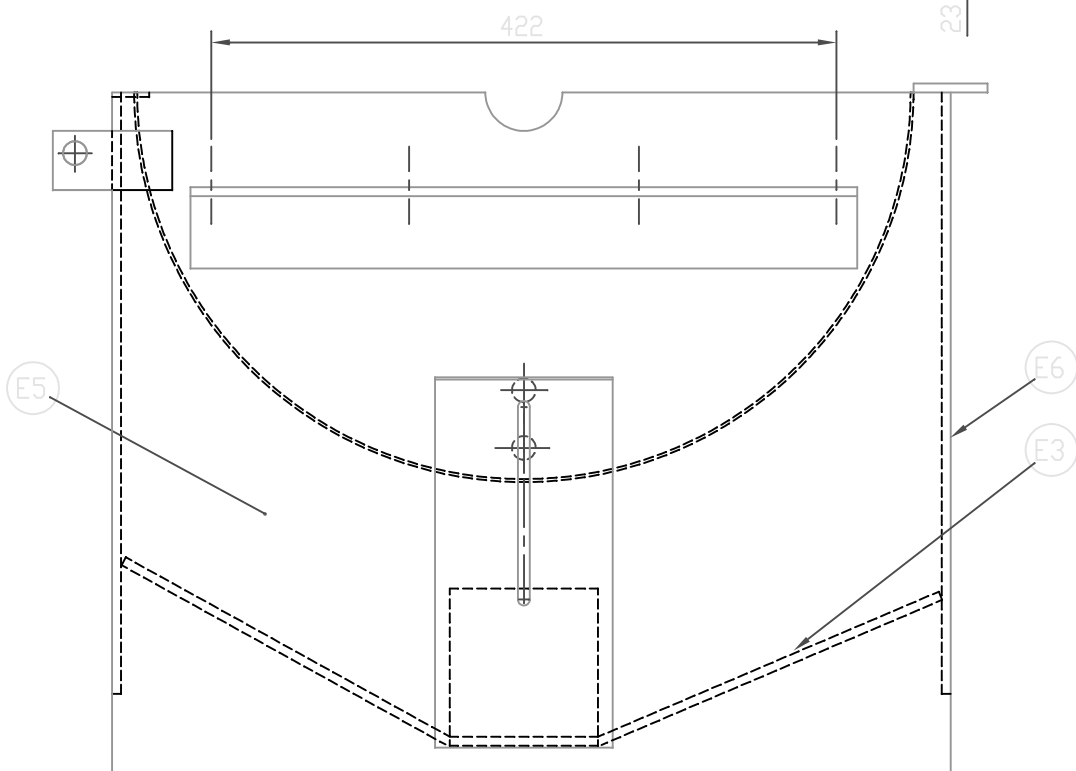
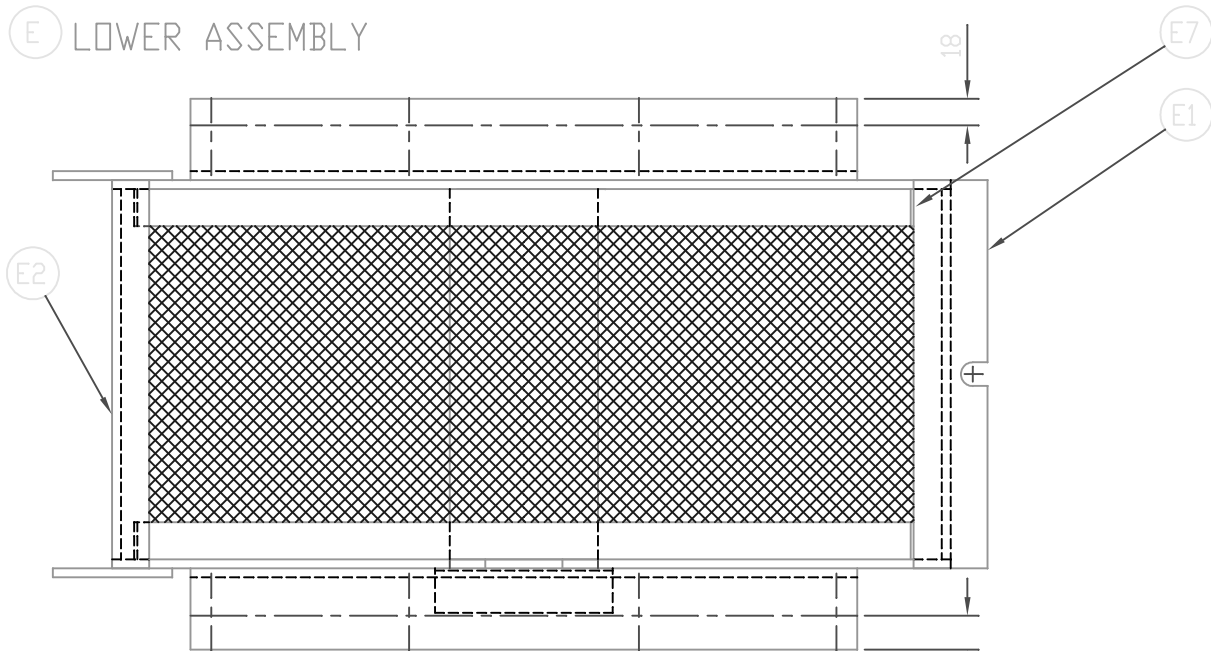
MAT'L: 25 x 3 FLAT BAR
2 OFF



CUT TO LENGTH 445mm LONG

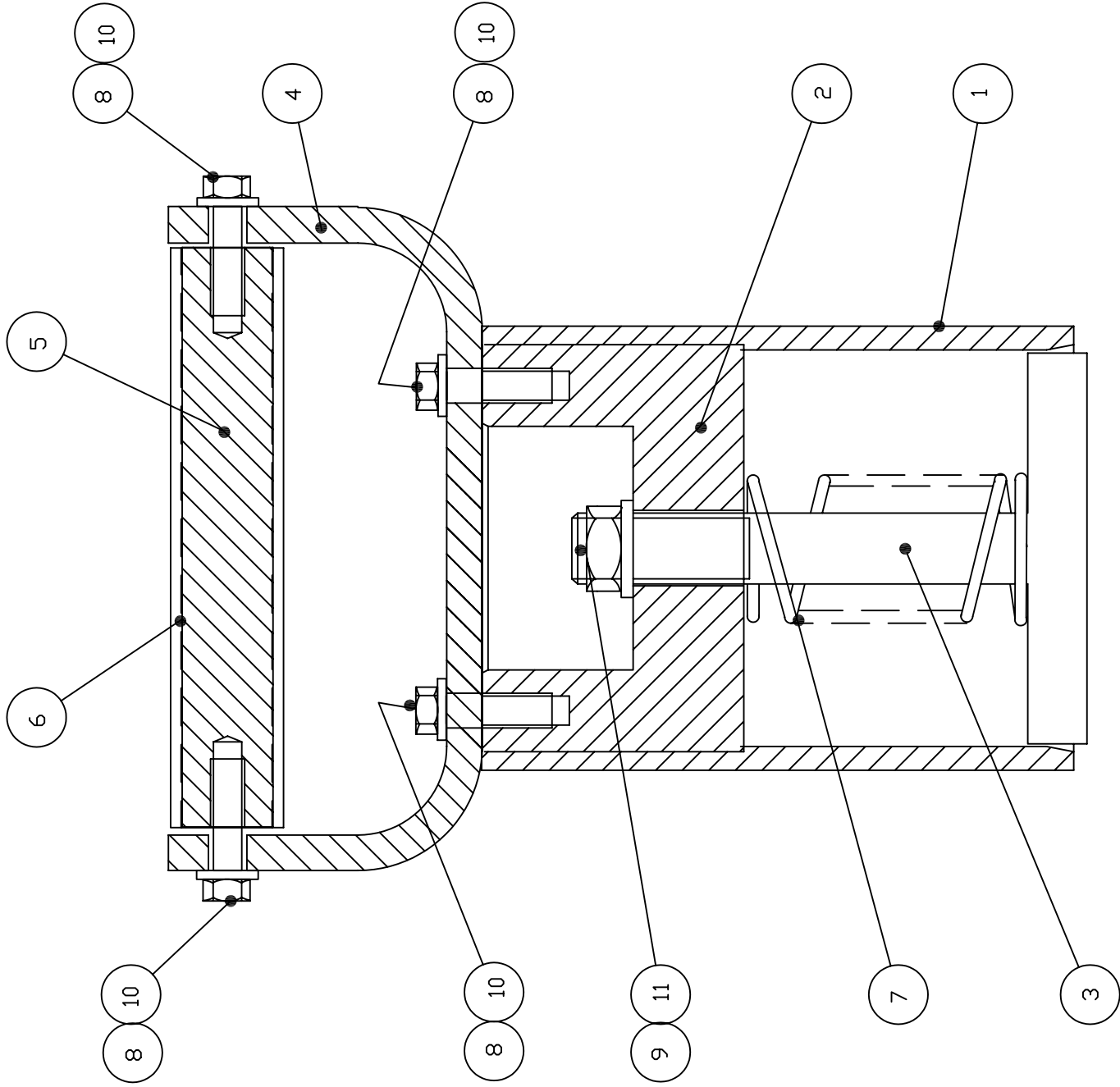
ApT HAMMER MILL	
TITLE: LOWER SCREEN SUPPORT	
SCALE: 1:5	
DRAWN: ABATEC	PAGE: 20 of 21
CAD No: AP-18-20	

E LOWER ASSEMBLY



ApT HAMMER MILL	
TITLE: LOWER ASSEMBLY	
SCALE: 1:5	
DRAWN: ABATEC	PAGE: 21 of 21
CAD No: AP-18-21	

DO NOT SCALE

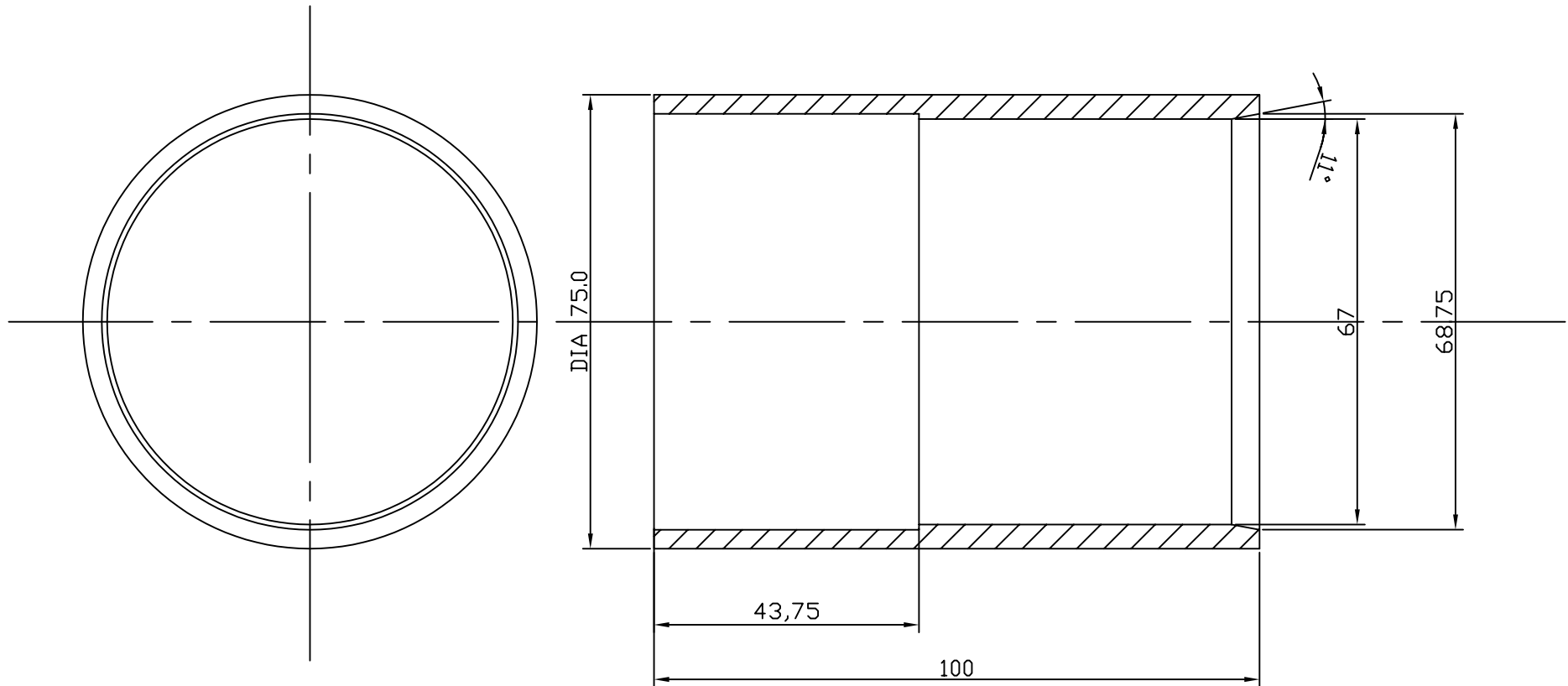


No.	Description	CHK	AP'D	DATE
JJS001	Sectional Elevation	-	-	-
REVISIONS				

Practical Action www.practicalaction.org info@practicalaction.org.uk	TITLE	JAM JAR SEALER	DRAWN	TRACE	CHK	NOT TO SCALE
			A/R	-	-	
DRAWING No. JJS-001						

ITEM	DESCRIPTION	PART NUMBER	QUANTITY	COMMENTS	CHECKED
1	CYLINDER	JJS101	1	Use PVC tube if available	
2	INSERT- FOR CYLINDER	JJS102	1	Press fit into cylinder JBS101	
3	PLUNGER	JJS103	1		
4	HANDLE FRAME	JJS104	1		
5	HANDLE	JJS105	1		
6	COVER - FOR HANDLE	JJS106	1	Sliding fit onto handle JJS105	
7	SPRING - FOR PLUNGER	JJS107	1	Use ready made if available	
8	HEX BOLT	1/4 BSW x 5/8 LONG	4	For JJS102 & JJS105	
9	HEX NUT	1/2 BSW x 3/4 THICK	1	For JJS103	
10	WASHER	1/4 DIA	4	For 1/4 BSW Hex Bolt	
11	WASHER	1/2 DIA	1	For 1/2 BSW Hex Bolt	

DO NOT SCALE



TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

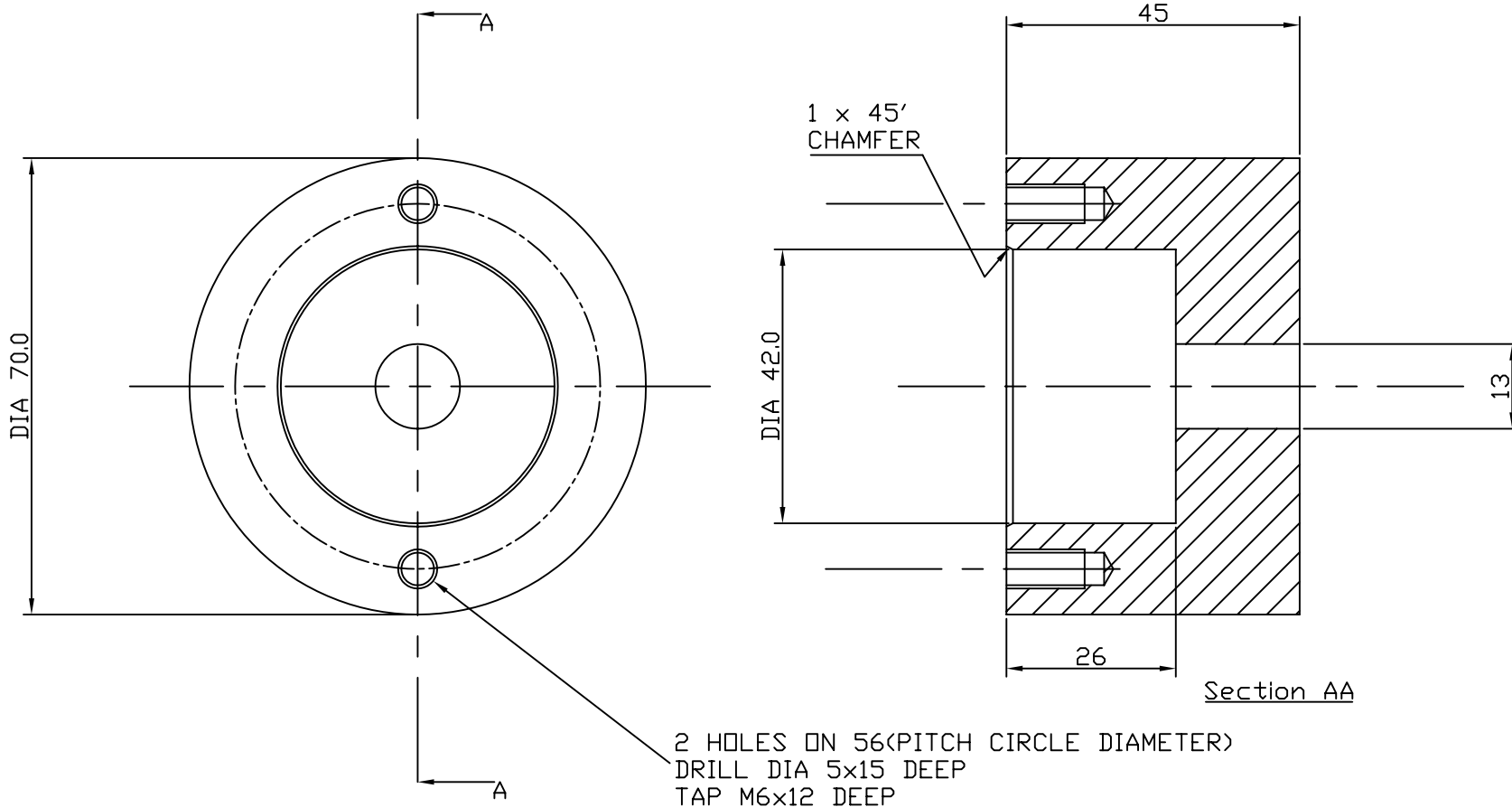
① CYLINDER - MILD STEEL - 1 OFF

No.	Description	CHK	AP'D	DATE
REVISIONS				

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TITLE	JAM JAR SEALER	DRAWN	A.R	TRACE	-	CHK	-		NOT TO SCALE
DIMENSIONS IN MM		DRAWING No. JJS - 101							

DO NOT SCALE



2 HOLES ON 56 (PITCH CIRCLE DIAMETER)
 DRILL DIA 5x15 DEEP
 TAP M6x12 DEEP

Section AA

(2) INSERT FOR CYLINDER - MILD STEEL -
 1 OFF

TOLERANCES
 UNLESS OTHERWISE
 STATED +/- 0.25

No.	Description	CHK	AP'D	DATE

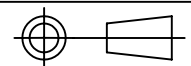
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TITLE JAM JAR
 SEALER

DRAWN
 A.R.

TRACE
 -

CHK
 -

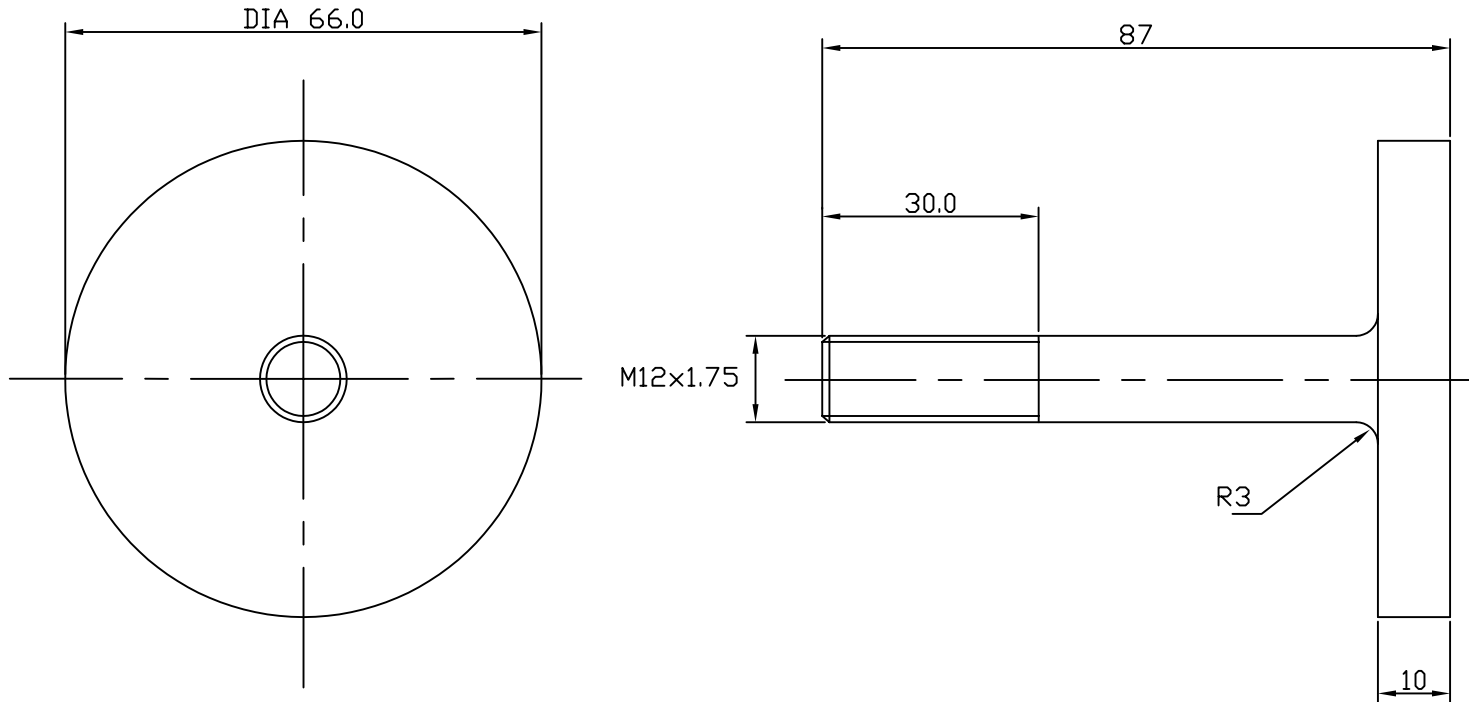


NOT TO
 SCALE

DIMENSIONS IN MM

DRAWING No. JJS-102

DO NOT SCALE



03 PLUNGER - MILD STEEL - 1 OFF

TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

No.	Description	CHK	AP'D	DATE
REVISIONS				

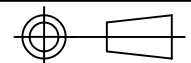
Practical
Action
www.practicalaction.org
infoserv@practicalaction.org.uk

TITLE JAM JAR
SEALER

DRAWN
A.R

TRACE
-

CHK
-

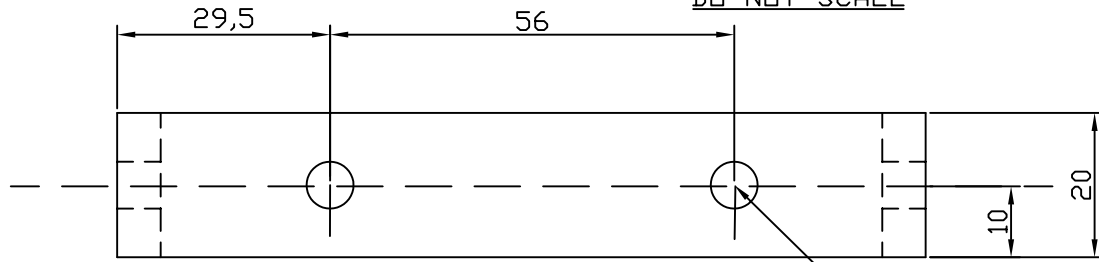


NOT TO
SCALE

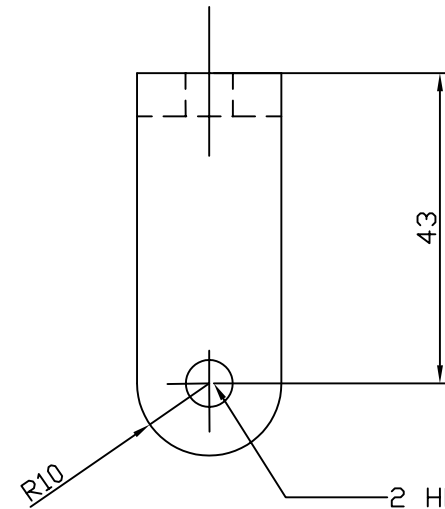
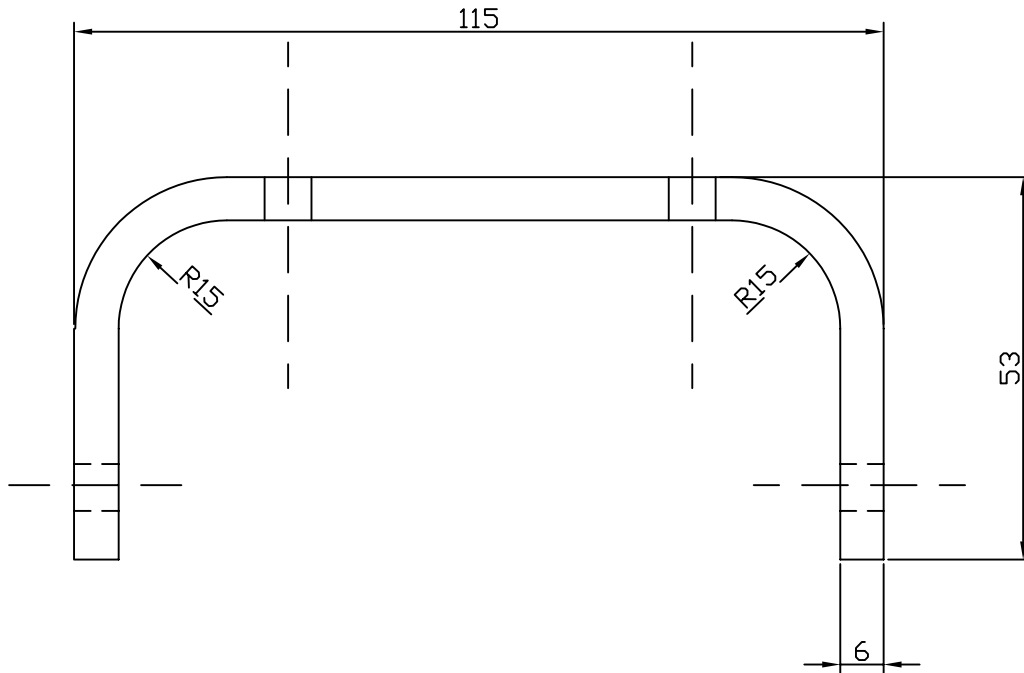
DIMENSIONS IN MM

DRAWING No. JJS-103

DO NOT SCALE



2 HOLES
DRILL DIA 6.5 THRO



2 HOLES
DRILL DIA 6.5 THRO

04 HANDLE FRAME - MILD STEEL - 1 OFF

TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

No.	Description	CHK	AP'D	DATE

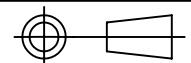
Practical
Action
www.practicalaction.org
infoserv@practicalaction.org.uk

TITLE JAM JAR
SEALER

DRAWN
A.R.

TRACE
-

CHK
-

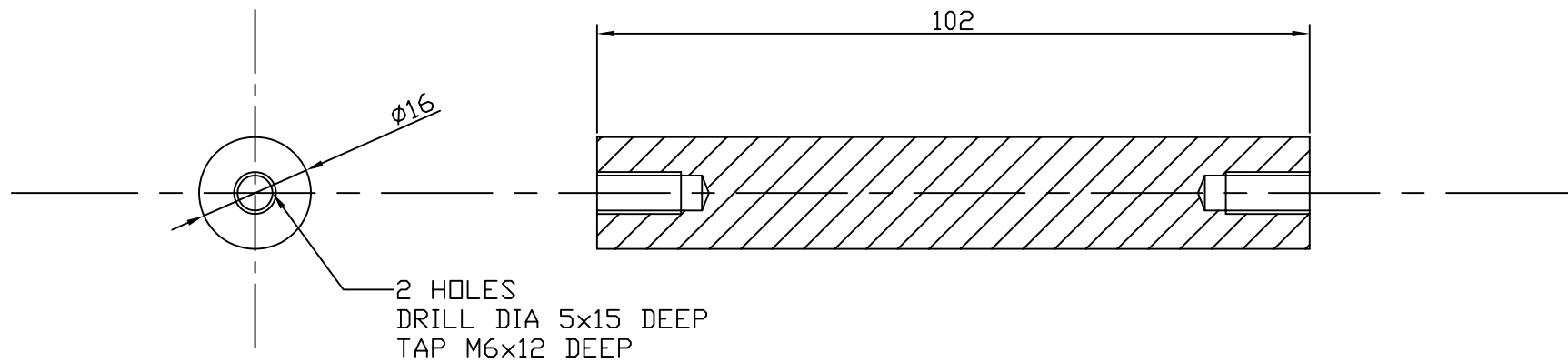


NOT TO
SCALE

DIMENSIONS IN MM

DRAWING No. JJS-104

DO NOT SCALE



05 HANDLE - MILD STEEL - 1 OFF

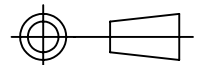
TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

No.	Description	CHK	AP'D	DATE

Practical
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TITLE JAM JAR
SEALER

DRAWN A.R
TRACE -
CHK -

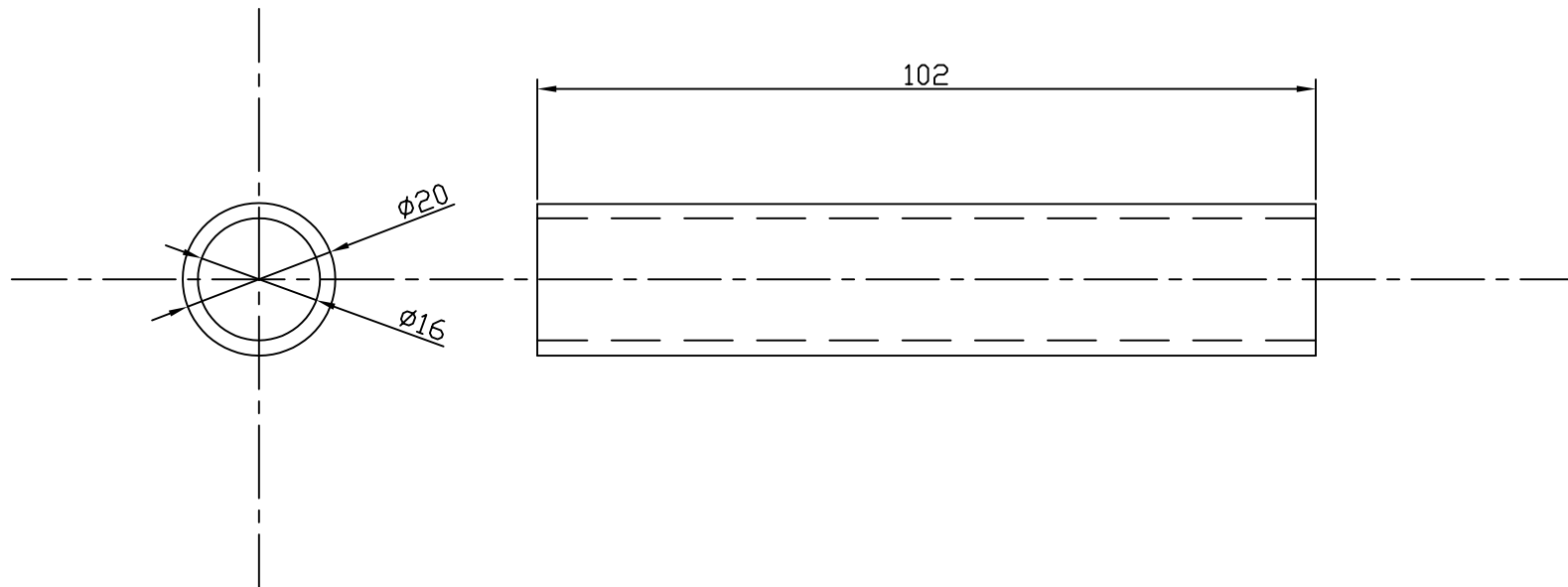


NOT TO
SCALE

DIMENSIONS IN MM

DRAWING No. JJS-105

DO NOT SCALE



06 HANDLE COVER - PVC TUBE - 1 OFF

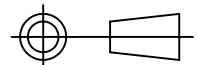
TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

No.	Description	CHK	AP'D	DATE

Practical
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TITLE JAM JAR
SEALER

DRAWN A.R
TRACE -
CHK -

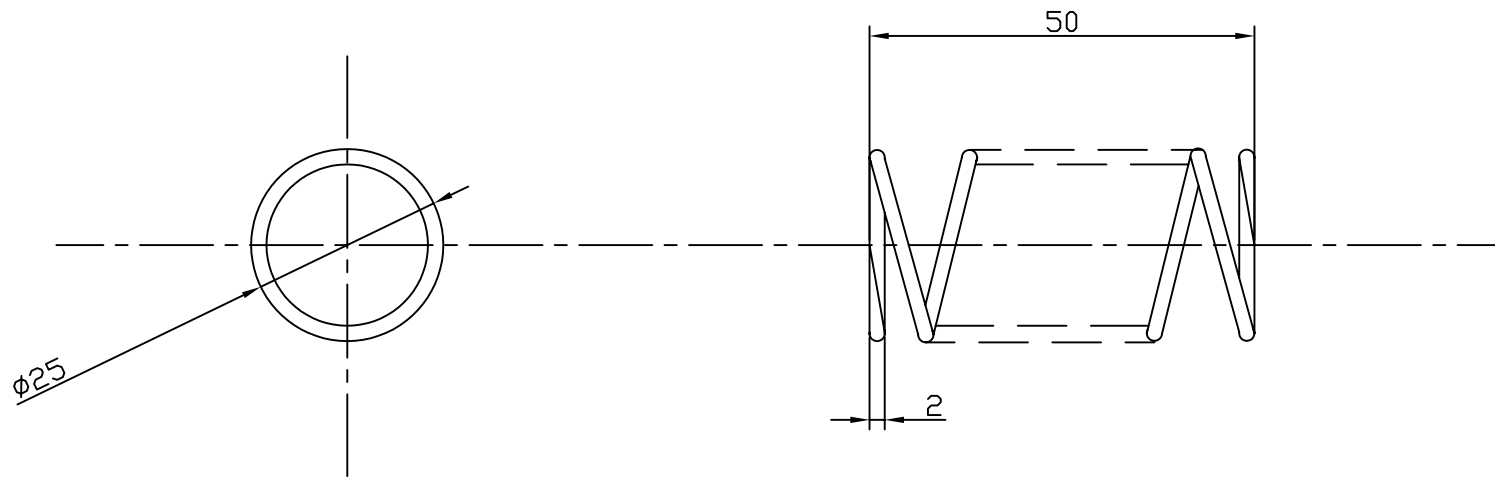


NOT TO
SCALE

DIMENSIONS IN MM

DRAWING No. JJS-106

DO NOT SCALE



NOTES

1. No. active coils - 6
2. Spiral - left or right

(07) SPRING FOR PLUNGER - SPRING STEEL - 1 OFF

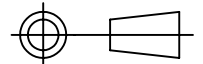
TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

No.	Description	CHK	AP'D	DATE

Practical
Action
www.practicalaction.org
infoserv@practicalaction.org.uk

TITLE JAM JAR
SEALER

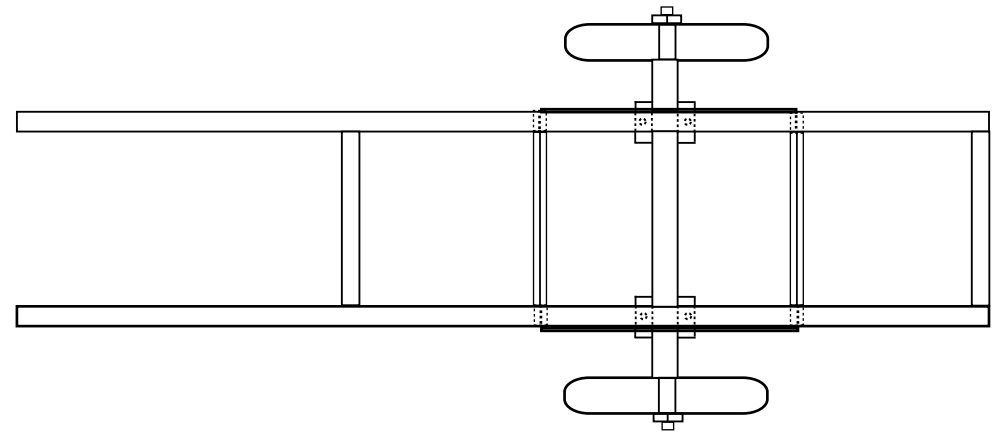
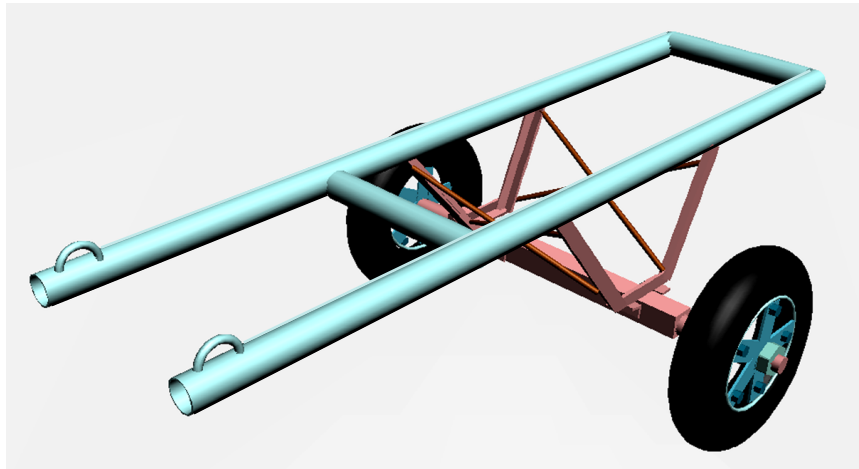
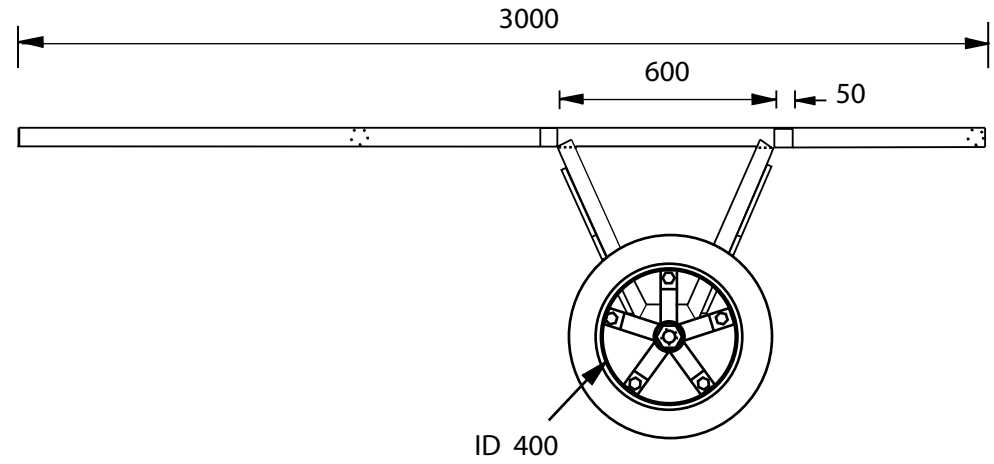
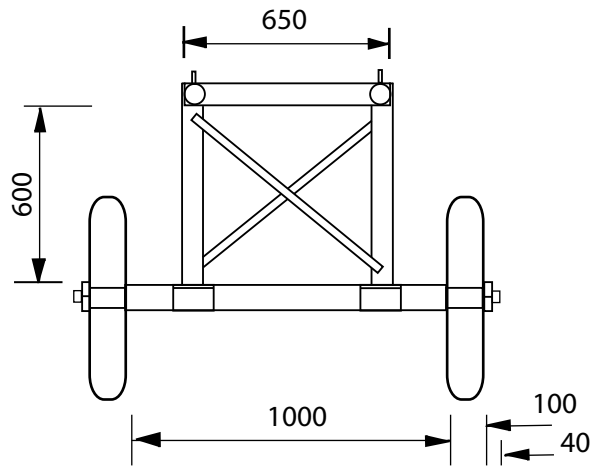
DRAWN A.R
TRACE -
CHK -




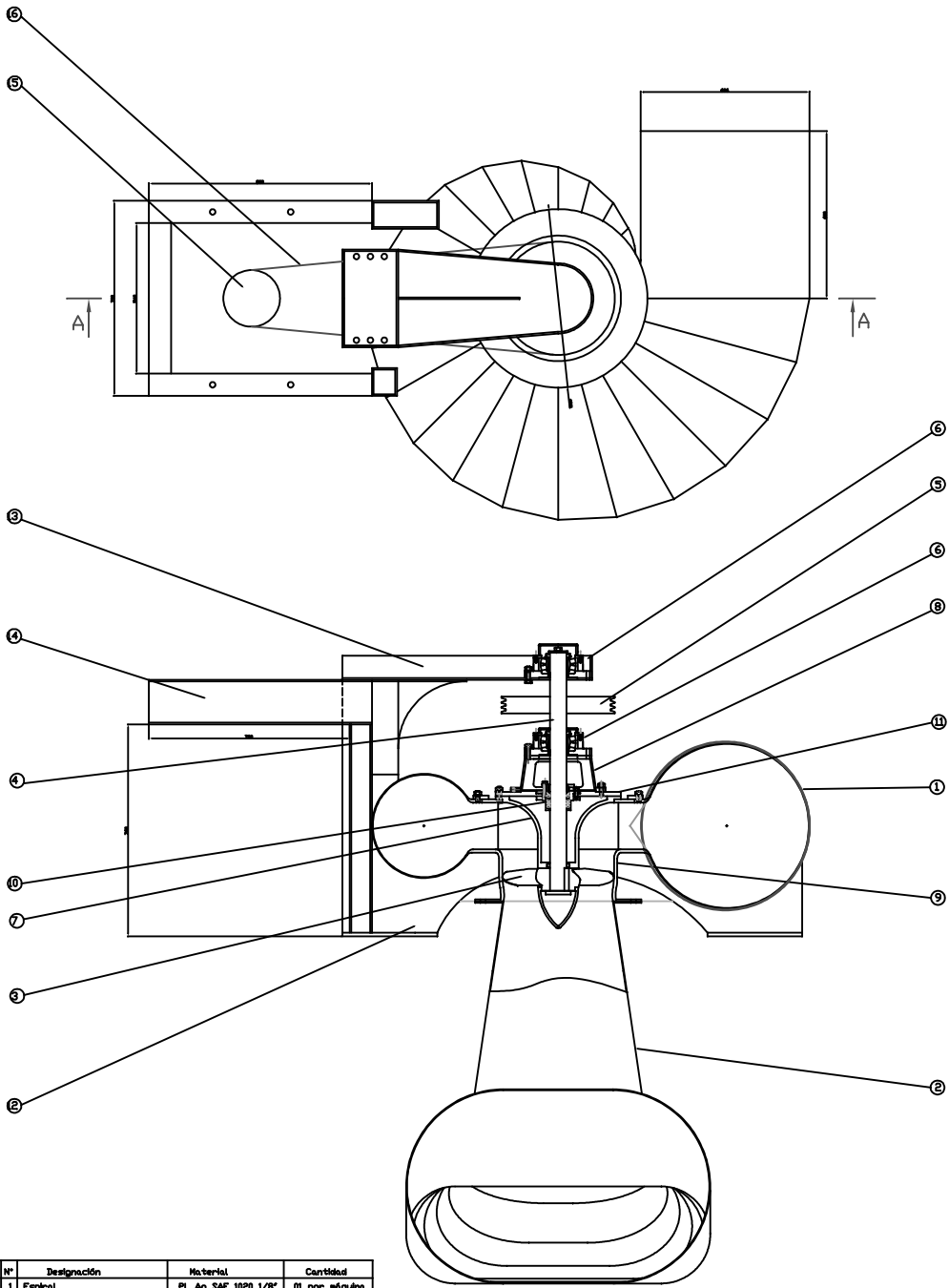
NOT TO
SCALE

DIMENSIONS IN MM

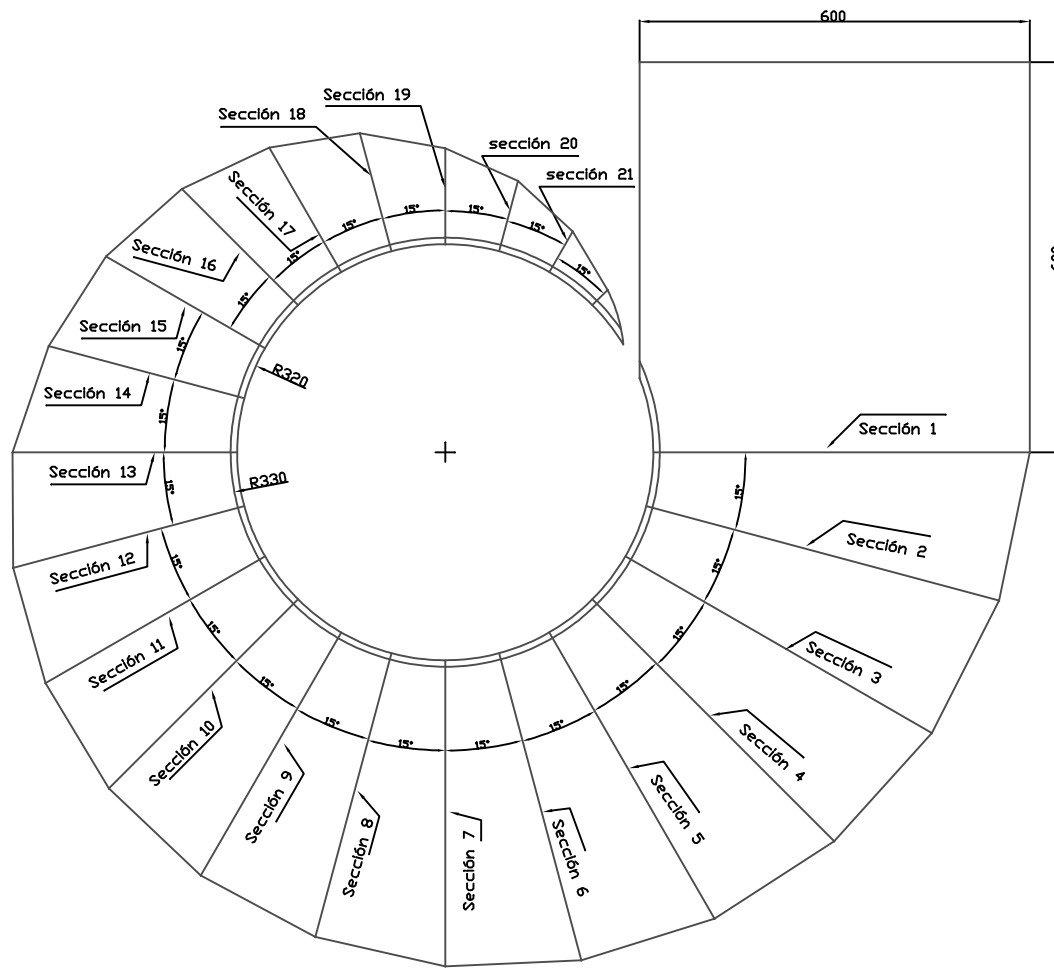
DRAWING No. JJS-107



Drawn by Kamal Khalifa	Date: 10 th Feb 2008	All Dimensions in mm	Khartoum Office, Sudan	 PRACTICAL ACTION <small>International Technology Development Group</small>
The Donkey Cart				Drawing No: DC - 02

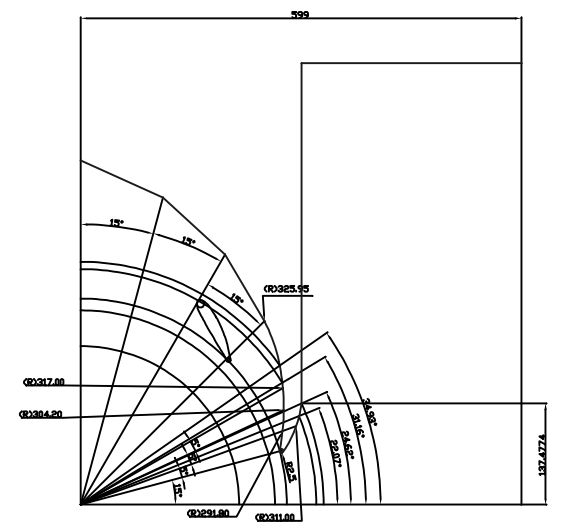
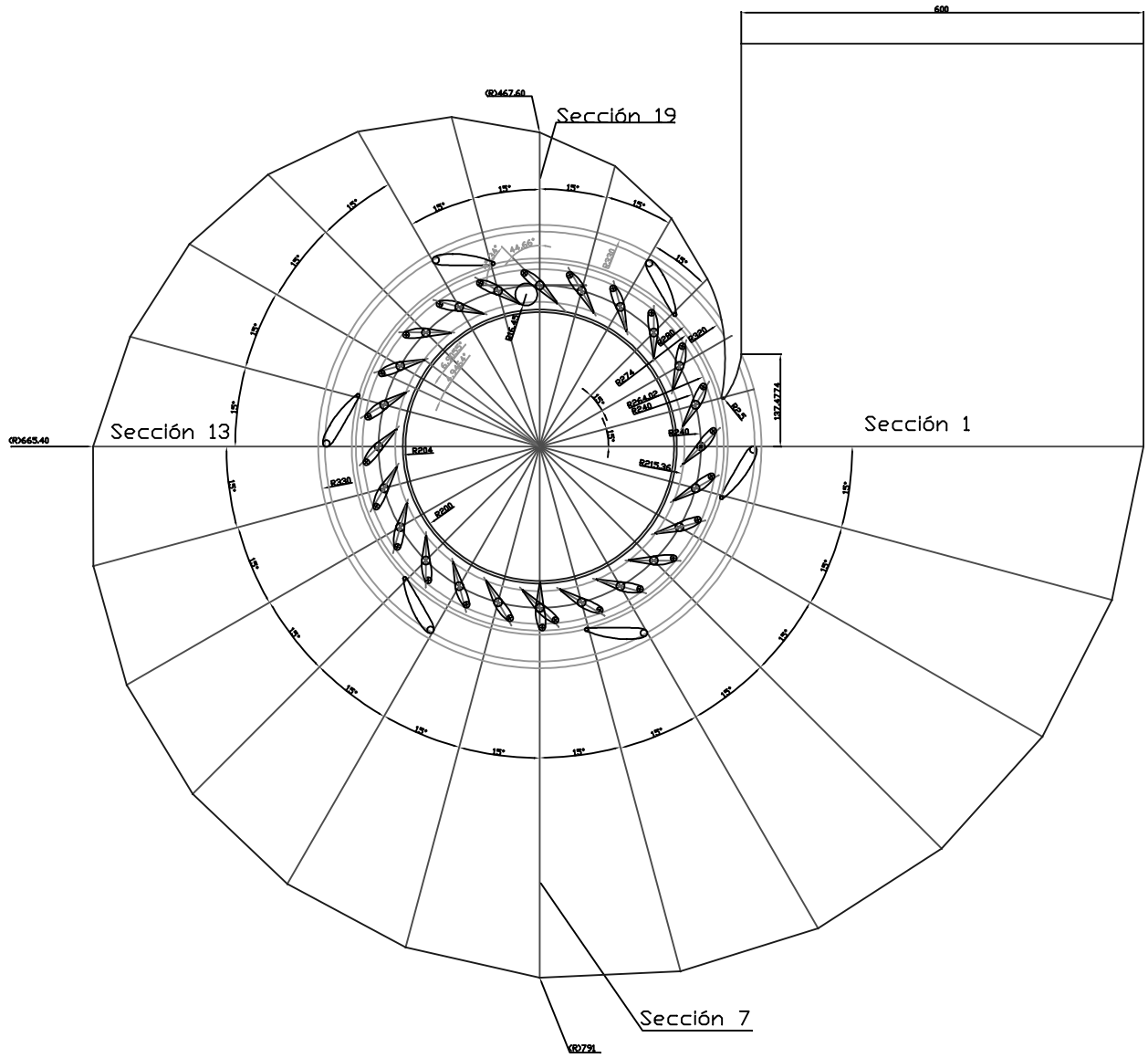


Item	N°	Designación	Materiales	Cantidad
01	1	Espiral	PL. Ac SAE 1020 1/8"	01 por máquina
02	2	Tubo de succión	PL. Ac SAE 1020 1/8"	03 por máquina
03	3	Rodete Hélice	Ac Inox. Fdo	01 por máquina
04	4	Eje	Ac Bonificado 60mm D.	01 por máquina
05	5	Polea motriz	Fe Fdo.	01 por máquina
06	6	Rodamientos de rodillos SKF	02 por máquina	02 por máquina
07	7	Caro de ingreso	Fe Fdo	01 por máquina
08	8	Base de rodamiento inferior	PL. Ac 1/4" soldada	01 por máquina
09	9	Cubierta de rodete (cono de rotación)	Fe Fdo.	01 por máquina
10	10	Prensuestopa	bronce	01 por máquina
11	11	Soporte de prensuestopa	Disco de Ac de 3/4"	01 por máquina



rojo = 06
 lila = 04
 nego = 02

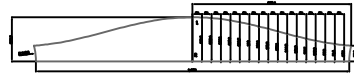
PROGRAMA DE ENERGIA - ITDG		
Diseño conceptual y asesoría ING. FEDDORO SANCHEZ	Proyecto: TURBINA TIPO HELICE	Escala: 1 : 5
Diseño hidráulico DR. VIC LI	Nombre: ESPIRAL	Plano N°: 01
Diseño mecánico ING. CELSO DAVILA		Fecha: Agosto 2000



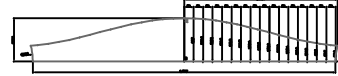
PROGRAMA DE ENERGIA - ITDG			
Diseño conceptual y asesoría: ING. TEDDRO SANCHEZ	Proyecto: TURBINA TIPO HELICE Nombre: DISTRIBUCIÓN DE ALABES EN ESPIRAL	Escala: 1 : 5	Fecha: Agosto 2000
Diseño hidráulico: DR. VIC LI		Piano N°: 01-1	
Diseño mecánico: ING. CELSO DAVILA			



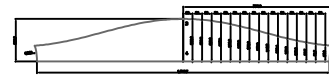
Detalle 1 por arriba



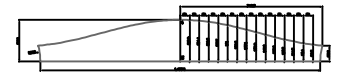
Seccion 1-1



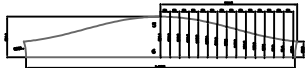
Seccion 2-2



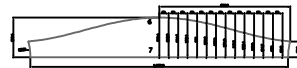
Seccion 3-3



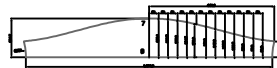
Seccion 4-4



Seccion 5-5



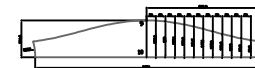
Seccion 6-6



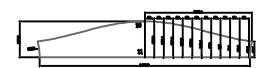
Seccion 7-7



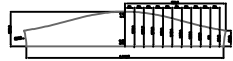
Seccion 8-8



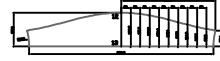
Seccion 9-9



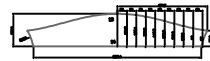
Seccion 10-10



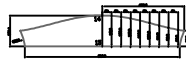
Seccion 11-11



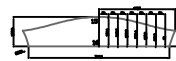
Seccion 12-12



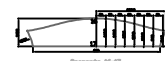
Seccion 13-13



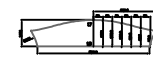
Seccion 14-14



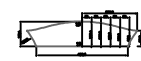
Seccion 15-15



Seccion 16-16



Seccion 17-17



Seccion 18-18



Seccion 19-19



Seccion 20-20

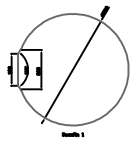


Seccion 21-21

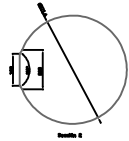


Seccion 22

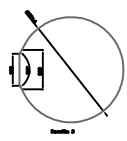
Secciones de espiral galvanizada para corte de planchar
 Cortadas a por espesor
 Las planchales deben ser de espesor 1.6 mm.
 El material en las planchales se debe de utilizar de espesor 1/4"



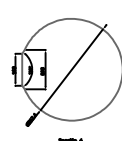
Detalle 1



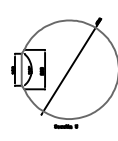
Detalle 2



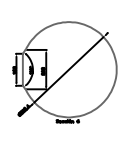
Detalle 3



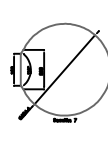
Detalle 4



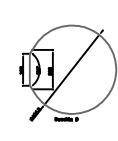
Detalle 5



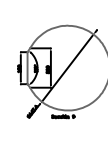
Detalle 6



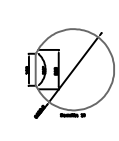
Detalle 7



Detalle 8



Detalle 9



Detalle 10



Detalle 11



Detalle 12



Detalle 13



Detalle 14



Detalle 15



Detalle 16



Detalle 17



Detalle 18



Detalle 19



Detalle 20



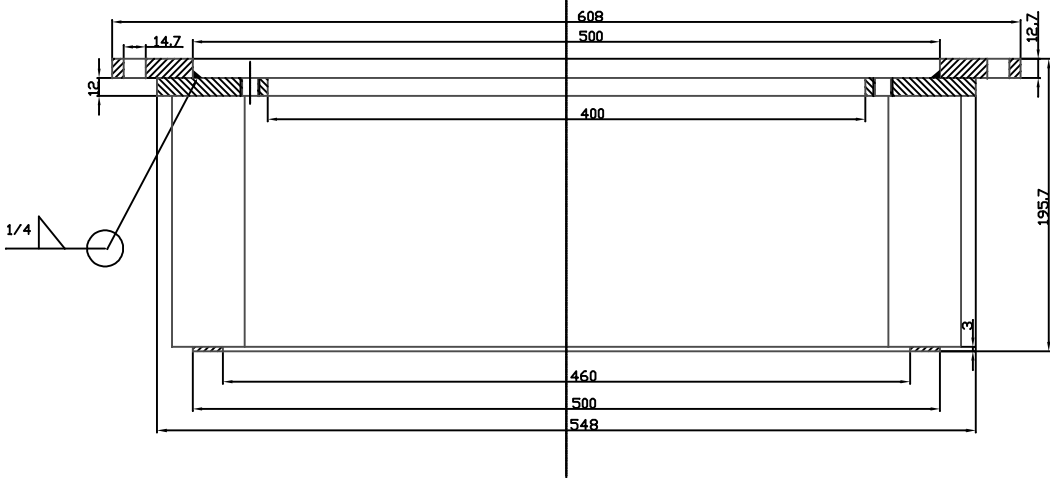
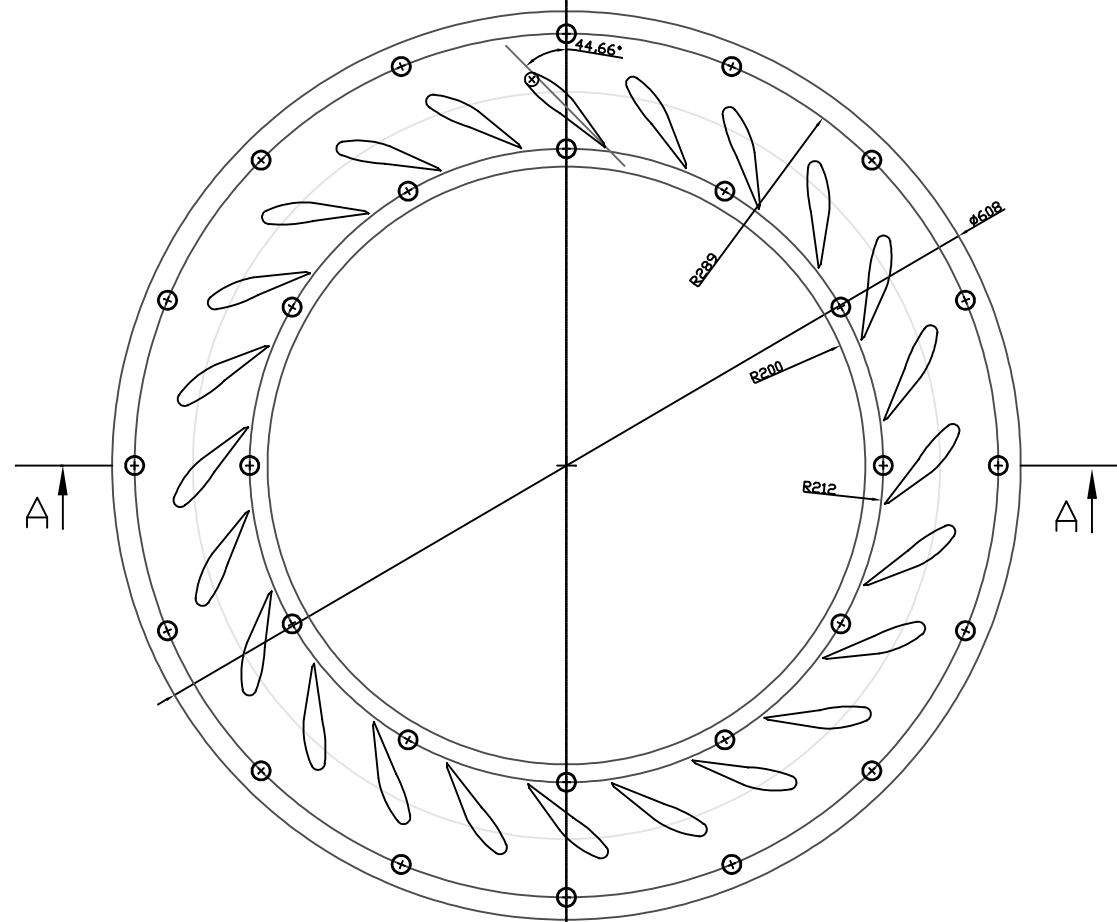
Detalle 21

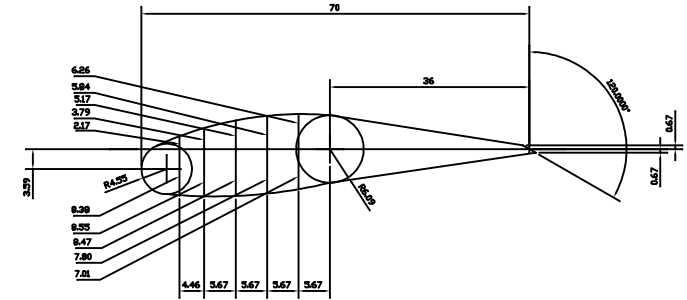
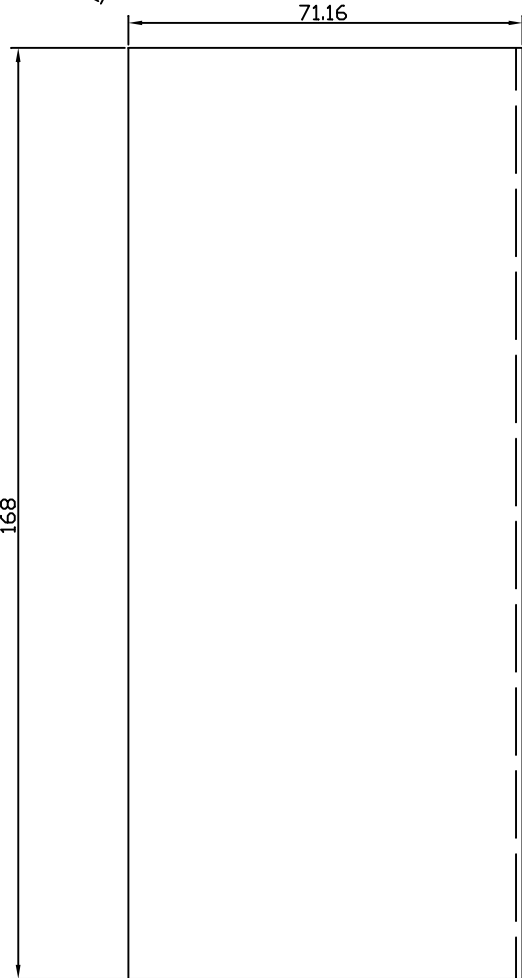
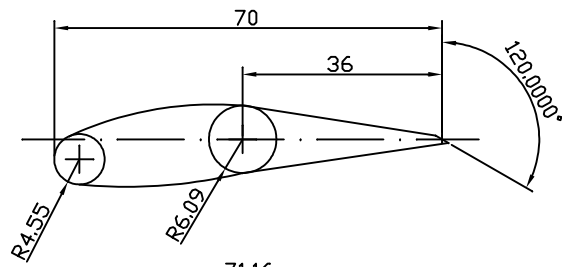


Detalle 22

Secciones de espiral galvanizada para planchar

PROGRAMA DE ENERGIA - ITDG		
Estado: GUATEMALA	Proyecto: Parque Solar	Escala: 1:10
Blanco: VII	Plan: 01	
Blanco: VII	Nombre: Secciones y Secciones de Espiral	
Blanco: VII	Fecha: Agosto 2008	



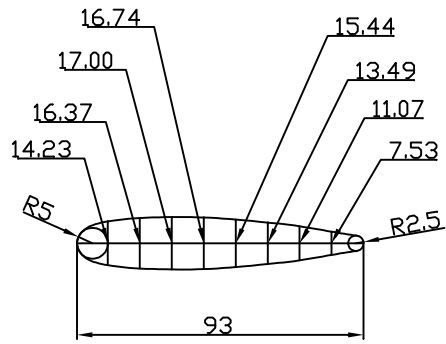
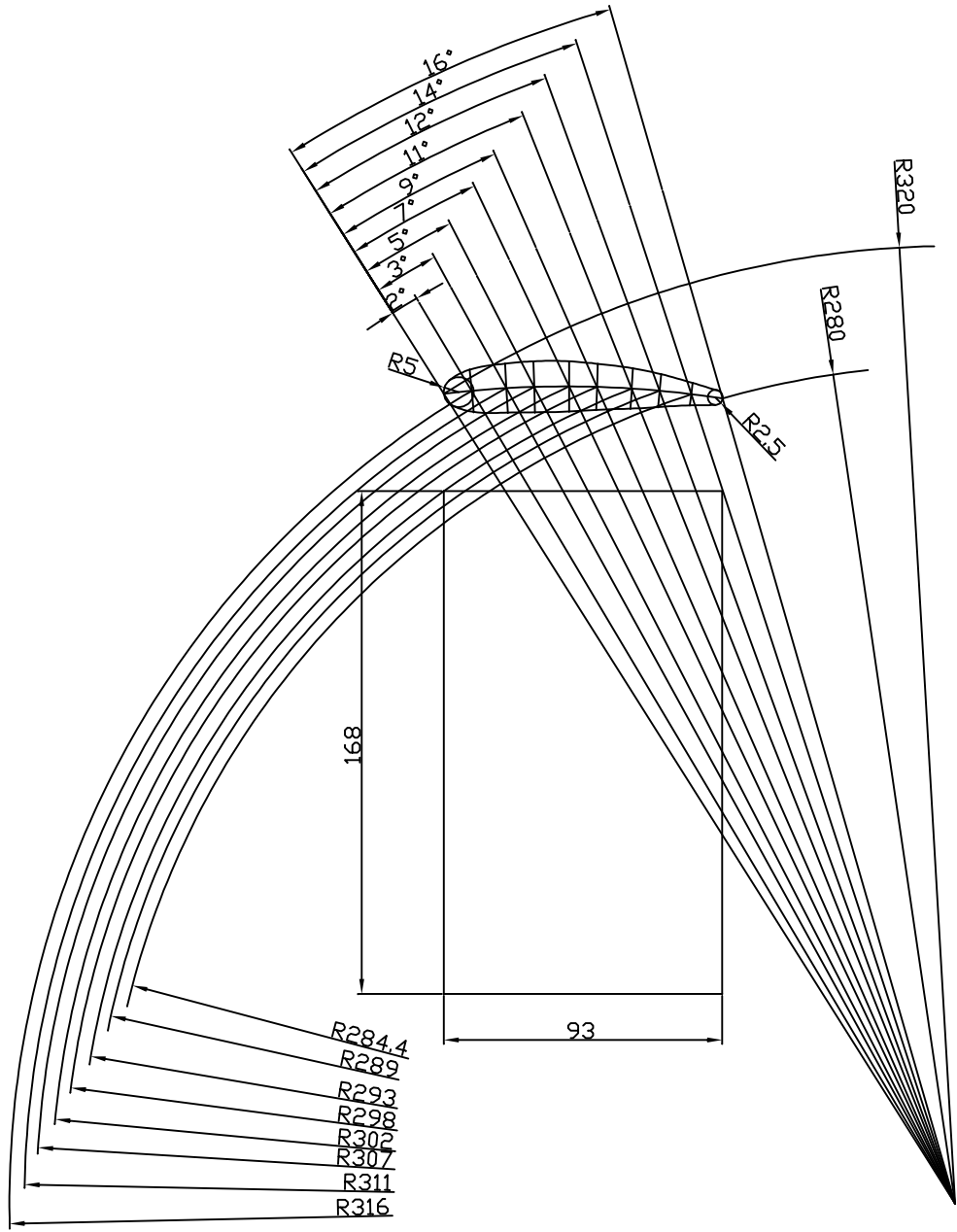


PROGRAMA DE ENERGIA - ITDG		
Diseño conceptual y asesoría: ING. TEODORO SANCHEZ	Proyecto: TURBINA TIPO HELICE	Escala: 2 : 1
Diseño hidráulico: DR. VIC LI	Nombre: SECCION ALABE GUIA	Plano N°: 01-5
Diseño mecánico: ING. CELSO DAVILA		Fecha: Agosto 2000

01-5 Esc. 2:1 A4

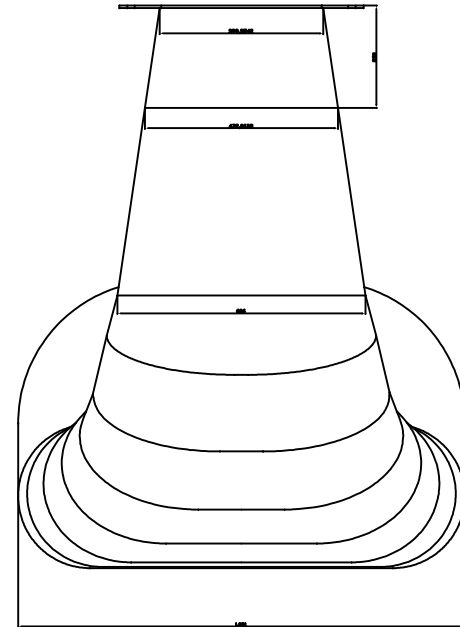
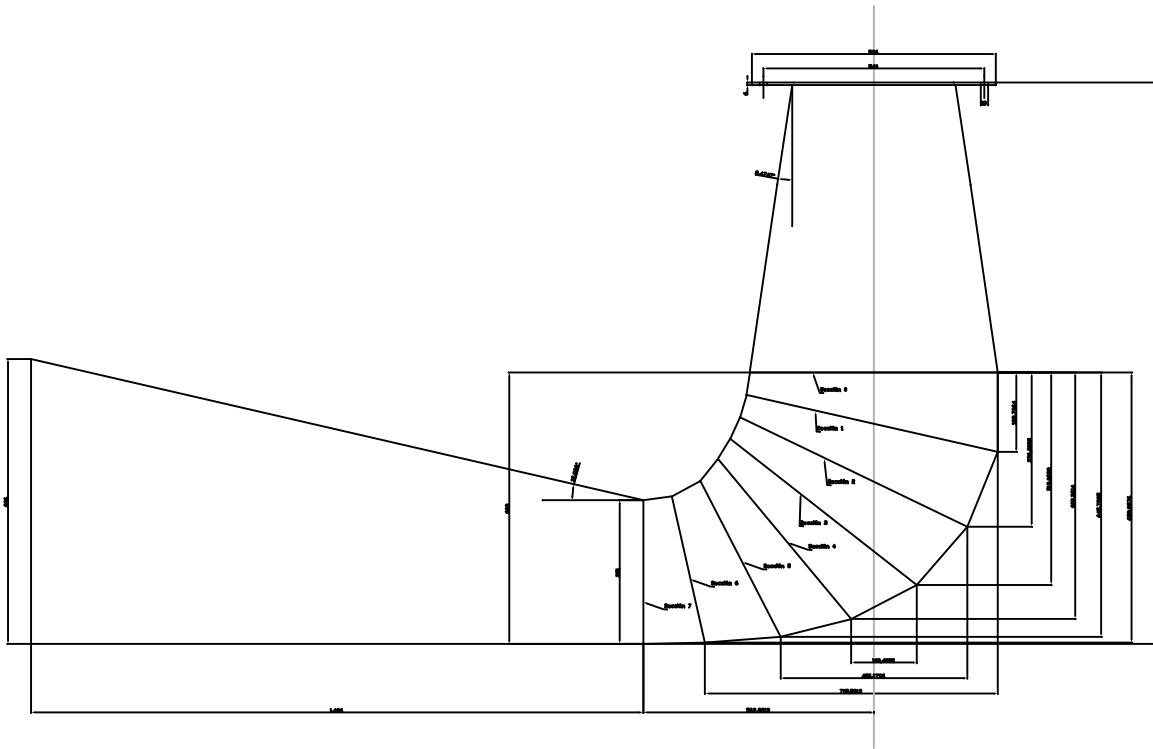
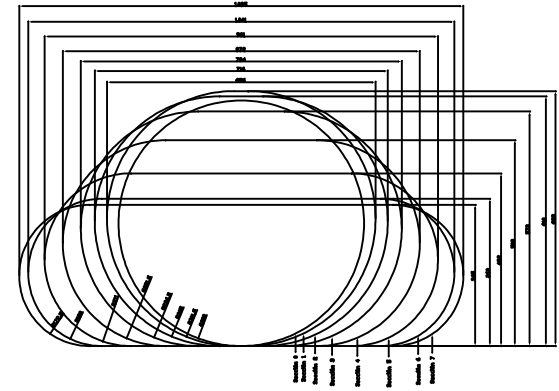
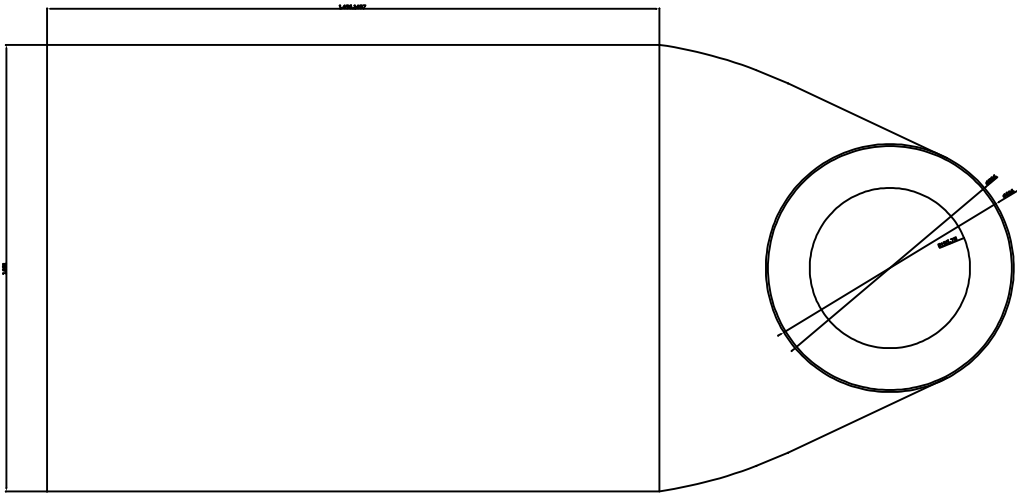
PROGRAMA DE ENERGIA - ITDG

Diseño conceptual y asesoría: ING. TEODORO SANCHEZ	Proyecto: TURBINA TIPO HELICE Nombre: ALABE GUIA	Escala: 1 : 1
Diseño hidráulico: DR. VIC LI		Plano N°: 01-4
Diseño mecánico: ING. CELSO DAVILA		Fecha: Agosto 2000

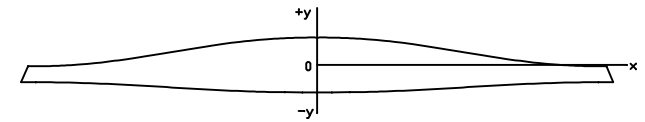
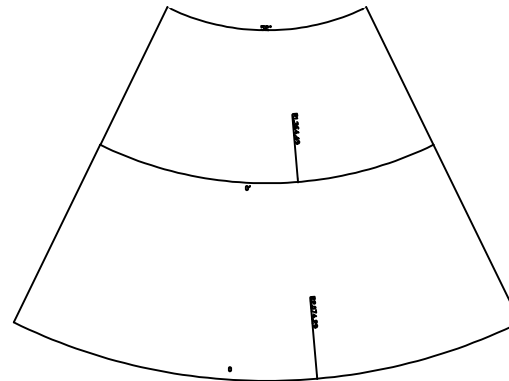
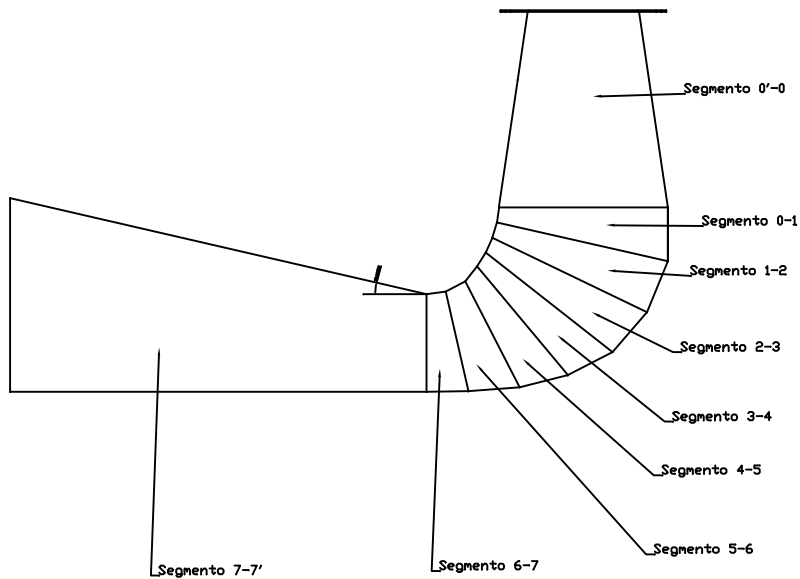


PROGRAMA DE ENERGIA - ITDG

Diseño conceptual y asesoría: ING. FEDDORO SANCHEZ	Escala: 1 : 2.5	
	Plano N°: 01-6	Fecha: Agosto 2000
Diseño hidráulico: DR. VIC LI	Proyecto: TURBINA TIPO HELICE	
Diseño mecánico: ING. CELSO DAVILA	Nombre: ALABE FIJO	

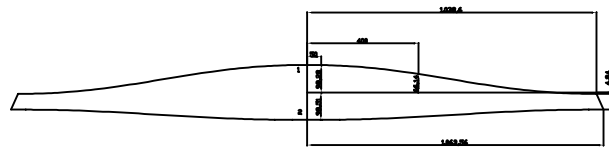


PROGRAMA DE ENERGIA - ITDG			
Diseño conceptual y desarrollo del sistema	Proyector	Escala	1 : 1
Diseño mecánico	TURBINA TIPO HELICE	Folio Nº	02
Diseño eléctrico	Nombre	Folio	000
Diseño de la BIVELA	TUBO DE SUCCION		



El eje y-y es el eje de simetría de los segmentos

Segmento 0'-0
Cantidad 01 pieza



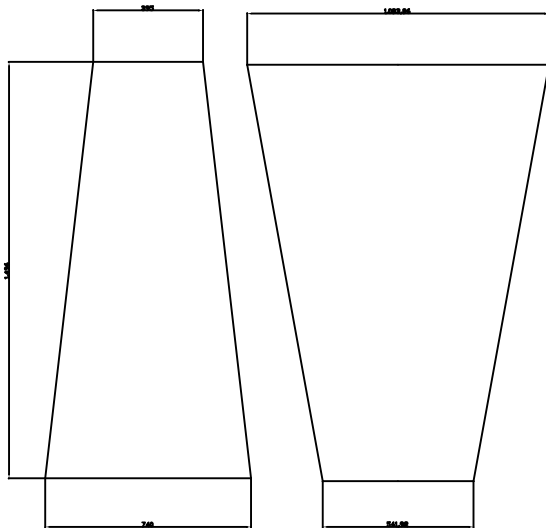
Segmento 1-2
Cantidad 01 pieza

x	y
0	-193.74
50	-193.26
100	-192.43
150	-188.19
200	-183.21
250	-176.96
300	-169.63
350	-159.99
400	-149.98
450	-139.25
500	-128.12
550	-116.86
600	-105.48
650	-93.24
700	-80.47
750	-67.77
800	-54.95
900	-39.00
942.48	-23.39
950	-16.37
1000	-5.58
1038	-1.84
1158	-0.97

Segmento 0-1
Cantidad 01 pieza

x	y
0	98.20
50	98.20
100	96.78
150	94.27
200	90.77
250	85.96
300	80.19
350	73.52
400	66.14
450	58.24
500	50.04
550	41.74
600	33.38
650	25.17
700	18.32
750	12.03
800	6.46
850	1.53
900	-3.56
1000	-8.78
1038	-1.84
1158	-0.97
1163.56	-0.86

Segmento 1-2
Cantidad 01 pieza



Segmento 7-7'
Cantidad 02 piezas

x	y
0	94.22
50	94.25
100	92.63
150	89.98
200	84.33
250	77.25
300	69.43
350	60.05
400	46.38
450	32.75
500	20.51
550	7.94
600	-6.26
650	-18.97
700	-30.78
750	-41.21
800	-50.1
850	-57.22
900	-62.29
950	-65.35
1000	-67.20
1038.88	-67.18
1110.70	-62.87

Segmento 2-3
Cantidad 01 pieza

x	y
0	90.08
50	90.75
100	90.26
150	87.25
200	82.36
250	73.97
300	62.16
350	47.33
400	29.68
450	10.06
500	-11.24
550	-32.36
600	-53.44
650	-74.50
700	-96.41
750	-112.95
800	-126.92
850	-144.64
900	-167.91
950	-190.48
1000	-210.49
1038	-230.02
1044.82	-250.02
1100	-199.95
1153	-199.41

Segmento 3-4
Cantidad 01 pieza

x	y
0	89.44
50	90.21
100	90.25
150	87.25
200	82.36
250	73.97
300	62.16
350	47.33
400	29.68
450	10.06
500	-11.24
550	-32.36
600	-53.44
650	-74.50
700	-96.41
750	-112.95
800	-126.92
850	-144.64
900	-167.91
950	-190.48
1000	-210.49
1038	-230.02
1044.82	-250.02
1100	-199.95
1153	-199.41

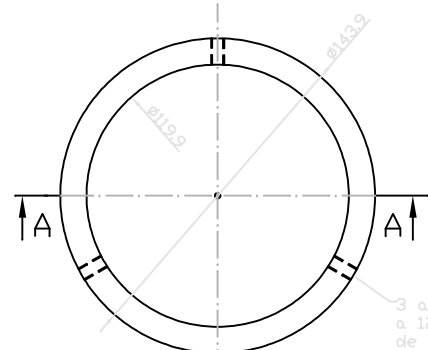
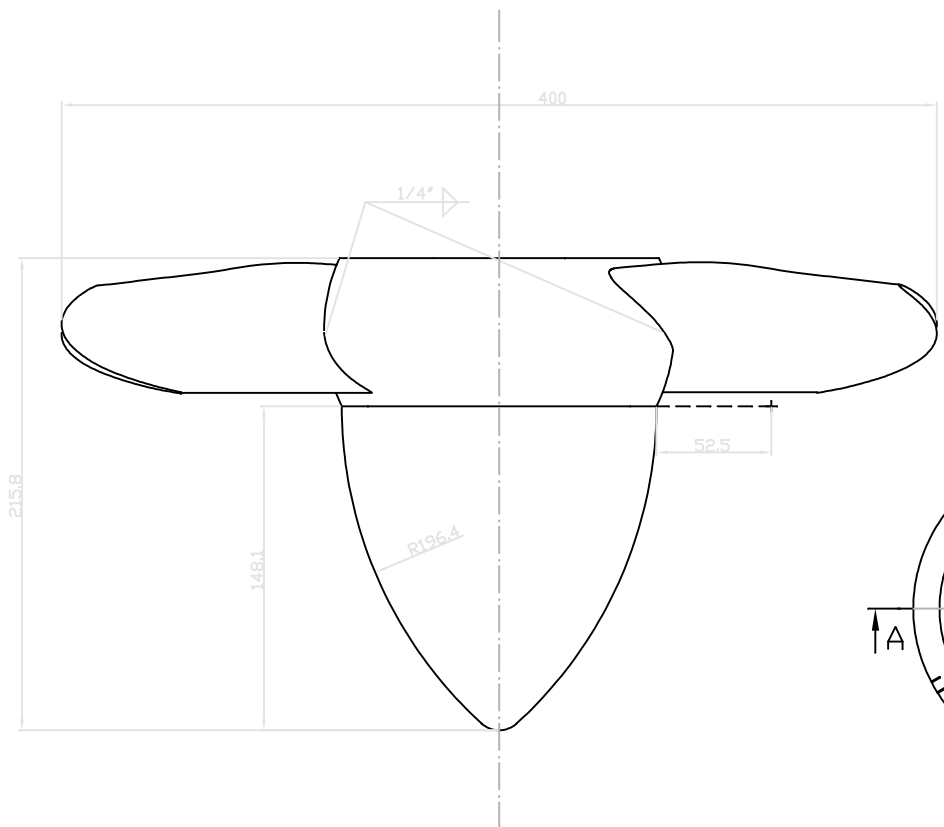
Segmento 4-5
Cantidad 01 pieza

x	y
0	92.43
50	92.62
100	94.95
150	94.98
200	94.64
250	92.29
300	90.61
350	83.38
400	74.04
450	62.70
500	46.64
550	27.26
600	7.28
650	-12.71
700	-34.45
750	-47.59
800	-60.17
850	-72.49
900	-72.79
950	-74.86
1000	-75.87
1038	-76.62
1100	-73.25
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1190.58	-73.83
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1281.91	-74.67

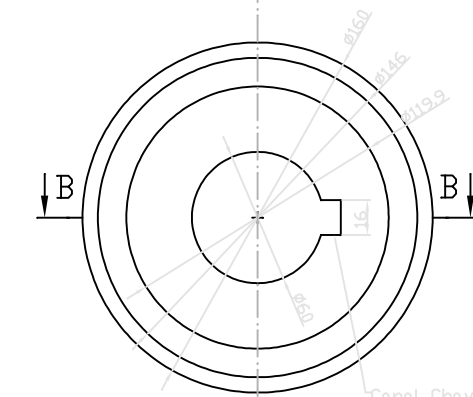
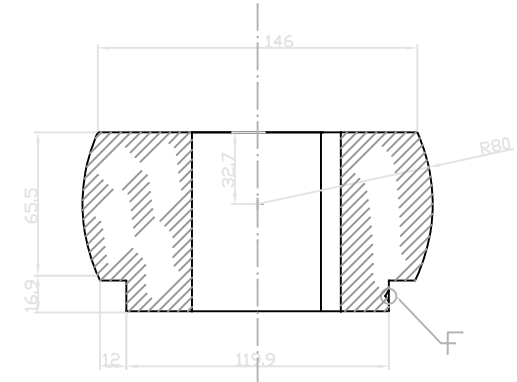
Segmento 5-6
Cantidad 01 pieza

x	y
0	75.08
50	76.83
100	76.84
150	77.41
200	77.61
250	77.30
300	76.98
350	74.71
400	72.19
450	67.70
500	60.87
550	52.25
600	42.31
650	32.40
700	22.71
750	14.24
800	7.64
850	3.42
900	1.63
950	0.81
1000	0.37
1050	0.24
1100	0.37
1150	0.68
1200	1.11
1244.92	1.55
1280	1.11
1281.91	1.55

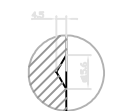
Segmento 6-7
Cantidad 01 pieza



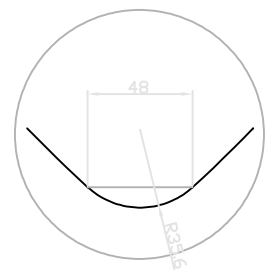
3 agujeros roscados a 120° para prisioneros de 1/4"



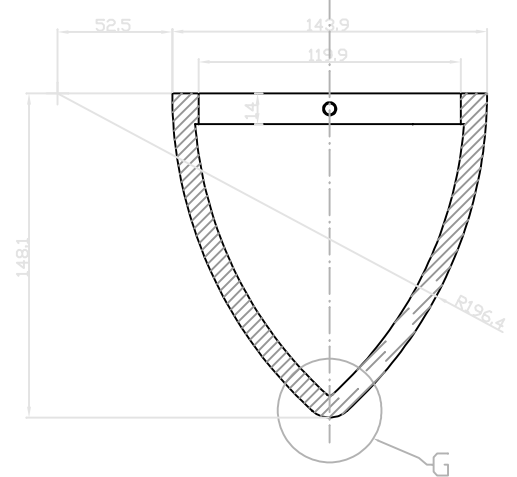
Canal Chavetero de 16mm x 8mm para chaveta cuadrada



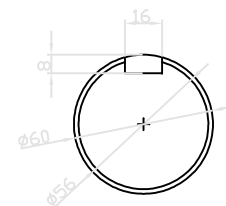
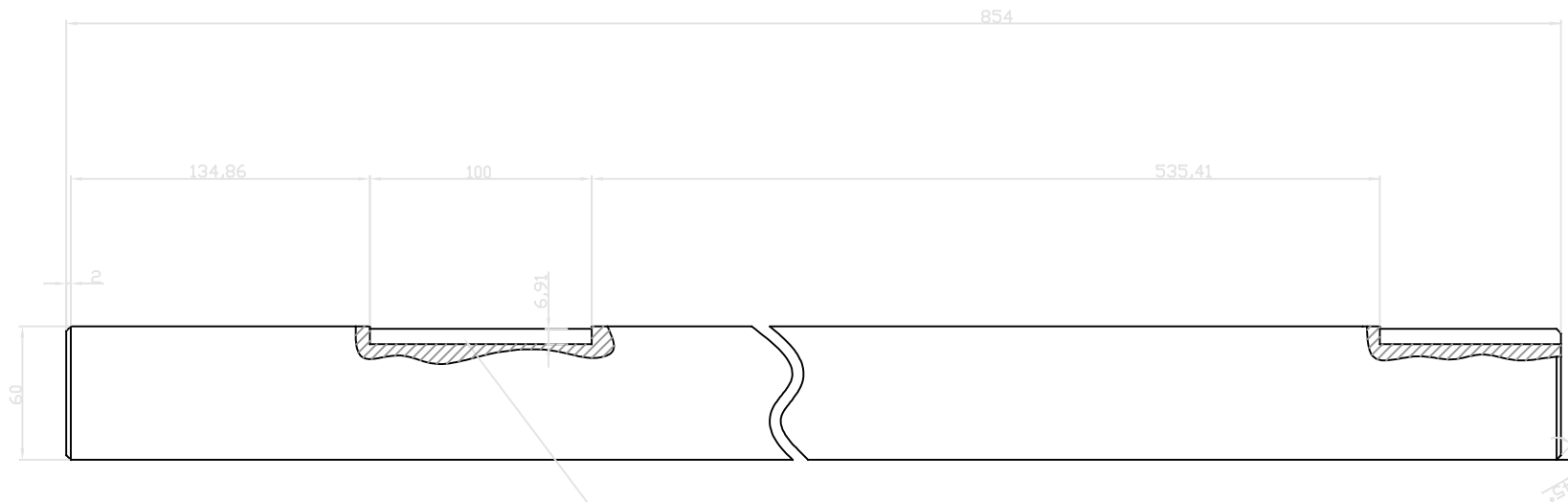
Detalle F (para fijar prisioneros)



Detalle G

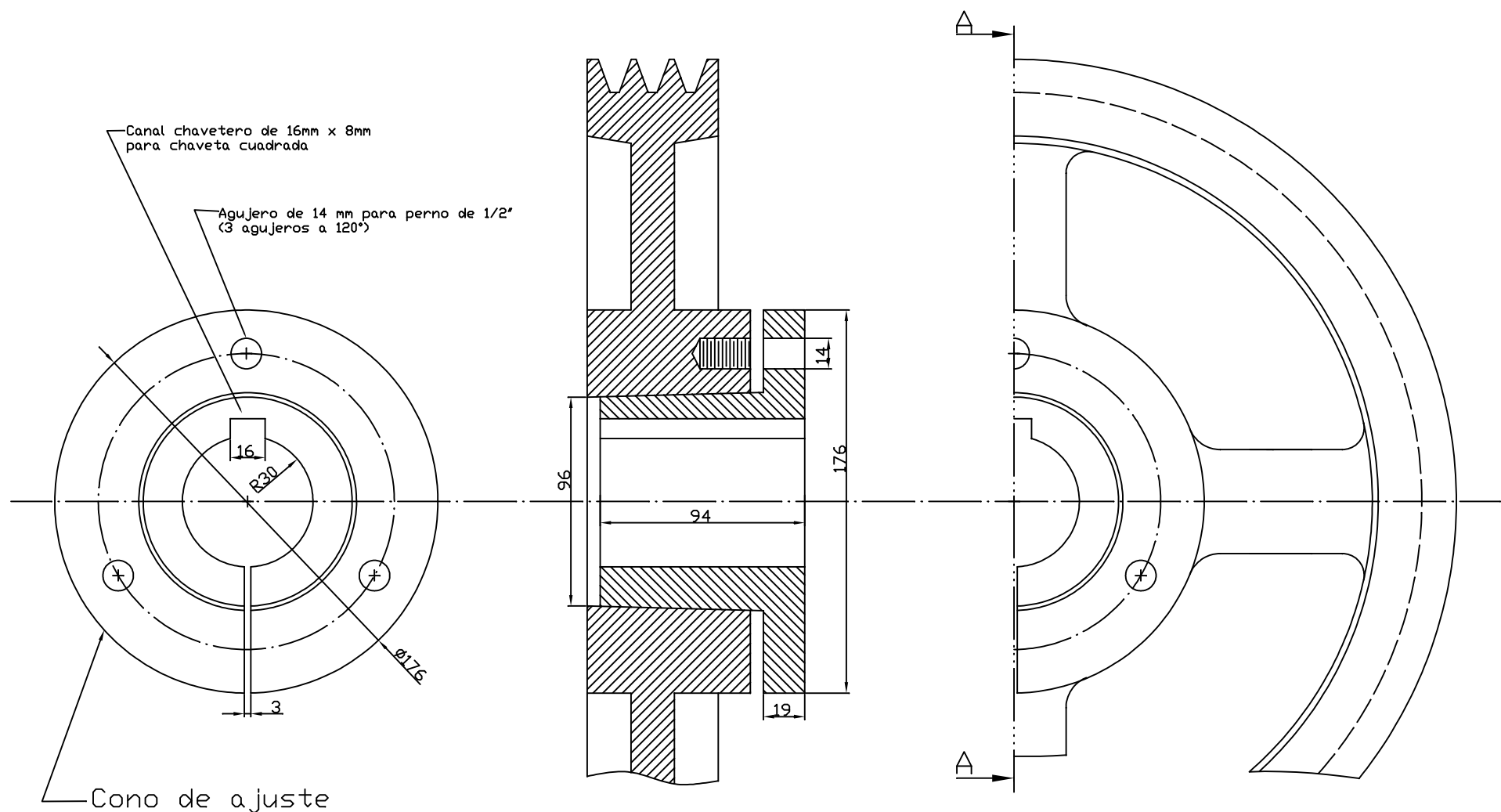


PROGRAMA DE ENERGIA - ITDG		
Diseño conceptual y asesoría: ING. TEDDORO SANCHEZ	Proyecto: TURBINA TIPO HELICE	Escala: 1 : 2.5
Diseño hidráulico: DR. VIC LI		Plano N°: 03
Diseño mecánico: ING. CELSO DAVILA	Nombre: RODETE	Fecha: Agosto 2000



Canal chavetero de 16mm x 8mm para chaveta cuadrada

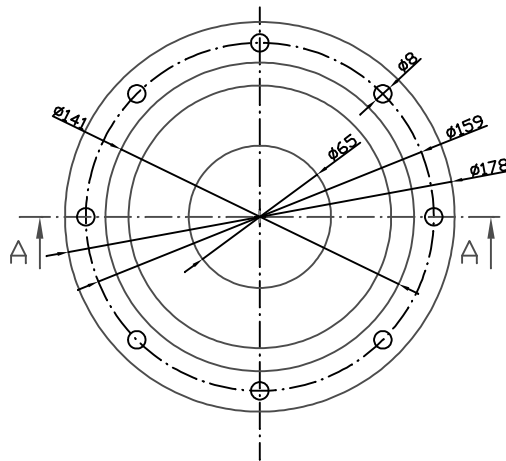
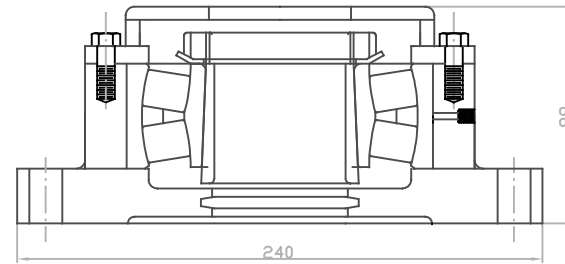
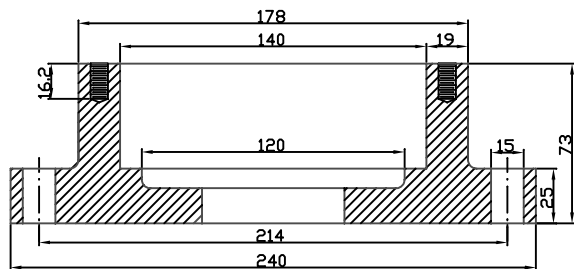
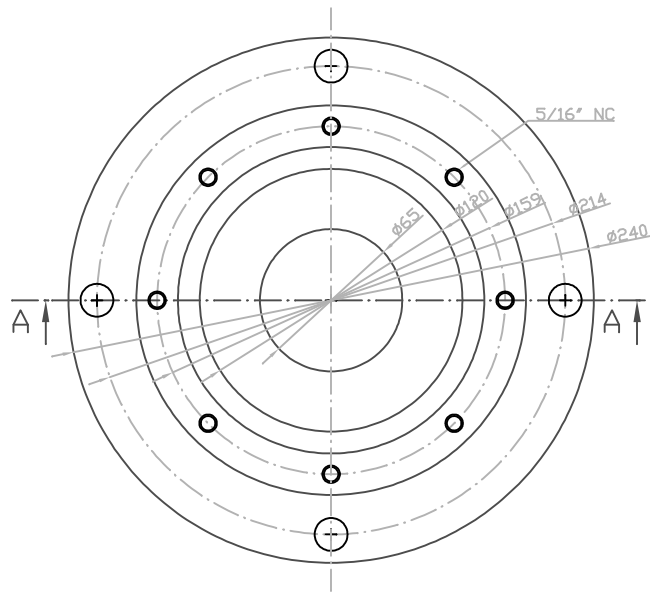
PROGRAMA DE ENERGIA - ITDG		
Diseño conceptual y asesoría: ING. TEODORO SANCHEZ	Proyecto: TURBINA TIPO HELICE	Escala: 1 : 2.5
Diseño hidráulico: DR. VIC LI		Plano N°: 04
Diseño mecánico: ING. CELSO DAVILA	Nombre: EJE	Fecha: Agosto 2000



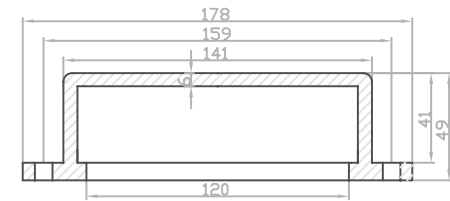
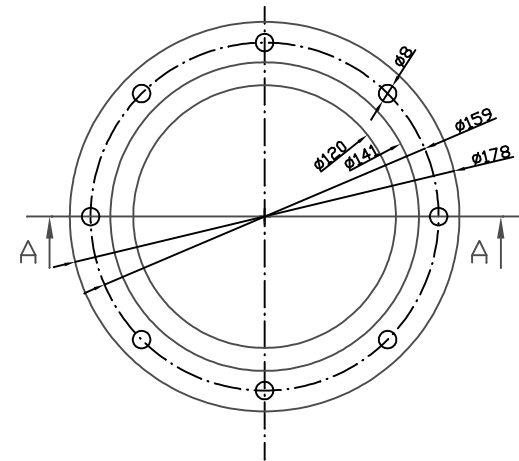
Material: Fe Fundido

* El número de canales de la polea depende de la potencia de diseño y al tipo de faja a utilizar

PROGRAMA DE ENERGIA - ITDG		
Diseño conceptual y asesoría: ING. TEODORO SANCHEZ	Proyecto: TURBINA TIPO HELICE	Escala: 1 : 2.5
Diseño hidráulico: DR. VIC LI		Plano N°: 05
Diseño mecánico: ING. CELSO DAVILA	Nombre: POLEA MOTRIZ	Fecha: Agosto 2000



Tapa del rodamiento inferior



Tapa del rodamiento superior

PROGRAMA DE ENERGIA - ITDG

Diseño conceptual y asesoría:
ING. TEDDORO SANCHEZ

Diseño hidráulico:
DR. VIC LI

Diseño mecánico:
ING. CELSO DAVILA

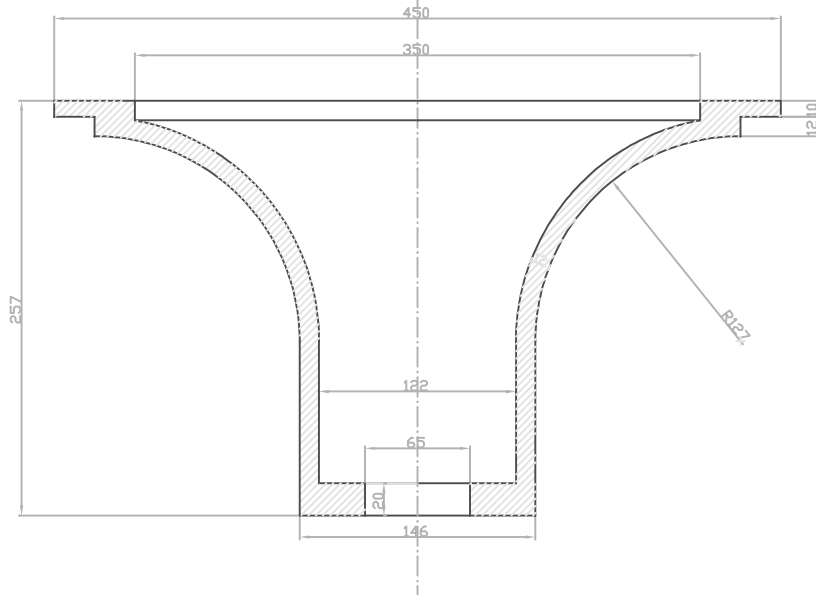
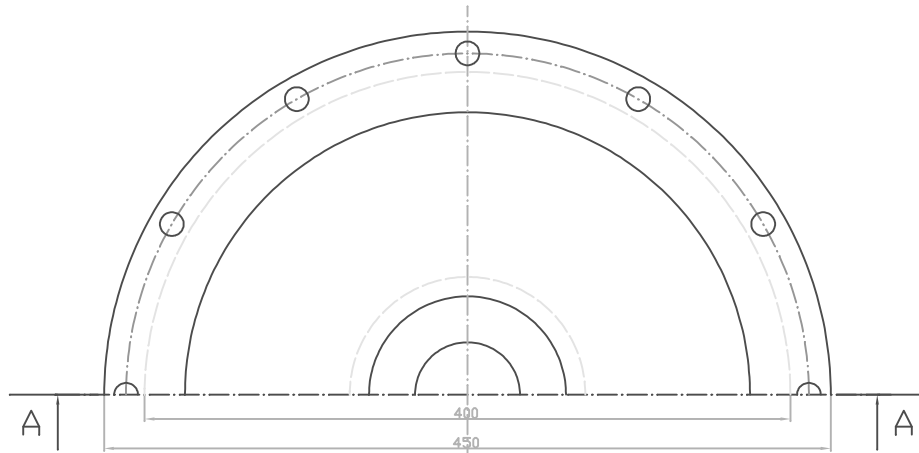
Proyecto:
TURBINA TIPO HELICE

Nombre:
CHUMACERA

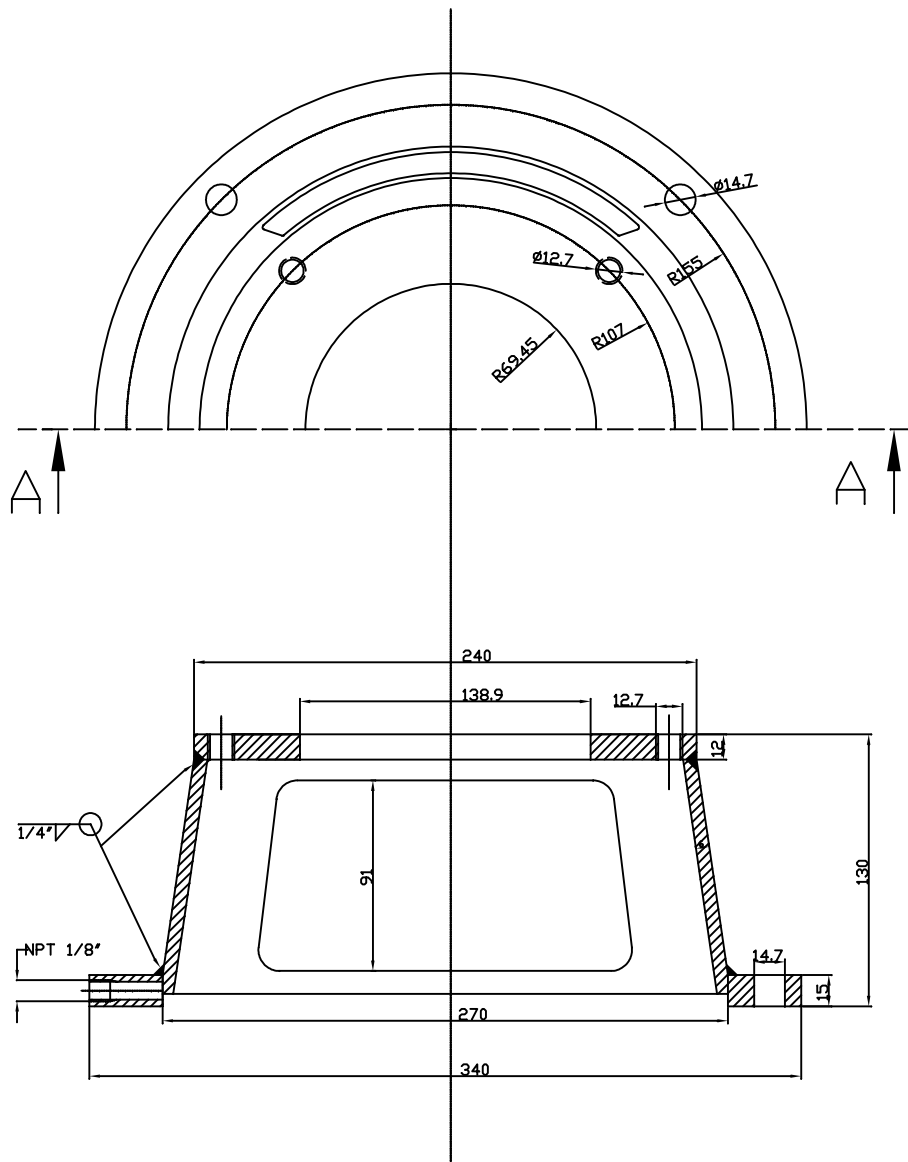
Escala: 1 : 2.5

Plano N°: 06

Fecha: Agosto 2000

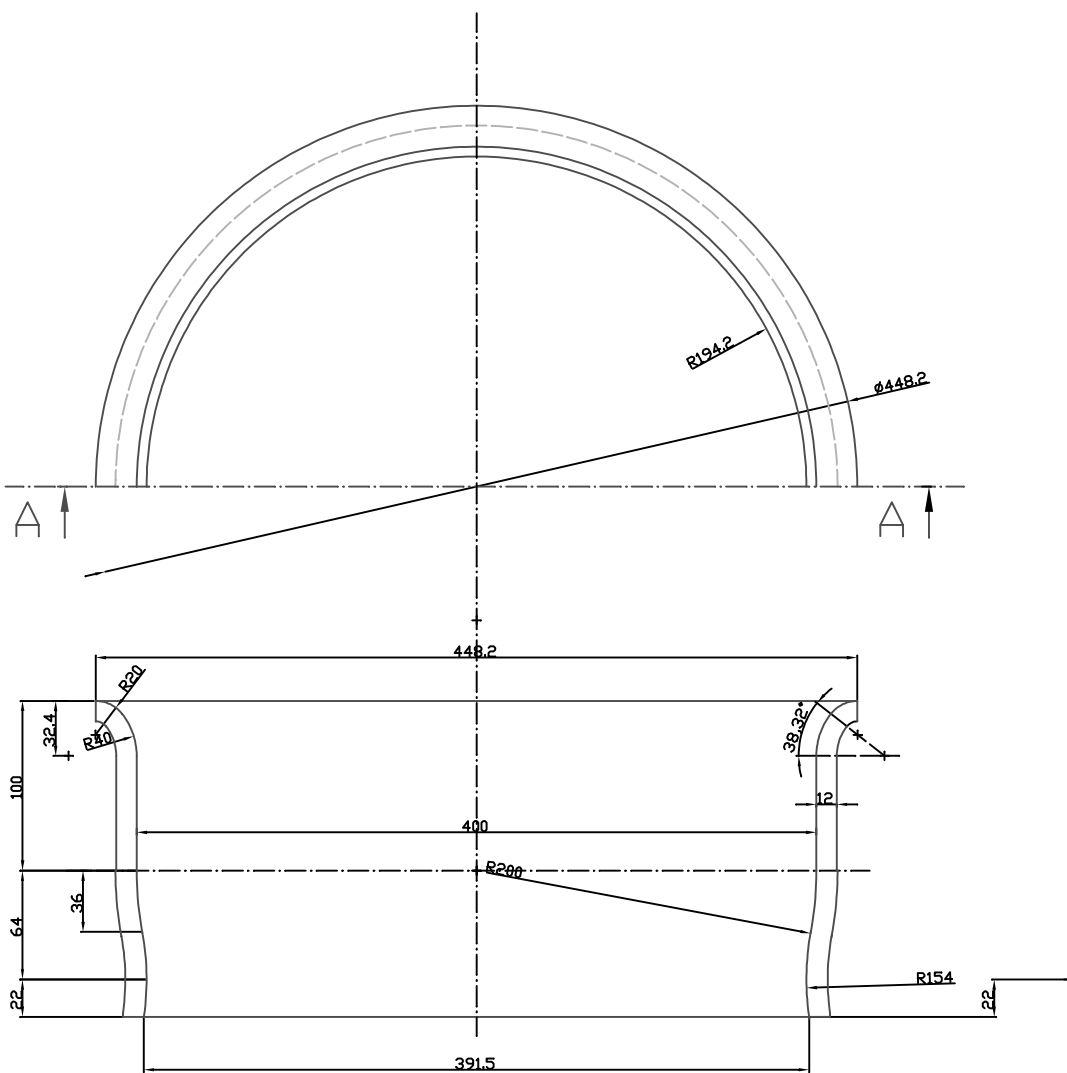


PROGRAMA DE ENERGIA - ITDG		
Diseño conceptual y asesoría: ING. TEDDORO SANCHEZ	Proyecto: TURBINA TIPO HELICE Nombre: CONO DE INGRESO	Escala: 1 : 2.5
Diseño hidráulico: DR. VIC LI		Plano N°: 07
Diseño mecánico: ING. CELSO DAVILA		Fecha: Agosto 2000

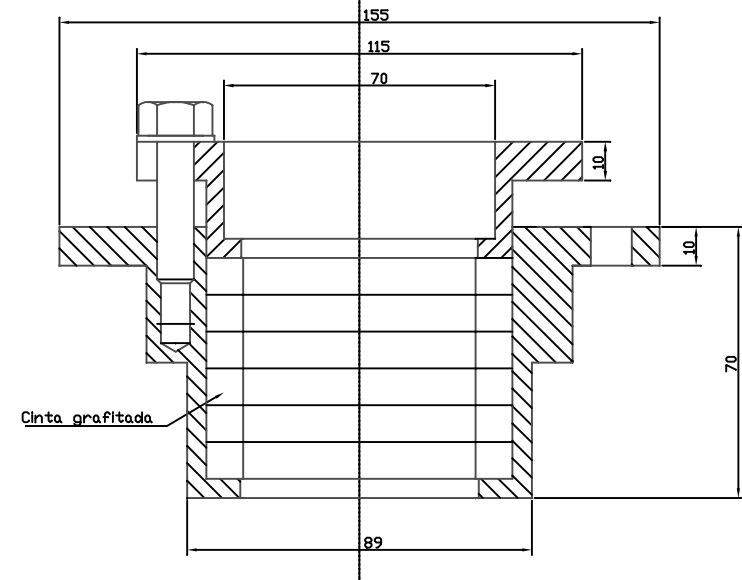
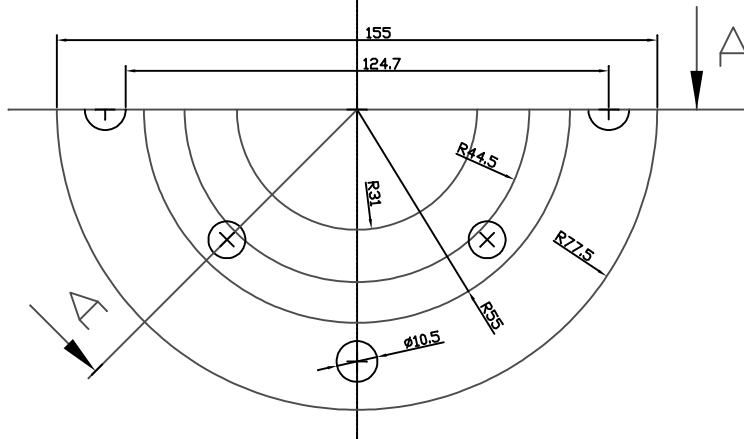
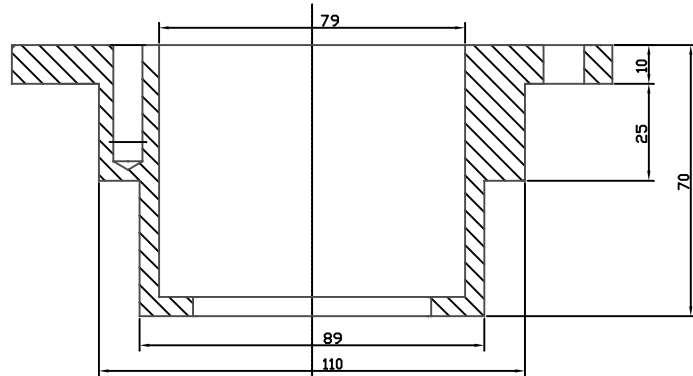
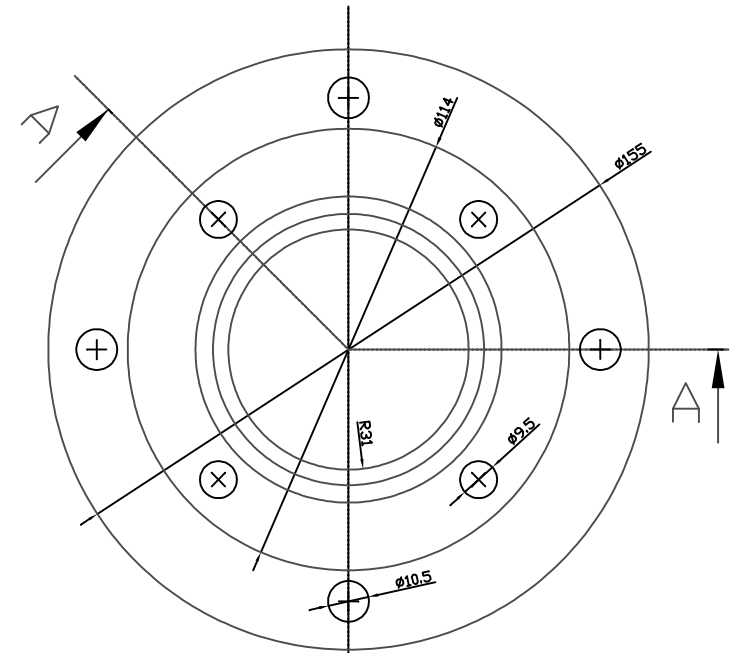
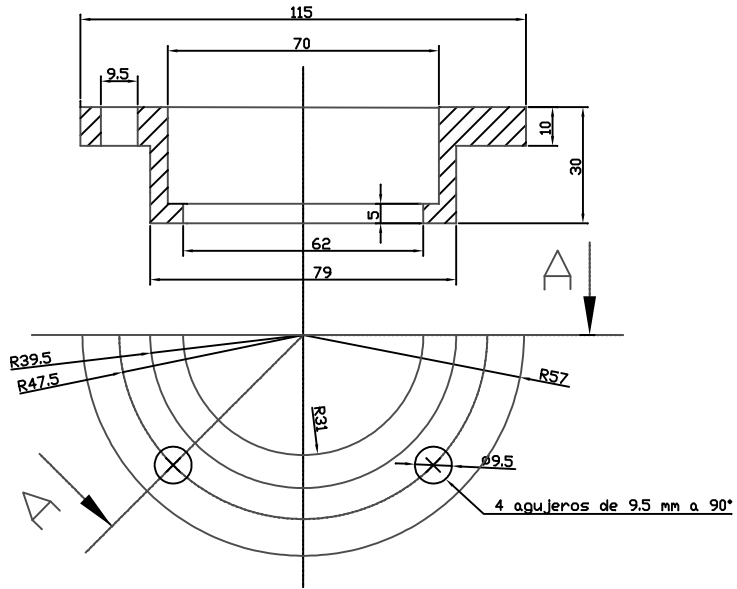


PROGRAMA DE ENERGIA - ITDG		
Diseño conceptual y asesoría: ING. TEDDORO SANCHEZ	Proyecto: TURBINA TIPO HELICE	Escala: 1 : 2.5
Diseño hidráulico: DR. VIC LI		Plano N°: 08
Diseño mecánico: ING. CELSO DAVILA	Nombre: APOYO DE CHUMACERA INFERIOR	Fecha: Agosto 2000

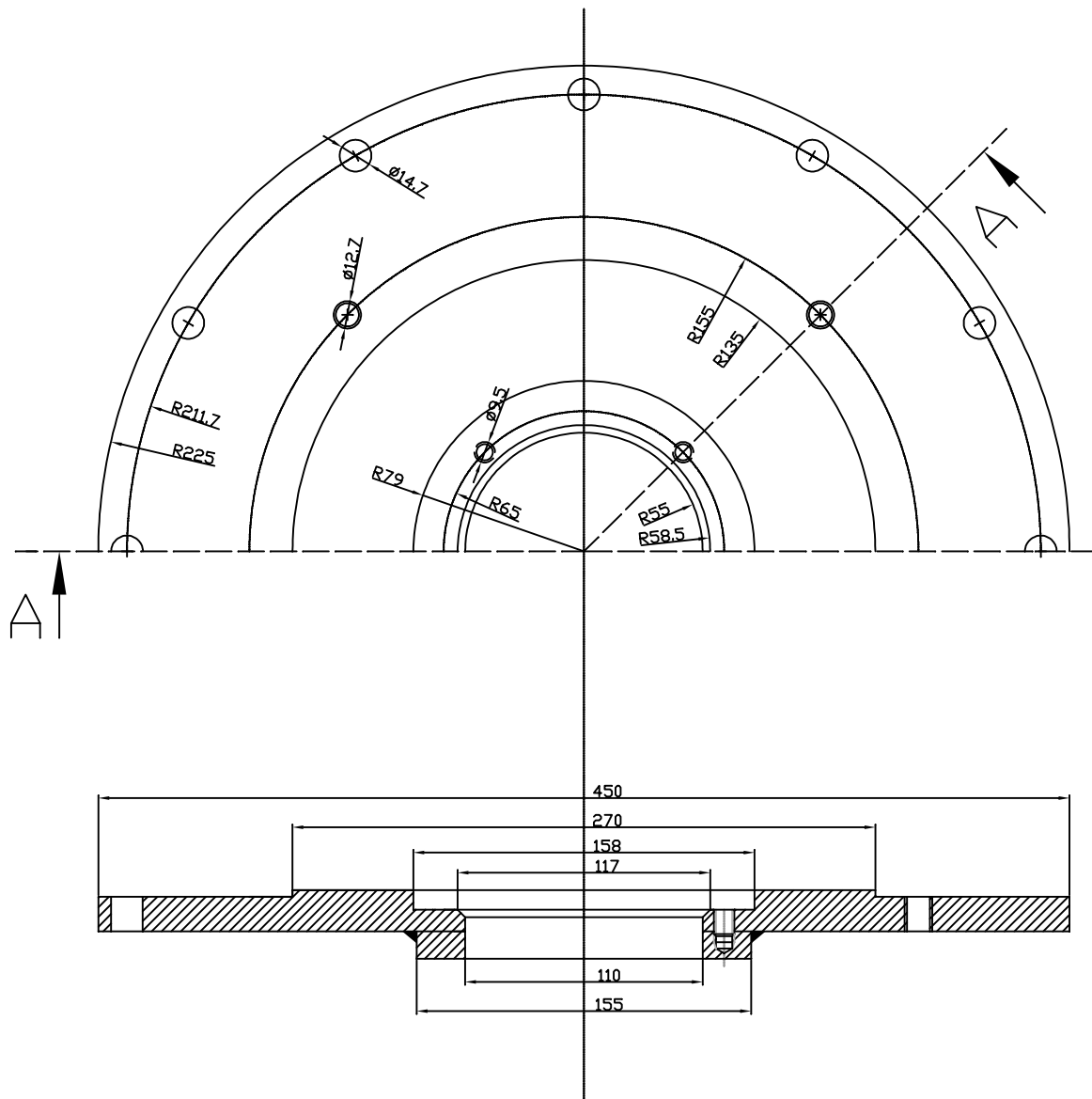
08 Esc. 1:2.5 A4



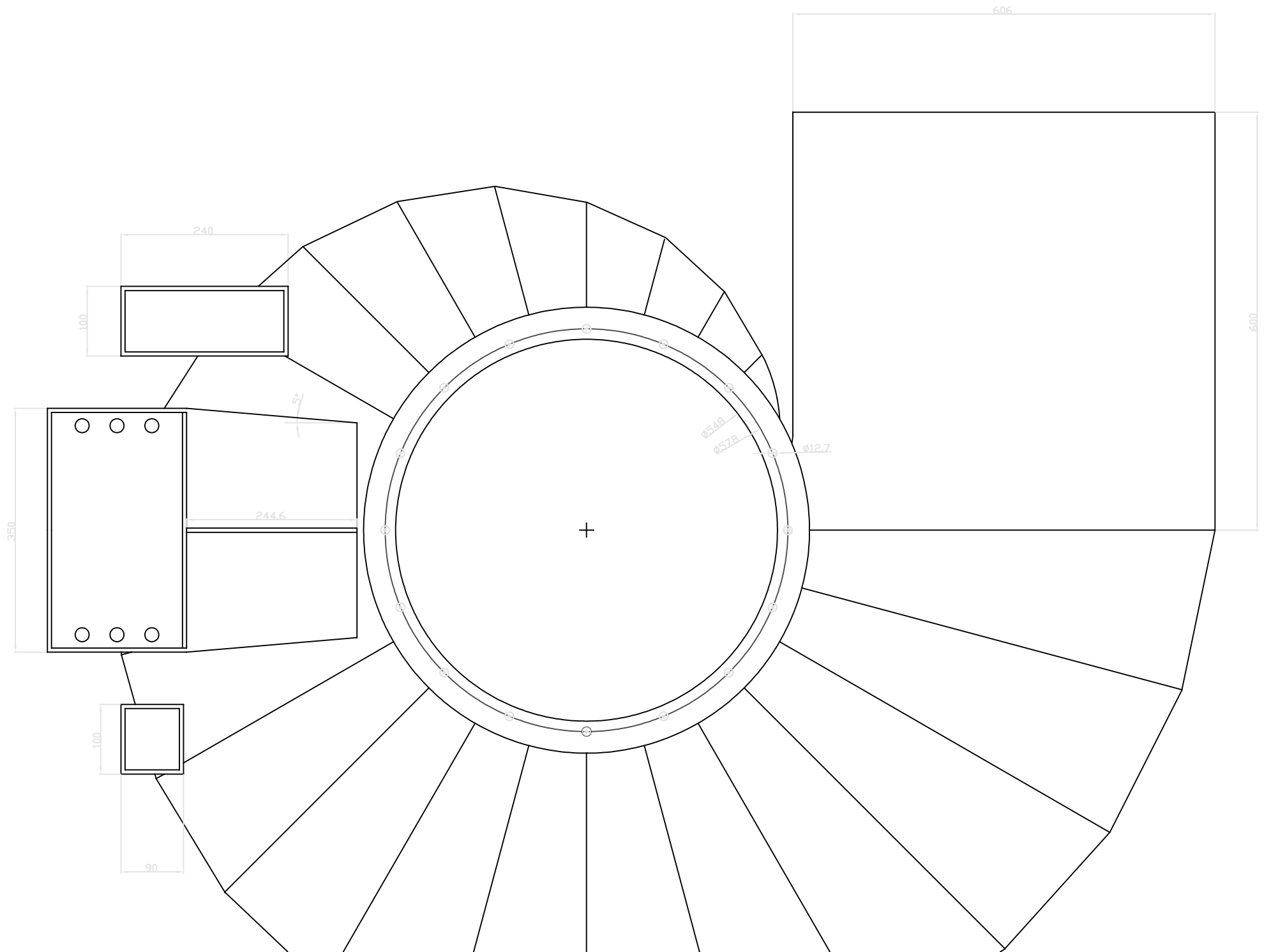
PROGRAMA DE ENERGIA - ITDG		
Diseño conceptual y asesoría ING. TEDDORO SANCHEZ	Proyecto: TURBINA TIPO HELICE	Escala: 1 : 2,5
Diseño hidráulico: DR. VIC LI	Nombre: CUBIERTA DE RODETE	Plano N°: 09
Diseño mecánico: ING. CELSO DAVILA		Fecha: Agosto 2000

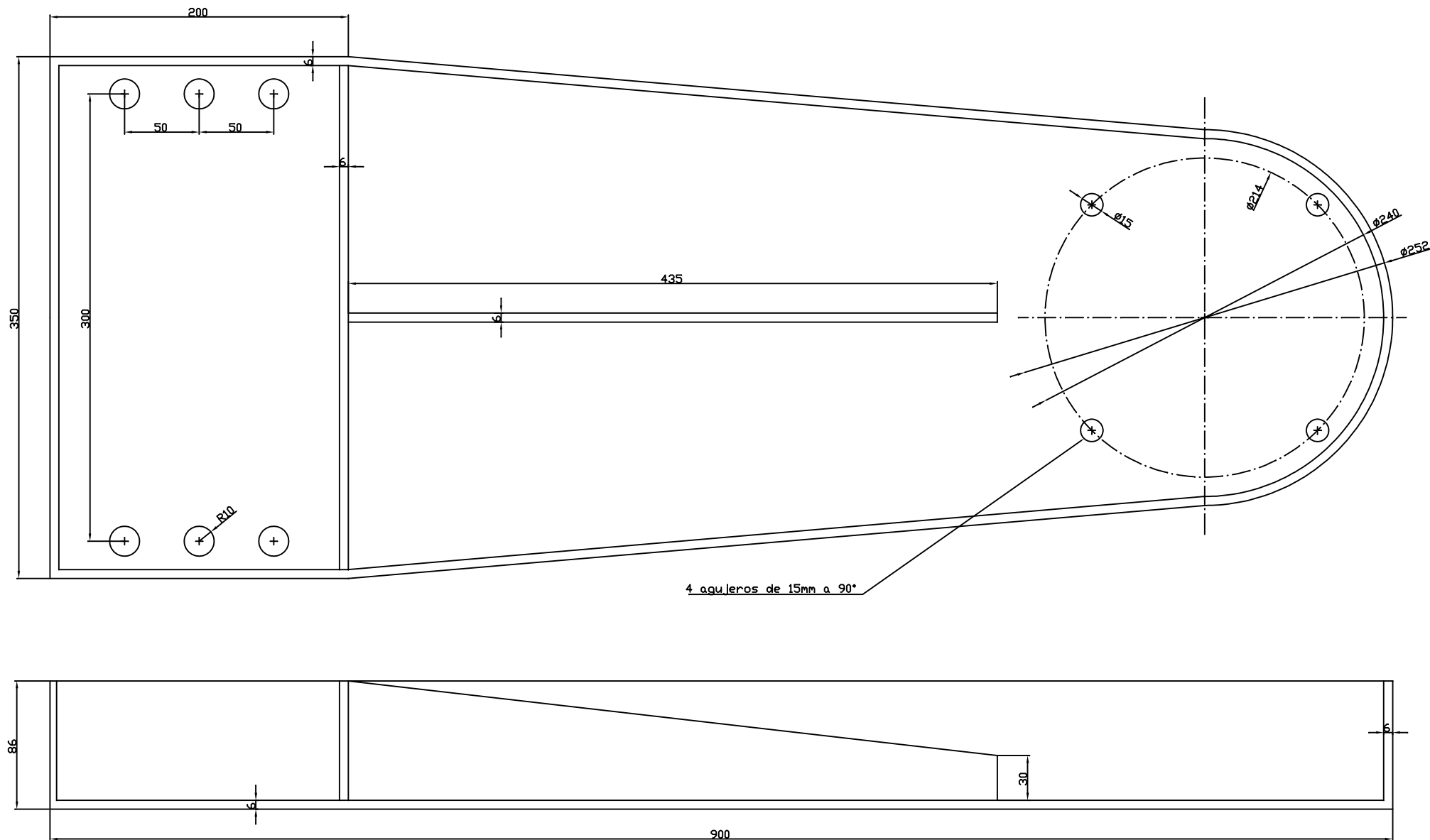


PROGRAMA DE ENERGIA - ITDG		
Diseño conceptual y asesoría: ING. TEDDORO SANCHEZ	Proyecto: TURBINA TIPO HELICE	Escala: 1 : 1
Diseño hidráulico: DR. VIC LI	Nombre: PRENSA ESTOPA	Plano N°: 10
Diseño mecánico: ING. CELSO DAVILA		Fecha: Agosto 2000



PROGRAMA DE ENERGIA - ITDG		
Diseño conceptual y asesoría: ING. TEDDORO SANCHEZ	Proyecto: TURBINA TIPO HELICE	Escala: 1 : 2,5
Diseño hidráulico: DR. VIC LI		Plano N°: 11
Diseño mecánico: ING. CELSO DAVILA	Nombre: Soporte de prensa estopa	Fecha: Agosto 2000





PROGRAMA DE ENERGIA - ITDG

Diseño conceptual y asesoría:
ING. TEDORO SANCHEZ

Diseño hidráulico:
DR. VIC LI

Diseño mecánico:
ING. CELSO DAVILA

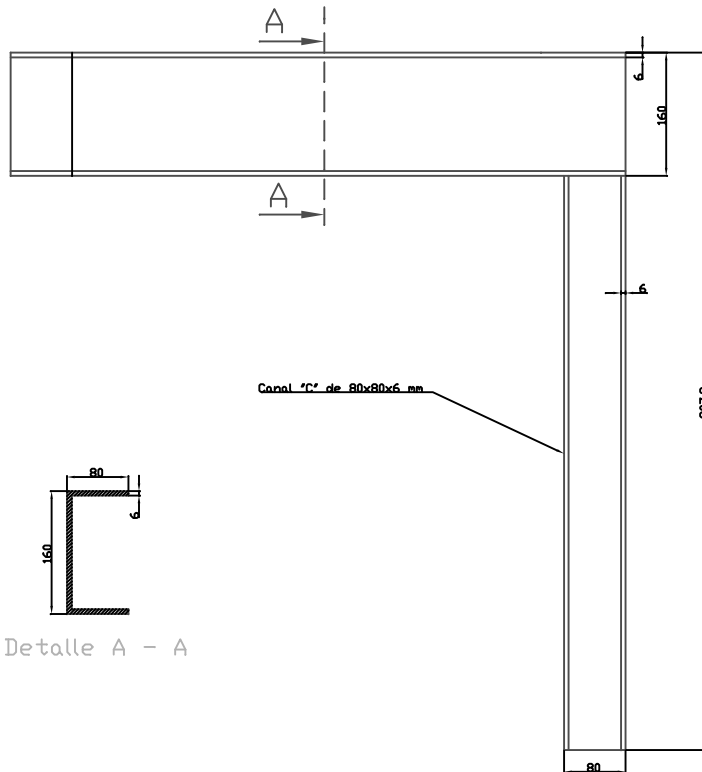
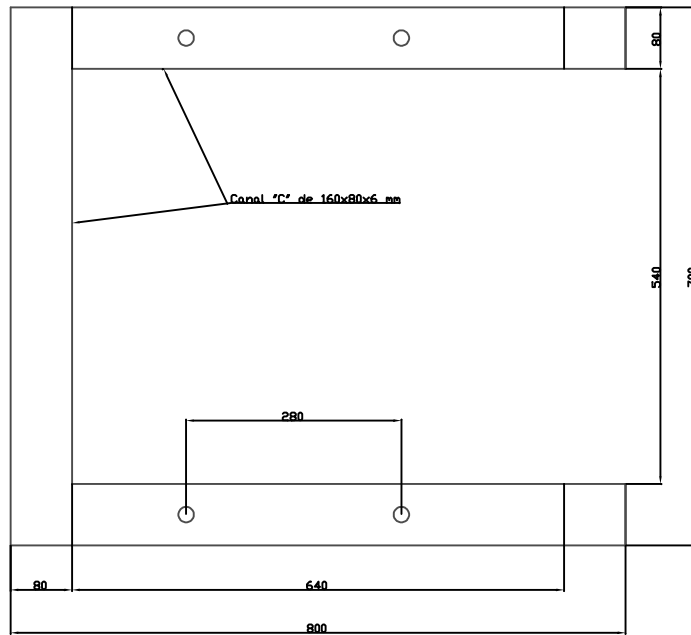
Proyecto:
TURBINA TIPO HELICE

Nombre:
VOLADIZO

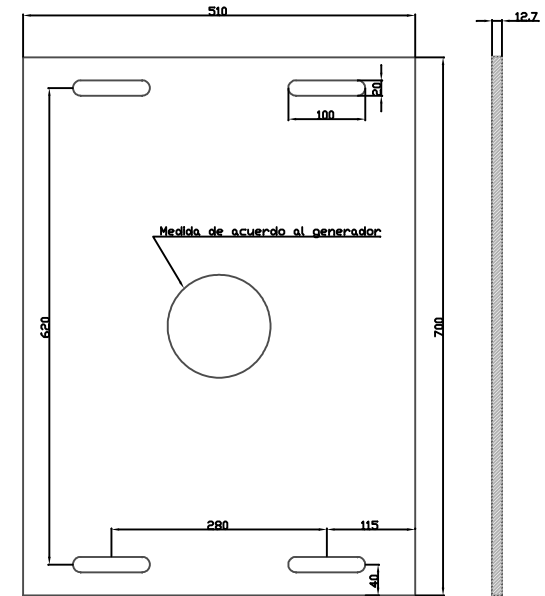
Escala:
1 : 2,5

Plano N°:
13

Fecha:
Agosto 2000



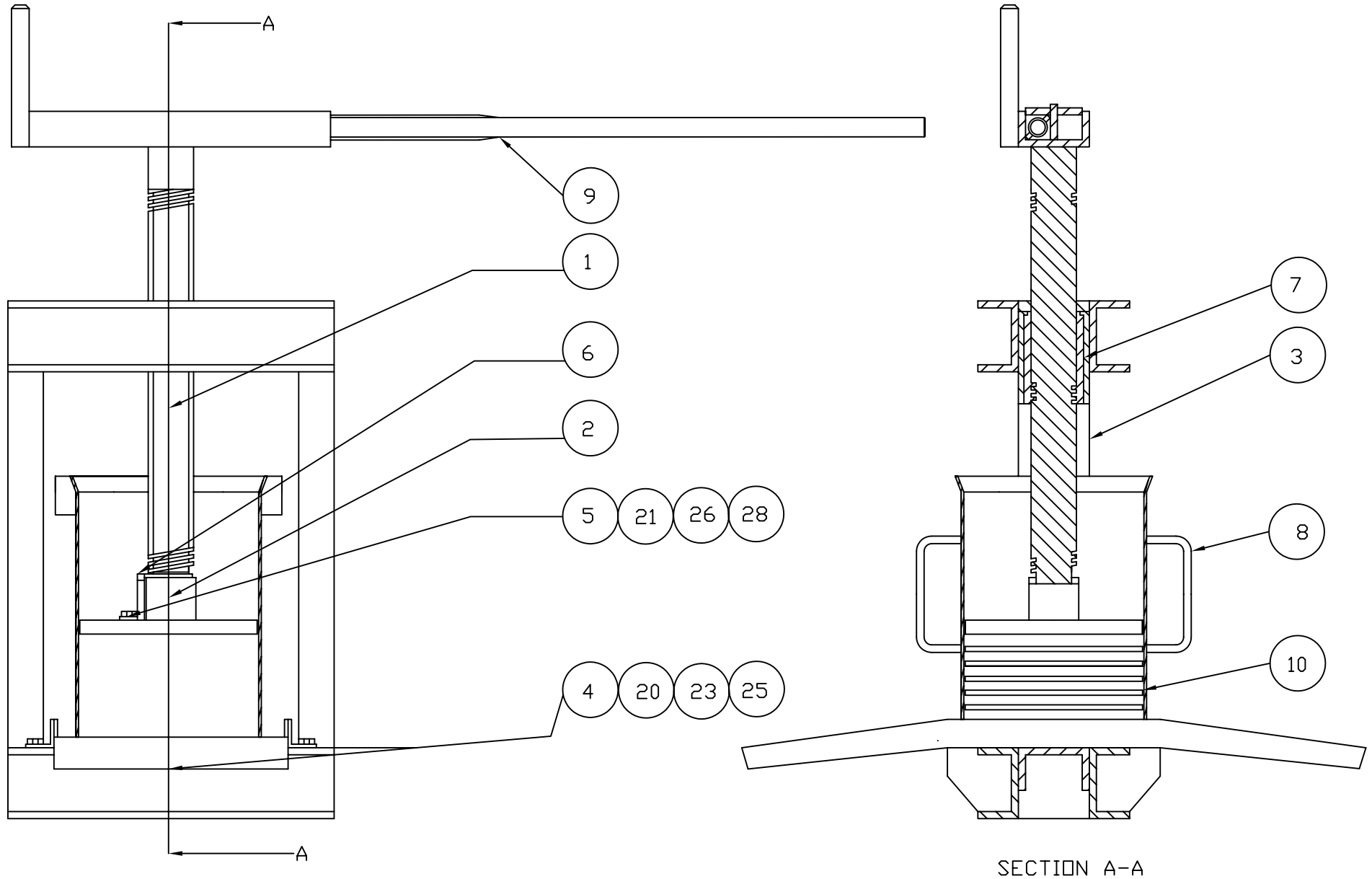
Detalle A - A



Plancha base del generador

PROGRAMA DE ENERGIA - ITDG		
Diseño conceptual y asesoría ING. TEDDRO SANCHEZ	Proyecto: TURBINA TIPO HELICE	Escala: 1 : 5
Diseño hidráulico: DR. VIC LI		Plano N°: 14
Diseño mecánico: ING. CELSO DAVILA	Nombre: BASE DE GENERADOR	Fecha: Agosto 2000

DO NOT SCALE



No.	Description	CHK	AP'D	DATE

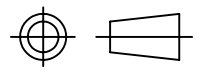
Practical Action

TITLE MANUAL SCREW PRESS

DRAWN A.R

TRACE -

CHK -

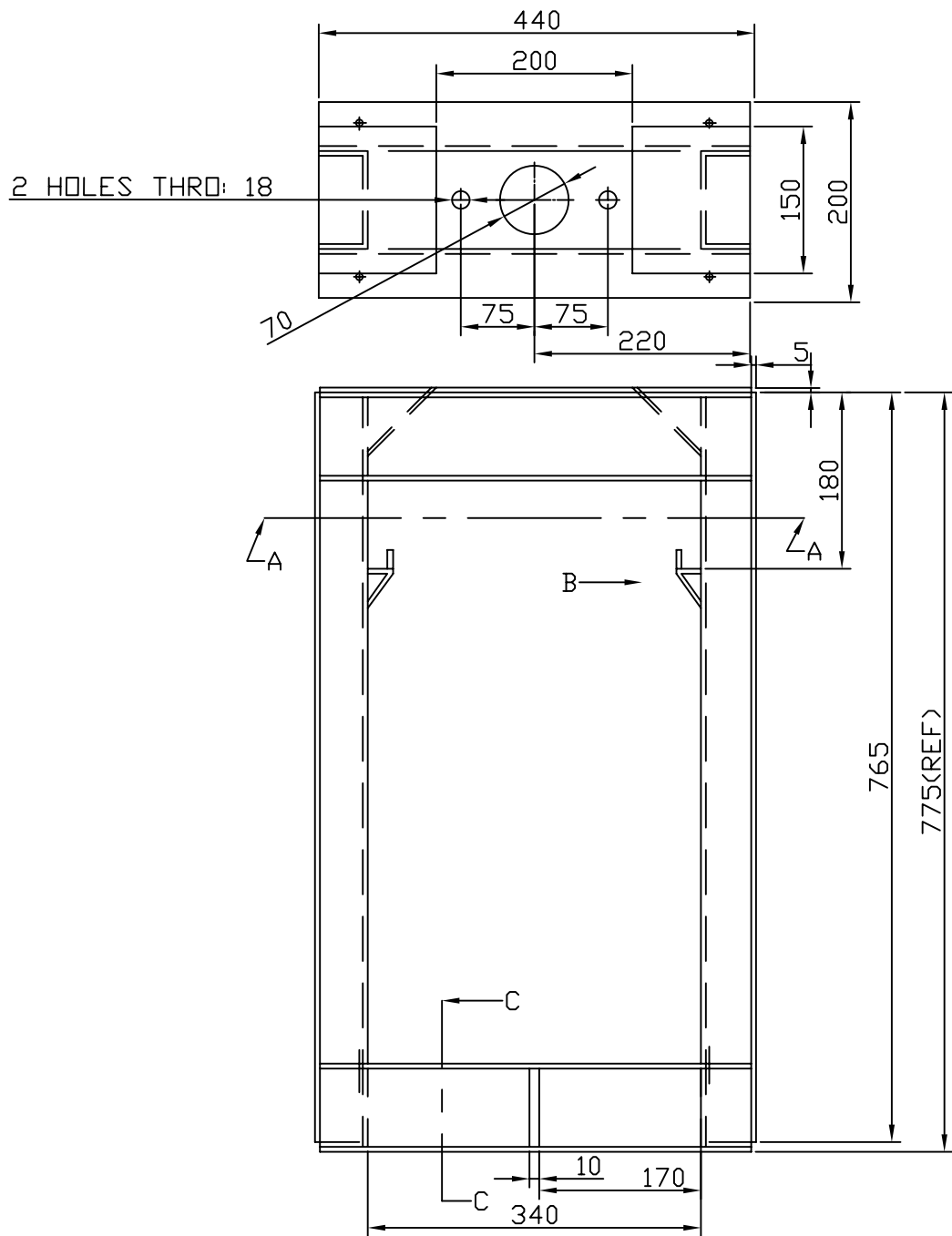


NOT TO SCALE

MATERIAL -

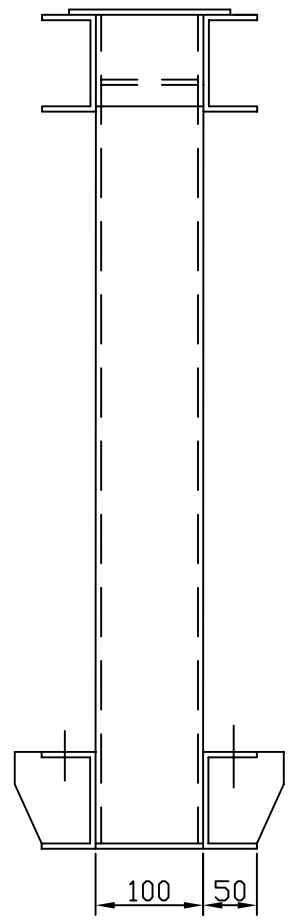
DRAWING No. MSP001

REVISIONS



DO NOT SCALE

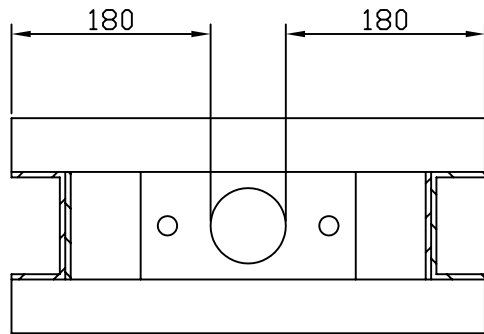
NOTE: FULLY WELDED CONSTRUCTION UNLESS OTHERWISE STATED



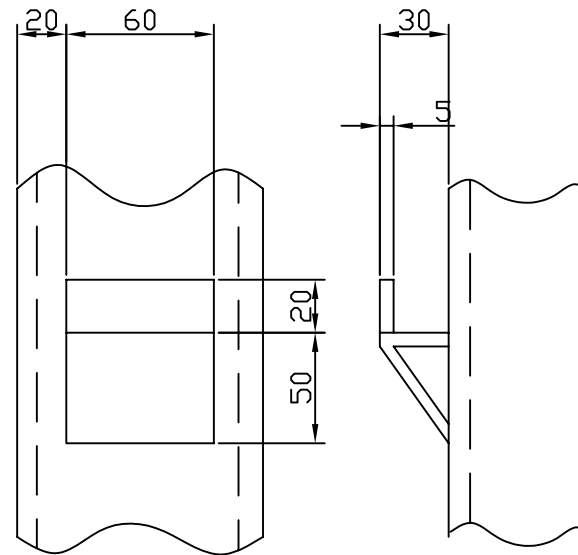
3 MAIN FRAME (DETAILS)

					Practical Action	TITLE	MANUAL SCREW PRESS	DRAWN	TRACE	CHK		DO NOT SCALE
No.	Description	CHK	AP'D	DATE		MATERIAL	MILD STEEL	A.R	-	-		
REVISIONS						DRAWING No. MSP101a						

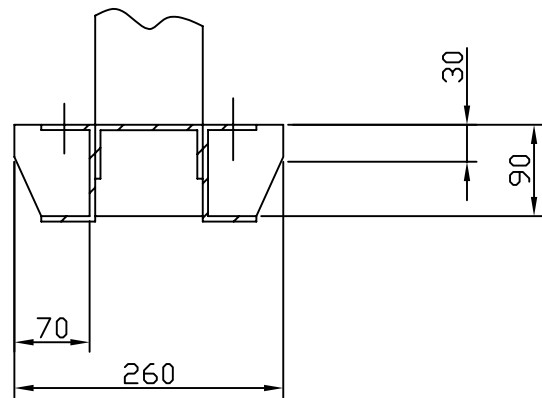
DO NOT SCALE



SECTION A-A



VIEW ON B
NOTE FULLY WELDED CONSTRUCTION



SECTION C-C
NOTE: FULLY WELDED CONSTRUCTION

3 MAIN FRAME
(DETAILS)

No.	Description	CHK	AP'D	DATE

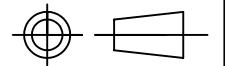
Practical
Action

TITLE MANUAL SCREW
PRESS

DRAWN
A.R

TRACE
-

CHK
-



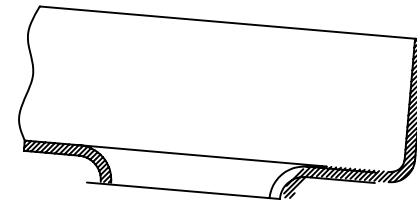
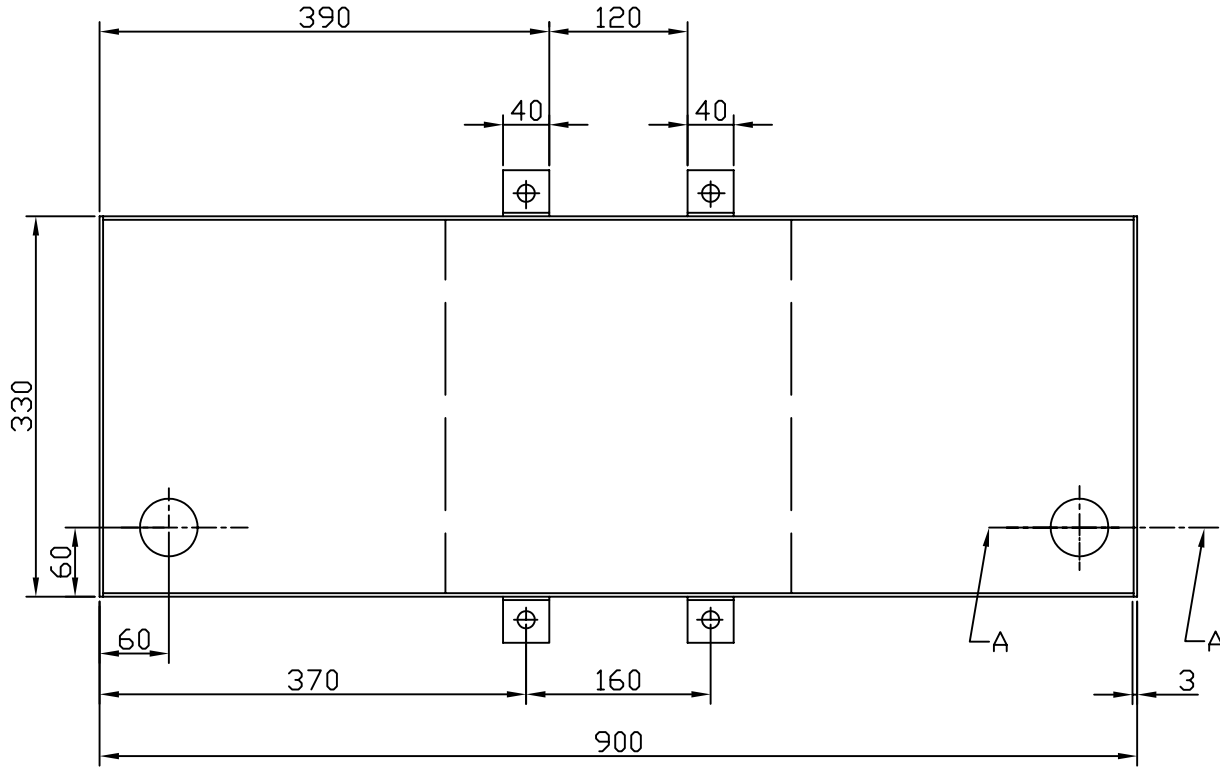
DO NOT
SCALE

MATERIAL MILD STEEL

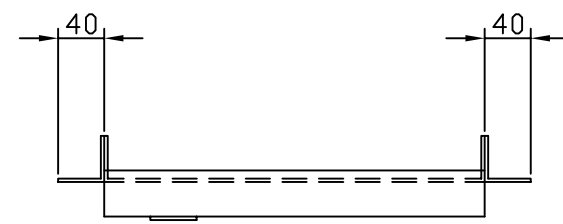
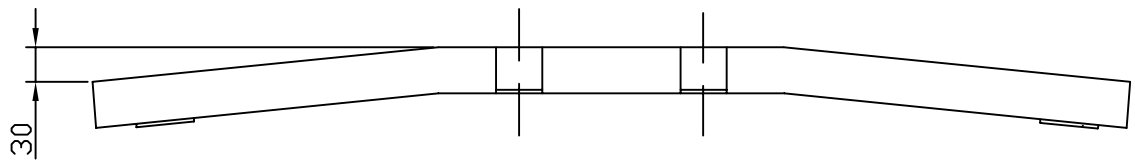
DRAWING No. MSP101

REVISIONS

DO NOT SCALE



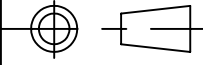
SECTION A-A

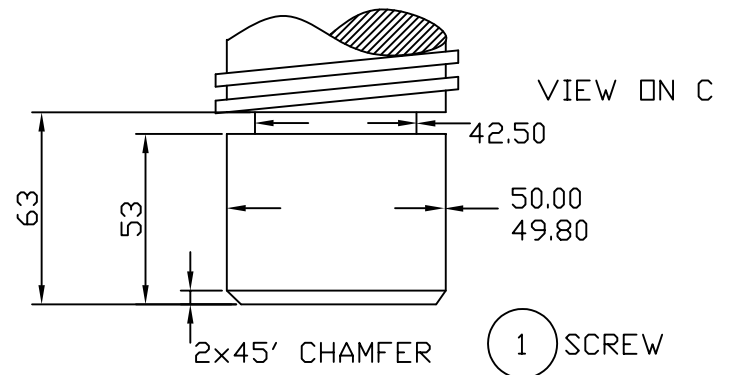
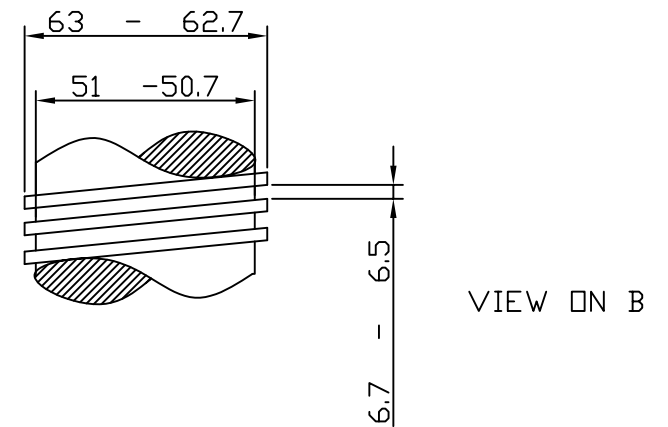
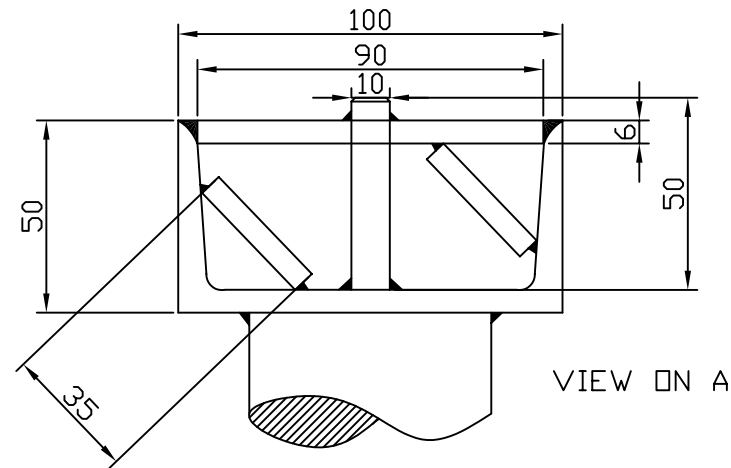
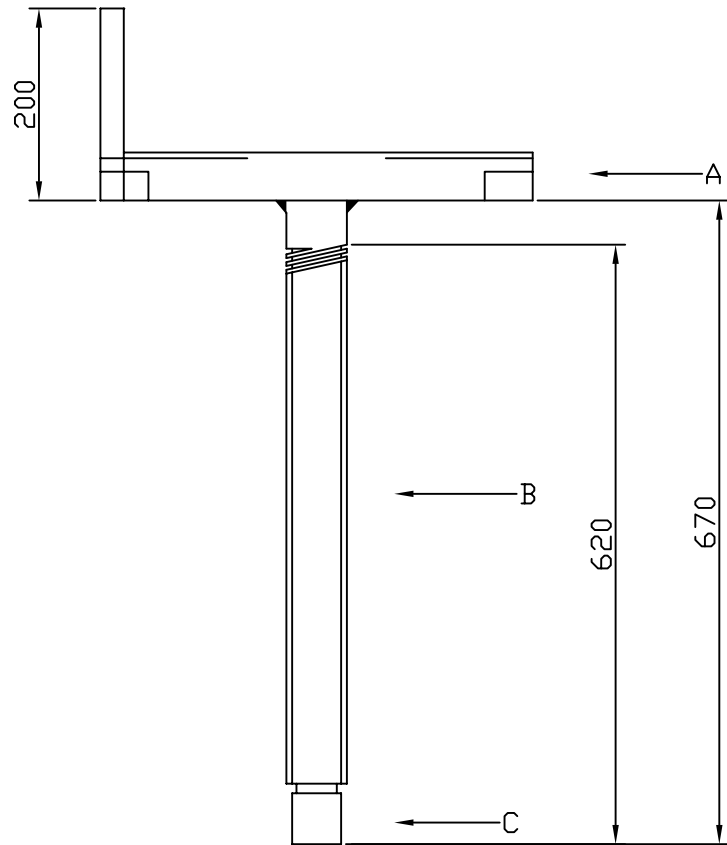
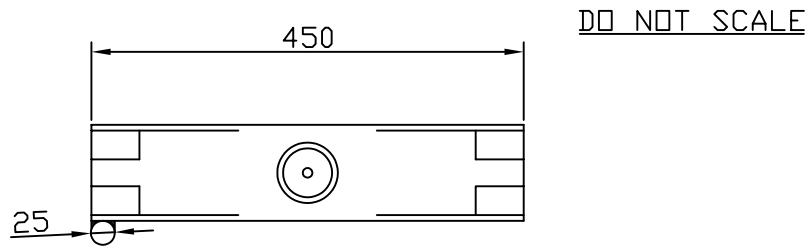


TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

④ OIL COLLECTION
TRAY

No.	Description	CHK	AP'D	DATE
REVISIONS				

Practical Action	TITLE	MANUAL SCREW PRESS	DRAWN	TRACE	CHK		NOT TO SCALE
	MATERIAL	SHEET STEEL	A.R	-	-		
			DRAWING No. MSP102				

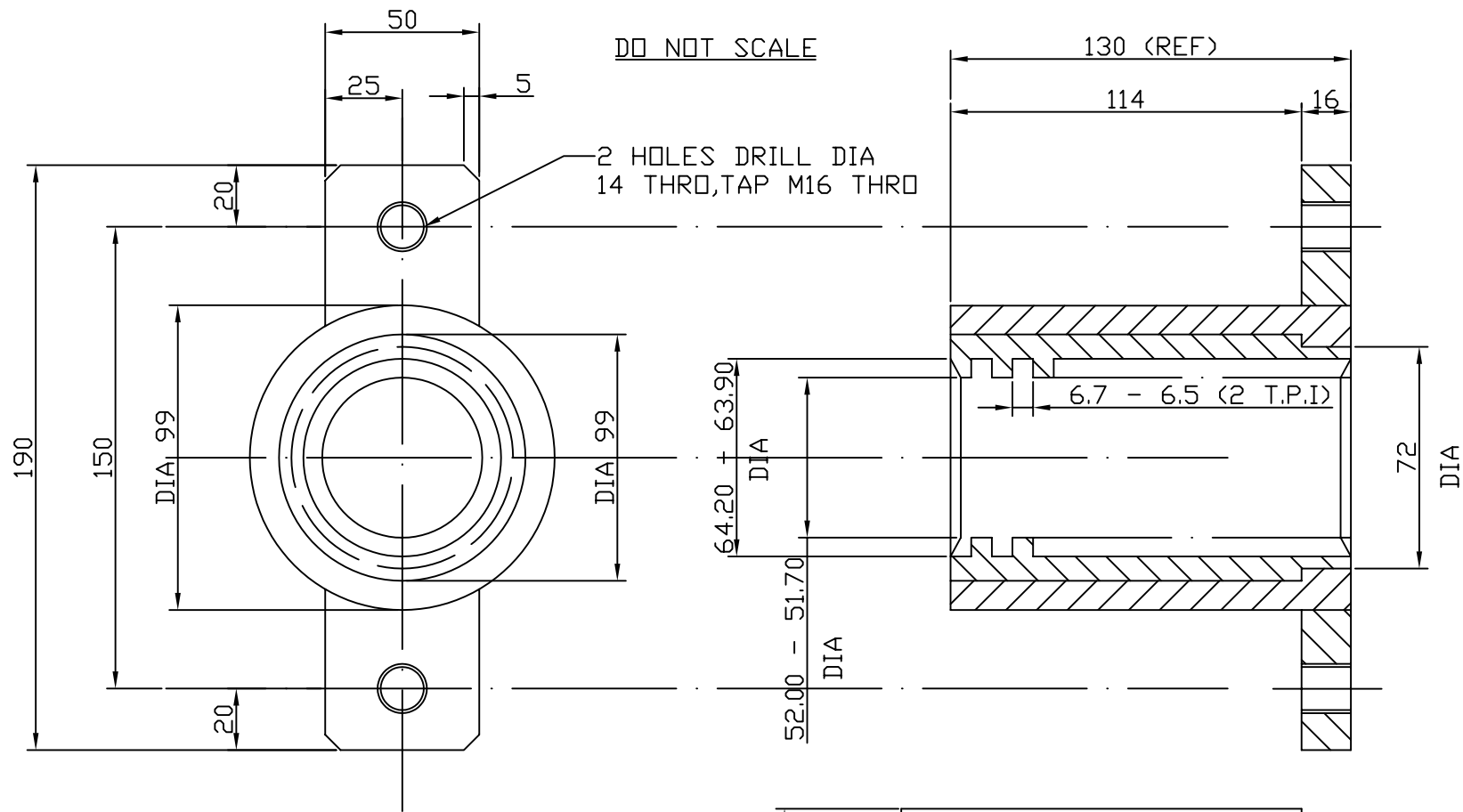


TOLERANCES
UNLESS OTHERWISE
STATED ± 0.25

1 SCREW

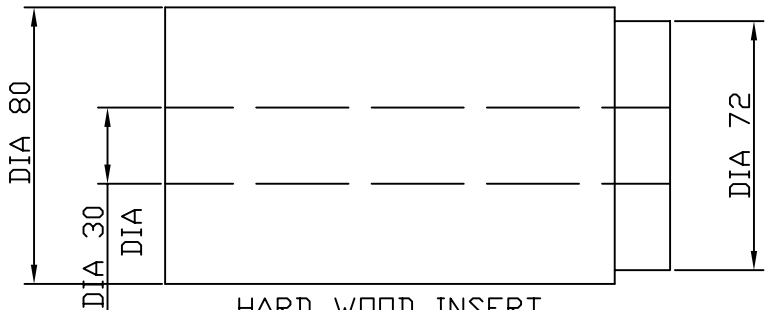
No.	Description	CHK	AP'D	DATE

Practical Action	TITLE MANUAL SCREW PRESS	DRAWN A.R	TRACE -	CHK -			NOT TO SCALE
REVISIONS	MATERIAL MILD STEEL	DRAWING No. MSP103					



DO NOT SCALE

2 HOLES DRILL DIA
14 THRO, TAP M16 THRO



HARD WOOD INSERT

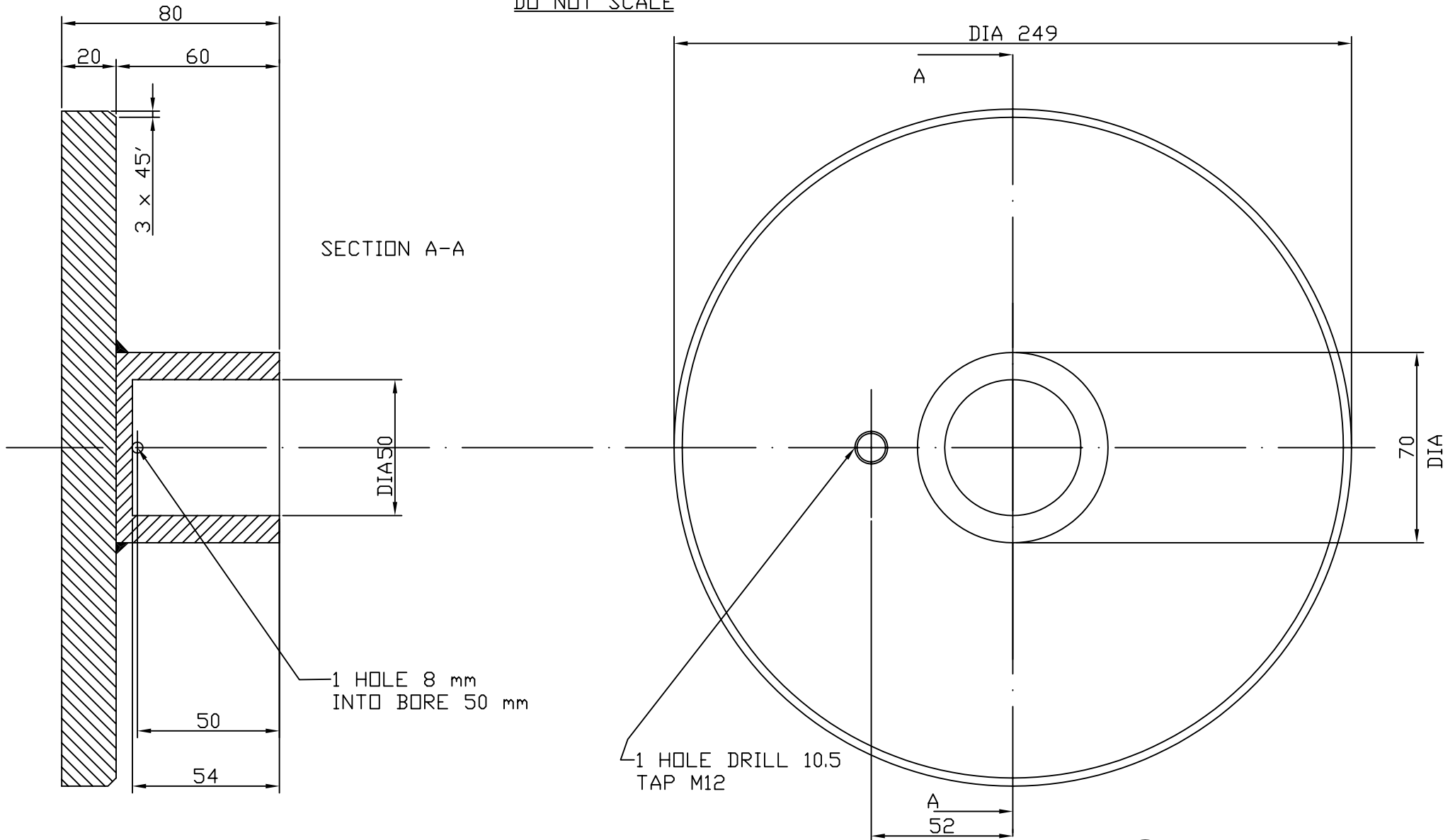
7 SCREW NUT

NOTE: MACHINE INSERT O.D AND DIA 30
BORE THEN ASSEMBLE INTO NUT
BEFORE MACHINING SCREW THREAD

No.	Description	CHK	AP'D	DATE

TITLE	MANUAL SCREW PRESS	DRAWN	A.R	TRACE	-	CHK	-			NOT TO SCALE
MATERIAL	HARD WOOD MILD STEEL	DRAWING No. MSP104								

DO NOT SCALE



TOLERANCES UNLESS OTHERWISE STATED ± 0.25

5 PRESSURE PLATE

No.	Description	CHK	AP'D	DATE

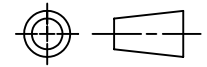
Practical Action

TITLE MANUAL SCREW PRESS

DRAWN A.R

TRACE -

CHK -



NOT TO SCALE

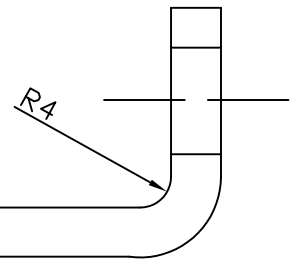
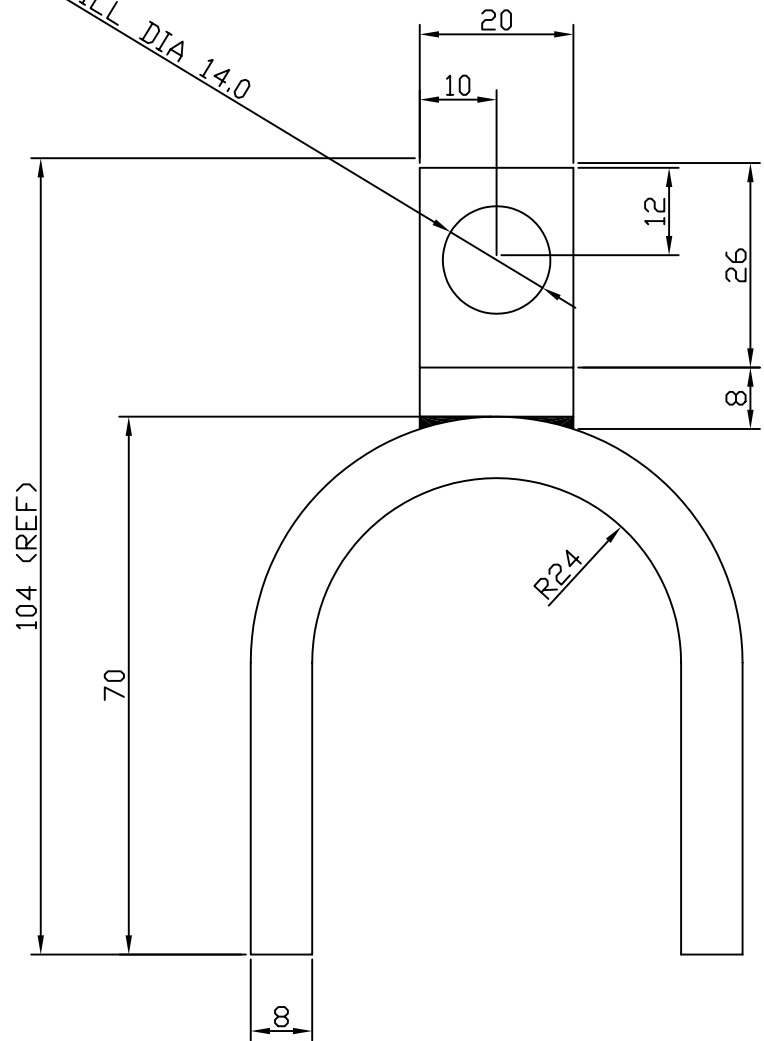
MATERIAL MILD STEEL

DRAWING No. MSP105

REVISIONS

DO NOT SCALE

1 HOLE DRILL DIA 14.0



NOTE: FULLY WELDED CONSTRUCTION

TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

6 RETENTION ARM
FOR PRESSURE
PLATE

No.	Description	CHK	AP'D	DATE

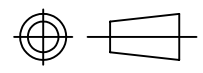
Practical
Action

TITLE MANUAL SCREW
PRESS

DRAWN
A.R

TRACE
-

CHK
-



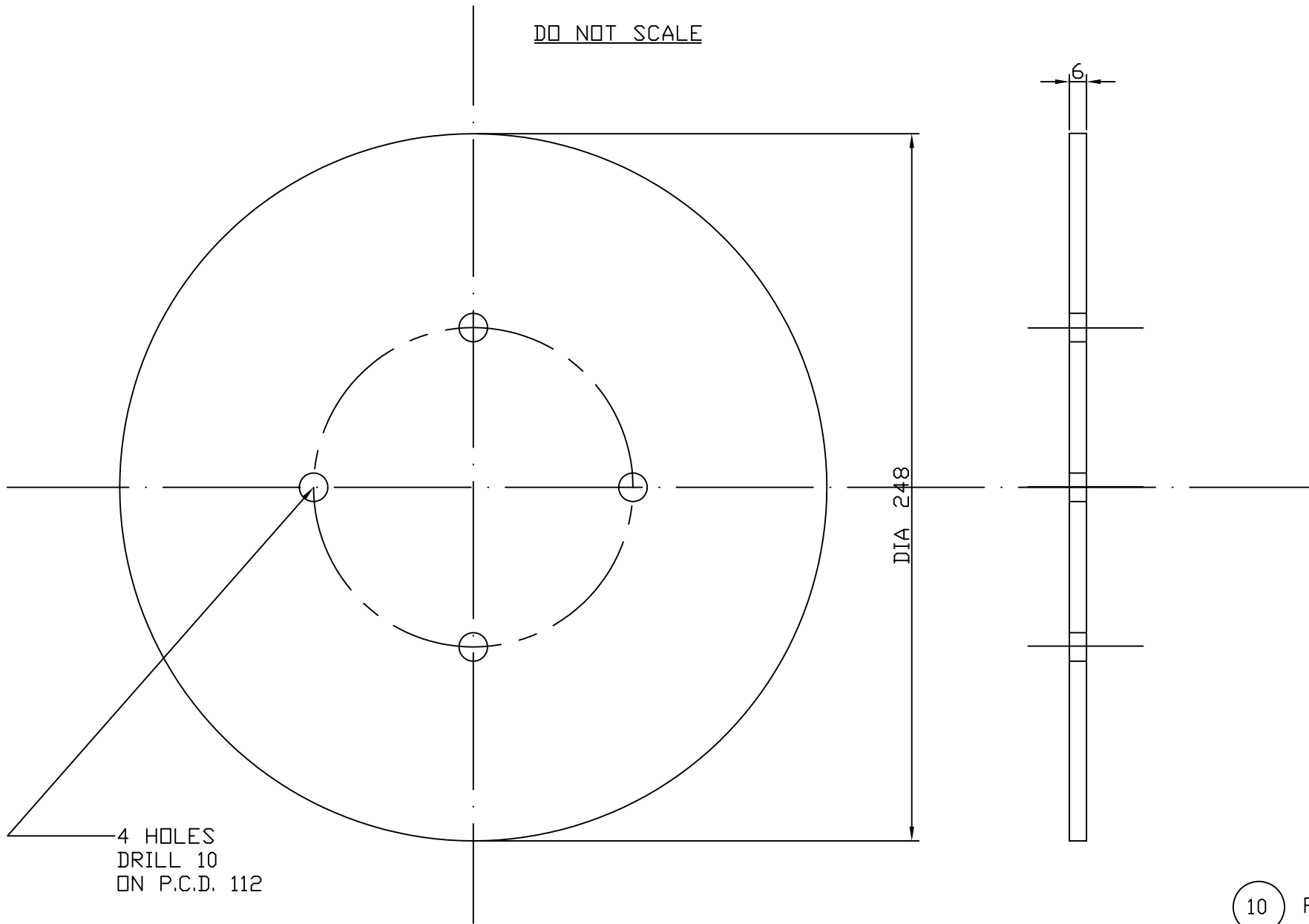
NOT TO
SCALE

MATERIAL MILD STEEL

DRAWING No. MSP106

REVISIONS

DO NOT SCALE



10 PRESSURE DISC

No.	Description	CHK	AP'D	DATE
REVISIONS				

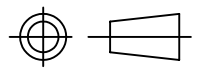
Practical Action

TITLE MANUAL SCREW PRESS

DRAWN A.R

TRACE -

CHK -

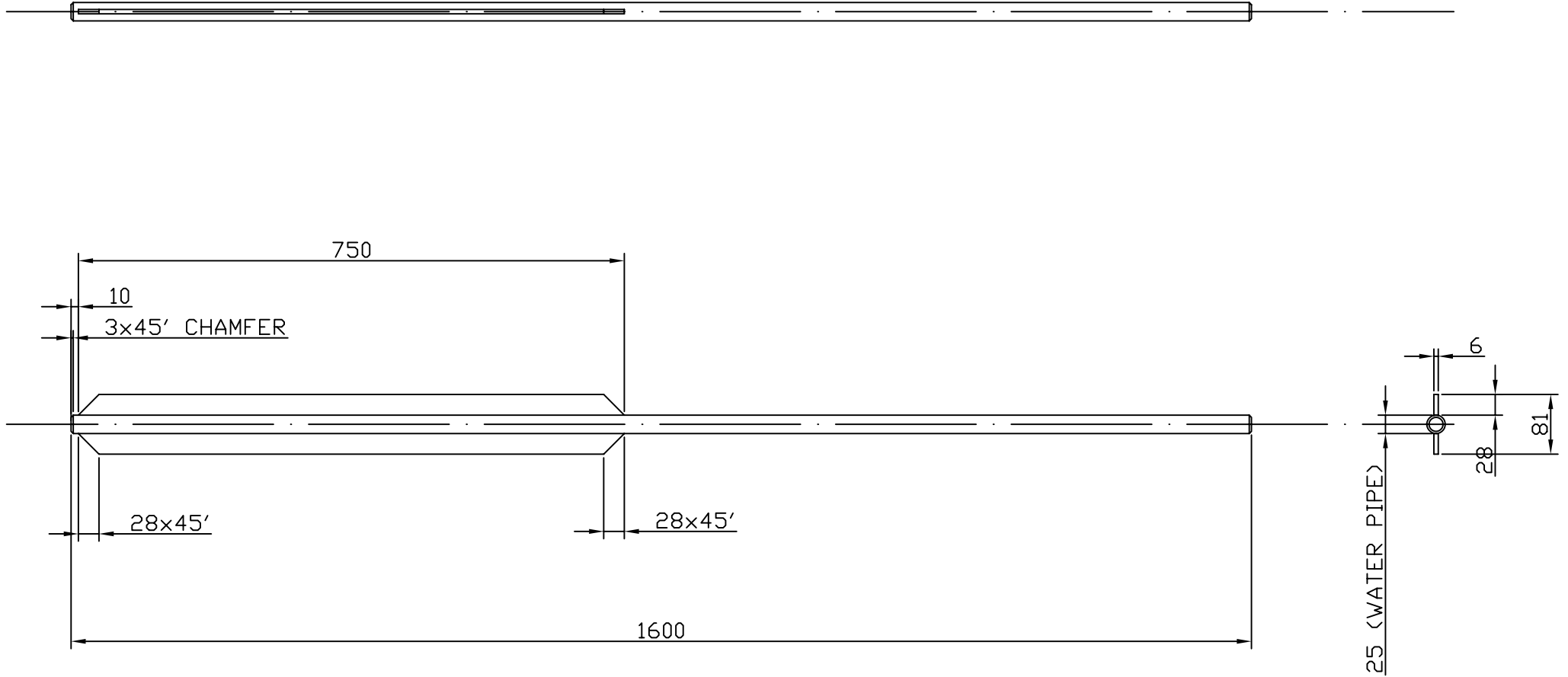


NOT TO SCALE

MATERIAL HARD WOOD

DRAWING No. MSP107

DO NOT SCALE

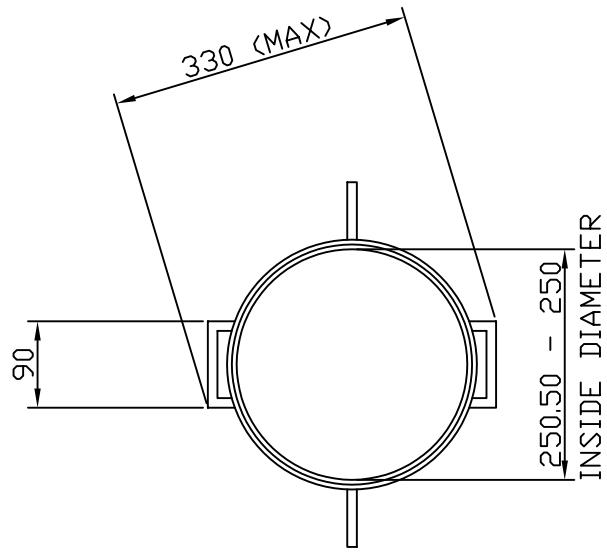


9 TORQUE ARM

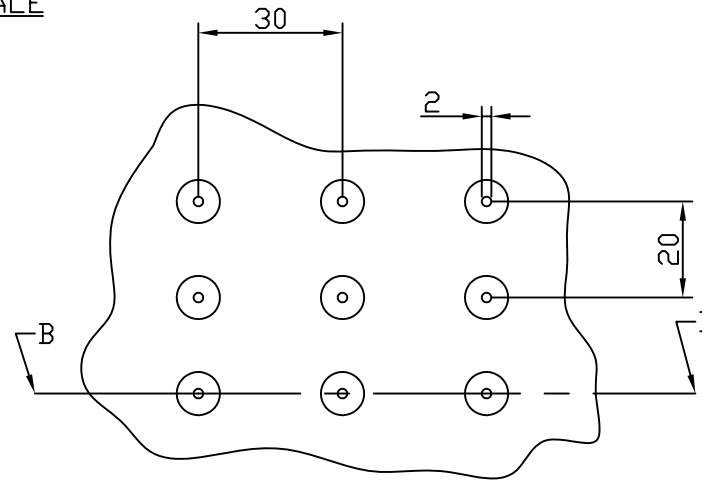
No.	Description	CHK	AP'D	DATE

Practical Action

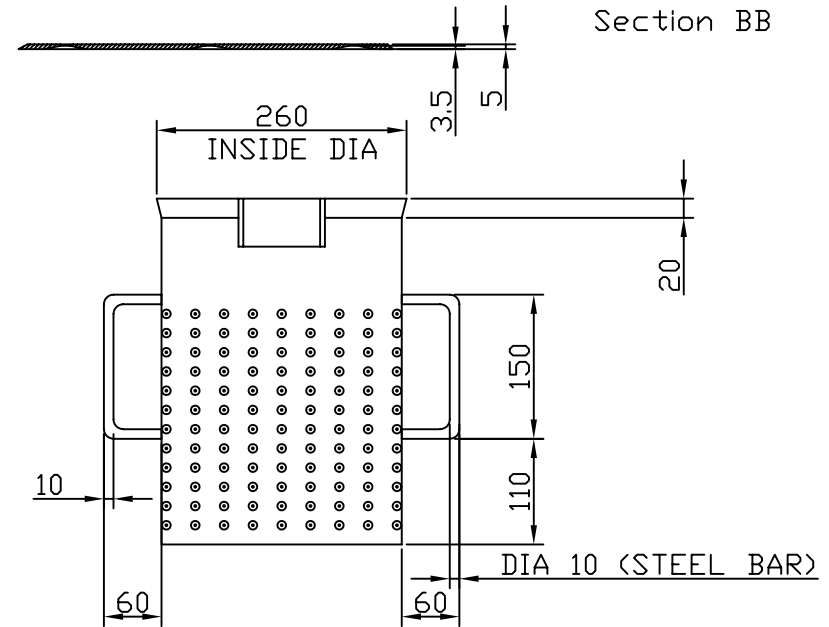
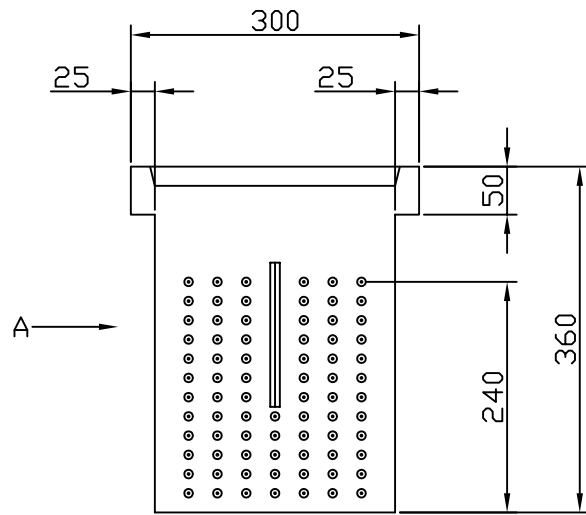
TITLE	MANUAL SCREW PRESS	DRAWN	TRACE	CHK		DO NOT SCALE
MATERIAL	MILD STEEL	A.R	-	-		
DRAWING No. MSP108						



DO NOT SCALE



View on A



Section BB

NOTE: FULLY WELDED CONSTRUCTION

8 CAGE

No.	Description	CHK	AP'D	DATE

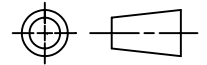
Practical Action

TITLE MANUAL SCREW PRESS

DRAWN A.R

TRACE -

CHK -

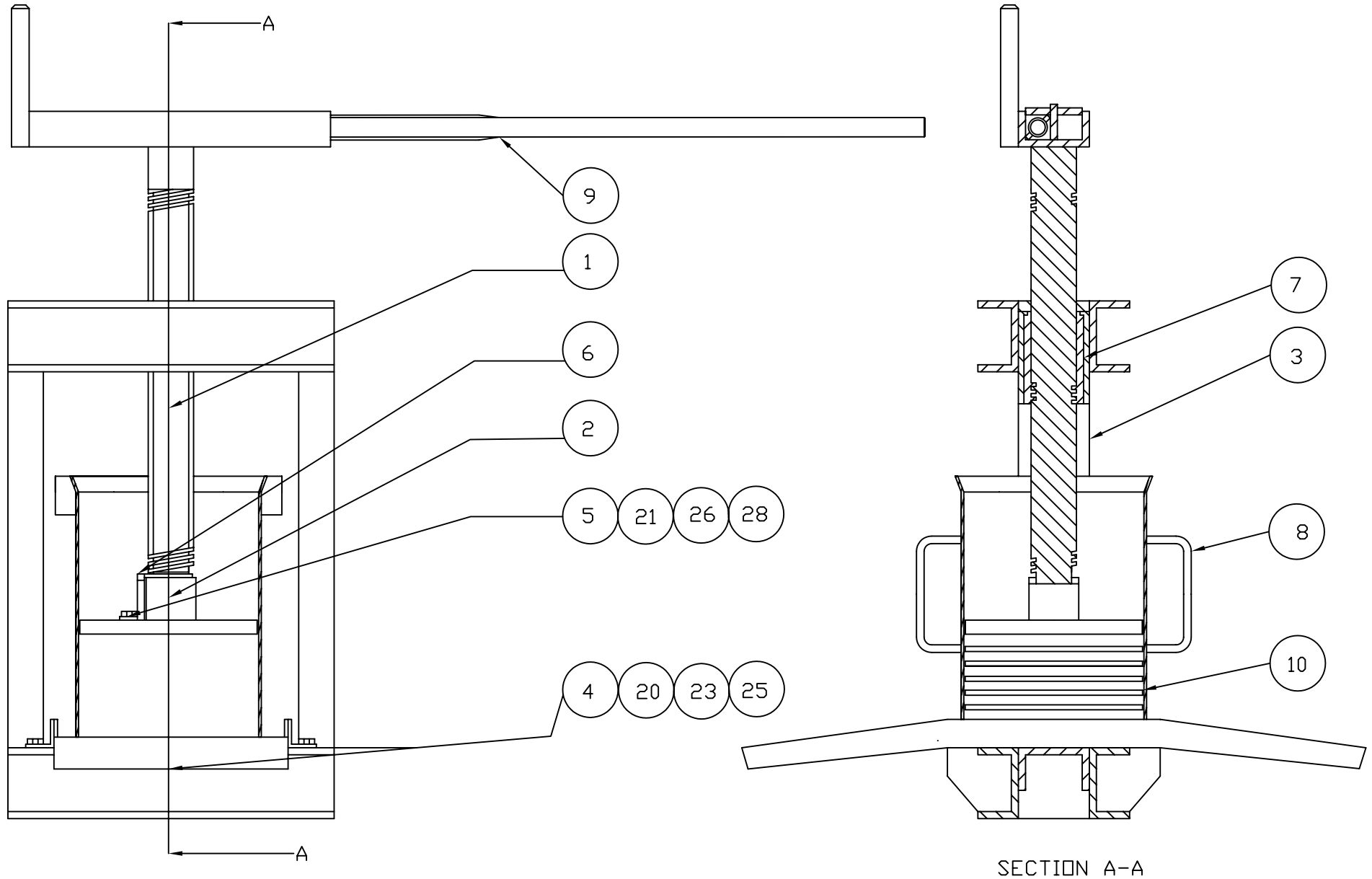


NOT TO SCALE

MATERIAL 5mm STEEL PLATE

DRAWING No. MSP109

DO NOT SCALE



No.	Description	CHK	AP'D	DATE

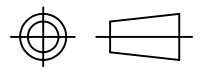
Practical Action

TITLE MANUAL SCREW PRESS

DRAWN A.R

TRACE -

CHK -

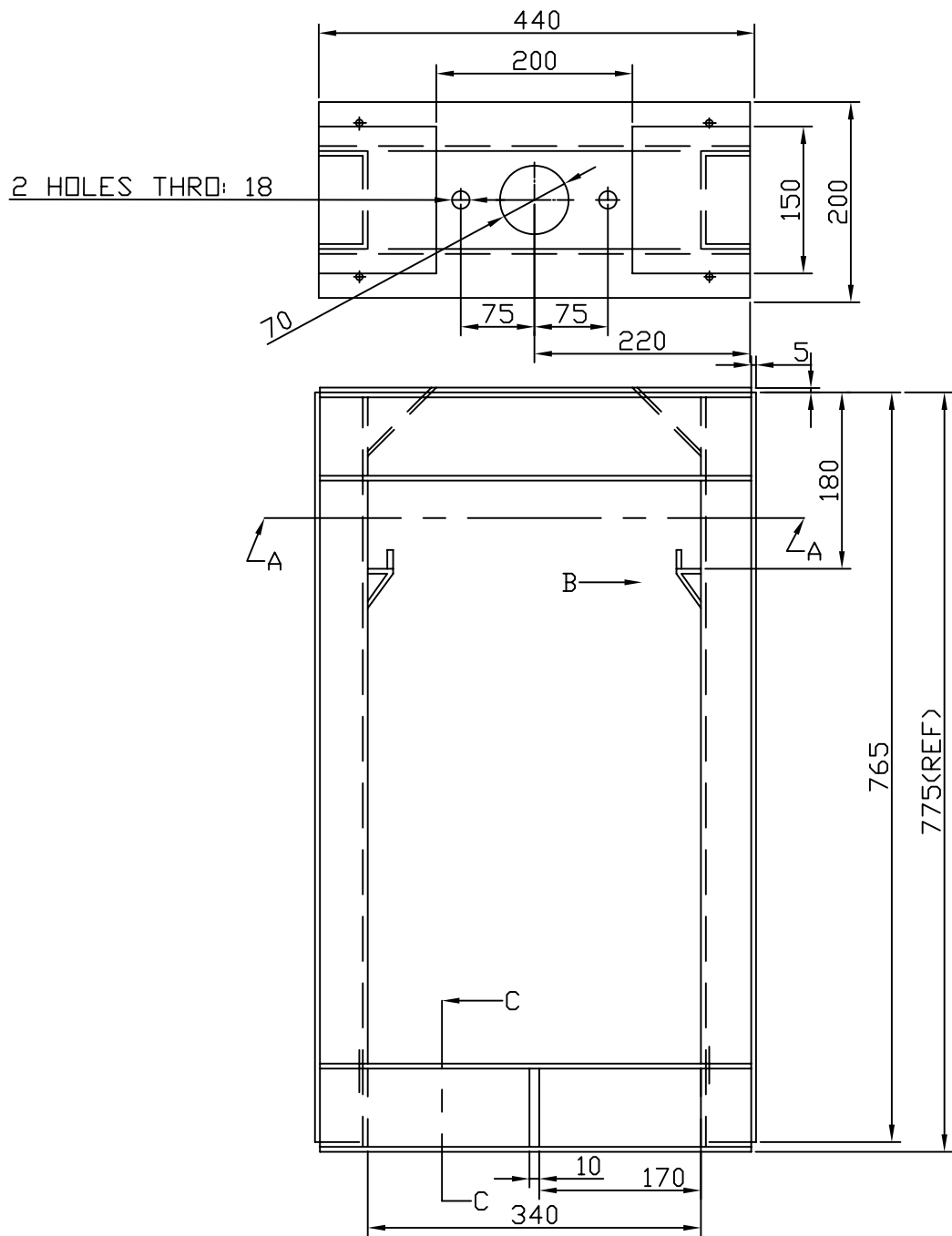


NOT TO SCALE

MATERIAL -

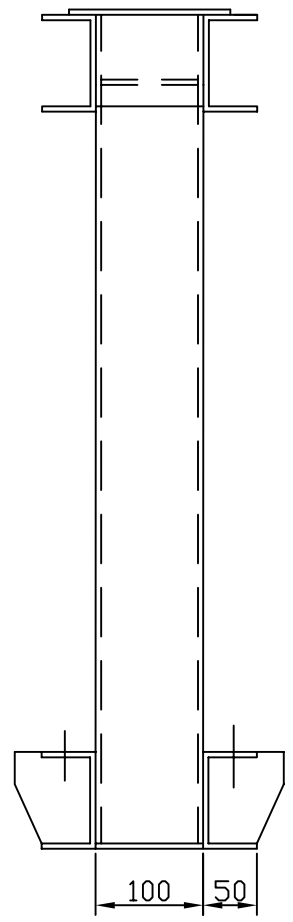
DRAWING No. MSP001

REVISIONS





DO NOT SCALE

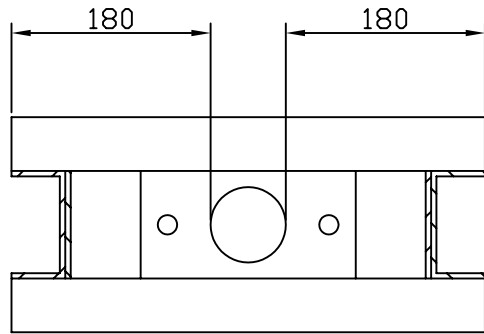
NOTE: FULLY WELDED CONSTRUCTION UNLESS OTHERWISE STATED



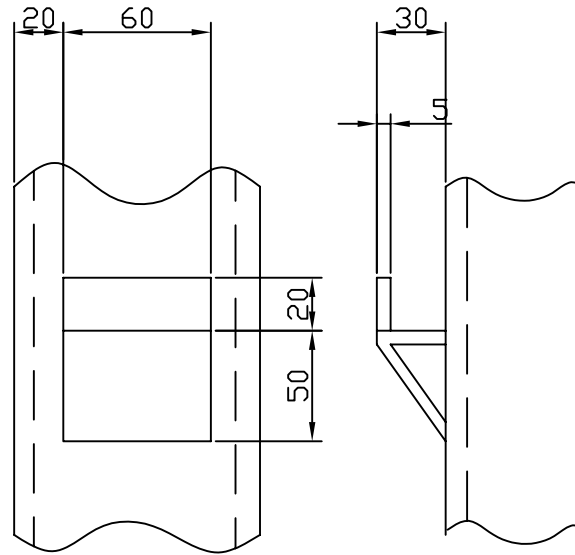
3 MAIN FRAME (DETAILS)

				Practical Action	TITLE	MANUAL SCREW PRESS	DRAWN	TRACE	CHK	 	DO NOT SCALE
					MATERIAL	MILD STEEL	A.R	-	-		
No.	Description	CHK	AP'D	DATE	DRAWING No. MSP101a						
REVISIONS											

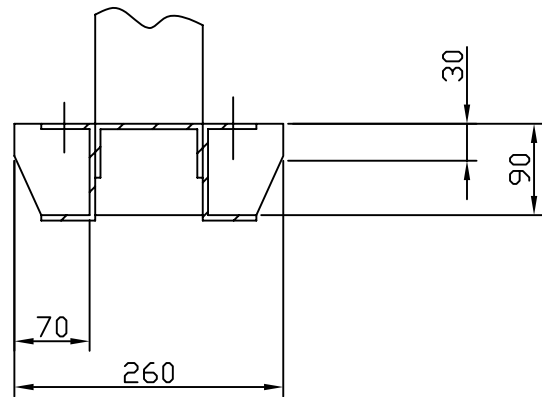
DO NOT SCALE



SECTION A-A



VIEW ON B
NOTE FULLY WELDED CONSTRUCTION



SECTION C-C
NOTE: FULLY WELDED CONSTRUCTION

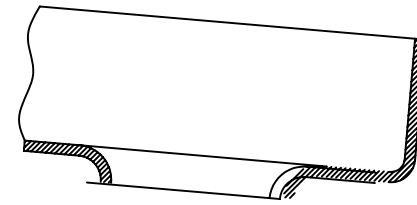
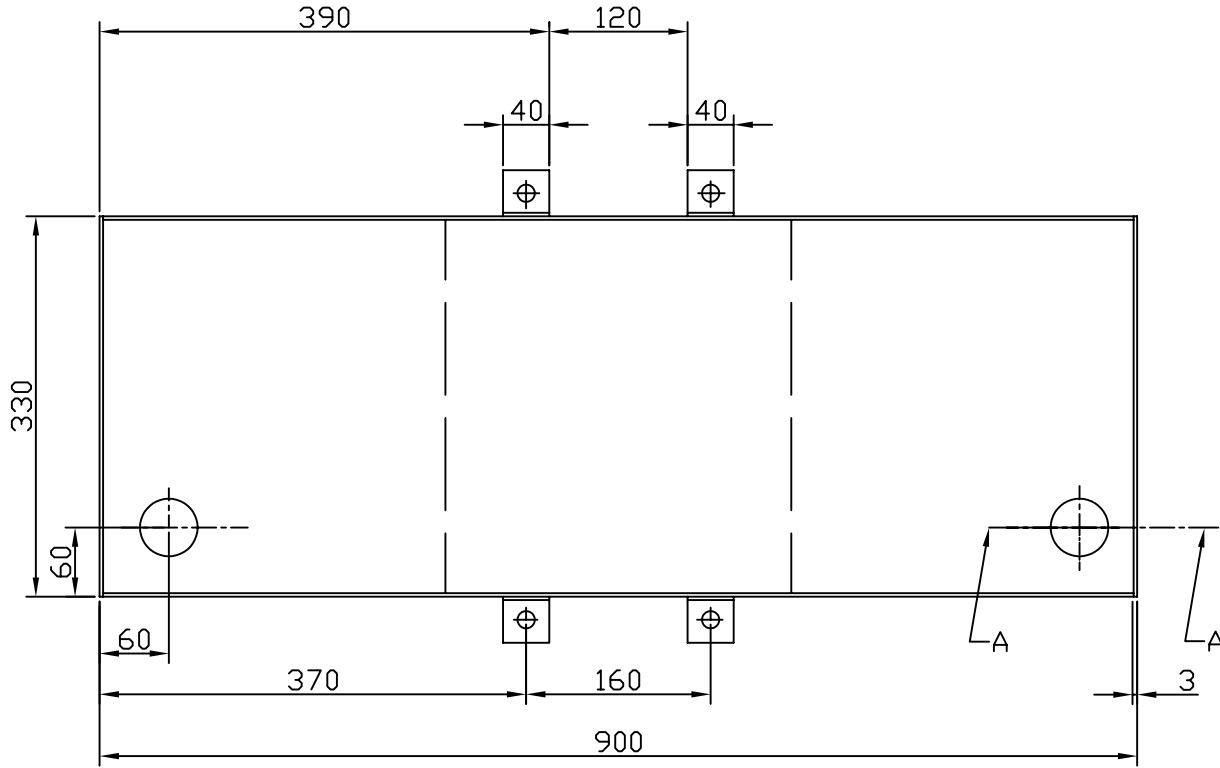
3 MAIN FRAME
(DETAILS)

No.	Description	CHK	AP'D	DATE
REVISIONS				

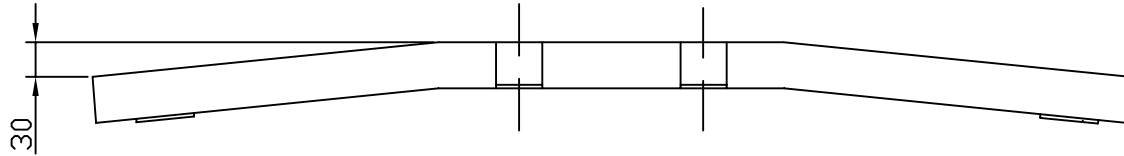
Practical
Action

TITLE	MANUAL SCREW PRESS	DRAWN	A.R	TRACE	-	CHK	-			DO NOT SCALE
MATERIAL	MILD STEEL	DRAWING No. MSP101								

DO NOT SCALE



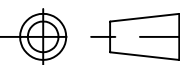
SECTION A-A

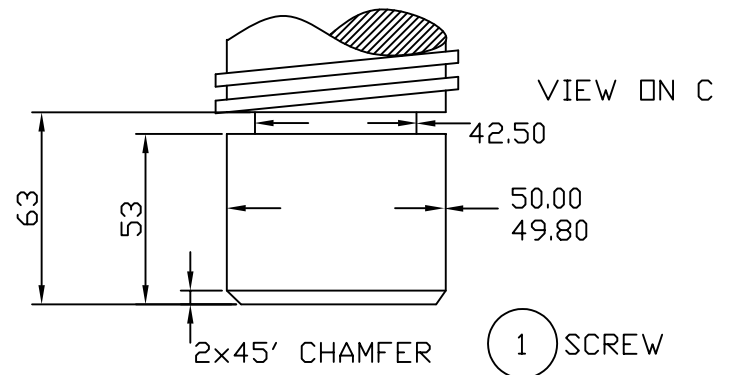
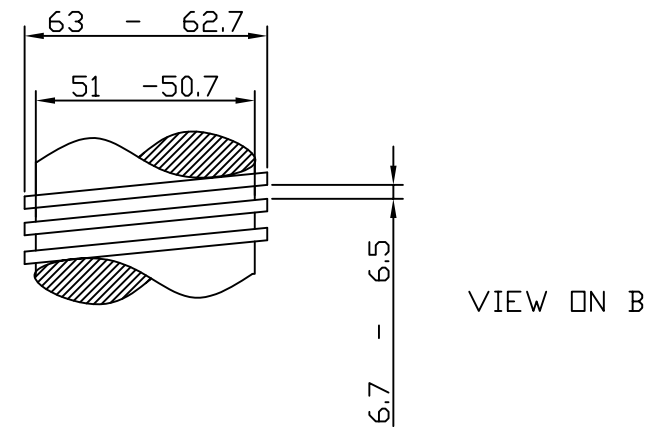
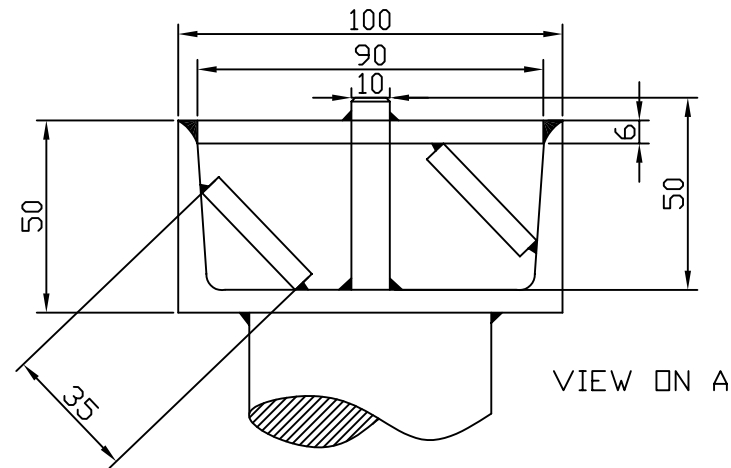
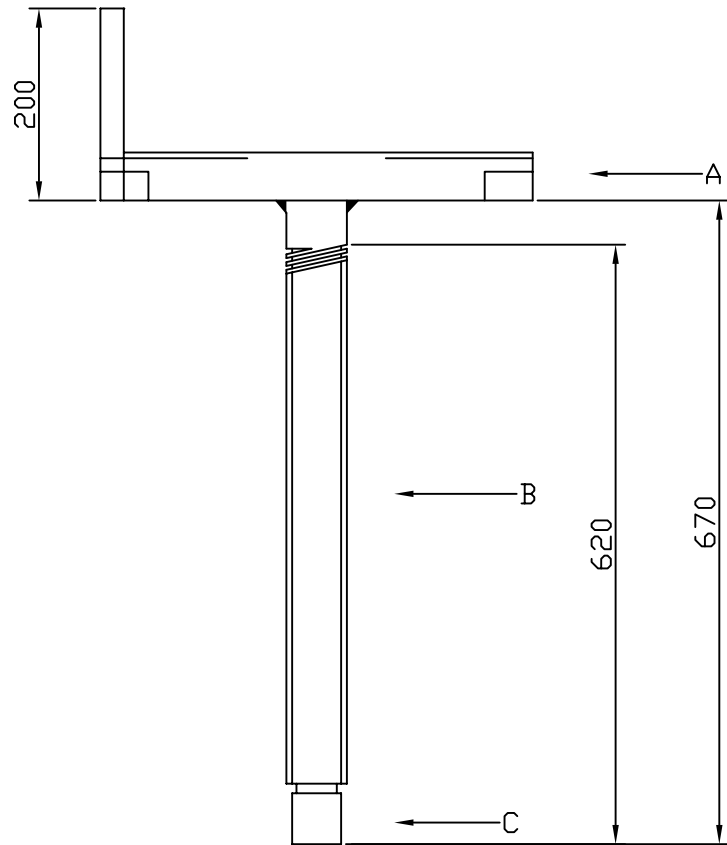
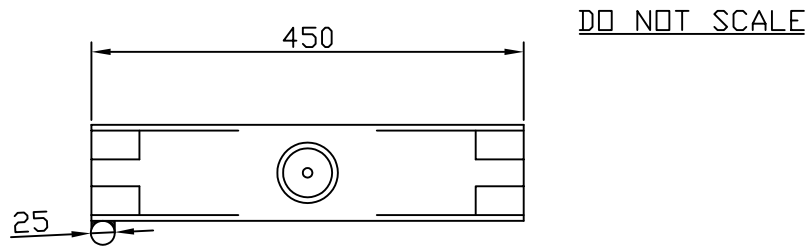


TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

④ OIL COLLECTION
TRAY

No.	Description	CHK	AP'D	DATE
REVISIONS				

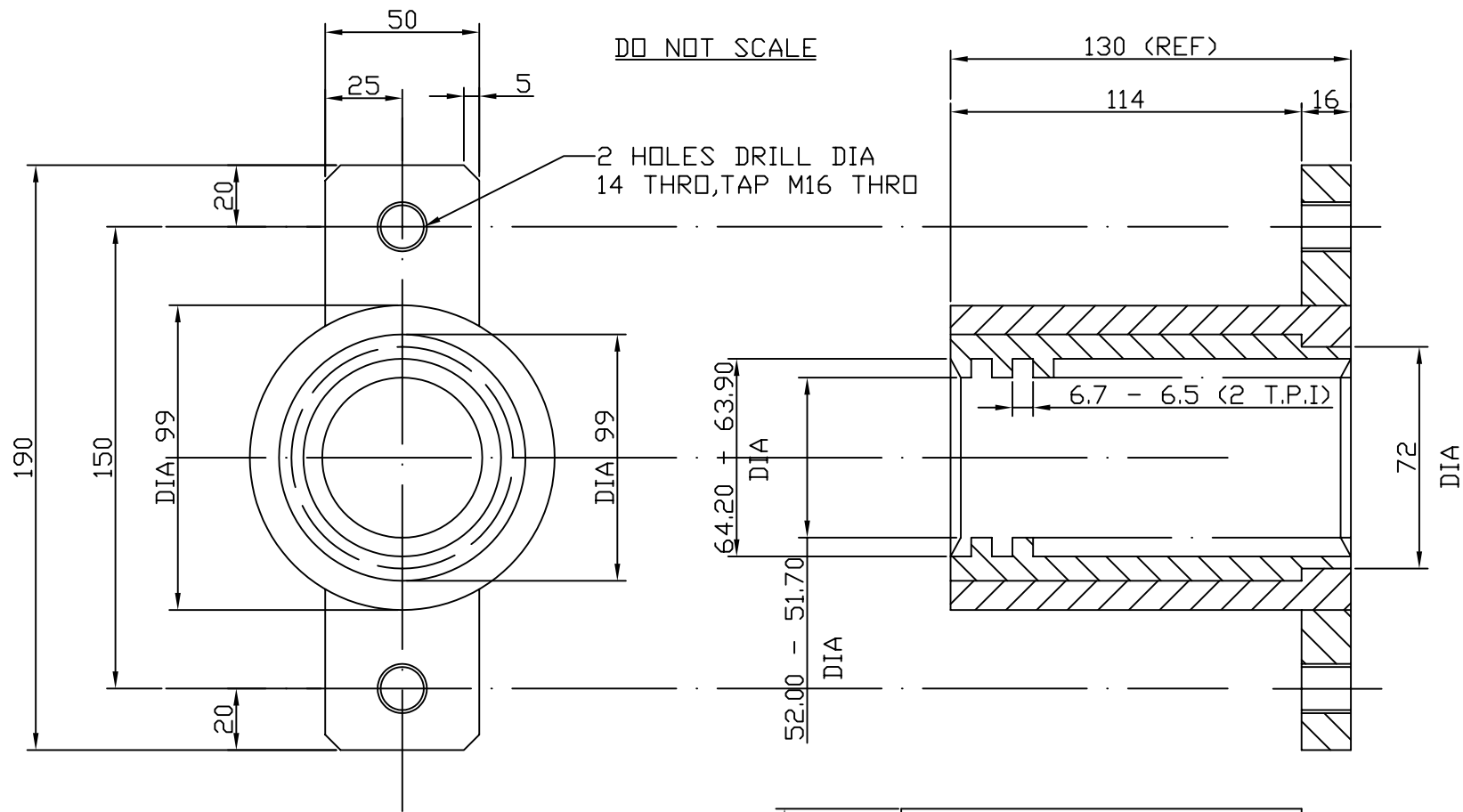
Practical Action	TITLE	MANUAL SCREW PRESS	DRAWN	TRACE	CHK		NOT TO SCALE
	MATERIAL	SHEET STEEL	A.R	-	-		
			DRAWING No. MSP102				



TOLERANCES
UNLESS OTHERWISE
STATED ± 0.25

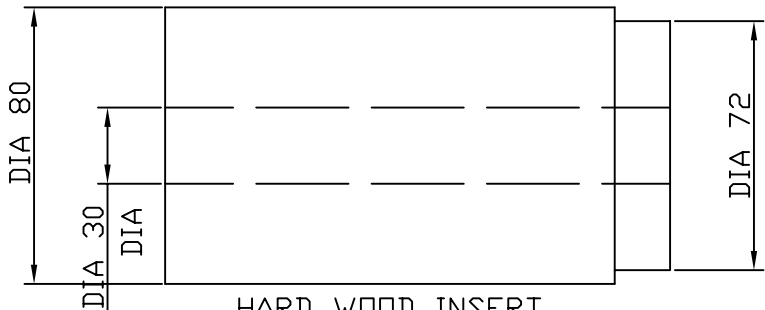
No.	Description	CHK	AP'D	DATE

Practical Action	TITLE MANUAL SCREW PRESS	DRAWN A.R	TRACE -	CHK -			NOT TO SCALE
REVISIONS	MATERIAL MILD STEEL	DRAWING No. MSP103					



DO NOT SCALE

2 HOLES DRILL DIA 14 THRO, TAP M16 THRO


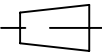


HARD WOOD INSERT

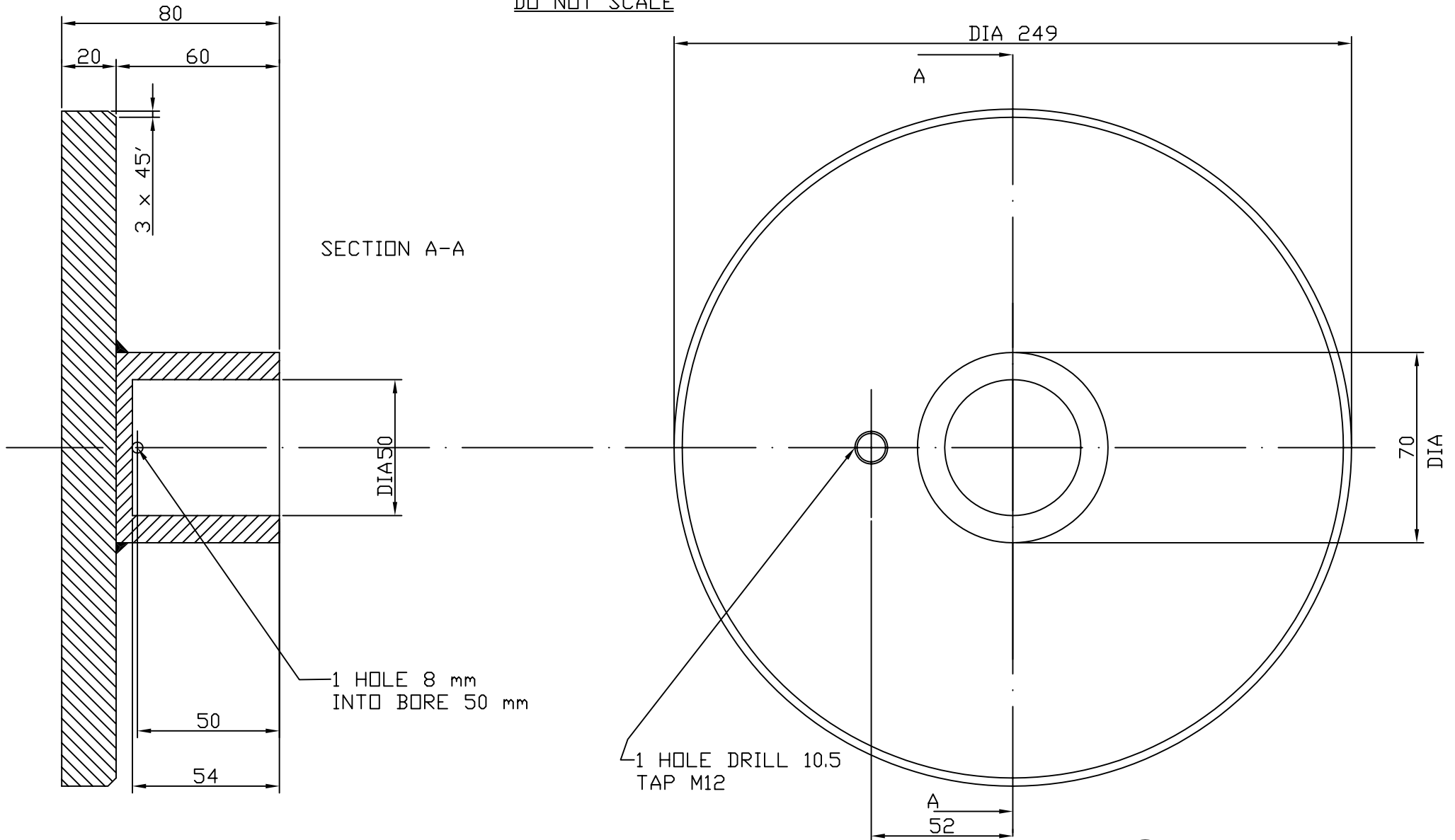
7 SCREW NUT

NOTE: MACHINE INSERT O.D AND DIA 30 BORE THEN ASSEMBLE INTO NUT BEFORE MACHINING SCREW THREAD

No.	Description	CHK	AP'D	DATE

TITLE	MANUAL SCREW PRESS	DRAWN	A.R	TRACE	-	CHK	-	 	NOT TO SCALE
MATERIAL	HARD WOOD MILD STEEL	DRAWING No. MSP104							

DO NOT SCALE



TOLERANCES UNLESS OTHERWISE STATED +/- 0.25

5 PRESSURE PLATE

No.	Description	CHK	AP'D	DATE

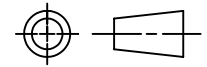
Practical Action

TITLE MANUAL SCREW PRESS

DRAWN A.R

TRACE -

CHK -



NOT TO SCALE

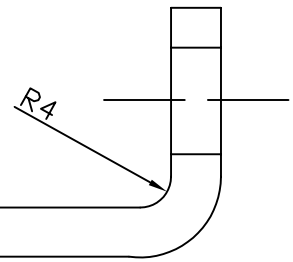
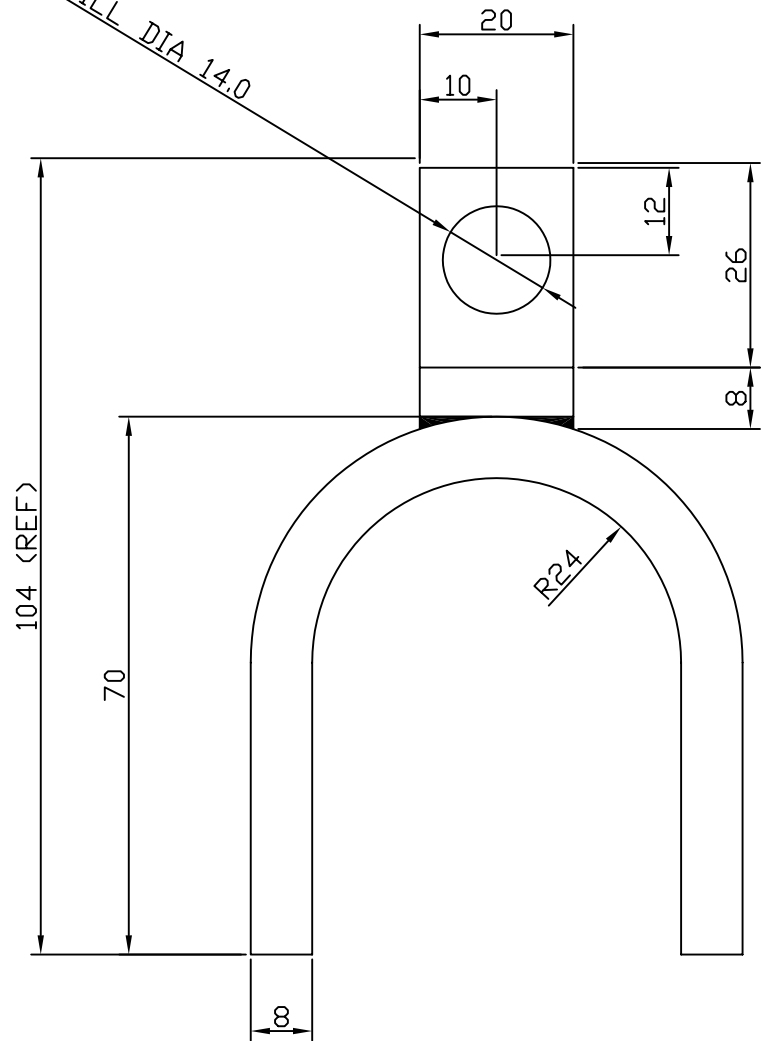
MATERIAL MILD STEEL

DRAWING No. MSP105

REVISIONS

DO NOT SCALE

1 HOLE DRILL DIA 14.0



NOTE: FULLY WELDED CONSTRUCTION

TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

6 RETENTION ARM
FOR PRESSURE
PLATE

No.	Description	CHK	AP'D	DATE

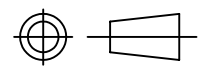
Practical
Action

TITLE MANUAL SCREW
PRESS

DRAWN
A.R

TRACE
-

CHK
-



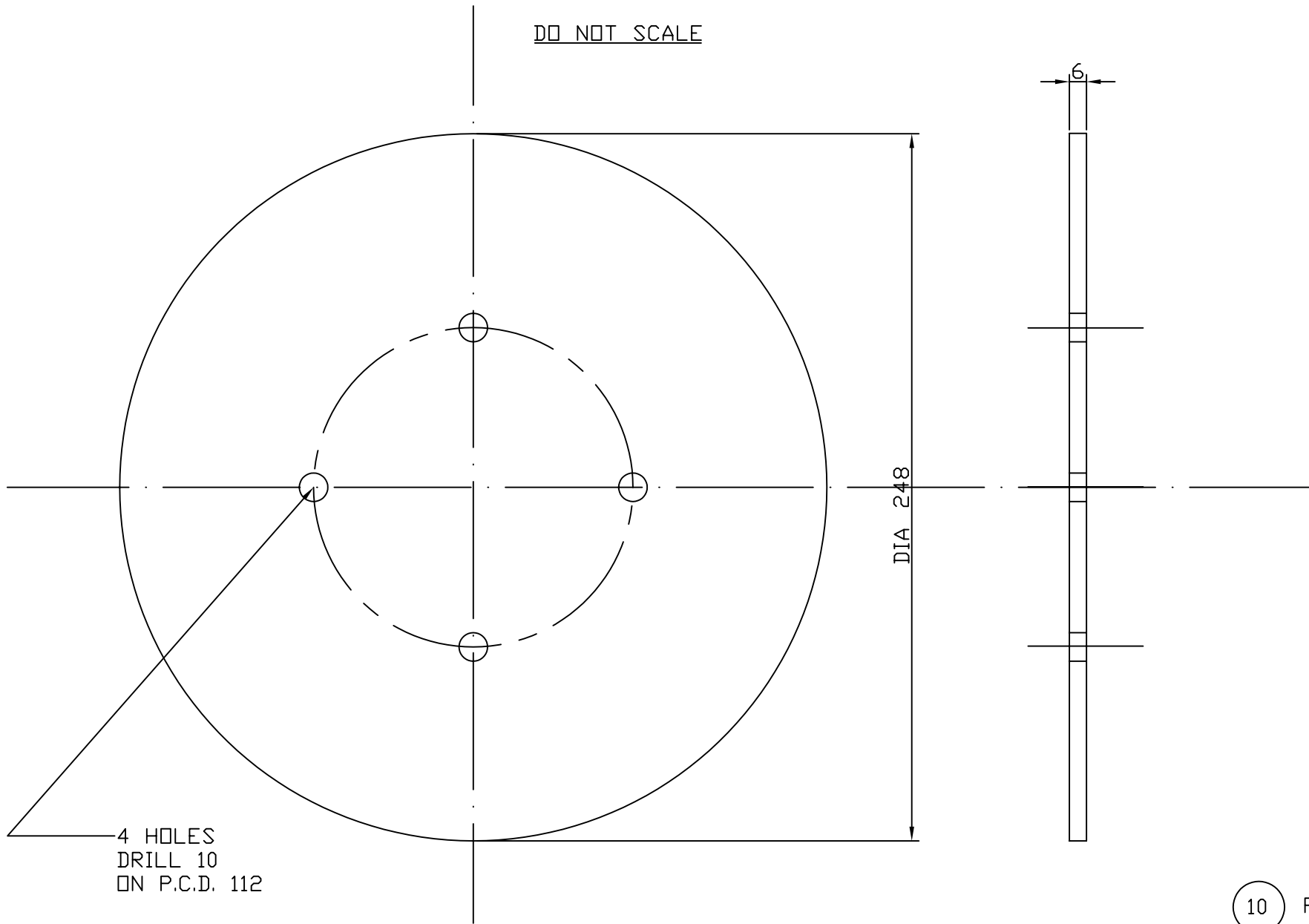
NOT TO
SCALE

MATERIAL MILD STEEL

DRAWING No. MSP106

REVISIONS

DO NOT SCALE



10 PRESSURE DISC

No.	Description	CHK	AP'D	DATE
REVISIONS				

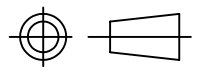
Practical Action

TITLE MANUAL SCREW PRESS

DRAWN A.R

TRACE -

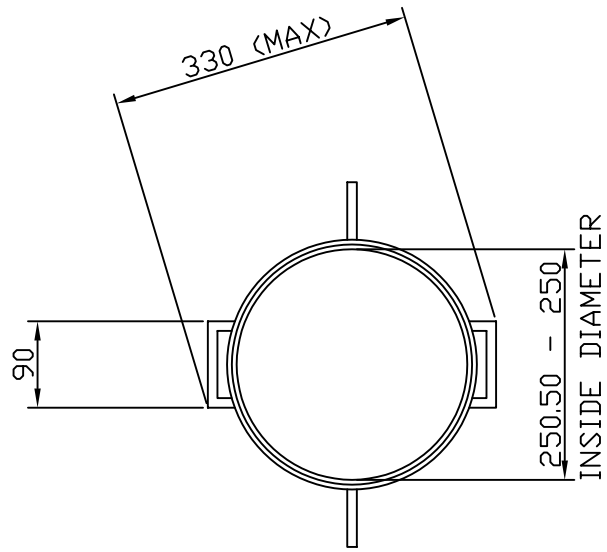
CHK -



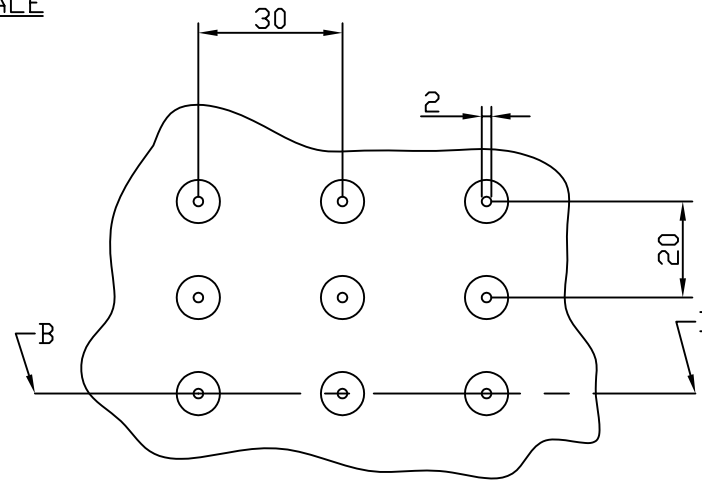
NOT TO SCALE

MATERIAL HARD WOOD

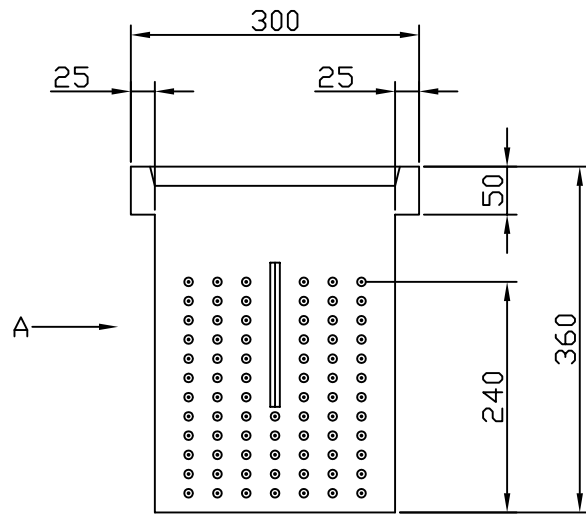
DRAWING No. MSP107



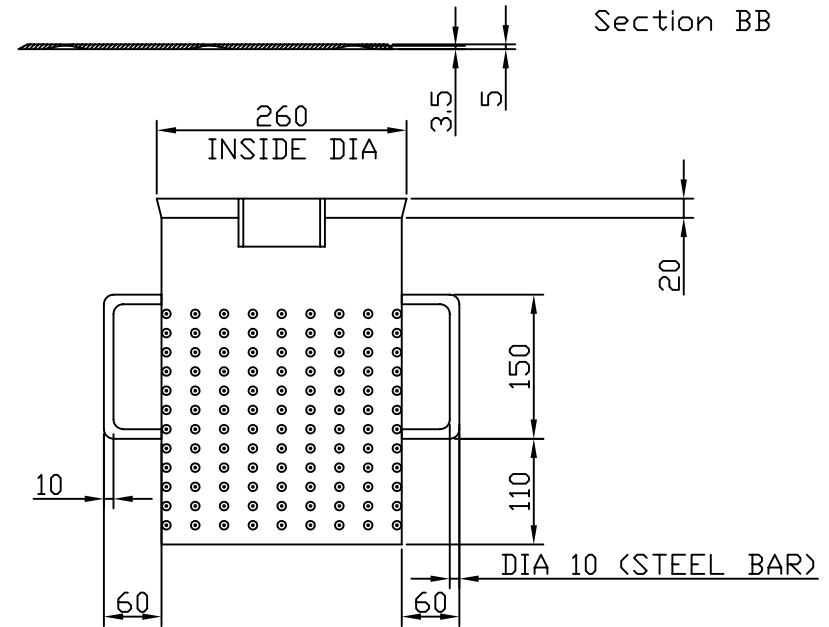
DO NOT SCALE



View on A



NOTE: FULLY WELDED CONSTRUCTION



8 CAGE

No.	Description	CHK	AP'D	DATE
REVISIONS				

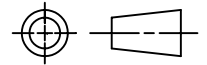
Practical Action

TITLE MANUAL SCREW PRESS

DRAWN A.R

TRACE -

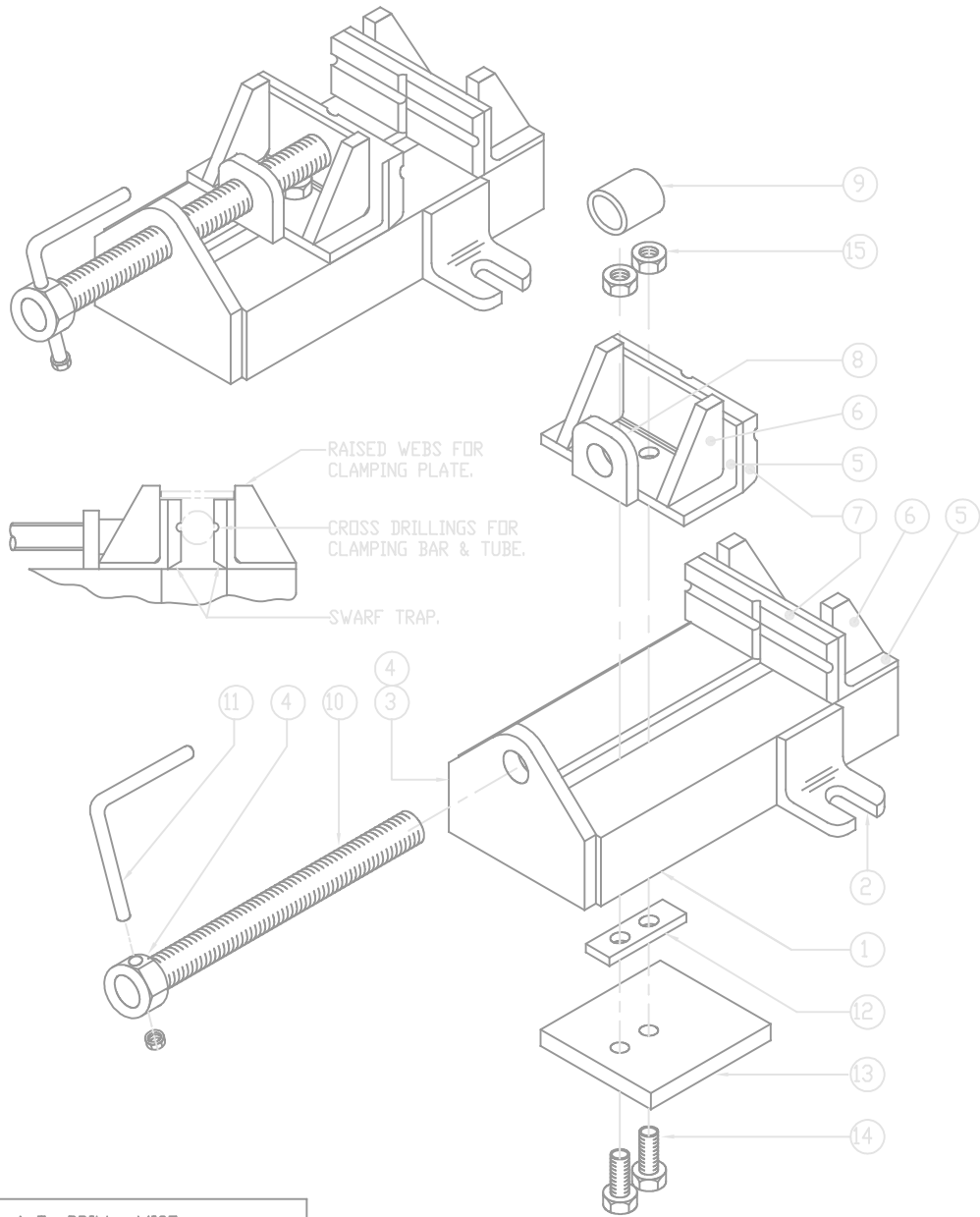
CHK -



NOT TO SCALE

MATERIAL 5mm STEEL PLATE

DRAWING No. MSP109









PEN SETTINGS FOR PLOTTING

COLOUR/No.

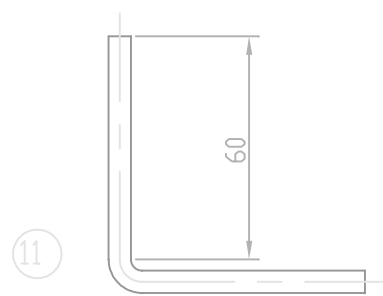
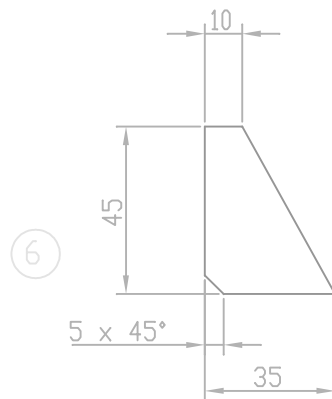
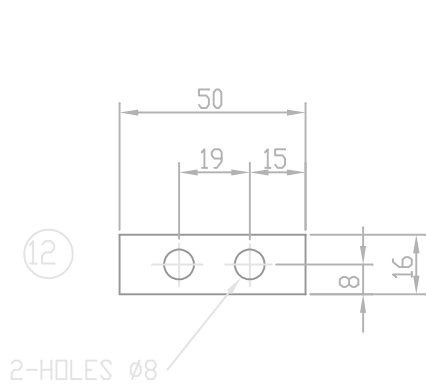
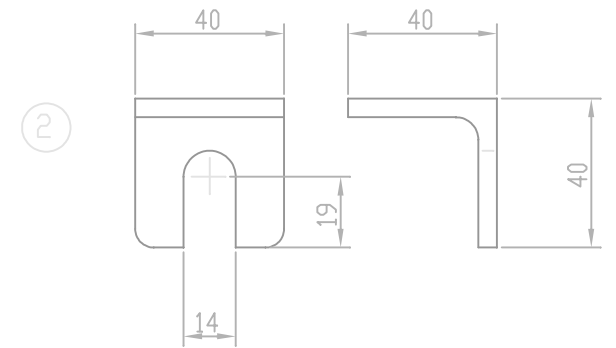
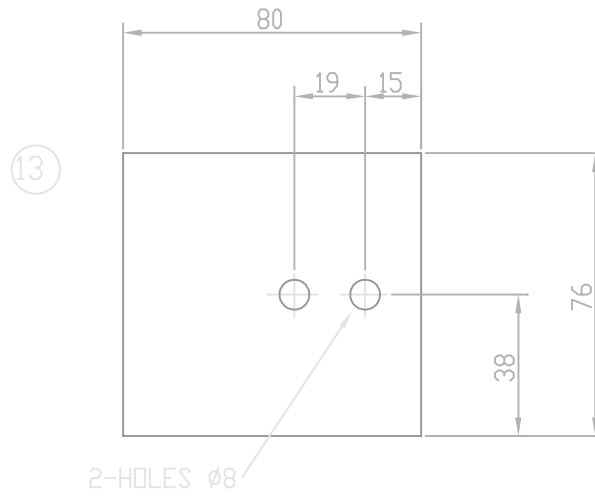
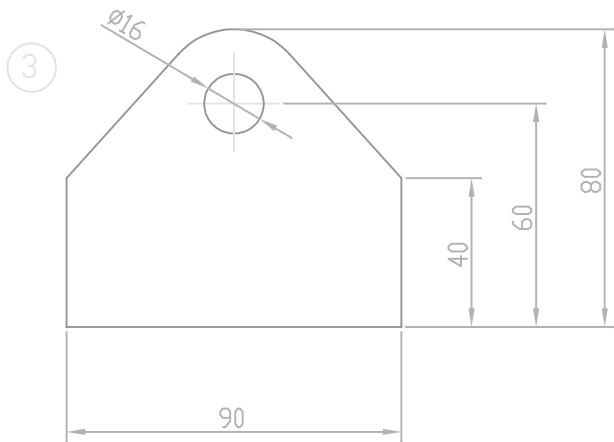
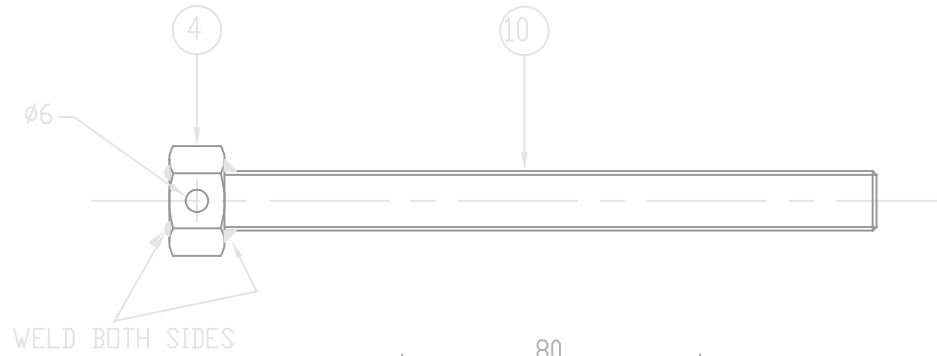
- 1 PEN WIDTH .18
- 7 PEN WIDTH .2
- 2 } PEN WIDTH .25
- 4 }
- 6 }
- 3 PEN WIDTH .3

ApT DRILL VICE	
TITLE: ASSEMBLY DRAWING	
SCALE: 1:2	
DRAWN: ABATEC	PAGE: 1 of 5
CAD No: APT-05-1	

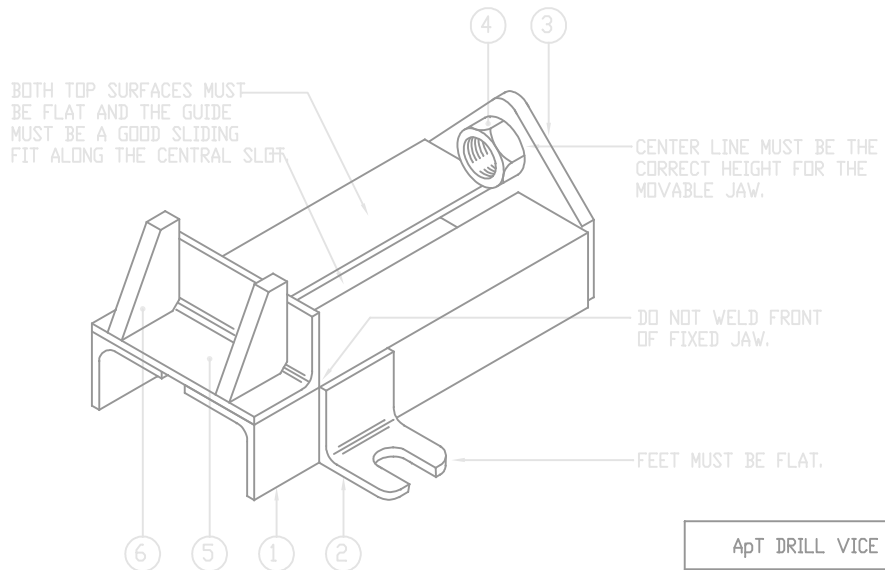
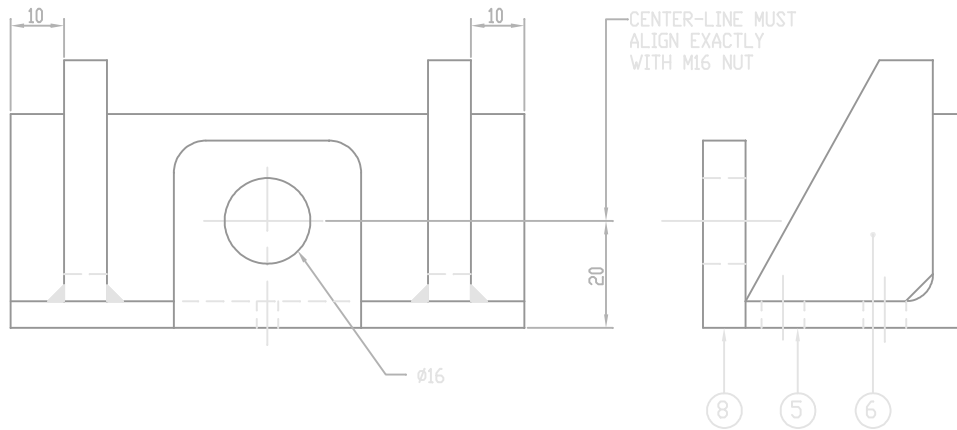
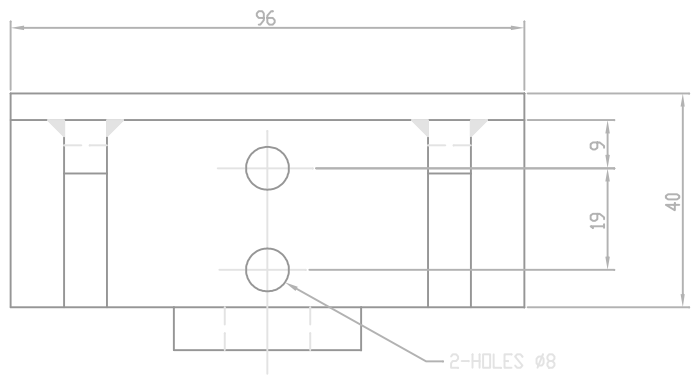
No.	DESCRIPTION	QUANTITY	DIMENSIONS
1	SIDE	2	40 x 40 ANGLE IRON x 200
2	FOOT	2	40 x 40 ANGLE IRON x 40
3	BACK	1	8 x 80 x 90
4	NUT	2	M16 NUT
5	JAW SUPPORT	2	40 x 40 ANGLE IRON x 96
6	WEB	2	8 x 35 x 45
7	JAW	2	8 x 40 x 96
8	RELEASE PLATE	1	8 x 35 x 35
9	RELEASE TUBE	1	Ø18 (Ø16 BORE) x 15
10	THREAD	1	M16 STUDDING x 190
11	HANDLE	1	Ø6 x 130
12	GUIDE	1	4 x 16 x 50 (THICKNESS OF ANGLE IRON)
13	CLAMP PLATE	1	8 x 80 x 76
14	BOLTS	2	M8 BOLTS x 23
15	NUTS	3	M8 NUT

	1	PEN WIDTH .18
	7	PEN WIDTH .2
	2	} PEN WIDTH .25
	4	
	6	
	3	PEN WIDTH .3

ApT DRILL VICE	
TITLE: PARTS LIST	
SCALE:	
DRAWN: ABATEC	PAGE: 2 of 5
CAD No: APT-05-2	



ApT DRILL VICE	
TITLE: DRILL VICE DETAILS	
SCALE: 1:2	
DRAWN: ABATEC	PAGE: 3 of 5
CAD No: APT-05-3	



PEN SETTINGS FOR PLOTTING

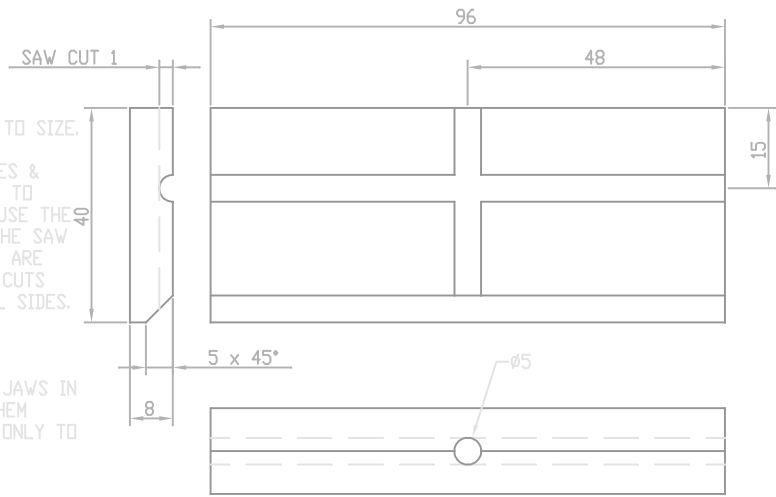
COLOUR/No.

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- 7 PEN WIDTH .2
- 2 } PEN WIDTH .25
- 4 }
- 6 }
- 3 PEN WIDTH .3

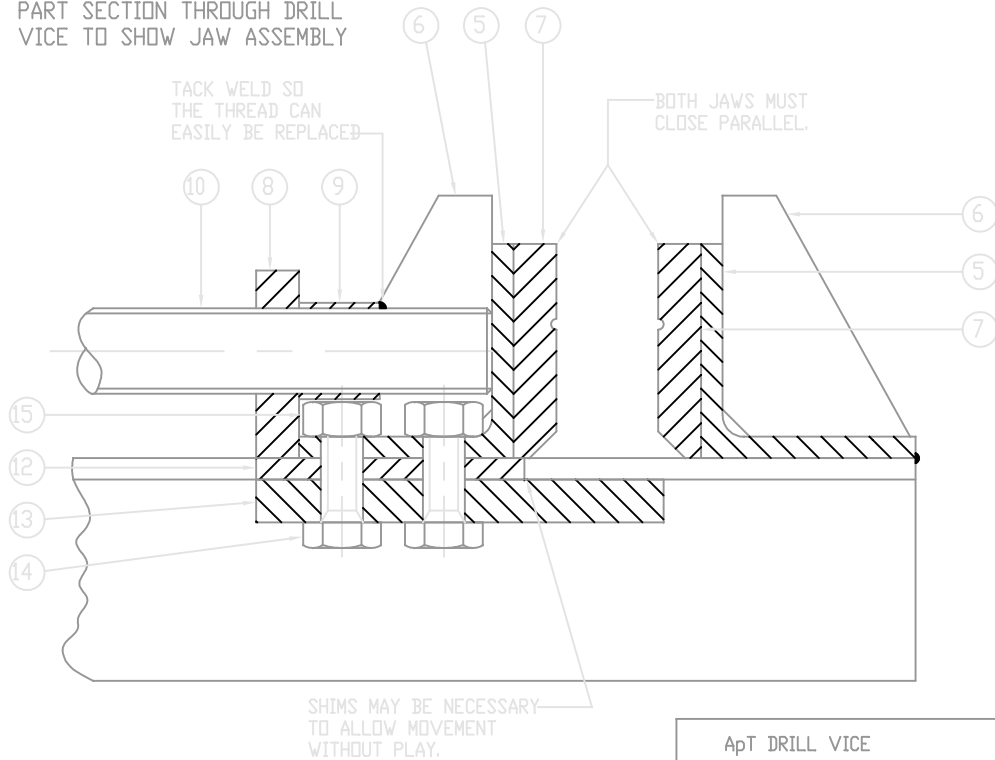
ApT DRILL VICE	
TITLE: MOVABLE JAW & BODY SUB	
SCALE: 1:1	
DRAWN: ABATEC	PAGE: 4 of 5
CAD No: APT-05-4	

CONSTRUCTION

1. CUT THE TWO JAWS EXACTLY TO SIZE.
2. ACCURATELY MARK CROSS-LINES & CAREFULLY SAW ALONG THEM TO PRODUCE THE PILOT HOLES. USE THE SIDE OF A VICE TO GUIDE THE SAW BLADE. WHEN THE TWO JAWS ARE PLACED TOGETHER THE SAW CUTS MUST ALIGN EXACTLY ON ALL SIDES.
3. NOW PRODUCE THE CHAMFER.
4. ACCURATELY ALIGN THE TWO JAWS IN THE DRILL VICE & CLAMP THEM TOGETHER. WELD THE SIDES ONLY TO THE JAW SUPPORTS.
5. DRILL OUT THE PILOT HOLES.



PART SECTION THROUGH DRILL VICE TO SHOW JAW ASSEMBLY



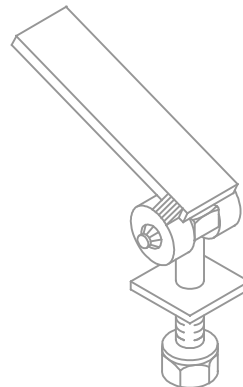
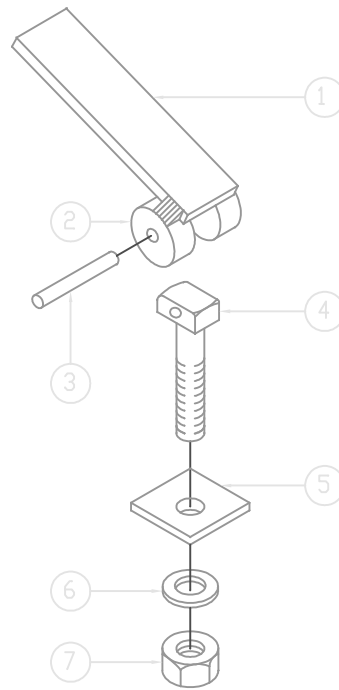
PEN SETTINGS FOR PLOTTING

COLOUR/No.	PEN WIDTH
1	PEN WIDTH .18
7	PEN WIDTH .2
2	} PEN WIDTH .25
4	
6	
3	PEN WIDTH .3

ApT DRILL VICE	
TITLE: JAW CONSTRUCTION & SUB ASSEMBLY	
SCALE: 1:1	
DRAWN: ABATEC	PAGE: 5 of 5
CAD No: APT-05-5	

CONSTRUCTION

1. SAW BOLT HEAD AND FILE SMOOTH AND PARALLEL. CENTER-PUNCH HOLE AND PILOT DRILL 3 DIA.
2. SAW 21mm OFF 25 DIA. BAR (TO ALLOW FOR 1mm HACKSAW WIDTH ON SECOND CUT), FILE SMOOTH AND LIE THE 10mm FLAT. CENTER-PUNCH HOLE AND PILOT DRILL 3 DIA. THEN OPEN HOLE OUT WITH 5 DIA. DRILL AND SAW INTO HALF TO PRODUCE BOTH CAMS WITH IDENTICAL PROFILES. FILE SMOOTH.
3. DRILL 5 DIA. IN BOLT HEAD.
4. SAW THE WASHER AND FILE THE CHAMFERS ON THE EDGES. THE CHAMFERS HELP TO LIFT THE WASHER UP ONTO THE DRILL VICE FEET WHEN IN USE. THE WASHER IS SQUARE SO IT IS EASY TO SAW AND EASY TO CLAMP WHEN DRILLING THE HOLE. CENTER-PUNCH AND PILOT DRILL 5 DIA. OPEN OUT WITH 12 DIA. DRILL. THE HOLE SHOULD BE QUITE A GOOD FIT AROUND THE BOLT SO WHEN IT CLAMPS, THE WASHER DOES NOT SLIDE UNDER THE CAMS, POSSIBLY CAUSING THE DRILL VICE TO MOVE. IT MAY BE POSSIBLE TO FIND A SUITABLE WASHER; IT DOES NOT HAVE TO BE SQUARE, BUT DOES NEED TO BE QUITE THICK TO SPREAD THE CLAMPING LOAD.
5. CUT 5 DIA. PIN AND ASSEMBLE IN BOLT AND BOTH CAMS AND WELD PIN ONTO ONE CAM ONLY. THE PIN ONLY NEEDS ONE WELD TO HOLD IT SO IT CAN BE EASILY REPLACED WHEN WORN. SAW THE HANDLE, FILE SMOOTH AND WELD ONTO THE FLATS ON THE CAM. CHECK THE CLEARANCE BETWEEN THE HANDLE AND BOLT HEAD DURING OPERATION. THE BOLT HEAD CORNER MAY NEED FILING. TO FINISH OFF, WELD THE OTHER CAM ONTO THE HANDLE.









OPERATION

1. HOLD HANDLE UP AT ANGLE SO THE CAM DOES NOT GRIP.
2. TIGHTEN NUT TO HAND TIGHT, SO DRILL VICE CAN STILL BE MOVED WHEN HANDLE IS LIFTED FURTHER, BUT CLAMPS TIGHT WHEN PUSHED DOWN.
3. ACCURATELY POSITION DRILL VICE BEFORE CLAMPING.

PEN SETTINGS FOR PLOTTING

COLOUR/No.

	1	PEN WIDTH .18
	7	PEN WIDTH .2
	2	} PEN WIDTH .25
	4	
	6	
	3	PEN WIDTH .3

ApT SIMPLE DRILL VICE CLAMP

TITLE: VICE CLAMP ASSEMBLY

SCALE: 1:1

DRAWN: ABATEC PAGE: 1 of 3

CAD No: APT-14-1

No.	DESCRIPTION	QUANTITY	DIMENSIONS
1	HANDLE	1	5mm THICK
2	CAM	2	10 mm THICK
3	PIN	1	
4	BDLT	1	M12
5	WASHER	1	5 THICK
6	WASHER	1	M12
7	NUT	1	M12

PEN SETTINGS FOR PLOTTING

COLOUR/No.

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7 PEN WIDTH .2

2 } PEN WIDTH .25
4 }
6 }

3 PEN WIDTH .3

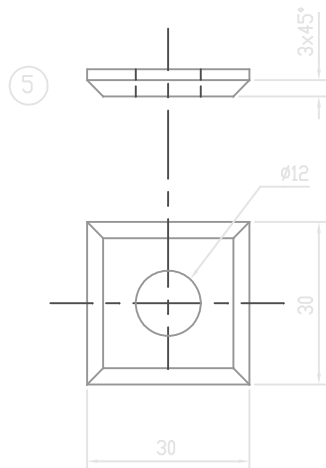
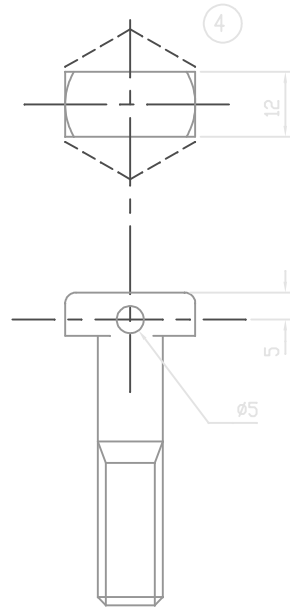
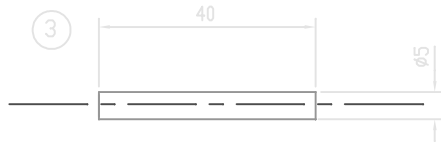
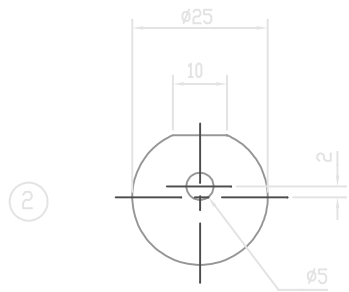
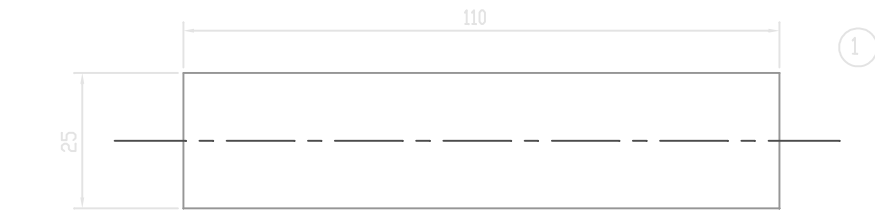
ApT SIMPLE DRILL VICE CLAMP

TITLE: PARTS LIST

SCALE:

DRAWN: ABATEC PAGE: 2 of 3

CAD No: APT-14-2







ApT SIMPLE DRILL VICE CLAMP	
TITLE: DETAILS	
SCALE: 1:1	
DRAWN: ABATEC	PAGE: of 3
CAD No: APT-14-3	

PEN SETTINGS FOR PLOTTING

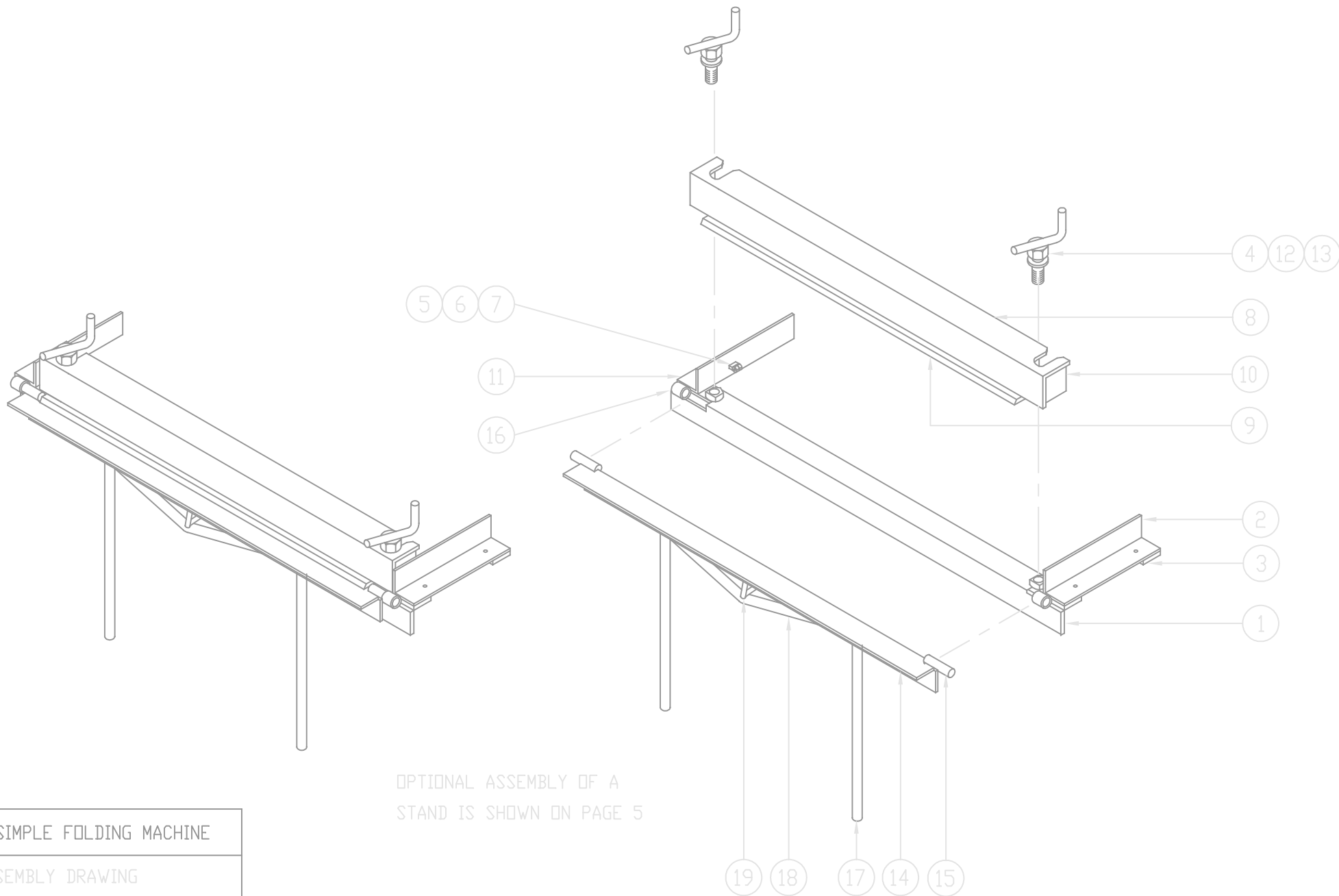
COLOUR/No.

 1 PEN WIDTH .18

 7 PEN WIDTH .2

 2
 4
 6 } PEN WIDTH .25

 3 PEN WIDTH .3



OPTIONAL ASSEMBLY OF A
STAND IS SHOWN ON PAGE 5







ApT SIMPLE FOLDING MACHINE	
TITLE: ASSEMBLY DRAWING	
SCALE: DO NOT SCALE	
DRAWN: ABATEC	PAGE: 1 of 5
CAD No: APT-06-1	

No.	DESCRIPTION	QUANTITY	DIMENSIONS
1	FIXED BEAM	1	60 x 60 ANGLE IRON x 1220
2	FRAME SLIDE	2	60 x 60 ANGLE IRON x 300
3	FRAME SPACER	2	6 x 60 x 60
4	CLAMP BOLT	2	M20 BOLT x 70
5	CLAMP SPACER	2	6 x 20 x 10
6	SPACER NUT	6	M10 NUT
7	SPACER BOLT	2	M10 BOLT x 50
8	CLAMP TOP	1	60 x 60 ANGLE IRON x 1090
9	CLAMP BOTTOM	1	60 x 60 ANGLE IRON x 1000
10	CLAMP WEB	2	6 x 54 x 54
11	CLAMP NUT	2	M20 NUT
12	CLAMP TUBE	2	Ø25 (Ø20 MIN. BORE) x 30
13	CLAMP HANDLE	2	Ø12 x 150
14	FOLDING BEAM	1	60 X 60 ANGLE IRON x 1110
15	PIVOT BAR	2	Ø20 x 70
16	PIVOT TUBE	4	Ø25 (Ø20 MIN. BORE) x 30
17	HANDLE	2	Ø25 TUBE x 500
18	BEAM TIE	1	Ø12 REINFORCING BAR x1020
19	BEAM STRUT	3	Ø12 REINFORCING BAR x 80
20	STAND LEG	4	40 x 40 ANGLE IRON x 840
21	STAND TOP	2	40 x 40 ANGLE IRON x 300
22	STAND BOTTOM	2	40 x 40 ANGLE IRON x 740
23	STAND TIE	4	Ø12 REINFORCING BAR x 1400
24	STAND PLATE	2	6 x 40 x 40
25	STAND SUPPORT	2	20 x 20 ANGLE IRON x 1200
26	SPLIT PIN	1	Ø2.5 x 35 LONG
27	WASHER	1	Ø20mm I/D

} DOUBLE QUANTITY IF MOUNTED ON STAND

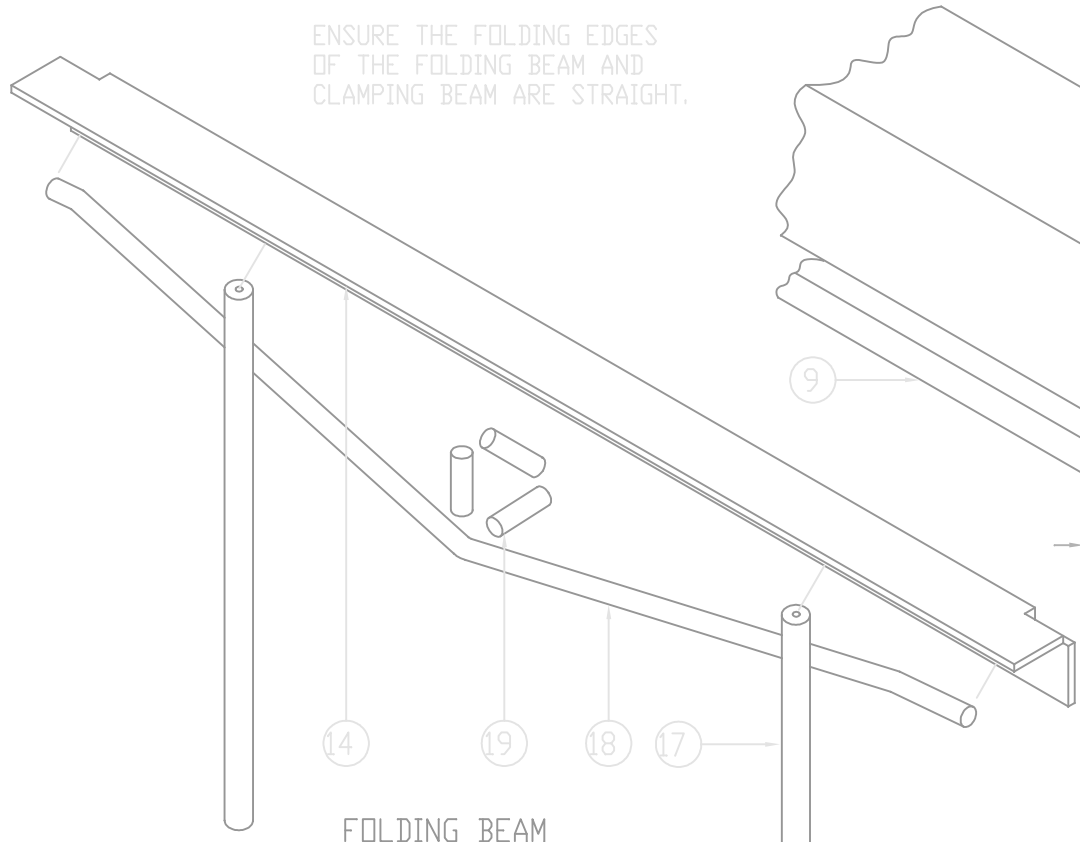
} OPTIONAL: MACHINE MAY BE BENCH MOUNTED

PEN SETTINGS PER FEEDBACK

COLOUR/No.	PEN WIDTH
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 7	PEN WIDTH .2
 2	} PEN WIDTH .25
 4	
 6	
 3	PEN WIDTH .3

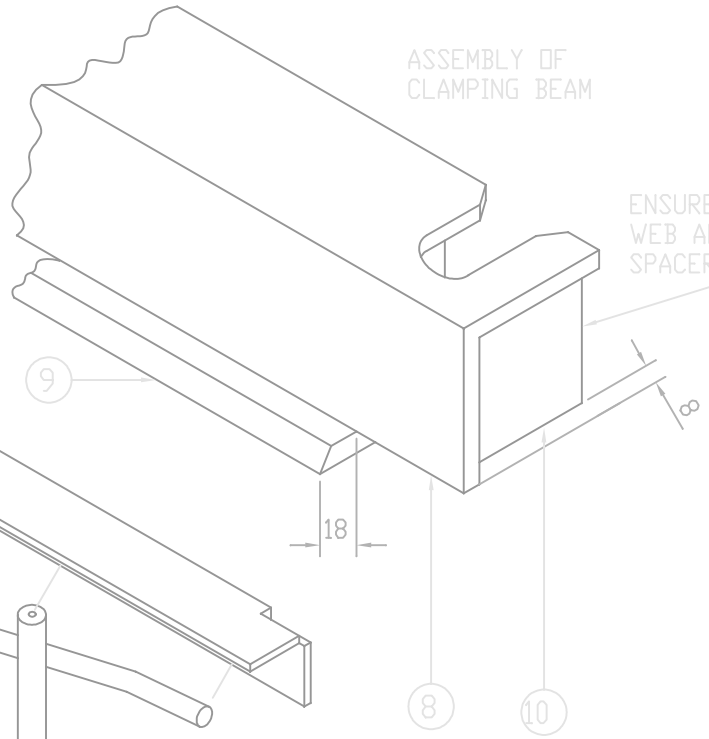
APT SIMPLE FOLDING MACHINE	
TITLE: PARTS LIST	
SCALE:	
DRAWN: ABATEC	PAGE: 2 of 5
CAD No: APT-06-2	

ENSURE THE FOLDING EDGES OF THE FOLDING BEAM AND CLAMPING BEAM ARE STRAIGHT.



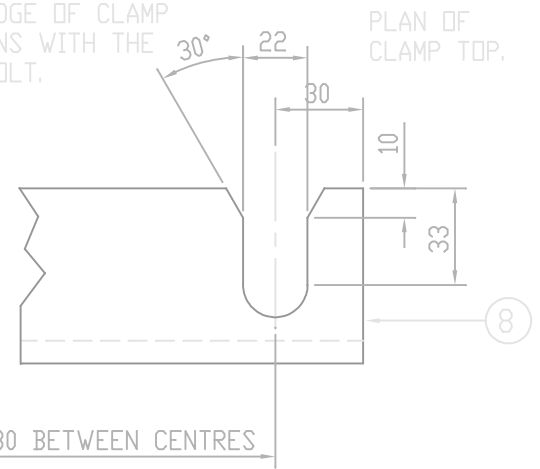
FOLDING BEAM

ASSEMBLY OF CLAMPING BEAM



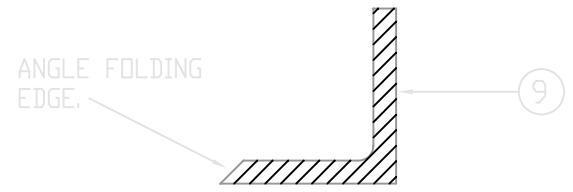
CLAMPING BEAM

ENSURE EDGE OF CLAMP WEB ALIGNS WITH THE SPACER BOLT.



PLAN OF CLAMP TOP.

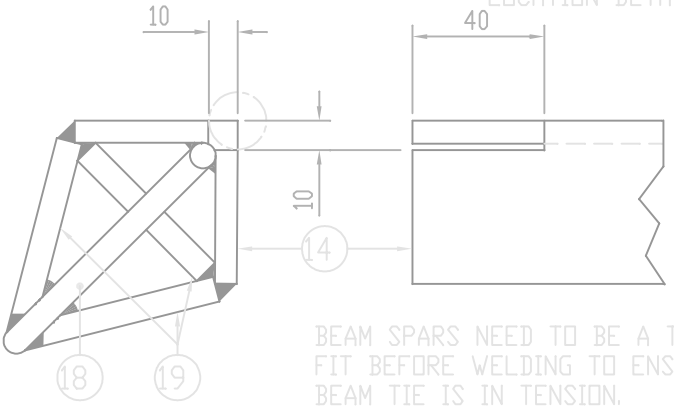
SECTION THROUGH CLAMP BOTTOM



ANGLE FOLDING EDGE.

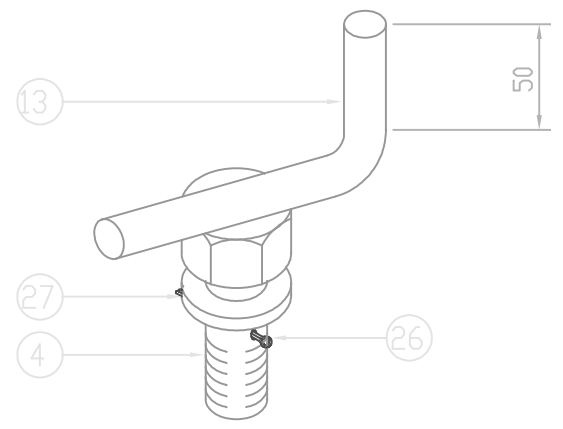
END ELEVATION SHOWING ASSEMBLY OF BEAM TIE & BEAM SPARS.

PART FRONT ELEVATION SHOWING PIVOT BOLT LOCATION DETAIL.

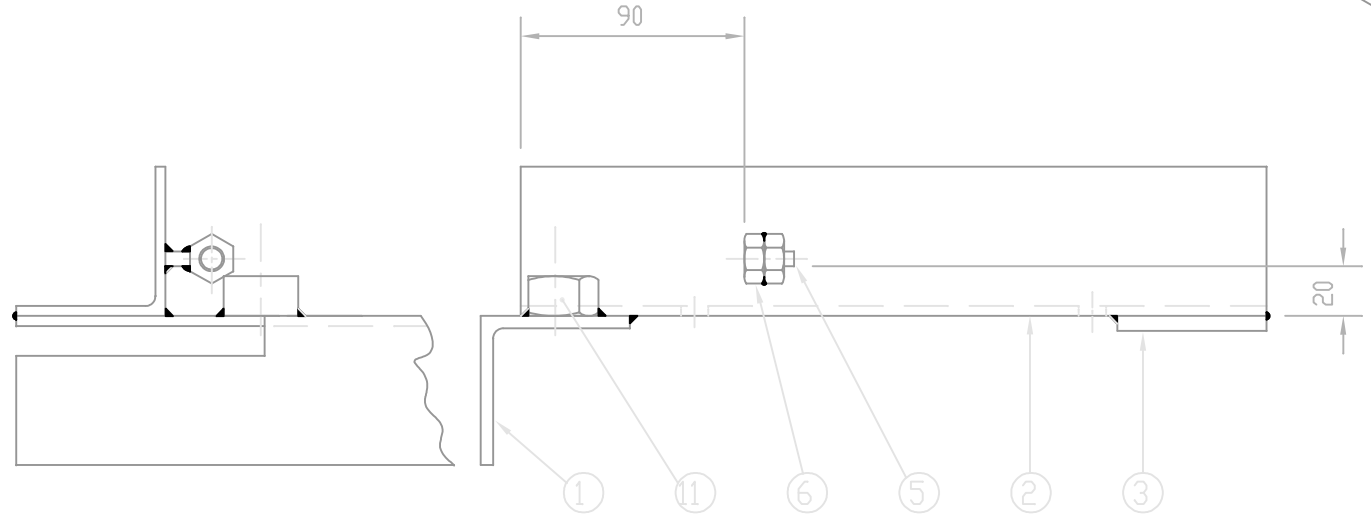
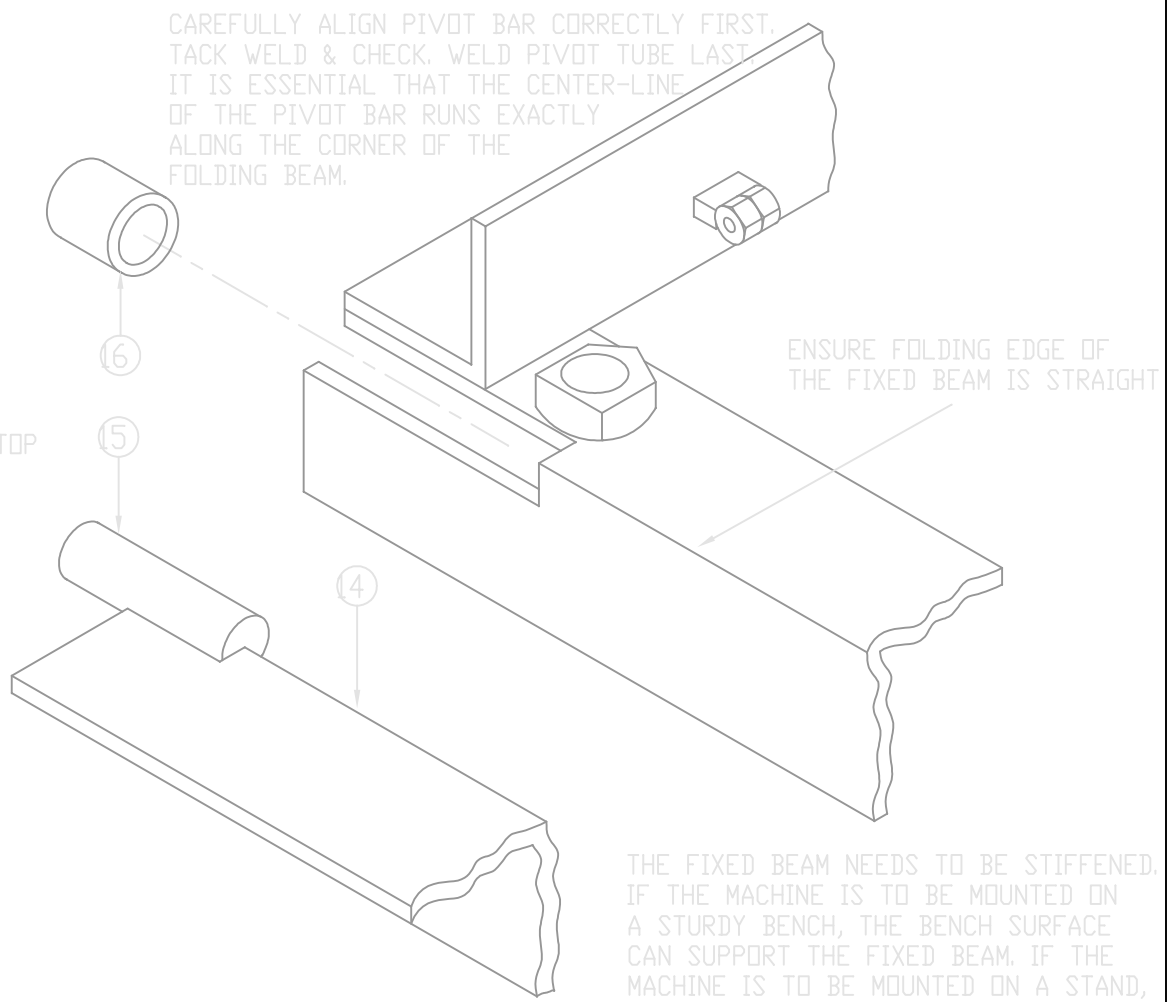
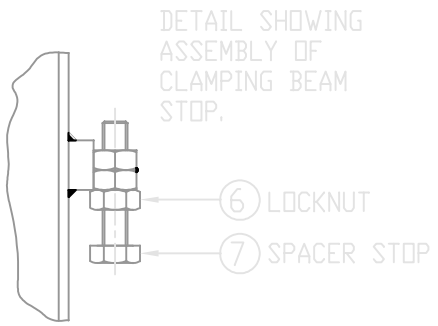
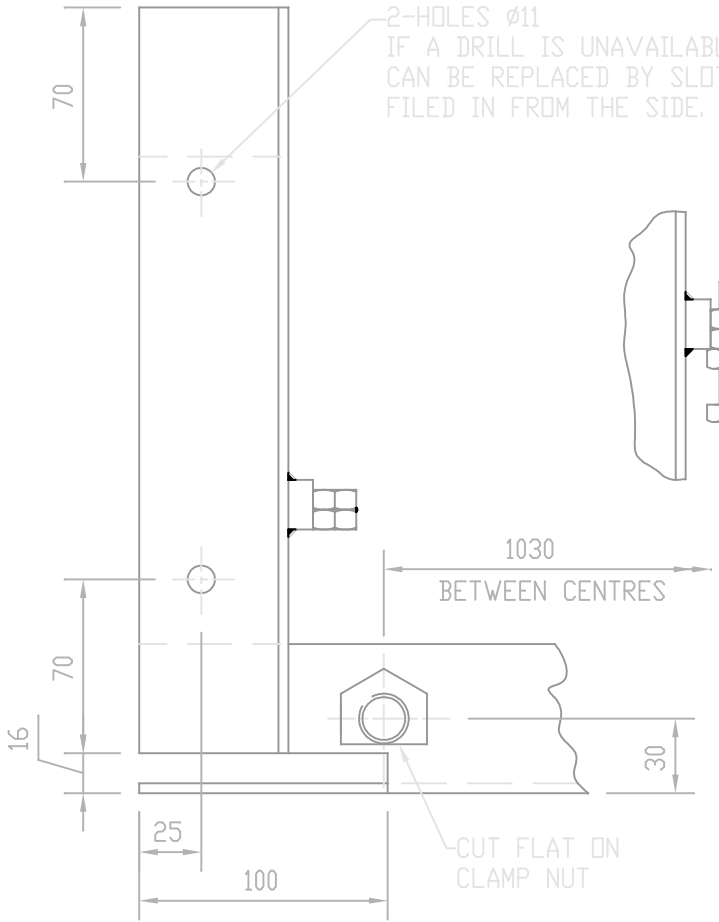


BEAM SPARS NEED TO BE A TIGHT FIT BEFORE WELDING TO ENSURE BEAM TIE IS IN TENSION.

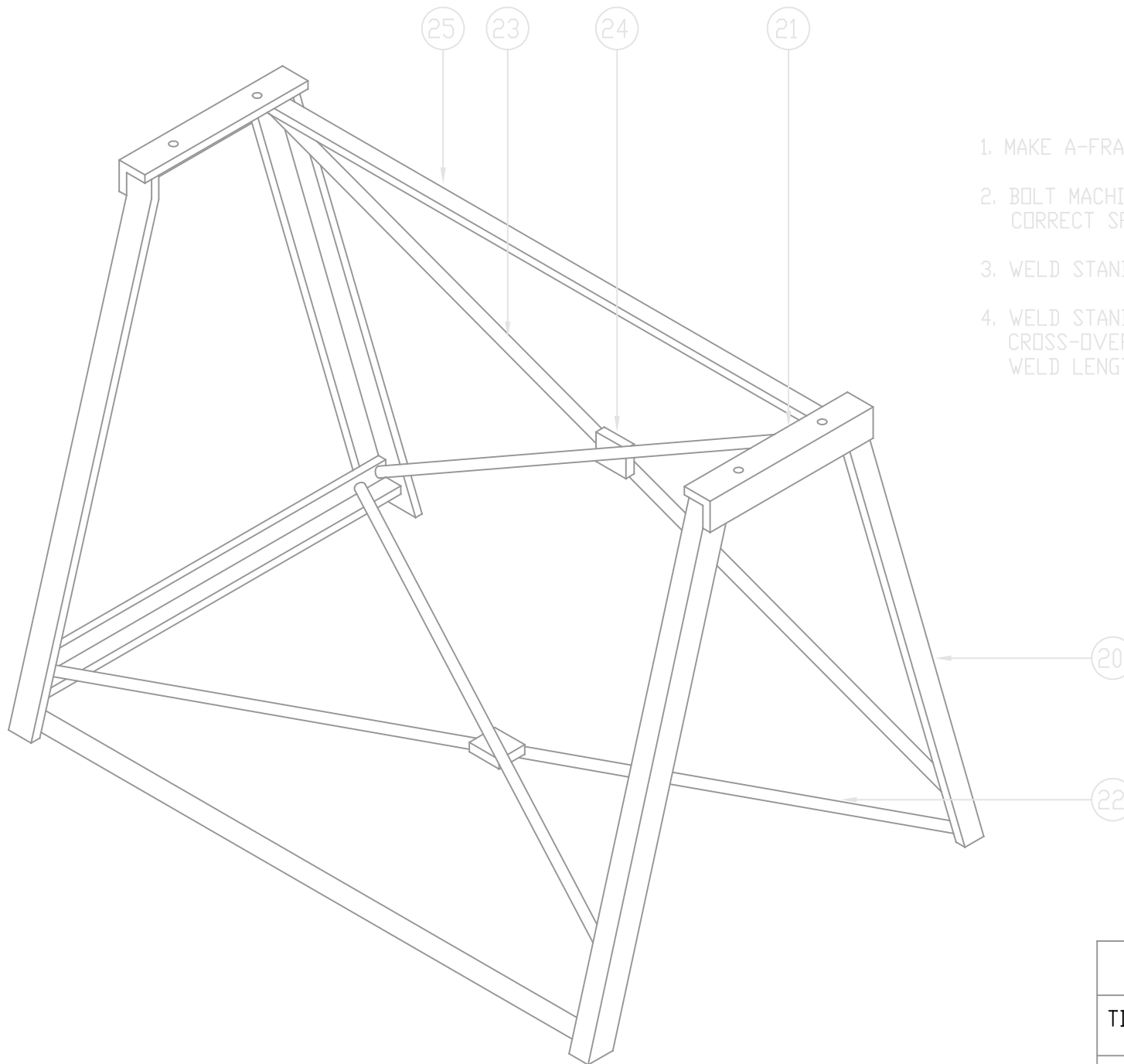
CLAMP SCREW



ApT SIMPLE FOLDING MACHINE	
TITLE: FOLDING BEAM, CLAMPING BEAM & CLAMP SCREW SUB-ASSEMBLIES	
SCALE: NOT TO SCALE	
DRAWN: ABATEC	PAGE: 3 of 5
CAD No: APT-06-3	

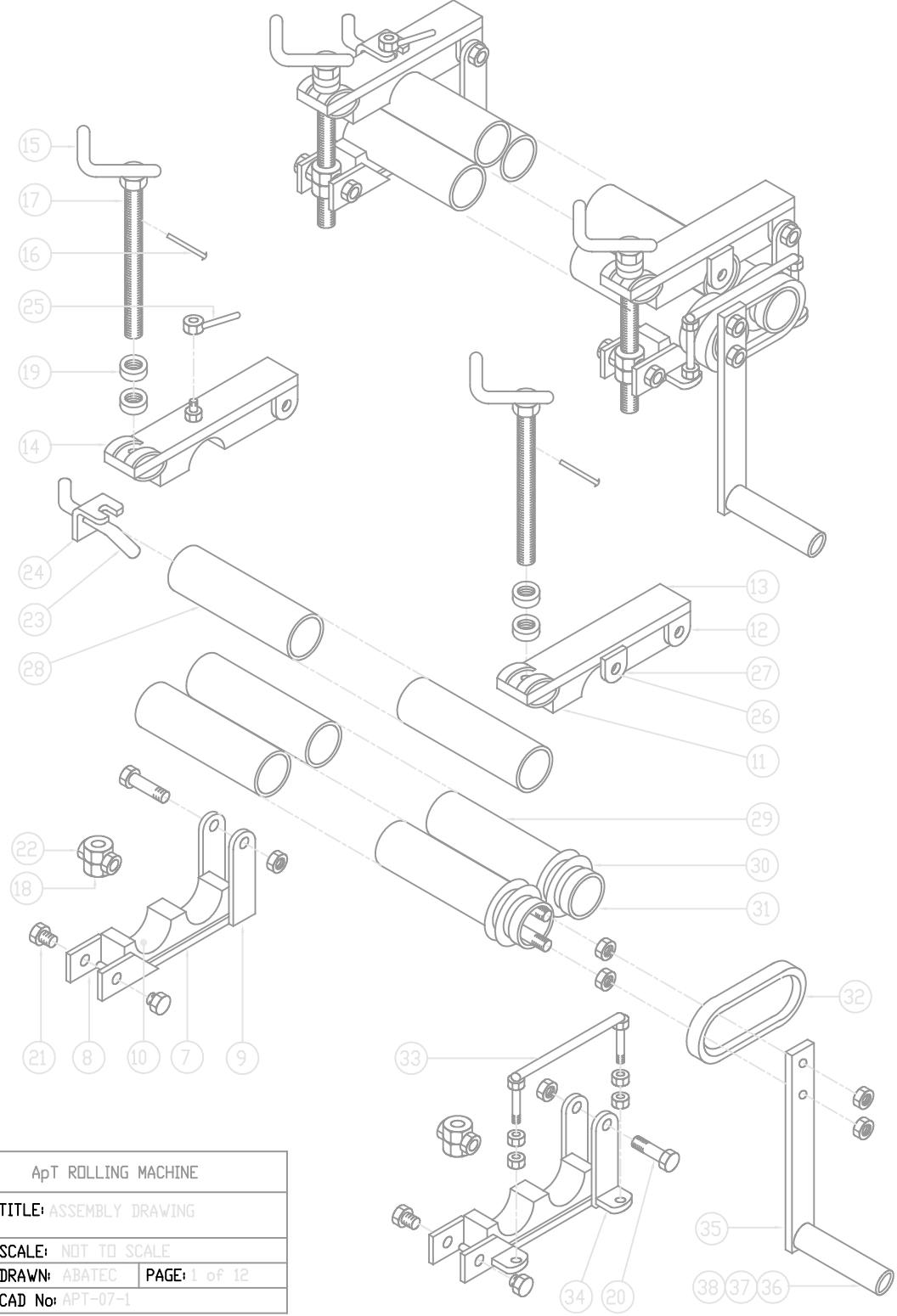


ApT SIMPLE FOLDING MACHINE	
TITLE: FRAME SUB-ASSEMBLY	
SCALE: 1:3	
DRAWN: ABATEC	PAGE: 4 of 5
CAD No: APT-06-4	



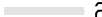





1. MAKE A-FRAMES AS A MATCHING PAIR
2. BOLT MACHINE TO THEM TO ACHIEVE CORRECT SPACING.
3. WELD STAND TIES IN PLACE.
4. WELD STAND PLATES AT STAND TIE CROSS-OVER POINTS FOR INCREASED WELD LENGTH AT JOINT.

ApT SIMPLE FOLDING MACHINE	
TITLE: OPTIONAL FRAME ASSEMBLY	
SCALE: NOT TO SCALE	
DRAWN: ABATEC	PAGE: 5 of 5
CAD No: APT-06-5	



PEN SETTINGS FOR PLOTTING

COLOUR/No.	
	1 PEN WIDTH .18
	7 PEN WIDTH .2
	} PEN WIDTH .25
	
	
	3 PEN WIDTH .3

ApT ROLLING MACHINE	
TITLE: ASSEMBLY DRAWING	
SCALE: NOT TO SCALE	
DRAWN: ABATEC	PAGE: 1 of 12
CAD No: APT-07-1	

No.	DESCRIPTION	QUANTITY	DIMENSIONS
1	SUPPORT	2	40 x 40 ANGLE IRON x 1390
2	SPACER	2	40 x 40 ANGLE IRON x 200
3	FOOT	4	6 x 40 x 40
4	LEG	2	40 x 40 ANGLE IRON x 850
5	TIE	2	40 x 40 ANGLE IRON x 600
6	SHELF SUPPORT	2	40 x 40 ANGLE IRON x 1280
7	BOTTOM PLATE	2	10 x 50 x 225
8	TRUNNION SUPPORT	4	6 x 40 x 85
9	BOTTOM HINGE	4	6 X 40 x 130
10	BOTTOM BEARING	2	40 x 40 WOOD x 200
11	TOP BEARING	2	40 x 40 WOOD x 190
12	TOP HINGE	4	6 x 40 x 40
13	TOP PLATE	2	10 x 50 x 275
14	CLAMP PAD	8	Ø50 BORE WATER-PIPE x 32
15	THREAD HANDLE	2	Ø12 x 200
16	SPLIT PIN	2	Ø5 x 40 SPLIT PIN OR NAIL
17	THREAD	2	M16 STUDDING x 240
18	NUT	6	M16 NUT
19	WASHER	8	M16 WASHER
20	BOLT	8	M12 BOLT x 75
21	SCREW	5	M12 SCREW x 20
22	NUT	15	M12 NUT
23	SUPPORT HANDLE	1	Ø12 x 240
24	ANGLE BRACKET	1	6 x 40 x 100
25	WING	1	Ø8 x 60
26	ROLLER SUPPORT	1	Ø12 x 110
27	SUPPORT SPACER	1	6 x 40 x 50
28	TOP ROLLER	1	Ø50 BORE WATER PIPE x 1390
29	BOTTOM ROLLER	2	Ø50 BORE WATER PIPE x 1450
30	RETAINING RING	4	Ø8 x 190 (CUT ON ASSEMBLY)
31	SPROCKET	2	18 TOOTH BICYCLE FREE WHEEL
32	CHAIN	1	30 LINK BICYCLE CHAIN LOOP
33	RETAINING BAR	1	Ø8 x 210
34	BAR SPACER	2	6 x 40 x 40
35	CRANK ARM	1	10 x 50 x 350
36	CRANK HANDLE	1	Ø16 x 215
37	INNER TUBE	2	Ø20 (Ø17 BORE) x 100
38	OUTER TUBE	1	Ø24 (Ø21 BORE) x 205

} OPTIONAL







PEN SETTINGS FOR PLOTTING

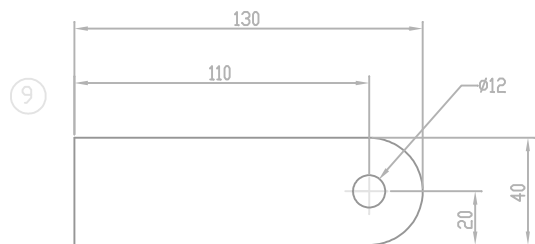
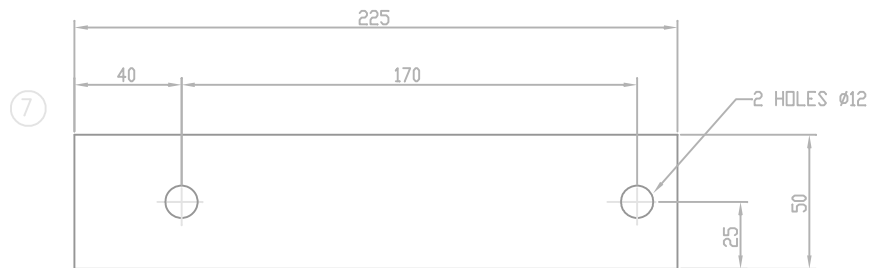
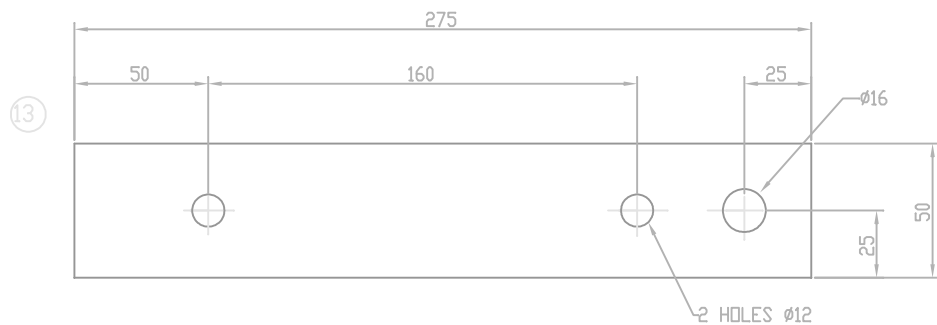
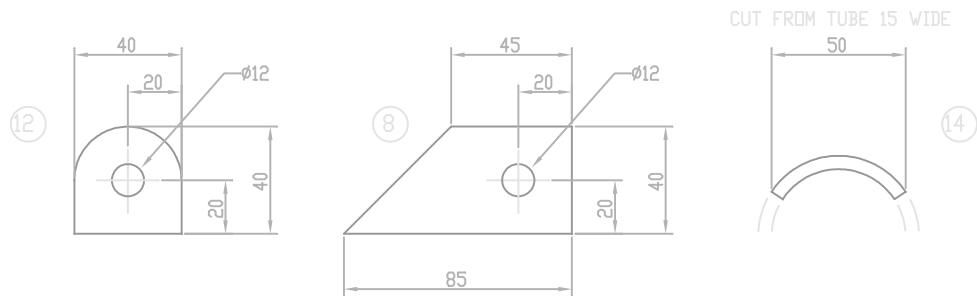
COLOUR/No.	PEN WIDTH
1	.18
7	.2
2	.25
4	
6	
3	.3

ApT ROLLING MACHINE	
TITLE: PARTS LIST	
SCALE:	
DRAWN: ABATEC	PAGE: 2 of 12
CAD No: APT-07-2	

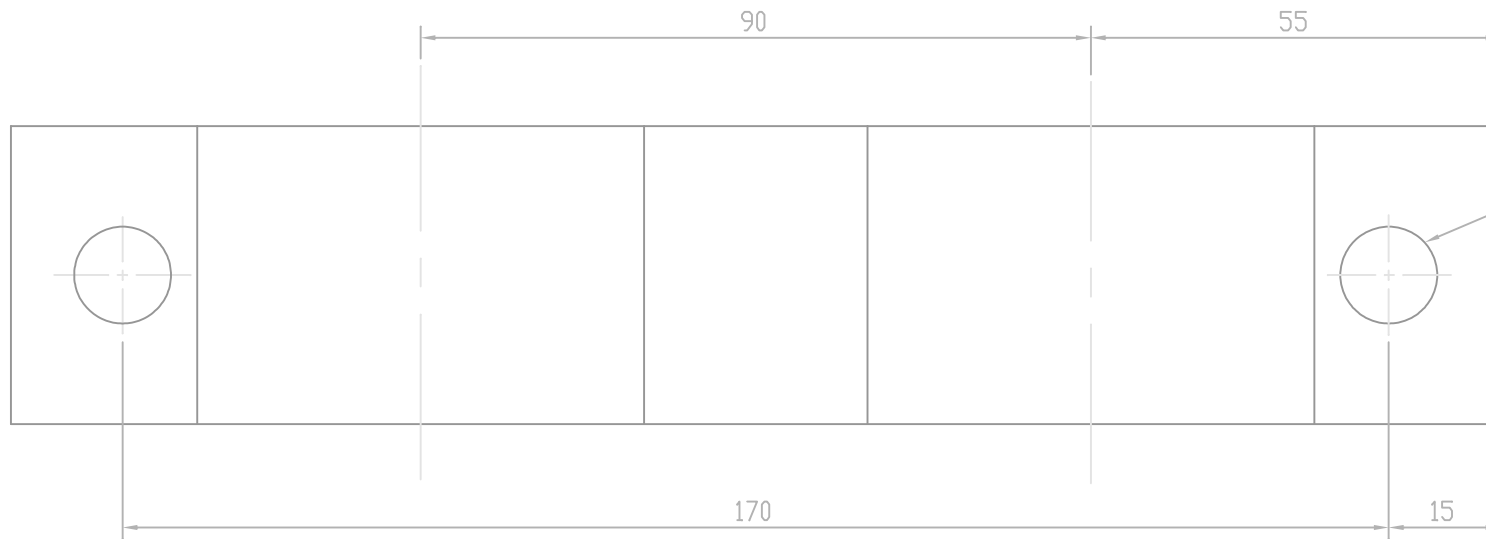
PEN SETTINGS FOR PLOTTING

COLOUR/No.

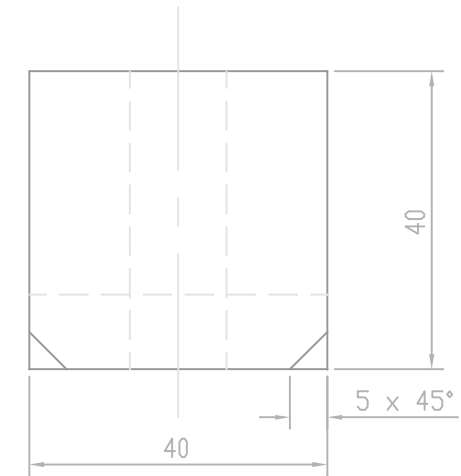
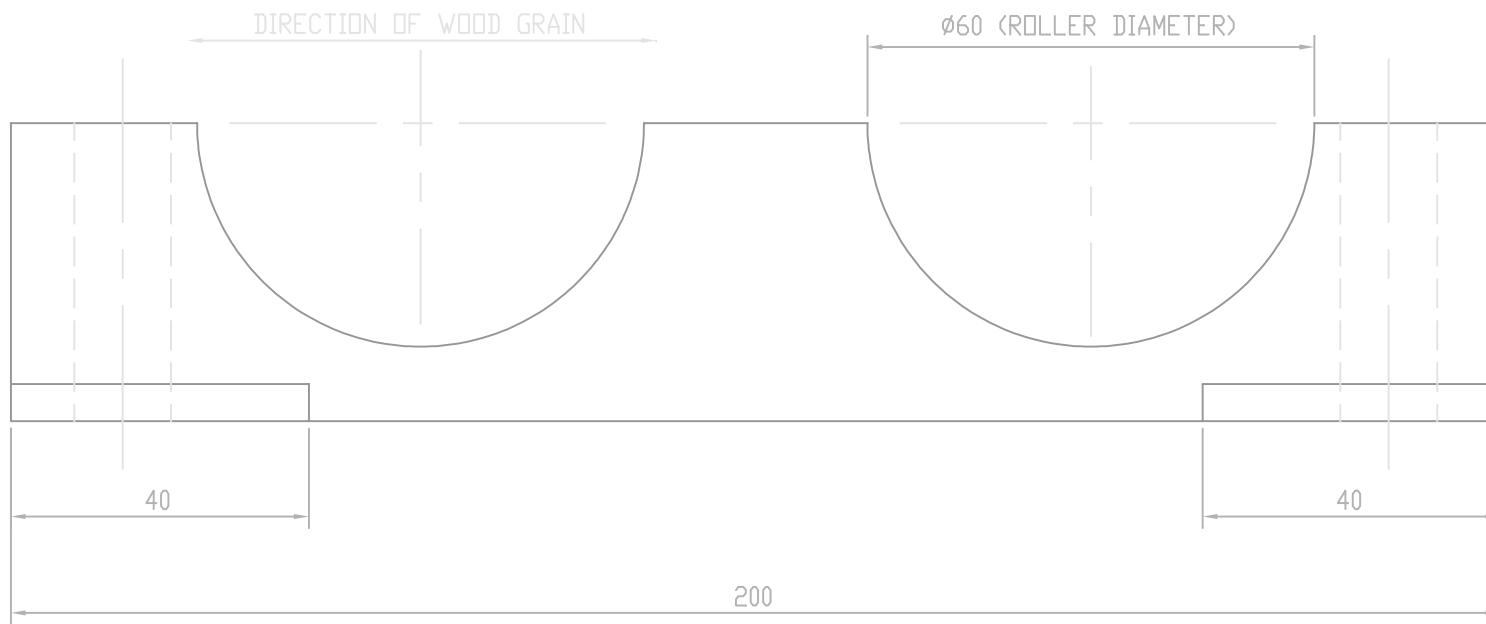
-  1 PEN WIDTH .18
-  7 PEN WIDTH .2
-  2
-  4 } PEN WIDTH .25
-  6
-  3 PEN WIDTH .3



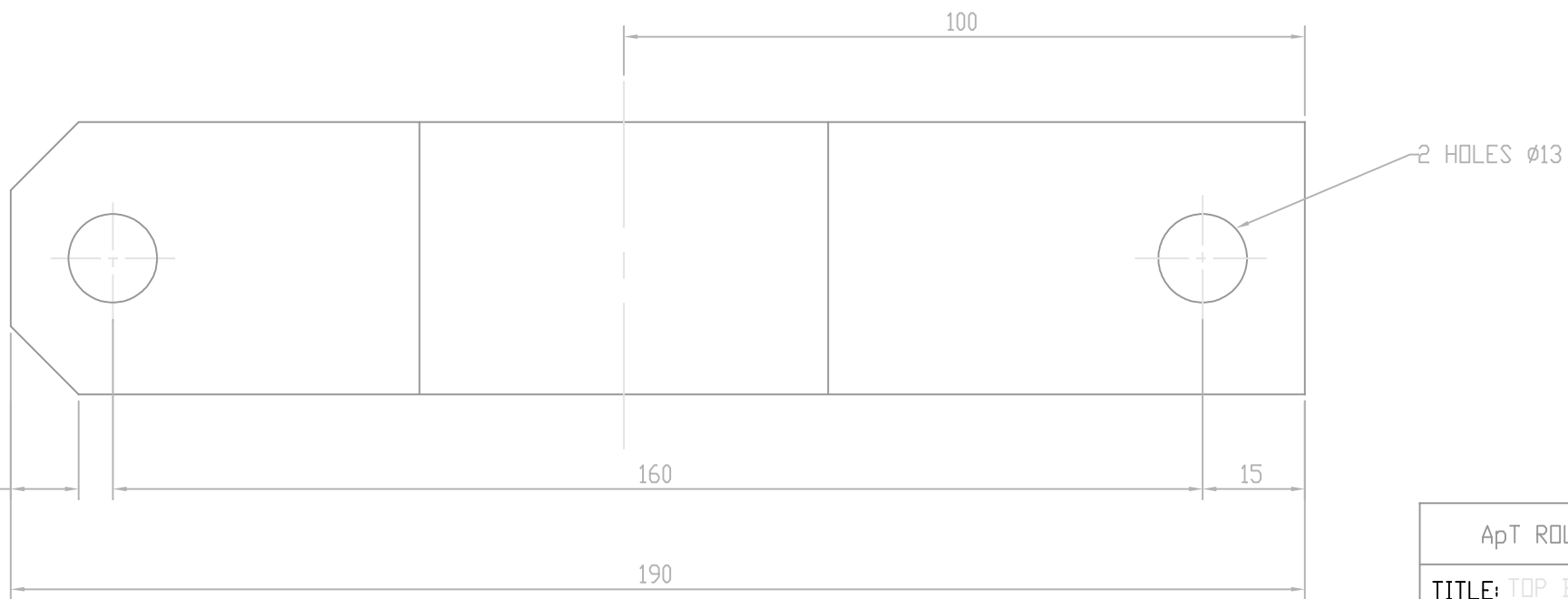
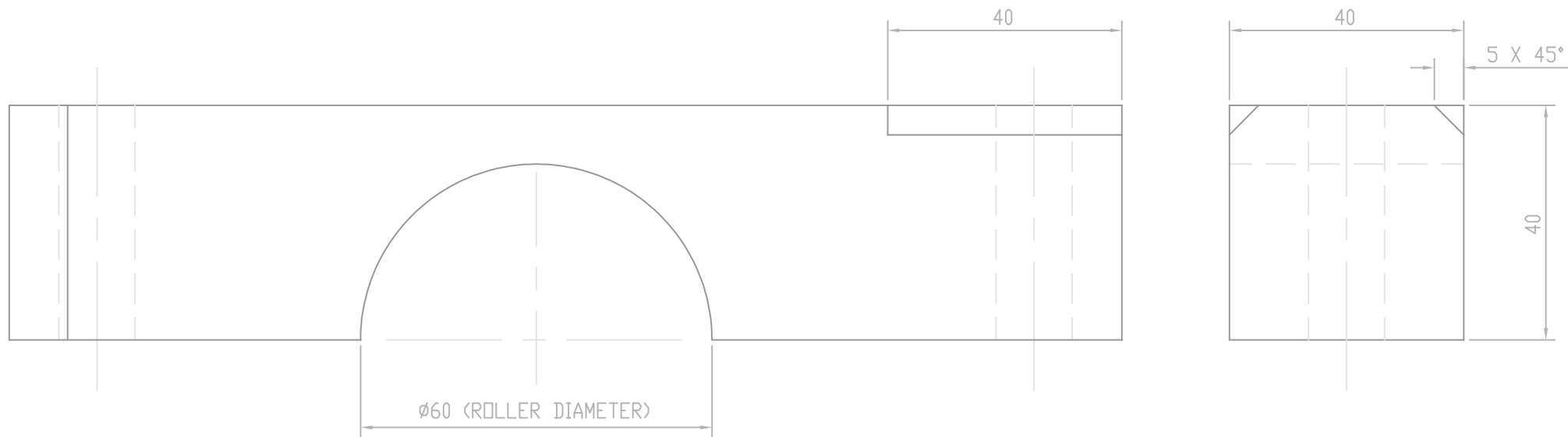
ApT ROLLING MACHINE	
TITLE: BEARING FRAME DETAILS	
SCALE: 1:2	
DRAWN: ABATEC	PAGE: 3 of 12
CAD No: APT-07-3	



2 HOLES Ø13
 ENSURE BOLT HEADS DO NOT INTERFERE WITH ROLLERS.



ApT ROLLING MACHINE	
TITLE: BOTTOM BEARING DETAIL	
SCALE: 1:1	
DRAWN: ABATEC	PAGE: 4 of 12
CAD No: APT-07-4	



ApT ROLLING MACHINE	
TITLE: TOP BEARING DETAIL	
SCALE: 1:1	
DRAWN: ABATEC	PAGE: 5 of 12
CAD No: APT-07-5	

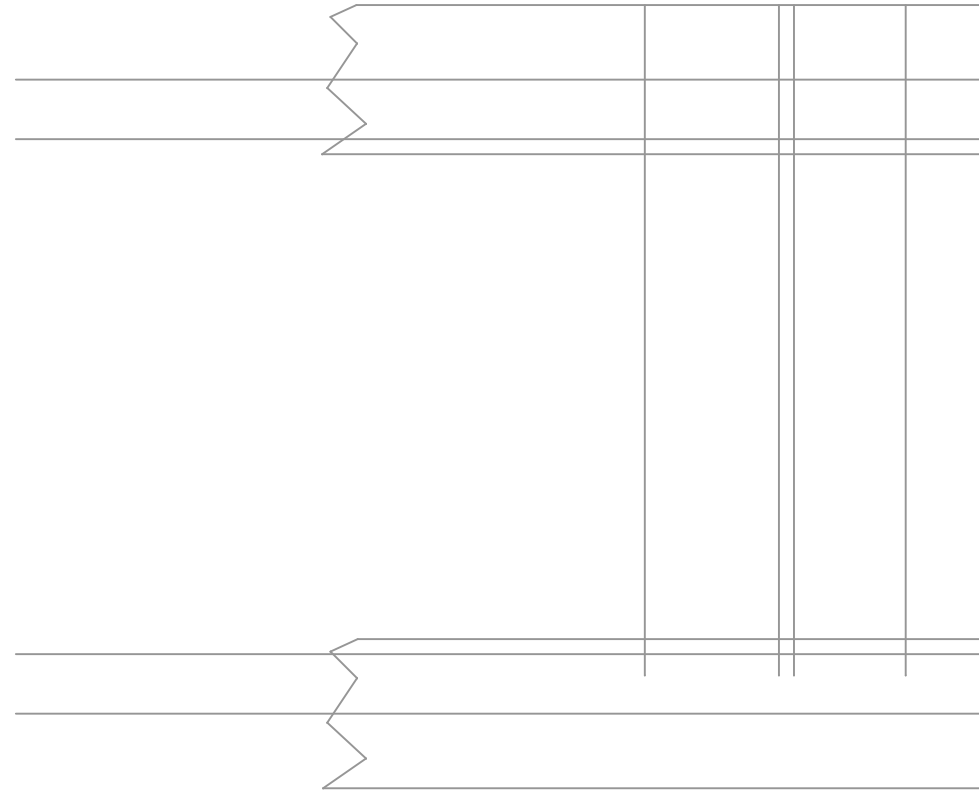
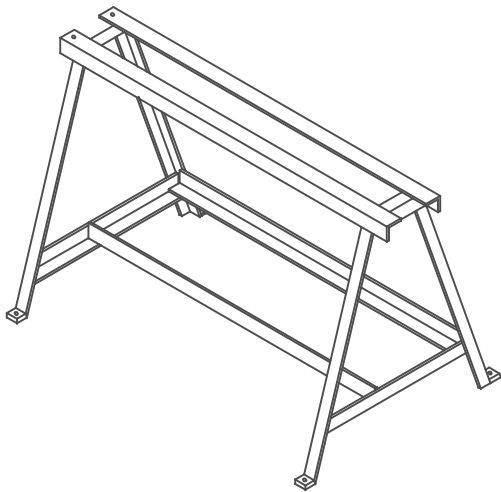
ApT ENGINEERS BENCH VICE

TITLE: VICE
SUB-ASSEMBLIES

SCALE: 1:5

DRAWN: ABATEC | PAGE: 3 of 4

CAD No: PT-01-3



ApT ROLLING MACHINE

TITLE: BEARING FRAME
SUB-ASSEMBLIES

SCALE: 1:1

DRAWN: ABATEC PAGE: 7 of 12

CAD No: APT-07-7

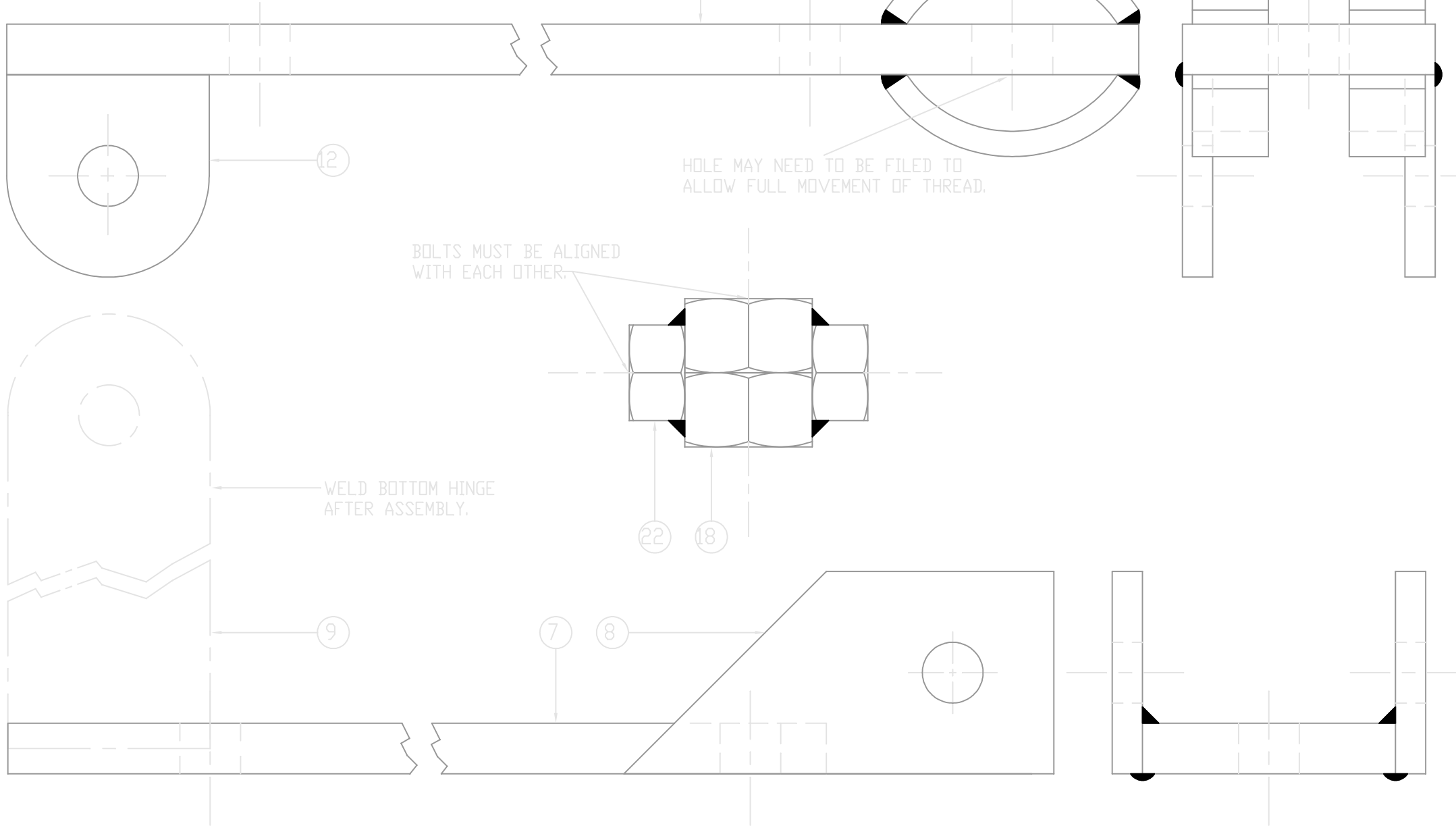
CLAMP PADS MUST BE
ALIGNED WITH EACH OTHER.

13 14

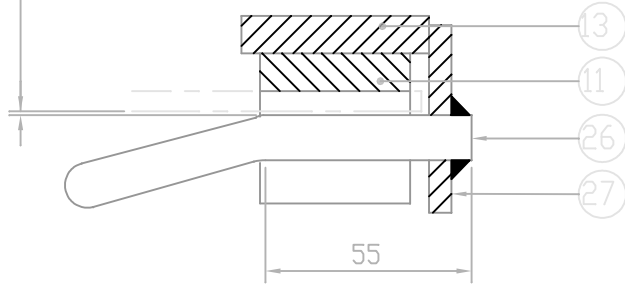
HOLE MAY NEED TO BE FILED TO
ALLOW FULL MOVEMENT OF THREAD.

BOLTS MUST BE ALIGNED
WITH EACH OTHER.

WELD BOTTOM HINGE
AFTER ASSEMBLY.

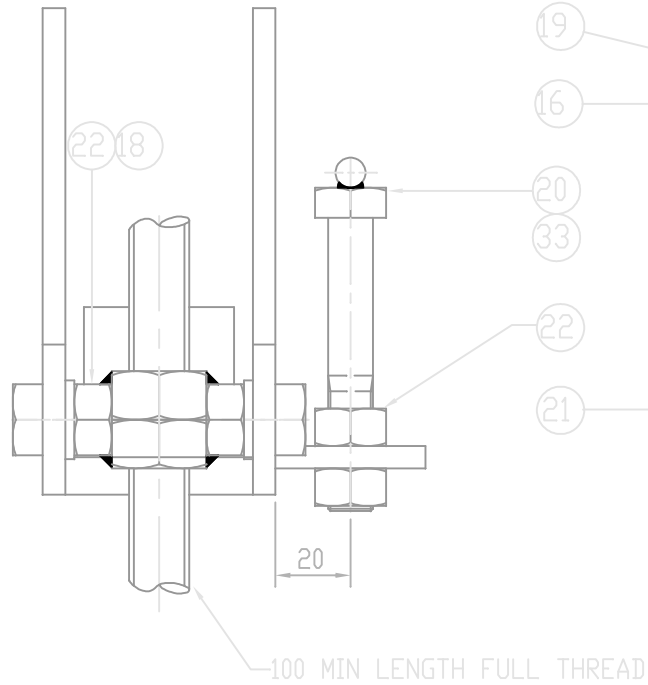
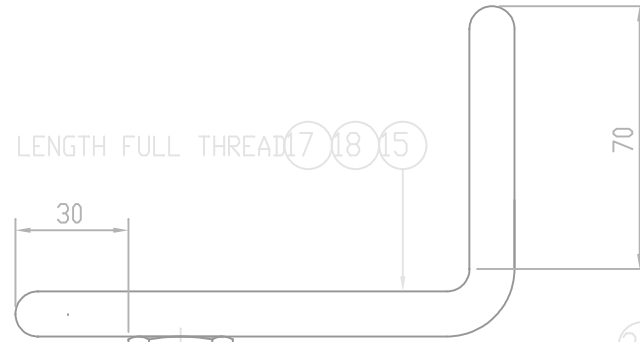


ALLOW SUFFICIENT CLEARANCE FOR
TOP ROLLER TO ROTATE EASILY.

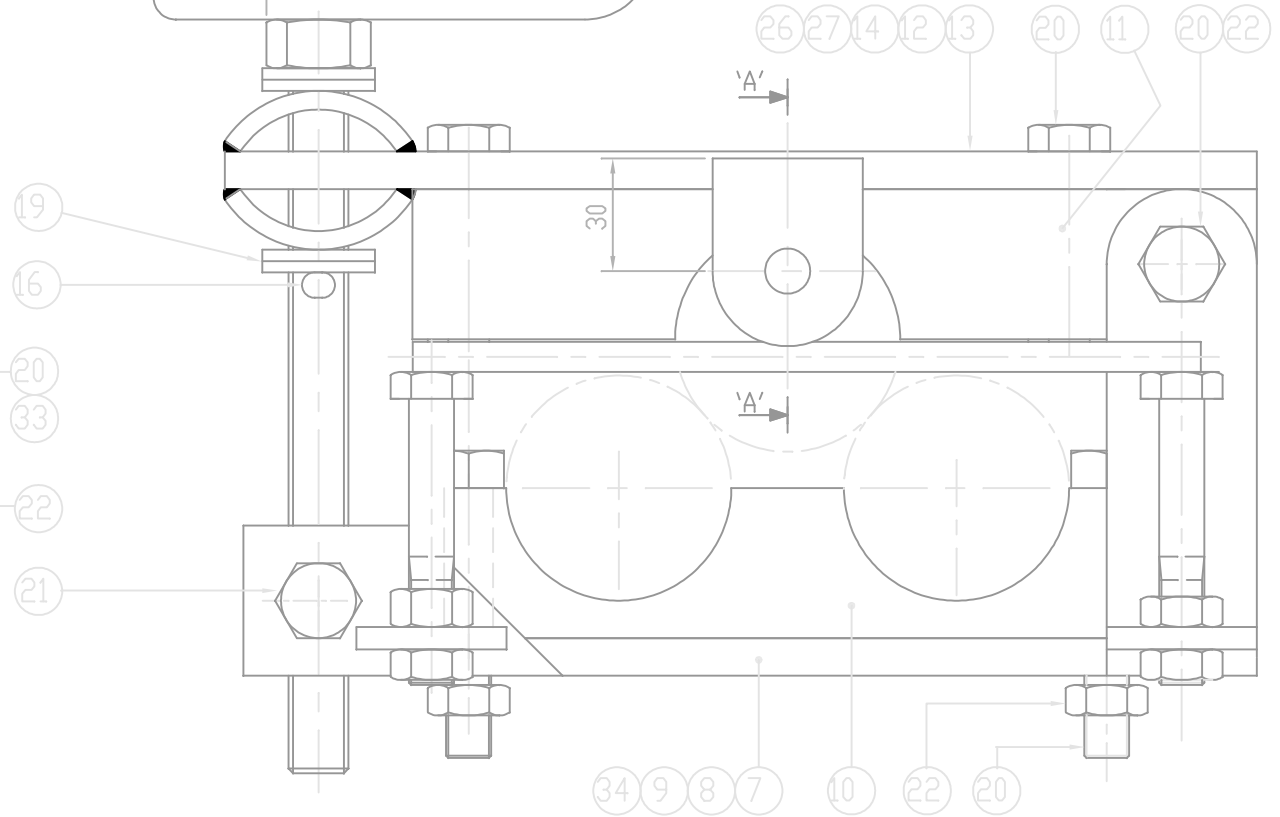


SECTION A-A

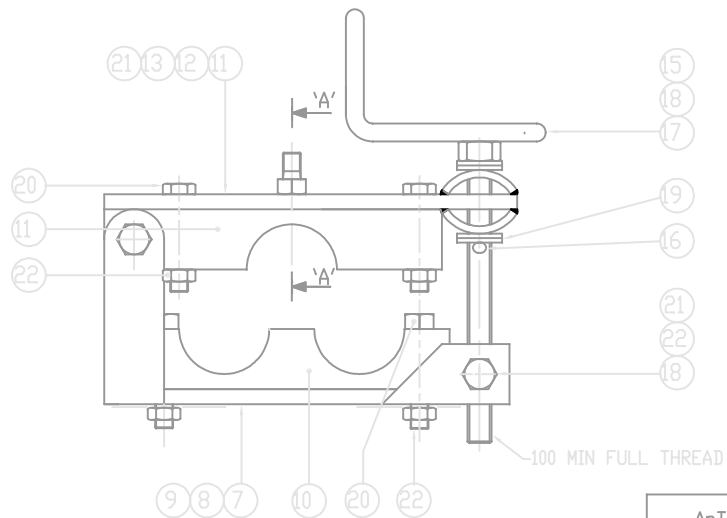
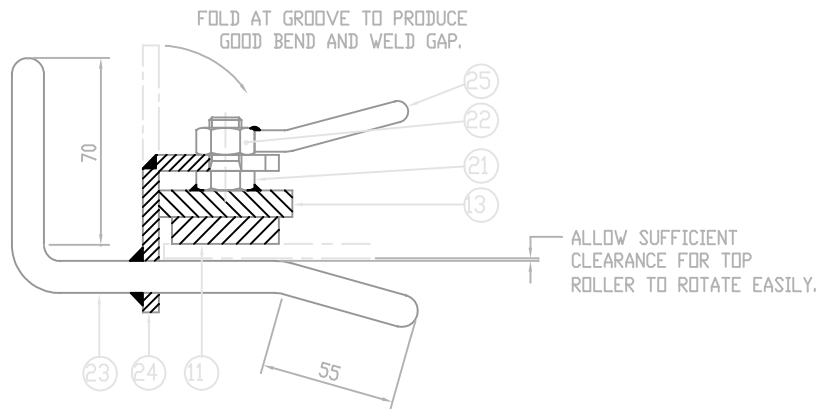
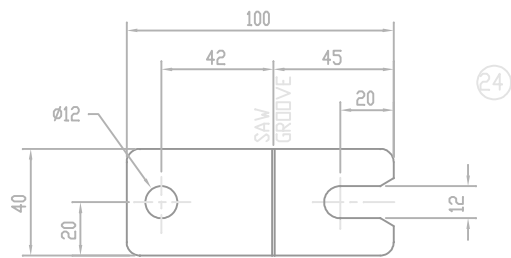
100 MIN LENGTH FULL THREAD (17, 18, 15)



VIEW OF LOWER PART ONLY



ApT ROLLING MACHINE	
TITLE: RIGHT-HAND BEARING UNIT SUB-ASSEMBLY	
SCALE: 1:2	
DRAWN: ABATEC	PAGE: 8 of 12
CAD No: APT-07-8	

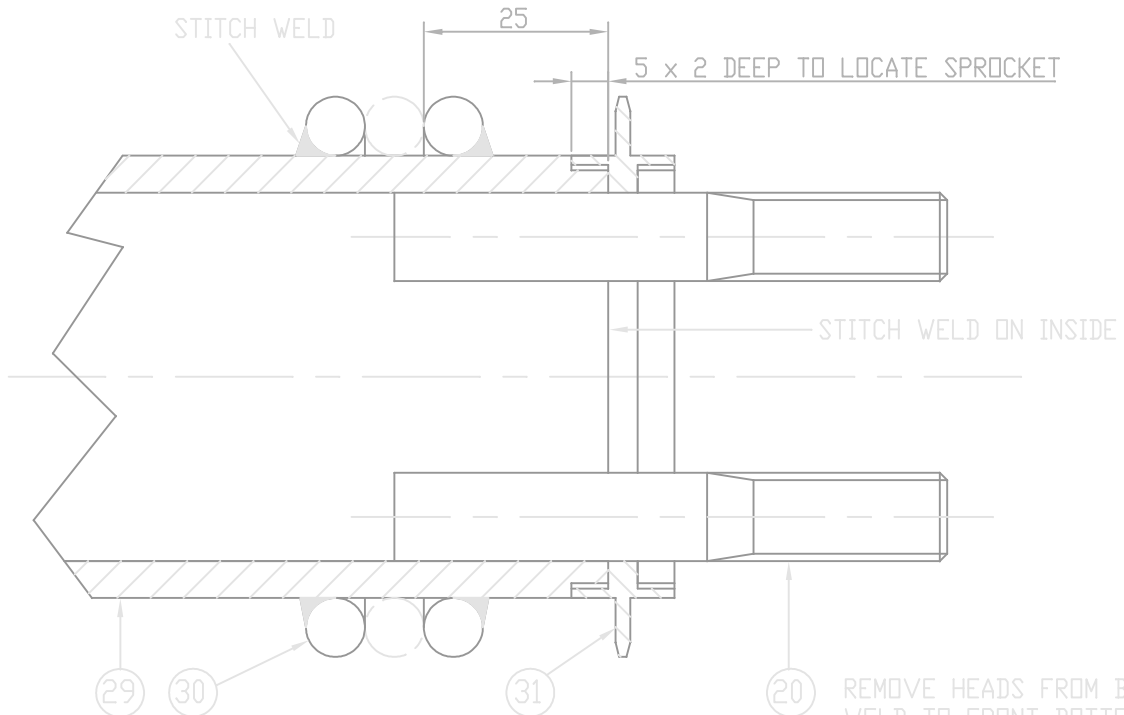
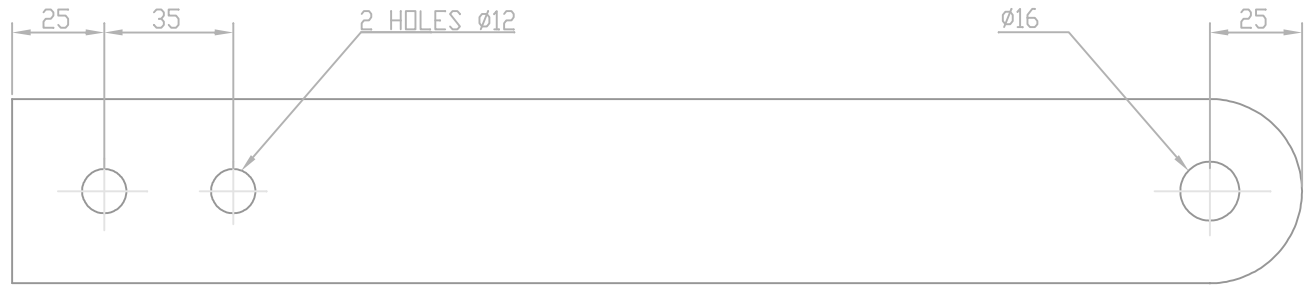


ApT ROLLING MACHINE	
TITLE: LEFT HAND BEARING UNIT SUB-ASSEMBLIES	
SCALE: 1:5 & 1:2	
DRAWN: ABATEC	PAGE: 9 of 12
CAD No: APT-07-9	

PEN SETTINGS FOR PLOTTING

COLOUR/No.

- 1 PEN WIDTH .18
- 7 PEN WIDTH .2
- 2 } PEN WIDTH .25
- 4 }
- 6 }
- 3 PEN WIDTH .3



- 35
- 36
- 37
- 38

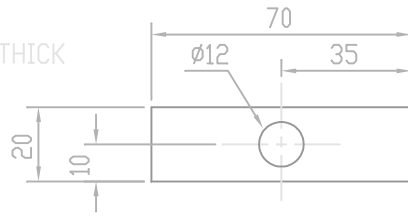
REMOVE HEADS FROM BOLTS AND WELD TO FRONT BOTTOM ROLLERS ONLY.

REMOVE SPROCKET FROM FREEWHEEL ASSEMBLY.

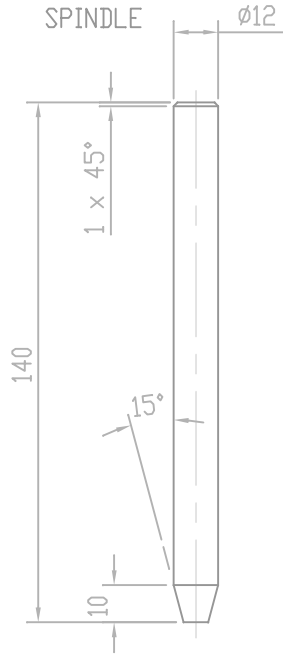
ApT ROLLING MACHINE	
TITLE: CRANK & BOTTOM ROLLERS SUB-ASSEMBLIES	
SCALE: 1:2 & 1:1	
DRAWN: ABATEC	PAGE: 10 of 12
CAD No: APT-07-10	

DETAILS

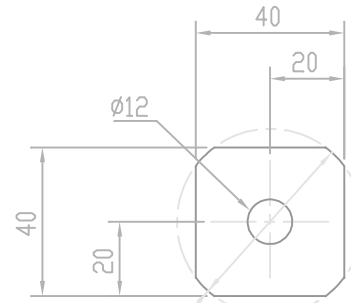
T-BAR
MATERIAL: 5 THICK



SPINDLE

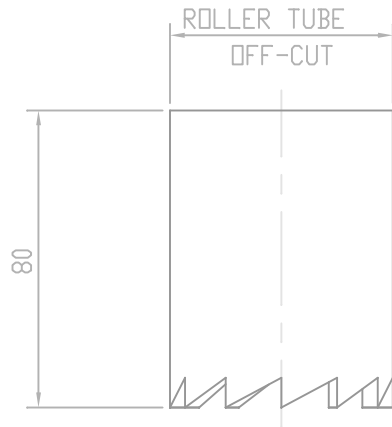


SPACER
MATERIAL: 5 THICK



DIAMETER OF CUTTER BORE.
SPACER CORNERS CAN BE
SHAPED BY CLAMPING A
M12 BOLT IN A DRILL CHUCK
AND SECURING THE SPACER
TO IT. THEN WITH THE DRILL
RUNNING, VERY GENTLY TAKE
THE CORNERS DOWN TO THE
CORRECT SIZE USING AN
ANGLE GRINDER.

CUTTER



CUT & FILE 12 TEETH x 8 DEEP
ENSURE TEETH FACE CORRECT
CUTTING DIRECTION.

ApT ROLLING MACHINE

TITLE: OPTIONAL BEARING CUTTER

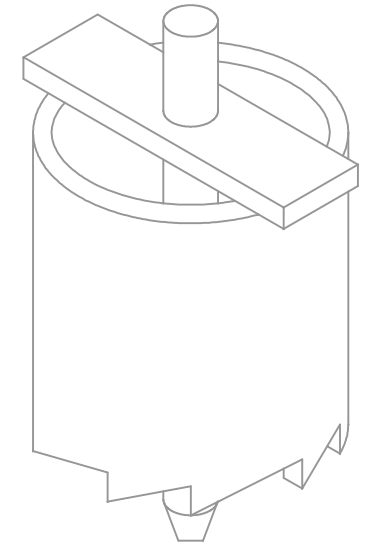
SCALE: 1:2

DRAWN: ABATEC

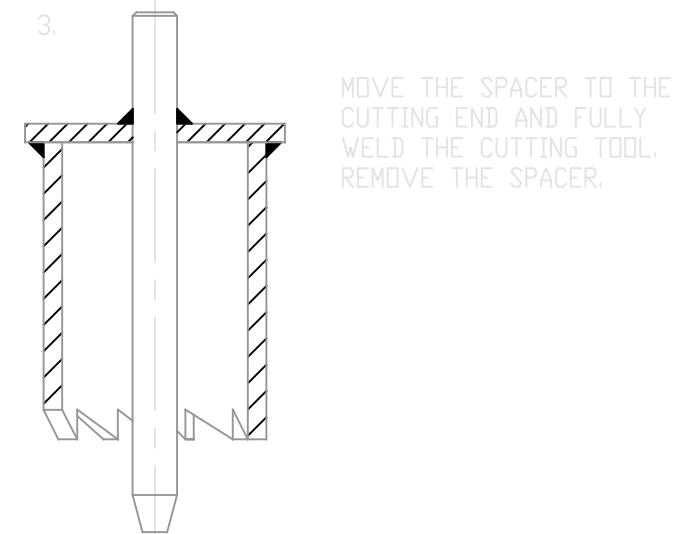
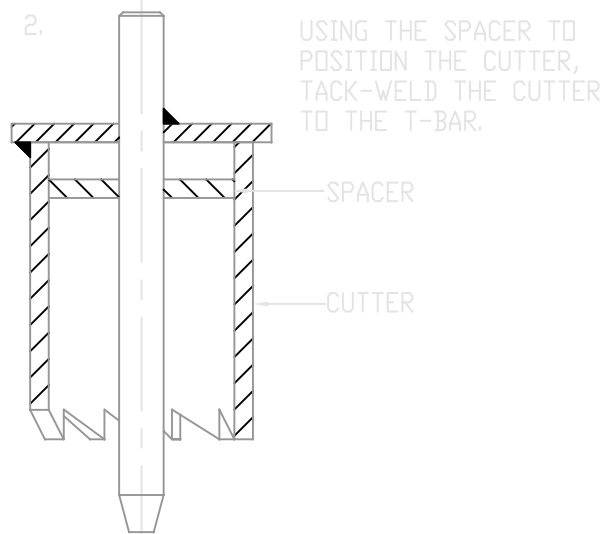
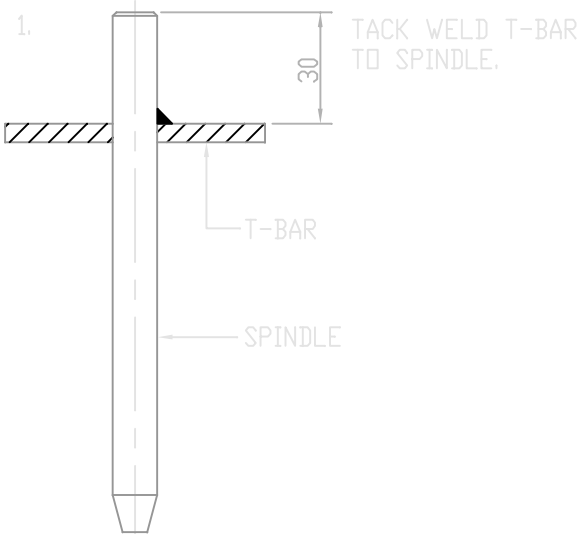
PAGE: 11 of 12

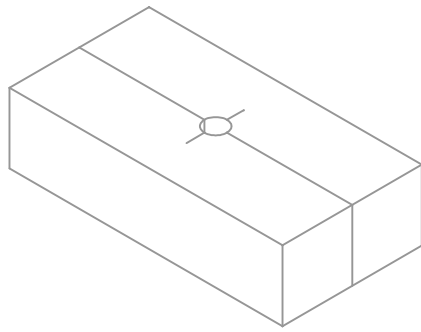
CAD No: APT-07-11

FINISHED CUTTING TOOL

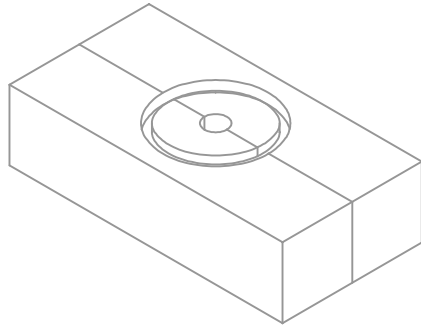


CONSTRUCTION

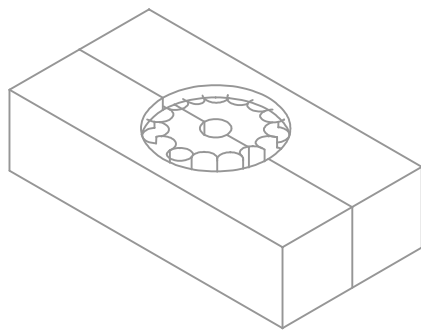




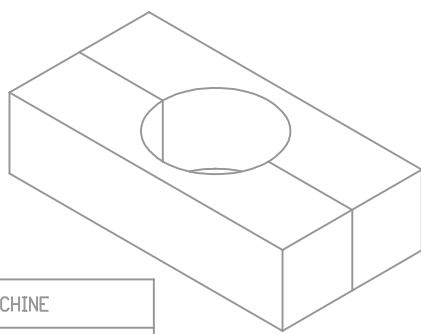
1. CLAMP THE TWO BEARING BLOCK HALVES TOGETHER USING THE BOLT HOLES FOR LOCATION. MARK AND DRILL CENTRE OF BEARING CHANNEL $\phi 12.5$



2. USING THE $\phi 12.5$ HOLE AS A LOCATION FOR THE CUTTING TOOL SPINDLE, USE THE CUTTING TOOL TO CUT OUT A 5mm DEEP GROOVE.



3. COMPLETELY STITCH-DRILL THE CORE OUT USING AN 8mm DRILL, TAKING CARE NOT TO DAMAGE THE BEARING SURFACE.



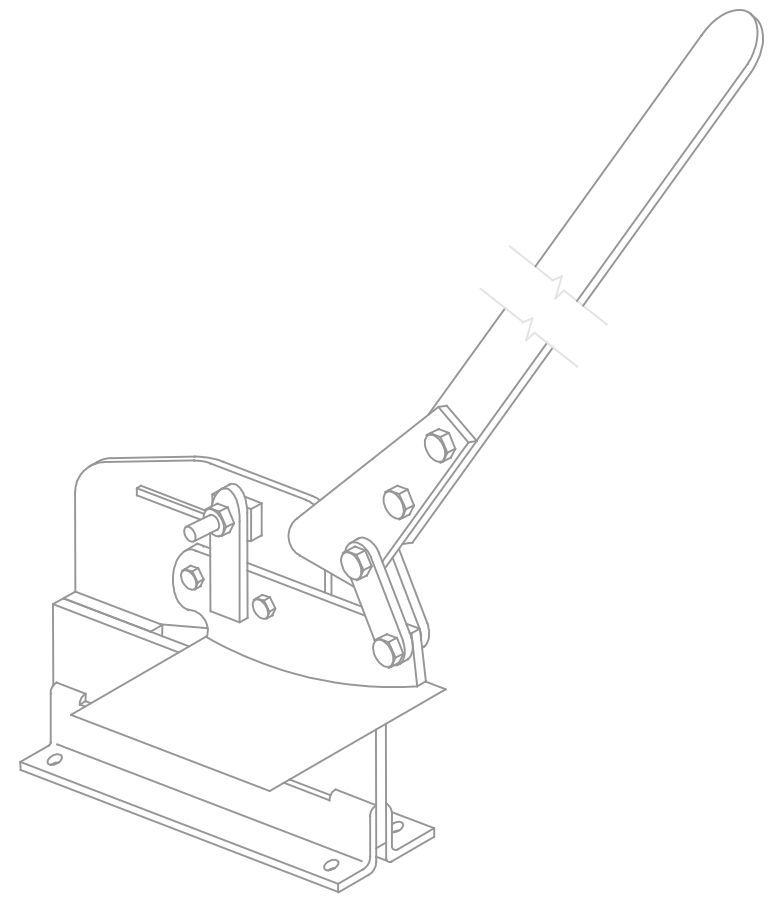
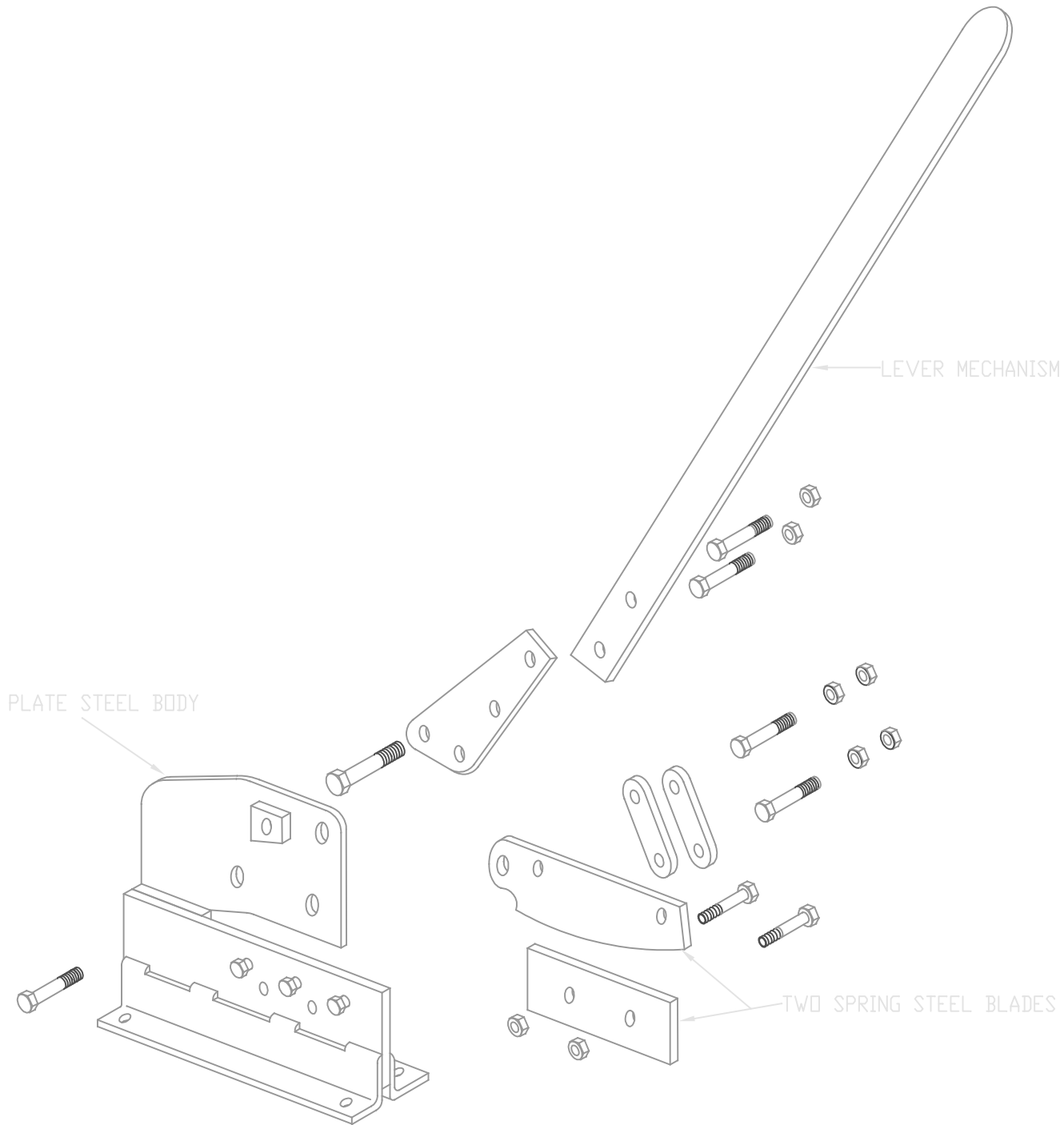
4. USE THE REMAINING 5mm DEEP GROOVE TO RE-LOCATE THE CUTTING TOOL TO COMPLETE THE BEARING CHANNEL. ANY FINISHING WORK ON THE BEARING SURFACE CAN BE DONE WITH SOME COARSE SAND-PAPER WRAPPED AROUND A LENGTH OF ROLLER TUBE.

TO MAKE THE BEARINGS SELF-LUBRICATING, PLACE IN OLD ENGINE OIL AND BRING TO THE BOIL, TAKING CARE NOT TO BURN THE WOOD. AFTER REMOVING FROM HEAT, ALLOW TO COOL OVER NIGHT BEFORE REMOVING THE BEARINGS.

PEN SETTINGS FOR PLOTTING

COLOUR/No.	
1	PEN WIDTH .18
7	PEN WIDTH .2
2	} PEN WIDTH .25
4	
6	
3	PEN WIDTH .3

ApT ROLLING MACHINE	
TITLE: OPTIONAL BEARING CONSTRUCTION	
SCALE:	
DRAWN: ABATEC	PAGE: 12 of 12
CAD No: APT-07-12	



ApT CUTTING SHEARS	
TITLE: MAIN ASSEMBLIES	
SCALE: NOT TO SCALE	
DRAWN: ABATEC	PAGE: 1 of 10
CAD No: APT-03-1	

BODY ASSEMBLY -
PARTS

PART	NAME	QUANTITY	DIMENSIONS
A1	UPPER BODY	1	300 x 180 x 15 PLATE
A2	LOWER BODY	1	380 x 100 x 15 PLATE
A3	SPACING BLOCK	1	100 x 30 x 26 (FROM 15mm PLATE)
A4	MOUNTING ANGLE	2	380 x 40 x 40 x 6 ANGLE
A5	ADJUSTMENT BOLT	3	30 x 10 DIA.
A6	STOP SPACER	1	35 x 40 x 15 PLATE
A7	STUD	1	40 x 10 DIA.
A8	CLAMP NUT	1	70 x 8 DIA. ROUND + M10 NUT
A9	DEPTH STOP	1	130 x 40 x 6 FLAT
A10	HARDENED INSERT FOR CROPPING HOLE	1	30 x 30 x 15, DR BUSH

BLADES ASSEMBLY -
PARTS







PART	NAME	QUANTITY	DIMENSIONS
B1	UPPER BLADE	1	280 x 70 x 13 LEAF SPRING
B2	LOWER BLADE	1	250 x 70 x 13 LEAF SPRING
B3	PIVOT BOLT AND NUTS	1	60 x 20 DIA. (15mm OF UNTHREADED SHANK)
B4	BOLT AND NUT	2	50 x 10 DIA.

LEVER ASSEMBLY -
PARTS

PART	NAME	QUANTITY	DIMENSIONS
C1	LEVER PLATE	1	230 x 68 x 12 PLATE
C2	CONNECTING LINK	2	105 x 30 x 10 FLAT
C3	BOLT AND 2 NUTS	1	60 x 20 DIA. (15mm OF UNTHREADED SHANK)
C4	BOLT AND 2 NUTS	2	50 x 12 DIA. (25mm OF UNTHREADED SHANK)
C5	BOLT AND NUT	2	30 x 10 DIA.
C6	LEVER	1	800 x 40 x 8 FLAT

PEN SETTINGS FOR PLOTTING

COLOUR/No.

	1	PEN WIDTH .18
	7	PEN WIDTH .2
	2	} PEN WIDTH .25
	4	
	6	
	3	PEN WIDTH .3

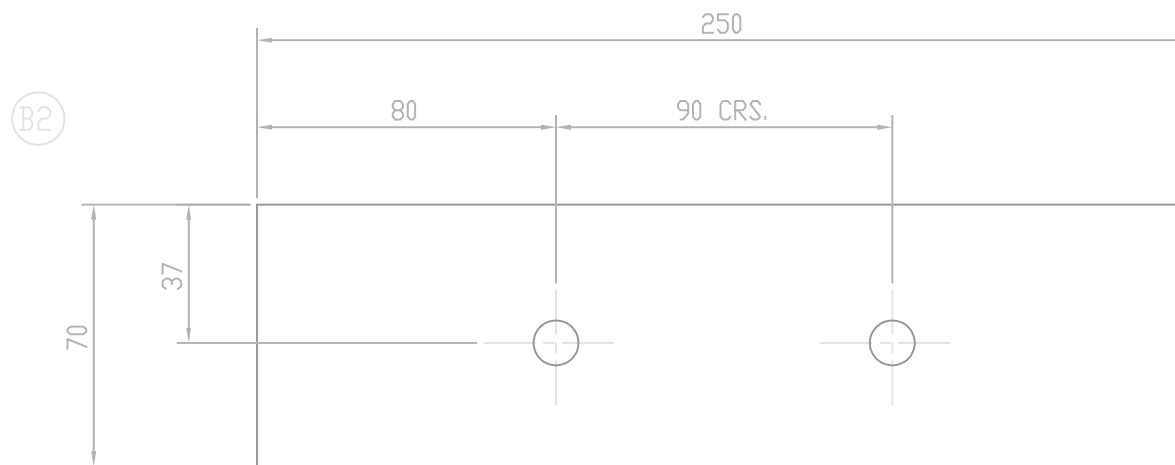
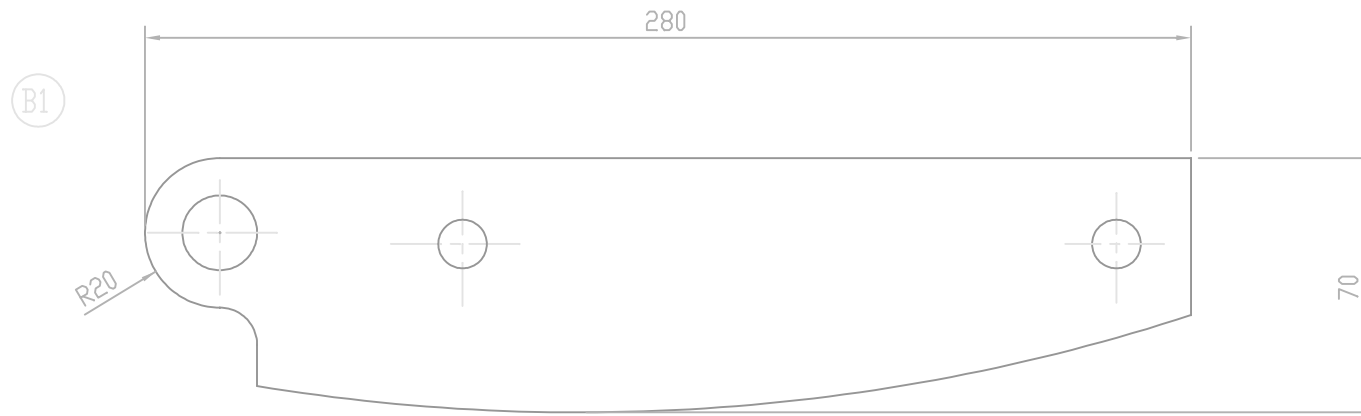
ApT CUTTING SHEARS

TITLE: PARTS LISTS

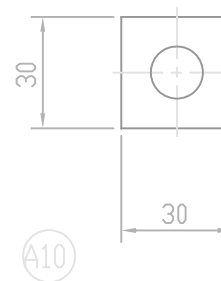
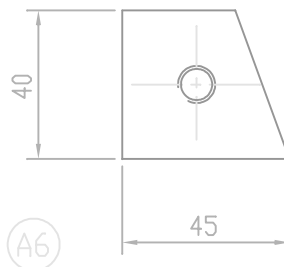
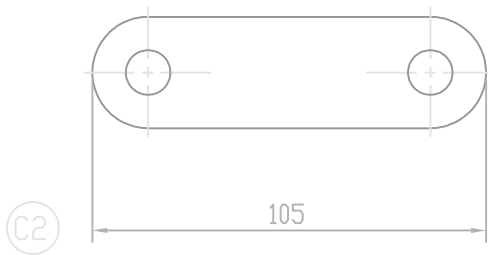
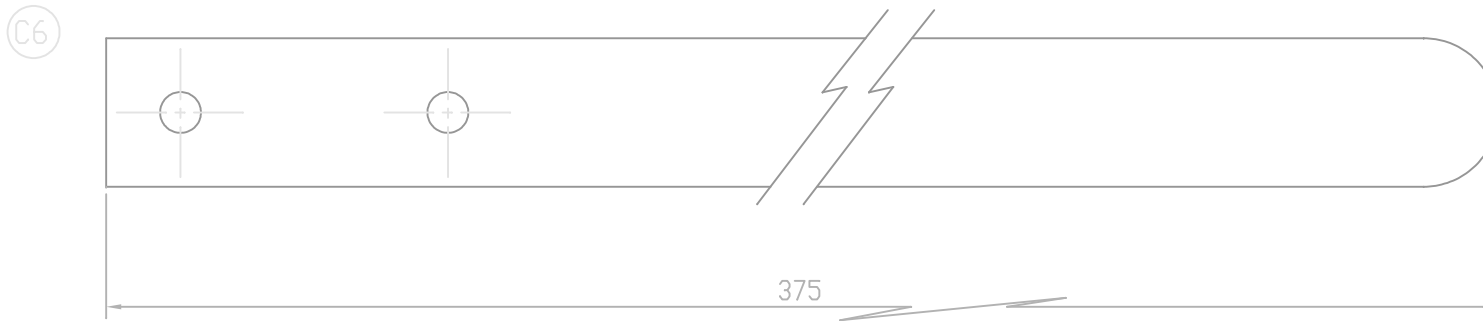
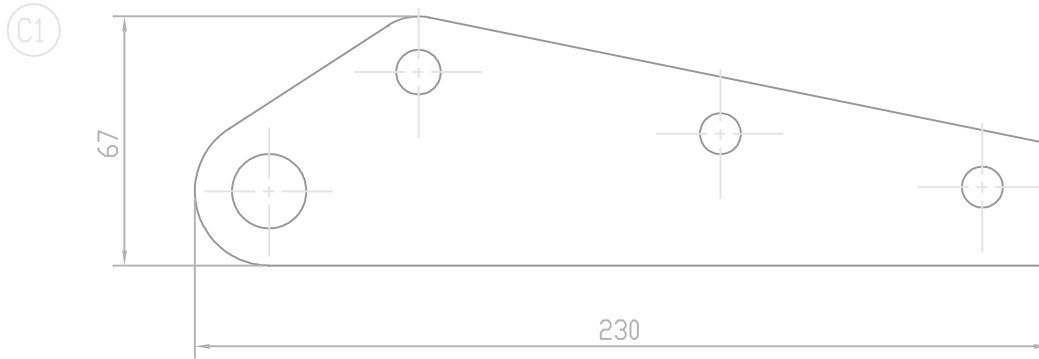
SCALE:

DRAWN: ABATEC PAGE: 2 of 10

CAD No: APT-03-2

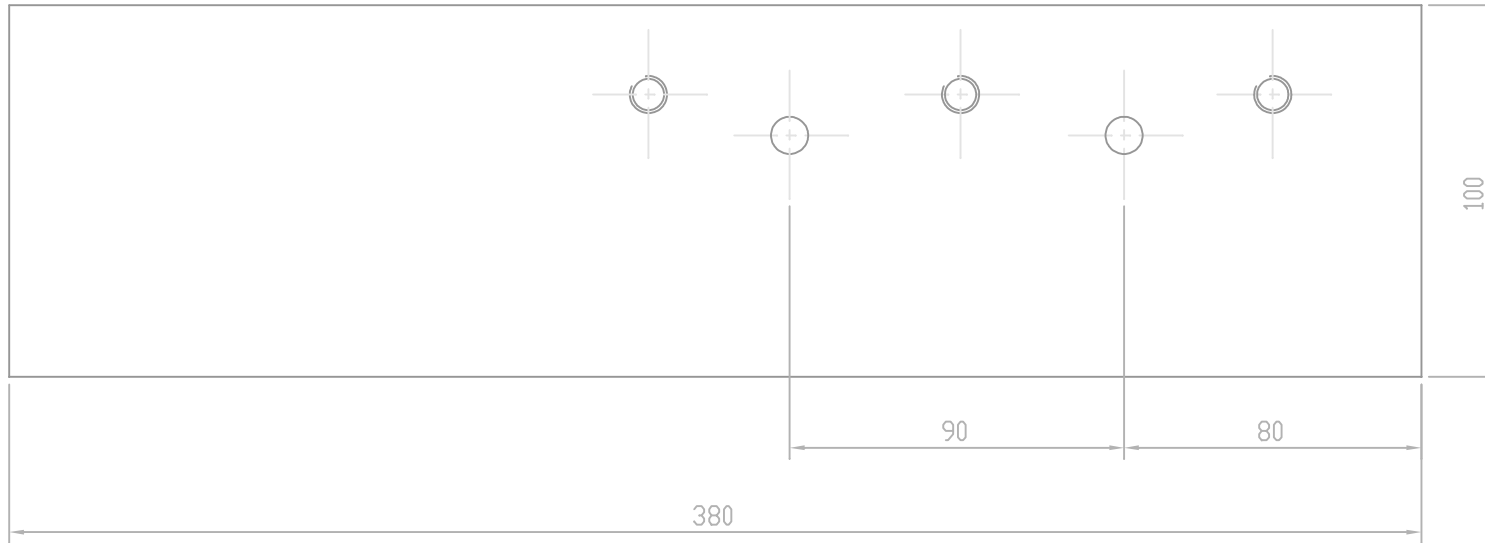


ApT CUTTING SHEARS	
TITLE: CUTTER BLADES	
SCALE: 1:2	
DRAWN: ABATEC	PAGE: 3 of 10
CAD No: APT-03-3	

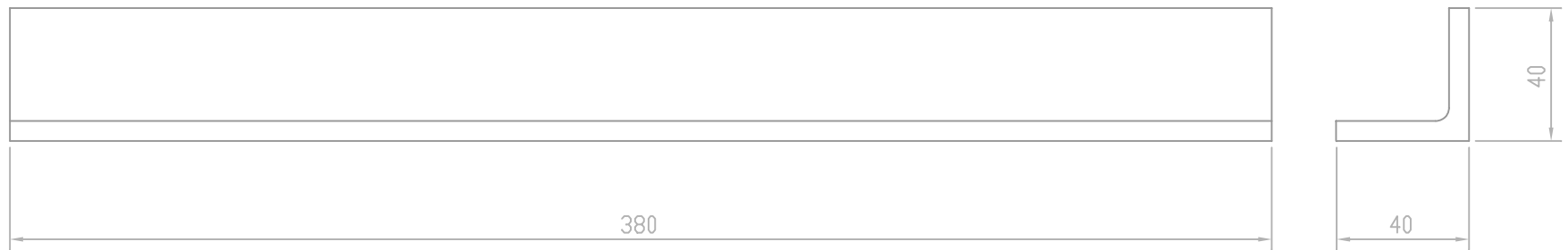


ApT CUTTING SHEARS	
TITLE: LEVER COMPONENTS	
SCALE: 1:2	
DRAWN: ABATEC	PAGE: 4 of 10
CAD No: APT-03-4	

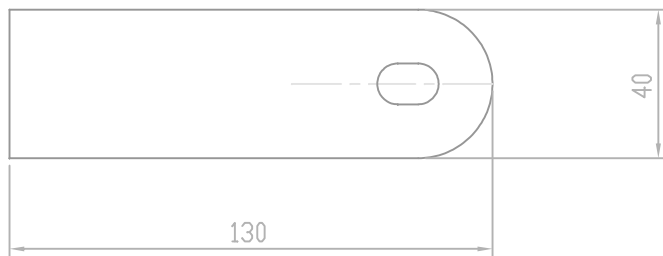
A2



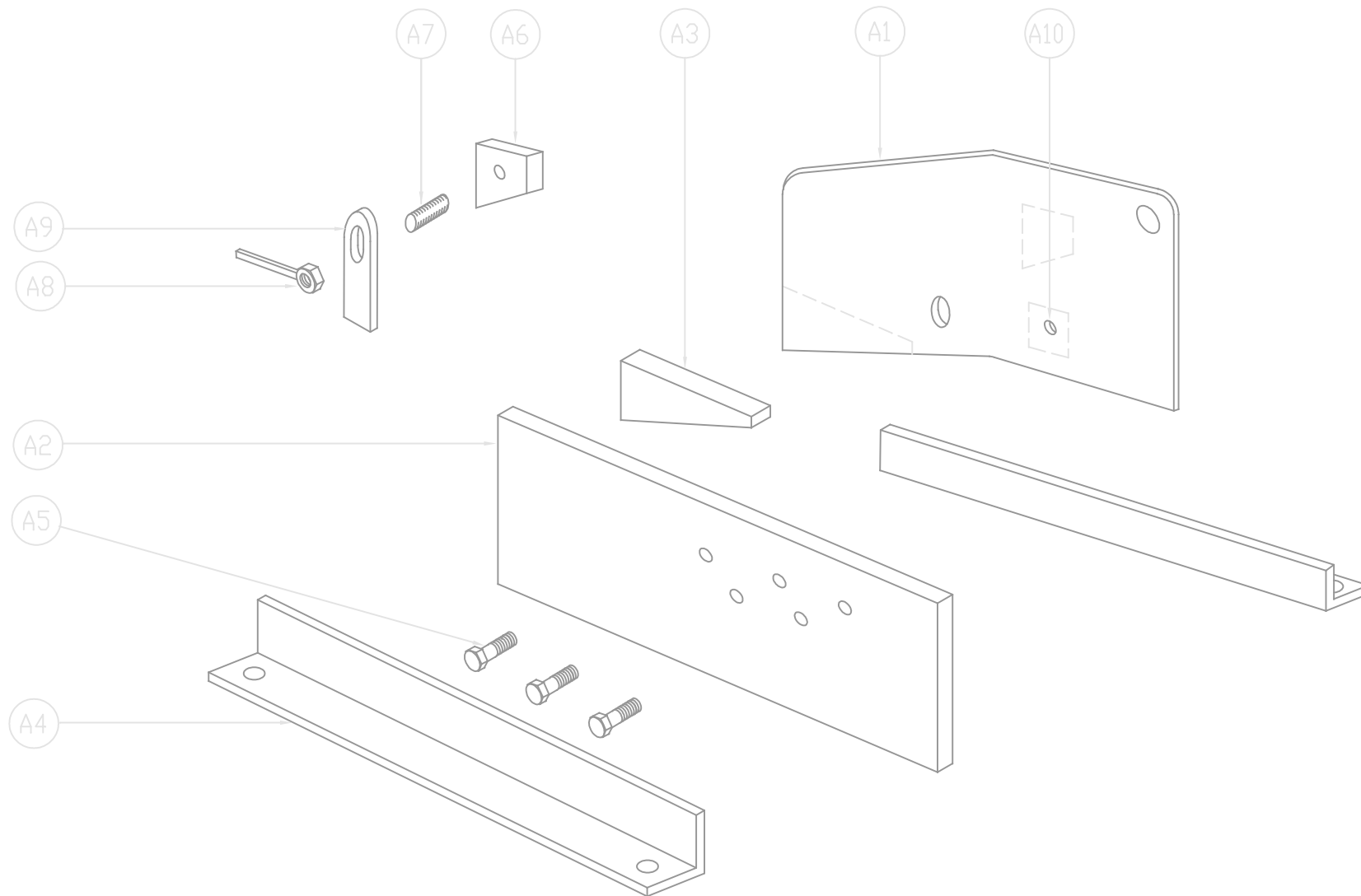
A9



A4

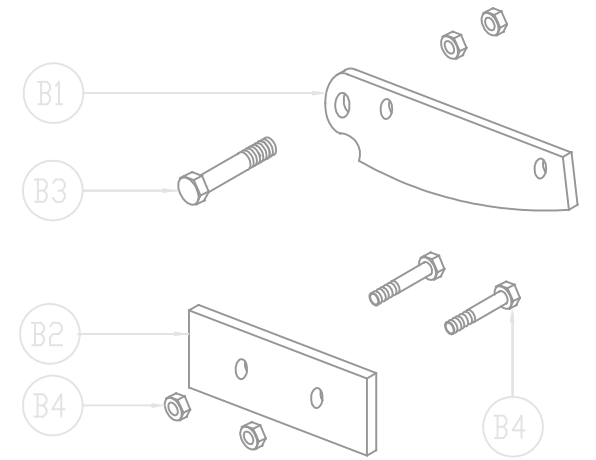
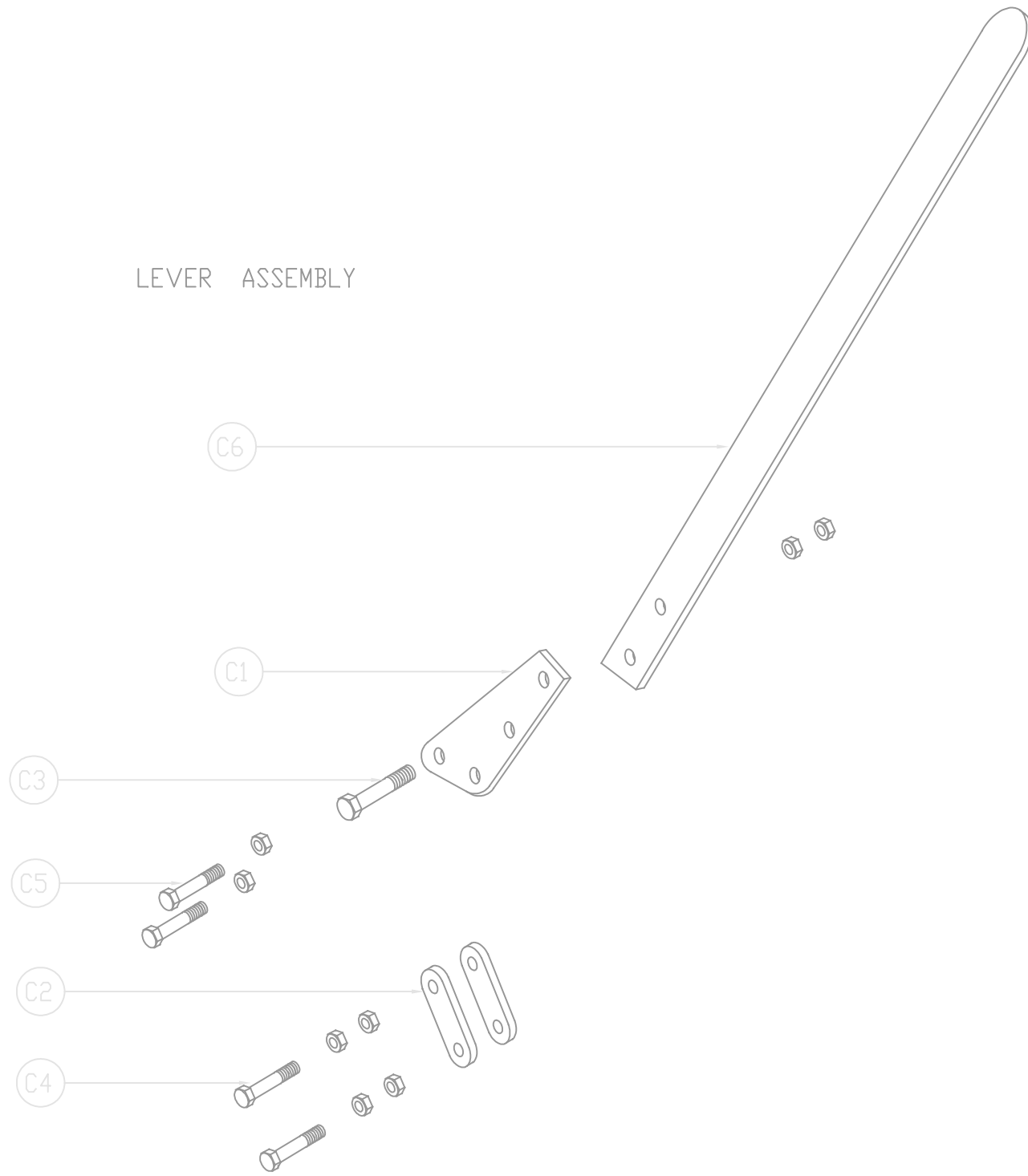


ApT CUTTING SHEARS	
TITLE: LOWER BODY	
SCALE: 1:2	
DRAWN: ABATEC	PAGE: 6 of 10
CAD No: APT-03-6	



ApT CUTTING SHEARS	
TITLE: BODY ASSEMBLY	
SCALE: 1:2	
DRAWN: ABATEC	PAGE: 7 of 10
CAD No: APT-03-7	

LEVER ASSEMBLY

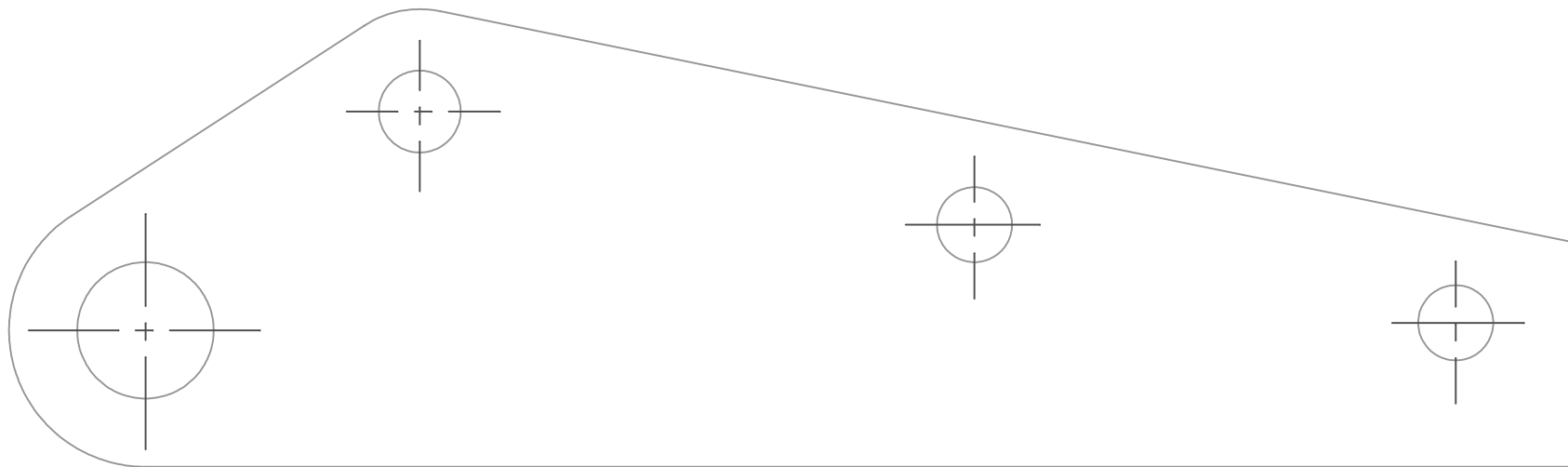


BLADES ASSEMBLY

ApT CUTTING SHEARS	
TITLE: LEVER & BLADES SUB-ASSEMBLIES	
SCALE: DO NOT SCALE	
DRAWN: ABATEC	PAGE: 8 of 10
CAD No: APT-03-8	



ApT CUTTING SHEARS	
TITLE: CUTTER BLADE B1	
SCALE: 1:1	
DRAWN: ABATEC	PAGE: 9 of 10
CAD No: APT-03-9	



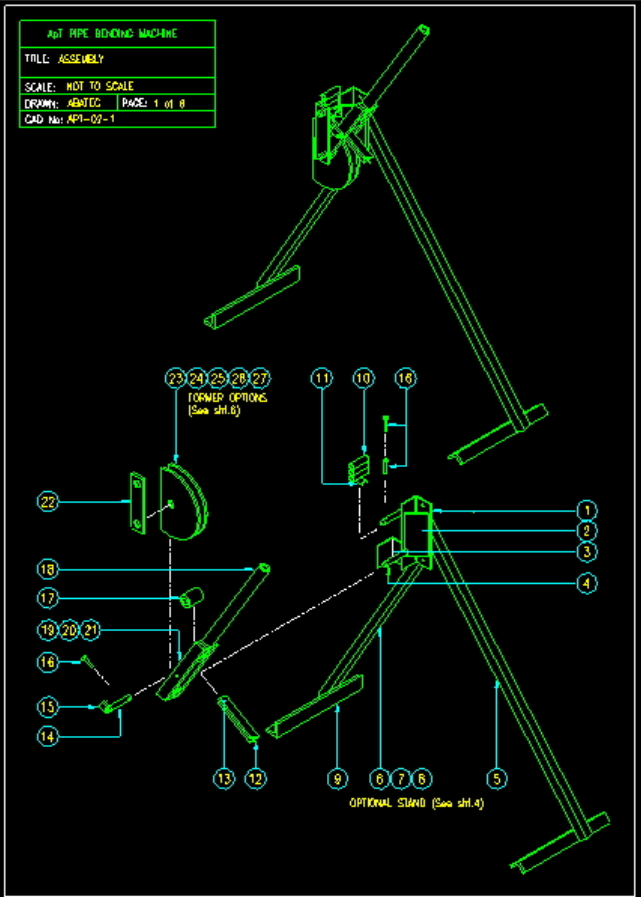
ApT CUTTING SHEARS	
TITLE: LEVER COMPONENT C1	
SCALE: 1:1	
DRAWN: ABATEC	PAGE: 10 of 10
CAD No: AP-03-10	



APT PIPE BENDING MACHINE
TITLE: ASSEMBLY
SCALE: NOT TO SCALE
DRAWN: ASBTEC PAGE: 1 of 8
CAD No: AP1-03-1

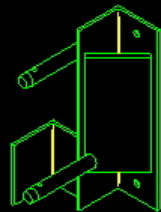
PEN SETTINGS FOR PLOTTING

COLOUR/No.	PEN WIDTH	
1	PEN WIDTH .18	
7	PEN WIDTH .2	
2 4 6	} PEN WIDTH .25	
3		PEN WIDTH .3

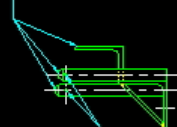




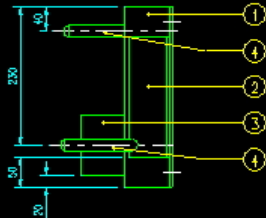
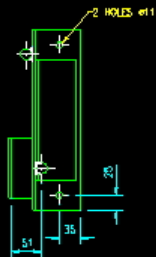
apt: PIPE BENDING MACHINE
TITLE: TRAWIE SUB-ASSEMBLY
SCALE: 1:5
DRAWN: ADRIAN PAGE: 3 of 6
CAD No: AP1-02-3



ENSURE BOTH PINS AND FORMER STOP ARE PARALLEL



HOLES FOR SPIN PINS NEED TO BE DRILLED AFTER ASSEMBY TO ENSURE HORNELL AND PIPE STOP ARE A SNUG FIT.



PEN SETTINGS FOR PLOTTING

COLOUR/No.

- 1 PEN WIDTH .18
- 7 PEN WIDTH .2
- 2 } PEN WIDTH .25
- 4 }
- 6 }
- 3 PEN WIDTH .3



No.	DESCRIPTION	QUANTITY	DIMENSIONS
1	FRAME	1	80 x 80 ANGLE IRON x 300
2	STIFFENER	1	90 x 8 x 200
3	FORMER STOP	1	80 x 80 ANGLE IRON x 100
4	MAIN PIN	2	ø20 x 180
5	MAIN LEG	2	40 x 40 ANGLE IRON x 1350
6	SUPPORT LEG	1	40 x 40 ANGLE IRON x 1040
7	LEC. PIVOT	1	M10 BOLT x 30
8	LOCKNUT	2	M10 NUT
9	FOOT	2	40 x 40 ANGLE IRON x 400
10	STOP TUBE	3	ø21 MIN. BORE THICK-WALL x 80
11	STOP ANGLE	1	20 x 20 ANGLE IRON x 50
12	GUIDE ANGLE	1	20 x 20 ANGLE IRON x 200
13	GUIDE BASE	1	40 x 10 x 200
14	ROLLER PIN	1	ø12 x 100
15	PIN HANDLE	1	40 x 40 ANGLE IRON x 20
16	LOCKING PIN	3	ø5 x 50 SPLIT PIN OR NAIL
17	ROLLER	1	ø35 (ø12 BORE) x 60
18	HANDLE	1	ø35 TUBE x 820
19	HANDLE ARM	2	40 x 10 x 400
20	HANDLE SPACER	2	40 x 16 x 100
21	FORMER SPACER	2	40 x 10 x 40
22	PIN LINK	1	40 x 10 x 220
23	FORMER BASE	OPTIONAL: DEPENDING ON FORMER REQUIRED	EXACT MATERIAL REQUIREMENTS DEPEND ON FORMER DESIGN SELECTED. SEE OPPOSITE FOR DETAILS.
24	FORMER SIDE		
25	SPACER TUBE		
26	BOLTS		
27	NUTS		

PIPE DIAMETER-P	ø15	ø20	ø25	ø32
MIN. BEND RADIUS-R	80	90	120	120
FORMER SIDE RADIUS-F	73	105	138	145
SPACER LENGTH-L	8.5	6	3.5	0
BOLT HOLE RADIUS-H	45	75	105	
BOLT SPACING-B	50	70	65	
BOLTS	5 M10 x 40	5 M10 x 45	7 M10 x 50	
LAMINATE FORMER STEEL SHEETS (1mm THICK)	2 x ø67 2 x ø64 2 x ø62 4 x ø61 5 x ø60	2 x ø100 2 x ø96 2 x ø94 2 x ø93 4 x ø91 6 x ø90	2 x ø132 2 x ø127 2 x ø126 2 x ø124 2 x ø123 4 x ø122 4 x ø121 7 x ø120	
STEEL FORMER BASE LENGTH BEFORE BENDING (5mm THICK)	307	389	480	

PEN SETTINGS FOR PLOTTING

COLOUR/No.

- 1 PEN WIDTH .18
- 7 PEN WIDTH .2
- 2 } PEN WIDTH .25
- 4 }
- 6 }
- 3 PEN WIDTH .3

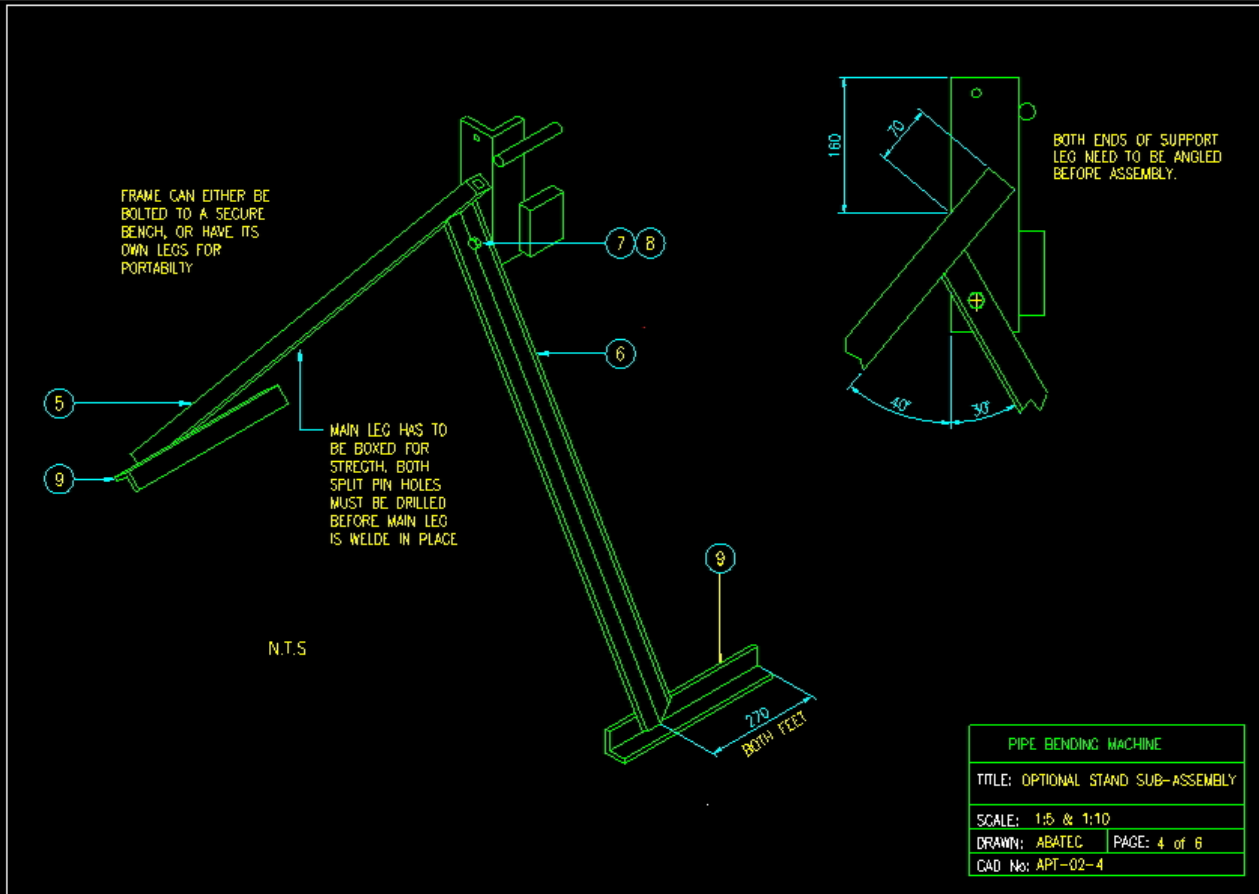
ApT PIPE BENDING MACHINE

TITLE: PARTS LIST AND FORMER
DETAILS

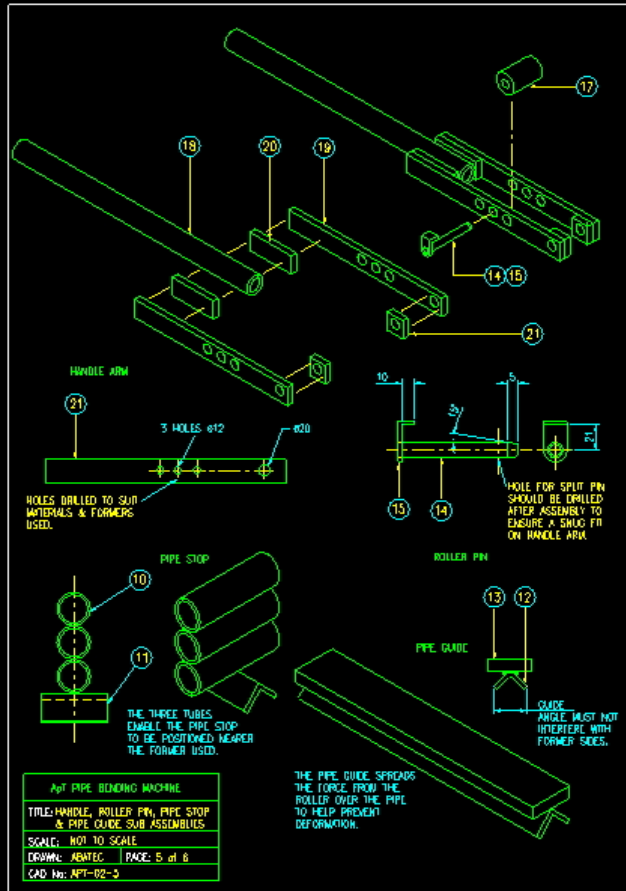
SCALE:

DRAWN: ABATEC PAGE: 2 of 6

CAD No: APT-02-2

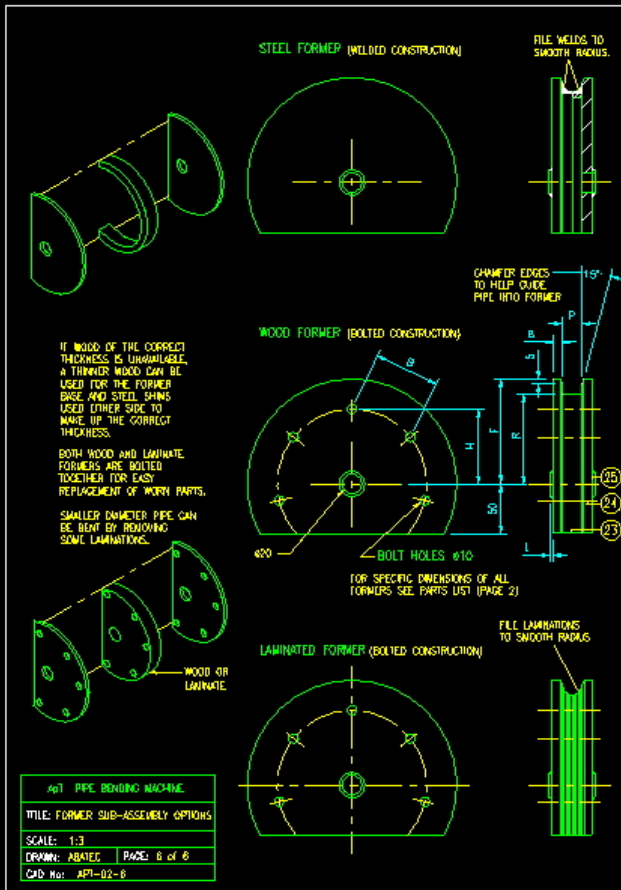


PEN SETTINGS FOR PLOTTING		
COLOUR/No.		
1	PEN WIDTH	.18
7	PEN WIDTH	.2
2	} PEN WIDTH	.25
4		
6		
3	PEN WIDTH	.3



PEN SETTINGS FOR PLOTTING

COLOUR/No.	PEN WIDTH
1	PEN WIDTH .18
7	PEN WIDTH .2
2	} PEN WIDTH .25
4	
6	
3	PEN WIDTH .3



PEN SETTINGS FOR PLOTTING

COLOUR/No.	PEN WIDTH
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7	PEN WIDTH .2
2	} PEN WIDTH .25
4	
6	
3	PEN WIDTH .3

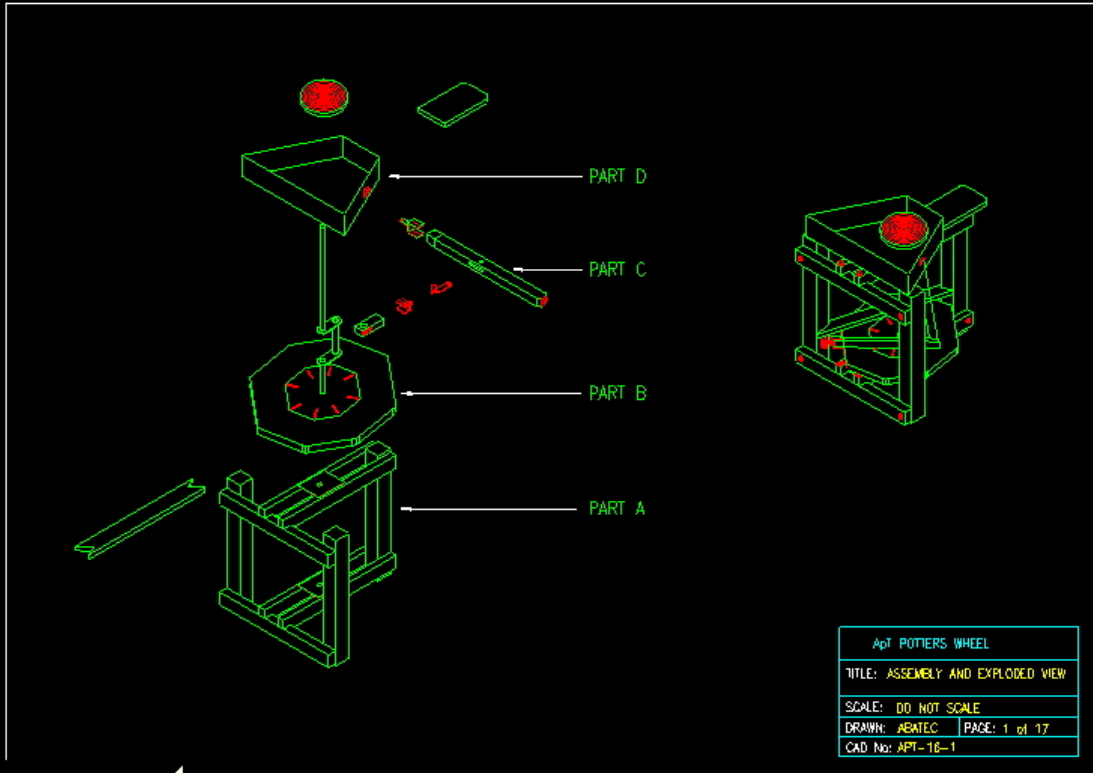
APT PIPE BENDING MACHINE

TITLE FORMER SUB-ASSEMBLY OPTIONS

SCALE: 1:3

DRAWN: ABATED PAGE: 8 of 8

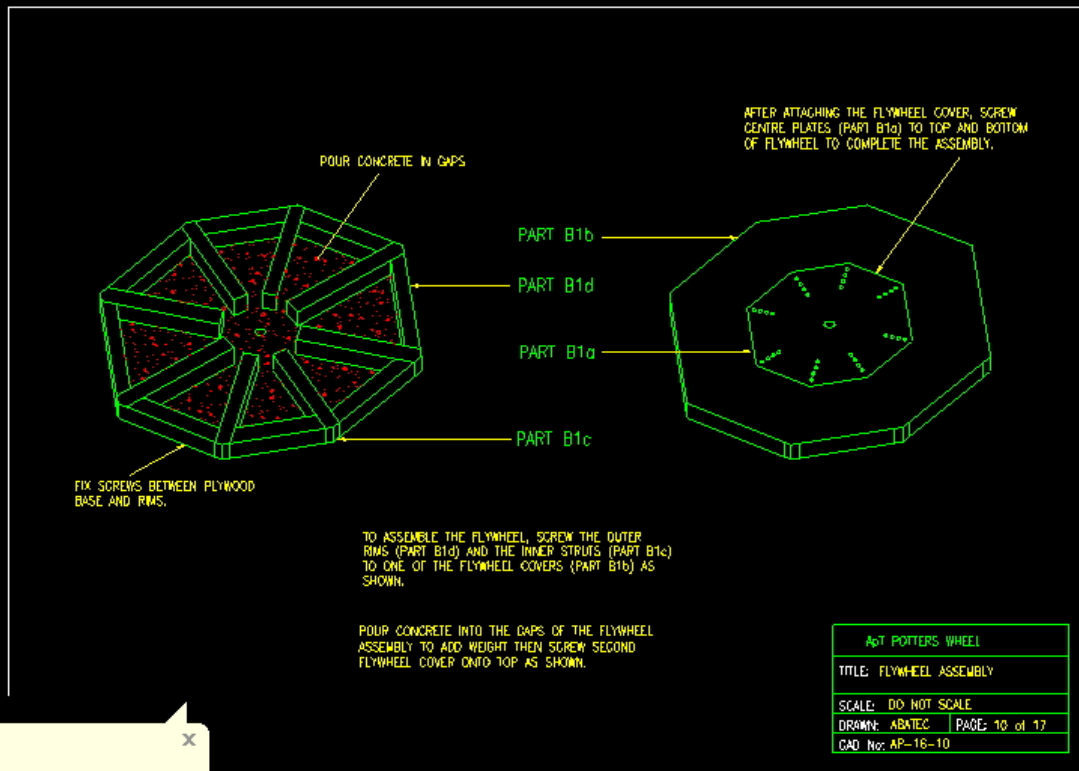
CAD No: APT-02-8



PEN SETTINGS FOR PLOTTING		
COLOUR/No.		
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2	} PEN WIDTH .25	
3		
6		
4	PEN WIDTH .35	

Help - Select Effects

Doubleclick the Effect you want to use or move Effect to selected Picture with pressed left Mouse Button.



PEN SETTINGS FOR PLOTTING

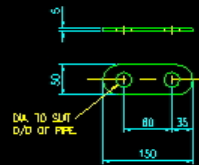
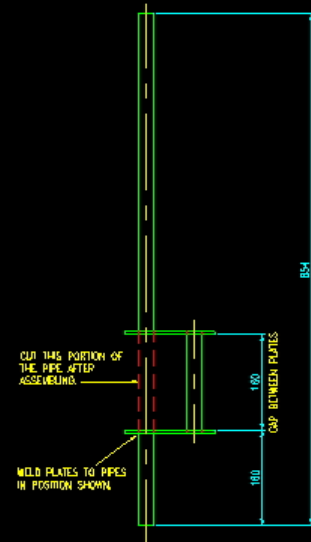
COLOUR/No.	PEN WIDTH
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7	PEN WIDTH .2
2	} PEN WIDTH .25
4	
6	
3	PEN WIDTH .3

Help - Select Effects X

Doubleclick the Effect you want to use or move Effect to selected Picture with pressed left Mouse Button.



CUT 3/4" WATER PIPE TO 854mm LENGTH, CUT DRIVE PLATES TO DIMENSIONS BELOW.



DRIVE PLATES 2-OFF
MATERIAL: 5mm PLATE

MAIN SPINDLE 1-OFF
MATERIAL: 3/4" WATER PIPE

AP1 POTTERS WHEEL	
TITLE: DRIVE SPINDLE	
SCALE: 1:5	
DRAWN: ABATEC	PAGE: 11 of 17
CAD No: AP-16-11	

PEN SETTINGS FOR PLOTTING

COLOUR/No.

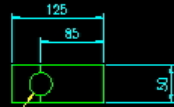
- 1 PEN WIDTH .18
- 7 PEN WIDTH .2
- 2 } PEN WIDTH .25
- 4 }
- 8 }
- 3 PEN WIDTH .3

Help - Select Effects

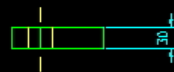
Doubleclick the Effect you want to use or move Effect to selected Picture with pressed left Mouse Button.



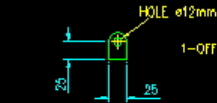
CUT WOODEN BLOCK TO DIMENSIONS SHOWN.



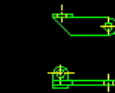
DRILL HOLE TO SUIT PIPE (DRIVE SPINDLE) PART C1a.



Ⓢ BEARING BLOCK 1-OFF
MAT'L: WOOD



Ⓢ PIVOT BRACKET 1-OFF
MAT'L: 5mm PLATE

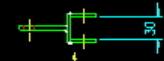


PIVOT BRACKET ASSEMBLY

3-HOLES DRILLED ø6mm
EQUI-SPACED AS SHOWN.



Ⓢ DRIVE FORK 1-OFF
MAT'L: 5mm MS PLATE



CUT PLATES AND WELD AS SHOWN ABOVE.

PEN SETTINGS FOR PLOTTING

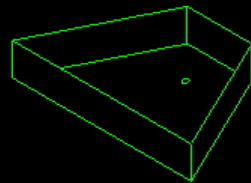
COLOUR/No.

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- 7 PEN WIDTH .2
- 2 } PEN WIDTH .25
- 4 }
- 6 }
- 3 PEN WIDTH .3

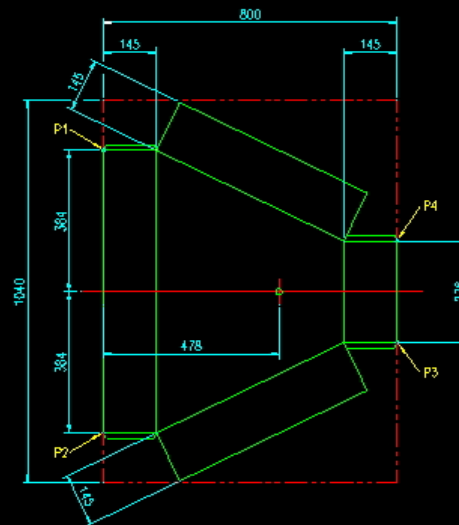
ApT POTTERS WHEEL	
TITLE: DRIVE BRACKETS	
SCALE: 1:5	
DRAWN: ABTEC	PAGE: 13 of 17
CAD No: AP-16-13	

Help - Select Effects

Doubleclick the Effect you want to use
or move Effect to selected Picture with pressed left Mouse Button.



(D1) TROUGH 1-OFF
MAT'L: 0.8mm MS PLATE



THE TROUGH IS DEVELOPED FROM MILD STEEL PLATE
AND IS FOLDED AND BRAZED TO THE SHAPE SHOWN.
CUT THE FLAT PLATE TO THE DIMENSIONS GIVEN ABOVE.

MARK OFF FOUR POINTS, P1 TO P4
IN THE POSITIONS SHOWN.

ApT POTTERS WHEEL	
TITLE: TROUGH DETAILS	
SCALE: 1:10	
DRAWN: ABATEC	PAGE: 14 of 17
CAD No: AP-16-14	

PEN SETTINGS FOR PLOTTING

COLOUR/No.

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- 7 PEN WIDTH .2
- 2 } PEN WIDTH .25
- 4 }
- 6 }
- 3 PEN WIDTH .3

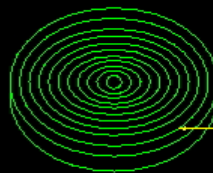
Help - Select Effects

Doubleclick the Effect you want to use
or move Effect to selected Picture with pressed left Mouse Button.

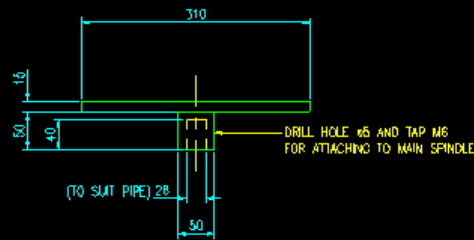


02 WHEEL 1-OFF
MAT'L: ALUMINIUM

THE WHEEL IS FIRST CAST IN ALUMINIUM AND THEN MACHINED TO THE DIMENSIONS BELOW.



WHEN MACHINING, CUT SMALL GROOVES 0.3mm DEEP AT 10mm INTERVALS.



Apt POTTERS WHEEL	
TITLE: WIGE SUB-ASSEMBLIES	
SCALE: 1:5	
DRAWN: ABATEC	PAGE: 15 of 17
CAD No: AP-16-15	

PEN SETTINGS FOR PLOTTING

COLOUR/No.

Red	1	PEN WIDTH .18
White	7	PEN WIDTH .2
Yellow	2	} PEN WIDTH .25
Cyan	4	
Magenta	6	
Green	3	PEN WIDTH .3

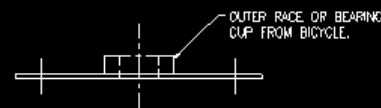
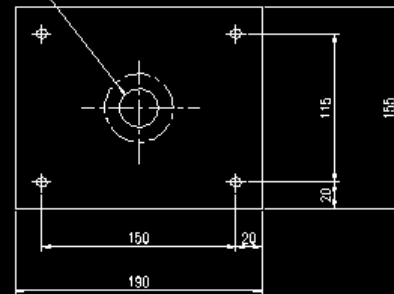
Help - Select Effects

Doubleclick the Effect you want to use or move Effect to selected Picture with pressed left Mouse Button.



BEARING PLATES 4-OFF
MATL: 3mm MS PLATE

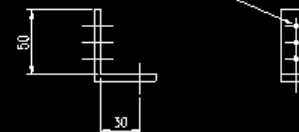
DRILL TO SUIT DRIVE SPINDLE.



PIVOT BRACKET 1-OFF
MATL: 5mm MS PLATE



DRILL HOLES EQUI-SPACED ø4mm



LOCATE ø12mm PIN
IN HOLE AND WELD
ON THE BOTTOM ONLY.



REST BRACKET 4-OFF
MATL: 50mm ANGLE



Apt POTTERS WHEEL	
TITLE: MISCELLANEOUS PARTS	
SCALE: 1:3	
DRAWN: ABATEC	PAGE: 16 of 17
CAD No: AP-16-16	

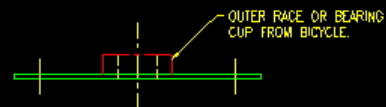
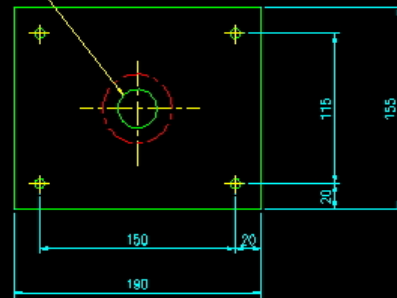
Help - Select Effects

Doubleclick the Effect you want to use
or move Effect to selected Picture with pressed left Mouse Button.



M1 BEARING PLATES 4-OFF
MAT'L: 3mm MS PLATE

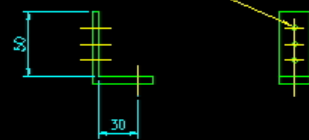
DRILL TO SUIT DRIVE SPINDLE.



M2 PIVOT BRACKET 1-OFF
MAT'L: 5mm MS PLATE



DRILL HOLES EQUI-SPACED ø4mm



LOCATE ø12mm PIN IN HOLE AND WELD ON THE BOTTOM ONLY.

M3 REST BRACKET 4-OFF
MAT'L: 50mm ANGLE



ApT POTTERS WHEEL	
TITLE: MISCELLANEOUS PARTS	
SCALE: 1:3	
DRAWN: ABATEC	PAGE: 16 of 17
CAD No: AP-16-16	

PEN SETTINGS FOR PLOTTING

COLOUR/No.

Red	1	PEN WIDTH .18
White	7	PEN WIDTH .2
Yellow	2	} PEN WIDTH .25
Cyan	4	
Magenta	6	
Green	3	PEN WIDTH .3

Help - Select Effects

Doubleclick the Effect you want to use or move Effect to selected Picture with pressed left Mouse Button.



FOOT REST 1-OFF
MAT'L: 25mm THICK WOOD



MARK OFF THE TWO POINTS P1 AND P2
IN THE POSITION SHOWN.
MARK OFF LINES FROM THE BOTTOM AND
TOP CORNERS TO THE POINTS.

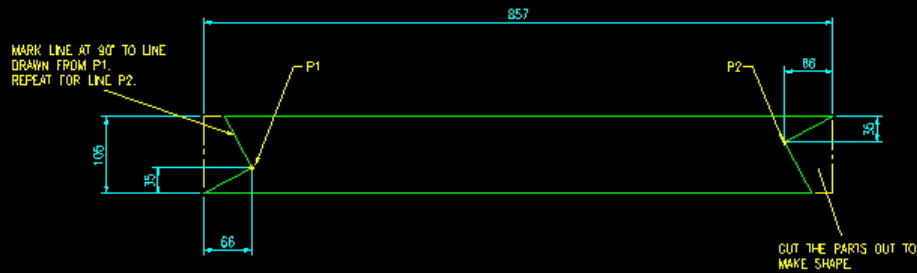
ApT POTTERS WHEEL	
TITLE: FOOT REST	
SCALE: 1:5	
DRAWN: ABATEC	PAGE: 17 of 17
CAD No: AP-16-17	

Help - Select Effects

Doubleclick the Effect you want to use
or move Effect to selected Picture with pressed left Mouse Button.



M44 FOOT REST 1-OFF
MATL: 25mm THICK WOOD



MARK OFF THE TWO POINTS P1 AND P2 IN THE POSITION SHOWN. MARK OFF LINES FROM THE BOTTOM AND TOP CORNERS TO THE POINTS.

ApT POTTERS WHEEL	
TITLE: FOOT REST	
SCALE: 1:5	
DRAWN: ABATEC	PAGE: 17 of 17
CAD No: AP-18-17	

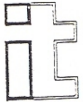
PEN SETTINGS FOR PLOTTING

COLOUR/No.

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	7	PEN WIDTH .2
	2	} PEN WIDTH .25
	4	
	6	
	3	PEN WIDTH .3

Help - Select Effects

Doubleclick the Effect you want to use or move Effect to selected Picture with pressed left Mouse Button.



POWER HAMMER

POWER HAMMER FOR LOCAL MANUFACTURE

Designed by SIM LAWRENCE
Illustrated by MATTHEW WHITTON

<u>POWER SOURCE</u>	May be electric, petrol, diesel, etc motor (1-3 HP)
<u>DIMENSIONS</u>	Are variable, depending upon the size of the rear axle used and the height of the operator. If the operator stands upright with his arms by his side, fists clenched, his fist should just touch the top surface of the anvil.
<u>HAMMER</u>	Head should be approximately 5 or 6 kilos, firmly wedged onto a wooden shaft which will absorb the impact of the hammer blows.
<u>CONSTRUCTION</u>	Is of steel, with the exception of the wooden shaft of the hammer.
<u>AXLE, BRAKE AND SPRING</u>	Are all obtainable from a small saloon car, for example a Morris 1000.
<u>OPERATION</u>	Is by powering the axle through the differential, then operating the brake through the foot pedal in imitation of the desired hammer blow or blows. Safety glasses and protective footwear should be worn.

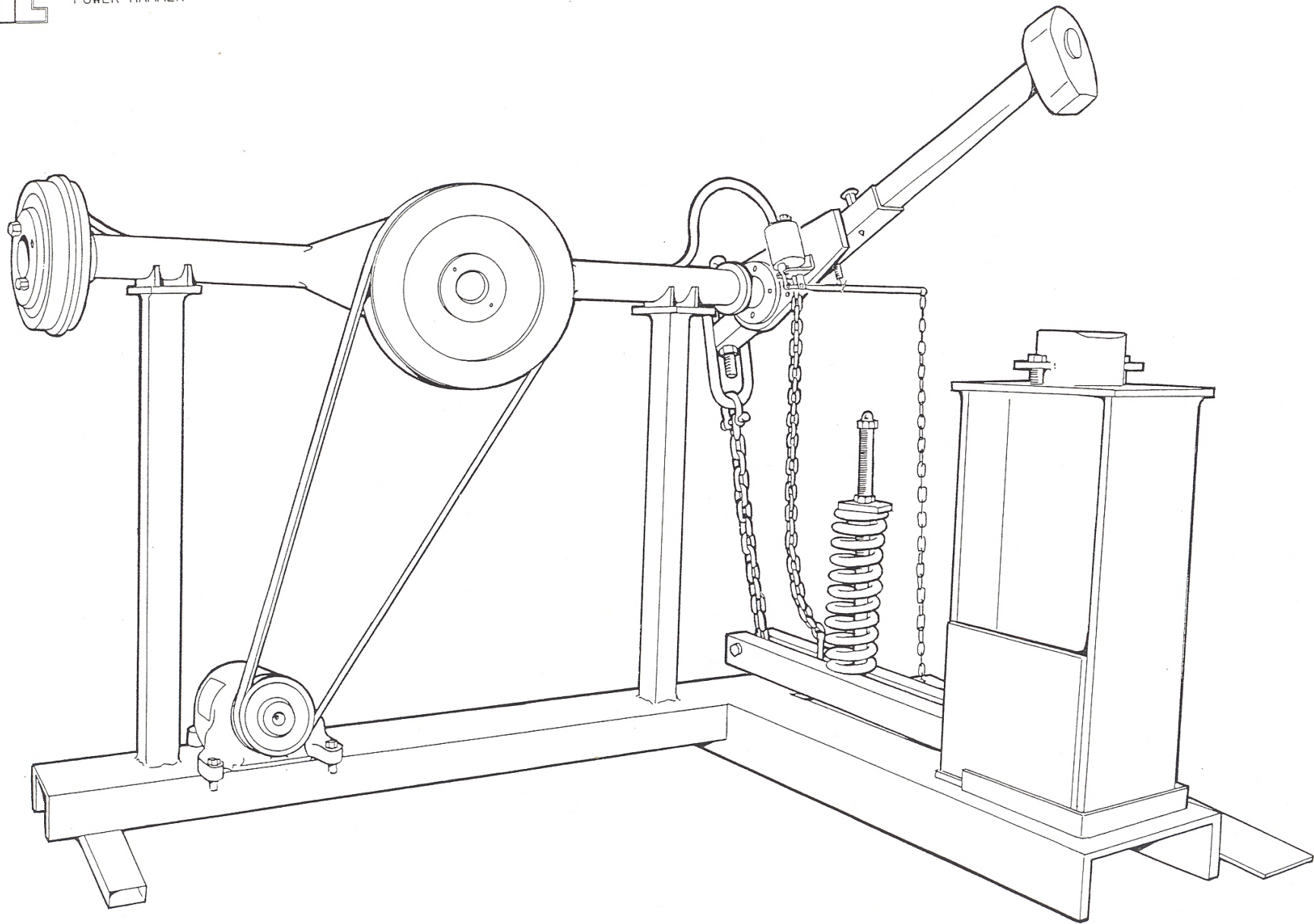
INTERMEDIATE TECHNOLOGY DEVELOPMENT GROUP
33/1 QUEENS ROAD
COLOMBO 3
SRI LANKA

TEL: 503786/586504

DRAFT: AUGUST 1990



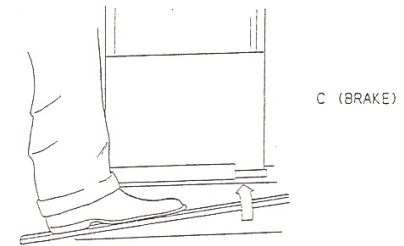
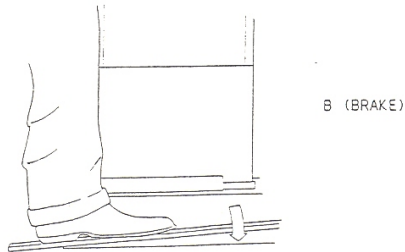
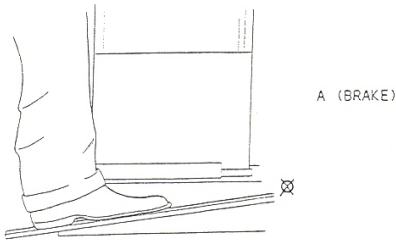
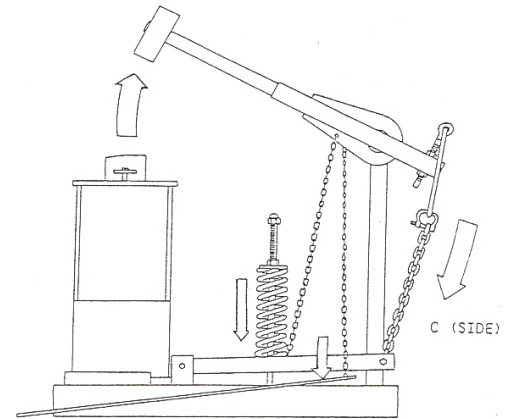
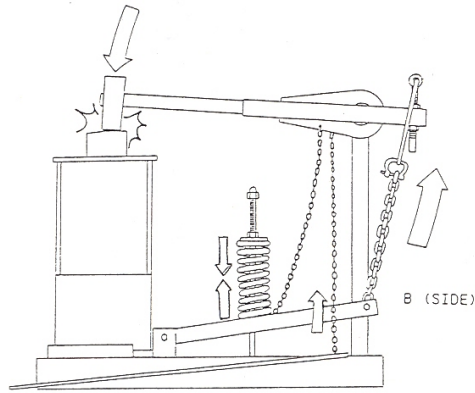
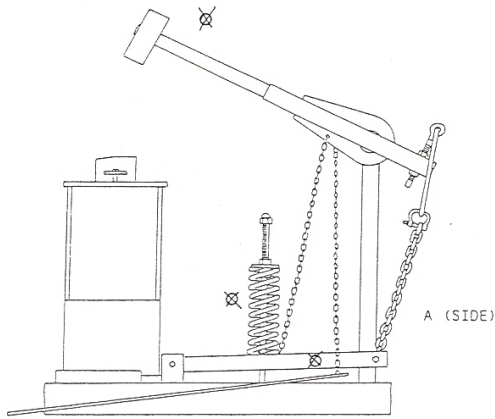
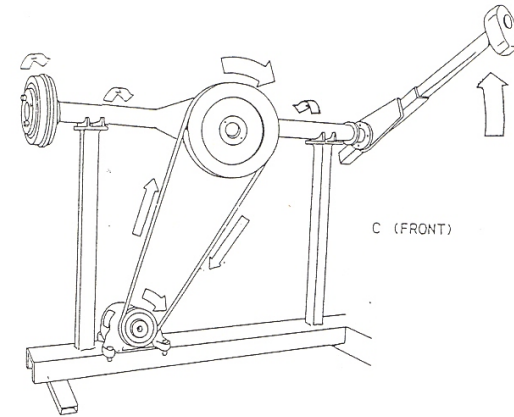
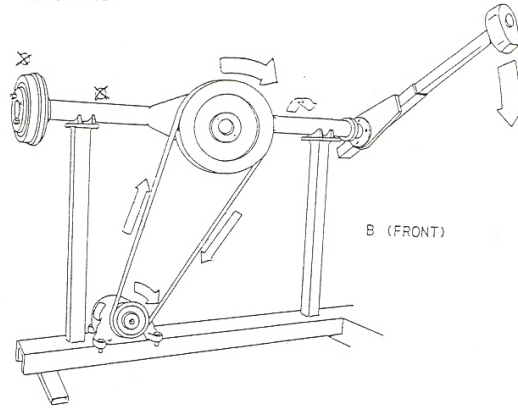
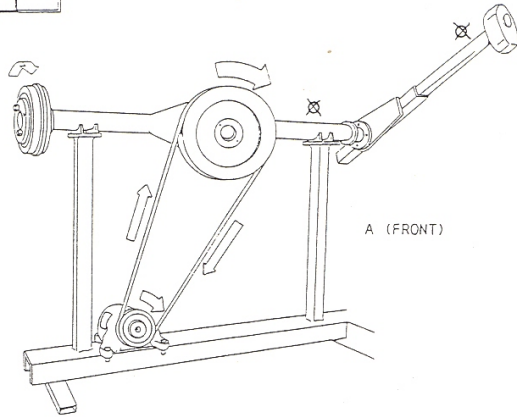
POWER HAMMER



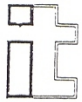


POWER HAMMER: OPERATION

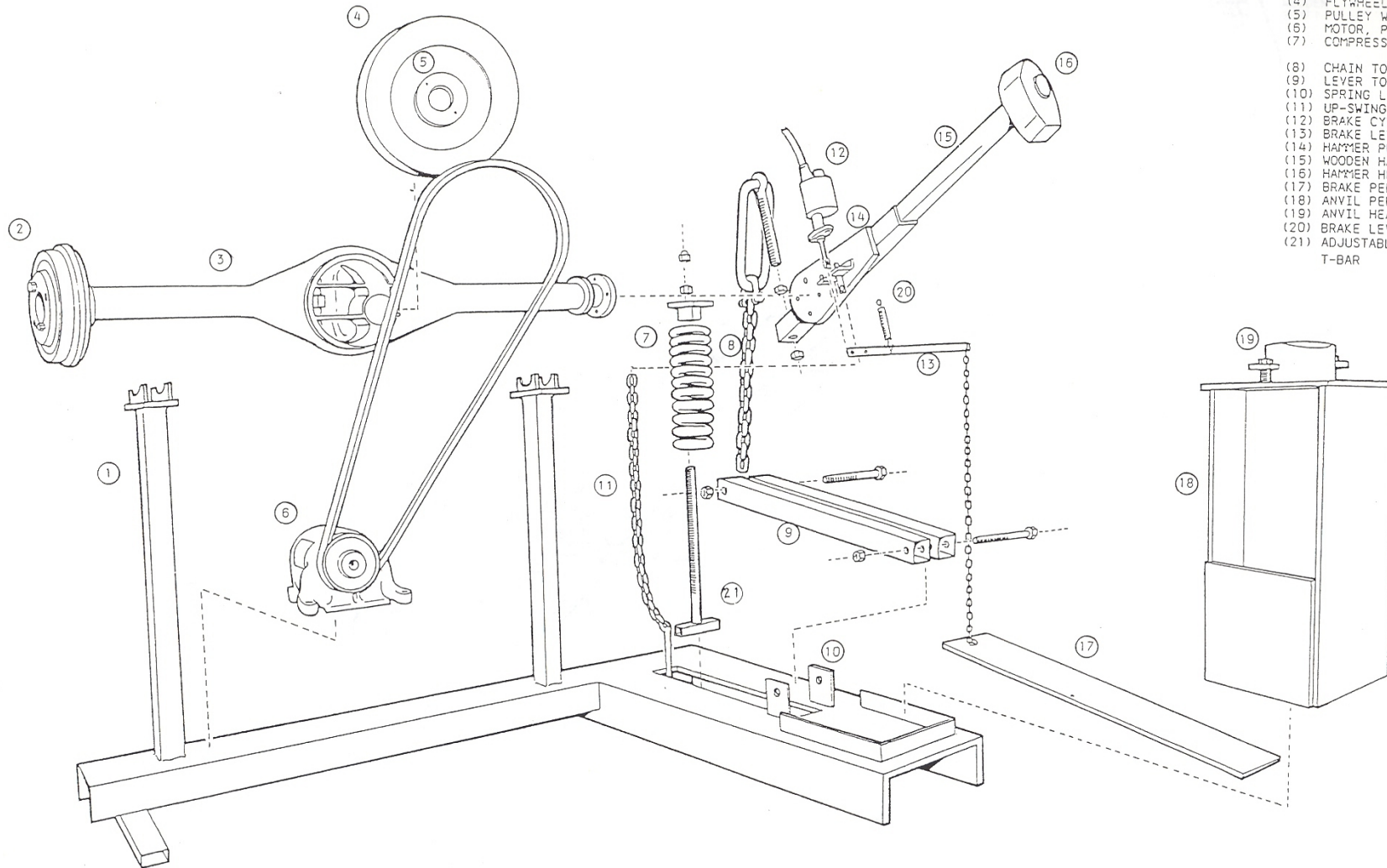
↻ = MOVEMENT
⊗ = STOPPED



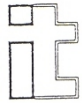
The operation of the brake by means of the foot pedal transfers power between the free hub and the hammer through the differential on the axle, causing the hammer to rise and fall with and against the pull of the spring.



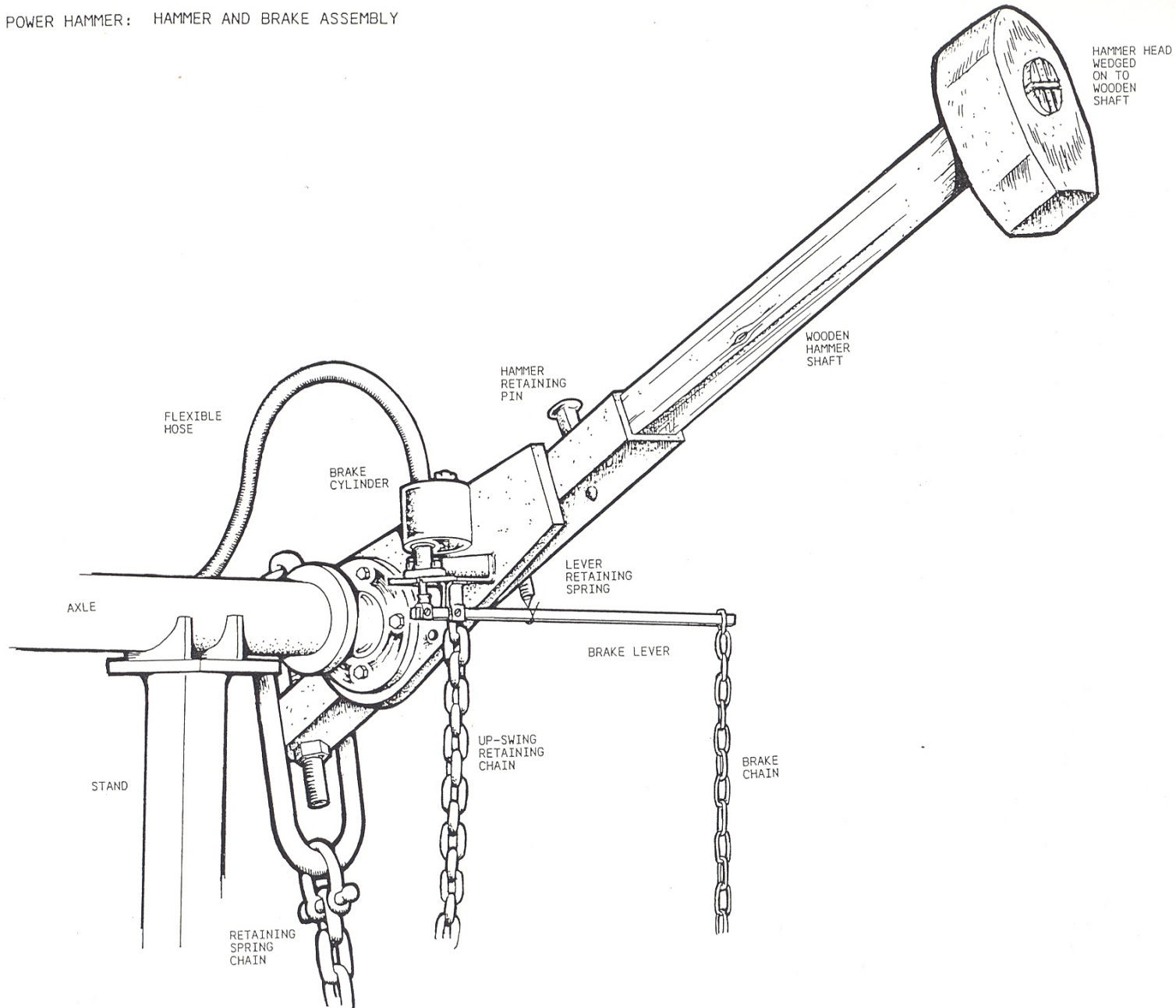
POWER HAMMER COMPONENT PARTS



- (1) STAND
- (2) FREE HUB
- (3) CAR REAR AXLE AND DIFFERENTIAL
- (4) FLYWHEEL
- (5) PULLEY WHEEL
- (6) MOTOR, PULLEY AND BELT
- (7) COMPRESSION SPRING
(FROM CAR SUSPENSION)
- (8) CHAIN TO SPRING
- (9) LEVER TO SPRING
- (10) SPRING LEVER PIVOT
- (11) UP-SWING RETAINING CHAIN
- (12) BRAKE CYLINDER
- (13) BRAKE LEVER
- (14) HAMMER PLATE AND SLEEVE
- (15) WOODEN HAMMER SHAFT
- (16) HAMMER HEAD (WEDGED)
- (17) BRAKE PEDAL
- (18) ANVIL PEDESTAL
- (19) ANVIL HEAD (INTERCHANGEABLE)
- (20) BRAKE LEVER RESTRAINING SPRING
- (21) ADJUSTABLE SPRING-RETAINING
T-BAR



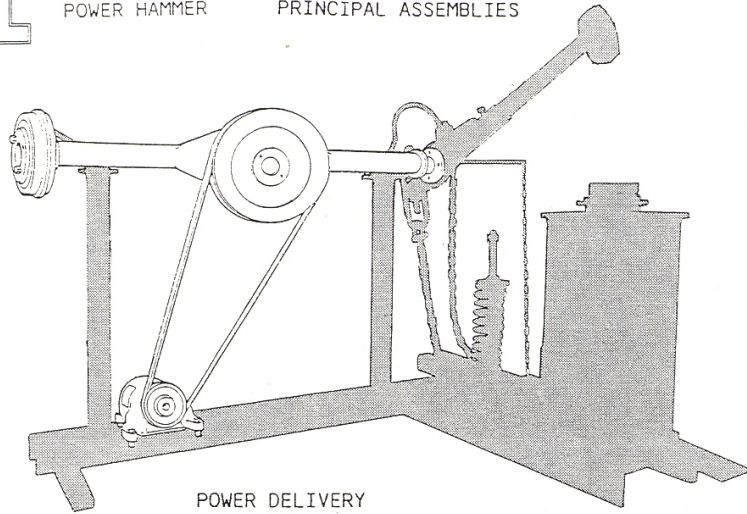
POWER HAMMER: HAMMER AND BRAKE ASSEMBLY



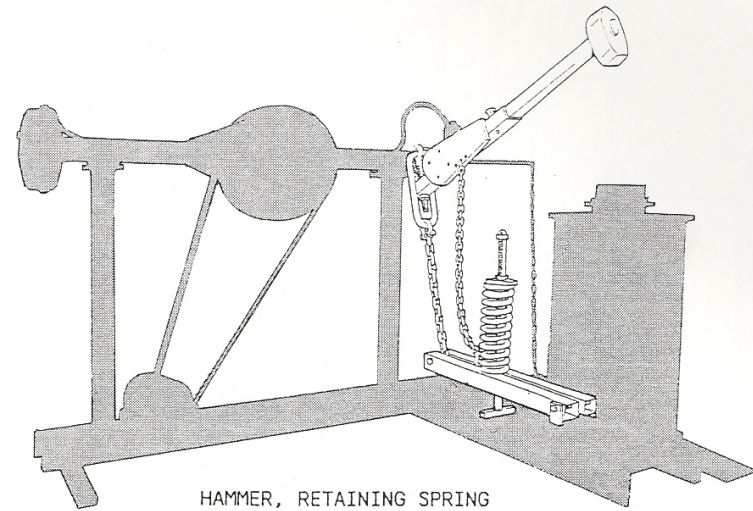


POWER HAMMER

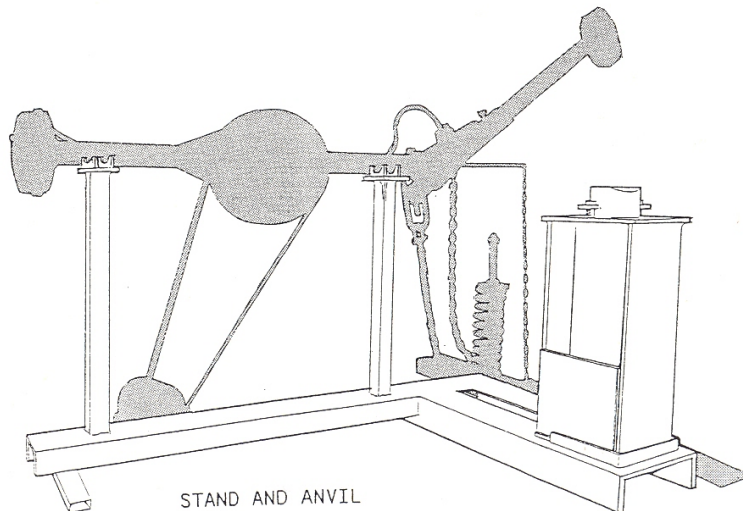
PRINCIPAL ASSEMBLIES



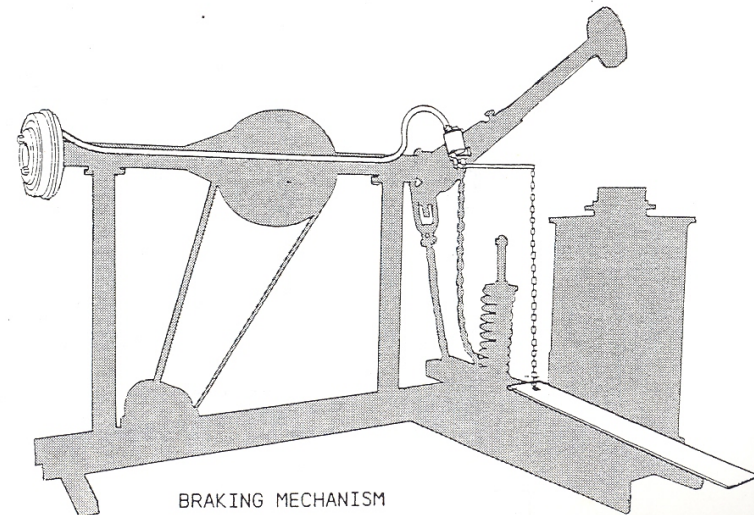
POWER DELIVERY



HAMMER, RETAINING SPRING
AND CHAINS



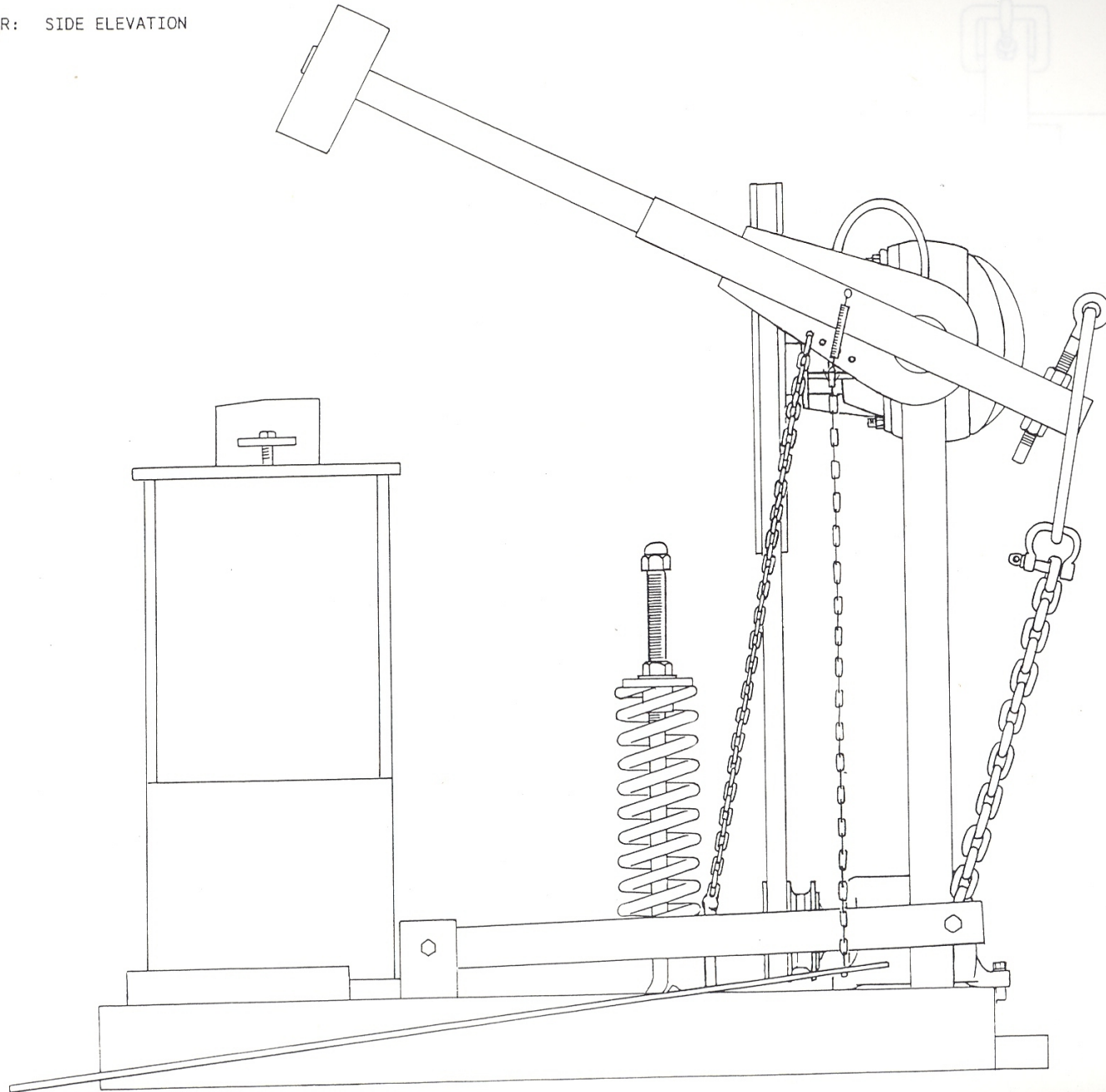
STAND AND ANVIL



BRAKING MECHANISM

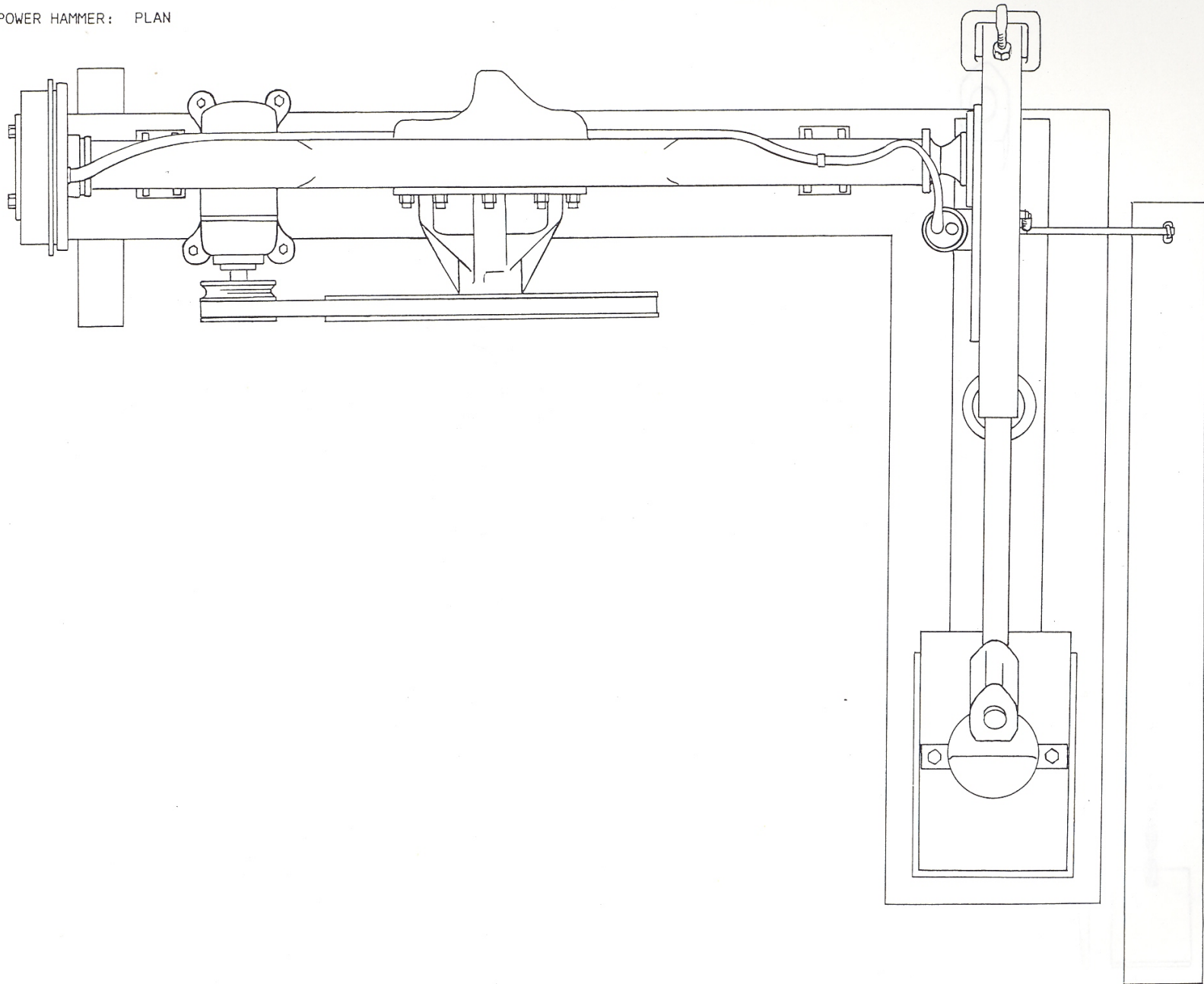


POWER HAMMER: SIDE ELEVATION



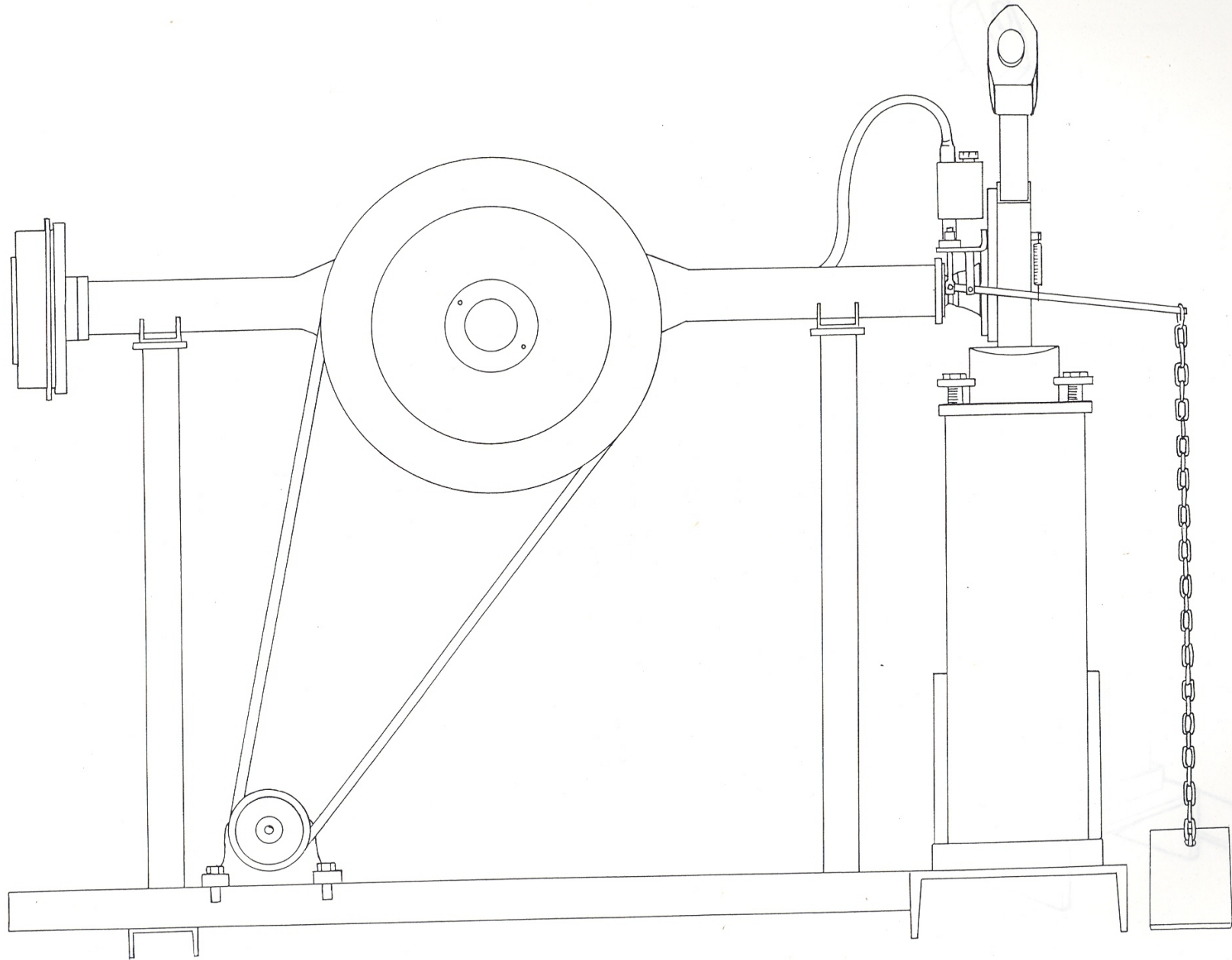


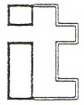
POWER HAMMER: PLAN



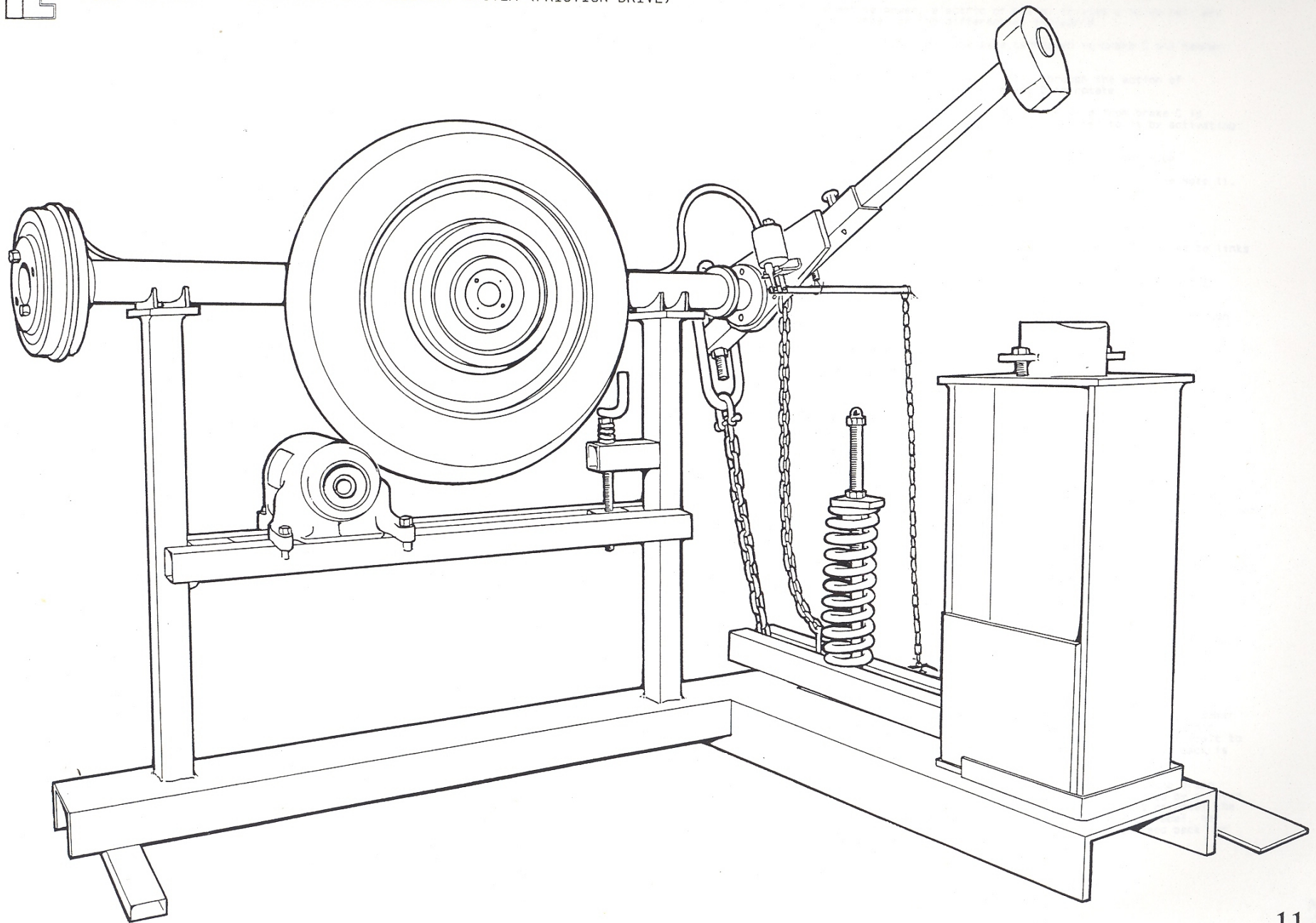


POWER HAMMER: FRONT ELEVATION



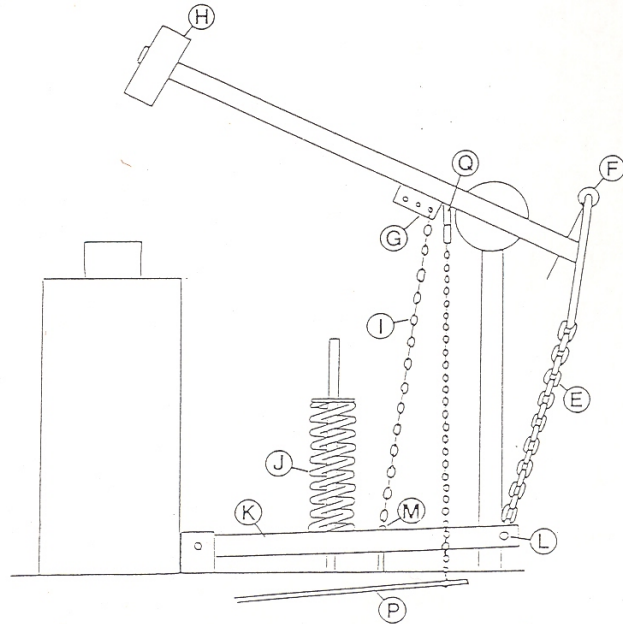
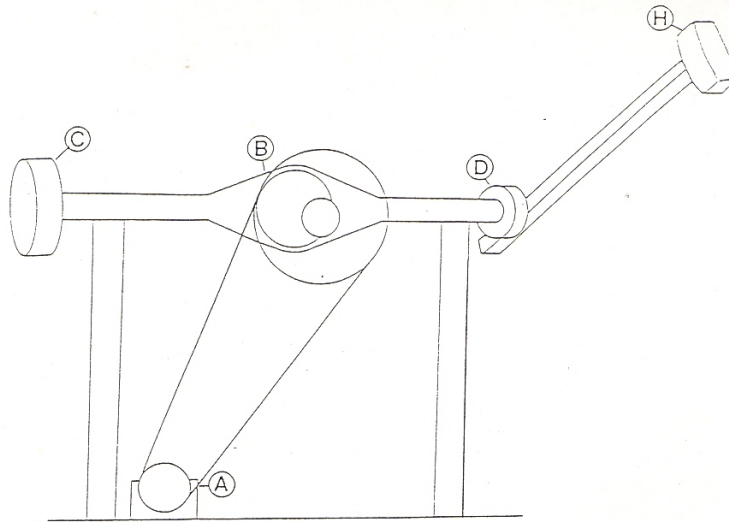


POWER HAMMER: ALTERNATIVE POWER DELIVERY SYSTEM (FRICTION DRIVE)





POWER HAMMER: BASIC HAMMER MECHANISM



- A The motive power, electric or petrol driving a drive belt and pulley wheel on the differential through B.
- B Differential of car back axle connected to brake C and hammer pivot D.
- C The brake that if activated will, through the action of differential B cause hammer pivot D to rotate.
- D Hammer pivot, the opposite end of the axle from brake C is normally stationary until power is diverted to it by activating brake C.
- E The chain between links F and L that keeps hammer H up.
- F The 'over centre' link on the end of hammer shaft (see Note 1).
- G The link to the upward restraining chain I.
- H Hammer.
- I Chain for restraining upward motion of hammer, connected to links G and M.
- J Compression spring which provides tension in chains I and E through lever K.
- K Lever to carry force of spring J to chains I and E and through them to hammer H (see Note 2).
- L Link on lever K to chain E.
- M Link on lever K to chain I.
- P Pedal to activate brake C.
- Q Lever connected to hammer shaft and brake mechanism to provide 'feed back'

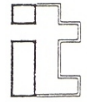
NOTES

- 1 Over centre link F is necessary to compensate for the increasing stiffness of spring J as the hammer descends. It does this by moving the line of action of chain E nearer to the centre of pivot D, thus diminishing the leverage on the hammer as it descends.
- 2 This lever makes it possible to use car compression springs instead of extension springs, also by moving spring J up and down the lever K the force exerted by this spring can be varied to suit different hammer weights.

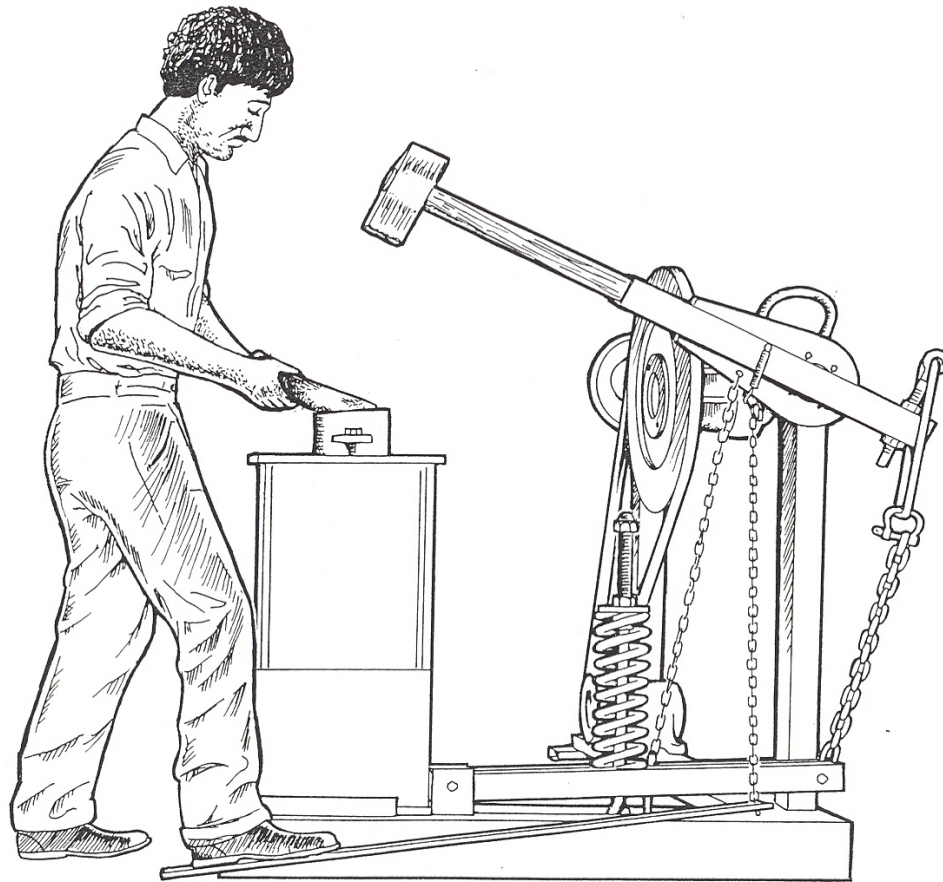
BRAKE MECHANISM

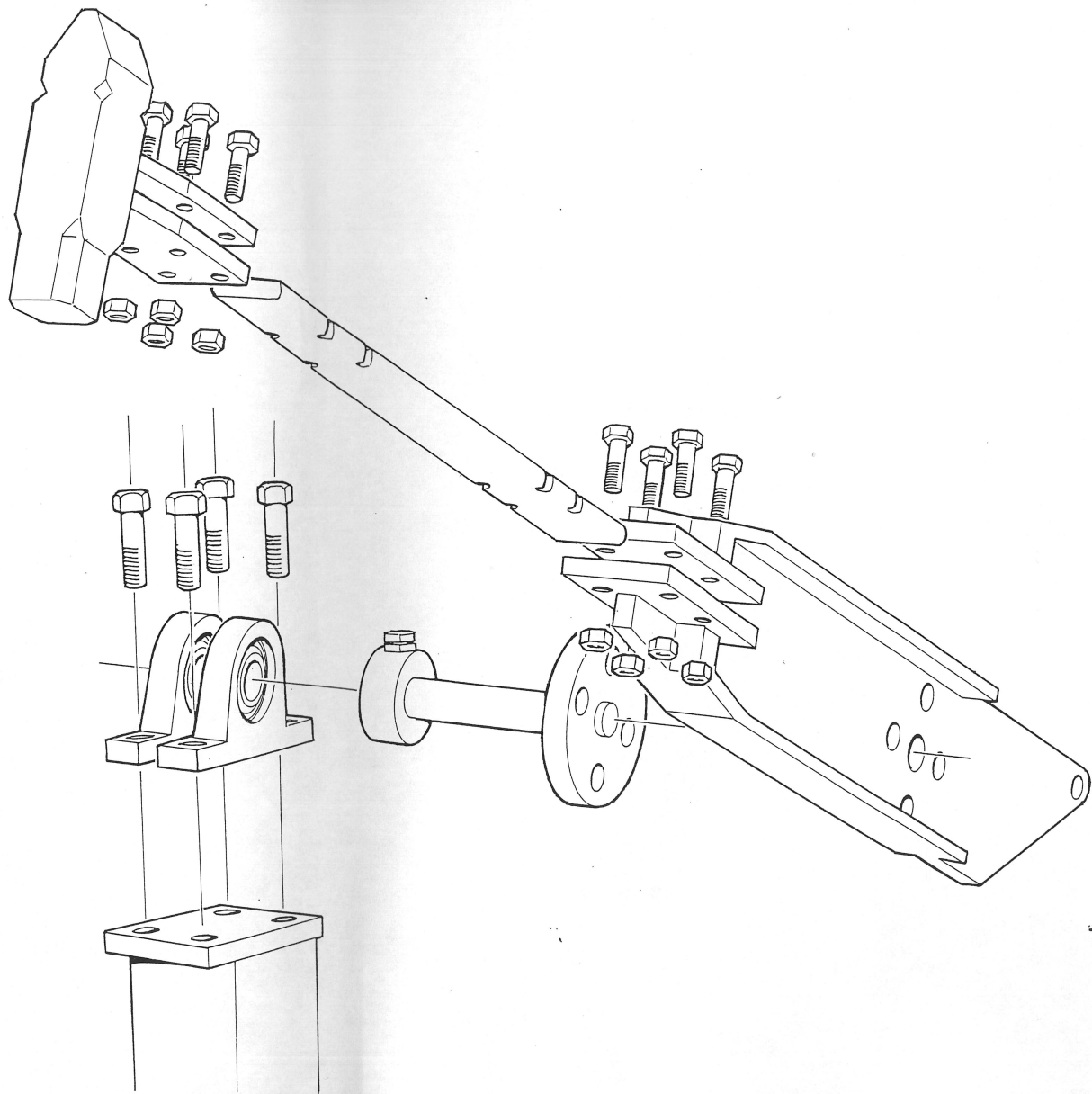
If the brake C was applied directly by the foot pedal then the hammer would crash down and stay down until the pedal was released. This arrangement will work the hammer but causes it to be very difficult to control, so a more sensitive arrangement which provides feed back is required.

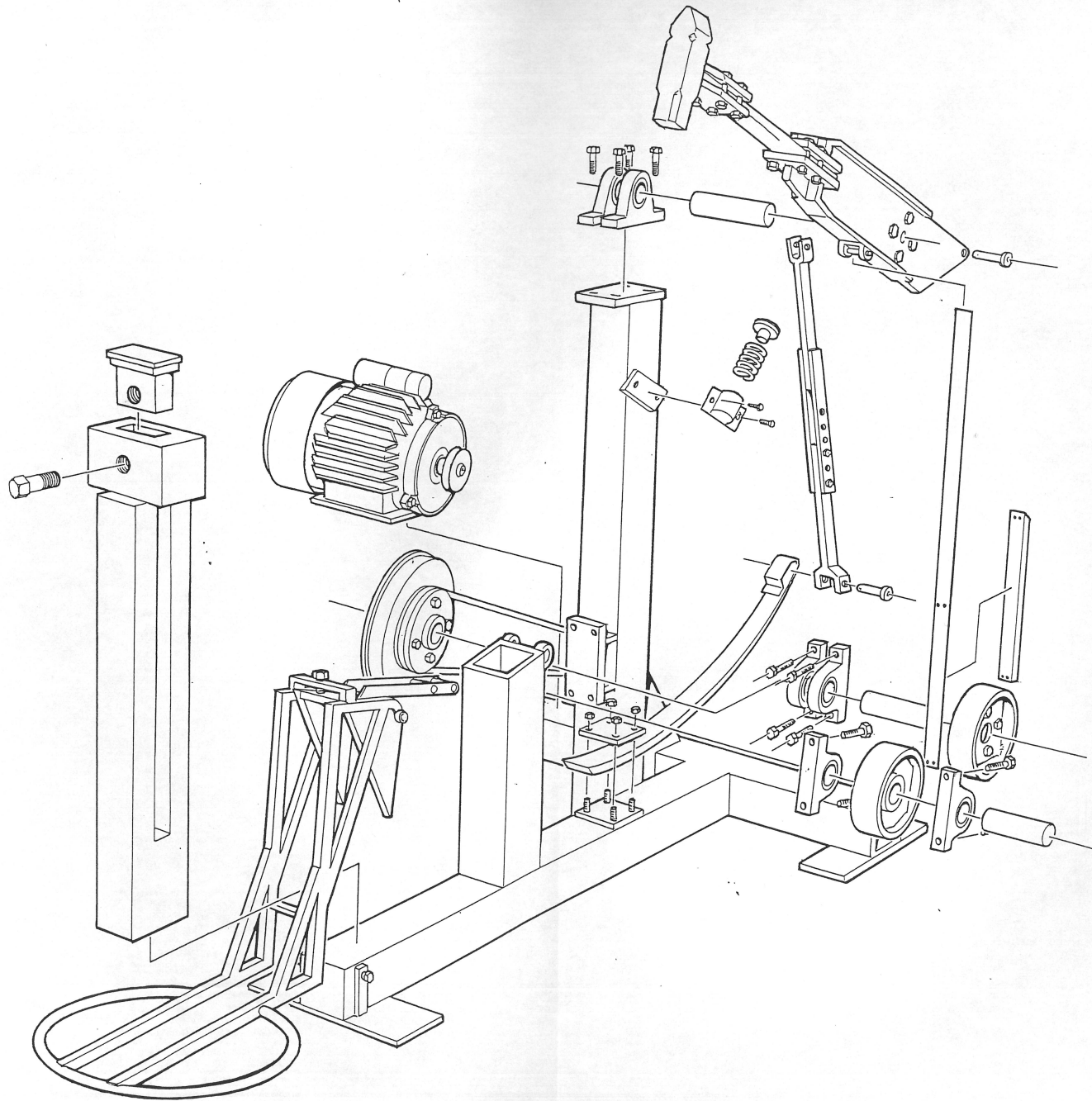
Sensitivity is provided by giving much greater travel to the brake pedal than would be normal in a car. Feed back is provided by a lever Q which acts in such a way that as the hammer descends Q releases the brake slightly thus requiring extra pressure on the foot pedal, in order to maintain H's downward motion. This provides 'feed back' or 'feel' to the operator.

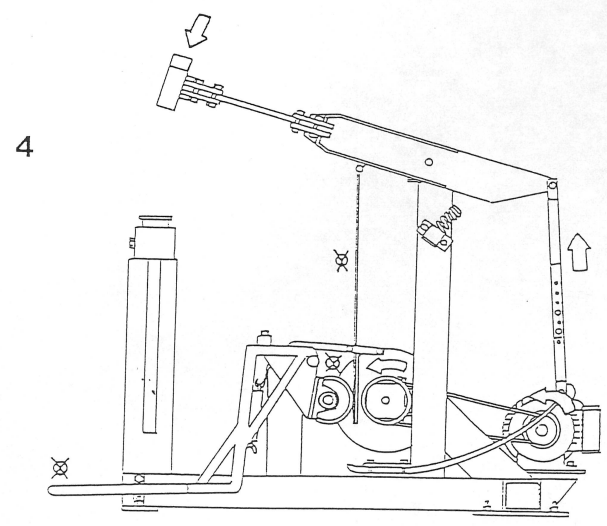
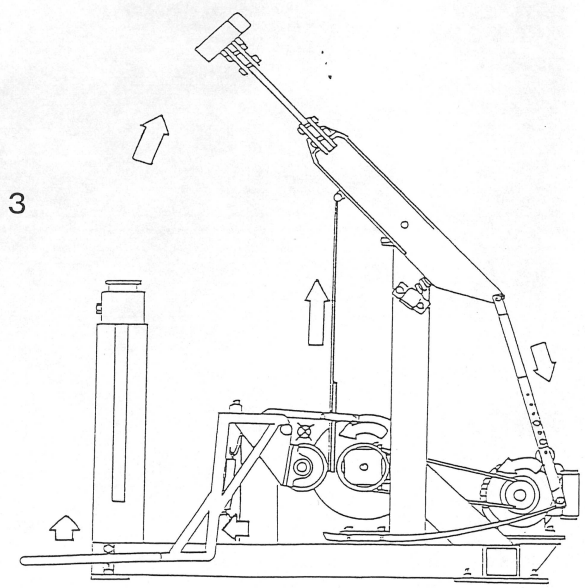
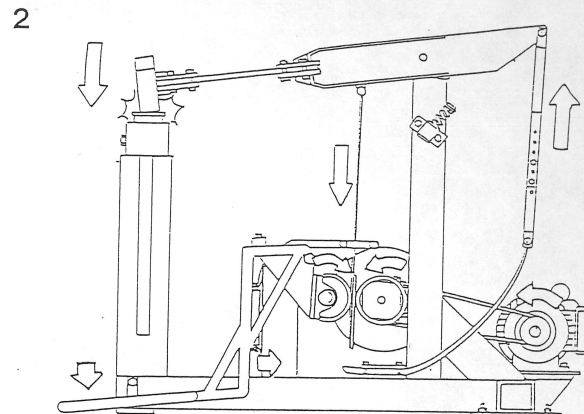
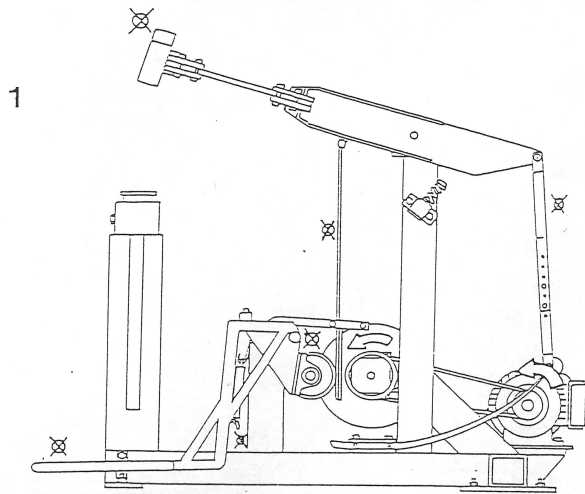


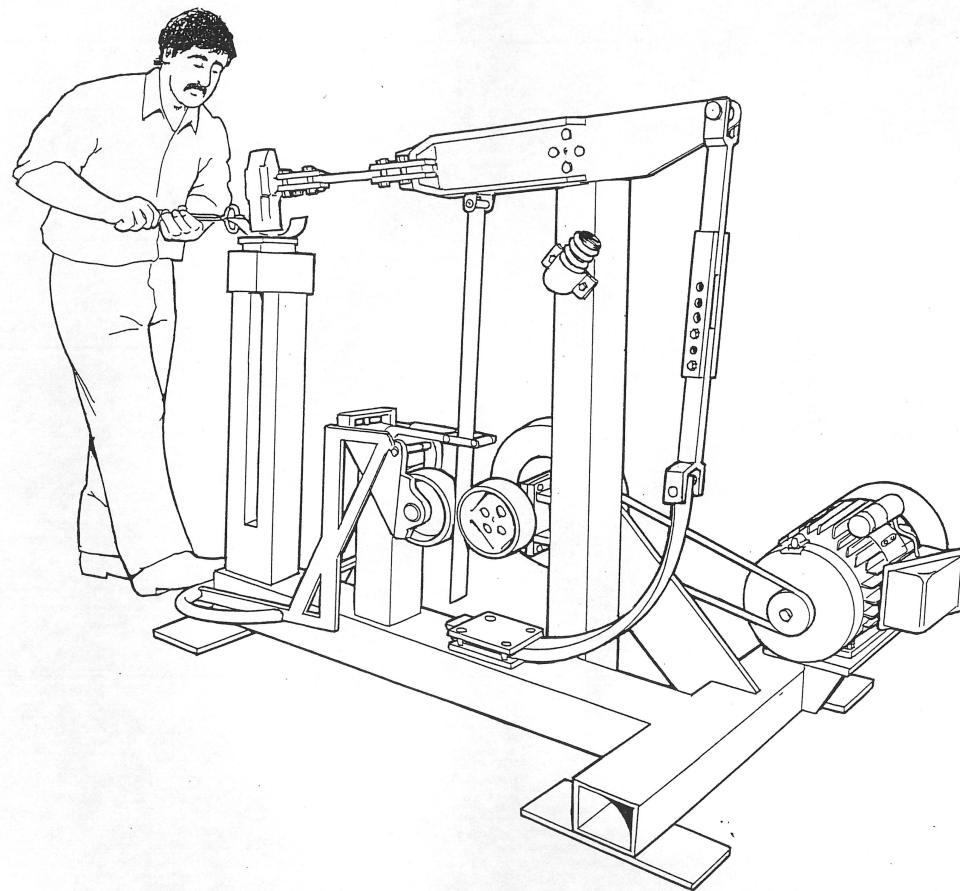
POWER HAMMER

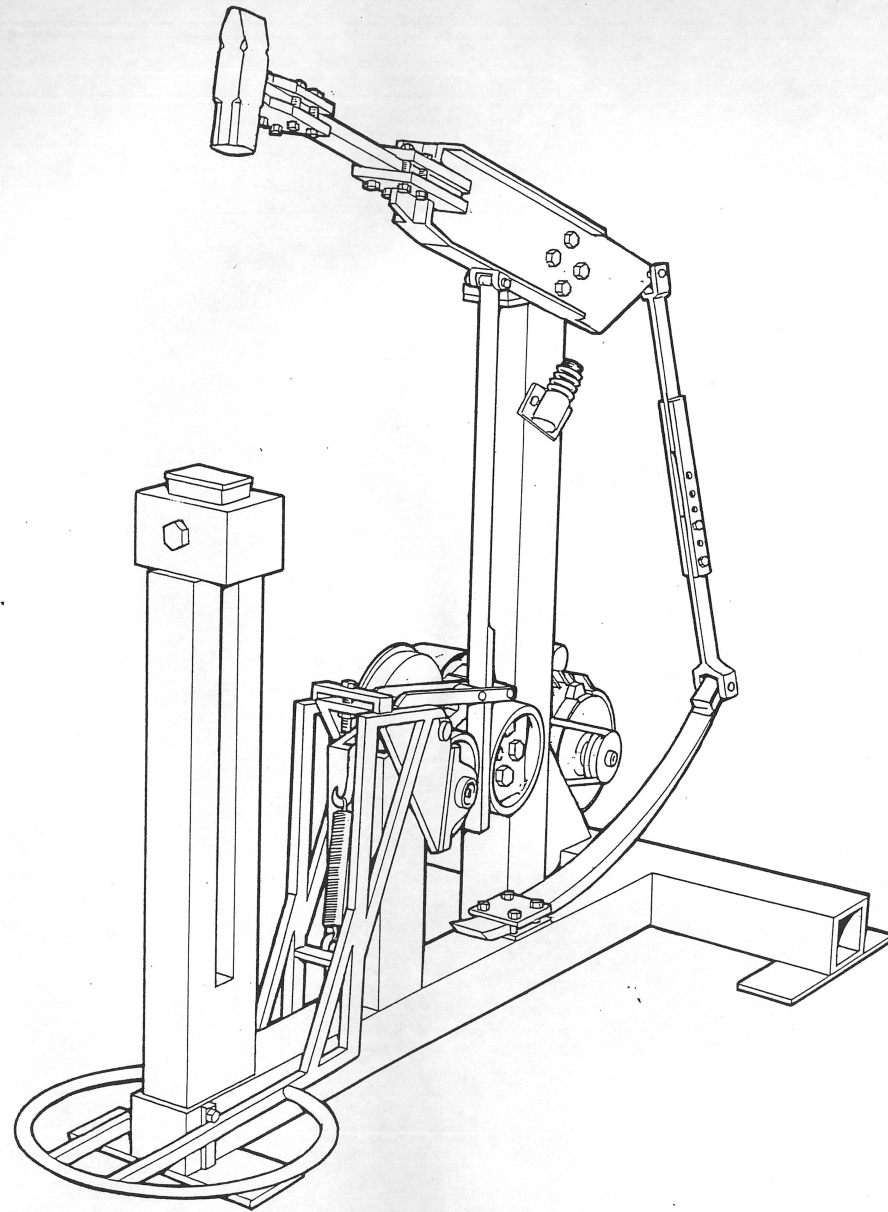


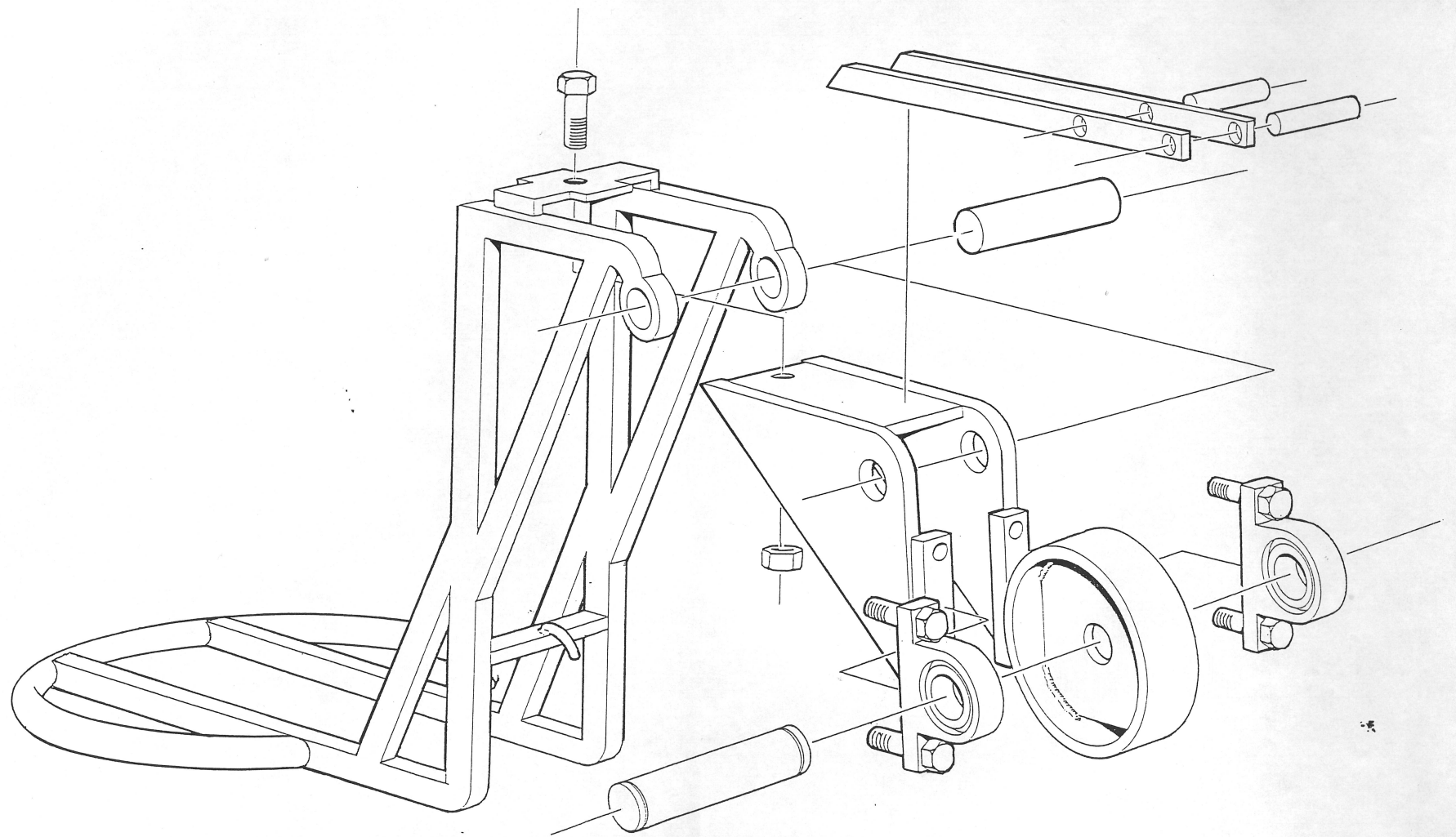


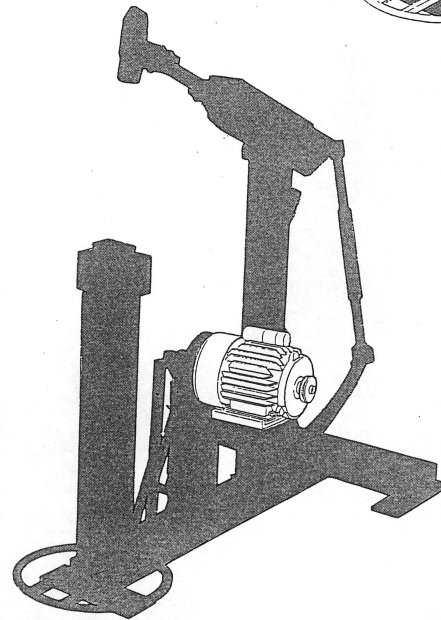
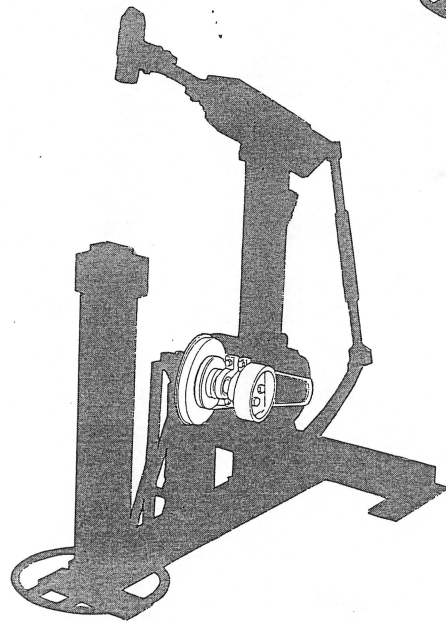
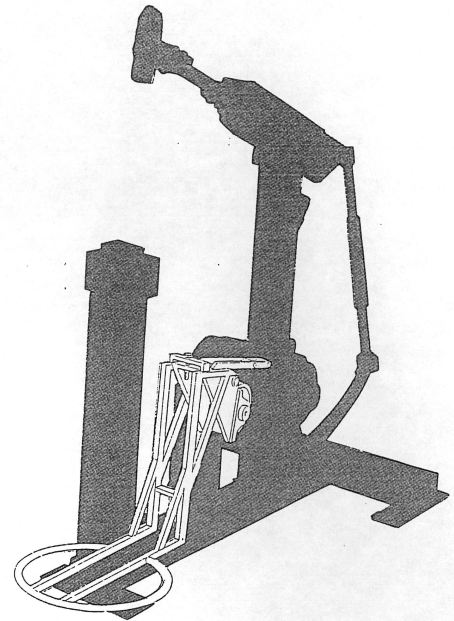
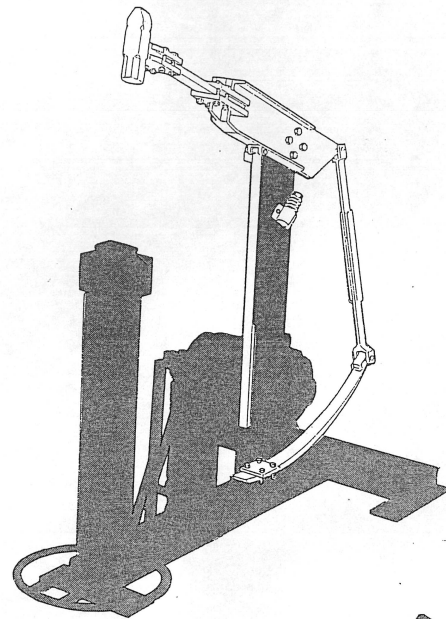
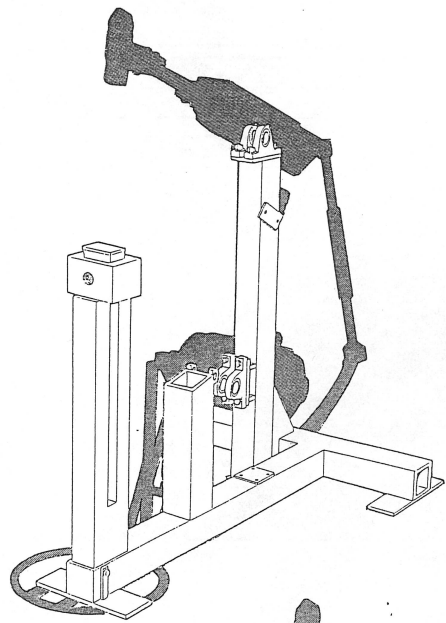


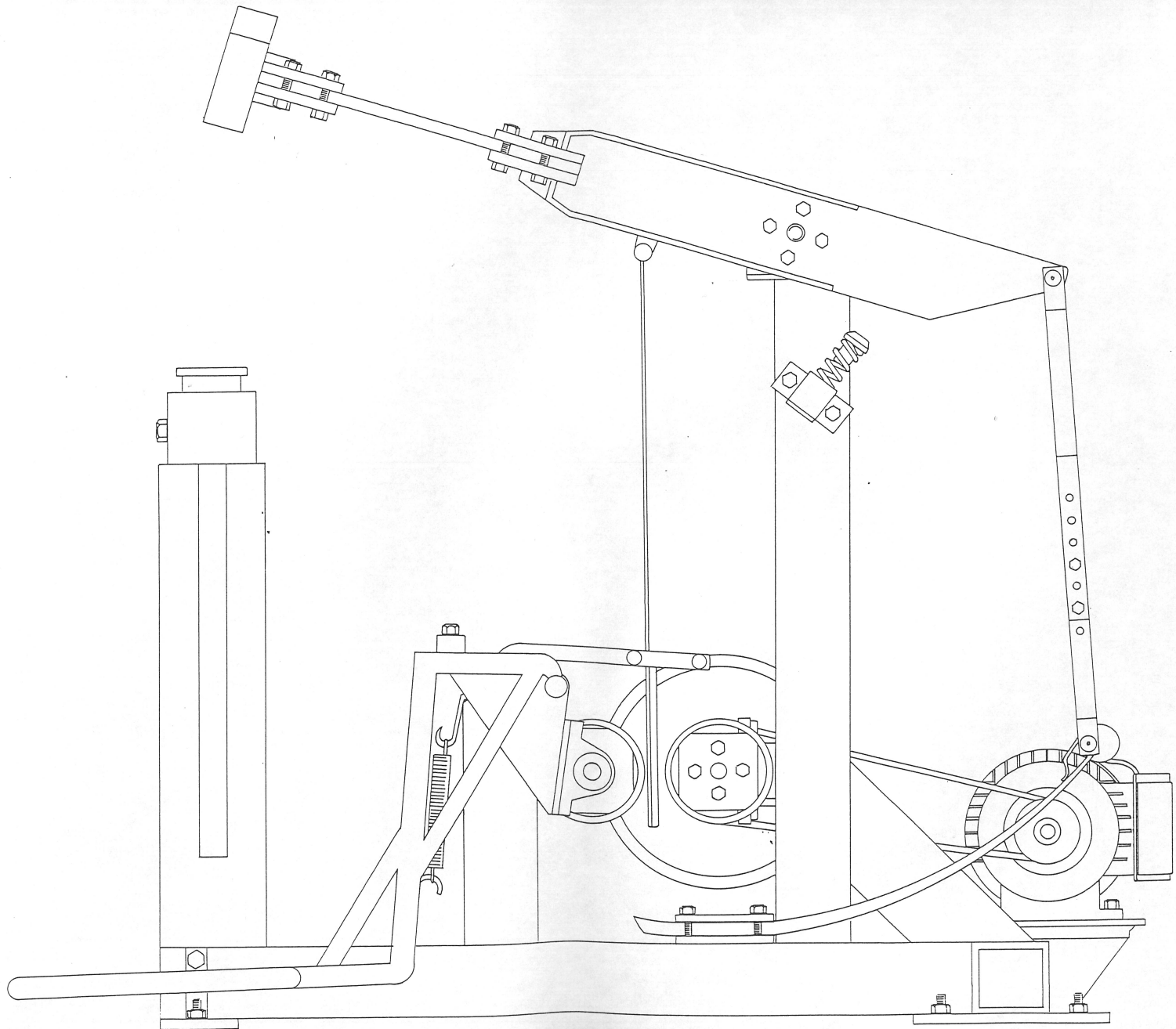


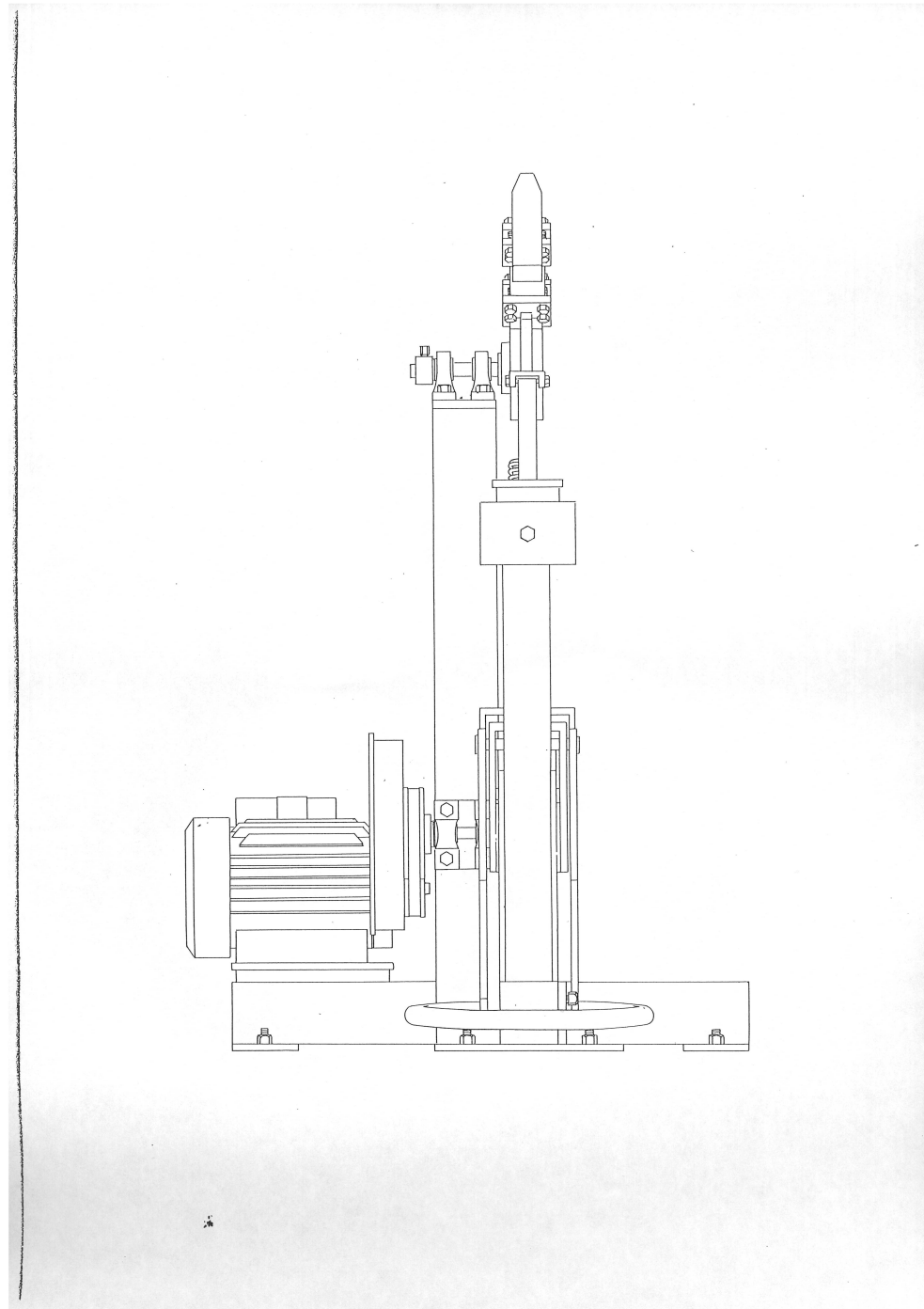


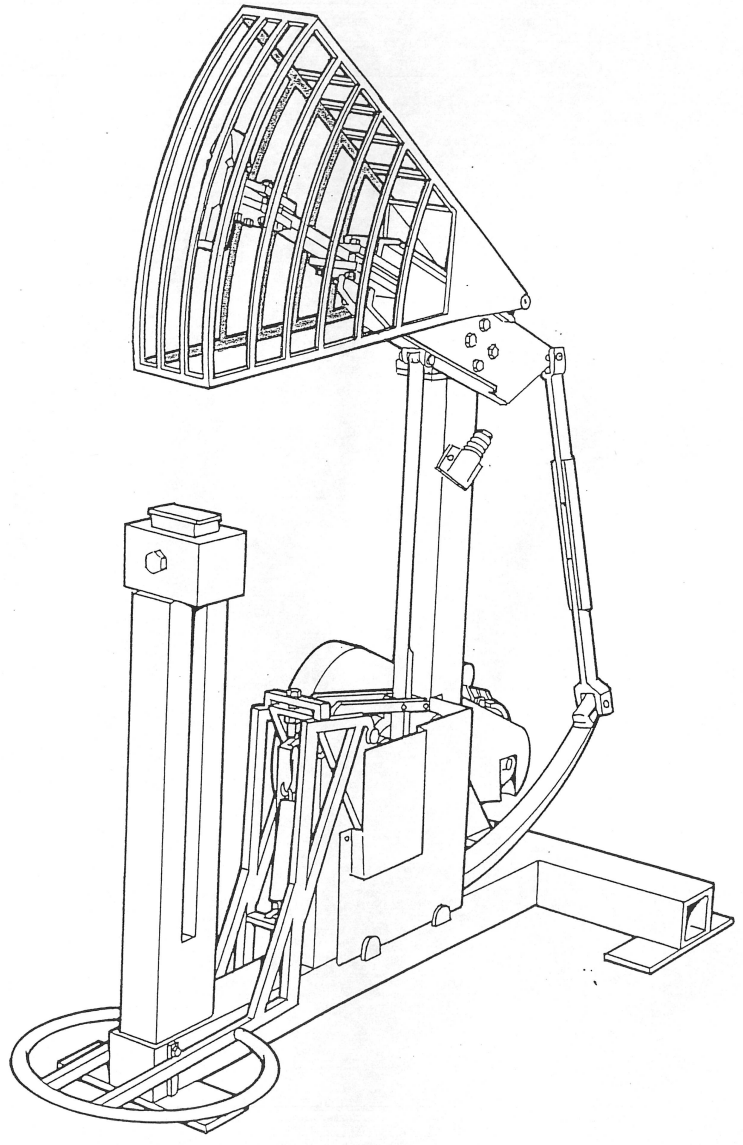


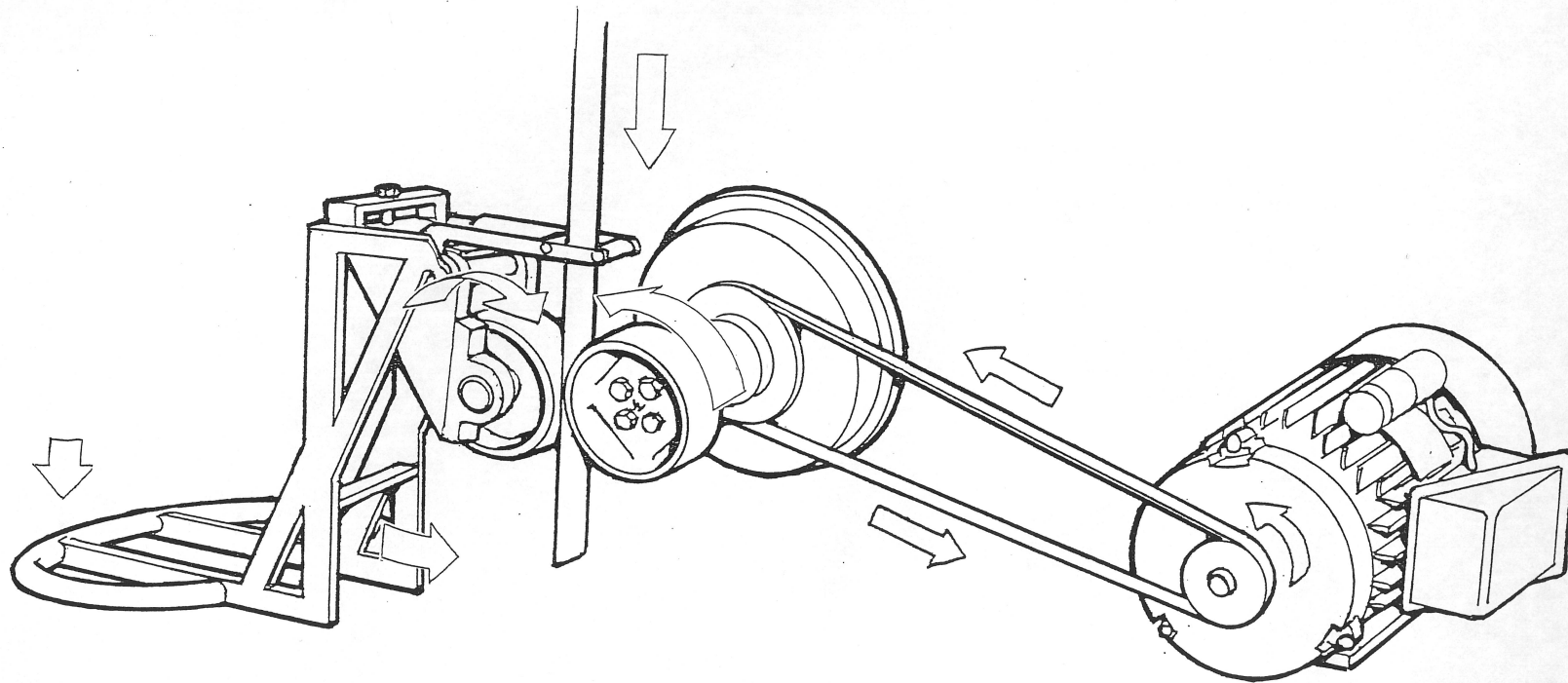


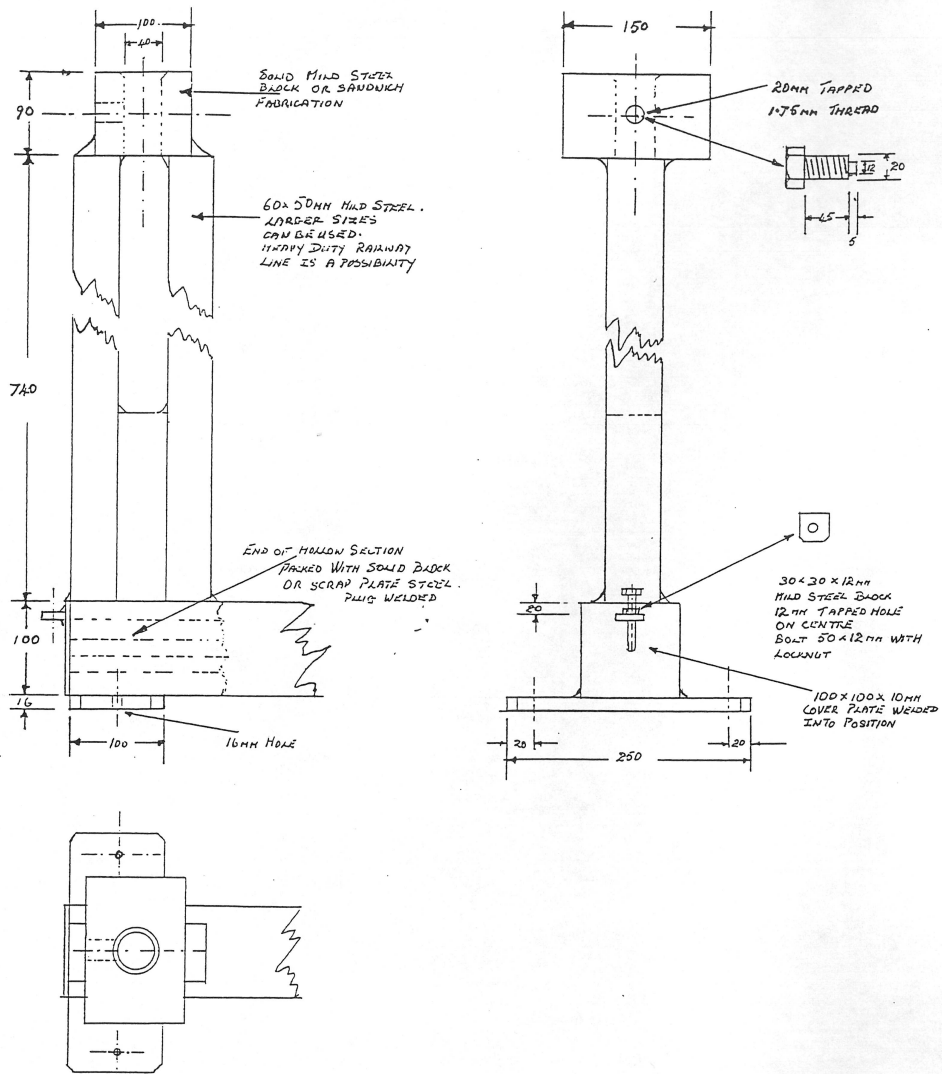








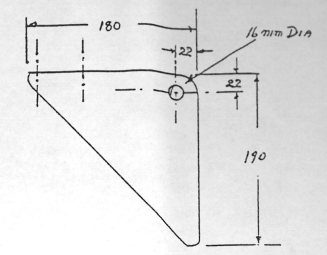
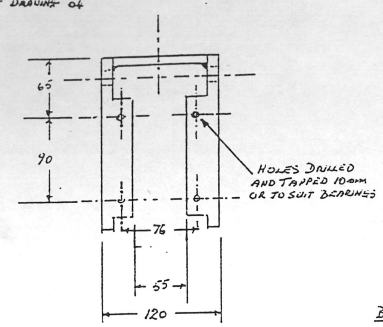
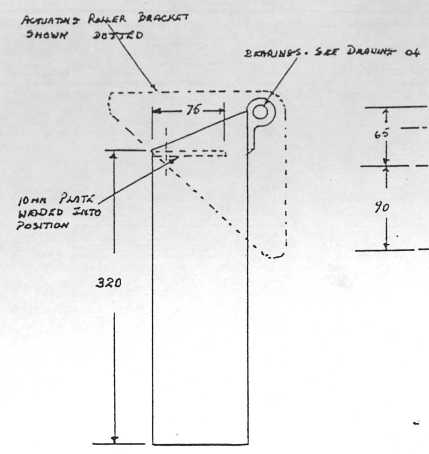
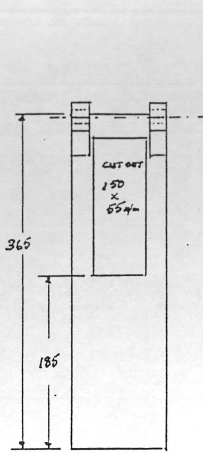




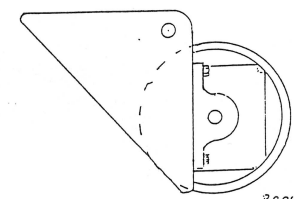
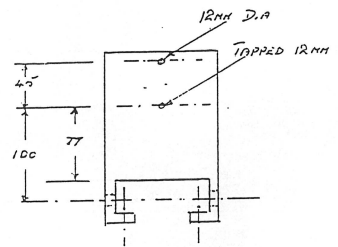
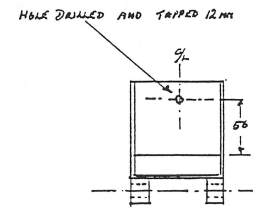
ENLARGEMENT OF "ANVIL" BLOCK AND END OF MAIN FRAME
 A & B IN DRAWING NO. 02
 ANVIL BLOCK SHOWN IS FOR ROUND SHANKED BOTTOM TOOLS
 A STEEL PLATE WITH A 20x25MM SQUARE HOLE MAY BE
 FITTED TO ACCOMMODATE SQUARE SHANKED TOOLS

DRAWING NO	MM 02
TITLE	ANVIL BLOCK
DRAWN BY	J. B. STOKES
SCALE	1:5
DATE	15.1.91

Copyright J.B. Stokes

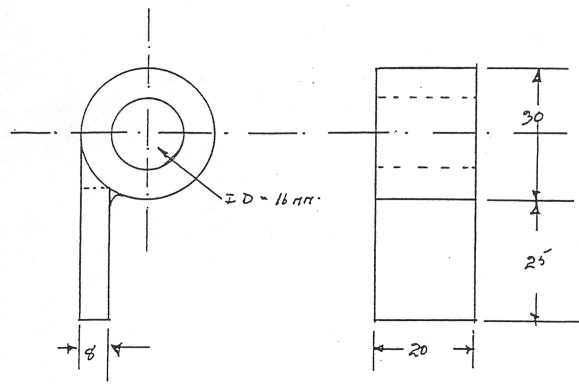


BEARINGS BRACKET FOR ACTUATING ROLLER
FABRICATED FROM 10mm 1/8 PLATE.

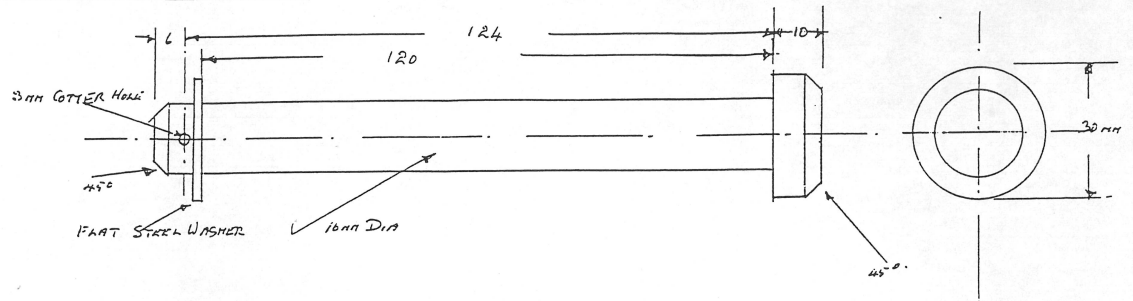


DRAWING NO	174 03
TITLE	ROLLER ACTUATING SUB-ASSEMBLY
DRAWN BY	J. B. STOKES
MATERIAL	100x100 SUS304 10mm PLATE
SCALE	1:1

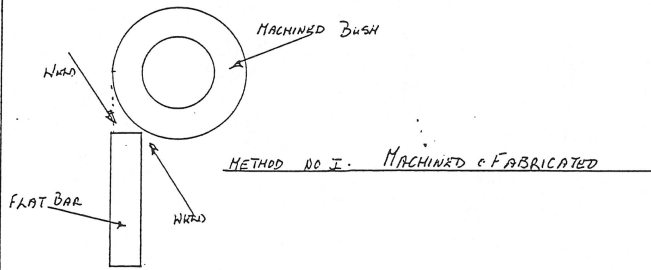
Colyn G. Stokes



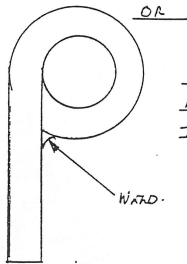
BEARINGS FOR ROLLER ACTUATING BRACKET



ROLLER PIN FOR ACTUATING BRACKETS.
MACHINED FROM SOLID MILD STEEL OR FABRICATED
AND MACHINED

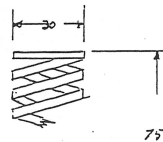
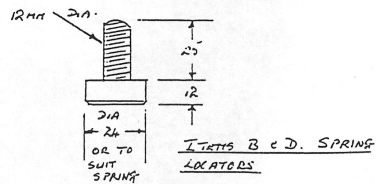
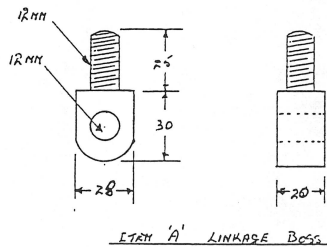
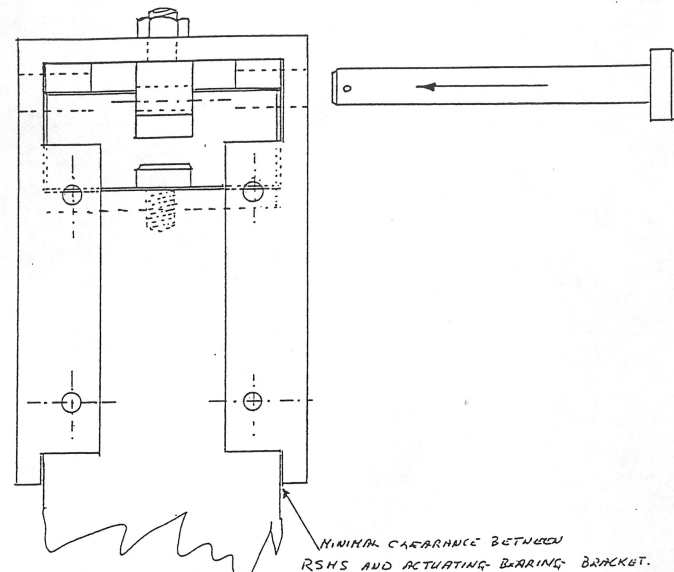
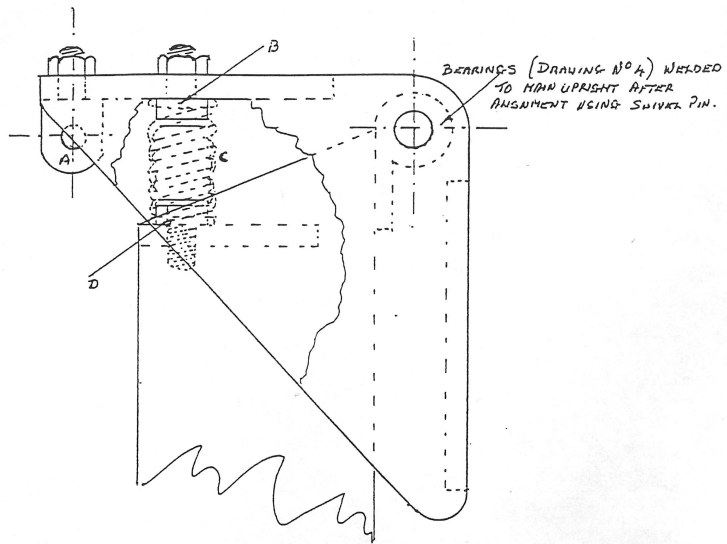


METHOD NO. 1: MACHINED & FABRICATED



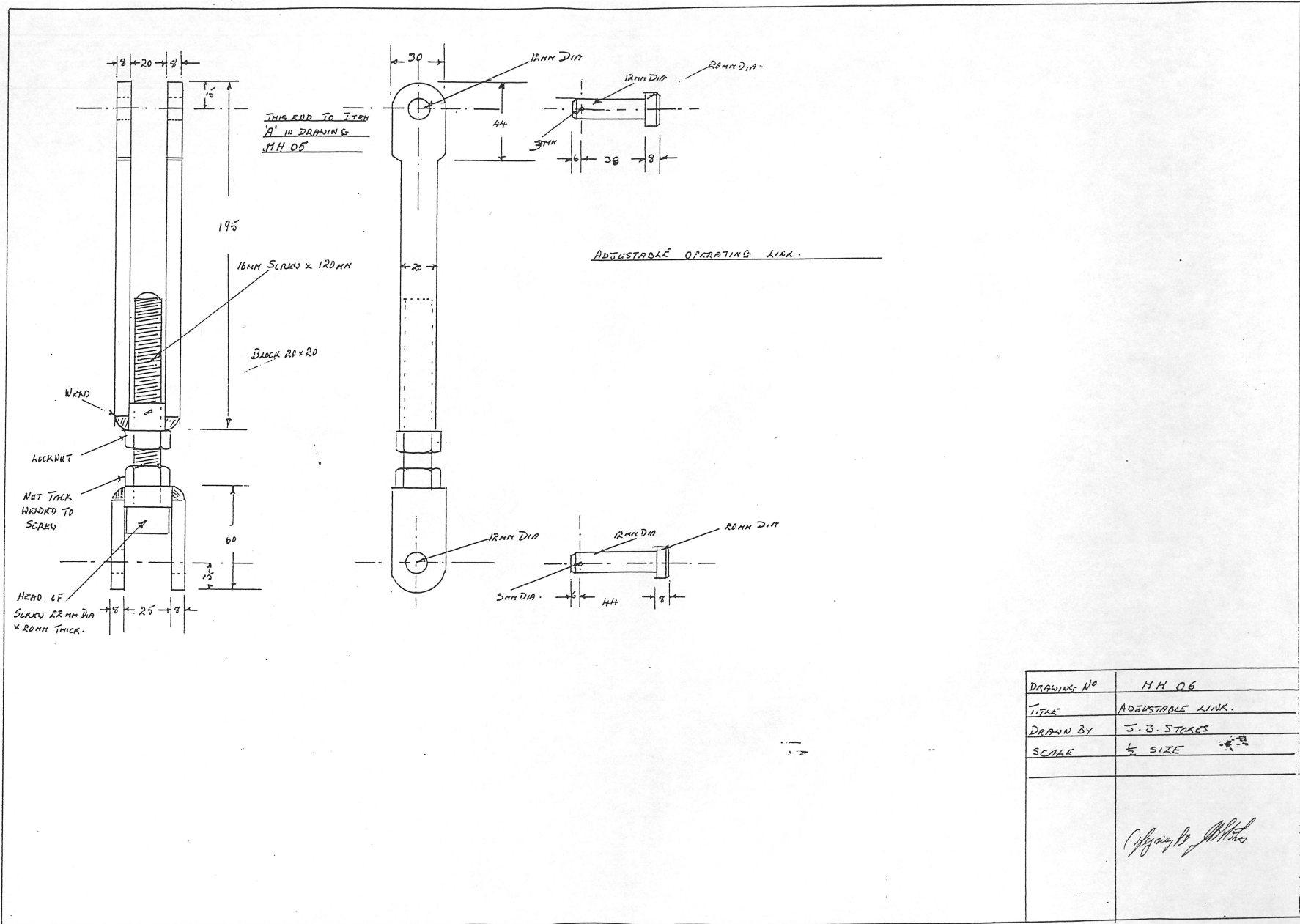
METHOD NO. 2: FORGED OFF FLAT
MILD STEEL BAR. WELDED & DRILLED
TO SIZE.

DRAWING NO	MH 04
TITLE	ROLLER BRACKETS AND ROLLER PIN DETAILS - ACTUATING BRACKET
DRAWN BY	J. S. STOKES
MATERIAL	MILD STEEL
SCALE	AS SHOWN FULL SIZE
NOTE	SEE DRAWING NO MH 03.
	<i>Colin K. Stokes</i>



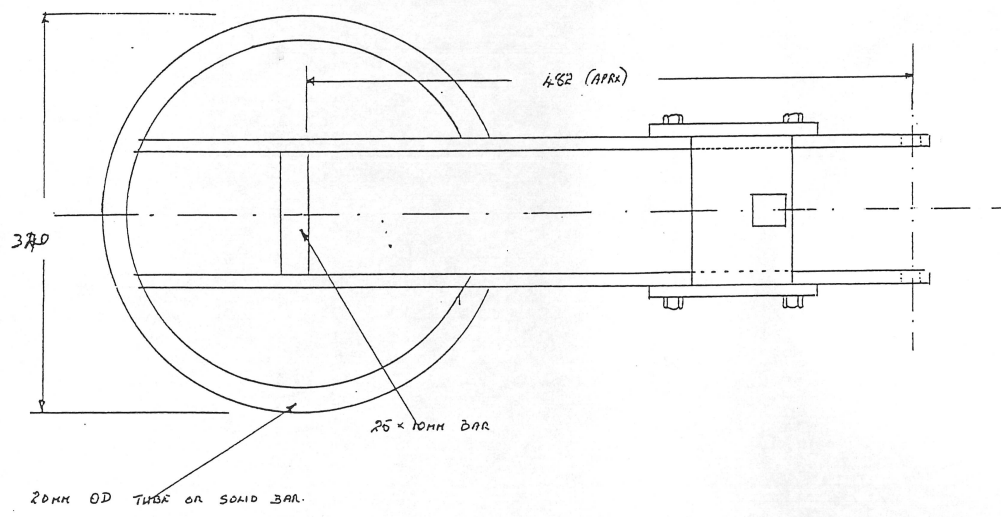
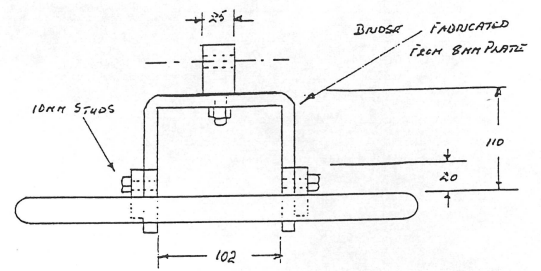
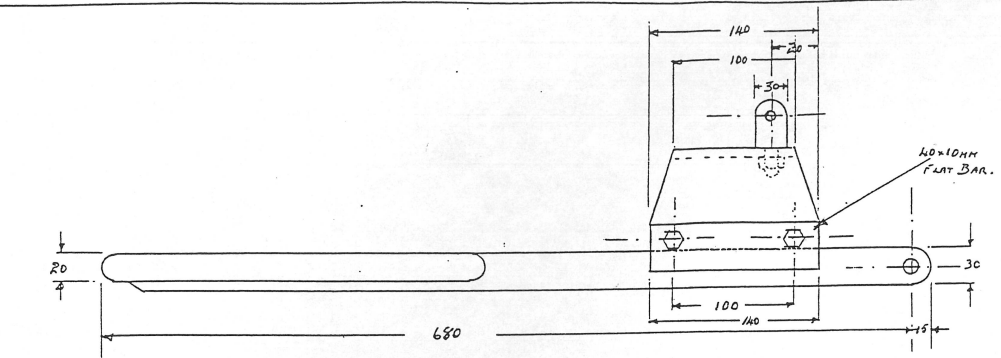
RETURN (C) SPRING. ORIGINAL 3MM X 3MM STEEL MOTOR VALVE SPRING WILL SERVE.

DRAWING N ^o	MH 05
TITLE	ASSEMBLY OF ACTUATING ROLLER BRACKET. DETAILS OF SPRING LOCATORS AND LINKAGE BOSS
DRAWN BY	J. B. STAKES
SCALE	1/2 SIZE
NOTE	COMPARE DRAWING MH 04
Copyright J.B. Stakes	



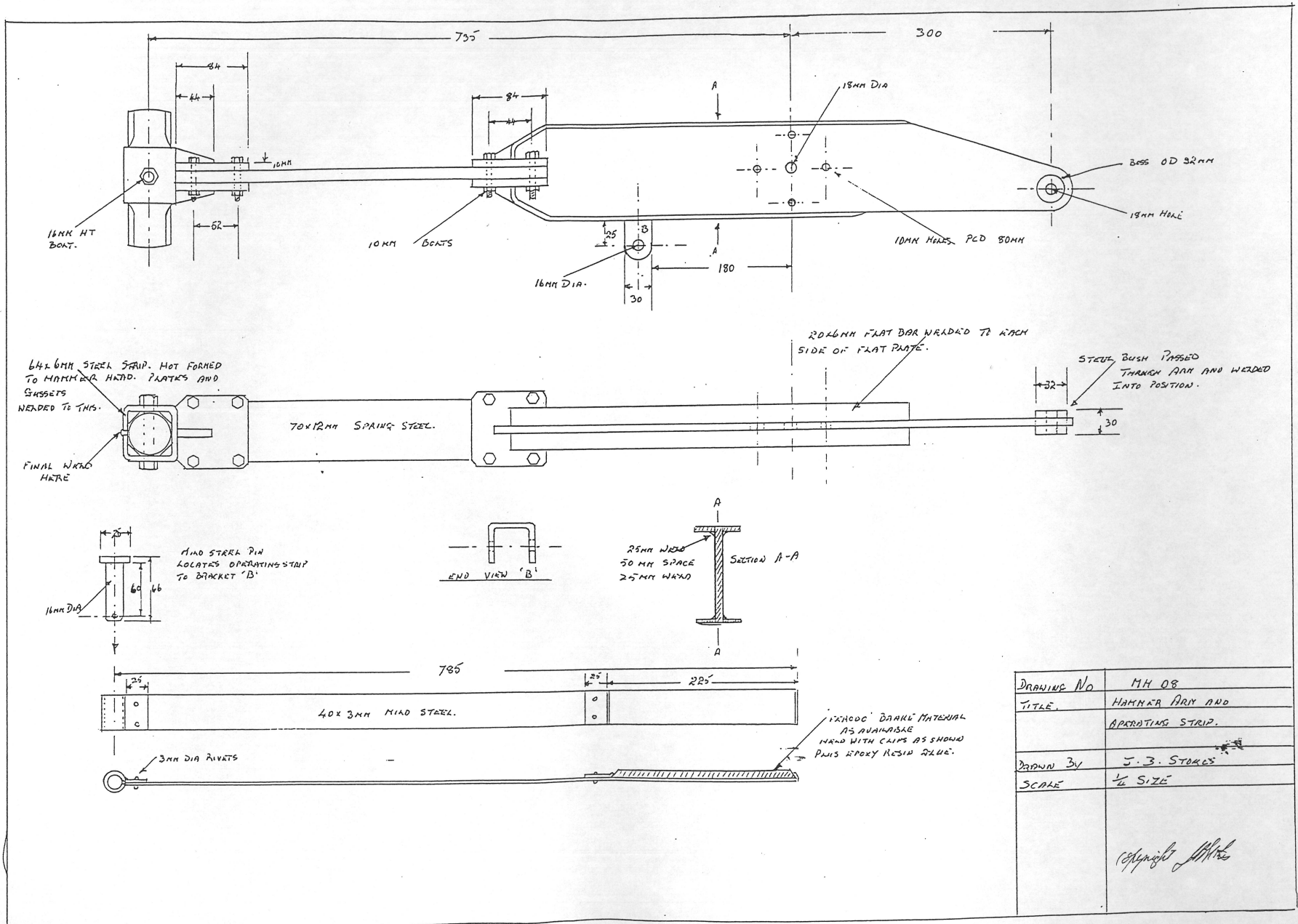
DRAWING NO	MH 06
TITLE	ADJUSTABLE LINK.
DRAWN BY	J. B. STOKES
SCALE	1/2 SIZE

J. B. Stokes

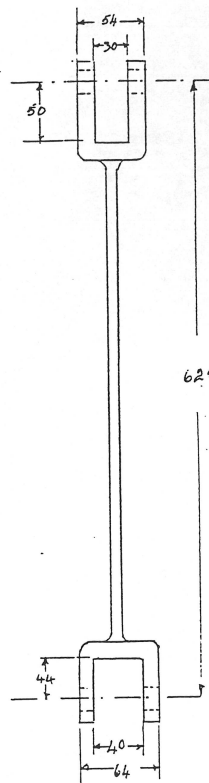


FOOT OPERATED ACTUATING LEVER.

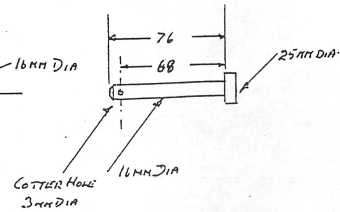
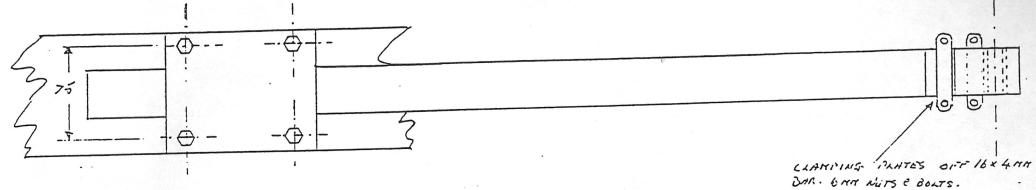
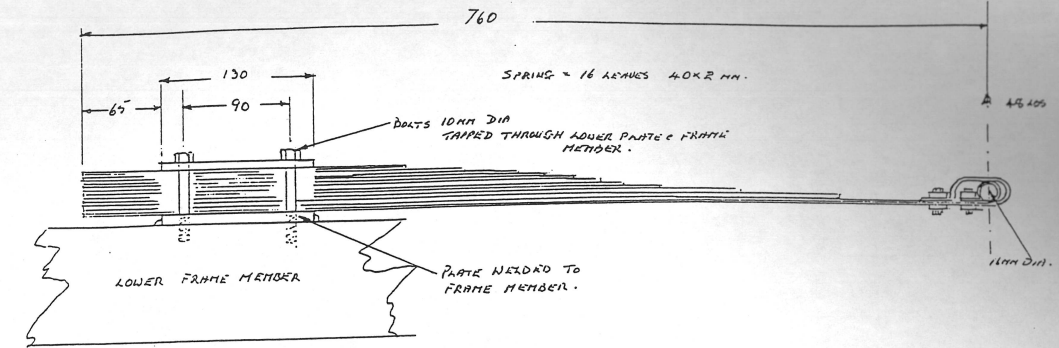
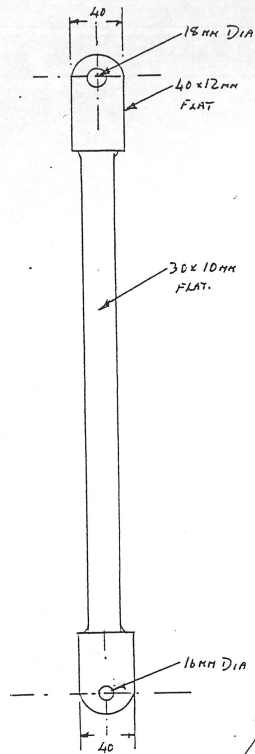
DRAWING NO	MH 07
TITLE	FOOT LEVER
DRAWN BY	J. B. STOKES
SCALE	1/4" SIZE
MATERIAL	MILD STEEL
	<i>Copyright</i> <i>[Signature]</i>



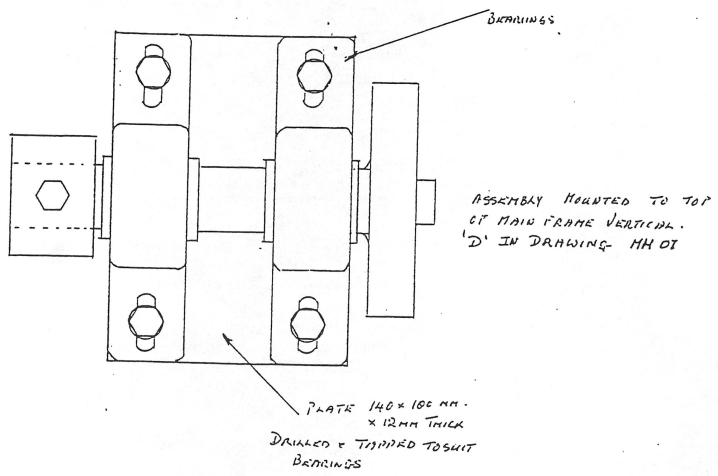
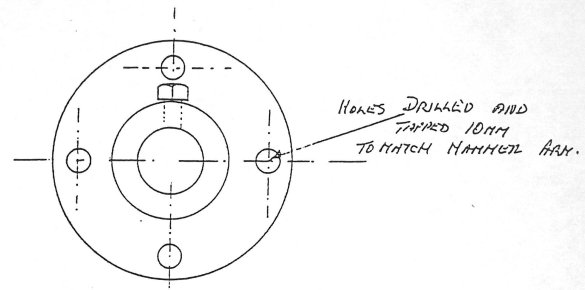
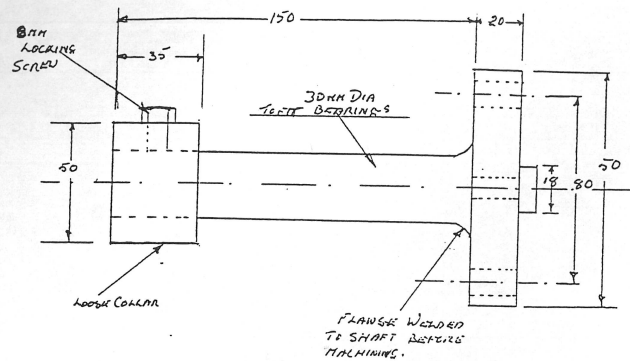
DRAWING NO	M.H. 08
TITLE	HAMMER ARM AND OPERATING STRIP.
DRAWN BY	J.B. STOKES
SCALE	1/4 SIZE
Copyright <i>J.B. Stokes</i>	



ALL WELDED
CONSTRUCTION



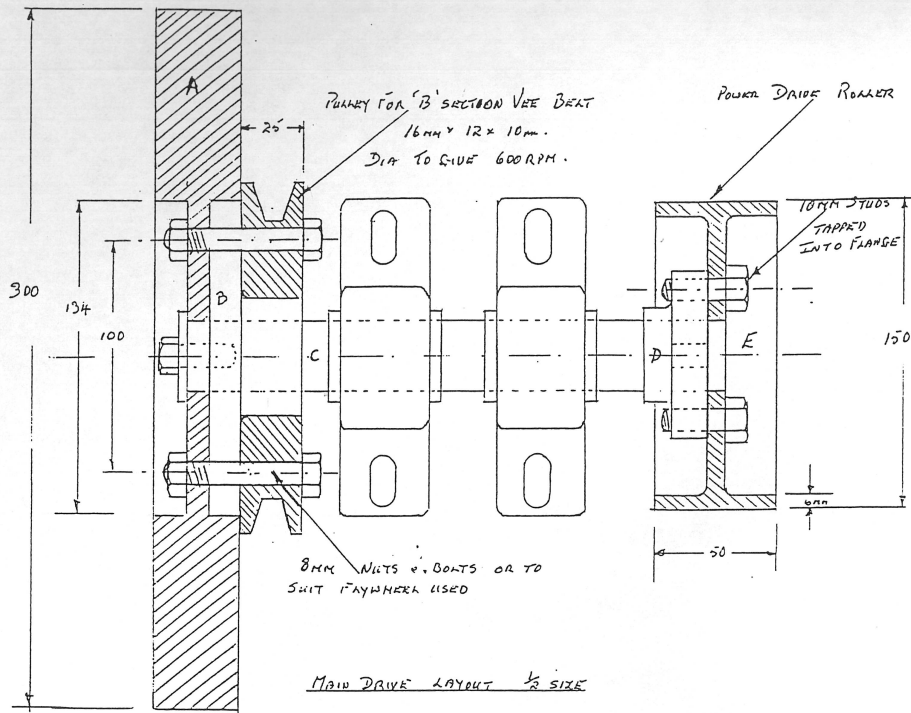
DRAWING NO	MH 09
TITLE	RETURN SPRING AND CONNECTING ROD.
DRAWN BY	J. B. STOKES
SCALE	1/4" SIZE
NOTE	ALTERNATIVE SPRINGS CAN BE USED. I.E. NIGHT SAUCE HOBDA SPRINGS OR SWITZER COIL SPRINGS.
	<i>J. B. Stokes</i>



DRAWING No	MH 10
TITLE	PIVOT SHAFT FOR HAMMER ARM.
DRAWN BY	J. O. STOKES
SCALE	1/2 SIZE

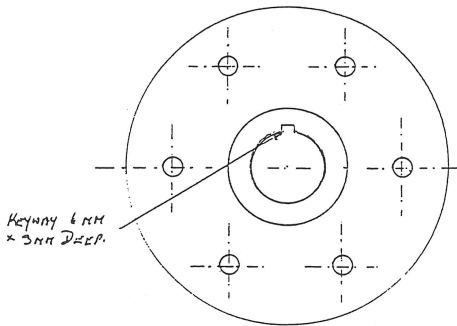
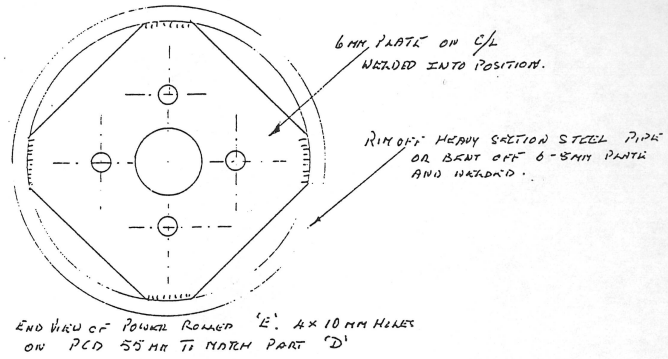
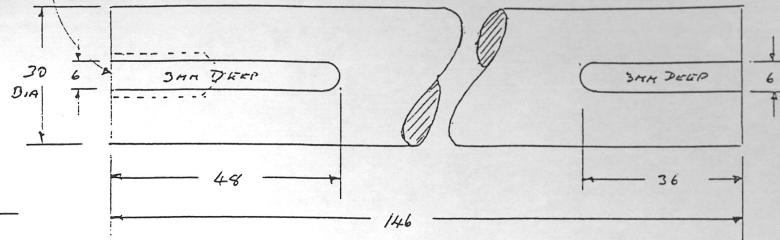
Copyright M.H. 10

A = LADDER FAYWHEEL OR SIMILAR.

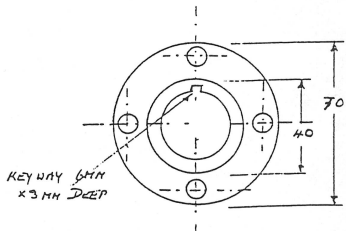


DRAINED AND TAPPED 10MM
x 20MM DEEP.

MAIN DRIVE SHAFT - FULL SIZE

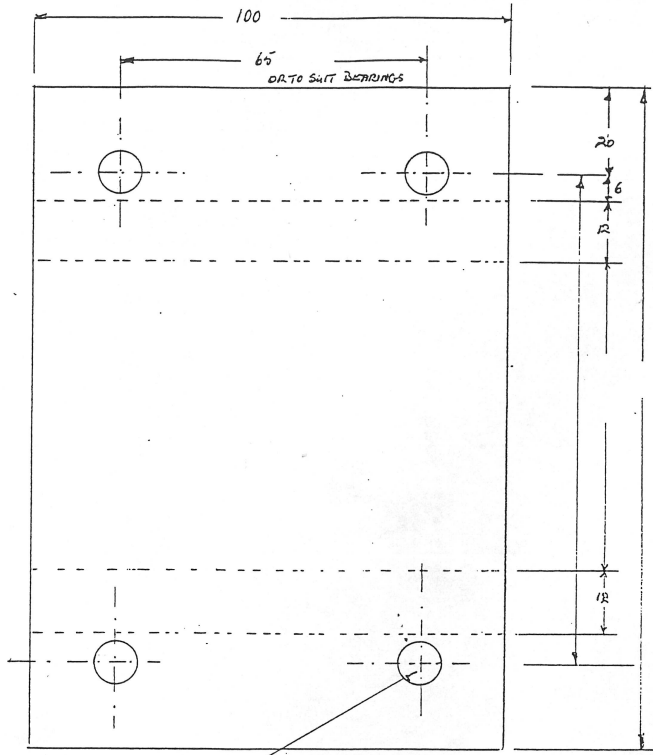


FLANGED BOSS 'B'. 6 HOLES ON PCD 100MM OR
TO SUIT FAYWHEEL USED. ($\frac{1}{2}$ SIZE)

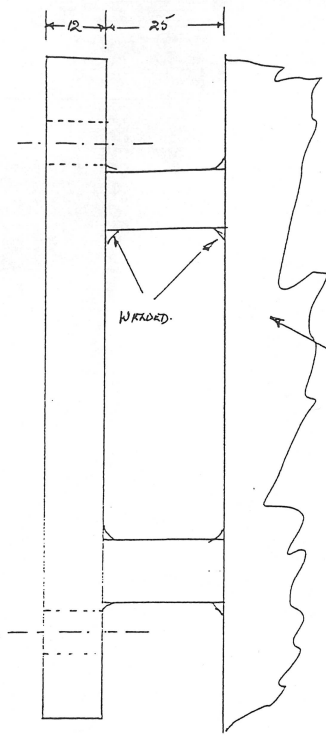


FLANGED BOSS 'D'. 4 HOLES x 10MM TAPPED
ON PCD 55MM. ($\frac{1}{2}$ SIZE)

DRAWING NO	MH 11
TITLE	MAIN DRIVE SHAFT +
	COMPONENTS.
DRAWN BY	S. B. STARKS
SCALE	AS INDICATED.
	<i>Collyer</i>

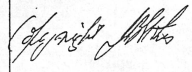


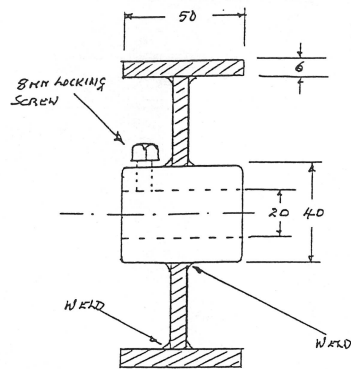
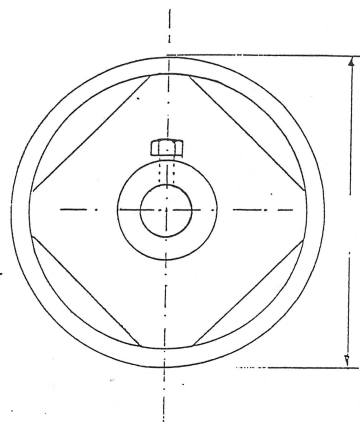
Holes Drilled & Tapped 10 mm.



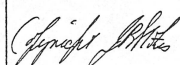
VERTICAL 'D' IN DRAWING NO MH 01

BEARING BRACKET FOR MAIN DRIVE SHAFT. SCALE FULL SIZE.
 DIMENSIONS MIGHT VARY ACCORDING TO BEARINGS USED.

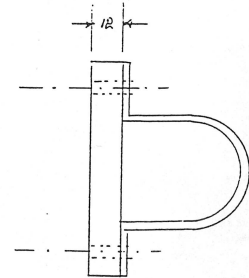
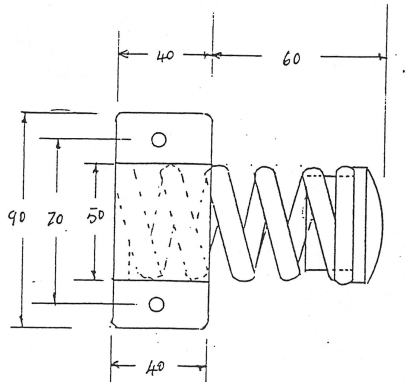
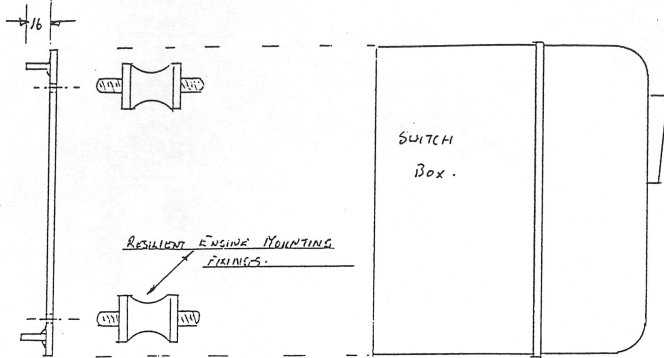
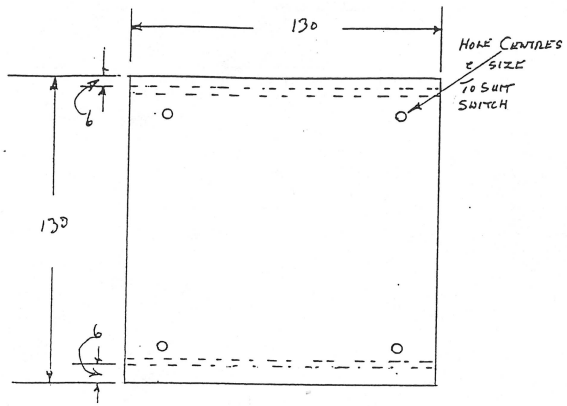
DRAWING NO.	MH 12
TITLE	BEARING BRACKET.
DRAWN BY	J. R. STOKES
SCALE	FULL SIZE
	



PRESSURE OR ACTUATING ROLLER (SEE DRAWING MH 03
CENTRE DOSE, RIM AND CENTRE PLATE ROUGH MACHINED,
PARTS HENDED BEFORE FINISH MACHINING.
DOSE DIMENSIONS DEPENDANT UPON BEARINGS
RUAIR 03AE

DRAWING NO	MH 13
TITLE	PRESSURE ROLLER.
DRAWN BY	J. B. STOKES.
SCALE	1/2 SIZE
	

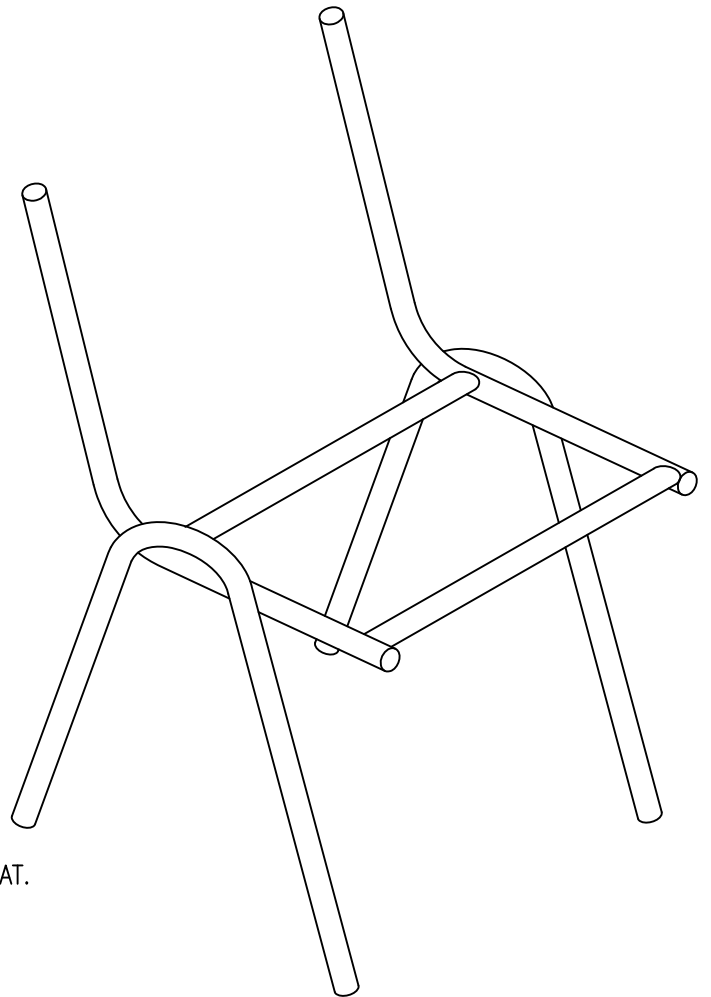
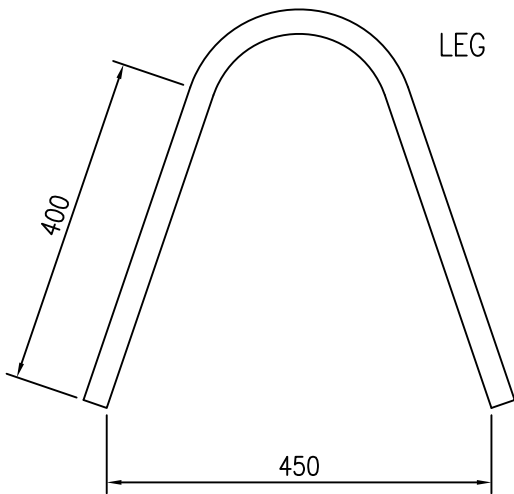
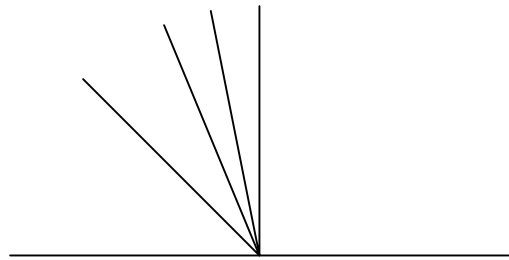
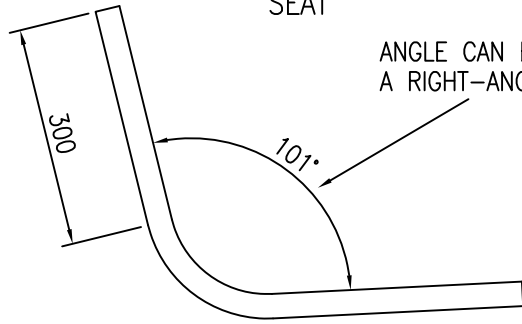
SWITCH BRACKET IF SWITCH IS MOUNTED ON TO MAIN FRAME
1/2 SIZE



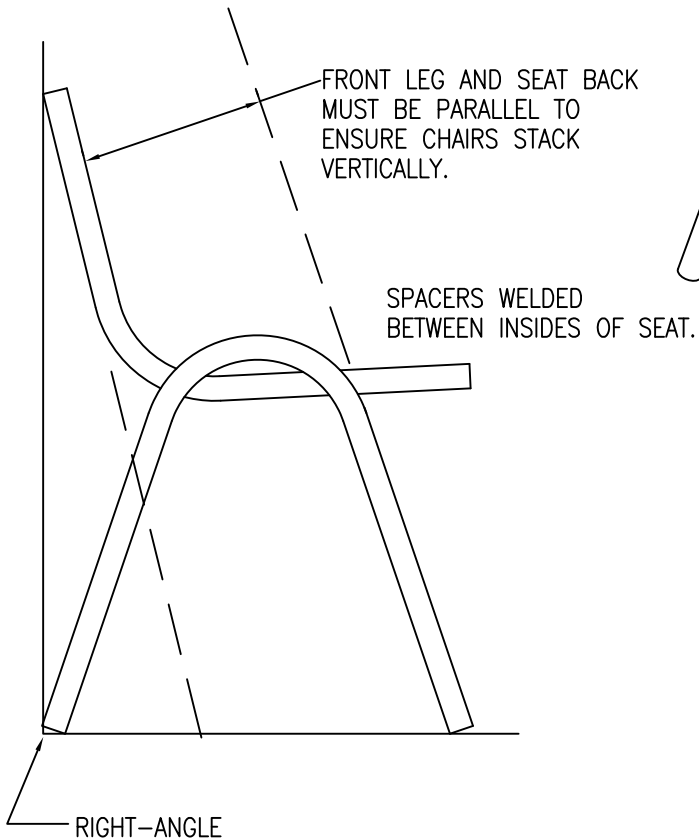
HAMMER AND CHECK SPRING 1/2 SIZE

DRAWING NO.	HH 14
TITLE	SWITCH BRACKET AND CHECK SPRING
DRAWN BY	J. B. STONES
	<i>John B. Stones</i>

DETAILS



ASSEMBLY

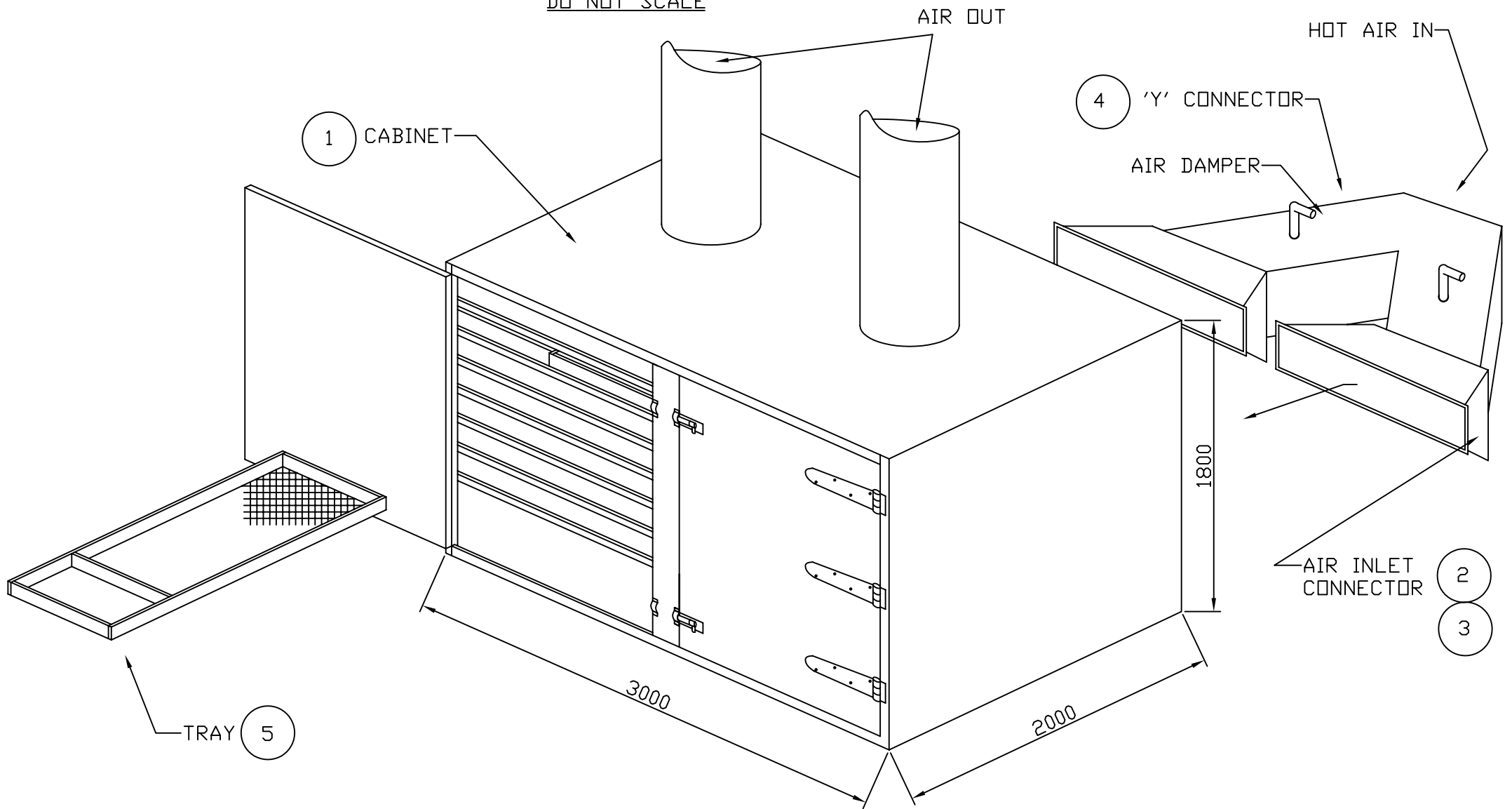


ApT STACKING CHAIR	
TITLE: DETAILS & ASSEMBLY	
SCALE: 1:10	
DRAWN: ABATEC	PAGE: 1 of 2
CAD No: APT-12-1	

No.	DESCRIPTION	QUANTITY	DIMENSIONS
A	LEG	2	20 DIA. FURNITURE TUBE x 1050
B	SEAT	2	20 DIA. FURNITURE TUBE x 700
C	SPACER	2	20 DIA. FURNITURE TUBE x 350
D	SEAT PLATFORM	1	5 PLYWOOD OR 18 GAUGE SHEET STEEL x 260 x 390
E	BACK PLATFORM	1	5 PLYWOOD OR 18 GAUGE SHEET STEEL x 160 x 390

ApT STACKING CHAIR	
TITLE: PARTS LIST	
SCALE:	
DRAWN: ABATEC	PAGE: 2 of 2
CAD No: APT-12-2	

DO NOT SCALE



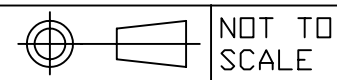
TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

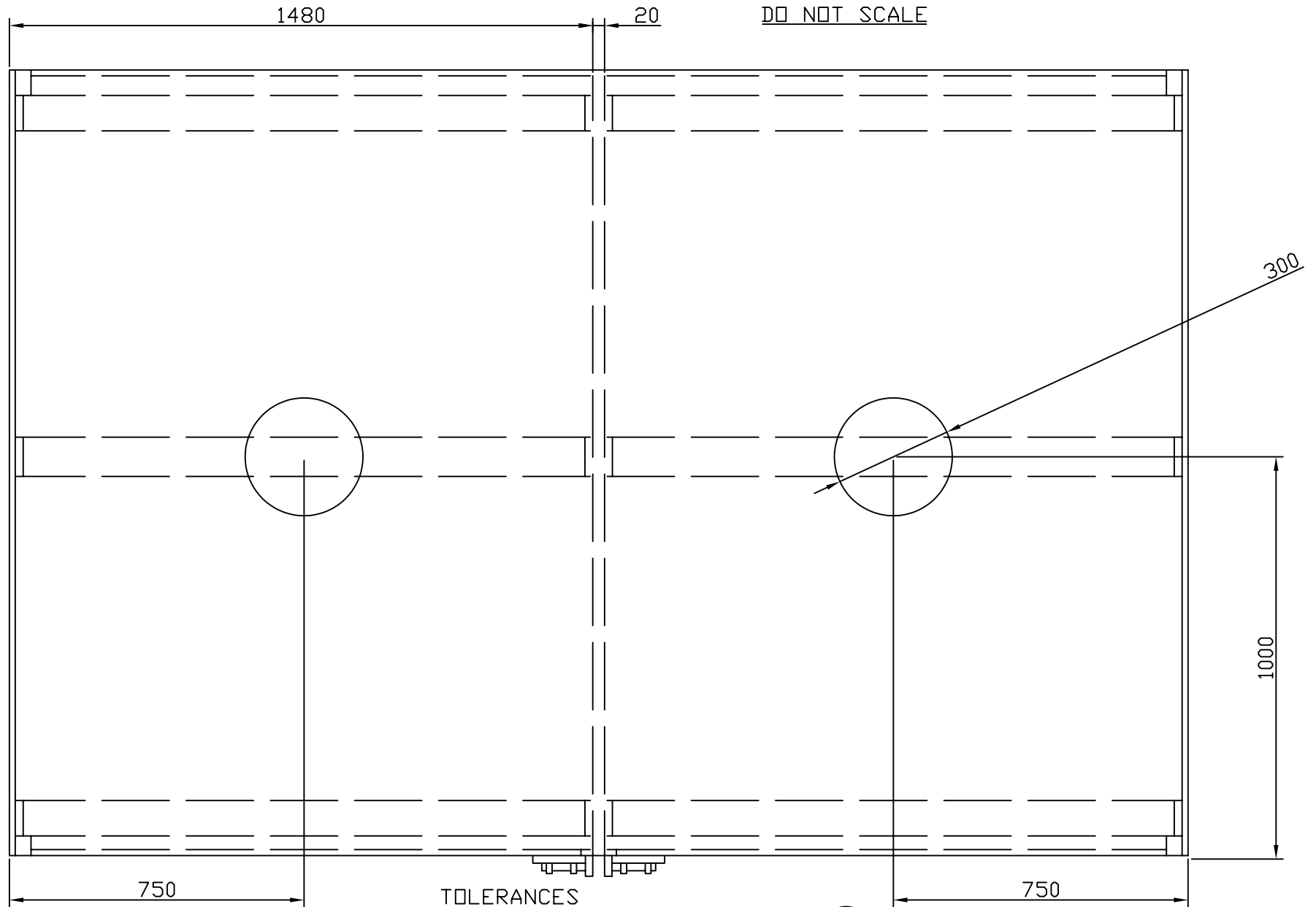
No.	Description	CHK	AP'D	DATE

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info@practicalaction.org.uk

TITLE BATCH TRAY
DRYER
DIMENSIONS IN MM

DRAWN A.R
TRACE -
CHK -
DRAWING No. TDB100





TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

1 CABINET SUB ASSEMBLY PLAN VIEW

No.	Description	CHK	AP'D	DATE

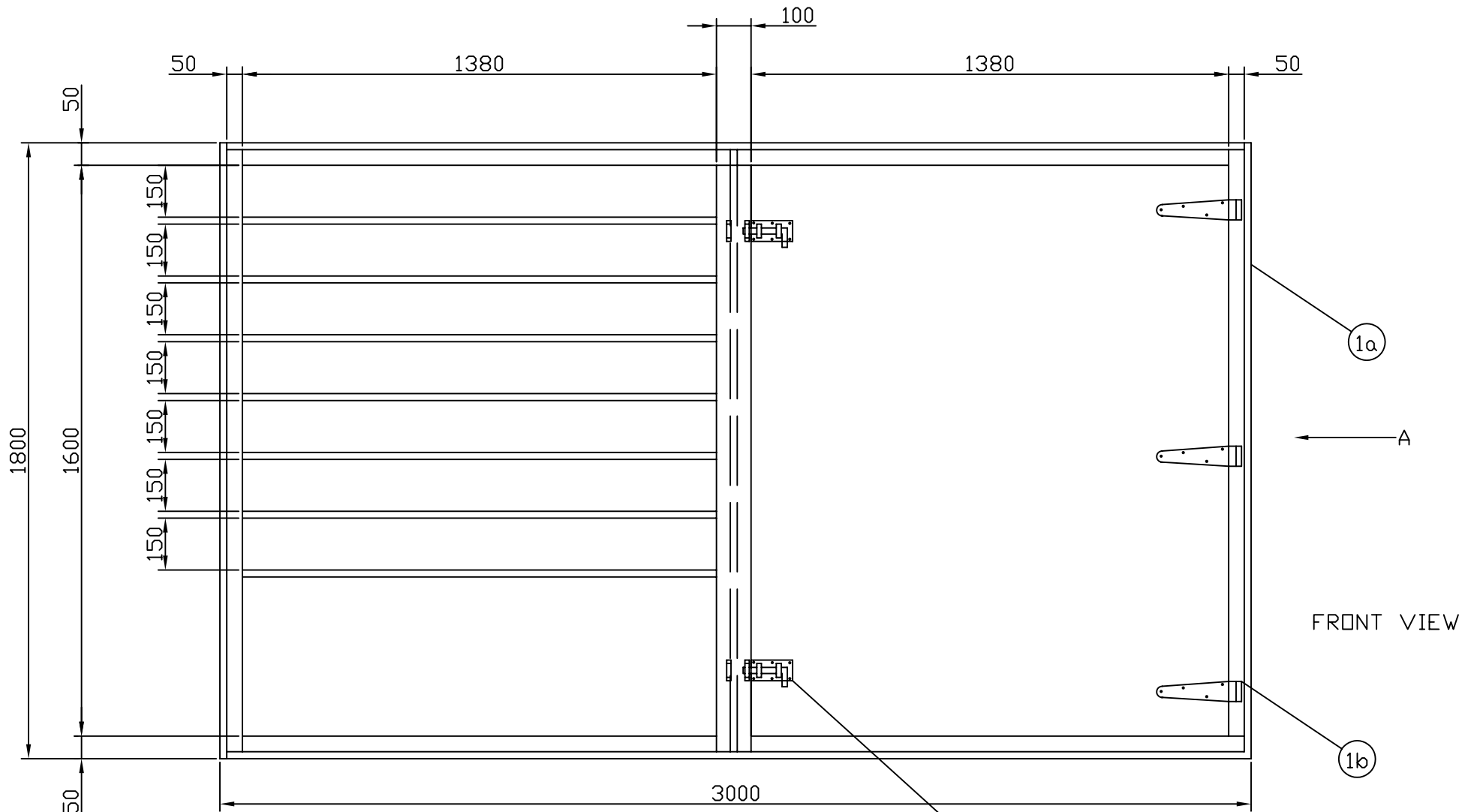
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TITLE BATCH TRAY
DRYER
DIMENSIONS IN MM

DRAWN A.R
TRACE -
CHK -
DRAWING No. TDB102

NOT TO SCALE

DO NOT SCALE



TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

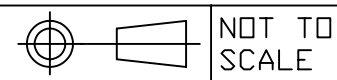
1 CABINET SUB ASSEMBLY - 1 OFF - WOOD

No.	Description	CHK	AP'D	DATE
2	4 x Slide Bolt 100mm			
1	6 x Tee Hinge 250mm			
REVISIONS				

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TITLE BATCH TRAY
DRYER
DIMENSIONS IN MM

DRAWN A.R
TRACE -
CHK -
DRAWING No. TDB103

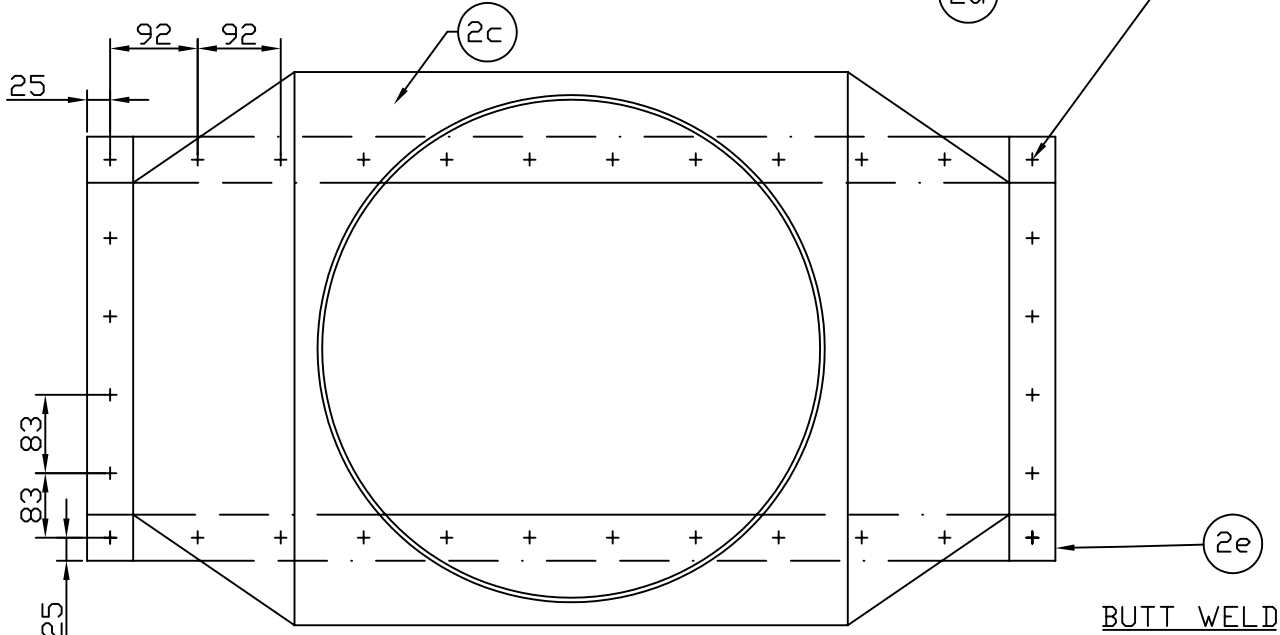
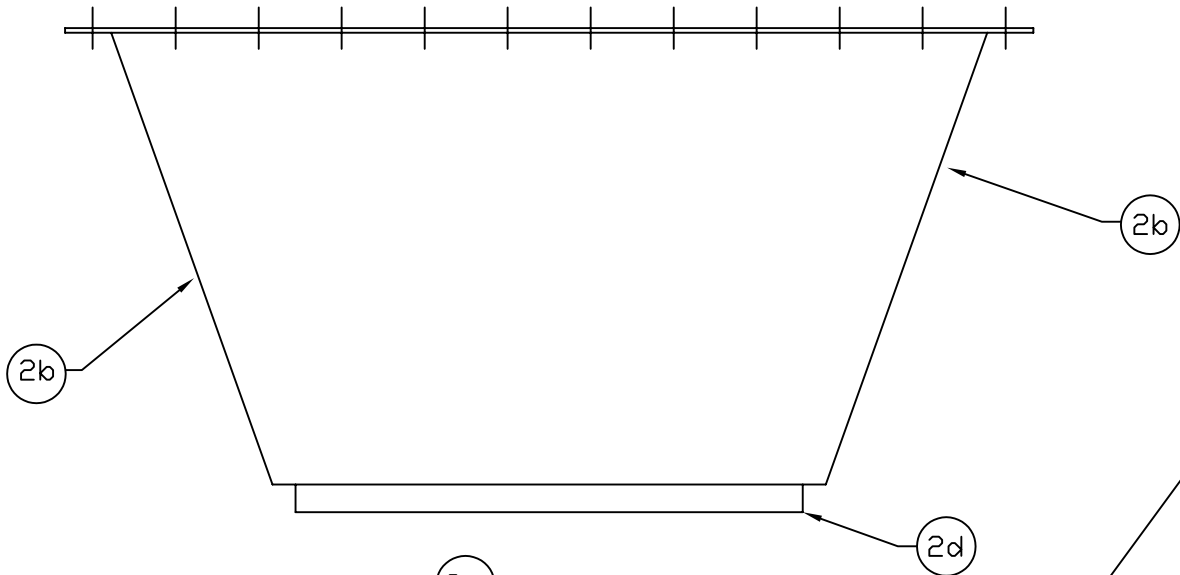


NOT TO
SCALE

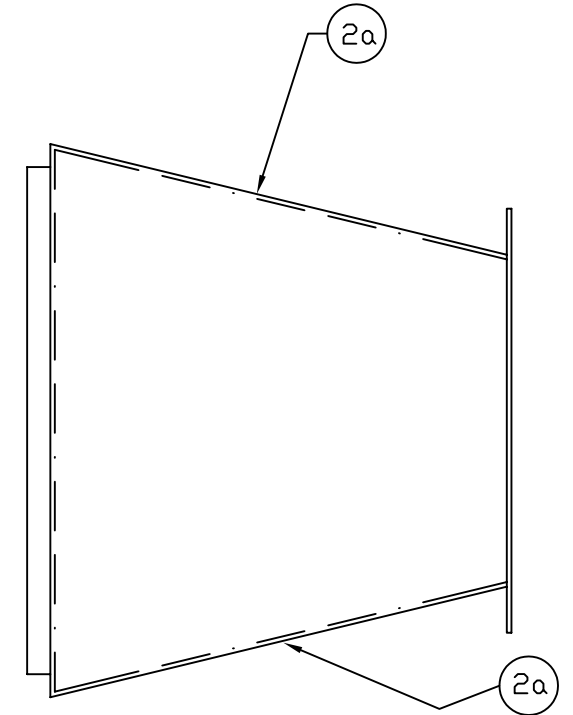
DO NOT SCALE

NOTES

- 1 SEAM WELD ALL JOINTS
- 2 FOR PART DETAILS SEE SHEET 2



TOLERANCES
UNLESS OTHERWISE
STATED ± 0.25



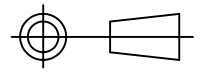
2 AIR INLET CONNECTOR SUB ASSEMBLY

No.	Description	CHK	AP'D	DATE

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TITLE BATCH TRAY
DRYER

DRAWN A.R
TRACE -
CHK -



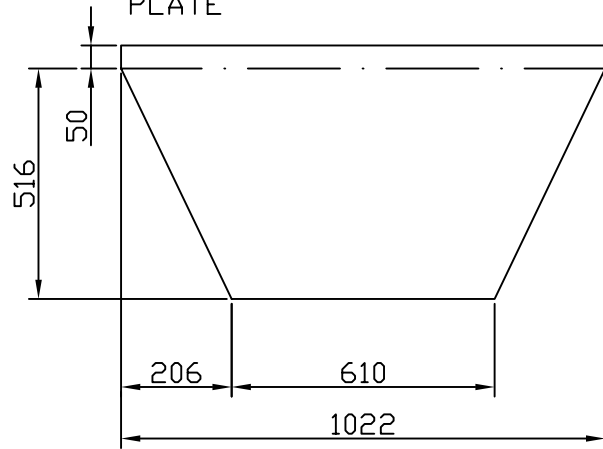
NOT TO
SCALE

DIMENSIONS IN MM

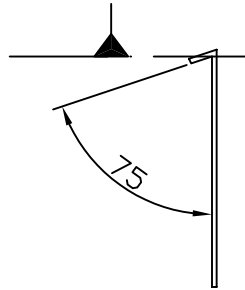
DRAWING No. TDB105

DO NOT SCALE

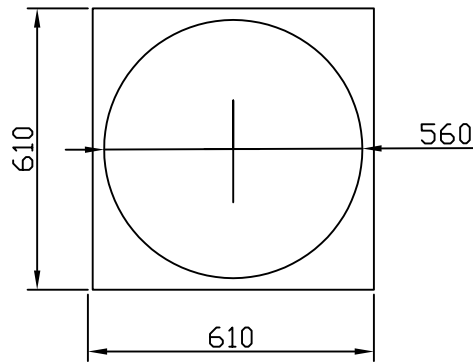
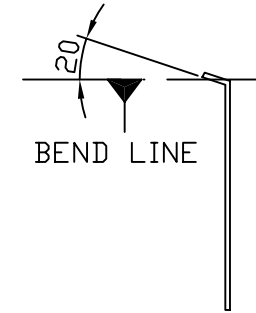
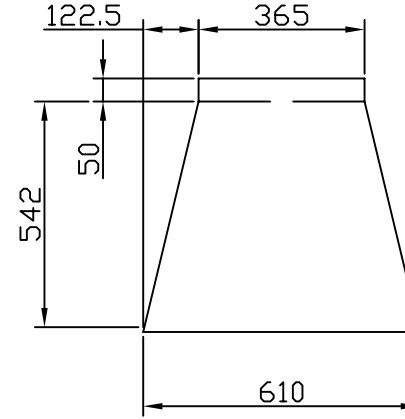
2a TOP & BOTTOM PLATE
2 OFF PER AIR INLET-
18G 1mm MILD STEEL
PLATE



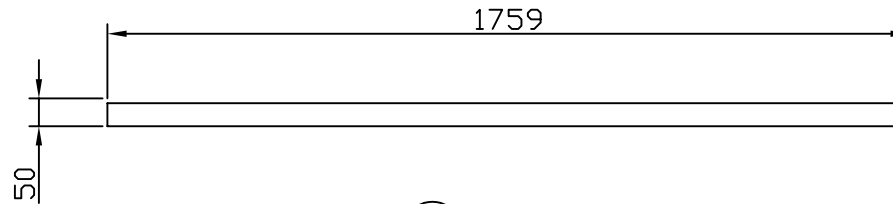
BEND LINE



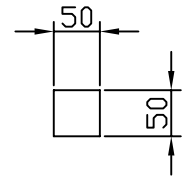
2b SIDE SELECTION - 2 OFF
PER AIR INLET- 18G 1mm
STEEL PLATE



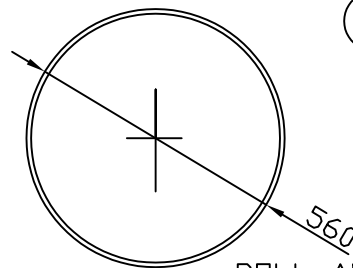
2c END PLATE
1 OFF PER AIR
INLET- 18G 1mm MILD
STEEL PLATE



2d CONNECTION SLEEVE
- 1 OFF PER AIR
INLET- 18G 1mm
STEEL PLATE



2e FILLET - 4 OFF PER
AIR INLET- MILD
STEEL



ROLL AND BUTT WELD
TO FORM THE SLEEVE

TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

2 AIR INLET SUB ASSEMBLY

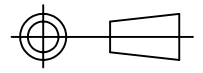
SHEET 2 OF 2

No.	Description	CHK	AP'D	DATE
REVISIONS				

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TITLE BATCH TRAY
DRYER

DRAWN A.R
TRACE -
CHK -



NOT TO
SCALE

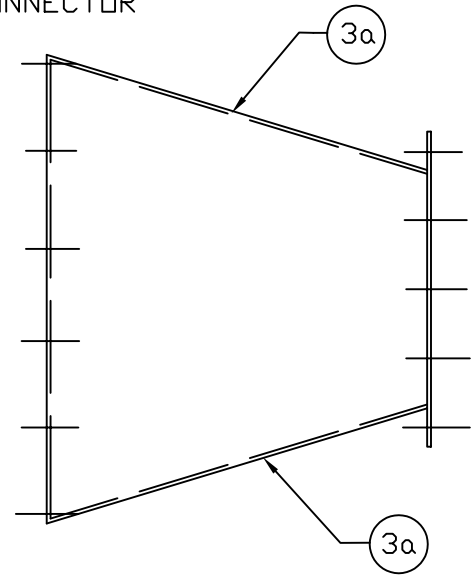
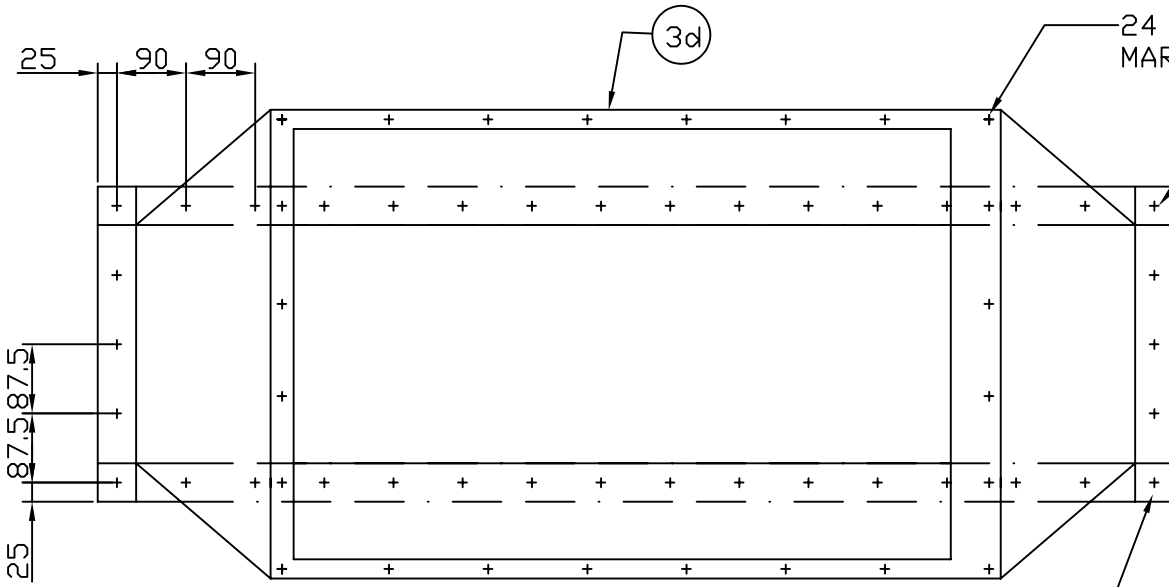
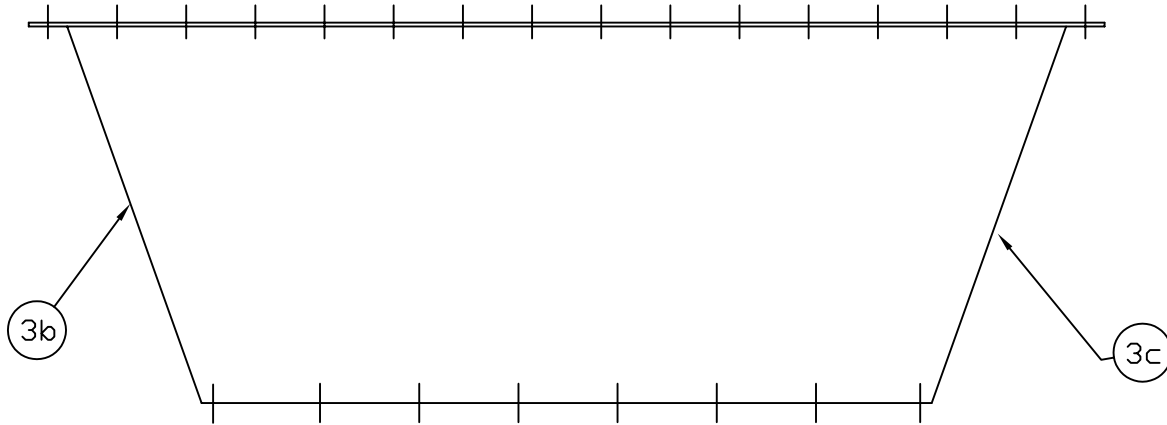
DIMENSIONS IN MM

DRAWING No. TDB106

DO NOT SCALE

NOTES

- 1 SEAM WELD ALL JOINTS
- 2 FOR PART DETAILS SEE SHEET 2



TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

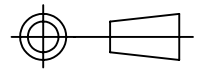
3 AIR INLET ASSEMBLY

No.	Description	CHK	AP'D	DATE
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TITLE BATCH TRAY
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DRAWN A.R. TRACE - CHK -



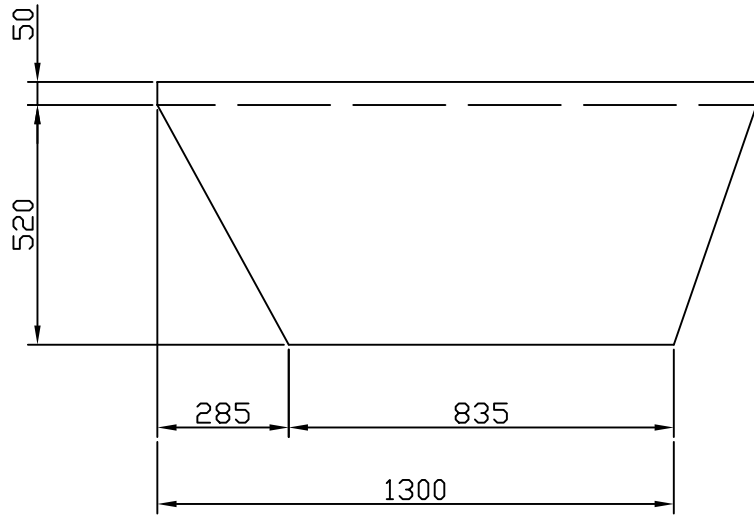
NOT TO SCALE

DIMENSIONS IN MM

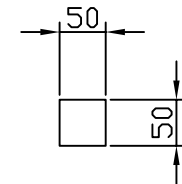
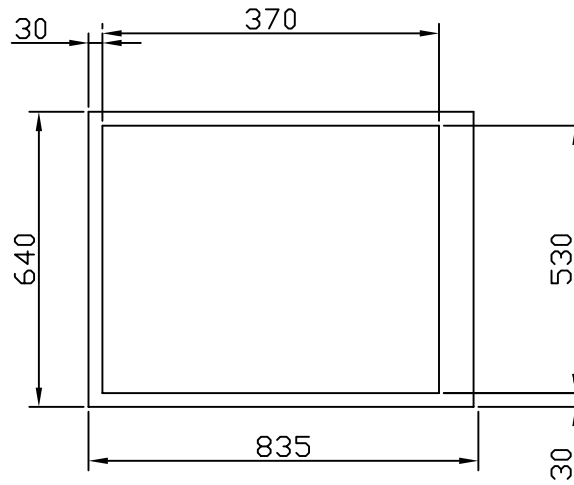
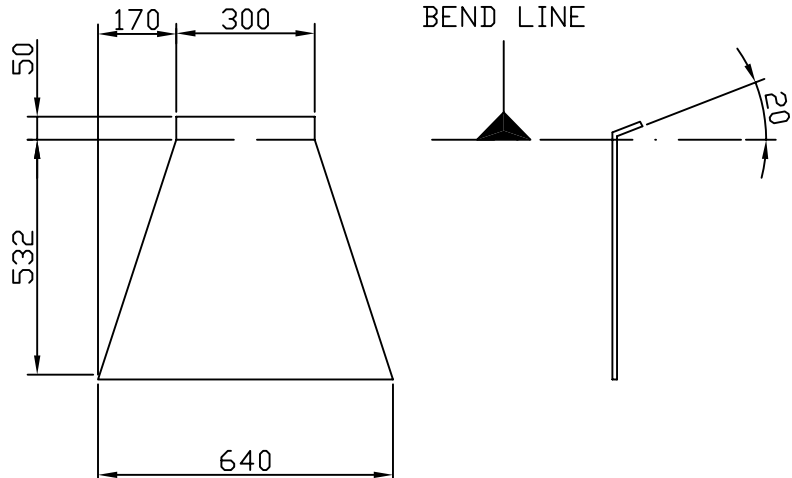
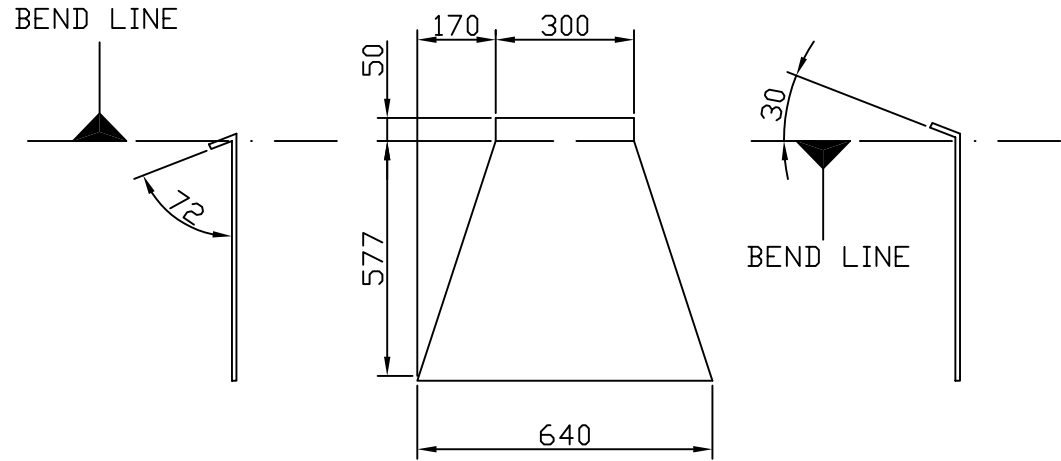
DRAWING No. TDB107

3a TOP & BOTTOM SECTION -
2 OFF PER AIR INLET- 1
mm MILD STEEL

DO NOT SCALE



3b L.H.S SECTION -
1 OFF PER AIR INLET- 1
mm MILD STEEL



3c R.H.S SECTION - 1 OFF PER AIR
INLET- 1 mm STEEL PLATE

TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

3d END PLATE - 1 OFF PER
AIR INLET - 1 mm STEEL
PLATE

3e FILLET - 4 OFF PER AIR
INLET - 1 mm MILD STEEL
PLATE

3 AIR INLET CONNECTOR
SUB ASSEMBLY
SHEET 2 OF 2

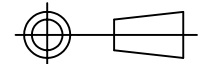
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TITLE BATCH TRAY
DRYER

DRAWN
A.R

TRACE
-

CHK
-



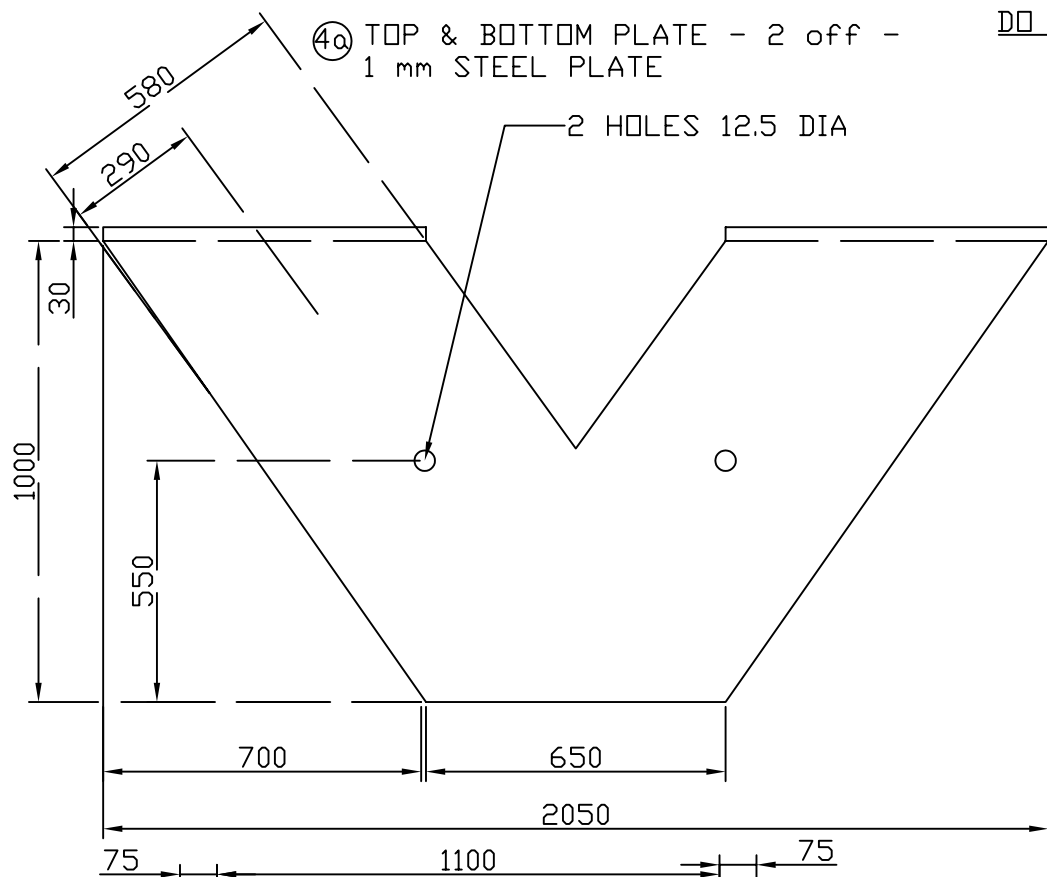
NOT TO
SCALE

DIMENSIONS IN MM

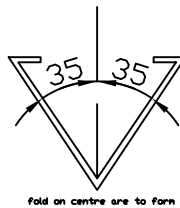
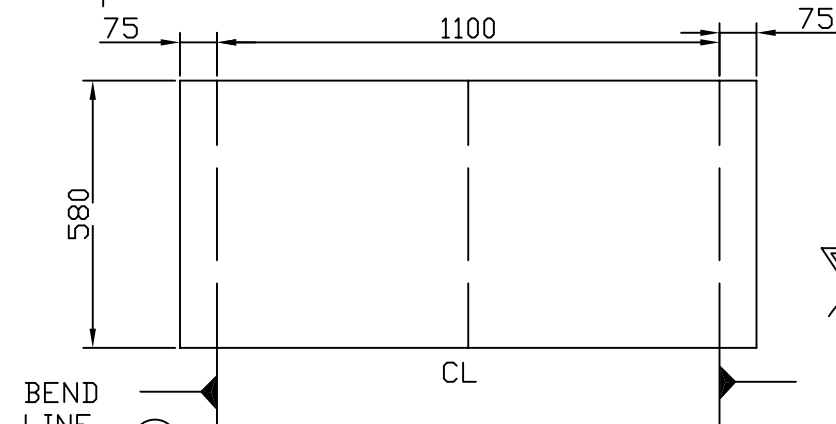
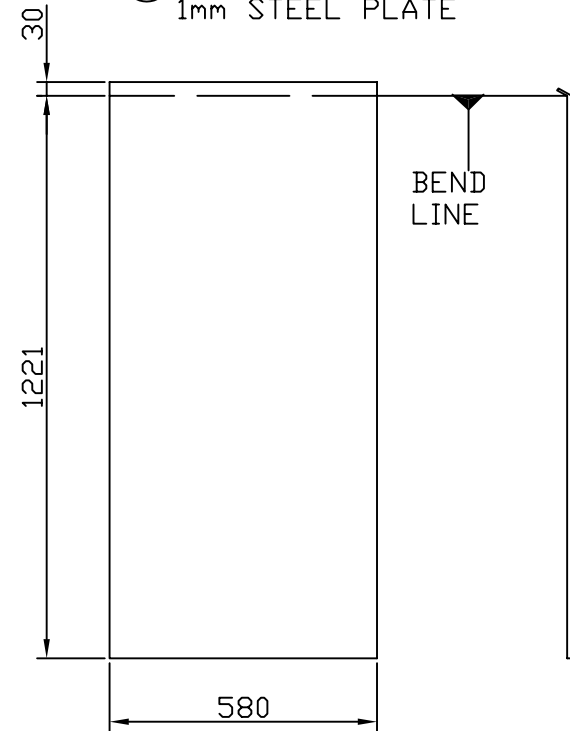
DRAWING No. TDB108

No.	Description	CHK	AP'D	DATE

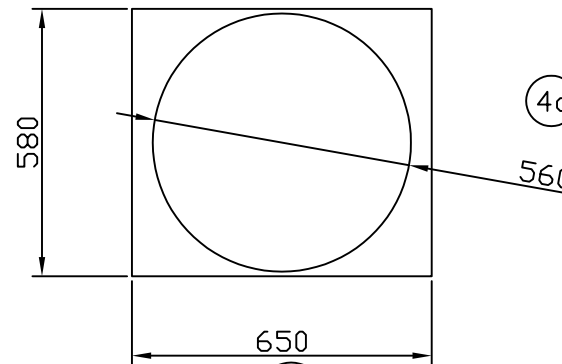
DO NOT SCALE



4b) SIDE SECTION (OUTER) - 1 OFF - 1mm STEEL PLATE



TOLERANCES UNLESS OTHERWISE STATED +/- 0.25



4d) END PLATE - 1 OFF - 1mm STEEL PLATE

4 Y CONNECTOR SUB ASSEMBLY

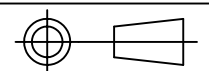
SHEET 2 OF 3

No.	Description	CHK	AP'D	DATE

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TITLE BATCH TRAY DRYER

DRAWN A.R. TRACE - CHK -



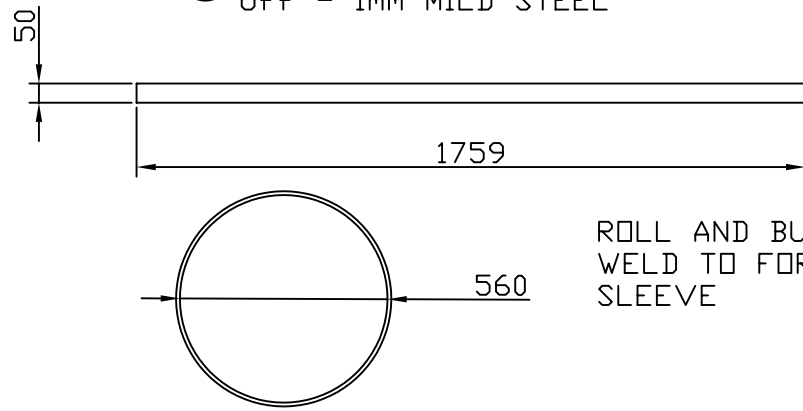
NOT TO SCALE

DIMENSIONS IN MM

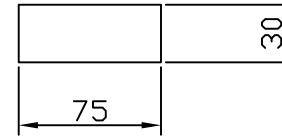
DRAWING No. TDB110

DO NOT SCALE

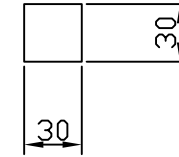
4e CONNECTION SLEEVE - 1
off - 1mm MILD STEEL



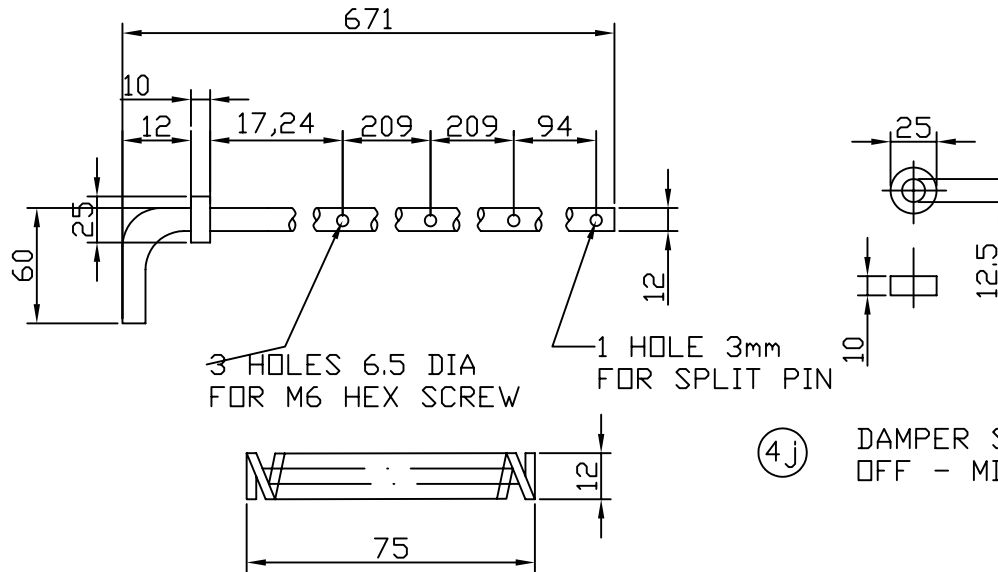
4f FILLET - 4 OFF -
1mm MILD STEEL
PLATE



4g FILLET - 4 off -
1mm MILD STEEL
PLATE



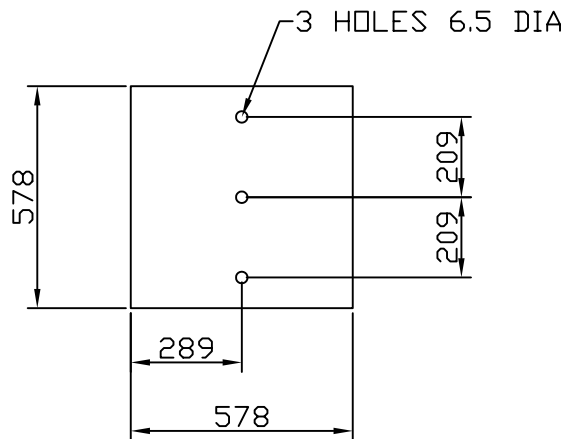
4i DAMPER HANDLE - 2
OFF - MILD STEEL



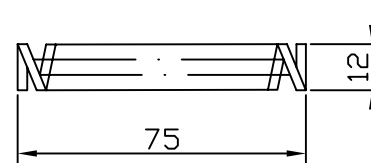
4j DAMPER STOP - 2
OFF - MILD STEEL

SHEET 3 of 3

4h DAMPER - 2 OFF -
1mm MILD STEEL
PLATE



4k DAMPER SPRING - 2 OFF
- SPRING STEEL



TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

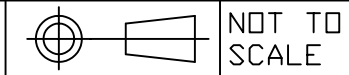
4 Y CONNECTOR SUB ASSEMBLY

No.	Description	CHK	AP'D	DATE
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TITLE BATCH TRAY
DRYER

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TRACE -
CHK -

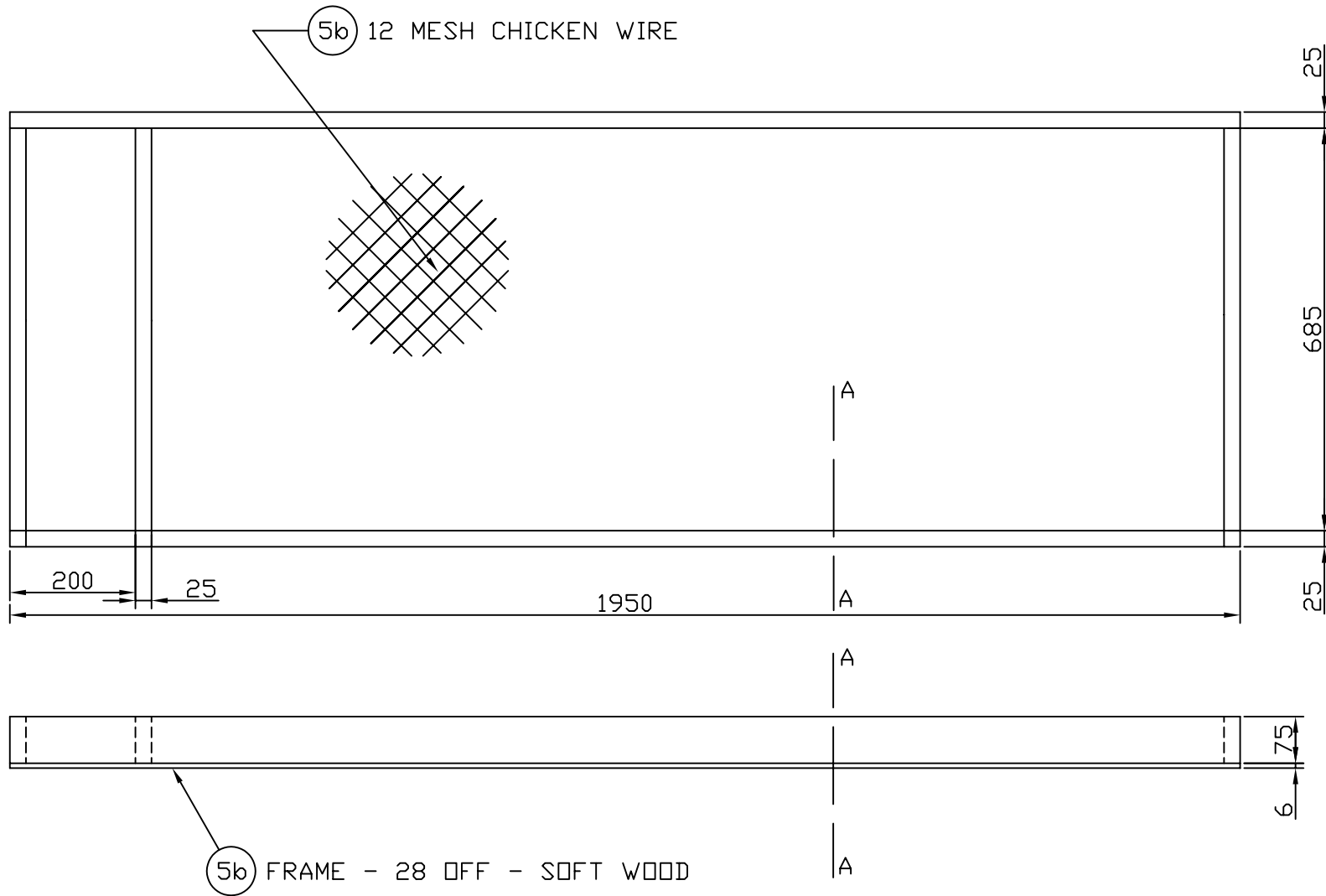


NOT TO
SCALE

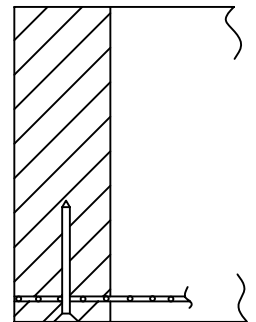
DIMENSIONS IN MM

DRAWING No. TDB111

DO NOT SCALE



5b 12 MESH CHICKEN WIRE



SECTION - AA

5b FRAME - 28 OFF - SOFT WOOD

TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

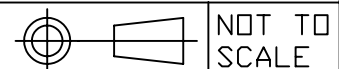
5 TRAY ASSEMBLY

No.	Description	CHK	AP'D	DATE

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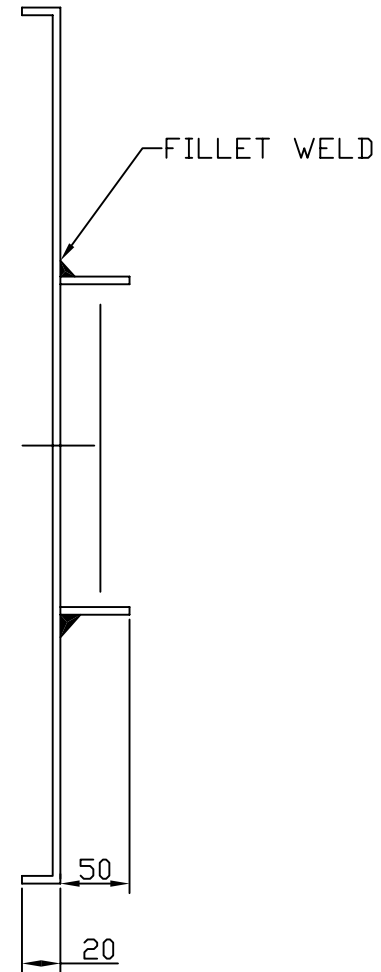
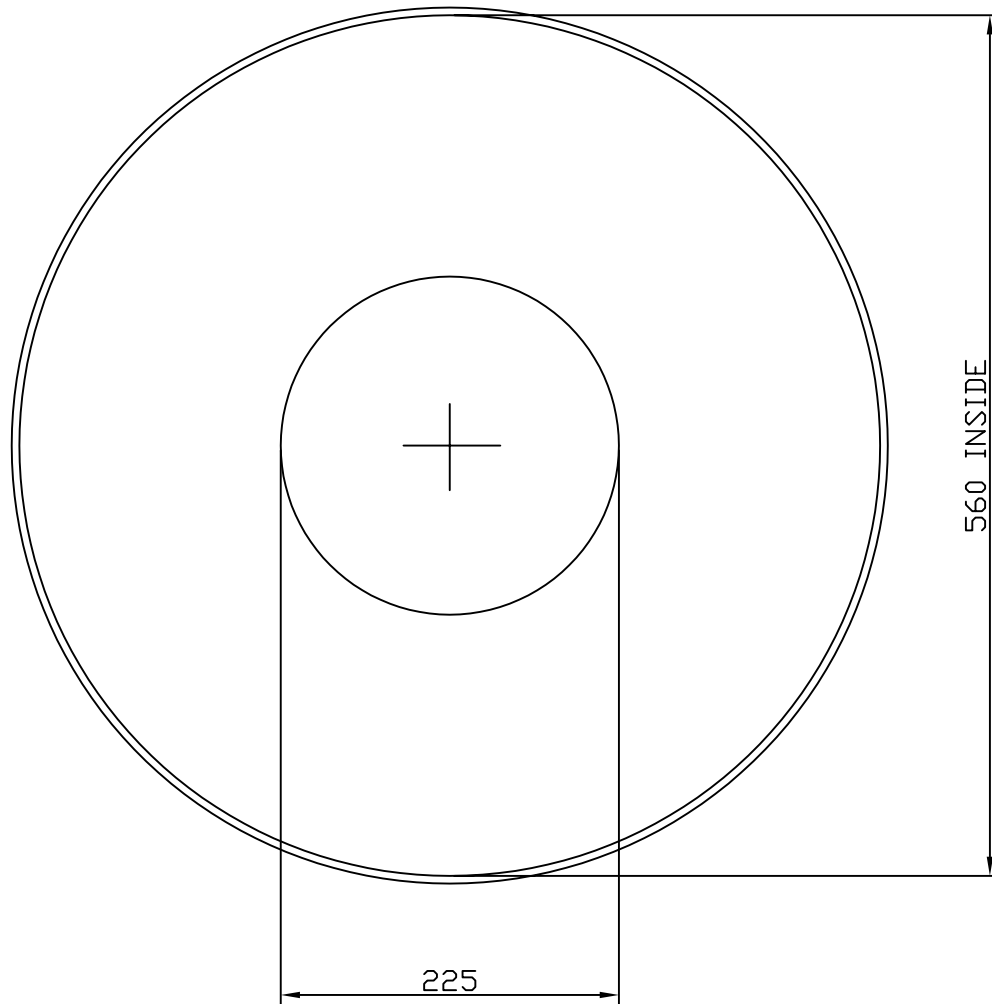
TITLE BATCH TRAY
DRYER
DIMENSIONS IN MM

DRAWN A.R. TRACE - CHK -
DRAWING No. TDB112



NOT TO SCALE

DO NOT SCALE



TOLERANCES
UNLESS OTHERWISE
STATED ± 0.25

6 ADAPTOR- 1 OFF- 1 mm MILD STEEL PLATE

No.	Description	CHK	AP'D	DATE

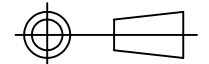
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TITLE BATCH TRAY
DRYER

DRAWN
A.R

TRACE
-

CHK
-



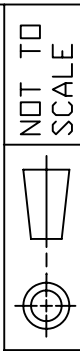
NOT TO
SCALE

DIMENSIONS IN MM

DRAWING No. TDB113

1	CABINET SUB ASSY	TDB101	1		
1	CABINET SUB ASSY	TDB102			
1	CABINET SUB ASSY	TDB103			
1	CABINET SUB ASSY	TDB104			
1a	WOODEN FRAME		1	HARD WOOD	
1b	TEE HINGE		6		250 mm LONG
1c	SLIDE BOLT		4		100 mm LONG
2	AIR INLET SUB ASSY	TDB105	2		
	AIR INLET SUB ASSY	TDB106			
2a	TOP & BOTTOM SECTION		4	18G 1mm MS PLATE	
2b	SIDE SECTION		4	18G 1mm MS PLATE	
2c	END PLATE		2	18G 1mm MS PLATE	
2d	CONNECTION SLEEVE		2	18G 1mm MS PLATE	
2e	FILLET		8	MILD STEEL	
3	AIR INLET SUB ASSY	TDB107	2		
3	AIR INLET SUB ASSY	TDB108			
3a	TOP & BOTTOM SECTION		4	18G 1mm MS PLATE	
3b	LHS SECTION		2	18G 1mm MS PLATE	
3c	RHS SECTION		2	18G 1mm MS PLATE	
3d	END PLATE		2	18G 1mm MS PLATE	
3e	FILLET		8	MILD STEEL	
4	Y CONNECTOR SUB ASSY	TDB109	1		
4	Y CONNECTOR SUB ASSY	TDB110			
4	Y CONNECTOR SUB ASSY	TDB111			
4a	TOP & BOTTOM PLATE		2	18G 1mm MS PLATE	
4b	OUTER SIDE PLATE		2	18G 1mm MS PLATE	
4c	INNER SIDE PLATE		2	18G 1mm MS PLATE	
4d	END PLATE		2	18G 1mm MS PLATE	
4e	CONNECTOR SLEEVE		1	18G 1mm MS PLATE	
4f	FILLET		4	MILD STEEL	
4g	FILLET		4	MILD STEEL	
4h	DAMPER		2	MILD STEEL	
4i	DAMPER HANDLE		2	MILD STEEL	
4j	DAMPER STOP		2	MILD STEEL	
4k	DAMPER SPRING		2	SPRING STEEL	
5	TRAY SUB ASSY	TDB112	28		
5a	FRAME		28	SOFT WOOD	
5b	MESH		28	CHICKEN WIRE	
6	ADAPTOR	TDB113	1/2	18G 1mm MS PLATE	
ITEM	DESCRIPTION	PAGE NO	QTY	MATERIAL	COMMENTS
PARTS LIST					

CHD



NOT TO SCALE

CHK -

DRAWN TRACE -

AIR

TITLE BATCH TRAY DRYER

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DRAWING No. TDB114

ITEM	DESCRIPTION	PART NUMBER	QUANTITY	COMMENTS	CHECKED
1	Operating Handle	TD91-10			
2	Operating Lever	TD91-09			
3	Operating lever Extention	TD91-09			
4	Hook Rod	TD91-10			
5	Hook Rod Bracket	TD91-10			
6	Hook Rod Clip	TD91-11			
7	Lever Cam Plate	TD91-09			
8	Cam Plate	TD91-09			
9	Cam Shaft	TD91-09			
10	Cam Connecting Rod	TD91-10			
11	Lifting Rod	TD91-10			
12	Rod Adjusters	TD91-10			
13	Shaft Stop Plates	TD91-11			
14	Finger Stop Plates	TD91-12			
15	Lower Lifting Bracket	TD91-06			
16	Tray Drier Frame	TD91-04			

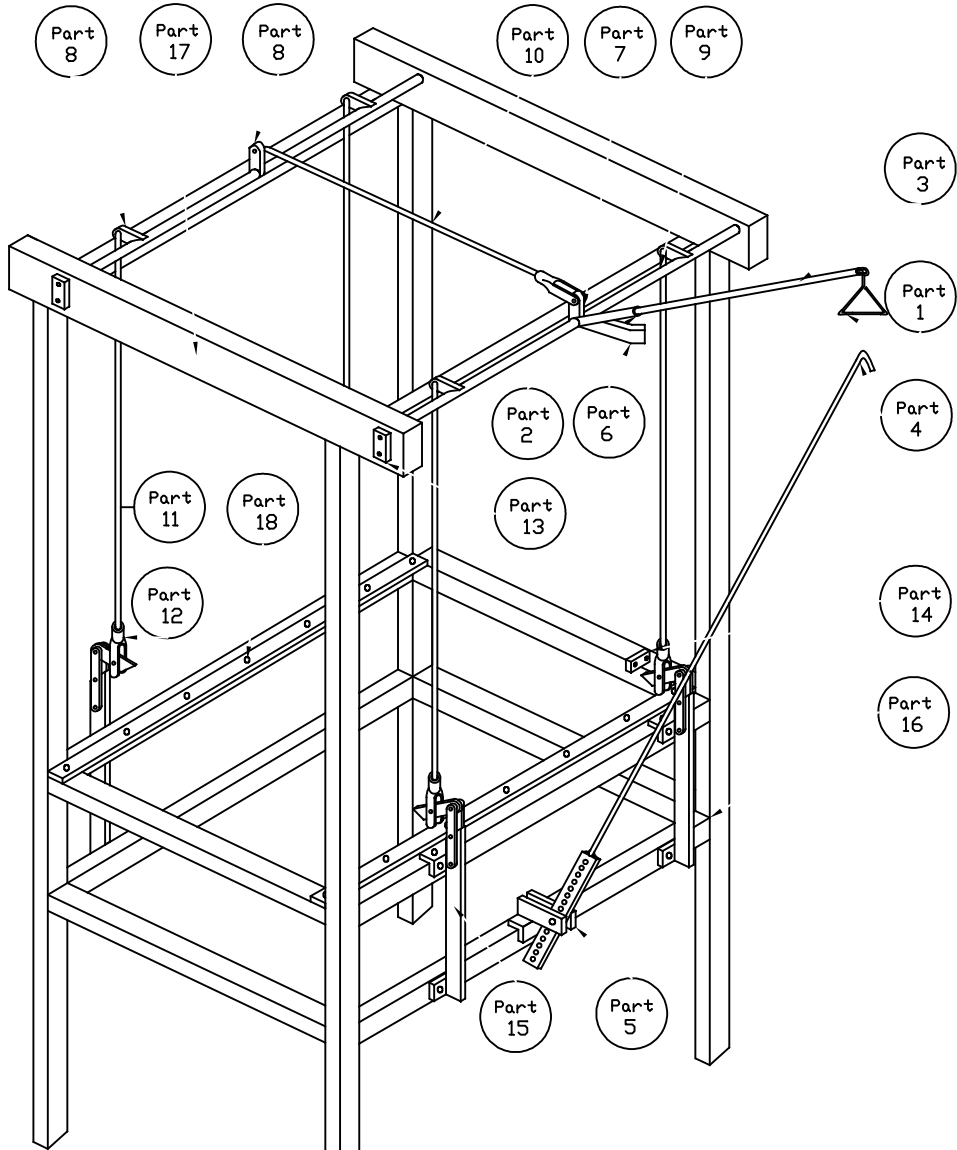


ITEM	DESCRIPTION	PART NUMBER	QUANTITY	COMMENTS	CHECKED
17	Bearing Rail	TD91-11			
18	Wear Plates	TD91-11			
	Heater Inlet Coneector	TD91-12			
	Clevis Pin Manufacture	TD91-08			
	Tray Assembly	TD91-05			
	Finger Developement	TD91-07			
	Frame Paneling	TD91-02			
	Access Doors	TD91-03			

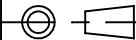
ITDG

Tray Drier 1991 Model

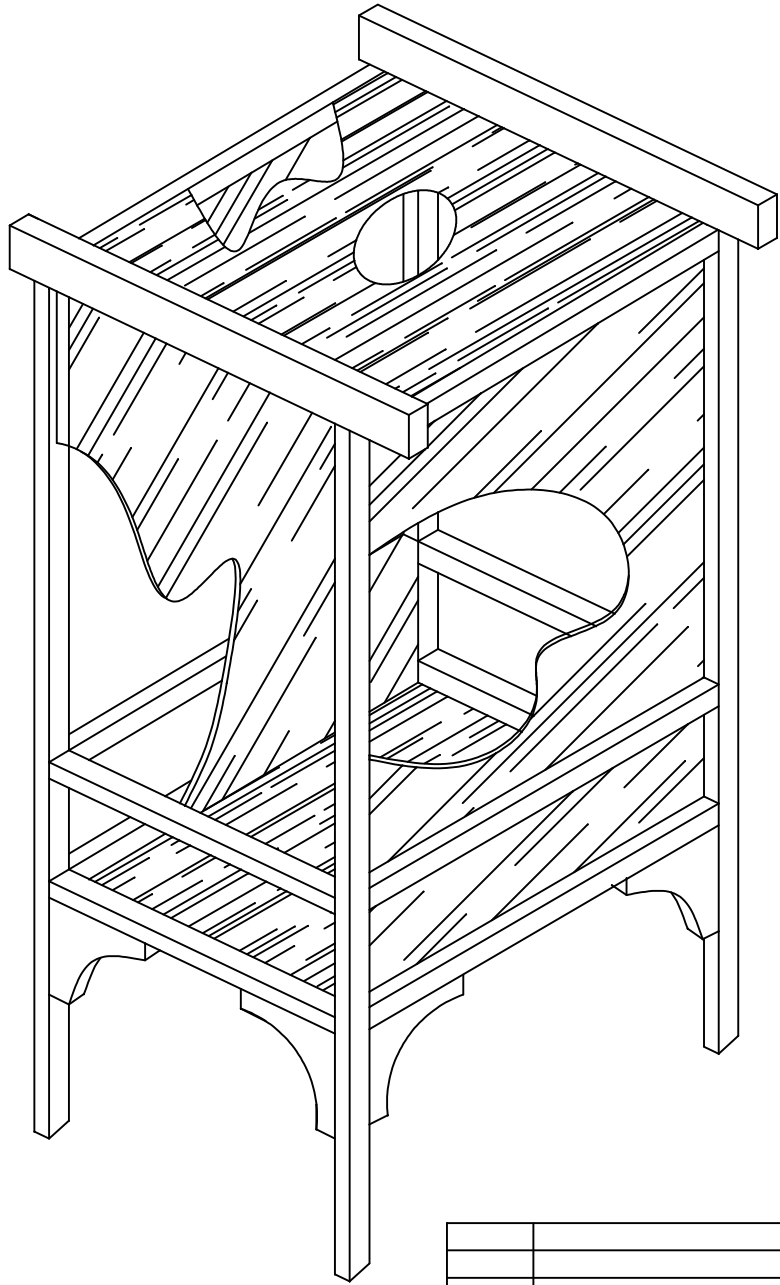
DO NOT SCALE



No.	Description	CHK	AP'D	DATE
REVISIONS				

TITLE	Tray Drier 1991 model	DRAWN	TRACE	CHK		SCALE	1:10
MATERIAL	DRAWING No. TD91-01						

DO NOT SCALE



No.	Description	CHK	AP'D	DATE

REVISIONS

TITLE	Frame Panelling	DRAWN	TRACE	CHK			SCALE
		A.P.D	-	-			1:8

MATERIAL	DRAWING No. TD91-02
----------	---------------------

Part 1

Part 4

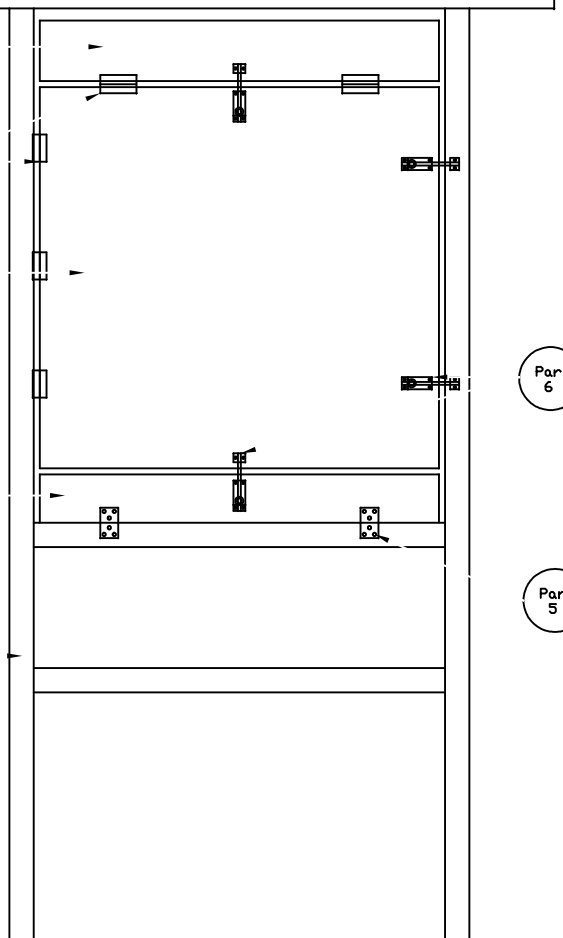
Part 2

Part 3

Part 7

Part 6

Part 5



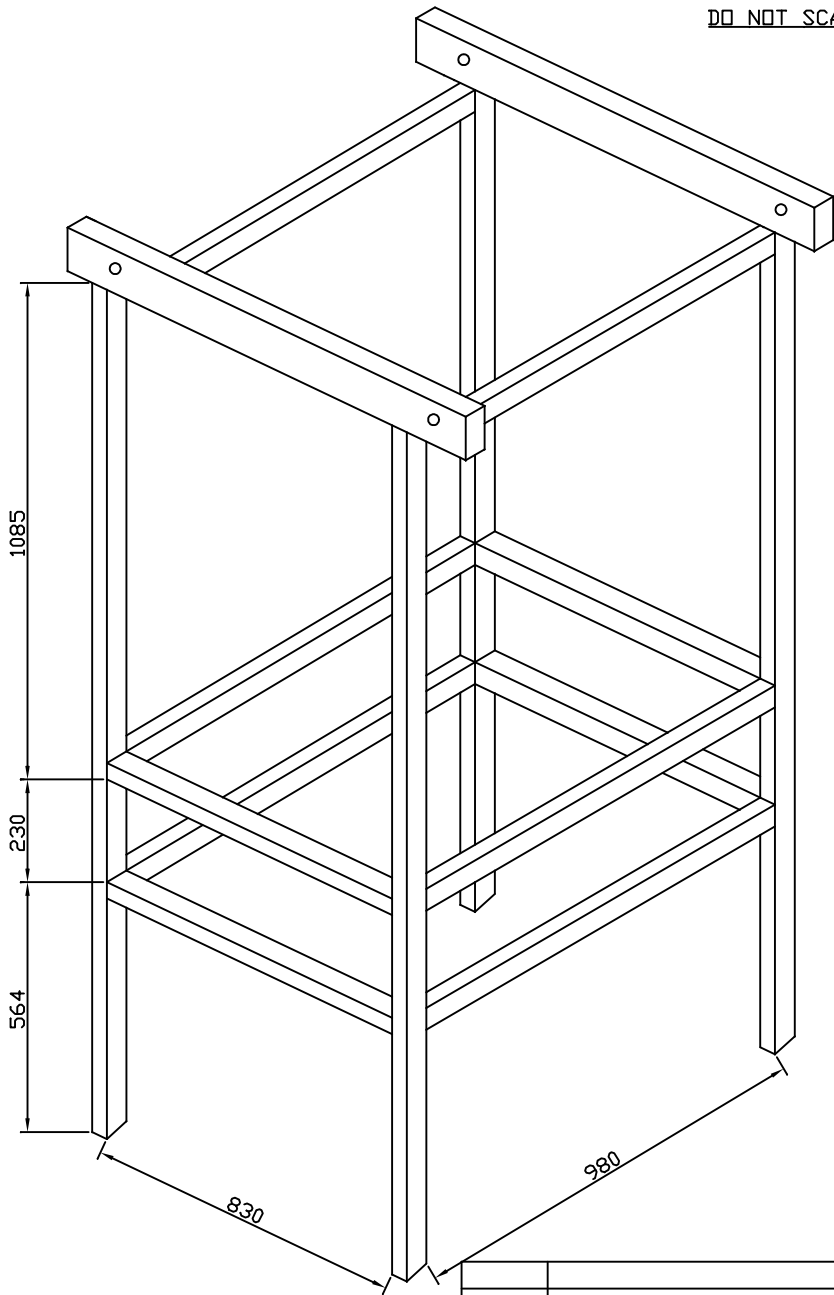
No.	Description	DRG No	QTY	Material
1	Tray Loading door	TD91-03	1	825x150
2	Access Door	TD91-03	1	825x780
3	Tray Unloading door	TD91-03	1	825x100
4	Hinges	TD91-03	5	75 Steel Butt
5	Hinges	TD91-03	2	50 Steel back Flap
6	Locking bolts	TD91-03	4	75 Long
7	Tray Drier Frame	TD91-04		
8	Bearing Rail	TD91-11		

PARTS

TITLE	Access Doors	DRAWN	TRACE	CHK		SCALE
		A.P.D	-	-		1:8

MATERIAL	see list	DRAWING No.	TD91-03
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DO NOT SCALE



No.	Description	CHK	AP'D	DATE

REVISIONS

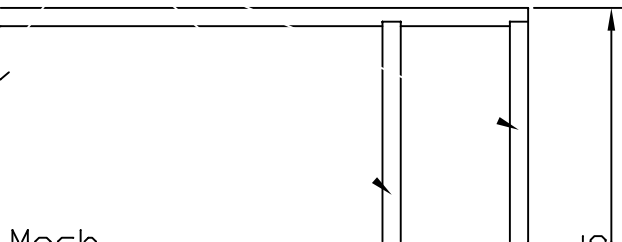
TITLE	Tray drier frame	DRAWN	TRACE	CHK	⊕	SCALE
		A.P.D	-	-	☐	1:8

MATERIAL DRAWING No. TD91-04

ed all round and the sizes
s are recessed in to the
pinned

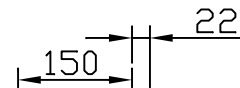
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Part
2



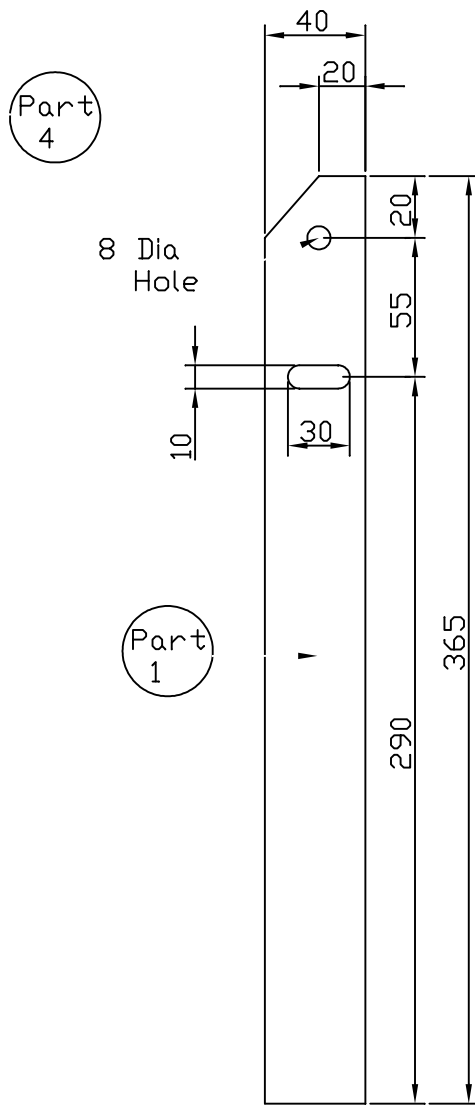
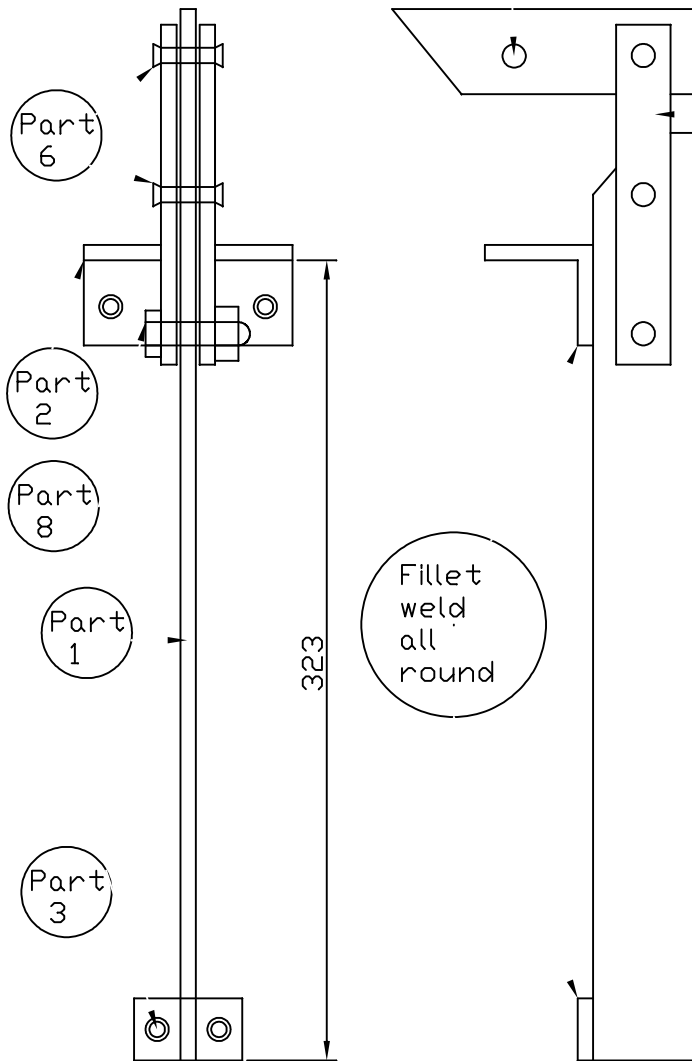
PRT	Drg No	Description	QTY	Material
	TD91-07	Complete trays	12	See below
1	TD91-07	Tray sides	2	70x20x900 Soft Wood
2	TD91-07	Tray Cross	3	70x20x675 Soft Wood
3	TD91-07	pieces Bottom ring sides	2	20x6x900 M/S bar
4	TD91-07	Bottom ring cross pieces	2	20x6x645 M/S bar
5	TD91-07	12 mesh Galv Chicken wire	1	685x728
6	TD91-07	20x7^3 Wood screws		
7	TD91-07	40x12^6 Steel pins		

28 Screw holes
drilled 4.5 C/S 8

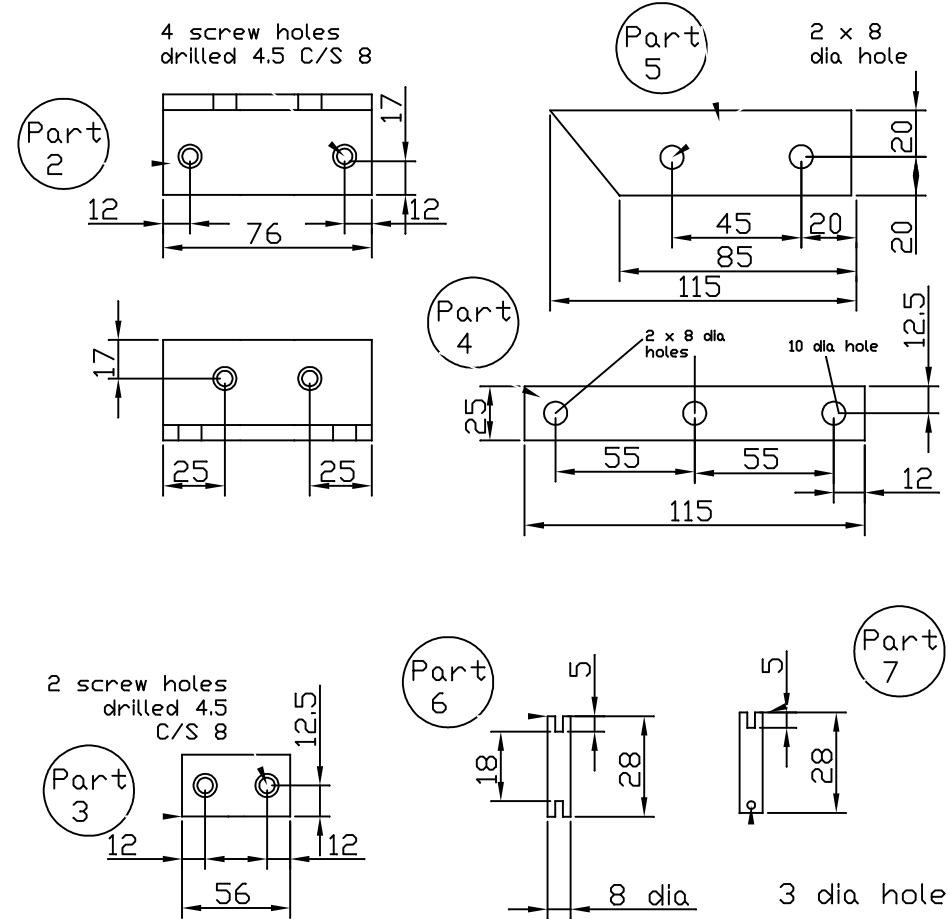


Radius all corners
3 rad. Remove all
sharp edges and
burrs

DO NOT SCALE



PRT	Drq No	Description	QTY	Material
	TD91-01	Complete Assembly	4	See below
1	TD91-01	Main Plate	1	40x6x365 M/S Bar
2	TD91-01	Top attachment angle	1	40x40x6x75 M/S Bar
3	TD91-01	Bottom attachment plate	1	25x6x56 M/S bar
4	TD91-01	Linking plates	2	25x6x135 M/S bar
5	TD91-01	Lifting Fingers	1	40x6x115 M/S bar
6	TD91-01	Fixed clevis pin	2	8 Dia x 28 M/S rod
7	TD91-01	Removable clevis pin	1	8 Dia x 28 M/S rod
8	TD91-01	Locking bolt and nut	1	10x30 Hex Steel



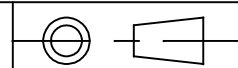
See drawing TD91-08 for manufacture details

TITLE Tray Assembly

DRAWN A.P.D

TRACE -

CHK -



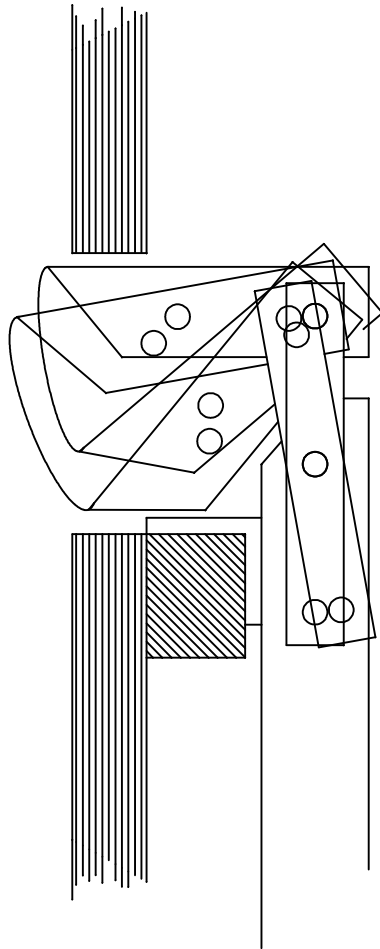
SCALE 1:8

MATERIAL See list

DRAWING No. TD91-06

No.	Description	CHK	AP'D	DATE
REVISIONS				

DO NOT SCALE



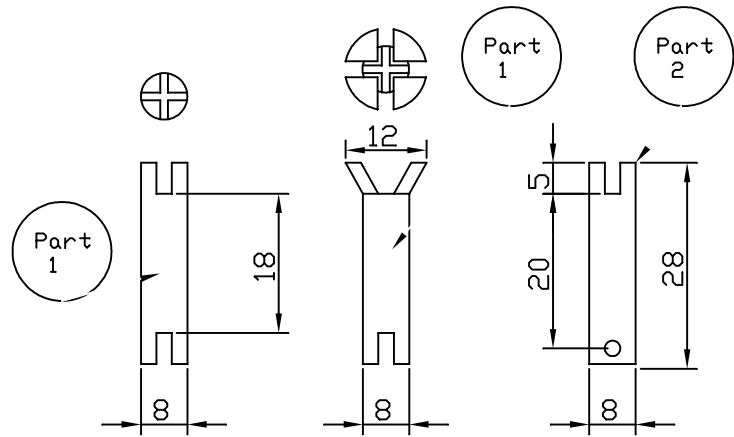
No.	Description	CHK	AP'D	DATE

REVISIONS

TITLE	Finger Development	DRAWN	TRACE	CHK		SCALE
		A.P.D	-	-		1:1
MATERIAL	DRAWING No. TD91-07					

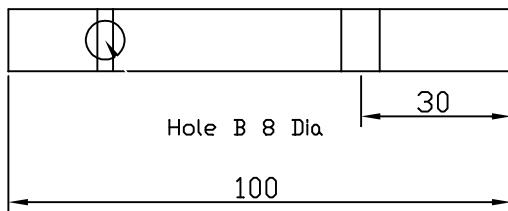
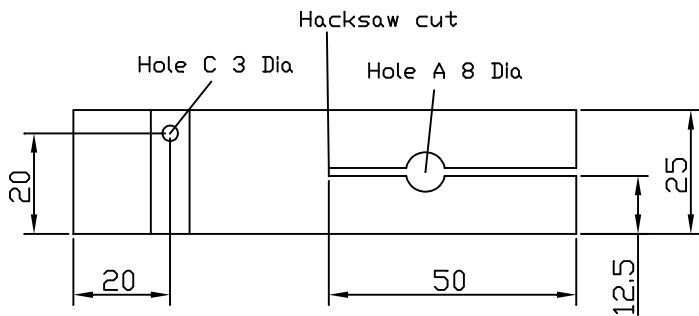
DO NOT SCALE

PRT	Drq No	Description	QTY	Material
1	TD91-01	Fixed clevis pin		8 dia x 28 Steel Rod
2	TD91-01	Removeable clevis pin		8 dia x 28 Steel Rod
3	TD91-05	Clevis pin making tool		25x12x100 M/S Bar



Making Clevis Pins

1. Cut off required no of pins, to finished length
2. Place pin in hole A level with bottom face of tool
3. Clamp tool in vice with pin level to end of vice jaw
4. File small chamfer on the end of the pin and hacksaw two cuts at 90 degrees 5 mm deep
5. Repeat for second end
6. Place tool on a solid metal surface, put pin in holes A, drive a cold chisel into the sawcuts to spread the end. **DO NOT OVERSPREAD**
7. Assemble the parts
8. Clamp a cold chisel in the vice cutting edge upwards place assembly on top with one of the opened out slots on the chisel blade, drive a second chisel into the opposite end saw cuts to open out the second end.
9. The removeable pins are made as above, to drill the hole place pin in hole C and clamp in machine vice locking the spread end of the pin between the vice jaw and the tool, drill hole throughg tool and pin.



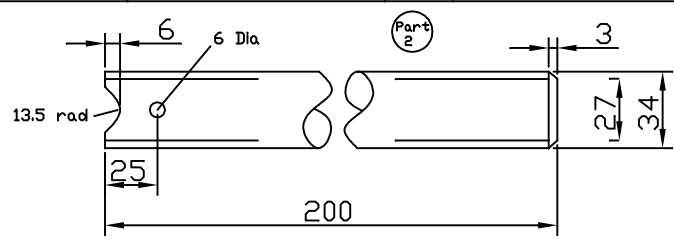
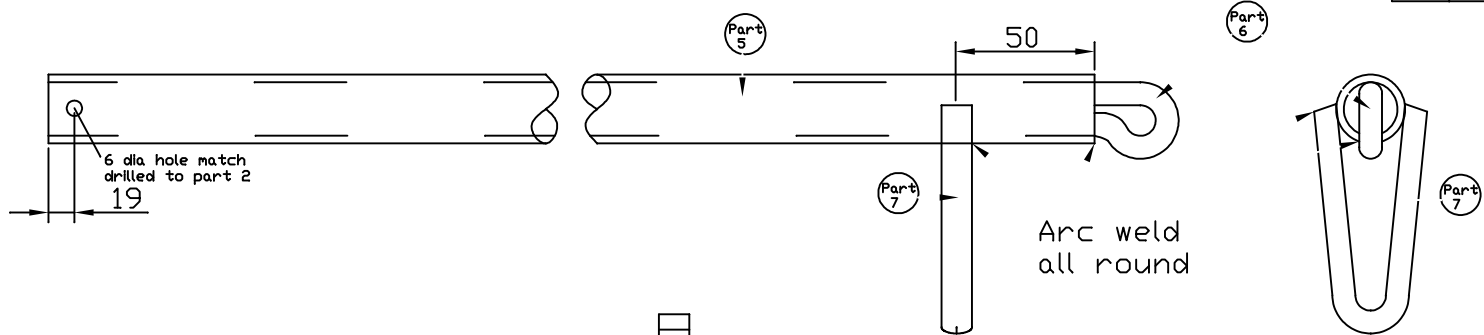
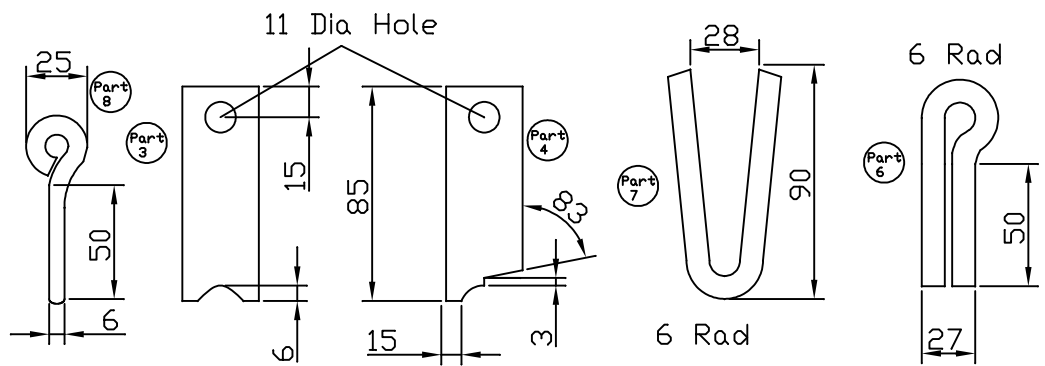
Part 3

No.	Description	CHK	AP'D	DATE
REVISIONS				

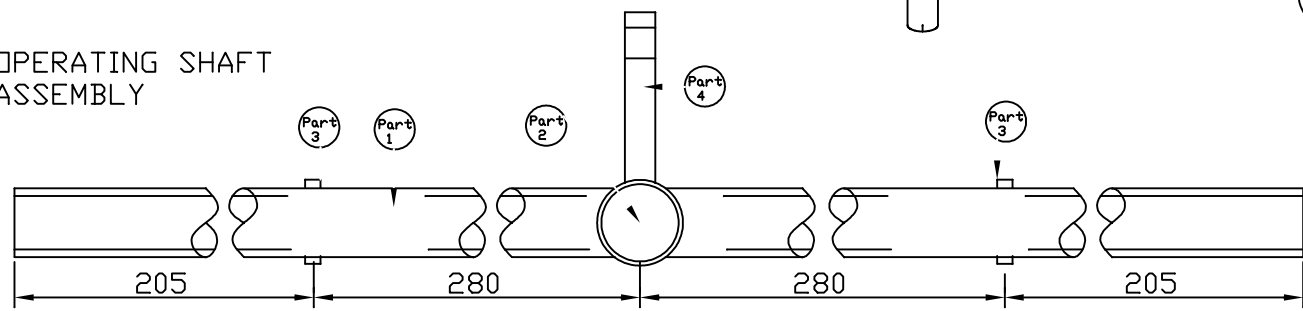
TITLE Clevis Pin manufacture		DRAWN A.P.D	TRACE -	CHK -		SCALE 1:1
MATERIAL Mild Steel		DRAWING No. TD091-08				

DO NOT SCALE

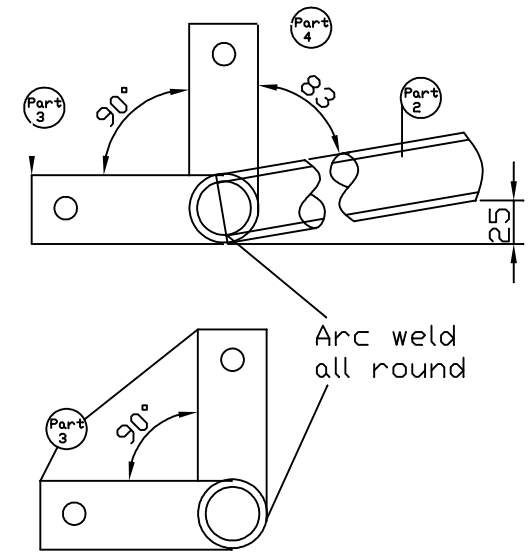
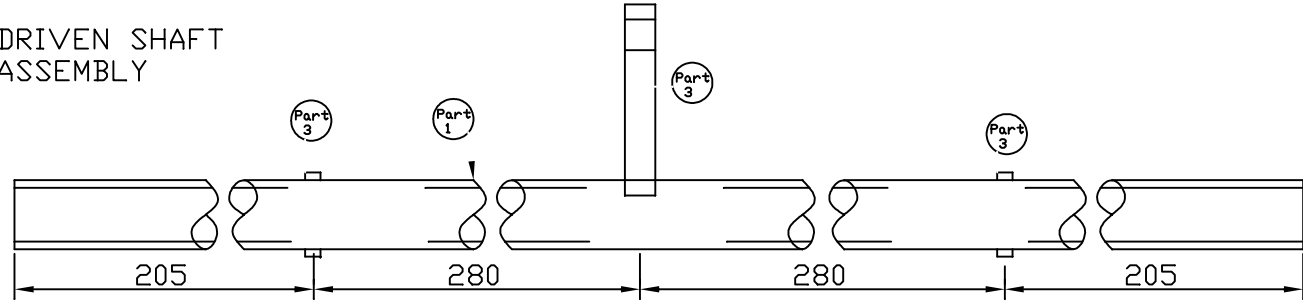
PRT	Drg No	Description	QTY	Material
1	TD91-06	Cam shaft	2	2700x980 Water pipe
2	TD91-06	Operating lever	1	3400x200 Water pipe
3	TD91-06	Cam plates	5	30x6x85 M/S Bar
4	TD91-06	Cam plate	1	30x6x85 M/S bar
5		Operating lever extension	1	2700x1000 Water pipe
6		Handle Ring	1	10 diax164 M/S rod
7		Hook Rod Link	1	10 Diax240 M/S rod
8		Operating lever pin	1	6 Dia x85 M/S rod



OPERATING SHAFT ASSEMBLY



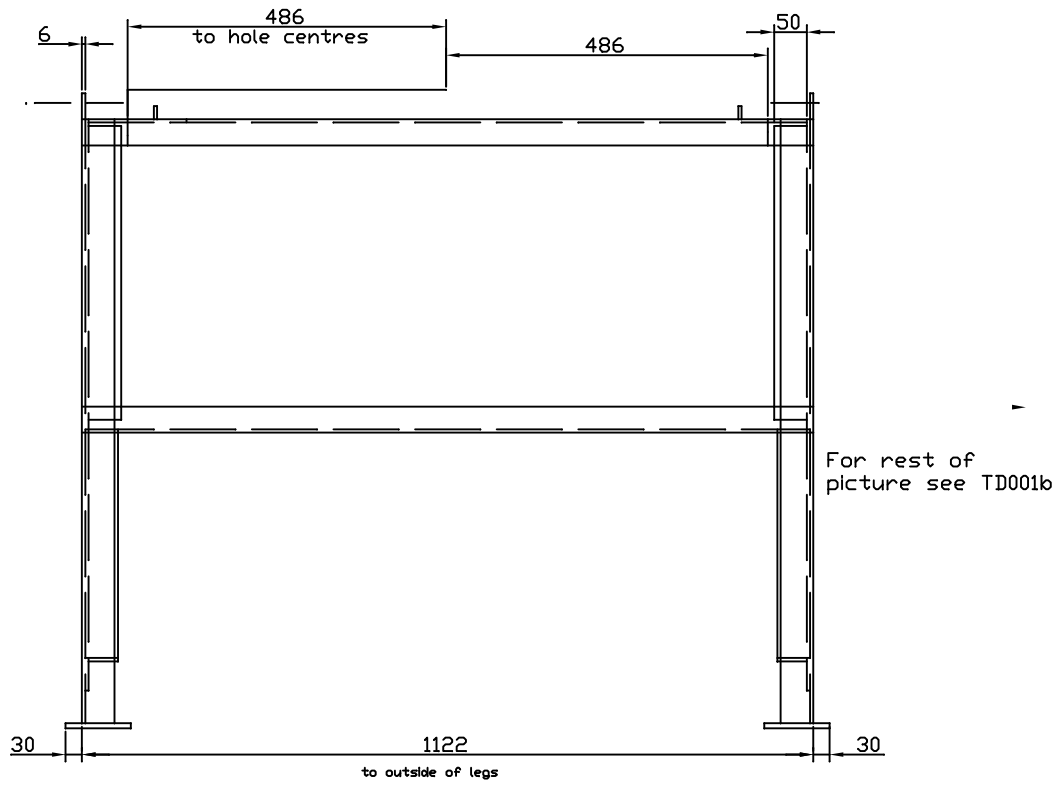
DRIVEN SHAFT ASSEMBLY



See drawing TD91-08 for manufacture details				
No.	Description	CHK	AP'D	DATE
REVISIONS				

TITLE Tray Assembly			DRAWN A.P.D	TRACE -	CHK -		SCALE 1:2
MATERIAL			DRAWING No. TD91-09				

DO NOT SCALE



For rest of picture see TD001c

No.	Description	CHK	AP'D	DATE

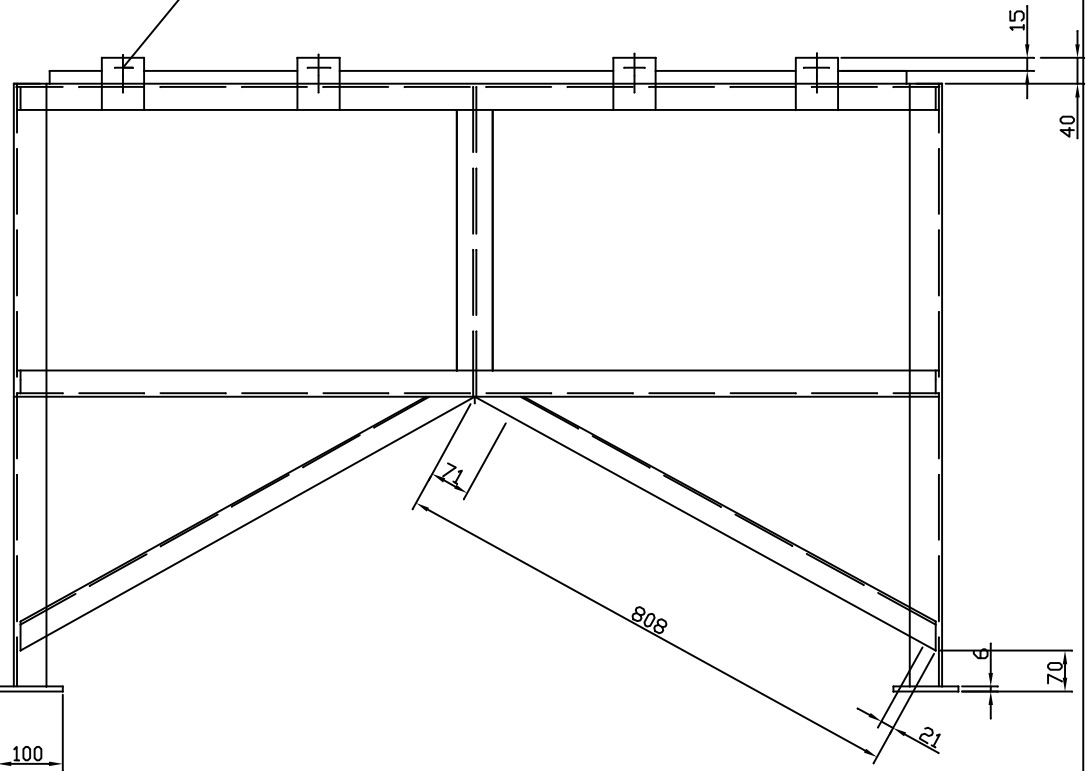
REVISIONS

ITDG

TITLE	Base for tray drier	DRAWN	A.R	TRACE	-	CHK	-	SCALE	1:1
MATERIAL	Mild steel	DRAWING No. TD001a							

DO NOT SCALE

dia 9mm
(8 of)



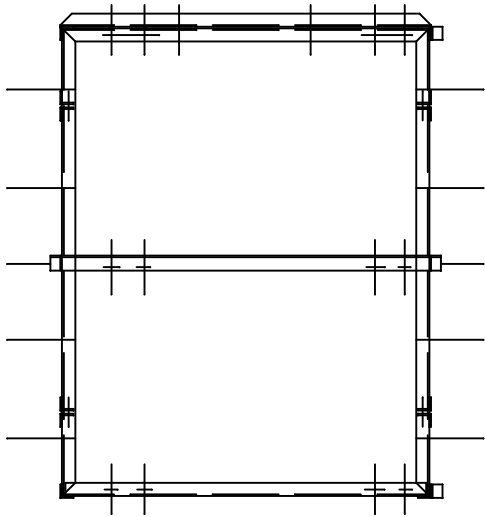
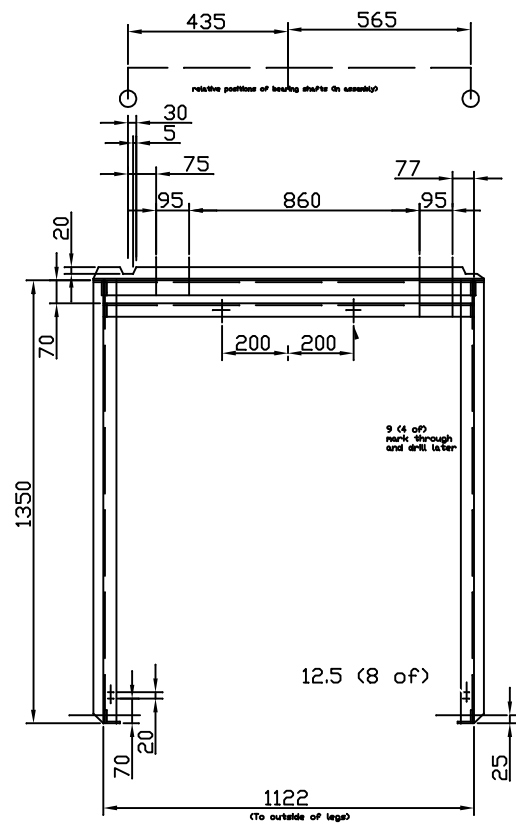
No.	Description	CHK	AP'D	DATE

REVISIONS



TITLE	Base for tray drier	DRAWN	TRACE	CHK		SCALE
		A.R	-	-		1:1
MATERIAL	mild steel	DRAWING No. TD001b				

DO NOT SCALE



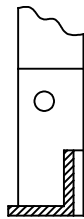
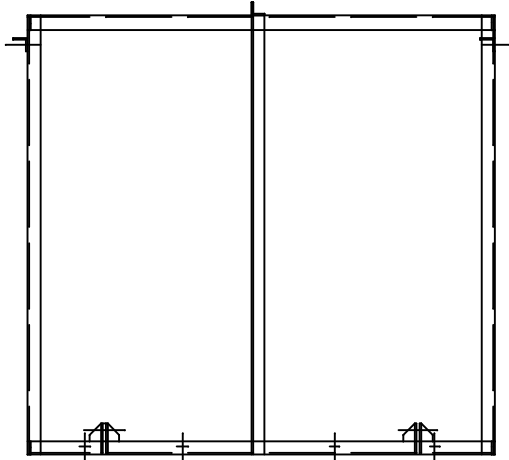
No.	Description	CHK	AP'D	DATE
REVISIONS				

ITDG

TITLE	Upper frame for tray drier	DRAWN	TRACE	CHK		SCALE
		A.R	-	-		

MATERIAL	Mild Steel	DRAWING No.	TD002a
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DO NOT SCALE



No.	Description	CHK	AP'D	DATE

REVISIONS

ITDG

TITLE Handle	DRAWN A.R	TRACE -	CHK -		SCALE 1:1
MATERIAL Hard Wood	DRAWING No. CCM211				

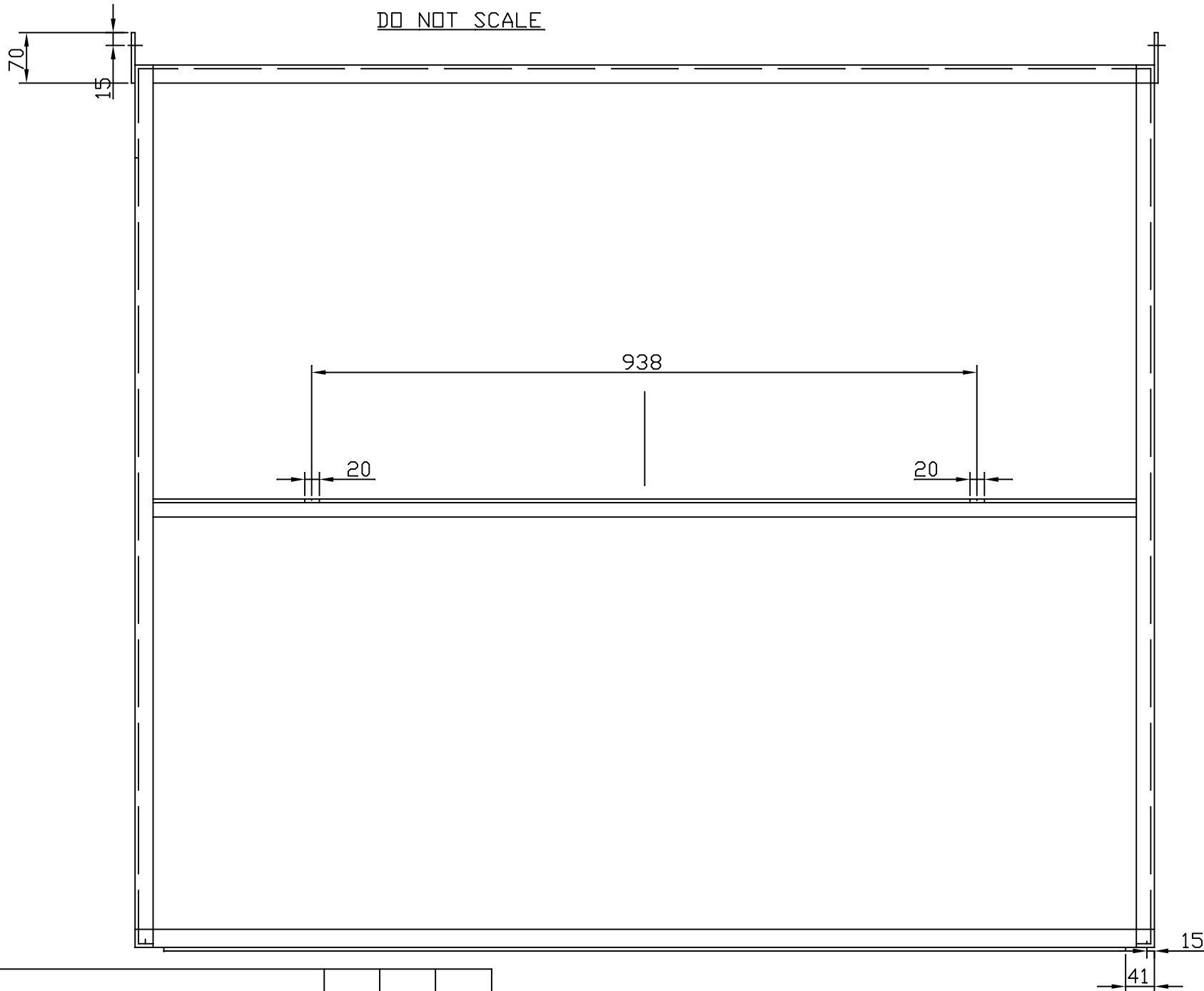


No.	Description	CHK	AP'D	DATE
REVISIONS				



TITLE	Drying cabinet for tray drier	DRAWN	TRACE	CHK		SCALE 1:1
	MATERIAL Mild Steel	A.R	-	-		
DRAWING No. TD003a						

DO NOT SCALE



No.	Description	CHK	AP'D	DATE

REVISIONS



TITLE	Drying Cabinet for tray drier	DRAWN	A.R	TRACE	-	CHK	-			SCALE	1:1
MATERIAL	Mild Steel	DRAWING No. TD003b									

1420

9 (4 of)

9 (4 of)

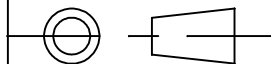
No.	Description	CHK	AP'D	DATE

REVISIONS



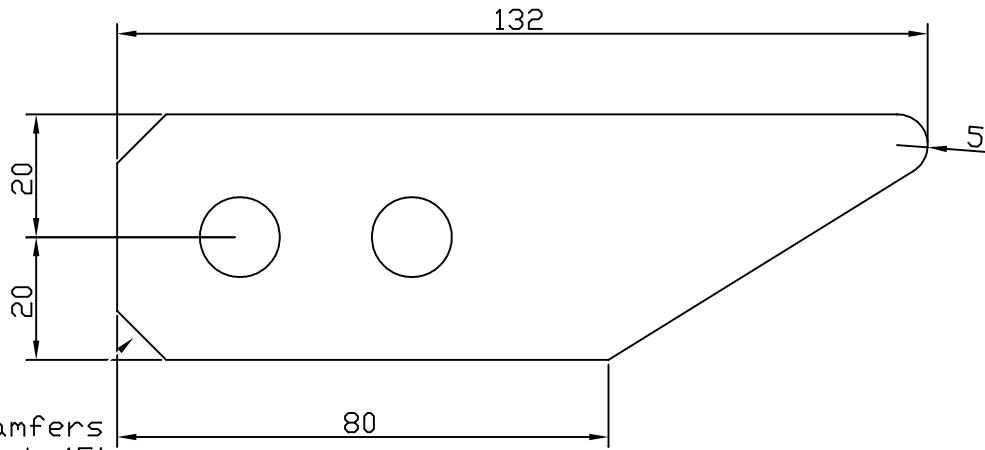
TITLE Drying cabinet for
tray drier
MATERIAL Mild Steel

DRAWN A.R
TRACE -
CHK -
DRAWING No. TD003c

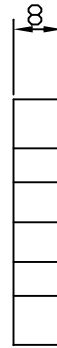


SCALE 1:1

DO NOT SCALE



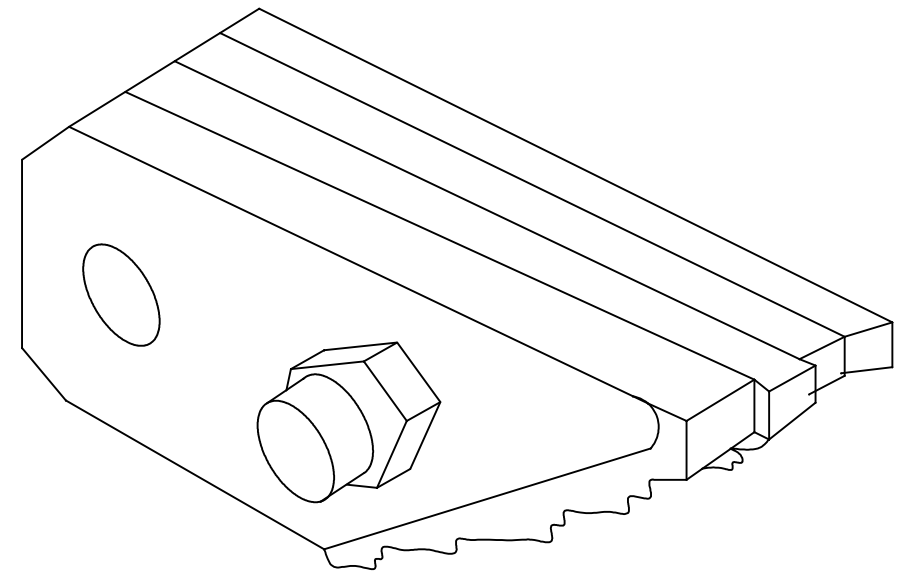
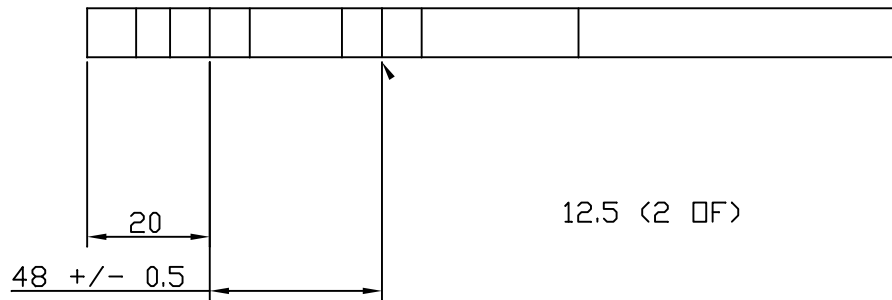
2 Chamfers
6mm at 45°



Manufacturing Note

For equal fingers:-

1. Cut the four finger out roughly and drill holes
2. Bolt to gether and make profiles equal by grinding/ filing

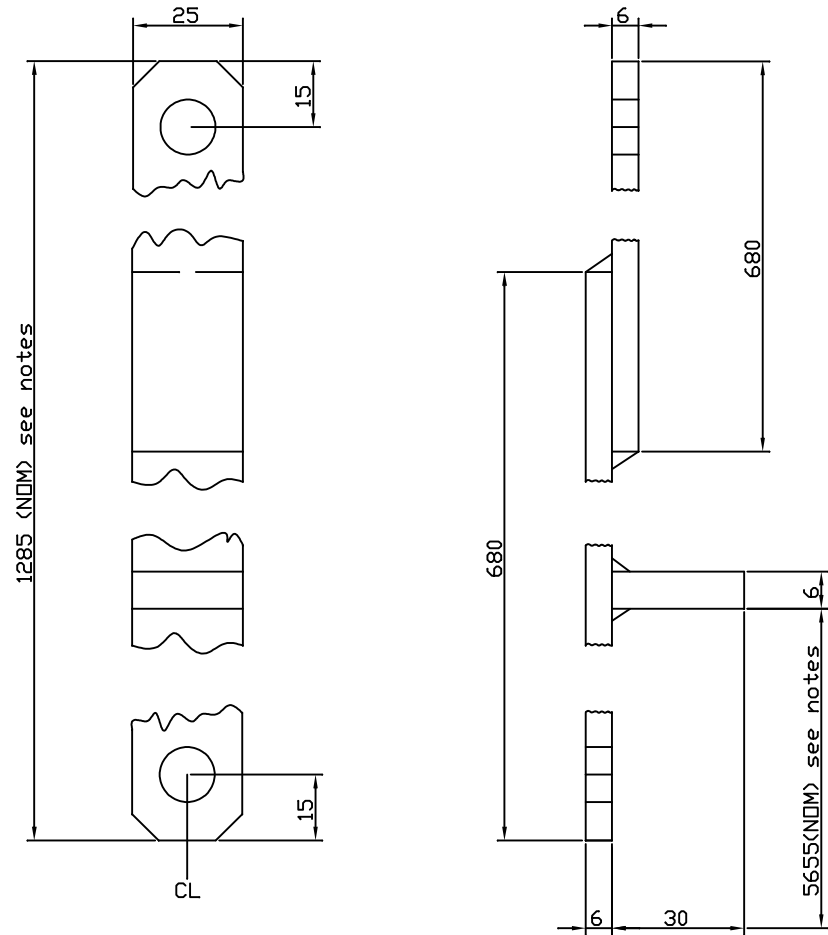


No.	Description	CHK	AP'D	DATE

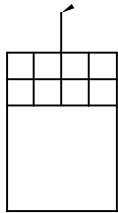
ITDG

TITLE	Lifting finger for tray dryer	DRAWN	A.R	TRACE	-	CHK	-		SCALE	1:1
MATERIAL	Mild Steel	DRAWING No.		TD004						

DO NOT SCALE



12.5 (2 DF)

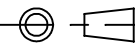


Manufacturing Note

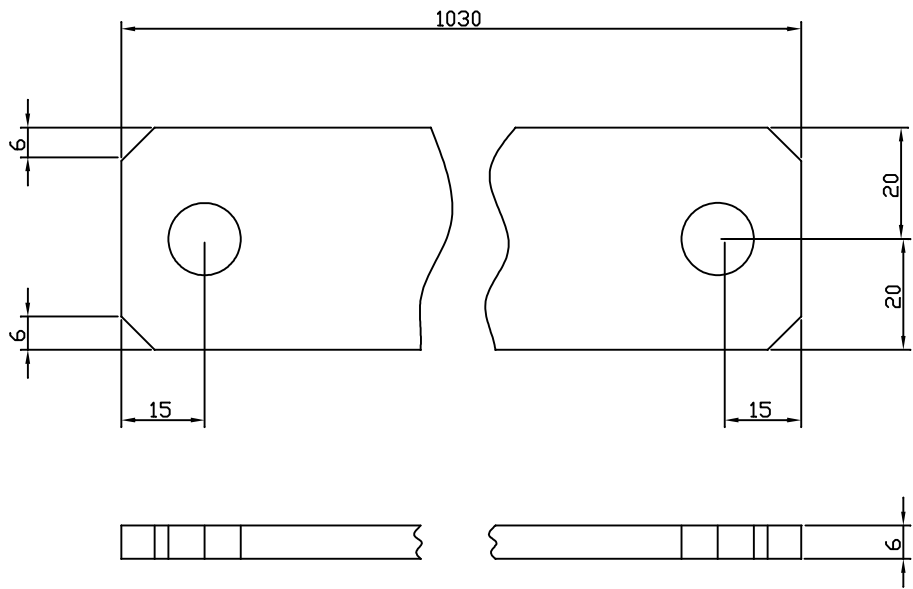
Each cam-lever tie rod consists of 2 bars 680 long. A stop bar (30X25X6) is welded to one tie rod only. The rods are assembled in conjunction with the rest of the lifting mechanism and the main frame. This is described in the accompanying "construction notes".

No.	Description	CHK	AP'D	DATE



TITLE Cam.finger tie rod for tray dryer	DRAWN A.R	TRACE -	CHK -		SCALE 1:1
MATERIAL Mild Steel	DRAWING No. TD005				

DO NOT SCALE



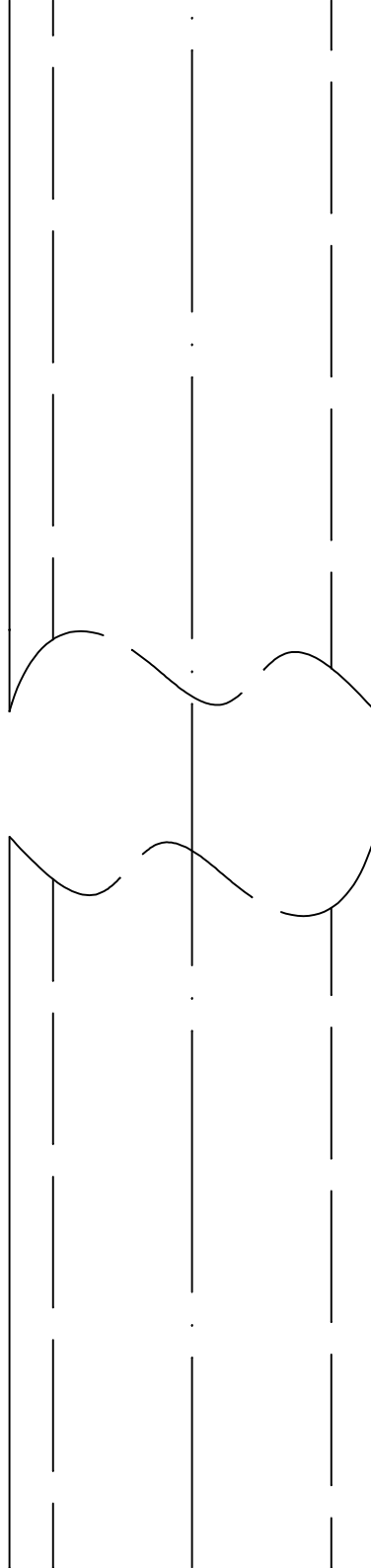
Fabrication note

The distance between the holes is equal to the distance between centres of the lifting shafts when the latter are in position on top frame. (see general assembly- TD00)

No.	Description	CHK	AP'D	DATE
REVISIONS				

ITDG

TITLE Top cam link for tray dryer	DRAWN A.R	TRACE -	CHK -		SCALE 1:1
MATERIAL Mild Steel	DRAWING No. TD006				



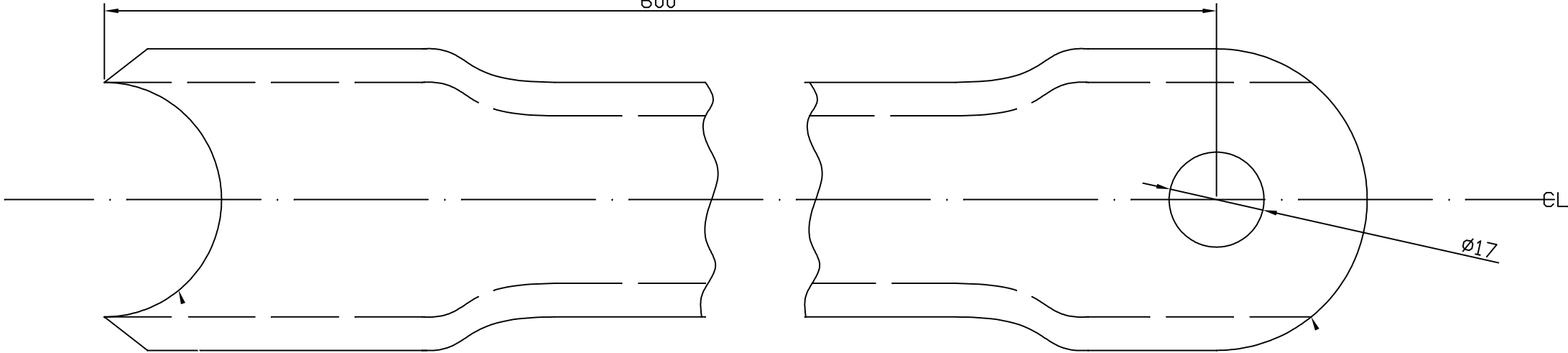
1415

General Note

All the components in drawings TD001 - 013 (inclusive) are drawn in the orientation they are in, in the general assembly TD101

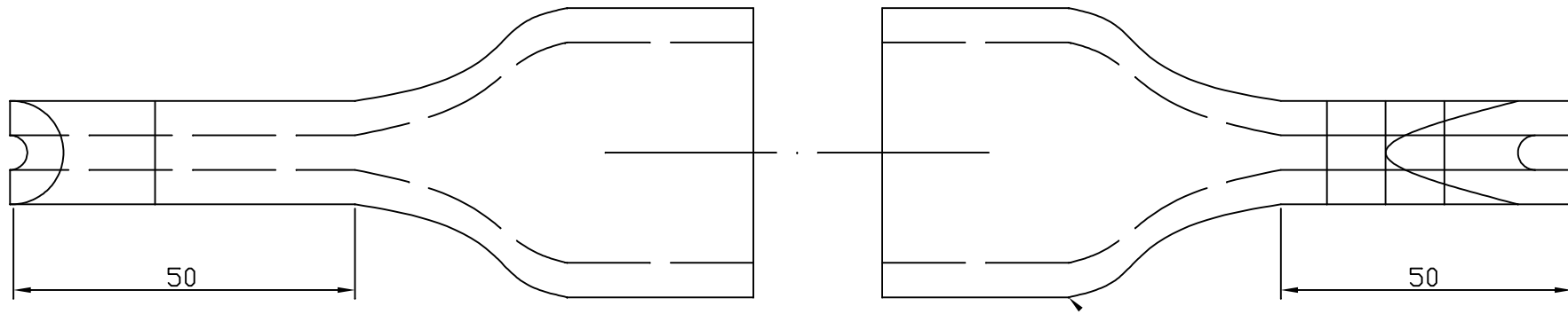
DO NOT SCALE

600



R21 to suite $\varnothing\varnothing$ of
Bearing shaft

Roughly
Rounded



50

50

Notes

The lever is made from $\varnothing\varnothing$ 42 mm tubing - 630mm long. Ends are flattened for a distance of 50.

$\varnothing\varnothing$ 42 with 5 wall thick

No.	Description	CHK	AP'D	DATE
REVISIONS				

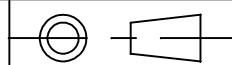
ITDG

TITLE Operating lever
for tray drier

DRAWN
A.R

TRACE
-

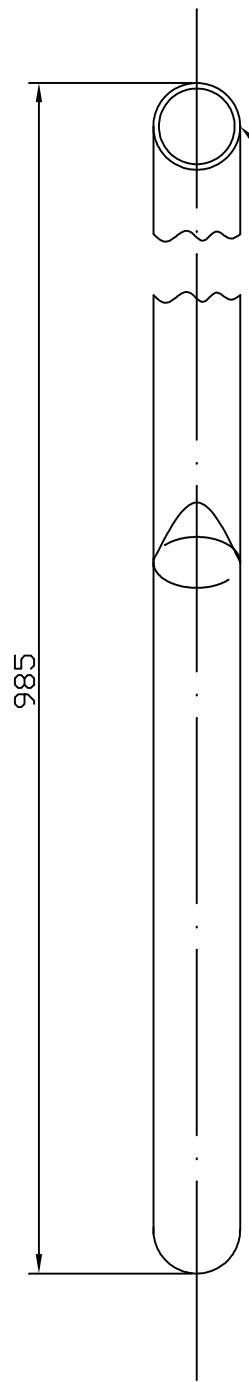
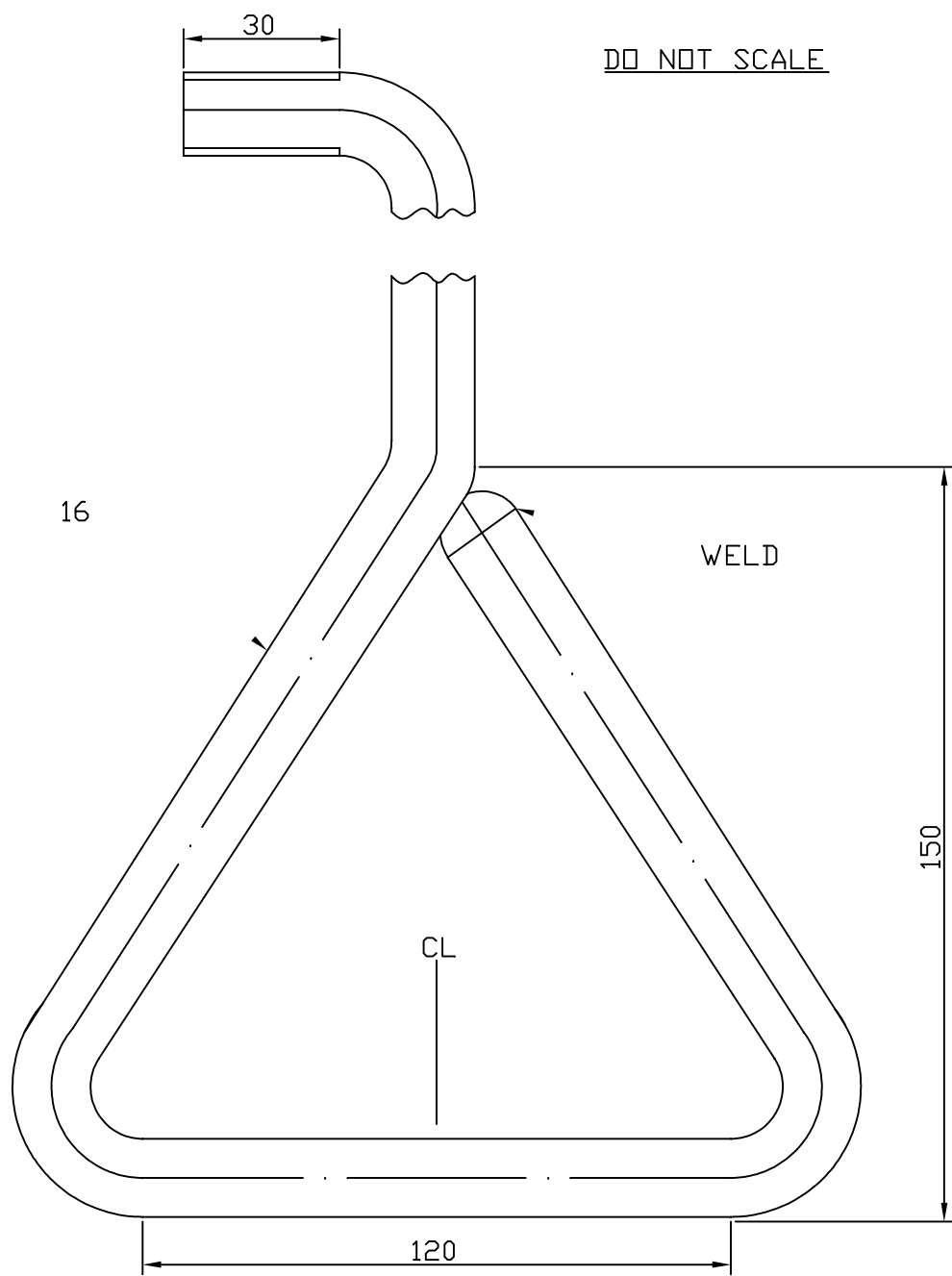
CHK
-



SCALE
1:1

MATERIAL Mild Steel

DRAWING No. TD008



M16

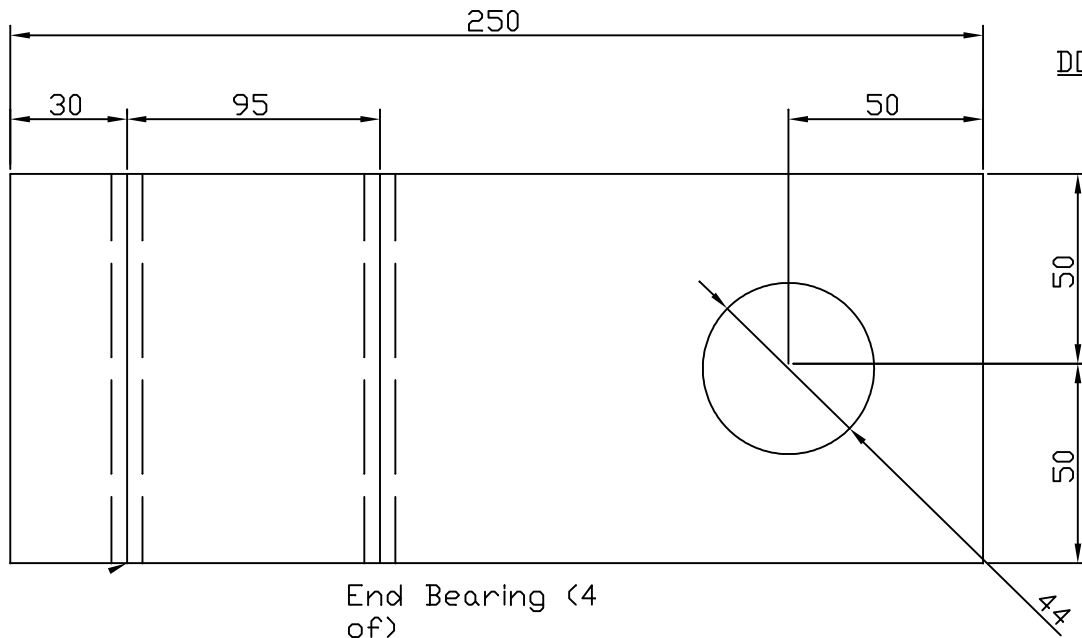
Notes

The operating lever extension is made from 16mm bar bent and threaded as shown. Bar length approx 1500. Bend radii are not specified as they are not important

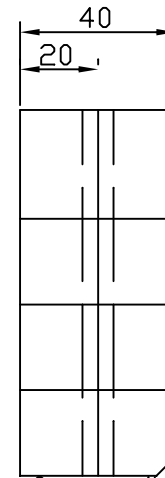
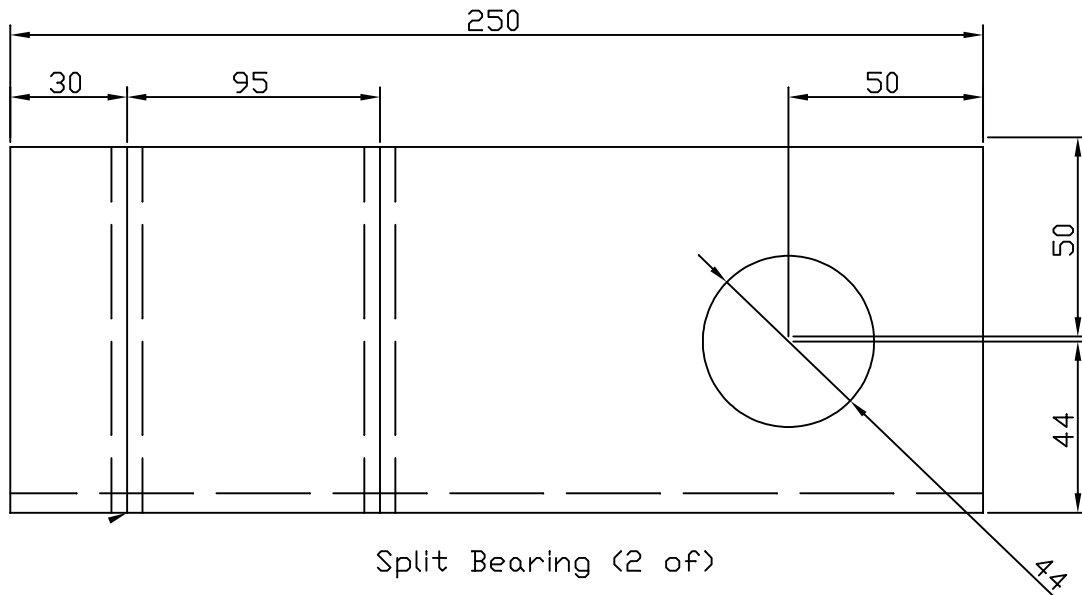
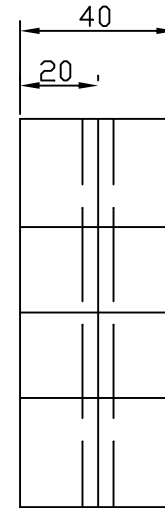
No.	Description	CHK	AP'D	DATE



TITLE Operating lever ext bar for tray drier	DRAWN A.R	TRACE -	CHK -			SCALE 1:1
MATERIAL Mild Steel	DRAWING No. TD009					



DO NOT SCALE



5mm, 45' chamfer

Notes

The bearings are made from oiled hardwood the bore of the 44 dia hole should be waxed before use. The split bearing must be sawn in half bolted together then have the 44 dia hole drilled

8 (2 of)

End Bearing (4 of)

8 (2 of)

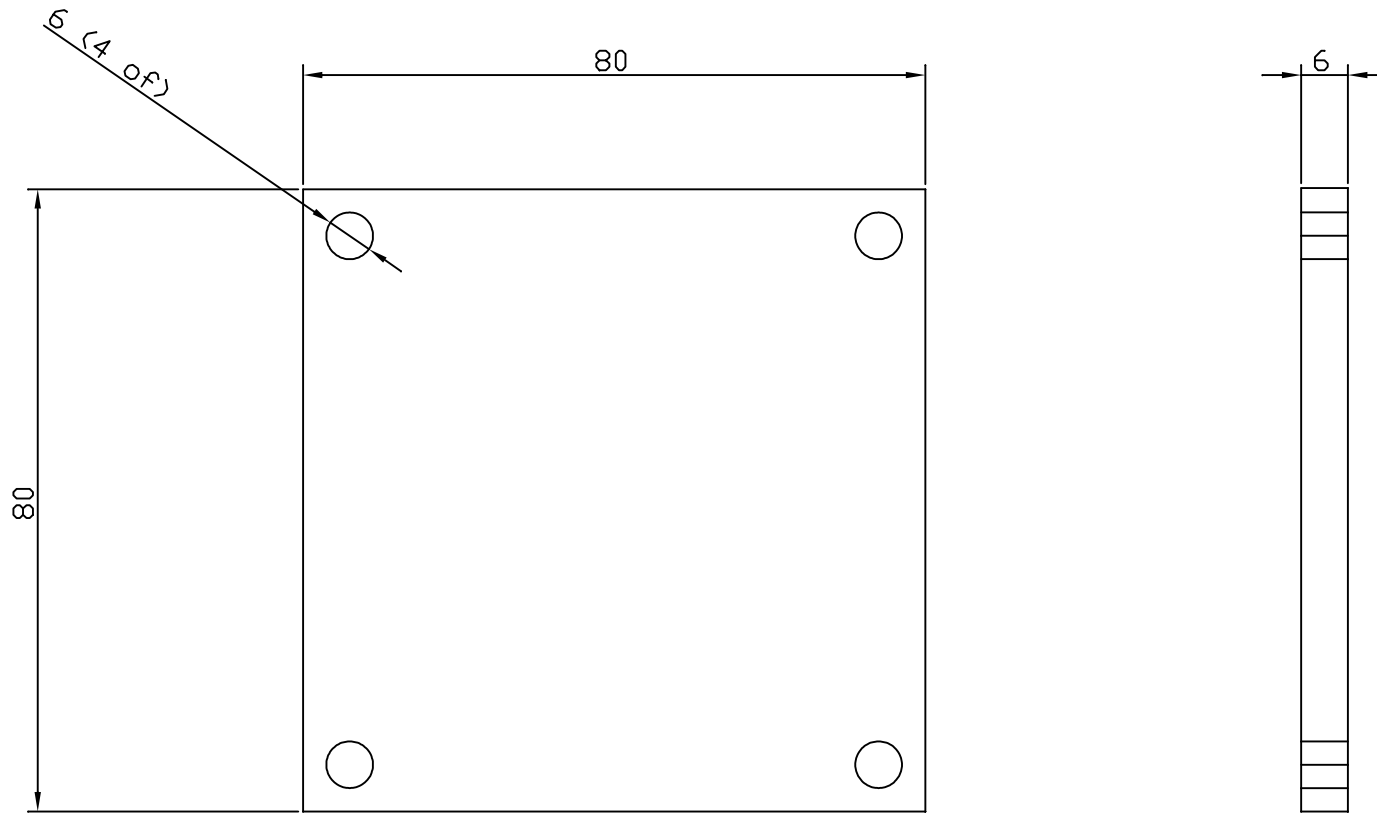
Split Bearing (2 of)

No.	Description	CHK	AP'D	DATE



TITLE	Wooden bearings for tray drier	DRAWN	A.R	TRACE	-	CHK	-		SCALE	1:1
MATERIAL	Oil impregnated Hard Wood	DRAWING No.	TD010							

DO NOT SCALE



No.	Description	CHK	AP'D	DATE
REVISIONS				

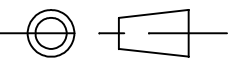
ITDG

TITLE End plate for wooden end bearings

DRAWN A.R

TRACE -

CHK -

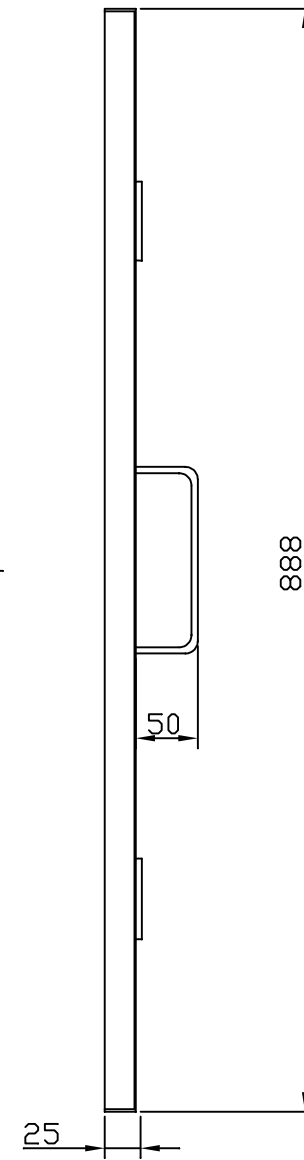
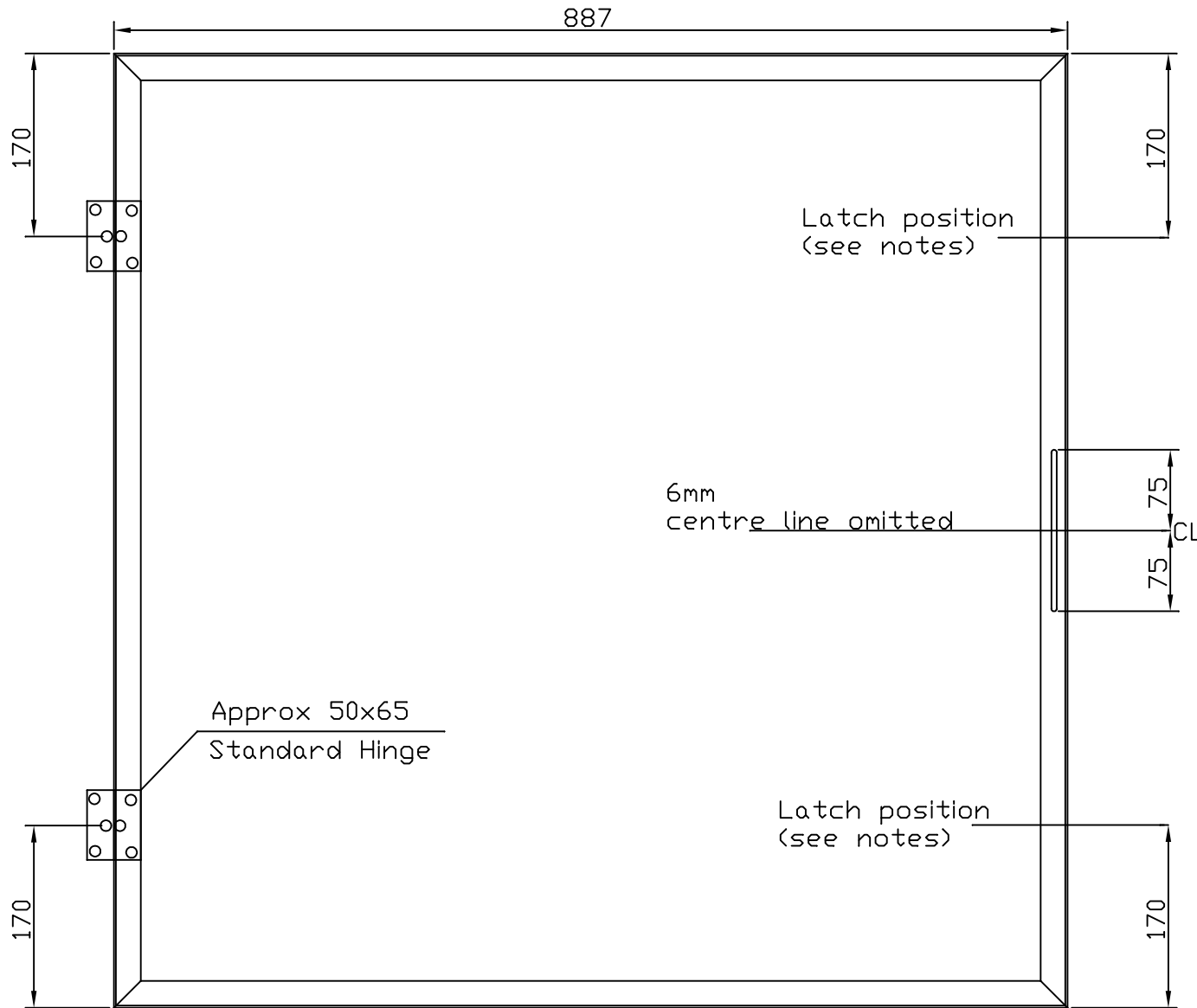


SCALE 1:1

MATERIAL Mild Steel

DRAWING No. TD011

DO NOT SCALE



Notes
The cabinet doors are made from a single length of angle iron (shown in drawing) or 4 separate lengths.

The doors are slightly undersize, with plywood overlaps for draught proofing (see TD102)

Latches are mounted on top of the draught strips in the positions indicated in the drawings.

Hinges are track welded to drying cabinet or base (see GA)

No.	Description	CHK	AP'D	DATE

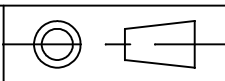


TITLE Large door for drying cabinet

DRAWN A.R

TRACE -

CHK -

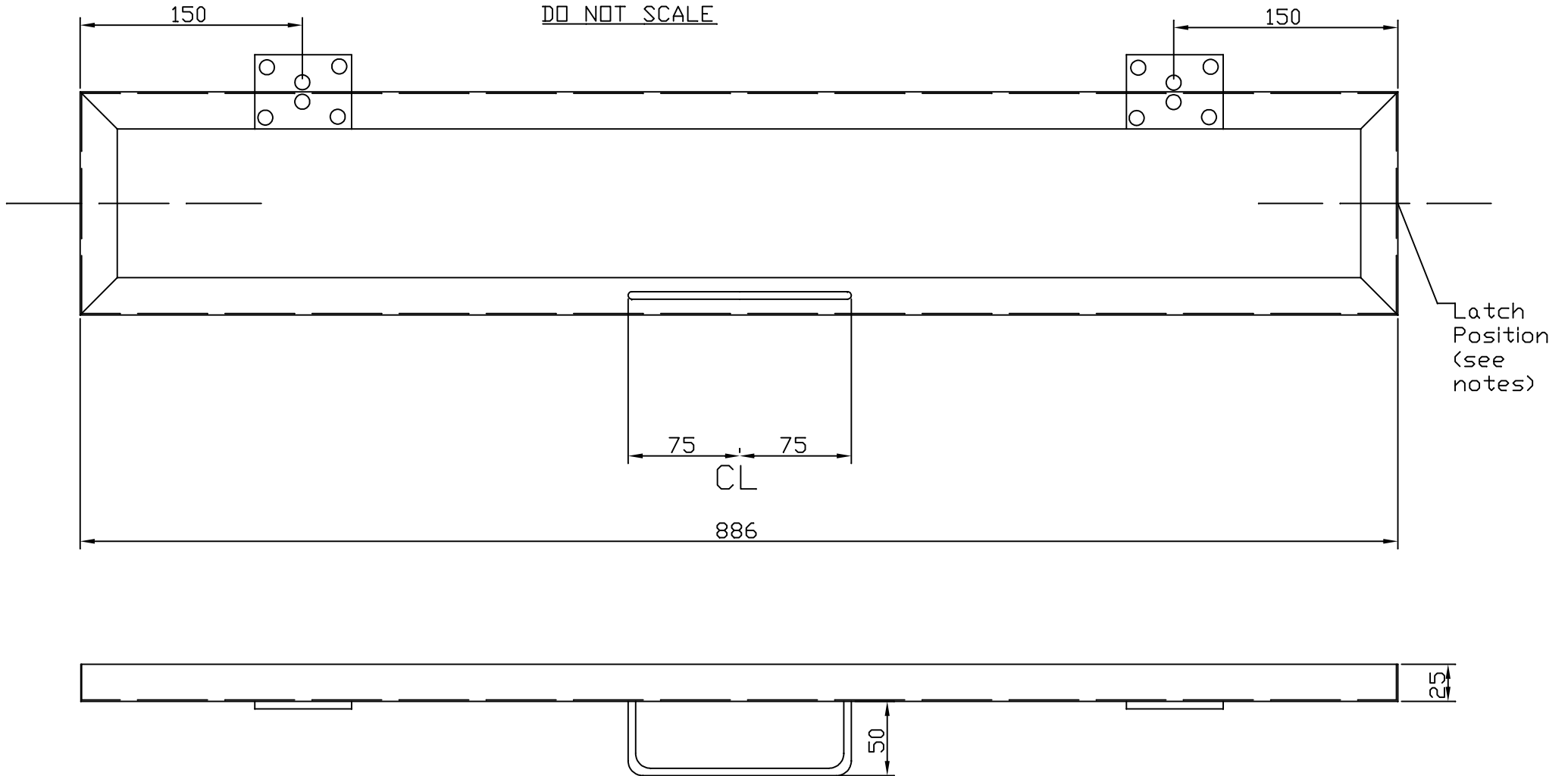


SCALE 1:1

MATERIAL Mild Steel

DRAWING No. TD012

DO NOT SCALE



Notes

Refer to note on TD01

No.	Description	CHK	AP'D	DATE

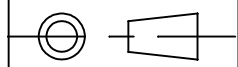
ITDG

TITLE Small door for drying cabinet of drier

DRAWN A.R

TRACE -

CHK -

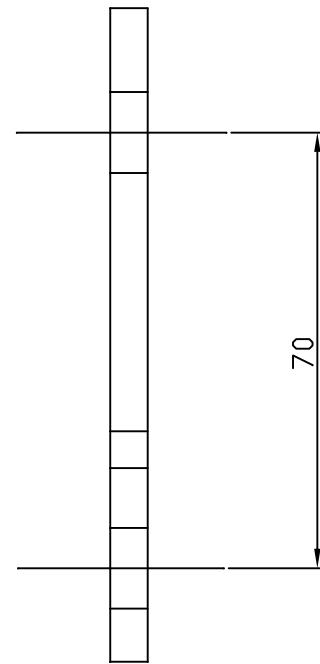
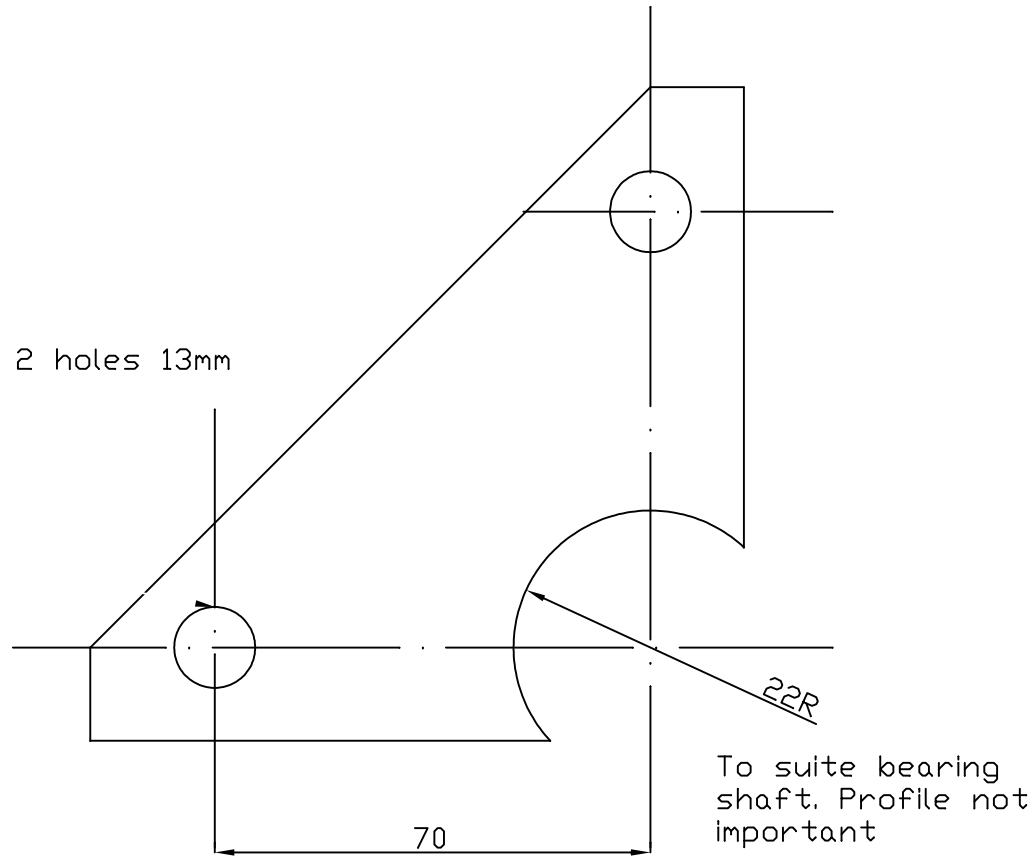


SCALE 1:1

MATERIAL Mild Steel

DRAWING No. TD013

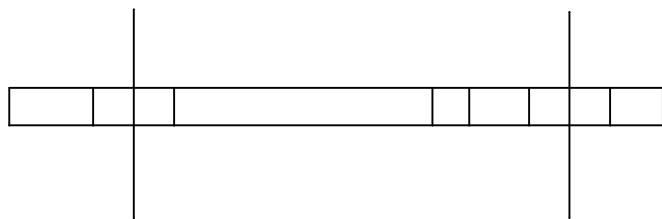
DO NOT SCALE



Notes

The cams translates movement of the operat. handle to the 4 lifting fingers. 4 cams are required and approx 90 x90 6 thick steel plate is used per cam. The only critical dimensions are hole radii and their relative positions.

Where a drill is used to create the 22R half hole is suggested that a full hole is drilled in a large piece of plate, thus allowing both halves of the hole to be used.



No.	Description	CHK	AP'D	DATE



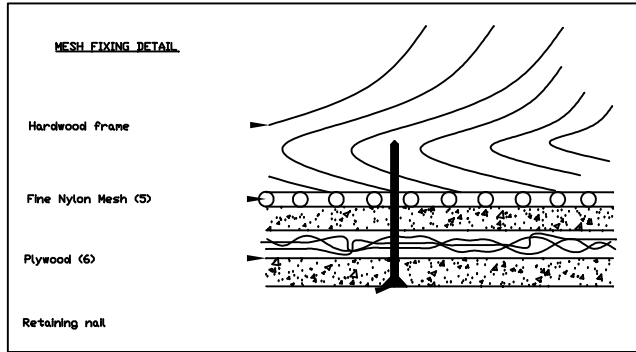
TITLE Lever plate for lifting mechanism(cam)
MATERIAL Steel

DRAWN A.R	TRACE -	CHK -		SCALE 1:1
DRAWING No. TD014				

DO NOT SCALE

Notes

The only critical dimensions are overall tray length, width and height and positioning of lifting point reinforcements and cutaways



Parts list and Materials

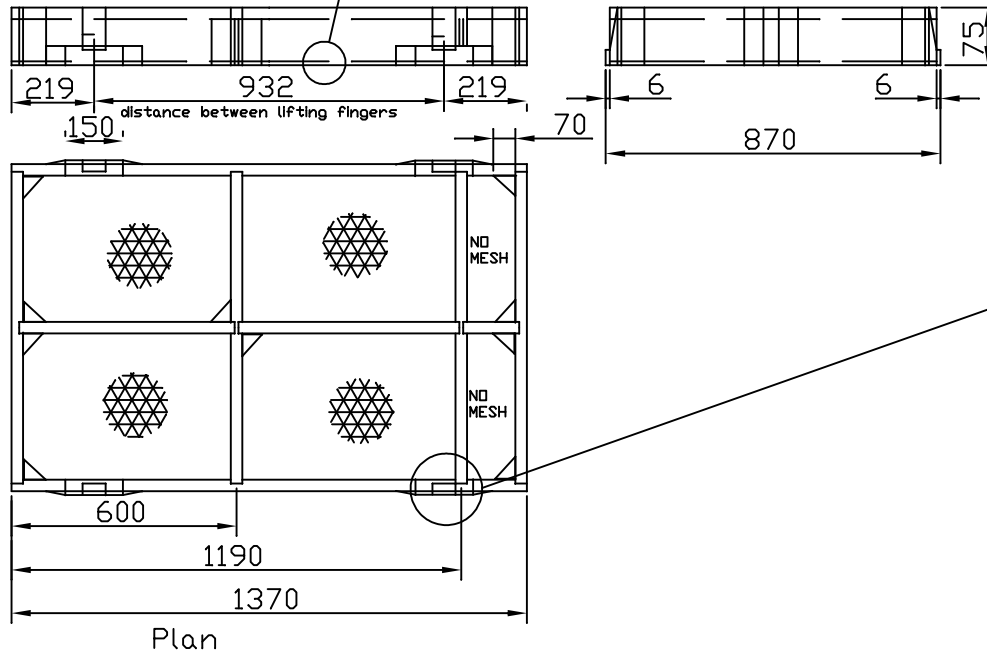
Frame ends and sides hardwood of 69x19mm section.

1. Ends - 2 lengths of 832
2. Sides - 2 of 1370
3. Dividers - 2 of 832; 1 of 576; 1 of 579; 1 of 159 of 50x19mm
4. Corner strengtheners - 8 of 70x70x69; 2 of 70x70x59
5. Netting - 1 of 1200x860 fine nylon mesh
6. Netting retainers - 6mm Exterior ply 19mmwidth total length of 6922
7. Lifting point reinforcement - 4 of 25x25 angle Iron x150 long
8. Ramp - 8 of 5x60 wedge

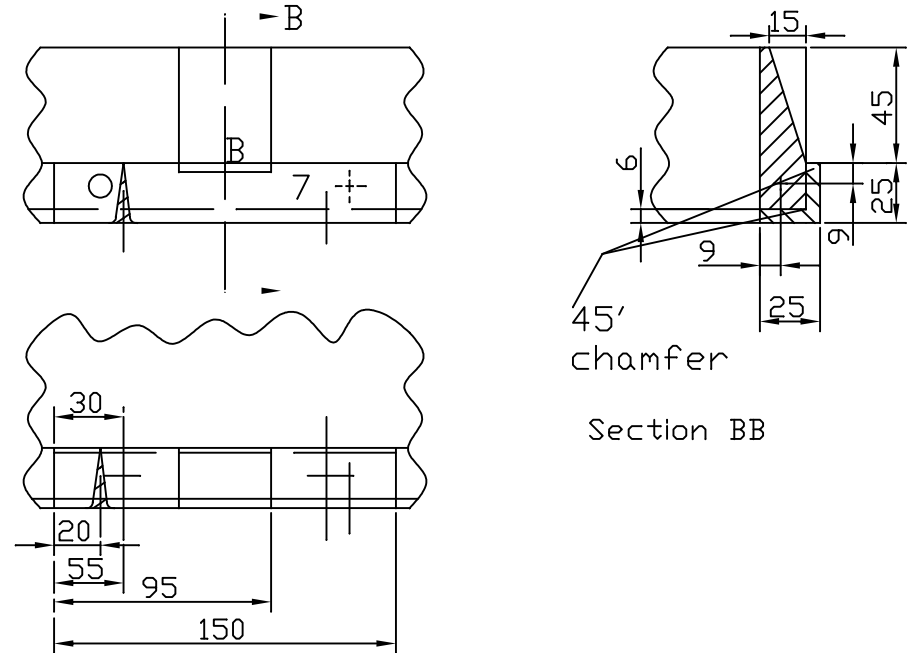
Nails and woodscrews as required
1 dryer requires 15 trays

Side elevation

End elevation



Detail of corner reinforcement and cutaway at lifting points

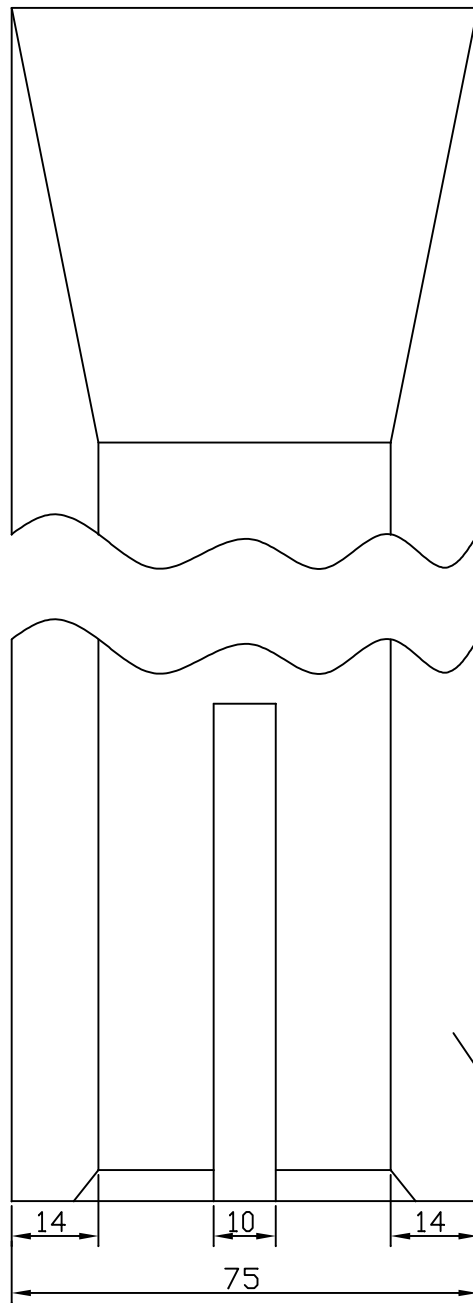
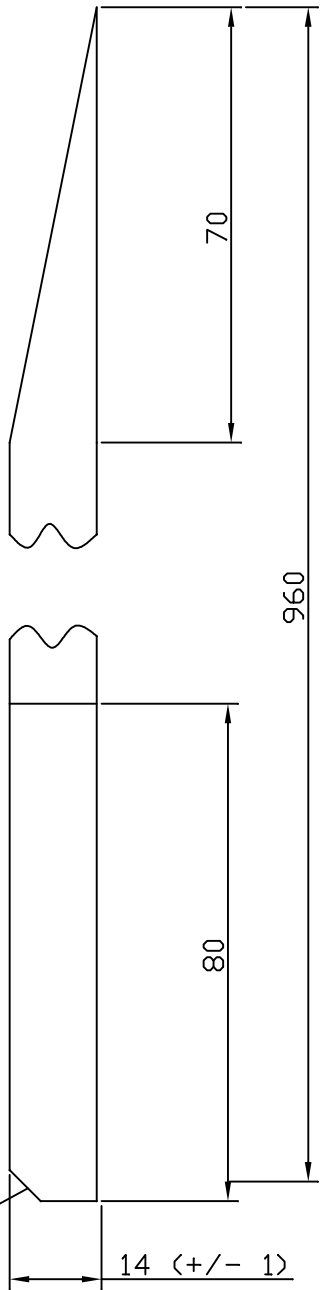


Section BB

No.	Description	CHK	AP'D	DATE

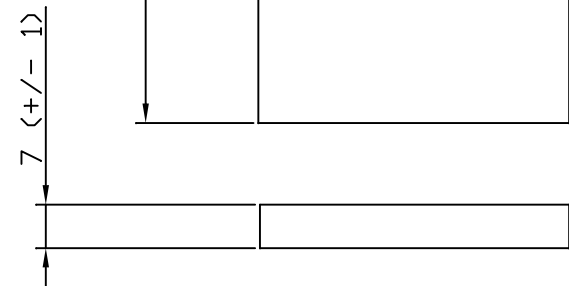
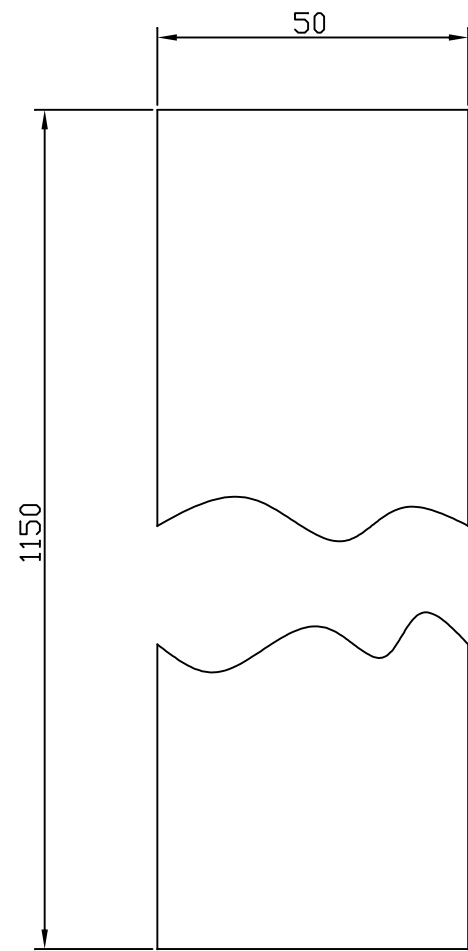


TITLE	Tray Assembly	DRAWN	A.R	TRACE	-	CHK	-		SCALE	1:1
MATERIAL	(see list)	DRAWING No. TD015								



DO NOT SCALE

Note
There are 4 of these side guides



Note
There are 2 of these back guides

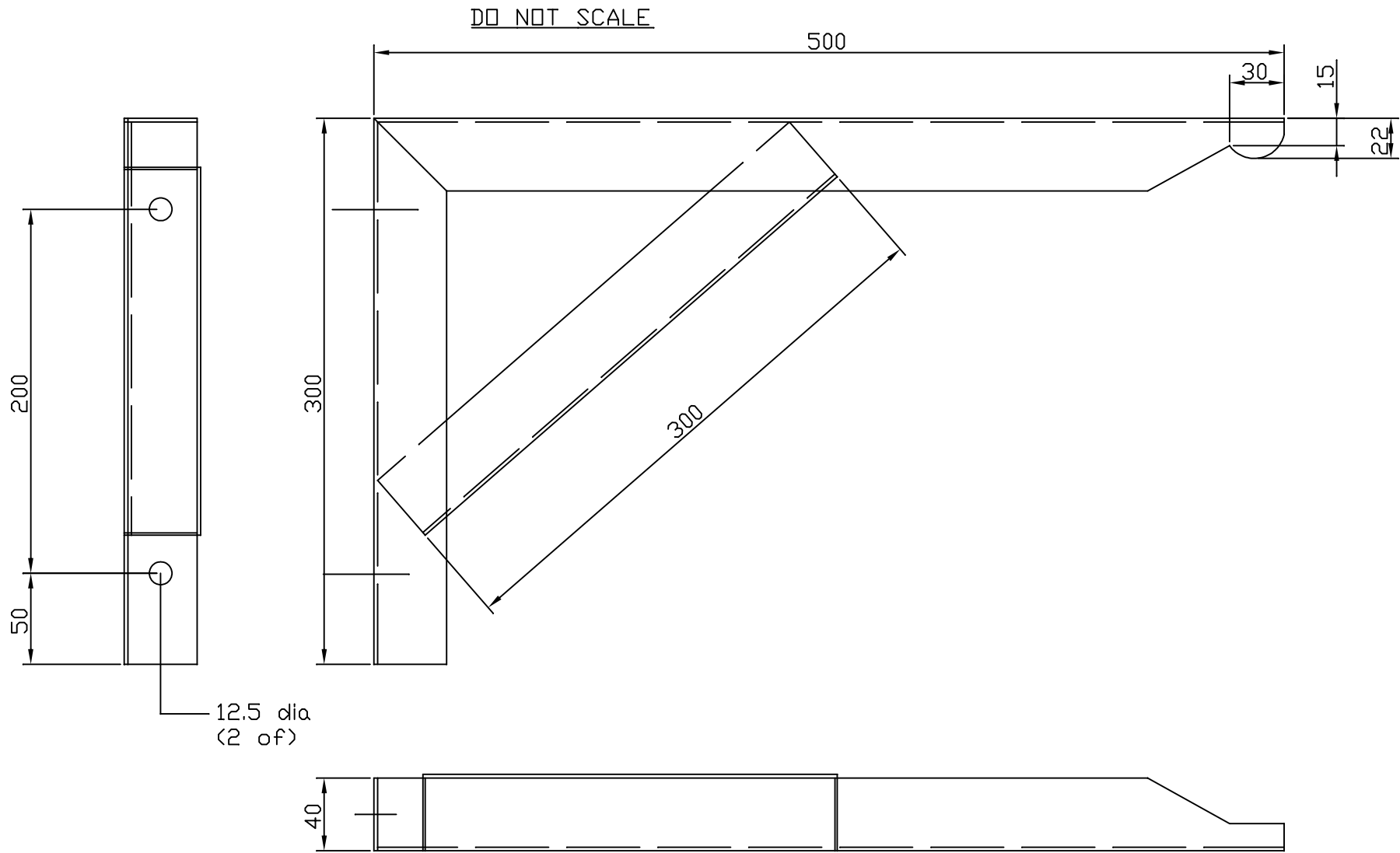
Full depth 45° Chamfer

Full depth 45° Chamfer

No.	Description	CHK	AP'D	DATE
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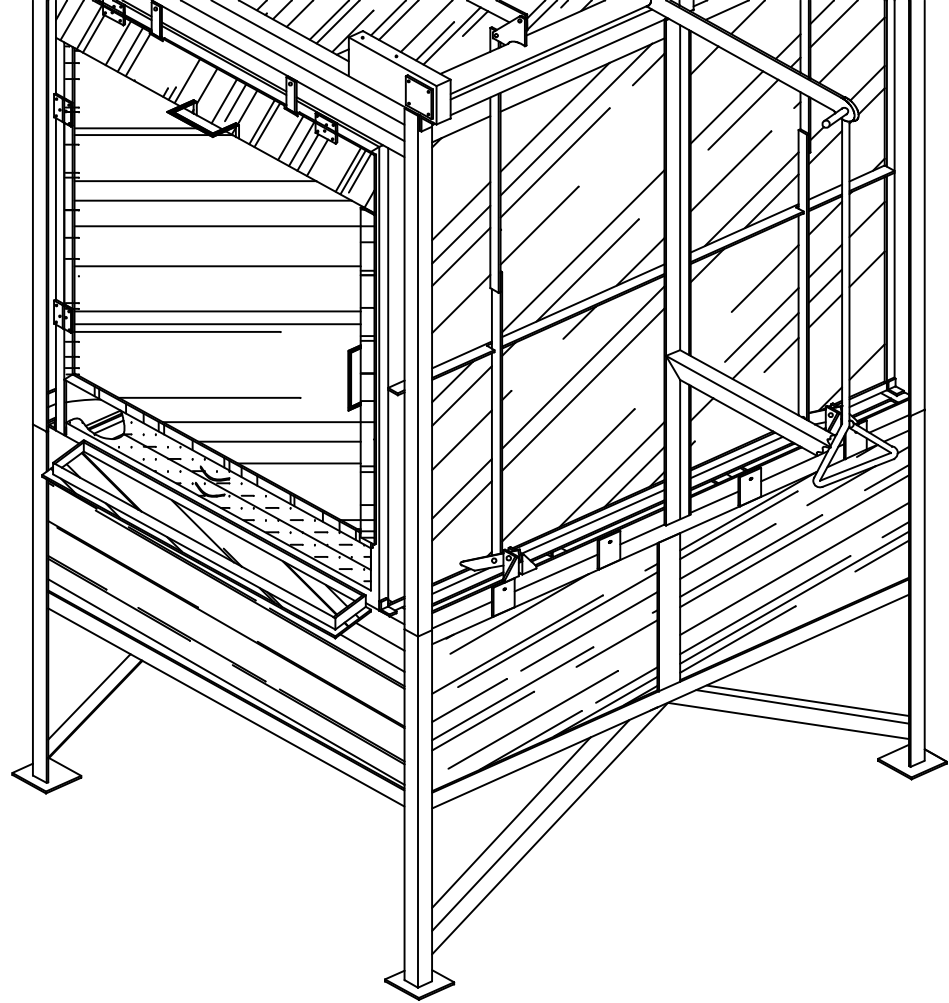
TITLE	Tray guides for tray drier	DRAWN	A.R	TRACE	-	CHK	-		SCALE	1:1
MATERIAL	Wood	DRAWING No. TD016								



No.	Description	CHK	AP'D	DATE
REVISIONS				



TITLE	Handle for tray drier	DRAWN	A.R	TRACE	-	CHK	-			SCALE	1:1
MATERIAL	Mild steel	DRAWING No. TD017									



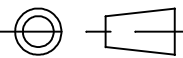
No.	Description	CHK	AP'D	DATE

REVISIONS

ITDG

TITLE GA Tray Drier
with doors

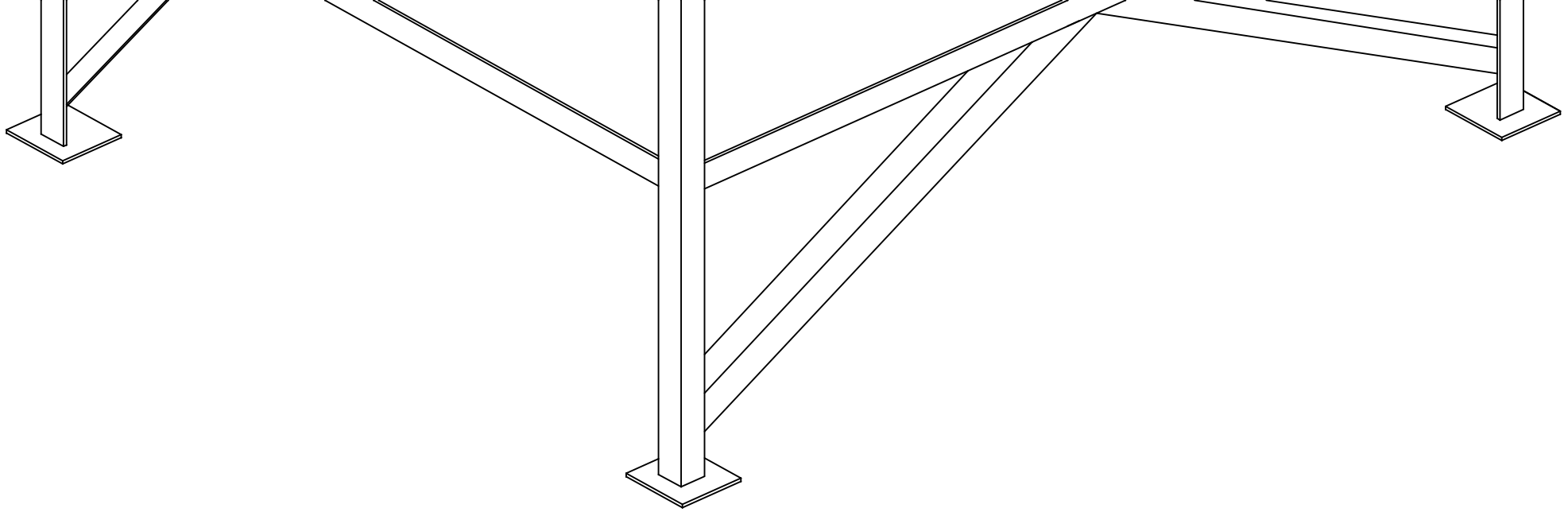
DRAWN A.R
TRACE -
CHK -



SCALE
1:1

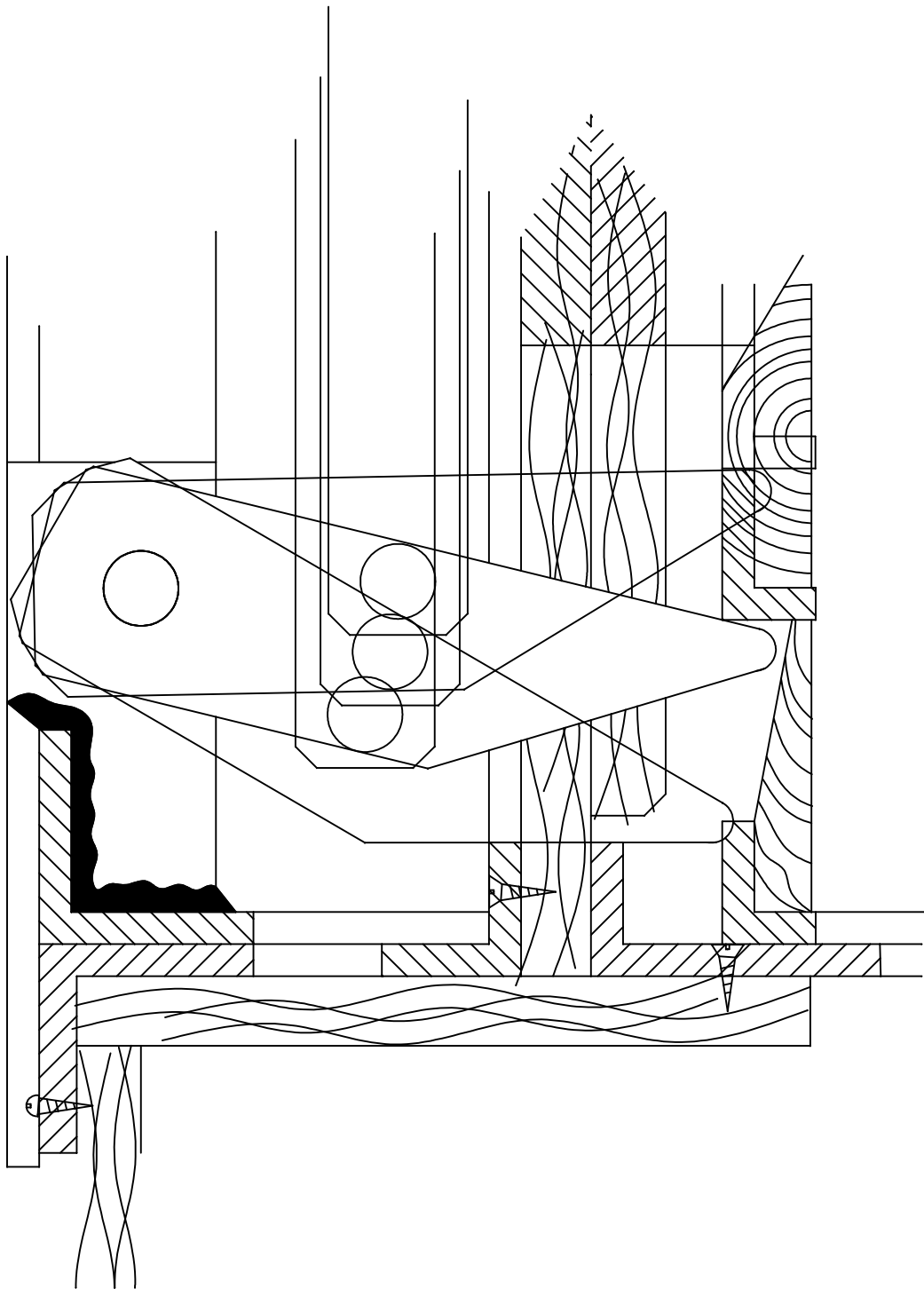
MATERIAL Mild Steel
+ Wood

DRAWING No. TD101

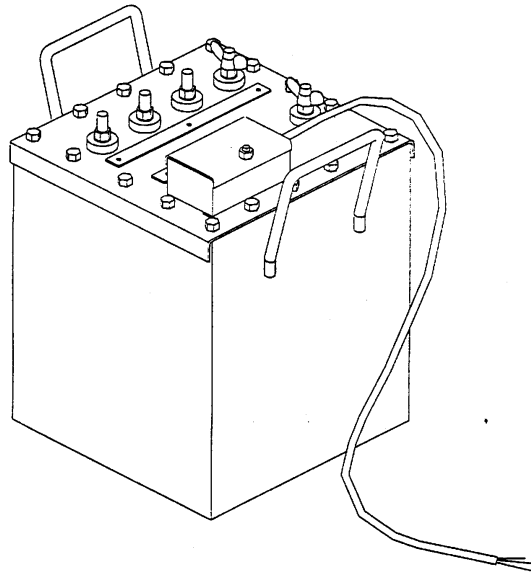


No.	Description	
REVISIONS		

TITLE	GA TrayDrier no doors	DRAWN	TRACE	CHK	
MATERIAL	Mild Steel + Wood	A.R	-	-	
		DRAWING No. TD102			



**Production Drawings
for the
80-140A Welding Machine
14 May 1999**



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Drawings prepared for:

Intermediate Technology
Business Shop.



Drawings prepared by:
Albert Chisadza,
Integrated Product
development venture



Welding machine.

Technical specifications.

Supply voltage:	220V
Supply current:	35 amps at maximum welding current, (use 40amp MCB) (no load current is approximately 3amps).
Welding current:	85 amps 100amps 125amps 140amps
Open circuit voltage:	48-65V
Duty cycle:	Dependant on the size of the oil bath used to house the windings. For general fabrication, use 10-15 litres, for heavy-duty work, use more than 20 litres. Cooling fins similar to the WELDEX design will improve the duty cycle.

Materials required and suppliers.

Material	Quantity	Supplier
Lamination steel, sometimes called dynamo steel. <i>(If the correct type of steel is not available, then 0.5 sheet steel sheet can be used, the machine will not be as efficient but will work satisfactorily.)</i>	<i>(1 sheet)</i>	Relmo Electric. <i>(Steel centre Harare (or any steel supplier)</i>
Primary windings 2mm winding wire	approx. 100m	Enfield Cables Harare Mash Holdings, Kelvin north, Harare Enfield Cables
Secondary winding 4mm winding wire	Approx. 40m	
Brass studding and nuts	300mm	CT Bolts, Glyns
Transformer oil	15 to 20 litres	Xemex oils (available from Farmers co-op), Chemlite, 100 Mutare rd, Msasa
Winding former	2 Made from normal fibreglass See drawing for size, can be self- made or a firm making fibreglass products, eg. Canopies.	

Welding Machine Quality Check Form

Type		Serial No.		Date		Made By	
-------------	--	-------------------	--	-------------	--	----------------	--

Manufacturer please ensure that the product is of good quality. Do not deliver a machine that you are not satisfied with.

Test	Pass	Comments
1. General appearance	Good workmanship Good finish.	
2. Leakage test	Tip machine on one side for 20 seconds, it should not leak.	
3. Coils tight		
4. Soldered joints good	Enamel to be scraped off before soldering.	
5. Terminal tight	Terminal should not be movable by hand.	
6. Terminal lengths/protrusion	Unnecessary protrusion to be avoided.	
7. Gable length, rating and grip	5m of 3mm 3 core cable.	
8. Lamination, core construction, bobbin tight	No big gap in laminations Bobbin to be tight on laminations.	
9. Secondary layout	Good workmanship expected.	
10. Oil quality, clean?		
11. Open circuit voltages	50-85V	
12. Welding currents.	Rated current \pm 5% 140A 125A 100A 80A	
13. Open circuit primary current	< 5A	
14. Maximum primary current	<38A	
16. Oil level	>25mm above coils	

Proposed Design Changes;

Method of construction of the coil.

1. Cut the lamination. See the drawings for the sizes. Make sure that the strips are made to the correct width, or slightly below) so that they fit the inside of the former.
2. Cast the former. Make a metal or wooden mould (with a removable end so that the finished former can be slid off the mould). Cover with mould release and lay 3 to 4mm thickness fibreglass and resin.
3. Wind on the primary and secondary windings. See the drawing for the number of turns. Wind the primary and secondary in the same direction. To avoid confusion, mark the direction of the coil on the former with a marker pen, this will ensure that you can see that the two coils are assembled on the core with windings going in opposite directions.
Take great care not to scratch or damage the enamel on the wire, wind the coils tight so that they cannot vibrate, wind linen cloth (available from Enfield) between the primary and secondary. It is very important that the primary and secondary coils do not touch each other. Begin and end the winding by taking the wires through slots cut in the former.
4. Build up the core. Fill the two formers with laminations, see the drawing for method. Fill them until they are full. If they are loose in the former the machine will be noisy and less efficient. Bring the two coils together making sure the arrows are pointing in opposite directions and push in the short end laminations, see drawing.
5. Make a steel container to your own design, the one detailed in the drawings is recommended. The windings should be mounted so that they are around 50mm from the bottom of the box. When filled the oil must cover the windings completely, the more oil you use, the higher the duty cycle, since the machine will run cooler.

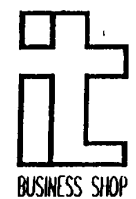
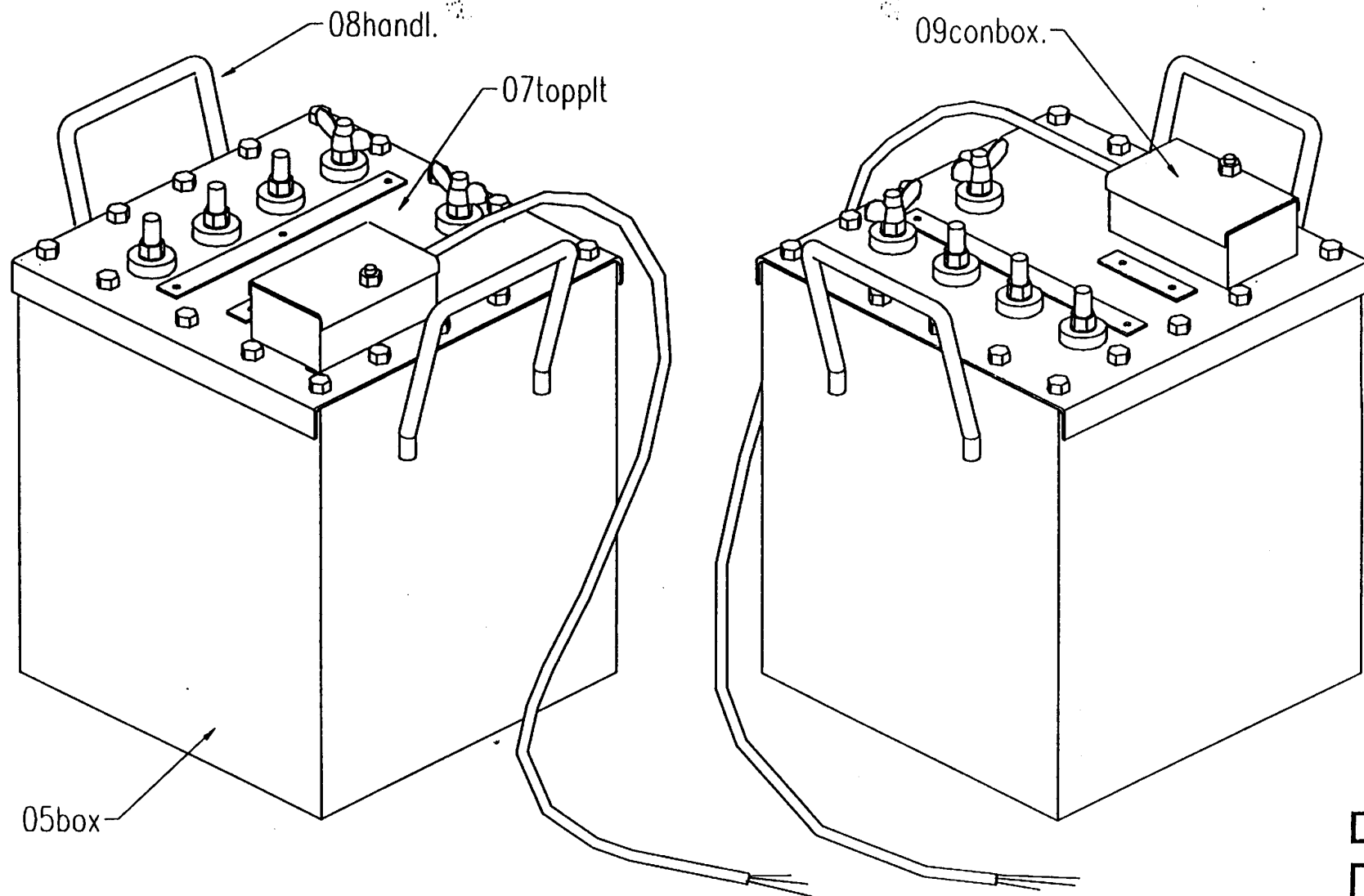
Additional Theory Notes.

Increasing the number of secondary coils will reduce the welding current, reducing the number of windings will increase the welding current but will reduce the open circuit voltage, making it more difficult to strike an arc, and may result in the arc stopping in mid-weld, especially when fillet welding.

The practical limit for a reliable long life machine using 4mm secondary winding is about 150amps. This is also near to the practical limit for single-phase 220V machines, otherwise a very large circuit breaker must be used for the supply.

A compromise is made when winding the primary. More coils means less current is taken from the supply, therefore the machine will be cheap to run and cool when switched on but not used. But too many coils will reduce the open circuit welding voltage. Too few coils will result in the machine drawing large currents from the supply.

dv



WELDING MACHINE

CHECKED
A.BREWIS

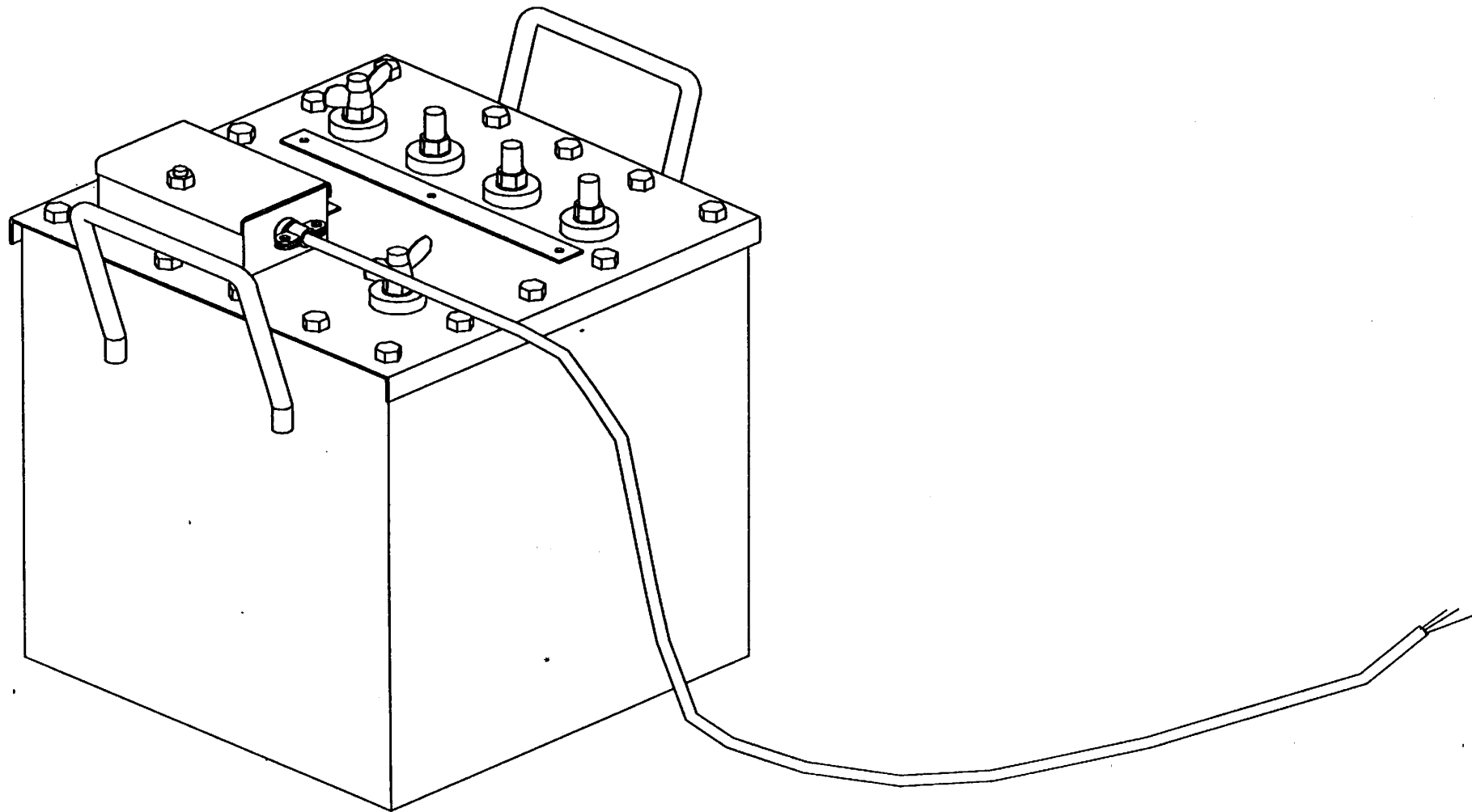
DRAWN
A.CHISADZA

SCALE

DATE
17/02/99

DWG No.
WLD 00

iv



LE
WELDING MC PICTORIAL VIEW

CHECKED
A.BREWIS

DRAWN
A.CHISADZA

SCALE

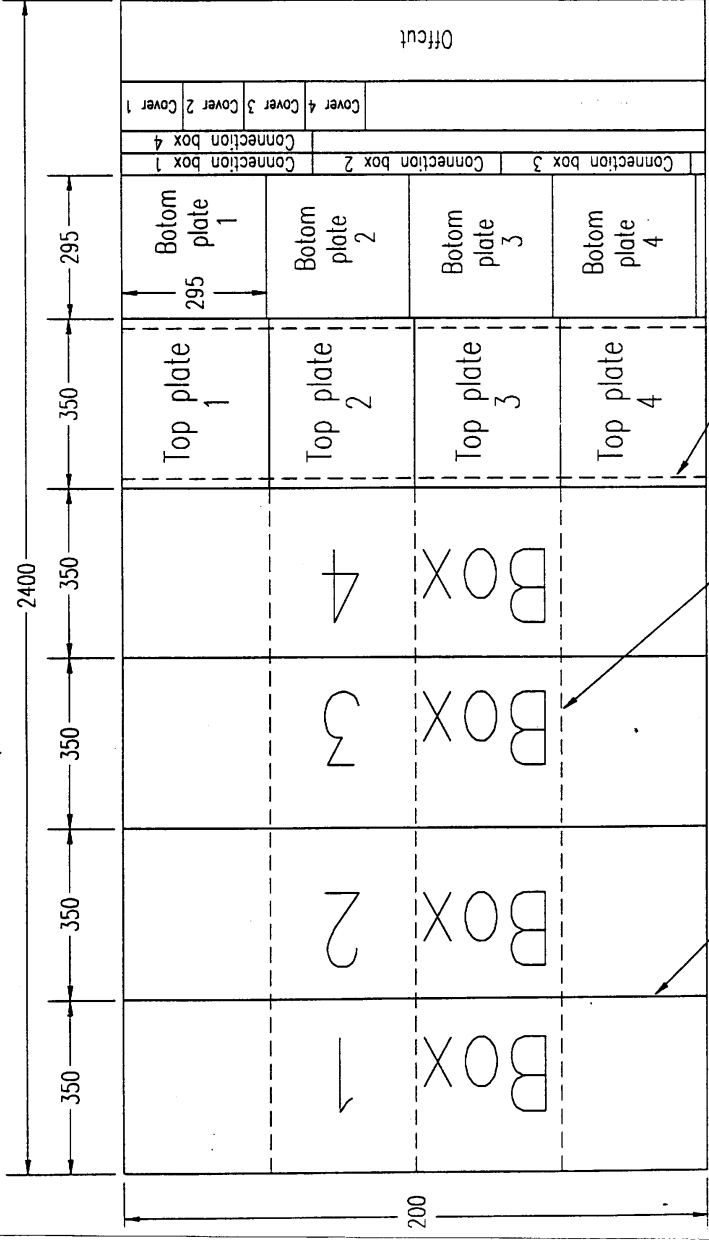
DATE
18/02/99

DWC No.
WLD 01



dv

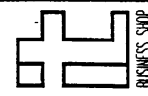
3mm. plate.



Guillotine cut

Bend

Some bends are not shown here.



FILE

WELDING MACHINE, FLANGE

CHECKED

A.BREWIS

DRAWN

A.CHISADZA

SCALE

1:4

DATE

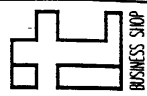
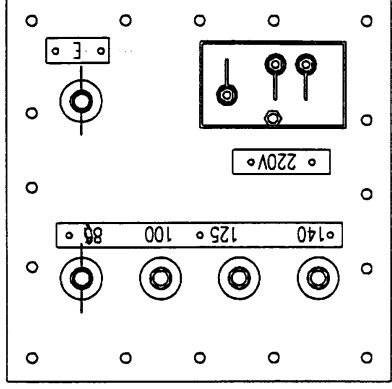
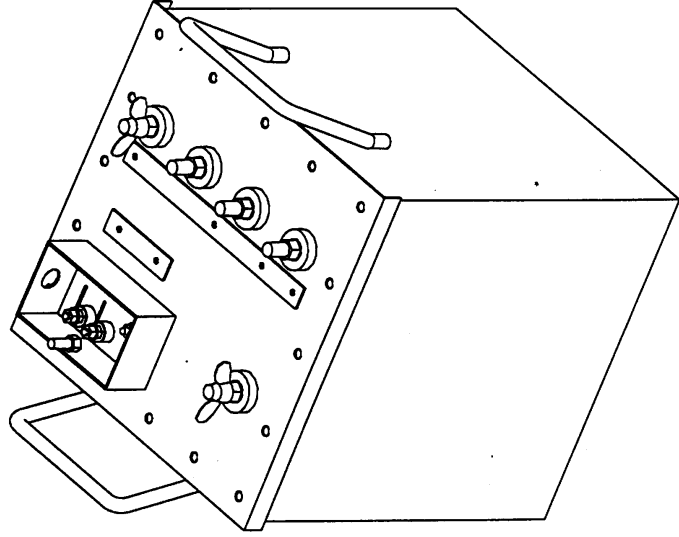
18/02/99

DWG NO.

WLD 02

BUSINESS SHIP

4/2



TITLE
WELDING MACHINE, PICTORIAL VIEW

CHECKED
A. BREWIS

DRAWN
A. CHISADZA

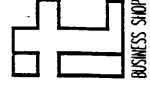
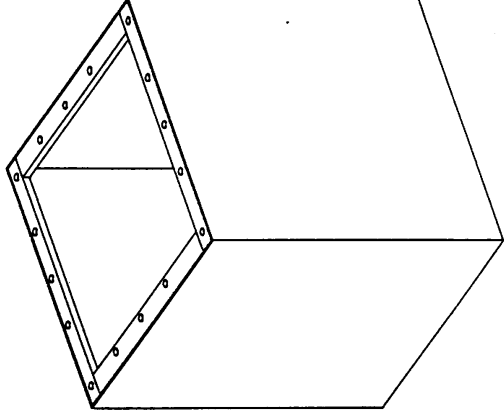
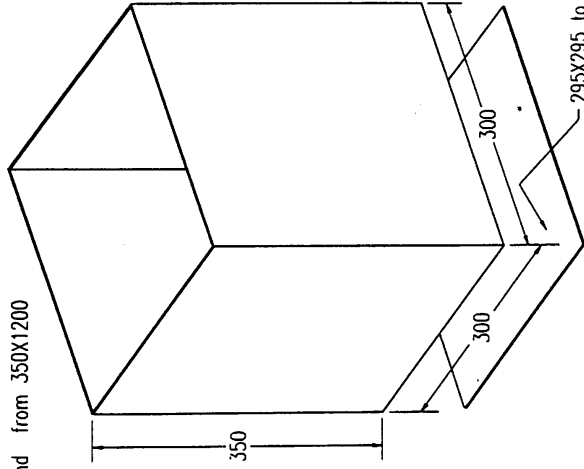
SCALE
1:4

DATE
18/02/99

DWG. No.
WLD 03

2dv

Bend from 350X1200



BUSINESS SHOP

TITLE
WELDING MACHINE, MAIN BOX

CHECKED
A.BREWIS

DRAWN
A.CHISADZA

SCALE

DATE
18/02/99

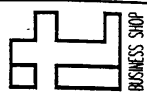
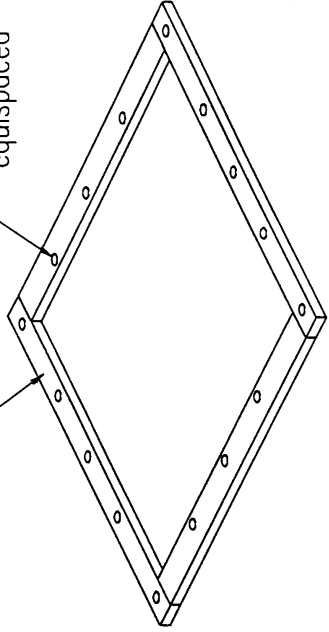
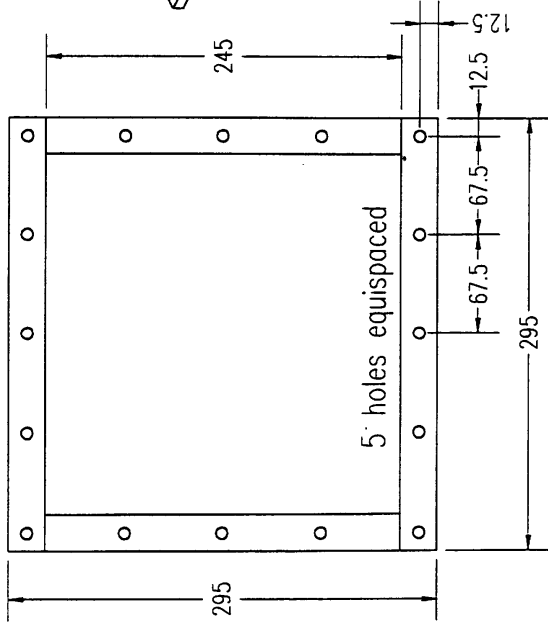
DWG No.
WLD 05

APV



25X8 Flange bar

5 holes M8
equispaced



BUSINESS SHIP

FILE

WELDING MACHINE, FLANGE

CHECKED

A.BREWIŚ

DRAWN

A.CHISADZA

SCALE

1:4

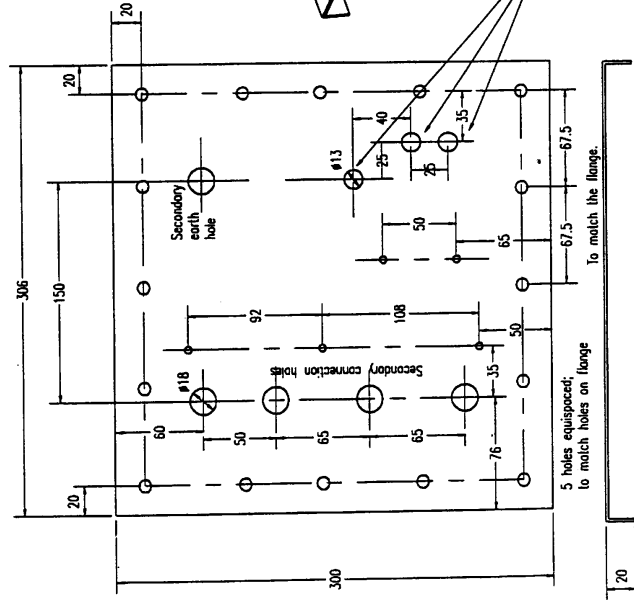
DATE

18/02/99

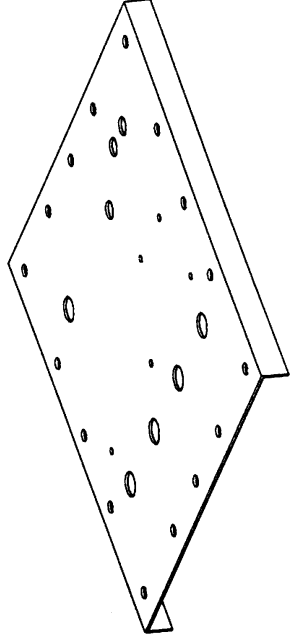
DWG No.

WLD 06

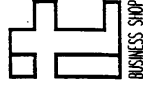
dv



2mm plate
Bend from 346X300



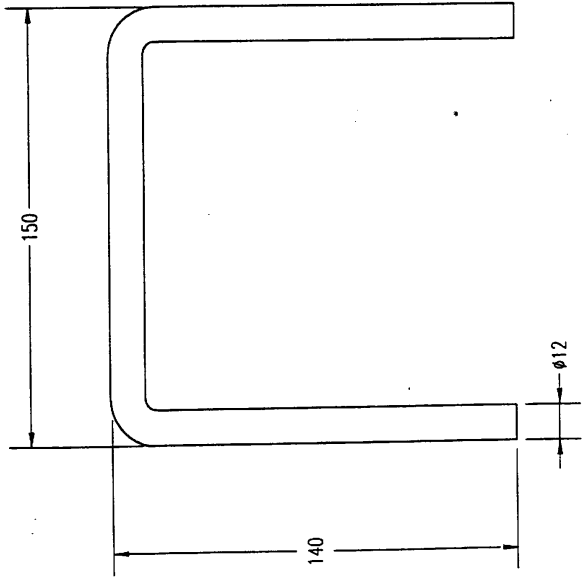
Primary connection holes



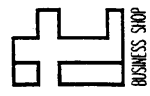
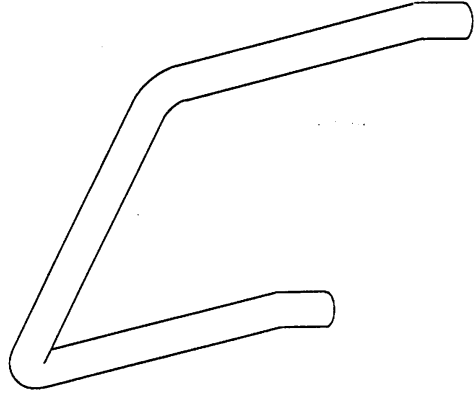
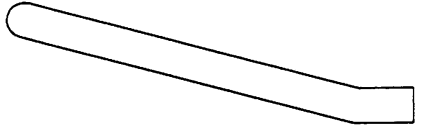
TITLE	CHECKED	DRAWN	SCALE	DATE	DWG. No.
WELDING MACHINE, TOP PLATE	A.BREWIS	A.CHISADZA	3:10	18/02/99	WLD 07

dv

φ12 rod, bend from length 430



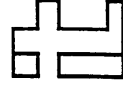
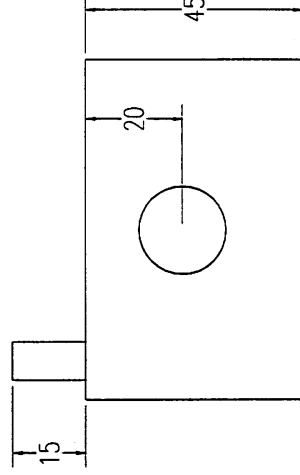
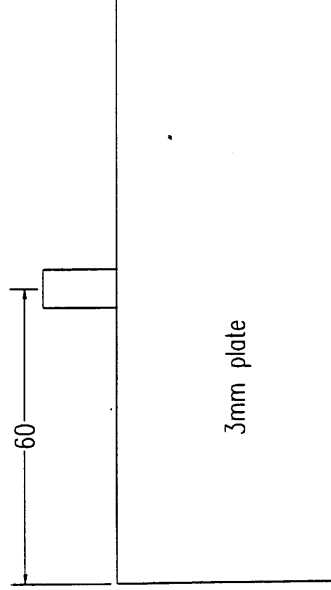
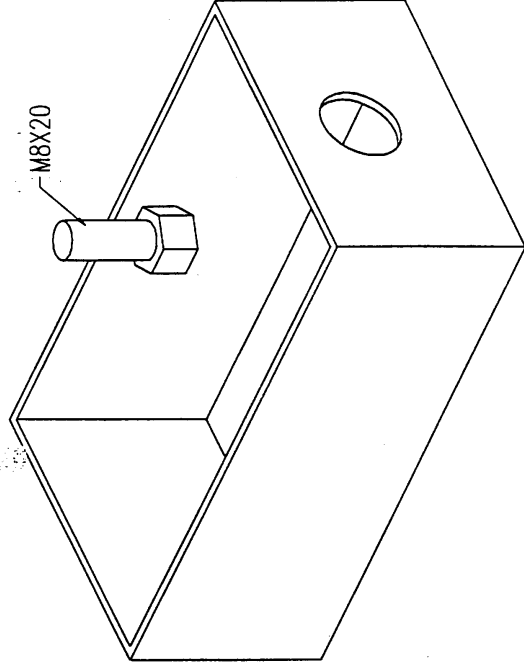
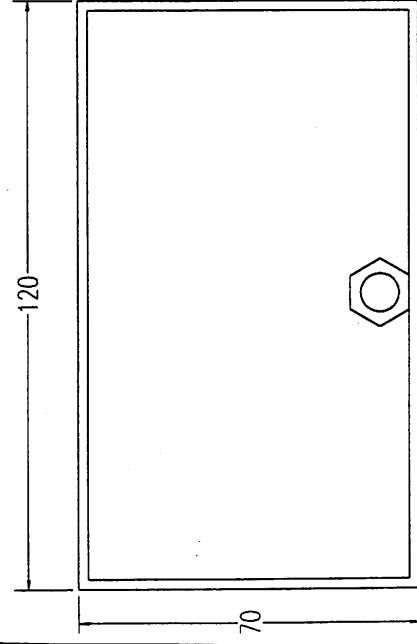
20



TITLE	CHECKED	DRAWN	SCALE	DATE	DWG. No.
WELDING MACHINE, HANDLE	A.BREWIS	A.CHISADZA	3:5	18/02/99	WLD 08

BUSINESS SHOP

dv

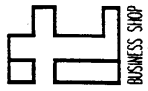
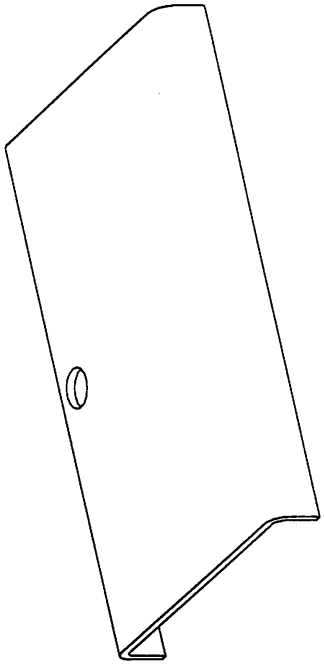
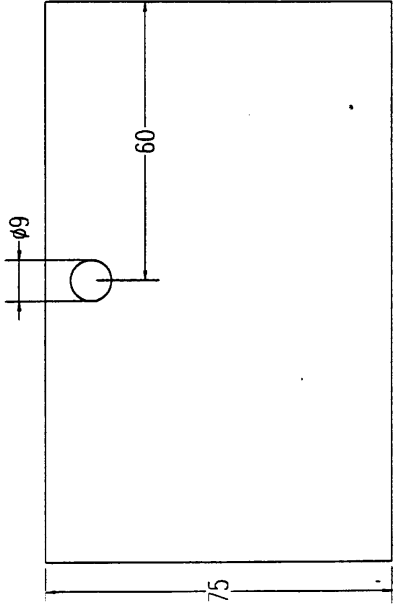
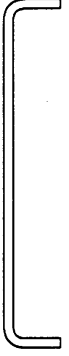
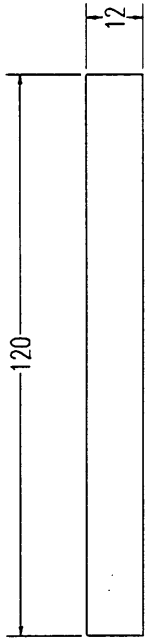


BUSINESS SHOP

FILE	CHECKED	DRAWN	SCALE	DATE	DWG No.
WELDING MACHINE, CONNECTION BOX	A.BREWIS	A.CHISADZA	1:1	18/02/99	WLD 09

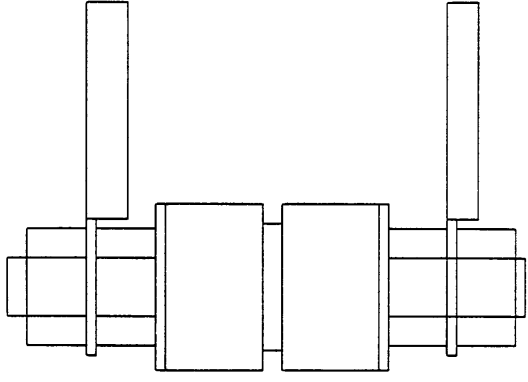
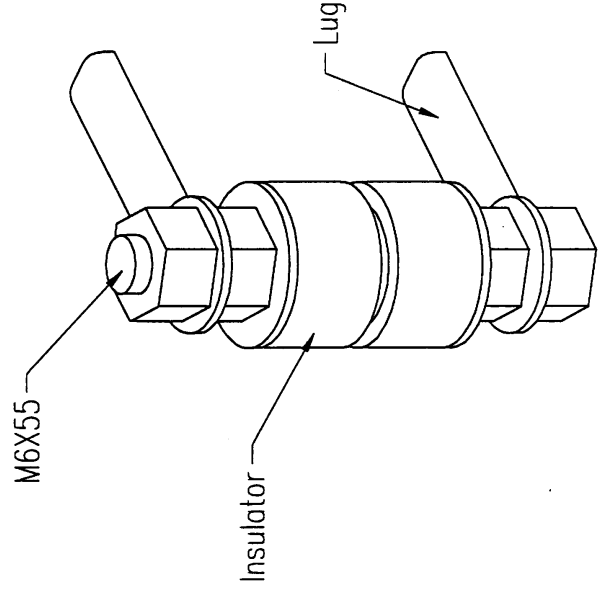
dv

2mm plate, bend from 120X100

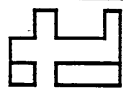


TITLE	CHECKED	DRAWN	SCALE	DATE	DWG No.
WELDING MACHINE, CON. BOX COVER	A.BREWIS	A.CHISADZA	1:1	19/02/99	WLD 10

dv

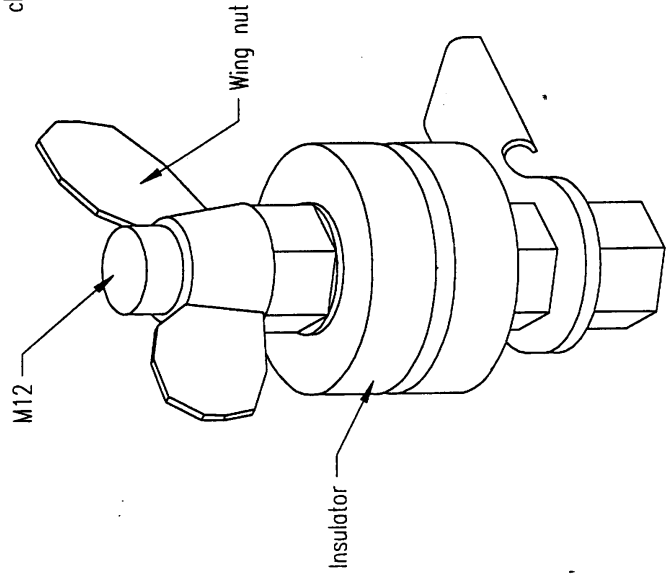


The primary enameled copper wire is to be properly scraped and soldered to the lug.

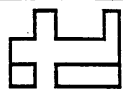
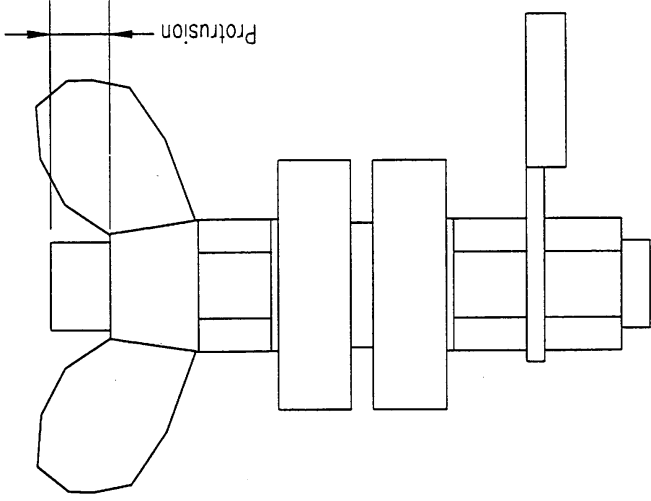


FILE	CHECKED	DRAWN	SCALE	DATE	DWG No	BUSINESS SHOP
WELDING M/C, PRIMARY CONNECTIONS	A.BREWIS	A.CHISADZA		19/02/99	WLD 12	

'dv



The protrusions should be such that when the welding cable lugs are clamped on, the wing nuts are flush with the top of the stud.



TITLE		CHECKED	DRAWN	SCALE	DATE	DWG No.	BUSINESS SHOP
WELDING MACH., OUTPUT CONNECTION		A.BREWIS	A.CHISADZA	3:2	17/02/99	WLD 13	

iv

Punch figures with number punch

20X4 Aluminium rod

235

○ 85

100

○

125

140

○

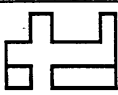
20

80

○ 220 V ○

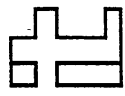
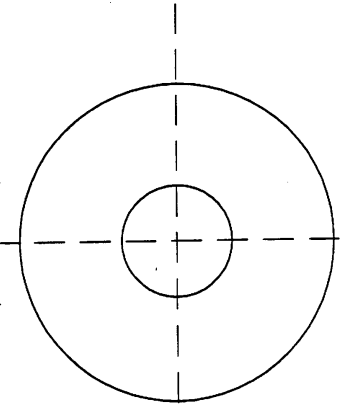
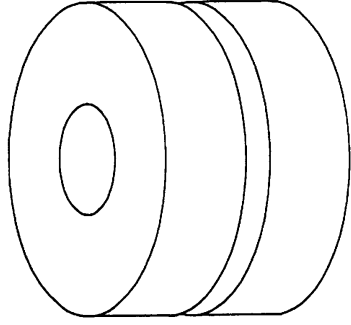
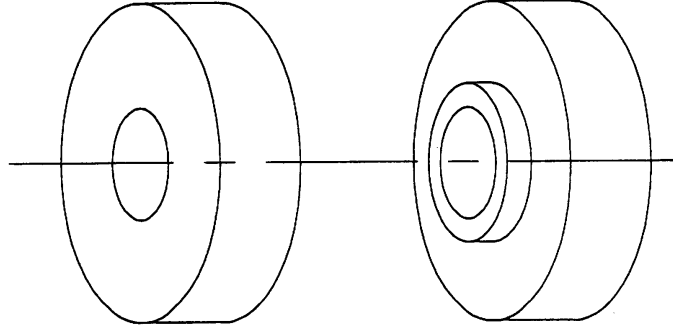
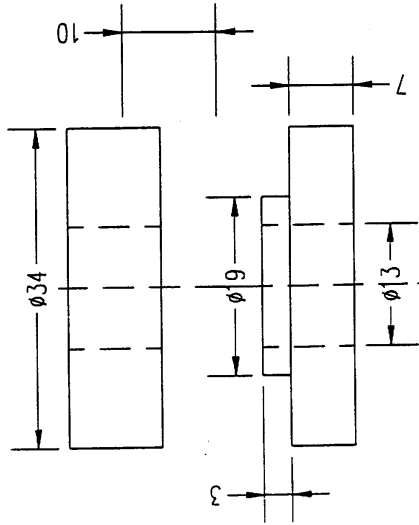
50

○ E ○



FILE	CHECKED	DRAWN	SCALE	DATE	DWG No.	BUSINESS SHOP
WELDING MACHINE, LABEL PLATES	A.BREWIS	A.CHISADZA	1:1	17/02/99	WLD 14	

dv



BUSINESS SHOP

TITLE
WELDING MACHINE, INSULATOR

CHECKED
A.BREWIS

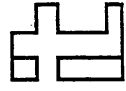
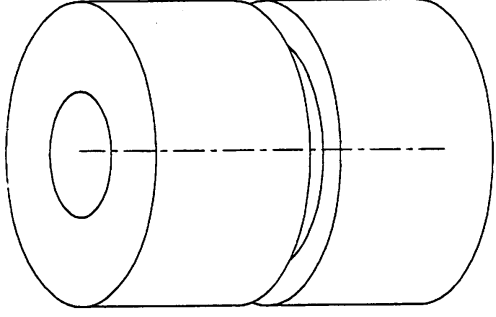
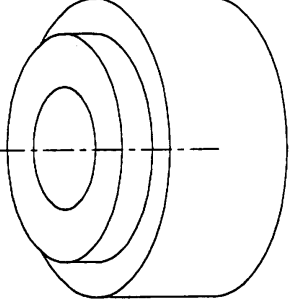
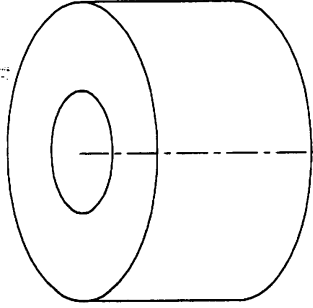
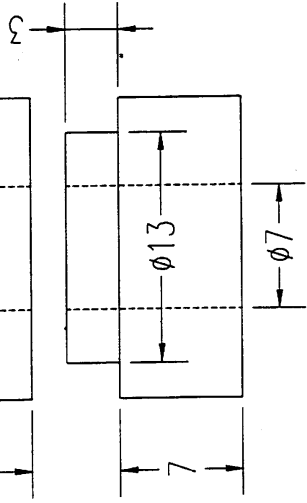
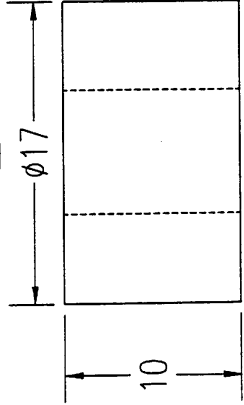
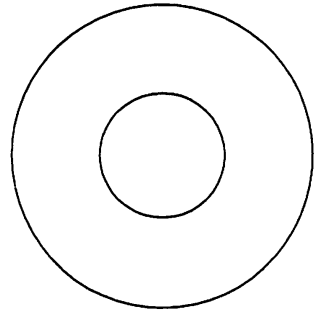
DRAWN
A.CHISADZA

SCALE
2:1

DATE
17/02/99

DWG. No.
WLD 15

2dv



BUSINESS SHOP

TITLE
WELDING MACHINE, SMALL INSULATOR

CHECKED
A. BREWIS

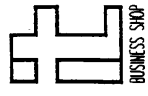
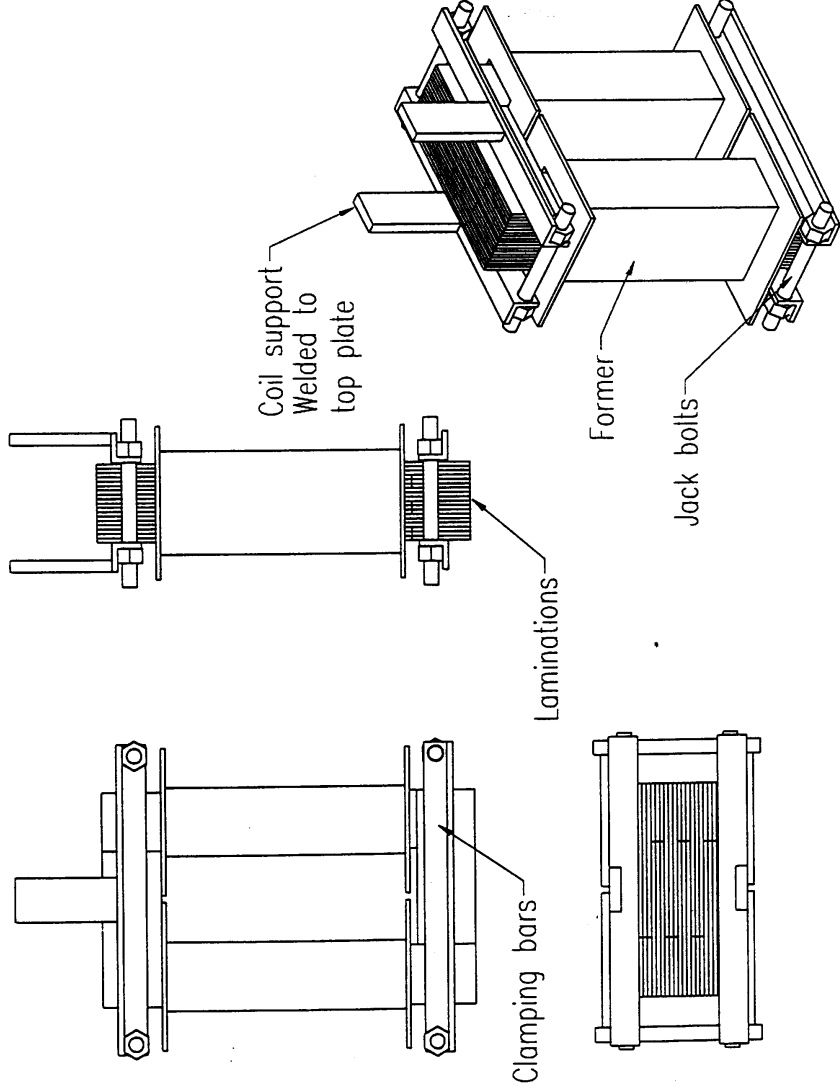
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A. CHISADZA

SCALE
2:1

DATE
17/02/99

DWG. No.
WLD 16

2dv



BUSINESS SHOP

TITLE

WELDING MACHINE, CORE DETAILS

CHECKED

A. BREWIS

DRAWN

A. CHISADZA

SCALE

3:10

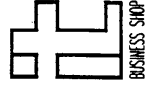
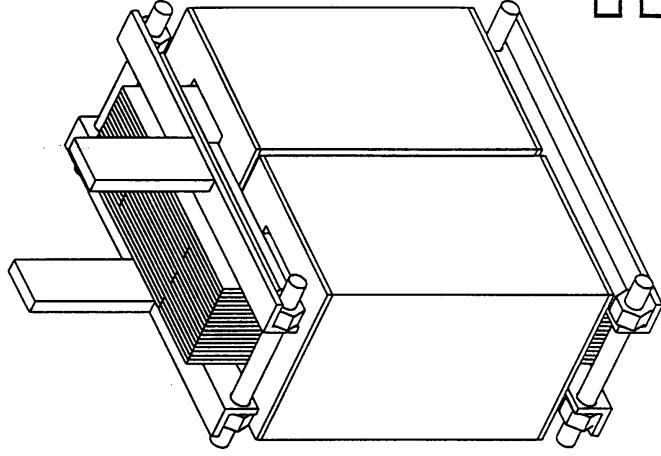
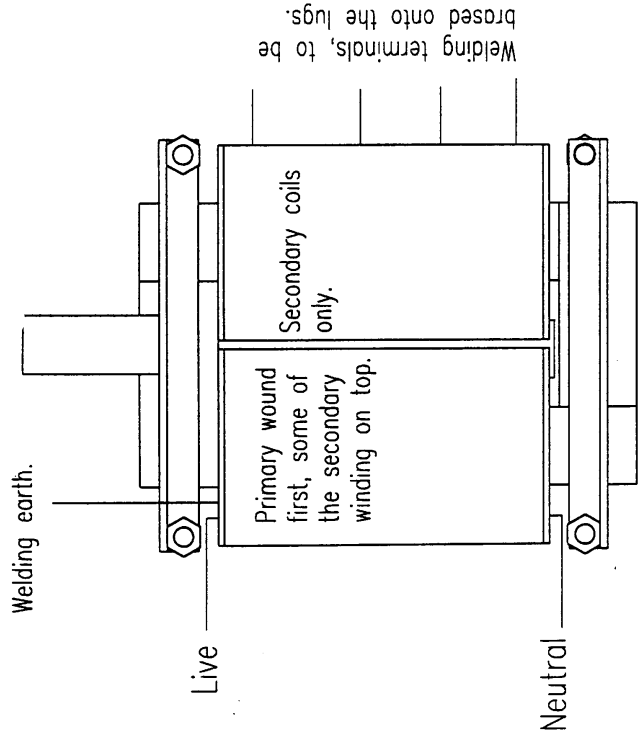
DATE

17/02/99

DWG No.

WLD 17

2dv



TITLE
WELDING MACHINE, TRANSFORMER DETAILS

CHECKED
A. BREWIS

DRAWN

A. CHISADZA

SCALE

3:10

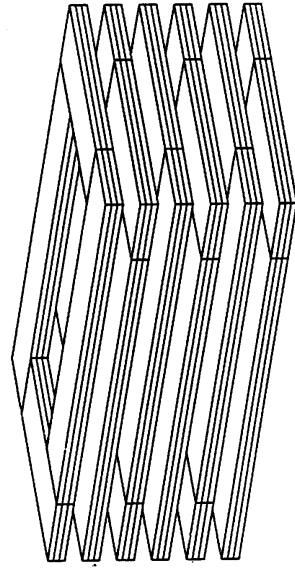
DATE

17/02/99

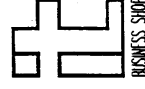
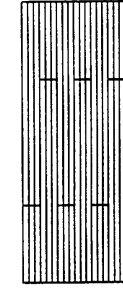
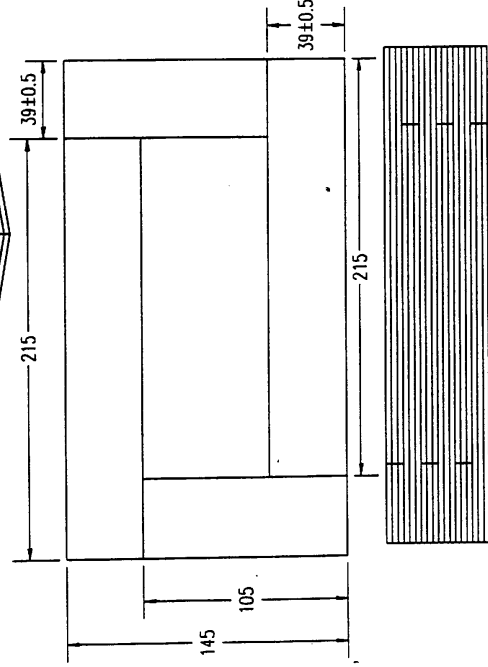
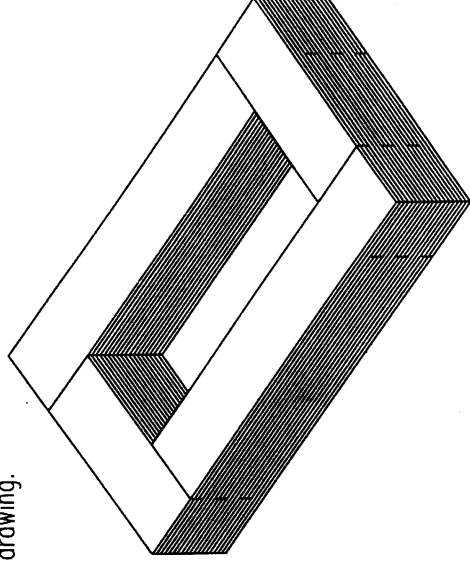
DWG No.

WLD 17B

2/4



0.5mm laminations stacked in the manner shown, until they fill the inside of the bobbins (former), disregard the actual number of laminations in the drawing.



TITLE
CORE LAMINATIONS

CHECKED
A. BREWIS

DRAWN
A. CHISADZA

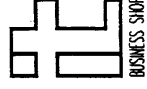
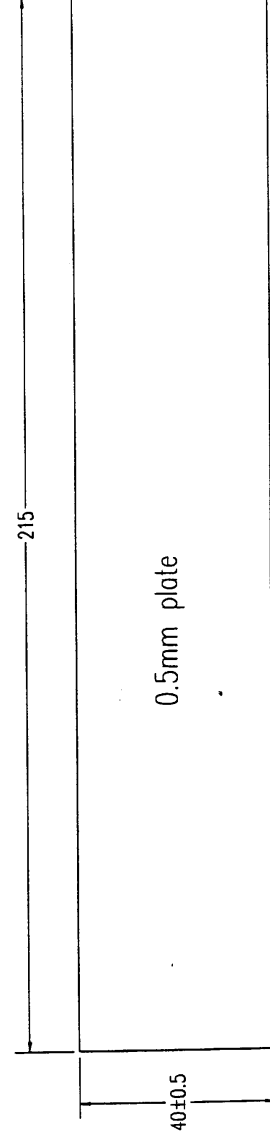
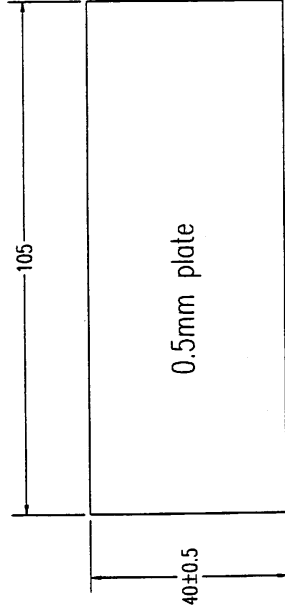
SCALE
2:5

DATE
27/06/98

DWG. NO.
WLD 18

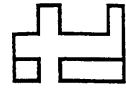
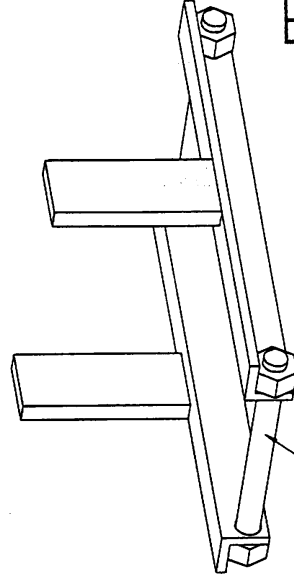
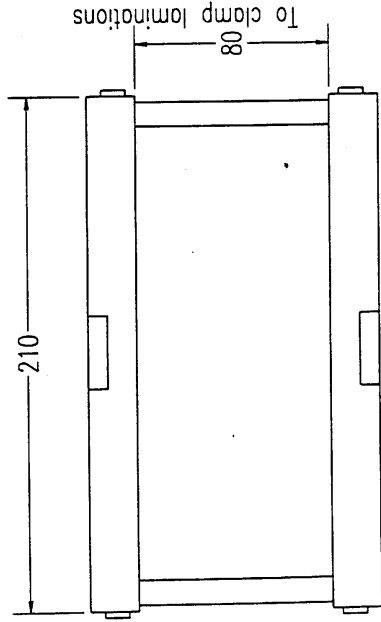
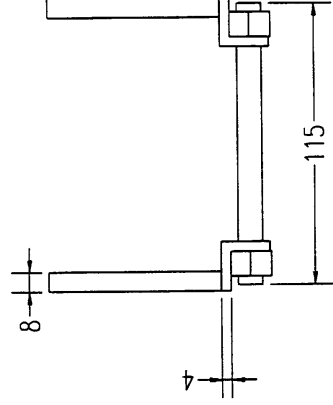
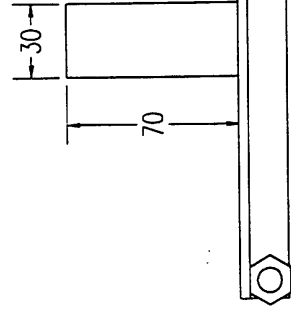
BUSINESS SHOP

dv



TITLE	CHECKED	DRAWN	SCALE	DATE	DWG. No.
WELDING MACHINE, LAMINATION PLATE	A.BREWIS	A.CHISADZA	1:1	27/06/98	WLD 18b

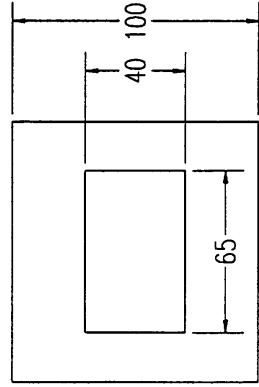
2dv



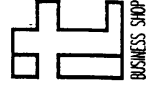
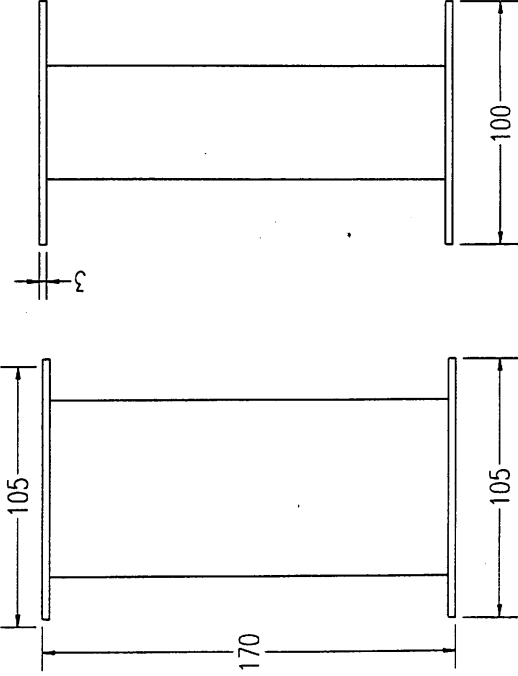
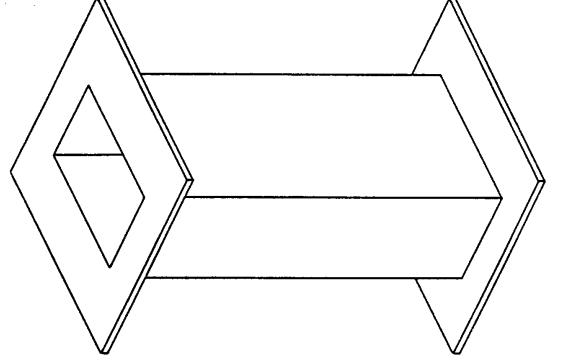
BUSINESS SHOP

TITLE	CHECKED	DRAWN	SCALE	DATE	DWG. No.
WELDING MACH., LAMINATION CLAMPING	A.BREWIS	A.CHISADZA	1:2	17/02/99	WLD 19

Pdv



Thickness 3-4mm



BUSINESS SHOP

TITLE

WELDING MACHINE, BOBBIN (FORMER)

CHECKED

A.BREWIS

DRAWN

A.CHISADZA

SCALE

1:2

DATE

17/02/99

DWG No.

WLD 20

Pdv

Primary has 360 turns

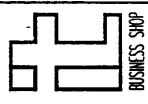
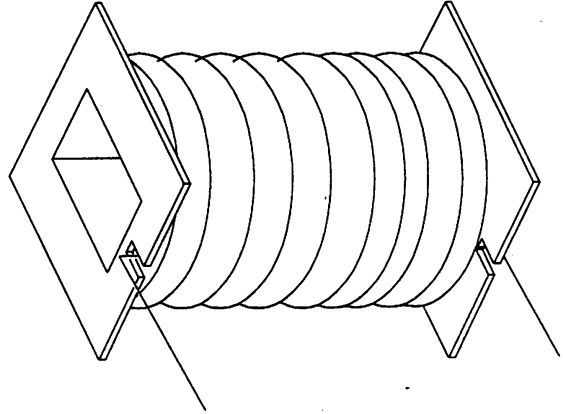
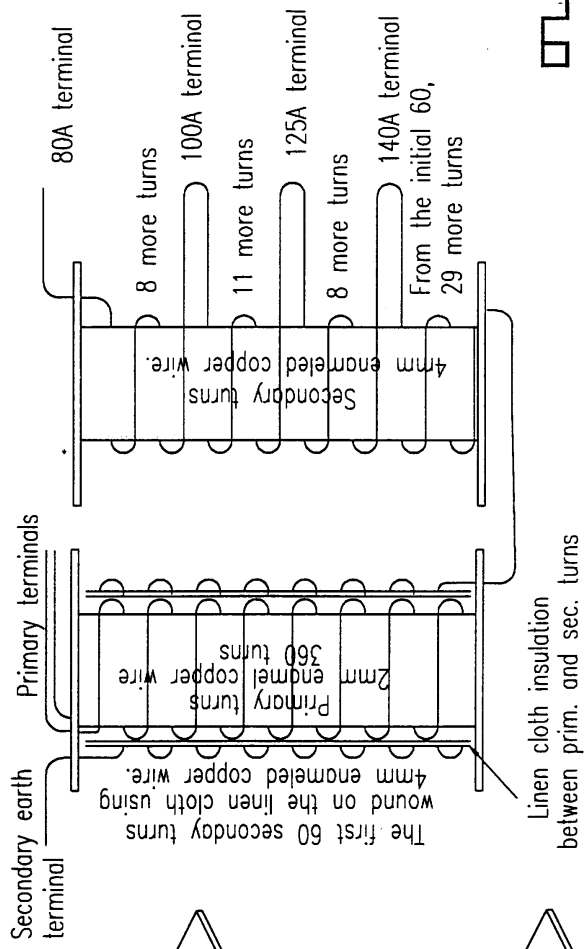
secondary:

89 turns => 140A

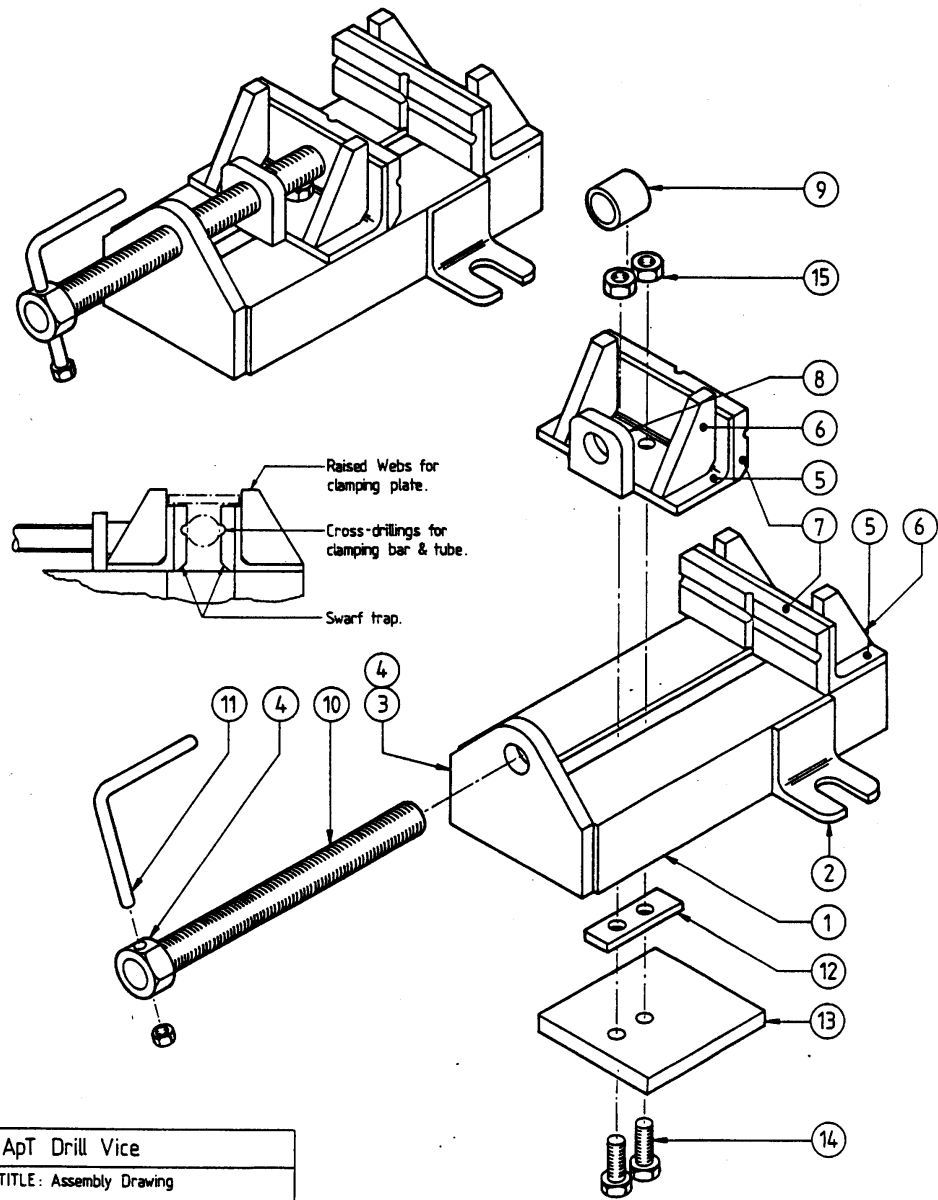
97 turns => 125A

108 turns => 100A

116 turns => 80A



TITLE	CHECKED	DRAWN	SCALE	DATE	DWG No
WELDING MACHINE, BOBBIN (FORMER)	A.BREWIS	A.CHISADZA	1:2	17/02/99	WLD 20



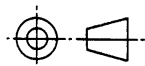
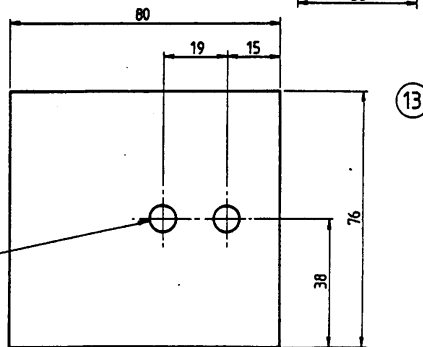
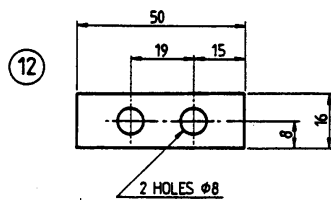
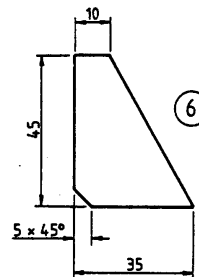
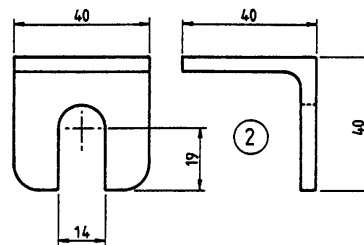
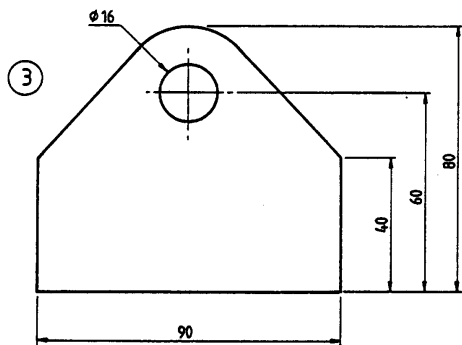
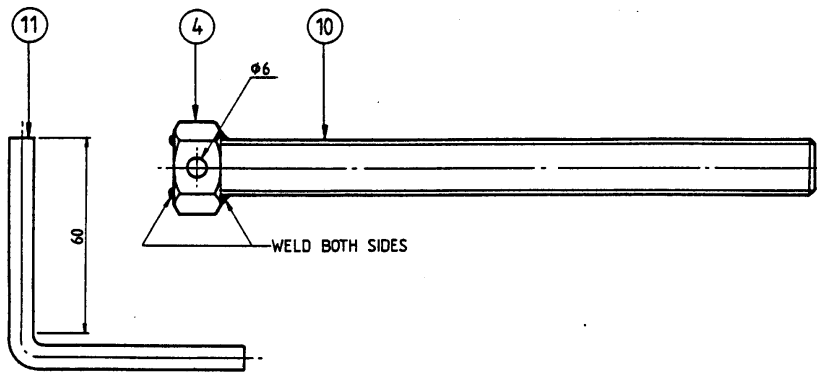
ApT Drill Vice	
TITLE: Assembly Drawing	
ORIGINAL SCALE:	1:2
DRAWN: MB	PAGE: 1 of 5

ApT Drill Vice

TITLE: Parts List

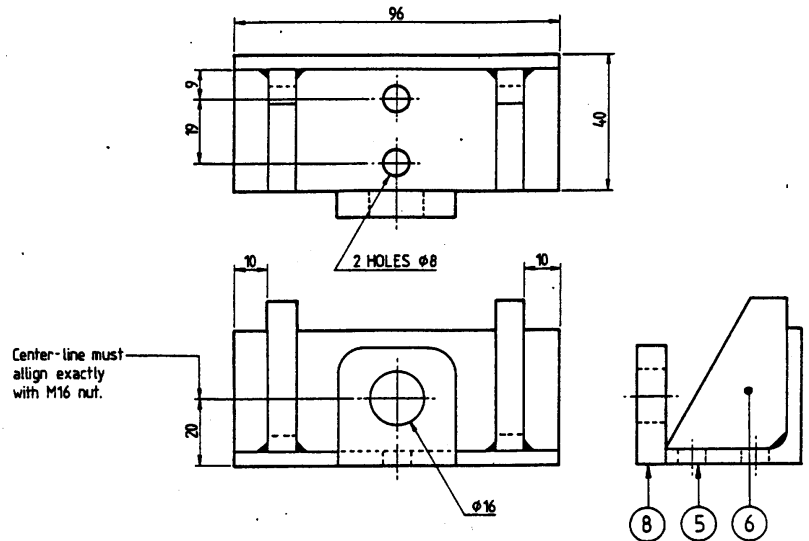
PAGE: 2 of 5

No.	Description	Quantity	Dimensions
1	Side	2	40 x 40 angle iron x 200
2	Foot	2	40 x 40 angle iron x 40
3	Back	1	8 x 80 x 90
4	Nut	2	M16 nut
5	Jaw Support	2	40 x 40 angle iron x 96
6	Web	2	8 x 35 x 45
7	Jaw	2	8 x 40 x 96
8	Release Plate	1	8 x 35 x 35
9	Release Tube	1	φ18 (φ16 bore) x 15
10	Thread	1	M16 studding x 190
11	Handle	1	φ6 x 130
12	Guide	1	4 x 16 x 50 (thickness of angle iron)
13	Clamp Plate	1	8 x 80 x 76
14	Bolts	2	M8 bolts x 23
15	Nuts	3	M8 nut



ApT Drill Vice	
TITLE : Drill Vice Details	
ORIGINAL SCALE :	1 : 1
DRAWN : MB	PAGE : 3 of 5

2 HOLES φ8



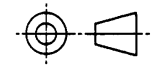
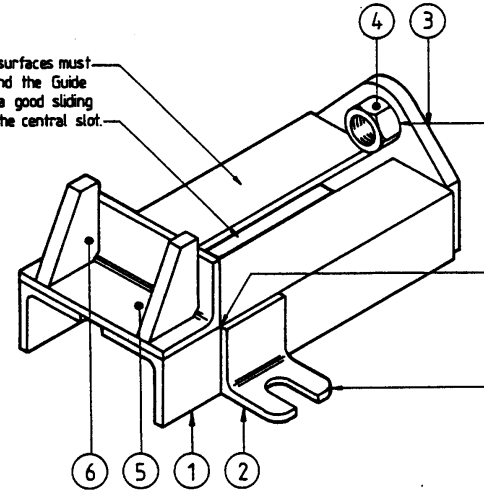
Center-line must align exactly with M16 nut.

Both top surfaces must be flat and the Guide must be a good sliding fit along the central slot.

Center-line must be the correct height for the Movable Jaw.

Do not weld front of Fixed Jaw.

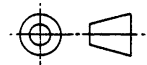
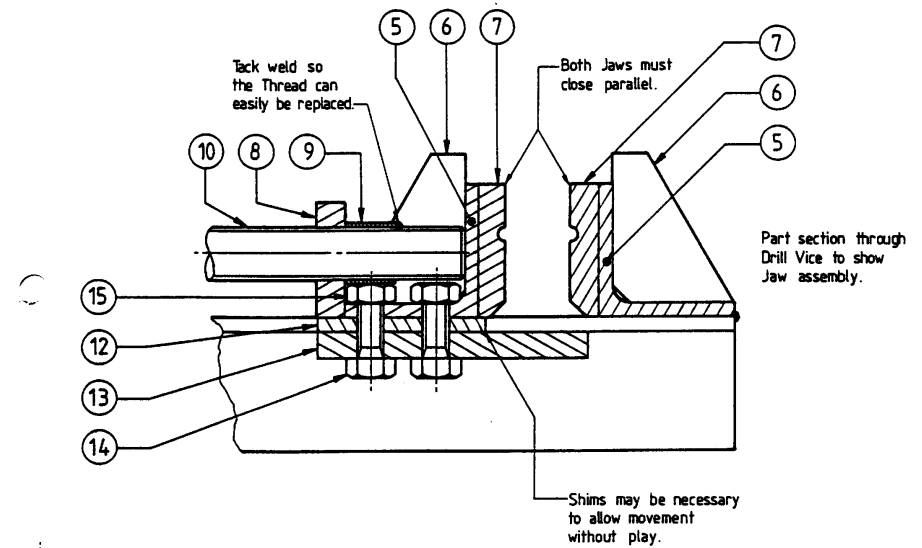
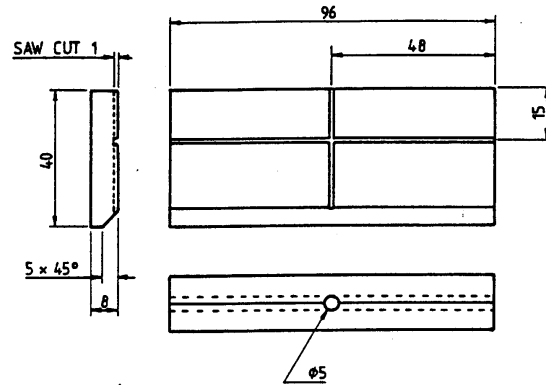
Feet must be flat.



ApT Drill Vice	
TITLE: Movable Jaw & Body Sub-Assemblies	
ORIGINAL SCALE: 1:1 & 1:2	
DRAWN: MB	PAGE: 4 of 5

Construction

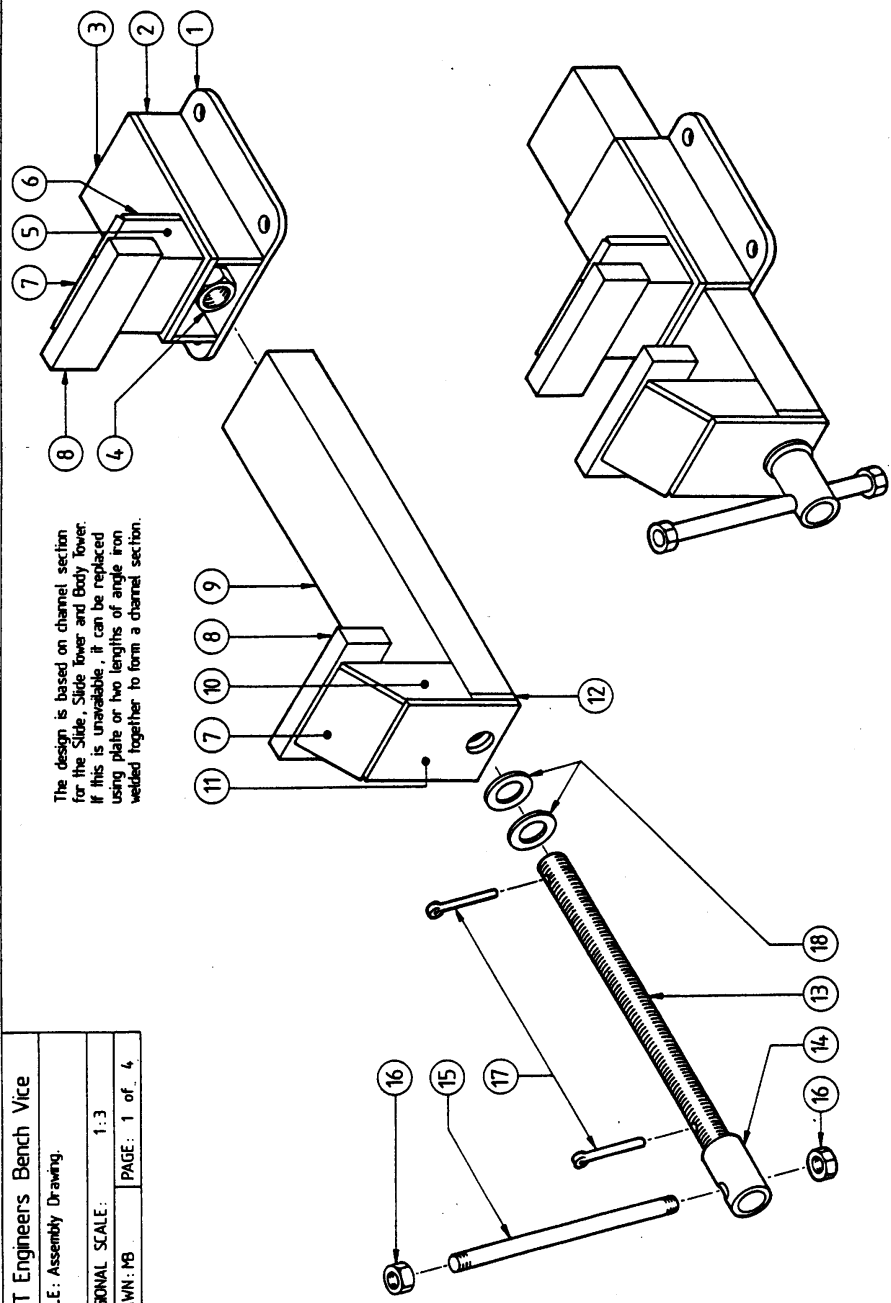
1. Cut the two Jaws exactly to size.
2. Accurately mark cross-lines & carefully saw along them to produce the pilot holes. Use the side of a vice to guide the saw blade. When the two Jaws are placed together the saw cuts must align exactly on all sides.
3. Now produce the chamfer.
4. Accurately align the two Jaws in the Drill Vice & clamp them together. Weld the sides only to the Jaw Supports.
5. Drill out the pilot holes.



ApT Drill Vice	
TITLE : Jaw Construction-& Sub - Assembly.	
ORIGINAL SCALE :	1 : 1
DRAWN: MB	PAGE: 5 of 5

ApT Engineers Bench Vice	
TITLE: Assembly Drawing.	
ORIGINAL SCALE:	1:3
DRAWN: MB	PAGE: 1 of 4

The design is based on channel section for the Slide, Slide lower and Body lower. If this is unavailable, it can be replaced using plate or two lengths of angle iron welded together to form a channel section.



ApT Engineers Bench Vice

TITLE: Parts List

PAGE: 2 of 4

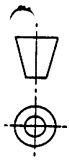
No.	Description	Quantity	Dimensions
1	Base	1	8 x 150 x 150
2	Body Side	2	8 x 150 x 38
3	Body Top	1	8 x 150 x 95
4	Nut	2	M20 nut
5	Body Tower	1	38 x 77 channel section x 85
6	Body Back	1	8 x 77 x 50
7	Tower Top	2	8 x 77 x 50
8	Jaw	2	15 x 40 x 120
9	Slide	1	38 x 77 channel section x 365
10	Slide Tower	1	38 x 77 channel section x 90
11	Slide Back	1	8 x 77 x 95
12	Back Support	1	8 x 77 x 38
13	Thread	1	M20 studding x 350
14	Boss	1	φ30 (φ20 bore) x 70
15	Handle	1	φ12 x 200
16	Nut	2	M12 nut
17	Split Pin	2	φ5 x 50 split pin or nail
18	Washers	2	M20 washer

Apt Engineers Bench Vice

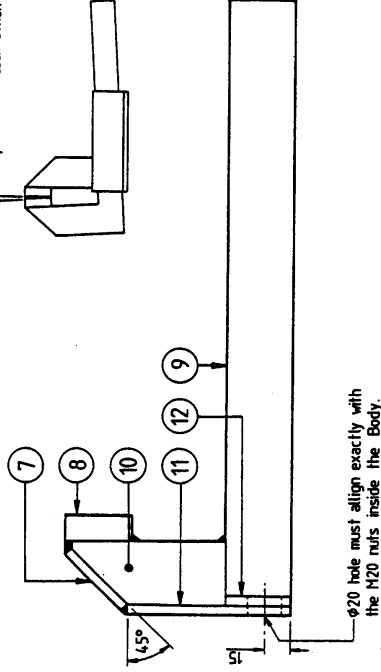
TITLE: Vice Sub-Assemblies

ORIGINAL SCALE: 1:2

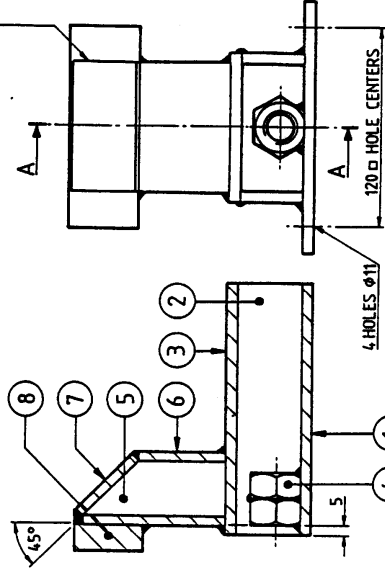
DRAWN: PAGE: 3 of 4



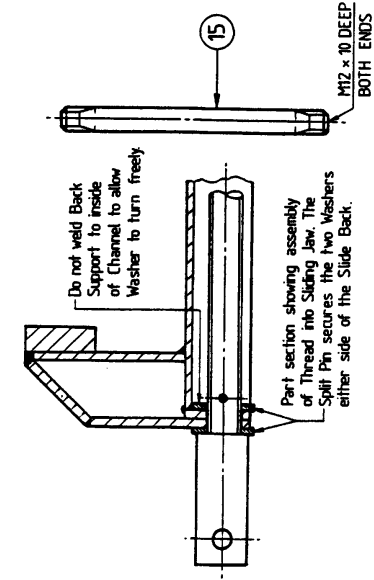
The channel section
Slide must be a good
snug fit inside the
Body so as not to
fill when tightened.
The Jaws must close
parallel to each other.



SECTION A-A



Ø20 hole must align exactly with
the M20 nuts inside the Body.



To ensure thread alignment weld Nuts
to Base before welding Nuts together.

Determine position after
assembly in Sliding Jaw.

File welds flush:

Do not weld Back
Support to inside
of Channel to allow
Washer to turn freely

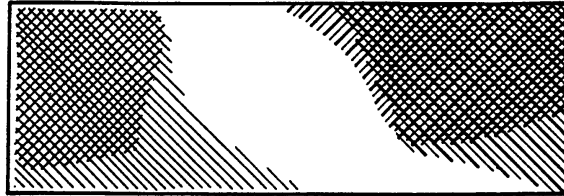
Part section showing assembly
of Thread into Sliding Jaw. The
Split Pin secures the two Washers
either side of the Slide Back.

KNURLED JAW SURFACE

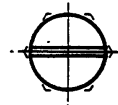
1. Scribe lines at 45° as a guide.

2. Use a cold chisel to produce a knurled gripping surface.

Enlarged section of knurled surface. Note top surface must be flat to clamp effectively with opposite Jaw.

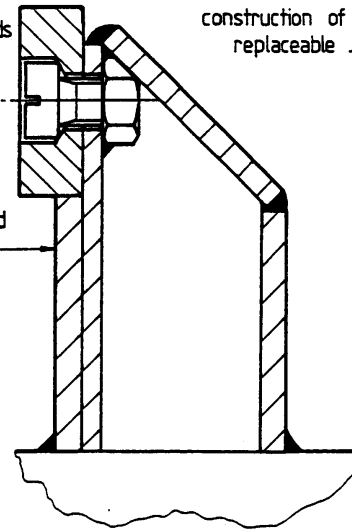


REPLACEABLE JAWS



Round off the heads of four M10 bolts and saw a slot across.

Jaw Support Plate welded to Tower channel section.



Part section showing construction of replaceable Jaw.

HARD JAWS

If hard Jaws are required, these can be made from lorry leaf-spring:

1. Anneal before cutting Jaws (heat to dull red and cool very slowly).
2. After making them, re-harden by heating to dull red and quenching in oil.

ApT Engineers Bench Vice

TITLE: Jaw Options

ORIGINAL SCALE: 1:1

DRAWN: MB

PAGE: 4 of 4

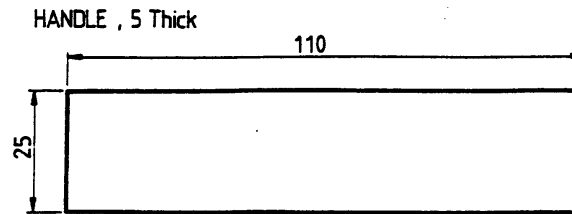
ref: JRB005 (e) **Product costing sheet (example)**

Product: Bench Vice Group: Group 2, Hlekweni, Zimbabwe date: 12/3/97

Description	Quantity	Unit cost	Total cost	
Materials & Consumables	metres	\$/m	\$	
8 x 100 flat	0.15	43.80	6.50	
8 x 40	0.30	21.14	6.34	
8 x 80	0.58	31.83	18.56	
4 x 20	0.14	4.25	0.60	
16 x 150	0.08	119.28	9.54	
leaf spring	0.2 kg	1.29/kg	0.26	
77 x 38 channel	0.54	37.49	20.24	
12mm round bar	0.20	5.87	1.17	
M20 studding	0.35	37.31	13.06	
M20 nuts	2	2.41 ea	4.82	
M20 washers	3	0.61 ea	1.83	
M12 nuts	2	0.47 ea	0.94	
M6 countersunk screws	4	1.29 ea	5.16	89.09
3.15mm electordes	10	0.64 ea	6.40	
hacksaw blades	2	10.40ea	20.80	
grinding discs	12.5%	46.00ea	5.75	
primer paint	12.5cl	201.65 /5 ltr	5.04	
Red topcoat paint	12.5cl	97.10 /5 ltr	2.43	
Oxy/acetylene gas refill	1.25%	603.00	7.54	62.18
Overheads				
Tools depreciation @ \$2,500/yr	16 hrs	1.04/hr	16.64	
water(\$37.59/month)	} 16 hrs	5.45/hr	87.20	
electricity (\$350/month)				
rent (\$285/month)				
transport (\$200/month)				103.84
Labour @ \$5/hour	16 hrs	5/hr	80.00	80.00
Production cost total				\$335.11
30% mark-up				\$435.64
15% Sales Tax				\$500.99

SIMPLE DRILL VICE CLAMP

Allows simple one-handed fastening of drill vice.



Scale 1:1. All dimensions in mm & for guidance only.

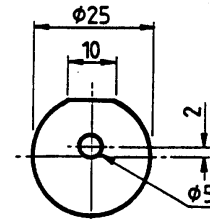
CONSTRUCTION

1. Saw Bolt head and file smooth and parallel. Center-punch hole and pilot drill 3dia.
2. Saw 21mm off 25dia. bar (to allow for 1mm thick saw width on second cut), file smooth and file the 10mm flat. Center-punch hole and pilot drill 3dia. Then open hole out with 5dia. drill and saw into half to produce both Cams with identical profiles. File smooth.
3. Drill 5dia. in Bolt head.
4. Saw the Washer and file chamfers on the edges. The chamfers help lift the Washer up onto the drill vice feet when in use. The Washer is square so it is easy to saw and easy to clamp when drilling the hole. Center-punch and pilot drill 5dia. Open out with 12dia. drill. The hole should be quite a good fit around the Bolt so when it clamps, the Washer does not slide under the Cams, possibly causing the drill vice to move. It may be possible to find a suitable washer; it does not have to be square, but does need to be quite thick to spread the clamping load.
5. Cut 5dia. Pin and assemble in Bolt and both Cams and weld Pin onto ONE Cam only. The Pin only needs one weld to hold it so it can be easily replaced when worn. Saw the Handle, file smooth and weld onto the flats on the Cam. Check the clearance between the Handle and Bolt head during operation. The Bolt head corner may need filling. To finish off, weld the other Cam onto the Handle.

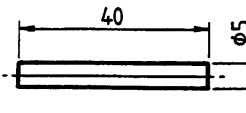
OPERATION

1. Hold Handle up at angle so the Cam does not grip.
2. Tighten Nut to hand tight, so drill vice can still be moved when Handle is lifted further, but clamps tight when pushed down.
3. Accurately position drill vice before clamping.

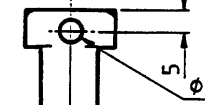
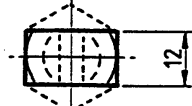
CAM
10 Thick, 2-off



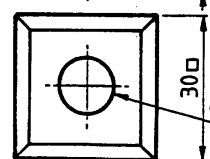
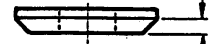
PIN



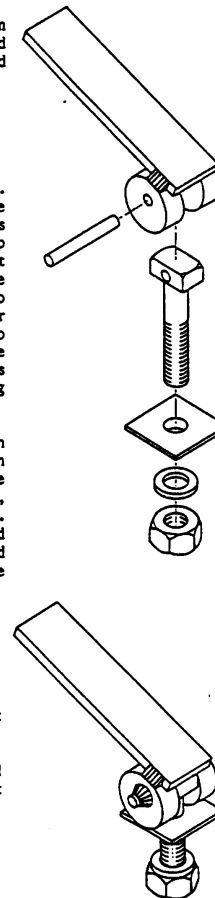
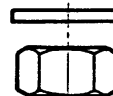
M12 BOLT

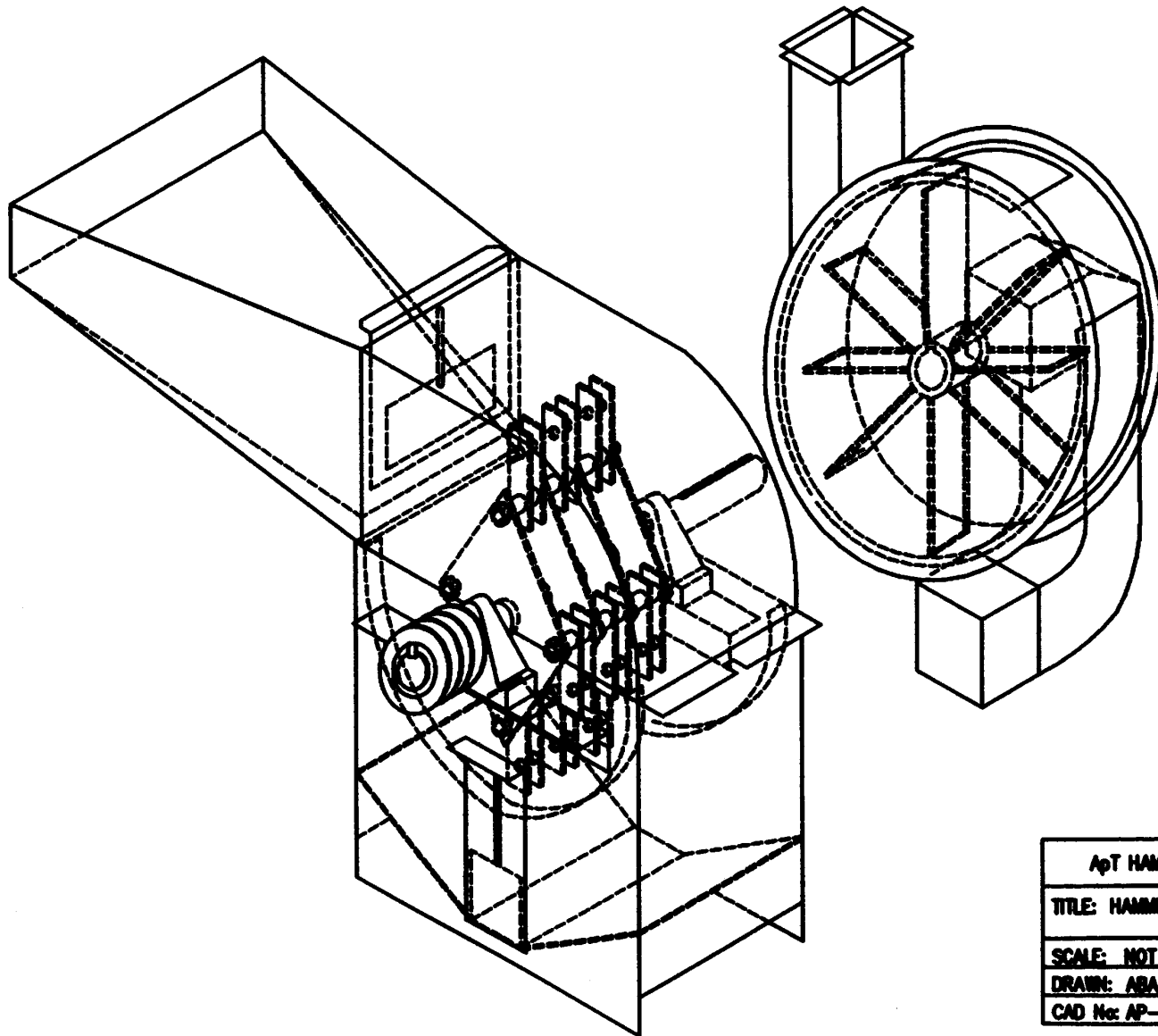


WASHER
5 Thick

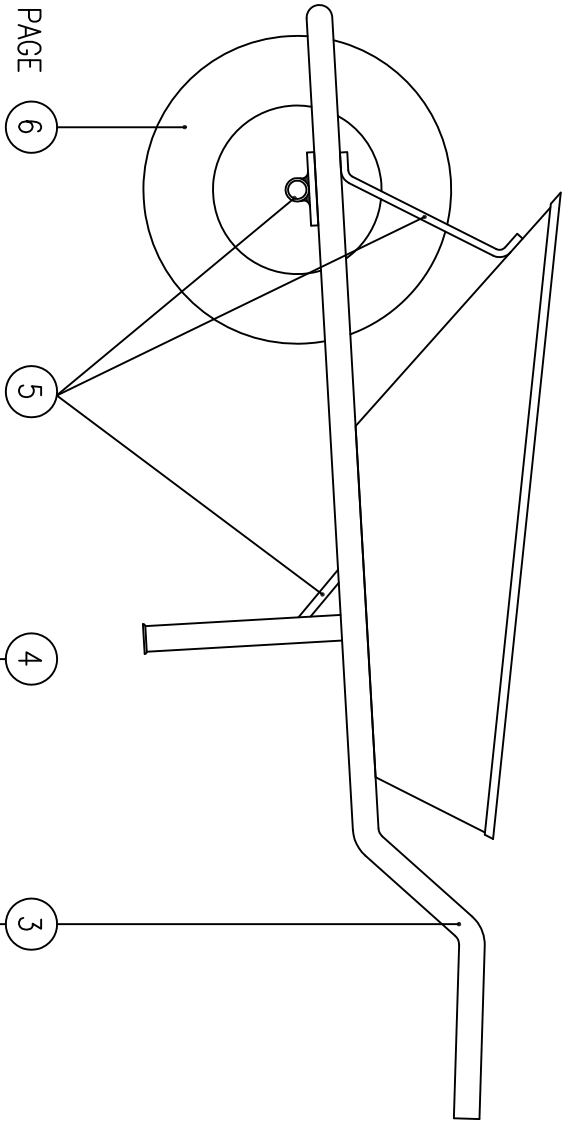


M12 WASHER & NUT

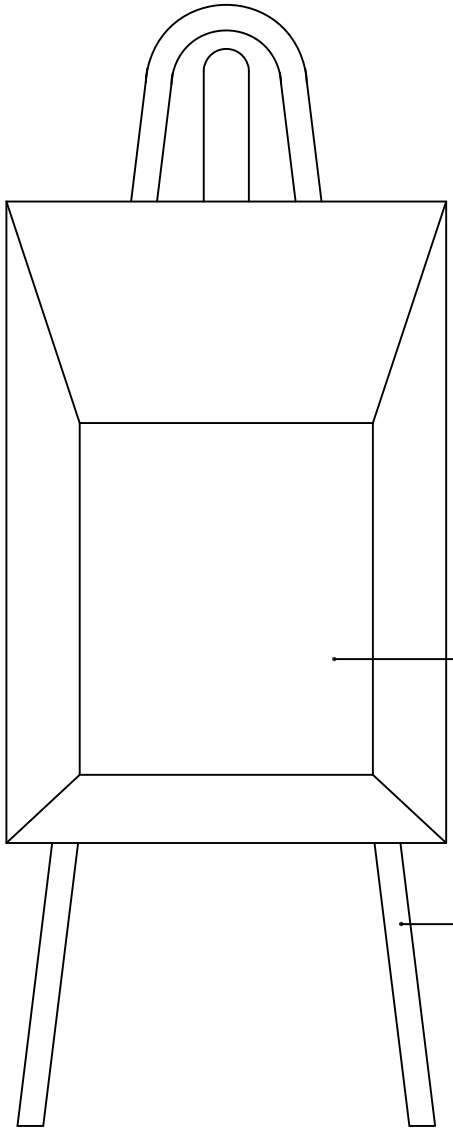
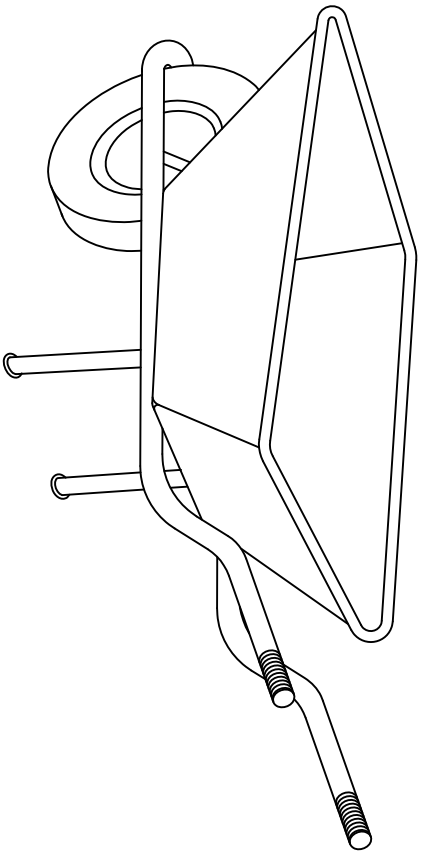




ApT HAMMER MILL	
TITLE: HAMMER MILL ASSEMBLY	
SCALE: NOT TO SCALE	
DRAWN: ABATEC	PAGE: 01 of 21
CAD No: AP-18-01	



PAGE 6



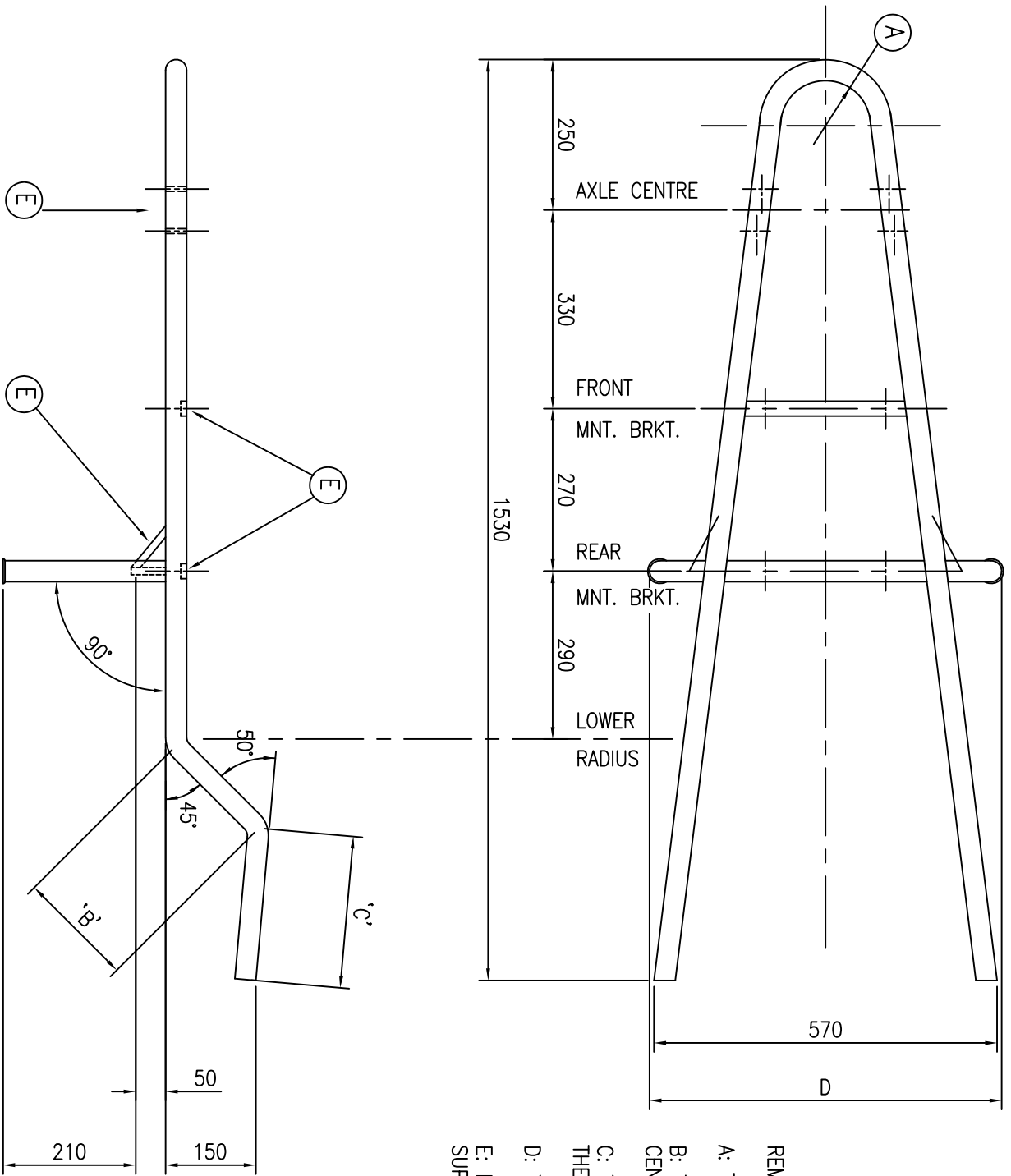
DOCUMENT CONTENTS:

- PAGE
1. ASSEMBLY DRAWING
 2. PARTS LIST
 3. CHASSIS
 4. PAN DEVELOPMENT
 5. ACCESSORY PARTS
 6. WHEEL DESIGNS

Apt WHEELBARROW	
TITLE: ASSEMBLY DRAWING	
SCALE: 1:10	
DRAWN: ABATEC	PAGE: 1 of 6
CAD No: APT-09-1	

No.	DESCRIPTION	MATERIAL	QUANTITY
1	CHASSIS	25mm I/DIA. WATER PIPE	4 METRES
2	PAN	MILD STEEL SHEET	1080 x 1000mm x 1mm MIN.
3	EDGE STIFFENER	12 x 3mm MILD STEEL	2960mm
4	FRONT STAYS	25 x 10mm MILD STEEL	540mm
5	LEG SUPPORTS	12 x 12mm MILD STEEL	240mm
6	REAR MTG. BRACKET	25 x 10mm MILD STEEL	360mm
7	FRONT MTG. BRACKET	25 x 10mm MILD STEEL	280mm
8	AXLE BRG. BRACKETS	25 x 10mm MILD STEEL	220mm
		25mm I/DIA. WATER PIPE	100mm
9	WHEEL	AS REQUIRED	

ApT WHEELBARROW	
TITLE: PARTS LIST	
SCALE:	
DRAWN: ABATEC	PAGE: 2 of 6
CAD No: APT-09-2	

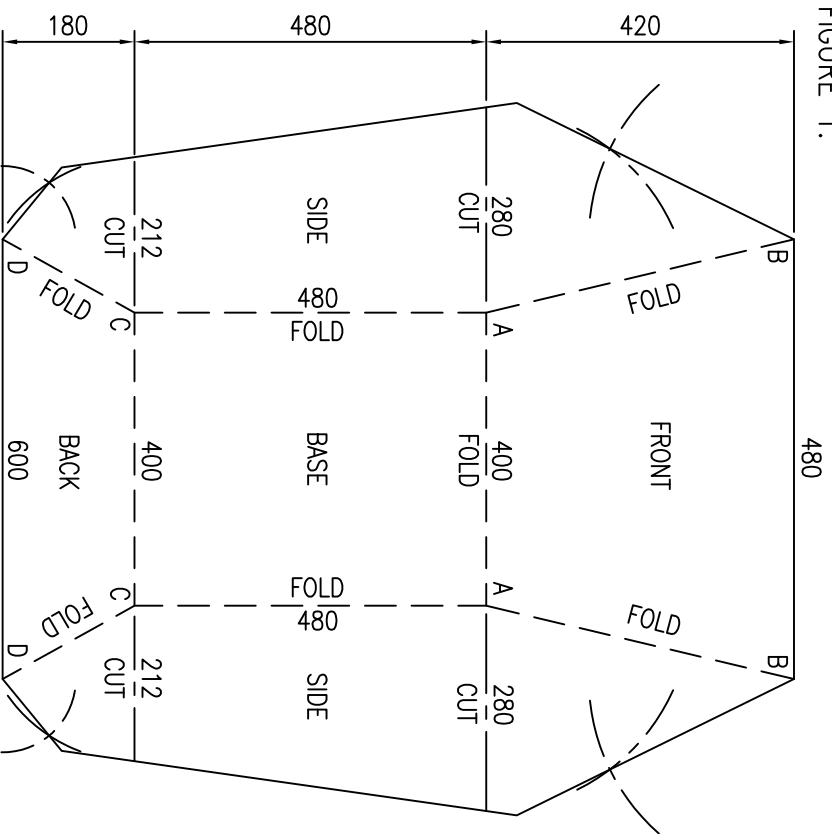


REMARKS

- A: THE RADIUS TO THE INSIDE OF THE PIPE = 75mm.
- B: THE DISTANCE FROM RADIUS CENTRE TO RADIUS CENTRE = 235mm.
- C: THE DISTANCE FROM THE END OF THE TUBE TO THE RADIUS CENTRE = 210mm.
- D: THE DISTANCE BETWEEN THE TWO LEG ENDS = 550mm.
- E: DIMENSIONS FOR THE AXLE BRACKETS AND THE 4 LEG SUPPORTS CAN BE FOUND ON PAGE 5.

Apt WHEELBARROW	
TITLE: CHASSIS DRAWING	
SCALE: 1:10	
DRAWN: ABATEC	PAGE: 3 of 6
CAD No: APT-09-3	

FIGURE 1.



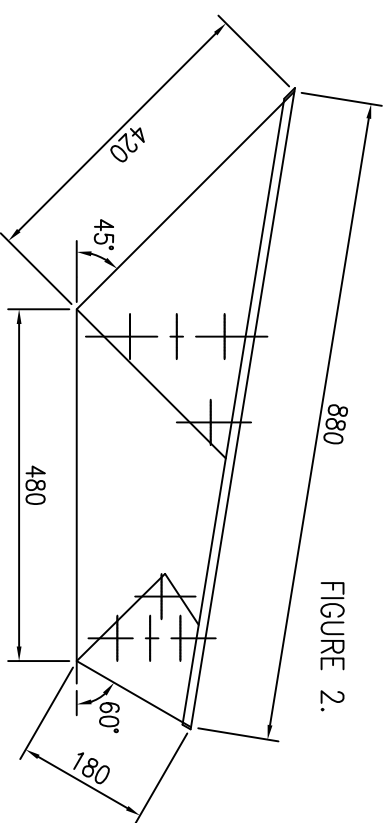
TO CONSTRUCT TEMPLATE FIGURE 1.

1. DRAW BASE, FRONT, SIDE AND BACK PANELS ONTO SHEET, USING MEASUREMENT PROVIDED.
2. CONSTRUCT THE THIRD POINT OF A TRIANGLE WITH A PAIR OF COMPASSES. UTILISE THE POINTS A, B, C, D, & THE DIMENSIONS PROVIDED BELOW:

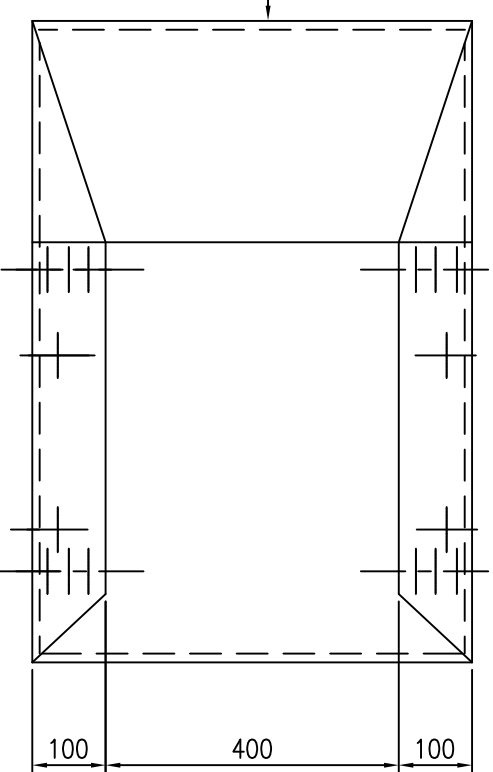
A TO ARC = 280mm, B TO ARC = 280mm, C TO ARC = 212mm, D TO ARC = 100mm.

3. DRAW LINES FROM POINTS B THROUGH THE CROSS CREATED BY THE ARCS IN 2. ABOVE, TO THE OUTSIDE OF THE TEMPLATE PERIMETER. FOLLOW THE SAME PROCEDURE USING POINTS D.
4. TO COMPLETE THE PERIMETER, EXTEND THE SIDE PANEL TOP EDGES OUTWARD UNTIL THEY INTERSECT THE LINES DRAWN IN 3. ABOVE. THE TEMPLATE IS NOW COMPLETE FOR CUTTING.

FIGURE 2.



(X)



TO DEVELOP TEMPLATE INTO PAN BODY. FIGURES 1 & 2.

1. CUT PERIMETER OF THE TEMPLATE AND CUT PANELS AS DIRECTED IN FIGURE 1.
2. FOLD SIDE PANELS UPWARD TO APPROXIMATELY 80°.
3. FOLD THE FLAPS AT THE SIDES OF THE FRONT AND BACK PANELS TO 90°. TIGHT CORNERS ARE NOT NECESSARY.

4. FOLD REAR BASE FOLDLINE UP TO 60° ANGLE AND ATTACH THE SIDE FLAPS TO THE SIDE PANELS, WITH RIVETS. REMEMBER TO ALIGN TOP EDGES, AND KEEP FLAPS ON OUTSIDE OF THE PANEL.
5. REPEAT THE PROCEDURE OF 4. ABOVE, WITH THE FRONT PANEL TO A 45° ANGLE. ATTACH WITH RIVETS AGAIN.

6. FIGURE 2. SHOWS THE COMPLETED PAN. A STIFFENER IS ATTACHED, WITH RIVETS OR WELDS, TO THE TOP EDGE OF THE PAN. THE MATERIAL USED IS 12 x 3mm MILD STEEL.

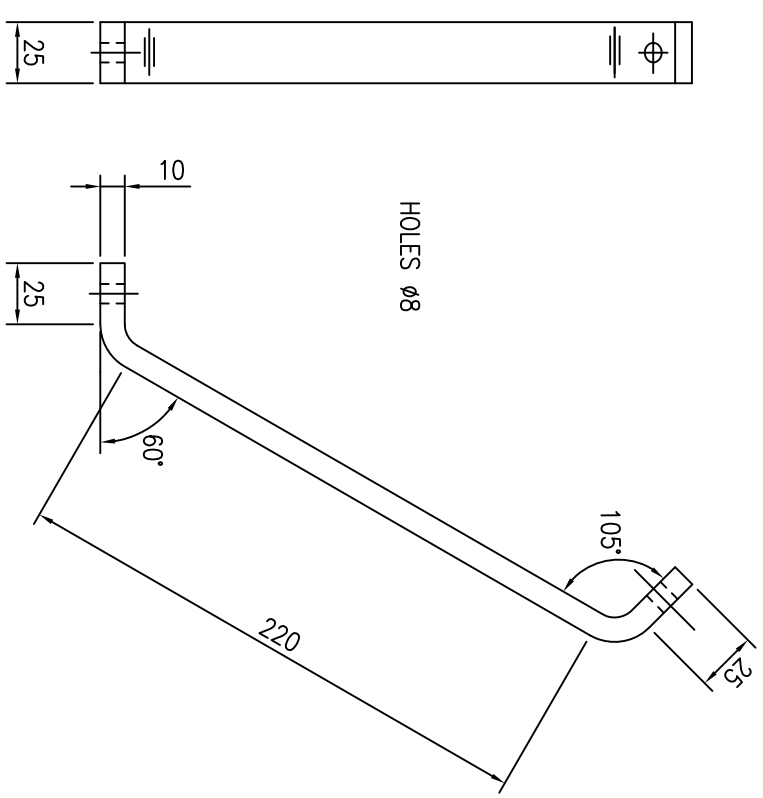
ApT WHEELBARROW

TITLE: PAN DEVELOPMENT

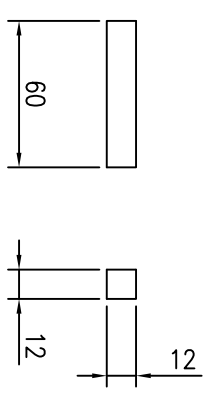
SCALE: 1:10

DRAWN: ABATEC PAGE: 4 of 6

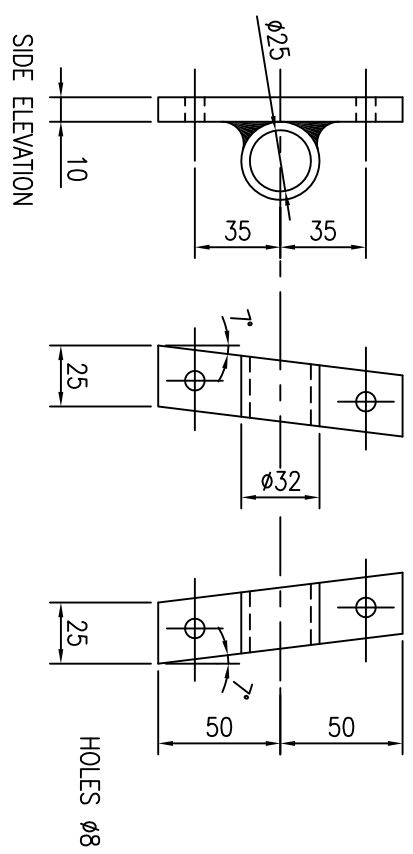
CAD No: ApT-09-4



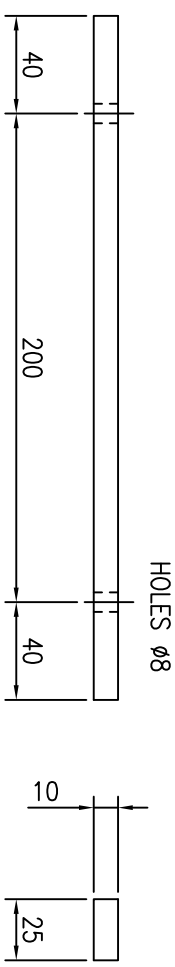
④ FRONT STAY 2-OFF



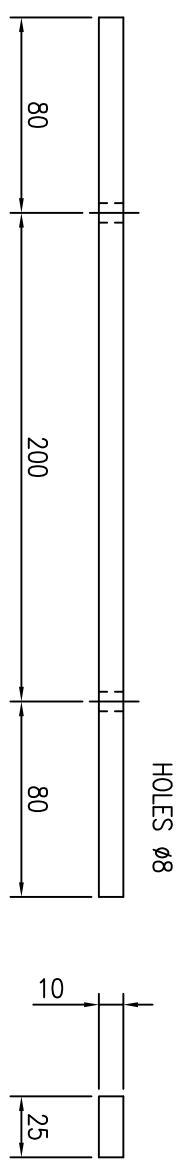
⑤ LEG SUPPORTS 4-OFF



⑧ AXLE BEARING BRACKETS

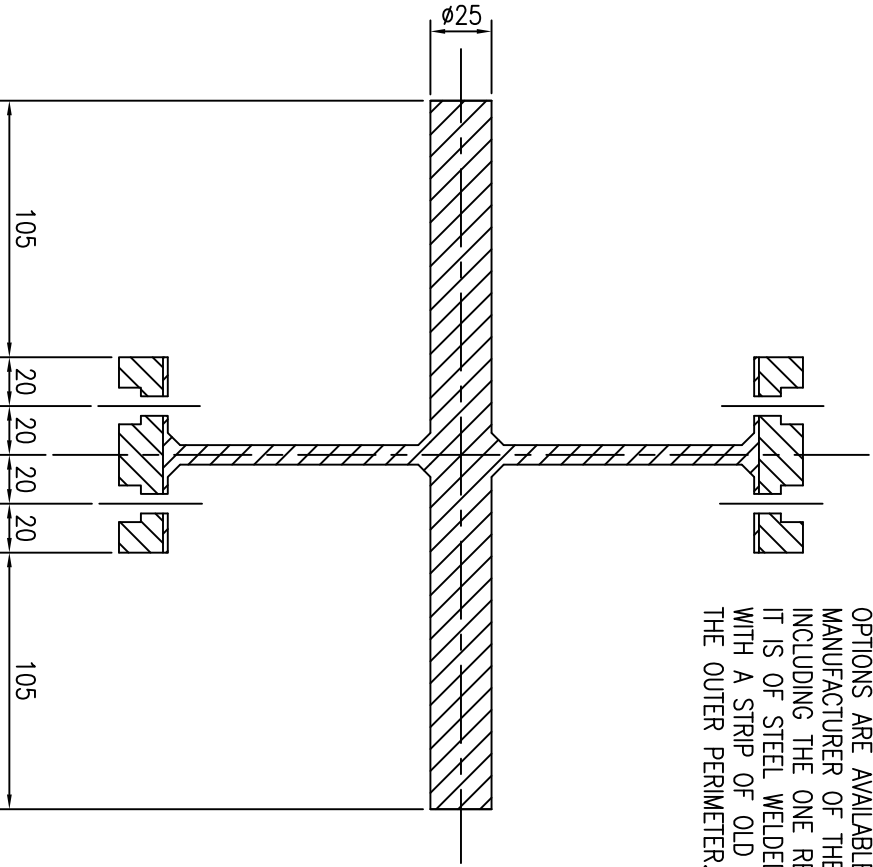
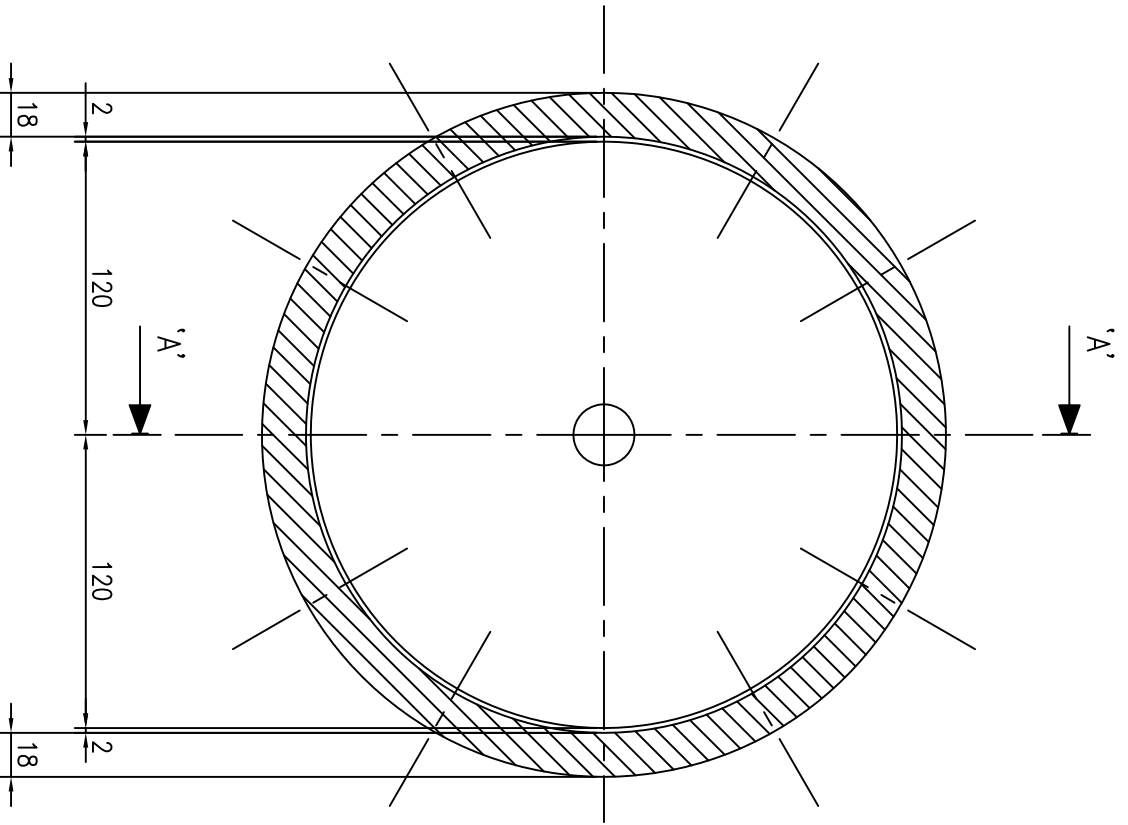


⑦ FRONT MOUNTING BRACKET



⑥ REAR MOUNTING BRACKET

Apt WHEELBARROW	
TITLE: ACCESSORY PARTS	
SCALE: 1:3	
DRAWN: ABATEC	PAGE: 5 of 6
CAD No: APT-09-5	



WHEEL DESIGNS

THE TYPE OF WHEEL SHOWN IN THE ASSEMBLY DRAWING IS OF THE COMMERCIAL PNEUMATIC TYRE CONSTRUCTION. MANY OPTIONS ARE AVAILABLE TO THE MANUFACTURER OF THE WHEELBARROW, INCLUDING THE ONE REPRESENTED BELOW. IT IS OF STEEL WELDED CONSTRUCTION WITH A STRIP OF OLD TYRE BOLTED TO THE OUTER PERIMETER.

SECTION A-A

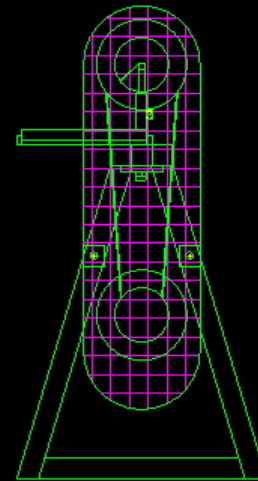
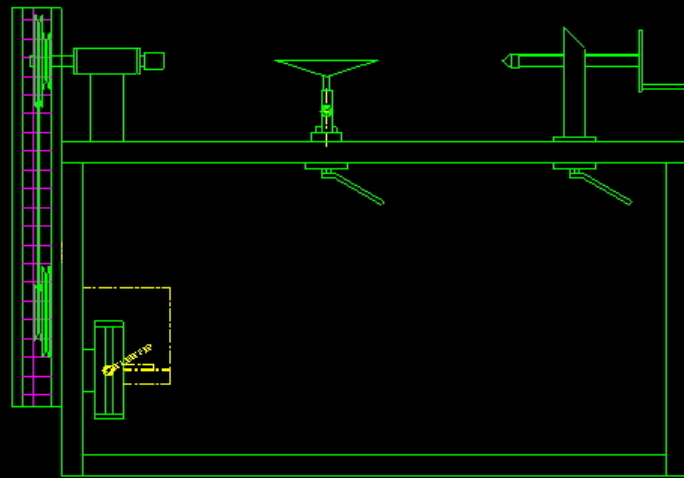
ApT WHEELBARROW	
TITLE: WHEEL DESIGNS	
SCALE: 1:3	
DRAWN: ABATEC	PAGE: 6 of 6
CAD No: APT-09-6	

2.6 Free version

Mini CAD Viewer



Search Apt Wood Lathe



PEN SETTINGS FOR PLOTTING

COLOUR/No.

	1	PEN WIDTH .18
	7	PEN WIDTH .2
	2	} PEN WIDTH .25
	4	
	6	
	3	PEN WIDTH .3

Apt WOOD TURNING LATHE

TITLE: ASSEMBLY

SCALE: 1:10

DRAWN: ABATEC PAGE: 1 of 10

CAD No: APT-15-1



FRAME ASSEMBLY - PARTS

PART	DESCRIPTION	QUANTITY	DIMENSIONS
A1	TOP	2	50mm BOX SECTION 1500mm LONG
A2	BASE	2	50mm RSA 1483mm LONG
A3	LEGS	4	50mm RSA 783mm LONG
A4		2	50mm RSA 150mm LONG
A5	BASE CROSS SUPPORT	2	50mm RSA 500mm LONG
A6		2	12mm SQ. BAR 68mm LONG
A7		2	50mm x 12mm FLAT BAR 70mm LONG
A8		2	25mm x 12mm FLAT BAR 260mm LONG

TOOL POST PARTS

PART	DESCRIPTION	QUANTITY	DIMENSIONS
B1	FRAME	4	25mm x 12mm x 300mm
B2	FRAME	2	25mm x 12mm x 75mm
B3	POST	1	25mm O/D PIPE 125mm LONG

TOOL POST CLAMP PARTS

PART	DESCRIPTION	QUANTITY	DIMENSIONS
C1		2	50 x 12 FLAT BAR 100mm LONG
C2		1	50 x 50 x 1.5 BOX SECTION 20mm LONG
C3		1	3mm PLATE 50mm x 50mm

DRIVE BELT CLAMP PARTS

PART	DESCRIPTION	QUANTITY	DIMENSIONS
D1		1	25mm x 3mm FLAT BAR 143S LONG
D2		2	25mm x 3mm FLAT BAR 70mm LONG
D3		2	50mm x 6mm FLAT BAR 50mm LONG

PEN SETTINGS FOR PLOTTING

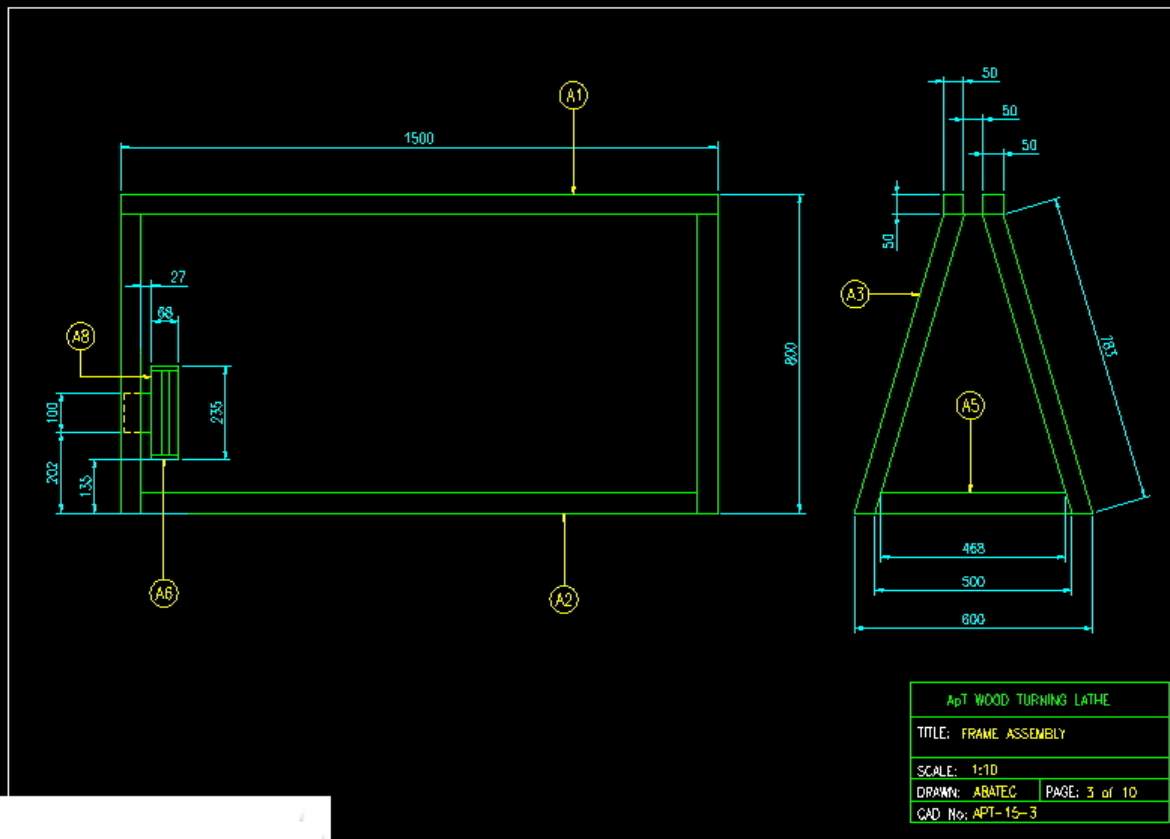
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6	
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Apt WOOD TURNING LATHE

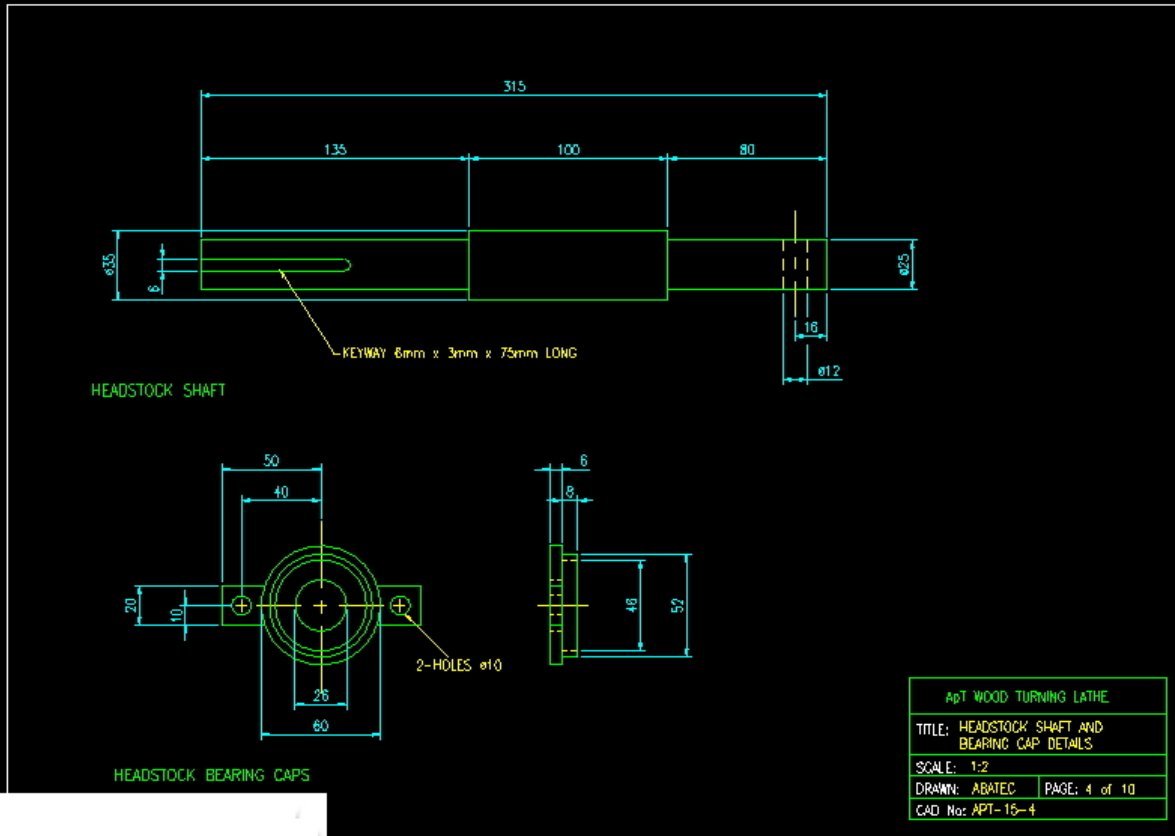
TITLE PARTS LIST

SCALE: DRAWN: ABW/EC PAGE: 2 of 10

CAD No. APT-15-2

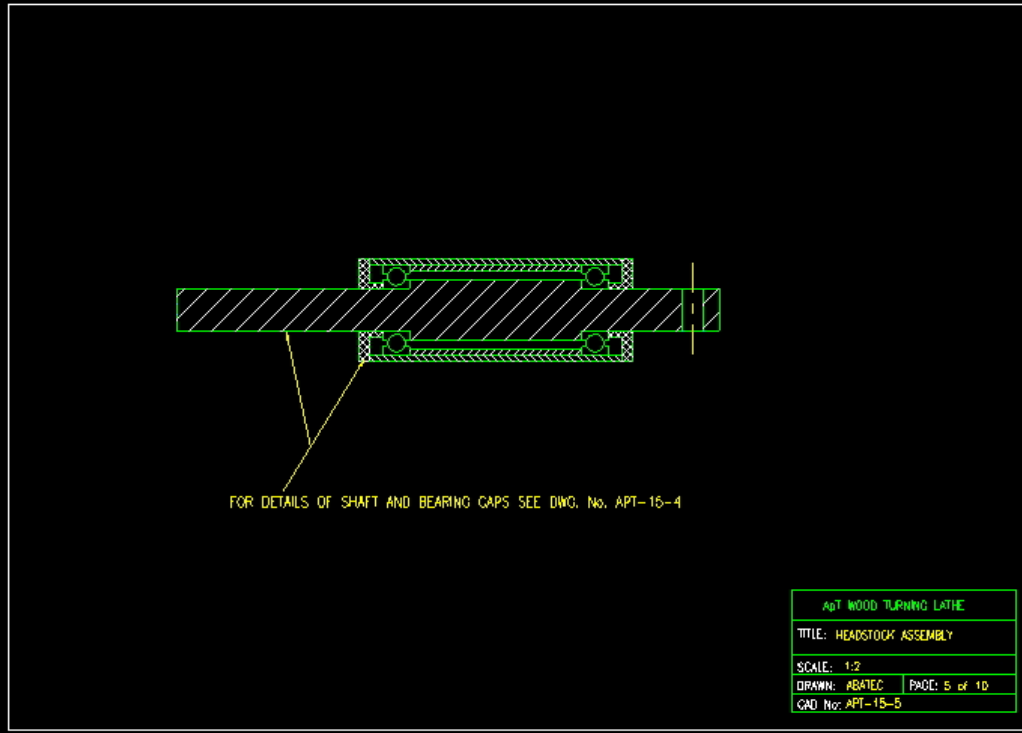


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Cyan	4	
Magenta	6	
Green	3	PEN WIDTH .3



PEN SETTINGS FOR PLOTTING		
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Yellow	2	} PEN WIDTH .25
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Magenta	6	
Green	3	PEN WIDTH .3

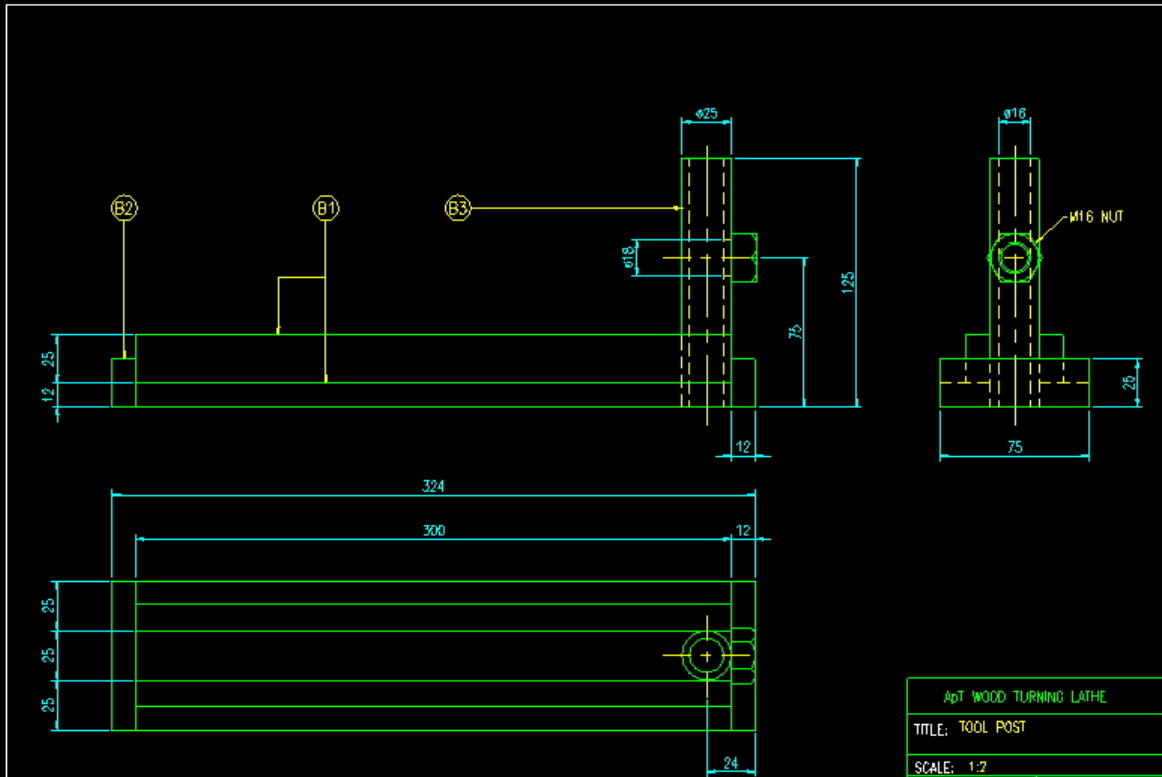




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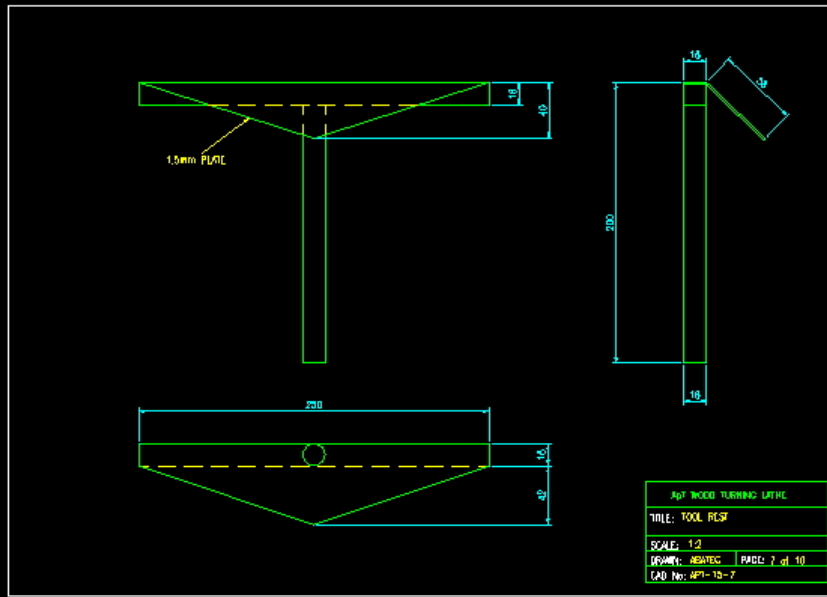
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3	.3





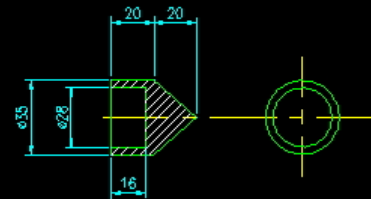
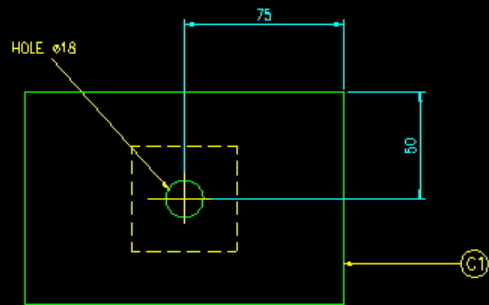
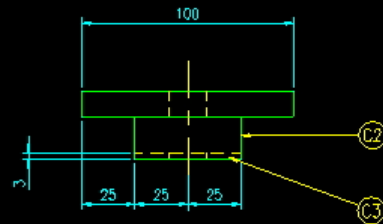
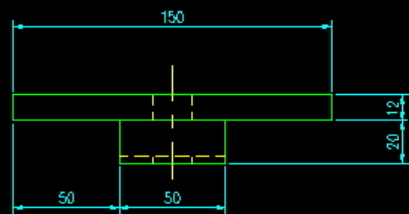
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Yellow	2	} PEN WIDTH .25
Cyan	4	
Magenta	6	
Green	3	PEN WIDTH .3

APT WOOD TURNING LATHE	
TITLE: TOOL POST	
SCALE: 1:2	
DRAWN: ABATEC	PAGE: 8 of 10
CAD No: APT-15-6	



PEN SETTINGS FOR PLOTTING		
COLOUR/No.		
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8		
3	PEN WIDTH	.3





TAIL STOCK CENTRE

TOOL POST CLAMP

PEN SETTINGS FOR PLOTTING

COLOUR/No.

- | | | |
|--|---|-----------------|
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| | 6 | |
| | 3 | PEN WIDTH .3 |

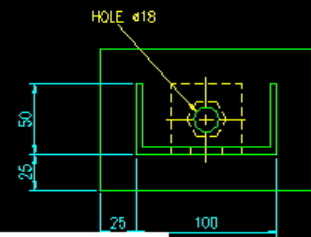
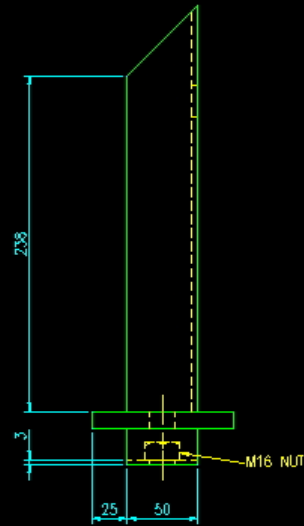
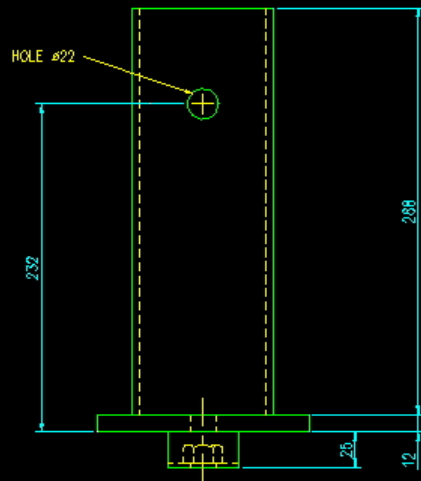
ApT WOOD TURNING LATHE

TITLE: TOOL POST CLAMP &
TAIL STOCK CENTRE

SCALE: 1:2

DRAWN: ABATEC PAGE: 8 of 10

CAD No: APT-15-8



PEN SETTINGS FOR PLOTTING

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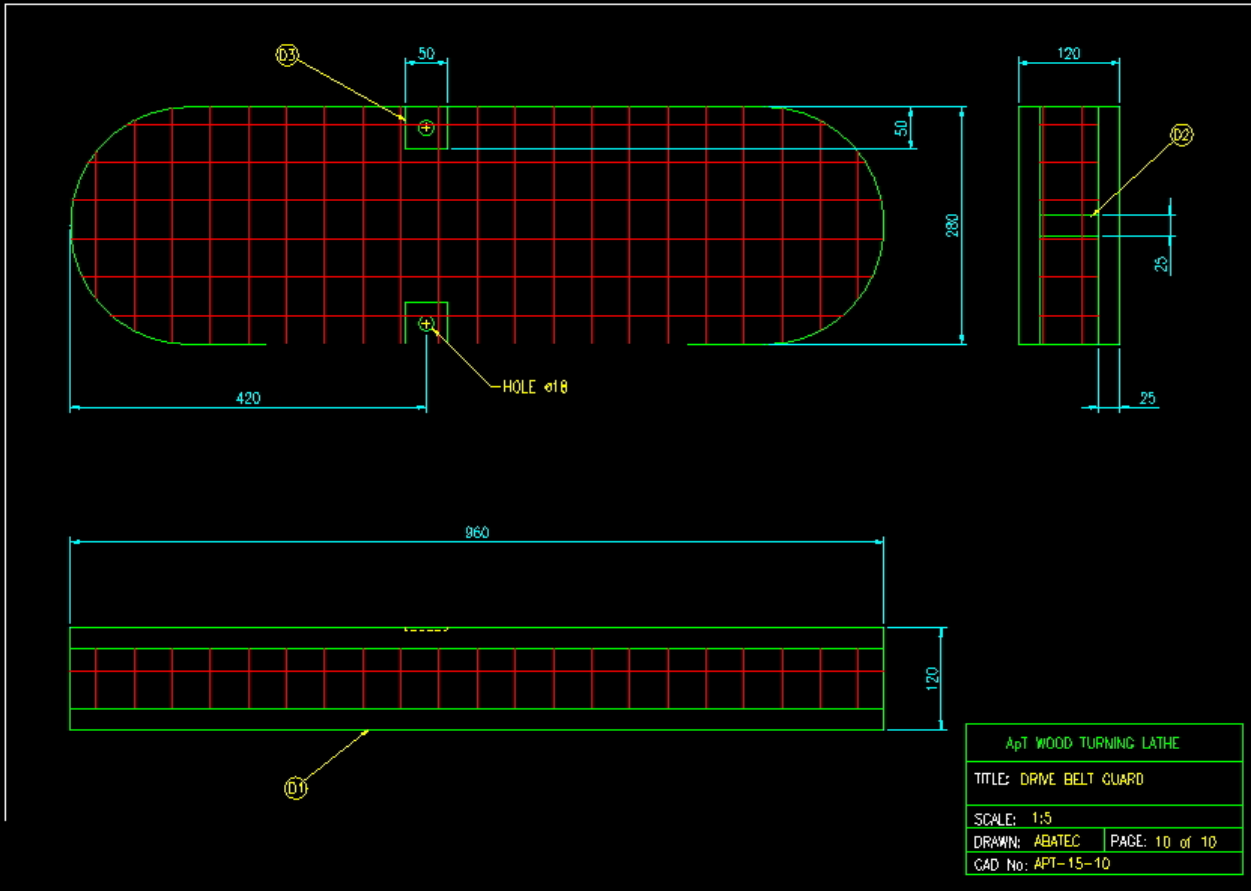
ApT WOOD TURNING LATHE

TITLE: TAIL STOCK

SCALE: 1:3

DRAWN: ABATEC PAGE: 9 of 10

CAD No: APT-15-9



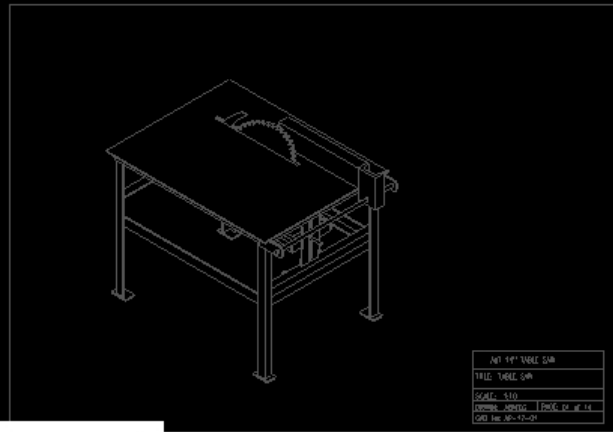
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Green	3	PEN WIDTH .3

2.6 Free version

Mini CAD Viewer





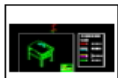
A) MAIN FRAME -		
PART	QUANTITY	DIMENSIONS
A1	4	40 x 40 x 6 ANGLE x 700mm
A2	2	40 x 40 x 6 ANGLE x 830mm
A3	3	40 x 40 x 6 ANGLE x 830mm
B) TOP FRAME -		
PART	QUANTITY	DIMENSIONS
B1	2	50 x 50 x 6 ANGLE x 850mm
B2	2	50 x 50 x 6 ANGLE x 850mm
C) MOUNTING FRAME -		
PART	QUANTITY	DIMENSIONS
C1	2	6mm PLATE 340 x 40
C2	2	40 x 40 x 4 ANGLE x 250mm
C3	2	40 x 40 x 6 ANGLE x 810mm
C4	3	40 x 40 x 6 ANGLE x 713mm
D) FENCE -		
PART	QUANTITY	DIMENSIONS
D1	1	ø20 BAR x 450mm
D2	1	100 x 50 CHANNEL x 450mm
D3	1	100 x 50 CHANNEL x 165mm
D4	2	ø38 BAR x 150mm
D5	2	6mm PLATE 125mm x 50mm
E) BLADE ASSEMBLY		
PART	QUANTITY	DIMENSIONS
E1	1	M20 x 2.5 THREADED BAR x 400mm
E2	1	ø38 BAR x 30mm
E3	2	M20 NUT
E4	4	ø24 BAR x 84mm
E5	2	6mm PLATE 85mm x 100mm
E6	1	ø38 BAR x 100mm
F) BLADE SYMBOL -		
PART	QUANTITY	DIMENSIONS
F1	1	ø38mm BAR x 300mm
F2	1	ø65 BAR x 30mm
F3	1	ø65 BAR x 45mm
G) TABLE TOP		
PART	QUANTITY	DIMENSIONS
G1	1	6mm PLATE 960mm x 780mm
MISCELLANEOUS PARTS -		
PART	QUANTITY	DIMENSIONS
M1	2	6mm PLATE 50mm x 200mm
M2	2	6mm PLATE 280mm x 280mm
M3	4	6mm PLATE 80mm x 50mm
WASHER	2	M20
SPLIT PIN	2	x 70 LONG

SOME OF THE ABOVE PARTS REQUIRE MACHINING ON A LATHE, THEREFORE A GAUGING LENGTH 30mm ON THE RAW MATERIAL MUST BE ADDED.

Apt 14" TABLE SAM	
TITLE: PARTS LISTS	
SCALE:	
DRAWN: AB/LEC	DATE: 2 of 14
CAD No: AP-17-00	

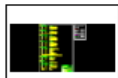


Apt Wood Table Saw



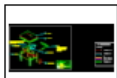
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AP-17-01



DWG File

AP-17-02



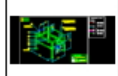
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AP-17-03



DWG File

AP-17-04



DWG File

AP-17-05



DWG File

AP-17-06



DWG File

AP-17-07



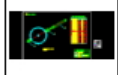
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DWG File

AP-17-09



DWG File

AP-17-10



DWG File

AP-17-11



DWG File

AP-17-12



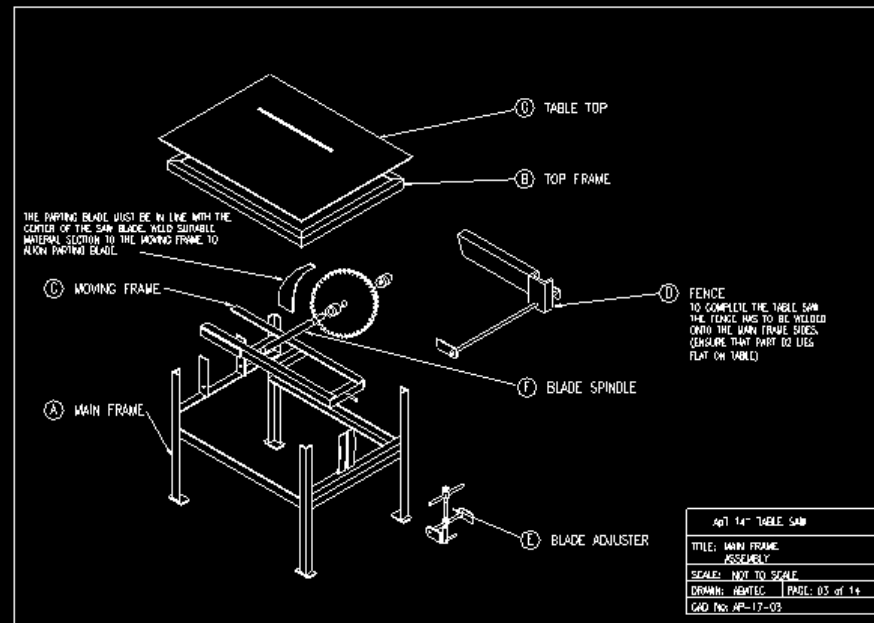
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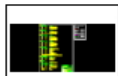


Apt Wood Table Saw



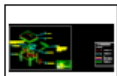
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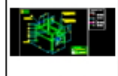
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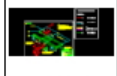
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AP-17-04



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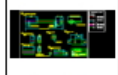
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AP-17-06



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AP-17-07



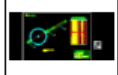
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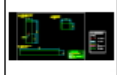
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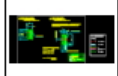
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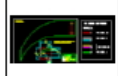


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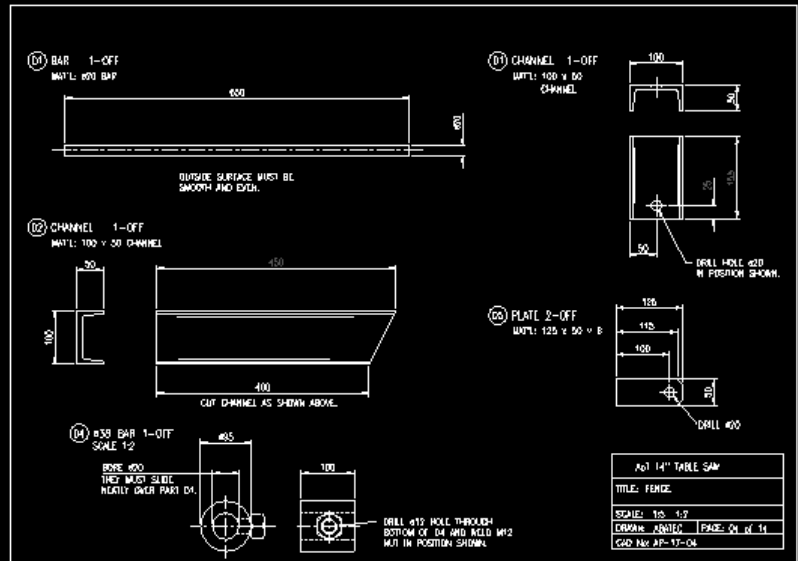
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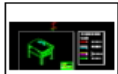


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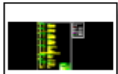


Apt Wood Table Saw



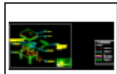
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AP-17-01



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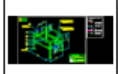
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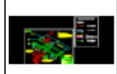
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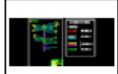
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AP-17-05



DWG File

AP-17-06



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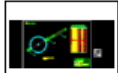
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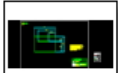
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AP-17-09



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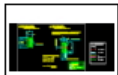
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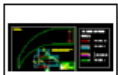


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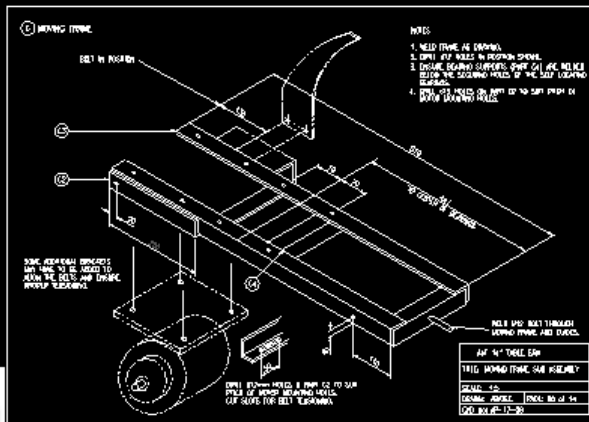
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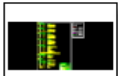


Apt Wood Table Saw



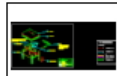
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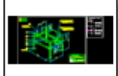
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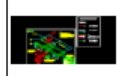
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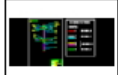
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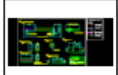
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AP-17-07



DWG File

AP-17-08



DWG File

AP-17-09



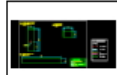
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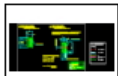
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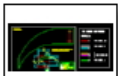


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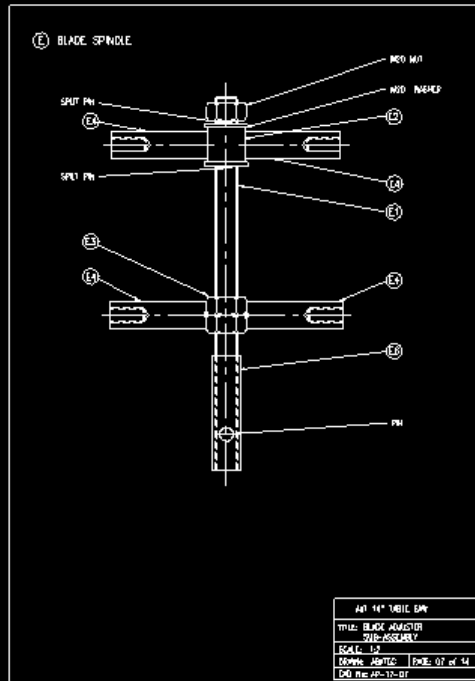
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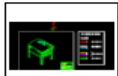


DWG File



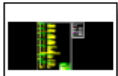


Apt Wood Table Saw



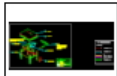
DWG File

AP-17-01



DWG File

AP-17-02



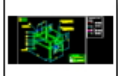
DWG File

AP-17-03



DWG File

AP-17-04



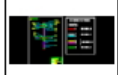
DWG File

AP-17-05



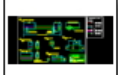
DWG File

AP-17-06



DWG File

AP-17-07



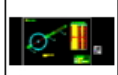
DWG File

AP-17-08



DWG File

AP-17-09



DWG File

AP-17-10



DWG File

AP-17-11

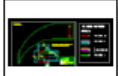


DWG File

AP-17-12



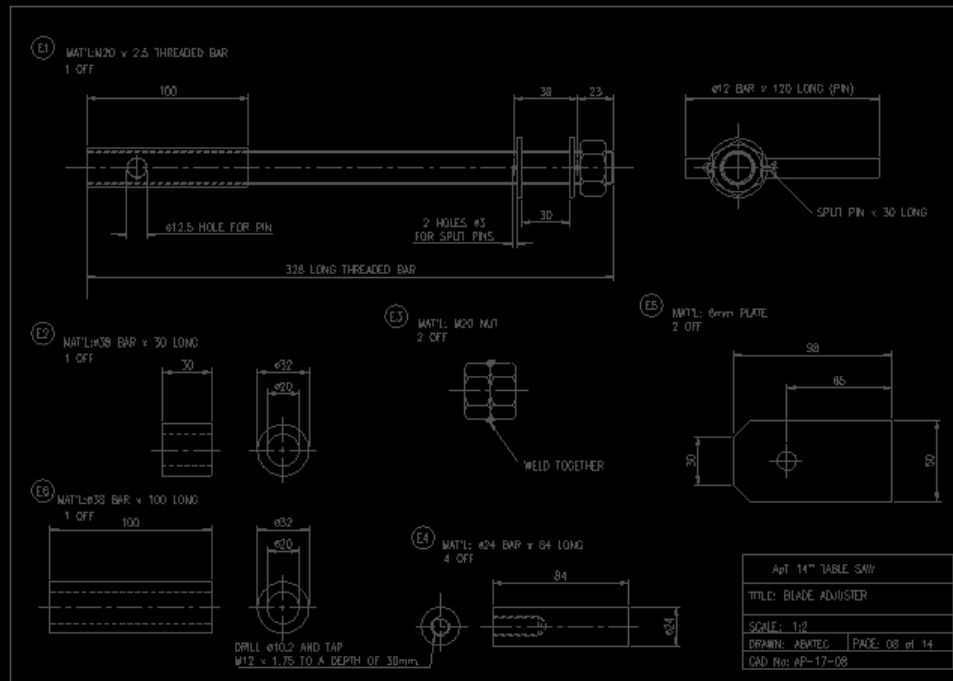
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DWG File



DWG File



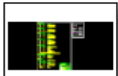


Apt Wood Table Saw



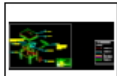
DWG File

AP-17-01



DWG File

AP-17-02



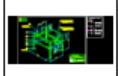
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AP-17-03



DWG File

AP-17-04



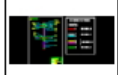
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AP-17-05



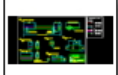
DWG File

AP-17-06



DWG File

AP-17-07



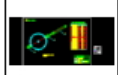
DWG File

AP-17-08



DWG File

AP-17-09



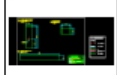
DWG File

AP-17-10



DWG File

AP-17-11

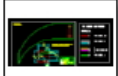


DWG File

AP-17-12



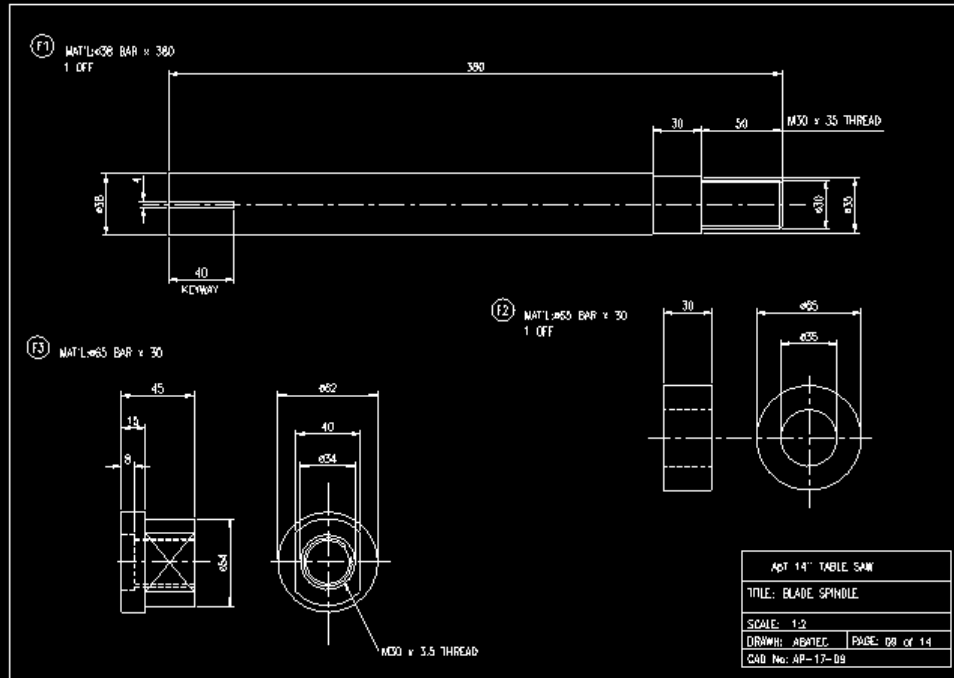
DWG File



DWG File



DWG File



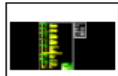


Apt Wood Table Saw



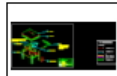
DWG File

AP-17-01



DWG File

AP-17-02



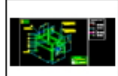
DWG File

AP-17-03



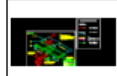
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AP-17-04



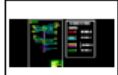
DWG File

AP-17-05



DWG File

AP-17-06



DWG File

AP-17-07



DWG File

AP-17-08



DWG File

AP-17-09



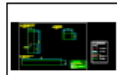
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AP-17-10



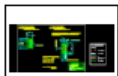
DWG File

AP-17-11



DWG File

AP-17-12



DWG File



DWG File



DWG File

Ⓕ BLADE SPINDLE

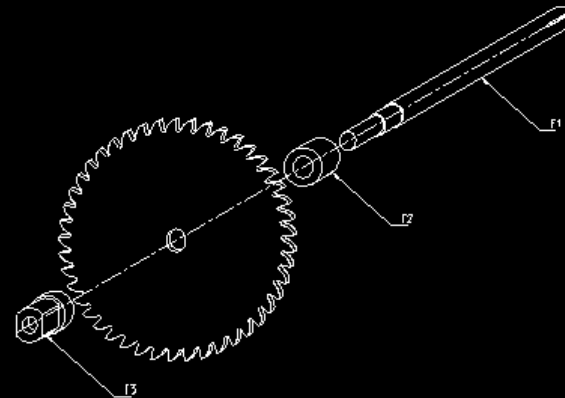


TABLE SAW BLADE SPEEDS

DIAMETER OF BLADE	BLADE SPEED (RPM)
200mm (8")	4,500
250mm (10")	3,600
300mm (12")	3,000
350mm (14")	2,600
400mm (16")	2,200
450mm (18")	2,000
500mm (20")	1,800
550mm (22")	1,650
600mm (24")	1,500
650mm (26")	1,400
700mm (28")	1,300
750mm (30")	1,200
800mm (32")	1,125
850mm (34")	1,050
900mm (36")	1,000
950mm (38")	950
1,000mm (40")	900
1,050mm (42")	870
1,100mm (44")	840
1,150mm (46")	800
1,200mm (48")	750
1,250mm (50")	725
1,300mm (52")	700
1,350mm (54")	675

THE PARTS SHOULD ASSEMBLE AS SHOWN.

Apt 14" TABLE SAW	
TITLE: BLADE SPINDLE SUB ASSEMBLY	
SCALE: 1:1	
DRAWN: ABATEC	PAGE: 10 of 14
CAD No: AP-17-10	

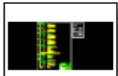


Apt Wood Table Saw



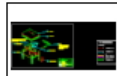
DWG File

AP-17-01



DWG File

AP-17-02



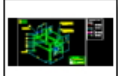
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AP-17-03



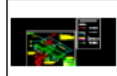
DWG File

AP-17-04



DWG File

AP-17-05



DWG File

AP-17-06



DWG File

AP-17-07



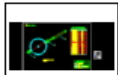
DWG File

AP-17-08



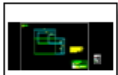
DWG File

AP-17-09



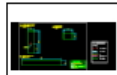
DWG File

AP-17-10



DWG File

AP-17-11



DWG File

AP-17-12



DWG File

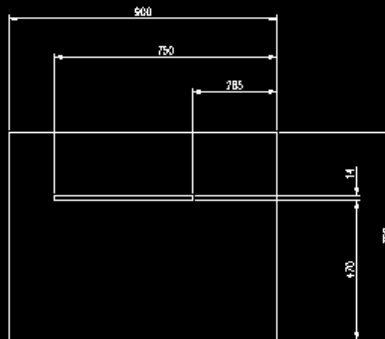


DWG File



DWG File

TABLE TOP



THE TABLE TOP MUST BE ATTACHED TO THE TOP FRAME (PART 15) USING CSM SCREWS IN EXPANDED POSITIONS. DO NOT WELD AS THIS WILL CAUSE DISTORTION (SEE ASSEMBLY DETAILS).

Apt 14" TABLE SAW	
TITLE: TABLE TOP	
SCALE: 1:5	PAGE: 11 of 14
DRAWN: ABATIC	CAD No: AP-17-11

2.6 Free version

Mini CAD Viewer

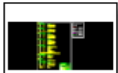


Apt Wood Table Saw



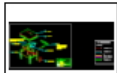
DWG File

AP-17-01



DWG File

AP-17-02



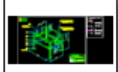
DWG File

AP-17-03



DWG File

AP-17-04



DWG File

AP-17-05



DWG File

AP-17-06



DWG File

AP-17-07



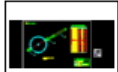
DWG File

AP-17-08



DWG File

AP-17-09



DWG File

AP-17-10



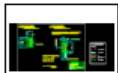
DWG File

AP-17-11

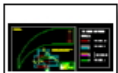


DWG File

AP-17-12



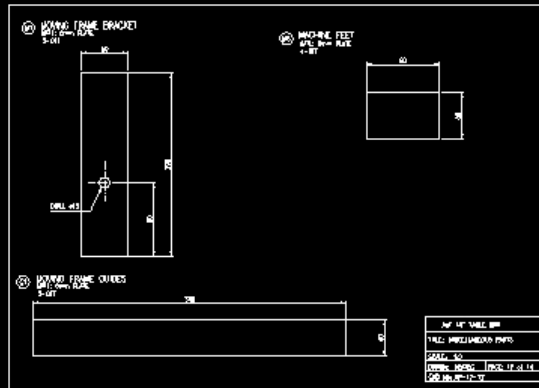
DWG File



DWG File



DWG File



X:2299417165 Y:705.121458985984

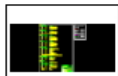


Apt Wood Table Saw



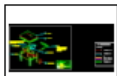
DWG File

AP-17-01



DWG File

AP-17-02



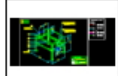
DWG File

AP-17-03



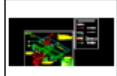
DWG File

AP-17-04



DWG File

AP-17-05



DWG File

AP-17-06



DWG File

AP-17-07



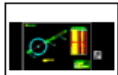
DWG File

AP-17-08



DWG File

AP-17-09



DWG File

AP-17-10



DWG File

AP-17-11



DWG File

AP-17-12



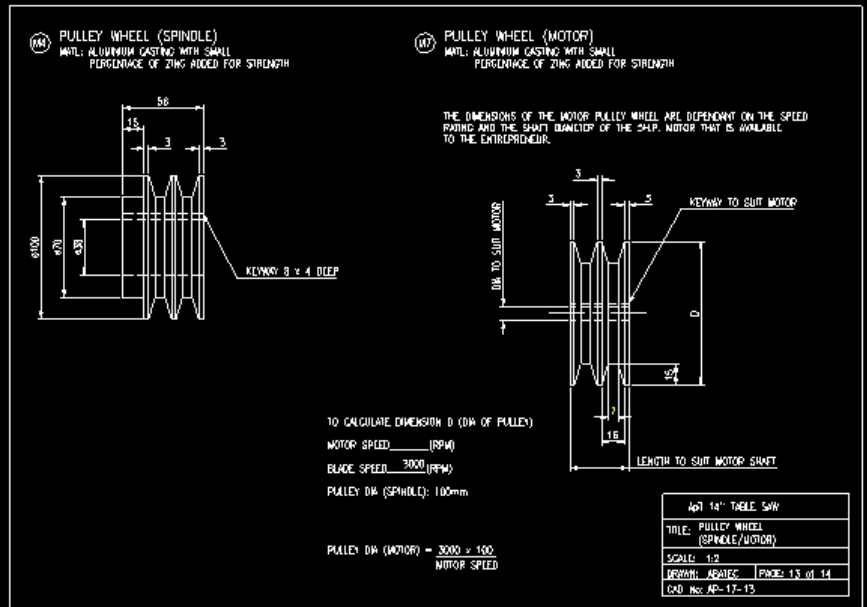
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DWG File



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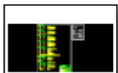


Apt Wood Table Saw



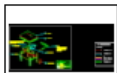
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AP-17-01



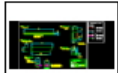
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AP-17-02



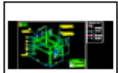
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AP-17-03



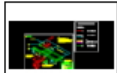
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AP-17-04



DWG File

AP-17-05



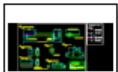
DWG File

AP-17-06



DWG File

AP-17-07



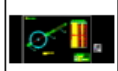
DWG File

AP-17-08



DWG File

AP-17-09



DWG File

AP-17-10



DWG File

AP-17-11



DWG File

AP-17-12



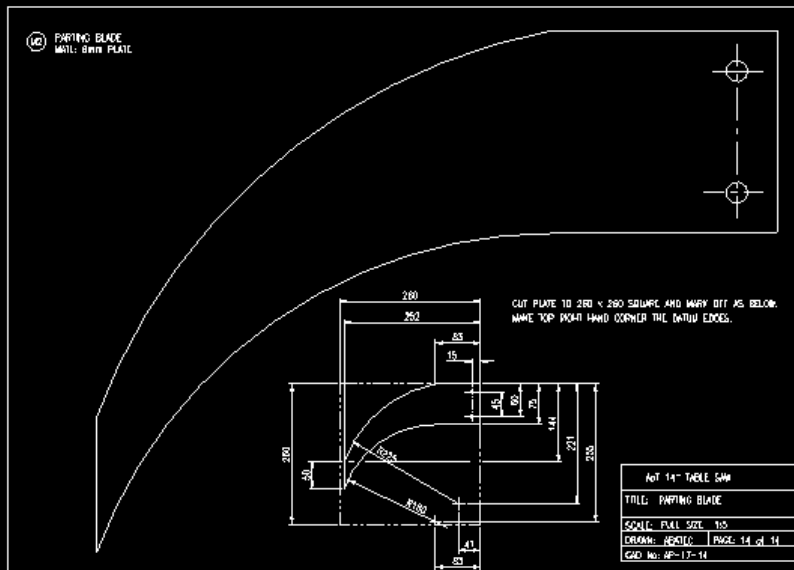
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DWG File

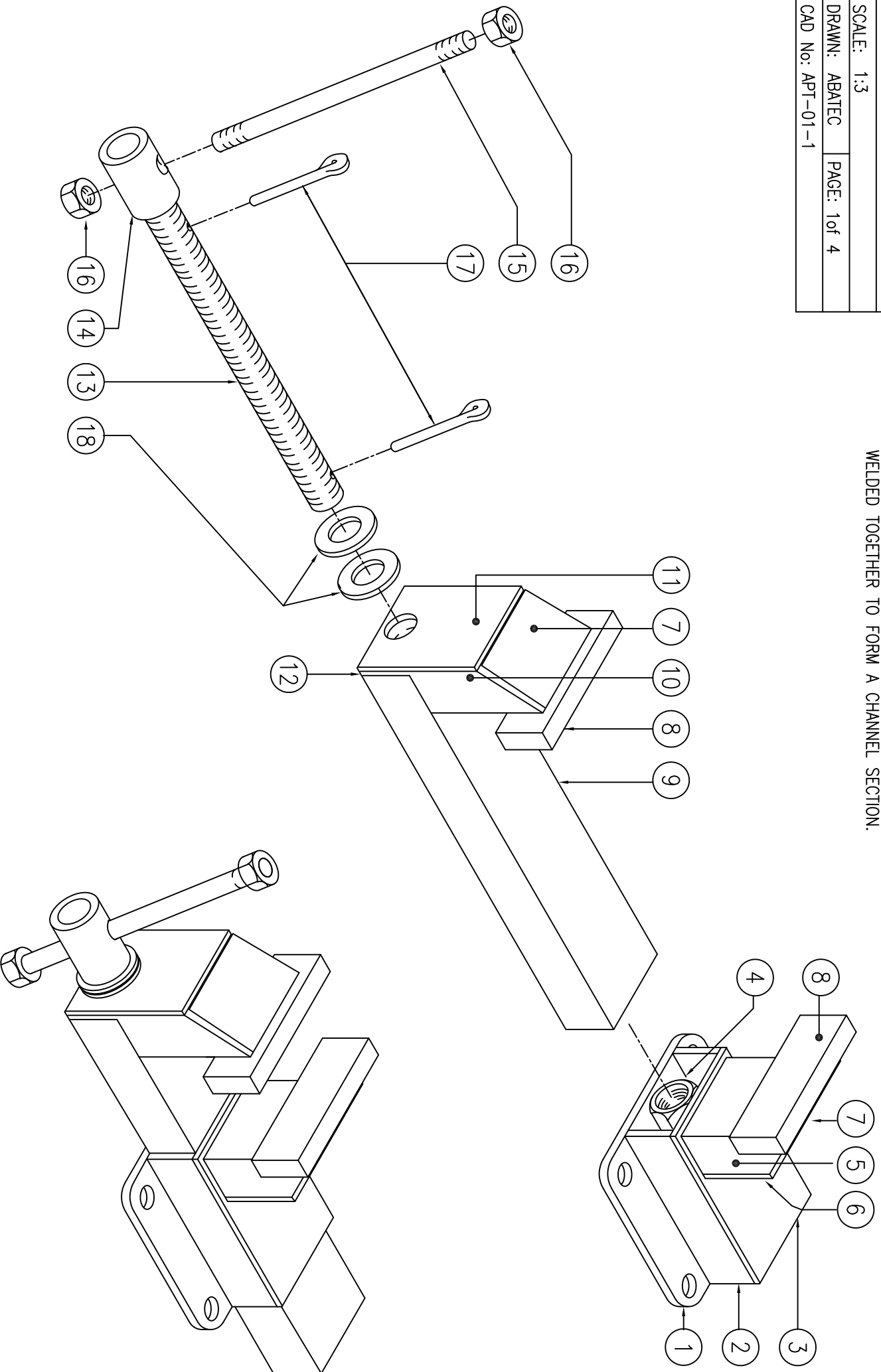


DWG File



APT ENGINEERS BENCH VICE	
TITLE: ASSEMBLY DRAWING	
SCALE: 1:3	PAGE: 1 of 4
DRAWN: ABATEC	CAD No: APT-01-1

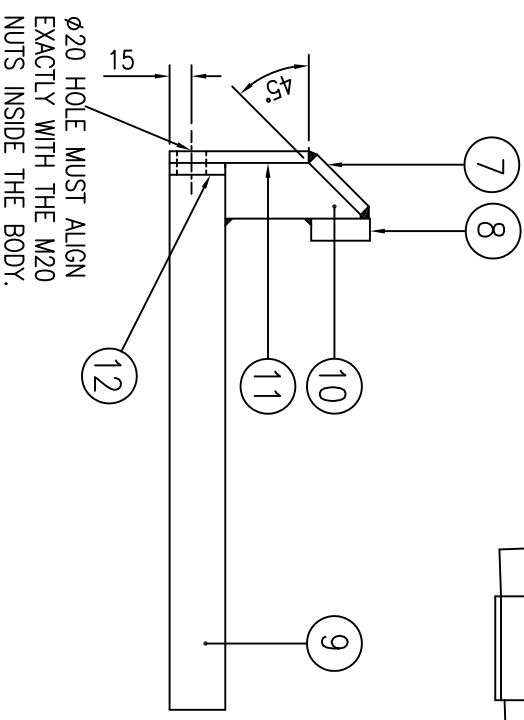
THE DESIGN IS BASED ON CHANNEL SECTION FOR THE SLIDE, SLIDE TOWER AND BODY TOWER. IF THIS IS UNAVAILABLE, IT CAN BE REPLACED USING PLATE OR TWO LENGTHS OF ANGLE IRON WELDED TOGETHER TO FORM A CHANNEL SECTION.



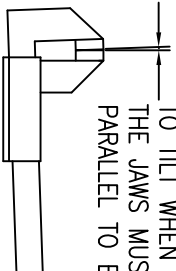
No.	DESCRIPTION	QUANTITY	DIMENSIONS
1	BASE	1	8 x 150 x 150
2	BODY SIDE	2	8 x 150 x 38
3	BODY TOP	1	8 x 150 x 95
4	NUT	2	M20 NUT
5	BODY TOWER	1	38 x 77 CHANNEL SECTION x 85
6	BODY BACK	1	8 x 77 x 50
7	TOWER TOP	2	8 x 77 x 50
8	JAW	2	15 x 40 x 120
9	SLIDE	1	38 x 77 CHANNEL SECTION x 365
10	SLIDE TOWER	1	38 x 77 CHANNEL SECTION x 90
11	SLIDE BACK	1	8 x 77 x 95
12	BACK SUPPORT	1	8 x 77 x 38
13	THREAD	1	M20 STUDDING x 350
14	BOSS	1	∅30 (∅20 BORE) x 70
15	HANDLE	1	∅12 x 200
16	NUT	2	M12 NUT
17	SPLIT PIN	2	∅5 x 50 SPLIT PIN OR NAIL
18	WASHERS	2	M20 WASHER

ApT ENGINEERS BENCH VICE	
TITLE: PARTS LIST	
SCALE:	
DRAWN: ABATEC	PAGE: 2 of 4
CAD No: APT-01-2	

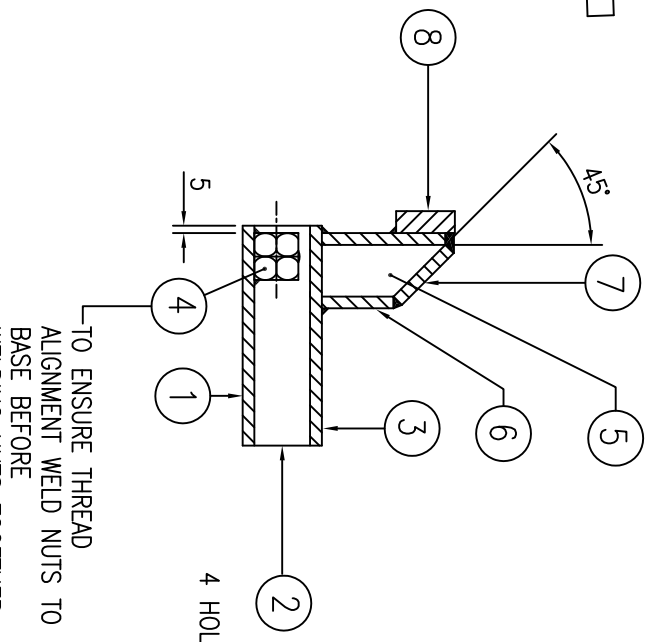
ApT ENGINEERS BENCH VICE	
TITLE: VICE SUB-ASSEMBLIES	
SCALE: 1:5	PAGE: 3 of 4
DRAWN: ABATEC	CAD No: ApT-01-3



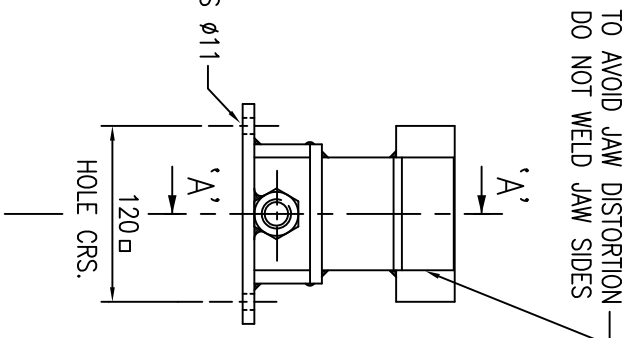
φ20 HOLE MUST ALIGN EXACTLY WITH THE M20 NUTS INSIDE THE BODY.



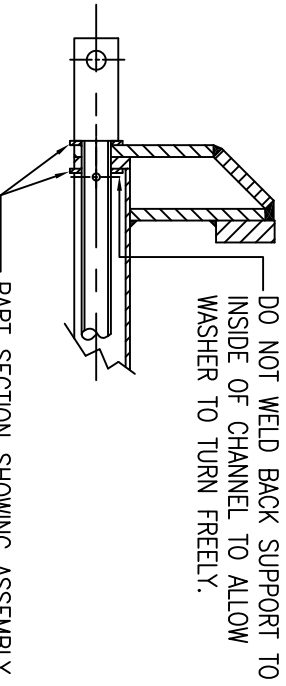
THE CHANNEL SECTION SLIDE MUST BE A GOOD SNUG FIT INSIDE THE BODY SO AS NOT TO TILT WHEN TIGHTENED. THE JAWS MUST CLOSE PARALLEL TO EACH OTHER.



TO ENSURE THREAD ALIGNMENT WELD NUTS TO BASE BEFORE WELDING NUTS TOGETHER.

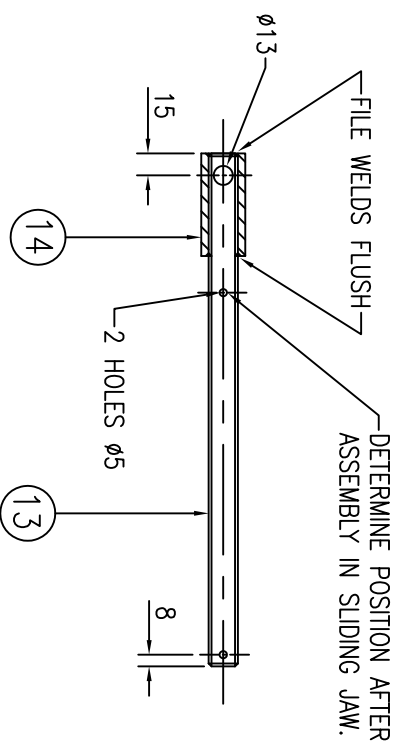
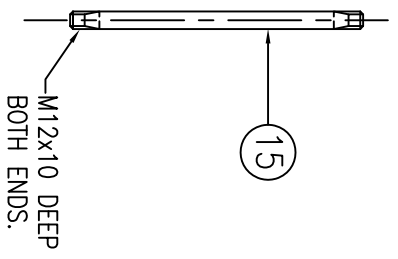


TO AVOID JAW DISTORTION DO NOT WELD JAW SIDES



DO NOT WELD BACK SUPPORT TO INSIDE OF CHANNEL TO ALLOW WASHER TO TURN FREELY.

PART SECTION SHOWING ASSEMBLY OF THREAD INTO SLIDING JAW. THE SPLIT PIN SECURES THE TWO WASHERS EITHER SIDE OF THE SLIDE BACK.



DETERMINE POSITION AFTER ASSEMBLY IN SLIDING JAW.

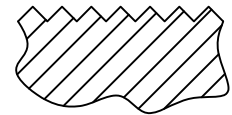
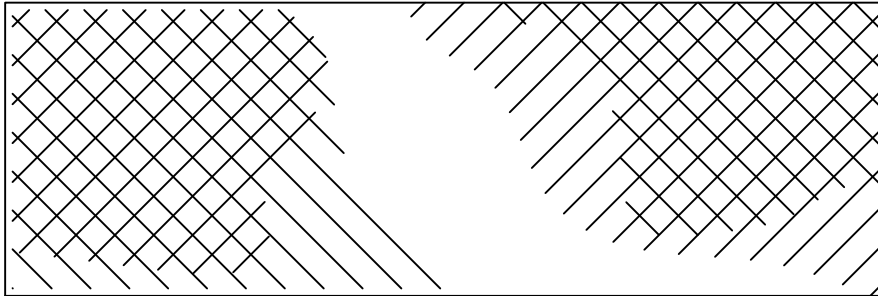
FILE WELDS FLUSH

KNURLED JAW SURFACE

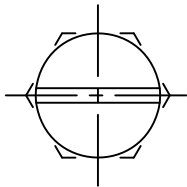
1. SCRIBE LINES
AT 45° AS
A GUIDE.

2. USE A COLD CHISEL
TO PRODUCE A
KNURLED GRIPPING
SURFACE.

ENLARGED SECTION
OF KNURLED SURFACE.
NOTE TOP SURFACE
MUST BE FLAT TO
CLAMP EFFECTIVELY
WITH OPPOSITE JAW.

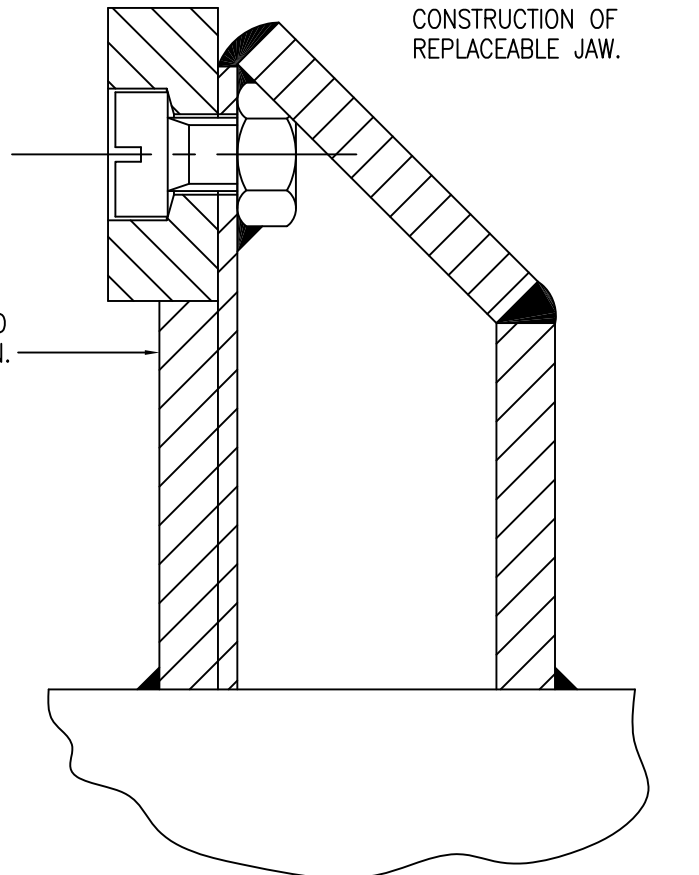


REPLACEABLE JAWS



ROUND OFF THE HEADS
OF FOUR M10 BOLTS
AND SAW A SLOT
ACROSS.

JAW SUPPORT PLATE WELDED
TO TOWER CHANNEL SECTION.



PART SECTION SHOWING
CONSTRUCTION OF
REPLACEABLE JAW.

HARD JAWS

IF HARD JAWS ARE REQUIRED, THESE CAN
BE MADE FROM LORRY LEAF-SPRING:

1. ANNEAL BEFORE CUTTING JAWS (HEAT TO
DULL RED AND COOL VERY SLOWLY).
2. AFTER MAKING THEM, RE-HARDEN BY
HEATING TO DULL RED AND QUENCHING IN OIL.

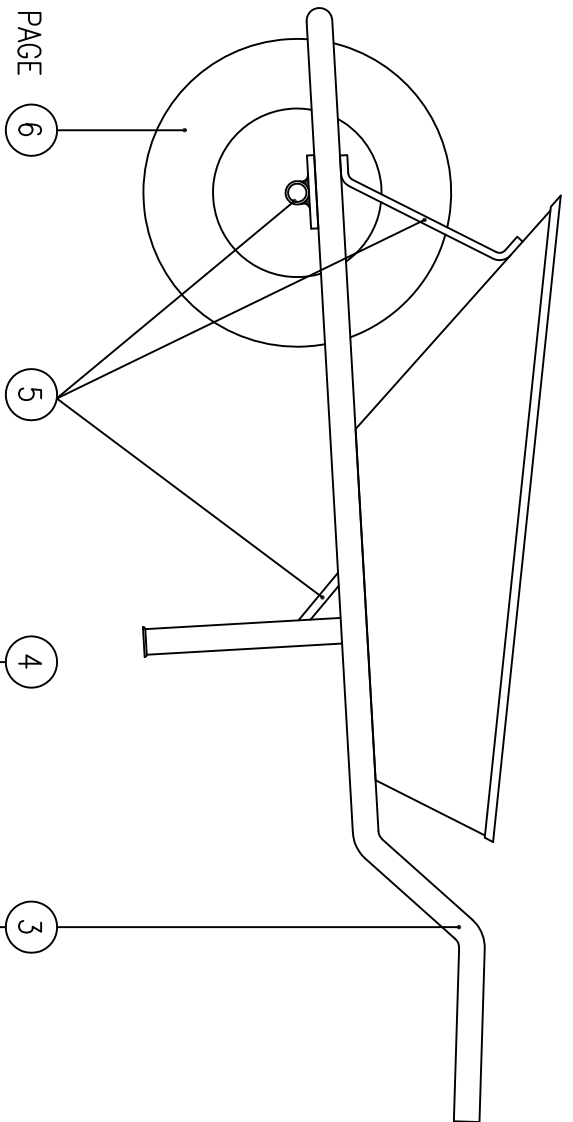
ApT ENGINEERS BENCH VICE

TITLE: JAW OPTIONS

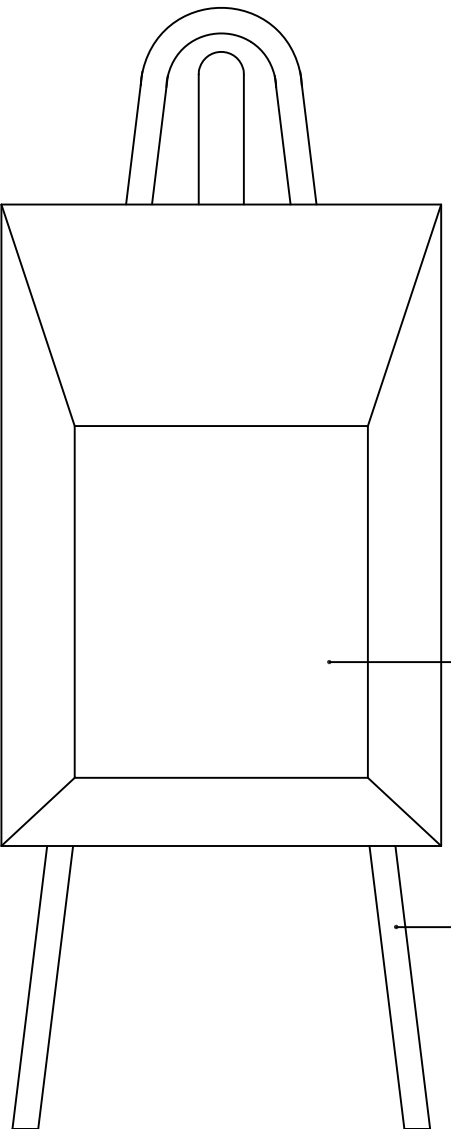
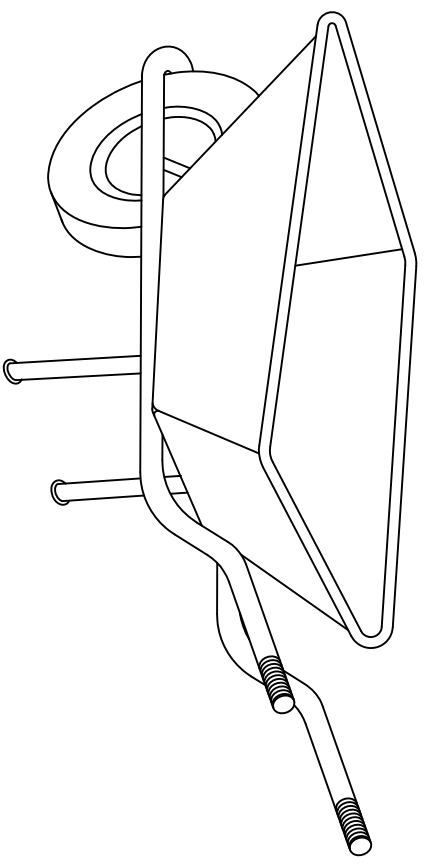
SCALE: 1:1

DRAWN: ABATEC PAGE: 4 of 4

CAD No: APT-01-4



PAGE 6



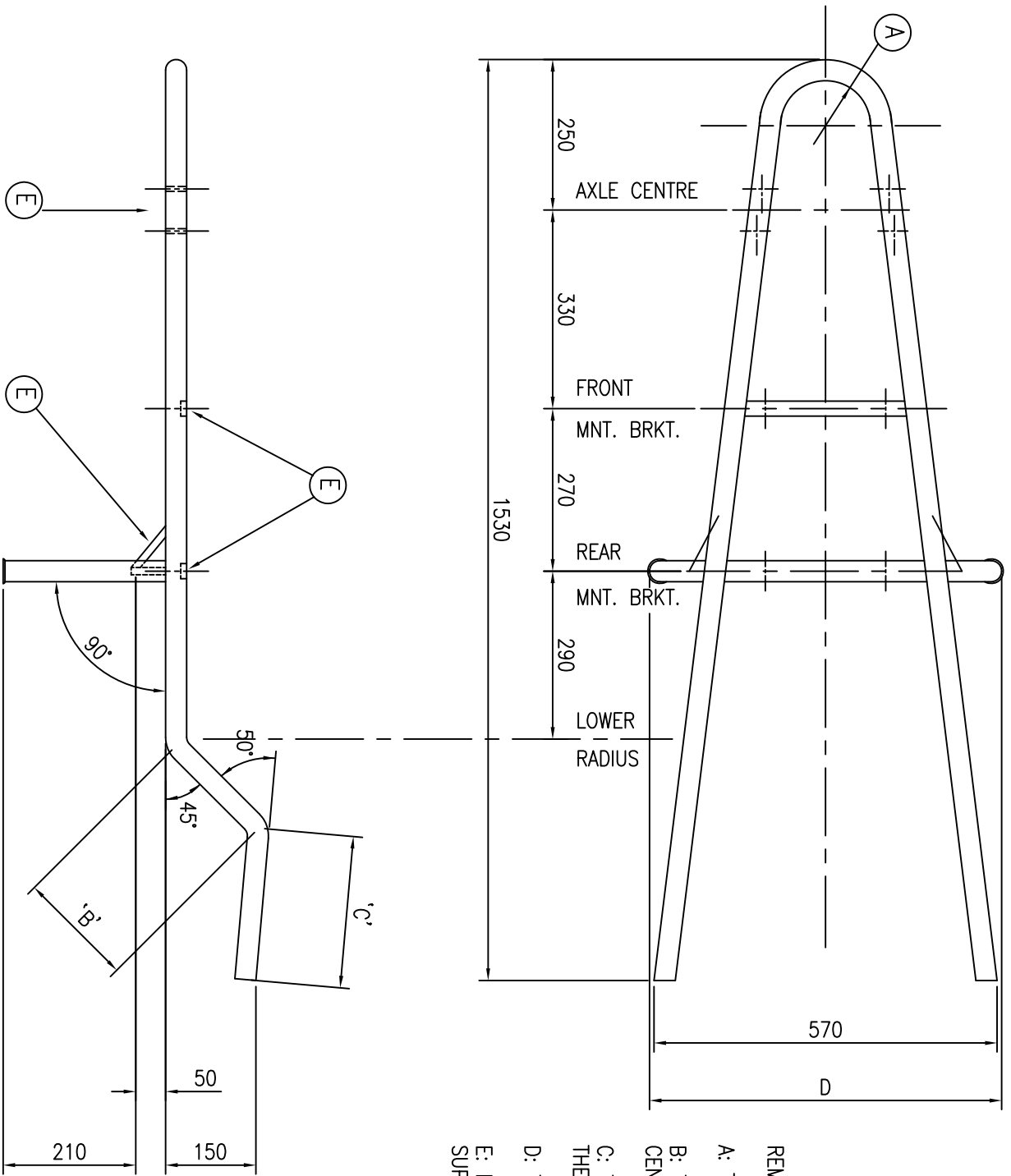
DOCUMENT CONTENTS:

- PAGE
1. ASSEMBLY DRAWING
 2. PARTS LIST
 3. CHASSIS
 4. PAN DEVELOPMENT
 5. ACCESSORY PARTS
 6. WHEEL DESIGNS

Apt WHEELBARROW	
TITLE: ASSEMBLY DRAWING	
SCALE: 1:10	
DRAWN: ABATEC	PAGE: 1 of 6
CAD No: APT-09-1	

No.	DESCRIPTION	MATERIAL	QUANTITY
1	CHASSIS	25mm I/DIA. WATER PIPE	4 METRES
2	PAN	MILD STEEL SHEET	1080 x 1000mm x 1mm MIN.
3	EDGE STIFFENER	12 x 3mm MILD STEEL	2960mm
4	FRONT STAYS	25 x 10mm MILD STEEL	540mm
5	LEG SUPPORTS	12 x 12mm MILD STEEL	240mm
6	REAR MTG. BRACKET	25 x 10mm MILD STEEL	360mm
7	FRONT MTG. BRACKET	25 x 10mm MILD STEEL	280mm
8	AXLE BRG. BRACKETS	25 x 10mm MILD STEEL	220mm
		25mm I/DIA. WATER PIPE	100mm
9	WHEEL	AS REQUIRED	

ApT WHEELBARROW	
TITLE: PARTS LIST	
SCALE:	
DRAWN: ABATEC	PAGE: 2 of 6
CAD No: APT-09-2	

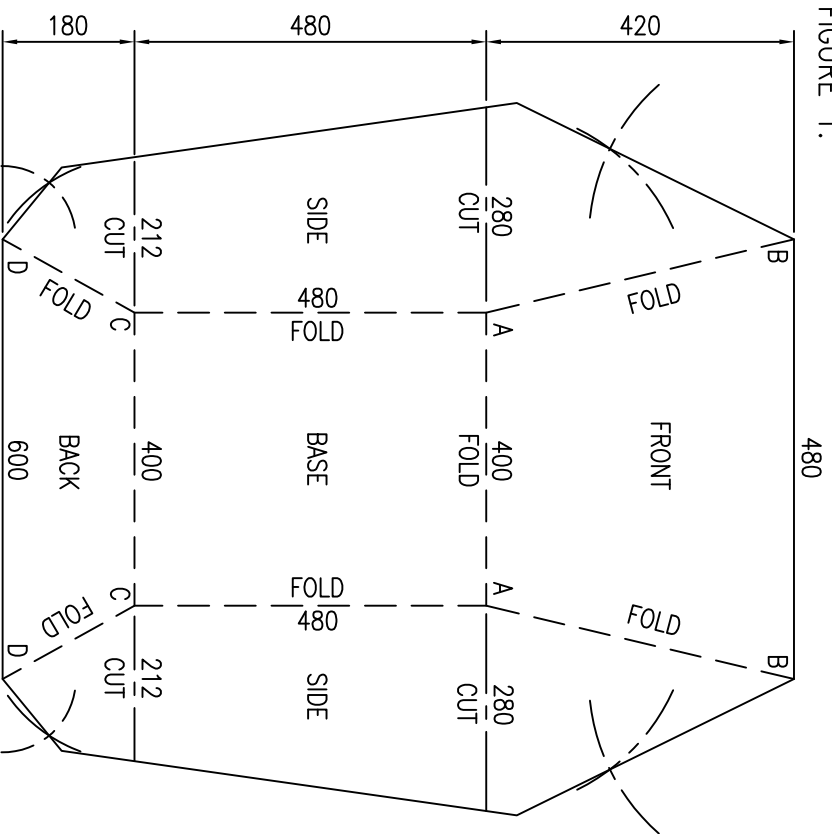


REMARKS

- A: THE RADIUS TO THE INSIDE OF THE PIPE = 75mm.
- B: THE DISTANCE FROM RADIUS CENTRE TO RADIUS CENTRE = 235mm.
- C: THE DISTANCE FROM THE END OF THE TUBE TO THE RADIUS CENTRE = 210mm.
- D: THE DISTANCE BETWEEN THE TWO LEG ENDS = 550mm.
- E: DIMENSIONS FOR THE AXLE BRACKETS AND THE 4 LEG SUPPORTS CAN BE FOUND ON PAGE 5.

Apt WHEELBARROW	
TITLE: CHASSIS DRAWING	
SCALE: 1:10	
DRAWN: ABATEC	PAGE: 3 of 6
CAD No: APT-09-3	

FIGURE 1.



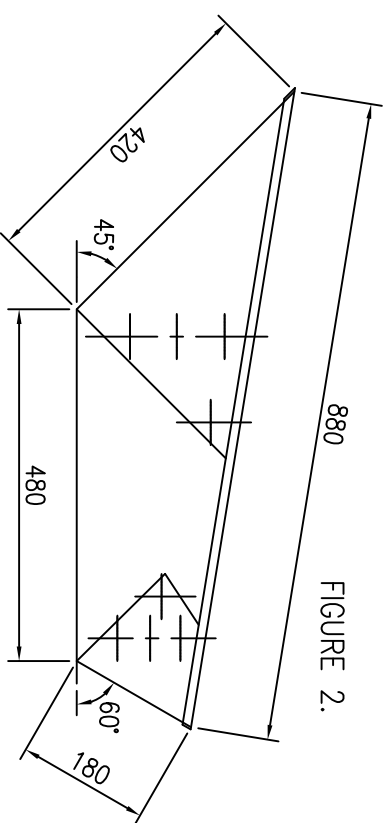
TO CONSTRUCT TEMPLATE FIGURE 1.

1. DRAW BASE, FRONT, SIDE AND BACK PANELS ONTO SHEET, USING MEASUREMENT PROVIDED.
2. CONSTRUCT THE THIRD POINT OF A TRIANGLE WITH A PAIR OF COMPASSES. UTILISE THE POINTS A, B, C, D, & THE DIMENSIONS PROVIDED BELOW:

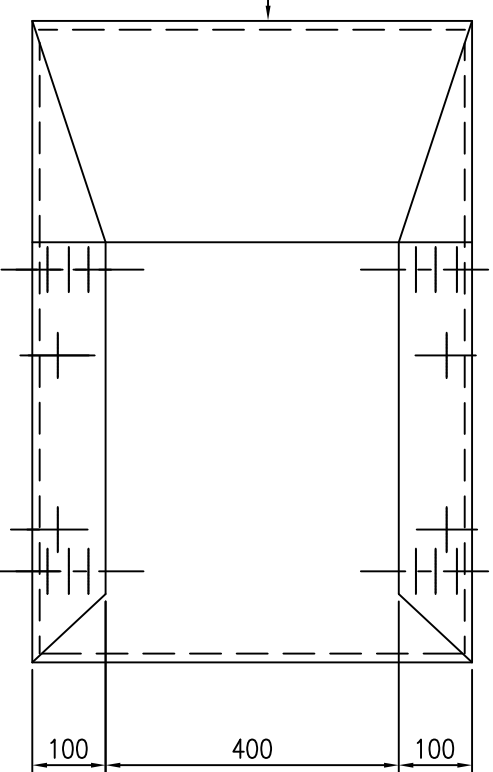
A TO ARC = 280mm, B TO ARC = 280mm, C TO ARC = 212mm, D TO ARC = 100mm.

3. DRAW LINES FROM POINTS B THROUGH THE CROSS CREATED BY THE ARCS IN 2. ABOVE, TO THE OUTSIDE OF THE TEMPLATE PERIMETER. FOLLOW THE SAME PROCEDURE USING POINTS D.
4. TO COMPLETE THE PERIMETER, EXTEND THE SIDE PANEL TOP EDGES OUTWARD UNTIL THEY INTERSECT THE LINES DRAWN IN 3. ABOVE. THE TEMPLATE IS NOW COMPLETE FOR CUTTING.

FIGURE 2.



(X)



TO DEVELOP TEMPLATE INTO PAN BODY. FIGURES 1 & 2.

1. CUT PERIMETER OF THE TEMPLATE AND CUT PANELS AS DIRECTED IN FIGURE 1.
2. FOLD SIDE PANELS UPWARD TO APPROXIMATELY 80°.
3. FOLD THE FLAPS AT THE SIDES OF THE FRONT AND BACK PANELS TO 90°. TIGHT CORNERS ARE NOT NECESSARY.
4. FOLD REAR BASE FOLDLINE UP TO 60° ANGLE AND ATTACH THE SIDE FLAPS TO THE SIDE PANELS, WITH RIVETS. REMEMBER TO ALIGN TOP EDGES, AND KEEP FLAPS ON OUTSIDE OF THE PANEL.
5. REPEAT THE PROCEDURE OF 4. ABOVE, WITH THE FRONT PANEL TO A 45° ANGLE. ATTACH WITH RIVETS AGAIN.
6. FIGURE 2. SHOWS THE COMPLETED PAN. A STIFFENER IS ATTACHED, WITH RIVETS OR WELDS, TO THE TOP EDGE OF THE PAN. THE MATERIAL USED IS 12 x 3mm MILD STEEL.

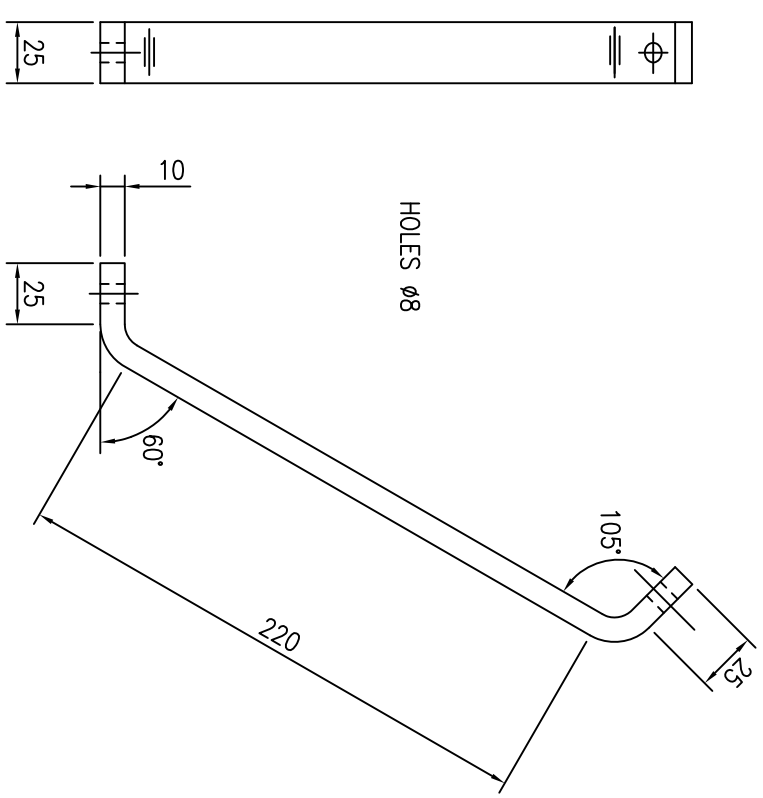
ApT WHEELBARROW

TITLE: PAN DEVELOPMENT

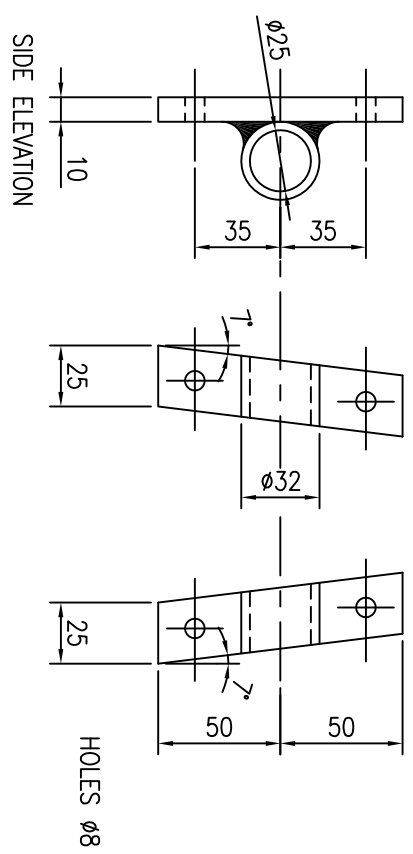
SCALE: 1:10

DRAWN: ABATEC PAGE: 4 of 6

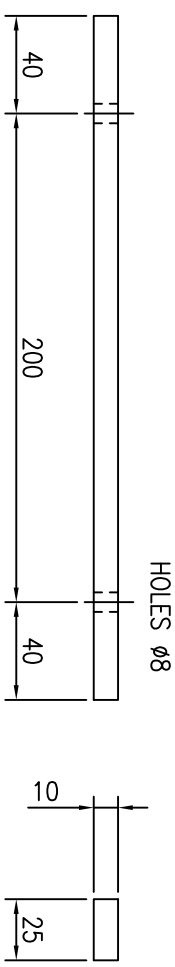
CAD No: ApT-09-4



4 FRONT STAY 2-OFF



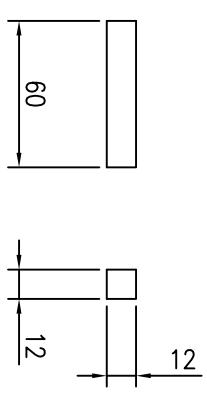
8 AXLE BEARING BRACKETS



7 FRONT MOUNTING BRACKET

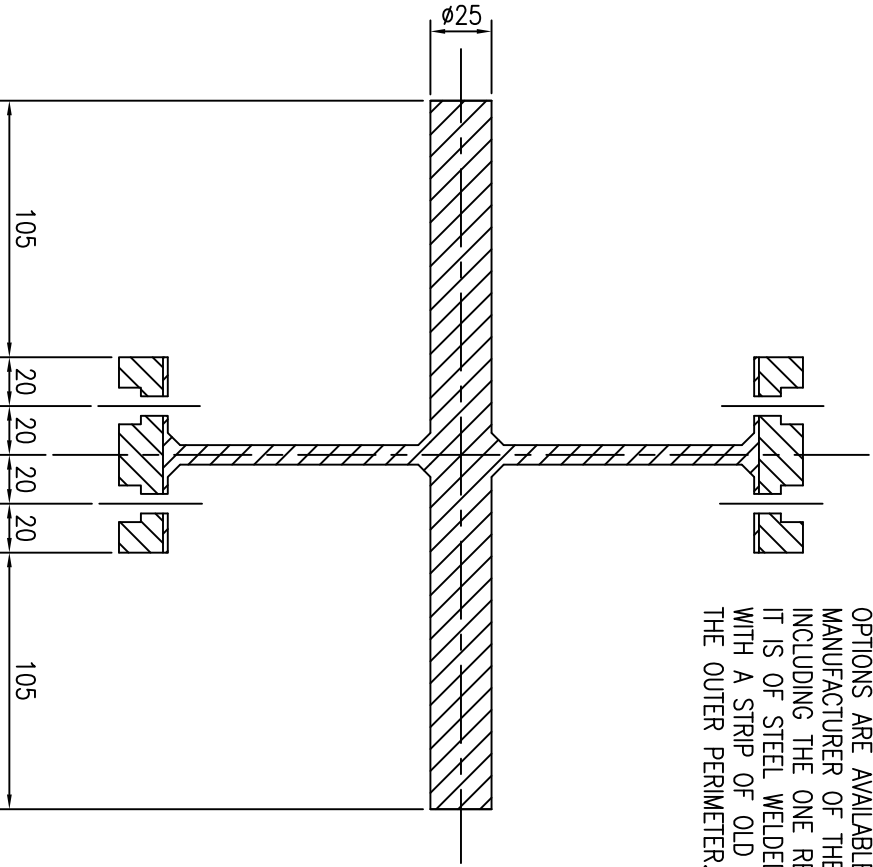
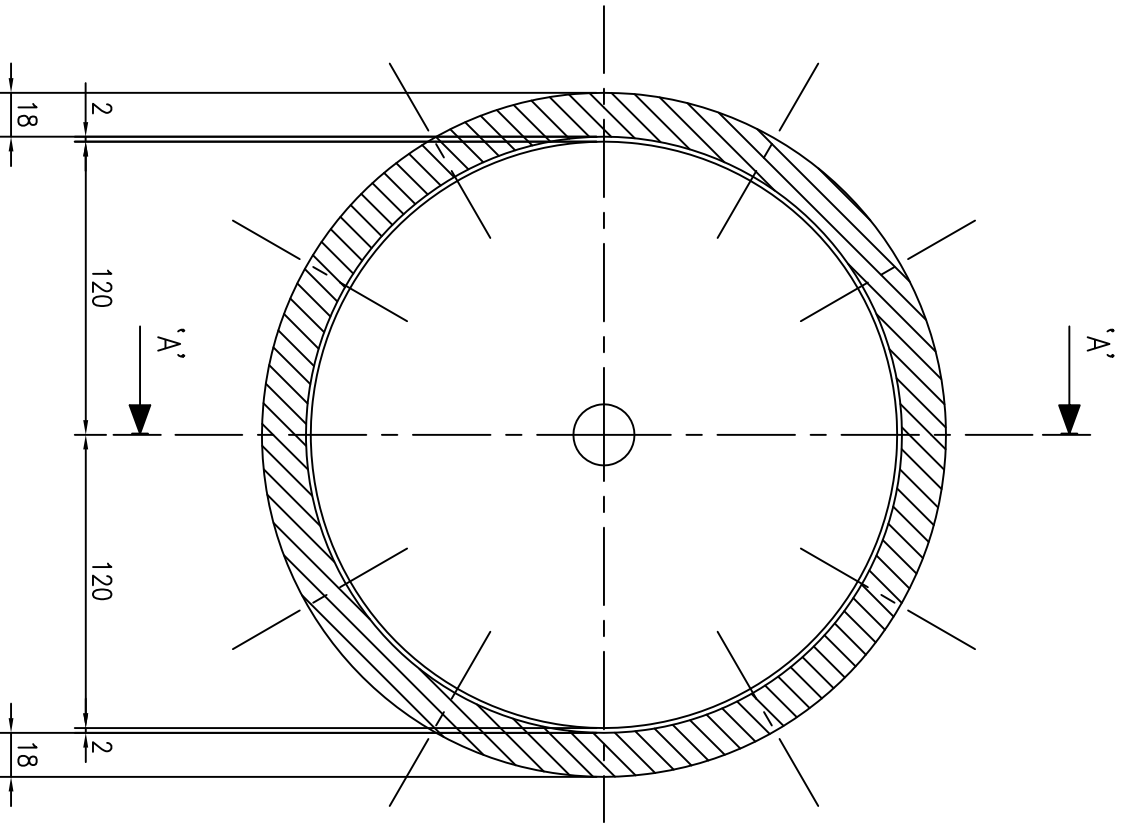


6 REAR MOUNTING BRACKET



5 LEG SUPPORTS 4-OFF

Apt WHEELBARROW	
TITLE: ACCESSORY PARTS	
SCALE: 1:3	
DRAWN: ABATEC	PAGE: 5 of 6
CAD No: APT-09-5	

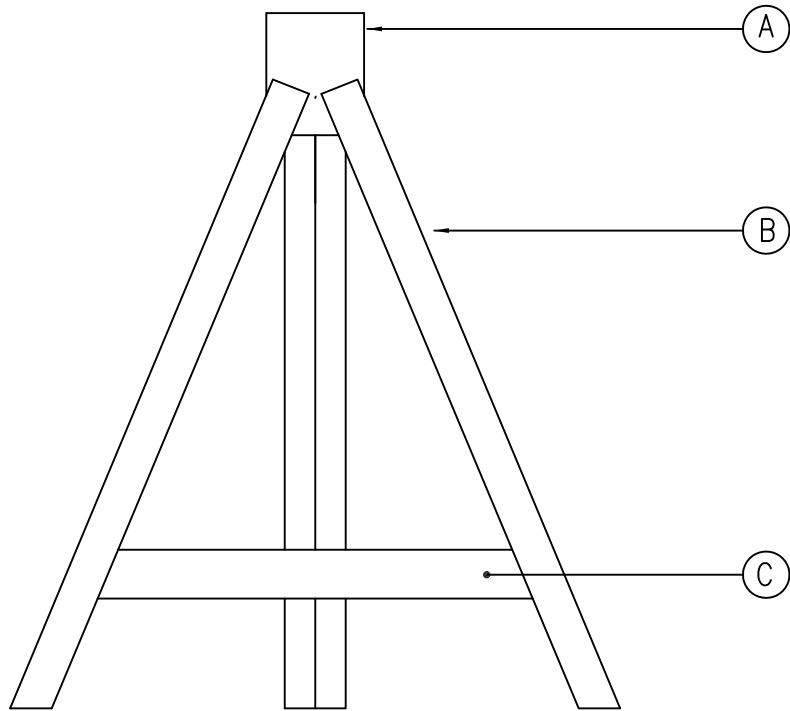
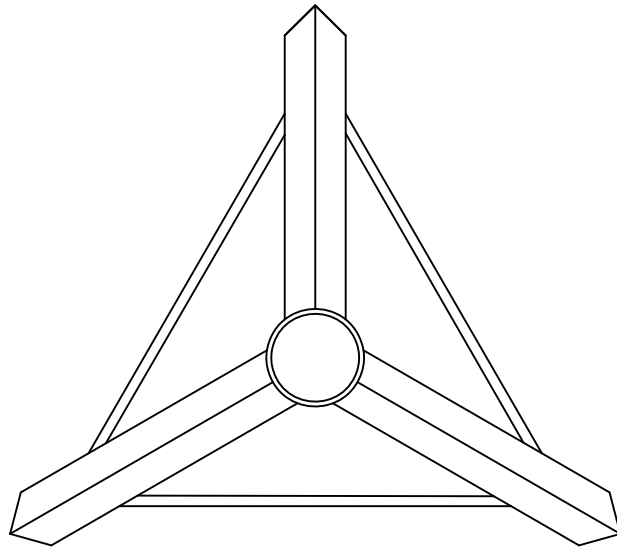


WHEEL DESIGNS

THE TYPE OF WHEEL SHOWN IN THE ASSEMBLY DRAWING IS OF THE COMMERCIAL PNEUMATIC TYRE CONSTRUCTION. MANY OPTIONS ARE AVAILABLE TO THE MANUFACTURER OF THE WHEELBARROW, INCLUDING THE ONE REPRESENTED BELOW. IT IS OF STEEL WELDED CONSTRUCTION WITH A STRIP OF OLD TYRE BOLTED TO THE OUTER PERIMETER.

SECTION A-A

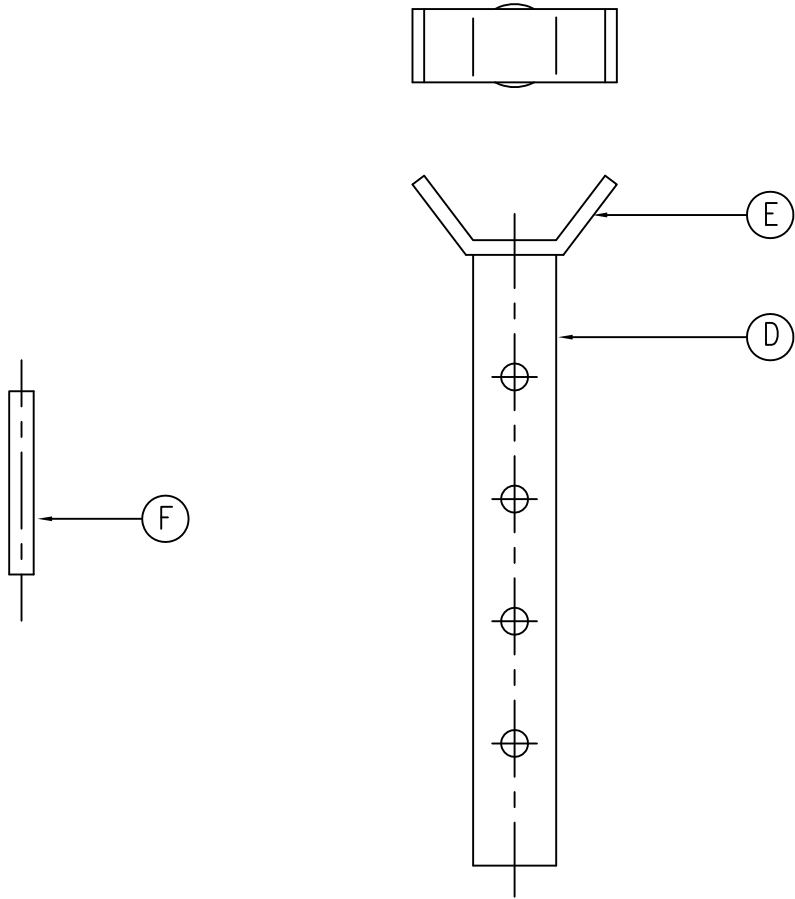
ApT WHEELBARROW	
TITLE: WHEEL DESIGNS	
SCALE: 1:3	
DRAWN: ABATEC	PAGE: 6 of 6
CAD No: APT-09-6	



ApT ENGINEERS AXLE STAND	
TITLE: BASE	
SCALE: 1:3	
DRAWN: ABATEC	PAGE: 1 of 3
CAD No: APT-11-1	

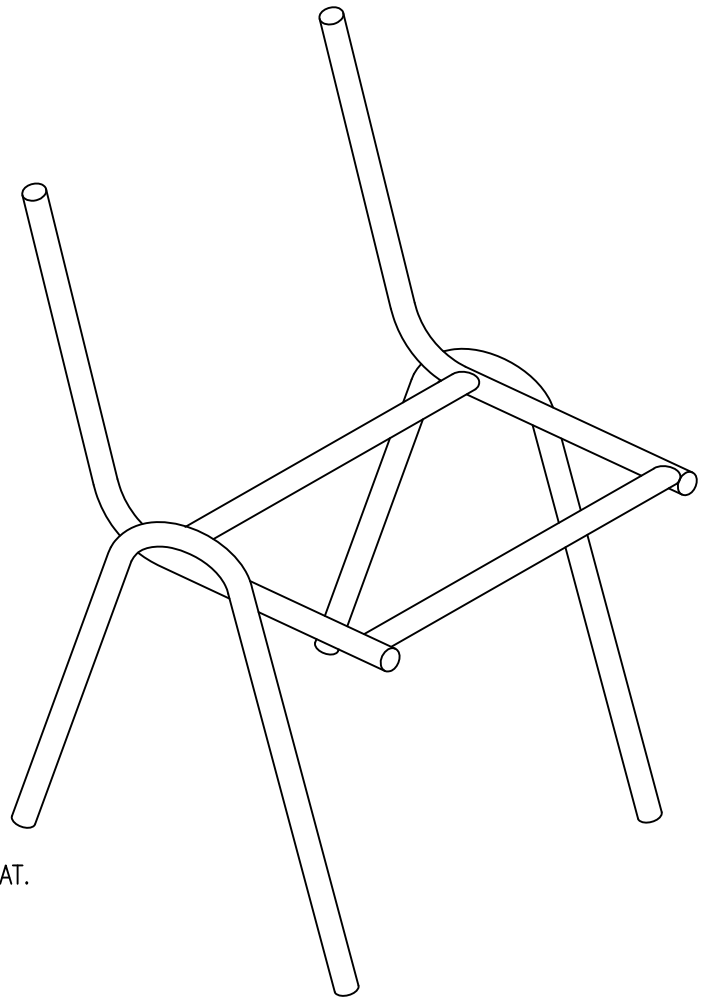
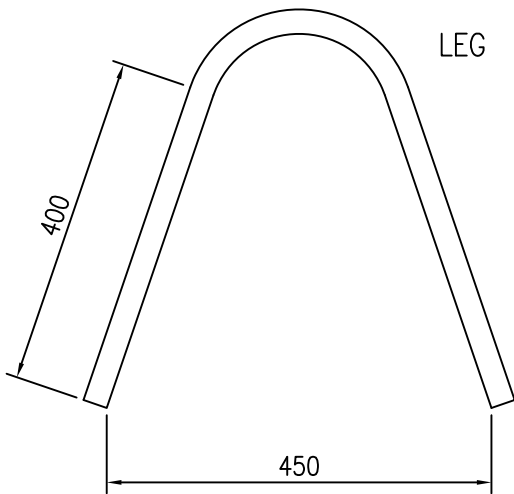
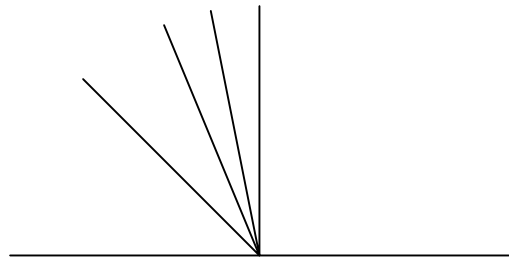
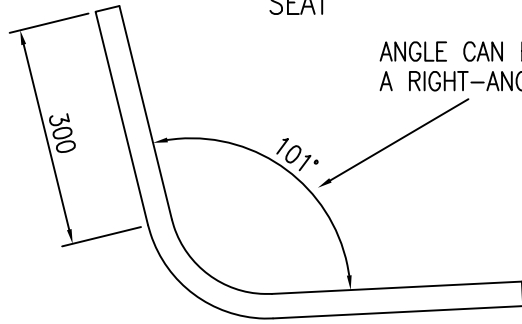
No.	DESCRIPTION	QUANTITY	DIMENSIONS
A	TUBE	1	36mm INSIDE DIAMETER x 50 LONG
B	ANGLE	3	25 x 25 x 3 x 280 LONG
C	FLAT	3	20 x 3 x 170 LONG
D	TUBE	1	34 OUT DIAMETER x 250 LONG
E	FLAT	1	30 x 6 x 100 LONG
F	ROUND BAR	1	10 x 75 LONG

ApT AXLE STAND	
TITLE: PARTS LIST	
SCALE:	
DRAWN: ABATEC	PAGE: 2 of 3
CAD No: APT-11-2	

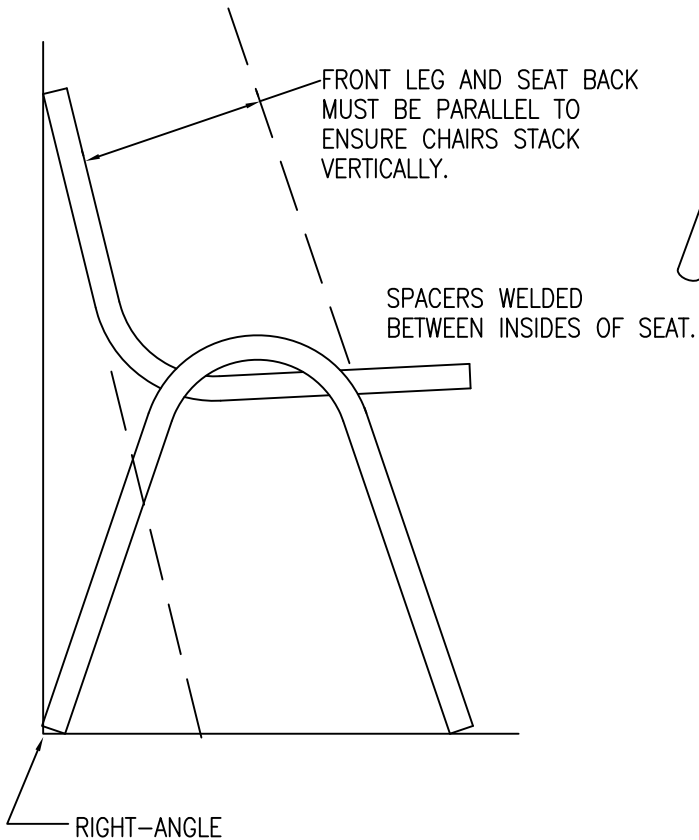


ApT ENGINEERS AXLE STAND	
TITLE: SHAFT AND PIN	
SCALE: 1:3	
DRAWN: ABATEC	PAGE: 1 of 3
CAD No: APT-11-3	

DETAILS



ASSEMBLY

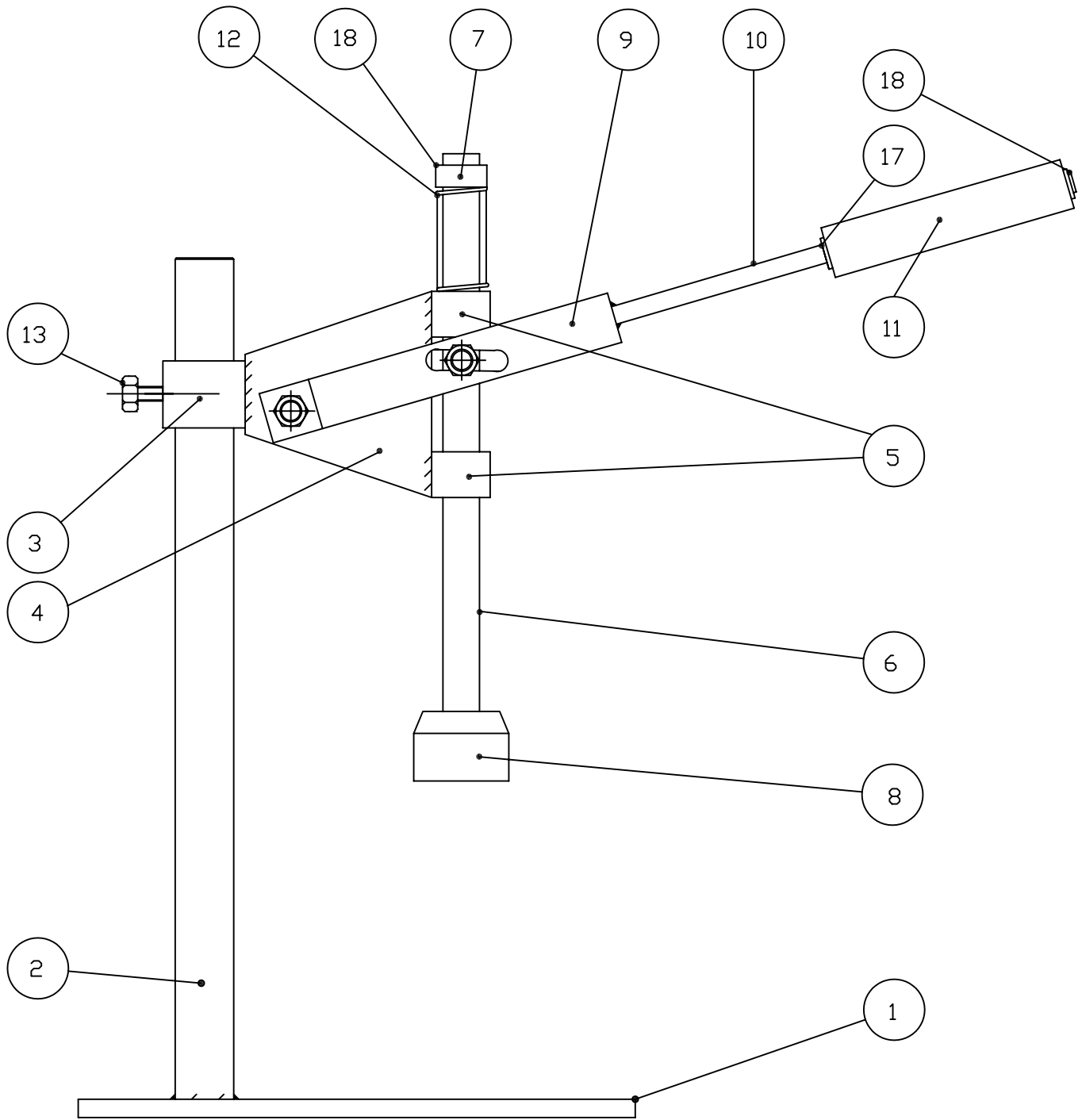


ApT STACKING CHAIR	
TITLE: DETAILS & ASSEMBLY	
SCALE: 1:10	
DRAWN: ABATEC	PAGE: 1 of 2
CAD No: APT-12-1	

No.	DESCRIPTION	QUANTITY	DIMENSIONS
A	LEG	2	20 DIA. FURNITURE TUBE x 1050
B	SEAT	2	20 DIA. FURNITURE TUBE x 700
C	SPACER	2	20 DIA. FURNITURE TUBE x 350
D	SEAT PLATFORM	1	5 PLYWOOD OR 18 GAUGE SHEET STEEL x 260 x 390
E	BACK PLATFORM	1	5 PLYWOOD OR 18 GAUGE SHEET STEEL x 160 x 390

ApT STACKING CHAIR	
TITLE: PARTS LIST	
SCALE:	
DRAWN: ABATEC	PAGE: 2 of 2
CAD No: APT-12-2	

DO NOT SCALE

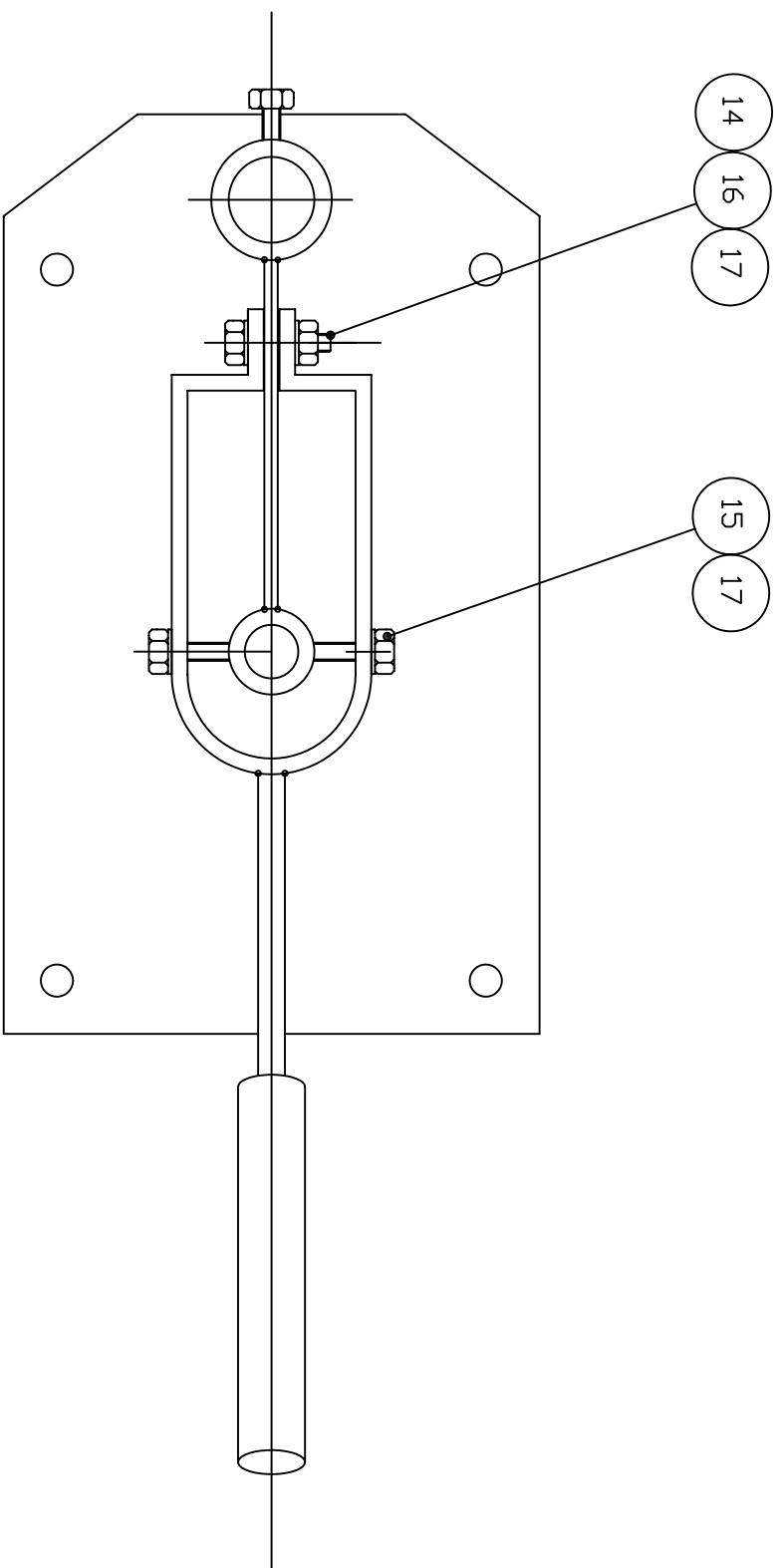


(SEE DRAWING CCM001-A FOR PLAN VIEW)

WELD AT 

CCM001	SIDE ELEVATION	-	-	-
No.	Description	CHK	AP'D	DATE
REVISIONS				

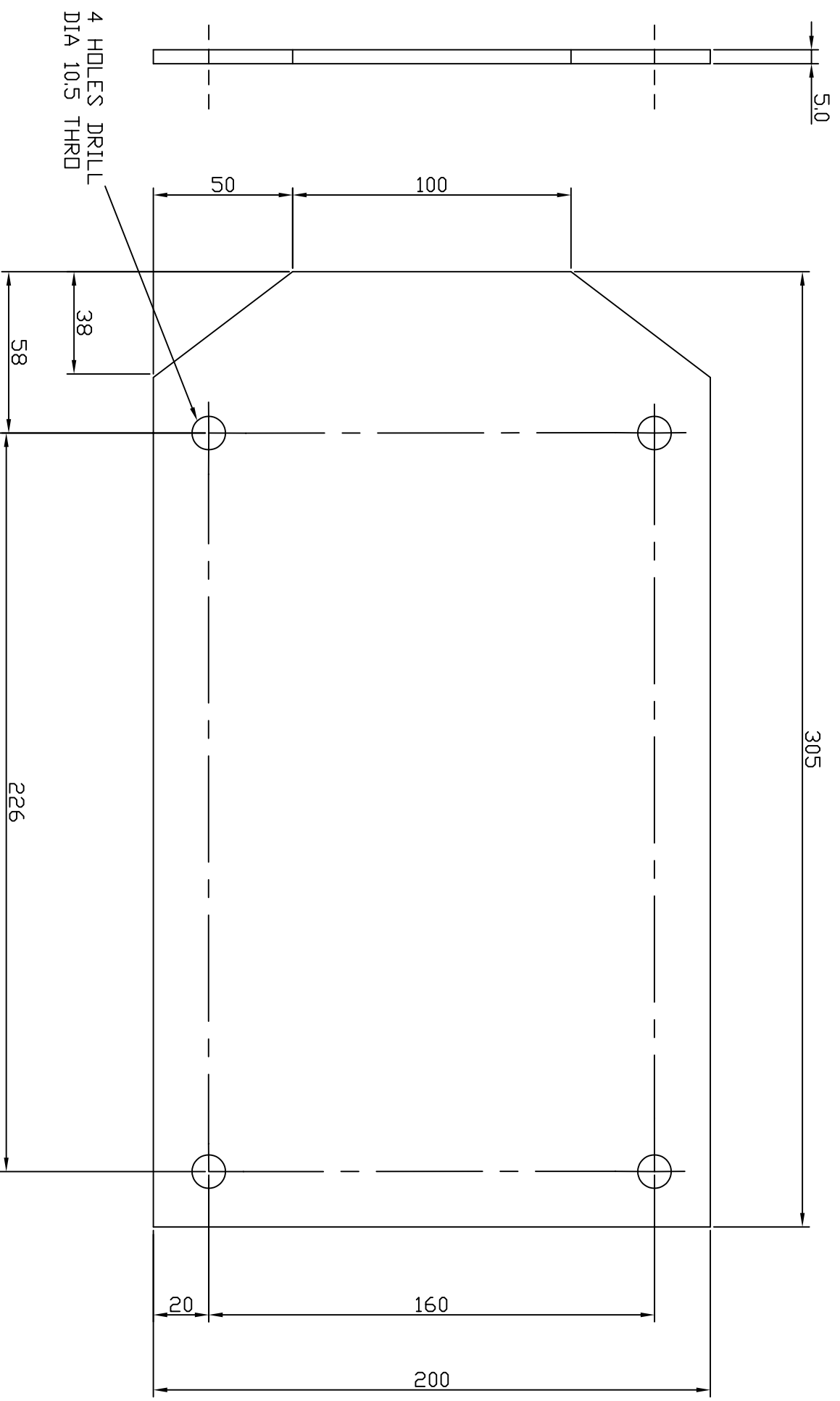
DD NDT SCALE



<SEE CCM001 FOR SIDE ELEVATION>

CCM001a		Plan View	CHK	AP'D	DATE	Practical Action www.practicalaction.org info@practicalaction.org		TITLE	CROWN CAP MACHINE	DRAWN A/R	TRACE	CHK	NOT TO SCALE	
REVISIONS		Description				DIMENSIONS IN MM		DRAWING No.	CCM001a					

NDT TO SCALE - DD NDT SCALE

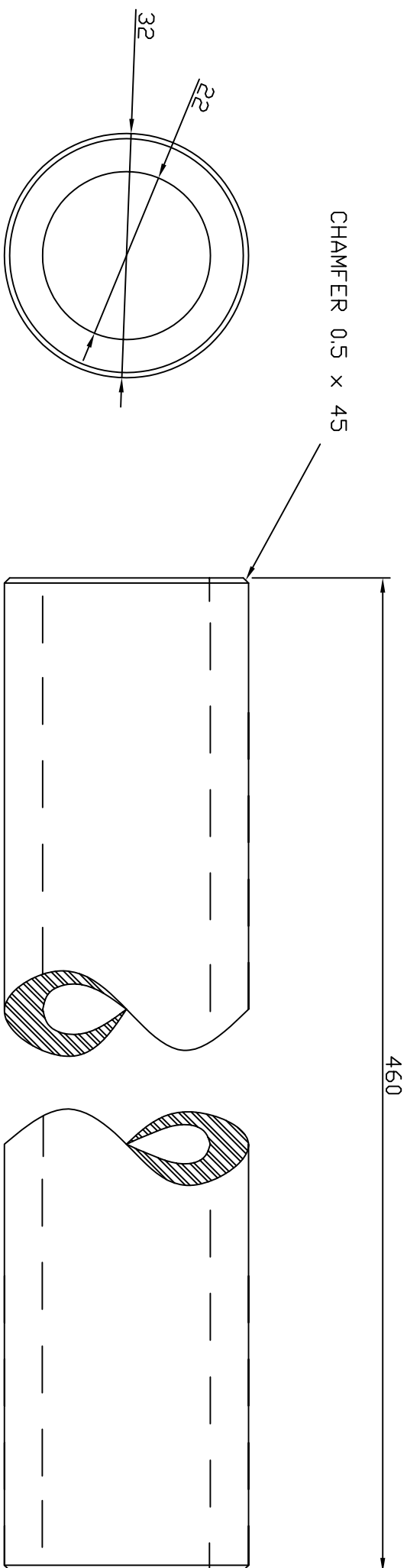


TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

1 BASE PLATE - MILD STEEL - 1 DFF

Practical Action www.practicalaction.org info@practicalaction.org.uk		TITLE		DRAWN		TRACE		CHK		NDT TO SCALE	
CROWN CORK MACHINE		DIMENSIONS IN MM		A.R		-		-		SCALE	
Description		CHK	AP'D	DATE							
No. REVISIONS											

NDT TO SCALE - DD NDT SCALE



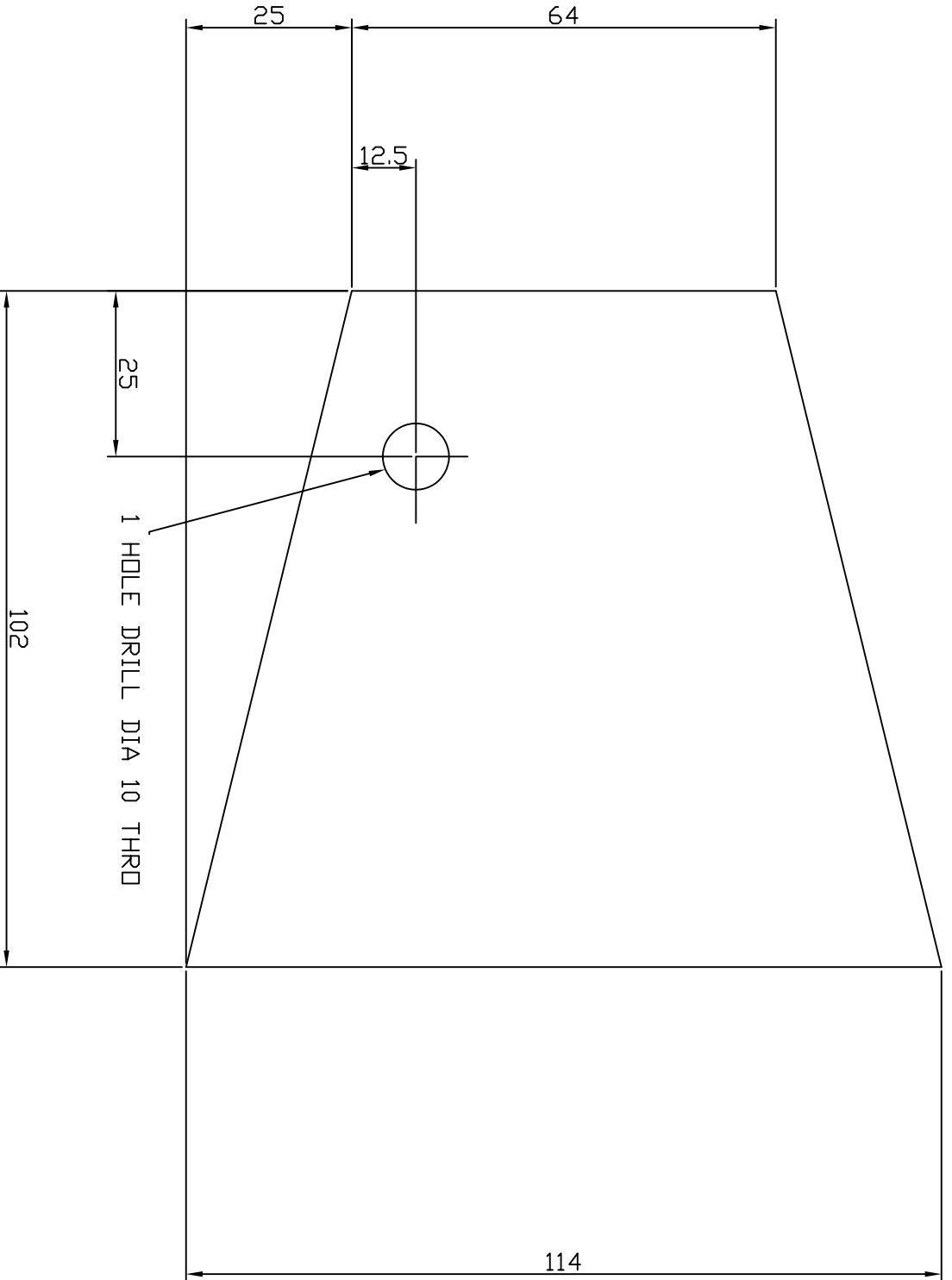
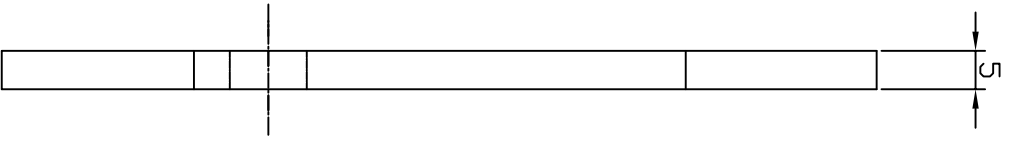
NOTE- USE MILD STEEL or GALVANISED PIPE WITH MIN WALL THICKNESS 2mm

TOLERANCES UNLESS OTHERWISE STATED +/- 0.25

② COLUMN - MILD STEEL - 1 DFF

No. REVISIONS		CHK	AP'D	DATE	Practical Action www.practicalaction.org info@practicalaction.org		TITLE		DRAWN		TRACE	CHK	NDT TO SCALE	
Description					CROWN CAP MACHINE		DIMENSIONS IN MM		A.R	-	-	-	DRAWING No. CCM201	

NDT TO SCALE - DD NOT SCALE



TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

4 BRACKET - MILD STEEL - 1 DFF

Practical
Action
info@practicalaction.org
info@practicalaction.org

TITLE CROWN CAP
MACHINE
DIMENSIONS IN MM

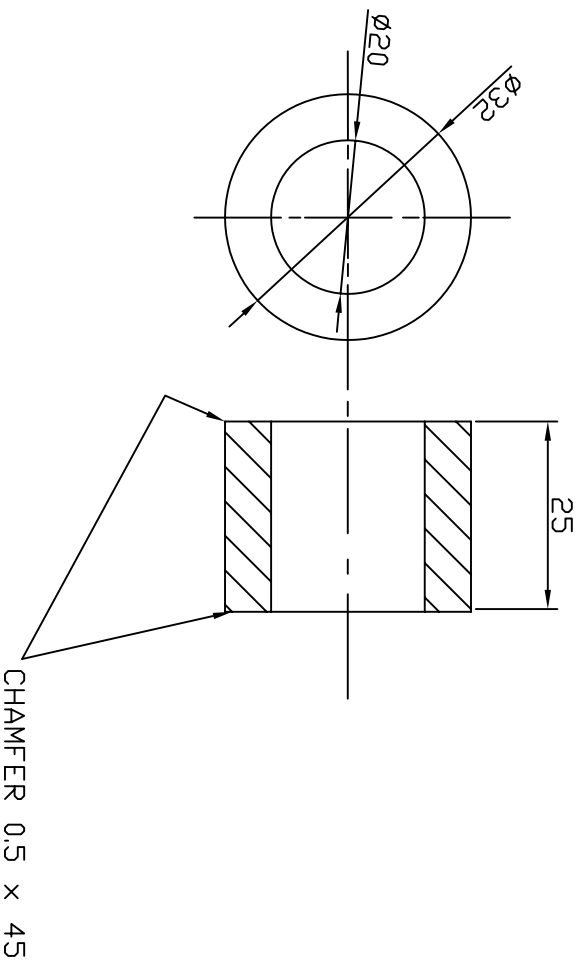
DRAWN A.R
TRACE -
CHK -
DRAWING NO. CCM204



No.	Description	CHK	AP'D	DATE

REVISIONS

NDT TO SCALE - DD NDT SCALE



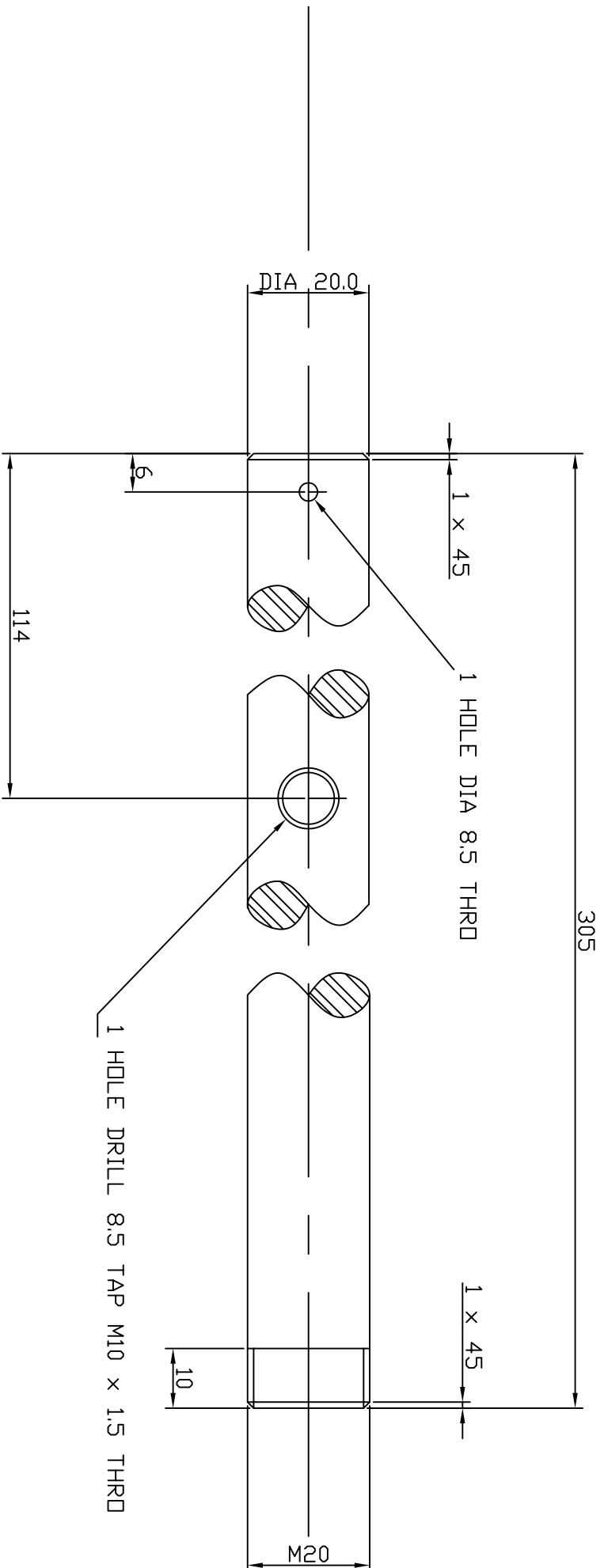
TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

5 BUSH - MILD STEEL - 2 DFF

No.	Description	CHK	AP'D	DATE
REVISIONS				

Practical Action info@practicalaction.org	TITLE	DRAWN	TRACE	CHK		NDT TO SCALE
	CROWN CAP MACHINE DIMENSIONS IN MM	A,R	-	-		

NDT TO SCALE - DD NDT SCALE

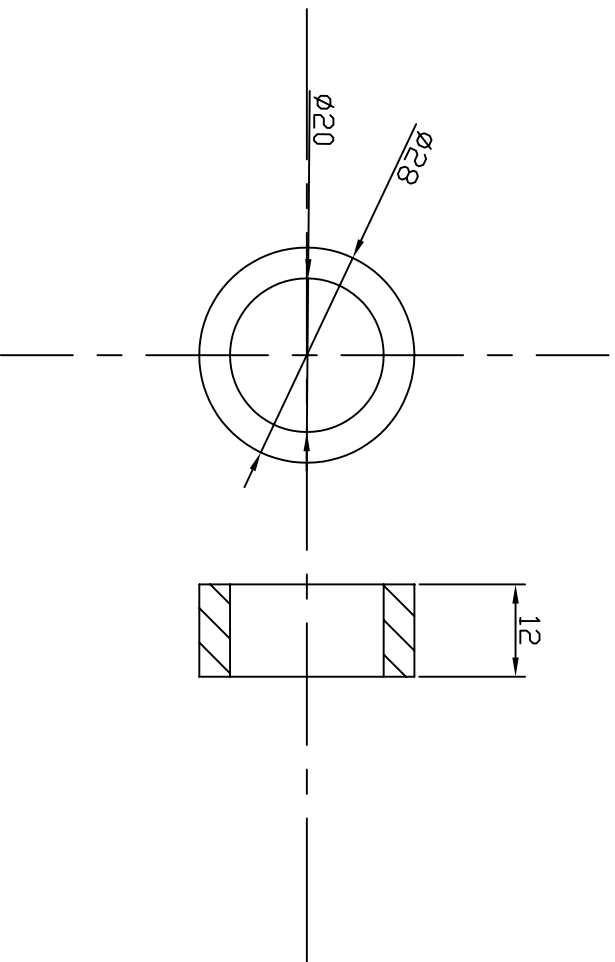


TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

6 SHAFT - MILD STEEL - 1 DFF

No.		Description		CHK	AP'D	DATE	Practical Action	TITLE	CROWN CAP MACHINE	DRAWN A.R	TRACE	CHK	DRAWING No. CCM206	NDT TO SCALE
REVISIONS							Practical Action www.practicalaction.org info@practicalaction.org.uk	DIMENSIONS IN MM						

NOT TO SCALE - DO NOT SCALE



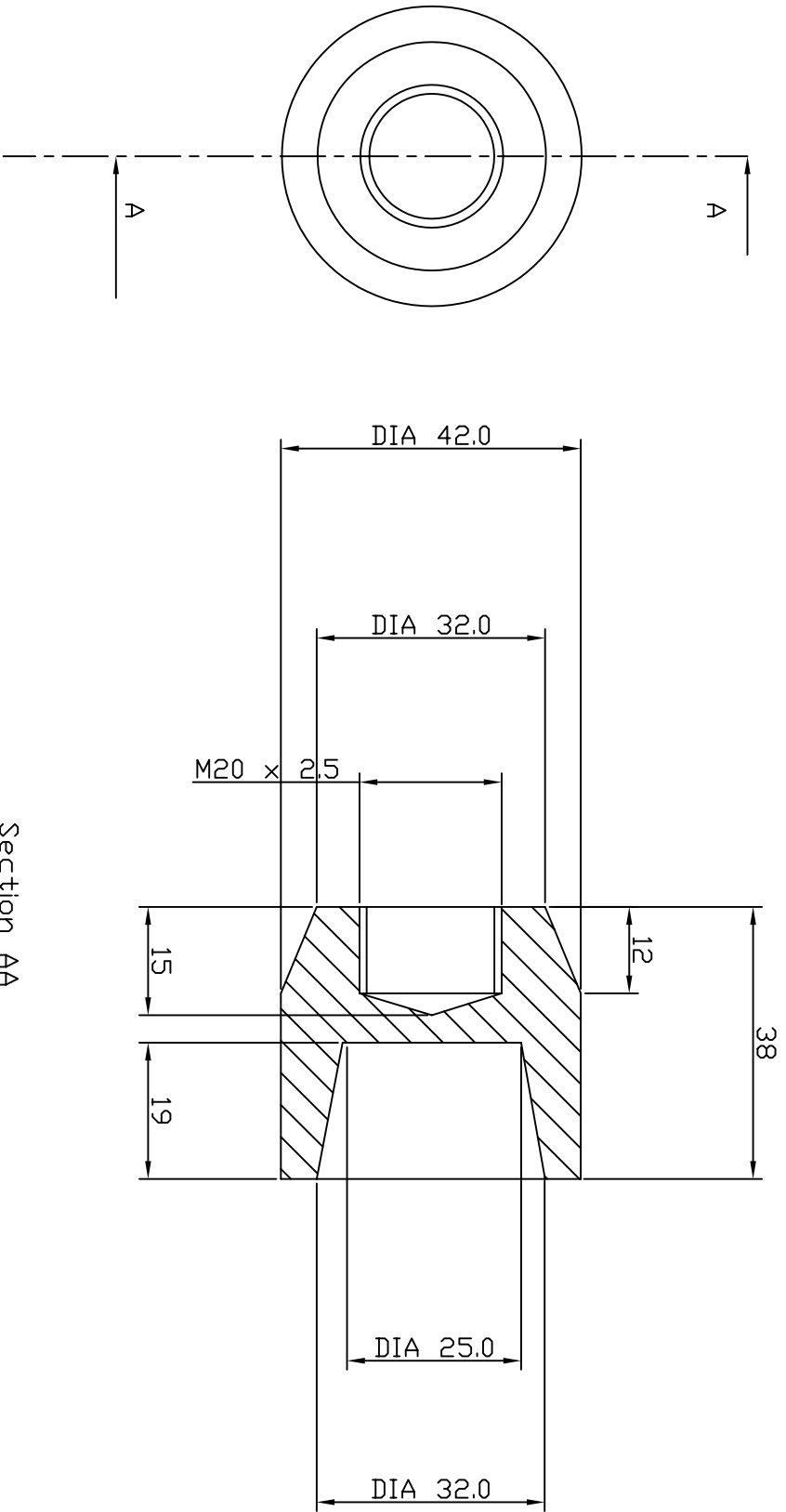
TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

7 STOP - MILD STEEL - 1 DFF

No.	Description	CHK	AP'D	DATE
REVISIONS				

Practical Action www.practicalaction.org info@practicalaction.org		TITLE	CROWN CAP MACHINE	DRAWN A.R	TRACE	CHK	DRAWING No. CCM207	NDT TO SCALE
		DIMENSIONS IN MM						

NDT TO SCALE - DD NDT SCALE



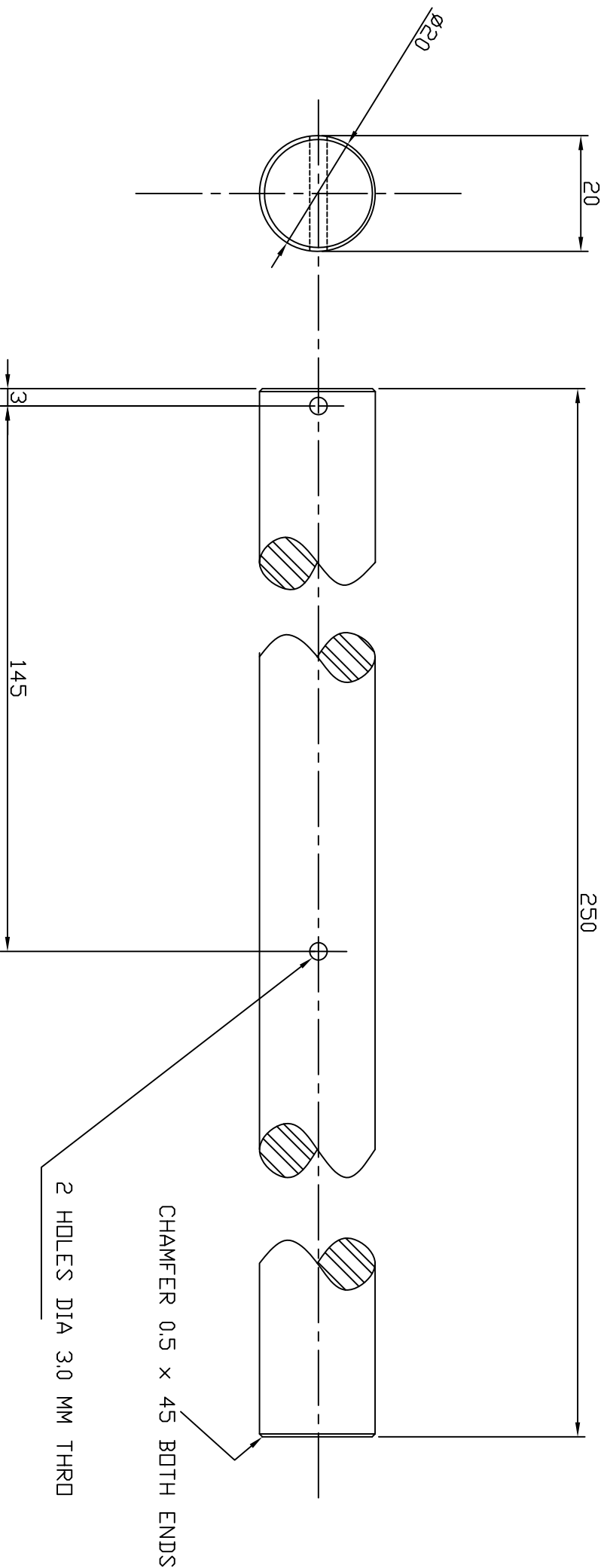
Section AA

TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

8 CAP HOLDER - MILD STEEL - 1 DFF

Practical Action http://practicalaction.org info@practicalaction.org		TITLE		DRAWN		TRACE		CHK		NDT TO SCALE	
CROWN CAP MACHINE		DIMENSIONS IN MM		A.R		-		-		-	
TOLERANCES UNLESS OTHERWISE STATED +/- 0.25		8 CAP HOLDER - MILD STEEL - 1 DFF		DRAWING No. CCM208							
No. REVISIONS	Description	CHK	AP'D	DATE							

NDT TO SCALE - DD NDT SCALE



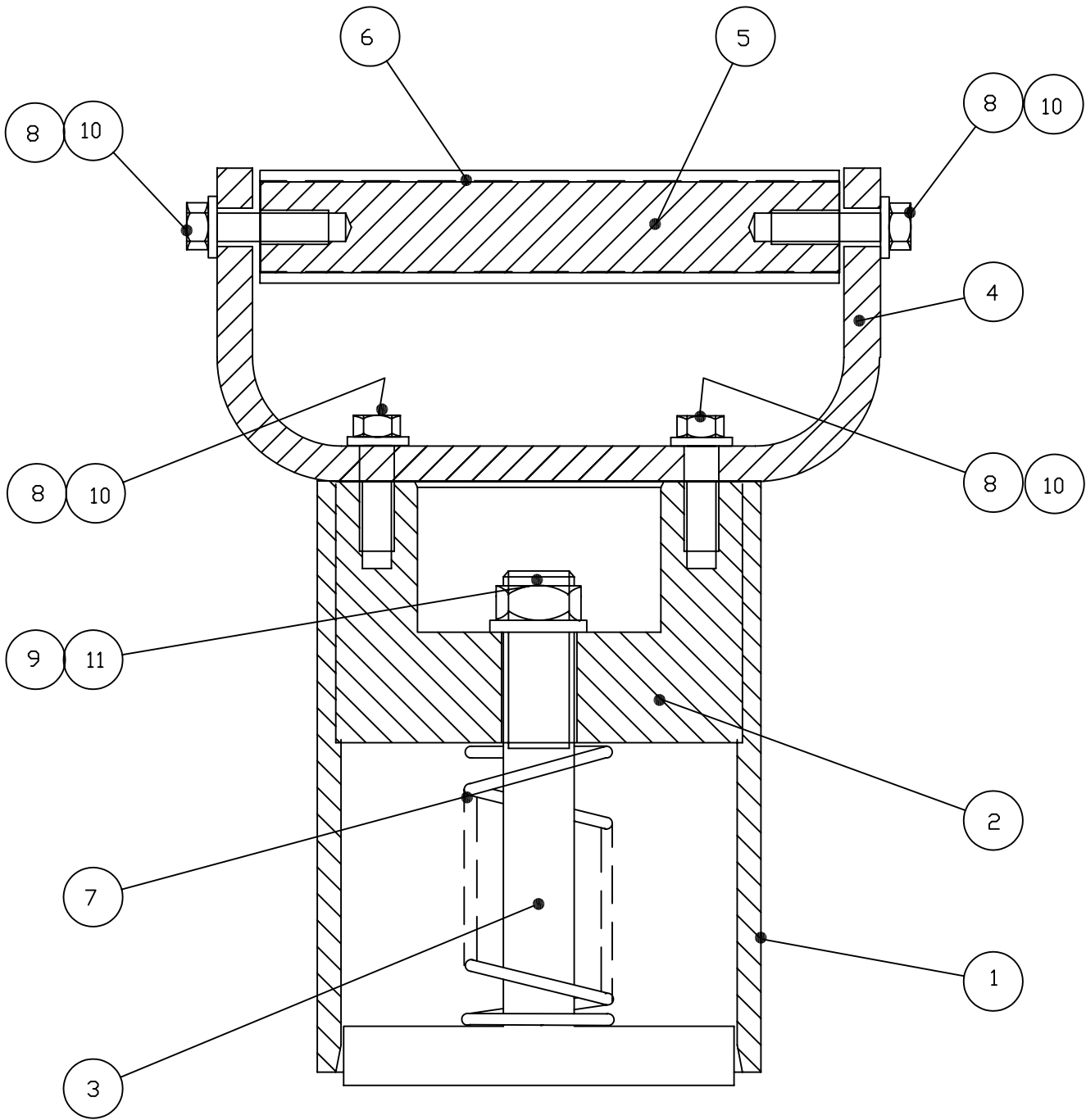
TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

10 LEVER - MILD STEEL - 1 DFF

CHAMFER 0.5 x 45 BOTH ENDS
2 HOLES DIA 20 MM THRD

Practical Action www.practicalaction.org info@practicalaction.org.uk		TITLE		DRAWN		TRACE		CHK		NDT TO SCALE	
CROWN CAP MACHINE		DIMENSIONS IN MM		A.R		-		-			
No. REVISIONS		Description		CHK		AP'D		DATE			

DO NOT SCALE

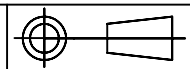


JJS001	Sectional Elevation	-	-	-
No.	Description	CHK	AP'D	DATE
REVISIONS				

Practical
Action
www.practicalaction.org
infoserv@practicalaction.org.uk

TITLE JAM JAR
SEALER

DRAWN A.R
TRACE -
CHK -



NOT TO
SCALE

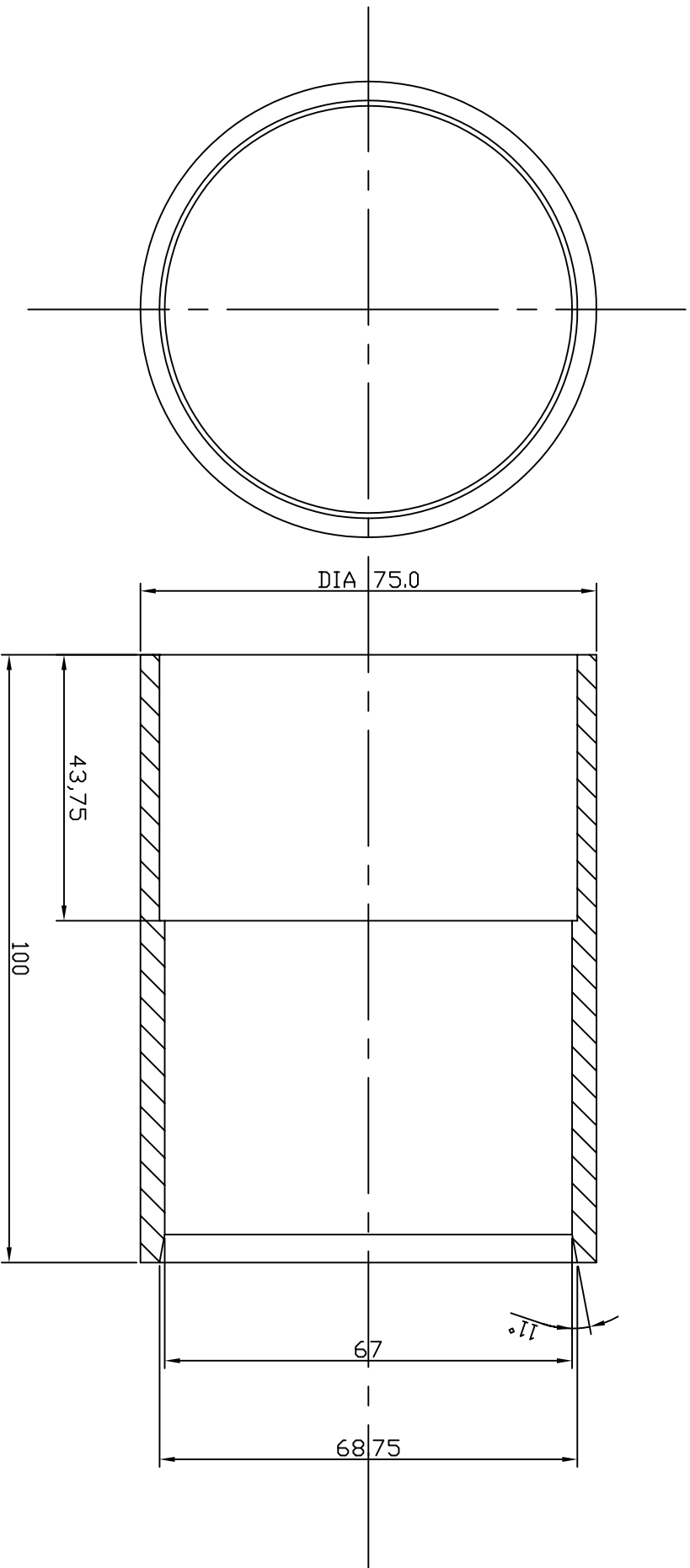
DRAWING No. JJS-001

ITEM	DESCRIPTION	PART NUMBER	QUANTITY	COMMENTS	CHECKED
1	CYLINDER	JJS101	1	Use PVC tube if available	
2	INSERT - FOR CYLINDER	JJS102	1	Press fit into cylinder JBS101	
3	PLUNGER	JJS103	1		
4	HANDLE FRAME	JJS104	1		
5	HANDLE	JJS105	1		
6	COVER - FOR HANDLE	JJS106	1	Sliding fit onto handle JJS105	
7	SPRING - FOR PLUNGER	JJS107	1	Use ready made if available	
8	HEX BOLT	1/4 BSW x 5/8 LONG	4	For JJS102 & JJS105	
9	HEX NUT	1/2 BSW x 3/4 THICK	1	For JJS103	
10	WASHER	1/4 DIA	4	For 1/4 BSW Hex Bolt	
11	WASHER	1/2 DIA	1	For 1/2 BSW Hex Bolt	

Practical
Action

JAM JAR SEALER

DD NOT SCALE



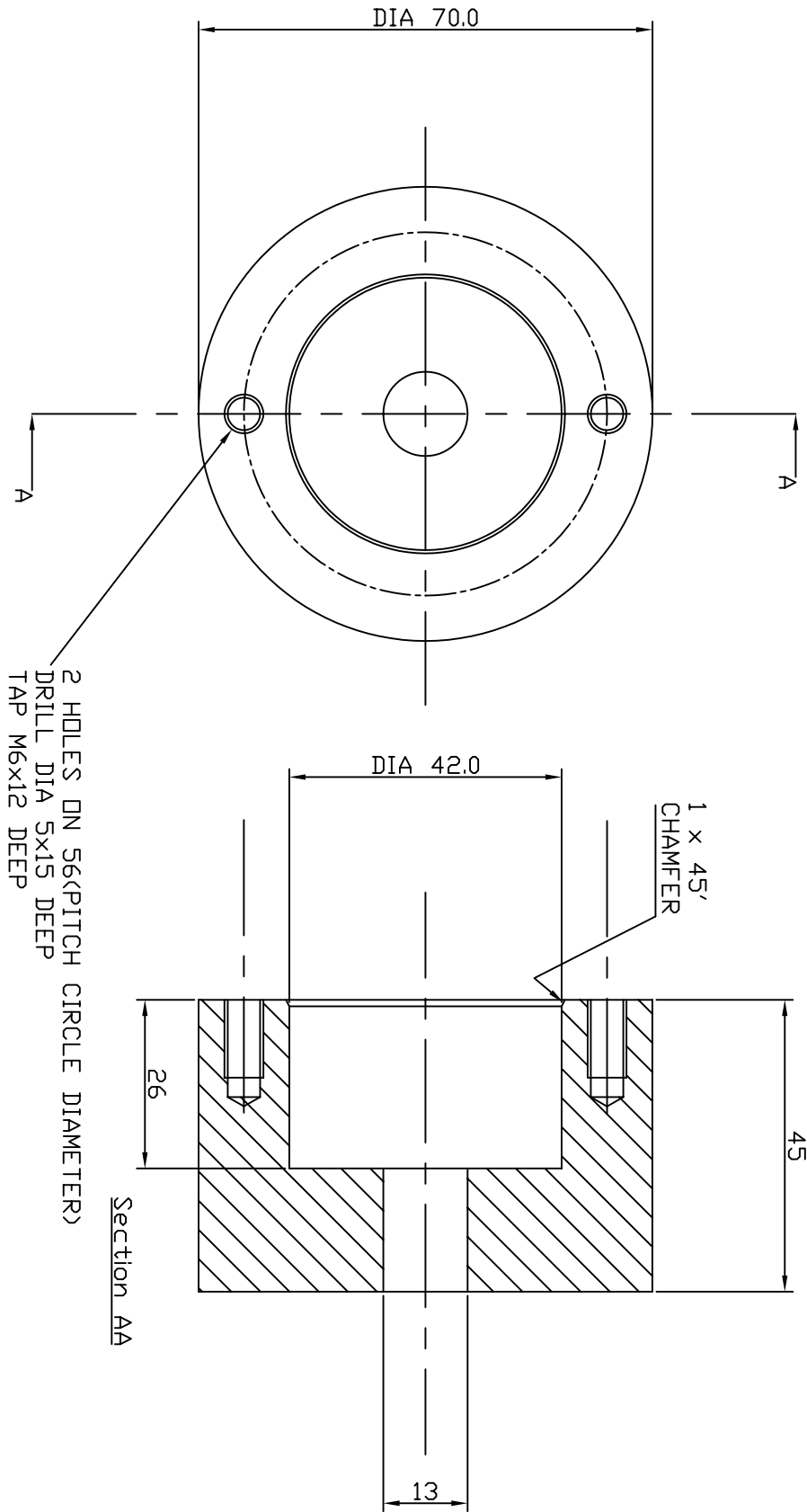
TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

1 CYLINDER - MILD STEEL - 1 DFF

No.		CHK	AP'D	DATE
REVISIONS	Description			

Practical Action www.practicalaction.org info@practicalaction.org.uk	TITLE JAM JAR SEALER	DRAWN A/R	TRACE -	CHK -	NOT TO SCALE
	DIMENSIONS IN MM	DRAWING No.	JJS	- 101	

DD NOT SCALE



2 HOLES ON 56 PITCH CIRCLE DIAMETER)
 DRILL DIA 5x15 DEEP
 TAP M6x12 DEEP

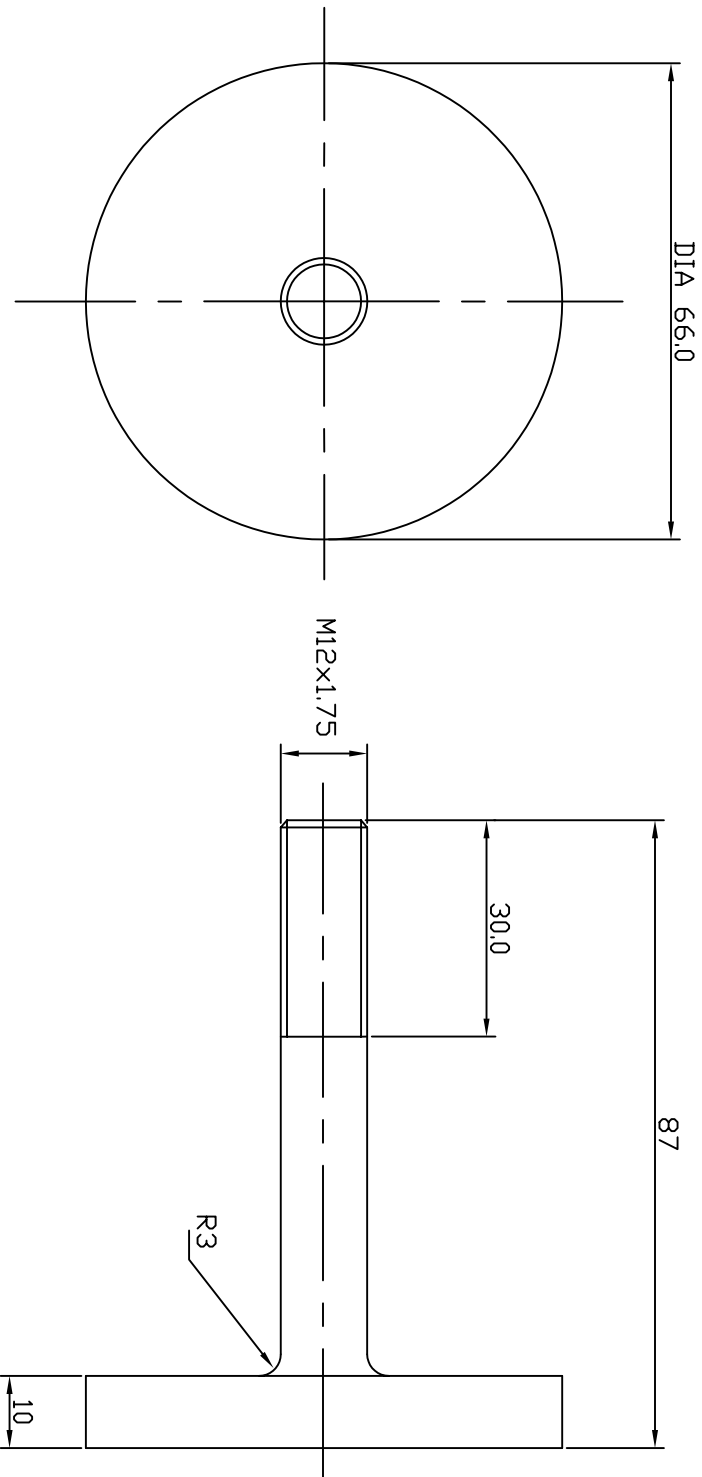
TOLERANCES
 UNLESS OTHERWISE
 STATED +/- 0.25

2 INSERT FOR CYLINDER - MILD STEEL -
 1 OFF

No.				
REVISIONS	Description	CHK	AP'D	DATE

Practical Action	TITLE JAM JAR SEALER	DRAWN A/R	TRACE	CHK	NDT TO SCALE
www.practicalaction.org info@practicalaction.org.uk	DIMENSIONS IN MM	DRAWING No. JJS-102			

DD NDT SCALE

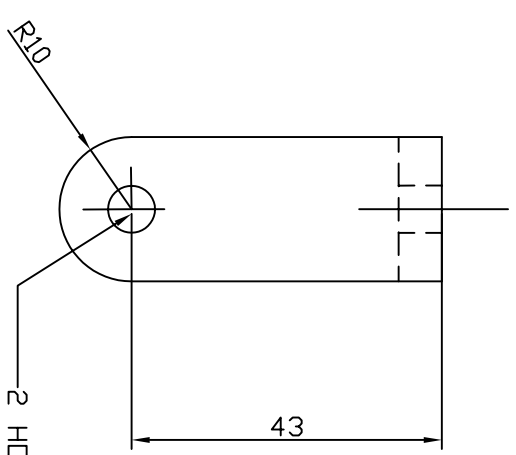
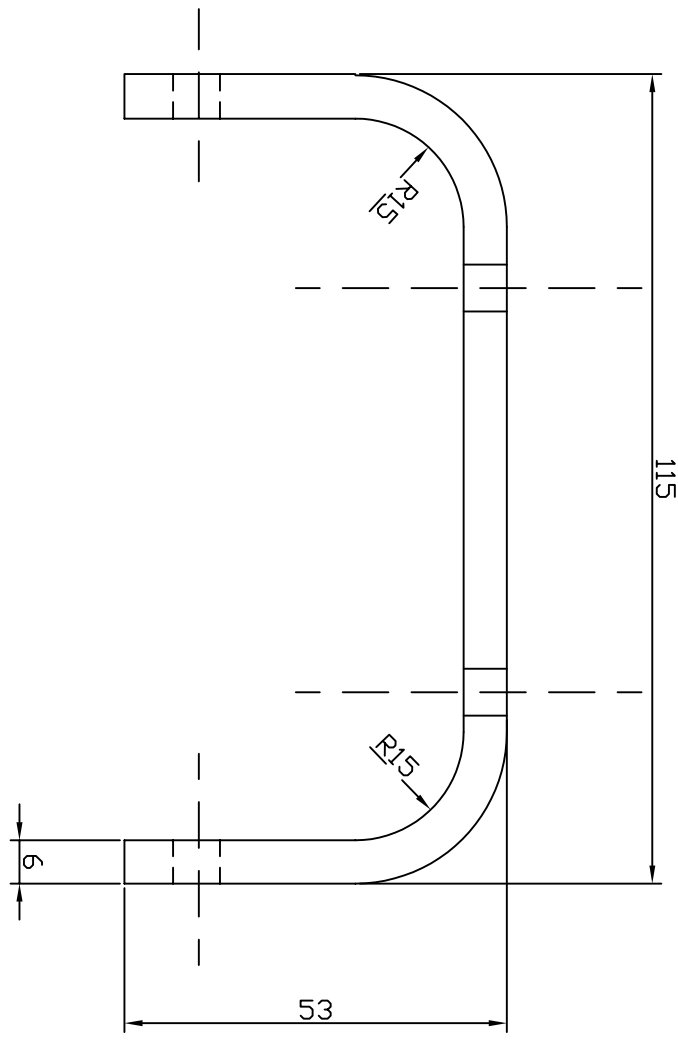
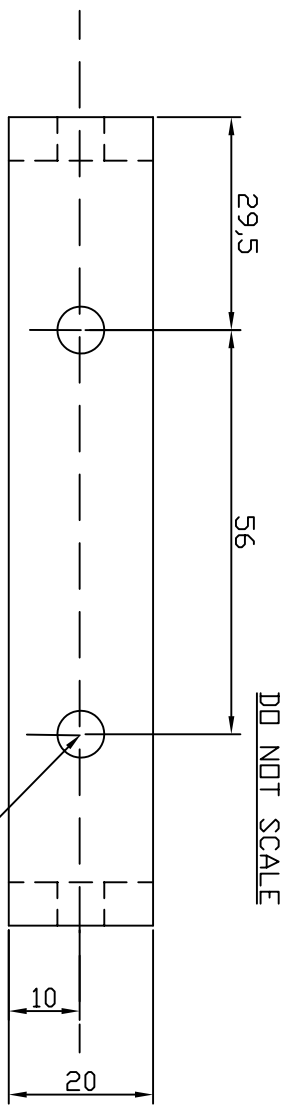


TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

03 PLUNGER - MILD STEEL - 1 DFF

No.		CHK	AP'D	DATE
REVISIONS	Description			

Practical Action www.practicalaction.org info@practicalaction.org	TITLE JAM JAR SEALER	DRAWN A/R	TRACE -	CHK -	NDT TO SCALE
	DIMENSIONS IN MM				DRAWING No. JJS-103



TOLERANCES
UNLESS OTHERWISE
STATED +/- 0,25

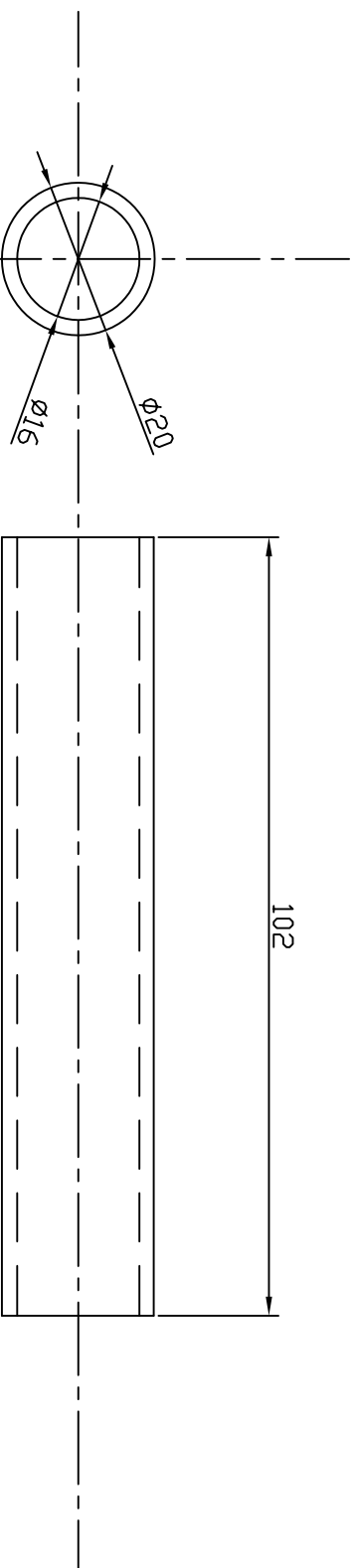
04 HANDLE FRAME - MILD STEEL - 1 OFF

No.		CHK	AP'D	DATE
REVISIONS	Description			

Practical Action	TITLE JAM JAR SEALER	DIMENSIONS IN MM
------------------	----------------------	------------------

Practical Action	DRAWN A/R	TRACE	CHK	DRAWING No. JJS-104	NDT TO SCALE
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DD NDT SCALE

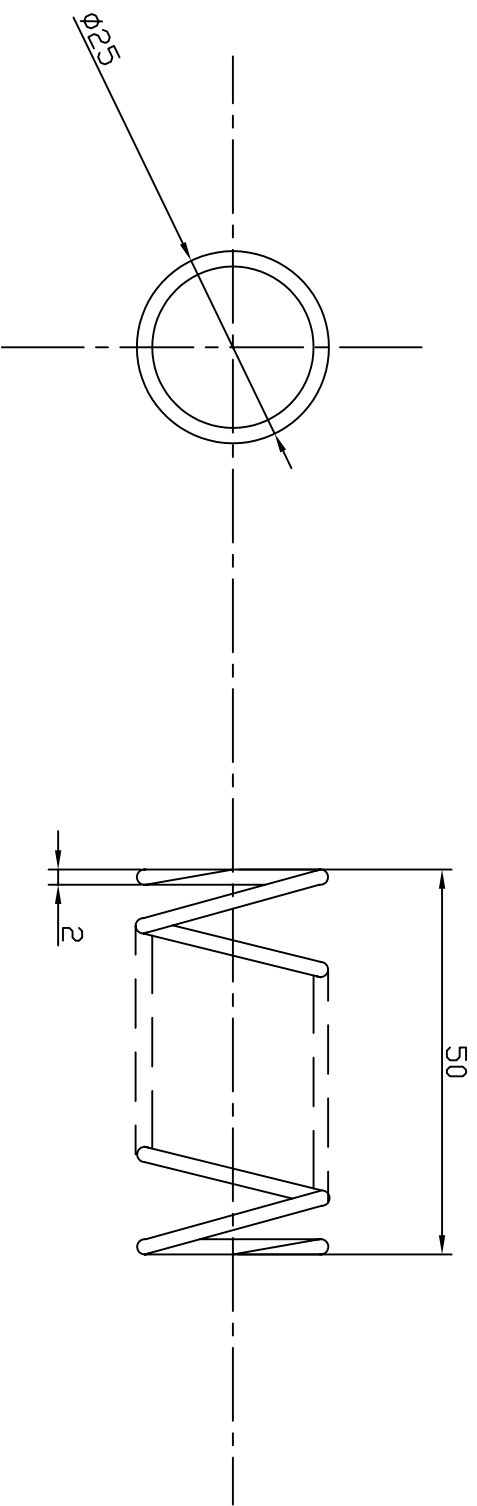


TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

06 HANDLE COVER - PVC TUBE - 1 DFF

Practical Action www.practicalaction.org info@practicalaction.org		TITLE JAM JAR SEALER		DRAWN A.R	TRACE -	CHK -			NDT TO SCALE
DIMENSIONS IN MM									
No. REVISIONS	Description	CHK	AP'D	DATE					

DD NDT SCALE



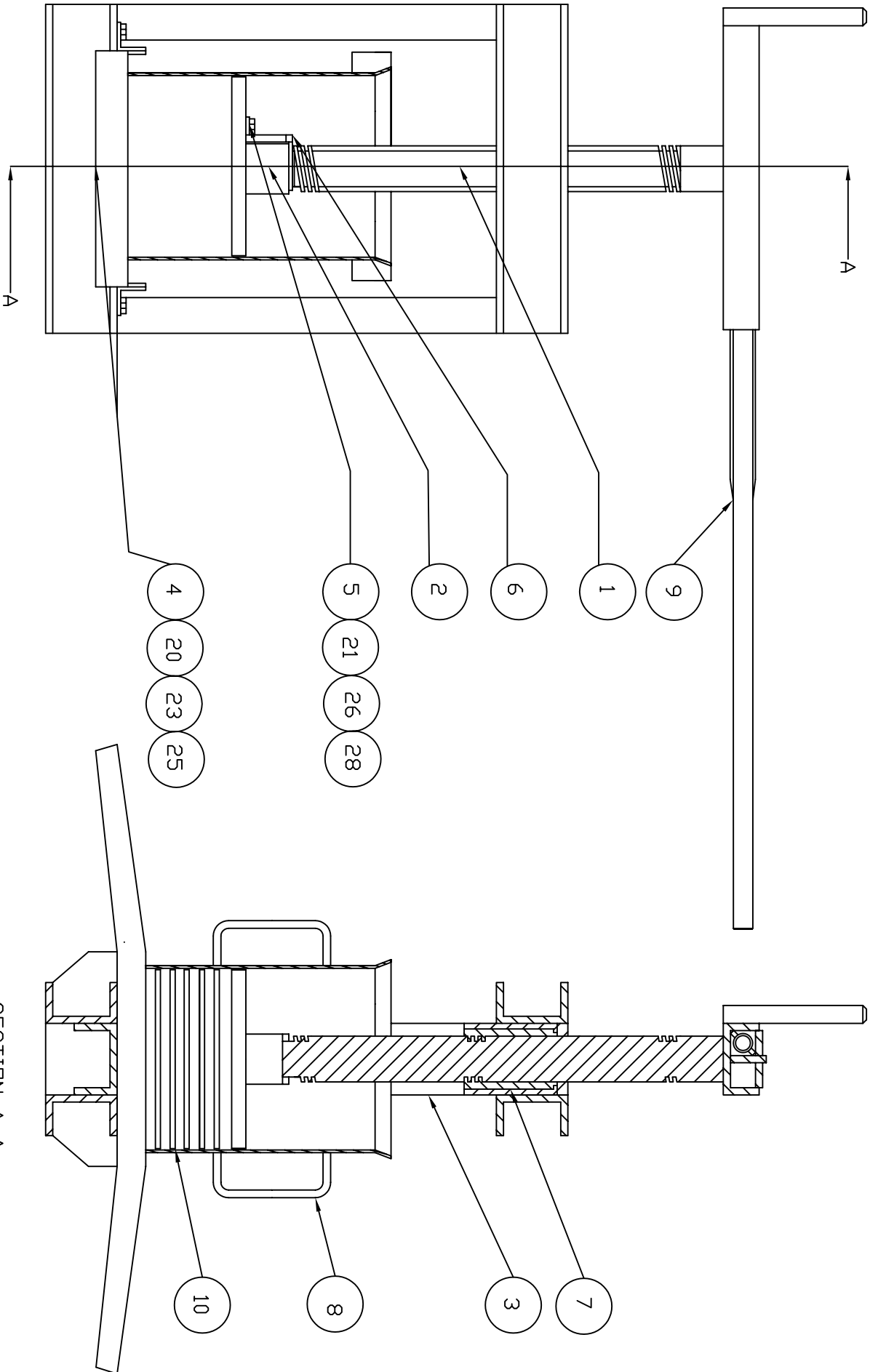
NOTES
 1. No. active coils - 6
 2. Spiral - left or right

TOLERANCES
 UNLESS OTHERWISE
 STATED +/- 0.25

07 SPRING FOR PLUNGER - SPRING STEEL - 1 DFF

Practical Action www.practicalaction.org info@practicalaction.org.uk		TITLE JAM JAR SEALER		DRAWN A.R	TRACE -	CHK -	NDT TO SCALE
TOLERANCES UNLESS OTHERWISE STATED +/- 0.25		DIMENSIONS IN MM		DRAWING NO. JJS-107			
No. REVISIONS	Description	CHK	AP'D	DATE			

DD NDT SCALE

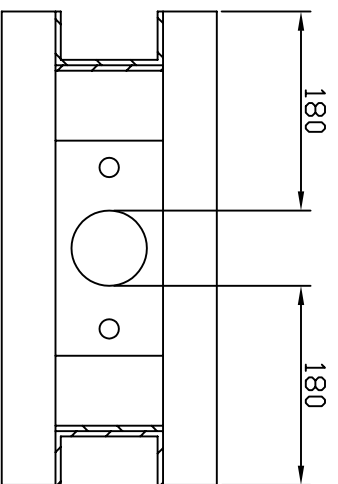


- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 20
- 21
- 23
- 25
- 26
- 28

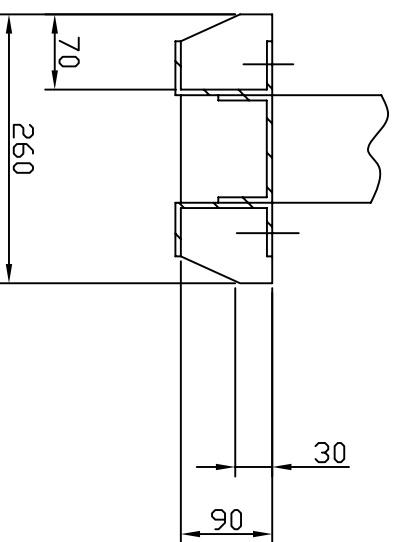
SECTION A-A

No.		Description		CHK	AP'D	DATE	Practical Action	TITLE	DRAWN	TRACE	CHK	 NDT TO SCALE
REVISIONS								MATERIAL -	A,R	-	-	

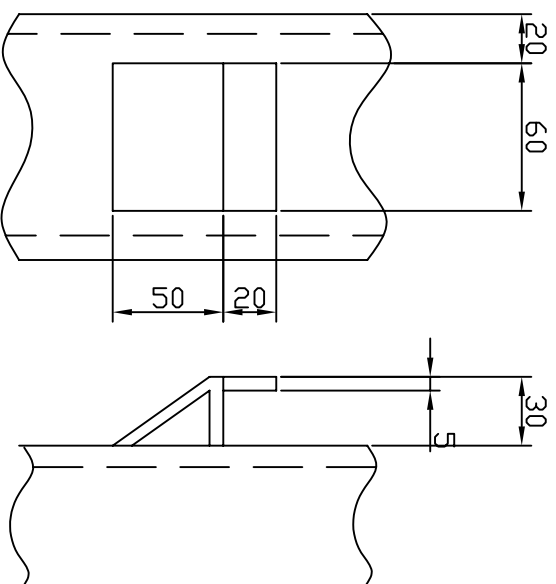
DD NOT SCALE



SECTION A-A



SECTION C-C
NOTE: FULLY WELDED CONSTRUCTION

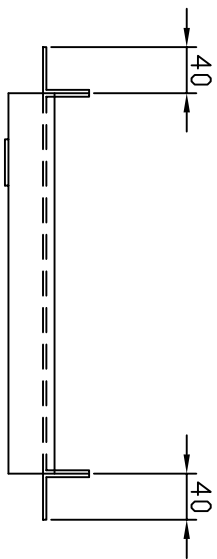
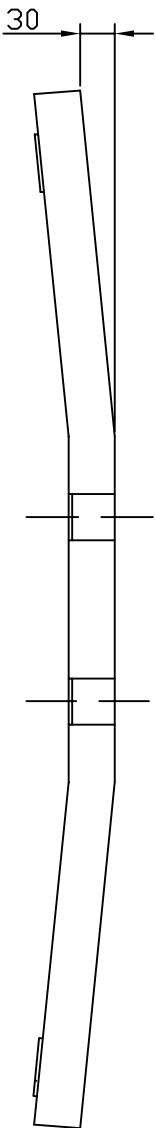
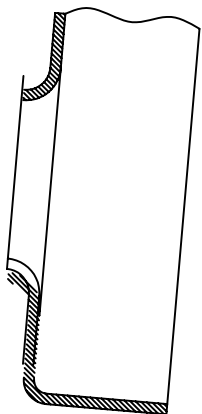
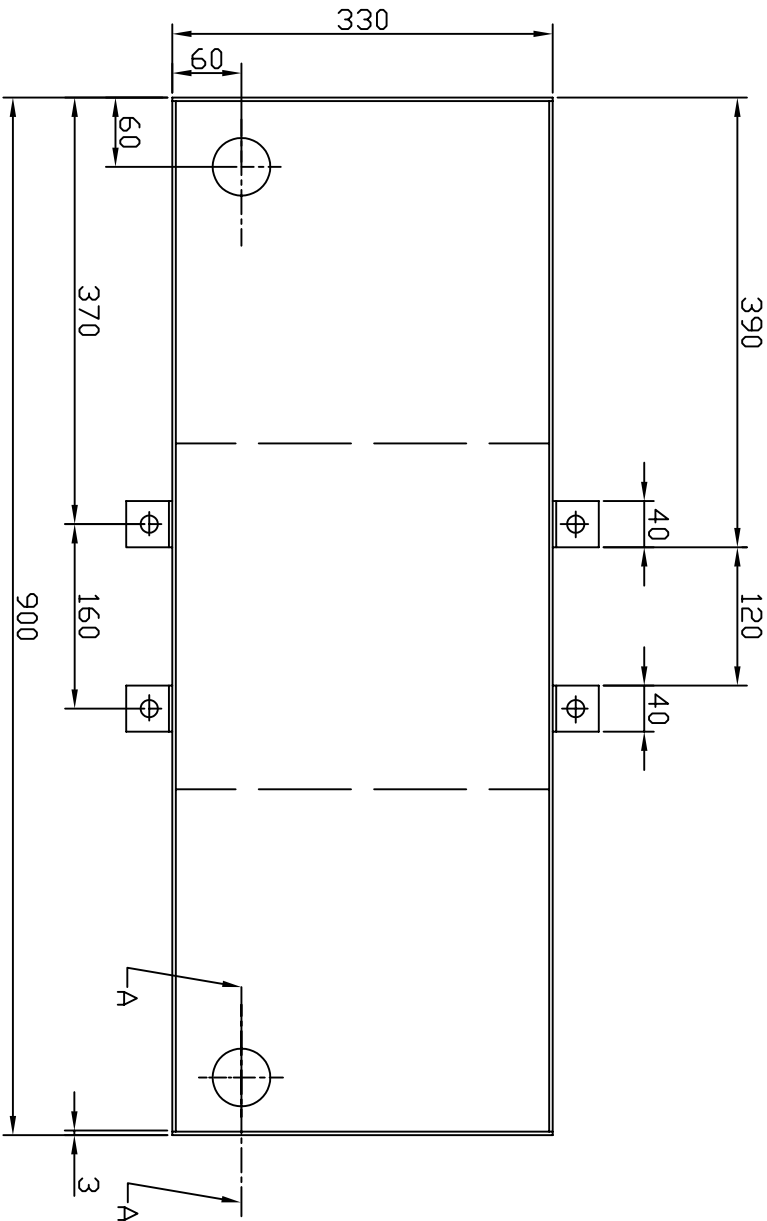


VIEW DN B
NOTE FULLY WELDED CONSTRUCTION

3 MAIN FRAME
(DETAILS)

No.		Description		CHK	AP'D	DATE	Practical Action	TITLE	DRAWN	TRACE	CHK	DD NOT SCALE
REVISIONS								MATERIAL	A,R	-	-	
								MANUAL SCREW				
								MILD STEEL				

DD NDT SCALE



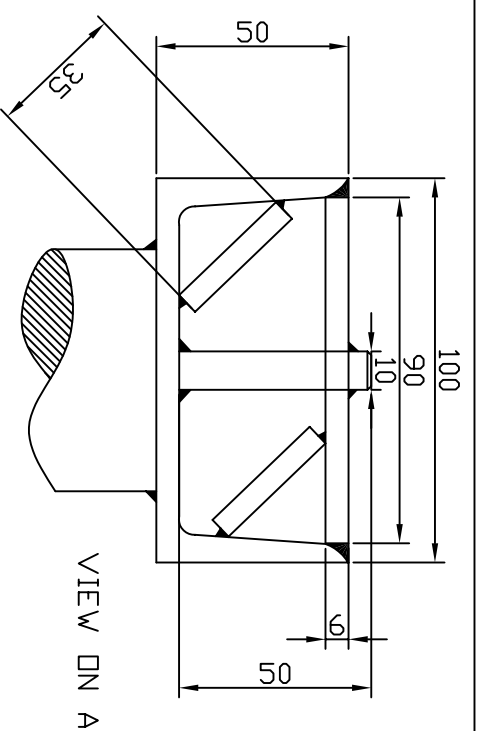
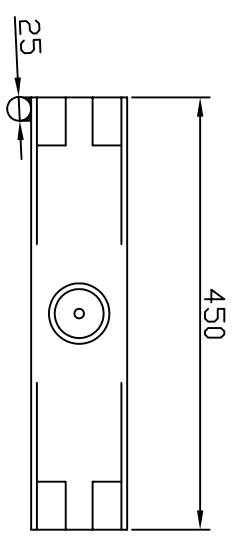
TOLERANCES
UNLESS OTHERWISE
STATED ± 0.25

4 DIL COLLECTION
TRAY

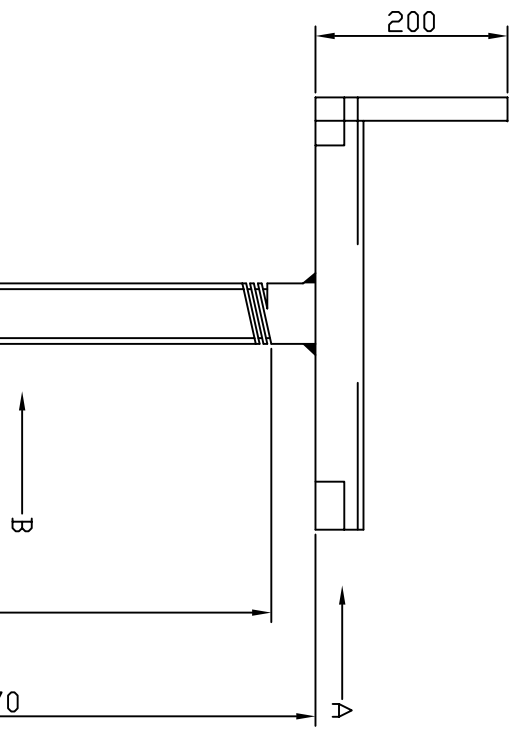
No.				
REVISIONS	Description	CHK	AP'D	DATE

Practical Action		TITLE	MANUAL SCREW PRESS	DRAWN A/R	TRACE	CHK	DRAWING No. MSP102	NDT TO SCALE
		MATERIAL	SHEET STEEL					

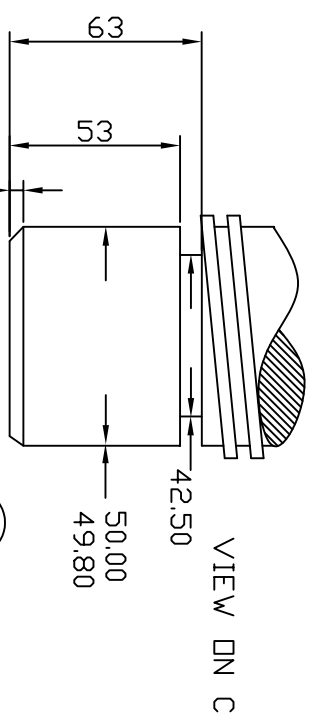
DD NDT SCALE



VIEW DN A



VIEW DN B



VIEW DN C

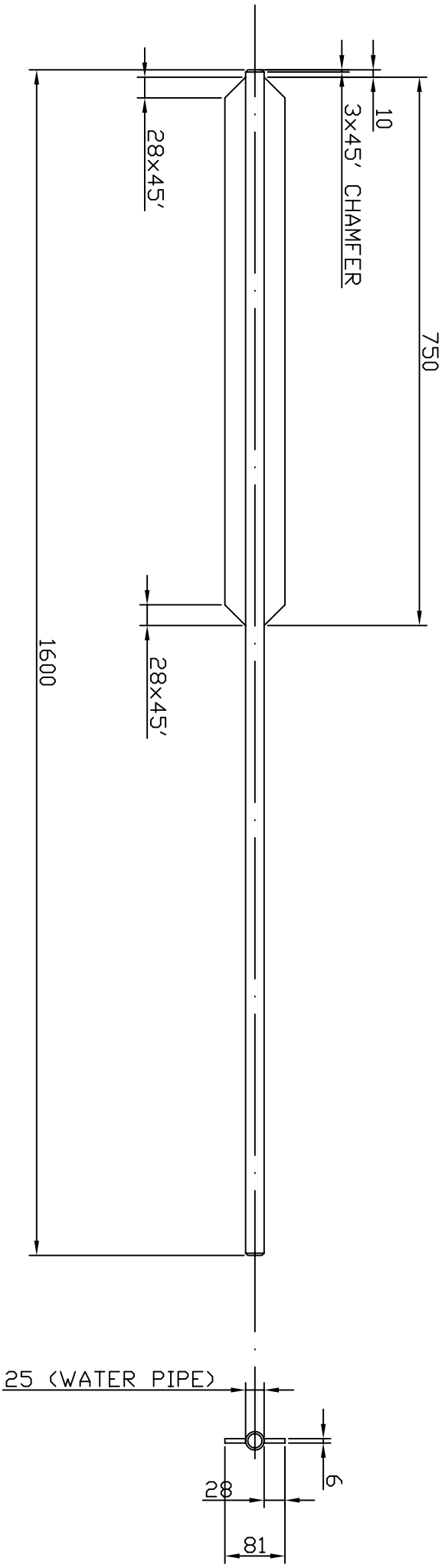
TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

1 SCREW

No.		CHK	AP'D	DATE
REVISIONS	Description			

Practical Action	TITLE MANUAL SCREW	DRAWN A.R	TRACE -	CHK -	NDT TO SCALE
	MATERIAL MILD STEEL	DRAWING No. MSP103			

DD NOT SCALE

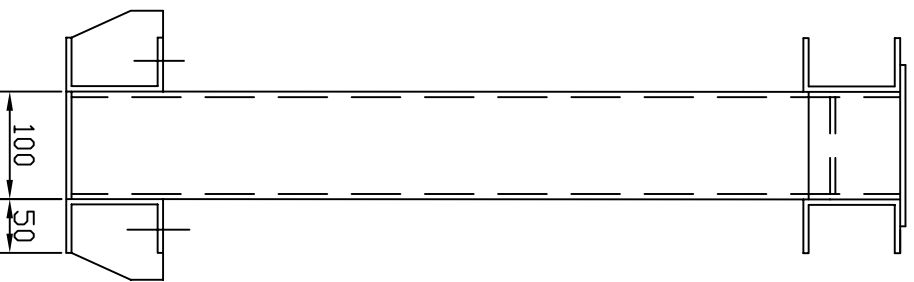
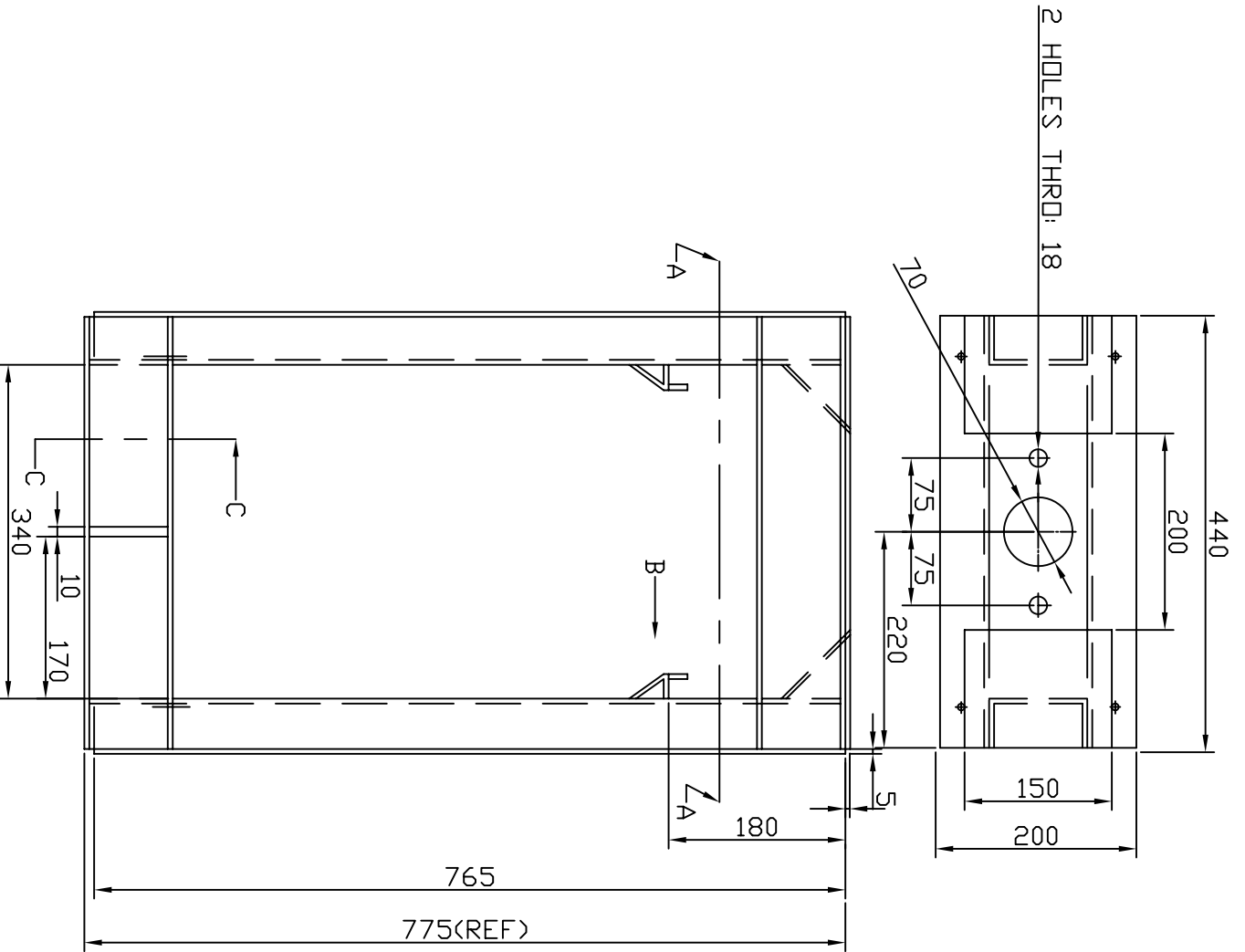


9 TORQUE ARM

No.		Description		CHK	AP'D	DATE	Practical Action	TITLE	DRAWN A/R	TRACE	CHK	DRAWING No. MSP108	DD NOT SCALE
REVISIONS													
		MANUAL SCREW						MILD STEEL					

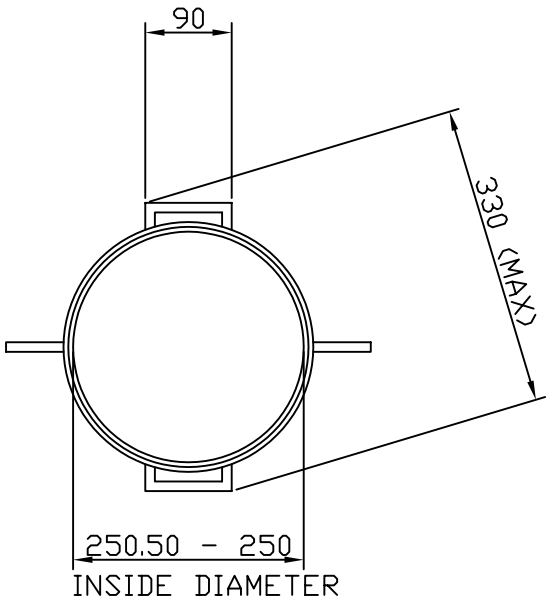
DO NOT SCALE

NOTE: FULLY WELDED CONSTRUCTION UNLESS OTHERWISE STATED

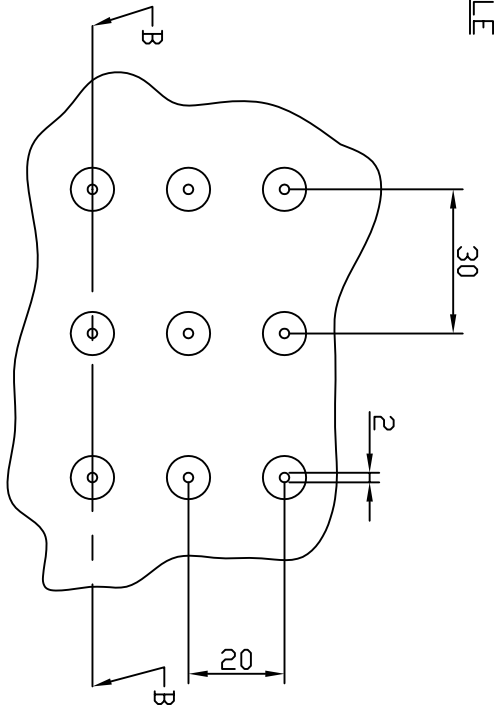


3 MAIN FRAME
(DETAILS)

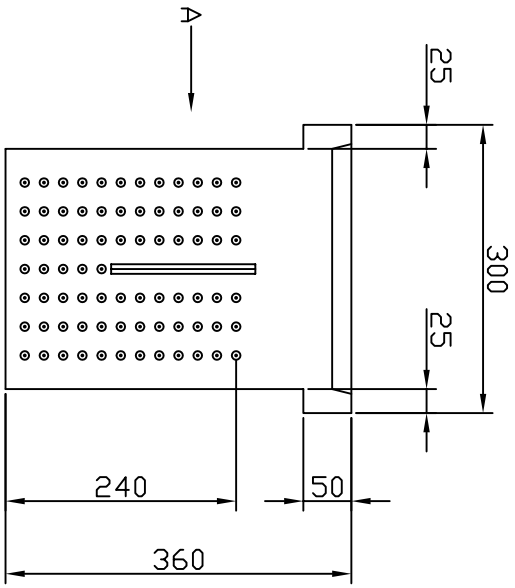
No.	Description	CHK	AP'D	DATE	Practical Action	TITLE	MANUAL SCREW PRESS	DRAWN A.R	TRACE	CHK	DRAWING No. MSP101a	DD NOT SCALE
REVISIONS						MATERIAL	MILD STEEL					



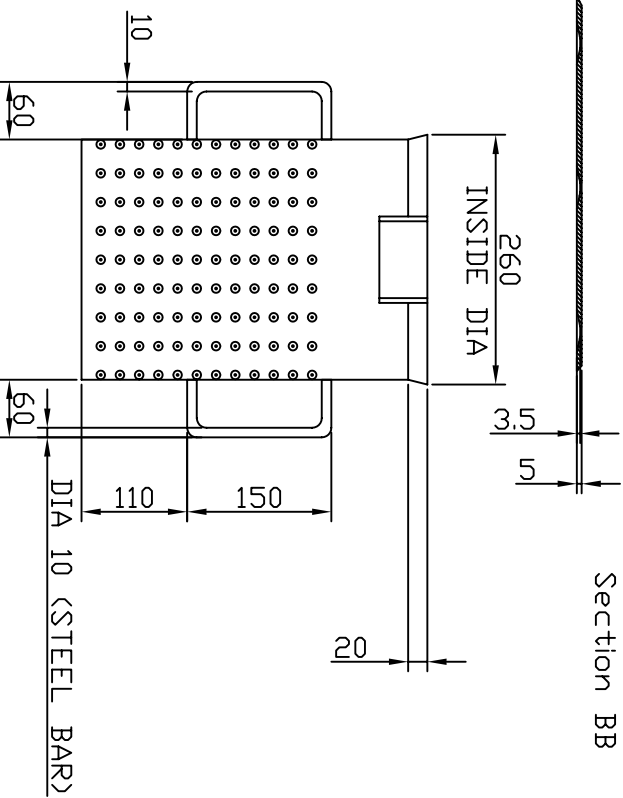
DO NOT SCALE



View on A



NOTE: FULLY WELDED CONSTRUCTION



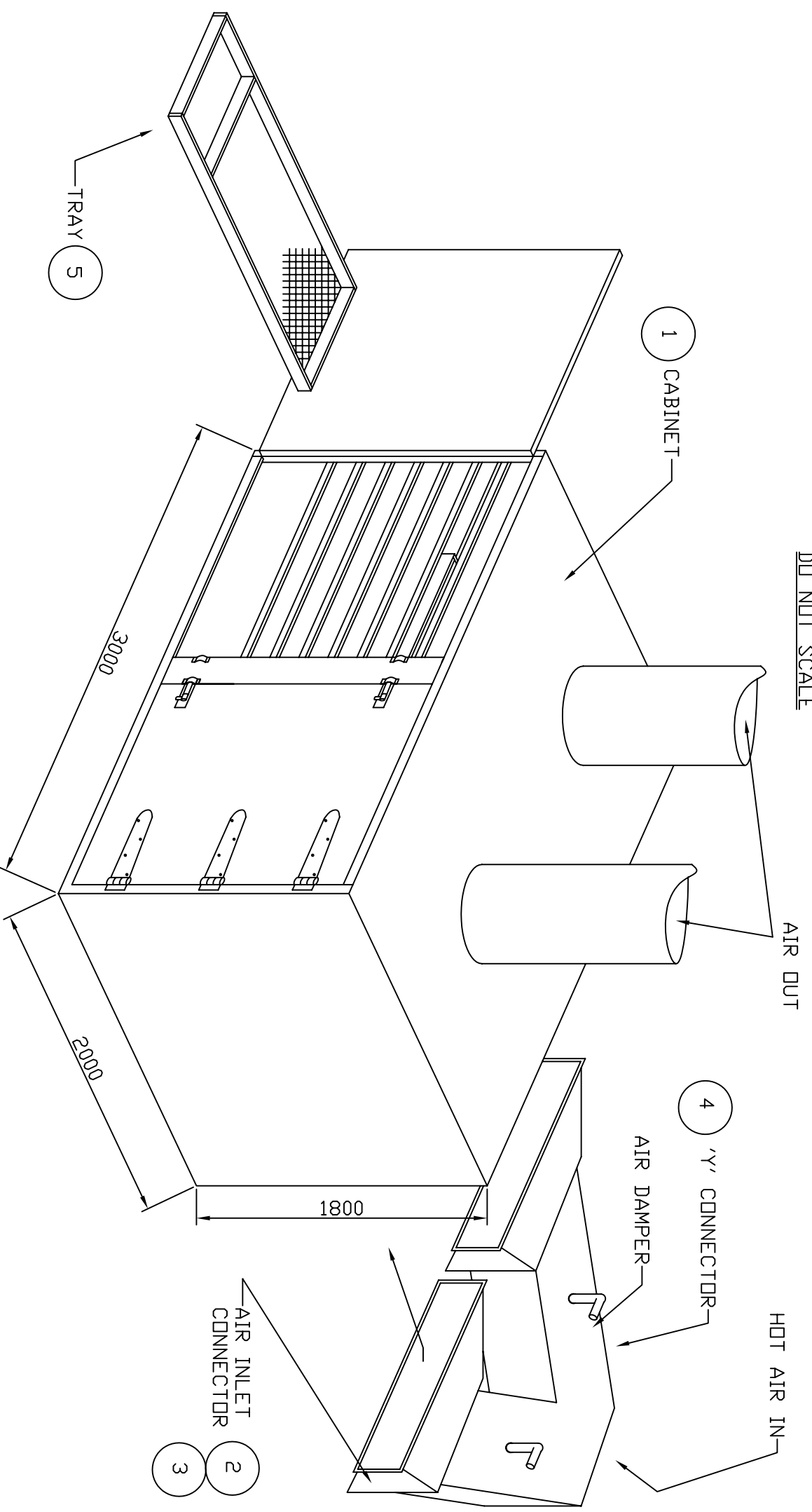
Section BB

8 CAGE

No.	Description	CHK	AP'D	DATE
REVISIONS				

Practical Action	TITLE	MATERIAL	DRAWN A/R	TRACE	CHK	DRAWING No.	NDT TO SCALE
	MANUAL SCREW PRESS	5mm STEEL PLATE				MSP109	

DD NDT SCALE



TOLERANCES UNLESS OTHERWISE STATED +/- 0,25

No.				
REVISIONS	Description	CHK	AP'D	DATE

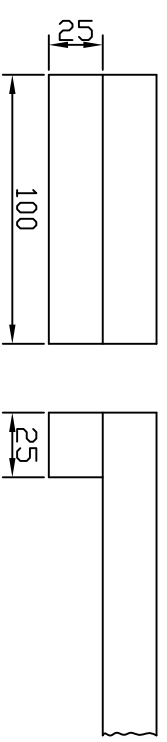
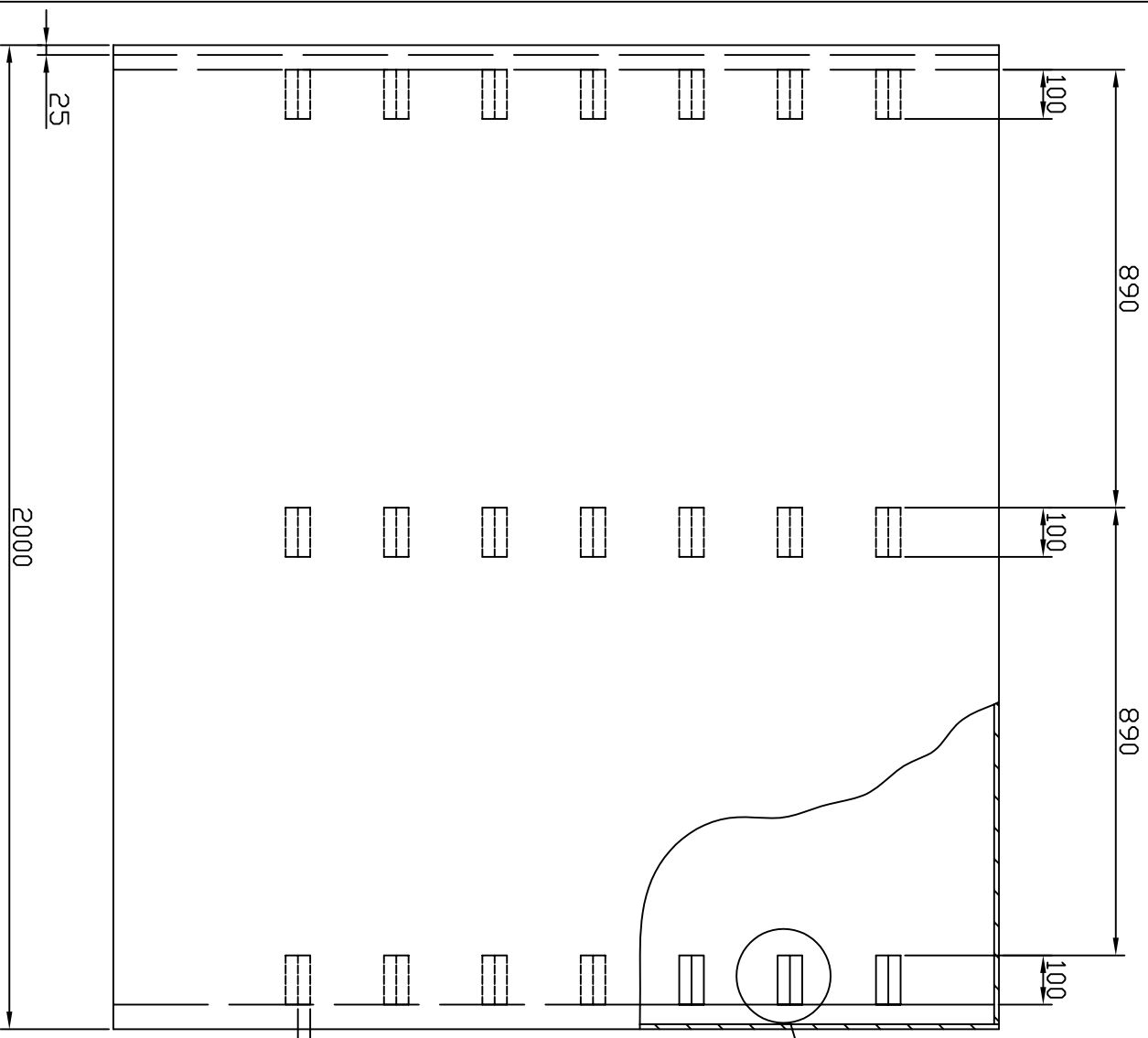
Practical Action
www.practicalaction.org
info@practicalaction.org.uk

TITLE BATCH TRAY DRYER
 DIMENSIONS IN MM

DRAWN A.R.
 TRACE -
 CHK -
 DRAWING No. TDB100

NDT TO SCALE

DO NOT SCALE



SIDE VIEW - A

1 CABINET SUB ASSEMBLY

TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

SHEET 1 OF 4

No.	Description	CHK	AP'D	DATE

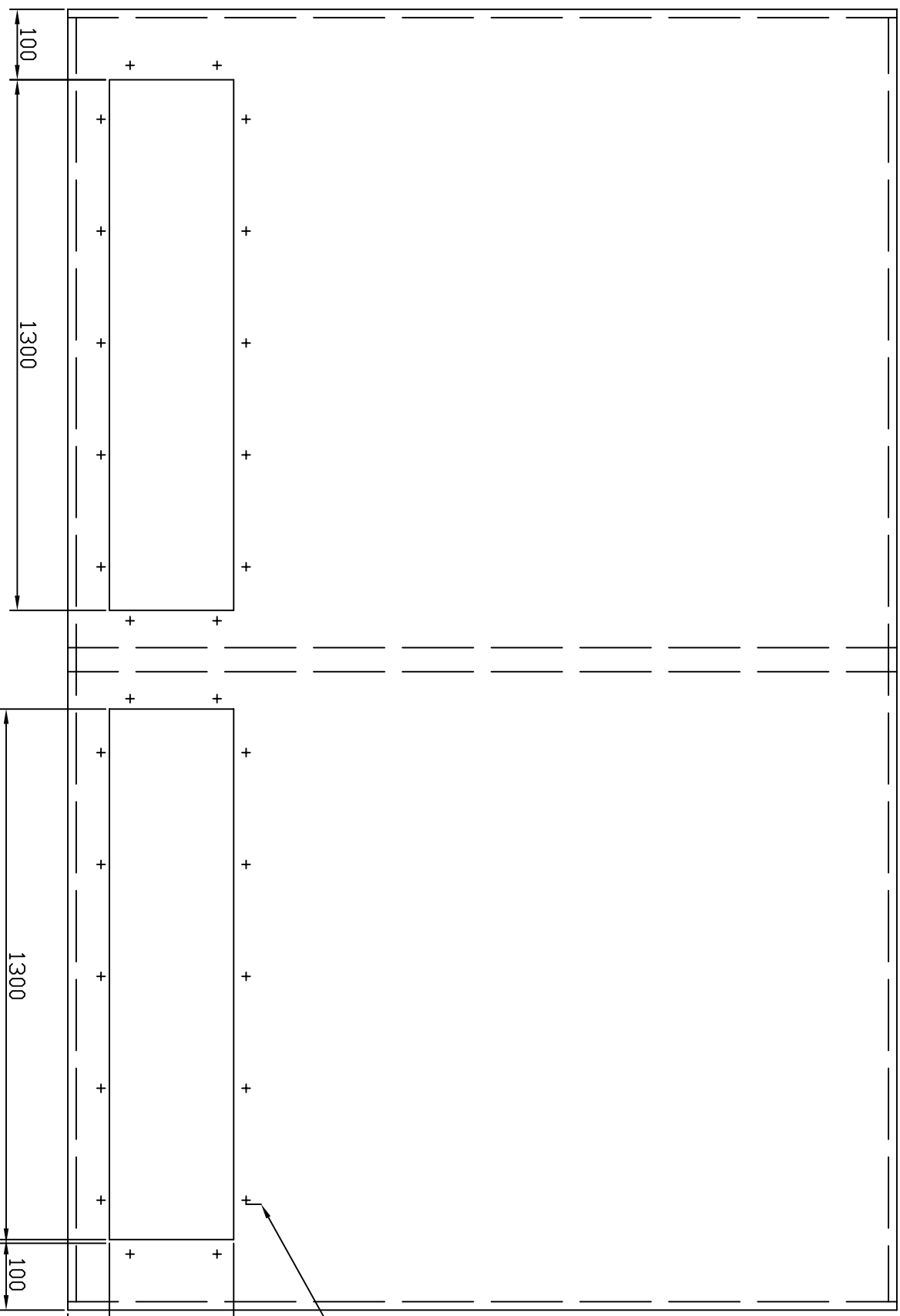
Practical
Action
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info@practicalaction.org.uk

TITLE	BATCH	TRAY
DIMENSIONS IN MM	DRYER	

DRAWN	TRACE	CHK
A/R	-	-

DRAWING No.	NDT TO SCALE
TDB101	

DD NDT SCALE



REAR VIEW - C

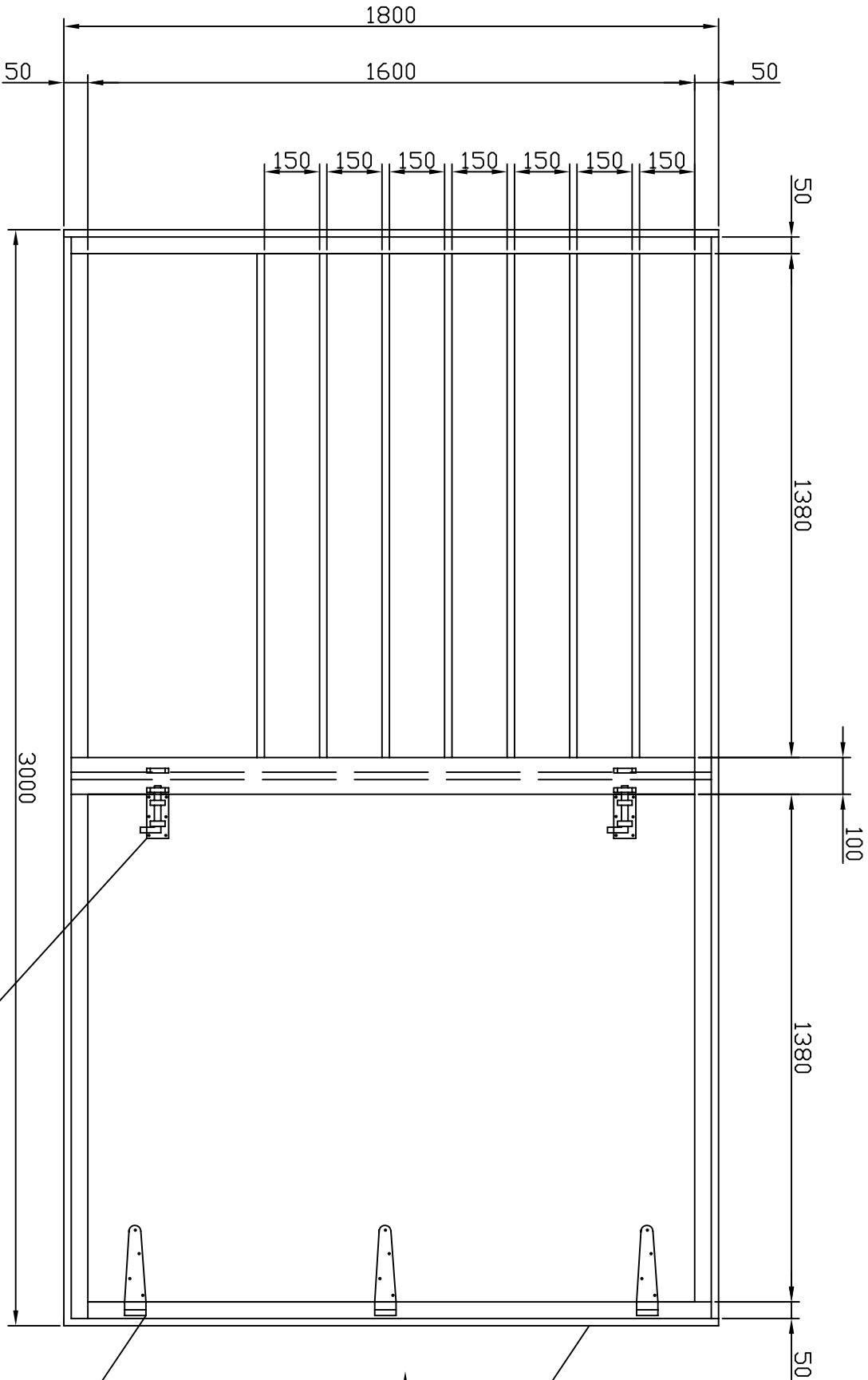
TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

DRILL 8.5
MARK OUT FROM AIR
INLET CONNECTOR

1 CABINET SUB
ASSEMBLY

Practical Action www.practicalaction.org info@practicalaction.org uk		TITLE		DRAWN		TRACE		CHK		NDT TO SCALE	
Batch Tray Dryer		DIMENSIONS IN MM		A.R		-		-		-	
Description		CHK		AP'D		DATE					
No. REVISIONS											

DD NDT SCALE



FRONT VIEW

TOLERANCES UNLESS OTHERWISE STATED +/- 0.25

1 CABINET SUB ASSEMBLY - 1 OFF -

No.	Description	CHK	AP'D	DATE
2	4 x Slide Bolt 100mm			
1	6 x Tee Hinge 250mm			
REVISIONS				

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info@practicalaction.org.uk

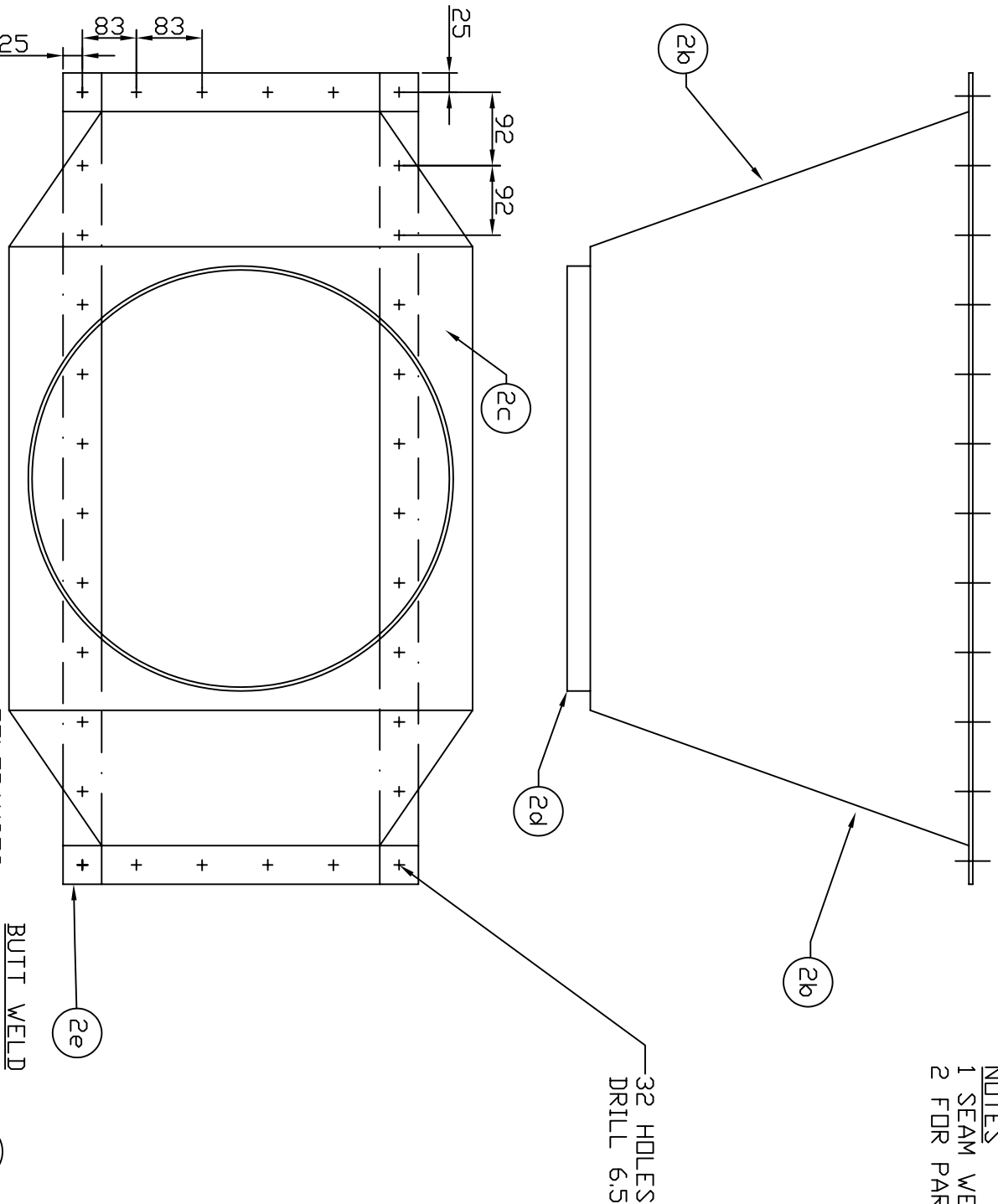
TITLE BATCH TRAY DRYER
DIMENSIONS IN MM

DRAWN A.R
TRACE -
CHK -
DRAWING No. TDB103

NDT TO SCALE

DD NDT SCALE

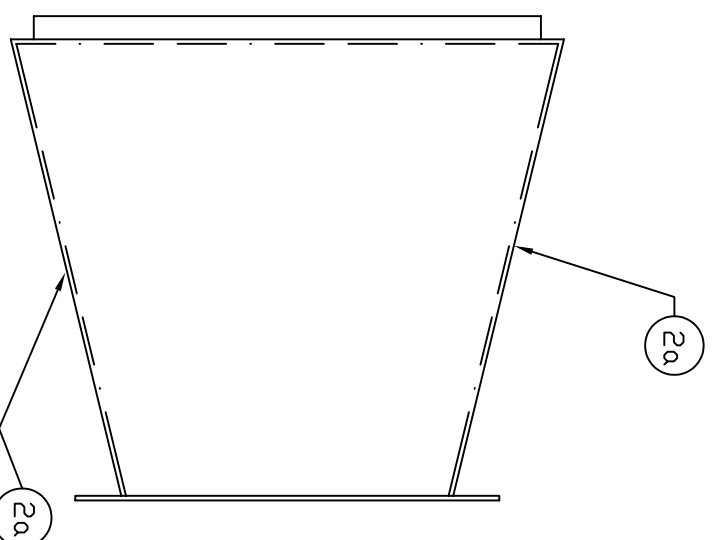
NOTES
 1 SEAM WELD ALL JOINTS
 2 FOR PART DETAILS SEE SHEET 2



TOLERANCES
 UNLESS OTHERWISE
 STATED ± 0.25

BUTT WELD

32 HOLES
 DRILL 6.5

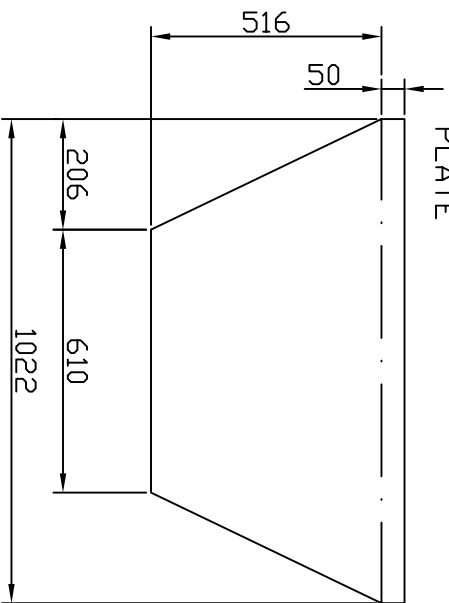


2 AIR INLET CONNECTOR SUB ASSEMBLY
 SHEET 1 OF 2

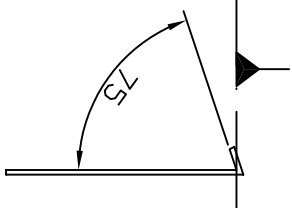
Practical Action		www.practicalaction.org		info@practicalaction.org.uk	
TITLE		BATCH TRAY	DRAWN	TRACE	CHK
BATCH TRAY DRYER			A.R	-	-
DIMENSIONS IN MM		DRAWING No. TDB105		NDT TO SCALE	
REVISIONS		NO.	DESCRIPTION	CHK	AP'D
					DATE

DD NDT SCALE

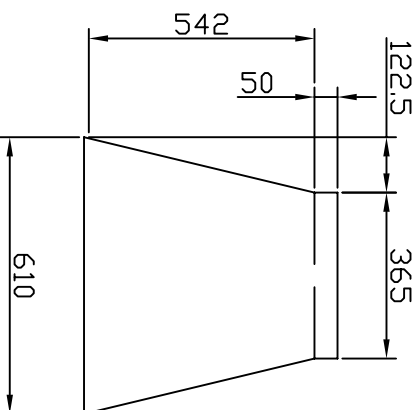
2a) TOP & BOTTOM PLATE
2 OFF PER AIR INLET -
18G 1mm MILD STEEL
PLATE



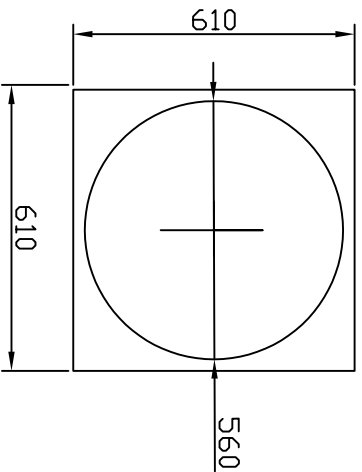
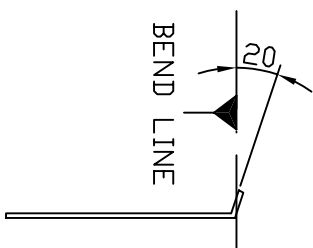
BEND LINE



2b) SIDE SELECTION - 2 OFF
PER AIR INLET - 18G 1mm
STEEL PLATE



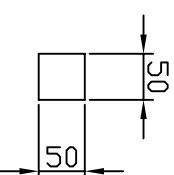
BEND LINE



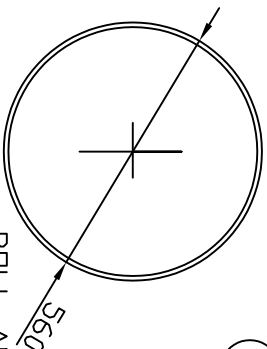
2c) END PLATE
1 OFF PER AIR
INLET - 18G 1mm MILD
STEEL PLATE



2d) CONNECTION SLEEVE
1 OFF PER AIR
INLET - 18G 1mm
STEEL PLATE



2e) FILLET - 4 OFF PER
AIR INLET - MILD
STEEL



ROLL AND BUTT WELD
TO FORM THE SLEEVE

TOLERANCES
UNLESS OTHERWISE
STATED ± 0.25

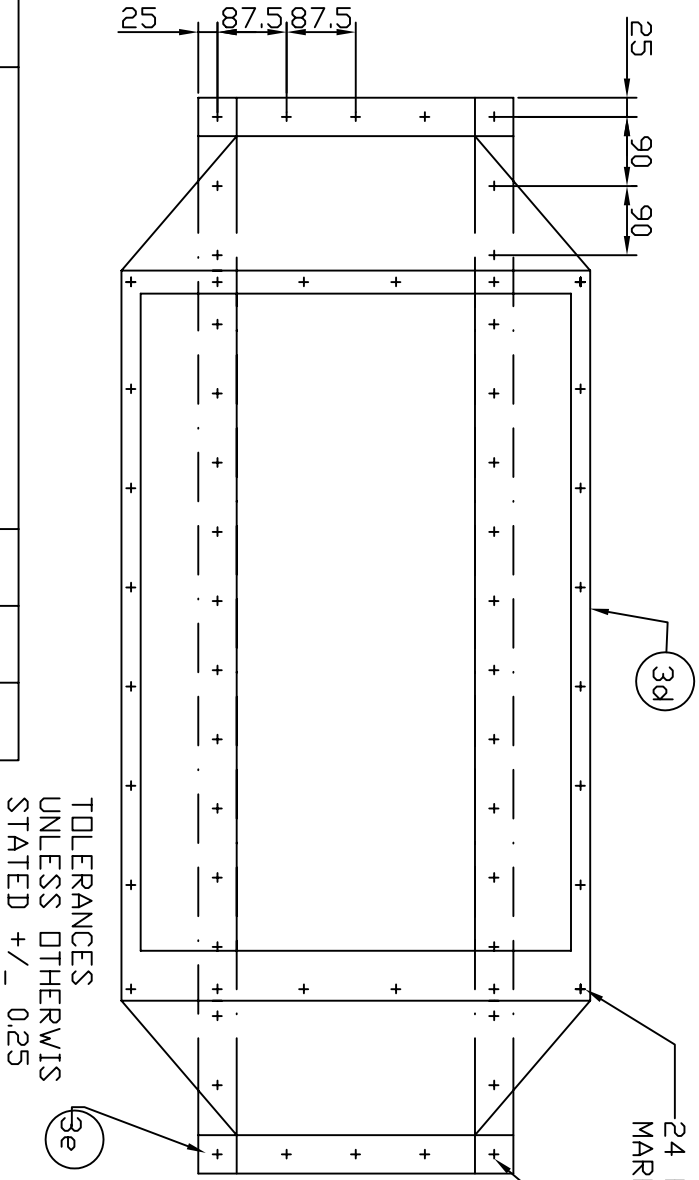
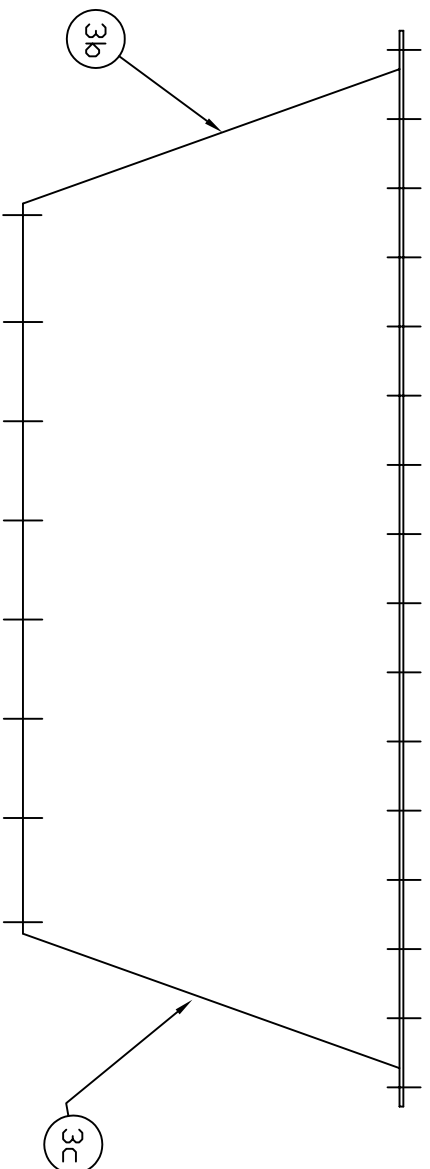
2 AIR INLET SUB ASSEMBLY

SHEET 2 OF 2

No.		Description		CHK	AP'D	DATE	Practical Action	TITLE	BATCH TRAY	DRAWN	TRACE	CHK	NDT TO SCALE	
REVISIONS		Description		CHK	AP'D	DATE	www.practicalaction.org info@practicalaction.org.uk	DIMENSIONS IN MM		AR	-	-	DRAWING No. TDB106	

DD NDT SCALE

NOTES
 1 SEAM WELD ALL JOINTS
 2 FOR PART DETAILS SEE SHEET 2

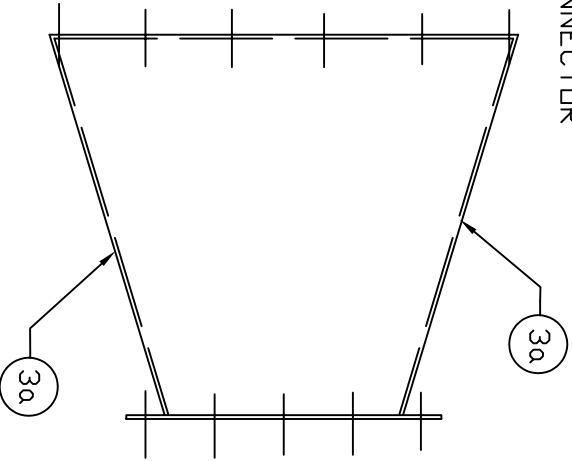


24 HOLES DRILL 6.5
 MARK OUT FROM 'Y' CONNECTOR

38 HOLES
 DRILL 4.5
 FOR ROUND
 HEAD SCREWS

TOLERANCES
 UNLESS OTHERWISE
 STATED +/- 0.25

3 AIR INLET ASSEMBLY



No.	Description	CHK	AP'D	DATE

Practical
 Action
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info@practicalaction.org

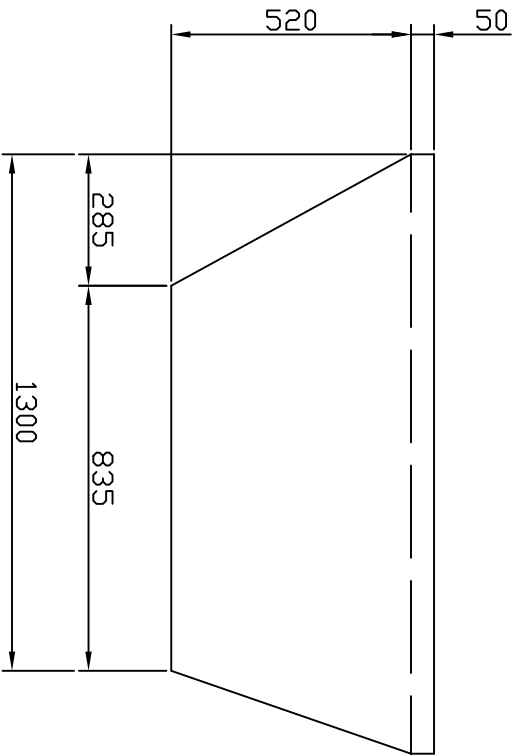
TITLE BATCH TRAY
 DIMENSIONS IN MM

DRAWN A.R
 TRACE -
 CHK -
 DRAWING NO. TDB107

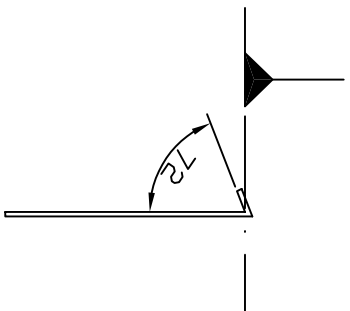
NDT TO
 SCALE

3a TOP & BOTTOM SECTION -
2 OFF PER AIR INLET - 1
mm MILD STEEL

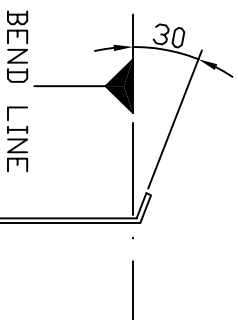
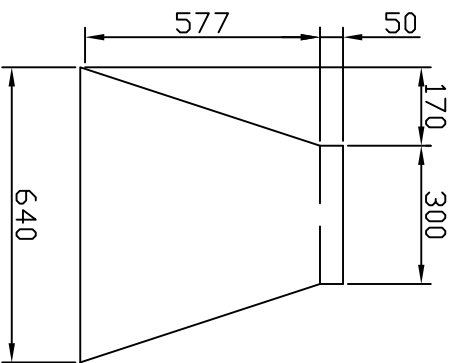
DD NDT SCALE



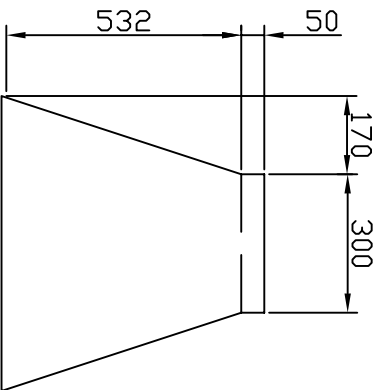
BEND LINE



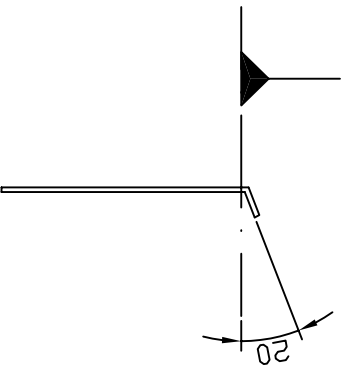
3b L.H.S SECTION -
1 OFF PER AIR INLET - 1
mm MILD STEEL



3c R.H.S SECTION - 1 OFF PER AIR
INLET - 1 mm STEAL PLATE

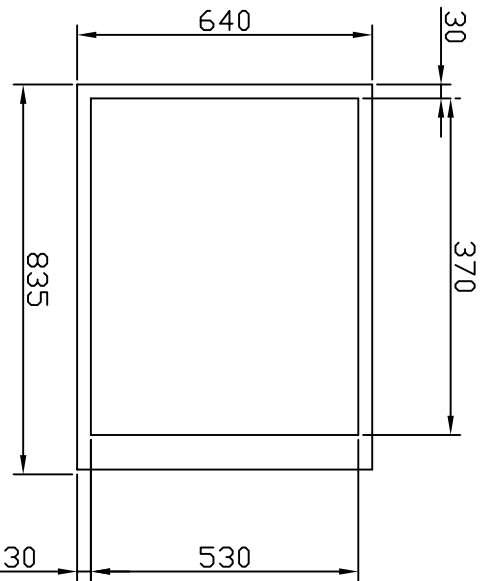


BEND LINE

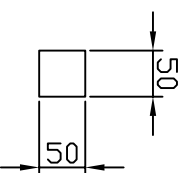


TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25



3d END PLATE - 1 OFF PER
AIR INLET - 1 mm STEEL
PLATE



3e FILLET - 4 OFF PER AIR
INLET - 1 mm MILD STEEL
PLATE



3 AIR INLET CONNECTOR
SUB ASSEMBLY
SHEET 2 OF 2

No.	Description	CHK	AP'D	DATE	Practical Action www.practicalaction.org Info@practicalaction.org	TITLE BATCH TRAY DRYER DIMENSIONS IN MM	DRAWN A.R	TRACE -	CHK -	 	NDT TO SCALE
		REVISIONS									

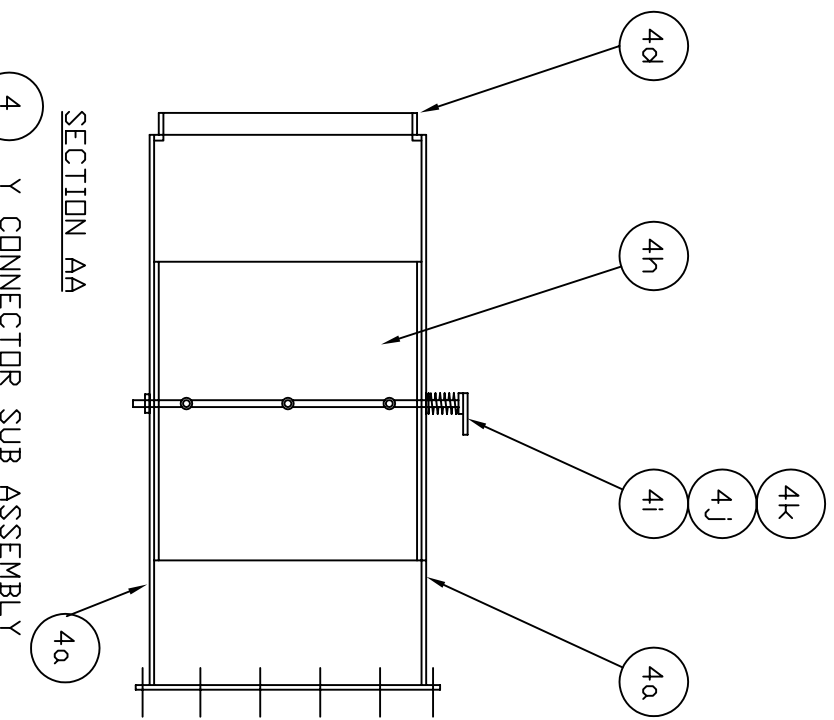
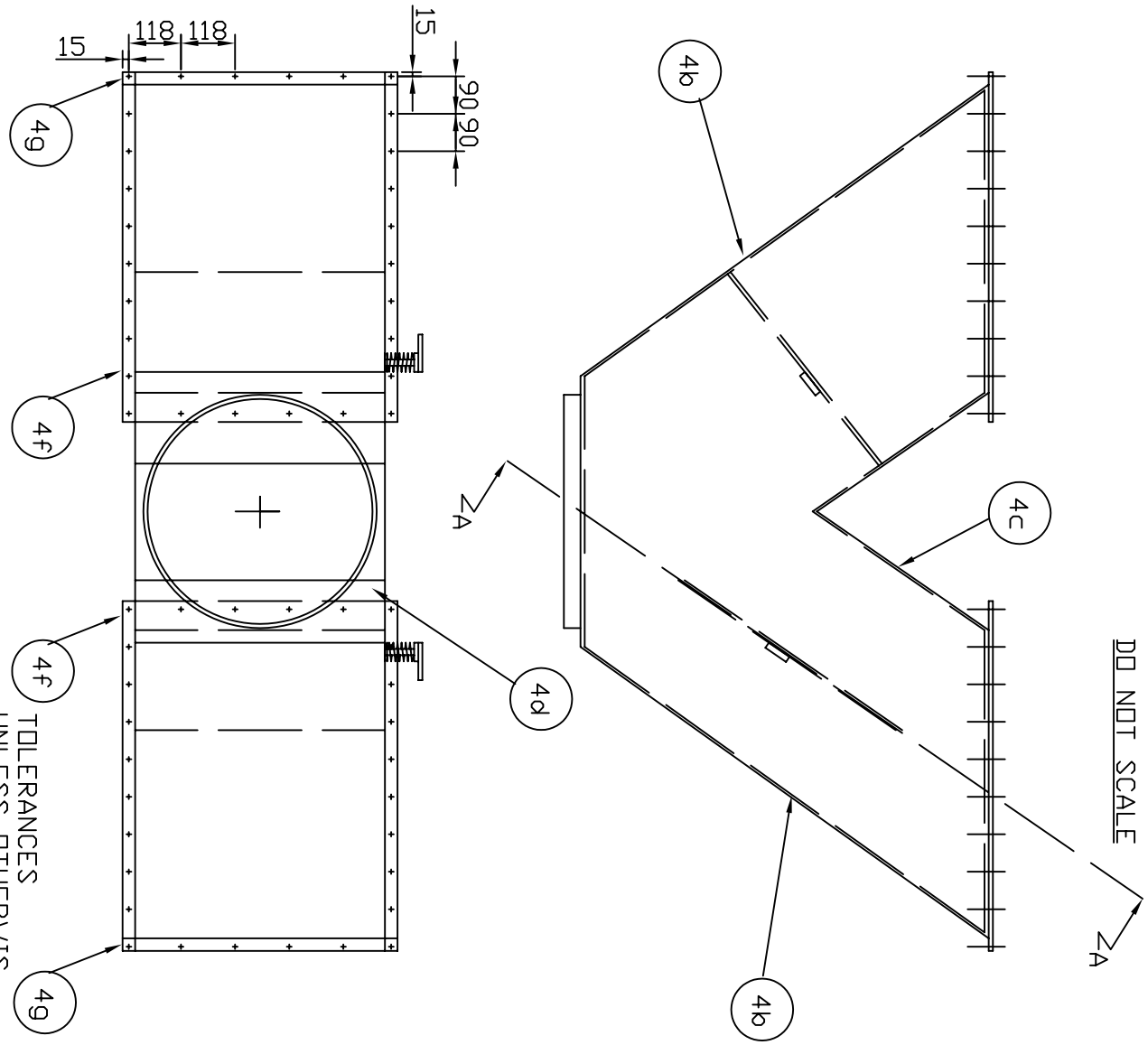
No.				
REVISIONS	Description	CHK	AP'D	DATE

Practical Action
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info@practicalaction.org

TITLE BATCH TRAY
 DIMENSIONS IN MM

DRAWN A.R
 TRACE -
 CHK -
 DRAWING No. TDB109

SHEET 1 OF 3
 NDT TO SCALE

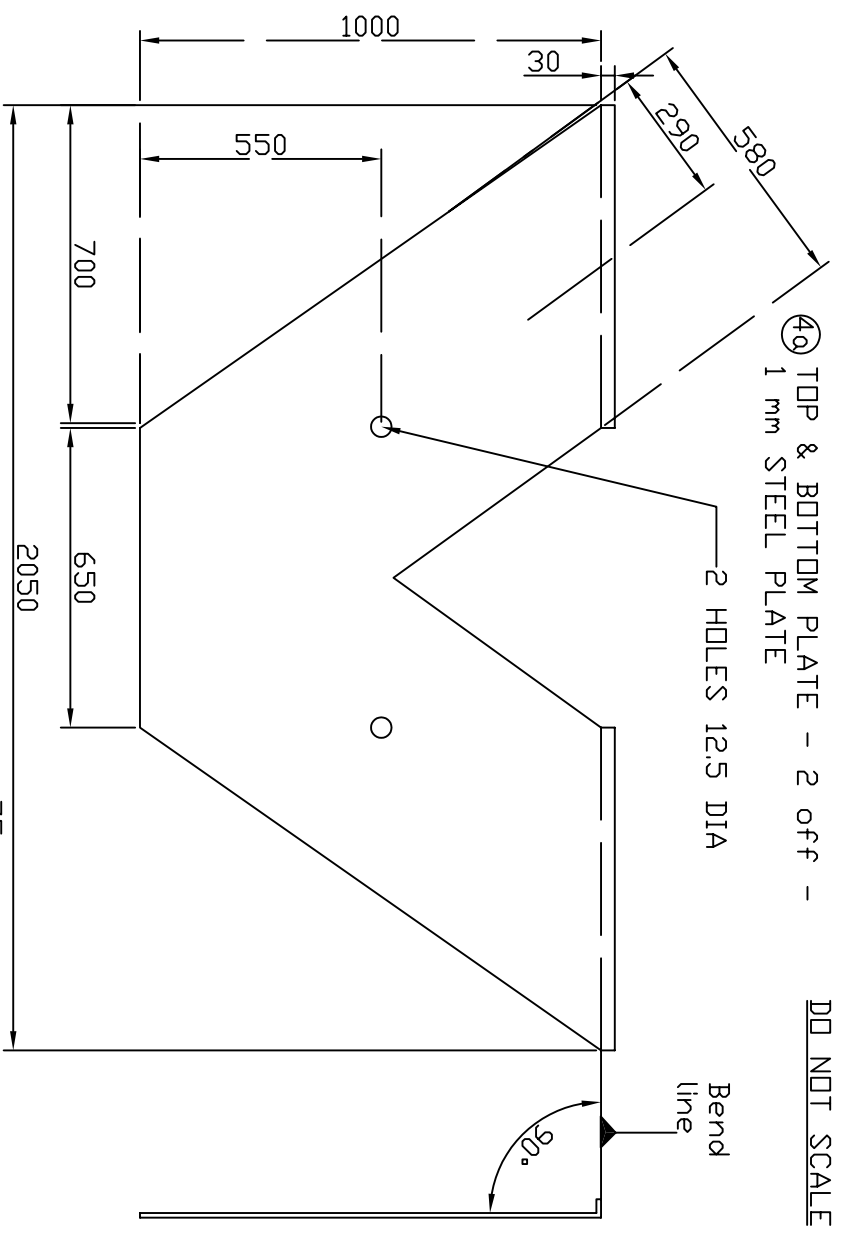


NOTES
 1 SEAM WELD ALL PARTS
 2 FOR PART DETAILS SEE
 SHEET 2 AND 3

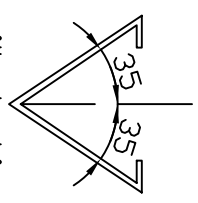
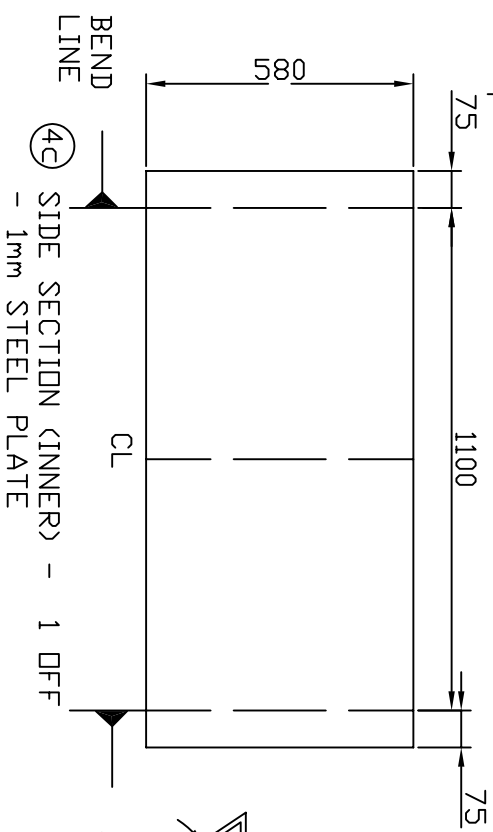
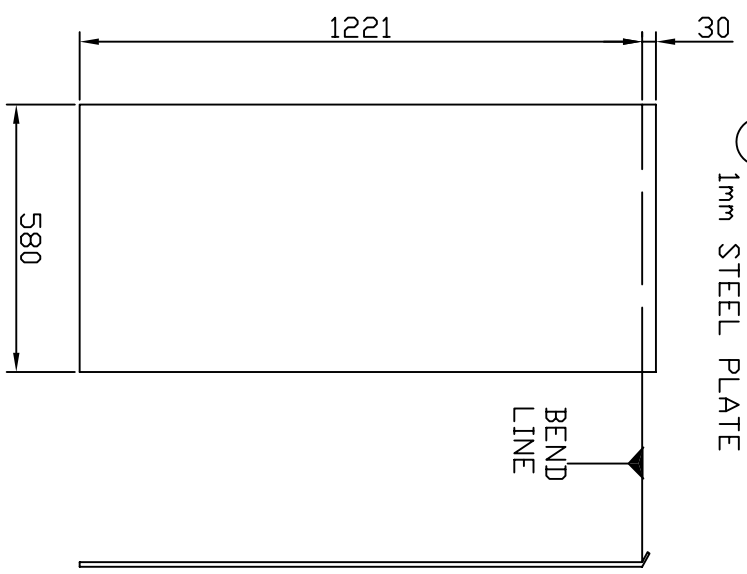
DD NDT SCALE
 Z A

DO NOT SCALE

4a) TOP & BOTTOM PLATE - 2 OFF -
1 mm STEEL PLATE

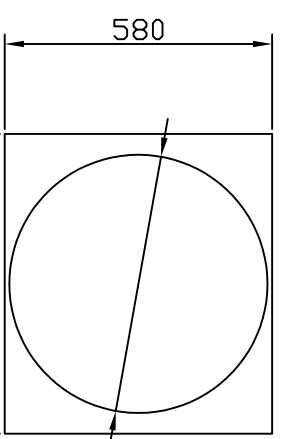


4b) SIDE SECTION (OUTER) - 1 OFF -
1mm STEEL PLATE



TOLERANCES UNLESS OTHERWISE STATED +/- 0.25

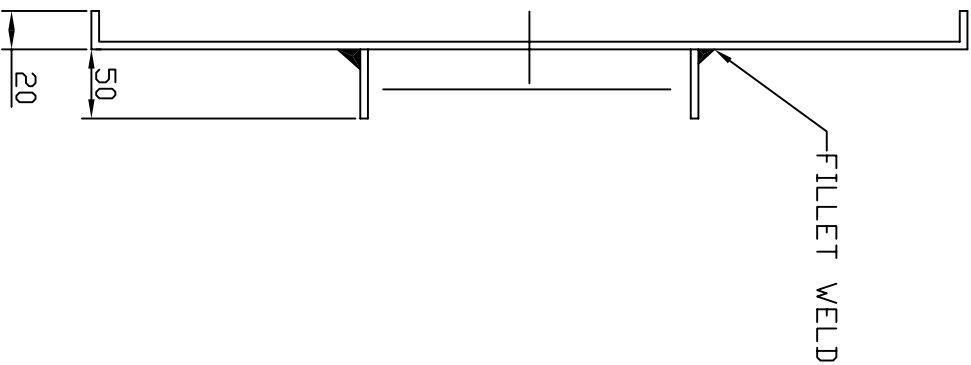
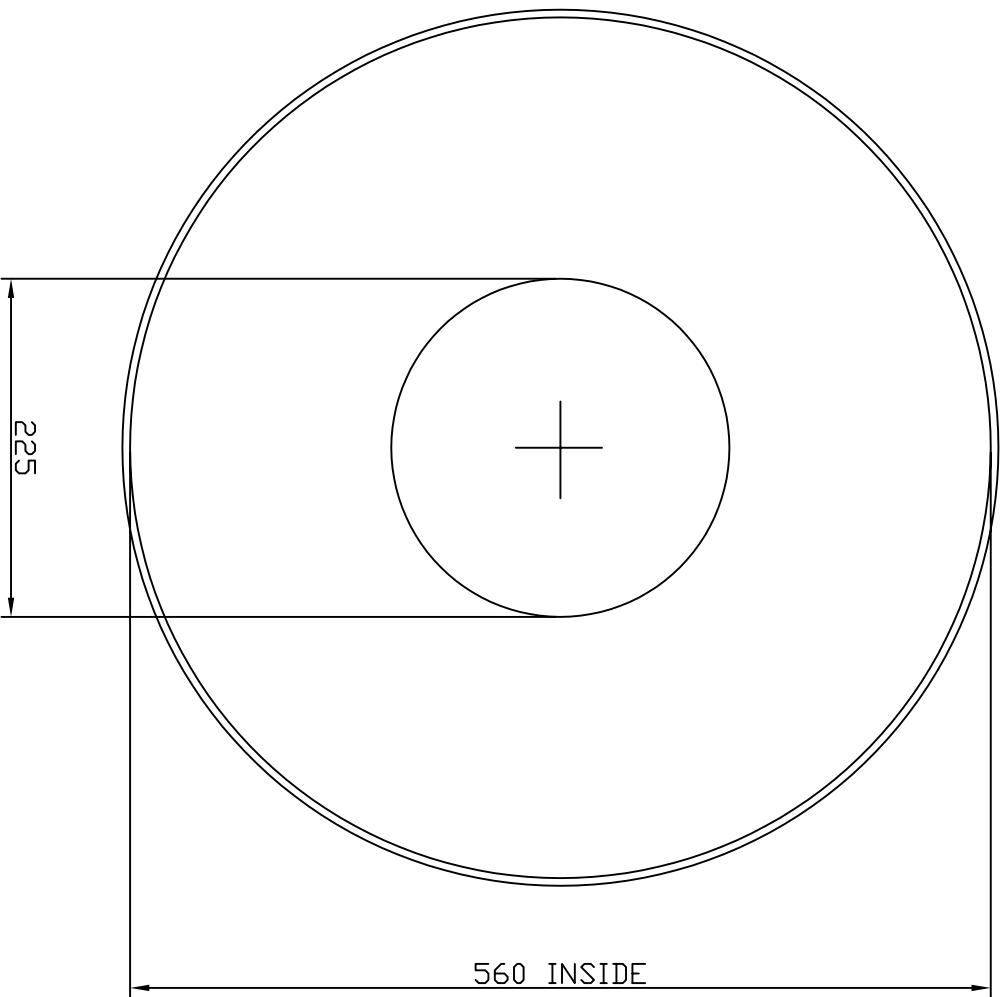
4) Y CONNECTOR SUB ASSEMBLY



NO.	Description	CHK	AP'D	DATE
REVISIONS				

Practical Action	TITLE	BATCH TRAY DRYER	DRAWN A/R	TRACE	CHK	DRAWING No. TDB110	NDT TO SCALE
www.practicalaction.org info@practicalaction.org.uk	DIMENSIONS IN MM		SHEET 2 OF 3				

DD NDT SCALE



TOLERANCES
UNLESS OTHERWISE
STATED +/- 0.25

6 ADAPTOR- 1 OFF- 1 mm MILD STEEL PLATE

Practical Action www.practicalaction.org info@practicalaction.org uk		TITLE		BATCH	TRAY	DRAWN	TRACE	CHK	NDT TO SCALE	
		DIMENSIONS IN MM				A/R	-	-		
No. REVISIONS		Description	CHK	AP'D	DATE	DRAWING NO. TDB113				

1	CABINET SUB ASSY	TDB101	1			
1	CABINET SUB ASSY	TDB102				
1	CABINET SUB ASSY	TDB103				
1	CABINET SUB ASSY	TDB104				
1a	WOODEN FRAME		1	HARD WOOD		
1b	TEE HINGE		6		250 mm LONG	
1c	SLIDE BOLT		4		100 mm LONG	
2	AIR INLET SUB ASSY	TDB105	2			
2	AIR INLET SUB ASSY	TDB106				
2a	TOP & BOTTOM SECTION		4	18G 1mm MS PLATE		
2b	SIDE SECTION		4	18G 1mm MS PLATE		
2c	END PLATE		2	18G 1mm MS PLATE		
2d	CONNECTION SLEEVE		2	18G 1mm MS PLATE		
2e	FILLET		8	MILD STEEL		
3	AIR INLET SUB ASSY	TDB107	2			
3	AIR INLET SUB ASSY	TDB108				
3a	TOP & BOTTOM SECTION		4	18G 1mm MS PLATE		
3b	LHS SECTION		2	18G 1mm MS PLATE		
3c	RHS SECTION		2	18G 1mm MS PLATE		
3d	END PLATE		2	18G 1mm MS PLATE		
3e	FILLET		8	MILD STEEL		
4	Y CONNECTOR SUB ASSY	TDB109	1			
4	Y CONNECTOR SUB ASSY	TDB110				
4	Y CONNECTOR SUB ASSY	TDB111				
4a	TOP & BOTTOM PLATE		2	18G 1mm MS PLATE		
4b	OUTER SIDE PLATE		2	18G 1mm MS PLATE		
4c	INNER SIDE PLATE		2	18G 1mm MS PLATE		
4d	END PLATE		2	18G 1mm MS PLATE		
4e	CONNECTOR SLEEVE		1	18G 1mm MS PLATE		
4f	FILLET		4	MILD STEEL		
4g	FILLET		4	MILD STEEL		
4h	DAMPER		2	MILD STEEL		
4i	DAMPER HANDLE		2	MILD STEEL		
4j	DAMPER STOP		2	MILD STEEL		
4k	DAMPER SPRING		2	SPRING STEEL		
5	TRAY SUB ASSY	TDB112	28			
5a	FRAME		28	SOFT WOOD		
5b	MESH		28	CHCIKEN WIRE		
6	ADAPTOR	TDB113	1/2	18G 1mm MS PLATE		
ITEM	DESCRIPTION	PAGE NO	QTY	MATERIAL	COMMENTS	CHD

PARTS LIST

