



INSTITUTE FOR ANIMAL HEALTH

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PROBANG MANUFACTURING NOTES

Cattle and Calf Cup

The cup is turned from free cutting brass stock diameter $\frac{7}{8}$ inch (22 mm) for calf probang and $1\frac{1}{8}$ inch (28 mm) for the cattle. Machining sequence as follows:

1. Mount in chuck, face, centre drill.
2. Pilot drill to full depth, finish drill to drawing.
3. Bore chamfer at 60° to edge, remove sharp edge to provide scraping not cutting edge.
4. Part off to drawing.
5. Reverse in chuck, centre drill, drill through No 30 diameter and countersink to $\frac{1}{4}$ inch (6 mm) diameter.
6. Turn profile with form tool and blend by hand with fine emery cloth.

Cattle and Calf Wire Handle

The handle material for all probangs is 10 S.W.G. stainless steel wire in a hard drawn state to provide 'spring'. It is an advantage to have this supplied in coil form so that the handle follows the natural curve of the wire coil.

The first operation, at this stage of manufacture, is to cut to length and form an eye at one end as per drawing. The rivet head will be formed later during assembly.

Assembly Cattle and Calf Probang

Proceed as follows:

1. Slide brass cup, cattle or calf size down the wire.
2. Mount wire in head forming fixture and form head. This operation is simplified if the wire is locally heated to red before hammering into shape.
3. Clean off heating discolouration from around rivet head, flux area with 'Easy flo' silver solder flux and slide cup into position.
4. Silver solder in position, quench and allow to soak to remove flux residue.

cont'd ...

Finishing and Final Assembly

Excess solder and any wire that protrudes from the end of the cup is filed and hand polished to blend with the cup profile. The final finish to the whole outside of the cup is achieved with a cloth buffing wheel.

To complete the assembly, a loop of brass safety chain is passed through the eye in the wire handle, as per sketch.

Pig and Sheep Probang Head

The head is turned from free cutting brass, stock diameter $\frac{3}{4}$ inch (19 mm). Machining sequence as follows:

1. Mount bar in chuck, face and centre drill.
2. Drill No 30 diameter to $1\frac{1}{4}$ inch (32 mm) deep, countersink to $\frac{1}{4}$ inch (6.4 mm) diameter.
3. Turn profile with form tool and blend by hand with fine emery cloth.
4. Plunge centre groove $\frac{1}{4}$ inch (6.4 mm) wide x $\frac{1}{4}$ inch (6.4 mm) deep.
5. Bore recesses with form tools as per drawing.
6. Part off to 1 inch (25.4 mm) long.
7. Reverse in chuck, mount in chuck fixture and turn other profile, see fixture sketch.

Assembly and Finishing

Proceed as for Cattle and Calf.

Enclosed:

Drawings:

Cattle Probang Head
Pig and Sheep Probang Head
Assembly of Cattle and Calf Probang
Assembly of Pig and Sheep Probang
Calf and Probang Head
Sketch of fixture for machining profile
Sketch of safety chain assembly
Sketch of wire head forming

February 1998

PART OF

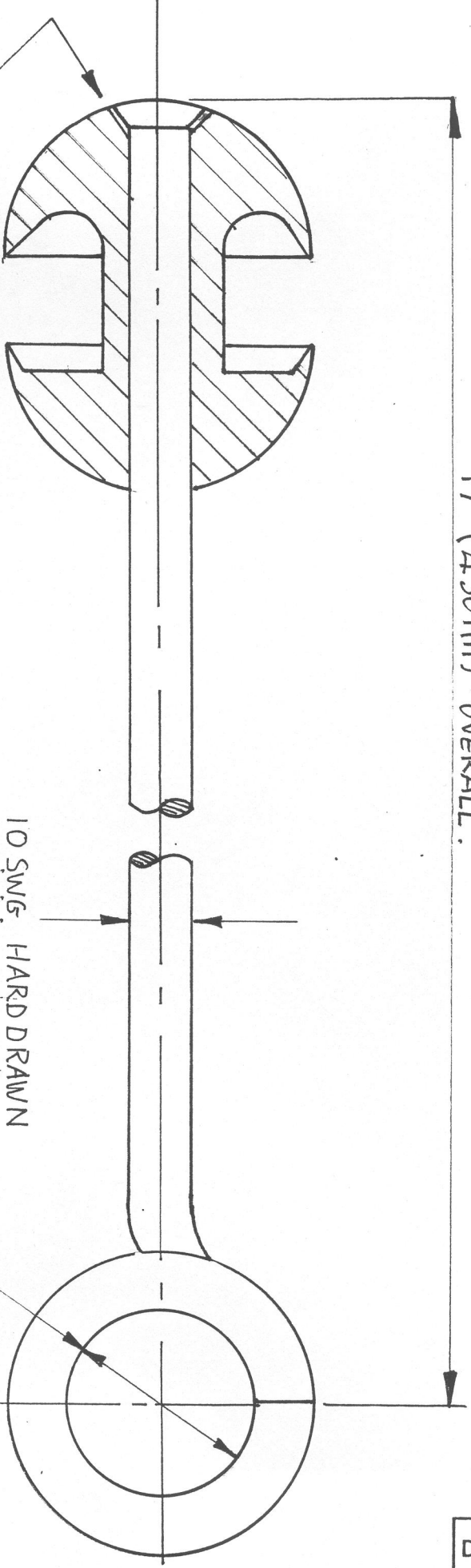
1 2 3 4 5 6 7 8 9 10

DO NOT SCALE
NOT TO SCALE

SHEET OF

DRG. No.

17" (430MM) OVERALL.



WIRE SILVER SOLDERED IN POSITION
FORMED END OF WIRE AND EXCESS
SOLDER FILED OFF AND POLISHED
TO CUP PROFILE.

10 SWG. HARD DRAWN
STAINLESS STEEL WIRE

1 1/2 TURNS OF WIRE
TO FORM EYE 3/4" (19MM) DIA.

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TITLE
PIG AND SHEEP
PROBANG ASSY.

ISSUE	DESCRIPTION	APPD	DATE	DRAWN	TRACED	CHECKED	APPROVED	DATE

DRAWING No. 0153

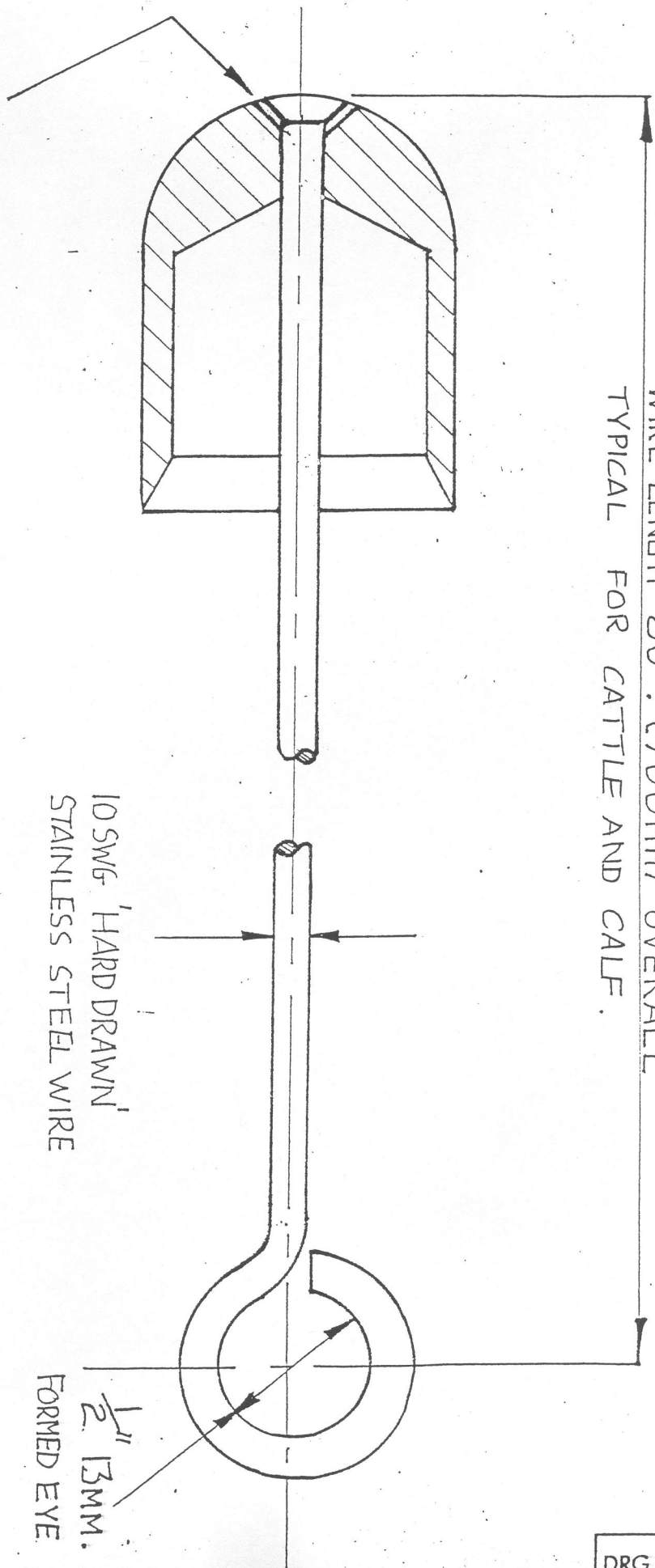
PART OF

DO NOT SCALE

SHEET OF

DRG. No.

WIRE LENGTH 30". (760MM) OVERALL
TYPICAL FOR CATTLE AND CALF.



WIRE SILVER SOLDERED IN POSITION
SOLDER MUST RUN THROUGH JOINT.
FORMED END OF WIRE AND EXCESS SOLDER
FILED OFF AND POLISHED TO CUP PROFILE

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GU24 0NF

ISSUE	DESCRIPTION	APPD	DATE	TITLE	DRAWN	TRACED	CHECKED	APPROVED	DATE
1				ASSY CATTLE AND CALF PROBANG	DRAWING No.				
2									
3									
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7									
8									
9									
10									

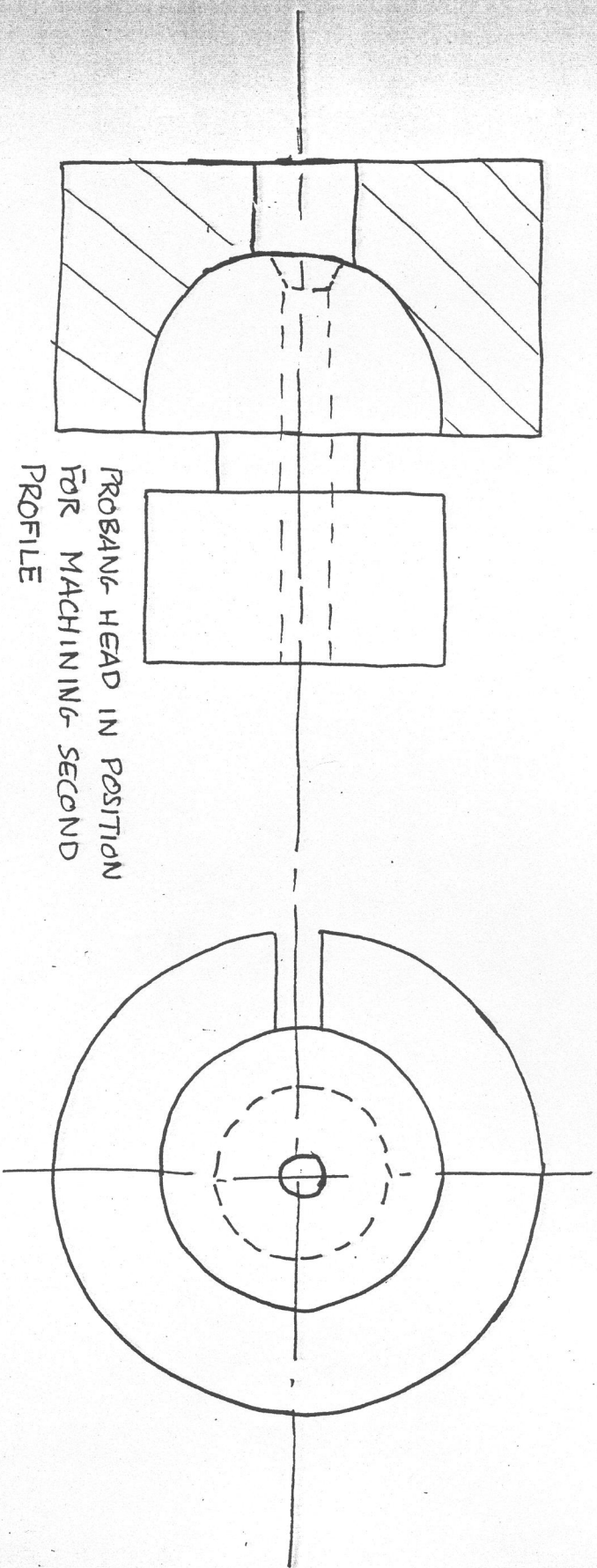
642

PART OF

DO NOT SCALE

SHEET OF

DRG. No.



PROBANG HEAD IN POSITION
FOR MACHINING SECOND
PROFILE

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ISSUE	DESCRIPTION	APPD	DATE	TITLE SKETCH OF FIXTURE / SPLIT BUSH FOR MACHINING SECOND PROFILE		DRAWN	TRACED	CHECKED	APPROVED	DATE

DRAWING No.

PART OF

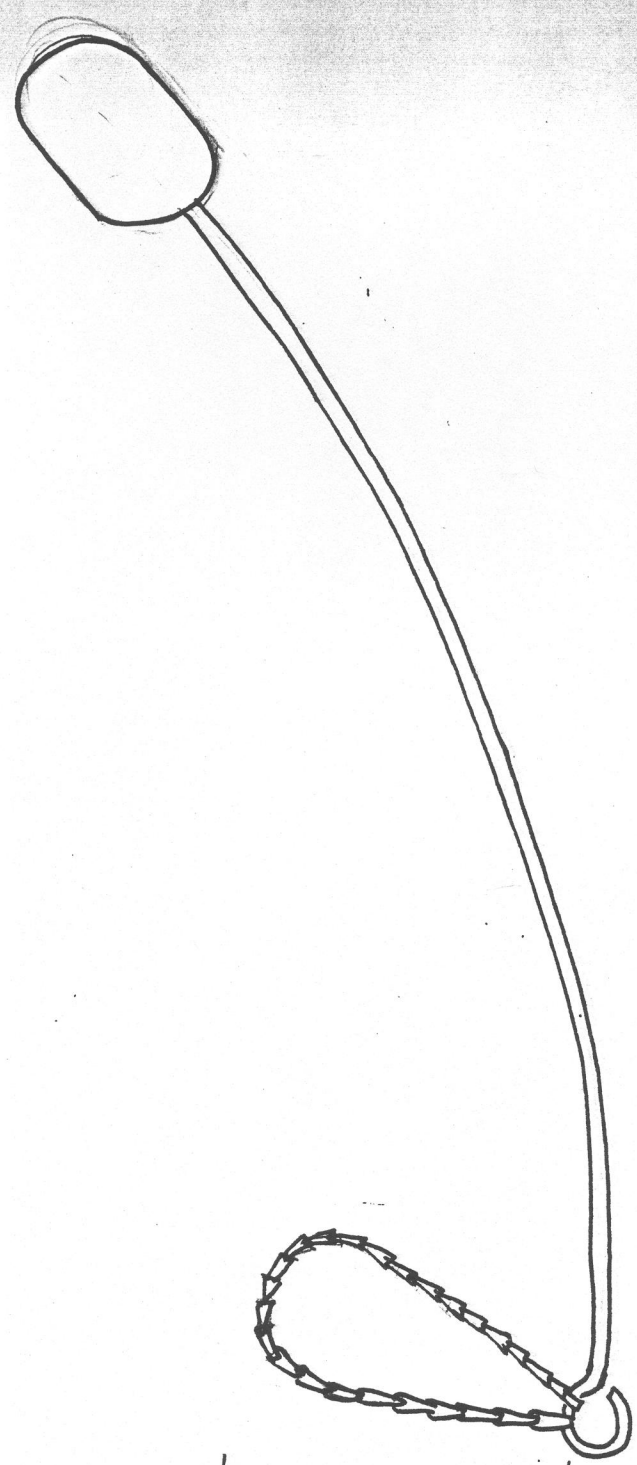
DO NOT SCALE

SHEET OF

DRG. No.



APPROX
 $\frac{1}{2}$ " (12MM)
 TYPICAL SAFETY CHAIN



APPROX 12"
 (300MM)

ISSUE	DESCRIPTION	APPD.	DATE

TITLE
 SKETCH, SAFETY
 CHAIN

DRAWN	TRACED	CHECKED	APPROVED	DATE

DRAWING No. *052*

PART OF

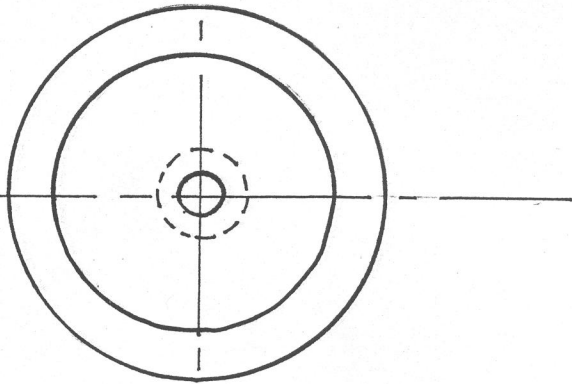
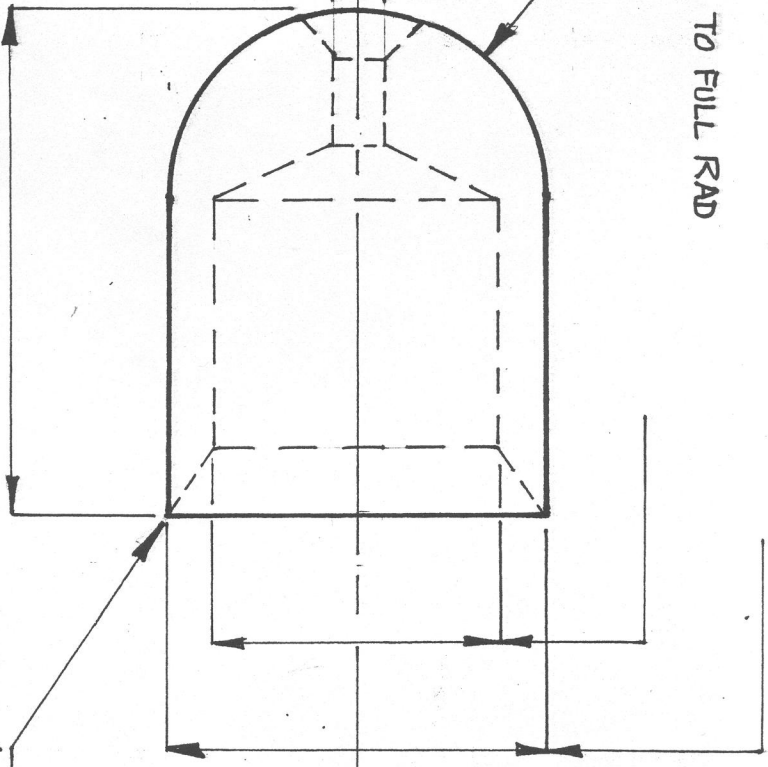
DO NOT SCALE

SHEET OF

DRG. No.

TURN PROFILE TO FULL RAD

DRILL THRD
NO30 DIA
CSNK 90°



TURN 60° CHAMFER TO EDGE.
SHARP EDGE REMOVED WITH FINE
ABRASIVE CLOTH TO REMOVE
CUTTING- EDGE

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ISSUE	DESCRIPTION	APPD	DATE	DRAWN	TRACED	CHECKED	APPROVED	DATE

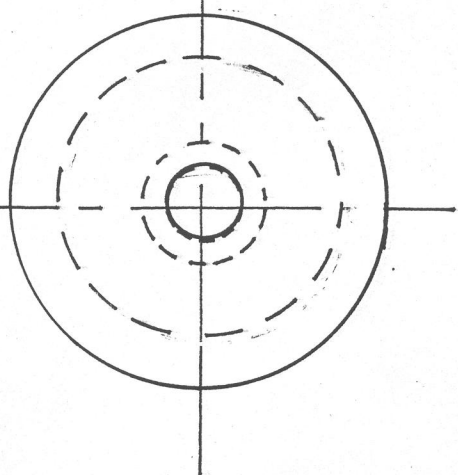
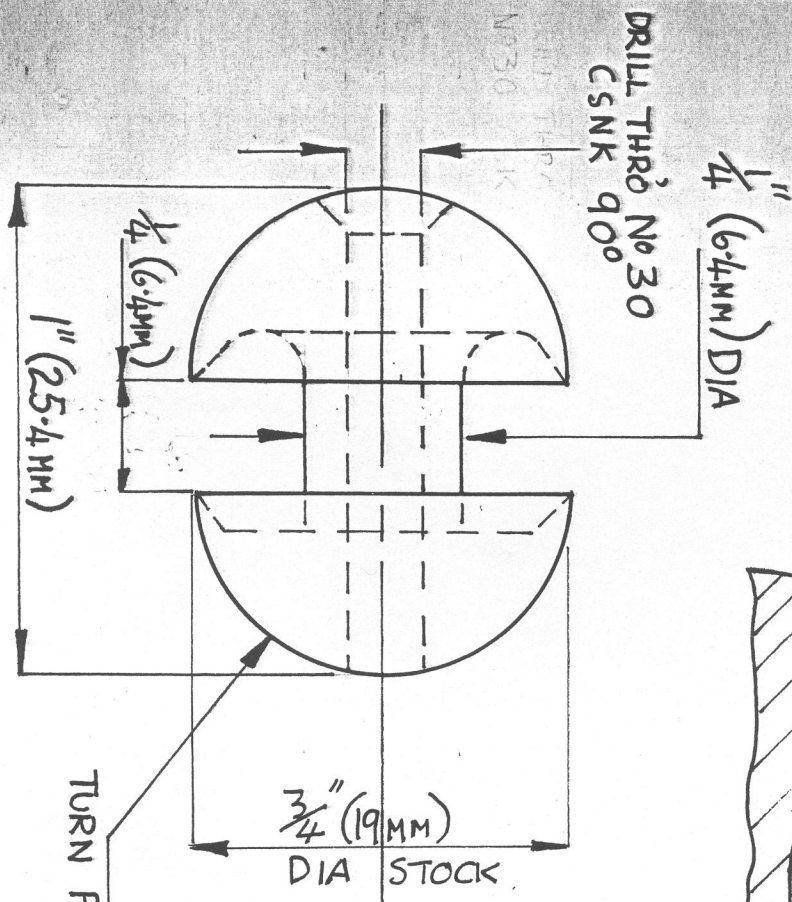
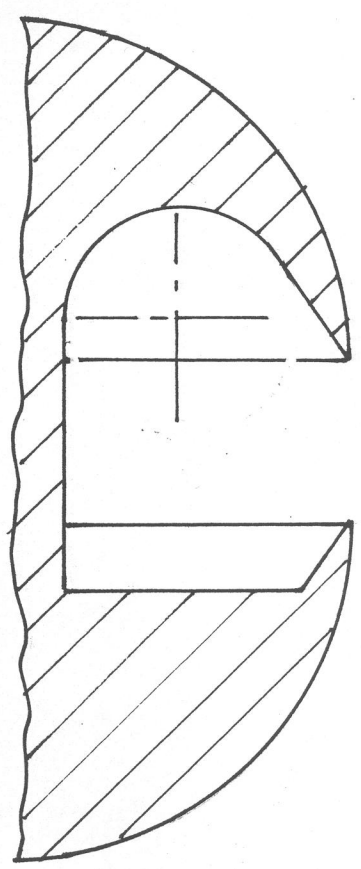
MATERIAL
FREE CUTTING BRASS.

TITLE

DRAWING No. 051

RS 561-448

210 x 297mm A4



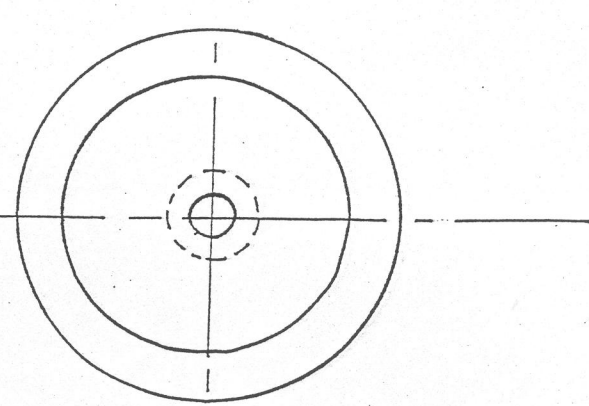
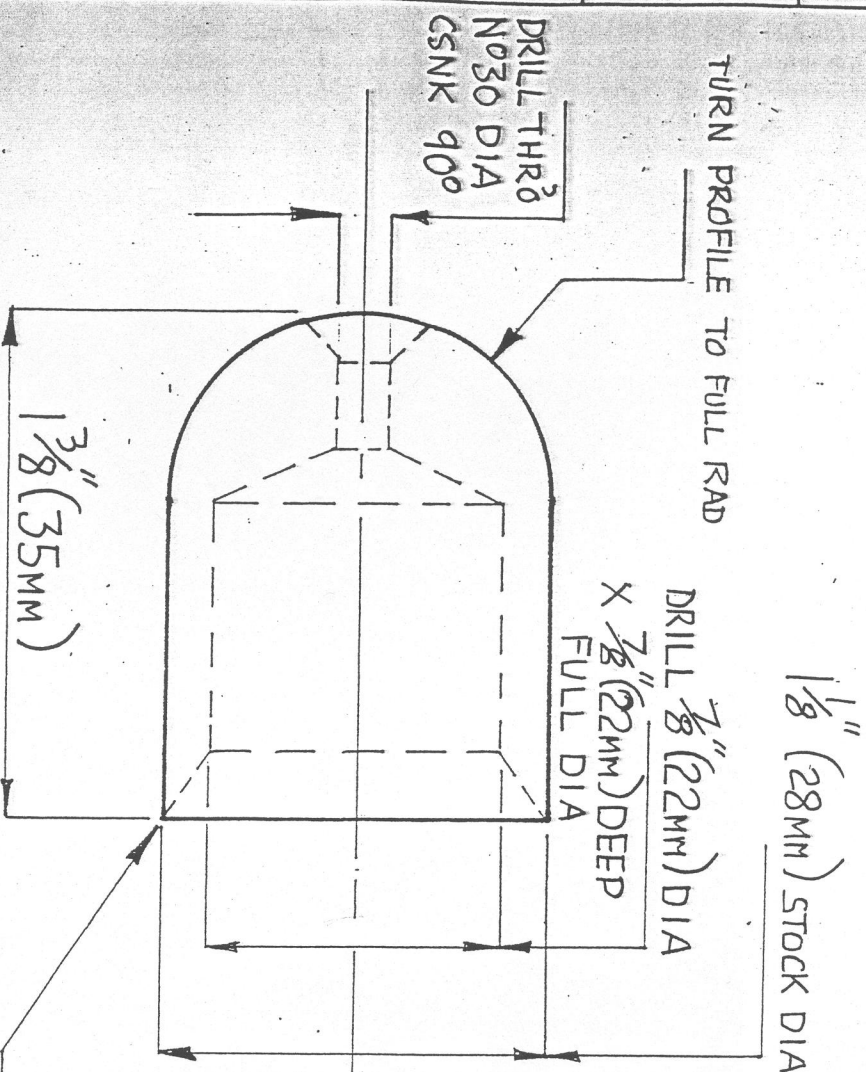
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DRG. No.

ISSUE	DESCRIPTION	APPD DATE	MATERIAL	TITLE	DRAWN	TRACED	CHECKED	APPROVED	DATE
			FREE CUTTING- BRASS	PIG- AND SHEEP PROBANG- HEAD					

PART OF 1 2 3 4 5 6 7 8 9 10
DO NOT SCALE
SHEET OF

DRG. No.



ISSUE	DESCRIPTION	APPD	DATE

MATERIAL
FREE CUTTING BRASS.

TITLE
CATTLE PROBANG
HEAD

DRAWN

TRACED

CHECKED

APPROVED

DATE

DRAWING No.

056

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RS 561-448

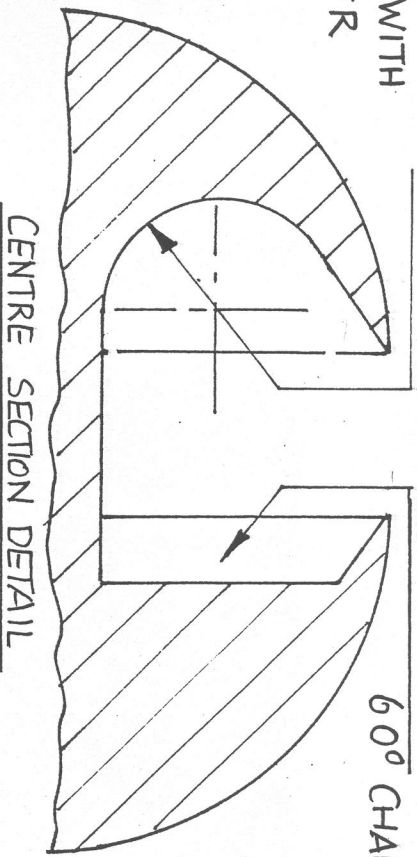
PART OF

1 2 3 4 5 6 7 8 9 10

TO BLEND WITH
60° CHAMFER
0.1" (2.5MM) RAD X .125" (3MM) DEEP

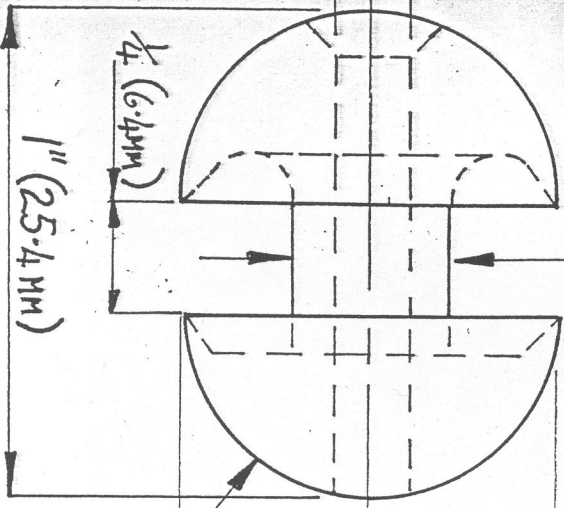
BORE 0.1" (2.5MM) DEEP
60° CHAMFER TO EDGE

DRG. No.



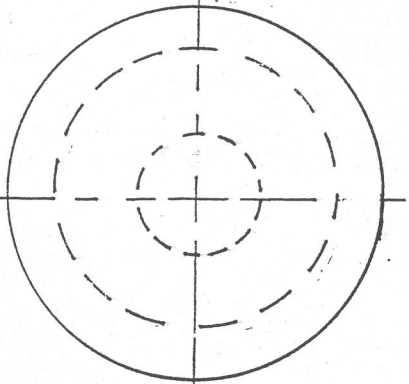
CENTRE SECTION DETAIL

1/4" (6.4MM) DIA
DRILL THRU No 30
CSNK 90°



REMOVE CUTTING EDGE WITH FINE ABRASIVE CLOTH

TURN PROFILE TO FULL RADIUS



NOT TO SCALE

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ISSUE	DESCRIPTION	APPD DATE	MATERIAL	TITLE	DRAWN	TRACED	CHECKED	APPROVED	DATE
			FREE CUTTING- BRASS	PIG- AND SHEEP FRBANG- HEAD					

1	2	3	4	5	6	7	8	9	10
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PART OF

0.1" (2.5MM) RAD X .125" (3MM) DEEP
TO BLEND WITH
60° CHAMFER
BORE 0.1" (2.5MM) DEEP
60° CHAMFER TO EDGE

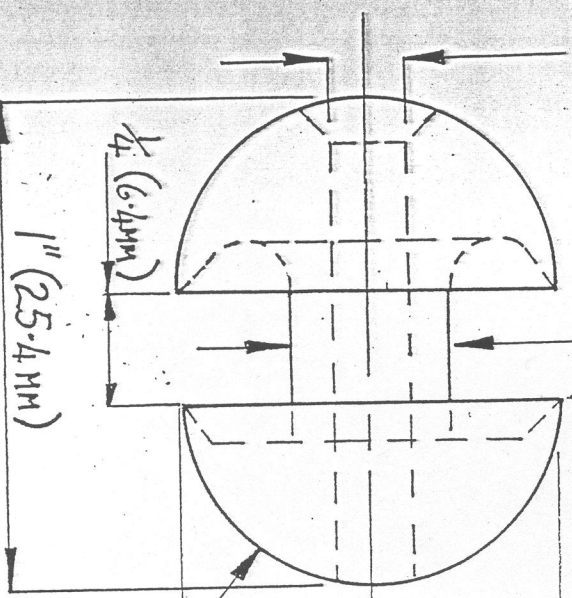
1/4" (6.4MM) DIA

DRILL THRO' No 30
CSNK 90°

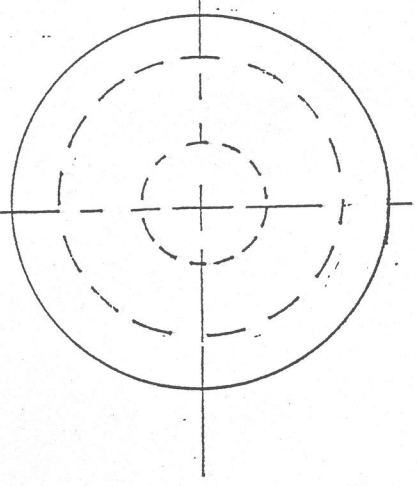
CENTRE SECTION DETAIL

REMOVE CUTTING EDGE WITH FINE ABRASIVE CLOTH

3/4" (19MM)
DIA STOCK



TURN PROFILE TO FULL RADIUS



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DRG.No.

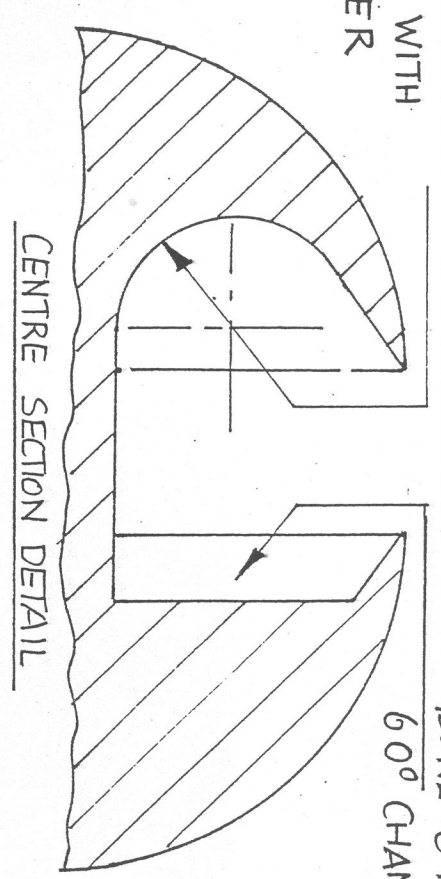
ISSUE	DESCRIPTION	APPD DATE	MATERIAL	TITLE	DRAWN	TRACED	CHECKED	APPROVED	DATE
			FREE CUTTING-BRASS	PIG- AND SHEEP FRBANG- HEAD					

1	2	3	4	5	6	7	8	9	10
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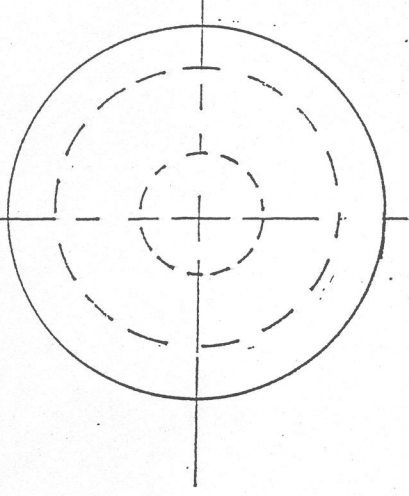
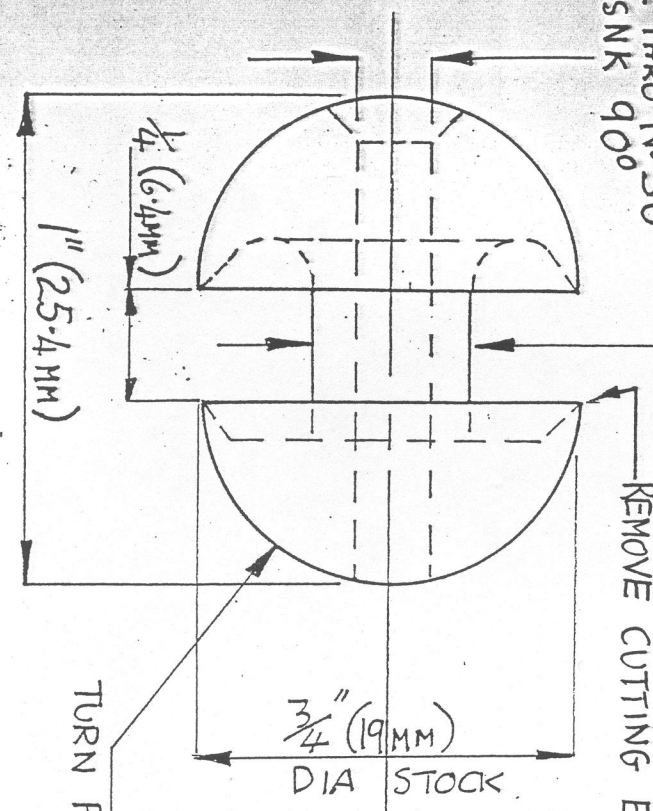
TO BLEND WITH
60° CHAMFER

0.1" (2.5MM) RAD X .125" (3MM) DEEP

BORE 0.1" (2.5MM) DEEP
60° CHAMFER TO EDGE



1/4" (6.4MM) DIA
DRILL THRO' No 30
CSNK 90°



NOT TO SCALE

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DRG. No.

ISSUE	DESCRIPTION	APPD	DATE	MATERIAL	TITLE	DRAWN	TRACED	CHECKED	APPROVED	DATE
				FREE CUTTING-BRASS	PIG- AND SHEEP PROBANG HEAD					

PART OF

1 2 3 4 5 6 7 8 9 10

DO NOT SCALE
NOT TO SCALE

SHEET OF

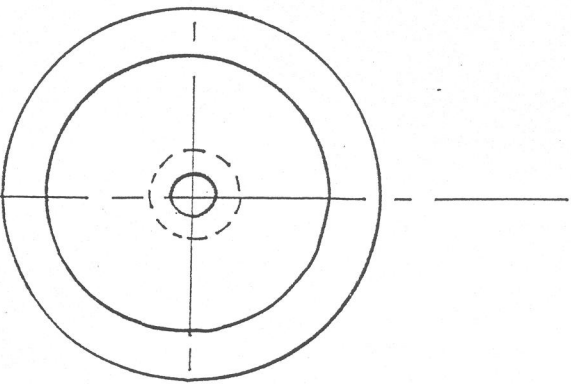
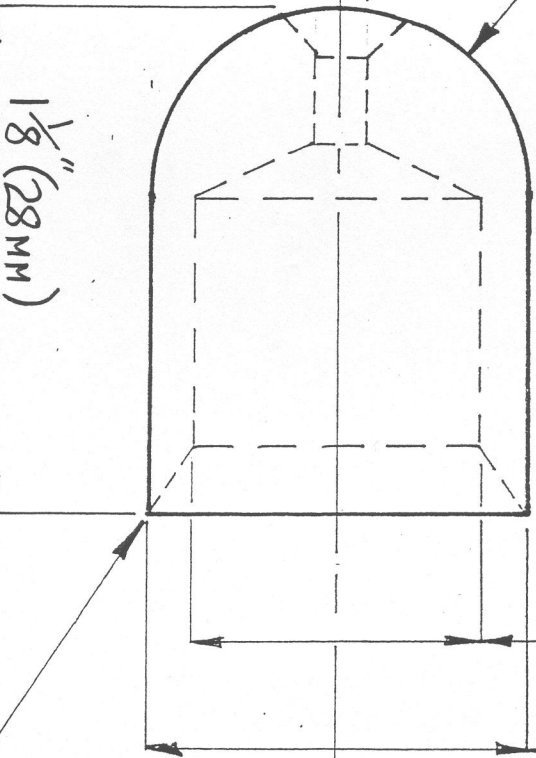
DRG. No.

TURN PROFILE TO FULL RAD

$\frac{7}{8}$ " (22MM) STOCK DIA

DRILL $\frac{3}{4}$ " (19MM) DIA
X $\frac{3}{4}$ " (19MM) DEEP
FULL DIA

DRILL THRO
NO 30 DIA
CSNK 90°



TURN 60° CHAMFER TO EDGE.
SHARP EDGE REMOVED WITH FINE
ABRASIVE CLOTH TO REMOVE
CUTTING- EDGE

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ISSUE

DESCRIPTION

APPD DATE

MATERIAL

FREE CUTTING BRASS.

TITLE

CALF PROBANG
HEAD.

DRAWN

TRACED

CHECKED

APPROVED

DATE

DRAWING No.

046

1

2

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6

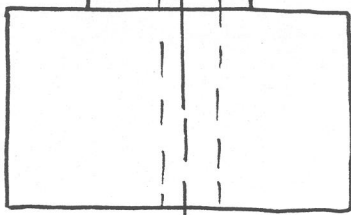
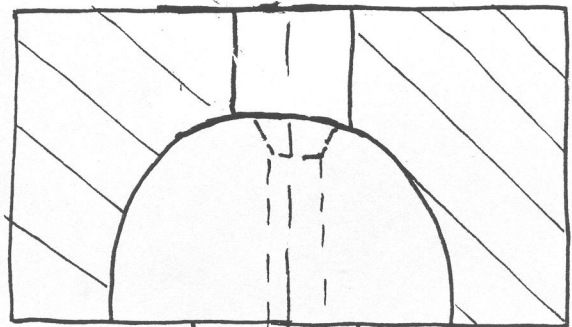
7

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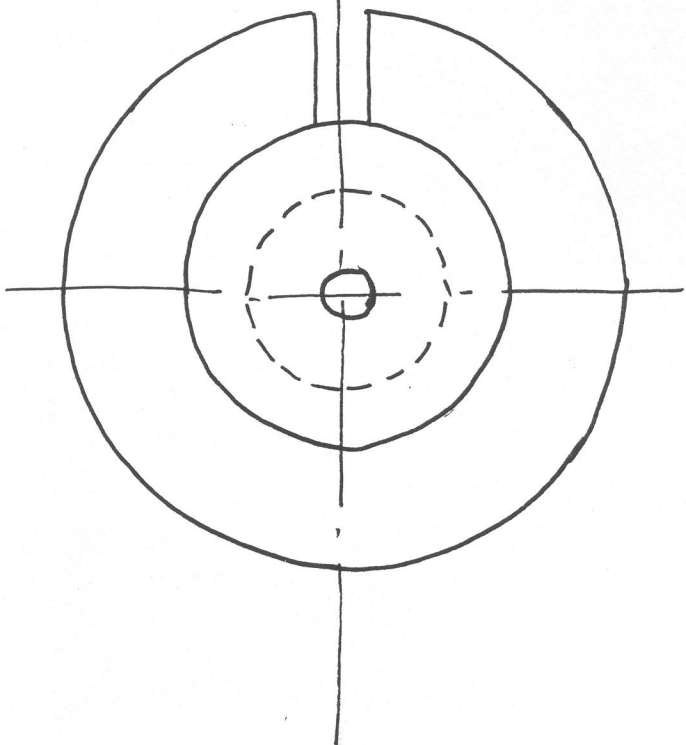
9

10

PART OF 1 2 3 4 5 6 7 8 9 10 DO NOT SCALE SHEET OF



PROBING HEAD IN POSITION FOR MACHINING SECOND PROFILE



DRG. No.

ISSUE DESCRIPTION APPD. DATE

ISSUE	DESCRIPTION	APPD. DATE
1		
2		
3		

TITLE SKETCH OF FIXTURE / SPLIT BUSH FOR MACHINING SECOND PROFILE

DRAWN TRACED CHECKED APPROVED DATE

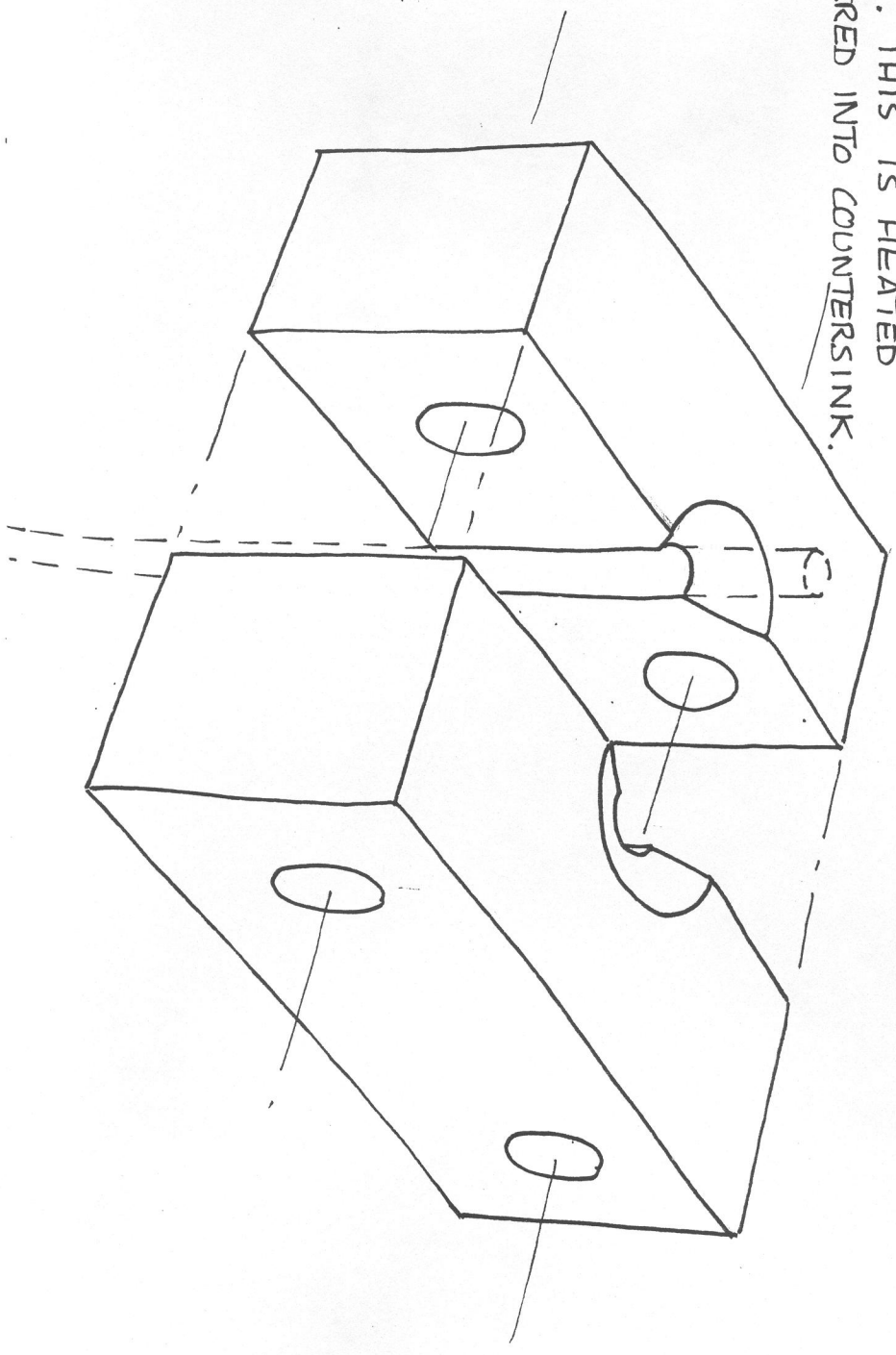
DRAWN	TRACED	CHECKED	APPROVED	DATE

DRAWING No.

045

DO NOT SCALE

THE WIRE IS CLAMPED BETWEEN THE BLOCKS LEAVING APPROX 4MM PROTRUDING ABOVE SURFACE. THIS IS HEATED RED AND HAMMERED INTO COUNTERSINK.



DRG. No.

ISSUE	DESCRIPTION	APPD	DATE	TITLE	DRAWN	TRACED	CHECKED	APPROVED	DATE
				SKETCH OF WIRE HEAD FORMING STIG.	DRAWING No.				

PART OF

0.1" (2.5mm) RAD X .125" (3mm) DEEP
TO BLEND WITH
60° CHAMFER

BORE 0.1" (2.5mm) DEEP
60° CHAMFER TO EDGE

CENTRE SECTION DETAIL

DRILL THRO' No 30
CSNK 90°

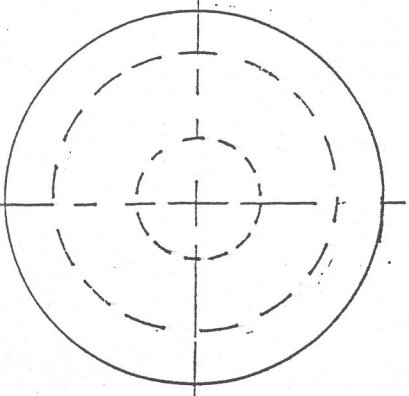
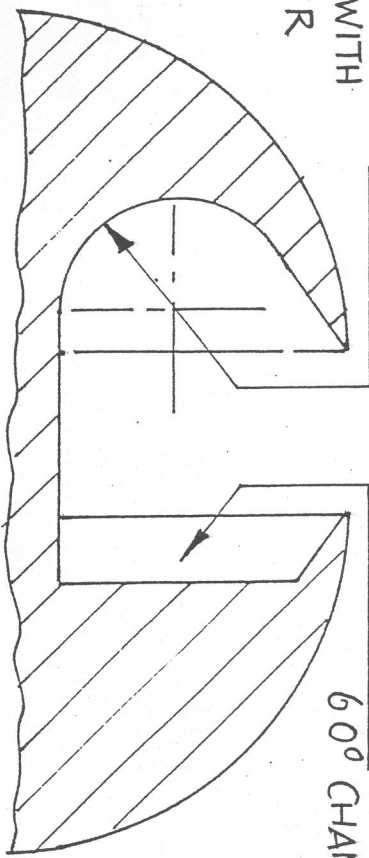
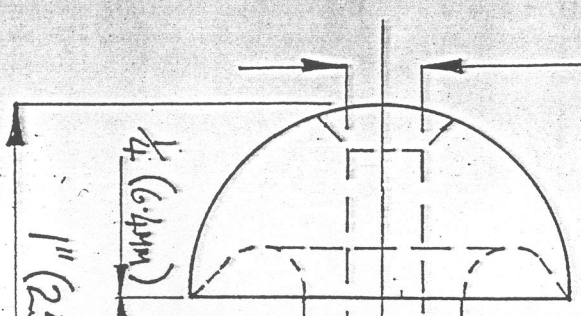
1/4" (6.4mm) DIA

REMOVE CUTTING EDGE WITH FINE ABRASIVE CLOTH

3/4" (19mm) DIA STOCK

TURN PROFILE TO FULL RADIUS

NOT TO SCALE



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DRG. No.

ISSUE	DESCRIPTION	APPD DATE	MATERIAL	TITLE	DRAWN	TRACED	CHECKED	APPROVED	DATE
			FREE CUTTING-BRASS	PIG- AND SHEEP PROBANG- HEAD					

1	2	3	4	5	6	7	8	9	10
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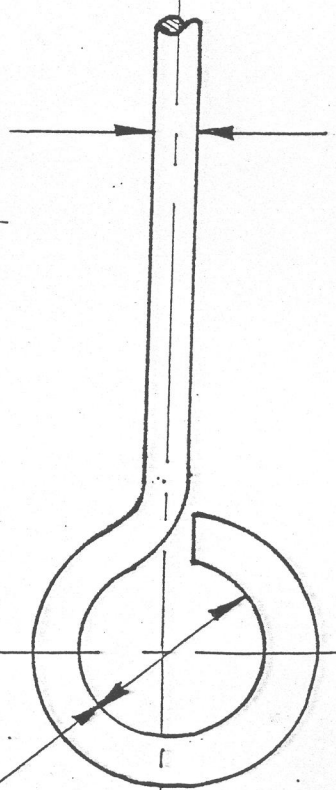
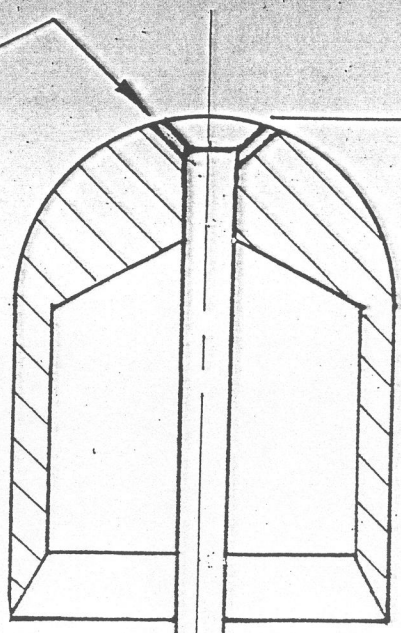
PART OF

DO NOT SCALE

SHEET OF

DRG. No.

WIRE LENGTH 30". (760MM) OVERALL
TYPICAL FOR CATTLE AND CALF.



10 SWG 'HARD DRAWN'
STAINLESS STEEL WIRE

1/2" 13MM.
FORMED EYE

WIRE SILVER SOLDERED IN POSITION
SOLDER MUST RUN THROUGH JOINT.
FORMED END OF WIRE AND EXCESS SOLDER
FILED OFF AND POLISHED TO CUP PROFILE

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ISSUE	DESCRIPTION	APPD. DATE
1		
2		
3		

TITLE
ASSY CATTLE
AND
CALF PROBANG

DRAWN

TRACED

CHECKED

APPROVED

DRAWING No. 048

DATE

PART OF

1 2 3 4 5 6 7 8 9 10

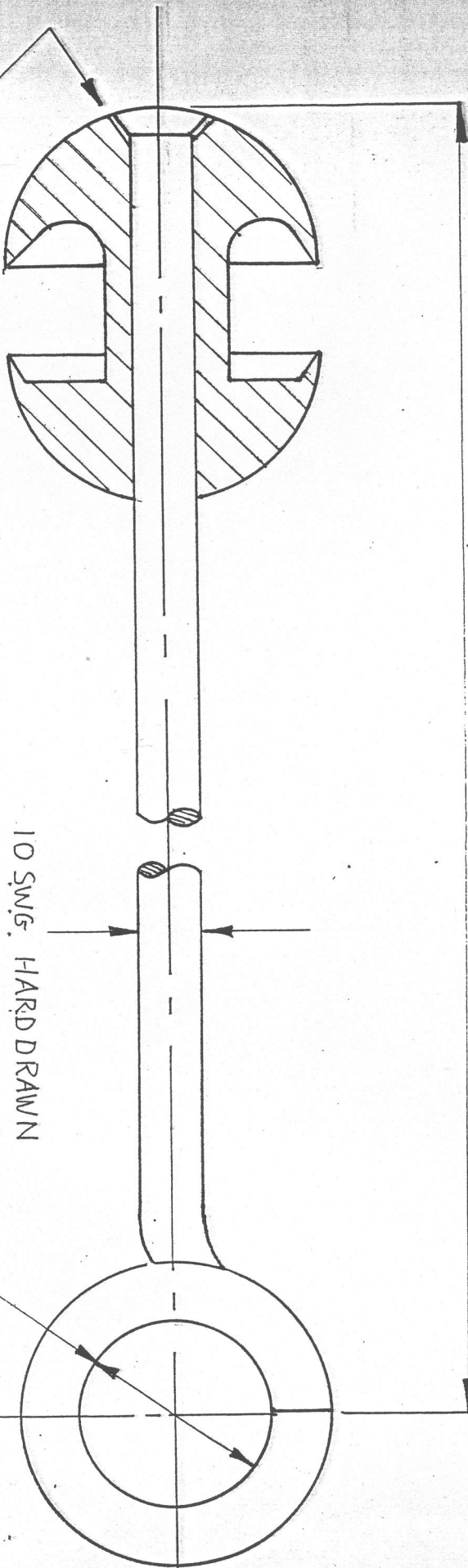
DO NOT SCALE

NOT TO SCALE

SHEET OF

17" (430MM) OVERALL.

DRG. No.



WIRE SILVER SOLDERED IN POSITION
 FORMED END OF WIRE AND EXCESS
 SOLDER FILED OFF AND POLISHED
 TO CUP PROFILE.

10 SWG. HARD DRAWN
 STAINLESS STEEL WIRE

1 1/2 TURNS OF WIRE
 TO FORM EYE (19MM) DIA.

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PIRBRIGHT
SURREY
GU24 0NF

ISSUE DESCRIPTION APPD. DATE

APPROVED BY: **DR. R. H. HALL**

TITLE: **PIG AND SHEEP PROBANG ASSY.**

DRAWN TRACED CHECKED APPROVED DATE

DRAWING No. **047**