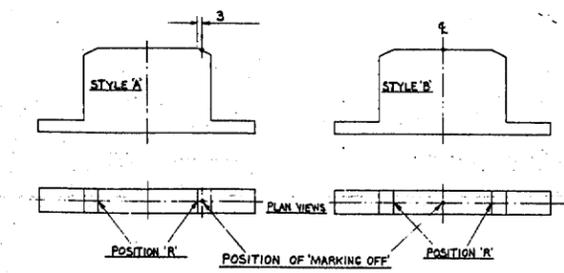
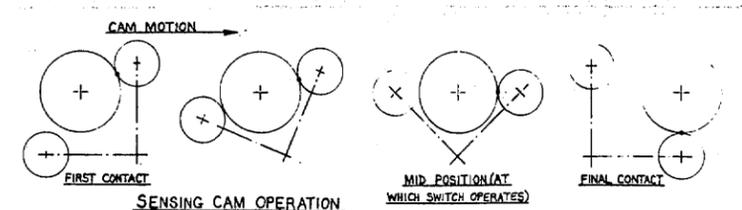


CAM OPERATION	RADIUS TO CAM E. (MM)	ANGLE OF TUBE TO HORIZONTAL	CAM POSITION RELATIVE TO MARKING OFF FOR CAM	CAM UNIT N°	SWITCH UNIT N°	FIXING FOR CAM
90° ZENITH	1355	90°	B	TCI.157.09	TCI.157.S1	TCI.157.F1&3
97° ULT-LIMIT	1325	97°	A	10	S1	F1&3
95° PRE-LIMIT	1295	95°	A	11	S2	F1&3
SLOW ZENITH (88°-92° NOM)	1265	90°	B	12	S2	F1&3
90° SENSE ZENITH	1420	90°	-	08	S3	F2
SLOW AP1 (17°-21° NOM)	1115	19°	B	13	S2	F1&3
15° AP1	1145	19°	B	14	S2	F1&3
SLOW AP3 (3° NOM)	1175	3°	A	15	S2	F1&3
SLOW AP2 (5°-9° NOM)	1205	7°	B	16	S2	F1&3
7° AP2	1235	7°	B	17	S2	F1&3
6 1/2° PRE-LIMIT	1265	6 1/2°	A	18	S2	F1&3
6° ULT-LIMIT	1294	6°	A	19	S1	F1&3
3 1/2° ULT-LIMIT	1326	3 1/2°	A	20	S1	F1&3
1° AP3	1355	1°	A	21	S2	F1&3
7° SENSE-AP2	1240	7°	-	08	S3	F2
15° SENSE-AP1	1420	15°	-	08	S3	F2
12° SENSE-OBSCURTION	SAME CAM AS 12° SENSE-AP1	-	-	-	S3	-



- TO POSITION CAMS ON CAM PLATES (SWITCHING CAMS)**
- 1) SET TUBE E TO POSITION SHOWN IN TABLE & SCRIBE THROUGH SWITCH MOUNTING HOLE CENTRE ONTO CAM PLATE
 - 2) POSITION CAM ON MARKING OFF AS SHOWN ABOVE WITH POSITIONS 'R' SET AT SAME RADIUS FROM ALTITUDE AXIS. FIXING SCREWS TO BE CENTRAL IN SLOTTED HOLES
- TO POSITION SENSING CAMS SET TUBE TO SPECIFIED POSITION & PLACE CAM SO THAT SWITCH IS AT MID TRAVEL**



SURFACE FINISH EQUIVALENTS		SURFACE FINISH SYMBOLS		WELD SYMBOLS		FABRICATION TOLERANCES		THIS DRAWING IS THE PROPERTY OF NEI PARSONS LTD.		GENERAL MACHINING TOLERANCES		ALL DIMENSIONS ARE IN MILLIMETRES		PROTECTION CHECKED		DRAWN		GRUBB PARSONS		NEWCASTLE UPON TYNE NES 278	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22

AND MUST NOT BE COPIED OR DISCLOSED TO A THIRD PARTY WITHOUT GRUBB PARSONS WRITTEN CONSENT.

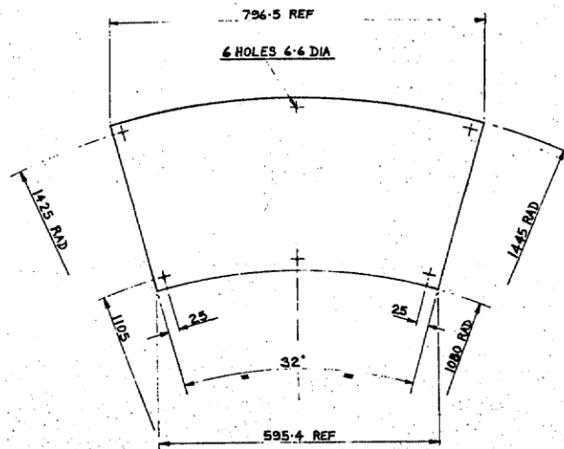
PROTECTION CHECKED: APPROVED: DATE: 24-8-82

ASSY OF ALTITUDE AXIS LIMIT SWITCHES
SCALE: 1:5
T.C.I. 157

DATE OF MOD. SCOOPED BY
DATE OF MOD. BY
APPROVED BY

AS BUILT DRAWINGS
This drawing shows all revisions to this work
APPROVED

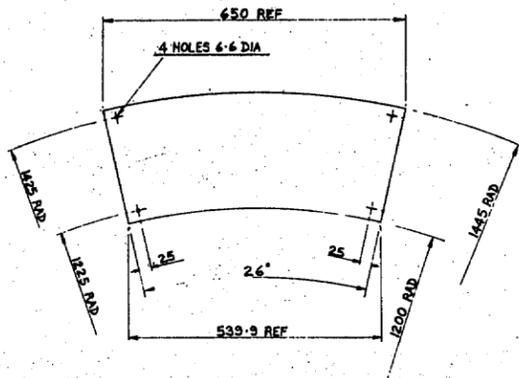
4.2 METRE WILLIAM WARD TIDE GAUGE OBSERVATORY
ROYAL GREENWICH OBSERVATORY



20 HOLES DRILL & TAP M6x1 TO SUIT CAMS.
POSITIONS DETERMINED ON ASSY.

Royal Greenwich Observatory
La Palma Division
APPROVED
No. TCI.157.03 Rev. A
Date 6.10.82 by 757

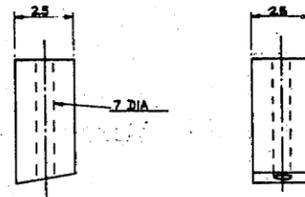
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		FIRST ISSUE DATE			
		COST ACCOUNT 157			
DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	TITLE CAM MOUNTING PLATE			
		WEIGHT 0.25 kg	SCALE 1:1	UNIT No. TCI.157.03	ISSUE A
		No. OFF PER SET 1			



9 HOLES DRILL & TAP M6x1 TO SUIT CAMS.
POSITIONS DETERMINED ON ASSY.

Royal Greenwich Observatory
La Palma Division
APPROVED
No. TCI.157.04 Rev. A
Date 6.10.82 by 757

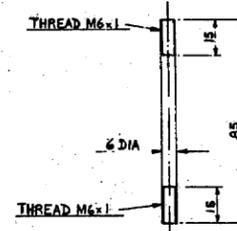
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		FIRST ISSUE DATE			
		COST ACCOUNT 157			
DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	TITLE CAM MOUNTING PLATE			
		WEIGHT 2.9 kg	SCALE 1:1	UNIT No. TCI.157.04	ISSUE A
		No. OFF PER SET 1			



LENGTH & ANGLE OF END FACE TO BE DETERMINED
ON ASSY.

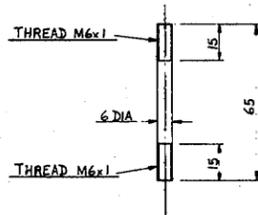
Royal Greenwich Observatory
La Palma Division
APPROVED
No. TCI.157.05 Rev. A
Date 6.10.82 by 757

DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	FIRST MADE ORD No. 118764	MATERIAL STEEL	FINISH	PATT No.
		FIRST ISSUE DATE			
		COST ACCOUNT 157			
DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	TITLE PILLAR			
		WEIGHT 0.25 kg	SCALE 1:1	UNIT No. TCI.157.05	ISSUE A
		No. OFF PER SET 5			



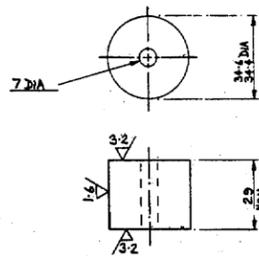
Royal Greenwich Observatory
La Palma Division
APPROVED
No. TCI.157.06 Rev. A
Date 6.10.82 by 757

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		FIRST ISSUE DATE			
		COST ACCOUNT 157			
DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	TITLE STUD			
		WEIGHT 0.05 kg	SCALE 1:1	UNIT No. TCI.157.06	ISSUE A
		No. OFF PER SET 3			



Royal Greenwich Observatory
La Palma Division
APPROVED
No. TCI.157.07 Rev. A
Date 6.10.82 by 757

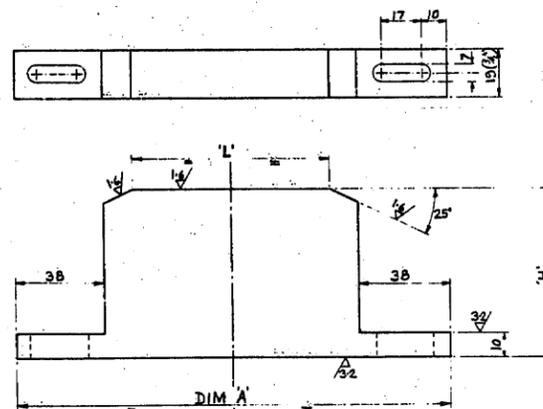
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		FIRST ISSUE DATE			
		COST ACCOUNT 157			
DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	TITLE STUD			
		WEIGHT 0.05 kg	SCALE 1:1	UNIT No. TCI.157.07	ISSUE A
		No. OFF PER SET 2			



HARDEN TO Rc55-58 AFTER SHOP ASSEMBLY
AND ADJUSTMENT.

Royal Greenwich Observatory
La Palma Division
APPROVED
No. TCI.157.08 Rev. A
Date 6.10.82 by 757

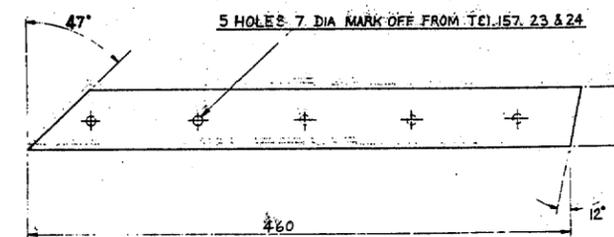
DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	FIRST MADE ORD No. 118764	MATERIAL 5 THICK 20' CARBON	FINISH	PATT No.
		FIRST ISSUE DATE			
		COST ACCOUNT 157			
DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	TITLE SENSING CAM			
		WEIGHT 0.2 kg	SCALE 1:1	UNIT No. TCI.157.08	ISSUE A
		No. OFF PER SET 3			



UNIT N°	CAM FUNCTION	THICK	LENGTH	HEIGHT 'H'	DIM 'A'
TCI.157.09A	90° ZENITH	4	70	136	
10A	97° ULT-LIMIT	84	63	184	
11A	95° PRE-LIMIT	124	70	224	
12A	SLOW ZENITH	84	70	184	
13A	SLOW AP1	84	70	184	
14A	19° AP1	4	70	136	
15A	SLOW AP3	84	70	184	
16A	SLOW AP2	84	70	184	
17A	7° AP2	4	70	136	
18A	6 1/2° PRE-LIMIT	150	70	250	
19A	6° ULT-LIMIT	150	63	250	
20A	3 1/2° ULT-LIMIT	84	63	184	
21A	1° AP3	84	70	184	

Royal Greenwich Observatory
La Palma Division
APPROVED
No. TCI.157.09 Rev. A
Date 6.10.82 by 757

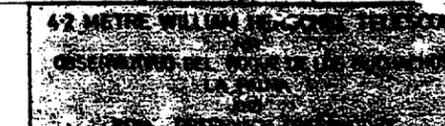
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		FIRST ISSUE DATE			
		COST ACCOUNT 157			
DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	TITLE SWITCHING CAM			
		WEIGHT 0.2 kg	SCALE 1:1	UNIT No. TCI.157.09-21	ISSUE A
		No. OFF PER SET 3			

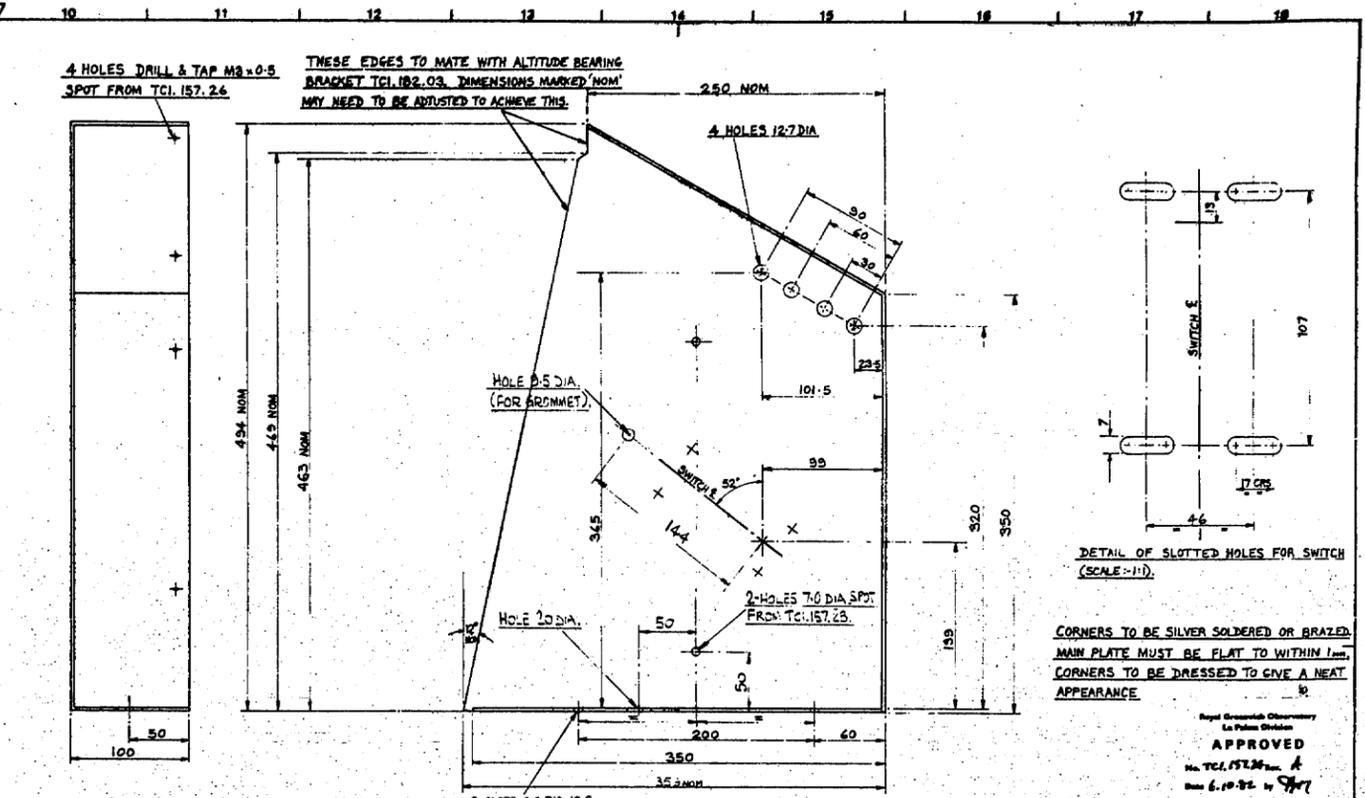
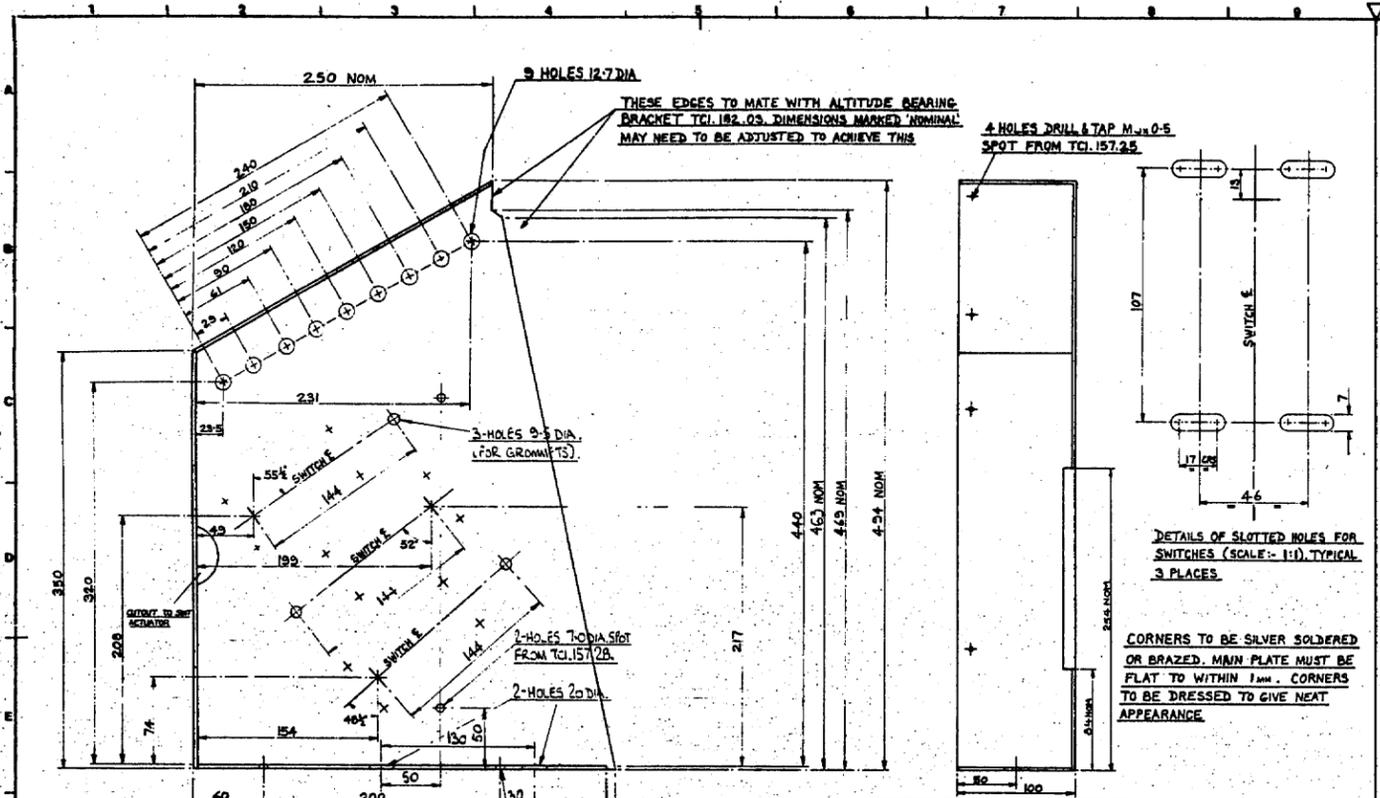


AS BUILT DRAWINGS
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Royal Greenwich Observatory
La Palma Division
APPROVED
No. TCI.157.22 Rev. A
Date 6.10.82 by 757

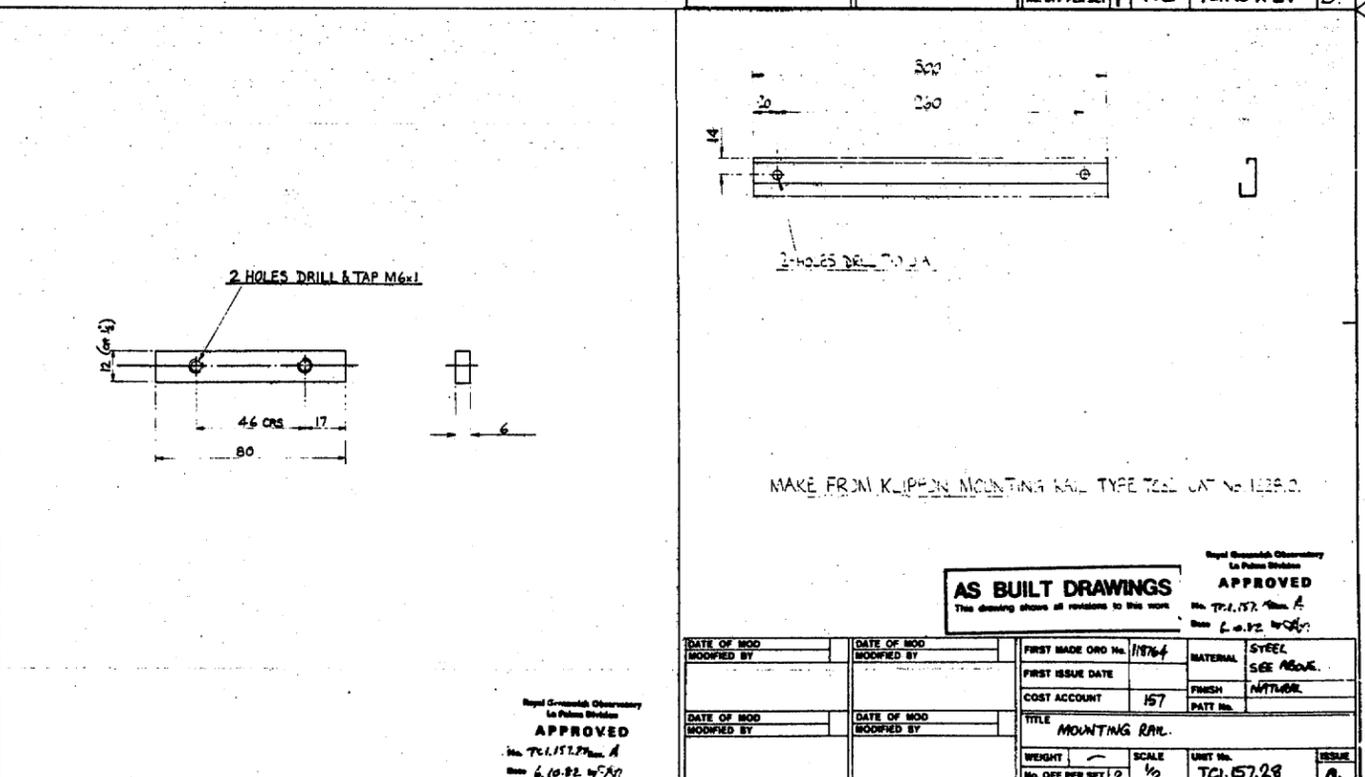
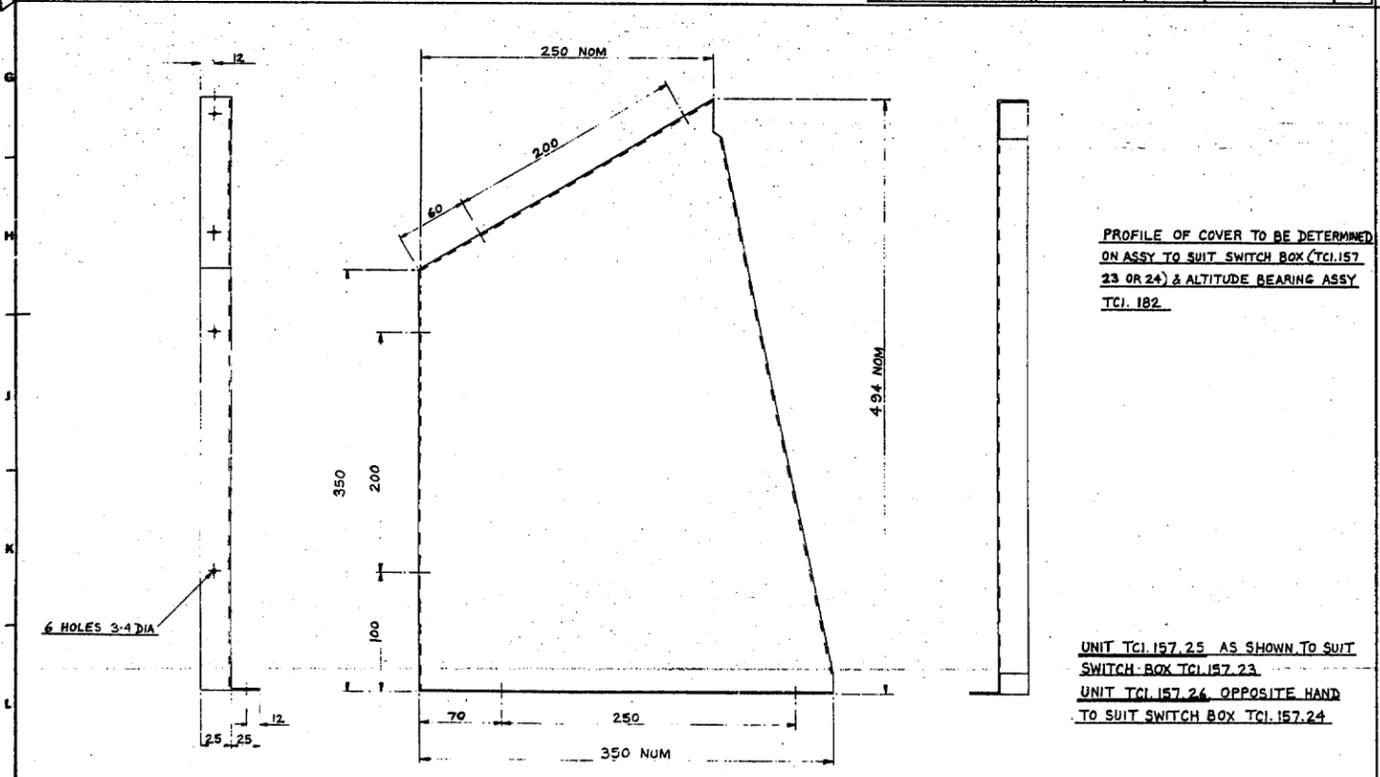
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		FIRST ISSUE DATE			
		COST ACCOUNT 157			
DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	TITLE SHM			
		WEIGHT 0.05 kg	SCALE 1:2	UNIT No. TCI.157.22	ISSUE A
		No. OFF PER SET 3			





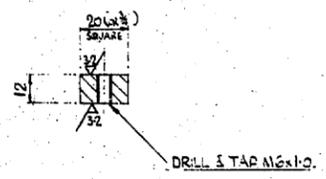
DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	FIRST MADE ORD No. 118764	MATERIAL	SPRUE No. 1445
NAME REVISION, Date, Reason for Change, REVISION, Date, Reason for Change, REVISION, Date, Reason for Change, REVISION, Date, Reason for Change	FIRST ISSUE DATE	COST ACCOUNT 157	FINISH	3. THICK
DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	TITLE SWITCH BOX	UNIT No.	ISSUE
		WEIGHT 3.6 kg	SCALE 1:2	UNIT No. TCI.157.23
		No. OFF PER SET 1		ISSUE B

DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	FIRST MADE ORD No. 118764	MATERIAL	SPRUE No. 1445
NAME REVISION, Date, Reason for Change, REVISION, Date, Reason for Change, REVISION, Date, Reason for Change, REVISION, Date, Reason for Change	FIRST ISSUE DATE	COST ACCOUNT 157	FINISH	3. THICK
DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	TITLE SWITCH BOX	UNIT No.	ISSUE
		WEIGHT 3.6 kg	SCALE 1:2	UNIT No. TCI.157.24
		No. OFF PER SET 1		ISSUE B



DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	FIRST MADE ORD No. 118764	MATERIAL	3. THICK
NAME REVISION, Date, Reason for Change, REVISION, Date, Reason for Change, REVISION, Date, Reason for Change, REVISION, Date, Reason for Change	FIRST ISSUE DATE	COST ACCOUNT 157	FINISH	3. THICK
DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	TITLE SWITCH BOX COVER	UNIT No.	ISSUE
		WEIGHT 1.6	SCALE 1:2	UNIT No. TCI.157.25 & 26
		No. OFF PER SET 2		ISSUE A

DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	FIRST MADE ORD No. 118764	MATERIAL	STEEL
NAME REVISION, Date, Reason for Change, REVISION, Date, Reason for Change, REVISION, Date, Reason for Change, REVISION, Date, Reason for Change	FIRST ISSUE DATE	COST ACCOUNT 157	FINISH	SEE ABOVE
DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	TITLE MOUNTING RAIL	UNIT No.	ISSUE
		WEIGHT 2.2	SCALE 1/2	UNIT No. TCI.157.28
		No. OFF PER SET 2		ISSUE A



APPROVED
 20/11/50
 20/11/50

DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	FIRST MADE ORD No.	118704	MATERIAL	MILD STEEL
		FIRST ISSUE DATE		FINISH	DARK OIL
		COST ACCOUNT	157	PART No.	
DATE OF MOD MODIFIED BY	DATE OF MOD MODIFIED BY	TITLE			
		PELLAR			
		WEIGHT	SCALE	UNIT No.	ISSUE
		No. OFF PER SET 4	1/4	Tcl.157.29	A.

AS BUILT DRAWINGS
 This drawing shows all variations to the work

4.2 METRE TELESCOPE
 NEWCASTLE UPON TYNE
 GRUBB PARSONS

SURFACE FINISH EQUIVALENTS MICROMETRES 4 8 16 32 63 125 250 500 MILLIMETRES 1 2 4 8 16 32 63 125 THIS DRAWING CONFORMS TO B.S. 308	SURFACE FINISH SYMBOLS DENOTES NOT NECESSARILY MACHINED DENOTES MACHINED	WELD SYMBOLS TO BS 499 PART 2 1949	FABRICATION TOLERANCES DIMENSIONS UP TO 250 ± 0.20 DIMENSIONS FROM 250 TO 2500 ± 0.30 ANGLES ± 1:100 STRAIGHTNESS/FLATNESS ± 1:100	THIS DRAWING IS THE PROPERTY OF NEI PARSONS LTD. AND MUST NOT BE COPIED OR DISCLOSED TO A THIRD PARTY WITHOUT GRUBB PARSONS WRITTEN CONSENT.	GENERAL MACHINING TOLERANCES (EXCEPT WHERE STATED OTHERWISE) UNFINISHED DIMENSIONS ± 0.2 DIMENSIONS WITH FINISH ± 0.1 DIMENSIONS WITH OVER ± 0.1 AND DECIMAL SIGN AND DECIMAL SIGN	ALL DIMENSIONS ARE IN MILLIMETRES ANGLES : SCREW THREADS TO B.S. 3643 PART 2 MEDIUM FIT MACHINED DIA CONCENTRIC TO 0.1 T.I.R.	PROJECTION CHECKED 3rd ANGLE APPROVED DATE 20/11/50	DRAWN DATE 20/11/50	GRUBB PARSONS NEWCASTLE UPON TYNE NES 218	SHEET OF 1 OF 1
							DETAILS OF ALTITUDE AXIS LANTERN GLASS			