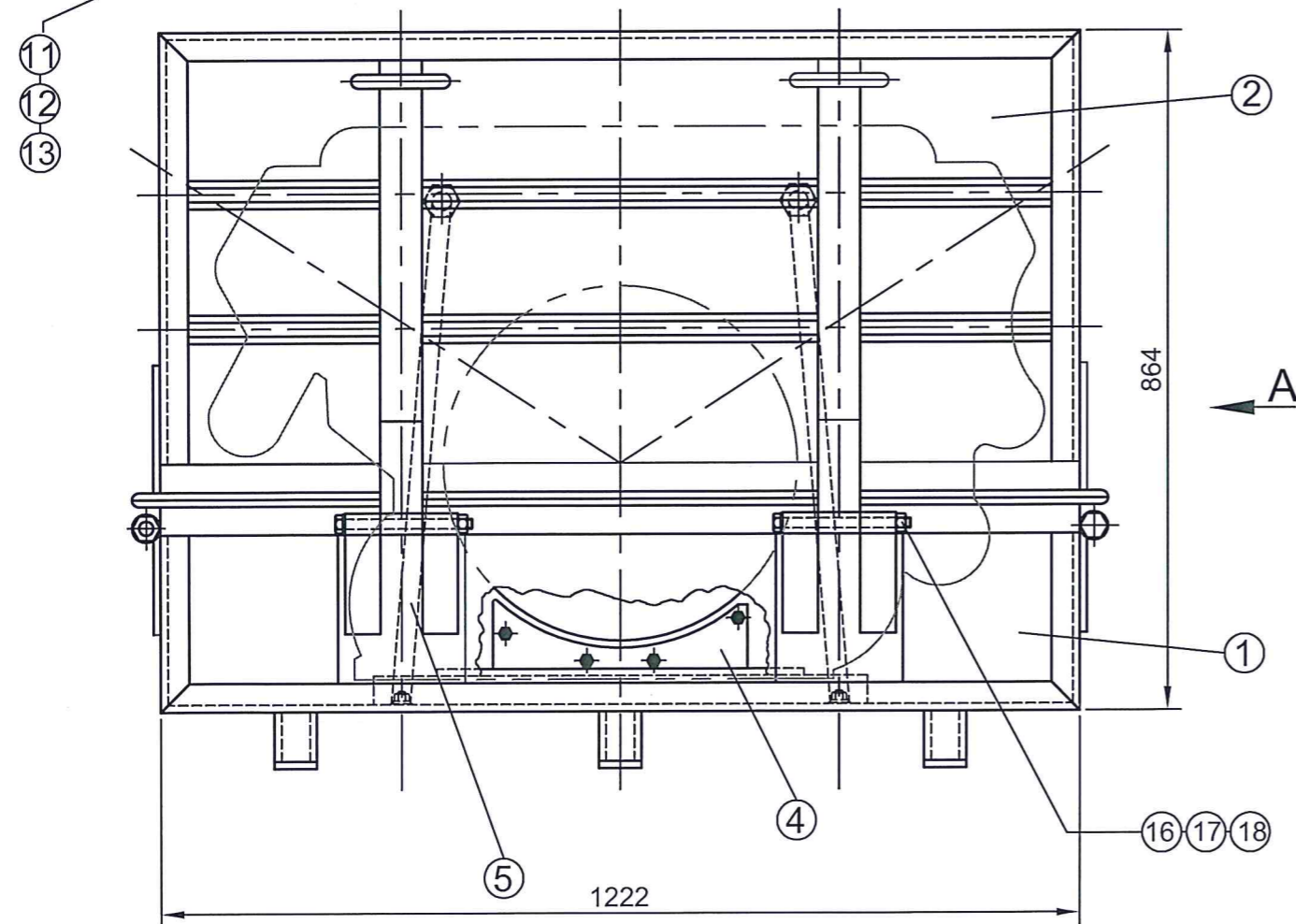
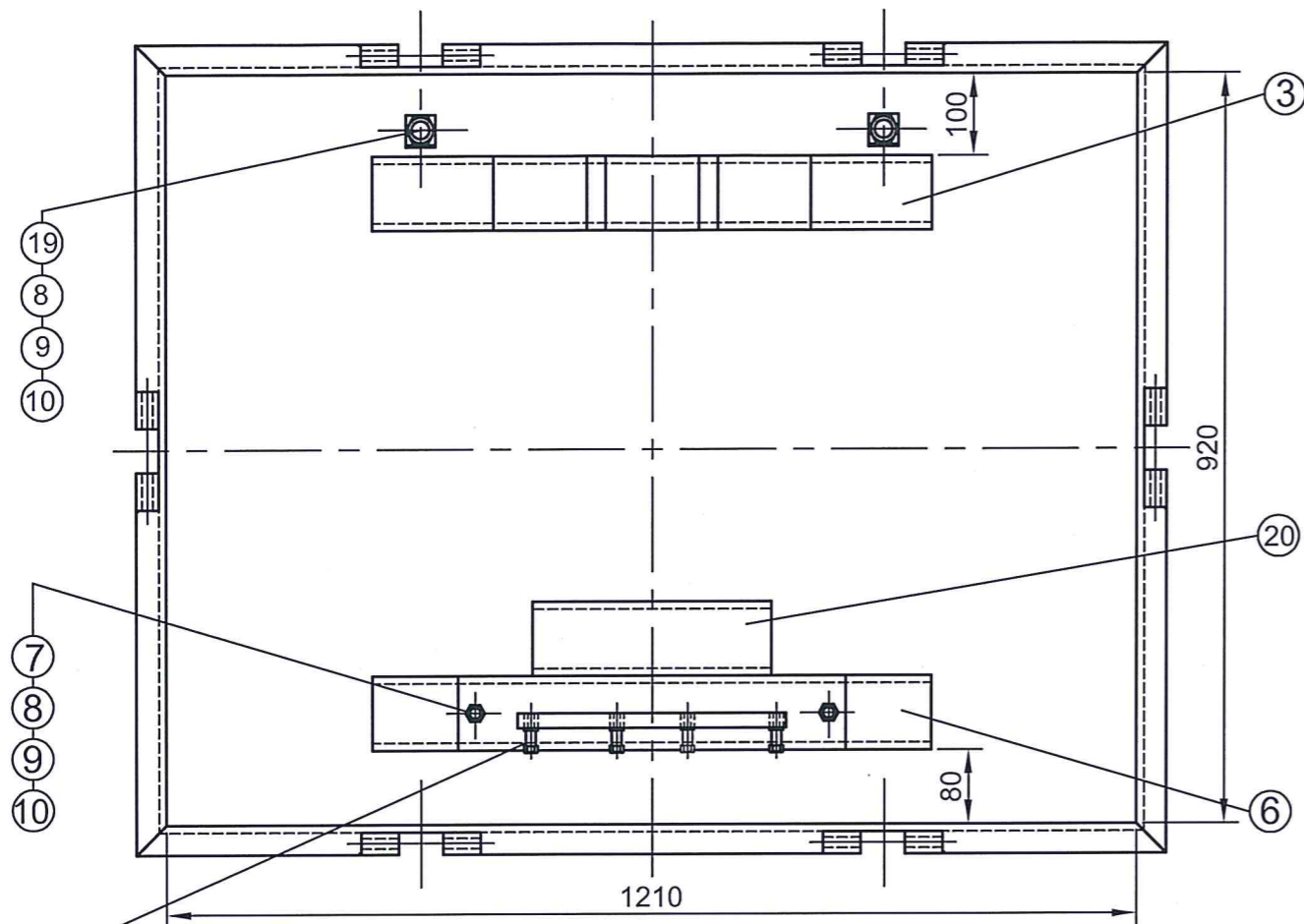
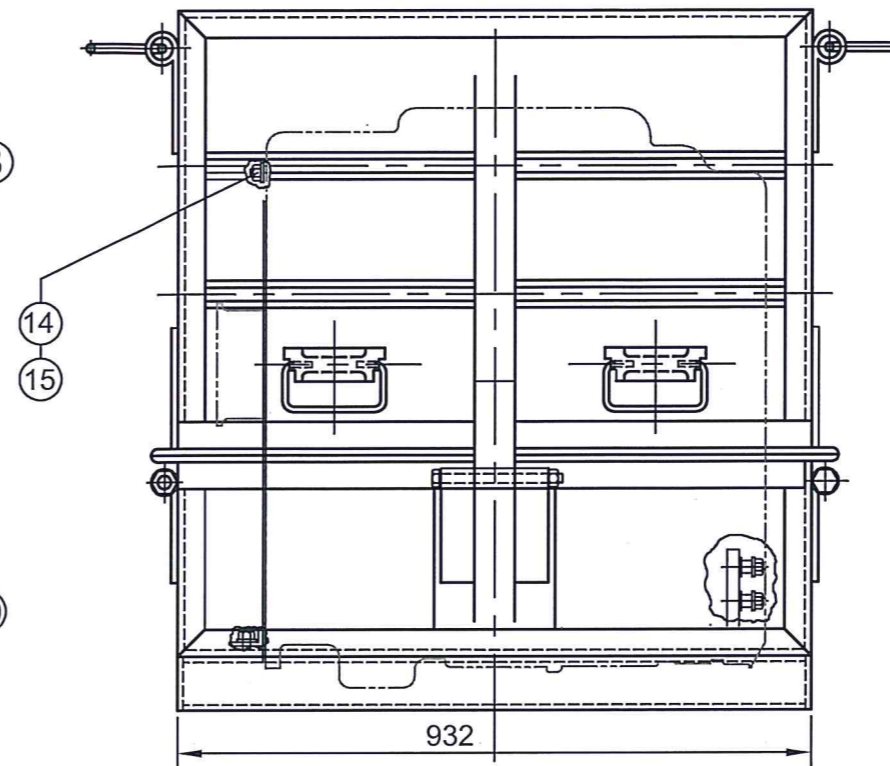


PLAN - UPPER CASE REMOVED



VIEW IN THE DIRECTION OF ARROW - "A"



NOTE:

1. INSIDE AND OUTSIDE SURFACES OF ASSY CONTAINER SHALL BE PAINTED AS PER SPECN. IND/VEH/1001 USING ONE COAT OF PAINT RFU, PRIMING REDOXIDE OF IRON ZING CHROMATE SYNTHETIC TO JSS-3-47 AND 2 COAT OF PAINT RFU, FINISHING WAR EQUIPMENT OG TO JSS 8010-14.

2. INDICATION MARK  TO BE DRAWN TO INDICATE TOP POSITION

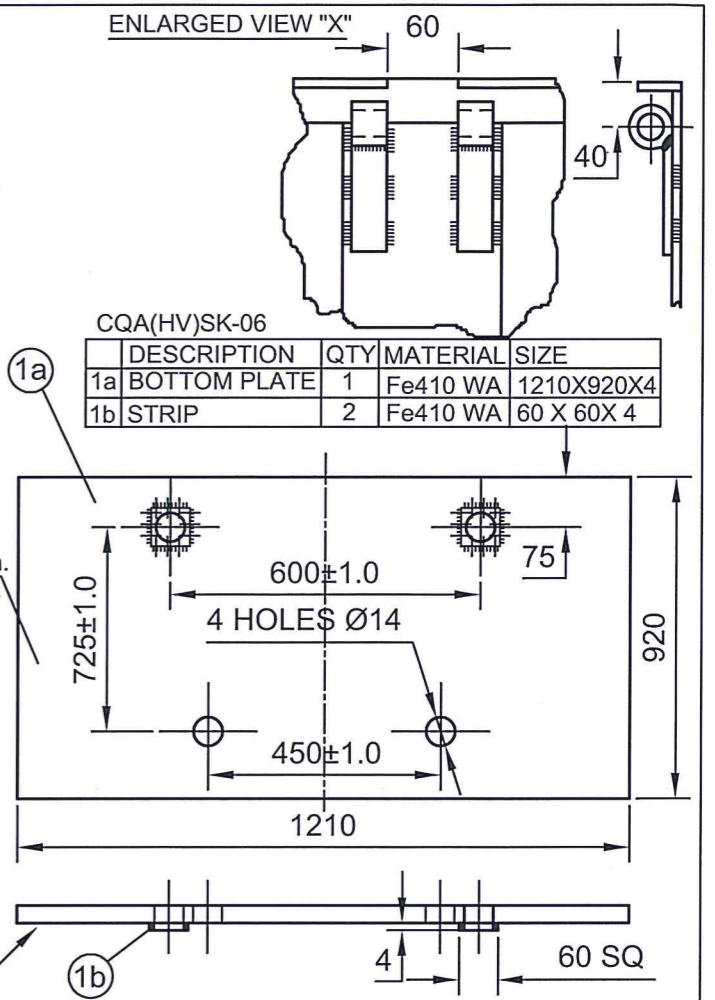
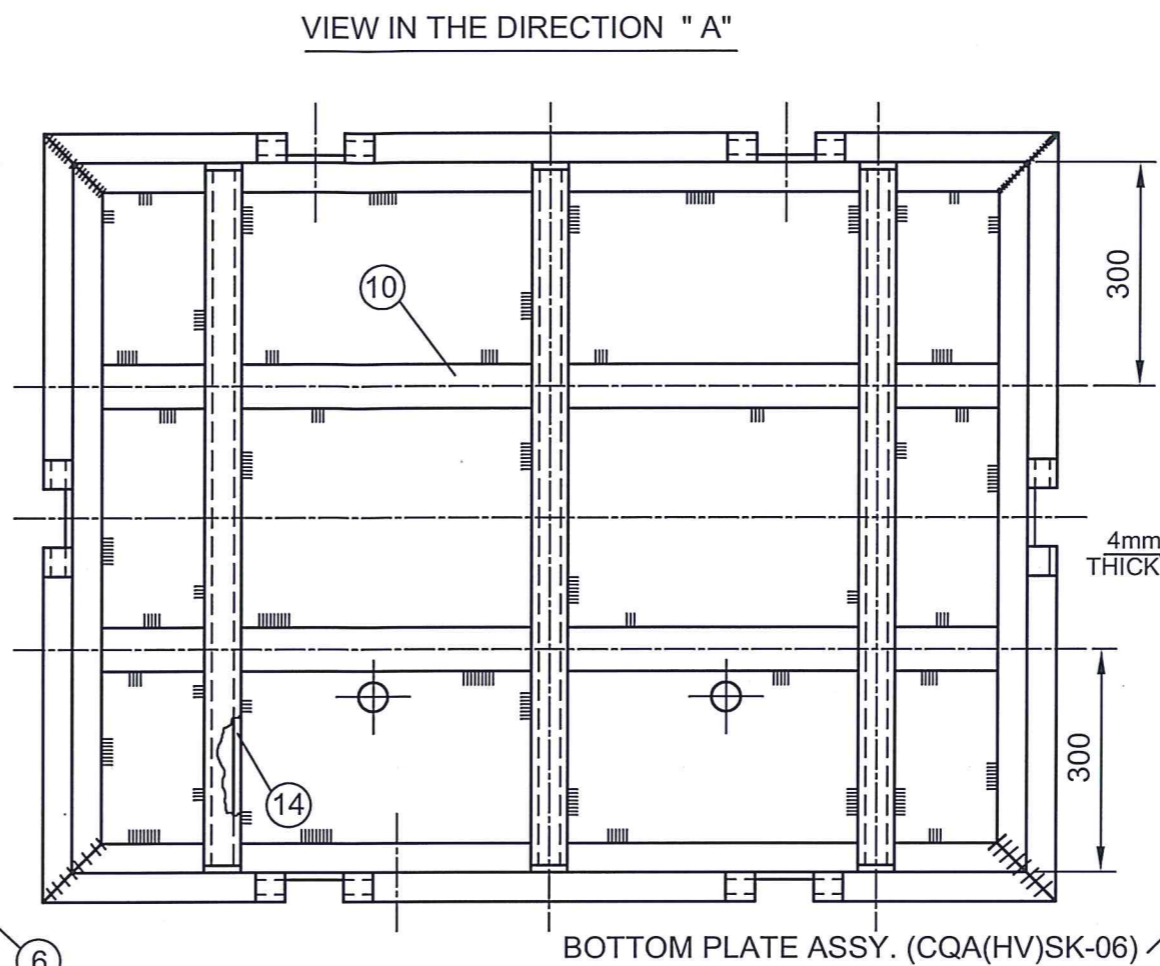
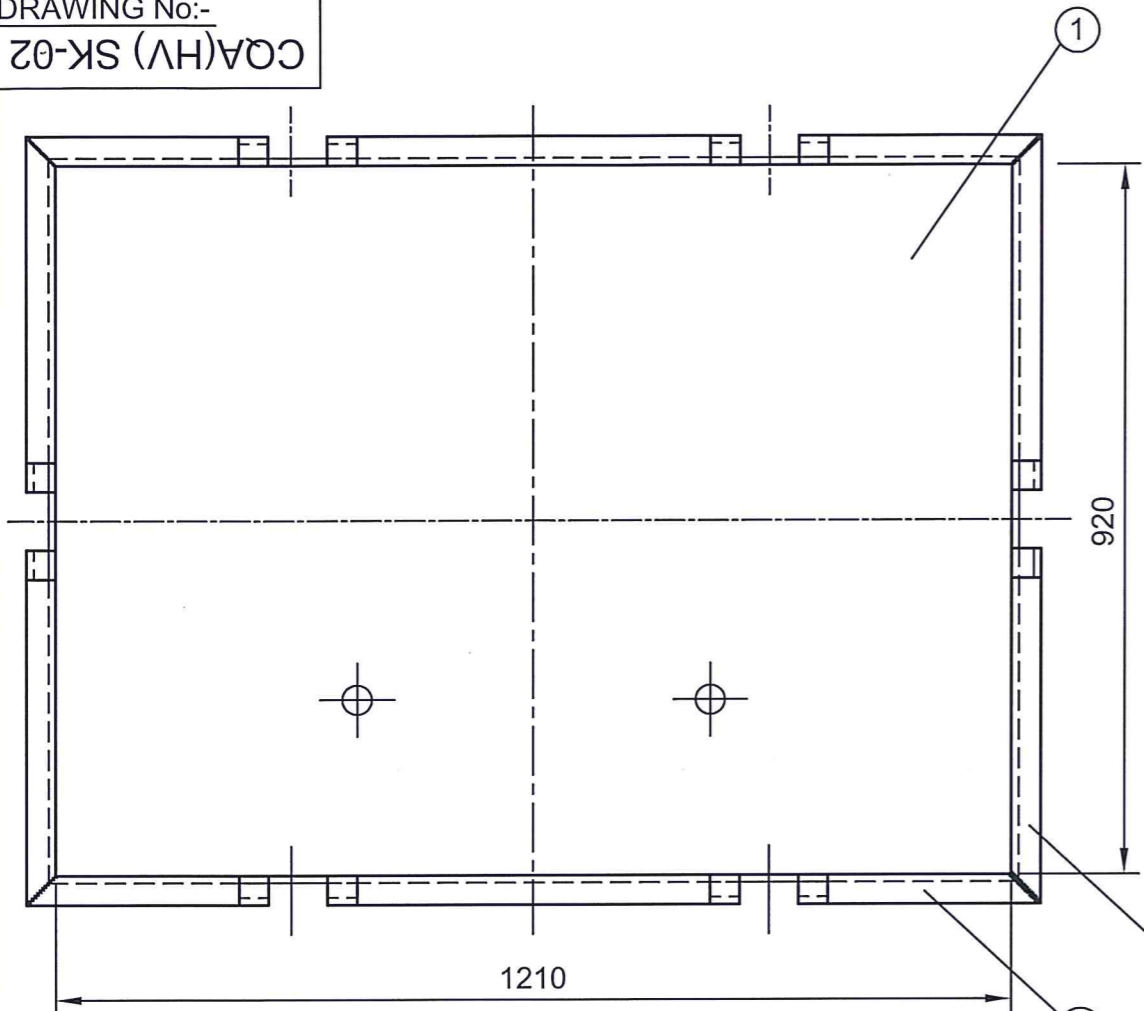
3. INDICATION MARK  TO BE DRAWN TO INDICATE LIFTING POSITION NEAR HOOKS.

4. PILOT SAMPLE SHOULD BE APPROVED BY A.H.S.P / USER BEFORE BULK PRODUCTION.

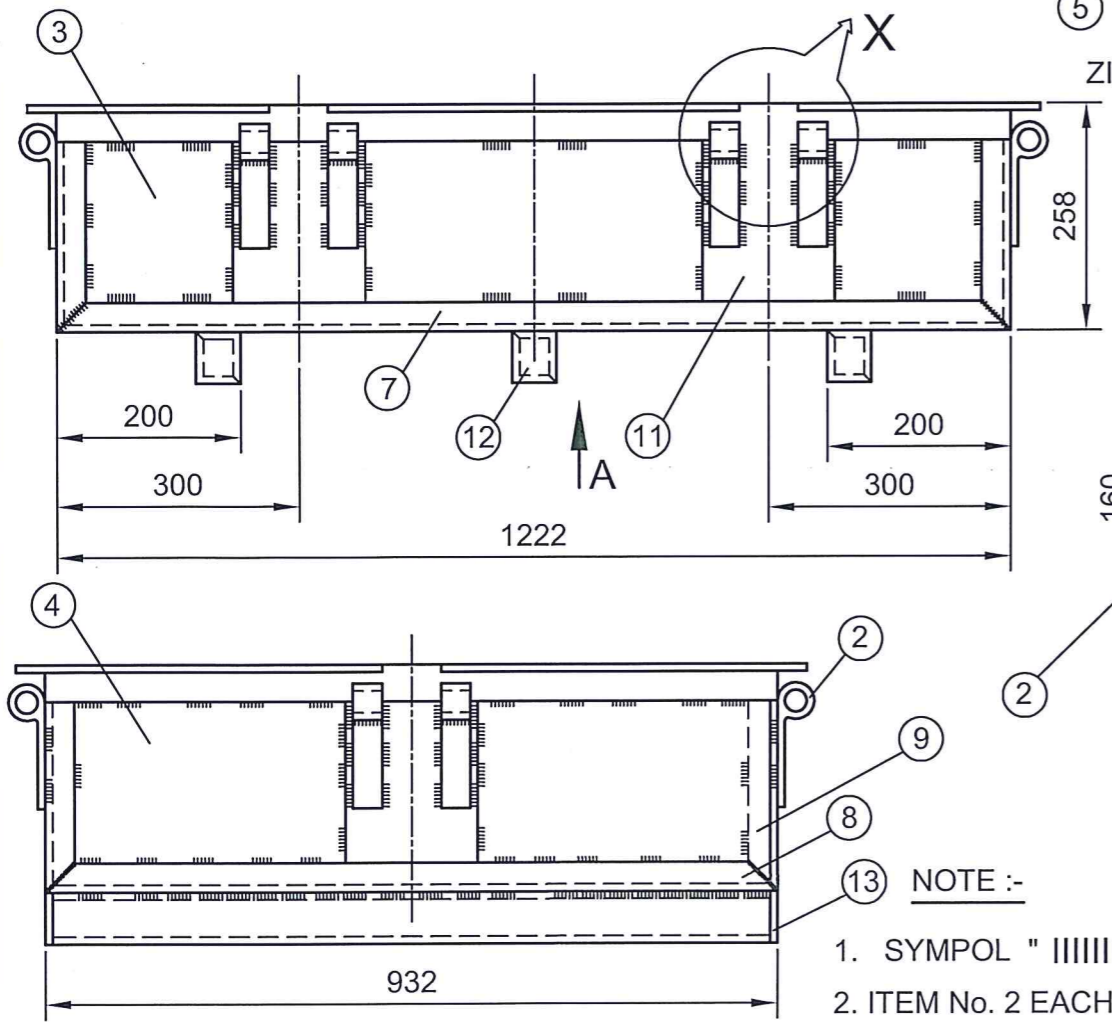
20	STEEL SUPPORT - FRONT SIDE	1	FOR DETAILS REF. DRAWING-(SHT 4 OF 9)	CQA(HV) SK-17
19	BOLT M12 X 1.75 8g -35 L	2	FOR DETAILS REF. DRAWING-(SHT 9 OF 9)	CQA(HV) SK-01
18	PUNCHED WASHER - A-20	12	FOR DETAILS REF. DRAWING-(SHT 9 OF 9)	CQA(HV) SK-01
17	NUT M18X2 6H	12	FOR DETAILS REF. DRAWING-(SHT 9 OF 9)	CQA(HV) SK-01
16	BOLT M18X2 6g	6	FOR DETAILS REF. DRAWING-(SHT 7 OF 9)	CQA(HV) SK-09
15	WASHER 14 H	2	FOR DETAILS REF. DRAWING-(SHT 8 OF 9)	353-28
14	BOLT M14.1.5 6h -30	2	FOR DETAILS REF. DRAWING-(SHT 7 OF 9)	556-21
13	NUT - M16X1.5 - 6H	4	FOR DETAILS REF. DRAWING-(SHT 8 OF 9)	Y07-201-47
12	BUSHING	4	FOR DETAILS REF. DRAWING-(SHT 7 OF 9)	20-40-42
11	WASHER Ø16	4	FOR DETAILS REF. DRAWING-(SHT 7 OF 9)	Y07-201-44
10	WASHER Ø12 65Г 06 GOST 6402-78	4	FOR DETAILS REF. DRAWING-(SHT 8 OF 9)	553-02-1
9	WASHER	4	FOR DETAILS REF. DRAWING-(SHT 8 OF 9)	540-34
8	NUT - M12	4	FOR DETAILS REF. DRAWING-(SHT 8 OF 9)	340-09
7	BOLT - M12X1.75 - 8g - 75 L	2	FOR DETAILS REF. DRAWING-(SHT 9 OF 9)	CQA(HV) SK-01
6	STEEL SUPPORT ASSY.	1	FOR DETAILS REF. DRAWING-(SHT 4 OF 9)	CQA(HV) SK-05
5	SUB. ASSY. BRACE	2	FOR DETAILS REF. DRAWING-(SHT 6 OF 9)	SB 20-40-128-1
4	SUB. ASSY. BRACKET	1	FOR DETAILS REF. DRAWING-(SHT 5 OF 9)	SB 20-40-122
3	SUB. ASSY. SUPPORT	1	FOR DETAILS REF. DRAWING-(SHT 4 OF 9)	CQA(HV) SK-04
2	SUB. ASSY. UPPER CASE	1	FOR DETAILS REF. DRAWING-(SHT 3 OF 9)	CQA(HV) SK-03
1	SUB. ASSY. LOWER CASE	1	FOR DETAILS REF. DRAWING-(SHT 2 OF 9)	CQA(HV) SK-02

ITEM	DESCRIPTION	QTY	MATERIAL	SPECN	SIZE	REF. DRAWING
GEN.TOL.		COMPONENT NO.	OPN.NO.	M / C . NO.	SIGN.	DATE
0 -	6 ± 0.1	FOR UTD-20 ENGINE			DRN.BY	11/09/17
6 -	30 ± 0.2				CKD.BY	11/09/17
30 -	120 ± 0.3				APPD.BY	
120 -	400 ± 0.5				AUTHD.BY	
400 -	1000 ± 0.8				DRG.No.	
1000 -	2000 ± 1.2				CQA(HV) SK - 01	
2000 -	4000 ± 2				SHEET 1 OF 9 SHEETS	
SCALE:-		TITLE:-		ISSUE		
NTS		ASSEMBLY CONTAINER				
		UTD-20 ENGINE				
		ENGINE FACTORY, AVADI.				

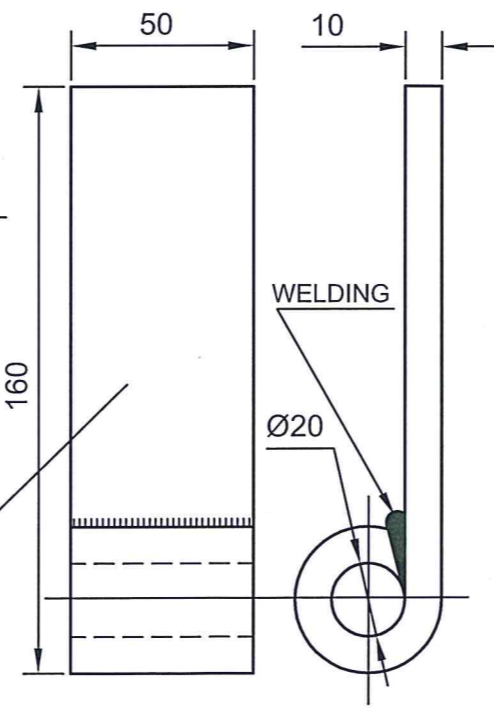
DRAWING No:-  
CQA(HV) SK-02



CQA(HV)SK-06				
DESCRIPTION	QTY	MATERIAL	SIZE	
1a BOTTOM PLATE	1	Fe410 WA	1210X920X4	
1b STRIP	2	Fe410 WA	60 X 60X 4	



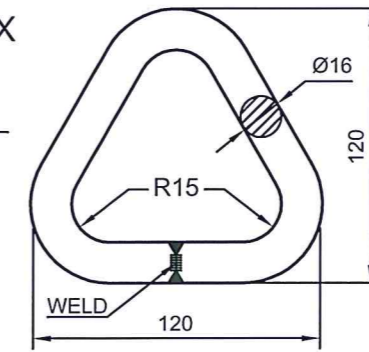
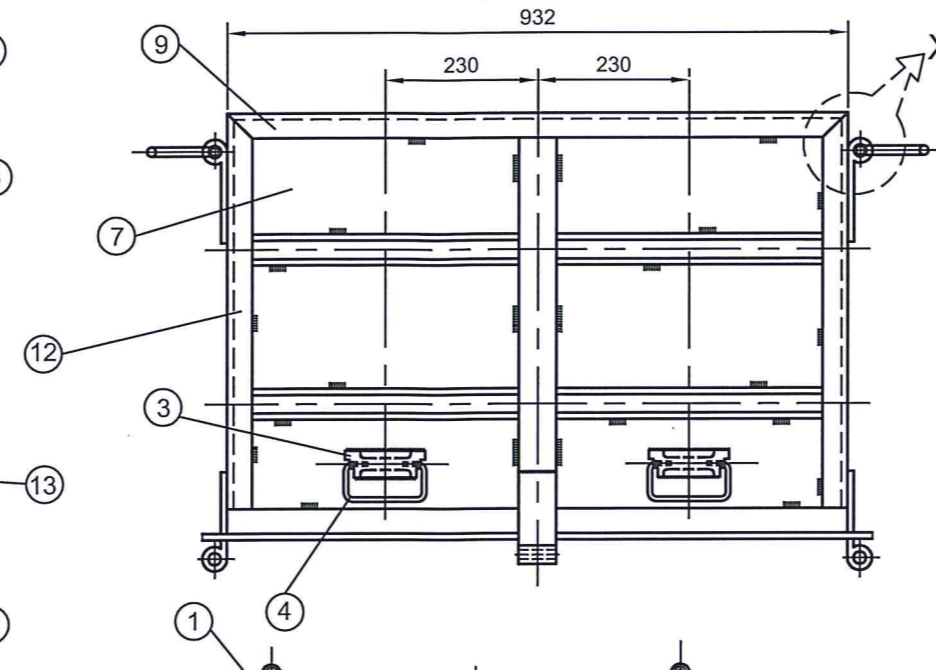
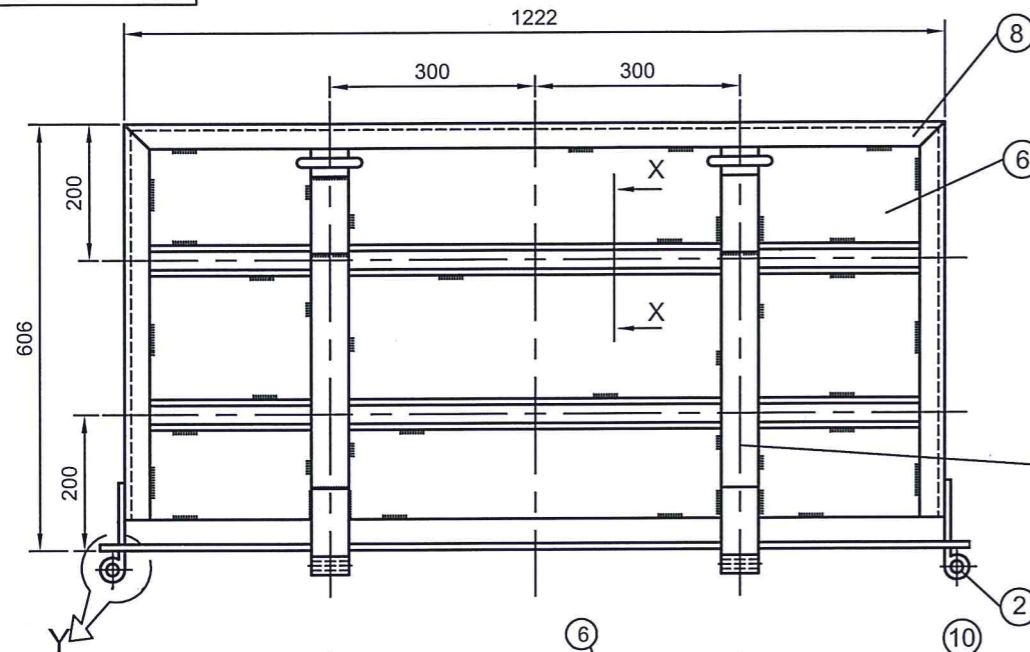
CQA(HV)SK-07  
COATING FOR ITEM No.2  
ZINC COATING WITH PASSIVATION



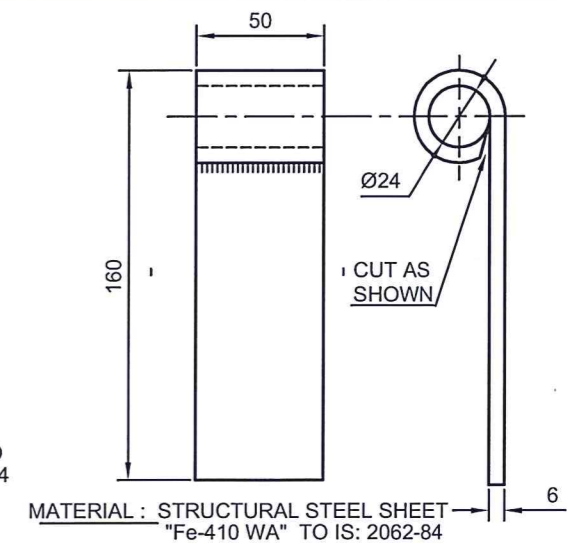
ITEM	DESCRIPTION	QTY.	MATERIAL	SPECN.	REMARKS
14	STIFFENER	3	STRUCTURAL STEEL Fe410 WA	TO IS: 2062-84	924 X 75 X 4 T
13	END PLATE	6	STRUCTURAL STEEL Fe410 WA	TO IS: 2062-84	75 X 44 X 4T
12	CHANNEL (ISMC)	3	STRUCTURAL STEEL Fe410 WA	TO IS: 2062-84	75 X 40X4.5 - 924L
11	STIFFENING STRIP MS	6	STRUCTURAL STEEL Fe410 WA	TO IS: 2062-84	160 X 185 X 4 T
10	STIFFENING STRIP MS	2	STRUCTURAL STEEL Fe410 WA	TO IS: 2062-84	1152 I X 50 W X 4 T
9	EQUAL ANGLE MS	4	STRUCTURAL STEEL Fe410 WA	TO IS: 2062-84	35x 35 X 4 - 223 L
8	EQUAL ANGLE MS	2	STRUCTURAL STEEL Fe410 WA	TO IS: 2062-84	35x 35 X 4 - 932 L
7	EQUAL ANGLE MS	2	STRUCTURAL STEEL Fe410 WA	TO IS: 2062-84	35x 35 X 4 - 1222 L
6	EQUAL ANGLE MS	2	STRUCTURAL STEEL Fe410 WA	TO IS: 2062-84	35x 35 X 4 - 994 L
5	EQUAL ANGLE MS	2	STRUCTURAL STEEL Fe410 WA	TO IS: 2062-84	35x 35 X 4 - 1284 L
4	SIDE PLATE SMALL MS	2	STRUCTURAL STEEL Fe410 WA	TO IS: 2062-84	920 L X 250 W X 2 T
3	SIDE PLATE LARGE MS	2	STRUCTURAL STEEL Fe410 WA	TO IS: 2062-84	1210 L X 250 W X 2 T
2	HINGE	12	STRUCTURAL STEEL Fe410 WA	TO IS: 2062-84	CQA(HV) SK-07
1	BOTTOM PLATE ASSY.	1	STRUCTURAL STEEL Fe410 WA	TO IS: 2062-84	CQA(HV) SK-06

GEN. TOL	COMPONENT NO.	OPN. NO.	M / C. NO.	SIGN	DATE
0 - 6 ± 0.1	CQA (HV) SK -01		STEEL PACKING BOX FOR UTD-20 ENGINE	DRN. BY	11/09/17
6 - 30 ± 0.1				CKD. BY	11/09/17
30 - 120 ± 0.5				APPD. BY	
120 - 400 ± 0.1				AUTHD. BY	
400 - 1000 ± 0.8				DRG. NO.	
1000 - 2000 ± 1.2					
2000 - 4000 ± 2.0					
TITLE: <b>ASSEMBLY - LOWER CASE</b>				CQA (HV) SK-02	
SCALE:- NTS				SHEET 2 OF 9 SHEETS	
ENGINE FACTORY, AVADI.				ISSUE	

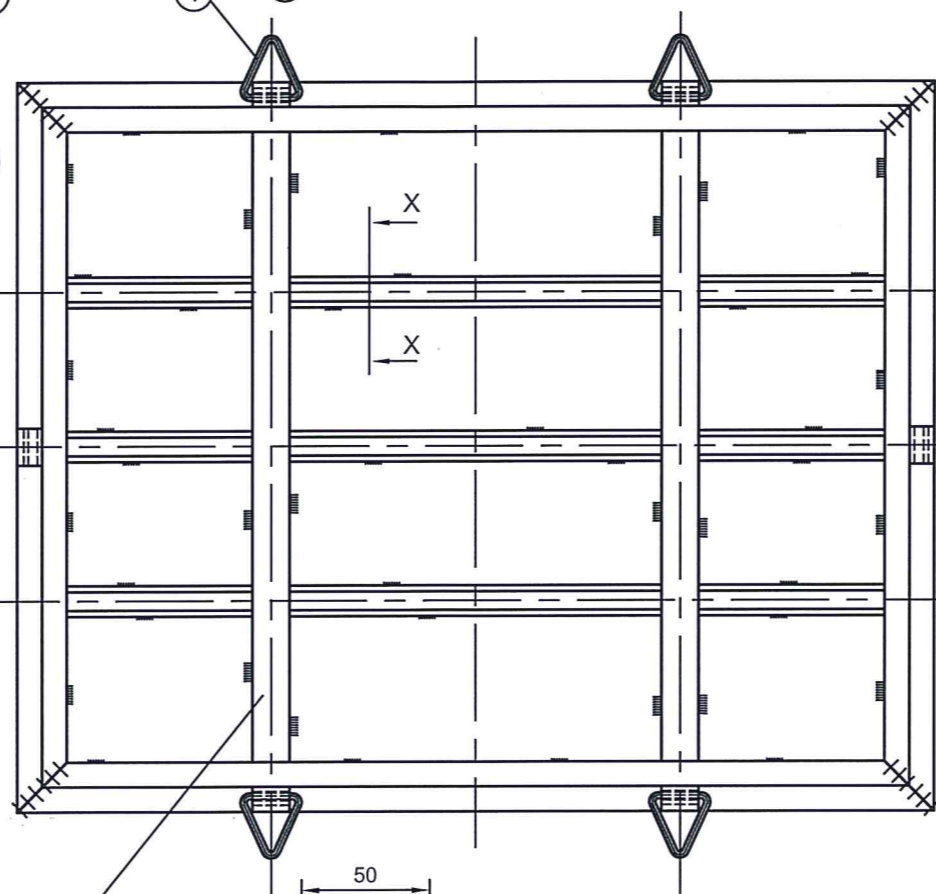
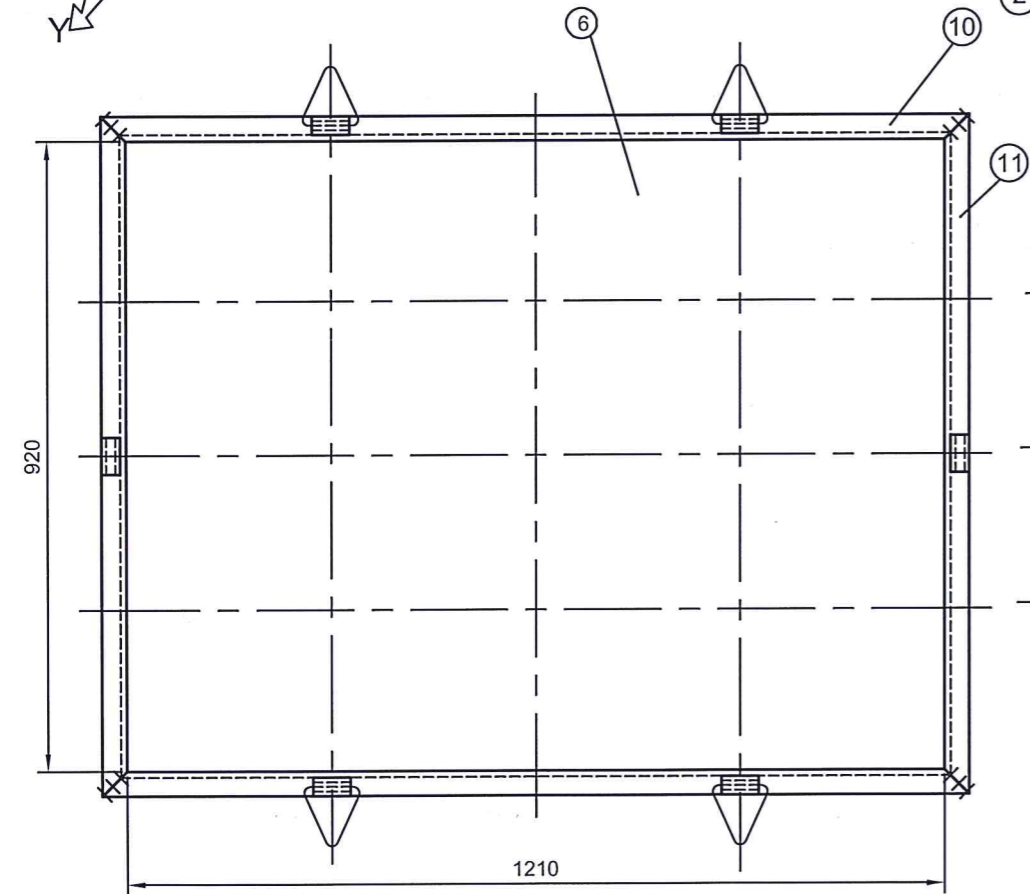
- NOTE :-
- SYMPOL "IIIIIIII" INDICATES WELDING
  - ITEM No. 2 EACH PAIR OF HINGE SHOULD BE WELDED SUITABLY TO MATCH THE BOLT HOLES.



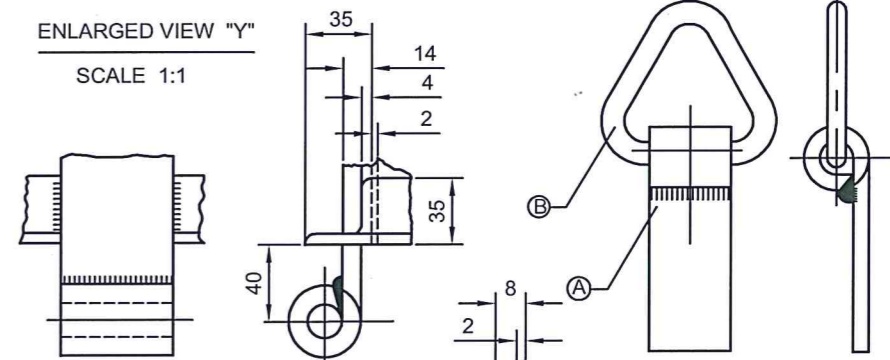
MATERIAL : STRUCTURAL STEEL ROD  
"Fe-410 WA" TO IS: 2062-84



MATERIAL : STRUCTURAL STEEL SHEET  
"Fe-410 WA" TO IS: 2062-84



ITEM.	DRAWINGG. No.	DESCRIPTION	MATERIAL	QTY	USED ON
A	CQA(HV)-SK15	STRIP LIFTING	STRUCTURAL STEEL	4	CQA(HV)SK-08
B	CQA(HV)-SK16	HOOK	Fe-410 WA TO IS 2062-84	4	CQA(HV)SK-08



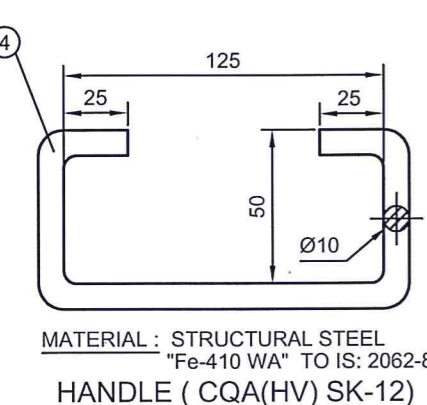
ENLARGED VIEW "Y"  
SCALE 1:1

NOTE:-  
1. ITEM 2 HINGE SHOULD BE WELDED SUITABLY TO MATCH THE BOLT HOLES CORRESPONDING TO THE PAIR OF HINGES WELDED IN ASSY BOTTOM CASE.

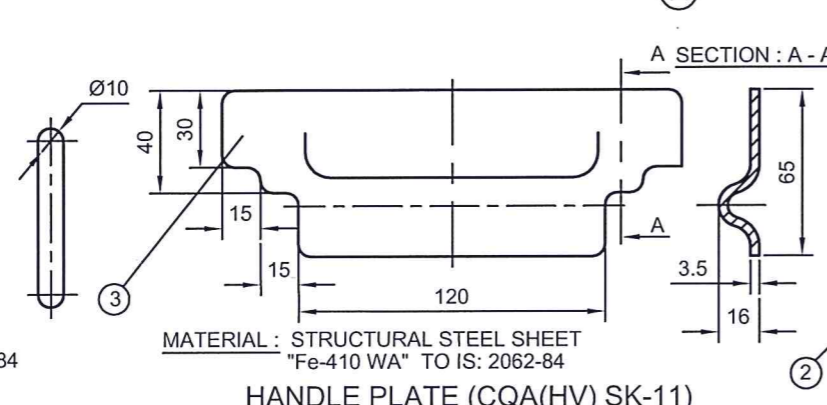
2. "|||||"  
SUB ASSY. HOOK (CQA(HV) SK -08)

SECTION "X-X"  
SCALE 1:1

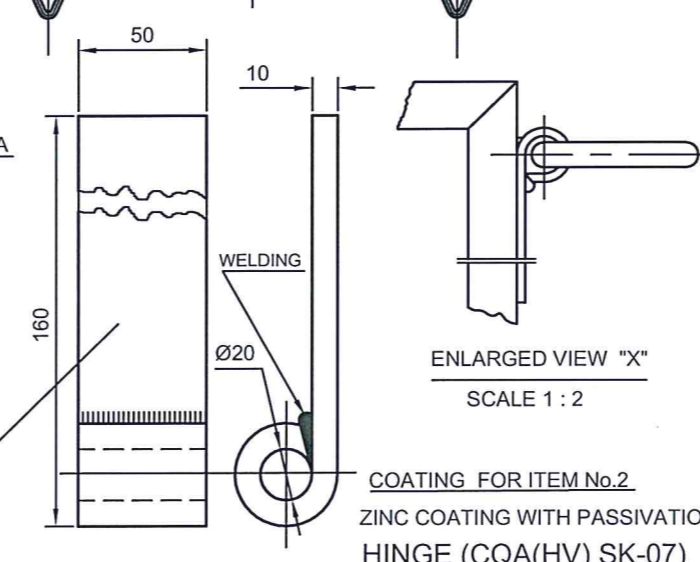
ITEM	DESCRIPTION	QTY.	MATERIAL	SPECN.	REMARKS
14	STIFFENING STRIP	2	STRUCTURAL STEEL Fe410 WA	TO IS: 2062-84	50X4 - 862 L
13	STIFFENING STRIP	6	STRUCTURAL STEEL Fe410 WA	TO IS: 2062-84	50 X 4 536 L
12	EQUAL ANGLE MS	4	STRUCTURAL STEEL Fe410 WA	TO IS: 2062-84	35X35 - 571 L
11	EQUAL ANGLE MS	2	STRUCTURAL STEEL Fe410 WA	TO IS: 2062-84	35 X 35 4 - 994 L
10	EQUAL ANGLE MS	2	STRUCTURAL STEEL Fe410 WA	TO IS: 2062-84	35 X 35 X 4 - 1284 L
9	EQUAL ANGLE MS	2	STRUCTURAL STEEL Fe410 WA	TO IS: 2062-84	35 X 35 X 4 - 932 L
8	EQUAL ANGLE MS	2	STRUCTURAL STEEL Fe410 WA	TO IS: 2062-84	35 X 35 X 4 X -1222 L
7	SIDE PLATE MS	2	STRUCTURAL STEEL Fe410 WA	TO IS: 2062-84	600 X 2 - 920 L
6	SIDE PLATE MS	2	STRUCTURAL STEEL Fe410 WA	TO IS: 2062-84	600 X 2 X 1210 L
5	TOP PLATE MS	1	STRUCTURAL STEEL Fe410 WA	TO IS: 2062-84	920 X 2 X 1210 L
4	HANDLE	4	STRUCTURAL STEEL Fe410 WA	TO IS: 2062-84	CQA(HV) SK - 12
3	HANDLE PLATE	4	STRUCTURAL STEEL Fe410 WA	TO IS: 2062-84	CQA(HV) SK - 11
2	HINGE	6	STRUCTURAL STEEL Fe410 WA	TO IS: 2062-84	CQA(HV) SK - 07
1	SUB.ASSY.HOOK	4	STRUCTURAL STEEL Fe410 WA	TO IS: 2062-84	CQA(HV) SK - 08



MATERIAL : STRUCTURAL STEEL  
"Fe-410 WA" TO IS: 2062-84  
HANDLE ( CQA(HV) SK-12)



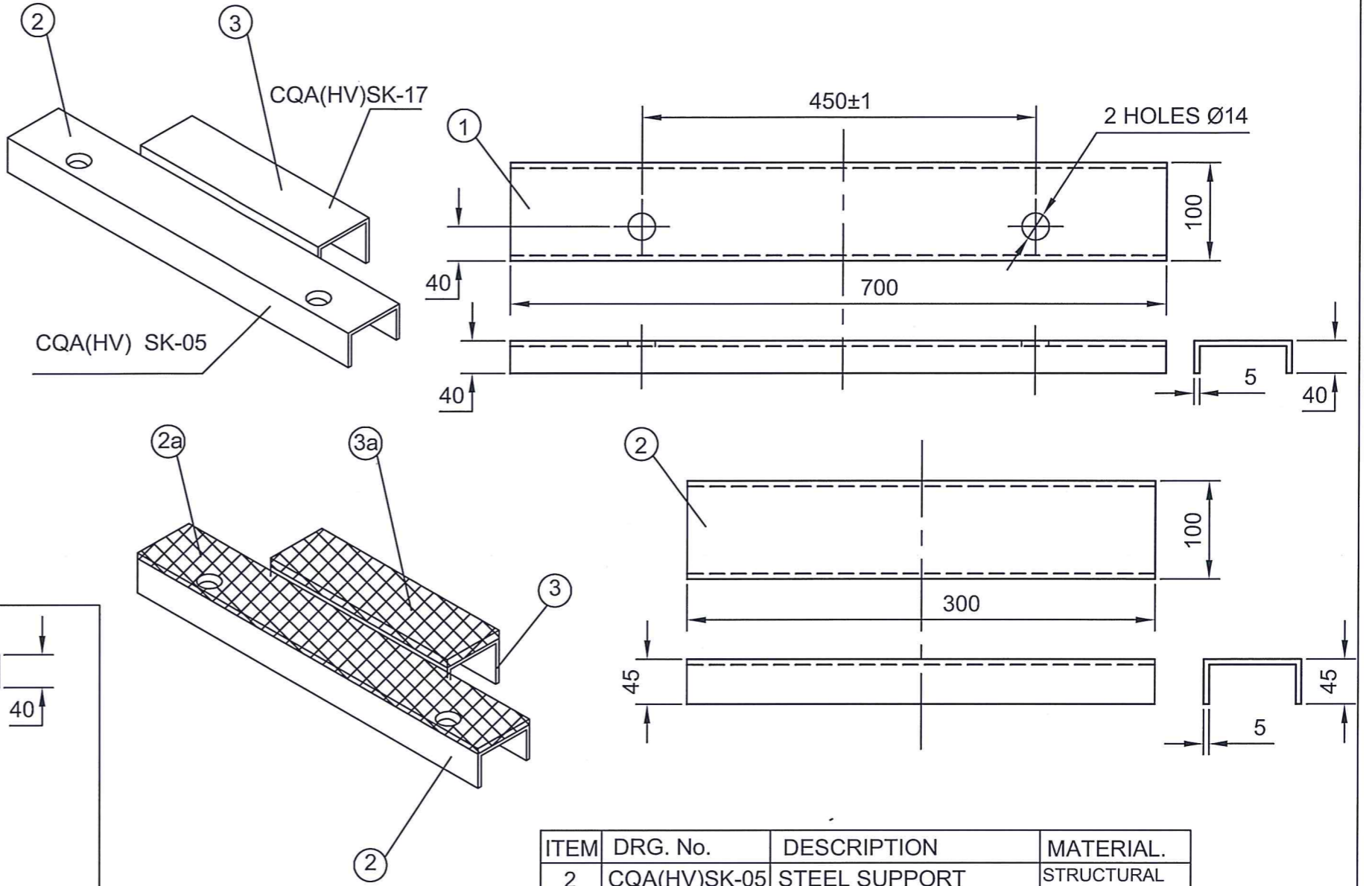
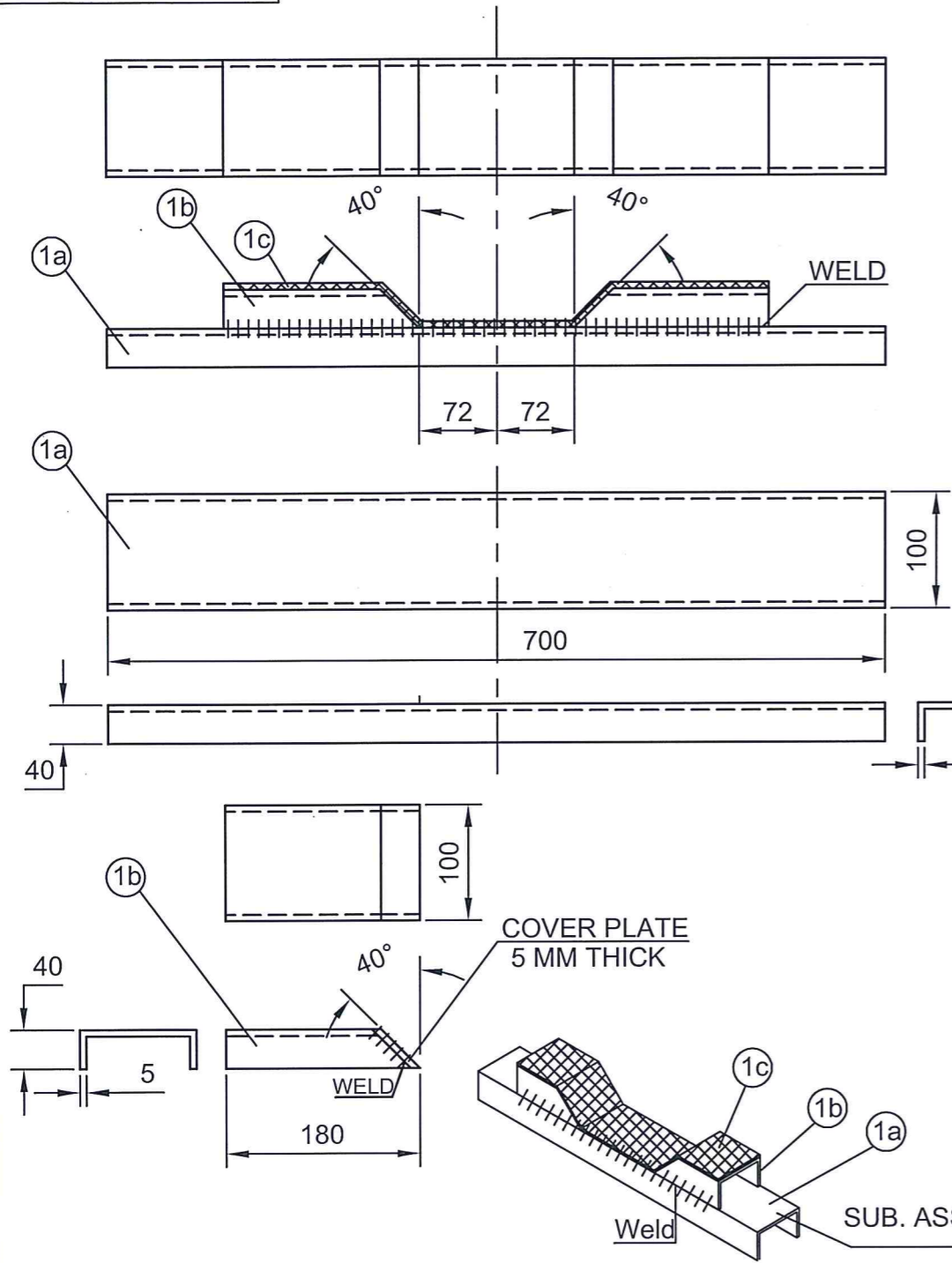
MATERIAL : STRUCTURAL STEEL SHEET  
"Fe-410 WA" TO IS: 2062-84  
HANDLE PLATE (CQA(HV) SK-11)



COATING FOR ITEM No.2  
ZINC COATING WITH PASSIVATION  
HINGE (CQA(HV) SK-07)

GEN. TOL	COMPONENT NO.	OPN. NO.	M / C. NO.	SIGN	DATE
0 - 6 ± 0.1	CQA (HV) SK -01	STEEL PACKING BOX FOR UTD-20 ENGINE	TITLE: <b>ASSEMBLY - UPPER CASE</b>	DRN. BY	
6 - 30 ± 0.1				CKD. BY	
30 - 120 ± 0.5				APPD. BY	
120 - 400 ± 0.1				AUTHD. BY	
400 - 1000 ± 0.8				DRG. NO.	<b>CQA (HV) SK-03</b>
1000 - 2000 ± 1.2				ENGINE FACTORY, AVADI.	
2000 - 4000 ± 2.0	SHEET 3 OF 9 SHEETS				
SCALE:- NTS			ISSUE		

DRAWING No:-  
CQA(HV)SK-04 & 05  
CQA(HV)SK-09 & 17



ITEM	DRG. No.	DESCRIPTION	MATERIAL.
2	CQA(HV)SK-05	STEEL SUPPORT	STRUCTURAL STEEL Fe410WA TO IS: 2062-84
3	CQA(HV)SK-17	STEEL SUPPORT	STRUCTURAL STEEL Fe410WA TO IS: 2062-84
2a & 3a	ND	RUBBER REINFORCED CANVASS 12 MM THICK	

ITEM	DRG. No.	DESCRIPTION	MATERIAL.
1a	CQA(HV)SK-13	STEEL SUPPORT	STRUCTURAL STEEL Fe410WA TO IS: 2062-84
1b	CQA(HV)SK-14	STEEL SUPPORT	STRUCTURAL STEEL Fe410WA TO IS: 2062-84
1c	ND	RUBBER REINFORCED CANVASS 12 MM THICK	

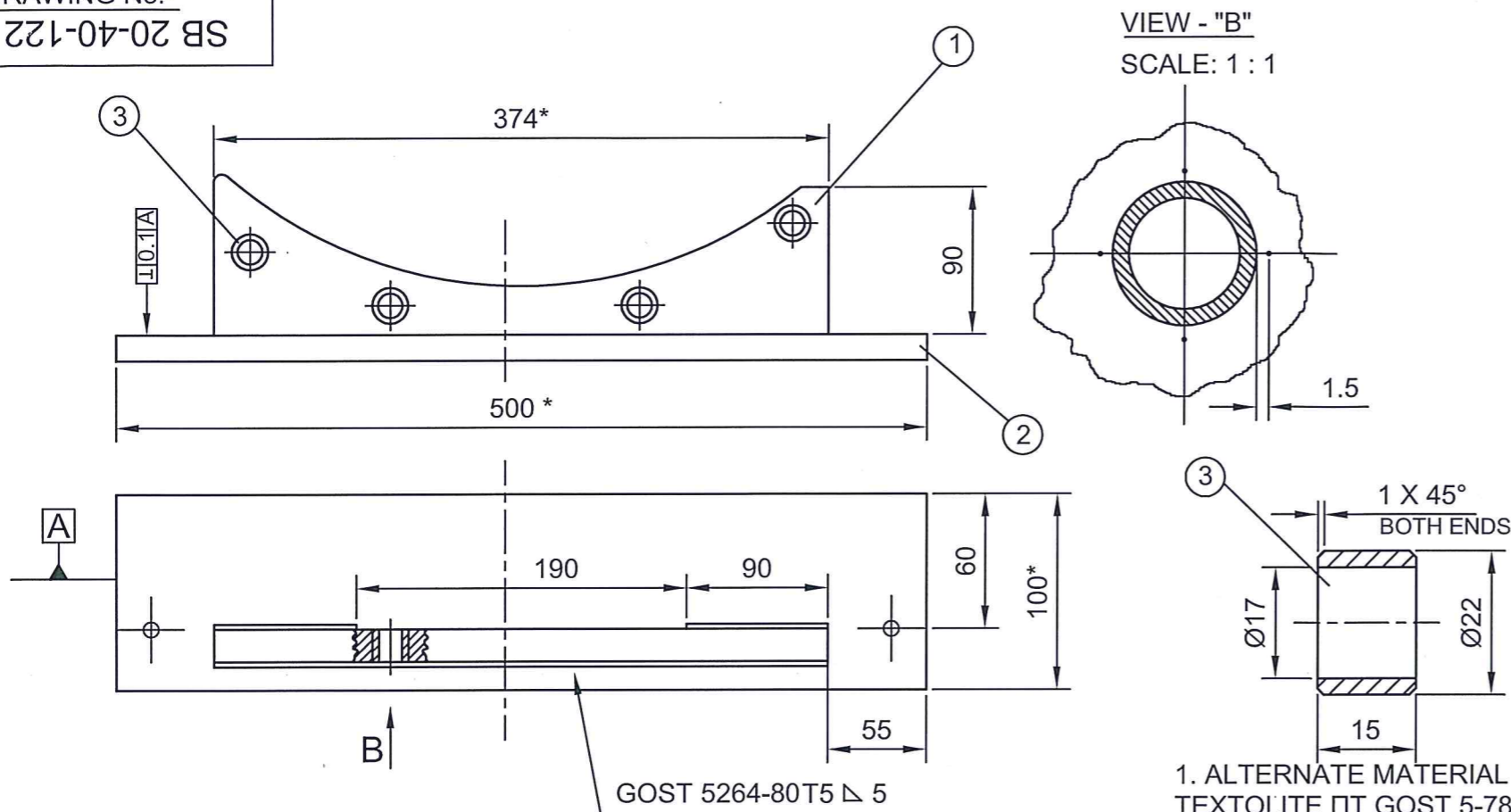
NOTE:

1. INSIDE AND OUTSIDE SURFACES OF ASSY SUPPORT SHALL BE PAINTED AS PER SPECN. IND/VEH/1001 USING ONE COAT OF PAINT RFU, PRIMING REDOXIDE OF IRON ZING CHROMATE SYNTHETIC TO JSS-3-47 AND 2 COAT OF PAINT RFU, FINISHING WAR EQUIPMENT OG TO JSS 8010-14.

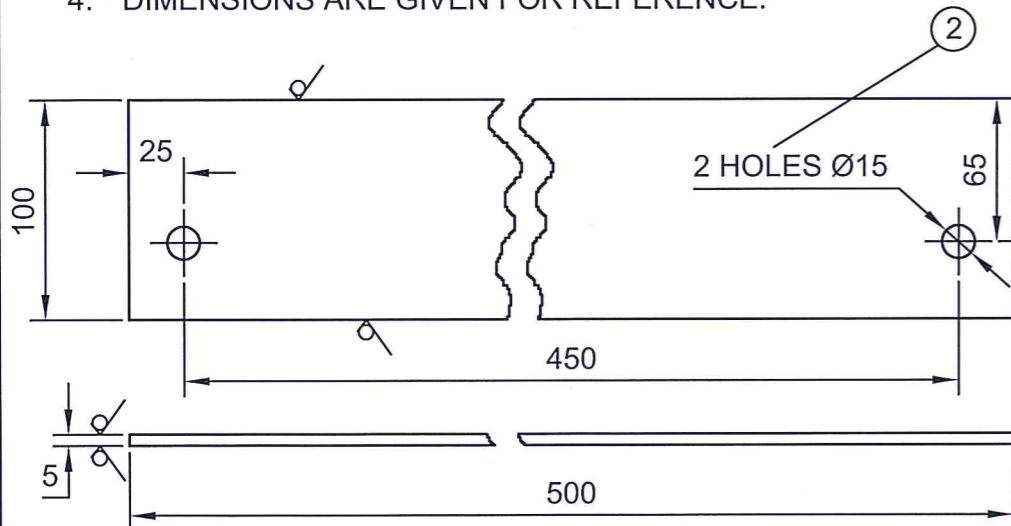
2. CARRY OUT VISUAL CHECK OF QUALITY OF THE WELD AS PER GOST 3242-79.  
3. WELDING MAY BE FORMED IN CARBORNDIOXIDE ATMOSPHERE

ITEM	DESCRIPTION	QTY.	MATERIAL	SPECN.	REF. DRAWING
3	STEEL SUPPORT	1	STRUCTURAL STEEL Fe410 WA	TO IS: 2062-84	CQA(HV) SK-17
2	STEEL SUPPORT	1	STRUCTURAL STEEL Fe410 WA	TO IS: 2062-84	CQA(HV) SK-05
1	SUB. ASSY. SUPPORT	1	STRUCTURAL STEEL Fe410 WA	TO IS: 2062-84	CQA(HV) SK-04

GEN. TOL	COMPONENT NO.	OPN. NO.	M / C. NO.	SIGN	DATE
0 - 6 ± 0.1	CQA (HV) SK -01		STEEL PACKING BOX FOR UTD-20 ENGINE	DRN. BY	11/09/17
6 - 30 ± 0.1				CKD. BY	11/09/17
30 - 120 ± 0.5				APPD. BY	
120 - 400 ± 0.1				AUTHD. BY	
400 - 1000 ± 0.8				DRG. NO.	
1000 - 2000 ± 1.2				CQA (HV) SK-04 & 05	
2000 - 4000 ± 2.0	CQA (HV) SK-17				
SCALE:-	TITLE:			SHEET 4 OF 9 SHEETS	
NTS	SUB ASSEMBLY SUPPORT			ISSUE	
	ENGINE FACTORY, AVADI.				



- CARRY OUT VISUAL CHECK OF QUALITY OF THE WELD AS PER GOST 3242-79.
- LOCK-PUNCH BUSHING ( REF.No.3 ) FROM BOTH SIDES, AS SHOWN IN VIEW "B"
- WELDING MAY BE FORMED IN CARBONDIOXIDE ATMOSPHERE
- \* DIMENSIONS ARE GIVEN FOR REFERENCE.



- ALTERNATE MATERIAL IS STEEL OF ANY GRADE AS PER GOST 380-71
- STAMPING DRAFT MAY BE UP TO 0.8 mm PER SIDE

**EXPLANATORY NOTE**

- MATERIAL QUOTED : STEEL 3КП GOST 380-71  
Cm (CT) = STEEL , 3 = GRADE No. AS PER GOST 380-71  
(WITH STANDARD CHARACTERISTICS)  
КП = RIMMED.
- CHEMICAL COMPOSITION (AS PER GOST 380-71) %
- MECHANICAL PROPERTIES (AS PER GOST 380-71)  
ULTIMATE TENSILE STRENGTH Kgf/mm<sup>2</sup> = 37-47  
STRESS AT YIELD POINT Kgf/mm<sup>2</sup> = 24 (Min)  
% RELATIVE ELONGATION = 27 (Min)

C = 0.14 - 0.22
Si = 0.30 - 0.60
Mn = 0.07 (Max)
P = 0.04 (Min)
S = 0.05 (Min)
Cr = 0.30 (Min)
Ni = 0.30 (Min)
Cu = 0.30 (Min)
As = 0.08 (Min)

- UNSPECIFIED LIMIT OF DEVIATIONS OF DIMENSIONS ARE AS FOLLOWS:-  
FOR HOLE AS PER A7, FOR SHAFTS AS PER B7  
OTHERS AS PER CM7

BASIC CONSTITUENT ALUMINIUM	
COPPER	3.8 - 4.8
MAGNISIUM	0.4 - 0.8
MANGNESE	0.4 - 0.8
IMPURITIES (MAX)	
IRON	0.7
SILICON	0.7
NICKLE	0.1
ZING	0.3
TITANIUM	0.1
OTHER IMPURITIES EACH INDIVIDUALLY 0.05 , TOTAL = 0.1	

	1st - SORT	2nd - SORT
SAG. mm/m	4	8
DENSITY g/cm <sup>3</sup>	1.3 - 1.4	1.3 - 1.4
SHEARING STRESS AT RUPTURE Kgf/cm <sup>2</sup>	1450	1100
TENSILE STRENGTH AT RUPTURE Kgf/cm <sup>2</sup> (min)	900	700
COMPRESSION STRESS AT RUPTURE Kgf/cm <sup>2</sup> (min)		
1. PARALLEL TO THE LAYER	1400	1200
2. PERPENDICULAR TO THE LAYER	2400	2000
IMPACT STRENGTH Kgf. cm /cm <sup>2</sup> (min)	37	25
MARTENSE HEAT STABILITY °C (min)	140	130
% OF WATER ABSORPTION(max)	0.70	1.00
RESISTANCE TO SPLITTING ALONG THE THREAD OF THE WARP Kgf/cm(min) 187 ON UNTOUCHED SPECIMEN		

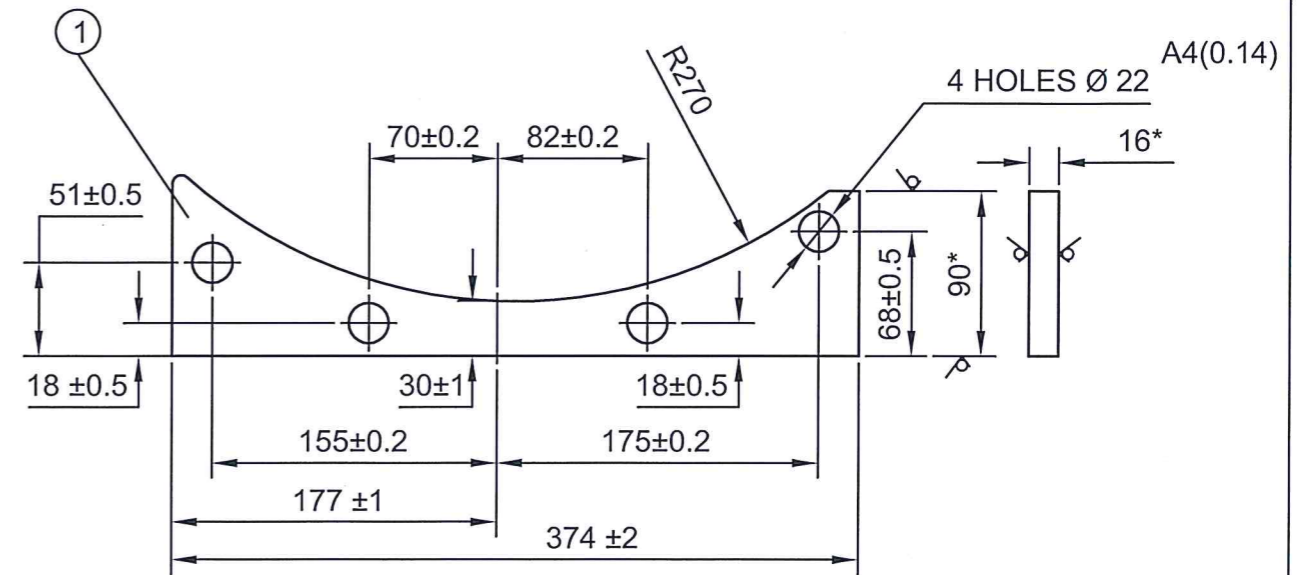
- ALTERNATE MATERIAL IS TEXTOLITE ПТ GOST 5-78
- UN-SPECIFIED LIMIT DEVIATIONS OF DIMENSIONS ARE AS FOLLOWS.

FOR HOLES : AS PER A7  
FOR SHAFTS : AS PER B7

MATERIAL QUOTED : D1 GOST 4784-74  
ALT. MATL. QUOTED :- TEXTOLITE ПТ GOST 5-78  
TEXTOLITE AND ASBESTOS TEXTOLITE IN THE FORM OF LAMINATED PRESSED SHEETS.  
D1 = GROUP OF ALUMINIUM ALLOY.

CHEMICAL COMPOSITION % (AS PER GOST 4784-74)

- PHYSICAL AND CHEMICAL PARAMETERS OF GRADE ПТ AS PER GOST 5-78
- EXTERNAL APPEARANCE AND COLOUR = EVEN SMOOTH SURFACE WITHOUT FOREIGN INCLUTIONS FROM LIGHT YELLOW TO DRAK BROWN WITH DIFFERENT TINTS



- ALTERNATE MATERIAL IS STEEL OF ANY GRADE AS PER GOST 380-71
- STAMPING DRAFT MAY BE UP TO 1.6 mm ON A SIDE
- DIMENSION IS GIVEN FOR REFERENCE.

**EXPLANATORY NOTE:-**

- MATERIAL QUOTED : Cm 3КП GOST 380-71  
Cm (CT) = STEEL , 3 = GRADE No. AS PER GOST 380-71  
(WITH STANDARD CHARACTERISTICS)  
КП = RIMMED.
- (a) CHEMICAL CPMPOSITION (AS PER GOST 380-71) %
- (b) MECHANICAL PROPERTIES (AS PER GOST 380-71)

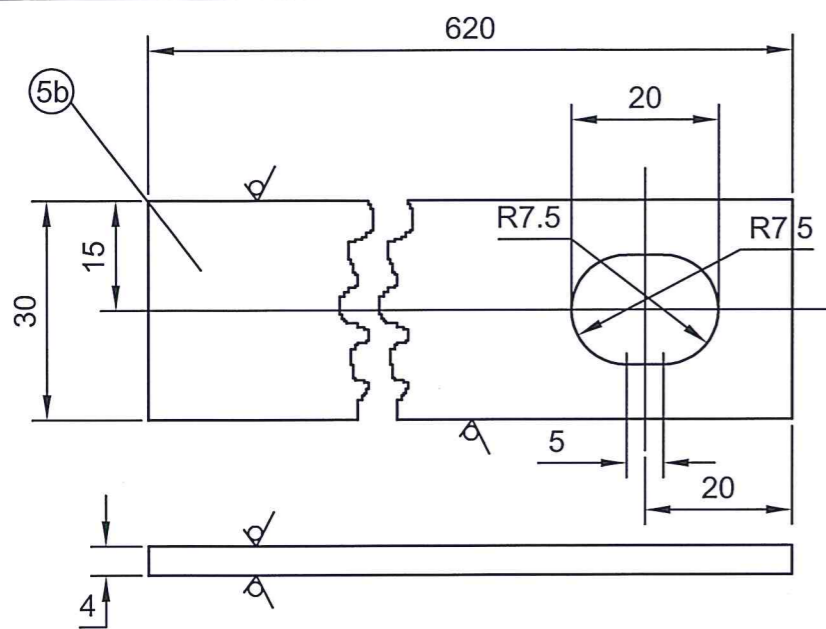
ULTIMATE TENSILE STRENGTH Kgf/mm<sup>2</sup> = 37-47  
STRESS AT YIELD POINT Kgf/mm<sup>2</sup> = 24 (Min)  
% RELATIVE ELONGATION = 27 (Min)

C = 0.14 - 0.22
Si = 0.30 - 0.60
Mn = 0.07 (Max)
P = 0.04 (Min)
S = 0.05 (Min)
Cr = 0.30 (Min)
Ni = 0.30 (Min)
Cu = 0.30 (Min)
As = 0.08 (Min)

ITEM	DESCRIPTION	QTY.	MATERIAL	SPECN.	REF. DRAWING
3	BUSHING		D1 GOST 4784-74		20-40-07-1
2	PLATE	1	STEEL Cm 3КП GOST 380-71		20-40-123
1	BRACKET	1	STEEL Cm 3КП GOST 380-71		20-40-124
	SUB. ASSY. BRACKET	1			SB 20-40-122

GEN. TOL	COMPONENT NO.	OPN. NO.	M / C. NO.	SIGN	DATE
0 - 6 ± 0.1				DRN. BY	11/09/12
6 - 30 ± 0.1	CQA (HV) SK -01		STEEL PACKING BOX FOR UTD-20 ENGINE	CKD. BY	11/09/12
30 - 120 ± 0.5				APPD. BY	
120 - 400 ± 0.1				AUTHD. BY	
400 - 1000 ± 0.8				DRG. NO.	
1000 - 2000 ± 1.2					
2000 - 4000 ± 2.0					
SCALE:-					
NTS					
TITLE: <b>SUB. ASSEMBLY BRACKET</b>				SHEET 5 OF 9 SHEETS	
ENGINE FACTORY, AVADI.				ISSUE	

DRAWING No:-  
SB 20-40-128-1



1. ALTERNATE MATERIAL IS STEEL OF ANY GRADE AS PER GOST 380-71 AND STEEL 20 GOST 1050-74.
2. UN-SPECIFIED LIMIT DEVIATIONS OF DIMENSIONS ARE AS FOLLOWS:-  
FOR HOLES AS PER A7  
FOR SHAFTS AS PER B7, OTHERS AS PER CM7
3. STAMPING DRAFT OF 0.5 MM IS ALLOWED FROM EACH SIDE
4. THE HOLE MAY BE DRILLED IN THE ASSEMBLY.

**EXPLANATORY NOTE :**  
5. MATERIAL QUOTED : Cm3 КП GOST 380-71  
ALT. MATL QUOTED : ANY GRADE AS PER GOST 380-71 AND STEEL 20 GOST 1050-74  
Cm(CT) = STEEL , 3 = GRADE AS PER GOST 380-71  
Кп = RIMMED , 20 = GRADE OF STEEL AS PER GOST 1050-74  
a)CHEMICAL COMPOSTION AS PER GOST 380-71

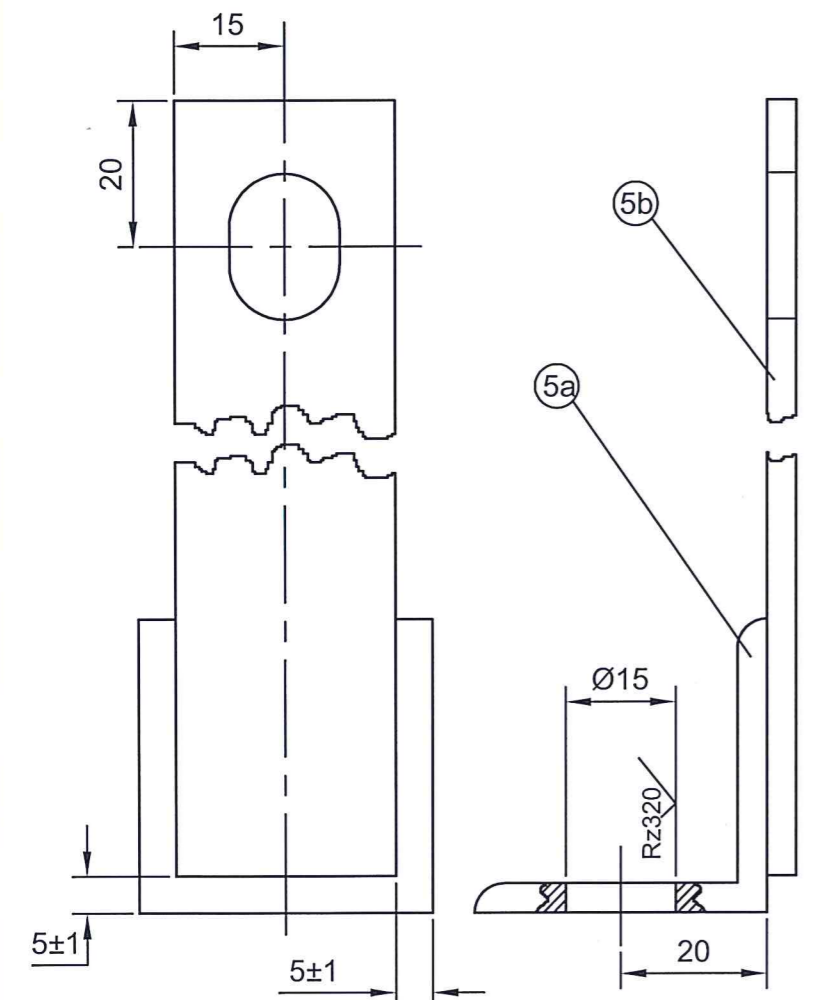
Gde OF Matl	CONTENT OF ELEMENTS %											
	C	Si	Mn	Cr	P	S	Cu	Ni	ARSENIC			
CT3 Кп GOST 380-71	0.14 0.22	0.07- (Max)	0.30- 0.60	MINIMUM								
				0.30	0.04	0.05	0.30	0.30	0.08			

a)CHEMICAL COMPOSTION AS PER GOST 1050-74

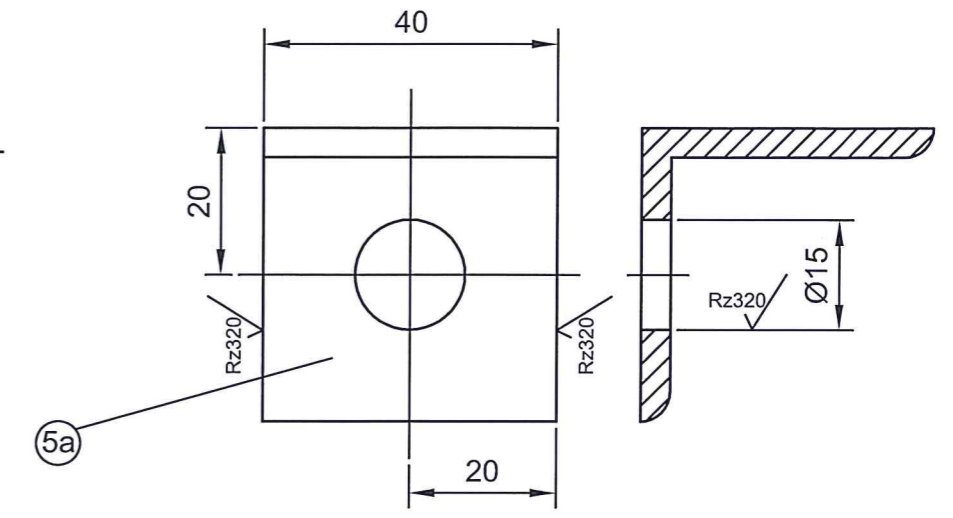
Gde OF Matl	CONTENT OF ELEMENTS %											
	C	Si	Mn	Cr	P	S	Cu	Ni	ARSENIC			
20 GOST 1050-74	0.17 0.24	0.35 0.65	0.17 0.37	MAXIMUM								
				0.25	0.035	0.040	0.25	0.25				

**MECHANICAL PROPERTIES (AS PER CT3 Кп GOST 380-71)**  
ULTIMATE TENSILE STRENGTH Kgf/mm<sup>2</sup> = 37-47  
STRESS AT YIELD POINT OR Kgf/mm<sup>2</sup> = 24 (Min)  
% RELATIVE ELONGATION = 27 (Min)

**MECHANICAL PROPERTIES (AS PER STEEL 20 GOST 1050-74)**  
ULTIMATE TENSILE STRENGTH Kgf/mm<sup>2</sup> = 42 (Min)  
% OF ELONGATION = 25 (Min)  
YIELD POINT Kgf / mm<sup>2</sup> = 25 (Min)  
% REDUCTION IN AREA = 55 (Min)



1. UN-SPECIFIED LIMIT DEVIATIONS OF DIMENSIONS ARE AS FOLLOWS:-  
FOR HOLES AS PER A7, OTHERS AS PER CM7
2. WELD A SEAM ALONG THE PERIMETER BY MANUAL ELECTRIC ARC AND WELDING FOREIGN INCLUSIONS IN THE WELD , CRACKS , BURNS AND OTHER DEFECTS OF WELDING ARE NOT PERMITTED WELD LEG SHOULD BE 4.0 mm.
3. DRESS THE WELDS AFTER WELDING IS OVER.



1. UN-SPECIFIED LIMIT DEVIATIONS OF DIMENSIONS ARE AS FOLLOWS:-  
FOR HOLES AS PER A7  
FOR SHAFTS AS PER B7, OTHERS AS PER CM7
2. THE HOLE MAY BE DRILLED IN THE ASSEMBLY.

**EXPLANATORY NOTE :**  
3. MATERIAL QUOTED : 40X40X4 GOST 8509-72  
Cn 3nc GOST 535-79  
40X40X4 = ROLLED STEEL EQUAL ANGLES AS PER GOST 8509-72  
Cn 3nc = GRADE OF STEEL AS PER GOST 535-79  
Cn = STEEL , 3 = CATEGORY, nc = SEMI KILLED.

a)CHEMICAL COMPOSTION AS PER GOST 380-71

Gde OF Matl	CONTENT OF ELEMENTS %											
	C	Si	Mn	Cr	P	S	Cu	Ni	ARSENIC			
Cn3nc	0.14 0.22	0.05- 0.17	0.40- 0.65	MINIMUM								
				0.30	0.04	0.05	0.30	0.30	0.08			

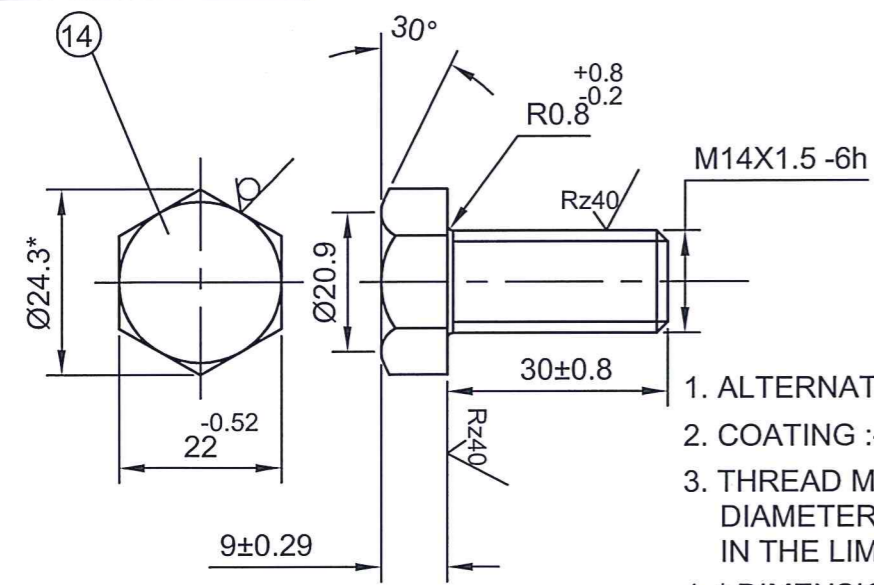
**MECHANICAL PROPERTIES (AS PER GOST 380-71)**  
ULTIMATE TENSILE STRENGTH Kgf/mm<sup>2</sup> = 38-49  
STRESS AT YIELD POINT OR Kgf/mm<sup>2</sup> = 25 (Min)  
% OF RELATIVE ELONGATION = 26 (Min)

ULTIMATE TENSILE STRENGTH Kgf/mm<sup>2</sup> = 38-49  
STRESS AT YIELD POINT OR Kgf/mm<sup>2</sup> = 25 (Min)

5b	PLATE	1	STEEL Cm 3 КП GOST 380-71		20-40-131
5a	ANGLE BRACKET	1	STEEL Cm 3 ПС GOST 535-79		20-40-132
5	BRACE ASSEMBY	2			SB 20-40-128-1
ITEM	DESCRIPTION	QTY.	MATERIAL	SPECN.	REF. DRAWING
GEN. TOL		COMPONENT NO.	OPN. NO.	M / C. NO.	SIGN
0 -	6 ± 0.1	CQA (HV) SK -01		STEEL PACKING BOX FOR UTD-20 ENGINE	DRN. BY
6 -	30 ± 0.1				CKD. BY
30 -	120 ± 0.5				APPD. BY
120 -	400 ± 0.1				AUTHD. BY
400 -	1000 ± 0.8				DRG. NO.
1000 -	2000 ± 1.2				SB 20-40-128-1
2000 -	4000 ± 2.0				SHEET 6 OF 9 SHEETS
SCALE:-		TITLE:			ISSUE
NTS		BRACE ASSEMBLY (UTD -20 ENGINE)			
ENGINE FACTORY, AVADI.					

DRAWING No:-  
10-KS(VH)AOC

BOLT M14X1.5 - 6h (DRAWING No. 556-21)



**EXPLANATORY NOTE :**  
5. MATERIAL QUOTED : 45 GOST 1050-74  
45 = GRADE OF MATERIAL

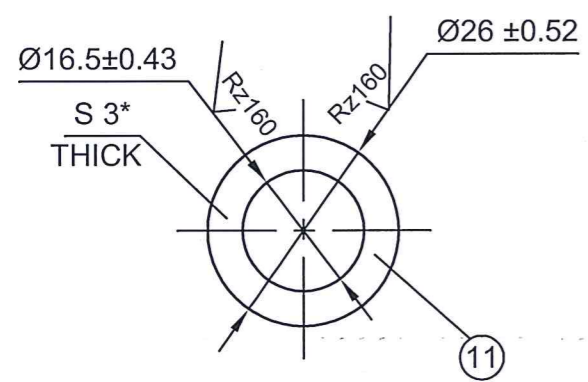
a) CHEMICAL COMPOSITION :

Gde OF Matl	CONTENT OF ELEMENTS %									
	C	Si	Mn	Cr	P	S	Cu	Ni		
45	0.42-0.50	0.17-0.37	0.50-0.80	MAXIMUM						
				0.25	0.025	0.040	0.25	0.25		

1. ALTERNATE MATERIAL IS STEEL 40,50,,GOST 1050-74
2. COATING :- ZINC PLATED , 6 MICRONS THICK, OILED
3. THREAD MAY BE MADE BY ROLLING WITH THE DIAMETER OF THE UNTHREADED PORTION BEING WITH IN THE LIMITS OF THE ANGLE DIAMETER OF THE THREAD
4. \* DIMENSION IS GIVEN FOR REFERENCE

b) MECHANICAL PROPERTIES:

GRADE OF MATL	ULTIMATE TENSILE STRENGTH Kgf/mm <sup>2</sup> (min)	YIELD POINT Kgf/mm <sup>2</sup> (min)	% ELONGATION (min)	REDUCTIONN AREA(min)	IMPACT STRENGTH Kgf/cm <sup>2</sup>
45	61	36	16	40	5



**EXPLANATORY NOTE :**

4. MATERIAL QUOTED : 3 GOST 19904-74  
III -Cm 3 Kn GOST 16523-70  
3 = THICKNESS OF COLD ROLLED SHEET  
3 KΠ = GRADE OF MATERIAL  
III = SUPER FINISH  
Cm = STEEL

a) CHEMICAL COMPOSITION (AS PER GOST 380-71)%

GRADE OF STEEL	CONTENT OF ELEMENTS									
	C	Si	Mn	P	S	Cr	Cu	Ni	As	
Cm3KΠ GOST 380-71	0.14-0.22	0.30-0.60	0.07 (max)	MINIMUM						
				0.04	0.05	0.30	0.30	0.30	0.08	

ULTIMATE TESILE STRENGTH Kgf/mm<sup>2</sup> = 37-47  
STRESS AT YIELD POINT Kgf/mm<sup>2</sup> = 24(min)  
% RELATIVE ELONGATION = 27(min)

1. ALTERNATE MATERIAL IS STEEL 3ΠC GOST 380-71
2. THE PART MAY HAVE THICKNESS OF 2.5 mm.
3. \* DIMENSION IS GIVEN FOR REFERENCE
4. COATING :- ZING PLATED 9 MICRONS THICK OILED.

WASHER - Ø16.5 (DRG.No. Y07-201-44)

**EXPLANATORY NOTE :**

MATERIAL QUOTED : - 22 X 2 GOST 8734-75  
20 GOST 8733-74

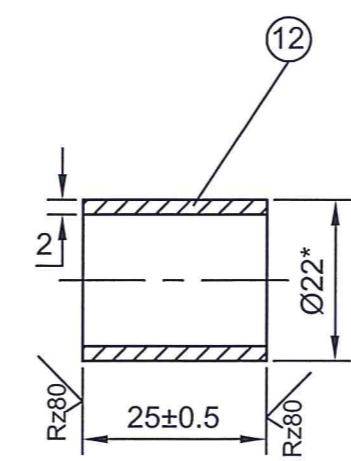
PIPE = 22X2 = SEAMLESS STEEL TUBE COLD DEFORMED  
22mm = OUTER DIA, 2mm WALL THICKNESS TO GOST 8734-75

a) CHEMICAL COMPOSTION (AS PER GOST 1050-74)%

C	Si	Mn	Ni	Cr	S	P	Cu
0.17	0.17	0.35	0.25	0.25	0.040	0.035	0.25
0.24	0.37	0.65	(Max)	(Max)	(Max)	(Max)	(Max)

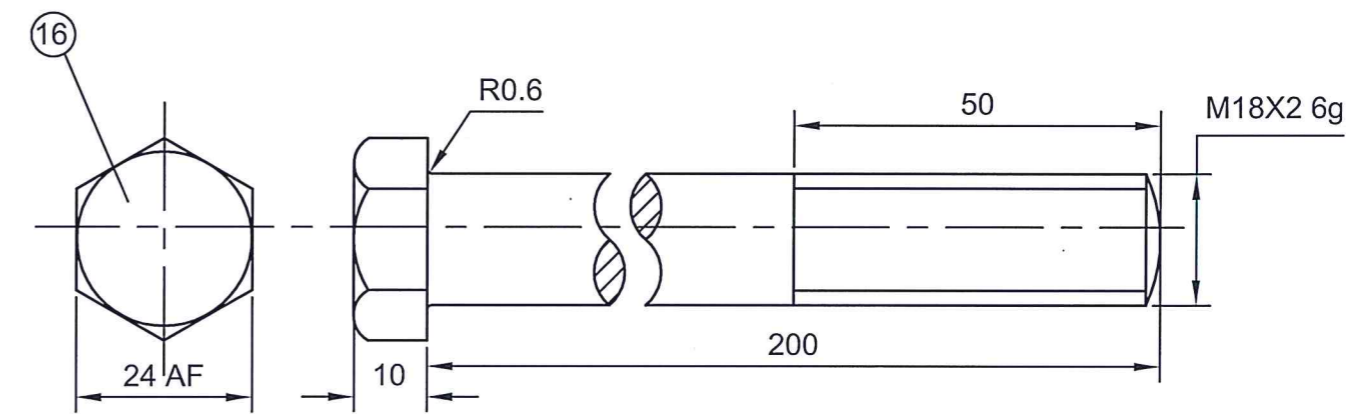
b) MECHANICAL PROPERTIES (AS PER GOST 8733-74)

YIELD POINT Kgf/mm<sup>2</sup> = 25 (min)  
ULTIMATE TENSILE STRENGTH Kgf/mm<sup>2</sup> = 42 (min)  
% ELONGATION = 21 (min)



BUSHING - (20-40-42)

1. ALTRNATE MATERIAL IS STEEL OF ANY GRADE AS PER GOST 1050-74
2. \* DIMENSIONS ARE GIVEN FOR REFERENCE .



CQA(HV)SK-09

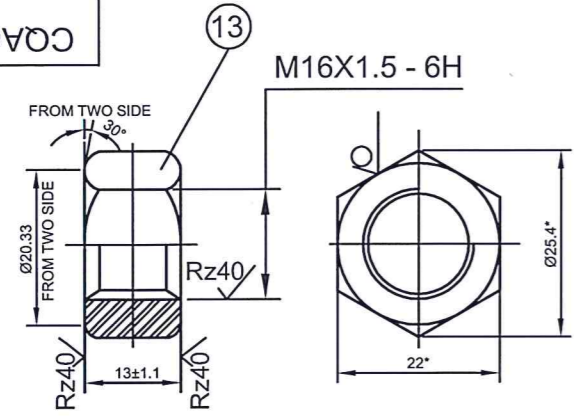
BOLT :-  
IS 1364 ( PART -III) -83

COATING :- ZINC COATING WITH PASSIVATION.  
MATERIAL:-  
BRIGHT BAR GDE 4 TYPE "O" COLD DRAWN TO IS 9550-80

ITEM	DESCRIPTION	QTY.	MATERIAL	SPECN.	REF. DRAWING
16	BOLT M18X2	6	BRIGHT BAR GDE 4 TYPE "O" COLD DRAWN		CQA(HV) SK-09
14	BOLT M14.15	2	STEEL 45 GOST 1050-74		556-21
12	BUSHING	4	STEEL 20 GOST 1050-74		20-40-42
11	WASHER Ø16.5	4	III Cm 3 K Π GOST 16523-70		Y7-201-44

GEN. TOL	COMPONENT NO.	OPN. NO.	M / C. NO.	SIGN	DATE
0 - 6 ± 0.1	CQA (HV) SK -01		STEEL PACKING BOX FOR UTD-20 ENGINE	DRN. BY	11/09/14
6 - 30 ± 0.1				CKD. BY	11/09/14
30 - 120 ± 0.5				APPD. BY	
120 - 400 ± 0.1				AUTHD. BY	
400 - 1000 ± 0.8				DRG. NO.	
1000 - 2000 ± 1.2	TITLE: <b>ASSEMBLY - CONTAINER</b> (UTD -20 ENGINE)			CQA (HV) SK-01	
2000 - 4000 ± 2.0	SCALE:- NTS			SHEET 7 OF 9 SHEETS	
ENGINE FACTORY, AVADI.			ISSUE		

DRAWING No:-  
CQA(HV)SK-01



- \*DIMENSIONS ARE GIVEN FOR REFERENCE.
- COATING : ZINC PLATED 9, MICRONS THICK OILED.

NUT - M16X 1.5 ( DRG.No. Y07-201-47)

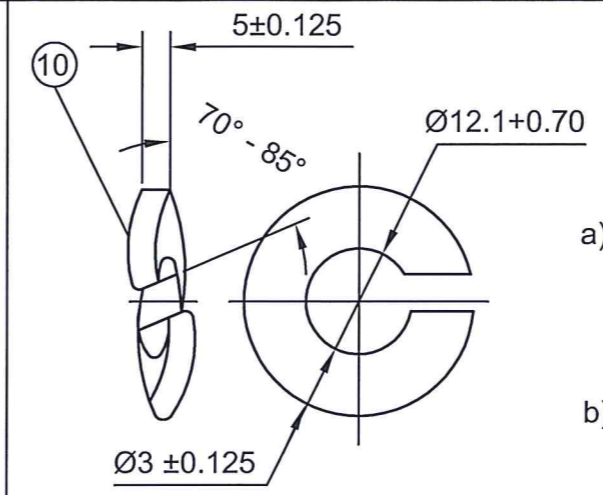
**EXPLANATORY NOTE :** 22-5 GOST 2560-78  
5. MATERIAL QUOTED : 45 GOST 1050-74  
45 = GRADE OF MATERIAL  
22 = WIDTH OF ACROSS FLAT  
5 = CLASS OF ACCURACY

a) CHEMICAL COMPOSITION AS PER GOST 1050-74:

Gde OF Matl	CONTENT OF ELEMENTS %									
	C	Si	Mn	Cr	P	S	Cu	Ni		
45	0.42-0.50	0.17-0.37	0.50-0.80	MAXIMUM						
				0.25	0.035	0.040	0.25	0.25		

b) MECHANICAL PROPERTIES:

Gde OF Matl	ULTIMATE TENSILE STRENGTH Kg/mm <sup>2</sup> (min)	YIELD POINT Kg/mm <sup>2</sup> (min)	% ELONGATION (min)	REDUCTION IN AREA (min)	IMPACT STRENGTH Kg/cm <sup>2</sup>
45	61	36	16	40	5



WASHER Ø12 - ( 553-02-1) (A)

**EXPLANATORY NOTE :**

MATERIAL QUOTED : 65Г 06 GOST 6402-70  
06 = CONVENTIONAL SYMBOL OF FINISH.  
TYPE OF FINISH = PARKERSING FOLLOWED BY OILING  
65Г (65G) = GRADE OF STEEL (GOST 1050-74)

a) CHEMICAL COMPOSITION (AS PER GOST 1050-74)%

C	Si	Mn	Ni	Cr	S	P	Cu
0.62	0.17	0.90	0.25	0.1	0.040	0.035	0.25
0.70	0.37	1.20	(Max)	(Max)	(Max)	(Max)	(Max)

b) MECHANICAL PROPERTIES (AS PER GOST 1050-74)

YIELD POINT Kg/mm<sup>2</sup> = 44 (min)  
ULTIMATE TENSILE STRENGTH Kg/mm<sup>2</sup> = 75 (min)  
% ELONGATION = 9 (min)

EQUIVALENT MATERIAL  
75 C6 TO IS:2507/EN42J BS:970

**EXPLANATORY NOTE :**  
5. MATERIAL QUOTED : Cm 3КП GOST 380-71  
Cm = (CT) = STEEL. КП = RIMMED  
3 = GRADE No AS PER GOST 380-71

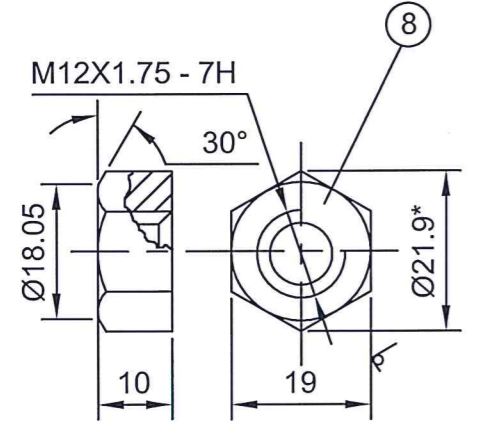
(a) CHEMICAL COMPOSITION %

GRADE OF STEEL	CONTENT OF ELEMENTS										
	C	Si	Mn	P	S	Cr	Ni	Cu	As		
CT3K GOST 380-71	0.14-0.22	0.30-0.60	0.07 (max)	MINIMUM							
				0.04	0.05	0.30	0.30	0.30	0.08		

(b) MECHANICAL PROPERTIES: (AS PER GOST 380-71)

GRADE OF STEEL = CT3 КП  
ULTIMATE STRENGTH Kg/mm<sup>2</sup> = 38 - 49  
STRESS AT YIELD POINT Kg/mm<sup>2</sup> = 23(min)  
% RELATIVE ELONGATION = 23(min)

(A) ALT. MATERIAL:-  
BRIGHT BAR GDE 4 (TYPE 'O') COLD DRAWN TO IS 9550-80  
Ref Spen: IS:1364(PTIII)-83



NUT M12 (DRG.No. 340-09)

- ALTERNATE MATERIAL IS STEEL 10, 15, 20, 25, 35 AND 45 GOST 1050-74 AND STEEL 5, GOST 380-71.
- UNSPECIFIED LIMIT DEVIATIONS OF DIMENSIONS ARE AS FOLLOWS:- FOR SHAFTS - AS PER B7, OTHERS AS PER CM7
- TECHNICAL SPECIFICATIONS ARE AS PER GOST 1759-70.
- COATING :- CADMIUM-PLATED, 9 MICRONS THICK, OILED.
- GREASING WITH ANY MINERAL OIL IS PERMITTED INSTEAD OF COATING
- \*DIMENSION IS GIVEN FOR REFERENCE.

**EXPLANATORY NOTE :**

MATERIAL QUOTED : 14 -N 65Г 06 GOST 6402-70  
14 = INTERNAL DIAMETER OF WASHER  
N = MEDIUM WASHER, WIDTH = 3.5 ±0.125  
06 = CONVENTIONAL SYMBOL OF FINISH.  
TYPE OF FINISH = PARKERISING FOLLOWED BY OILING  
65Г (65G) = GRADE OF STEEL (GOST 1050-74)

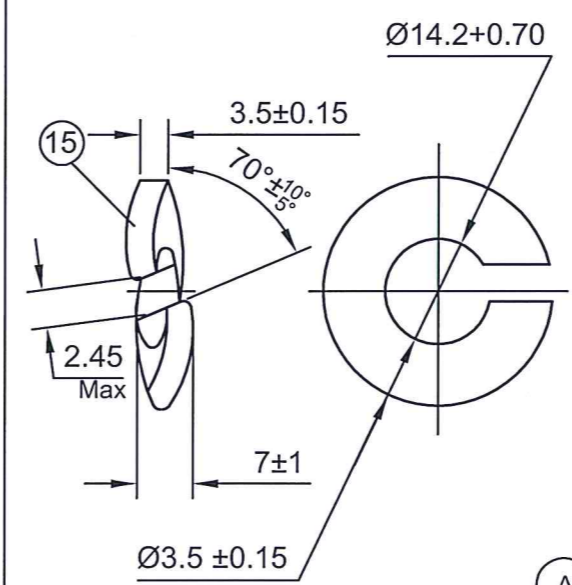
a) CHEMICAL COMPOSITION (AS PER GOST 1050-74)%

C	Si	Mn	Ni	Cr	S	P	Cu
0.62	0.17	0.90	0.25	0.25	0.040	0.035	0.25
0.70	0.37	1.20	(Max)	(Max)	(Max)	(Max)	(Max)

b) MECHANICAL PROPERTIES (AS PER GRADE 65Г GOST 1050-74)

YIELD POINT Kg/mm<sup>2</sup> = 44 (min)  
ULTIMATE TENSILE STRENGTH Kg/mm<sup>2</sup> = 75 (min)  
% ELONGATION = 9 (min)

EQUIVALENT MATERIAL  
75 C6 TO IS:2507/EN42J BS:970



COATING : CHEMICAL OXIDIZING, OIL FINISHING  
SPRING WASHER - ( 353-28) (A)

ITEM	DESCRIPTION	QTY.	MATERIAL	SPECN.	REF. DRAWING
15	WASHER - M14 - H	2	75 C6 TO IS 2507- EN42J TO BS 970		353-28
13	NUT - M16X1.5 -6H	4	STEEL 45 GOST 1050-74		Y07-201-47
10	WASHER Ø112	4	75 C6 TO IS 2507- EN42J TO BS 970		553-02-1
9	WASHER	4	III Cm 3 K П GOST 16523-70		540-34
8	NUT - M12	4	BRIGHT BAR GDE 4 TYPE "O" COLD DRAWN		340-09

GEN. TOL	COMPONENT NO.	OPN. NO.	M / C. NO.	SIGN	DATE
0 - 6 ± 0.1	CQA (HV) SK -01		STEEL PACKING BOX FOR UTD-20 ENGINE	DRN. BY	11/09/12
6 - 30 ± 0.1				CKD. BY	11/09/12
30 - 120 ± 0.5				APPD. BY	
120 - 400 ± 0.1				AUTHD. BY	
400 - 1000 ± 0.8				DRG. NO.	
1000 - 2000 ± 1.2	ASSEMBLY - CONTAINER			CQA (HV) SK-01	
2000 - 4000 ± 2.0	(UTD -20 ENGINE)			SHEET 8 OF 9 SHEETS	
SCALE:- NTS					
ENGINE FACTORY, AVADI.					
ISSUE					

**EXPLANATORY NOTE :**

4. MATERIAL QUOTED : 3 GOST 19904-74  
III -Cm 3 Kn GOST 16523-70  
3 = THICKNESS OF COLD ROLLED SHEET  
3 КП = GRADE OF MATERIAL  
III = SUPER FINISH  
Cm = STEEL

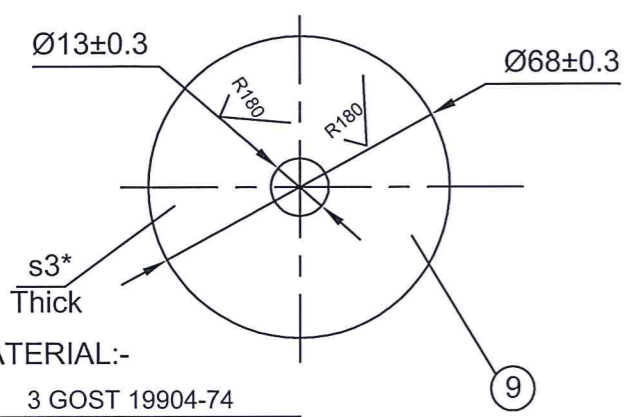
a) CHEMICAL COMPOSITION (AS PER GOST 380-71)%

GRADE OF STEEL	CONTENT OF ELEMENTS										
	C	Si	Mn	Cr	P	S	Cu	Ni	As		
Cm3KП GOST 380-71	0.14-0.22	0.30-0.60	0.07 (max)	MINIMUM							
				0.30	0.04	0.05	0.30	0.30	0.08		

MECHANICAL PROPERTIES (AS PER GOST 380-71)

ULTIMATE TENSILE STRENGTH Kg/mm<sup>2</sup> = 37-47  
STRESS AT YIELD POINT Kg/mm<sup>2</sup> = 24(min)  
% RELATIVE ELONGATION = 27(min)

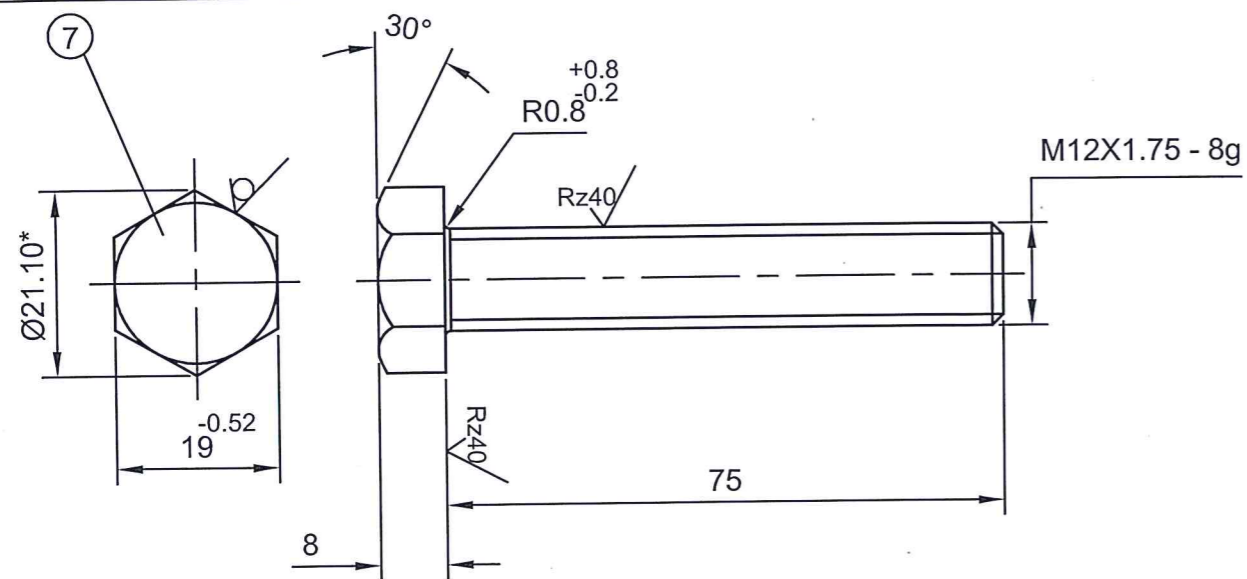
WASHER  
DRG.No. 540-34



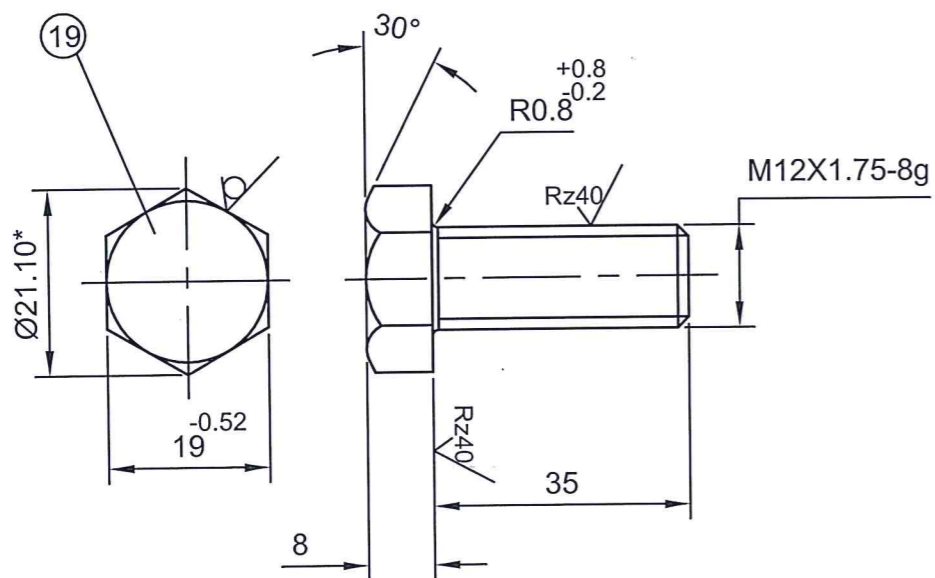
MATERIAL:-  
3 GOST 19904-74  
III -Cm 3 Kn GOST 16523-70

- GREASE WITH ANY MINERAL OIL,
- \*DIMENSION IS GIVEN FOR REFERENCE
- ALTERNATE MATERIAL IS STEEL 08, 10, 15, GOST 1050-74 AND 3nc, GOST 380-71

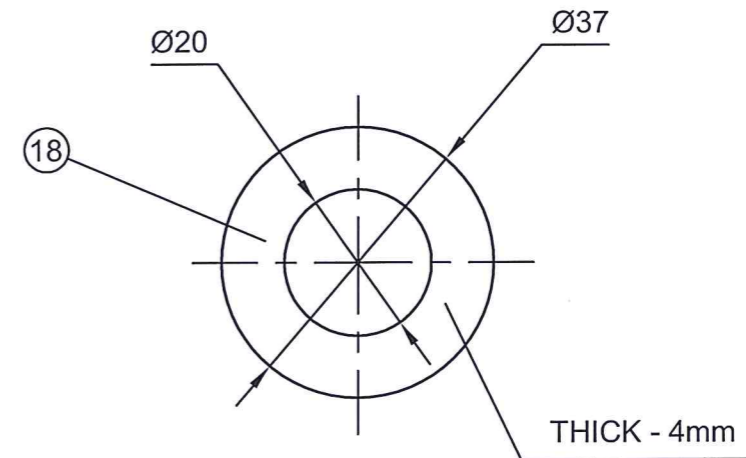
DRAWING No:-  
CQA(HV)SK-01



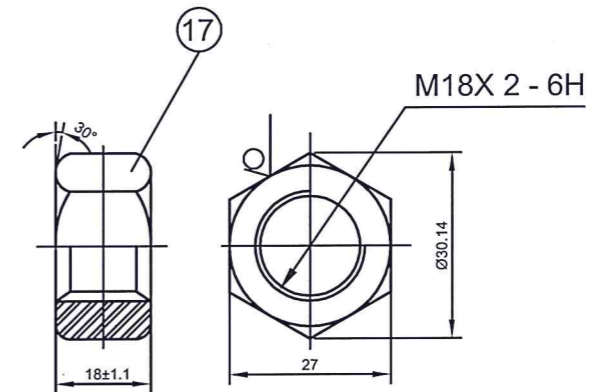
MATERIAL : - BRIGHT BAR GRADE -4 (TYPE "O") COLD DRAWN TO IS:- 9550-80  
COATING : - ZINC COATING WITH PASSIVATION.  
BOLT :- M12X1.75-8g Length =75  
IS 1364 ( PART -II) -83



MATERIAL : - BRIGHT BAR GRADE -4 (TYPE "O") COLD DRAWN TO IS:- 9550-80  
COATING : - ZINC COATING WITH PASSIVATION.  
BOLT :- M12 X 1.75 -8g Length 35  
IS 1364 ( PART -II) -83



MATERIAL : - STEEL SHEET GRADE "O" (1/2 HARD) TO IS:- 513 -86  
COATING : - ZINC COATING WITH PASSIVATION.  
PUNCHED WASHER - A20  
IS 2016-67



MATERIAL : - BRIGHT BAR GRADE -4 (TYPE "O") COLD DRAWN TO IS:- 9550-80  
COATING : - ZINC COATING WITH PASSIVATION.  
NUT - M18 X2 - 6H  
IS 1364 ( PART -III) -83

19	BOLT M12X1.75 -8g	2	BRIGHT BAR GDE-4 (TYPE"O") COLD DRAWN TO IS : 9550-80
18	PUNCHED WASHER-A20	12	STEEL SHEET GRADE "O" (1/2 HARD) TO IS 523-86 WASHER - IS 2016-67
17	NUT M18 X 2 -6H	12	BRIGHT BAR GDE-4 (TYPE"O") COLD DRAWN TO IS : 9550-80
7	BOLT M12 X 1.75 -8g	2	BRIGHT BAR GDE-4 (TYPE"O") COLD DRAWN TO IS : 9550-80

ITEM	DESCRIPTION	QTY.	MATERIAL	SPECN.	REF. DRAWING
GEN. TOL		COMPONENT NO.	OPN. NO.	M / C. NO.	SIGN
0 -	6 ± 0.1	CQA (HV) SK -01		STEEL PACKING BOX FOR UTD-20 ENGINE	DRN. BY
6 -	30 ± 0.1				CKD. BY
30 -	120 ± 0.5				APPD. BY
120 -	400 ± 0.1				AUTHD. BY
400 -	1000 ± 0.8				DRG. NO.
1000 -	2000 ± 1.2				
2000 -	4000 ± 2.0				
SCALE:-		TITLE:			
NTS		ASSEMBLY - CONTAINER			
		(UTD -20 ENGINE)			
		ENGINE FACTORY, AVADI.			
		SHEET 9 OF 9 SHEETS			
		ISSUE			