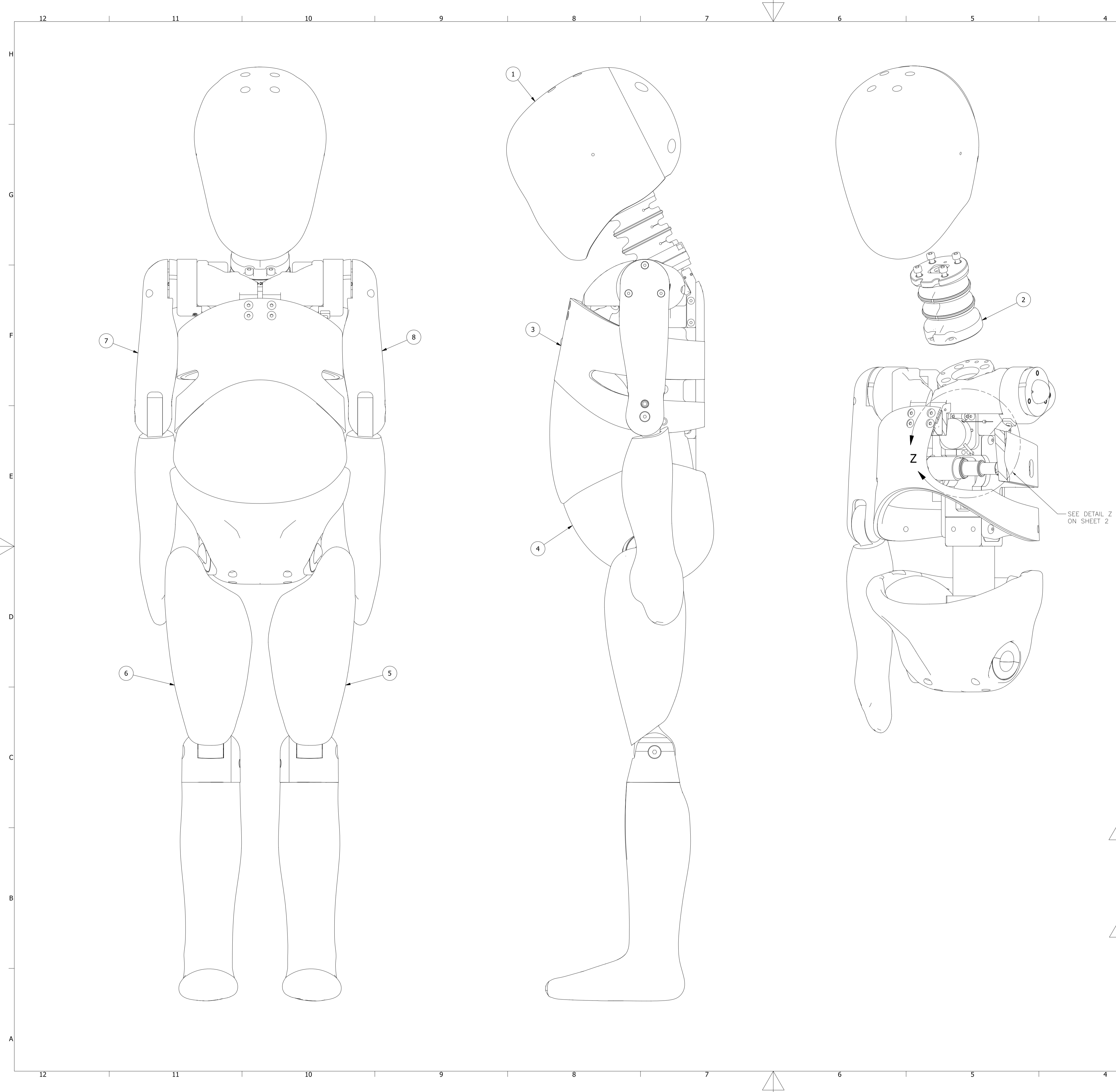


Drawings and Specifications for
Q3S Three-Year-Old Child Side Impact Dummy
Part 572 Subpart W

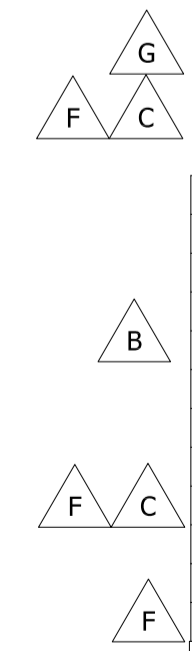


January 2021

Prepared by:
OFFICE OF CRASHWORTHINESS STANDARDS
and
VEHICLE RESEARCH and TEST CENTER
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

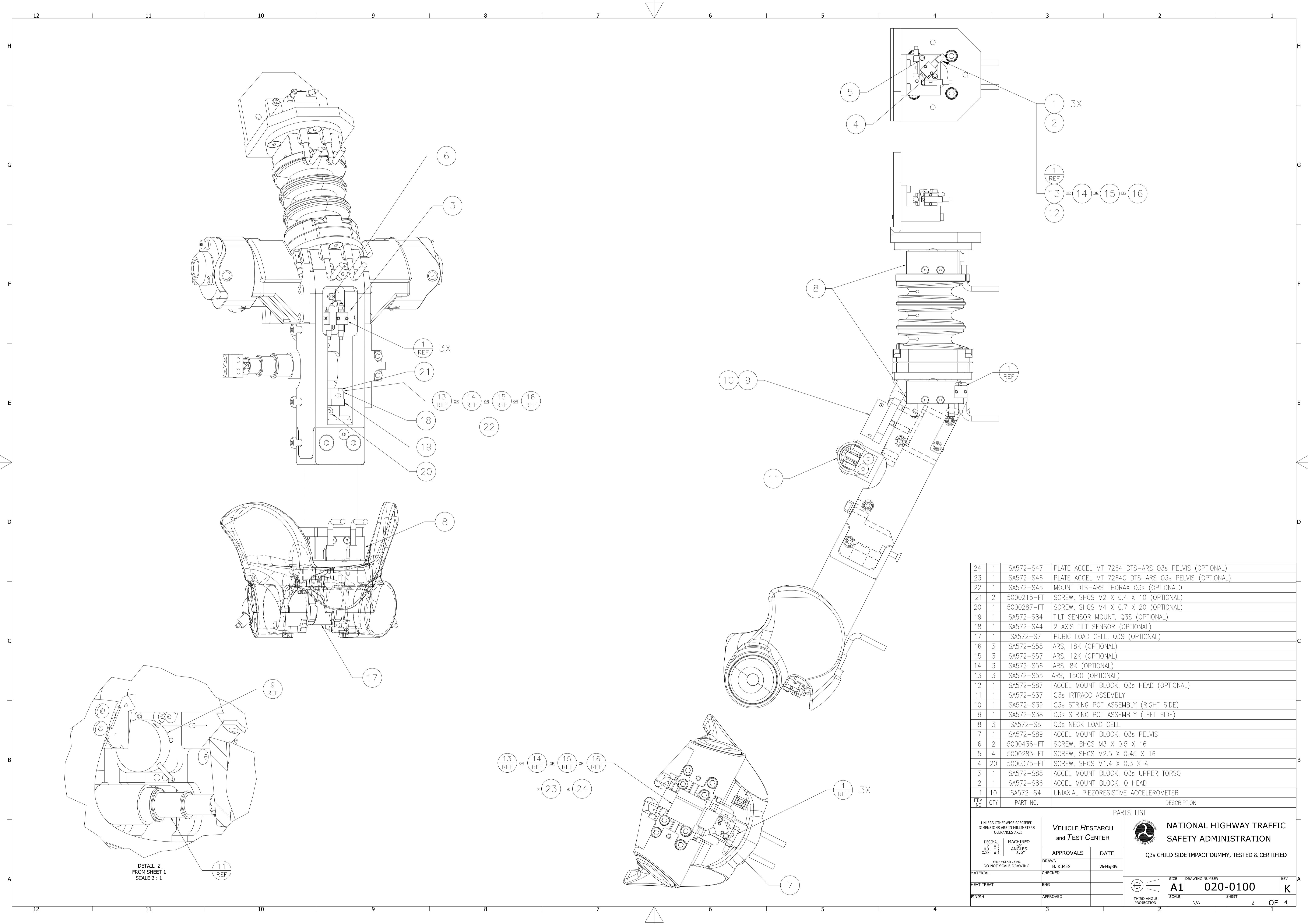


REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENGR.	DATE
	A	RELEASE TO PRODUCTION	BK		4/05/06
75688	B	ADD 020-3549, 5000410; UPDATE VIEWS TO SBL C	BK		7/03/07
77433	C	020-2400 WAS 020-2300; IF-369 WAS IF-362; UPDATE TO SBL D	BK		12/21/10
70760	D	UPDATE VIEWS TO SHOW NEW LOWER LEG; 020-9120 WAS 020-9102 & 020-9220 WAS 020-9202 ON SHEET 2	JPM		1/22/13
71757	E	SHEET 2: ADDED (REFERENCE VALUE) TO HEAD CG LOCATION TABLE; SHEET 3: SCALE N/A WAS 1.000, BRACKET, TOP LUMBAR SPINE WAS LUMBAR SPINE TOP LATE; SHEET 4: UPDATE EXTERNAL DIMENSIONS TABLE, UPDATE SIDE & FRONT VIEW & ADDED STATURE VIEW; SHEET 2 & 4: SCALE N/A WAS 0.500	MGT		7/7/14
73485	F	REDRAWN IN INVENTOR; REMOVED 020-2007, 5000096, 5000002, 5000003, 9003058, 5000010, 020-3539, 020-3549 & 5000410 FROM PART LIST; ADDED 020-4000 TO PART LIST; IF-369-R2 WAS IF-369; RE-NUMBER & UPDATE PART LIST; REMOVE SBL SHEET #3; SHEET #3 WAS SHEET #2; SHEET #3: UPDATE ALL "PARTS GROUPING FOR WEIGHT AND C.G." TABLES; SHEET #2: BECOMES SENSOR REFERENCE DRAWING	AB		02/10/15
73564	G	ADDED 020-2400_ToolKit TO PARTS LIST	SB		7/29/15
74650	H	SHEET 2: (020-1006 HEAD BRACKET) WAS 020-1006 HEAD BRACKET; (020-1013A INSTRUMENTATION BRACKET ASSY) WAS 020-1013A INSTRUMENTATION BRACKET ASSY; ADDED (IES-1402 DUAL AXIS TILT SENSOR)	AB		01/07/16
74650	J	REGULATION RELEASE - MOVED DETAIL Z TO SHT 2, REDREW SHT 2, REVISED INSTRUMENTATION PART NUMBERS ON SHT 3, REVISED SEGMENT MASSES ON SHT 3, REVISED EXTERNAL DIMENSIONS ON SHT 4	AB/JHC		01/14/16
NHTSA-2020-0088-0009	K	REVISED 020-6000S LUMBAR SPINE ASSEMBLY	JHC		01/20/21



ITEM	QTY	PART NUMBER	DESCRIPTION
10	1	020-2400_toolkit	TOOLKIT (NOT SHOWN)
9	1	020-8001	SUIT, Q3s (NOT SHOWN)
8	1	020-9700	LEFT ARM ASSEMBLY, Q3s
7	1	020-9800	RIGHT ARM ASSEMBLY, Q3s
6	1	020-9600	RIGHT LEG ASSEMBLY, Q3s
5	1	020-9500	LEFT LEG ASSEMBLY, Q3s
4	1	020-4000	LOWER TORSO ASSEMBLY, Q3s
3	1	020-4500	UPPER TORSO ASSEMBLY
2	1	020-2400	NECK ASSEMBLY
1	1	020-1200	Q3s HEAD ASSEMBLY, TESTED & CERTIFIED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER 		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION 	
DECIMAL: X.X ±.2	MACHINED X.XX ±.1				
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		DRAWN: B. KIMES CHECKED:		Q3s CHILD SIDE IMPACT DUMMY, TESTED & CERTIFIED DATE: 26-May-05	
HEAT TREAT		ENG		SIZE: A1 DRAWING NUMBER: 020-0100 SCALE: N/A SHEET: 1 OF 4 REV: K	
FINISH		APPROVED		THIRD ANGLE PROJECTION	



ITEM NO.	QTY	PART NO.	DESCRIPTION
24	1	SA572-S47	PLATE ACCEL MT 7264 DTS-ARS Q3s PELVIS (OPTIONAL)
23	1	SA572-S46	PLATE ACCEL MT 7264C DTS-ARS Q3s PELVIS (OPTIONAL)
22	1	SA572-S45	MOUNT DTS-ARS THORAX Q3s (OPTIONAL)
21	2	5000215-FT	SCREW, SHCS M2 X 0.4 X 10 (OPTIONAL)
20	1	5000287-FT	SCREW, SHCS M4 X 0.7 X 20 (OPTIONAL)
19	1	SA572-S84	TILT SENSOR MOUNT, Q3S (OPTIONAL)
18	1	SA572-S44	2 AXIS TILT SENSOR (OPTIONAL)
17	1	SA572-S7	PUBIC LOAD CELL, Q3S (OPTIONAL)
16	3	SA572-S58	ARS, 18K (OPTIONAL)
15	3	SA572-S57	ARS, 12K (OPTIONAL)
14	3	SA572-S56	ARS, 8K (OPTIONAL)
13	3	SA572-S55	ARS, 1500 (OPTIONAL)
12	1	SA572-S87	ACCEL MOUNT BLOCK, Q3s HEAD (OPTIONAL)
11	1	SA572-S37	Q3s IRTACC ASSEMBLY
10	1	SA572-S39	Q3s STRING POT ASSEMBLY (RIGHT SIDE)
9	1	SA572-S38	Q3s STRING POT ASSEMBLY (LEFT SIDE)
8	3	SA572-S8	Q3s NECK LOAD CELL
7	1	SA572-S89	ACCEL MOUNT BLOCK, Q3s PELVIS
6	2	5000436-FT	SCREW, BHCS M3 X 0.5 X 16
5	4	5000283-FT	SCREW, SHCS M2.5 X 0.45 X 16
4	20	5000375-FT	SCREW, SHCS M1.4 X 0.3 X 4
3	1	SA572-S88	ACCEL MOUNT BLOCK, Q3s UPPER TORSO
2	1	SA572-S86	ACCEL MOUNT BLOCK, Q HEAD
1	10	SA572-S4	UNIAXIAL PIEZORESISTIVE ACCELEROMETER

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL: X.X ±.2 X.XX ±.1	MACHINED ANGLES ±.5°	APPROVALS	DATE	Q3s CHILD SIDE IMPACT DUMMY, TESTED & CERTIFIED	
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		B. KIMES	26-May-05	DRAWN B. KIMES	
MATERIAL	CHECKED	ENG	APPROVED	SIZE A1	
HEAT TREAT	FINISH	THIRD ANGLE PROJECTION		DRAWING NUMBER 020-0100	
				SHEET 2 OF 4	

DETAIL Z
FROM SHEET 1
SCALE 2:1

F PARTS GROUPING FOR WEIGHT AND C.G.

HEAD ASSEMBLY 020-1200 + ACCELS	P.N.	QTY
FRONT SKULL ASSEMBLY, Q3s	020-1220	1
REAR SKULL CAP ASSEMBLY	020-1025	1
M5 X 0.8 X 12 LG. BHCS	5000654	4
INSTRUMENTATION BRACKET ASSEMBLY	020-1013A	1
LOAD CELL STRUCTURAL REPLACEMENT	020-2007	1
M5 X 0.8 X 12 LG. FHCS	5000096	4
ACCEL MOUNT BLOCK Q HEAD 7264-2000*	020-1017*	1
M2.5 X 0.45 X 16 LG. SHCS*	5000069*	2
M1.4 X 0.3 X 3 LG. SHCS*	5000068*	6
UNIAXIAL ACCELEROMETER*	SA572-54*	3

* ACCELS & MOUNTING HARDWARE ARE REFERENCE ITEMS. ACCELS MUST BE DUMMIES OR DISCARDS WITHOUT CABLES.

NECK ASSEMBLY 020-2400	P.N.	QTY
MOLDED NECK	020-2401	1
THRUST BEARING WASHER, .032" THK	9003280	2
BEARING, THRUST, 15/16" OD X 1/2" ID	9003279	1
TENSION CABLE ASSEMBLY	020-2415	1
M5 X 0.8 X 10 LG. SHCS	5000291	4
CABLE ADJUST NUT	020-2421	1
CABLE LOCK NUT	020-2426	1
PROTECTIVE SNAP CAP	020-2423	1

UPPER TORSO ASSEMBLY 020-4500 + ACCELS, STRING POT, ITRACC	P.N.	QTY
THORACIC SPINE	020-4001	1
LOAD CELL STRUCTURAL REPLACEMENT	020-2007	1
NECK/TORSO INTERFACE PLATE	020-2017	1
RIB CAGE ASSEMBLY, Q3s, TESTED/CERTIFIED	020-4018	1
M5 X 0.8 X 10 LG. BHCS	5000003	4
M5 X 0.8 X 12 LG. FHCS	5000096	4
M5 X 0.8 X 12 LG. SHCS	5000002	6
BRACKET 1, ITRACC	020-4505	1
M5 X 0.8 X 20 LG. SHCS	5000371	2
BRACKET 2, ITRACC	020-4502	1
CONE SPACER	020-4507	4
ROD END MOUNT, BASE END	020-4508	1
SHOULDER SCREW (#4-40 1/8 X 1/2), MODIFIED	020-4506	2
M2 X 0.4 X 6 LG. SHCS	5000082	1
MOLDED SHOULDER ASSY, LEFT	020-3510	1
MOLDED SHOULDER ASSY, RIGHT	020-3520	1
M4 X 0.7 X 10 LG. BHCS SS	5000010	14
ACCELEROMETER ADAPTOR ASSEMBLY	020-4515	1
M4 X 0.7 X 16 LG. BHCS	5000153	2
M5 X 0.8 X 12 LG. BHCS	5000654	4
Q3S SHOULDER CUP, RIGHT	020-3535	1
Q3S SHOULDER CUP, LEFT	020-3534	1
M5 X 0.8 X 10 LG. FHCS	5000084	6
SHAFT, SHOULDER	020-3536	2
M5 X 0.8 X 16 LG. SHCS	5000020	2
BALL, SHOULDER	020-3537	2
ROLL PIN, M3 X 20	5000188	2
SHOULDER BALL RETAINER RING	020-3533	2
CABLE GUIDE	020-4412	1
M4 X 0.7 X 16 LG. FHCS	5000447	2
BRACKET, ITRACC	020-4503	1
M4 X 0.7 X 8 LG. FHCS	5000646	2
CLAMP, NYLON LOOP	9005135	1
M4 X 0.7 X 16 LG. SHCS	5000025	1
RETAINER, POT STRING	020-3549	1
M3 X 0.5 X 8 LG. BHCS	5000410	1
BRACKET ASSY, SHOULDER STRING POT	020-3539	1
WASHER FLAT #8 (.15 I.D. X .31 O.D. X .062) VITON	9003058	6
M5 X 0.8 X 10 LG. SHCS	5000291	4
TRANSDUCER MOUNTING BLOCK, UPPER TORSO**	SA572-588**	1
M3 X 0.5 X 10 LG. SHCS**	5000119**	4
M1.4 X 0.3 X 3 LG. SHCS**	5000068**	12
UNIAXIAL ACCELEROMETER**	SA572-54**	6
STRING POT ASSEMBLY, LEFT**	SA572-538**	1
ITRACC DISPLACEMENT SENSOR**	SA572-537**	1

** ACCELS & MOUNTING HARDWARE ARE REFERENCE ITEMS. ACCELS MUST BE DUMMIES OR DISCARDS WITHOUT CABLES.

LOWER TORSO ASSEMBLY 020-4000 + ACCELS	P.N.	QTY
LUMBAR SPINE ASSEMBLY, TESTED AND CERTIFIED	020-6000-S	1
SCREW, LUMBAR SPINE MOUNTING	020-9902	2
LOAD CELL STRUCTURAL REPLACEMENT	020-2007	1
M5 X 0.8 X 12 LG. SHCS	5000002	4
M5 X 0.8 X 12 LG. FHCS	5000096	4
PELVIS ASSEMBLY, Q3s	020-5000	1
ABDOMEN	020-5000	1
TRANSDUCER MOUNTING BLOCK, PELVIS***	SA572-S89***	1
M2.5 X 0.45 X 16 LG. SHCS***	5000069***	2
M1.4 X .03 X 3 LG. SHCS***	5000068***	6
UNIAXIAL ACCELEROMETER***	SA572-S4***	3

*** ACCELS & MOUNTING HARDWARE ARE REFERENCE ITEMS. ACCELS MUST BE DUMMIES OR DISCARDS WITHOUT CABLES.

LEFT UPPER ARM	P.N.	QTY
UPPER ARM MOLDED, LEFT, Q3s	020-9750	1
STOP SCREW	020-9901	1
M8 X 1.25 X 12 LG. SSSNP	5000725	1
SHOULDER SCREW, MODIFIED, ELBOW, Q3s	020-9913	1

LEFT LOWER ARM	P.N.	QTY
LOWER ARM ASSEMBLY, LEFT, Q3s	020-9730	1

RIGHT UPPER ARM	P.N.	QTY
UPPER ARM MOLDED, RIGHT, Q3s	020-9850	1
STOP SCREW	020-9901	1
M8 X 1.25 X 12 LG. SSSNP	5000725	1
SHOULDER SCREW, MODIFIED, ELBOW, Q3s	020-9913	1

RIGHT LOWER ARM	P.N.	QTY
LOWER ARM ASSEMBLY, RIGHT, Q3s	020-9830	1

LEFT UPPER LEG	P.N.	QTY
UPPER LEG MOLDED, LEFT, Q3s	020-9516	1

LEFT LOWER LEG	P.N.	QTY
LOWER LEFT LEG ASSEMBLY	020-9120	1
STOP SCREW	020-9901	1
SHOULDER SCREW, KNEE	020-9908	1


RIGHT UPPER LEG	P.N.	QTY
UPPER LEG MOLDED, RIGHT, Q3s	020-9616	1

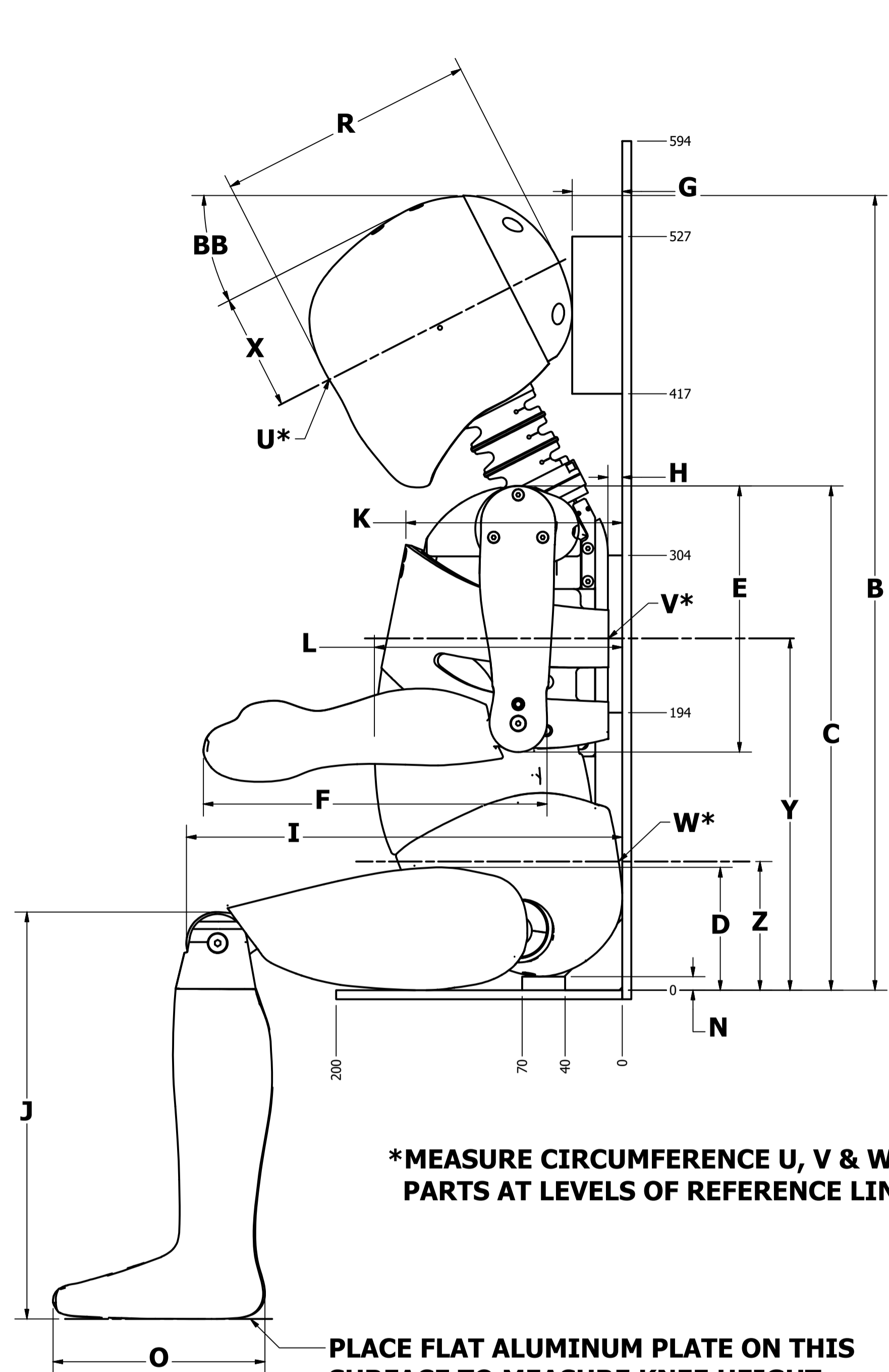
RIGHT LOWER LEG	P.N.	QTY
LOWER RIGHT LEG ASSEMBLY	020-9220	1
STOP SCREW	020-9901	1
SHOULDER SCREW, KNEE	020-9908	1

SUIT	P.N.	QTY
SUIT, Q3s	020-8001	1

ASSEMBLY WEIGHTS (kg)		
SEGMENT ASSEMBLY	TOLERANCE	WEIGHT
HEAD	.100	2.810
NECK	.025	.334
UPPER TORSO	.100	2.289
LOWER TORSO	.100	3.847
UPPER LEGS (LEFT OR RIGHT)	.050	1.000
LOWER LEGS (LEFT OR RIGHT)	.025	.769
UPPER ARMS (LEFT OR RIGHT)	.025	.324
LOWER ARMS (LEFT OR RIGHT)	.025	.376
SUIT	.150	.333
TOTAL	.750	14.500

HEAD CG LOCATION (REF 020-1200)		
AXIS	TOLERANCE	SPEC (mm)
X AXIS	±2 MM	8.0
Z AXIS	±2 MM	48.5

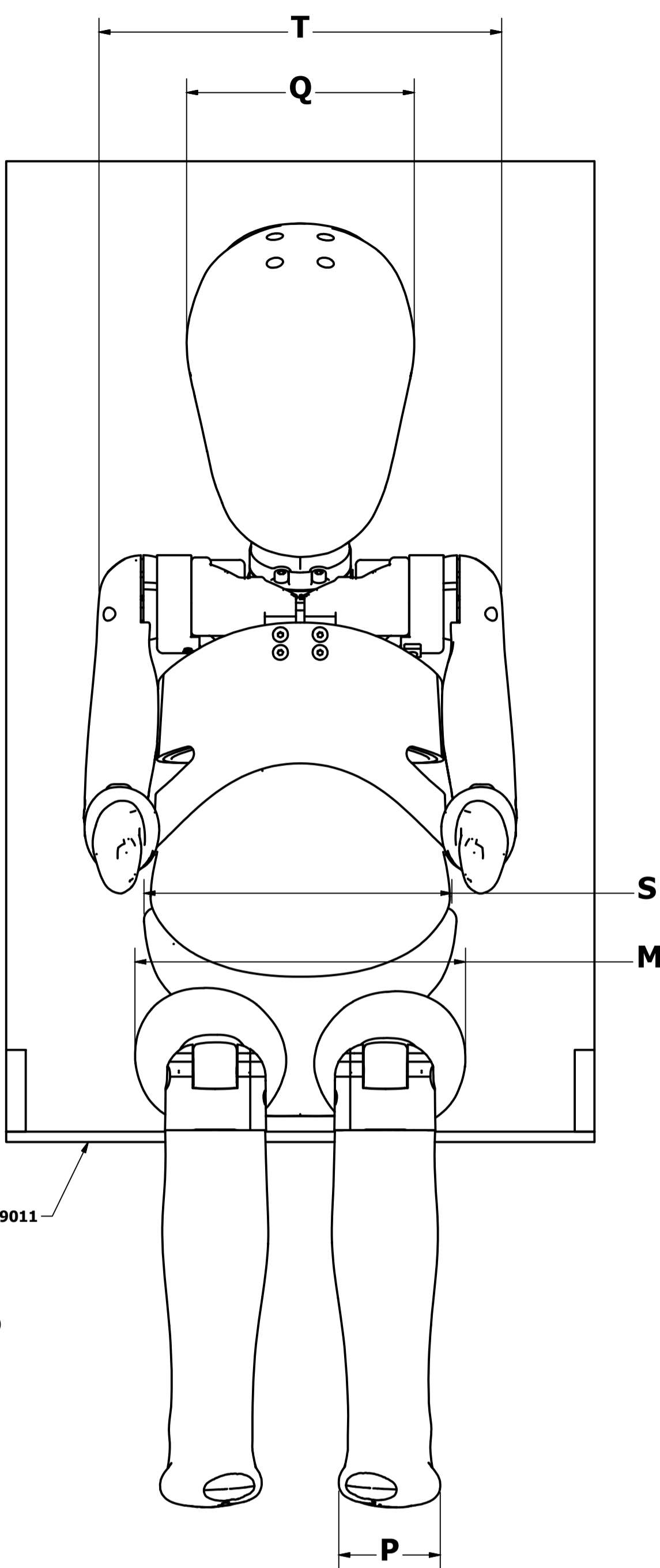
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X.X ±.2 X.X ±.1 MACHINED ANGLES: ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION Q3s CHILD SIDE IMPACT DUMMY, TESTED & CERTIFIED
	APPROVALS	DATE	
MATERIAL	CHECKED	ENG	DRAWN: B. KIMES CHECKED: 26-May-05
HEAT TREAT	ENG	APPROVED	SIZE: A1 DRAWING NUMBER: 020-0100 SCALE: N/A SHEET: 3 OF 4
FINISH	APPROVED		THIRD ANGLE PROJECTION REV: K



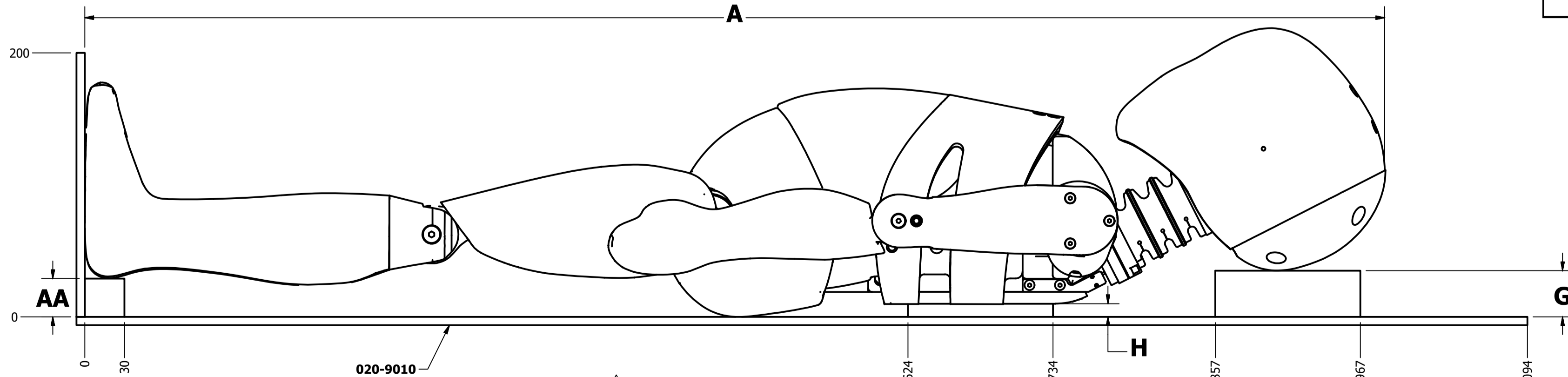
***MEASURE CIRCUMFERENCE U, V & W AROUND PARTS AT LEVELS OF REFERENCE LINES.**

PLACE FLAT ALUMINUM PLATE ON THIS SURFACE TO MEASURE KNEE HEIGHT.

SIDE VIEW $\triangle E$



FRONT VIEW $\triangle E$



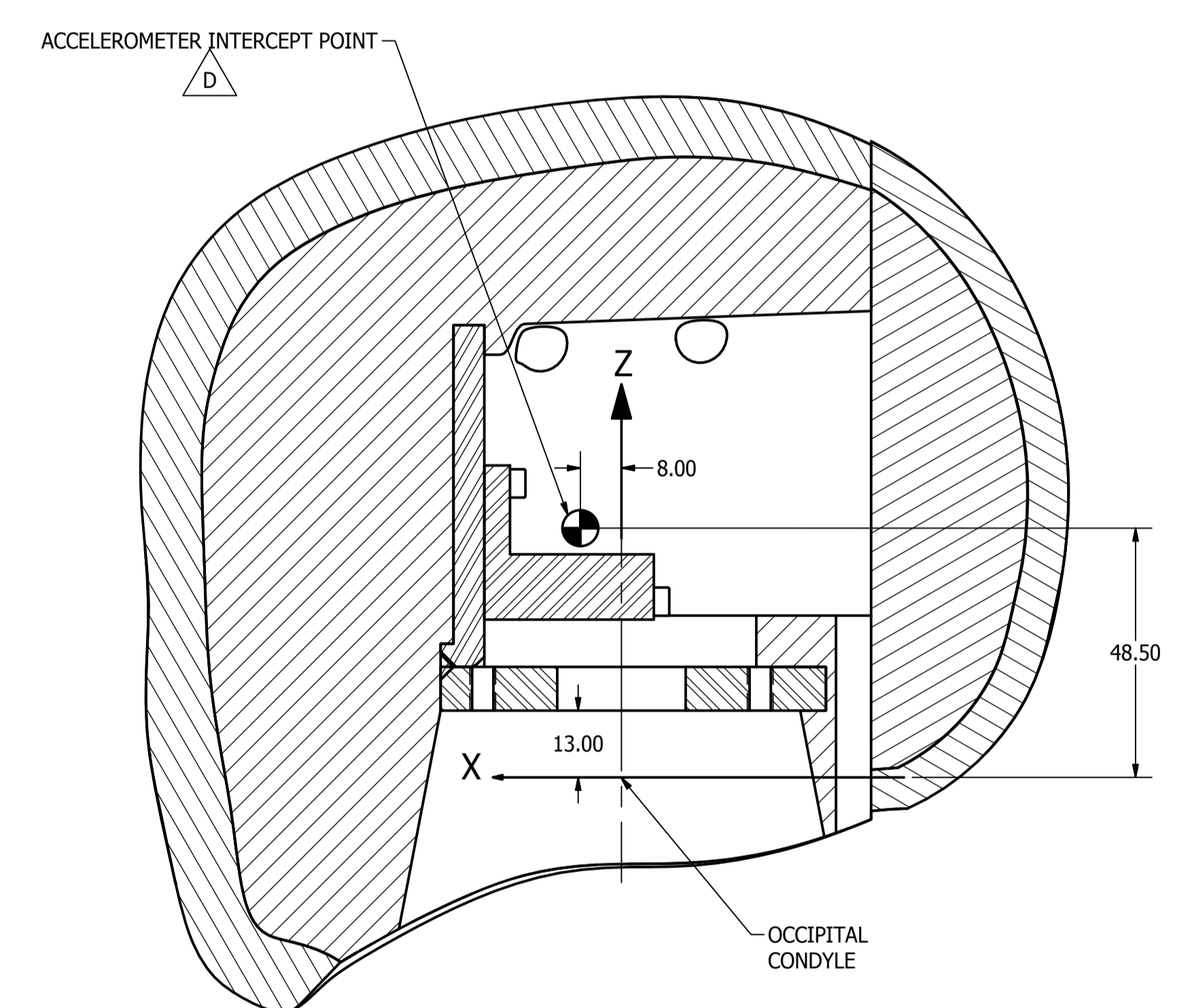
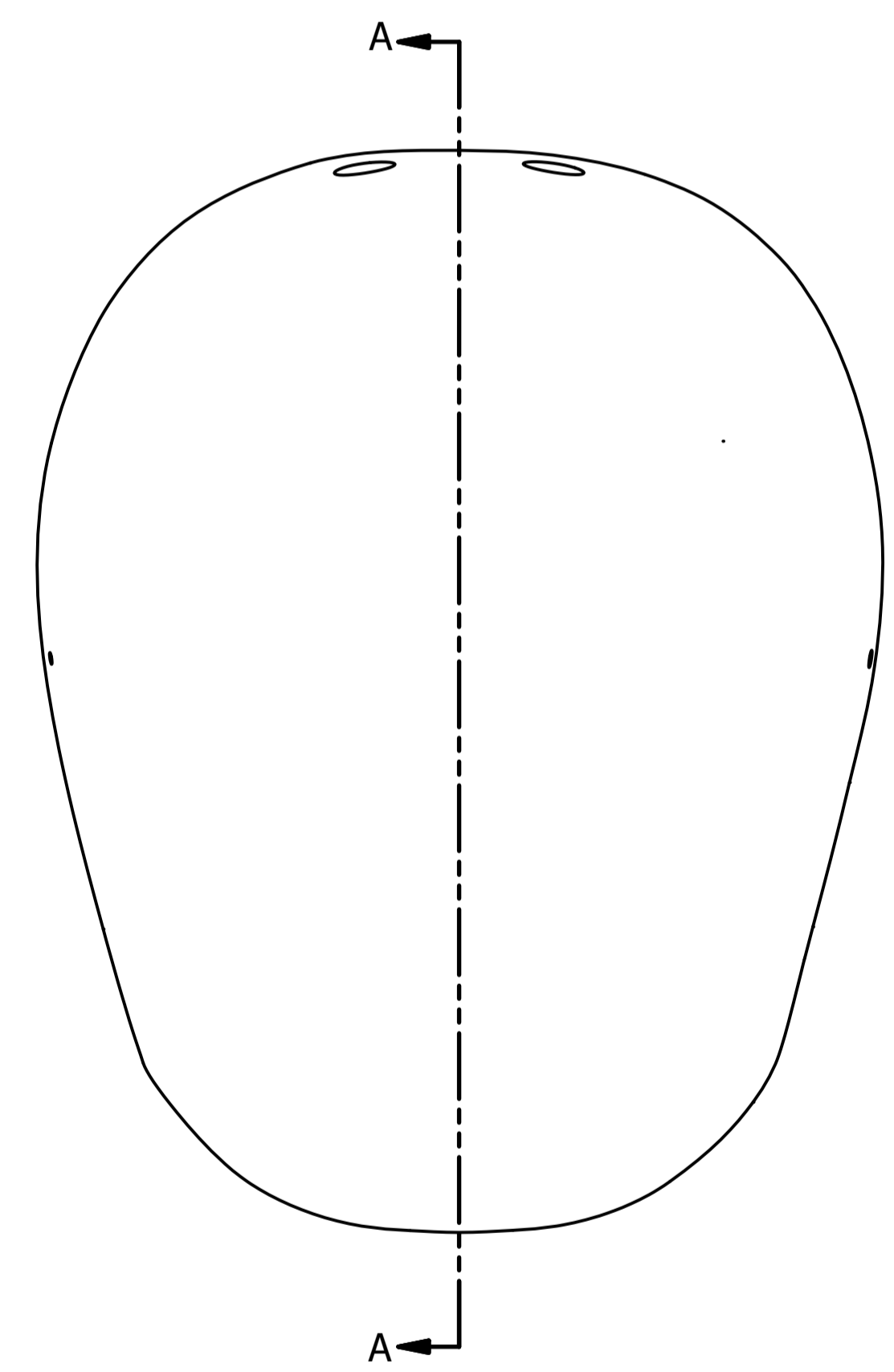
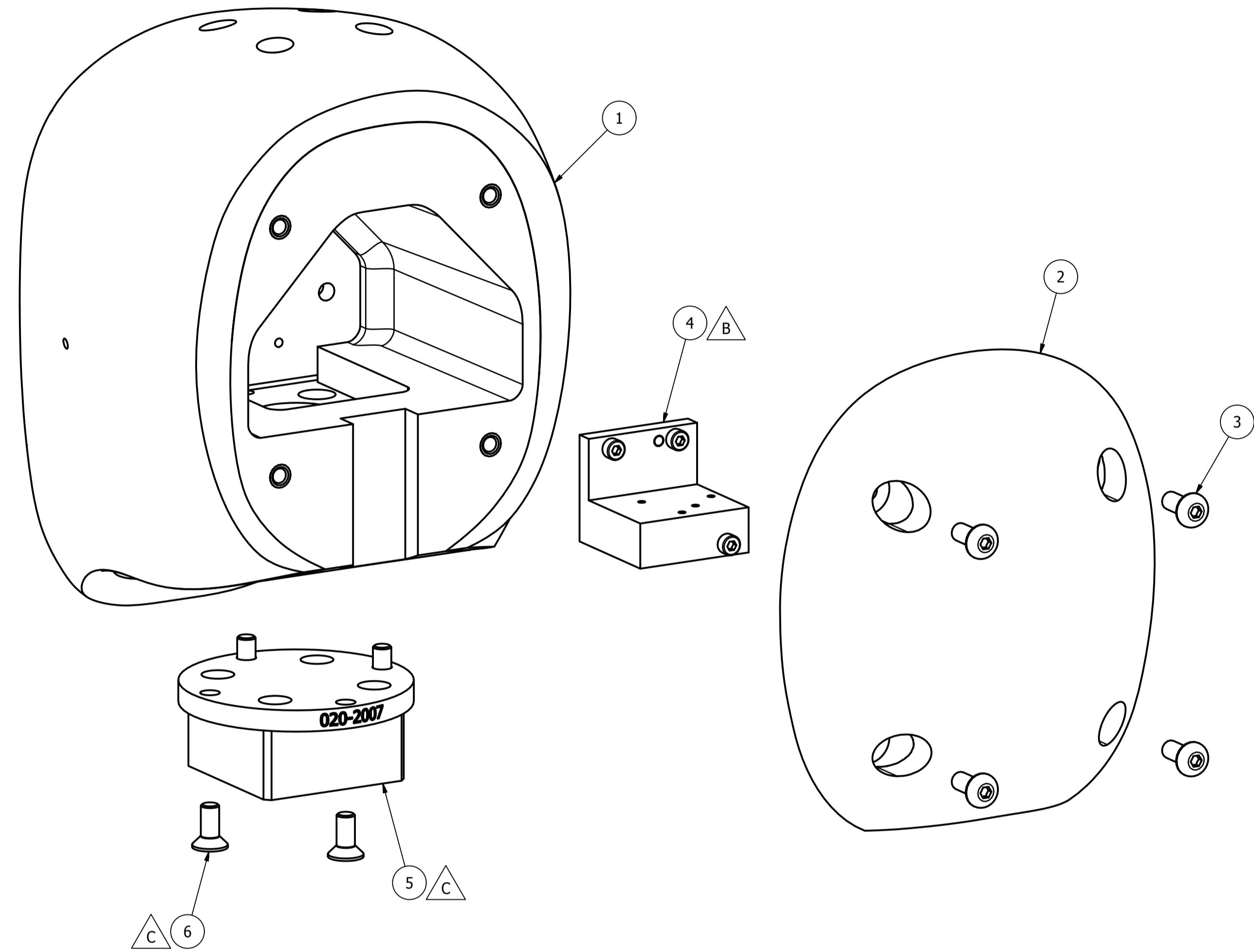
$\triangle E$ STATURE VIEW

EXTERNAL DIMENSIONS			
SYM.	DESCRIPTION	SPEC. MM	TOLERANCE MM \pm
A	Stature, MM	984	15
B	Total Sitting Height, MM	556	10
C	Shoulder Height Sitting, MM	347	10
D	Thigh Clearance, MM	83	8
E	Shoulder to Elbow Length, MM	186	10
F	Elbow to Fingertip Length, MM	245	10
G	Head Back to Seat Back Line, MM **	35	2.5
H	Spine Box to Seat Back Line, MM **	10	2.5
I	Knee to Seat Back Line, MM	305	13
J	Knee Height Seated, MM	281	13
K	Chest Depth Upper, MM	151	8
L	Abdominal Depth, MM	171	8
M	Hip Breadth Sitting, MM	202	8
N	Pelvis Height Above Seat, MM **	9.5	2.5
O	Foot Length, MM	147	8
P	Foot Width, MM	61	8
Q	Head Width, MM	138	5
R	Head Length, MM	178	8
S	Waist Width Sitting, MM	186	8
T	Shoulder Width, MM	247	10
U	Head Circumference, MM	499	10
V	Chest Circumference, MM	529	13
W	Waist Circumference, MM	539	15
X	Head Reference Line, MM	81	N/A
Y	Reference Location for Chest Circumference, MM	246	N/A
Z	Reference Location for Waist Circumference, MM	90	N/A
AA	Heel Back to Back Line Standing, MM **	29	2.5
BB	Head Reference Line Angle, Deg.	27	N/A

** Set by Fixture

<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</small> DECIMAL: X.X \pm 0.2 X.XX \pm 0.1 MACHINED ANGLES \pm 0.5°	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION Q3s CHILD SIDE IMPACT DUMMY, TESTED & CERTIFIED
	APPROVALS B. KIMES	DATE 26-May-05	
MATERIAL: FINISH:	CHECKED: APPROVED:	SCALE: N/A	SHEET 4 OF 4

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENGR.	DATE
6023	A	RELEASE TO PRODUCTION	BK		4/04/06
	B	020-1013A WAS 020-1013	BK		9/11/06
72297	C	REDRAWN IN INVENTOR; ADDED 020-2007 & 5000096; 2.81kg±100g, (6.19 lbs ±.22lbs) & LOAD CELL STRUCTURAL REPLACEMENT (020-2007) WAS 2.77kg ±50g, (6.11 LBS ±.11LBS) & LOAD CELL BLANK (020-1050)	AB		04/03/13
74042	D	DIMPLE SHOWN PER FLESH CHANGE; ADD "ACCELEROMETER INTERCEPT POINT"; CLARIFY SEC A-A (HIDE LC S.R.)	BK	MEB	9/30/2015
74650	E	REGULATION RELEASE	AB		12/18/15



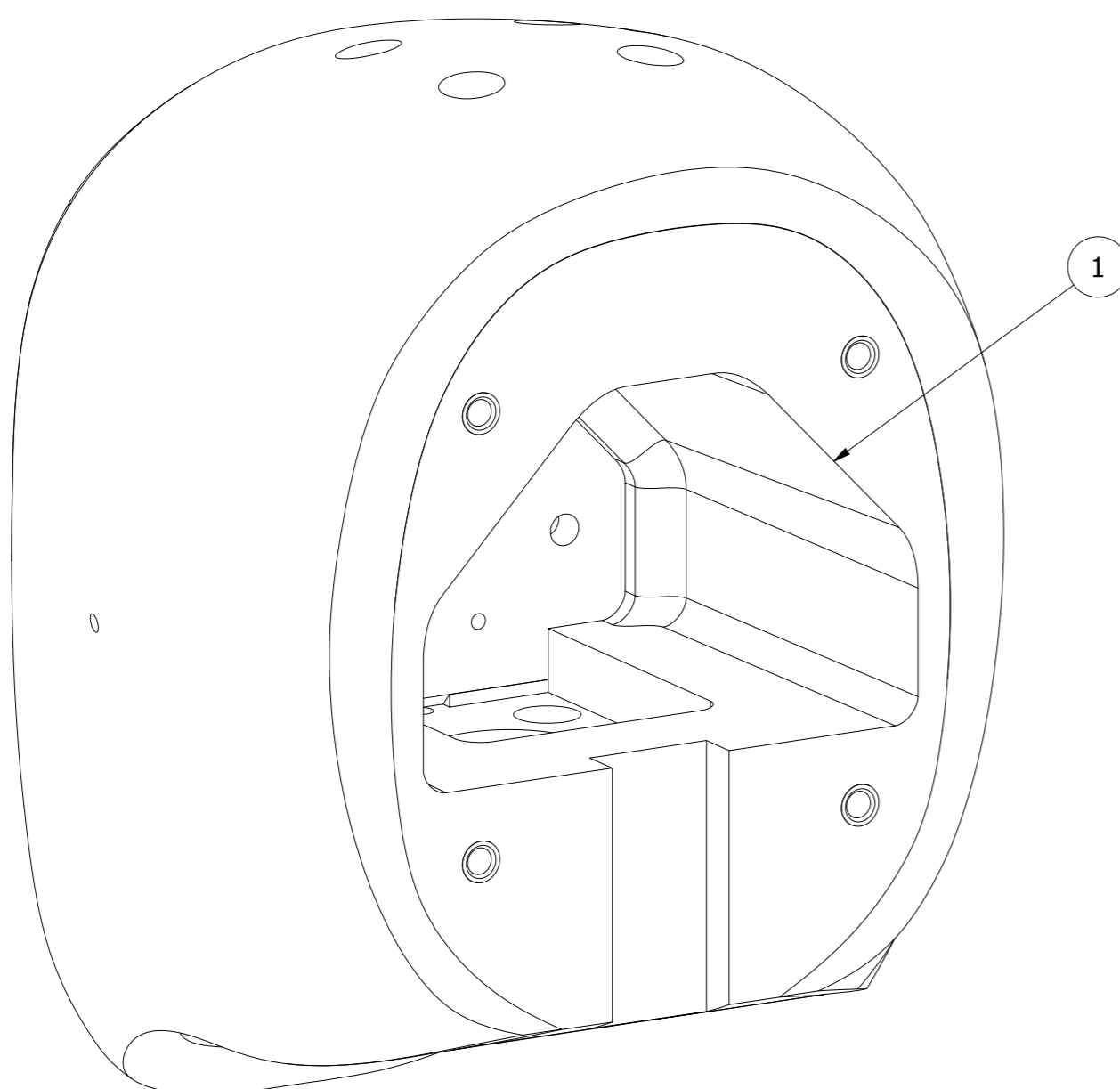
SECTION A-A
LOAD CELL S.R. & SCREWS HIDDEN

ITEM	QTY	PART NUMBER	DESCRIPTION
6	4	5000096	M5 X 0.8 X 12 LG. FHCS
5	1	020-2007	LOAD CELL STRUCTURAL REPLACEMENT
4	1	020-1013A	INSTRUMENTATION BRACKET ASSEMBLY
3	4	5000654	M5 X 0.8 X 12 LG. BHCS
2	1	020-1025	REAR SKULL CAP ASSEMBLY
1	1	020-1220	FRONT SKULL ASSEMBLY, Q3s

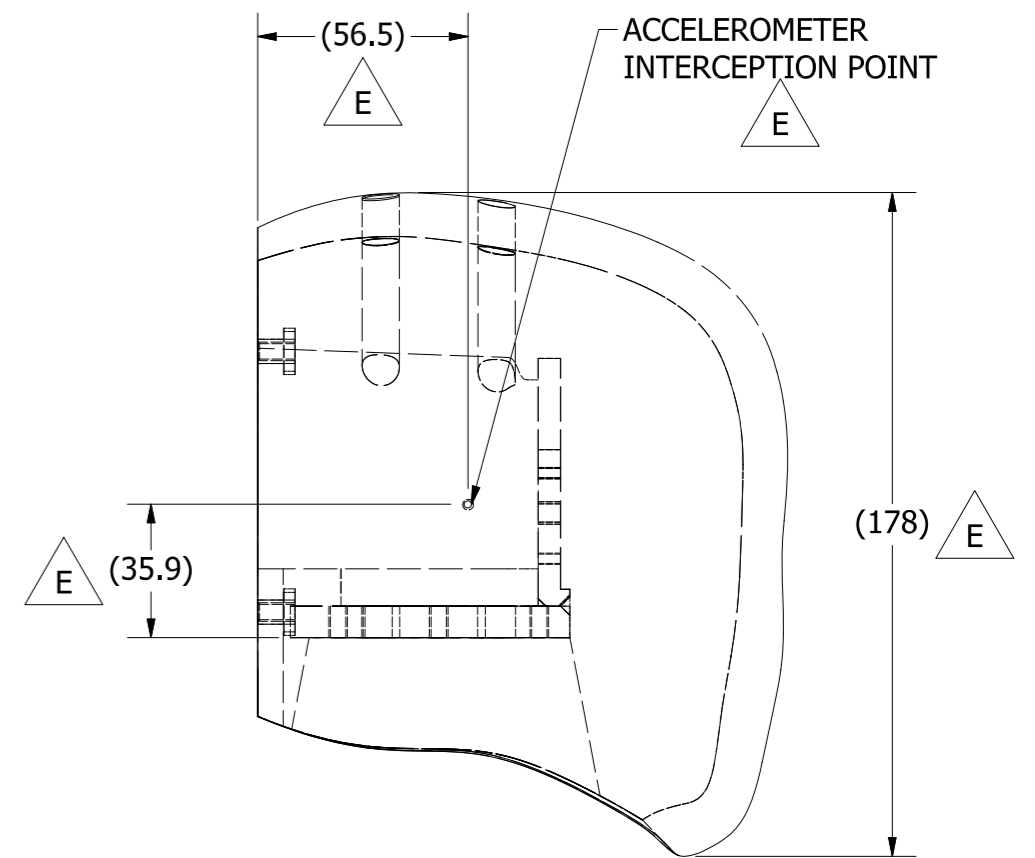
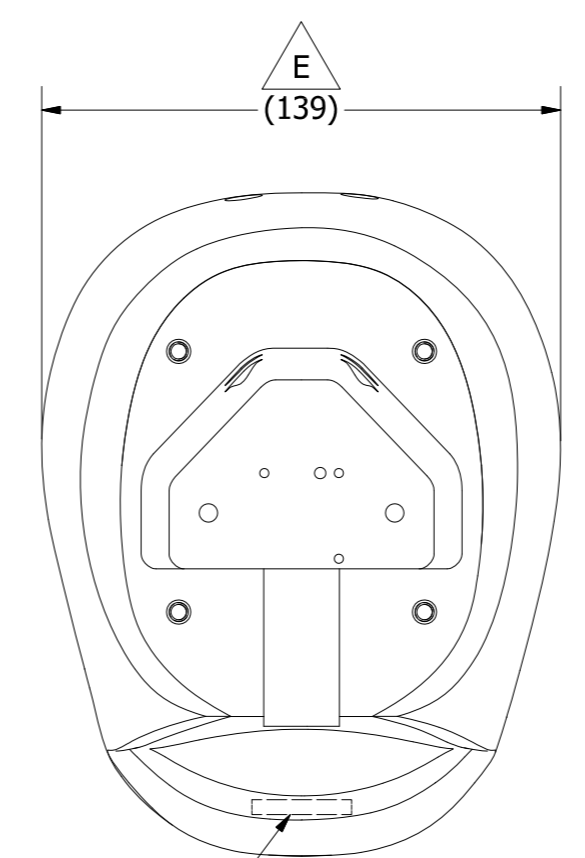
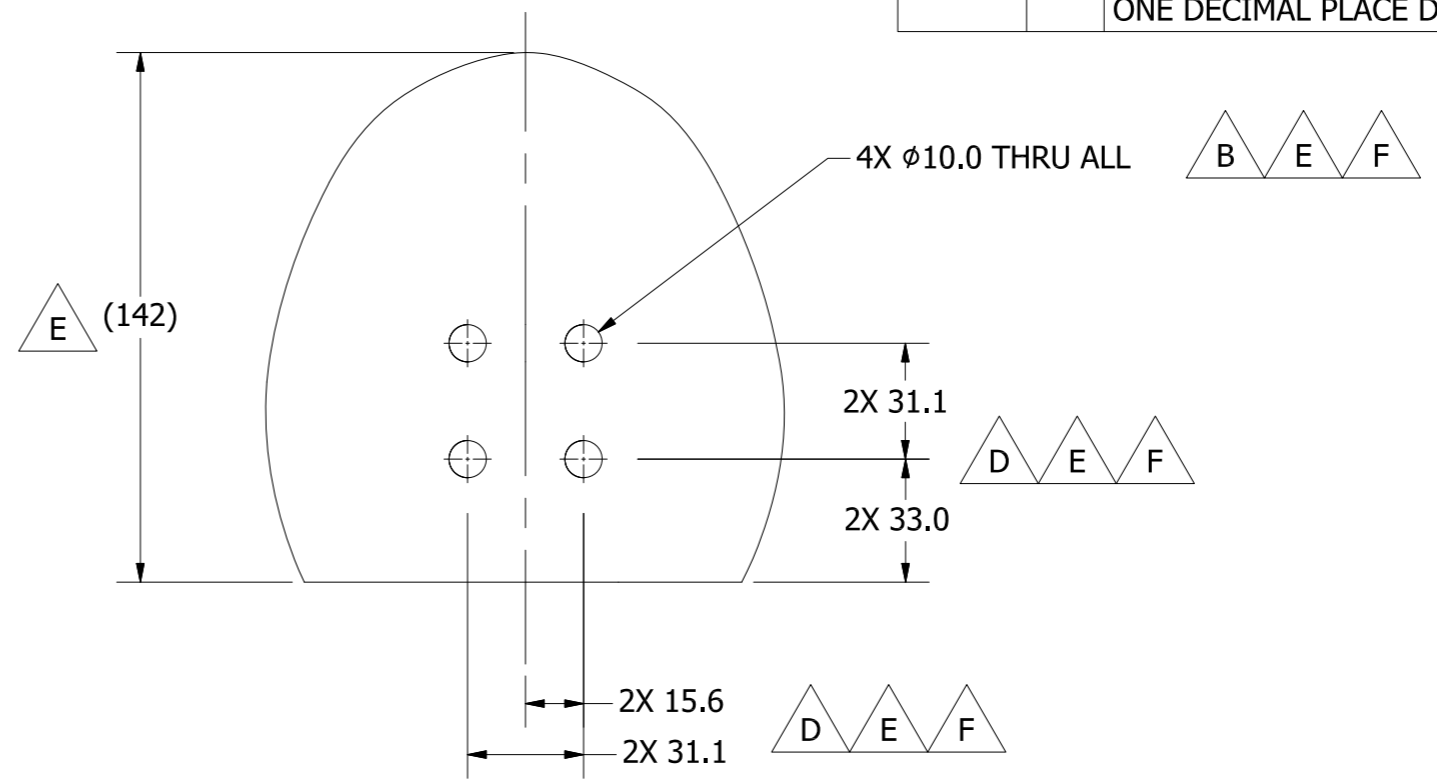
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL: .XX ±.02	MACHINED: .XX ±.01	APPROVALS	DATE	Q3s HEAD ASSEMBLY, TESTED & CERTIFIED	
ANGLES: .XX ±.5°	DO NOT SCALE DRAWING	B. KIMES	28-Mar-05		
MATERIAL	SPECIFY			Q3s HEAD ASSEMBLY, TESTED & CERTIFIED	
TREAT TREAT	ENVS				
FINISH	APPROVED				
				SIZE: A1	DRAWING NUMBER: 020-1200
				SCALE: 1:1	SHEET 1 OF 1

NOTES:
 C 1. MASS = 2.81 kg ±100g (6.19 lbs ±.22 lbs)
 INCLUDING LOAD CELL BLANK (020-2007) & 4X M5 X 12 FHCS (5000096)
 CGX = 8.00mm ±2mm
 CGZ = 48.50mm ±2mm

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENGR.	DATE
	A	RELEASE TO PRODUCTION	BK		4/20/06
6023	B	Ø10.00 WAS Ø10.20	BK		9/12/06
75688	C	ADD NOTE 4, FLESH 55 SHORE	BK		7/03/07
72297	D	REDRAWN IN INVENTOR; REMOVE ITEM 2: 020-1021 FROM BOM; ADD NOTE #5 & SEE NOTE #5; 2X 31.11, 2X 33.03 & 2X 15.56 WAS 2X 31.10, 2X 33.00 & 2X 15.60	AB		05/25/13
74042	E	UPDATE FLESH TO SHOW DIMPLE; ADD "ACCELEROMETER INTERCEPT POINT" AND DIMENSIONS; ADD STANDARD MOLD NOTES; MAKE DIMENSIONS REFERENCE; SEE NOTE 5 WAS 2	BK	MJB	9/30/2015
74650	F	REGULATION RELEASE - REMOVED REFERENCE FROM DIMENSION, REVISED TO ONE DECIMAL PLACE DIMENSION.	AB/JHC		01/05/16



SCALE 1 : 1



NOTES:

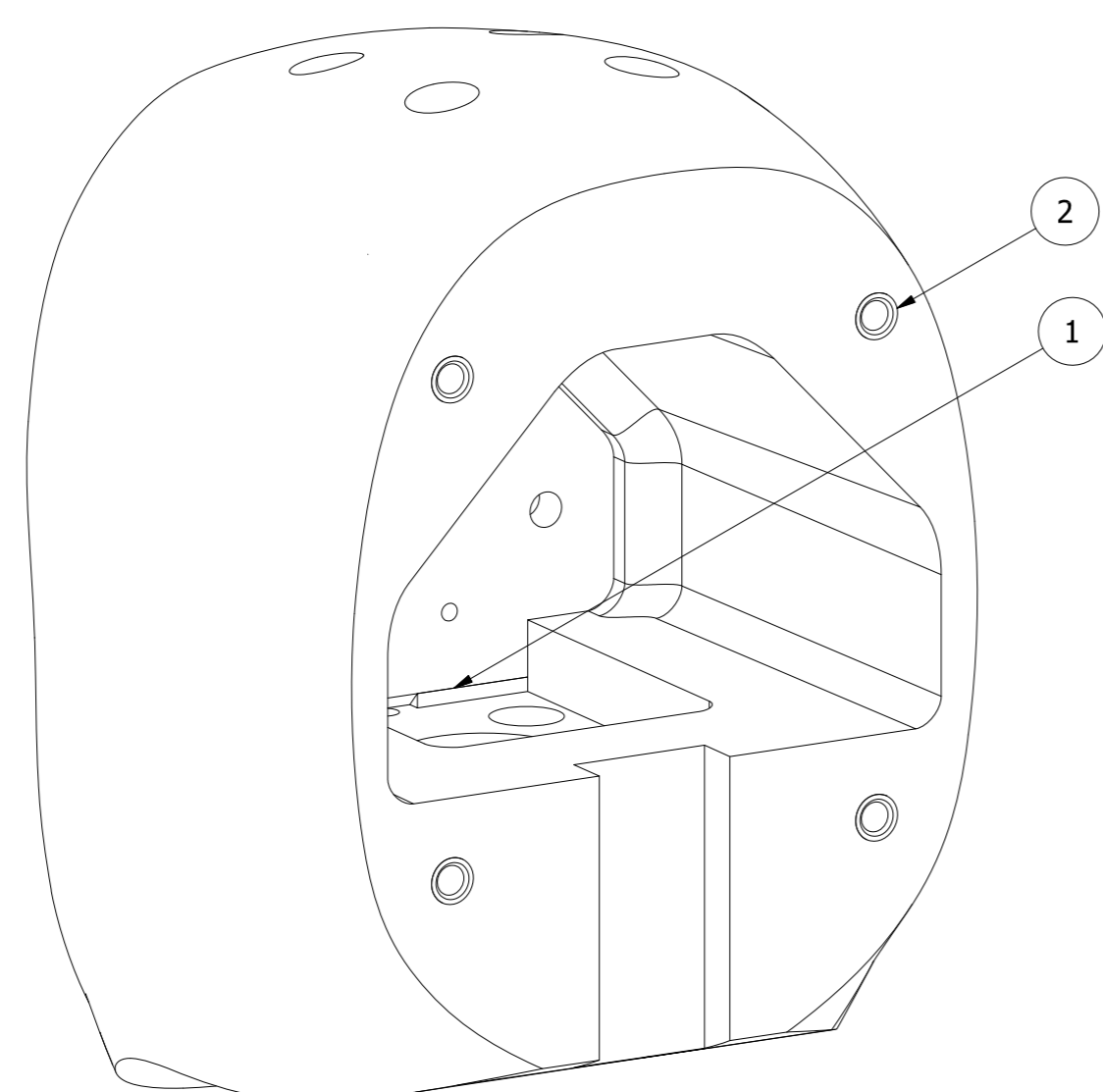
- 1. MATERIAL: POLYURETHANE
COLOR: EURO BROWN
DUROMETER: 55 ±5 SHORE "A"
- 2. REMOVE ALL MOLD FLASHING.
- 3. ALL MOLD DIMENSION TOLERANCE +1%/-2% BUT NO SMALLER THAN 0.5mm.
- 4. NO SPLIT OR DEFECTS ARE ALLOWED IN THE MOLDING.
- 5. ETCH PART NUMBER WHERE SHOWN.

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	020-1222	SKULL FRONT, Q3s

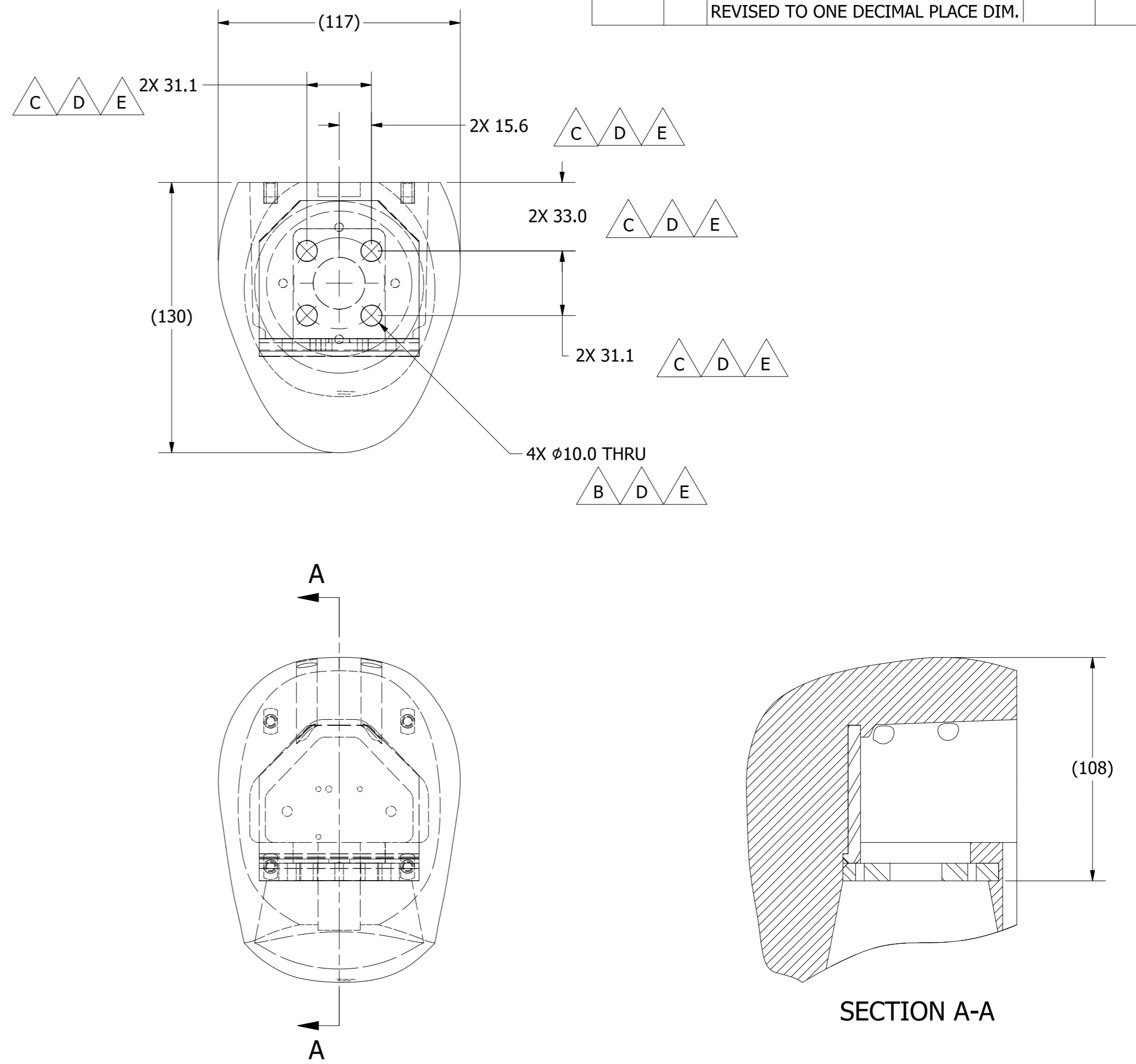
PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER	
DECIMAL: X ±.5 XX ±.2 XXX ±.1	MACHINED ANGLES ±.5°	APPROVALS	DATE
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		B. KIMES	23-Feb-06
MATERIAL SEE NOTES	CHECKED	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
HEAT TREAT	ENG	FRONT SKULL ASSEMBLY, Q3s	
FINISH	APPROVED	SIZE A2	DRAWING NUMBER 020-1220
		SCALE: 1/2	SHEET 1 OF 1



REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		4/20/06
6023	B	ADD 4X Ø10.00 HOLES THRU; ADD Q3s TO DESC	BK		9/12/06
72297	C	REDRAWN IN INVENTOR; 31.11, 15.56 & 33.03 WAS 31.10, 15.60 & 33.00	AB		11/26/13
74650	D	CHANGED DIMS TO REFERENCE.	JH		1/7/2016
74650	E	REGULATION RELEASE - REMOVED REFERENCE FROM DIMENSION, REVISED TO ONE DECIMAL PLACE DIM.	JH/JHC		1/7/2016



SCALE 1 : 1



NOTES:

1. MASS: 1.506 kg ±50g.
2. SKULL POLYESTER FORMULATION
 - POLYESTER CASTING RESIN
 - FIBERGLASS STRANDS
 - GLASS BUBBLES
3. GENERAL TOLERANCE FOR MOLDED PART ±3MM.

ITEM	QTY	PART NUMBER	DESCRIPTION
2	4	000-2002	M5 T-INSERT
1	1	020-1006	INNER BRACKET, HEAD

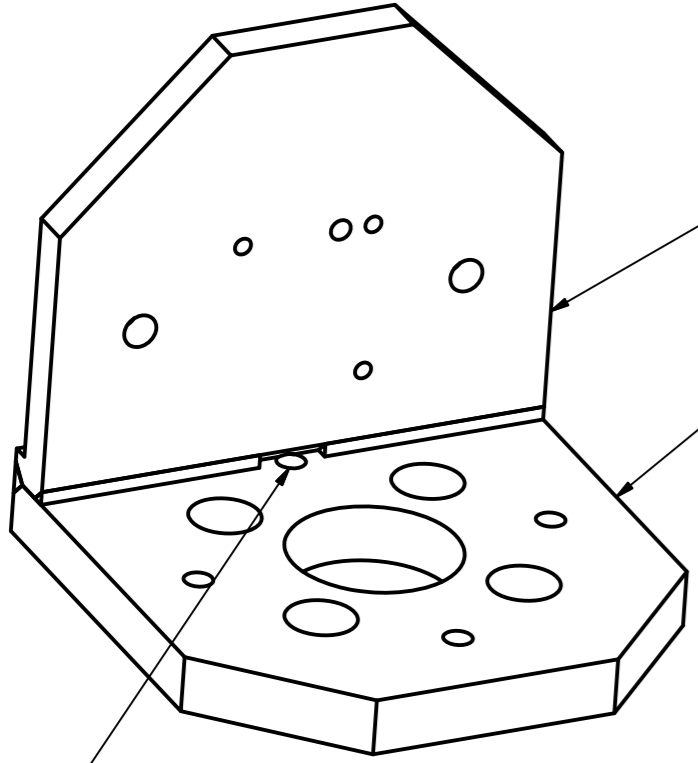
PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:			
DECIMAL:	MACHINED		
X ±.5	ANGLES ±.5°	VEHICLE RESEARCH and TEST CENTER NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION SKULL FRONT, Q3s	
X.X ±.2			
X.XX ±.1		APPROVALS	DATE
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		DRAWN B. KIMES	4/20/2006
MATERIAL	SEE NOTES	CHECKED	
HEAT TREAT		ENG	
FINISH		APPROVED	

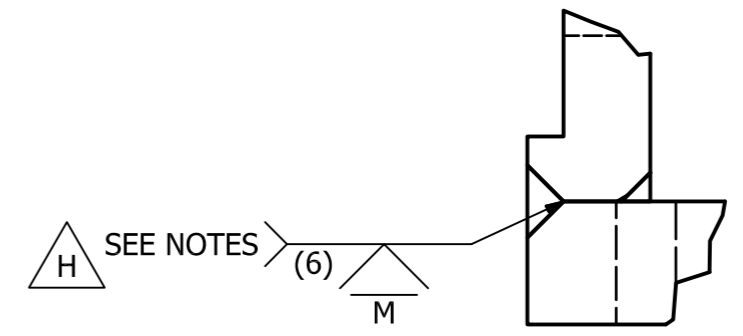
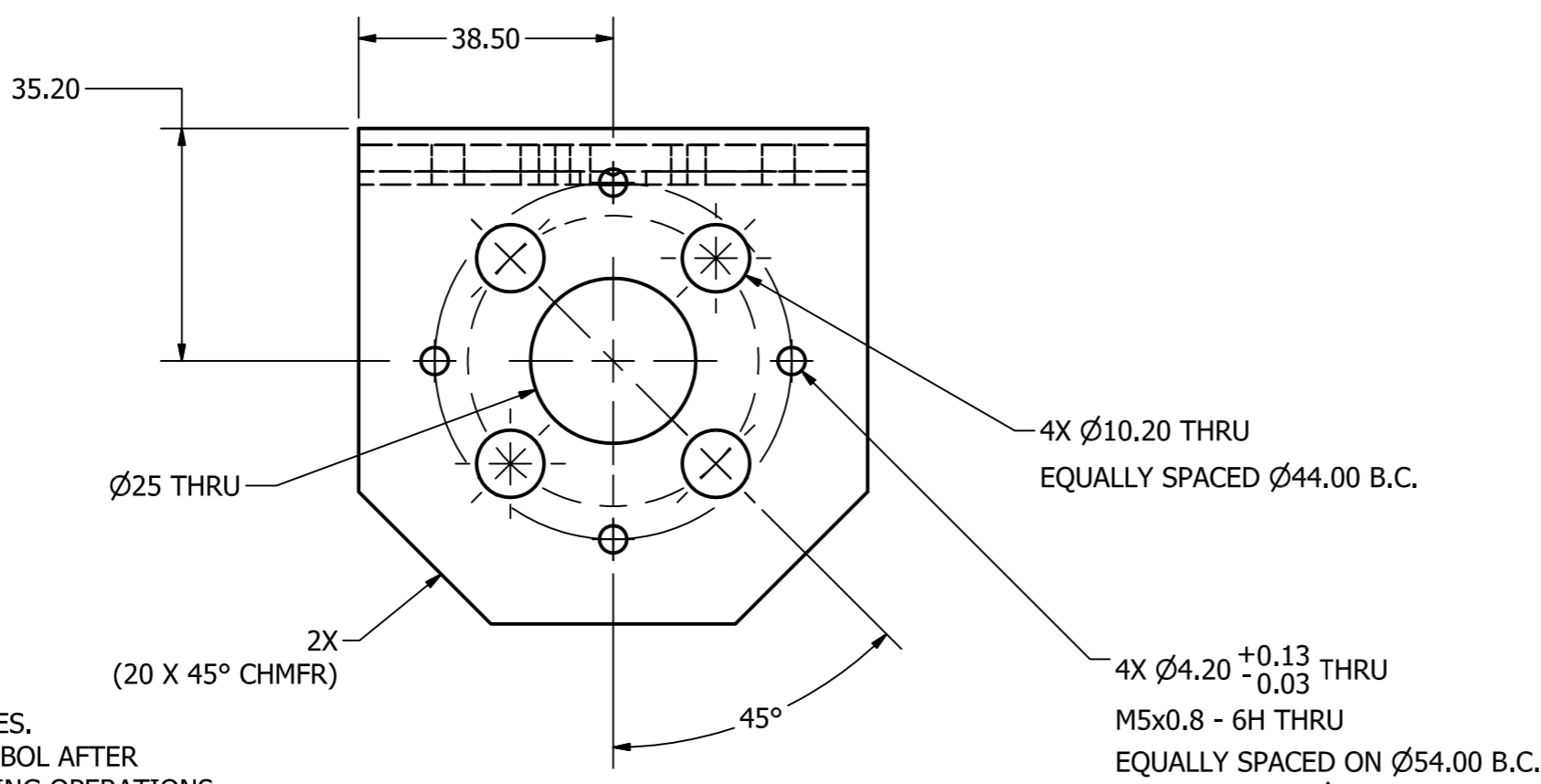
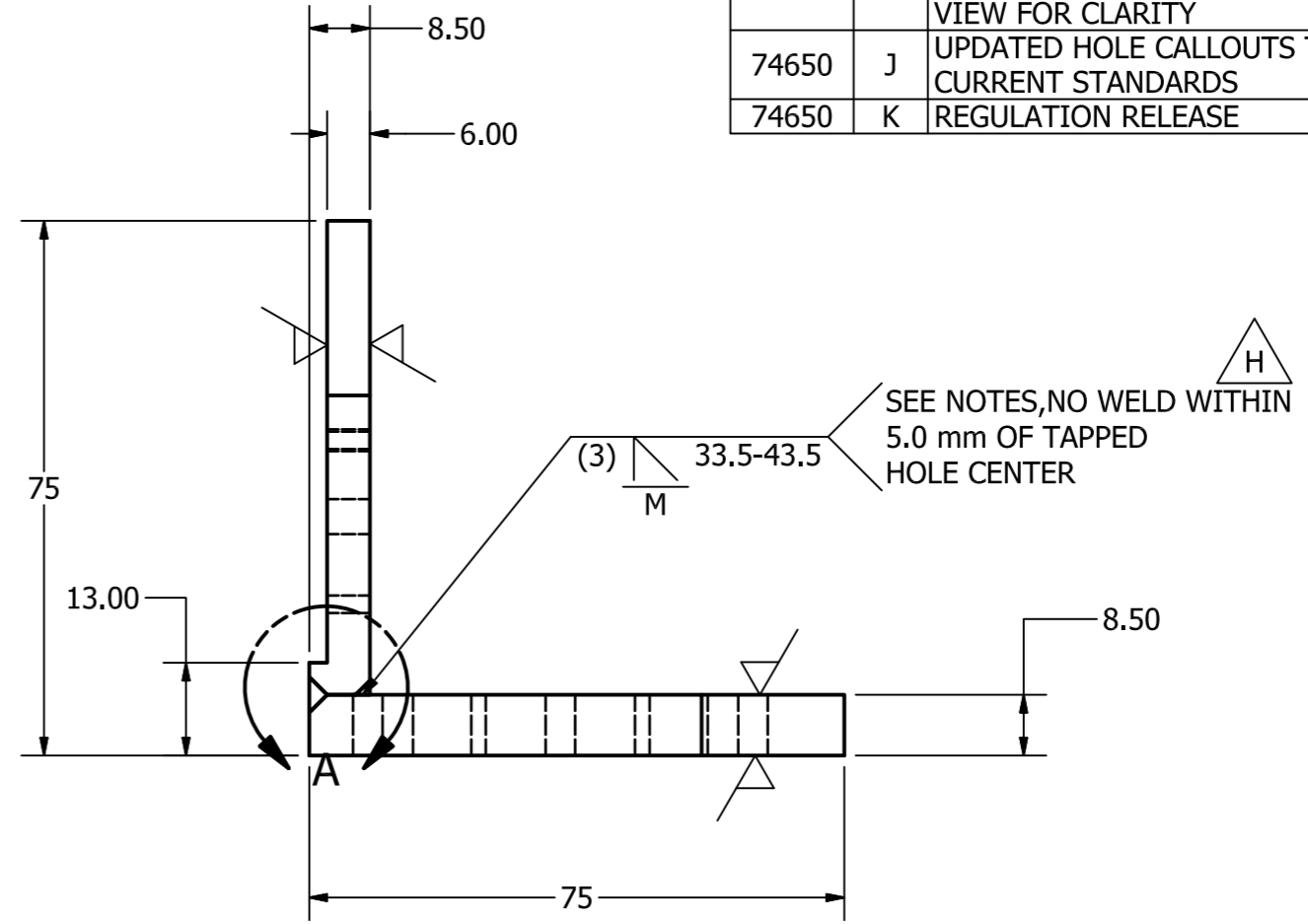
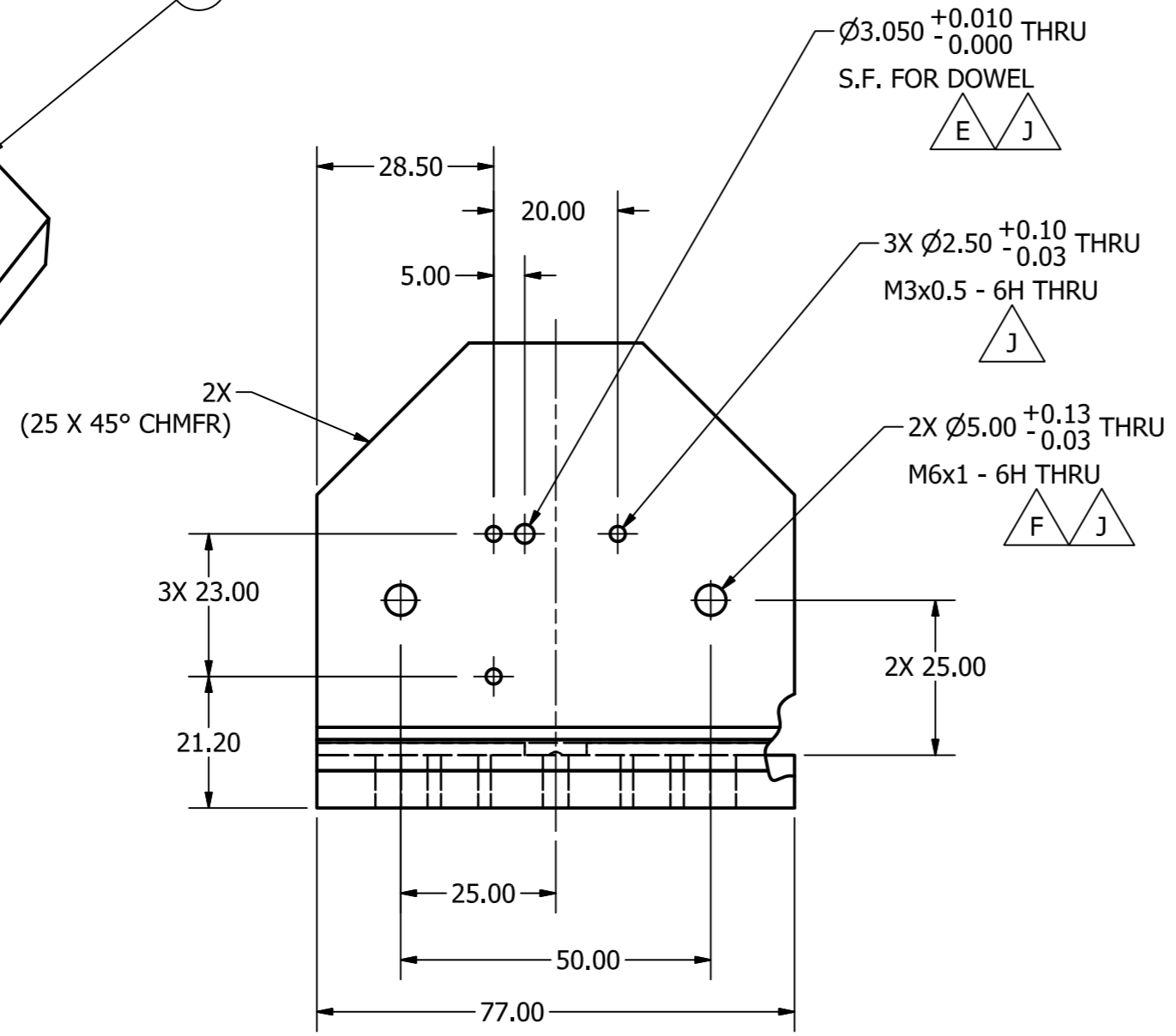
SIZE	DRAWING NUMBER	REV
A2	020-1222	E
SCALE:	SHEET	OF
1/2	1	1

THIRD ANGLE PROJECTION

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENGR.	DATE
	A	RELEASE TO PRODUCTION	MJB		11/03/03
	B	Ø25 HOLE 20 CHAM PICTORIALY, 2.5 DIM, DOWELS ADDED, M6 REMOVED (020/9)	MJB		12/16/03
	C	10.2/10.1 HOLES WERE 10.05/10.00, ITEM PARTS ADDED, Ø3.00 ADDED (020/9)	MJB		01/12/04
	D	12.7 DIM WAS 5.5 (020/9)	MJB		01/20/04
5705	E	REAM Ø3.06/3.02 THRU WAS Ø3.10/3.05 THRU; REDRAW & RELEASE IN PROE (020/15)	MJB/BK		04/24/06
5968	F	ADD 2X M6 HOLES THRU (020/15)	MJB/BK		04/25/06
75727	G	ADDED NOTE "CAN BE FABRICATED FROM A SINGLE SOLID PIECE"	BK		08/10/07
70549	H	REDRAWN IN AUTODESK INVENTOR, MODIFIED WELD SYMBOL, ADDED VIEW FOR CLARITY	MEB	MEB	11/7/2012
74650	J	UPDATED HOLE CALLOUTS TO CURRENT STANDARDS	AB		12/18/15
74650	K	REGULATION RELEASE	AB		01/04/16



NO WELD WITHIN 5.0 mm OF TAPPED HOLE CENTER



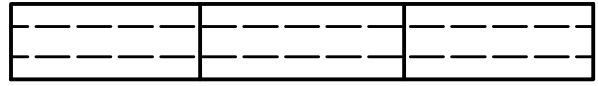
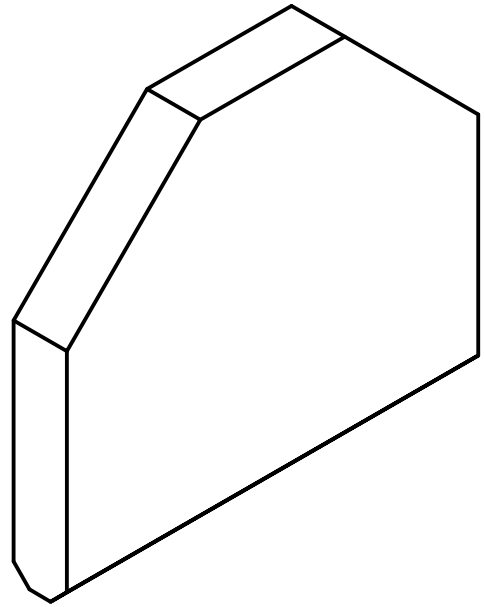
DETAIL A
SCALE 2 : 1

- NOTES:
1. REMOVE ALL BURRS AND BREAK ALL SHARP EDGES.
 2. MACHINE SURFACES WITH SURFACE FINISH SYMBOL AFTER WELDING. ALSO PERFORM DRILLING, AND TAPPING OPERATIONS AFTER WELDING AND MACHINING OF SURFACES WITH SURFACE FINISH SYMBOL.
 3. FILL WELD PREP AREA WITH FILLER ENSURING GOOD PENETRATION. MACHINE SHARP CORNER AS SHOWN. PART TO LOOK IDENTICAL TO DRAWING.
 4. THIS PART NUMBER CAN ALTERNATIVELY BE FABRICATED FROM A SINGLE SOLID PIECE ELIMINATING THE WELD OPERATION. MATERIAL TO USE: 304 OR 316 STAINLESS STEEL

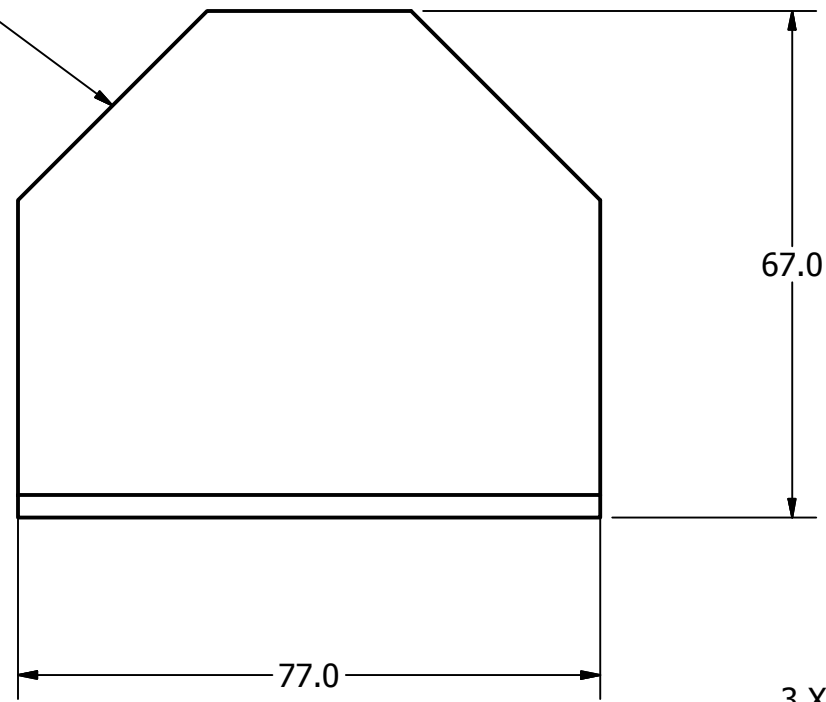
ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	020-1008	LOWER PLATE (HEAD BRACKET)
1	1	020-1007	FRONT PLATE (HEAD BRACKET)

<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</small> DECIMAL: X ±.2, XX ±.1, XXX ±.1 MACHINED ANGLES ±.5° <small>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</small>	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN: MBARILOW CHECKED: [] ENG: [] APPROVED: []	DATE: 11/7/2012	
MATERIAL: [] HEAT TREAT: [] FINISH: []	SIZE: A2 SCALE: 1:1	DRAWING NUMBER: 020-1006 SHEET: 1 OF 1	REV: K

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	MJB		11/03/03
	B	67.0 WAS 66.5	MJB		02/25/04
70549	C	REDRAWN IN AUTODESK INVENTOR	MEB		11/5/2012
74650	D	REGULATION RELEASE	AB		12/16/15

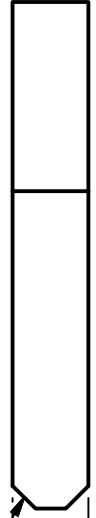


2X
25 X 45° CHAMFER




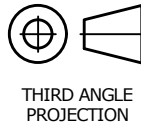
2X
3 X 45° CHAMFER

10
ALLOWS 1.5 FOR
FINISH MACHINING

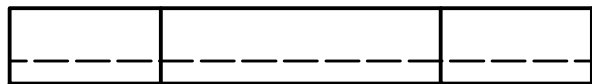
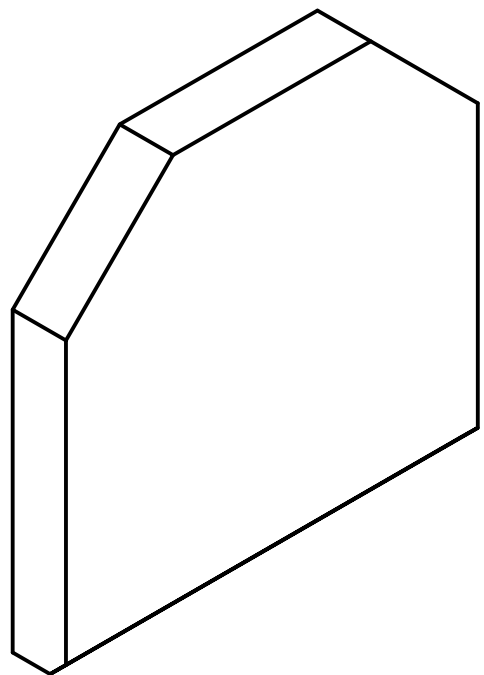


- NOTES:
 1. REMOVE ALL BURRS AND BREAK ALL SHARP EDGES
 2. ALTERNATIVE MATERIAL 316 STAINLESS STEEL ALSO ACCEPTABLE

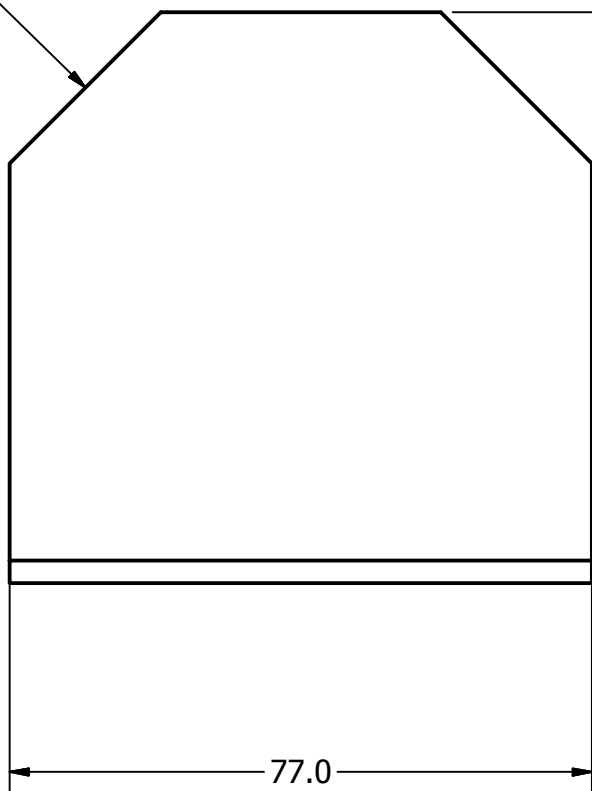
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1		MACHINED ANGLES ±.5°		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		FRONT PLATE (HEAD BRACKET)	
APPROVALS		DATE		SIZE	
DRAWN MBARILOW		11/5/2012		DRAWING NUMBER	
CHECKED				A3 020-1007	
MATERIAL 304 STAINLESS STEEL		ENG		REV D	
HEAT TREAT		APPROVED		SCALE: 1:1	
FINISH				SHEET 1 OF 1	



REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASED TO PRODUCTION	MJB		11/03/03
	B	20 X 45° CHAM WAS 5; 1.5 FINISH M/CING NOTE ADDED	MJB		01/12/04
	C	DIM 75.5 WAS 75.0	MJB		02/26/04
5705	D	REDRAW & RELEASE IN PROE	BK		01/05/06
70549	E	REDRAWN IN AUTODESK INVENTOR	MEB		11/5/2012
74650	F	REGULATION RELEASE	AB		12/16/15



2X
20 X 45° CHAMFER



75.5

77.0

3.0 X 45° CHAMFER



10.0
THIS ALLOWS 1.5
FOR FINISH MACHINING

NOTES:

1. REMOVE ALL BURRS AND BREAK ALL SHARP EDGES
2. ALTERNATIVE MATERIAL 316 STAINLESS STEEL ALSO ACCEPTABLE

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:

DECIMAL: X ±.5
XX ±.2
X.XX ±.1

MACHINED
ANGLES ±.5°

ASME Y14.5M - 1994
DO NOT SCALE DRAWING

VEHICLE RESEARCH
and TEST CENTER



NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

APPROVALS DATE

DRAWN MARILOW 11/5/2012

LOWER PLATE (HEAD BRACKET)

MATERIAL 304 STAINLESS STEEL

HEAT TREAT

FINISH

CHECKED

ENG

APPROVED

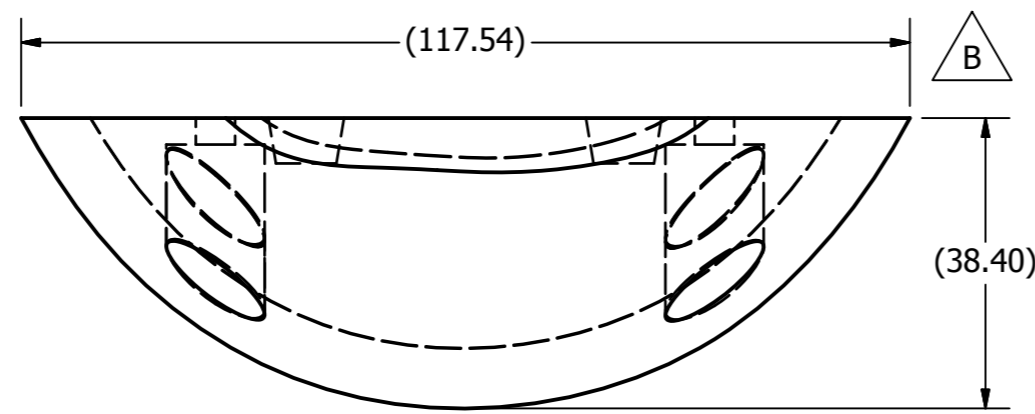
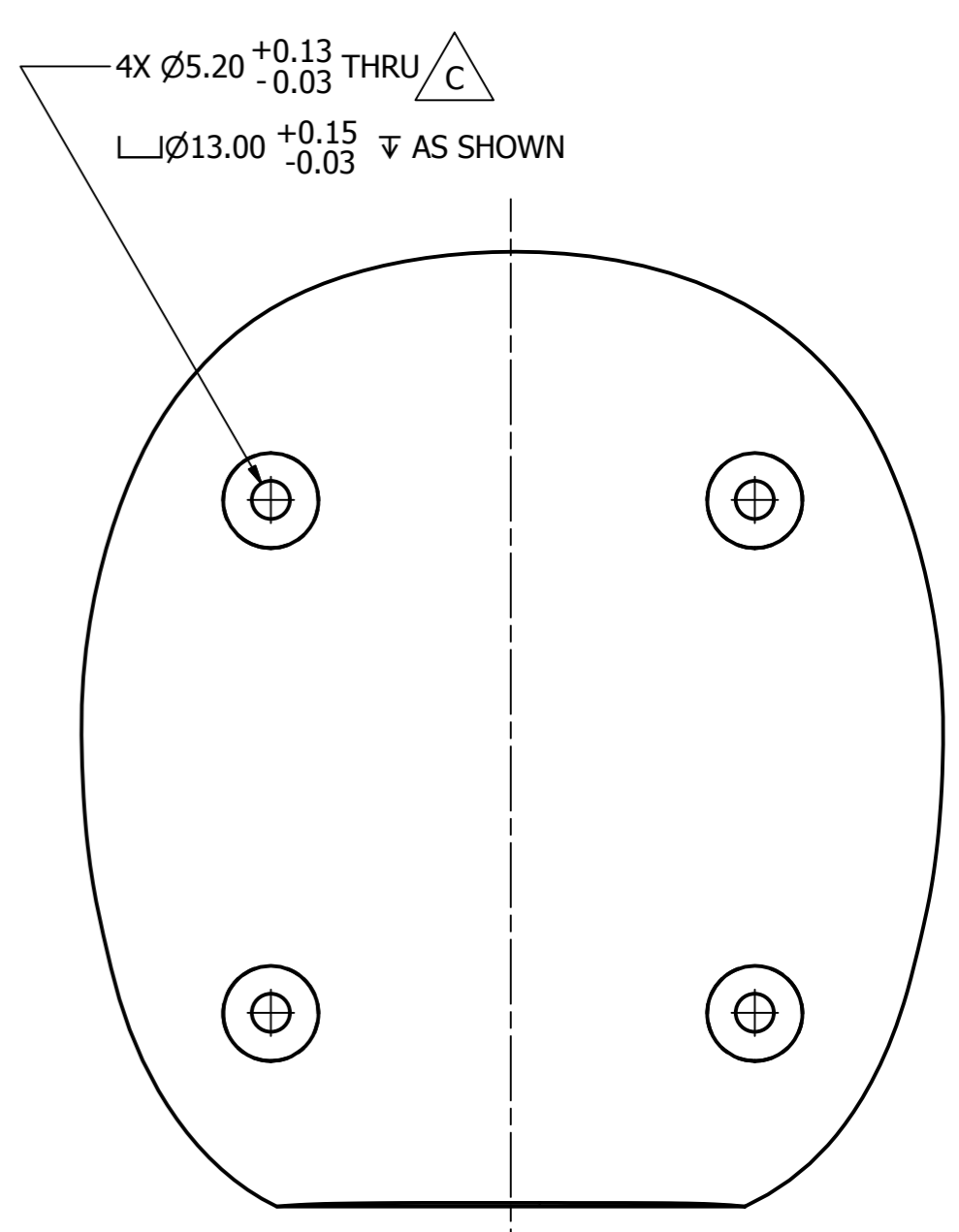
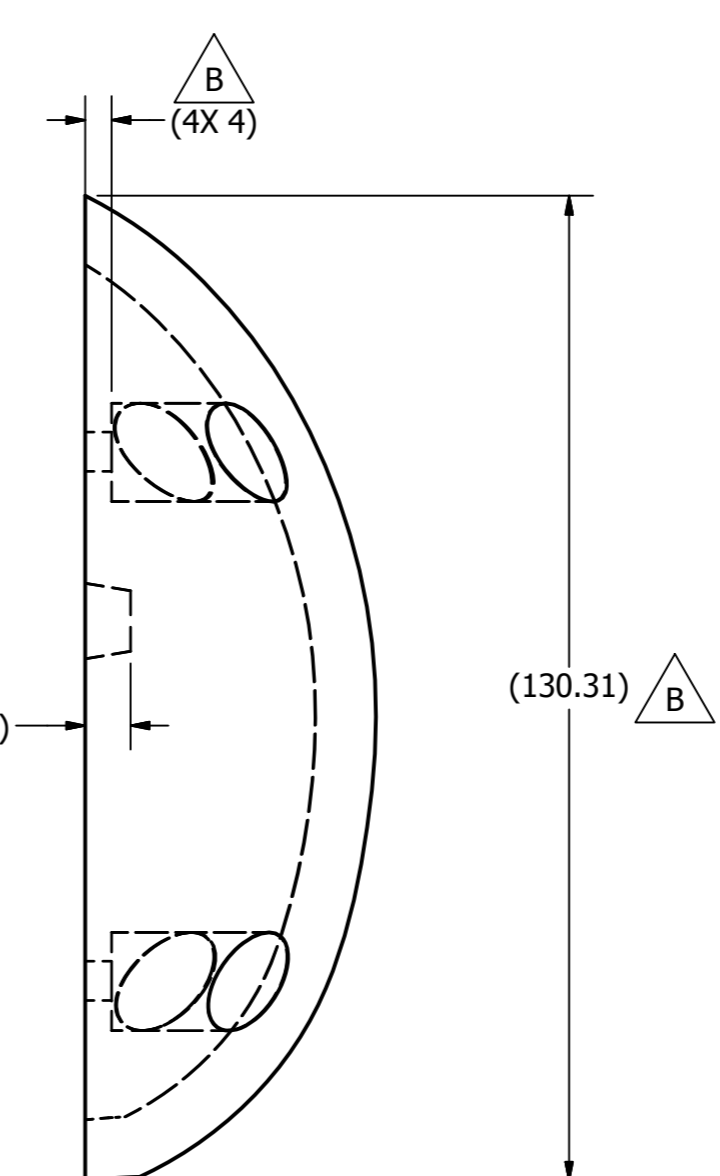
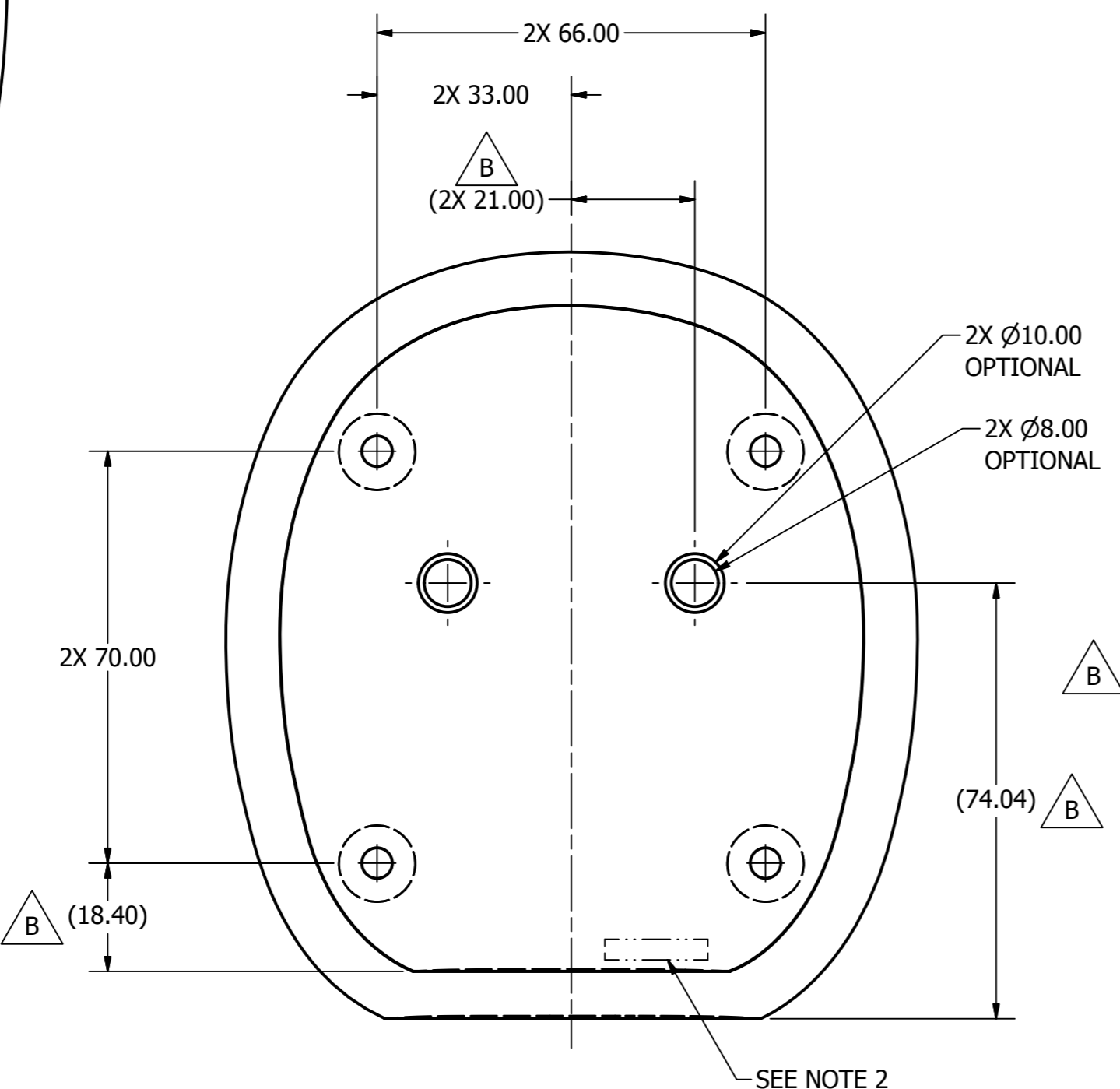
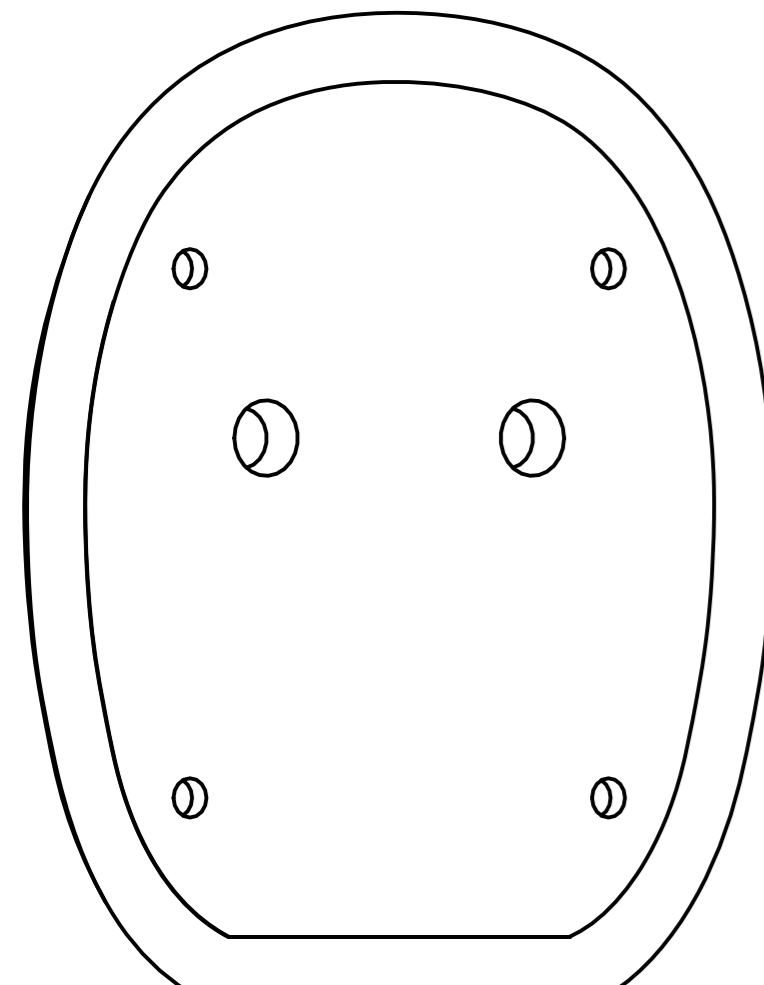


THIRD ANGLE
PROJECTION

SIZE A3 DRAWING NUMBER 020-1008 REV F

SCALE: 1:1 SHEET 1 OF 1

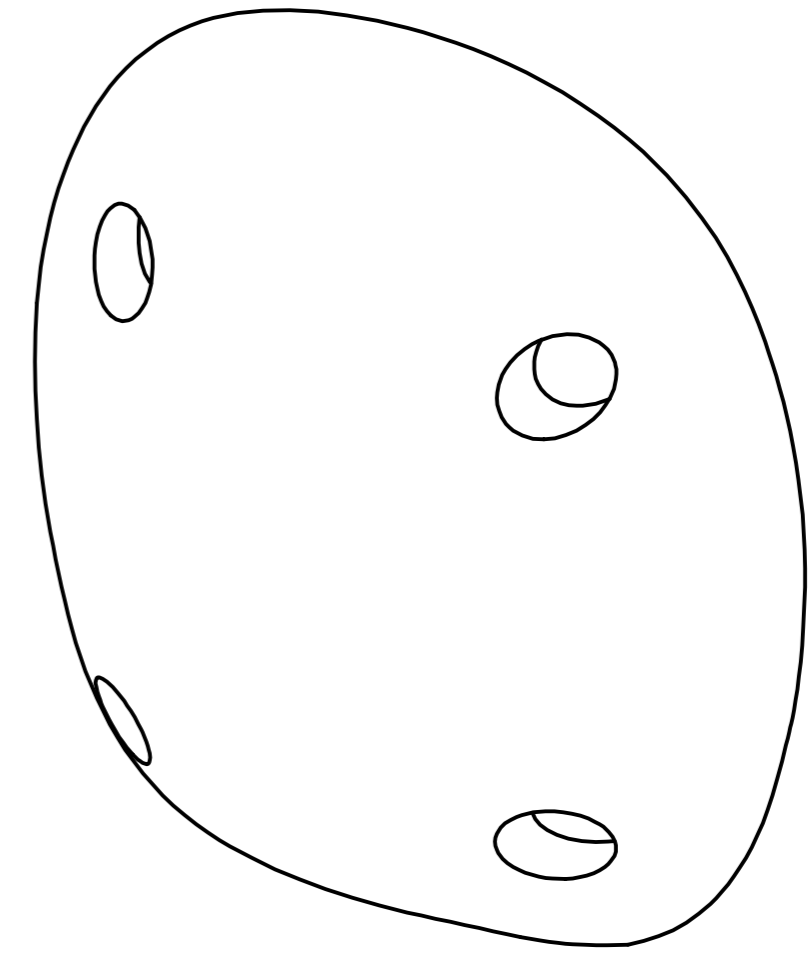
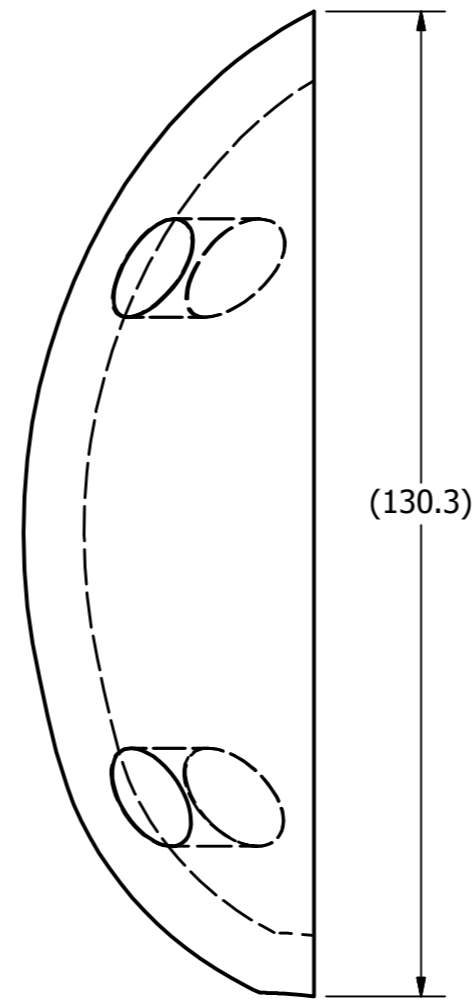
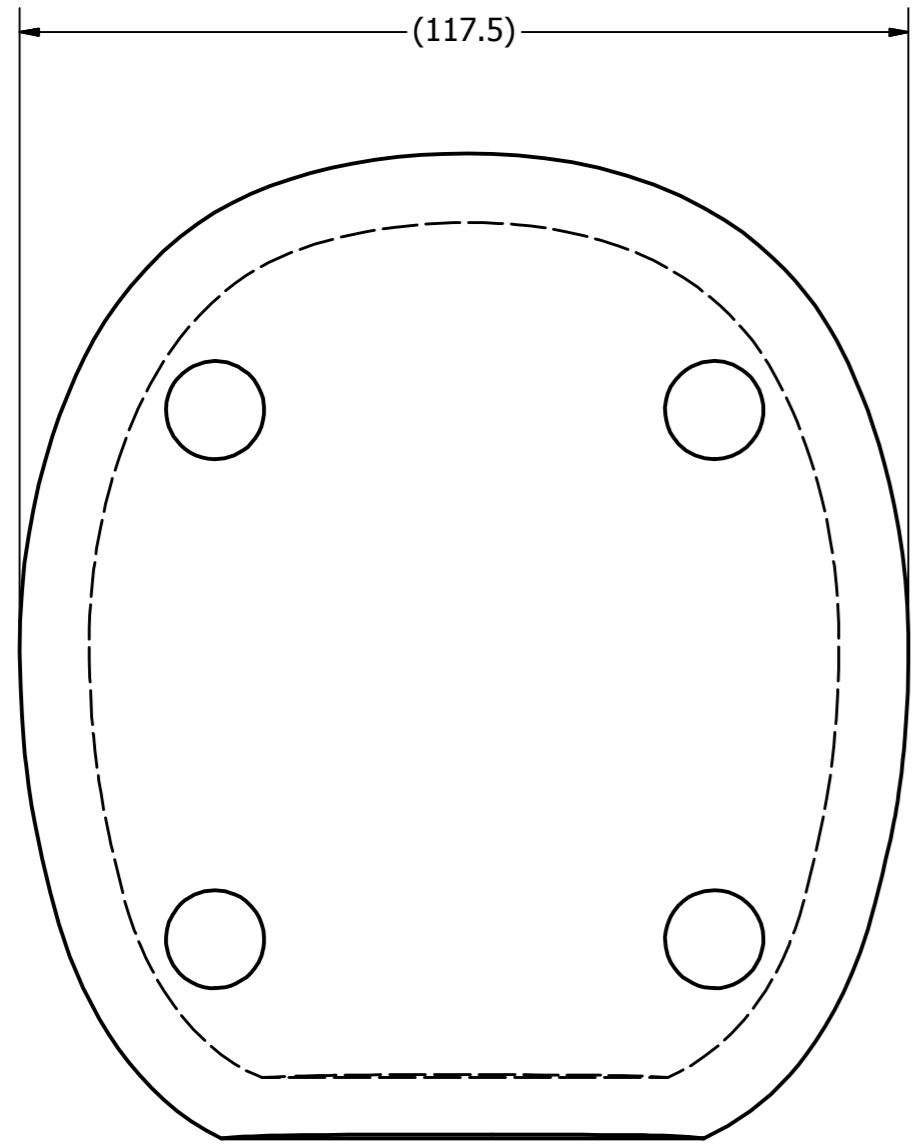
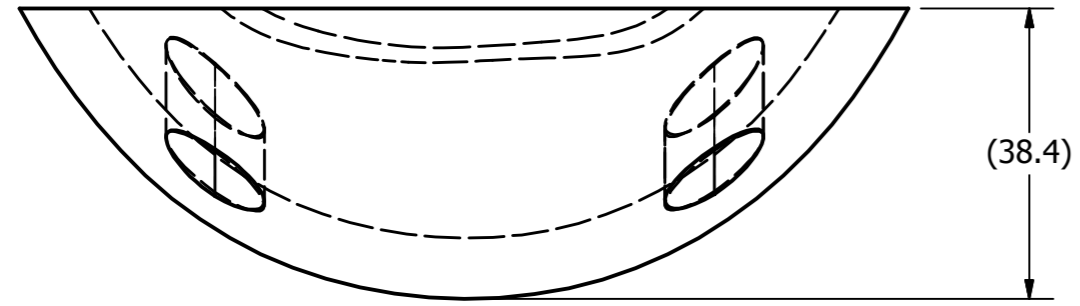
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		3/31/05
72297	B	REDRAWN IN INVENTOR; ITEM 1: 020-1023 WAS 020-1024; ADD NOTE #4 & SEE NOTE #4; ADD NOTE #5; (74.04), (117.54) & (130.31) WAS 74.00, 117.50 & 130.30; (2X 21.00), (18.40), (4X 4), (2X 6.00) & (38.40) WAS 2X 21.00, 18.40, 4X 4, 2X 6.00 & 38.40	AB		11/26/13
74650	C	UPDATED HOLE CALL OUT TO CURRENT STANDARDS.	JH		1/6/2016
74650	D	REGULATION RELEASE	JH		1/7/2016



- NOTES:**
- COMPONENT TO BE FREE FROM EXCESSIVE AIR POCKETS.
 - ETCH PART NUMBER WHERE SHOWN.
 - GENERAL TOLERANCE FOR MOLDED PART ± 2 , EXCEPT FOR HOLE CENTERS.
 - MATERIAL: POLYURETHANE
 - REAR SKULL CAP IS POURED INTO REAR SKULL CAP SKIN.

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	020-1023	REAR SKULL CAP SKIN
PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL: ±.5 XX ±.2 XXX ±.1		VEHICLE RESEARCH and TEST CENTER	
MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		APPROVALS DRAWN: sclice CHECKED:	DATE 7/9/2013
MATERIAL: SEE NOTE #4 HEAT TREAT:		REAR SKULL CAP ASSEMBLY	
FINISH: APPROVED		A2	D
SCALE: 1:1		SHEET 1 OF 1	

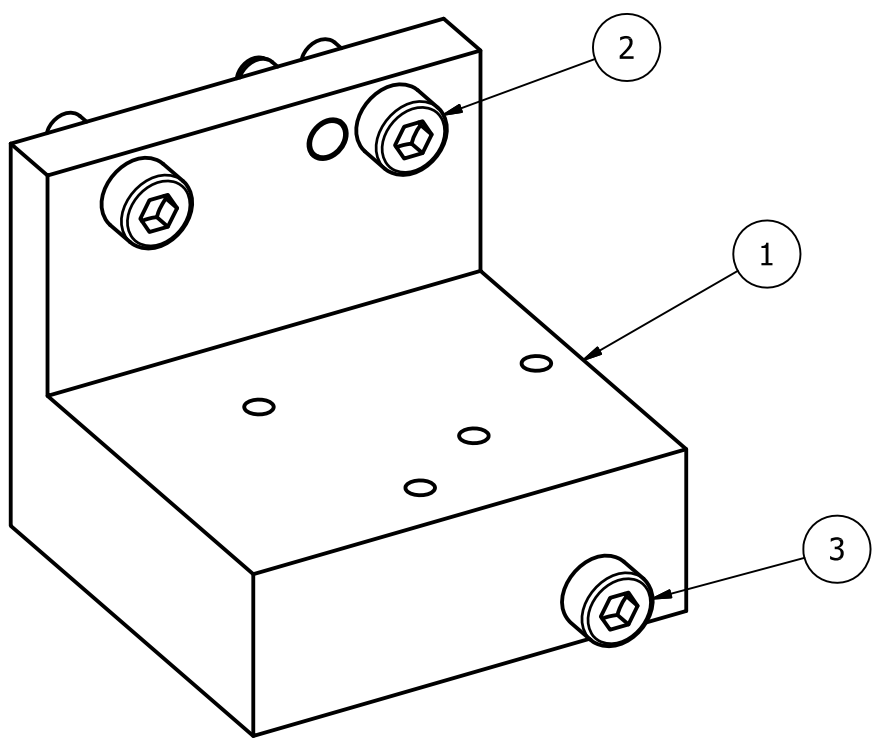
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
72297	B	RELEASE TO PRODUCTION	AB		06/10/14
74650	C	REGULATION RELEASE	JH		12/18/2015



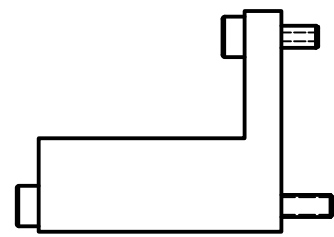
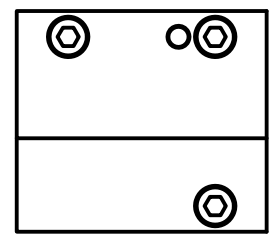
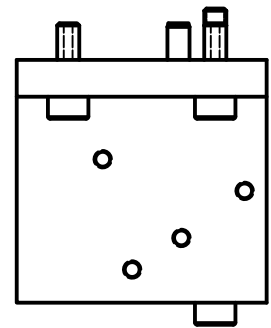
- NOTES:
1. MATERIAL: POLYURETHANE
COLOR: EURO BROWN
DUROMETER: 55 ±5 SHORE "A"
 2. REMOVE ALL MOLD FLASHING
 3. ALL MOULD DIMENSION TOLERANCE +1%/-2%
BUT NO SMALLER THAN 0.5mm
 4. NO SPLIT OR DEFECTS ARE ALLOWED
IN THE POLYURETHANE MOLDING

<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</small> <small>DECIMAL: X ±.5 XX ±.2 XXX ±.1</small> <small>MACHINED ANGLES ±.5°</small> <small>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</small>	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	<small>APPROVALS</small> DRAWN abarchock	<small>DATE</small> 6/10/2014	
<small>MATERIAL</small> SEE NOTE #1	<small>CHECKED</small>	<small>SCALE:</small> 1:1	<small>SIZE</small> A2
<small>HEAT TREAT</small>	<small>ENG</small>	<small>DRAWING NUMBER</small> 020-1023	<small>REV</small> C
<small>FINISH</small>	<small>APPROVED</small>	<small>SHEET</small> 1 OF 1	<small>THIRD ANGLE PROJECTION</small>

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		9/11/06
72297	B	REDRAWN IN INVENTOR	AB		11/25/13
74650	C	REGULATION RELEASE	JH		12/18/2015



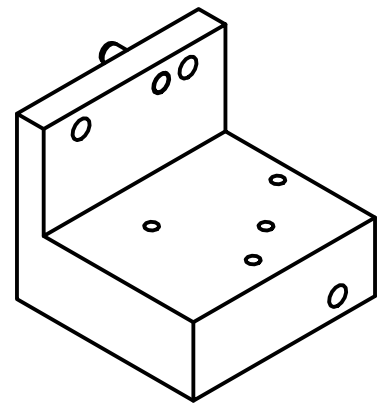
SCALE 2 : 1



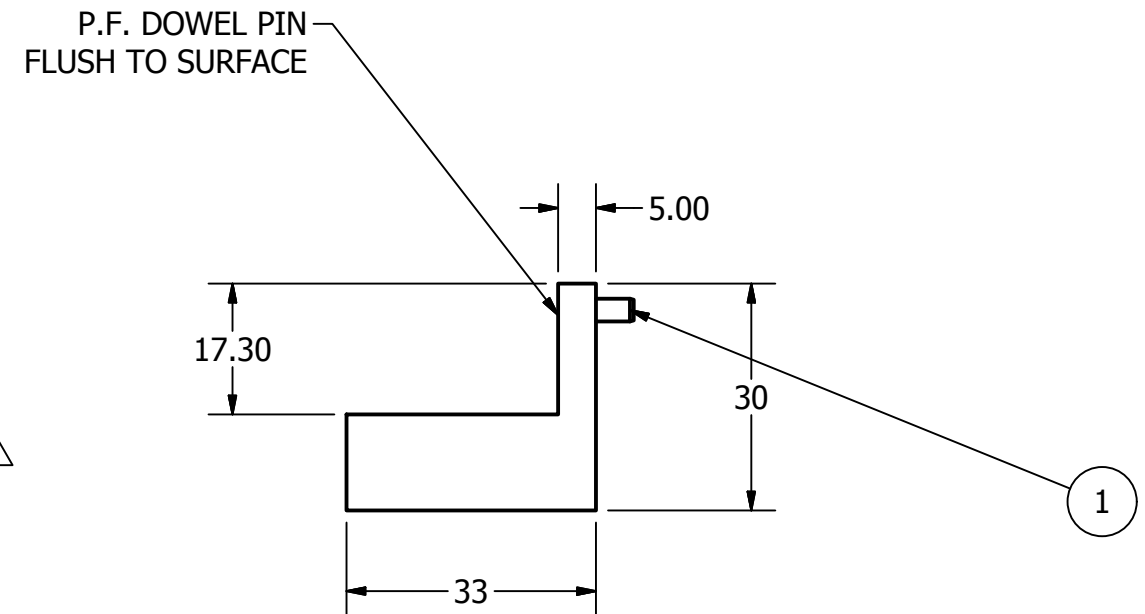
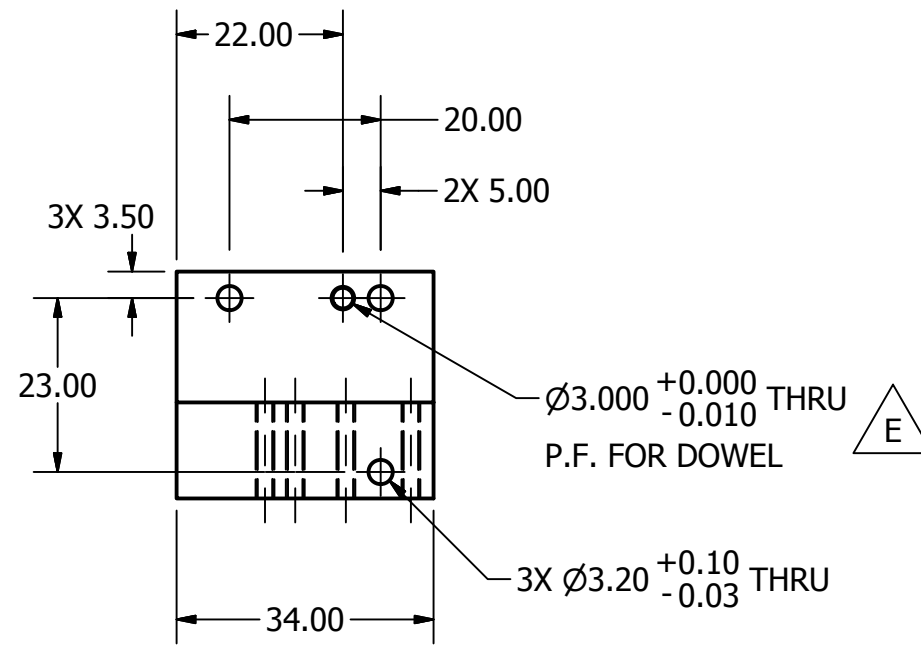
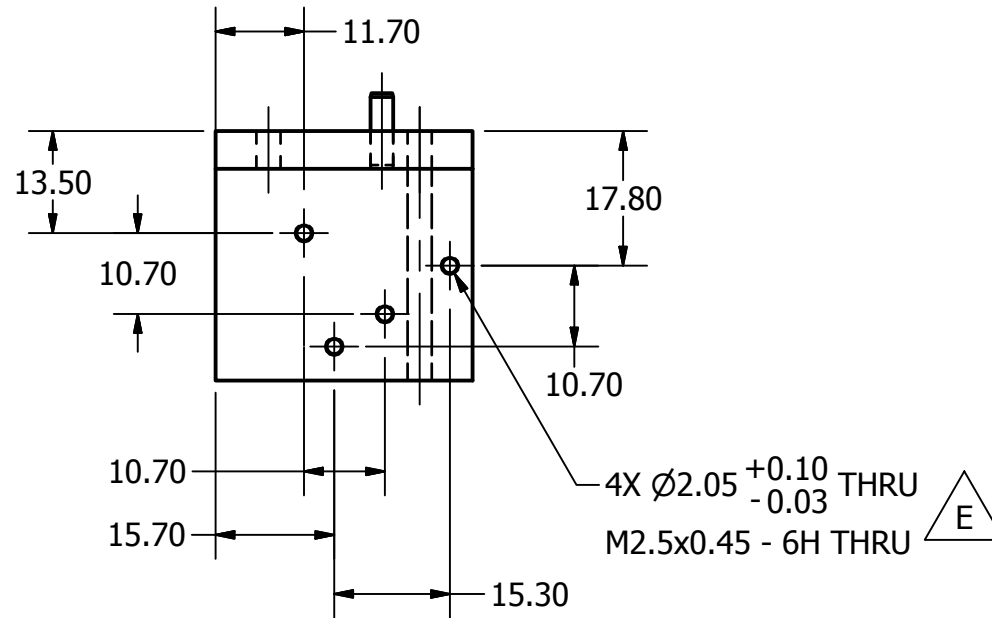
ITEM	QTY	PART NUMBER	DESCRIPTION
3	1	5000649	M3 X 0.5 X 40 LG. SHCS
2	2	5000119	M3 X 0.5 X 10 LG. SHCS
1	1	020-1013	ACCELEROMETER MOUNTING BRACKET ASSEMBLY

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED ANGLE: ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN B. KIMES	DATE 9/11/2006	
MATERIAL HEAT TREAT FINISH	CHECKED ENG APPROVED	THIRD ANGLE PROJECTION	SIZE: A3 DRAWING NUMBER: 020-1013A SCALE: 1:1 SHEET: 1 OF 1



SCALE 1:1

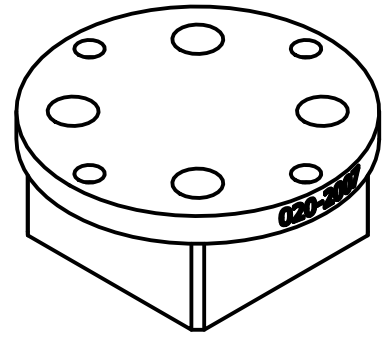


REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	ASB		2/25/04
6023	B	REMOVE SCREWS; ADD PART DIMENSIONS	BK		9/11/06
	C	ADD NEXT ASM: 034-1000, QTY:1 & USED ON: 034-0000	LP		6/14/07
70996	D	REDRAWN IN AUTODESK INVENTOR, DIMENSION SCHEME CHANGED TO CORNER DIMENSIONING WAS MIXED.	SC		1/22/13
74650	E	UPDATED HOLE CALL OUTS TO CURRENT STANDARDS.	JH		1/6/2016
74650	F	REGULATION RELEASE	JH		1/6/2016

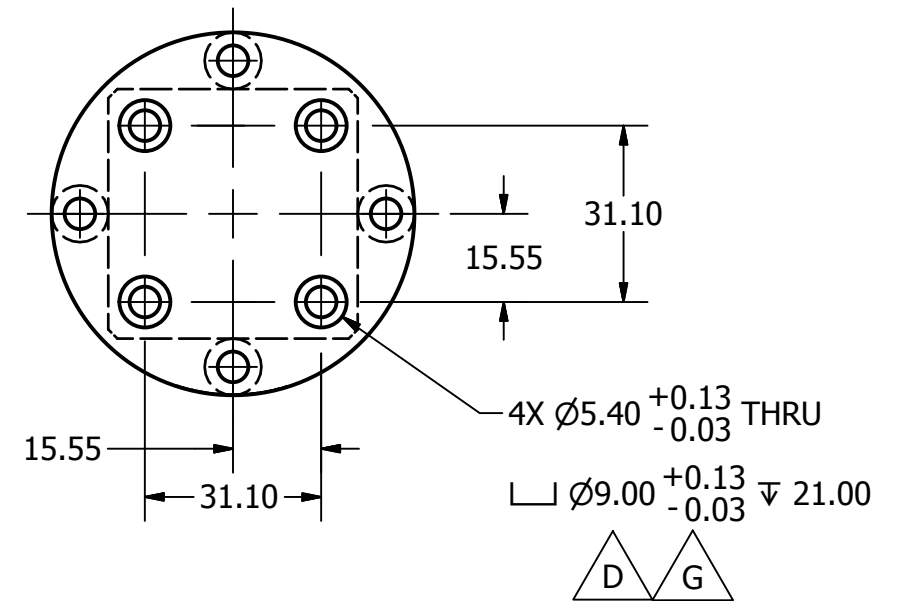
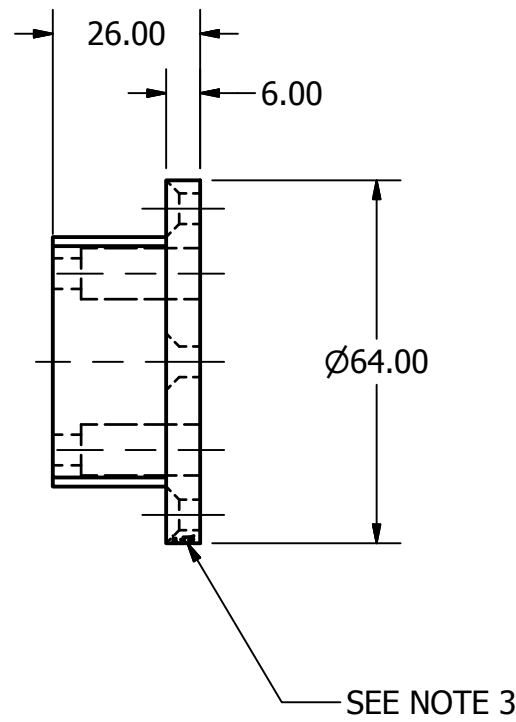
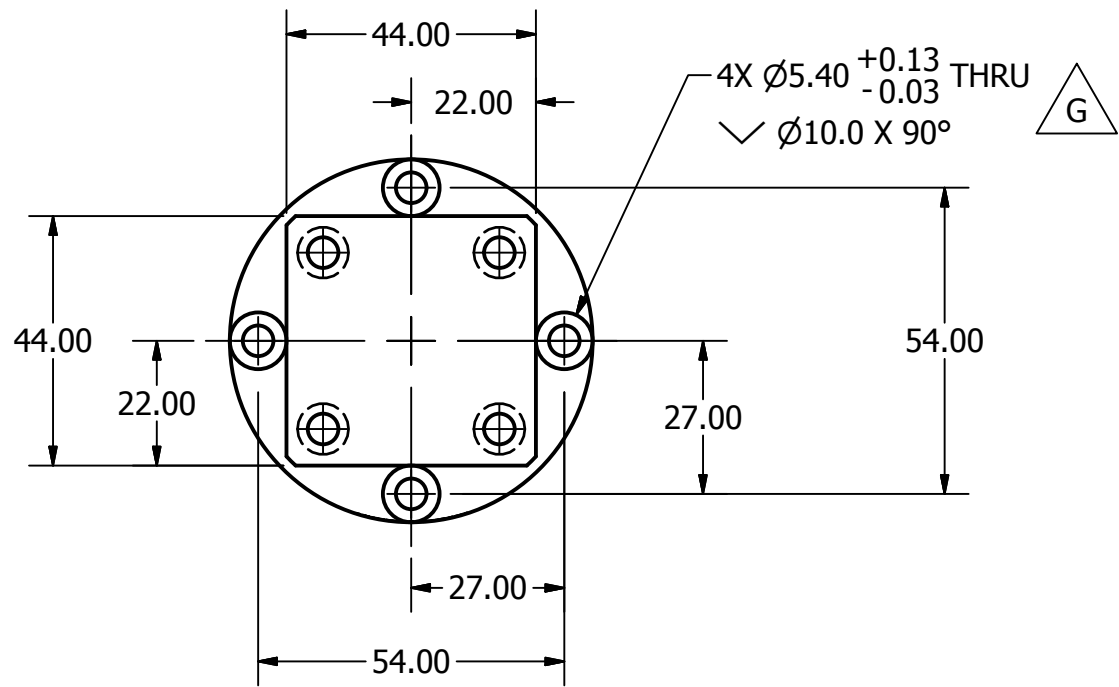
NOTES:

1. REMOVE ALL BURRS AND BREAK ALL SHARP EDGES.

1	1	5000284	M3 X 10 LG. DOWEL PIN
ITEM	QTY	PART NUMBER	DESCRIPTION
PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION DEPARTMENT OF TRANSPORTATION UNITED STATES OF AMERICA	
APPROVALS		DATE	
DRAWN sclise		1/22/2013	
MATERIAL 304 STAINLESS STEEL		CHECKED	
HEAT TREAT		ENG	
FINISH		APPROVED	
THIRD ANGLE PROJECTION 		SIZE A3	DRAWING NUMBER 020-1013
SCALE: 1:1		SHEET 1 OF 1	



REVISION HISTORY				
ECO#	REV	DESCRIPTION	BY	DATE
	A	RELEASE TO PRODUCTION	DLC	1/13/98
	B	PMN 020/6	MJB	5/25/00
5705	C	REDRAW AND RERELEASE IN PROE	BK	1/05/06
75727	D	MATERIAL 6061-T6 WAS 6082; FINISH CLEAR ANODIZE WAS SILVER ANODIZE; REMOVE ANODIZE NOTE; Ø9.0 WAS Ø 8.7	BK	7/25/07
75659	E	ADD NEXT ASM: 034-2000, 034-3000; QTY: 1,1 & USED ON: 034-0000, 034-0000	LP	8/15/07
71498	F	REDRAWN IN AUTODESK INVENTOR; CHANGED ERRONEOUS REFERENCE OF NOTE 4 TO NOTE 3; CHANGED SURFACE SYMBOL	SC	1/22/13
74650	G	UPDATED HOLE CALL OUTS TO CURRENT STANDARDS.	JH	1/7/2016
74650	H	REGULATION RELEASE	JH	1/8/2016

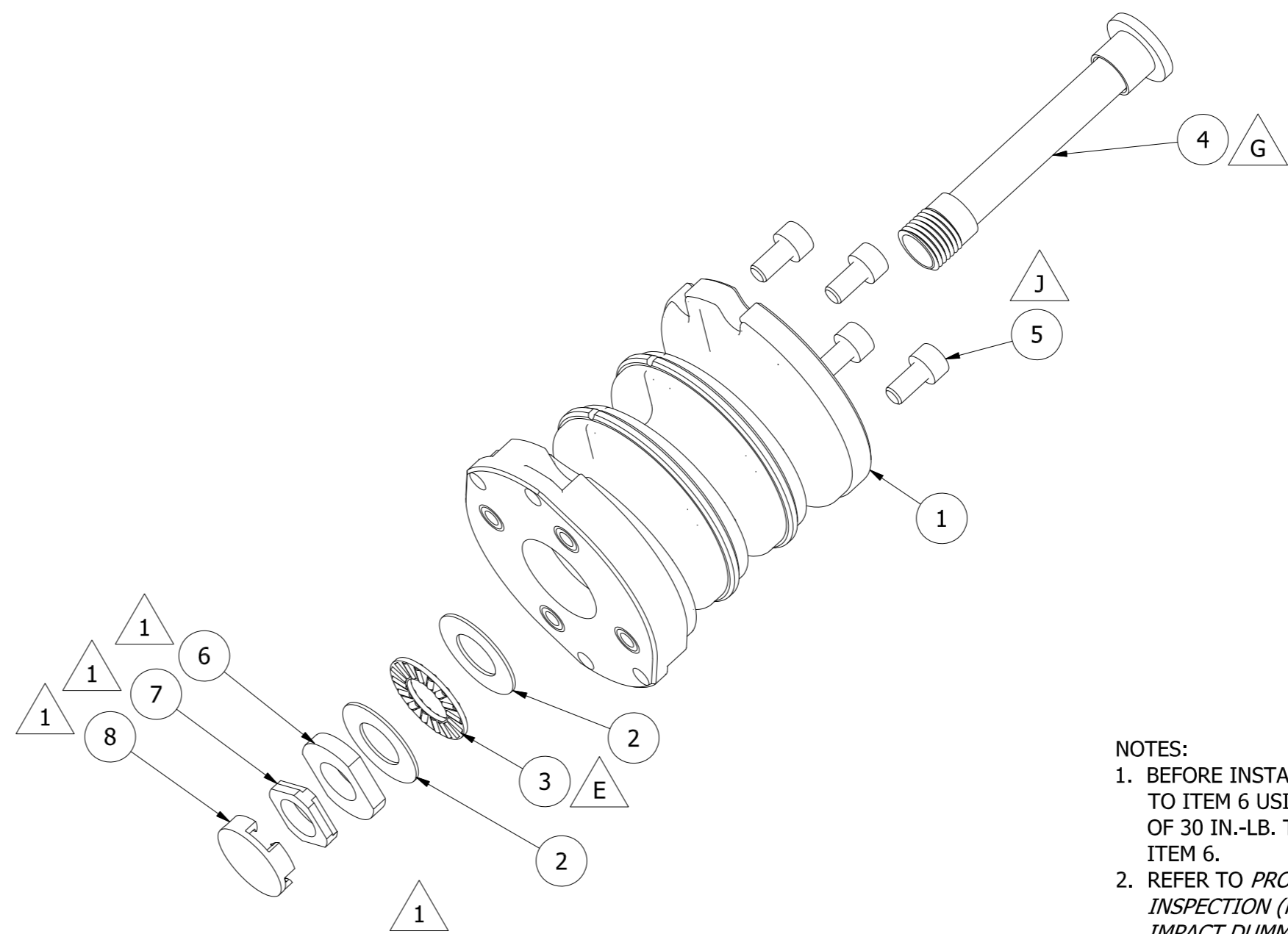
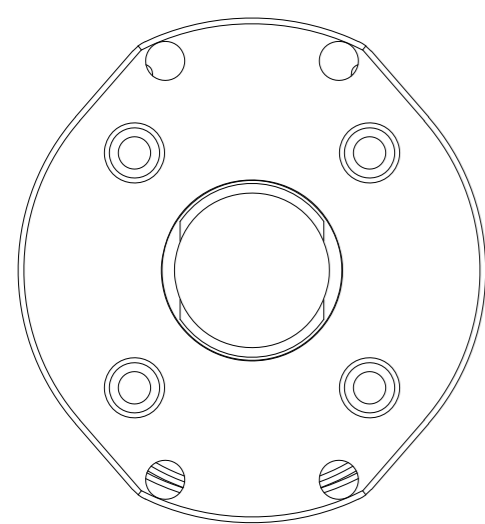
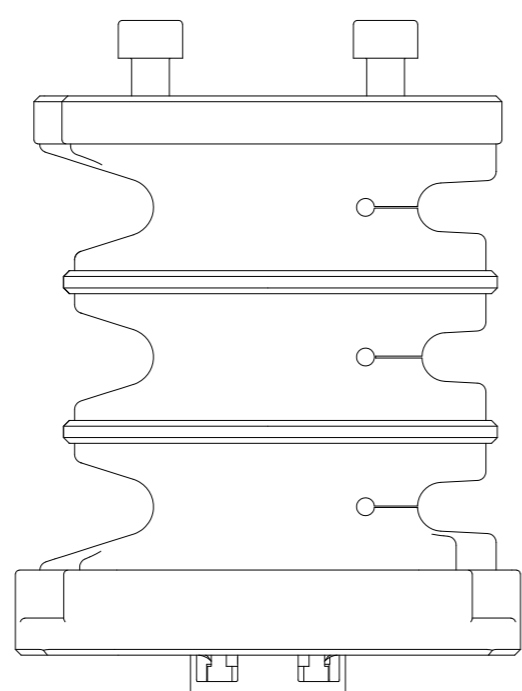
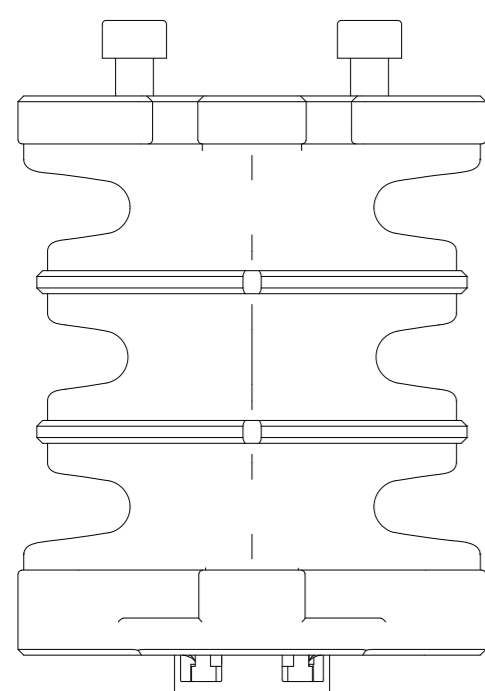
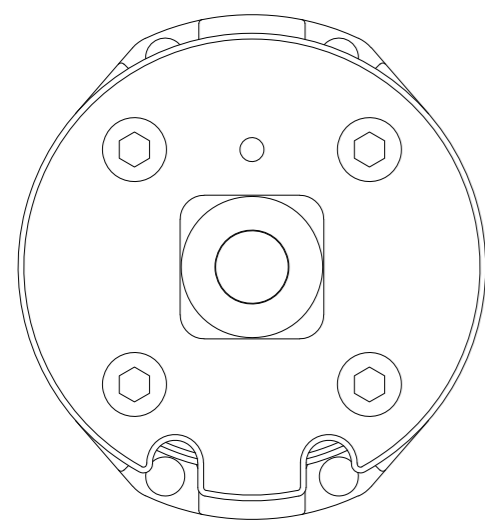


NOTES:

1. REMOVE BURRS AND BREAK SHARP EDGES.
2. UNLESS OTHERWISE SPECIFIED, SURFACE FINISH TO BE 0.8 OR BETTER ALL OVER.
3. STAMP OR ETCH PART NUMBER WHERE SHOWN.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN: sclice CHECKED: ENG: APPROVED:	DATE 1/22/2013	
MATERIAL: 6061-T6 ALUMINUM HEAT TREAT: FINISH: CLEAR ANODIZE	THIRD ANGLE PROJECTION	SIZE: A3 SCALE: 3:4	DRAWING NUMBER: 020-2007 SHEET: 1 OF 1

ECO#		REV	REVISION HISTORY	BY	ENG'R.	DATE
76833	A		RELEASE TO PRODUCTION	BK	BK	1/27/09
77064	B		ADD 020-2414	BK	BK	4/09/09
77358	C		9003247 WAS 5000809; UPDATE TO SHOW CHANGES TO CABLE ASSEMBLY	BK	BK	11/13/09
77382	D		ADDED NOTE	MT	MT	12/17/09
77749	E		REMOVED 020-2414, 9003247; ADDED 9003278,9003280 QTY 2, 9003279	KJ	KJ	1/13/11
10094	F		UPDATED TO SHOW CHANGES ON 020-2401	MT	MT	12/14/11
70140	G		REDRAWN IN INVENTOR; ITEM 6 REPLACES 020-2408, ITEM 7 REPLACES 020-2405	JAA	JAA	9/10/2012
72299	J		ADD 5000291; REMOVE "-FT" FROM 9003278, 9003279 & 9003280	AB		03/13/14
72823	1		PROTOTYPE, ADDED 020-2421, 020-2423, 020-2426; DELETED 020-2409, 020-2418, 9003278-FT	JAA	JAA	9/29/2014
73361	K		RELEASE TO PRODUCTION, ADDED LOCKING TORQUE AND WRENCHES TO NOTE	JAA	JAA	12/4/2014
74650	L		REGULATION RELEASE - 2 IN.-LB. WAS 1.5 IN.-LB., 30 IN.-LB. WAS 30 IN.-LB., SHT 1 & 2 NOTE 2 REFERRED TO "WORK INSTRUCTION TL-WI-00135H" NOW REFERS TO "PADI"	AB/ JHC		12/21/15



- NOTES:
- BEFORE INSTALLING ITEM 8, APPLY TORQUE OF 2 IN.-LB. TO ITEM 6 USING 020-2410 WRENCH, THEN APPLY TORQUE OF 30 IN.-LB. TO ITEM 7 USING 020-2420 WRENCH, AGAINST ITEM 6.
 - REFER TO *PROCEDURES FOR ASSEMBLY, DISASSEMBLY AND INSPECTION (PADI) OF THE Q3s THREE-YEAR-OLD CHILD SIDE IMPACT DUMMY* FOR DETAILED TORQUE PROCEDURE ON ITEMS 6 & 7, AND OTHER ASSEMBLY DETAILS.

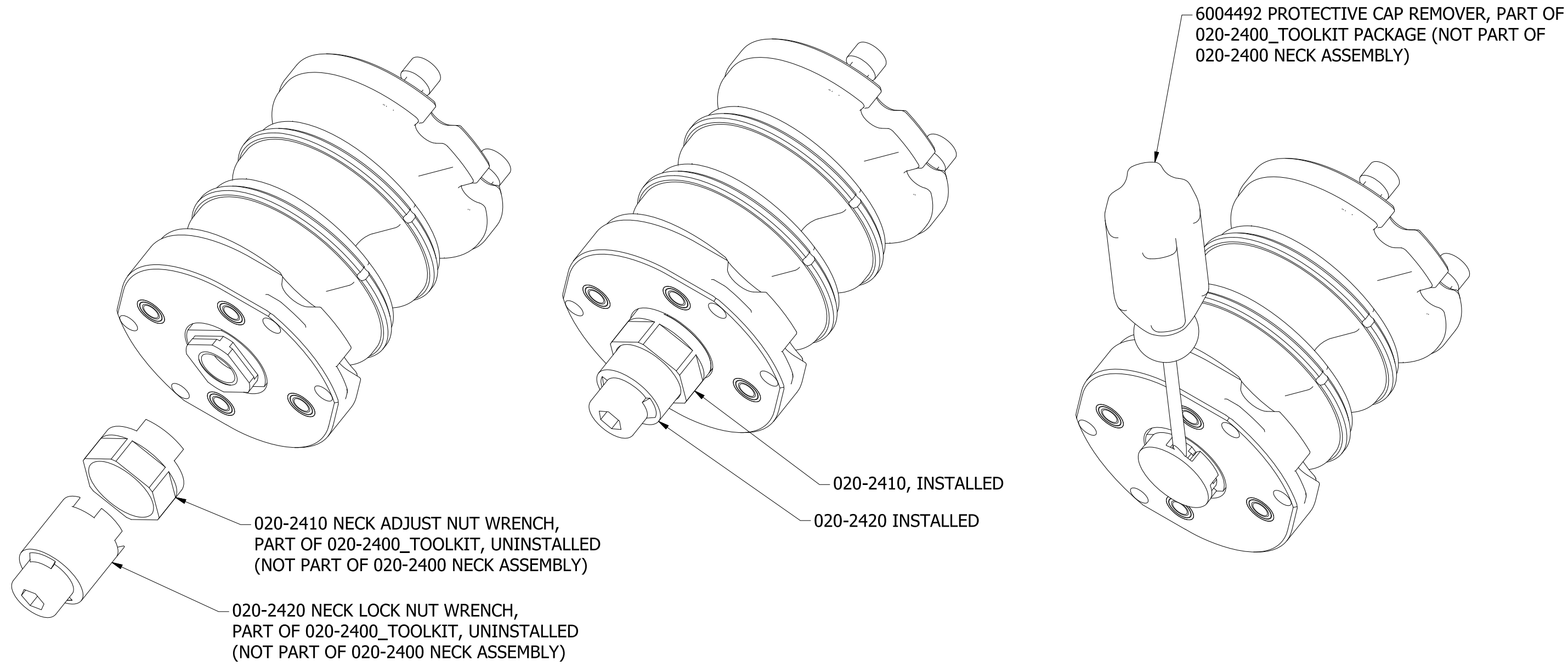
ITEM	QTY	PART NUMBER	DESCRIPTION
8	1	020-2423	PROTECTIVE SNAP CAP
7	1	020-2426	CABLE LOCK NUT
6	1	020-2421	CABLE ADJUST NUT
5	4	5000291	M5 X 0.8 X 10 LG. SHCS
4	1	020-2415	TENSION CABLE ASSEMBLY
3	1	9003279	BEARING, THRUST, 15/16" OD X 1/2" ID
2	2	9003280	THRUST BEARING WASHER, .032" THK
1	1	020-2401	MOLDED NECK

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:

DECIMAL: X ±.5 X.X ±.2 X.XX ±.1	MACHINED ANGLES ±.5°
--	----------------------------

ASME Y14.5M - 1994
DO NOT SCALE DRAWING

VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
APPROVALS	DATE	
DRAWN jarthur	9/10/2012	NECK ASSEMBLY
CHECKED		
MATERIAL SEE PARTS LIST	ENG	 THIRD ANGLE PROJECTION
HEAT TREAT N/A	APPROVED	
FINISH N/A		SIZE: A2 DRAWING NUMBER: 020-2400 SCALE: N/A SHEET: 1 OF 2

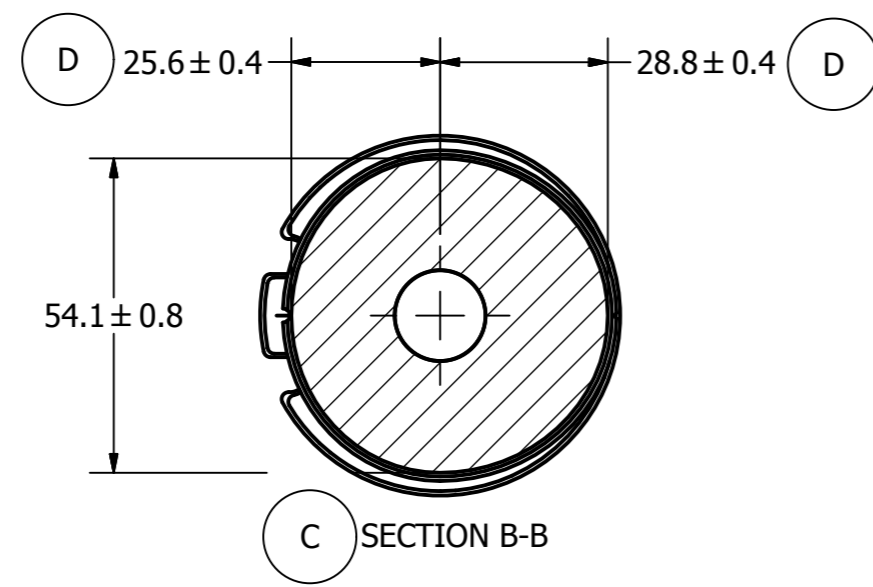
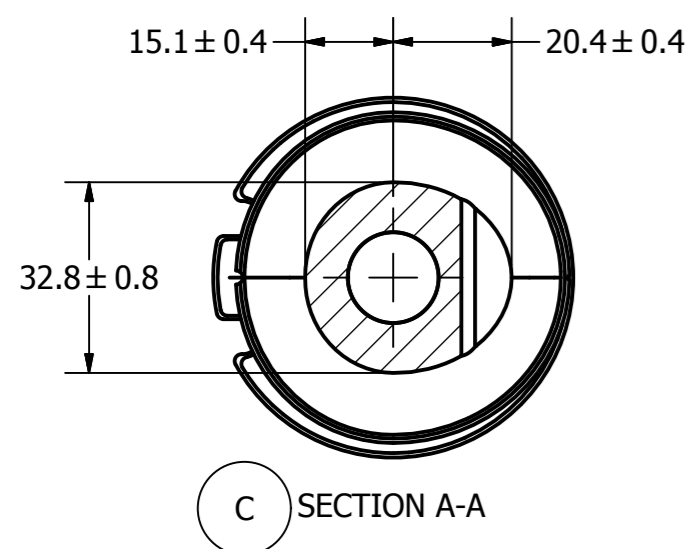
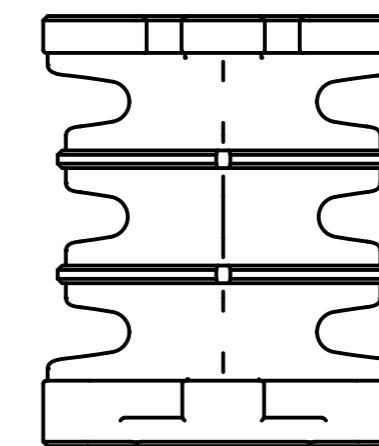
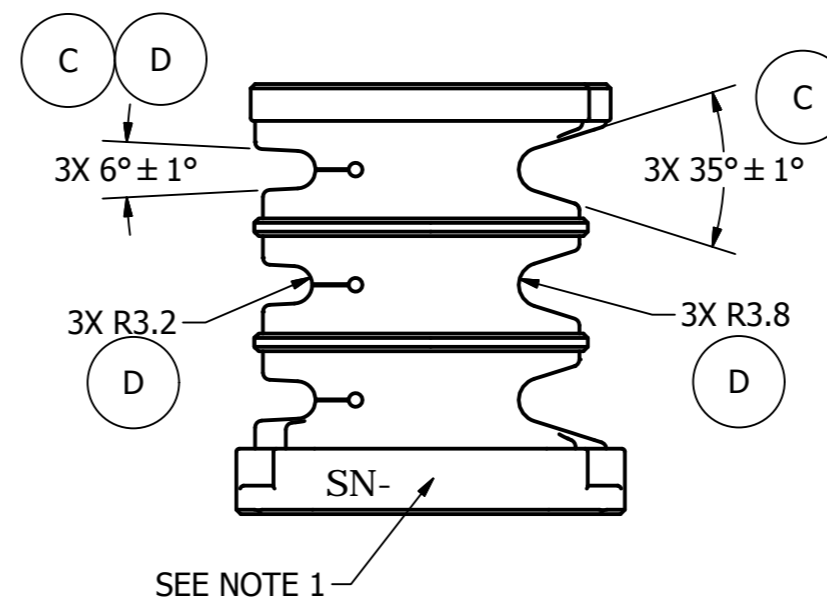
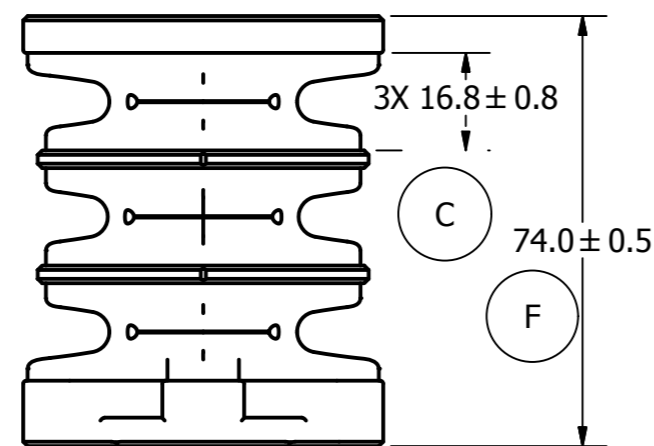
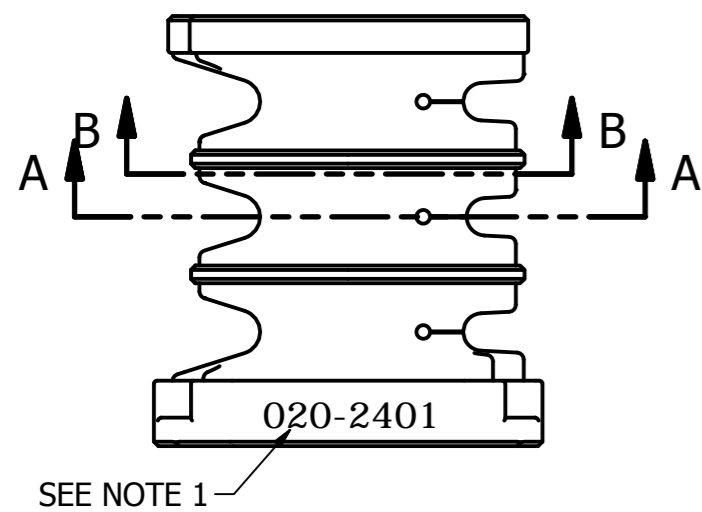
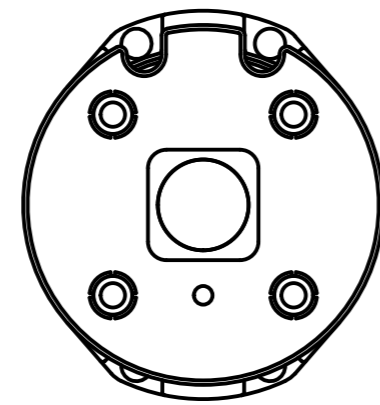
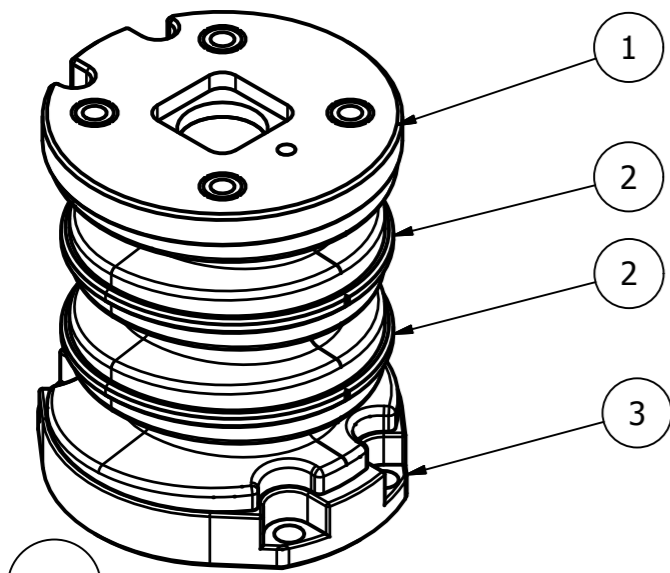


NOTES:

- 1) THIS PAGE IS FOR REFERENCE ONLY, TO SHOW APPLICATION OF 020-2400_TOOLKIT
- 2) REFER TO *PROCEDURES FOR ASSEMBLY, DISASSEMBLY AND INSPECTION (PADI) OF THE Q3s THREE-YEAR-OLD CHILD SIDE IMPACT DUMMY* FOR DETAILED TORQUE PROCEDURE, AND OTHER ASSEMBLY DETAILS.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN jarthur CHECKED ENG APPROVED	DATE 9/10/2012	
MATERIAL SEE PARTS LIST HEAT TREAT N/A FINISH N/A	THIRD ANGLE PROJECTION	SIZE A3 SCALE: N/A	DRAWING NUMBER 020-2400 SHEET 2 OF 2

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
76562	A	RELEASE TO PRODUCTION	BK	BK	8/21/08
76796	B	UPDATED TO SHOW HOTCHES ON PLATES; ADDED NOTE 3	MT	MT	11/24/08
76833	C	DUROMETER 80 WAS 60; ADD SECTIONS A-A, B-B AND DIMENSIONS	BK	BK	1/27/09
77064	D	6" WAS 24"; DUROMETER 68 WAS 80; ADD RADIUS DIMENSIONS; ADD DIMENSIONS IN SECTION B-B	BK	BK	4/9/09
77248	E	IN NOTE 2: 70±5 WAS 68±5; 8002209 WAS 8002781	MT	MT	9/4/09
77447	F	74.0±0.5 WAS 74.0±0.8	KJ	KJ	7/29/10
10094	G	UPDATE TO SHOW CHANGES ON 020-2402,020-2403,020-2404 & ADDED ISO VIEW	MT	MT	12/14/11
70140	H	REDRAWN IN INVENTOR	JA	JA	10/23/12
74650	J	REVISION SKIPPED DUE TO VAULT RESTRICTIONS	AB		01/05/16
74650	K	REVISION SKIPPED DUE TO VAULT RESTRICTIONS	AB		01/05/16
74650	L	REGULATION RELEASE	AB		01/06/16



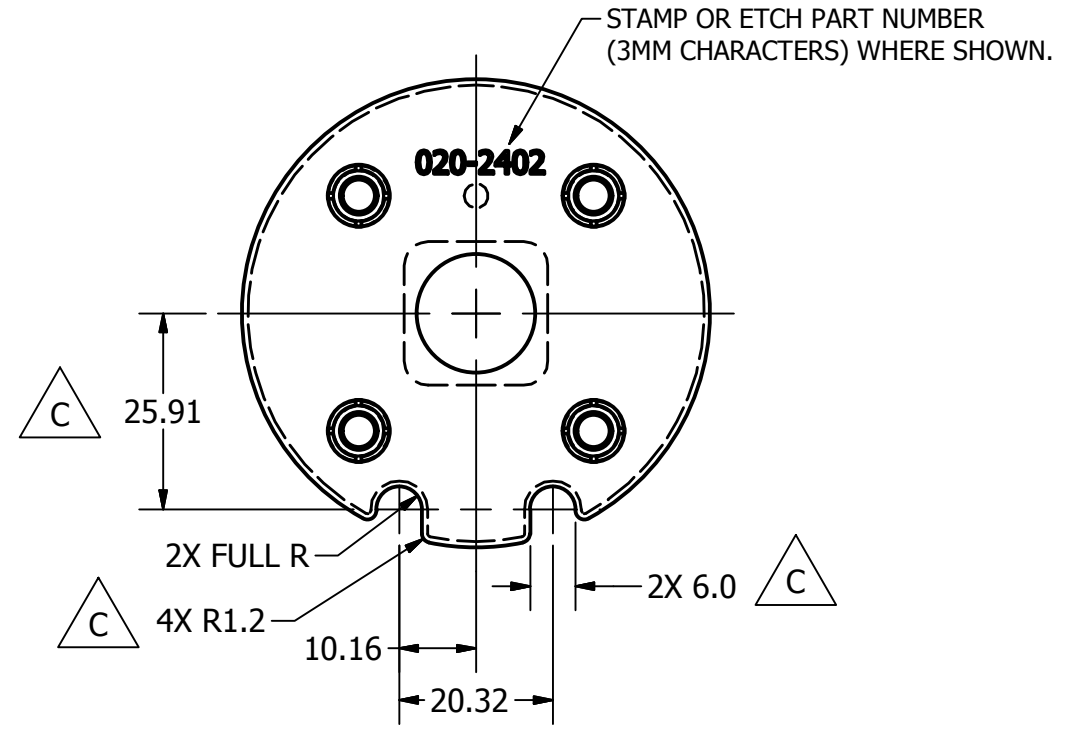
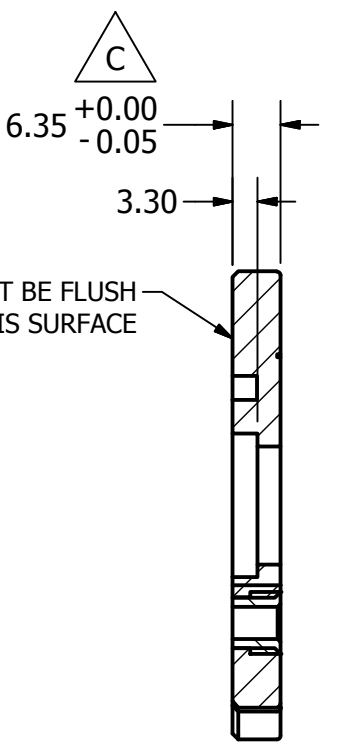
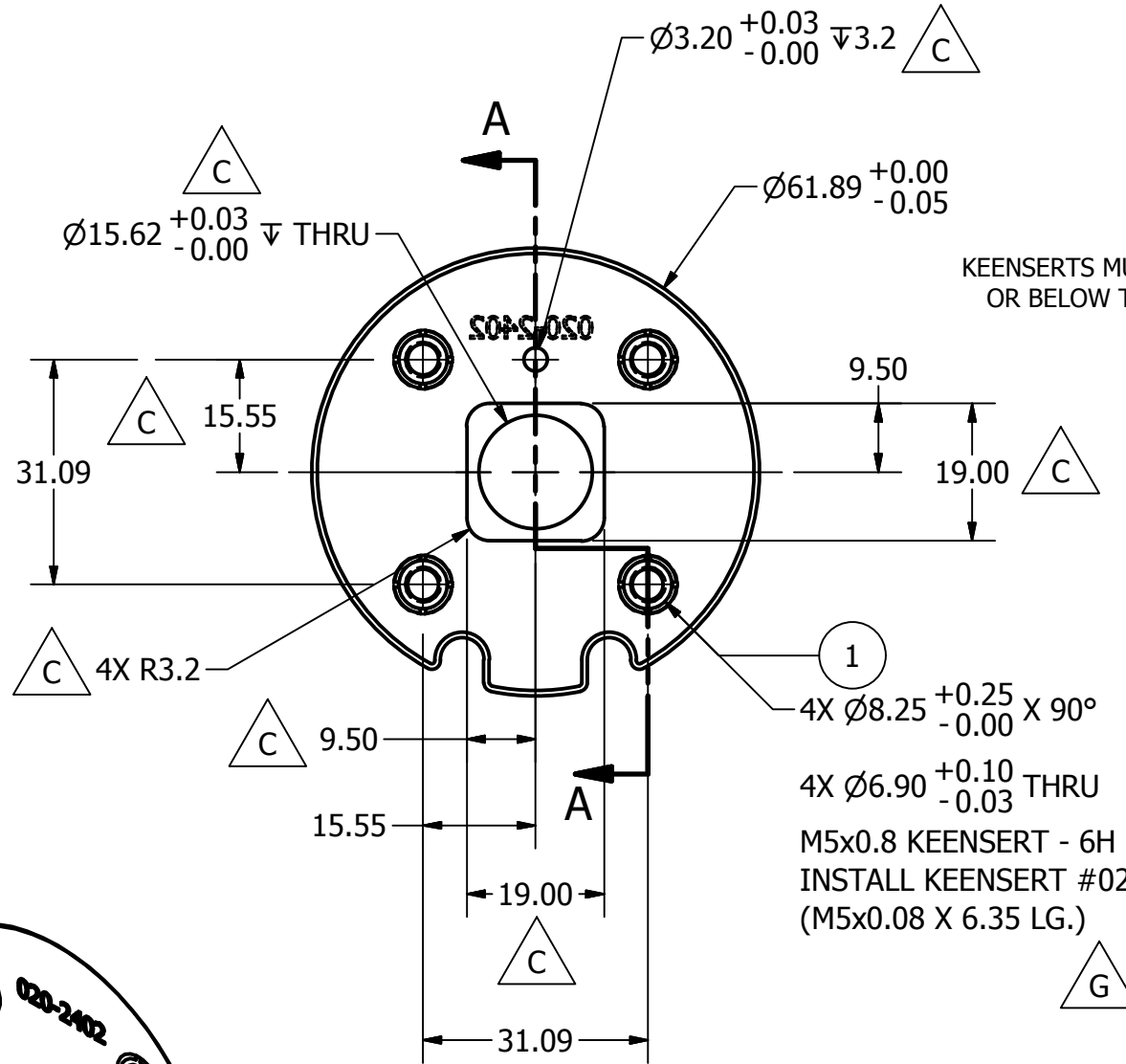
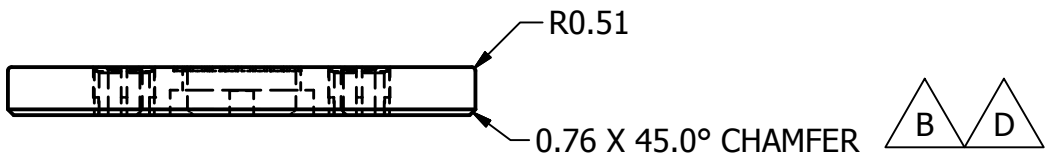
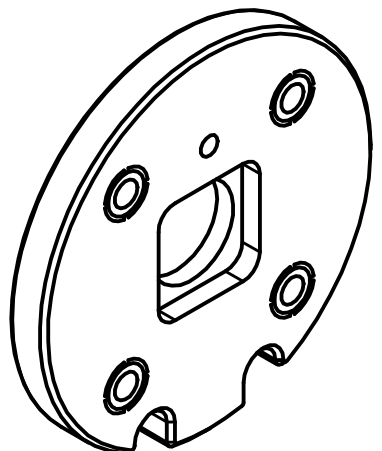
NOTES:

1. STAMP OR ETCH PART NUMBER AND SERIAL NUMBER (IN 4MM CHARACTERS) AS SHOWN.
2. MATERIAL: NATURAL RUBBER, BLACK, DUROMETER 70±5 SHORE A (8002209)
3. ALL NOTCHES GO TO THE BACK WHEN ASSEMBLING IN MOLD

ITEM	QTY	PART NUMBER	DESCRIPTION
3	1	020-2404	NECK PLATE, BOTTOM
2	2	020-2403	NECK PLATE, MIDDLE
1	1	020-2402	NECK PLATE, TOP

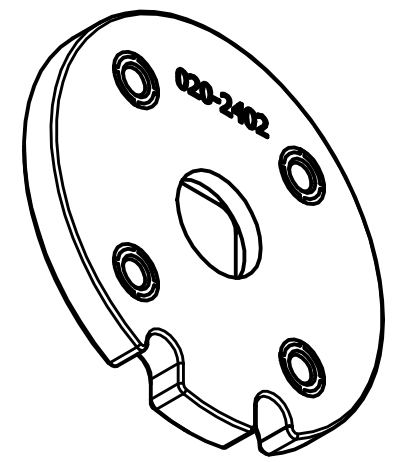
PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL: X ±.5, XX ±.2, XXX ±.1	MACHINED ANGLES: ±.5°	VEHICLE RESEARCH and TEST CENTER	
APPROVALS: jarthur CHECKED:		DATE: 9/13/2012	MOLDED NECK
MATERIAL: SEE PARTS LIST			
HEAT TREAT: N/A	FINISH: N/A	APPROVED:	SCALE: N/A SHEET 1 OF 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
76562	A	RELEASE TO PRODUCTION	BK	BK	8/21/08
76796	B	REMOVED WITNESS LINE; ADDED NOTCH 1.0 X 90°	MT	MT	11/21/08
76833	C	9.50 WAS 9.525; 19.00 WAS 19.05; MAKE DIMENSIONS 2 PLACES; 2X 6.0 WAS 5.999; R3.0 WAS R3.175; 4X R1.2 WAS R1.194; ADD TOLERANCE +/- .05 TO DIMENSIONS	BK	BK	1/26/09
10094	D	REMOVED ALIGNMENT NOTCH & DETAIL A	MT	MT	12/13/11
70140	F	REDRAWN IN INVENTOR, SKIPPED REV. E	JAA	JAA	9/13/2012
74650	G	REV SKIPPED DUE TO VAULT RESTRICTIONS.	GCH		1/8/2016
74650	H	UPDATED KEENSERT HOLE CALLOUT PER CURRENT STANDARDS.	GCH		01/08/2016
74650	J	REGULATION RELEASE	GCH		01/11/2016

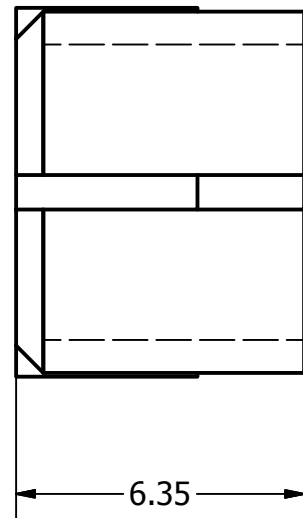
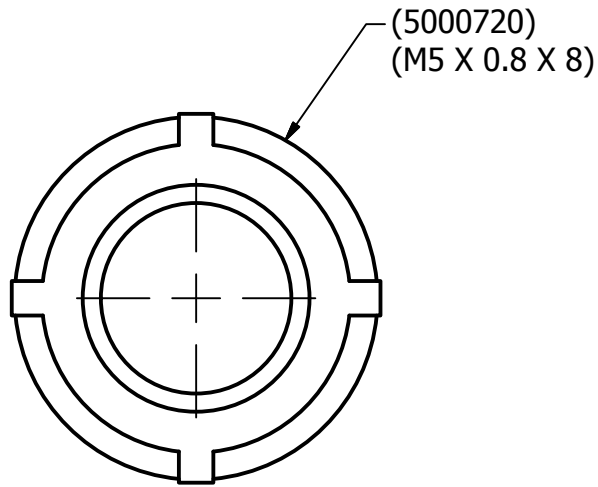
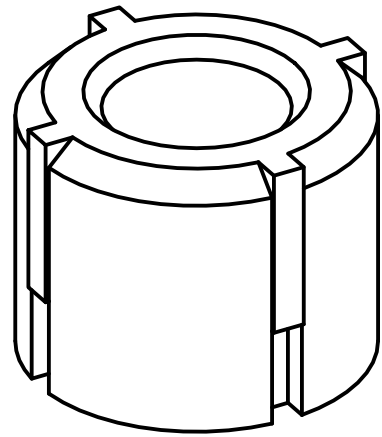


1	4	020-2416	KEENSERT, M5 MODIFIED (.25" LONG)
ITEM	QTY	PART NUMBER	DESCRIPTION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		NECK PLATE, TOP	
DRAWN jarthur		9/13/2012			
CHECKED					
MATERIAL 7075		ENG		SIZE A3 DRAWING NUMBER 020-2402 REV J	
HEAT TREAT N/A		APPROVED		SCALE: N/A SHEET 1 OF 1	
FINISH N/A					



REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
76562	A	RELEASE TO PRODUCTION	BK		7/3/08
72299	B	REDRAWN IN INVENTOR; REMOVE BOM	AB		03/10/14
74650	C	REGULATION RELEASE	JH		12/18/2015

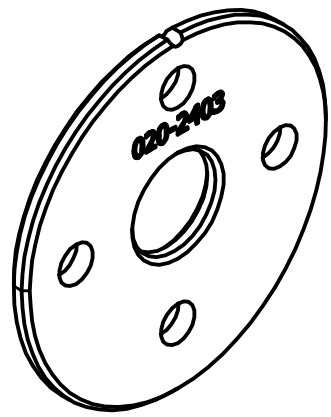


NOTES:

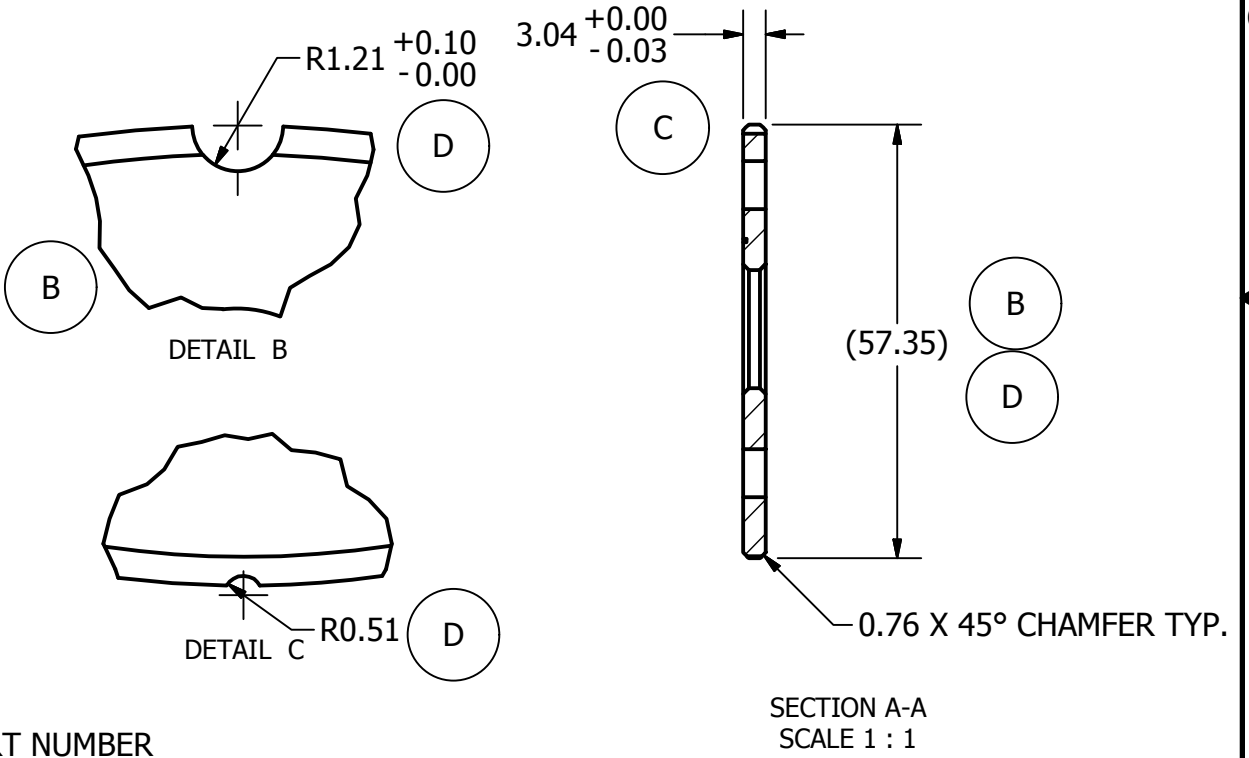
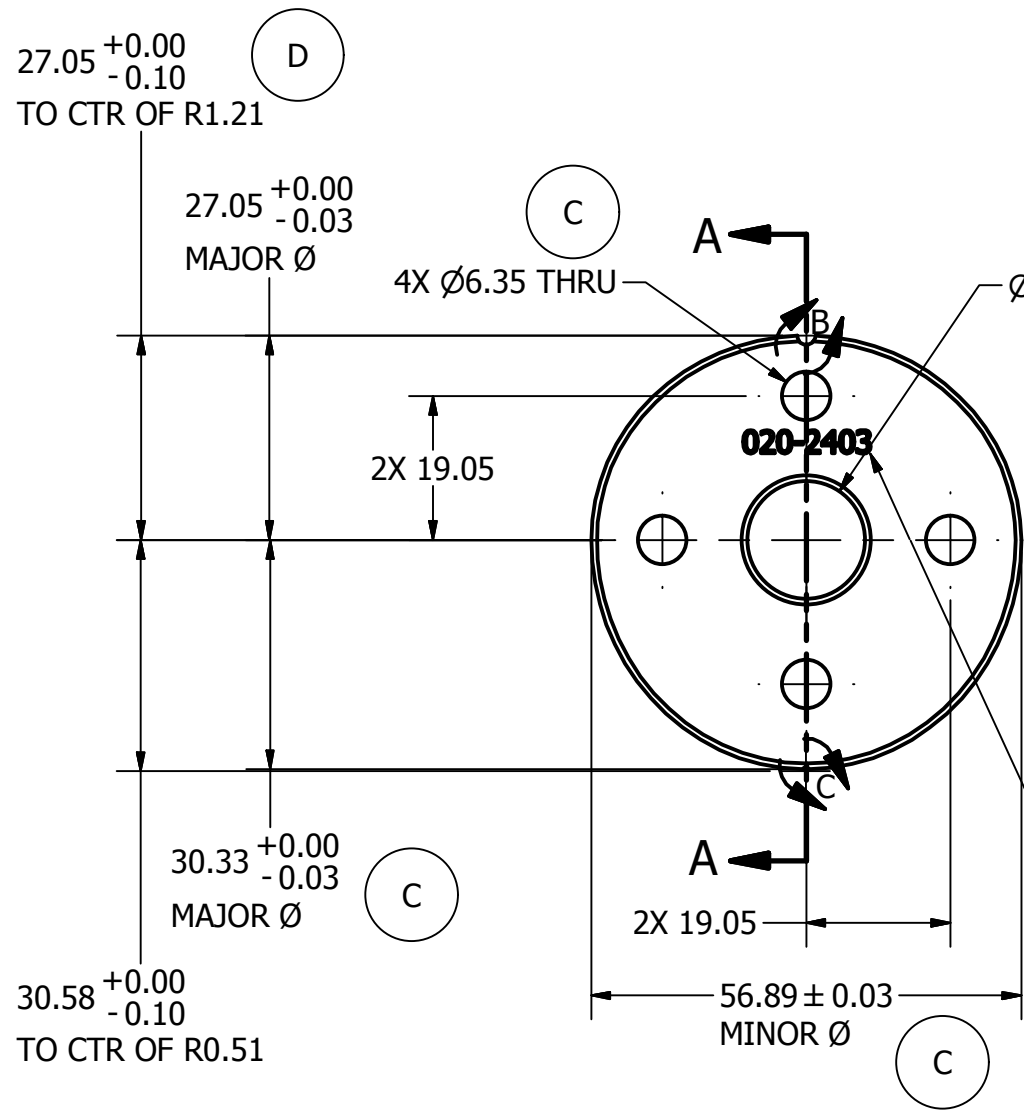
MAKE FROM 5000720, MODIFY AS SHOWN.

B

<p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</p> <p>DECIMAL: X ±.5 XX ±.2 X.XX ±.1</p> <p>MACHINED ANGLES ±.5°</p> <p>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</p>	<p>VEHICLE RESEARCH and TEST CENTER</p>		<p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p>
	<p>APPROVALS</p> <p>DRAWN B. KIMES</p>	<p>DATE</p> <p>9/15/2008</p>	
	<p>MATERIAL</p> <p>HEAT TREAT</p> <p>FINISH</p>	<p>CHECKED</p> <p>ENG</p> <p>APPROVED</p>	<p>THIRD ANGLE PROJECTION</p>



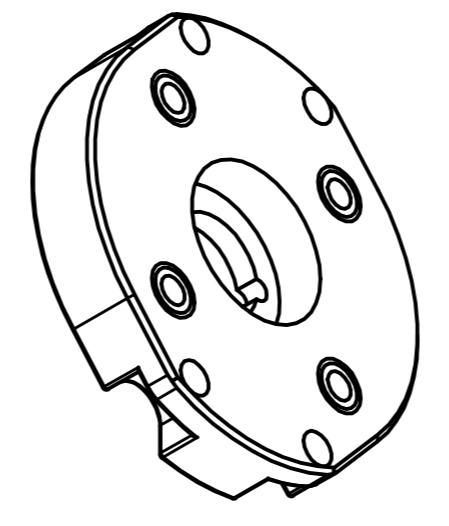
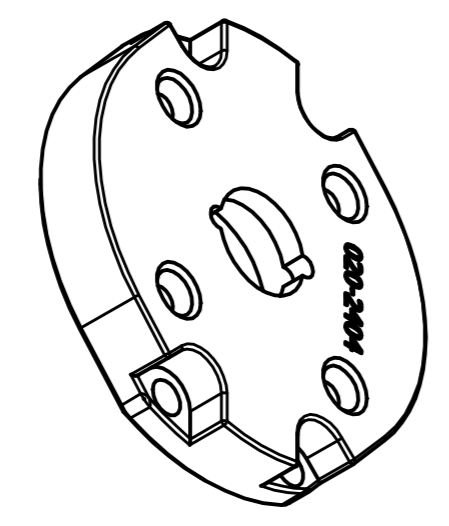
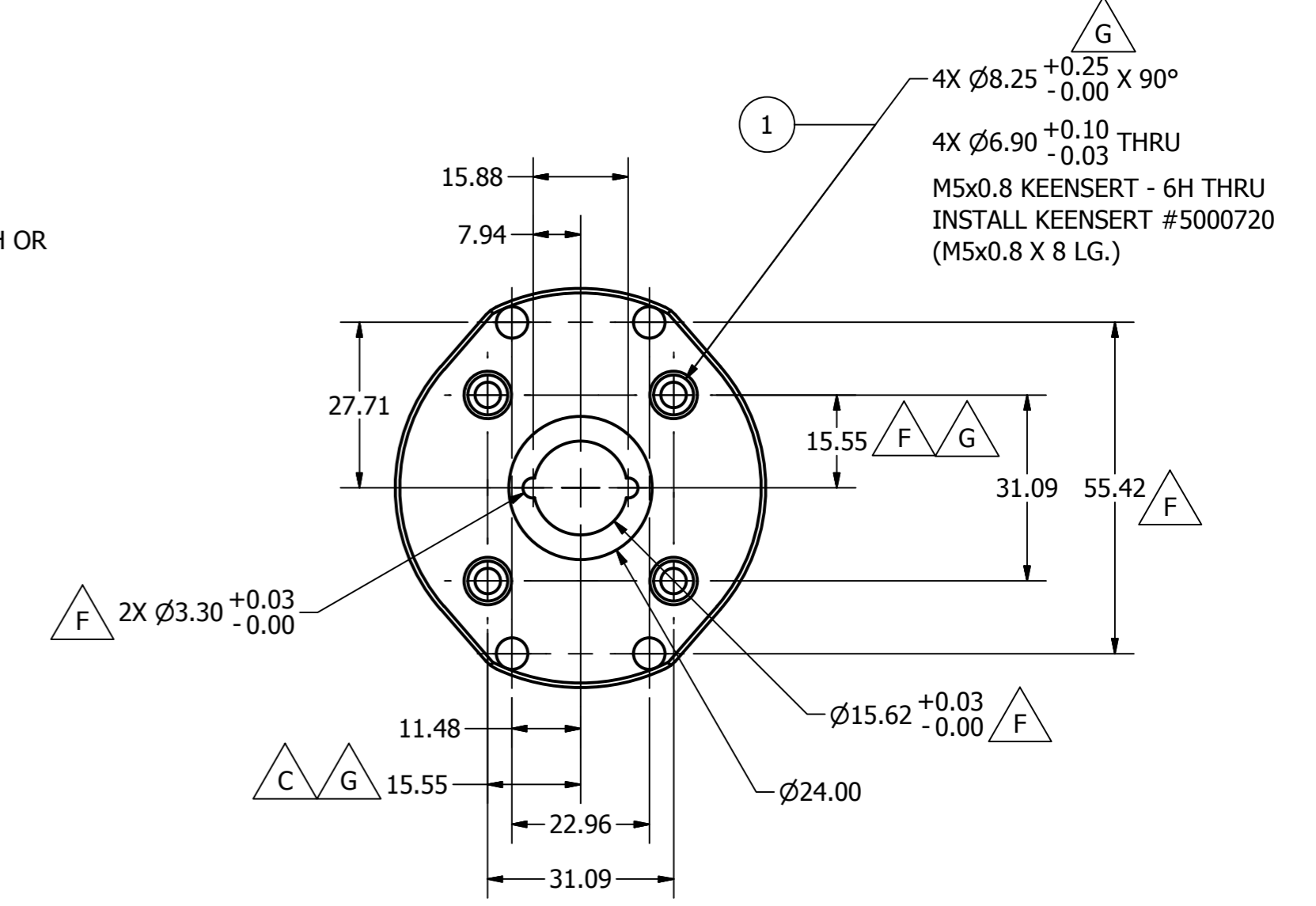
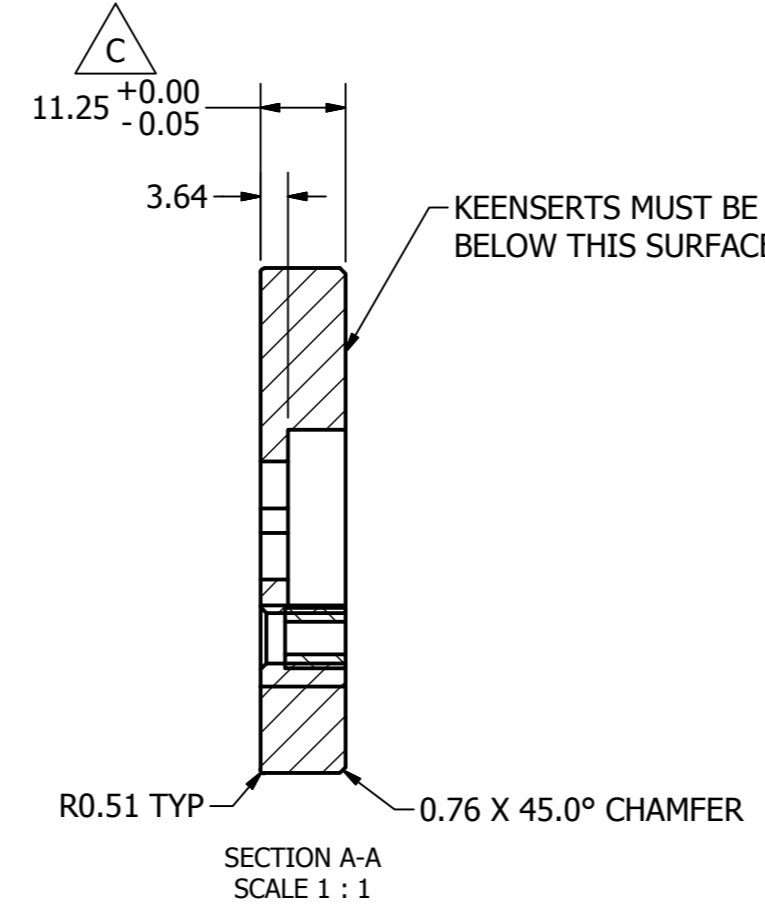
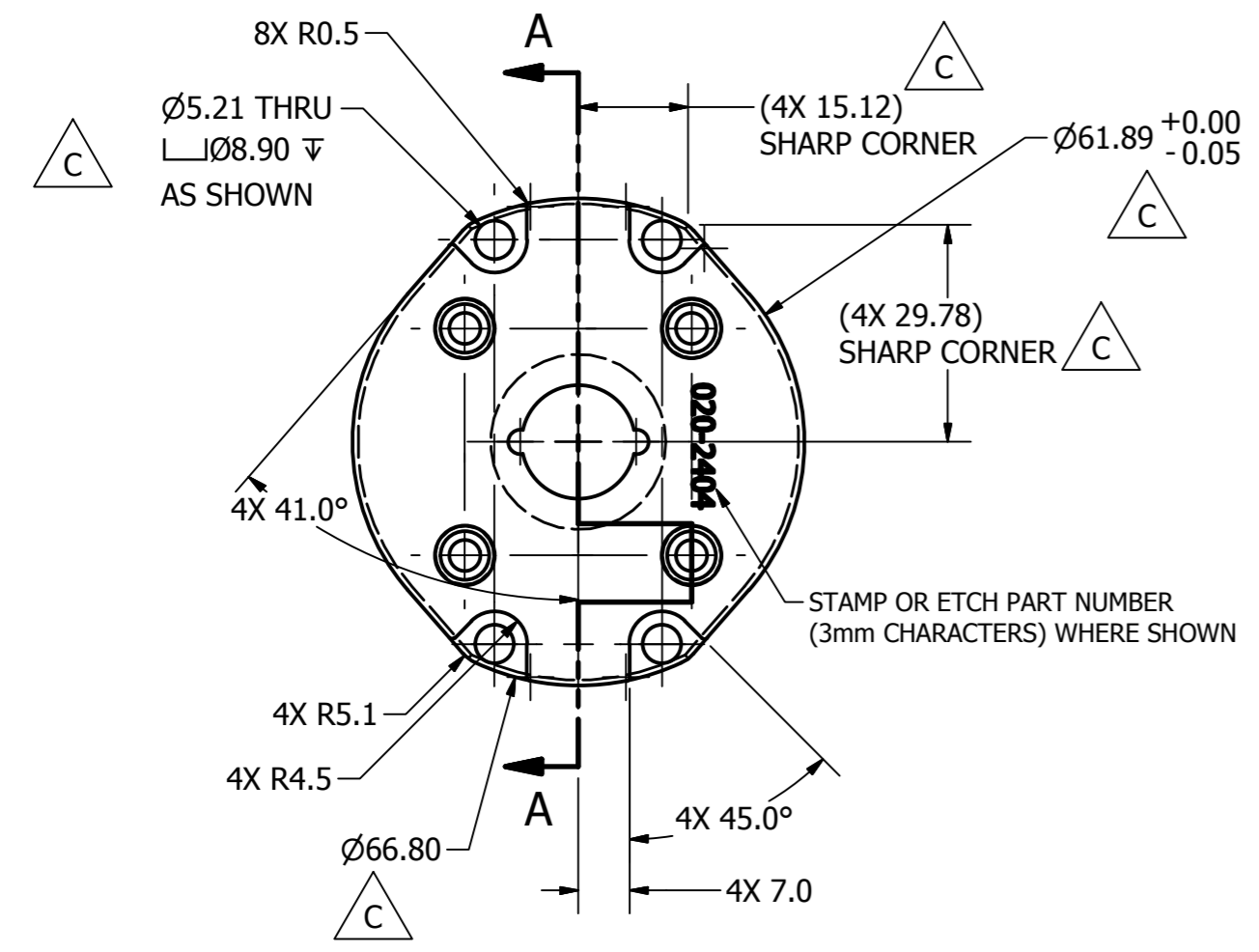
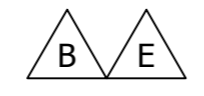
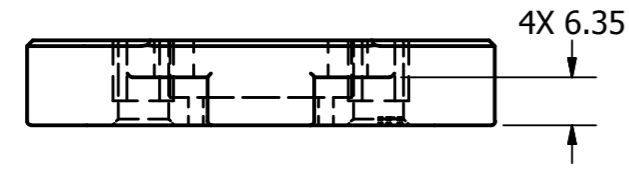
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
76562	A	RELEASE TO PRODUCTION	BK	BK	8/21/08
76796	B	REMOVED WITNESS LINES; ADDED NOTCH 1.0 X 90°; (57.374 WAS 57.315)	MT	MT	11/21/08
76833	C	MAKE ALL DIMENSIONS 2 PLACE; 3.04 +0/-0.03 WAS 3.05; 56.89 ±0.03 WAS 56.896	BK	BK	1/26/09
10094	D	REMOVED DIM 1.0 X 90° IN DETAIL A & ADDED R1.21 +0.10/-0 & 27.05 +0/-0.10 TO CTR OF R1.21; ADDED DETAIL B, R0.51, 30.58 TO CTR OF R0.51; (57.35) WAS (57.37)	MT	MT	12/14/11
70140	E	REDRAWN IN INVENTOR	JAA	JAA	10/23/12
74650	F	REGULATION RELEASE	JH		12/23/2015



STAMP OR ETCH PART NUMBER (3mm CHARACTERS) WHERE SHOWN.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN jarthur CHECKED ENG APPROVED	DATE 9/17/2012		NECK PLATE, MIDDLE	
MATERIAL 7075-T6 ALUMINUM HEAT TREAT N/A FINISH N/A		SIZE A3 SCALE: N/A	DRAWING NUMBER 020-2403 SHEET 1 OF 1	REV F	

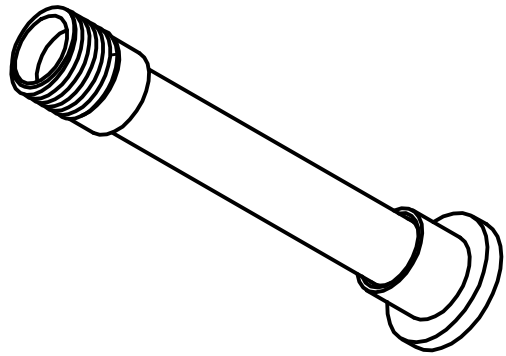
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
76562	A	RELEASE TO PRODUCTION	BK	BK	8/21/08
76796	B	REMOVED WITNESS LINE; ADDED NOTCH 1.0 X 90°	MT	MT	11/21/08
76833	C	MAKE DIMENSIONS 2 PLACES; MAKE THE DIMENSIONS TO SHARP CORNER REFERENCE; ADD TOL +0/-0.03; \square ϕ 8.90 WAS ϕ 8.89	BK	BK	1/26/09
77749	D	ϕ 24.00 WAS ϕ 20.63	KJ	KJ	1/13/11
10094	E	REMOVED ALIGNMENT NOTCH & DETAIL A	MT	MT	12/13/11
70140	F	REDRAWN IN INVENTOR	JA	JA	10/23/12
74650	G	UPDATED KEENSERT HOLE CALLOUT PER CURRENT STANDARDS; 15.55 WAS 15.54	GCH		01/07/2016
74650	H	REGULATION RELEASE	GCH		01/07/2016



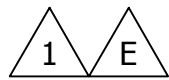
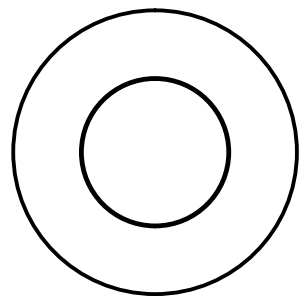
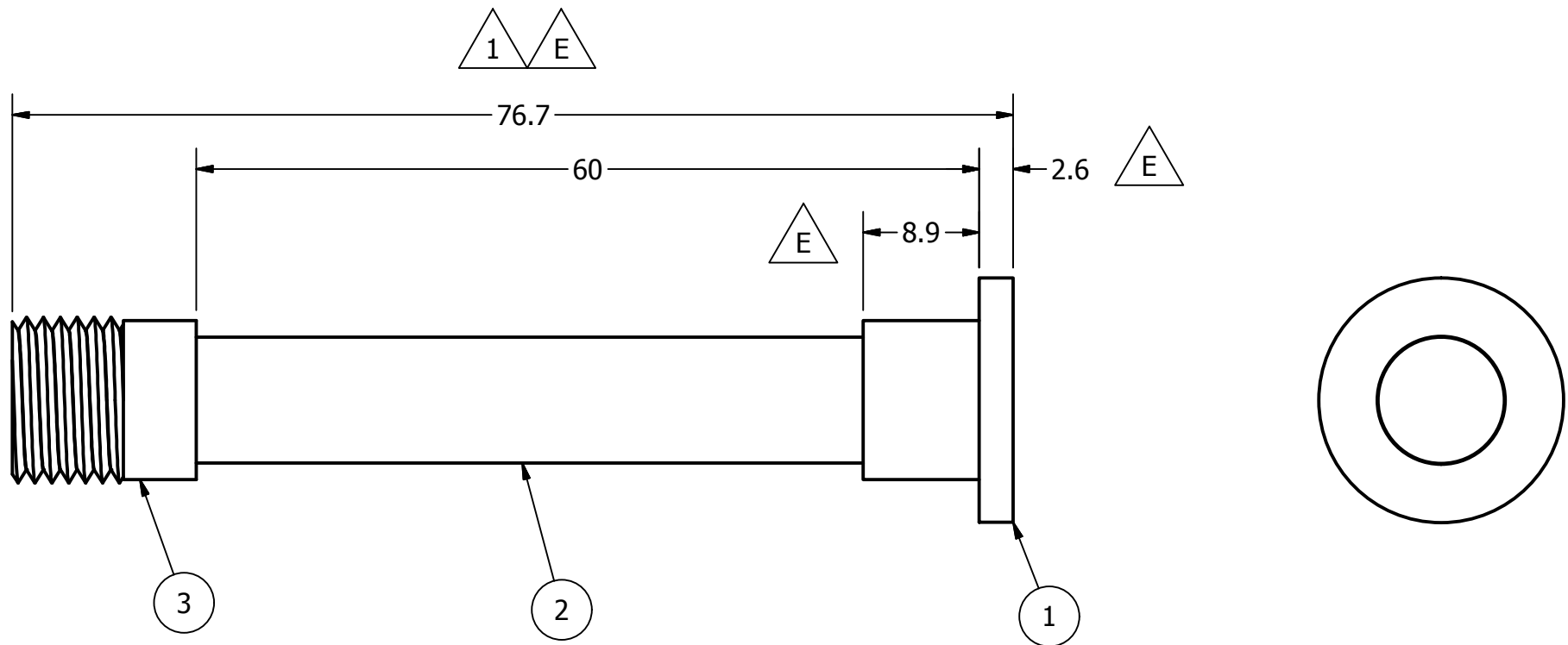
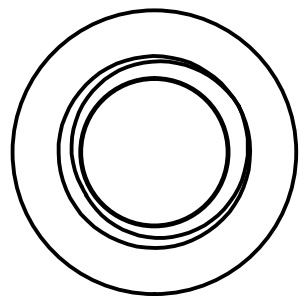
ITEM	QTY	PART NUMBER	DESCRIPTION
1	4	5000720	KEENSERT, M5 X .8 X 8

PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER	
DECIMAL: $\begin{smallmatrix} X \\ X.X \\ X.XX \end{smallmatrix}$	MACHINED ANGLES: $\begin{smallmatrix} \nabla \\ \nabla \\ \nabla \end{smallmatrix}$	APPROVALS	DATE
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		jarthur	9/13/2012
MATERIAL: 7075	CHECKED:	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
HEAT TREAT: N/A	ENG:	NECK PLATE, BOTTOM	
FINISH: N/A	APPROVED:	DRAWING NUMBER: 020-2404	
THIRD ANGLE PROJECTION		SCALE: N/A	SHEET 1 OF 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
70140	A	NEW RELEASE, REPLACES 020-2408	JAA	JAA	9/12/2012
72823	1	PROTOTYPE, 77.7 WAS 81.3, UPDATED WI NUMBER	JAA	JAA	9/29/2014
73361	E	RELEASE TO PRODUCTION, 76.7 WAS 77.7, CHANGED ITEM # ORDER IN NOTE TO MATCH ITEMIZED ASSEMBLY, REMOVED W.I. REF. FROM NOTE, ADDED NOTE FOR TENSILE REQUIREMENT, ADDED 8.9; ADDED 2.6; CHANGED NOTE TO MAKE SILVER SOLDER AND CRIMPING OPTIONAL, SKIP REVISION DUE TO VAULT RESTRICTION.	JAA	JAA	4/29/2015
74650	F	REGULATION RELEASE	JH		1/15/2016



SCALE 1:1

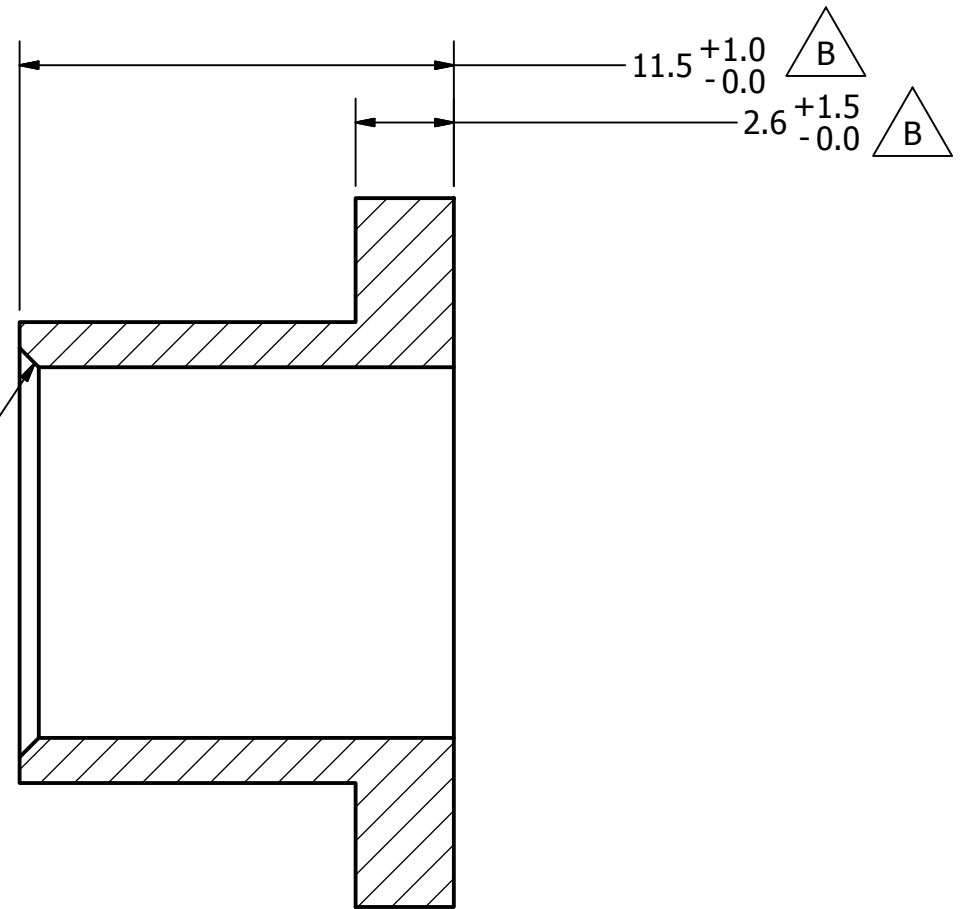
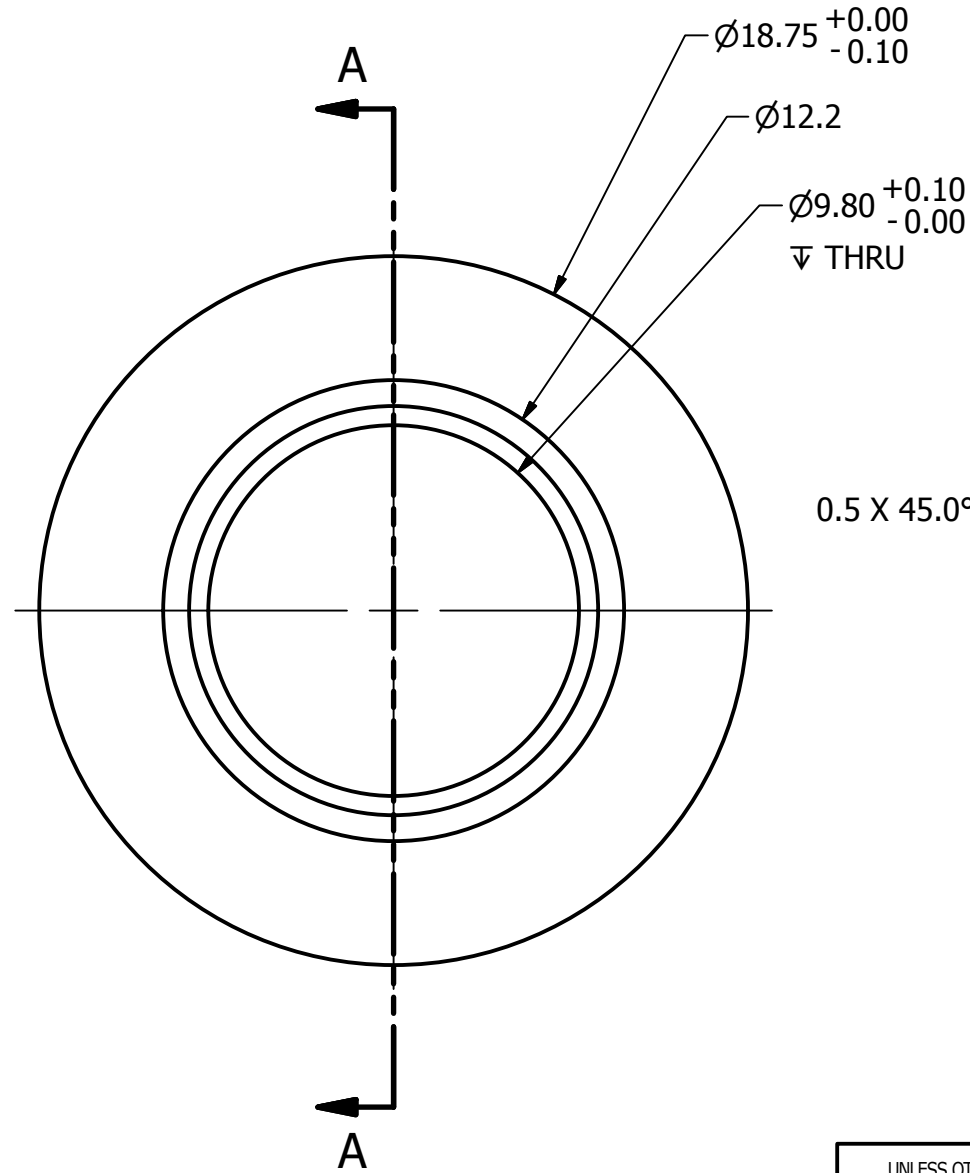
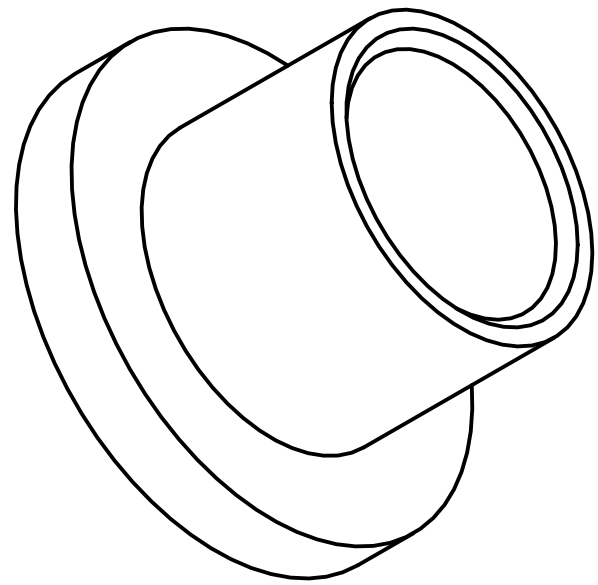


- NOTES:
- 1) ITEM 1 AND ITEM 3 ARE ATTACHED TO ITEM 2. ASSEMBLY IS REQUIRED TO MEET MINIMUM TENSILE STRENGTH OF 3000N (682 LB).
 - 2) SILVER SOLDER AND/OR CRIMPING ON ASSEMBLY ARE OPTIONAL.

ITEM	QTY	PART NUMBER	DESCRIPTION
3	1	020-2413	THREADED FITTING, TENSION CABLE
2	1	020-2417	TENSION CABLE ELEMENT
1	1	020-2411	ROUND FITTING - TENSION CABLE

PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER	
APPROVALS		DATE	
DRAWN jarthur		9/12/2012	
CHECKED			
MATERIAL SEE PARTS LIST			
HEAT TREAT N/A		ENG	
FINISH N/A		APPROVED	
THIRD ANGLE PROJECTION		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
SIZE A3		DRAWING NUMBER 020-2415	
SCALE: N/A		REV F	
SHEET 1		OF 1	

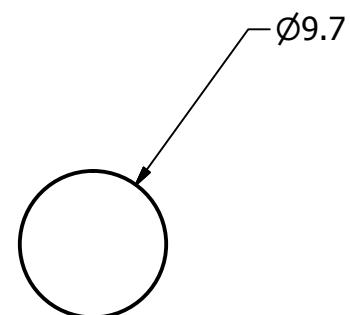
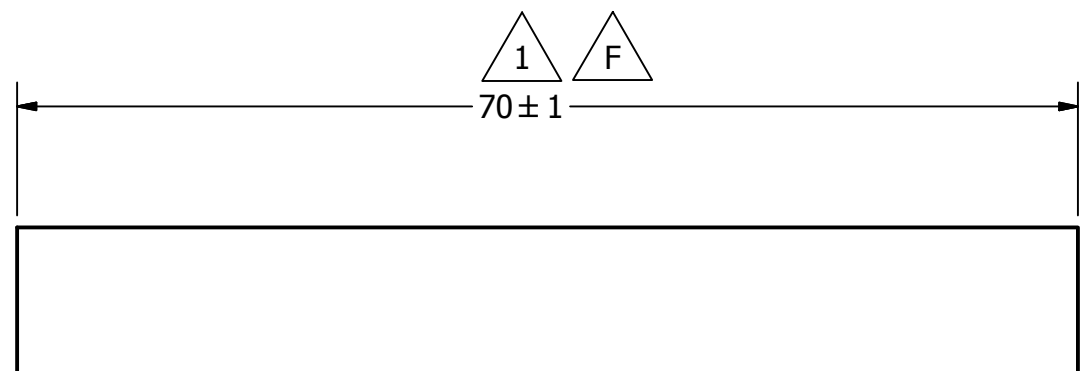
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
70140	A	NEW RELEASE, REPLACES 020-2406	JAA	JAA	10/22/2012
73361	B	2.6 +1.5, -0.0 WAS 2.6; 11.5 +1.0, -0.0 WAS 11.5	JAA	JAA	4/29/2015
74650	C	REGULATION RELEASE	JH		12/17/2015




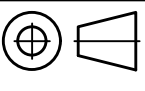
SECTION A-A

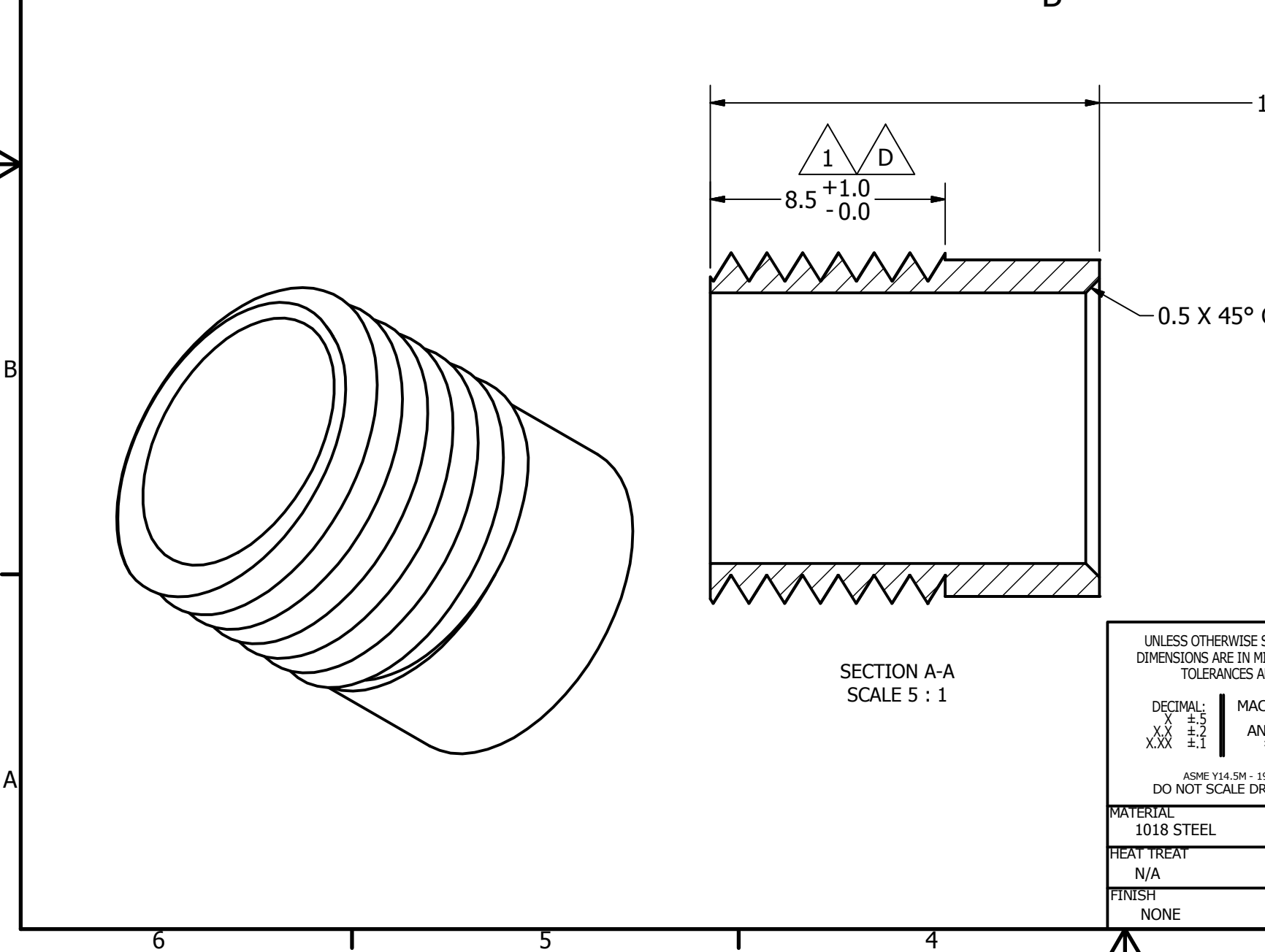
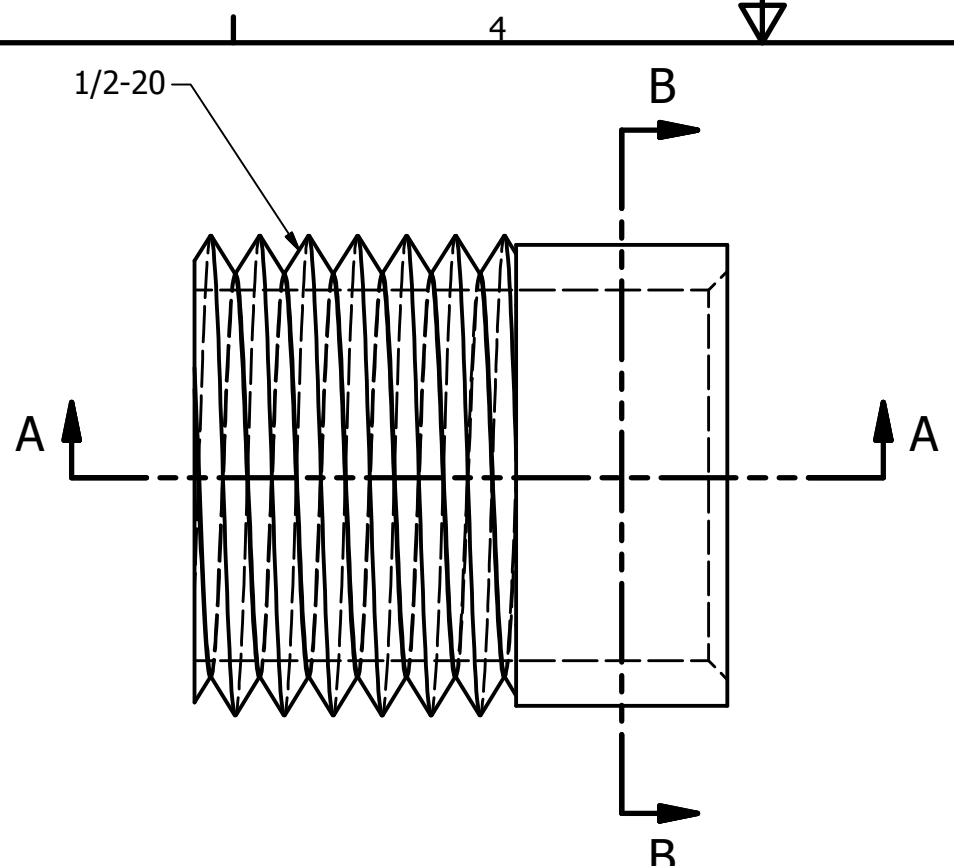
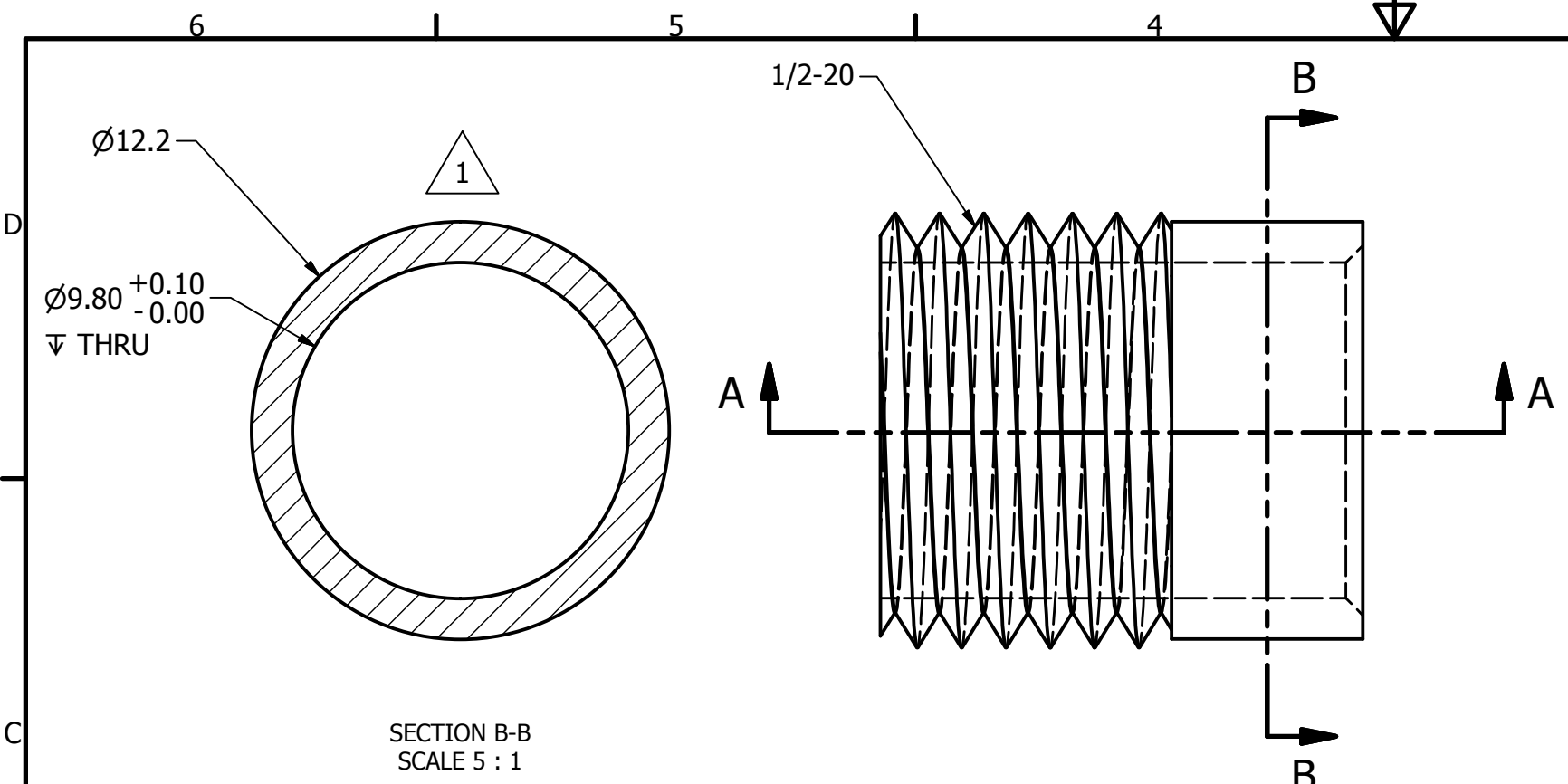
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 ANGLES XX ±.2 ±.5° X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN jarthur	DATE 10/22/2012	
MATERIAL 1018 STEEL	CHECKED	THIRD ANGLE PROJECTION	SIZE A3
HEAT TREAT N/A	ENG	DRAWING NUMBER 020-2411	REV C
FINISH NONE	APPROVED	SCALE: N/A	SHEET 1 OF 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
70140	B	NEW RELEASE, REPLACES 020-2419	JAA	JAA	9/12/2012
72823	1	PROTOTYPE, 70 WAS 74	JAA	JAA	9/29/2014
73361	F	RELEASE TO PRODUCTION, ADDED +/- 1, SKIP REVISION DUE TO VAULT RESTRICTION.	JAA	JAA	3/11/2015
74650	G	REGULATION RELEASE	JH		12/18/2015

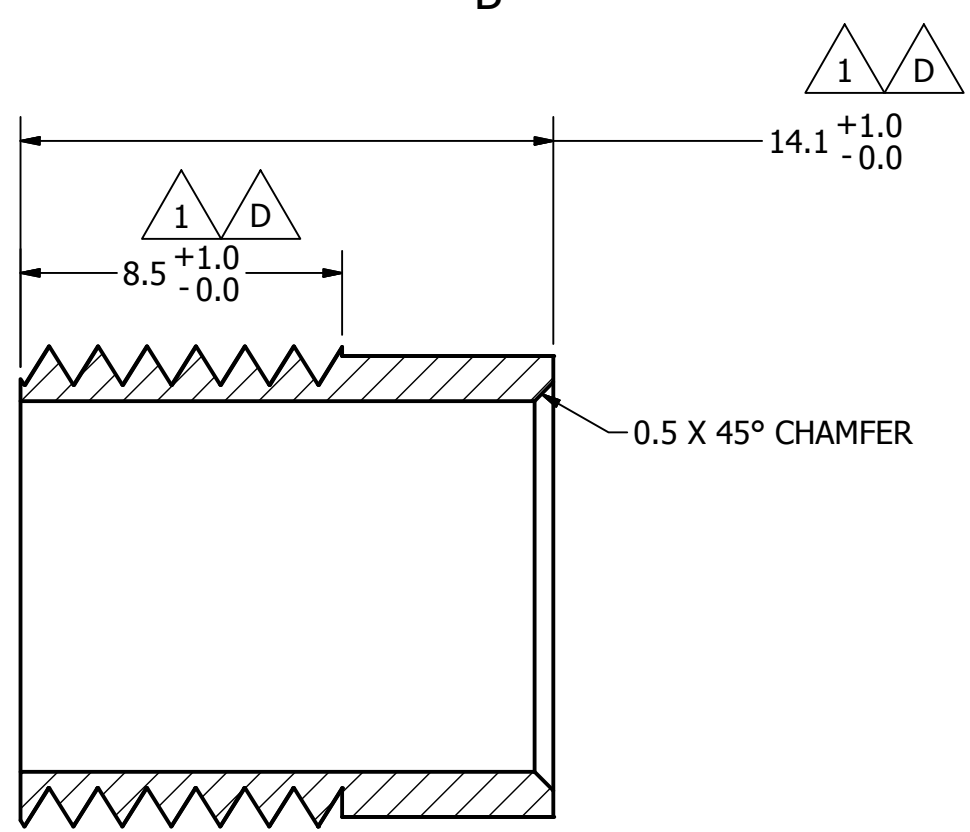


MAKE FROM 9003794-FT, 7 X 19 X 3/8" GALVANIZED STEEL WIRE ROPE

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 ✓ XX ±.2 ✓ X.XX ±.1 ✓ ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN jarthur CHECKED ENG APPROVED	DATE 9/12/2012	
MATERIAL Galvanized Steel HEAT TREAT N/A FINISH N/A	 THIRD ANGLE PROJECTION	SIZE A3 SCALE: N/A	DRAWING NUMBER 020-2417 SHEET 1 OF 1
			REV G




REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
70140	A	NEW RELEASE, REPLACES 020-2407	JAA	JAA	9/12/2012
72823	1	PROTOTYPE, 15.1 WAS 18.7, 9.5 WAS 10.5, DELETED 13.2 DIA. AND 2.5	JAA	JAA	9/29/2014
73361	D	RELEASE TO PRODUCTION, 8.5 +1.0 -0.0 WAS 9.5, 14.1 +1.0, - 0.0 WAS 15.1, SKIP REVISION DUE TO VAULT RESTRICTION.	JAA	JAA	4/29/2015
74650	E	REVISION SKIPPED DUE TO VAULT RESTRICTIONS	JH		1/8/2016
74650	F	REGULATION RELEASE	JH		1/11/2016

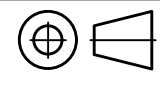


UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:

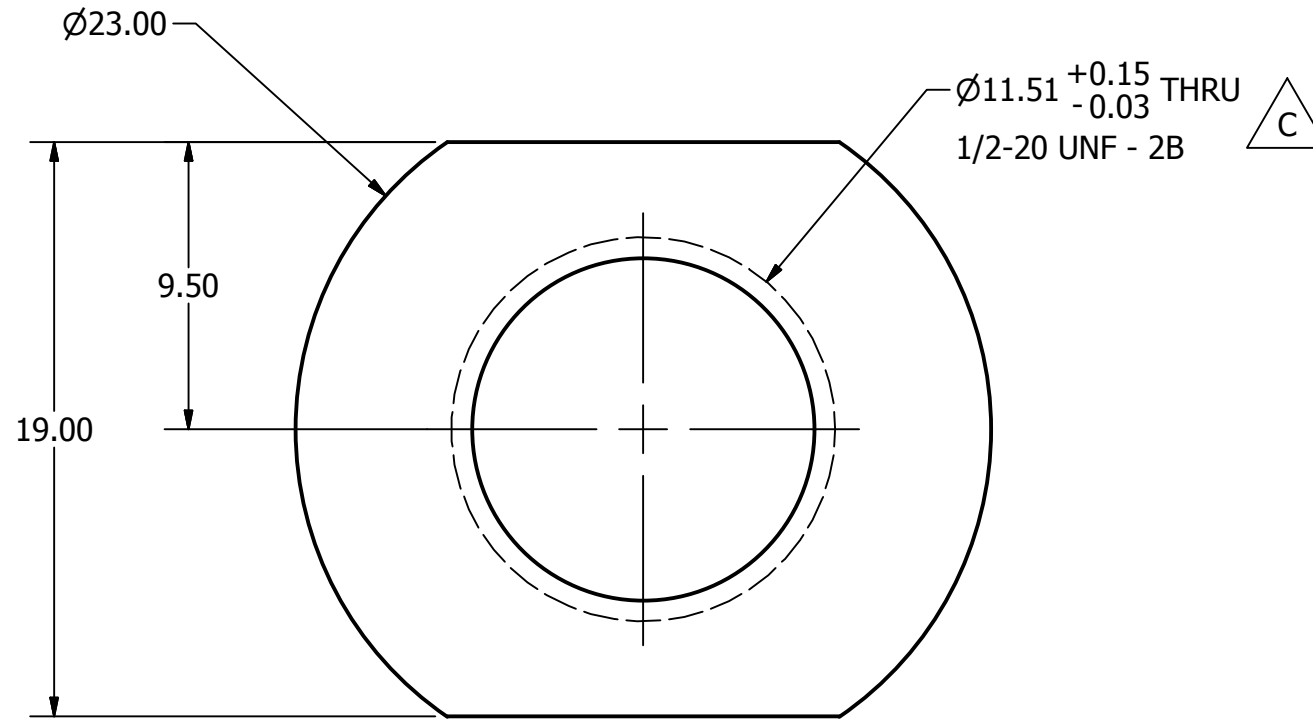
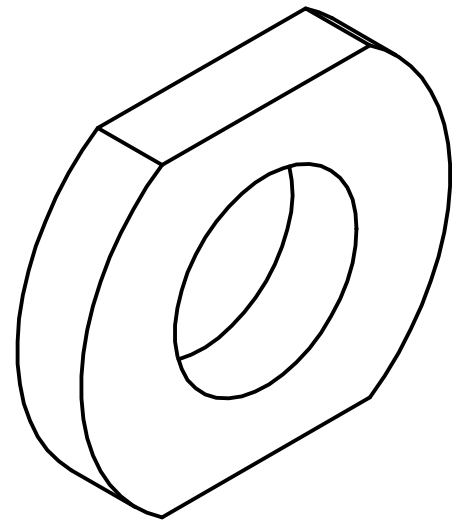
DECIMAL: X ±.5 XX ±.2 X.XX ±.1	MACHINED ✓ ANGLES ±.5°
---	---------------------------------


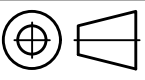
ASME Y14.5M - 1994
DO NOT SCALE DRAWING

VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
APPROVALS	DATE	
DRAWN jarthur	9/12/2012	THREADED FITTING, TENSION CABLE
CHECKED		
ENG		
MATERIAL 1018 STEEL	APPROVED	
HEAT TREAT N/A		
FINISH NONE		

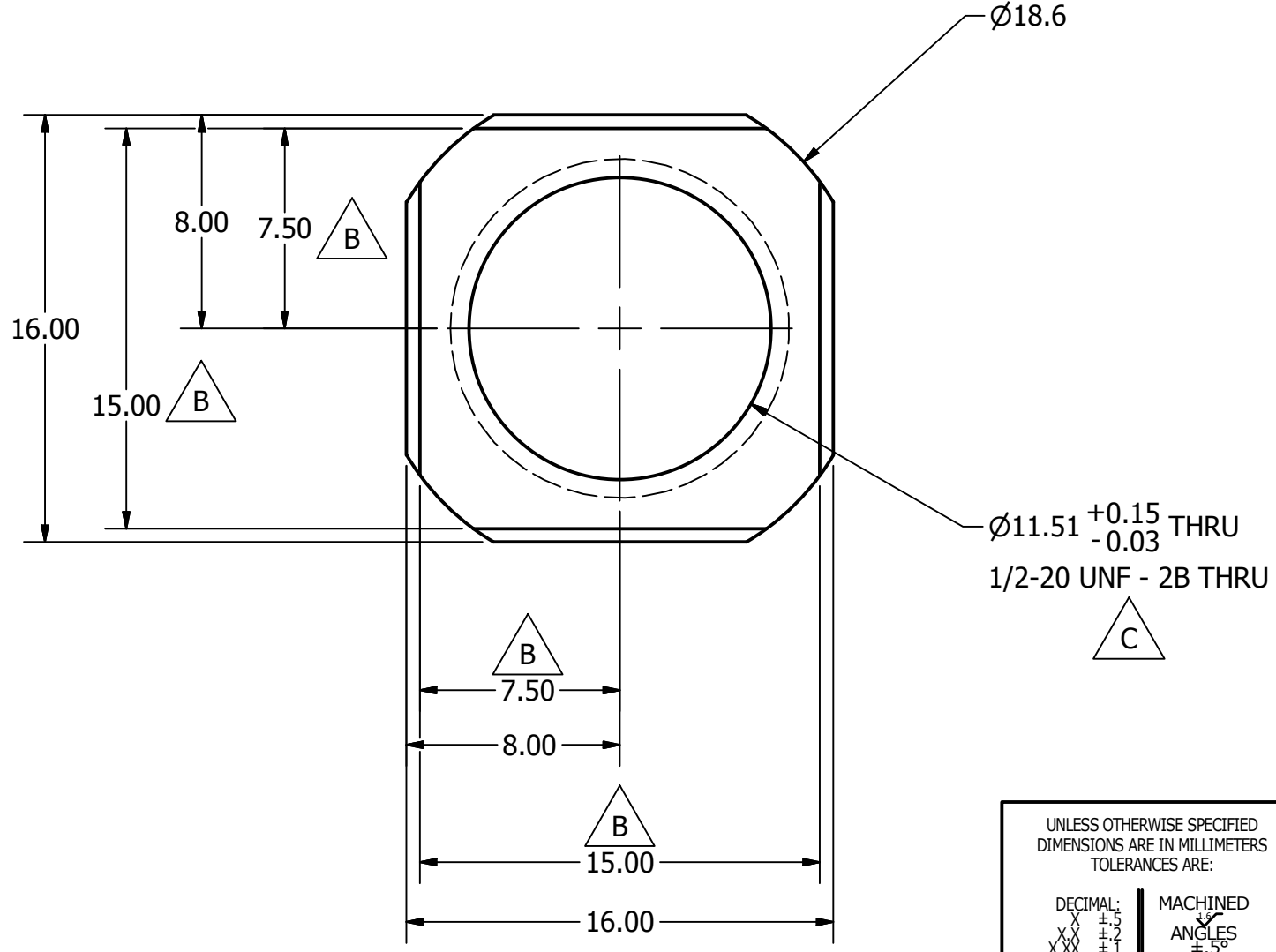
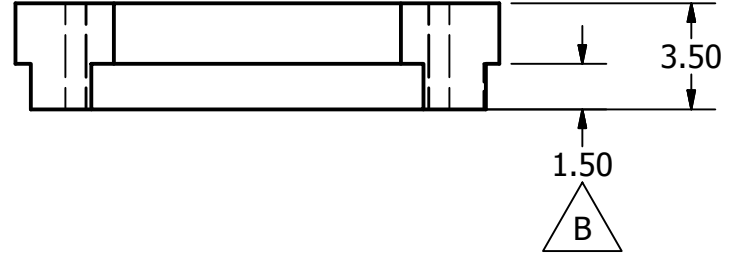
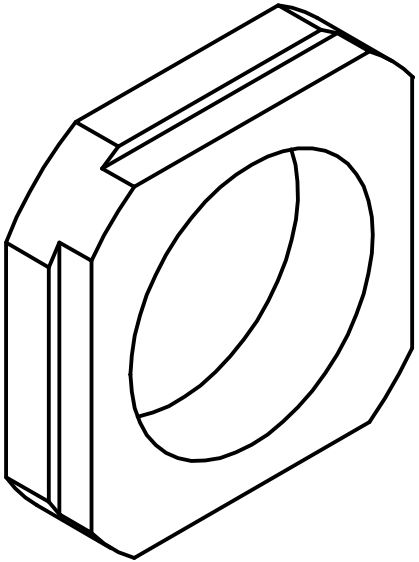
 THIRD ANGLE PROJECTION	SIZE A3	DRAWING NUMBER 020-2413	REV F
SCALE: N/A	SHEET 1 OF 1		

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
72823	1	PROTOTYPE RELEASE	JAA	JAA	9/26/2014
73361	B	RELEASE TO PRODUCTION, 4.00 WAS 5.00	JAA	JAA	12/4/2014
74650	C	UPDATED HOLE CALL OUT TO CURRENT STANDARDS.	JH		1/14/2016
74650	D	REGULATION RELEASE.	JH		1/14/2016

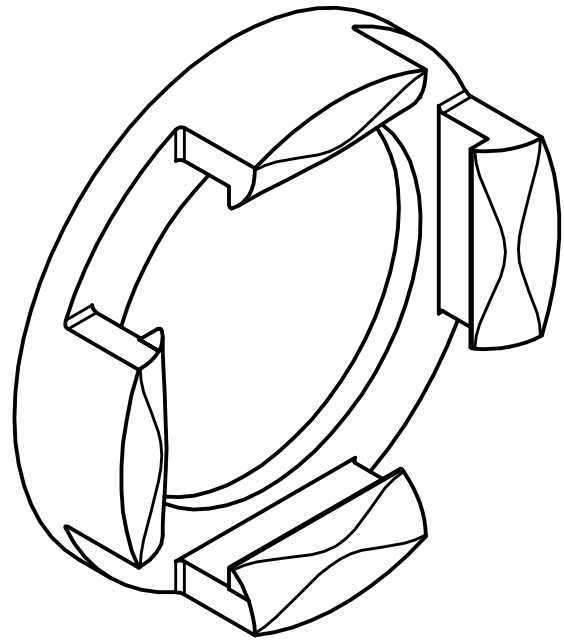


UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN jarthur CHECKED ENG APPROVED	DATE 9/26/2014	
MATERIAL 4140 STEEL HEAT TREAT N/A FINISH N/A	 THIRD ANGLE PROJECTION	SIZE A3 SCALE: N/A	DRAWING NUMBER 020-2421 SHEET 1 OF 1

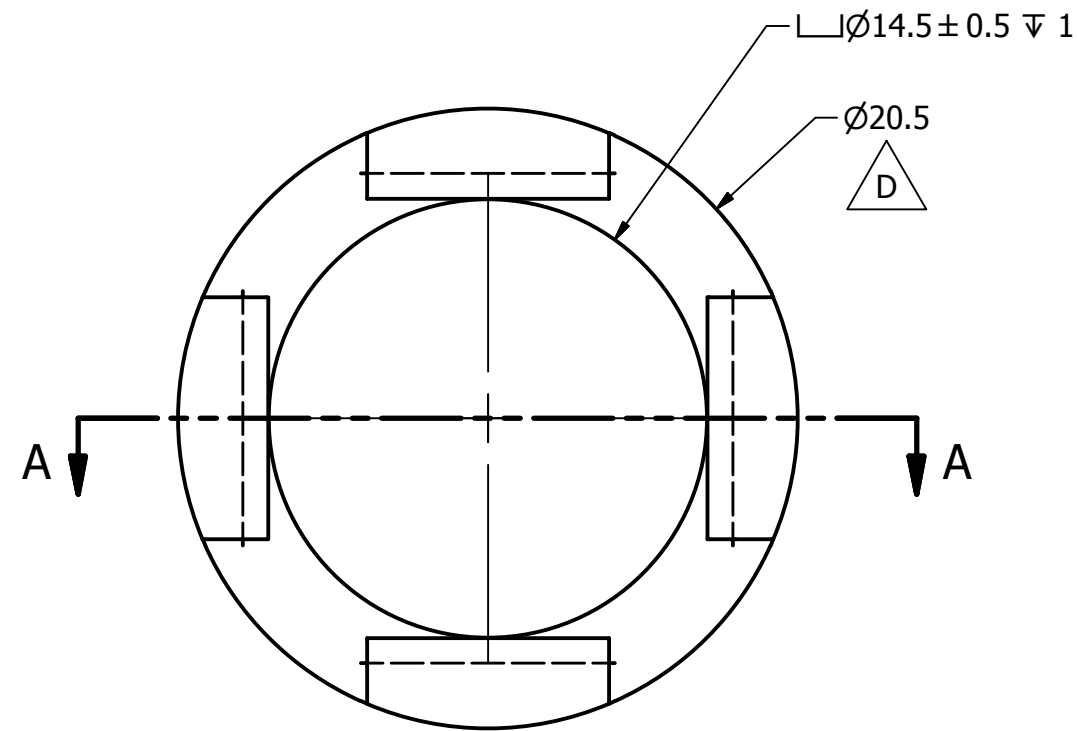
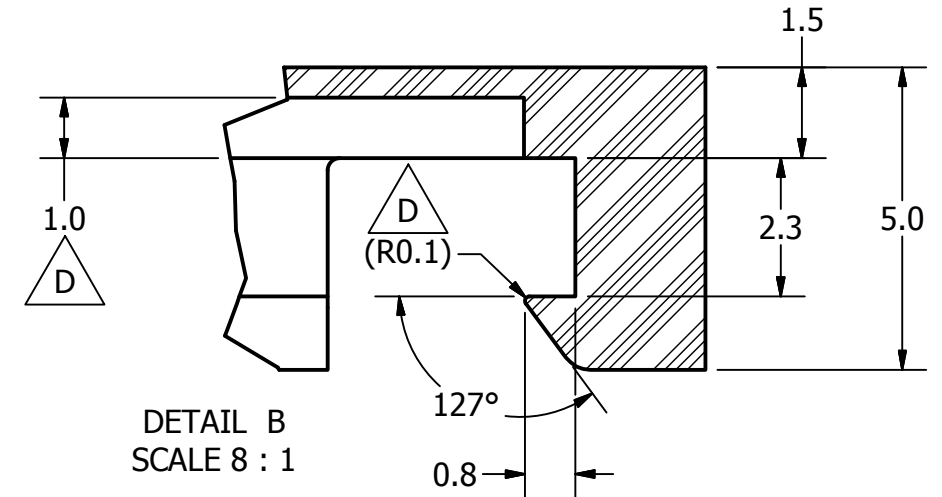
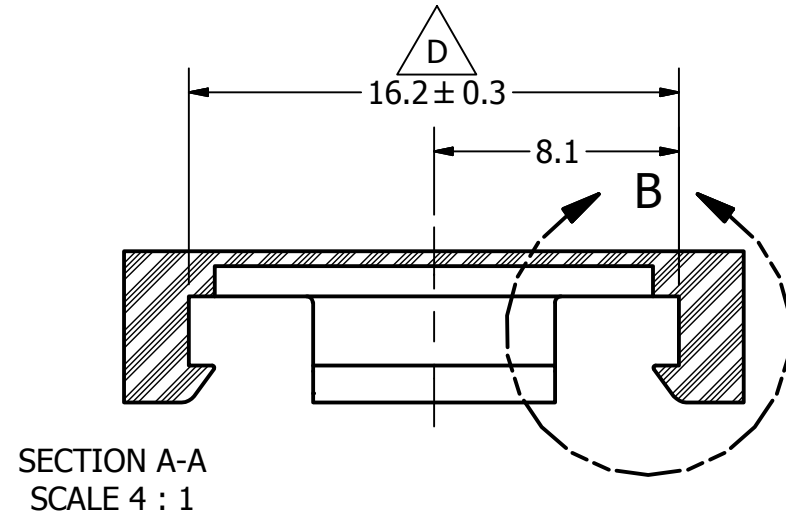
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
72823	1	PROTOTYPE RELEASE	JAA	JAA	9/26/2014
73361	B	RELEASE TO PRODUCTION, 1.50 WAS 1.25, 7.50 WAS 7.62, 15.00 WAS 15.24	JAA	JAA	12/4/2014
74650	C	UPDATE HOLE CALLOUT TO CURRENT STANDARDS	AB		12/21/15
74650	D	REGULATION RELEASE	JH		1/5/2016



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN jarthur CHECKED ENG APPROVED	DATE 9/26/2014		CABLE LOCK NUT	
MATERIAL 4140 STEEL HEAT TREAT N/A FINISH N/A		SIZE A3	DRAWING NUMBER 020-2426	REV D	SCALE: N/A SHEET 1 OF 1



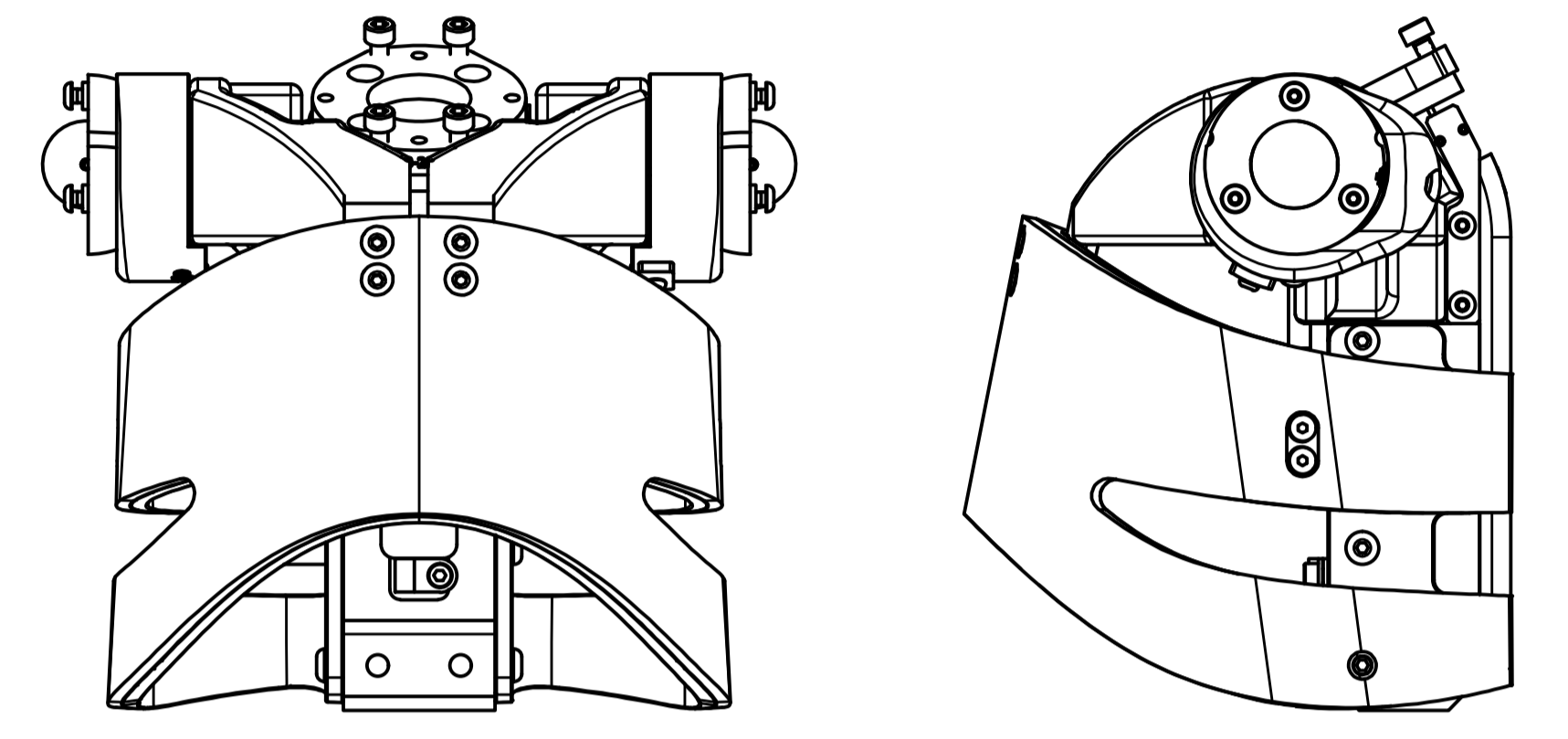
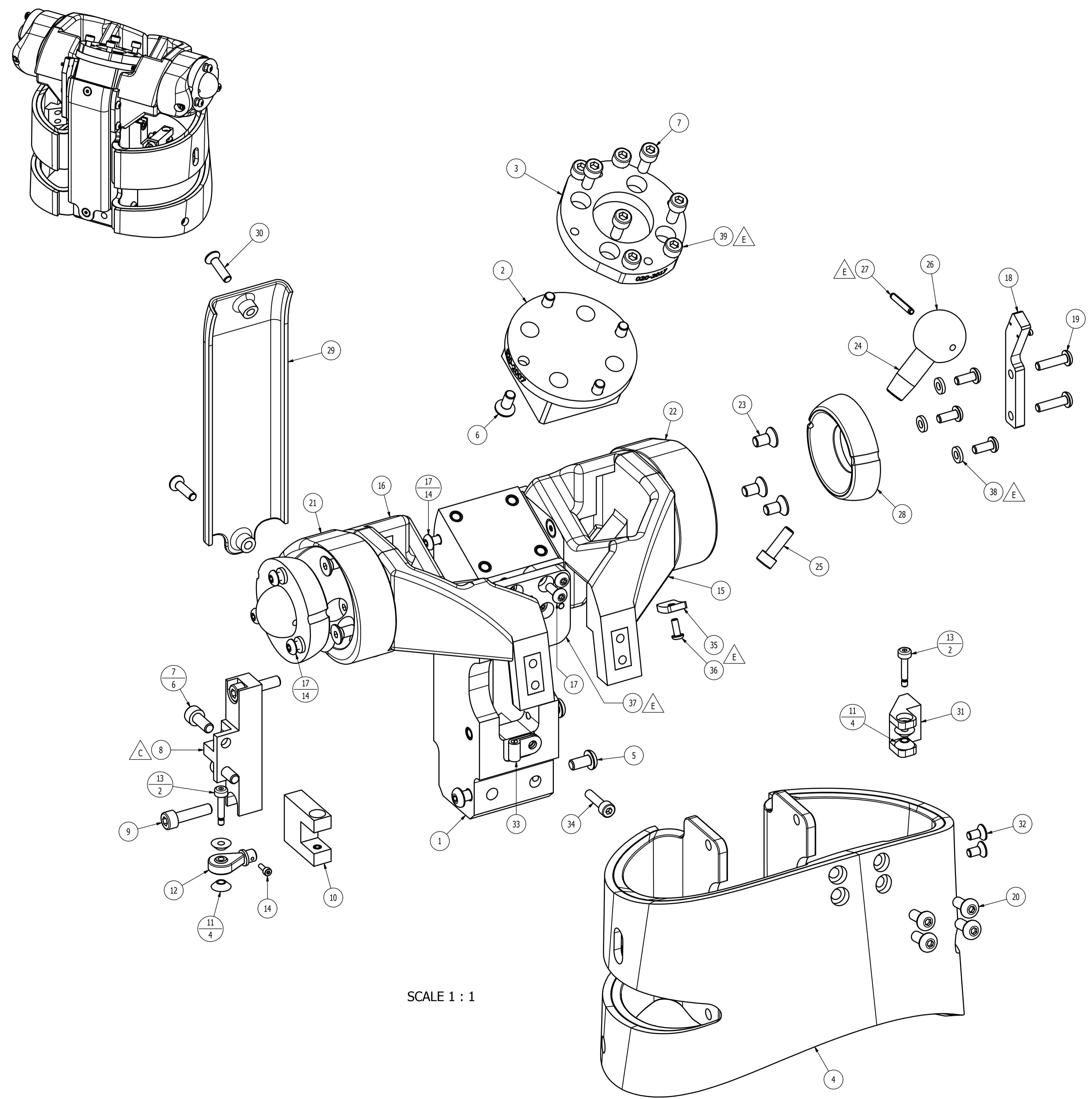
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
72823	1	PROTOTYPE RELEASE	JAA	JAA	9/29/2014
73361	C	RELEASE TO PRODUCTION	JAA	JAA	12/4/2014
73918	D	16.2±0.3 WAS 16.4; Ø20.5 WAS Ø20; (R0.1) WAS R0.1; 1.0 WAS (1)	AB	JAA	01/05/16
74650	E	REGULATION RELEASE	AB		01/06/16



NOTE:
1) MATERIAL: 70-75D URETHANE

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ✓ ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION		
	APPROVALS DRAWN jarthur	DATE 9/29/2014		PROTECTIVE SNAP CAP		
	MATERIAL SEE NOTE	CHECKED		SIZE A3	DRAWING NUMBER 020-2423	REV E
	HEAT TREAT N/A	ENG	THIRD ANGLE PROJECTION	SCALE: N/A	SHEET 1 OF 1	

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENGR.	DATE
75801	A	RELEASE TO PRODUCTION	BK		4/11/06
	B	020-4412 WAS 020-4411	BK		8/17/07
76514	C	UPDATE DRW TO REFLECT CHANGES MADE TO ITEM #12, 020-4505; BRACKET 1, ITRACC	MT		6/12/08
77433	D	020-2017 WAS 020-2016; 020-4018 WAS 020-4015; 020-4506 WAS 9002949; 020-4508 WAS 3620-44	BK		12/21/10
72309	E	REDRAWN IN INVENTOR; ADDED 9003058, 5000291, 020-3539, 020-3549 & 5000410; ITEM 17 QTY 14 WAS QTY 6; ITEM 27 (5000188) M3 X 18 LG. COIL PIN WAS ROLL PIN, M3 X 20	AB		01/03/14
74650	F	REGULATION RELEASE	GCH		12/22/2015



ITEM	QTY	PART NUMBER	DESCRIPTION
E	39	4	5000291 M5 X 0.8 X 10 LG. SHCS
E	38	6	9003058 WASHER FLAT #8 (.15 ID X .31 OD X .062) VITON
E	37	1	020-3539 BRACKET ASSY, SHOULDER STRING POT
E	36	1	5000410 M3 X 0.5 X 8 LG. BHCS
E	35	1	020-3549 RETAINER, POT STRING
E	34	1	5000025 M4 X 0.7 X 16 LG. SHCS
E	33	1	9005135 CLAMP, NYLON LOOP
E	32	2	5000646 M4 X 0.7 X 8 LG. FHCS
E	31	1	020-4503 BRACKET, ITRACC
E	30	2	5000447 M4 X 0.7 X 16 LG. FHCS SS
E	29	1	020-4412 CABLE GUIDE
B	28	2	020-3533 Q3s SHOULDER BALL
E	27	2	5000188 M3 X 18 LG. COIL PIN
E	26	2	020-3537 BALL, SHOULDER
E	25	2	5000020 M5 X 0.8 X 16 LG. SHCS
E	24	2	020-3536 SHAFT, SHOULDER
E	23	6	5000084 M5 X 0.8 X 10 LG. FHCS
E	22	1	020-3534 Q3s SHOULDER CUP, LEFT
E	21	1	020-3535 Q3s SHOULDER CUP, RIGHT
E	20	4	5000654 M5 X 0.8 X 12 LG. BHCS
E	19	2	5000153 M4 X 0.7 X 16 LG. BHCS
E	18	1	020-4515 ACCELEROMETER ADAPTOR ASSEMBLY
E	17	14	5000010 M4 X 0.7 X 10 LG. BHCS SS
E	16	1	020-3520 MOLDED SHOULDER ASSY, RIGHT
E	15	1	020-3510 MOLDED SHOULDER ASSY, LEFT
E	14	1	5000082 M2 X 0.4 X 6 LG. SHCS
D	13	2	020-4506 SHOULDER SCREW (#4-40 1/8 X 1/2), MODIFIED
D	12	1	020-4508 ROD END MOUNT, BASE END
D	11	4	020-4507 CONE SPACER
D	10	1	020-4502 BRACKET 2, ITRACC
D	9	2	5000371 M5 X 0.8 X 20 LG. SHCS
D	8	1	020-4505 BRACKET 1, ITRACC
D	7	6	5000002 M5 X 0.8 X 12 LG. SHCS
D	6	4	5000096 M5 X 0.8 X 12 LG. FHCS
D	5	4	5000003 M5 X 0.8 X 10 LG. BHCS
D	4	1	020-4018 RIB CAGE ASSEMBLY, Q3s, TESTED/CERTIFIED
D	3	1	020-2017 NECK/TORSO INTERFACE PLATE
D	2	1	020-2007 LOAD CELL STRUCTURAL REPLACEMENT
D	1	1	020-4001 THORACIC SPINE

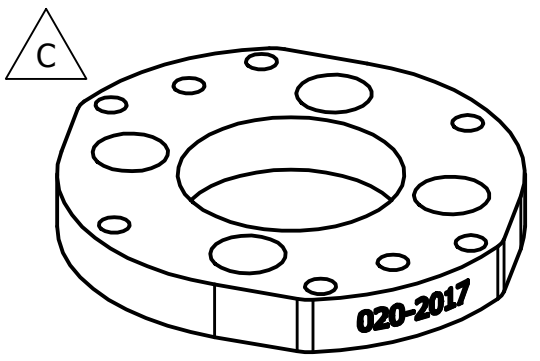
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:

DECIMAL	MACHINED
.XX	±.02
.XXX	±.01
ANGLES	±.5°

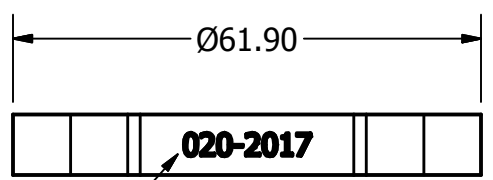
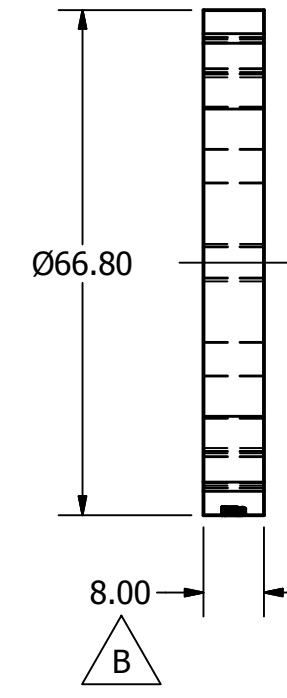
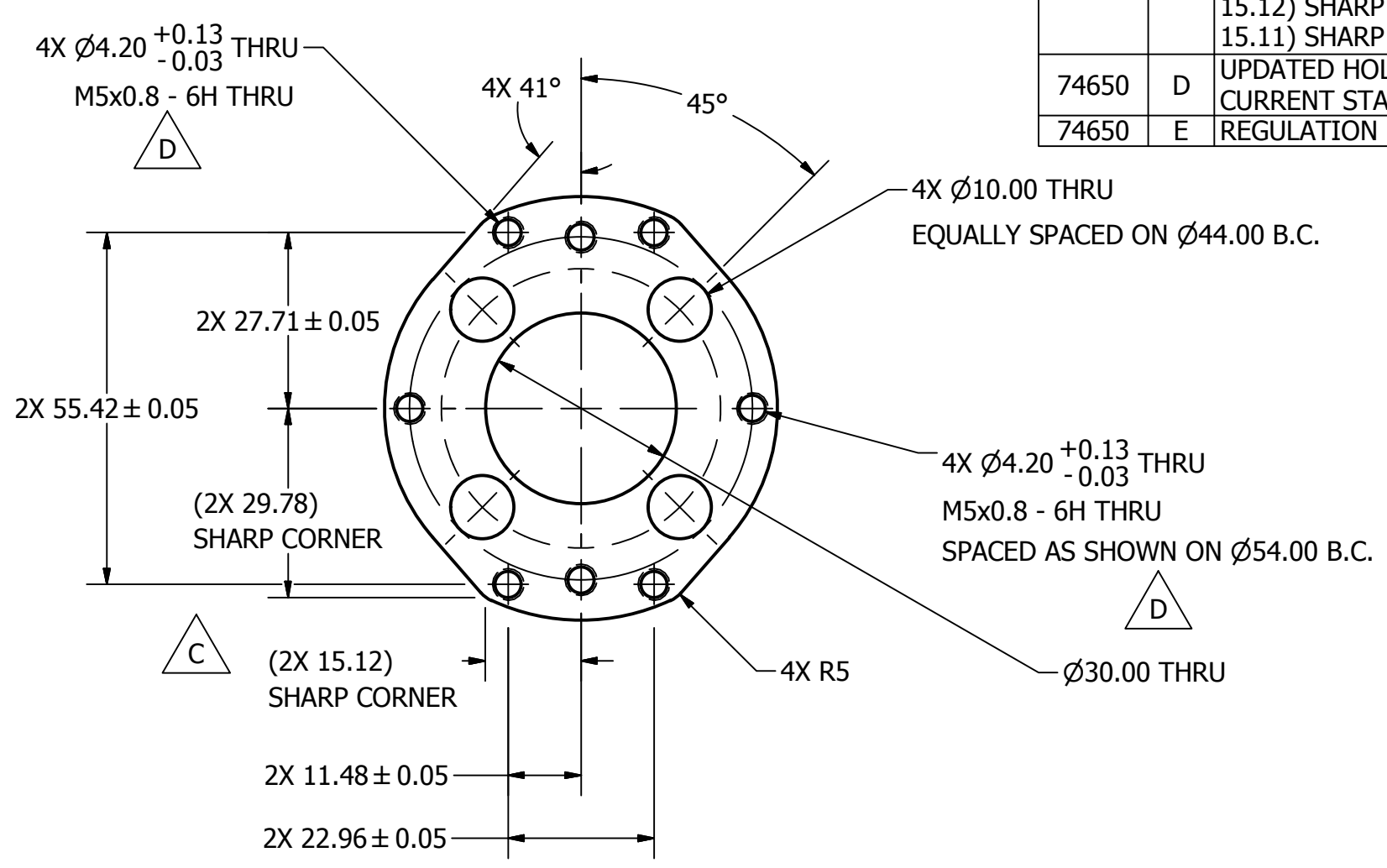
ASME Y14.5M - 1994
DO NOT SCALE DRAWING

VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS	DATE	UPPER TORSO ASSEMBLY	
DRAWN: S. KHINES	19-MAY-05		
CHECKED:			
ENG:			
APPROVED:			

SIZE: A1	DRAWING NUMBER: 020-4500	REV: F
SCALE: .5:1	SHEET: 1	OF: 1



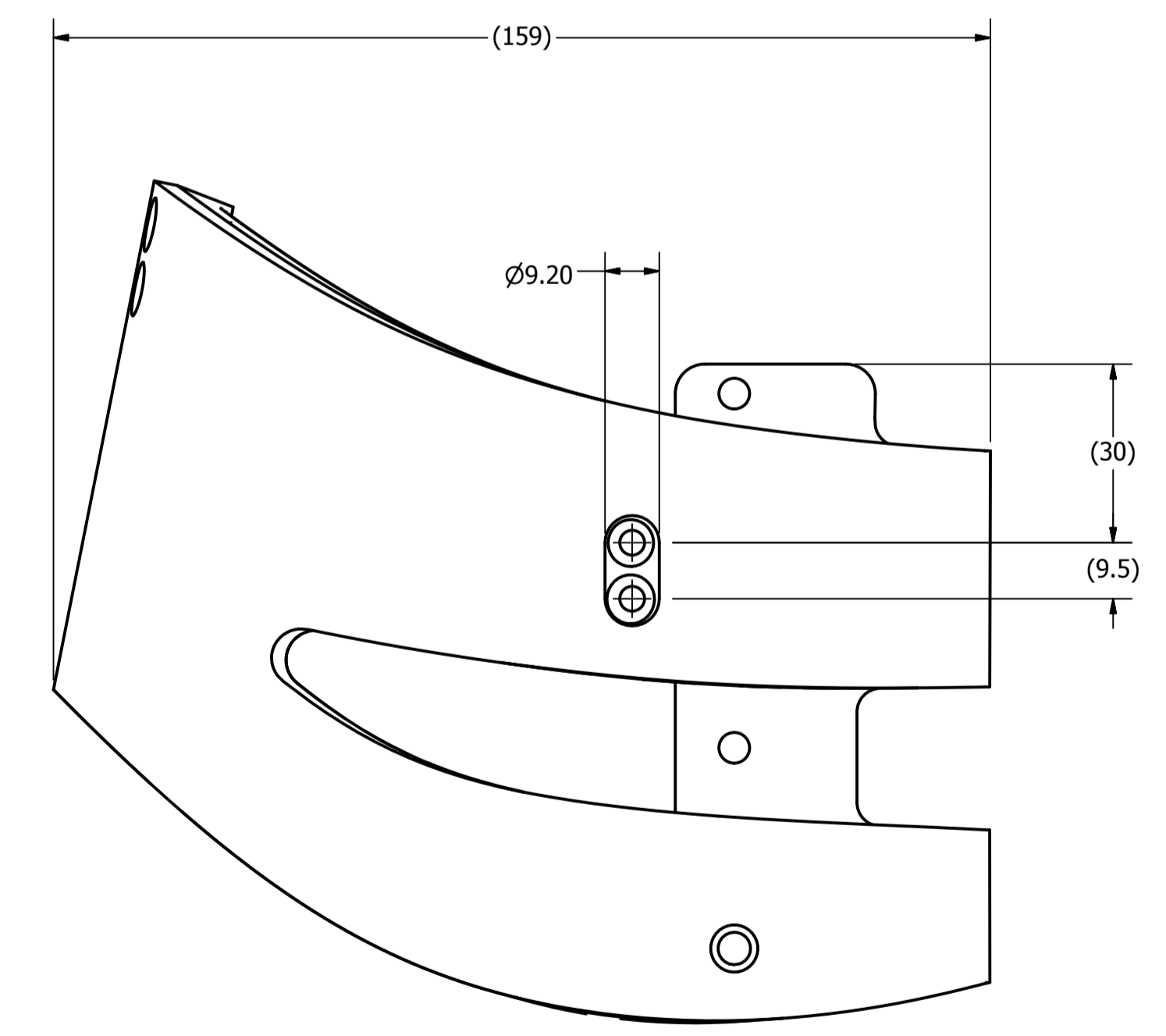
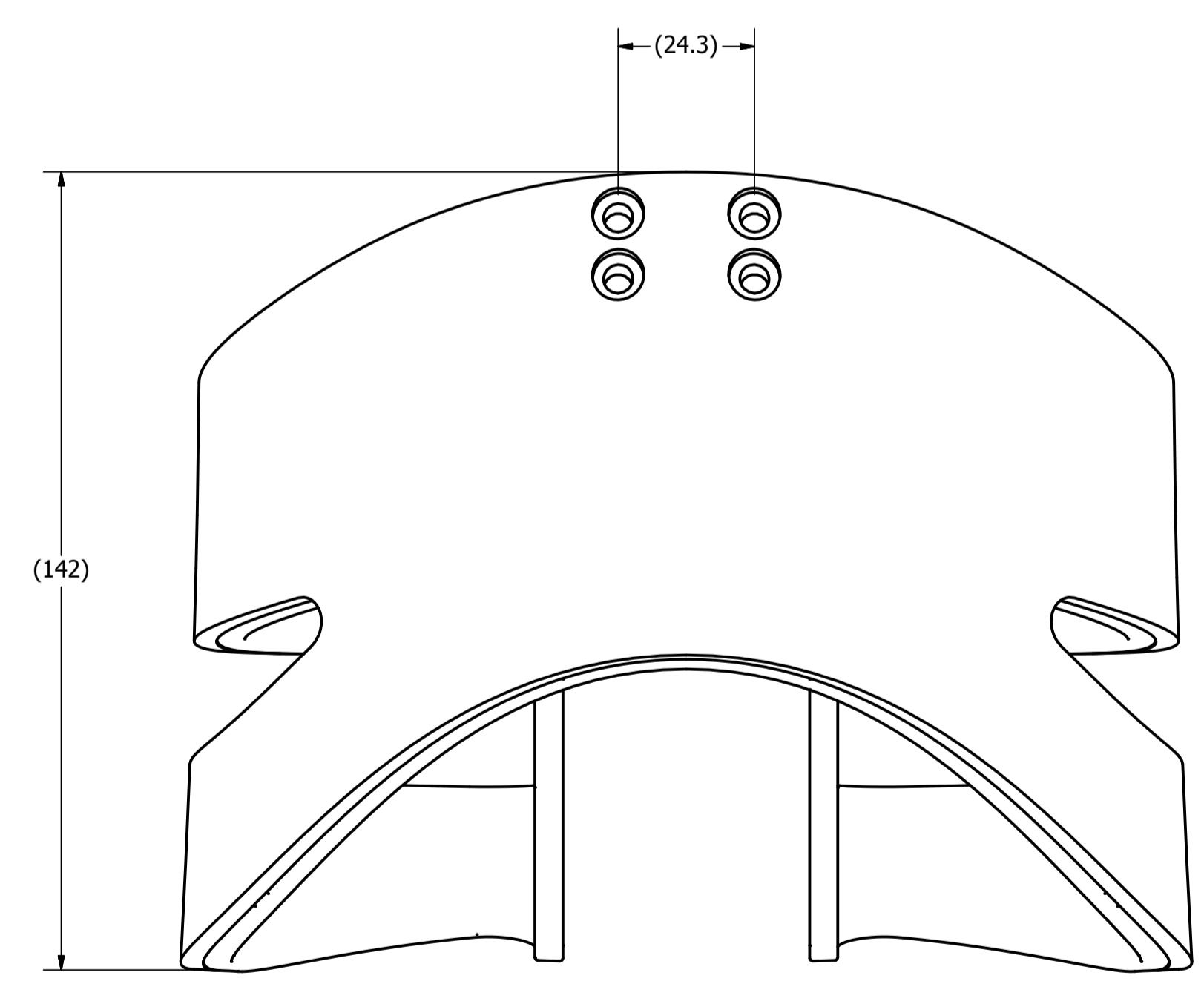
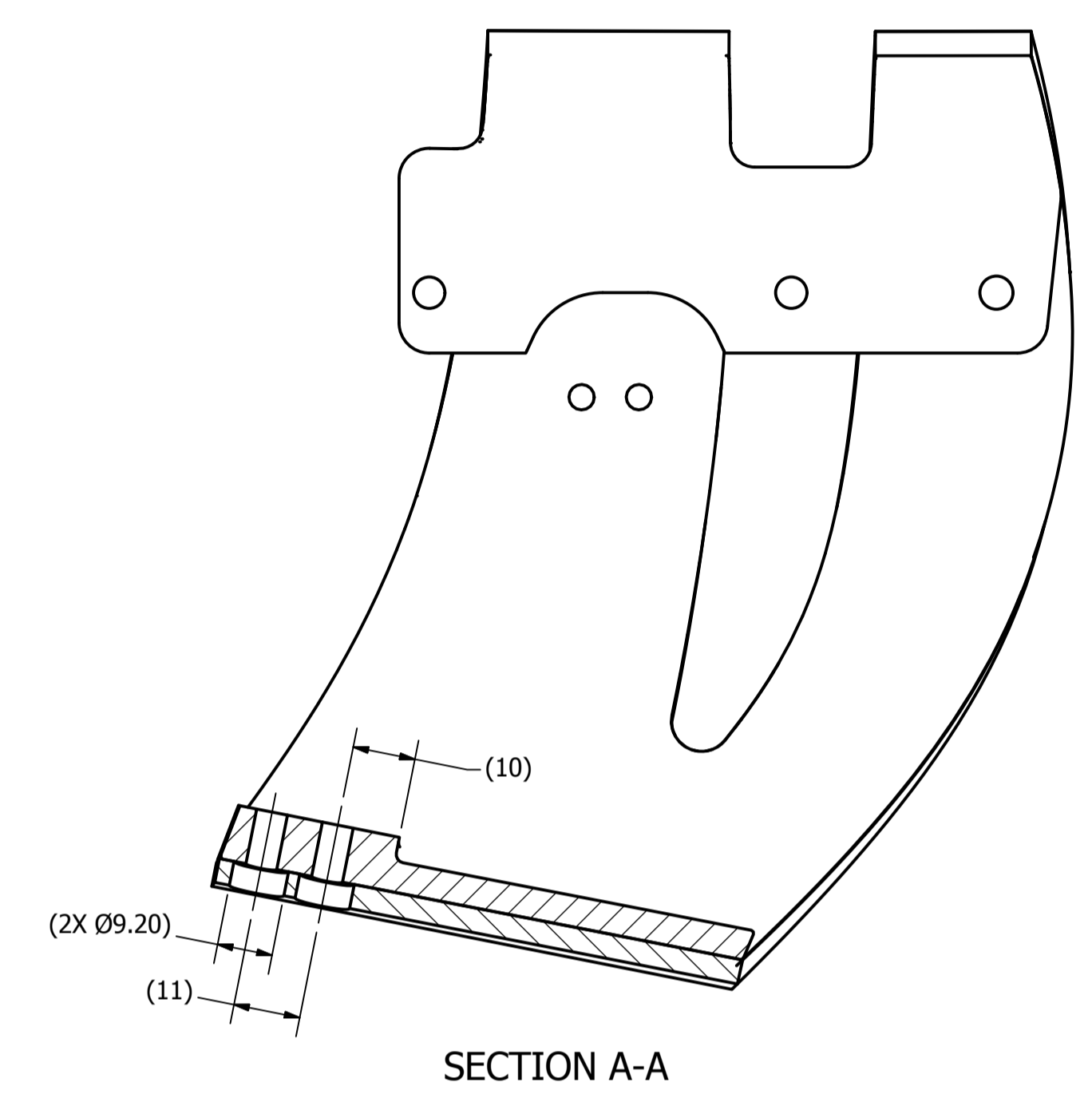
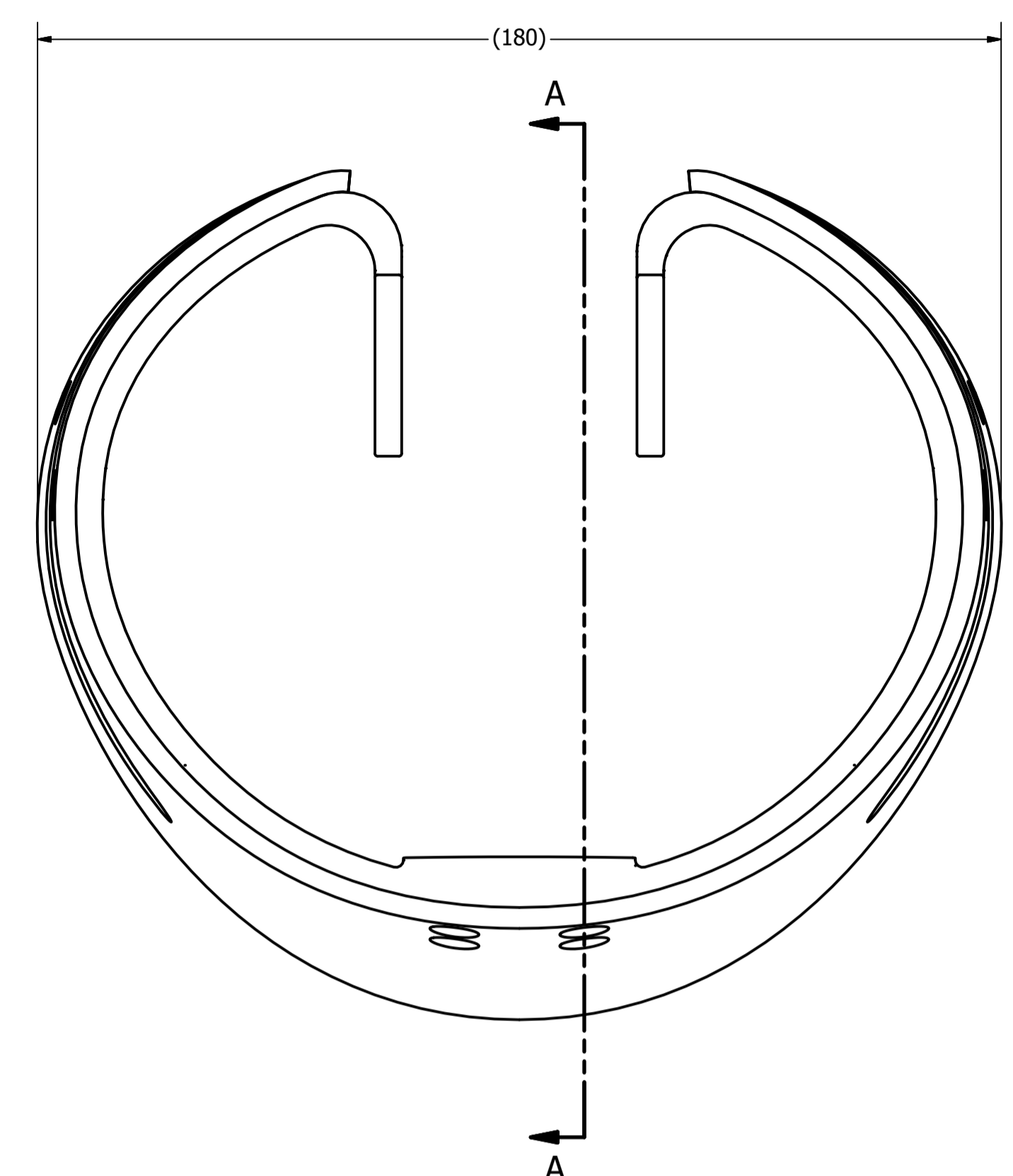
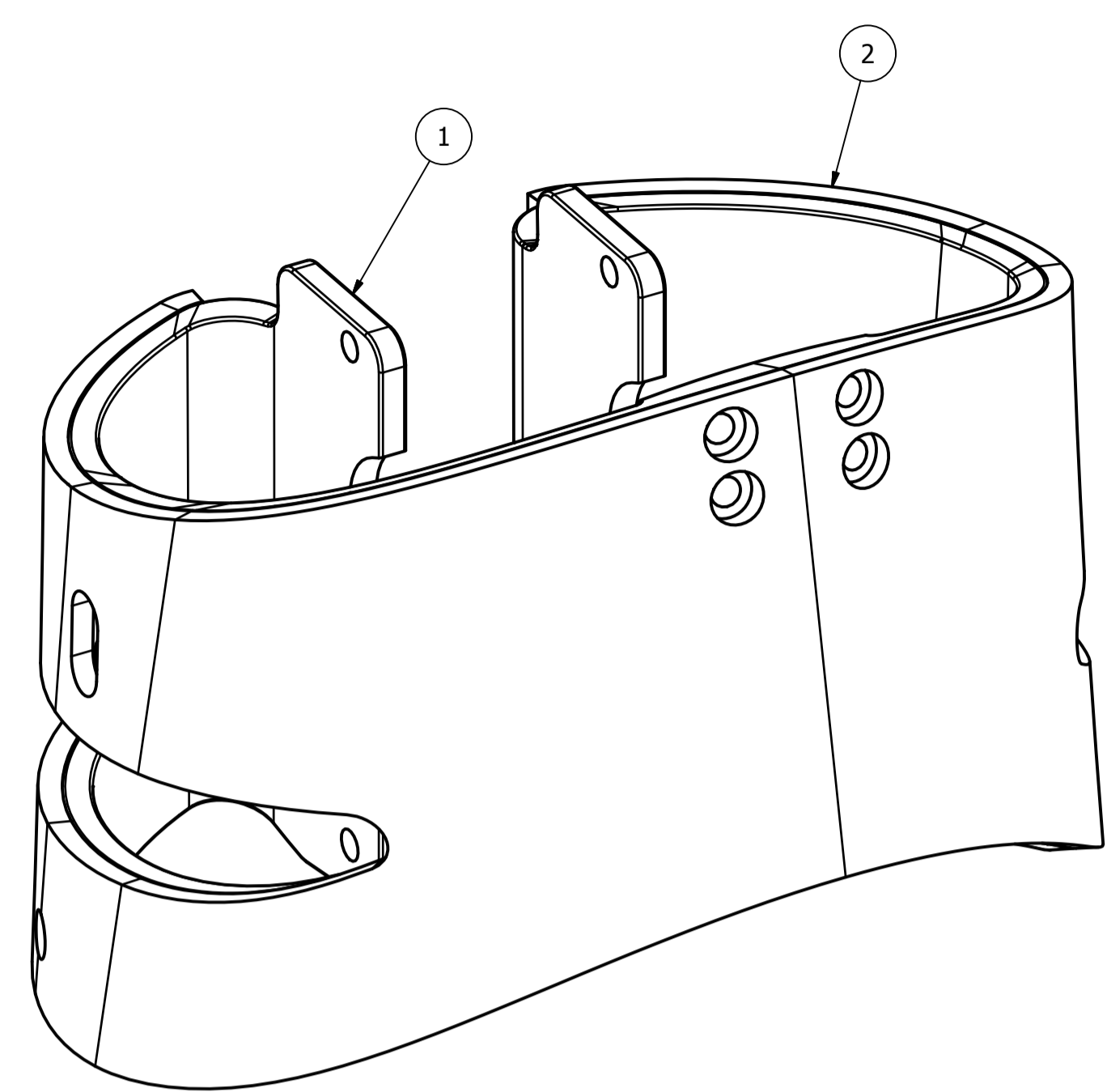
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
76760	A	RELEASE TO PRODUCTION	BK		3-17-09
77433	B	8.00 WAS 6.00	BK		12-21-10
72309	C	REDRAWN IN INVENTOR; REMOVE NOTE #1; NOTE #1 & 2 WAS NOTE #2 & 3; SEE NOTE #2 WAS SEE NOTE 3; ISO VIEW FULL SCALE WAS HALF SCALE; (2X 29.78) SHARP CORNER WAS (2X 29.79) SHARP CORNER; (2X 15.12) SHARP CORNER WAS (2X 15.11) SHARP CORNER	AB		12/09/13
74650	D	UPDATED HOLE CALLOUTS TO CURRENT STANDARDS	AB		12/18/15
74650	E	REGULATION RELEASE	AB		01/04/16



- NOTES:**
1. SURFACE FINISH TO BE $0.8 \sqrt{\text{ }}$ OR BETTER ALL OVER UNLESS OTHERWISE STATED.
 2. STAMP OR ETCH PART NUMBER (3mm CHARACTERS) WHERE SHOWN.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. KIMES CHECKED ENG FINISH APPROVED	DATE 17-Mar-09		NECK/TORSO INTERFACE PLATE	

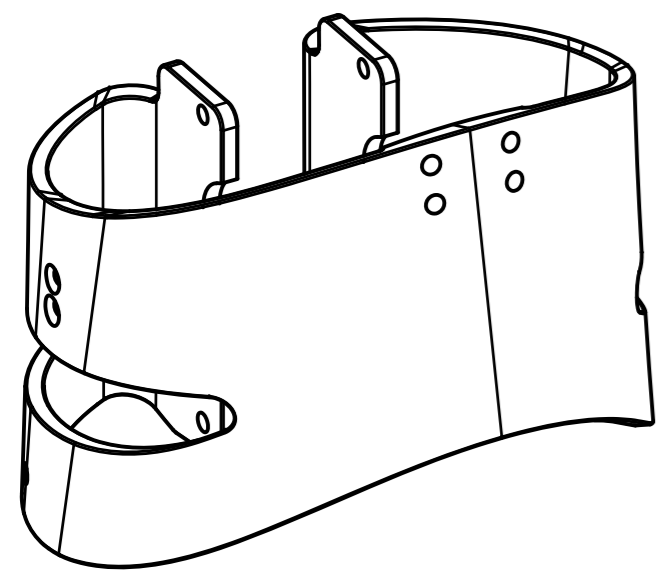
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENGR.	DATE
76893	A	RELEASE TO PRODUCTION	BK		3/4/09
77364	B	UPDATED DRAWING TO REFLECT CHANGES ON 020-4017	KJ		12/1/09
77717	C	REMOVED "W/REINFORCEMENT" FROM DESC	MT		11/16/10
72309	D	REDRAWN IN INVENTOR	AB		12/09/13
74650	E	REGULATION RELEASE	GCH		12/22/2015



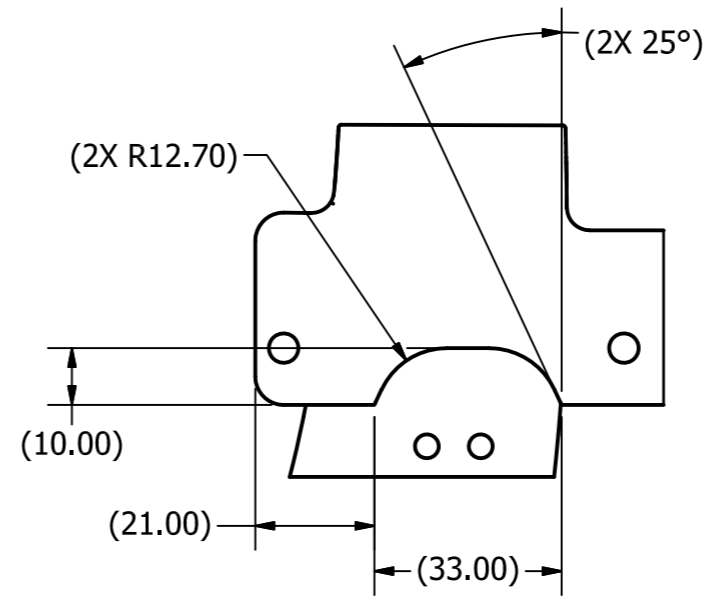
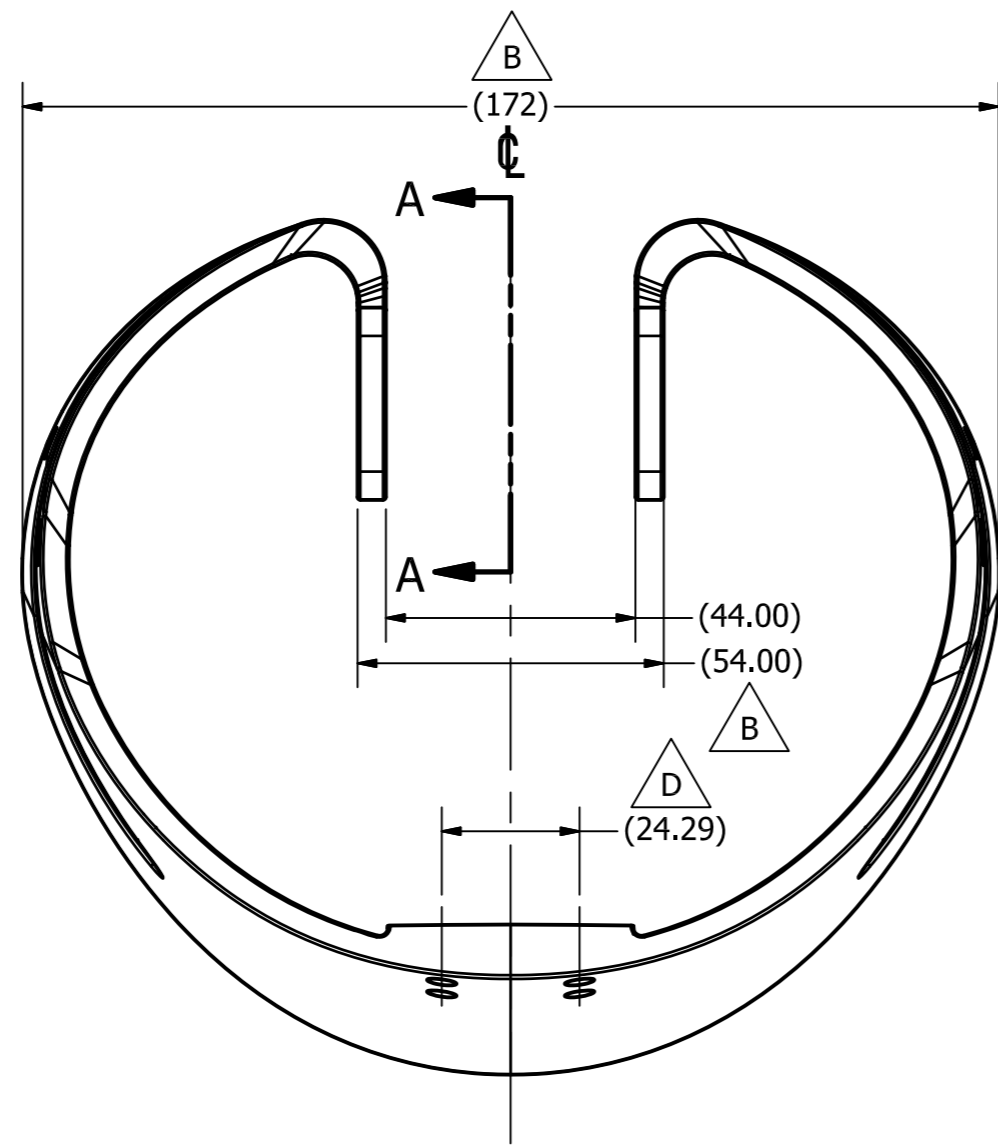
NOTES:
1. SKIN TO BE BONDED TO RIBCAGE MOLDING.

ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	020-4014	RIB CAGE SKIN, Q3s
1	1	020-4017	RIB CAGE MOLDING, Q3s

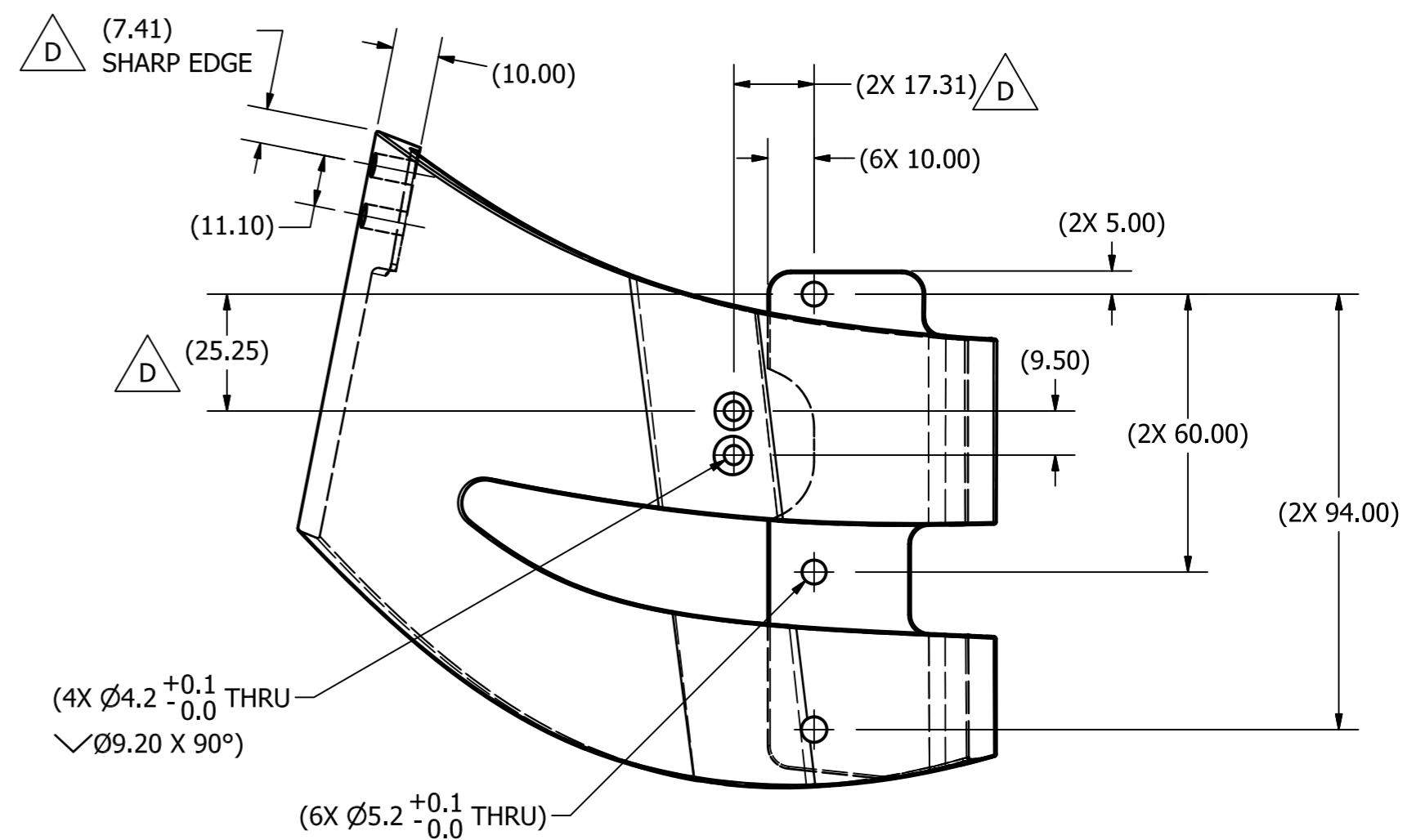
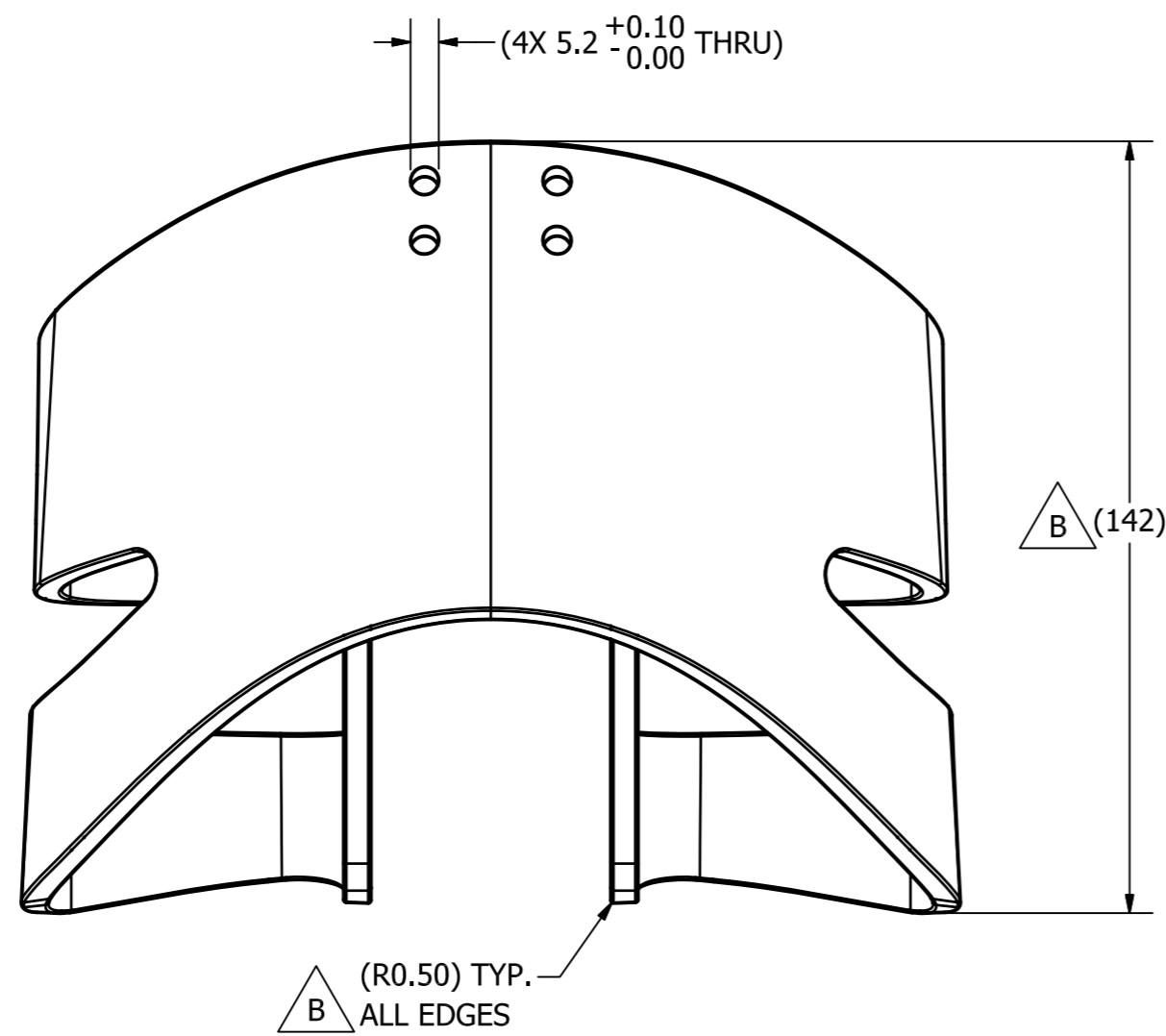
PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER	
DECIMAL: .01	MACHINED ANGLES: ±.5°	APPROVALS	DATE
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		B. KIMES	4-Mar-09
MATERIAL	SPECIFIED	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
TREAT TREAT	ENVS	RIB CAGE ASSEMBLY, Q3s, TESTED/CERTIFIED	
FINISH	APPROVED	SIZE: DRAWING NUMBER	REV
		A1 020-4018	E
		SCALE: 1:1	SHEET 1 OF 1



SCALE 1 : 2



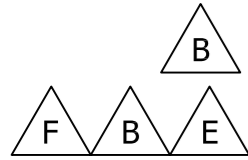
SECTION A-A
IRTRACC CUT OUT (2 PLACES)



REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
76893	A	RELEASE TO PRODUCTION	BK		3/4/09
77364	B	ADDED NOTES #3 & #4; 54 WAS 52; ADDED R0.50 TYP.; ADDED REFERENCE DIMENSIONS	KJ		12/1/09
77717	C	REMOVED 020-4016; REMOVED "REINFORCED" FROM DESC	MT		11/16/10
72309	D	REDRAWN IN INVENTOR; NOTE #1. MATERIAL: PTMEG/MDA (PolyTetraMethylene Ether Glycol/Methylene DiAniline) WAS REMOVE ALL BURRS AND BREAK ALL SHARP EDGES; MATERIAL: SEE NOTE #1 WAS POLYURETHANE; 24.29, 7.41 SHARP EDGE, 25.25 & 2X 17.31 WAS 24.30, 7.40, 25.30 & 2X 17.30	AB		12/06/13
74650	E	UPDATED ALL DIMENSIONS TO REFERENCE; ADDED "AND HOLES" TO NOTE #4.	GCH		01/13/2016
74650	F	REGULATION RELEASE - REMOVED NOTE 4	GCH/JHC		01/13/2016

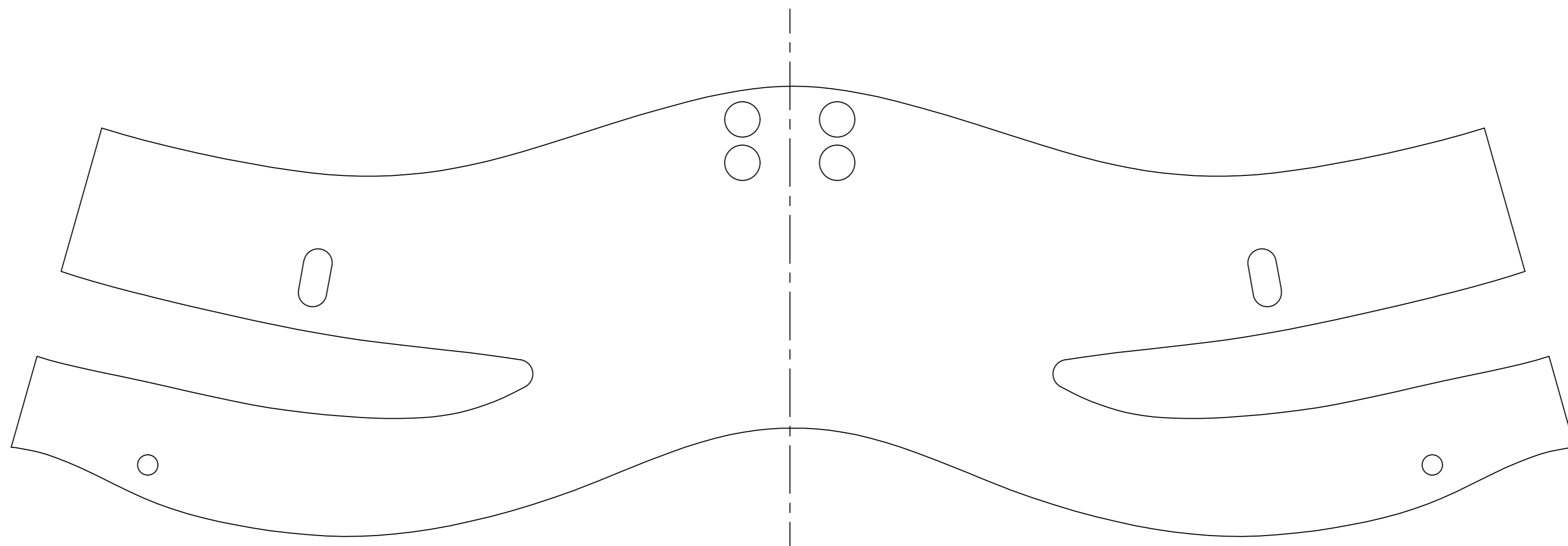
NOTES:

- 1. MATERIAL: PTMEG/MDA (PolyTetraMethylene Ether Glycol/Methylene DiAniline).
- 2. GENERAL TOLERANCE FOR MOLDED PART ± 1 , UNLESS OTHERWISE STATED.
- 3. DIMENSIONS SYMMETRICAL ABOUT ϕ , UNLESS OTHERWISE NOTED.




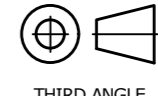
ITEM	QTY	PART NUMBER	DESCRIPTION
PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION RIB CAGE MOLDING, Q3s	
DECIMAL:	MACHINED		
X.X ±.5	ANGLES ±.5°	APPROVALS: DATE: 04-Mar-09 DRAWN: B. KIMES CHECKED: _____ MATERIAL: SEE NOTE #1 HEAT TREAT: _____ FINISH: _____	
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		THIRD ANGLE PROJECTION	SIZE: A2 DRAWING NUMBER: 020-4017 SCALE: 3 : 4 SHEET: 1 OF 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		5/19/05
6023	B	SHOW THRU HOLES IN SKIN; CORRECT REVISION, REV STAYS AT 'B'	BK		9/11/06
72309	C	REDRAWN IN INVENTOR	AB		12/06/13
74650	D	REGULATION RELEASE	GCH		12/22/2015



NOTES:

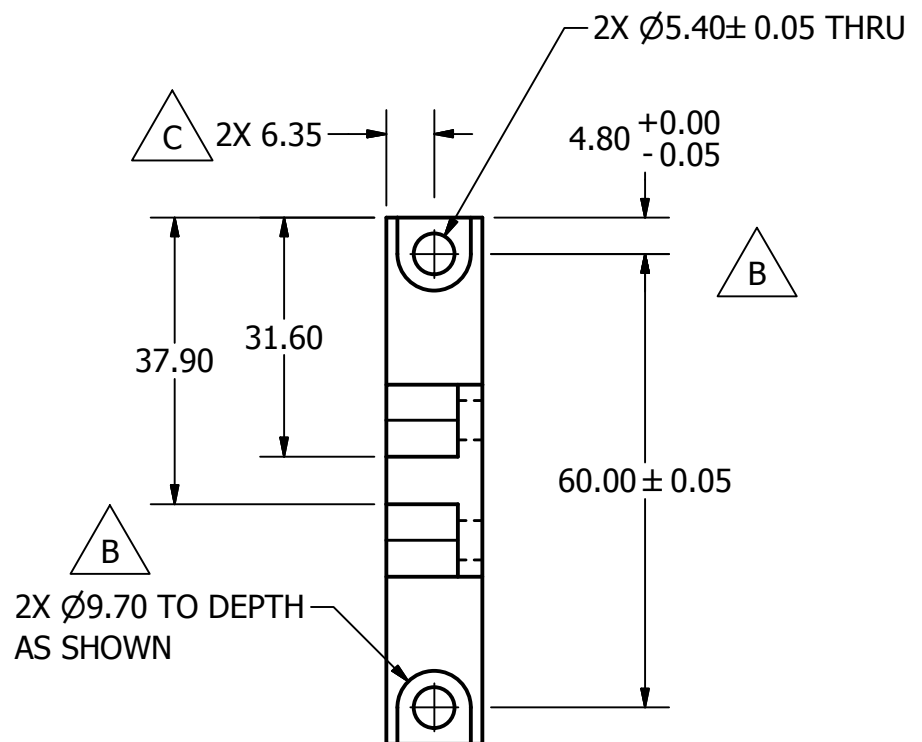
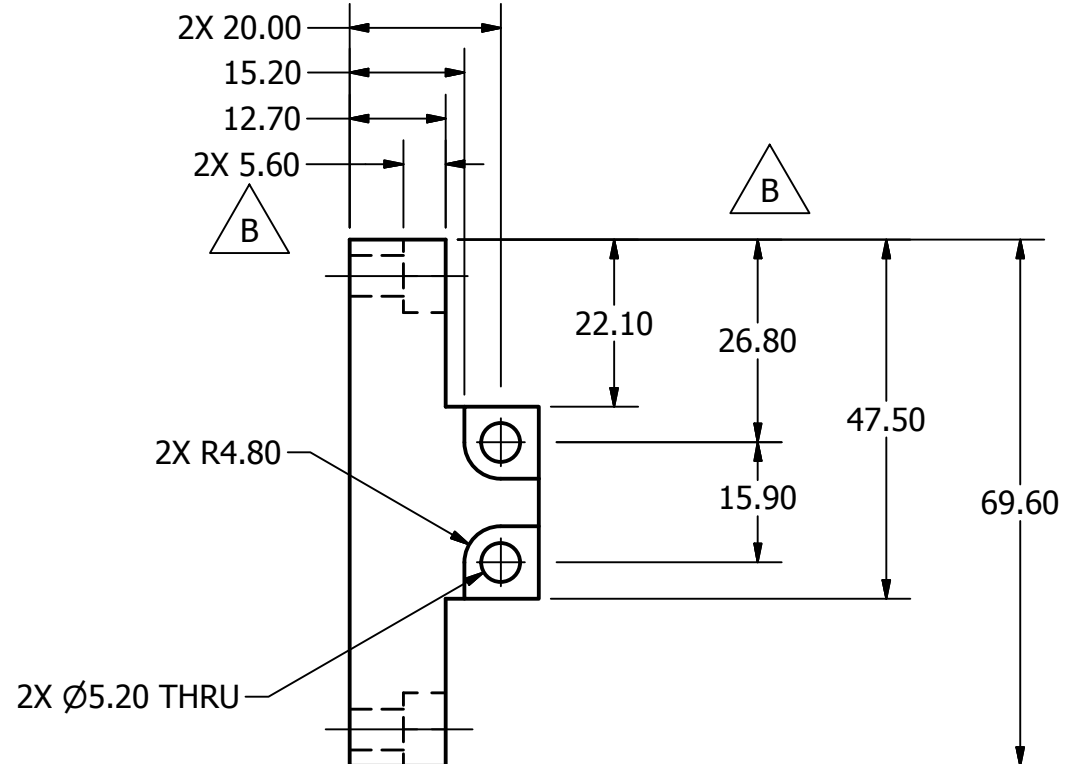
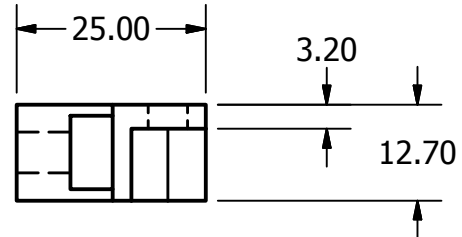
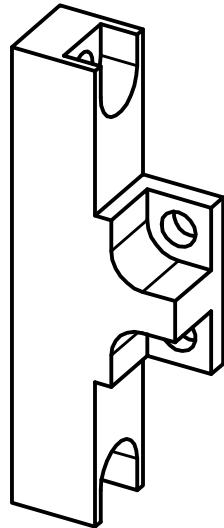
1. REMOVE ALL FLASHING.
2. PVC SHORE A HARDNESS 50±5
3. THICKNESS = 5mm

<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</small> <small>DECIMAL -</small> X ±.5 XX ±.2 XXX ±.1 <small>MACHINED</small> X ±.2 XX ±.1 <small>ANGLES</small> ±.5° <small>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</small>	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN B. KIMES	DATE 19-May-05	
MATERIAL SEE NOTES	CHECKED	SIZE A2	DRAWING NUMBER 020-4014
HEAT TREAT	ENG		REV D
FINISH	APPROVED	SCALE: N/A	SHEET 1 OF 1

6 1 5 1 4 3 1 2 1 1

REVISION HISTORY

ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		6-20-05
76514	B	69.60 WAS 71.10; 47.50 WAS 48.30; 26.80 WAS 27.60; 22.10 WAS 22.90; 37.90 WAS 38.70; 31.60 WAS 32.40; 60.00±0.5 WAS 60.00; 4.80+0.00/-0.05 WAS 5.50; 2X Ø5.40±0.05 THRU WAS 2X Ø5.30 THRU, C'BORE Ø9.50 □5.60; ADDED DIM 2X Ø9.70 TO DEPTH AS SHOWN & 2X 5.60	MT		6-12-08
72309	C	REDRAWN IN INVENTOR; REMOVE NOTE #1; 2X 6.35 WAS 2X 6.40	AB		12/05/13
74650	D	REGULATION RELEASE	GCH		12/21/2015



△ C NOTES:

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:

DECIMAL: X ±.5
XX ±.2
X.XX ±.1

MACHINED
ANGLES ±.5°

ASME Y14.5M - 1994
DO NOT SCALE DRAWING

VEHICLE RESEARCH
and TEST CENTER



NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

APPROVALS DATE

BRACKET 1, ITRACC

DRAWN MEC 20-Jun-05

MATERIAL 6061-T6 ALUMINUM

CHECKED



SIZE A3 DRAWING NUMBER 020-4505 REV D

HEAT TREAT

ENG

SCALE: 1:1 SHEET 1 OF 1

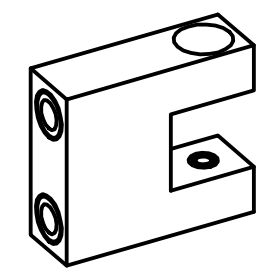
FINISH CLEAR ANODIZE

APPROVED

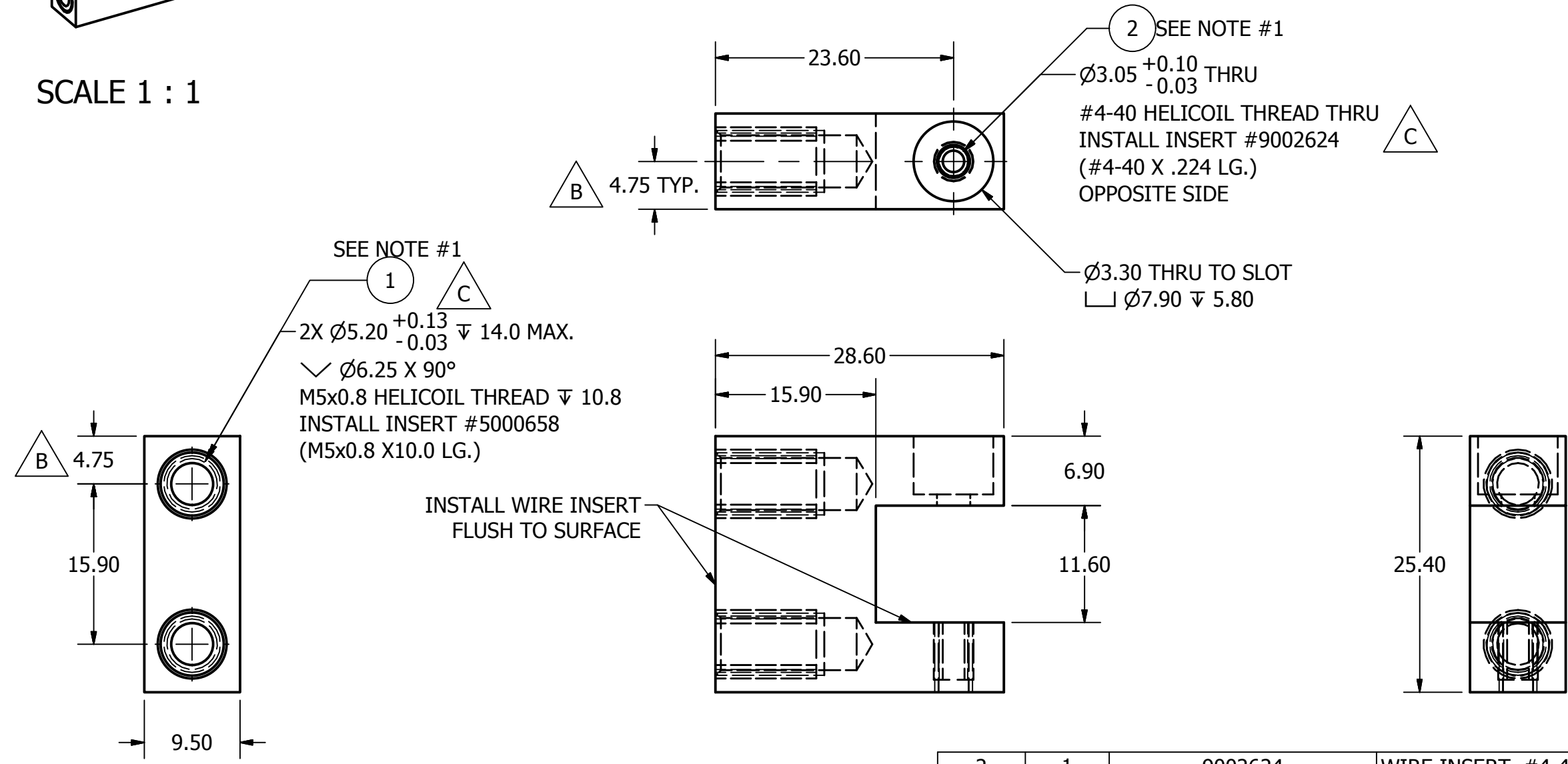
6 1 5 1 4 3 1 2 1 1

REVISION HISTORY

ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		6-2-05
72309	B	REDRAWN IN INVENTOR; REMOVE NOTE #1; 4.75 TYP. & 4.75 WAS 4.80 TYP. & 4.80	AB		12/05/13
74650	C	UPDATED HOLE CALLOUTS TO CURRENT STANDARDS; ADDED NOTE #1 & SEE NOTE #1	AB		01/14/16
74650	D	REGULATION RELEASE	AB		01/14/16



SCALE 1 : 1



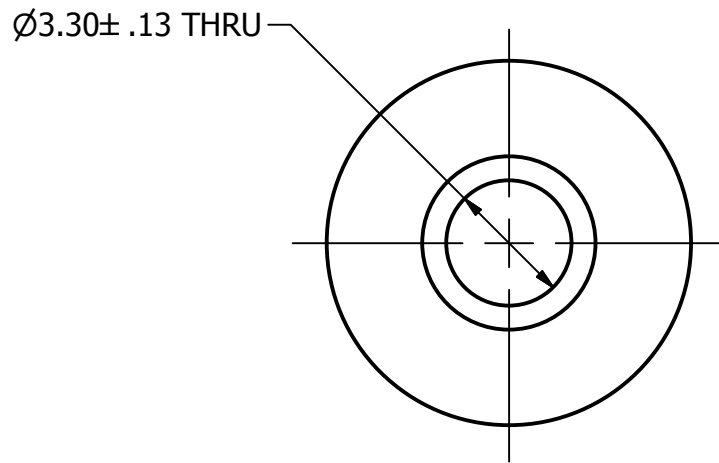
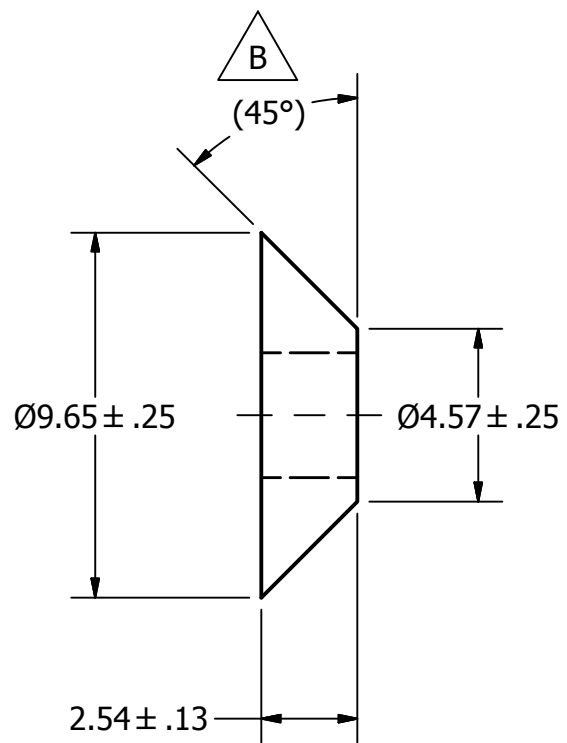
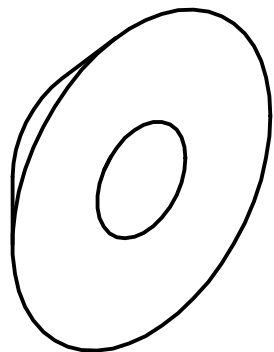
ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	9002624	WIRE INSERT, #4-40 X .224 LG.
1	2	5000658	WIRE INSERT, M5 X 0.8 X 10

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		BRACKET 2, ITRACC	
DRAWN MEC		02-Jun-05			
CHECKED					
MATERIAL 6061-T6 ALUMINUM		ENG		SIZE A3 DRAWING NUMBER 020-4502 REV D	
HEAT TREAT		APPROVED		SCALE: 2:1 SHEET 1 OF 1	
FINISH CLEAR ANODIZE					

NOTES:
1. INSERT WIRE INSERTS AFTER CLEAR ANODIZE.

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	MEC		04-04-05
72309	B	REDRAWN IN INVENTOR; REMOVE NOTE #1; (45°) WAS (45.0°)	AB		12/05/13
74650	C	REGULATION RELEASE	GCH		12/21/2015



B NOTES:

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:

DECIMAL: X ±.5
XX ±.2
X.XX ±.1

MACHINED
✓ ANGLES
±.5°

ASME Y14.5M - 1994
DO NOT SCALE DRAWING

VEHICLE RESEARCH
and TEST CENTER

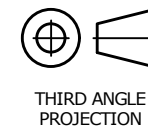


NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

APPROVALS	DATE
DRAWN MEC	04-Apr-05

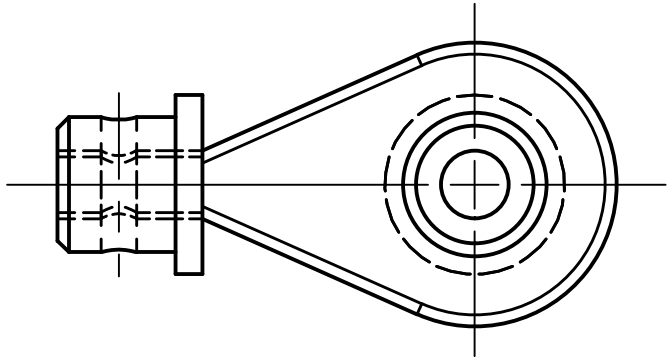
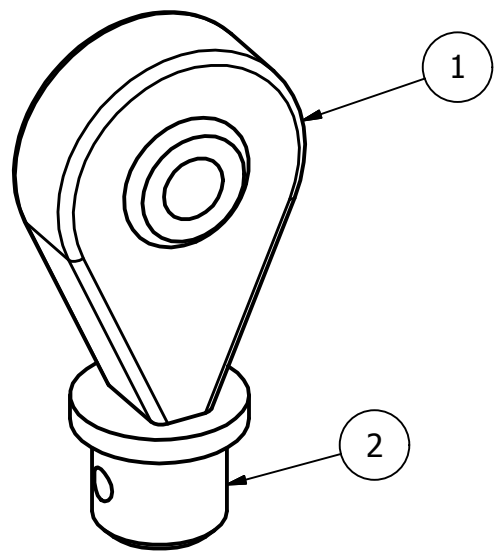
CONE SPACER

MATERIAL 6061-T6 ALUMINUM	CHECKED	
HEAT TREAT	ENG	
FINISH	APPROVED	

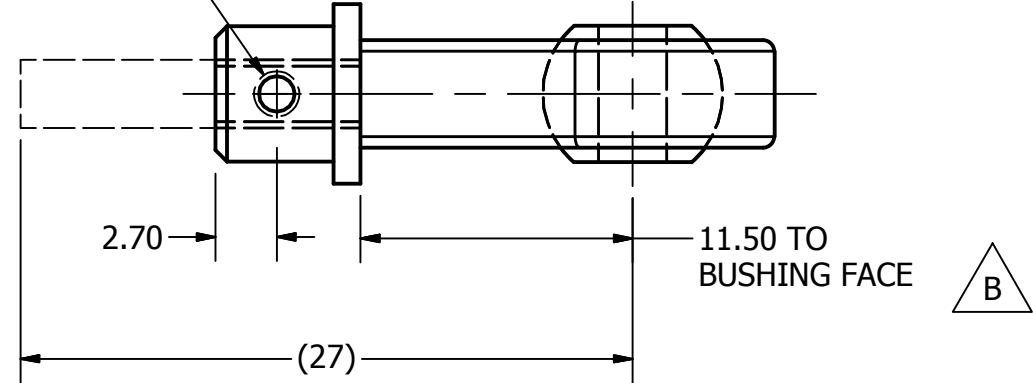


SIZE	DRAWING NUMBER	REV
A3	020-4507	C
SCALE:	SHEET	OF
5:1	1	1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		3/30/11
72309	B	REDRAWN IN INVENTOR; REMOVE NOTE #3; ADD DIM FROM CENTER HOLE TO FACE OF BUSHING	AB	JGG	12/05/13
74650	C	UPDATED HOLE CALLOUT TO CURRENT STANDARDS.	JH		1/15/16
74650	D	REGULATION RELEASE	GCH		1/15/16



Ø1.60 ^{+0.08}/_{-0.03} THRU
M2x0.4 - 6H THRU



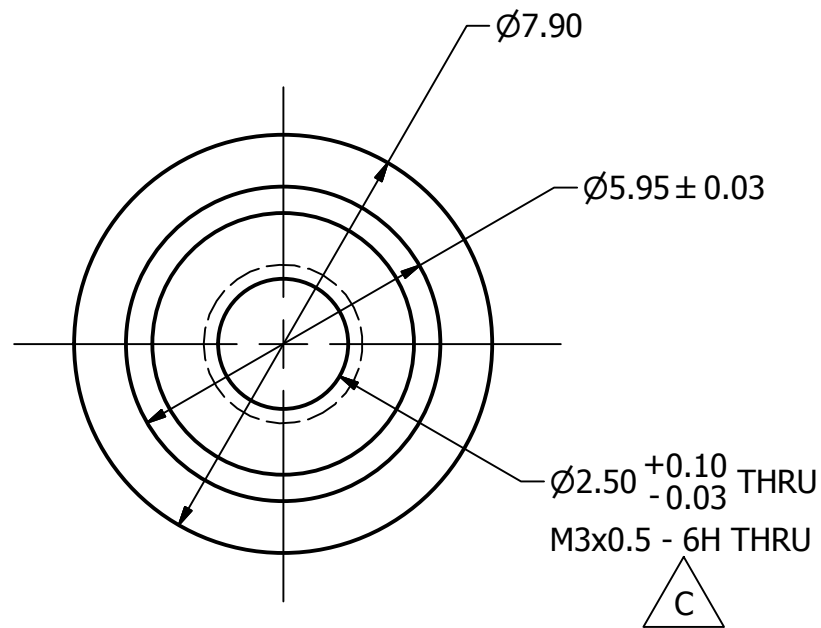
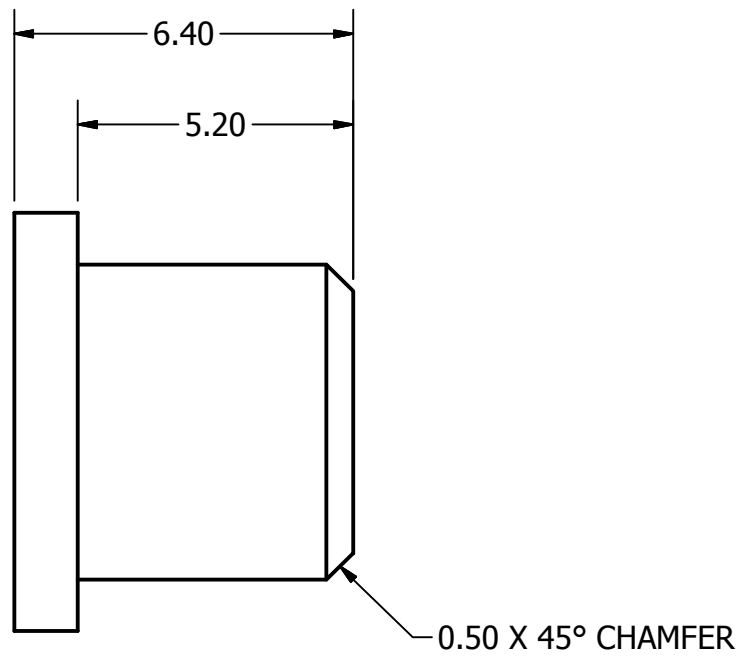
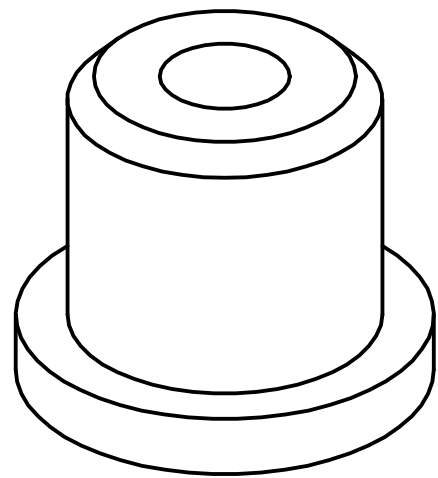
- NOTES:
1. APPLY RED LOC-TITE TO THREADS AND ASSEMBLE AS SHOWN.
 2. CUT AND GRIND THREADED END OF 5000633 FLUSH WITH BOTTOM SURFACE OF 020-4511.

ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	020-4511	ROD END ADAPTER
1	1	5000633	MALE ROD END, M3 X 0.5 THREAD

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. KIMES	DATE 30-Mar-11		ROD END MOUNT, BASE END	
MATERIAL HEAT TREAT FINISH	CHECKED ENG APPROVED JGG	DATE 6/11/2014		SIZE A3	DRAWING NUMBER 020-4508
				THIRD ANGLE PROJECTION	SCALE: 3:1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		3/30/11
72309	B	REDRAWN IN INVENTOR; REMOVE NOTE #1	AB		12/05/13
74650	C	UPDATED HOLE CALLOUT TO CURRENT STANDARDS.	JH		1/14/2016
74650	D	REGULATION RELEASE.	GCH		1/14/2016



△ NOTES:

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 ✓ XX ±.2 ✓ X.XX ±.1 ✓ ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN B. KIMES CHECKED ENG APPROVED	DATE 30-Mar-11	
MATERIAL 304 STAINLESS STEEL HEAT TREAT FINISH	THIRD ANGLE PROJECTION	SIZE A3	DRAWING NUMBER 020-4511
		SCALE: 7:1	SHEET 1 OF 1

D

C

B

A

6

1

5

1

4

3

3

1

2

1

1

6

1

5

1

4

3

3

1

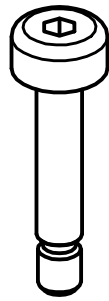
2

1

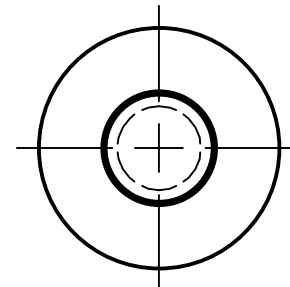
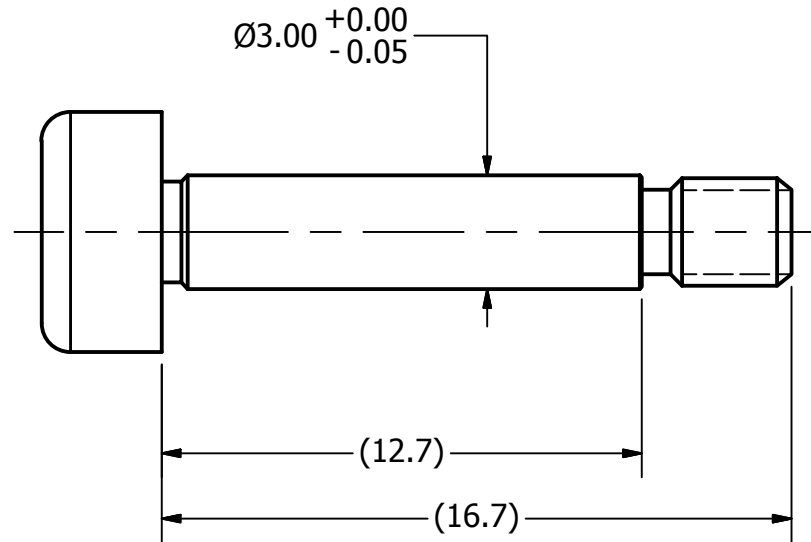
1

OF 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		3/30/11
72309	B	REDRAWN IN INVENTOR	AB		12/05/13
74650	C	REGULATION RELEASE	GCH		12/21/2015


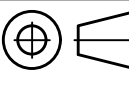


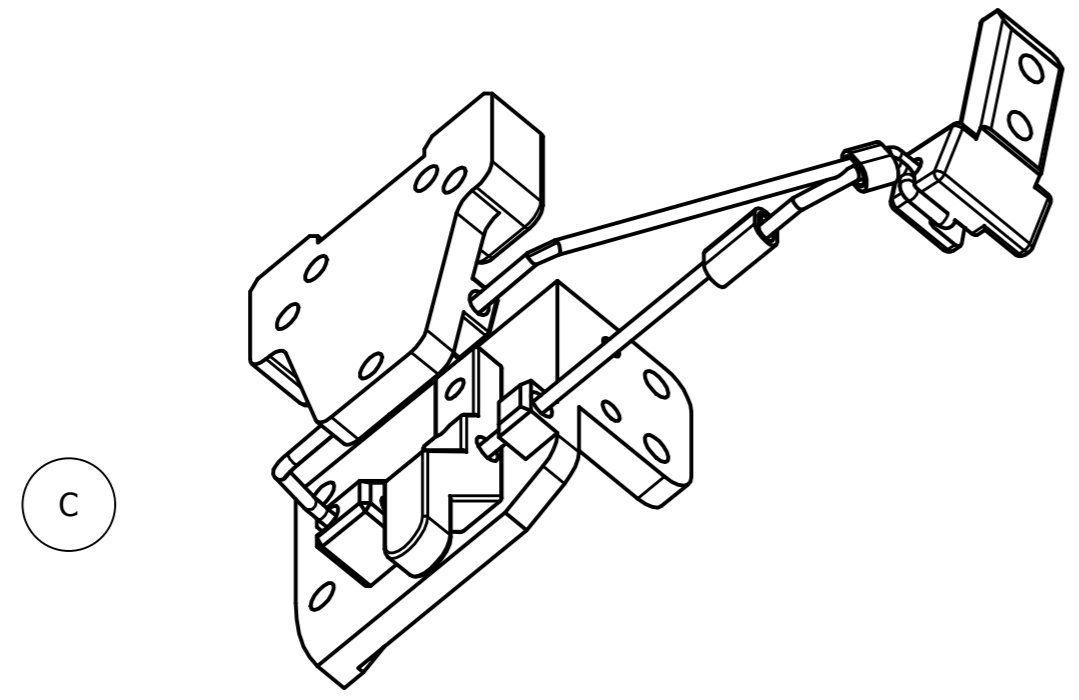
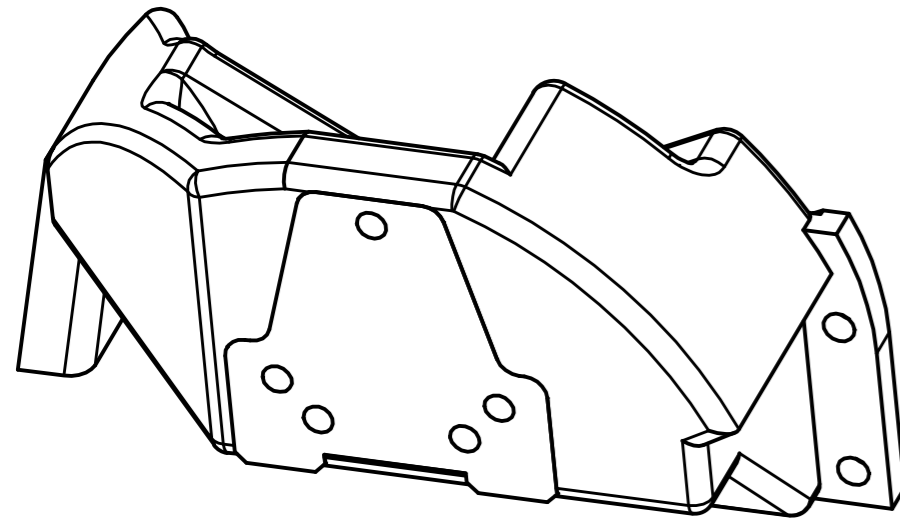
SCALE 2 : 1



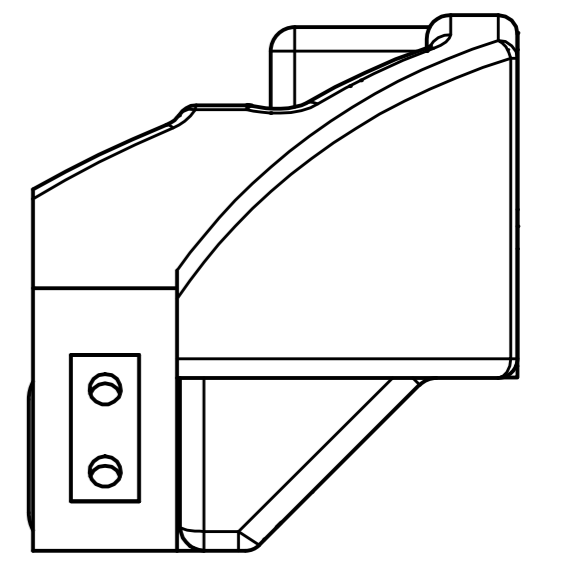
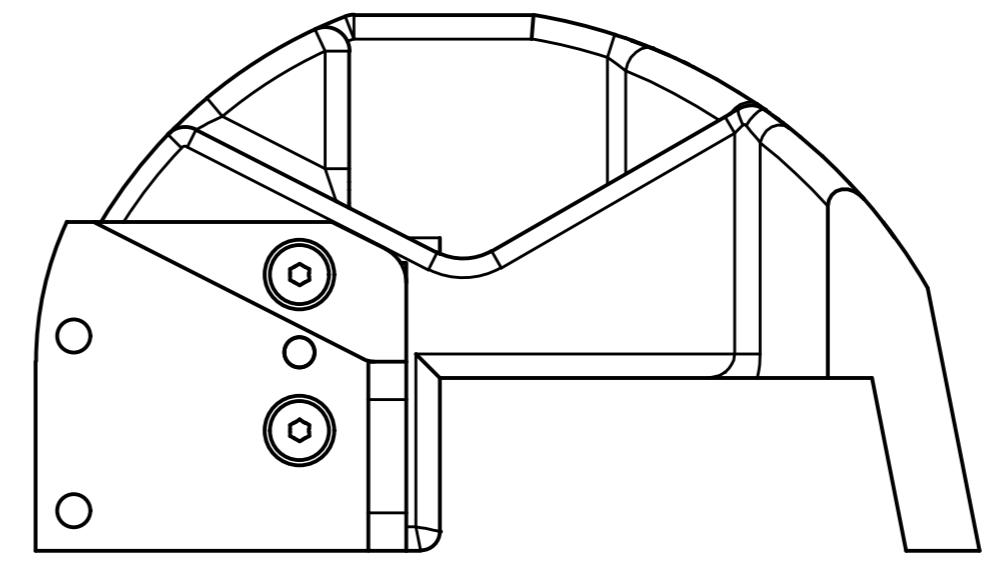
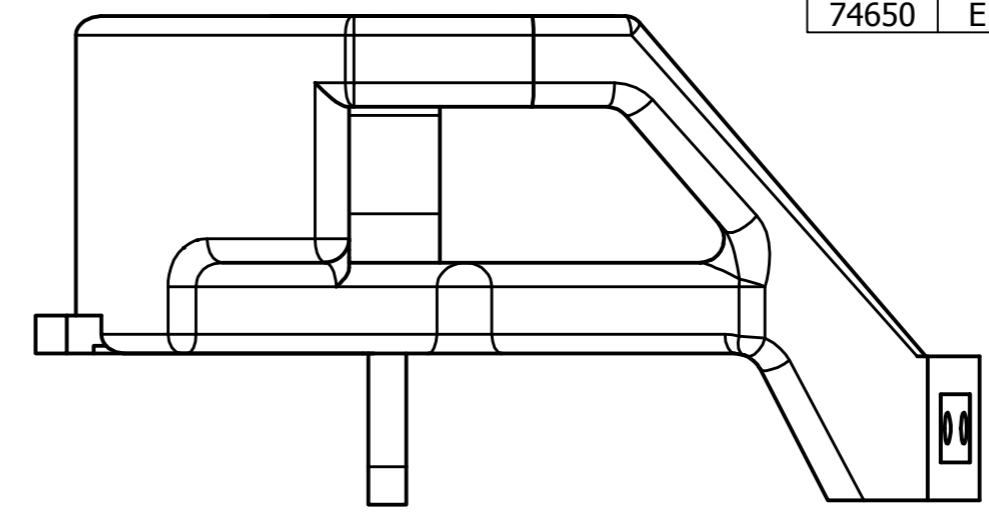
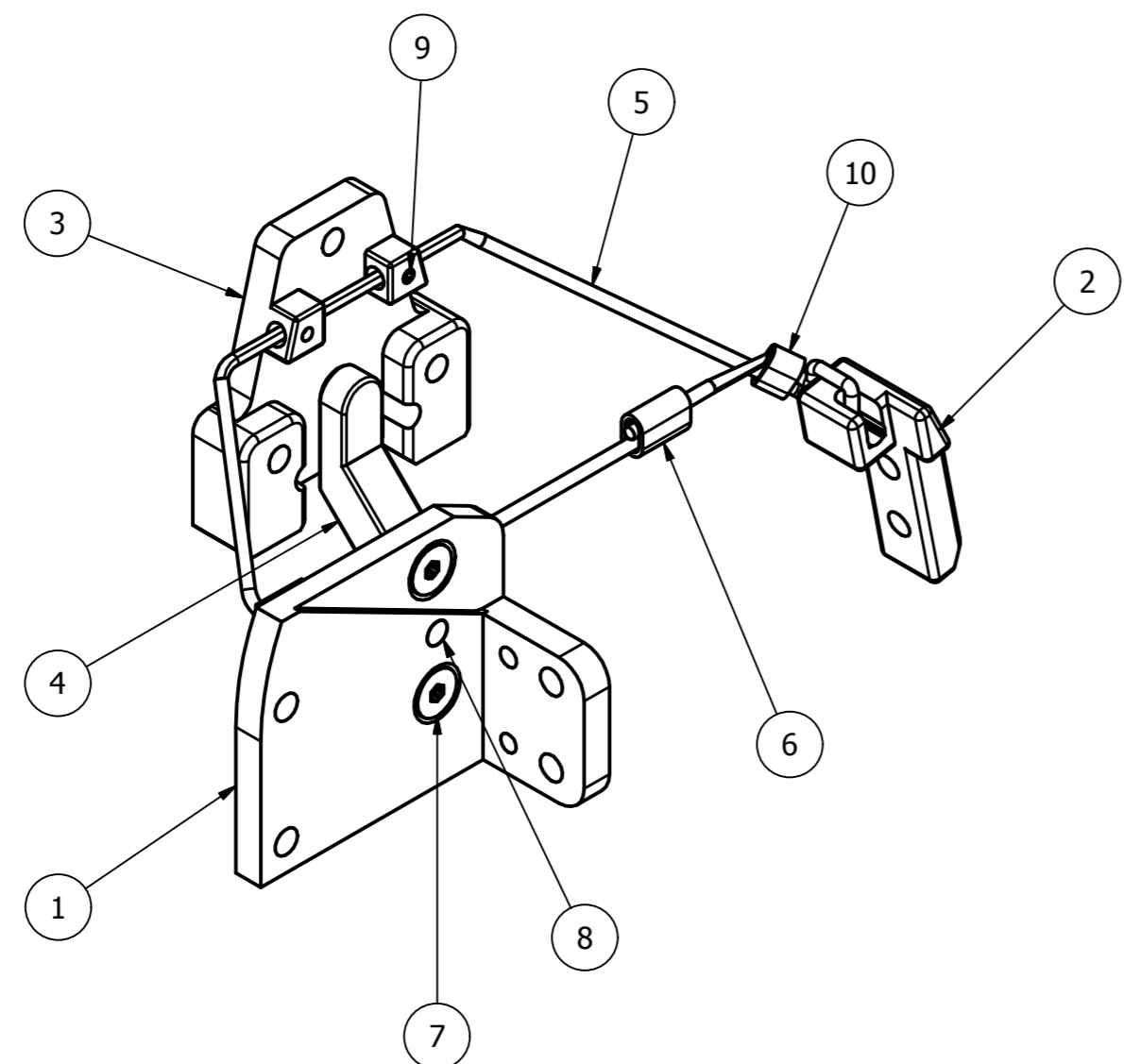
NOTES:

1. MAKE FROM 9002949, MODIFY AS SHOWN.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 ✓ XX ±.2 ✓ X.XX ±.1 ✓ ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN B. KIMES	DATE 30-Mar-11	
MATERIAL HEAT TREAT FINISH	CHECKED ENG APPROVED	 THIRD ANGLE PROJECTION	SIZE A3
		DRAWING NUMBER 020-4506	REV C
		SCALE: 5:1	SHEET 1 OF 1



VIEWS SHOWN WITHOUT
MOLDED RUBBER



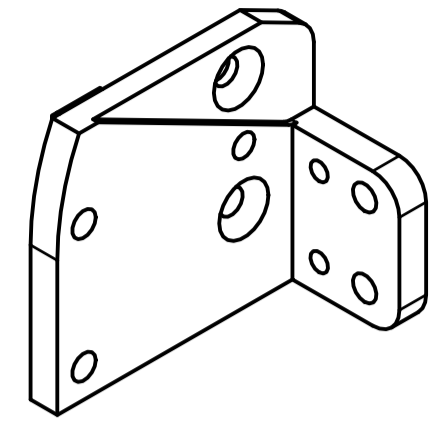
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		4/4/2006
75850	B	IN NOTE 1 (8002876) WAS (8002781) AND REMOVED 60D. CHANGED MATERIAL FROM "NATURAL RUBBER" TO "SEE NOTES"	JPM		9/11/2007
71816	C	9003054 QTY WAS 2. ADDED 020-3516 AND 9000154. REVISED WIRE ROPE LAYOUT. ADDED 2ND ISO VIEW. REDRAWN IN INVENTOR	TMV		12/4/2013
74650	D	REVISION SKIPPED DUE TO VAULT RESTRICTIONS.	JH		12/21/2015
74650	E	REGULATION RELEASE	JH		1/8/2016

- NOTES:
- 1. MATERIAL: NATURAL RUBBER (8002876).
 - 2. ASSEMBLE CABLE USING FIXTURE. CABLE END SHOULD NOT PROTRUDE MORE THAN 3mm FROM END OF CRIMP.

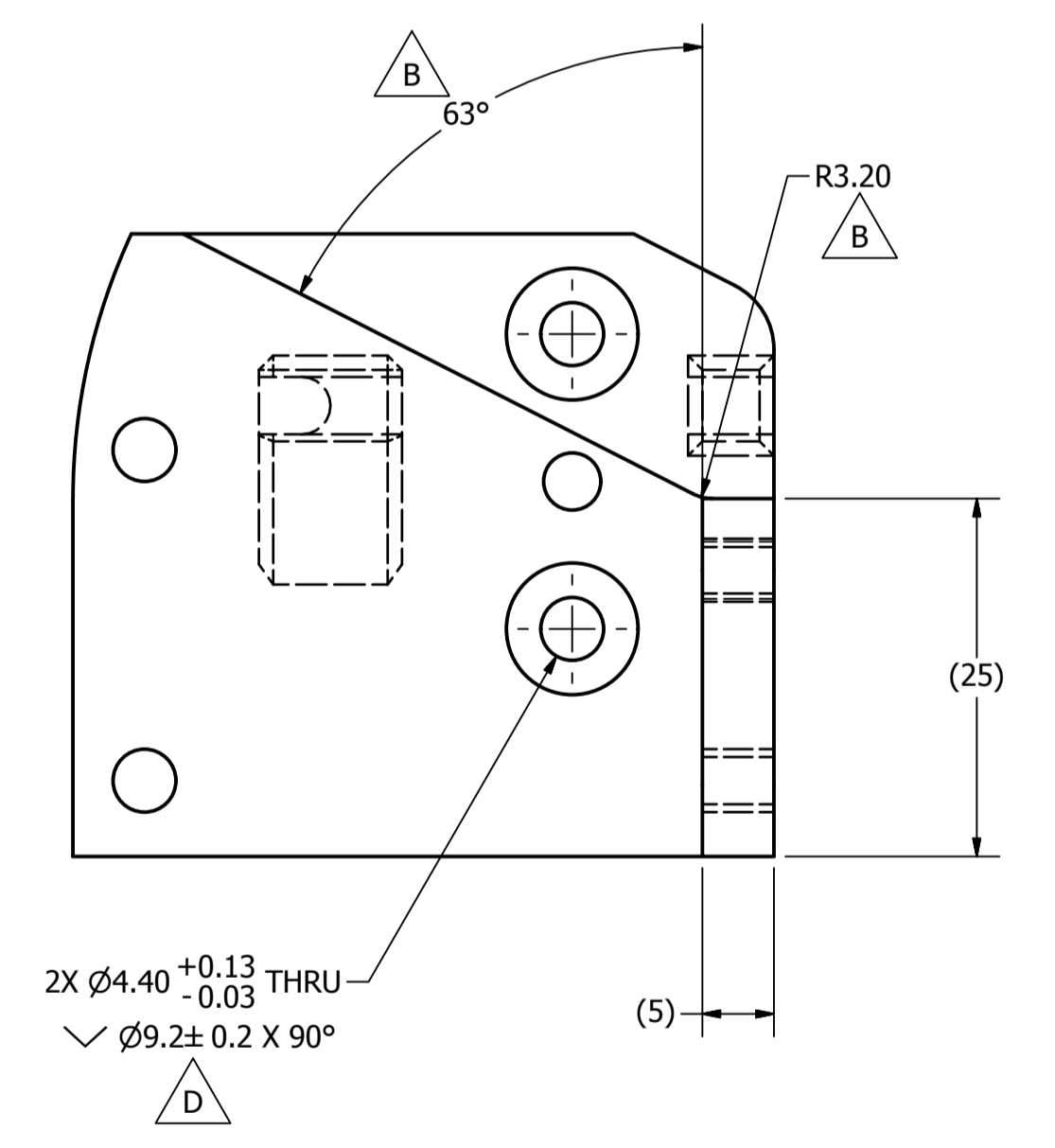
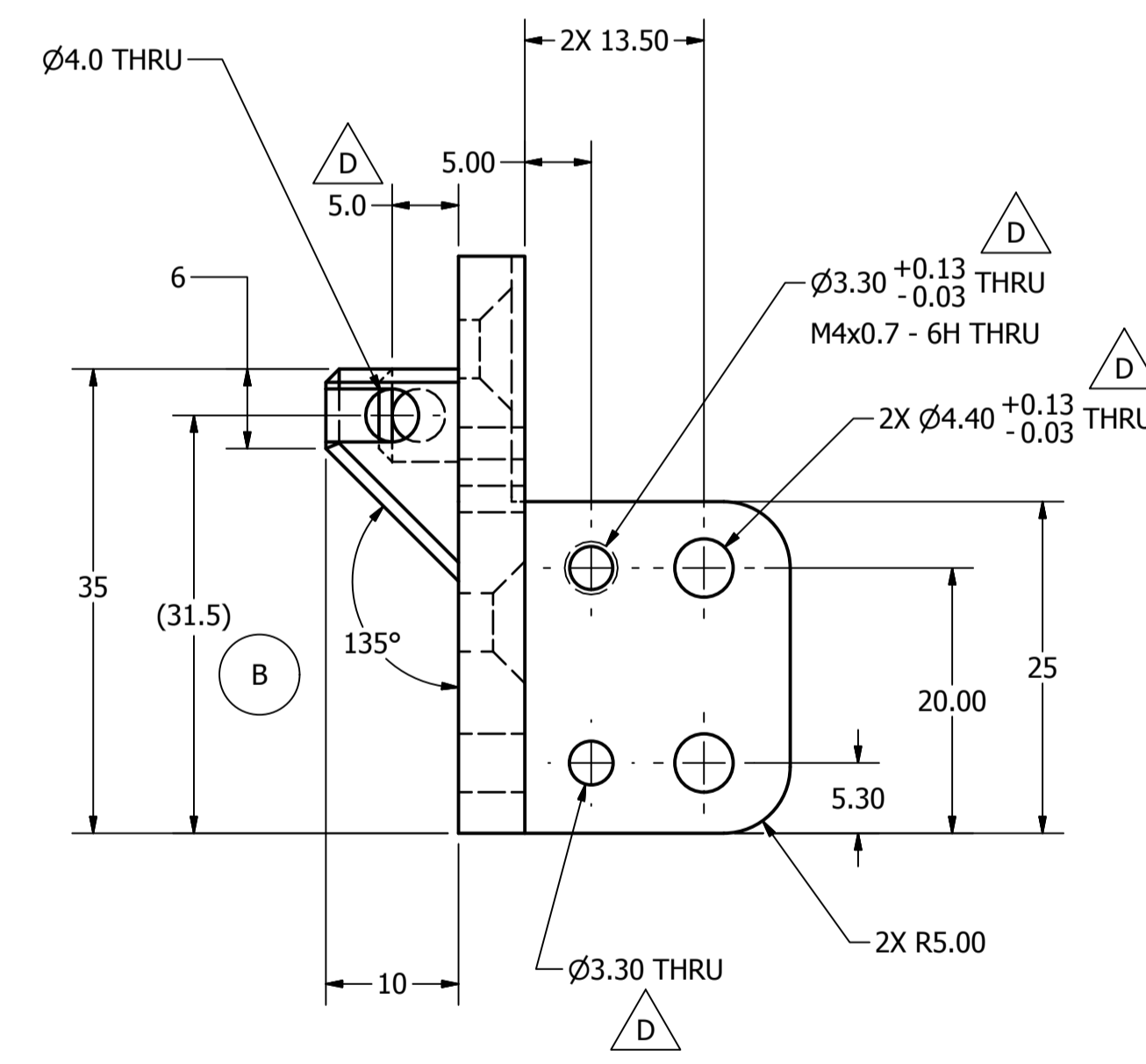
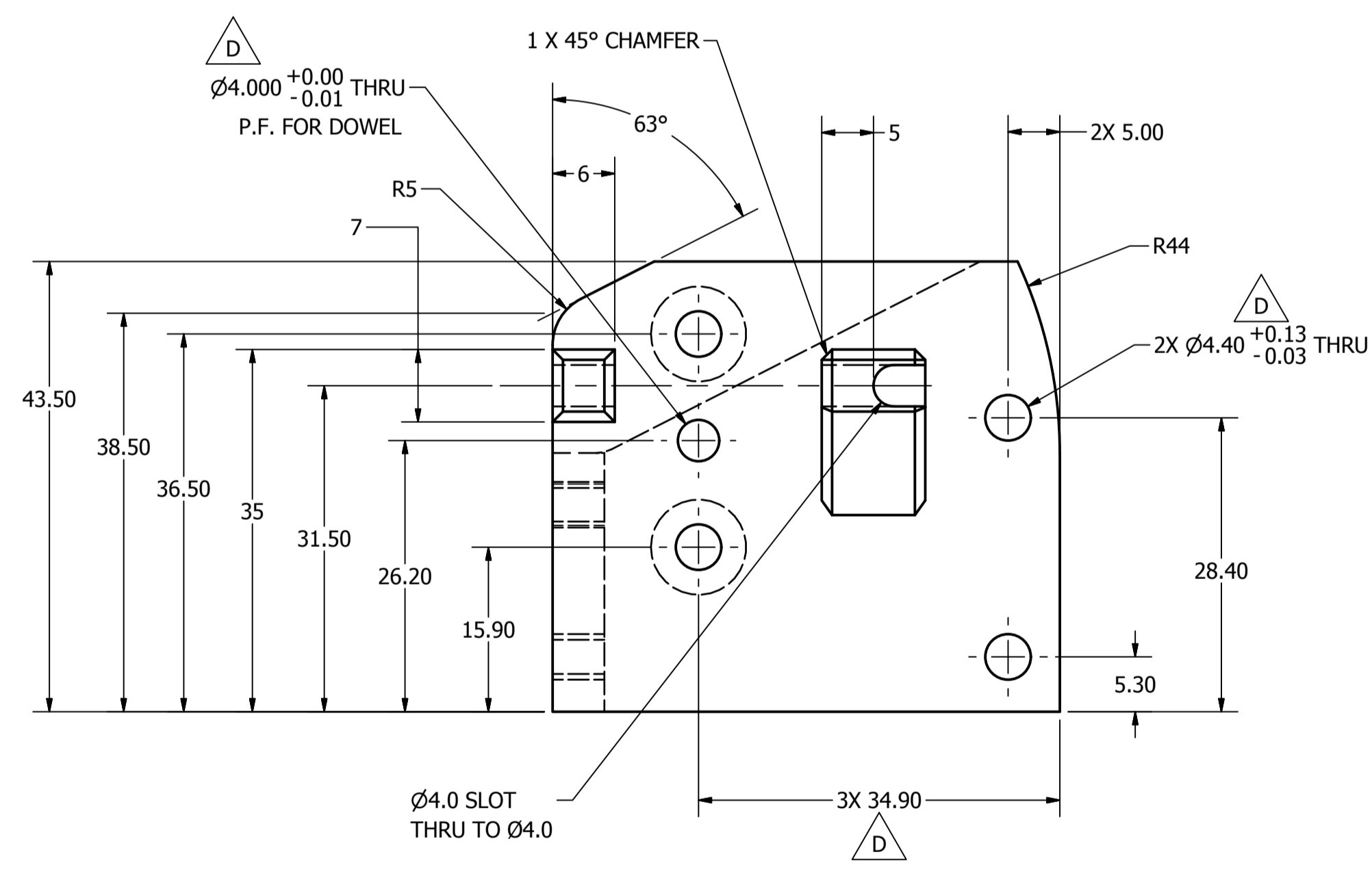
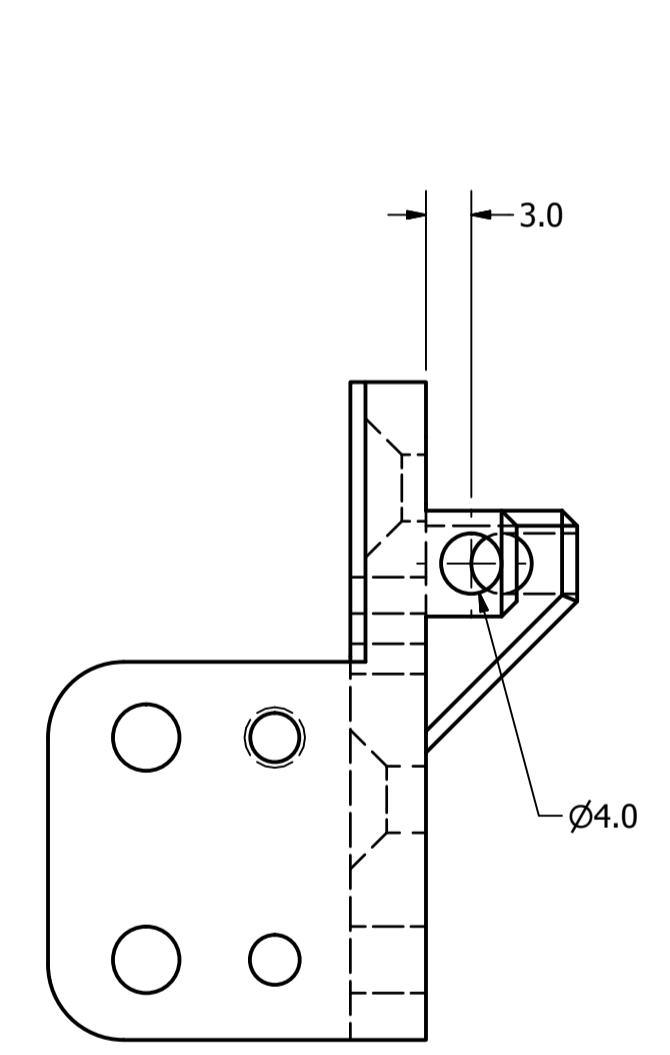
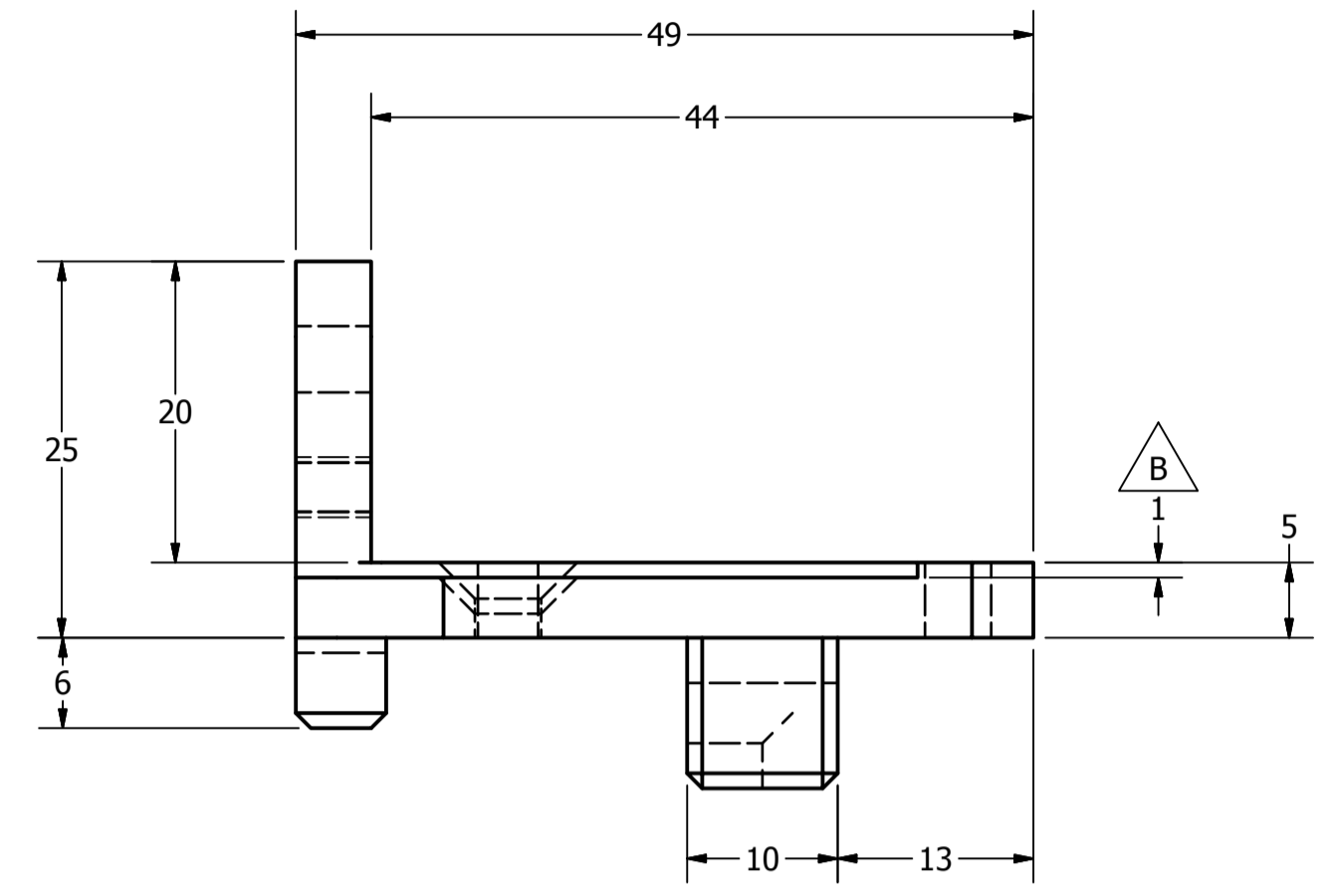
ITEM	QTY	PART NUMBER	DESCRIPTION
10	1	020-3516	WIRE CRIMP, MODIFIED
9	1	9000154	SCREW, SSCP #4-40 X 1/8
8	1	5000414	PIN, DOWEL M4 X10mm
7	2	5000023	FHCS M4X10mm
6	1	9003054	S.S. OVAL COMPRESSION SLEEVE (McC# 3755T14)
5	1	020-3515	WIRE ROPE, CUT Q3S SHOULDER
4	1	020-3514	BAR, SHOULDER
3	1	020-3513	SHOULDER ARM INTERFACE PLATE
2	1	020-3512	SHOULDER PLATE INTERFACE STERNUM, LH
1	1	020-3511	SHOULDER SPINE INTERFACE PLATE, LH

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL: X ±.5 XX ±.2 XXX ±.1	MACHINED ANGLES ±.5°	APPROVALS	DATE	MOLDED SHOULDER ASSY, LEFT	
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		B. KIMES	2/15/2006		
MATERIAL: SEE NOTES	CHECKED			DRAWING NUMBER: 020-3510	
HEAT TREAT	ENG			REV: E	
FINISH	APPROVED			SCALE: 1:1 SHEET 1 OF 1	

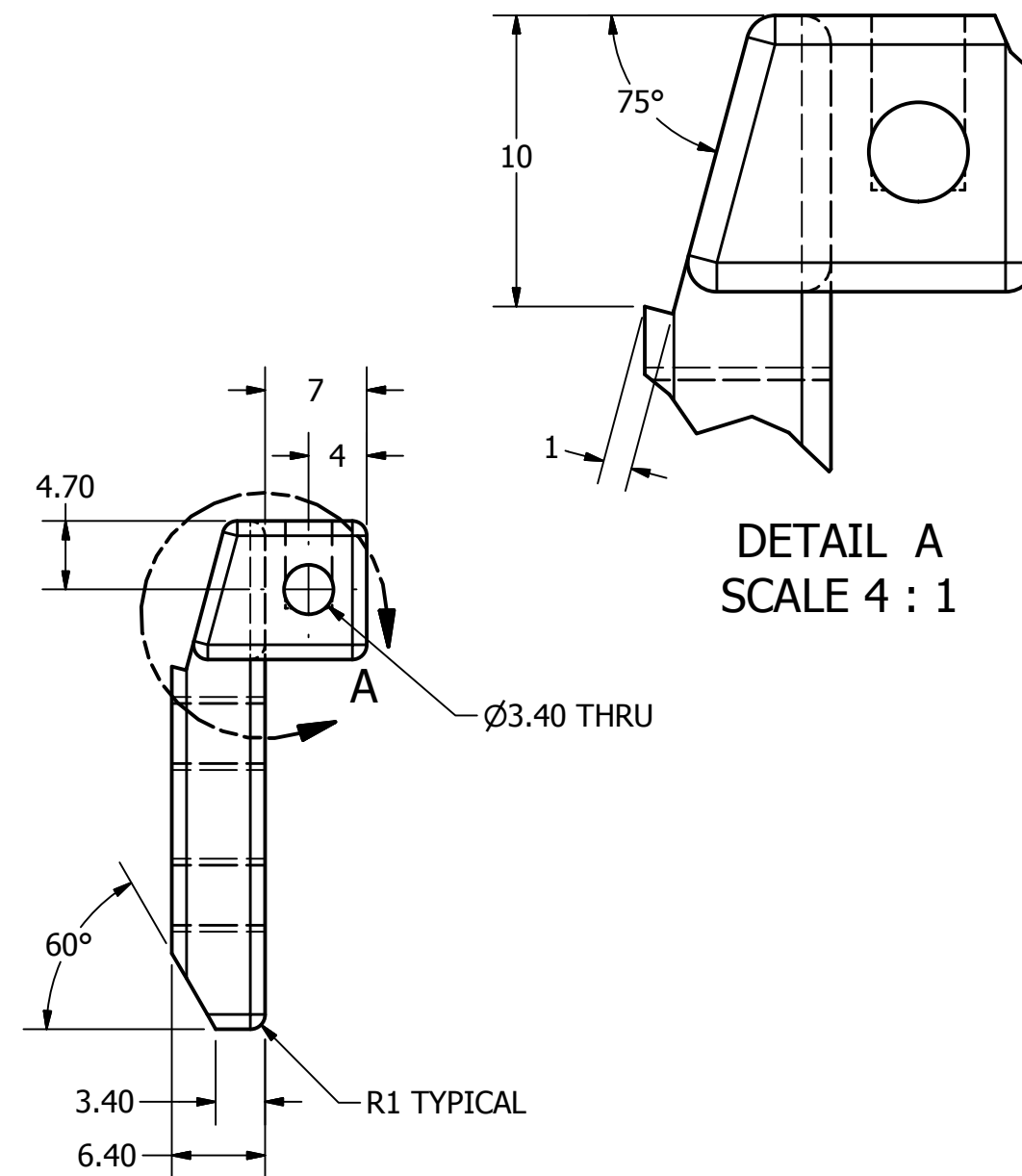
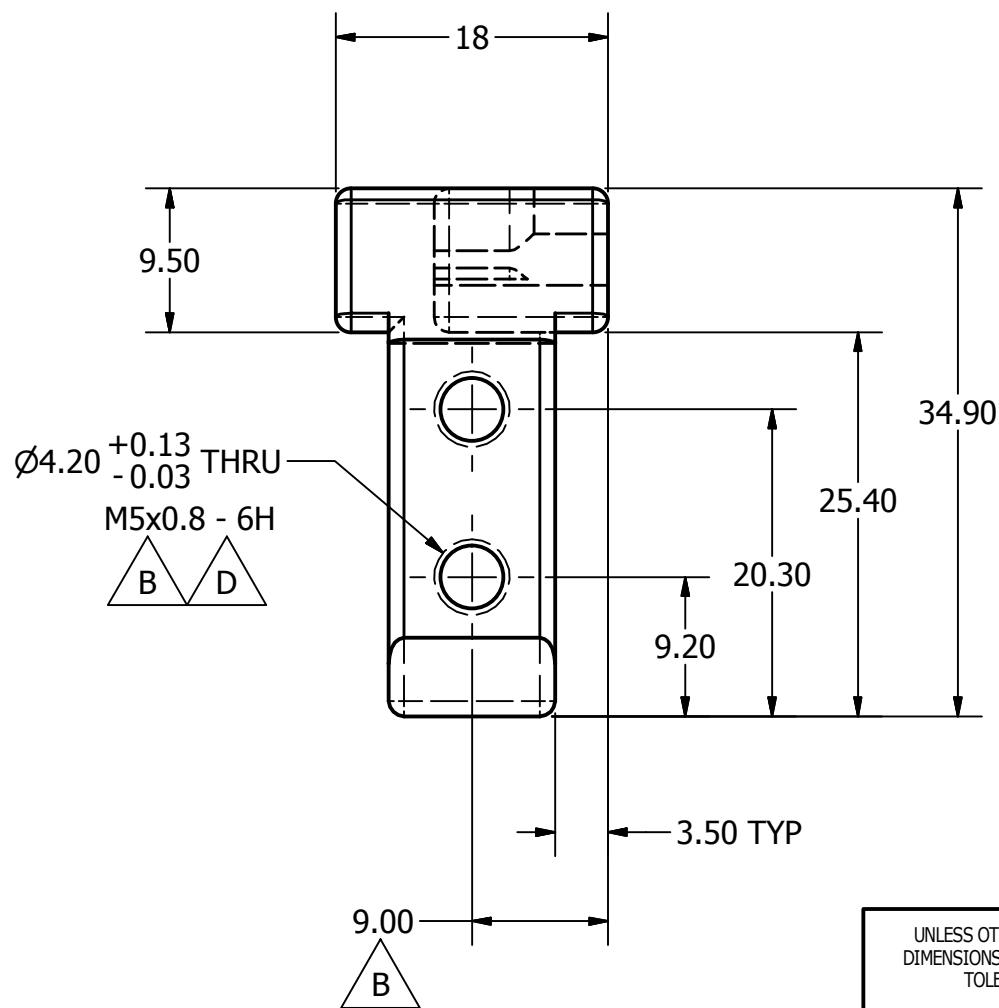
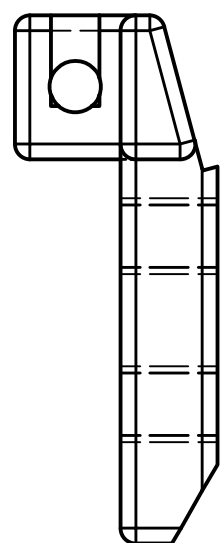
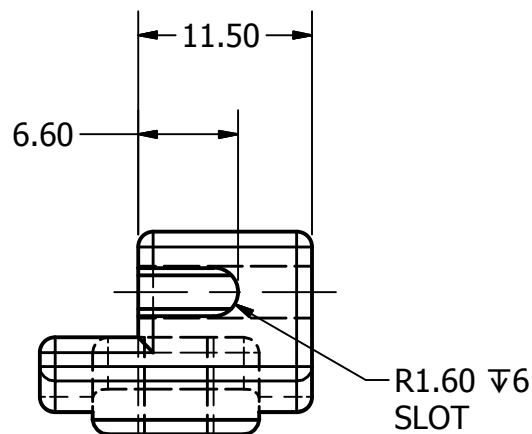
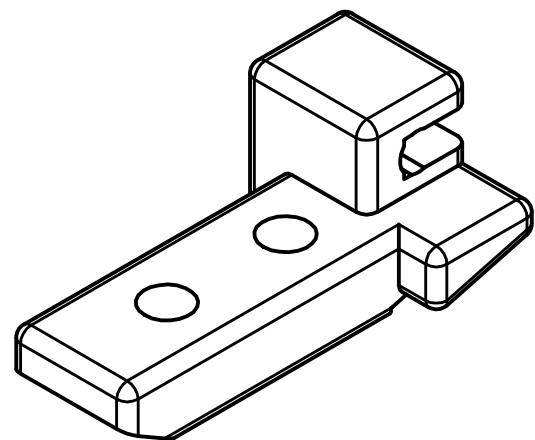
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENGR.	DATE
	A	RELEASE TO PRODUCTION	RN		6/27/06
6023	B	(31.5) WAS 32; ADD 1MM CUTOUT, DIMENSIONS AND VIEW; REORIENT ISO VIEW	BK		9/11/06
71816	C	REDRAWN IN INVENTOR	TMV		11/22/2013
74650	D	UPDATED HOLE CALLOUTS TO CURRENT STANDARDS; ADDED DIM 5.0; Ø3.30 WAS Ø3.10; 3X 31.90 WAS 31.90.	GCH		01/14/2016
74650	E	REGULATION RELEASE	GCH		01/14/2016



SCALE 1 : 1



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X.X ±0.25 XX ±0.1 XXX ±0.1 MACHINED ANGLES ±0.5°	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS: B. KIMES DATE: 10/4/2006		
MATERIAL: 6061-T6 ALUMINUM HEAT TREAT: N/A FINISH: N/A	SIZE: A1 DRAWING NUMBER: 020-3511 SCALE: 2:1	SHEET: 1 OF 1	REV: E

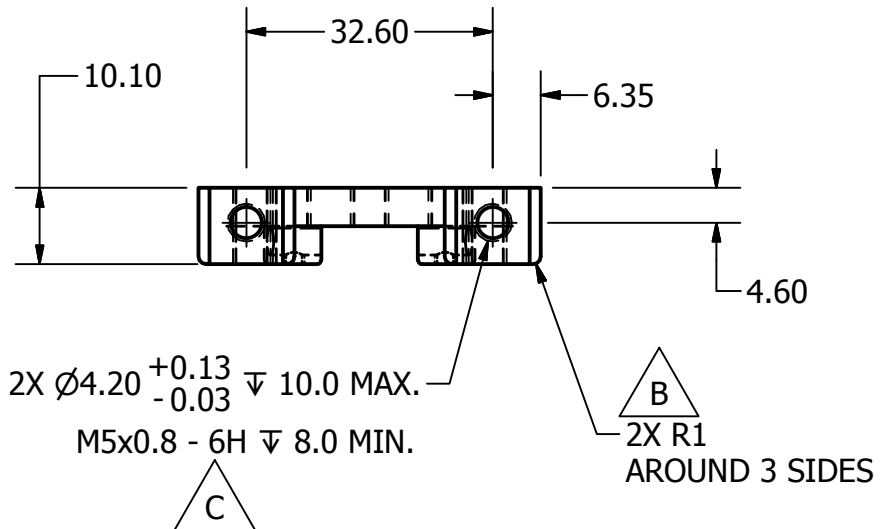
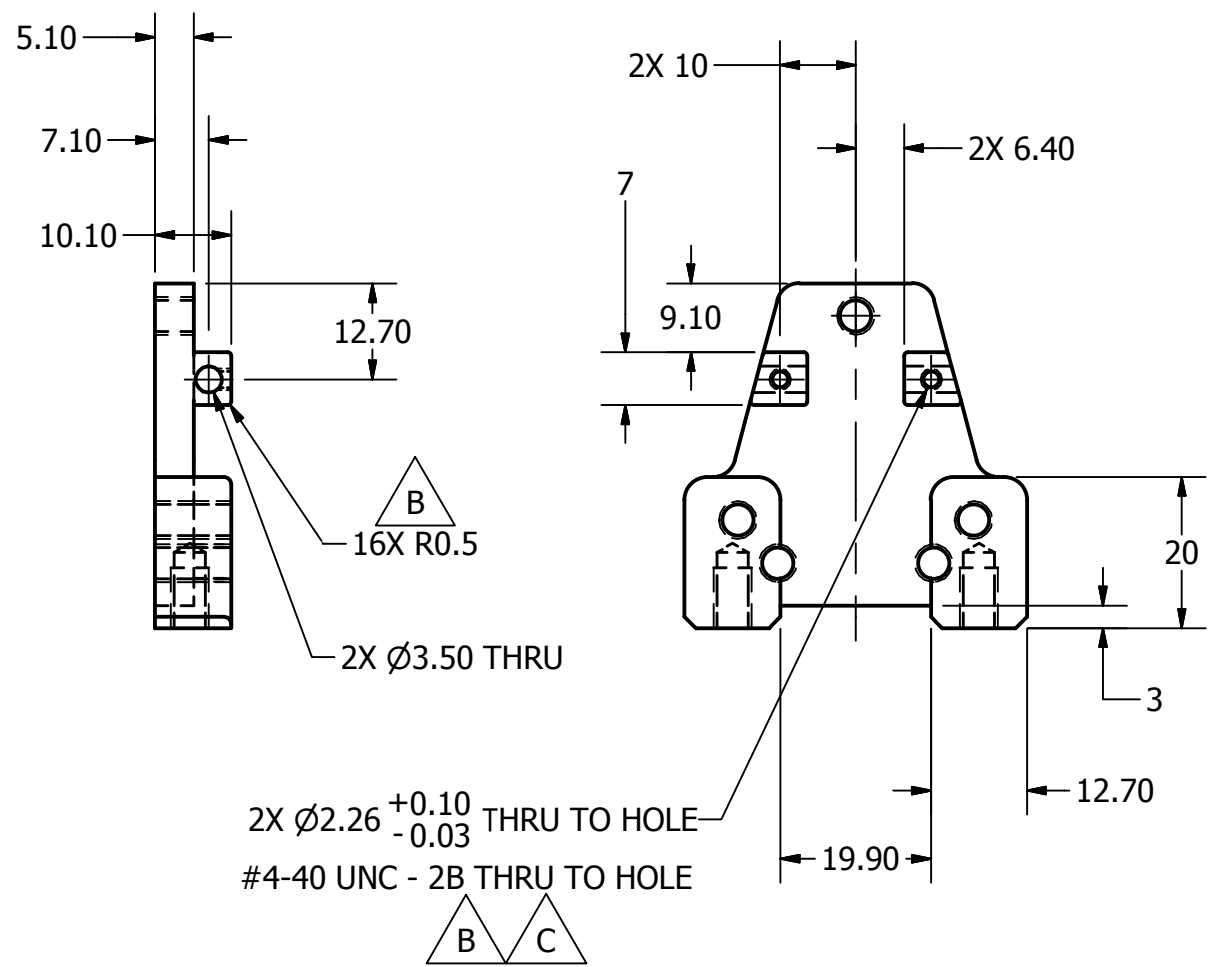
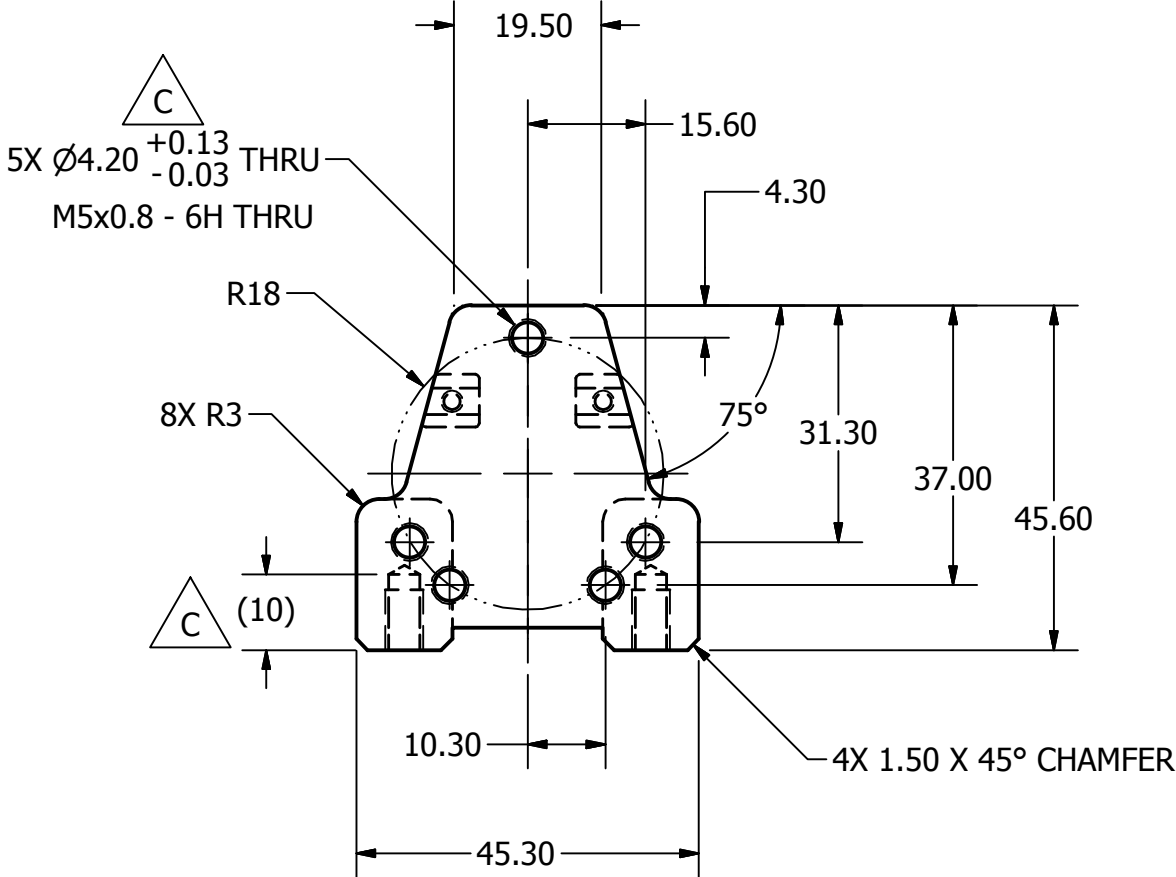
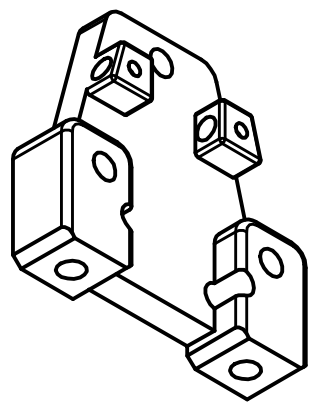


REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	RN		12/12/05
71419	B	ADDED CENTERLINE DIMENSION FOR M5 (9.0); 2X M5 X 0.8 THRU WAS 2X M5 THRU	AB		10/11/2013
71816	C	REDRAWN IN INVENTOR	TMV		11/22/2013
74650	D	UPDATED HOLE CALLOUTS PER CURRENT STANDARDS	GCH		01/14/2016
74650	E	REGULATION RELEASE	GCH		01/14/2016

DETAIL A
SCALE 4 : 1

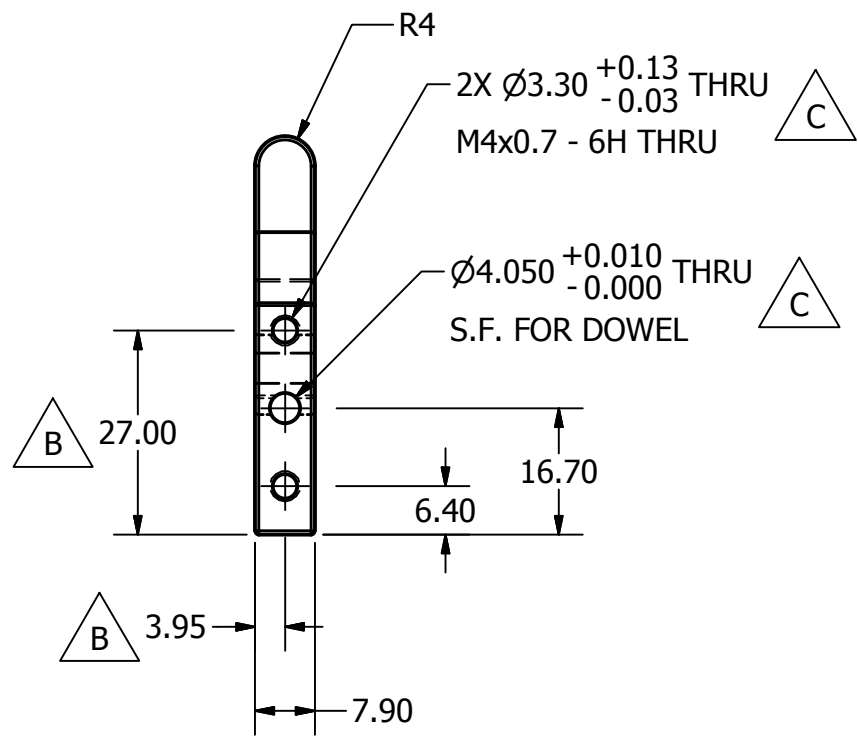
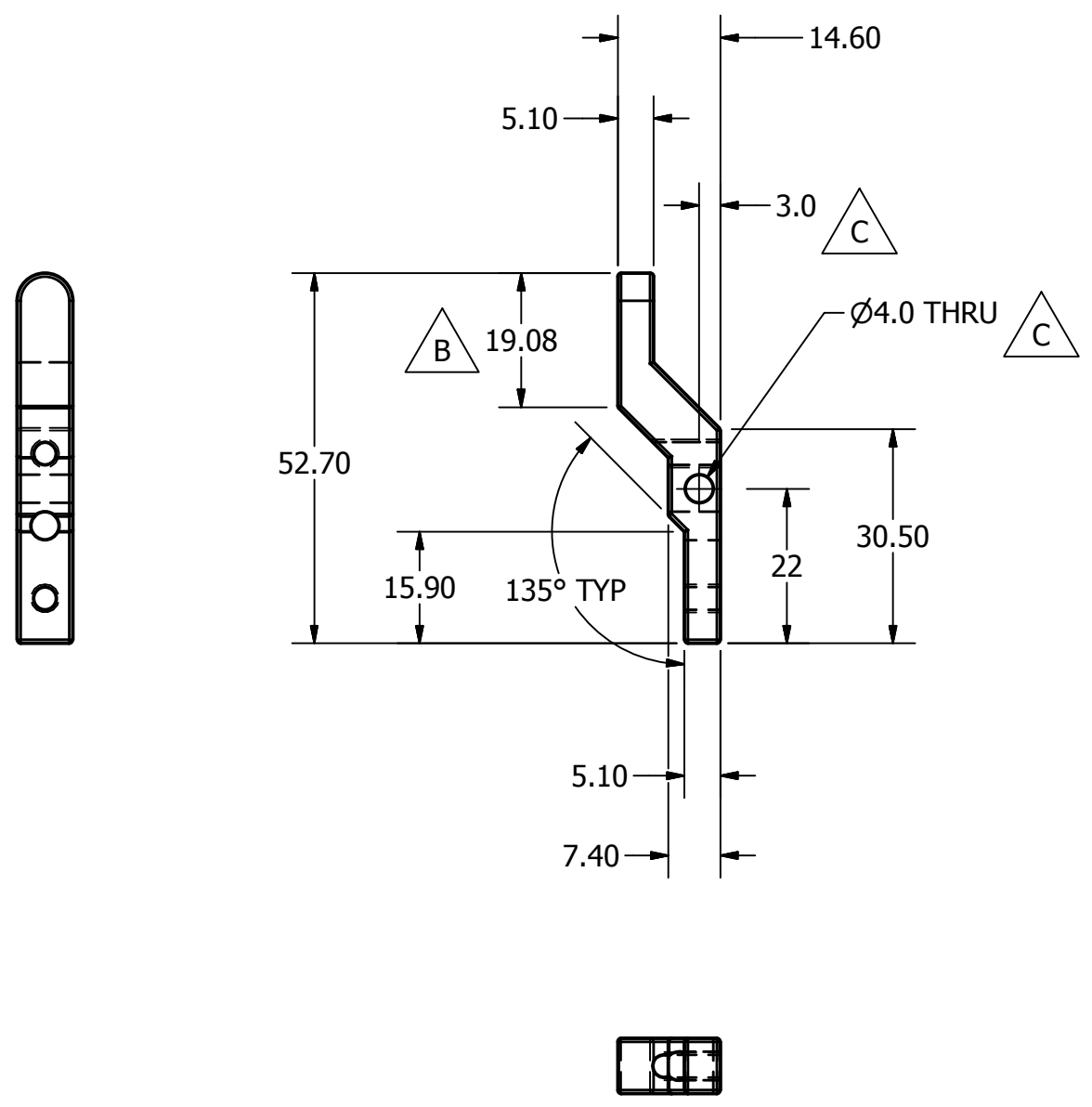
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 ✓ XX ±.2 ✓ X.XX ±.1 ✓ ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN MEC CHECKED ENG APPROVED	DATE 9/5/2005		SHOULDER PLATE INTERFACE STERNUM, LH	
MATERIAL 6061-T6 ALUMINUM HEAT TREAT FINISH		SIZE A3	DRAWING NUMBER 020-3512	REV E	SHEET 1 OF 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	RN		12/12/2005
71816	B	ADDED 2X 4-40 HOLES. REDRAWN IN INVENTOR. ADDED R1 AND R0.5	TMV		11/15/2013
74650	C	UPDATED HOLE CALL OUTS TO CURRENT STANDARDS: (10) WAS 10	AB		12/21/15
74650	D	REGULATION RELEASE	JH		1/5/2016



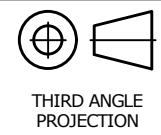
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ✓ ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN MEC CHECKED ENG APPROVED	DATE 10/11/2005		SHOULDER ARM INTERFACE PLATE	
MATERIAL 6061-T6 ALUMINUM HEAT TREAT N/A FINISH N/A	SIZE A3	DRAWING NUMBER 020-3513	REV D	SCALE: 1:1 SHEET 1 OF 1	

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENGR.	DATE
	A	RELEASE TO PRODUCTION	MEC		1/26/2006
71816	B	27.00 WAS 27; 19.08 WAS 19.1; ADD 3.95 REDRAWN IN INVENTOR	TMV		12/5/2013
74650	C	UPDATED REV-B IN REV TABLE: ADDED 19.08 WAS 19.1; UPDATED HOLE CALLOUTS TO CURRENT STANDARDS; Ø4.0 THRU WAS Ø4 THRU; 3.0 WAS 3.	AB		12/21/15
74650	D	REGULATION RELEASE	JH		1/5/2016

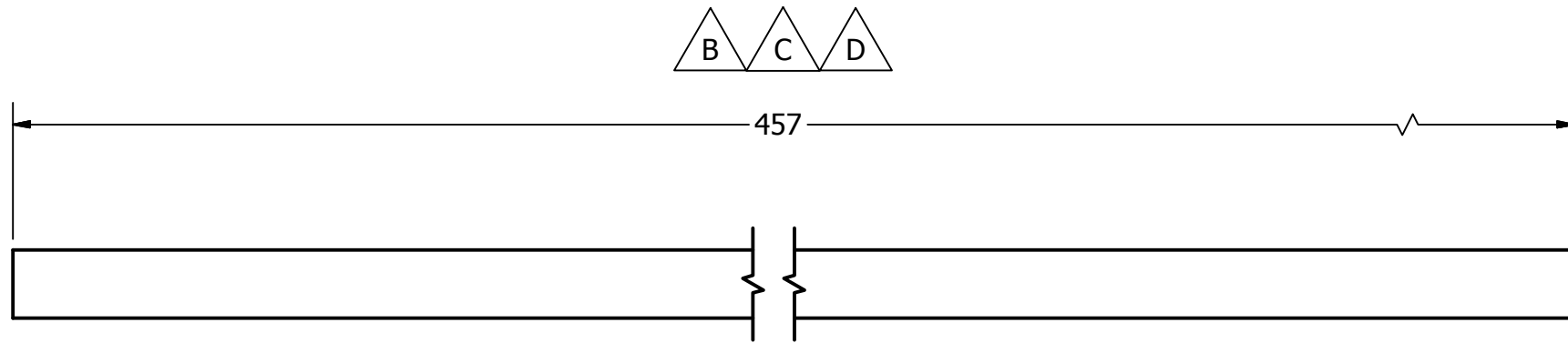
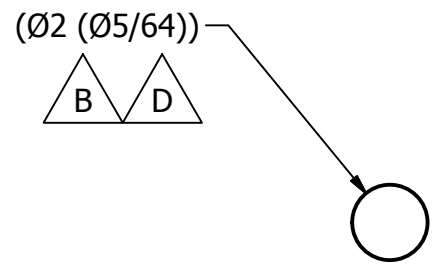


- NOTES:
1. ROUND OFF ALL EDGES HEAVILY.
 2. FINISH: SANDBLAST, NO PLATING RQD.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 ✓ XX ±.2 ✓ X.XX ±.1 ✓ ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN MEC CHECKED HEAT TREAT ENG FINISH SEE NOTES	DATE 1/26/2006		BAR, SHOULDER	
MATERIAL 1018 OR EQUIV. HEAT TREAT FINISH SEE NOTES	APPROVED	SIZE A3	DRAWING NUMBER 020-3514	REV D	SCALE: 1:1
		SHEET 1 OF 1			



REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		4/18/06
75850	B	300 WAS 290; (Ø5/64) WAS (Ø3/32); 9003133 IN NOTE 1 WAS 9003053	JPM		9/11/07
71816	C	457 WAS 300 REDRAWN IN INVENTOR	TMV		11/19/2013
74650	D	REGULATION RELEASE; CONVERTED IMPERIAL TO METRIC.	JH		12/21/2015

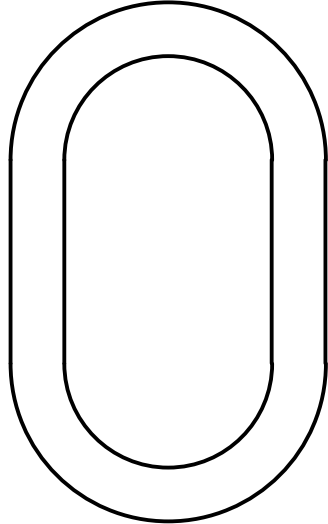
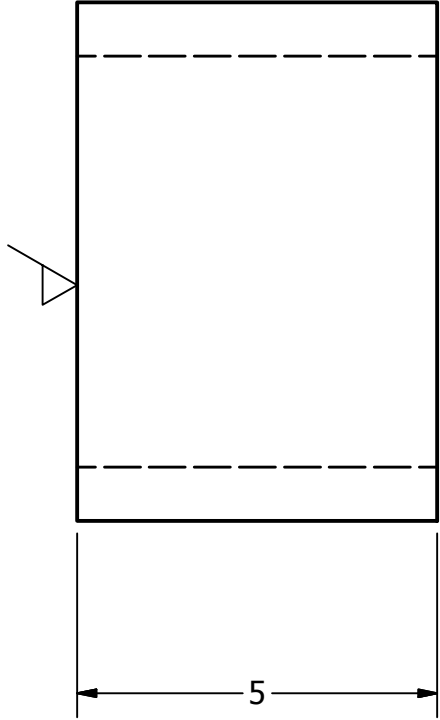
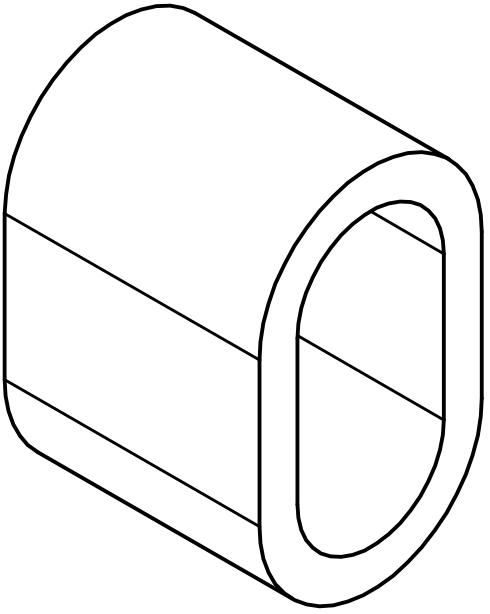



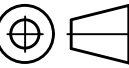
NOTES:

- 1. MADE FROM 9003133, CUT TO LENGTH SHOWN.

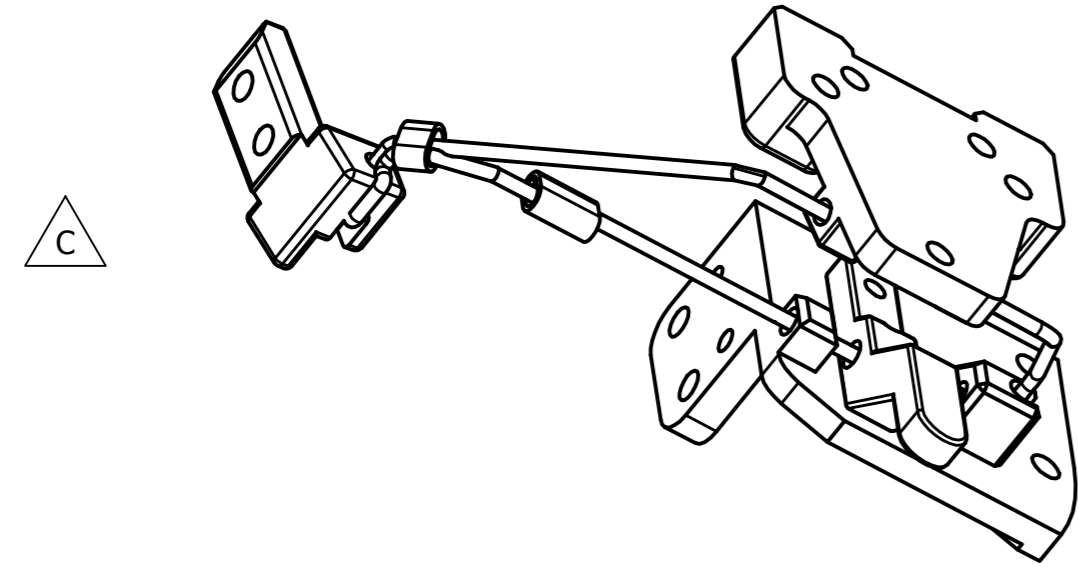
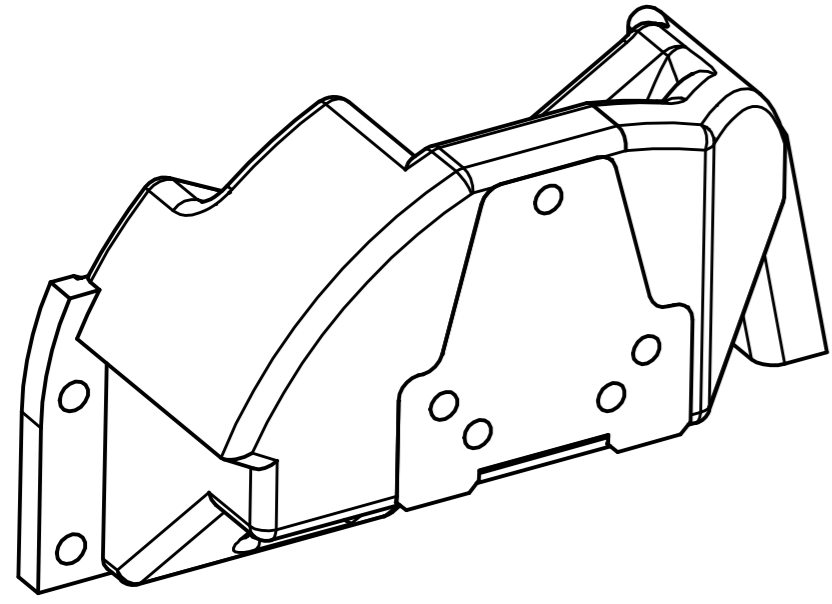
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 ✓ XX ±.2 ✓ X.XX ±.1 ✓ ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN B. KIMES CHECKED ENG APPROVED	DATE 2/15/2006	
MATERIAL 304 STAINLESS STEEL HEAT TREAT FINISH	 THIRD ANGLE PROJECTION	SIZE A3	DRAWING NUMBER 020-3515
		SCALE: 5:1	SHEET 1 OF 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
71816	A	RELEASE TO PRODUCTION	TMV		12/4/2013
74650	B	REGULATION RELEASE	JH		12/21/2015

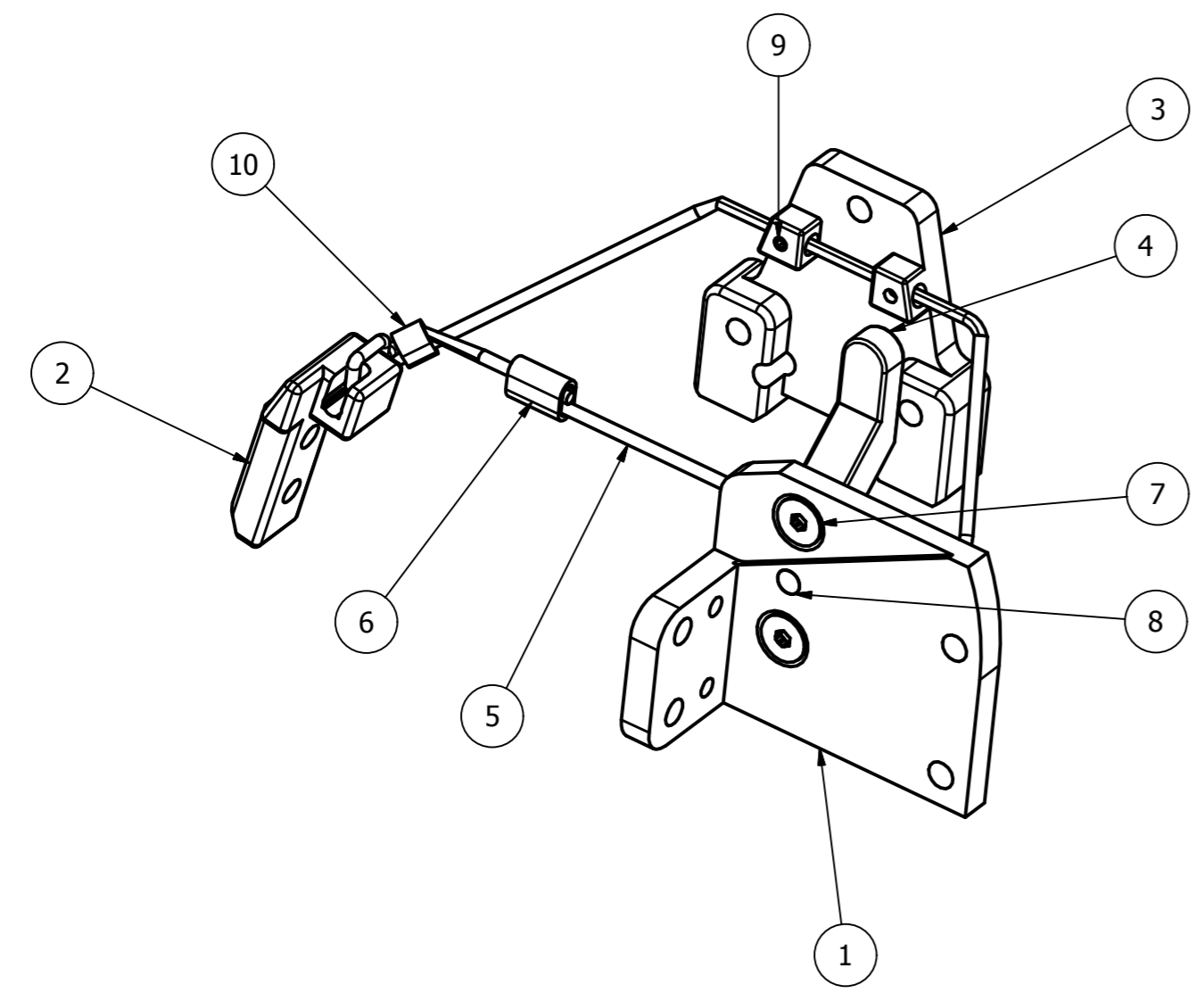


<p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</p> <p>DECIMAL: MACHINED X ±.5 ✓ XX ±.2 ✓ X.XX ±.1 ✓</p> <p>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</p>	<p>VEHICLE RESEARCH and TEST CENTER</p>		 <p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p>
	<p>APPROVALS</p> <p>DRAWN tvara</p> <p>CHECKED</p> <p>ENG</p> <p>APPROVED</p>	<p>DATE</p> <p>12/4/2013</p>	
<p>MATERIAL 9003054-FT</p> <p>HEAT TREAT N/A</p> <p>FINISH N/A</p>	 <p>THIRD ANGLE PROJECTION</p>	<p>SIZE DRAWING NUMBER REV</p> <p>A3 020-3516 B</p>	<p>SCALE: SHEET</p> <p>10:1 1 OF 1</p>

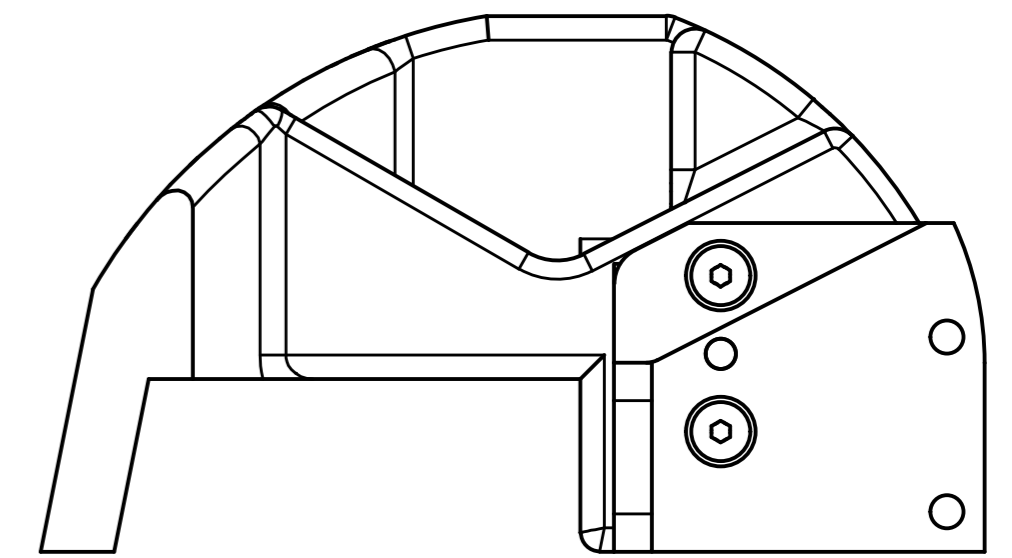
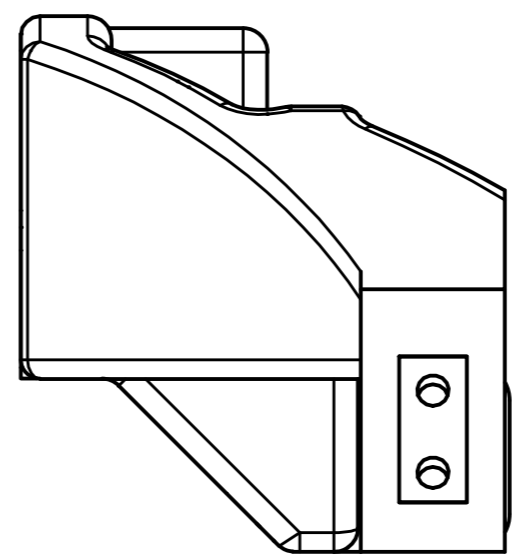
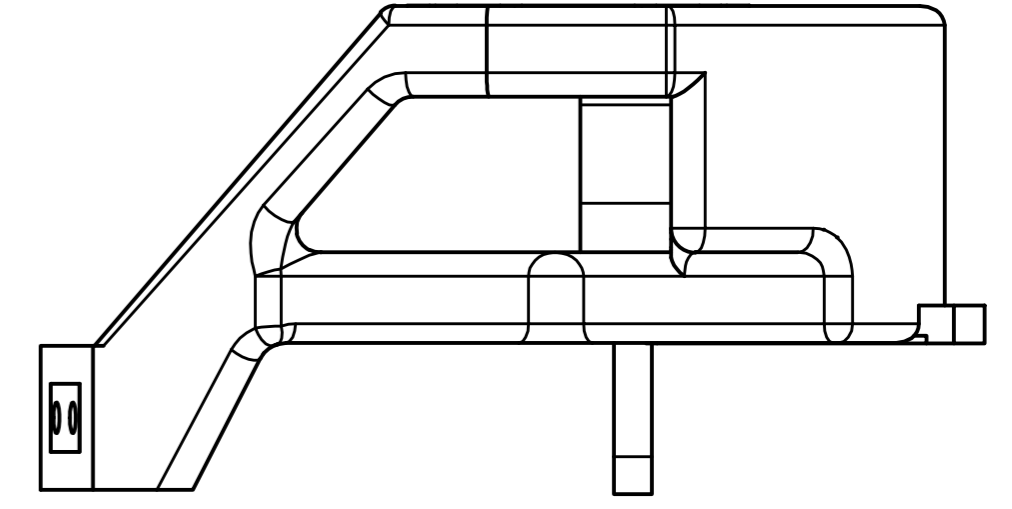
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		4/04/2006
75850	B	IN NOTE 1 (8002876) WAS (8002781) AND REMOVED 60D. CHANGED MATERIAL FROM "NATURAL RUBBER" TO "SEE NOTES"	JPM		9/12/2007
71816	C	9003054 QTY WAS 2. ADDED 020-3516 AND 9000154. REVISED WIRE ROPE LAYOUT. ADDED 2ND ISO VIEW. REDRAWN IN INVENTOR	TMV		12/4/2013
74650	D	REGULATION RELEASE	JH		12/21/2015



VIEWS SHOWN WITHOUT MOLDED RUBBER



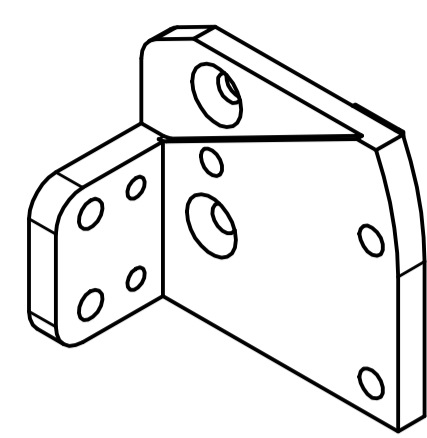
- NOTES:
- B 1. MATERIAL: NATURAL RUBBER (8002876).
 - 2. ASSEMBLE CABLE USING FIXTURE: CABLE END SHOULD NOT PROTRUDE MORE THAN 3mm FROM END OF CRIMP.



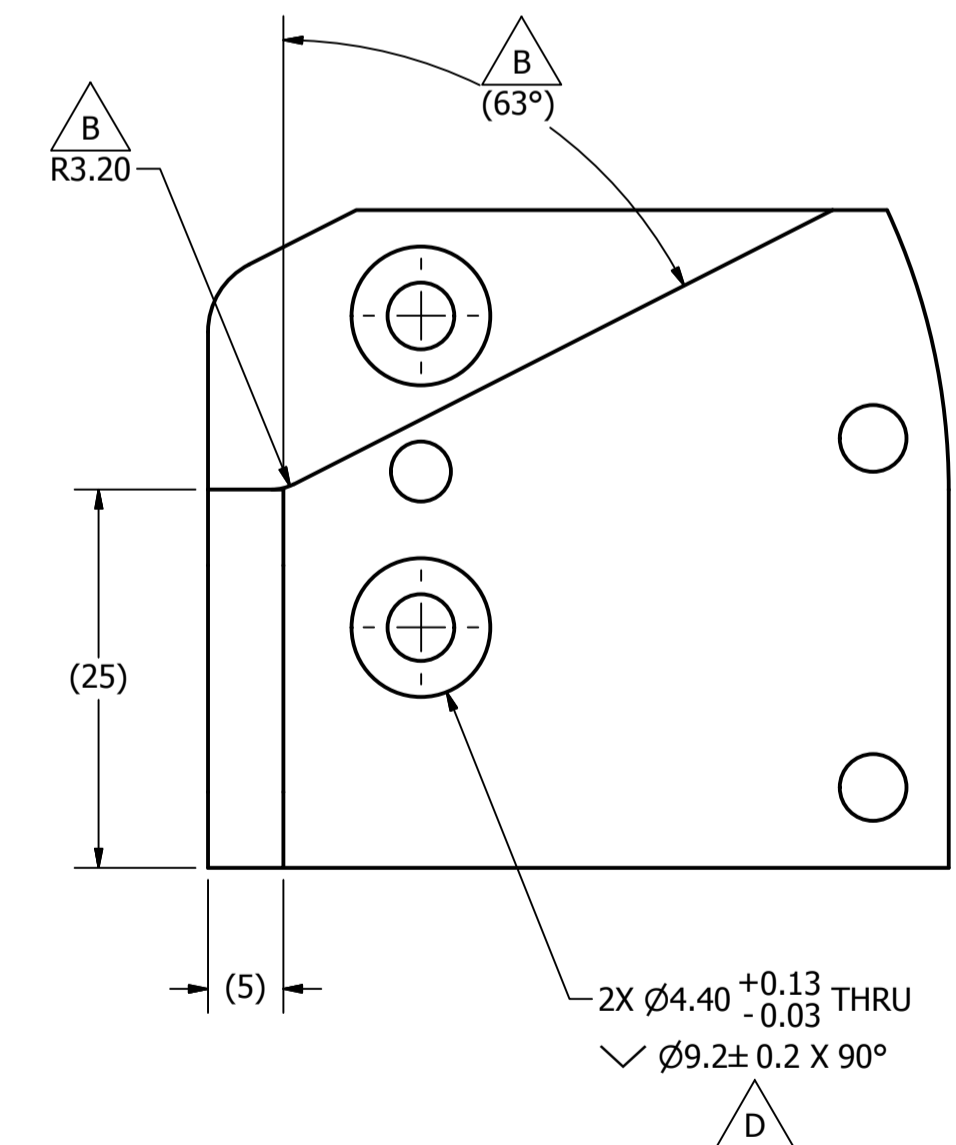
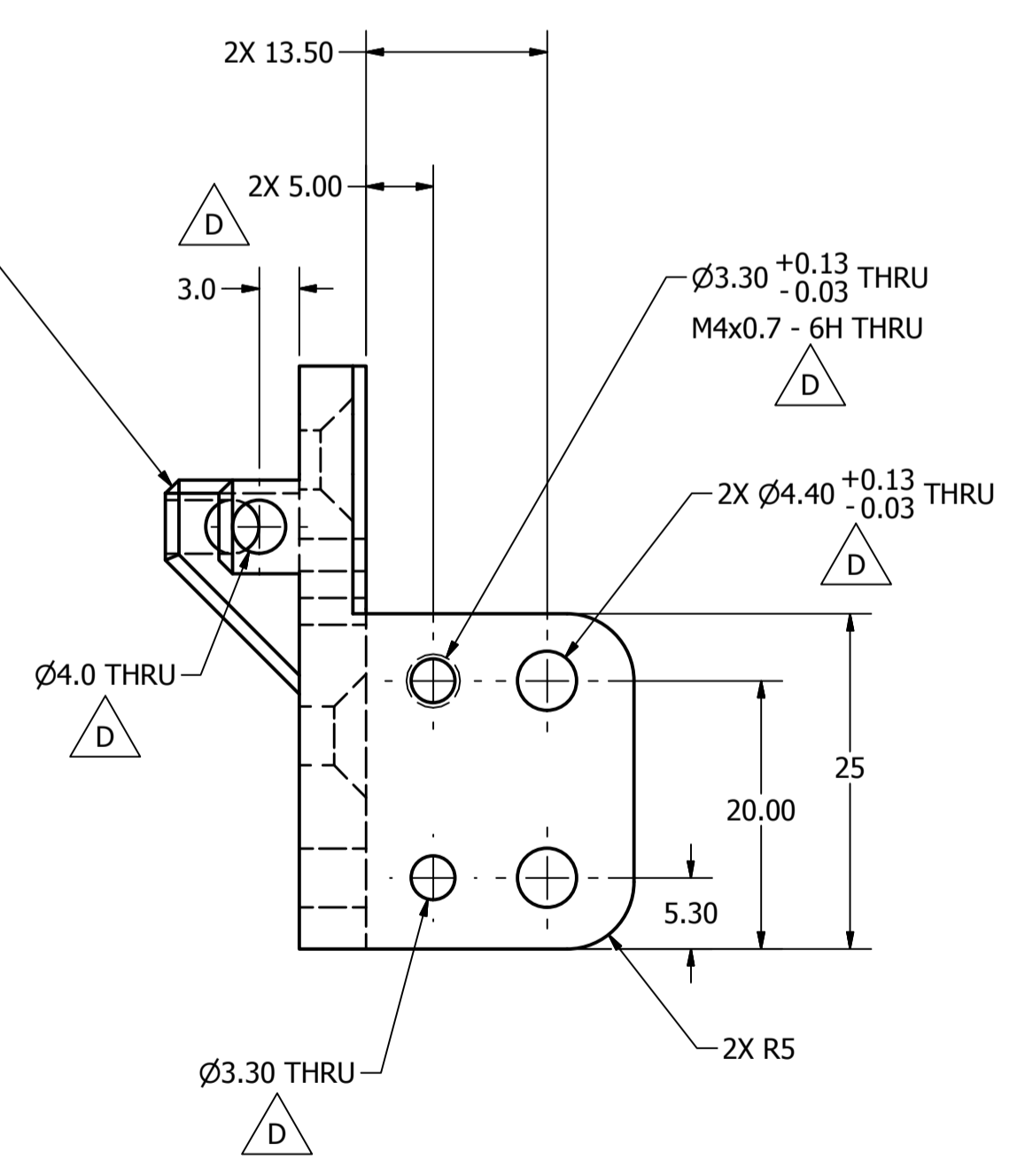
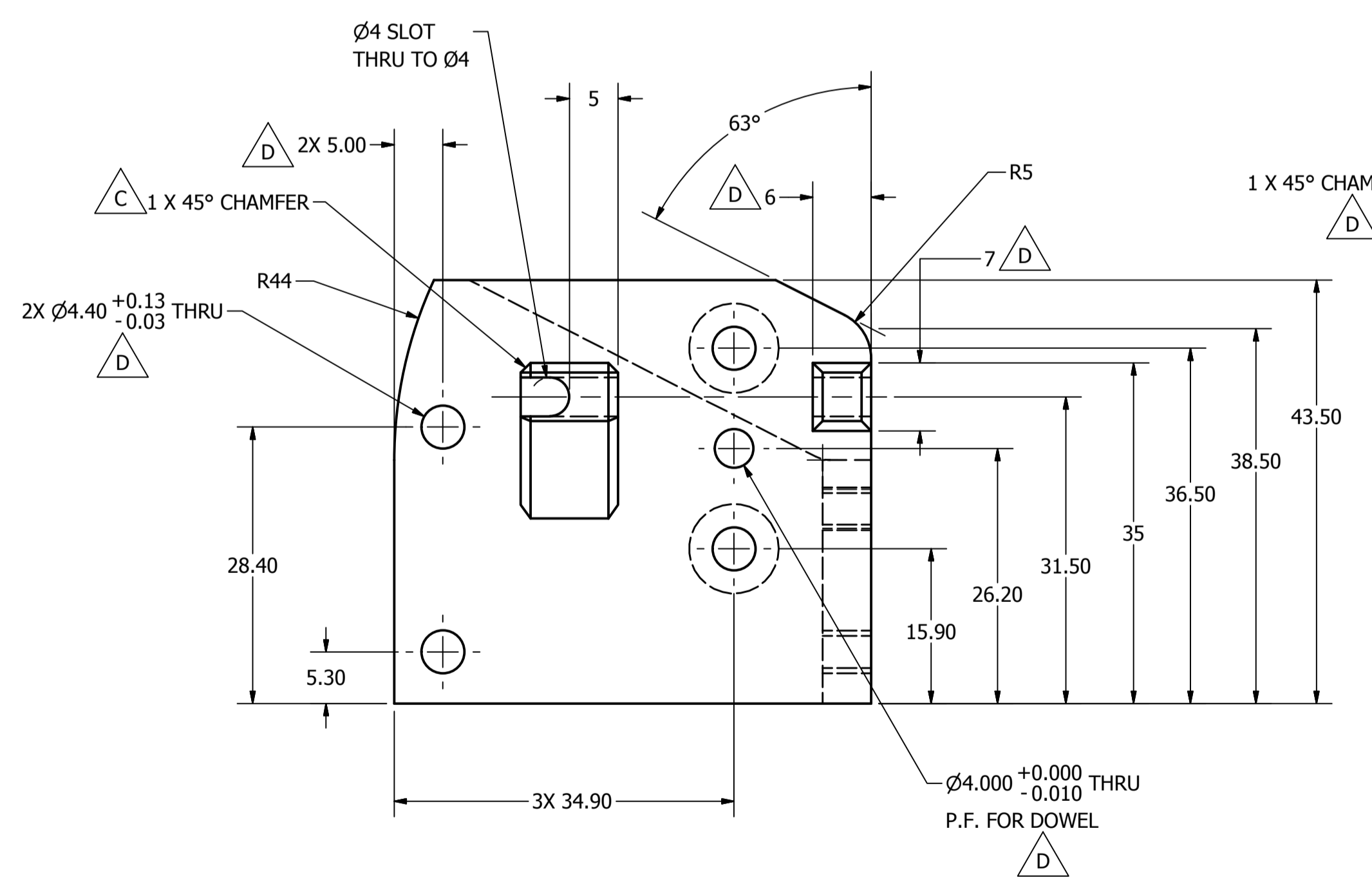
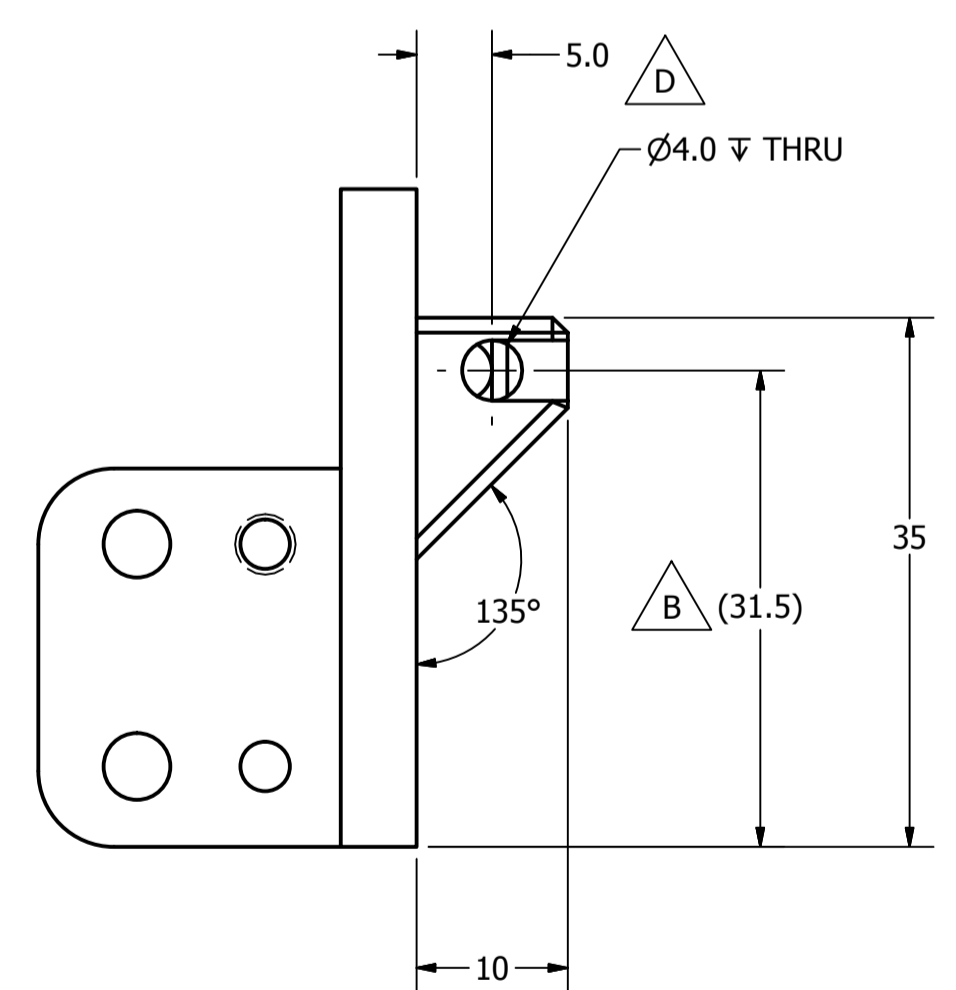
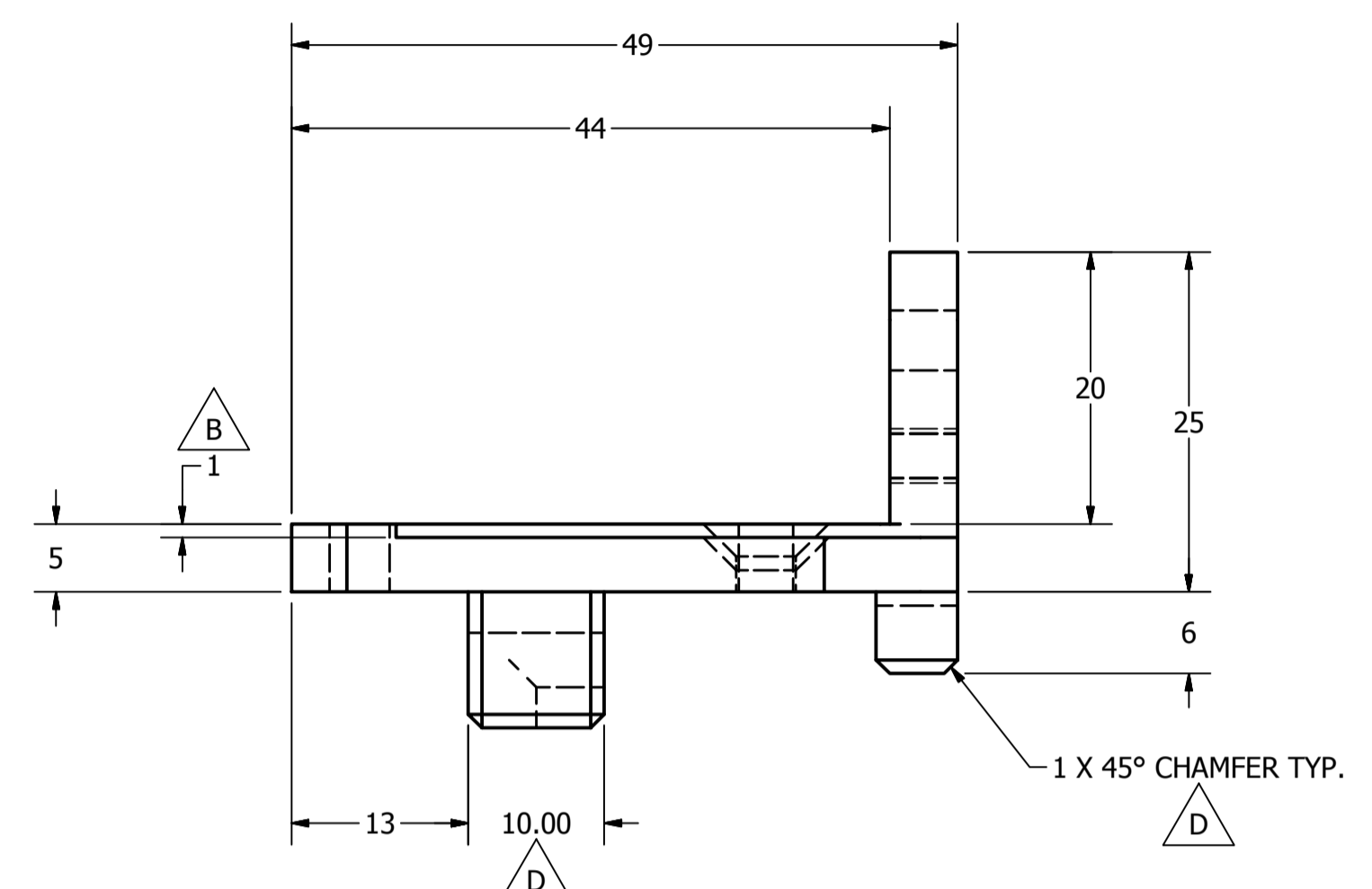
C	10	1	020-3516	OVAL SLEEVE, MODIFIED
	9	1	9000154	SCREW, SSCP #4-40 X 1/8
	8	1	5000414	PIN, DOWEL M4 X10mm
	7	2	5000023	FHCS M4X10mm
C	6	1	9003054	S.S. OVAL COMPRESSION SLEEVE (McC# 3755T14)
	5	1	020-3515	WIRE ROPE, CUT Q3S SHOULDER
	4	1	020-3514	BAR, SHOULDER
	3	1	020-3513	SHOULDER ARM INTERFACE PLATE
	2	1	020-3522	SHOULDER STERNUM INTERFACE PLATE, RH
	1	1	020-3521	SHOULDER SPINE INTERFACE PLATE, RH
	ITEM	QTY	PART NUMBER	DESCRIPTION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL: X ±.5 XX ±.2 XXX ±.1	MACHINED ANGLES ±.5°		
MATERIAL: SEE NOTES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION MOLDED SHOULDER ASSY, RIGHT	
HEAT TREAT:		SIZE: A2 DRAWING NUMBER: 020-3520 SCALE: 1:1	
FINISH:		SHEET: 1 OF 1	

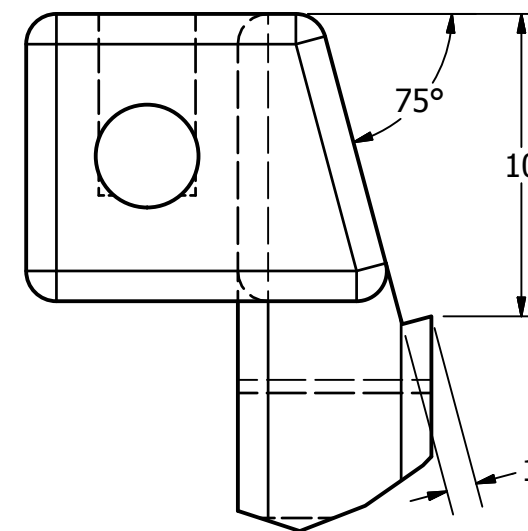
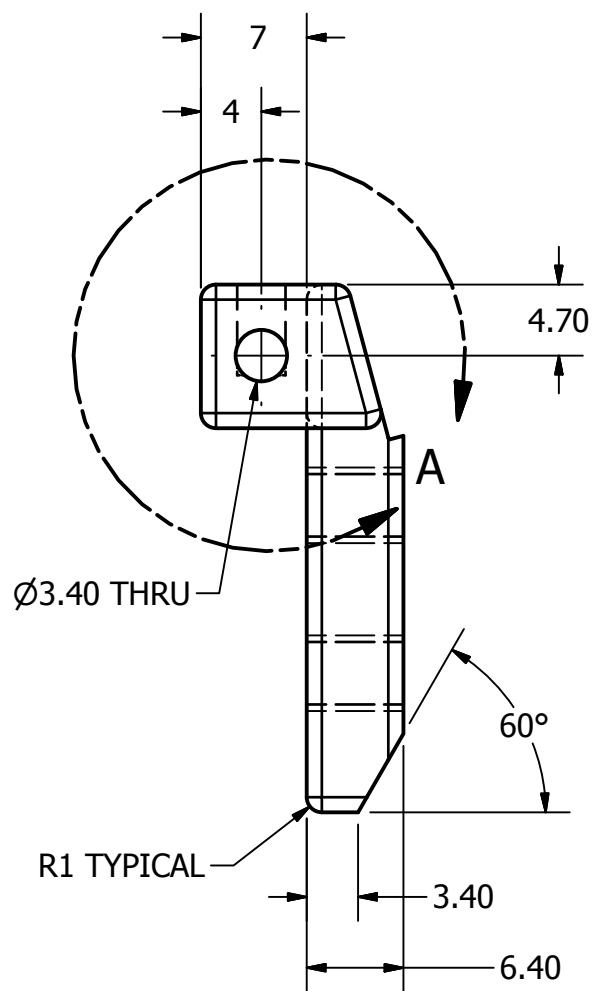
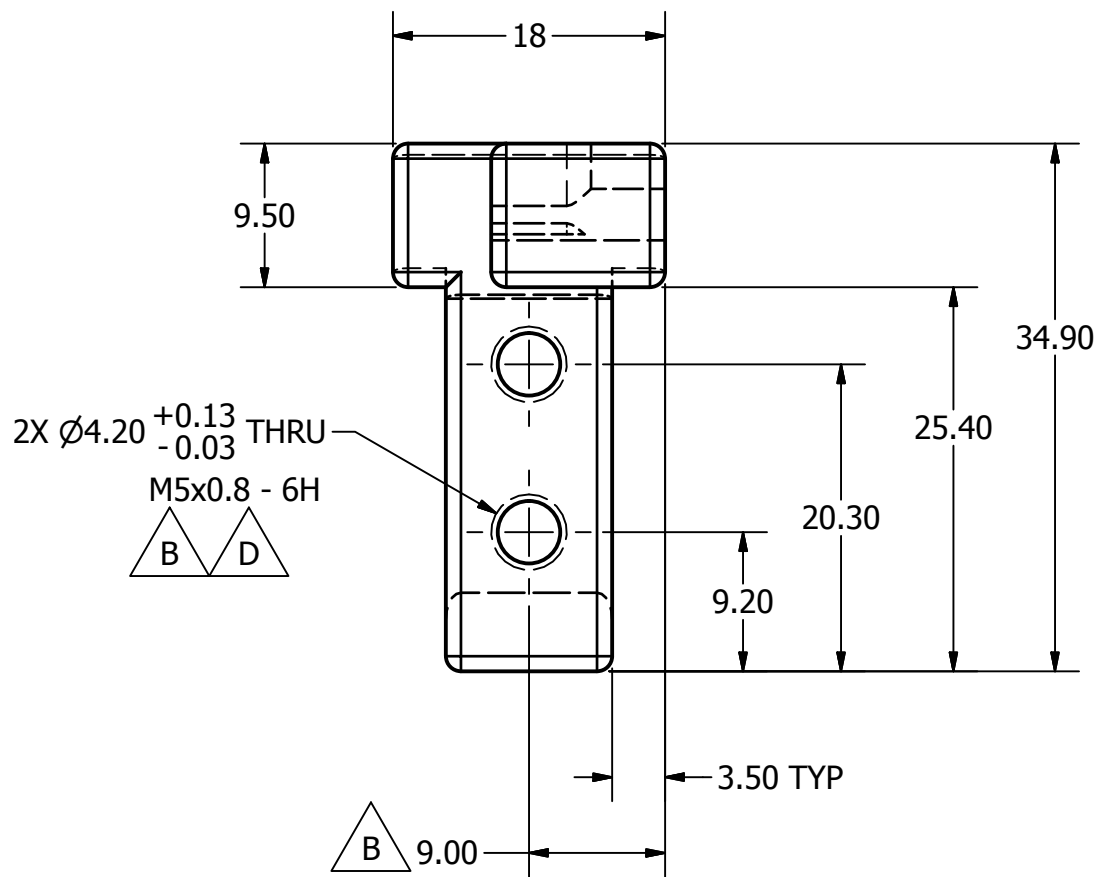
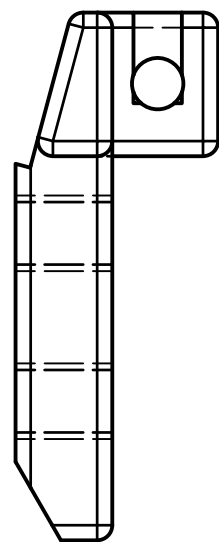
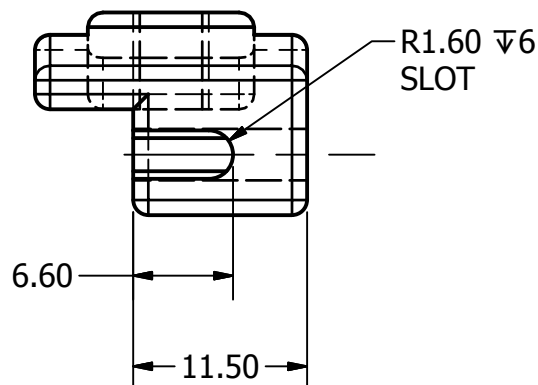
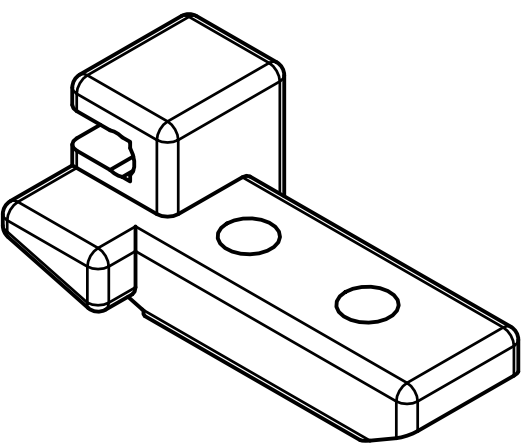
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENGR.	DATE
	A	RELEASE TO PRODUCTION	TMV		6/27/2006
6023	B	(31.5) WAS 32; ADD 1MM CUTOUT DIMENSIONS AND VIEW; REORIENT ISO VIEW	BK		9/11/2006
71816	C	ADDED CHAMFER CALLOUT REDRAWN IN INVENTOR	TMV		11/22/2013
74650	D	UPDATED HOLE CALLOUTS TO CURRENT STANDARDS; ADDED CHAMFER CALLOUTS 2 PLACES; ADDED MISSING DIMS 10, 7 & 6; Ø3.30 WAS Ø3.10; 2X 5.00 WAS 2X 5; 5.0, 4.0, 3.0 WAS 5, 4, 3.	AB		12/22/15
74650	E	REGULATION RELEASE	JH		1/5/2016



SCALE 1 : 1



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X.X ±0.25, X.XX ±0.1, X.XXX ±0.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWINGS	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN: B.KIMES CHECKED:	DATE 10/4/2006	
MATERIAL: 6061-T6 ALUMINUM HEAT TREAT: N/A FINISH: N/A	ENG:	APPROVED:	SIZE: A1 DRAWING NUMBER: 020-3521 SCALE: 2:1 SHEET: 1 OF 1

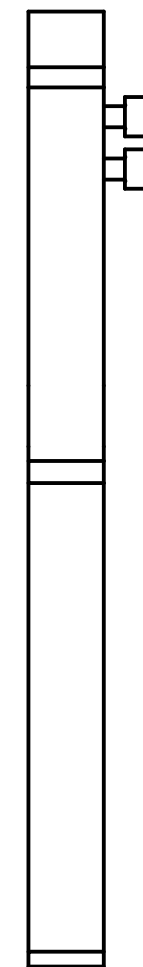
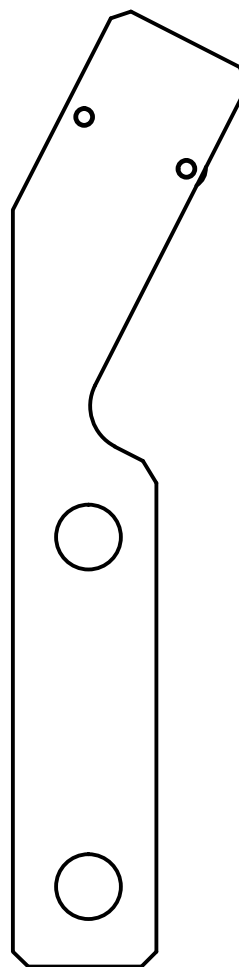
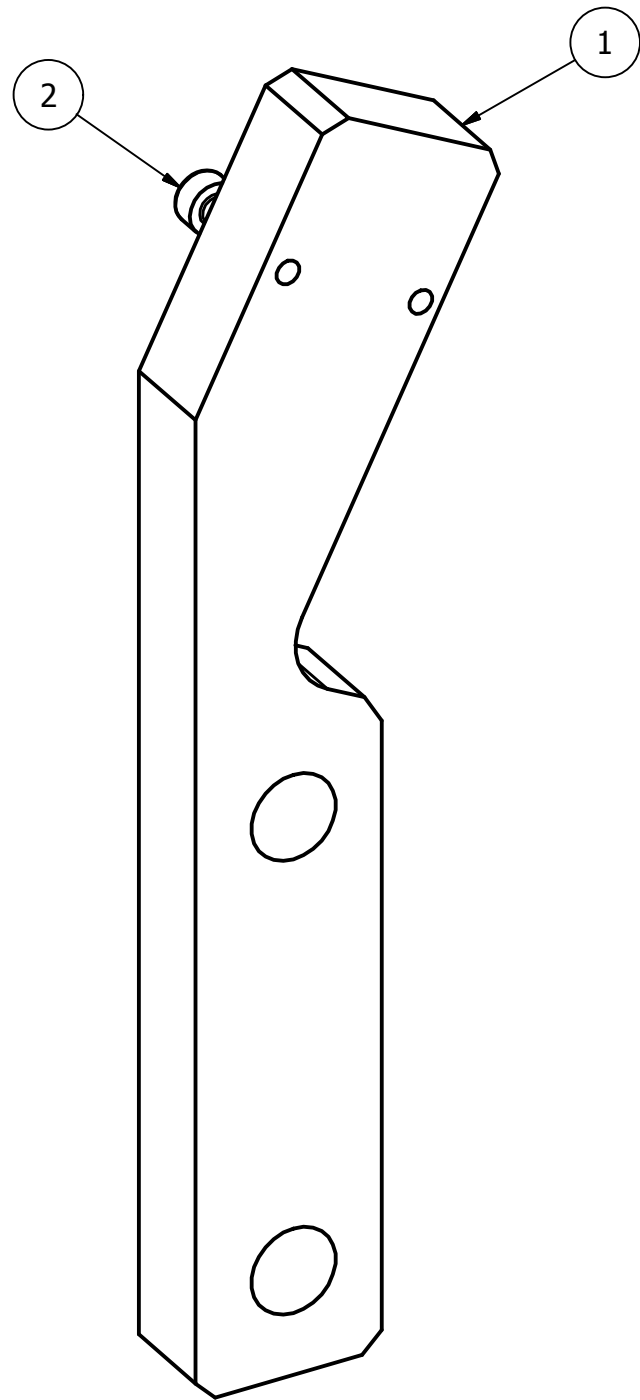


DETAIL A
SCALE 4 : 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENGR.	DATE
	A	RELEASE TO PRODUCTION	RN		12/12/05
71419	B	ADDED CENTERLINE DIMENSION FOR M5 (9.0); 2X M5 X 0.8 THRU WAS 2X M5 THRU	AB		10/11/2013
71816	C	REDRAWN IN INVENTOR	TMV		12/5/2013
74650	D	UPDATED HOLE CALLOUT TO CURRENT STANDARDS	AB		12/22/15
74650	E	REGULATION RELEASE	JH		1/5/2016

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION		
	APPROVALS DRAWN MEC CHECKED ENG APPROVED	DATE 12/12/2005		SHOULDER STERNUM INTERFACE PLATE, RH		
	MATERIAL 6061-T6 ALUMINUM HEAT TREAT N/A FINISH N/A		SIZE A3	DRAWING NUMBER 020-3522	REV E	SCALE: 2:1
			SHEET 1 OF 1			



REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		7/27/06
72309	B	REDRAWN IN INVENTOR	AB		12/04/13
74650	C	REGULATION RELEASE	GCH		12/21/2015



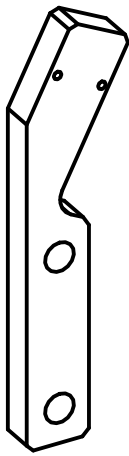
SCALE 3 : 1

ITEM	QTY	PART NUMBER	DESCRIPTION
2	2	5000375	M1.4 X 0.3 X 4 LG. SHCS
1	1	020-4509	ACCELEROMETER ADAPTOR

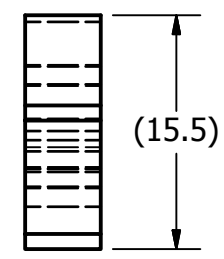
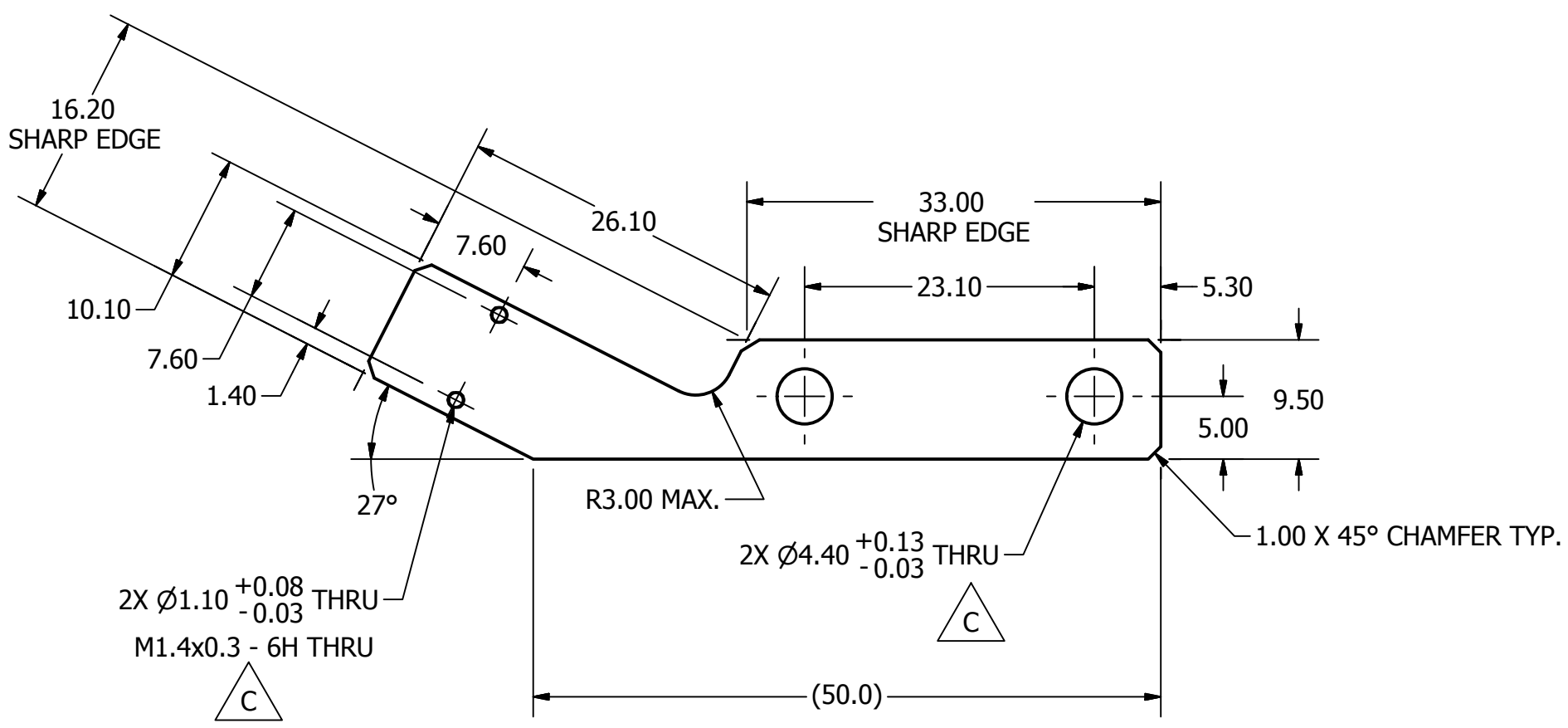
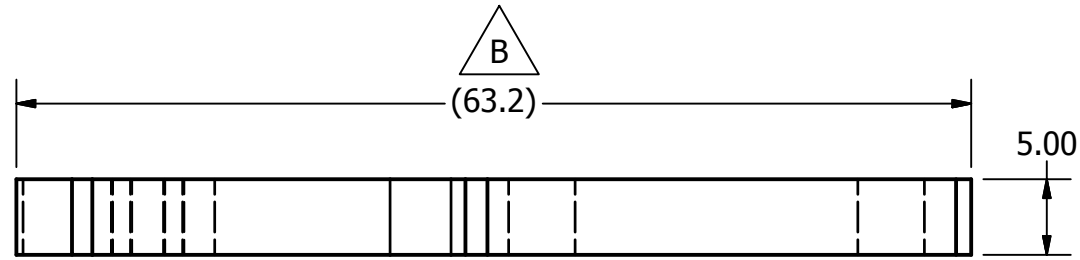
PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN B. KIMES	DATE 27-Jul-06	
MATERIAL	CHECKED		 THIRD ANGLE PROJECTION
HEAT TREAT	ENG		
FINISH	APPROVED		
		SIZE A3	DRAWING NUMBER 020-4515
		SCALE: 2:1	SHEET 1 OF 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		4/04/06
72309	B	REDRAWN IN INVENTOR; REMOVE NOTE #1; (63.2) WAS (63.1)	AB		12/04/13
74650	C	UPDATED HOLE CALL OUTS TO CURRENT STANDARDS.	JH		1/14/2016
74650	D	REGULATION RELEASE.	GCH		1/14/2016



SCALE 1 : 1

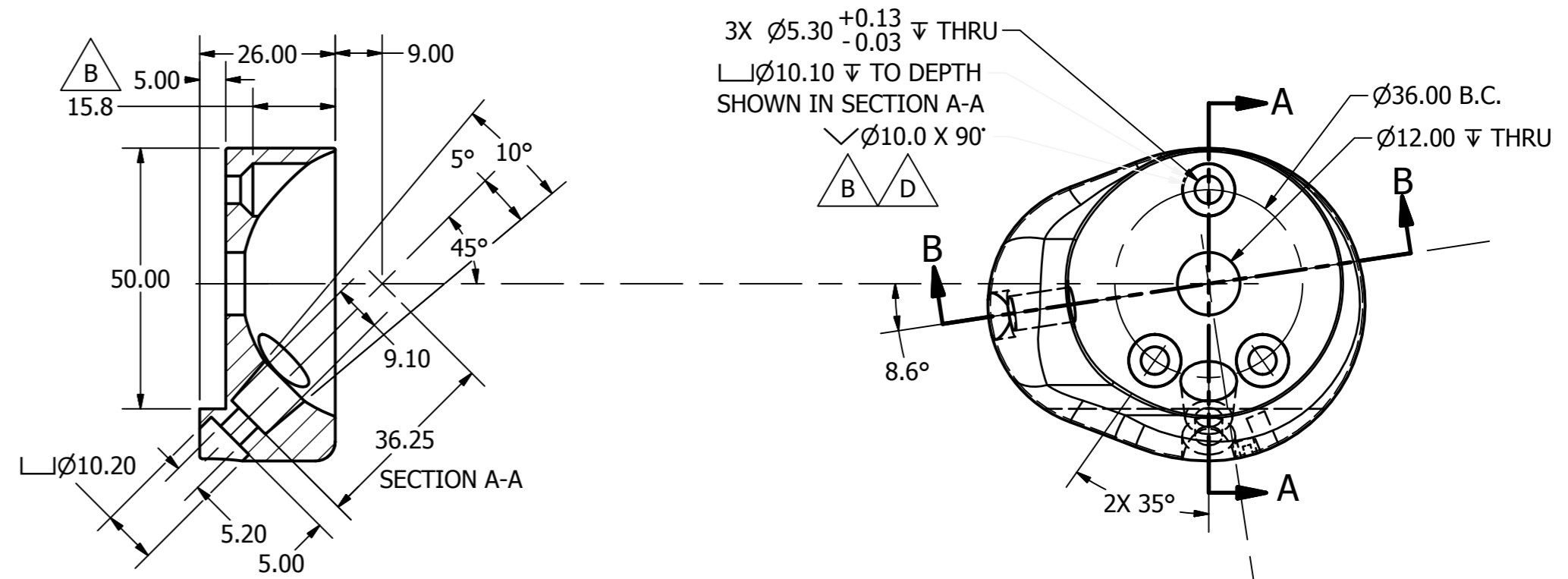
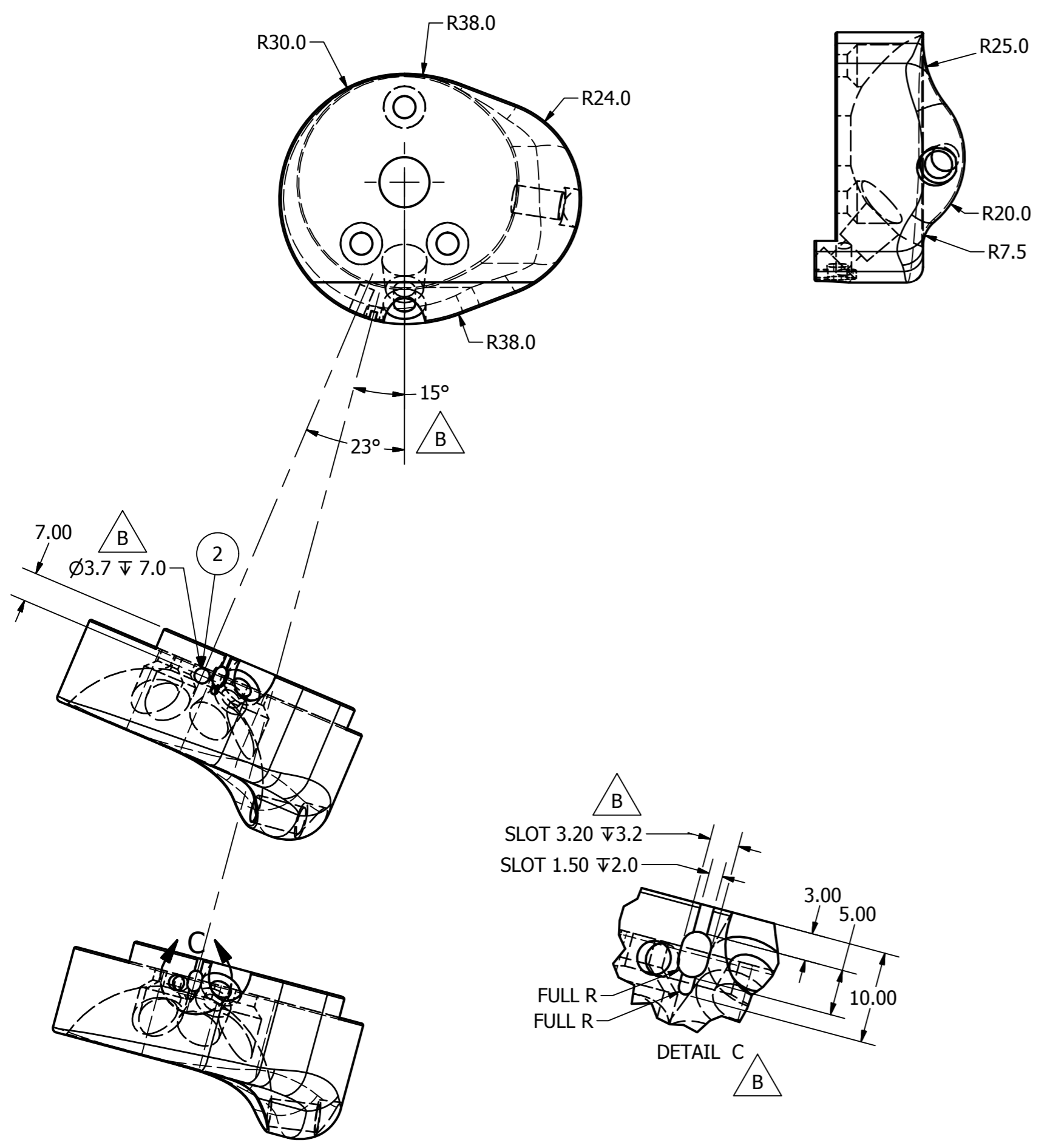


NOTES:

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN B. KIMES	DATE 06-Mar-06	
MATERIAL 303 STAINLESS STEEL	CHECKED	SIZE A3	DRAWING NUMBER 020-4509
HEAT TREAT	ENG	THIRD ANGLE PROJECTION	REV D
FINISH	APPROVED	SCALE: 2:1	SHEET 1 OF 1

ECO		REVISION HISTORY		DATE	APPROVED
ECO	REV	DESCRIPTION			
70041	A	NEW RELEASE, REPLACES 020-3532		8/27/2012	JAA
70693	B	5.3 WAS 7.9; 10.1 DIA CBORE NOW REFERS TO SECTION A-A FOR DEPTH; 3.2 & 2.0 WERE ENGLISH DIMS.; 15.8 WAS REFERENCE; 9.0 DIA. CBORE NOW REFERS TO SECTION B-B FOR DEPTH; SECTION B-B HAS 2 MM DIM. ADDED FOR DEPTH OF 9.0 DIA. CBORE; ADDED ITEM 2; 3.7 DIA X 7 DP WAS 2X 5.75 DIA X 9.5 DP; 15° & 23° WERE 2X; DETAIL C WAS 2X ALL DIMS..		1/9/2013	JAA
70659	C	ADDED R10; 5 WAS 3		9/5/2013	JAA
74650	D	UPDATED REV-C DESCRIPTION: "5 WAS 2" WAS "5 WAS 3"; UPDATED HOLE CALLOUT TO CURRENT STANDARDS		12/22/15	AB
74650	E	REGULATION RELEASE		01/05/16	AB

D



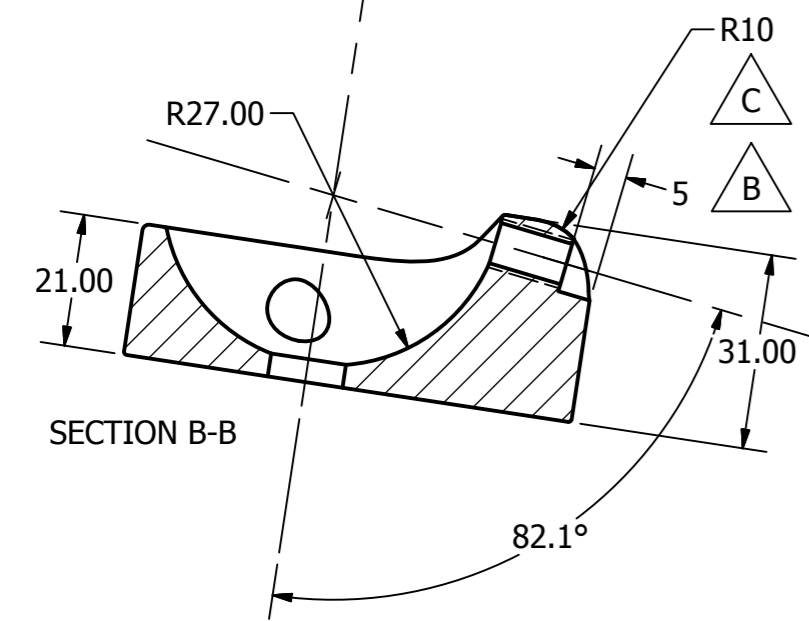
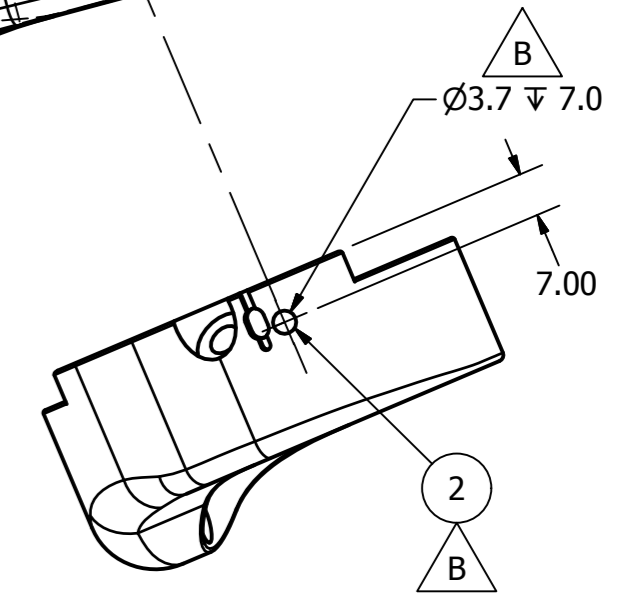
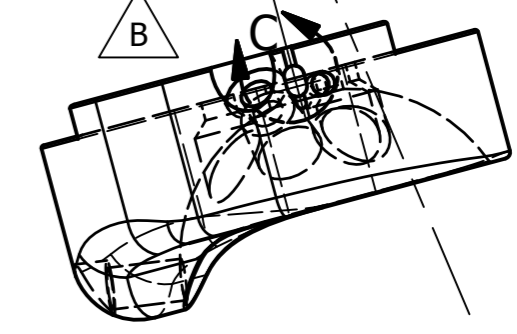
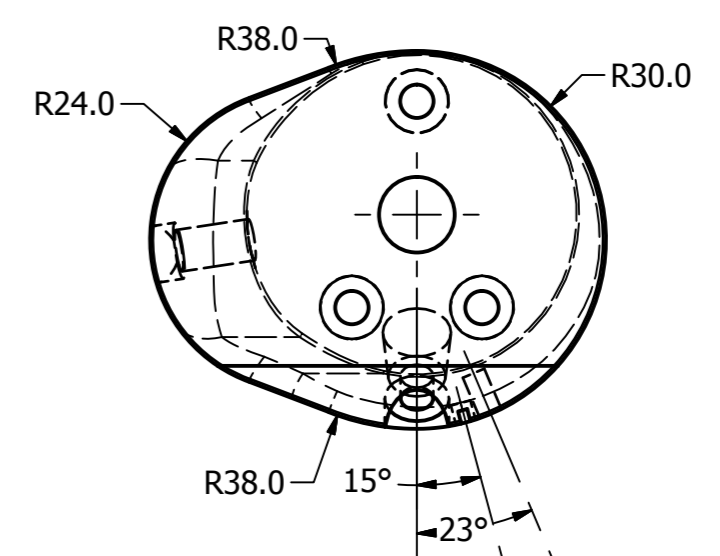
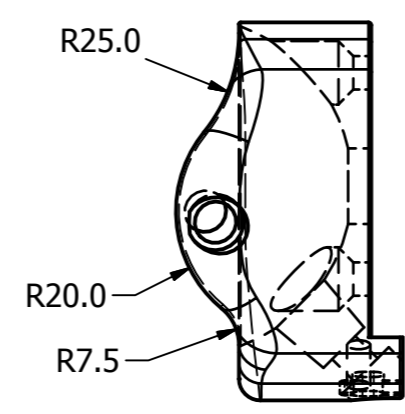
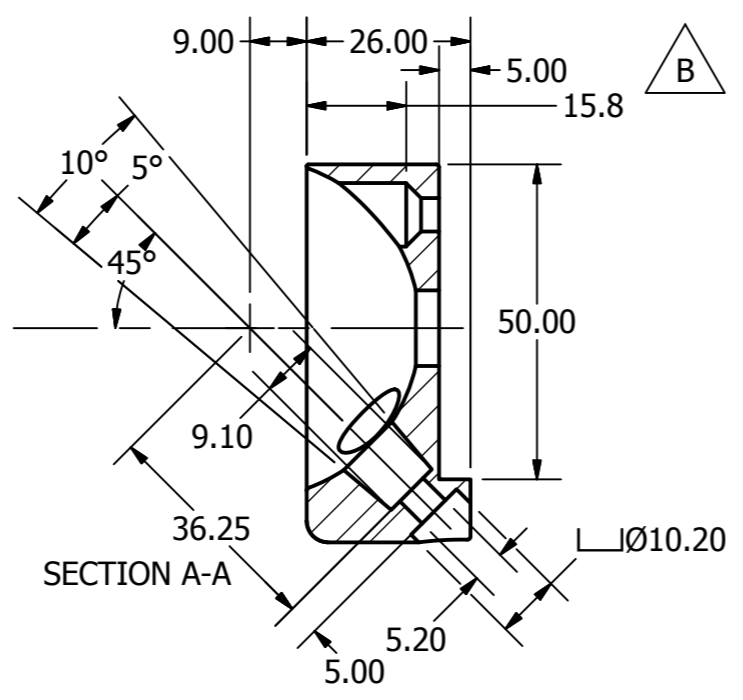
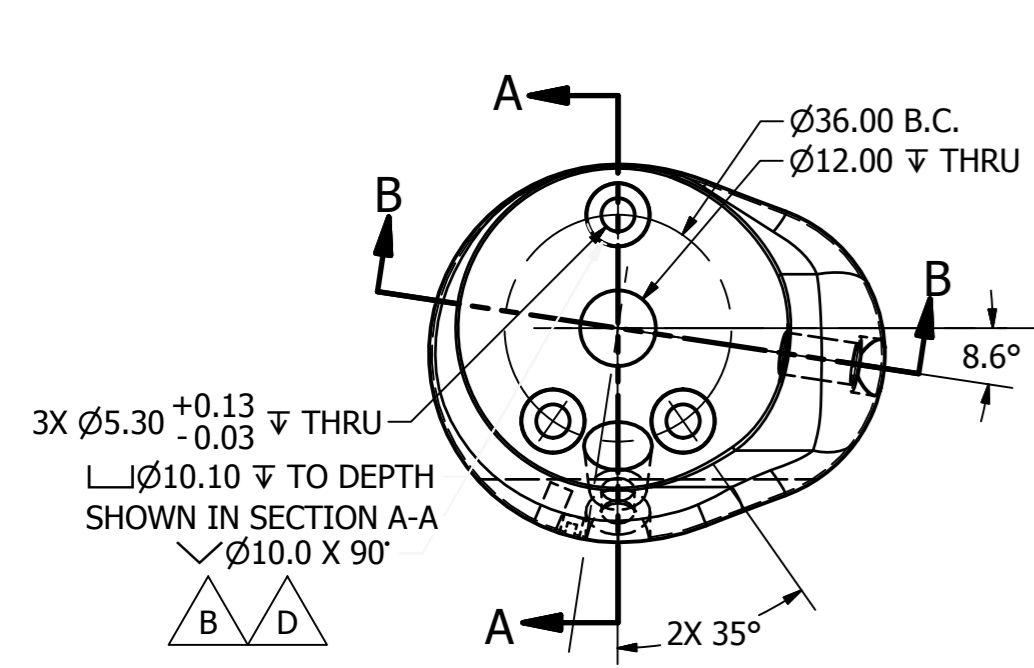
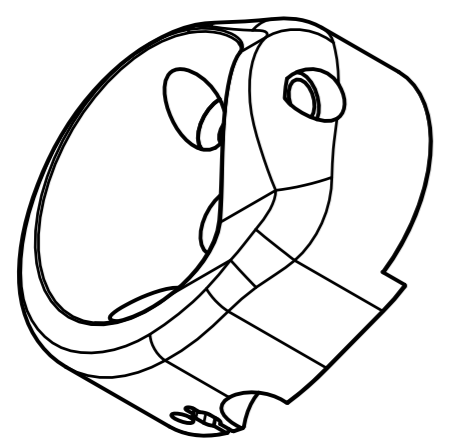
Ø6.75 ^{+0.15}/_{-0.03} THRU
M8x1.25 - 6H THRU
Ø9.0 TO DEPTH
SHOWN IN SECTION B-B

ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	5000811-FT	M3 X .5 X 5.6 SHARP-SERT
1	1	9003792-FT	M8 X 1.25 X 16 BALL PLUNGER

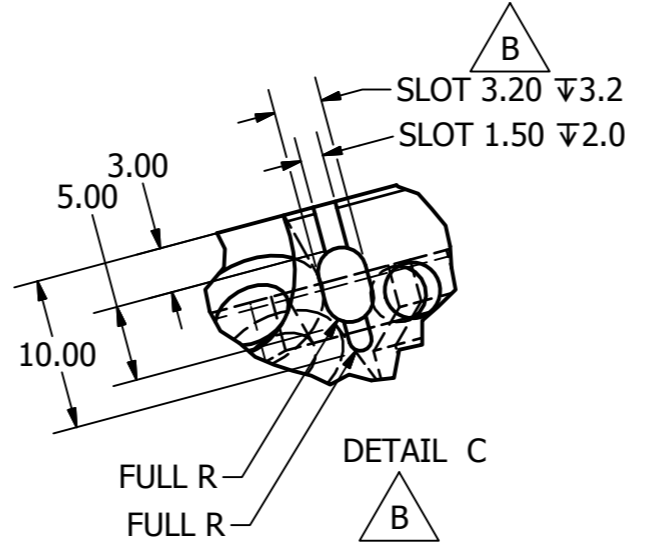
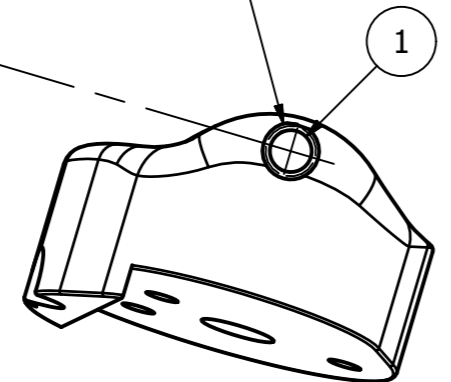
Parts List

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL - ±.5 X.X ±.2 X.XX ±.1 MACHINED ANGLES ±.5°		VEHICLE RESEARCH and TEST CENTER	
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		APPROVALS DRAWN jarthur CHECKED ENG APPROVED	DATE 5/24/2012
MATERIAL Delrin, Black		Q3S SHOULDER CUP, RIGHT	
HEAT TREAT N/A		SCALE N/A	
FINISH N/A		DRAWING NUMBER 020-3535	
THIRD ANGLE PROJECTION		SHEET 1 OF 1	

ECO	REV	REVISION HISTORY DESCRIPTION	DATE	APPROVED
70041	A	NEW RELEASE, REPLACES 020-3532	8/27/2012	JAA
70693	B	5.3 WAS 7.9; 10.1 DIA. CBORE NOW REFERS TO SECTION A-A FOR DEPTH; 3.2 & 2.0 WERE ENGLISH DIMS.; 15.8 WAS REFERENCE; 9.0 DIA. CBORE NOW REFERS TO SECTION B-B FOR DEPTH; SECTION B-B HAS 2 MM DIM. ADDED FOR DEPTH OF 9.0 DIA. CBORE; ADDED ITEM 2; 3.7 DIA. X 7 DP WAS 2X 5.75 DIA. X 9.5 DP; 15° & 23° WERE 2X; DETAIL C WAS 2X ALL DIMS..	1/9/2013	JAA
70693	C	ADDED R10; 5 WAS 2	9/5/2013	JAA
74650	D	UPDATED HOLE CALLOUT TO CURRENT STANDARDS	12/22/15	AB
74650	E	REGULATION RELEASE	01/06/16	AB



Ø6.750 +0.15/-0.03 THRU
M8x1.25 - 6H THRU
Ø9.0 TO DEPTH
SHOWN IN SECTION B-B



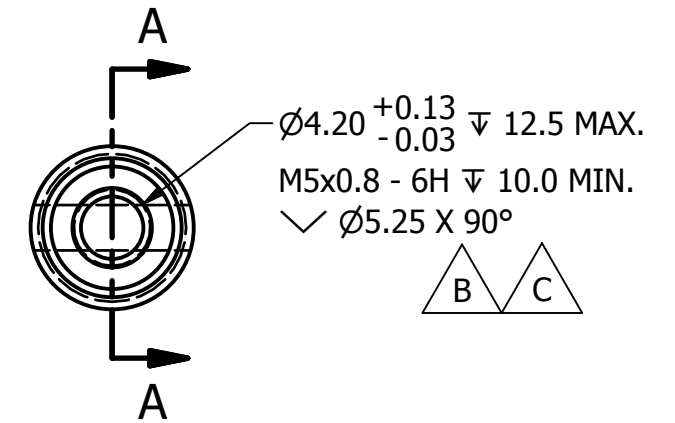
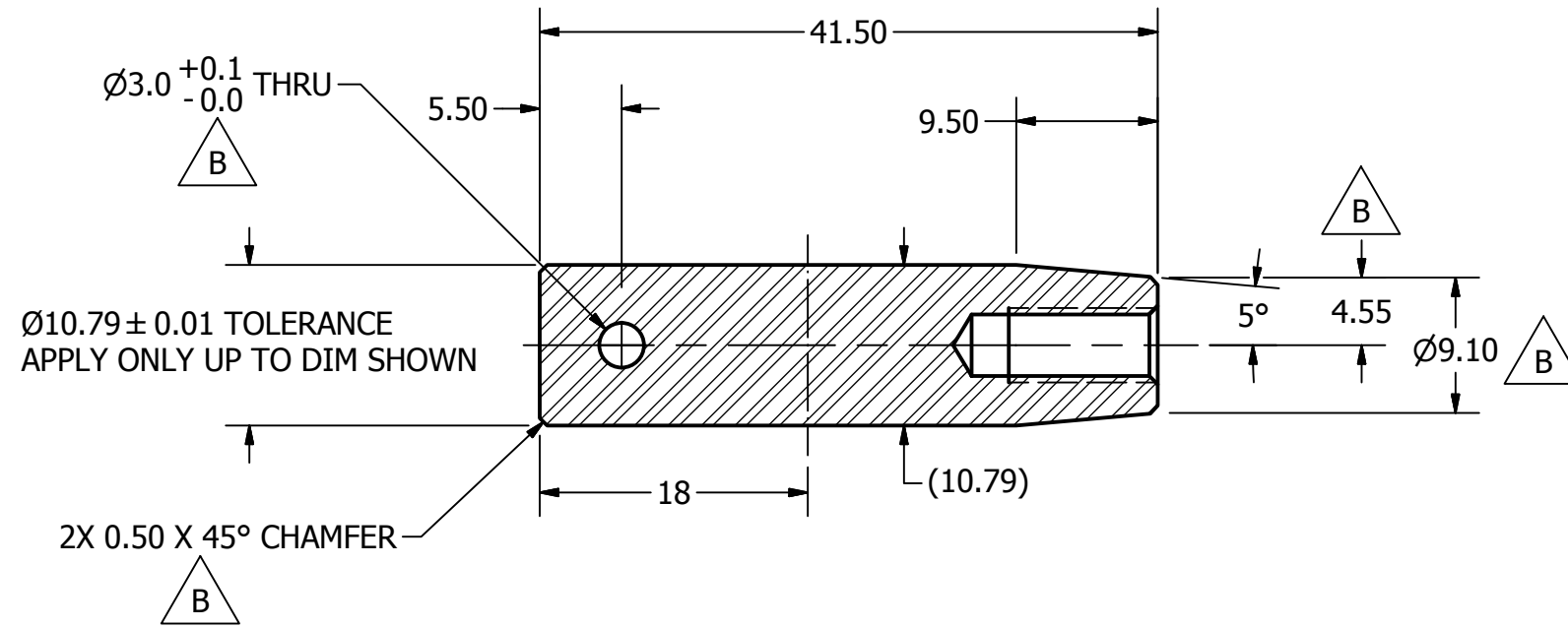
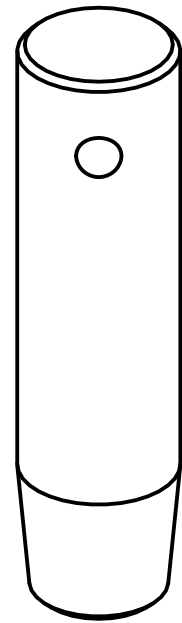
ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	5000811-FT	M3 X .5 X 5.6 SHARP-SERT
1	1	9003792-FT	M8 X 1.25 X 16 BALL PLUNGER

Parts List

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL: ±.5	MACHINED: ±.2	APPROVALS	DATE	Q3S SHOULDER CUP, LEFT	
XX ±.2	ANGLES: ±.5°	jarthur	1/6/2016		
MATERIAL: Delrin, Black		CHECKED		DRAWING NUMBER: 020-3534	
HEAT TREAT		ENG		REV: E	
FINISH		APPROVED		SCALE: N/A	
THIRD ANGLE PROJECTION				SHEET 1 OF 1	

REVISION HISTORY

ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	RN		12/12/05
72309	B	REDRAWN IN INVENTOR; REMOVE NOTE #1 & TQC CALL OUTS; M5x0.8 □10.00, C'SINK Ø5.25 X 90° WAS M5 □10; ADDED 2X 0.50 X 45° CHAMFER CALL OUT; Ø9.10, Ø3.0+0.1/-0.0 THRU & 4.55 WAS 9.10, Ø3 & 4.60	AB		12/04/13
74650	C	UPDATED HOLE CALLOUT TO CURRENT STANDARDS	AB		12/22/15
74650	D	REGULATION RELEASE	AB		01/05/16

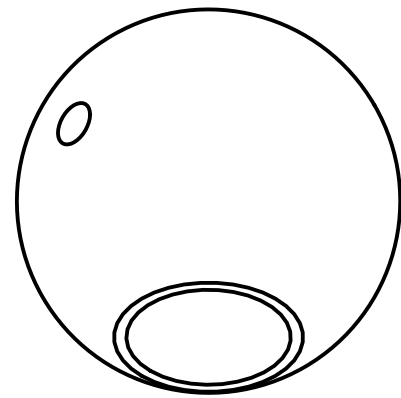


SECTION A-A

NOTES:

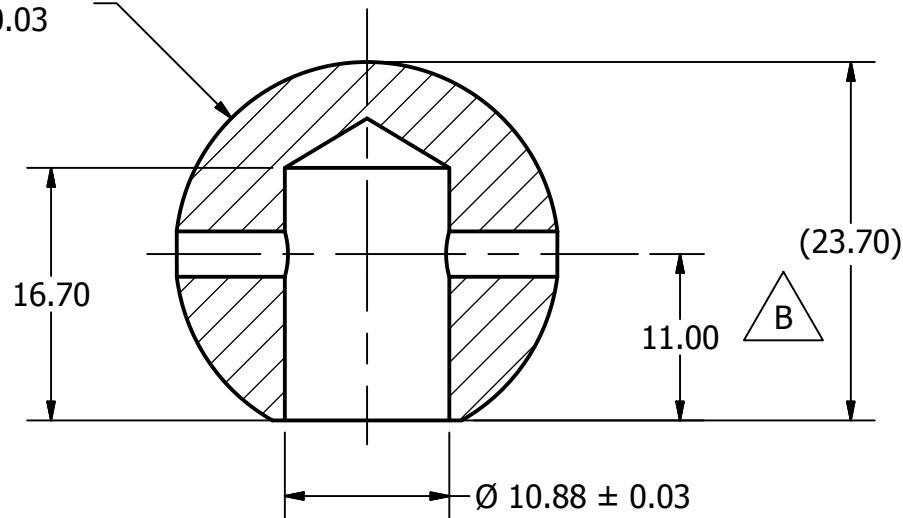
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN M.BURLEIGH CHECKED HEAT TREAT FINISH	DATE 14-Dec-05	
MATERIAL 316 STAINLESS STEEL HEAT TREAT FINISH	APPROVED	SIZE A3 SCALE: 2:1	DRAWING NUMBER 020-3536 SHEET 1 OF 1 REV D

REVISION HISTORY				
ECO#	REV	DESCRIPTION	BY	DATE
	A	RELEASE TO PRODUCTION	RN	12/12/05
75669	B	ADD NEXT ASM: 034-3123, QTY:1, & USED ON: 034-000; DESC WAS "BALL, SHOULDER Q3" ADD 11.00, (23.70) WAS 23.70	LP	6/25/07
77648	C	S Ø25.35 +0.00/-0.03 WAS 25.40±0.03	MT	9/22/10
71512	D	REDRAW IN INVENTOR.	ARAY	7/18/2013
72312	E	7075-T6 ALUMINUM WAS ALUM 2017	DJM	4/3/2014
74650	F	Ø3.0+0.1/-0.0 THRU CENTER WAS Ø3.05 THRU CENTER	AB	01/14/16
74650	G	REGULATION RELEASE	AB	01/14/16

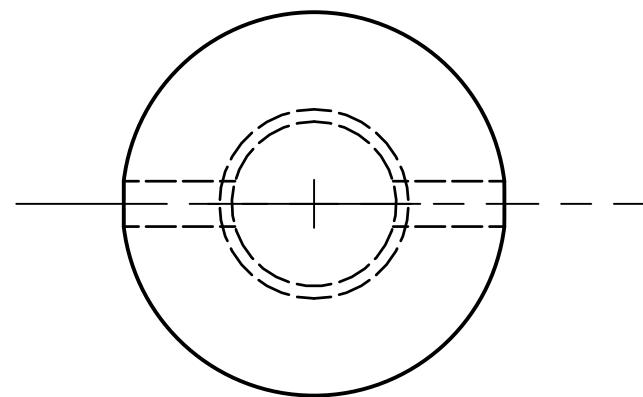
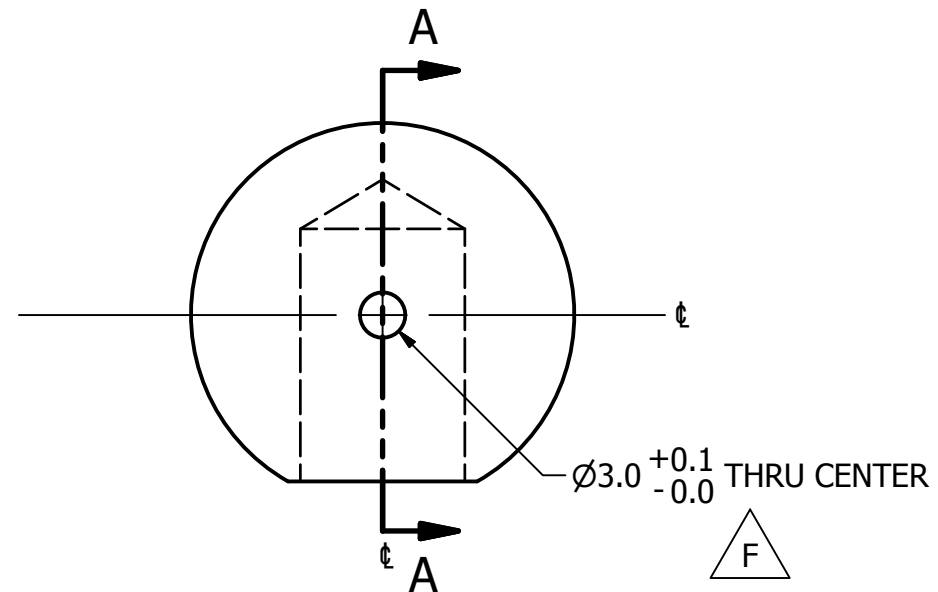


SCALE 2.000

△ C
SØ25.35 ^{+0.00}/_{-0.03}



SECTION A-A



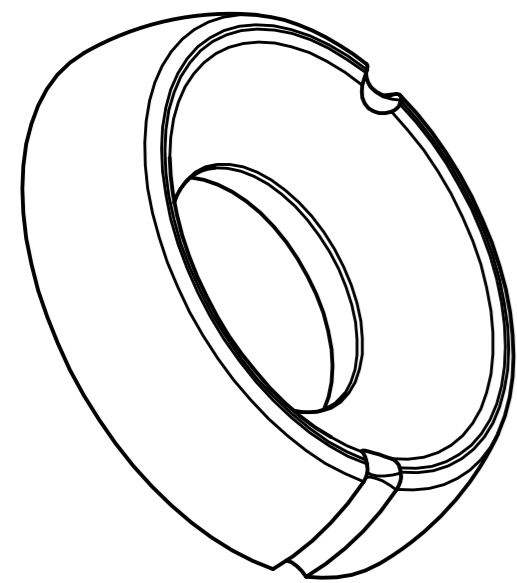
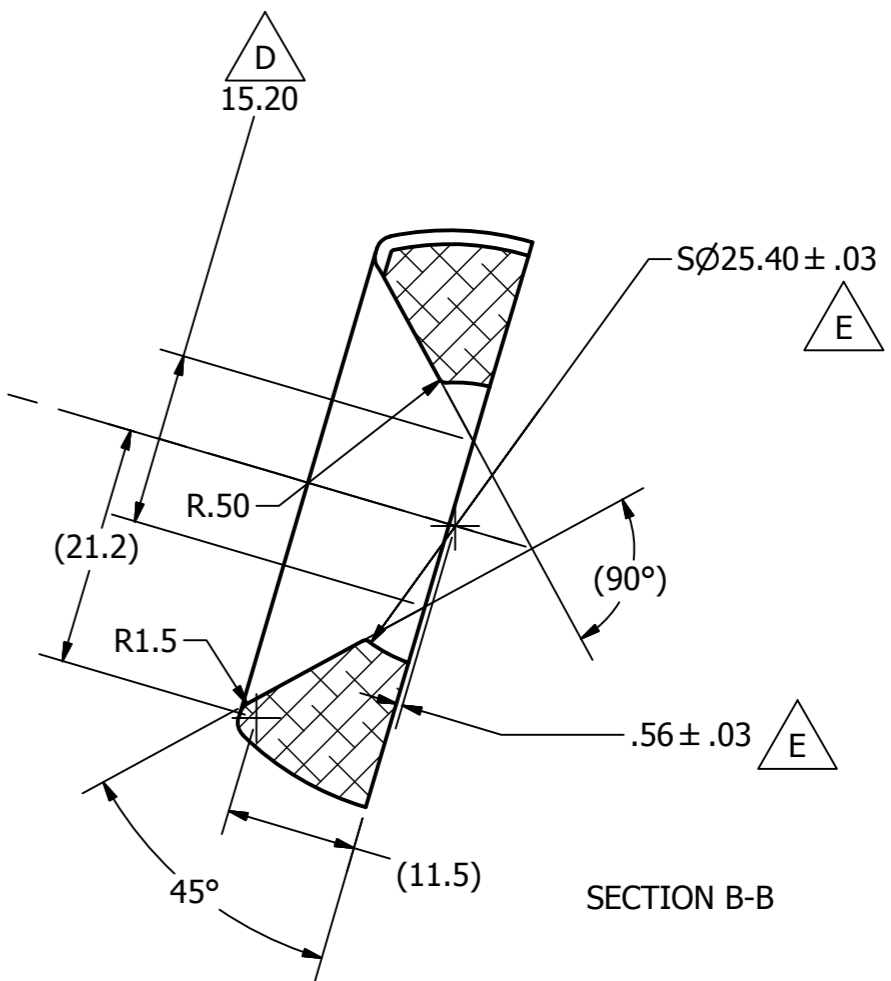
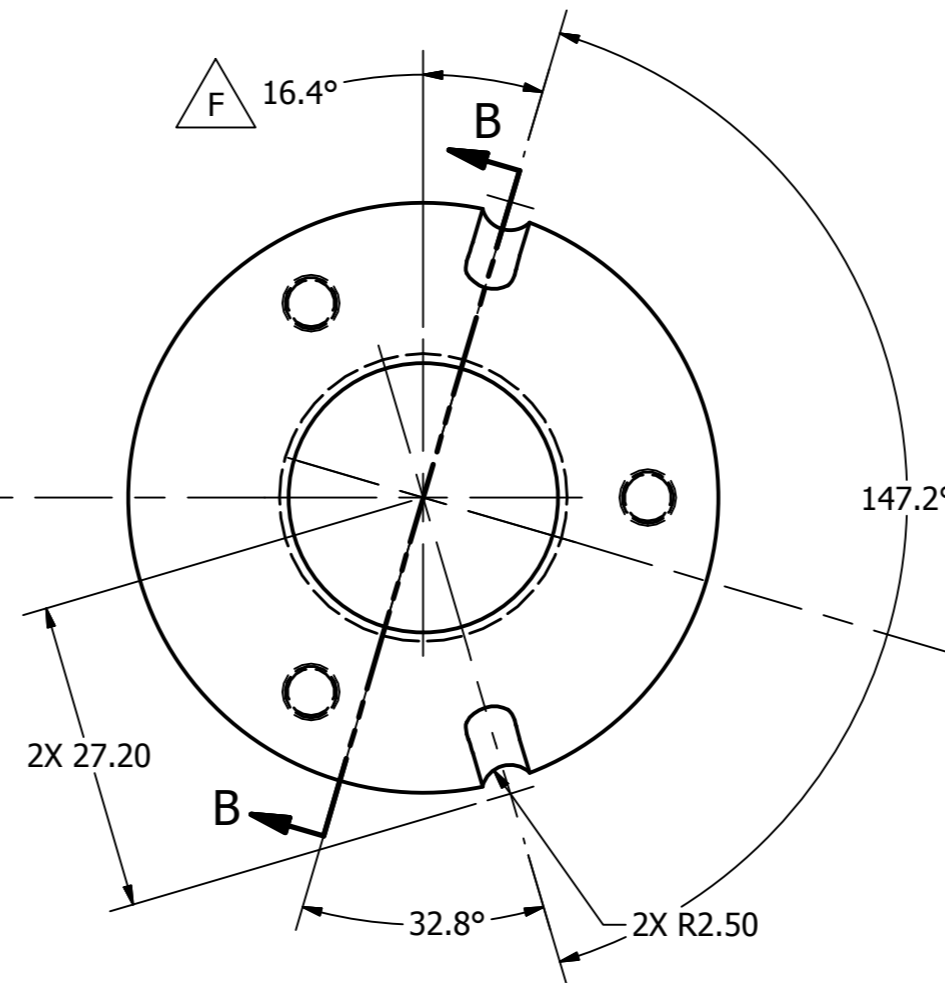
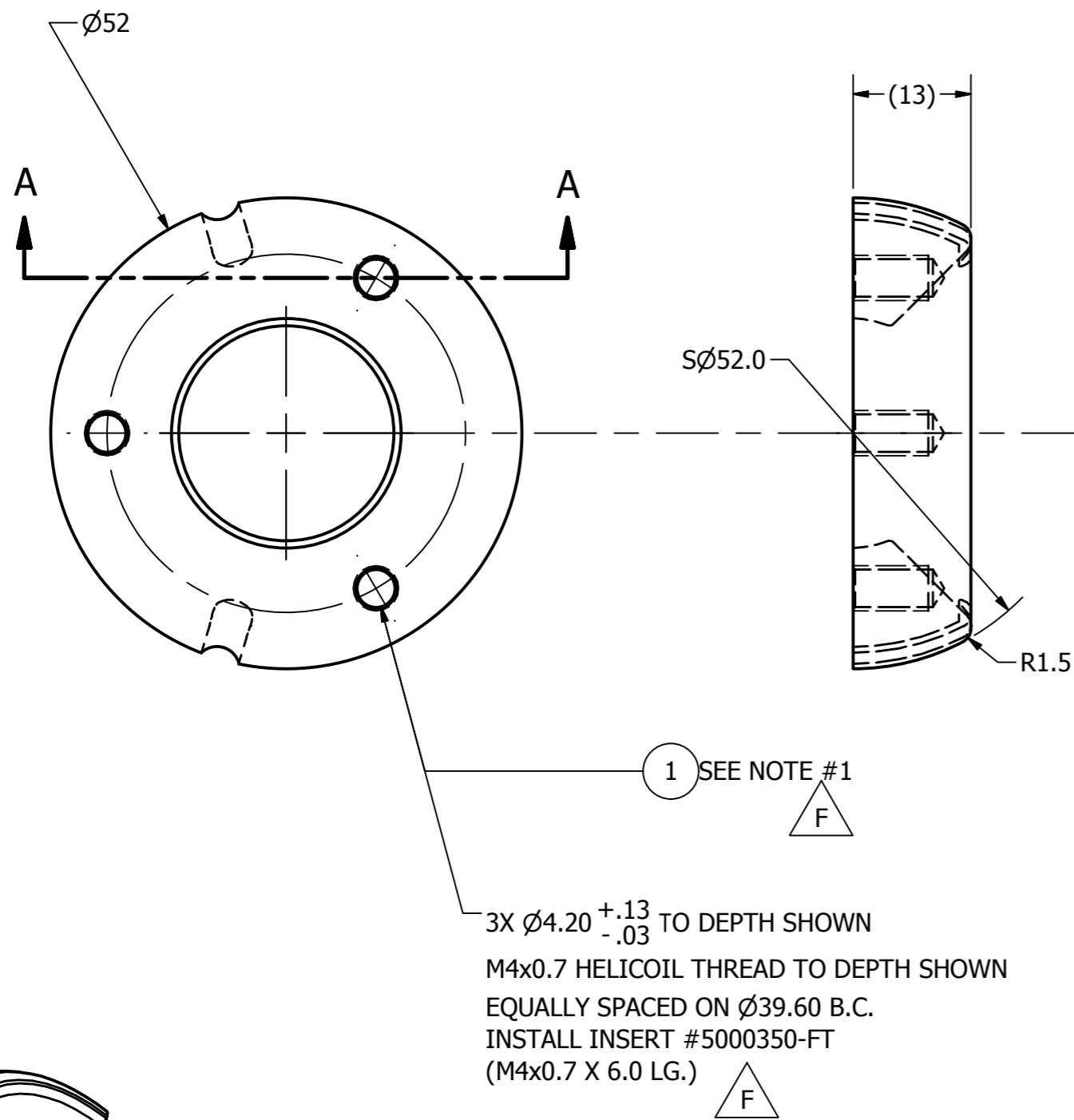
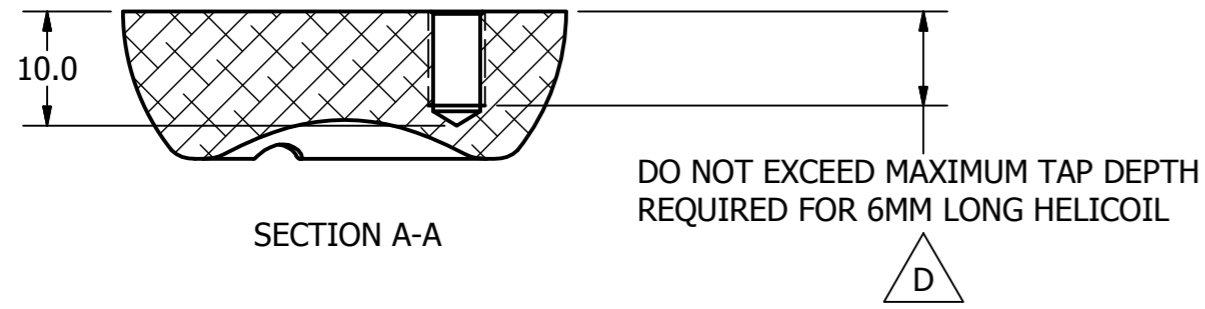
NOTES:

1. REMOVE BURRS AND BREAK SHARP EDGES.
2. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY BEFORE FINISH.
3. TEFLON IMPREGNATED HARD ANODIZE.

△ E

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN aray CHECKED ENG APPROVED	DATE 7/18/2013	
MATERIAL 7075-T6 ALUMINUM HEAT TREAT N/A FINISH SEE NOTE 3	THIRD ANGLE PROJECTION	SIZE A3 SCALE: 2.000	DRAWING NUMBER 020-3537 SHEET 1 OF 1

ECO		REVISION HISTORY		
REV	DESCRIPTION	DATE	APPROVED	
A	RELEASE TO PRODUCTION	4/4/06	BK	
75669 B	ADD NEXT ASM: 034-3120, QTY:1, & USED ON 034-0000	6/25/07	LP	
70041 C	CHANGED DETENT LOCATIONS, ENLARGED DETENTS, REDRAWN IN INVENTOR	8/27/2012	JAA	
70724 D	5000350-FT WAS 5000047, ADDED SECTION A-A, REMOVED DETAIL C, ADDED 15.20 DIMENSION FOR INTERSECTION OF 90° CONE TO BOTTOM PLANE	12/21/2012	JAA	
71512 E	TOL. AFTER STACK-UP ANALYSIS: SØ25.40 ±0.03 WAS SØ25.40 +0.10/-0.00, ADDED 0.56 ±0.03	9/3/2013	ARAY	
74650 F	UPDATED HOLE CALLOUT TO CURRENT STANDARDS; ADDED DIMENSION 16.4°; ADDED NOTE #1 & SEE NOTE #1	12/22/15	AB	
74650 G	REGULATION RELEASE	1/5/2016	GCH	

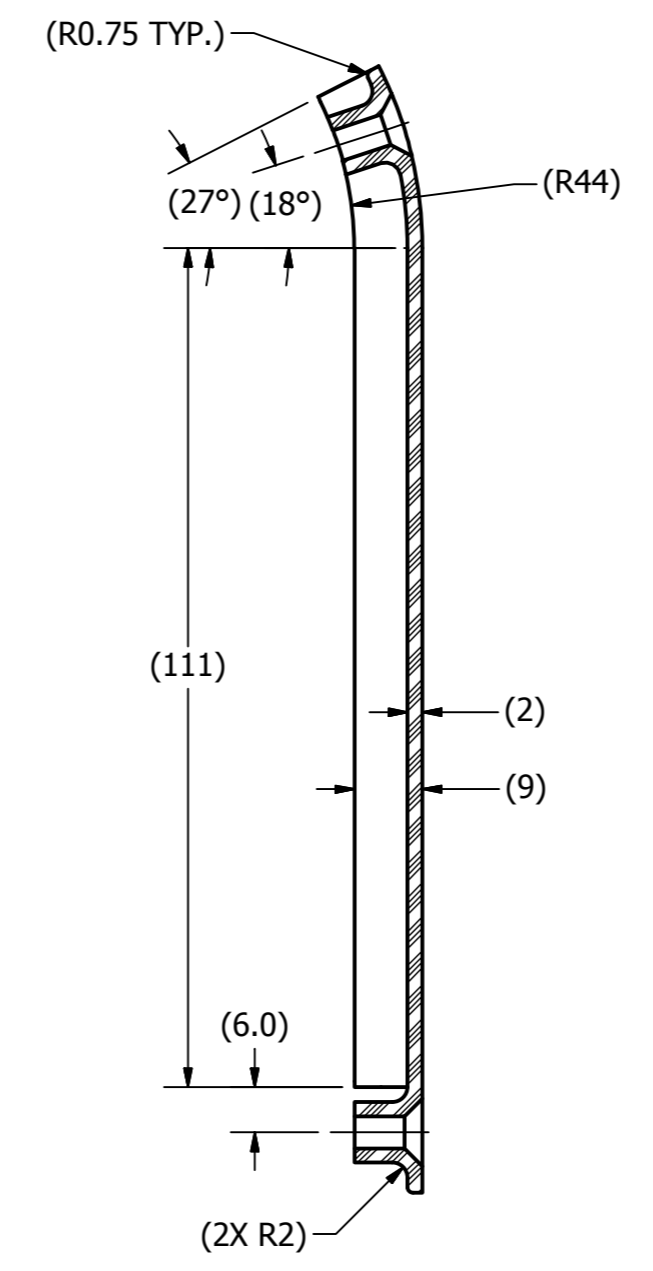
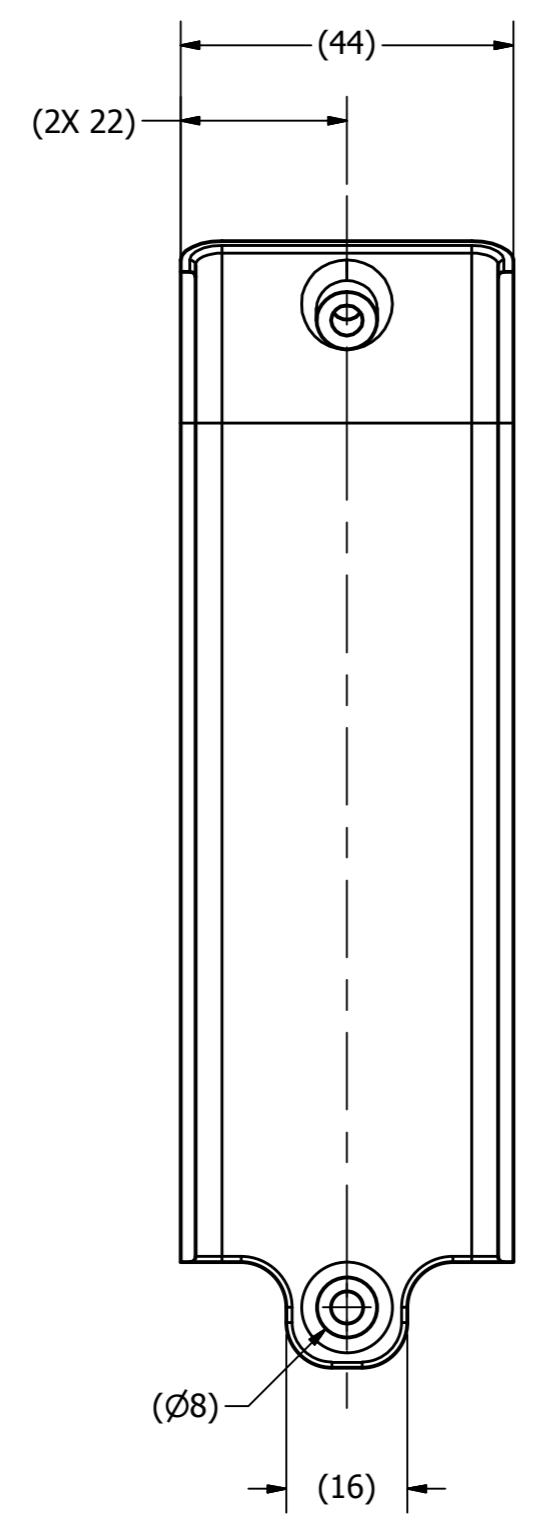
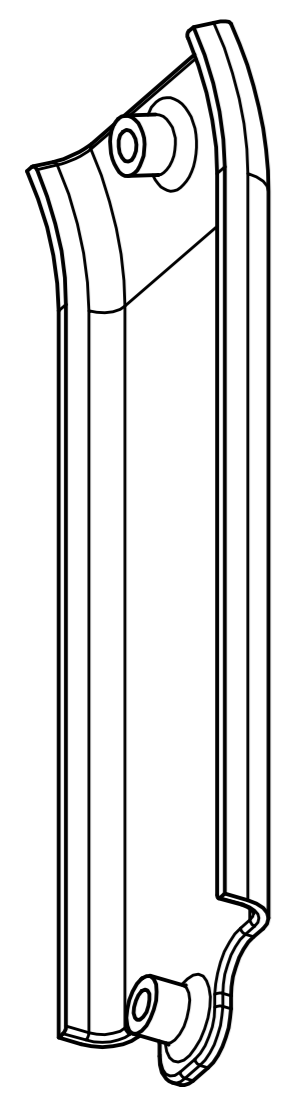


NOTES:
 1. INSTALL HELICOILS AFTER CLEAR ANODIZE.

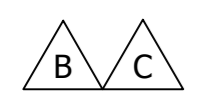
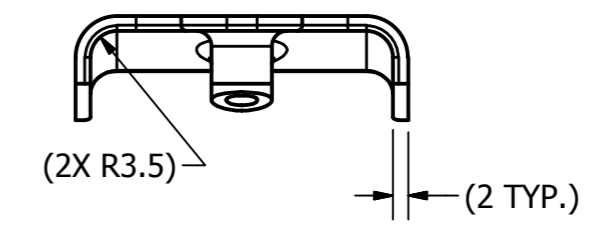
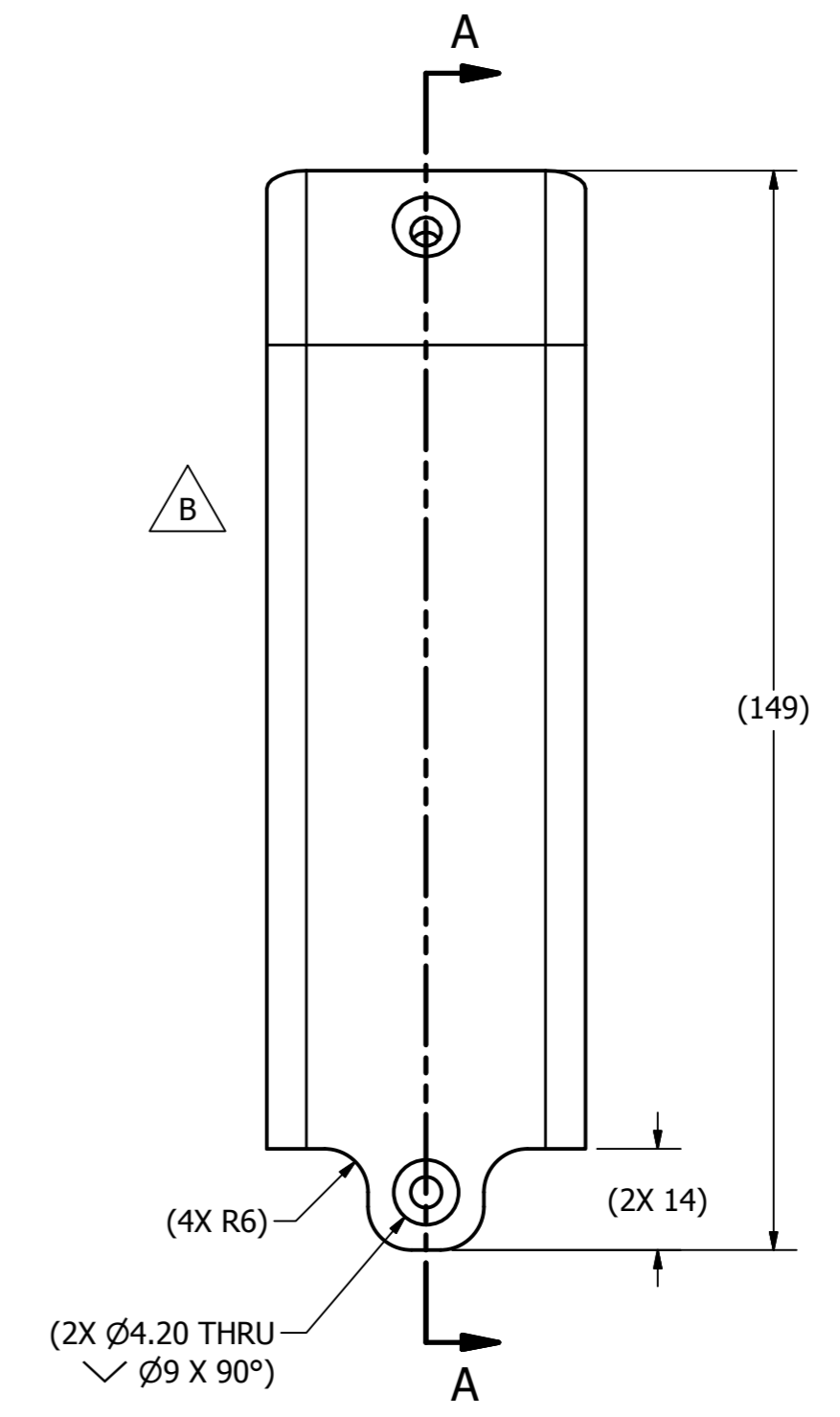
ITEM	QTY	PART NUMBER	DESCRIPTION
1	3	5000350-FT	HELICOIL, M4 X .7 X 6

Parts List			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5, XX ±.2, XXX ±.1 MACHINED ANGLES: ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION SHOULDERS BALL RETAINING RING	
MATERIAL: Aluminum-6061 HEAT TREAT: N/A FINISH: CLEAR ANODIZE		APPROVALS: jarthur DATE: 12/13/2011 CHECKED: _____ ENG: _____ APPROVED: _____	
THIRD ANGLE PROJECTION		SIZE: A2 DRAWING NUMBER: 020-3533 SCALE: N/A SHEET: 1 OF 1	

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		8/17/07
72309	B	REDRAWN IN INVENTOR; REMOVE NOTE #1 & FTSS LOGO	AB		12/04/13
74650	C	ALL NONREFERENCED DIMS MADE REFERENCE; ADDED NOTES #1 THRU 4.	JH		1/14/2016
74650	D	REGULATION RELEASE.	GCH		1/14/2016



SECTION A-A



- NOTES:
1. MATERIAL: URETHANE
COLOR: EURO BROWN
DUROMETER: 85 ±5 SHORE "A"
 2. REMOVE ALL MOLD FLASHING
 3. ALL MOULD DIMENSION TOLERANCE +1%/-2%
BUT NO SMALLER THAN 0.5mm
 4. NO SPLIT OR DEFECTS ARE ALLOWED
IN THE URETHANE MOLDING

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:

DECIMAL: X ±.5 XX ±.2 XXX ±.1	MACHINED ANGLES ±.5°
--	----------------------------

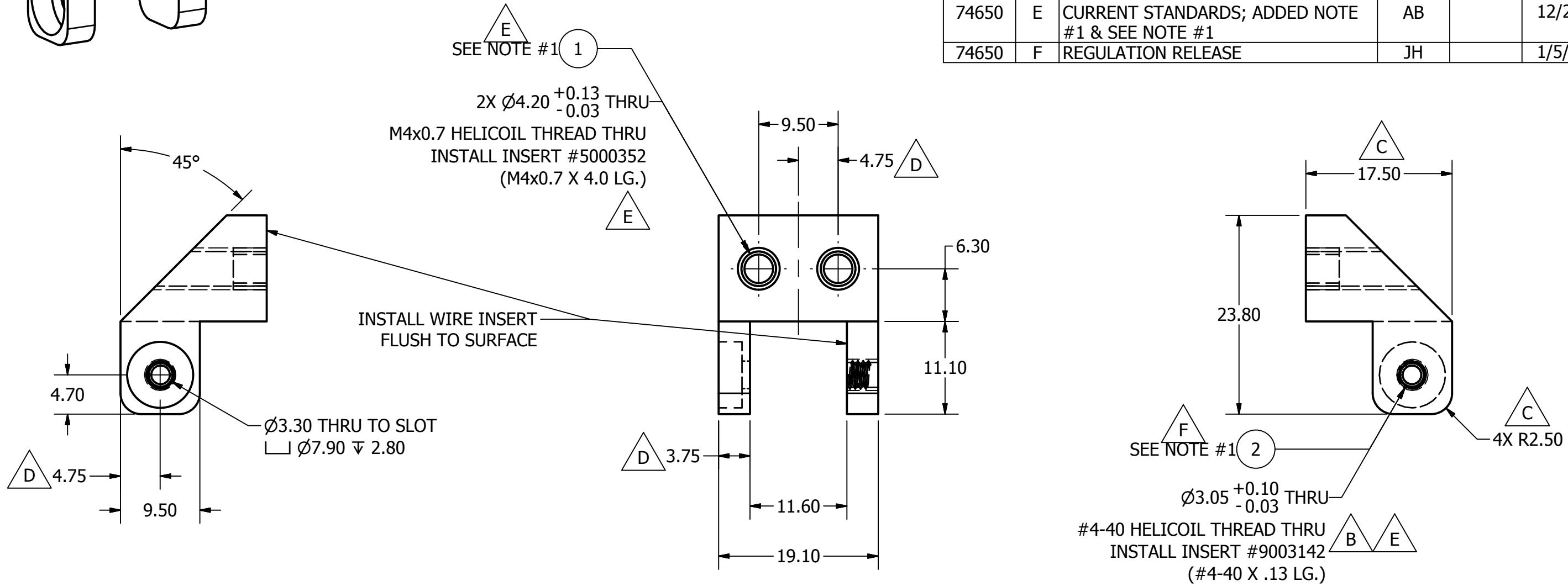
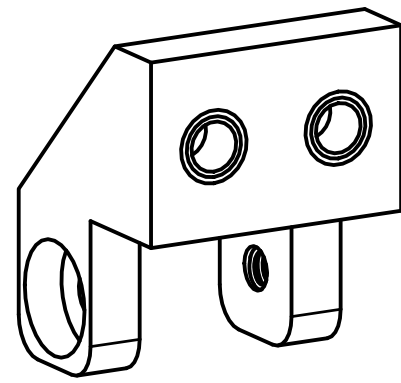
ASME Y14.5M - 1994
DO NOT SCALE DRAWING

MATERIAL POLYURETHANE	CHECKED
HEAT TREAT	ENG
FINISH	APPROVED

VEHICLE RESEARCH and TEST CENTER	
APPROVALS	DATE
DRAWN MJB	17-Aug-07
CHECKED	
ENG	
APPROVED	

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
CABLE GUIDE	
 THIRD ANGLE PROJECTION	SIZE: A2 SCALE: 1:1 DRAWING NUMBER: 020-4412 SHEET: 1 OF 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		5-2-05
75980	B	WIRE INSERT 9003142 #4-40 X .13 WAS 5000446 M3 X .5 X 3	MT		11-05-07
76364	C	17.50 WAS 14.50; ADDED 4X R2.50	KJ		11/30/09
72309	D	REDRAWN IN INVENTOR; REMOVE NOTE #1; 4.75 & 3.75 WAS 4.80 & 3.70	AB		12/03/13
74650	E	UPDATED HOLE CALLOUTS TO CURRENT STANDARDS; ADDED NOTE #1 & SEE NOTE #1	AB		12/22/15
74650	F	REGULATION RELEASE	JH		1/5/2016



INSTALL WIRE INSERT
FLUSH TO SURFACE

SEE NOTE #1

SEE NOTE #1

ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	9003142	WIRE INSERT, #4-40 X .13
1	2	5000352	WIRE INSERT, M4 X .7 X 4

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:

DECIMAL: X ±.5
XX ±.2
X.XX ±.1

MACHINED ANGLES ±.5°

ASME Y14.5M - 1994
DO NOT SCALE DRAWING

VEHICLE RESEARCH and TEST CENTER

DEPARTMENT OF TRANSPORTATION
UNITED STATES OF AMERICA

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

BRACKET, ITRACC

APPROVALS: DRAWN MEC, CHECKED ENG, APPROVED

DATE: 1/24/2004

MATERIAL: 6061-T6 ALUMINUM

HEAT TREAT:

FINISH: CLEAR ANODIZE

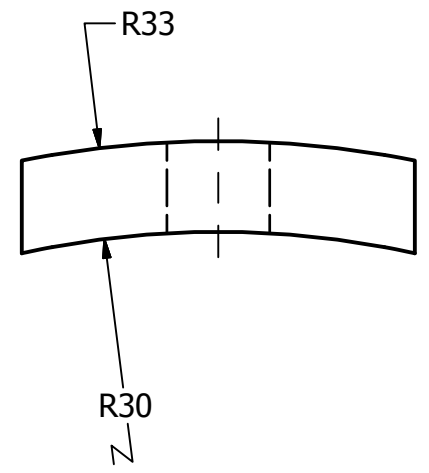
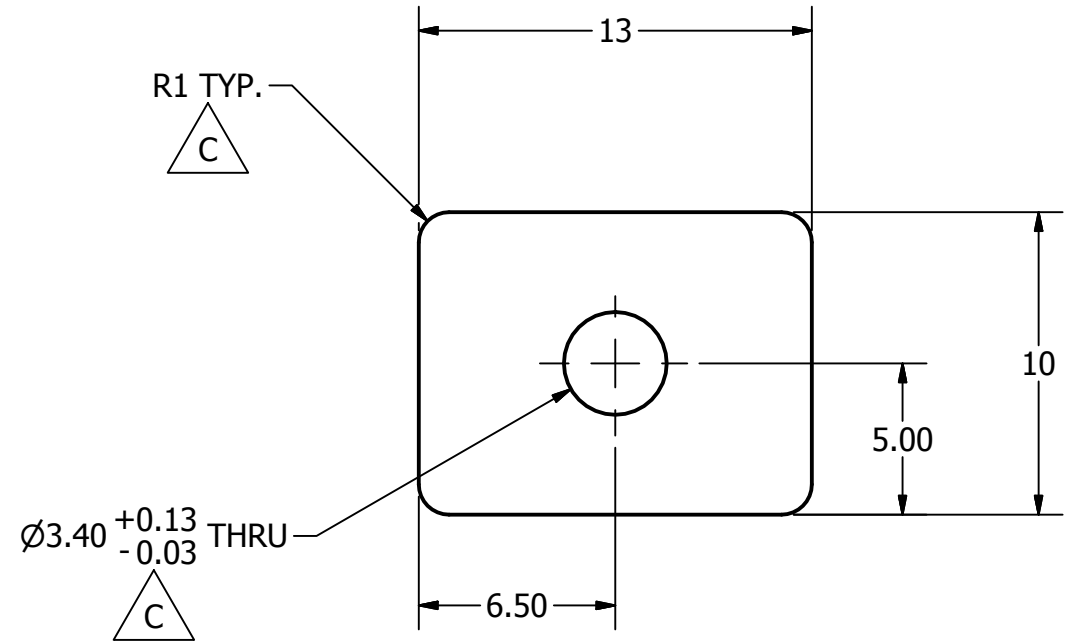
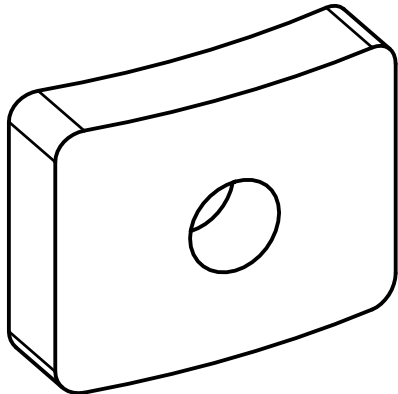
THIRD ANGLE PROJECTION

SIZE: A3, DRAWING NUMBER: 020-4503, REV: F

SCALE: 2:1, SHEET: 1 OF 1

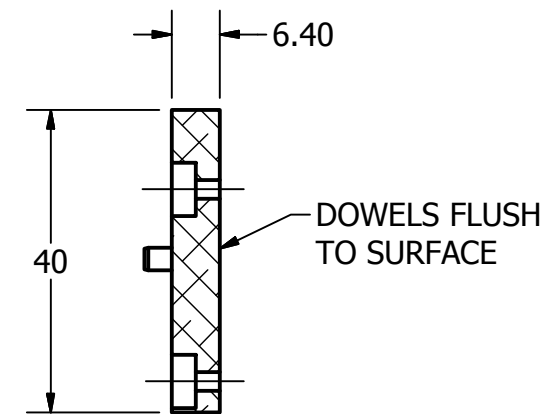
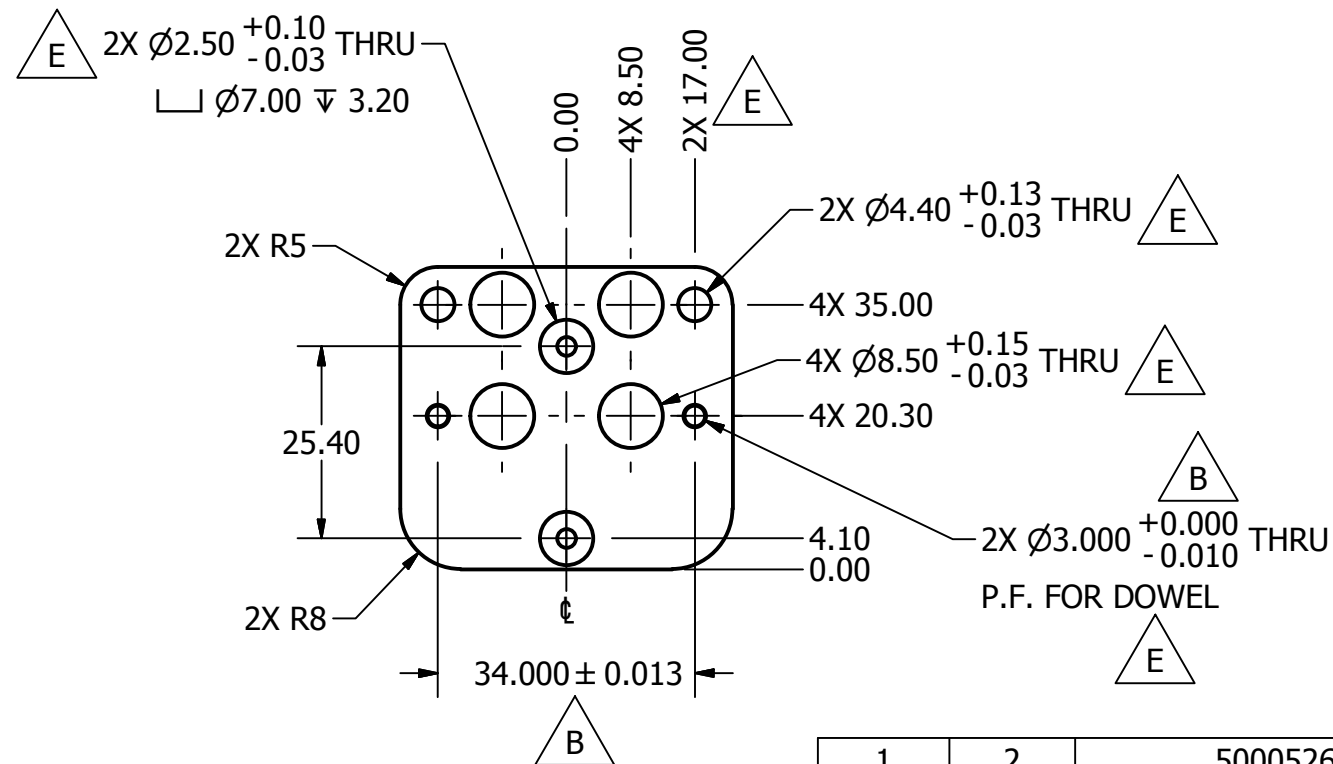
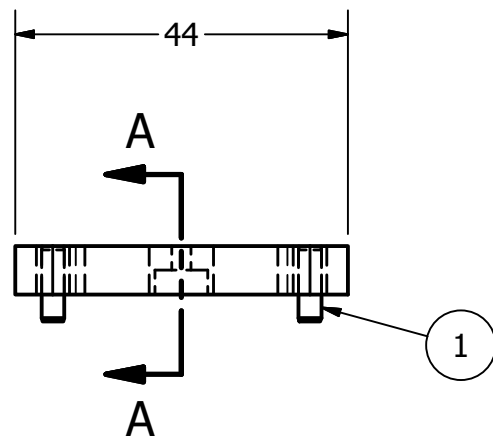
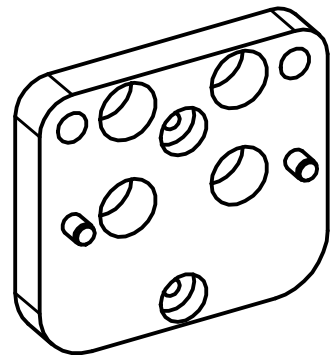
NOTES:
1. INSTALL WIRE INSERTS AFTER CLEAR ANODIZE.

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		7/03/07
72309	B	REDRAWN IN INVENTOR; REMOVE NOTE #1; DELRIN BLACK WAS BLACK DELRIN	AB		11/27/13
74650	C	UPDATED HOLE CALLOUT TO CURRENT STANDARDS; ADDED MISSING R1 TYP.	AB		12/22/15
74650	D	REGULATION RELEASE	AB		01/05/16



B NOTES:

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 ✓ XX ±.2 ✓ X.XX ±.1 ✓ ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. KIMES CHECKED ENG APPROVED	DATE 03-Jul-07		RETAINER, POT STRING	
MATERIAL DELRIN BLACK HEAT TREAT FINISH	B		SIZE A3	DRAWING NUMBER 020-3549	REV D
			SCALE: 4:1	SHEET 1 OF 1	



SECTION A-A

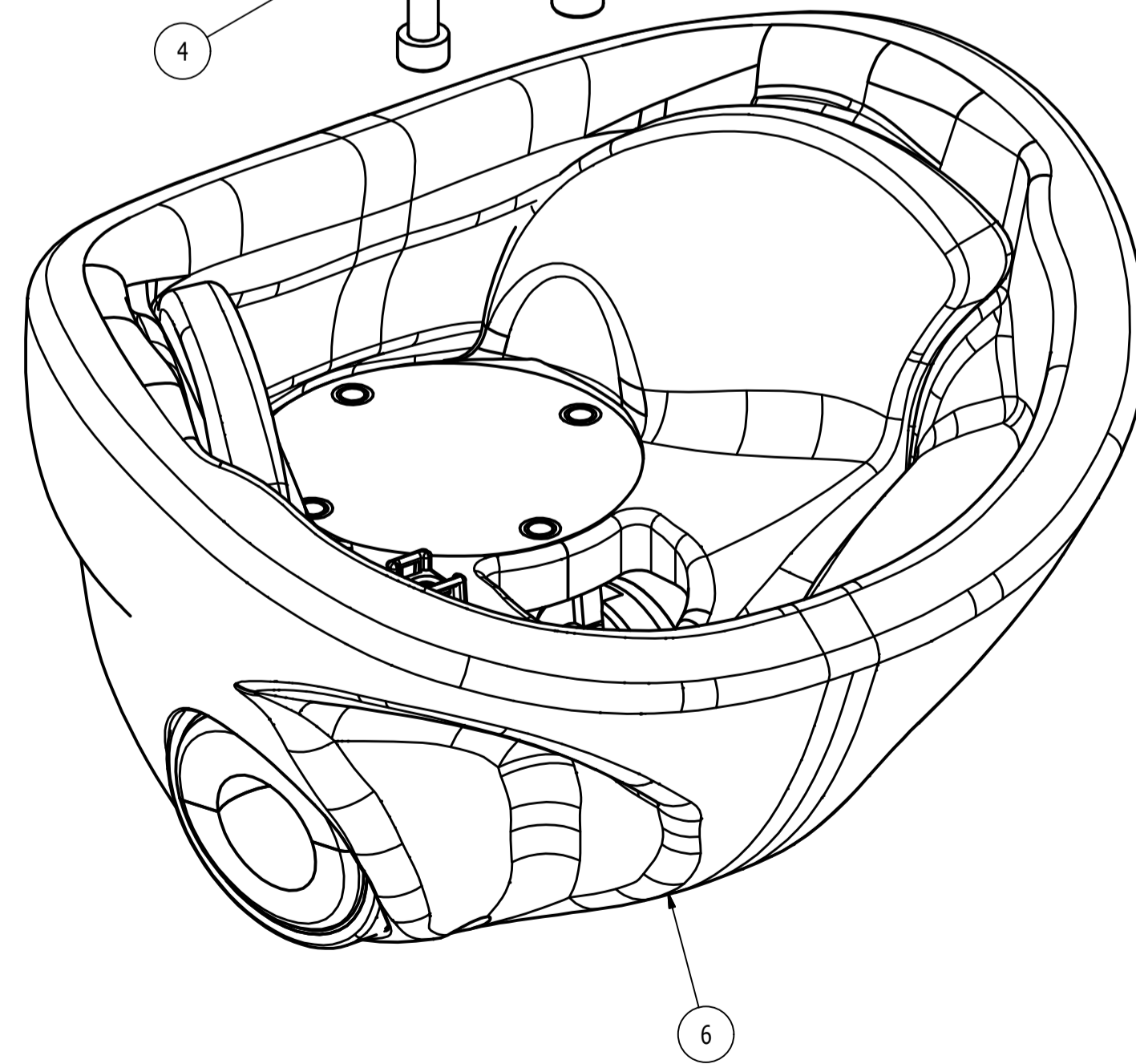
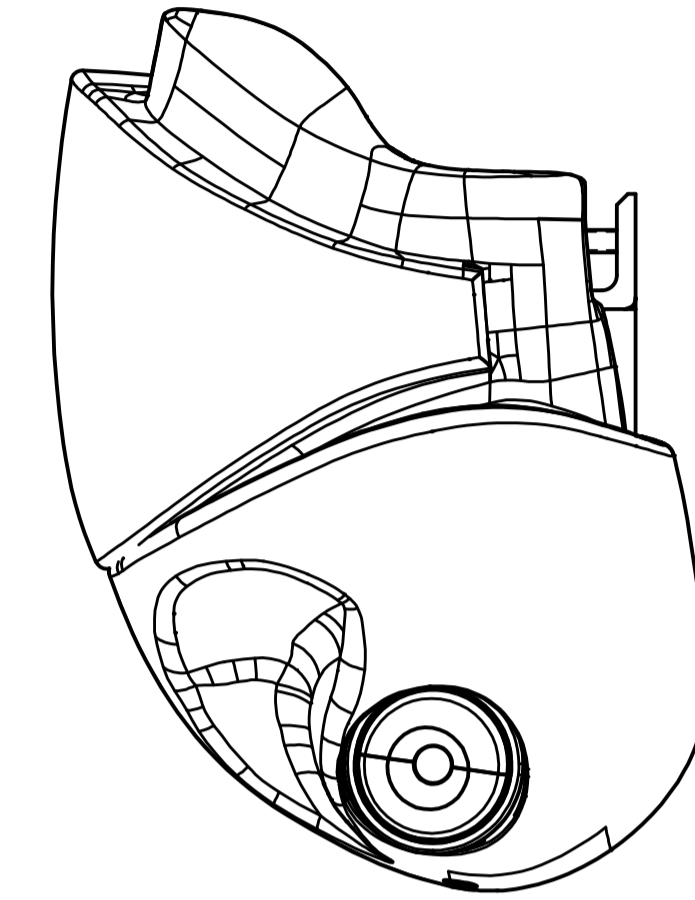
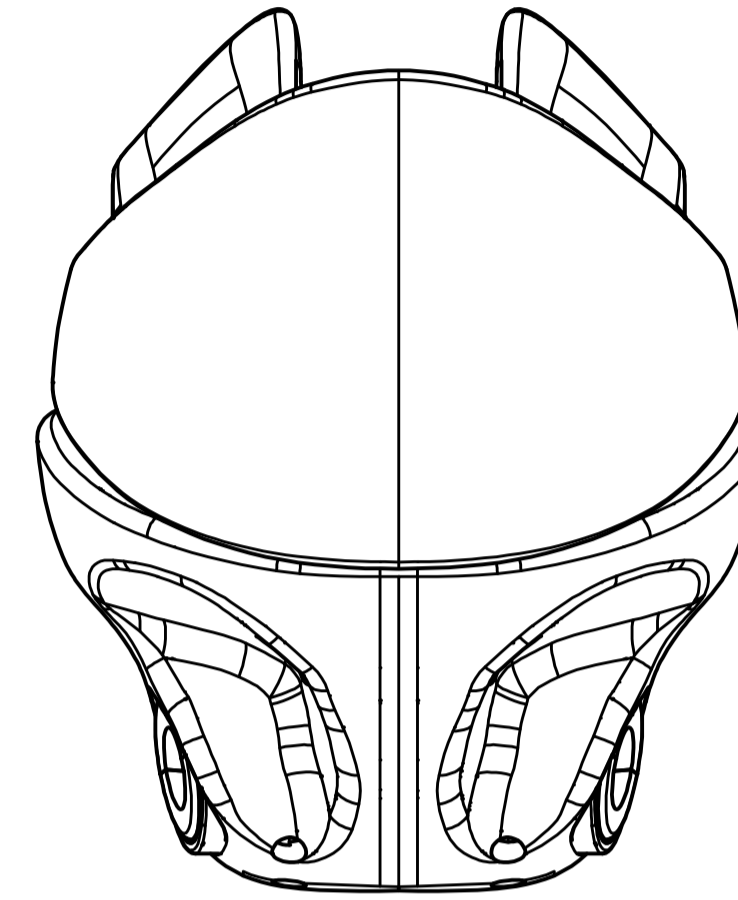
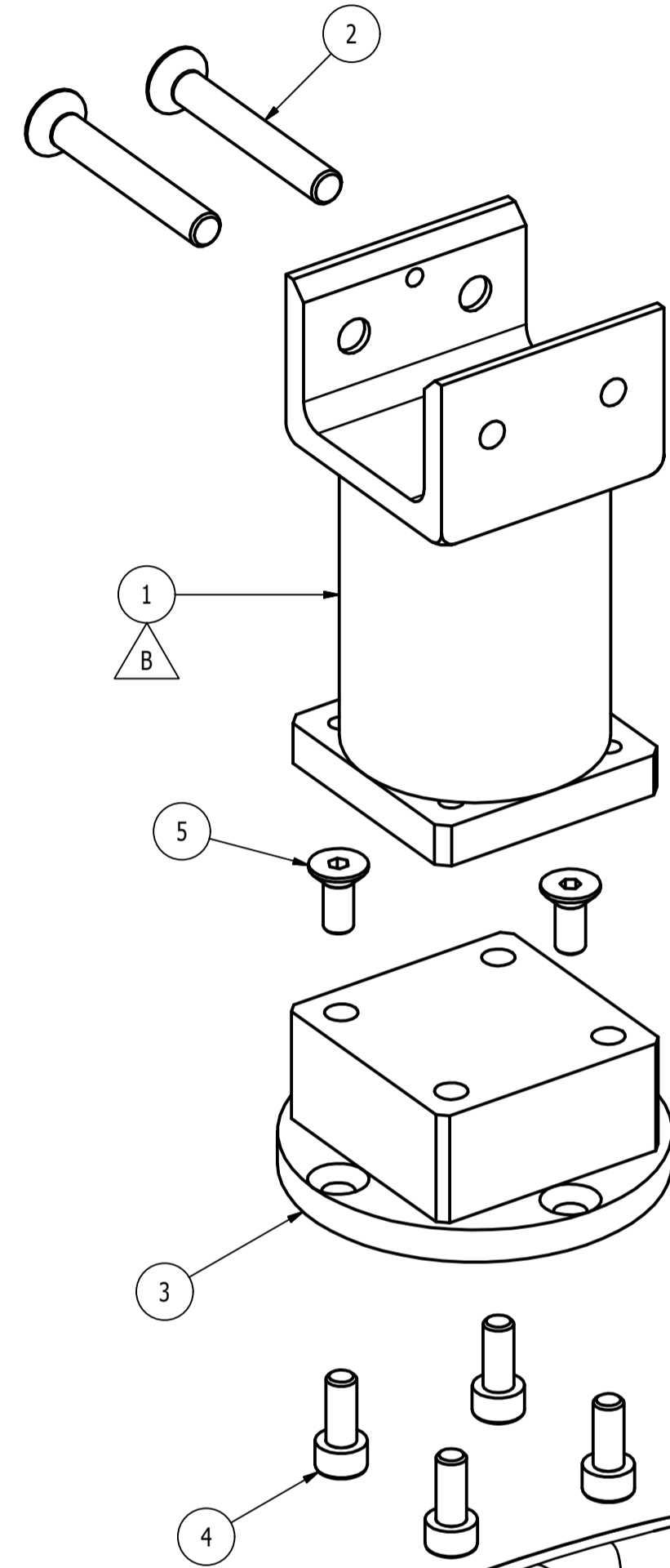
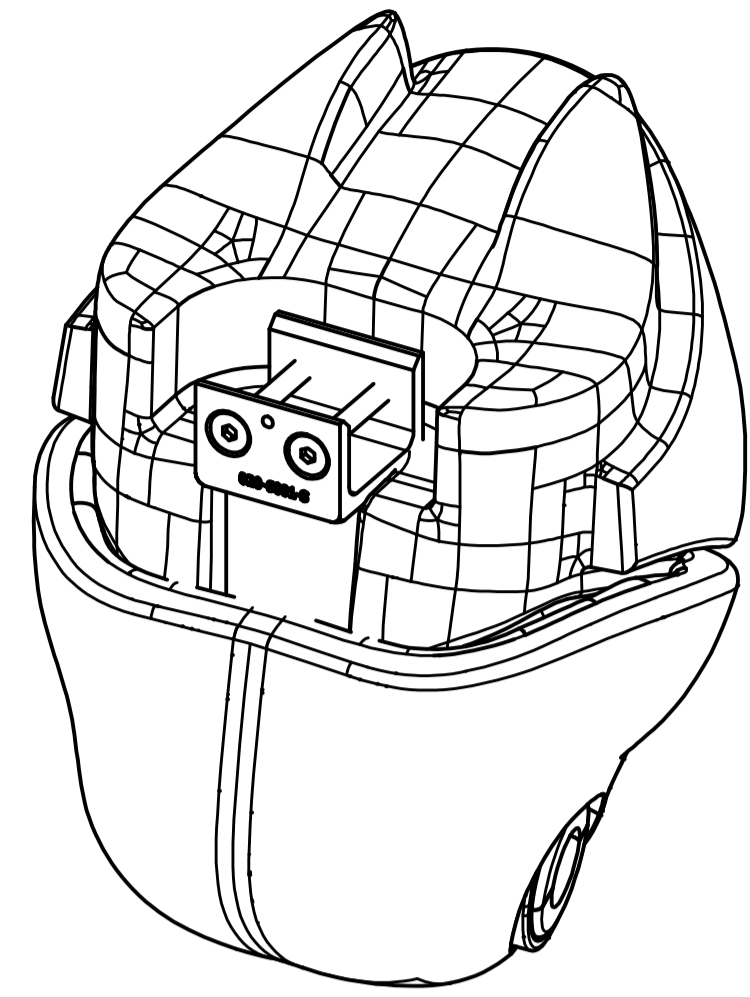
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		7-29-06
76520	B	DOWEL PIN 5000526 WAS 5000284 AND WAS ADDED TO DRAWING PART LIST; 2X Ø3.000 +0.000/-0.013 WAS 2X Ø3.00 +0.00/-0.02; 34.000 ±0.013 WAS 34.00 ±0.01	JTW		9-15-08
72309	D	REDRAWN IN INVENTOR; REMOVE NOTE #1; NOTE #1 WAS NOTE #2	AB		11/27/13
74650	E	UPDATED HOLE CALLOUTS TO CURRENT STANDARDS; 2X 17.00 WAS 3X; Ø4.40 WAS Ø5.	GCH		01/07/2016
74650	F	REGULATION RELEASE	GCH		01/07/2016

D NOTES:

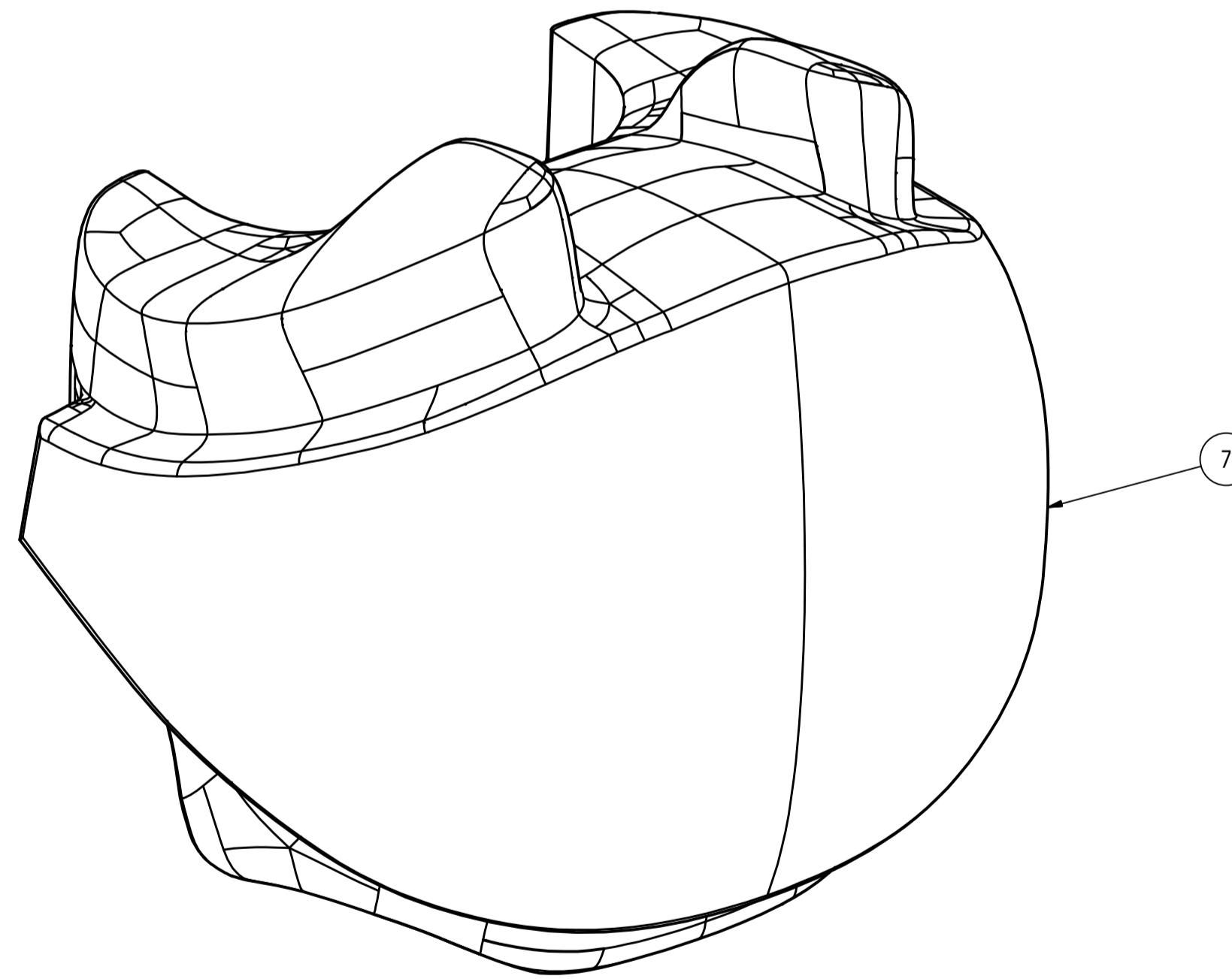
1. INSTALL DOWEL PINS AFTER ANODIZE.

1	2	5000526	M3 X 10 LG. DOWEL PIN SS
ITEM	QTY	PART NUMBER	DESCRIPTION
PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		<p>VEHICLE RESEARCH and TEST CENTER</p> <p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p>	
APPROVALS		DATE	
DRAWN B. KIMES		7/29/2006	
CHECKED			
MATERIAL 6061-T6 ALUMINUM			
HEAT TREAT		ENG	
FINISH CLEAR ANODIZE		APPROVED	
<p>THIRD ANGLE PROJECTION</p>		SIZE A3	DRAWING NUMBER 020-3539
		SCALE: 1:1	REV F
		SHEET 1 OF 1	

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENGR.	DATE
	A	RELEASE TO PRODUCTION	MT		12/4/12
72313	B	REDRAWN IN INVENTOR; "-FT" REMOVED FROM ITEM #4 & 5; ITEM #1 020-6000-S WAS 020-6000	AB		02/12/14
74650	C	ADDED MISSING ABDOMEN FLESH TO FRONT & RIGHT VIEWS	AB		12/22/15
74650	D	REGULATION RELEASE	AB		01/05/16



SCALE 1 : 1

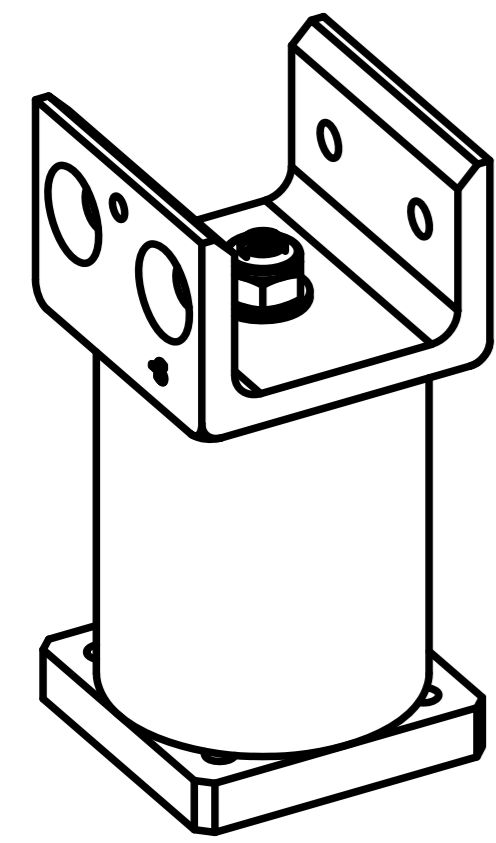


ITEM	QTY	PART NUMBER	DESCRIPTION
7	1	020-5000	ABDOMEN
6	1	020-7500	PELVIS ASSEMBLY, Q3s
5	4	5000096	M5 X 0.8 X 12 LG. FHCS
4	4	5000002	M5 X 0.8 X 12 LG. SHCS
3	1	020-2007	LOAD CELL STRUCTURAL REPLACEMENT
2	2	020-9902	SCREW, LUMBAR SPINE MOUNTING
1	1	020-6000-S	LUMBAR SPINE ASSEMBLY, TESTED & CERTIFIED SIDE IMPACT

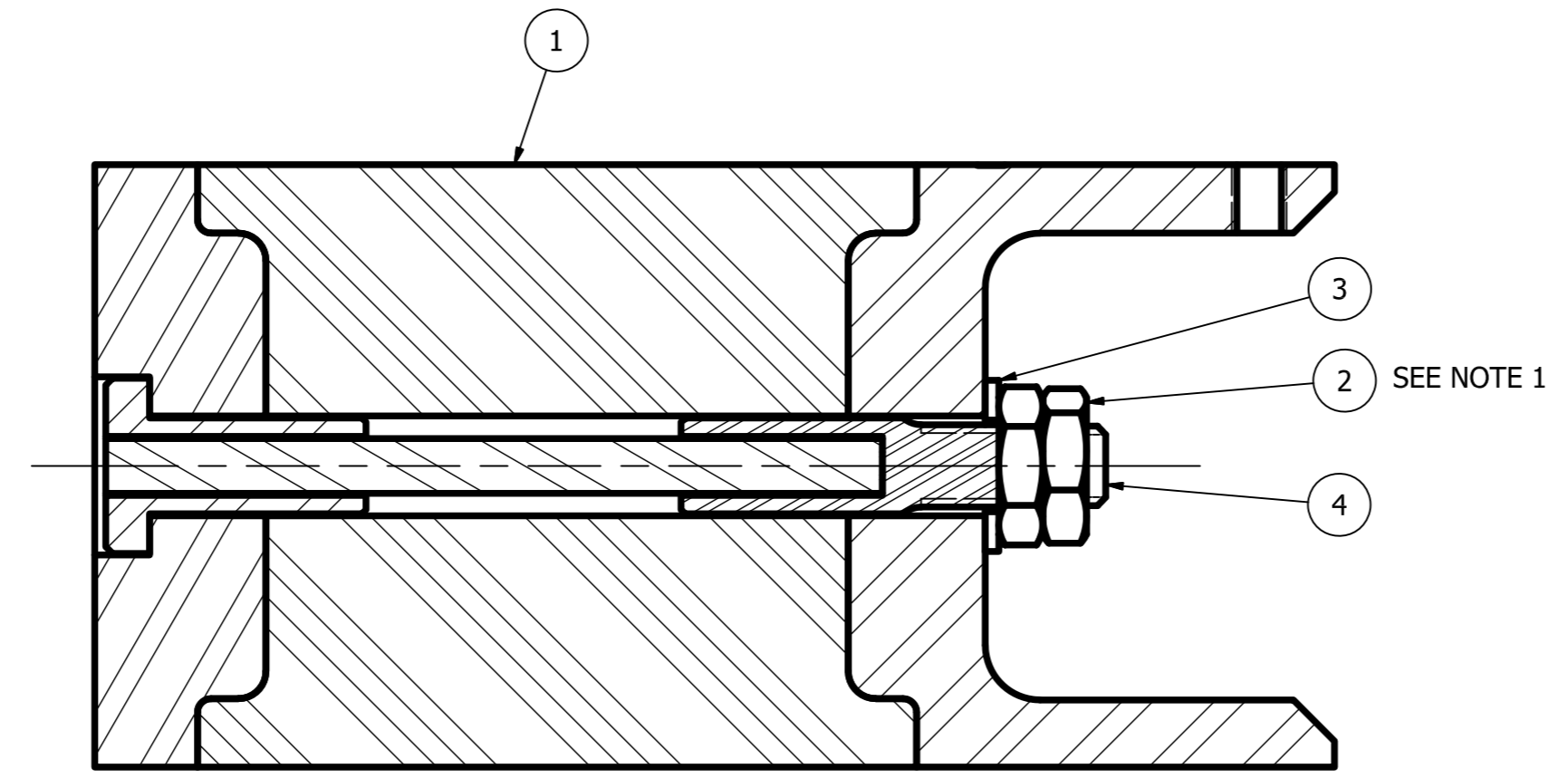
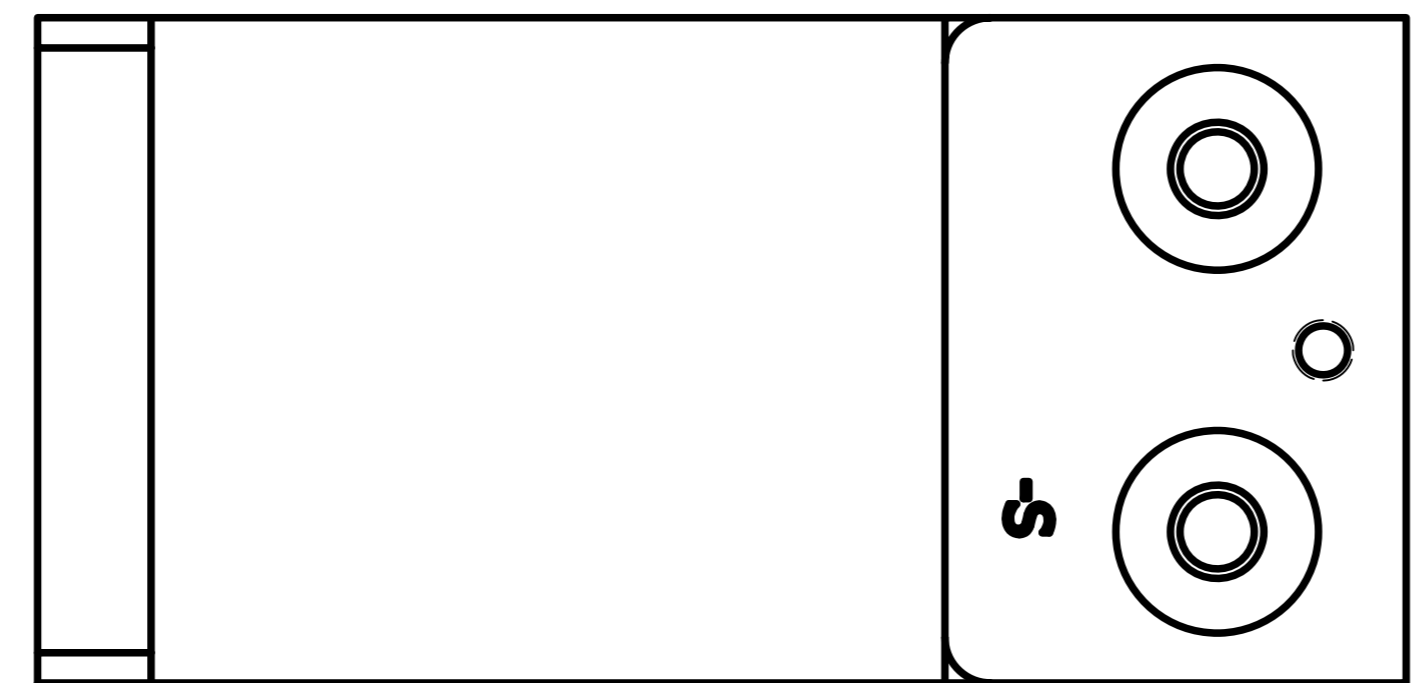
B
B

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X.X ±0.25 X.XX ±0.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		LOWER TORSO ASSEMBLY, Q3s	
DRAWN: JK TRAN		4-Dec-12			
MATERIAL:		CHECKED:		SIZE: A1	
HEAT TREAT:		ENG:		DRAWING NUMBER: 020-4000	
FINISH:		APPROVED:		SCALE: 1/2	
				SHEET 1 OF 1	

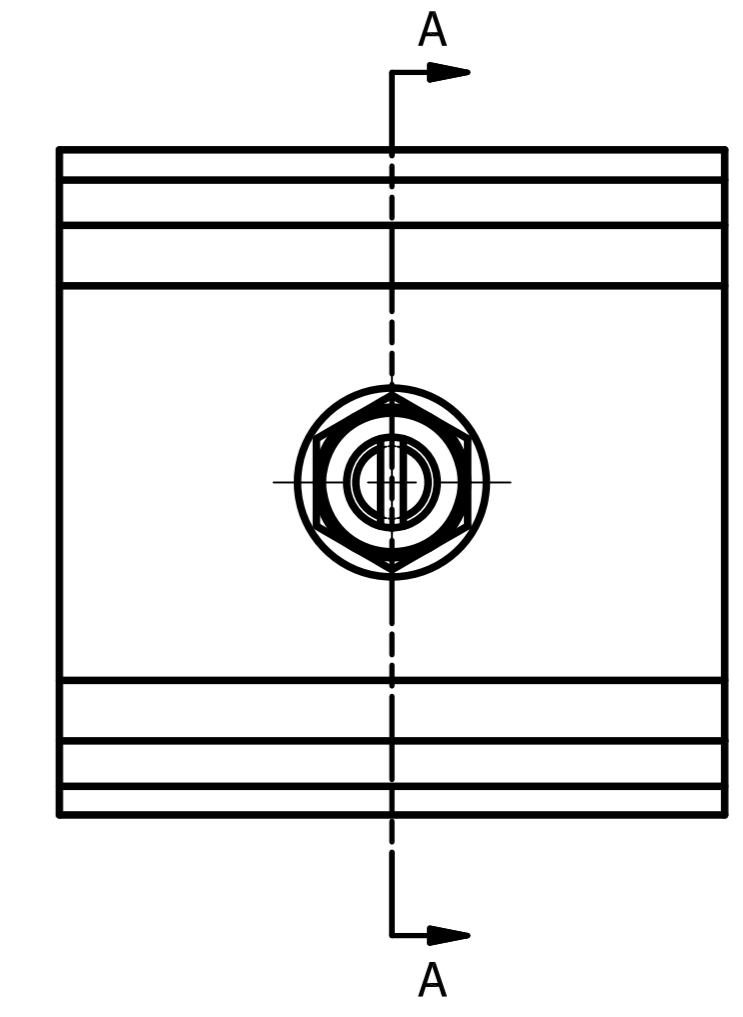
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
72386	A	RELEASE TO PRODUCTION	MGT		6/23/2014
74650	B	REGULATION RELEASE - REVISED NOTE #1, ITEM 2 WAS 5000093 M6x1 HEX LOCK NUT.	GCH/JHC		12/21/2015
	C	ITEM 2 QTY WAS 1	JHC		1/25/2021



SCALE 1 : 1



SECTION A-A

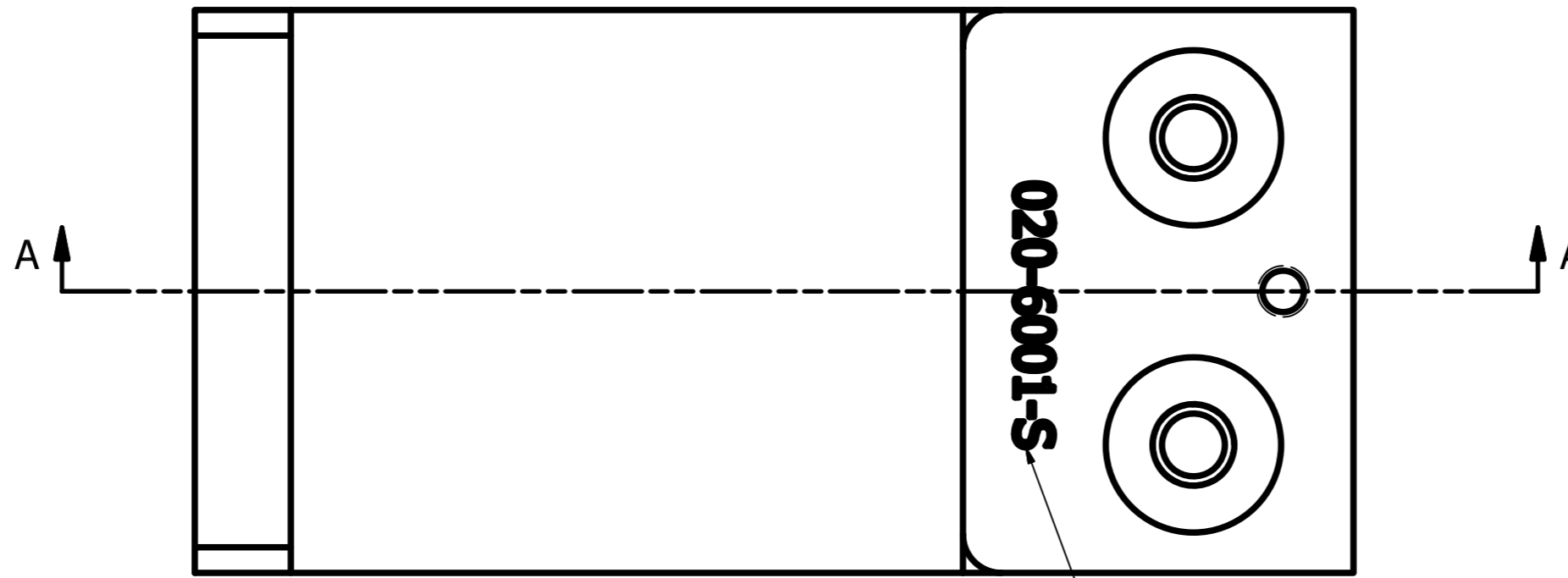
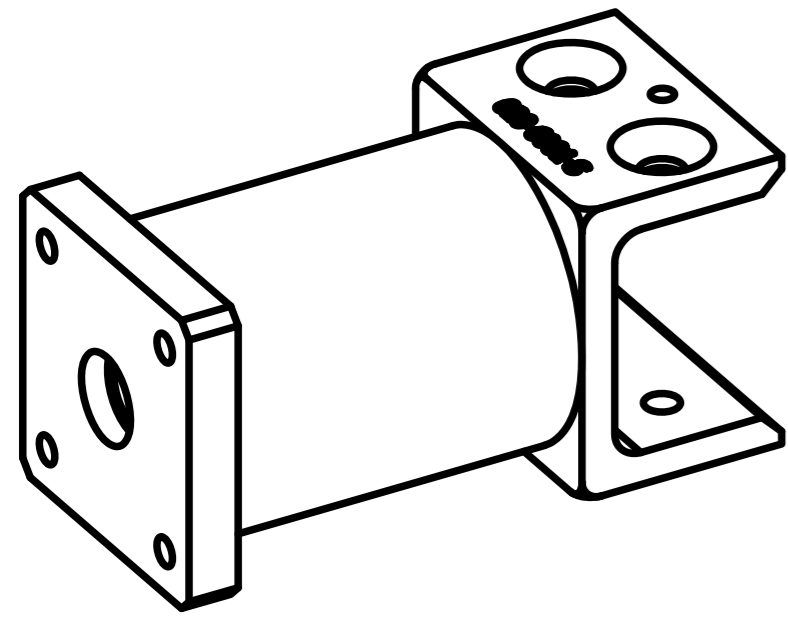


NOTES:
1. APPLY TORQUE OF 2 IN.-LB. TO FIRST JAM NUT,
THEN LOCK IN POSITION WITH SECOND JAM NUT

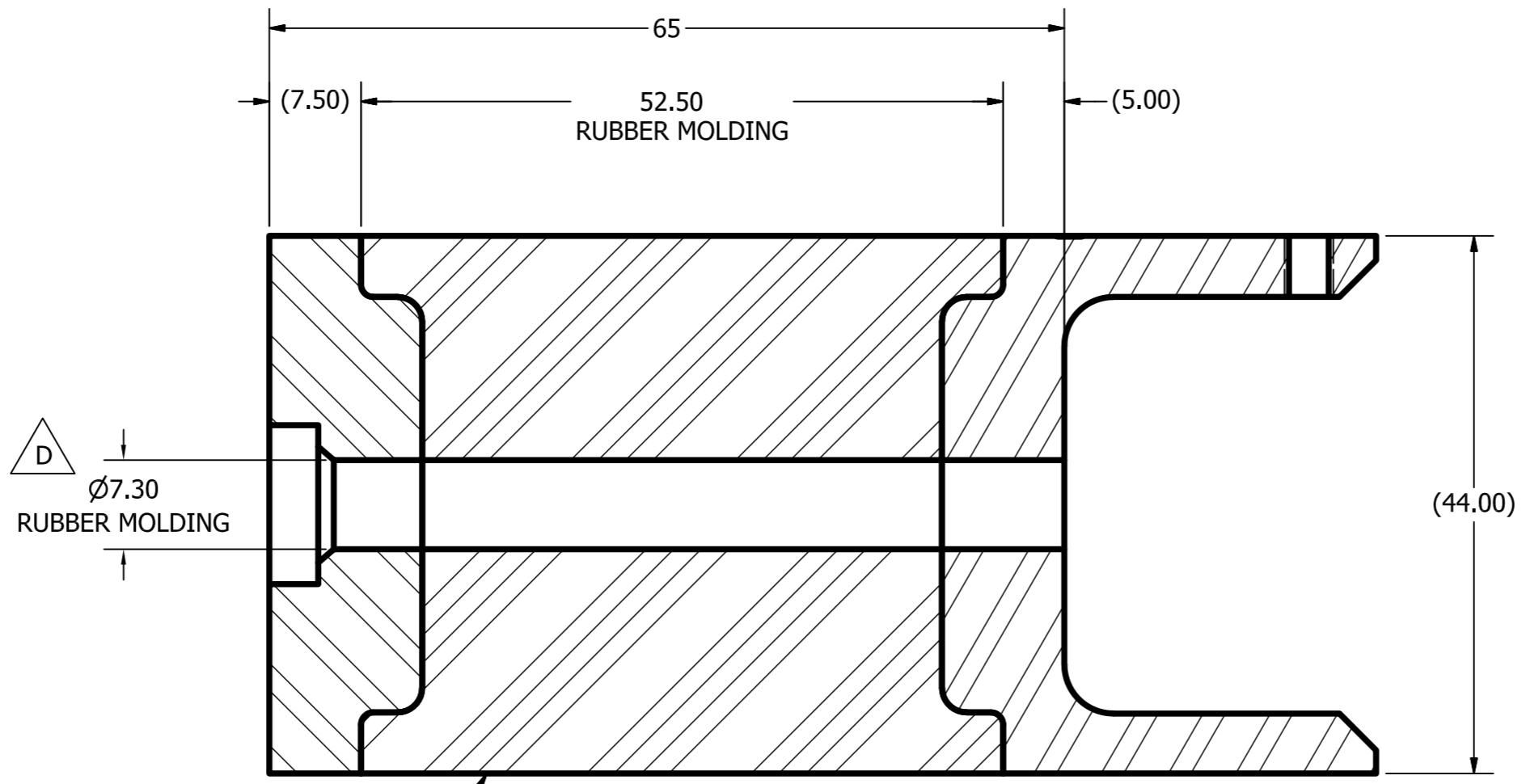
ITEM	QTY	PART NUMBER	DESCRIPTION
4	1	020-6100	LUMBAR SPINE CABLE ASSEMBLY
3	1	5000094	WASHER FLAT M6 (6.7 X 12.5 X 1) SS
2	2	5000144V	HEX JAM NUT, M6 X 1 ZINC
1	1	020-6001-S	LUMBAR SPINE, CENTRAL MOULDING SIDE IMPACT

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL: X ±.5 X.X ±.2 X.XX ±.1	MACHINED ANGLES ±.5°	APPROVALS	DATE	LUMBAR SPINE ASSEMBLY, TESTED & CERTIFIED SIDE IMPACT	
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		DRAWN M. TRAN	6/23/2014		
MATERIAL	CHECKED			DRAWING NUMBER A2 020-6000-S	
HEAT TREAT	ENG			REV C	
FINISH	APPROVED			SCALE: 2:1 SHEET 1 OF 1	

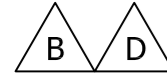
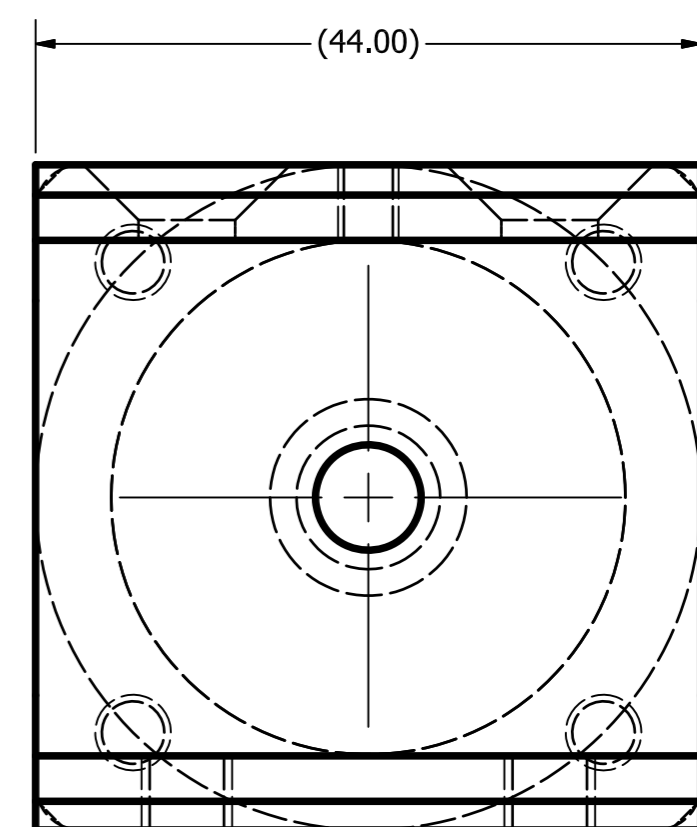
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
72386	A	RELEASE TO PRODUCTION	MGT		6/23/2014
74650	B	REMOVED "CERTIFY" NOTE; ADDED FOUR VIEWS; ADDED NOTES #1 THRU 3	AB		01/07/16
74650	C	REGULATION RELEASE	AB		01/12/16
	D	Ø7.30 RUBBER MOLDING WAS 7.00, REVISED NOTES 2 & 3	JHC		01/20/21



020-6001-S
PART MARK
VIBRO ETCH



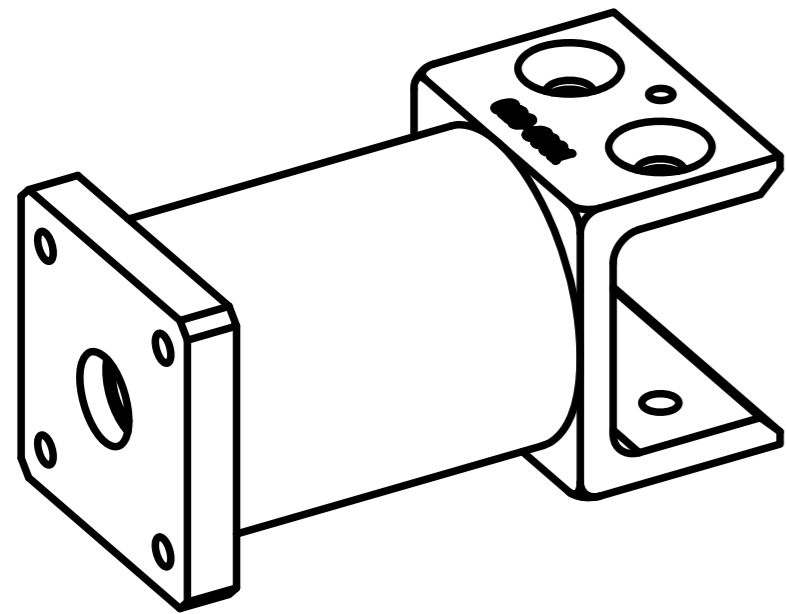
SECTION A-A



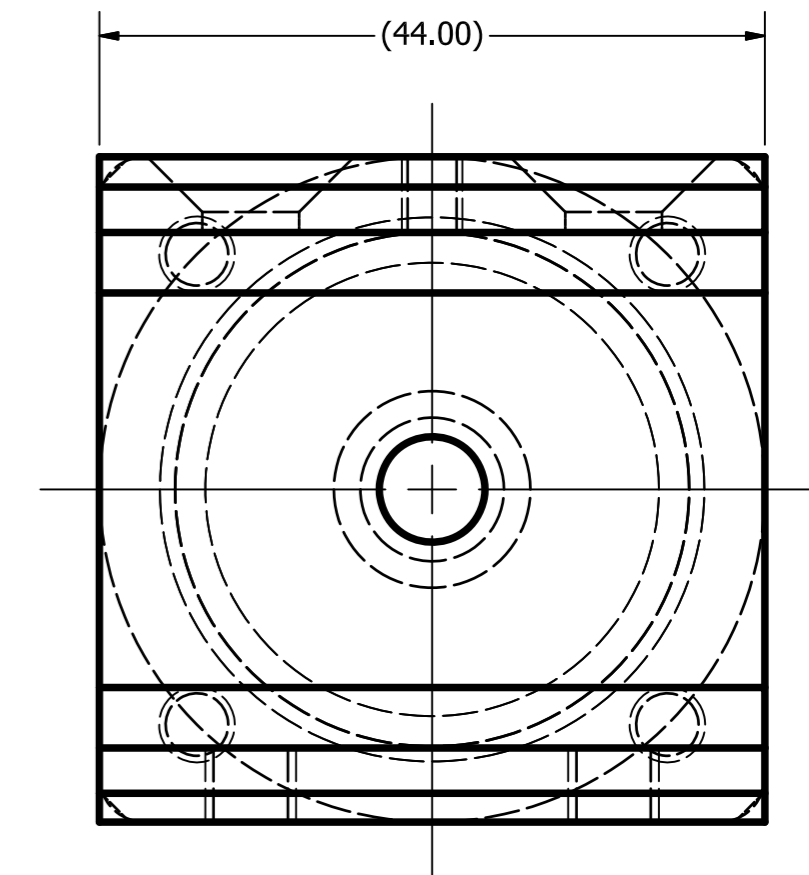
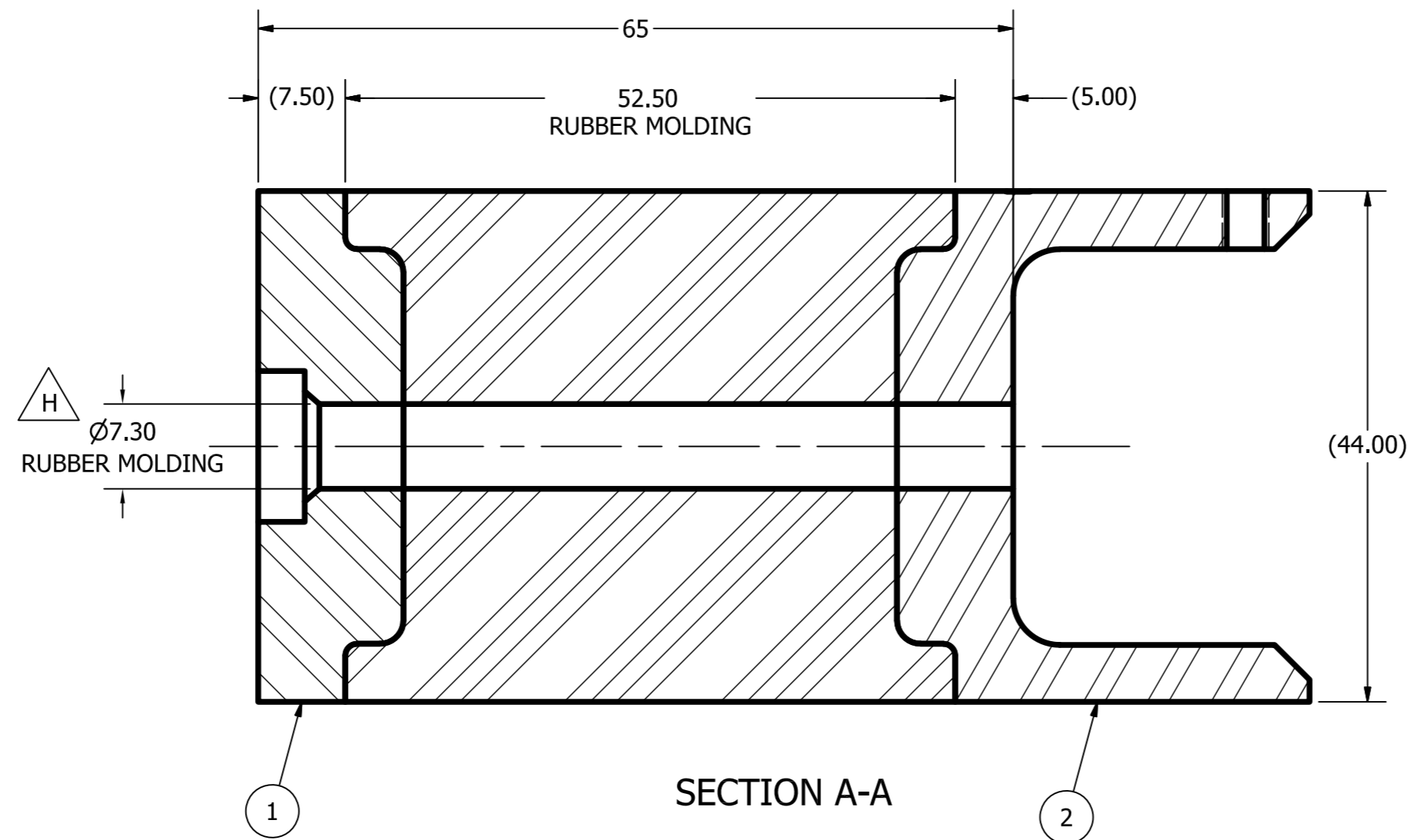
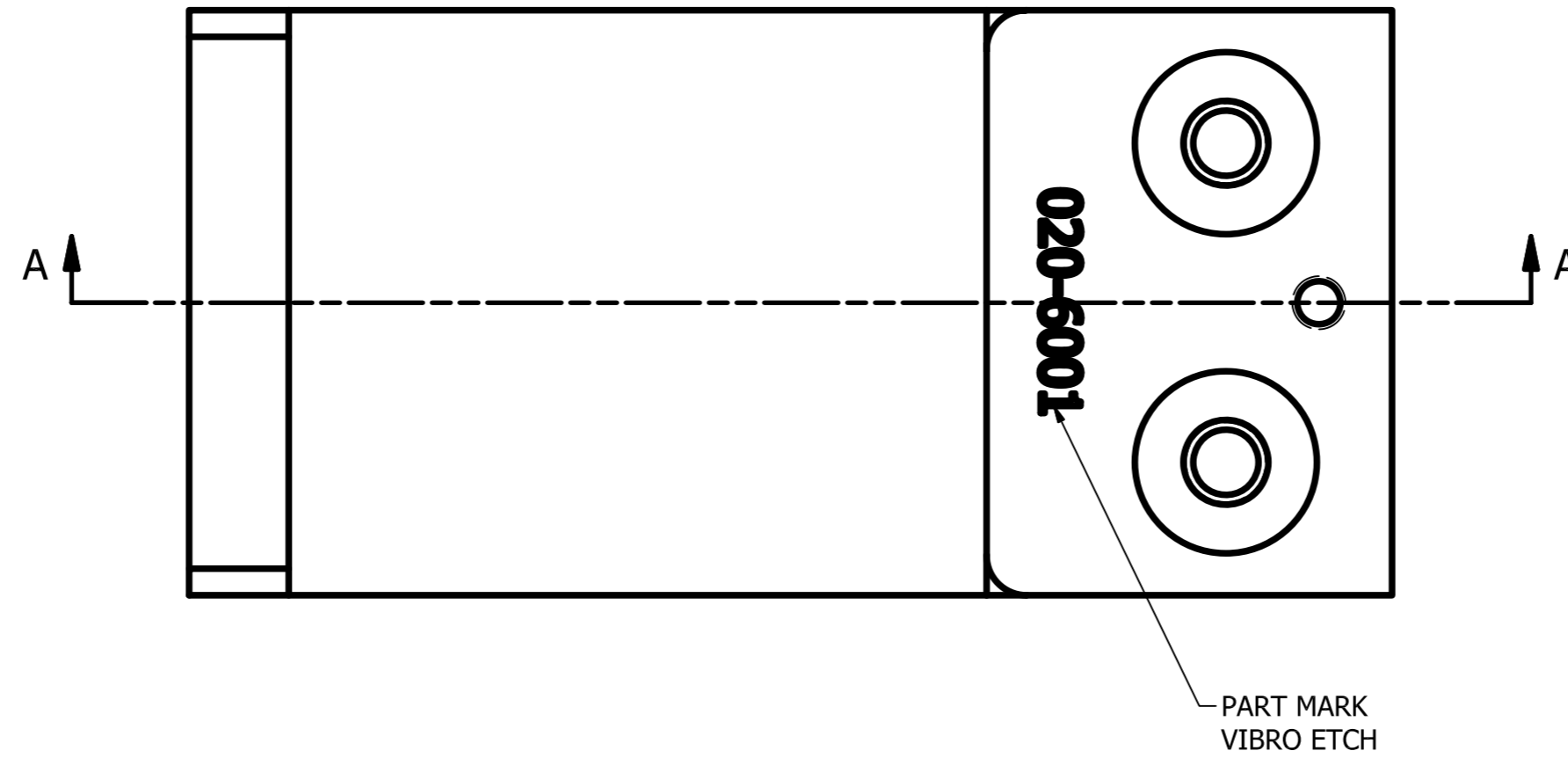
- NOTES:
- CERTIFY TO REQUIREMENTS AS SPECIFIED ON DRAWING 020-0100-SPEC.
 - CABLE (020-6100), WASHER (5000094), & JAM NUTS (5000144V) MUST BE INSTALLED FOR TESTING.
 - APPLY TORQUE OF 2 IN.-LB. TO FIRST JAM NUT, THEN LOCK IN POSITION WITH SECOND JAM NUT .

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	020-6001-U	LUMBAR SPINE MOULDING UN-CERTIFIED
PARTS LIST			
<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</small> DECIMAL: X ±.5, X.X ±.2, X.XX ±.1 MACHINED ANGLES ±.5° <small>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</small>		VEHICLE RESEARCH and TEST CENTER APPROVALS: M. TRAN DATE: 1/7/2016	 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION LUMBAR SPINE, CENTRAL MOULDING SIDE IMPACT
MATERIAL	CHECKED	SIZE	DRAWING NUMBER
HEAT TREAT	ENG	A2	020-6001-S
FINISH	APPROVED	SCALE: N/A	SHEET 1 OF 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
75109	F	DRAWN IN INVENTOR	AB		04/21/16
75109	G	REGULATION RELEASE	AB		04/21/16
	H	Ø7.30 RUBBER MOLDING WAS Ø7.00	JHC		01/20/21



SCALE 1 : 1

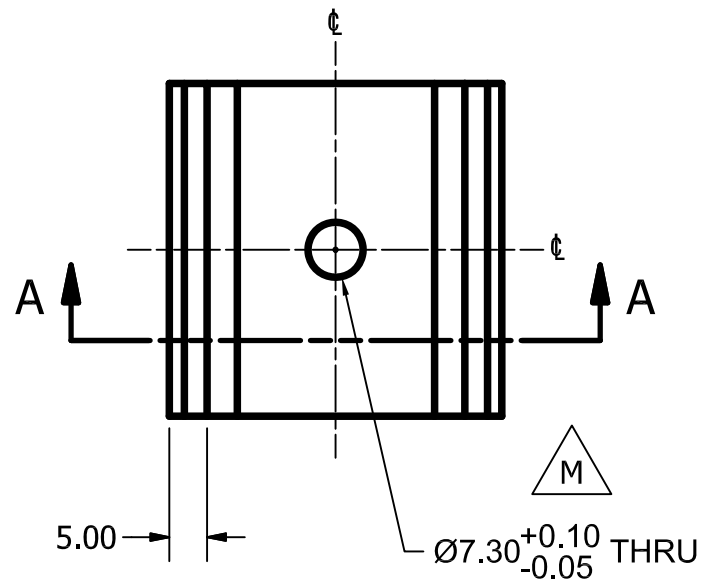
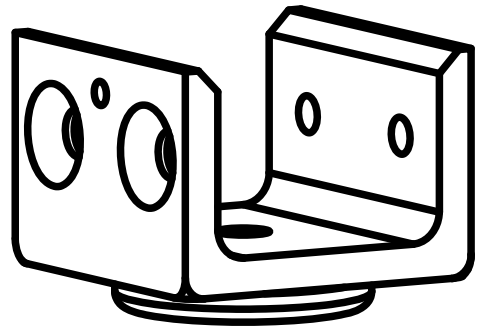


NOTES:

1. MATERIAL: NEOPRENE RUBBER HARDNESS MAY VARY ACCORDING TO PERFORMANCE, (AT NEXT ASSEMBLY).
2. REMOVE ALL FLASHING.
3. CLEAR ALL THREADS.
4. CLEAN.

ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	020-6002	BRACKET, TOP LUMBAR SPINE
1	1	020-6003	PLATE, BOTTOM LUMBAR SPINE

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED ANGLES ±.5°		VEHICLE RESEARCH and TEST CENTER APPROVALS: M. BURLEIGH DATE: 4/21/2016		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION LUMBAR SPINE, UNTESTED	
MATERIAL: _____ HEAT TREAT: _____ FINISH: _____		CHECKED: _____ ENG: _____ APPROVED: _____		SIZE: A2 DRAWING NUMBER: 020-6001-U SCALE: 2:1 SHEET: 1 OF 1	

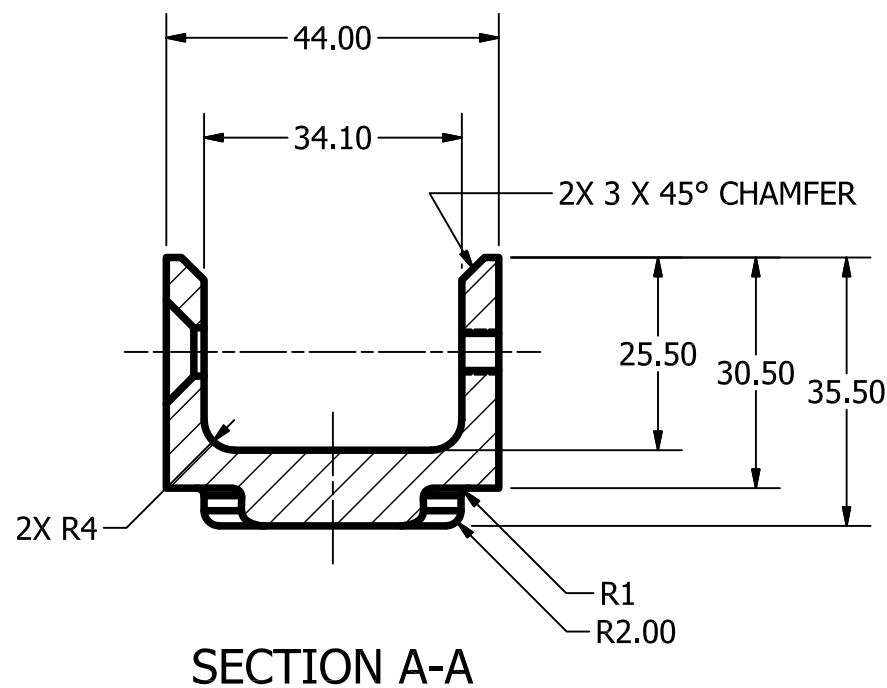
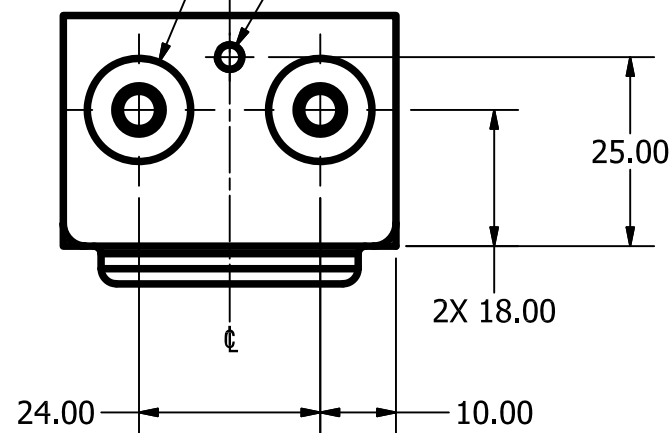


REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	F	PMN 020/4	ASB		8/25/98
	G	PMN 020/13	MLB		7/09/05
	H	ADD NEXT ASM:033-6001, QTY:1, & USED ON: 034-0000, UPDATE DESC	LP		8/27/07
72313	J	REDRAWN IN AUTODESK INVENTOR	SC		3/27/2013
74650	K	UPDATED HOLE CALL OUTS TO CURRENT STANDARDS.	JH		1/14/2016
74650	L	REGULATION RELEASE.	GCH		1/14/2016
	M	$\varnothing 7.30^{+0.10}_{-0.05}$ WAS $\varnothing 7.00^{+0.15}_{-0.03}$	JHC		01/20/2021

2X $\varnothing 6.40^{+0.15}_{-0.03}$ ∇ THRU WALL
 $\surd \varnothing 13.7 \pm 0.2 \times 90^\circ$
 ALIGNED WITH M6 HOLES

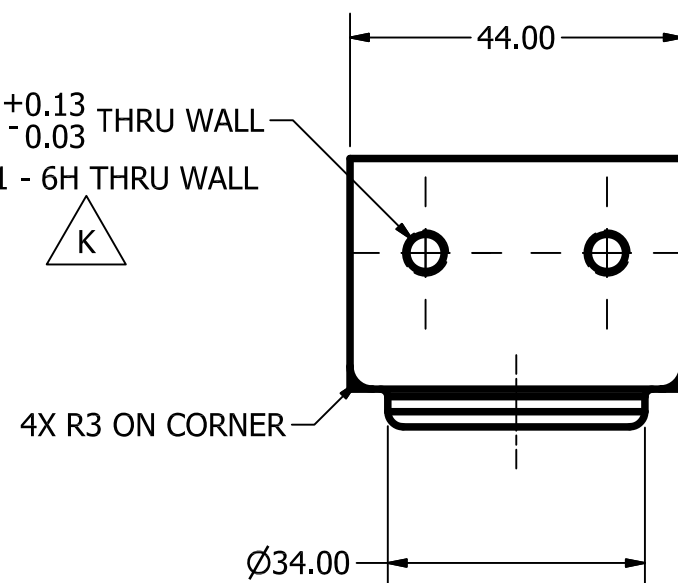
$\varnothing 3.30^{+0.13}_{-0.03}$ THRU WALL
 M4x0.7 - 6H THRU WALL

K



$\varnothing 5.00^{+0.13}_{-0.03}$ THRU WALL
 M6x1 - 6H THRU WALL

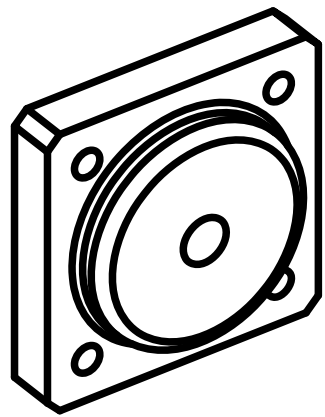
K



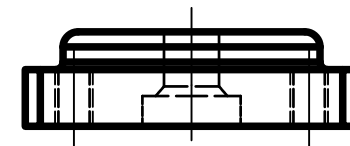
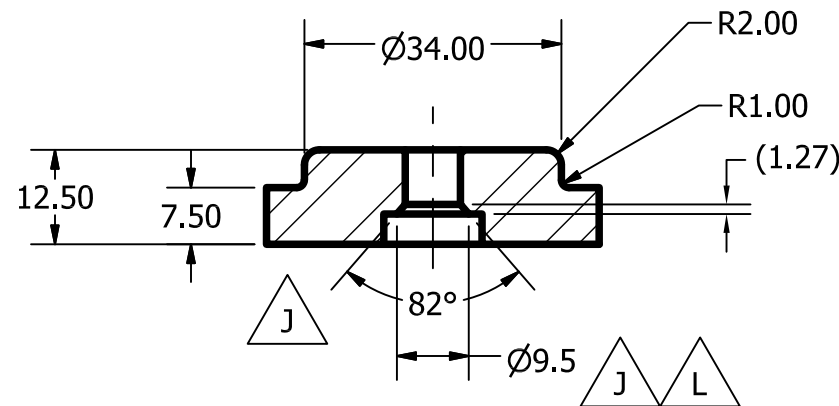
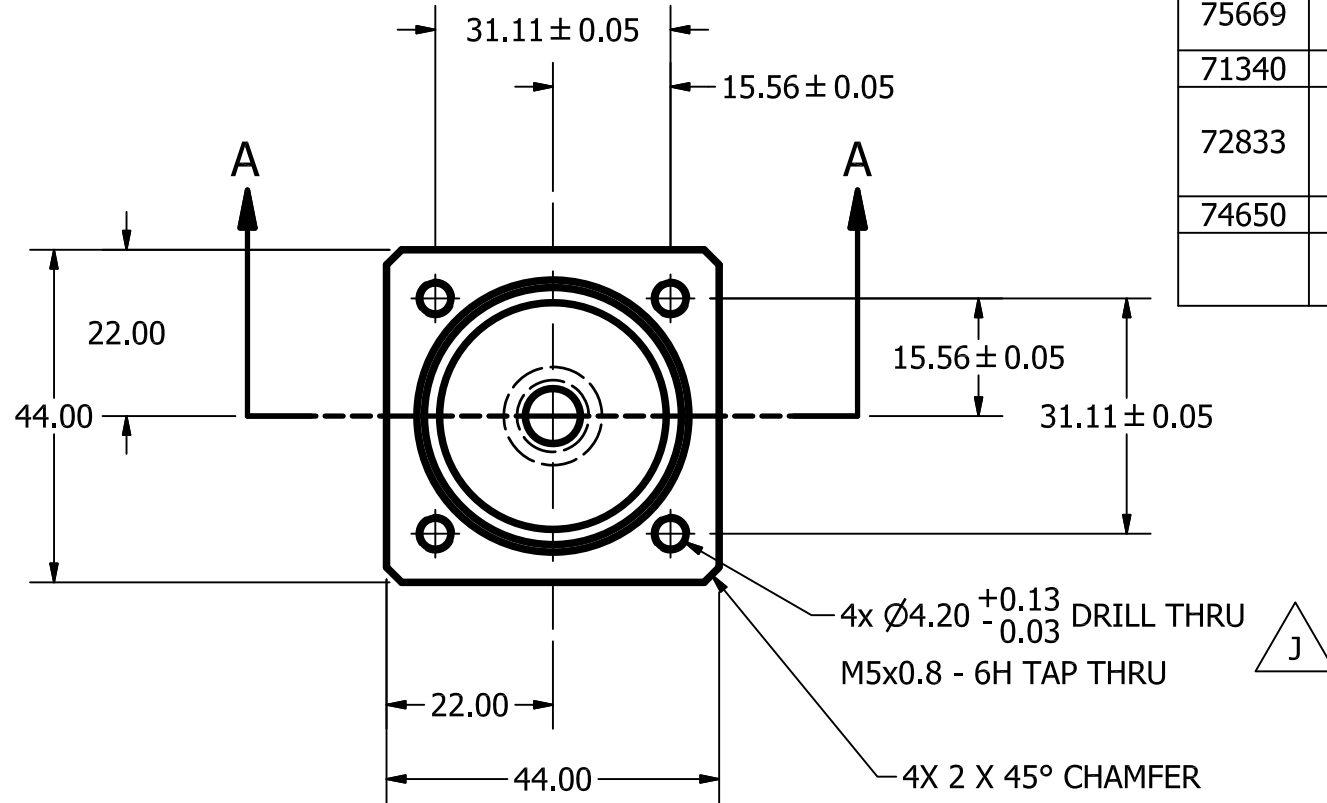
NOTES:

1. REMOVE BURRS AND BREAK SHARP EDGES.

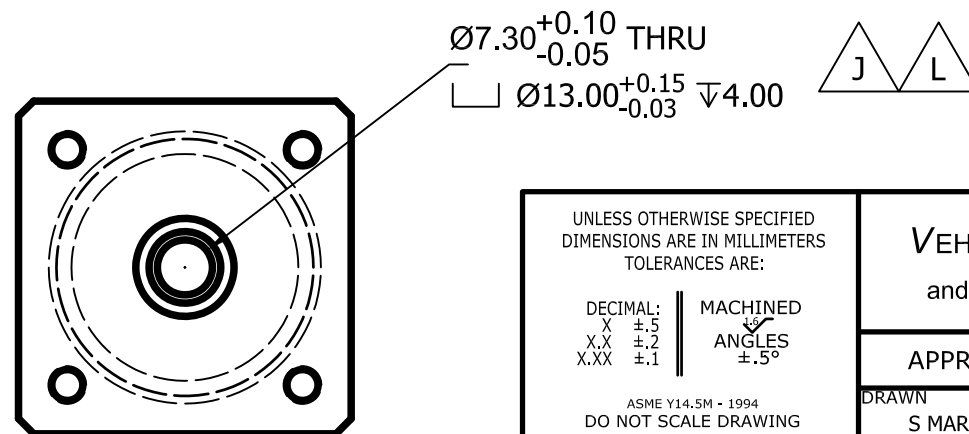
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 ✓ X.X ±.2 ANGLE X.XX ±.1 ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS	DATE		BRACKET, TOP LUMBAR SPINE	
	DRAWN	sclise	3/27/2013		
	CHECKED				
MATERIAL	316 STAINLESS STEEL			SIZE	DRAWING NUMBER
HEAT TREAT	ENG			A3	020-6002
FINISH	APPROVED			SCALE:	1:1
			THIRD ANGLE PROJECTION	SHEET	1 OF 1



REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	F	PMN 205/5	MJB		4/27/00
75669	G	ADD NEXT ASM:033-6001, QTY: 1, & USED ON:034-0000; UPDATE DESC	LP		8/27/07
71340	H	REDRAWN IN AUTODESK INVENTOR	SC	SC	2/08/13
72833	J	ADDED 9.5 DIA CSK. R2.0 R1.0 WAS R2.00, R1.00. HOLE DRILL SIZE TOLS ADDED. DEBUR NOTE REMOVED	MBU	IVU	09/03/2014
74650	K	REGULATION RELEASE	AB		01/05/16
	L	Ø7.30 +0.1/-0.05 WAS Ø7.00 +0.15/-0.03, REMOVED ±0.02 FROM 9.5 DIA	JHC		01/20/21

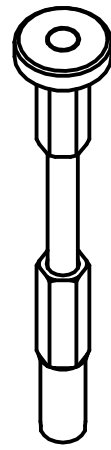


SECTION A-A

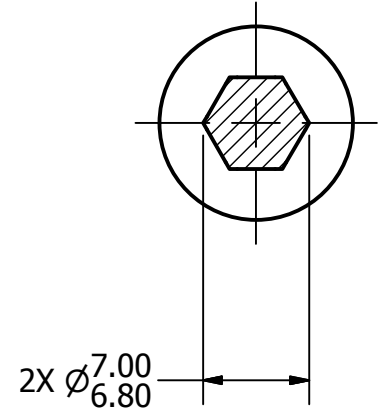
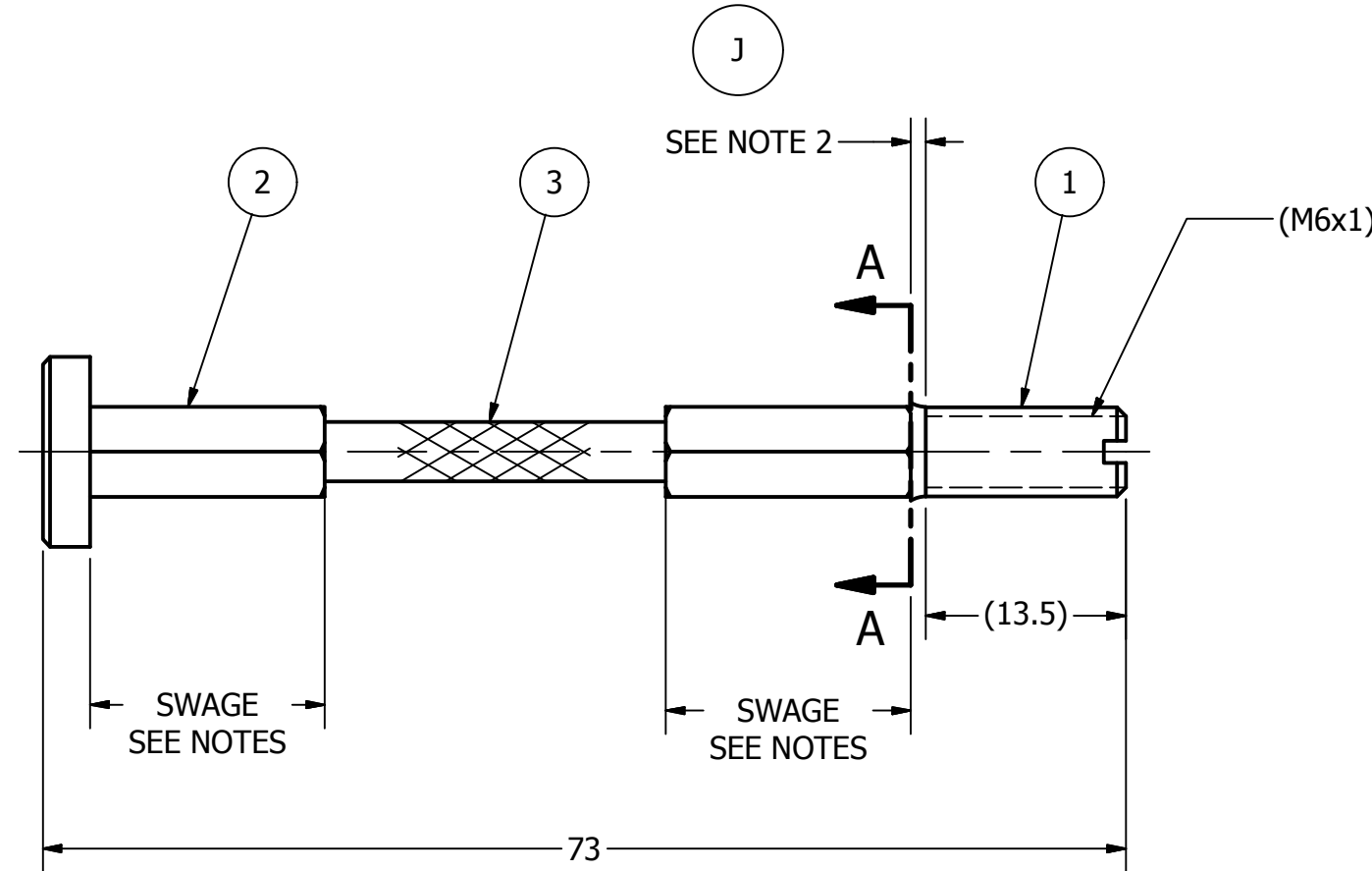


UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5, X.X ±.2, X.XX ±.1 MACHINED: ✓ ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION		
	APPROVALS	DATE		PLATE, BOTTOM LUMBAR SPINE		
	DRAWN S MARSH	9/9/96		SIZE A3	DRAWING NUMBER 020-6003	REV L
	MATERIAL 316 STAINLESS STEEL	CHECKED		SCALE: 1:1	SHEET 1 OF 1	

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	G	PMN 020/8	MJB		2/01/02
5705	H	REDRAW AND RELEASE IN PROE	BK		1/05/06
10544	J	ADDED CALLOUT TO CONTROL AREA	TMV		8/16/12
71340	K	REDRAWN IN AUTODESK INVENTOR	SC		2/12/2013
74650	L	REGULATION RELEASE	GCH		12/17/2015



SCALE 1:1



SECTION A-A

NOTES:

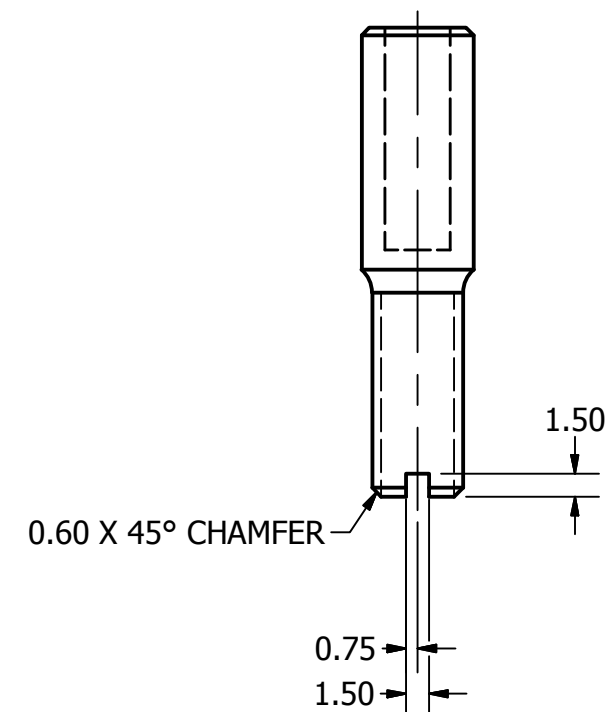
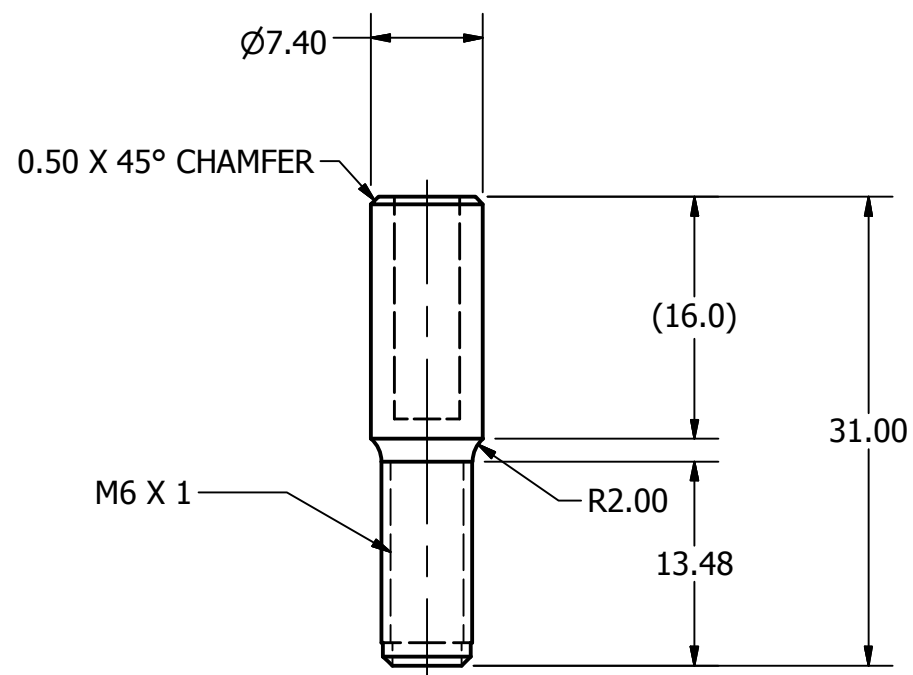
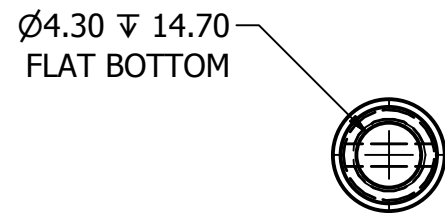
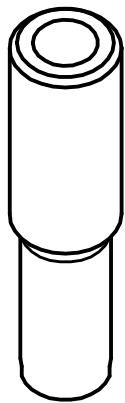
- ITEMS 1 & 2 TO BE SWAGED TO EITHER END OF ITEM 3 USING HEX DIES.
- DEBURR HEX CORNERS AFTER SWAGING $\varnothing 7.0-6.8$ A/C, AREA UNABLE TO BE SWAGED MUST BE TURNED TO A/C DIMENSION.

ITEM	QTY	PART NUMBER	DESCRIPTION
3	1	020-6103	STEEL WIRE ROPE, 4mm
2	1	020-6102	FLANGED END FITTING
1	1	020-6101	THREADED END FITTING

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN: sclise CHECKED:	DATE 2/12/2013		LUMBAR SPINE CABLE ASSEMBLY	
MATERIAL	CHECKED			SIZE: A3 SCALE: 2:1	DRAWING NUMBER: 020-6100 SHEET: 1 OF 1
HEAT TREAT	ENG			REV: L	

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	C	PMN 020/6	MJB		5/04/00
75669	D	ADD NEXT ASM: 033-6100, QTY 1, & SED ON: 034-0000	LP		8/24/07
71340	E	REDRAWN IN AUTODESK INVENTOR	SC	SC	2/08/13
74656	F	REGULATION RELEASE	AB		12/22/15

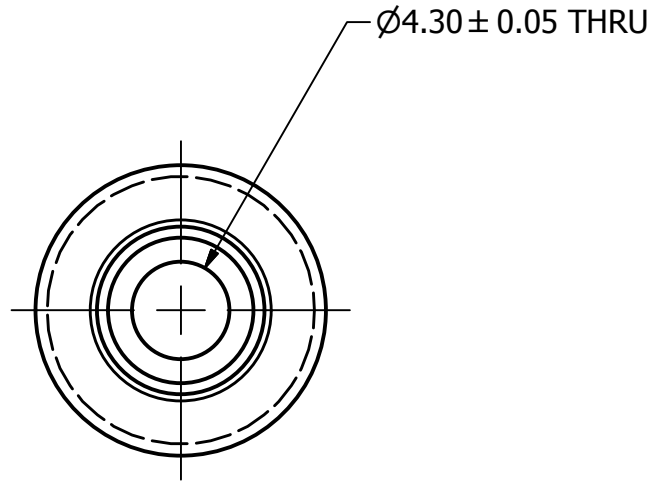
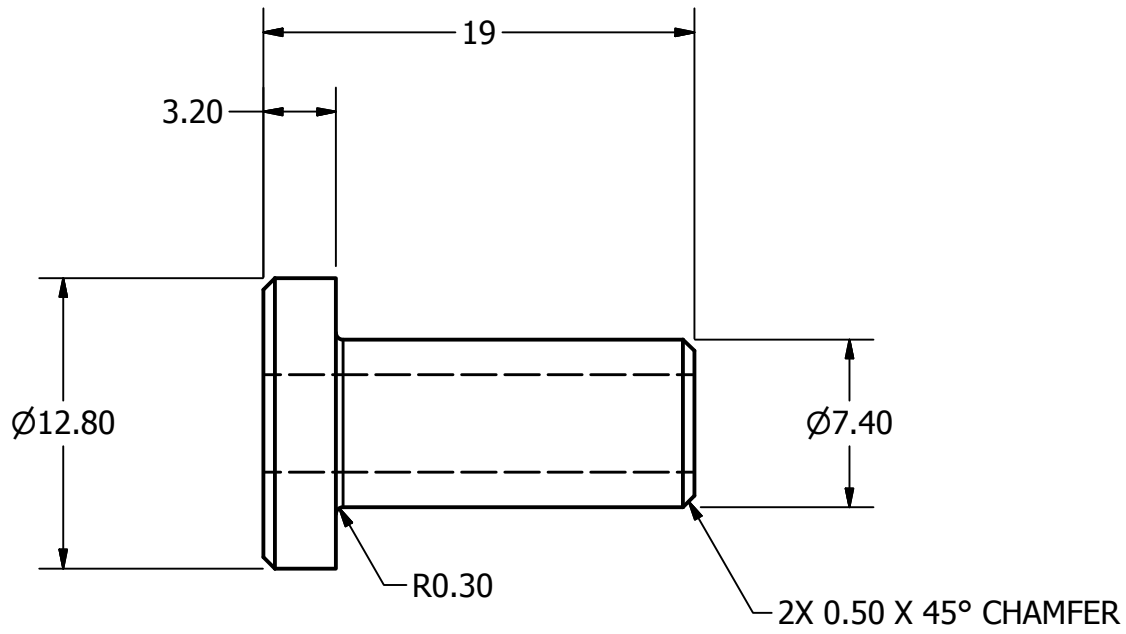
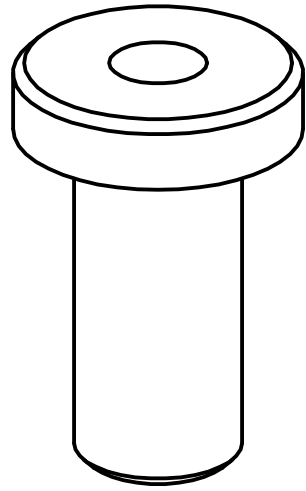


NOTES:

1. REMOVE BURRS AND BREAK SHARP EDGES.
2. SURFACE FINISH TO BE 0.8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 ANGLES XX ±.2 ±.5° X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN sclice CHECKED ENG APPROVED	DATE 2/8/2013	
MATERIAL SS 316S16 HEAT TREAT FINISH	THIRD ANGLE PROJECTION		SIZE A3 SCALE: 2:1
DRAWING NUMBER 020-6101		REV F	SHEET 1 OF 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	B	6.4 - 3.2	ASB		10/26/98
75669	C	ADD NEXT ASM:034-6100, QTY:1, & USED ON:034-0000	LP		8/24/07
71340	D	REDRAWN IN AUTODESK INVENTOR	SC	SC	6/12/13
74656	E	REGULATION RELEASE	AB		12/22/15



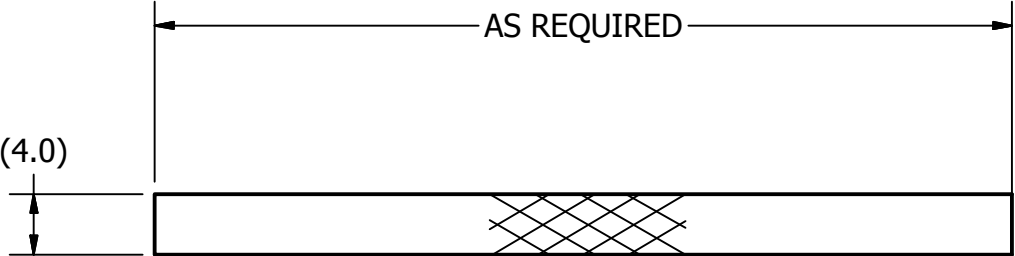
- NOTES:
1. REMOVE BURRS AND BREAK SHARP EDGES.
 2. SURFACE FINISH TO BE 0.8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 ✓ XX ±.2 ✓ X.XX ±.1 ✓ ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS	DATE	
DRAWN	sclice	6/12/2013	THIRD ANGLE PROJECTION
CHECKED			
MATERIAL	SS 316S16		SCALE: 3:1 SHEET 1 OF 1
HEAT TREAT	ENG		
FINISH	APPROVED		

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	PRH		8/19/04
71340	B	REDRAWN IN AUTODESK INVENTOR	SC	SC	2/12/13
74656	C	REGULATION RELEASE	JH		12/21/2015



SCALE 1:1

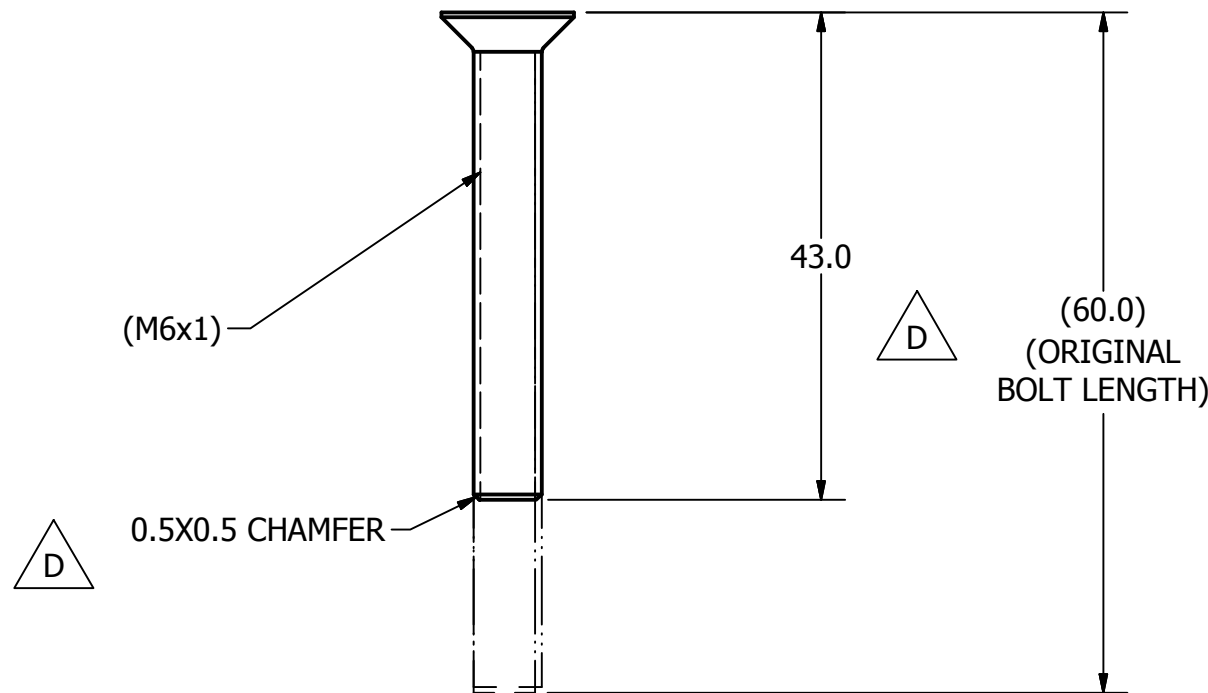
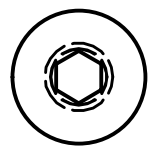
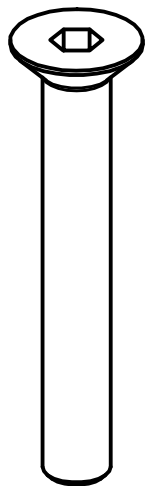


NOTES:

1. REMOVE BURRS AND BREAK SHARP EDGES.
2. MATERIAL: \varnothing 4mm, 7x19 WIRE ROPE, 316 SS.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN scalise	DATE 2/12/2013	
MATERIAL SEE NOTES	CHECKED	SIZE A3	DRAWING NUMBER 020-6103
HEAT TREAT	ENG	THIRD ANGLE PROJECTION	REV C
FINISH	APPROVED	SCALE: 2:1	SHEET 1 OF 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	DC		4/03/98
75669	B	ADD NEXT ASM:033-6000, QTY:2, & USED ON:034-0000; UPDATE DESC	LP		8/24/07
	C	REDRAWN IN AUTODESK INVENTOR; SHADED ISO VIEW	SC		2/21/13
71168	D	DELETED: "PARTIALLY THREADED", 36.0. ADDED "-FT" TO 5000409, 0.5X0.5 CHAMFER.	SJG		7/10/2013
74658	E	REGULATION RELEASE	GCH		12/22/2015



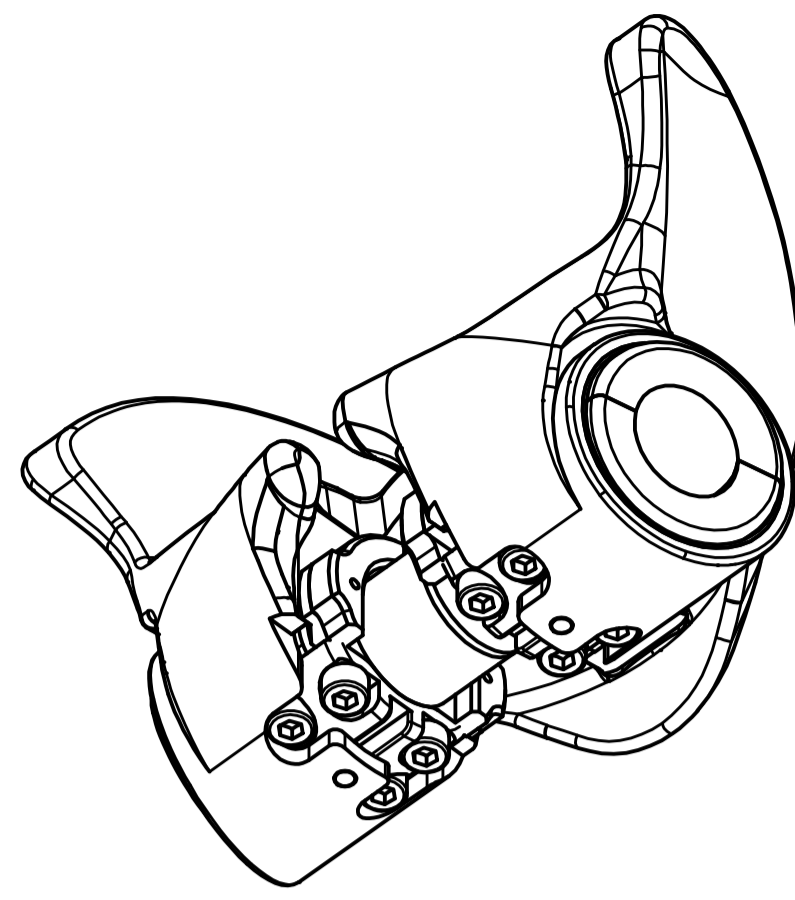
NOTES:

1. REMOVE BURRS AND BREAK SHARP EDGES.
2. MATERIAL: USE STANDARD SOCKET FLAT HEAD CAP SCREW, M6 X 1 X 60, 5000409-FT.

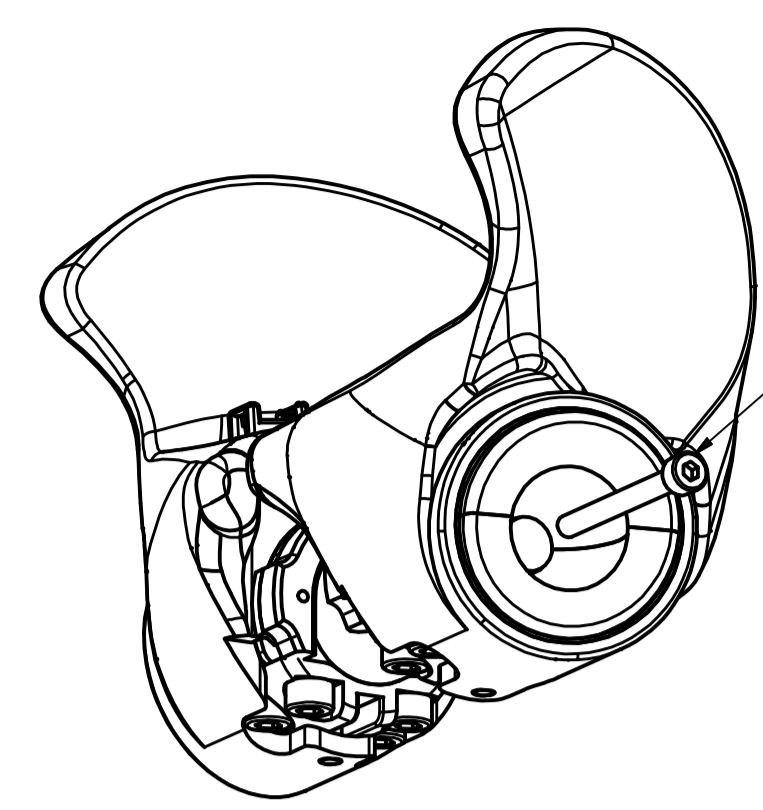


UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 ✓ XX ±.2 ✓ X.XX ±.1 ✓ ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN: scliffe CHECKED: ENG: APPROVED:	DATE 2/21/2013		SCREW, LUMBAR SPINE MOUNTING	
MATERIAL: SEE NOTES HEAT TREAT: FINISH:		SIZE: A3 SCALE: 1.5 : 1	DRAWING NUMBER: 020-9902 SHEET: 1 OF 1	REV: E	

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENGR.	DATE
	A	RELEASE TO PRODUCTION	BK		4/11/06
75688	B	REMOVE 020-7150, 5000641, 020-7128, 020-7125, 020-7124, 5000023, 020-7123, 020-7122, 020-7121; ADD 020-7135, 034-4110; 020-7503 WAS 020-750; 5000291 QTY 8 WAS 5000002 QTY 4; ADD VIEW Z, NOTE 1	BK		6/27/07
77433	C	020-7113, 020-7116 WAS 020-7100, 020-7110; REFERENCE NOTE 5000666 WAS 5000417; 40 WAS 30	BK		12/21/10
72313	D	REDRAWN IN INVENTOR	AB		02/11/14
73184	E	6002036 & 5000244 QUANTITY 1 WAS 2, REMOVED FROM BOTTOM OF PELVIS	MGT		11/11/2014
74656	F	REGULATION RELEASE	AB		12/23/15

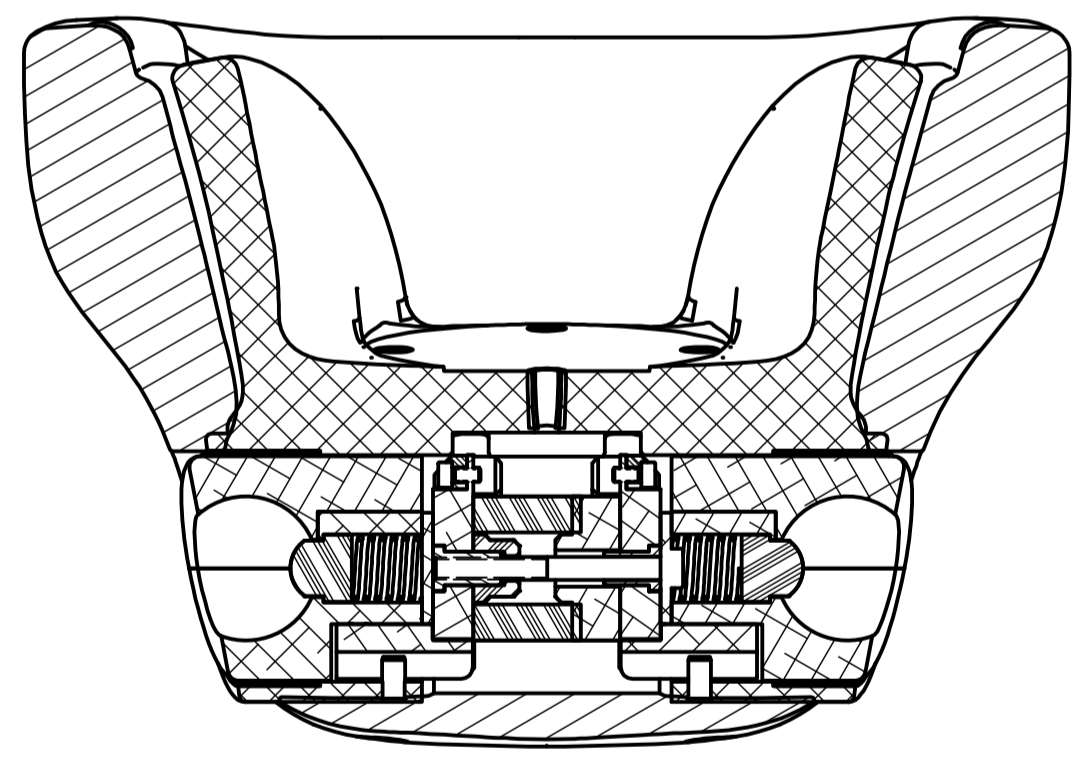
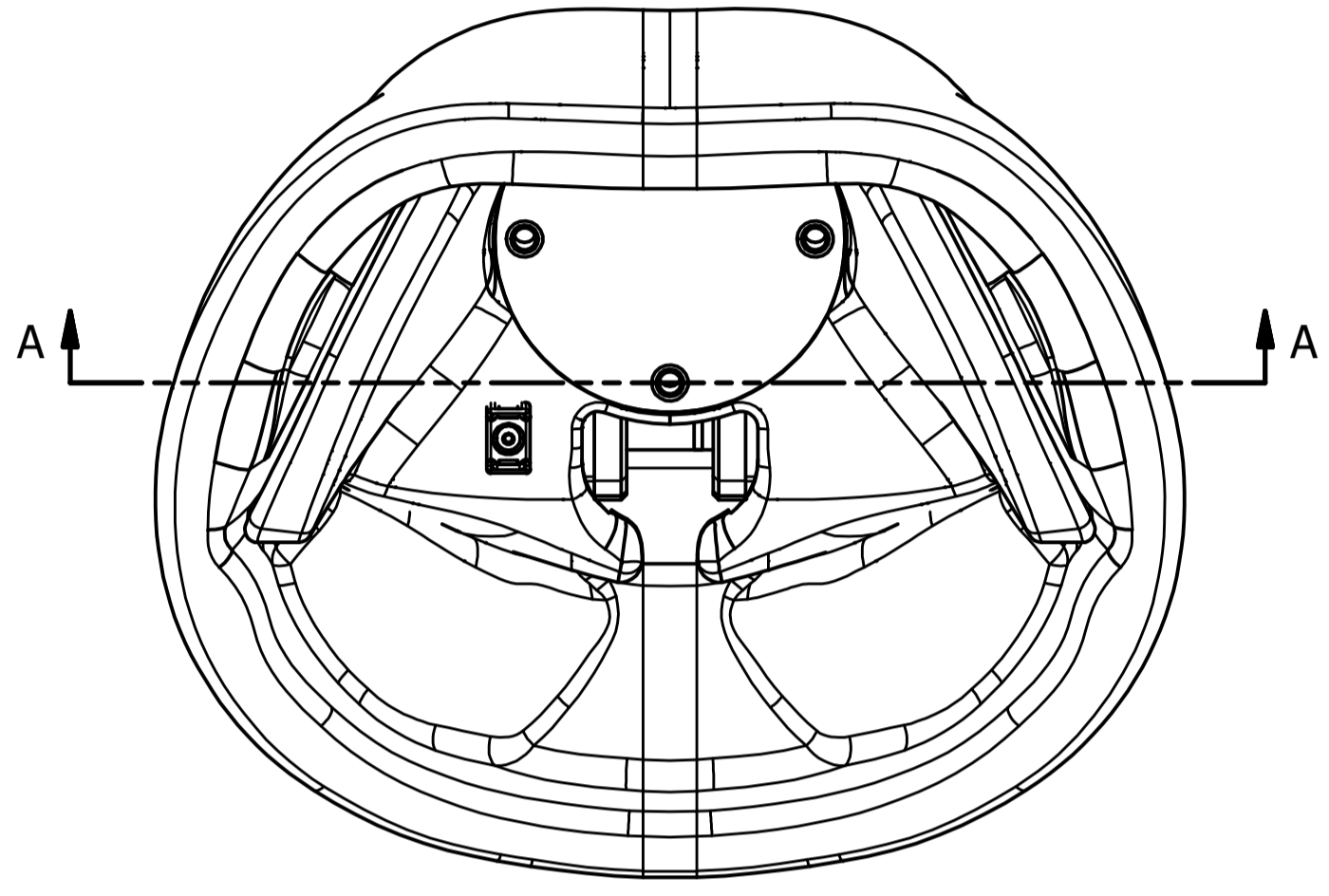
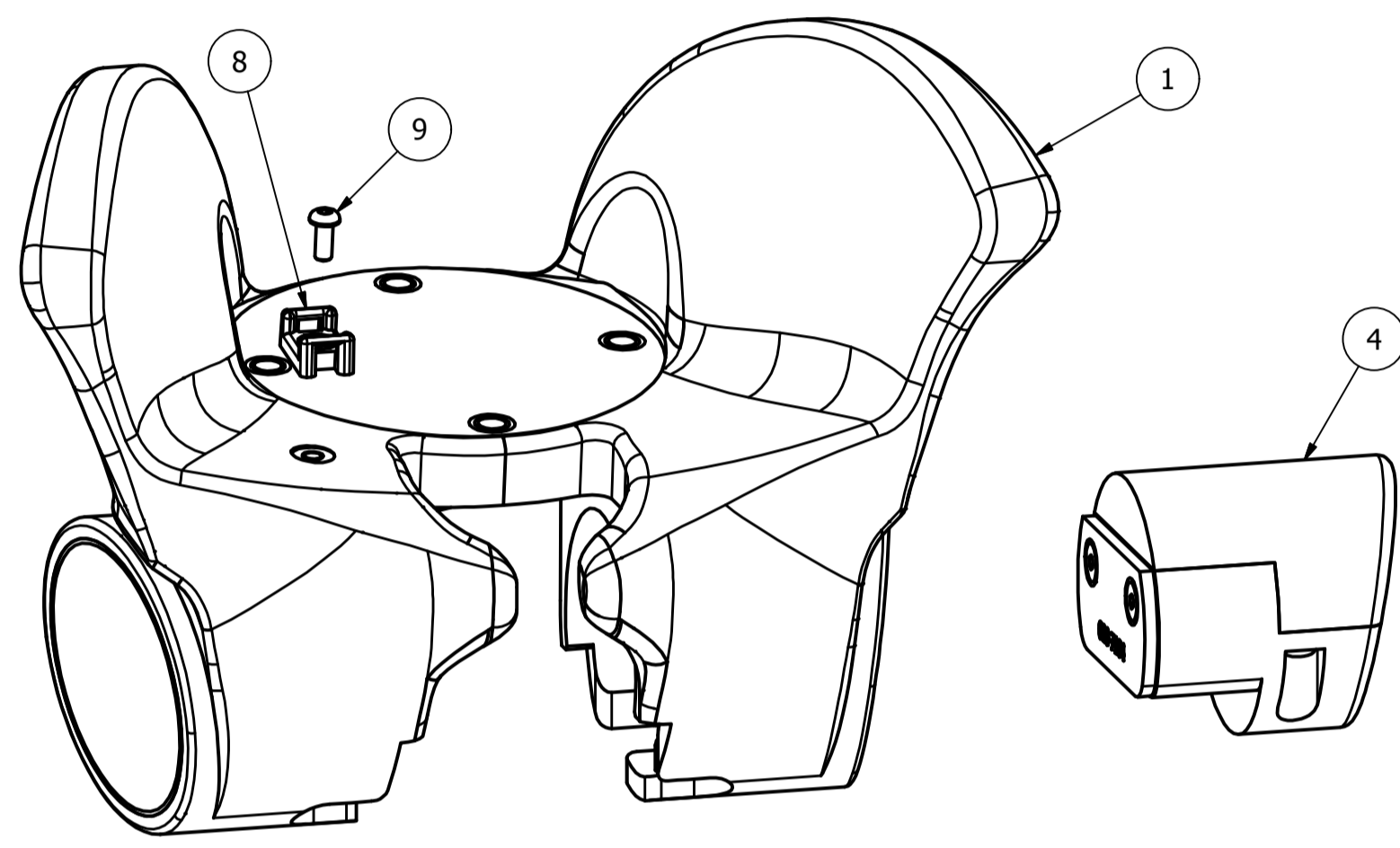


FLESH NOT SHOWN FOR CLARITY IN THIS VIEW

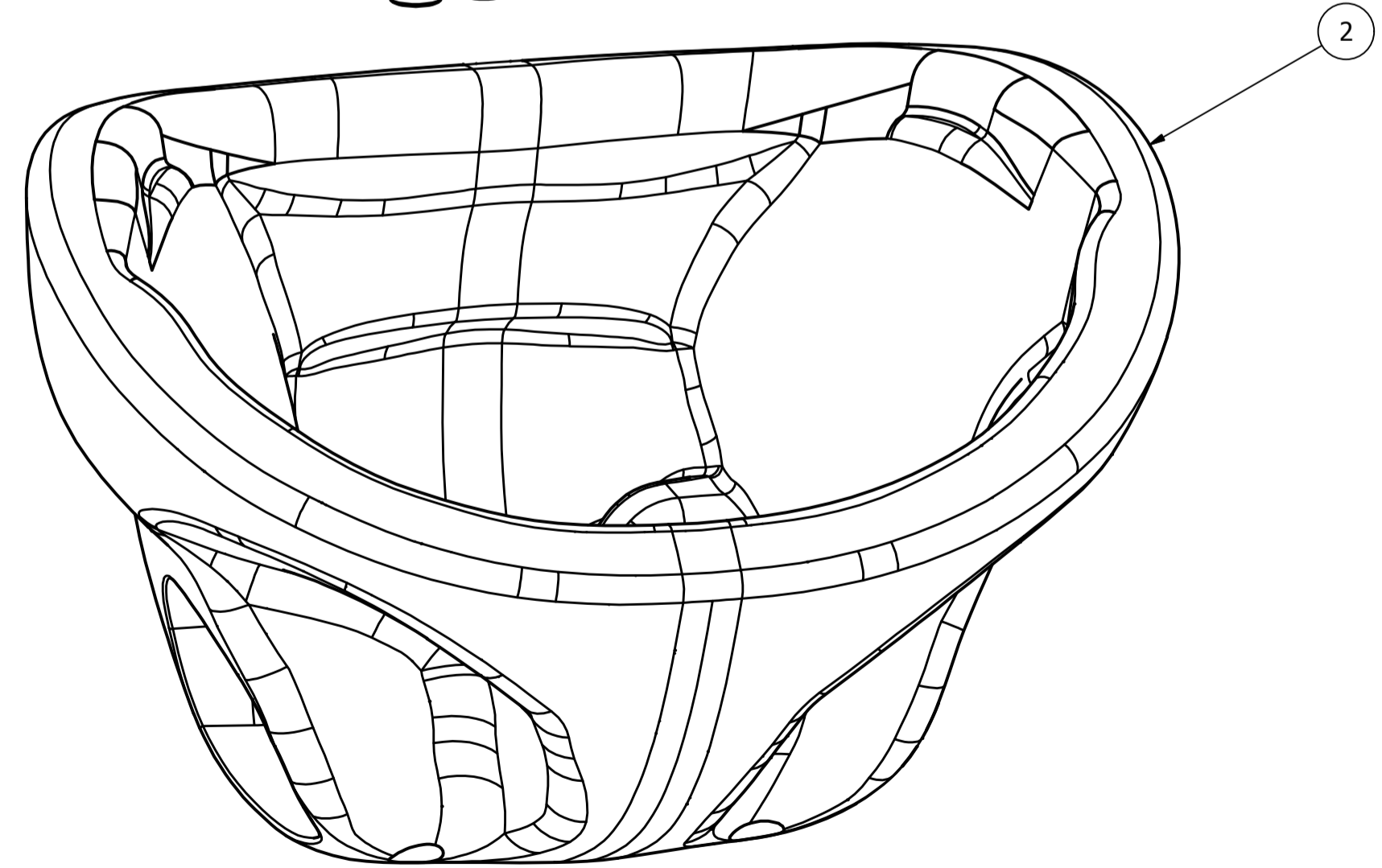
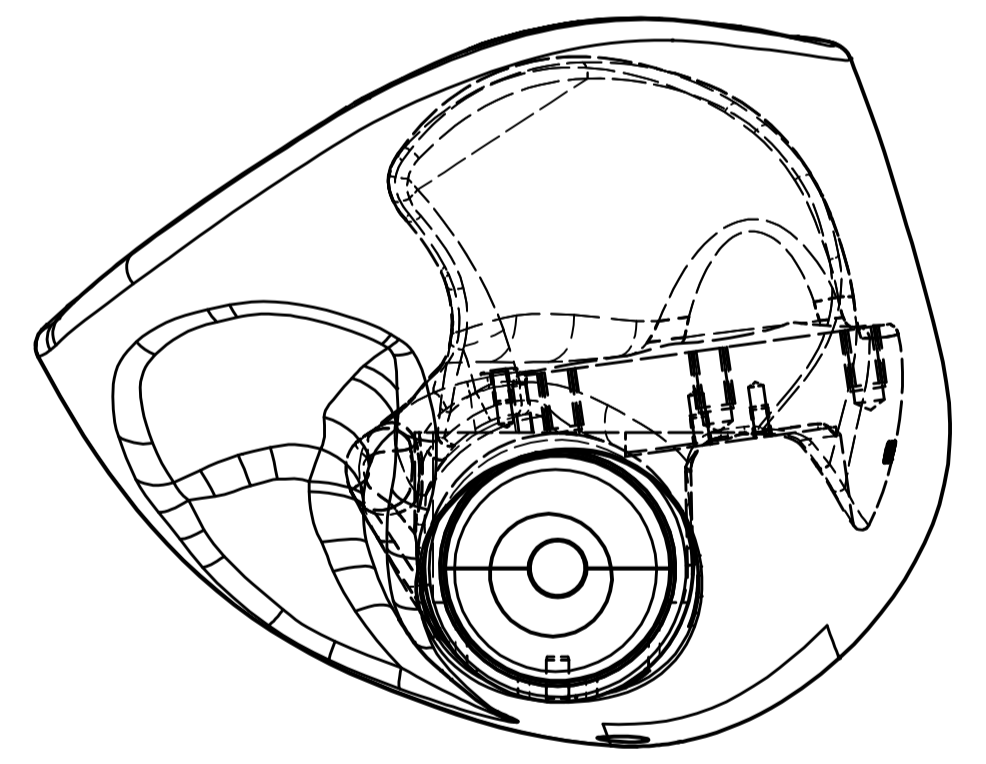


(5000666, M4 X 0.7 X 40 SHCS)
SEE NOTE 1

VIEW Z
COMPONENTS
REMOVED



SECTION A-A



SCALE 1 : 1

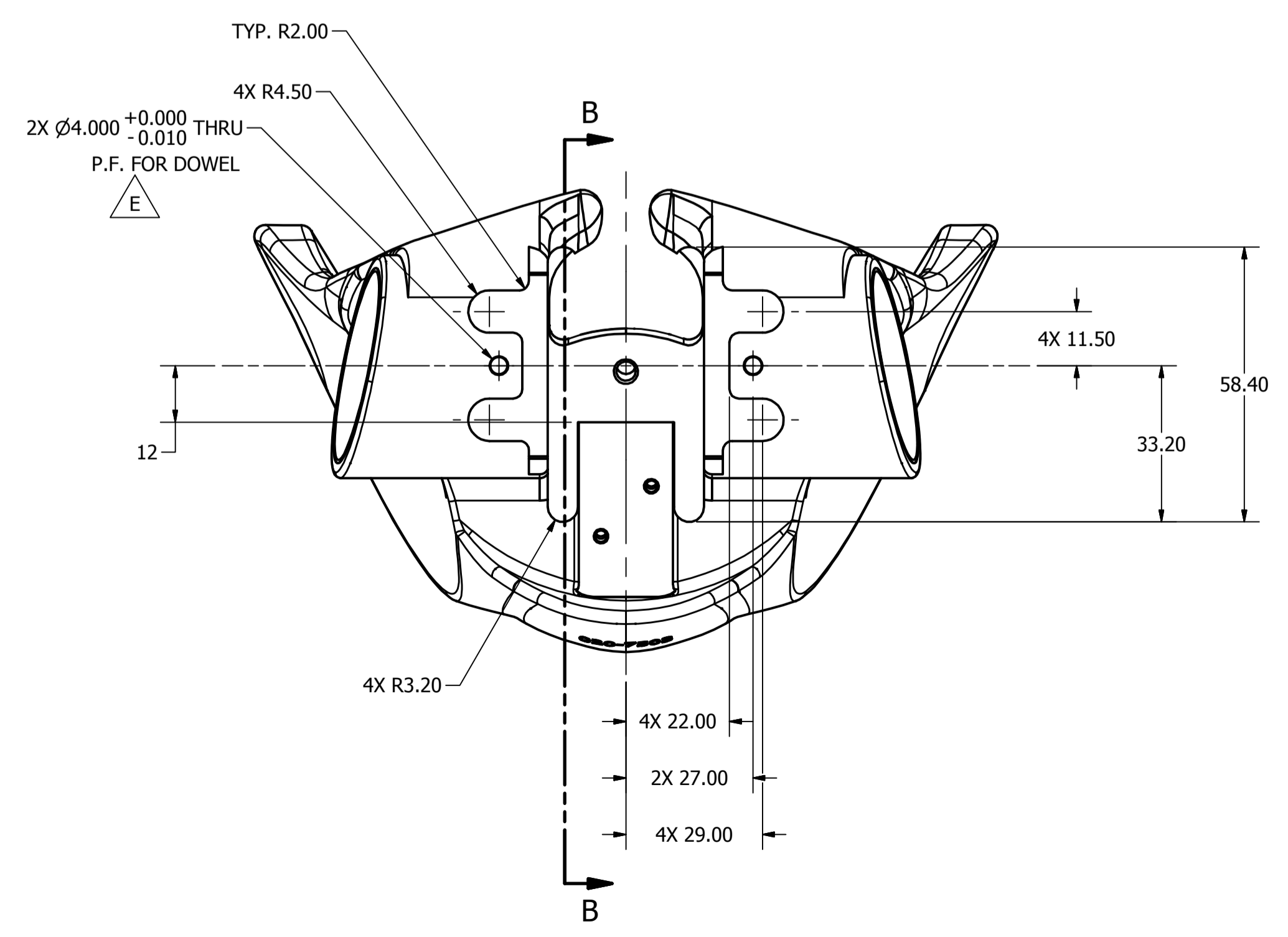
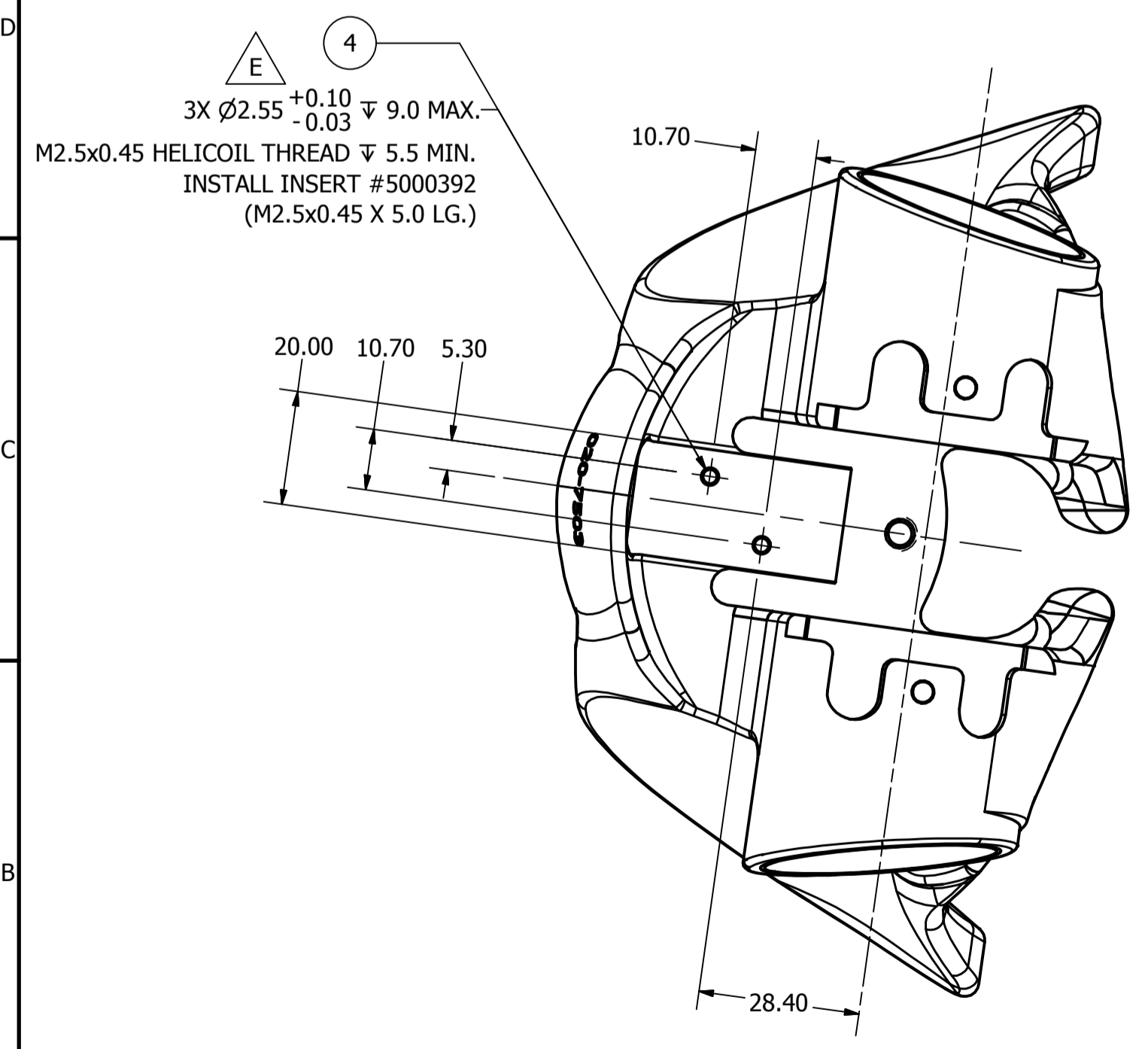
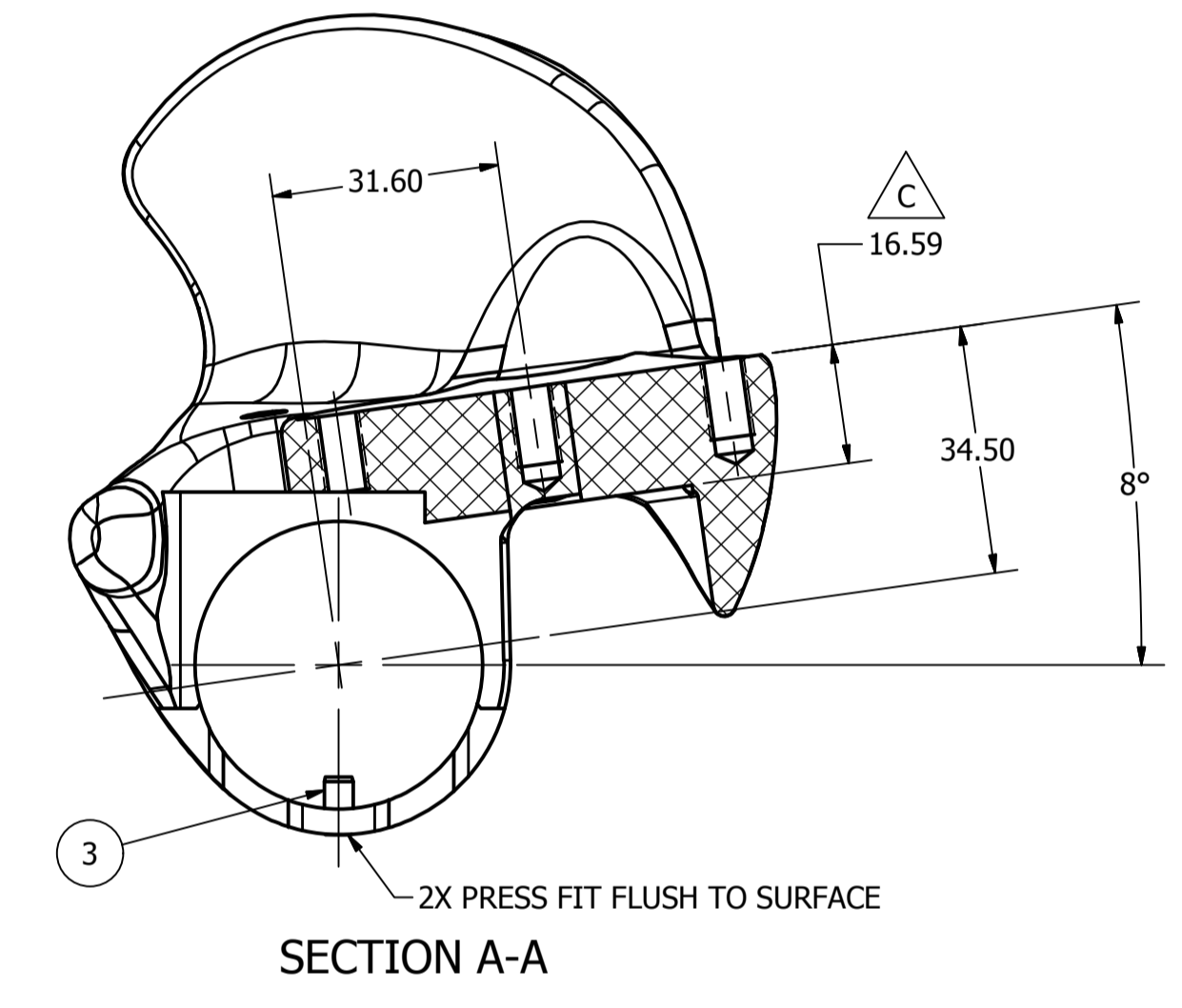
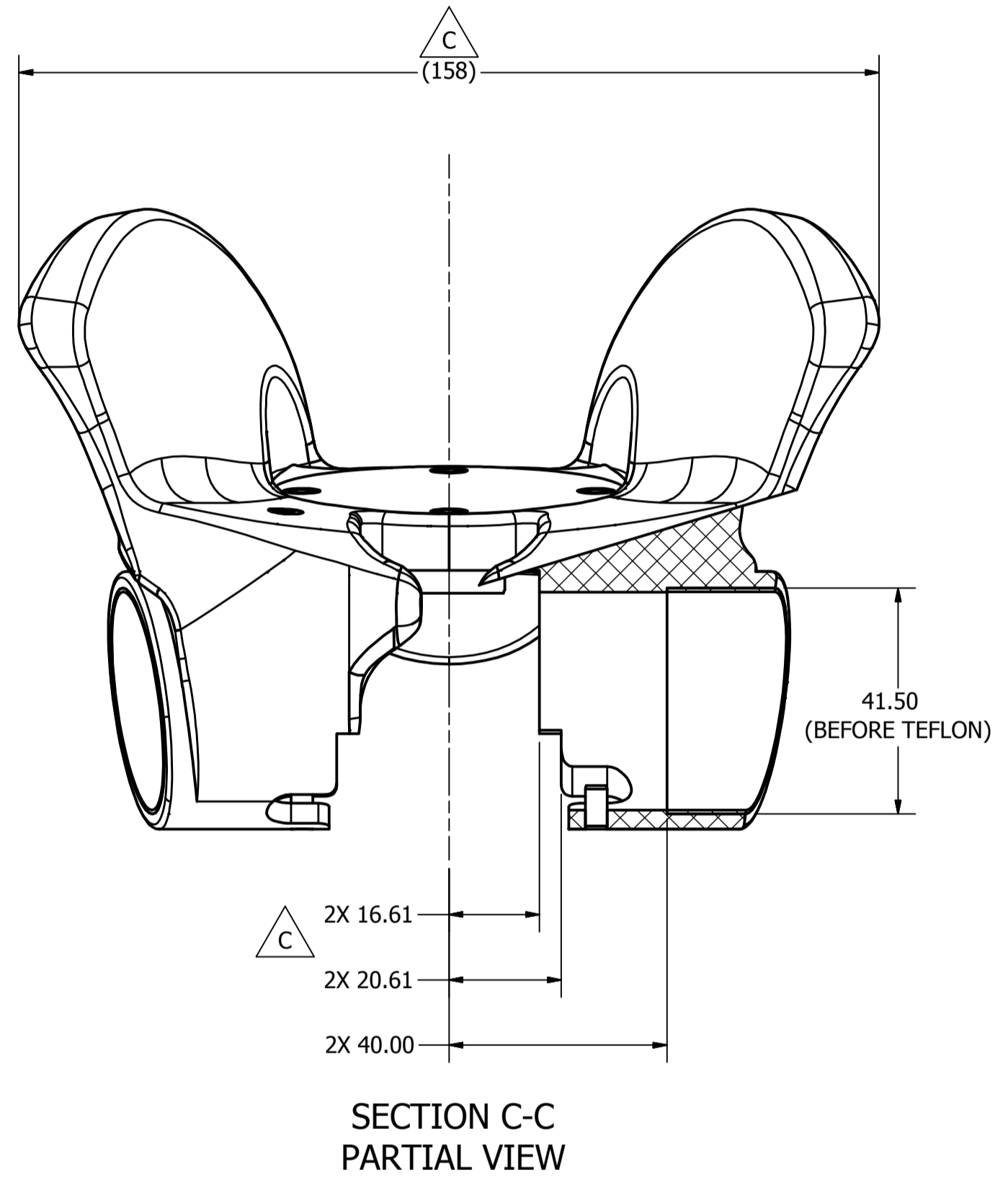
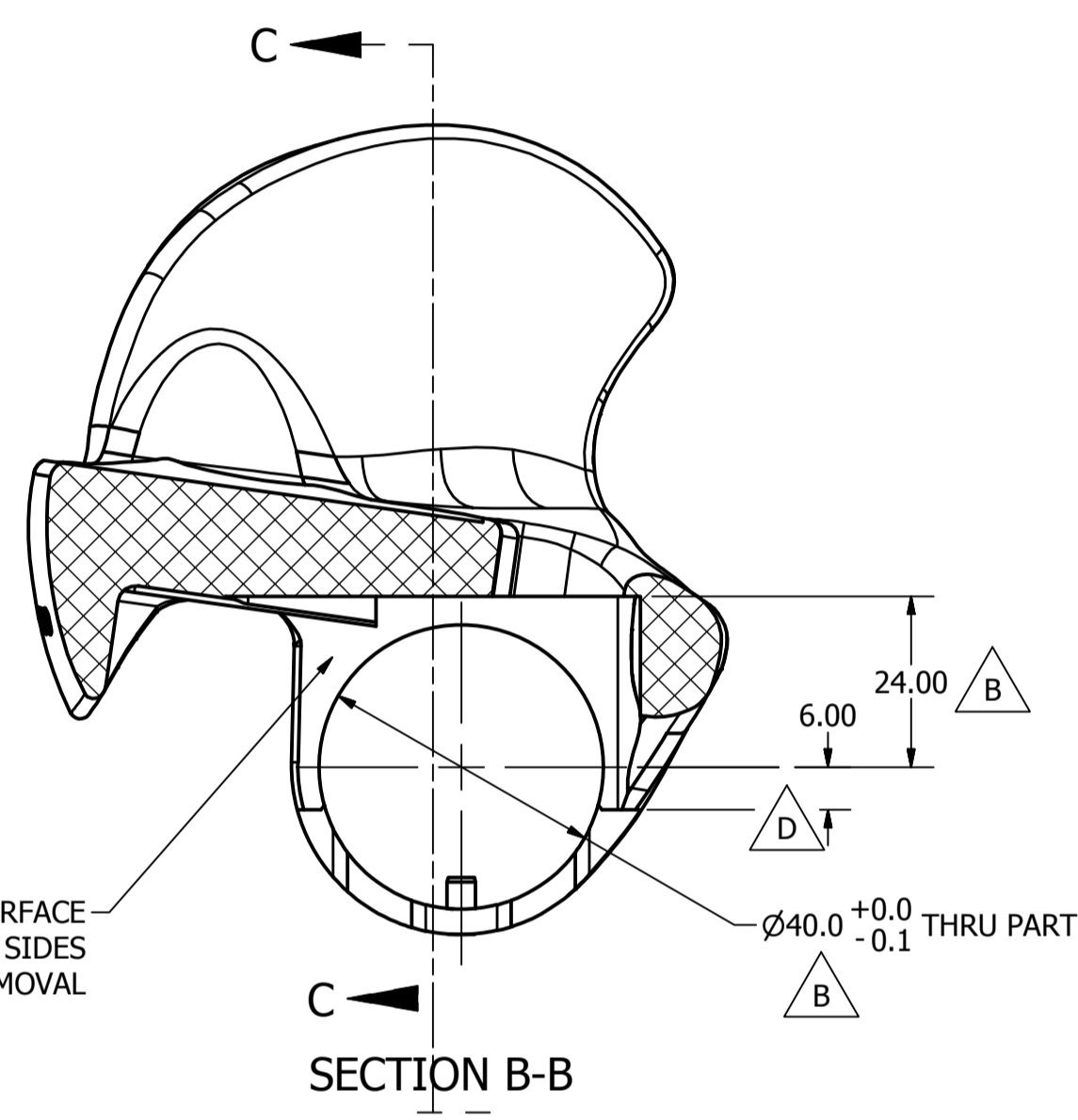
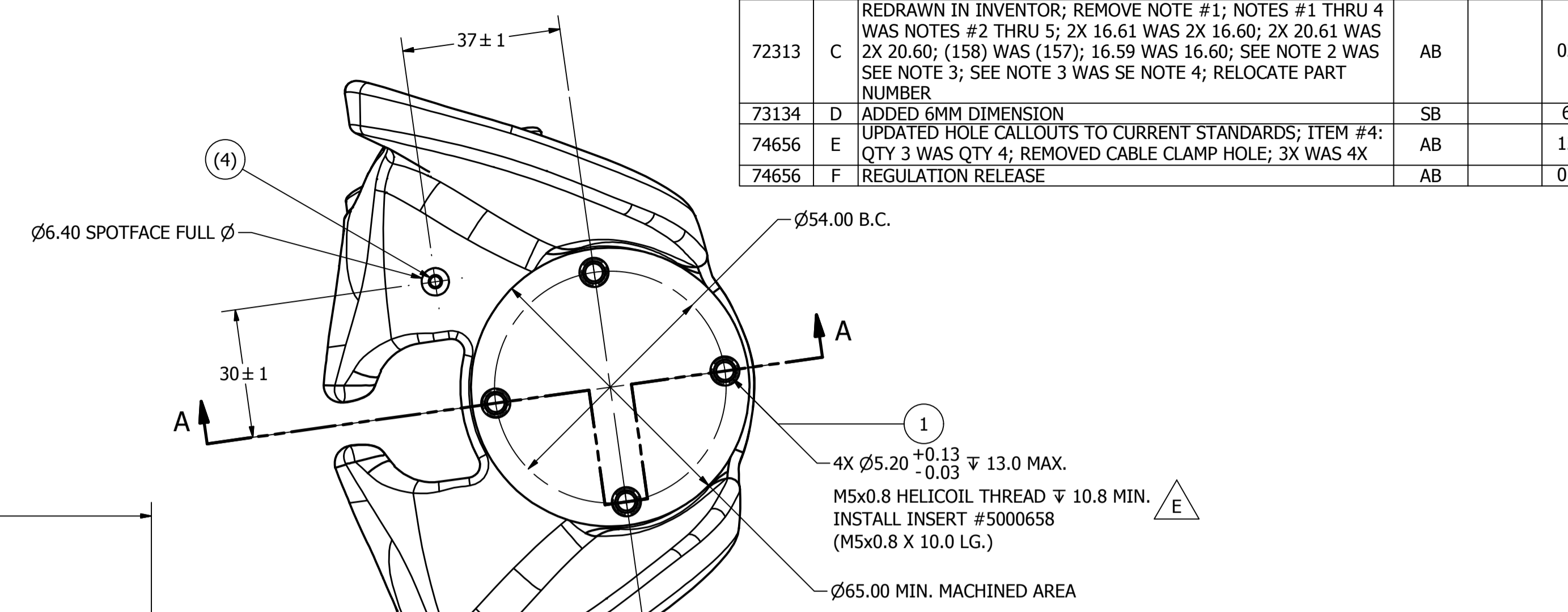
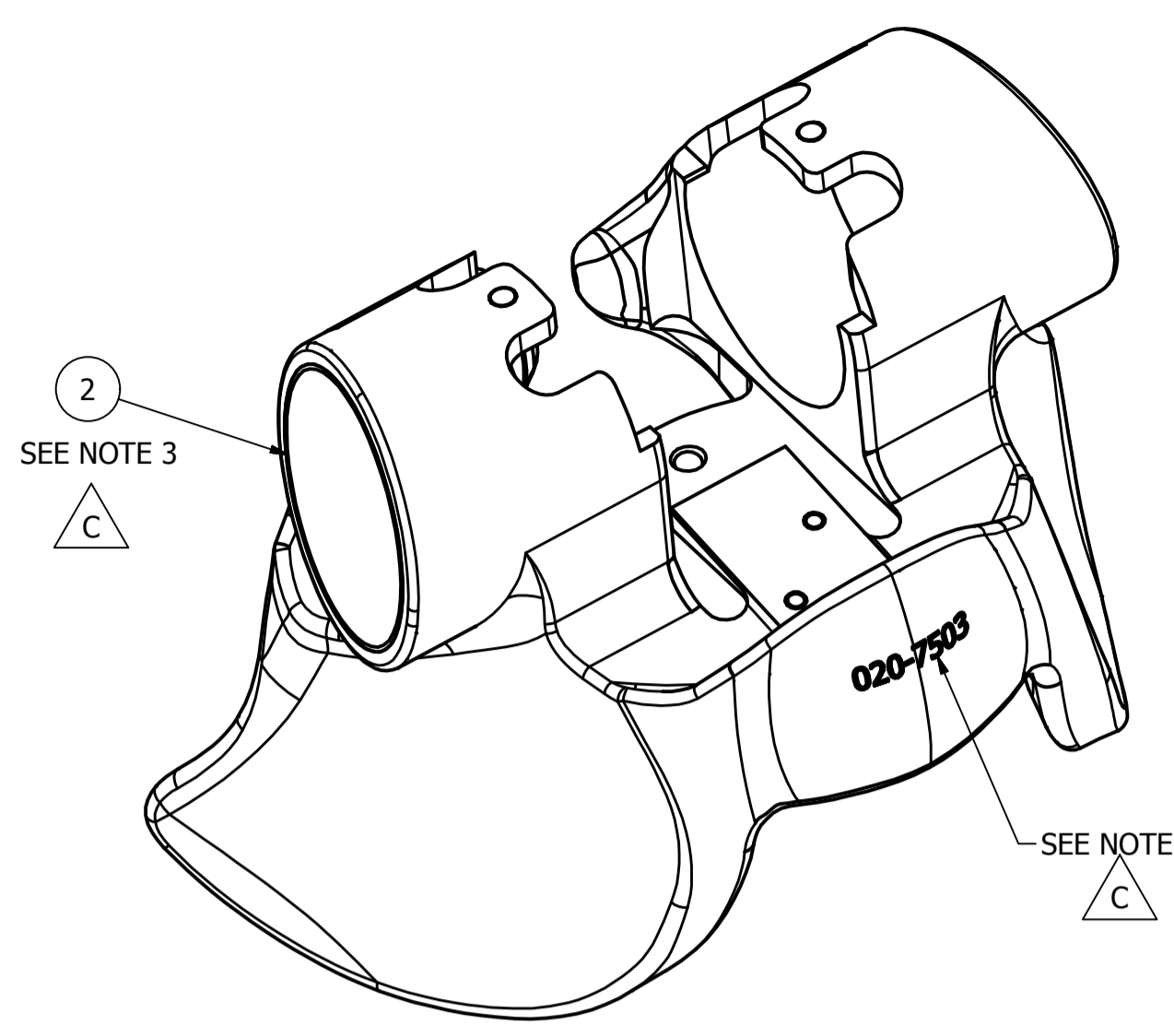
NOTES:
B 1. INSTALL 034-4110 AS SHOWN, THEN REMOVE M4 X 40 SHCS. SEE VIEW Z

C

ITEM	QTY	PART NUMBER	DESCRIPTION
9	1	5000244	M2.5 X 0.45 X 6 LG. BHCS
8	1	6002036	CABLE TIE MOUNT, #4 SCREW
7	8	5000291	M5 X 0.8 X 10 LG. SHCS
6	2	020-7135	HIP JOINT SLIDE, COVER
5	1	020-7116	HIP JOINT ASSEMBLY, RIGHT
4	1	020-7113	HIP JOINT ASSEMBLY, LEFT
3	1	034-4110	PUBIC LOAD CELL ASSEMBLY
2	1	020-7502	PELVIS SKIN
1	1	020-7503	PELVIS, MACHINED, Q3s

VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS	DATE	PELVIS ASSEMBLY, Q3s	
B. KIMES	2/11/2014		
SIZE	DRAWING NUMBER	SCALE	SHEET
A1	020-7500	3/4	1 OF 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENGR.	DATE
75688	A	RELEASE TO PRODUCTION	BK		6/27/07
75725	B	Ø40+0.0/-0.1 WAS Ø40; 24.00 WAS 24; ADD BEAD BLAST TO NOTE 2; ADD NOTE 5	BK		7/24/07
72313	C	REDRAWN IN INVENTOR; REMOVE NOTE #1; NOTES #1 THRU 4 WAS NOTES #2 THRU 5; 2X 16.61 WAS 2X 16.60; 2X 20.61 WAS 2X 20.60; (158) WAS (157); 16.59 WAS 16.60; SEE NOTE 2 WAS SEE NOTE 3; SEE NOTE 3 WAS SE NOTE 4; RELOCATE PART NUMBER	AB		02/10/14
73134	D	ADDED 6MM DIMENSION	SB		6/11/15
74656	E	UPDATED HOLE CALLOUTS TO CURRENT STANDARDS; ITEM #4; QTY 3 WAS QTY 4; REMOVED CABLE CLAMP HOLE; 3X WAS 4X	AB		12/23/15
74656	F	REGULATION RELEASE	AB		01/06/16



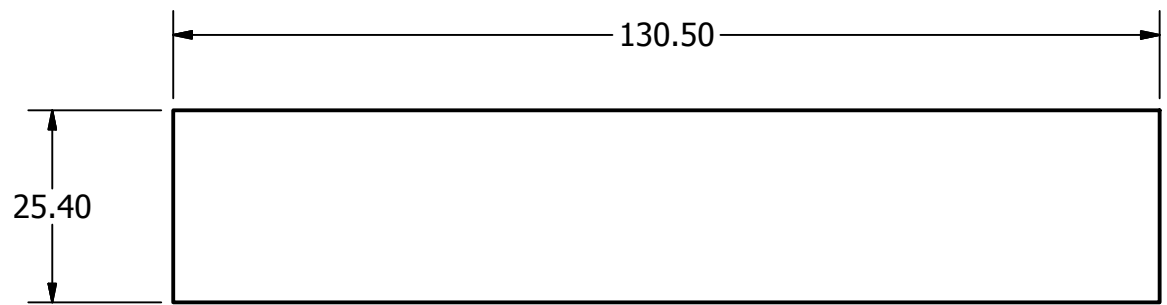
- NOTES:**
1. TOOLING SPLIT LINES MUST BE REMOVED AND BEAD BLAST BEFORE MACHINING.
 2. STAMP OR ETCH PART NUMBER WHERE SHOWN.
 3. 2X APPLY 020-7130 TO PELVIS AFTER MACHINING AND CLEAN UP; TRIM TO OUTSIDE SURFACE AS SHOWN.
 4. ON SET UP, ENSURE HIP BORES ARE ALIGNED AND MACHINED CONCENTRIC WITH OUTER CAST DIAMETER.

ITEM	QTY	PART NUMBER	DESCRIPTION
4	3	5000392	WIRE INSERT, M2.5x.45 x 5
3	2	5000524	M4 X 8 LG. DOWEL PIN
2	2	020-7130	TEFLON STRIP, PELVIS
1	4	5000658	WIRE INSERT, M5 X 0.8 X 10

PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER	
DECIMAL: X.X ±0.25	MACHINED: X.XX ±0.1	APPROVALS	DATE
DO NOT SCALE DRAWINGS		MEC	27-Jun-07
MATERIAL: ZINC ALLOY ZA12	HEAT TREAT	CHECKED	
FINISH	APPROVED		


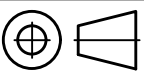
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
PELVIS, MACHINED, Q3s	
SIZE: A1	DRAWING NUMBER: 020-7503
SCALE: 1:1	SHEET: 1 OF 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		4-04-06
75669	B	ADD NEXT ASM:034-4101, QTY:2, & USED ON:034-0000; DESC WAS "TEFLON STRIP"	LP		8-07-07
72313	C	REDRAWN IN INVENTOR	AB		02/10/14
74656	D	REGULATION RELEASE	JH		12/22/2015

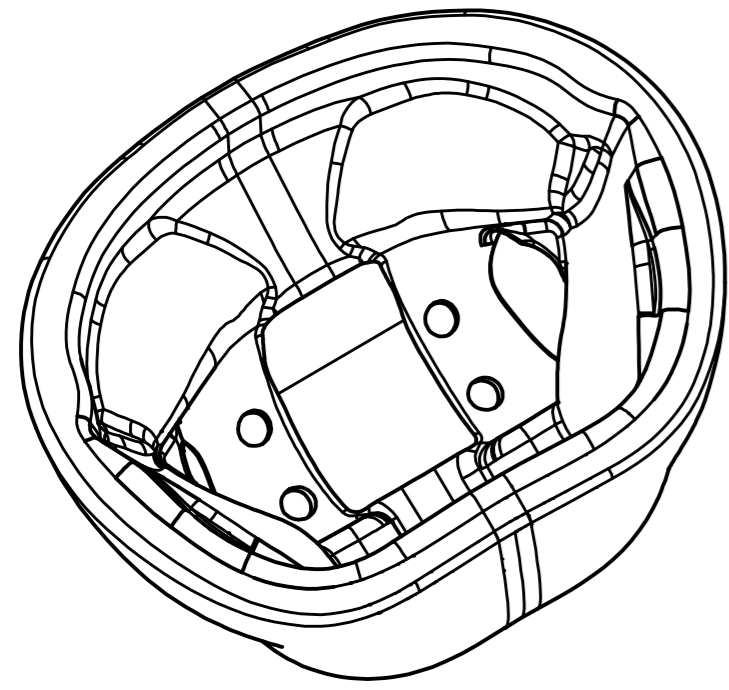


NOTES:

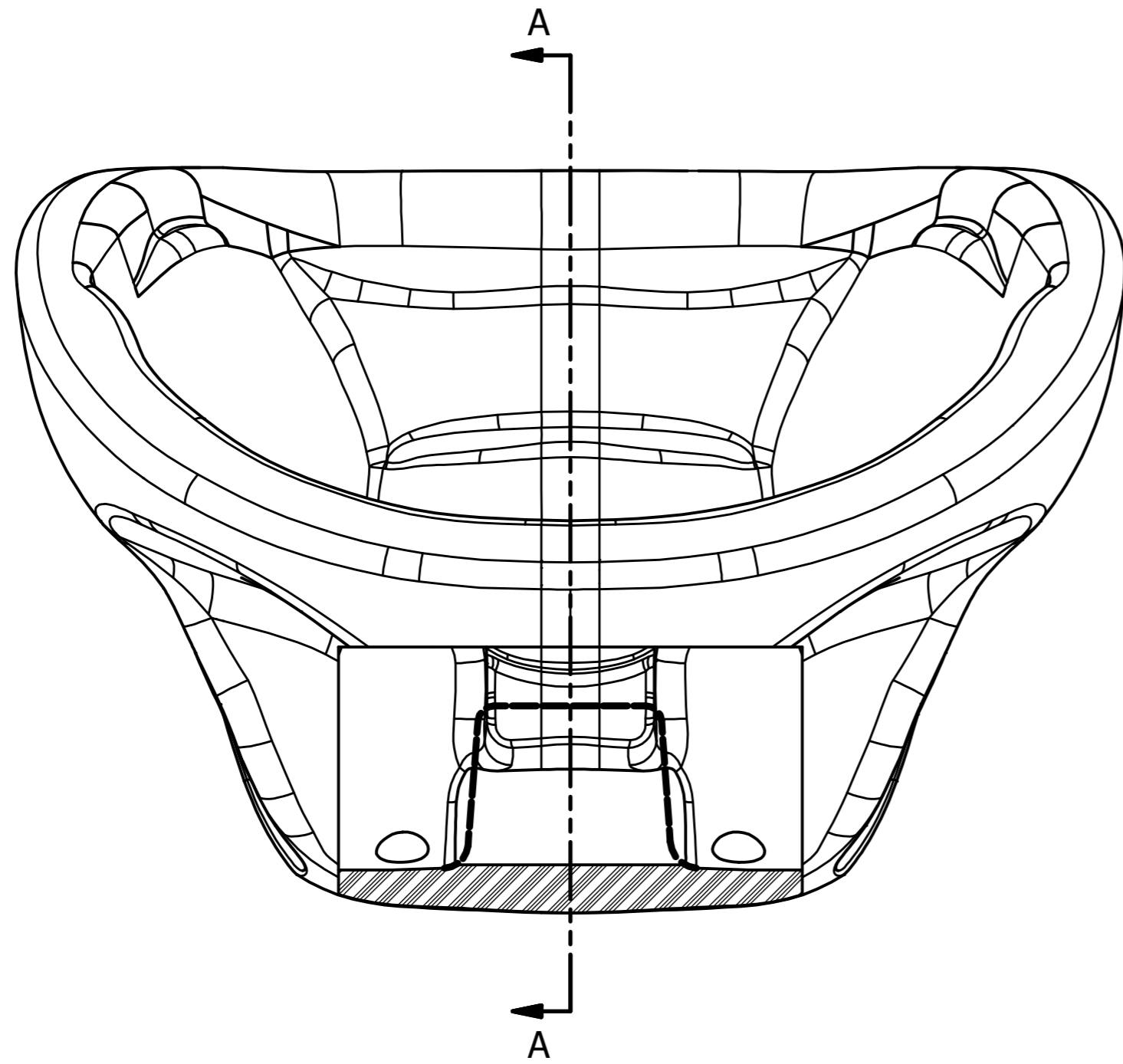
- ONE SIDE OF SHEET TO BE ACID ETCHED AND ADHESIVE BACKED.
- MATERIAL: $.7 \pm 0.25$ ($.031 \pm .01$ INCH) THICK MECHANICAL GRADE TEFLON TAPE.
- TRIM PART AT ASSEMBLY TO MACHINED PELVIS.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLER ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN B. KIMES	DATE 3/1/2006	
MATERIAL SEE NOTES	CHECKED	SIZE A3	DRAWING NUMBER 020-7130
HEAT TREAT	ENG	 THIRD ANGLE PROJECTION	REV D
FINISH	APPROVED	SCALE: 1:1	SHEET 1 OF 1

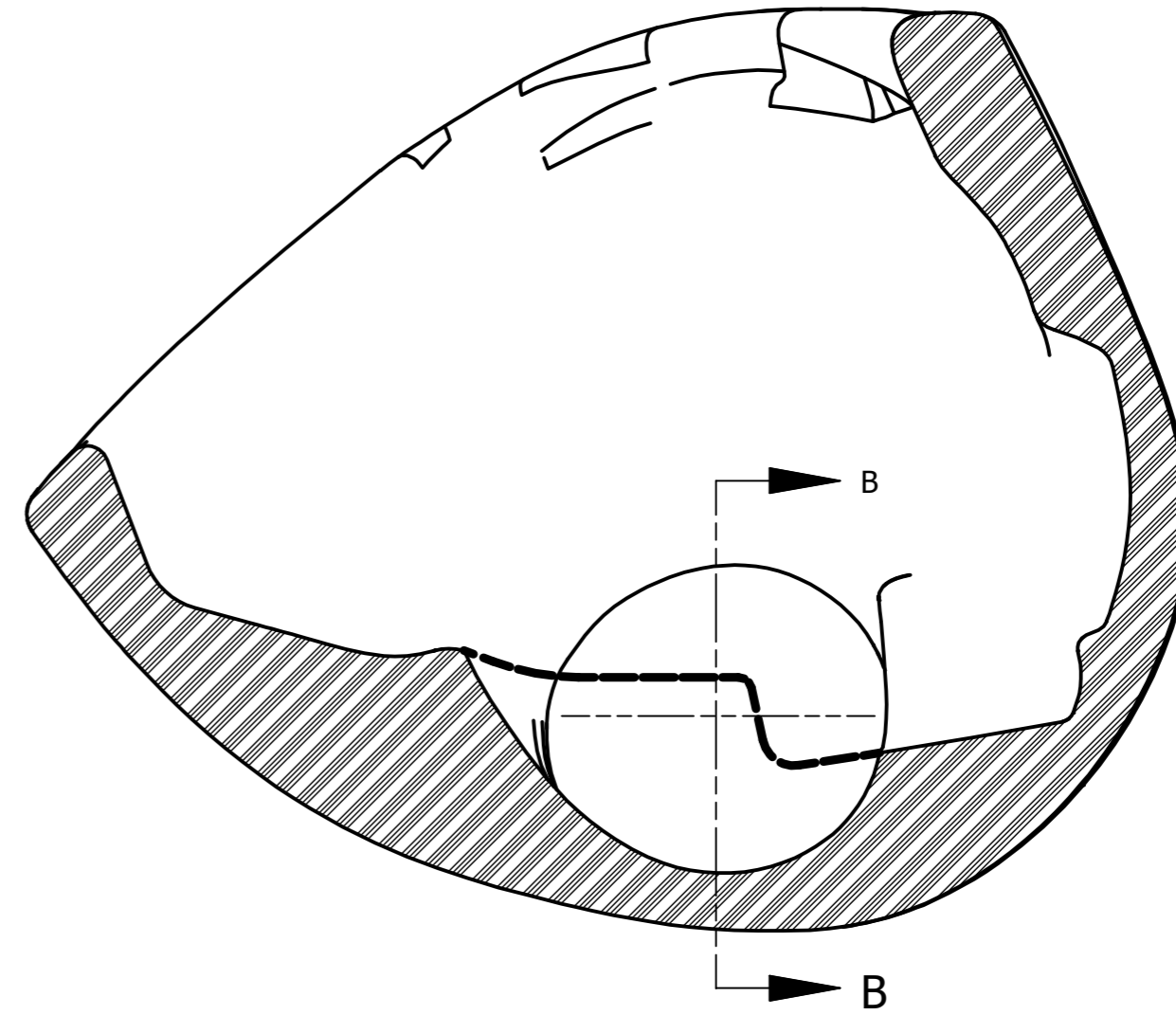
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		4/04/06
72313	B	REDRAWN IN INVENTOR; MATERIAL: SEE NOTES WAS POLYURETHANE; REMOVE NOTE#1 & "REMOVE CENTER SECTION AS SHOWN" CALL OUT; UPDATE NOTES	AB		02/07/14
74656	C	REGULATION RELEASE	JH		12/22/2015



SCALE .5:1



SECTION B-B
PARTIAL VIEW



SECTION A-A

- NOTES:**
1. MATERIAL: URETHANE
COLOR: EURO BROWN
DUROMETER: 35 ±5 SHORE "A"
WEIGHT: 770 ±30
 2. REMOVE ALL MOLD FLASHING
 3. ALL MOULD DIMENSION TOLERANCE +1%/-2%
BUT NO SMALLER THAN 0.5mm
 4. NO SPLIT OR DEFECTS ARE ALLOWED
IN THE URETHANE MOLDING



UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:

DECIMAL: X ±.5 XX ±.2 XXX ±.1	MACHINED ANGLES ±.5°
--	----------------------------

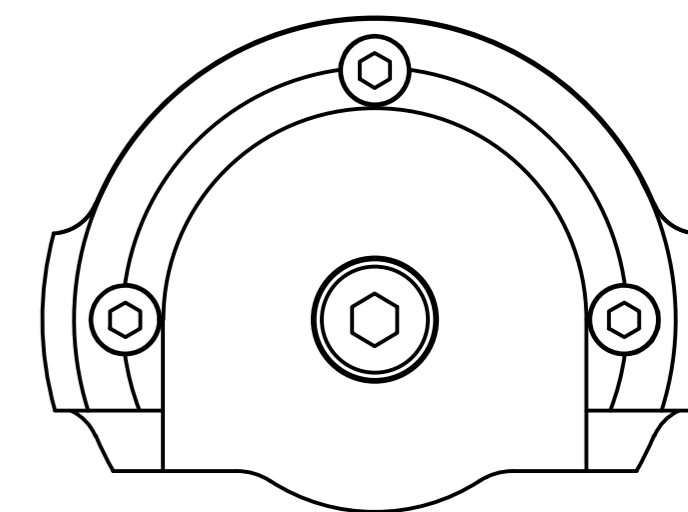
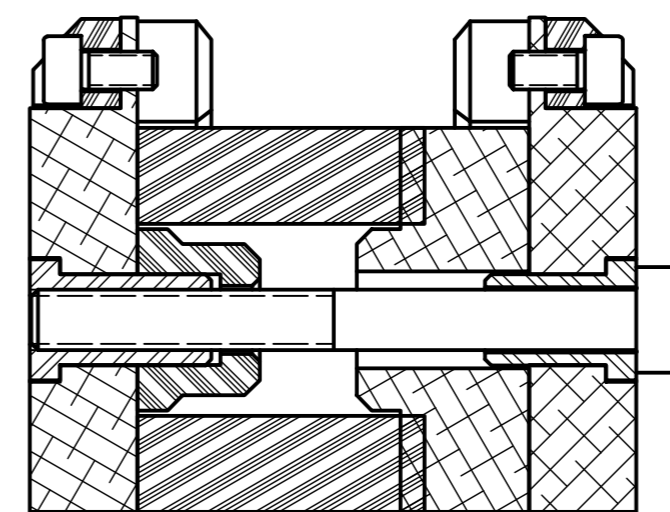
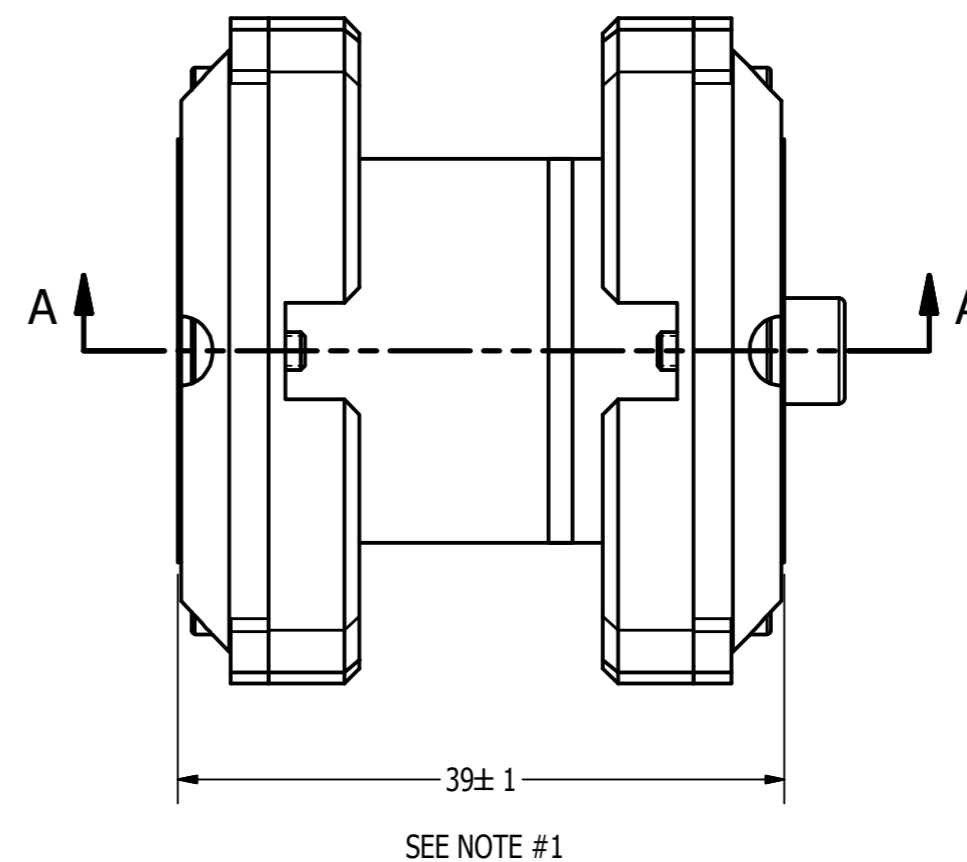
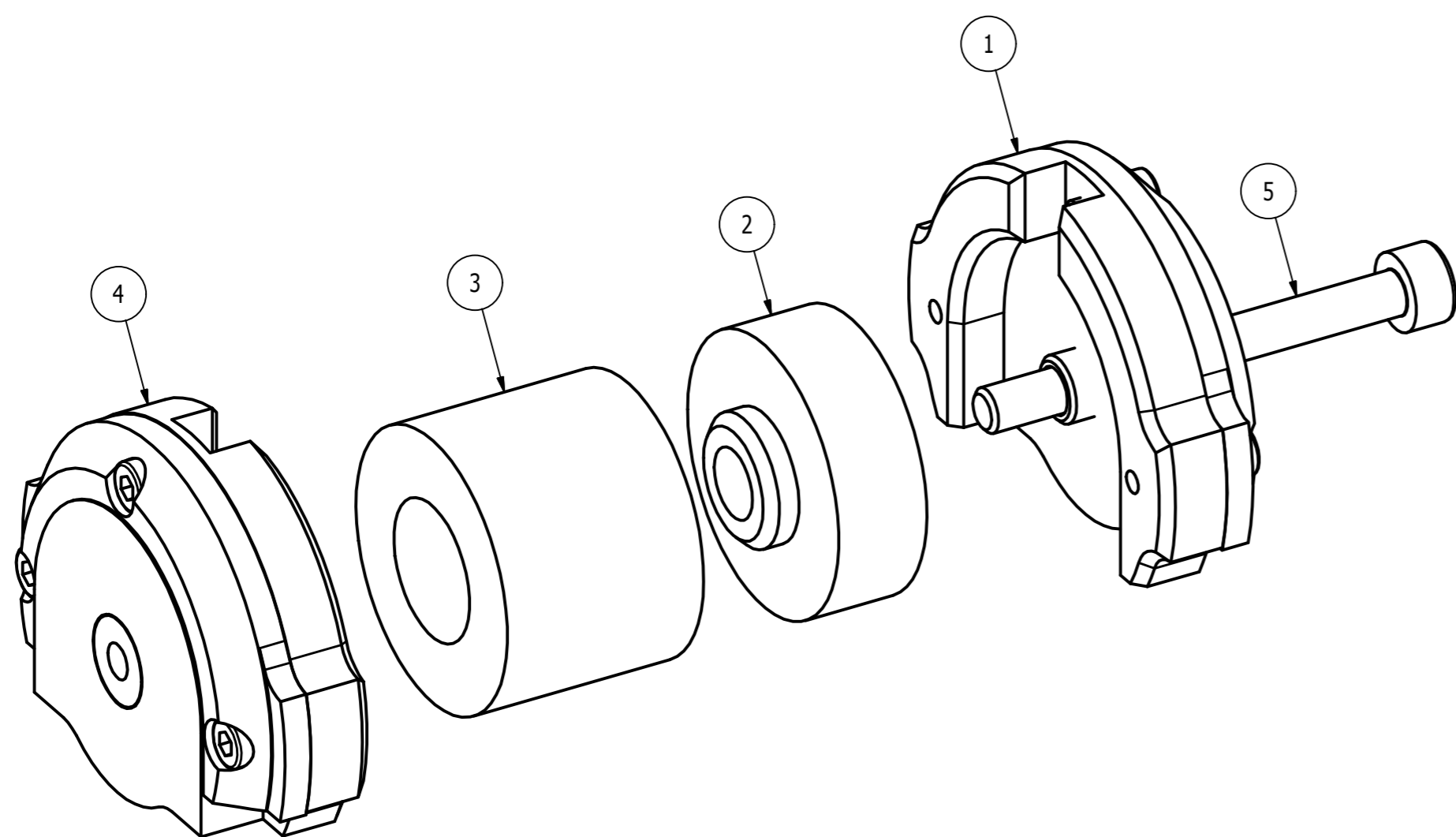
ASME Y14.5M - 1994
DO NOT SCALE DRAWING

MATERIAL SEE NOTES	CHECKED
HEAT TREAT	ENG
FINISH	APPROVED

VEHICLE RESEARCH and TEST CENTER	
APPROVALS	DATE
DRAWN B. KIMES	2/7/2006
CHECKED	
ENG	
APPROVED	

 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
<p align="center">PELVIS SKIN</p>	
 THIRD ANGLE PROJECTION	SIZE: A2 SCALE: 1:1 DRAWING NUMBER: 020-7502 SHEET: 1 OF 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		7/05/07
72313	B	REDRAWN IN INVENTOR	AB		02/07/14
74658	C	REGULATION RELEASE	GCH		12/23/2015





SECTION A-A

NOTES:

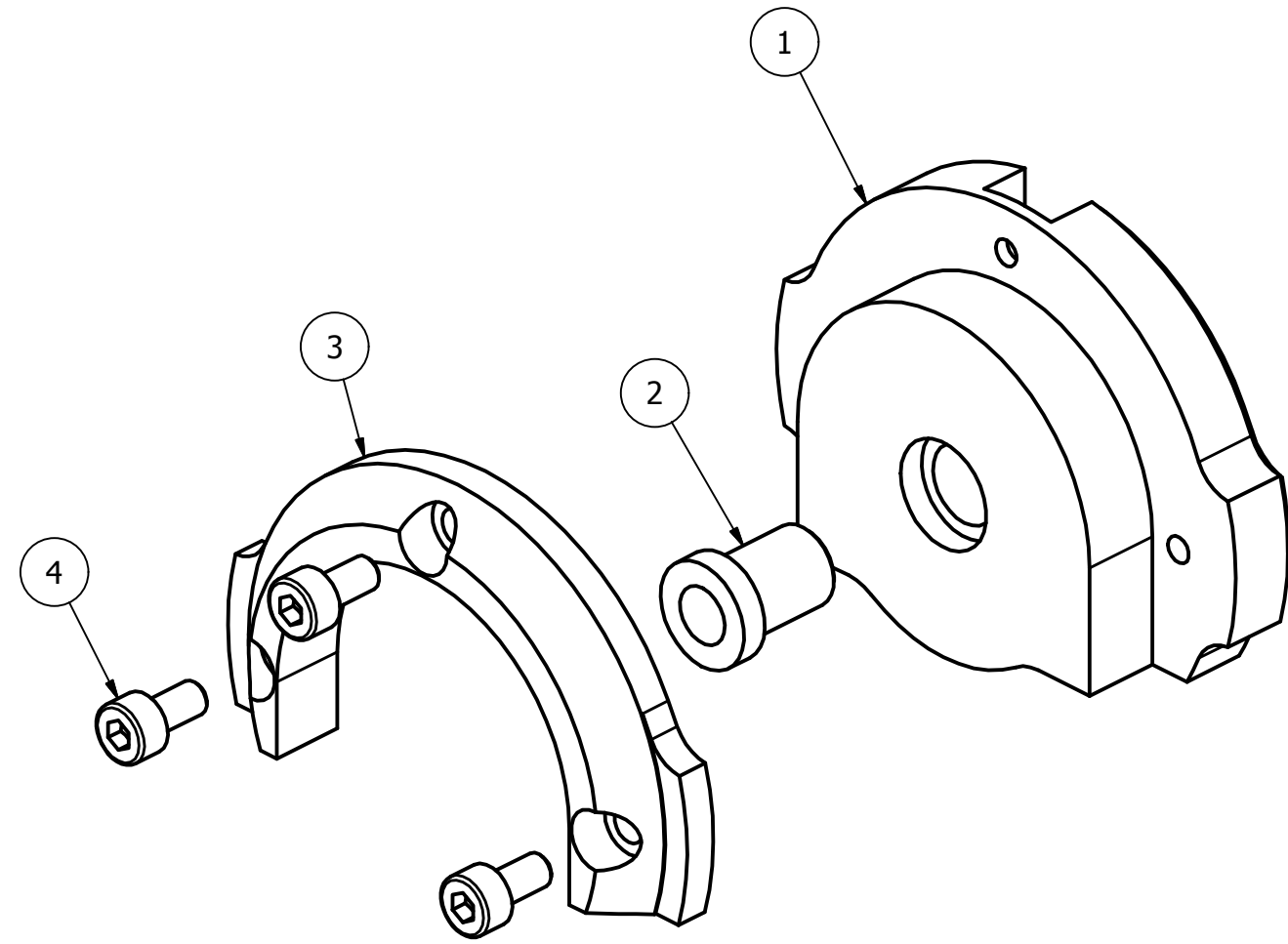
1. INITIAL SETTING TO ASSEMBLE INTO PELVIS.

ITEM	QTY	PART NUMBER	DESCRIPTION
5	1	5000666	M4 X 0.7 X 40 LG. SHCS
4	1	020-7137	HIP JOINT SLIDE ASSEMBLY, (SPACER SIDE)
3	1	020-7128	PUBIC BUFFER, MOLDED, TESTED & CERTIFIED
2	1	020-7150	PUBIC LOAD CELL STRUCTURAL REPLACEMENT
1	1	020-7136	HIP JOINT SLIDE ASSEMBLY

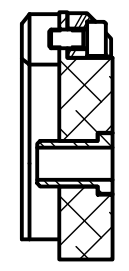
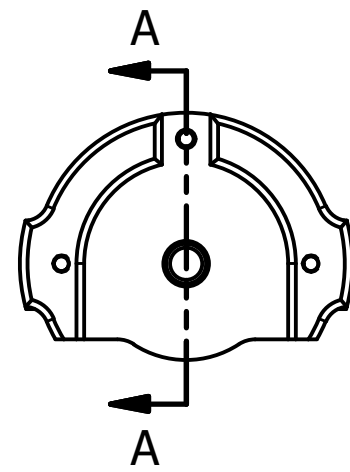
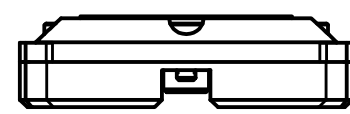
PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL - X ±.5 XX ±.2 XXX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		PUBIC LOAD CELL ASSEMBLY	
DRAWN L. PAN		05-Jul-07			
MATERIAL		CHECKED			
HEAT TREAT		ENG			
FINISH		APPROVED			
 THIRD ANGLE PROJECTION		SIZE A2	DRAWING NUMBER 034-4110		REV C
SCALE: 2:1		SHEET 1 OF 1			

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		7/05/07
72313	B	REDRAWN IN INVENTOR	AB		02/07/14
74656	C	REGULATION RELEASE	JH		12/22/2015



SCALE 2 : 1



SECTION A-A

ITEM	QTY	PART NUMBER	DESCRIPTION
4	3	5000641	M2.5 X 0.45 X 5 LG. SHCS SS
3	1	020-7125	HIP JOINT SLIDE SPACER
2	1	020-7139	SLEEVE, HIP JOINT
1	1	020-7144	HIP JOINT SLIDE

PARTS LIST

NOTES:

1. PRESS FIT ITEM 2 INTO ITEM 1, AS SHOWN.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:

DECIMAL: X ±.5 XX ±.2 X.XX ±.1	MACHINED ANGLES ±.5°
---	----------------------------

ASME Y14.5M - 1994
DO NOT SCALE DRAWING

VEHICLE RESEARCH
and TEST CENTER

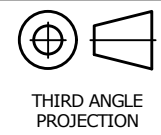


NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

APPROVALS	DATE
DRAWN MEC	7/5/2007
CHECKED	
ENG	
APPROVED	

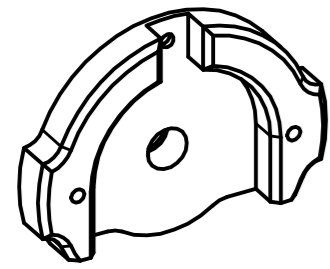
HIP JOINT SLIDE ASSEMBLY

MATERIAL	CHECKED	
HEAT TREAT	ENG	
FINISH	APPROVED	

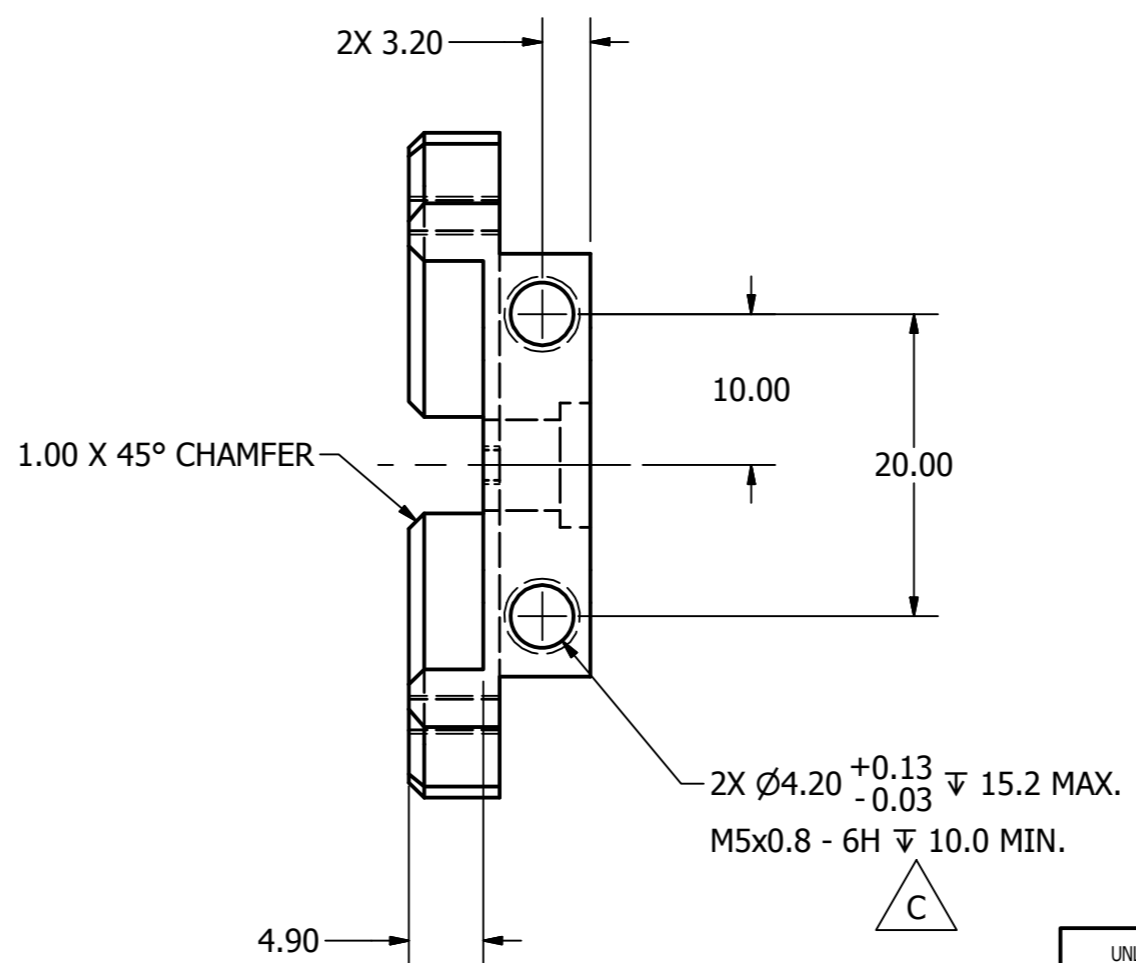
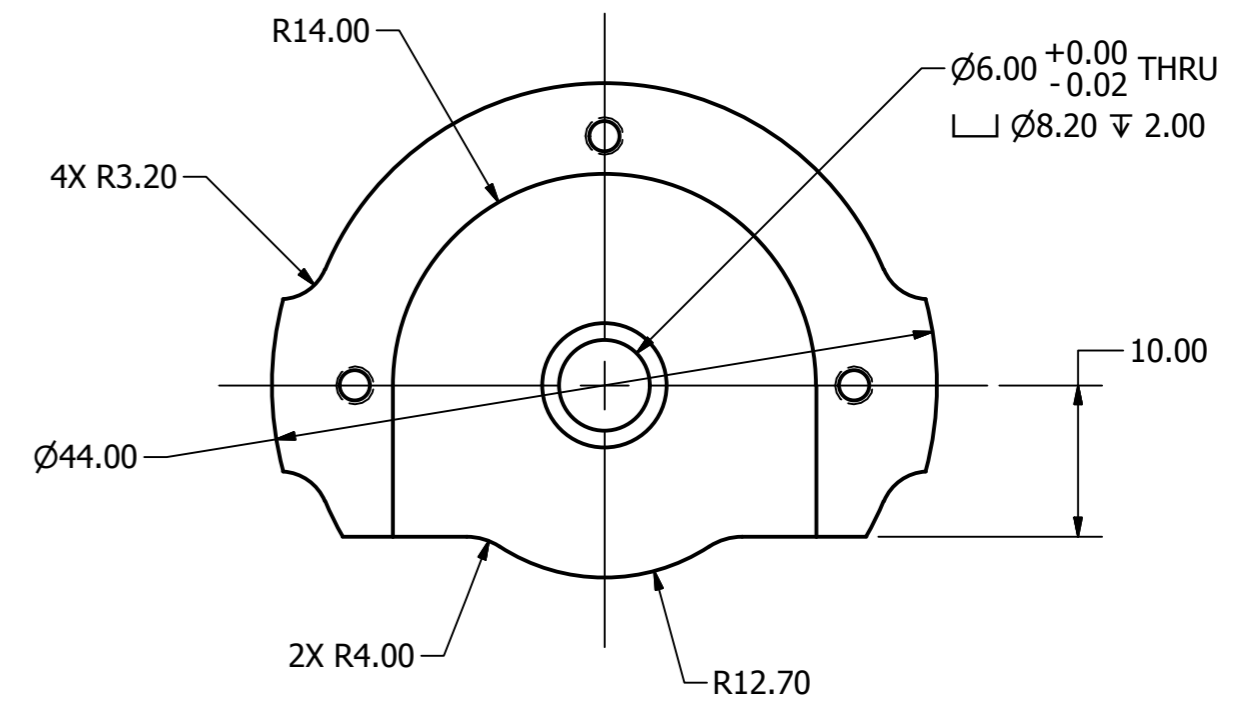
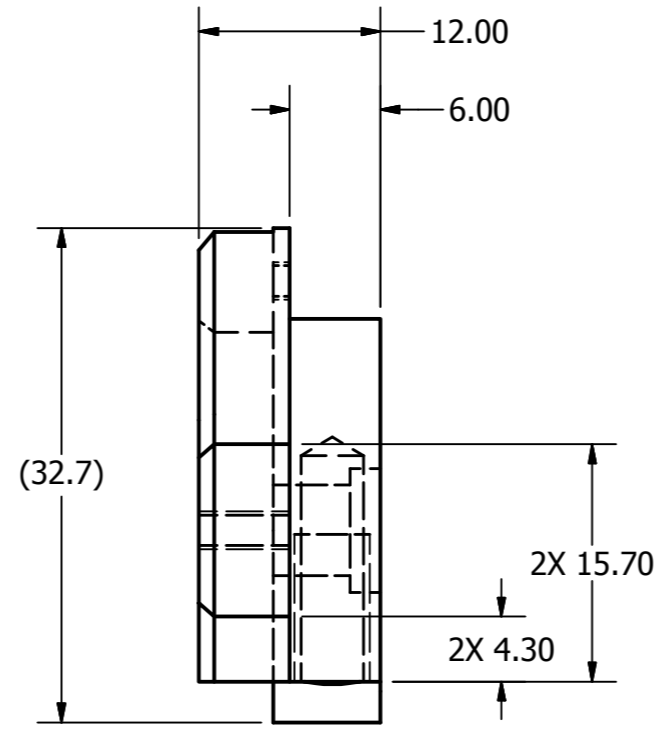
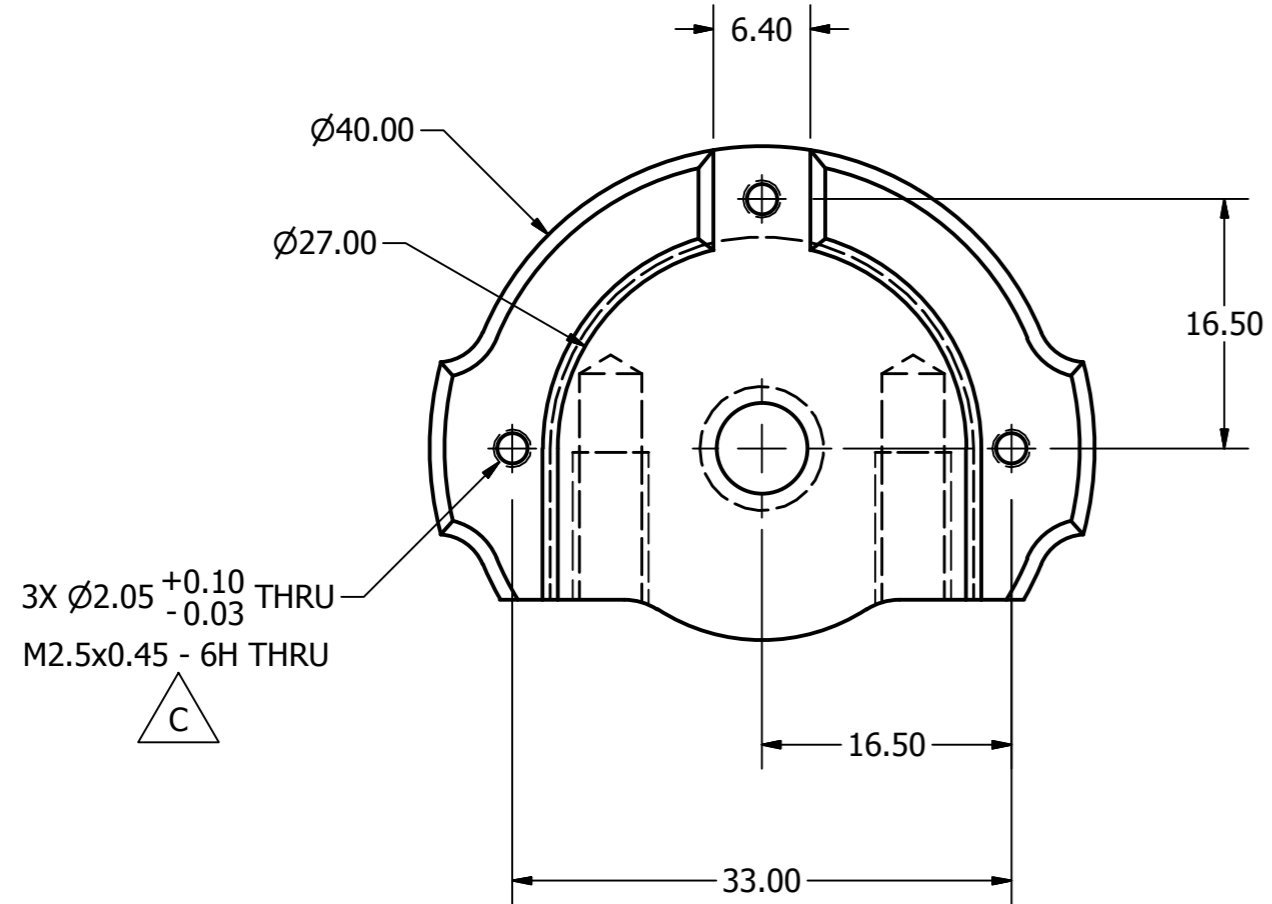


SIZE A3	DRAWING NUMBER 020-7136	REV C
SCALE: 1:1	SHEET 1 OF 1	

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		7/09/07
72313	B	REDRAWN IN INVENTOR; REMOVE NOTE #1	AB		02/07/14
74656	C	UPDATED HOLE CALLOUTS TO CURRENT STANDARDS	AB		12/23/15
74656	D	REGULATION RELEASE	GCH		01/11/2016



SCALE 1 : 1



NOTES:

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:

DECIMAL: .1	MACHINED
.XX ±.2	ANGLES ∇.5°
.XXX ±.1	

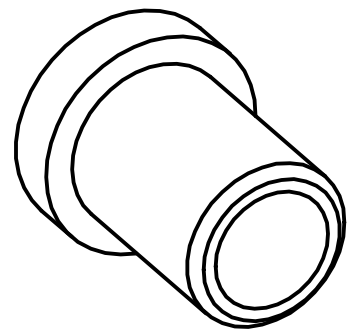
ASME Y14.5M - 1994
DO NOT SCALE DRAWING

VEHICLE RESEARCH and TEST CENTER	
APPROVALS	DATE
DRAWN MEC	7/9/2007
CHECKED	
ENG	
APPROVED	

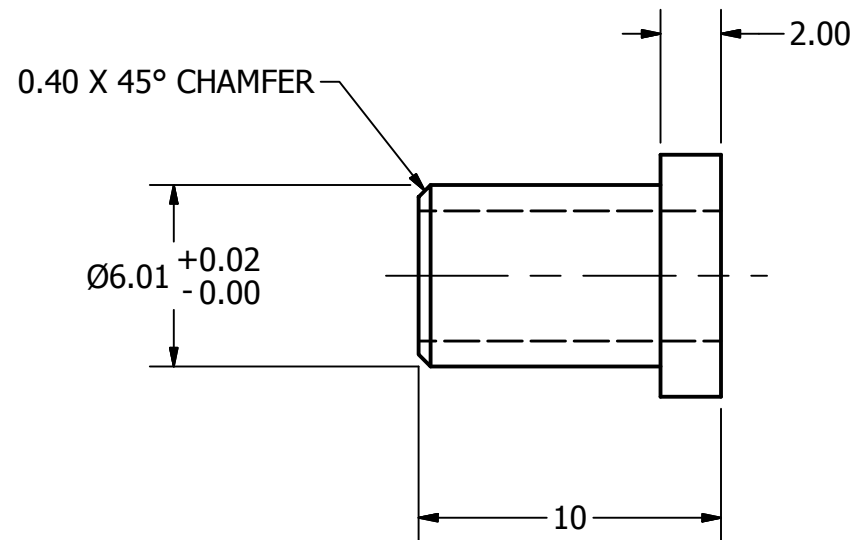
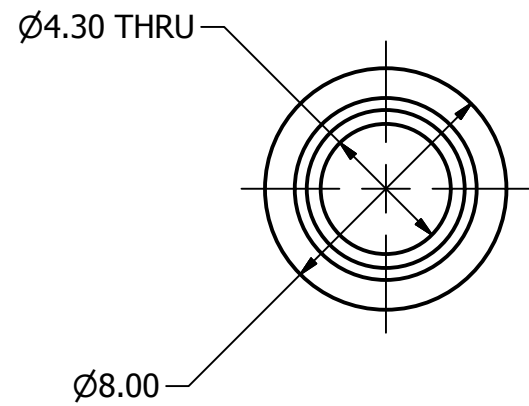
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

HIP JOINT SLIDE

SIZE A2	DRAWING NUMBER 020-7144	REV D
SCALE: 2:1	SHEET 1	OF 1



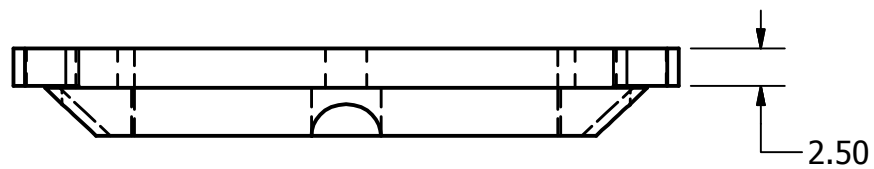
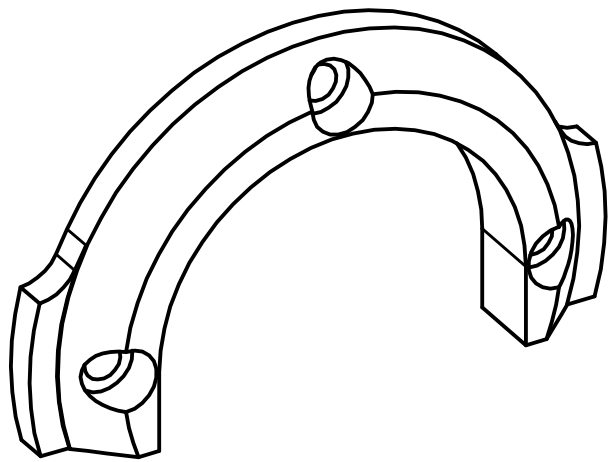
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		7/05/07
72313	B	REDRAWN IN INVENTOR; REMOVE NOTES #1 THRU 3; .008 ELECTROLESS NICKEL PLATE PER SIDE WAS NICKEL PLATE .012 MAX. AFTER MACHINING & MOVED FROM NOTE #2 TO REPLACE "SEE NOTES" IN FINISH TABLE	AB		02/06/14
74656	C	REGULATION RELEASE	AB		12/23/15



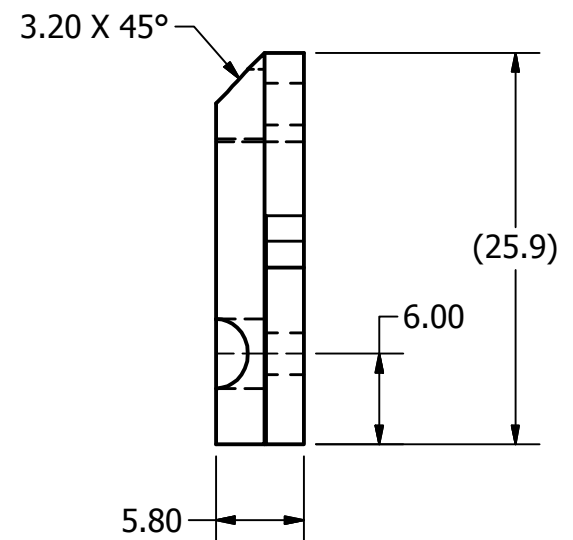
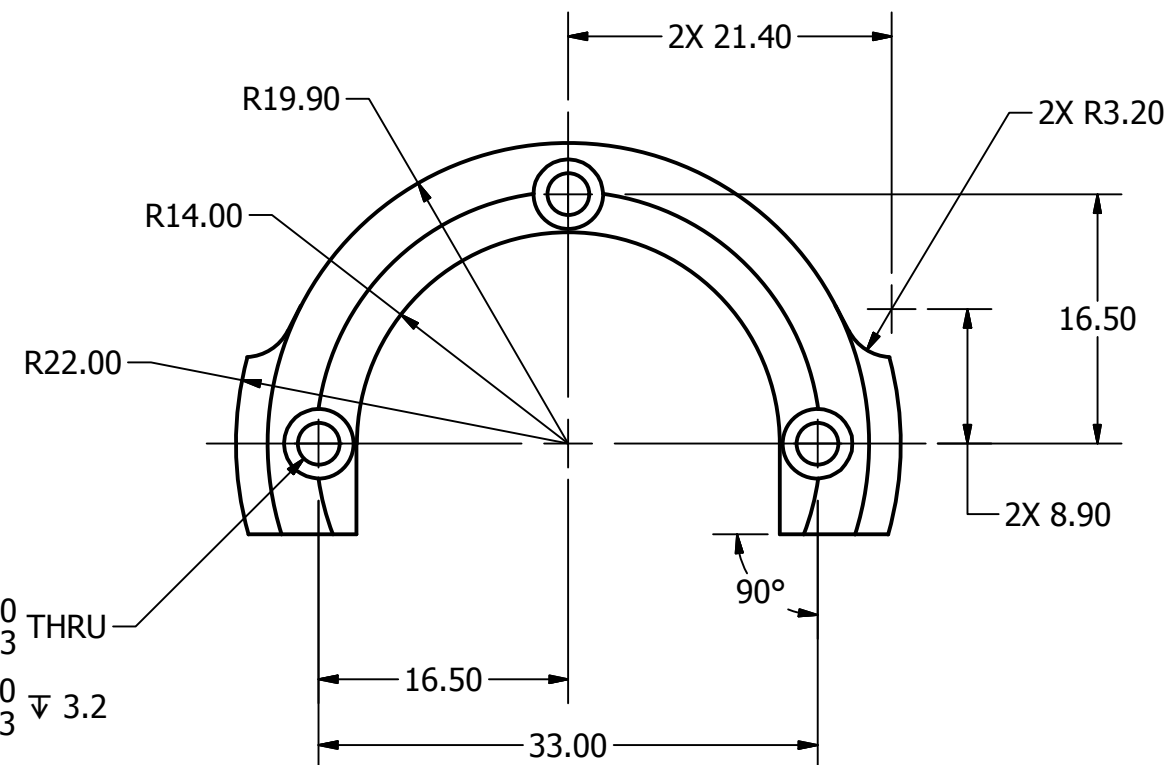
B NOTES:

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 ✓ XX ±.2 ✓ X.XX ±.1 ✓ ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN: MEC CHECKED: ENG: APPROVED:	DATE 25-Jun-07	
MATERIAL: 1018 STEEL HEAT TREAT: FINISH: .008 ELECTROLESS NICKEL PLATE PER SIDE	THIRD ANGLE PROJECTION	SIZE: A3 SCALE: 4:1	DRAWING NUMBER: 020-7139 SHEET: 1 OF 1 REV: C

B



REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		4/04/06
75669	B	ADD NEXT ASM:034-7136, QTY:1, & USED ON:034-0000;	LP		8/07/07
72313	C	REDRAWN IN INVENTOR; REMOVE NOTE #1	AB		02/03/14
74656	D	UPDATED HOLE CALL OUTS TO CURRENT STANDARDS.	JH		1/12/2016
74656	E	REGULATION RELEASE	JH		1/12/2016



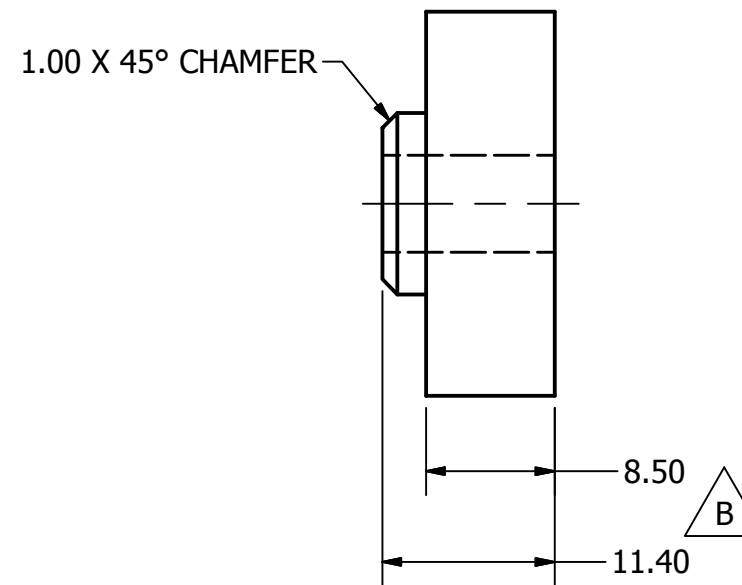
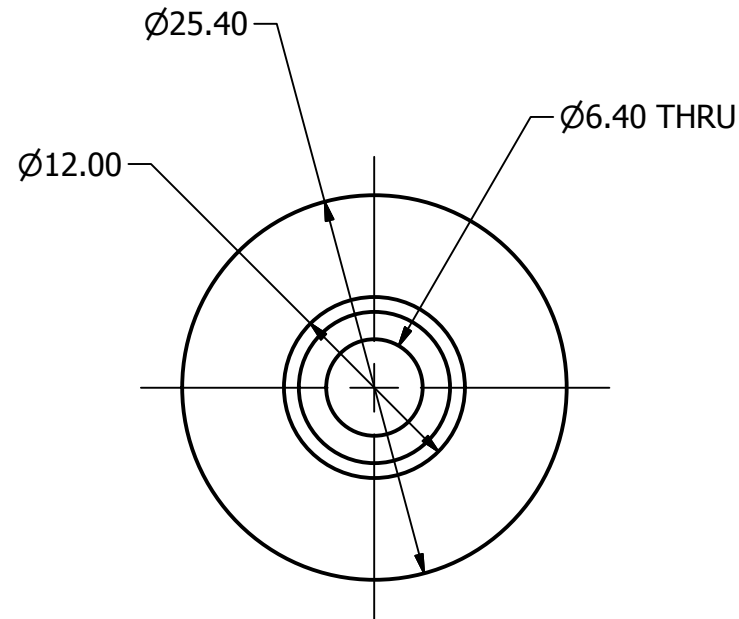
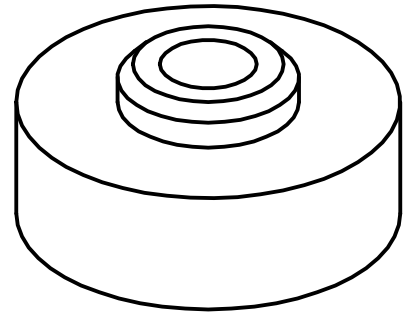
D 3X $\varnothing 2.75^{+0.10}_{-0.03}$ THRU
 $\square \varnothing 4.60^{+0.10}_{-0.03} \nabla 3.2$

C NOTES:

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN MEC CHECKED ENG APPROVED	DATE 11-Jan-06	
MATERIAL DELRIN BLACK HEAT TREAT FINISH	THIRD ANGLE PROJECTION	SIZE A3 SCALE: 2:1	DRAWING NUMBER 020-7125 SHEET 1 OF 1

REVISION HISTORY

ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		4-04-06
6201	B	8.50 WAS 6.40; 11.40 WAS 9.30	BK		2-14-07
75669	C	ADD NEXT ASM:034-4110, QTY:1, & USED ON:034-0000; REORIENT ISO VIEW	LP		8-7-07
72313	D	REDRAWN IN INVENTOR; REMOVE NOTE #1	AB		01/28/14
74656	E	REGULATION RELEASE	AB		12/23/15



△ NOTES:

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:

DECIMAL: X ±.5
XX ±.2
X.XX ±.1

MACHINED
ANGLES ±.5°

ASME Y14.5M - 1994
DO NOT SCALE DRAWING

VEHICLE RESEARCH
and TEST CENTER



NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

APPROVALS	DATE
DRAWN B. KIMES	02-Mar-06

PUBIC LOAD CELL STRUCTURAL REPLACEMENT

MATERIAL
6061-T6 ALUMINUM

HEAT TREAT

FINISH
CLEAR ANODIZE

CHECKED

ENG

APPROVED

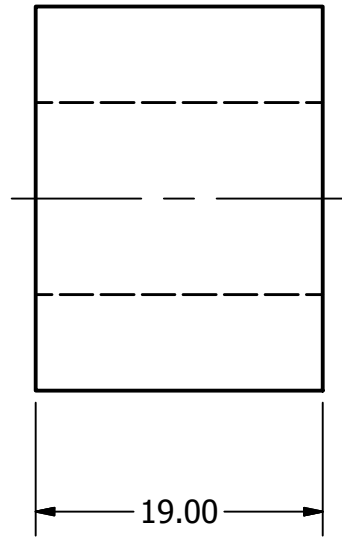
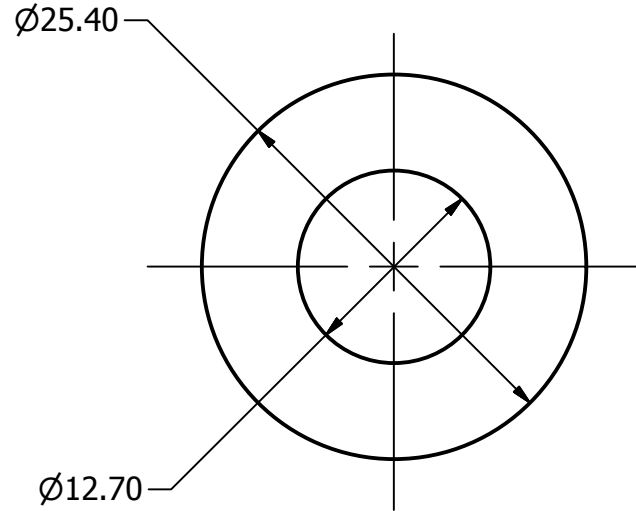
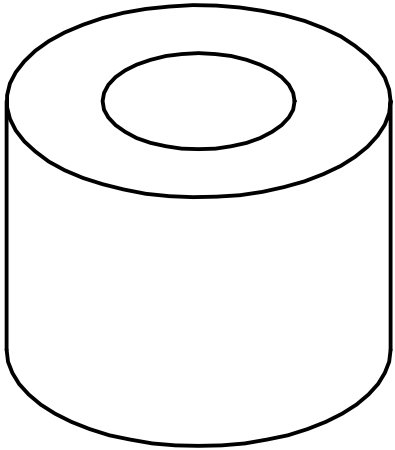


THIRD ANGLE
PROJECTION

SIZE	DRAWING NUMBER	REV
A3	020-7150	E

SCALE:	SHEET	OF
2:1	1	1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		4/10/06
75669	B	ADD NEXT ASM:034-4110, QTY:1 & USED ON:034-0000; REORIENT ISO VIEW	LP		8-7-07
72313	C	REDRAWN IN INVENTOR; REMOVE TQC	AB		01/28/14
74656	D	REGULATION RELEASE	JH		12/22/2015

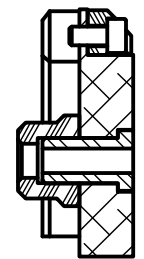
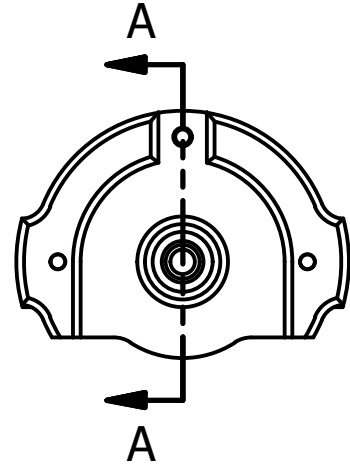
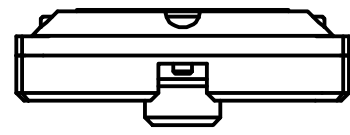
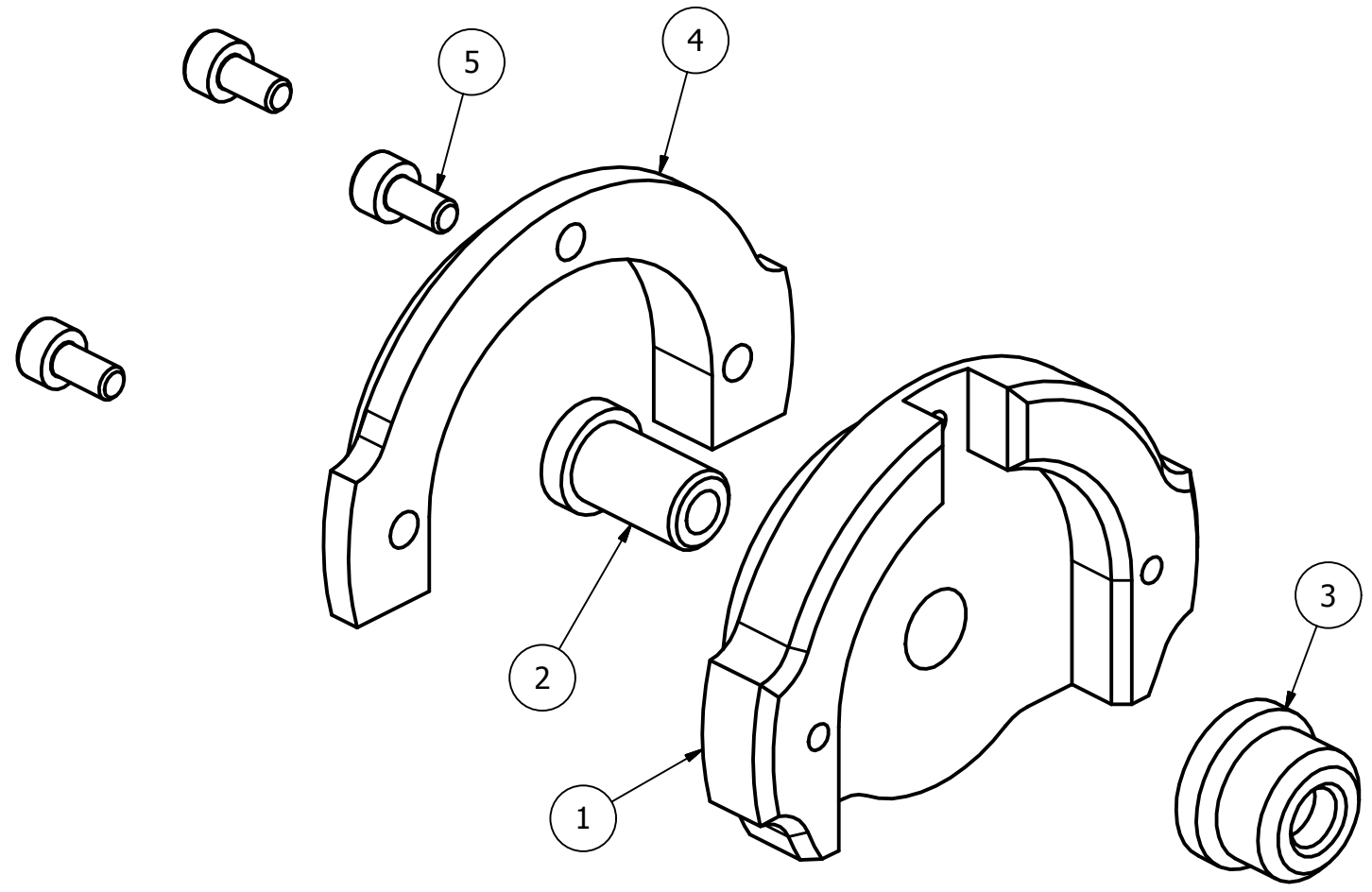


NOTES:

- 1. MATERIAL: NATURAL RUBBER 60 ± 5 SHORE A BLACK 8002781
- 2. DIMENSION TOLERANCES ARE ± 0.5mm

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN MEC CHECKED ENG APPROVED	DATE 2/7/2006	
MATERIAL SEE NOTES HEAT TREAT FINISH	THIRD ANGLE PROJECTION	SIZE A3 SCALE: 2:1	DRAWING NUMBER 020-7128 SHEET 1 OF 1 REV D

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		7/05/07
72313	B	REDRAWN IN INVENTOR	AB		02/07/14
74656	C	REGULATION RELEASE	JH		12/22/2015



SECTION A-A

ITEM	QTY	PART NUMBER	DESCRIPTION
5	3	5000641	M2.5 X 0.45 X 5 LG. SHCS SS
4	1	020-7125	HIP JOINT SLIDE SPACER
3	1	020-7143	PIN, HIP JOINT SLIDE
2	1	020-7138	SLEEVE, HIP JOINT (THREAD)
1	1	020-7144	HIP JOINT SLIDE

PARTS LIST

NOTES:

1. PRESS FIT ITEM 2 INTO ITEM 1, THEN PRESS FIT ITEM 3 ONTO ITEM 2, AS SHOWN.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:

DECIMAL:	MACHINED
X ±.5	ANGLES
XX ±.2	±.5°
X.XX ±.1	

ASME Y14.5M - 1994
DO NOT SCALE DRAWING

VEHICLE RESEARCH
and TEST CENTER

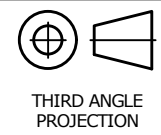


NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

APPROVALS	DATE
DRAWN MEC	7/5/2007
CHECKED	
ENG	
APPROVED	

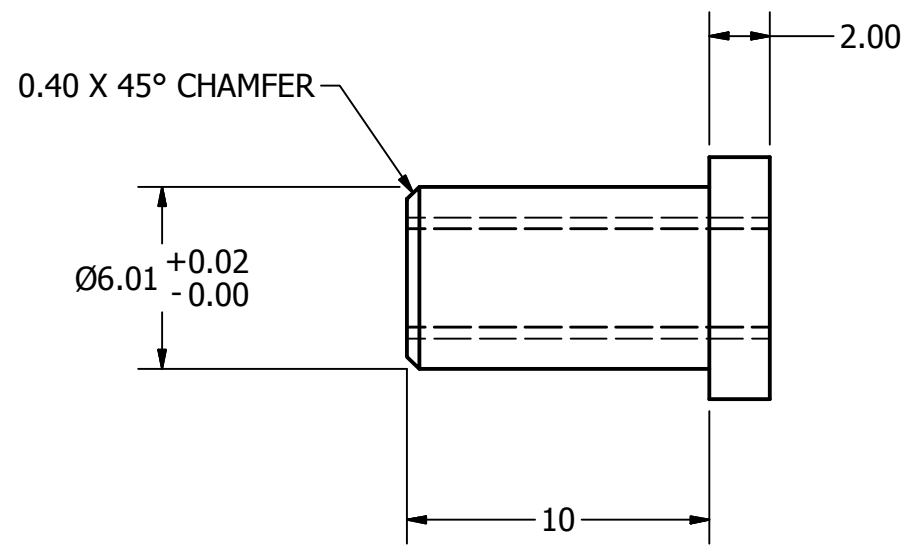
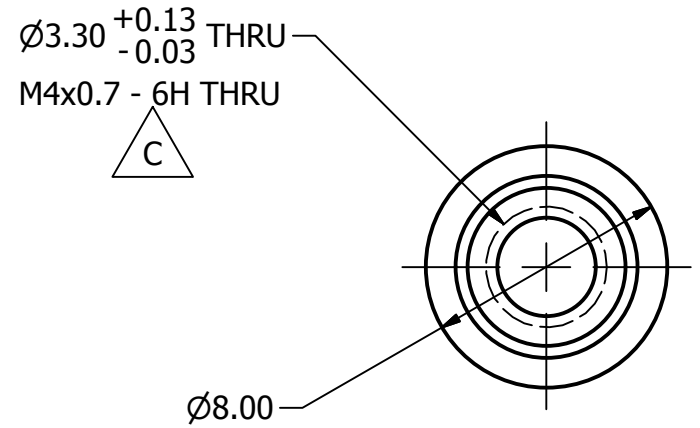
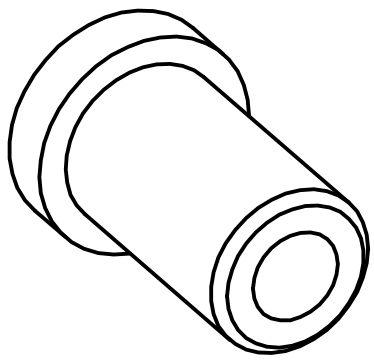
HIP JOINT SLIDE ASSEMBLY, (SPACER SIDE)

MATERIAL	CHECKED	SIZE	DRAWING NUMBER	REV
HEAT TREAT	ENG	A3	020-7137	C
FINISH	APPROVED	SCALE:	SHEET	
		1:1	1	OF 1



THIRD ANGLE
PROJECTION

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		7/05/07
72313	B	REDRAWN IN INVENTOR; REMOVE NOTES 1 THRU 3; 0.008 ELECTROLESS NICKEL PLATE PER SIDE WAS NICKEL PLATE .012 MAX AFTER MACHINING & REPLACES "SEE NOTES" IN FINISH TABLE	AB		01/28/14
74656	C	UPDATED HOLE CALLOUT TO CURRENT STANDARDS	AB		12/23/15
74656	D	REGULATION RELEASE	AB		01/06/16

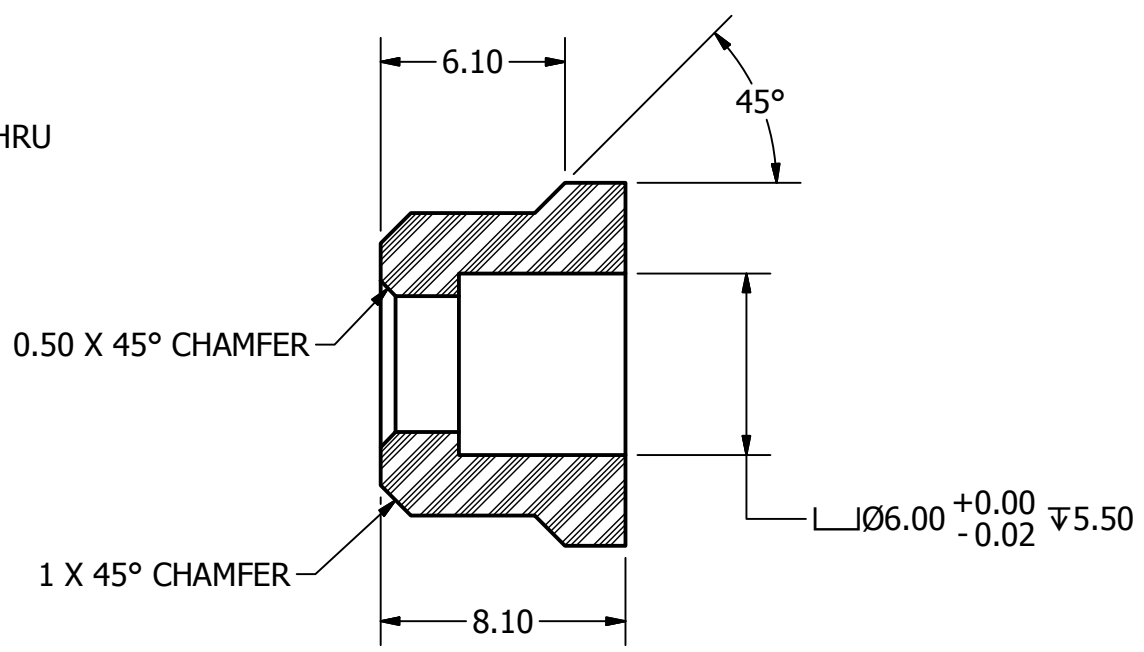
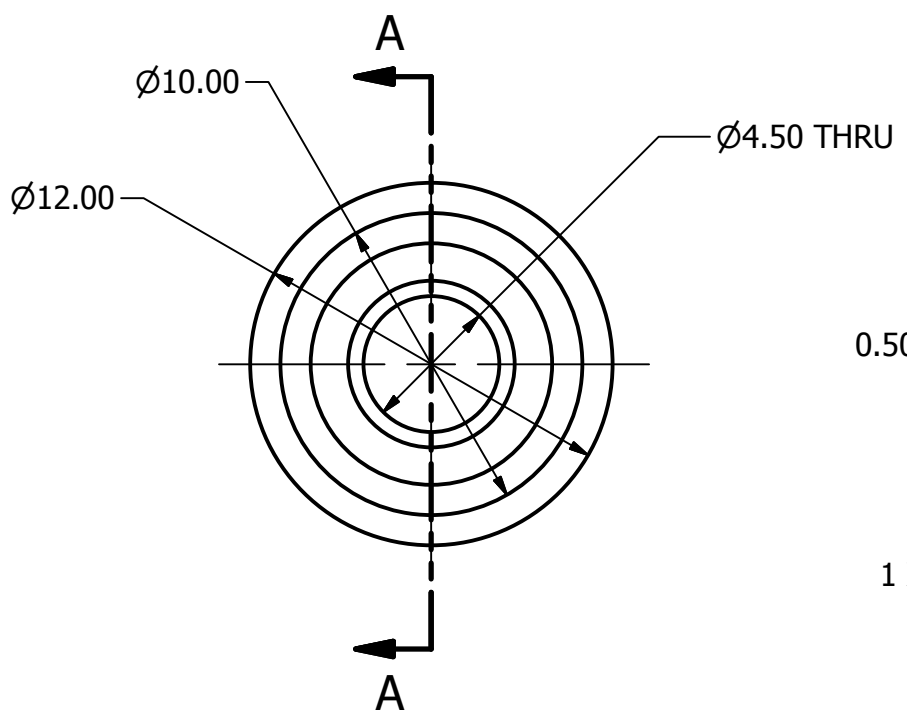
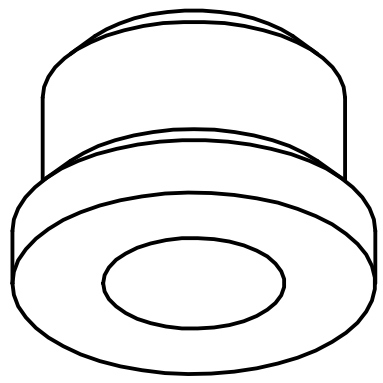


B NOTES:

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 ✓ XX ±.2 ✓ X.XX ±.1 ✓ ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN MEC CHECKED ENG APPROVED	DATE 25-Jun-07		SLEEVE, HIP JOINT (THREAD)	
MATERIAL 1018 STEEL HEAT TREAT FINISH 0.008 ELECTROLESS NICKEL PLATE PER SIDE		SIZE A3	DRAWING NUMBER 020-7138	REV D	SCALE: 4:1
		SHEET 1 OF 1			

B

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		7/10/07
72313	B	REDRAWN IN INVENTOR; REMOVE NOTE #1	AB		01/28/14
74656	C	REGULATION RELEASE	AB		12/23/15

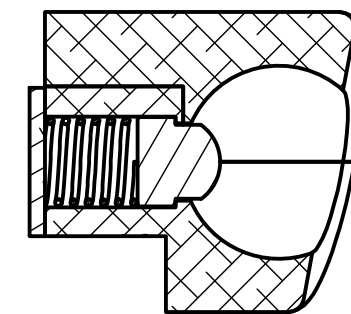
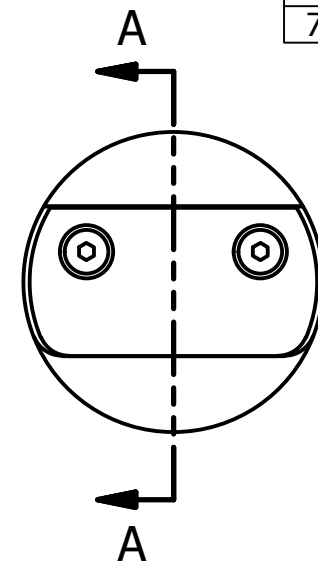
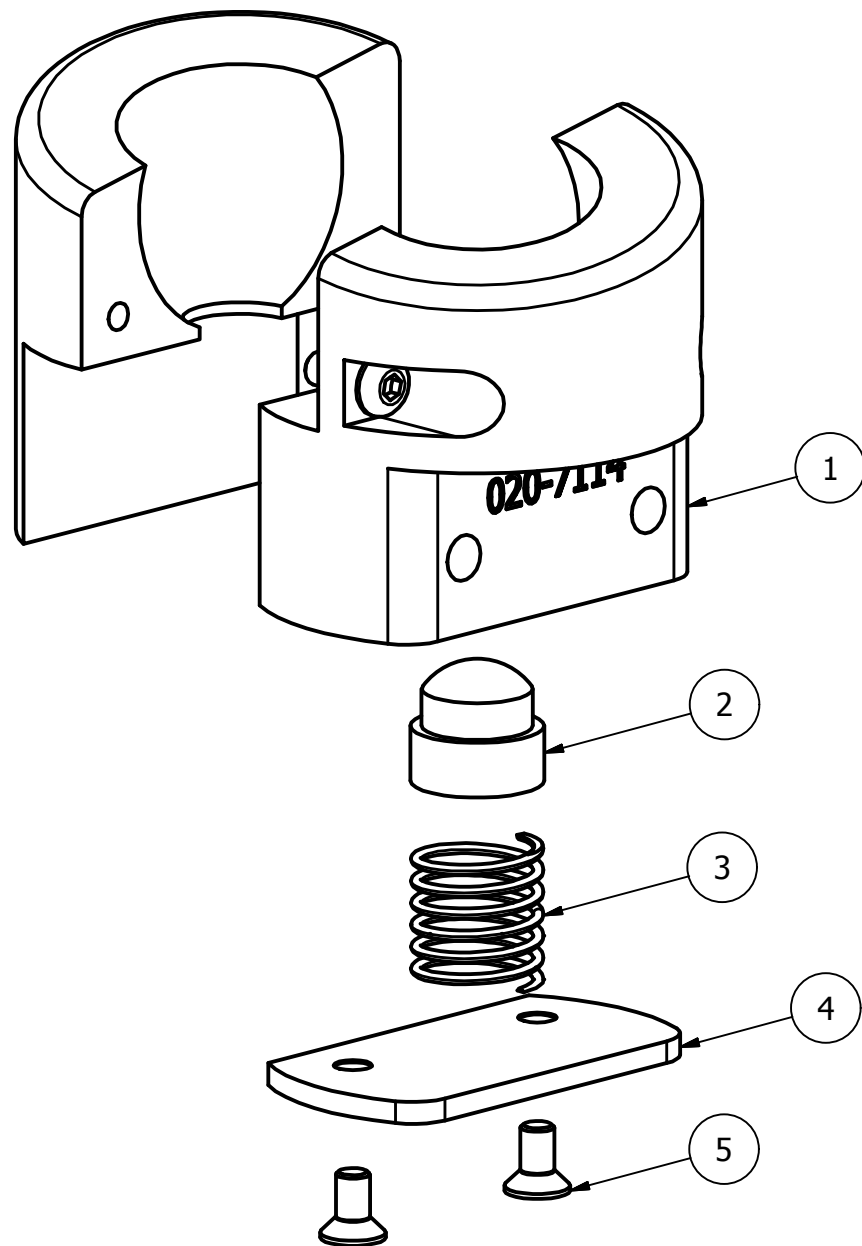


SECTION A-A

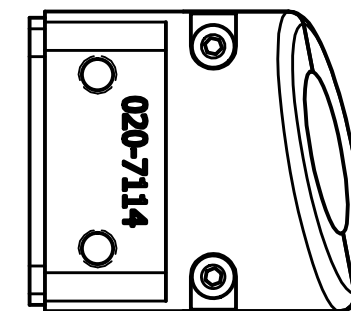
NOTES:

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN MEC CHECKED ENG APPROVED	DATE 10-Jul-07	
MATERIAL DELRIN BLACK HEAT TREAT FINISH	THIRD ANGLE PROJECTION	SIZE A3 SCALE: 4:1	DRAWING NUMBER 020-7143 SHEET 1 OF 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
76893	A	RELEASE TO PRODUCTION	BK		3/2/09
77433	B	REMOVE 020-7117, 020-7118, 2X 5000410; ADD 020-7114; UPDATE NEXT ASSEMBLY AND USED ON; REMOVE MACHINING AND NOTES; PAGE SIZE A3 WAS A2	BK		12/20/10
72313	C	REDRAWN IN INVENTOR	AB		01/27/14
74656	D	REGULATION RELEASE	JH		12/22/2015



SECTION A-A



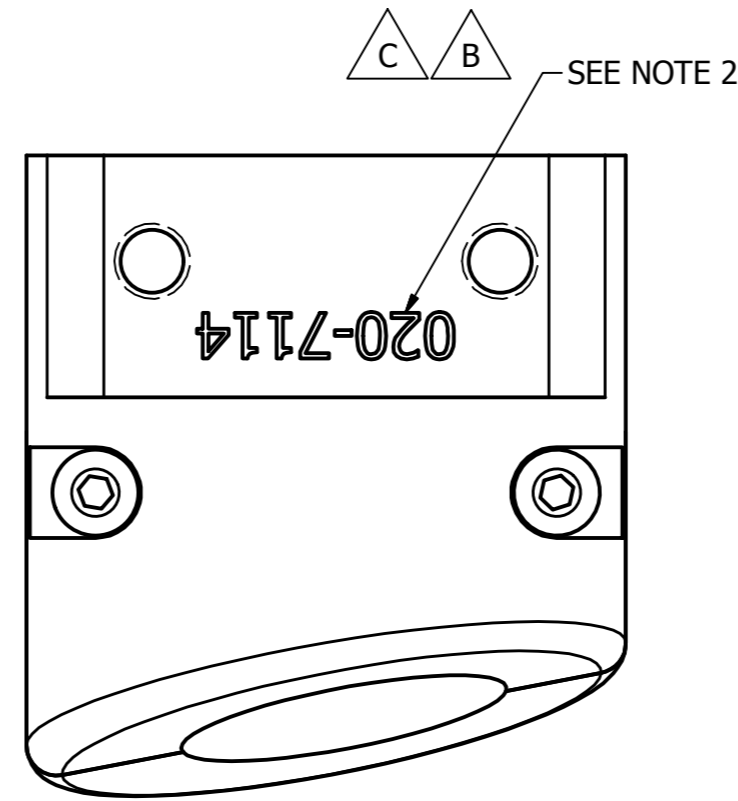
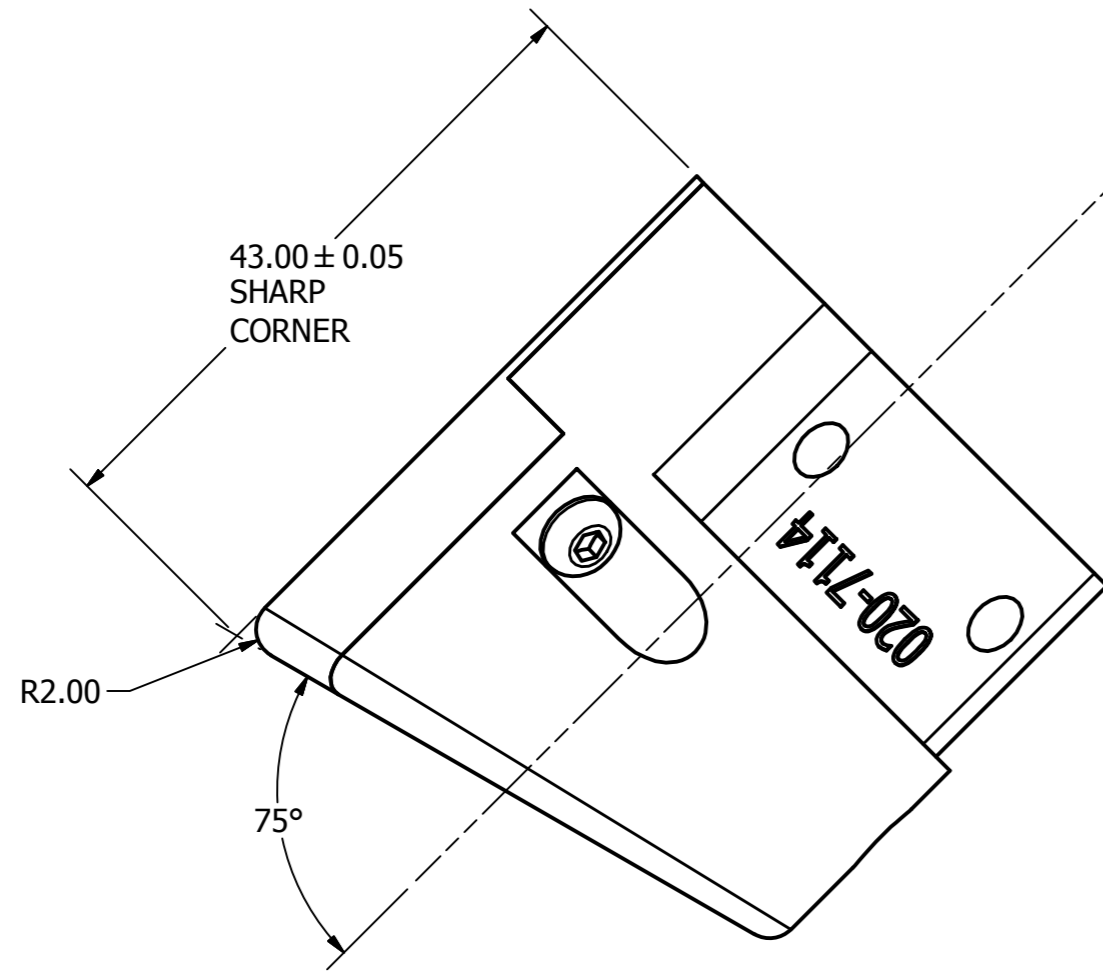
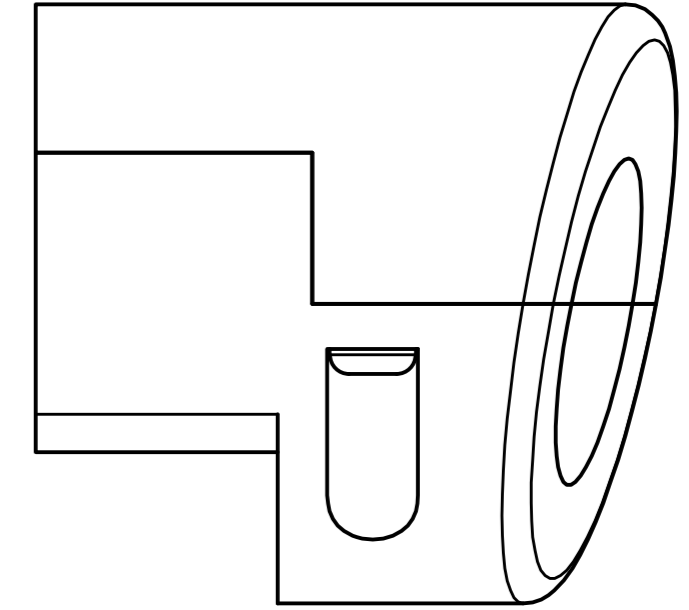
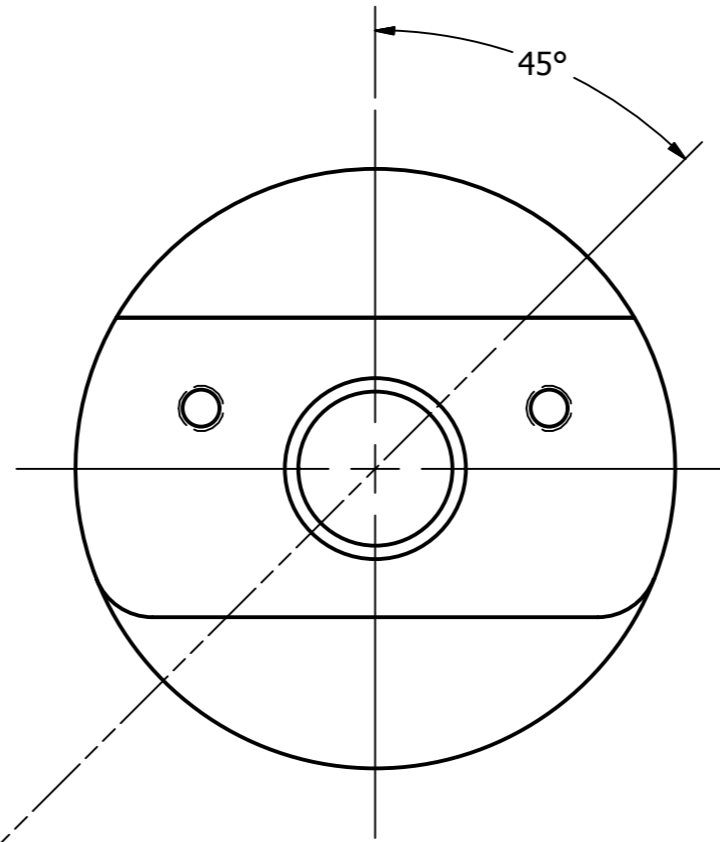
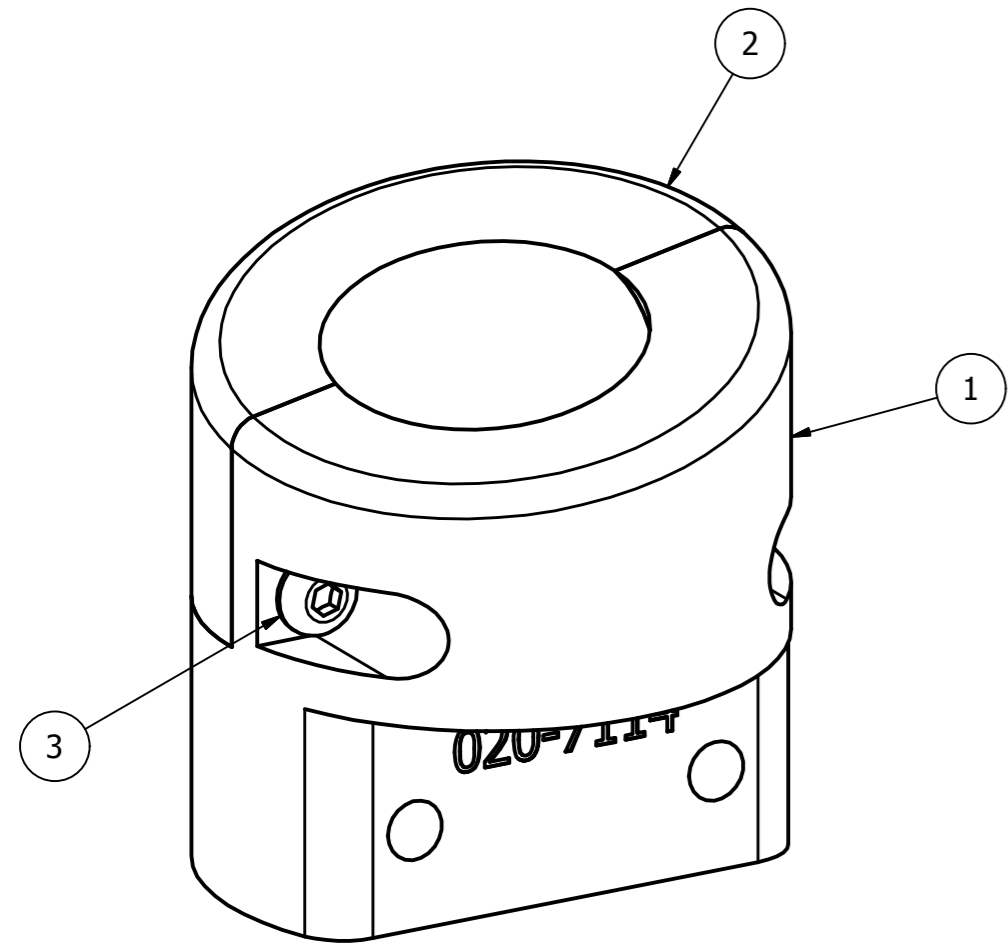
SCALE 1.5

ITEM	QTY	PART NUMBER	DESCRIPTION
5	2	5000098	M3 X 0.5 X 6 LG. FHCS
4	1	020-7104	SPRING RETAINER PLATE
3	1	5000650	SPRING LCM090F01M
2	1	020-7103	DETENT PEG
1	1	020-7114	HIP JOINT PAIR, LEFT

B

PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER	
APPROVALS		DATE	
DRAWN B. KIMES		12/20/2010	
CHECKED			
MATERIAL			
HEAT TREAT		ENG	
FINISH		APPROVED	
THIRD ANGLE PROJECTION		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
SIZE A3		DRAWING NUMBER 020-7113	
SCALE: 1:1		REV D	
SHEET 1		OF 1	

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
77433	A	RELEASE TO PRODUCTION	BK		12/17/10
78712	B	020-7114 WAS 020-7113 (TYPO)	BK		7/31/12
72313	C	REDRAWN IN INVENTOR; REMOVE NOTE #2; NOTE #2 & 3 WAS NOTE #3 & 4; SEE NOTE 2 WAS SEE NOTE 3	AB		01/27/14
74656	D	REGULATION RELEASE	JH		12/22/2015

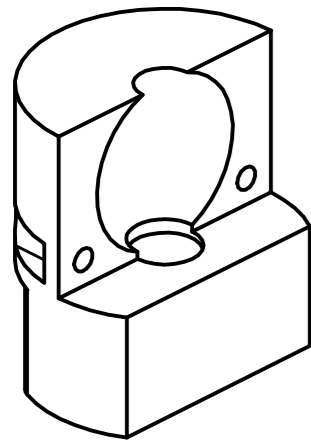


C NOTES:

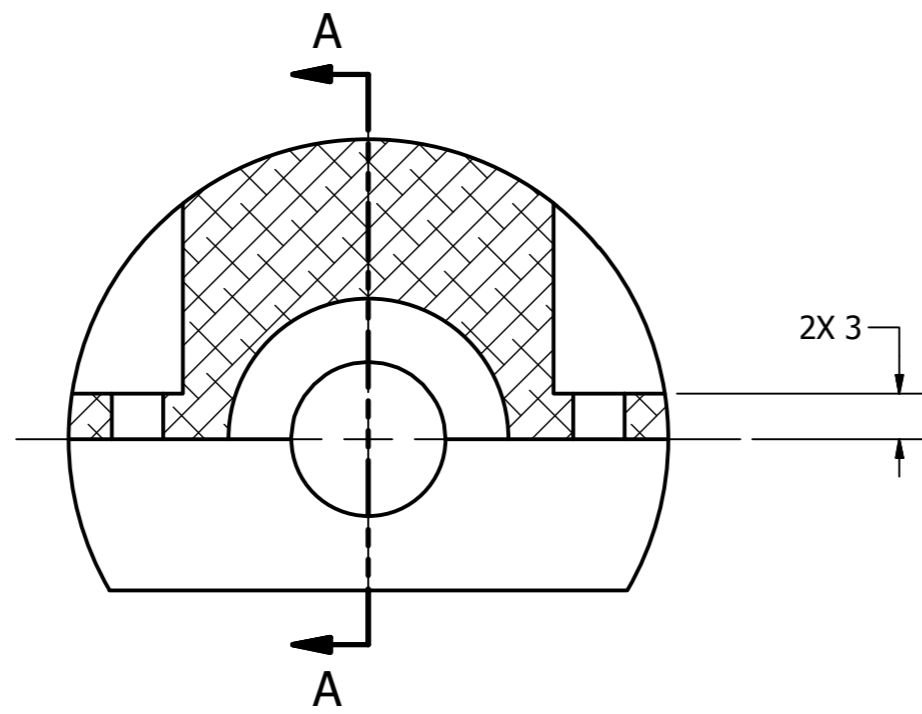
1. ASSEMBLE COMPONENTS AND MACHINE AS SHOWN.
2. STAMP OR ETCH PART NUMBER (3mm CHARACTERS) AS SHOWN.
3. DISASSEMBLE THEN ANODIZE AFTER MACHINING.

ITEM	QTY	PART NUMBER	DESCRIPTION
3	2	5000410	M3 X 0.5 X 8 LG. BHCS
2	1	020-7118	HIP JOINT, UPPER, METAL
1	1	020-7117	HIP JOINT, LOWER, METAL

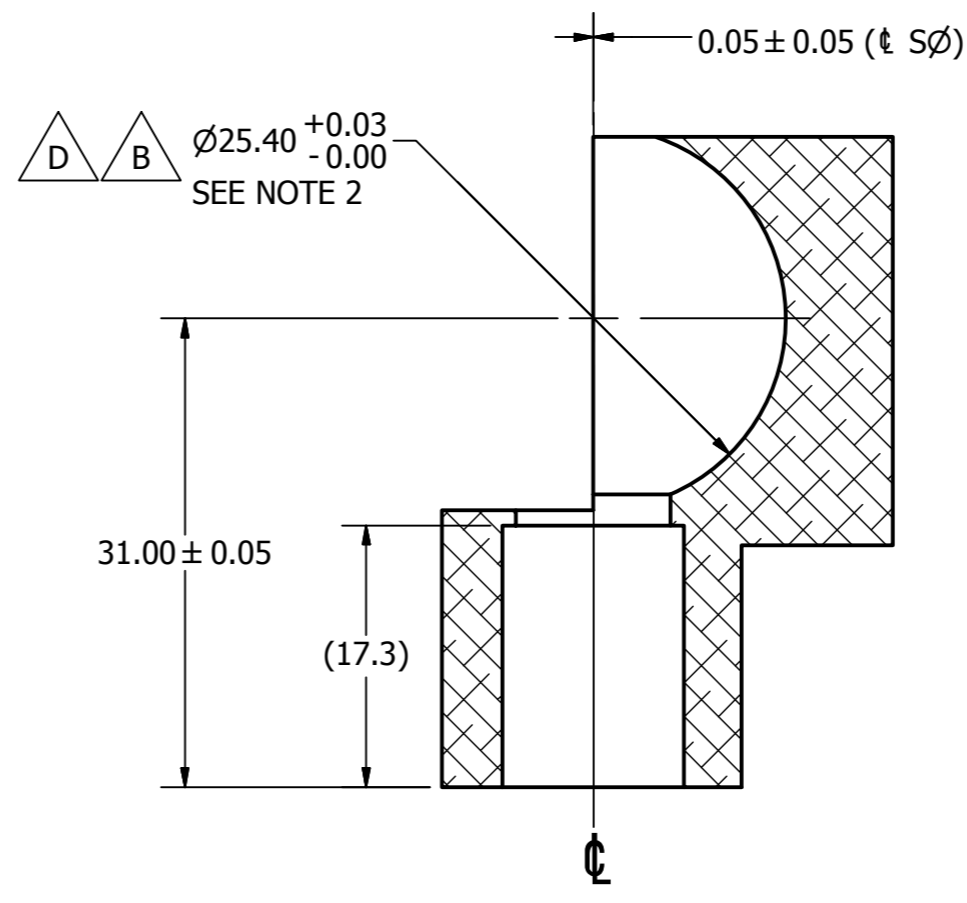
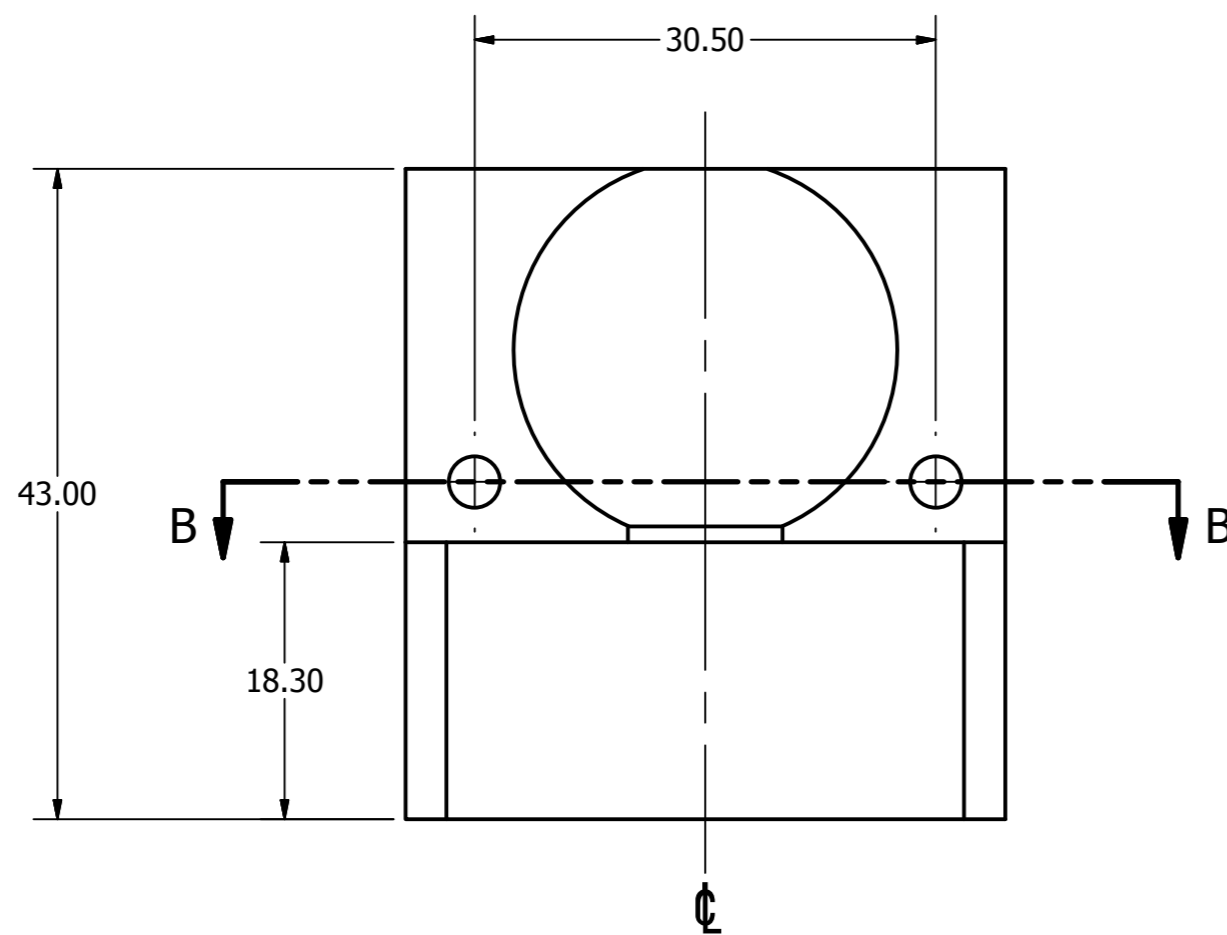
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5, XX ±.2, XXX ±.1 MACHINED ANGLES: ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER APPROVALS: B. KIMES DATE: 1/27/2014 CHECKED: _____ ENG: _____ APPROVED: _____		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION HIP JOINT PAIR, LEFT	
MATERIAL	FINISH	SIZE	DRAWING NUMBER	REV	
	CLEAR ANODIZE	A2	020-7114	D	
THIRD ANGLE PROJECTION			SCALE: 2:1	SHEET 1 OF 1	



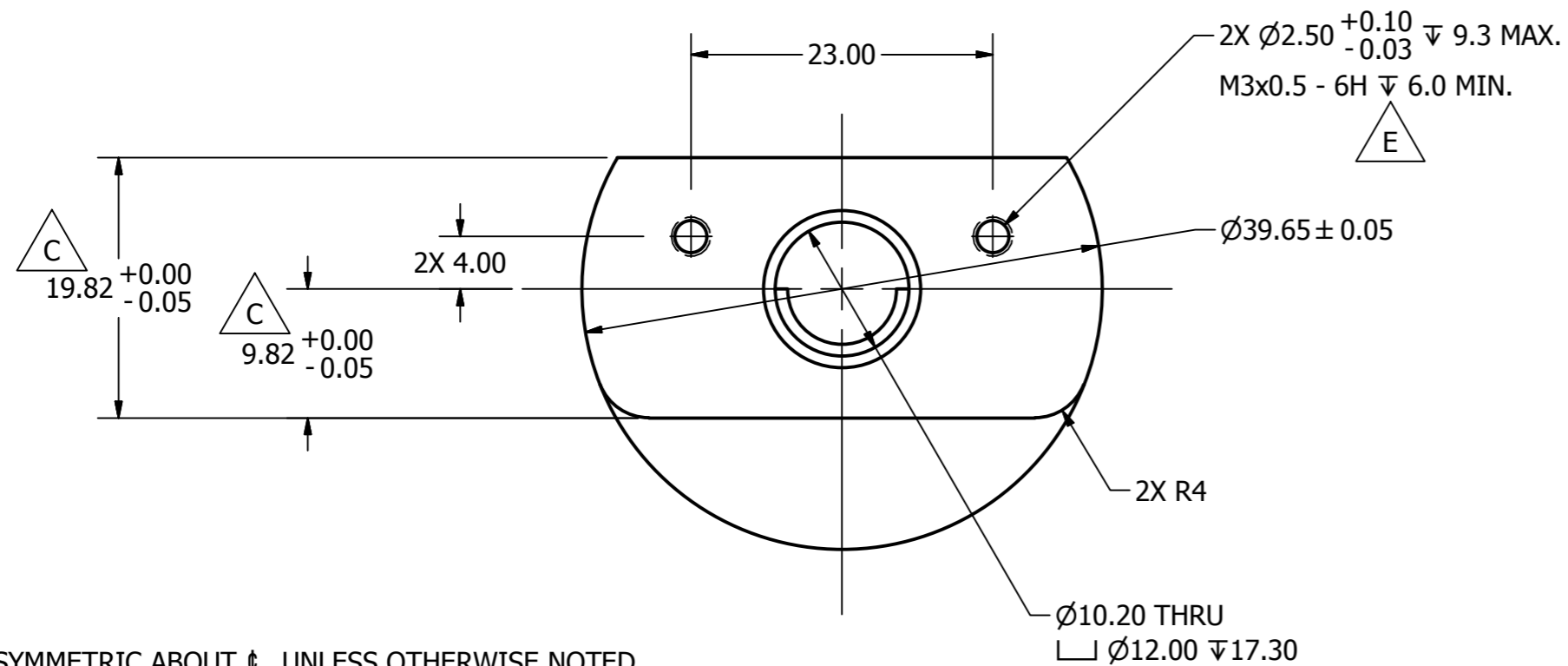
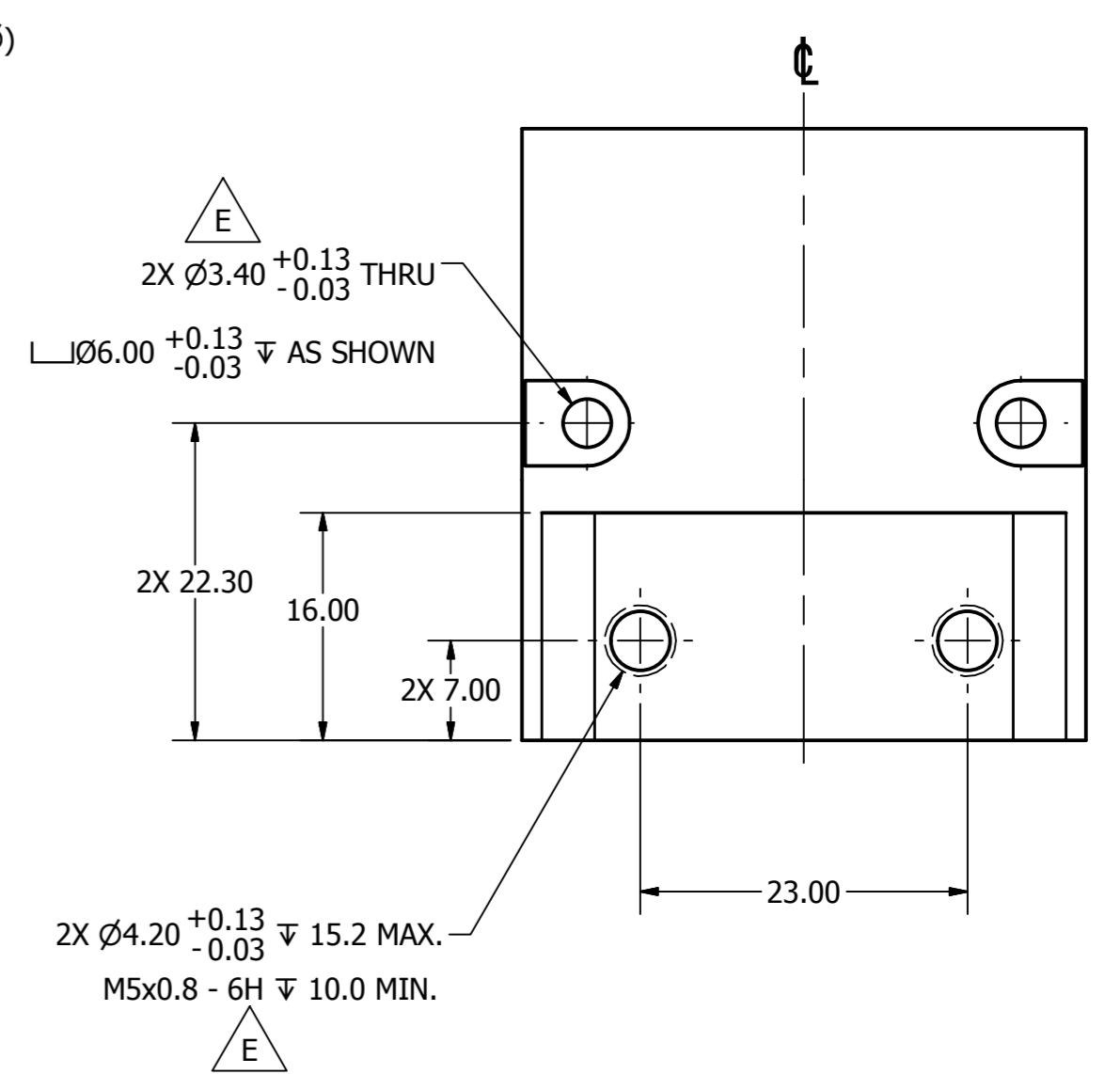
SCALE 1 : 1



SECTION B-B



SECTION A-A



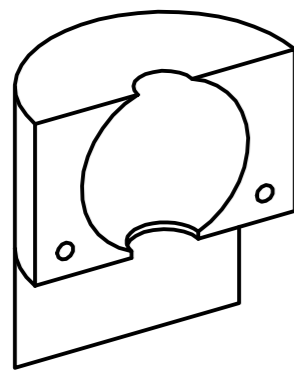
△ NOTES:

1. DIMENSION SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
2. CHECK FOR FIT USING 020-3537 ($\phi 25.40$ FEMUR BALL).

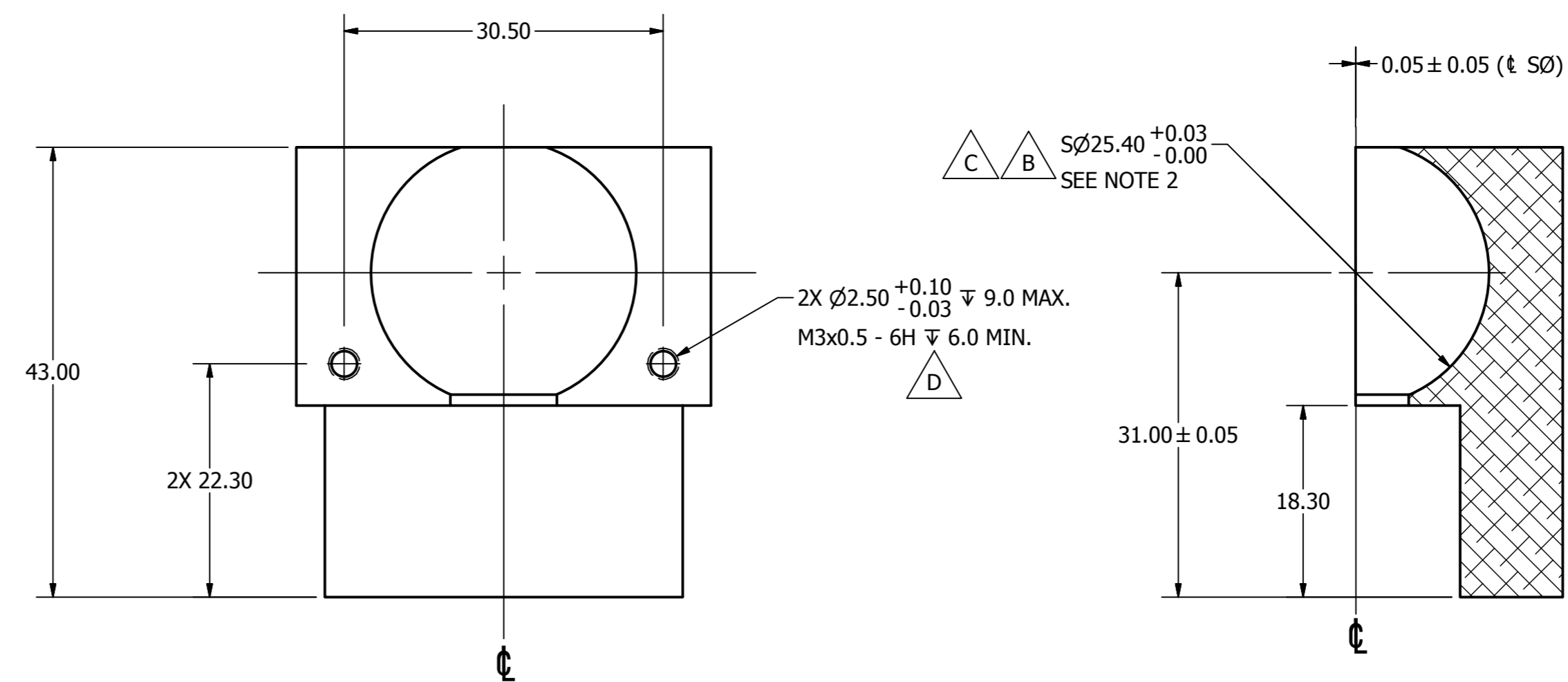
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
76893	A	RELEASE TO PRODUCTION	BK		3/4/09
77433	B	$S\phi 25.40+0.03/-0.00$ WAS $S\phi 25.40$; UPDATE NEXT ASSEMBLY AND USED ON	BK		12/17/10
77967	C	$9.82+0.00/-0.05$ WAS 10.00; $19.82+0.00/-0.05$ WAS 20.00; UPDATE NEXT ASSEMBLY AND USED ON	JPM		6/20/11
72313	D	REDRAWN IN INVENTOR; REMOVE NOTE #1; NOTE #1 & 2 WAS NOTE #2 & 3; $S\phi 25.40+0.03/-0.00$ SEE NOTE 2 WAS SEE NOTE 3	AB		01/23/14
74656	E	UPDATED HOLE CALLOUTS TO CURRENT STANDARDS	AB		12/22/15
74656	F	REGULATION RELEASE	JH		1/5/2016

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL - MACHINED X.X ±.5 X.XX ±.2 X.XXX ±.1 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		HIP JOINT, LOWER, METAL	
DRAWN B. KIMES		3/4/2009			
CHECKED					
MATERIAL 7075-T6 ALUMINUM		ENG			
HEAT TREAT		APPROVED			
FINISH					
THIRD ANGLE PROJECTION		SCALE: 2:1		DRAWING NUMBER: 020-7117	
		SHEET 1 OF 1		REV F	

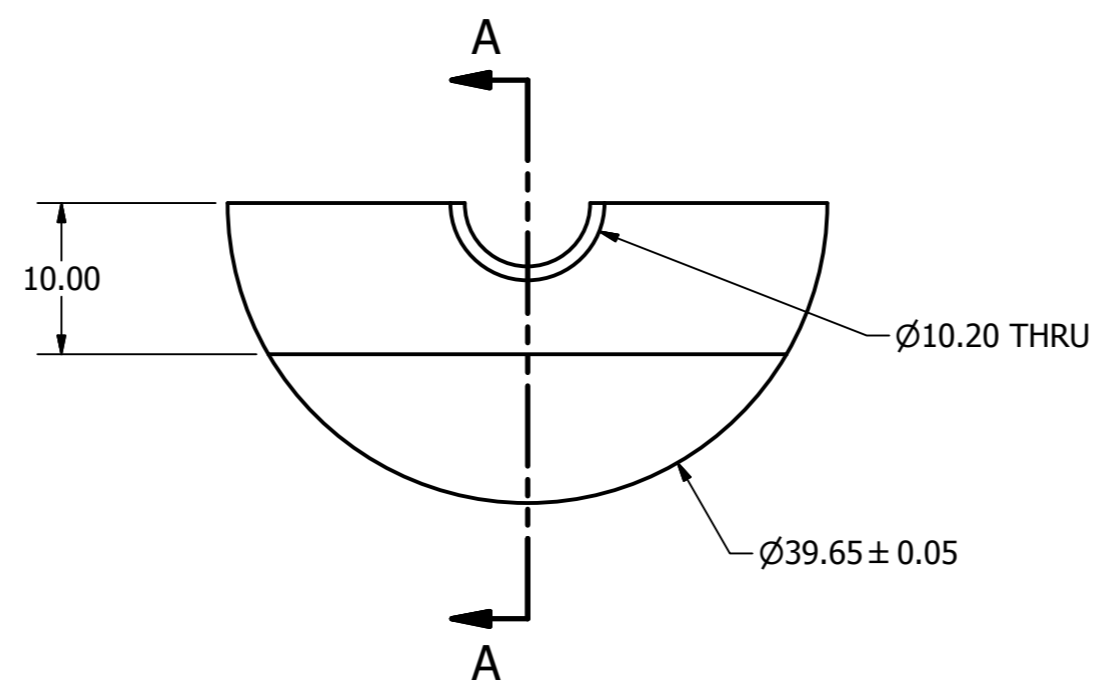
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
76893	A	RELEASE TO PRODUCTION	BK		3/4/09
77433	B	SØ25.40+0.03/-0.00 WAS SØ25.40; UPDATE NEXT ASSEMBLY AND USED ON	BK		12/17/10
72313	C	REDRAWN IN INVENTOR; REMOVE NOTE #1; NOTE #1 & 2 WAS NOTE #2 & 3; SØ25.40+0.03/-0.00 SEE NOTE 2 WAS SEE NOTE 3	AB		01/23/14
74656	D	UPDATED HOLE CALLOUT TO CURRENT STANDARDS	AB		12/23/15
74656	E	REGULATION RELEASE	GCH		1/11/2016



SCALE 1 : 1

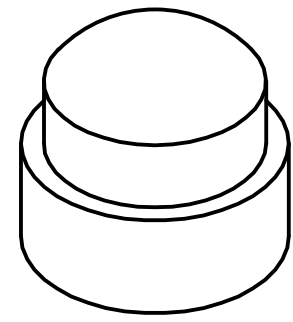


SECTION A-A

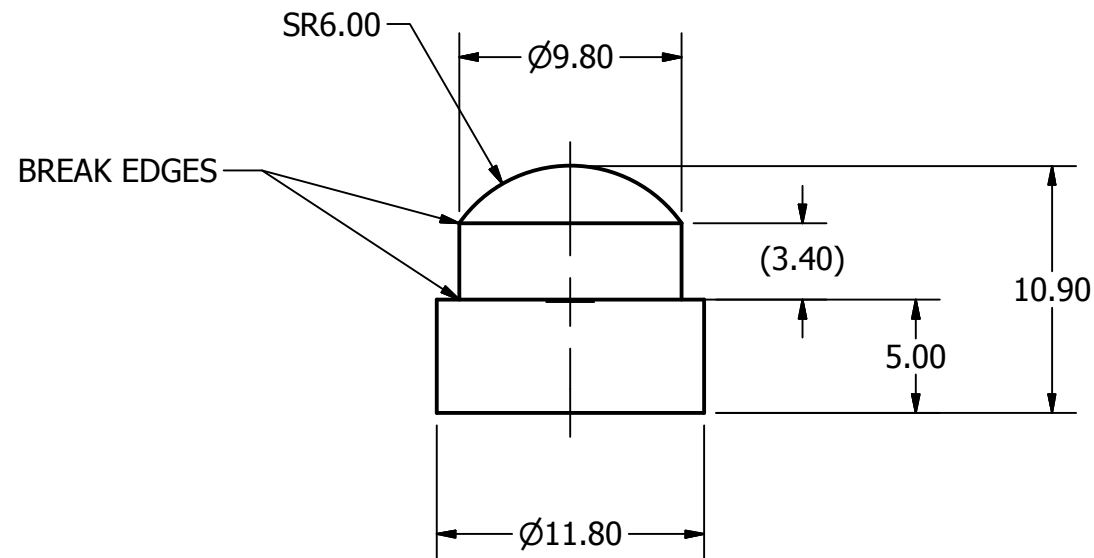
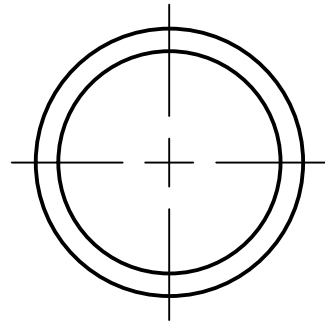


- NOTES:
1. DIMENSION SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
 2. CHECK FOR FIT USING 020-3537 (Ø25.40 FEMUR BALL).

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5, XX ±.2, XXX ±.1 MACHINED ANGLES: ∇ ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN: B. KIMES CHECKED:	DATE 3/4/2009	
MATERIAL: 7075-T6 ALUMINUM HEAT TREAT: FINISH:	APPROVED:	SIZE: A2 SCALE: 2 : 1	DRAWING NUMBER: 020-7118 SHEET: 1 OF 1 REV: E



SCALE 3:1



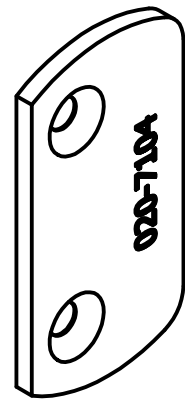
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	E	PMN 026/0	ASB		10/28/98
5705	F	REDRAW & RELEASE IN PROE	BK		10/28/05
75669	G	ADD NEXT ASM: 020-7100,030-7110; QTY: 1;1 & USED ON: 034-0000, 034-0000	LP		8/24/07
71341	H	REDRAWN IN AUTODESK INVENTOR	SC	SC	2/13/13
74656	J	REGULATION RELEASE	JH		12/22/2015

NOTES:

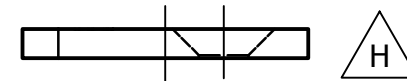
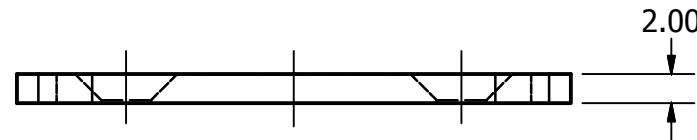
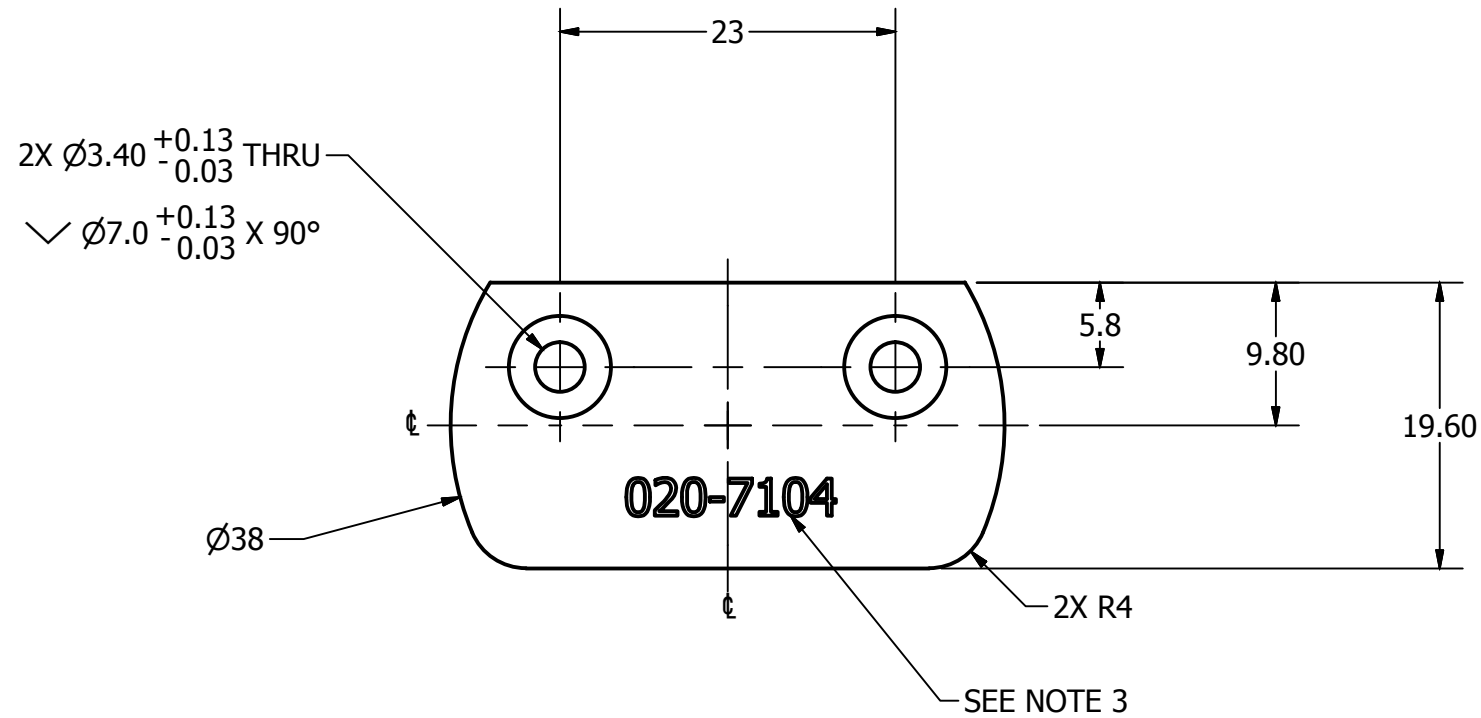
1. REMOVE BURRS AND BREAK SHARP EDGES.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS DRAWN sclise CHECKED ENG APPROVED		DATE 2/13/2013		DETENT PEG	
MATERIAL Acetal Resin, White HEAT TREAT FINISH		THIRD ANGLE PROJECTION		SIZE A3	DRAWING NUMBER 020-7103
				SCALE: 3:1	SHEET 1 OF 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENGR.	DATE
	D		ASB		2/24/99
75727	E	MATERIAL 6061-T6 WAS 6082; FINISH CLEAR ANODIZE WAS SILVER ANODIZE; REMOVE ANODIZE NOTE; ADD STAMP PART NUMBER NOTE	BK		7/26/07
75669	F	ADD NEXT ASM: 020-7100,020-7110; QTY: 1,1 & USED ON: 034-0000,034-0000	LP		8/24/07
71341	G	REDRAWN IN AUTODESK INVENTOR	SC	SC	2/13/13
74656	H	UPDATED HOLE CALL OUTS	JH		12/22/15
74656	J	REGULATION RELEASE	JH		1/12/2016



SCALE 3:2



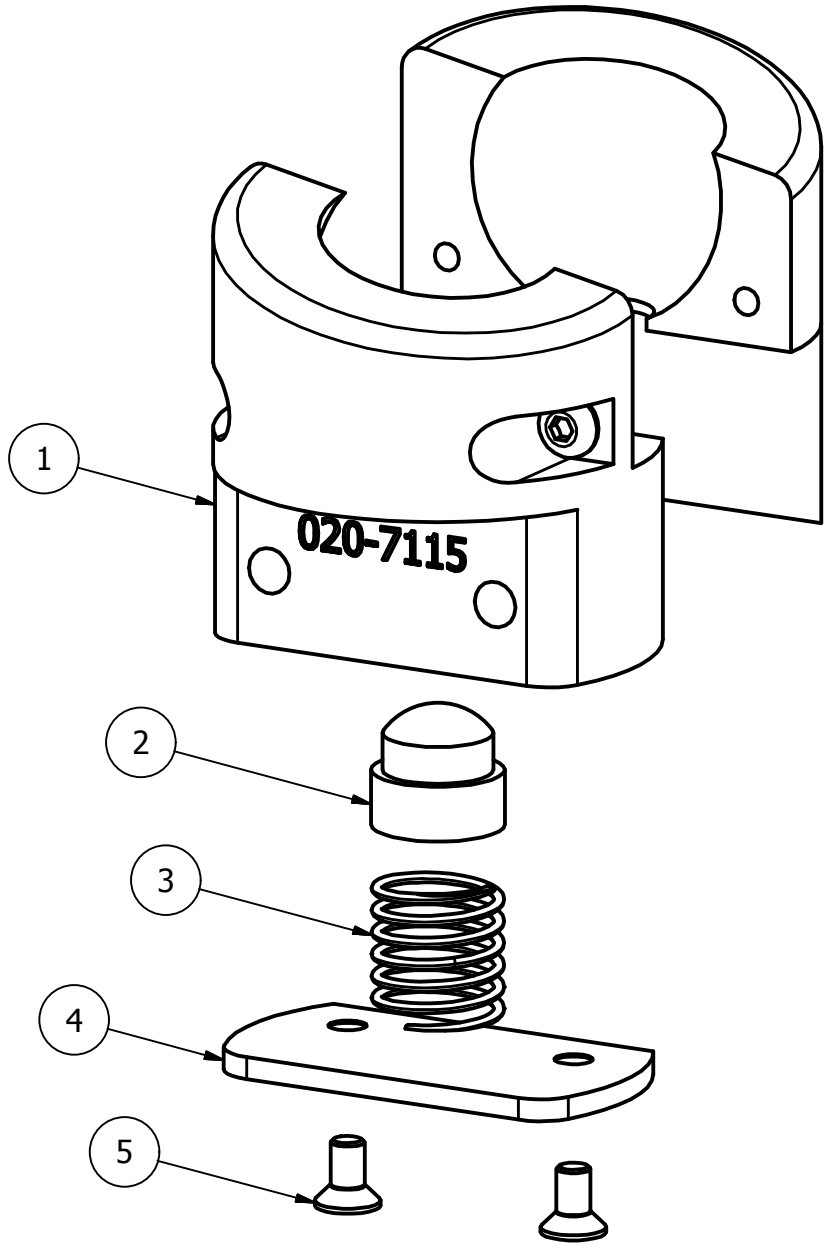
NOTES:

1. REMOVE BURRS AND BREAK SHARP EDGES.
2. SURFACE FINISH TO BE $0.8 \sqrt{\text{ }}$
3. STAMP OR ETCH PART NUMBER WHERE SHOWN.

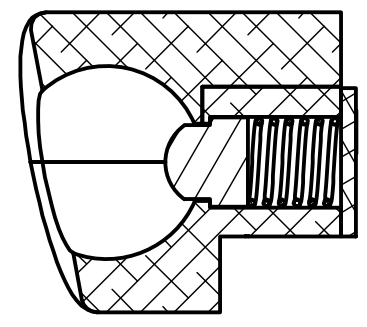


UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN: sclise CHECKED: [blank] ENG: [blank] APPROVED: [blank]	DATE 2/13/2013		SPRING RETAINER PLATE	
MATERIAL: 6061-T6 ALUMINUM HEAT TREAT: [blank] FINISH: CLEAR ANODIZE	SIZE: A3 SCALE: 2:1	DRAWING NUMBER: 020-7104 SHEET: 1 OF 1	REV: J		

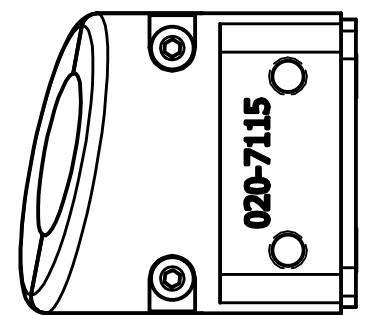
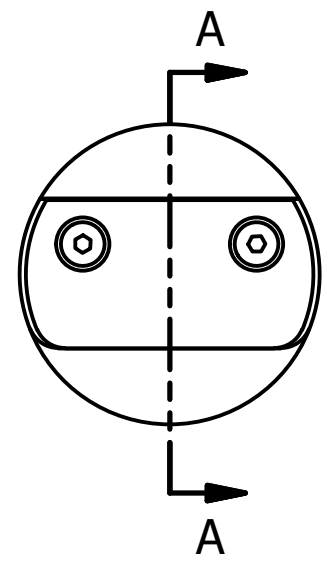
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
76893	A	RELEASE TO PRODUCTION	BK		3/2/09
77433	B	REMOVE 020-7117, 020-7118, 2X 5000410; ADD 020-7115; UPDATE NEXT ASSEMBLY AND USED ON; REMOVE MACHINING AND NOTES; PAGE SIZE A3 WAS A2	BK		12/20/10
72313	C	REDRAWN IN INVENTOR	AB		01/28/14
74656	D	REGULATION RELEASE	JH		12/22/2015



SCALE 1.5:1



SECTION A-A

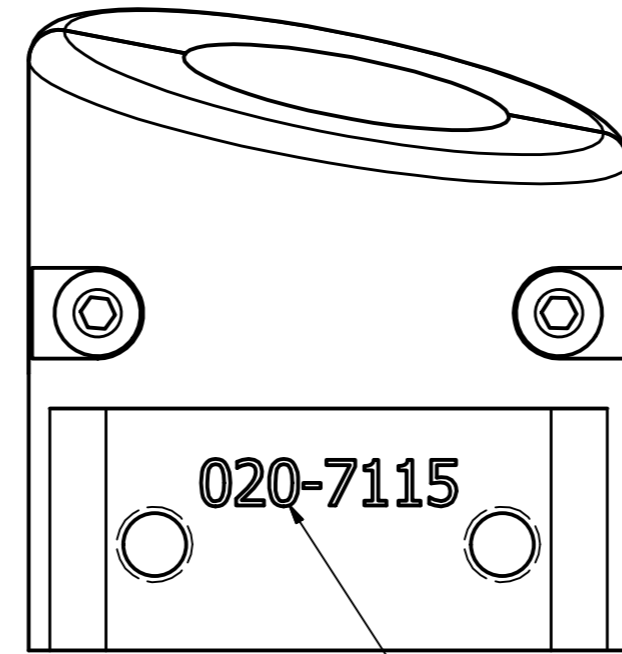
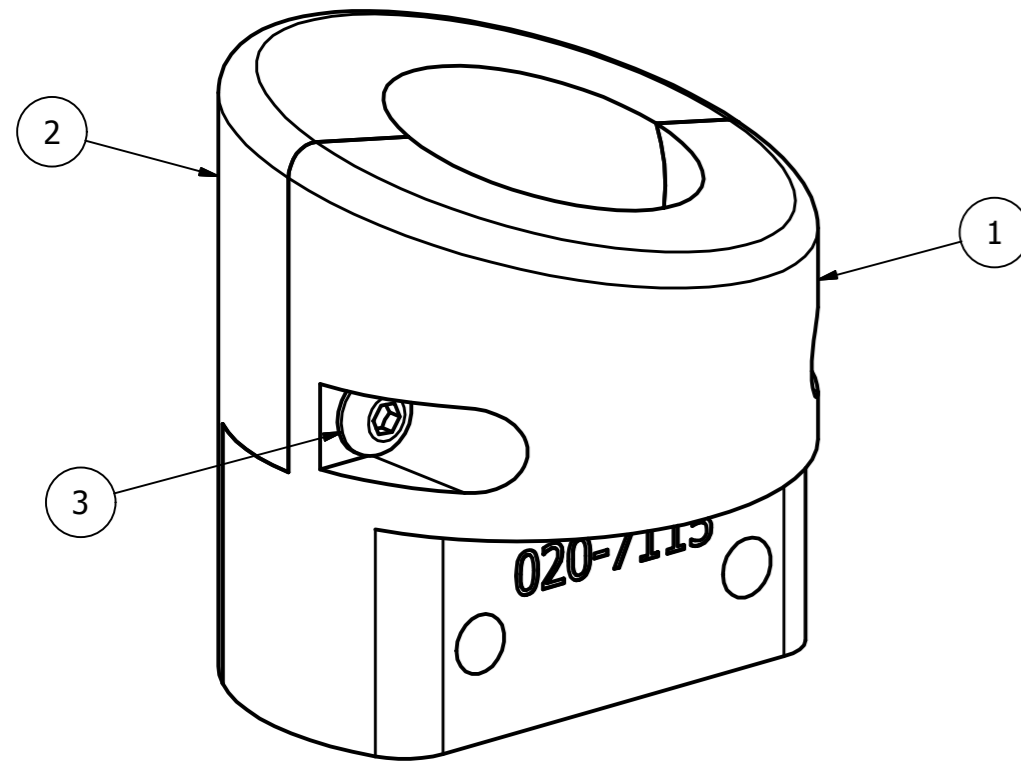


ITEM	QTY	PART NUMBER	DESCRIPTION
5	2	5000098	M3 X 0.5 X 6 LG. FHCS
4	1	020-7104	SPRING RETAINER PLATE
3	1	5000650	SPRING LCM090F01M
2	1	020-7103	DETENT PEG
1	1	020-7115	HIP JOINT PAIR, RIGHT

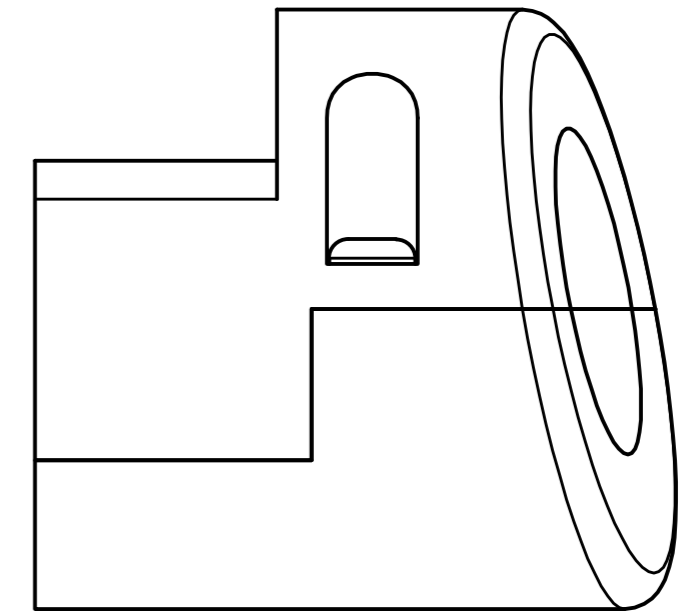
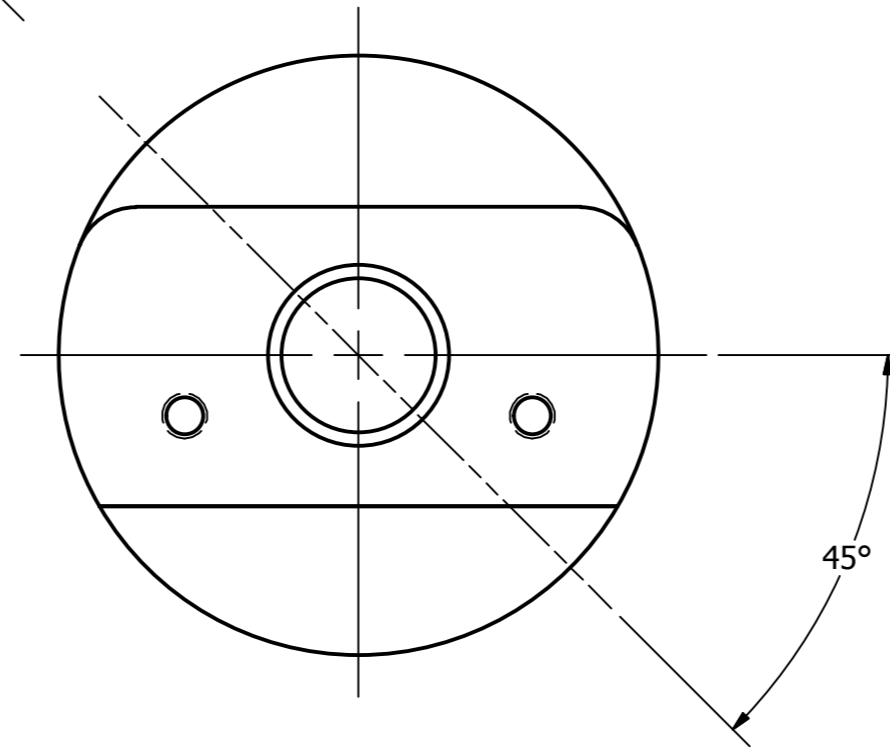
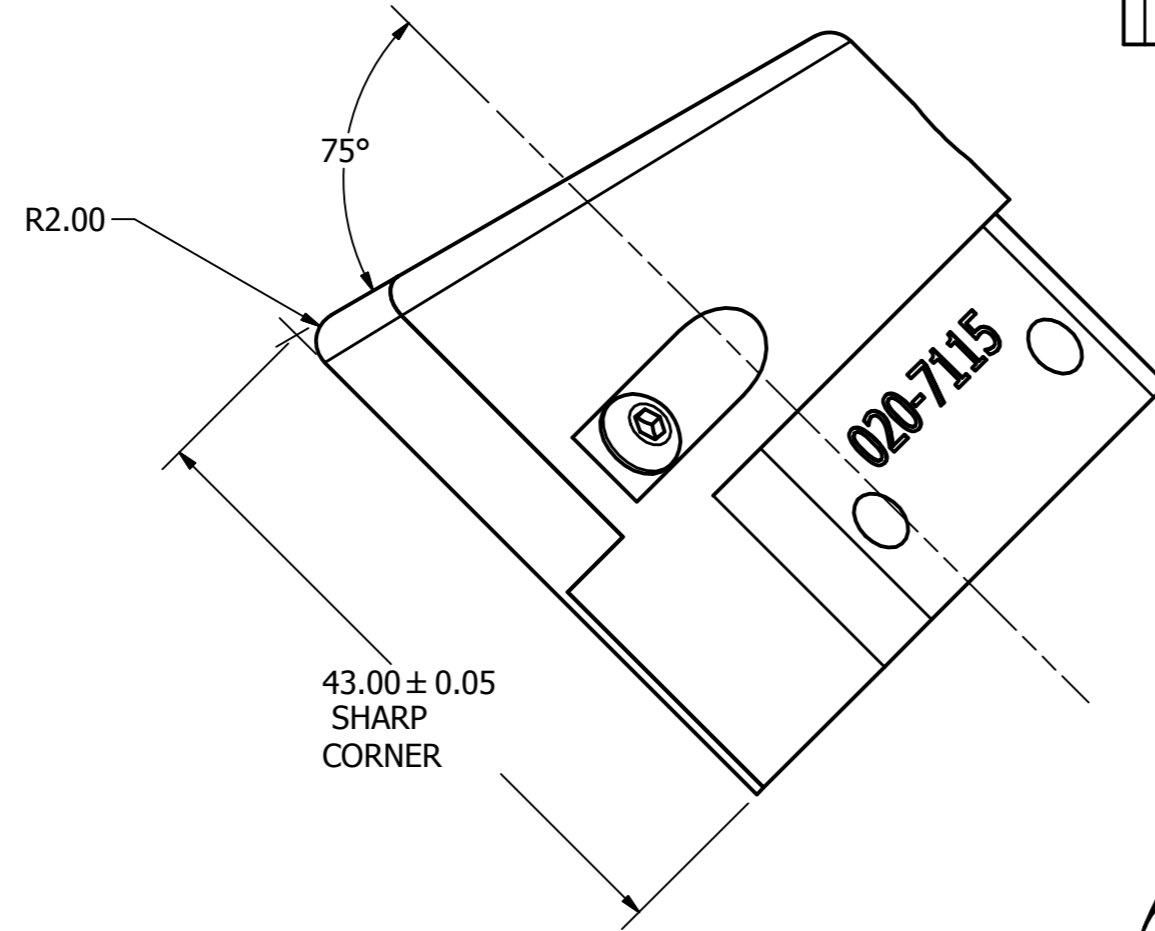
B

PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5, XX ±.2, X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER	
APPROVALS DRAWN B. KIMES CHECKED ENG APPROVED		DATE 12/20/2010	
MATERIAL HEAT TREAT FINISH		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION HIP JOINT ASSEMBLY, RIGHT	
THIRD ANGLE PROJECTION		SIZE A3	DRAWING NUMBER 020-7116
SCALE: 1:1		SHEET 1 OF 1	

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
77433	A	RELEASE TO PRODUCTION	BK		12/20/10
72313	B	REDRAWN IN INVENTOR; REMOVE NOTE #2; NOTE #2 & 3 WAS NOTE #3 & 4; SEE NOTE 2 WAS SEE NOTE 3	AB		01/28/14
74656	C	REGULATION RELEASE	JH		12/22/2015



SEE NOTE 2



NOTES:

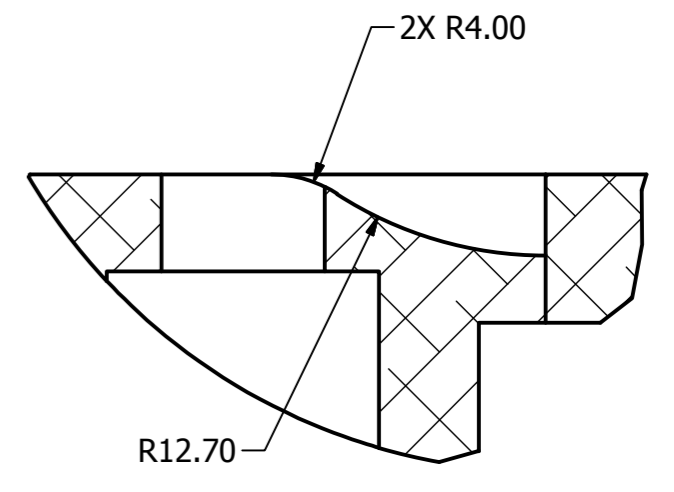
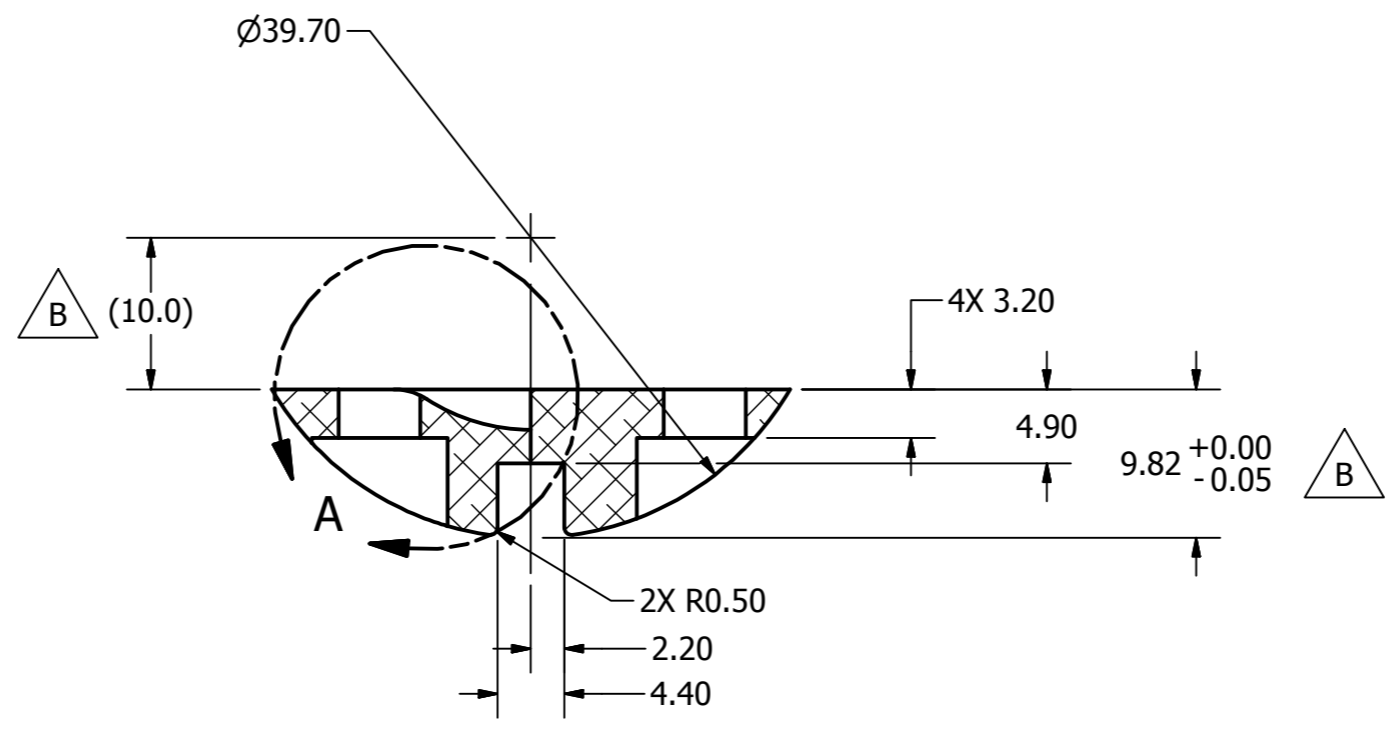
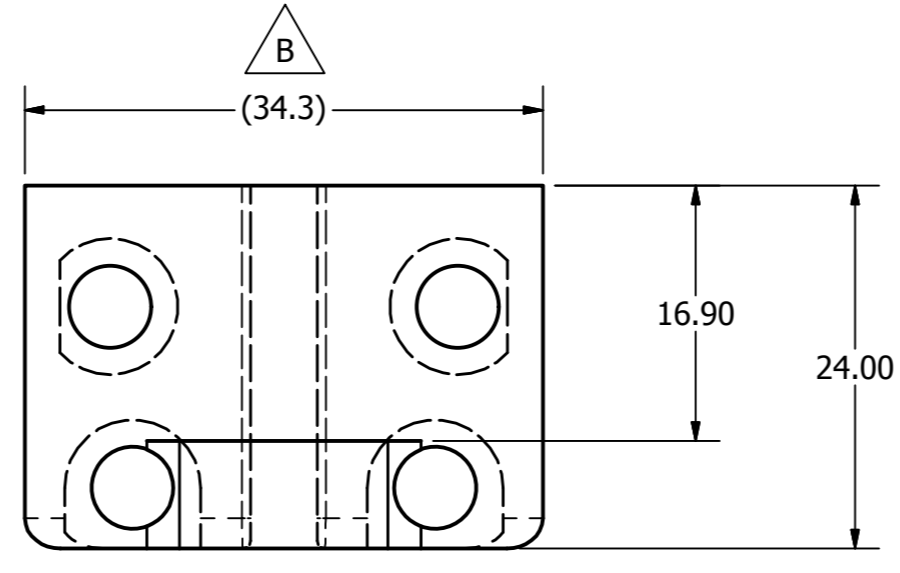
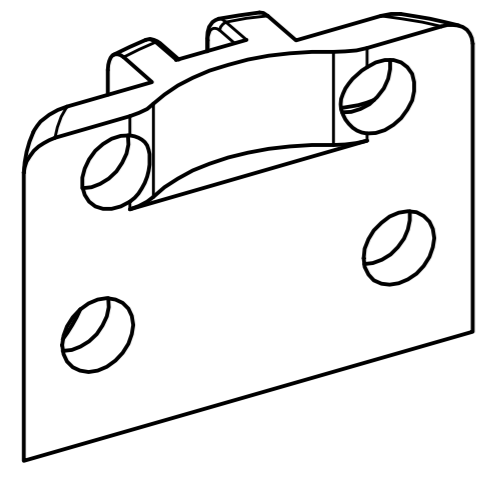
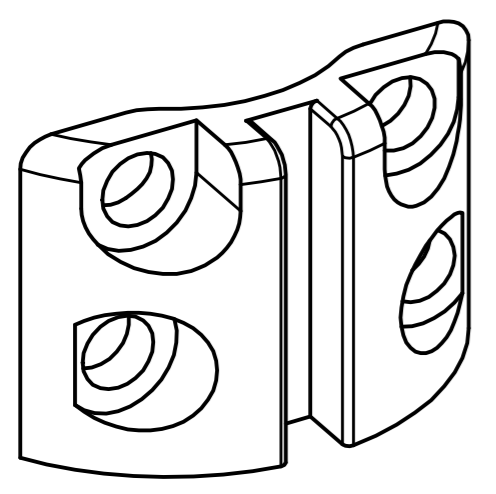
1. ASSEMBLE COMPONENTS AND MACHINE AS SHOWN.
2. STAMP OR ETCH PART NUMBER (3mm CHARACTERS) AS SHOWN.
3. DISASSEMBLE THEN ANODIZE AFTER MACHINING.

ITEM	QTY	PART NUMBER	DESCRIPTION
3	2	5000410	M3 X 0.5 X 8 LG. BHCS
2	1	020-7118	HIP JOINT, UPPER, METAL
1	1	020-7117	HIP JOINT, LOWER, METAL

PARTS LIST

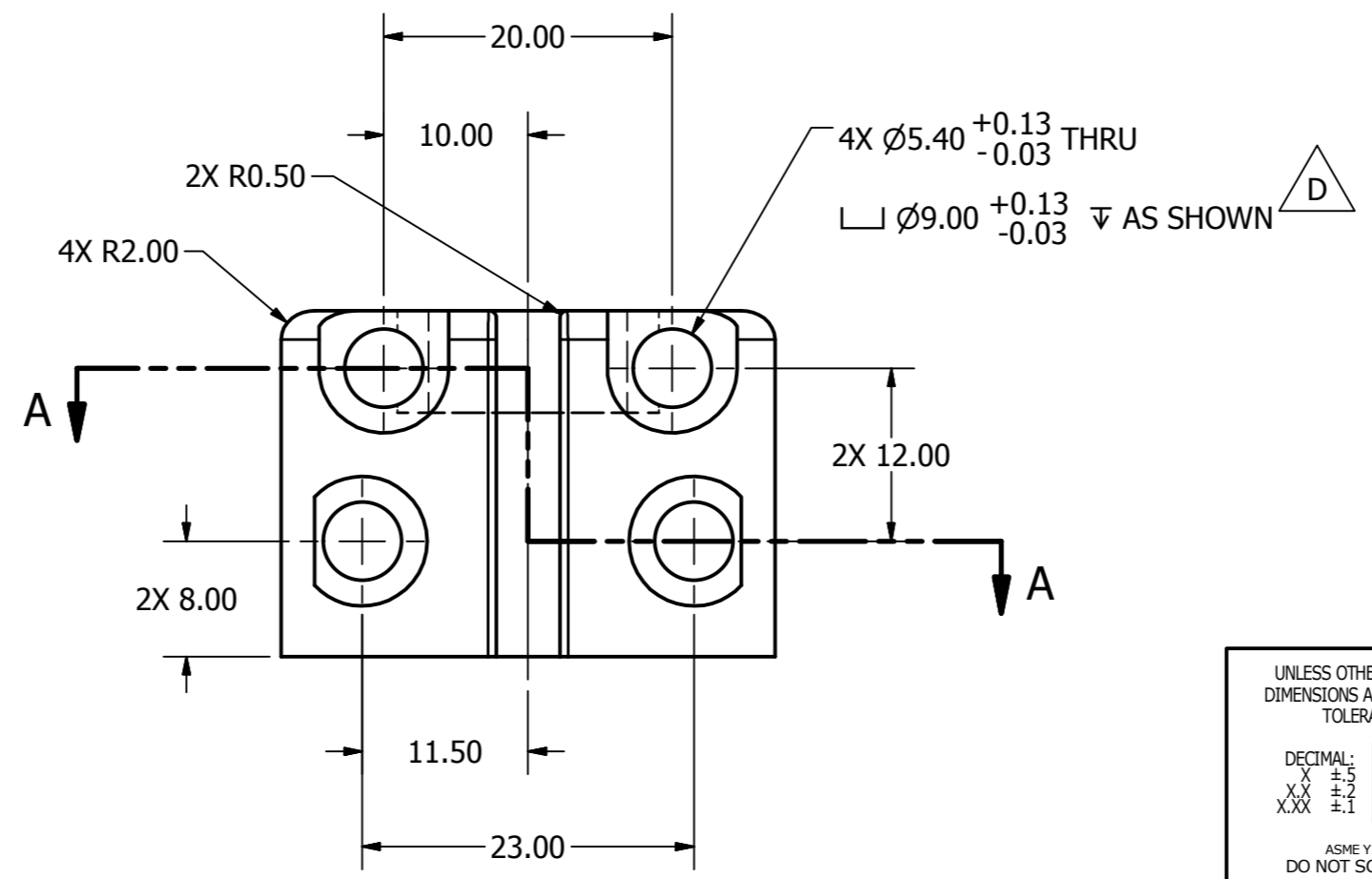
<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</small> DECIMAL: X ±.5, XX ±.2, XXX ±.1 MACHINED ANGLES: ±.5° <small>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</small>	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN: B. KIMES CHECKED:	DATE 12/20/2010	
MATERIAL: HEAT TREAT: FINISH: CLEAR ANODIZE	CHECKED: ENG: APPROVED:	SIZE: A2 SCALE: 2:1	DRAWING NUMBER: 020-7115 SHEET: 1 OF 1 REV: C

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	LP		5-25-07
77967	B	9.82+0.00/-0.05 WAS (10.0); (10.0) WAS 9.90; (34.3) WAS (34.5); ADDED SECOND ISO VIEW; ADDED DETAIL A	JPM		6/20/11
72313	C	REDRAWN IN INVENTOR; REMOVE NOTE #1; SCALE 2:1 WAS 1.500	AB		01/23/14
74656	D	UPDATED HOLE CALL OUTS TO CURRENT STANDARDS.	JH		1/12/2016
74656	E	REGULATION RELEASE	JH		1/12/2016



SECTION A-A

DETAIL A
SCALE 4 : 1



NOTES:

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:
DECIMAL - MACHINED
X ±.5
XX ±.2
XXX ±.1
ANGLES ±.5°
ASME Y14.5M - 1994
DO NOT SCALE DRAWING

VEHICLE RESEARCH
and TEST CENTER

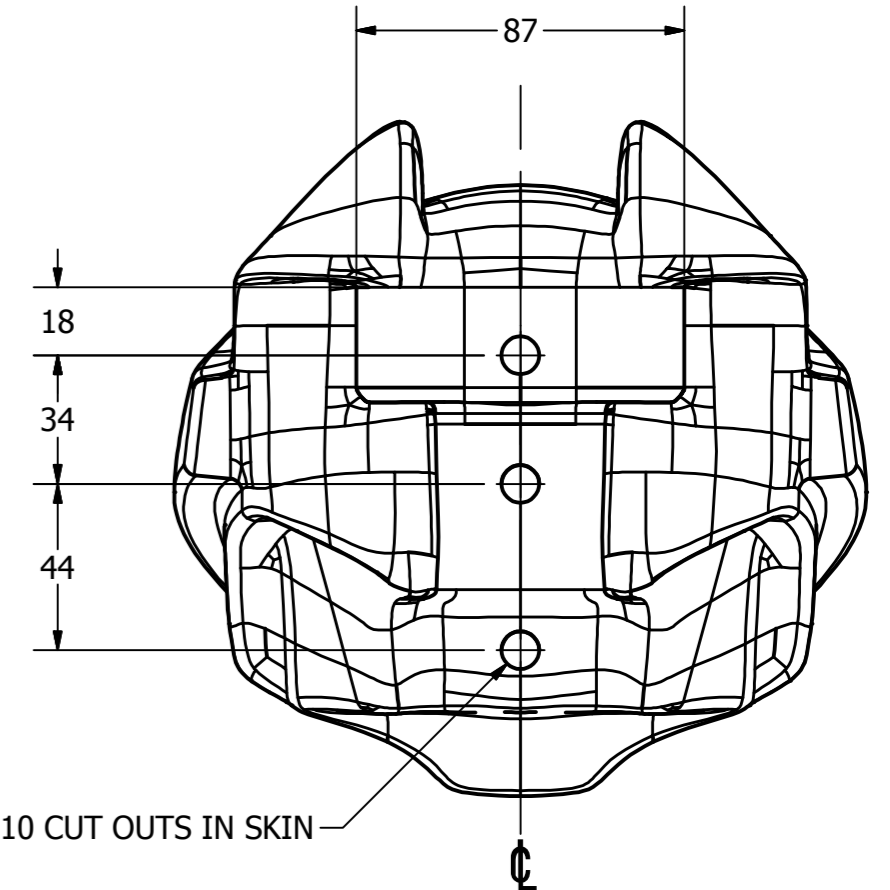
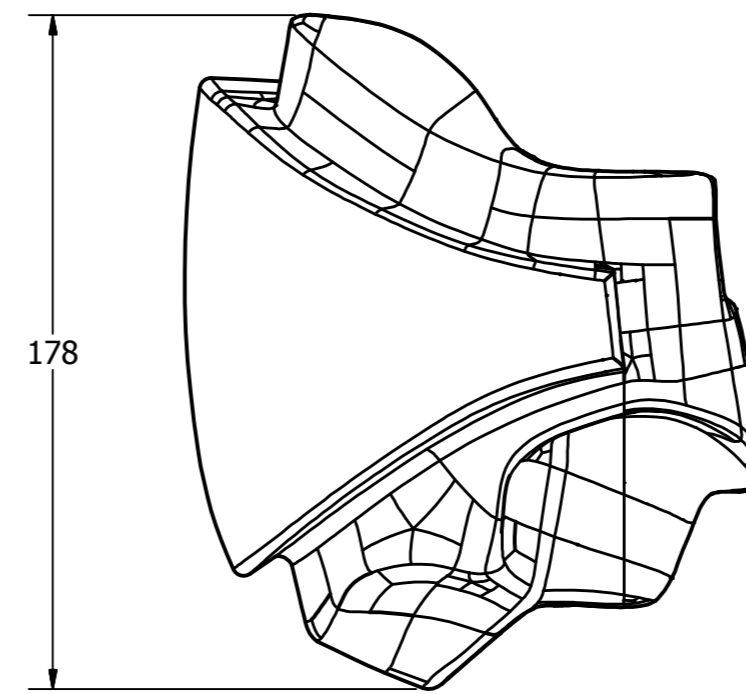
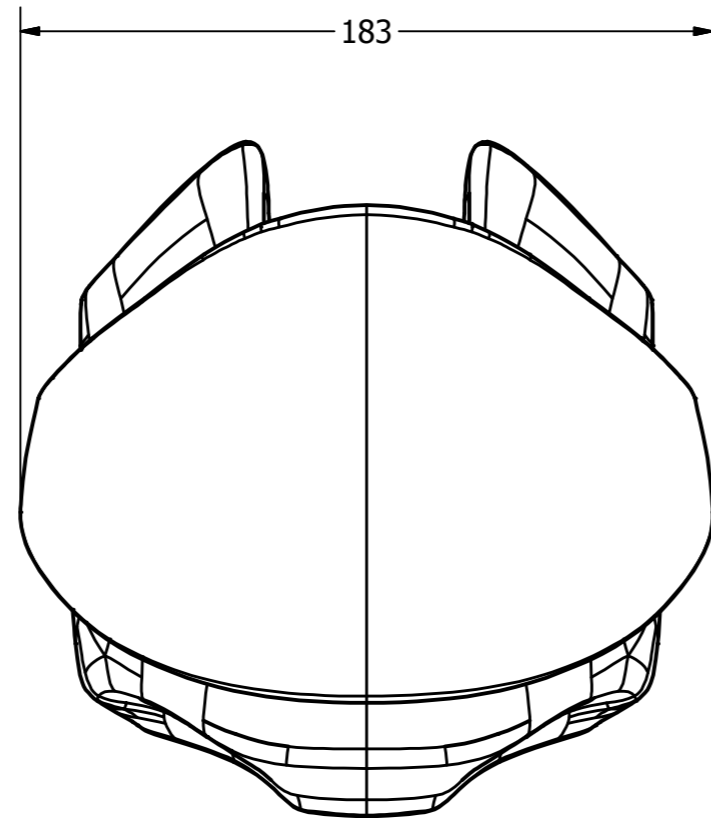
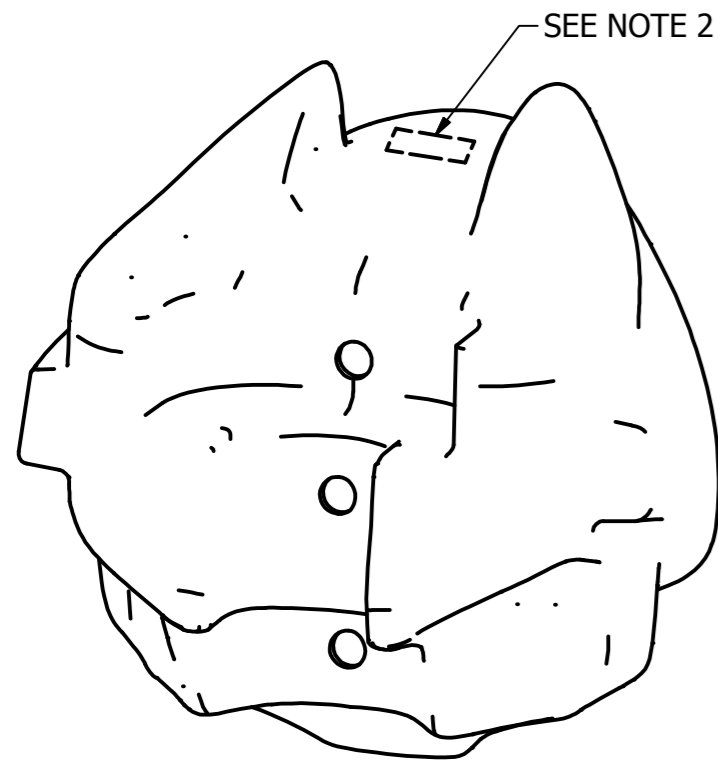
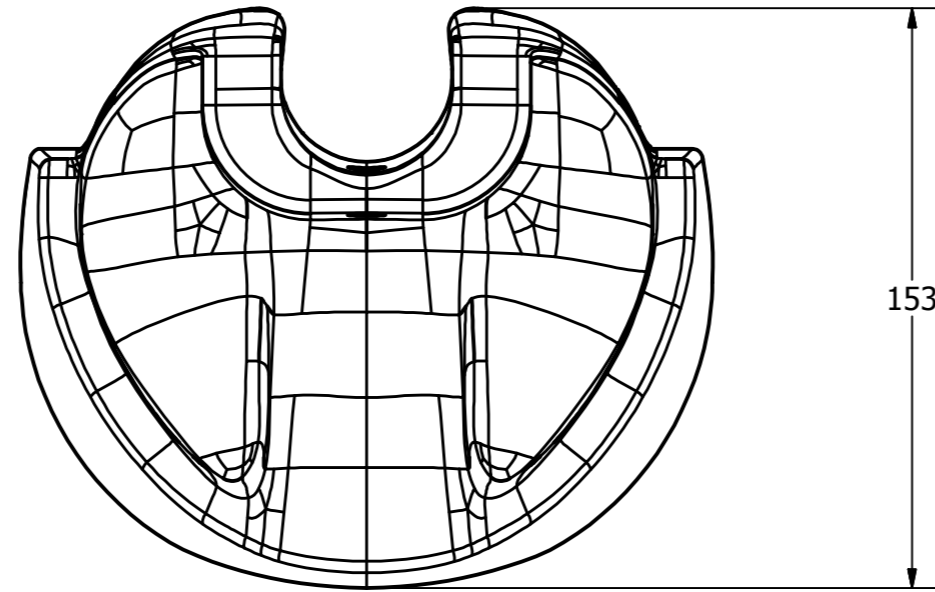
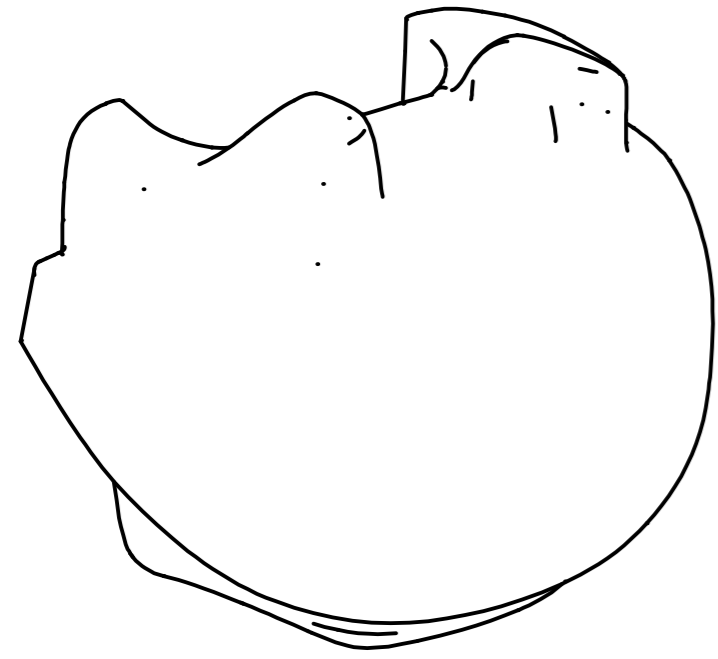
APPROVALS	DATE
M. CARLSON	25-May-07
CHECKED	
ENG	
APPROVED	

NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

HIP JOINT SLIDE, COVER

SIZE	DRAWING NUMBER	REV
A2	020-7135	E
SCALE:	SHEET	OF
2:1	1	1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	1ST ISSUE	ASB		2-24-98
	B		ASB		4-7-99
	C	PNM 020/8	MJB		1-18-02
5705	D	REDRAW & RELEASE IN PROE	BK		1-05-06
72313	E	REDRAWN IN INVENTOR; ADDED WEIGHT SPECS & STIFFNESS NOTE TO NOTE #1	AB		01/23/14
74650	F	REGULATION RELEASE	GCH		12/21/2015



NOTES:

- MATERIAL: FOAM FILLED PVC SKIN.
WEIGHT: 790 ±30 grams
FOAM STIFFNESS TO MEET CERTIFICATION REQUIREMENT.
- MARK PART NUMBER IN INDELIBLE PEN.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:

DECIMAL: X ±.5 XX ±.2 XXX ±.1	MACHINED ANGLES ±.5°
--	----------------------------

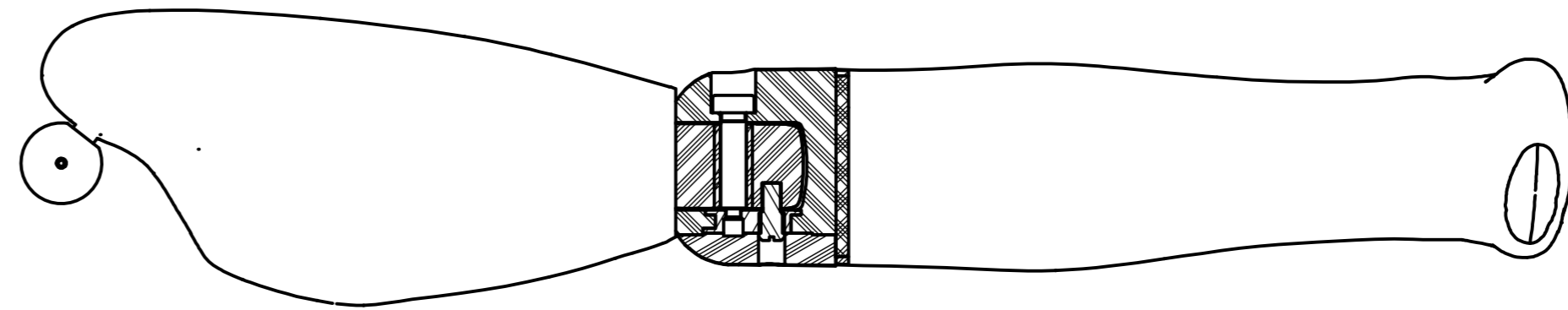
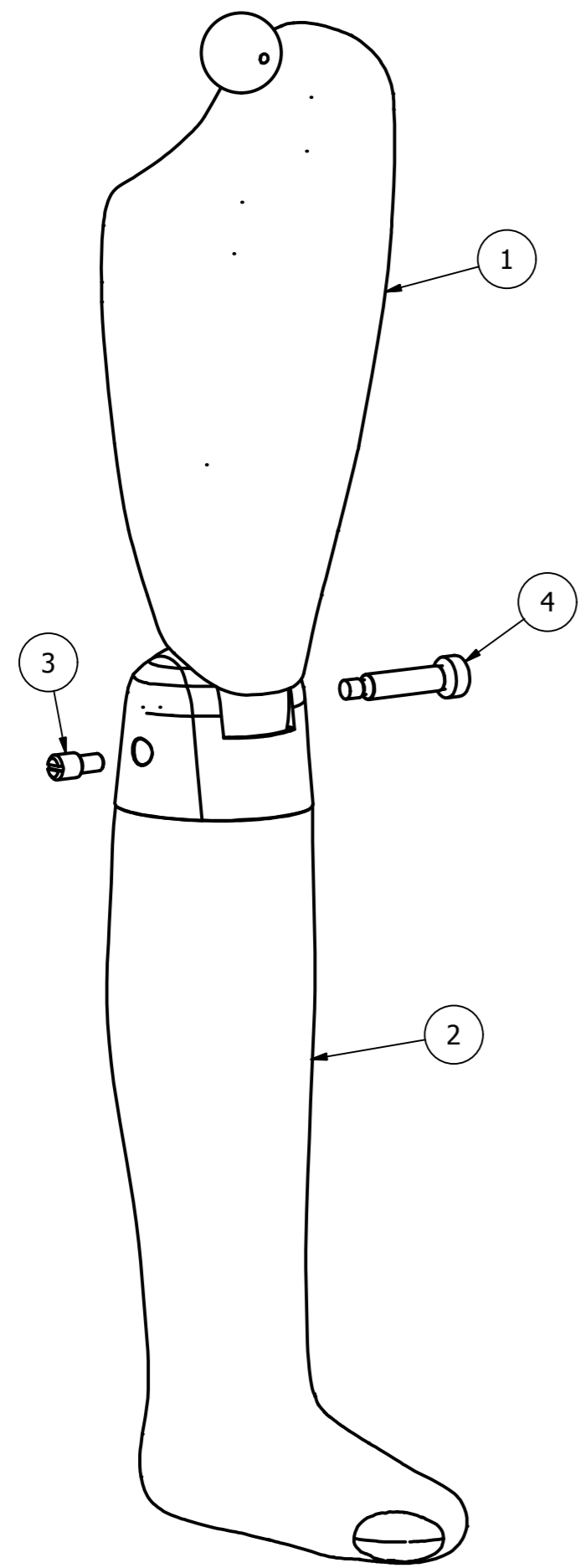
ASME Y14.5M - 1994
DO NOT SCALE DRAWING

MATERIAL SEE NOTES	CHECKED
HEAT TREAT	ENG
FINISH	APPROVED

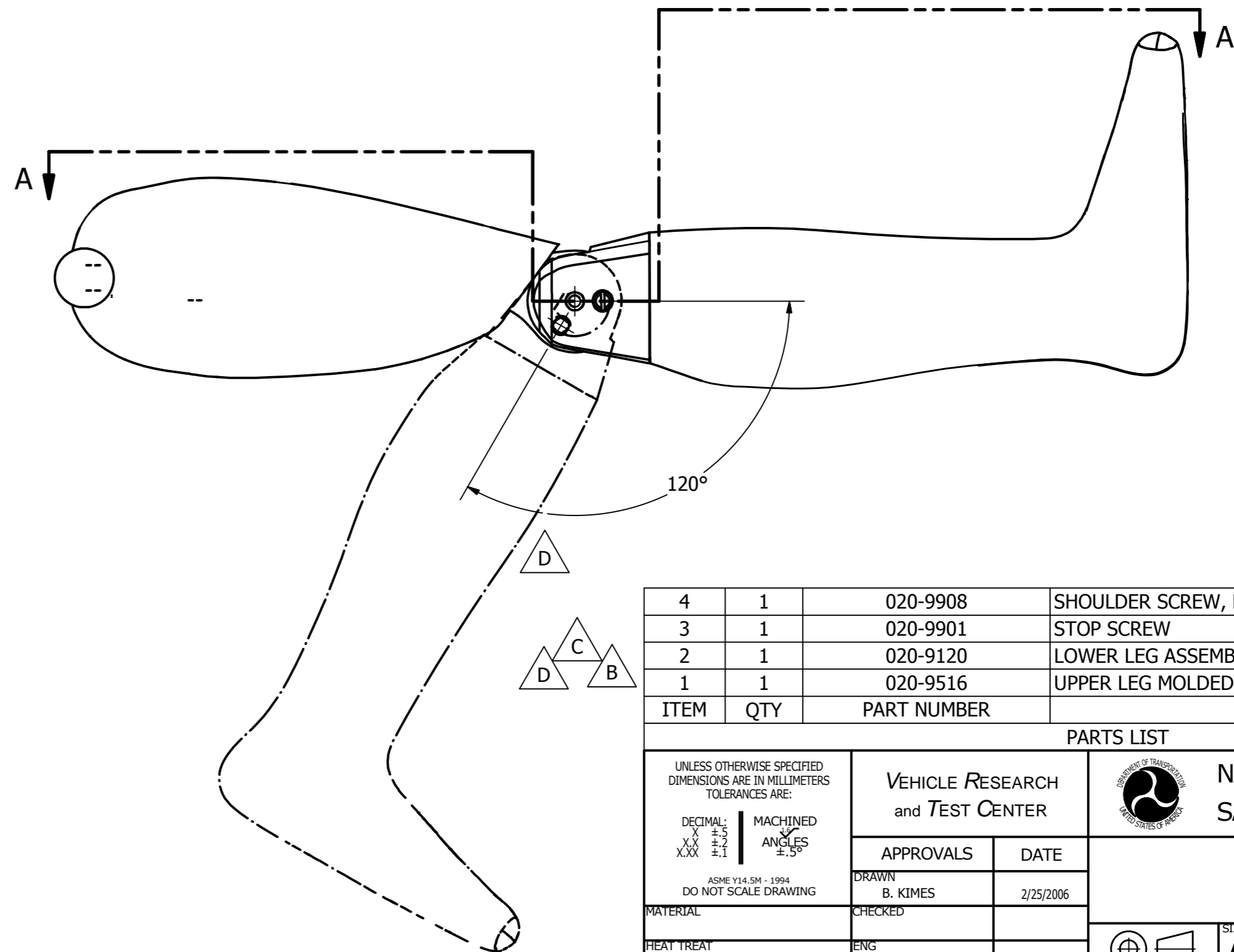
VEHICLE RESEARCH and TEST CENTER	
APPROVALS	DATE
DRAWN B. KIMES	5/17/2005
CHECKED	
ENG	
APPROVED	

	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	ABDOMEN	
	SIZE: A2 SCALE: 1/2	DRAWING NUMBER: 020-5000 SHEET: 1 OF 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		4/04/06
77433	B	020-9516 WAS 020-9501	BK		12/21/10
70760	C	020-9120 WAS 020-9102	JPM		1/21/13
72315	D	REDRAWN IN INVENTOR; REVISED 120° LEG VIEW	AB		01/14/14
74658	E	REGULATION RELEASE	JH		12/22/2015



SECTION A-A
(PARTIAL VIEW)



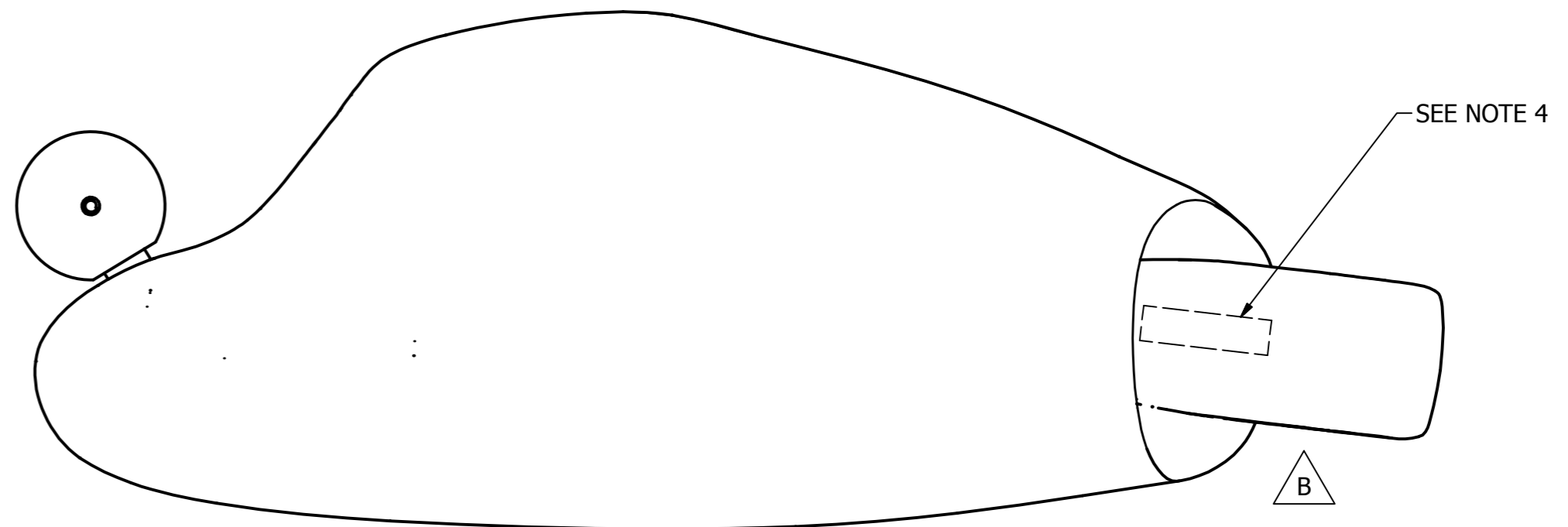
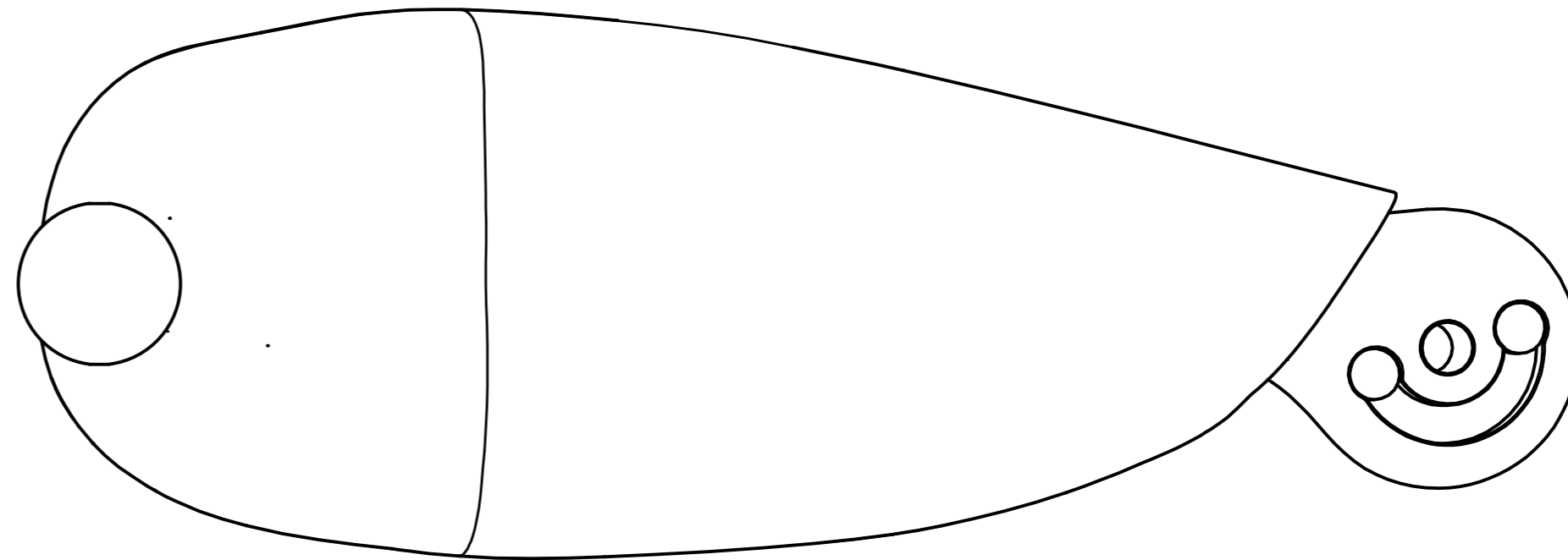
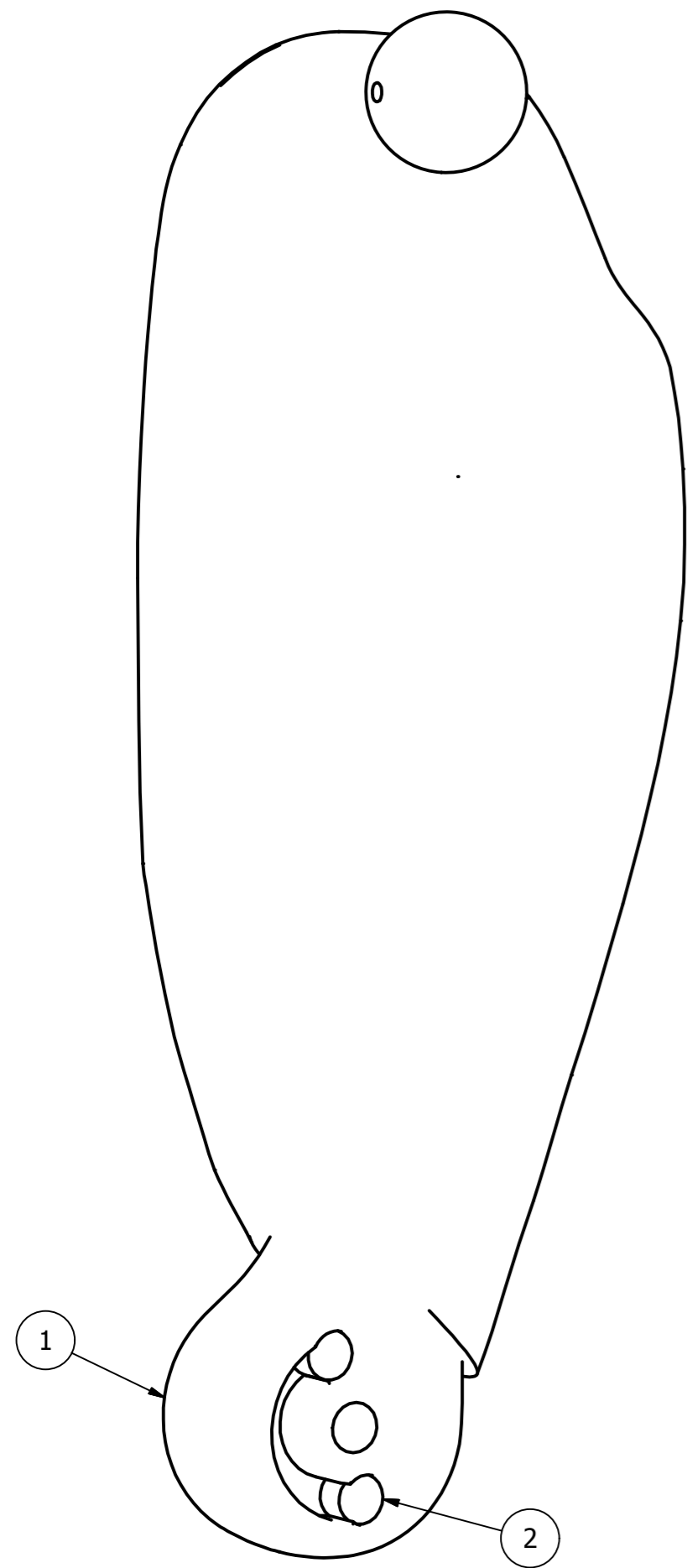
ITEM	QTY	PART NUMBER	DESCRIPTION
4	1	020-9908	SHOULDER SCREW, KNEE
3	1	020-9901	STOP SCREW
2	1	020-9120	LOWER LEG ASSEMBLY, LEFT
1	1	020-9516	UPPER LEG MOLDED, LEFT, Q3s

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL: X ±.5 XX ±.2 XXX ±.1	MACHINED X X X ANGLES ±.5°	APPROVALS	DATE	LEFT LEG ASSEMBLY, Q3s	
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		DRAWN B. KIMES	2/25/2006		
MATERIAL	CHECKED			DRAWING NUMBER A2 020-9500	
HEAT TREAT	ENG			REV E	
FINISH	APPROVED			SCALE: .5:1 SHEET 1 OF 1	



REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
76893	A	RELEASE TO PRODUCTION	BK		3/4/09
72315	B	REDRAWN IN INVENTOR; REMOVED Y & Z AXIS	AB		01/14/14
74658	C	REGULATION RELEASE	JH		12/22/2015



NOTES:

1. REMOVE ALL FLASHING.
2. MATERIAL: SKIN PVC, FLESH URETHANE.
3. COMPONENT TO BE FREE FROM EXCESSIVE AIR POCKETS.
4. ETCH PART NUMBER WHERE SHOWN.
5. BALLAST: BARUIM SULPHATE POWER ADDED TO FLESH MIX.

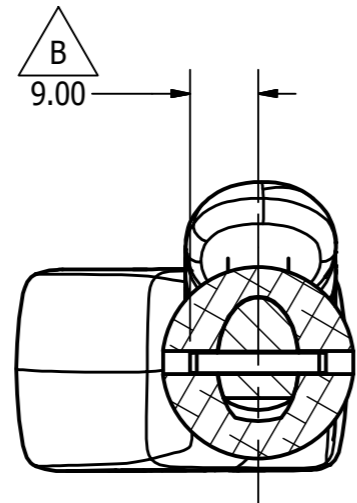
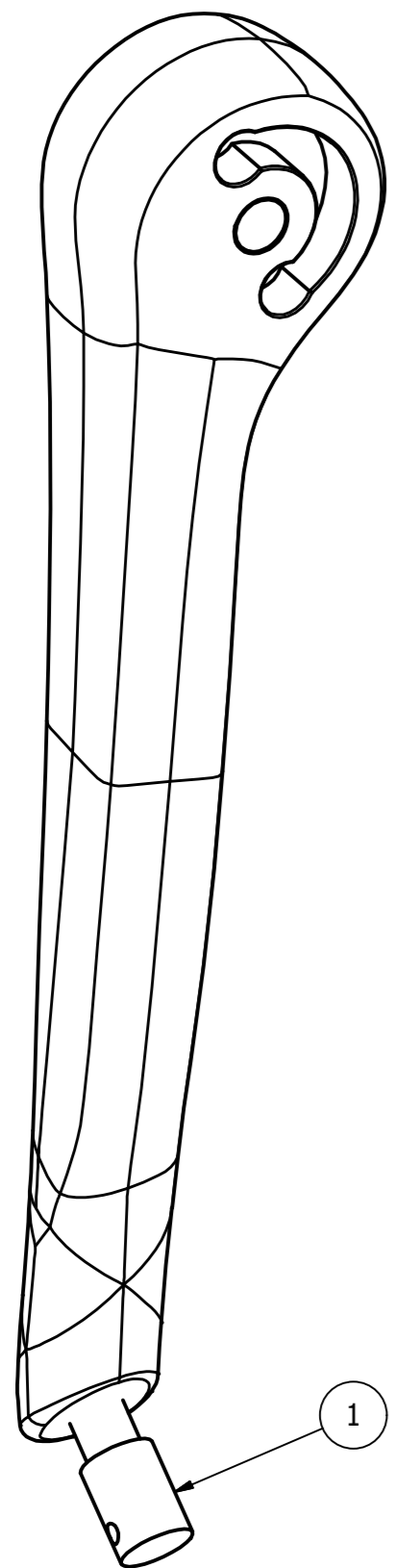
ITEM	QTY	PART NUMBER	DESCRIPTION
2	2	020-9903	END STOP
1	1	020-9511	FEMUR,LEFT LEG, Q3s

PARTS LIST

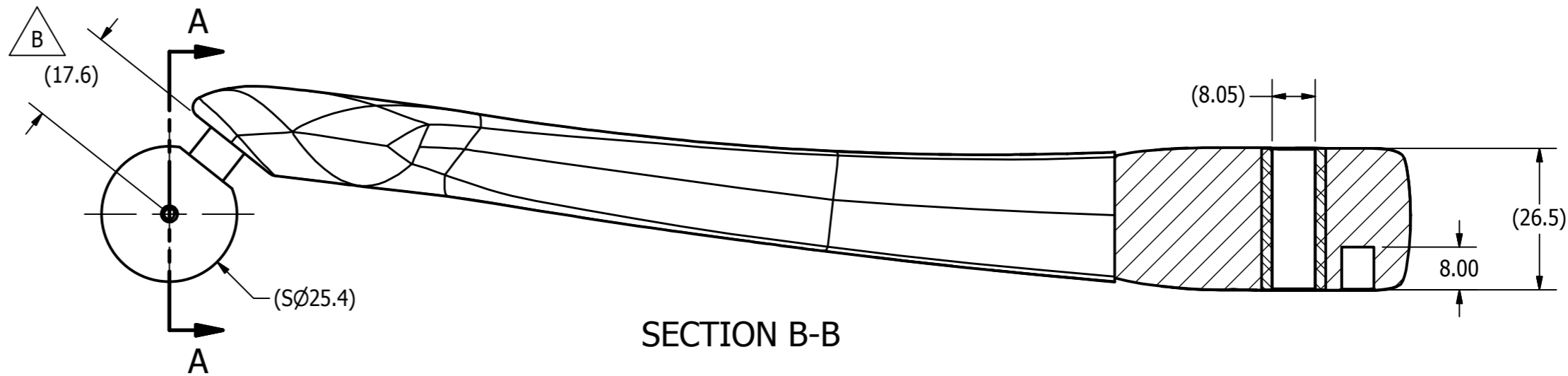
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 XXX ±.1		MACHINED ANGLES ±.5°		VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		APPROVALS		DATE		UPPER LEG MOLDED, LEFT, Q3s	
MATERIAL SEE NOTE 2		DRAWN B. KIMES		3/4/2008			
HEAT TREAT		CHECKED					
FINISH		ENG					
		APPROVED					

 THIRD ANGLE PROJECTION	SIZE A2	DRAWING NUMBER 020-9516	REV C
SCALE: 1:1		SHEET 1 OF 1	

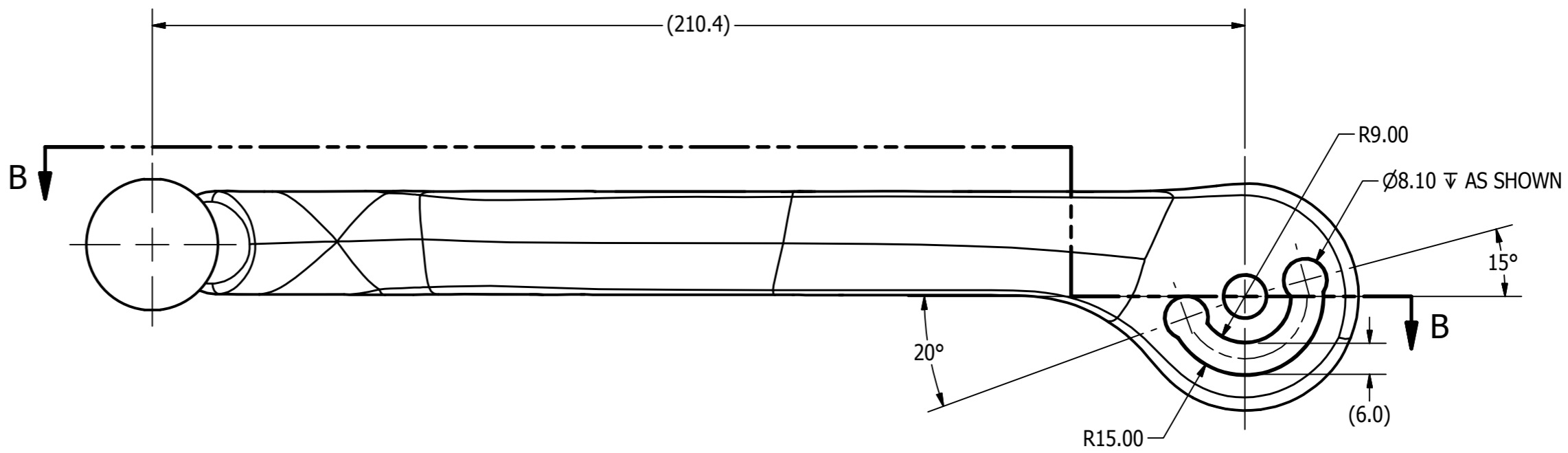
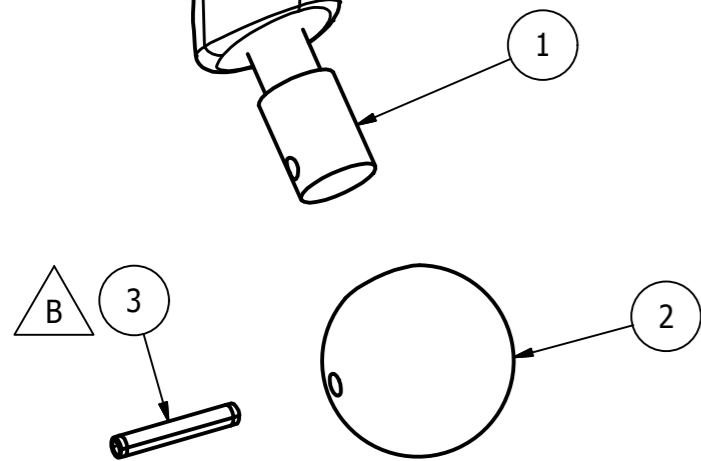
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
76893	A	RELEASE TO PRODUCTION	BK		3/03/09
72315	B	REDRAWN IN INVENTOR; REMOVE NOTE #1; NOTE #1 THRU 3 WAS NOTE #2 THRU 4; (17.6) WAS (17.5); ITEM 3 (5000188) M3 X 18 LG. COIL PIN WAS ROLL PIN, M3 X 20; 9.00 WAS 10.00	AB		01/07/14
74658	C	REGULATION RELEASE	GCH		01/04/2016



SECTION A-A



SECTION B-B



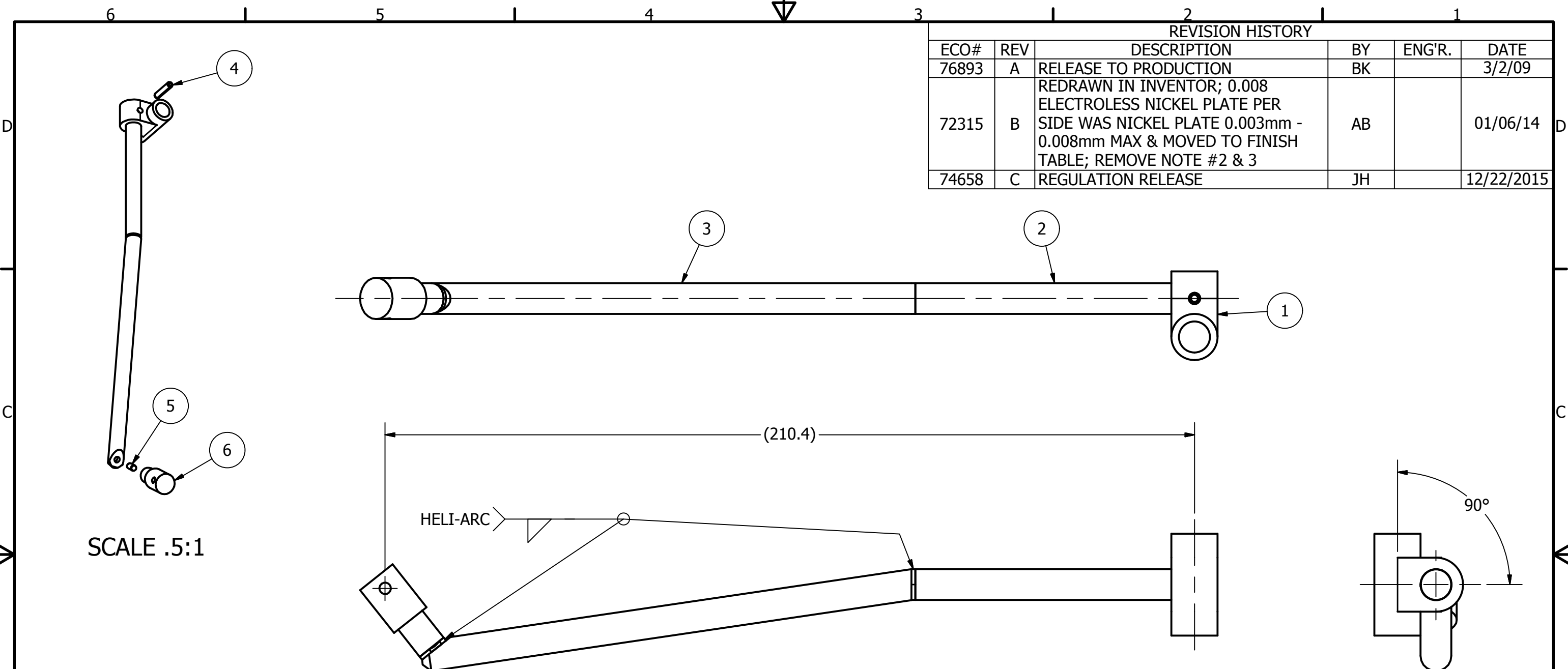
B NOTES:

1. COMPONENT TO BE FREE FROM EXCESSIVE AIR POCKETS.
2. GENERAL TOLERANCE FOR MOLDED PART ± 1 , UNLESS OTHERWISE STATED.
3. ASSEMBLE BALL AND PIN, AS SHOWN, AFTER MOLDING.

ITEM	QTY	PART NUMBER	DESCRIPTION
3	1	5000188	M3 X 18 LG. COIL PIN
2	1	020-3537	BALL, SHOULDER
1	1	020-9507	FEMUR REINFORCEMENT WELDMENT, LEFT

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED ANGLES ±.5°		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS DRAWN: B. KIMES		DATE 3/3/2009		FEMUR, LEFT LEG, Q3s	
MATERIAL: POLYURETHANE HEAT TREAT: FINISH:		CHECKED: ENG: APPROVED:		SIZE: A2 DRAWING NUMBER: 020-9511 SCALE: 1:1 SHEET: 1 OF 1	


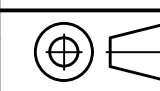
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
76893	A	RELEASE TO PRODUCTION	BK		3/2/09
72315	B	REDRAWN IN INVENTOR; 0.008 ELECTROLESS NICKEL PLATE PER SIDE WAS NICKEL PLATE 0.003mm - 0.008mm MAX & MOVED TO FINISH TABLE; REMOVE NOTE #2 & 3	AB		01/06/14
74658	C	REGULATION RELEASE	JH		12/22/2015



SCALE .5:1

ITEM	QTY	PART NUMBER	DESCRIPTION
6	1	020-9509	REINFORCEMENT-3, FEMUR
5	1	5000385	M3 X 6 LG. DOWEL PIN
4	1	5000196	M3 X 14 LG. ROLL PIN SS
3	1	020-9510	REINFORCEMENT-2, FEMUR
2	1	020-9508	REINFORCEMENT-1, FEMUR
1	1	020-9515	PIVOT BLOCK, KNEE, Q3s

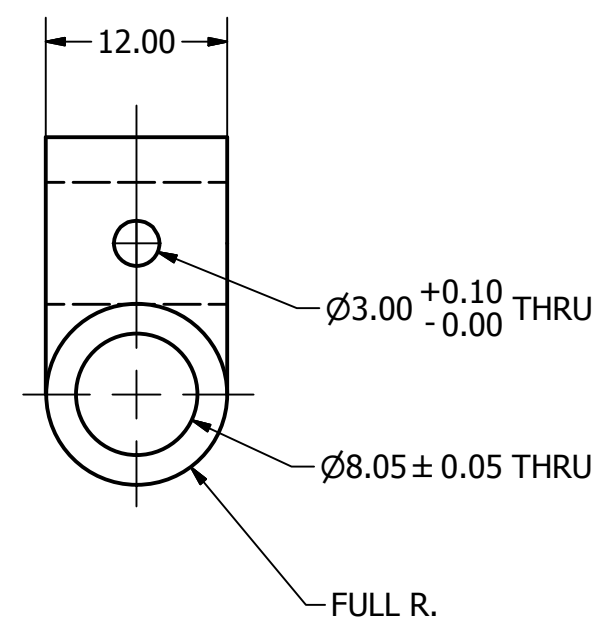
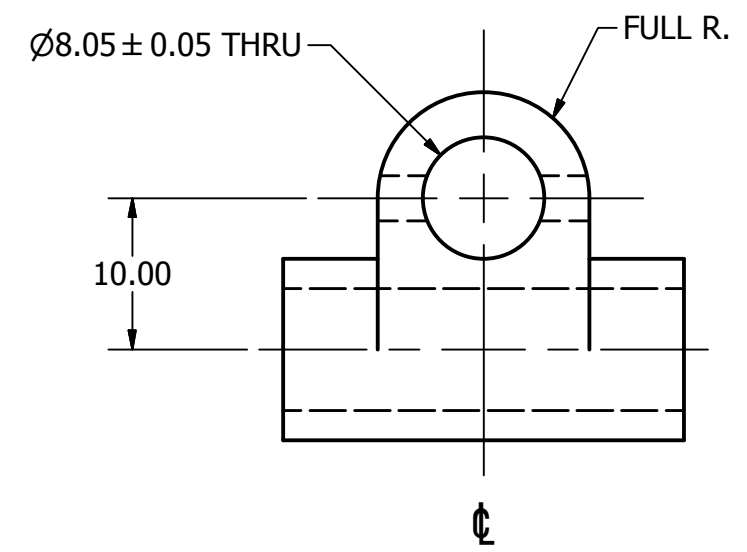
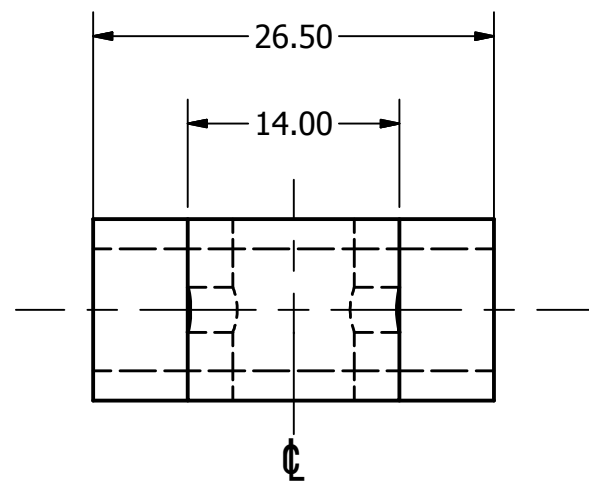
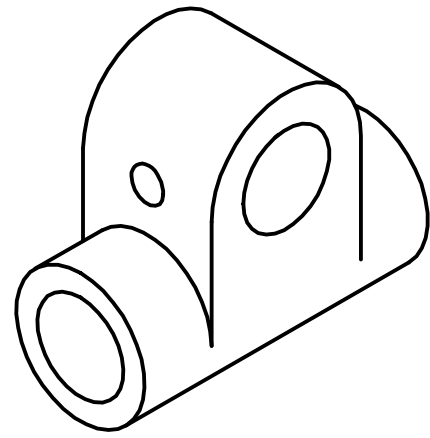
B NOTES:
1. POWDER BLAST OR BEAD BLAST.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		FEMUR REINFORCEMENT WELDMENT, LEFT	
DRAWN CY		3/2/2009			
CHECKED					
MATERIAL		ENG		 THIRD ANGLE PROJECTION	
HEAT TREAT		APPROVED		SIZE: A3 DRAWING NUMBER: 020-9507 REV: C	
FINISH 0.008 ELECTROLESS NICKEL PLATE PER SIDE				SCALE: 1:1 SHEET 1 OF 1	

B

REVISION HISTORY

ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
76893	A	RELEASE TO PRODUCTION	BK		3/04/2009
70907	B	REDRAWN IN INVENTOR	MT		3/4/2009
74658	C	UPDATED HOLE CALLOUTS PER CURRENT STANDARDS	GCH		01/13/2016
74658	D	REGULATION RELEASE	GCH		01/13/2016



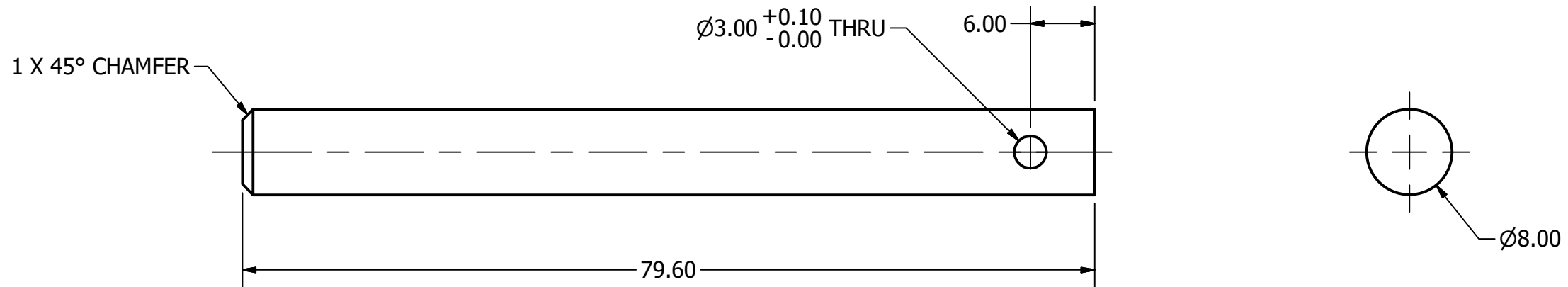
- NOTES:
1. REMOVE ALL BURRS AND BREAK ALL SHARP EDGES.
 2. DIMENSION SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN CY CHECKED ENG APPROVED	DATE 3/4/2009	
MATERIAL 1018 STEEL HEAT TREAT FINISH	THIRD ANGLE PROJECTION	SIZE A3 SCALE: 2 : 1	DRAWING NUMBER 020-9515 SHEET 1 OF 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
76893	A	RELEASE TO PRODUCTION	BK		3/02/09
72315	B	REDRAWN IN INVENTOR; REMOVE NOTE #1	AB		01/06/14
74658	C	UPDATED HOLE CALLOUT PER CURRENT STANDARDS	GCH		01/13/2016
74658	D	REGULATION RELEASE	GCH		01/13/2016



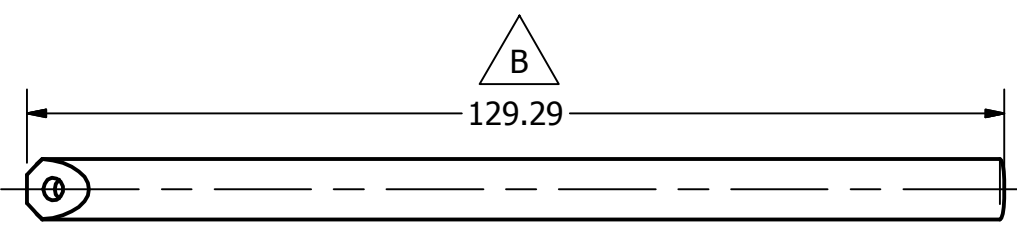
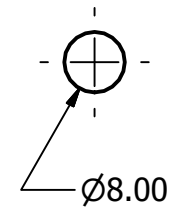
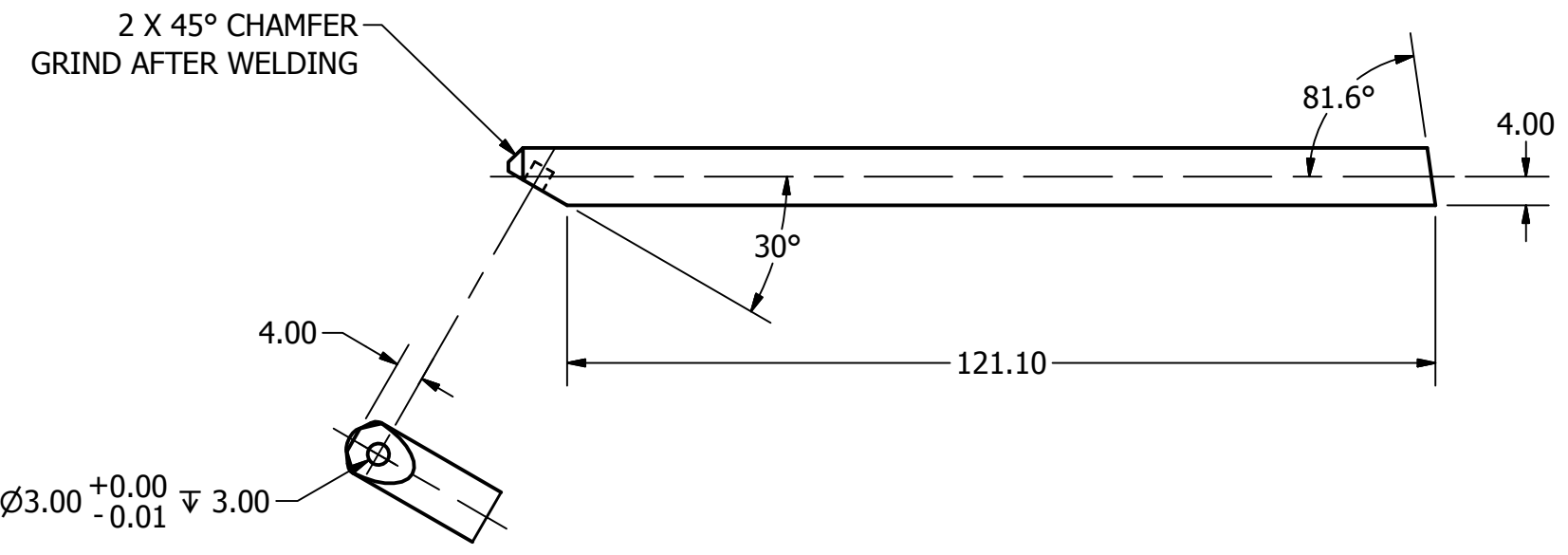
SCALE 1 : 1



B NOTES:

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ✓ ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN CY CHECKED ENG APPROVED	DATE 3/2/2009	
MATERIAL 1018 STEEL HEAT TREAT FINISH	THIRD ANGLE PROJECTION	SIZE A3	DRAWING NUMBER 020-9508
	SCALE: 2 : 1	SHEET 1 OF 1	REV D

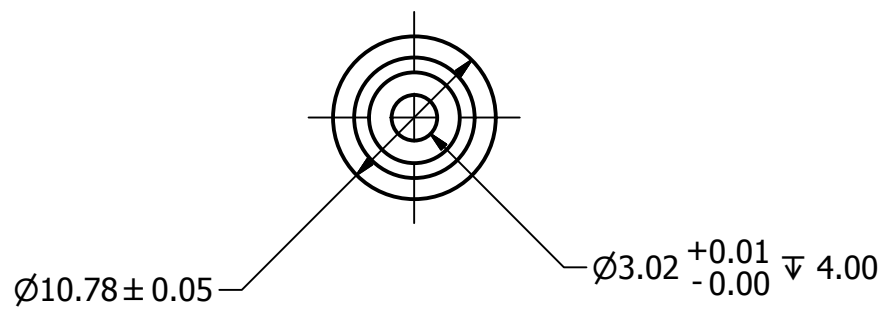
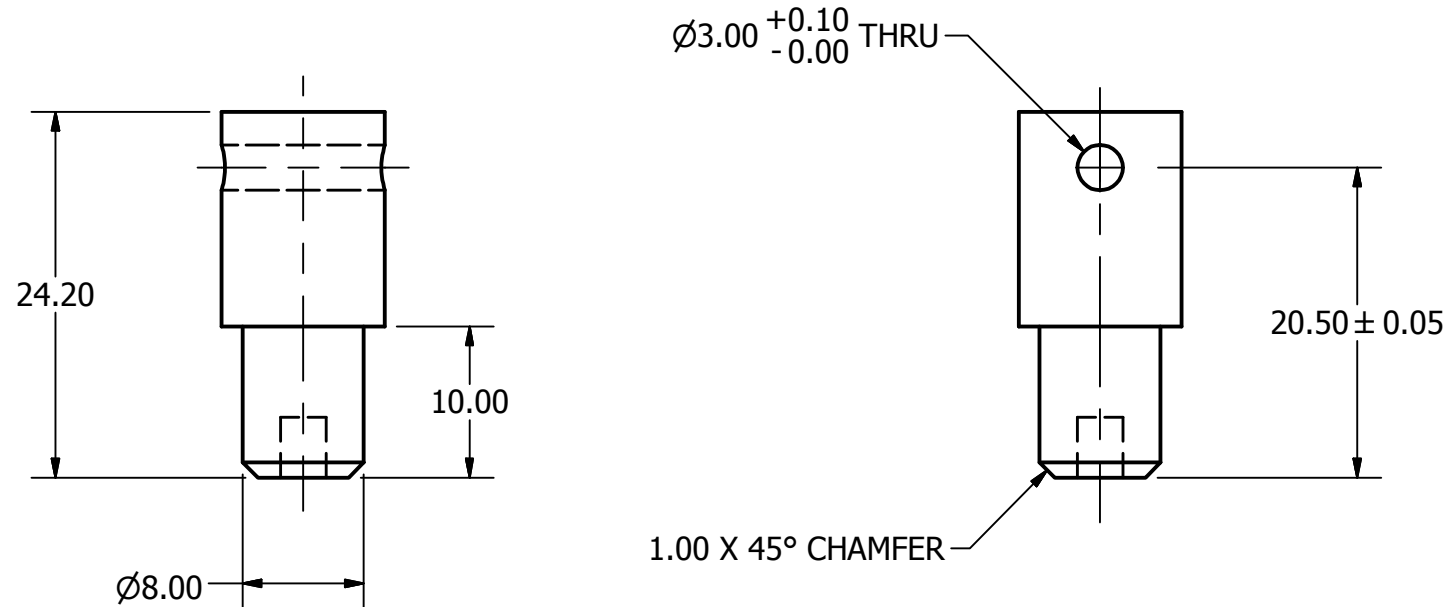
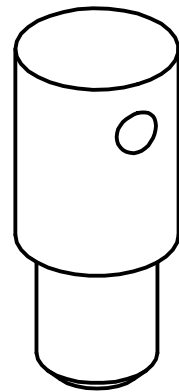
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
76893	A	RELEASE TO PRODUCTION	BK		3/02/09
72315	B	REDRAWN IN INVENTOR; REMOVE NOTE #1; REMOVE 128.70; ADD 129.29 OVERALL DIMENSION	AB		01/06/13
74658	C	REGULATION RELEASE	GCH		01/04/2016



B NOTES:

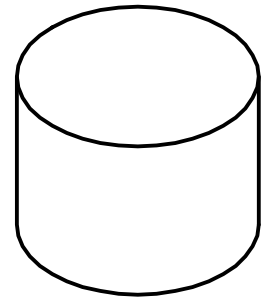
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION		
	APPROVALS	DATE		REINFORCEMENT-2, FEMUR		
	DRAWN CY	3/2/2009		SIZE A3	DRAWING NUMBER 020-9510	REV C
	CHECKED			SCALE: 1 : 1	SHEET 1	OF 1
MATERIAL 1018 STEEL	ENG					
HEAT TREAT	APPROVED					

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
76893	A	RELEASE TO PRODUCTION	BK		3/02/09
72315	B	REDRAWN IN INVENTOR; REMOVE NOTE #1	AB		01/06/14
74658	C	UPDATED HOLE CALLOUTS PER CURRENT STANDARDS	GCH		01/13/2016
74658	D	REGULATION RELEASE	GCH		01/13/2016

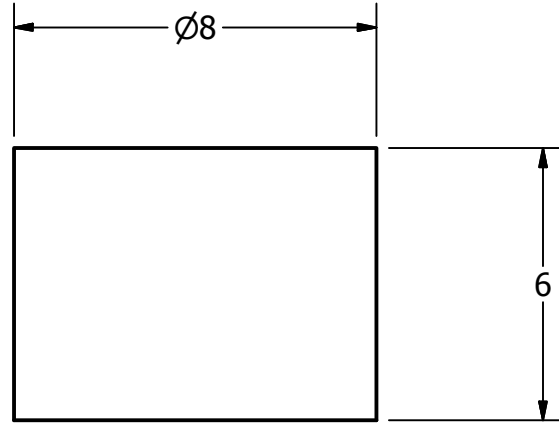


B NOTES:

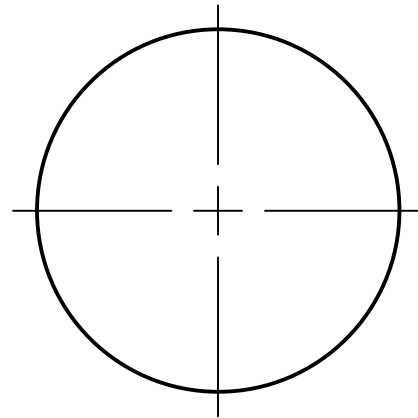
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN: CY CHECKED: ENG: APPROVED:	DATE 3/2/2009		REINFORCEMENT-3, FEMUR	
MATERIAL: 1018 STEEL HEAT TREAT: FINISH:		SIZE: A3 SCALE: 2:1	DRAWING NUMBER: 020-9509	REV: D	SHEET: 1 OF 1




SCALE 4:1

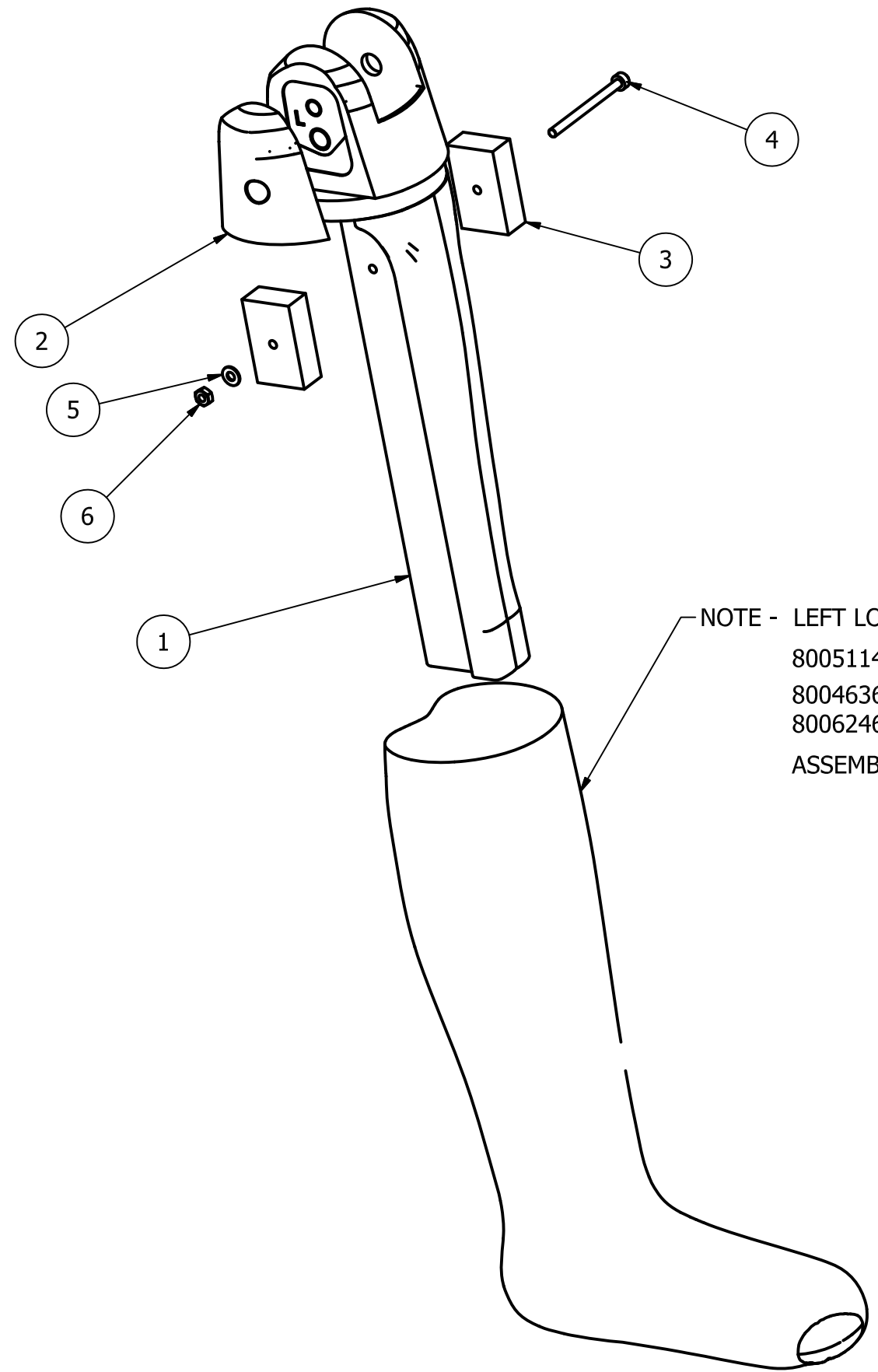


REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	B	PMN 020/5	MJB		4/27/00
5705	C	REDRAW & RELEASE IN PROE	BK		1/05/06
75669	D	ADD NEXT ASM:034-5200-1, 034-5200-2, 034-6100-1,034- 6100-2; QTY:2,2,2,2 & USED ON: 034-000, 034-0000, 034-0000, 034-0000	LP		8/22/07
71045	E	REDRAWN IN AUTODESK INVENTOR, MOVED MATERIAL TO TITLE BLOCK, REMOVED ASSEMBLY BLOCK	SC		2/13/13
74658	F	REGULATION RELEASE	GCH		12/22/2015

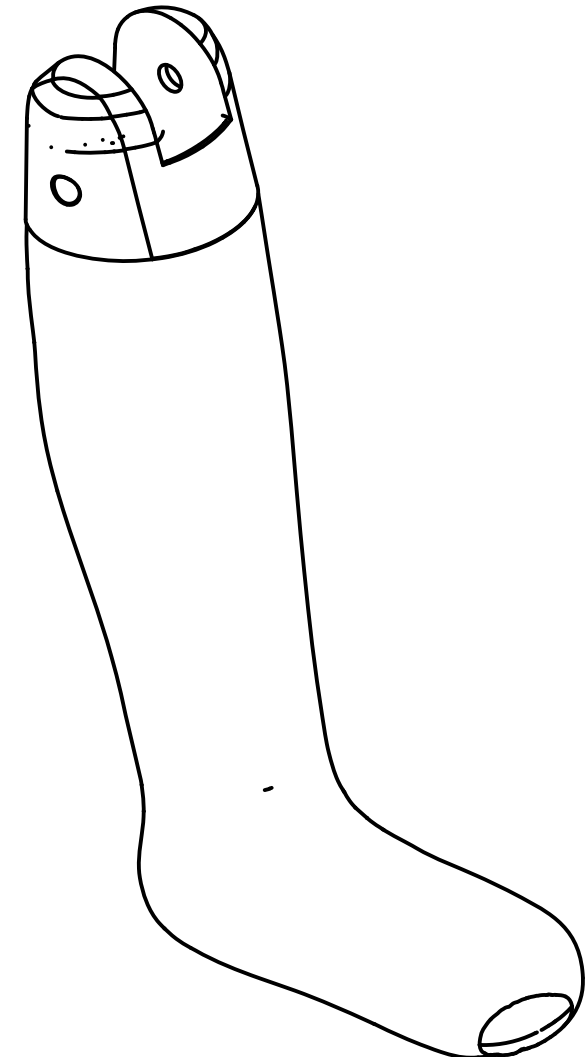


UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN sclice CHECKED ENG APPROVED	DATE 2/13/2013	
MATERIAL NITRILE RUBBER 70A HEAT TREAT FINISH	 THIRD ANGLE PROJECTION	SIZE A3	DRAWING NUMBER 020-9903
		SCALE: 6:1	SHEET 1 OF 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENGR.	DATE
70760	A	RELEASE TO PRODUCTION	JAA	JAA	1/15/2013
74658	B	REGULATION RELEASE	JH		1/5/2016



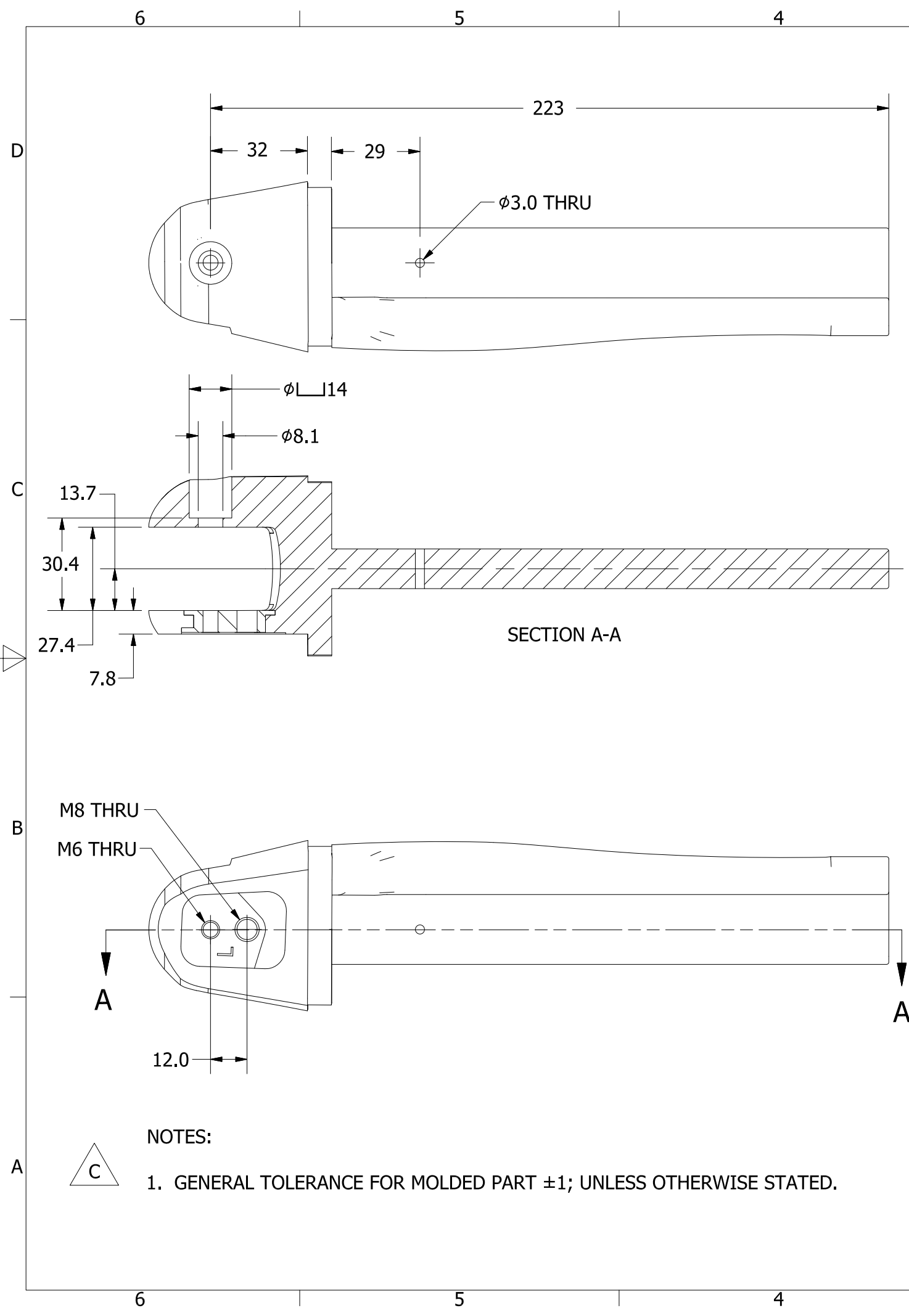
NOTE - LEFT LOWER LEG FLESH MADE FROM FOLLOWING:
 8005114 VINYL SKIN, 45 ± 5 SHORE A.
 8004636 URETHANE FOAM POLY, OR EQUIVALENT.
 8006246 URETHANE FOAM ISOCYANATE, OR EQUIVALENT.
 ASSEMBLY WEIGHT AFTER ADDING FOAM IS 750± 25 GRAMS.



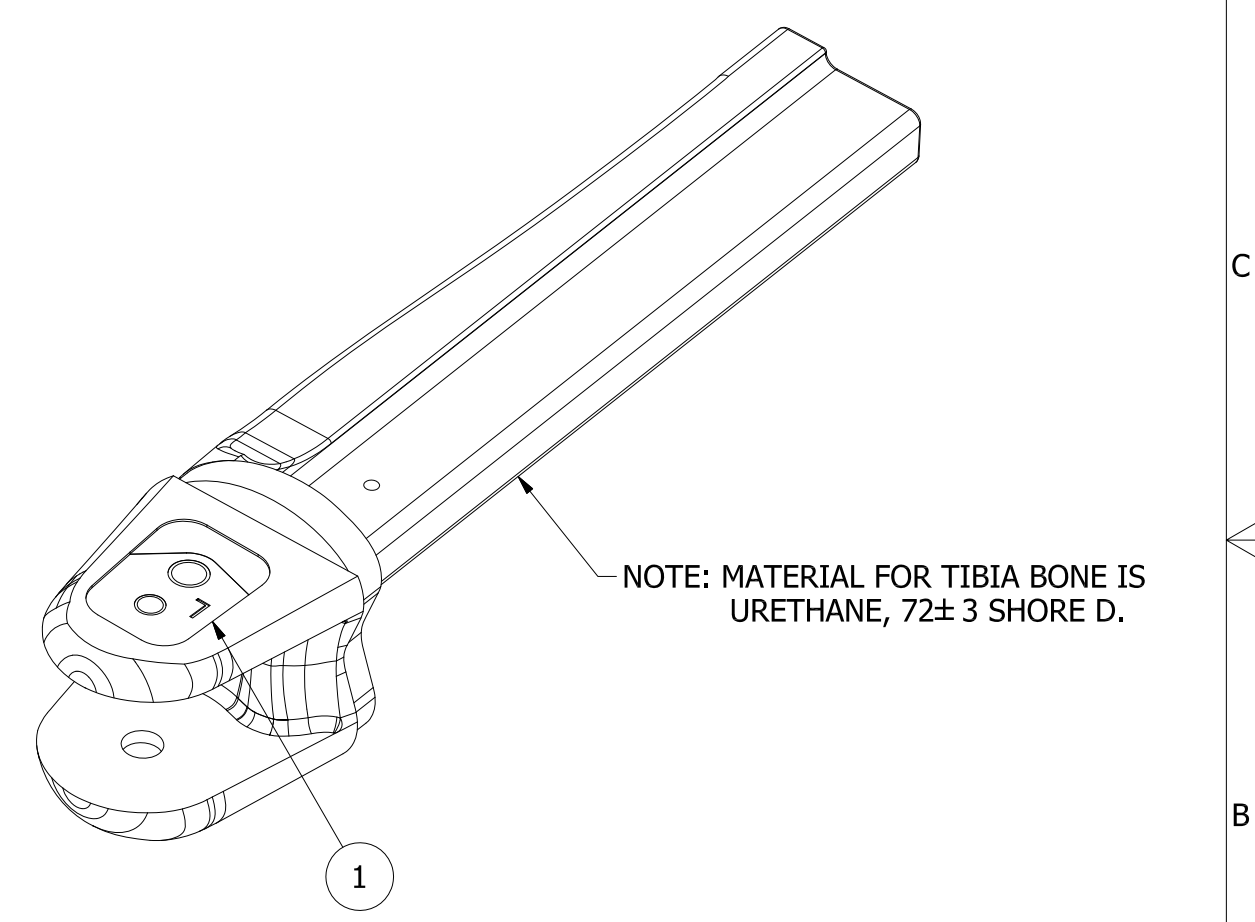
ITEM	QTY	PART NUMBER	DESCRIPTION
6	1	9010450-DN	M3-.5 ZINC NYLOK NUT
5	1	5000634	M3 FLATWASHER
4	1	9010667-DN	M3-.5 X 40 SHCS
3	2	020-9915	CERROBASE BLOCK
2	1	020-9110	KNEE IMPACT INNER PAD, LEFT
1	1	020-9108	TIBIA WITH INSERT, LEFT

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED ✓ ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS jarthur	DATE 1/15/2013	
MATERIAL SEE PARTS LIST, NOTE	CHECKED ENG	APPROVED	THIRD ANGLE PROJECTION
HEAT TREAT N/A	FINISH N/A	SIZE A3	DRAWING NUMBER 020-9120
		SCALE: N/A	REV B
		SHEET 1 OF 1	



REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
70041	A	NEW RELEASE	JAA	JAA	8/27/2012
70760	B	MADE TINTO ASSEMBLY, INSERT NOW MOLDED IN PLACE	JAA	JAA	1/16/2013
74658	C	ALL DIMENSIONS MADE REFERENCE; ADDED NOTE #1 & 2	JH		1/13/2016
74658	D	REGULATION RELEASE - REMOVED REFERENCE FROM DIMENSIONS, REMOVED NOTE 2	GCH/JHC		1/13/2016

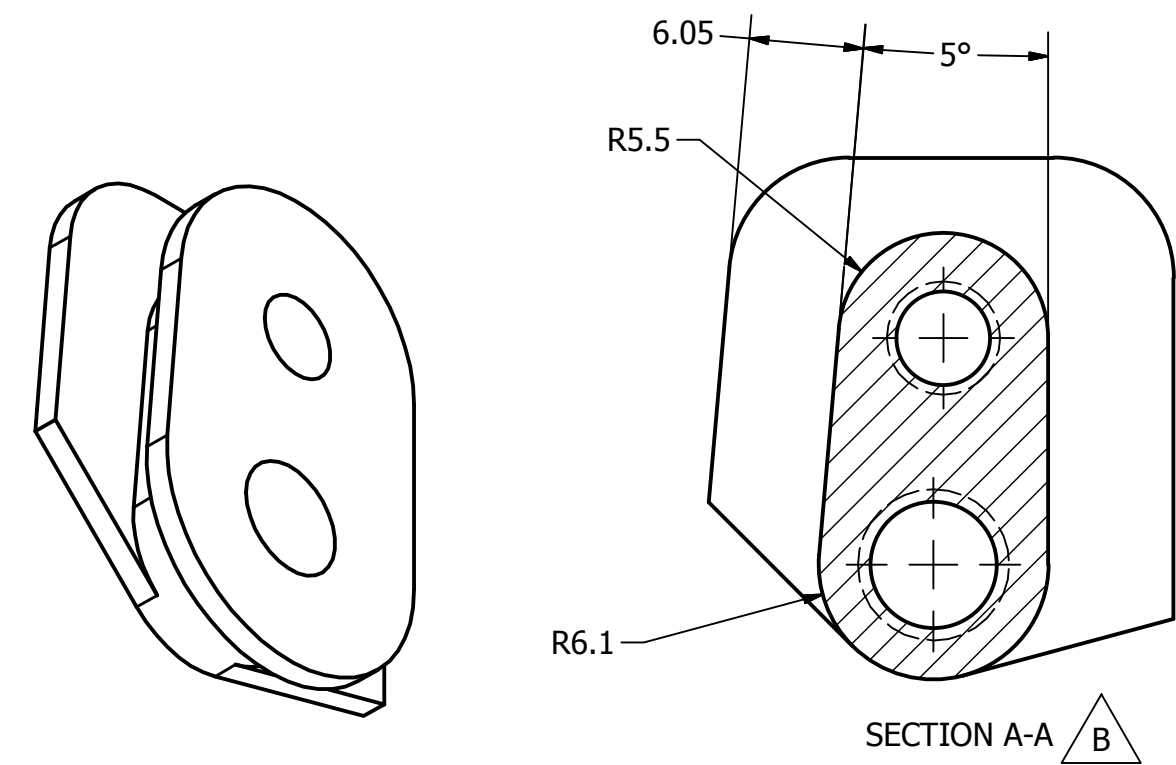
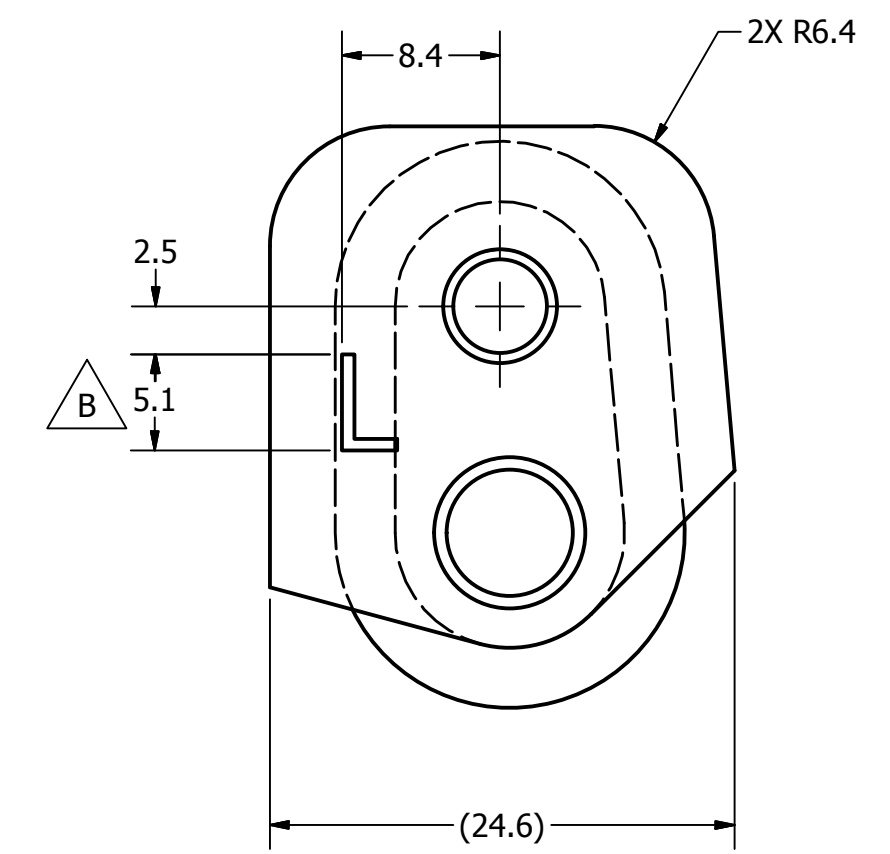
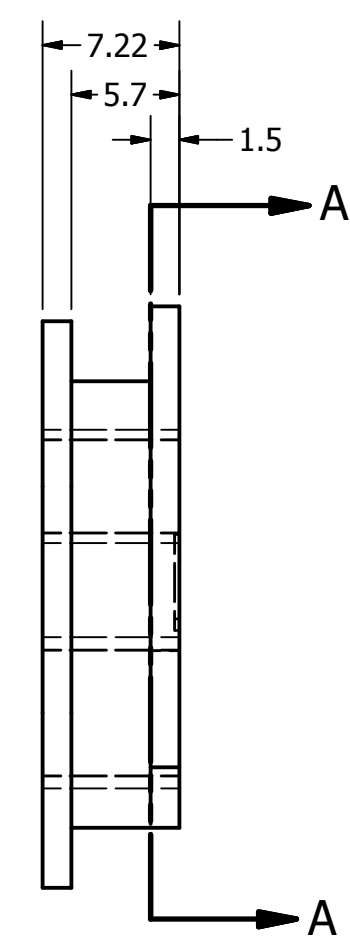
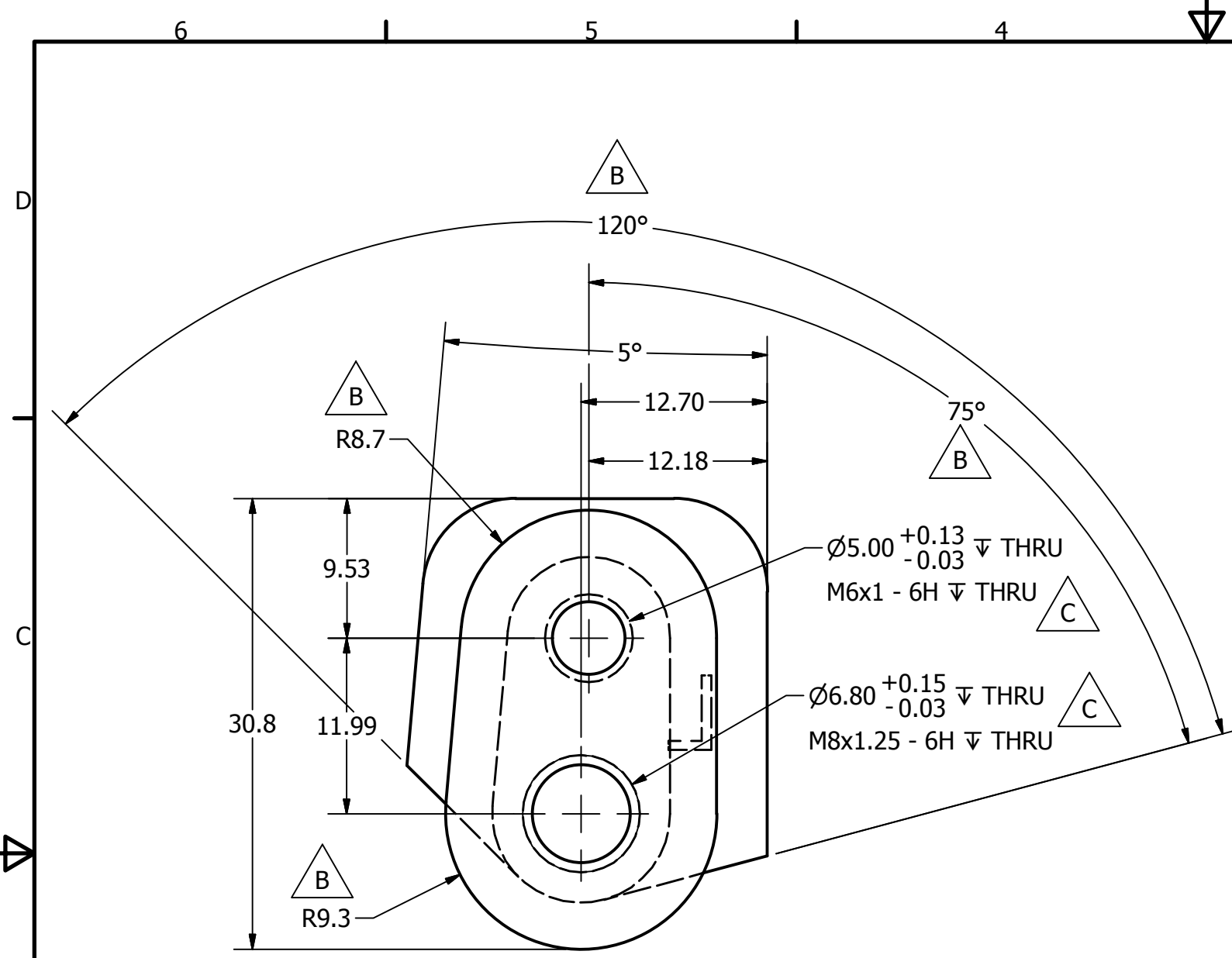


NOTES:
 1. GENERAL TOLERANCE FOR MOLDED PART ± 1 ; UNLESS OTHERWISE STATED.

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	020-9106	KNEE INSERT, INNER LEFT

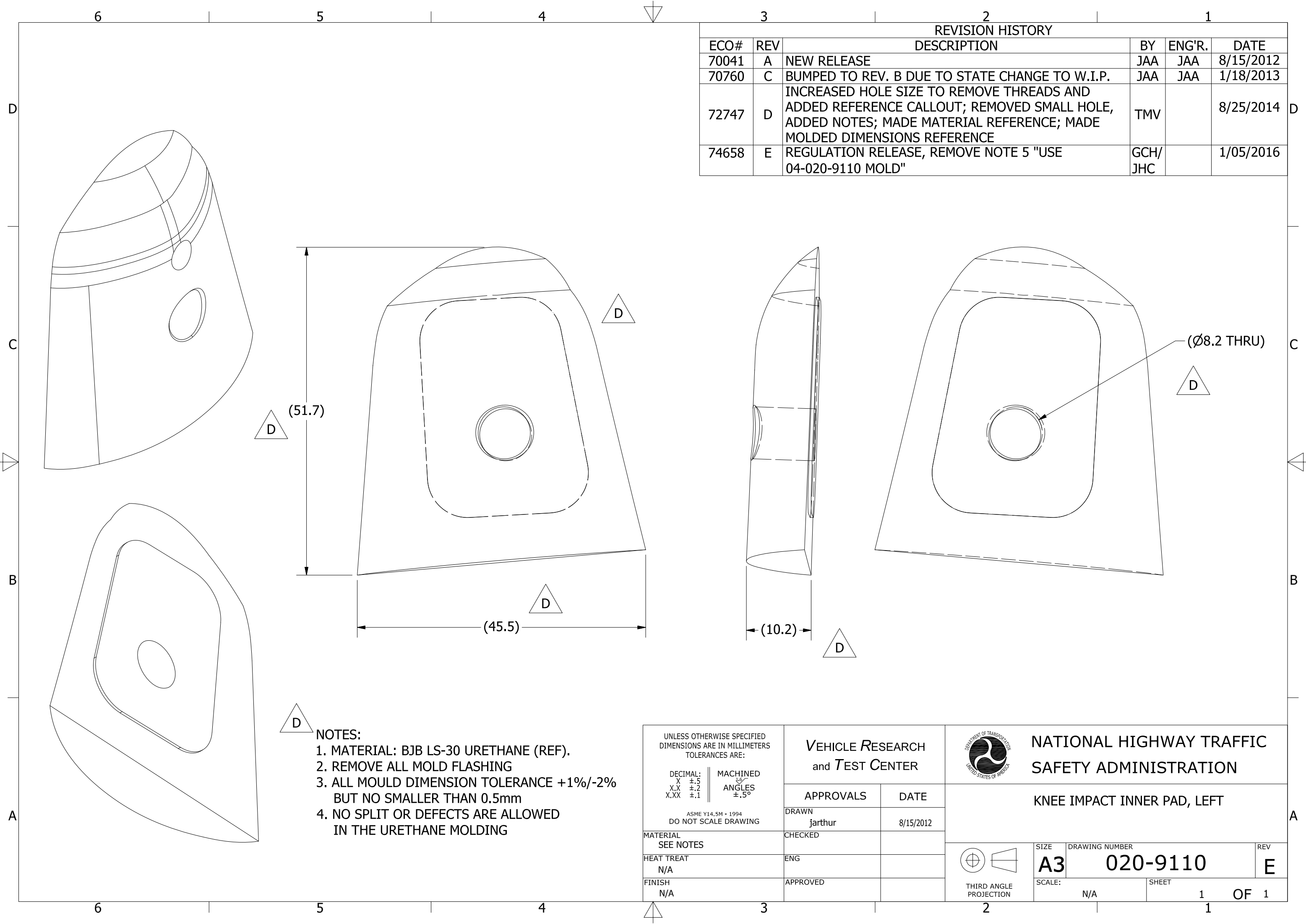
PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X $\pm .5$, X.X $\pm .2$, X.XX $\pm .1$ MACHINED: X $\pm .5$, X.X $\pm .2$, X.XX $\pm .1$ ANGLES: $\pm .5^\circ$ ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER APPROVALS: _____ DATE: 8/27/2012 DRAWN: jarthur CHECKED: _____ ENG: _____ APPROVED: _____ MATERIAL: SEE NOTE, PARTS LIST HEAT TREAT: N/A FINISH: N/A	
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION TIBIA ASSEMBLY, LEFT		SIZE: A3 DRAWING NUMBER: 020-9108 SCALE: N/A SHEET: 1 OF 1 REV: D	

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	APPROVED
70041	A	NEW RELEASE	8/27/2012	JAA
70716	B	ADDED R9.3-R8.7 X 1.5 FLANGE; ADDED "L" ENGRAVING; ADDED SECTION A-A; 120° WAS 90°; 75° WAS 45°.	1/14/2013	JAA
74658	C	UPDATED HOLE CALL OUTS TO CURRENT STANDARDS	1/4/2016	JH
74658	D	REGULATION RELEASE	01/06/16	AB




UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN jarthur CHECKED ENG APPROVED	DATE 12/9/2011		KNEE INSERT, INNER LEFT	
MATERIAL 1018 STEEL HEAT TREAT N/A FINISH .008 ELECTROLESS NICKEL		SIZE A3 SCALE: N/A	DRAWING NUMBER 020-9106	REV D	SHEET 1 OF 1

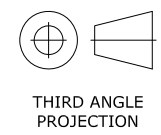
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
70041	A	NEW RELEASE	JAA	JAA	8/15/2012
70760	C	BUMPED TO REV. B DUE TO STATE CHANGE TO W.I.P.	JAA	JAA	1/18/2013
72747	D	INCREASED HOLE SIZE TO REMOVE THREADS AND ADDED REFERENCE CALLOUT; REMOVED SMALL HOLE, ADDED NOTES; MADE MATERIAL REFERENCE; MADE MOLDED DIMENSIONS REFERENCE	TMV		8/25/2014
74658	E	REGULATION RELEASE, REMOVE NOTE 5 "USE 04-020-9110 MOLD"	GCH/ JHC		1/05/2016



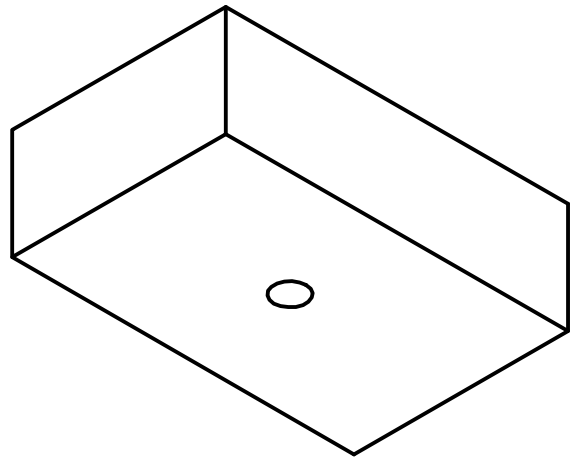
- NOTES:**
1. MATERIAL: BJB LS-30 URETHANE (REF).
 2. REMOVE ALL MOLD FLASHING
 3. ALL MOULD DIMENSION TOLERANCE +1%/-2% BUT NO SMALLER THAN 0.5mm
 4. NO SPLIT OR DEFECTS ARE ALLOWED IN THE URETHANE MOLDING

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER	
MATERIAL SEE NOTES		APPROVALS	DATE
HEAT TREAT N/A		DRAWN jarthur	8/15/2012
FINISH N/A		CHECKED	
		ENG	
		APPROVED	

		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
		KNEE IMPACT INNER PAD, LEFT	
SIZE	DRAWING NUMBER	REV	
A3	020-9110	E	
SCALE:	SHEET	1 OF 1	
N/A			

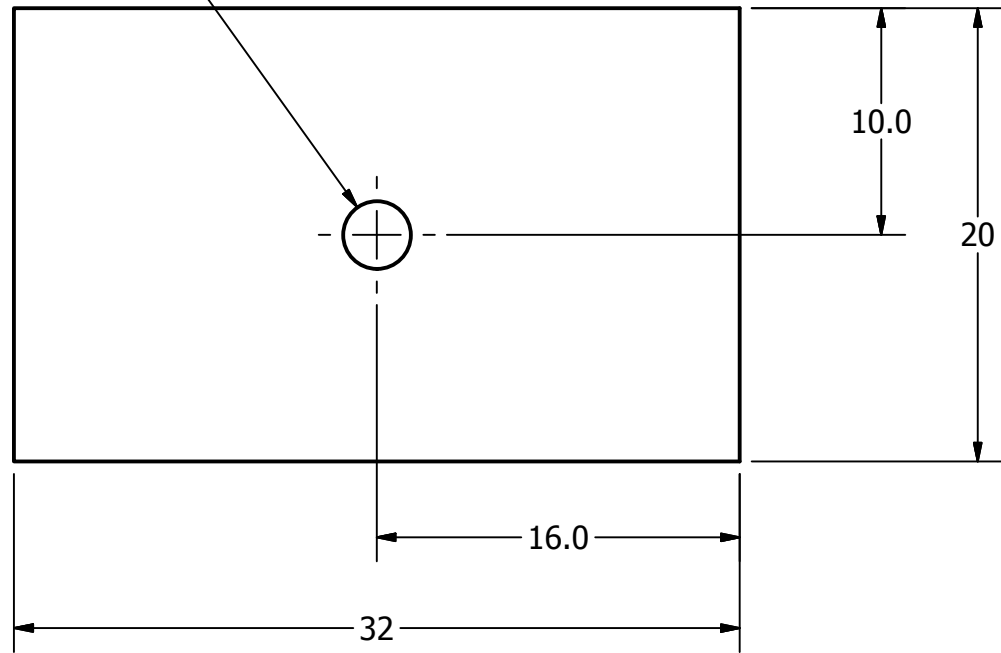


REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
70760	A	RELEASE TO PRODUCTION	JAA	JAA	1/16/2013
74658	B	REGULATION RELEASE	GCH		12/22/2015



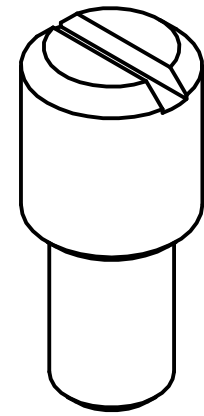
SCALE 2 : 1

Ø3.0 ∇ THRU

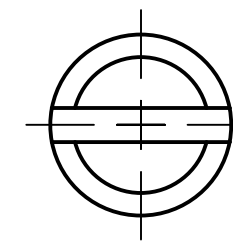
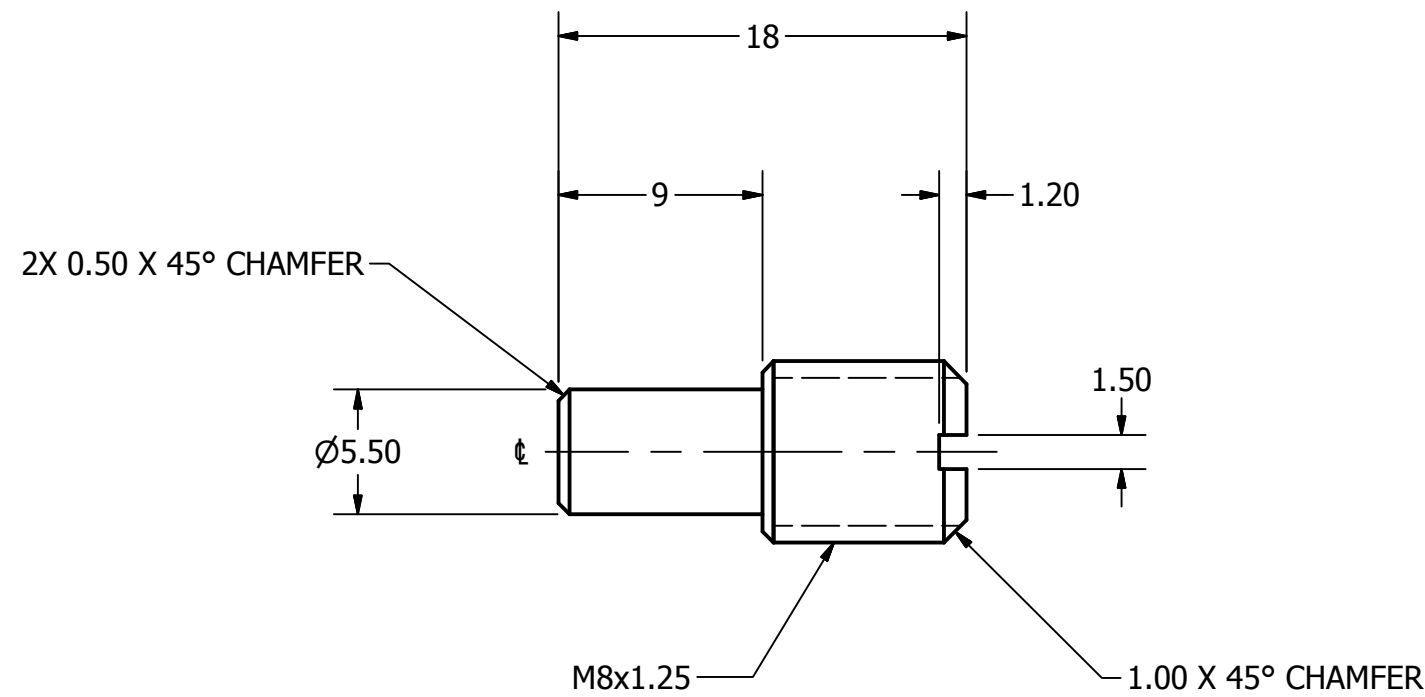


NOTE: MASS IS 60 ± 2 GRAMS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 ✓ XX ±.2 ✓ X.XX ±.1 ✓ ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN jarthur CHECKED ENG APPROVED	DATE 1/16/2013	
MATERIAL CERROBASE HEAT TREAT FINISH	 THIRD ANGLE PROJECTION	SIZE A3 SCALE: 3 : 1	DRAWING NUMBER 020-9915 SHEET 1 OF 1





REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	SM		9/12/96
75727	B	MATERIAL 4140 WAS 070M20; BLACK OXIDE WAS CHEMI BLACK	BK		7/25/07
75669	C	ADD NEXT ASM:034-5000-1, 034-5000-2, 036-6000-1, 034-6000-2, QTY: 1,1,1,1 & USED ON: 034-0000, 034-0000, 034-0000, 034-0000	LP		8/23/07
71045	D	REDRAWN IN AUTODESK INVENTOR	SC		2/13/13
74658	E	REGULATION RELEASE	GCH		12/22/2015

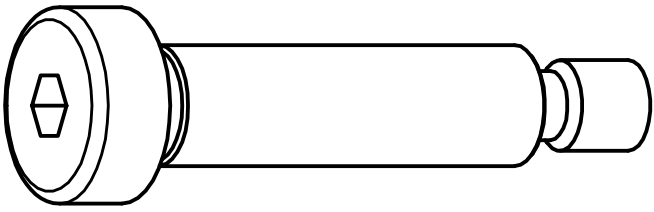


NOTES:

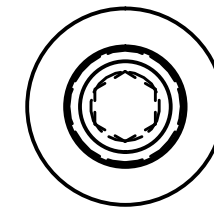
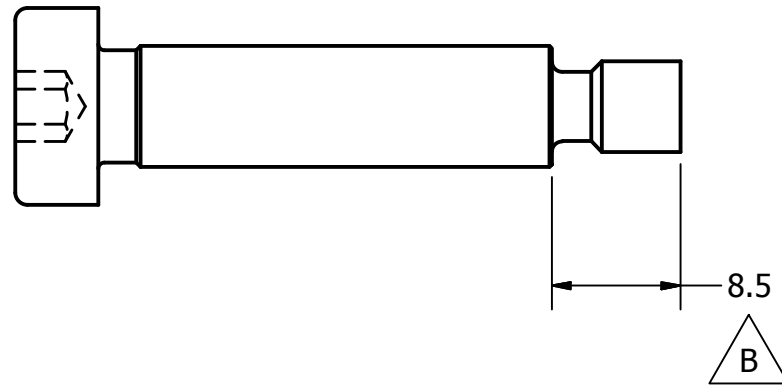
1. REMOVE BURRS AND BREAK SHARP EDGES.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		STOP SCREW	
DRAWN sclise		2/13/2013			
CHECKED					
MATERIAL 4140 STEEL		ENG		 THIRD ANGLE PROJECTION	
HEAT TREAT		APPROVED		SIZE: A3 DRAWING NUMBER: 020-9901 REV: E	
FINISH BLACK OXIDE				SCALE: 3:1 SHEET 1 OF 1	






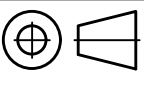
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	1ST ISSUE	MJB		6/29/04
	B	8.5 DIM WAS 11	MJB		1/06/05
5705	C	REDRAW & RELEASE IN PROE	BK		10/28/05
78039	D	5000740 WAS 5000423	BK		10/13/11
72315	E	REDRAWN IN INVENTOR; REMOVE NOTE #2; ADD DESCRIPTION (SCREW, SHSS M8 X 30)	AB		01/06/14
74658	F	REGULATION RELEASE	GCH		12/23/2015



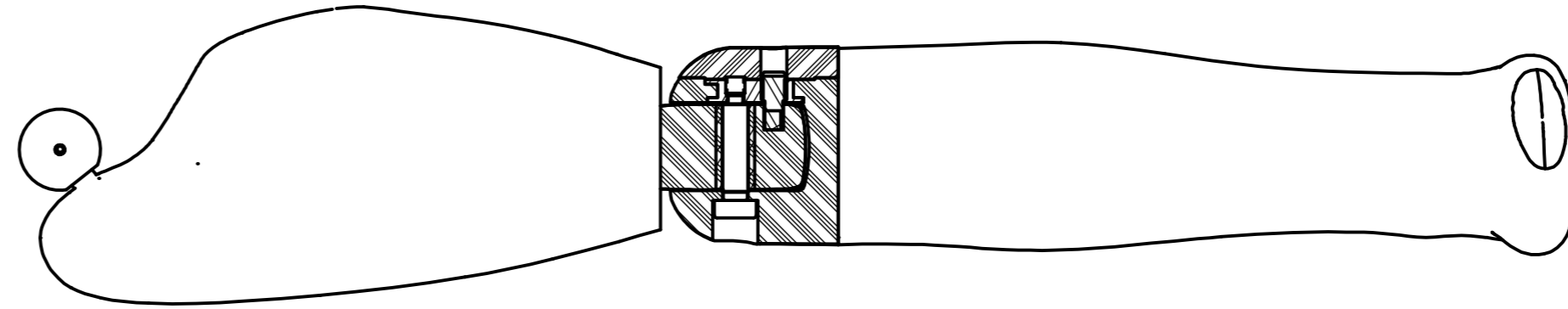
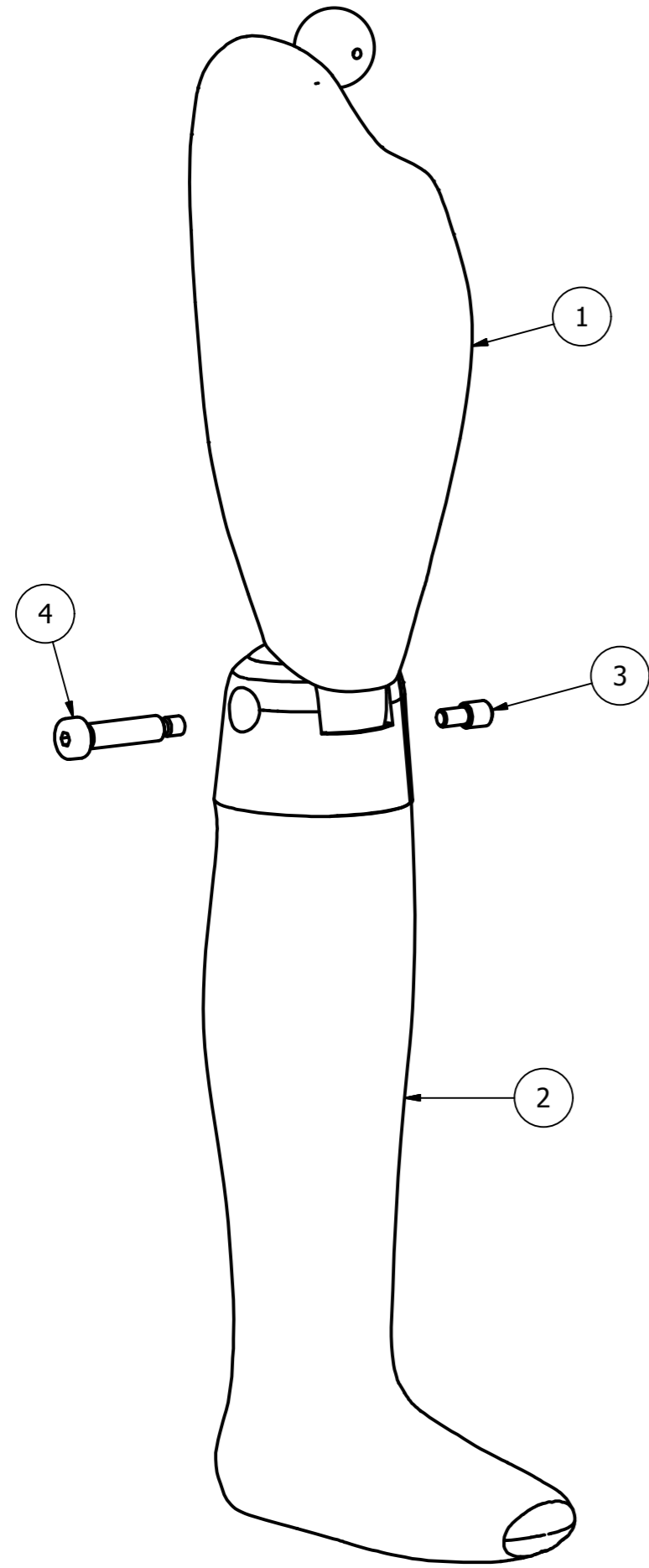


 NOTES:

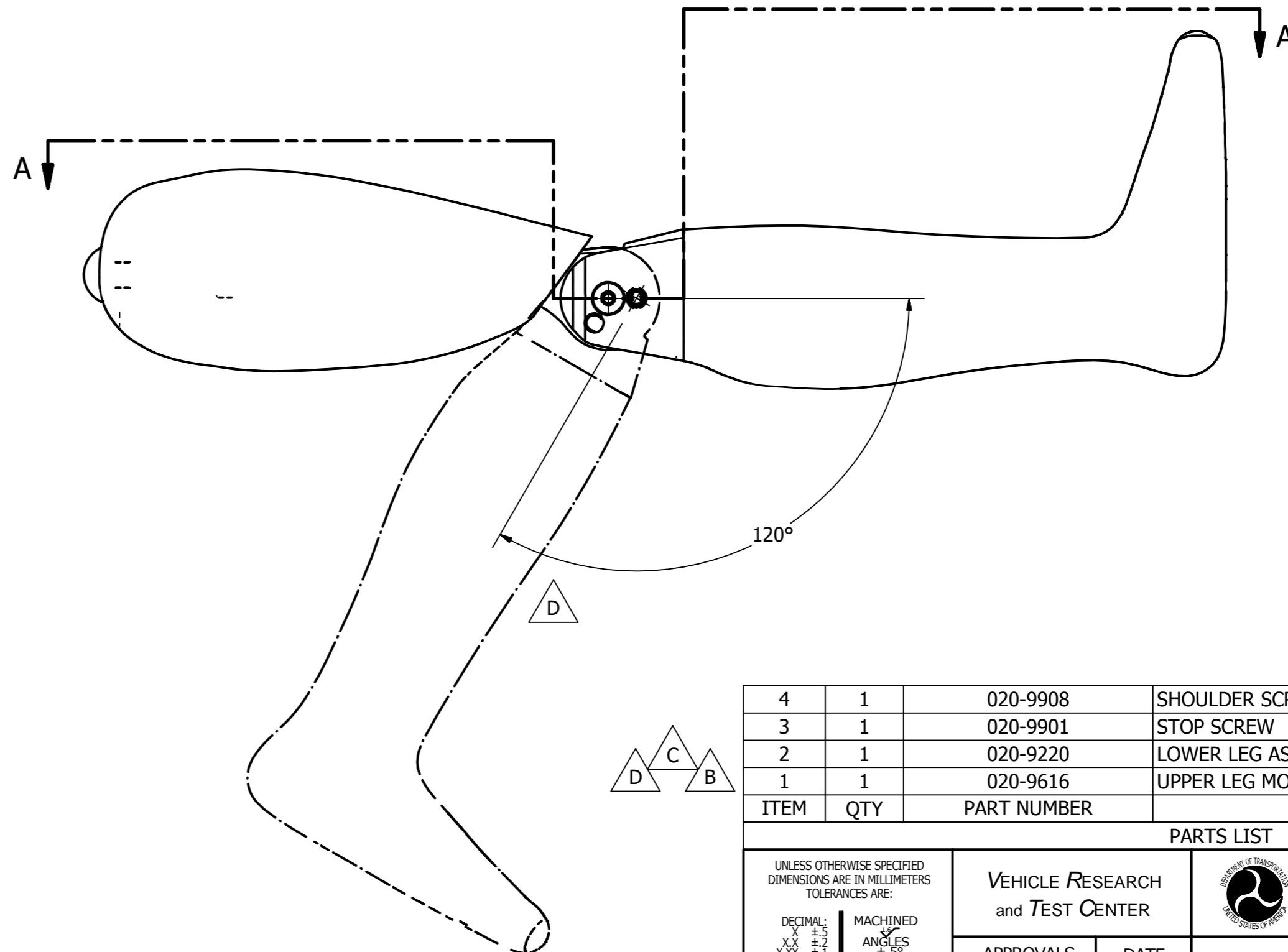
1. MADE FROM 5000740 (SCREW, SHSS M8 X 30), MODIFIED AS SHOWN

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLE: ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS DRAWN B. KIMES		DATE 17-May-05		SHOULDERS SCREW, KNEE	
MATERIAL HEAT TREAT FINISH		CHECKED ENG APPROVED		 THIRD ANGLE PROJECTION	
SIZE A3		DRAWING NUMBER 020-9908		REV F	
SCALE: 2 : 1		SHEET 1 OF 1			

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		4/04/06
77433	B	020-9616 WAS 020-9601	BK		12/21/10
70760	C	020-9220 WAS 020-9202	JPM		1/21/13
72316	D	REDRAWN IN INVENTOR; REVISED 120° LEG VIEW	AB		01/16/14
74658	E	REGULATION RELEASE	JH		12/22/2015



SECTION A-A
(PARTIAL VIEW)



ITEM	QTY	PART NUMBER	DESCRIPTION
4	1	020-9908	SHOULDER SCREW, KNEE
3	1	020-9901	STOP SCREW
2	1	020-9220	LOWER LEG ASSEMBLY, RIGHT
1	1	020-9616	UPPER LEG MOLDED, RIGHT, Q3s

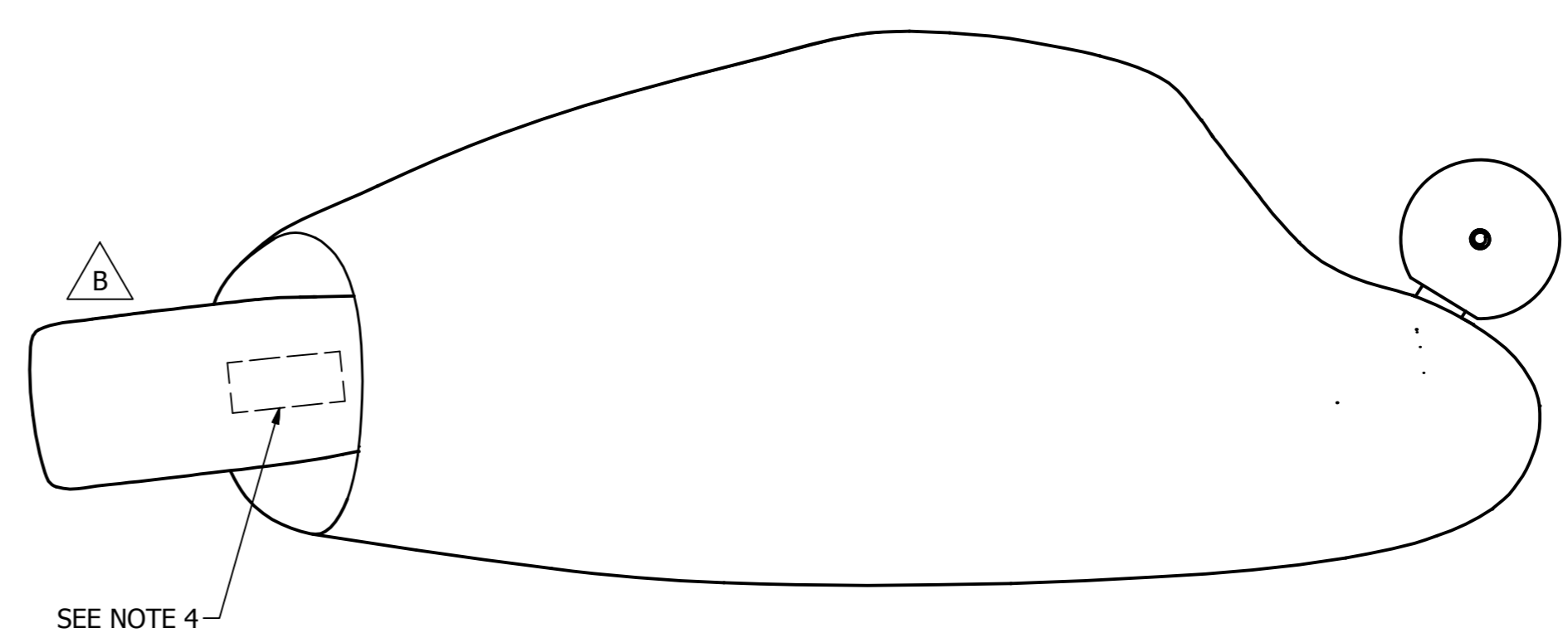
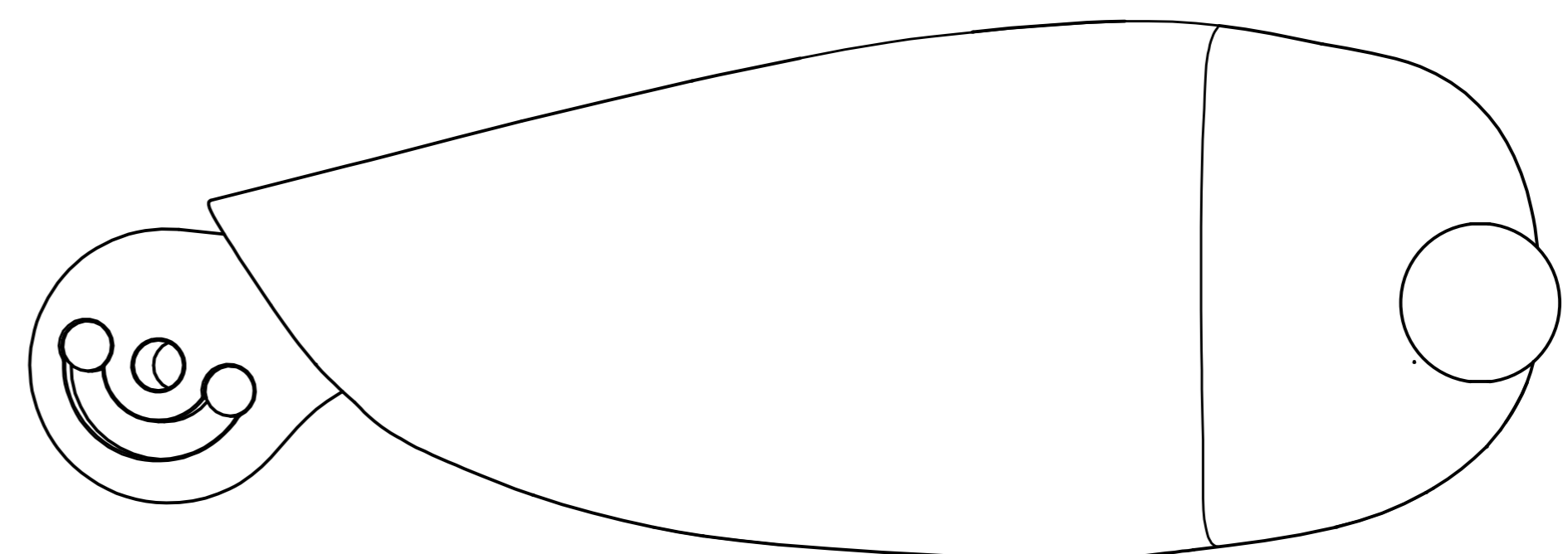
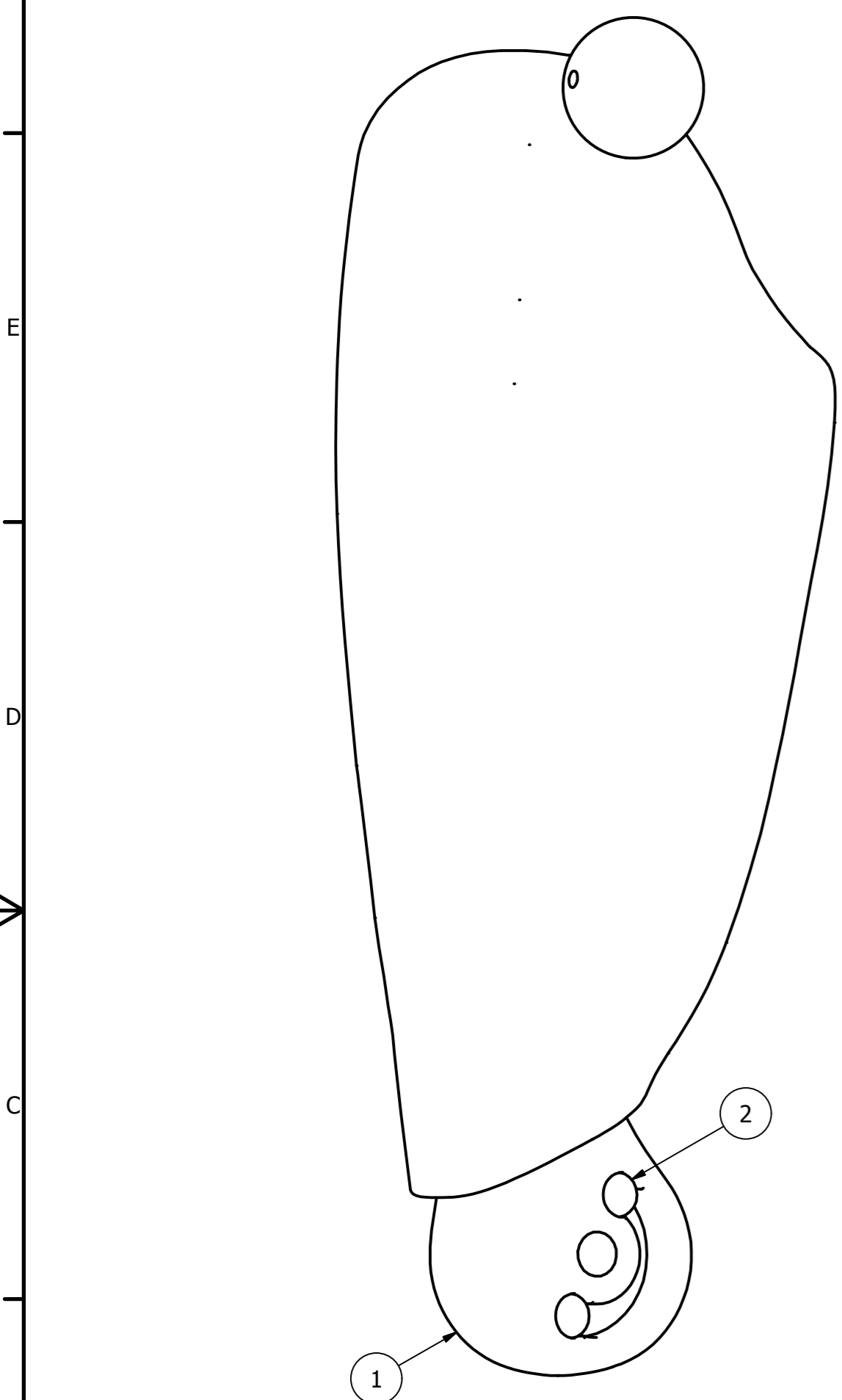
PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL: X ±.5 XX ±.2 XXX ±.1	MACHINED ANGLES ±.5°	APPROVALS DRAWN B. KIMES	DATE 3/27/2006	RIGHT LEG ASSEMBLY, Q3s	
MATERIAL	CHECKED			 THIRD ANGLE PROJECTION	
HEAT TREAT	ENG			SIZE A2	DRAWING NUMBER 020-9600
FINISH	APPROVED			SCALE: .5:1	SHEET 1 OF 1

8 7 6 5 4 3 2 1

8 7 6 5 4 3 2 1


REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
76893	A	RELEASE TO PRODUCTION	BK		3/4/09
72316	B	REDRAWN IN INVENTOR; REMOVED X & Y AXIS	AB		01/15/14
74658	C	REGULATION RELEASE	JH		12/22/2015

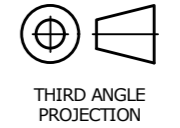


- NOTES:
1. REMOVE ALL FLASHING.
 2. MATERIAL: SKIN PVC, FLESH URETHANE.
 3. COMPONENT TO BE FREE FROM EXCESSIVE AIR POCKETS.
 4. ETCH PART NUMBER WHERE SHOWN.
 5. BALLAST: BARUIM SULPHATE POWER ADDED TO FLESH MIX.

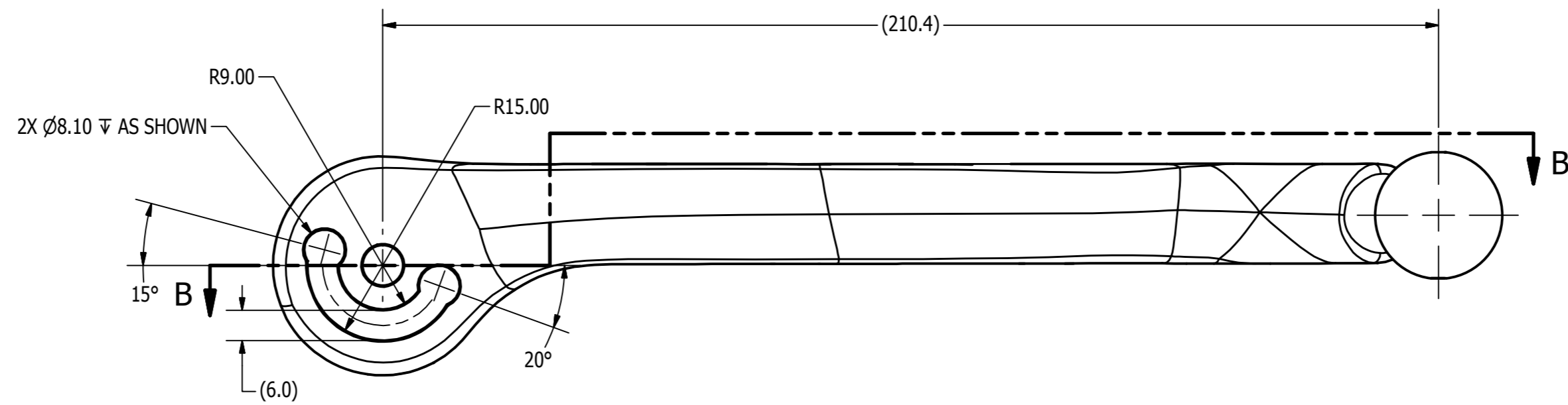
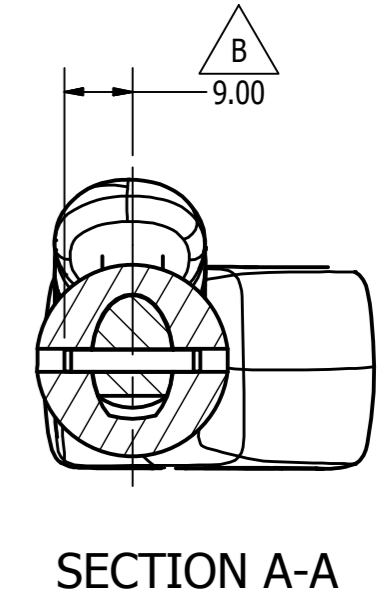
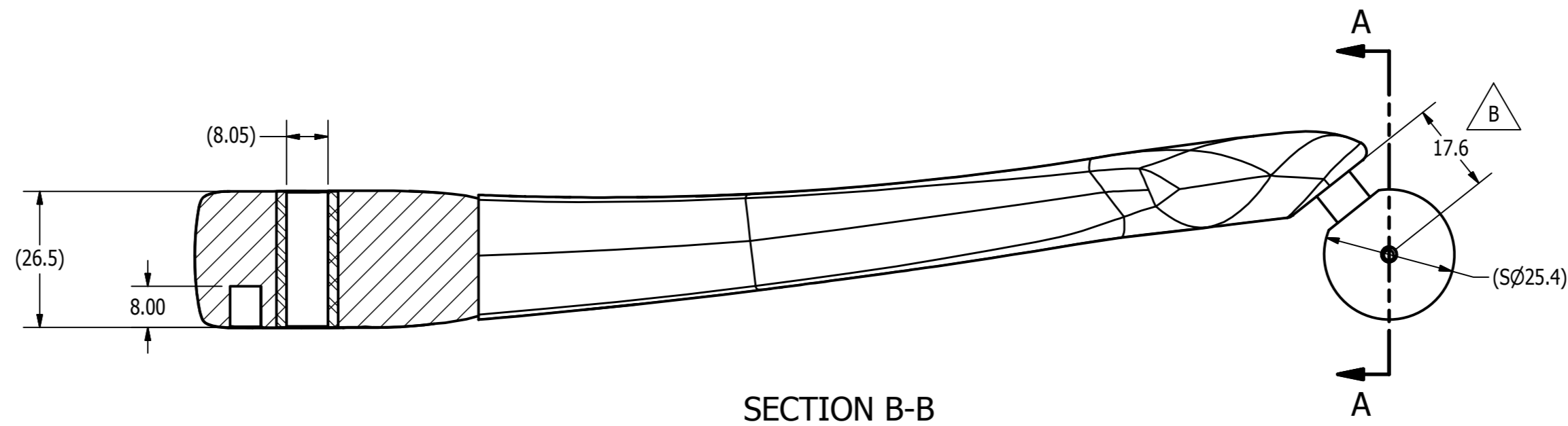
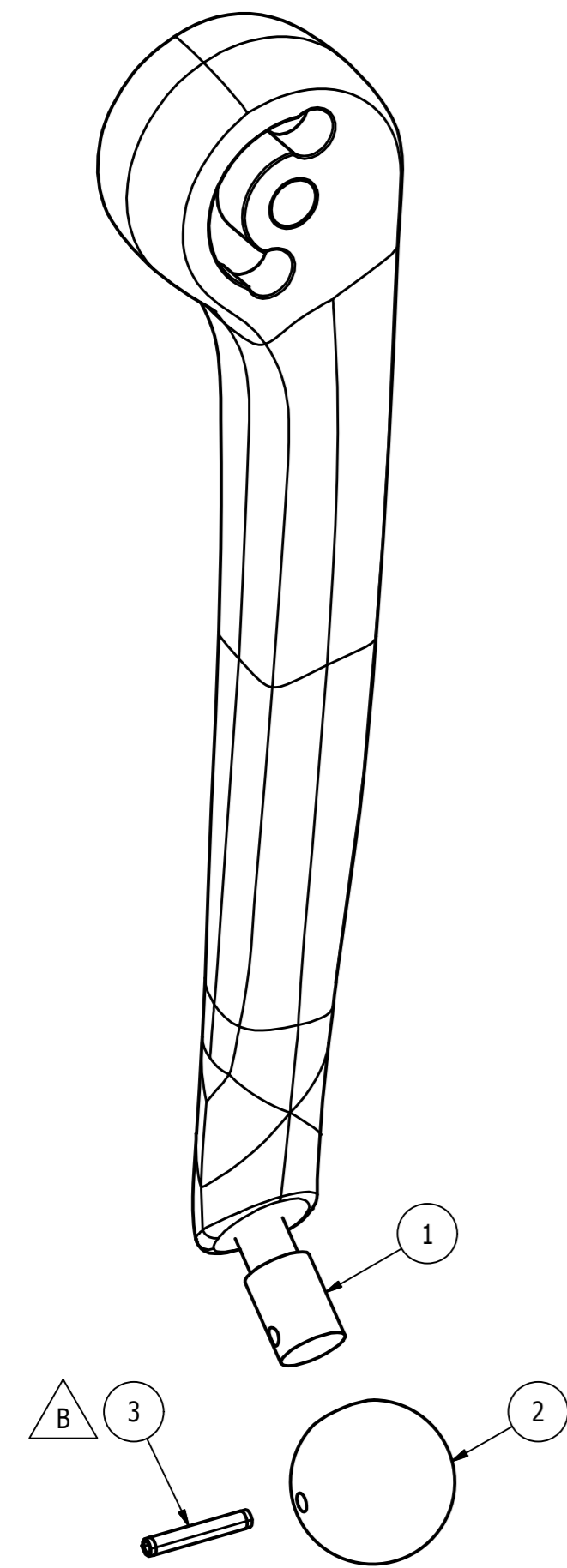
ITEM	QTY	PART NUMBER	DESCRIPTION
2	2	020-9903	END STOP
1	1	020-9611	FEMUR, RIGHT LEG, Q3s

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL: X ±.5 XX ±.2 XXX ±.1	MACHINED ANGLES ±.5°		
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		APPROVALS	DATE
MATERIAL SEE NOTE 2		DRAWN B. KIMES	3/4/2009
HEAT TREAT		CHECKED	
FINISH		ENG	
		APPROVED	

 A2		DRAWING NUMBER 020-9616	REV C
SCALE: 1:1		SHEET 1	OF 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
76893	A	RELEASE TO PRODUCTION	BK		3/02/09
72316	B	REDRAWN IN INVENTOR; REMOVE NOTE #1; NOTE #1 THRU 3 WAS NOTE #2 THRU 4; (17.6) WAS (17.5); ITEM 3 (5000188) M3 X 18 LG. COIL PIN WAS ROLL PIN, M3 X 20; 9.00 WAS 10.00	AB		01/15/14
74658	C	REGULATION RELEASE	GCH		01/05/2016

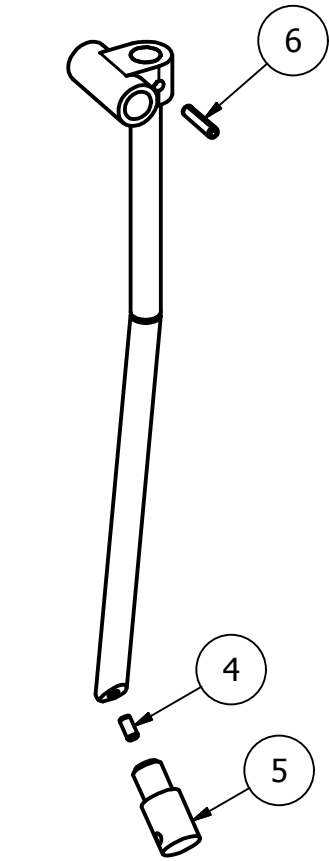


- NOTES:**
1. COMPONENT TO BE FREE FROM EXCESSIVE AIR POCKETS.
 2. GENERAL TOLERANCE FOR MOLDED PART ± 1 , UNLESS OTHERWISE STATED.
 3. ASSEMBLE BALL AND PIN, AS SHOWN, AFTER MOLDING.

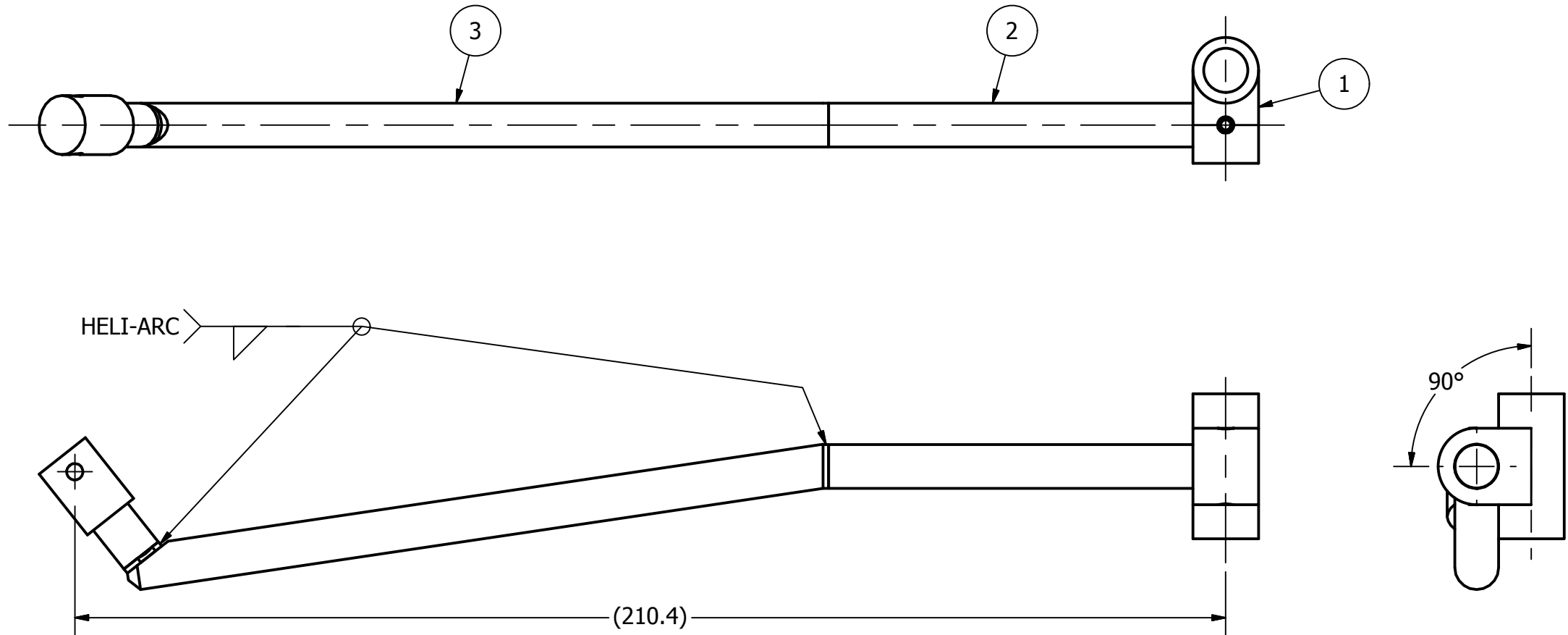
ITEM	QTY	PART NUMBER	DESCRIPTION
3	1	5000188	M3 X 18 LG. COIL PIN
2	1	020-3537	BALL, SHOULDER
1	1	020-9607	FEMUR REINFORCEMENT WELDMENT, RIGHT

<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</small> DECIMAL: X ±.5, XX ±.2, XXX ±.1 MACHINED ANGLES: ±.5° <small>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</small>		VEHICLE RESEARCH and TEST CENTER	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
APPROVALS DRAWN: B. KIMES CHECKED: _____ ENG: _____ APPROVED: _____	DATE 3/2/2009	FEMUR, RIGHT LEG, Q3s	
MATERIAL: POLYURETHANE HEAT TREAT: _____ FINISH: _____	SIZE: A2 SCALE: 1:1	DRAWING NUMBER: 020-9611	REV: C SHEET: 1 OF 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
76893	A	RELEASE TO PRODUCTION	BK		3/02/09
72316	B	REDRAWN IN INVENTOR; 0.008 ELECTROLESS NICKEL PLATE PER SIDE WAS NICKEL PLATE 0.003mm - 0.008mm MAX & MOVED TO FINISH TABLE; REMOVE NOTE #2 & 3	AB		01/15/14
74658	C	REGULATION RELEASE	JH		12/22/2015



SCALE .5:1

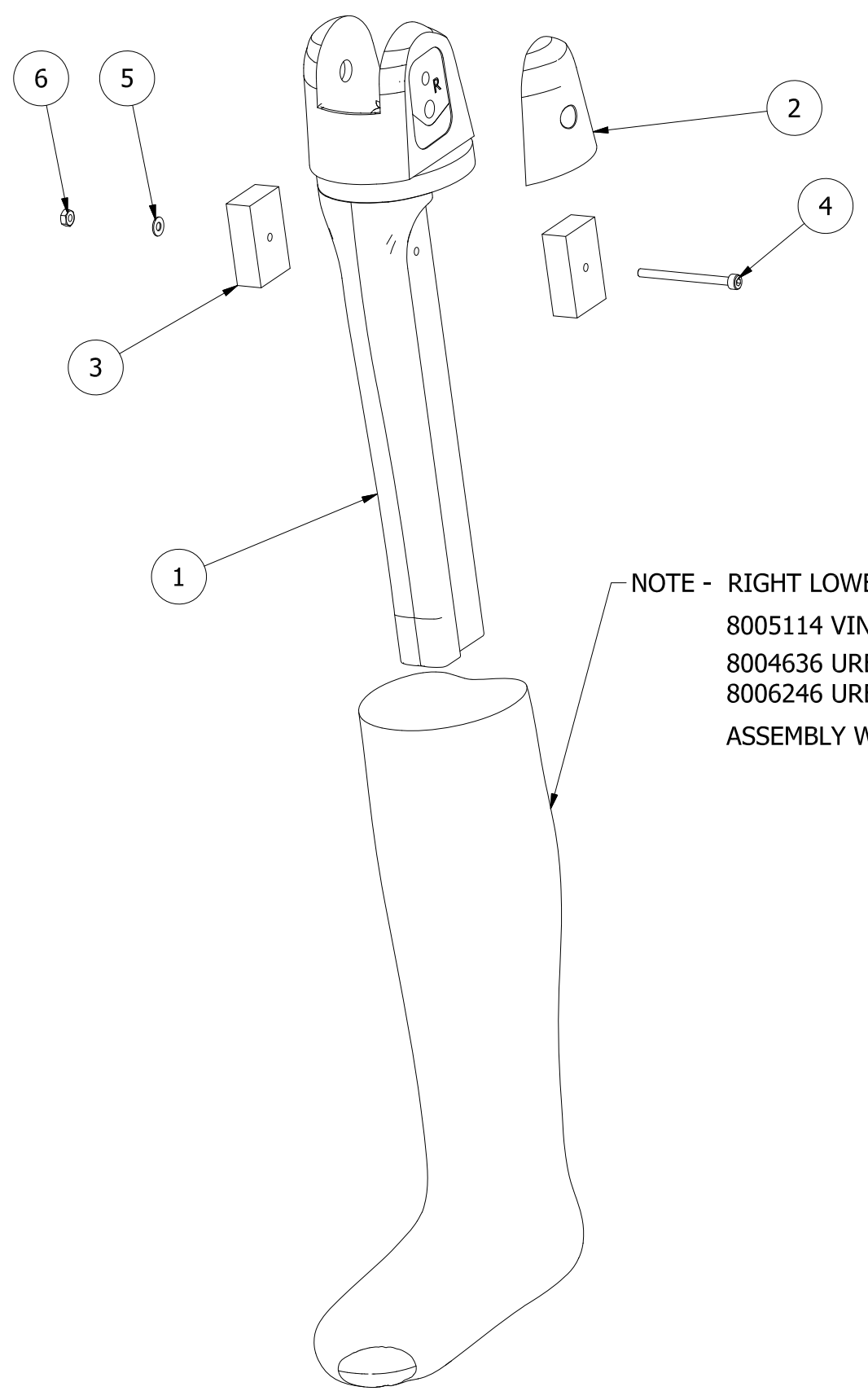


ITEM	QTY	PART NUMBER	DESCRIPTION
6	1	5000196	M3 X 14 LG. ROLL PIN SS
5	1	020-9509	REINFORCEMENT-3, FEMUR
4	1	5000385	M3 X 6 LG. DOWEL PIN
3	1	020-9510	REINFORCEMENT-2, FEMUR
2	1	020-9508	REINFORCEMENT-1, FEMUR
1	1	020-9515	PIVOT BLOCK, KNEE, Q3s

NOTES:
 1. POWDER BLAST OR BEAD BLAST.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN: CY CHECKED:	DATE 3/2/2009	
MATERIAL: HEAT TREAT: FINISH: 0.008 ELECTROLESS NICKEL PLATE PER SIDE	ENG: APPROVED:	THIRD ANGLE PROJECTION	SIZE: A3 DRAWING NUMBER: 020-9607 REV: C SCALE: 1:1 SHEET: 1 OF 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
70760	A	RELEASE TO PRODUCTION	JAA	JAA	1/15/2013
74658	B	REGULATION RELEASE	JH		12/22/2015



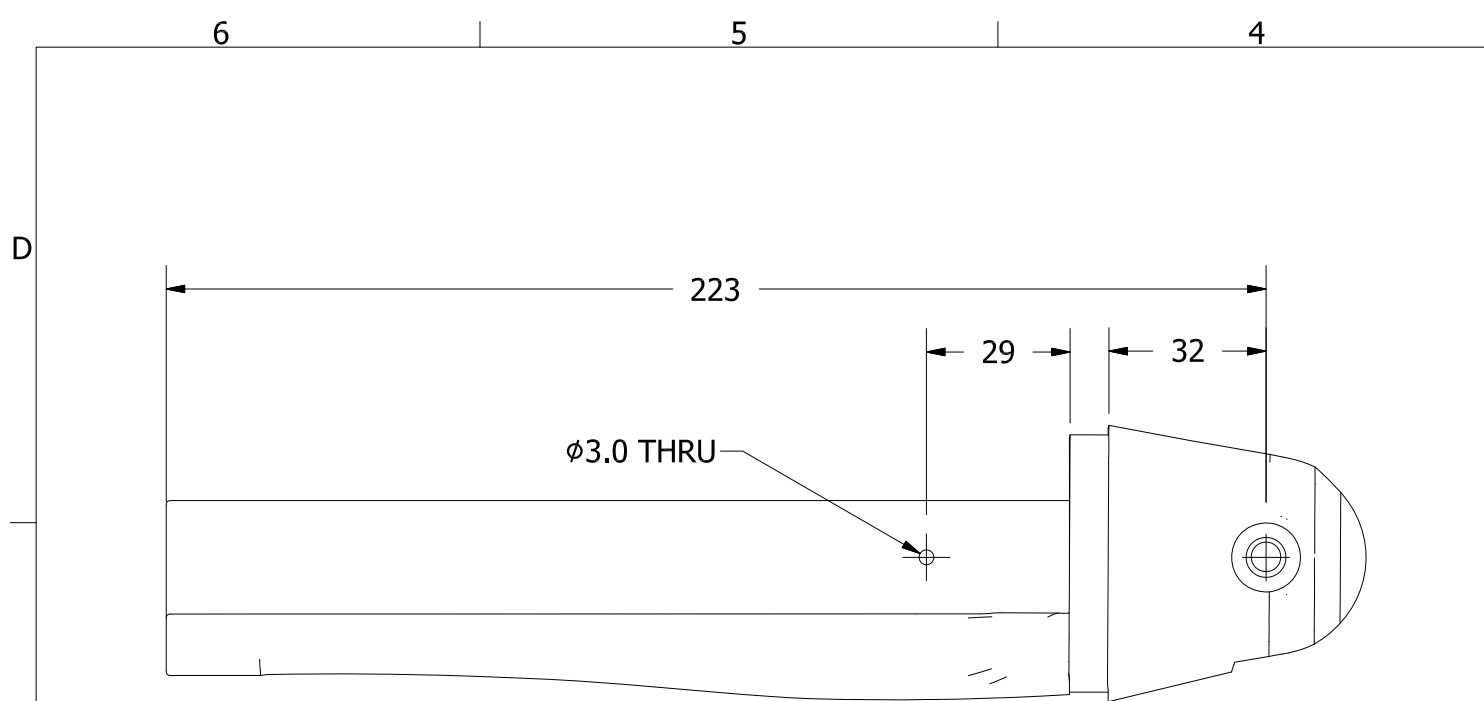
NOTE - RIGHT LOWER LEG FLESH MADE FROM FOLLOWING:
 8005114 VINYL SKIN, 45 ± 5 SHORE A.
 8004636 URETHANE FOAM POLY, OR EQUIVALENT.
 8006246 URETHANE FOAM ISOCYANATE, OR EQUIVALENT.
 ASSEMBLY WEIGHT AFTER ADDING FOAM IS 750± 25 GRAMS.

ITEM	QTY	PART NUMBER	DESCRIPTION
6	1	9010450-DN	M3-.5 ZINC NYLOK NUT
5	1	5000634	M3 FLATWASHER
4	1	9010667-DN	M3-.5 X 40 SHCS
3	2	020-9915	CERROBASE BLOCK
2	1	020-9111	KNEE IMPACT INNER PAD, RIGHT
1	1	020-9109	TIBIA WITH INSERT, RIGHT

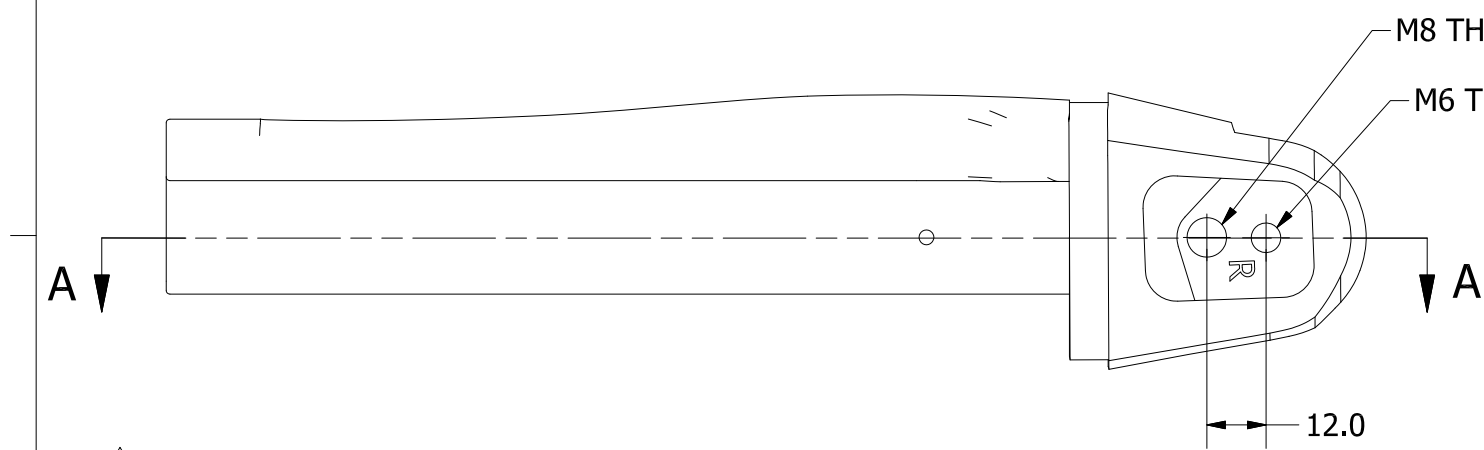
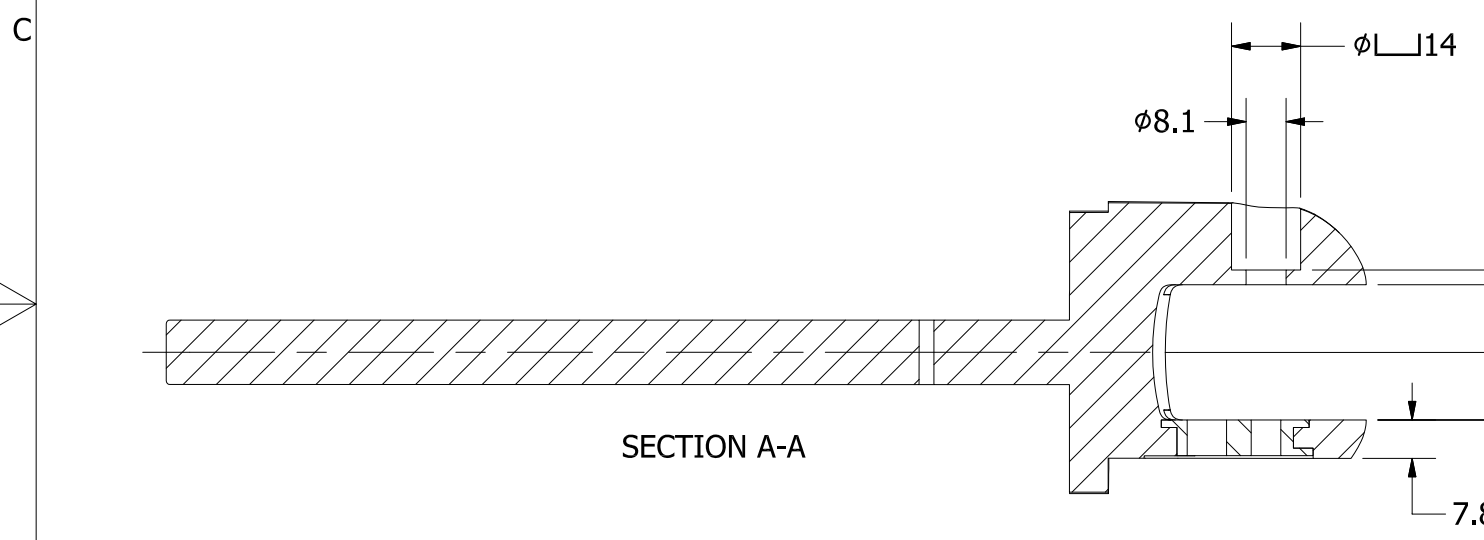
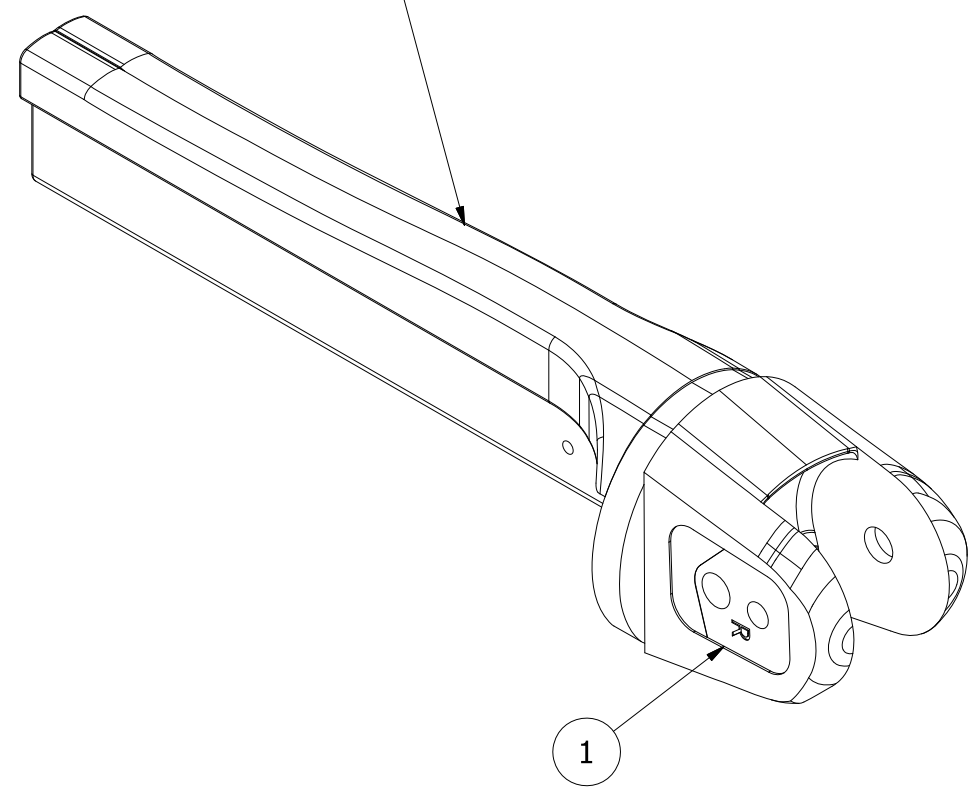
PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS jarthur	DATE 1/15/2013		LOWER LEG ASSEMBLY, RIGHT	
MATERIAL SEE PARTS LIST, NOTE	CHECKED	DRAWING NUMBER 020-9220	SIZE A3	REV B	SHEET 1 OF 1
HEAT TREAT N/A	ENG	SCALE: N/A	THIRD ANGLE PROJECTION		
FINISH N/A	APPROVED				

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
70041	A	NEW RELEASE TO PRODUCTION	JAA	JAA	8/27/2012
70760	B	MADE INTO ASSEMBLY, INSERT NOW MOLDED IN PLACE	JAA	JAA	1/16/2013
74658	C	ALL DIMENSIONS MADE REFERENCE; ADDED NOTE #1 & 2.	JH		1/13/2016
74658	D	REGULATION RELEASE - REMOVED REFERENCE FROM DIMENSIONS, REMOVED NOTE 2	GCH JHC		1/13/2016



NOTE: MATERIAL FOR TIBIA BONE IS URETHANE, 72 ± 3 SHORE D



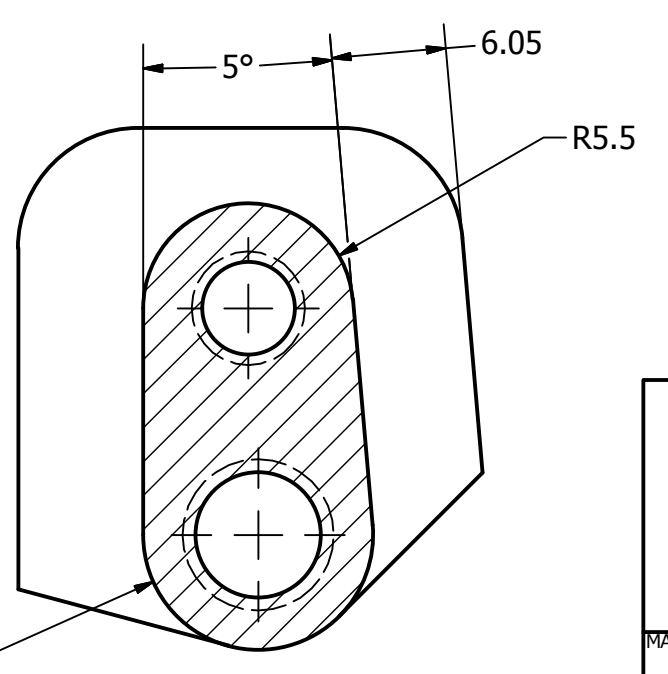
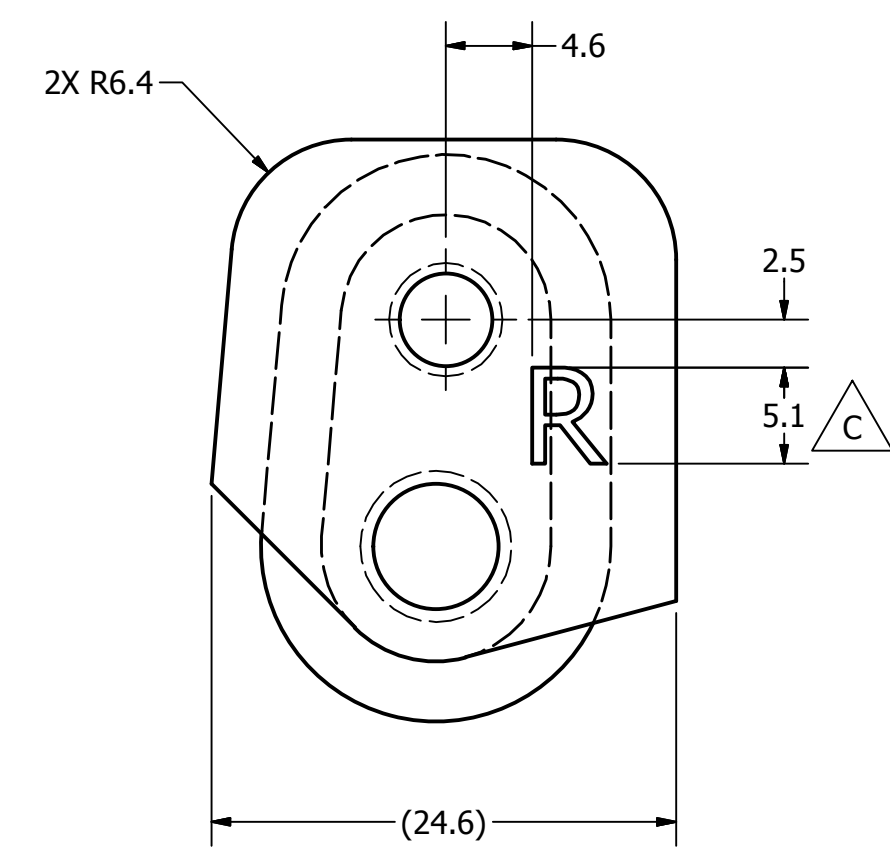
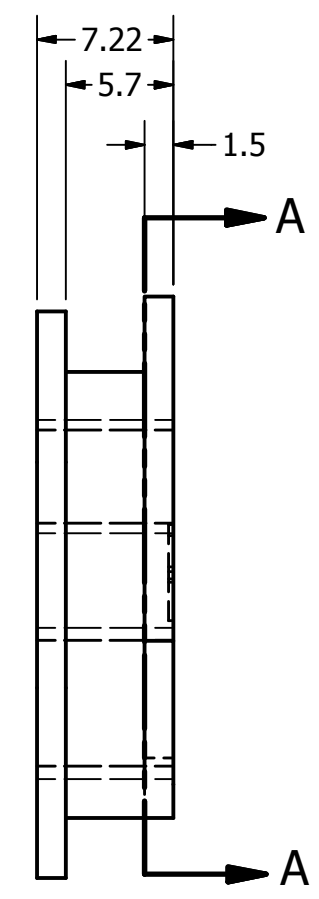
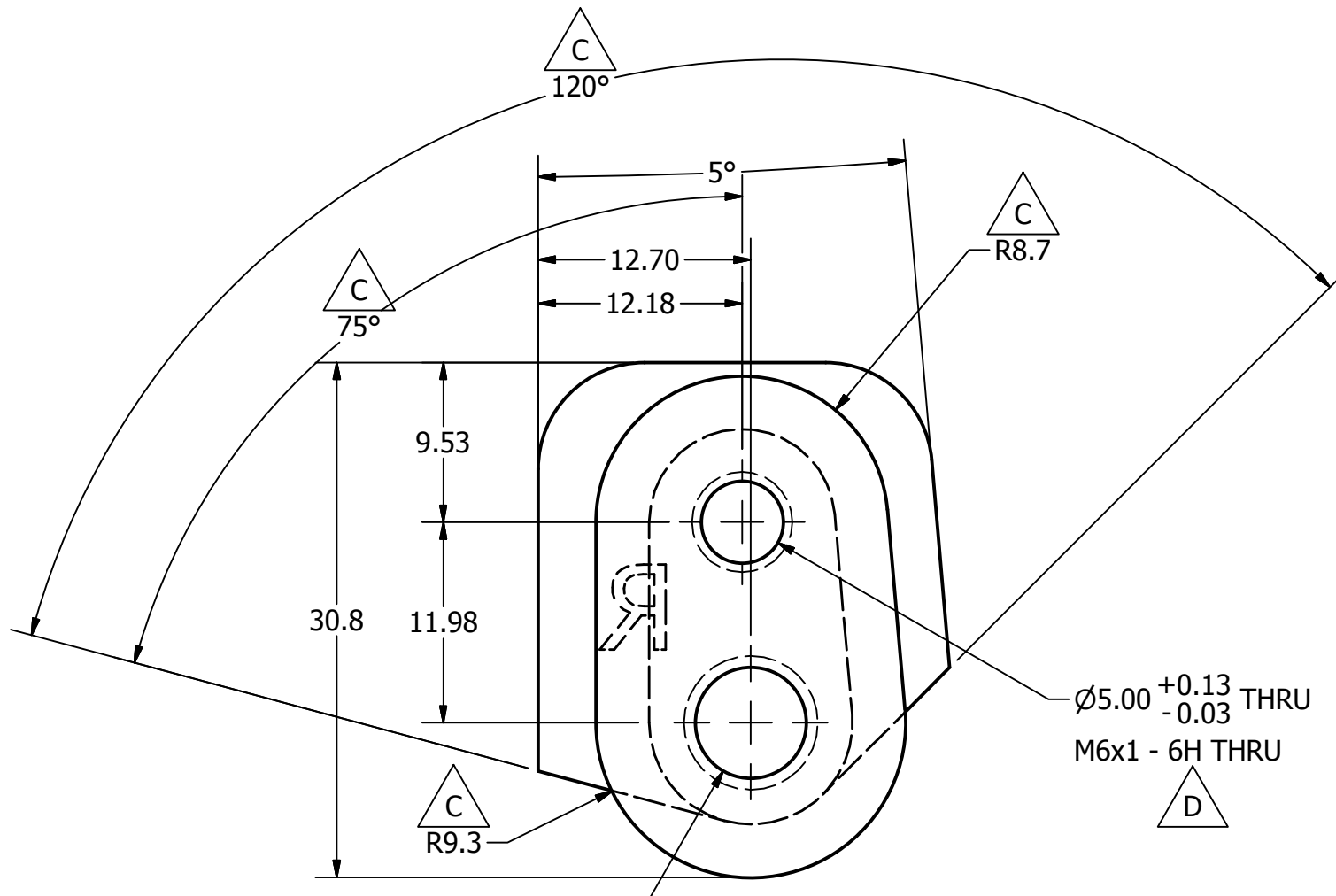
NOTES:
 1. GENERAL TOLERANCE FOR MOLDED PART ±1, UNLESS OTHERWISE STATED.

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	020-9107	KNEE INSERT, INNER RIGHT

PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5, X.X ±.2, X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER APPROVALS: jarthur, DATE: 8/27/2012 CHECKED: _____, ENG: _____, APPROVED: _____	
MATERIAL: SEE NOTE, PARTS LIST		HEAT TREAT: N/A	
FINISH: N/A		APPROVED: _____	

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
TIBIA ASSEMBLY, RIGHT	
THIRD ANGLE PROJECTION	SIZE: A3 SCALE: N/A
DRAWING NUMBER: 020-9109	REV: D
SHEET: 1 OF 1	

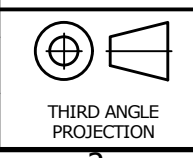
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	APPROVED
70041	B	NEW RELEASE	8/27/2012	JAA
70716	C	ADDED R9.3-R8.7 FLANGE; ADDED "R" ENGRAVING; ADDED SECTION A-A; 120° WAS 90°; 75° WAS 45°.	1/14/2013	JAA
74658	D	UPDATED HOLE CALLOUTS TO CURRENT STANDARDS	01/06/16	AB
74658	E	REGULATION RELEASE	01/06/16	AB



$\varnothing 6.80^{+0.15}_{-0.03}$ THRU
 M8x1.25 - 6H THRU
 D

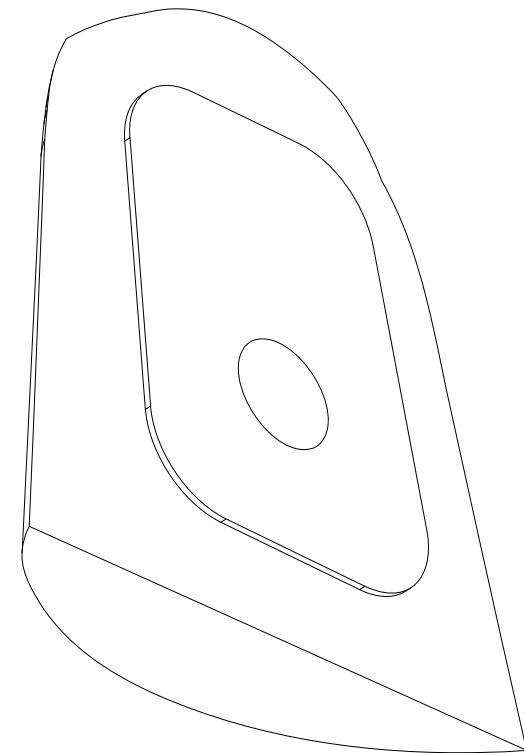
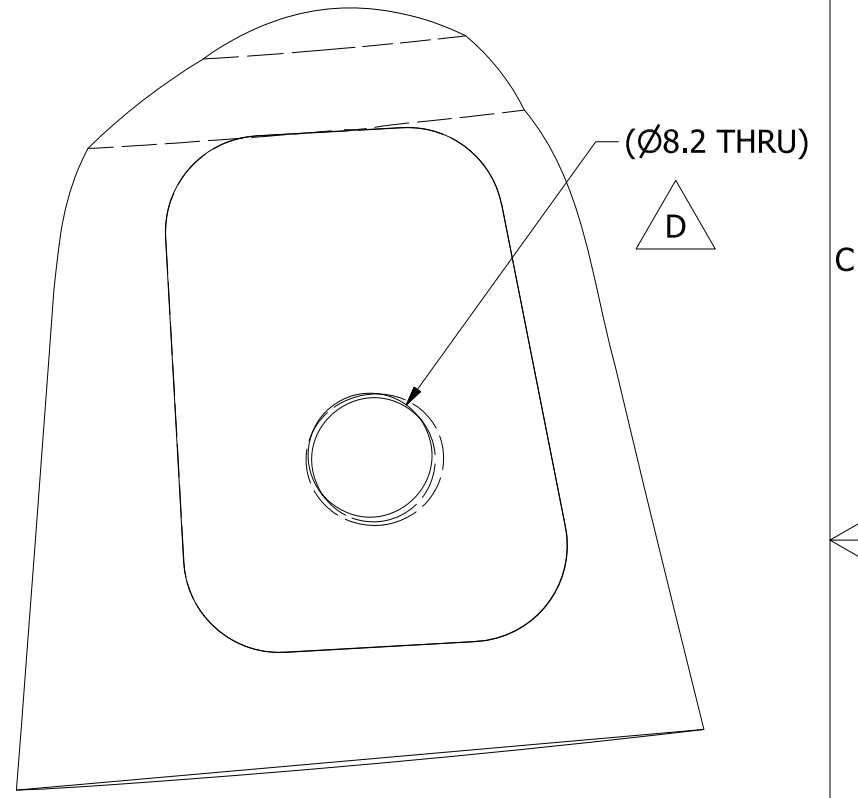
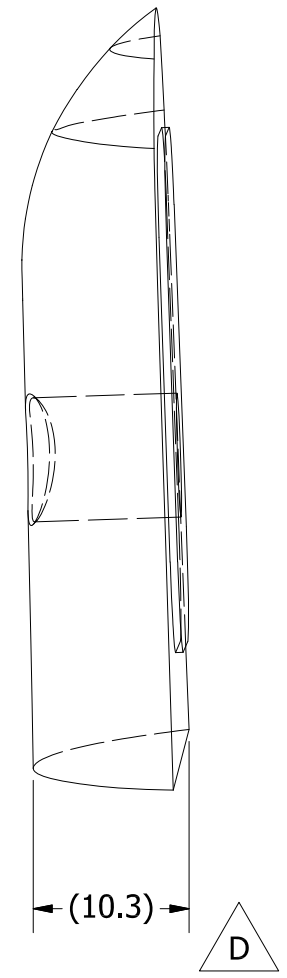
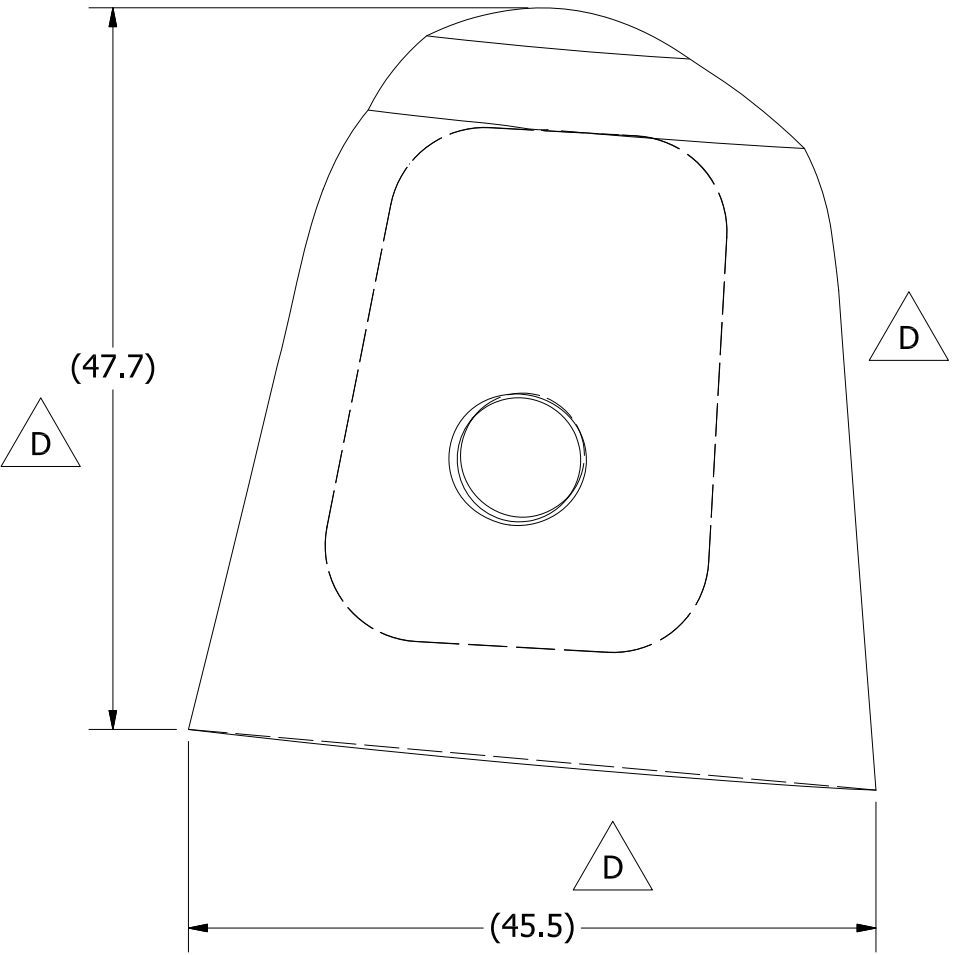
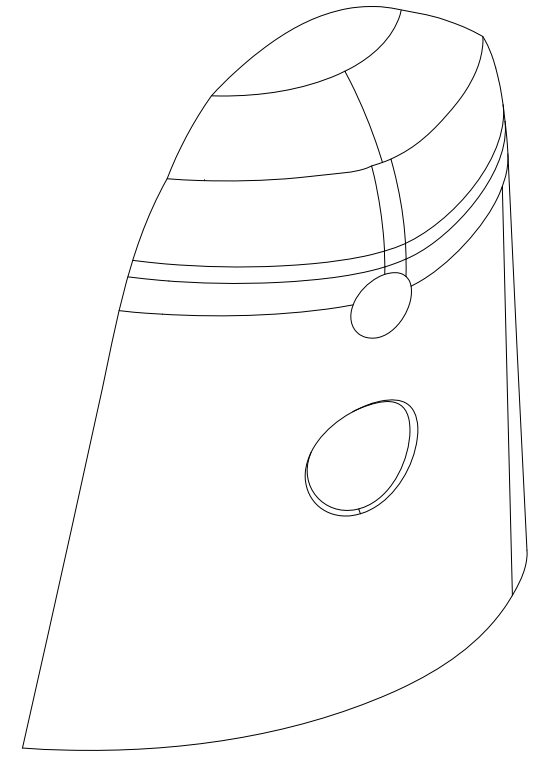
$\varnothing 5.00^{+0.13}_{-0.03}$ THRU
 M6x1 - 6H THRU
 D

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN jarthur CHECKED ENG APPROVED	DATE 12/9/2011	
MATERIAL 1018 STEEL HEAT TREAT N/A FINISH .008 ELECTROLESS NICKEL	SIZE A3 SCALE: 2.5 : 1	DRAWING NUMBER 020-9107 SHEET 1 OF 1	REV E


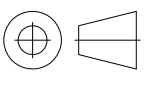


REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
70041	A	NEW RELEASE	JAA	JAA	8/15/2012
70760	C	BUMPED TO REV. B DUE TO STATE CHANGE TO W.I.P.	JAA	JAA	1/18/2013
72747	D	INCREASED HOLE SIZE TO REMOVE THREADS AND ADDED REFERENCE CALLOUT; REMOVED SMALL HOLE, ADDED NOTES; MADE MATERIAL REFERENCE; MADE MOLDED DIMENSIONS REFERENCE	TMV		8/25/2014
74658	E	REGULATION RELEASE, REMOVE NOTE 5 "USE 04-020-9111 MOLD"	GCH/ JHC		01/04/2016

D
C
B
A



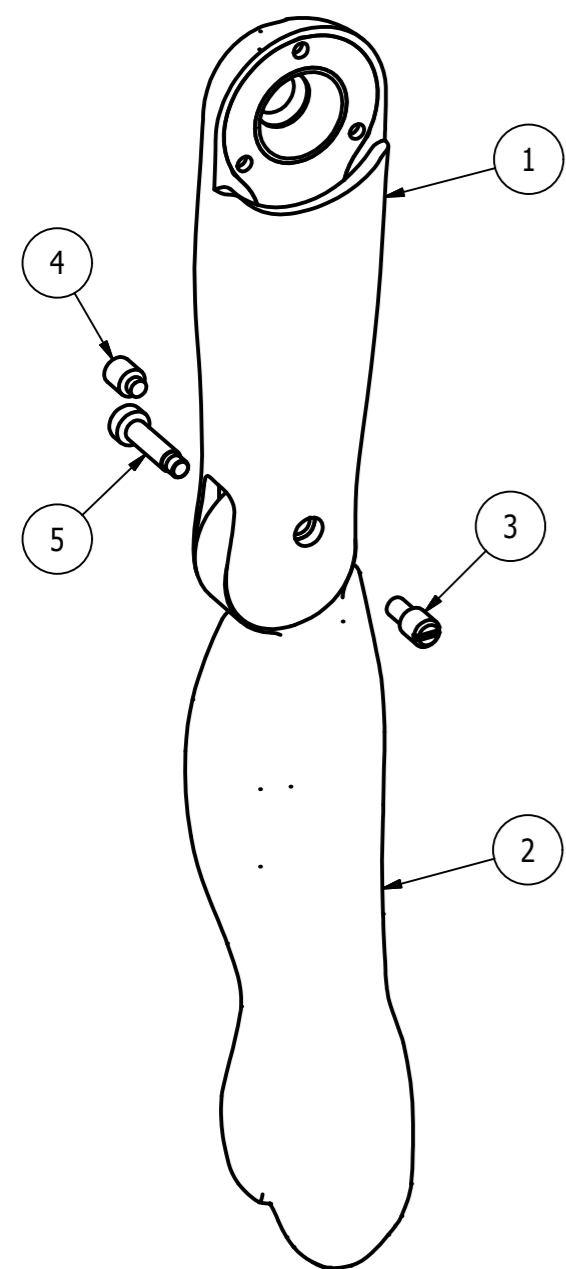
- NOTES:**
1. MATERIAL: BJB LS-30 URETHANE (REF).
 2. REMOVE ALL MOLD FLASHING
 3. ALL MOULD DIMENSION TOLERANCE +1%/-2% BUT NO SMALLER THAN 0.5mm
 4. NO SPLIT OR DEFECTS ARE ALLOWED IN THE URETHANE MOLDING

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		KNEE IMPACT INNER PAD, RIGHT	
DRAWN jarthur		8/15/2012			
CHECKED					
MATERIAL SEE NOTES		ENG			
HEAT TREAT N/A		APPROVED			
FINISH N/A					
 THIRD ANGLE PROJECTION		SIZE A3		DRAWING NUMBER 020-9111	
		SCALE: N/A		SHEET 1 OF 1	
				REV E	

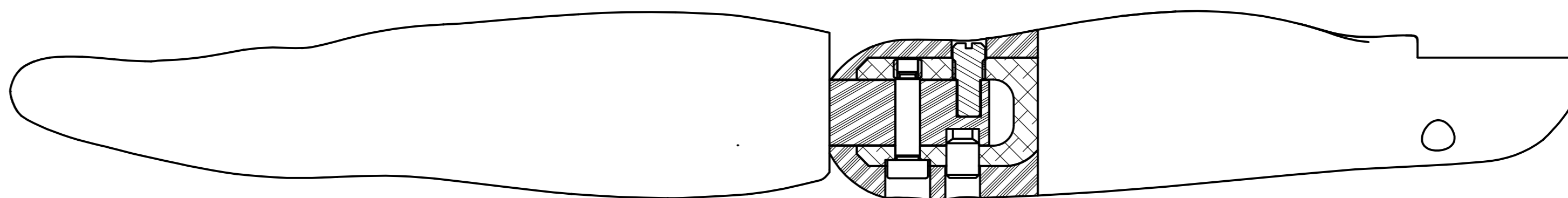
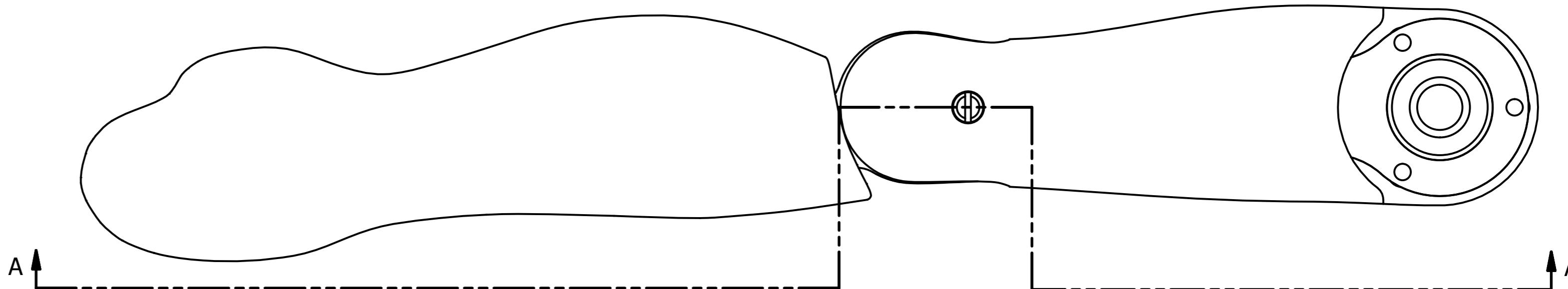
6 5 4 3 2 1

6 5 4 3 2 1

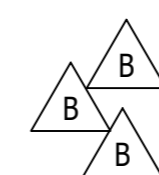
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		6/06/07
75688	B	020-9850 WAS 020-9801; 020-9830 WAS 020-9810; 020-9913 WAS 020-9910	BK		6/28/07
72318	C	REDRAWN IN INVENTOR	AB		01/22/14
74658	D	REGULATION RELEASE	JH		12/22/2015




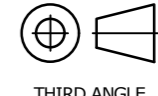
SCALE .5:1



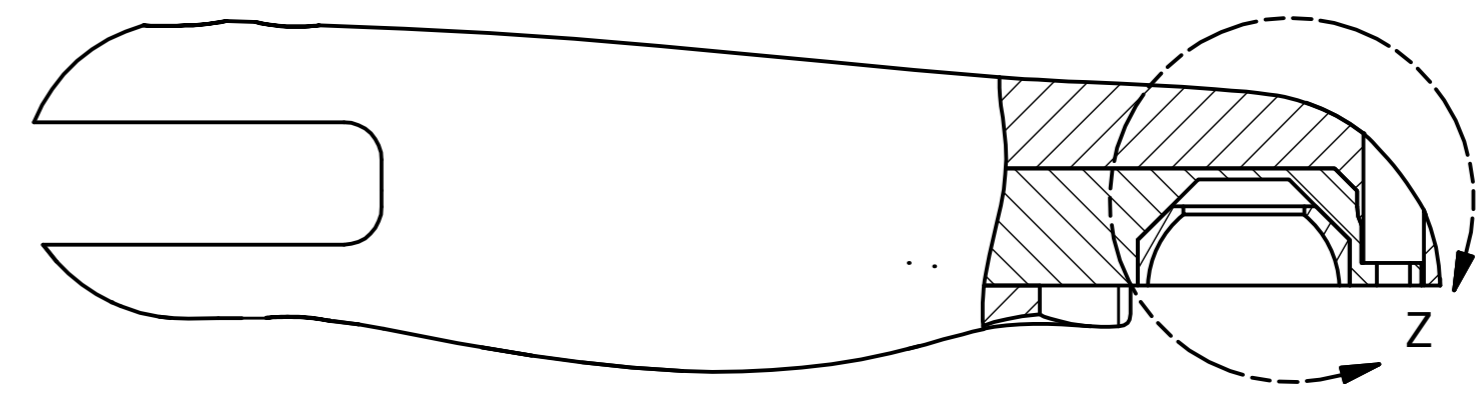
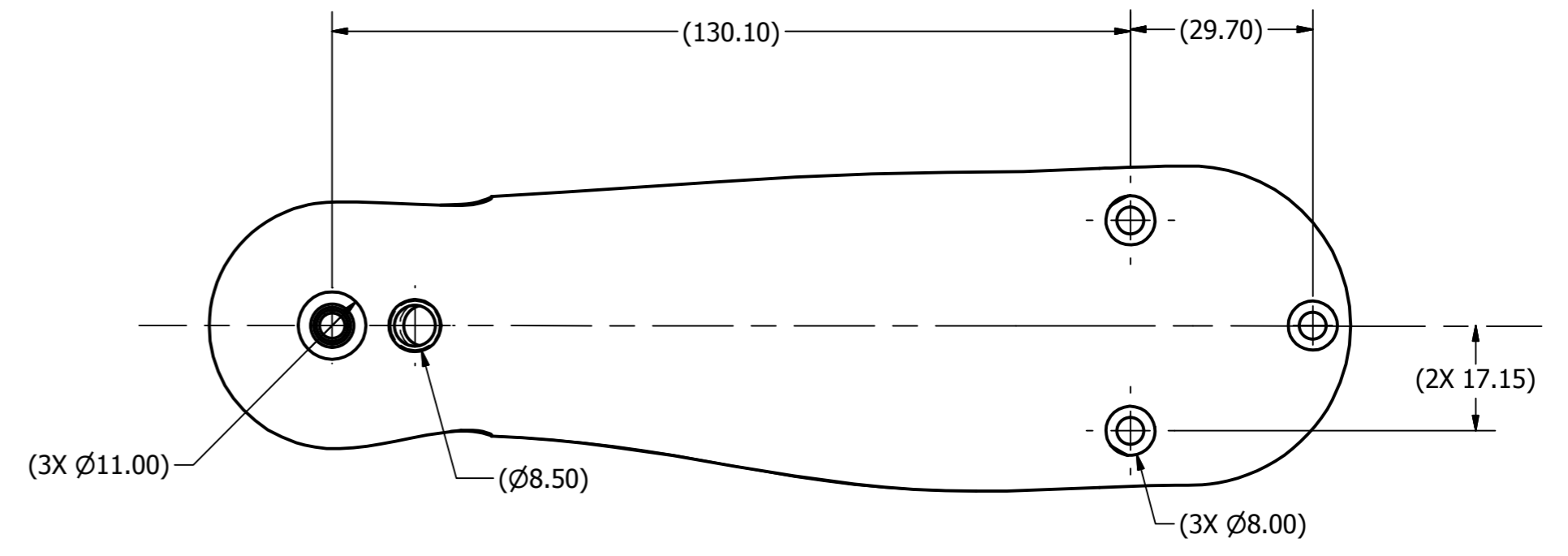
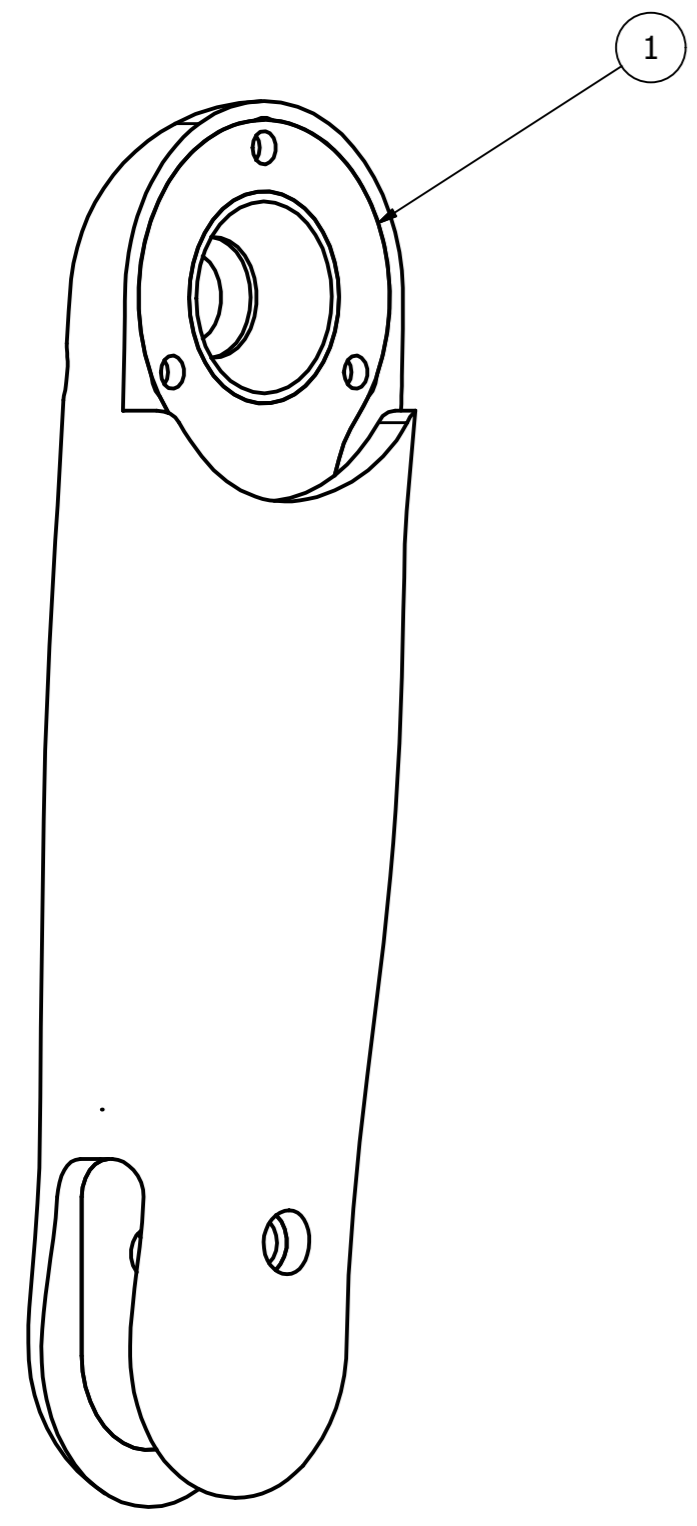
SECTION A-A
PARTIAL VIEW



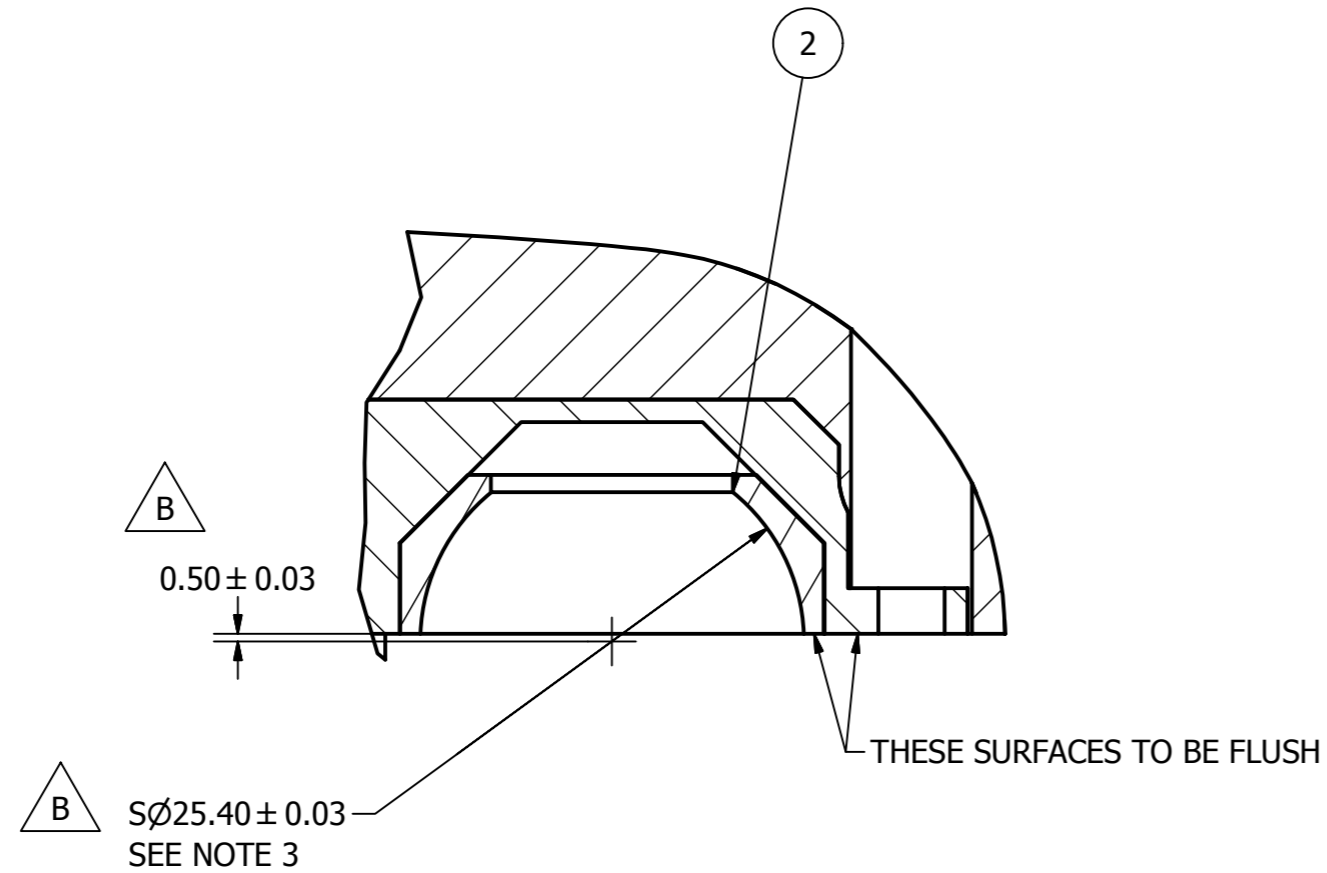
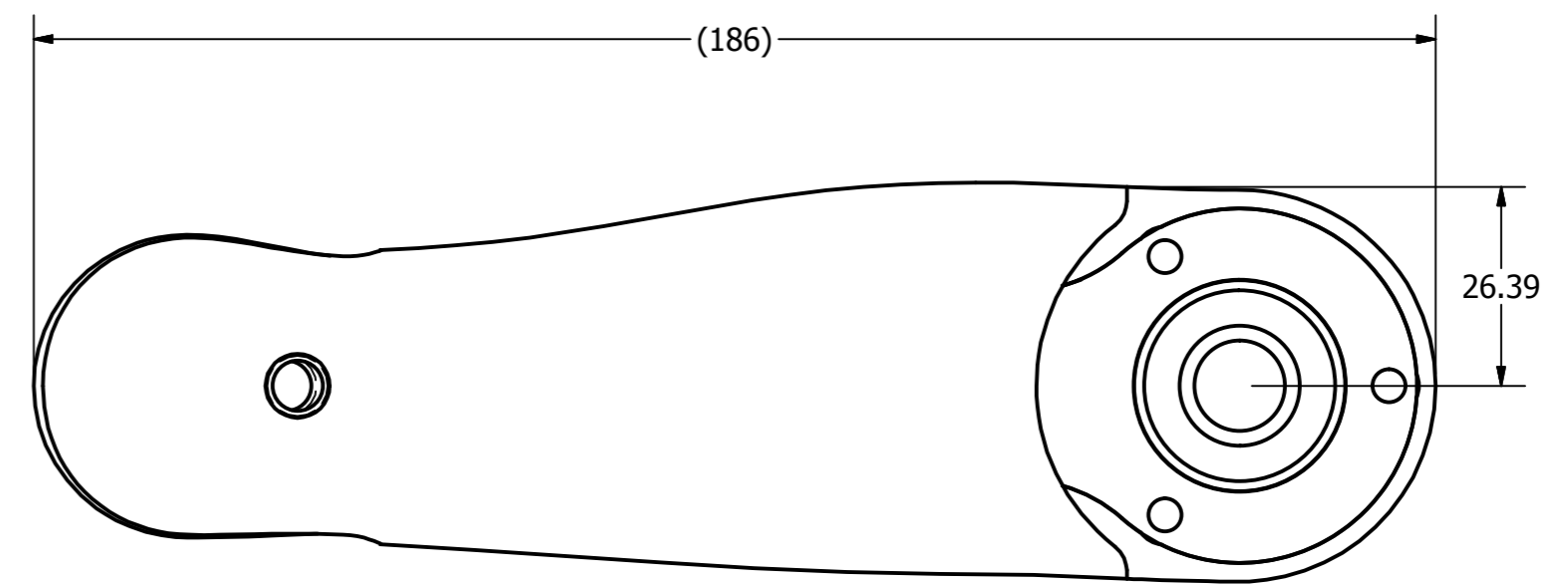
ITEM	QTY	PART NUMBER	DESCRIPTION
5	1	020-9913	SHOULDER SCREW, MODIFIED, ELBOW, Q3s
4	1	5000725	M8 X 1.25 X 12 LG. SSSNP
3	1	020-9901	STOP SCREW
2	1	020-9830	LOWER ARM ASSEMBLY, RIGHT, Q3s
1	1	020-9850	UPPER ARM MOLDED, RIGHT, Q3S

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL: X ±.5 XX ±.2 XXX ±.1	MACHINED ANGLES ±.5°	APPROVALS	DATE	RIGHT ARM ASSEMBLY, Q3s	
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		DRAWN B. KIMES	6/23/2006		
MATERIAL	CHECKED				
HEAT TREAT	ENG				
FINISH	APPROVED				
		 THIRD ANGLE PROJECTION		SIZE A2	DRAWING NUMBER 020-9800
		SCALE: 1:1		SHEET 1 OF 1	REV D

REVISION HISTORY				
ECO#	REV	DESCRIPTION	BY	DATE
	A	RELEASE TO PRODUCTION	BK	6/06/07
71512	B	REDRAW IN INVENTOR, ADDED SØ25.40 ±0.03, 0.50 ±0.03 DIMENSIONS, ADDED NOTE 3	ARAY	7/24/2013
72423	C	MATERIAL WAS PU 35 SHORE A	KHS	4/22/14
74658	D	REGULATION RELEASE	GCH	12/22/2015



PARTIAL VIEW



DETAIL Z
SCALE 2 : 1

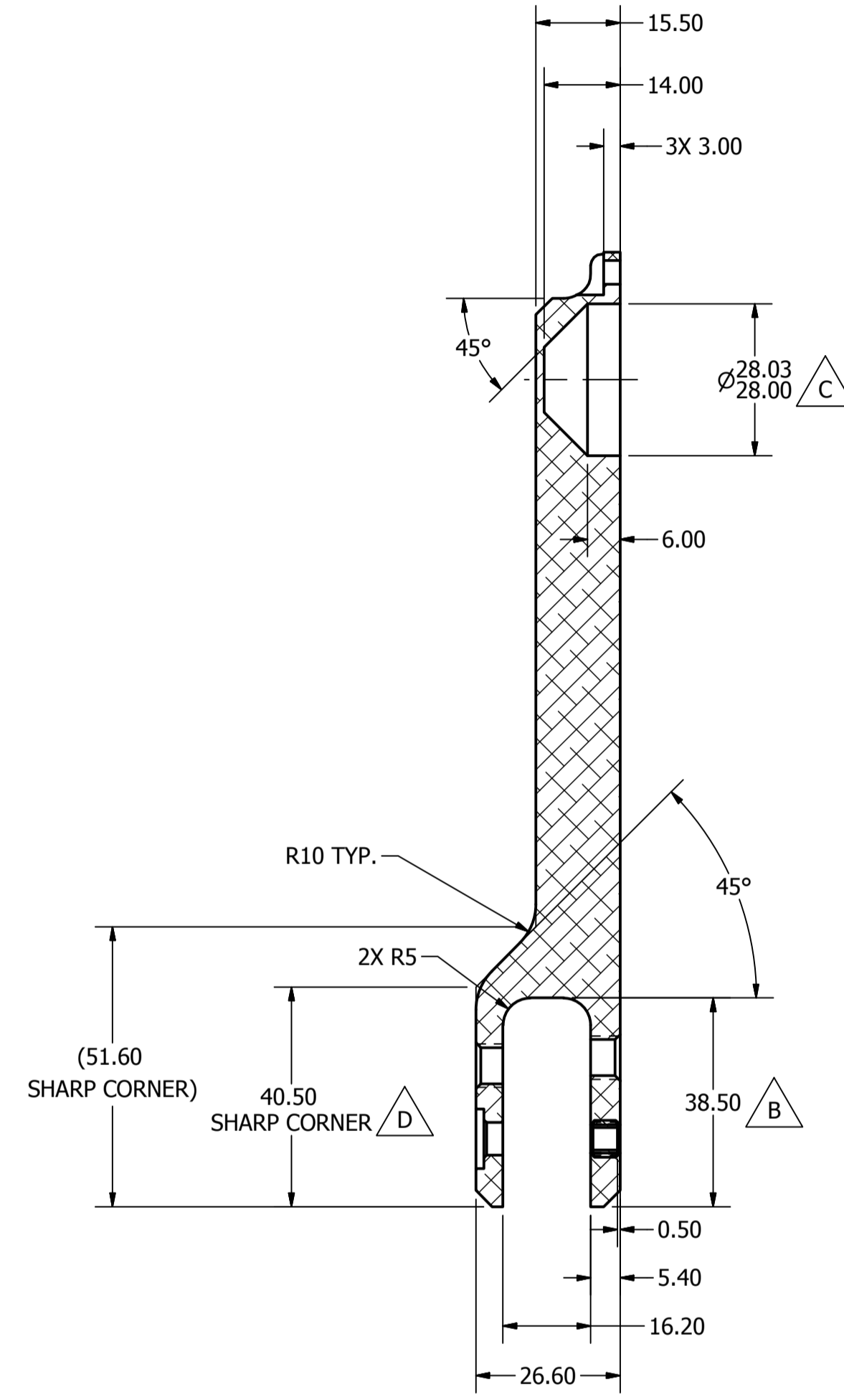
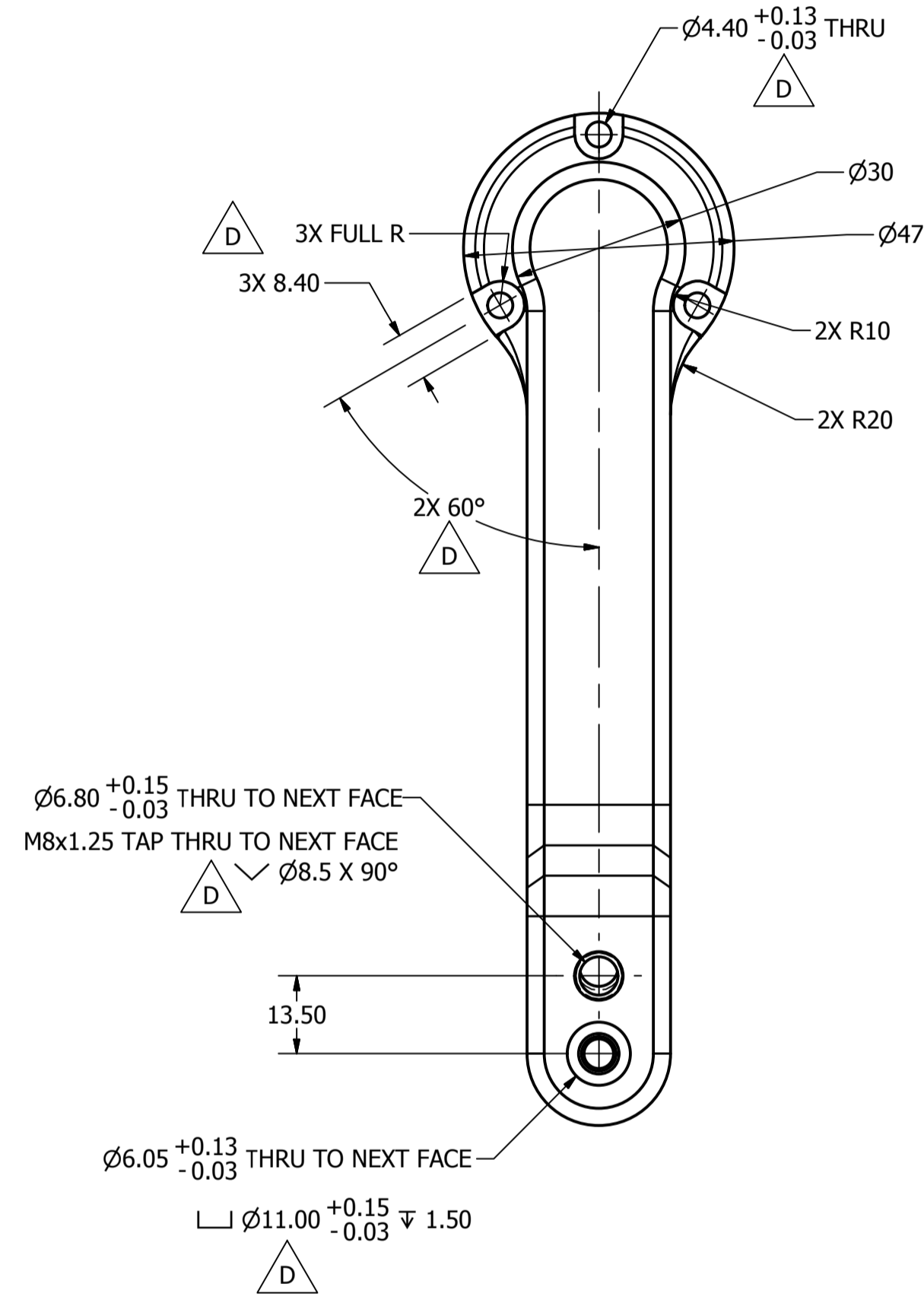
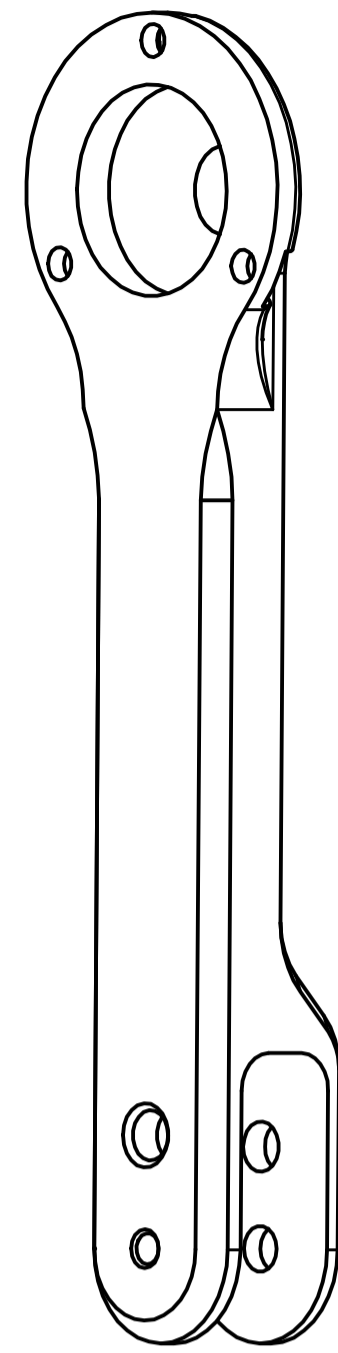
- NOTES:
- C 1. MATERIAL: SKIN PU 49 SHORE A.
 - B 2. PRESS FIT ITEM 2 INTO ITEM 1 AS SHOWN.
 - B 3. MACHINE PART 020-9705 TO SØ25.40 ± 0.03 AFTER COLD MOLDING.

ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	020-9705	SHOULDER BEARING
1	1	020-9704	HUMERUS

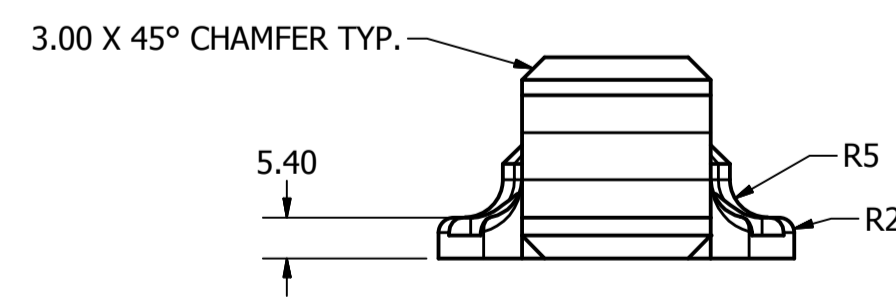
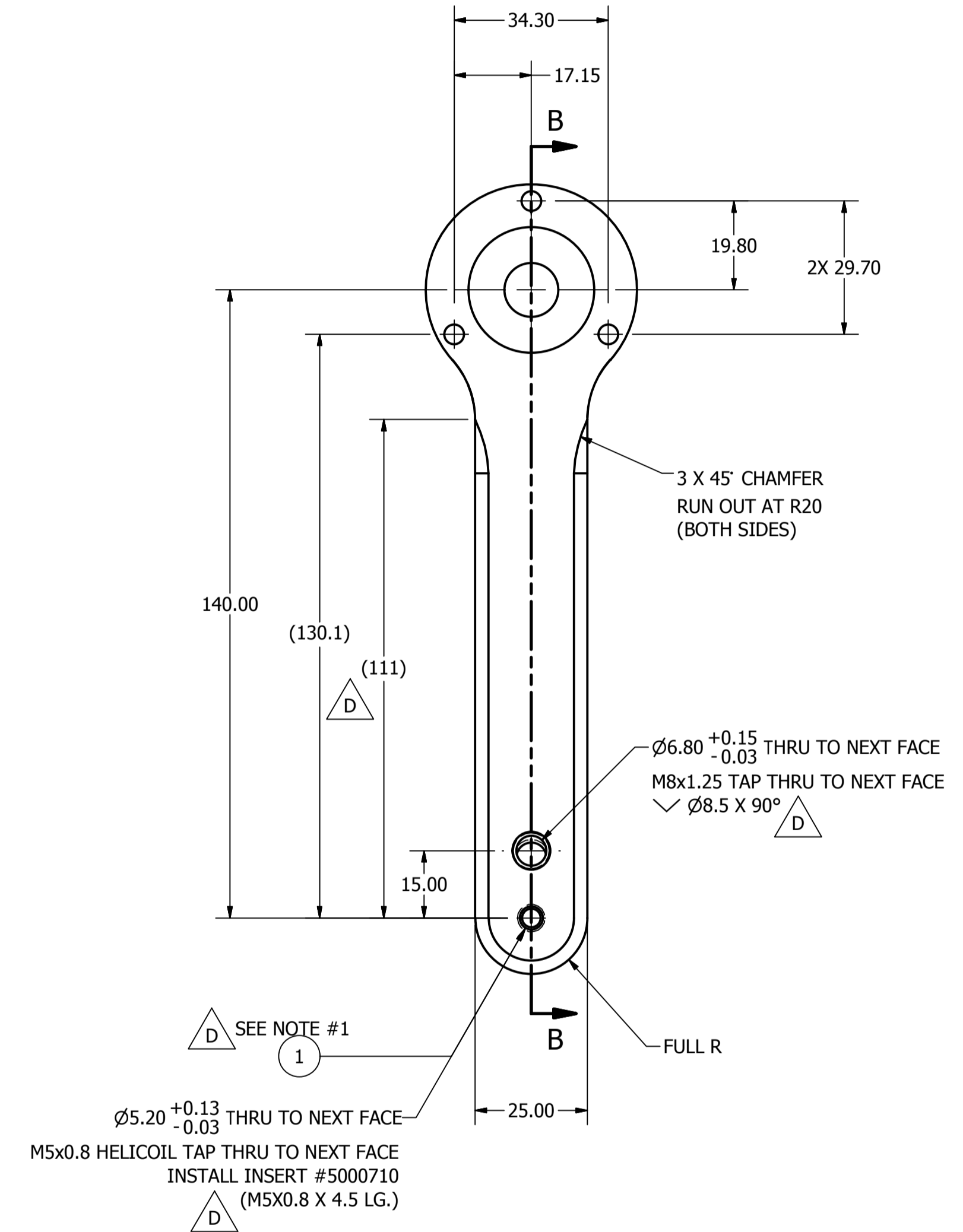
PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL -	MACHINED		
X ±.5	ANGLES ±.5°	UPPER ARM MOLDED, RIGHT, Q3S	
XX ±.2	±.1		
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		APPROVALS	DATE
MATERIAL SEE NOTES		DRAWN B.KIMES	6/6/2007
HEAT TREAT N/A		CHECKED	
FINISH N/A		ENG	
		APPROVED	

SIZE	DRAWING NUMBER	REV
A2	020-9850	D
SCALE:	SHEET	OF
1 : 1	1	1

REVISION HISTORY				
ECO#	REV	DESCRIPTION	BY	DATE
	A	RELEASE TO PRODUCTION	BK	6/21/06
75688	B	ADD 38.5 DIMENSION	BK	7/02/07
71512	C	REDRAW IN INVENTOR, Ø28.00-28.03 WAS Ø28.00-28.05	ARAY	7/24/2013
74583	D	40.50 SHARP CORNER WAS REFERENCE; (130.1) WAS (130.10); (111) WAS (111.09); UPDATE HOLE CALLOUTS TO CURRENT STANDARDS; REMOVED NOTE #1; ADDED NOTE #1 & SEE NOTE #1; REMOVED C'BORE 8.40 AS SHOWN; ADDED 2X 60°, 3X 8.40 & 3X FULL R	AB	12/01/15
74658	E	REGULATION RELEASE	GCH	01/04/2016



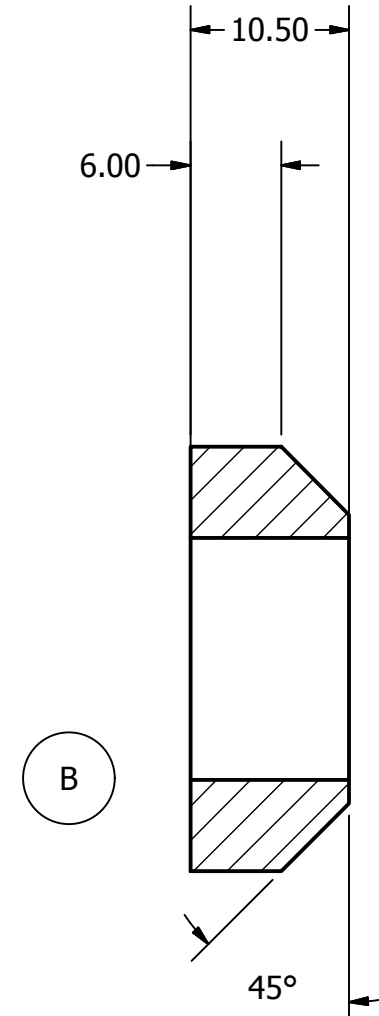
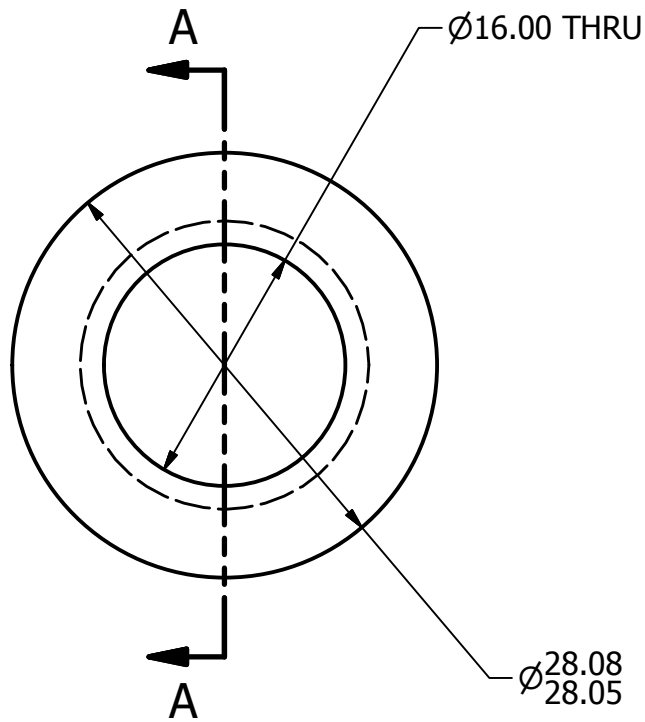
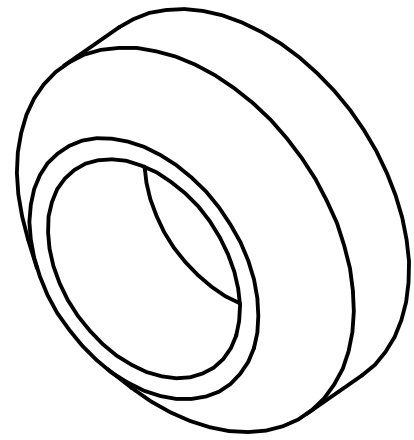
SECTION B-B



- $\triangle D$ NOTES:
1. INSTALL HELICOIL AFTER FINISH.

1	1	5000710	HELICOIL, M5 X .8 X 4.5
ITEM	QTY	PART NUMBER	DESCRIPTION
PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL: X.X ±.2	MACHINED ANGLES ±.5°		
APPROVALS		DATE	HUMERUS
DRAWN: arby		7/24/2013	
MATERIAL: ALUMINUM 6082		CHECKED:	 A1 020-9704 E
HEAT TREAT: N/A		ENG:	
FINISH: SILVER ANODIZE		APPROVED:	
SCALE: 1:1		SHEET: 1	OF: 1

REVISION HISTORY				
ECO#	REV	DESCRIPTION	BY	DATE
	A	RELEASE TO PRODUCTION	BK	6/21/06
71512	B	REDRAW IN INVENTOR, REMOVED SØ25.40	ARAY	7/22/2013
74658	C	REGULATION RELEASE	GCH	1/04/2016



SECTION A-A

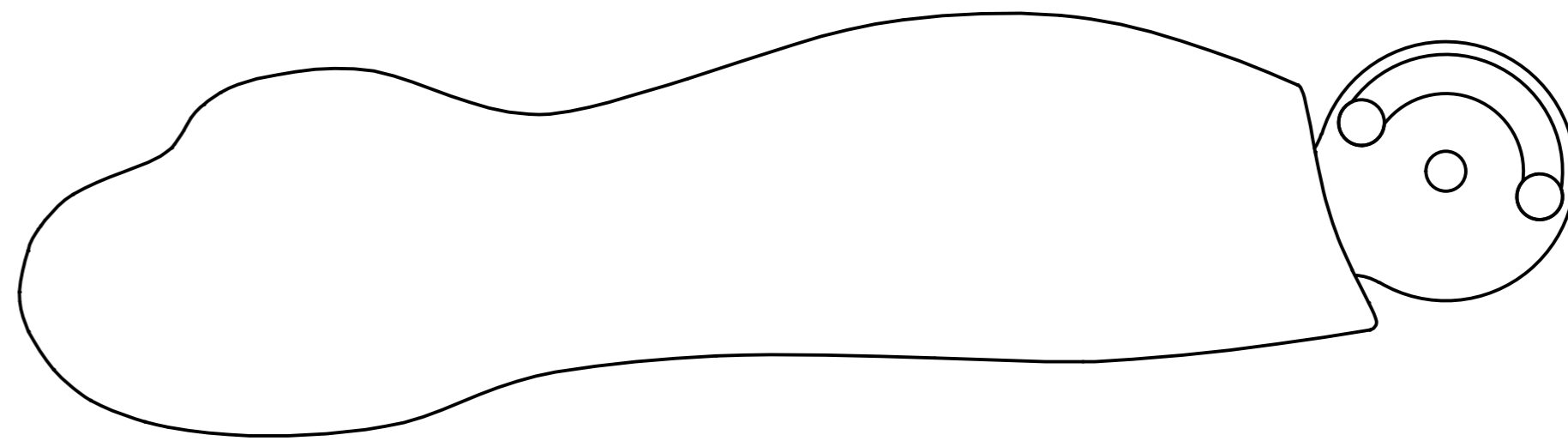
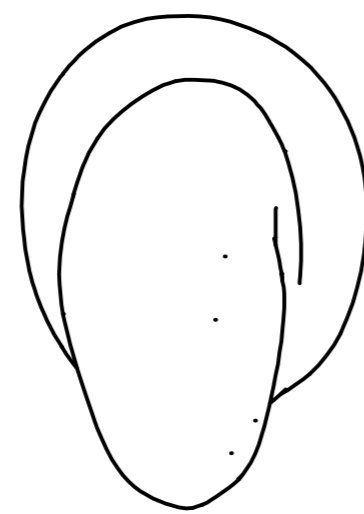
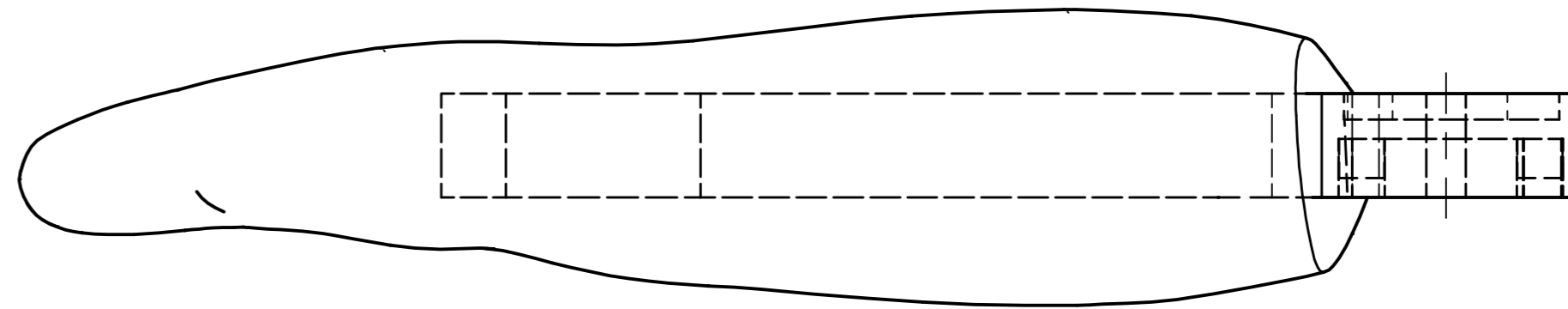
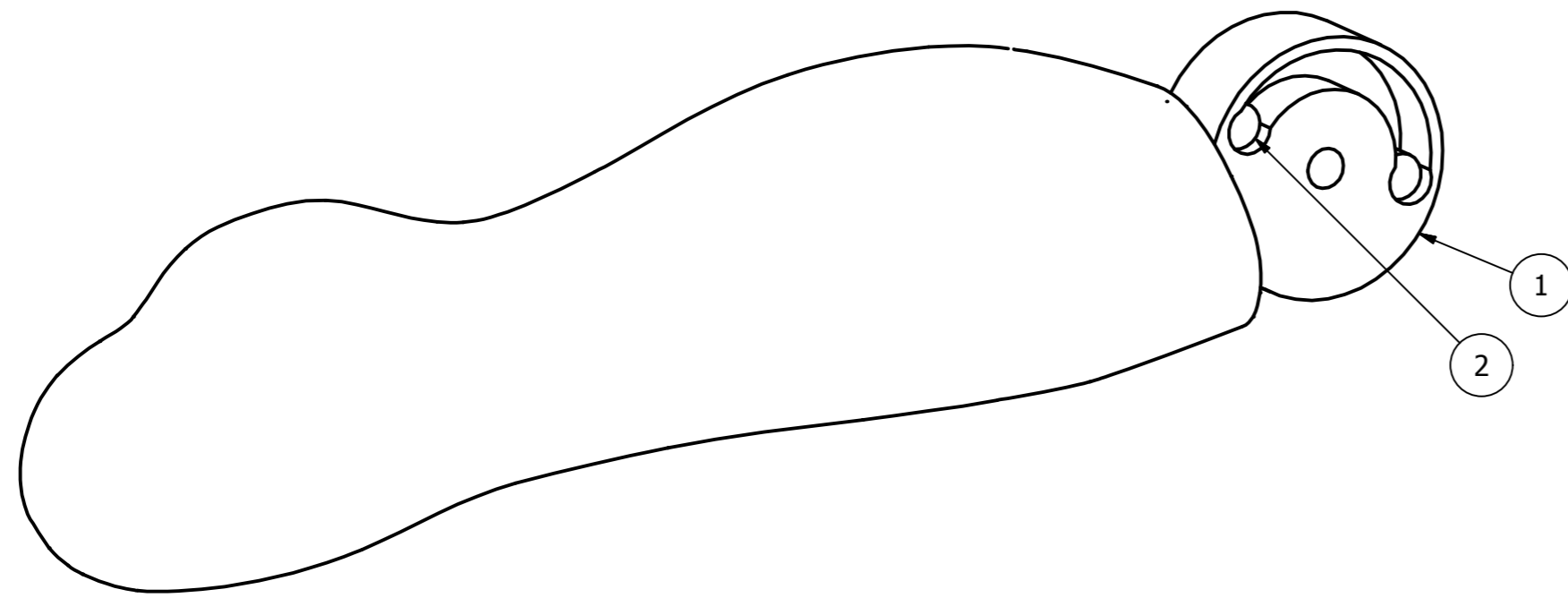
NOTES:

1. REMOVE ALL BURRS AND BREAK ALL SHARP EDGES.
2. SURFACE FINISH 0.8/MAX.



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 ✓ XX ±.2 ✓ X.XX ±.1 ✓ ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN aray CHECKED ENG APPROVED	DATE 7/22/2013	
MATERIAL BEARING GRADE PEEK HEAT TREAT N/A FINISH N/A	THIRD ANGLE PROJECTION	SIZE A3	DRAWING NUMBER 020-9705
	SCALE: 2 : 1	SHEET 1 OF 1	REV C


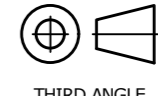
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		6/05/07
72318	B	REDRAWN IN INVENTOR; ADD "SEE NOTES" TO MATERIAL TABLE	AB		01/21/14
74658	C	REGULATION RELEASE	GCH		12/22/2015



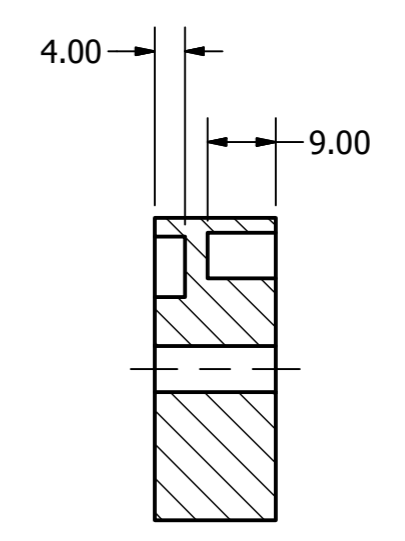
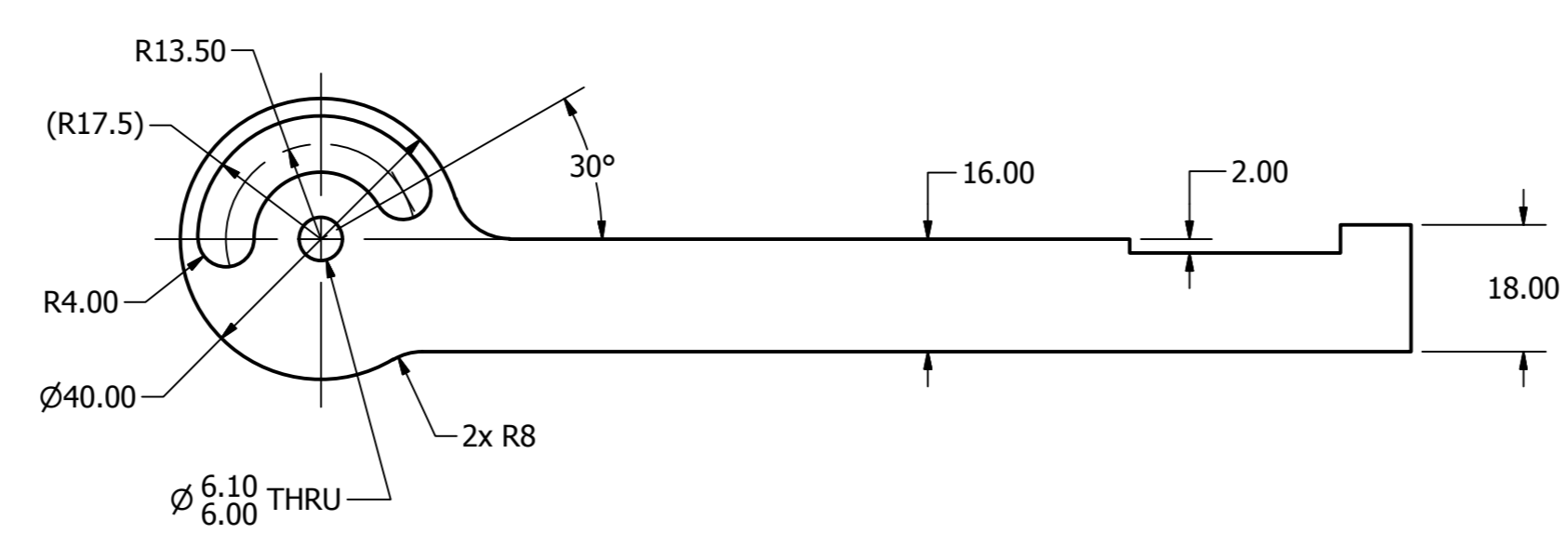
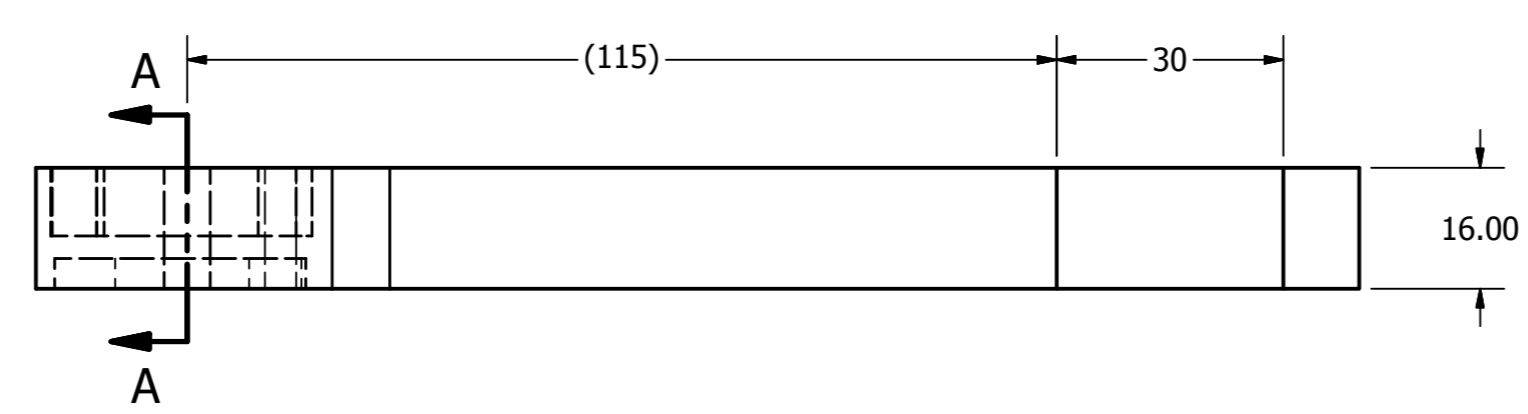
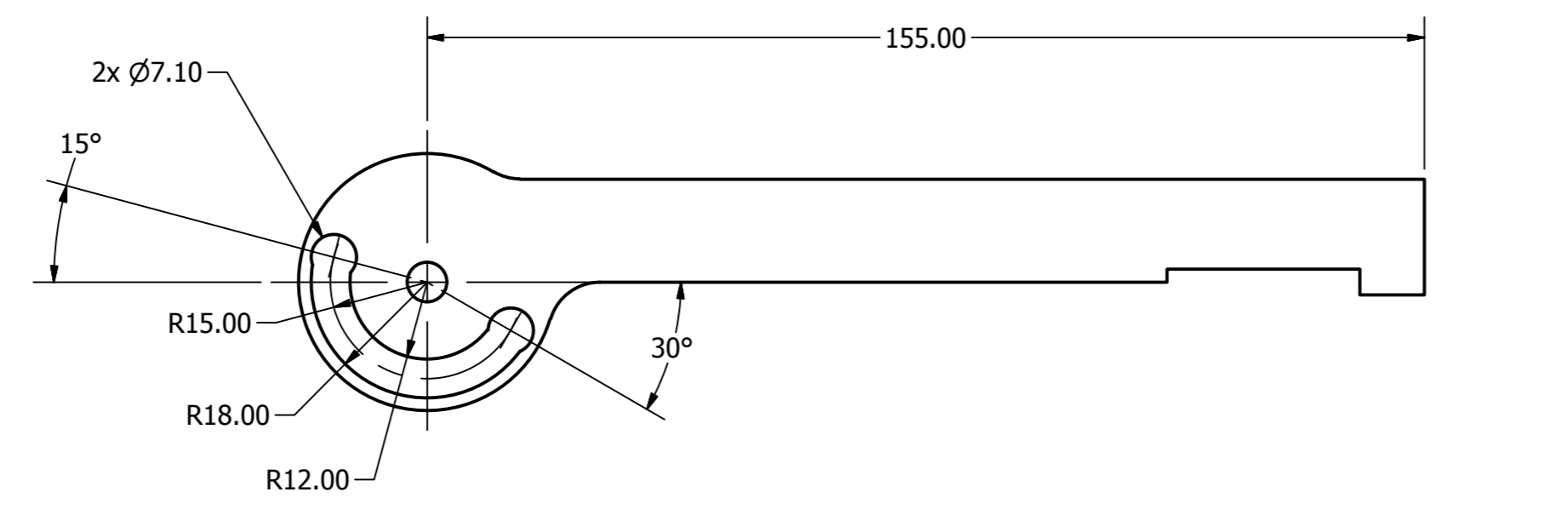
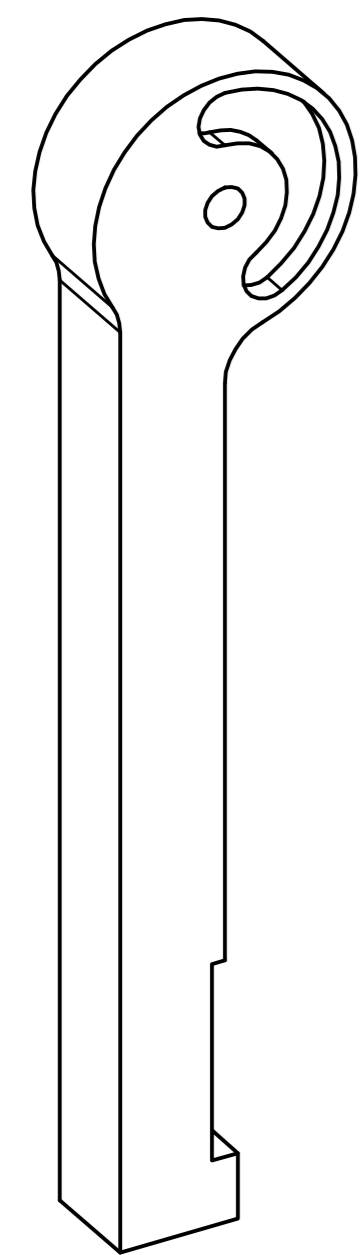
NOTES:
1. MATERIAL: PVC SKIN FILLED WITH PU ELASTOMER



ITEM	QTY	PART NUMBER	DESCRIPTION
2	2	020-9912	END STOP
1	1	020-9820	ULNA, RIGHT, Q3s

PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL: X ±.5 XX ±.2 XXX ±.1 MACHINED ANGLES ±.5° <small>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</small>		VEHICLE RESEARCH and TEST CENTER	
APPROVALS		DATE	
DRAWN B. KIMES		05-Jun-07	
CHECKED			
MATERIAL SEE NOTES			
HEAT TREAT		ENG	
FINISH		APPROVED	
 THIRD ANGLE PROJECTION		SIZE A2	DRAWING NUMBER 020-9830
SCALE: 1:1		SHEET 1	OF 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		5/31/07
72318	B	REDRAWN IN INVENTOR; NOTE #1. MATERIAL: Nylon 6/6 (BLACK) WAS REMOVE ALL BURRS AND BREAK ALL SHARP EDGES; MATERIAL- SEE NOTE #1 WAS NYLON 6 (BLACK)	AB		01/21/14
74658	C	REGULATION RELEASE	GCH		12/22/2015



SECTION A-A

NOTES:
 1. MATERIAL: Nylon 6/6 (BLACK)

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN MILLIMETERS
 TOLERANCES ARE:
 DECIMAL - X ±.5
 XX ±.2
 XXX ±.1
 MACHINED ANGLES ±.5°
 ASME Y14.5M - 1994
 DO NOT SCALE DRAWING

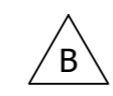
VEHICLE RESEARCH
 and TEST CENTER

APPROVALS	DATE
DRAWN B. KIMES	31-May-07
CHECKED	
ENG	
APPROVED	

**NATIONAL HIGHWAY TRAFFIC
 SAFETY ADMINISTRATION**

ULNA, RIGHT, Q3s

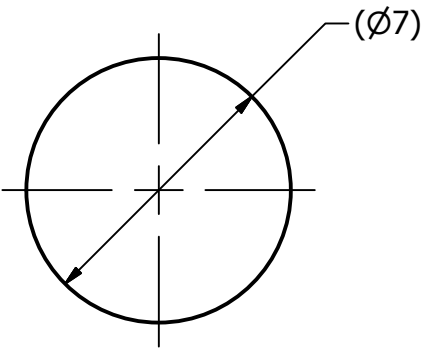
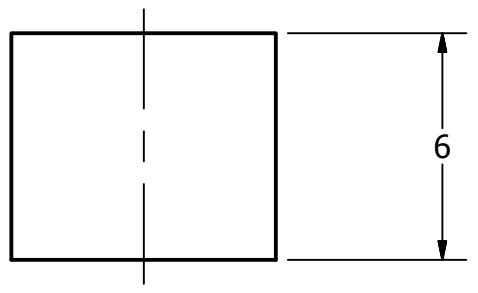
SIZE A2	DRAWING NUMBER 020-9820	REV C
SCALE: 1:1	SHEET 1	OF 1



REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		6/08/07
72318	B	REDRAWN IN INVENTOR	AB		01/20/14
74658	C	REGULAION RELEASE	GCH		12/22/2015



SCALE 1 : 1



NOTES:

- MADE FROM 6002444 (METRIC O-RING CORD Ø7mm)
CUT TO LENGTH SHOWN.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:

DECIMAL: X ±.5
XX ±.2
X.XX ±.1

MACHINED ANGLES ±.5°

ASME Y14.5M - 1994
DO NOT SCALE DRAWING

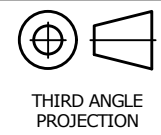
VEHICLE RESEARCH
and TEST CENTER



NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

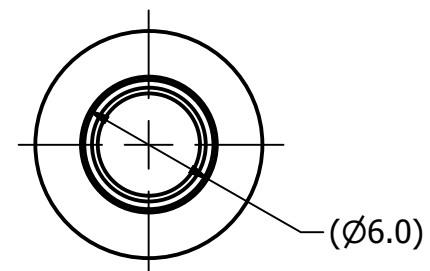
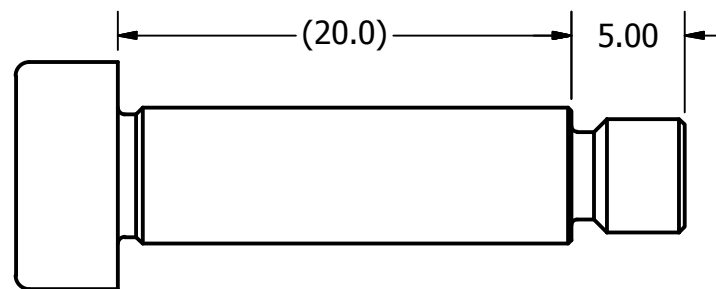
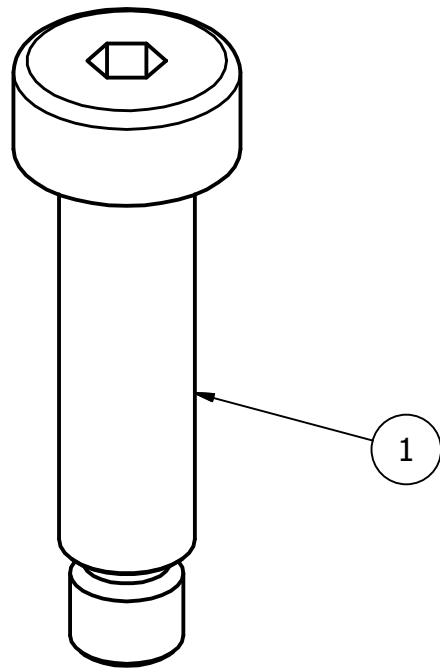
APPROVALS	DATE
DRAWN B. KIMES	08-Jun-07
CHECKED	
ENG	
APPROVED	

END STOP		
SIZE	DRAWING NUMBER	REV
A3	020-9912	C
SCALE:	SHEET	OF
5:1	1	1





THIRD ANGLE
PROJECTION

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		7-05-07
75669	B	ADD NEXT ASM: 034-5000-1, 034-5000-2; QTY: 1, 1 & USED ON: 034-0000, 034-000	LP		10-16-07
72318	C	REDRAWN IN INVENTOR	AB		01/20/14
74658	D	REGULATION RELEASE	GCH		12/22/2015

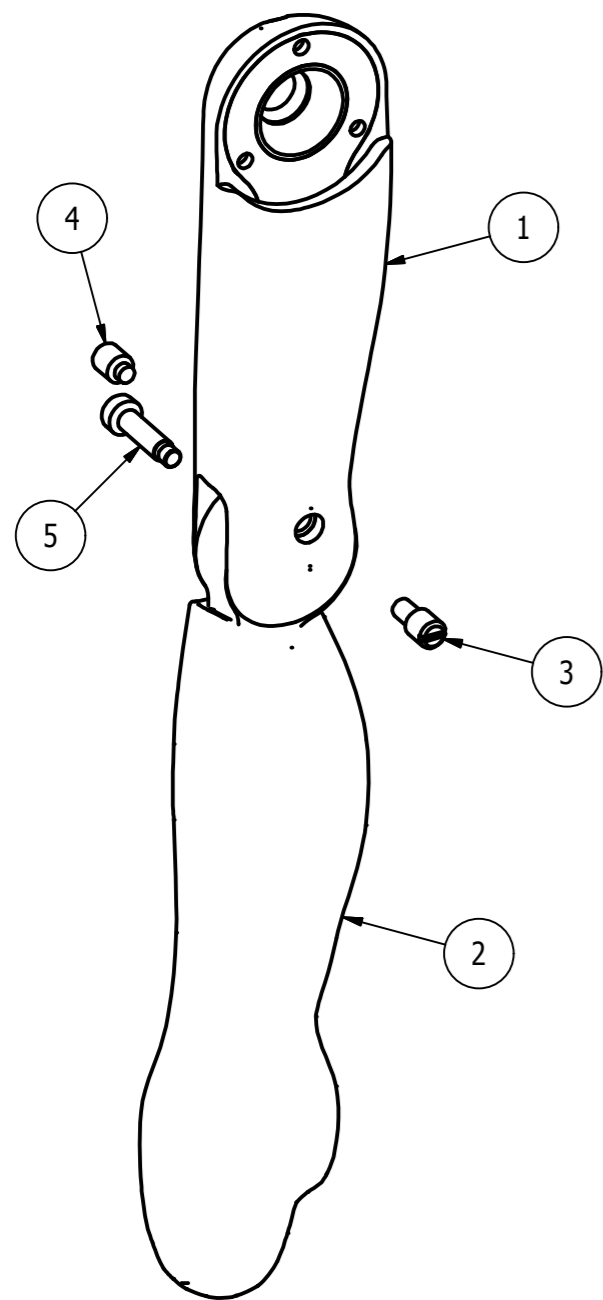


NOTES:

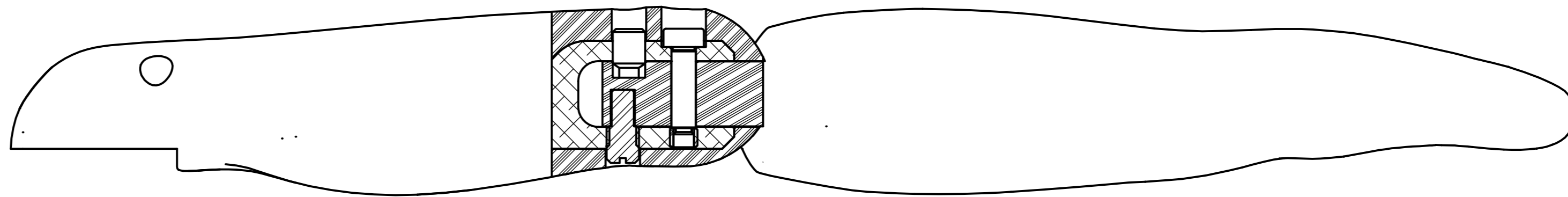
1. MODIFY SCREW THREADS TO LENGTH SHOWN.

1	1	5000640	M6 X 20 LG. SHSS SS
ITEM	QTY	PART NUMBER	DESCRIPTION
PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER APPROVALS: B. KIMES DATE: 27-Jul-06	
MATERIAL: HEAT TREAT: FINISH:		CHECKED: ENG: APPROVED:	
		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION SHOULDER SCREW, MODIFIED, ELBOW, Q3s	
		 THIRD ANGLE PROJECTION	
		SIZE: A3 SCALE: 3:1	DRAWING NUMBER: 020-9913 SHEET: 1 OF 1
		REV: D	

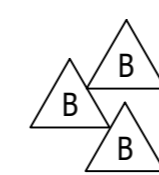
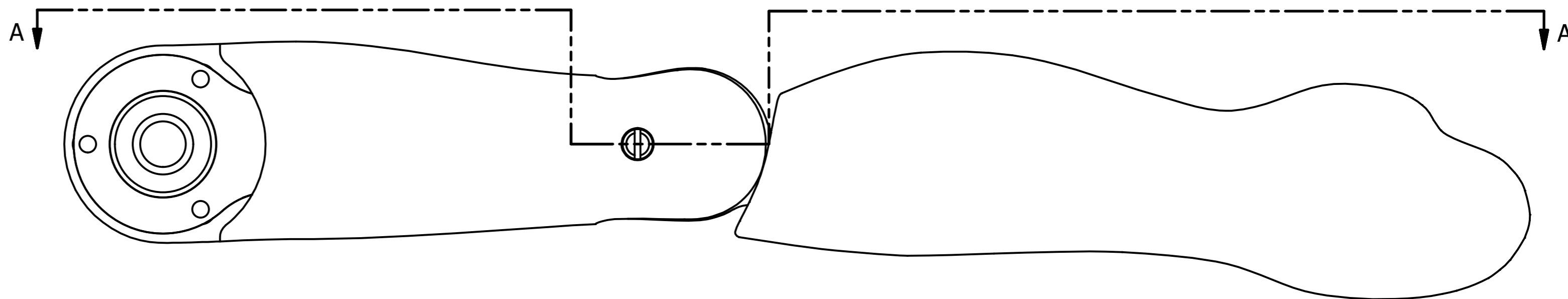
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		6/06/07
75688	B	020-9750 WAS 020-9701; 020-9730 WAS 020-9710; 020-9913 WAS 020-9910	BK		6/28/07
72319	C	REDRAWN IN INVENTOR	AB		01/22/14
74658	D	REGULATION RELEASE	JH		12/22/2015





SCALE .5:1



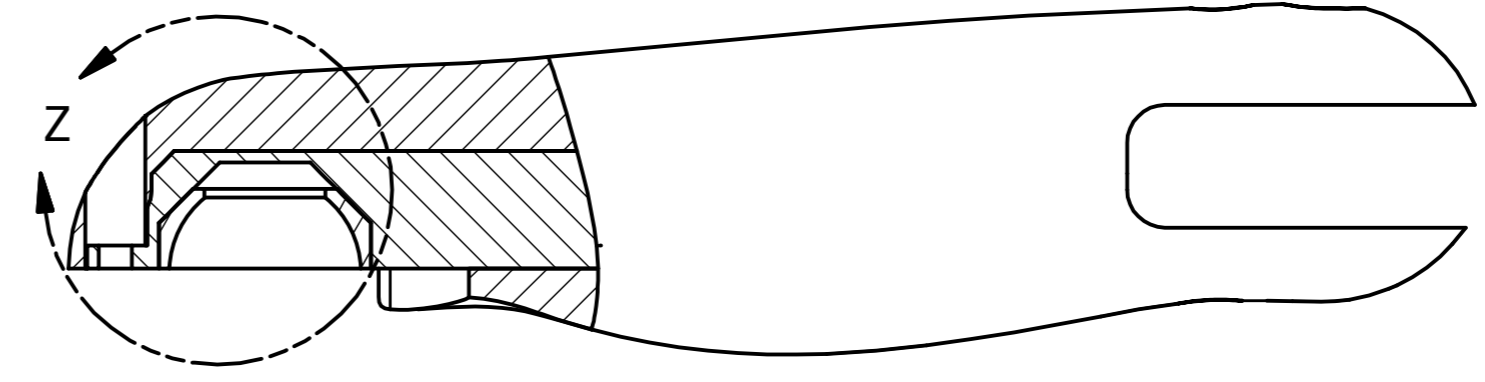
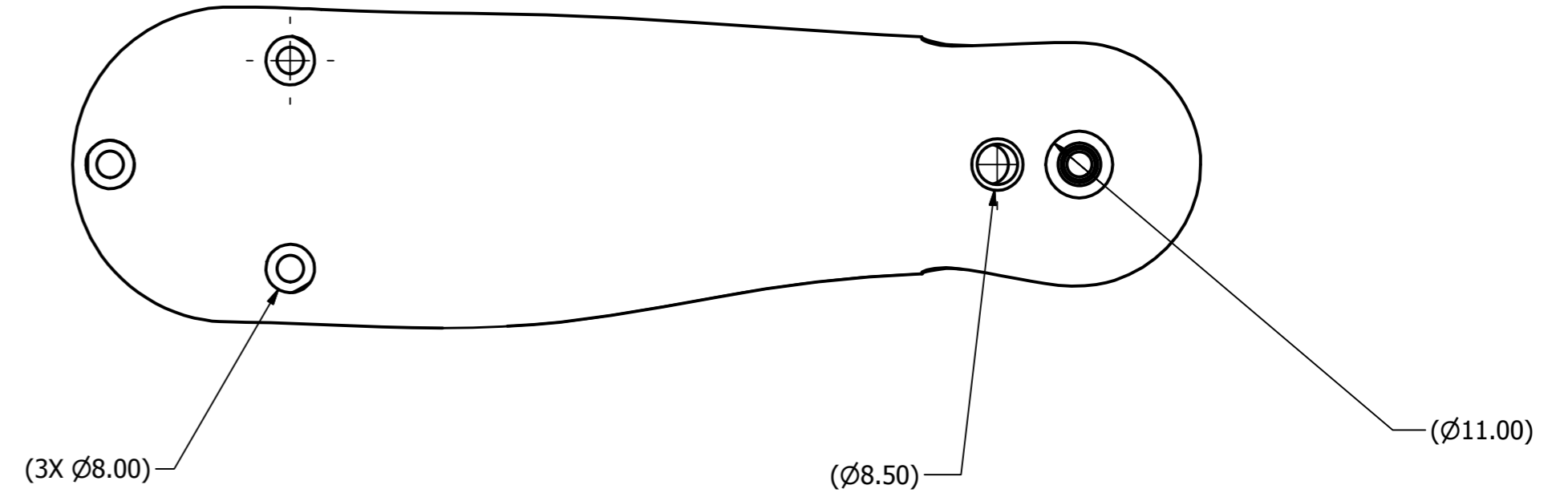
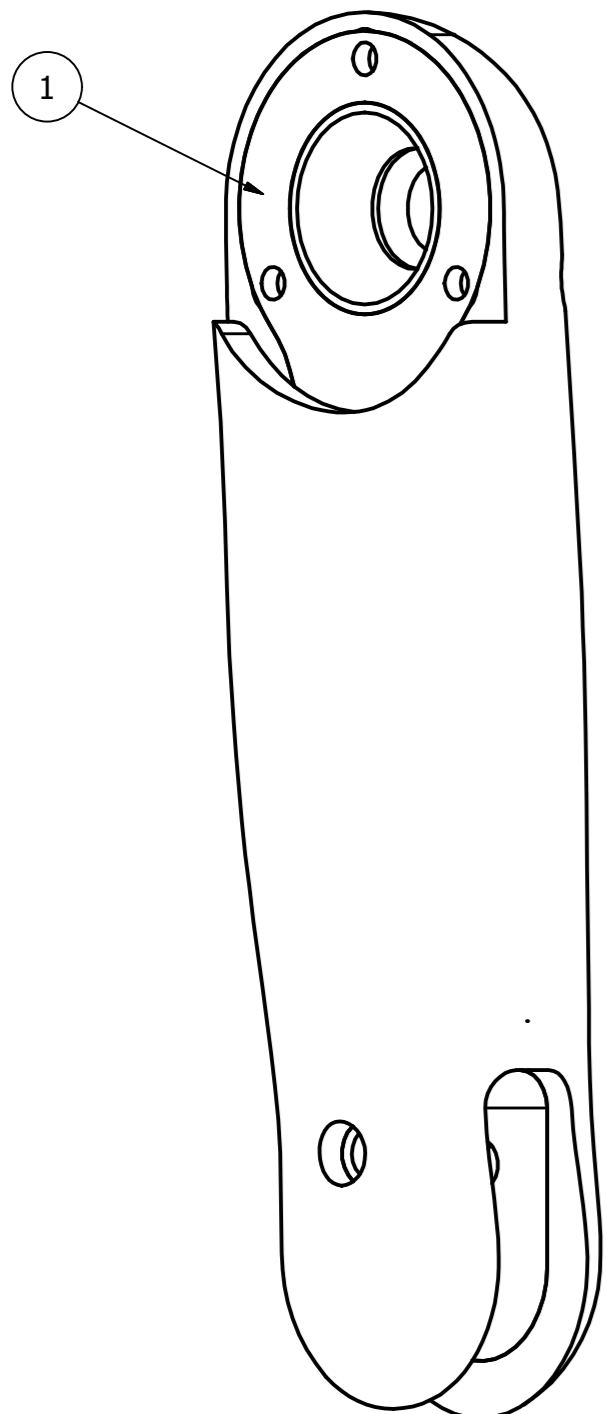
SECTION A-A
PARTIAL VIEW



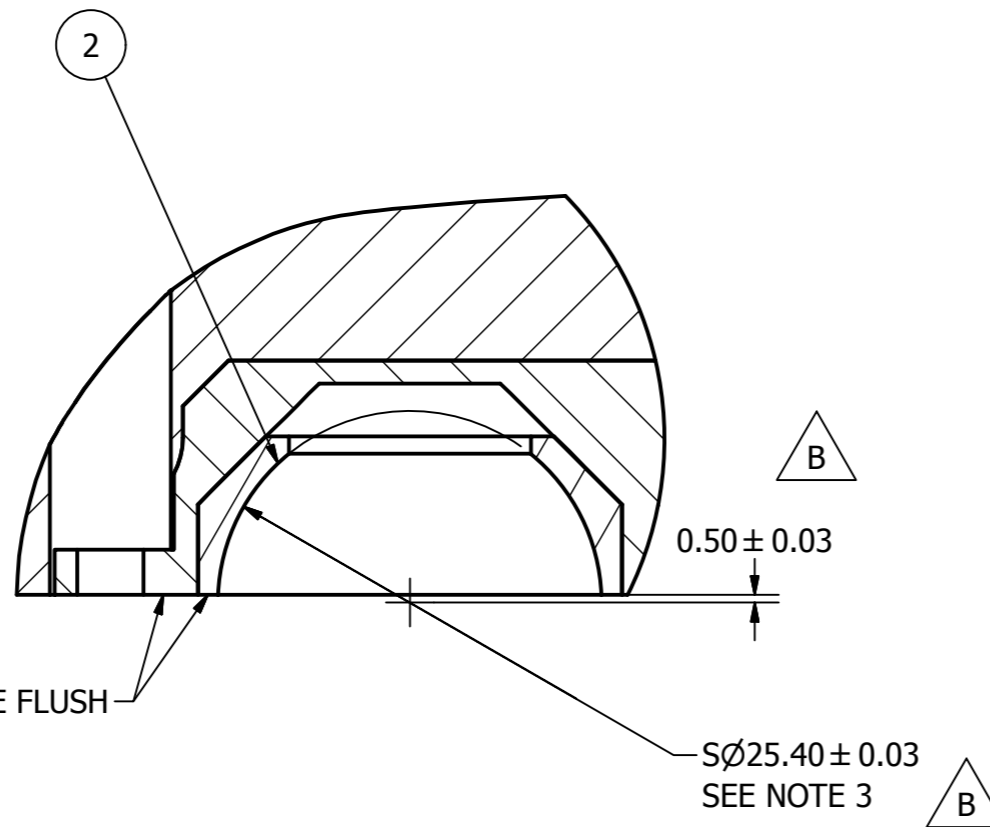
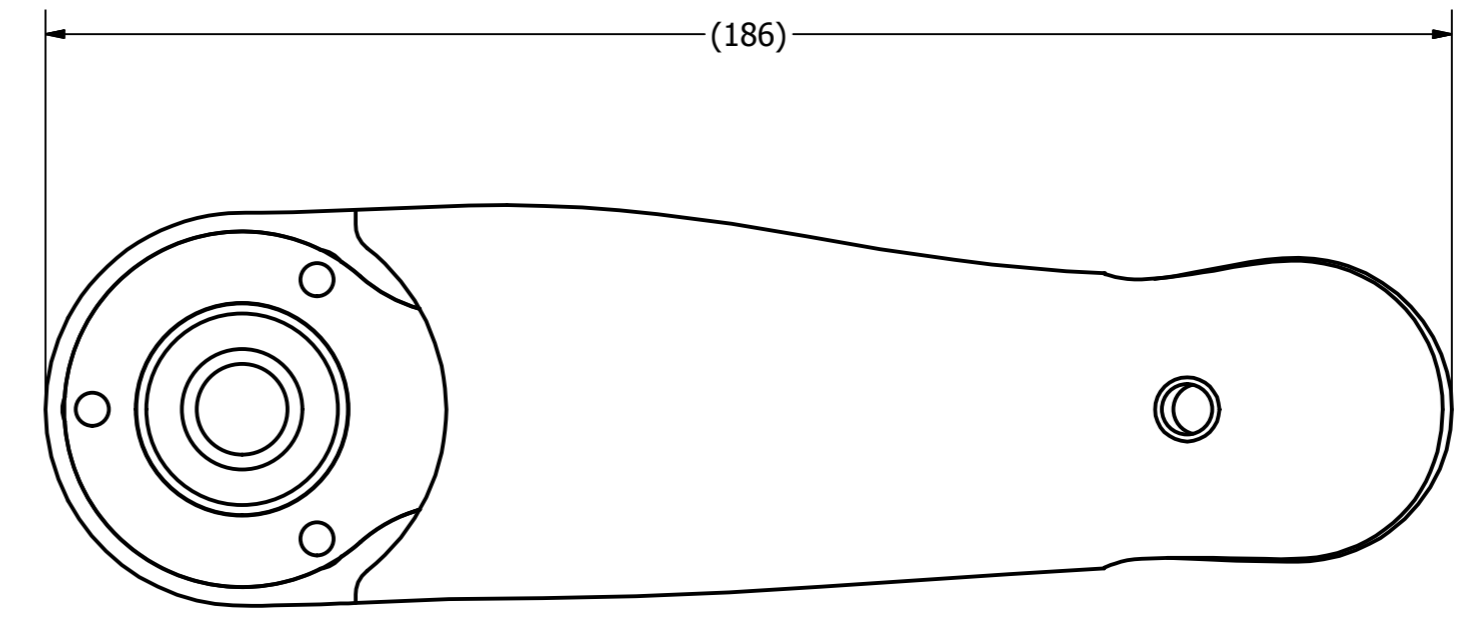
ITEM	QTY	PART NUMBER	DESCRIPTION
5	1	020-9913	SHOULDER SCREW, MODIFIED, ELBOW, Q3s
4	1	5000725	M8 X 1.25 X 12 LG. SSSNP
3	1	020-9901	STOP SCREW
2	1	020-9730	LOWER ARM ASSEMBLY, LEFT, Q3s
1	1	020-9750	UPPER ARM MOLDED, LEFT, Q3s

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL: X ±.5 XX ±.2 XXX ±.1	MACHINED ANGLES ±.5°	APPROVALS	DATE	LEFT ARM ASSEMBLY, Q3s	
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		DRAWN B. KIMES	6/6/2007	 A2	
MATERIAL	CHECKED	ENG		SCALE: 1:1	DRAWING NUMBER: 020-9700
HEAT TREAT	APPROVED			SHEET 1 OF 1	REV D

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENGINEER	DATE
	A	RELEASE TO PRODUCTION	BK		6/06/07
71512	B	REDRAW IN INVENTOR, ADDED SØ25.40 ±0.03, 0.50 ±0.03 DIMENSIONS, ADDED NOTE 3.	ARAY		7/26/2013
72423	C	MATERIAL WAS PU 35 SHORE A	KHS		4/22/14
74658	D	REGULATION RELEASE	JH		12/22/2015



PARTIAL VIEW



DETAIL Z
SCALE 2 : 1

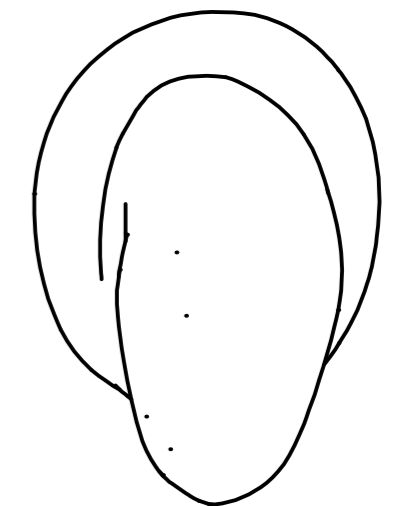
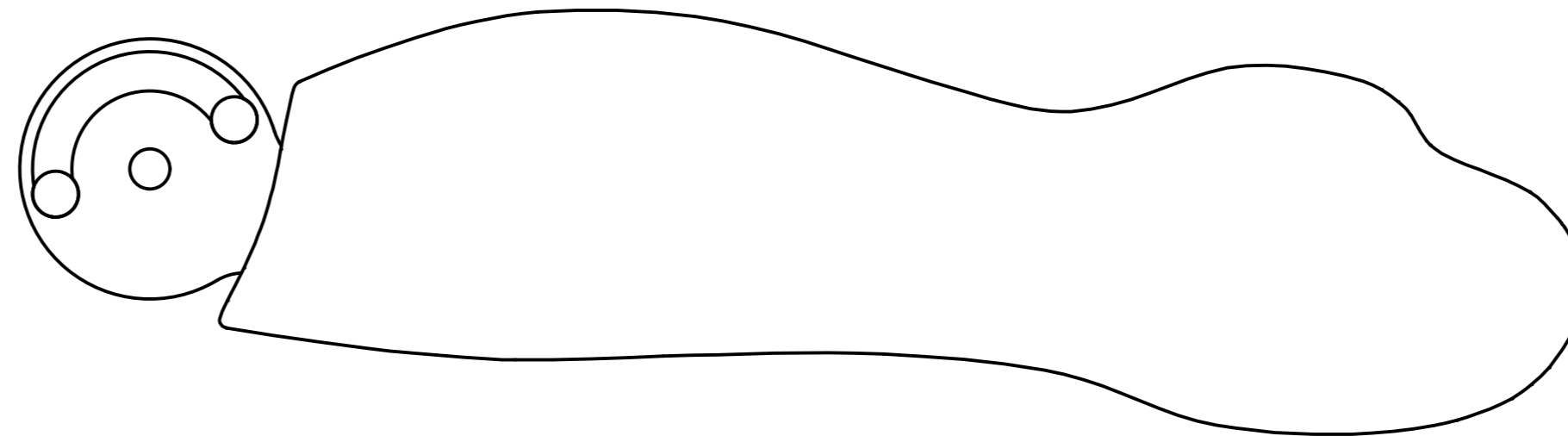
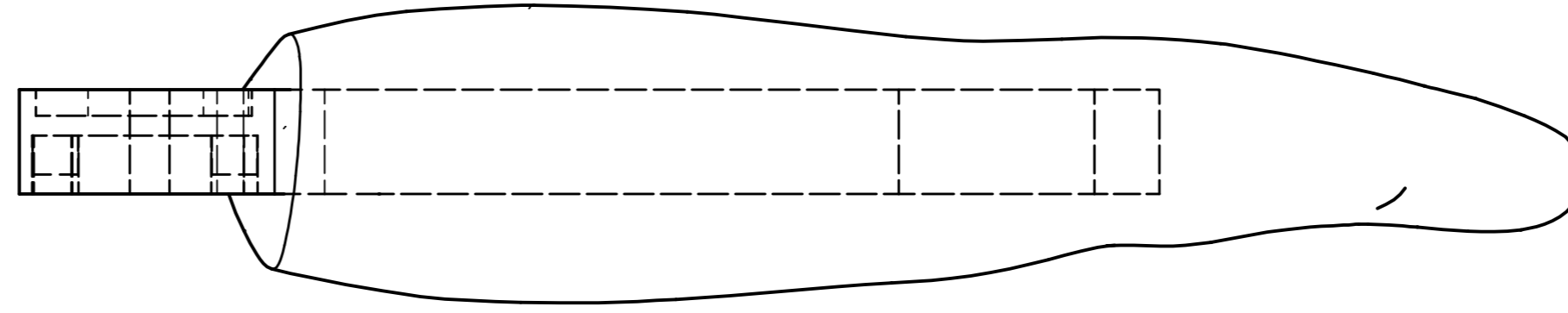
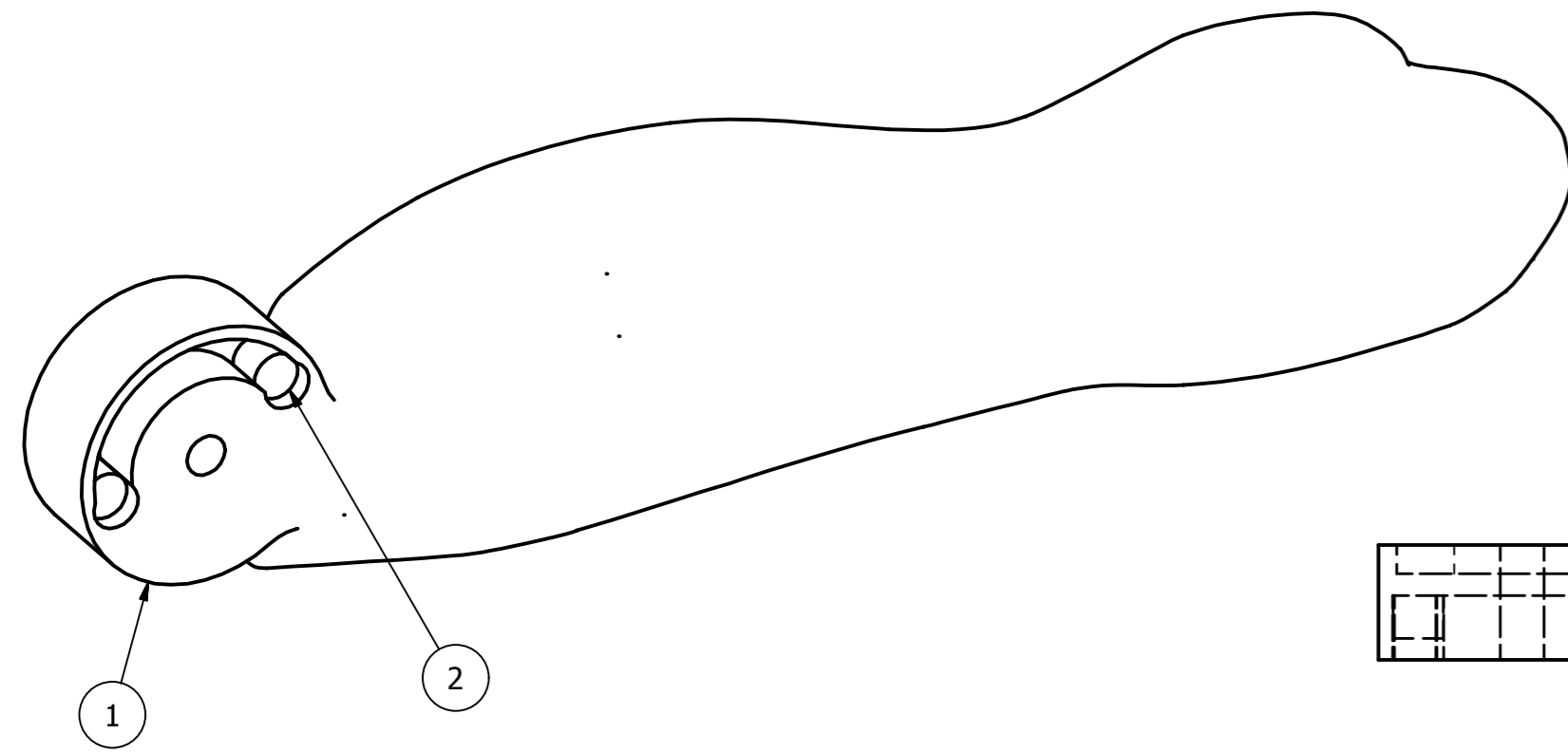
THESE SURFACES TO BE FLUSH

- NOTES:
- C 1. MATERIAL: SKIN PU 49 SHORE A.
 - 2. PRESS FIT ITEM 2 INTO ITEM 1 AS SHOWN.
 - B 3. MACHINE PART 020-9705 TO SØ25.40 ± 0.03 AFTER COLD MOLDING.

ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	020-9705	SHOULDER BEARING
1	1	020-9704	HUMERUS


<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</small> DECIMAL: X ±.5, XX ±.2, XXX ±.1 MACHINED ANGLES: ±.5° <small>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</small>		VEHICLE RESEARCH and TEST CENTER APPROVALS: B.KIMES DATE: 6/6/2007 CHECKED: _____ ENG: _____ APPROVED: _____	 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION UPPER ARM MOLDED, LEFT, Q3s
MATERIAL: SEE NOTES HEAT TREAT: N/A FINISH: N/A	SIZE: A2 SCALE: 1:1 THIRD ANGLE PROJECTION	DRAWING NUMBER: 020-9750 SHEET: 1 OF 1	REV: D


REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		6/05/07
72319	B	REDRAWN IN INVENTOR	AB		01/22/14
74658	C	REGULATION RELEASE	JH		12/22/2015



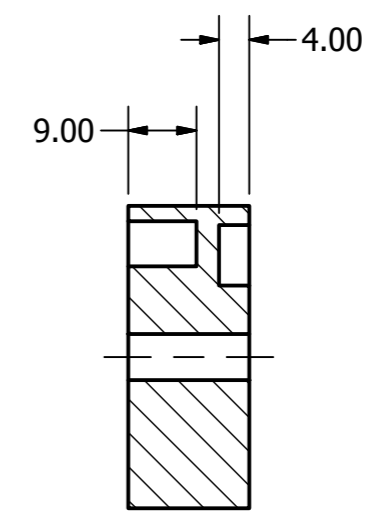
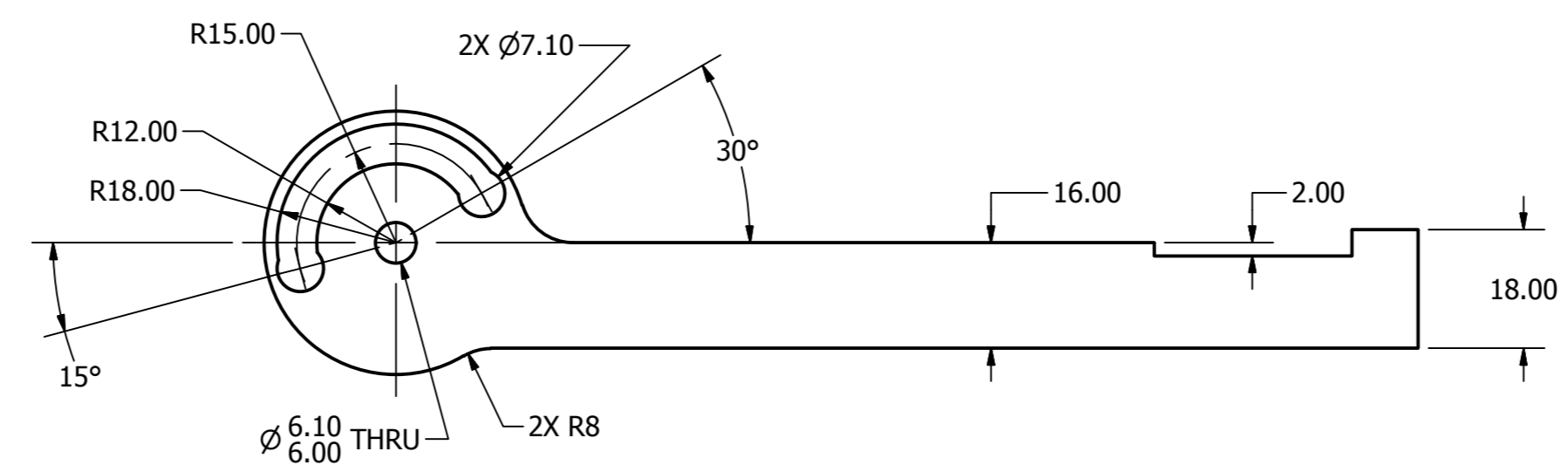
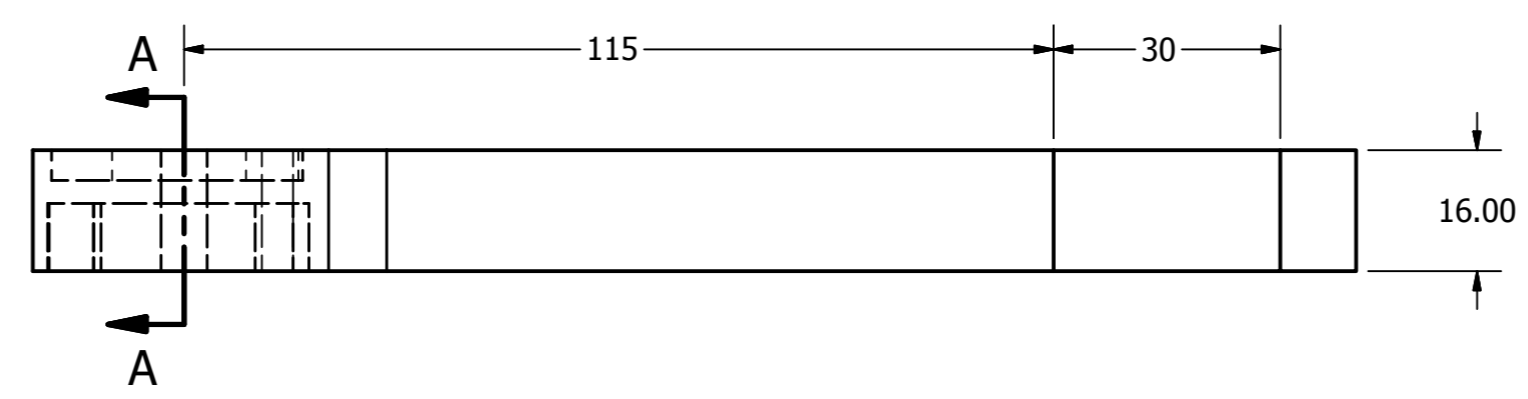
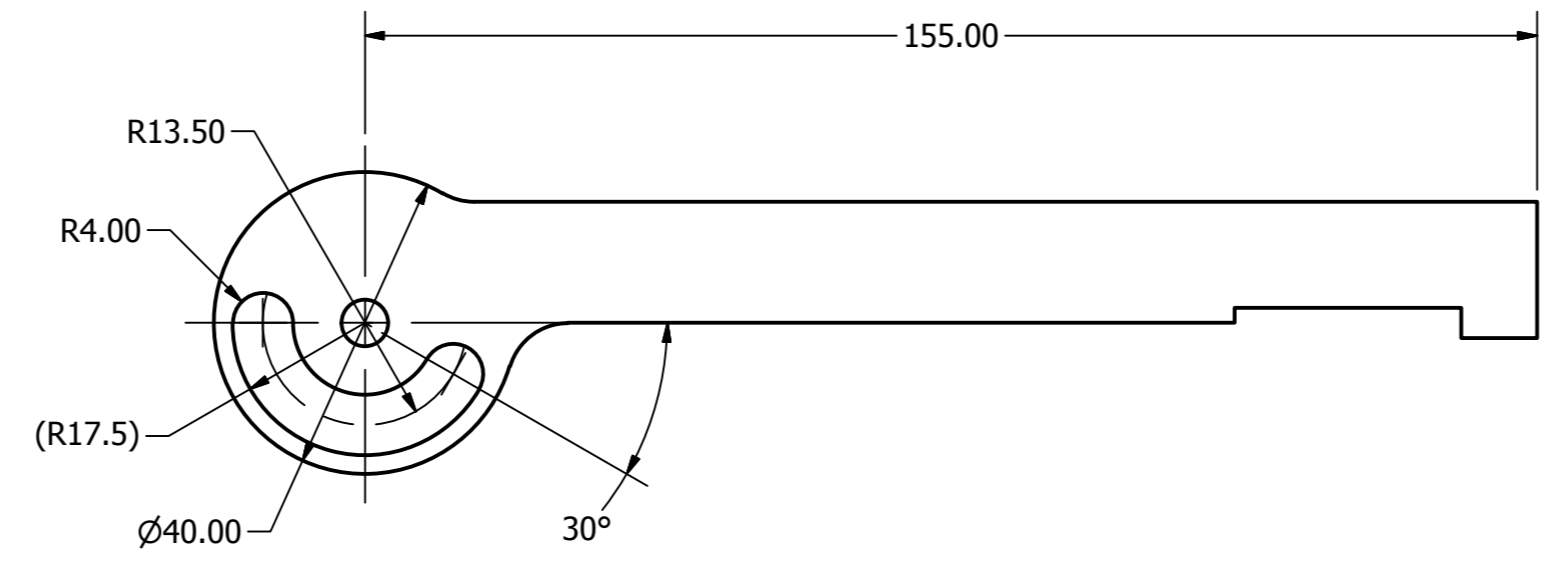
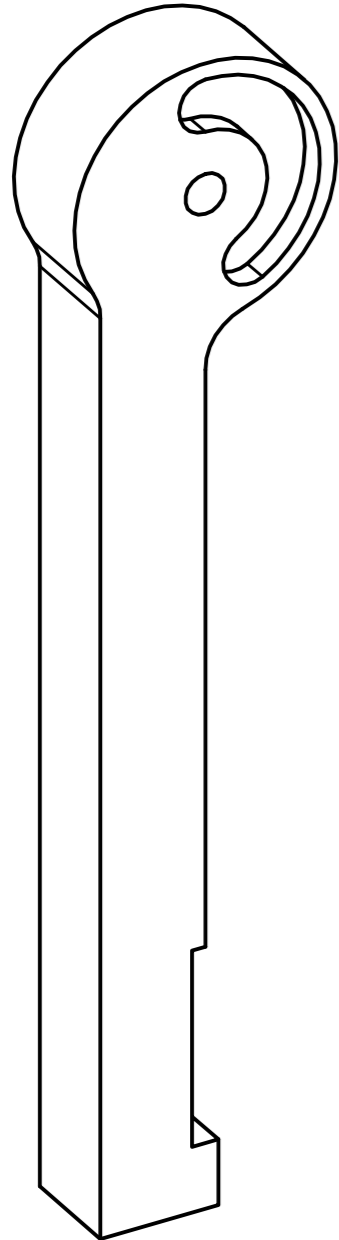
NOTES:
1. MATERIAL: PVC SKIN FILLED WITH PU ELASTOMER.

ITEM	QTY	PART NUMBER	DESCRIPTION
2	2	020-9912	END STOP
1	1	020-9720	ULNA, LEFT, Q3s

PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 XXX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER	
APPROVALS		DATE	 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION LOWER ARM ASSEMBLY, LEFT, Q3s
DRAWN B. KIMES		6/5/2007	
CHECKED			
ENG			
FINISH		APPROVED	

 THIRD ANGLE PROJECTION	SIZE A2	DRAWING NUMBER 020-9730	REV C
SCALE: 1:1		SHEET 1 OF 1	

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		5/24/07
72319	B	REDRAWN IN INVENTOR; NOTE #1. MATERIAL: Nylon 6/6 (BLACK) WAS REMOVE ALL BURRS AND BREAK ALL SHARP EDGES; MATERIAL- SEE NOTE #1 WAS NYLON 6 (BLACK)	AB		01/22/14
74658	C	REGULATION RELEASE	GCH		12/23/2015



SECTION A-A

NOTES:
 1. MATERIAL: Nylon 6/6 (BLACK)



UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN MILLIMETERS
 TOLERANCES ARE:

DECIMAL -	MACHINED
X ±.5	✓
XX ±.2	✓
XXX ±.1	✓
ANGLES	✓
	±.5°

ASME Y14.5M - 1994
 DO NOT SCALE DRAWING

MATERIAL	SEE NOTE 1
HEAT TREAT	
FINISH	

VEHICLE RESEARCH and TEST CENTER	
APPROVALS	DATE
DRAWN B. KIMES	24-May-07
CHECKED	
ENG	
APPROVED	

 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
ULNA, LEFT, Q3s	
 THIRD ANGLE PROJECTION	SIZE: A2 SCALE: 1:1
DRAWING NUMBER 020-9720	REV C
SHEET 1 OF 1	

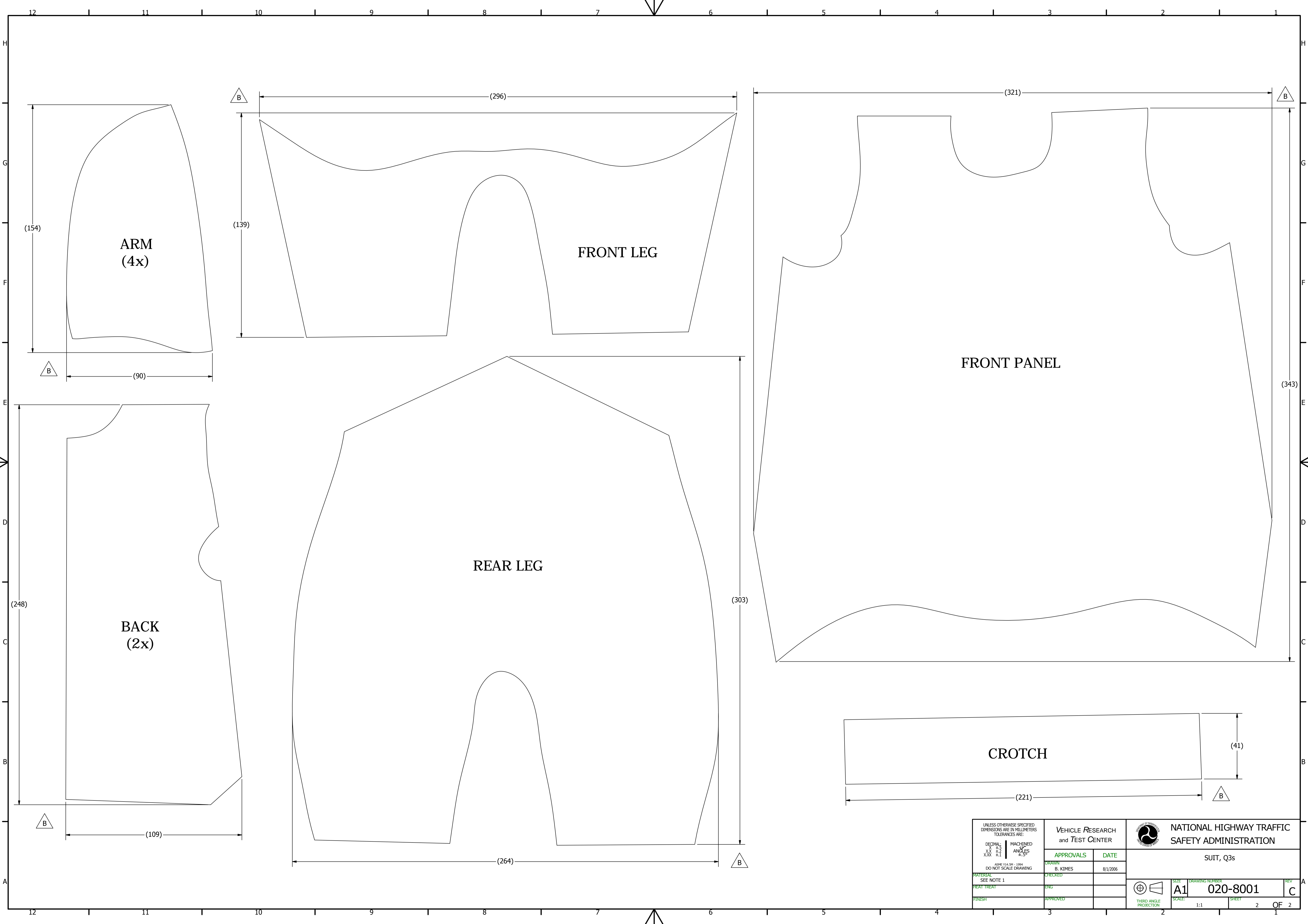
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENGR.	DATE
	A	RELEASE TO PRODUCTION	BK		8/01/06
72320	B	REDRAWN IN INVENTOR; REMOVE FTSS LOGO FROM RIGHT SLEEVE; SHEET#2: ADDED (4X), (2X), (6), (4), (5), (12), (13), (14), (10), (4), (12), (10), (2), (9)	AB		01/22/14
74656	C	REGULATION RELEASE	JH		12/22/2015



- NOTE:
1. MATERIAL: 5mm THICK DOUBLE LINED NEOPRENE. COLOR RED, LINING BLACK.
 2. PANELS TO BE STITCHED TOGETHER WITH 15mm BLACK TAPE.
 3. ALL LETTERING TO BE BLACK.
 4. FOR ACTUAL DIMENSIONS, SEE MASTER TEMPLATES.
 5. PART MARK WITH INDELIBLE PEN AND SERIAL NUMBER WHERE SHOWN.

SEE NOTE 5
(MARK ON REAR OF SUIT)

<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</small> DECIMAL: ±.2 XX ±.1 MACHINED ANGLES ±.5° <small>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</small>	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS B. KIMES	DATE 8/1/2006	
MATERIAL: SEE NOTE 1 TREAT TREAT FINISH	CHECKED ENVS APPROVED	SIZE: A1 DRAWING NUMBER: 020-8001 SCALE: 1:1	REV: C SHEET: 1 OF 2



ARM
(4x)


FRONT LEG

FRONT PANEL

BACK
(2x)

REAR LEG

CROTCH


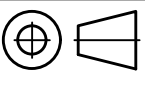
<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</small> DECIMAL: X.X ±0.25 XX.X ±0.1 MACHINED ANGLES: ±0.5° <small>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</small>	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS B. KIMES	DATE 8/1/2006	
MATERIAL: SEE NOTE 1	CHECKED EWS	SIZE A1	DRAWING NUMBER 020-8001
FINISH	APPROVED	SCALE: 1:1	SHEET 2 OF 2

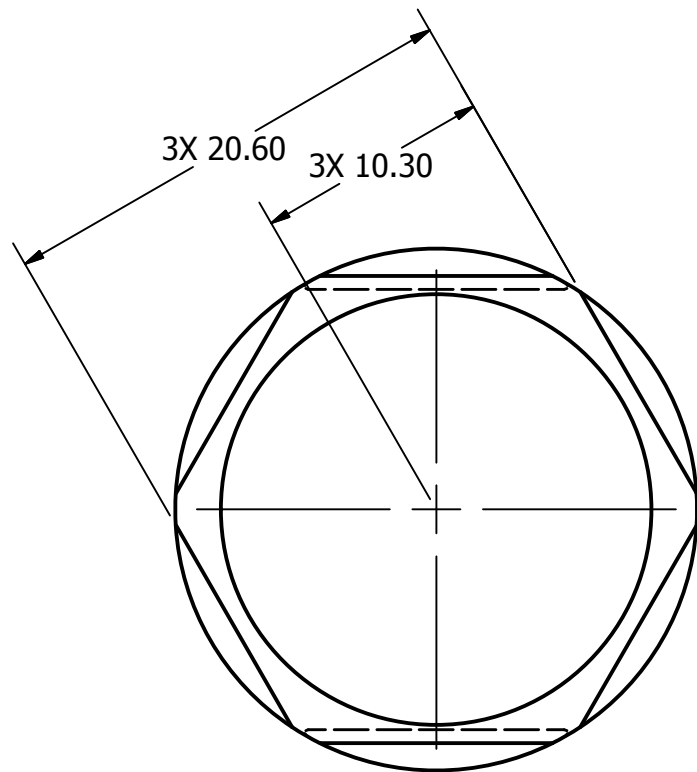
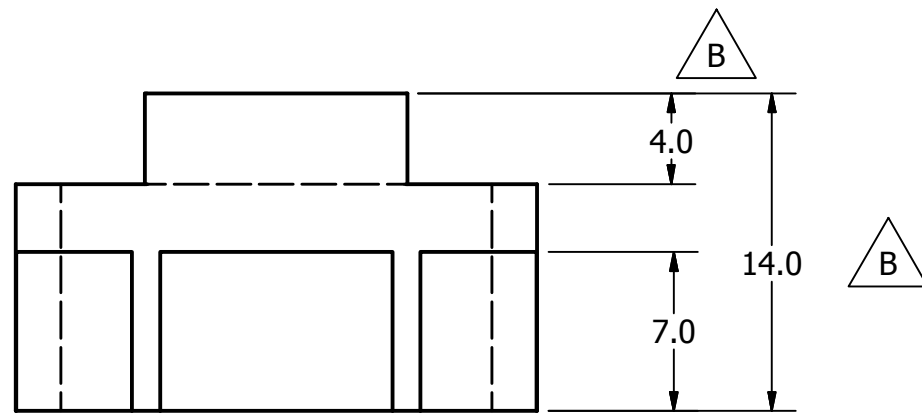
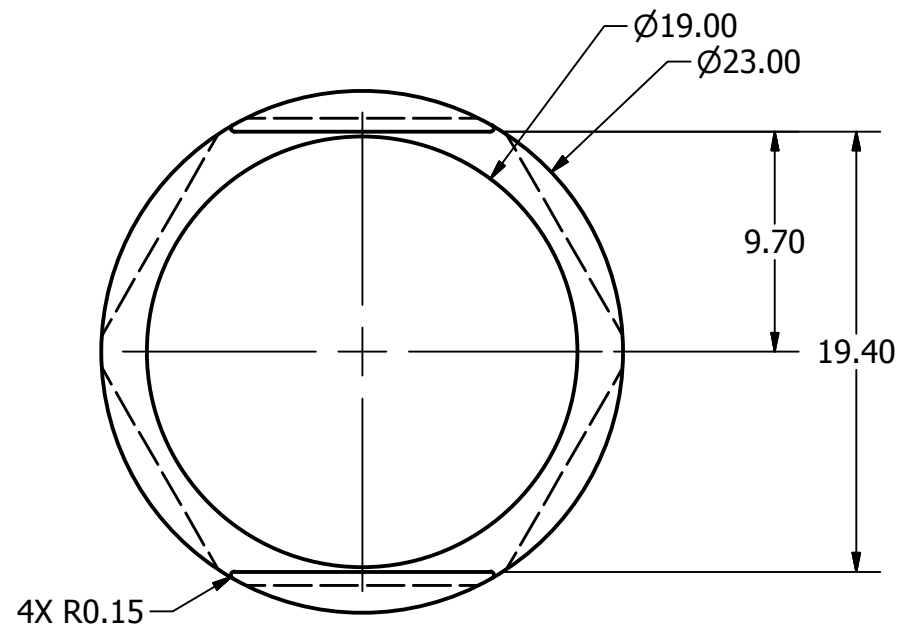
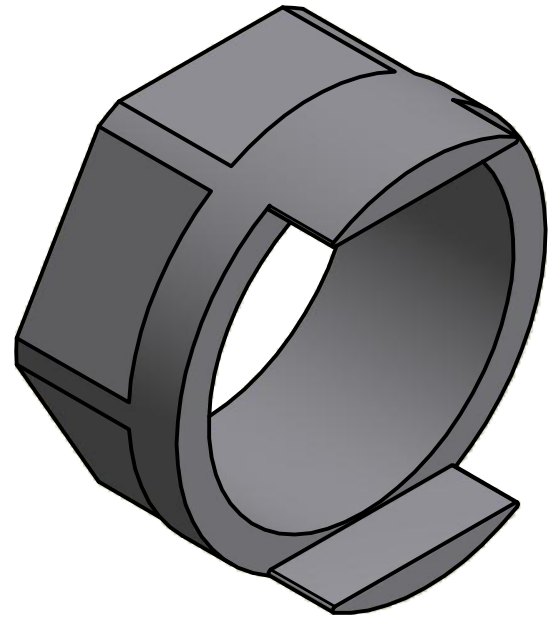
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
73361	A	NEW RELEASE	JAA	JAA	1/16/2015
74650	B	REGULATION RELEASE	JH		12/21/2015




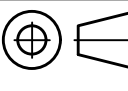
ITEM	QTY	PART NUMBER	DESCRIPTION
3	1	020-2420	LOCK NUT WRENCH ASSEMBLY
2	1	020-2410	CABLE ADJUST NUT WRENCH
1	1	6004492	1/8" WID FLAT BLADE SCREWDRIVER

PARTS LIST

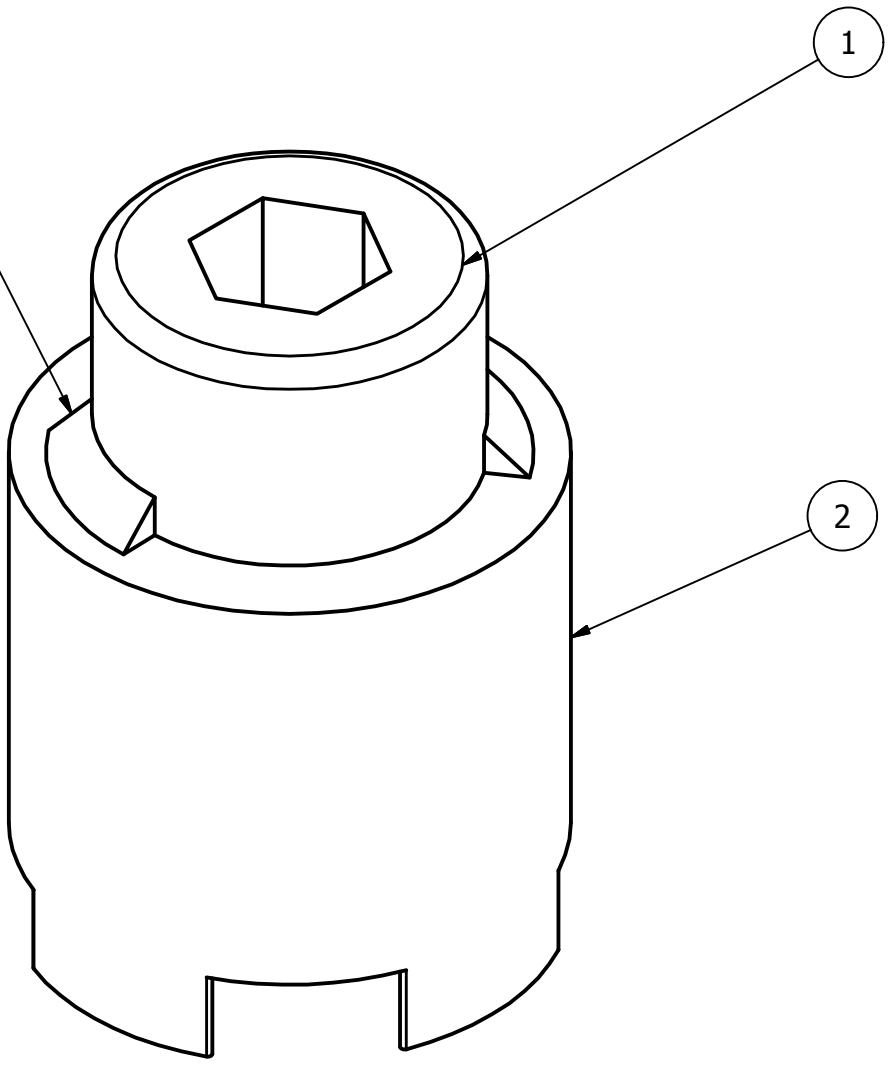
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN jarthur CHECKED ENG APPROVED	DATE 1/16/2015	
MATERIAL N/A HEAT TREAT N/A FINISH N/A	 THIRD ANGLE PROJECTION		SIZE A3 DRAWING NUMBER 020-2400_toolkit SCALE: N/A SHEET 1 OF 1



REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
72823	1	PROTOTYPE RELEASE	JAA	JAA	9/26/2014
73361	B	RELEASE TO PRODUCTION, 4.0 was 5.0, 14.0 was 15.0	JAA	JAA	12/4/2014
74650	C	REGULATION RELEASE	AB		12/17/15


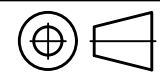
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		CABLE ADJUST NUT WRENCH	
DRAWN jarthur		9/26/2014			
CHECKED					
MATERIAL 4140 STEEL		ENG		 THIRD ANGLE PROJECTION	
HEAT TREAT N/A		APPROVED		SIZE: A3 DRAWING NUMBER: 020-2410 REV: C	
FINISH N/A				SCALE: N/A SHEET: 1 OF 1	

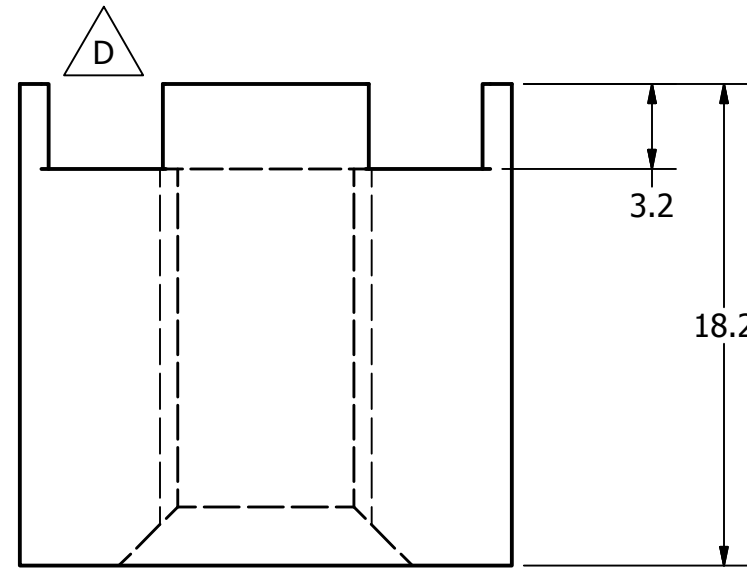
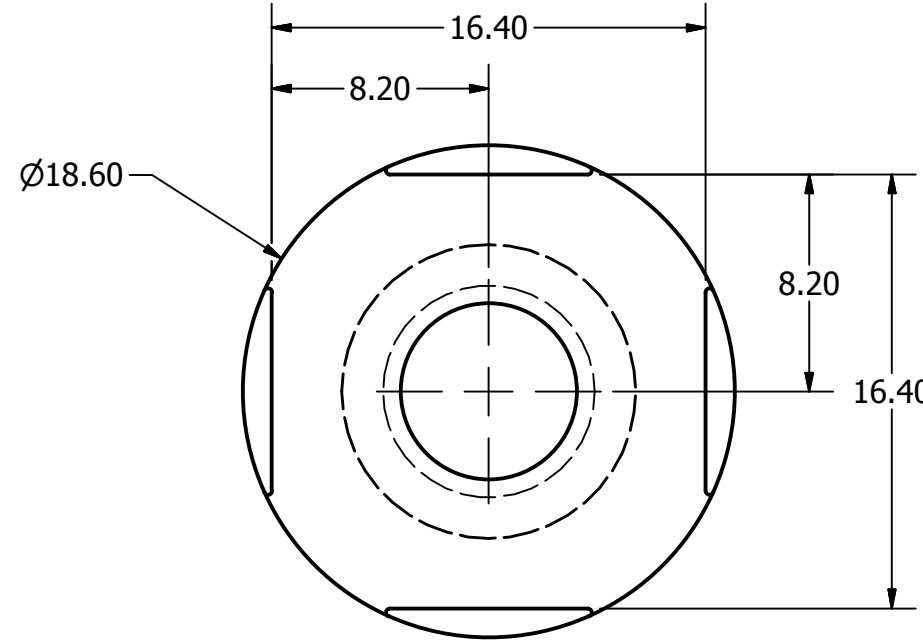
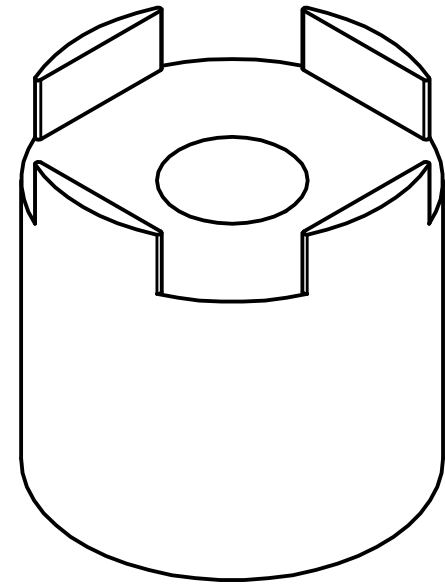
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
72823	1	PROTOTYPE RELEASE	JAA	JAA	9/26/2014
73361	C	RELEASE TO PRODUCTION, ITEM 1- 9005125 CORRECTED TO LENGTH OF 12 MM, SKIP REVISION DUE TO VAULT RESTRICTION .	JAA	JAA	3/12/2015
74650	D	REGULATION RELEASE	JH		12/21/2015



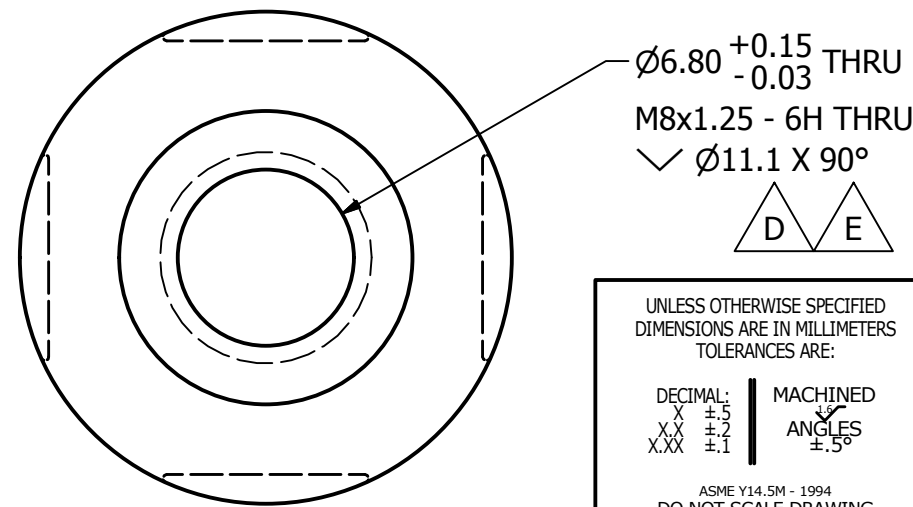
ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	020-2424	LOCK NUT WRENCH
1	1	9005125	SHCS M8-1.25 X 12 LONG

△ C


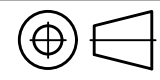
PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER	
		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
		APPROVALS	DATE
		DRAWN jarthur	9/26/2014
		CHECKED	
		ENG	
		APPROVED	
MATERIAL	N/A	 THIRD ANGLE PROJECTION	
HEAT TREAT	N/A		
FINISH	N/A		
		SIZE	DRAWING NUMBER
		A3	020-2420
		SCALE:	SHEET
		N/A	1 OF 1



D NOTE: BREAK ALL SHARP EDGES

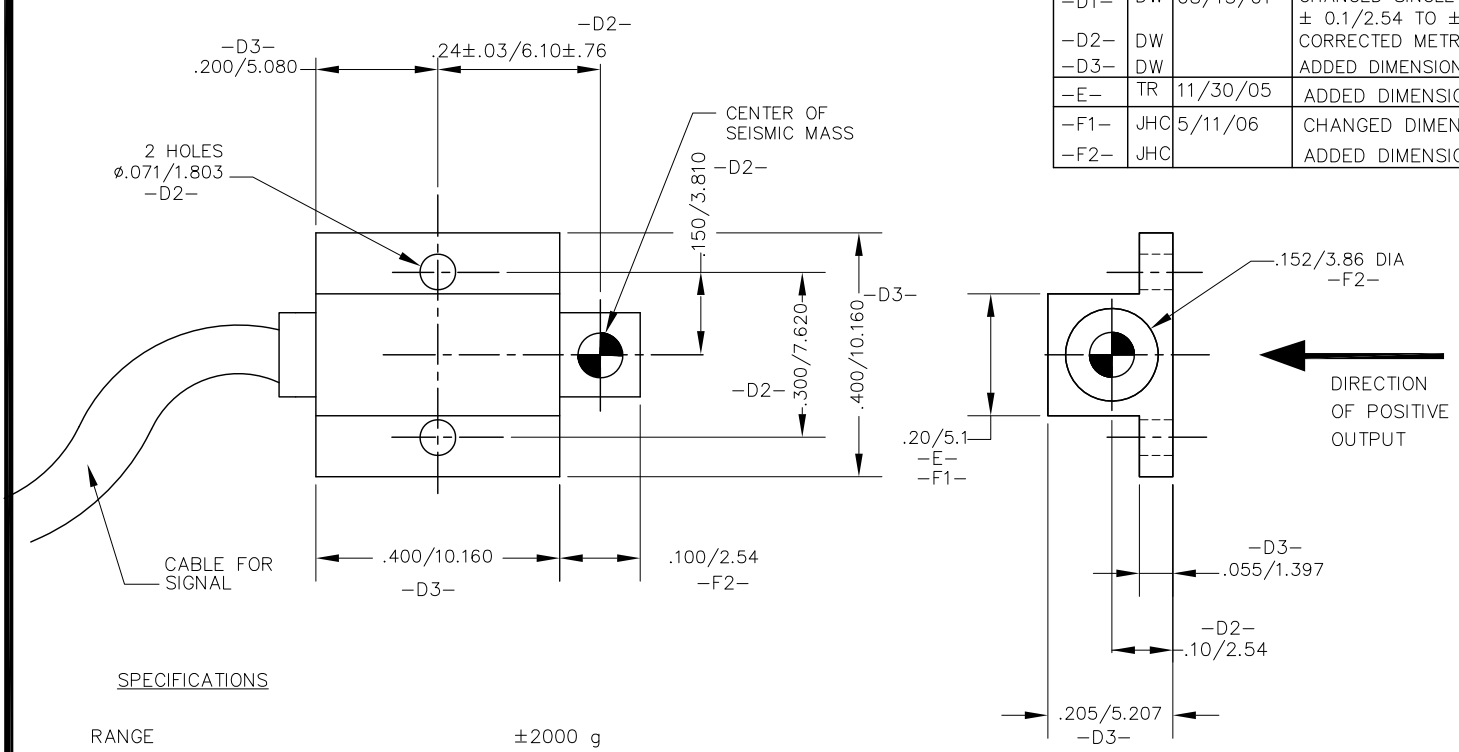


REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
72823	1	PROTOTYPE RELEASE	JAA	JAA	9/26/2014
73361	D	RELEASE TO PRODUCTION, ADDED 11.1 MM CHAMFER, 8X R0.15 REMOVED, ADDED NOTE: BREAK ALL SHARP EDGES, SKIP REVISION DUE TO VAULT RESTRICTION.	JAA	JAA	3/12/2015
74650	E	UPDATED HOLE CALLOUT TO CURRENT STANDARDS	AB		12/21/15
74650	F	REGULATION RELEASE	JH		1/5/2016

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		LOCK NUT WRENCH	
DRAWN jarthur		9/26/2014			
CHECKED					
MATERIAL 4140 STEEL		ENG		 THIRD ANGLE PROJECTION	
HEAT TREAT N/A		APPROVED		SIZE: A3 DRAWING NUMBER: 020-2424 SCALE: N/A SHEET: 1 OF 1	
FINISH N/A				REV: F	

REVISION RECORD

ITEM NO.	BY	DATE	DESCRIPTION
-A-	HP	01/09/99	TOLERANCES
-B1-	DW	09/27/99	UPDATED NOTE
-B2-			CHANGE TRANSVERSE SENSITIVITY TO 1%
-B3-			REVISED FORMAT, ENLARGED TOLERANCES
-C1-	DW	02/8/00	REVISED TOLERANCE
-D1-	DW	08/15/01	CHANGED SINGLE DECIMAL PLACE TOLERANCE FROM ± 0.1/2.54 TO ± 0.1/2.5
-D2-	DW		CORRECTED METRIC EQUIVALENTS
-D3-	DW		ADDED DIMENSIONS
-E-	TR	11/30/05	ADDED DIMENSION
-F1-	JHC	5/11/06	CHANGED DIMENSION, WAS .150/3.810
-F2-	JHC		ADDED DIMENSIONS



SPECIFICATIONS

RANGE	±2000 g
SENSITIVITY	.20 mV/g MIN
MOUNTED RESONANCE FREQUENCY	22,000 Hz MIN

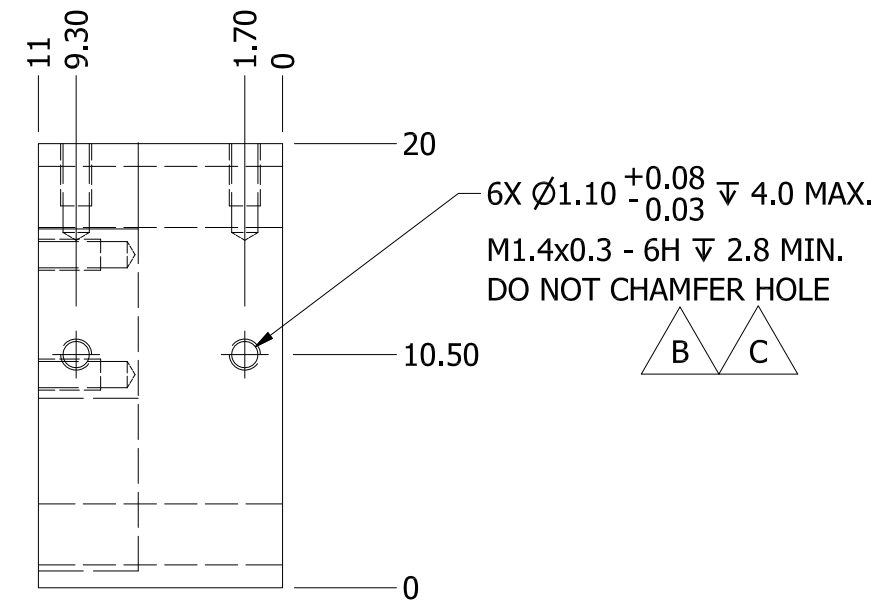
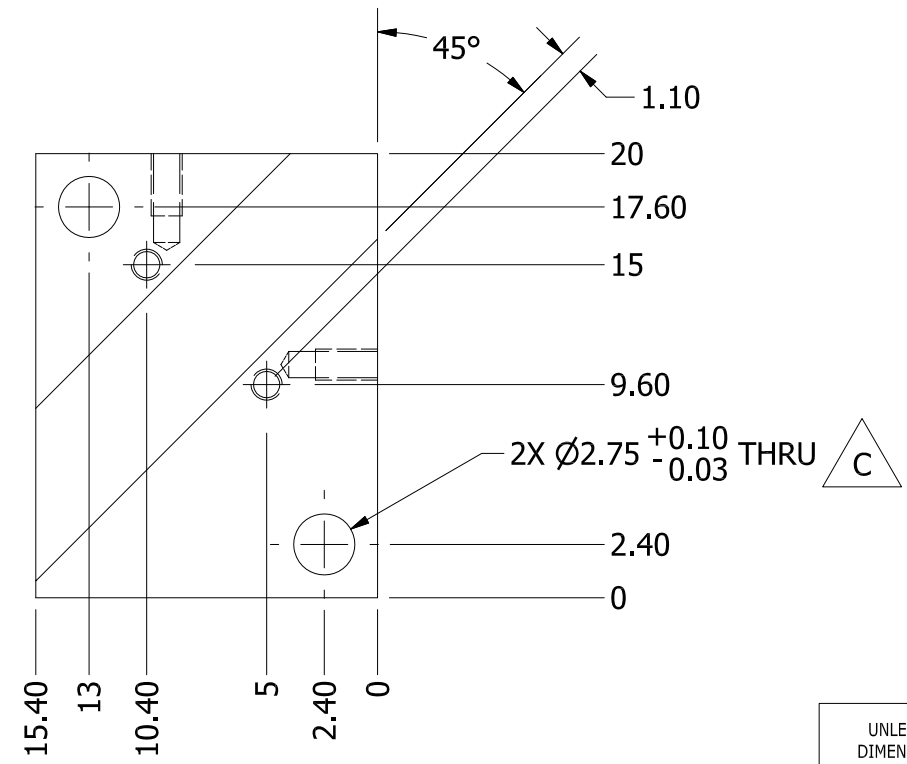
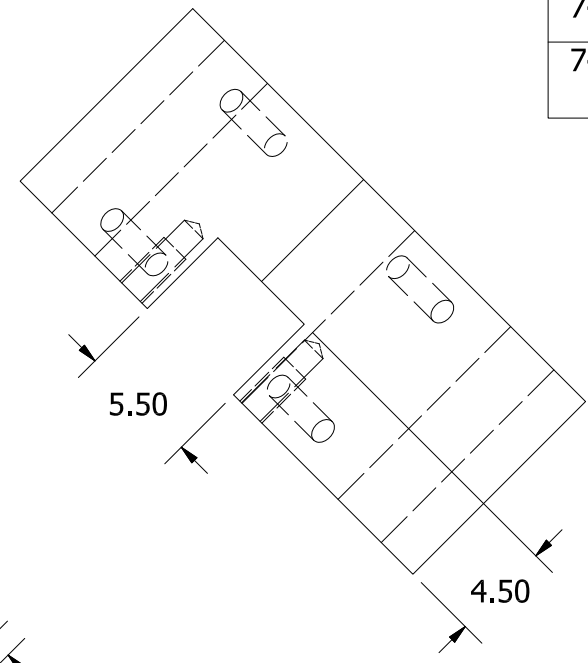
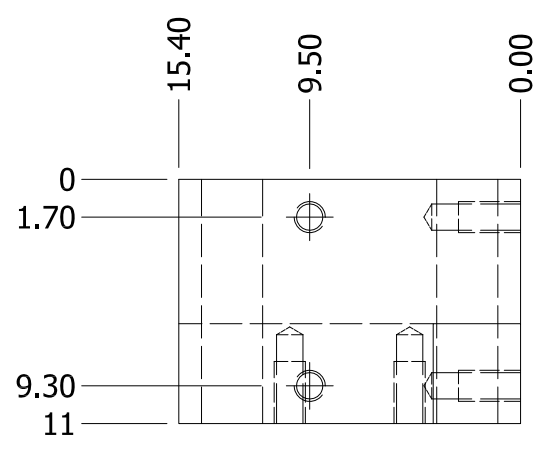
-B1- SIGNAL OUTPUT MUST BE COMPATIBLE WITH AND RECORDABLE IN A DATA CHANNEL AS DEFINED BY SAE J211

DAMPING RATIO	UNDAMPED (.005)
-B2- TRANSVERSE SENSITIVITY	±1% MAX
NON-LINEARITY & HYSTERESIS	±2% MAX
ZERO OFFSET	±25 mV
EXCITATION	10V DC
THERMAL SENSITIVITY	-5% Typ AT 0°F TO 150°F -D1-
TEMPERATURE EXPOSURE LIMITS	0°/+200°F WITHOUT DAMAGE -C1-
WEIGHT	1 gram (WITHOUT CABLE) -B3-
HUMIDITY	SEALED

RELEASED
Sept. 15, 2006
NHTSA

UNITS ARE in/mm		MATERIAL:		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
TOLERANCES ARE: *		SCALE NONE		
DECIMALS	ANGLES	APPROVALS	DATE	UNIAXIAL PIEZORESISTIVE ACCELEROMETER
.X ±0.1/2.5	+ 0.5°	DRAWN	3/5/98	
.XX ±0.01/.25		CHEKED		HYBRID III DUMMY FAMILY
.XXX ±0.005/.127		ENG		
* unless otherwise noted		J McF H.P.		SIZE A
				DRAWING NUMBER SA572-S4
				REV F

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	MEC		10-24-06
72396	B	REDRAWN IN INVENTOR; ADDED "DO NOT CHAMFER HOLE" NOTE; REMOVE NOTE #1; NOTE #1 OPTIONAL MAT'L: 6082 T6 ALUMINUM WAS NOTE #2 OPTIONAL MAT'L: ALUM 6082; 6061 T6 ALUMINUM WAS ALUM 6061	AB		02/13/14
74658	C	UPDATED HOLE CALL OUTS TO CURRENT STANDARDS.	JH		1/11/2016
74658	D	REGULATION RELEASE - PART NO. WAS 020-1017	AB/JHC		01/12/16

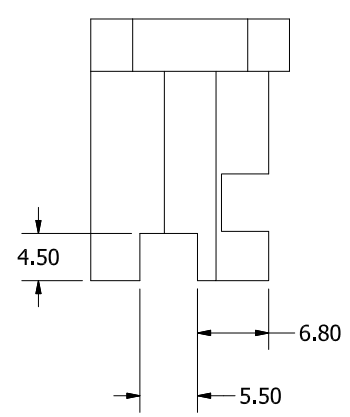
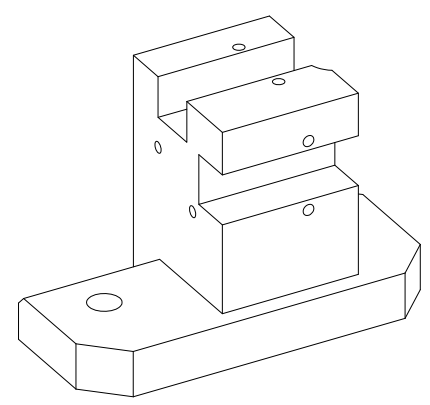


NOTES:
1. OPTIONAL MAT'L: 6082 T6 ALUMINUM

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5, X.X ±.2, X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER	
MATERIAL: 6061-T6 ALUMINUM		APPROVALS	DATE
HEAT TREAT		DRAWN: MEC	24-Oct-06
FINISH: NONE		CHECKED	
		ENG	
		APPROVED	

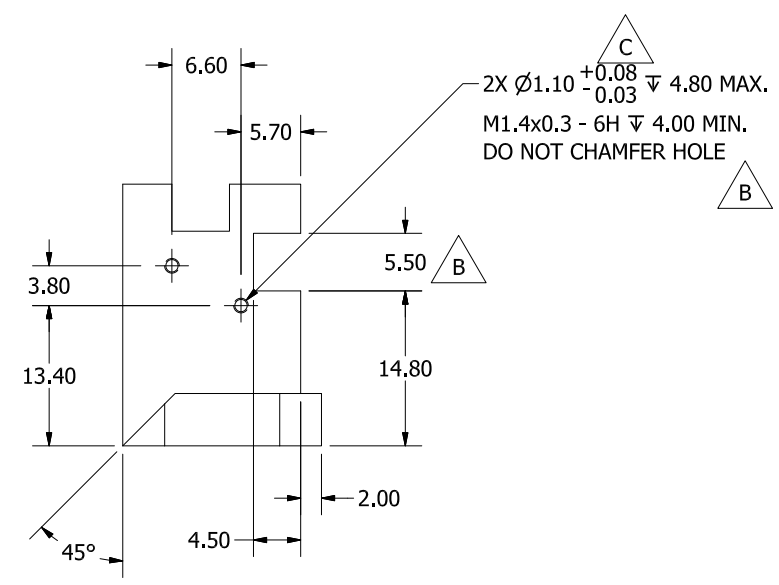
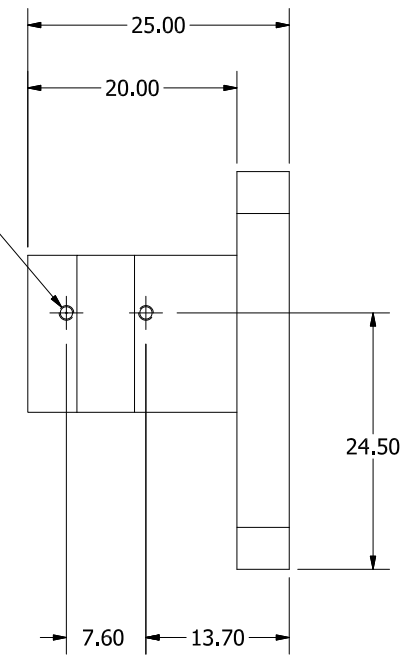
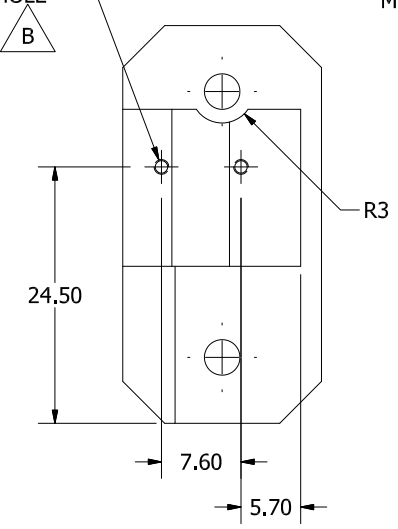
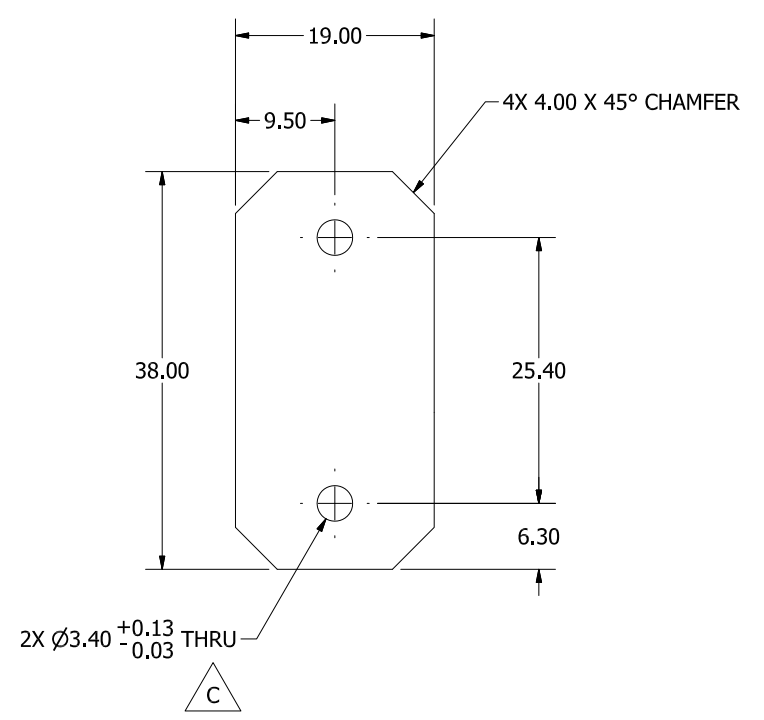
		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
ACCEL MOUNT BLOCK Q HEAD 7264-2000			
	SIZE: A3	DRAWING NUMBER: SA572-S86	REV: D
THIRD ANGLE PROJECTION	SCALE: 3:1	SHEET 1 OF 1	

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
76781	A	RELEASE TO PRODUCTION	KJ		9/22/10
72396	B	REDRAWN IN INVENTOR; ADDED "DO NOT CHAMFER HOLE" NOTE; REMOVE NOTE #1; NOTE #1 WAS NOTE #2; SEE NOTE #1 WAS SEE NOTE #2; ADD 5.50	AB		02/13/14
74658	C	UPDATED HOLE CALLOUTS TO CURRENT STANDARDS	GCH		01/13/2016
74658	D	REGULATION RELEASE - PART NO WAS I_AN	GCH/JHC		01/13/2016

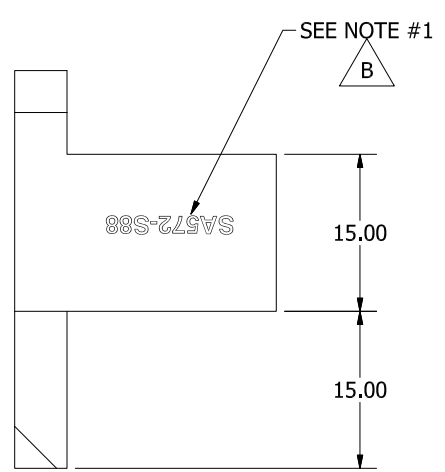


$2X \varnothing 1.10 \begin{matrix} +0.08 \\ -0.03 \end{matrix} \sqrt{4.80 \text{ MAX.}}$
 $M1.4 \times 0.3 - 6H \sqrt{4.00 \text{ MIN.}}$
 DO NOT CHAMFER HOLE

$2X \varnothing 1.10 \begin{matrix} +0.08 \\ -0.03 \end{matrix} \sqrt{4.80 \text{ MAX.}}$
 $M1.4 \times 0.3 - 6H \sqrt{4.00 \text{ MIN.}}$
 DO NOT CHAMFER HOLE



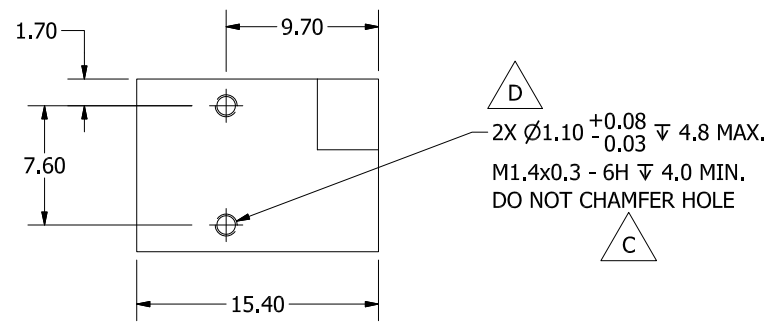
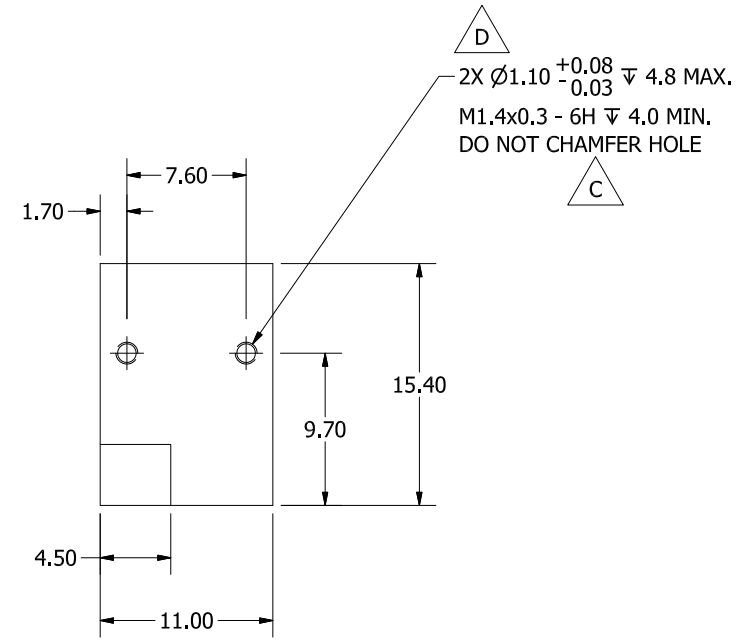
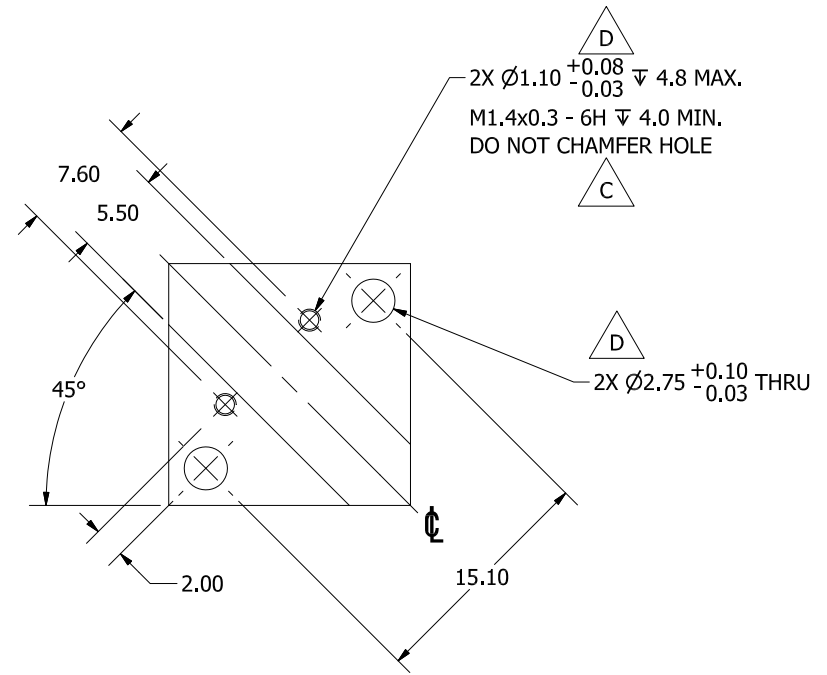
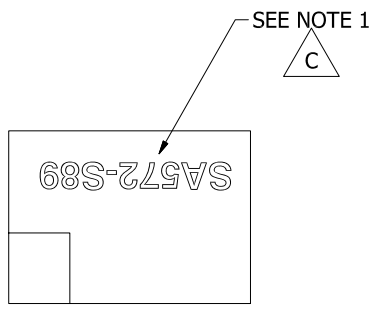
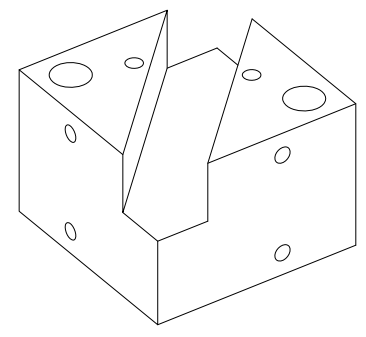
$2X \varnothing 1.10 \begin{matrix} +0.08 \\ -0.03 \end{matrix} \sqrt{4.80 \text{ MAX.}}$
 $M1.4 \times 0.3 - 6H \sqrt{4.00 \text{ MIN.}}$
 DO NOT CHAMFER HOLE



NOTES:
 1. STAMP OR ETCH PART NUMBER WHERE SHOWN.

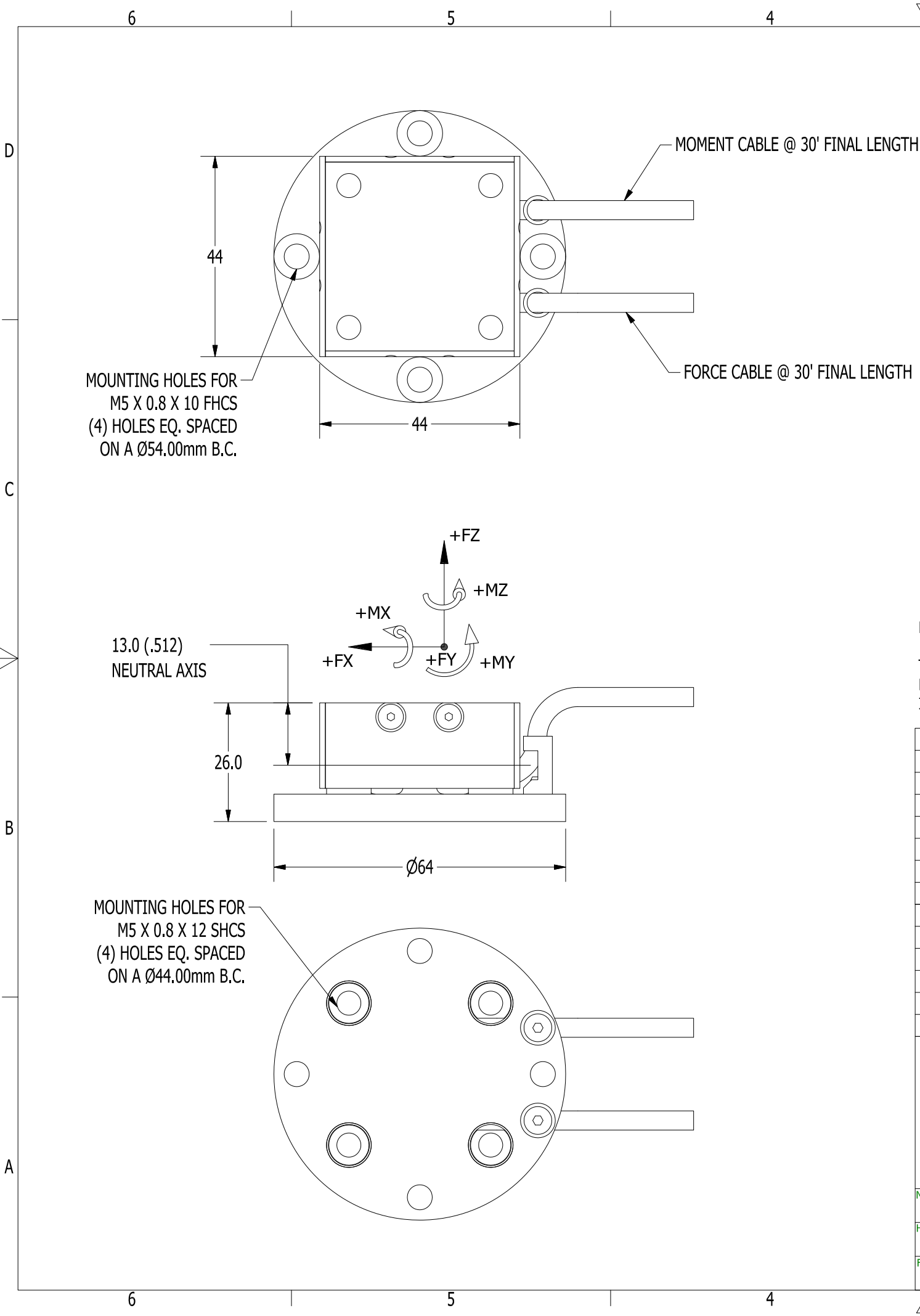
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X.X ±.2, X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN: K. JACOBY CHECKED: _____ HEAT TREAT: ENG FINISH: CLEAR ANODIZE	DATE 9/22/2010		TRANSDUCER MOUNTING BLOCK UPPER TORSO	

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
76781	A	RELEASE TO PRODUCTION	KJ		9/22/10
71030	B	MATERIAL WAS 6061-T6 ALUMINUM	JGG		5/1/13
72396	C	REDRAWN IN INVENTOR; ADDED "DO NOT CHAMFER HOLE" NOTE; ADD 2X Ø2.60 THRU CALL OUT; REMOVE NOTE #1; NOTE #1 & 2 WAS NOTE #2 & 3; SEE NOTE 1 WAS SEE NOTE 2	AB		02/14/14
74658	D	UPDATED HOLE CALLOUTS TO CURRENT STANDARDS	GCH		1/05/2016
74658	E	REGULATION RELEASE - PART NO WAS I.A.M	JH/JHC		1/11/2016

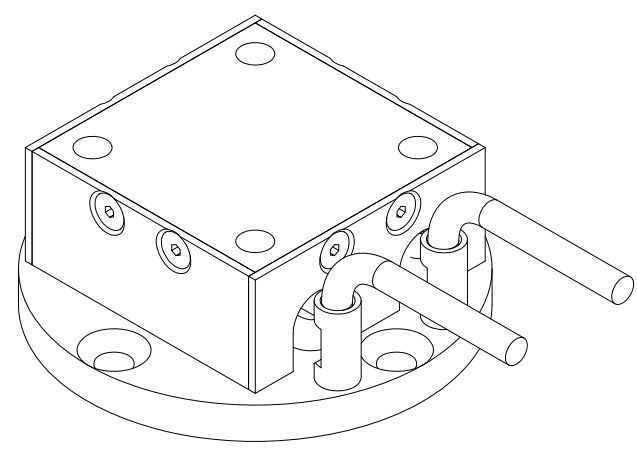


- NOTES:**
1. STAMP OR ETCH PART NUMBER WHERE SHOWN.
 2. DIMENSIONS SYMMETRICAL ACROSS t , UNLESS OTHERWISE NOTED.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.2, X.X ±.1, X.XX ±.05 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN: K. JACOBY CHECKED: _____ HEAT TREAT: ENG FINISH: CLEAR ANODIZE APPROVED: _____	DATE 9/22/2010		TRANSDUCER MOUNTING BLOCK LOWER TORSO	
MATERIAL: 7075-T6 ALUMINUM HEAT TREAT: _____ FINISH: CLEAR ANODIZE	SIZE: A2 SCALE: 3:1	DRAWING NUMBER: SA572-S89	SHEET: 1 OF 1	REV: E	



REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
4097	B	Mx AND My WERE 2.00	SW		1/11/2001
4471	C	CHANGED ALL WIRE COLORS	JPM		11/19/2002
4845	D	CROSSTALK WAS <5%	JS		10/31/2003
75587	E	Fx, Fy OUTPUT WAS 2.0	BK		5/8/2007
77713	F	REMOVE FORCE MOMENT AXIS; ADD POLARITY DIRECTIONS TO NOTE.	BK		11/24/2010
71582	G	REDRAWN IN INVENTOR	BTH		8/2/2013
74658	H	REGULATION RELEASE, PART NO. WAS IF-217	AB/JHC		01/07/16



NOTE:
 1. THE FORCES & MOMENTS SHOWN ILLUSTRATE THE DIRECTION OF APPLIED FORCES TO THE LOWER PART OF THE NECK LOAD CELL FOR POSITIVE LOAD CELL OUTPUT. Fx & Mx POLARITIES NEED TO BE REVERSED WHEN USED AS A LUMBAR LOAD CELL IN ORDER TO BE SAE-J211 COMPLIANT.

SPECIFICATIONS				
CH.	CAPACITY (METRIC)	CAPACITY (ENGLISH)	OUTPUT	BRIDGE RESISTANCE
Fx	5 KN	1,125 LBF	2.2mV/V	350 OHMS
Fy	5 KN	1,125 LBF	2.2mV/V	350 OHMS
Fz	6 KN	1,350 LBF	1.0mV/V	700 OHMS
Mx	150 NM	1,325 IN-LBF	2.3mV/V	350 OHMS
My	150 NM	1,325 IN-LBF	2.3mV/V	350 OHMS
Mz	80 NM	700 IN-LBF	2.5mV/V	700 OHMS

NON-LINEARITY	< 1% OF FULL SCALE
HYSTERESIS	< 1% OF FULL SCALE
CROSSTALK	< 5% OF FULL SCALE
EXCITATION	10 VDC NOMINAL, 15 VDC MAXIMUM
POLARITY	CONFORMS TO S.A.E. J-211 (SEE NOTE 1)
MASS	.26 LBS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:

DECIMAL: X ±.5 X.X ±.2 X.XX ±.1	MACHINED ANGLES ±.5°
--	----------------------------

ASME Y14.5M - 1994
DO NOT SCALE DRAWING

**VEHICLE RESEARCH
and TEST CENTER**

APPROVALS: B. HARRIS

DATE: 8/2/2013

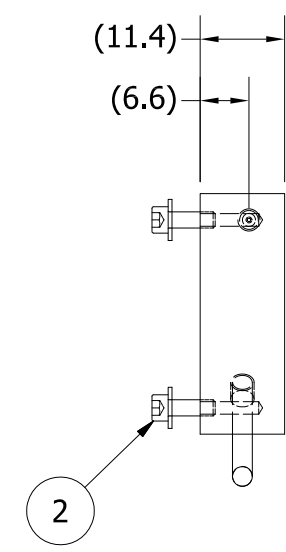
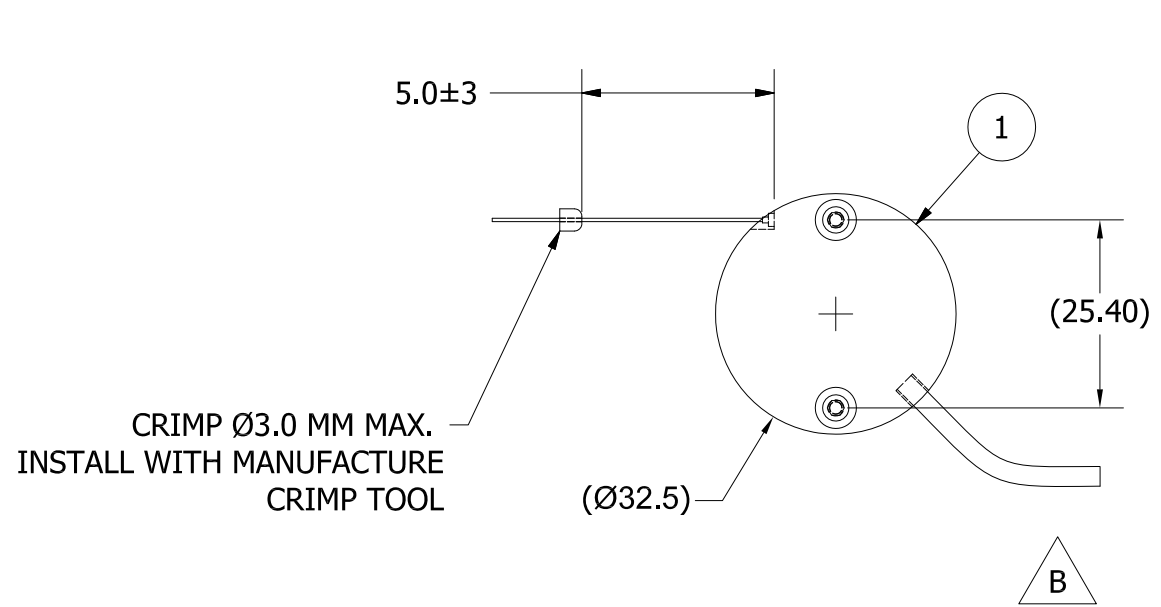
**NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION**

UPPER NECK LOAD CELL

SIZE A3	DRAWING NUMBER SA572-S8	REV H
SCALE: 1:1		SHEET 1 OF 1

THIRD ANGLE PROJECTION

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	B.K.		4/10/06
72037	B	REDRAWN TO INVENTOR; ADDED CABLE SPLICE & STRING POT WIRE FUNCTION; ADDED +OUTPUT NOTE	SKK	L.B.	1/24/2014
74658	C	ADDED SPECIFICATIONS	AB	L.B.	01/08/16
74658	D	REGULATION RELEASE - PART NO WAS IH-173-1, REMOVE CABLE DETAILS, 5.0(mm) WAS 1.0in	AB/JHC	L.B.	01/14/16



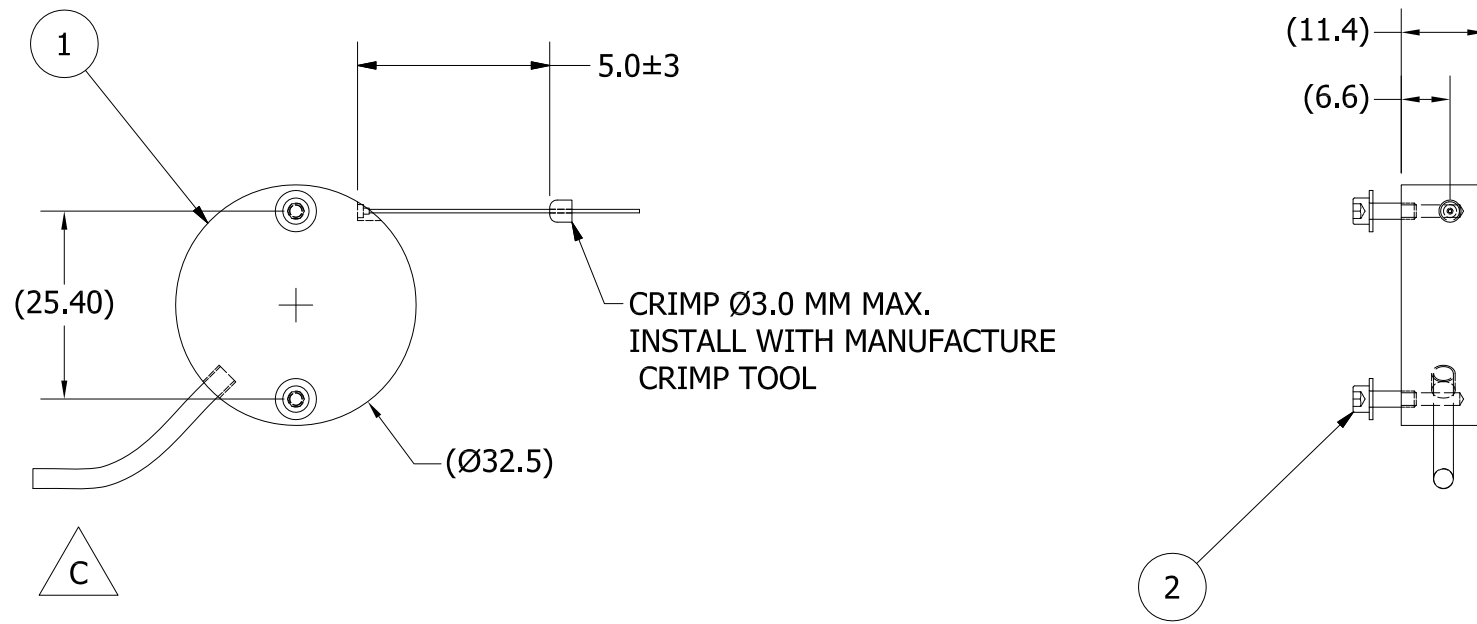
△ C SPECIFICATIONS:

RESISTANCE	5000 OHMS±10%
TRAVEL RANGE	3" MAX
LINEARITY	1.0%
OUTPUT SMOOTHNESS	0.1%
DISPLACEMENT CABLE TENSION	2oz MIN / 10oz MAX
INSULATION RESISTANCE	1000 Mohms@500 VDC MIN
SUPPLY CURRENT	12mA MAX
MAX VOLTAGE	35VDC
RESOLUTION	INFINITE

ITEM	QTY	PART NUMBER	DESCRIPTION
2	2	9000159-FT	SCREW, SHCS #2-56 X 1/4 (REF)
1	1	6002323	STRING POT WITH CERTS, LH PULL

PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL: X ±.5, X.X ±.2, X.XX ±.1 MACHINED ANGLES ±.5° <small>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</small>		VEHICLE RESEARCH and TEST CENTER 	
APPROVALS		DATE	
DRAWN S.KANTOLA		1/24/2014	
CHECKED			
MATERIAL N/A		STRING POT, LEFT SIDE	
HEAT TREAT N/A		ENG L.B. 4/16/2014	
FINISH N/A		APPROVED	
THIRD ANGLE PROJECTION		SIZE A3 DRAWING NUMBER SA572-S38 REV D SCALE: 1:1 SHEET 1 OF 1	

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	B.K.		4/10/06
70128	B	REDRAWN TO INVENTOR; ADD CABLE SPLICE	L.B.	L.B.	11/7/2012
72037	C	ADDED WIRE FXN ON STRING POT.; FLIPPED R&O AND B&B WIRE ASSIGNMENTS ON 6000389 TO STRING POT; ADDED +OUTPUT NOTE	SKK	L.B.	1/24/2014
74658	D	ADDED SPECIFICATIONS	AB	L.B.	01/08/16
74658	E	REGULATION RELEASE - PART NO WAS IH-173-2, REMOVE CABLE DETAILS, 5.0(mm) WAS 1.0in	AB/JHC	L.B.	01/14/16



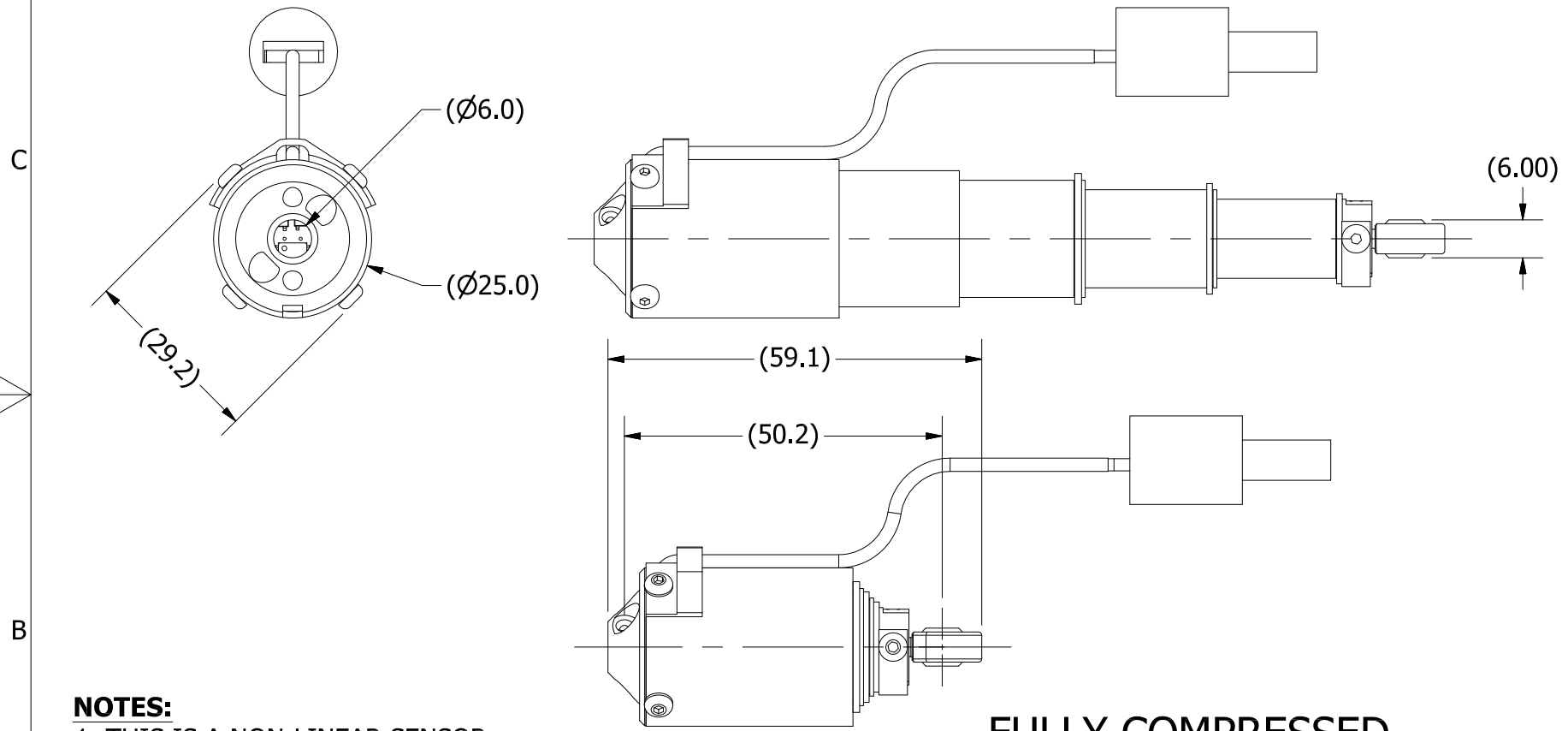
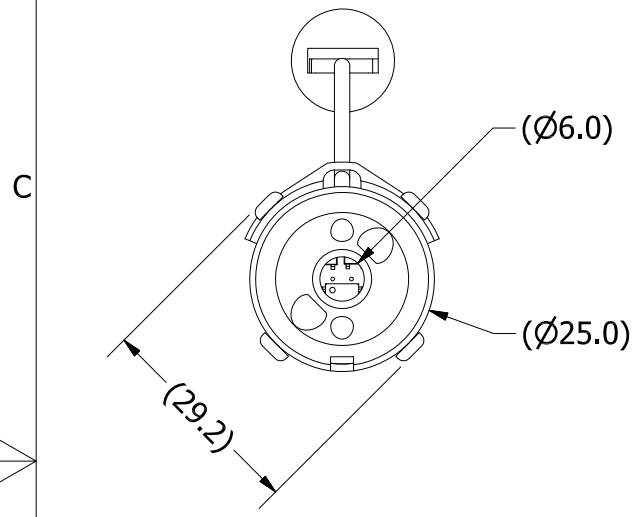
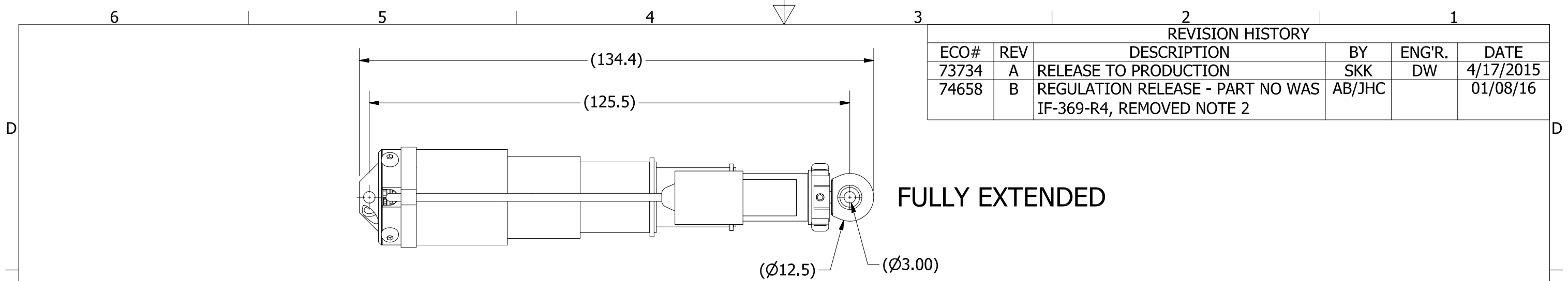
△ SPECIFICATIONS:

RESISTANCE	5000 OHMS±10%
TRAVEL RANGE	3" MAX
LINEARITY	1.0%
OUTPUT SMOOTHNESS	0.1%
DISPLACEMENT CABLE TENSION	2oz MIN / 10oz MAX
INSULATION RESISTANCE	1000 Mohms@500 VDC MIN
SUPPLY CURRENT	12mA MAX
MAX VOLTAGE	35VDC
RESOLUTION	INFINITE

ITEM	QTY	PART NUMBER	DESCRIPTION
2	2	9000159-FT	SCREW, SHCS #2-56 X 1/4 (REF)
1	1	6002322	STRING POT WITH CERTS, RH PULL

PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL:	MACHINED		
X ±.5	ANGLES ±.5°	STRING POT, RIGHT SIDE	
X.X ±.2			
X.XX ±.1		APPROVALS: L. BENFANT DATE: 11/7/2012	
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		CHECKED: L.B. DATE: 5/9/2013	
MATERIAL	N/A	DRAWING NUMBER: SA572-S39 REV: E	
HEAT TREAT	N/A	SCALE: 1:1 SHEET 1 OF 1	
FINISH	N/A	THIRD ANGLE PROJECTION	

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
73734	A	RELEASE TO PRODUCTION	SKK	DW	4/17/2015
74658	B	REGULATION RELEASE - PART NO WAS IF-369-R4, REMOVED NOTE 2	AB/JHC		01/08/16




NOTES:
 1. THIS IS A NON-LINEAR SENSOR.
 SEE OTHER DOCUMENTATION FOR
 LINEARIZATION DETAILS.

WIRE ASSINGMENTS		
PIN NUMBER	WIRE COLOR	FUNCTION
1	RED	+EXCITATION
2	GREEN	+SIGNAL
3	ORANGE	CHANNEL ID
4	SHIELD	GROUND
5	WHITE	-SIGNAL
6	BLACK	-EXCITATION
7	NONE	GUIDE PIN

LINEARITY SPECIFICATIONS	
MAXIMUM DISPLACEMENT RANGE	65 mm
INTRACC LINEARITY	2% F.S.
MAXIMUM ERROR (FROM TUBES IN AND TUBES OUT POSITION)	2% F.S.
MAXIMUM ERROR (DUE TO CROSS-TALK FROM FORCED LATERAL DISPLACEMENT)	±3% F.S.
ELECTRICAL SPECIFICATIONS	
INPUT VOLTAGE	5 VDC @ 20 mA
OUTPUT VOLTAGE FULLY EXTENDED	50 - 70 mV
OUTPUT VOLTAGE FULLY COMPRESSED	0.9 - 1.7 V

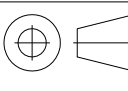
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER	
APPROVALS		DATE	
DRAWN skantola		4/17/2015	
MATERIAL		CHECKED	
HEAT TREAT N/A		ENG DW 4/17/2015	
FINISH N/A		APPROVED	



DEPARTMENT OF TRANSPORTATION
UNITED STATES OF AMERICA

**NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION**

Q3s IRTRACC
SPECIFICATION SHEET



THIRD ANGLE
PROJECTION

SIZE
A3

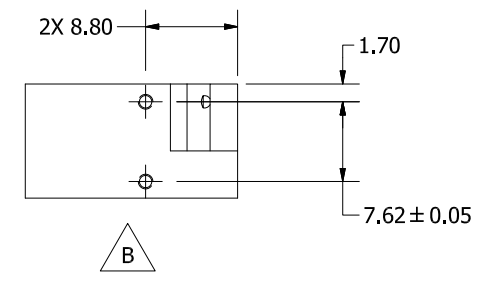
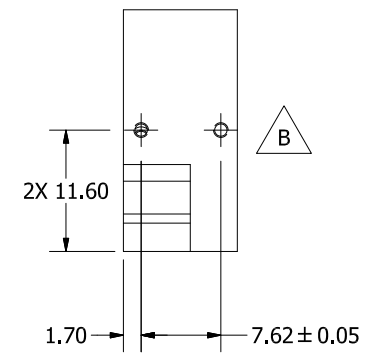
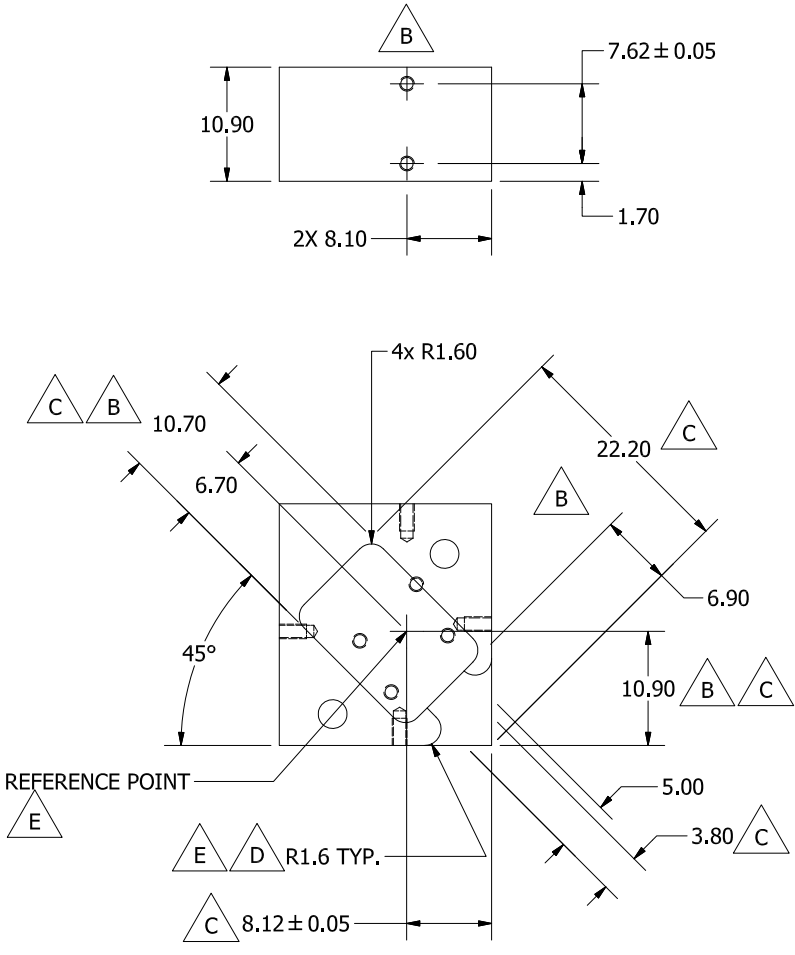
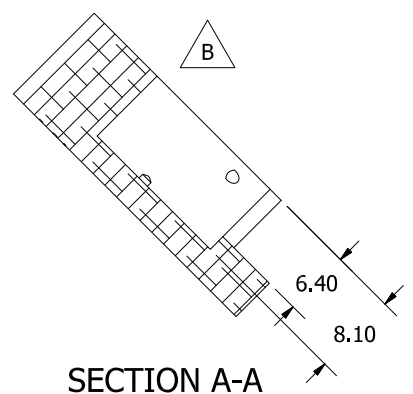
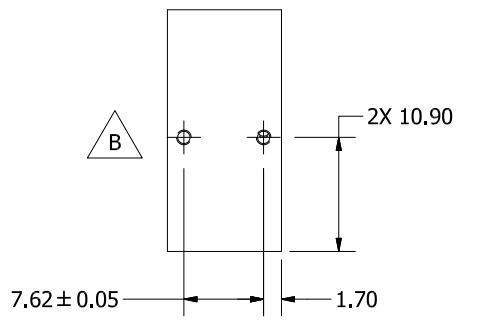
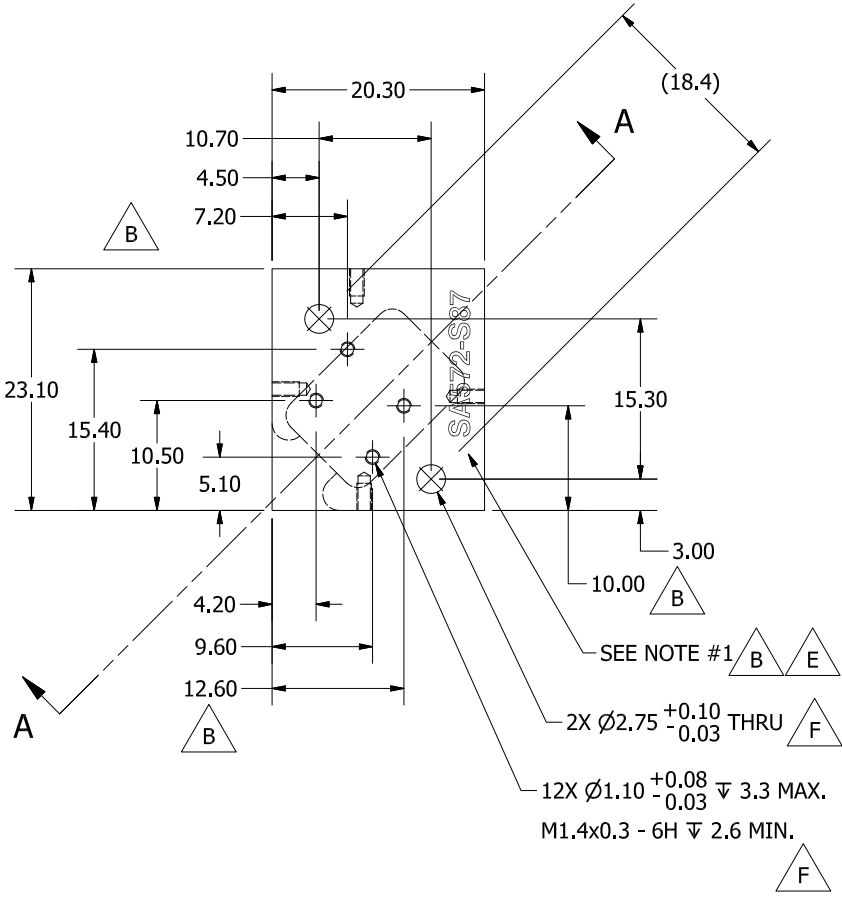
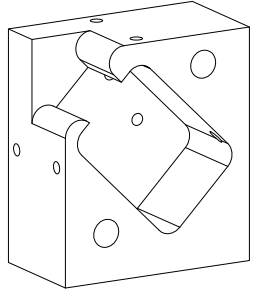
DRAWING NUMBER
SA572-S37

REV
B

SCALE: 1 : 1

SHEET 1 OF 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENGR.	DATE
75659	A	RELEASE TO PRODUCTION	LP		6-15-07
76752	B	REMOVED NOTE TO STAMP "A" FOR ACCELEROMETERS & "B" FOR SENSORS; SEE NOTE #2 WAS #3; REDIMENSIONED TAP HOLES & POCKET TO CORNER OF SLOT	MT		7-7-09
77338	C	10.90 & 8.12±0.05 WAS 9.80 & 10.70; 3.80 WAS 2.50; 22.20 WAS 22.10; REMOVED 2X 5.33±0.05; ADDED 10.70 & 6.70	MT		10-26-09
77591	D	ADD R.1.59±0.05 * 2	FINK		1/11/11
72396	E	REDRAWN IN INVENTOR; MACHINING REFERENCE POINT WAS CENTER OF POCKET; REMOVE NOTE #1; NOTE #1 WAS NOTE #2; SEE NOTE #1 WAS SEE NOTE #2; 7075-T6 ALUMINUM WAS 7076-T6 ALUMINUM; R1.6 WAS R1.59	AB		02/14/14
74658	F	UPDATED HOLE CALLOUTS PER CURRENT STANDARDS	GCH		01/11/2016
74658	G	REGULATION RELEASE, PART NO. WAS 034-1201	AB/JHC		01/12/16



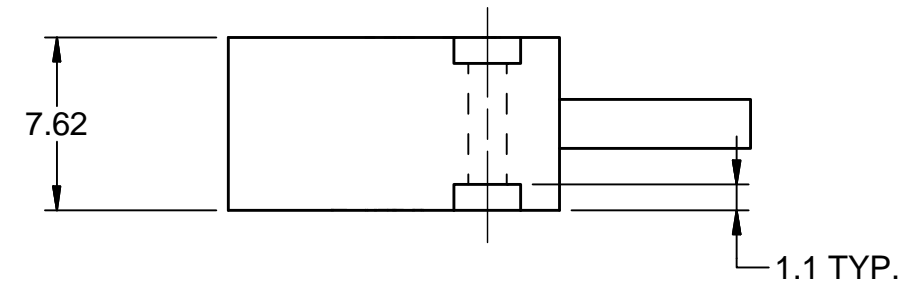
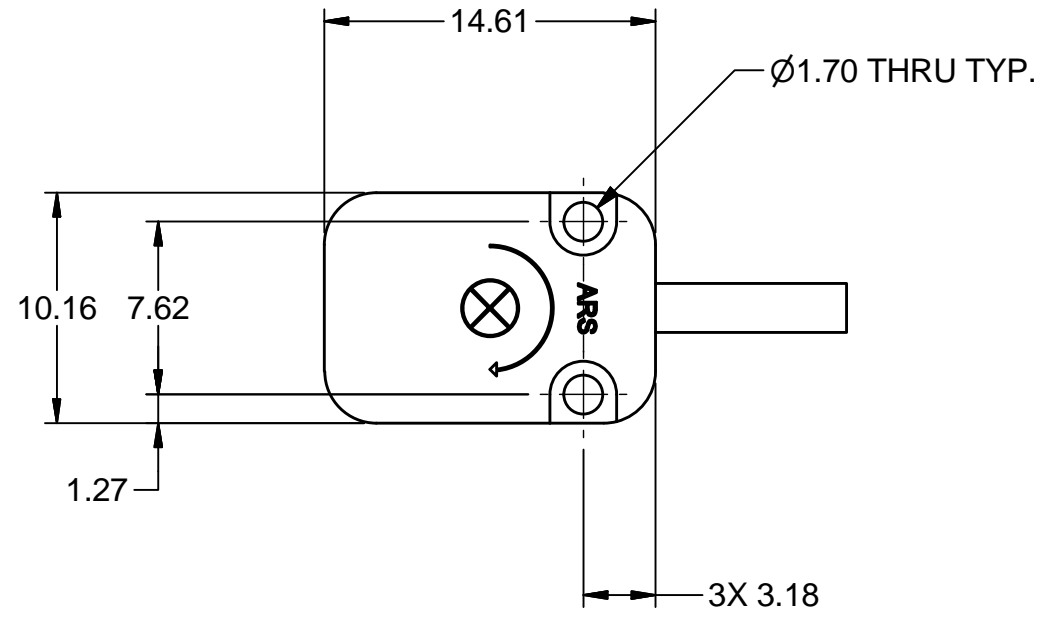
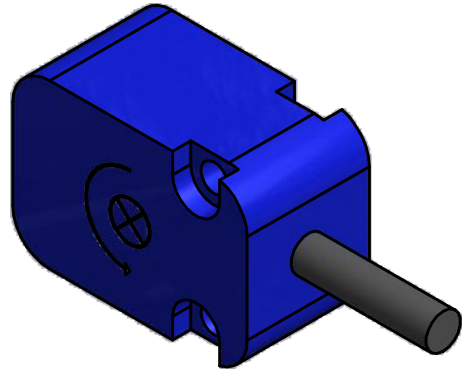
NOTES:
 1. ETCH PART NUMBER WHERE SHOWN.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:	
DECIMAL: X.X ±.2 X.XX ±.1	MACHINED ANGLES ±.5°
ASME Y14.5M - 1994 DO NOT SCALE DRAWING	
MATERIAL 7075-T6 ALUMINUM	CHECKED
HEAT TREAT	ENG
FINISH	APPROVED

VEHICLE RESEARCH and TEST CENTER	
APPROVALS	DATE
DRAWN B. KIMES	14-Jun-07
CHECKED	
ENG	
APPROVED	

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
6 AXIS ACCEL/ARS MOUNT, (7264-2000), HEAD & PELVIS, Q DUMMIES	
THIRD ANGLE PROJECTION	SIZE: A2 SCALE: 2:1
DRAWING NUMBER: SA572-S87	REV: G
SHEET: 1	OF 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASED TO PRODUCTION	AB		04/30/2013
	B	ADDED NHTSA TITLE BLOCK, ADDED AXIS OF ROTATION SYMBOL	DW		5/20/2014
	C	MASS WAS 3g; BANDWIDTH WAS 0-1000 Hz (DC RESPONSE); CURRENT WAS 6mA NOMINAL; ADDED PERFORMANCE SPECIFICATIONS	DW		3/31/2016




Test Procedure:

- 1) Mount the ARS unit to the shock anvil such that the axis of rotation of ARS is parallel to the axis of the imparted shock pulse.
- 2) Subject ARS to linear acceleration haversine pulse with peak between 500g and 550g and a pulse width less than 3.5ms, measured at 10% of peak acceleration, when filtered at SAE Class 1000.
- 3) Record ARS output and filter at SAE Class 180.


Performance requirements:

ARS output should be within ± 100 deg/second.

SPECIFICATIONS:

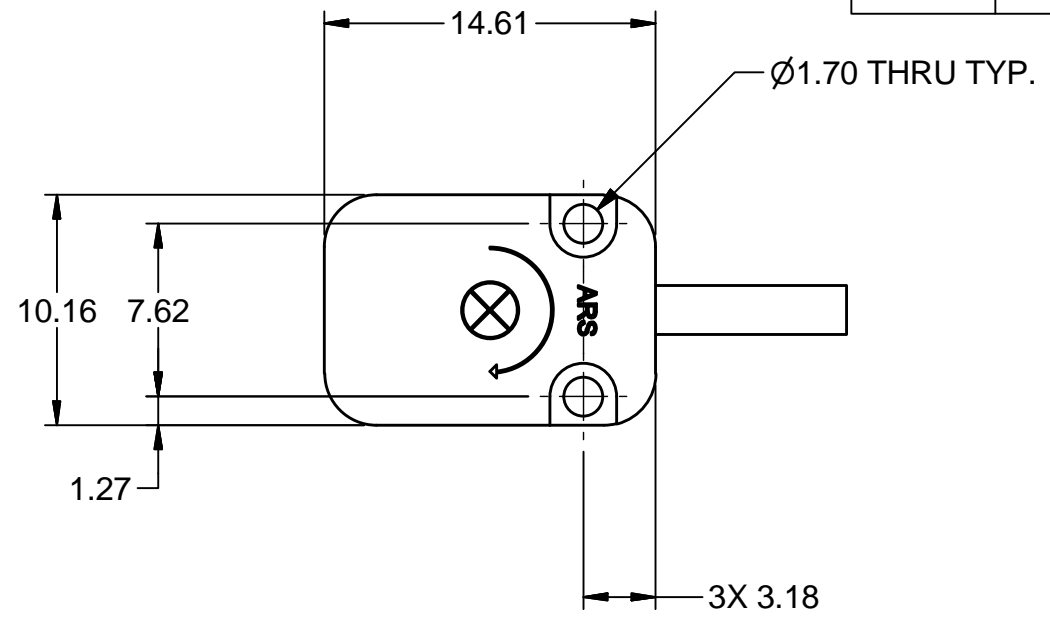
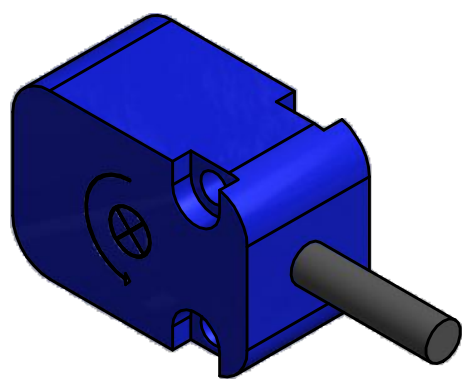
	MASS:	2.2g
	RANGE:	± 1500 DEG/SEC
	BANDWIDTH:	0-2000 Hz (DC RESPONSE)
	NOISE:	<0.15% (RMS FULL SCALE)
	EXCITATION:	4.9-14.0 VDC
	CURRENT:	4mA NOMINAL
	ZERO OUTPUT:	± 200 mV
	FULL SCALE OUTPUT:	± 2 V NOMINAL

PERFORMANCE:

	CROSS AXIS SENSITIVITY:	<1.0%
	NON-LINEARITY:	<0.5% FULL SCALE
	INFLUENCE OF LINEAR ACCELERATION:	<0.1 DEG/SEC/G TYPICAL
	THERMAL DRIFT:	-40 TP +80C
	ZERO:	± 1 DEG/SEC
	SENSITIVITY:	$\pm 2\%$

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ± 0.5 $\pm 0.5^\circ$ ✓ X.X ± 0.2 X.XX ± 0.1 X.XXX ± 0.01 ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS	DATE	ANGULAR RATE SENSOR-1500			
DRAWN abarchock	4/30/2013	INSTRUMENTATION			
CHECKED		SIZE A3	DRAWING NUMBER SA572-S55	REV C	
MATERIAL	ENG	SCALE: 3:1	SHEET 1	OF 1	
HEAT TREAT	APPROVED				
FINISH					

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASED TO PRODUCTION	AB		04/30/2013
	B	ADDED NHTSA TITLE BLOCK, ADDED AXIS OF ROTATION SYMBOL	DW		5/20/2014
	C	MASS WAS 3g; BANDWIDTH WAS 0-300 Hz OR 0-600 Hz (DC RESPONSE); CURRENT WAS 6mA NOMINAL; NOISE WAS 0.15% (RMS FULL SCALE) ADDED PERFORMANCE SPECIFICATIONS	DW		3/31/2016

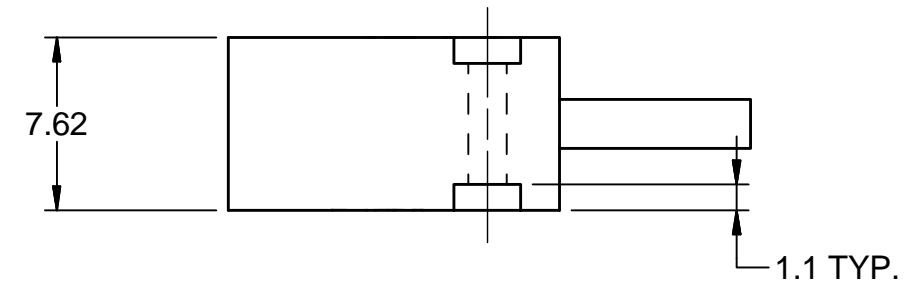


Test Procedure:

- 1) Mount the ARS unit to the shock anvil such that the axis of rotation of ARS is parallel to the axis of the imparted shock pulse.
- 2) Subject ARS to linear acceleration haversine pulse with peak between 500g and 550g and a pulse width less than 3.5ms, measured at 10% of peak acceleration, when filtered at SAE Class 1000.
- 3) Record ARS output and filter at SAE Class 180.

Performance requirements:

ARS output should be within ± 100 deg/second.



SPECIFICATIONS:

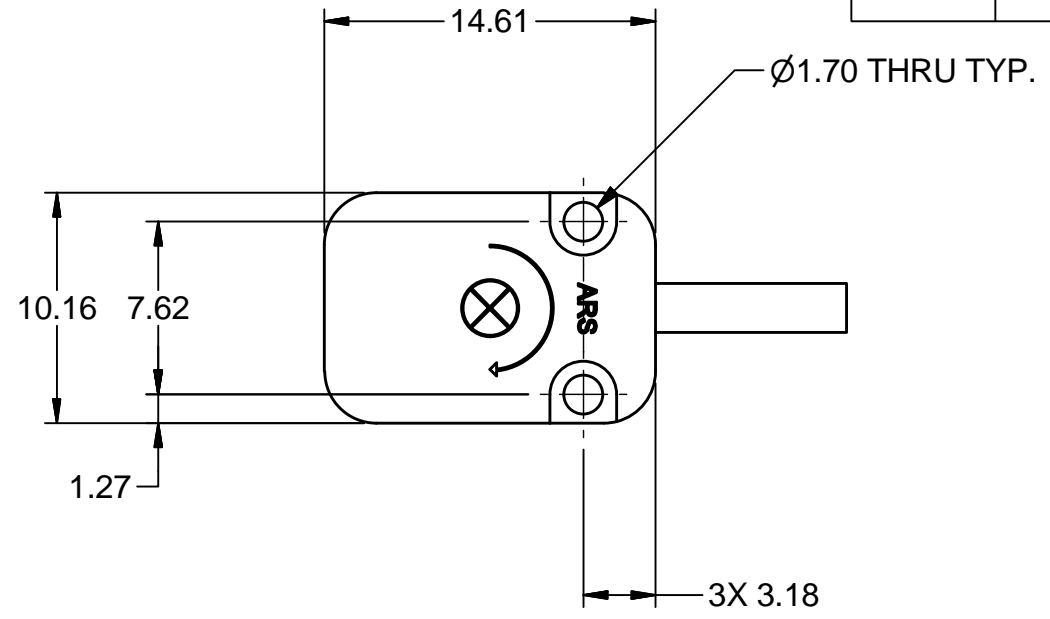
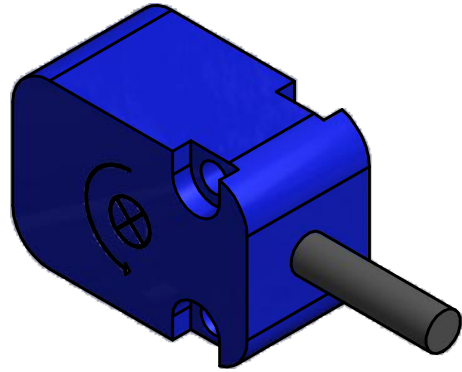
MASS:	2.2g
RANGE:	± 8000 DEG/SEC
BANDWIDTH:	0-2000 Hz (DC RESPONSE)
NOISE:	<0.30% (RMS FULL SCALE)
EXCITATION:	4.9-14.0 VDC
CURRENT:	4mA NOMINAL
ZERO OUTPUT:	± 200 mV
FULL SCALE OUTPUT:	± 2 V NOMINAL

PERFORMANCE:

CROSS AXIS SENSITIVITY:	<1.0%
NON-LINEARITY:	<0.5% FULL SCALE
INFLUENCE OF LINEAR ACCELERATION:	<0.1 DEG/SEC/G TYPICAL
THERMAL DRIFT:	-40 TP +80C
ZERO:	± 1 DEG/SEC
SENSITIVITY:	$\pm 5\%$

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ± 0.5 $\pm 5'$ ✓ X.X ± 0.2 X.XX ± 0.1 X.XXX ± 0.01 ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS	DATE	ANGULAR RATE SENSOR-8K			
DRAWN: abarchock	5/1/2013	INSTRUMENTATION			
CHECKED:		SIZE: A3	DRAWING NUMBER: SA572-S56	REV: C	
MATERIAL:	ENG:	SCALE: 3:1	SHEET: 1 OF 1		
HEAT TREAT:	APPROVED:				
FINISH:					

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASED TO PRODUCTION	AB		04/30/2013
	B	ADDED NHTSA TITLE BLOCK, ADDED AXIS OF ROTATION SYMBOL	DW		5/21/2014
	C	MASS WAS 3g; BANDWIDTH WAS 0-16500 Hz (DC RESPONSE); CURRENT WAS 6mA NOMINAL; ADDED PERFORMANCE SPECIFICATIONS	DW		3/31/2016

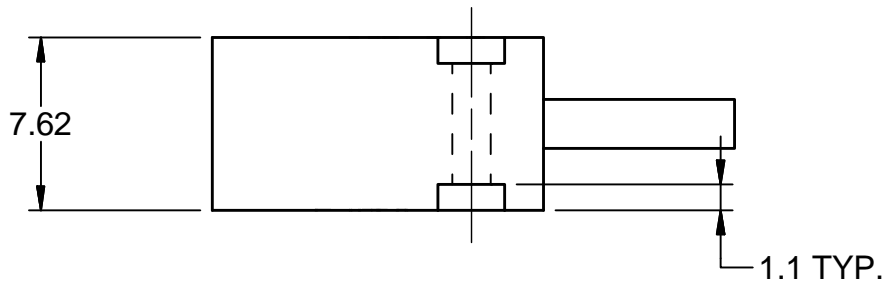


Test Procedure:

- 1) Mount the ARS unit to the shock anvil such that the axis of rotation of ARS is parallel to the axis of the imparted shock pulse.
- 2) Subject ARS to linear acceleration haversine pulse with peak between 500g and 550g and a pulse width less than 3.5ms, measured at 10% of peak acceleration, when filtered at SAE Class 1000.
- 3) Record ARS output and filter at SAE Class 180.

Performance requirements:

ARS output should be within ± 100 deg/second.



SPECIFICATIONS:

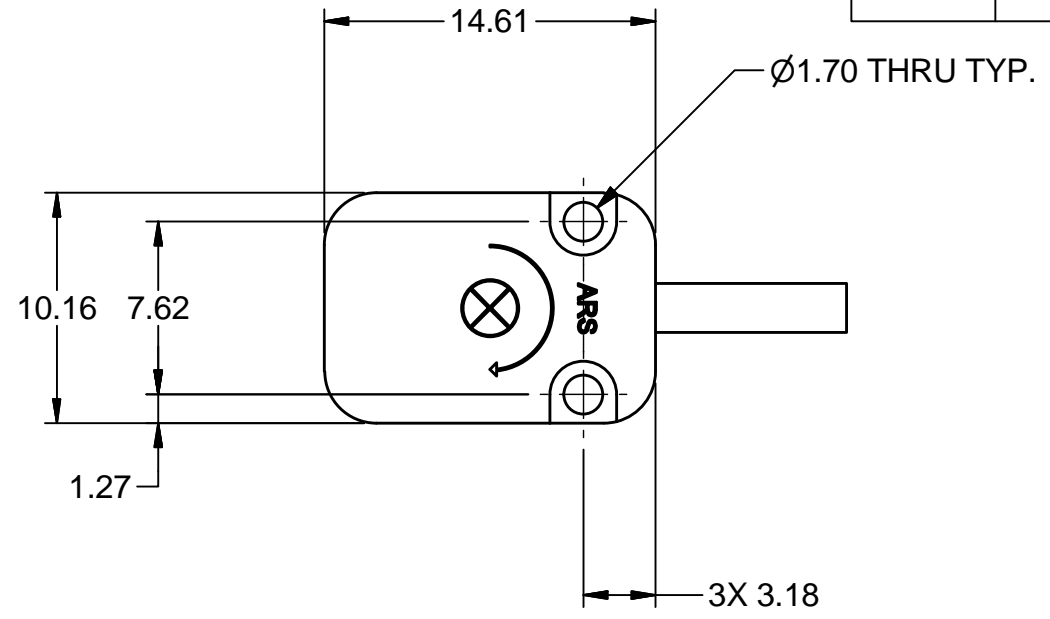
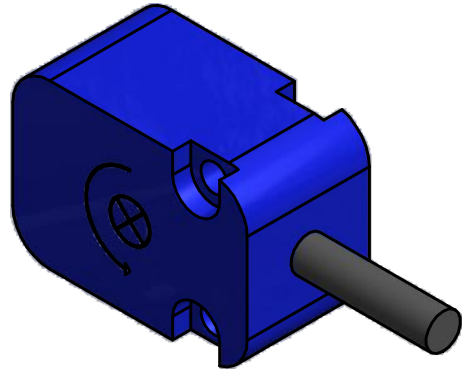
△ C	MASS:	2.2g
	RANGE:	± 12000 DEG/SEC
	BANDWIDTH:	0-2000 Hz (DC RESPONSE)
	NOISE:	<0.25% (RMS FULL SCALE)
	EXCITATION:	4.9-14.0 VDC
	CURRENT:	4mA NOMINAL
	ZERO OUTPUT:	± 200 mV
	FULL SCALE OUTPUT:	± 2 V NOMINAL

PERFORMANCE:

△ C	CROSS AXIS SENSITIVITY:	<1.0%
	NON-LINEARITY:	<0.5% FULL SCALE
	INFLUENCE OF LINEAR ACCELERATION:	<0.1 DEG/SEC/G TYPICAL
	THERMAL DRIFT:	-40 TP +80C
	ZERO:	± 1 DEG/SEC
	SENSITIVITY:	$\pm 2\%$

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5' ✓ X.X ±.2 X.XX ±.1 X.XXX ±.01 ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS	DATE	ANGULAR RATE SENSOR-12K			
DRAWN: abarchock	5/1/2013	INSTRUMENTATION			
CHECKED:		SIZE: A3	DRAWING NUMBER: SA572-S57	REV: C	
MATERIAL:	ENG:	SCALE: 3:1	SHEET: 1	OF 1	
HEAT TREAT:	APPROVED:				
FINISH:					

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASED TO PRODUCTION	AB		04/30/2013
	B	ADDED NHTSA TITLE BLOCK, ADDED AXIS OF ROTATION SYMBOL	DW		5/21/2014
	C	MASS WAS 3g; BANDWIDTH WAS 0-300 Hz OR 0-2000 Hz (DC RESPONSE); NOISE WAS <1.5% DEG/SEC 1/4Hz; CURRENT WAS 6mA NOMINAL; ADDED PERFORMANCE SPECIFICATIONS	DW		3/31/2016

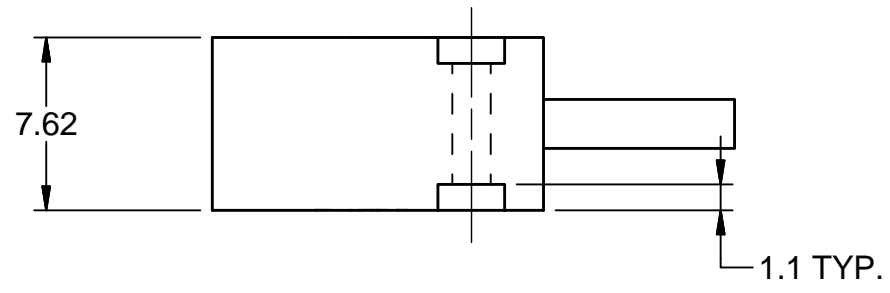


Test Procedure:

- 1) Mount the ARS unit to the shock anvil such that the axis of rotation of ARS is parallel to the axis of the imparted shock pulse.
- 2) Subject ARS to linear acceleration haversine pulse with peak between 500g and 550g and a pulse width less than 3.5ms, measured at 10% of peak acceleration, when filtered at SAE Class 1000.
- 3) Record ARS output and filter at SAE Class 180.

Performance requirements:

ARS output should be within ± 100 deg/second.



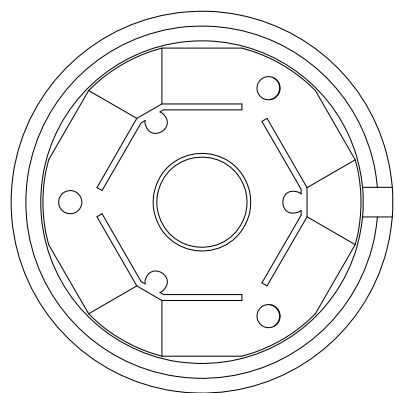
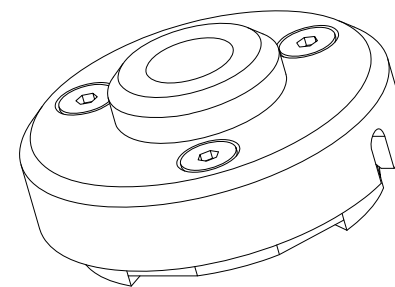
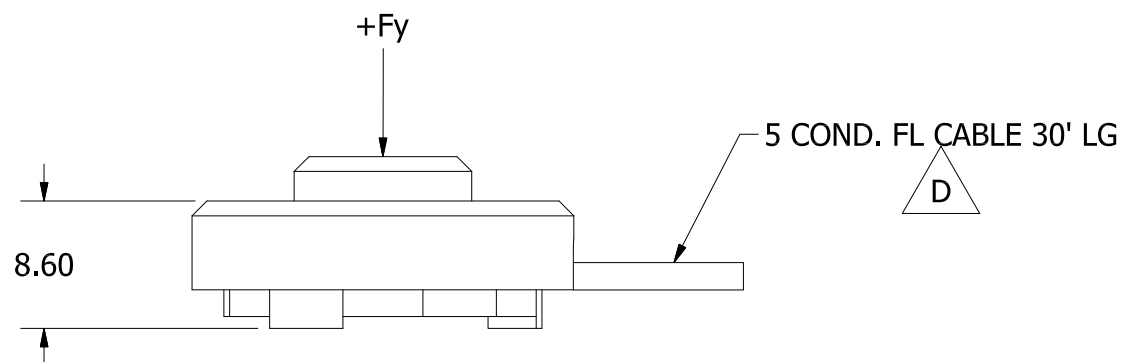
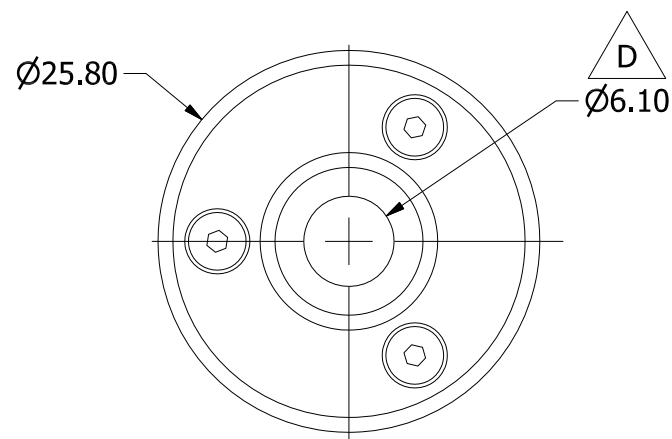
SPECIFICATIONS:

△ C	MASS:	2.2g
	RANGE:	± 18000 DEG/SEC
	BANDWIDTH:	0-2000 Hz (DC RESPONSE)
	NOISE:	<0.35% (RMS FULL SCALE)
	EXCITATION:	4.9-14.0 VDC
	CURRENT:	4mA NOMINAL
	ZERO OUTPUT:	± 200 mV
	FULL SCALE OUTPUT:	± 2 V NOMINAL

PERFORMANCE:

△ C	CROSS AXIS SENSITIVITY:	<1.0%
	NON-LINEARITY:	<0.5% FULL SCALE
	INFLUENCE OF LINEAR ACCELERATION:	<0.1 DEG/SEC/G TYPICAL
	THERMAL DRIFT:	-40 TP +80C
	ZERO:	± 5 DEG/SEC
	SENSITIVITY:	$\pm 2\%$

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5' ✓ X.X ±.2 X.XX ±.1 X.XXX ±.01 ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		ANGULAR RATE SENSOR-18K	
DRAWN: abarchock		5/1/2013		INSTRUMENTATION	
CHECKED:				DRAWING NUMBER	
MATERIAL:		ENG:		SA572-S58 C	
HEAT TREAT:		APPROVED:		SCALE: 3:1	
FINISH:				SHEET 1 OF 1	

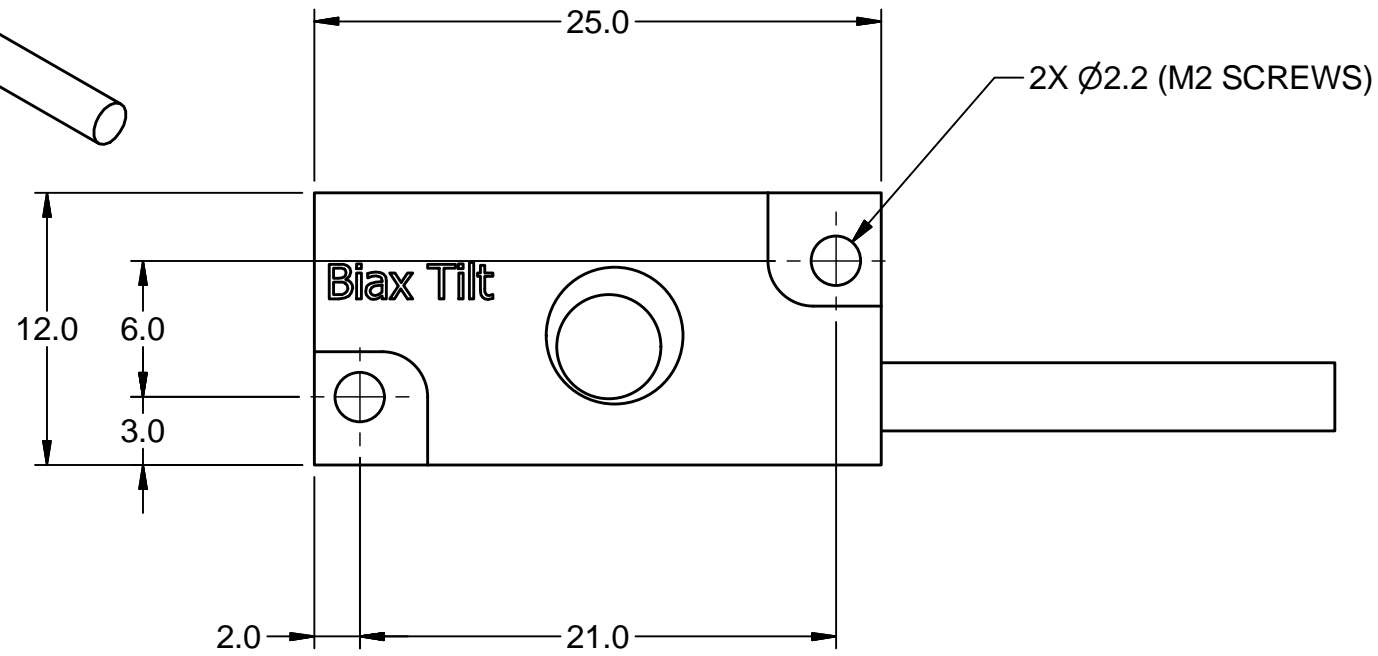
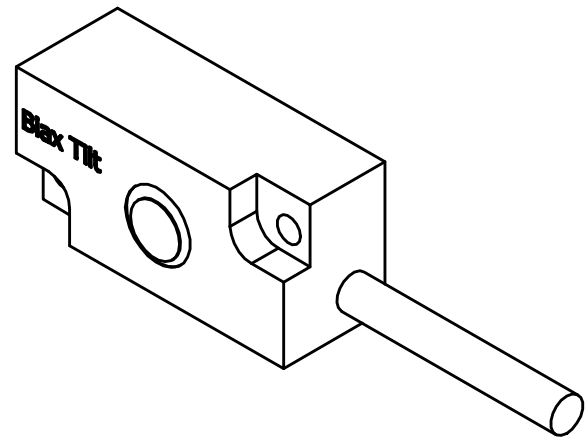


REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	SP		6/8/2006
72056	B	UPDATED WIRE CODE FOR LN2 CABLE. UPDATED TITLE BLOCK AND REV TABLE	SKK		2/4/2014
72424	C	UPDATED WIRE CODE FOR 5 COND FL CABLE	SKK		4/11/2014
74658	D	UPDATED DRAWING TO CURRENT STANDARDS; ADDED "5 COND. FL CABLE 30' LG" NOTE; ADDED Ø6.10; REMOVED SHEET #2 & REPLACED WITH IF-539-W2; 1 CHANNEL PUBIC LOAD CELL, Q3S WAS UNIAXIAL PUBIC LOADCELL, Q3S, 360 OHM	JH / AB		12/14/2015
74658	E	REGULATION RELEASE - PART NO. WAS IF-539	AB/JHC		01/12/16

AXIS	CAPACITY (METRIC)	CAPACITY (ENGLISH)	OUTPUT	BRIDGE RESISTANCE
FY	2.2 kN	494.6 LBS	1.2 mV/V	360
NON-LINEARITY		<1% FULL SCALE		
HYSTERESIS		<1% FULL SCALE		
EXCITATION		10 NOM, 15 MAX		
MASS		19g LESS CABLES		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5, X.X ±.2, X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN: S. PILLAI CHECKED:	DATE 6/8/2006		1 CHANNEL PUBIC LOAD CELL, Q3S	
MATERIAL: HEAT TREAT: FINISH:	CHECKED: ENG: APPROVED:		SIZE: A3 SCALE: 2:1	DRAWING NUMBER: SA572-S7 SHEET: 1 OF 1	REV: E

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	SPEC RELEASE	BK	JW	5/13/2013

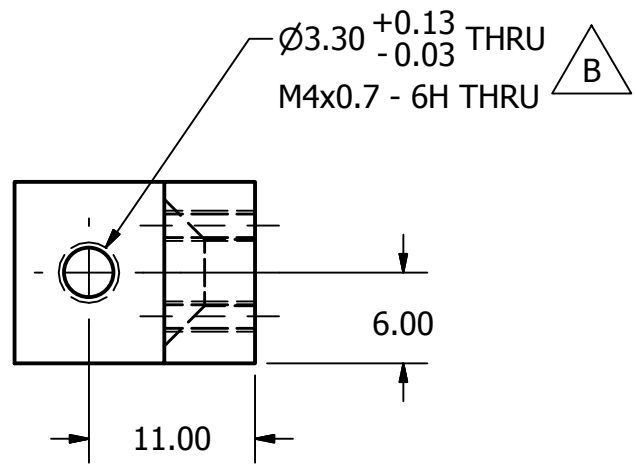
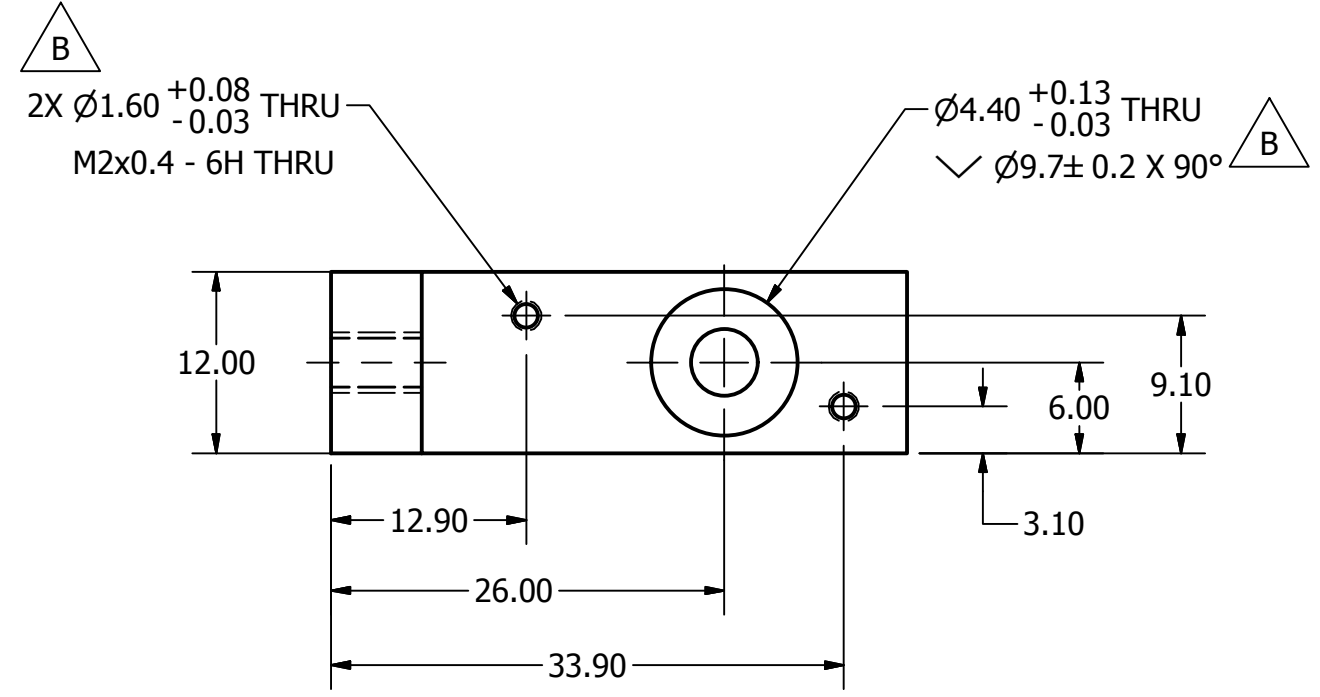
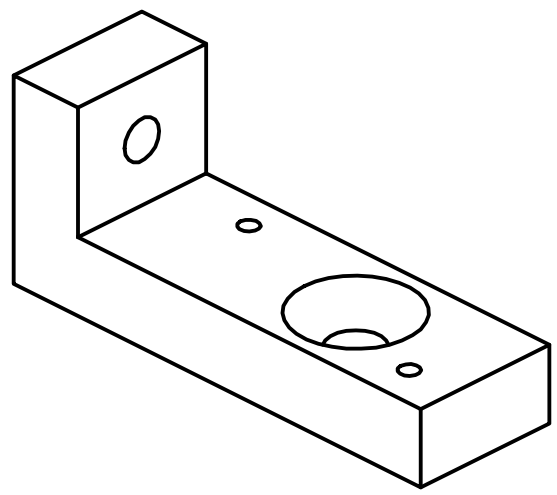
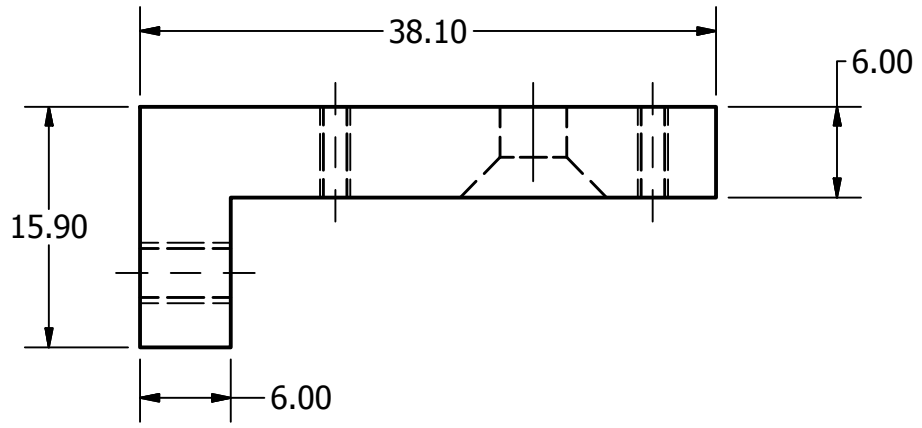


TILT SENSOR SPECIFICATION:

- MASS: 5g
- RANGE: ± 80°
- RESOLUTION: 0.1°
- ACCURACY: ± 0.5°
- SUPPLY VOLTAGE 5 V
- POWER CONSUMPTION: 6 mA

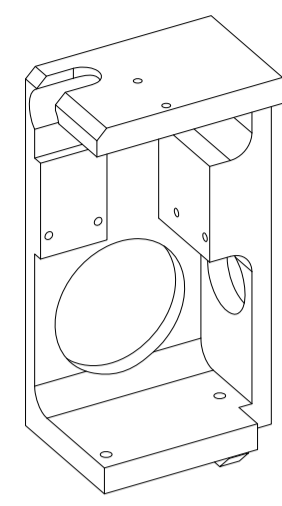
DO NOT SCALE DRAWING THIRD ANGLE PROJECTION	TOLERANCES <small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small>		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	<small>DECIMALS</small> X ± 0.5 <small>ANGLES</small> XX ± 0.2 <small>FINISH</small> XXX ± 0.1 <small>FINISH</small> XXXX ± 0.01	<small>ANGLES</small> ± 0.5 <small>FINISH</small> 1.6	
PROJECT NO.: MATERIAL: HEAT TREAT: FINISH:	REMOVE BURRS & BREAK SHARP EDGES DRAWN BY: B. KIMES CHECKED BY:	DATE: 11/29/2012 DATE:	SIZE: SHEET B 1 OF 1 SCALE: 3.000 DRAWING NO.: SA572-S44 REV:

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
72396	A	RELEASE TO PRODUCTION	AB		03/22/13
74658	B	UPDATED HOLE CALLOUTS TO CURRENT STANDARDS	GCH		01/05/2016
74658	C	REGULATION RELEASE	GCH		1/06/2016

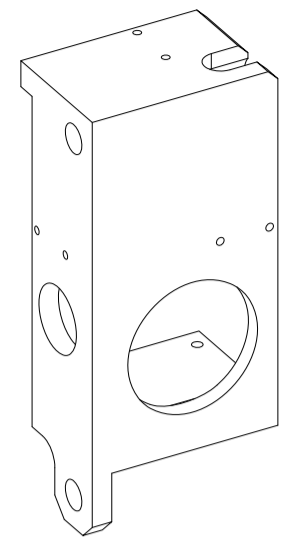


UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 ANGLES XX ±.2 ±.5° X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN abarchock	DATE 3/22/2013	
MATERIAL 6061-T6 ALUMINUM	CHECKED ENG	APPROVED	SIZE A3
HEAT TREAT	FINISH	DRAWING NUMBER SA572-S84	REV C
THIRD ANGLE PROJECTION		SCALE: 2:1	SHEET 1 OF 1

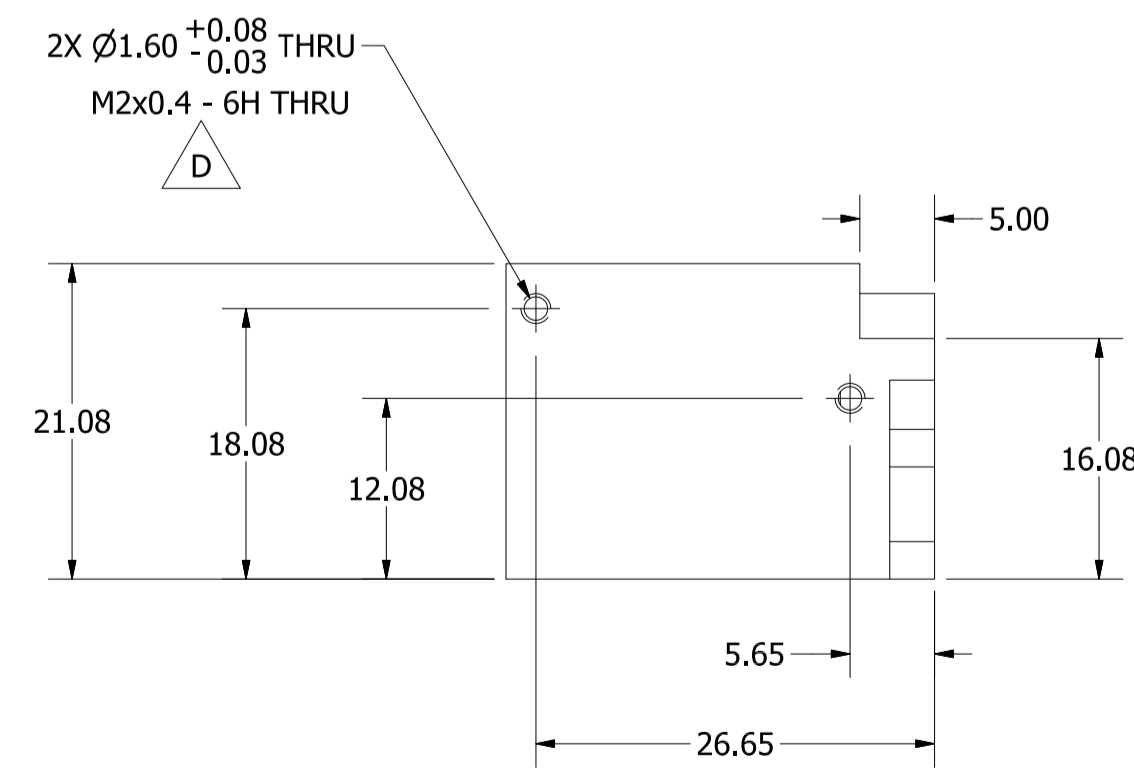
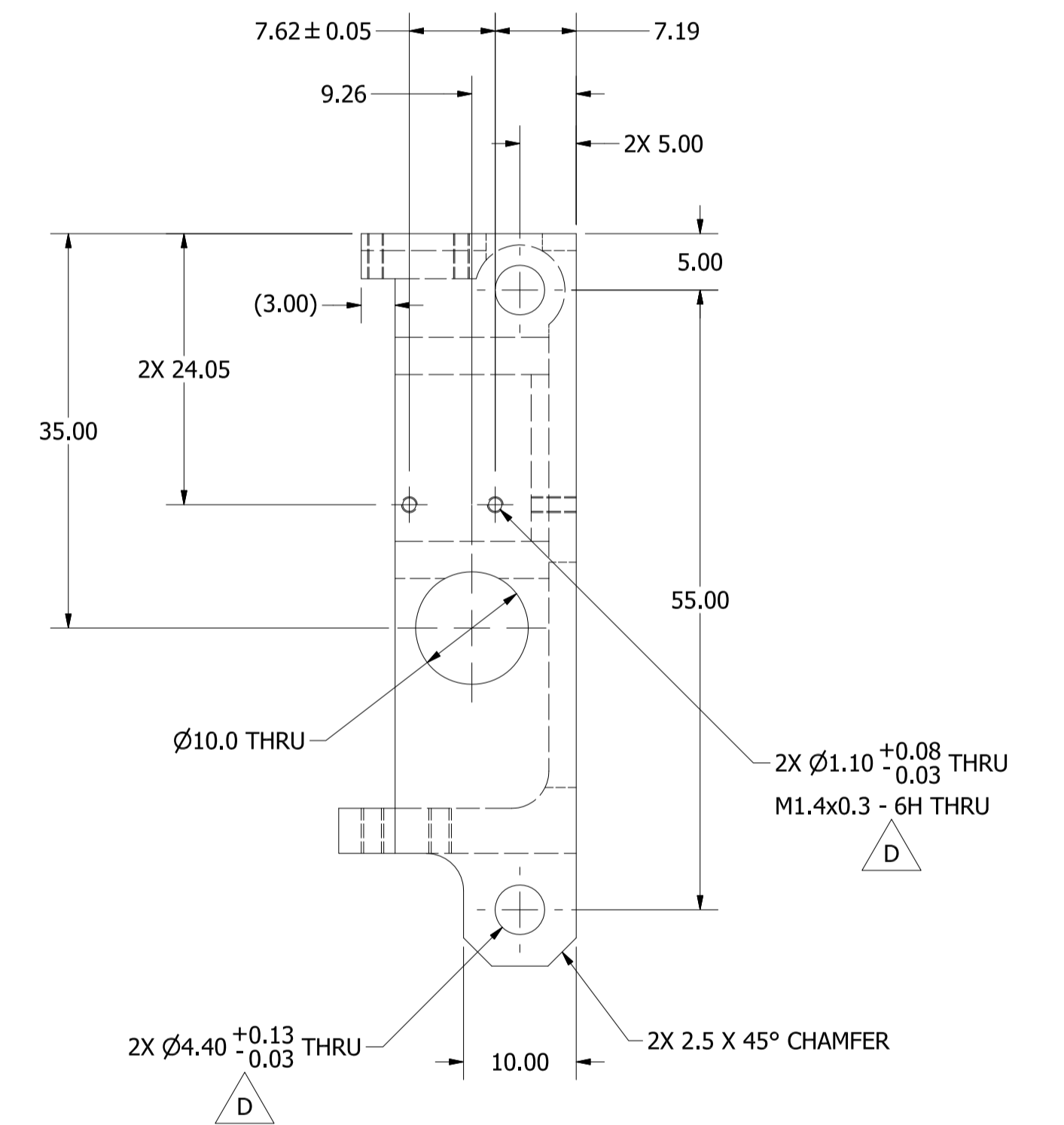
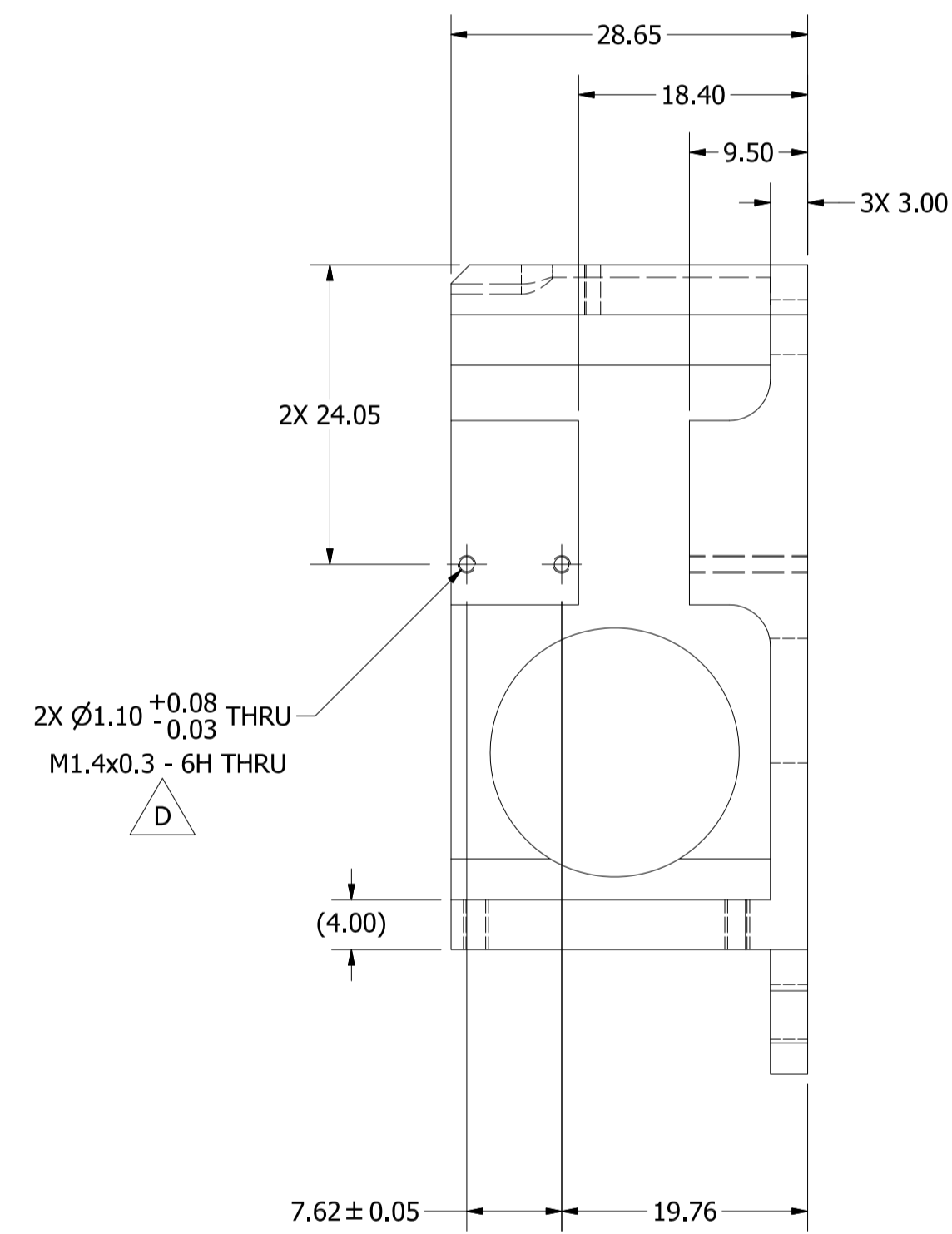
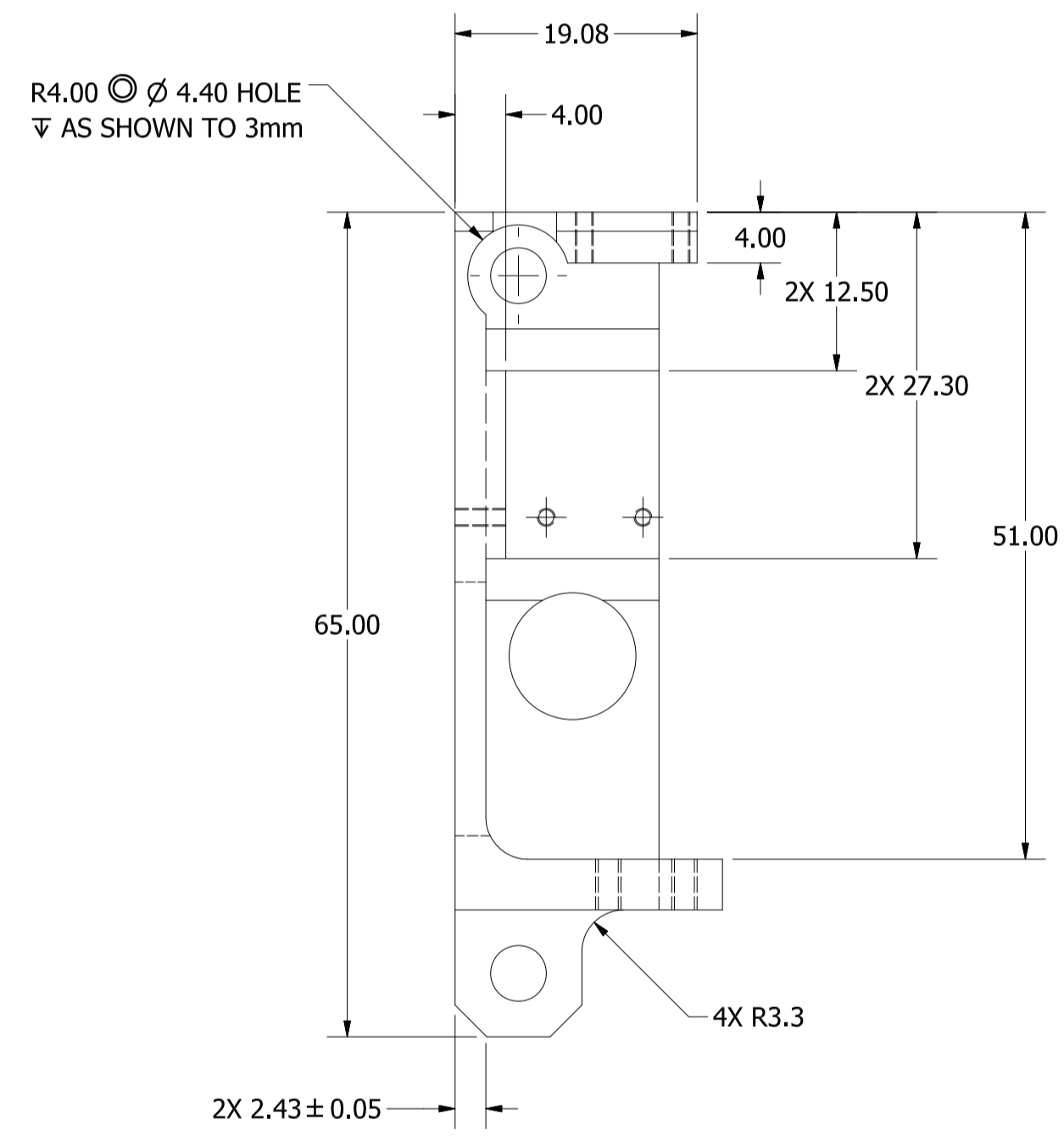
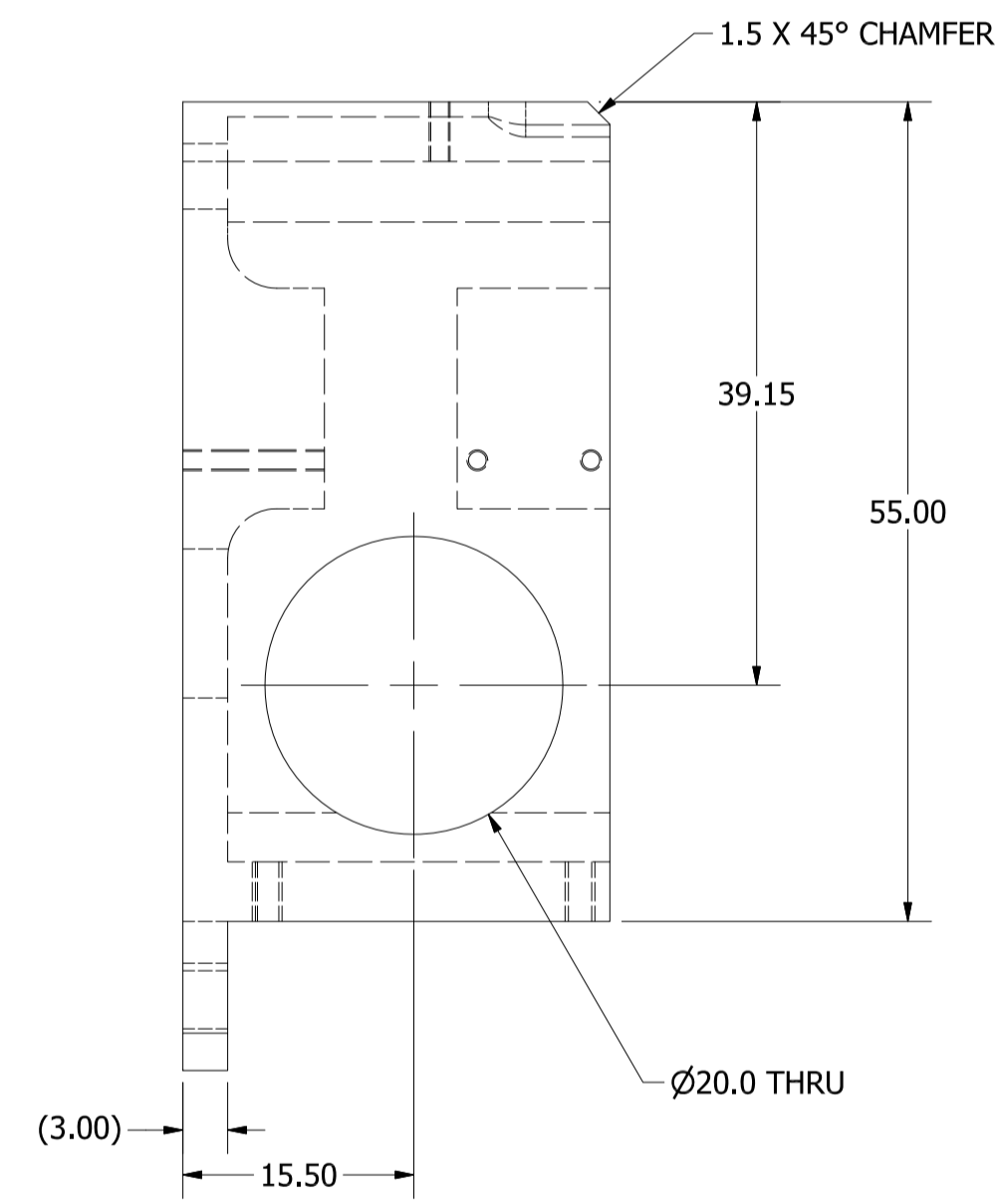
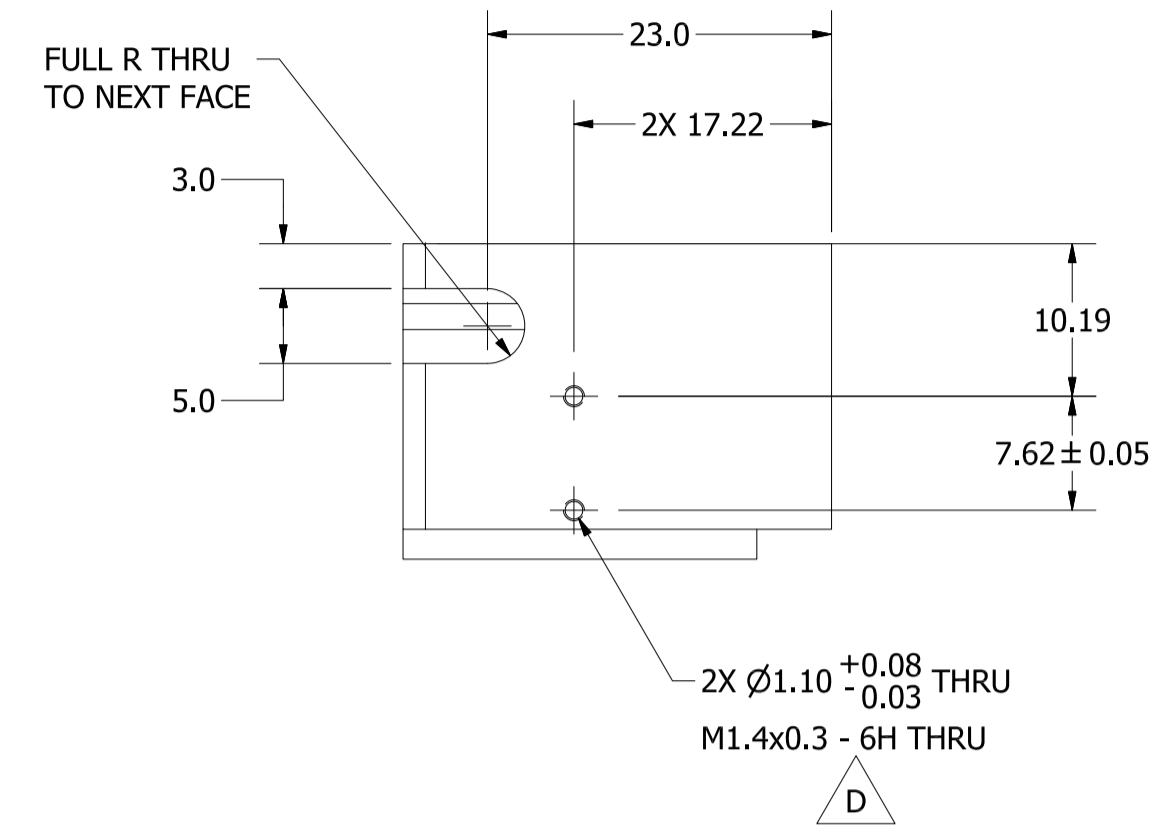
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
78001	A	RELEASE TO PRODUCTION	MT		8/23/11
72396	B	REDRAWN IN INVENTOR; REMOVE NOTE #2; NOTE #2 WAS NOTE #3; 8.07 WAS 8.10; 1.16 TO INTERSECTION WAS 1.20	AB		02/18/14
73485	C	REDESIGN MOUNT TO ACCEPT TILT SENSOR	AB		01/16/15
74658	D	UPDATED HOLE CALLOUTS TO CURRENT STANDARDS	AB		01/08/16
74658	E	REGULATION RELEASE - PART NO. WAS 020-4516	GCH JHC		01/12/2016



SCALE 1 : 1



SCALE 1 : 1

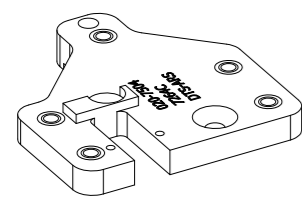


NOTES:

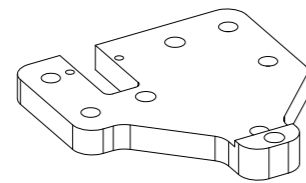
1. MASS: (WEIGHED 28±5 GRAMS)

<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</small> DECIMAL: X ±.2, XX ±.1, XXX ±.05 MACHINED ANGLES: ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS S. GOLDNER	DATE 7/27/2011		MOUNT DTS-ARS THORAX Q3s	
MATERIAL: 7075-T6 ALUMINUM HEAT TREAT: ENG FINISH: CLEAR ANODIZE	CHECKED ENG		SIZE: A1 SCALE: 2:1 THIRD ANGLE PROJECTION	DRAWING NUMBER: SA572-S45 SHEET: 1 OF 1	REV: E

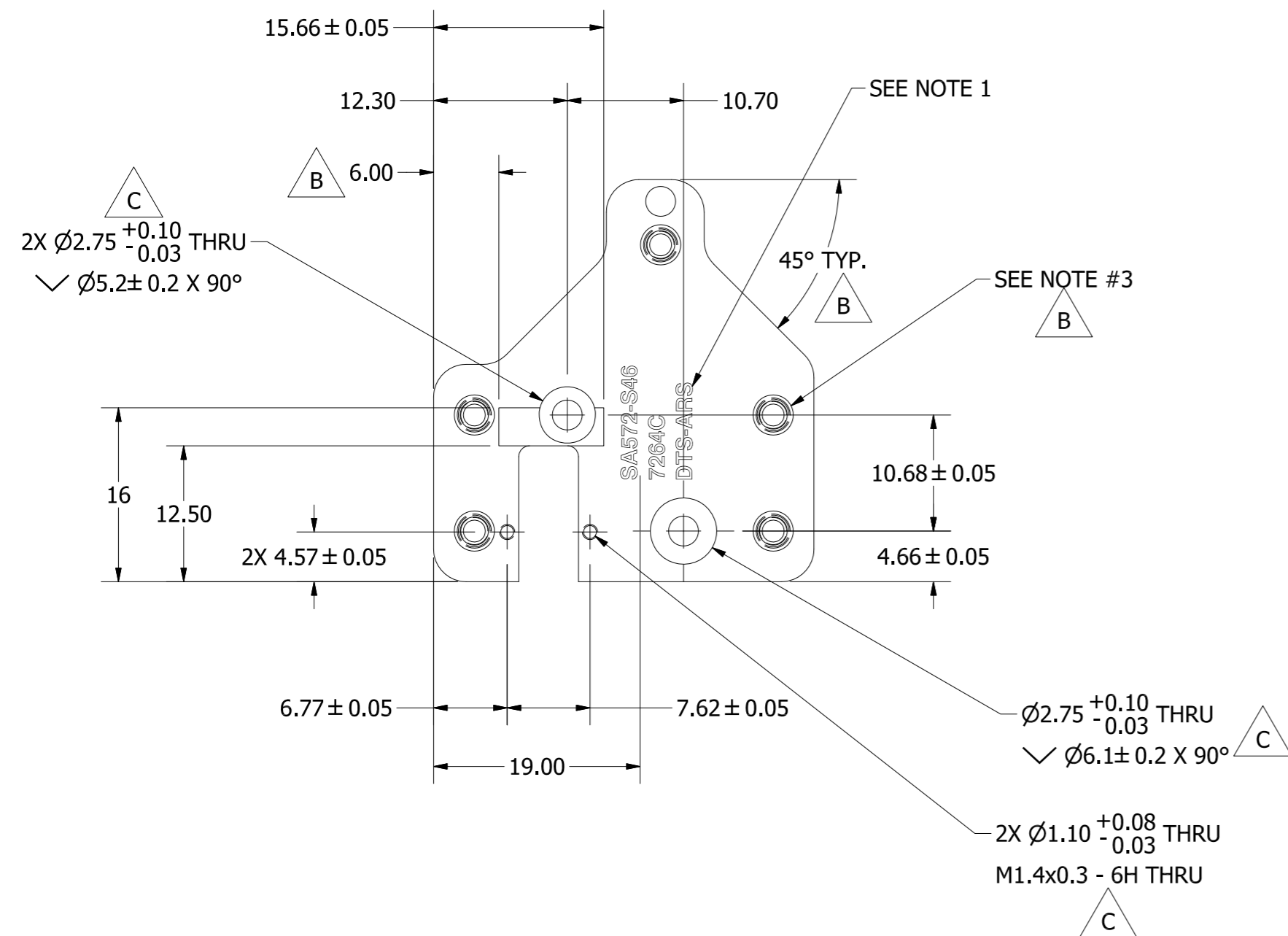
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
78001	A	RELEASE TO PRODUCTION	MT		8/23/11
72396	B	REDRAWN IN INVENTOR; REMOVE NOTE #2; NOTE #2 WAS NOTE #3; SEE NOTE 2 WAS SEE NOTE 3; WIRE INSERT WAS HELICOIL; ADD 45° TYP. & 35.00; 2X 30.10 S.C. WAS 2X 30.10; ADD NOTE #3 & SEE NOTE #3; 6.00 WAS 5.50	AB		02/19/14
74658	C	UPDATED HOLE CALLOUTS TO CURRENT STANDARDS; ADDED SECOND 'C' SINK CALLOUT	AB		01/08/16
74658	D	REGULATION RELEASE - PART NO. WAS 020-7504	GCH JHC		01/12/2016



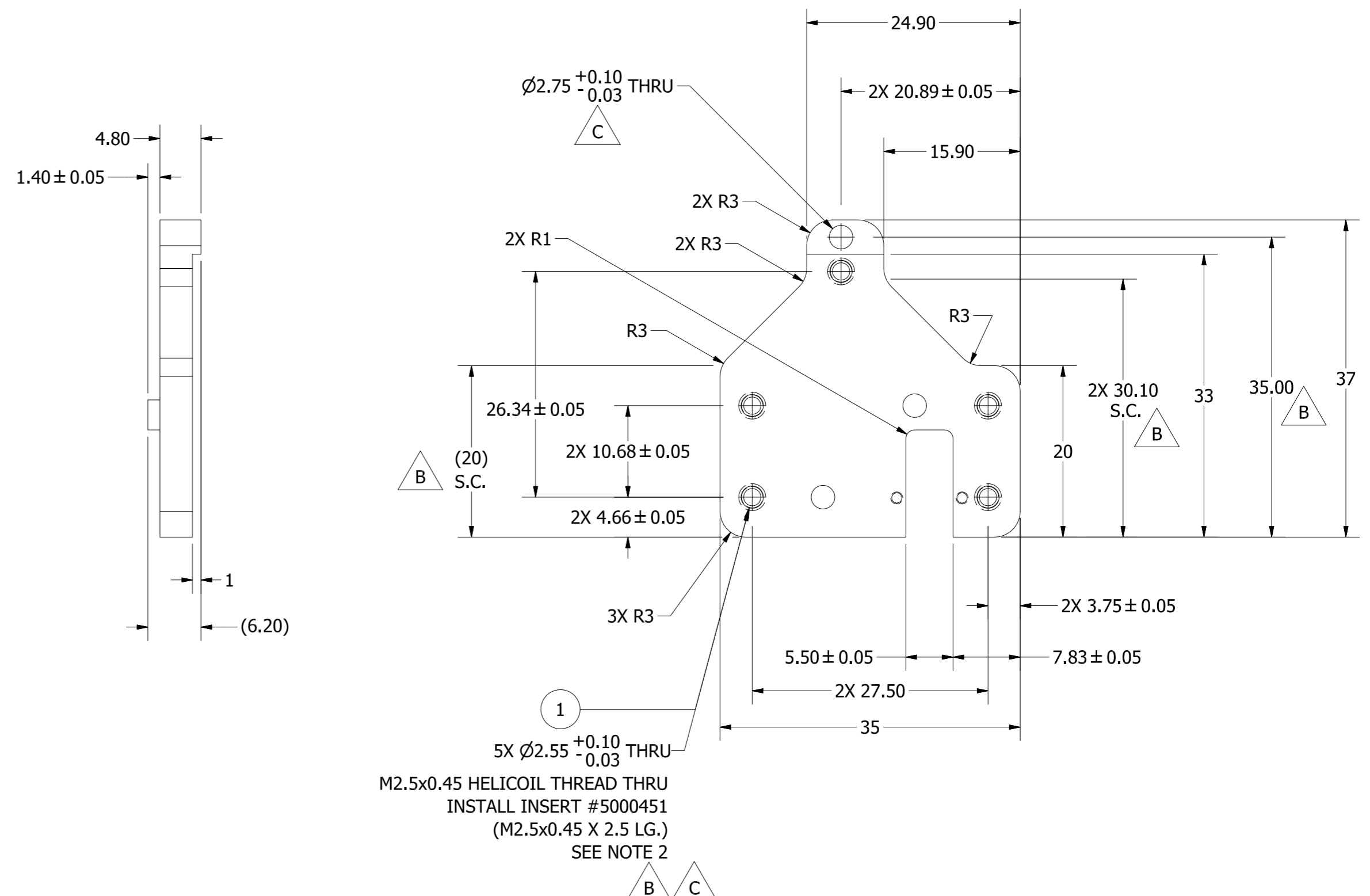
SCALE 1 : 1



SCALE 1 : 1

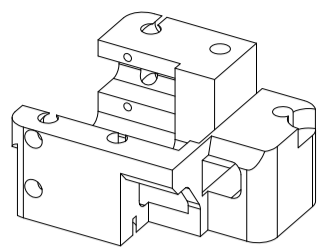


- NOTES:**
- ENGRAVE AS SHOWN 1.5mm HIGH CHARACTERS. MUST BE BELOW FLUSH.
 - INSTALL WIRE INSERTS AFTER FINISH.
 - INSTALL WIRE INSERTS FLUSH TO THIS SURFACE.

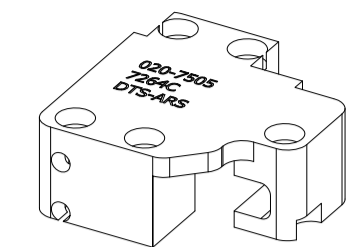


1	5	5000451	WIRE INSERT, M2.5x0.45 X 2.5 mm
ITEM	QTY	PART NUMBER	DESCRIPTION
PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION PLATE ACCEL MT 7264C DTS-ARS Q3s PELVIS	
DECIMAL:	MACHINED		
X.X ±.5	10°	APPROVALS: _____ DATE: 7/21/2011 DRAWN: S. GOLDNER CHECKED: _____ ENG: _____ APPROVED: _____	
X.XX ±.1	ANGLES ±.5°		
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		SIZE: A2 DRAWING NUMBER: SA572-S46 REV: D SCALE: 2:1 SHEET: 1 OF 1	
MATERIAL: 7075-T6 ALUMINUM	HEAT TREAT:		
FINISH: CLEAR ANODIZE	APPROVED:		

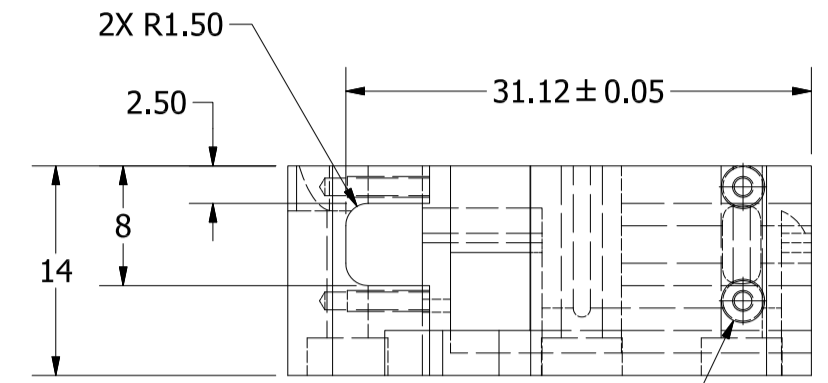
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
78001	A	RELEASE TO PRODUCTION	MT		8/23/11
71976	B	REDRAWN IN INVENTOR; REMOVE NOTE #2; ADD SECTION B-B & HOLE CALL OUT IN BACK VIEW; REMOVE TAP INFO FROM HOLE CALL OUT IN FRONT VIEW; 30.91 WAS 30.90; 2X 10.68±0.05 WAS 10.68; 4.50±0.05 WAS 4.55; 2X M1.4x0.3 TAP ↓ 5.50 WAS TAP THRU	AB		02/20/14
74658	C	UPDATED HOLE CALLOUTS TO CURRENT STANDARDS	AB		01/11/16
74658	D	REGULATION RELEASE, PART NO WAS 020-7505	AB/JHC		01/12/16



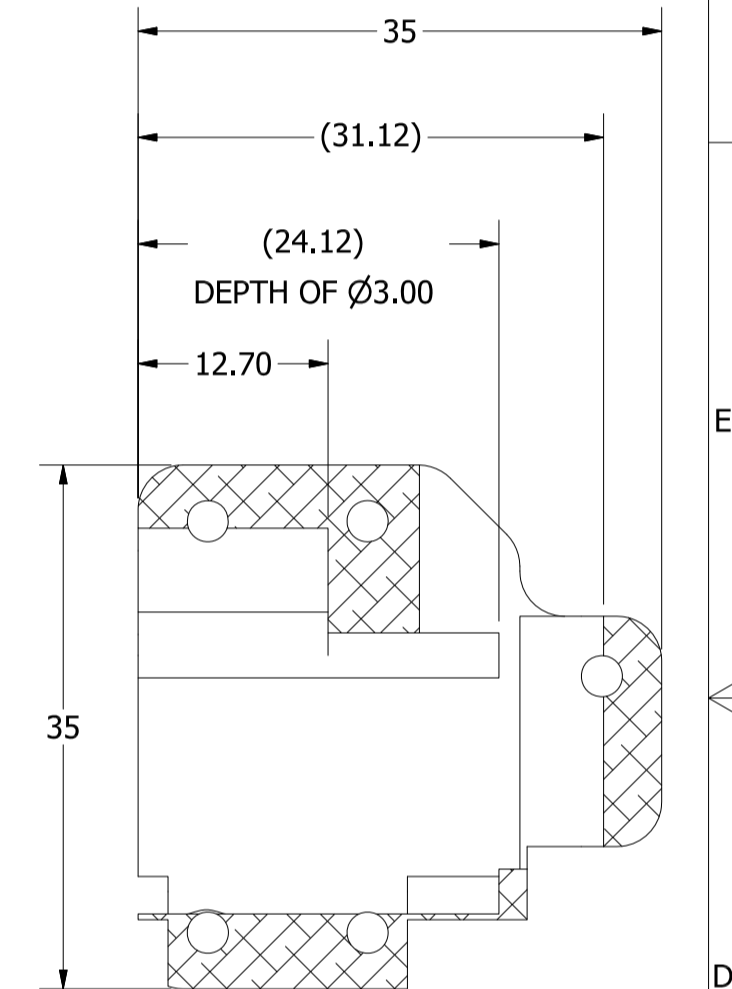
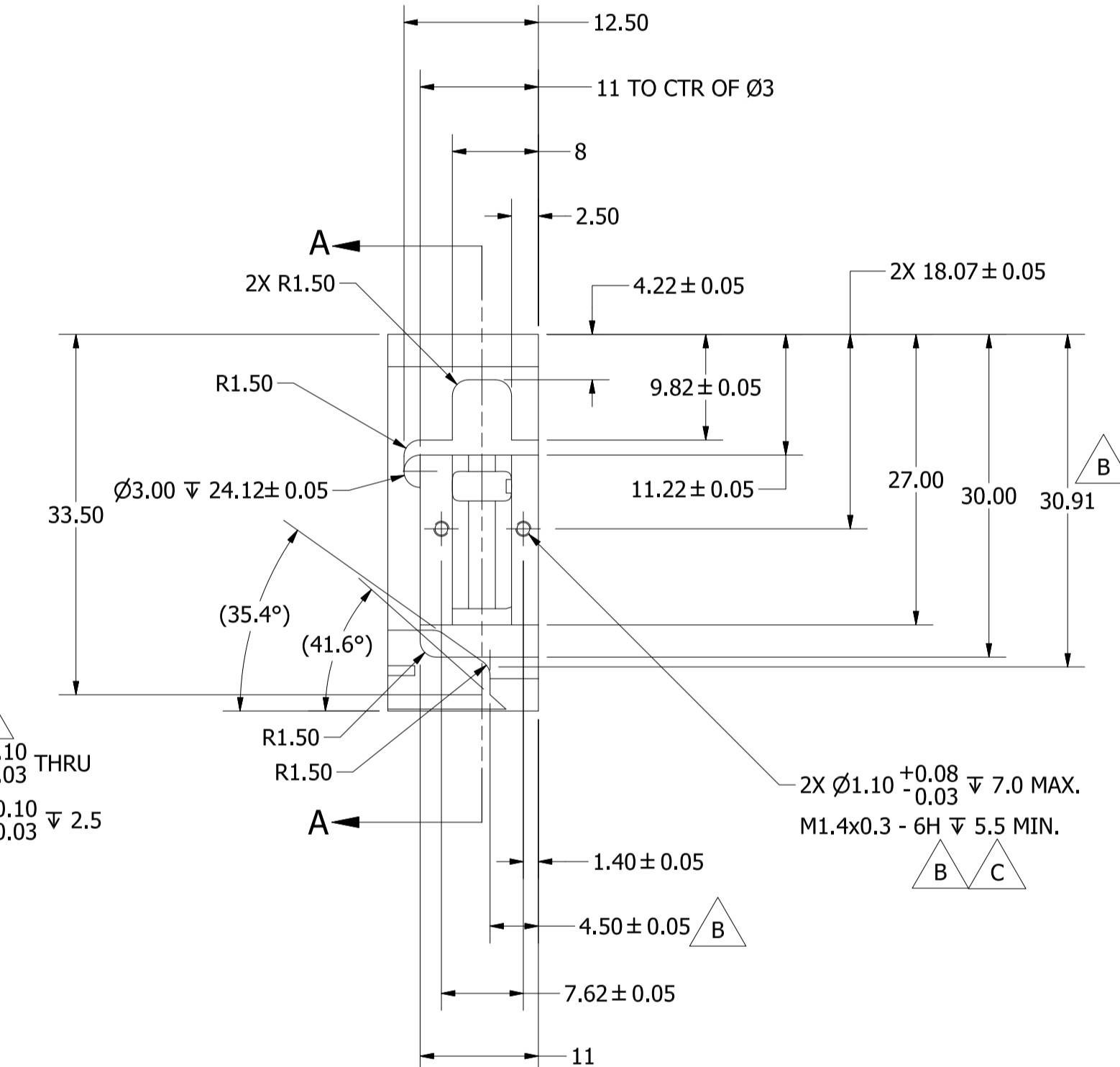
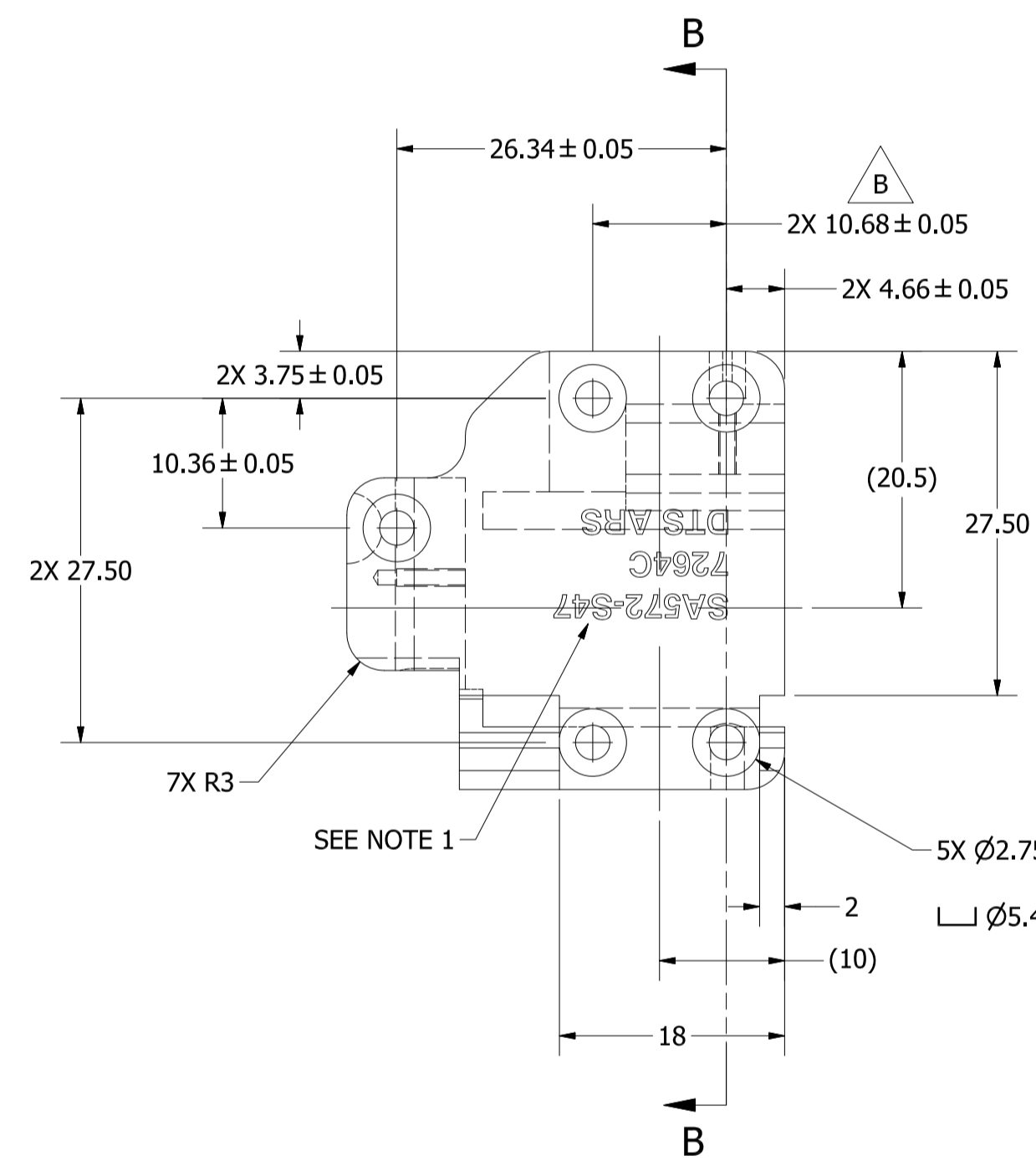
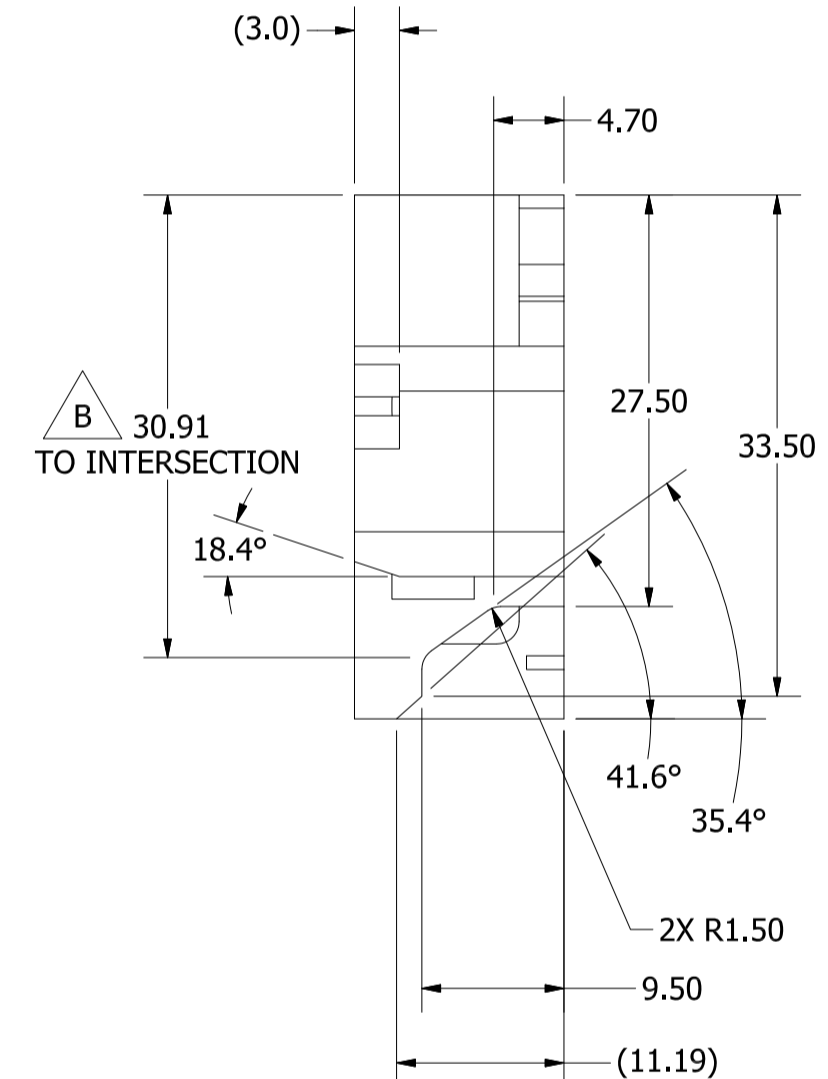
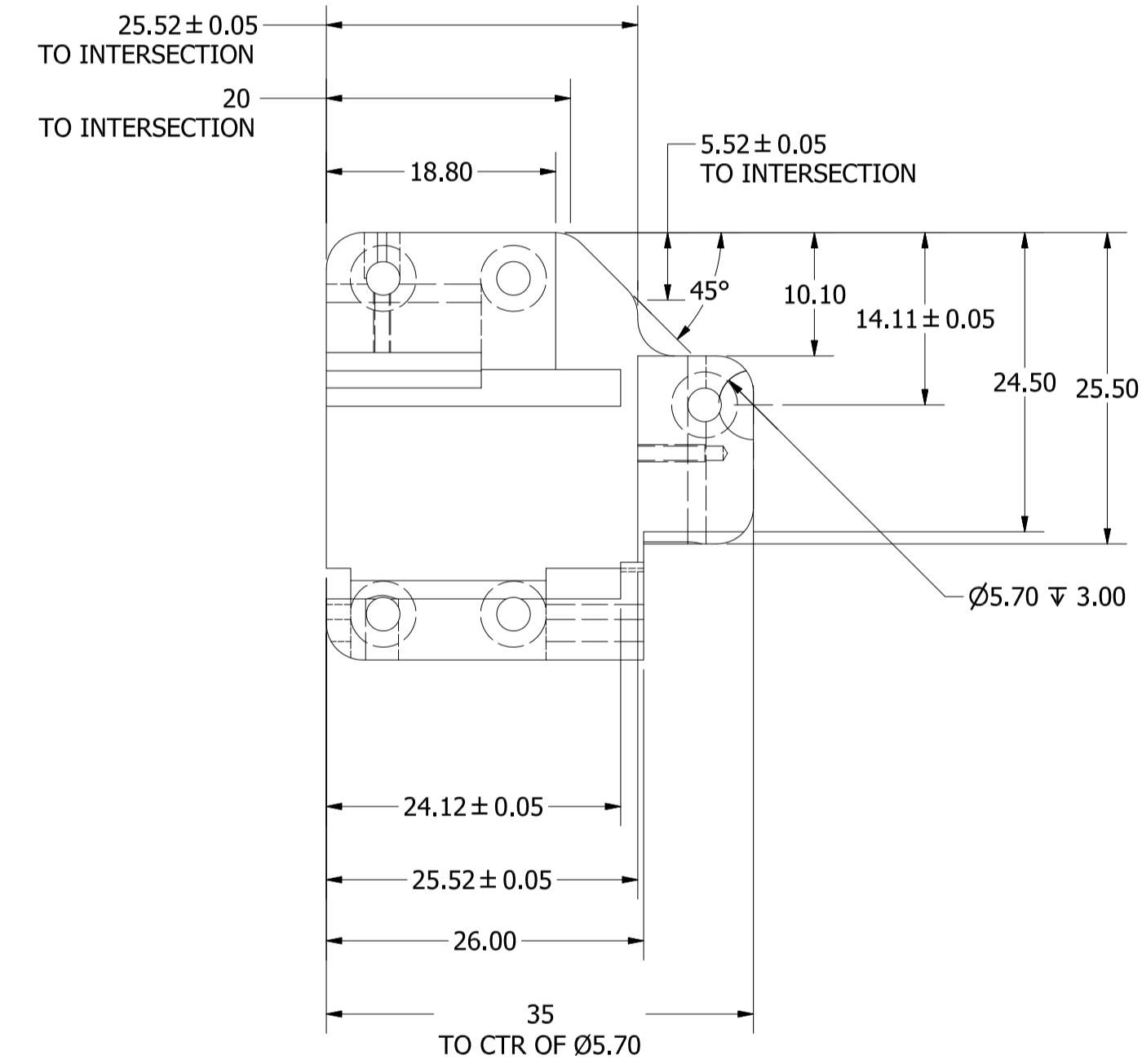
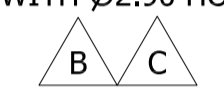
SCALE 1 : 1



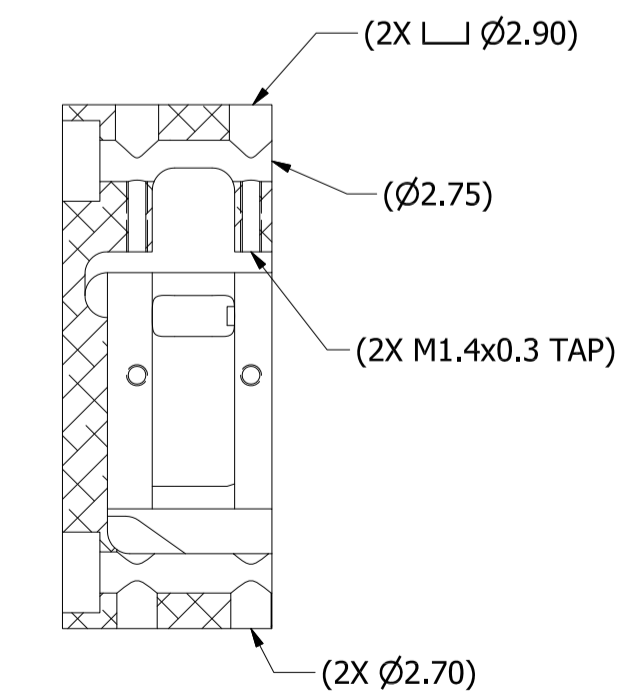
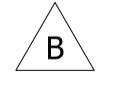
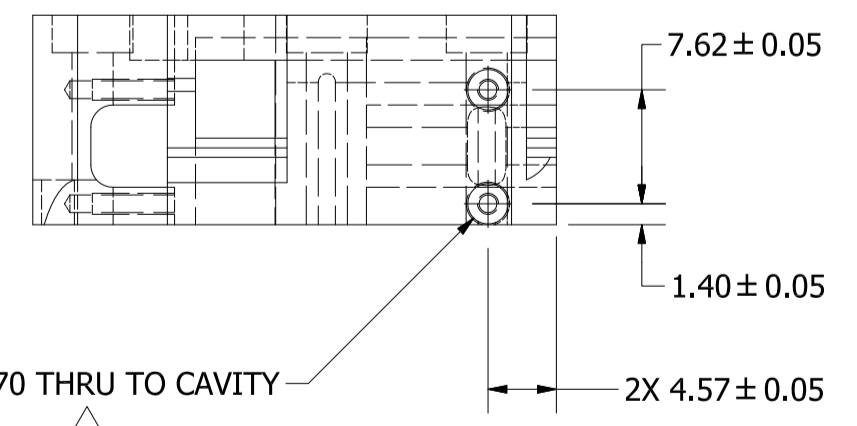
SCALE 1 : 1



2X \perp $\phi 2.90 \begin{smallmatrix} +0.10 \\ -0.03 \end{smallmatrix}$ TO CENTER LINE OF $\phi 2.75$ HOLE.
 $\phi 1.10 \begin{smallmatrix} +0.08 \\ -0.03 \end{smallmatrix}$ THRU IN LINE WITH $\phi 2.90$ HOLES FROM OTHER SIDE.
 M1.4x0.3 - 6H THRU IN LINE WITH $\phi 2.90$ HOLES FROM OTHER SIDE.



SECTION A-A

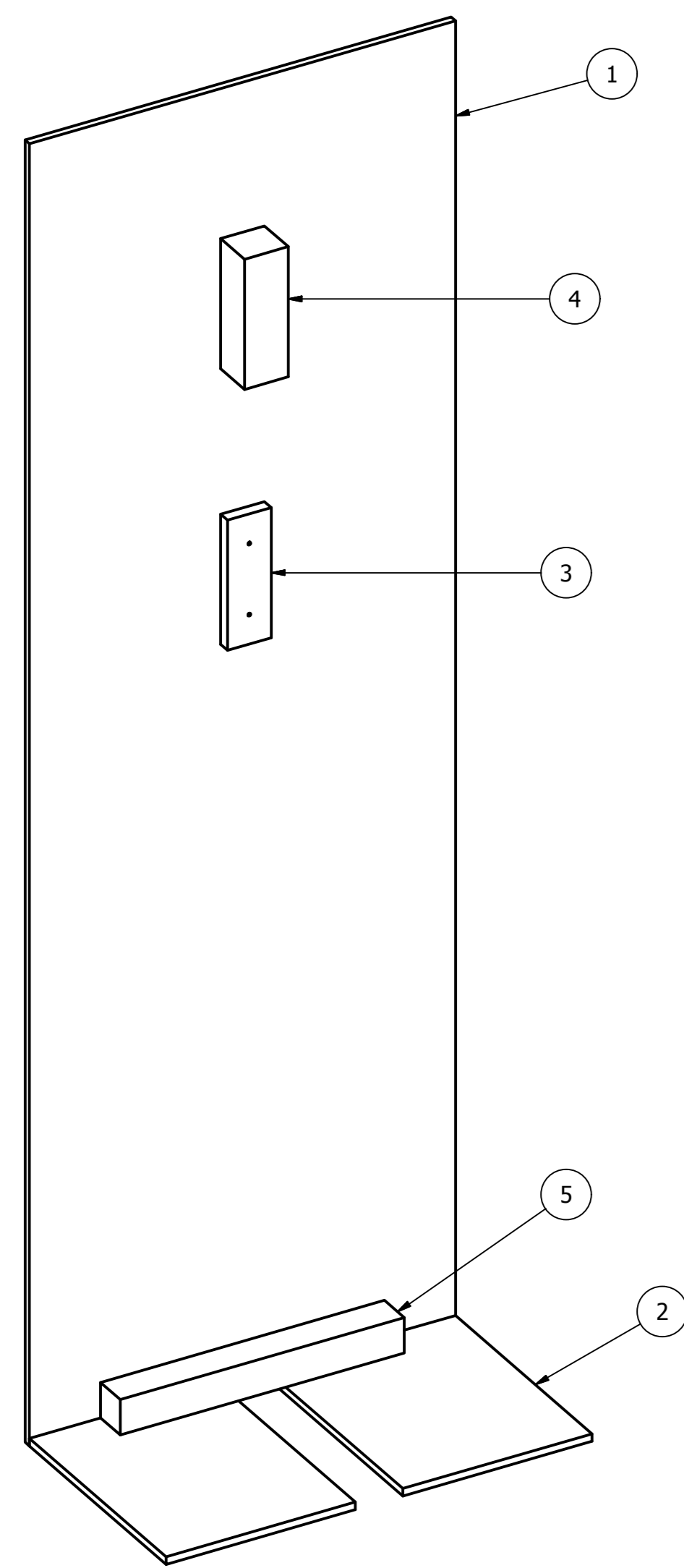


SECTION B-B

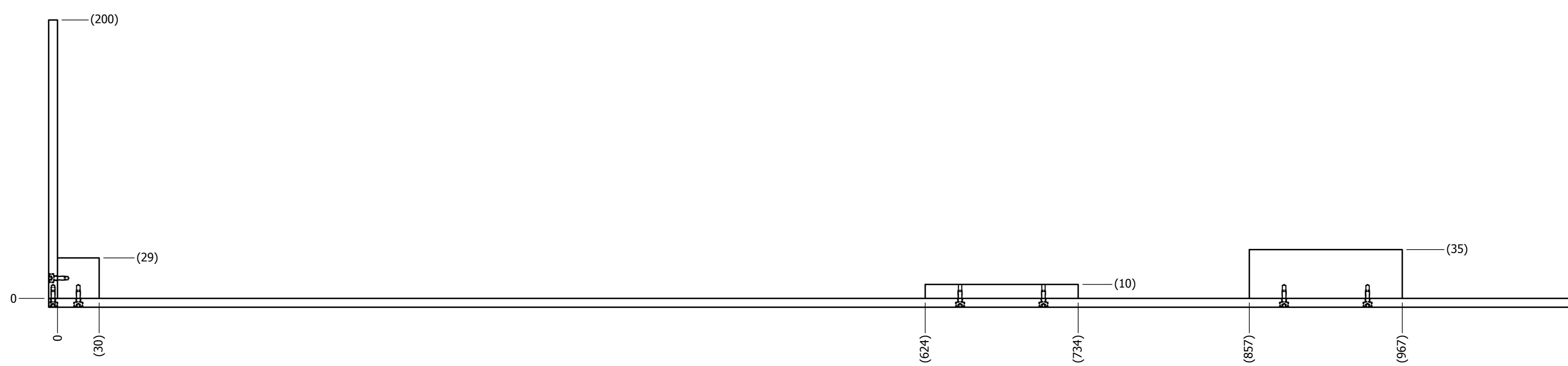
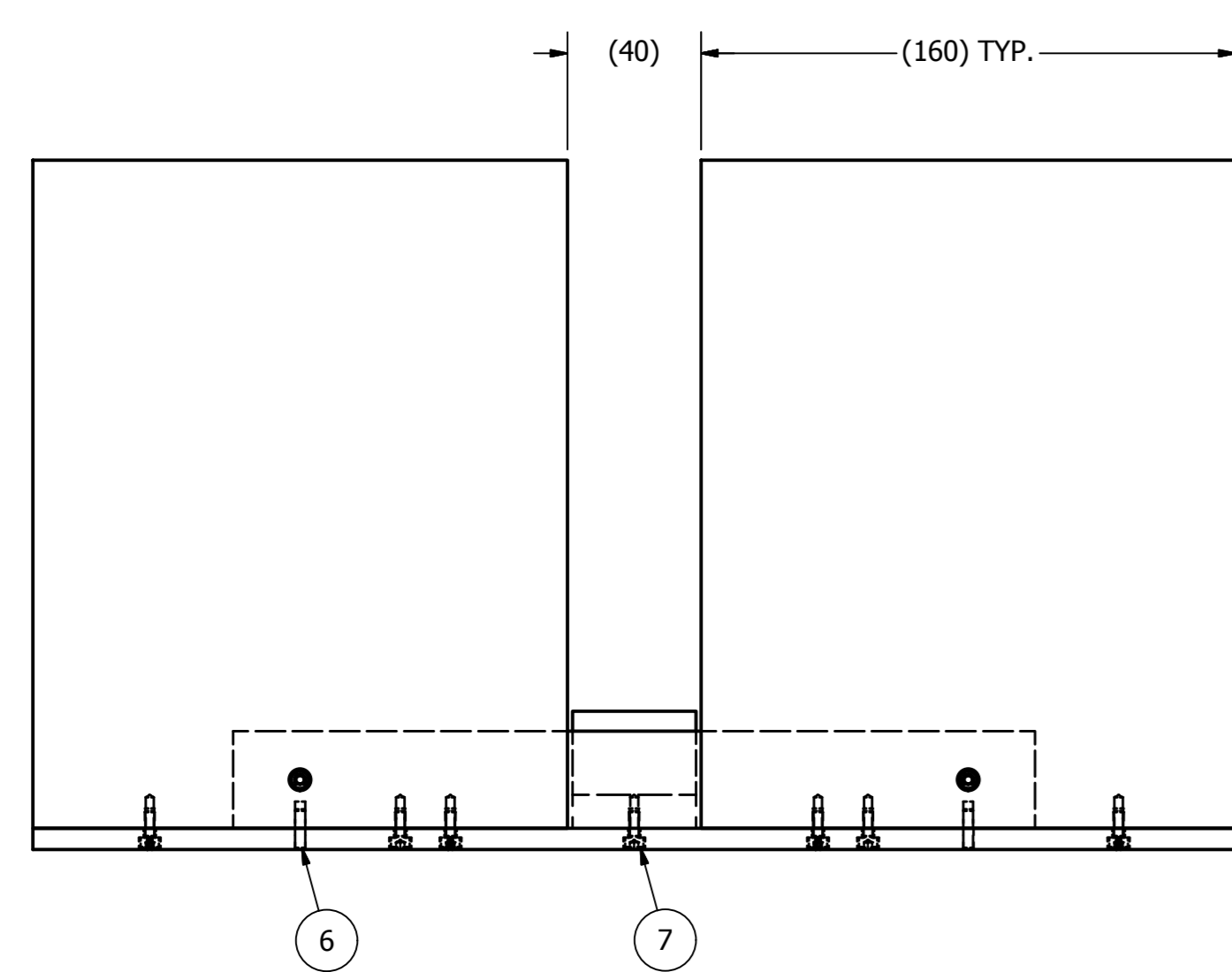
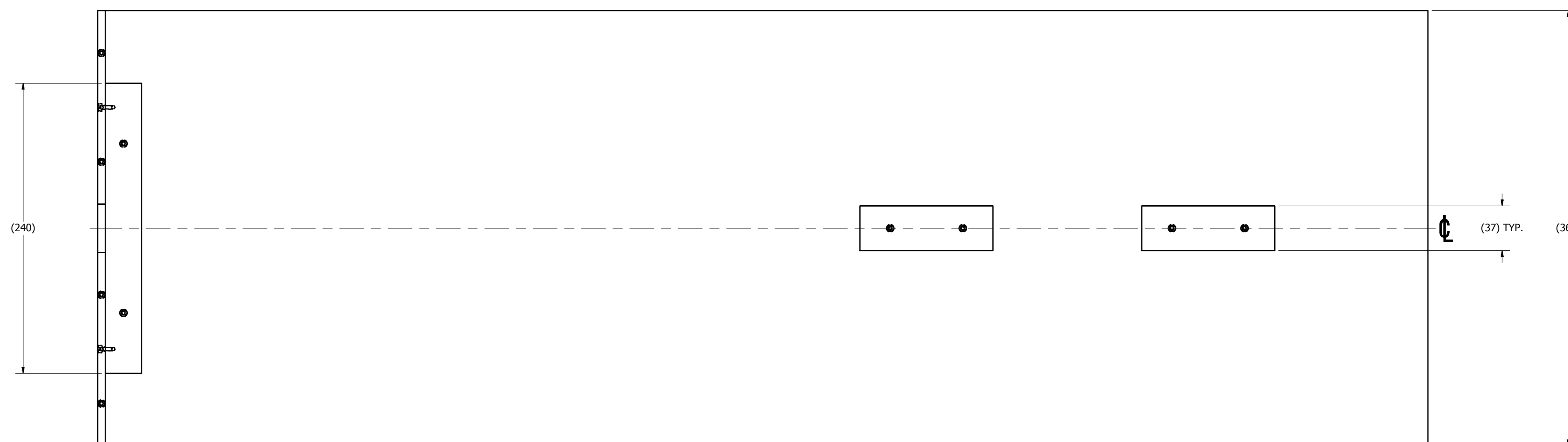
NOTES:
 1. ENGRAVE AS SHOWN 2mm HIGH CHARACTERS. MUST BE BELOW FLUSH.

<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</small> DECIMAL: X ±.2, XX ±.1, XXX ±.05 MACHINED ANGLES: ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING MATERIAL: 7075-T6 ALUMINUM HEAT TREAT: ENG FINISH: CLEAR ANODIZE	VEHICLE RESEARCH and TEST CENTER APPROVALS: S. GOLDNER DATE: 18-M-11	 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION BLOCK ACCEL MT 7264 DTS-ARS Q3s PELVIS
	CHECKED: [] ENG: [] APPROVED: []	SIZE: A1 DRAWING NUMBER: SA572-S47 SCALE: 2:1 SHEET: 1 OF 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENGR.	DATE
71539	A	RELEASE TO PRODUCTION	AB		09/18/13
73485	B	REDRAWN IN INVENTOR; UPDATE SCALE CALLOUTS TO CURRENT STANDARDS; (7075-T6 ALUMINUM) WAS 7075-T6 ALUMINUM	AB		02/26/14
74656	C	REGULATION RELEASE	GCH		12/23/2015



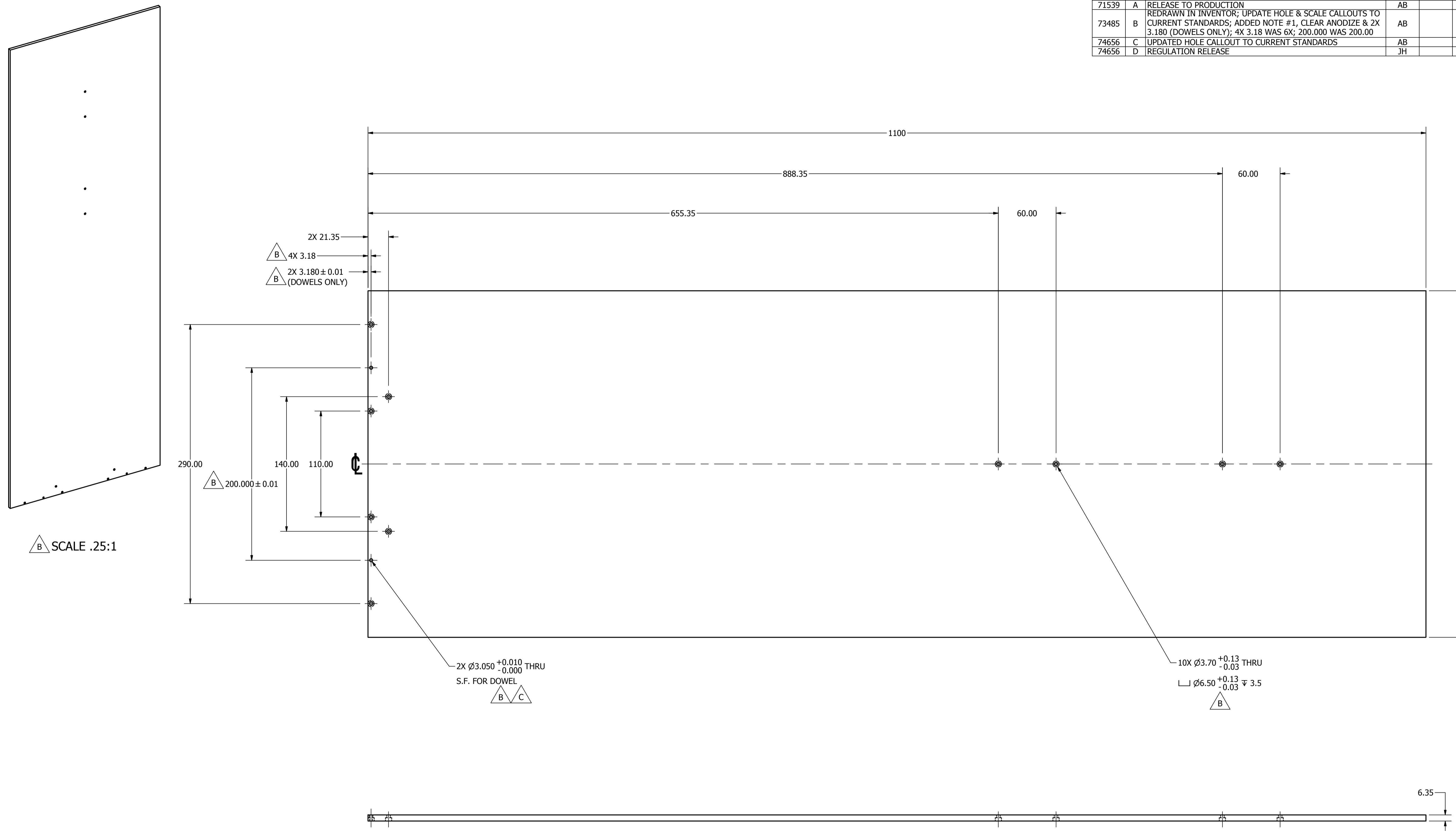
SCALE .25 : 1



ITEM	QTY	PART NUMBER	DESCRIPTION
7	12	5000388	M3 X 0.5 X 8 LG. SHCS
6	2	5000381	M3 X 12 LG. DOWEL PIN SS
5	1	020-9010-5	HEEL SPACER Q3s HT FIX
4	1	020-9010-4	HEEL SPACER Q3s HT FIX
3	1	020-9010-3	CABLE GUIDE SPACER Q3s HT FIX
2	2	020-9010-2	FOOTBOARD Q3s HT FIX
1	1	020-9010-1	BASE Q3s HT FIX

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS. TOLERANCES ARE:			
DRAWN: 10-24-13 CHECKED: 10-24-13 MATERIAL: 7075-T6 ALUMINUM FINISH: ANODIZED	APPROVALS: [Signature] DATE: 10-24-13	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION HEIGHT MEAS. FIXTURE Q3s	PARTS LIST ITEM QTY PART NUMBER DESCRIPTION

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENGR.	DATE
71539	A	RELEASE TO PRODUCTION	AB		09/18/13
73485	B	REDRAWN IN INVENTOR; UPDATE HOLE & SCALE CALLOUTS TO CURRENT STANDARDS; ADDED NOTE #1, CLEAR ANODIZE & 2X 3.180 (DOWELS ONLY); 4X 3.18 WAS 6X; 200.000 WAS 200.00	AB		02/26/14
74656	C	UPDATED HOLE CALLOUT TO CURRENT STANDARDS	AB		12/23/15
74656	D	REGULATION RELEASE	JH		1/4/2016

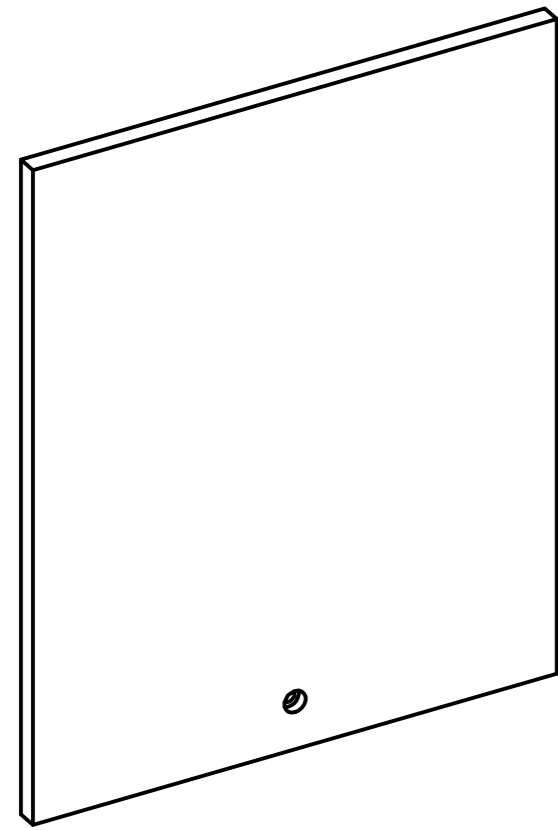


SCALE .25:1

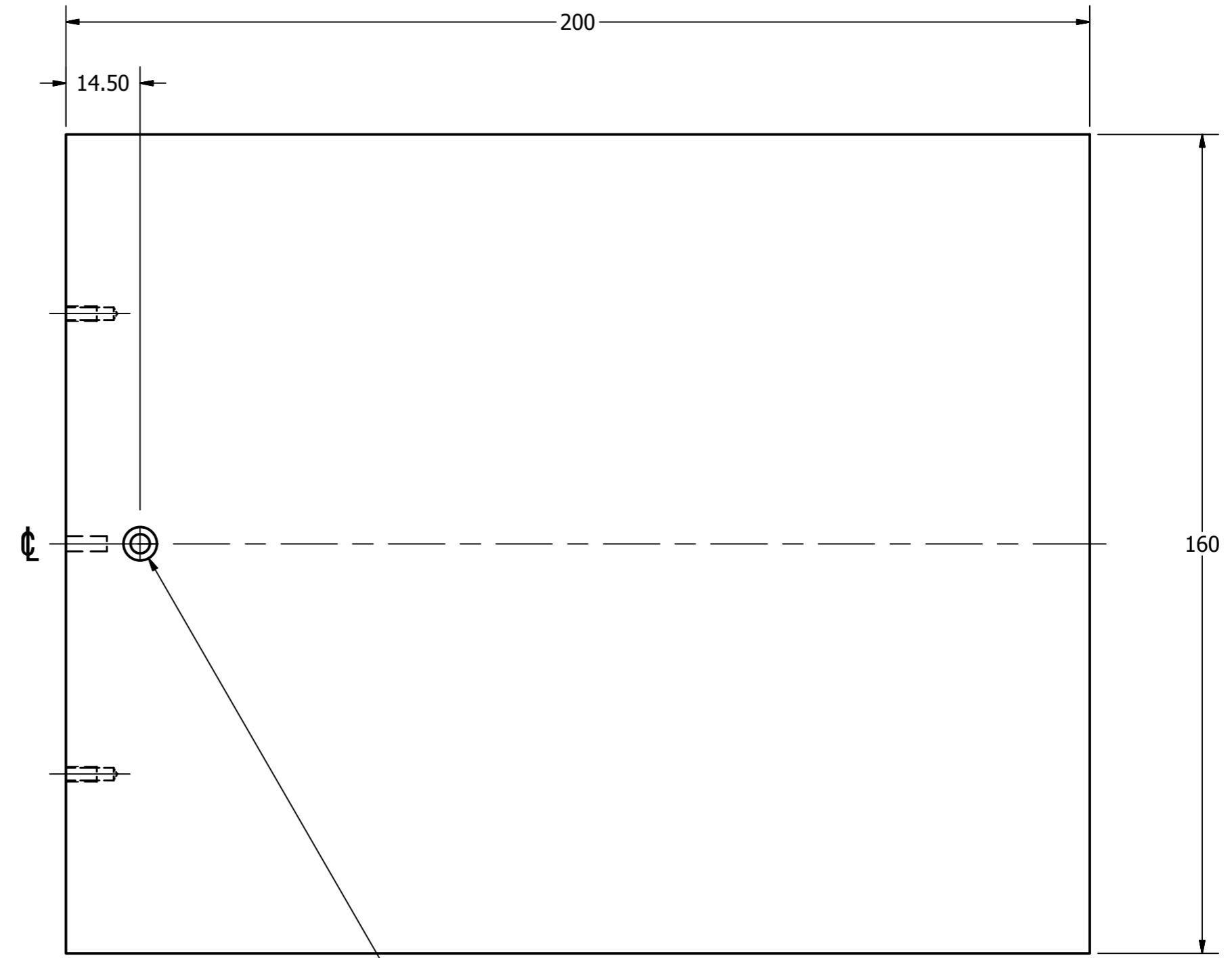
NOTES:
1. DIMENSIONS ARE SYMMETRICAL ABOUT ϕ UNLESS OTHERWISE STATED.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X.X ±.2, X.XX ±.1 ANGLES: ±.5° MACHINED: X.X ±.2, X.XX ±.1	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS: S.J.G. DATE: 7/19/2013	BASE Q3s HT FIX	
MATERIAL: 7075-T6 ALUMINUM HEAT TREAT:	DRAWN: S.J.G. CHECKED:	SIZE: A1 DRAWING NUMBER: 020-9010-1 SCALE: .5:1	REV: D SHEET: 1 OF 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
71539	A	RELEASE TO PRODUCTION	AB		09/18/13
73485	B	REDRAWN IN INVENTOR; UPDATE HOLE & SCALE CALLOUTS TO CURRENT STANDARDS; ADDED NOTE #1, CLEAR ANODIZE & 3.180 (DOWELS ONLY); 2X 3.18 WAS 3X	AB		02/26/14
74656	C	UPDATED HOLE CALLOUTS TO CURRENT STANDARDS	AB		12/23/15
74656	D	REGULATION RELEASE	JH		1/4/2016

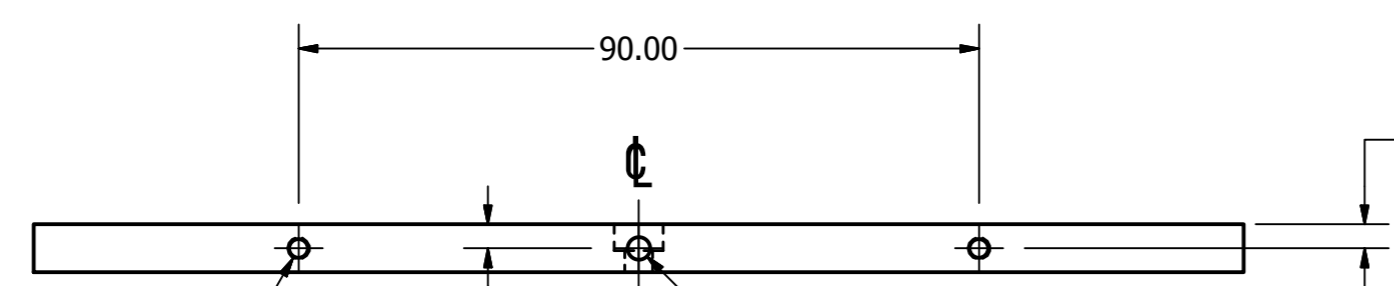


SCALE .5:1



$\varnothing 3.70^{+0.13}_{-0.03}$ THRU

$\varnothing 6.50^{+0.13}_{-0.03}$ 3.5



2X $\varnothing 2.50^{+0.10}_{-0.03}$ 9.3 MAX.
M3x0.5 TAP 6.0 MIN.



3.180 ± 0.01
(DOWEL ONLY)



$\varnothing 3.000^{+0.000}_{-0.010}$ 8.0
P.F. FOR DOWEL



NOTES:
1. DIMENSIONS ARE SYMMETRICAL ABOUT \varnothing UNLESS OTHERWISE STATED.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:

DECIMAL -	MACHINED
X ±.5	✓
XX ±.2	✓
XXX ±.1	✓
	ANGLES ±.5°

ASME Y14.5M - 1994
DO NOT SCALE DRAWING

MATERIAL 7075-T6 ALUMINUM	CHECKED
HEAT TREAT	ENG
FINISH CLEAR ANODIZE	APPROVED

VEHICLE RESEARCH and TEST CENTER	
APPROVALS	DATE
DRAWN SJK	7/19/2013
CHECKED	
ENG	
APPROVED	

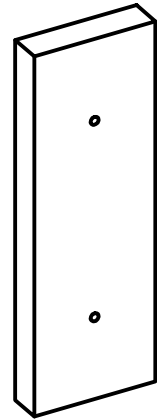
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

FOOTBOARD Q3s HT FIX

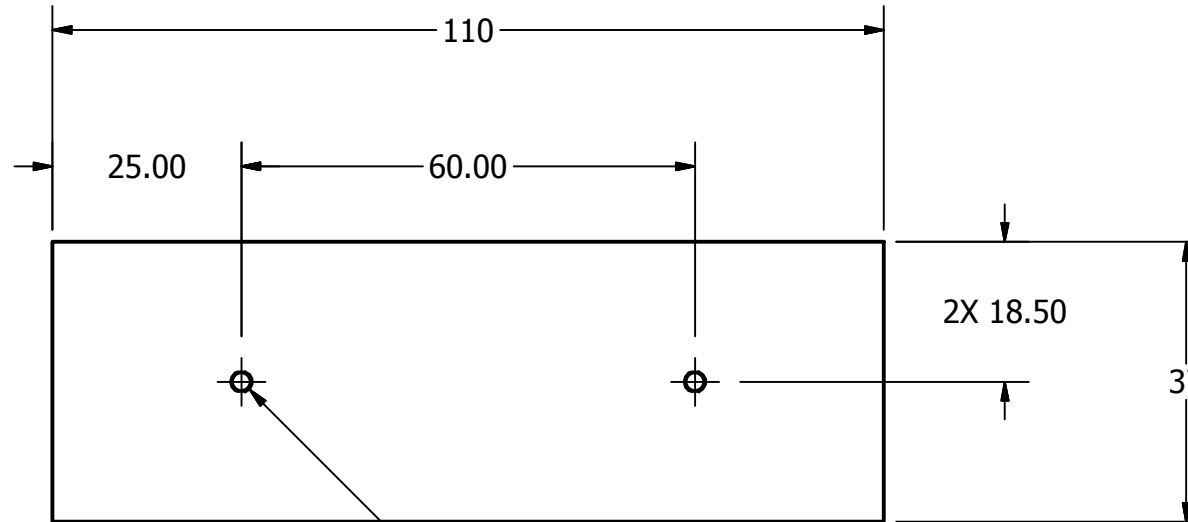
SIZE A2	DRAWING NUMBER 020-9010-2	REV D
SCALE: 1:1	SHEET 1	OF 1

THIRD ANGLE PROJECTION

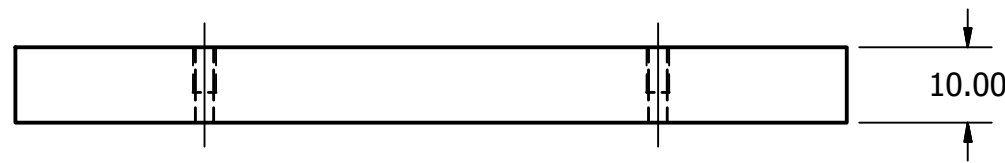
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
71539	A	RELEASE TO PRODUCTION	AB		09/18/13
73485	B	REDRAWN IN INVENTOR; UPDATE HOLE & SCALE CALLOUT TO CURRENT STANDARDS; ADDED CLEAR ANODIZE	AB		02/26/14
74656	C	REGULATION RELEASE	GCH		12/23/2015


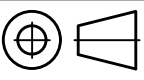


 SCALE .5 : 1



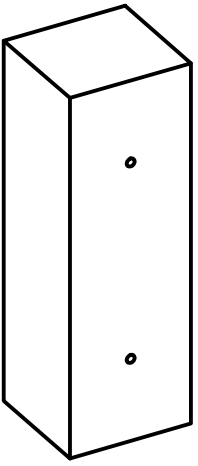
2X $\varnothing 2.50^{+0.10}_{-0.03}$ THRU
M3x0.5 TAP $\nabla 6$



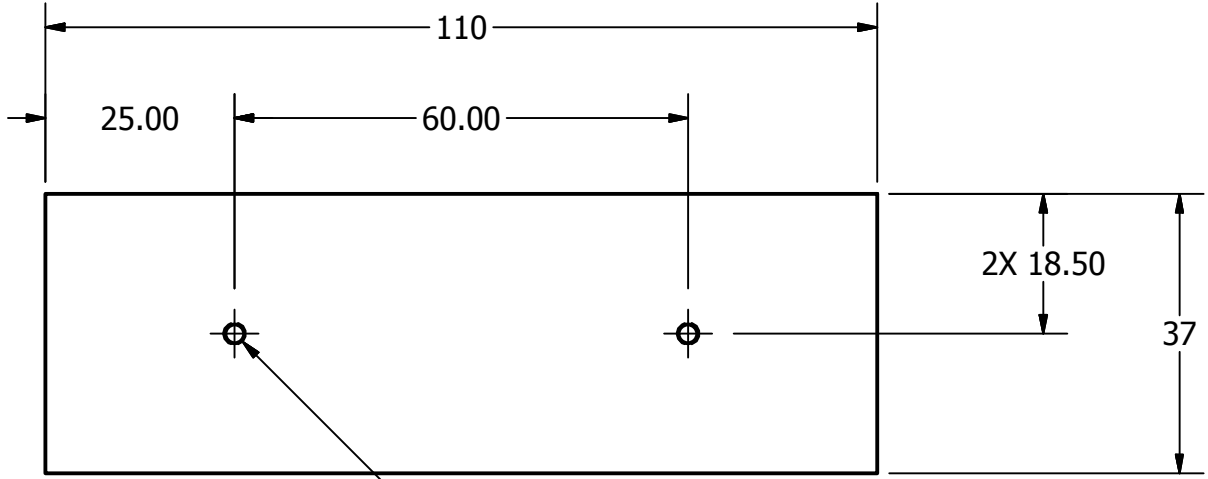
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ✓ ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN: SJG CHECKED: ENG: APPROVED:	DATE 19-Jul-13	
MATERIAL: 7075-T6 ALUMINUM HEAT TREAT: FINISH: CLEAR ANODIZE	 THIRD ANGLE PROJECTION	SIZE: A3 SCALE: 1 : 1	DRAWING NUMBER: 020-9010-3 SHEET: 1 OF 1 REV: C



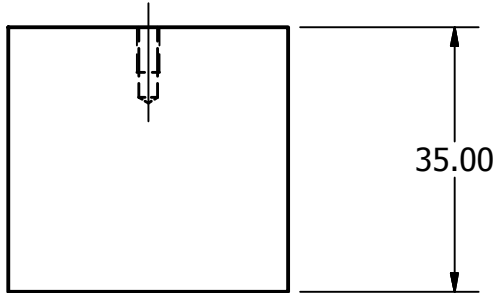
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
71539	A	RELEASE TO PRODUCTION	AB		09/18/13
73485	B	REDRAWN IN INVENTOR; UPDATE HOLE & SCALE CALLOUT TO CURRENT STANDARDS; ADDED CLEAR ANODIZE	AB		02/26/14
74656	C	REGULATION RELEASE	GCH		12/23/2015



SCALE .5 : 1



2X $\varnothing 2.50^{+0.10}_{-0.03}$ $\nabla 9.3$
M3x0.5 TAP $\nabla 6$



UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:

DECIMAL: X ±.5
XX ±.2
X.XX ±.1

MACHINED ANGLES ±.5°

ASME Y14.5M - 1994
DO NOT SCALE DRAWING



VEHICLE RESEARCH
and TEST CENTER



NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

APPROVALS DATE

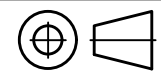
HEAD SPACER Q3s HT FIX

DRAWN SJG 19-Jul-13

CHECKED

ENG

APPROVED

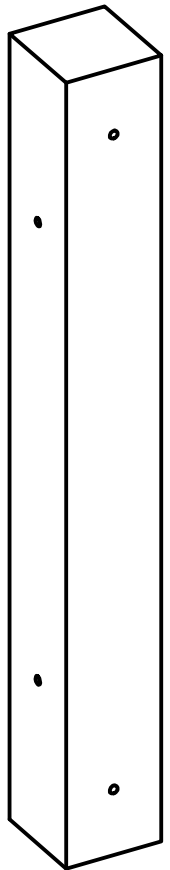


THIRD ANGLE
PROJECTION

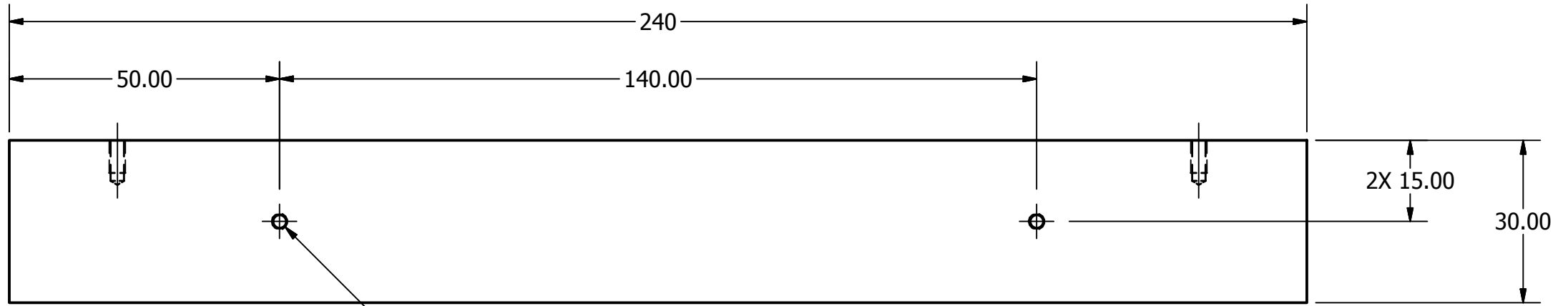
SIZE A3 DRAWING NUMBER 020-9010-4 REV C

SCALE: 1 : 1 SHEET 1 OF 1

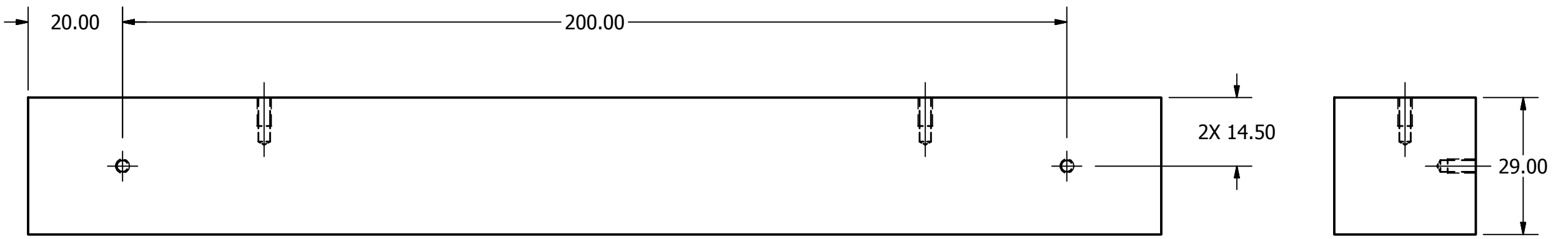
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
71539	A	RELEASE TO PRODUCTION	AB		09/18/13
73485	B	REDRAWN IN INVENTOR; UPDATE HOLE & SCALE CALLOUTS TO CURRENT STANDARDS; ADDED CLEAR ANODIZE	AB		02/26/14
74656	C	REGULATION RELEASE	GCH		12/23/2015



SCALE .5 : 1

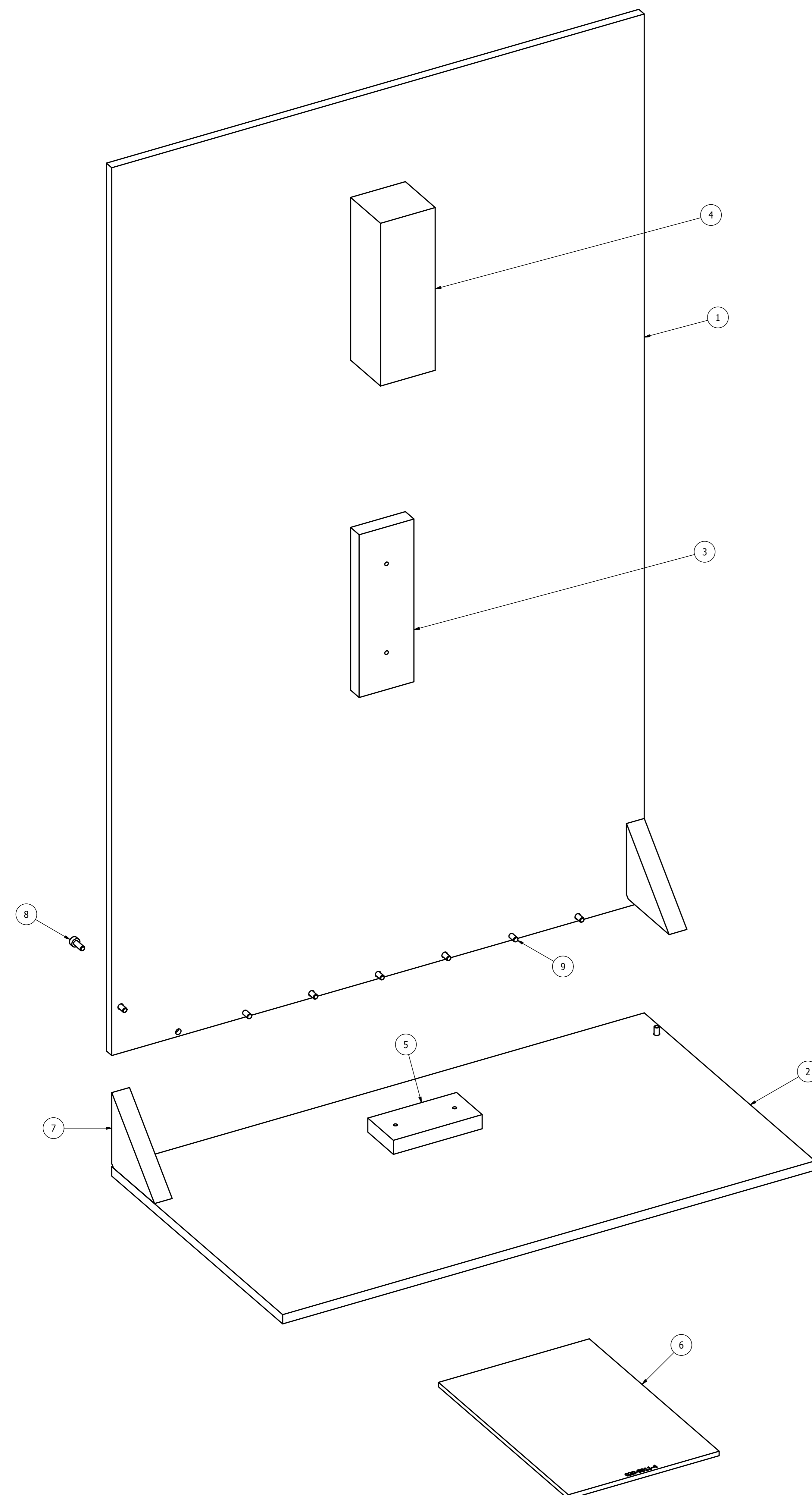


4X $\varnothing 2.50^{+0.10}_{-0.03}$ $\nabla 6.3$
 M3x0.5 TAP $\nabla 6$

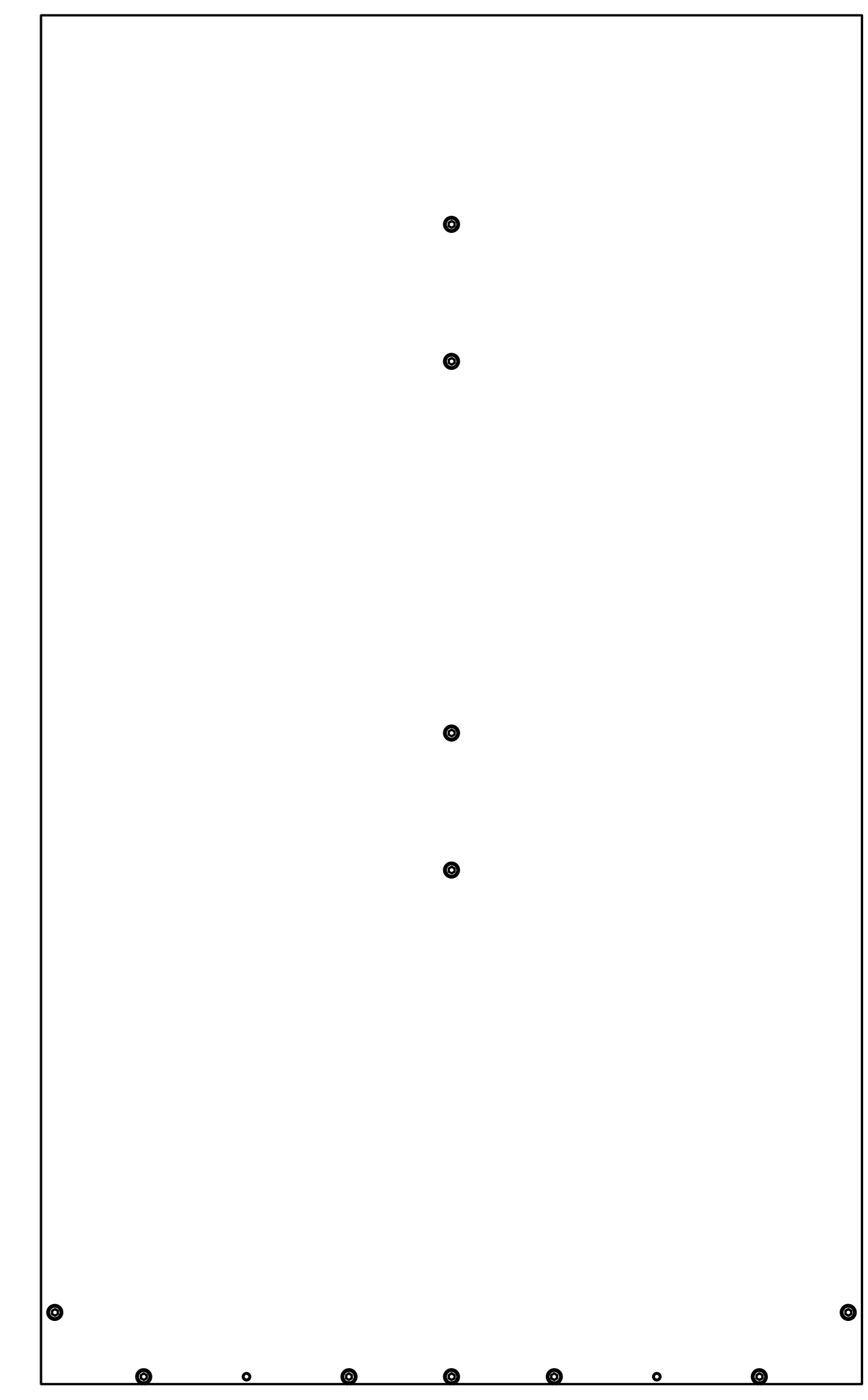
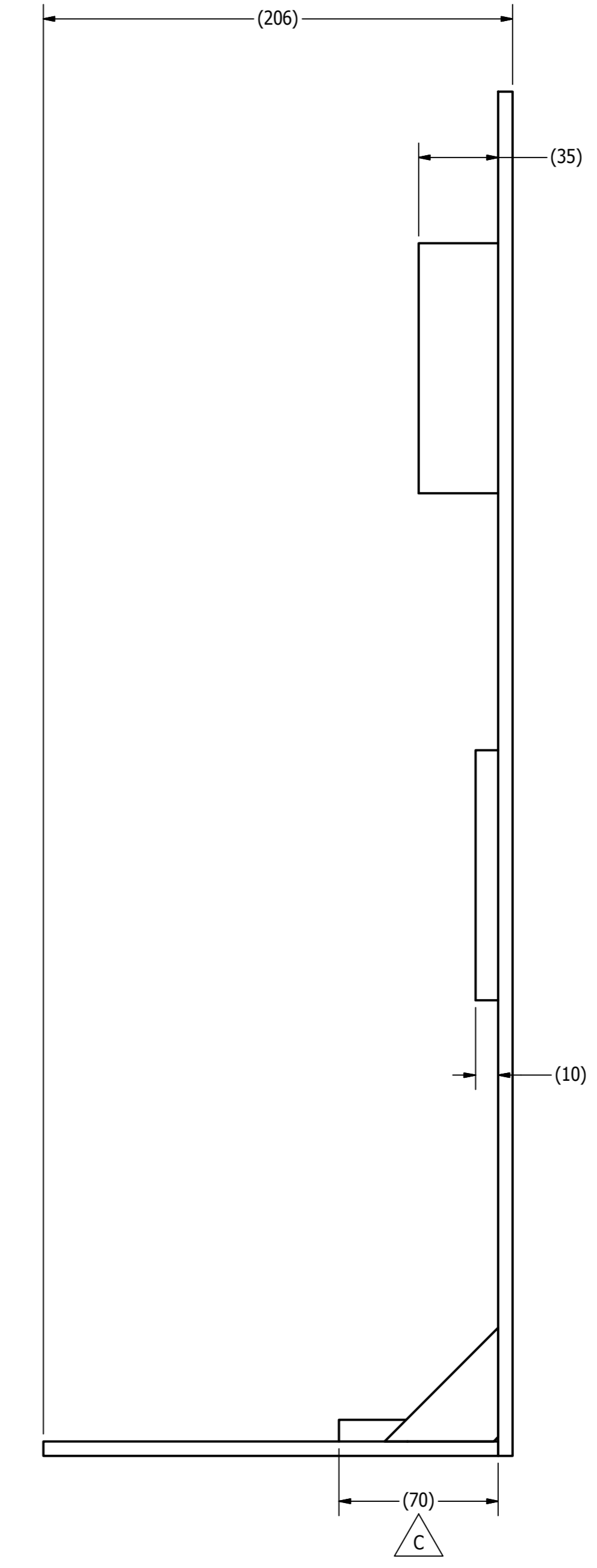
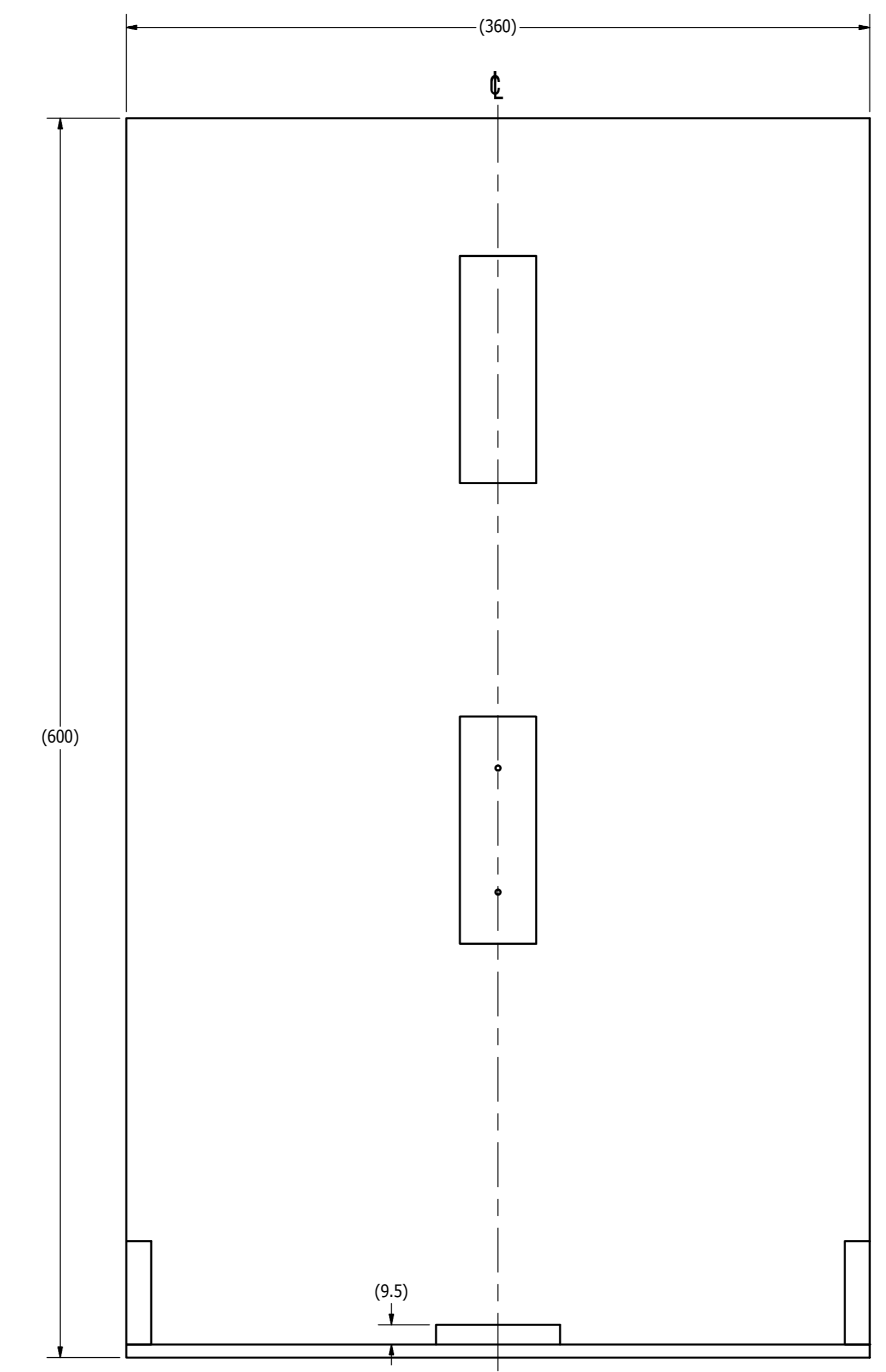


UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 ✓ XX ±.2 ✓ X.XX ±.1 ✓ ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN SJG	DATE 19-Jul-13	
MATERIAL 7075-T6 ALUMINUM	CHECKED	SIZE A3	DRAWING NUMBER 020-9010-5
HEAT TREAT	ENG	 THIRD ANGLE PROJECTION	REV C
FINISH CLEAR ANODIZE	APPROVED	SCALE: 1 : 1	SHEET 1 OF 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENGR.	DATE
71540	A	RELEASE TO PRODUCTION	AB		7/19/13
73485	B	REDRAWN IN INVENTOR	AB		03/06/14
74656	C	(70) WAS (76)	AB		01/05/16
74656	D	REGULATION RELEASE	GCH		01/11/2016



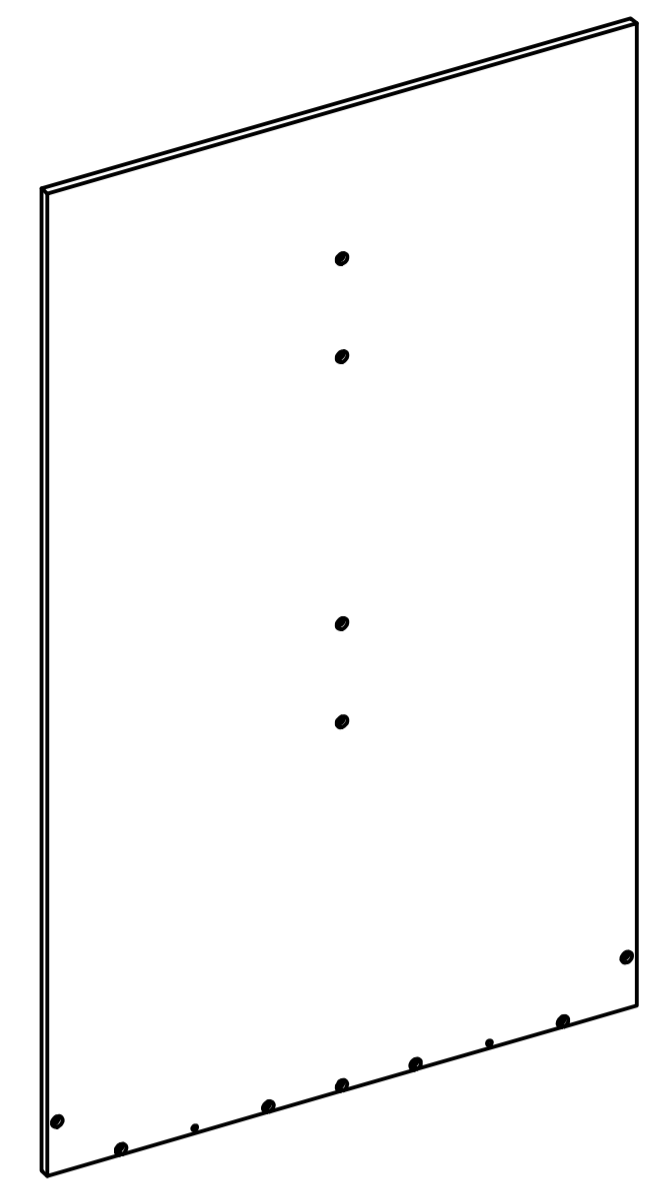
SCALE .75 : 1



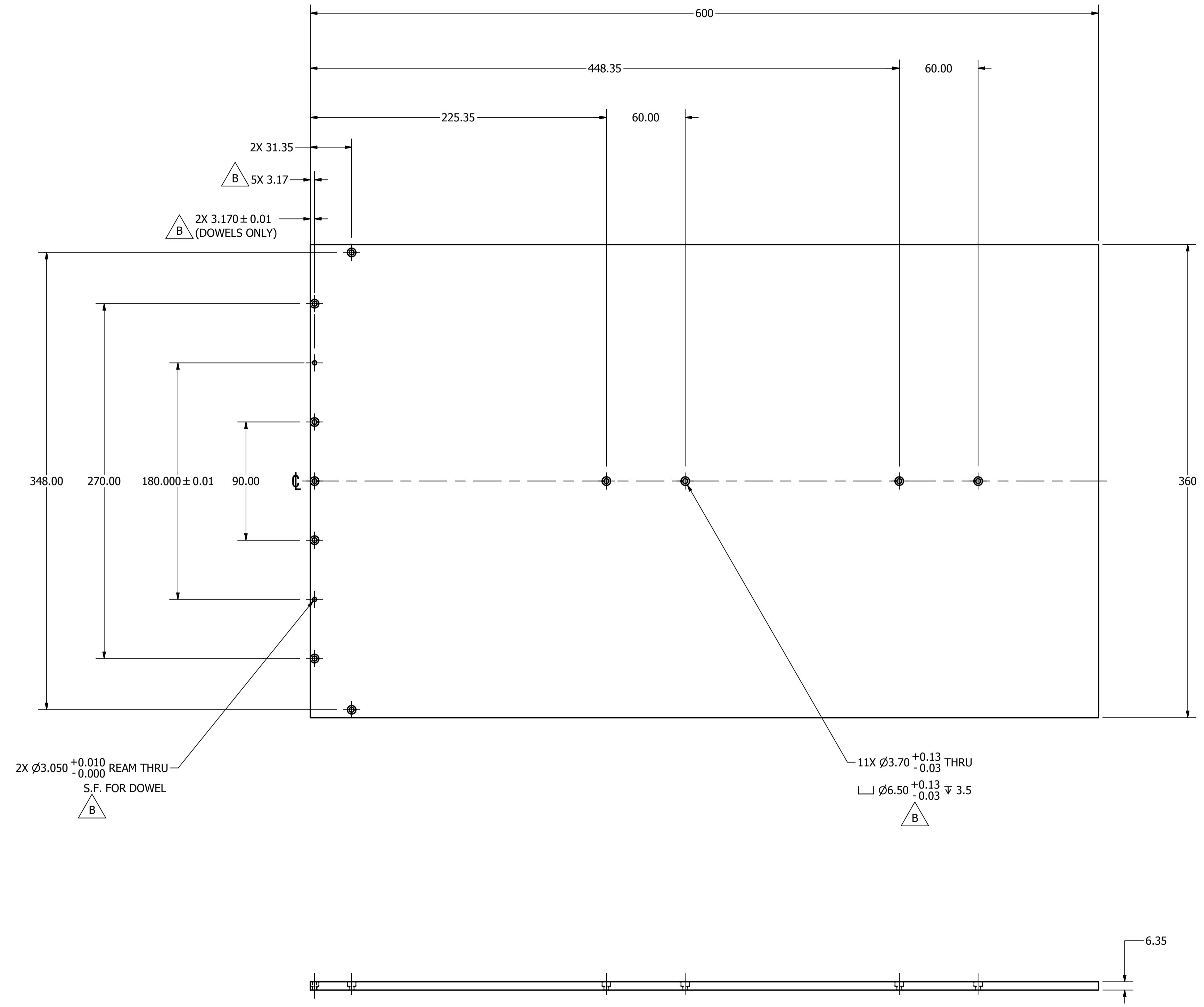
ITEM	QTY	PART NUMBER	DESCRIPTION
9	2	5000381	M3 X 12 LG. DOWEL PIN SS
8	15	5000388	M3 X 0.5 X 8 LG. SHCS
7	2	020-9011-5	BRACE
6	1	020-9011-4	FOOT MEASUREMENT PLATE
5	1	020-9011-3	MEASUREMENT SEAT PELVIS SPACER Q3s
4	1	020-9010-4	HEAD SPACER Q3s HT FIX
3	1	020-9010-3	CABLE GUIDE SPACER Q3s HT FIX
2	1	020-9011-2	MEASUREMENT SEAT PAN Q3s
1	1	020-9011-1	MEASUREMENT SEAT BACK Q3s

<small>UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS. TOLERANCES ARE:</small> DECIMALS: .1, .2, .3, .4, .5, .6, .7, .8, .9, 1.0, 1.2, 1.5, 2.0, 3.0, 4.0, 5.0, 6.0, 8.0, 10.0, 12.5, 15.0, 20.0, 25.0, 30.0, 40.0, 50.0, 60.0, 80.0, 100.0 ANGLES: .1°, .2°, .3°, .4°, .5°, .6°, .8°, 1.0°, 1.5°, 2.0°, 3.0°, 4.0°, 5.0°, 6.0°, 8.0°, 10.0°, 15.0°, 20.0°, 30.0°, 45.0°, 60.0°, 90.0° DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER APPROVALS: _____ DATE: 7/18/2013 DRAWN: SIG CHECKED: _____ MATERIAL: _____ PART TREAT: _____ FINISH: _____	 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION MEASUREMENT SEAT Q3s TITLE: 020-9011 SHEET: 1 OF 1
---	--	---	--

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENGR.	DATE
71540	A	RELEASE TO PRODUCTION	AB		09/19/13
73485	B	REDRAWN IN INVENTOR; UPDATE HOLE & SCALE CALLOUTS TO CURRENT STANDARDS; ADDED CLEAR ANODIZE & 2X 3.170 (DOWELS ONLY); 5X 3.17 WAS 7X	AB		03/06/14
74656	C	REGULATION RELEASE	JH		1/5/2016



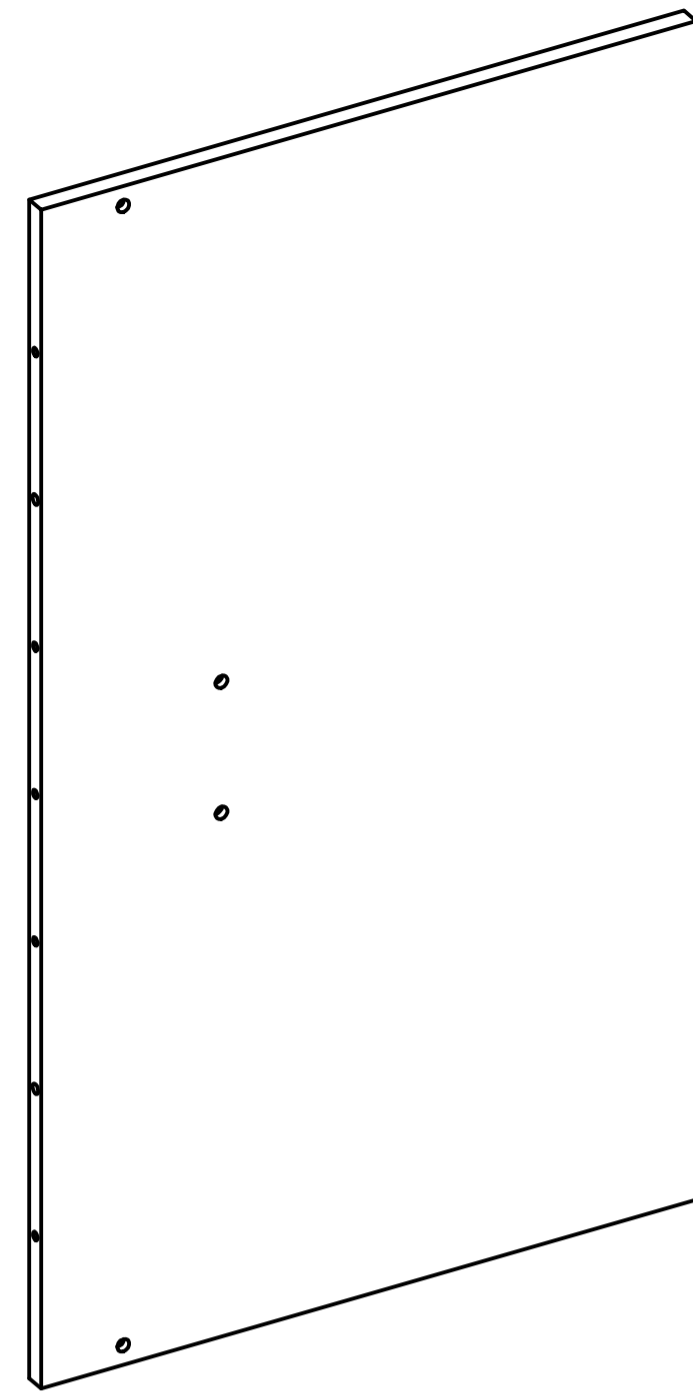
SCALE .25:1
B



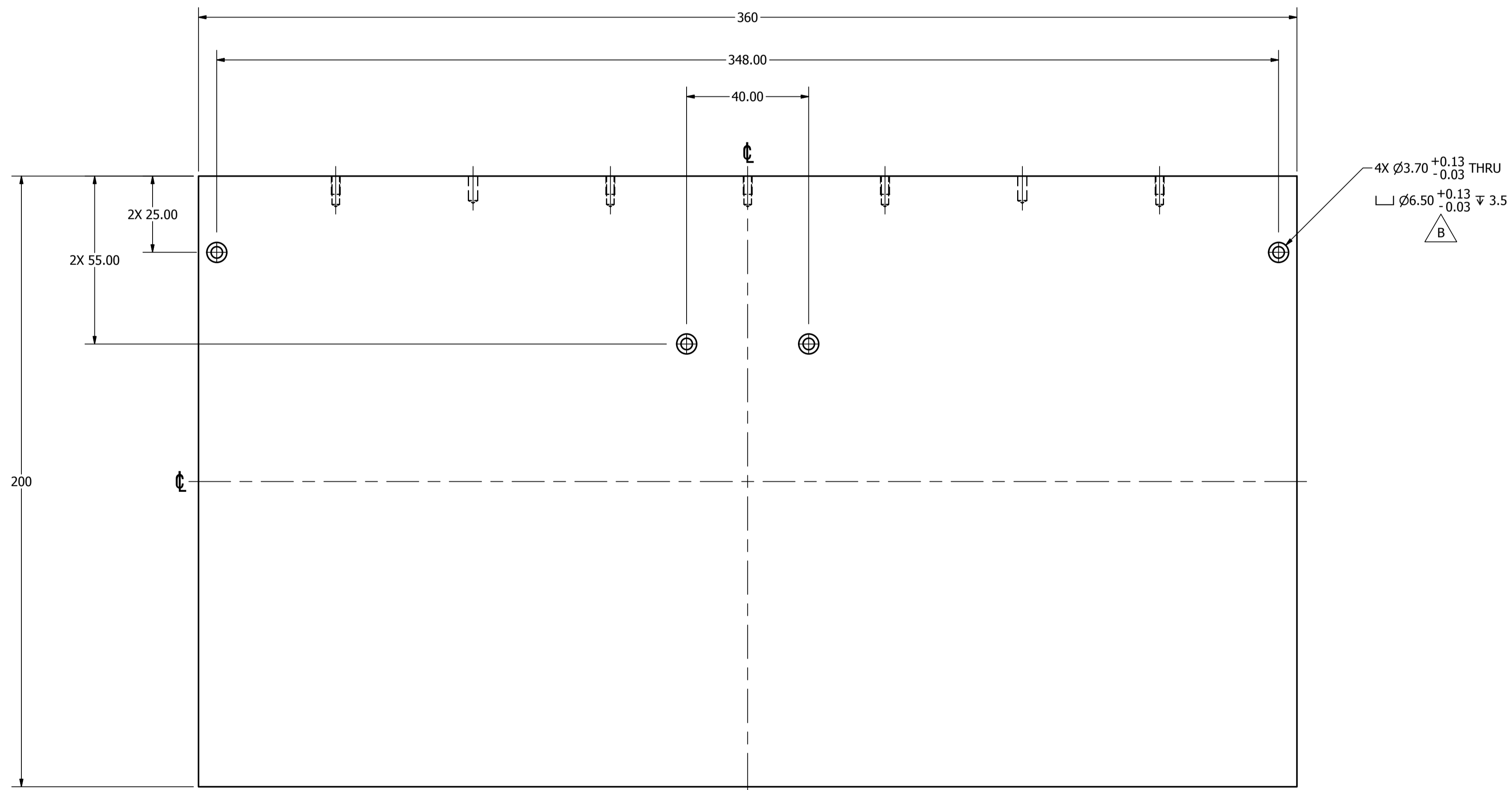
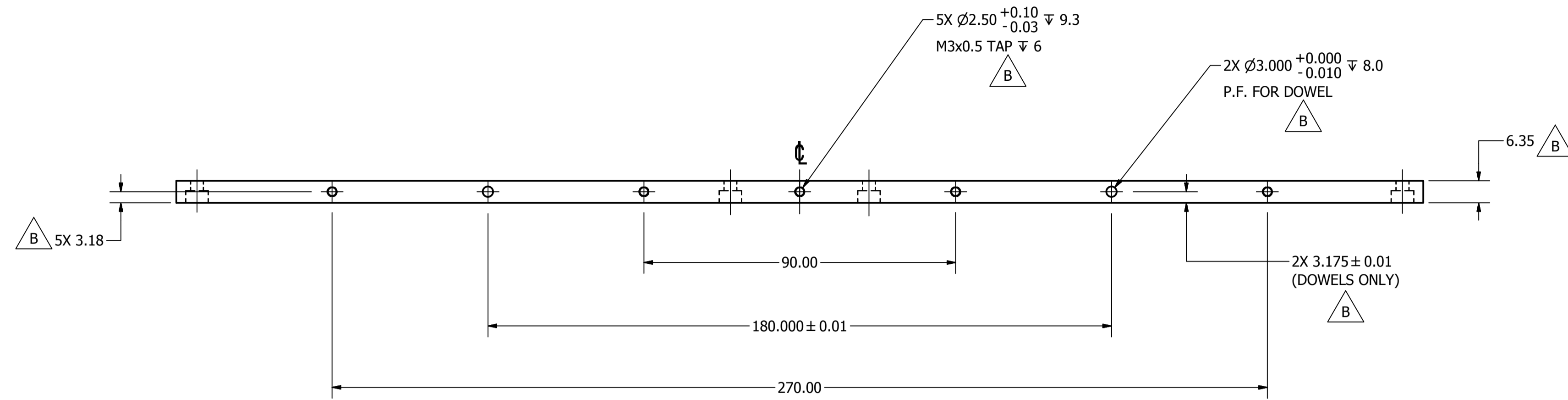
NOTES:
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE SPECIFIED.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: .125, .25, .375, .50, .75, 1.0 ANGLES: ±.5° MACHINED: .012, .025, .038, .050, .075, .100, .150, .200, .300, .400, .500, .750, 1.000 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS: [Signature]	DATE: 7/19/2013	
MATERIAL: 7075-T6 ALUMINUM	CHECKED: [Signature]	ENG: [Signature]	APPROVED: [Signature]
FINISH: CLEAR ANODIZE	SIZE: A1 DRAWING NUMBER: 020-9011-1		REV: C
SCALE: .5:1		SHEET 1 OF 1	

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENGR.	DATE
71540	A	RELEASE TO PRODUCTION	AB		9/19/13
73485	B	REDRAWN IN INVENTOR; UPDATE HOLE & SCALE CALLOUTS TO CURRENT STANDARDS; ADDED CLEAR ANODIZE & 2X 3.180 (DOWELS ONLY); 5X 3.18 WAS 7X; 6.35 WAS 6.350	AB		03/06/14
74656	C	UPDATED REV-B DESCRIPTION: "2X 3.175 (DOWELS ONLY)" WAS "2X 3.180 (DOWELS ONLY)"	AB		01/05/16
74656	D	REGULATION RELEASE	AB		01/06/16



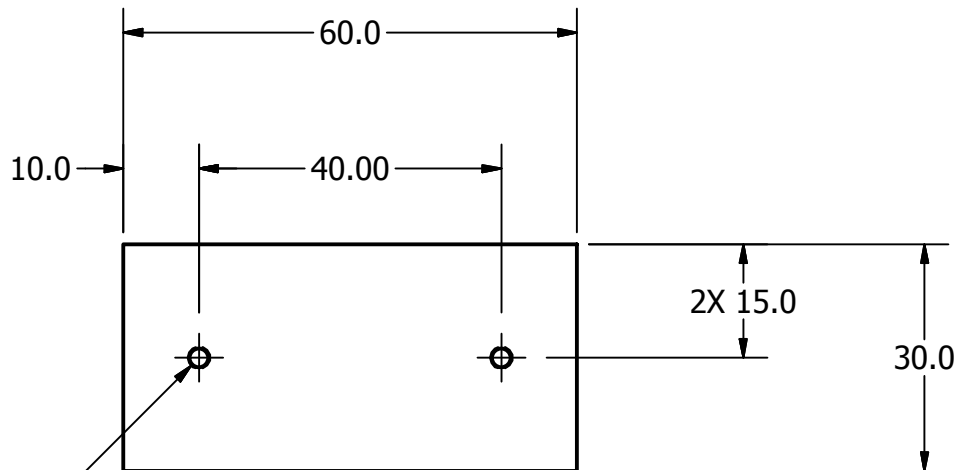
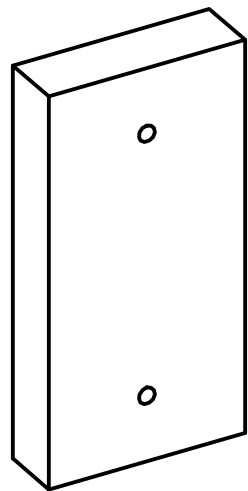
SCALE .5:1
B



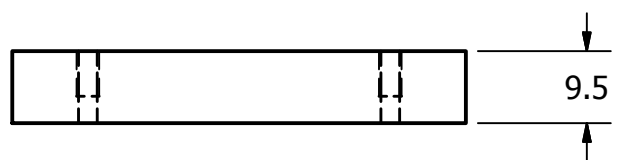
NOTES:
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE SPECIFIED.


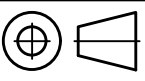
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: .1 XX .2 XXX .5 MACHINED ANGLES: ±.5°	VEHICLE RESEARCH and TEST CENTER APPROVALS: _____ DATE: 19-Jul-13 DRAWN: SJG CHECKED: _____ MATERIAL: 7075-T6 ALUMINUM HEAT TREAT: _____ FINISH: CLEAR ANODIZE		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION MEASUREMENT SEAT PAN Q3s
	SIZE: A1 DRAWING NUMBER: 020-9011-2 SCALE: 1:1 SHEET: 1 OF 1		REV: D

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
71540	A	RELEASE TO PRODUCTION	AB		9/19/13
73485	B	REDRAWN IN INVENTOR; UPDATE HOLE CALLOUT TO CURRENT STANDARDS: ADDED CLEAR ANODIZE	AB		03/06/14
74656	C	UPDATED HOLE CALL OUT TO CURRENT STANDARDS	JH		12/23/2015
74656	D	REGULATION RELEASE	JH		1/6/2016



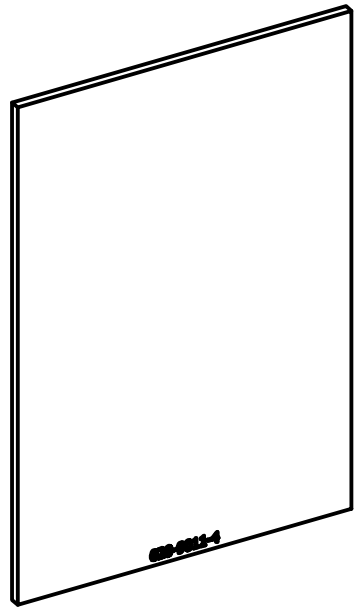
2X $\varnothing 2.50^{+0.10}_{-0.03}$ THRU
M3x0.5 - 6H ∇ 6.0 MIN.



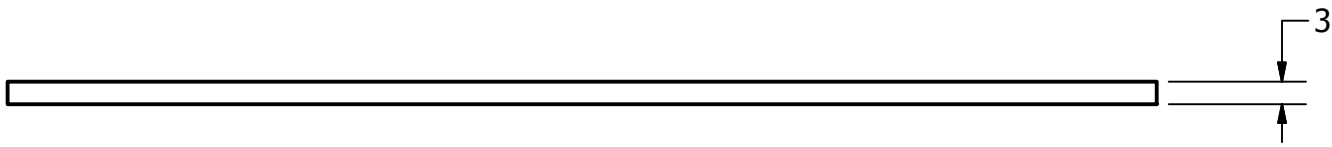
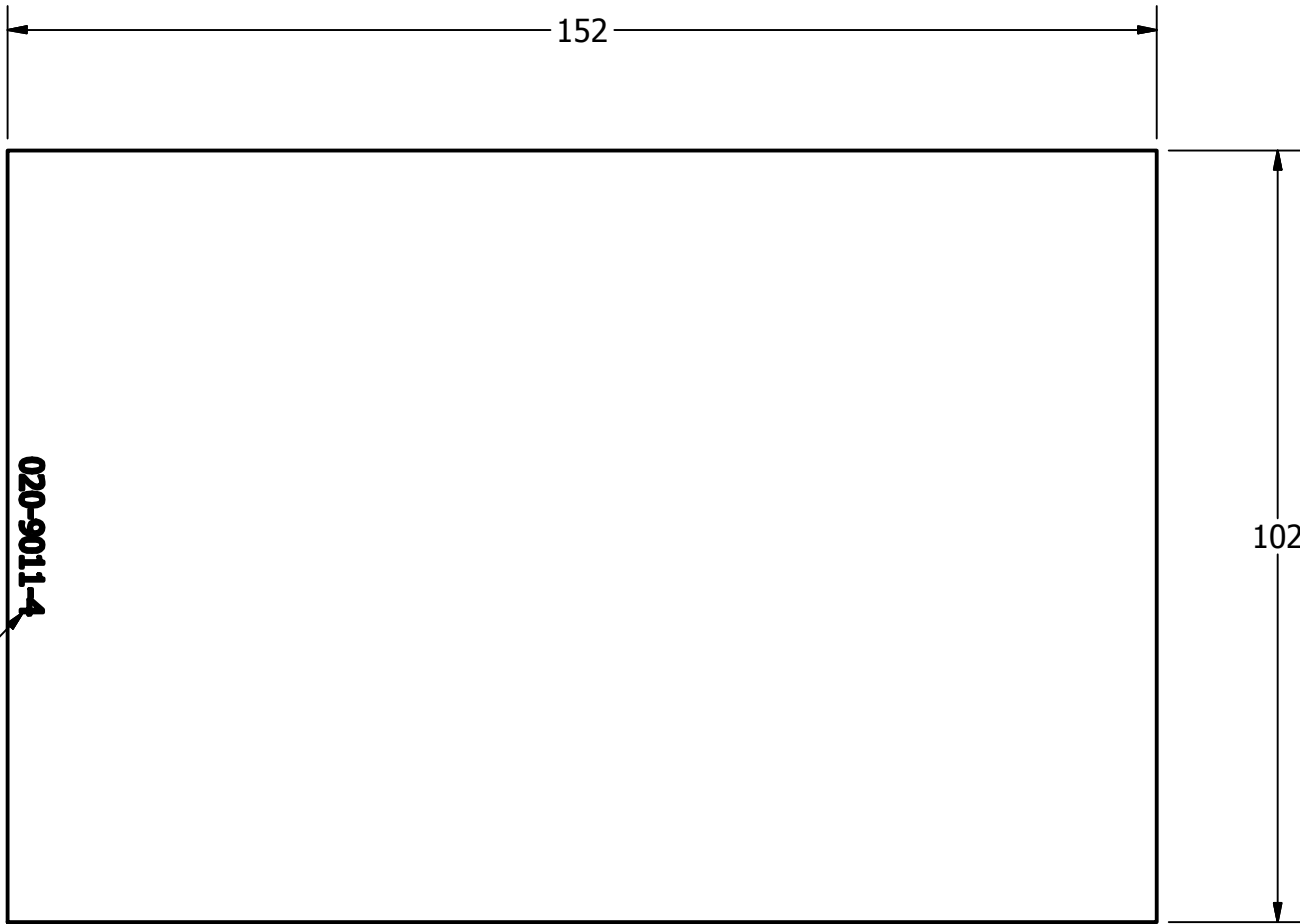
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 ✓ XX ±.2 ✓ XXX ±.1 ✓ ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN SJG	DATE 7/19/2013		MEASUREMENT SEAT PELVIS SPACER Q3s
MATERIAL 7075-T6 ALUMINUM	CHECKED ENG	SIZE A3	DRAWING NUMBER 020-9011-3	
HEAT TREAT FINISH CLEAR ANODIZE	APPROVED	 THIRD ANGLE PROJECTION	SCALE: 1:1	SHEET 1 OF 1



REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
71540	A	RELEASE TO PRODUCTION	SJG		7/19/13
73485	B	REDRAWN IN INVENTOR; UPDATE SCALE CALLOUT TO CURRENT STANDARDS; ADDED CLEAR ANODIZE	AB		03/06/14
74656	C	REGULATION RELEASE	JH		12/23/2015



SCALE .5:1



NOTES:

1. ENGRAVE AS SHOWN 3mm HIGH CHARACTERS.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:

DECIMAL: X ±.5
XX ±.2
X.XX ±.1

MACHINED ANGLES ±.5°

ASME Y14.5M - 1994
DO NOT SCALE DRAWING

VEHICLE RESEARCH
and TEST CENTER



NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

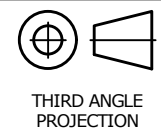
APPROVALS	DATE
DRAWN SJG	7/19/2013
CHECKED	
ENG	
APPROVED	

FOOT MEASUREMENT PLATE

MATERIAL
6061-T6 ALUMINUM

HEAT TREAT

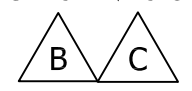
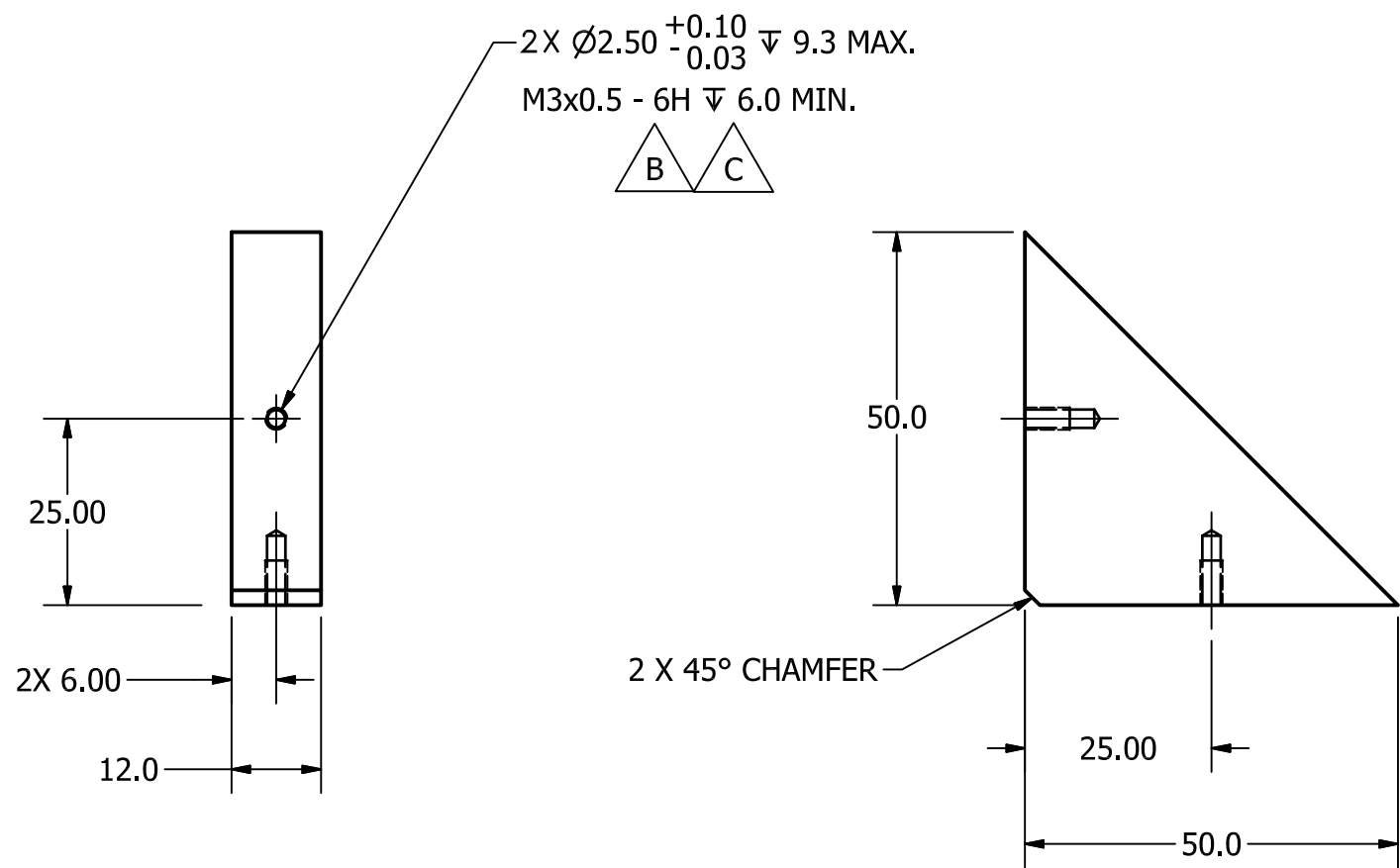
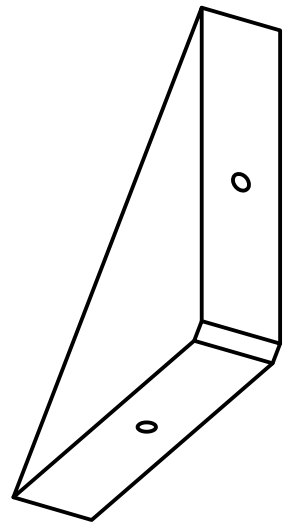
FINISH
CLEAR ANODIZE



SIZE	DRAWING NUMBER	REV
A3	020-9011-4	C
SCALE:	1:1	SHEET 1 OF 1



REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
71540	A	RELEASE TO PRODUCTION	AB		9/19/13
73485	B	REDRAWN IN INVENTOR; UPDATE HOLE CALLOUT TO CURRENT STANDARDS; ADDED CLEAR ANODIZE	AB		03/06/14
74656	C	UPDATED HOLE CALLOUT TO CURRENT STANDARDS.	JH		12/23/2015
74656	D	REGULATION RELEASE	JH		1/6/2016

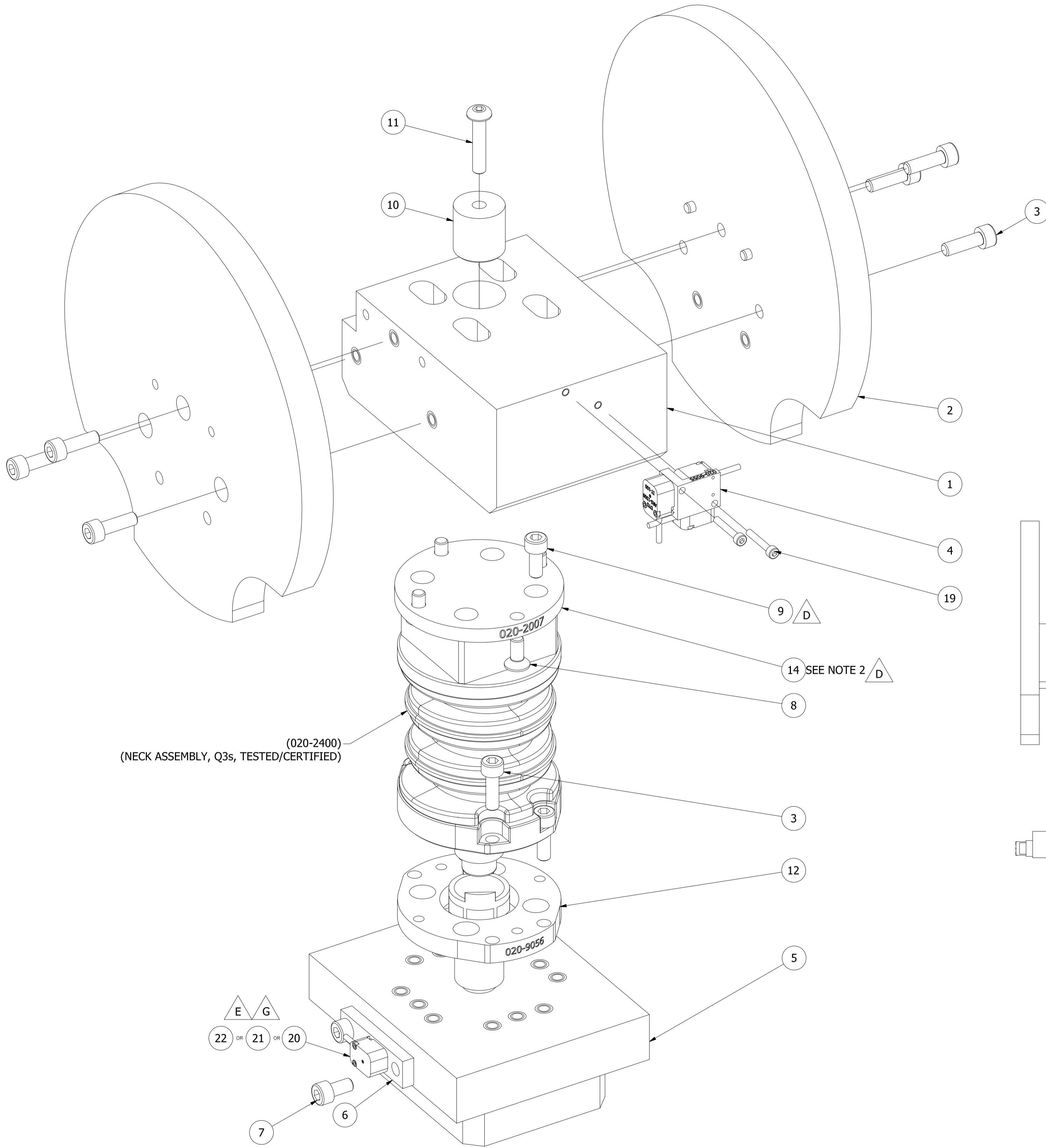


UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 ANGLES X.X ±.2 ±.5° X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER	
	APPROVALS DRAWN SJG	DATE 7/22/2013
	CHECKED ENG	
	APPROVED	

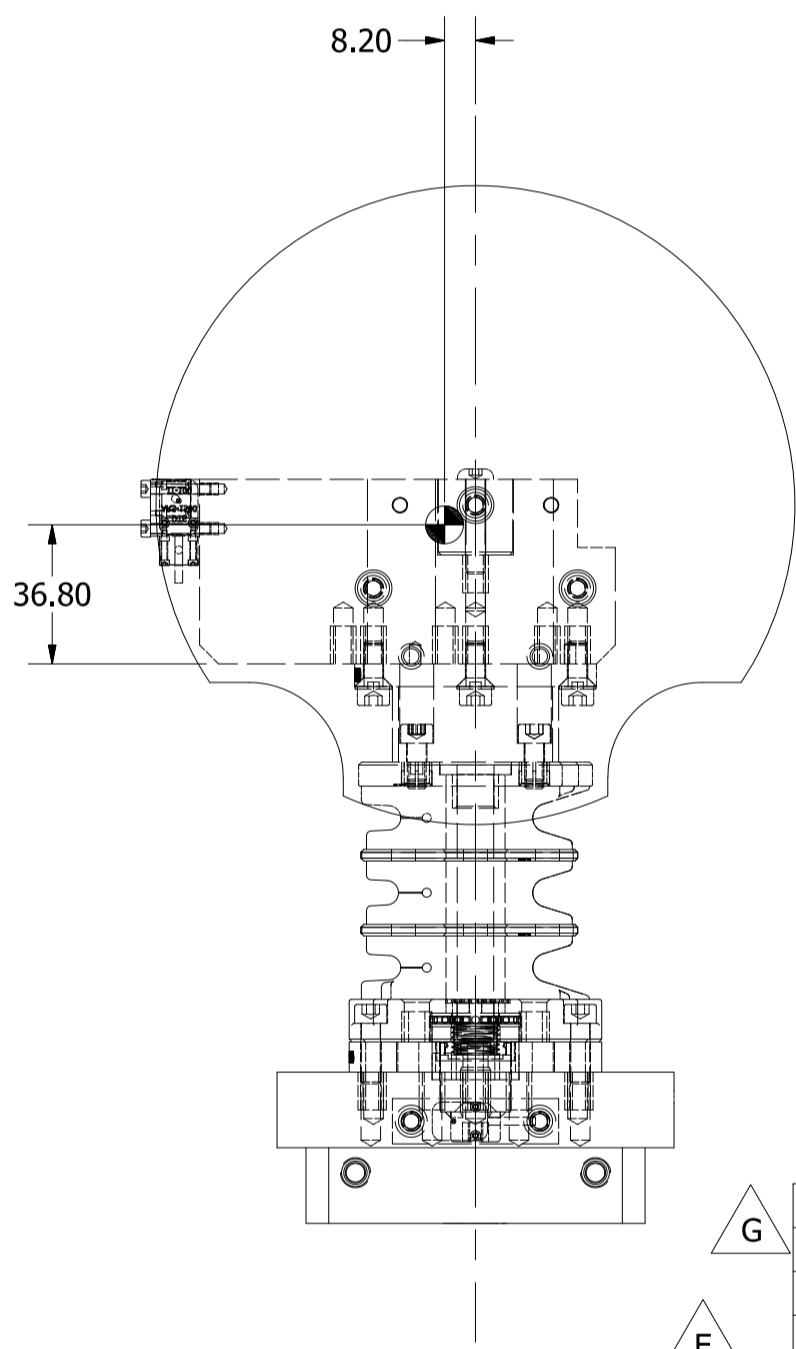
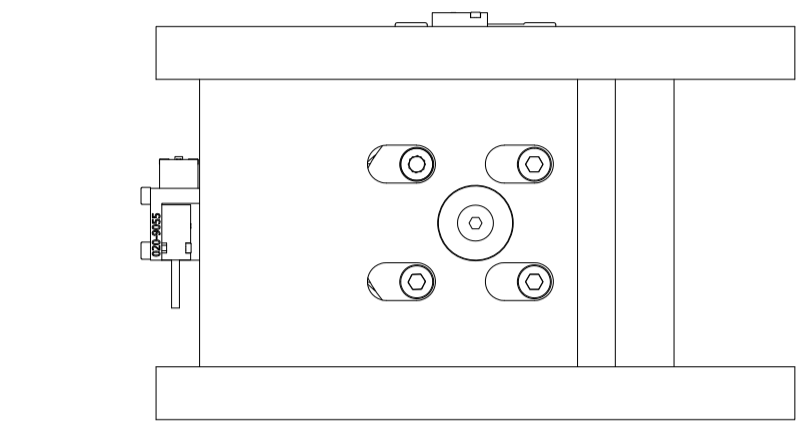
		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
BRACE			
	SIZE A3	DRAWING NUMBER 020-9011-5	REV D
SCALE: 1:1		SHEET 1 OF 1	



Q3s NECK CONFIGURATION



SCALE 1 : 1



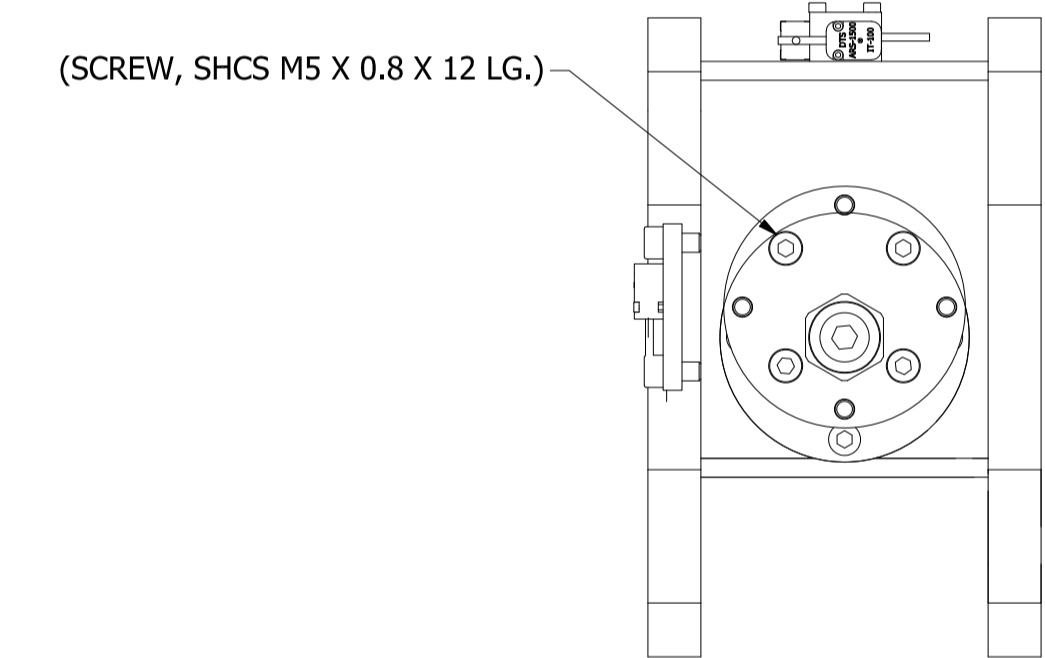
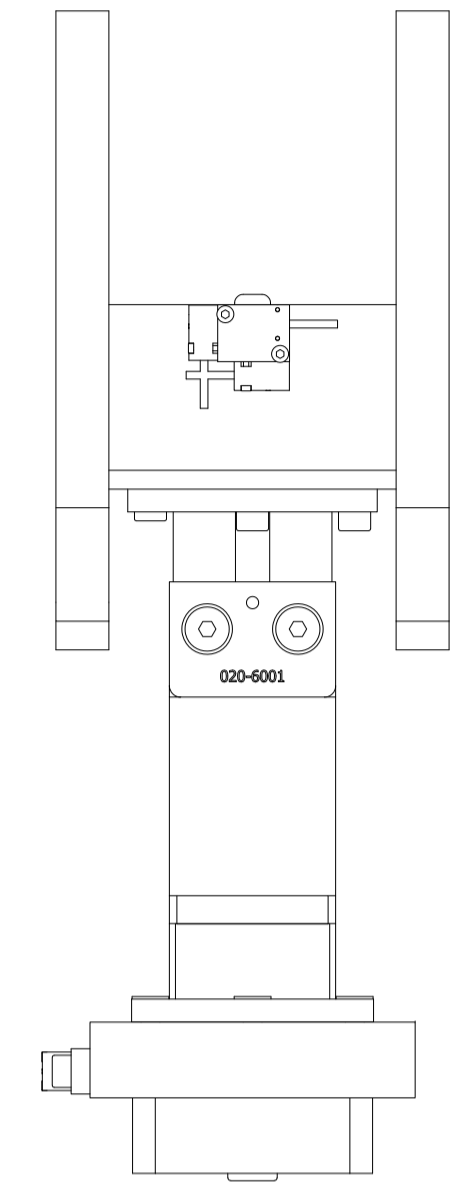
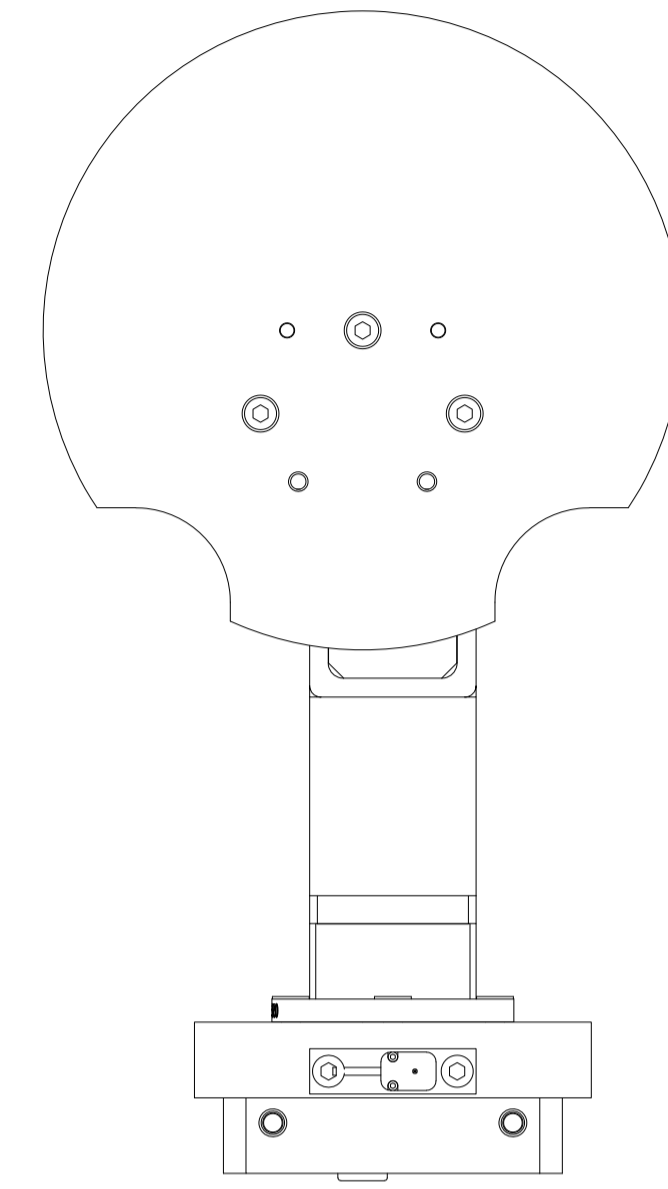
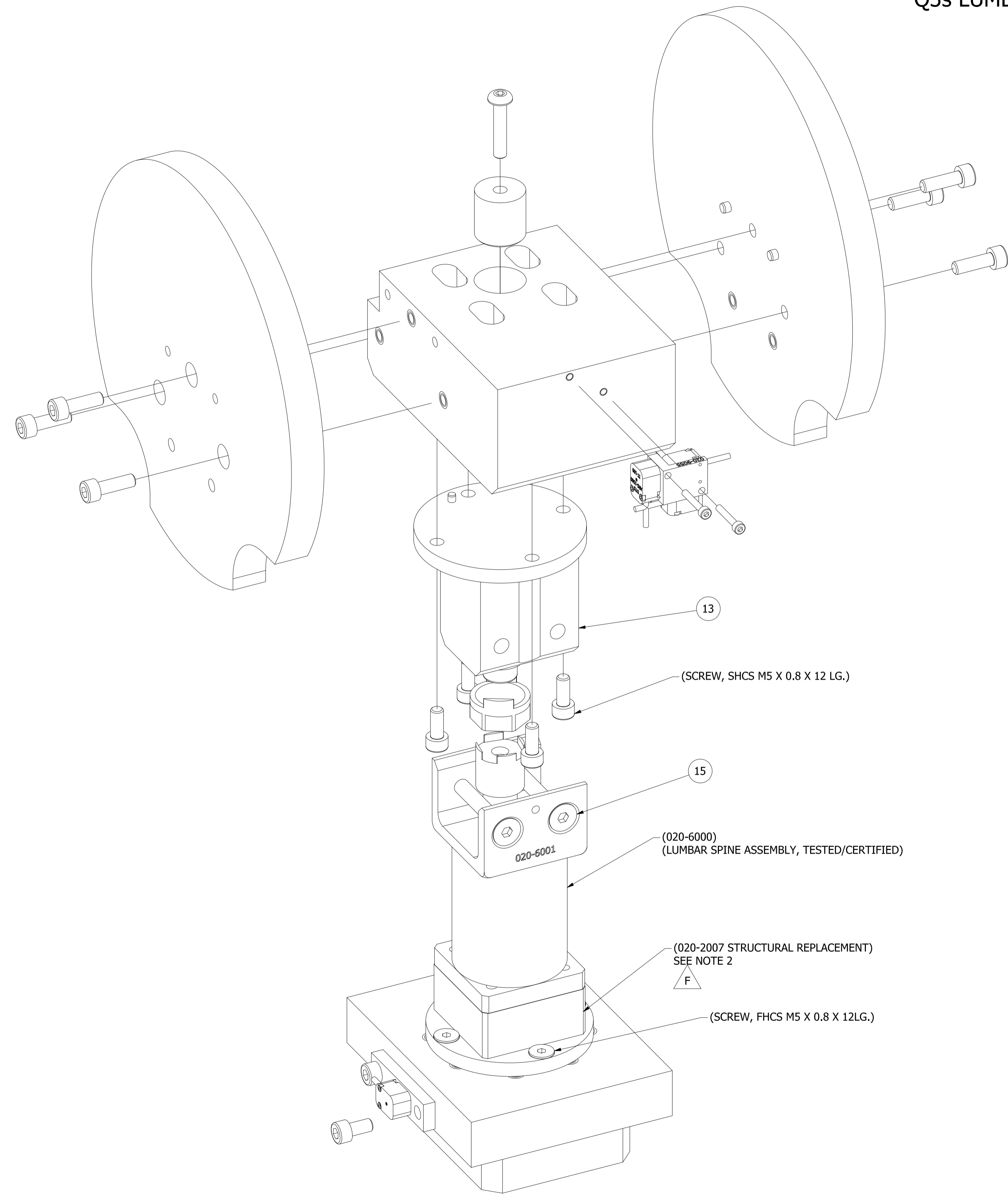
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENGR.	DATE
77088	A	RELEASE TO PRODUCTION	BK		5/4/2009
77547	B	Q3S NECK AND LUMBAR WAS NECK ONLY; ADDED SHEET 2 FOR LUMBAR; REMOVED 5000727; 5000002 QTY 8 WAS 4; 020-9056, ITEM 12 WAS ITEM 5; ADDED 020-9062; MODIFIED TABLE IN NOTES ACCORDINGLY, ADDED NOTES 2 & 3	MT		11/9/2010
77749	C	ADDED 020-9059 AND 5000300: QTY 2 TO ASSEMBLY; EDITED NOTE #3, ADDED NOTE #4	KJ		1/13/2011
70960	D	REMOVE SEE NOTE 3, NOTES 3 & 4, 020-9059 & 5000300, CG FROM NOTE 2 & REFERENCE NOTES; 5000020-FT, 5000291-FT, 5000096-FT, 9005103-DN, 5000466-FT, 020-2007, 2.85+/-0.05 kg, 2.95+/-0.05kg, 6QTY NOTE 1 & 2 & SA572-S8 & 020-9902 ACTIVE WAS 5000020, 5000291, 5000096, 5000002, 5000466, SA572-S8, 2.84+/-0.05kg, 2.67+/-0.05kg, 10 QTY NOTE 1 & 2, REFERENCE; ADDED WEIGHT NOTE TO NOTES 1 & 2, ITEM 8, 9 & 16 TO NOTE 1, ITEM 17 TO NOTE 2, ITEM 14, 15, 16, 17, & 18 TO BOM; NOTE 3 WAS NOTE 2; ADDED NOTE 3 & 4; HUMANETICS BORDER WAS FTSS BORDER; ADDED SEE NOTE 2 & SEE NOTE 4; 5000002-FT WAS 9005103-DN	AB		3/18/2013
73152	E	REMOVED SA572-S58 FROM P'LIST; ADDED 5000069 & 5000727; REMOVED "-FT" FROM FASTENER P'NUMBERS; NOTE 2 & 4 IF-217 WAS SA572-S8; REMOVE MASS NOTES AND TABLES, NOTE 1 WAS NOTE 2, NOTE 2 WAS NOTE 4, ADD SHEET 3 CERT TEMPLATE	AJB/DW	DW	10/30/2014
74656	F	SHEET #1: UPDATED REV-E DESCRIPTION: NOTE 1 WAS NOTE 2; NOTE 2 WAS NOTE 4; "IF-217 WAS SA572-S8 IN NOTE 1 & 2" WAS "NOTE 2 & 4 IF-217 WAS SA572-S8"; SHEET #2: SEE NOTE 2 WAS 4	AB		01/05/16
74656	G	REGULATION RELEASE, SHT 1 & 2 NOTE 1 PART NO WAS IF-217, ADDED ITEM 20, 21, & 22 TO PARTS LIST, REVISED TO 2 SHTS FROM 3	AB/JHC		01/06/16

ITEM	QTY	PART NUMBER	DESCRIPTION
22	3	SA572-S58	ARS, 18K (OPTIONAL)
21	3	SA572-S57	ARS, 12K (OPTIONAL)
20	3	SA572-S56	ARS, 8K (OPTIONAL)
19	2	5000069	M2.5 X 0.45 X 16 LG. SHCS
18	2	5000727	M1.4 X 0.3 X 8 LG. SHCS
17	1	020-6000	LUMBAR SPINE ASSEMBLY, TESTED & CERTIFIED (REF.)
16	1	020-2400	NECK ASSEMBLY (REF.)
15	2	020-9902	SCREW, LUMBAR SPINE MOUNTING
14	1	020-2007	LOAD CELL STRUCTURAL REPLACEMENT
13	1	020-9062	CENTRAL BLOCK, Q3S LUMBAR
12	1	020-9056	NECK/TORSO INTERFACE PLATE, Q3s
11	1	5000466	M5 X 0.8 X 25 LG. BHCS
10	1	020-9058	BALLAST, Q3s HEAD FORM
9	8	5000002	M5 X 0.8 X 12 LG. SHCS
8	4	5000096	M5 X 0.8 X 12 LG. FHCS
7	2	5000291	M5 X 0.8 X 10 LG. SHCS
6	1	020-9057	1 AXIS ARS MOUNT
5	1	020-9051	PENDULUM INTERFACE
4	1	020-9054	ARS MOUNT ASSEMBLY
3	10	5000020	M5 X 0.8 X 16 LG. SHCS
2	2	020-9053	HEAD FORM DISC
1	1	020-9052	CENTRAL BLOCK, Q3S NECK

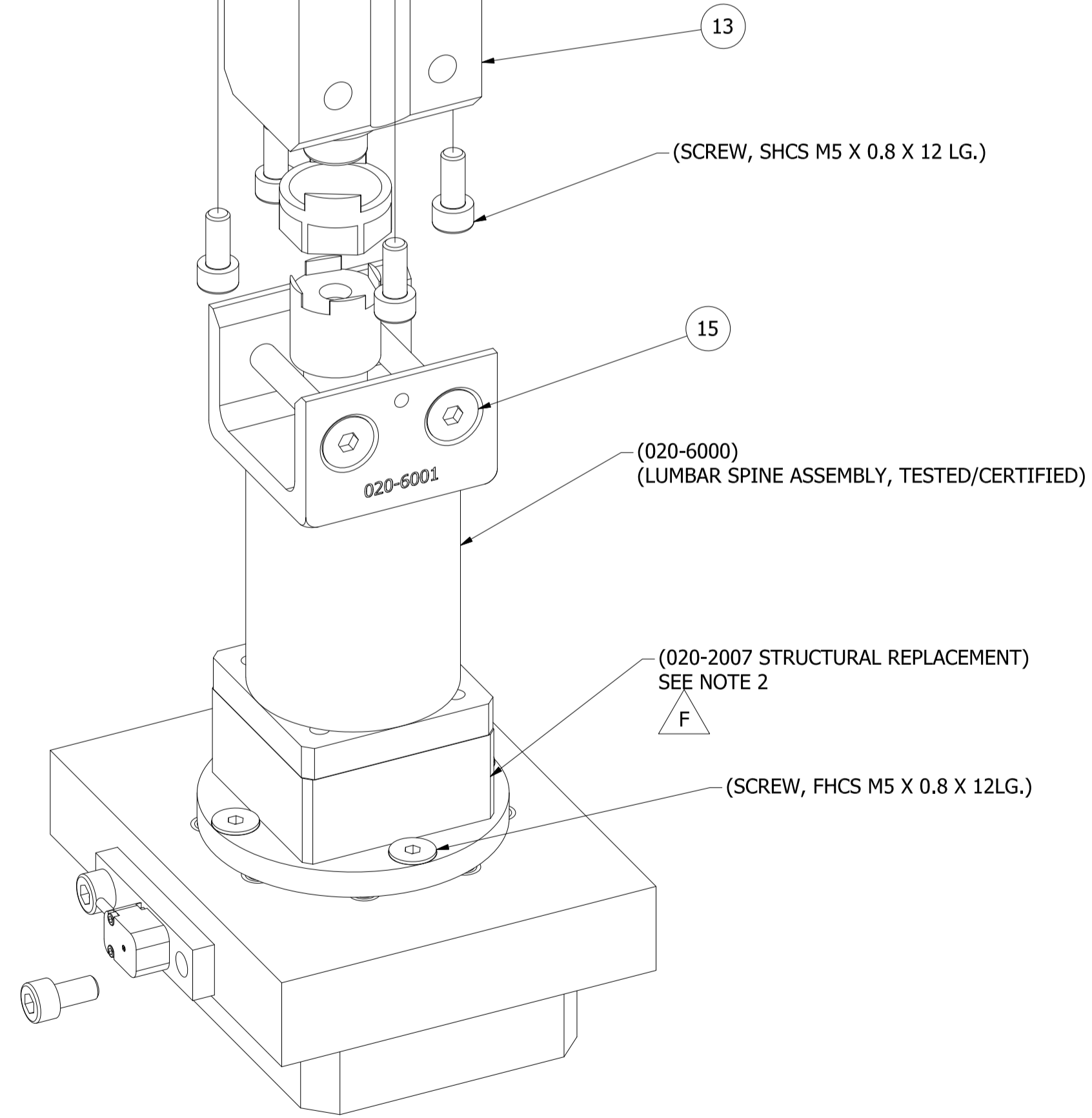
NOTES:
 1. REPLACE ITEM (020-2007) WITH (SA572-S8) Q3s NECK LOAD CELL IN THIS CONFIGURATION WHEN TESTING NECK ASSEMBLY

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X.XX ±.05 MACHINED ANGLES: 3.5° ±.1° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER APPROVALS: C.YAO DATE: 5/4/2009		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION CALIBRATION HEAD FORM	
MATERIAL: N/A HEAT TREAT: N/A FINISH: N/A		CHECKED: C.YAO ENG: [] APPROVED: []		SIZE: A1 DRAWING NUMBER: 020-9050 SCALE: 0.500 : 1 SHEET: 1 OF 2	

Q3s LUMBAR CONFIGURATION



020-9051, PENDULUM INTERFACE
HIDDEN IN THIS VIEW
FOR CLARITY

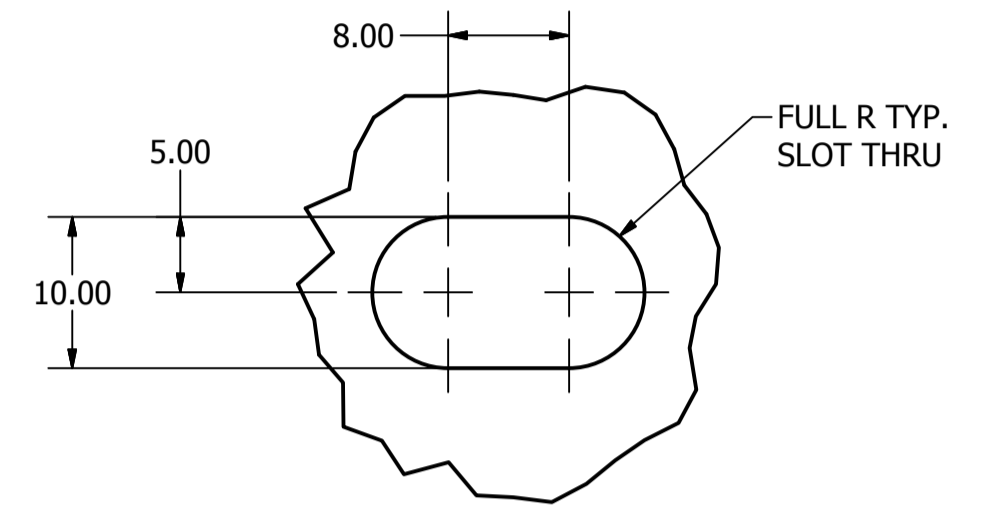
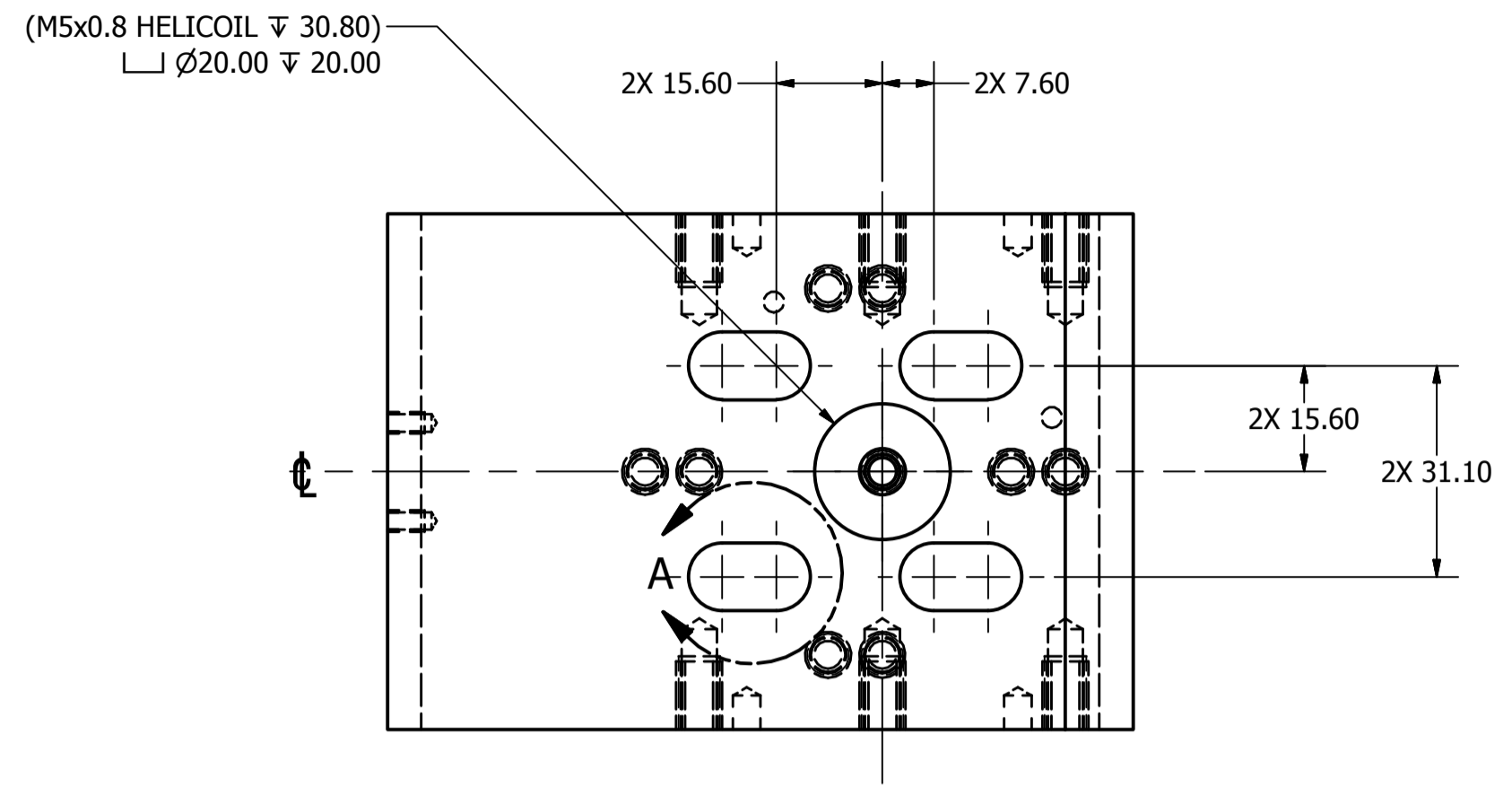
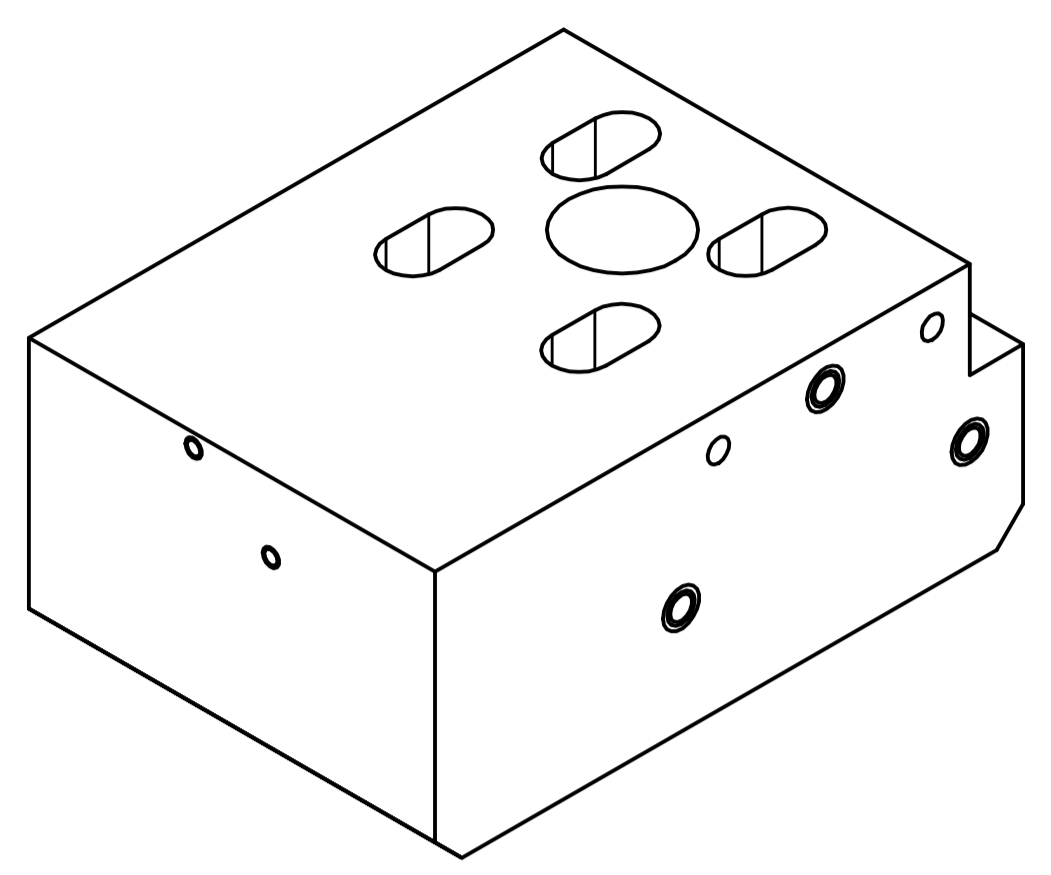


SCALE 1 : 1

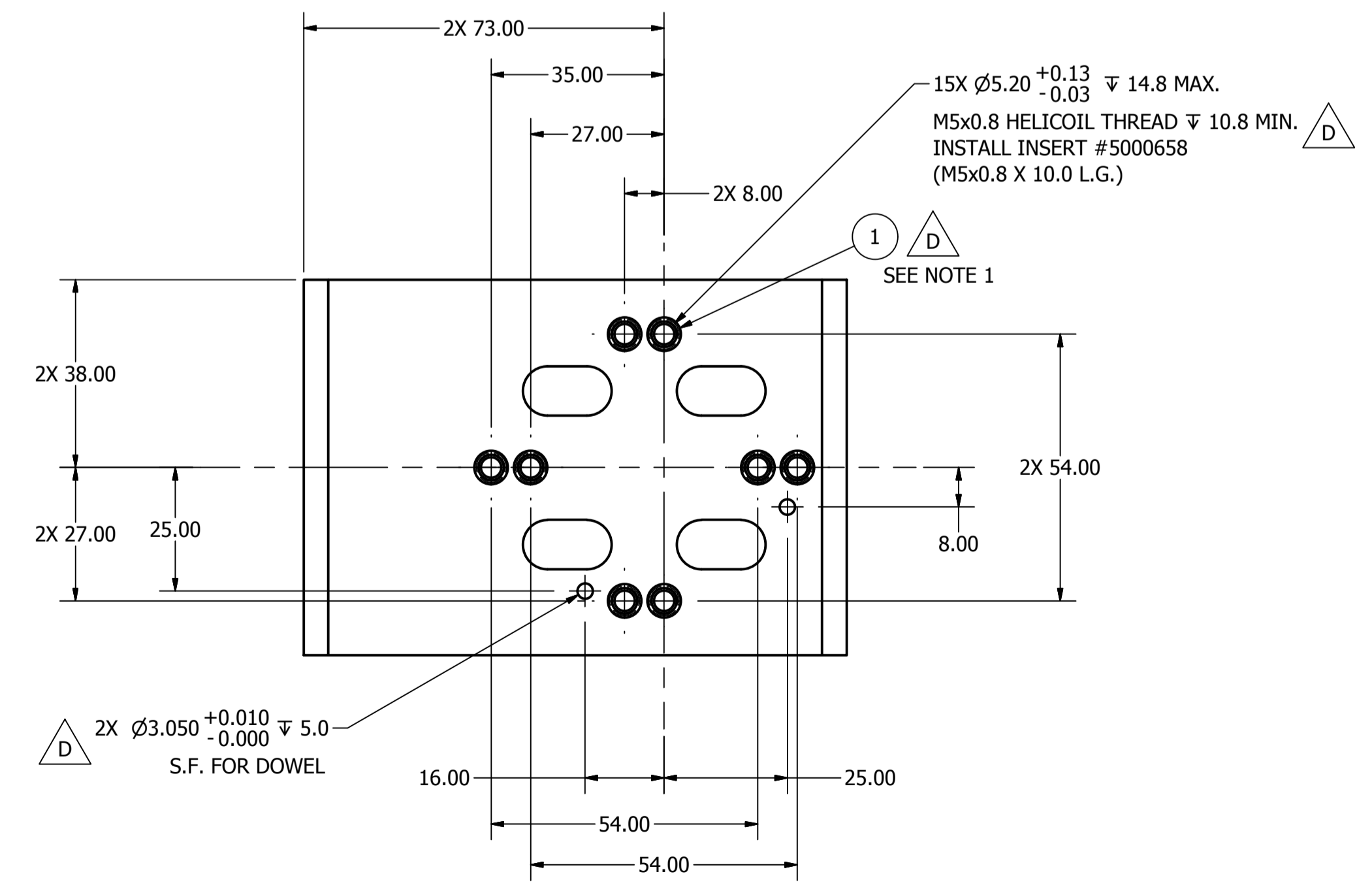
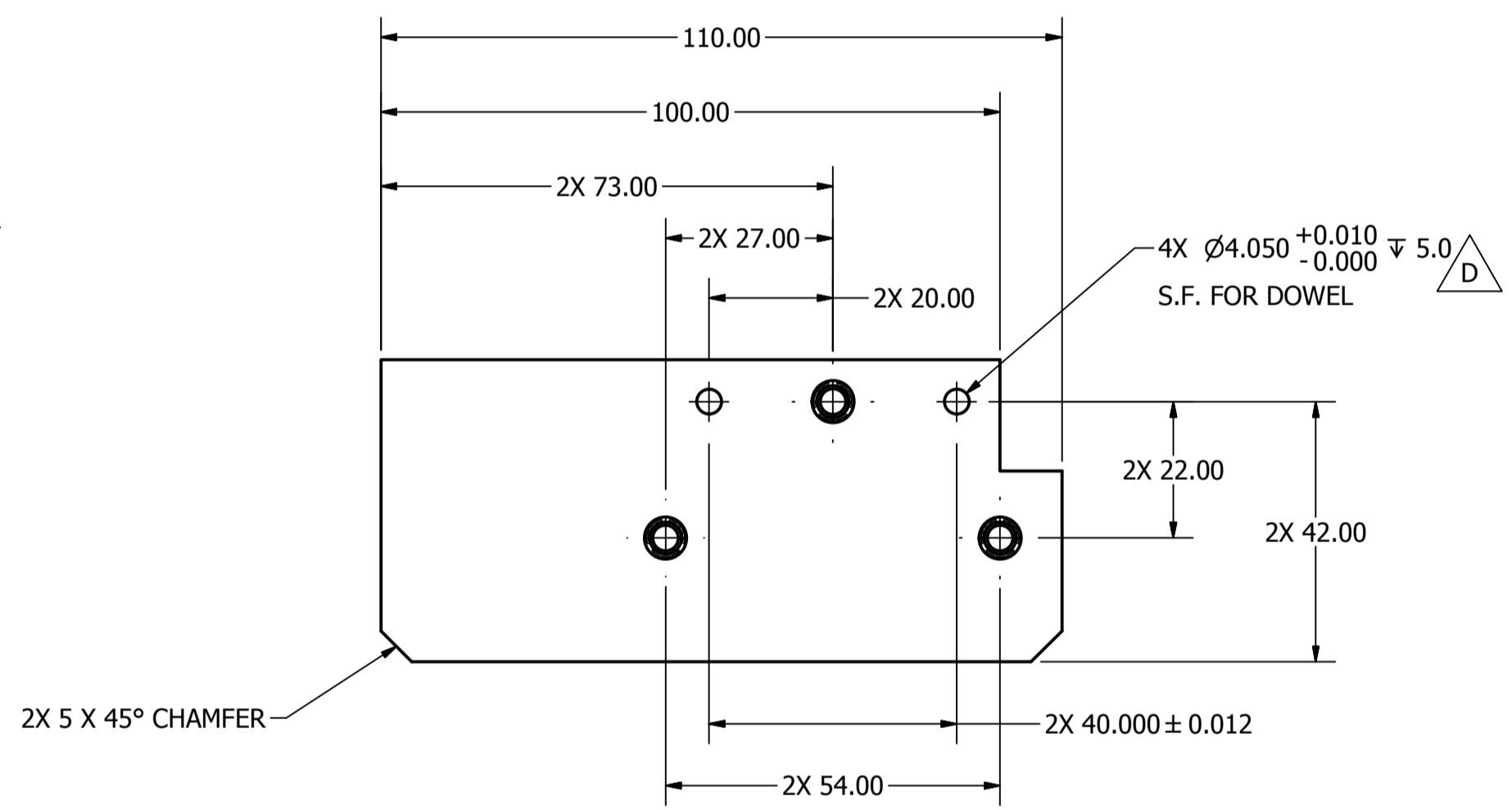
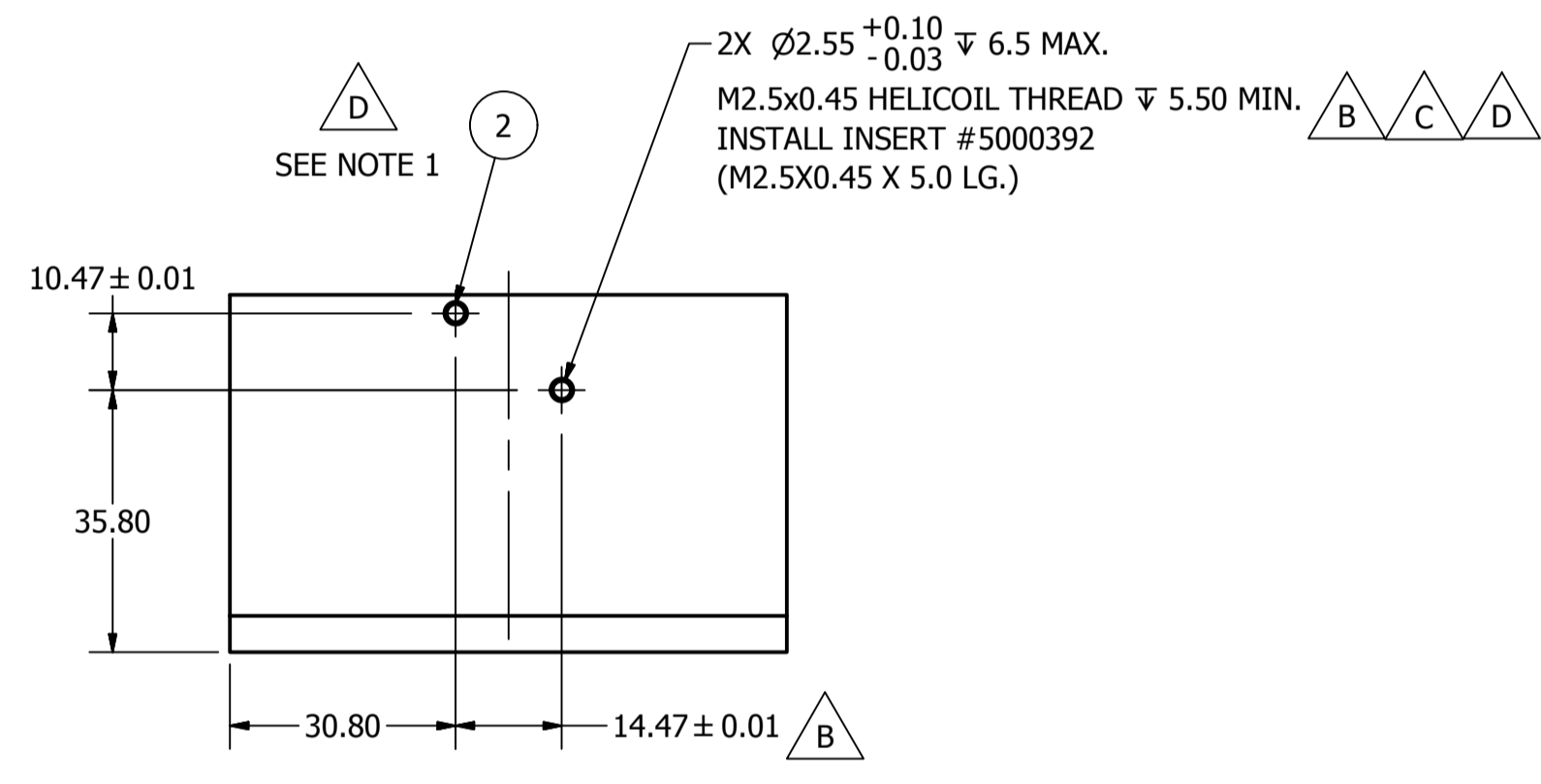
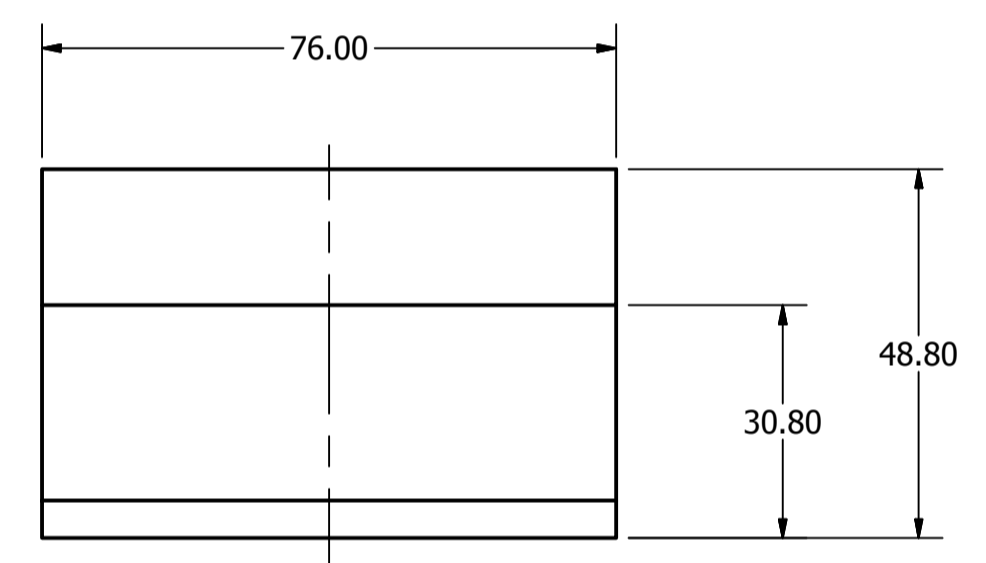
2. REPLACE ITEM (020-2007) WITH (SA572-S8) Q3s NECK LOAD CELL IN THIS CONFIGURATION WHEN TESTING LUMBAR ASSEMBLY

<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</small> <small>DECIMAL: ±0.25</small> <small>XX ±0.2</small> <small>XXX ±0.1</small> <small>MACHINED</small> <small>OF</small> <small>ANGLES</small> <small>±.5°</small> <small>ASME Y14.5M - 1994</small> <small>DO NOT SCALE DRAWING</small>	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	<small>APPROVALS</small> <small>DATE</small>	<small>DATE</small> 5/4/2009	
<small>MATERIAL</small> N/A	<small>CHECKED</small> C.YAO	<small>ENG</small>	<small>SIZE</small> A1
<small>HEAT TREAT</small> N/A	<small>APPROVED</small>	<small>REV</small> G	<small>DRAWING NUMBER</small> 020-9050
<small>FINISH</small> N/A	<small>THIRD ANGLE PROJECTION</small>	<small>SCALE:</small> 0.500 : 1	<small>SHEET</small> 2 OF 2

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENGR.	DATE
77088	A	RELEASE TO PRODUCTION	BK		5/04/2009
77547	B	5000886 WAS 5000392; 2X 10.0; 10.47+/-0.01 & 14.47+/-0.01 WAS 10.47 & 14.47; PRESS FIT FOR M2.5 DOWEL PIN WAS 2X DRILL AND TAP FOR M2.5 X .45 X 5 HELICOIL	MT		11/04/2010
73152	C	REDRAWN TO INVENTOR; UPDATED TO HUMANETICS TITLEBLOCK; REMOVED CLEANUP NOTE; 2X Ø2.55 DRILL 6.50 DEEP, M2.5X0.45 HELICOIL TAP 5.50 DEEP WAS PRESS FIT FOR M2.5 DOWEL PIN. UPDATED REV. C DESCRIPTION; REMOVED 5000886, ADDED 5000932; ADDED M5X0.8 HELICOIL □30.80.	AJB	DW	10/31/2014
74656	D	UPDATED HOLE CALL OUTS TO CURRENT STANDARDS; ADDED NOTE #1.	JH		1/4/2016
74656	E	REGULATION RELEASE	GCH		01/06/2016



DETAIL A
SCALE 2 : 1
4 PLACES

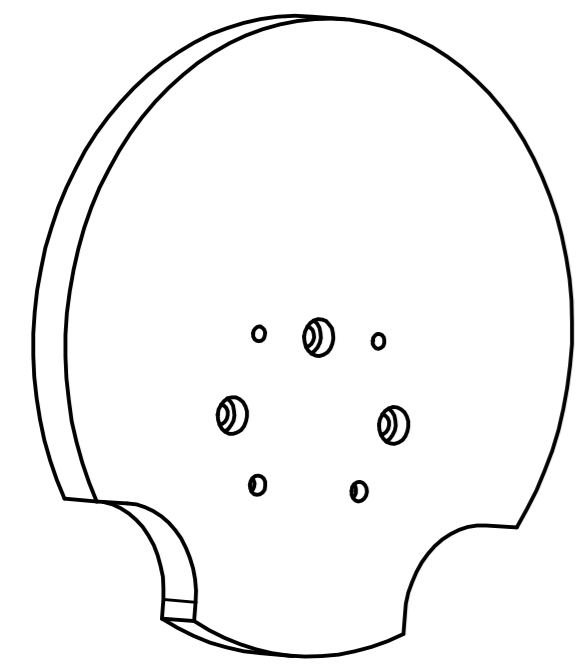


NOTES:
1. INSTALL HELICOIL AFTER ANODIZE.

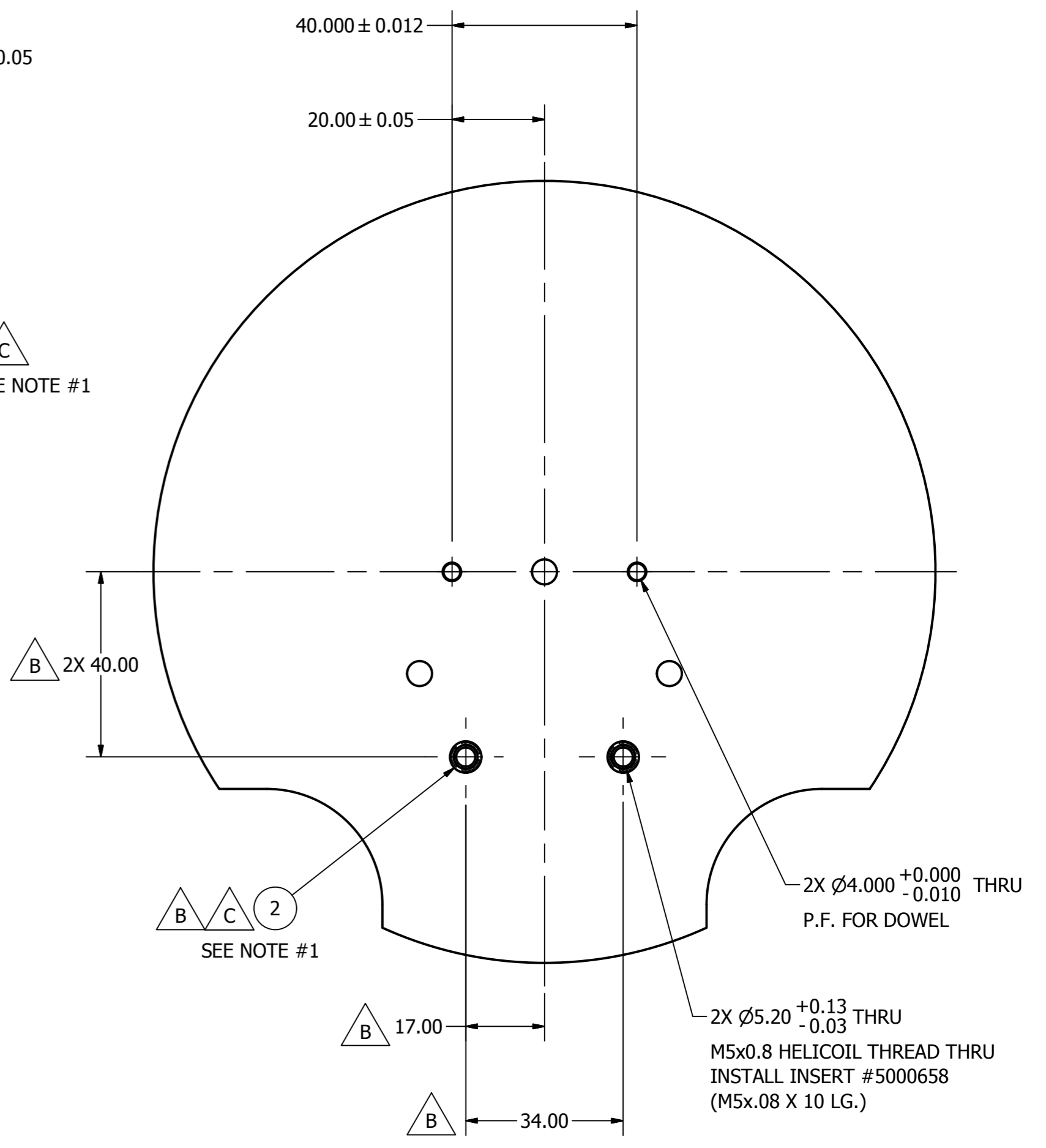
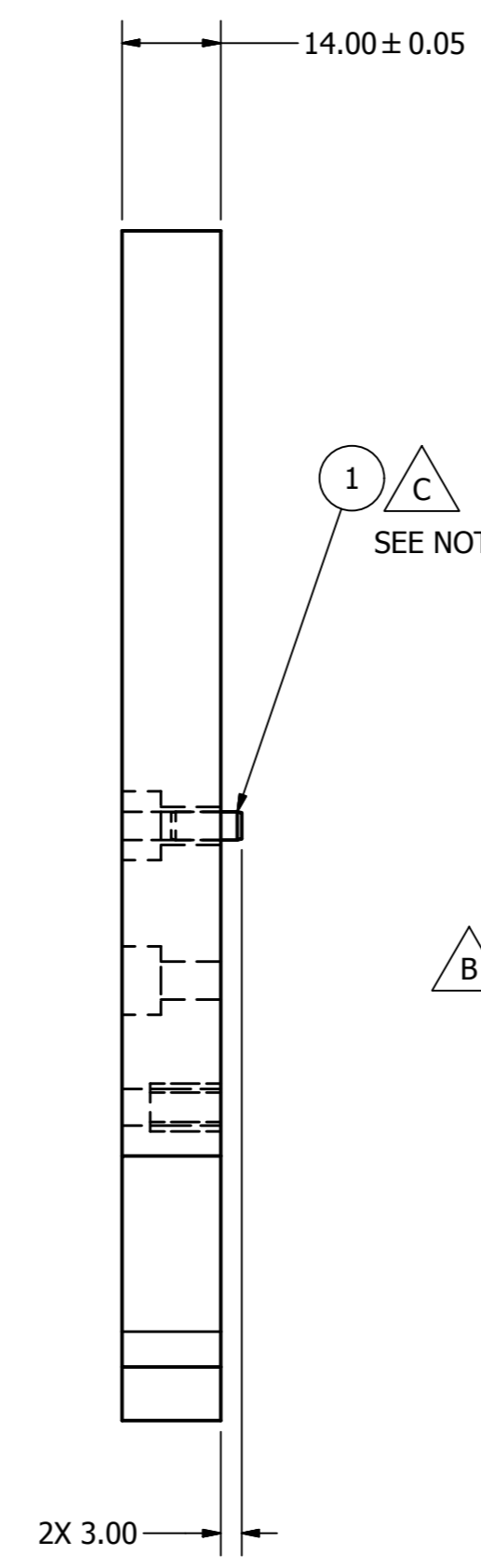
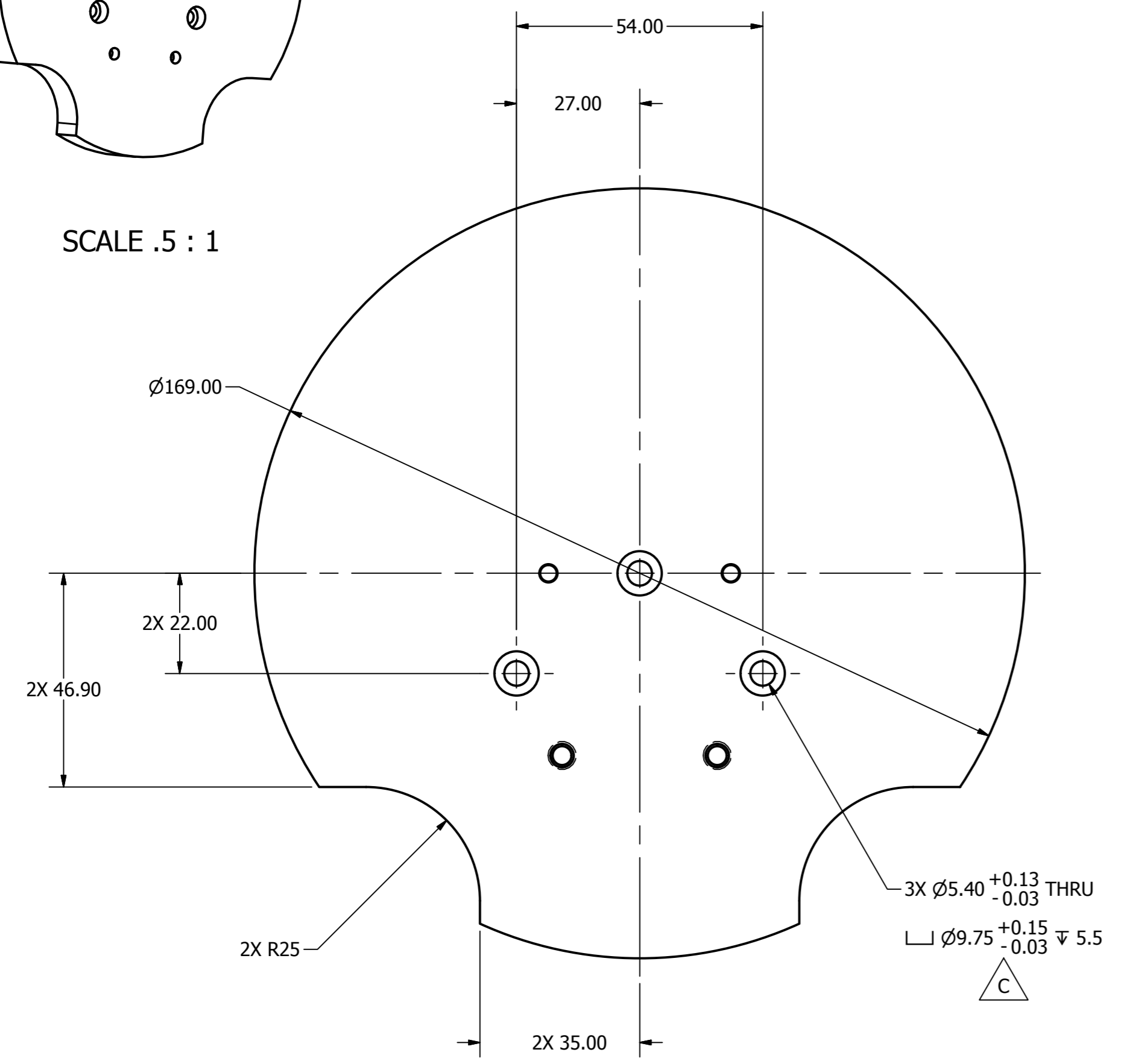
ITEM	QTY	PART NUMBER	DESCRIPTION
2	2	5000392	HELICOIL, M2.5x.45 x 5
1	15	5000658	HELICOIL, M5 X 0.8 X 10

PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X.X ±.2, X.XX ±.1, X.XXX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWINGS	VEHICLE RESEARCH and TEST CENTER	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS	DATE	CENTRAL BLOCK, Q3S NECK	
C. YAO	5/12/2009		
MATERIAL: 6061-T6 ALUMINUM	HEAT TREAT: N/A	FINISH: CLEAR ANODIZE	
SIZE: A1		DRAWING NUMBER: 020-9052	REV: E
SCALE: 1 : 1		SHEET: 1	OF 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
77088	A	RELEASE TO PRODUCTION	BK		5/1/2009
77749	B	ADDED QTY: 2 - 5000658 AND RELATED HOLES TO ASSEMBLY	KJ		1/13/2011
74656	C	REDRAWN IN INVENTOR; HUMANETICS BORDER WAS FTSS; REMOVED NOTE #1; UPDATED HOLE CALL OUTS TO CURRENT STANDARDS.	JH		12/8/2015
74656	D	REGULATION RELEASE	GCH		01/06/2016



SCALE .5 : 1

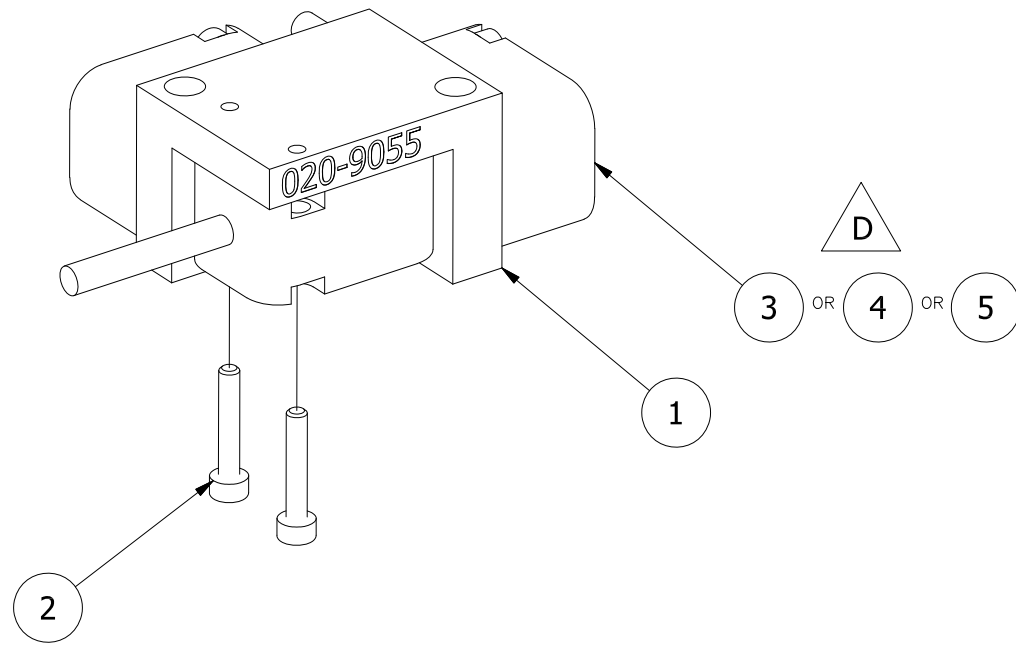


C 1. INSTALL DOWELS & HELICOILS AFTER CLEAR ANODIZE.

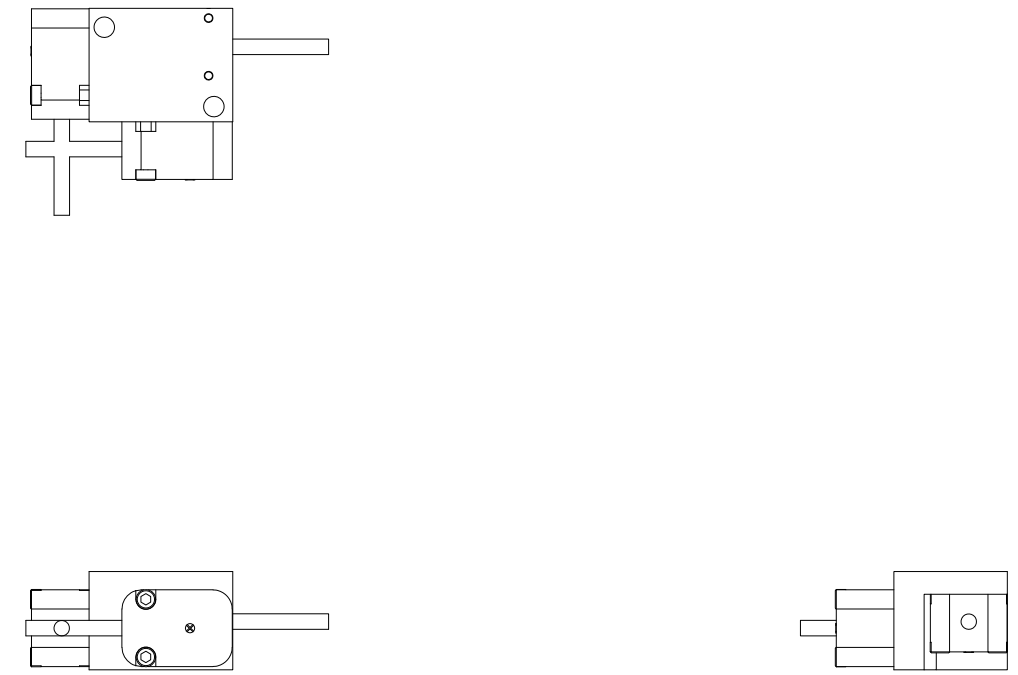
ITEM	QTY	PART NUMBER	DESCRIPTION
2	2	5000658	HELICOIL, M5 X 0.8 X 10
1	2	5000414	M4 X 10 LG. DOWEL PIN

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL - X.X ±.5 X.XX ±.2 X.XXX ±.1	MACHINED ANGLES ±.5°	APPROVALS	DATE	HEAD FORM DISC	
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		DRAWN C. YAO	5/1/2009	DRAWING NUMBER A2 020-9053	
MATERIAL 7075-T6 ALUMINUM	CHECKED	ENG		SCALE: 1 : 1	REV D
HEAT TREAT N/A	APPROVED			SHEET 1	OF 1
FINISH CLEAR ANODIZE				THIRD ANGLE PROJECTION	

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
77088	A	RELEASE TO PRODUCTION	BK		5/4/2009
77547	B	REMOVED 5000283	MT		11/4/2010
74656	C	REDRAWN IN INVENTOR; HUMANETICS BORDER WAS FTSS	JH		12/10/2015
74656	D	REGULATION RELEASE, ADDED ITEM 3, 4, 5	GCH/JHC		01/06/2016



SCALE 2 : 1

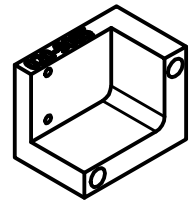


ITEM	QTY	PART NUMBER	DESCRIPTION
D 5	3	SA572-S58	ARS, 18K (OPTIONAL)
4	3	SA572-S57	ARS, 12K (OPTIONAL)
3	3	SA572-S56	ARS, 8K (OPTIONAL)
B 2	6	5000727	M1.4 X 0.3 X 8 LG. SHCS
1	1	020-9055	3 AXIS ARS MOUNT, Q3s HEAD FORM

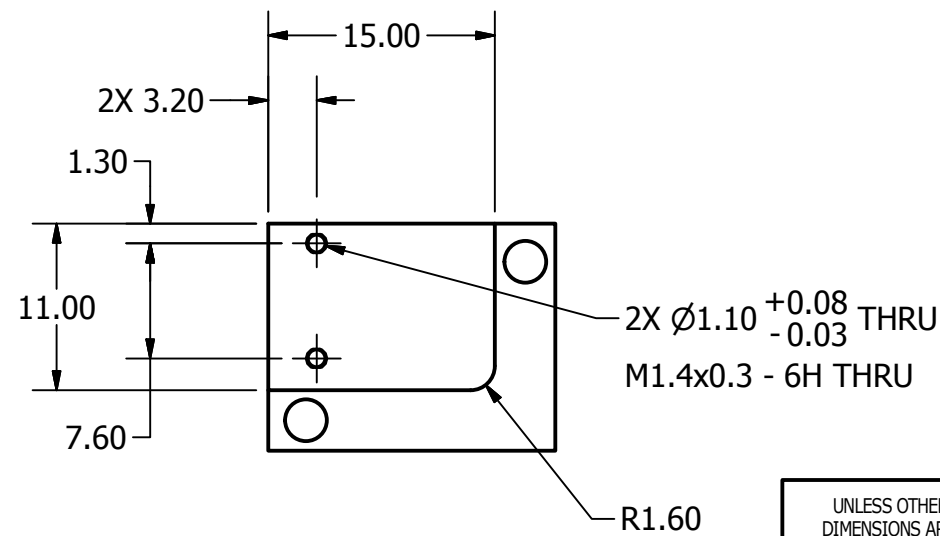
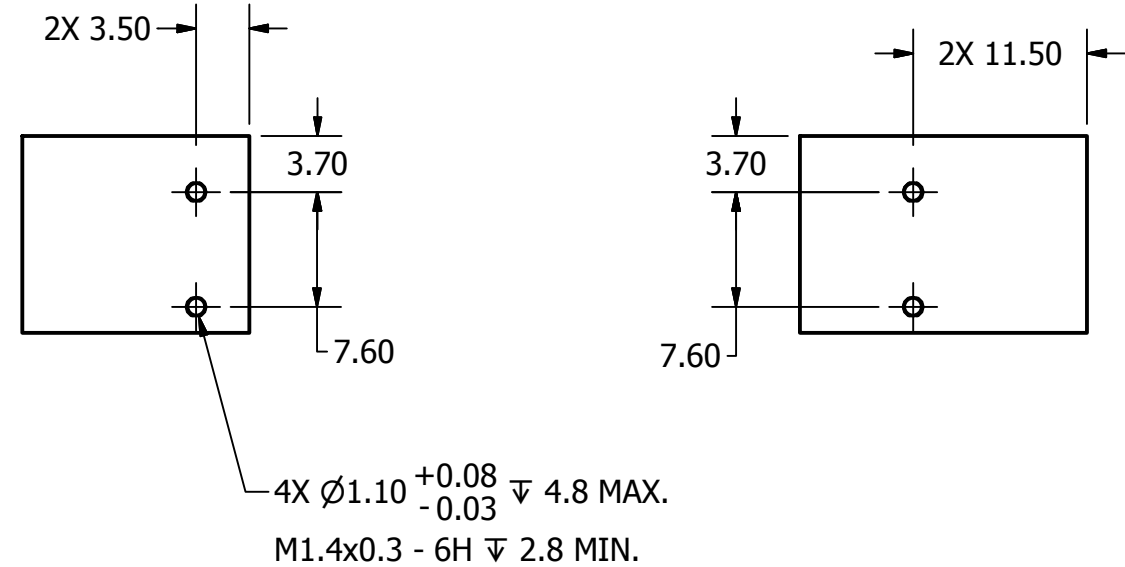
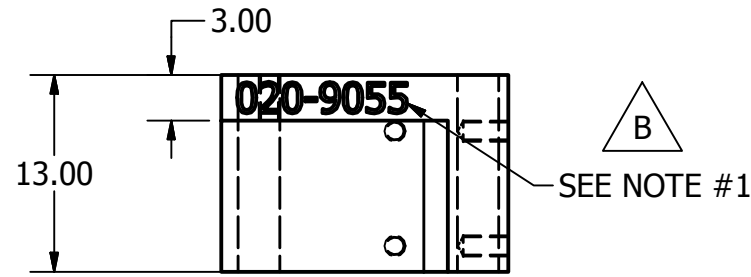
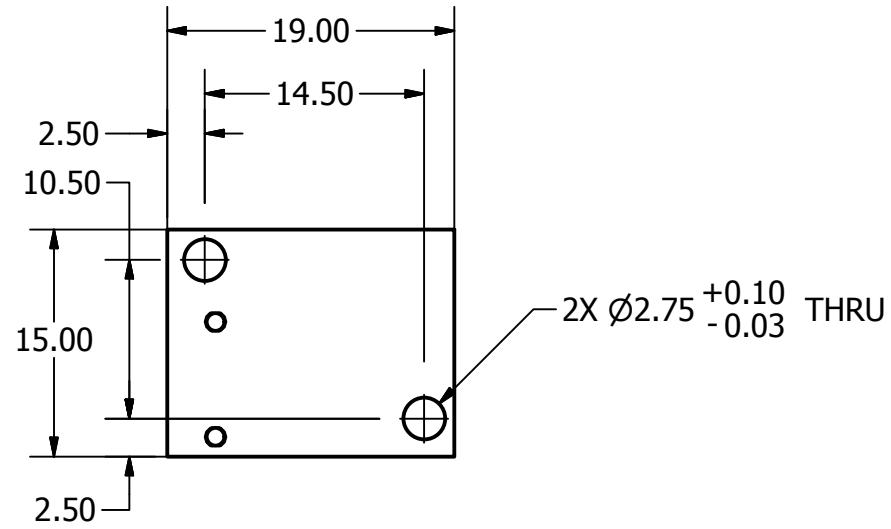
PARTS LIST					
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 X ±.6 X.X ±.2 X ±.6 X.XX ±.1 X ±.1 ANGLS ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION		
	APPROVALS DRAWN C. YAO	DATE 5/4/2009		ARS MOUNT ASSEMBLY	
	MATERIAL HEAT TREAT FINISH	CHECKED ENG APPROVED	THIRD ANGLE PROJECTION		SIZE A3
		SCALE: 1 : 1	SHEET 1 OF 1		

REVISION HISTORY


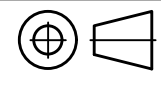
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
77088	A	RELEASE TO PRODUCTION	BK		5/1/2009
74658	B	REDRAWN IN INVENTOR; HUMANETICS BORDER WAS FTSS; REMOVED NOTE #1; UPDATED HOLE CALL OUTS TO CURRENT STANDARDS; ADDED NOTE #1 & SEE NOTE #1	JH		12/8/2015
74658	C	REGULATION RELEASE	JH		1/6/2016



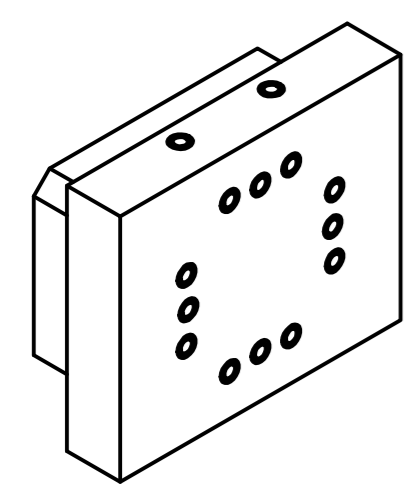
SCALE 1 : 1



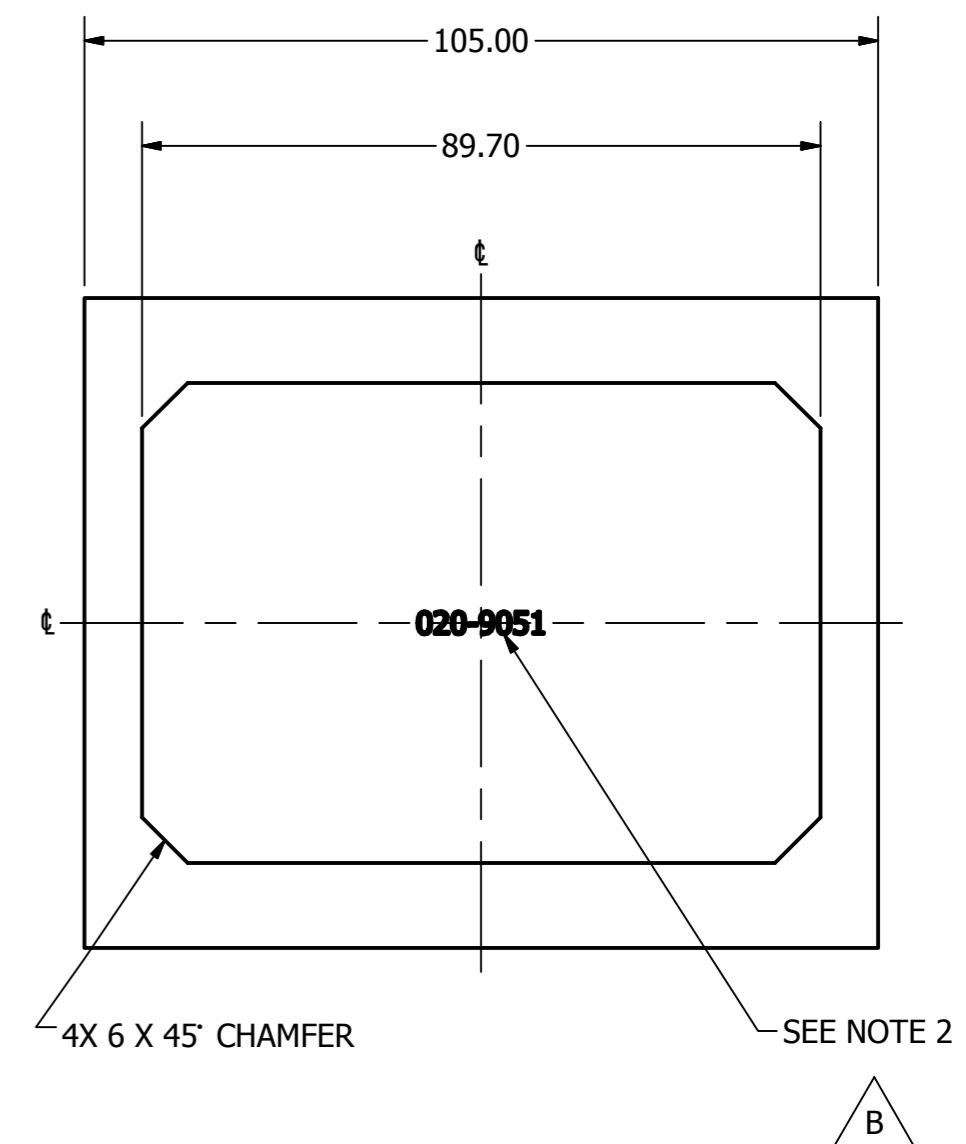
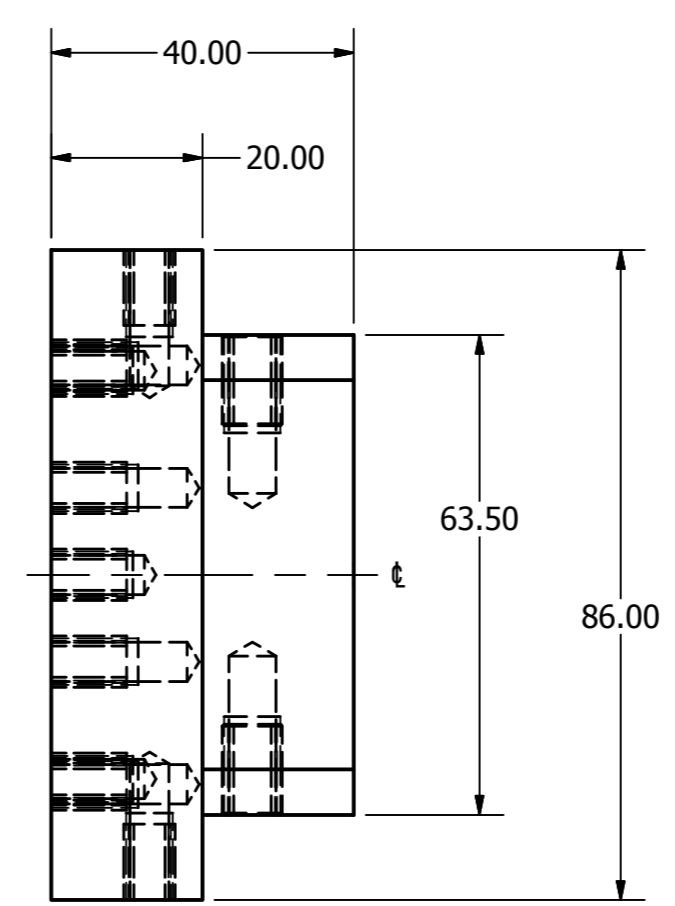
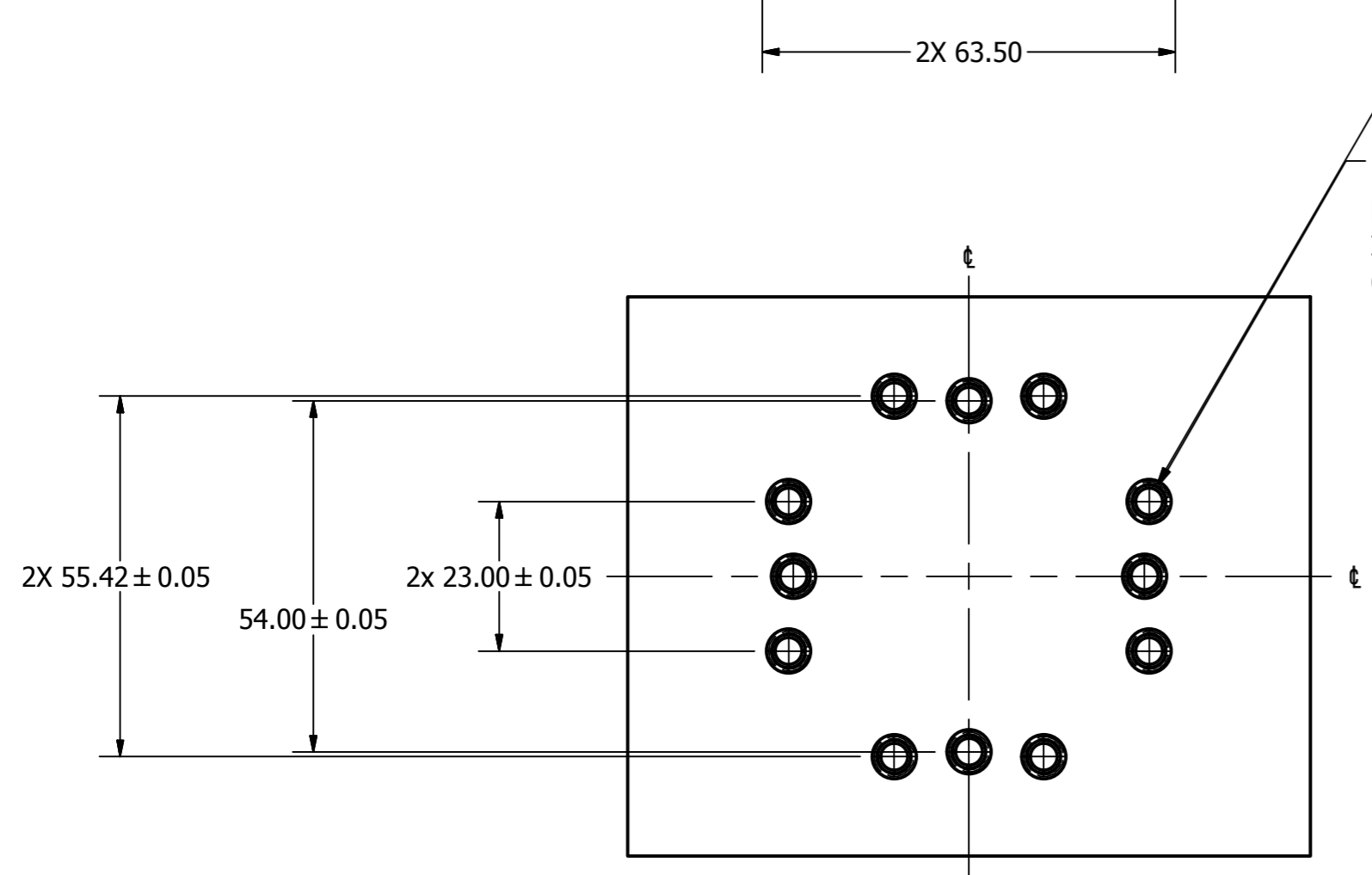
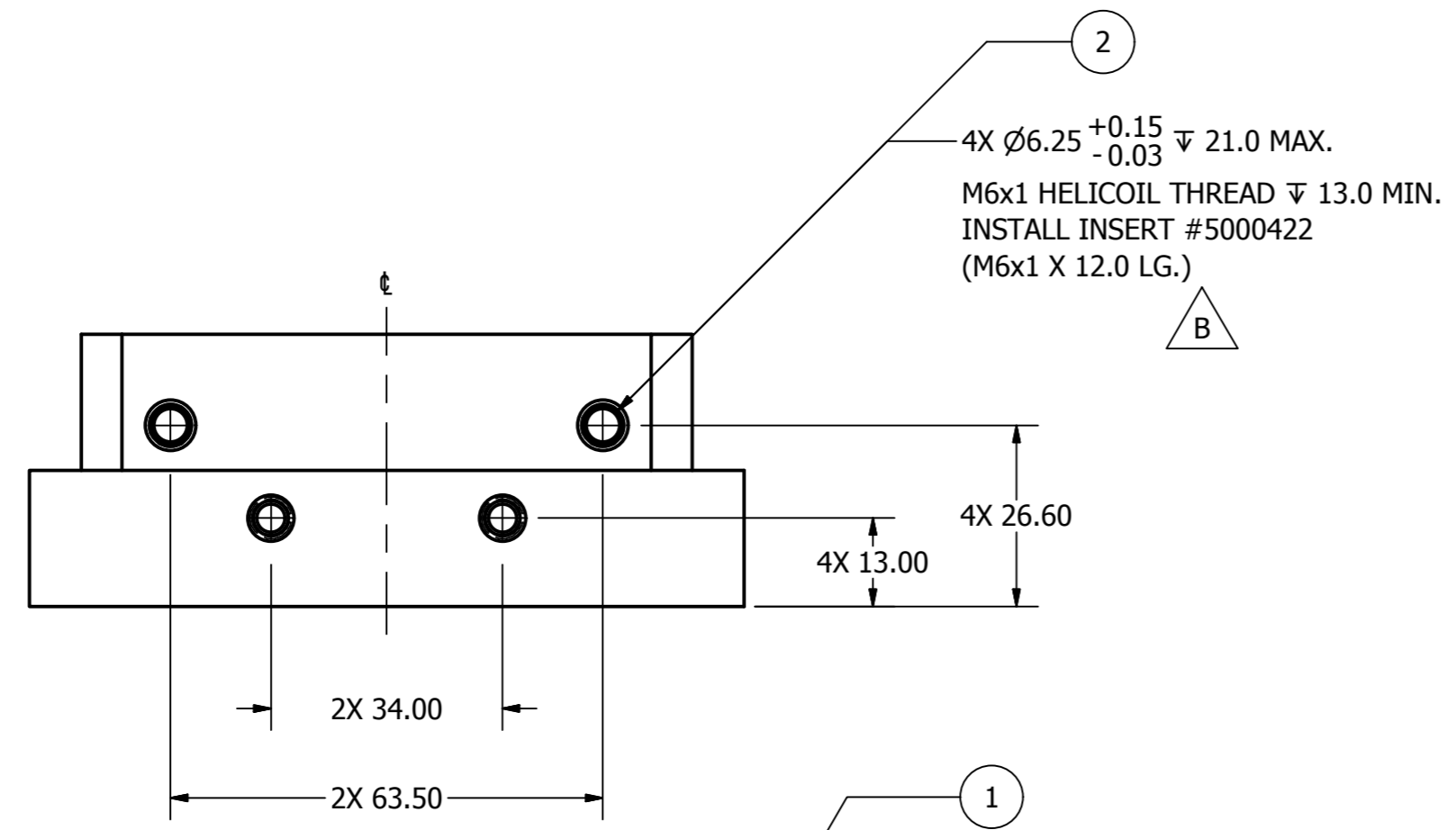
NOTES:
1. STAMP OR ETCH PART NUMBER (3mm CHARACTERS) WHERE SHOWN.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		3 AXIS ARS MOUNT, Q3s HEAD FORM	
DRAWN C. YAO		5/1/2009			
CHECKED					
MATERIAL 7075-T6 ALUMINUM		ENG			
HEAT TREAT		APPROVED			
FINISH CLEAR ANODIZE					
 THIRD ANGLE PROJECTION		SIZE A3	DRAWING NUMBER 020-9055	REV C	
		SCALE: 2:1	SHEET 1 OF 1		

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
77088	A	RELEASE TO PRODUCTION	BK		5/12/2015
74656	B	REDRAWN IN INVENTOR; HUMANETICS BORDER WAS FTSS; REMOVED NOTE #1, NOTE #1 & 2 WAS 2 & 3; SEE NOTE #2 WAS 3; UPDATE HOLE CALL OUTS TO CURRENT STANDARDS; ITEM 1 WAS 3.	JH		12/7/2015
74656	C	REGULATION RELEASE	GCH		01/06/2016



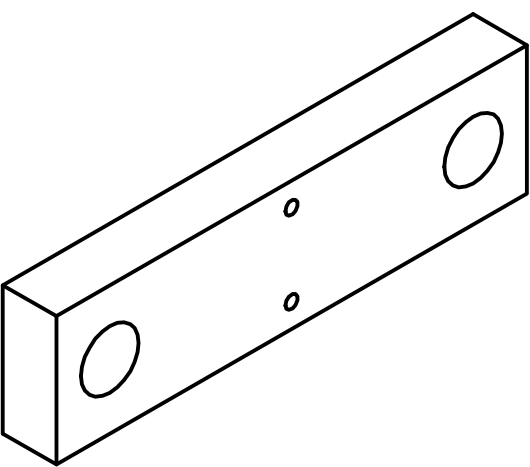
SCALE .5:1



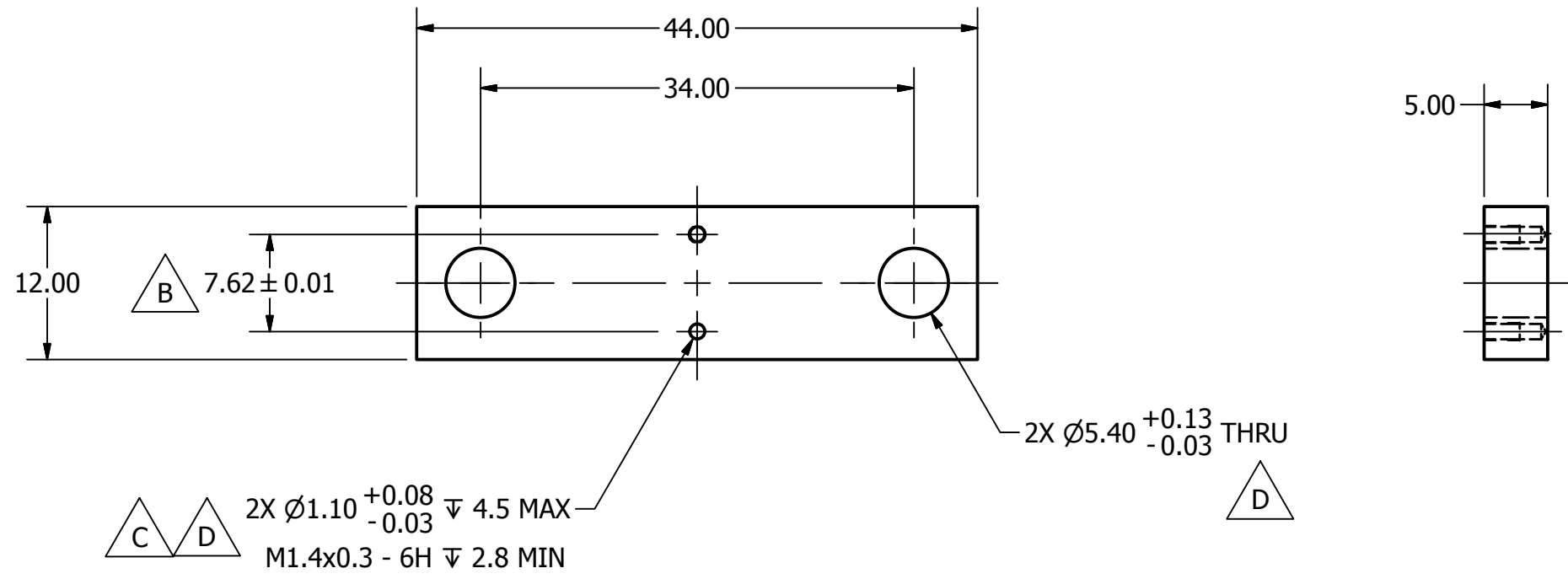
- NOTES:**
- DIMENSIONS SYMMETRIC ABOUT ϵ , UNLESS OTHERWISE NOTED.
 - STAMP OR ETCH PART NUMBER (3mm CHARACTERS) WHERE SHOWN.

ITEM	QTY	PART NUMBER	DESCRIPTION
2	4	5000422	HELICOIL, M6 X 1 X 12
1	16	5000658	HELICOIL, M5 X 0.8 X 10

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL - X ±.5 X.X ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		PENDULUM INTERFACE	
DRAWN B. KIMES		5/12/2009			
MATERIAL 6061-T6 ALUMINUM		CHECKED		DRAWING NUMBER 020-9051	
HEAT TREAT N/A		ENG		REV C	
FINISH CLEAR ANODIZE		APPROVED		SCALE: 1:1 SHEET 1 OF 1	



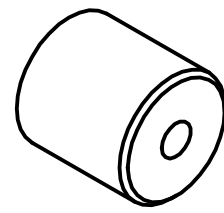
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
77088	A	RELEASE FOR PRODUCTION	BK		5/4/2009
77547	B	ADDED 5000536 QTY 2 & DIM 2X 5.0; PRESS FIT FOR DOWEL PIN M1.5 WAS 2X M1.4x0.3 ISO-H TAP 3.0 DEEP; 7.62+/-0.01 WAS 7.62	MT		11/4/2010
73152	C	REDRAWN TO INVENTOR; UPDATED TO HUMANETICS TITLEBLOCK; REMOVED 5000536 DOWEL PINS, CLEAN UP NOTE; 2X Ø1.10 DRILL 3.00 DEEP M1.4x0.3 TAP 2.00 DEEP WAS PRESS FIT FOR DOWEL PIN M1.5	AJB	DW	10/31/2014
74656	D	UPDATED HOLE CALL OUTS TO CURRENT STANDARDS	JH		12/23/2015
74656	E	REGULATION RELEASE	JH		1/7/2016



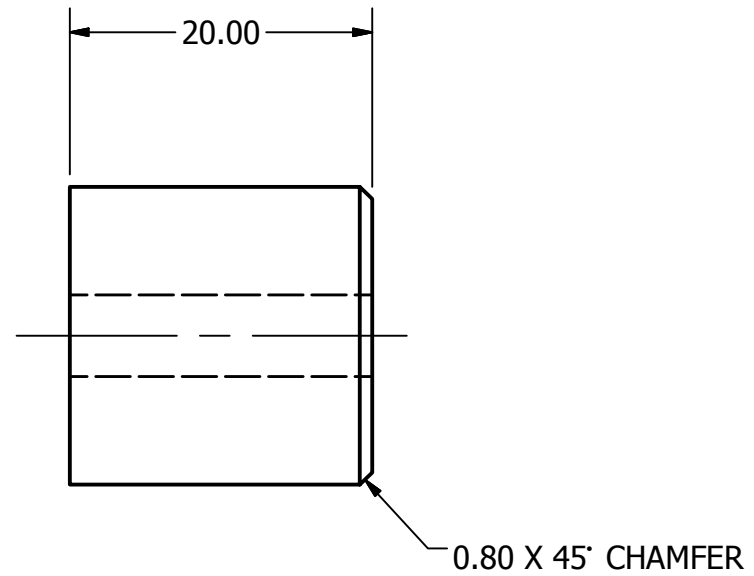
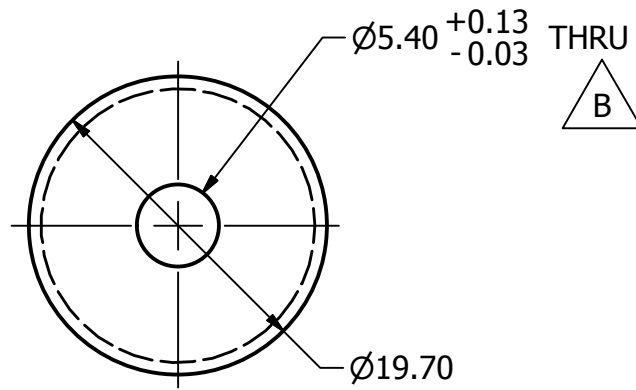
NOTES:

1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. KIMES CHECKED ENG APPROVED	DATE 5/4/2009		1 AXIS ARS MOUNT	
MATERIAL: 7075-T6 ALUMINUM HEAT TREAT: N/A FINISH: CLEAR ANODIZE		SIZE: A3 SCALE: 2:1	DRAWING NUMBER: 020-9057 SHEET: 1 OF 1	REV: E	


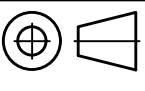


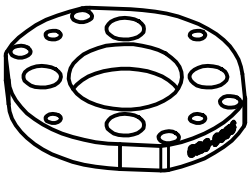
SCALE 1:1



REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
77088	A	RELEASE TO PRODUCTION	BK		5/11/2009
74656	B	REDRAWN IN INVENTOR; HUMANETICS BORDER WAS FTSS; REMOVED NOTE #1; UPDATED HOLE CALL OUTS TO CURRENT STANDARDS.	JH		12/9/2015
74656	C	REGULATION RELEASE	JH		1/7/2016

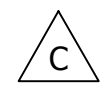
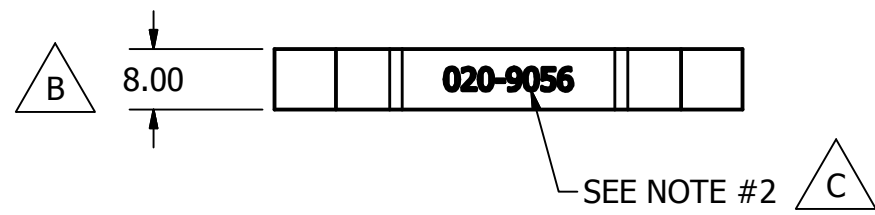
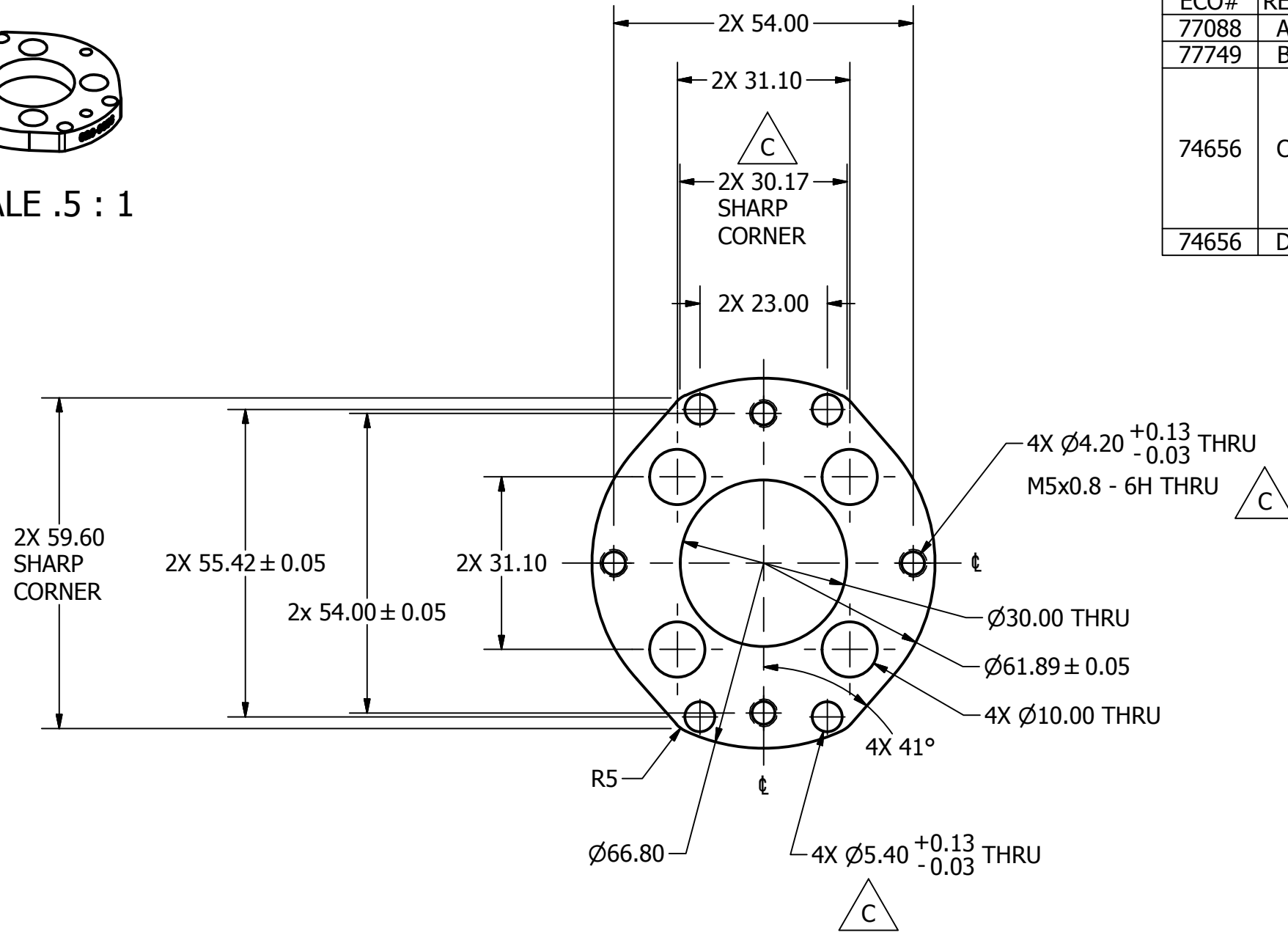


UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ✓ ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN B. KIMES CHECKED ENG APPROVED	DATE 5/11/2009	
MATERIAL 303 S.S. OR EQUIV. HEAT TREAT N/A FINISH N/A	 THIRD ANGLE PROJECTION	SIZE A3 SCALE: 2:1	DRAWING NUMBER 020-9058 SHEET 1 OF 1



SCALE .5 : 1

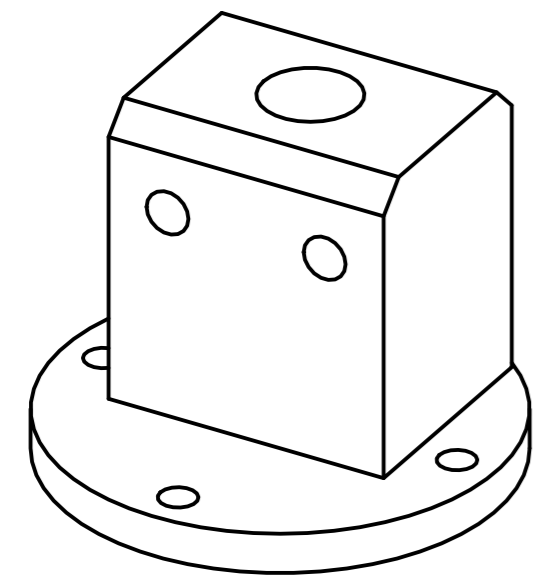
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
77088	A	RELEASE TO PRODUCTION	BK		5/01/09
77749	B	8.00 WAS 6.00	KJ		1/12/11
74656	C	REDRAWN IN INVENTOR; HUMANETICS BORDER WAS FTSS; REMOVED NOTE #1; NOTES #1 & 2 WAS 2 & 3; SEE NOTE #2 WAS 3; UPDATED HOLE CALL OUTS TO CURRENT STANDARDS; 30.17 WAS 30.20	JH		5/1/2009
74656	D	REGULATION RELEASE	JH		1/6/2016



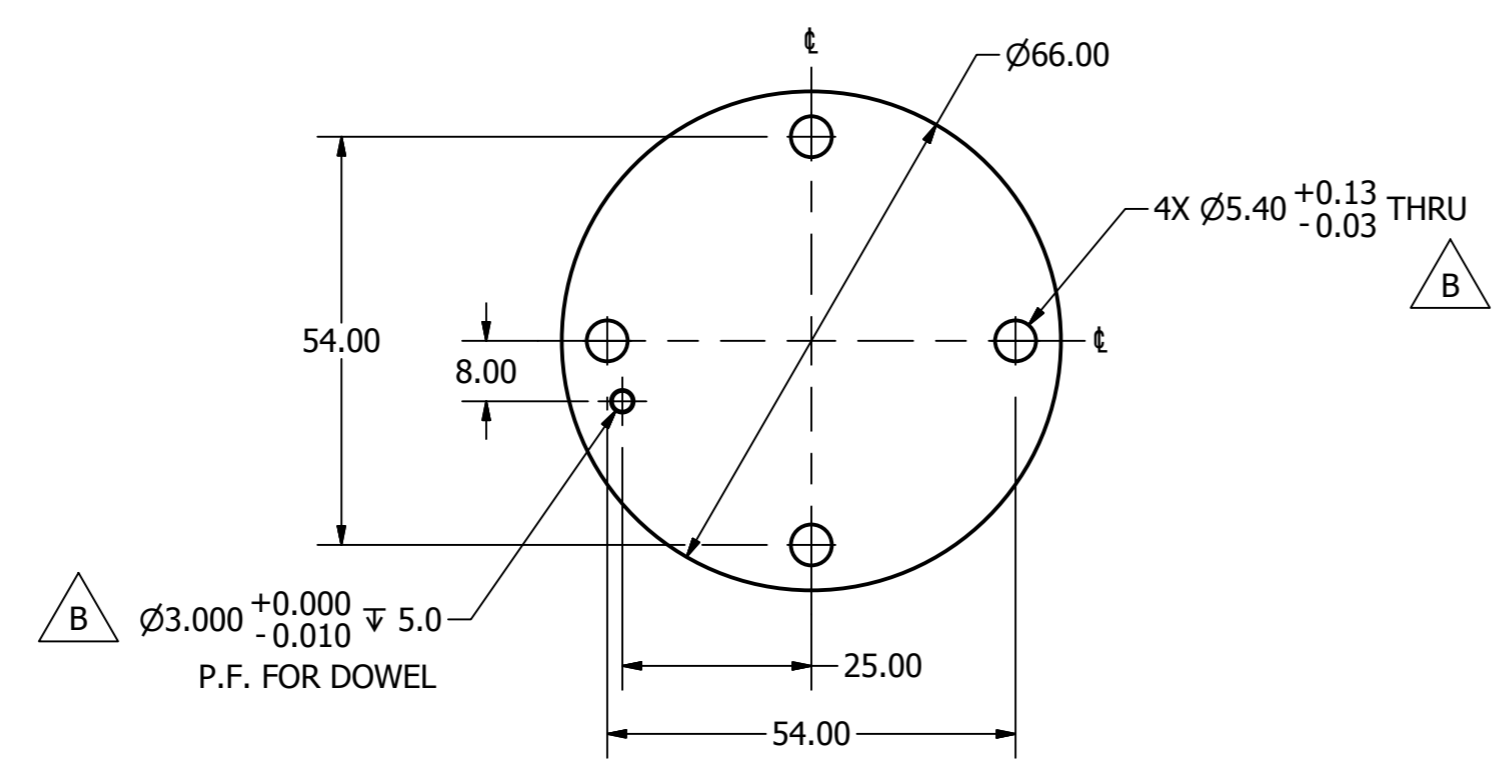
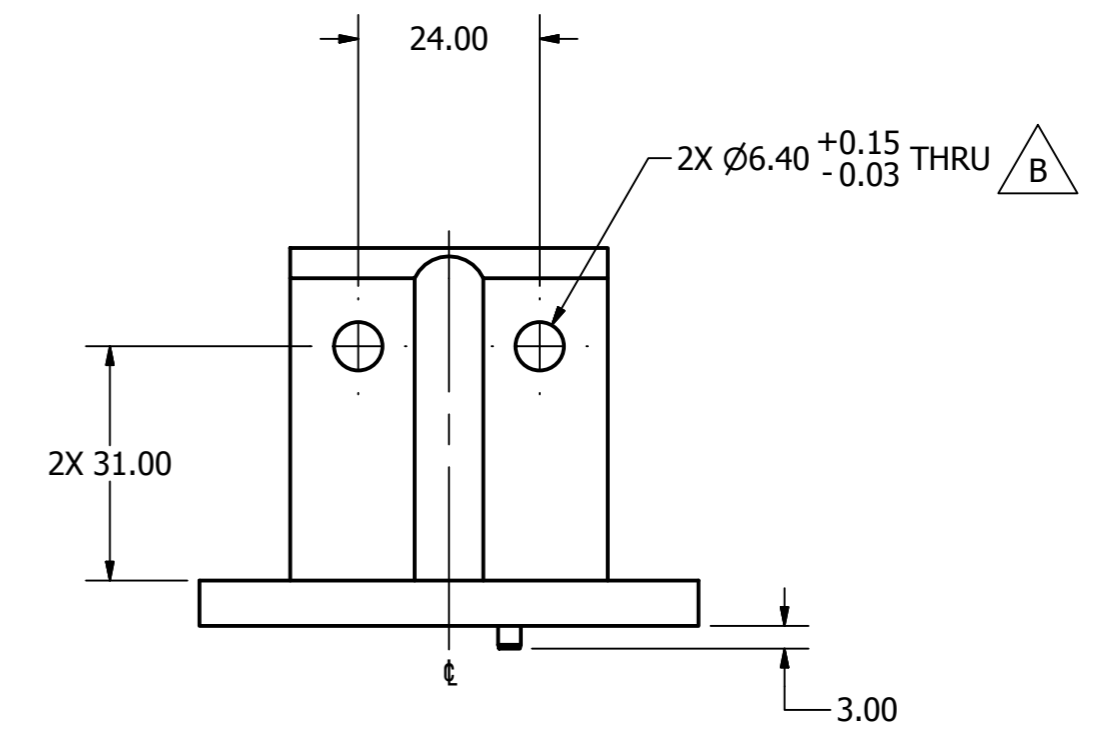
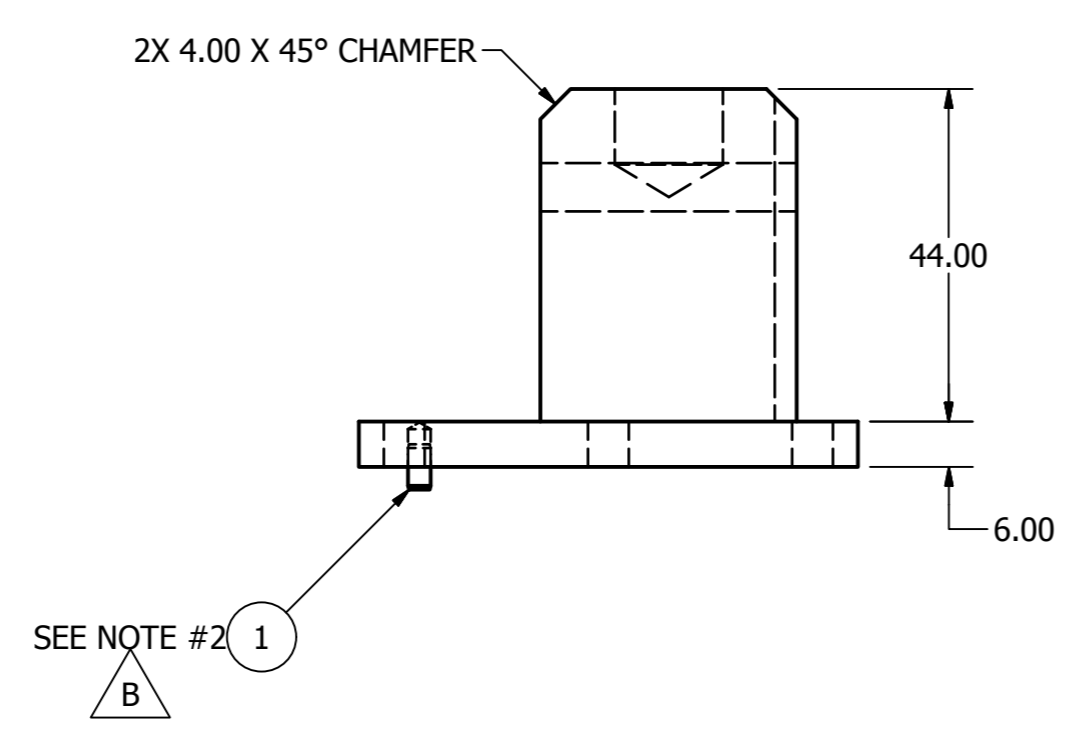
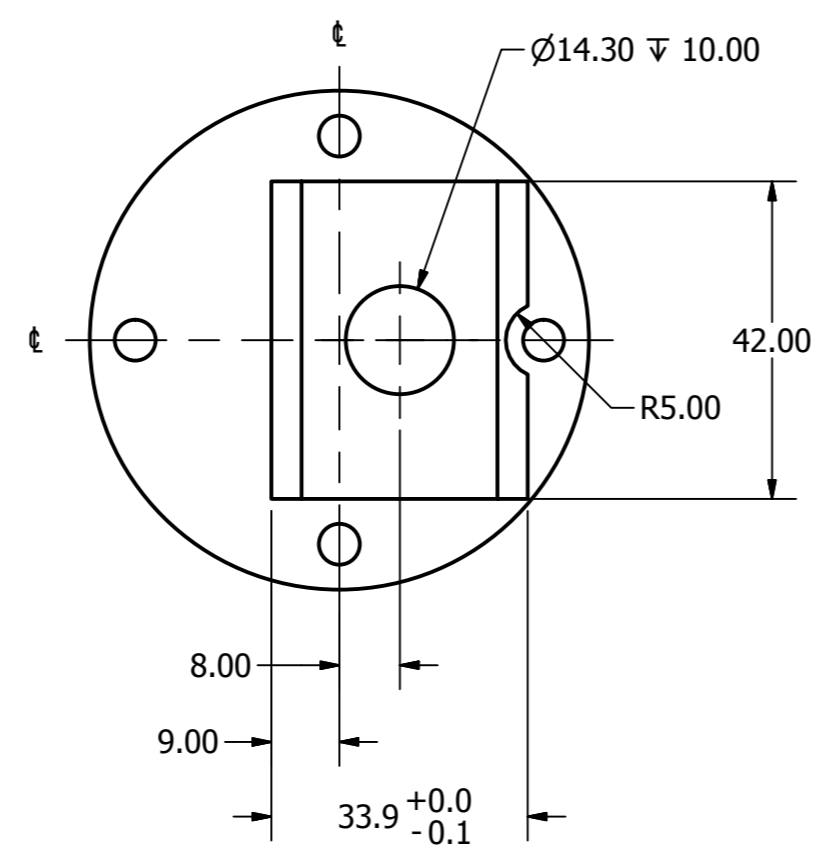
- NOTES:
1. DIMENSIONS SYMMETRIC ABOUT ϵ , UNLESS OTHERWISE NOTED.
 2. STAMP OR ETCH PART NUMBER (3mm CHARACTERS) WHERE SHOWN.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 XXX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN C. YAO	DATE 5/1/2009	
MATERIAL 303 STAINLESS STEEL	CHECKED	SIZE A3	DRAWING NUMBER 020-9056
HEAT TREAT N/A	ENG	SCALE: 1:1	REV D
FINISH N/A	APPROVED	THIRD ANGLE PROJECTION	SHEET 1 OF 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
77088	A	RELEASE TO PRODUCTION	BK		5/1/2009
74658	B	REDRAWN IN INVENTOR; HUMANETICS BORDER WAS FTSS; REMOVED NOTE #1; NOTE #1 WAS 2; UPDATED HOLE CALL OUTS TO CURRENT STANDARDS; ADDED NOTE #2 & SEE NOTE #2	JH		12/9/2015
74658	C	REGULATION RELEASE	JH		1/6/2016



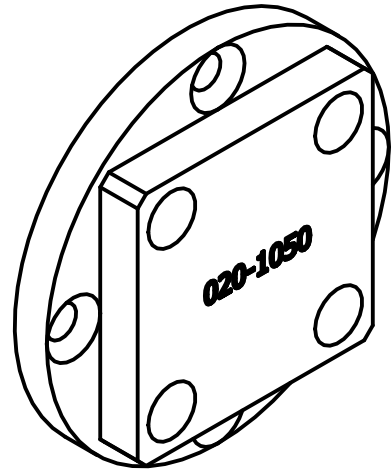
SCALE 1 : 1



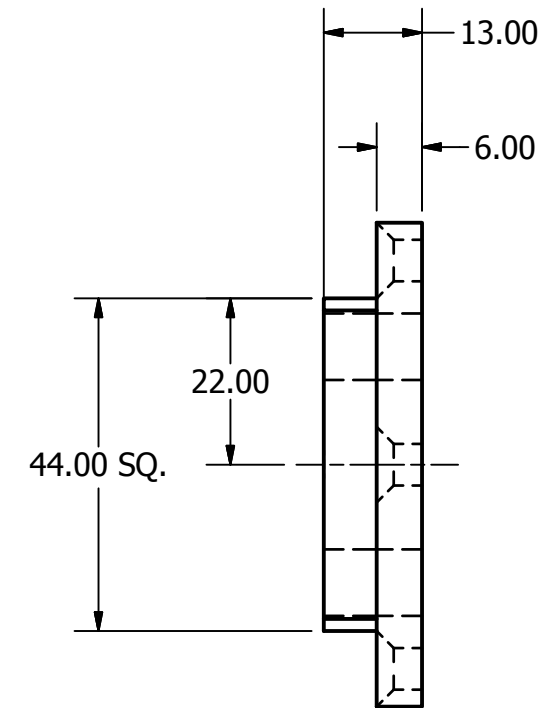
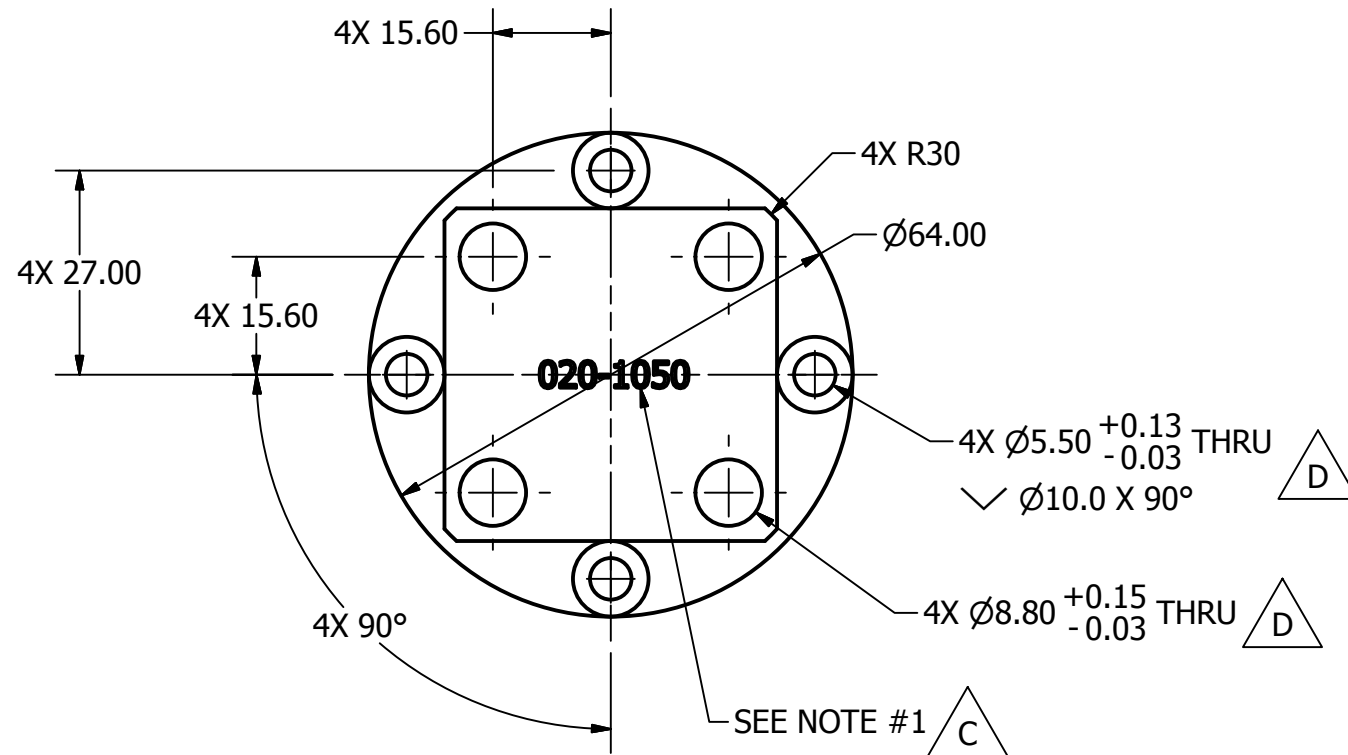
- NOTES:**
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
 2. INSTALL DOWEL PIN AFTER CLEAR ANODIZE.

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	5000385	M3 X 6 LG. DOWEL PIN

PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER	
DECIMAL - X ±.5 XX ±.2 XXX ±.1	MACHINED ANGLES ±.5°	APPROVALS	DATE
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		C. YAO	5/1/2009
MATERIAL 6061 - T6 ALUMINUM	CHECKED	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
HEAT TREAT	ENG	CENTRAL BLOCK, Q3S LUMBAR	
FINISH CLEAR ANODIZE	APPROVED	SIZE A2	DRAWING NUMBER 020-9062
THIRD ANGLE PROJECTION		SCALE: 1:1	SHEET 1 OF 1



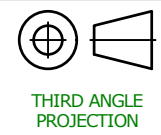
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	BK		4/11/2005
75727	B	MATERIAL 6061-T6 WAS 6081; FINISH CLEAR ANODIZE WAS SILVER ANODIZE	BK		7/25/2007
74544	C	REDRAW IN INVENTOR; UPDATE TO HUMANETICS BORDER; REMOVED NOTE #1; NOTE #1 WAS 2 & SEE NOTE #1 WAS 2	GH		11/11/2015
74650	D	UPDATED HOLE CALL OUTS TO CURRENT STANDARDS: UPDATED REV-C DESCRIPTION: REMOVED "REMOVE BURR NOTE (IN TITLE BLOCK)"; ADDED NEW NOTES	AB		12/18/15
74650	E	REGULATION RELEASE	AB		01/04/16



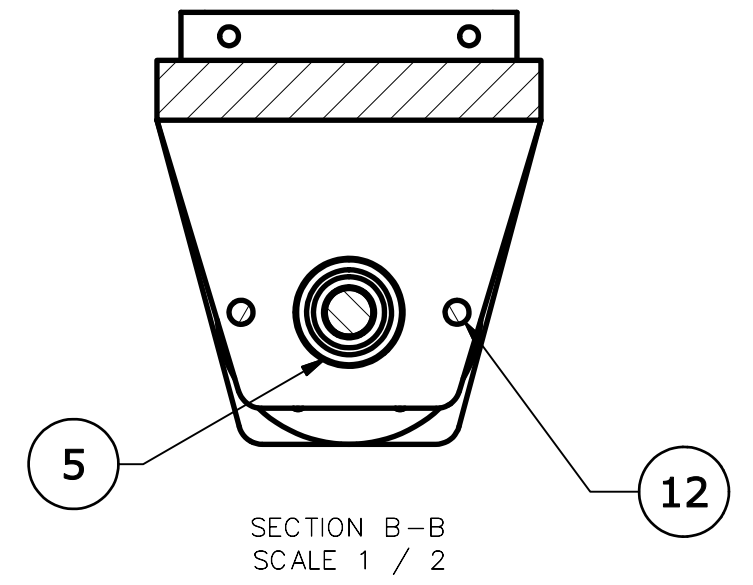
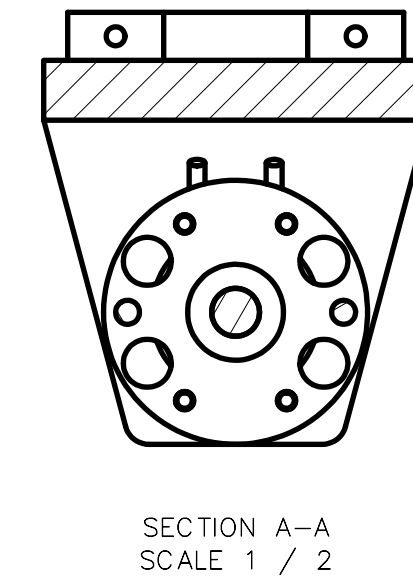
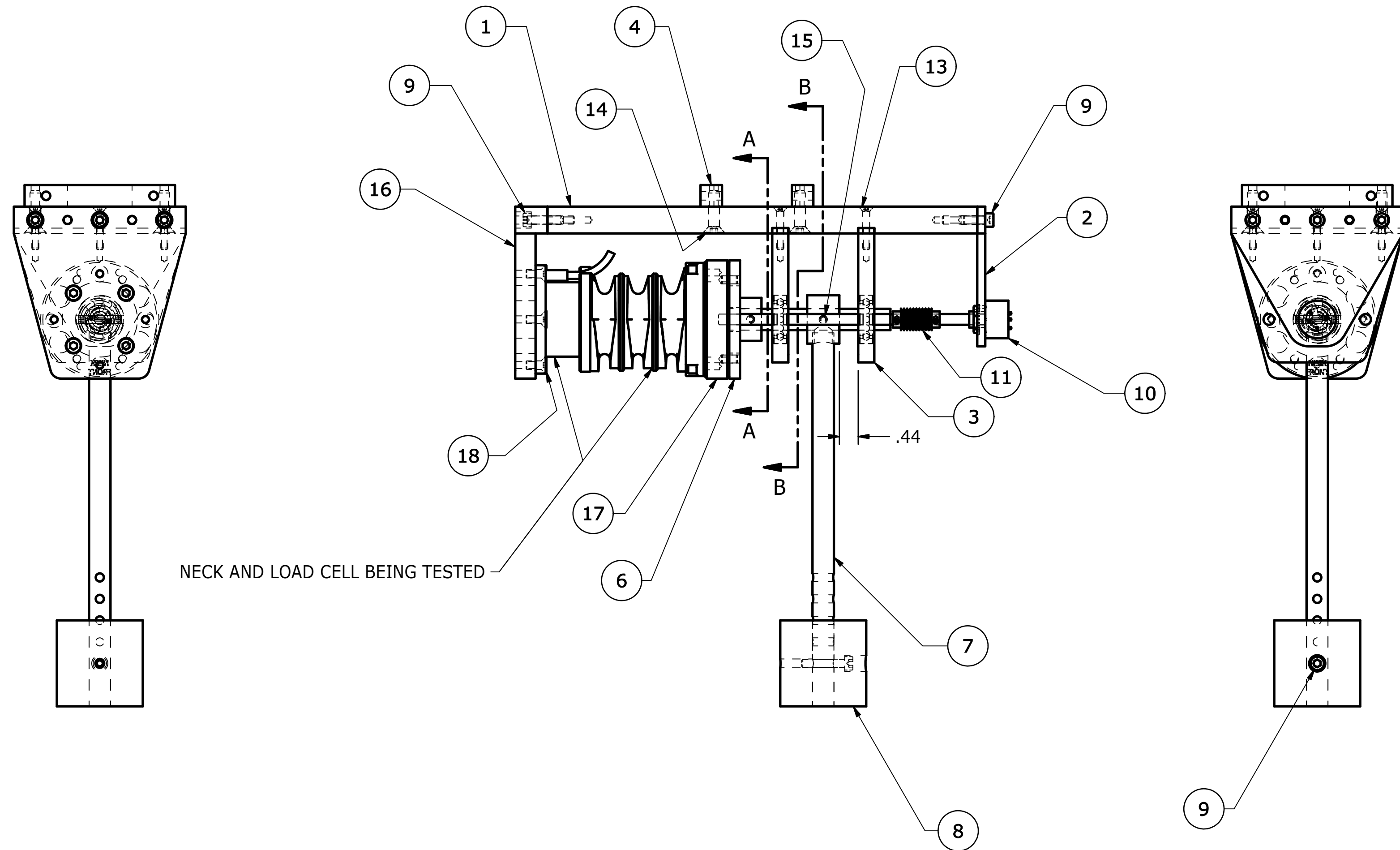
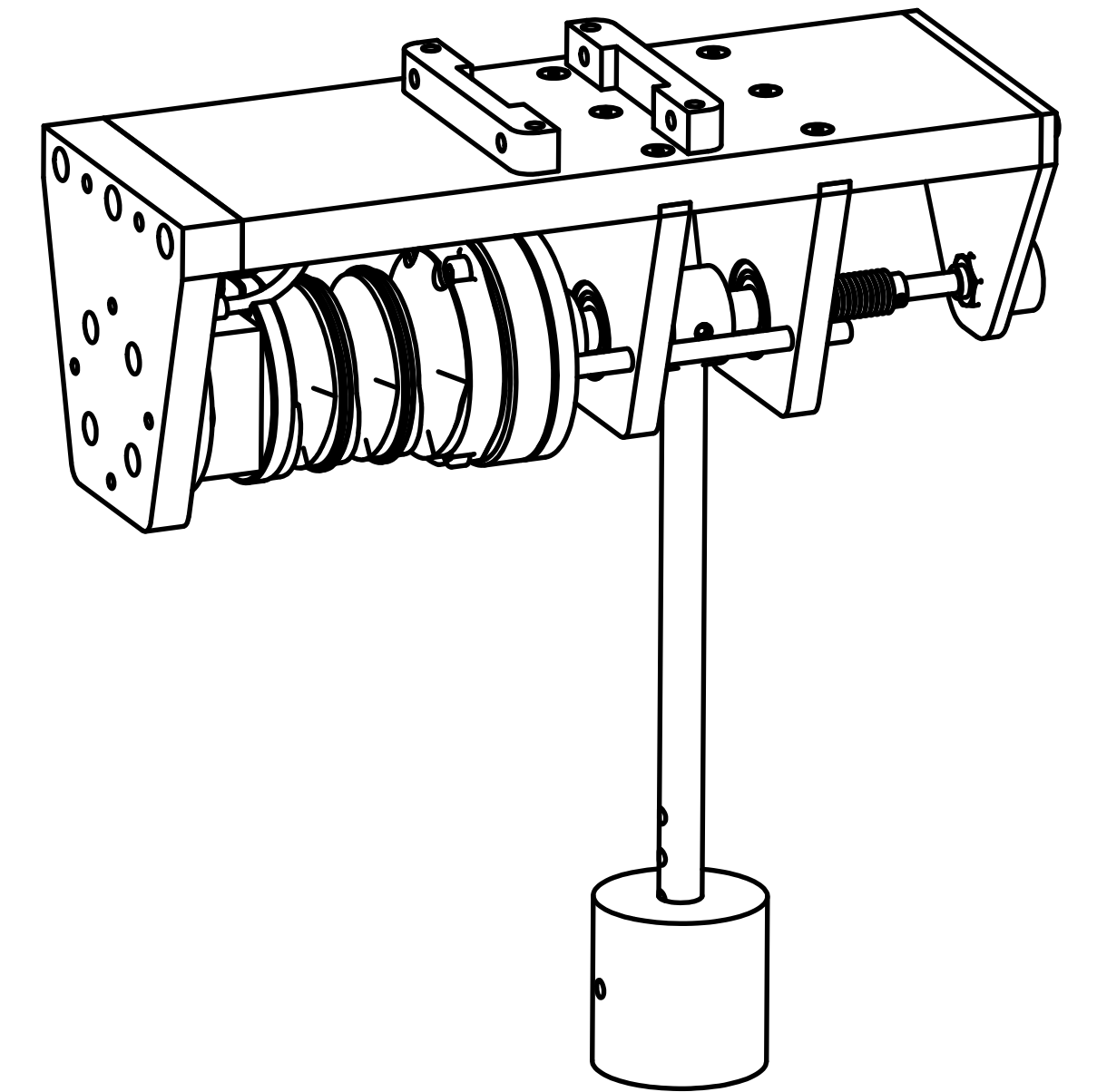
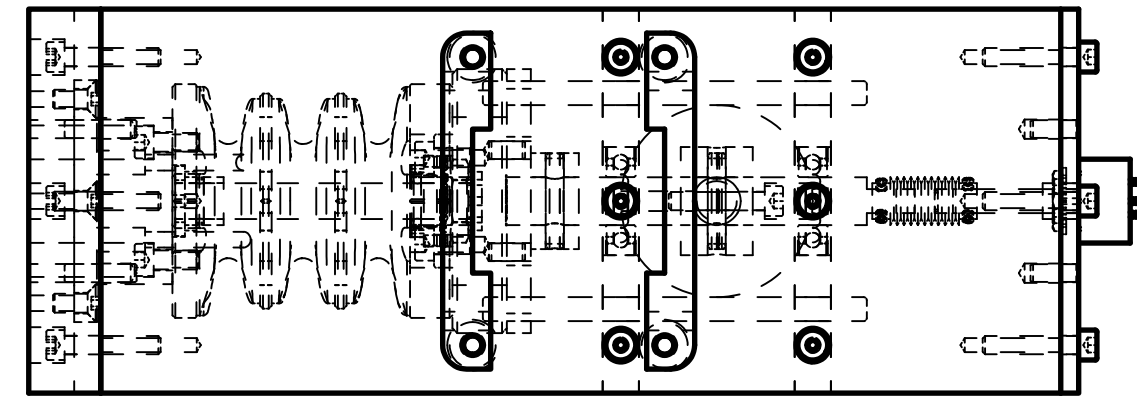
NOTES:

1. STAMP OR ETCH PART NUMBER WHERE SHOWN.

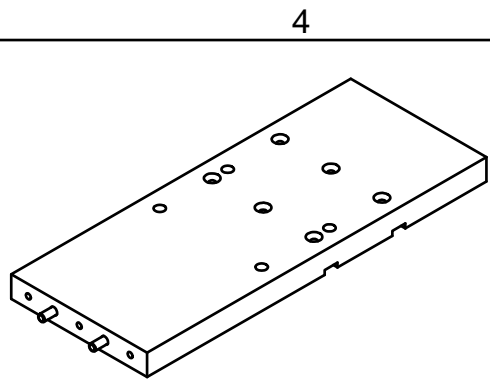
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X.X ±.5 ANGLES X.XX ±.2 ±.5° X.XXX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN D. COMBS	DATE 4/11/2005	
MATERIAL 6061-T6 ALUMINUM	CHECKED		SIZE A3
HEAT TREAT	ENG		DRAWING NUMBER 020-1050
FINISH CLEAR ANODIZE	APPROVED		REV E
			SCALE: 1:1
			SHEET 1 OF 1



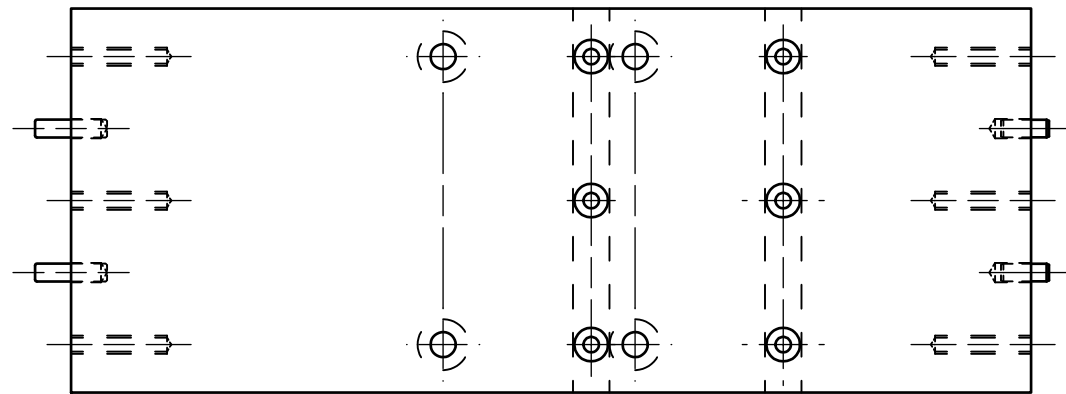
PARTS LIST				
ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL
1	1	DL210-105	TOP PLATE ASS'Y.	
2	1	DL210-106-1	END PLATE, RIGHT	Aluminum-6061
3	2	DL210-108	MIDDLE SUPPORT PLATE	Aluminum-6061
4	2	DL210-109	MOUNTING PLATE	Aluminum-6061
5	2	6138K67	BALL BEARING 1/2" ID x 1 1/8" OD x 5/16 W. DOUBLE SHIELDED	Stainless Steel
6	1	DL210-110	SHAFT ASSEMBLY	
7	1	DL210-113	PENDULUM ROD ASSEMBLY	
8	1	DL210-114	PENDULUM WEIGHT	Steel
9	7		SCREW, SHCS #10-24 x 1" LG.	Steel, Mild
10	1	SA572-S51	CHEST POTENTIOMETER	
11	1	59925K89	BELLOWS COUPLING, 1/4" ID x 1/2" OD x 1.09 LG.	
12	2		DOWEL PIN, 1/4" DIA x 4" LG.	Steel
13	6		SCREW, SHCS #8-32 x 1" LG.	Steel, Mild
14	4	9000591	SCREW, FHCS 1/4-20 x 1" LG.	Steel, Mild
15	1		PIN, ROLL, 3/16 DIA x 1" LG.	Steel, Mild
16	1	DL210-210	NECK TWIST FIXTURE END PLATE, LEFT	Aluminum-6061
17	1	DL210-220	NECK ADAPTER PLATE ASSY	
18	4		FHCS, M5 x .8 x 12	Steel, Mild



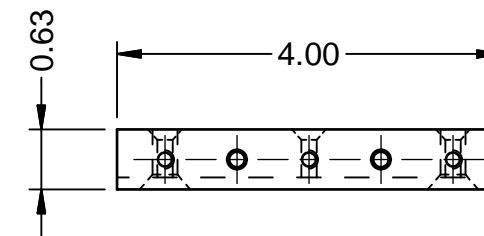
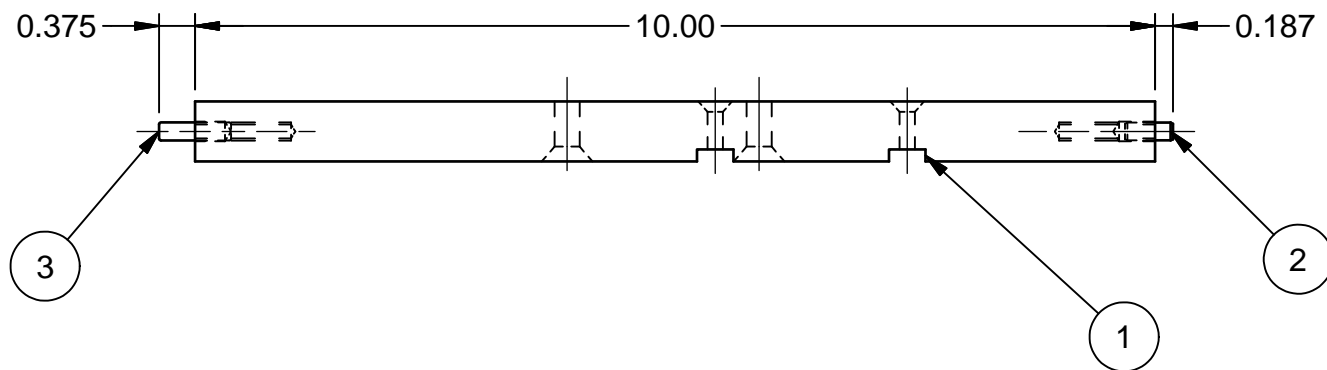
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTION: DECIMAL: ANGLES: MACHINED: ±1/64 .XX ±.01 ±5°		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		DRAWN	
CHECKED		5/11/2011		JIM CLEVINGER	
MATERIAL		ENG		CHECKED	
FINISH		APPROVED		SCALE: HALF	
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		DRAWING NUMBER		REV	
		DL210-200		1 OF 1	



REVISION RECORD			
REV	DESCRIPTION	DATE	BY
A	REDRAWN IN INVENTOR	10/8/2010	DW



RELEASED
OCT. 30, 2002
VRTC

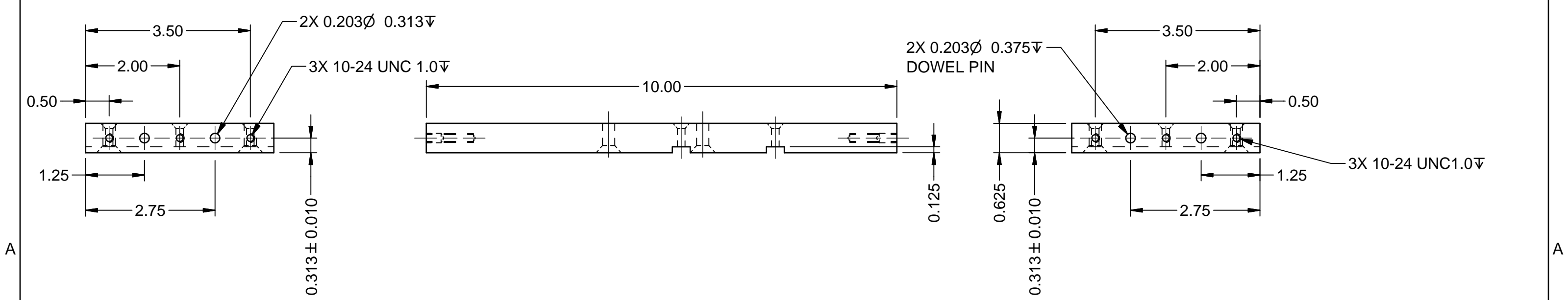
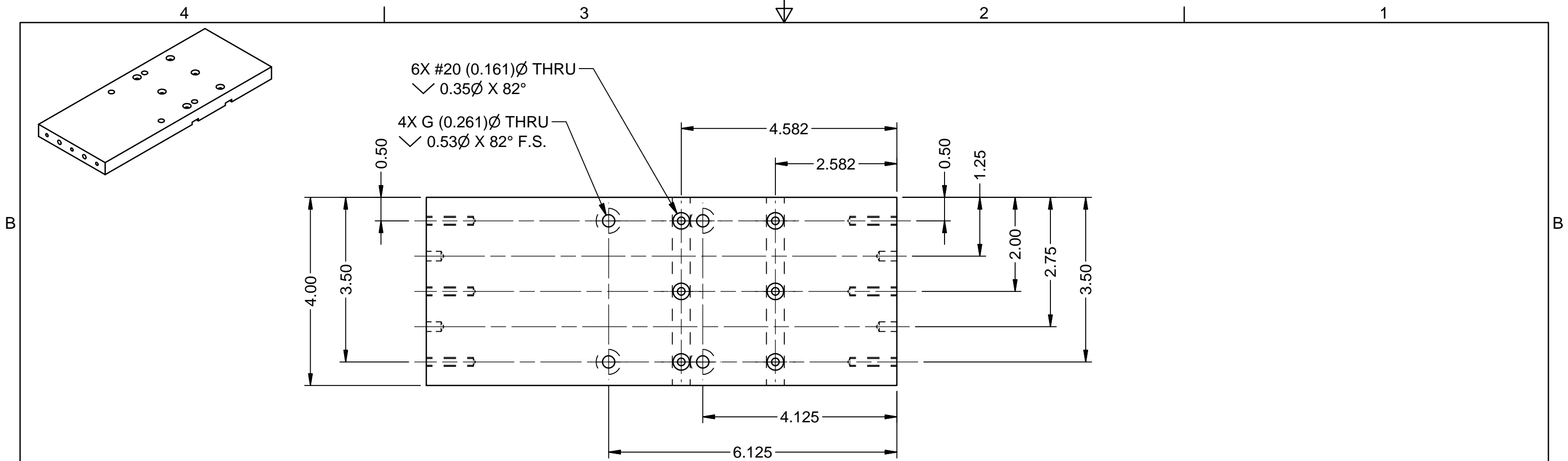
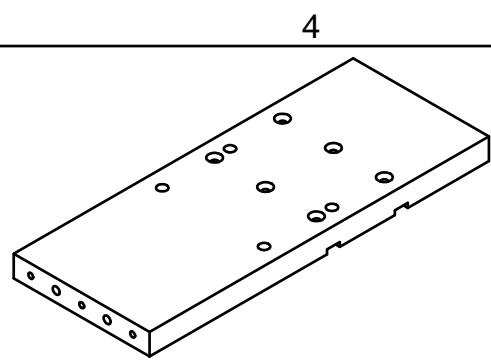


ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL
3	2		DOWEL PIN, 3/16 ϕ x 3/4 LG.	Steel, Mild
2	2		DOWEL PIN, 3/16 ϕ x 1/2 LG.	Steel, Mild
1	1	DL210-105-1	TOP PLATE	

NOTES:
1. REMOVE ALL BURRS AND BREAK ALL SHARP EDGES

DL210-100	1	DL210-100
NEXT ASY.	QTY.	USED ON
		APPLICATION

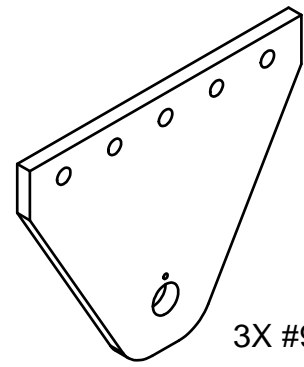
UNITS ARE in		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
TOLERANCES ARE: * DECIMALS .X \pm 0.1 .XX \pm 0.01 .XXX \pm 0.005 * unless otherwise noted		SCALE 1:2 APPROVALS: Dove Walker DATE: 10/8/2010 CHECKED:	
		NECK TWIST TEST FIXTURE TOP PLATE ASS'Y. HYBRID III 3 YEAR OLD	
SIZE B	DRAWING NUMBER DL210-105	REV A	



NOTES:
 1. REMOVE ALL BURRS AND BREAK ALL SHARP EDGES

DL210-105	1	DL210-100
NEXT ASY.	QTY.	USED ON
APPLICATION		

UNITS ARE in		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
TOLERANCES ARE: * DECIMALS .X ± 0.1 .XX ± 0.01 .XXX ± 0.005 * unless otherwise noted		
MATERIAL: ALUM.		SCALE 1:1
APPROVALS	DATE	NECK TWIST TEST FIXTURE-TOP PLATE
DRAWN Dove Walker	10/7/2010	HYBRID III 3 YEAR OLD
CHECKED		SIZE B
ENG		DRAWING NUMBER DL210-105-1
		REV



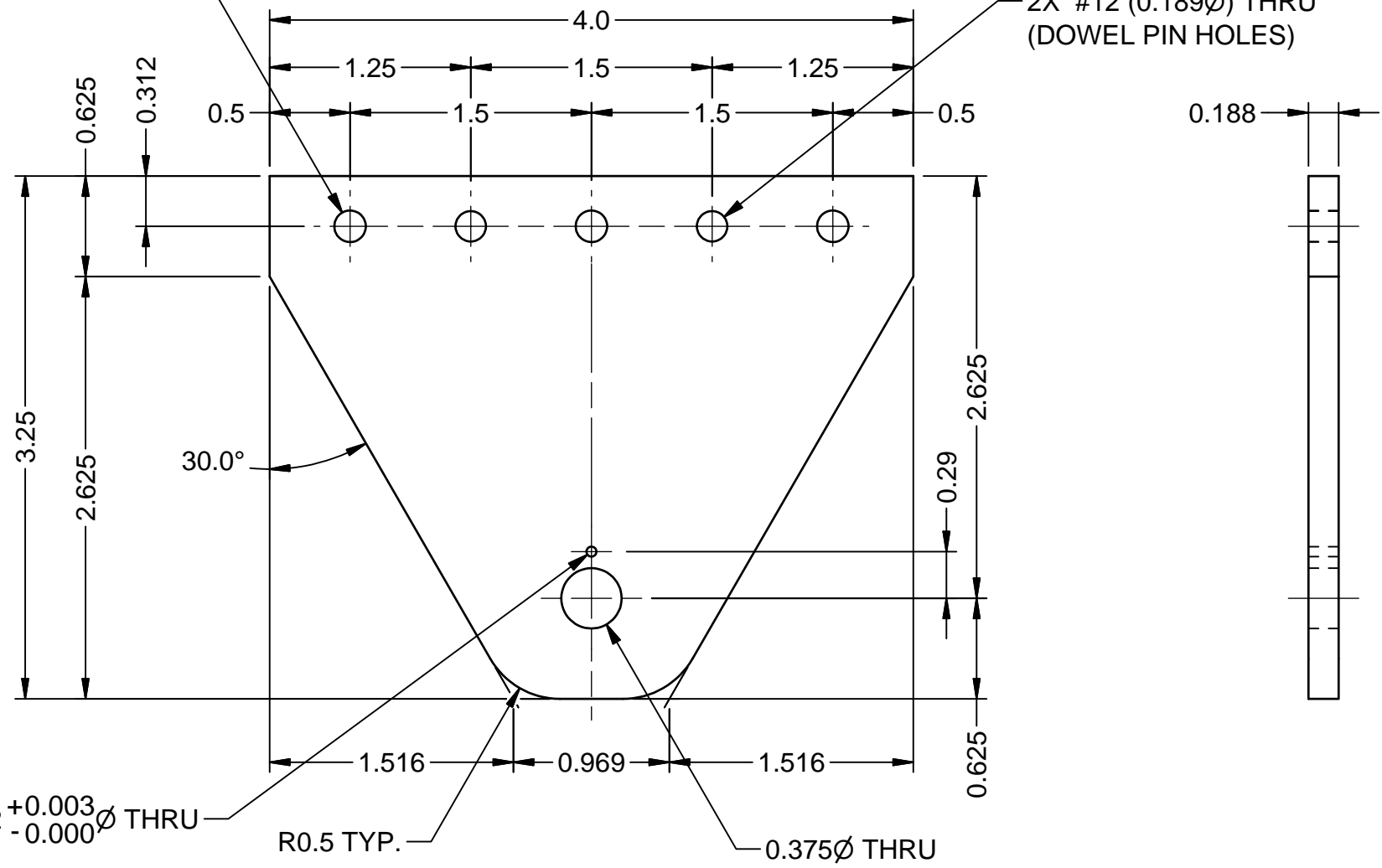
3X #9 (0.196 ϕ) THRU

2X #12 (0.189 ϕ) THRU
(DOWEL PIN HOLES)

0.062 ^{+0.003}/_{-0.000} ϕ THRU

R0.5 TYP.

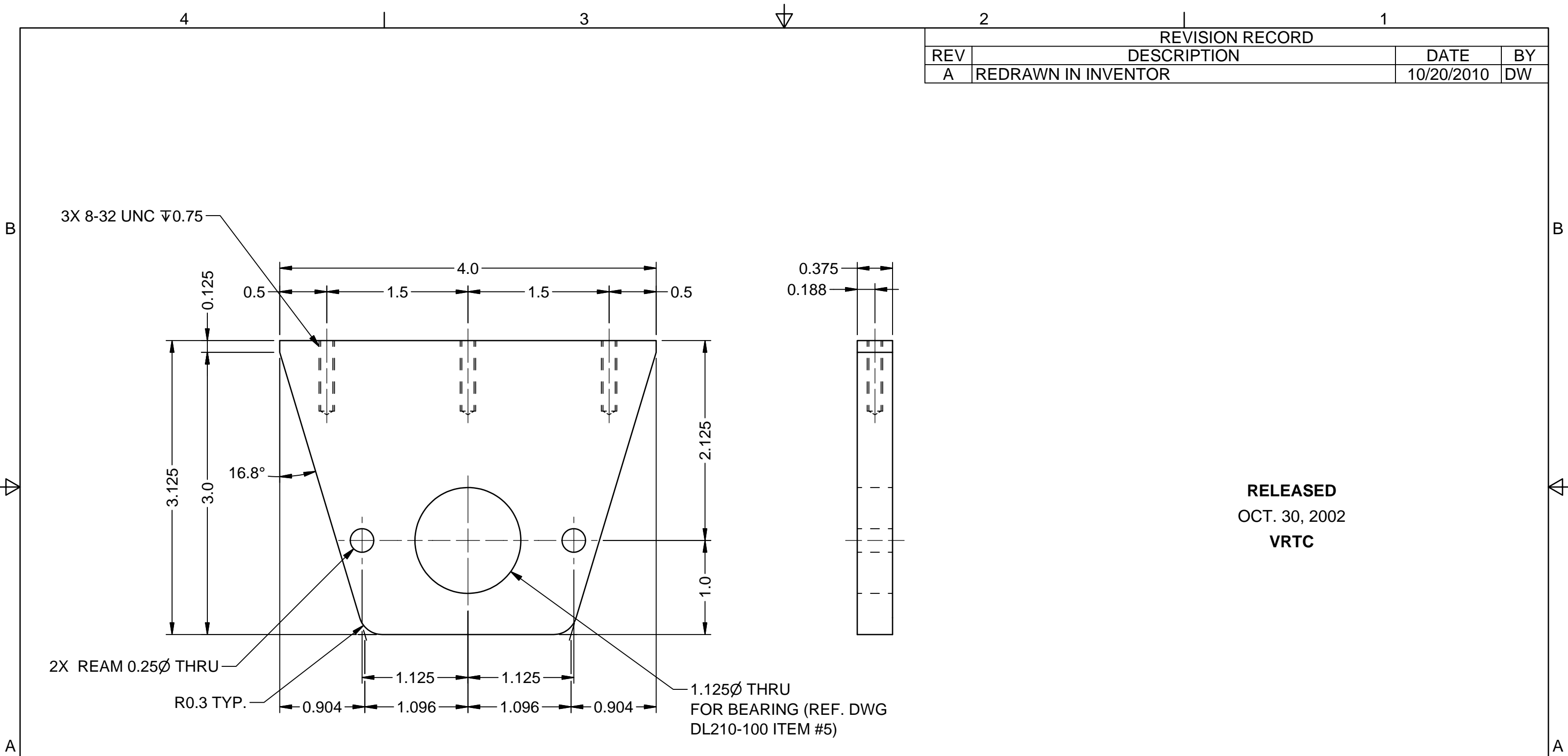
0.375 ϕ THRU



NOTES:
1. REMOVE ALL BURRS AND BREAK ALL SHARP EDGES

UNITS ARE in/mm		MATERIAL: ALUM.		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
TOLERANCES ARE: * DECIMALS .X \pm 0.1/2.5 .XX \pm 0.01/.25 .XXX \pm 0.005/.127 * unless otherwise noted		SCALE 1:2		
APPROVALS DRAWN Dove Walker CHECKED		DATE 10/20/2011		END PLATE, RIGHT
APPLICATION DL210-106 1 DL210-100 NEXT ASY. QTY. USED ON		* unless otherwise noted		HYBRIDD III 3 YEAR OLD
		SIZE B DRAWING NUMBER DL210-106-1 REV		

REVISION RECORD			
REV	DESCRIPTION	DATE	BY
A	REDRAWN IN INVENTOR	10/20/2010	DW

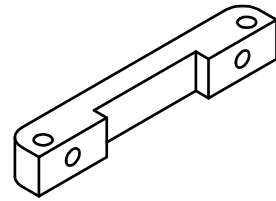


RELEASED
OCT. 30, 2002
VRTC

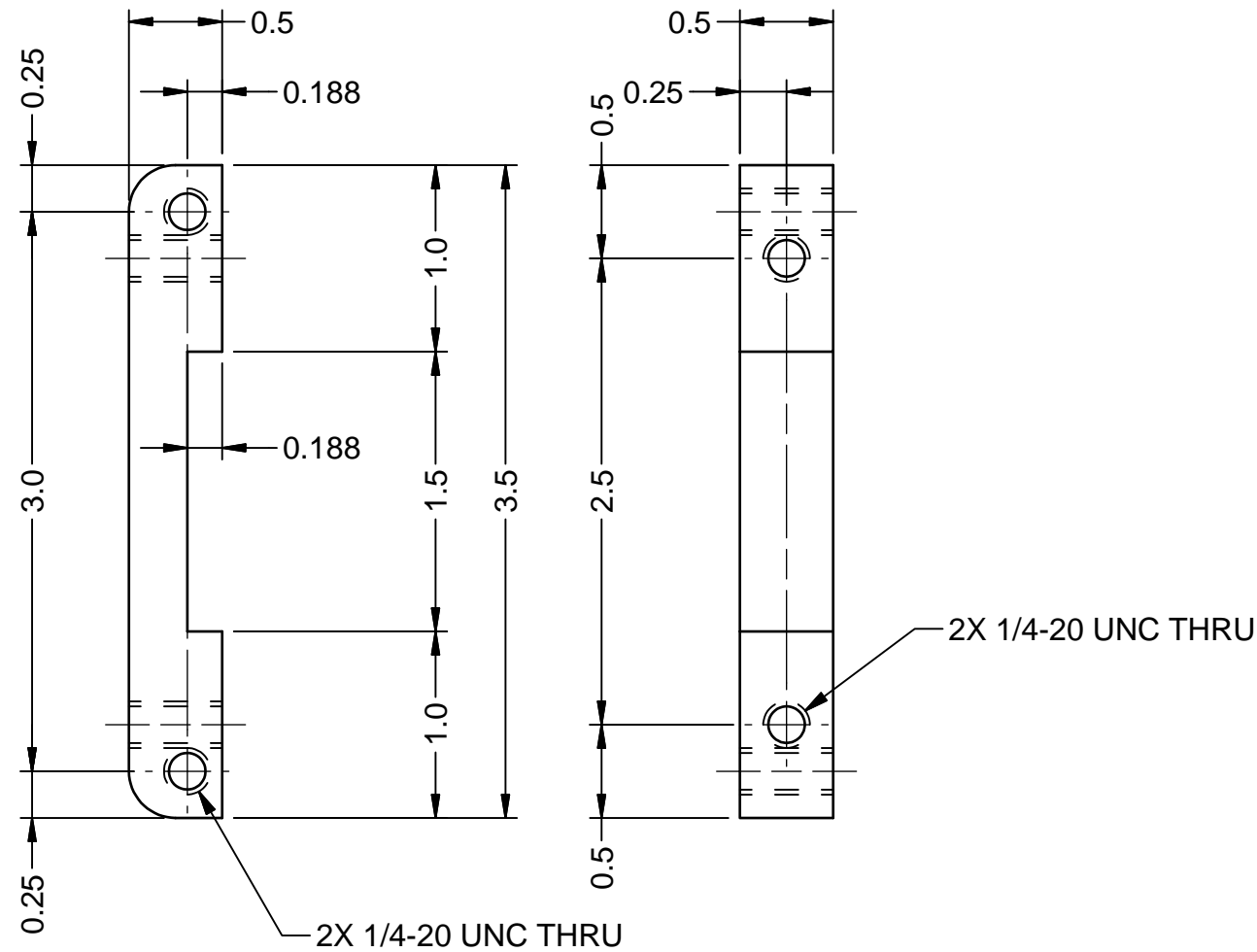
NOTES:
1. REMOVE ALL BURRS AND BREAK ALL SHARP EDGES

UNITS ARE in/mm		MATERIAL: 6061 T6 ALUM.		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
TOLERANCES ARE: *		SCALE 1:1		MIDDLE SUPPORT PLATE	
DECIMALS	ANGLES	APPROVALS	DATE	HYBRID III 3 YEAR OLD	
.X ± 0.1/2.5	± 0.5°	DRAWN	10/20/2010	SIZE B	
.XX ± 0.01/.25		DRAWN		DRAWING NUMBER DL210-108	
.XXX ± 0.005/.127		CHECKED		REV A	
* unless otherwise noted		ENG			

DL210-100	2	DL210-100
NEXT ASY.	QTY.	USED ON
APPLICATION		




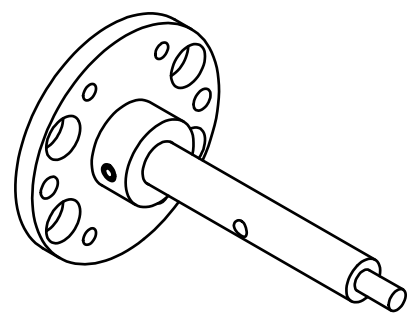
REVISION RECORD			
REV	DESCRIPTION	DATE	DES
A	REDRAWN IN INVENTOR	10/20/2010	DW



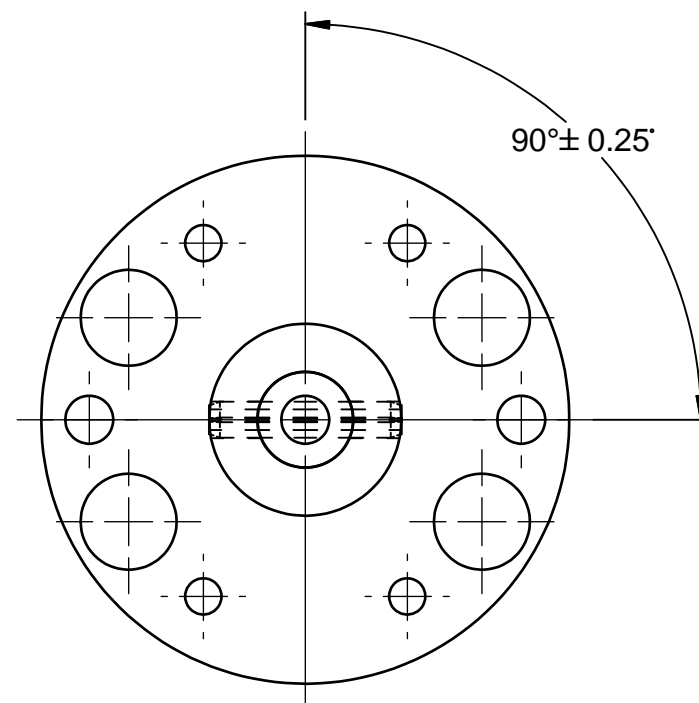
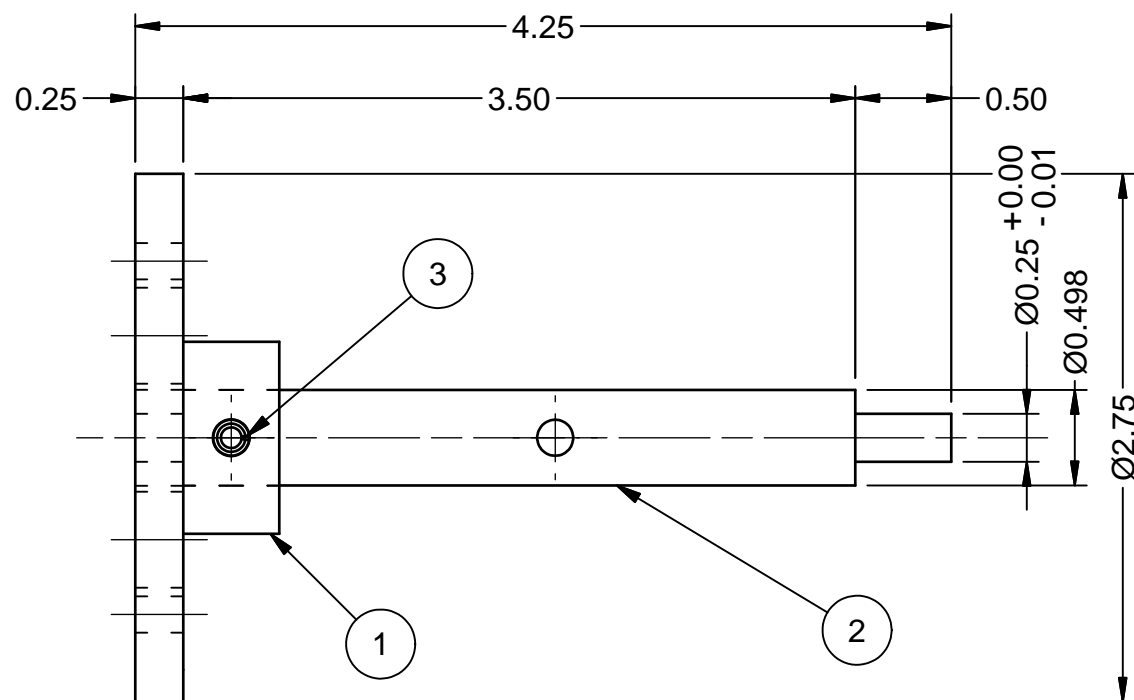
RELEASED
OCT. 30, 2002
VRTC

NOTES:
1. REMOVE ALL BURRS AND BREAK ALL SHARP EDGES

UNITS ARE in/mm		MATERIAL: 6061 T6 ALUM.		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
TOLERANCES ARE: * DECIMALS .X ± 0.1/2.5 .XX ± 0.01/.25 .XXX ± 0.005/.127 * unless otherwise noted		SCALE 1:1	DATE 10/20/2010	
DL210-100 1 DL210-100 NEXT ASY. QTY. USED ON APPLICATION		APPROVALS	DATE	HYBRID III 3 YEAR OLD
		DRAWN Dove Walker		SIZE B
		CHECKED		DRAWING NUMBER DL210-109
		ENG		REV A



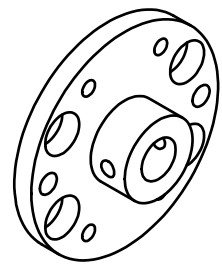
REVISION RECORD			
REV	DESCRIPTION	DATE	DES
A	REDRAWN IN INVENTOR	10/20/2010	DW



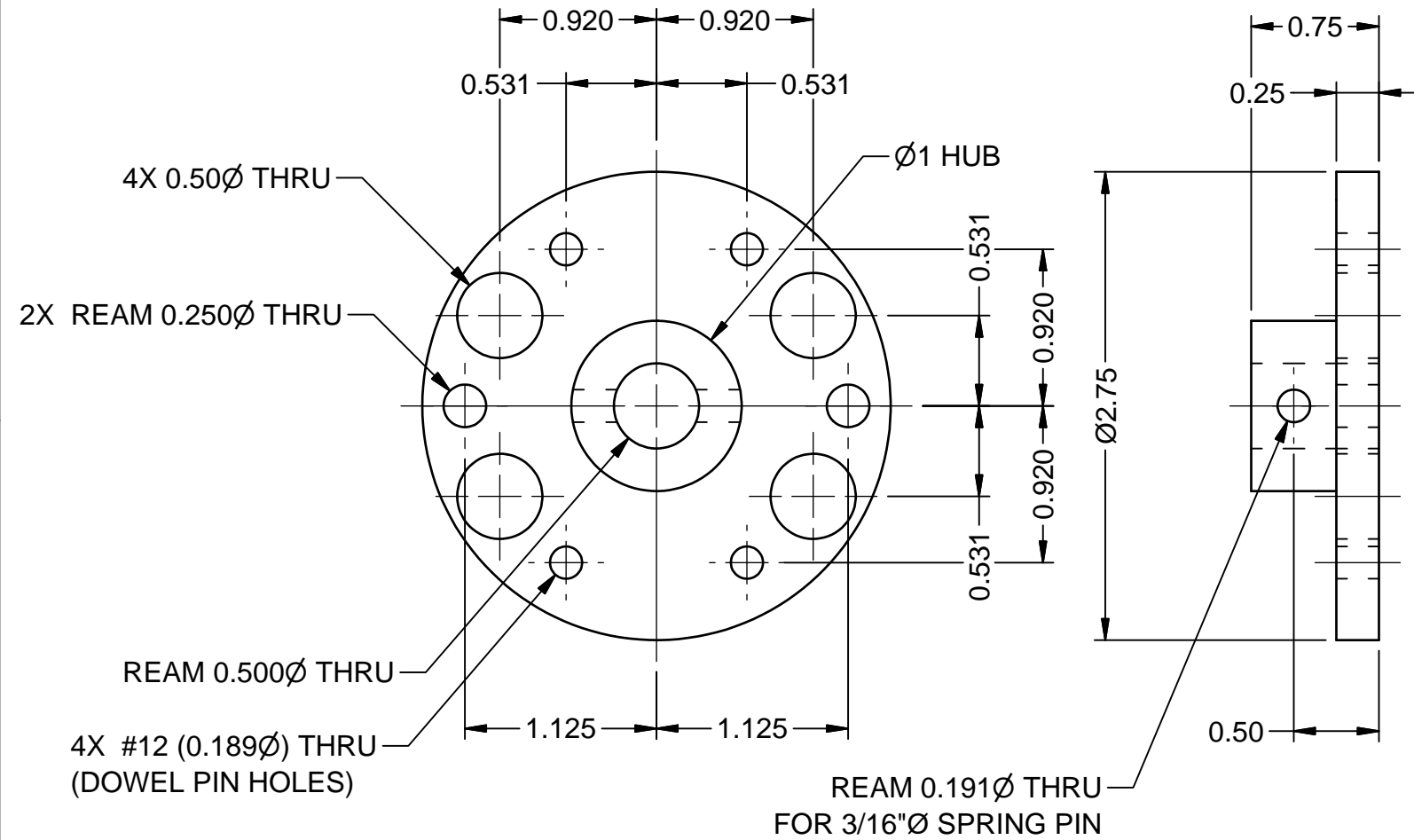
RELEASED
OCT. 30, 2002
VRTC

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL
3	1		PIN, SLOTTED SPRING 3/16Ø x 1" LG.	Steel, Mild
2	1	DL210-111	SHAFT	
1	1	DL210-112	SHAFT PLATE	

UNITS ARE in/mm		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
TOLERANCES ARE: *		SHAFT ASSEMBLY	
DECIMALS .X ± 0.1/2.5 .XX ± 0.01/.25 .XXX ± 0.005/.127	ANGLES ± 0.5°	SCALE 1:1	HYBRID III 3 YEAR OLD
* unless otherwise noted		APPROVALS DRAWN Dove Walker CHECKED	DATE 10/20/2010
APPLICATION		ENG	REV A
DL210-100	1	DL210-100	DRAWING NUMBER DL210-110
NEXT ASY.	QTY.	USED ON	SIZE B



REVISION RECORD			
REV	DESCRIPTION	DATE	DES
A	REDRAWN IN INVENTOR	10/20/2010	DW

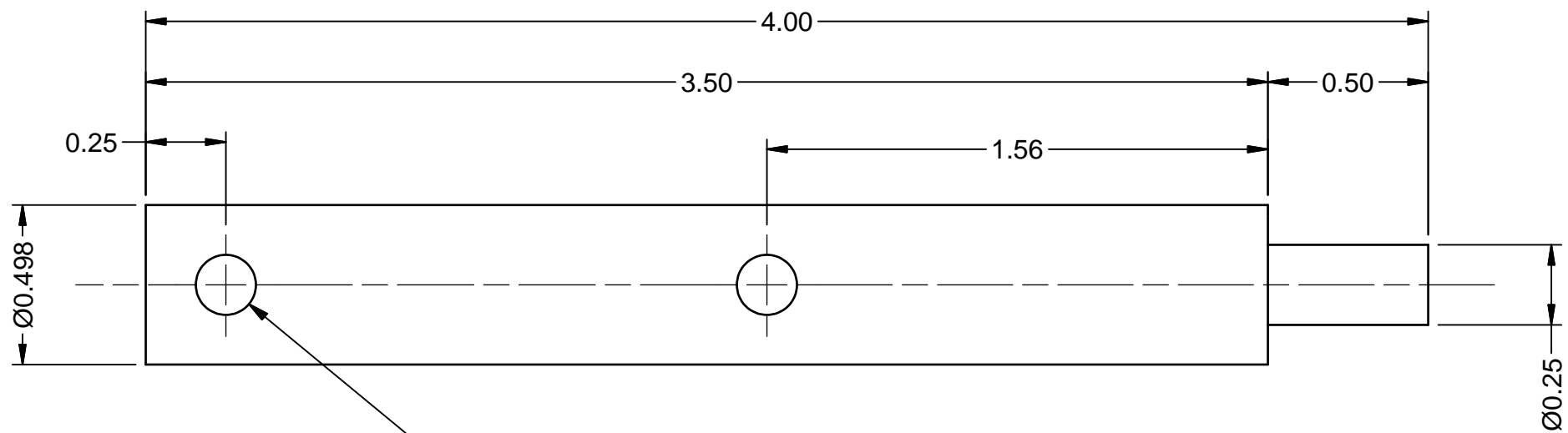
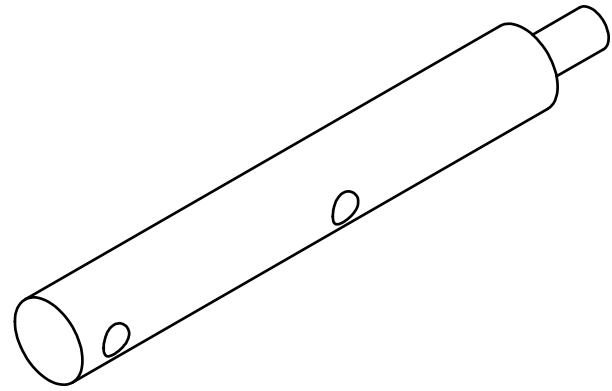


RELEASED
OCT. 30, 2002
VRTC

NOTES:
1. REMOVE ALL BURRS AND BREAK ALL SHARP EDGES

DL210-110	1	DL210-100
NEXT ASY.	QTY.	USED ON
APPLICATION		

UNITS ARE in/mm		MATERIAL: CRS		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
TOLERANCES ARE: *		SCALE 1:1		SHAFT PLATE	
DECIMALS	ANGLES	APPROVALS	DATE	HYBRID III 3 YEAR OLD	
.X $\pm 0.1/2.5$	$\pm 0.5^\circ$	DRAWN Dove Walker	10/20/2010	SIZE B	DRAWING NUMBER DL210-112
.XX $\pm 0.01/.25$		CHECKED		REV A	
.XXX $\pm 0.005/.127$		ENG			
* unless otherwise noted					



2X 0.188 ϕ THRU (REAM FOR 3/16 ϕ SPRING PIN SEE NOTE #2)

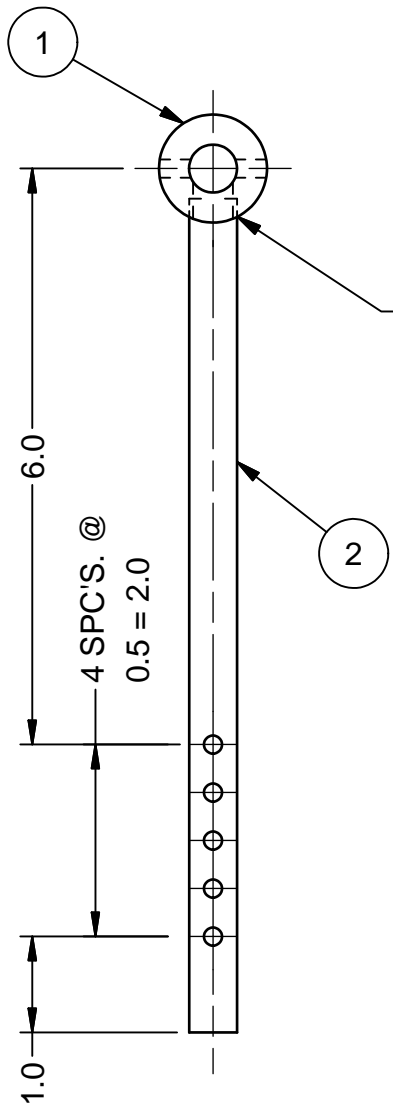
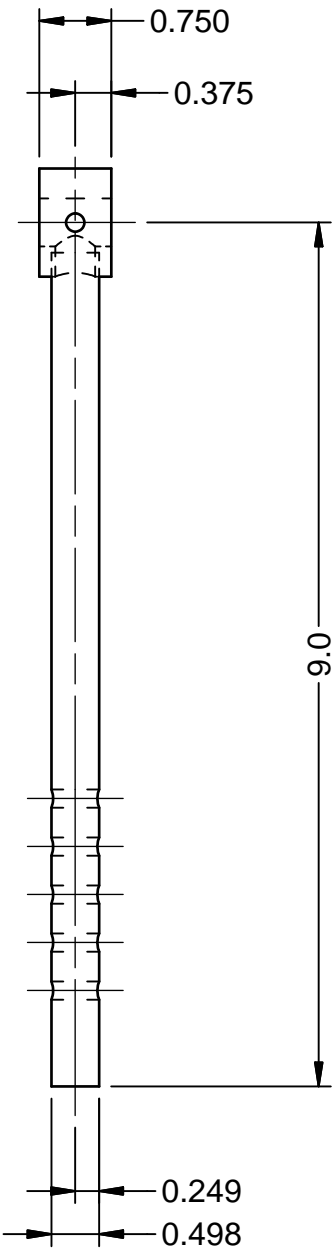
RELEASED
OCT. 30, 2002
VRTC

NOTES:
1. REMOVE ALL BURRS AND BREAK ALL SHARP EDGES

DL210-110	1	DL210-100
NEXT ASY.	QTY.	USED ON
APPLICATION		

UNITS ARE in/mm		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION			
MATERIAL: 1/2" CRS					
SCALE 2:1		SHAFT			
APPROVALS	DATE				
DRAWN Dove Walker	10/20/2011	HYBRID III 3 YEAR OLD			
CHECKED					
ENG		<table border="1"> <tr> <td>SIZE B</td> <td>DRAWING NUMBER DL210-111</td> <td>REV</td> </tr> </table>	SIZE B	DRAWING NUMBER DL210-111	REV
SIZE B	DRAWING NUMBER DL210-111	REV			

REVISION RECORD			
REV	DESCRIPTION	DATE	BY
A	REDRAWN IN INVENTOR	10/20/2010	DW



THREAD ITEM #2 INTO ITEM #1 AND ASSEMBLE WITH THREAD LOCKER

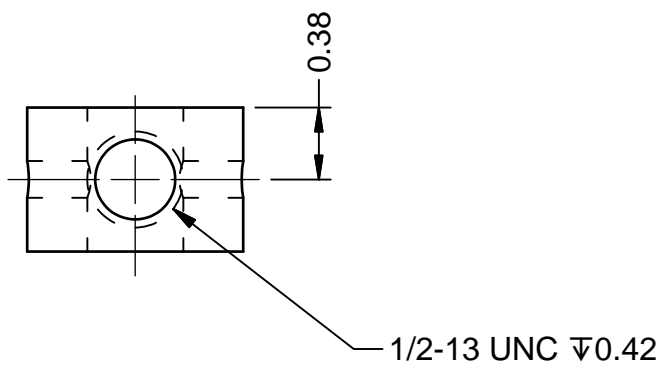
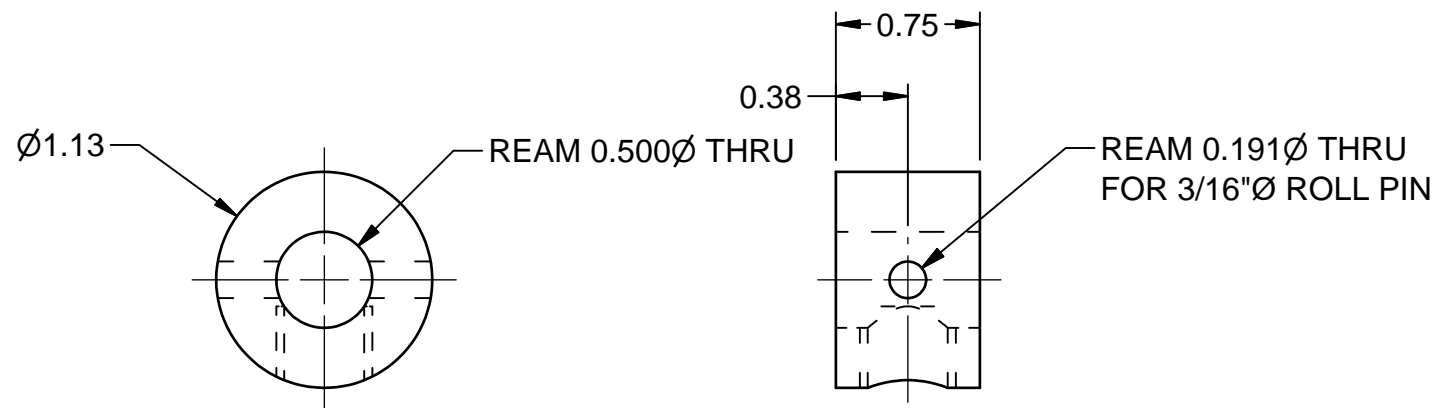
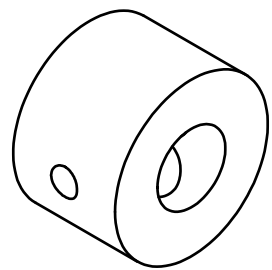
RELEASED
OCT. 30, 2002
VRTC

NOTES:
1. REMOVE ALL BURRS AND BREAK ALL SHARP EDGES

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL
2	1	DL210-113-2	PENDULUM SHAFT	
1	1	DL210-113-1	PENDULUM DISK	

UNITS ARE in/mm		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
TOLERANCES ARE: * DECIMALS .X ± 0.1/2.5 .XX ± 0.01/.25 .XXX ± 0.005/.127 * unless otherwise noted		
SCALE 1:2		PENDULUM ROD ASSEMBLY HYBRID III 3 YEAR OLD
APPROVALS	DATE	
DRAWN Dove Walker	10/20/2010	SIZE B
CHECKED		DRAWING NUMBER DL210-113
ENG		REV A


DL210-100	1	DL210-100
NEXT ASY.	QTY.	USED ON
APPLICATION		

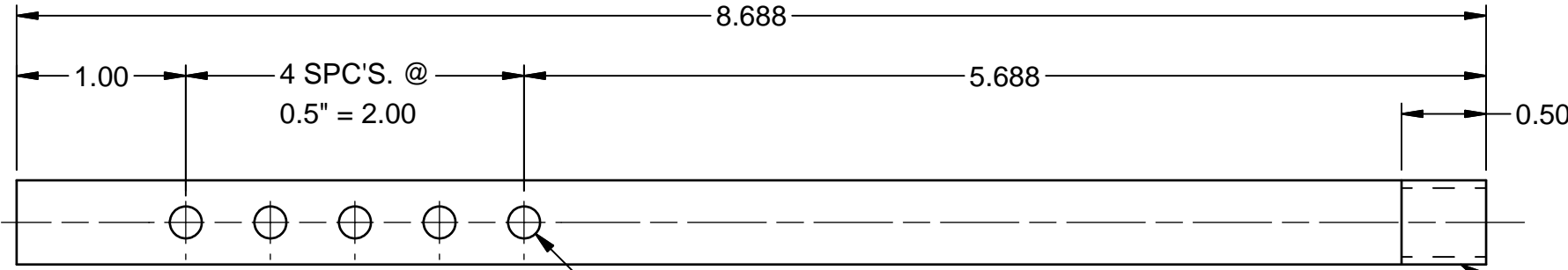
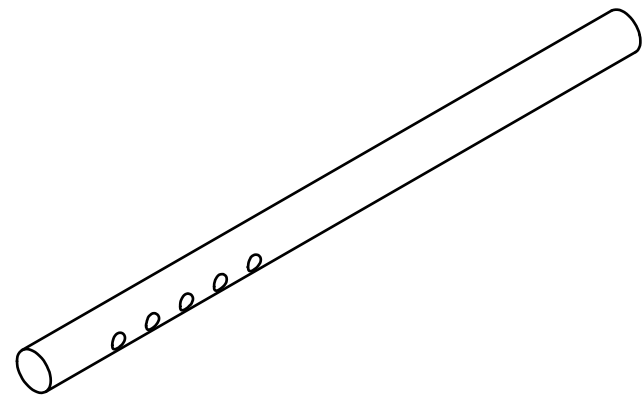


RELEASED
OCT. 30, 2002
VRTC

NOTES:
1. REMOVE ALL BURRS AND BREAK ALL SHARP EDGES

DL210-113	1	DL210-100
NEXT ASY.	QTY.	USED ON
APPLICATION		

UNITS ARE in/mm		MATERIAL: CRS		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
TOLERANCES ARE: *		SCALE 1:1		
DECIMALS	ANGLES	APPROVALS	DATE	PENDULUM DISK HYBRID III 3 YEAR OLD
.X ± 0.1/2.5	± 0.5°	DRAWN		
.XX ± 0.01/.25		Dove Walker	10/20/2011	
.XXX ± 0.005/.127		CHECKED		
* unless otherwise noted		ENG		SIZE B DRAWING NUMBER DL210-113-1 REV




5X #12 (0.189Ø) THRU

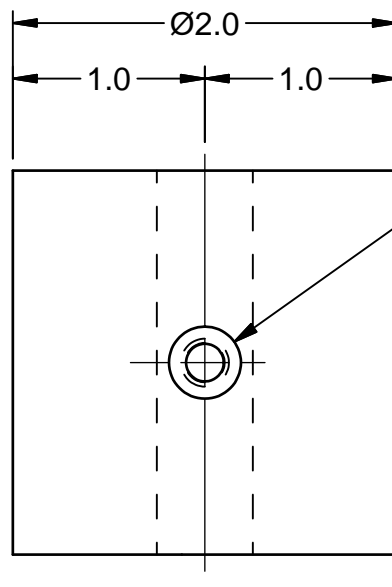
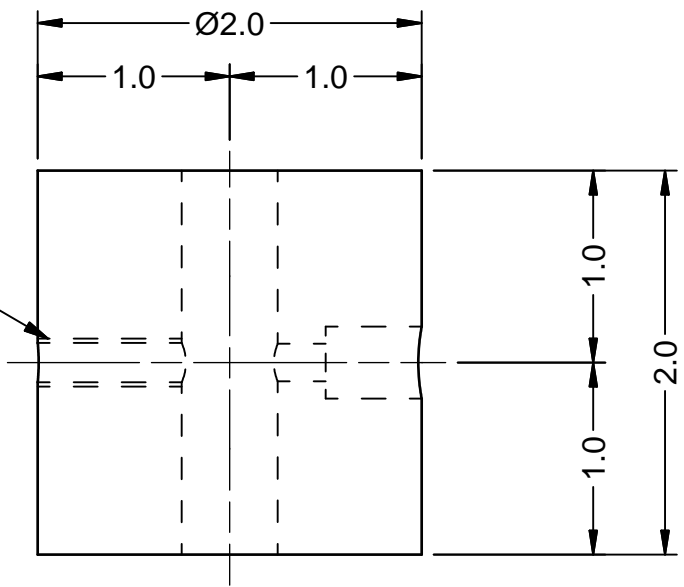
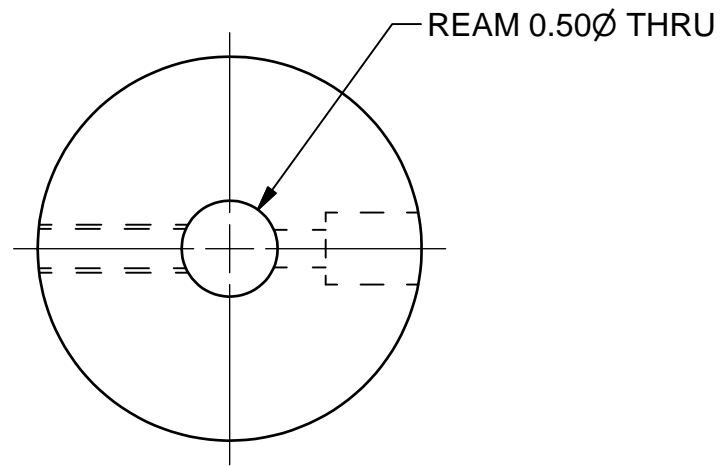
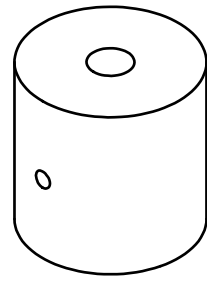
1/2-13 UNC

RELEASED
OCT. 30, 2002
VRTC

NOTES:
1. REMOVE ALL BURRS AND BREAK ALL SHARP EDGES


DL213-100	1	DL210-100
NEXT ASY.	QTY.	USED ON
APPLICATION		

UNITS ARE in/mm		MATERIAL: CRS		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
TOLERANCES ARE: * DECIMALS .X ± 0.1/2.5 .XX ± 0.01/.25 .XXX ± 0.005/.127 * unless otherwise noted		SCALE 1:1		
APPROVALS		DATE		BAR 0.498 x 8.688 LG.
DRAWN Dove Walker		10/20/2011		HYBRID III 3 YEAR OLD
CHECKED		ENG		SIZE B
DRAWING NUMBER		REV		DL210-113-2



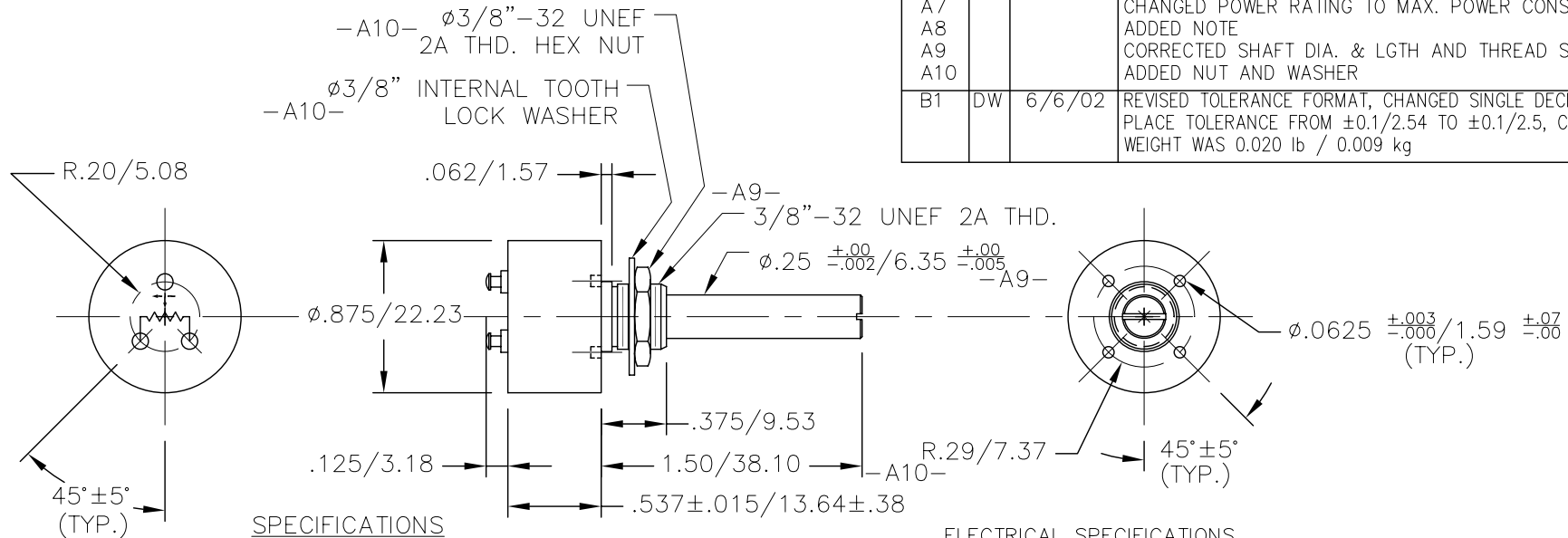
RELEASED
OCT. 30, 2002
VRTC

NOTES:
1. REMOVE ALL BURRS AND BREAK ALL SHARP EDGES

UNITS ARE in/mm			 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION		
TOLERANCES ARE: * DECIMALS .X ± 0.1/2.5 .XX ± 0.01/.25 .XXX ± 0.005/.127 * unless otherwise noted					MATERIAL: CRS SCALE 1:1
DL210-100 1 DL210-100 NEXT ASY. QTY. USED ON			APPROVALS	DATE	PENDULUM WEIGHT HYBRID III 3 YEAR OLD
APPLICATION			DRAWN Dove Walker	10/20/2011	
			ENG		SIZE B DRAWING NUMBER DL210-114 REV

REVISION RECORD

ITEM NO.	BY	DATE	DESCRIPTION
A1	DW	9/20/99	CHANGED RESISTANCE OF 1 K Ohm TO 1K, 2K, 5K, 10K Ohm
A2			RESOLUTION FROM CONTINUES TO VIRTUALLY INFINITE
A3			LIFE REDUCED TO >10,000 REVS.
A4			ADDED REFERENCE TO NORMAL OUTPUT SENSITIVITY
A5			CHANGED EFFECTIVE LINEAR RANGE FROM 320-360 ±5° TO 320 ±5°
A6			CHANGED EFFECTIVE ELECTRICAL TRAVEL FROM 320-360 ±5° TO 320 ±5°
A7			CHANGED POWER RATING TO MAX. POWER CONSUMPTION
A8			ADDED NOTE
A9			CORRECTED SHAFT DIA. & LGTH AND THREAD SIZE
A10			ADDED NUT AND WASHER
B1	DW	6/6/02	REVISED TOLERANCE FORMAT, CHANGED SINGLE DECIMAL PLACE TOLERANCE FROM ±0.1/2.54 TO ±0.1/2.5, CORRECTED WEIGHT WAS 0.020 lb / 0.009 kg



SPECIFICATIONS

ELECTRICAL SPECIFICATIONS

PERFORMANCE PARAMETERS

- A1-TOTAL RESISTANCE 1K,2K,5K,10K Ohm ±10%
- A2-RESOLUTION VIRTUALLY INFINITE
- ROTATIONAL SPEED to 700 rpm
- LINEARITY ± 0.5% F.S.
- A3-ROTATIONAL LIFE > 10,000 REVS
- SHOCK 50 g

- A6-EFFECTIVE ELECTRICAL TRAVEL 320, ±5 deg
- INDEPENDENT LINEARITY < ± 0.5% F.S.
- A7-MAX POWER CONSUMPTION < 1/10 Watts

RELEASED

JUN. 10, 2002

NHTSA

MECHANICAL SPECIFICATIONS

- MECHANICAL ANGLE CONTINUOUS NO STOPS
- TORQUE MAX MINIMAL TORQUE
- OPERATING TEMP. 69-72°F/20.6 - 22.2°C
- STORAGE TEMP. 0-200°F/-17.8-93.3°C
- HUMIDITY 10-70% RELATIVE HUMIDITY
- WATER PROOF NO
- B1-WEIGHT < .050 lb / 0.023 kg

CHARACTERISTICS

- NOMINAL MAXIMUM INPUT VOLTAGE 10V DC
- A4-NOMINAL OUTPUT SENSITIVITY > 0.03%Vin/10 deg (REF.)
- A5-EFFECTIVE LINEAR RANGE 320, ±5 deg
- MECHANICAL TRAVEL NO LIMIT
- MOUNTING PLANE
- A8-SIGNAL OUTPUT MUST BE COMPATIBLE WITH AND RECORDABLE IN A DATA CHANNEL AS DEFINED IN SAE J211

-B1-

UNITS ARE in/mm

TOLERANCES ARE: *	
DECIMALS	ANGLES
.X ±0.1/2.5	+ 0.5°
.XX ±0.01/25	
.XXX ±0.005/127	
* unless otherwise noted	

MATERIAL:	
SCALE	NONE
APPROVALS	DATE
DRAWN	4/7/98
CHECKED	
ENG	J. McFadden
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
CHEST ROTARY POTENTIOMETER	
HYBRID III DUMMY FAMILY	
SIZE	A
DRAWING NUMBER	SA572-S51
REV	B

4

3

2

1

B

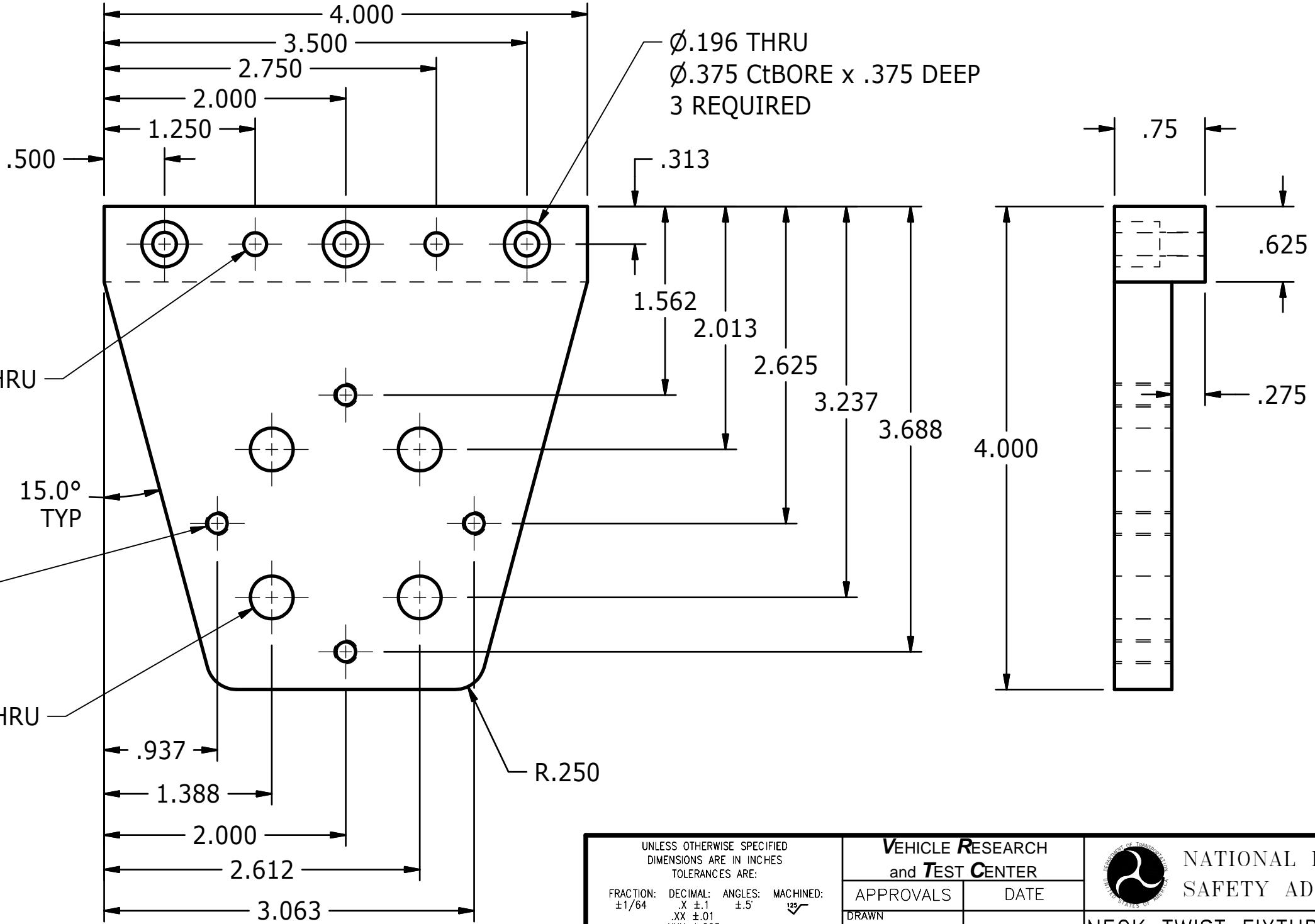
B

A

A

A

A



#12 DRILL (.189) THRU
(DOWEL PIN HOLES)
2 REQUIRED

M5x0.8 - THRU
4 REQUIRED

Ø.354 (9 mm) THRU
4 REQUIRED

Ø.196 THRU
Ø.375 CtBORE x .375 DEEP
3 REQUIRED

15.0°
TYP

R.250

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
FRACTION: ±1/64	DECIMAL: .X ±.1 .XX ±.01 .XXX ±.005	ANGLES: ±.5	MACHINED: 125	APPROVALS	DATE
ASME Y14.5M - 1994 DO NOT SCALE DRAWING				DRAWN JIM CLEVINGER	5/10/2011
MATERIAL 3/4 ALUMINUM FLAT BAR				CHECKED	
HEAT TREAT				ENG	
FINISH				APPROVED	
SIZE B		DRAWING NUMBER DL210-210		REV	
SCALE: FULL		SHEET 1 OF 1			

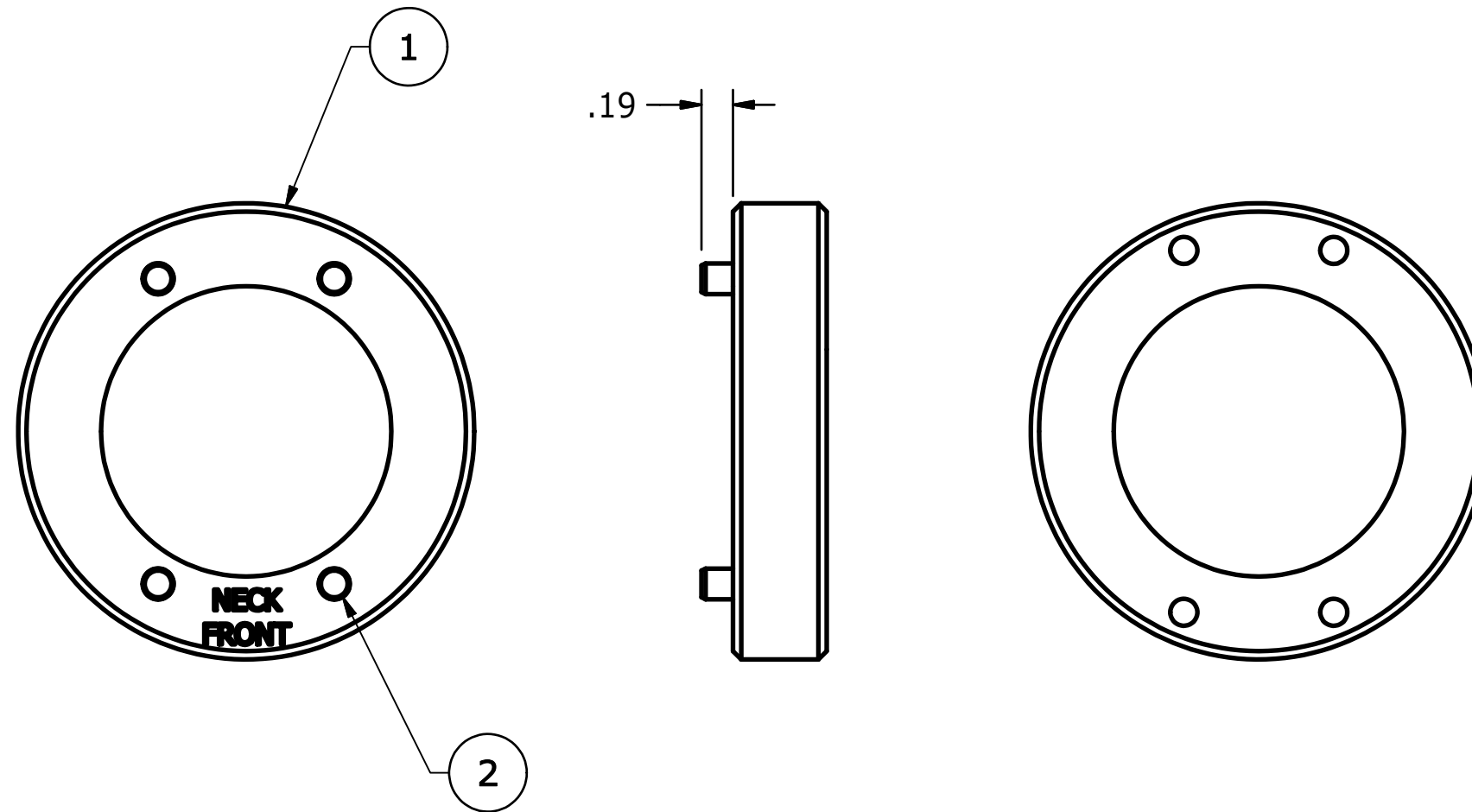
4


3

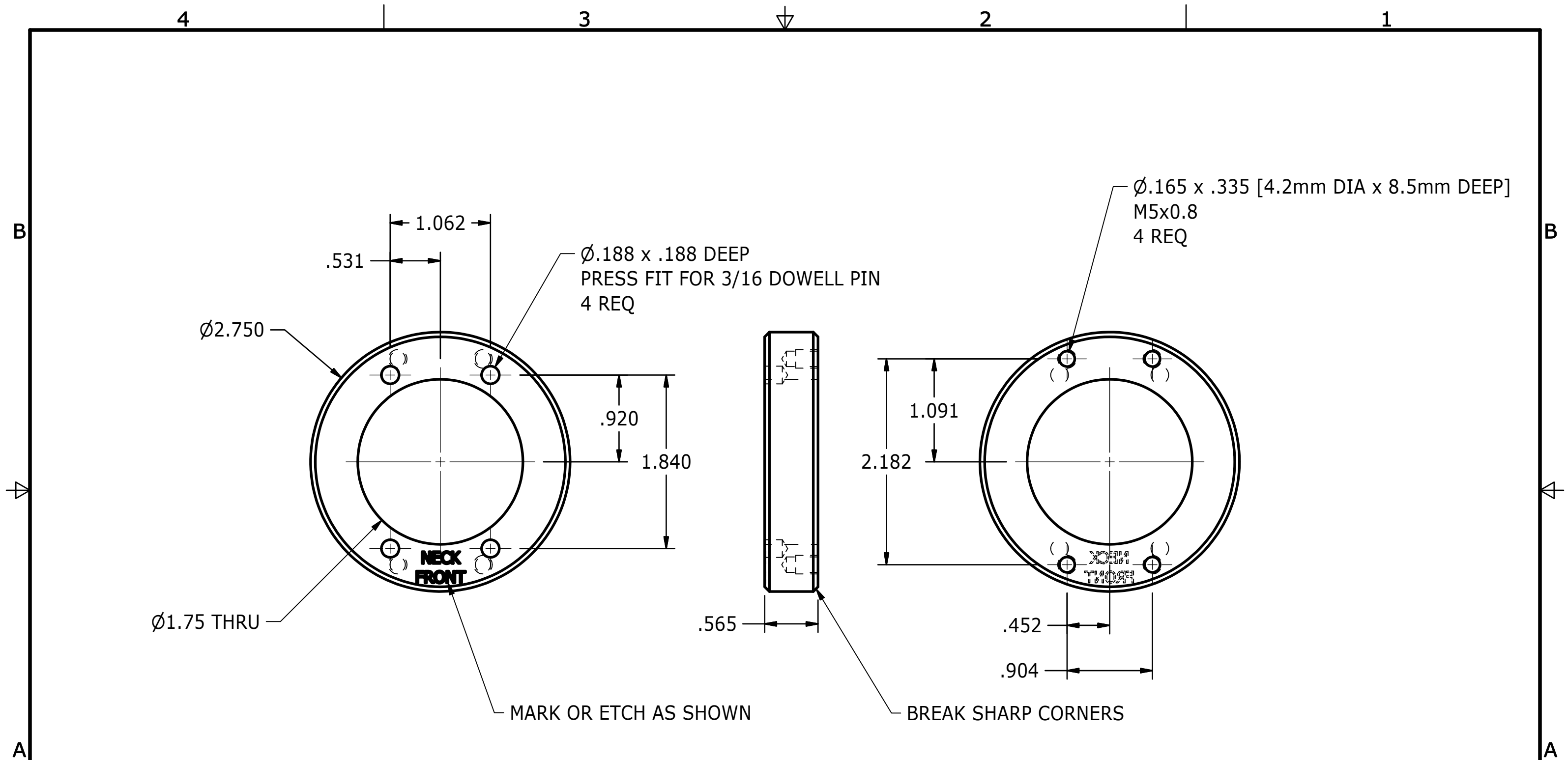
2



1

PARTS LIST				
ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL
1	1	DL210-221	NECK ADAPTER PLATE	Steel, Mild
2	4		DOWEL PIN, 3/16" DIA x 3/8" LG.	Steel, Mild



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
FRACTION: ±1/64	DECIMAL: .X ±.1 .XX ±.01 .XXX ±.005	ANGLES: ±.5	MACHINED: 125°	APPROVALS	DATE
ASME Y14.5M - 1994 DO NOT SCALE DRAWING				DRAWN JIM CLEVINGER	5/10/2011
MATERIAL SEE PARTS LIST				CHECKED	
HEAT TREAT				ENG	
FINISH				APPROVED	
SIZE B		DRAWING NUMBER DL210-220		REV	
SCALE: FULL		SHEET 1 OF 1			



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
FRACTION: $\pm 1/64$	DECIMAL: .X $\pm .1$.XX $\pm .01$.XXX $\pm .005$	ANGLES: $\pm .5$	MACHINED: 	APPROVALS	DATE
ASME Y14.5M - 1994 DO NOT SCALE DRAWING				DRAWN JIM CLEVINGER	5/10/2011
MATERIAL STEEL ROUND BAR				CHECKED	
HEAT TREAT				ENG	
FINISH				APPROVED	
				SIZE B	DRAWING NUMBER DL210-221
				SCALE: FULL	SHEET 1 OF 1