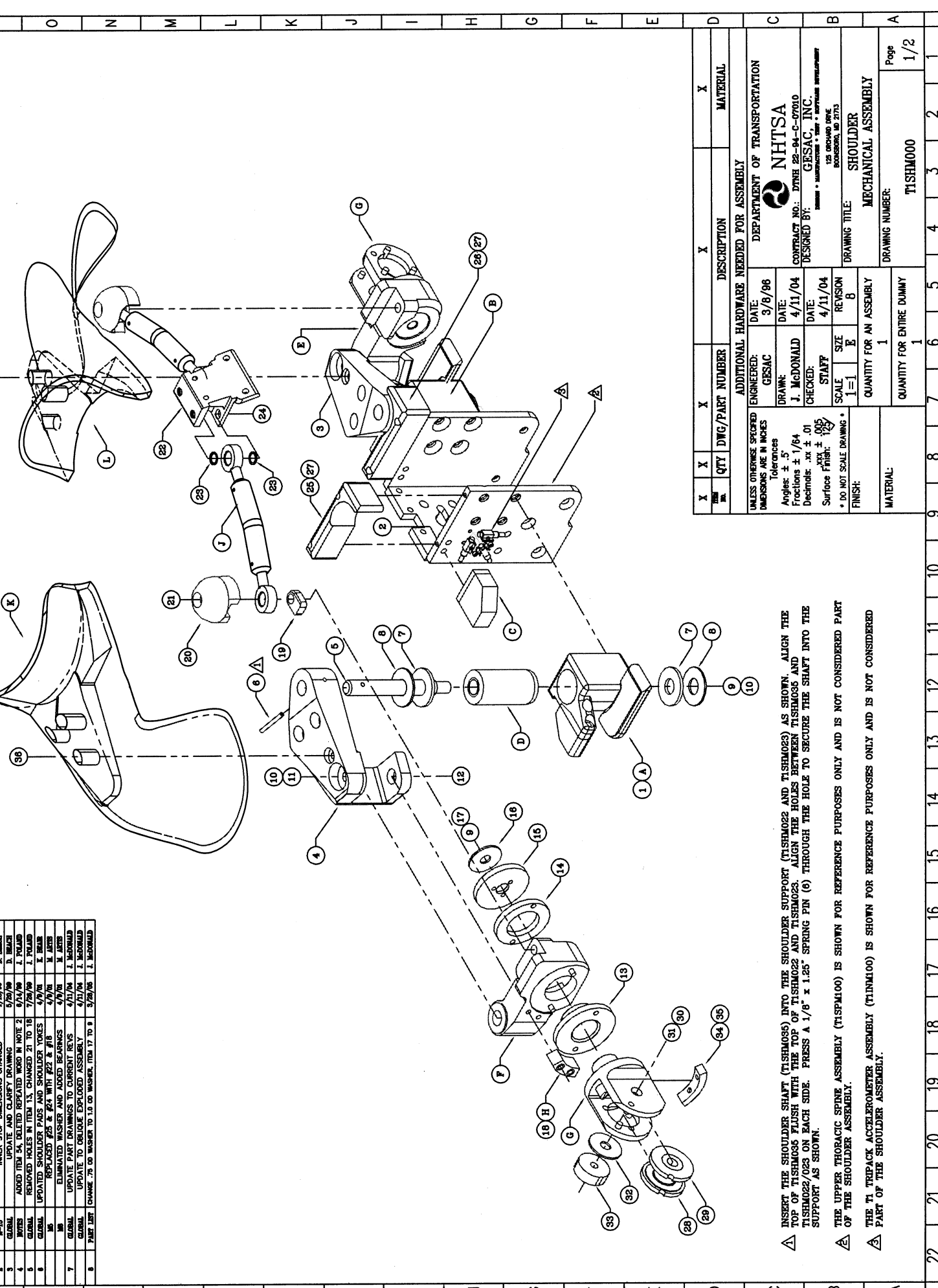


P O N M L K J I H G F E D C B A

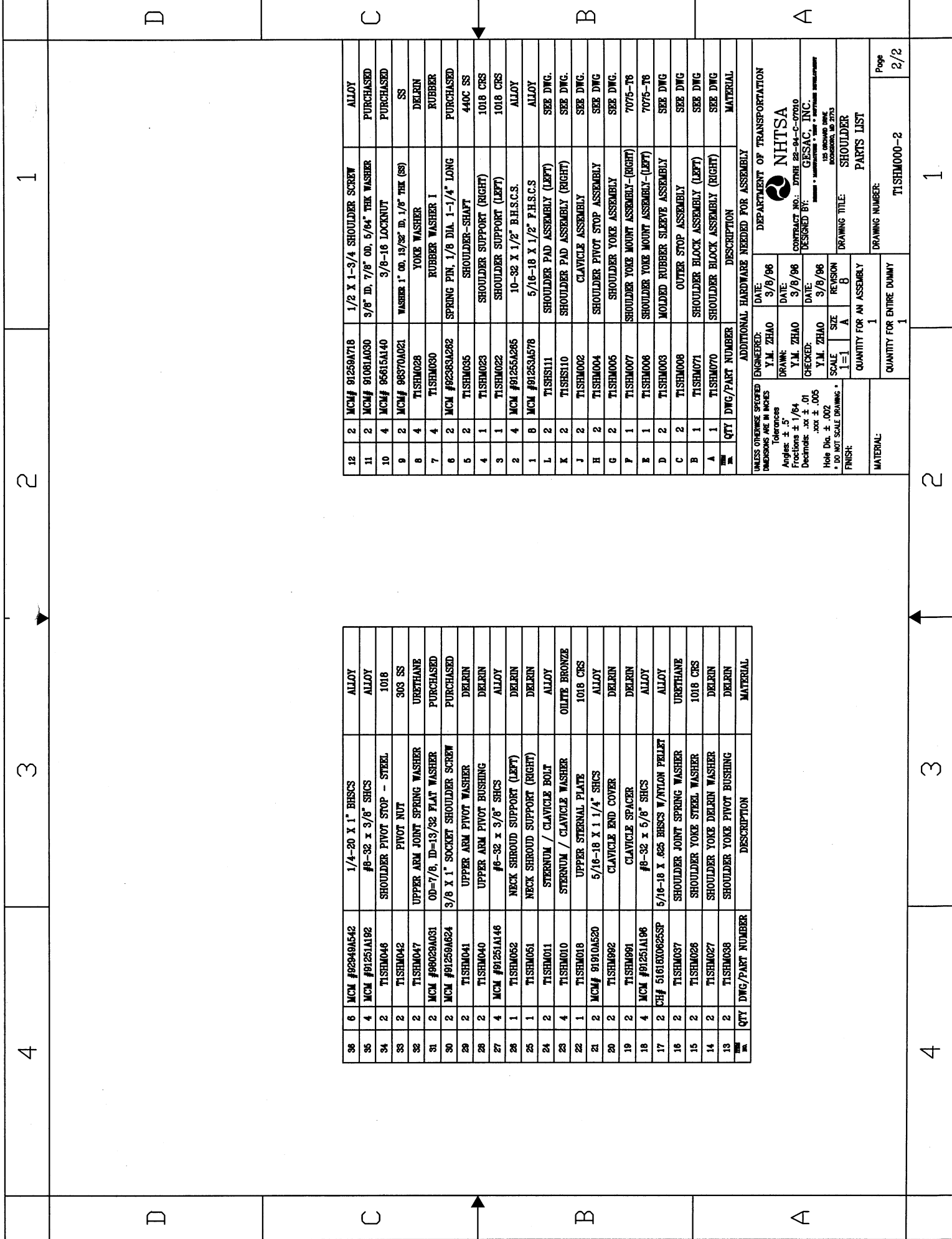


REV. #	DATE	DESCRIPTION	BY
1	12/1/77	ISSUANCE OF ITEMS 47 THRU 56	J. McDONALD
2	1/15/78	INNER STOP DIMENSIONS CHANGED	D. BRACK
3	6/20/78	UPDATE AND CLARIFY DRAWING	D. BRACK
4	9/14/78	ADDED ITEM 34, DELETED REPEATED WORD IN NOTE 2	J. PULAD
5	7/29/78	REMOVED HOLES IN ITEM 13, CHANGED 21 TO 18	J. PULAD
6	4/7/78	UPDATED SHOULDER PADS AND SHOULDER YOKES	K. TEAR
7	4/7/78	REPLACED #25 & #24 WITH #22 & #18	K. TEAR
8	4/7/78	ELIMINATED WASHER AND ADDED BEARINGS	M. JAMES
9	4/17/78	UPDATE PART DRAWINGS TO CURRENT REV'S	J. McDONALD
10	4/17/78	UPDATE TO OBLIQUE EXPLODED ASSEMBLY	J. McDONALD
11	3/29/78	CHANGE .75 OD WASHER TO 1.0 OD WASHER, ITEM 17 TO 8	J. McDONALD

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
X	X	X	X
ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		ENGINEERED: GESAC	DATE: 3/8/86
Tolerances		DRAWN: J. McDONALD	DATE: 4/11/04
Angles ± .5		CHECKED: STAFF	DATE: 4/11/04
Fractions ± 1/64		SCALE: 1=1	SIZE: E
Decimals: .xx ± .01		SCALE: 1=1	REVISION: 8
Surface Finish: .005		QUANTITY FOR AN ASSEMBLY	1
* DO NOT SCALE DRAWING *		QUANTITY FOR ENTIRE DUMMY	1
FINISH:		DRAWING TITLE: SHOULDER MECHANICAL ASSEMBLY	
MATERIAL:		DRAWING NUMBER: T1SHM000	

DEPARTMENT OF TRANSPORTATION  
**NHTSA**  
 CONTRACT NO.: DTRH 22-84-C-07010  
 DESIGNED BY: GESAC, INC.  
DESIGN • MANUFACTURE • TEST • SERVICE IMPROVEMENT  
 125 ARCADE DRIVE  
 BOSSBORO, MD 21733

- ▲ INSERT THE SHOULDER SHAFT (T1SHM036) INTO THE SHOULDER SUPPORT (T1SHM022 AND T1SHM023) AS SHOWN. ALIGN THE TOP OF T1SHM036 FLUSH WITH THE TOP OF T1SHM022 AND T1SHM023. ALIGN THE HOLES BETWEEN T1SHM036 AND T1SHM022/023 ON EACH SIDE. PRESS A 1/8" x 1.25" SPRING PIN (6) THROUGH THE HOLE TO SECURE THE SHAFT INTO THE SUPPORT AS SHOWN.
- ▲ THE UPPER THORACIC SPINE ASSEMBLY (T1SPM100) IS SHOWN FOR REFERENCE PURPOSES ONLY AND IS NOT CONSIDERED PART OF THE SHOULDER ASSEMBLY.
- ▲ THE T1 TRIPACK ACCELEROMETER ASSEMBLY (T1INM100) IS SHOWN FOR REFERENCE PURPOSES ONLY AND IS NOT CONSIDERED PART OF THE SHOULDER ASSEMBLY.



ITEM NO.	QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
36	6	MCM #92949A542	1/4-20 X 1" BHSCS	ALLOY
35	4	MCM #91251A192	#8-32 X 3/8" SHCS	ALLOY
34	2	TISHM046	SHOULDER PIVOT STOP - STEEL	1018
33	2	TISHM042	PIVOT NUT	303 SS
32	2	TISHM047	UPPER ARM JOINT SPRING WASHER	URETHANE
31	2	MCM #98029A031	OD=7/8, ID=13/32 FLAT WASHER	PURCHASED
30	2	MCM #91259A624	3/8 X 1" SOCKET SHOULDER SCREW	PURCHASED
29	2	TISHM041	UPPER ARM PIVOT WASHER	DELTRIN
28	2	TISHM040	UPPER ARM PIVOT BUSHING	DELTRIN
27	4	MCM #91251A146	#8-32 X 3/8" SHCS	ALLOY
26	1	TISHM052	NECK SHROUD SUPPORT (LEFT)	DELTRIN
25	1	TISHM051	NECK SHROUD SUPPORT (RIGHT)	DELTRIN
24	2	TISHM011	STERNUM / CLAVICLE BOLT	ALLOY
23	4	TISHM010	STERNUM / CLAVICLE WASHER	ORLITE BRONZE
22	1	TISHM018	UPPER STERNAL PLATE	1018 CRS
21	2	MCM #91910A520	5/16-18 X 1 1/4" SHCS	ALLOY
20	2	TISHM092	CLAVICLE END COVER	DELTRIN
19	2	TISHM091	CLAVICLE SPACER	DELTRIN
18	4	MCM #91251A196	#8-32 X 5/8" SHCS	ALLOY
17	2	CH# 51616X0625SP	5/16-18 X .625 BHSCS W/NYLON PELLET	ALLOY
16	2	TISHM037	SHOULDER JOINT SPRING WASHER	URETHANE
15	2	TISHM028	SHOULDER YOKE STEEL WASHER	1018 CRS
14	2	TISHM027	SHOULDER YOKE DELTRIN WASHER	DELTRIN
13	2	TISHM038	SHOULDER YOKE PIVOT BUSHING	DELTRIN
12	2	MCM #91259A718	1/2 X 1-3/4 SHOULDER SCREW	ALLOY
11	2	MCM #91081A030	3/8" ID, 7/8" OD, 5/64" THK WASHER	PURCHASED
10	4	MCM #95615A140	3/8-16 LOCKNUT	PURCHASED
9	2	MCM #98370A021	WASHER, 1" OD, 13/32" ID, 1/8" THK (SS)	SS
8	4	TISHM028	YOKE WASHER	DELTRIN
7	4	TISHM030	RUBBER WASHER 1	RUBBER
6	2	MCM #92363A282	SPRING PIN, 1/8 DIA, 1-1/4" LONG	PURCHASED
5	2	TISHM035	SHOULDER-SHAFT	440C SS
4	1	TISHM023	SHOULDER SUPPORT (RIGHT)	1018 CRS
3	1	TISHM022	SHOULDER SUPPORT (LEFT)	1018 CRS
2	4	MCM #91255A285	10-32 X 1/2" B.H.S.C.S.	ALLOY
1	6	MCM #91253A578	5/16-18 X 1/2" P.H.S.C.S	ALLOY
L	2	TISHS111	SHOULDER PAD ASSEMBLY (LEFT)	SEE DWG.
K	2	TISHS110	SHOULDER PAD ASSEMBLY (RIGHT)	SEE DWG.
J	2	TISHM002	CLAVICLE ASSEMBLY	SEE DWG.
H	2	TISHM004	SHOULDER PIVOT STOP ASSEMBLY	SEE DWG.
G	2	TISHM005	SHOULDER YOKE ASSEMBLY	SEE DWG.
F	1	TISHM007	SHOULDER YOKE ASSEMBLY-(RIGHT)	7075-T6
E	1	TISHM006	SHOULDER YOKE MOUNT ASSEMBLY-(LEFT)	7075-T6
D	2	TISHM003	MOLDED RUBBER SLEEVE ASSEMBLY	SEE DWG
C	2	TISHM008	OUTER STOP ASSEMBLY	SEE DWG
B	1	TISHM071	SHOULDER BLOCK ASSEMBLY (LEFT)	SEE DWG
A	1	TISHM070	SHOULDER BLOCK ASSEMBLY (RIGHT)	SEE DWG
12	2	MCM #91259A718	1/2 X 1-3/4 SHOULDER SCREW	ALLOY
11	2	MCM #91081A030	3/8" ID, 7/8" OD, 5/64" THK WASHER	PURCHASED
10	4	MCM #95615A140	3/8-16 LOCKNUT	PURCHASED
9	2	MCM #98370A021	WASHER, 1" OD, 13/32" ID, 1/8" THK (SS)	SS
8	4	TISHM028	YOKE WASHER	DELTRIN
7	4	TISHM030	RUBBER WASHER 1	RUBBER
6	2	MCM #92363A282	SPRING PIN, 1/8 DIA, 1-1/4" LONG	PURCHASED
5	2	TISHM035	SHOULDER-SHAFT	440C SS
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3	1	TISHM022	SHOULDER SUPPORT (LEFT)	1018 CRS
2	4	MCM #91255A285	10-32 X 1/2" B.H.S.C.S.	ALLOY
1	6	MCM #91253A578	5/16-18 X 1/2" P.H.S.C.S	ALLOY
L	2	TISHS111	SHOULDER PAD ASSEMBLY (LEFT)	SEE DWG.
K	2	TISHS110	SHOULDER PAD ASSEMBLY (RIGHT)	SEE DWG.
J	2	TISHM002	CLAVICLE ASSEMBLY	SEE DWG.
H	2	TISHM004	SHOULDER PIVOT STOP ASSEMBLY	SEE DWG.
G	2	TISHM005	SHOULDER YOKE ASSEMBLY	SEE DWG.
F	1	TISHM007	SHOULDER YOKE ASSEMBLY-(RIGHT)	7075-T6
E	1	TISHM006	SHOULDER YOKE MOUNT ASSEMBLY-(LEFT)	7075-T6
D	2	TISHM003	MOLDED RUBBER SLEEVE ASSEMBLY	SEE DWG
C	2	TISHM008	OUTER STOP ASSEMBLY	SEE DWG
B	1	TISHM071	SHOULDER BLOCK ASSEMBLY (LEFT)	SEE DWG
A	1	TISHM070	SHOULDER BLOCK ASSEMBLY (RIGHT)	SEE DWG

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

Tolerances  
 Angles ± .5°  
 Fractions ± 1/64  
 Decimals .xx ± .01  
 .xxx ± .005  
 Hole Dia. ± .002  
 \* DO NOT SCALE DRAWING \*

FINISH:

ENGINEERED: Y.M. ZHAO  
 DATE: 3/8/96

DRAWN: Y.M. ZHAO  
 DATE: 3/8/96

CHECKED: Y.M. ZHAO  
 DATE: 3/8/96

SCALE: 1"=1" A  
 SIZE: A  
 REVISION: B

QUANTITY FOR AN ASSEMBLY: 1

QUANTITY FOR ENTIRE DUMMY: 1

MATERIAL:

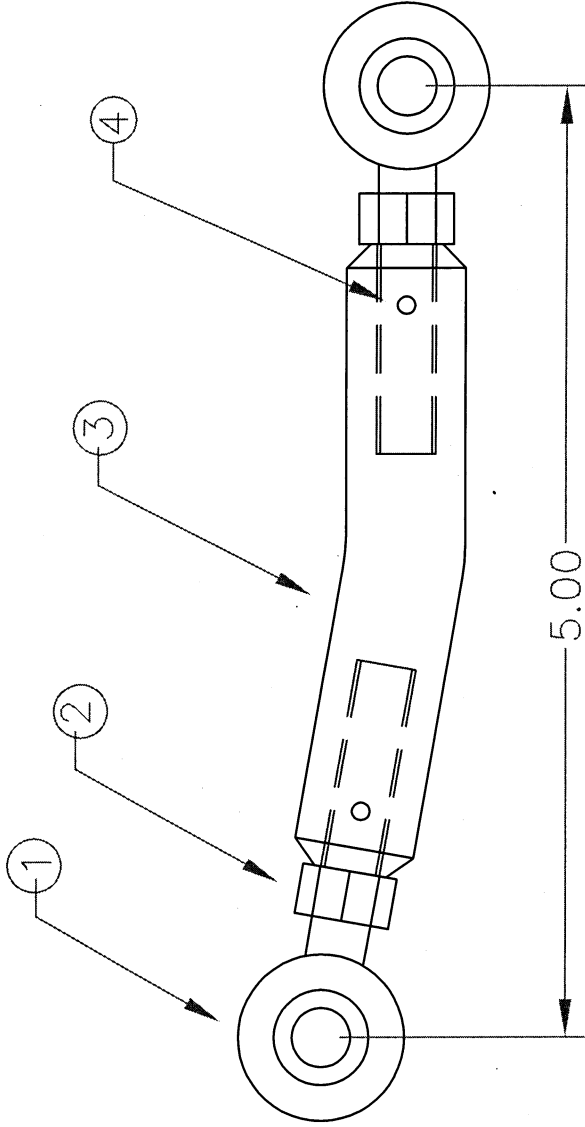
ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY

DEPARTMENT OF TRANSPORTATION  
**NHTSA**  
 CONTRACT NO.: DTNH 22-94-C-07010  
 DESIGNED BY: GESAC, INC.  
 125 NEWBOLD DRIVE  
 ROCKVILLE, MD 20850

DRAWING TITLE: SHOULDER PARTS LIST

DRAWING NUMBER: TISHM000-2

Page 2/2

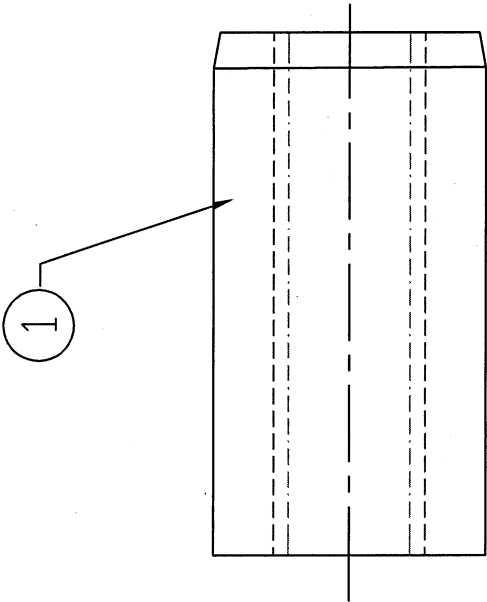
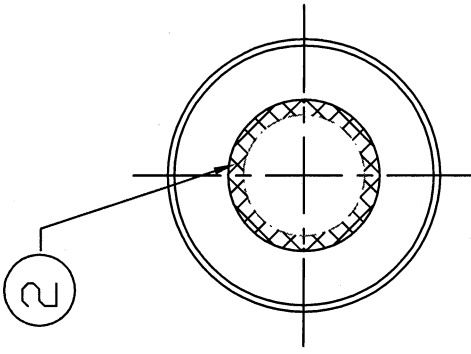


NOTES:

- 1 SCREW ROD ENDS INTO CLAVICLE AND ADJUST TO LENGTH SHOWN
- 2 TIGHTEN HEX JAM NUT AGAINST CLAVICLE TO PREVENT ROTATION OF ROD END
- 3 DRILL THROUGH CLAVICLE ROD END USING 3/32"  $\phi$  CARBIDE DRILL
- 4 PIN ROD END IN PLACE WITH 3/32"  $\phi$  SPRING PIN

REV. #	ZONE	DESCRIPTION	DATE	BY
1	D-2/S	CIRCLED ITEMS IN DRAWING, CORRECTED DWG #	6/11/99	J. POLAND
2	GLOBAL	REVISED WITH A STRAIGHT CLAVICLE LINK	2/10/04	J. McDONALD
3	GLOBAL	REVISED WITH A 10' CLAVICLE LINK	9/19/04	J. McDONALD

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
4	MCH # 90682A145	3/32 x 5/8 SPRING PIN	PURCHASED
3	1	CLAVICLE	1018 CRS
2	MCH # 90687A080	5/16-24 HEX JAM NUT	PURCHASED
1	MCH # 80745K23	BALL JOINT ROD END 5/16-24	PURCHASED
ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY UNLESS OTHERWISE SPECIFIED: DATE: 9/30/99 DEPARTMENT OF TRANSPORTATION DIMENSIONS ARE IN INCHES D. BEACH Tolerance: .5 Angles: $\pm$ .5 Fractions: $\pm$ 1/64 Decimals: .xx $\pm$ .01 .xxx $\pm$ .005 Hole Dia. $\pm$ .002 FINISH: - * DO NOT SCALE DRAWING *			
NHTSA CONTRACT NO.: DTN8 28-94-C-07040 DESIGNED BY: GESAC, INC. 125 GEORGE WALKER BUSH BLVD BOSSBORO, NJ 07003			
DRAWING TITLE:		SHOULDER CLAVICLE ASSEMBLY	
MATERIAL:		SEE DWGS.	
QUANTITY FOR AN ASSEMBLY:		1	
QUANTITY FOR ENTIRE DUMMY:		2	
DRAWING NUMBER:		T15HM002	
Page:		1/1	

8	7	6	5	4	3	2	1																												
D	C	B	A																																
<table border="1"> <tr> <td>REV. #</td> <td>ZONE</td> <td>DESCRIPTION</td> <td>DATE</td> <td>BY</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>								REV. #	ZONE	DESCRIPTION	DATE	BY																							
REV. #	ZONE	DESCRIPTION	DATE	BY																															
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>1</p> </div> <div style="text-align: center;">  <p>2</p> </div> </div>																																			
<p><b>NOTES:</b></p> <p>THE RUBBER SLEEVE (T1SHM031) IS MOLDED AROUND THE SHOULDER BLOCK BUSHING (T1SHM032).</p>																																			
<table border="1"> <tr> <td>2</td> <td>2</td> <td>T1SHM032</td> <td>SHOULDER BLOCK BUSHING</td> <td>SEE DWG</td> </tr> <tr> <td>1</td> <td>2</td> <td>T1SHM031</td> <td>SHOULDER MOLDED RUBBER SLEEVE</td> <td>SEE DWG</td> </tr> <tr> <td>QTY</td> <td>DWG/PART NUMBER</td> <td>DESCRIPTION</td> <td>MATERIAL</td> <td></td> </tr> </table>								2	2	T1SHM032	SHOULDER BLOCK BUSHING	SEE DWG	1	2	T1SHM031	SHOULDER MOLDED RUBBER SLEEVE	SEE DWG	QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL														
2	2	T1SHM032	SHOULDER BLOCK BUSHING	SEE DWG																															
1	2	T1SHM031	SHOULDER MOLDED RUBBER SLEEVE	SEE DWG																															
QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL																																
<table border="1"> <tr> <td colspan="2">UNLESS OTHERWISE SPECIFIED</td> <td colspan="2">ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY</td> </tr> <tr> <td>ENGINEERED:</td> <td>Y.M. ZHAO</td> <td>DATE:</td> <td>3/11/96</td> </tr> <tr> <td>DRAWN:</td> <td>Y.M. ZHAO</td> <td>DATE:</td> <td>3/11/96</td> </tr> <tr> <td>CHECKED:</td> <td>Y.M. ZHAO</td> <td>DATE:</td> <td>3/11/96</td> </tr> <tr> <td>SCALE:</td> <td>2=1</td> <td>REVISION:</td> <td>N/C</td> </tr> <tr> <td>FINISH:</td> <td></td> <td>QUANTITY FOR AN ASSEMBLY:</td> <td>2</td> </tr> <tr> <td></td> <td></td> <td>QUANTITY FOR ENTIRE DUMMY:</td> <td>2</td> </tr> </table>								UNLESS OTHERWISE SPECIFIED		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY		ENGINEERED:	Y.M. ZHAO	DATE:	3/11/96	DRAWN:	Y.M. ZHAO	DATE:	3/11/96	CHECKED:	Y.M. ZHAO	DATE:	3/11/96	SCALE:	2=1	REVISION:	N/C	FINISH:		QUANTITY FOR AN ASSEMBLY:	2			QUANTITY FOR ENTIRE DUMMY:	2
UNLESS OTHERWISE SPECIFIED		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY																																	
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<p>DEPARTMENT OF TRANSPORTATION  <b>NHTSA</b>      CONTRACT NO.: DTNH 96-04-0010      DESIGNED BY: GINA GESAC, INC.  <small>125 CHURCH DRIVE, BOSTON, MA 02115</small></p>																																			
<p>DRAWING TITLE: SHOULDER MOLDED RUBBER SLEEVE ASSEMBLY      DRAWING NUMBER: T1SHM003      Page 1/1</p>																																			
8	7	6	5	4	3	2	1																												
D	C	B	A																																



REV. #	ZONE	DESCRIPTION	DATE	BY
1	A, A	CHANGE ADHESIVE FROM PLURONAD 20 TO LORD 305 EPOXY	4/12/04	J. McDONALD

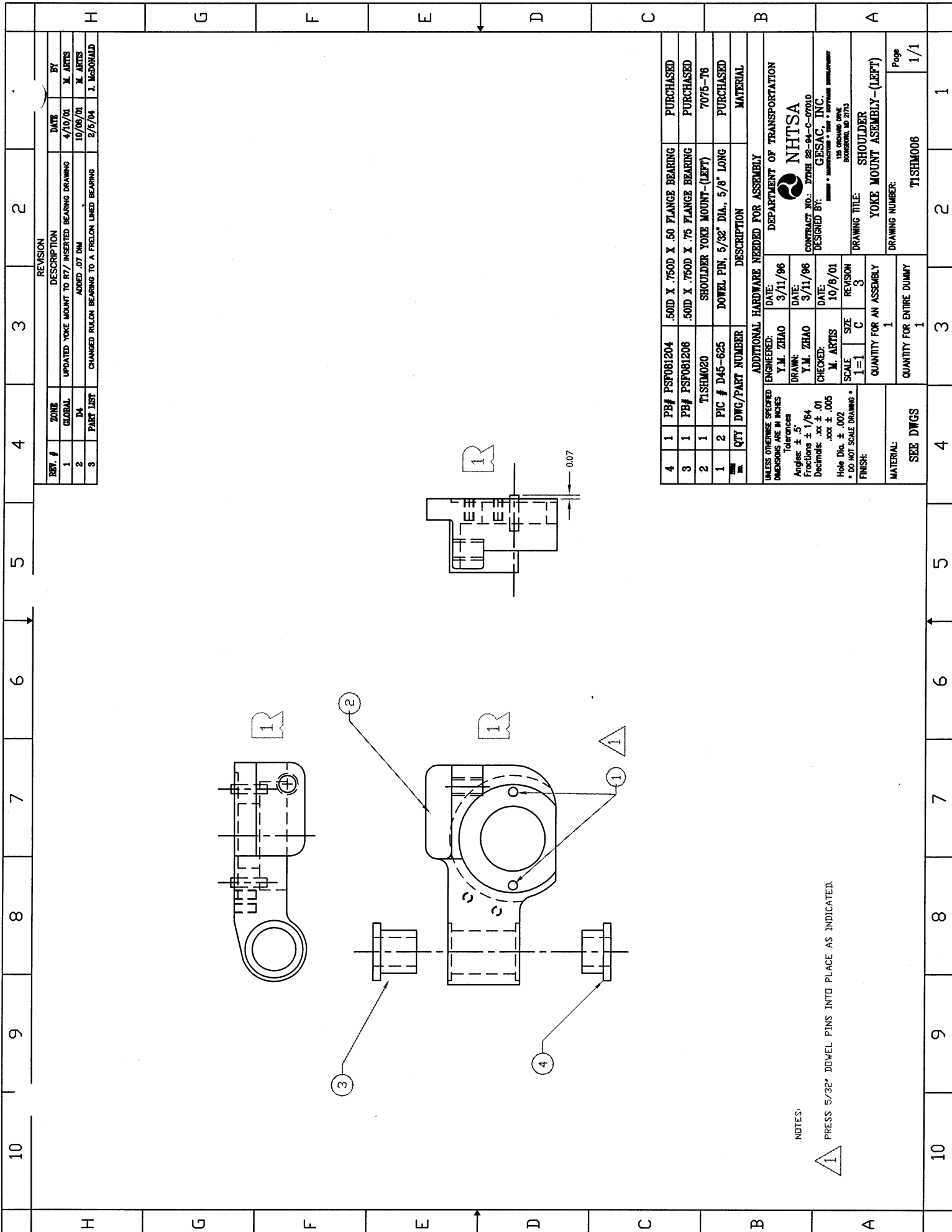
2	1	T1SHM045	SHOULDER PIVOT STOP BUSHING	303 SS
1	1	T1SHM044	SHOULDER PIVOT STOP - RUBBER	SEE DWG
QTY		DWG/PART NUMBER	DESCRIPTION	MATERIAL
ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY				
UNLESS OTHERWISE SPECIFIED:		ENGINEERED:	DATE:	DEPARTMENT OF TRANSPORTATION
DIMENSIONS ARE IN INCHES		J. McDONALD	12/1/97	NHTSA
Tolerances		DRAWN:	DATE:	CONTRACT NO.: DTRR 22-94-C-07010
Angles: ± .5°		J. McDONALD	12/1/97	DESIGNED BY: GESAC, INC.
Fractions: ± 1/64		CHECKED:	DATE:	125 ORLAND DRIVE
Decimals: .xx ± .01		STAFF	12/1/97	ROCKFORD, IL 61273
Hole Dia: ± .002		SCALE	SIZE	REVISION
* DO NOT SCALE DRAWING *		1=1	A	1
FINISH:		DRAWING TITLE: SHOULDER PIVOT STOP ASSEMBLY		
MATERIAL:		DRAWING NUMBER: T1SHM004		
SEE DWGS		Page 1/1		

NOTES:

1 BOND ITEM 2 (BUSHINGS) IN THE SPECIFIED LOCATIONS  
 USING LORD 305 TWO PART EPOXY

16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
J	I	H	G	F	E	D	C	B	A																										
<table border="1"> <thead> <tr> <th>REV. #</th><th>DATE</th><th>DESCRIPTION</th><th>BY</th></tr> </thead> <tbody> <tr> <td>1</td><td>10/11/04</td><td>ADDED DETAIL VIEW OF ITEM #1 FOR ASSEMBLY CLARITY</td><td>J. McDONALD</td></tr> <tr> <td>2</td><td>9/7/04</td><td>REPLACED 7/8 X 5/8 DP WITH 7/8 X 5/16 DP</td><td>J. McDONALD</td></tr> <tr> <td>3</td><td>9/7/04</td><td>REPLACED 5 MM EPXY WITH LORD 305 TWO PART EPXY</td><td>J. McDONALD</td></tr> <tr> <td>3</td><td>6/29/04</td><td>UPDATED TO T15HM039-R8</td><td>J. McDONALD</td></tr> </tbody> </table>																REV. #	DATE	DESCRIPTION	BY	1	10/11/04	ADDED DETAIL VIEW OF ITEM #1 FOR ASSEMBLY CLARITY	J. McDONALD	2	9/7/04	REPLACED 7/8 X 5/8 DP WITH 7/8 X 5/16 DP	J. McDONALD	3	9/7/04	REPLACED 5 MM EPXY WITH LORD 305 TWO PART EPXY	J. McDONALD	3	6/29/04	UPDATED TO T15HM039-R8	J. McDONALD
REV. #	DATE	DESCRIPTION	BY																																
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<table border="1"> <thead> <tr> <th>QTY</th><th>DWG/PART NUMBER</th><th>DESCRIPTION</th><th>MATERIAL</th></tr> </thead> <tbody> <tr> <td>4</td><td>T15HM043</td><td>UPPER ARM SOFT STOP</td><td>SBR</td></tr> <tr> <td>3</td><td>T15HM039</td><td>SHOULDER YOKE</td><td>4140 CD</td></tr> <tr> <td>2</td><td>MCM #88381A503</td><td>3/16 x 3/8" DOWEL PIN</td><td>PURCHASE</td></tr> <tr> <td>1</td><td>MCM # 88381A216</td><td>1/8 x 5/16" DOWEL PIN</td><td>PURCHASE</td></tr> </tbody> </table>																QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL	4	T15HM043	UPPER ARM SOFT STOP	SBR	3	T15HM039	SHOULDER YOKE	4140 CD	2	MCM #88381A503	3/16 x 3/8" DOWEL PIN	PURCHASE	1	MCM # 88381A216	1/8 x 5/16" DOWEL PIN	PURCHASE
QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL																																
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<p>UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONS ± 1/64 DECIMALS .XX ± .005 HOLE DIA. ± .002 FINISH: * DO NOT SCALE DRAWING</p>																																			
<p>ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY</p> <table border="1"> <thead> <tr> <th>ENGINEER:</th><th>DATE:</th></tr> </thead> <tbody> <tr> <td>SEE NOTE 3</td><td>11/17/97</td></tr> </tbody> </table> <p>DEPARTMENT OF TRANSPORTATION NHTSA CONTRACT NO.: 2000-08-00000 DESIGNED BY: CESAC, INC. 1200 GREENWAY DRIVE ROCKVILLE, MD 20850</p> <p>SCALE: 1=1 SIZE: D REVISION: 3</p> <p>DRAWING TITLE: SHOULDER YOKE - ASSEMBLY DRAWING NUMBER: T15HM005 QUANTITY FOR AN ASSEMBLY: 1 QUANTITY FOR ENTIRE DUMMY: 2 MATERIAL: SEE DWGS PAGE: 1/1</p>																ENGINEER:	DATE:	SEE NOTE 3	11/17/97																
ENGINEER:	DATE:																																		
SEE NOTE 3	11/17/97																																		
16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
J	I	H	G	F	E	D	C	B	A																										

NOTES:  
 1 PRESS DOWEL PINS IN PLACE  
 2 APPLY LORD 305 TWO PART EPOXY AND PRESS IN PLACE  
 3 REFERENCE GM PART# 88105-343



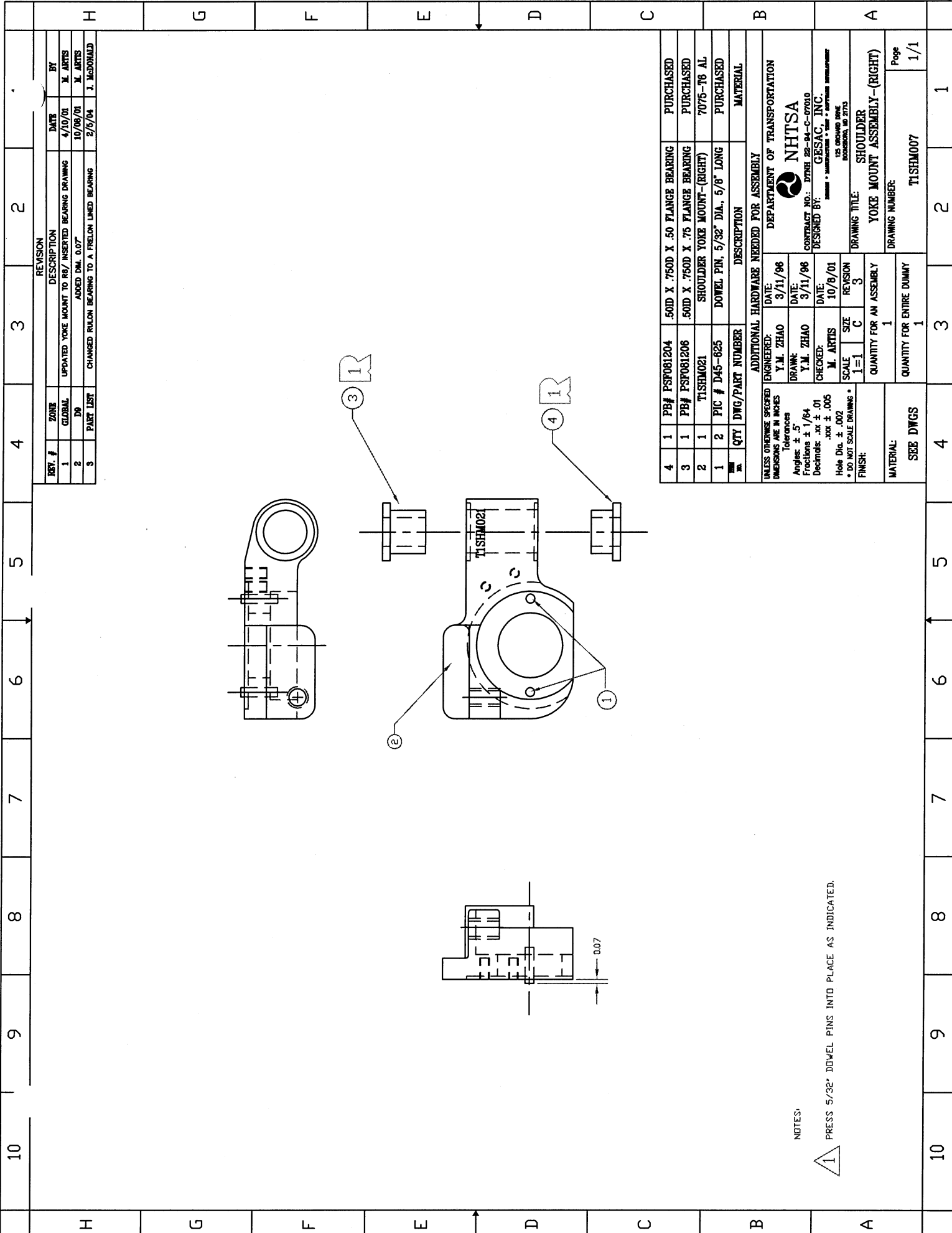
REV. #	ZONE	DESCRIPTION	DATE	BY
1	GLOBAL	UPDATED YOKE MOUNT TO R7/ INSERTED BEARING DRAWING	4/10/01	M. ARTIS
2	DA	ADDED .07 DIM	10/06/01	M. ARTIS
3	PART LIST	CHANGED RULON BEARING TO A FRELON LINKED BEARING	2/5/04	J. McDONALD

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
4	1	PB# PSF081204	.50ID X .750D X .50 FLANGE BEARING
3	1	PB# PSF081206	.50ID X .750D X .75 FLANGE BEARING
2	1	TISHM020	SHOULDER YOKE MOUNT-(LEFT)
1	2	PIC # D45-625	DOWEL PIN, 5/32" DIA., 5/8" LONG

ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
UNLESS OTHERWISE SPECIFIED	DATE: 3/11/96
DIMENSIONS ARE IN INCHES	ENGINEERED: Y.M. ZHAO
Tolerances	DATE: 3/11/96
Angles: ± .5°	DRAWN: Y.M. ZHAO
Fractions: ± 1/64	CHECKED: M. ARTIS
Decimals: .xxx ± .01	DATE: 10/8/01
Hold Dia. ± .002	SCALE: 1=1
* DO NOT SCALE DRAWING *	SIZE: C
FINISH:	REVISION: 3
	QUANTITY FOR AN ASSEMBLY: 1
MATERIAL:	QUANTITY FOR ENTIRE DUMMY: 1
SEE DWGS	

NOTES:  
 1 PRESS 5/32" DOWEL PINS INTO PLACE AS INDICATED.

DEPARTMENT OF TRANSPORTATION	
NHTSA	
CONTRACT NO.: DTNH 22-94-C-07010	
DESIGNED BY: GESAC, INC.	
125 ORCHARD DRIVE BROOKFIELD, IL 2773	
DRAWING TITLE:	SHOULDER
YOKE MOUNT ASSEMBLY-(LEFT)	
DRAWING NUMBER:	TISHM006
Page	1/1



REV. #	ZONE	DESCRIPTION	DATE	BY
1	GLOBAL	UPDATED YOKE MOUNT TO RB/ INSERTED BEARING DRAWING	4/10/01	M. ARTIS
2	DP	ADDED DIM. 0.07	10/08/01	M. ARTIS
3	PART LIST	CHANGED RULON BEARING TO A FRELON LINKED BEARING	2/5/04	J. McDONALD

REV. #	QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
4	1	PB# PSF081204	.50ID X .750D X 50 FLANGE BEARING	PURCHASED
3	1	PB# PSF081206	.50ID X .750D X .75 FLANGE BEARING	PURCHASED
2	1	TISHM021	SHOULDER YOKE MOUNT-(RIGHT)	7075-T6 AL
1	2	PIC # D45-625	DOWEL PIN, 5/32" DIA., 5/8" LONG	PURCHASED
				MATERIAL

ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY  
 ENGINEERED: Y.M. ZHAO DATE: 3/11/96  
 DEPARTMENT OF TRANSPORTATION  
 NHTSA  
 CONTRACT NO.: DTMB 22-94-C-07010  
 DESIGNED BY: GESAC, INC.  
 125 ORCHARD DRIVE  
 BOONSHOR, MD 27033

UNLESS OTHERWISE SPECIFIED  
 DIMENSIONS ARE IN INCHES  
 Tolerances  
 Angles:  $\pm .5^\circ$   
 Fractions:  $\pm 1/64$   
 Decimals:  $.xx \pm .01$   
 Hole Dia.  $\pm .002$   
 \* DO NOT SCALE DRAWING \*  
 FINISH:

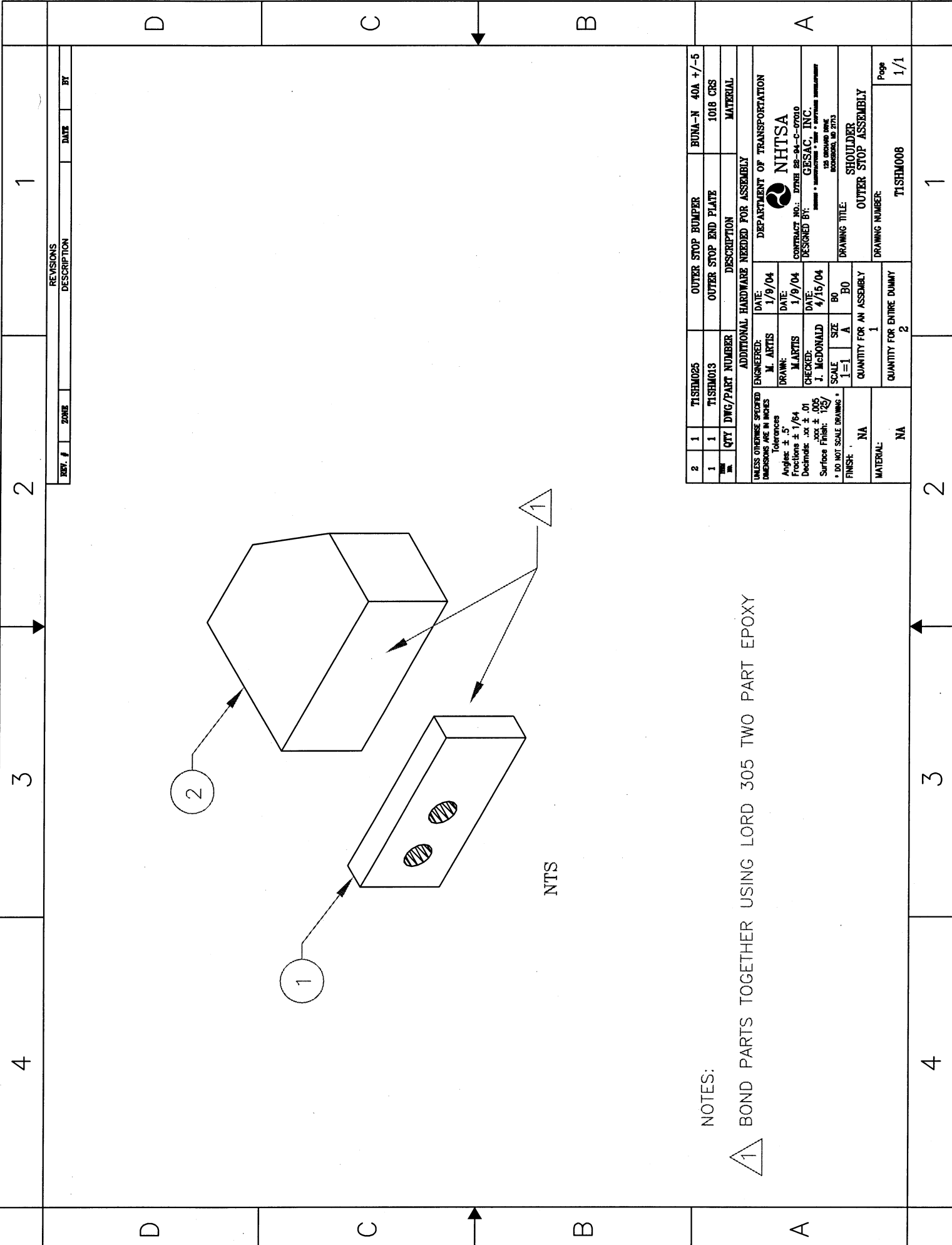
NOTES:

1 PRESS 5/32" DOWEL PINS INTO PLACE AS INDICATED.

DRAWING TITLE: SHOULDER  
 YOKE MOUNT ASSEMBLY-(RIGHT)  
 DRAWING NUMBER: TISHM007  
 QUANTITY FOR AN ASSEMBLY: 1  
 QUANTITY FOR ENTIRE DUMMY: 1  
 MATERIAL: SEE DWGS

Page 1/1  
 10 9 8 7 6 5 4 3 2 1





NTS

NOTES:

1 BOND PARTS TOGETHER USING LORD 305 TWO PART EPOXY

REV. #	ZONE	DATE	BY
1			

2	1	T1SHM025	OUTER STOP BUMPER	BUNA-N 40A +/-5
1	1	T1SHM013	OUTER STOP END PLATE	1018 CRS
QTY	DWG/PART NUMBER	DESCRIPTION		
ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY				
UNLESS OTHERWISE SPECIFIED		ENGINEERED:	M. ARTIS	DATE: 1/9/04
DIMENSIONS ARE IN INCHES		DRAWN:	M. ARTIS	DATE: 1/9/04
Tolerances		CHECKED:	J. McDONALD	DATE: 4/15/04
Angles: ± .5°		SCALE	1=1	SIZE A B0
Fractions: ± 1/64		QUANTITY FOR AN ASSEMBLY	1	
Decimals: .xx ± .01		QUANTITY FOR ENTIRE DUMMY	2	
Surfaces Finish: 125/		FINISH: NA		
* DO NOT SCALE DRAWING *				
MATERIAL: NA				
DRAWING TITLE: SHOULDER OUTER STOP ASSEMBLY				
DRAWING NUMBER: T1SHM008				
Page 1/1				



DEPARTMENT OF TRANSPORTATION  
 CONTRACT NO.: DTRR 28-94-C-07010  
 DESIGNED BY: CESAC, INC.  
 125 BRIDGEMAN DRIVE  
 BOSTON, MA 02133

D C B A

D C B A

1

2

3

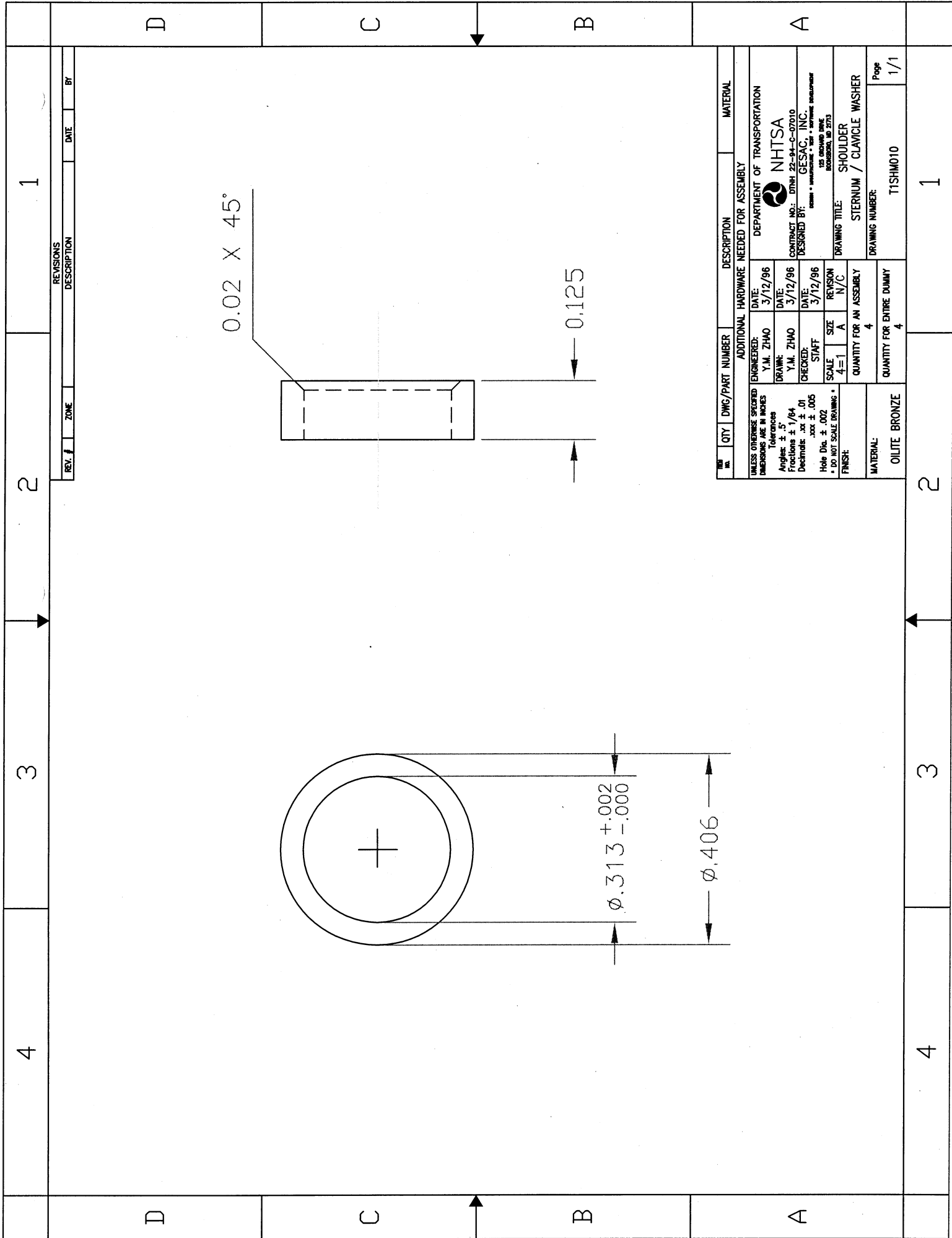
4

1

2

3

4



REV. #	ZONE	DATE	BY

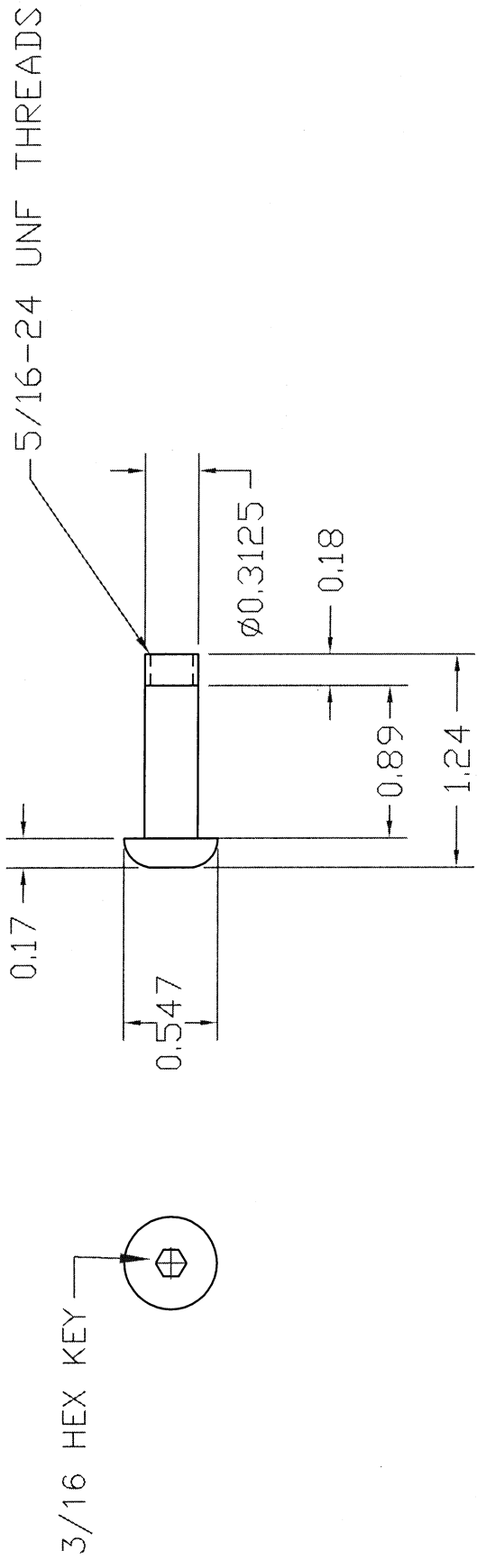
REVISIONS	DESCRIPTION
1	

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL																																								
4		SHOULDER WASHER																																									
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UNLESS OTHERWISE SPECIFIED:	ENGINEERED:	DATE:	ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY																																								
DIMENSIONS ARE IN INCHES	Y.M. ZHAO	3/12/96	DEPARTMENT OF TRANSPORTATION																																								
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Angles: ± .5°	Y.M. ZHAO	3/12/96	CONTRACT NO.: DTH 22-94-C-07010																																								
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Decimals: .xxx ± .01	STAFF	3/12/96	122 ORCHARD DRIVE																																								
Hole Dia. ± .002	SCALE	SIZE	REVISION																																								
* DO NOT SCALE DRAWING *	4=1	A	N/C																																								
FINISH:	QUANTITY FOR AN ASSEMBLY	4																																									
MATERIAL:	QUANTITY FOR ENTIRE DUMMY	4																																									
		SHOULDER WASHER																																									
		STERNUM / CLAVICLE WASHER																																									
		DRAWING NUMBER:	T1SHM010																																								
		Page	1/1																																								

4	3	2	1
4	3	2	1

4 3 2 1

REVISIONS				
REV. #	ZONE	DESCRIPTION	DATE	BY
1	B-3	MODIFIED DRAWING, CHANGED PART#	7/16/99	J. POLAND
2	3A	ADD BLACK OXIDE FINISH	5/28/04	J. McDONALD



NOTE:

THIS IS A PART SPECIFICALLY MANUFACTURED BY COLD HEADERS

REV. #	QTY	CH#	DWG/PART NUMBER	DESCRIPTION	ASSEMBLY	PURCHASED MATERIAL
2		51624XB90BS	5/16" x .88"	BUTTON HEAD SHOULDER BOLT		

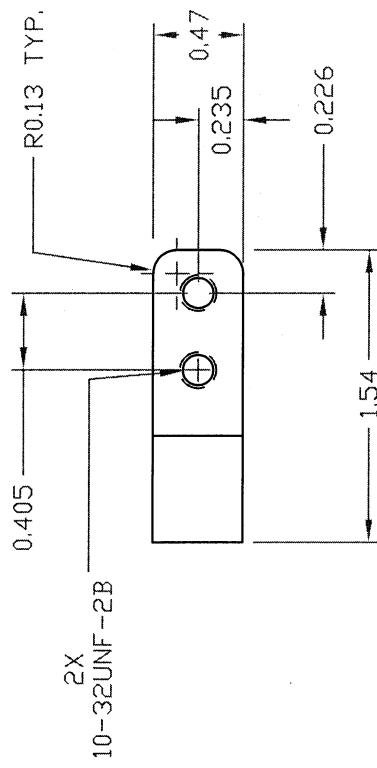
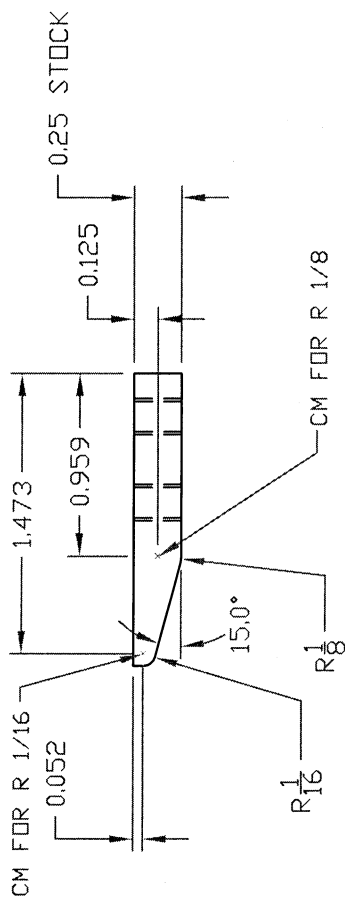
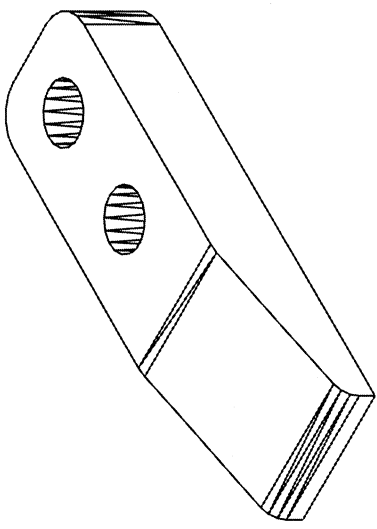
  

UNLESS OTHERWISE SPECIFIED		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
ENGINEERED:	DATE:	DESCRIPTION	MATERIAL
Y.M. ZHAO	3/15/96	DEPARTMENT OF TRANSPORTATION	
DRAWN:	DATE:	NHTSA	
Y.M. ZHAO	3/15/96	CONTRACT NO.: DTNH 22-94-C-07010	
CHECKED:	DATE:	DESIGNED BY: GESAC, INC.	
STAFF	3/15/96	125 ORCHARD DRIVE	
SCALE:	SIZE:	DRAWING TITLE:	
1=1	A	SHOULDER	
QUANTITY FOR AN ASSEMBLY		STERNUM / CLAVICLE BOLT	
2		DRAWING NUMBER:	
QUANTITY FOR ENTIRE DUMMY		T1SHM011	
2		Page	
		1/1	

4 3 2 1

1 2 3 4 1 2 3 4 1 2 3 4

REV. #		ZONE	DESCRIPTION	DATE	BY
00	GLOBAL		PART SUPERSEDES AND IS IDENTICAL TO REV X0	5/12/04	J. McDONALD
01	GLOBAL		CHANGED GEOMETRY	6/28/04	M. ARTIS



NOTE:

1 BREAK ALL SHARP EDGES

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
1		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES			
ENGINEERED:	M. ARTIS	DATE:	1/9/04
DRAWN:	M. ARTIS	DATE:	1/9/04
CHECKED:	M. ARTIS	DATE:	1/9/04
SCALE:	1=1	REVISION:	A CO
QUANTITY FOR AN ASSEMBLY: 1			
QUANTITY FOR ENTIRE DUMMY: 2			
FINISH: BLACK OXIDE			
MATERIAL: 1018 CRS			

DEPARTMENT OF TRANSPORTATION  
**NHTSA**  
 CONTRACT NO.: DTMB 28-94-C-07010  
 DESIGNED BY: GESAC, INC.  
 125 GARDNER DRIVE  
 BOONSHIRE, MO 2703

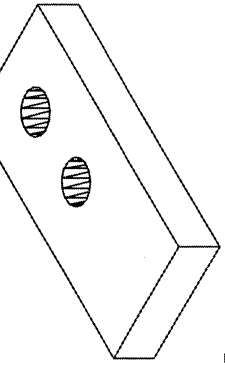
DRAWING TITLE: SHOULDER  
 INNER STOP END PLATE  
 DRAWING NUMBER: T15HM012  
 Page 1/1

1 2 3 4 1 2 3 4 1 2 3 4

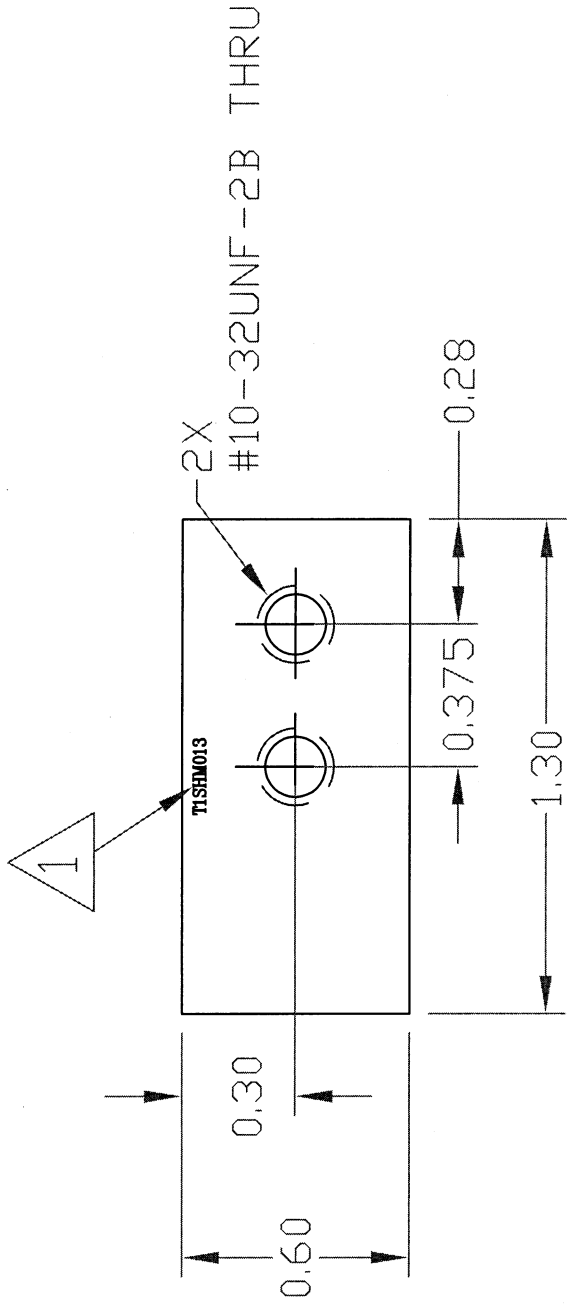
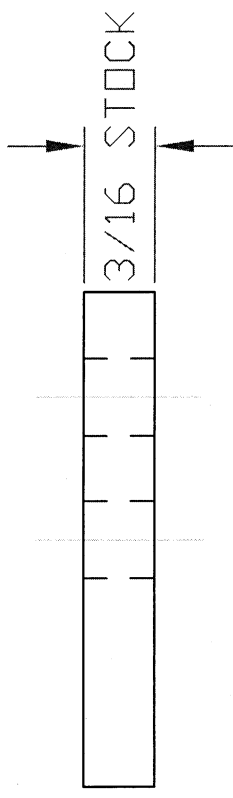
4 3 2 1

REVISIONS		DATE	BY
1	ADDED NUMBER OF LOCATIONS TO DIMENSIONS/HIDDEN LINES	6/28/99	J. POLARD
2	CHANGED THICKNESS & HOLE TYPE & SPACING	9/16/03	M. ARTIS
30	SUPERCEDES AND IS IDENTICAL TO REV 2	4/28/04	J. McDONALD

D C B A



NTS



QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
1018 CRS	T1SHM013	SHOULDER OUTSIDE STOP END PLATE	1018 CRS
1	1	QUANTITY FOR AN ASSEMBLY	
2	2	QUANTITY FOR ENTIRE DUMMY	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
ENGINEERED:	M. ARTIS	DATE:	9/16/03
DRAWN:	M. ARTIS	DATE:	9/16/03
CHECKED:	STAFF	DATE:	9/16/03
SCALE:	2=1	SIZE:	A
FINISH:	BLACK OXIDE	REVISION:	B0
TOLERANCES		DRAWING TITLE: SHOULDER	
Angles:	± .5	DRAWING NUMBER: T1SHM013	
Fractions:	± 1/64	DEPARTMENT OF TRANSPORTATION	
Decimals:	.xx ± .01	NHTSA	
Hole Dia.:	± .002	CONTRACT NO.: DTRE 99-94-C-07010	
* DO NOT SCALE DRAWING *		DESIGNED BY: GESAC, INC.	
		125 BROADWAY ROCKAWAY, NJ 07866	

NOTE:

- 1 ENGRAVE THE DWG. # T1SHM013 AT THE LOCATION SPECIFIED ABOVE.
- 2 BREAK ALL SHARP EDGES

4 3 2 1

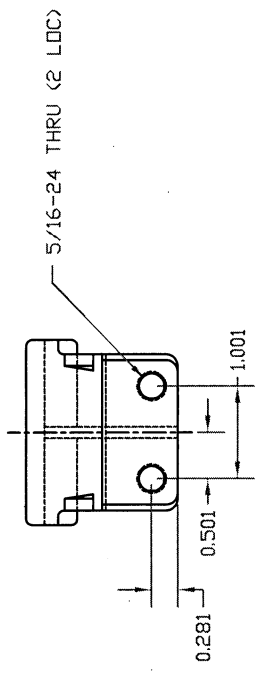
D C B A

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
1018 CRS	T1SHM013	SHOULDER OUTSIDE STOP END PLATE	1018 CRS
1	1	QUANTITY FOR AN ASSEMBLY	
2	2	QUANTITY FOR ENTIRE DUMMY	

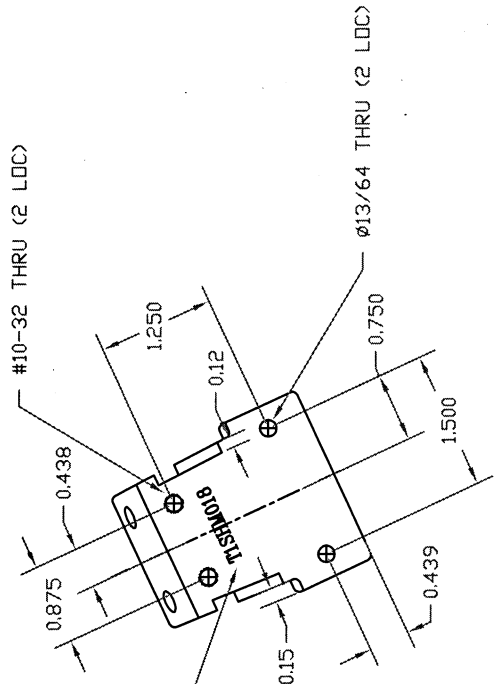
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
ENGINEERED:	M. ARTIS	DATE:	9/16/03
DRAWN:	M. ARTIS	DATE:	9/16/03
CHECKED:	STAFF	DATE:	9/16/03
SCALE:	2=1	SIZE:	A
FINISH:	BLACK OXIDE	REVISION:	B0
TOLERANCES		DRAWING TITLE: SHOULDER	
Angles:	± .5	DRAWING NUMBER: T1SHM013	
Fractions:	± 1/64	DEPARTMENT OF TRANSPORTATION	
Decimals:	.xx ± .01	NHTSA	
Hole Dia.:	± .002	CONTRACT NO.: DTRE 99-94-C-07010	
* DO NOT SCALE DRAWING *		DESIGNED BY: GESAC, INC.	
		125 BROADWAY ROCKAWAY, NJ 07866	

10	9	8	7	6	5	4	3	2	1
H	G	F	E	D	C	B	A		

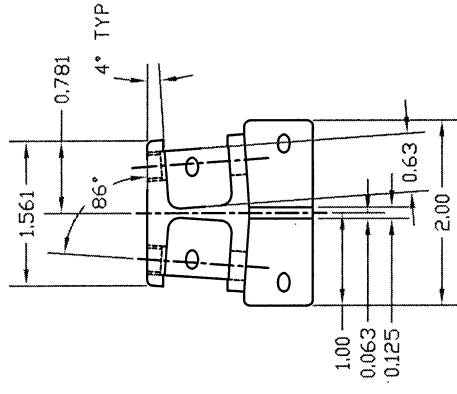
TOP VIEW



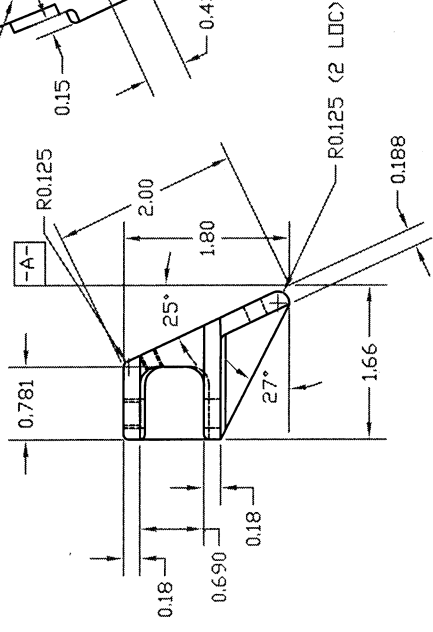
FRONT VIEW



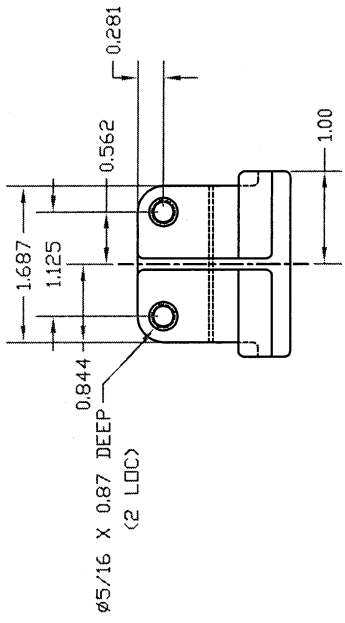
REAR VIEW



RIGHT VIEW



BOTTOM VIEW



NOTES:

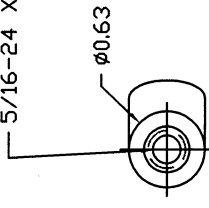
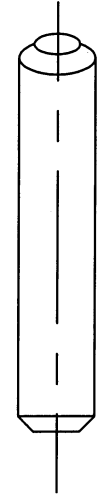
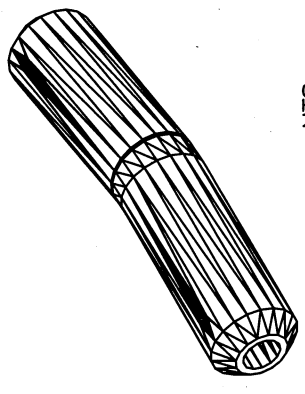
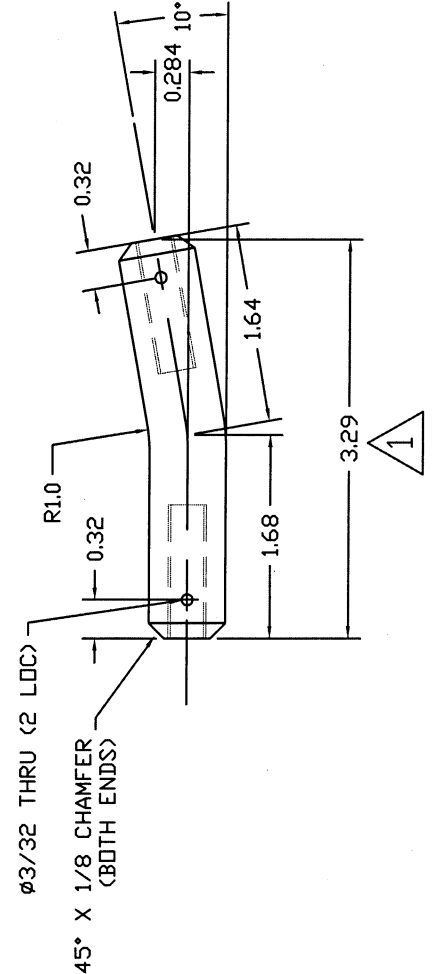
- ① BREAK ALL SHARP EDGES.
- ② USE 0.12 RADIUS FOR ALL CORNERS.
- ③ ENGRAVE THE DWG. # TISHM018 AT THE LOCATION SPECIFIED ABOVE.

REV. #	ZONE	DESCRIPTION	DATE	BY
1	D-5	ADDED RADIUS TO FRONT EDGE	3/30/96	D. BRANCH
2	GLOBAL	ADDED NUMBER OF LOCATIONS TO DIMENSIONS, ADDED FINISH	6/14/96	J. POLAND

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
1		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		ENGINEERED: Y.M. ZHAO	DATE: 3/12/96
Tolerances		DRAWN: Y.M. ZHAO	DATE: 3/12/96
Angles: ± .5°		CHECKED: STAFF	DATE: 3/12/96
Fractions: ± 1/64		SCALE: 1=1	SIZE: C
Decimals: .xxx ± .005		REVISION: 2	
Hole Dia: ± .002		QUANTITY FOR AN ASSEMBLY: 1	
FINISH: TEFLON COATING		QUANTITY FOR ENTIRE DUMMY: 1	
MATERIAL: 1018 CRS			

**NHTSA**  
 DEPARTMENT OF TRANSPORTATION  
 CONTRACT NO.: DTNH 22-94-C-07010  
 DESIGNED BY: GESAC, INC.  
 125 ORCHARD BLVD  
 BOSSBORO, MD 21733

DRAWING TITLE: SHOULDER  
 UPPER STERNAL PLATE  
 DRAWING NUMBER: TISHM018  
 Page 1/1

8	7	6	5	4	3	2	1																																				
D	<p>DRILL AND TAP 5/16-24 X 1.1' USEABLE THREAD (2 LOC)</p>  <p>DRILL AND TAP 5/16-24 X 1.1' USEABLE THREAD (2 LOC)</p> 						1																																				
C	<p>NTS</p> 						2																																				
B							3																																				
A	<p>NOTES:</p> <p>1 LENGTH OF ROD PRIOR TO BENDING SHALL BE 3.32 INCHES.</p>						4																																				
<table border="1"> <thead> <tr> <th>REV. #</th> <th>ZONE</th> <th>DESCRIPTION</th> <th>DATE</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>D-8</td> <td>INCREASED DEPTH OF THREAD</td> <td>5/20/98</td> <td>D. BEACH</td> </tr> <tr> <td>2</td> <td></td> <td>ADDED FINISH</td> <td>8/14/98</td> <td>J. PULANO</td> </tr> <tr> <td>3</td> <td>GLOBAL</td> <td>27 TO 10'</td> <td>7/28/04</td> <td>J. MCDONALD</td> </tr> </tbody> </table>							REV. #	ZONE	DESCRIPTION	DATE	BY	1	D-8	INCREASED DEPTH OF THREAD	5/20/98	D. BEACH	2		ADDED FINISH	8/14/98	J. PULANO	3	GLOBAL	27 TO 10'	7/28/04	J. MCDONALD	5																
REV. #	ZONE	DESCRIPTION	DATE	BY																																							
1	D-8	INCREASED DEPTH OF THREAD	5/20/98	D. BEACH																																							
2		ADDED FINISH	8/14/98	J. PULANO																																							
3	GLOBAL	27 TO 10'	7/28/04	J. MCDONALD																																							
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QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL																																								
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1		SCALE: 1=1	REVISION: X0																																								
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<p>Technical drawing showing front and side views of a shoulder yoke mount (left). Dimensions include: 0.687, 1.25, 12.5°, 0.213, R0.563, 2.75, 1.62, 0.909, 1.21, R 0.25 (AS SHOWN), 0.375, 2.872, 3.81, 0.750, R0.75, 1.817, 0.750, R0.200, 2X #5/32 THRU, PRESS FIT WITH 5/32 DOWEL PIN, 1.522, 1.286, 0.344, 0.849, 1.250+0.000-0.002, 1.88, 0.812, 1.625, 1.275, 0.8105, R0.25, R1.05, 0.540, 2.27, 1.281, 0.90, 0.060, 0.375. Callouts: 1: #8-32 HELI-COIL 3/8" DEEP FROM OPPOSITE SIDE (2 LOC); 2: 5/16-18 THRU HELI-COIL.</p>																																																																

NOTES:

1 ENGRAVE THE DWG. # TISHM020 AT THE LOCATION SPECIFIED ABOVE.

2 REMOVE SHARP EDGES.



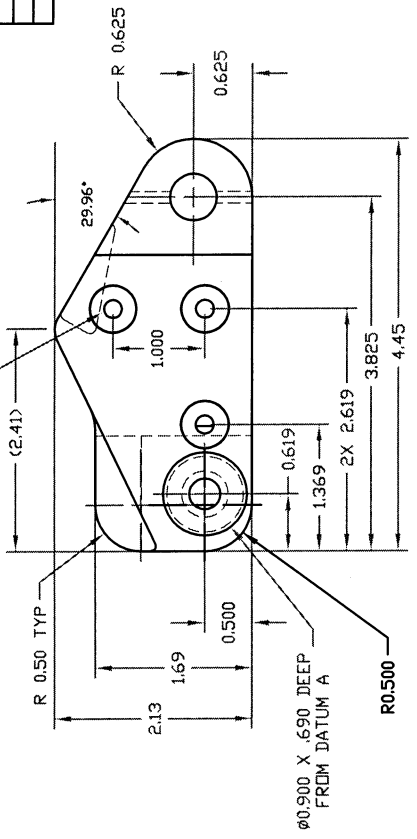


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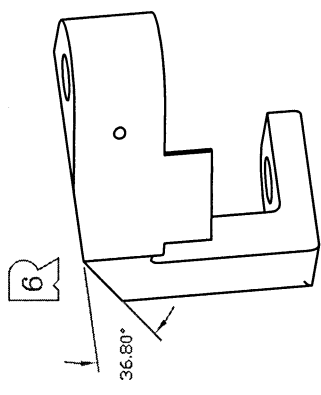
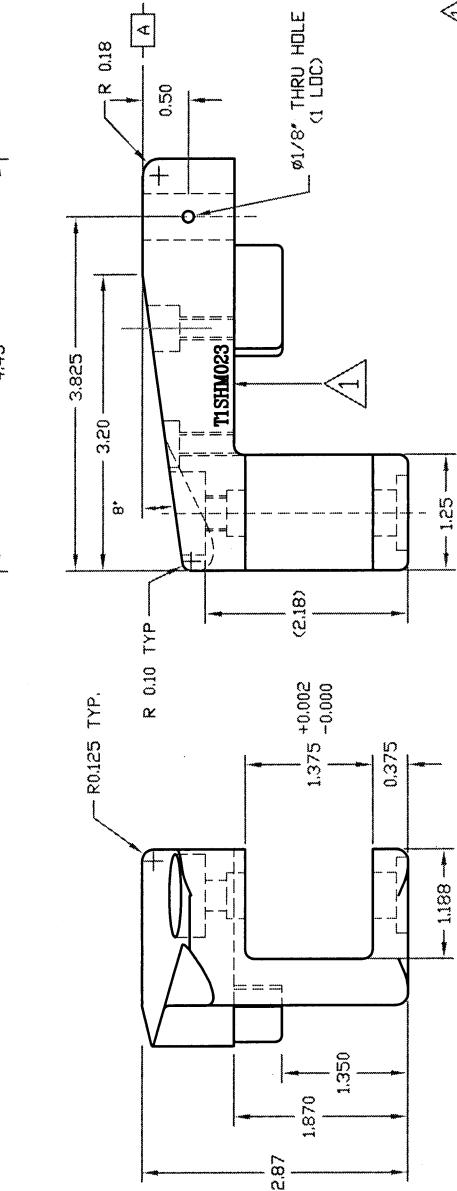
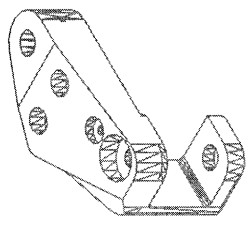
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H	G	F	E	D	C	B	A		

REV. #	ZONE	DESCRIPTION	DATE	BY
1	GLOBAL	ADDED FINISH	6/14/06	J. POLAND
2	3, G	DELETED 1/2"-13 THRU HOLE	7/26/06	J. POLAND
3	7, B	CHANGED VERTICAL PART DIMENSION	11/26/06	D. BRACE
4	6, E	CHANGED 1/2" C'BORE DEPTH FROM 1.875 TO 1.950	11/10/06	J. McDONALD
5	6, E	ADDED HORIZONTAL ANGLE DIMENSIONS	12/12/06	D. BRACE
6	6-7, F-G	ADDED 36.8° CHAMFER	12/19/06	J. McDONALD
7	A5	ADDED COUNTERBORES	12/19/06	J. McDONALD
		ADDED 1/16" R TYP.	1/30/04	M. ARTIS

6 DRILL THRU AND TAP FOR 1/4"-20 THREAD C'BORE .0510 X .410 DEEP FROM DATUM A. (3 LOC)



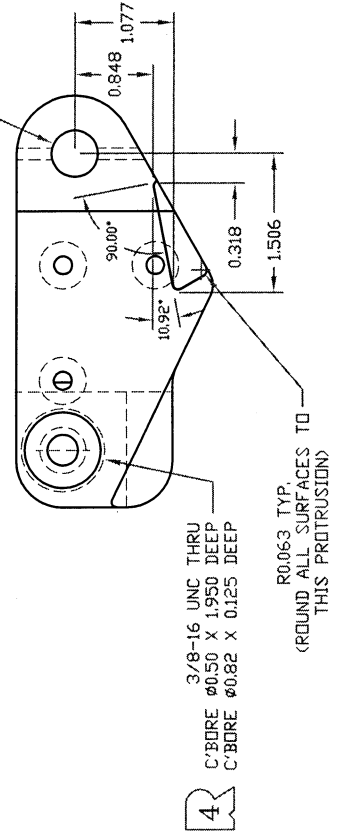
NTS



NOTE:

- 1 ENGRAVE THE DWG. # TISHM022 AT THE LOCATION SPECIFIED ABOVE.
- 2 BREAK ALL SHARP EDGES

3



QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
1	TISHM023	SHOULDER SHOULDER SUPPORT (RIGHT)	1018 CRS
1		QUANTITY FOR ENTIRE DUMMY	
1		QUANTITY FOR AN ASSEMBLY	
1		QUANTITY FOR ENTIRE DUMMY	

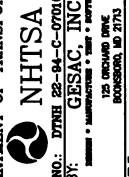
UNLESS OTHERWISE SPECIFIED	ENGINEERED:	DATE:	ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY
DIMENSIONS ARE IN INCHES	Y.M. ZHAO	3/8/06	DEPARTMENT OF TRANSPORTATION
Tolerances			
Angles: ± .5°			
Fractions: ± 1/64			
Decimals: .xxx ± .005			
Hole Dia. ± .002			
DO NOT SCALE DRAWING			
SCALE	1=1	C	
SIZE	1	C	
REVISION	7		
FINISH			
TEFLON COATING			
MATERIAL:			
1018 CRS			

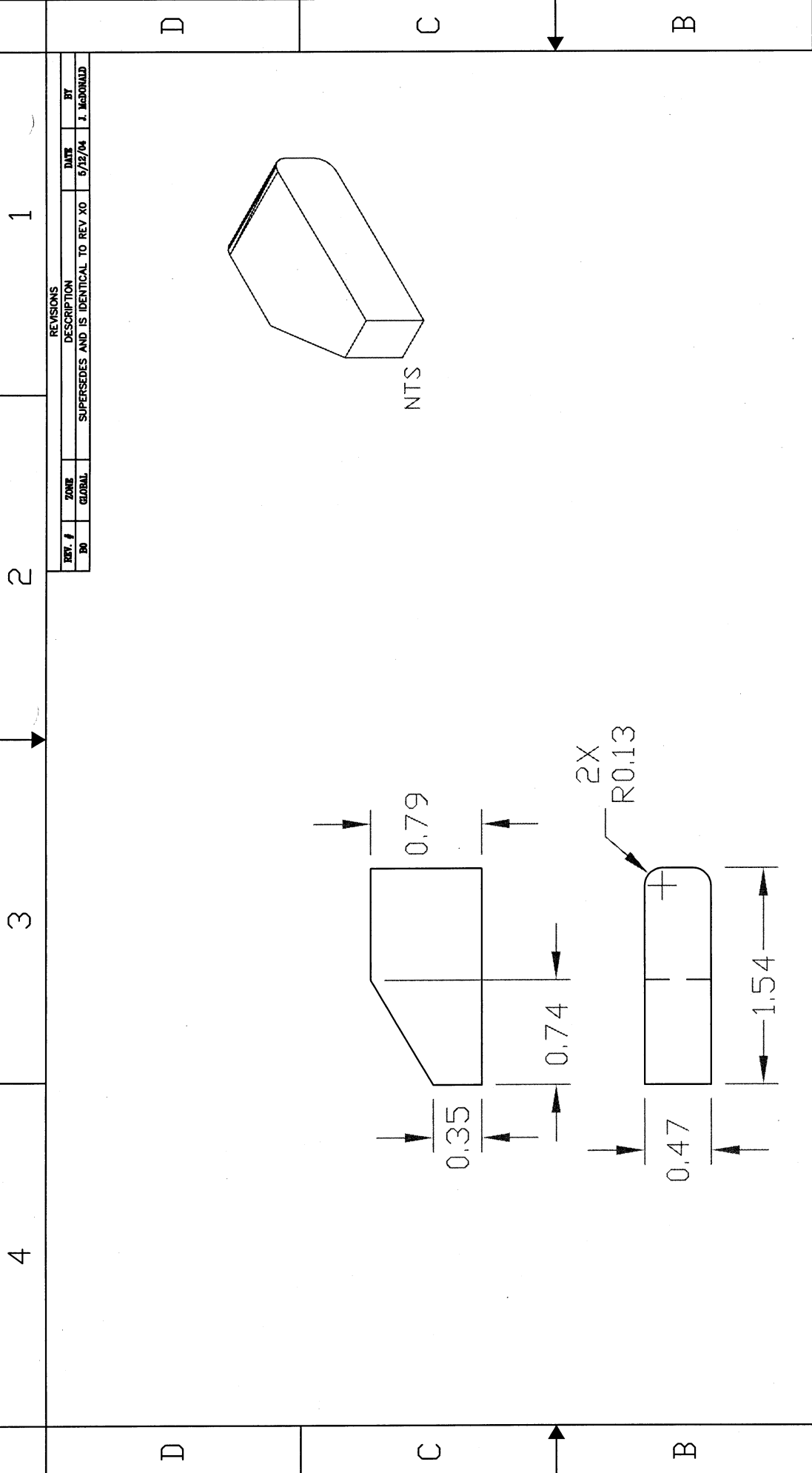
UNLESS OTHERWISE SPECIFIED	ENGINEERED:	DATE:	ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY
DIMENSIONS ARE IN INCHES	Y.M. ZHAO	3/8/06	DEPARTMENT OF TRANSPORTATION
Tolerances			
Angles: ± .5°			
Fractions: ± 1/64			
Decimals: .xxx ± .005			
Hole Dia. ± .002			
DO NOT SCALE DRAWING			
SCALE	1=1	C	
SIZE	1	C	
REVISION	7		
FINISH			
TEFLON COATING			
MATERIAL:			
1018 CRS			

UNLESS OTHERWISE SPECIFIED	ENGINEERED:	DATE:	ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY
DIMENSIONS ARE IN INCHES	Y.M. ZHAO	3/8/06	DEPARTMENT OF TRANSPORTATION
Tolerances			
Angles: ± .5°			
Fractions: ± 1/64			
Decimals: .xxx ± .005			
Hole Dia. ± .002			
DO NOT SCALE DRAWING			
SCALE	1=1	C	
SIZE	1	C	
REVISION	7		
FINISH			
TEFLON COATING			
MATERIAL:			
1018 CRS			

10	9	8	7	6	5	4	3	2	1
A	B	C	D	E	F	G	H		

DRAWING TITLE: SHOULDER SHOULDER SUPPORT (RIGHT)  
 DRAWING NUMBER: TISHM023  
 Page 1/1



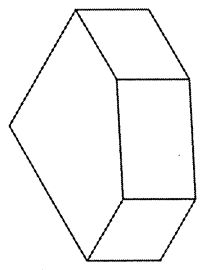


REV. #	QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
1	1		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES Tolerances Angles: ± .5° Fractions: ± 1/64 Decimals: .xx ± .01 .xxx ± .005 Hole Dia. ± .002 * DO NOT SCALE DRAWING * FINISH:				
ENGINEER: M. ARTIS DATE: 9/16/03 DRAWN: M. ARTIS DATE: 9/16/03 CHECKED: M. ARTIS DATE: 9/16/03 STAFF: A SCALE: 1=1 SIZE: A REVISION: BO QUANTITY FOR AN ASSEMBLY: 1 QUANTITY FOR ENTIRE DUMMY: 2				
DEPARTMENT OF TRANSPORTATION <b>NHTSA</b> CONTRACT NO.: DTMB 22-94-C-07010 DESIGNED BY: GESAC, INC. <small>100 JACKSON PLAZA • WASHINGTON, DC 20533</small>				
DRAWING TITLE: SHOULDER INNER STOP BUMPER DRAWING NUMBER: TISHM024 Page: 1/1				
MATERIAL: SEE NOTES				
NOTES: 1 MATERIAL: BUNA-N RUBBER, 40 +/- 5 SHORE A DUROMETER (REF MCM #86715K109) 2 TOLERANCE ON THIS PART IS 0.03"				

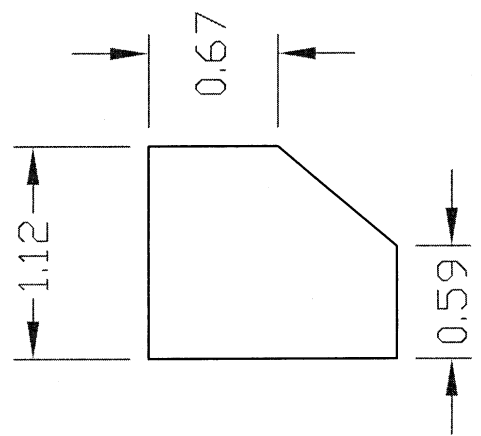
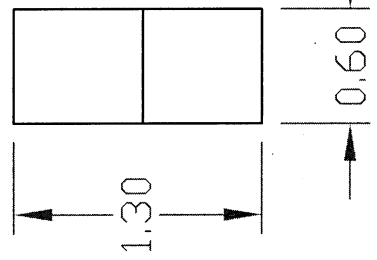
1 2 3 4

D C B A

REV. #	ZONE	DESCRIPTION	DATE	BY
00	GLOBAL	SUPERSEDES AND IS IDENTICAL TO REV X0	5/13/04	J. MADHANI



NTS



QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
UNLESS OTHERWISE SPECIFIED:		ENGINEERED: Y.M. ZHAO	DATE: 9/7/06
DIMENSIONS ARE IN INCHES		DRAWN: M. ARTIS	DATE: 9/16/03
Tolerances		CHECKED: M. ARTIS	DATE: 9/16/03
Angles: ± .5°		SCALE: 1=1	REVISION: A
Fractions: ± 1/64		SIZE: A	BO
Decimals: .xx ± .01		QUANTITY FOR AN ASSEMBLY	1
.xxx ± .005		QUANTITY FOR ENTIRE DUMMY	2
Hole Dia. ± .002		MATERIAL:	SEE NOTES
* DO NOT SCALE DRAWING *			
FINISH:			
DRAWING TITLE: SHOULDER			
DRAWING NUMBER: T1SHM025			
Page: 1/1			

NOTES:  
 1 MATERIAL: BUNA-N RUBBER, 40 +/- 5 SHORE A DUROMETER  
 (REF MCM #86715K109)  
 2 TOLERANCE ON THIS PART IS 0.03"

1 2 3 4

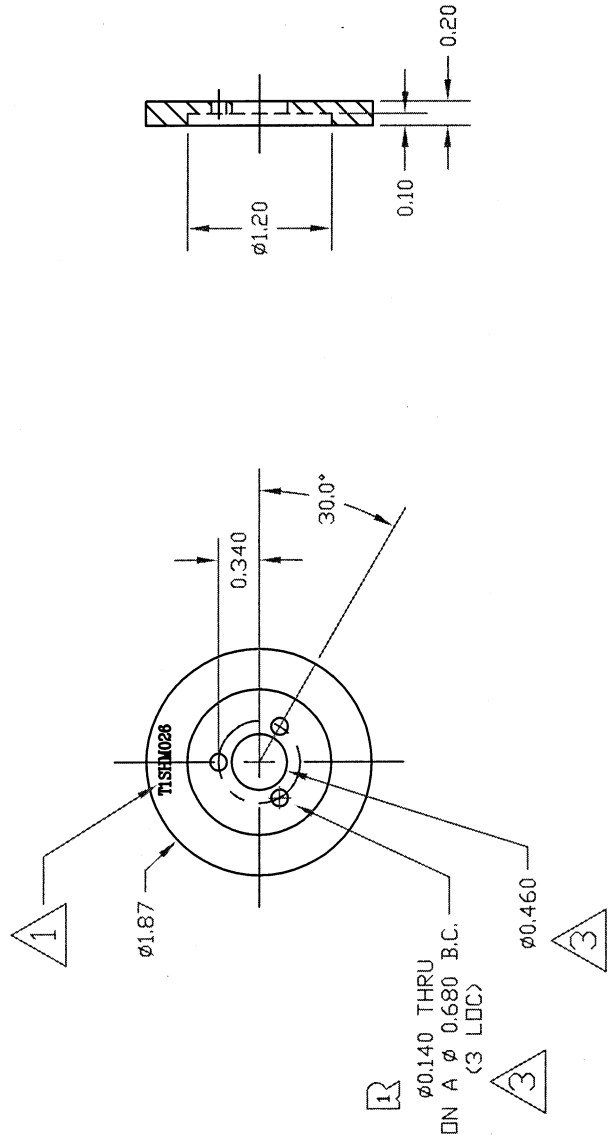
D C B A

1 2 3 4

8	7	6	5	4	3	2	1
D							
C							
B							
A							
8	7	6	5	4	3	2	1
D							
C							
B							
A							

REV. #	ZONE	BY	DATE	REV
1			8/11/96	1. MODIFIED
2			8/15/96	1. POLISHED
3			7/29/96	D. BRIDGE

REVISIONS	DESCRIPTION	DATE
1	ENLARGED THRU HOLES	8/11/96
2	ADDED FINISH	8/15/96
3	ADDED NOTE ABOUT CIRCLE PATTERN CONCENTRICITY	7/29/96



R  
 Ø0.140 THRU  
 ON A Ø 0.680 B.C.  
 (3 LOC)

NOTE:

1 MARK THE DWG. # T1SHM026 AT THE LOCATION SPECIFIED ABOVE.

2 REFERENCE GM PART # 880105-350

3 0.460Ø CENTER HOLE AND THE THREE 0.140Ø HOLES ON A 0.680Ø B.C. MUST BE DRILLED IN THE SAME OPERATION TO ALIGN THE CENTERS CONCENTRICALLY.

4 BREAK ALL SHARP EDGES

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
1018	CBS	TEFLON COATING	
2		QUANTITY FOR AN ASSEMBLY	
2		QUANTITY FOR ENTIRE DUMMY	
1	T1SHM026	YOKE STEEL WASHER	

ENGINEERED	DATE	DEPARTMENT
SEE NOTE	3/11/96	DEPARTMENT OF TRANSPORTATION
Y.M. ZELAO	3/11/96	NHTSA
CHECKED	DATE	CONTRACT NO. DTMB 96-C-0000
STAFF	3/11/96	DESIGNED BY: GISSAC, INC.
SCALE	SIZE	100 NEWBARK
1=1	B	100 NEWBARK
	REVISION	100 NEWBARK
	3	100 NEWBARK
	2	100 NEWBARK
	1	100 NEWBARK

Page	1/1
DRAWING NUMBER	T1SHM026

4

3

2

1

D

C

B

A

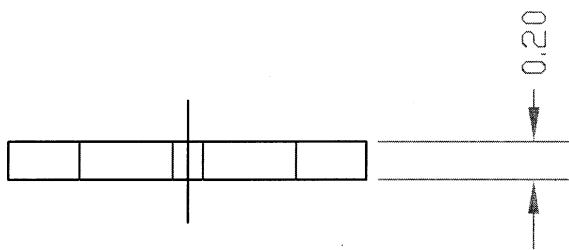
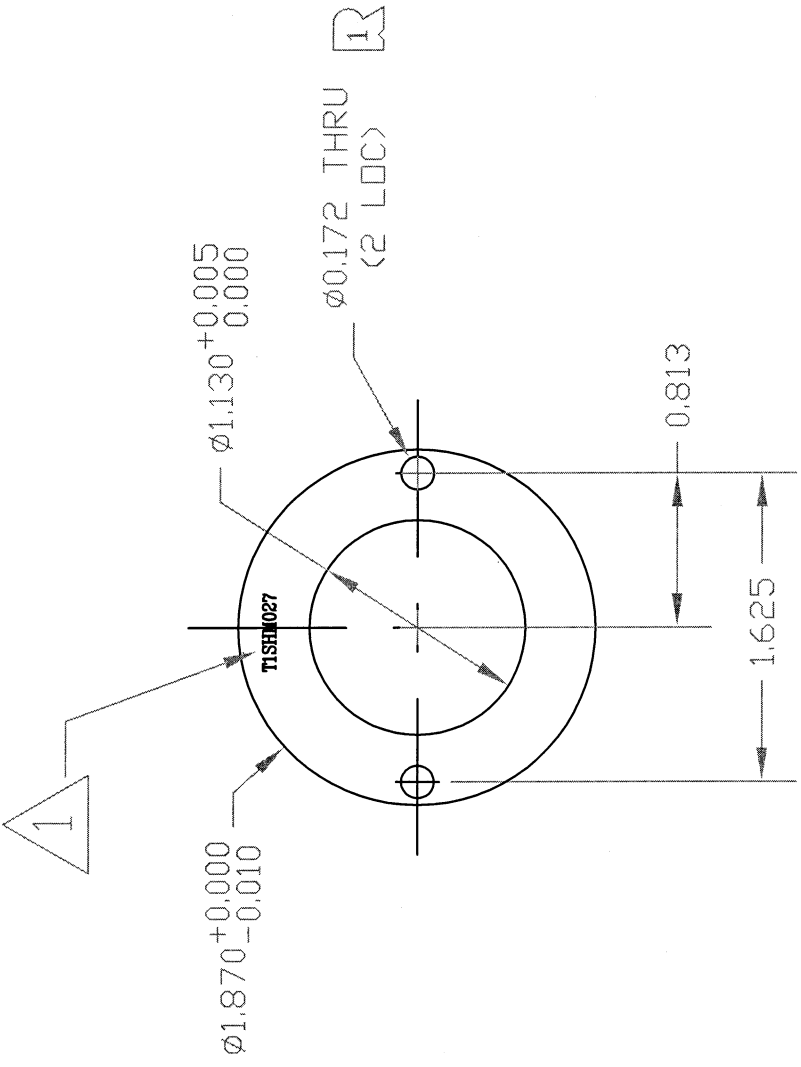
4

3

2

1

REV. #	ZONE	DESCRIPTION	DATE	BY
1	CS	ENLARGED THRU HOLES	5/14/96	J. MADONALD
2	GLOBAL	CORRECTED REVISIONS IN TITLE BLOCK, CHANGED PLS TO LOC	5/14/96	J. MADONALD
3	DS	ADDED A DECIMAL PLACE TO OD AND ADDED A TOLERANCE	11/25/92	C. SPADRE



NOTE:

1 MARK THE DWG. # T1SHM027 AT THE LOCATION SPECIFIED ABOVE.

2 REFERENCE GM PART # 880105-349

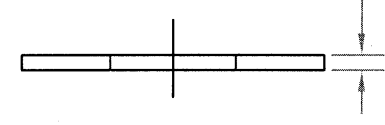
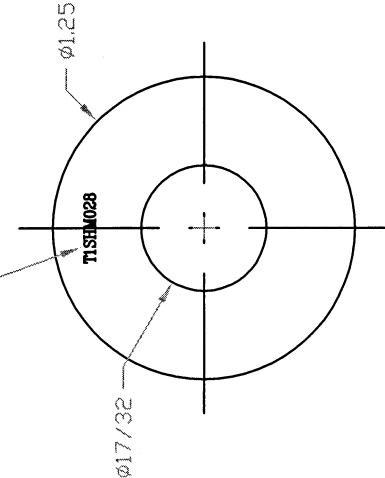
QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
	ENGINEERED: SEE NOTE 2	DATE: 3/11/96	DEPARTMENT OF TRANSPORTATION
	DRAWN: Y.M. ZHAO	DATE: 3/11/96	<b>NHTSA</b>
	CHECKED: STAFF	DATE: 3/11/96	CONTRACT NO.: DTMB 22-94-C-07010
	SCALE: 1=1	REVISION: A	DESIGNED BY: GRESAC, INC.
		REVISION: 3	122 ORCHARD DRIVE BOULDER, CO 80501
	QUANTITY FOR AN ASSEMBLY: 2	DRAWING TITLE: SHOULDER	
	QUANTITY FOR ENTIRE DUMMY: 2	DRAWING NUMBER: T1SHM027	Page 1/1
	MATERIAL: DELRIN		

8	7	6	5	4	3	2	1																									
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REV. #	ZONE	DESCRIPTION	DATE	BY																												
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2	C-7	CHANGED INSIDE DIAMETER	7/29/96	J. POUND																												
3	B-3	CHANGED THICKNESS TOLERANCE	4/10/91	M. ARNTS																												
4	A-8	DECREASED QTY.	4/10/91	M. ARNTS																												
<p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES</p> <p>Tolerances</p> <p>Angles: ± .5°</p> <p>Fractions: ± 1/64</p> <p>Decimals: .xx ± .01</p> <p>Decimals: .xxx ± .005</p> <p>Note: Dia. ± .002</p> <p>* TO NOT SCALE DIMENSIONS *</p> <p>FINISH:</p>																																
<p>NOTE:</p> <p>MARK THE DWG. # T1SHM028 AT THE LOCATION SPECIFIED ABOVE.</p>																																
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QTY	DWG./PART NUMBER	DESCRIPTION	MATERIAL																													
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4	T1SHM028	YOKE MOUNT WASHER	DEL/RIN																													
8	7	6	5	4	3	2	1																									

QTY	DWG./PART NUMBER	DESCRIPTION	MATERIAL
4	T1SHM028	YOKE MOUNT WASHER	DEL/RIN
4	T1SHM028	YOKE MOUNT WASHER	DEL/RIN

NOTE:

MARK THE DWG. # T1SHM028 AT THE LOCATION SPECIFIED ABOVE.





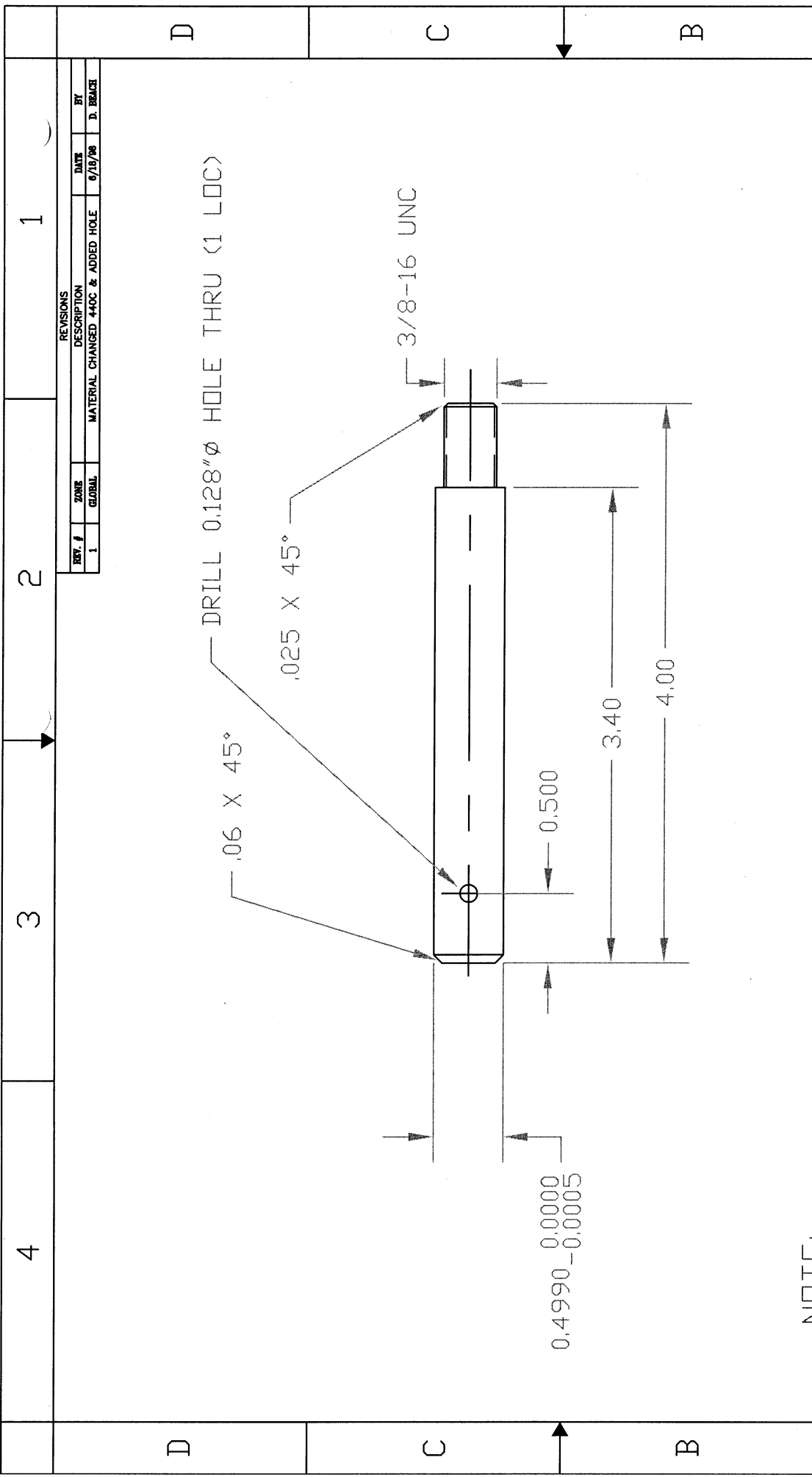
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<p>NOTES:</p> <p>1 URETHANE SLEEVE MATERIAL: SHORE A 35 URETHANE</p> <p>2 THIS RUBBER SLEEVE IS MOLDED AROUND THE SHOULDER BLOCK BUSHING (T1SHM032).</p>																																															
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NOTE:

1 PART IS MOLDED INTO THE MOLDED RUBBER SLEEVE (T1SHM031)



NOTE:

① HEAT TREAT SHAFT TO RC 57.

REV. #	ZONE	DESCRIPTION	DATE	BY
1	GLOBAL	MATERIAL CHANGED 440C & ADDED HOLE	6/19/96	D. BRACE

QTY	DTG/PART NUMBER	DESCRIPTION	MATERIAL
		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES			
ENGINEERED:	Y.M. ZHAO	DATE:	3/7/96
DRAWN:	Y.M. ZHAO	DATE:	3/7/96
CHECKED:	STAFF	DATE:	3/7/96
SCALE:	1=1	SIZE:	A
FINISH:		REVISION:	1
MATERIAL:		QUANTITY FOR AN ASSEMBLY:	2
440 C SS		QUANTITY FOR ENTIRE DUMMY:	2
		DRAWING NUMBER:	TISHM035
		Page	1/1

DEPARTMENT OF TRANSPORTATION  
**NHTSA**  
 CONTRACT NO.: DTNH 22-94-C-07610  
 DESIGNED BY: GESAC, INC.  
125 BRIDGE PLAZA  
 ROCKVILLE, MD 20850

DRAWING TITLE: SHOULDER SHAFT  
 DRAWING NUMBER: TISHM035  
 Page 1/1

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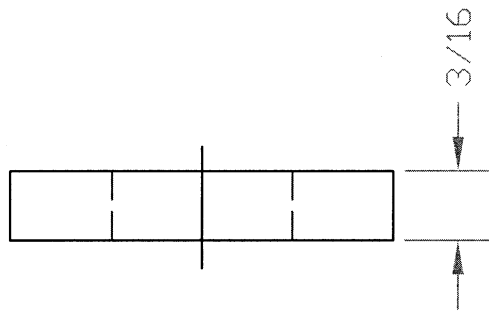
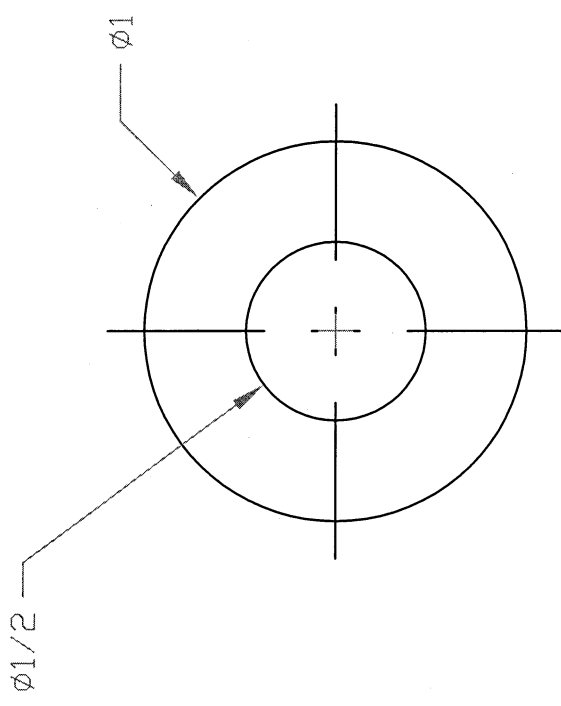
REVISIONS			
REV. #	ZONE	DESCRIPTION	DATE
1	C-3	CHANGED OUTER DIAMETER OF WASHER	12/9/97
2	GLOBAL	CHANGED TOLERANCES TO REFLECT MATERIAL	9/25/98
3	A-1	CHANGED QUANTITY REQUIRED	5/20/99
4	A-4	EDITED REFERENCE FOR MATERIAL IN NOTE 1	6/14/99

D

C

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A



NOTES:

1 MAKE FROM 3/16 THICK SBR RUBBER, SHORE A 70-80,  
 (REFERENCE MCM# 8634K13)

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES			
ENGINEERED:	Y.M. ZHAO	DATE:	5/02/96
DRAWN:	Y.M. ZHAO	DATE:	5/02/96
CHECKED:	Y.M. ZHAO	DATE:	5/02/96
SCALE:	2=1	SIZE:	A
FINISH:		REVISION:	4
QUANTITY FOR AN ASSEMBLY		2	
QUANTITY FOR ENTIRE DUMMY		2	
MATERIAL:		SEE NOTE	
DRAWING NUMBER:		T1SEM036	
Page		1/1	

DEPARTMENT OF TRANSPORTATION  
**NHTSA**  
 CONTRACT NO.: DTRR 22-94-C-07010  
 DESIGNED BY: GESAC, INC.  
122 BRIDGE DRIVE  
 BOSTON, MA 02125

DRAWING TITLE: SHOULDER  
 RUBBER WASHER

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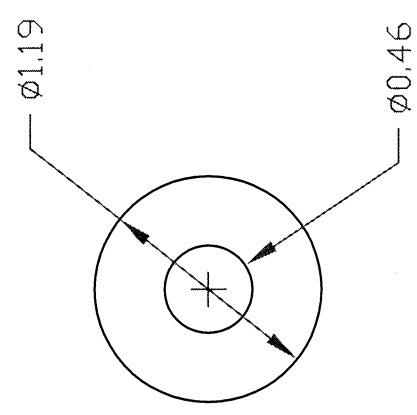
REV. #	ZONE	DESCRIPTION	DATE	BY
1	GLOBAL	CHANGED THICKNESS FROM 1/8" TO 1/16"	5/14/06	J. McDONALD

D

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B

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NOTE:

1

MATERIAL: URETHANE 1/16" THICK, 80 A DUREMETER.  
(REF. MCM # 8716K61 SOFT)

2

REFERENCE GM PART NUMBER 880105-351

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES			
ENGINEERED:	Y.M. ZHAO	DATE: 3/11/06	ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY
DRAWN:	D. BRACH	DATE: 3/11/06	DEPARTMENT OF TRANSPORTATION
CHECKED:	STAFF	DATE: 3/11/06	NHTSA
SCALE:	1=1	REVISION:	CONTRACT NO.: DTRR 22-04-C-07010
FINISH:	A	QUANTITY FOR AN ASSEMBLY:	DESIGNED BY: GESAC, INC.
MATERIAL:	SEE NOTE 1	QUANTITY FOR ENTIRE DUMMY:	120 GROUND LINK ROCKFORD, IL 2775
		2	DRAWING TITLE: SHOULDER
		2	JOINT SPRING WASHER
		2	DRAWING NUMBER: T15HM037
		2	Page 1/1

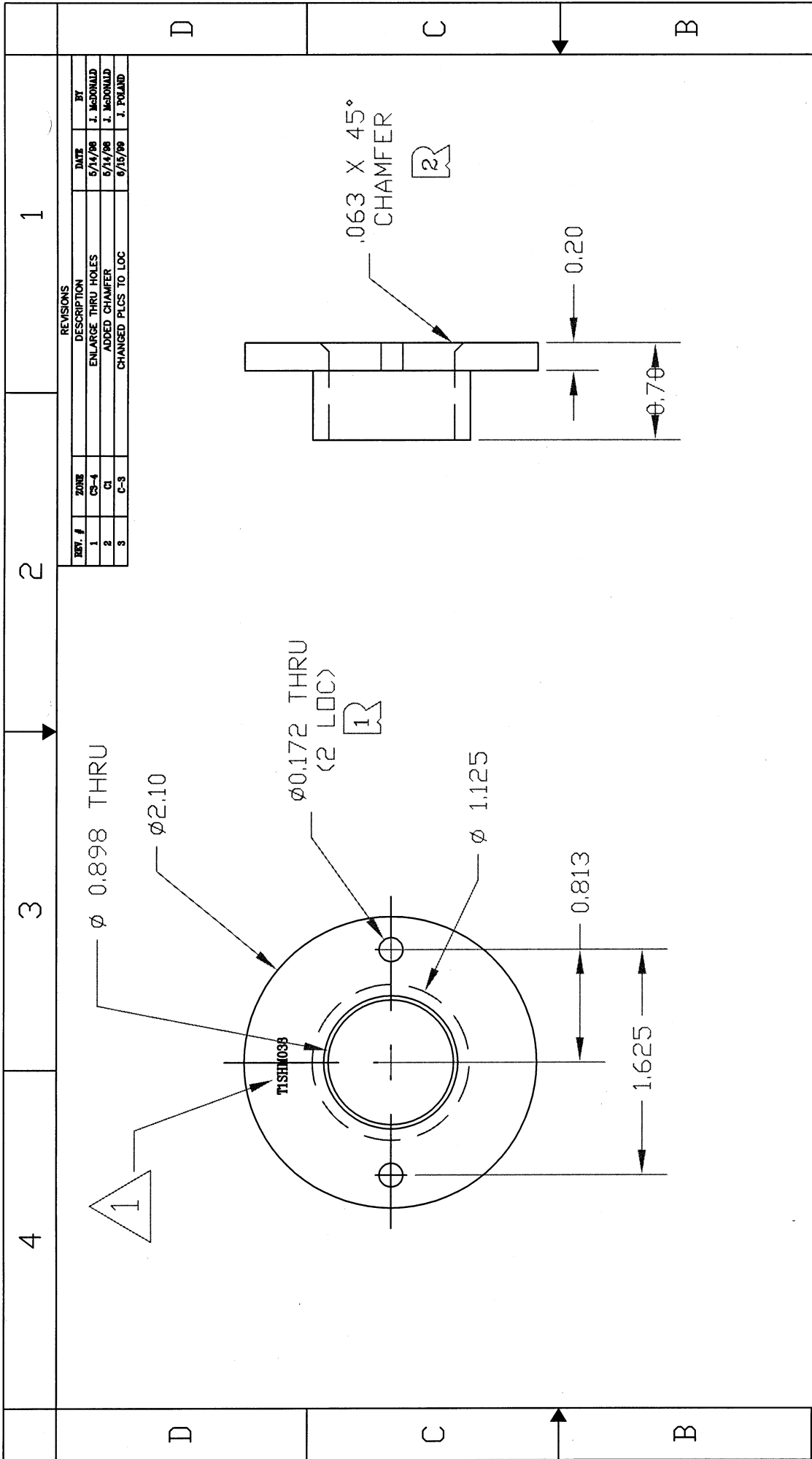
1 2 3 4

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REV. #	QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
1	2	T1SHM038	SHOULDER YOKE PIVOT BUSHING	DELTRIN
2	2		QUANTITY FOR AN ASSEMBLY	
3	3		QUANTITY FOR ENTIRE DUMMY	
4	4		QUANTITY FOR ENTIRE DUMMY	

REVISIONS	DATE	BY
1	5/14/96	J. McDONALD
2	5/14/96	J. McDONALD
3	9/15/99	J. POLAND

ENGINEERED:	DATE:
SEE NOTE 2	3/11/96

DRAWN:	DATE:
Y.M. ZHAO	3/11/96

CHECKED:	DATE:
STAFF	3/11/96

SCALE	SIZE	REVISION
1=1	A	3

UNLESS OTHERWISE SPECIFIED:  
DIMENSIONS ARE IN INCHES  
Tolerances  
Angles:  $\pm .5^\circ$   
Fractions:  $\pm 1/64$   
Decimals: .xx  $\pm .01$   
.xxx  $\pm .005$   
Hole Dia.  $\pm .002$   
\* DO NOT SCALE DRAWING \*  
FINISH:

NOTE:  
MARK THE DWG. # T1SHM038 AT THE LOCATION SPECIFIED ABOVE.  
REFERENCE GM DWG. # 880105-348

ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY

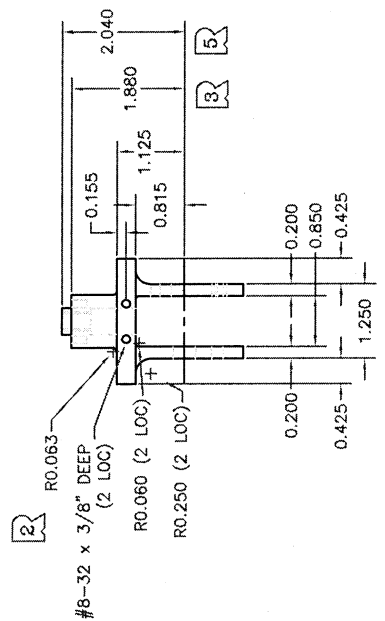
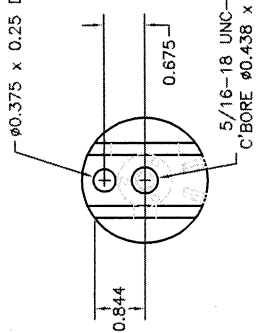
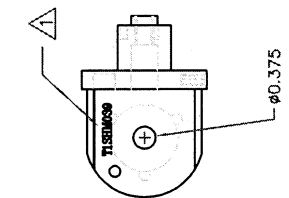
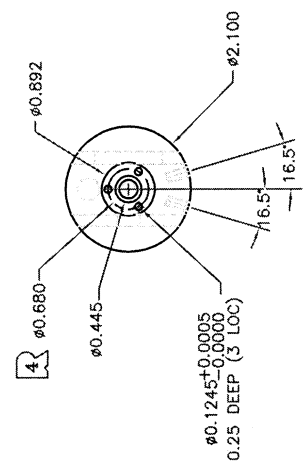
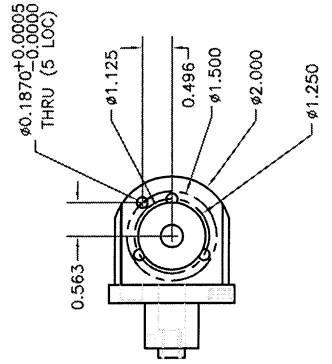
DEPARTMENT OF TRANSPORTATION  
NHTSA  
CONTRACT NO.: DTRR 22-94-C-07010  
DESIGNED BY: GESAC, INC.  
125 GREENWAY DRIVE  
BOSTON, MA 02128

DRAWING TITLE: SHOULDER YOKE PIVOT BUSHING  
DRAWING NUMBER: T1SHM038  
Page 1/1

REV. #	DATE	DESCRIPTION	BY
1	3/2/97	CHANGED LOCATION OF STOPS	J. McDONALD
2	5/14/98	MODIFIED FILLET RADI	J. McDONALD
3	5/29/98	CHANGED DIMENSION FROM 1.90 TO 1.88	J. McDONALD
4	5/29/98	CHANGED DIMENSION FROM .700 TO .680	J. McDONALD
5	5/29/98	CHANGED DIMENSION FROM 2.100 TO 2.040	J. McDONALD
6	5/29/98	ADDED MOUNTING HOLES FOR SHOULDER JOINT COVERS	D. BRACE
7	4/22/99	ADDED FINISH, DELETED DOMEL PINS	J. POLAND
8	11/24/99	ELIMINATED REVISION #8 CHANGES	D. BRACE
9	6/28/04	REMOVED 5/16-18 STUD, ADDED 5/16-18 TAPPED HOLE	J. McDONALD

NOTES:

- 1 MARK THE DWG# T1SHM039 AT THE LOCATION SPECIFIED ABOVE.
- 2 REFERENCE GM PART# 880105-343.
- 3 BREAK ALL SHARP EDGES



QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
4140 CD		SHOULDER YOKE	

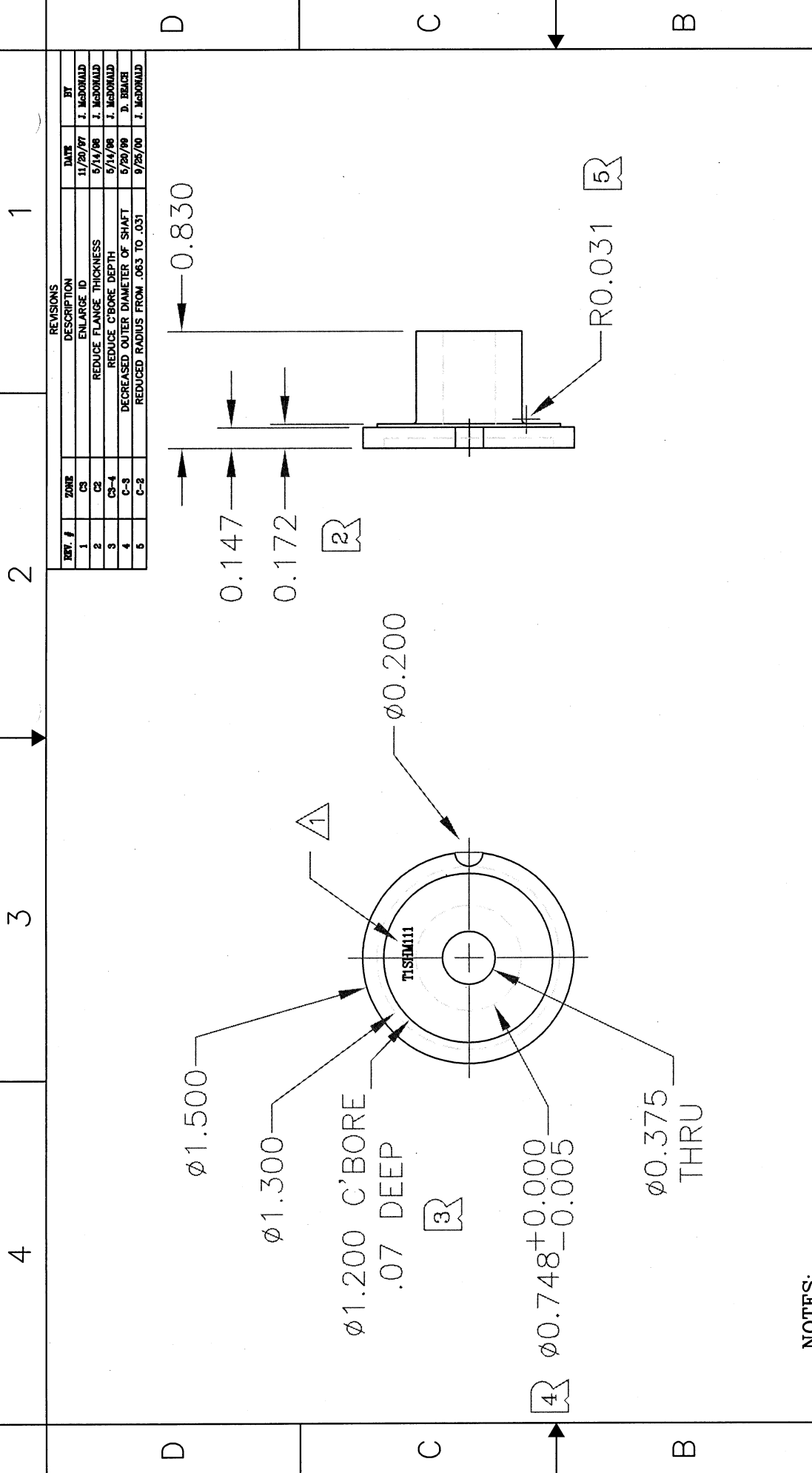
  

ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
ENGINEERED:	DATE: 11/11/97
SIZE: NOTE 2	
DRAWN:	DATE: 11/11/97
J. McDONALD	
CHECKED:	DATE: 11/11/97
STAFF:	
SCALE:	REVISION: 9
1=D	
QUANTITY FOR AN ASSEMBLY:	1
QUANTITY FOR ENTIRE DUMMY:	2

DEPARTMENT OF TRANSPORTATION	
NHTSA	
CONTRACT NO.: DTFR 98-C-0700	
DESIGNED BY: GESAC, INC.	
DRAWING TITLE: SHOULDER YOKE	
DRAWING NUMBER: T1SHM039	
PROG: 1/1	





**NOTES:**

$1$  MARK THE DWG# T1SHM040 AT THE LOCATION SPECIFIED ABOVE.

$2$  REFERENCE GM PART# 880105-709.

REV. #	ZONE	DESCRIPTION	DATE	BY
1	C3	ENLARGE ID	11/20/97	J. MCDONALD
2	C3	REDUCE FLANGE THICKNESS	5/14/98	J. MCDONALD
3	C3-4	REDUCE C'BORE DEPTH	5/14/98	J. MCDONALD
4	C-3	DECREASED OUTER DIAMETER OF SHAFT	5/20/98	D. BRACE
5	C-2	REDUCED RADIUS FROM .063 TO .031	9/25/00	J. MCDONALD

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
UNLESS OTHERWISE SPECIFIED:			
ENGINEERED:	DATE:	DEPARTMENT OF TRANSPORTATION	
SEE NOTE 2	11/13/97	NHTSA	
DRAWN:	DATE:	CONTRACT NO.: DTRR 22-94-C-07010	
J. MCDONALD	11/13/97	DESIGNED BY: GRESAC, INC.	
CHECKED:	DATE:	MATERIALS: GRESAC, INC.	
STAUFF	11/13/97	REVISED: 10/27/03	
SCALE:	SIZE:	DRAWING TITLE: UPPER ARM	
1=1	A	PIVOT BUSHING	
QUANTITY FOR AN ASSEMBLY			
QUANTITY FOR ENTIRE DUMMY			
DRAWING NUMBER: T1SHM040			
Page 1/1			

1

2

3

4

3

4

A

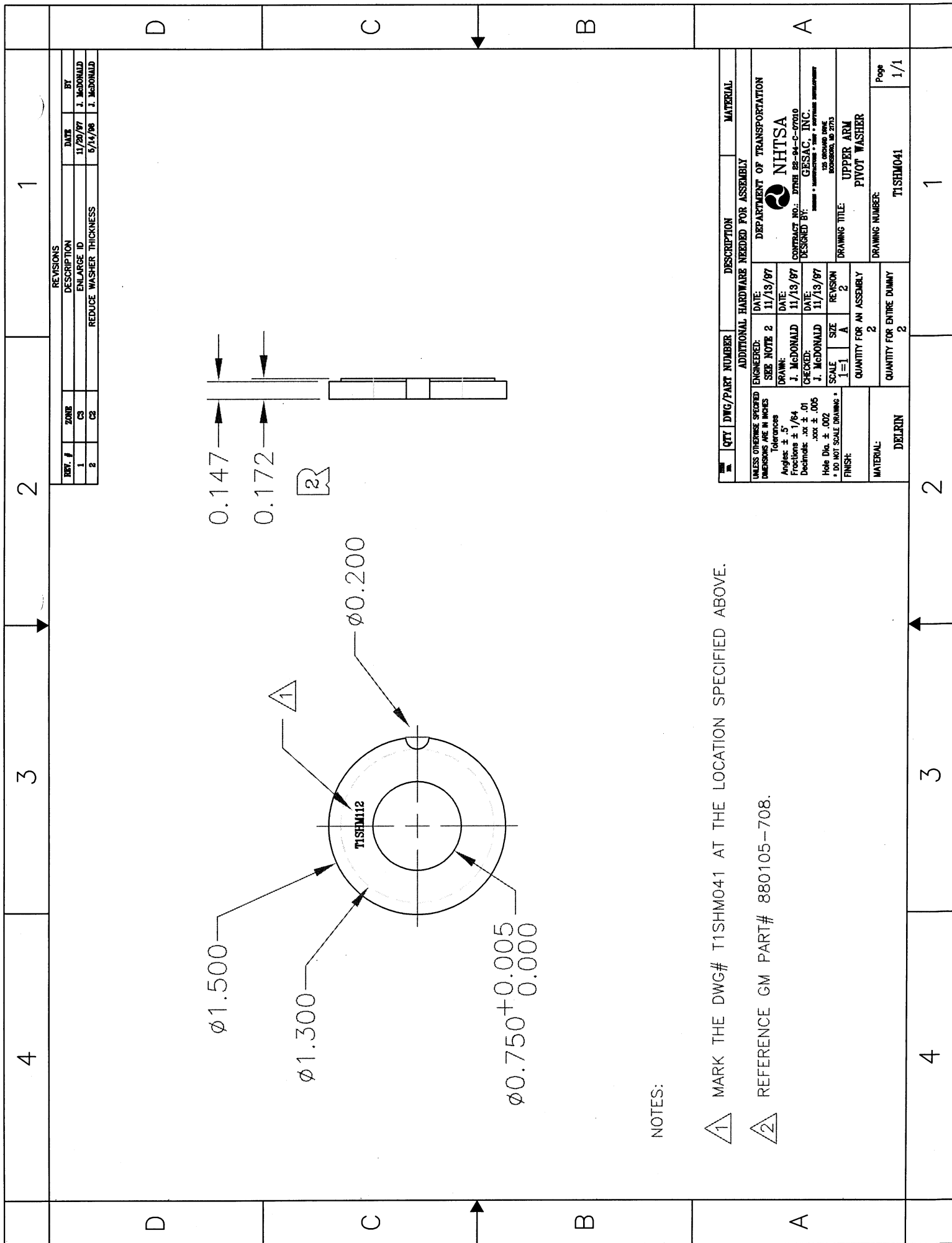
B

C

D

2

1



NOTES:

① MARK THE DWG# T1SHM041 AT THE LOCATION SPECIFIED ABOVE.

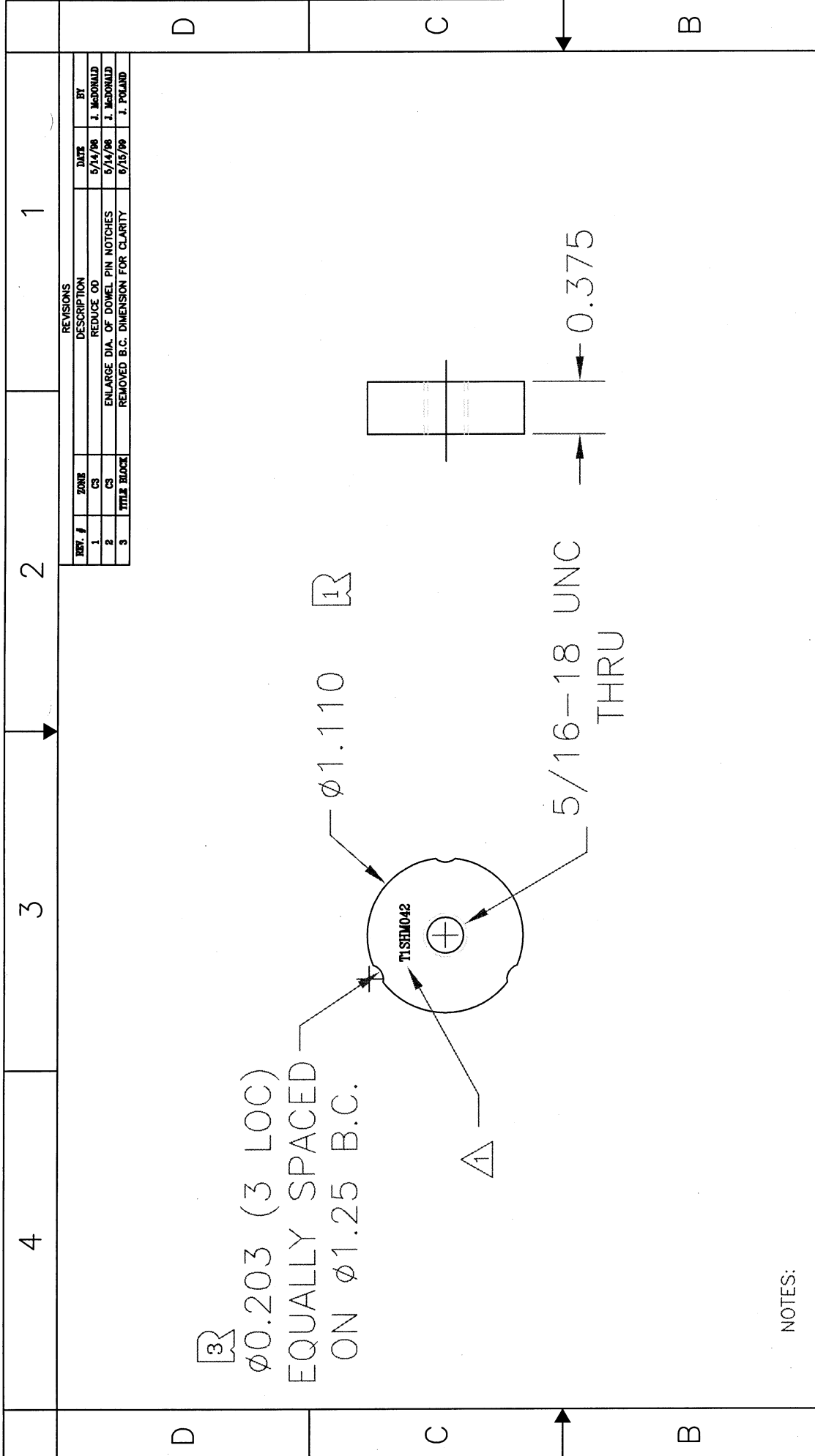
② REFERENCE GM PART# 880105-708.

REV. #	ZONE	DESCRIPTION	DATE	BY
1	C3	ENLARGE ID	11/20/97	J. McDONALD
2	C3	REDUCE WASHER THICKNESS	5/14/98	J. McDONALD

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
2	T1SHM041	UPPER ARM PIVOT WASHER	DELIRIN
2	T1SHM041	QUANTITY FOR AN ASSEMBLY	
2	T1SHM041	QUANTITY FOR ENTIRE DUMMY	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		TOLERANCES	
Angles	± .5	Drawn	J. McDONALD
Fractions	± 1/64	Checked	J. McDONALD
Decimals	.xx ± .01	Scale	1=1 A
Hole Dia.	± .002	Size	A
* DO NOT SCALE DRAWING *			
FINISH:			
ENGINEERED: SEE NOTE 2		DATE: 11/13/97	
DRAWN: J. McDONALD		DATE: 11/13/97	
CHECKED: J. McDONALD		DATE: 11/13/97	
SCALE: 1=1 A		REVISION: 2	
QUANTITY FOR AN ASSEMBLY: 2		DRAWING TITLE: UPPER ARM PIVOT WASHER	
QUANTITY FOR ENTIRE DUMMY: 2		DRAWING NUMBER: T1SHM041	
MATERIAL: DELIRIN		Page: 1/1	

DEPARTMENT OF TRANSPORTATION  
**NHTSA**  
 CONTRACT NO.: DTNH 92-94-C-07010  
 DESIGNED BY: GESAC, INC.  
TRANSPORTATION • SAFETY • SERVICE • IMPROVEMENT  
 1200 WASHINGTON BLVD. • WASHINGTON, DC 20543



REV. #	ZONE	DESCRIPTION	DATE	BY
1	CS	REDUCE OD	5/14/98	J. McDONALD
2	CS	ENLARGE DIA. OF DOWEL PIN NOTCHES	6/14/98	J. McDONALD
3	TITLE BLOCK	REMOVED B.C. DIMENSION FOR CLARITY	6/15/98	J. POLAND

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
303	SS	UPPER ARM PIVOT NUT	T1SHM042

UNLESS OTHERWISE SPECIFIED	ENGINEERED:	DATE:	DEPARTMENT OF TRANSPORTATION
DIMENSIONS ARE IN INCHES	J. McDONALD	11/19/97	NHTSA
Tolerances			
Angles: ± 5°			
Fractions: ± 1/64			
Decimals: .xx ± .01			
.xxx ± .005			
Hole Dia. ± .002			
* DO NOT SCALE DRAWING *			

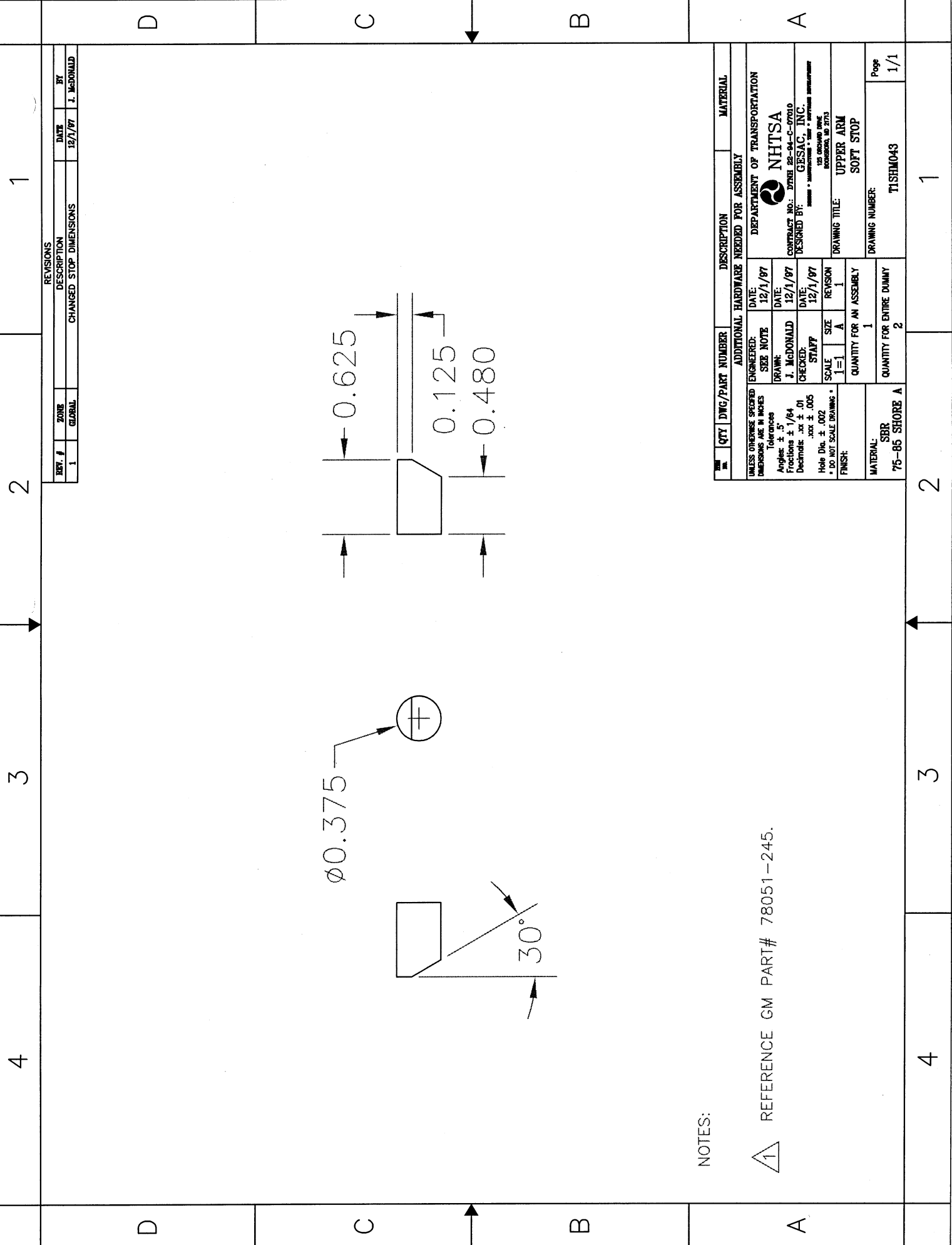
CONTRACT NO.:	DESIGNED BY:	DRAWING TITLE:	Page
DTMB 88-94-C-07010	GESAC, INC.	UPPER ARM PIVOT NUT	1/1

QUANTITY FOR AN ASSEMBLY	QUANTITY FOR ENTIRE DUMMY	DRAWING NUMBER:
2	2	T1SHM042

NOTES:

- 1 MARK THE DWG# T1SHM042 AT THE LOCATION SPECIFIED ABOVE.
- 2 REFERENCE GM PART# 880105-710.
- 3 BREAK ALL SHARP EDGES



REV. #	ZONE	DESCRIPTION	DATE	BY
1	GLOBAL	CHANGED STOP DIMENSIONS	12/1/97	J. McDONALD

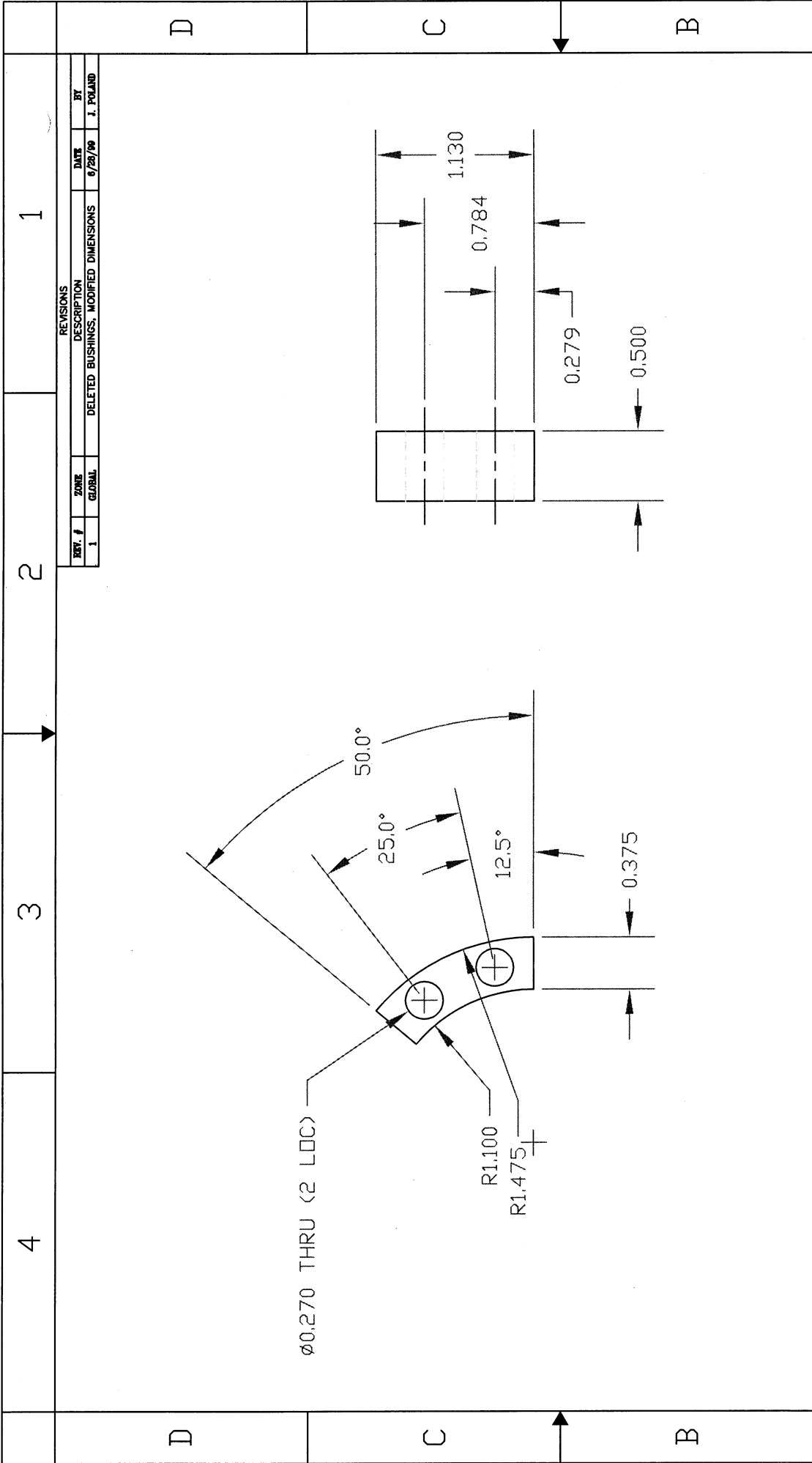
NOTES:

① REFERENCE GM PART# 78051-245.

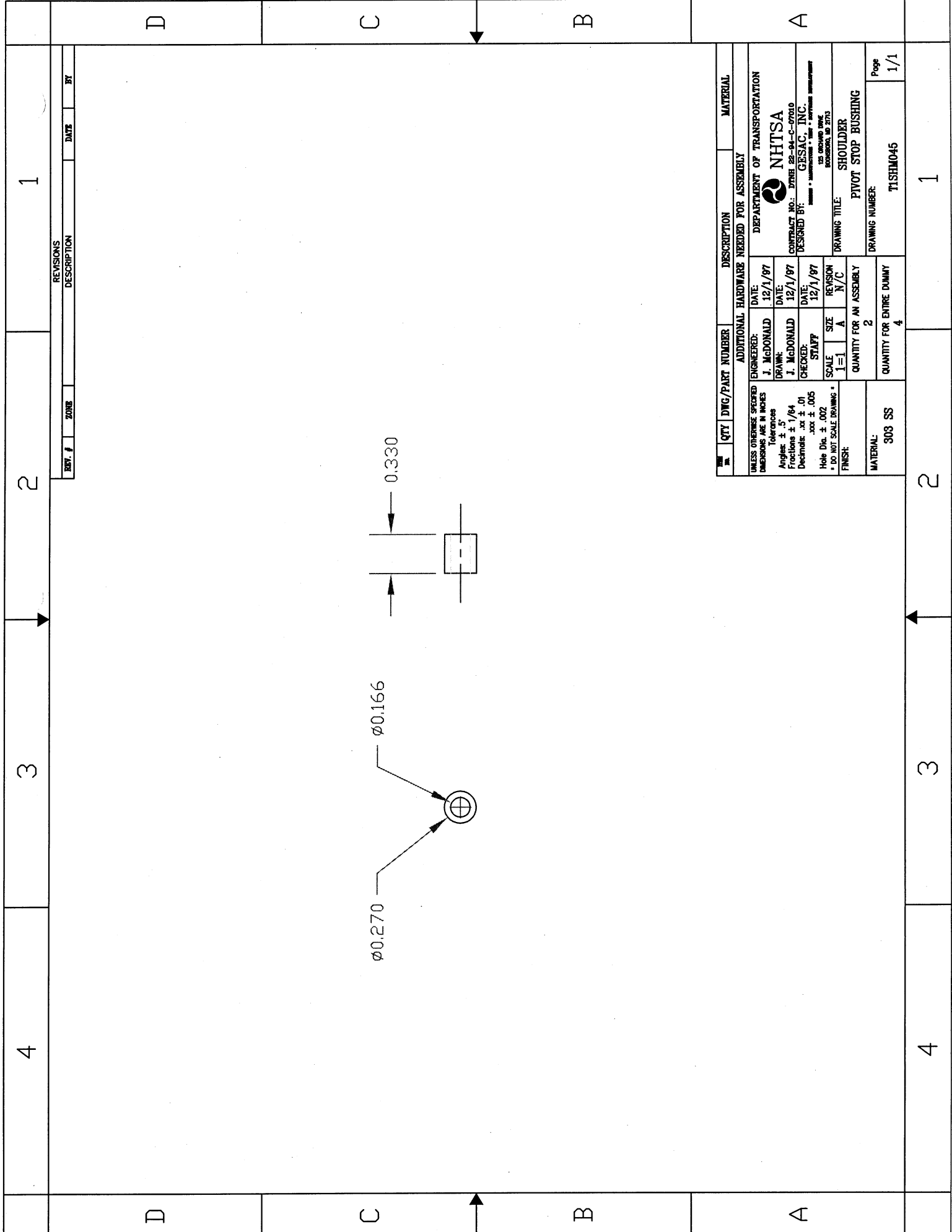
QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
1		UPPER ARM	S0FT STOP
1		SOFT STOP	TISHM043

ENGINEERED:	DATE:	DEPARTMENT OF TRANSPORTATION
SEE NOTE	12/1/97	NHTSA
DRAWN:	DATE:	CONTRACT NO.: DTMB 26-94-C-07010
J. McDONALD	12/1/97	DESIGNED BY: GESAC, INC.
CHECKED:	DATE:	125 GROUND DRIVE
STAFF	12/1/97	BOCCACCIO, NJ 07035
SCALE:	SIZE:	DRAWING TITLE:
1=1	A	UPPER ARM
QUANTITY FOR AN ASSEMBLY		SOFT STOP
1		
QUANTITY FOR ENTIRE DUMMY		DRAWING NUMBER:
2		TISHM043



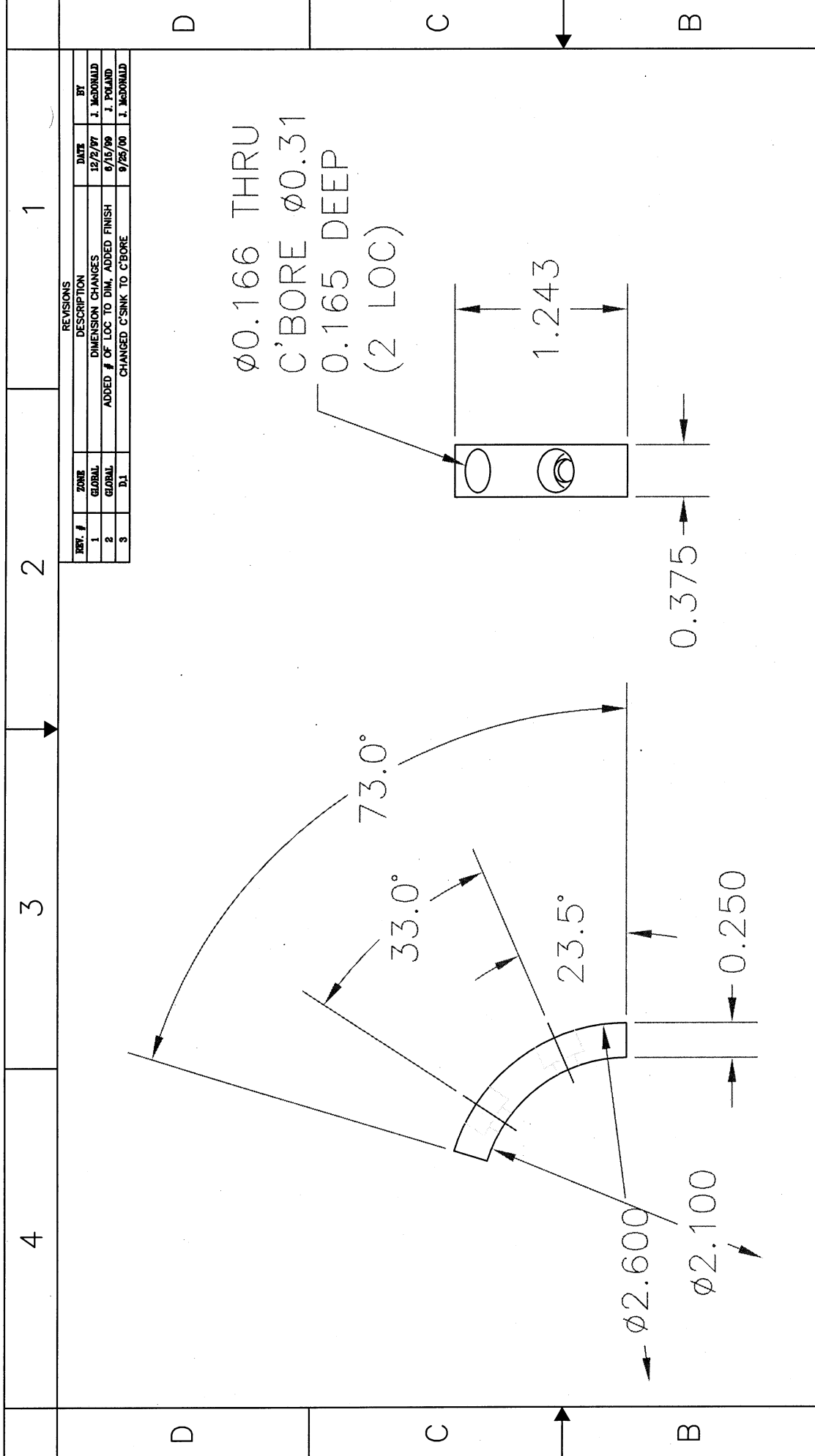
REV.	QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL																																																																																					
1	1		SHOULDER STOP - RUBBER																																																																																						
<table border="1"> <tr> <td colspan="2">UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES</td> <td colspan="3">ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY</td> </tr> <tr> <td>ENGINEERED:</td> <td>J. McDONALD</td> <td>DATE:</td> <td>12/1/97</td> <td>DEPARTMENT OF TRANSPORTATION</td> </tr> <tr> <td>DRAWN:</td> <td>J. McDONALD</td> <td>DATE:</td> <td>12/1/97</td> <td>NHTSA</td> </tr> <tr> <td>CHECKED:</td> <td>STAFF</td> <td>DATE:</td> <td>12/1/97</td> <td>CONTRACT NO.: DTNE 22-94-C-07010</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>DESIGNED BY: GESAC, INC.</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>125 BROADWAY, NEW YORK, NY 10013</td> </tr> <tr> <td colspan="2">TOLERANCES</td> <td colspan="3">DRAWING TITLE: SHOULDER STOP - RUBBER</td> </tr> <tr> <td>Angles:</td> <td><math>\pm .5^\circ</math></td> <td colspan="3">DRAWING NUMBER: T1SHM044</td> </tr> <tr> <td>Fractions:</td> <td><math>\pm 1/64</math></td> <td colspan="3">Page 1/1</td> </tr> <tr> <td>Decimals:</td> <td>.xx <math>\pm .01</math></td> <td colspan="3"></td> </tr> <tr> <td></td> <td>.xxx <math>\pm .005</math></td> <td colspan="3"></td> </tr> <tr> <td>Hole Dia.:</td> <td><math>\pm .002</math></td> <td colspan="3"></td> </tr> <tr> <td colspan="5">* DO NOT SCALE DRAWING *</td> </tr> <tr> <td colspan="2">FINISH:</td> <td colspan="3">MATERIAL: SBR</td> </tr> <tr> <td colspan="2"></td> <td colspan="3">75-85 SHORE A</td> </tr> <tr> <td colspan="2">QUANTITY FOR AN ASSEMBLY:</td> <td colspan="3">1</td> </tr> <tr> <td colspan="2">QUANTITY FOR ENTIRE DUMMY:</td> <td colspan="3">2</td> </tr> </table>					UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY			ENGINEERED:	J. McDONALD	DATE:	12/1/97	DEPARTMENT OF TRANSPORTATION	DRAWN:	J. McDONALD	DATE:	12/1/97	NHTSA	CHECKED:	STAFF	DATE:	12/1/97	CONTRACT NO.: DTNE 22-94-C-07010					DESIGNED BY: GESAC, INC.					125 BROADWAY, NEW YORK, NY 10013	TOLERANCES		DRAWING TITLE: SHOULDER STOP - RUBBER			Angles:	$\pm .5^\circ$	DRAWING NUMBER: T1SHM044			Fractions:	$\pm 1/64$	Page 1/1			Decimals:	.xx $\pm .01$					.xxx $\pm .005$				Hole Dia.:	$\pm .002$				* DO NOT SCALE DRAWING *					FINISH:		MATERIAL: SBR					75-85 SHORE A			QUANTITY FOR AN ASSEMBLY:		1			QUANTITY FOR ENTIRE DUMMY:		2		
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY																																																																																							
ENGINEERED:	J. McDONALD	DATE:	12/1/97	DEPARTMENT OF TRANSPORTATION																																																																																					
DRAWN:	J. McDONALD	DATE:	12/1/97	NHTSA																																																																																					
CHECKED:	STAFF	DATE:	12/1/97	CONTRACT NO.: DTNE 22-94-C-07010																																																																																					
				DESIGNED BY: GESAC, INC.																																																																																					
				125 BROADWAY, NEW YORK, NY 10013																																																																																					
TOLERANCES		DRAWING TITLE: SHOULDER STOP - RUBBER																																																																																							
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Fractions:	$\pm 1/64$	Page 1/1																																																																																							
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QUANTITY FOR ENTIRE DUMMY:		2																																																																																							



REV. #	ZONE	DATE	BY
1			

REVISIONS  
DESCRIPTION

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
303	SS	SHOULDER PIVOT STOP BUSHING	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES Tolerances Angles: ± .5° Fractions: ± 1/64 Decimals: .xx ± .01 .xxx ± .005 Hole Dia. ± .002 * DO NOT SCALE DRAWING * FINISH:			
ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY DEPARTMENT OF TRANSPORTATION <b>NHTSA</b> CONTRACT NO.: DTMB 85-84-C-07010 DESIGNED BY: GESAC, INC. <small>125 ORCHARD DRIVE ROCKFORD, IL 61155</small>			
ENGINEERED: J. McDONALD DATE: 12/1/87 DRAWN: J. McDONALD DATE: 12/1/87 CHECKED: STAFF DATE: 12/1/87 SCALE: 1=1 SIZE: A REVISION: N/C		DRAWING TITLE: SHOULDER PIVOT STOP BUSHING DRAWING NUMBER: TISHM045 Page: 1/1	
QUANTITY FOR AN ASSEMBLY: 2 QUANTITY FOR ENTIRE DUMMY: 4			

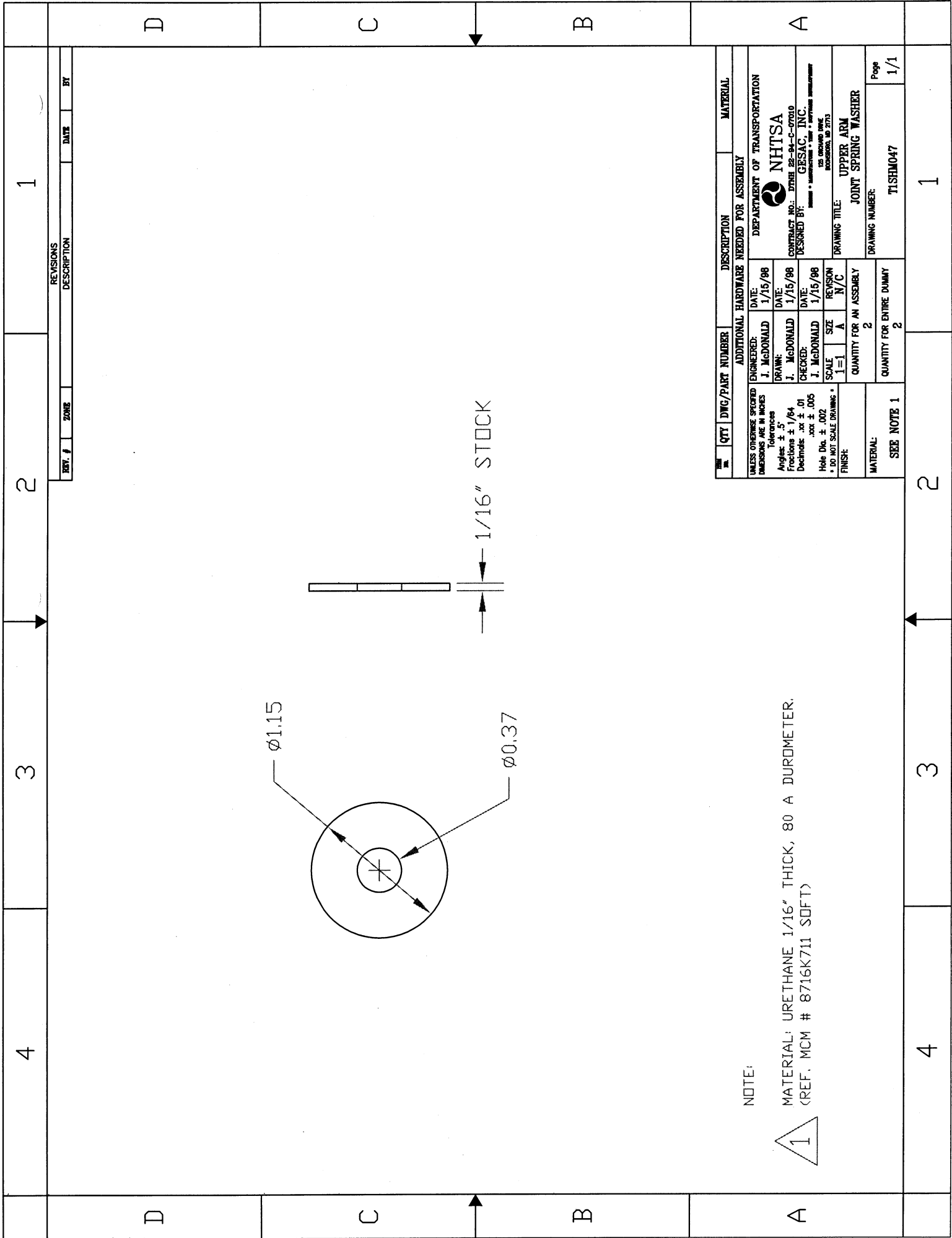


NOTES:

① REFERENCE GM PART# 78051-244.

REV. #	ZONE	DESCRIPTION	DATE	BY
1	GLOBAL	DIMENSION CHANGES	12/2/97	J. McDONALD
2	GLOBAL	ADDED # OF LOC TO DIM. ADDED FINISH	9/15/99	J. POLAND
3	D1	CHANGED C'SINK TO C'BORE	9/25/00	J. McDONALD

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
1018 CRS		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
UNLESS OTHERWISE SPECIFIED:			
DIMENSIONS ARE IN INCHES			
Tolerances:			
Angles: $\pm .5^\circ$			
Fractions: $\pm 1/64$			
Decimals: .xx $\pm .01$			
.xxx $\pm .005$			
Hole Dia. $\pm .002$			
* DO NOT SCALE DRAWINGS *			
FINISH:			
TEFLON COATING			
QUANTITY FOR AN ASSEMBLY			
1 = 1			
A = 3			
REVISION			
2			
SHOULDER PIVOT			
STOP - STEEL			
DRAWING NUMBER:			
T1SHM046			
Page			
1/1			



1

2

3

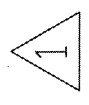
4

REV. #	ZONE	DATE	BY

REVISIONS  
DESCRIPTION

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
		ENGINEERED: J. McDONALD DATE: 1/15/98	
		DRAWN: J. McDONALD DATE: 1/15/98	NHTSA DEPARTMENT OF TRANSPORTATION
		CHECKED: J. McDONALD DATE: 1/15/98	CONTRACT NO.: DTRM 22-94-C-07010
		SCALE: 1=1 SIZE: A REVISION: N/C	DESIGNED BY: GESAC, INC. 125 ORCHARD DRIVE ROSELAND, NJ 07068
		FINISH: * DO NOT SCALE DRAWING *	DRAWING TITLE: UPPER ARM
		QUANTITY FOR AN ASSEMBLY: 2	JOINT SPRING WASHER
		QUANTITY FOR ENTIRE DUMMY: 2	DRAWING NUMBER: T15HM047
		MATERIAL: SEE NOTE 1	Page 1/1

NOTE:



MATERIAL: URETHANE 1/16" THICK, 80 A DUROMETER.  
(REF. MCM # 8716K711 SDF1)

1

2

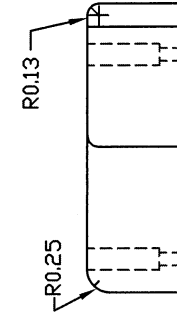
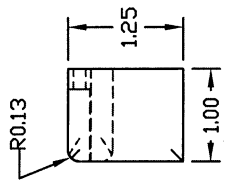
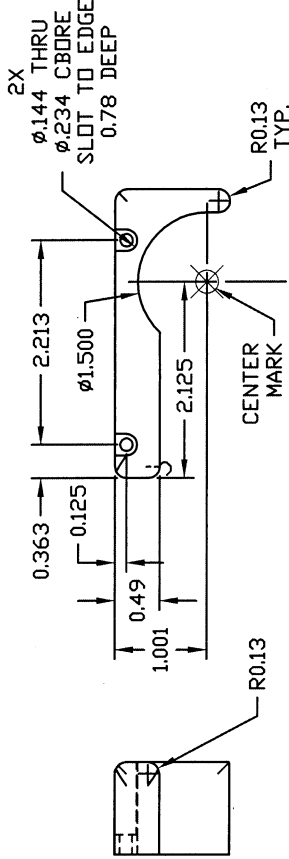
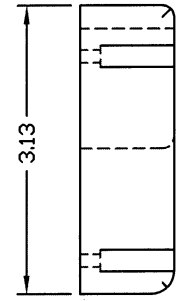
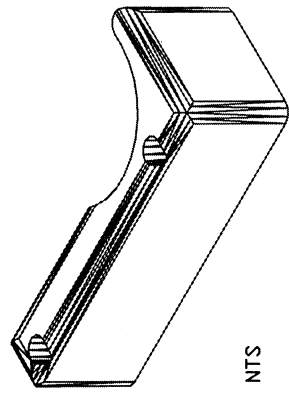
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4



10	9	8	7	6	5	4	3	2	1
H	G	F	E	D	C	B	A		

REV. #	ZONE	DESCRIPTION	DATE	BY
1	GLOBAL	REDESIGNED	12/9/03	M. ARTIS
2	7,D	ADDED SLOT TO EDGE	3/29/06	J. McBRIDE



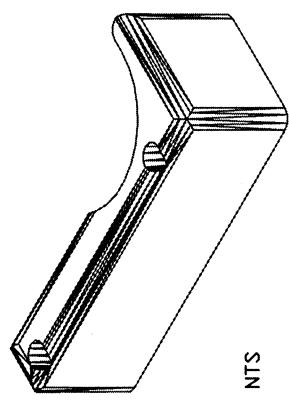
QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
1		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
	ENGINEERED: M. ARTIS	DATE: 10/13/03	
	DRAWN: M. ARTIS	DATE: 12/9/03	
	CHECKED: M. ARTIS	DATE: 12/9/03	
	SCALE: 1=1	SIZE: C	
	STAFF: 1	REVISION: 2	
	QUANTITY FOR AN ASSEMBLY: 1		
	QUANTITY FOR ENTIRE DUMMY: 1		
	MATERIAL: BLACK DELRIN		
	DRAWING TITLE: THOR - SHOULDER NECK SHROUD SUPPORT- RIGHT		
	DRAWING NUMBER: T1SHM051		
	Page: 1/1		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES  
 Tolerances: Angles: ± .5°  
 Fractions: ± 1/64  
 Decimals: .xxx ± .005  
 Hole Dia: ± .002  
 \* DO NOT SCALE DRAWING \*  
 FINISH:

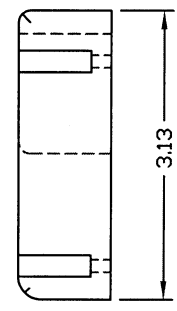
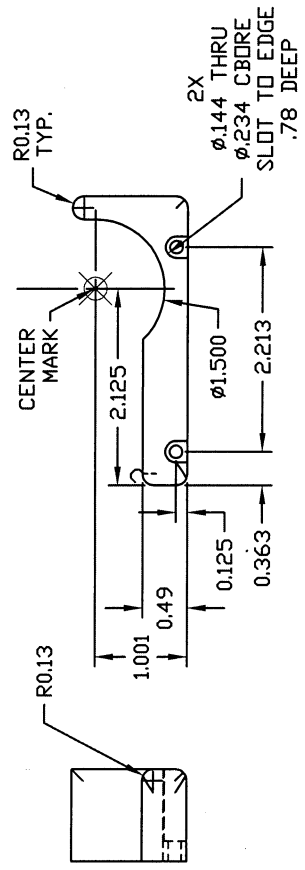
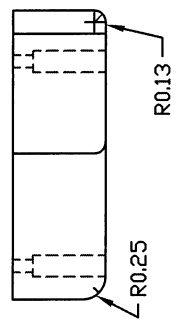
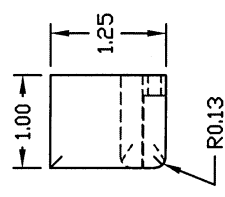
DEPARTMENT OF TRANSPORTATION  
**NHTSA**  
 CONTRACT NO.: DTMB 22-94-C-07010  
 DESIGNED BY: GESAC, INC.  
 125 ORCHARD DRIVE  
 BOWERSVILLE, MD 21773

10	9	8	7	6	5	4	3	2	1
H	G	F	E	D	C	B	A		

REV. #	ZONE	DESCRIPTION	DATE	BY
1	GLOBAL	REDESIGNED	12/9/03	M. ARTIS
2	7JD	ADDED SLOT TO EDGE	9/28/06	J. McDONALD

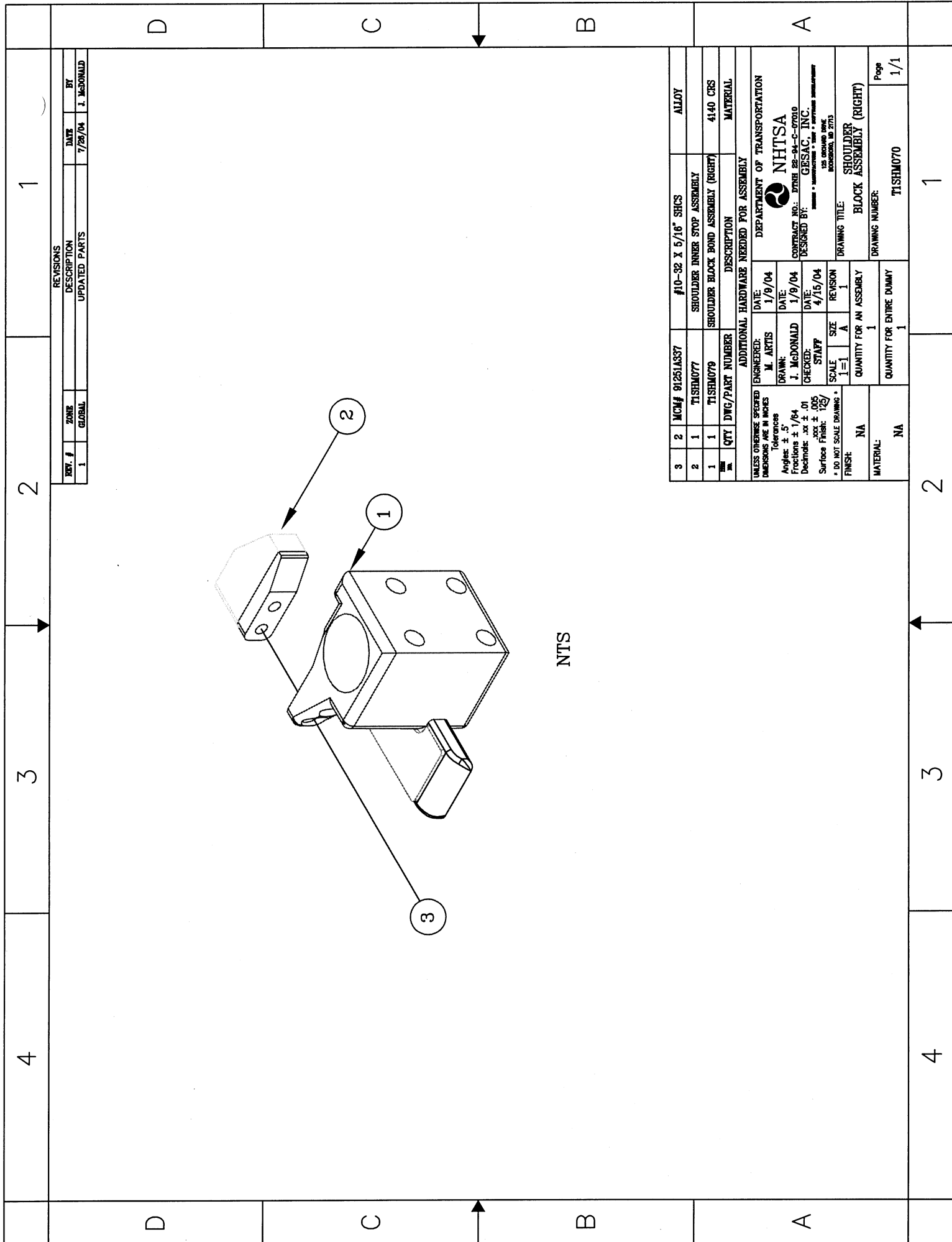


NTS



QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
	ENGINEERED: M. ARTIS	DATE: 10/13/03	DEPARTMENT OF TRANSPORTATION
	DRAWN: M. ARTIS	DATE: 12/9/03	NHTSA
	CHECKED: M. ARTIS	DATE: 12/9/03	CONTRACT NO.: DTMB 22-84-C-07010
	STAFF	REVISION 2	DESIGNED BY: GESAC, INC.
	SCALE 1=1	SIZE C	125 ORLAND DRIVE ROCKFORD, IL 61103
	QUANTITY FOR AN ASSEMBLY 1	DRAWING TITLE: THOR - SHOULDER	
	QUANTITY FOR ENTIRE DUMMY 1	NECK SHROUD SUPPORT-LEFT	
		DRAWING NUMBER: T1SHM052	Page 1/1

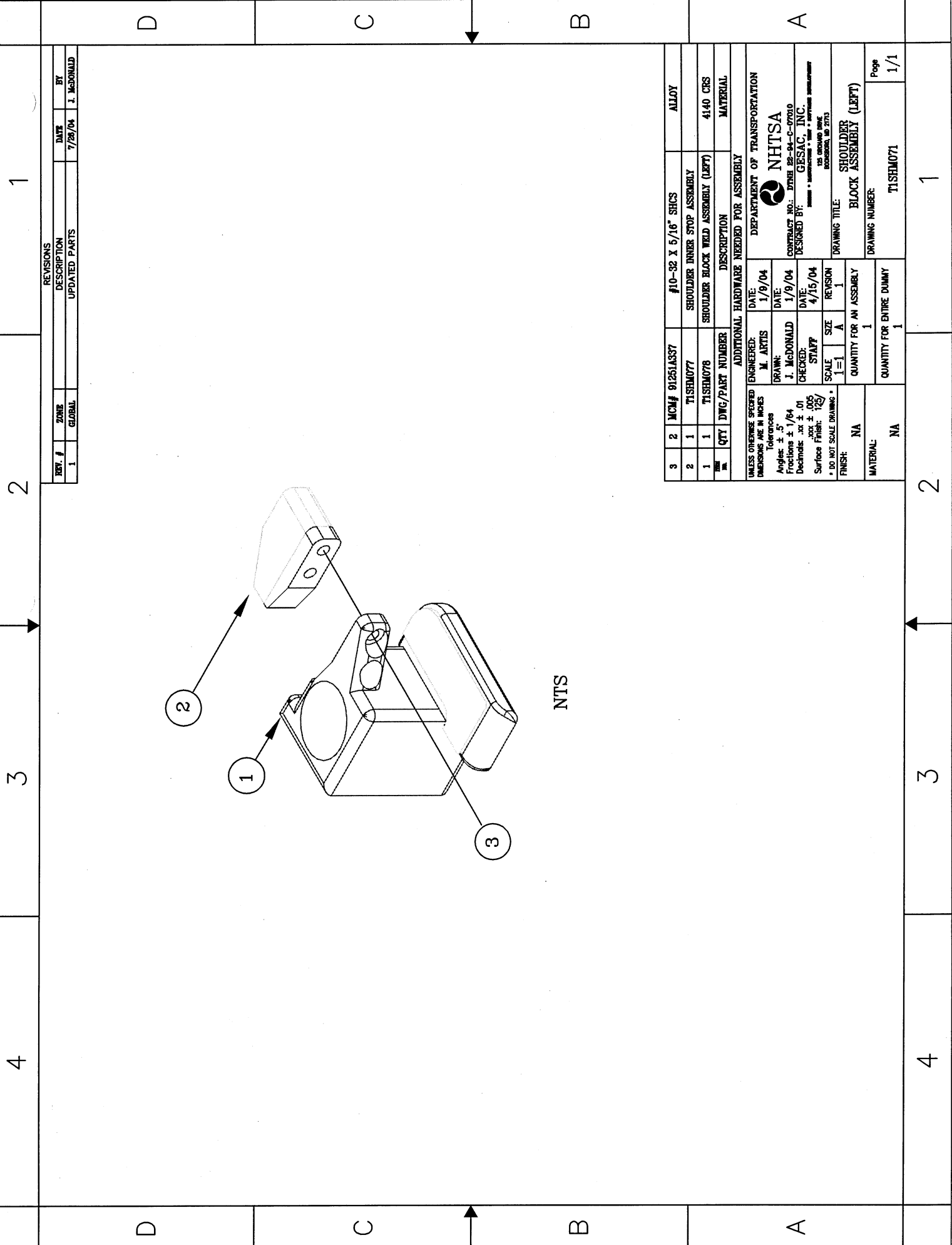
MATERIAL:  
BLACK DELRIN



REVISIONS		
REV. #	ZONE	DATE
1	GLOBAL	7/26/04
DESCRIPTION		BY
UPDATED PARTS		J. McDONALD

3	2	MCM# 91251A337	#10-32 X 5/16" SHCS	ALLOY
2	1	TISHM077	SHOULDER INNER STOP ASSEMBLY	
1	1	TISHM079	SHOULDER BLOCK ASSEMBLY (RIGHT)	4140 CRS
QTY		DWG/PART NUMBER	DESCRIPTION	MATERIAL
ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		ENGINEERED: M. ARTIS	DATE: 1/9/04	
Tolerances		DRAWN: J. McDONALD	DATE: 1/9/04	
Angles: ± .5°		CHECKED: STAFF	DATE: 4/15/04	
Fractions: ± 1/64		SCALE: 1"=1" A	REVISION: 1	
Decimals: .xxx ± .01		QUANTITY FOR AN ASSEMBLY	1	
Surface Finish: 125/		QUANTITY FOR ENTIRE DUMMY	1	
* DO NOT SCALE DRAWING *		MATERIAL: NA		
FINISH:				
DRAWING TITLE: SHOULDER BLOCK ASSEMBLY (RIGHT)				
DRAWING NUMBER: TISHM070				
Page: 1/1				

NTS



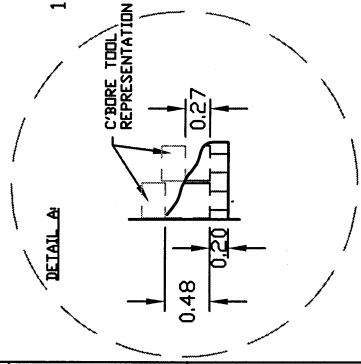
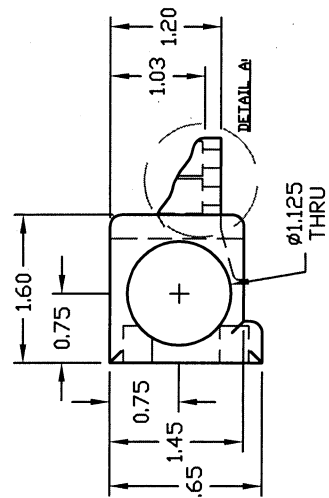
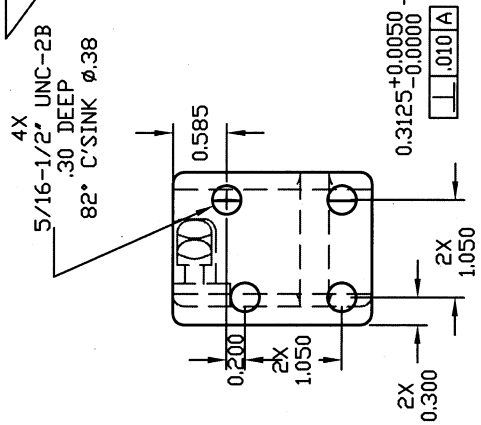
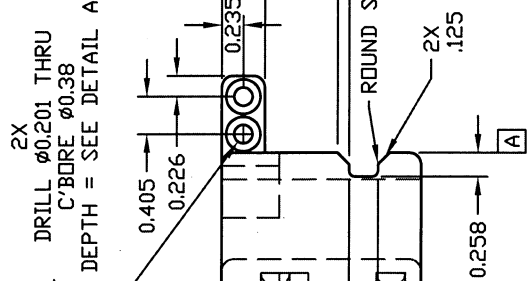
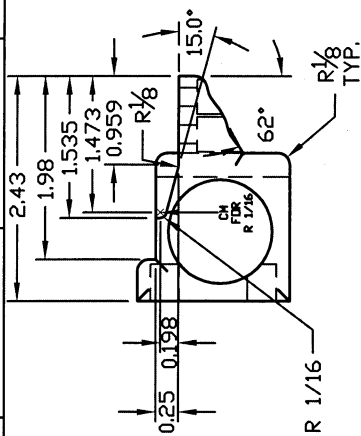
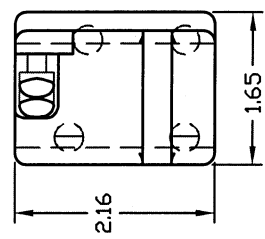
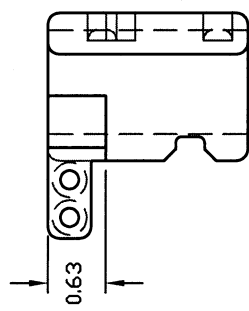
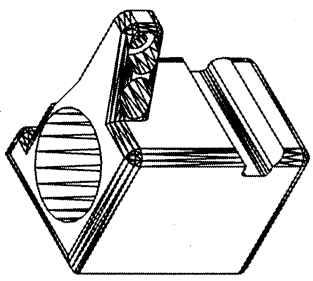
REV. #	ZONE	DESCRIPTION	DATE	BY
1	GLOBAL	UPDATED PARTS	7/26/04	J. McDONALD

3	2	MC# 91251A337	#10-32 X 5/16" SHCS	ALLOY
2	1	TISHM077	SHOULDER INNER STOP ASSEMBLY	
1	1	TISHM078	SHOULDER BLOCK WELD ASSEMBLY (LEFT)	4140 CRS
QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL	
ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		ENGINEERED: M. ARTIS	DATE: 1/9/04	DEPARTMENT OF TRANSPORTATION
Tolerances		NHTSA		
Angles: ± .5°		DRAWN: J. McDONALD	DATE: 1/9/04	CONTRACT NO.: DTMB 28-94-C-07010
Fractions: ± 1/64		CHECKED: STAFF	DATE: 4/15/04	DESIGNED BY: GESAC, INC.
Decimals: .xx ± .01		100% INSPECTION • 100% VERIFICATION		
Surface Finish: 125/		SCALE: 1=1	SIZE: A	REVISION: 1
FINISH: NA		DO NOT SCALE DRAWING		
MATERIAL: NA		DRAWING TITLE: SHOULDER BLOCK ASSEMBLY (LEFT)		
NA		QUANTITY FOR AN ASSEMBLY: 1		
NA		QUANTITY FOR ENTIRE DUMMY: 1		
DRAWING NUMBER: TISHM071				Page: 1/1

NTS

10	9	8	7	6	5	4	3	2	1
H	G	F	E	D	C	B	A		

REV.	ZONE	DESCRIPTION	DATE	BY
1	GLOBAL	SUPERSEDES AND IS IDENTICAL TO REVISION X1	5/12/04	J. McDONALD
80	GLOBAL	CHANGED GEOMETRY	6/29/04	M. ARTIS
81	F-9	DECREASED 5/16 HOLE DEPTH	9/3/04	B. SECK



REV.	QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
	4140 CRS		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES Tolerances Angles: ± .5° Fractions: ± 1/64 Decimals: .xx ± .01 Surface Finish: 125/ * DO NOT SCALE DRAWING * FINISH:				
ENGINEERED: M. ARTIS DATE: 1/8/04 DRAWN: M. ARTIS DATE: 1/8/04 CHECKED: STAFF DATE: 1/8/04 SCALE: 1=1 C QUANTITY FOR AN ASSEMBLY: 1 QUANTITY FOR ENTIRE DUMMY: 1				
DEPARTMENT OF TRANSPORTATION <b>NHTSA</b> CONTRACT NO.: DTNH 22-94-C-07010 DESIGNED BY: GESAC, INC. <small>DESIGN • MANUFACTURE • TEST • SERVICE DEVELOPMENT</small> 125 ORLAND DRIVE ROCKVILLE, MD 2715				
DRAWING TITLE: SHOULDER BLOCK (LEFT) DRAWING NUMBER: T1SHM072 MATERIAL: 4140 CRS FINISH:				
Page 1/1				



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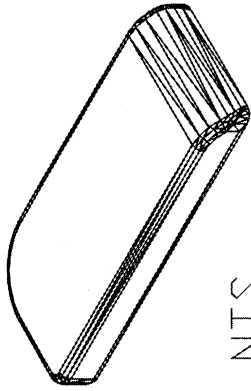
REV. /		ZONE	DESCRIPTION	DATE	BY
1		GLOBAL	SUPERSEDES AND IS IDENTICAL TO REVISION X1	5/12/04	J. MCDONALD
BO		GLOBAL	INCREASED HEIGHT & CHANGED MATL.	6/29/04	M. ARTIS

D

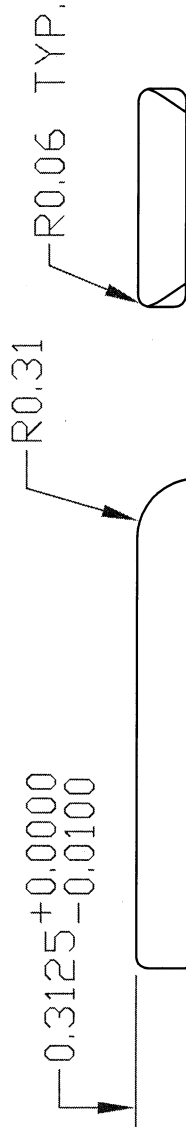
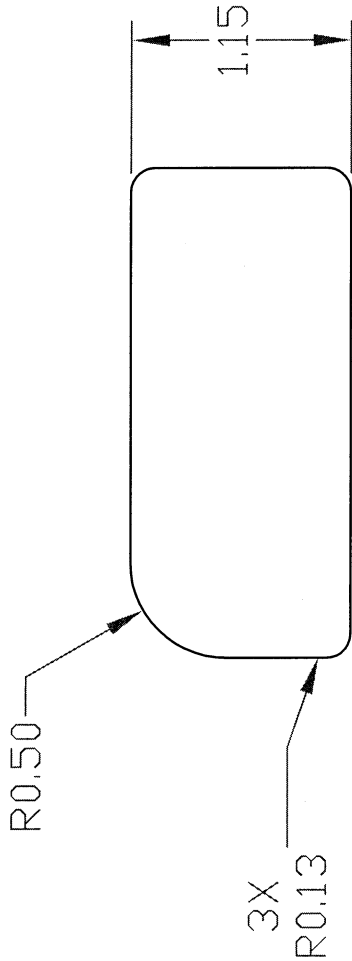
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REV. /	QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
			ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES				
Tolerances				
Angles: ± .5°				
Fractions: ± 1/64				
Decimals: .xx ± .01				
Surface Finish: 125/				
* DO NOT SCALE DRAWING *				
FINISH:				
ENGINEERED: M. ARTIS DATE: 1/9/04				
DRAWN: M. ARTIS DATE: 1/9/04				
CHECKED: STAFF DATE: 1/9/04				
SCALE: 1=1 A BO				
QUANTITY FOR AN ASSEMBLY: 1				
QUANTITY FOR ENTIRE DUMMY: 1				
MATERIAL: 4140 CRS				
DRAWING TITLE: SHOULDER RIB SHELF (LEFT)				
DRAWING NUMBER: T1SHM074				
Page 1/1				

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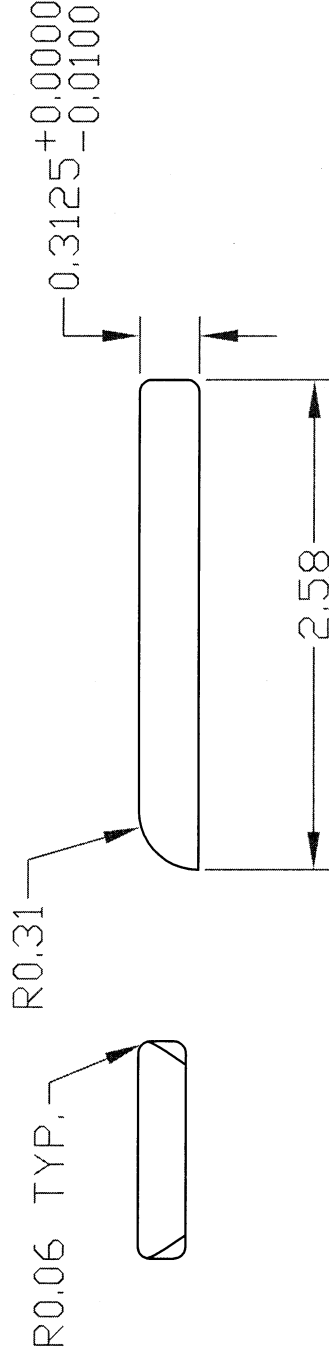
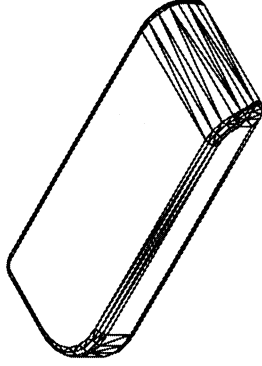
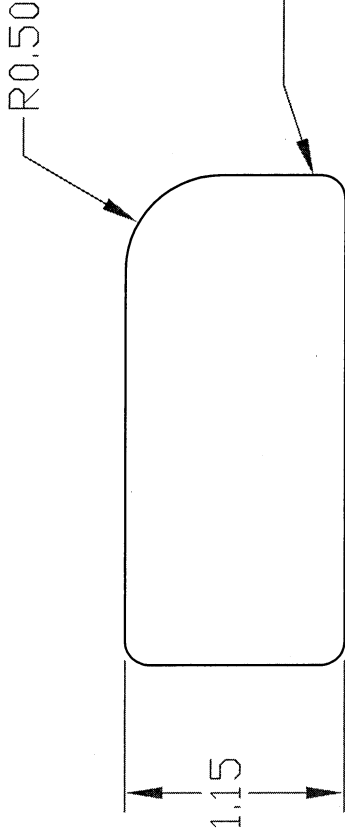
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REVISIONS				
REV. #	ZONE	DESCRIPTION	DATE	BY
1	GLOBAL	SUPERSEDES AND IS IDENTICAL TO REVISION XI	5/12/04	J. MADONALD
BD	GLOBAL	INCREASED HEIGHT AND CHANGED MATL	6/28/04	M. ARTIS



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REV. #	QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES				
Tolerances				
Angles: ± .5°				
Fractions: ± 1/64				
Decimals: .xx ± .01				
Surface Finish: 125/				
* DO NOT SCALE DRAWING *				
FINISH:				
1 = 1 A				
BO				
REVISION				
1				
QUANTITY FOR AN ASSEMBLY				
1				
QUANTITY FOR ENTIRE DUMMY				
1				
MATERIAL:				
4140 CRS				
ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY				
DATE: 1/9/04				
ENGINEERED: M. ARTIS				
DEPARTMENT OF TRANSPORTATION				
NHTSA				
CONTRACT NO.: DTHH 22-94-C-07010				
DESIGNED BY: GESAC, INC.				
122 ORCHARD DRIVE				
ROCKFORD, IL 61173				
DRAWING TITLE: SHOULDER				
RIB SHELF (RIGHT)				
DRAWING NUMBER: T1SHM075				
Page 1/1				

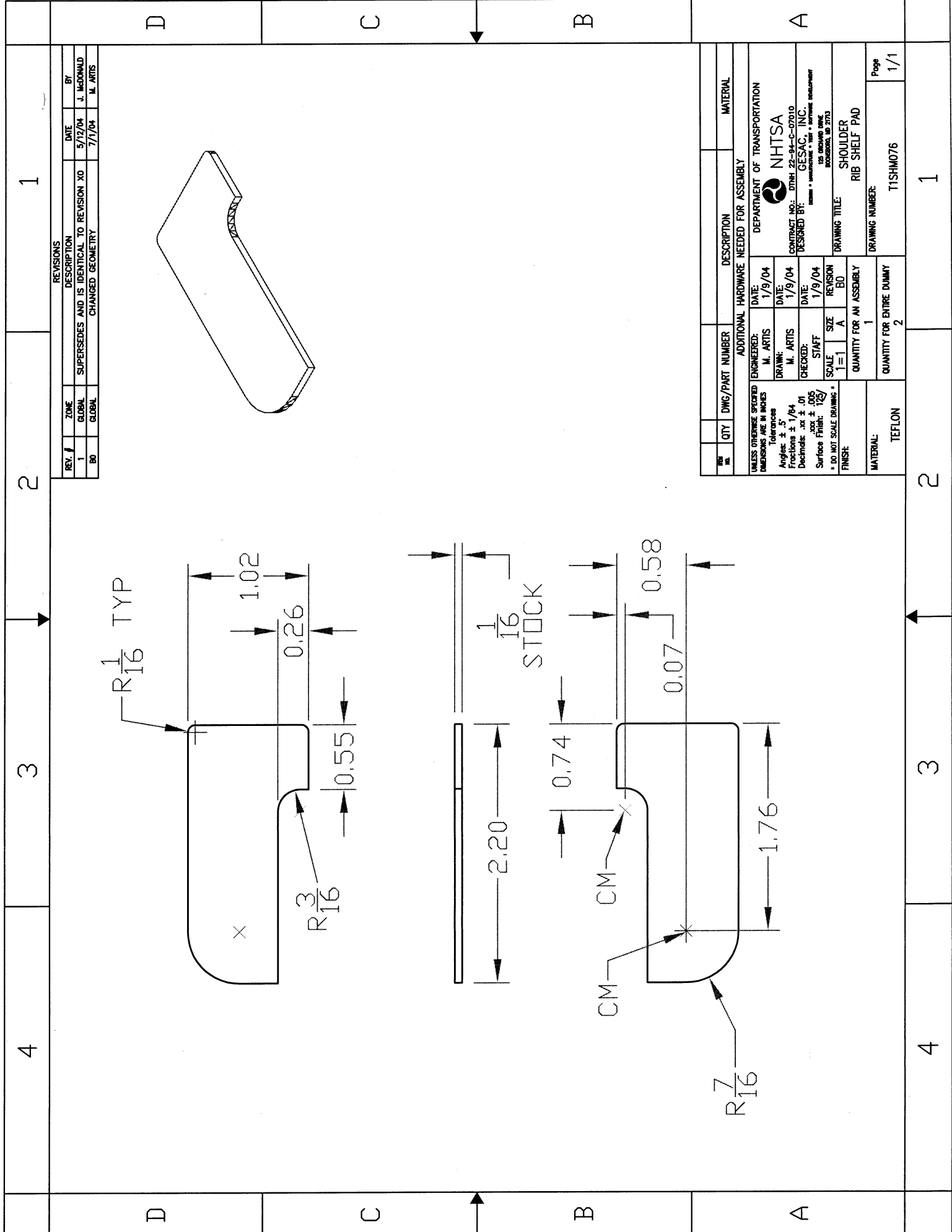
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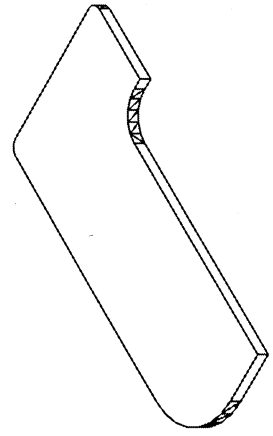
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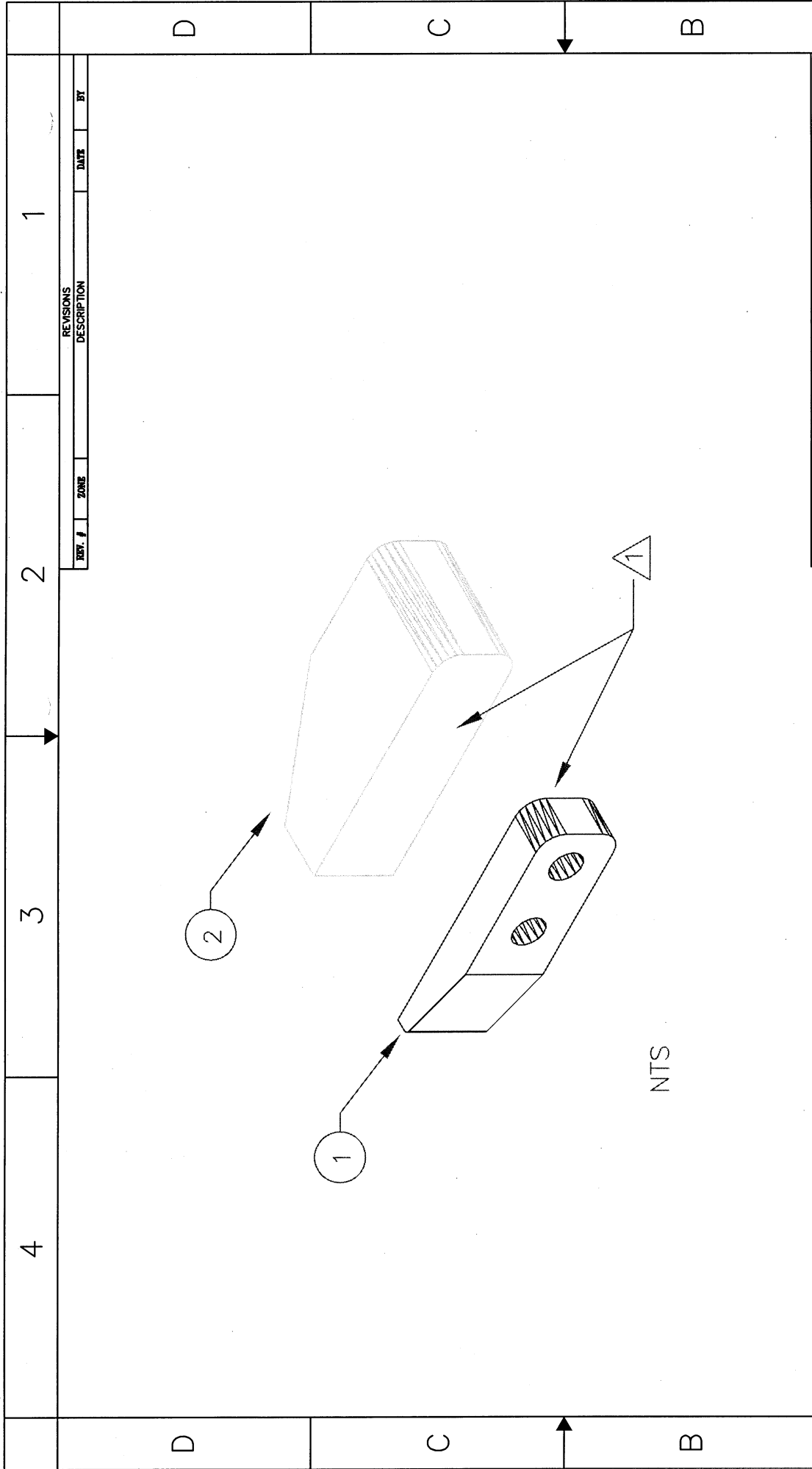
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REV. #		REVISIONS		DATE		BY	
1	1	SUPERSEDES AND IS IDENTICAL TO REVISION X0		5/12/04		J. McDONALD	
2	2	CHANGED GEOMETRY		7/1/04		M. ARTIS	



QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
1		SHOULDER RIB SHELF PAD	TEFLON
ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY:			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES			
Tolerances: Angles: $\pm .5^\circ$ , Fractions: $\pm 1/64$ , Decimals: .xx $\pm .01$ , .xxx $\pm .005$ , Surface Finish: 125/			
* DO NOT SCALE DRAWINGS *			
FINISH:			
QUANTITY FOR AN ASSEMBLY: 1			
QUANTITY FOR ENTIRE DUMMY: 2			
MATERIAL: TEFLON			
ENGINEERED: M. ARTIS, DATE: 1/9/04			
DRAWN: M. ARTIS, DATE: 1/9/04			
CHECKED: STAFF, DATE: 1/9/04			
SCALE: 1=1 A B0			
DEPARTMENT OF TRANSPORTATION NHTSA			
CONTRACT NO.: DTNH 22-94-C-07010			
DESIGNED BY: GESAC, INC.			
100 ORANGE WAVE BOULEVARD, SUITE 2075			
DRAWING TITLE: SHOULDER RIB SHELF PAD			
DRAWING NUMBER: T1SHM076			
Page 1/1			

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NOTES:

1 BOND PARTS TOGETHER USING LORD 305 TWO PART EPOXY

REV. #	ZONE	DATE	BY
1			

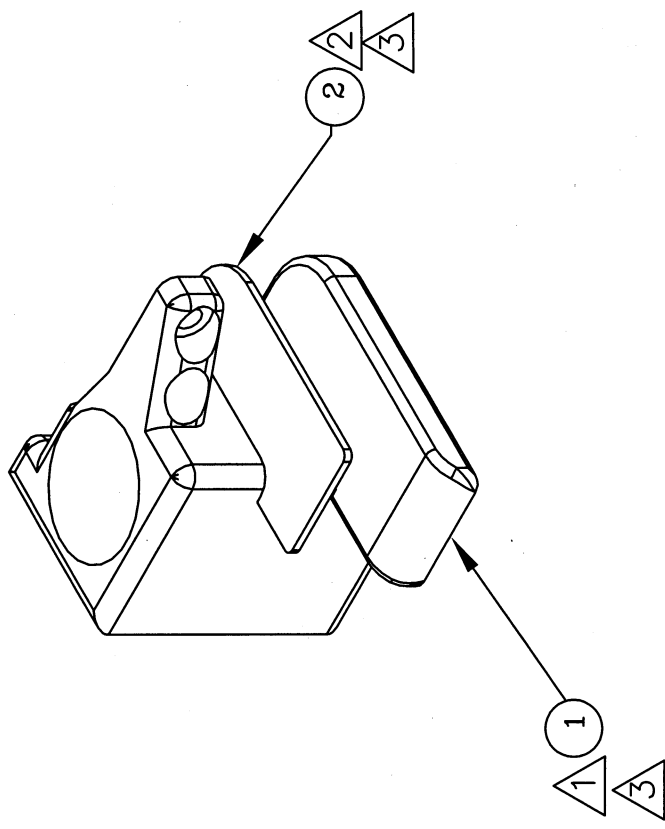
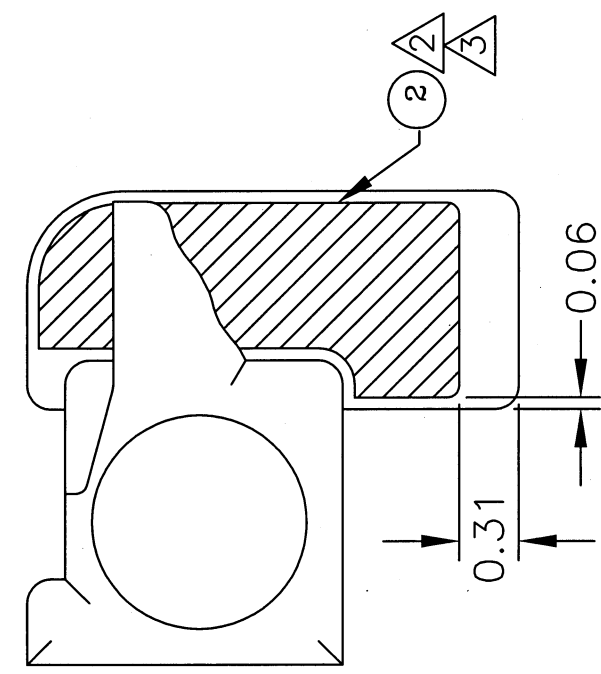
2	1	TISHM024	INNER STOP BUMPER	BUNA-N 40A +/-5
1	1	TISHM012	INNER STOP END PLATE	1018 CRS
NO.	QTY	DTG/PART NUMBER	DESCRIPTION	MATERIAL
ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY				
UNLESS OTHERWISE SPECIFIED		ENGINEERED:	DATE:	DEPARTMENT OF TRANSPORTATION
DIMENSIONS ARE IN INCHES		M. ARTIS	1/9/04	NHTSA
Tolerances		DRAWN:	DATE:	CONTRACT NO.: DTN1 28-94-C-07010
Angles: ± .5°		J. McDONALD	1/9/04	DESIGNED BY: GESAC, INC.
Fractions: ± 1/64		CHECKED:	DATE:	125 BROADWAY NEW
Decimals: .xx ± .01		STAFF	4/15/04	ROCKVILLE, MD 20713
Surface Finish: 125/		SCALE	REVISION	DRAWING TITLE: SHOULDER
* DO NOT SCALE DRAWING *		1=1	A	INNER STOP ASSEMBLY
FINISH		NA	N/C	DRAWING NUMBER: TISHM077
MATERIAL:		NA	1	Page 1/1
		NA	2	
		NA	1	

4 3 2 1

D C B A

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TOP VIEW



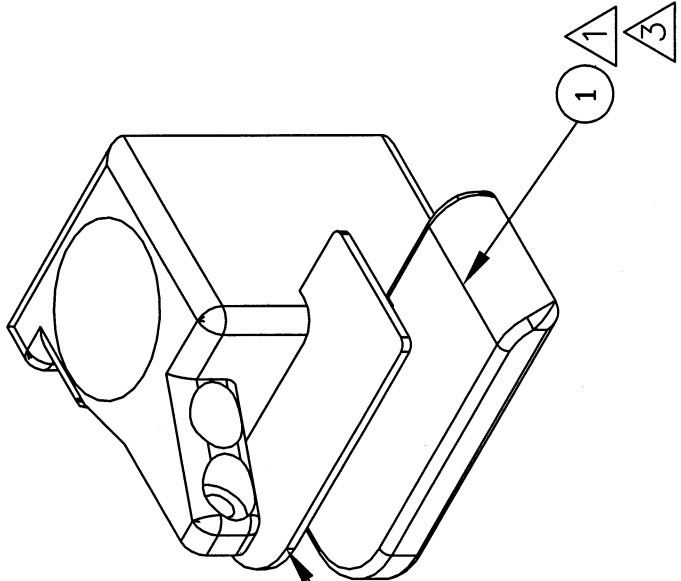
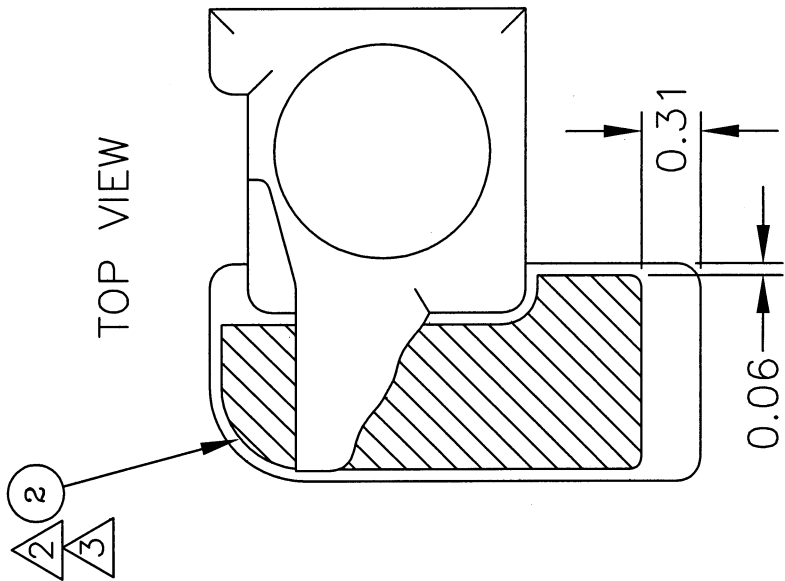
NOTES:

- ① SANDBLAST (TO THE BARE METAL SURFACE) & CHEMICALLY CLEAN ONLY THE BONDING SURFACE OF ITEM 1.
- ② ETCH THE MATING BONDING SURFACE & CHEMICALLY CLEAN.
- ③ BOND ITEM 1 & 2 TOGETHER USING CYANOACRYLATE.

2	1	TISHM076	RIB SHELF PAD	TEFLON
1	1	TISHW071	SHOULDER BLOCK WELD ASSEMBLY (LEFT)	4140 CES
QTY	DTG/PART NUMBER	DESCRIPTION	MATERIAL	
ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES				
ENGINEERED: M. ARTIS DATE: 1/9/04				
DRAWN: J. McDONALD DATE: 1/9/04				
CHECKED: STAFF DATE: 4/15/04				
Surface Finish: 125				
* DO NOT SCALE DRAWING *				
FINISH: NA				
SCALE: 1=1 A B1				
QUANTITY FOR AN ASSEMBLY: 1				
DRAWING TITLE: SHOULDER BLOCK ASSEMBLY (LEFT)				
DESIGNED BY: GESAC, INC.				
CONTRACT NO.: DTRN 22-94-C-07040				
DEPARTMENT OF TRANSPORTATION				
NHTSA				
MATERIAL: NA				
QUANTITY FOR ENTIRE DUMMY: 1				
DRAWING NUMBER: TISHM076				
Page 1/1				

REVISIONS				
REV. #	ZONE	DESCRIPTION	DATE	BY
B0	GLOBAL	UPDATED PARTS AND BONDING INSTRUCTIONS.	7/2/04	M. ARTIS
B1	GLOBAL	ADDED TECH TO BONDING INSTRUCTIONS, CHANGED S AND SPOKE TO CYANOACRYLATE	12/9/04	J. McDONALD

4 3 2 1



REV. #		ZONE		DESCRIPTION		DATE		BY	
01	01	GLOBAL	GLOBAL	UPDATED PARTS & BONDING INSTRUCTIONS		7/2/04		M. ARTIS	
02	01	GLOBAL	GLOBAL	ADDED STEP TO BONDING INSTRUCTIONS, CHANGED S UN TO S UN		12/9/04		J. McDONALD	

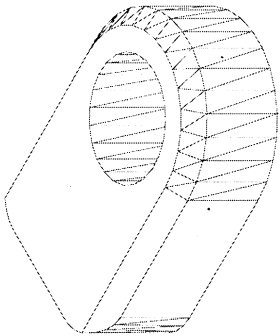
- NOTES:
- 1 SANDBLAST (TO THE BARE METAL SURFACE) & CHEMICALLY CLEAN ONLY THE BONDING SURFACE OF ITEM 1.
  - 2 ETCH THE MATING BONDING SURFACE & CHEMICALLY CLEAN.
  - 3 BOND ITEM 1 & 2 TOGETHER USING CYANOACRYLATE.

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
2	1	TISHM076	RIB SHELL PAD
1	1	TISHM070	SHOULDER BLOCK WELD ASSEMBLY (RIGHT)
			TEFLON
			4140 CRS

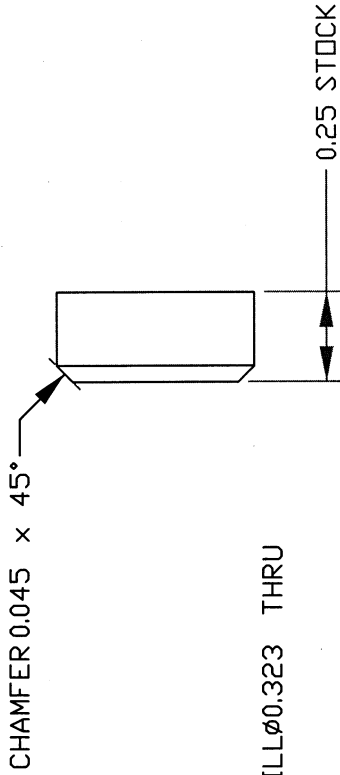
ENGINEER	DATE	DEPARTMENT
M. ARTIS	1/9/04	DEPARTMENT OF TRANSPORTATION
DRAWN	DATE	CONTRACT NO.
J. McDONALD	1/9/04	NHTSA
CHECKED	DATE	DESIGNED BY
STAFF	4/15/04	GESAC, INC.
SCALE	SIZE	REVISION
1=1	A	B1
QUANTITY FOR AN ASSEMBLY		
1		
DRAWING TITLE		
SHOULDER BLOCK ASSEMBLY (RIGHT)		
DRAWING NUMBER		
TISHM079		
Page		
1/1		

4 3 2 1



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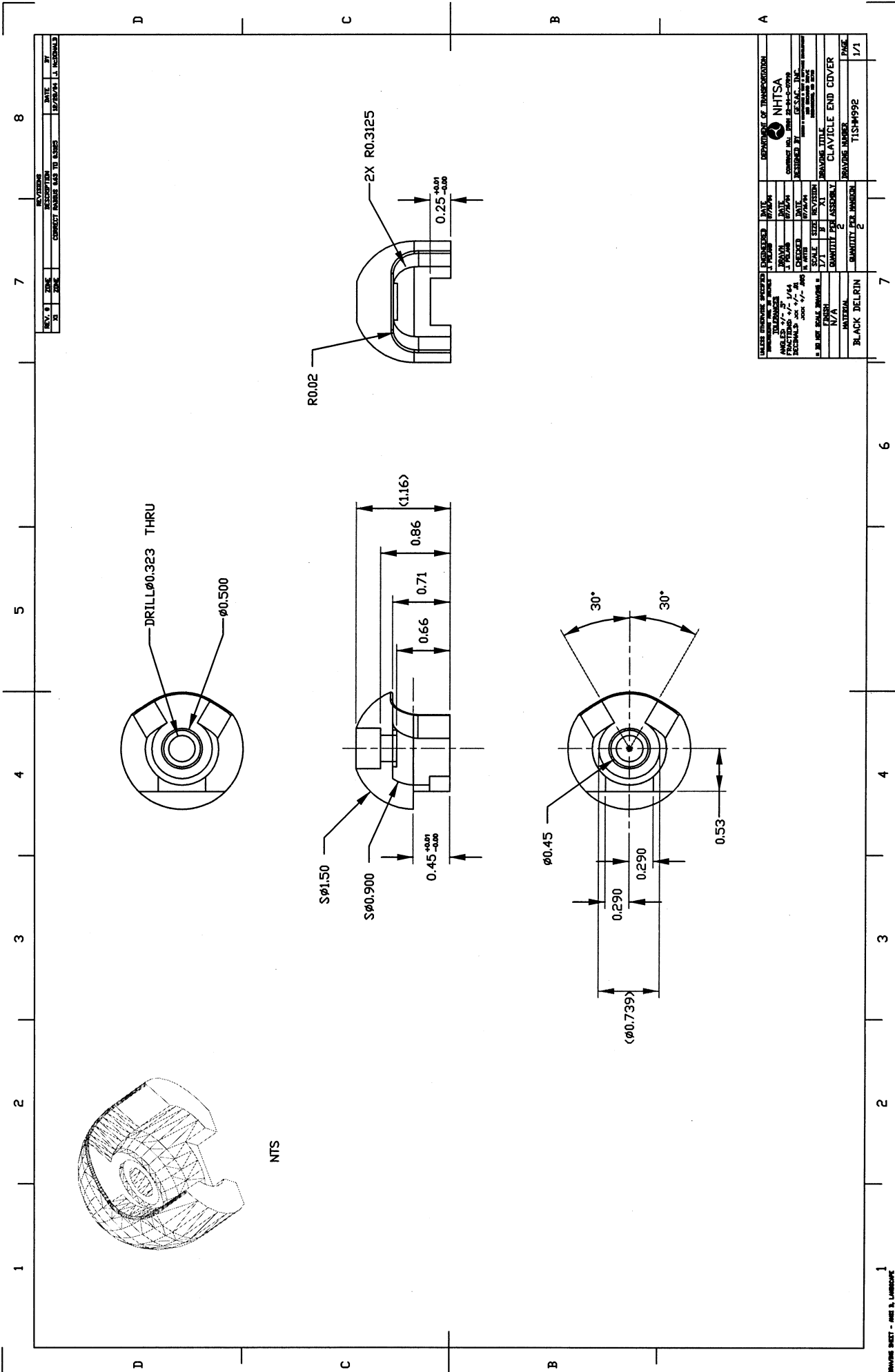


0.25 STOCK

REV. #	ZONE	DESCRIPTION	DATE	BY

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	ENGINEERED J. POLAND	DATE 07/16/04	DEPARTMENT OF TRANSPORTATION NHTSA	
ANGLES: +/- .5°	DRAWN J. POLAND	DATE 07/16/04	CONTRACT NO.: DTHH 22-04-C-07010	
FRACTIONS: +/- 1/64	CHECKED MARTIS	DATE 07/16/04	DESIGNED BY: GESAC, INC.	
HOLE DIA: +/- .002	SCALE 1/1	SIZE A	GEACAL 125 INCH-GRIP DRIVE MANUFACTURED IN U.S.A.	
FINISH N/A	REVISION 1/1	REVISION N/C	DRAWING TITLE CLAVICLE SPACER	
MATERIAL BLACK DELRIN	QUANTITY PER ASSEMBLY 2	QUANTITY PER MANIKIN 2	DRAWING NUMBER TISHM991-X0	
			PAGE 1/1	

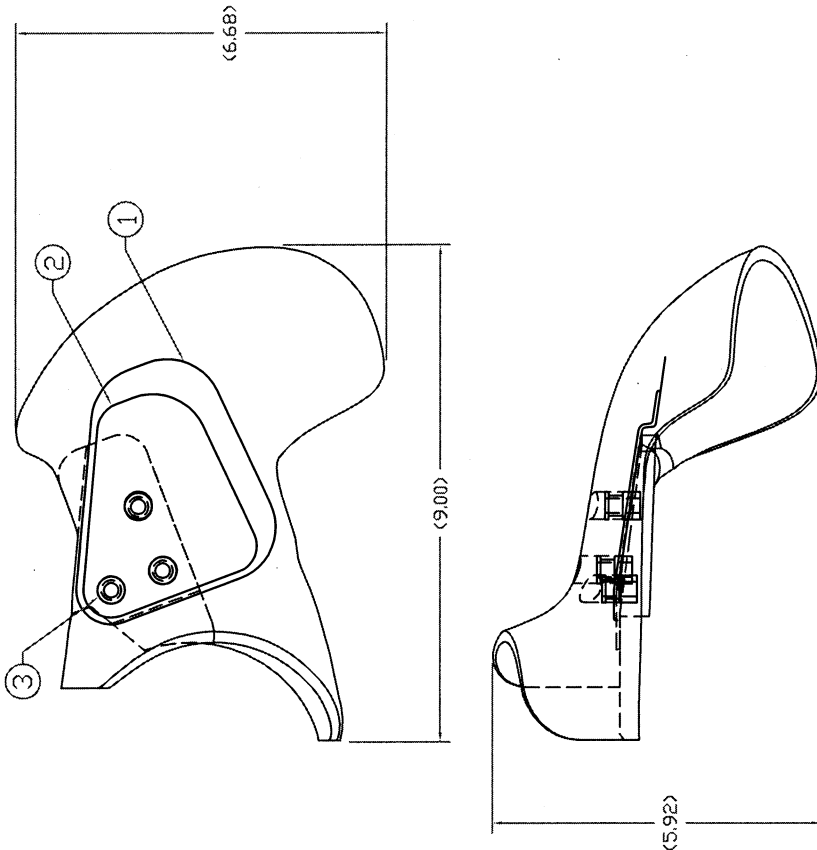


REVISIONS			
REV.	DATE	DESCRIPTION	BY
1	08/24/11	ISSUED FOR MANUFACTURE	...
2	...	...	...

UNLESS OTHERWISE SPECIFIED		FINISH	DATE	DEPARTMENT OF TRANSPORTATION
ANGLE	1/2	...	...	NHTSA
FRACTURE	1/4	...	...	...
SCALE	1/1	...	...	...
QUANTITY PER ASSEMBLY	2	...	...	...
MATERIAL	BLACK DELRIN	...	...	...
PART NUMBER	T15M1992	...	...	...
PAGE	1/1	...	...	...



16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A



REV. #	ZONE	DESCRIPTION	DATE	BY
1	GLOBAL	PROVIDED REFERENCE TO CBA DATA SHEET	6/7/04	D. BEALCH
2	GLOBAL	UPDATED DRAWING, CHANGED MATERIAL	5/29/04	D. BEALCH
3	PARTS LIST	ADDED FIBERGLASS CLOTH TO PARTS LIST	6/29/04	J. POLAND
4	GLOBAL	CHANGED GEOMETRY AND ADDED STEEL REINFORCEMENTS	11/15/04	K. BEAR
5	NOTES	ADDED NOTE 8. GESAC SUPPLIED PART	5/10/04	K. BEAR
6	GLOBAL	REDESIGN BASED ON AATD SHELL MATERIAL CHANGE	5/13/04	J. McDONALD
BA	GLOBAL	SUPERCESSES AND IS NEUTRAL TO R6	5/28/04	J. McDONALD
BI	PART MISC.	EXT PART NUMBER REFERENCE	6/9/04	J. McDONALD

3	TISHS114	SHOULDER PAD STAND OFF INSERT	6061-T6
2	TISHS112	CAST PAD RIGID SUPPORT INSERT	POLYCARBONATE
1	TISHS113	CAST PAD FLEXIBLE SUPPORT INSERT	NYLON
1	QTY DWG/PART NUMBER	DESCRIPTION	MATERIAL

ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY

ENGINEERED:	J. McDONALD	DATE:	5/15/04
DRAWN:	J. McDONALD	DATE:	5/15/04
CHECKED:	J. McDONALD	DATE:	5/15/04
SCALE:	1"=1"	SIZE:	D
SCALE:	1"=1"	SIZE:	D

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES

Tolerances  
 Angles: ± .5°  
 Fractions: ± 1/64  
 Decimals: .xx ± .01  
 Hole Dia: ± .002  
 ± .001 HOLE SCALE DIMENSIONS

QUANTITY FOR AN ASSEMBLY: 1

QUANTITY FOR ENTIRE DUMMY: 1

DRAWING TITLE: SHOULDER PAD (LEFT)

DRAWING NUMBER: TISHS111

Page: 1/1

NOTES:

- 1 MATERIAL: MONOTHANE A-40 BY SYNAIR CORP.
- 2 FOLLOW MANUFACTURERS PROCEDURE FOR MIXING AND CURING, PHYSICAL PROPERTIES AND ADDITIONAL INFORMATION AVAILABLE FROM SYNAIR CORP.
- 3 PART IS AVAILABLE BY REQUEST FROM NHTSA

MATERIAL: MONOTHANE A-40 BY SYNAIR CORP.

FOLLOW MANUFACTURERS PROCEDURE FOR MIXING AND CURING, PHYSICAL PROPERTIES AND ADDITIONAL INFORMATION AVAILABLE FROM SYNAIR CORP.

PART IS AVAILABLE BY REQUEST FROM NHTSA





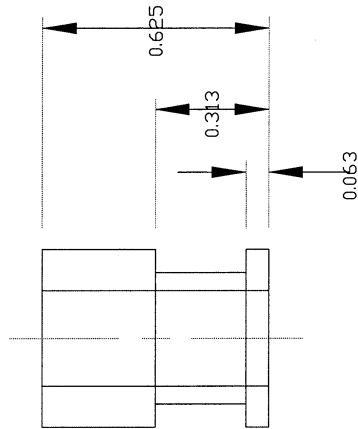
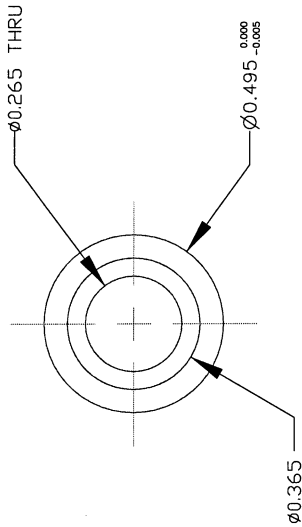
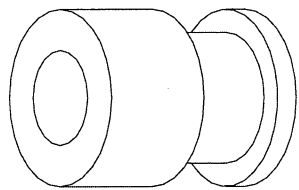
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QTY	DRG/PART NUMBER	DESCRIPTION	MATERIAL																																																
1																																																			
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DRAWN:	J. McDONALD	DATE:	2/5/04																																																
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8	7	6	5	4	3	2	1																																												

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2

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4



REVISIONS				
REV. #	ZONE	DESCRIPTION	DATE	BY
1	3,B	ADDED RING GROOVE	02/04/04	J. McDONALD
2	GLOBAL	CHANGED DWG NUMBER FROM TISHMS3 TO TISHMS14	5/12/04	J. McDONALD

D

C

B

A

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES		ENGINEERED	DATE	DEPARTMENT OF TRANSPORTATION	
ANGLES: +/- .5°		J. McDONALD	12/24/03	NHTSA	
FRACTIONS: +/- 1/64		DRAWN	DATE	CONTRACT NO. DTNH 22-94-C-07000	
DECIMALS: XXX +/- .01		C. SPADE	12/24/03	DESIGNED BY GESAC, INC.	
HOLE DIA: +/- .002		CHECKED	DATE	125 RICHARD DRIVE	
* DD NOT SCALE DRAWING *		STAFF	12/24/03	BOONSBORO, MD 21713	
FINISH		SCALE	SIZE	DRAWING TITLE	
N/A		2/1	A	CAST PAD STAND OFF INSERT	
MATERIAL		QUANTITY PER ASSEMBLY	REVISION	DRAWING NUMBER	
AL 6061-T6		3	2	TISHMS14	
		QUANTITY PER MANIKIN		PAGE	
		6		1/1	

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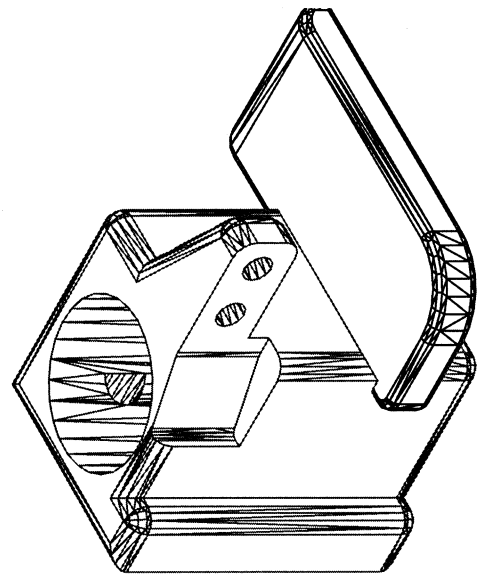
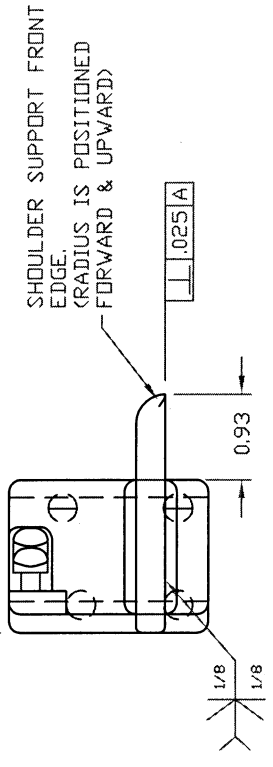
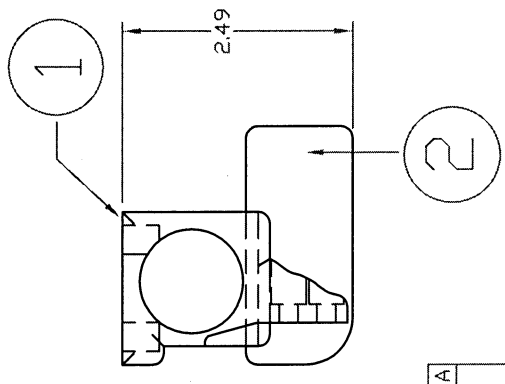
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10	9	8	7	6	5	4	3	2	1
H	G	F	E	D	C	B	A		

REV. #	ZONE	DESCRIPTION	DATE	BY
1	GLOBAL	SUPERSEDES AND IS IDENTICAL TO REVISION X0	5/12/04	J. McDONALD
2	GLOBAL	UPDATED PARTS & WELD INSTRUCTION	7/1/04	M. ARTIS



**WELDING NOTES:**

- 1 ORIENT THE SHOULDER SUPPORT SO THAT THE RADIUS OF THE FRONT EDGE IS FACING FORWARD & UPWARD.
- 2 ORIENT THE SHOULDER BLOCK AS SHOWN.
- 3 SLIDE THE SHOULDER SUPPORT INTO THE CHANNEL OF THE SHOULDER BLOCK, MAKING SURE THAT THE SHOULDER SUPPORT HAS BEEN PUSHED COMPLETELY AGAINST THE SHOULDER SUPPORT.
- 4 SLIDE THE SHOULDER SUPPORT EITHER FORWARD OR BACKWARD, INSIDE THE CHANNEL OF THE SHOULDER BLOCK, TO ACHIEVE THE SPECIFIED HORIZONTAL DISTANCE. CLAMP PART AS NEEDED IN ORDER TO MAINTAIN THIS POSITION BEFORE WELDING.
- 5 WELD AS SPECIFIED AND SMOOTH ALL SHARP WELD EDGES.

**FINISHING NOTE:**

- 6 MASK TAPPED HOLES AND TEFLON OR POWDER COAT THE ENTIRE ASSEMBLY.

REV. #	QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
2	1	T1SHM075	RIB SHELF (RIGHT)	1018 CRS
1	1	T1SHM073	SHOULDER BLOCK (RIGHT)	1018 CRS

ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
ENGINEERED:	DATE: 1/8/04
M. ARTIS	
DRAWN:	DATE: 1/8/04
M. ARTIS	
CHECKED:	DATE: 1/8/04
STAFF	
SCALE:	SIZE: C
1=1	REVISION: 2

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	
Tolerances	
Angles: ± .5°	
Fractions: ± 1/64	
Decimals: .xxx ± .005	
Surface Finish: 125/	
* DO NOT SCALE DRAWING *	

FINISH: SEE NOTES	
QUANTITY FOR AN ASSEMBLY	1
QUANTITY FOR ENTIRE DUMMY	1

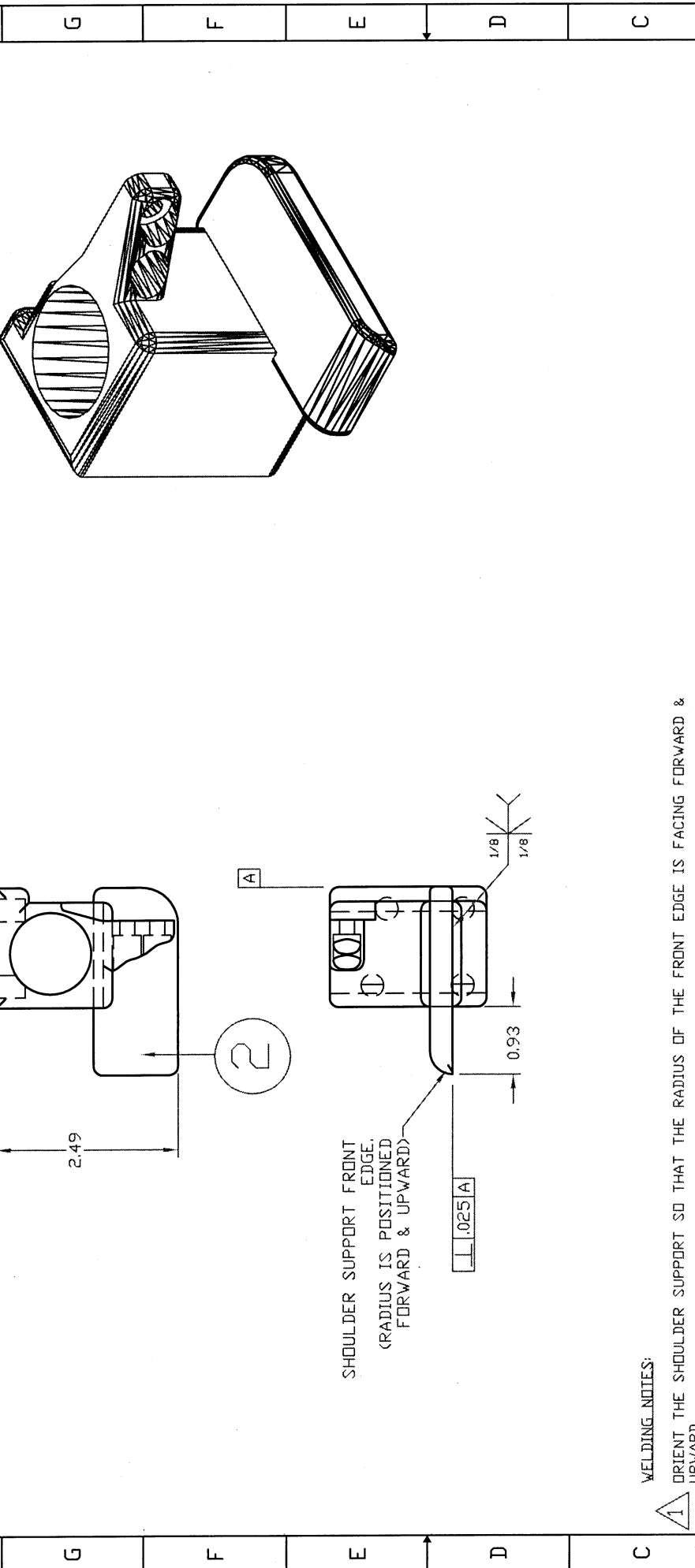
DRAWING TITLE:	
SHOULDER BLOCK WELD ASSEMBLY (RIGHT)	
DRAWING NUMBER:	T1SHM070

DEPARTMENT OF TRANSPORTATION	
NHTSA	
CONTRACT NO.:	DTNH 22-94-G-07010
DESIGNED BY:	GESAC, INC.
125 ORCHARD DRIVE BROOKFIELD, MD 21773	

10	9	8	7	6	5	4	3	2	1
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REV. #	ZONE	DESCRIPTION	DATE	BY
1	GLOBAL	SUPERSEDES AND IS IDENTICAL TO REVISION X0	5/12/04	J. McDONALD
2	GLOBAL	UPDATED PARTS & WELD INSTRUCTION	7/1/04	M. ARTIS



2	1	T1SHM074	RIB SHELF (LEFT)	1018 CRS
1	1	T1SHM072	SHOULDER BLOCK (LEFT)	1018 CRS
REV. #	QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	ENGINEERED:	DATE:	DEPARTMENT OF TRANSPORTATION
Tolerances	M. ARTIS	1/8/04	NHTSA
Angles: ± .5°	DRANK	1/8/04	CONTRACT NO.: DTNH 22-94-G-07010
Fractions: ± 1/64	M. ARTIS	1/8/04	DESIGNED BY: GESAC, INC.
Decimals: .xxx ± .005	CHECKED:	1/8/04	125 ORLAND DRIVE
Surface Finish: 125/	STAFF	1/8/04	ROCKFORD, MD 21113
* DO NOT SCALE DRAWING *	SCALE	1=1	DRAWING TITLE: SHOULDER
FINISH:	SIZE	C	SHOULDER BLOCK WELD ASSEMBLY (LEFT)
SEE NOTES	QUANTITY FOR AN ASSEMBLY	1	DRAWING NUMBER: T1SHW071
MATERIAL:	QUANTITY FOR ENTIRE DUMMY	1	Page 1/1
SEE ABOVE			

**WELDING NOTES:**

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- 5 WELD AS SPECIFIED AND SMOOTH ALL SHARP WELD EDGES.
- 6 FINISHING NOTE:
- 7 MASK TAPPED HOLES AND TEFLON OR POWDER COAT THE ENTIRE ASSEMBLY.