

REV. #	ZONE	DESCRIPTION	DATE	BY
7	GLOBAL	UPDATED PARTS TINKM019, TINKM210, ADDED NEW PART TINKM023 AND ITEMS 44, 45 AND 46. OMITTED PARTS TINKM025, 16, 27, 28, 30, 31, 32. ADDED NOTE 1, 5, 6, 7, 8, 9.	04/27/01	J. DRUMMOND
8	PARTS LIST	ADDED ITEM F. CHANGED ITEM 23 IN DWG TO ASSEMBLY F	10/12/01	J. POLAND
	GLOBAL	UPDATED ASSEMBLY DWG. TO ALPHA 1.1	10/16/01	M. ARTIS
	PARTS LIST	ADDED ITEM G. DELETED ITEMS	10/16/01	M. ARTIS
	NOTE	ADDED NOTE 9	10/16/01	M. ARTIS
9	NOTE	ADDED NOTE 10	11/29/01	M. ARTIS
10	GLOBAL	REDRAWN AS EXPLODED ASSEM. w/NT REVISIONS	11/06/04	B. SECK

NOTES:

△ A #6-32 X 5/16" BHSCS (ITEM 30) IS USED TO ATTACH THE HEAD-SPINE GROUND STRAP TO THE HEAD/NECK MOUNTING PLATFORM (ITEM A).

△ FOUR 1/4-20 X 5/8" SHCS WITH NYLON PELLETS (ITEM 31) ARE USED TO FASTEN THE LOWER NECK LOAD CELL TO THE UPPER THORACIC SPINE NECK PITCH CHANGE MECHANISM.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		ENGINEERED:	DATE:	DEPARTMENT OF TRANSPORTATION	
Tolerances		Y.M. ZHAO	10/7/86	NHTSA	
Angles: ± .5		DRAWN:	DATE:	CONTRACT NO.: DTRH 28-94-C-0700	
Fractions: ± 1/64		B. SECK	11/8/04	DESIGNED BY: GESAC, INC.	
Decimals: .xx ± .01		CHECKED:	DATE:	125 ORLAND DRIVE	
Surface Finish: $\sqrt{125}$		J. McDONALD	11/8/04	BOSSBORO, NJ 07003	
* DO NOT SCALE DRAWING *		SCALE	REVISION	DRAWING TITLE:	
		1=1	E 10	NECK MECHANICAL ASSEMBLY	
FINISH:		QUANTITY FOR AN ASSEMBLY		DRAWING NUMBER:	
SEE DWGS		1		TINKM000	
MATERIAL:		QUANTITY FOR ENTIRE DUMMY		Page	
SEE DWGS		1		1/1	

22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
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32	1	TINKM320	INSTRUMENT NECK LOAD CELL	ALLOY
31	4	CH# 1420X050SP	1/4-20 X 5/8" S.H.C.S. - NP	ALLOY
30	1	MCM# 91255A145	#6-32 X 5/16" B.H.S.C.S	ALLOY
29	2	MCM# 91255A146	#6-32 X 3/8" B.H.S.C.S	ALLOY
28	1	TINKM014	NECK PULLEY PLATE	DELNIN
27	4	MCM# 91253A079	#2-56 X 3/8" F.H.S.C.S	ALLOY
26	2	MCM# 91831A411	#10-32 HEX NYLON INSERT LOCK NUT	PURCHASED
25	2	MCM# 92314A239	#10-24 X 1/4" HEX HEAD	PURCHASED
24	1	MCM# 91251A190	#8-32 X 1/4" S.H.C.S	ALLOY
23	2	MCM# 91255A105	#4-40 X 3/16" B.H.C.S	PURCHASED
22	2	MCM# 91255A117	#4-40 X 1 1/4" B.H.C.S	PURCHASED
21	16	MCM# 91255A159	1/4-20 X 5/8" SHCS	ALLOY
20	8	MCM# 98437A110	1/4" (280 ID - .383 OD) LOCK WASHER	PURCHASED
19	1	TINKM024	LOWER NECK LOAD CELL BUMPER COVER	DELNIN
18	1	TINKM025	LOWER NECK LOAD CELL BUMPER	BUNA-N 50A
17	2	MCM # 91255A269	#10-32 X 3/4" B.H.S.C.S	ALLOY
16	1	MCM # 91831A120	1/4-28 NYLON INSERT LOCK NUT	PURCHASED
15	1	MCM # 94639A144	NYLON SPACER 25 ID X .5 OD X .75"	PURCHASED
14	1	MCM # 90313A107	FLAT WASHER 9/32 ID X 1 OD X 3/64" THK	PURCHASED
13	1	QTY DWG/PART NUMBER	DESCRIPTION	MATERIAL
ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY				

13	1	TINKM029	CABLE WASHER	BLACK DELNIN
12	1	TINKM010	NECK OCCIPITAL CONDYLE BOLT	S7 TOOL STEEL
11	1	MCM # 91081A027	#10 FLAT WASHER .250 ID X .565 OD	PURCHASED
10	2	TINKM011	NECK KEY WASHER	303 SS
9	4	SB #US16-0170	CURVED DISK SPRING WASHER	PURCHASED
8	2	TINKM012	NECK FRICTION WASHER	RF-38 FRICTION
7	1	MCM # 91831A029	1/4-20 NUT W/NYLON INSERT	PURCHASED
6	2	TINKM022	NECK CABLE SEAT COVER	SEE DWG.
5	1	TINKM310	INSTRUMENT UPPER NECK LOAD CELL	PURCHASED
4	1	TINKM027	OCCIPITAL CONDYLE SET SCREW	SEE DWG.
3	1	TINKM043	OCCIPITAL CONDYLE CAM	BRASS
2	1	TINKM018	ROTARY POTENTIOMETER HOUSING COVER	6061-76
1	1	TINKM017	ROTARY POTENTIOMETER HOUSING	6061-76
F	1	TINKM600	NECK MECHANICAL ASSEMBLY NON-ACTIVE LOWER LOAD CELL	SEE DWG.
E	1	TINKM700	NECK MECHANICAL ASSEMBLY NON-ACTIVE UPPER LOAD CELL	SEE DWG.
D	1	TINKM300	NECK PULLEY BRACKET ASSEMBLY	SEE DWG.
C	1	TINKM500	NECK STOP ASSEMBLY	SEE DWG.
B	1	TINKM100	NECK CABLES ASSEMBLY	SEE DWG.
A	2	TINKM200	NECK/HEAD MOUNTING PLATFORM ASSEMBLY	SEE DWG.
12	1	QTY DWG/PART NUMBER	DESCRIPTION	MATERIAL
ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY				

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

Angles: ± .5°
Tolerances: Fractions ± 1/64
Decimals: .XX ± .01
Surface Finish: .005
* DO NOT SCALE DRAWING *

FINISH: SEE DWGS

QUANTITY FOR AN ASSEMBLY: 1

QUANTITY FOR ENTIRE DUMMY: 1

MATERIAL: TINKM000

SEE DWGS

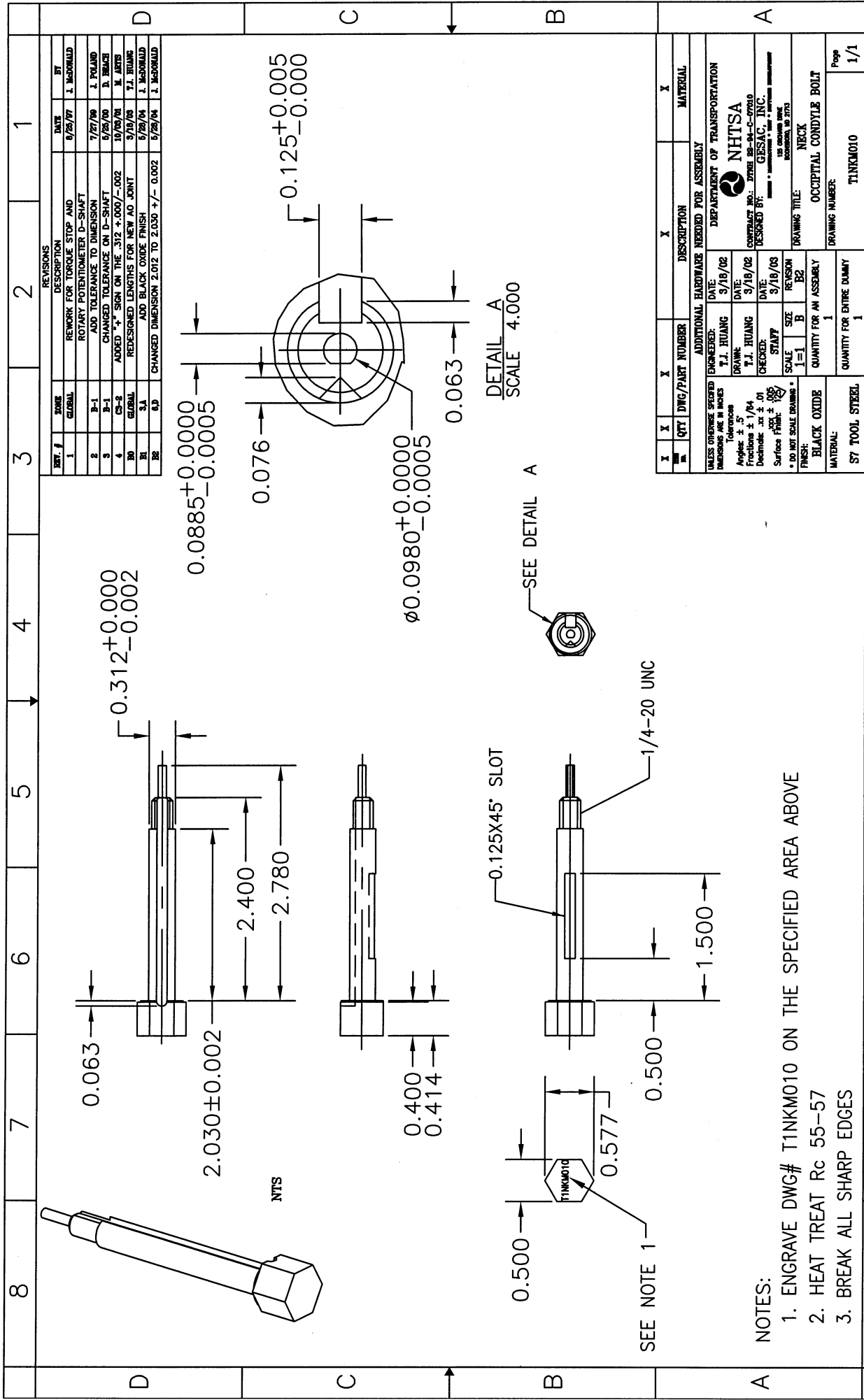
DATE: 10/7/96
ENGINEERED: Y.M. ZHAO
DRAWN: B. SECK
CHECKED: J. McDONALD
SCALE: 1=1

DATE: 11/8/04
DATE: 11/8/04
REVISION: 10

DEPARTMENT OF TRANSPORTATION
NHTSA
CONTRACT NO.: DTNH 22-94-C-07010
DESIGNED BY: GESAC, INC.
125 ORCHARD DRIVE
ROCKFORD, MD 21713

DRAWING TITLE: NECK MECHANICAL ASSEMBLY
DRAWING NUMBER: TINKM000

Page 2/2



REV. #	DATE	BY
1	9/26/07	J. MCARDLID
2	7/27/09	J. POLJAND
3	6/26/10	D. BEACH
4	10/09/04	M. WERTS
5A	5/18/08	T.J. HUANG
5B	6/26/04	J. MCARDLID
6	9/26/04	J. MCARDLID

ZONE	DESCRIPTION
1	REWORK FOR TORQUE STOP AND ROTARY POTENTIOMETER D-SHAFT
2	ADD TOLERANCE TO DIMENSION
3	CHANGED TOLERANCE ON D-SHAFT
4	ADDED "+" SIGN ON THE .312 +.000/- .002
5A	REDESIGNED LENGTHS FOR NEW AO JOINT
5B	ADD BLACK OXIDE FINISH
6	CHANGED DIMENSION 2.012 TO 2.030 +/- 0.002

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
1		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
1		DEPARTMENT OF TRANSPORTATION	
1		NHTSA	
1		CONTRACT NO.: DTMB 98-04-C-07610	
1		DESIGNED BY: GESSAC, INC.	
1		DATE: 10/20/04	
1		DRAWING TITLE: NECK	
1		OCCUPANT CONDYLE BOLT	
1		DRAWING NUMBER:	
1		TINKM010	
1		Page	1/1

UNLESS OTHERWISE SPECIFIED	ENGINEERED:	DATE:
MEASUREMENTS ARE IN INCHES	T.J. HUANG	9/18/02
Tolerances	DRAWN:	DATE:
Angles: ± .5°	T.J. HUANG	9/18/02
Fractions: ± 1/64	CHECKED:	DATE:
Decimals: .xx ± .01	STAFF	9/18/02
Surface finish: Ra ± .125	SCALE	SIZE
* DO NOT SCALE DIMENSIONS *	1=1	B B2

FINISH:	BLACK OXIDE	QUANTITY FOR AN ASSEMBLY
		1
MATERIAL:	S7 TOOL STEEL	QUANTITY FOR ENTIRE DUMMY
		1

SEE NOTE 1

1. ENGRAVE DWG# T1NKM010 ON THE SPECIFIED AREA ABOVE

2. HEAT TREAT Rc 55-57

3. BREAK ALL SHARP EDGES

DETAIL A
SCALE 4.000

0.063

0.0885+0.0000/-0.0005

0.076

0.125+0.005/-0.000

0.063

0.0980+0.0000/-0.0005

0.312+0.000/-0.002

2.030±0.002

2.400

2.780

0.400

0.414

0.500

0.577

1.500

1/4-20 UNC

0.125X45° SLOT

SEE DETAIL A

DETAIL A
SCALE 4.000

1

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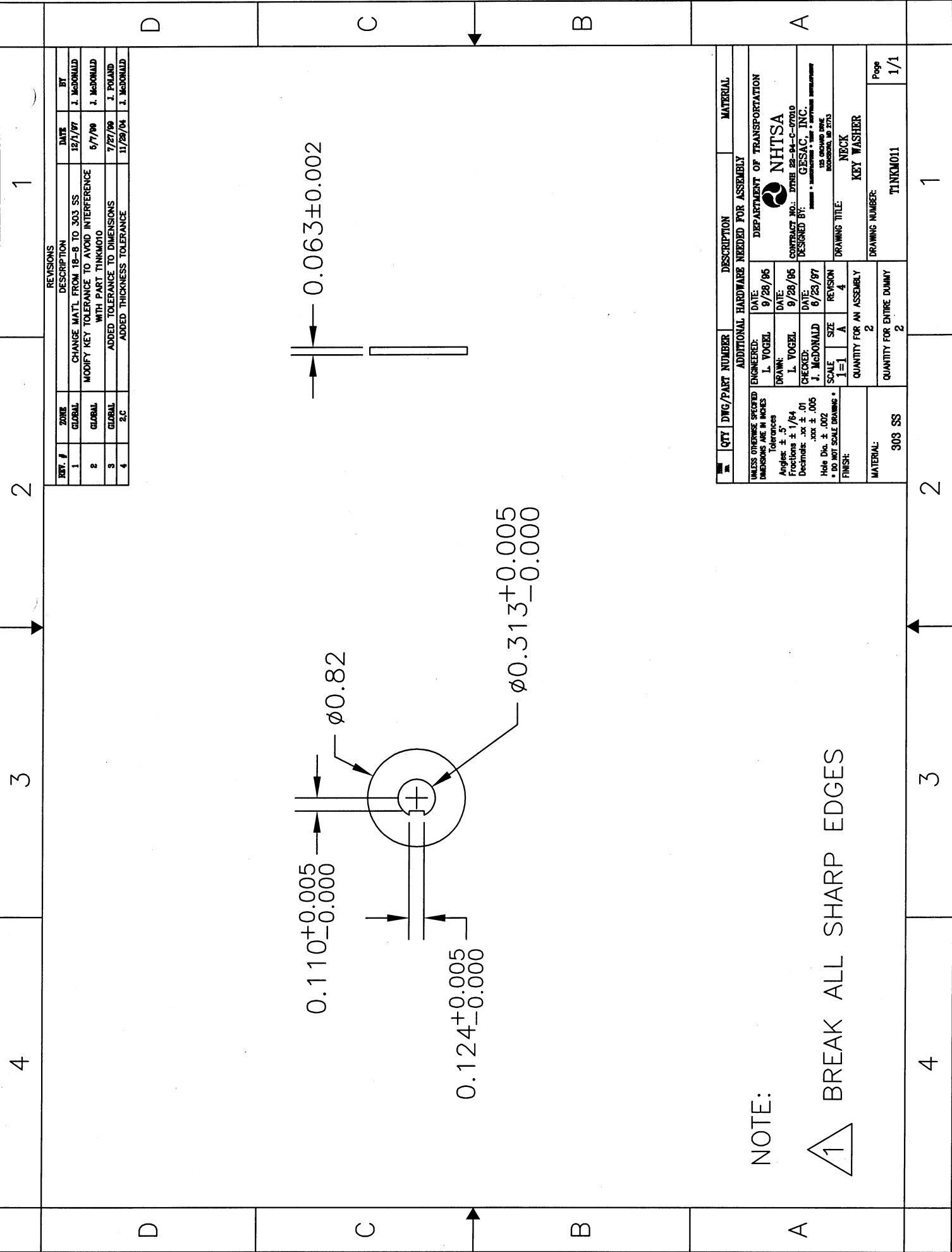
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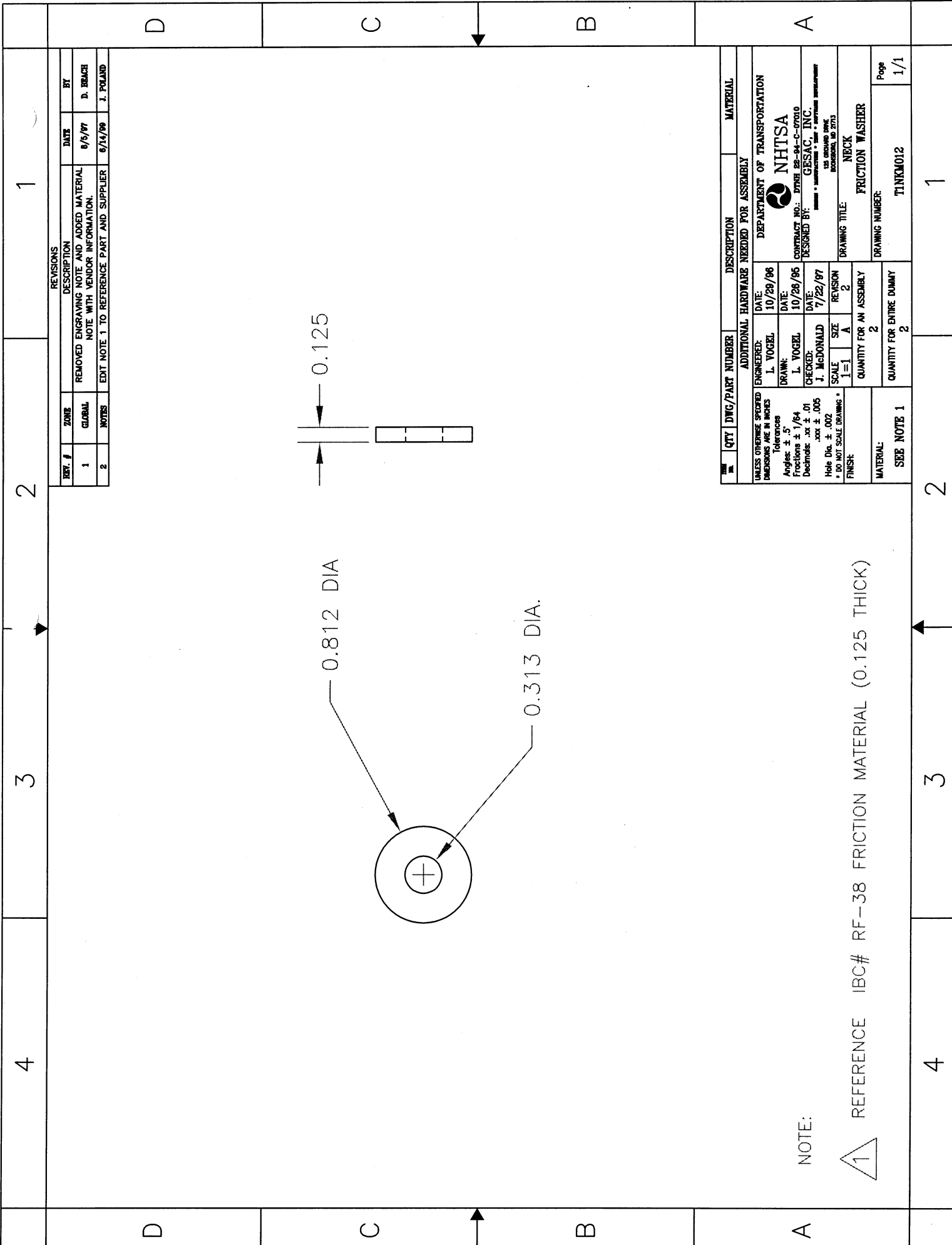
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7

8



QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
303 SS		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
UNLESS OTHERWISE SPECIFIED ENGINEERED: L. VOGEL DATE: 9/28/96 DEPARTMENT OF TRANSPORTATION			
DIMENSIONS ARE IN INCHES			
Tolerances			
Angles: $\pm 5^\circ$	DRAWN: L. VOGEL DATE: 9/28/96	NHTSA	
Fractions $\pm 1/64$	CHECKED: J. McDONALD DATE: 6/23/97	CONTRACT NO.: DTMB 92-94-C-07010	
Decimals: .xxx $\pm .005$	SCALE: 1=1 SIZE: A	DESIGNED BY: GESAC, INC.	
Hole Dia. $\pm .002$	REVISION: 4	125 BRIDGE DRIVE	
FINISH: *	QUANTITY FOR AN ASSEMBLY: 2	NECK	
	QUANTITY FOR ENTIRE DUMMY: 2	KEY WASHER	
MATERIAL: 303 SS		DRAWING NUMBER: TINKM011	
		Page 1/1	



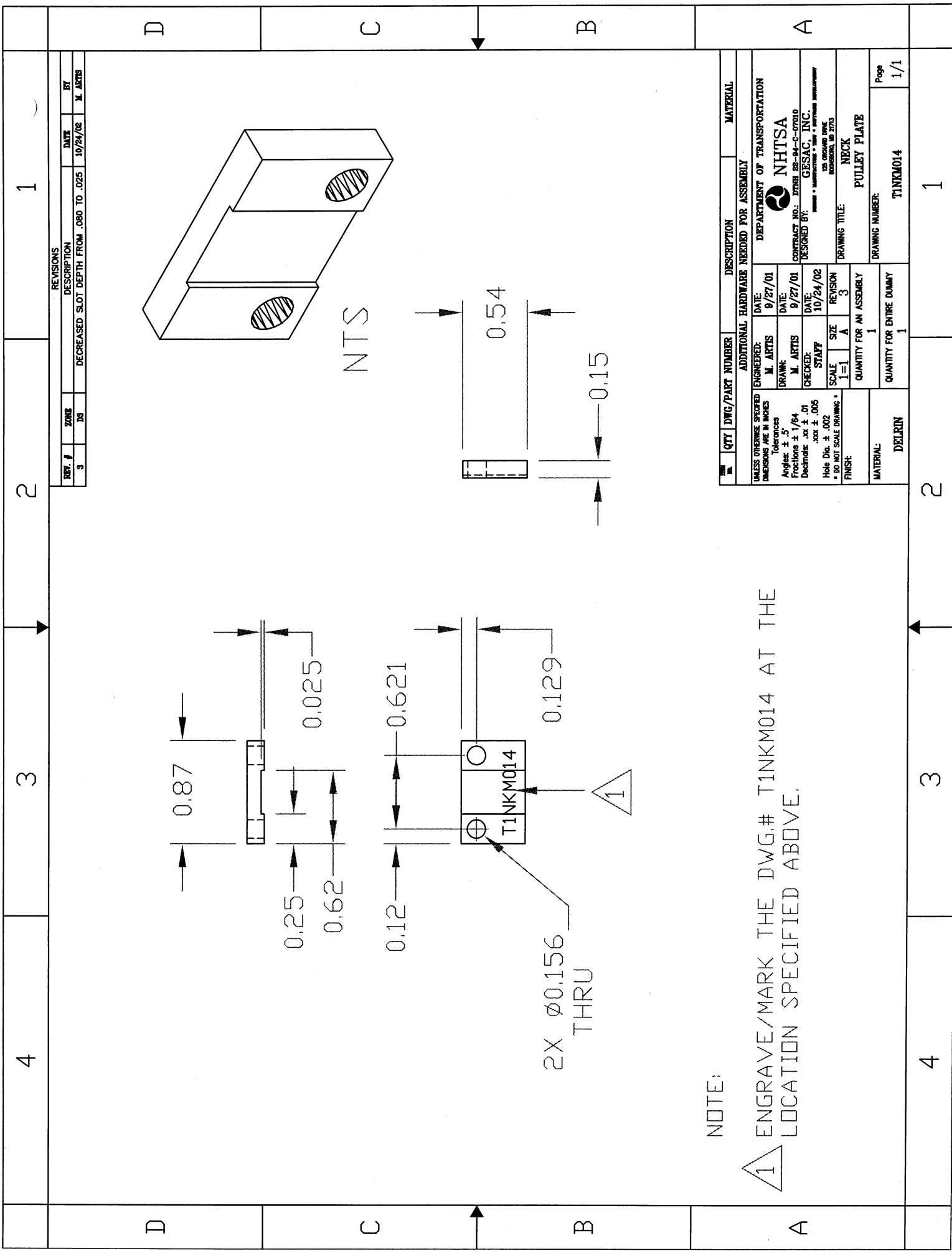
REV. #	ZONE	DESCRIPTION	DATE	BY
1	GLOBAL	REMOVED ENGRAVING NOTE AND ADDED MATERIAL NOTE WITH VENDOR INFORMATION.	9/5/97	D. BRACE
2	NOTES	EDIT NOTE 1 TO REFERENCE PART AND SUPPLIER	9/14/99	J. POLAND

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
1		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES			
ENGINEERED:	L. VOGEL	DATE: 10/28/96	DEPARTMENT OF TRANSPORTATION
DRAWN:	L. VOGEL	DATE: 10/28/96	NHTSA
CHECKED:	J. McDONALD	DATE: 7/22/97	CONTRACT NO.: DTRC 28-94-C-07010
SCALE:	1=1	SIZE: A	DESIGNED BY: GESAC, INC.
FINISH:			125 ORLAND DRIVE ROCKFORD, IL 61103
QUANTITY FOR AN ASSEMBLY	2	REVISION	DRAWING TITLE: NECK
QUANTITY FOR ENTIRE DUMMY	2		FRICTION WASHER
SEE NOTE 1			DRAWING NUMBER: TINKM012
			Page 1/1

NOTE:

1

REFERENCE IBC# RF-38 FRICTION MATERIAL (0.125 THICK)

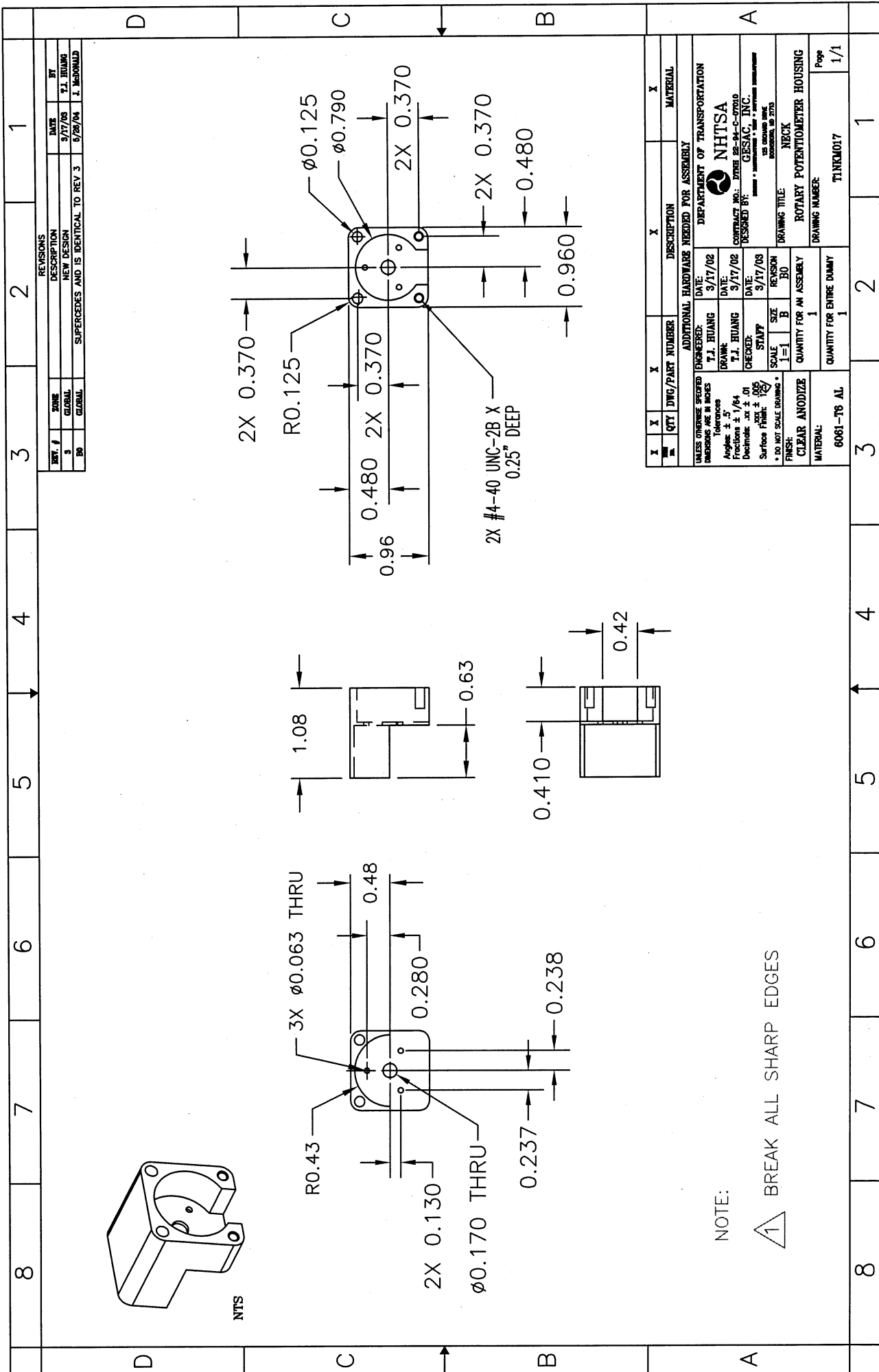


NOTE:

1 ENGRAVE/MARK THE DWG.# T1NKM014 AT THE LOCATION SPECIFIED ABOVE.

REVISIONS		
REV. #	ZONE	DESCRIPTION
3	38	DECREASED SLOT DEPTH FROM .080 TO .025
		DATE: 10/24/02 BY: M. ARTIS

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
1	T1NKM014	PULLEY PLATE	DELRIN
ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY: ENGINEERED: M. ARTIS DATE: 9/27/01 DRAWN: M. ARTIS DATE: 9/27/01 CHECKED: STAFF DATE: 10/24/02 SCALE: 1=1 SIZE: A REVISION: 3 FINISH: * DO NOT SCALE DRAWING *			
DEPARTMENT OF TRANSPORTATION NHTSA CONTRACT NO.: DTNH 22-04-C-07010 DESIGNED BY: GESAC, INC. <small>125 ORCHARD PARK, ROCKFORD, IL 61153</small>			
DRAWING NUMBER: T1NKM014			Page: 1/1



REV. #		DATE		BY	
1	NEW DESIGN	9/17/02	T.J. HUANG		
2	SUPERCEDES AND IS IDENTICAL TO REV 3	9/29/04	J. WENWALD		

QTY		DWG/PART NUMBER		DESCRIPTION		MATERIAL	
1	1			ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY			
UNLESS OTHERWISE SPECIFIED		ENGINEERED:		DATE:		DEPARTMENT OF TRANSPORTATION	
DIMENSIONS ARE IN INCHES		T.J. HUANG		9/17/02		NHTSA	
Tolerances:		DRAWN:		DATE:		CONTRACT NO.: DTMB 92-94-C-07040	
Angles: $\pm .5^\circ$		T.J. HUANG		9/17/02		DESIGNED BY: GESAC, INC.	
Fractions: $\pm 1/64$		CHECKED:		DATE:		DRAWING TITLE: NECK	
Decimals: $\pm .01$		STAFF		9/17/02		ROTARY POTENTIOMETER HOUSING	
Surface Finish: $\sqrt{32}$		SCALE:		REASON:		DRAWING NUMBER: TINKM017	
* DO NOT SCALE DRAWING *		1=1		BO:		Page 1/1	
FINISH: CLEAR ANODIZE		QUANTITY FOR AN ASSEMBLY:		1		DRAWING NUMBER: TINKM017	
MATERIAL: 6061-T6 AL		QUANTITY FOR ENTIRE DUMMY:		1		Page 1/1	

NOTE: $\triangle 1$ BREAK ALL SHARP EDGES

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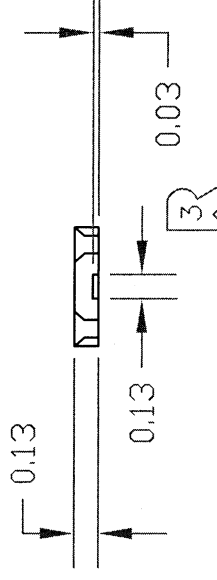
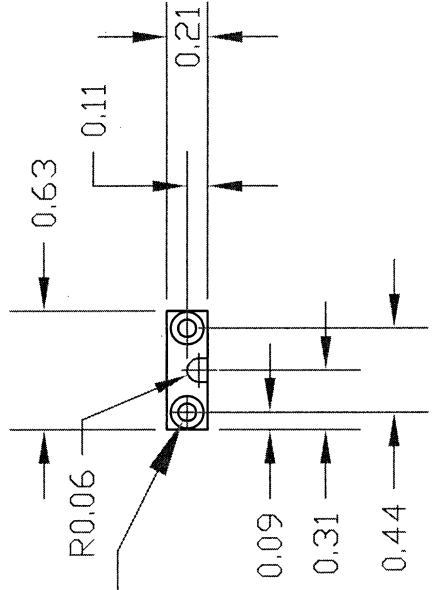
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B

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Ø0.094 THRU, C'SINK FOR
 #2-56 F.H.S.C.S. 0.051 DEEP
 (2 LOC)



REV. #	ZONE	DESCRIPTION	DATE	BY
1	GLOBAL	MODIFIED FOR USE AT FRONT AND REAR NECK CABLE MOUNTING LOCATIONS	5/7/99	J. McDONALD
2	C-4	EDITED DIMENSION FOR HOLES	6/14/99	J. POLAND
3	GP-2.3	ADDED RELIEF FOR THE CABLE BALL END	7/15/99	J. McDONALD
4	TITLE BLOCK	CHANGED TITLE & QTY FOR ASSEMBLY/DUMMY	7/16/99	J. POLAND

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES			
ENGINEERED:	J. McDONALD	DATE:	8/5/97
DRAWN:	J. McDONALD	DATE:	8/5/97
CHECKED:	STAFF	DATE:	8/20/97
SCALE:	1=1	SIZE:	A
		REVISION:	4
QUANTITY FOR AN ASSEMBLY		DRAWING TITLE	
2		NECK CABLE SEAT COVER	
QUANTITY FOR ENTIRE DUMMY		DRAWING NUMBER	
2		T1NKM022	
MATERIAL:		Page	
DELTRIN		1/1	

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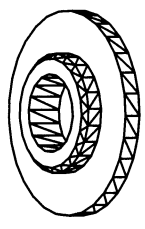
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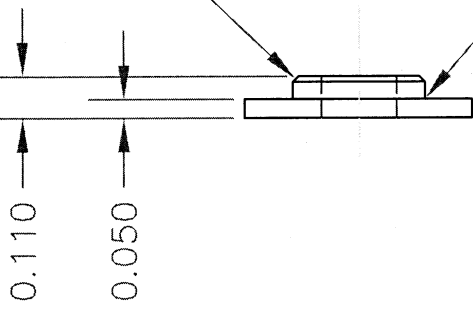
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NTS



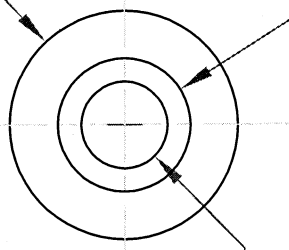
45° X .15 CHAMFER

Ø0.600

Ø0.228

Ø0.350^{+0.000}_{-0.005}

NO RADIUS



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NOTE:



BREAK ALL SHARP EDGES

REV. #	ZONE	DESCRIPTION	DATE	BY
1	CB	ADJUSTED DIA. FROM .355 TO .350 w/TOLERANCE	6/17/08	J. McDONALD
2	TITLE BLOCK	UPDATED REVISION #	6/14/06	J. POLAND
3	C	CHANGED PROTRUSION LENGTH AND ID	6/17/04	J. McDONALD
	SA	ADDED BLACK TEFLON FINISH	6/17/04	J. McDONALD
4	TITLE BLOCK	QUANTITY PER DUMMY CHANGE FROM 2 TO 4	12/16/04	J. McDONALD

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
	ENGINEERED: J. McDONALD	DATE: 8/25/97	
	DRAWN: J. McDONALD	DATE: 8/25/97	
	CHECKED: STAFF	DATE: 8/25/97	
	SCALE: 2=1	SIZE: A	
	REVISION: 4		
	QUANTITY FOR AN ASSEMBLY: 2		
	QUANTITY FOR ENTIRE DUMMY: 4		
	MATERIAL: 4140 CD		
	FINISH: BLACK TEFLON		
	DRAWING NUMBER: TINKM0023		
	DRAWING TITLE: NECK SPRING BUSHING		
	DESIGNED BY: GRESAC, INC.		
	CONTRACT NO.: DWG 22-94-C-07010		
	DEPARTMENT OF TRANSPORTATION		
	NHTSA		
	135 ORCHARD LANE		
	ROCKFORD, IL 61103		
	Page: 1/1		

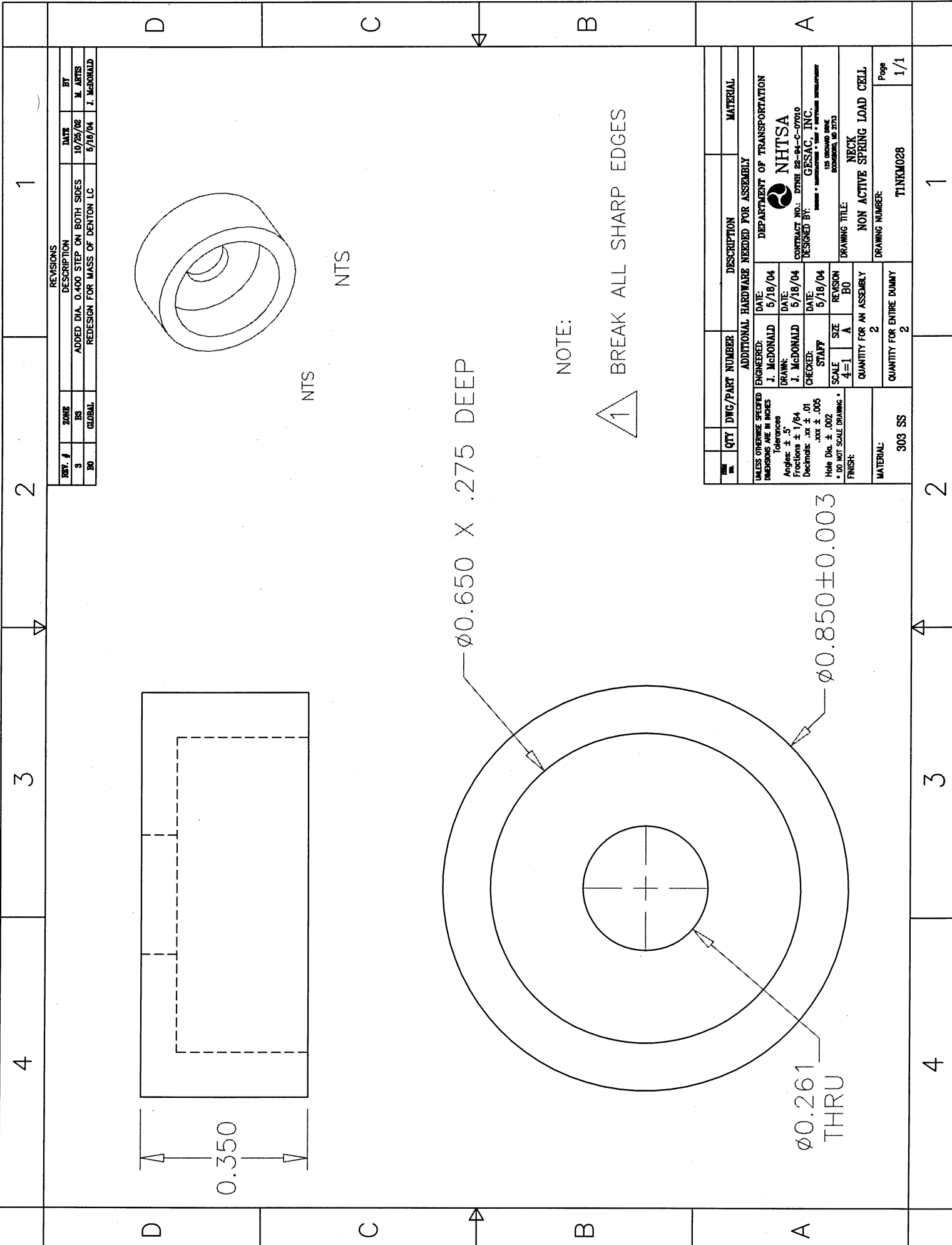
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3

2

1

8	7	6	5	4	3	2	1																		
<table border="1"> <thead> <tr> <th>REV. #</th> <th>DATE</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>6/1/99</td> <td>J. POKAND</td> </tr> <tr> <td>2</td> <td>9/9/01</td> <td>M. ARTIS</td> </tr> <tr> <td>3</td> <td>11/6/02</td> <td>M. ARTIS</td> </tr> </tbody> </table>								REV. #	DATE	BY	1	6/1/99	J. POKAND	2	9/9/01	M. ARTIS	3	11/6/02	M. ARTIS						
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2	9/9/01	M. ARTIS																							
3	11/6/02	M. ARTIS																							
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REV. #	DATE	DESCRIPTION																							
1	6/1/99	CHANGED PLS TO LOC																							
2	9/9/01	DECREASED LENGTH OF PART																							
3	11/6/02	REDREW TO MAKE IT EASIER TO FABRICATE																							
3	11/6/02	CHANGED MATERIAL PART NUMBER																							
<p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES</p> <p>Tolerances Angles $\pm .5^\circ$ Fractions $\pm 1/64$ Decimals $\pm .01$ Hole Dia. $\pm .002$ + .001 MAX SCALE DIMENSIONS</p> <p>FINISH:</p>																									
<p>NOTE:</p> <p>BUNA-N RUBBER, 50 +/- 5 SHORE A DUROMETER (MCM # 8635K544)</p>																									
<table border="1"> <thead> <tr> <th>QTY</th> <th>DRG/PART NUMBER</th> <th>DESCRIPTION</th> <th>MATERIAL</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td>LOWER NECK LOAD CELL BUMPER</td> <td>NTS</td> </tr> </tbody> </table>								QTY	DRG/PART NUMBER	DESCRIPTION	MATERIAL	1		LOWER NECK LOAD CELL BUMPER	NTS										
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<table border="1"> <thead> <tr> <th>ENGINEERED:</th> <th>DATE:</th> <th>DEPARTMENT OF TRANSPORTATION</th> </tr> </thead> <tbody> <tr> <td>M. ARTIS</td> <td>2/28/99</td> <td></td> </tr> <tr> <td>CHECKED:</td> <td>DATE:</td> <td>CONTRACT NO.: DTMB 63-3-C-0010</td> </tr> <tr> <td>M. ARTIS</td> <td>11/6/02</td> <td>DESIGNED BY: GIBBS&BAC, INC.</td> </tr> <tr> <td>SCALE:</td> <td>REVISION:</td> <td>DATE: 12/10/02</td> </tr> <tr> <td>2=1</td> <td>3</td> <td>APPROVED BY: [Signature]</td> </tr> </tbody> </table>								ENGINEERED:	DATE:	DEPARTMENT OF TRANSPORTATION	M. ARTIS	2/28/99		CHECKED:	DATE:	CONTRACT NO.: DTMB 63-3-C-0010	M. ARTIS	11/6/02	DESIGNED BY: GIBBS&BAC, INC.	SCALE:	REVISION:	DATE: 12/10/02	2=1	3	APPROVED BY: [Signature]
ENGINEERED:	DATE:	DEPARTMENT OF TRANSPORTATION																							
M. ARTIS	2/28/99																								
CHECKED:	DATE:	CONTRACT NO.: DTMB 63-3-C-0010																							
M. ARTIS	11/6/02	DESIGNED BY: GIBBS&BAC, INC.																							
SCALE:	REVISION:	DATE: 12/10/02																							
2=1	3	APPROVED BY: [Signature]																							
<table border="1"> <thead> <tr> <th>QUANTITY FOR AN ASSEMBLY</th> <th>DRAWING NUMBER</th> <th>PAGE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>TINKM025</td> <td>1/1</td> </tr> </tbody> </table>								QUANTITY FOR AN ASSEMBLY	DRAWING NUMBER	PAGE	1	TINKM025	1/1												
QUANTITY FOR AN ASSEMBLY	DRAWING NUMBER	PAGE																							
1	TINKM025	1/1																							



REVISIONS				
REV. #	ZONE	DESCRIPTION	DATE	BY
3	BS	ADDED DIA. 0.400 STEP ON BOTH SIDES	10/25/02	M. ARTS
20	GLOBAL	REDESIGN FOR MASS OF DENTON LC	5/18/04	J. McDONALD

QTY	DRG/PART NUMBER	DESCRIPTION	MATERIAL
ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES			
ENGINEERED:	J. McDONALD	DATE:	5/18/04
DRAWN:	J. McDONALD	DATE:	5/18/04
CHECKED:	STAFF	DATE:	5/18/04
SCALE:	4=1	SIZE:	A
FINISH:		REVISION:	B0
QUANTITY FOR AN ASSEMBLY		2	
QUANTITY FOR ENTIRE DUMMY		2	
MATERIAL:		303 SS	
DRAWING NUMBER:		TINKM028	
DRAWING TITLE:		NON ACTIVE SPRING LOAD CELL	
DRAWING NUMBER:		1/1	

DEPARTMENT OF TRANSPORTATION
NHTSA
 CONTRACT NO.: DTMB 22-04-C-07010
 DESIGNED BY: GESAC, INC.
125 GRIFFIN DRIVE
 BOSTON, MA 02115
 DRAWING TITLE: **NON ACTIVE SPRING LOAD CELL**
 DRAWING NUMBER: **TINKM028**
 Page **1/1**

NOTE:



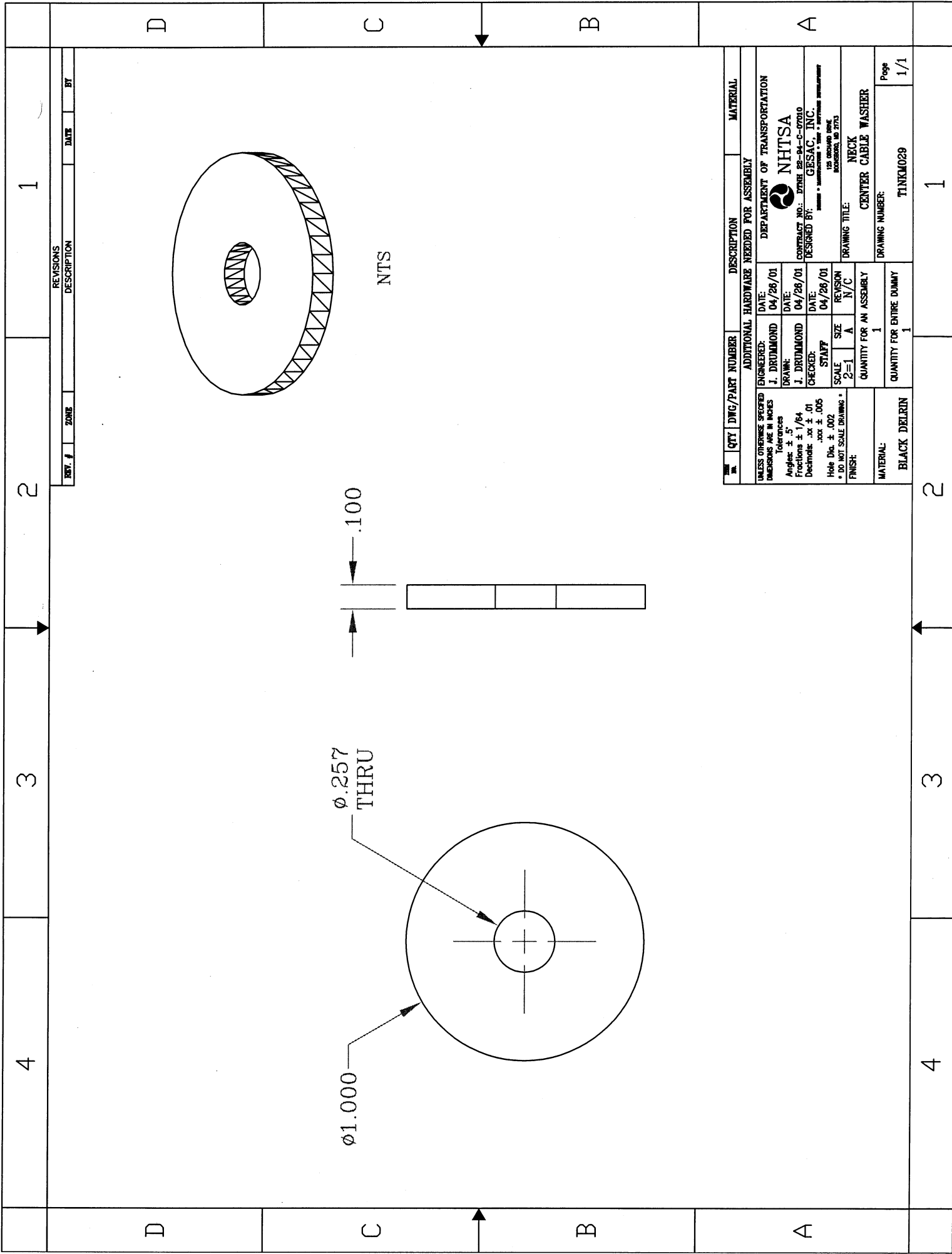
BREAK ALL SHARP EDGES

NTS NTS

Ø0.650 X .275 DEEP

Ø0.261 THRU
 Ø0.850 ± 0.003

0.350



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REV. #	ZONE	DATE	BY
REVISIONS			
DESCRIPTION			

QTY	DMG/PART NUMBER	DESCRIPTION	MATERIAL
ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY			
ENGINEERED:	J. DRUMMOND	DATE: 04/28/01	DEPARTMENT OF TRANSPORTATION
DRAWN:	J. DRUMMOND	DATE: 04/28/01	NHTSA
CHECKED:	STAFF	DATE: 04/28/01	CONTRACT NO.: DTNH 22-04-G-07010
SCALE:	2=1	SIZE: A	DESIGNED BY: GESAC, INC.
FINISH:	* DO NOT SCALE DRAWING *		125 BRIDGEMOORE DRIVE BETHESDA, MD 20773
REVISION:	N/C	REVISION:	DRAWING TITLE: NECK CENTER CABLE WASHER
QUANTITY FOR AN ASSEMBLY:	1	QUANTITY FOR ENTIRE DUMMY:	DRAWING NUMBER: TINKM029
QUANTITY FOR ENTIRE DUMMY:	1	Page:	1/1

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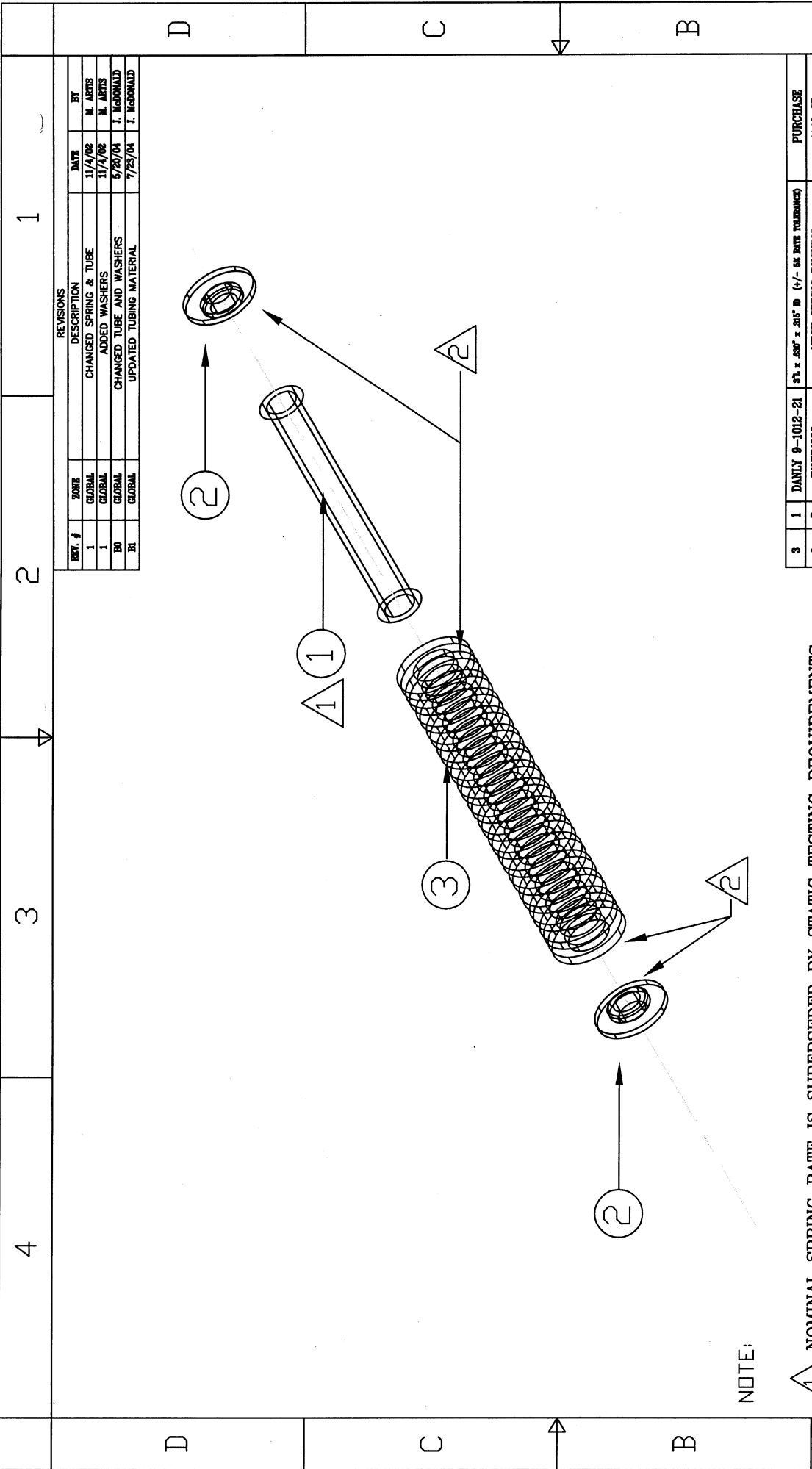
4

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NOTE:

1 NOMINAL SPRING RATE IS SUPERSEDED BY STATIC TESTING REQUIREMENTS:
 SPRING RATE: $101 \pm 5 \text{ LB / IN}$ ($17.8 \pm .9 \text{ N/mm}$)
 MAX DEFLECTION TO SOLID HEIGHT MUST EXCEED: $1.42''$ (36 mm)

2 SPRING BEARING: CHEMICALLY CLEAN THE MATING SURFACES AND JOIN WITH
 DEVCON 5 MINUTE EPOXY (MCM#66215A521) UNDER LIGHT PRESSURE

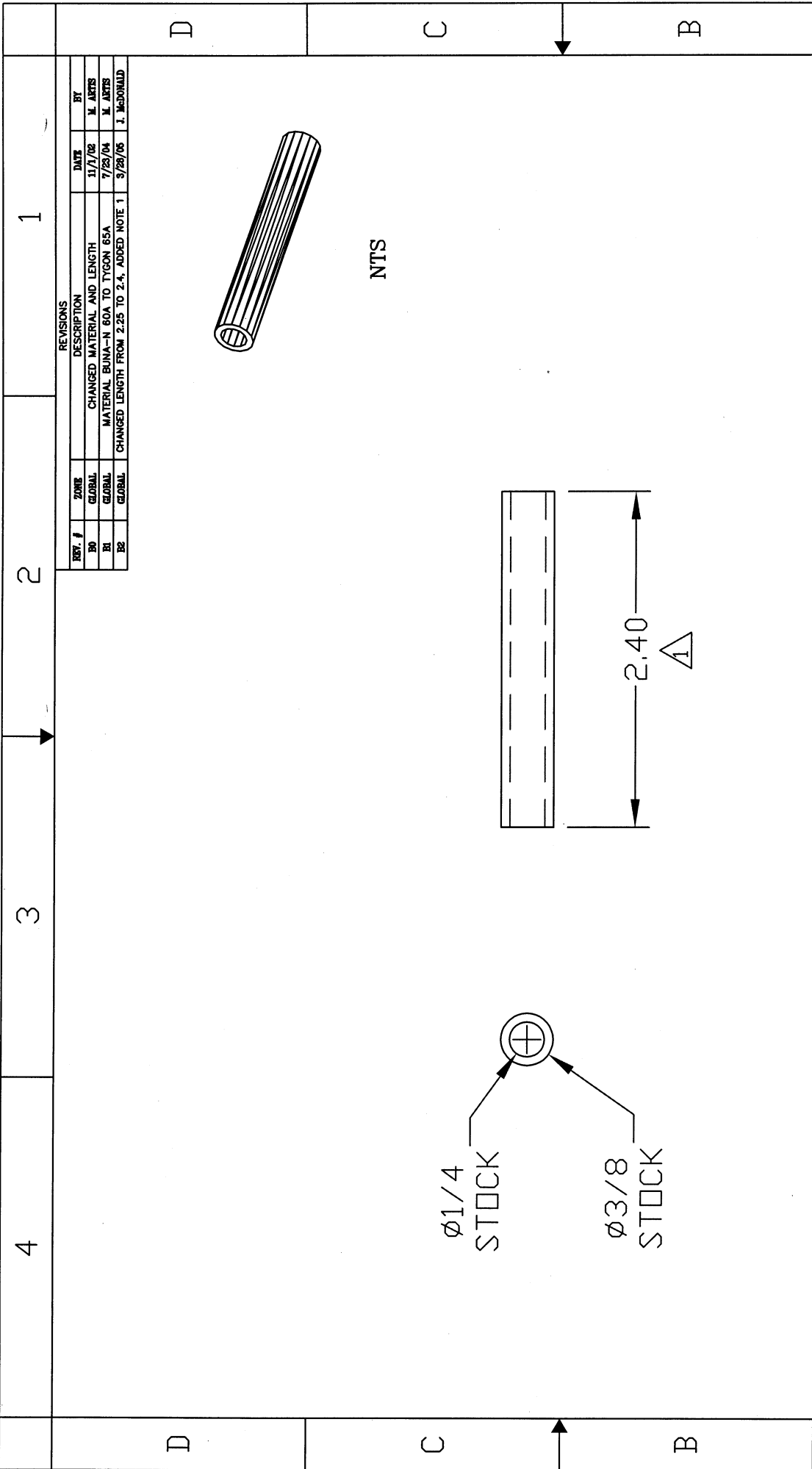
3 INSERT THE ELASTOMERIC SPRING ELEMENT (TINKM031) INTO THE COMPRESSION
 SPRING. THIS ASSEMBLY MUST BE STATICALLY TESTED TO MEET THE FOLLOWING
 REQUIREMENTS:
 DEFLECTION: $1.18''$ (30mm) FORCE: $197 \pm 10 \text{ LBF}$ (830 TO 920 N)
 SPRING CAP MUST BE IN PLACE AT EITHER END DURING THIS TEST.
 TEMPERATURE RANGE: $18-27^\circ\text{C}$ 1 HOUR RECOVERY BETWEEN TESTS

REV. #	ZONE	DESCRIPTION	DATE	BY
1	GLOBAL	CHANGED SPRING & TUBE	11/4/02	M. ARTIS
1	GLOBAL	ADDED WASHERS	11/4/02	M. ARTIS
20	GLOBAL	CHANGED TUBE AND WASHERS	5/20/04	J. McDONALD
21	GLOBAL	UPDATED TUBING MATERIAL	7/23/04	J. McDONALD

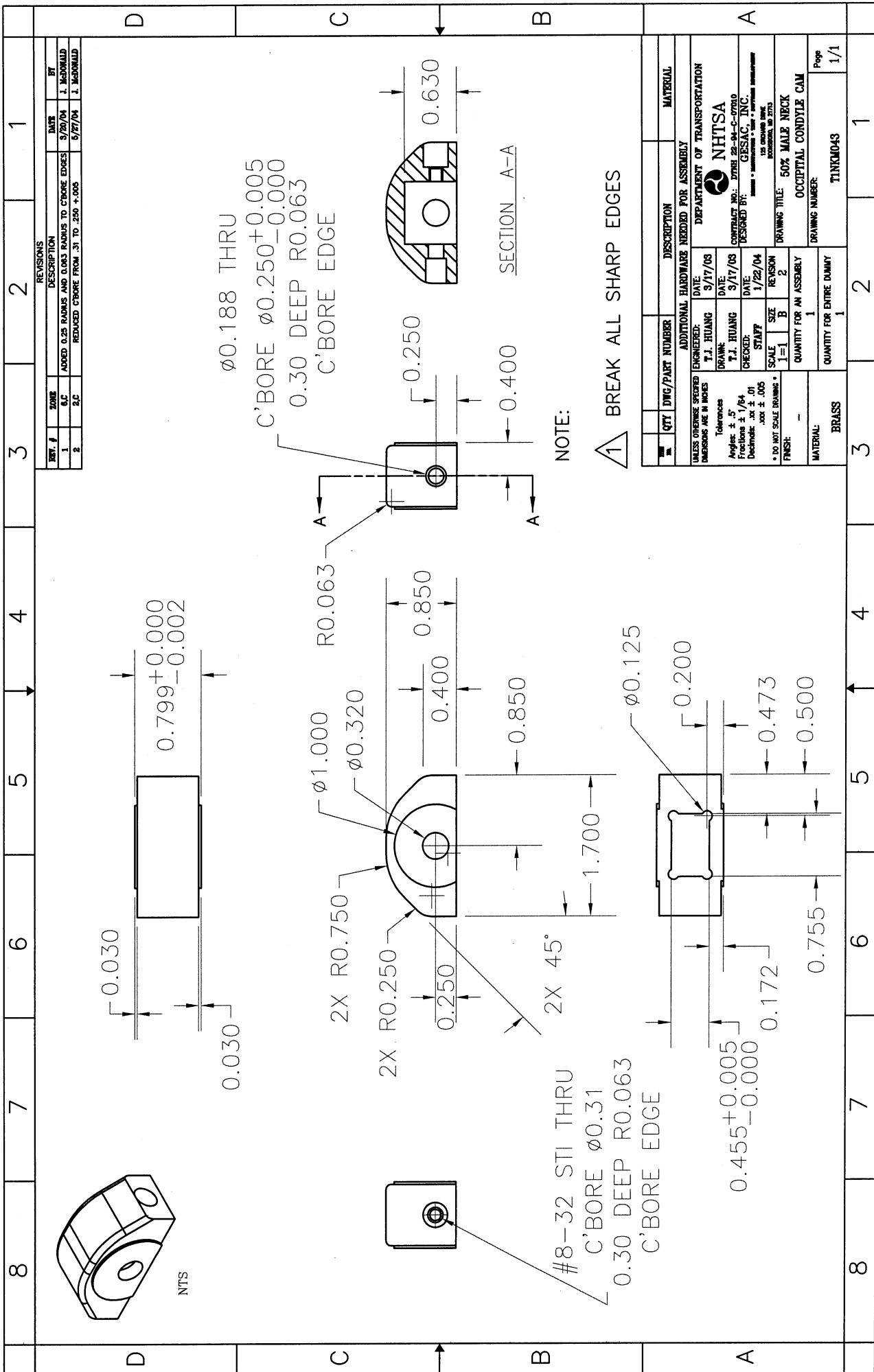
3	1	DAILY 9-1012-21	37 x .007 ± .005" ID (+/- .001) DATE TOLERANCE	PURCHASE
2	2	TINKM023	NECK SPRING BUSHING	4140 CD
1	1	TINKM031	FRONT SPRING DAMPING TUBE	65A TYGON
QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL	
ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY				
DEPARTMENT OF TRANSPORTATION				
NHTSA				
CONTRACT NO.: DTMB 22-94-C-07010				
DESIGNED BY: CSAC, INC.				
125 GROUND DRIVE				
BOWLING GREEN, OH 43403				
DRAWING TITLE: NECK				
FRONT SPRING ASSEMBLY				
DRAWING NUMBER: TINKM030				
Page 1/1				

4	3	2	1
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D	C	B	A
4	3	2	1



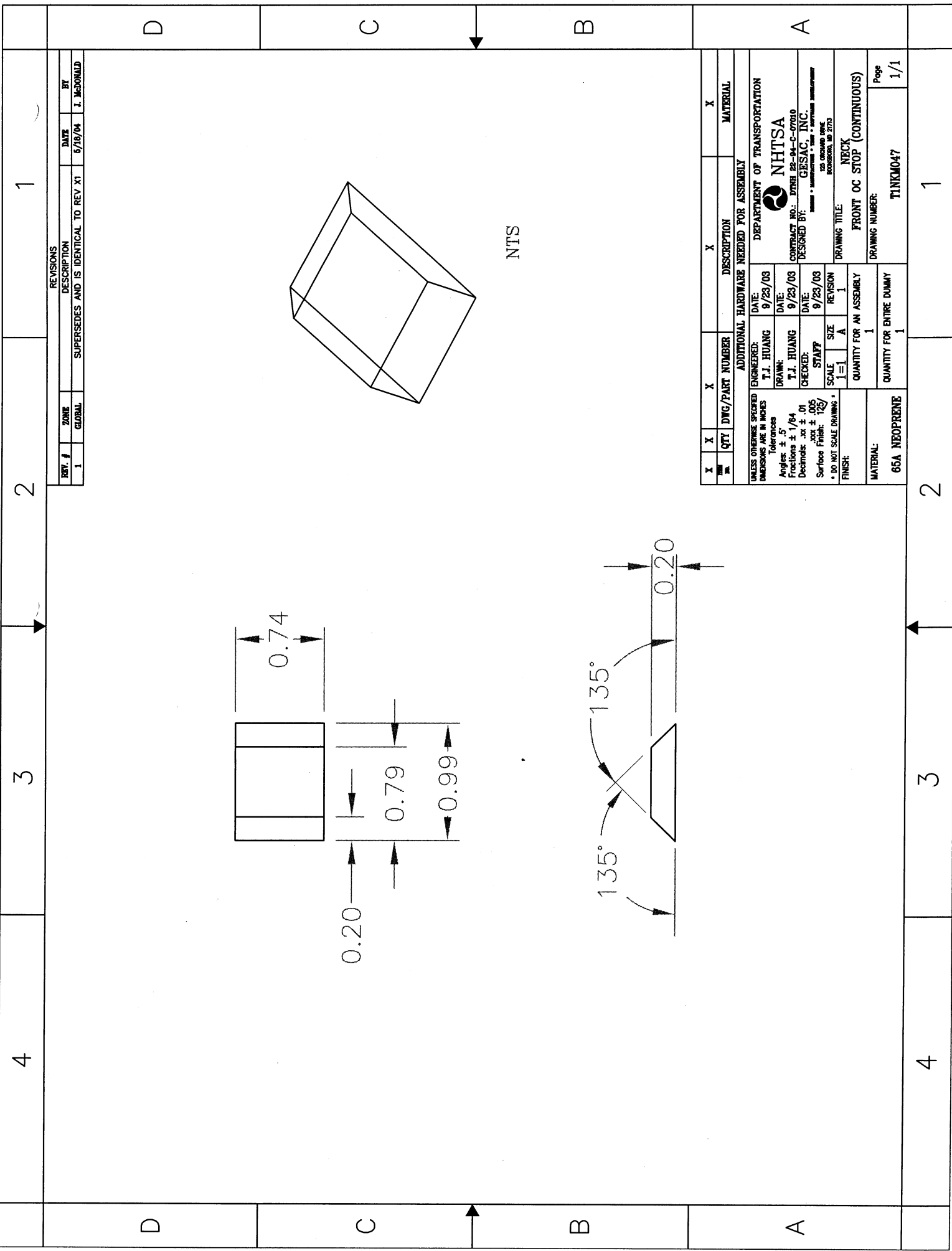
1		2		3		4			
REV. #		ZONE		DESCRIPTION		DATE		BY	
B0		GLOBAL		CHANGED MATERIAL AND LENGTH		11/1/02		M. ARTIS	
B1		GLOBAL		MATERIAL BUNA-N 60A TO TYGON 65A		7/25/04		M. ARTIS	
B2		GLOBAL		CHANGED LENGTH FROM 2.25 TO 2.4, ADDED NOTE 1		3/28/05		J. McDONALD	
1		MCM# 5553R13		3/8"OD X 1/4"ID SHORE 65A TYGON TUBE		PURCHASED		MATERIAL	
QTY		DWG/PART NUMBER		DESCRIPTION		DATE		BY	
1				ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY		11/1/02		M. ARTIS	
UNLESS OTHERWISE SPECIFIED		ENGINEERED:		DATE:		DEPARTMENT OF TRANSPORTATION		NHTSA	
DIMENSIONS ARE IN INCHES		M. ARTIS		11/1/02		CONTRACT NO.: DTMB 22-94-C-07010		DESIGNED BY: GBSAC, INC.	
Tolerances		DRAWN:		DATE:		122 ORCHARD DRIVE		100 BOSTON, MA 02115	
Angles $\pm .5^\circ$		M. ARTIS		11/1/02		DRAWING TITLE: NBSCK		FRONT SPRING DAMPING TUBE	
Fractions $\pm 1/64$		CHECKED:		REVISION		DRAWING NUMBER: TINKM001		Page 1/1	
Decimals .xx $\pm .01$		M. ARTIS		A					
.xxx $\pm .005$		SCALE		B2					
* DO NOT SCALE DRAWING *		1=1		QUANTITY FOR AN ASSEMBLY					
FINISH:		-		1					
MATERIAL:		65A TYGON		QUANTITY FOR ENTIRE DUMMY		1			
NOTES:		1		FINAL LENGTH WILL BE DETERMINED DURING SPRING ASSEMBLY CERTIFICATION.					
4		3		2		1			



REVISIONS				
REV. #	ZONE	DESCRIPTION	DATE	BY
1	B,C	ADDED 0.25 RADIUS AND 0.063 RADIUS TO C'BORE EDGES	5/20/04	J. MAGNOLD
2	B,C	REMOVED C'BORE FROM .31 TO .250 +.005	5/27/04	J. MAGNOLD

QTY	DTG/PART NUMBER	DESCRIPTION	MATERIAL
1		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES			
Tolerances			
Angles: $\pm .5^\circ$			
Fractions: $\pm 1/64$			
Decimals: .xxx $\pm .01$			
.xxxx $\pm .005$			
• DO NOT SCALE DRAWING •			
FINISH: -			
MATERIAL: BRASS			
QUANTITY FOR AN ASSEMBLY: 1			
QUANTITY FOR ENTIRE DUMMY: 1			
DRAWING TITLE: 50% MALE NECK OCCIPITAL CONDYLE CAM			
DRAWING NUMBER: TINKM043			
Page: 1/1			

8	7	6	5	4	3	2	1																								
<p style="text-align: center;">NTS</p>																															
<p style="text-align: center;">NOTE:</p> <p style="text-align: center;">① BOND PARTS T1NK047 AND T1NK048 TO T1NK046 USING LORD 305 TWO PART EPOXY</p>																															
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REV.</th> <th>QTY</th> <th>DESCRIPTION</th> <th>DATE</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>								REV.	QTY	DESCRIPTION	DATE	BY																			
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<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>QTY</th> <th>DWG/PART NUMBER</th> <th>DESCRIPTION</th> <th>MATERIAL</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>T1NK046</td> <td>REAR OC STOP (CONTINUOUS)</td> <td>65A NEOPRENE</td> </tr> <tr> <td>2</td> <td>T1NK047</td> <td>FRONT OC STOP (CONTINUOUS)</td> <td>65A NEOPRENE</td> </tr> <tr> <td>1</td> <td>T1NK046</td> <td>NECK FLEXION-EXTENSION STOP PLATE</td> <td>7075-T6 AL</td> </tr> <tr> <td>1</td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>								QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL	3	T1NK046	REAR OC STOP (CONTINUOUS)	65A NEOPRENE	2	T1NK047	FRONT OC STOP (CONTINUOUS)	65A NEOPRENE	1	T1NK046	NECK FLEXION-EXTENSION STOP PLATE	7075-T6 AL	1							
QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL																												
3	T1NK046	REAR OC STOP (CONTINUOUS)	65A NEOPRENE																												
2	T1NK047	FRONT OC STOP (CONTINUOUS)	65A NEOPRENE																												
1	T1NK046	NECK FLEXION-EXTENSION STOP PLATE	7075-T6 AL																												
1																															
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY</th> </tr> </thead> <tbody> <tr> <td>ENGINEERED:</td> <td>T.J. HUANG</td> </tr> <tr> <td>DATE:</td> <td>9/22/03</td> </tr> <tr> <td>DRAWN:</td> <td>J. McDONALD</td> </tr> <tr> <td>DATE:</td> <td>6/20/04</td> </tr> <tr> <td>CHECKED:</td> <td> </td> </tr> <tr> <td>DATE:</td> <td>6/20/04</td> </tr> <tr> <td>SCALE:</td> <td>1=1</td> </tr> <tr> <td>SIZE:</td> <td>B</td> </tr> <tr> <td>REVISION:</td> <td>N/C</td> </tr> <tr> <td>QUANTITY FOR AN ASSEMBLY:</td> <td>1</td> </tr> <tr> <td>QUANTITY FOR ENTIRE DUMMY:</td> <td>1</td> </tr> </tbody> </table>								ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY		ENGINEERED:	T.J. HUANG	DATE:	9/22/03	DRAWN:	J. McDONALD	DATE:	6/20/04	CHECKED:		DATE:	6/20/04	SCALE:	1=1	SIZE:	B	REVISION:	N/C	QUANTITY FOR AN ASSEMBLY:	1	QUANTITY FOR ENTIRE DUMMY:	1
ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY																															
ENGINEERED:	T.J. HUANG																														
DATE:	9/22/03																														
DRAWN:	J. McDONALD																														
DATE:	6/20/04																														
CHECKED:																															
DATE:	6/20/04																														
SCALE:	1=1																														
SIZE:	B																														
REVISION:	N/C																														
QUANTITY FOR AN ASSEMBLY:	1																														
QUANTITY FOR ENTIRE DUMMY:	1																														
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">DEPARTMENT OF TRANSPORTATION</th> </tr> </thead> <tbody> <tr> <td colspan="2" style="text-align: center;">NHTSA</td> </tr> <tr> <td colspan="2" style="text-align: center;">CONTRACT NO.: DTMB 92-94-C-07010</td> </tr> <tr> <td colspan="2" style="text-align: center;">DESIGNED BY: GBSAC, INC.</td> </tr> <tr> <td colspan="2" style="text-align: center;">DRAWING TITLE: NECK</td> </tr> <tr> <td colspan="2" style="text-align: center;">DRAWING NUMBER: T1NK045</td> </tr> <tr> <td colspan="2" style="text-align: center;">PAGE: 1/1</td> </tr> </tbody> </table>								DEPARTMENT OF TRANSPORTATION		NHTSA		CONTRACT NO.: DTMB 92-94-C-07010		DESIGNED BY: GBSAC, INC.		DRAWING TITLE: NECK		DRAWING NUMBER: T1NK045		PAGE: 1/1											
DEPARTMENT OF TRANSPORTATION																															
NHTSA																															
CONTRACT NO.: DTMB 92-94-C-07010																															
DESIGNED BY: GBSAC, INC.																															
DRAWING TITLE: NECK																															
DRAWING NUMBER: T1NK045																															
PAGE: 1/1																															

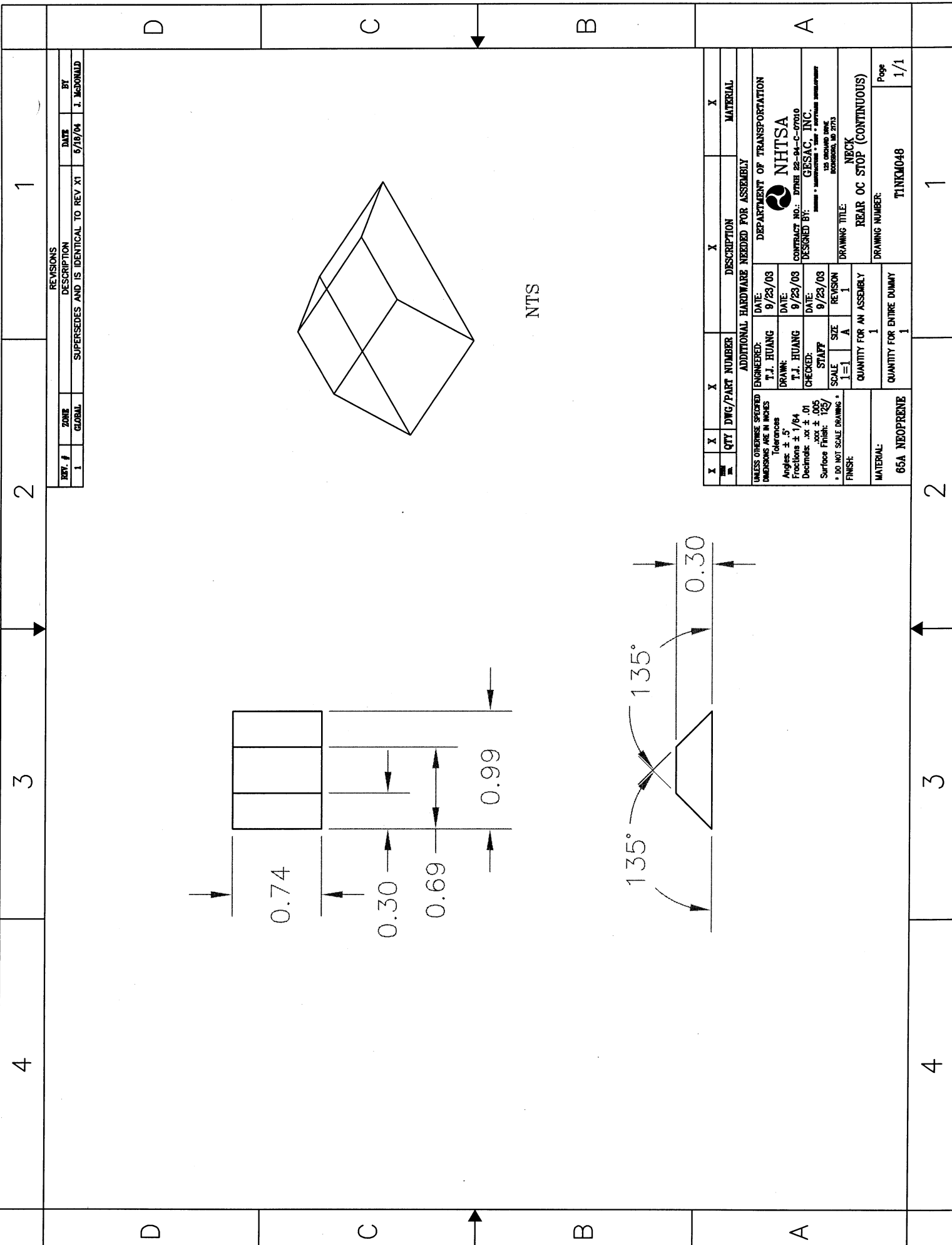


NTS

REVISIONS		
REV. #	ZONE	DESCRIPTION
1	GLOBAL	SUPERSEDES AND IS IDENTICAL TO REV X1
		DATE: 6/18/04
		BY: J. McDONALD

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
1		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
UNLESS OTHERWISE SPECIFIED: DATE: 9/23/03			
DIMENSIONS ARE IN INCHES T.J. HUANG DEPARTMENT OF TRANSPORTATION			
Tolerances NHTSA			
Angles: ± .5°			
Fractions: ± 1/64			
Decimals: .xx ± .01			
Surface Finish: .xxx ± .005			
* DO NOT SCALE DRAWING *			
FINISH: 125/			
DRAWN: T.J. HUANG DATE: 9/23/03			
CHECKED: STAFF DATE: 9/23/03			
SCALE: 1=1 SIZE: A REVISION: 1			
QUANTITY FOR AN ASSEMBLY: 1			
QUANTITY FOR ENTIRE DUMMY: 1			
DRAWING TITLE: NECK			
FRONT OC STOP (CONTINUOUS)			
DRAWING NUMBER: TINKM047			
Page: 1/1			

MATERIAL:
65A NEOPRENE



REV. #	ZONE	DESCRIPTION	DATE	BY
1	GLOBAL	SUPERSEDES AND IS IDENTICAL TO REV XI	5/18/04	J. McDONALD

X	Y	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:					
1-1 A 1					
QUANTITY FOR AN ASSEMBLY					
1					
QUANTITY FOR ENTIRE DUMMY					
1					
MATERIAL:					
65A NEOPRENE					
DRAWING TITLE: NECK					
REAR OC STOP (CONTINUOUS)					
DRAWING NUMBER: TINKM048					
Page 1/1					

REVISIONS

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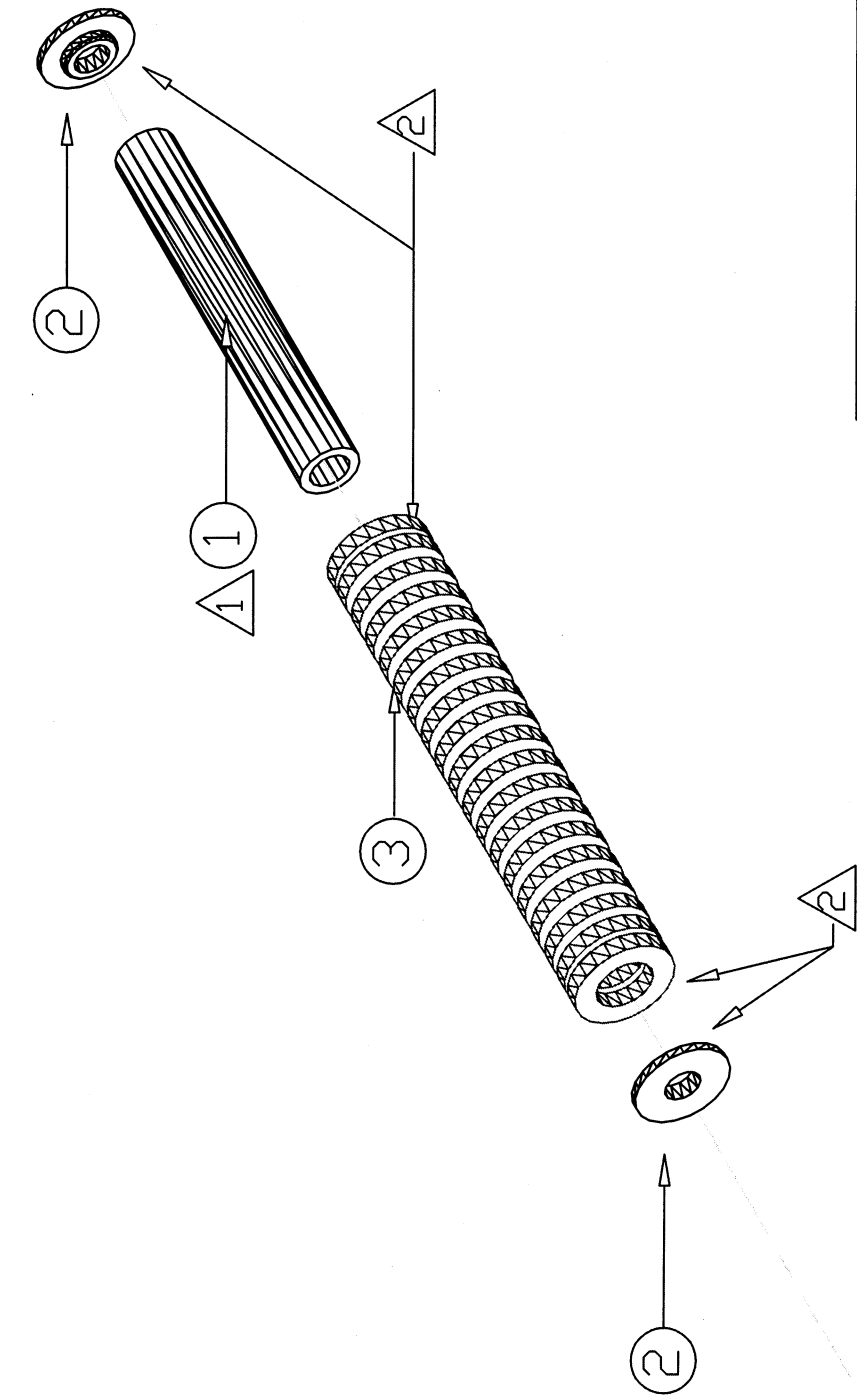
1

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REVISIONS				
REV. #	ZONE	DESCRIPTION	DATE	BY
1	GLOBAL	CHANGED SPRING & TUBE	11/4/02	M. ARTIS
1	GLOBAL	ADDED WASHERS	11/4/02	M. ARTIS
10	GLOBAL	CHANGED TUBE AND WASHERS	5/20/04	J. McDONALD
11	GLOBAL	UPDATED TUBING MATERIAL AND STATIC TEST SPECS	7/25/04	J. McDONALD



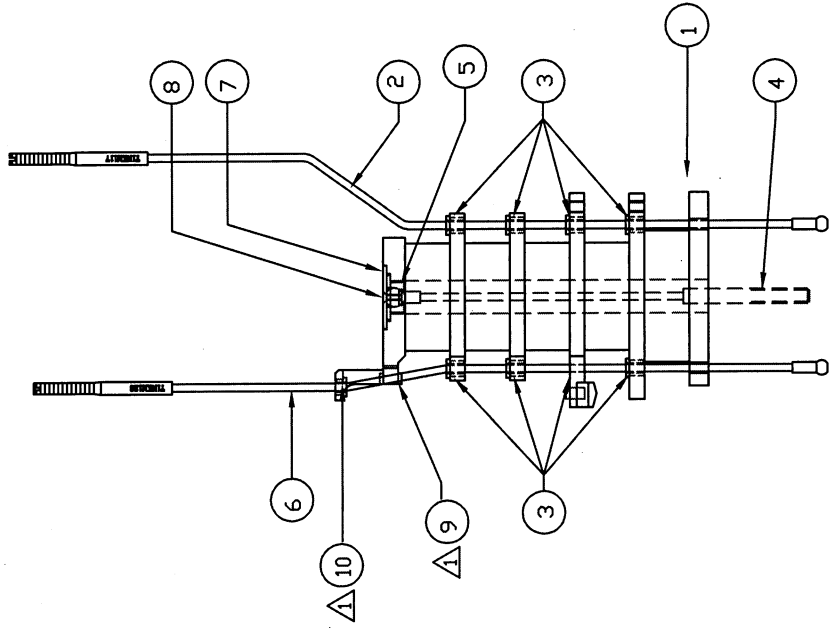
NOTE:

- 1 NOMINAL SPRING RATE IS SUPERSEDED BY STATIC TESTING REQUIREMENTS:
 SPRING RATE: 119 ± 6 LB / IN (20.9 ± 1.0 N/mm)
 MAX DEFLECTION TO SOLID HEIGHT MUST EXCEED: 1.5" (40 mm)
- 2 SPRING BEARING: CHEMICALLY CLEAN THE MATING SURFACES AND JOIN WITH DEVCON 5 MINUTE EPOXY (MCM#66215A521) UNDER LIGHT PRESSURE
- 3 INSERT THE ELASTOMERIC SPRING ELEMENT (T1NKM051) INTO THE COMPRESSION SPRING. THIS ASSEMBLY MUST BE STATICALLY TESTED TO MEET THE FOLLOWING REQUIREMENTS:
 DEFLECTION: 1.18" (30mm) FORCE: 142 ± 7 LBF (600 TO 660 N)
 SPRING CAP MUST BE IN PLACE AT EITHER END DURING THIS TEST.
 TEMPERATURE RANGE: 18-27°C 1 HOUR RECOVERY BETWEEN TESTS

3	1	DANLY 9-1014-26	3.5" L x .865" OD (+/- .05 RATE TOLERANCE)	PURCHASE
2	2	T1NKM023	NECK SPRING BUSHING	4140 CD
1	1	T1NKM051	FRONT SPRING DAMPING TUBE	90A VITON
QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL	
ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		ENGINEERED: M. ARTIS	DATE: 11/4/02	DEPARTMENT OF TRANSPORTATION
Tolerances: Angles: ± .5°		DRAWN: M. ARTIS	DATE: 11/4/02	NHTSA
Fractions: ± 1/64		CHECKED: J. McDONALD	DATE: 5/20/04	CONTRACT NO.: DTREL 22-94-C-07010
Decimals: .xx ± .01		SCALE: NTS	SIZE: A	DESIGNED BY: GESAC, INC.
.xxx ± .005		REVISION: B1	QUANTITY FOR AN ASSEMBLY: 1	125 SICHARD DRIVE BOZEMAN, MT 59715
* DO NOT SCALE DRAWING *		FINISH:	QUANTITY FOR ENTIRE DUMMY: 1	DRAWING TITLE: NECK REAR SPRING ASSEMBLY
MATERIAL:			DRAWING NUMBER: T1NKM050	Page 1/1

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						

REV. #	ZONE	REASON	DATE	BY
9	GLOBAL	UPDATED ASSEMBLY WITH REFERENCE TO ASSEMBLY THRU004	5/19/04	J. BERNARD



SIDE VIEW

NOTES:
 △ AFTER THE FRONT CABLE IS ASSEMBLED INTO THE BONDED NECK ASSEMBLY, USE A SMALL AMOUNT OF LOCTITE SUPER BONDER 495 TO LIGHTLY BOND THE GUIDES IN PLACE. (MCM # 7478A11)

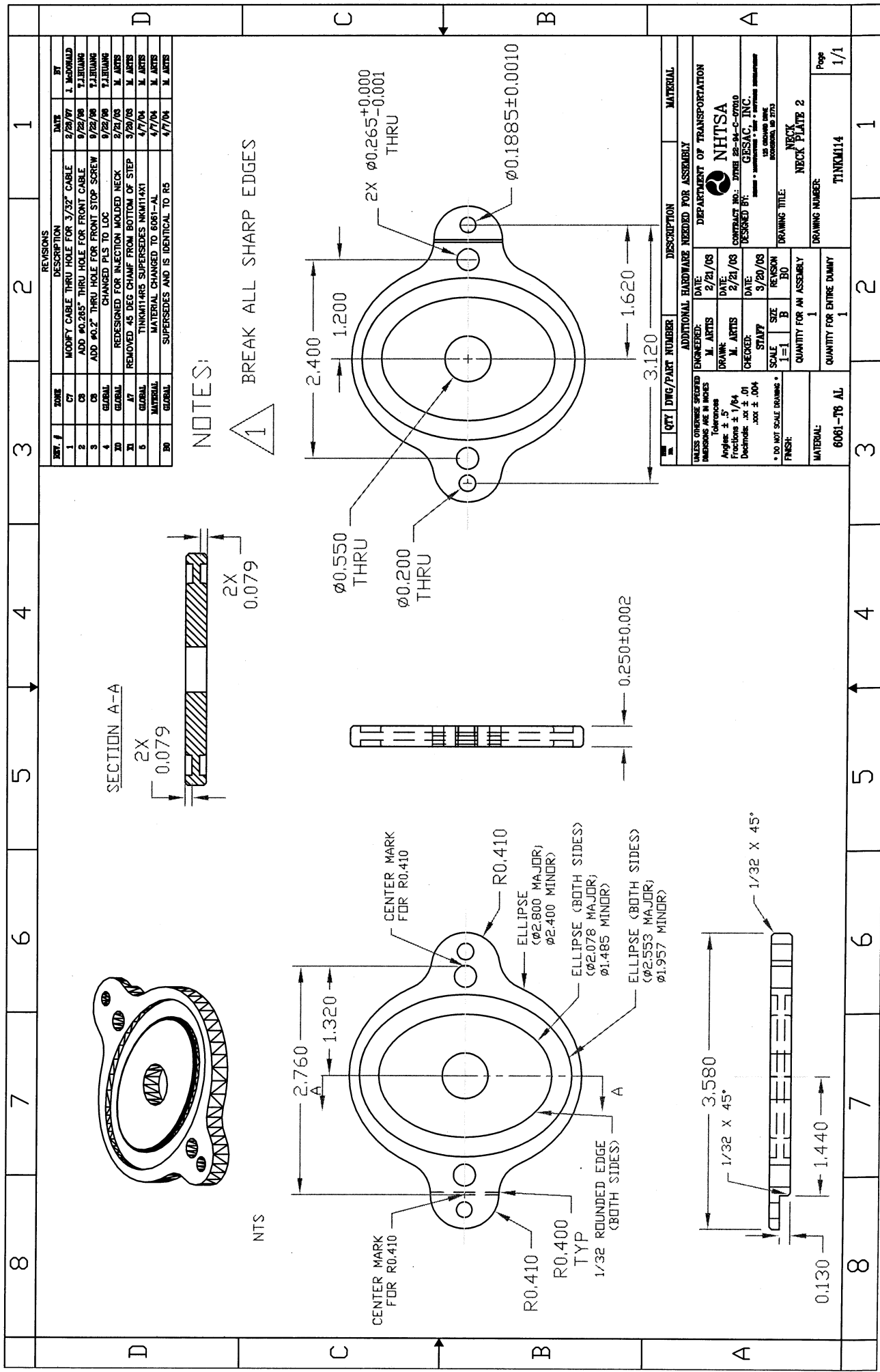
QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL	
10	2	TINKM126	NECK TOP PLATE CABLE GUIDE HALF	DELRON
9	1	TINKM125	NECK TOP PLATE CABLE GUIDE	DELRON
8	2	MCM# 91253A077	#2-56 X 1/4" PHCS	PURCHASED
7	1	TINKM124	CENTER CABLE COVER	BLACK DELRON
6	1	TINKM122	NECK FRONT CABLE ASSEMBLY	PURCHASED
5	1	TINKM120	NECK CENTER CABLE FIXTURE	ALUM 7075-T6
4	1	TINKM119	NECK CENTER CABLE ASSEMBLY	PURCHASED
3	10	TINKM116	CABLE GUIDE HALF	DELRON
2	1	TINKM117	NECK REAR CABLE ASSEMBLY	PURCHASED
1	1	TINKM104	NECK FRONT STOP ASSEMBLY	SEE DWG
				MATERIAL

UNLESS OTHERWISE SPECIFIED TOLERANCES ARE IN INCHES		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
Assemblies	± .005	ENGINEERED:	DATE: 10/7/96
Fitments	± .004	Y.M. ZHAO	
Diameters	± .005	DRAWN:	DATE: 10/16/01
Surface Finish:	125	M. ARTIS	
		CHECKED:	DATE: 10/16/01
		SCALE:	SIZE: REVISION: 9
			H=1 D=1
		FINISH:	QUANTITY FOR AN ASSEMBLY
			1
			QUANTITY FOR ENTIRE DUMMY
			1
MATERIAL:		DRAWING NUMBER: TINKM100	
		Page 1/1	

DEPARTMENT OF TRANSPORTATION
NHTSA
 CONTRACT NO.: DTMB 92-94-C-07010
 DESIGNED BY: GRSAC, INC.
 120 GREENWAY DRIVE
 BOSTON, MA 02110

DRAWING TITLE: NECK CABLES ASSEMBLY

8	7	6	5	4	3	2	1																																								
<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>CS</td> <td>MODIFY CABLE THRU HOLE FOR 3/32 CABLE</td> <td>2/29/07</td> <td>J. McDONALD</td> </tr> <tr> <td>2</td> <td>CS</td> <td>ADDED $\phi 0.265$ THRU HOLE FOR FRONT CABLE</td> <td>9/22/06</td> <td>T.J. BRUNG</td> </tr> <tr> <td>3</td> <td>GLOBAL</td> <td>CHANGED PLS TO LOC</td> <td>6/14/06</td> <td>J. POLAND</td> </tr> <tr> <td>3D</td> <td>GLOBAL</td> <td>REDESIGNED FOR INJECTION MOLDED NECK</td> <td>2/23/08</td> <td>M. ARTS</td> </tr> <tr> <td>4</td> <td>GLOBAL</td> <td>TINKM112R4 SUPERSEDES NKM112X0</td> <td>4/7/04</td> <td>M. ARTS</td> </tr> <tr> <td>5</td> <td>GLOBAL</td> <td>MATERIAL CHANGED TO 6061 AL</td> <td>4/7/04</td> <td>M. ARTS</td> </tr> <tr> <td>5D</td> <td>GLOBAL</td> <td>SUPERSEDES AND IS IDENTICAL TO R4</td> <td>5/20/04</td> <td>J. McDONALD</td> </tr> </tbody> </table>								REV. #	ZONE	DESCRIPTION	DATE	BY	1	CS	MODIFY CABLE THRU HOLE FOR 3/32 CABLE	2/29/07	J. McDONALD	2	CS	ADDED $\phi 0.265$ THRU HOLE FOR FRONT CABLE	9/22/06	T.J. BRUNG	3	GLOBAL	CHANGED PLS TO LOC	6/14/06	J. POLAND	3D	GLOBAL	REDESIGNED FOR INJECTION MOLDED NECK	2/23/08	M. ARTS	4	GLOBAL	TINKM112R4 SUPERSEDES NKM112X0	4/7/04	M. ARTS	5	GLOBAL	MATERIAL CHANGED TO 6061 AL	4/7/04	M. ARTS	5D	GLOBAL	SUPERSEDES AND IS IDENTICAL TO R4	5/20/04	J. McDONALD
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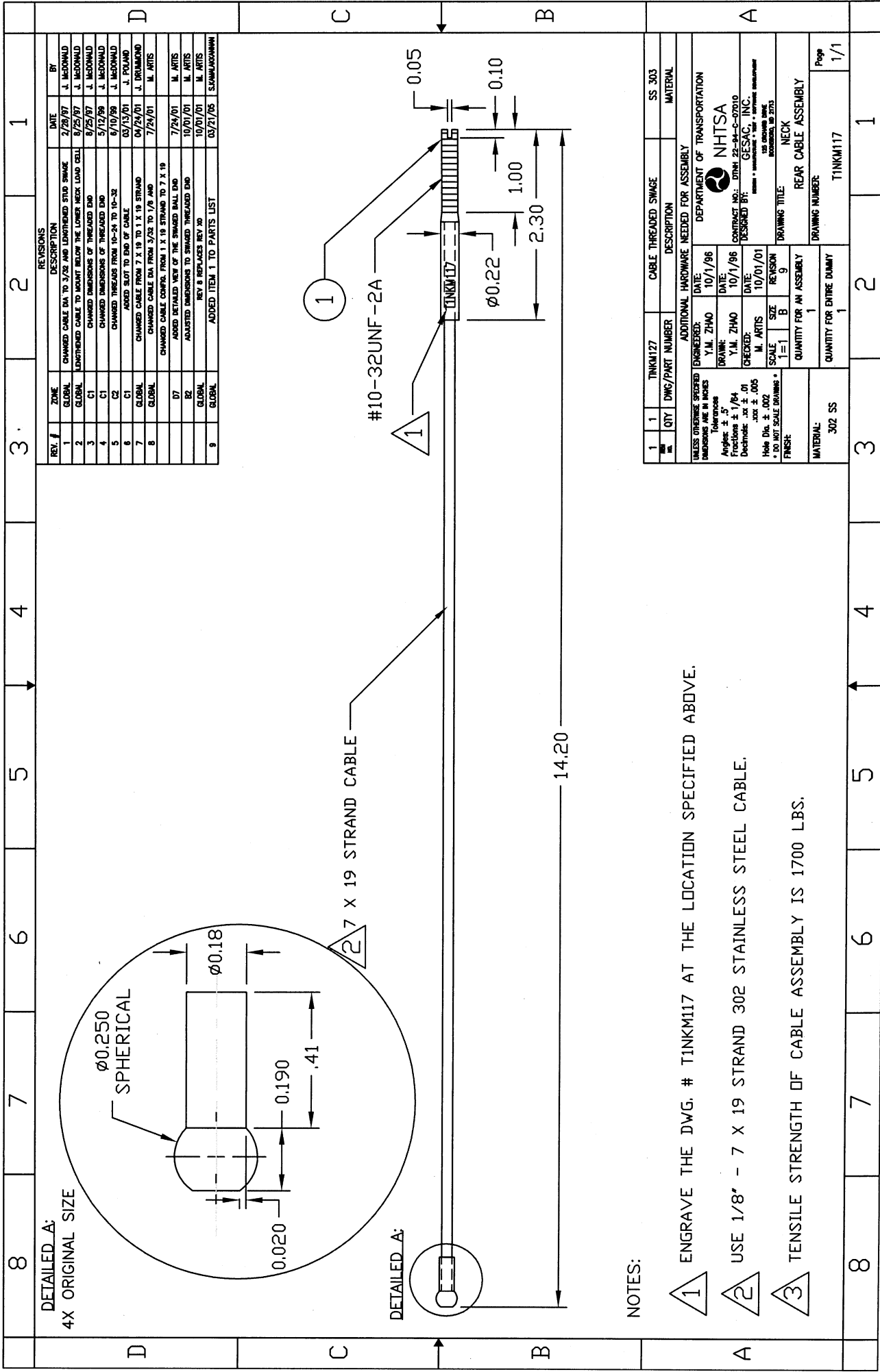
REV. #	ZONE	DESCRIPTION	DATE	BY
1	C7	MODIFY CABLE THRU HOLE FOR 3/32" CABLE	2/29/07	J. MCGONNELL
2	C7	ADD Ø0.265" THRU HOLE FOR FRONT CABLE	9/22/08	T.J. BIRUNG
3	C7	ADD Ø0.2" THRU HOLE FOR FRONT STOP SCREW	9/22/08	T.J. BIRUNG
4	GLOBAL	CHANGED PLS TO LOC	9/22/08	T.J. BIRUNG
10	GLOBAL	REDESIGNED FOR INJECTION MOLDED NECK	2/21/09	M. ARTIS
11	A7	REMOVED 45 DEG CHAMF FROM BOTTOM OF STEP	3/20/09	M. ARTIS
6	GLOBAL	TINKM11485 SUPERSEDES NK114741	4/7/04	M. ARTIS
5	GLOBAL	MATERIAL CHANGED TO 6061-AL	4/7/04	M. ARTIS
30	GLOBAL	SUPERSEDES AND IS IDENTICAL TO R5	4/7/04	M. ARTIS

NOTES:
 1 BREAK ALL SHARP EDGES

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
1	6061-T6 AL	NECK PLATE 2	TINKM114
1	1	QUANTITY FOR AN ASSEMBLY	
1	1	QUANTITY FOR ENTIRE DUMMY	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	DEPARTMENT OF TRANSPORTATION
Angles: ± .5°	ENGINEERED: M. ARTIS DATE: 2/21/09	NHTSA
Fractions: ± 1/64	DRAWN: M. ARTIS DATE: 2/21/09	CONTRACT NO.: DTMB 29-04-C-0700
Decimals: .xx ± .01	CHECKED: STAFF DATE: 3/20/09	DESIGNED BY: GESAC, INC.
DO NOT SCALE DRAWING	SCALE: 1=1	14500 W. 10TH AVE. SUITE 1000
FINISH:	REVISION: B0	ROCKFORD, IL 60193

8	7	6	5	4	3	2	1																																								
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<p>NOTES:</p> <p>1 REMOVE ALL BURRS AND BREAK ALL SHARP EDGES</p>																																															
<p>DESCRIPTION</p> <p>6061-76 AL</p> <p>QUANTITY FOR ENTIRE DUMMY: 2</p> <p>QUANTITY FOR AN ASSEMBLY: 2</p> <p>SCALE: 1=1</p> <p>FINISH: * DO NOT SCALE DIMENSIONS *</p> <p>DRIVING TITLE: NECK PLATE 3</p> <p>DRAWING NUMBER: TINKM115</p> <p>DESIGNED BY: GESAC, INC.</p> <p>CONTRACT NO.: 2781 28-AL-C-0700</p> <p>DEPARTMENT OF TRANSPORTATION</p> <p>NHTSA</p> <p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES</p> <p>Tolerances: Angles: ± .5°; Fractions: ± 1/64; Decimals: .xx ± .004; .xxx ± .004</p>																																															



DETAILED A:
4X ORIGINAL SIZE

DETAILED A:

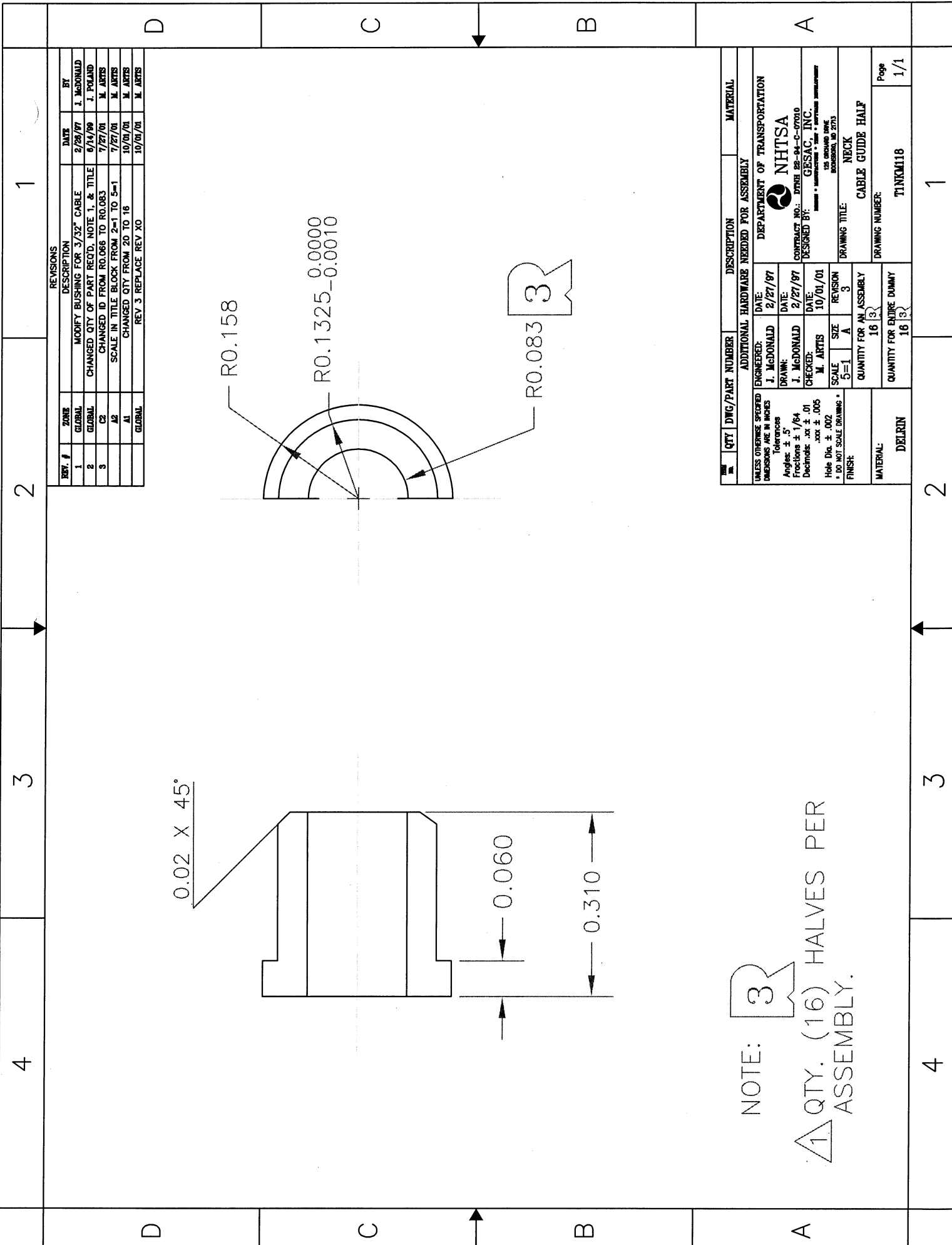
NOTES:

- 1 ENGRAVE THE DWG. # TINKM117 AT THE LOCATION SPECIFIED ABOVE.
- 2 USE 1/8" - 7 X 19 STRAND 302 STAINLESS STEEL CABLE.
- 3 TENSILE STRENGTH OF CABLE ASSEMBLY IS 1700 LBS.

REV. #	ZONE	DESCRIPTION	DATE	BY
1	GLOBAL	CHANGED CABLE DIA TO 3/32 AND LENGTHENED STUD SWAGE	2/28/97	J. McDONALD
2	GLOBAL	LENGTHENED CABLE TO MOUNT BELOW THE LOWER NECK LOAD CELL	8/25/97	J. McDONALD
3	C1	CHANGED DIMENSIONS OF THREADED END	8/25/97	J. McDONALD
4	C1	CHANGED DIMENSIONS OF THREADED END	5/12/98	J. McDONALD
5	C2	CHANGED THREADS FROM 10-24 TO 10-32	6/10/98	J. McDONALD
6	C1	ADDED SLOT TO END OF CABLE	03/13/01	J. POLANO
7	GLOBAL	CHANGED CABLE FROM 7 X 19 TO 1 X 19 STRAND	04/24/01	J. DRUMMOND
8	GLOBAL	CHANGED CABLE DIA FROM 3/32 TO 1/8 AND	7/24/01	M. ARTIS
	D7	CHANGED CABLE CONTROL FROM 1 X 19 STRAND TO 7 X 19		
	D7	ADDED DETAILED VIEW OF THE SWAGED BALL END	7/24/01	M. ARTIS
	D2	ADJUSTED DIMENSIONS TO SWAGED THREADED END	10/07/01	M. ARTIS
	GLOBAL	REV 8 REPLACES REV 30	10/07/01	M. ARTIS
9	GLOBAL	ADDED ITEM 1 TO PARTS LIST	03/21/05	S. MANAKOMANN

REV. #	QTY	DWG/PART NUMBER	TINKM127	CABLE THREADED SWAGE	SS 303	MATERIAL
1	1					

UNLESS OTHERWISE SPECIFIED	ENGINEERED:	DATE:	DEPARTMENT OF TRANSPORTATION
Tolerances	Y.M. ZHAO	10/1/96	NHTSA
Angles: ± .5°	DATE:		
Fractions: ± 1/64	Y.M. ZHAO	10/1/96	CONTRACT NO.: DTNH 22-94-C-07510
Decimals: .xx ± .01	CHECKED:		DESIGNED BY: GESAC, INC.
Hole Dia: ± .002	M. ARTIS	10/01/01	125 ROCKAWAY AVE
± 0.001 SCALE DIMENSIONS	SCALE	1"=1'	INDIANAPOLIS, IN 46219
FINISH	SIZE	B	
	REVISION	9	
	QUANTITY FOR AN ASSEMBLY	1	
	QUANTITY FOR ENTIRE DUMMY	1	
	DRAWING NUMBER:	TINKM117	
	DRAWING TITLE:	NECK REAR CABLE ASSEMBLY	
	Page	1/1	



REV. #	ZONE	DESCRIPTION	DATE	BY
1	GLOBAL	MODIFY BUSHING FOR 3/32" CABLE	2/28/97	J. McDONALD
2	GLOBAL	CHANGED QTY OF PART RECD. NOTE 1. & TITLE	8/14/99	J. POLAND
3	C2	CHANGED ID FROM R0.086 TO R0.083	7/27/01	M. ARTIS
	A2	SCALE IN TITLE BLOCK FROM 2=1 TO 5=1	7/27/01	M. ARTIS
	A1	CHANGED QTY FROM 20 TO 16	10/01/01	M. ARTIS
	GLOBAL	REV 3 REPLACE REV X0	10/01/01	M. ARTIS

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
	ENGINEERED: J. McDONALD	DATE: 2/27/97	
	DRAWN: J. McDONALD	DATE: 2/27/97	
	CHECKED: M. ARTIS	DATE: 10/01/01	
	SCALE: 5=1	SIZE: A	REVISION: 3
		QUANTITY FOR AN ASSEMBLY: 16	
		QUANTITY FOR ENTIRE DUMMY: 16	
	MATERIAL: DELRIN		
		DRAWING TITLE: CABLE GUIDE HALF	
		DRAWING NUMBER: TINKM118	
		Page: 1/1	

NOTE: 3

1 QTY. (16) HALVES PER ASSEMBLY.

1

2

3

4

D

C

B

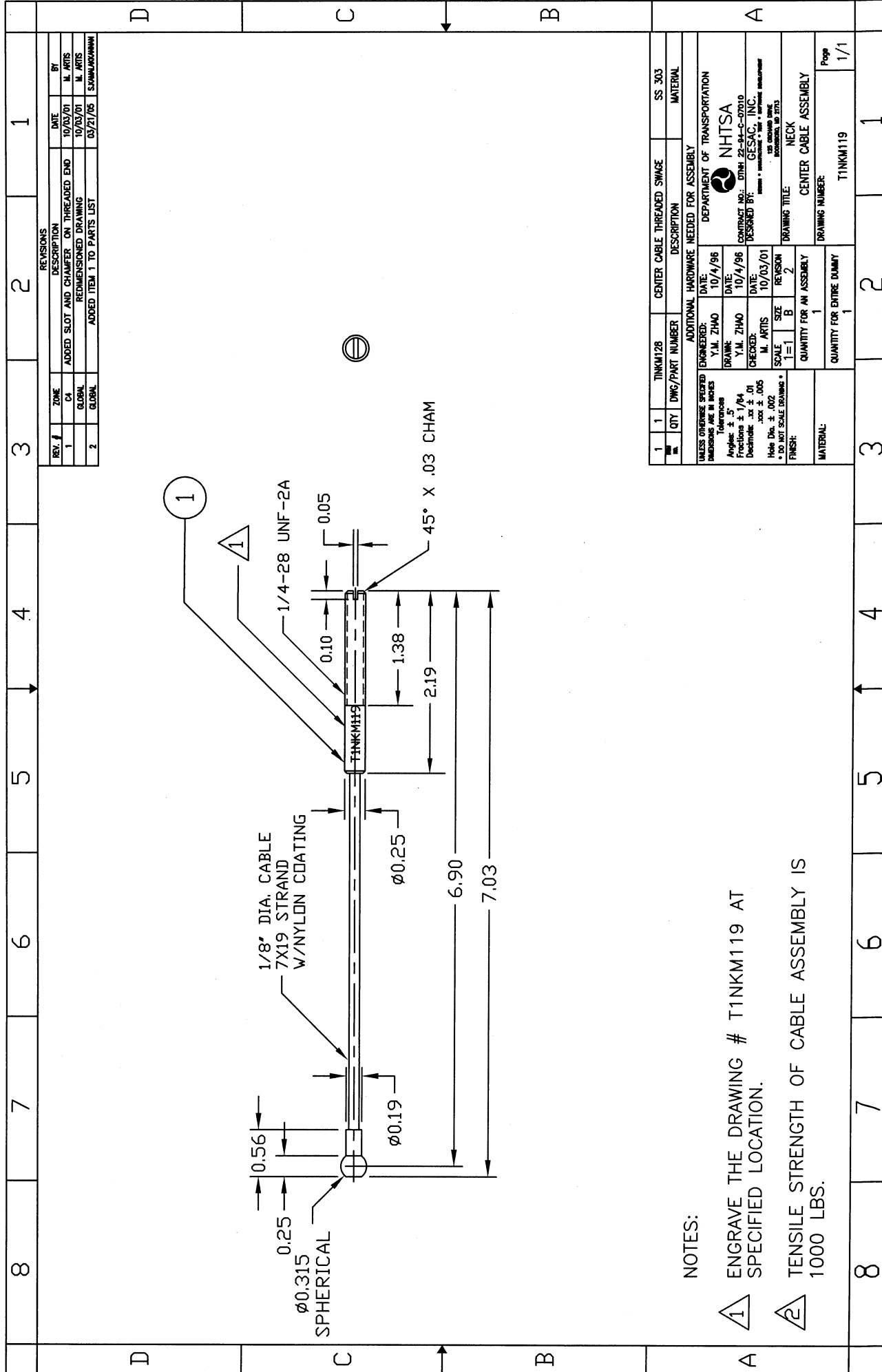
A

1

2

3

4



REVISIONS			
REV. #	ZONE	DESCRIPTION	DATE
1	CA	ADDED SLOT AND CHAMFER ON THREADED END	10/03/01
		REDIMENSIONED DRAWING	10/03/01
2	GLOBAL	ADDED ITEM 1 TO PARTS LIST	03/27/05

NO.	QTY	DMG/PART NUMBER	DESCRIPTION	MATERIAL
1	1	T1NKM128	CENTER CABLE THREADED SWAGE	SS 303

ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
ENGINEERED:	DATE: 10/4/96
Y.M. ZHAO	
DRAWN:	DATE: 10/4/96
Y.M. ZHAO	
CHECKED:	DATE: 10/03/01
M. ARTIS	
SCALE	SIZE
1=1	B
2	REVISION
1	QUANTITY FOR AN ASSEMBLY
1	QUANTITY FOR ENTIRE DUMMY

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	
Tolerances	
Angles	± .5
Fractions	± 1/64
Decimals	± .005
Whole Dims.	± .002
* DO NOT SCALE DRAWING *	
FINISH:	

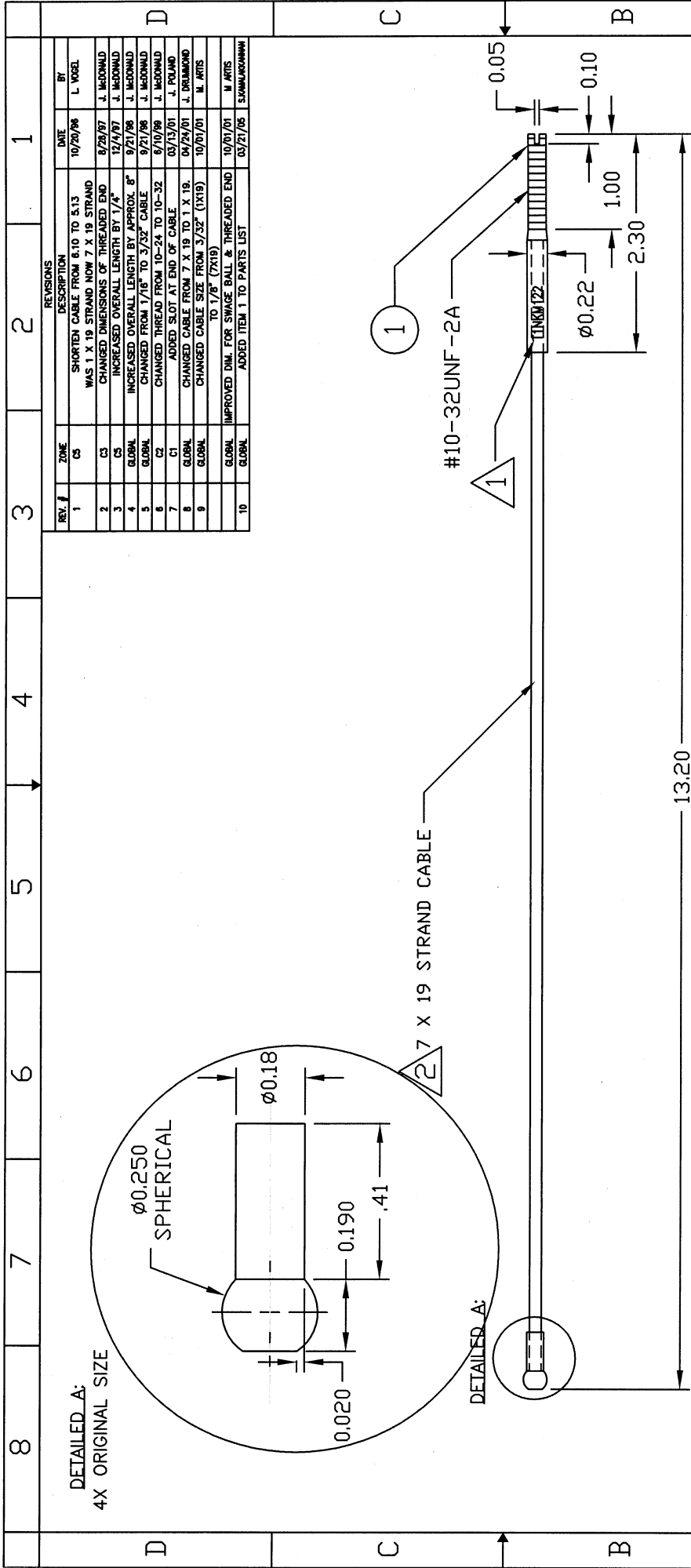
DEPARTMENT OF TRANSPORTATION	
NHTSA	
CONTRACT NO.: DTNH 22-94-C-00010	
DESIGNED BY: GESAC, INC.	
125 GROUND STATE	
BOSTON, MA 02115	
DRAWING TITLE: NECK	
CENTER CABLE ASSEMBLY	
DRAWING NUMBER: T1NKM119	
Page 1/1	

NOTES:

1 ENGRAVE THE DRAWING # T1NKM119 AT SPECIFIED LOCATION.

2 TENSILE STRENGTH OF CABLE ASSEMBLY IS 1000 LBS.

8	7	6	5	4	3	2	1																														
D	C	B	A																																		
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		CHANGED REV. # IN TITLE BLOCK TO REFLECT REV. SECTION	5/3/01	M. ARTS																																	
<p>NOTE:</p> <p>1 ENGRAVE THE DWG. # TINKM120 AT THE LOCATION SPECIFIED ABOVE.</p> <p>2 BREAK ALL SHARP EDGES</p>																																					
<p>QTY</p> <p>DWG/PART NUMBER</p> <p>DESCRIPTION</p> <p>MATERIAL</p>		<p>ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY</p> <p>DEPARTMENT OF TRANSPORTATION</p> <p>NHTSA</p> <p>CONTRACT NO.: DTNH 22-94-C-07510</p> <p>DESIGNED BY: GESAC, INC.</p> <p>DATE: 10/4/96</p> <p>SCALE: 5=1</p> <p>SIZE: B</p> <p>REVISION: 4</p> <p>DRAWING TITLE: NECK</p> <p>DRAWING NUMBER: TINKM120</p> <p>Page: 1/1</p>		<p>QTY</p> <p>DWG/PART NUMBER</p> <p>DESCRIPTION</p> <p>MATERIAL</p>		<p>ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY</p> <p>DEPARTMENT OF TRANSPORTATION</p> <p>NHTSA</p> <p>CONTRACT NO.: DTNH 22-94-C-07510</p> <p>DESIGNED BY: GESAC, INC.</p> <p>DATE: 10/4/96</p> <p>SCALE: 5=1</p> <p>SIZE: B</p> <p>REVISION: 4</p> <p>DRAWING TITLE: NECK</p> <p>DRAWING NUMBER: TINKM120</p> <p>Page: 1/1</p>																															



DETAILED A:
4X ORIGINAL SIZE

REV. #	ZONE	DESCRIPTION	DATE	BY
1	C5	SHORTEN CABLE FROM 6.10 TO 5.13 WAS 1 X 19 STRAND NOW 7 X 19 STRAND	10/29/96	L. WOGEL
2	C5	CHANGED DIMENSIONS OF THREADED END	8/28/97	J. MCARDNA
3	C5	INCREASED OVERALL LENGTH BY 1/4"	12/4/97	J. MCARDNA
4	GLOBAL	INCREASED OVERALL LENGTH BY APPROX. 8"	9/21/98	J. MCARDNA
5	GLOBAL	CHANGED FROM 1/16" TO 3/32" CABLE	8/21/98	J. MCARDNA
6	C2	CHANGED THREAD FROM 10-24 TO 10-32	6/10/99	J. MCARDNA
7	C1	ADDED SLOT AT END OF CABLE	07/13/01	J. POLAND
8	GLOBAL	CHANGED CABLE FROM 7 X 19 TO 1 X 19.	04/24/01	J. DRUMMOND
9	GLOBAL	CHANGED CABLE SIZE FROM 3/32" (1X19) TO 1/8" (7X19)	10/01/01	M. ARTIS
10	GLOBAL	IMPROVED DIM. FOR SWAGE BALL & THREADED END	10/01/01	M. ARTIS
	GLOBAL	ADDED ITEM 1 TO PARTS LIST	03/21/05	S.MANUKAVANAN

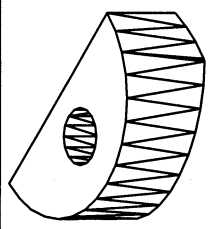
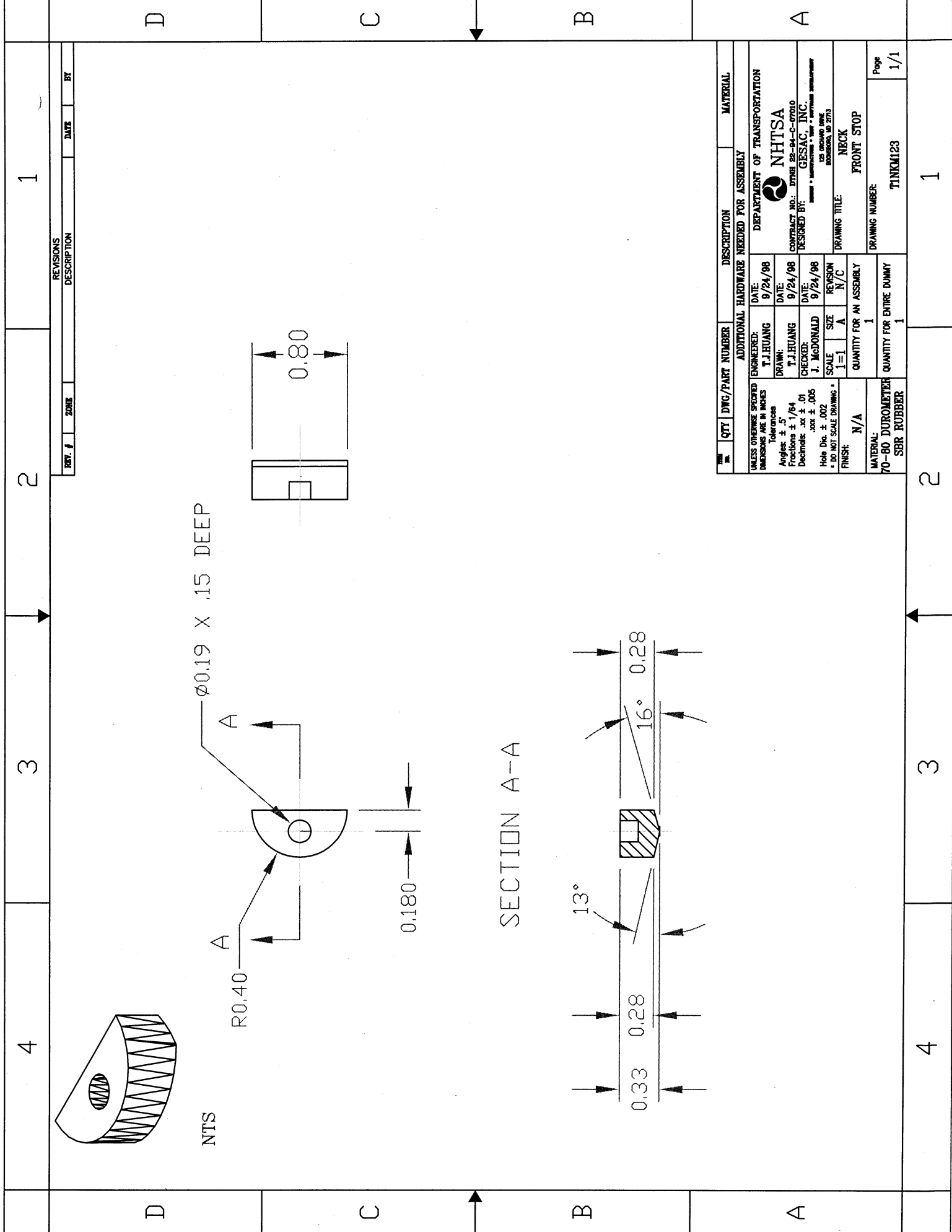
NOTES:

- 1 ENGRAVE THE DWG. # TINKM122 AT THE LOCATION SPECIFIED ABOVE.
- 2 USE 1/8" - 7 X 19 STRAND 302 STAINLESS STEEL CABLE.
- 3 TENSILE STRENGTH OF CABLE ASSEMBLY IS 1700 LBS.

QTY	DWG/PART NUMBER	CABLE THREADED SWAGE	DESCRIPTION	DATE	REVISION
1	TINKM127	SS 303		2/28/96	10

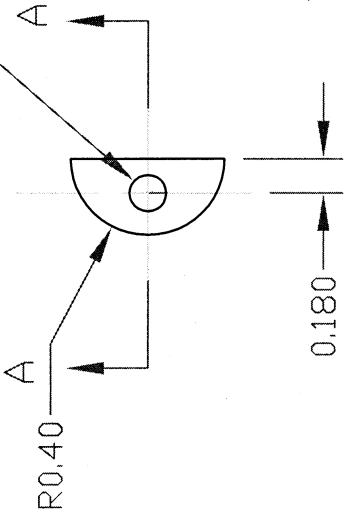
UNLESS OTHERWISE SPECIFIED	ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY
ALL DIMENSIONS ARE IN INCHES	DEPARTMENT OF TRANSPORTATION
Tolerances	NHTSA
Angles: ± .5°	CONTRACT NO.: DTMH 22-94-C-07010
Fractions: ± 1/64	DESIGNED BY: GESAC, INC.
Decimals: .xxx ± .01	DATE: 10/01/01
Hole Dia. ± .002	SCALE: 1=1
* DO NOT SCALE DRAWING *	FINISH: 1

MATERIAL:	QUANTITY FOR AN ASSEMBLY	QUANTITY FOR ENTIRE DUMMY	DRAWING NUMBER:	Page
302 SS	1	1	TINKM122	1/1

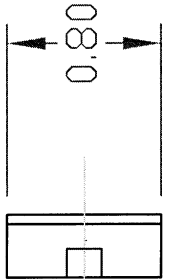


NTS

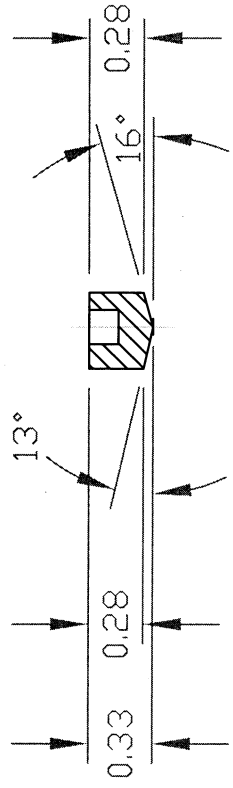
Ø0.19 X .15 DEEP



0.180



SECTION A-A



REV. #	QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
1	1		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
UNLESS OTHERWISE SPECIFIED: ENGINEERED: DATE: 9/24/88				
DIMENSIONS ARE IN INCHES T.J. HUANG				
Tolerances				
Angles: ± .5°				
Fractions: ± 1/64				
Decimals: .xx ± .01				
.xxx ± .005				
Hole Dia. ± .002				
* DO NOT SCALE DRAWING *				
FINISH: N/A				
QUANTITY FOR AN ASSEMBLY: 1				
MATERIAL: 70-80 DUROMETER SBR RUBBER				
DRAWING TITLE: NECK				
FRONT STOP				
DRAWING NUMBER: TINKM123				
Page 1/1				

REV. #	ZONE	DATE	BY
1			

REVISIONS DESCRIPTION

1

2

3

4

D

C

B

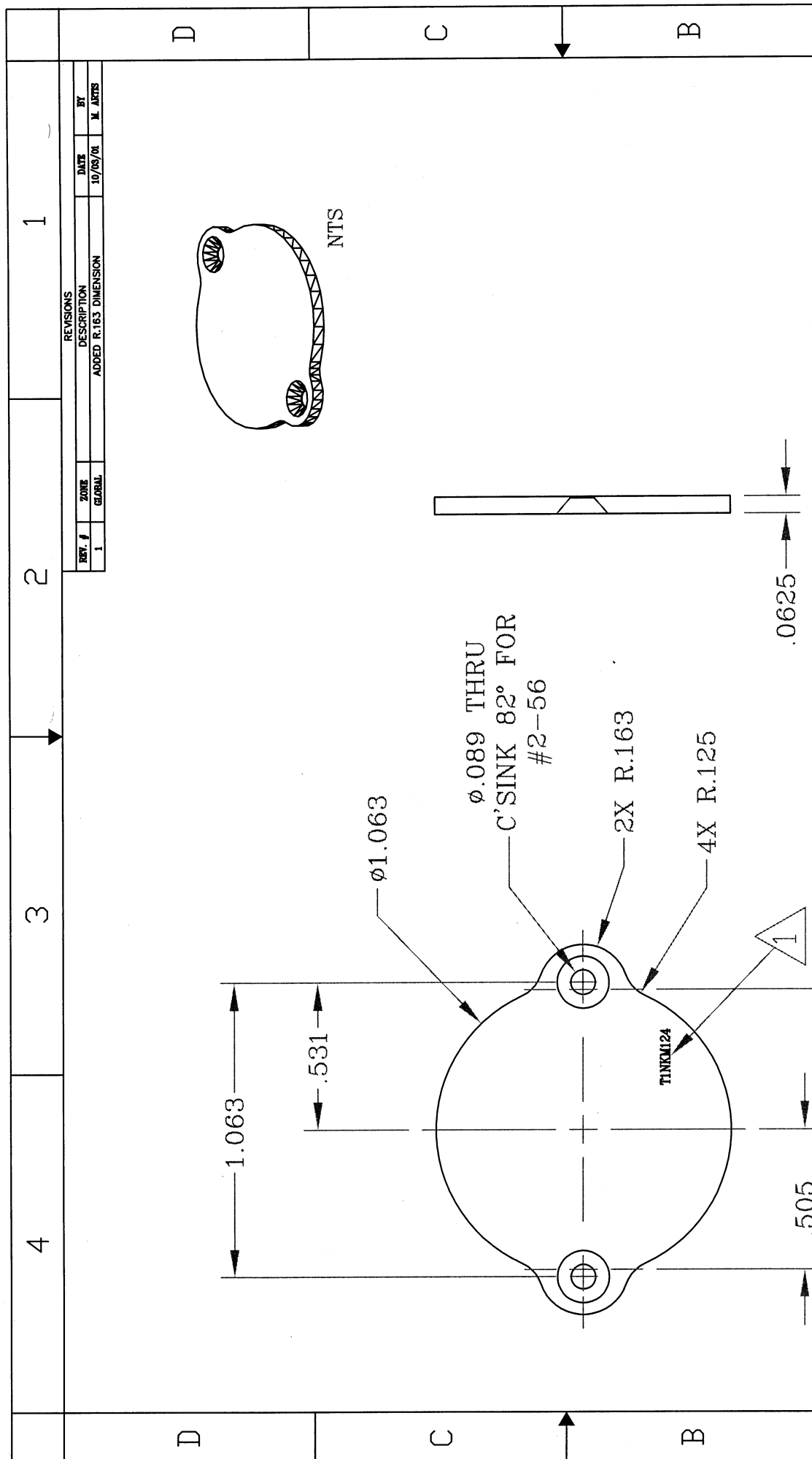
A

4

3

2

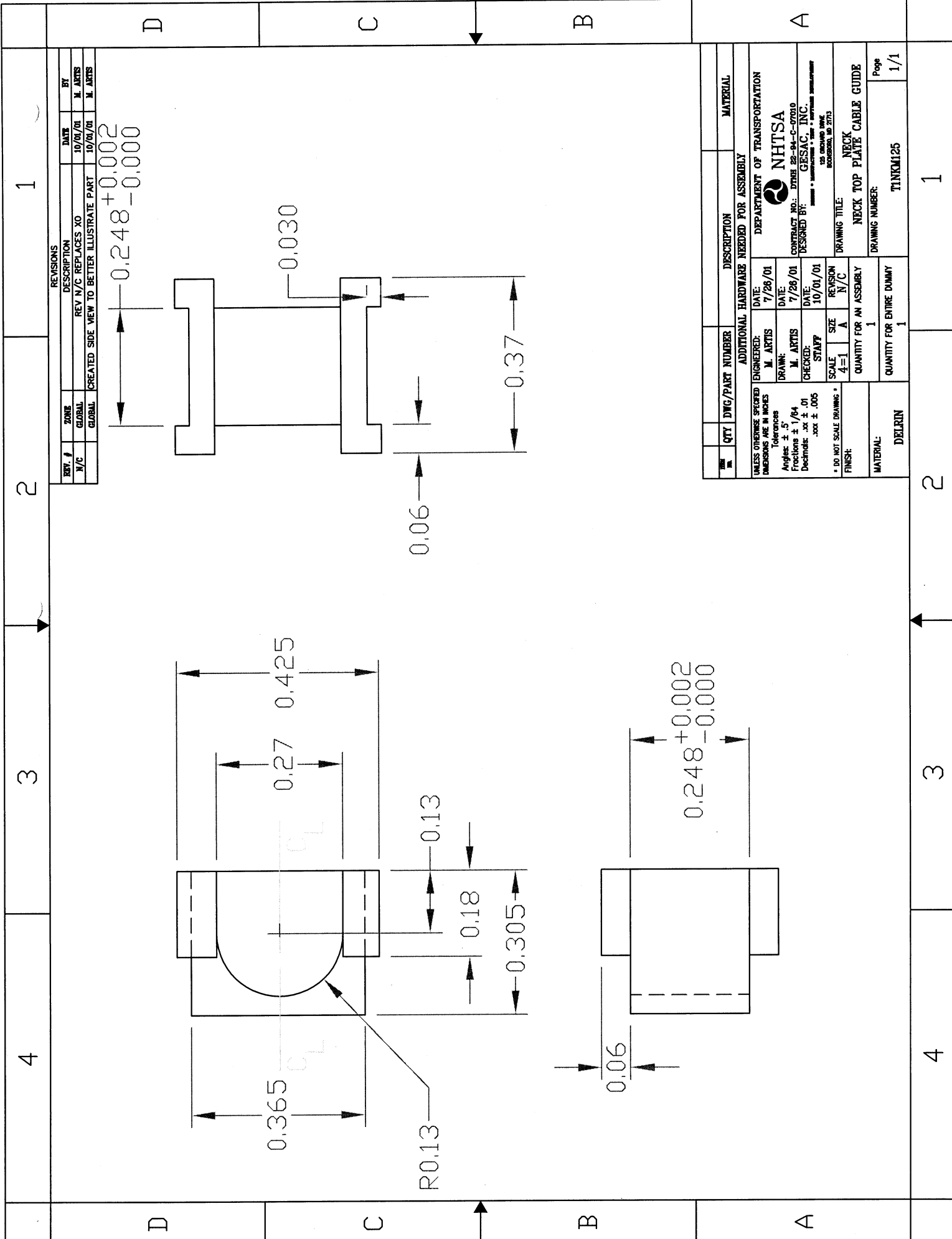
1



4	3	2	1																																																																															
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4	3	2	1																																																																															

NOTE: ENGRAVE THE DWG. # TINKM124 AT THE LOCATION SPECIFIED ABOVE.





REV. #		ZONE		DESCRIPTION		DATE		BY	
N/C	GLOBAL	N/C	GLOBAL	REV N/C REPLACES XO	CREATED SIDE VIEW TO BETTER ILLUSTRATE PART	10/01/01	10/01/01	M. ARTIS	M. ARTIS

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES			
ENGINEERED:	M. ARTIS	DATE:	7/26/01
DRAWN:	M. ARTIS	DATE:	7/26/01
CHECKED:	STAFF	DATE:	10/01/01
SCALE:	4=1	SIZE:	A
* DO NOT SCALE DRAWING *			
FINISH:			
QUANTITY FOR AN ASSEMBLY		QUANTITY FOR ENTIRE DUMMY	
1		1	
DRAWING TITLE:		DRAWING NUMBER:	
NECK TOP PLATE CABLE GUIDE		TINKM125	
DELRIN		Page	
		1/1	

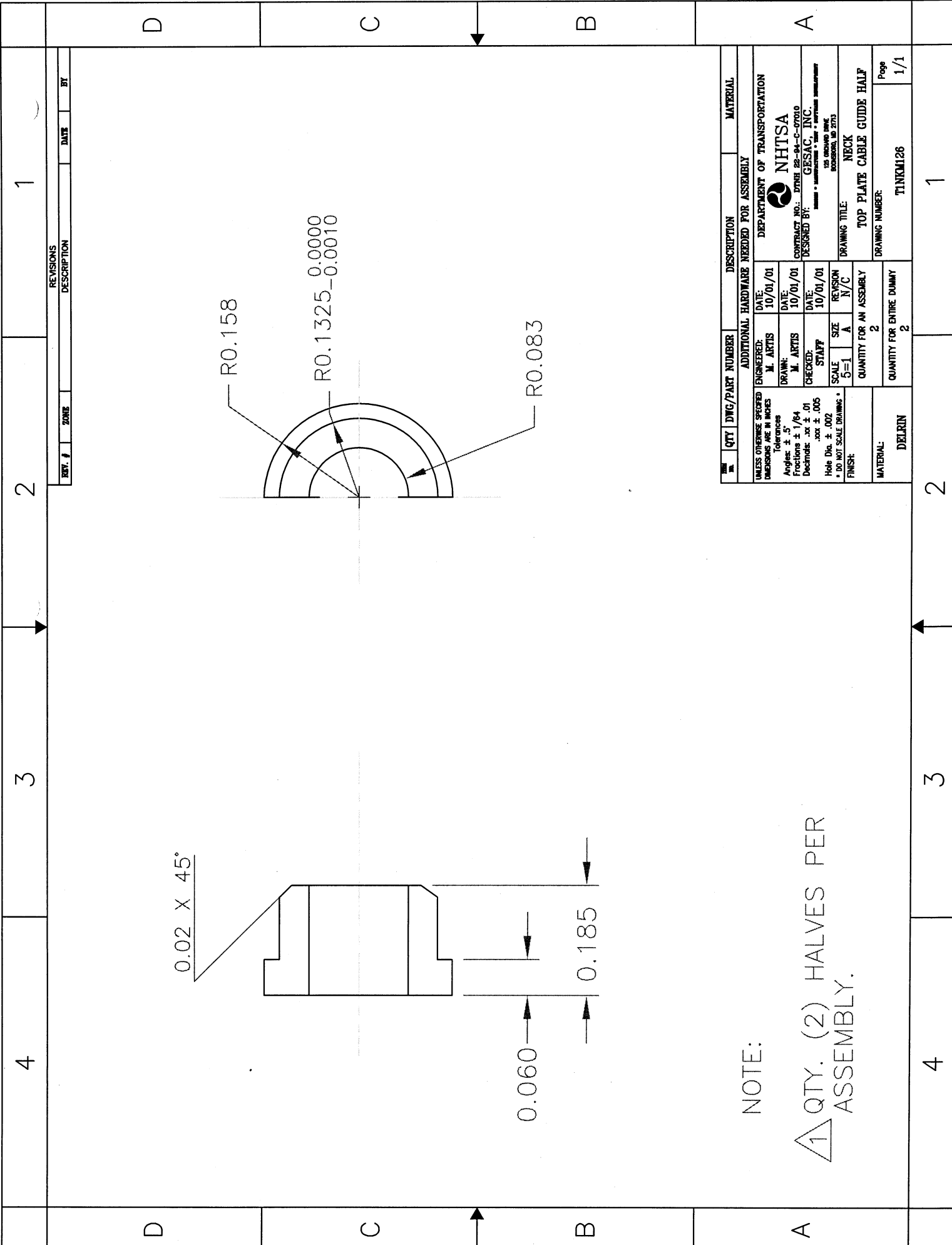
DEPARTMENT OF TRANSPORTATION

NHTSA

 CONTRACT NO.: DTMB 26-04-C-0000

 DESIGNED BY: GESSAC, INC.

151 BROADWAY NEW YORK, NY 10038

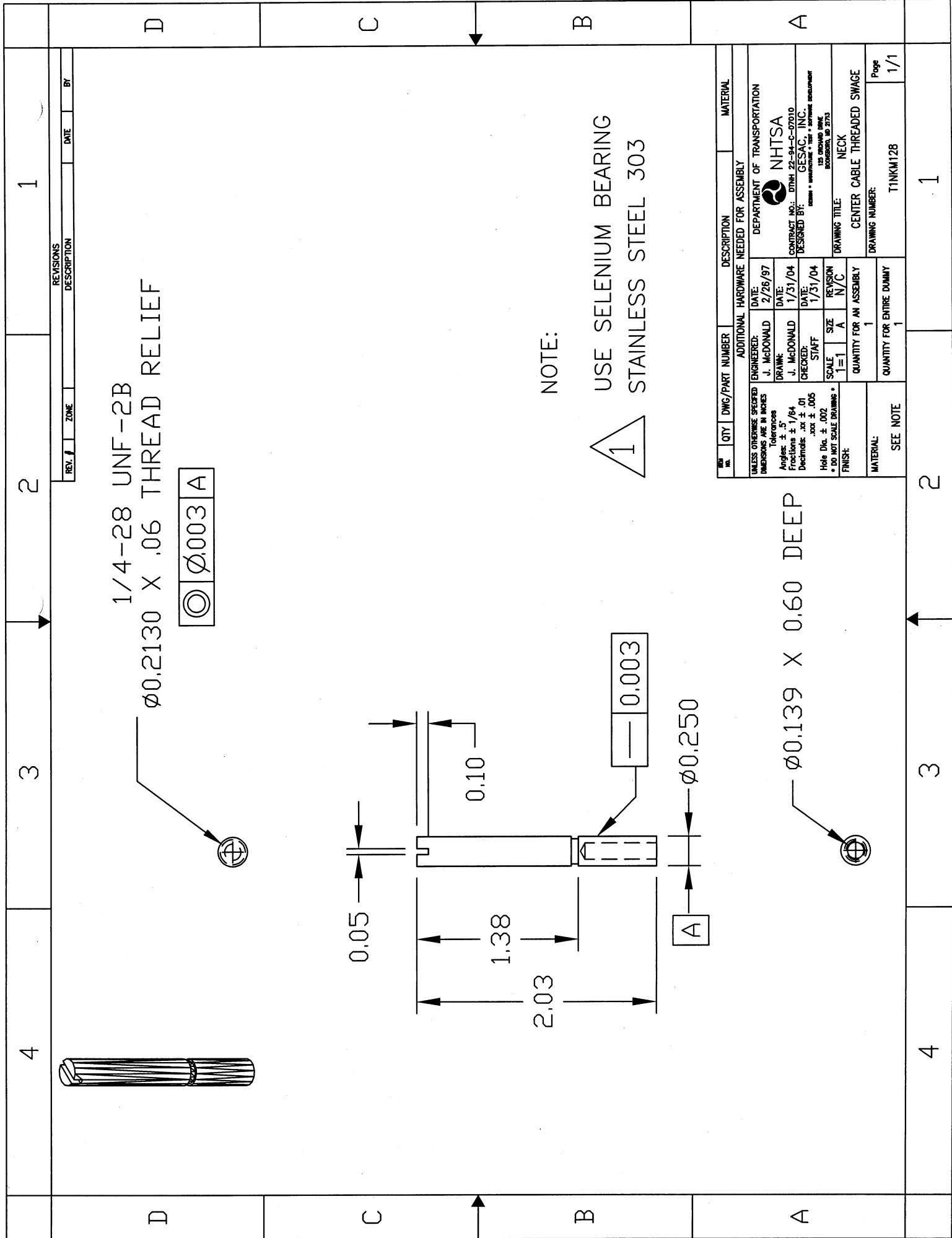


NOTE:

1 QTY. (2) HALVES PER ASSEMBLY.

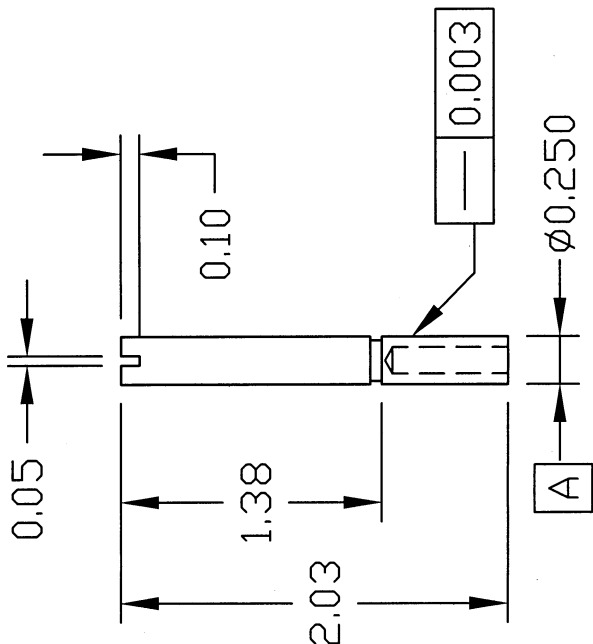
REV. #	ZONE	DESCRIPTION	DATE	BY
1				

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
1		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
	ENGINEERED: M. ARTIS	DATE: 10/01/01	DEPARTMENT OF TRANSPORTATION
	DRAWN: M. ARTIS	DATE: 10/01/01	NHTSA
	CHECKED: STAFF	DATE: 10/01/01	CONTRACT NO.: DTRM 22-94-C-07010
	SCALE: 5=1	REVISION: N/C	DESIGNED BY: GESAC, INC.
			125 BUCHARD DRIVE BOSSBORO, MD 27713
	QUANTITY FOR AN ASSEMBLY: 2	DRAWING TITLE: NECK	TOP PLATE CABLE GUIDE HALF
	QUANTITY FOR ENTIRE DUMMY: 2	DRAWING NUMBER: TINKM126	Page 1/1
	MATERIAL: DELRIN		



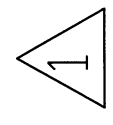
1/4-28 UNF-2B
 $\phi 0.2130$ X .06 THREAD RELIEF

$\text{Ⓞ} \phi 0.003 \text{ A}$



$\phi 0.139$ X 0.60 DEEP

NOTE:
 USE SELENIUM BEARING
 STAINLESS STEEL 303

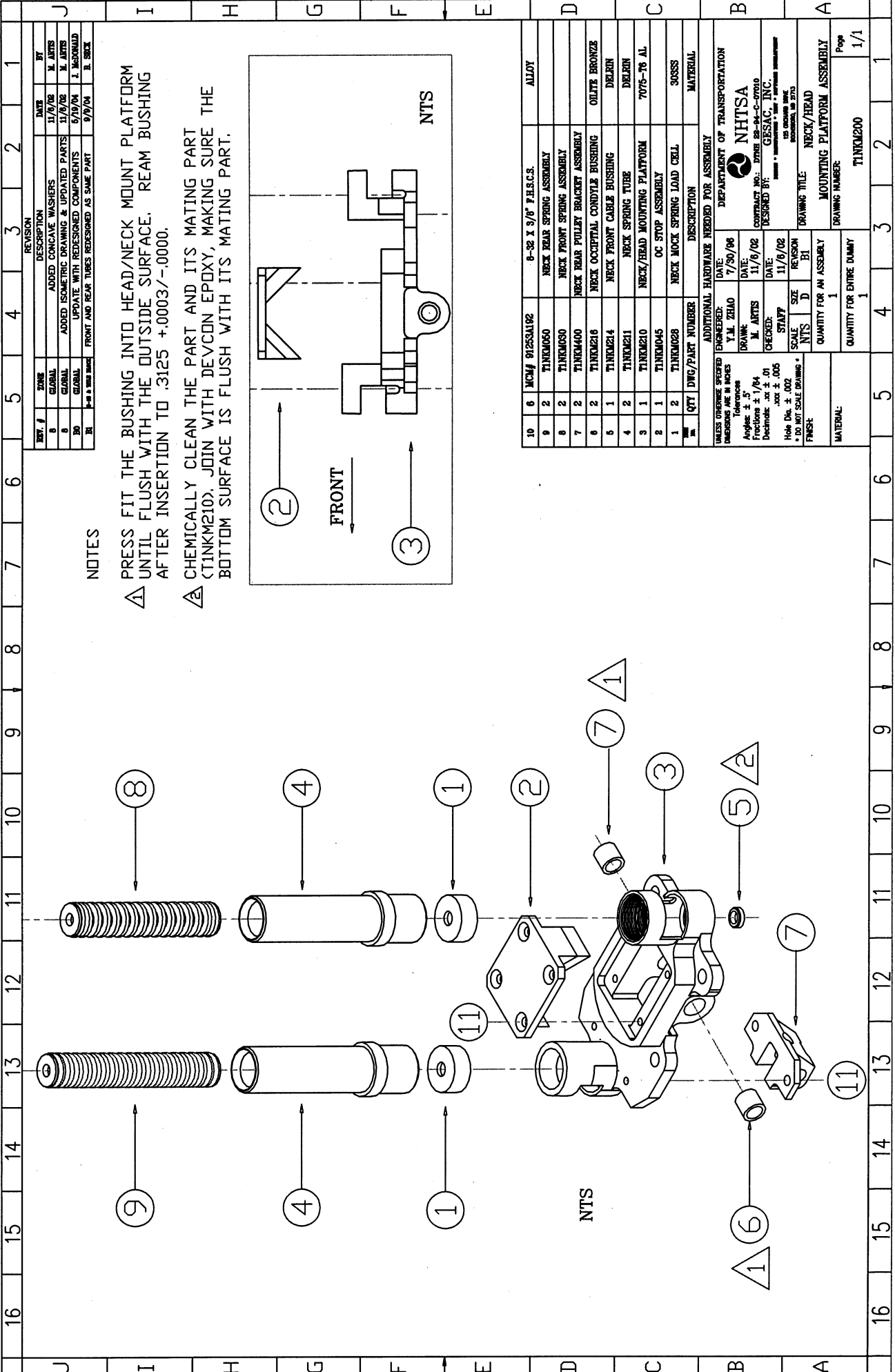


REV. #	ZONE	DESCRIPTION	DATE	BY

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL

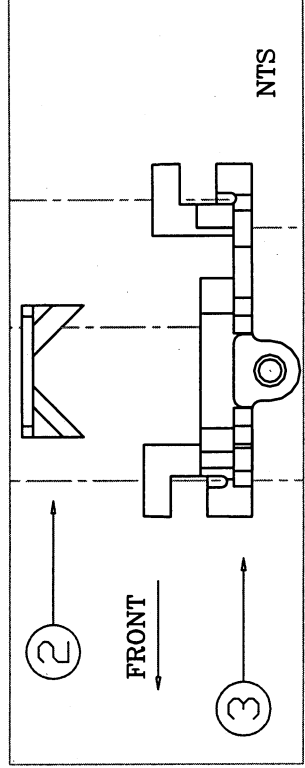
ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY		DEPARTMENT OF TRANSPORTATION
ENGINEERED:	J. McDONALD	NHTSA
DATE:	2/26/97	CONTRACT NO.: DTNH 22-94-C-07010
DRAWN:	J. McDONALD	DESIGNED BY: GESAC, INC.
DATE:	1/31/04	125 BRUNNEN DRIVE
CHECKED:	STAFF	ROCKFORD, IL 62713
DATE:	1/31/04	
SCALE:	1=1	DRAWING TITLE: NECK
SIZE:	A	CENTER CABLE THREADED SWAGE
REVISION:	N/C	DRAWING NUMBER: T1NKM128
QUANTITY FOR AN ASSEMBLY:	1	Page 1/1
QUANTITY FOR ENTIRE DUMMY:	1	

SEE NOTE



NOTES

- ▲ PRESS FIT THE BUSHING INTO HEAD/NECK MOUNT PLATFORM UNTIL FLUSH WITH THE OUTSIDE SURFACE. REAM BUSHING AFTER INSERTION TO .3125 +.0003/-0.0000.
- ▲ CHEMICALLY CLEAN THE PART AND ITS MATING PART (TINKM210). JOIN WITH DEVCON EPOXY, MAKING SURE THE BOTTOM SURFACE IS FLUSH WITH ITS MATING PART.

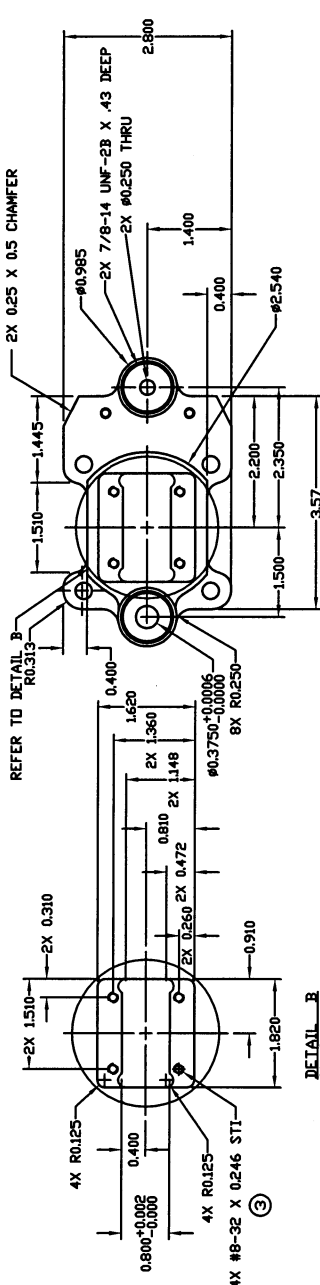
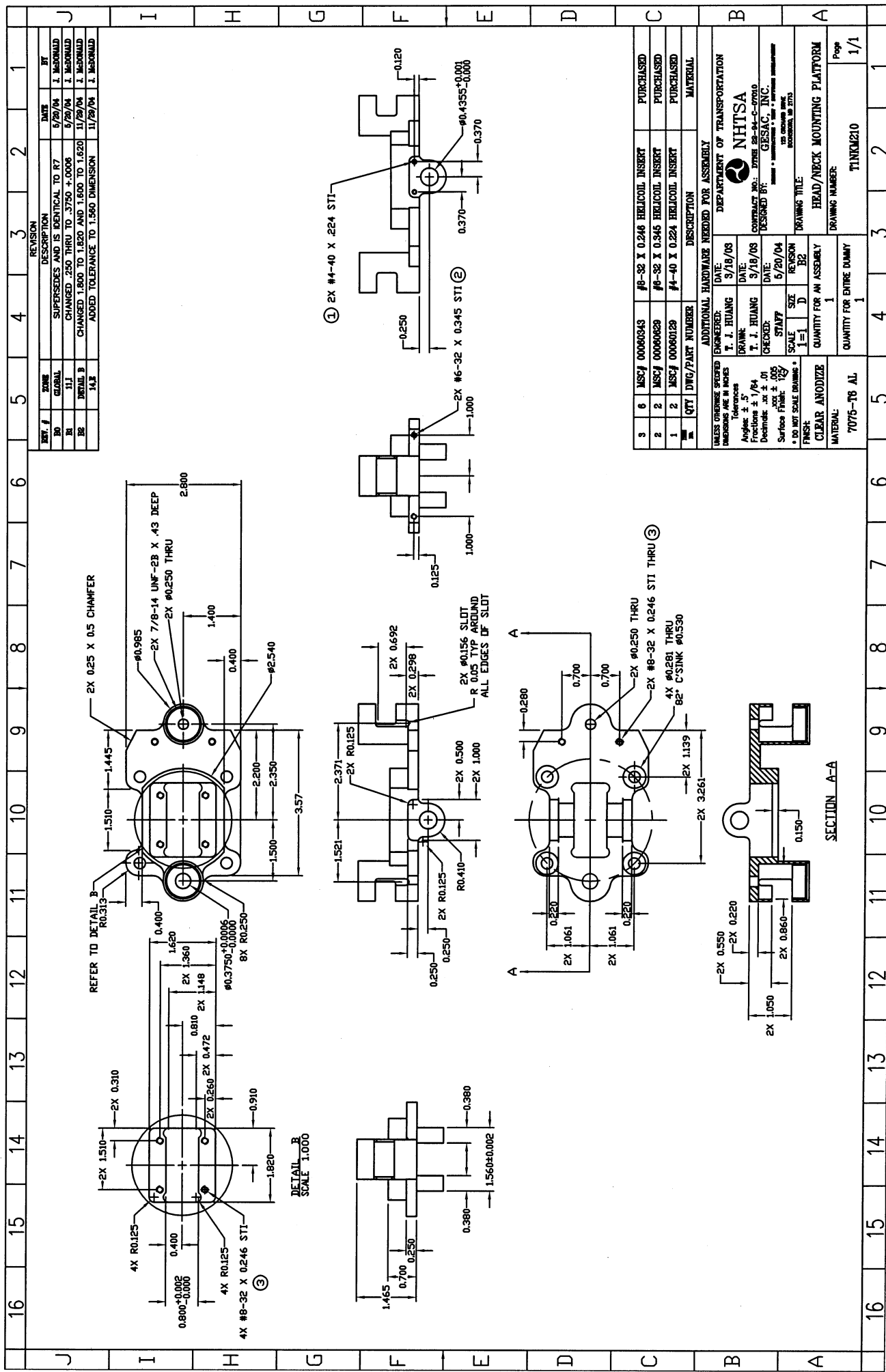


REV.	ZONE	DESCRIPTION	DATE	BY
0	GLOBAL	ADDED CONCAVE WASHERS	11/9/06	M. ARTS
1	GLOBAL	ADDED ISOMETRIC DRAWING & UPDATED PARTS	11/9/06	M. ARTS
2	GLOBAL	UPDATE WITH REDESIGNED COMPONENTS	6/19/06	J. BOURNARD
30	GLOBAL	FRONT AND REAR TUBES REDESIGNED AS SAME PART	9/9/06	B. SICK

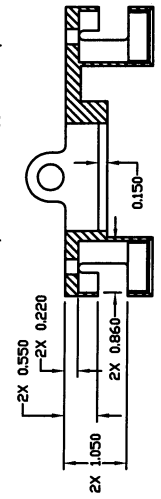
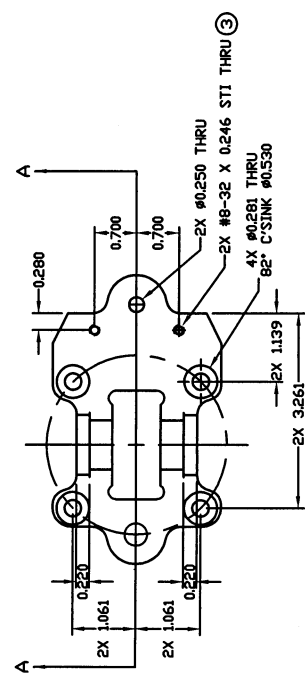
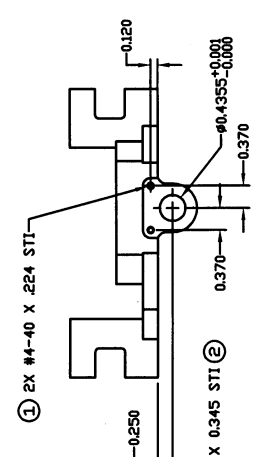
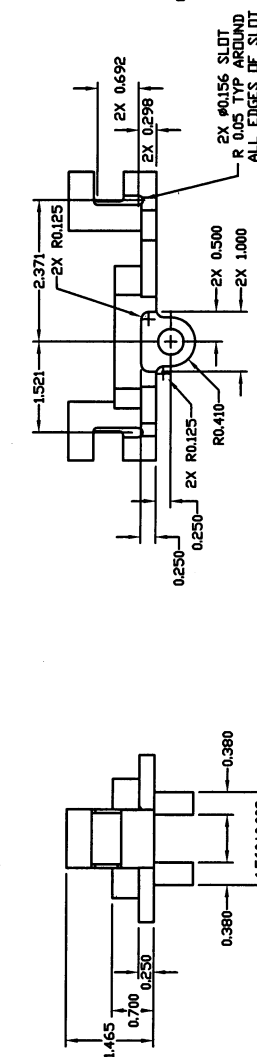
ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
10	6 MCM# 91253A192 8-32 X 9/8" F.H.S.C.S.
9	2 TINKM060 NECK REAR SPRING ASSEMBLY
8	2 TINKM060 NECK FRONT SPRING ASSEMBLY
7	2 TINKM400 NECK REAR PIVOT BRACKET ASSEMBLY
6	2 TINKM216 NECK OCCIPITAL CONDYLE BUSHING
5	1 TINKM214 NECK FRONT CABLE BUSHING
4	2 TINKM211 NECK SPRING TUBE
3	1 TINKM410 NECK/HEAD MOUNTING PLATFORM 7076-T6 AL.
2	1 TINKM045 OC STOP ASSEMBLY
1	2 TINKM028 NECK MOCK SPRING LOAD CELL
1	QTY DWG/PART NUMBER DESCRIPTION MATERIAL

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	
ENGINEERED:	Y.M. ZHAO 7/30/06
DRAWN:	M. ARTS 11/6/02
CHECKED:	DATE: 11/6/02
SCALE:	NTS
SIZE:	D
REVISION:	BI
QUANTITY FOR AN ASSEMBLY:	1
QUANTITY FOR ENTIRE DUMMY:	1

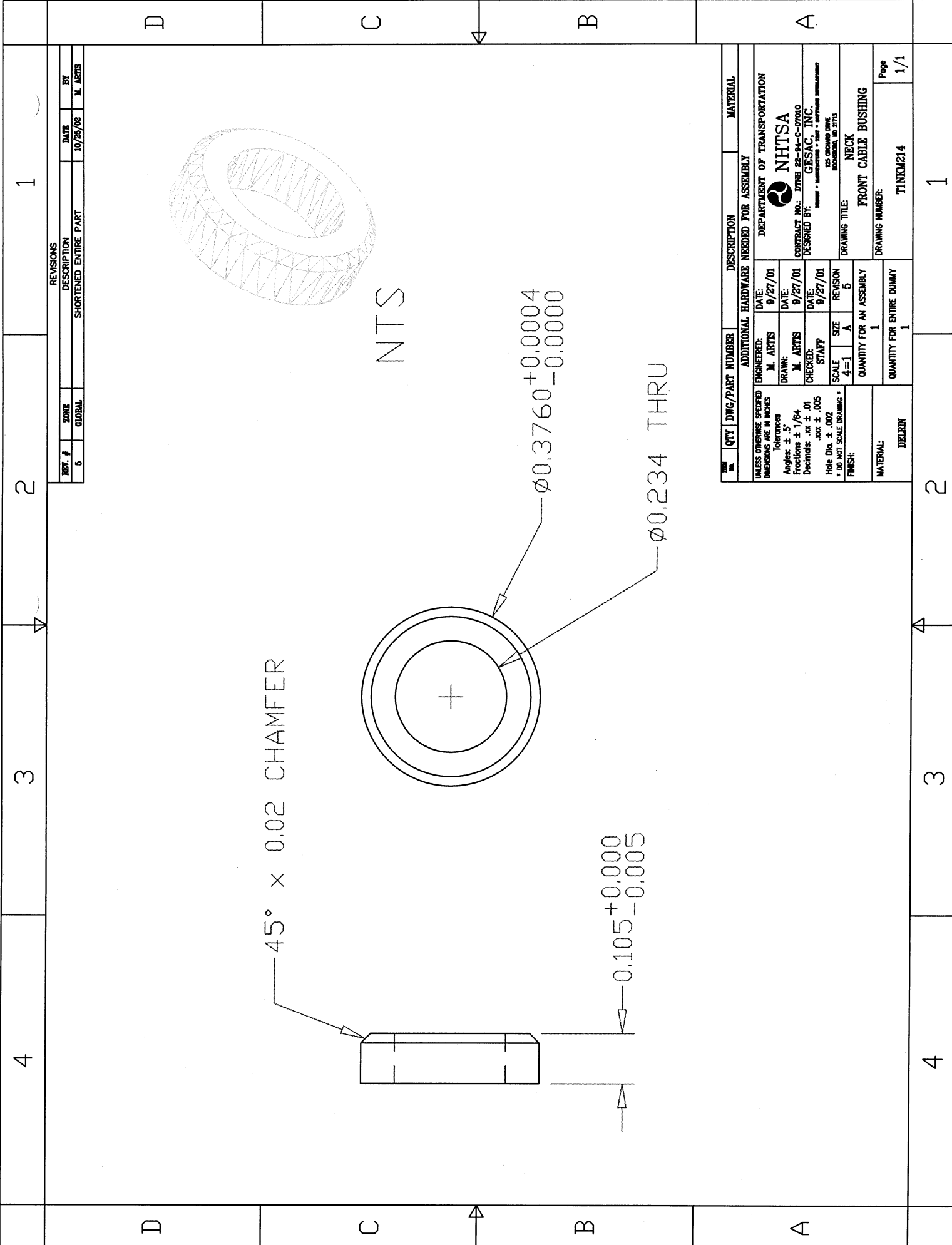
DEPARTMENT OF TRANSPORTATION	
NHTSA	
CONTRACT NO.: DTMB 04-04-C-0010	
DESIGNED BY: C&SAC, INC.	
DRAWING TITLE: NECK/HEAD MOUNTING PLATFORM ASSEMBLY	
DRIVING TITLE:	NTS
DRAWING NUMBER:	TINKM200
Page:	1/1



DETAIL B
 SCALE 1.000



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D	C	B	A																																																																								
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UNLESS OTHERWISE SPECIFIED		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY																																																																									
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REV. #		ZONE		DESCRIPTION		DATE		BY	
5		GLOBAL		SHORTENED ENTIRE PART		10/25/02		M. ARTIS	

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY			
ENGINEERED:	M. ARTIS	DATE: 9/27/01	DEPARTMENT OF TRANSPORTATION
DRAWN:	M. ARTIS	DATE: 9/27/01	NHTSA
CHECKED:	STAFF	DATE: 9/27/01	CONTRACT NO.: DTRR 22-94-G-07010
DESIGNED BY:	GESAC, INC.	SCALE: 4=1	DESIGNED BY: GESAC, INC.
Hole Dia. ± .002	SIZE: A	REVISION: 5	125 ORLAND DRIVE
* DO NOT SCALE DRAWING *	FINISH:	QUANTITY FOR AN ASSEMBLY: 1	ROCKFORD, MD 2715
MATERIAL:	DELRON	QUANTITY FOR ENTIRE DUMMY: 1	DRAWING TITLE: NECK
			FRONT CABLE BUSHING
			DRAWING NUMBER: TINKM214
			Page 1/1

1

2

3

4

D

C

B

A

NTS

45° x 0.02 CHAMFER

Ø0.3760^{+0.0004}_{-0.0000}

Ø0.234 THRU

0.105^{+0.000}_{-0.005}

1

2

3

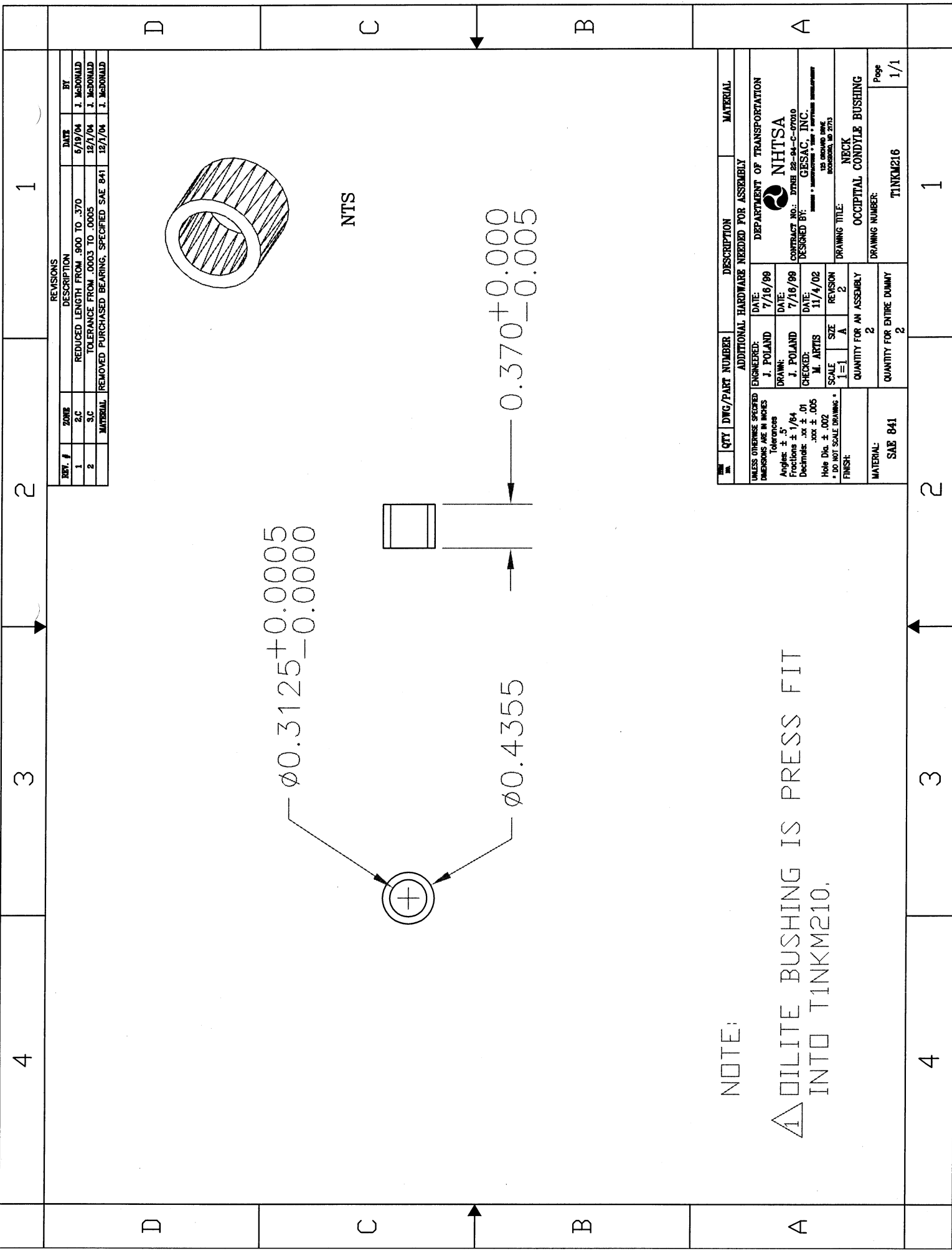
4

D

C

B

A



NOTE:

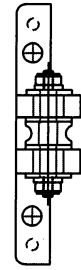
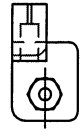
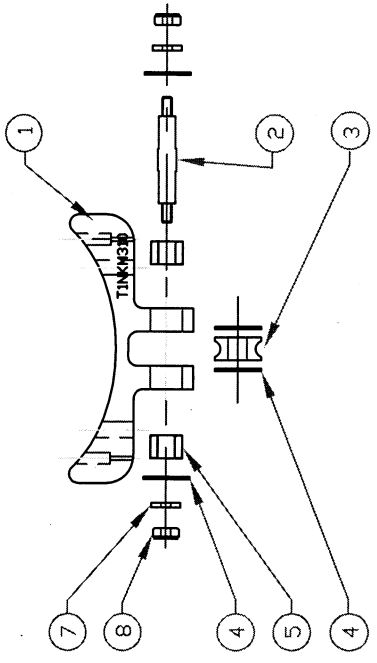
▲ DILITE BUSHING IS PRESS FIT INTO T1NKM210.

REV. #	ZONE	DESCRIPTION	DATE	BY
1	2.C	REDUCED LENGTH FROM .900 TO .370	6/19/04	J. McDONALD
2	3.C	TOLERANCE FROM .0003 TO .0005	12/7/04	J. McDONALD
	MATERIAL	REMOVED PURCHASED BEARING, SPECIFIED SAE 841	12/7/04	J. McDONALD

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
	ENGINEERED: J. POLAND	DATE: 7/16/99	DEPARTMENT OF TRANSPORTATION
	DRAWN: J. POLAND	DATE: 7/16/99	NHTSA
	CHECKED: M. ARTIS	DATE: 11/4/02	CONTRACT NO.: DTNH 22-94-C-07010
	SCALE: 1=1	REVISION: 2	DESIGNED BY: GESAC, INC.
	SIZE: A		DESIGNED BY: GESAC, INC.
			125 ORANGE DRIVE
			ROCKFORD, IL 61153
	QUANTITY FOR AN ASSEMBLY: 2	DRAWING TITLE: NECK	
	QUANTITY FOR ENTIRE DUMMY: 2	OCCUPANT CONDYLE BUSHING	
		DRAWING NUMBER: T1NKM216	Page 1/1

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	CORRECTED CALLOUTS	4/21/99	D. BEACH
2	GLOBAL	UPDATED PULLEY BRACKET TO R 3	10/16/01	M. ARTIS
3	FB	REPLACED ITEM 8 WITH ITEM 4; INCREASED QTY OF ITEM 4	6/18/02	M. ARTIS



QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
8	MCM # 91831A005	#4-40 NYLOCK NUT	PURCHASED
7	MCM # 92141A005	#4 WASHER	PURCHASED
5	SI #S99NH2-BN0608	STERLING INSTRUMENTS NEEDLE ROLLER BEARING	PURCHASED
4	MCM # 95630A238	TEFLON WASHER	PURCHASED
3	T1NKM312	NECK REAR CABLE PULLEY	OLITE BRONZE
2	T1NKM311	NECK REAR CABLE PULLEY SHAFT	ETD 150
1	T1NKM310	NECK REAR PULLEY BRACKET	CRS 101B

ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
ENGINEERED:	J. McDONALD
DATE:	6/17/97
DRAWN:	J. McDONALD
DATE:	6/17/97
CHECKED:	M. ARTIS
DATE:	10/16/01
SCALE:	1=1 C
SIZE:	C
REVISION:	3
QUANTITY FOR AN ASSEMBLY:	1
QUANTITY FOR ENTIRE DUMMY:	1

NOTE:

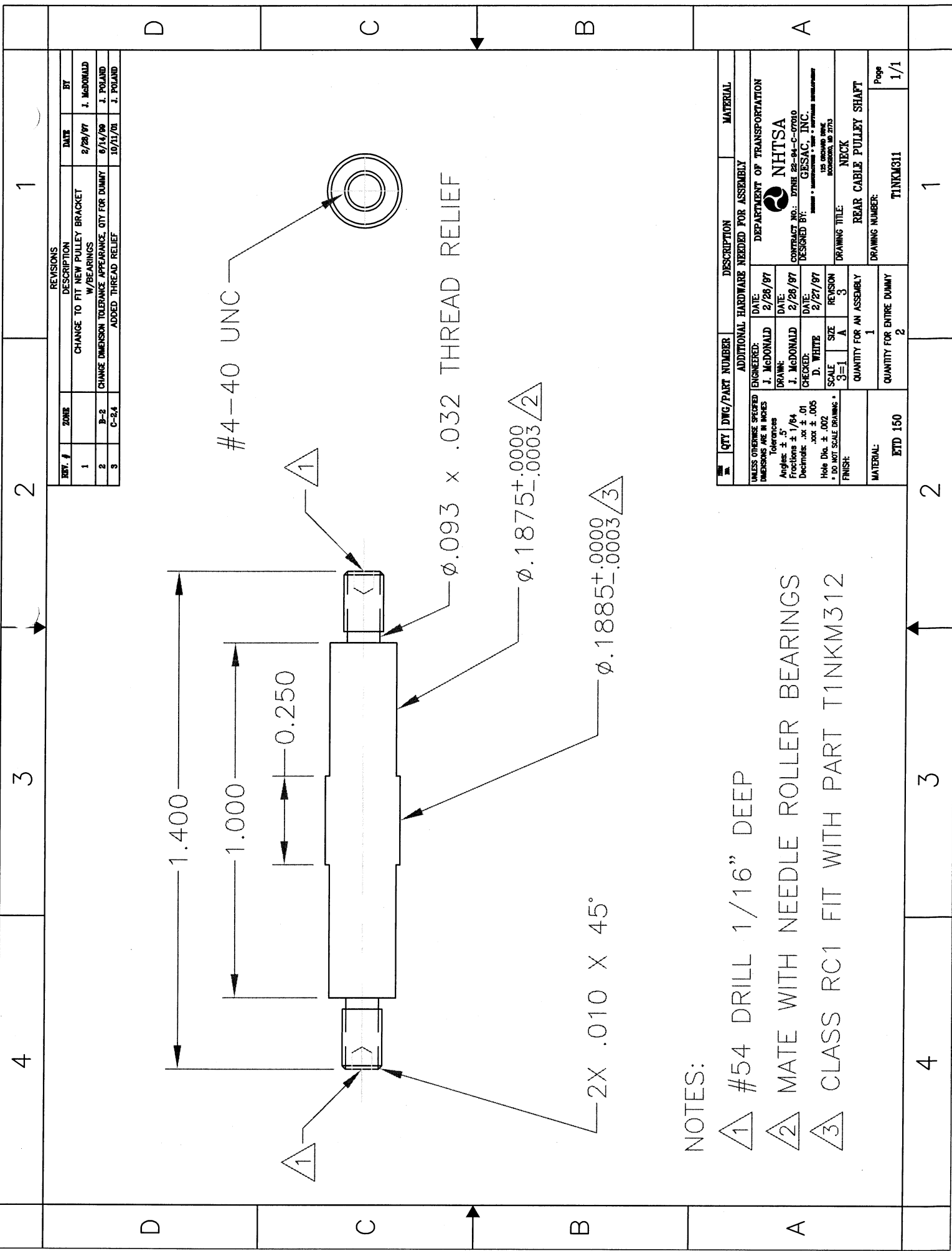
ALL PARTS NEEDED FOR THIS ASSEMBLY ARE THE SAME AS ASSEMBLY T1NKM400 WITH THE EXCEPTION OF PARTS T1NKM410 (HEAD PULLEY BRACKET) AND T1NKM414 (HEAD REAR SOFT STOP).



DEPARTMENT OF TRANSPORTATION
NHTSA
CONTRACT NO.: DTNH 22-94-C-07010
DESIGNED BY: GESAC, INC.
125 GROUND DRIVE BOWERSVILLE, MD 21733
DRAWING TITLE: NECK PULLEY BRACKET ASSEMBLY
DRAWING NUMBER: T1NKM300
Page 1/1

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

10	9	8	7	6	5	4	3	2	1																																																																	
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<p>ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY</p> <p>ENGINEERED: J. McDONALD DATE: 2/26/97</p> <p>DRAWN: J. McDONALD DATE: 2/26/97</p> <p>CHECKED: M. ARTIS DATE: 10/01/01</p> <p>SCALE: 1=1 C</p> <p>REVISION: 5</p> <p>DEPARTMENT OF TRANSPORTATION NHTSA CONTRACT NO.: DTMB 28-94-C-07010 DESIGNED BY: CRESAC, INC. 125 GROUND DRIVE BOSSORON, MD 21713</p> <p>DRAWING TITLE: NECK REAR PULLEY BRACKET</p> <p>DRAWING NUMBER: T1NKM310</p> <p>Page 1/1</p>																																																																										
<p>NOTES:</p> <ul style="list-style-type: none"> △ REMOVE BURRS, BREAK SHARP EDGES. △ ALL FILLETS AND ROUNDS R 0.1 △ ENGRAVE THE DWG. # T1NKM310 AT THE LOCATION SPECIFIED ABOVE. △ MASK ALL HOLES BEFORE APPLYING TEFLON COATING. 																																																																										
<p>3.000</p> <p>2.000</p> <p>1.344</p> <p>0.446</p> <p>0.704</p> <p>0.250</p> <p>0.370</p> <p>0.435</p> <p>0.870</p> <p>0.643</p> <p>0.838</p> <p>R 0.3 Typ</p> <p>0.3432/0.3437 DIA. THRU</p> <p>0.85</p> <p>0.359</p> <p>0.718</p> <p>R 0.15</p> <p>R 0.10</p> <p>0.375</p> <p>0.875±0.001</p> <p>1.750±0.001</p> <p>2X $\phi 0.188$ THRU</p> <p>2X $\phi 0.04$ THRU REAM 0.1255 x .380 DEEP</p> <p>0.188</p> <p>1.188±0.001</p> <p>2.375±0.0005</p> <p>2.900</p> <p>R0.10</p> <p>CURVATURE MATCHES THE ABOVE ELLIPSOID</p>																																																																										

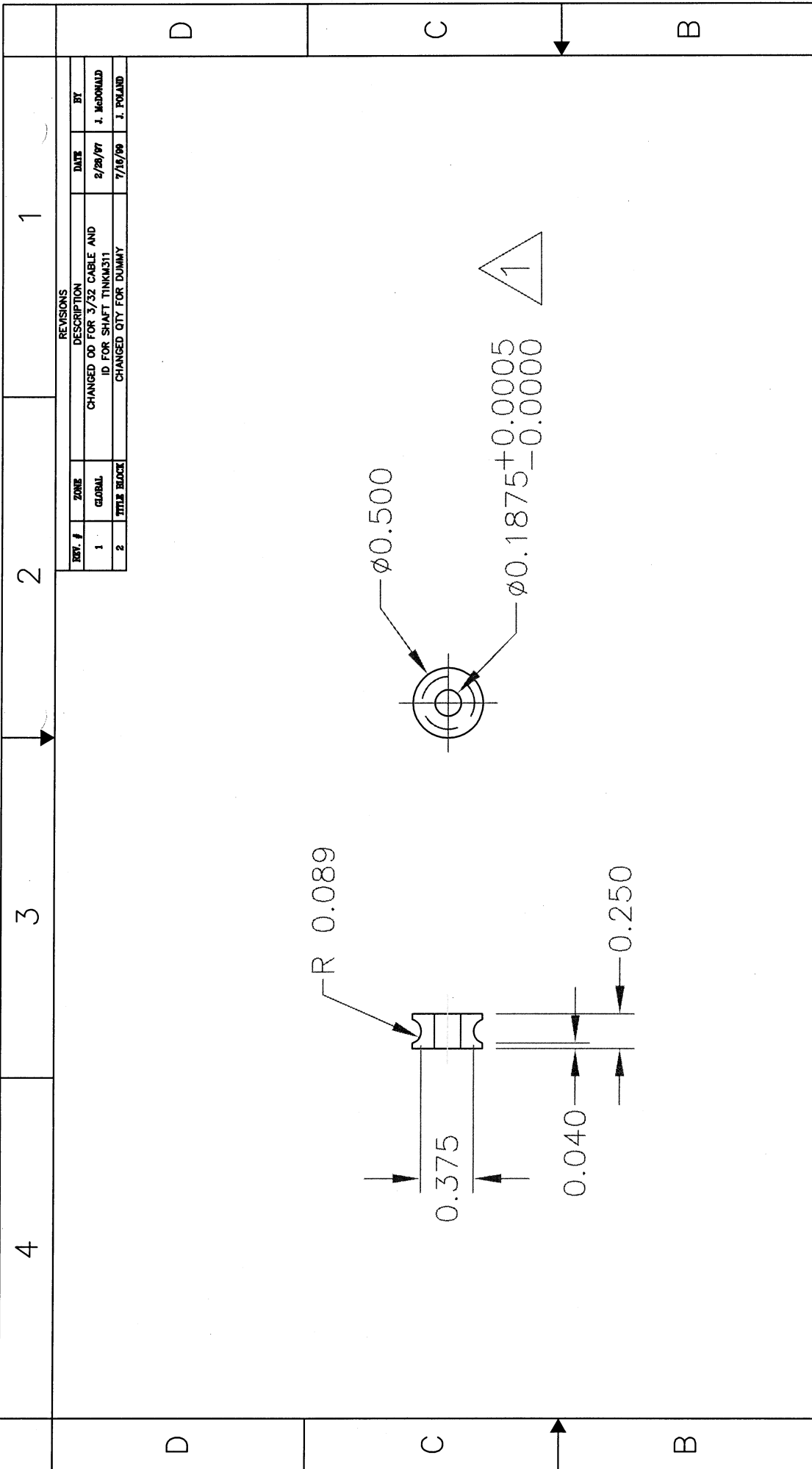


NOTES:

- ① #54 DRILL 1/16" DEEP
- ② MATE WITH NEEDLE ROLLER BEARINGS
- ③ CLASS RC1 FIT WITH PART T1NKM312

REVISIONS				
REV. #	ZONE	DESCRIPTION	DATE	BY
1		CHANGE TO FIT NEW PULLEY BRACKET W/ BEARINGS	2/28/97	J. McDONALD
2	B-2	CHANGE DIMENSION TOLERANCE APPEARANCE, QTY FOR DUMMY	6/14/98	J. POLAND
3	C-2.4	ADDED THREAD RELIEF	10/13/01	J. POLAND

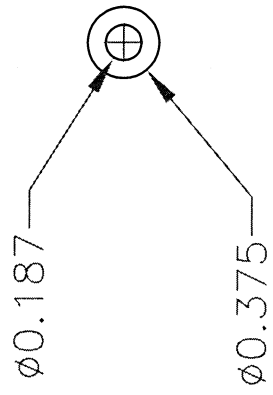
QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY			
ENGINEERED:	J. McDONALD	DATE: 2/28/97	DEPARTMENT OF TRANSPORTATION
DRAWN:	J. McDONALD	DATE: 2/28/97	NHTSA
CHECKED:	D. WHITE	DATE: 2/27/97	CONTRACT NO.: DTNRE 22-94-C-07910
SCALE:	3=1	SIZE: A	DESIGNED BY: GESAC, INC.
Hole Dia.:	± .002	REVISION: 3	125 ORLAND DRIVE
FINISH:		QUANTITY FOR AN ASSEMBLY: 1	BOCCASSON, MD 21775
MATERIAL:	ETD 150	QUANTITY FOR ENTIRE DUMMY: 2	DRAWING TITLE: REAR CABLE PULLEY SHAFT
			DRAWING NUMBER: T1NKM311
			Page 1/1



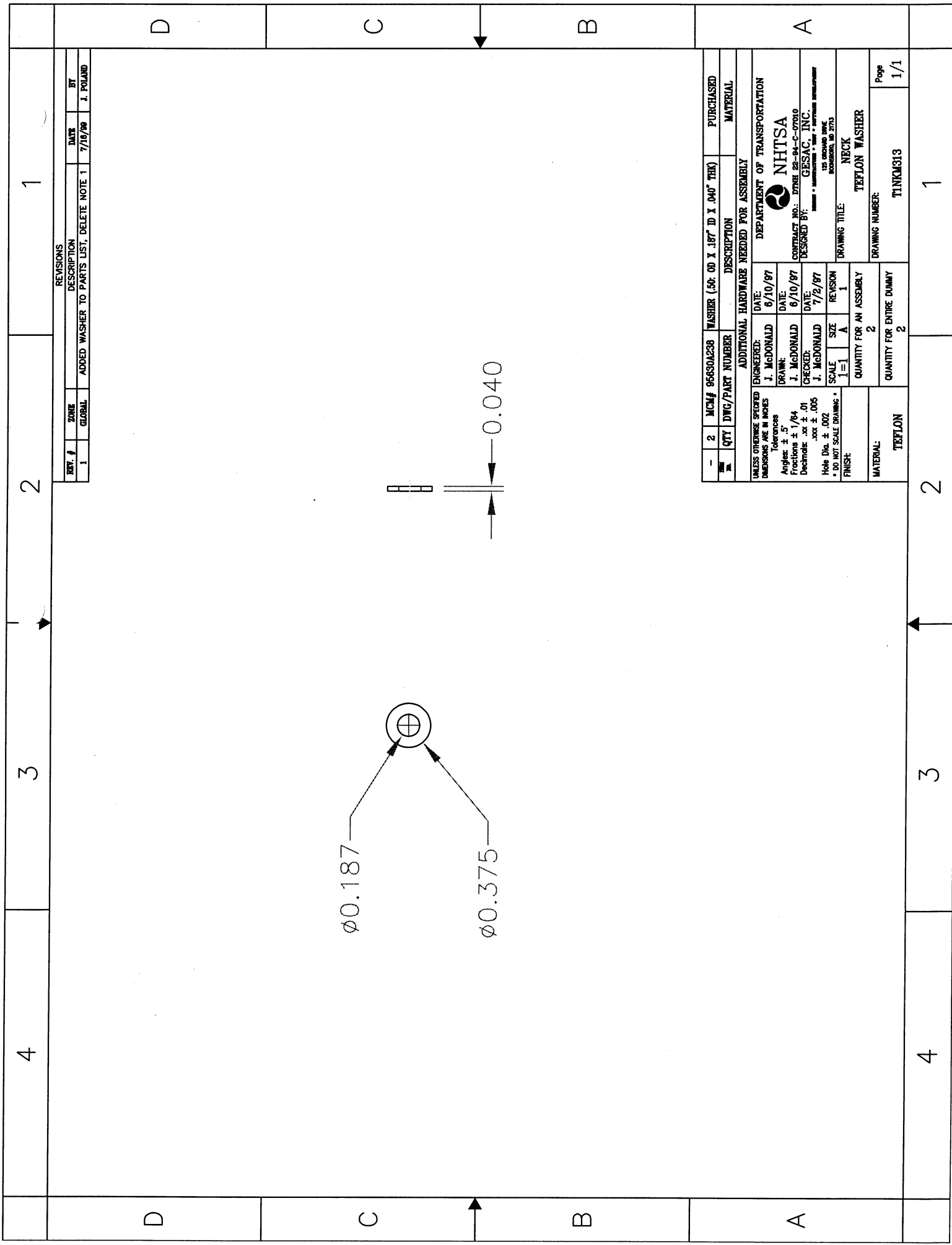
REV. #	QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
1	1		REAR CABLE PULLEY	
2	2		REAR CABLE PULLEY	

REV. #	ZONE	DESCRIPTION	DATE	BY
1	GLOBAL	CHANGED OD FOR 3/32 CABLE AND ID FOR SHAFT T1NKM311	2/28/97	J. McDONALD
2	TITLE BLOCK	CHANGED QTY FOR DUMMY	7/16/99	J. POLAND

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY
Tolerances: Angles: $\pm .5^\circ$ Fractions: $\pm 1/64$ Decimals: .xx $\pm .01$.xxx $\pm .005$ Hole Dia. $\pm .002$ * DO NOT SCALE DRAWING *	ENGINEERED: J. McDONALD DATE: 2/28/97 DRAWN: J. McDONALD DATE: 2/27/96 CHECKED: D. WHITE DATE: 2/27/96 SCALE: 1=1 SIZE: A REVISION: 2 QUANTITY FOR AN ASSEMBLY: 1 QUANTITY FOR ENTIRE DUMMY: 2
FINISH:	DEPARTMENT OF TRANSPORTATION NHTSA CONTRACT NO.: DTMB 28-94-C-07010 DESIGNED BY: GESAC, INC. 125 ORCHARD DRIVE ROCKFORD, IL 61153
MATERIAL: OILITE BRONZE	DRAWING TITLE: REAR CABLE PULLEY DRAWING NUMBER: T1NKM312 Page 1/1



2	MCM# 95630A238	WASHER (.50" OD X .187" ID X .040" THK)	DESCRIPTION	PURCHASED
QTY	DWG/PART NUMBER	MATERIAL		
ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	ENGINEERED:	DATE:	DEPARTMENT OF TRANSPORTATION	
Tolerances	J. McDONALD	6/10/97	NHTSA	
Angles: $\pm .5^\circ$	DRAWN:	DATE:	CONTRACT NO.: DTNH 22-94-C-07010	
Fractions: $\pm 1/64$	J. McDONALD	6/10/97	DESIGNED BY: GESAC, INC.	
Decimals: .xx $\pm .01$	CHECKED:	DATE:	125 ORCHARD DRIVE	
.xxx $\pm .005$	J. McDONALD	7/2/97	BOZEMAN, ID 2173	
Hole Dia. $\pm .002$	SCALE	SIZE	REVISION	DRAWING TITLE:
* DO NOT SCALE DRAWING *	1=1	A	1	NECK
FINISH:	QUANTITY FOR AN ASSEMBLY		TEFLON WASHER	
MATERIAL:	2		DRAWING NUMBER:	
TEFLON	2		TINKM313	
	QUANTITY FOR ENTIRE DUMMY		Page	
	2		1/1	

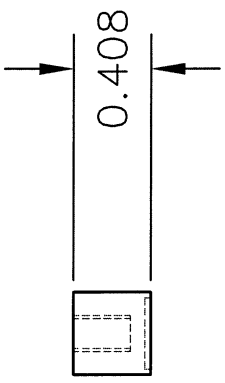
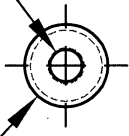


10	9	8	7	6	5	4	3	2	1																				
H	<table border="1"> <thead> <tr> <th>REV. #</th> <th>ZONE</th> <th>REVISION DESCRIPTION</th> <th>DATE</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>GLOBAL</td> <td>REDESIGN FOR INCREASED RUBBER STOP DURABILITY</td> <td>9/23/98</td> <td>J. McDONALD</td> </tr> <tr> <td>2</td> <td>F5</td> <td>USE LORD EPOXY IN PLACE OF PLOBOND ADHESIVE</td> <td>5/12/99</td> <td>J. McDONALD</td> </tr> <tr> <td>3</td> <td>PARTS LIST</td> <td>CORRECTED SPELLING ERROR FOR ITEM# 3</td> <td>6/14/99</td> <td>J. POLAND</td> </tr> </tbody> </table>									REV. #	ZONE	REVISION DESCRIPTION	DATE	BY	1	GLOBAL	REDESIGN FOR INCREASED RUBBER STOP DURABILITY	9/23/98	J. McDONALD	2	F5	USE LORD EPOXY IN PLACE OF PLOBOND ADHESIVE	5/12/99	J. McDONALD	3	PARTS LIST	CORRECTED SPELLING ERROR FOR ITEM# 3	6/14/99	J. POLAND
REV. #	ZONE	REVISION DESCRIPTION	DATE	BY																									
1	GLOBAL	REDESIGN FOR INCREASED RUBBER STOP DURABILITY	9/23/98	J. McDONALD																									
2	F5	USE LORD EPOXY IN PLACE OF PLOBOND ADHESIVE	5/12/99	J. McDONALD																									
3	PARTS LIST	CORRECTED SPELLING ERROR FOR ITEM# 3	6/14/99	J. POLAND																									
G																													
F	<p>ASSEMBLY NOTES:</p> <p>NECK STOP 2</p> <p>① BOND NECK STOP 1 (T1NKM512) TO SOFT STOP 1 (T1NKM513) USING LORD 305 TWO PART EPOXY.</p> <p>② BOND NECK STOP 2 (T1NKM510) TO SOFT STOP 2 (T1NKM511) USING LORD 305 TWO PART EPOXY.</p> <p>NECK STOP 1</p> <p>③ BOND NECK STOP 1 (T1NKM512) TO SOFT STOP 1 (T1NKM513) USING LORD 305 TWO PART EPOXY.</p> <p>④ BOND NECK STOP 2 (T1NKM510) TO SOFT STOP 2 (T1NKM511) USING LORD 305 TWO PART EPOXY.</p>																												
E																													
D																													
C	<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>1</td> <td>T1NKM513</td> <td>NECK SOFT STOP 1</td> </tr> <tr> <td>3</td> <td>1</td> <td>T1NKM512</td> <td>NECK STOP 1</td> </tr> <tr> <td>2</td> <td>1</td> <td>T1NKM511</td> <td>NECK SOFT STOP 2</td> </tr> <tr> <td>1</td> <td>1</td> <td>T1NKM510</td> <td>NECK STOP 2</td> </tr> </tbody> </table>									QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL	4	1	T1NKM513	NECK SOFT STOP 1	3	1	T1NKM512	NECK STOP 1	2	1	T1NKM511	NECK SOFT STOP 2	1	1	T1NKM510	NECK STOP 2
QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL																										
4	1	T1NKM513	NECK SOFT STOP 1																										
3	1	T1NKM512	NECK STOP 1																										
2	1	T1NKM511	NECK SOFT STOP 2																										
1	1	T1NKM510	NECK STOP 2																										
B	<p>ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY</p> <p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES</p> <p>Tolerances Angles: ± .5 Fractions: ± 1/64 Decimals: .xx ± .01 Hole Dia: ± .002 • DO NOT SCALE DRAWING •</p> <p>FINISH:</p> <p>ENGINEERED: Y.M. ZHAO DATE: 10/7/96 DRAWN: Y.M. ZHAO DATE: 10/7/96 CHECKED: J. McDONALD DATE: 6/16/97</p> <p>SCALE: 1=1 C 3</p> <p>QUANTITY FOR AN ASSEMBLY: 1</p> <p>QUANTITY FOR ENTIRE DUMMY: 1</p> <p>MATERIAL:</p> <p>DEPARTMENT OF TRANSPORTATION NHTSA CONTRACT NO.: DTNH 22-94-C-07010 DESIGNED BY: GESAC, INC. 125 GROUND BONE BOULDER, CO 80501</p> <p>DRAWING TITLE: NECK STOP ASSEMBLY</p> <p>DRAWING NUMBER: T1NKM500</p> <p>Page 1/1</p>																												
A																													

4 3 2 1

REV. #	ZONE	DESCRIPTION	DATE	BY
1	GLOBAL	REDESIGNED FOR MORE DURABLE RUBBER STOP	9/23/96	J. McDONALD
2	GLOBAL	SCALE CHANGED FROM 5=1 TO 1=1	9/23/96	J. McDONALD
3	GLOBAL	MATERIAL CHANGED FROM 1018 CRS TO 8061-T6 AL	9/23/96	J. McDONALD
4	CS	REDUCED LIP BY .030" AND CHANGED MATL TO SS	2/23/99	J. McDONALD
6	DS	CHANGED THREAD DEPTH FROM .35 TO .25 MIN USEABLE	10/16/00	J. McDONALD

Ø0.44
 #10-24 UNC-2B
 X .25 USEABLE
 THREAD DEPTH



Ø0.375 X .03"



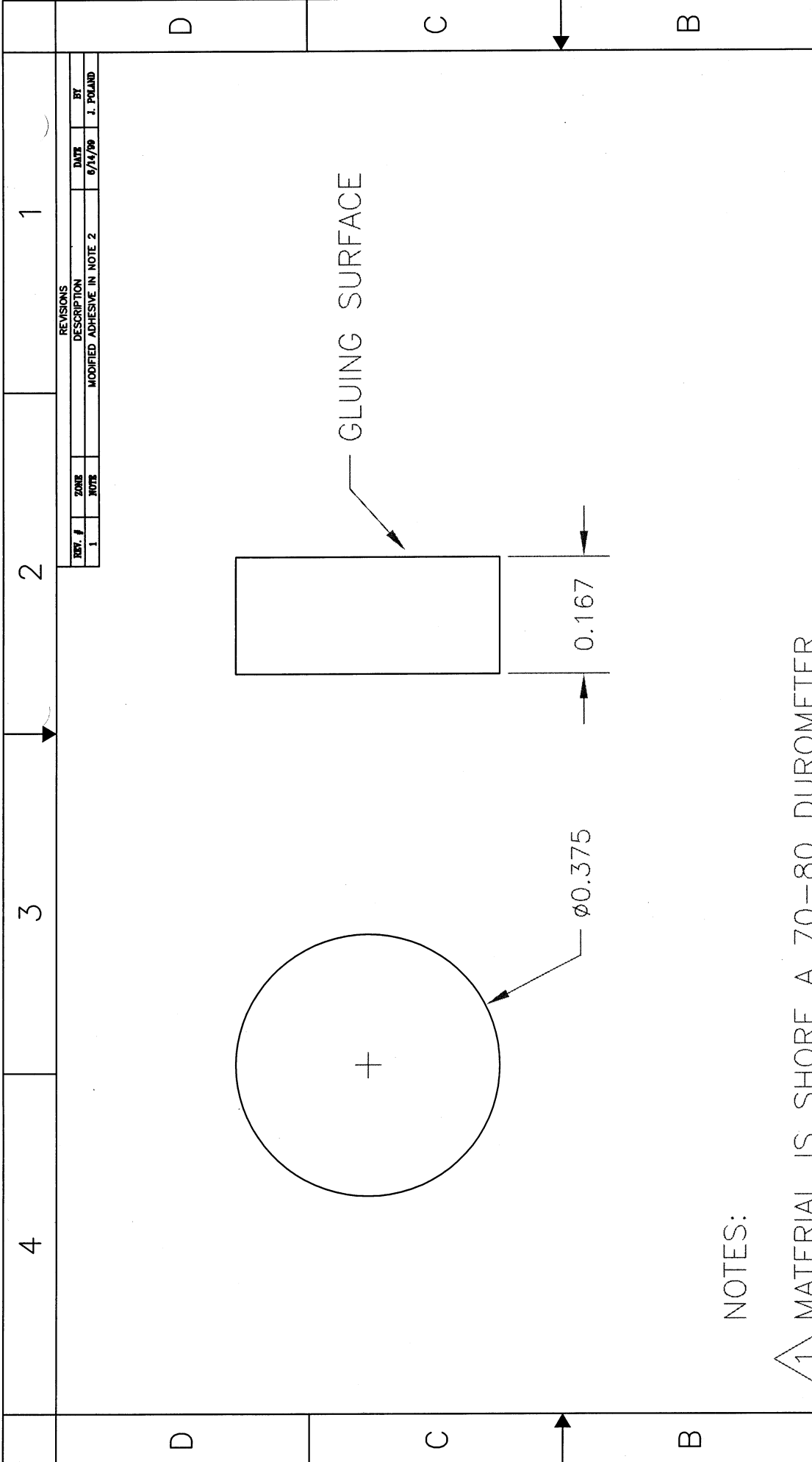
NOTE:

1 REMOVE ALL BURRS AND BREAK ALL SHARP EDGES.

D C B A

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY			
ENGINEERED: Y.M. ZHAO		DATE: 10/1/96	DEPARTMENT OF TRANSPORTATION
DRAWN: Y.M. ZHAO		DATE: 10/1/96	NHTSA
CHECKED: J. McDONALD		DATE: 7/2/97	CONTRACT NO.: DTRM 28-94-C-07010
SCALE: 1=1		SIZE: A	DESIGNED BY: GESAC, INC.
FINISH: *		REVISION: 5	125 ORCHARD DRIVE ROCKFORD, IL 61153
QUANTITY FOR AN ASSEMBLY: 1		DRAWING TITLE: NECK STOP 2	
QUANTITY FOR ENTIRE DUMMY: 1		DRAWING NUMBER: TINKM510	
MATERIAL: 303SS		Page 1/1	

4 3 2 1



NOTES:

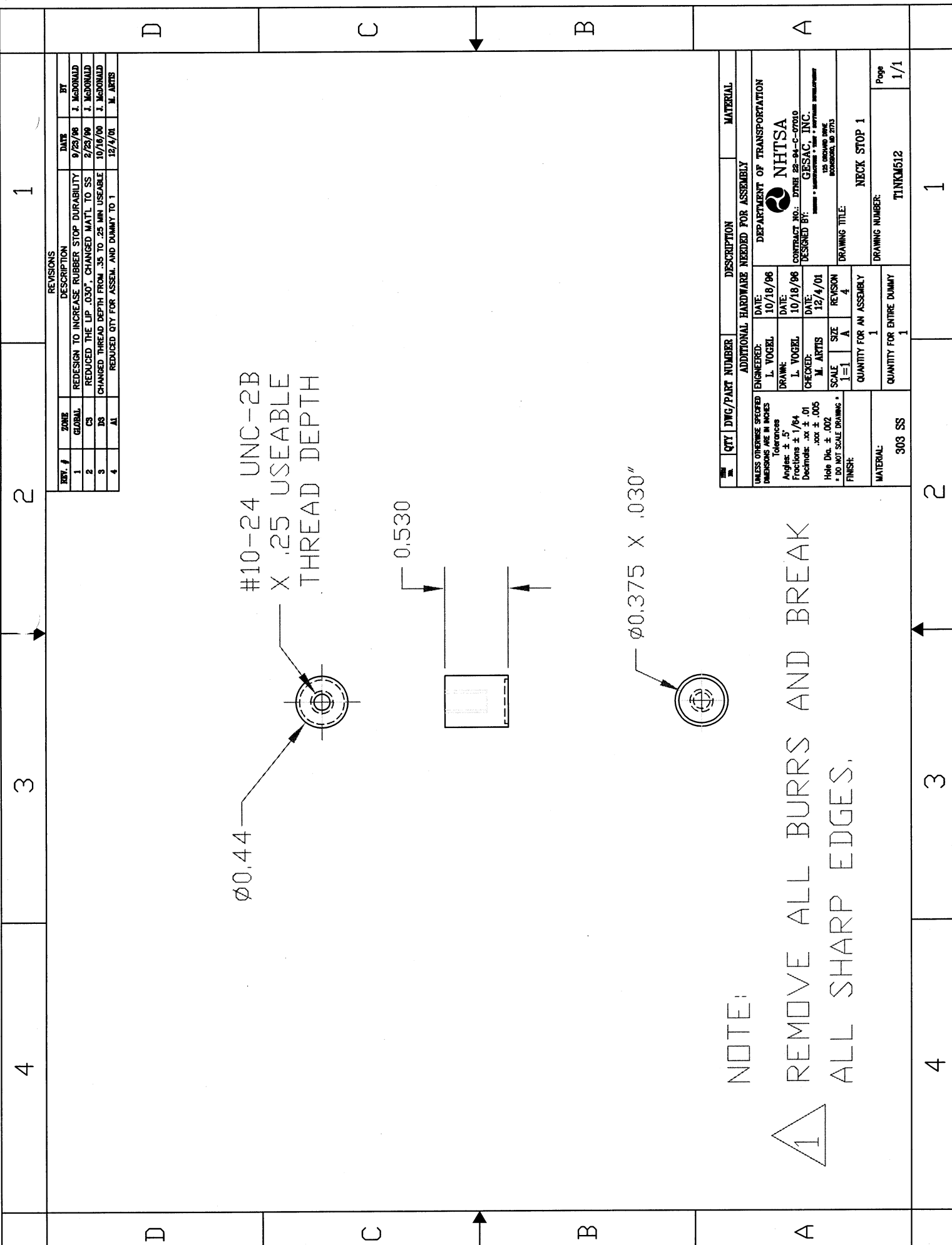
- 1 MATERIAL IS SHORE A 70-80 DUROMETER SBR RUBBER. (PART REFERENCE: MCM #8634K14)
- 2 SECURE TO PART T1NKM510 USING LORD 305 TWO PART EPOXY.

REV. #	ZONE	NOTE	DESCRIPTION	DATE	BY
1			MODIFIED ADHESIVE IN NOTE 2	6/14/96	J. POLAND

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
		ENGINEERED: L. VOGEL DATE: 10/1/96	
		DRAWN: L. VOGEL DATE: 10/1/96	
		CHECKED: J. MCDONALD DATE: 7/2/97	
		SCALE: 5=1 SIZE: A REASON: 1	
		QUANTITY FOR AN ASSEMBLY: 1	
		QUANTITY FOR ENTIRE DUMMY: 1	
		MATERIAL: SEE NOTE	
		DRAWING NUMBER: T1NKM511	
		Page: 1/1	

NHTSA
 DEPARTMENT OF TRANSPORTATION
 CONTRACT NO.: DTMB 92-54-C-0700
 DESIGNED BY: GESSAC, INC.
 151 GERRARD ST. E.
 SCARBOROUGH, ONTARIO M1V 2T3

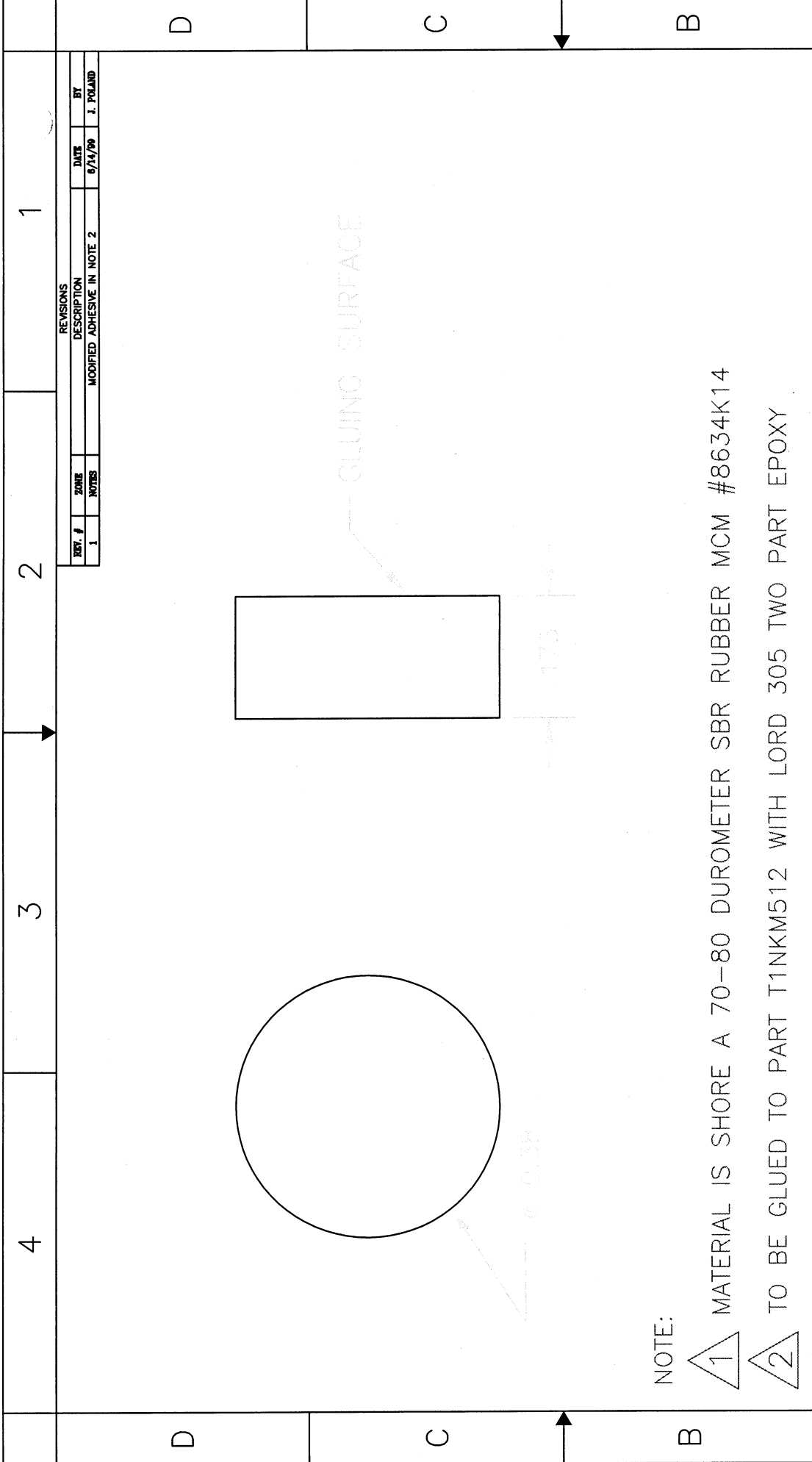
DRAWING TITLE: NECK
 SOFT STOP 2



REV. #	ZONE	DESCRIPTION	DATE	BY
1	GLOBAL	REDESIGN TO INCREASE RUBBER STOP DURABILITY	9/25/06	J. McDONALD
2	CS	REDUCED THE LIP .030". CHANGED MATL TO SS	2/23/09	J. McDONALD
3	DS	CHANGED THREAD DEPTH FROM .35 TO .25 MIN USEABLE	10/18/09	J. McDONALD
4	AI	REDUCED QTY FOR ASSEM. AND DUMMY TO 1	12/4/01	M. ARTIS

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
303	SS	ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	303 SS
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: $\pm .002$ FINISH: * DO NOT SCALE DRAWING *			
ENGINEERED: L. VOGEL		DATE: 10/18/06	DEPARTMENT OF TRANSPORTATION
DRAWN: L. VOGEL		DATE: 10/18/06	NHTSA
CHECKED: M. ARTIS		DATE: 12/4/01	CONTRACT NO.: DTMB 28-94-C-07010
SCALE: 1=1		REVISION: 4	DESIGNED BY: GESAC, INC.
QUANTITY FOR AN ASSEMBLY: 1		DRAWING TITLE: NECK STOP 1	125 ORLAND DRIVE ROCKFORD, IL 61153
QUANTITY FOR ENTIRE DUMMY: 1		DRAWING NUMBER: TINKM612	Page 1/1

NOTE:
 REMOVE ALL BURRS AND BREAK ALL SHARP EDGES.

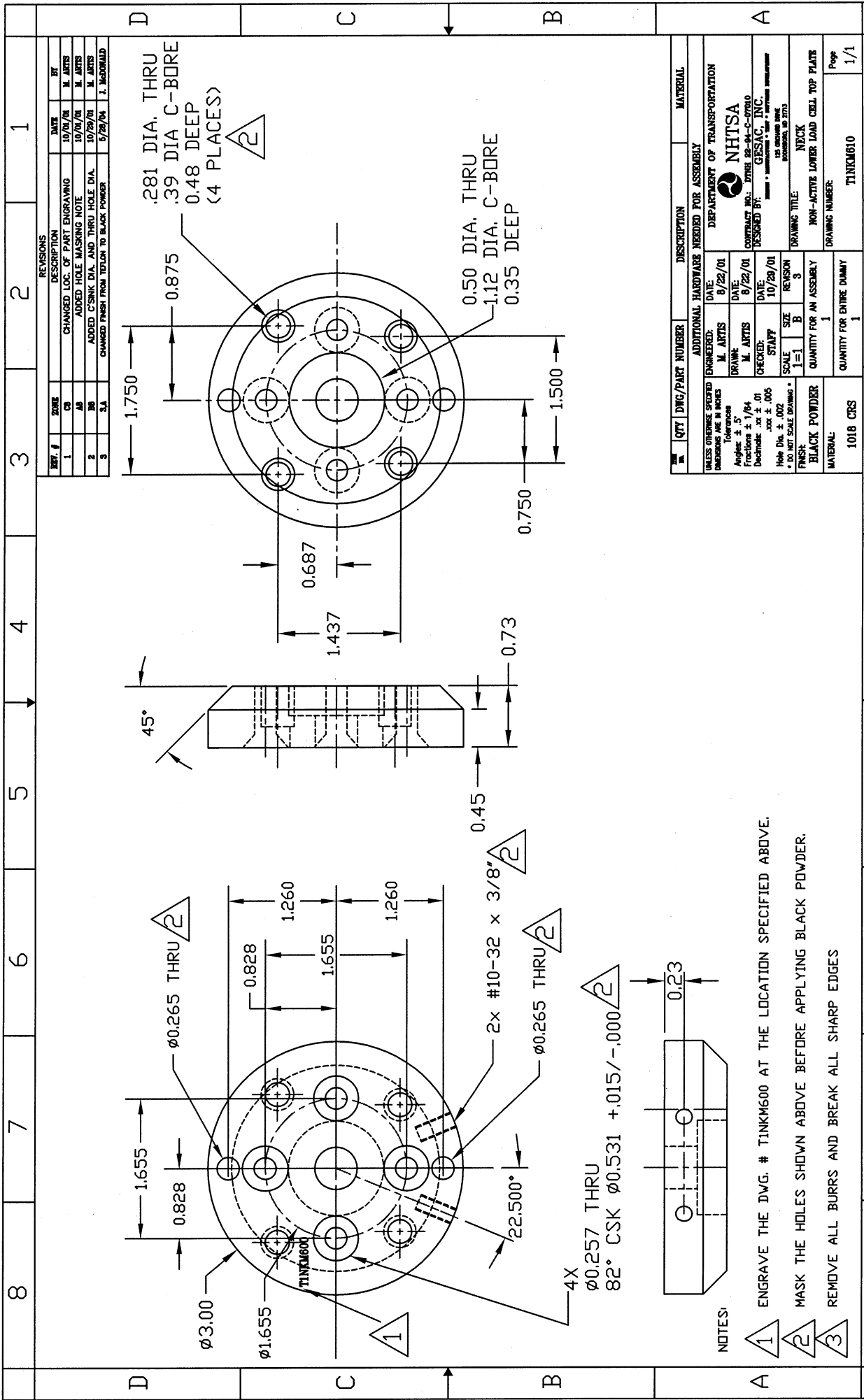


NOTE:

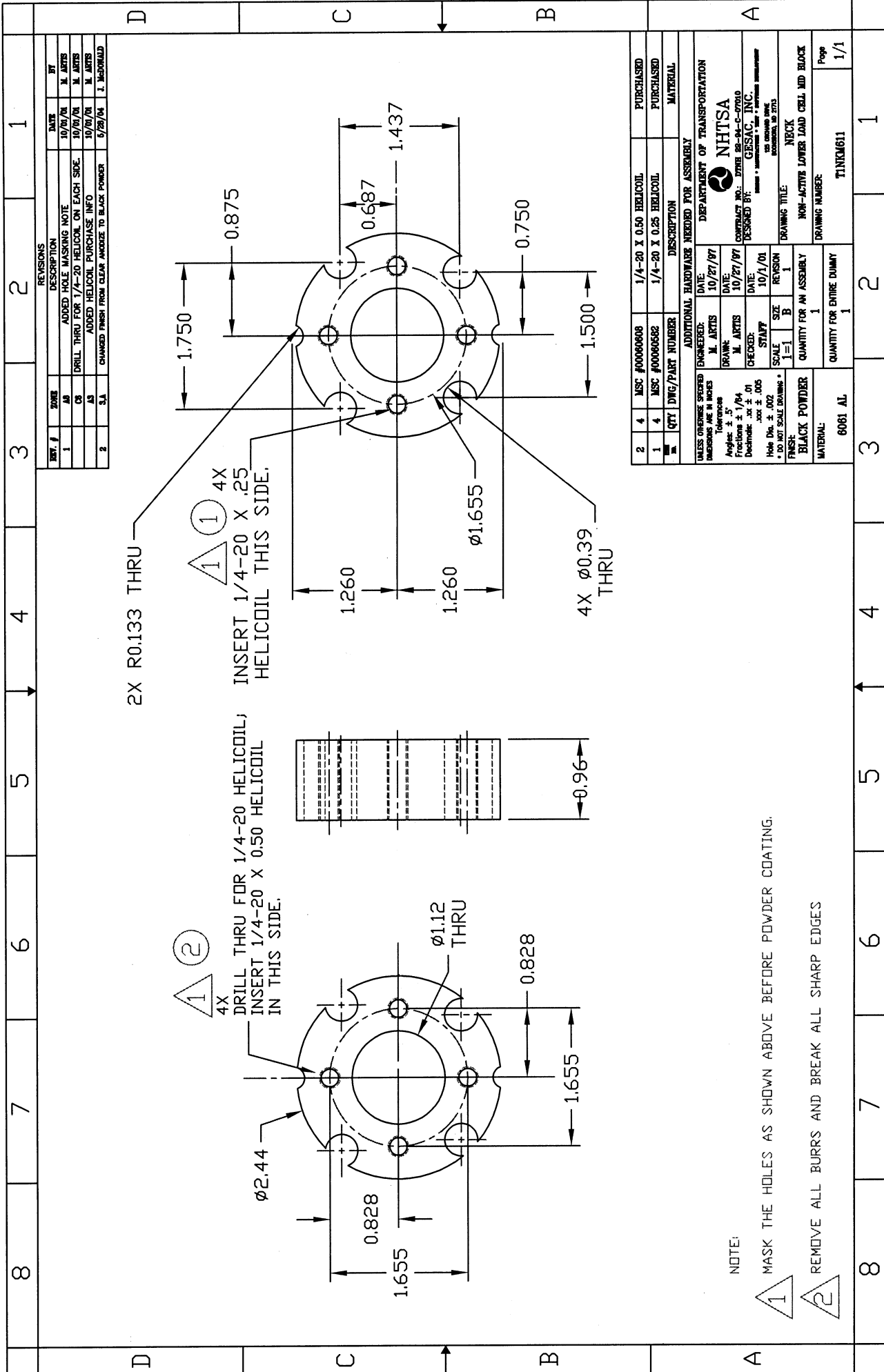
- 1 MATERIAL IS SHORE A 70-80 DUROMETER SBR RUBBER MCM #8634K14
- 2 TO BE GLUED TO PART T1NKM512 WITH LORD 305 TWO PART EPOXY

REV. #	ZONE	NOTES	DESCRIPTION	DATE	BY
1			MODIFIED ADHESIVE IN NOTE 2	6/14/99	J. POLJAND

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
		ENGINEERED: L. VOGEL	DEPARTMENT OF TRANSPORTATION
		DATE: 10/1/96	NHTSA
		DRAWN: L. VOGEL	CONTRACT NO.: DTMB 92-94-C-07010
		DATE: 10/1/96	DESIGNED BY: GBSAC, INC.
		CHECKED: J. McDONALD	125 WILSON BLVD
		DATE: 7/22/97	ROCKFORD, IL 61173
		SCALE: 5=1	DRAWING TITLE: NECK SOFT STOP 1
		SIZE: A	DRAWING NUMBER: T1NKM513
		REVISION: 1	Page: 1/1
		QUANTITY FOR AN ASSEMBLY: 1	
		QUANTITY FOR ENTIRE DUMMY: 1	
		MATERIAL: SEE NOTE	



- NOTES:**
- 1 ENGRAVE THE DWG. # TINKM600 AT THE LOCATION SPECIFIED ABOVE.
 - 2 MASK THE HOLES SHOWN ABOVE BEFORE APPLYING BLACK POWDER.
 - 3 REMOVE ALL BURRS AND BREAK ALL SHARP EDGES



REV. #	DATE	BY
1	10/26/01	M. ARTIS
2	10/26/01	M. ARTIS
3	10/26/01	M. ARTIS
4	10/26/01	M. ARTIS
5	10/26/01	M. ARTIS
6	10/26/01	M. ARTIS
7	10/26/01	M. ARTIS
8	10/26/01	M. ARTIS
9	10/26/01	M. ARTIS
10	10/26/01	M. ARTIS
11	10/26/01	M. ARTIS
12	10/26/01	M. ARTIS
13	10/26/01	M. ARTIS
14	10/26/01	M. ARTIS
15	10/26/01	M. ARTIS
16	10/26/01	M. ARTIS
17	10/26/01	M. ARTIS
18	10/26/01	M. ARTIS
19	10/26/01	M. ARTIS
20	10/26/01	M. ARTIS

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL	
2	4	MSC #00000608	1/4-20 X 0.50 HELICOIL	PURCHASED
1	4	MSC #00000682	1/4-20 X 0.28 HELICOIL	PURCHASED

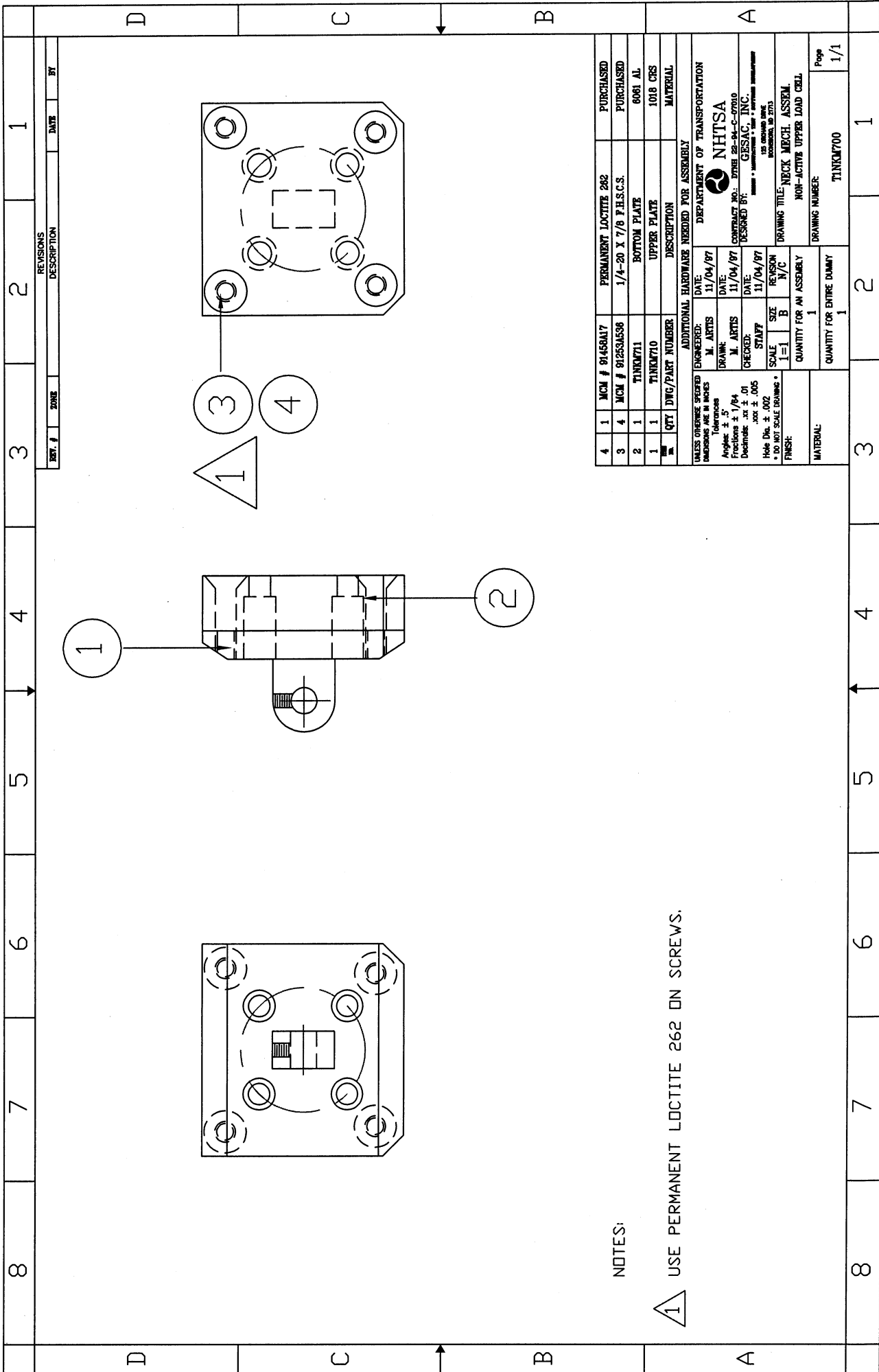
ENGINEERED:	DATE:	DEPARTMENT OF TRANSPORTATION
M. ARTIS	10/27/07	
DRWN:	DATE:	
M. ARTIS	10/27/07	
CHECKED:	DATE:	
STAFF	10/1/01	
SCALE	SIZE	REVISION
1=1	A	1
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		
Tolerances:		
Angles: ± 1/4		
Fractions: ± 1/64		
Decimals: .xxx ± .005		
Hole Dia: ± .002		
* DO NOT SCALE DRAWING *		
FINISH:		
BLACK POWDER		
MATERIAL:		
6061 AL		

ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	DATE:	DEPARTMENT OF TRANSPORTATION
	10/27/07	
	DATE:	
	10/27/07	
	DATE:	
	10/1/01	
	SIZE	REVISION
	A	1
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		
Tolerances:		
Angles: ± 1/4		
Fractions: ± 1/64		
Decimals: .xxx ± .005		
Hole Dia: ± .002		
* DO NOT SCALE DRAWING *		
FINISH:		
BLACK POWDER		
MATERIAL:		
6061 AL		

NOTE:

1 MASK THE HOLES AS SHOWN ABOVE BEFORE POWDER COATING.

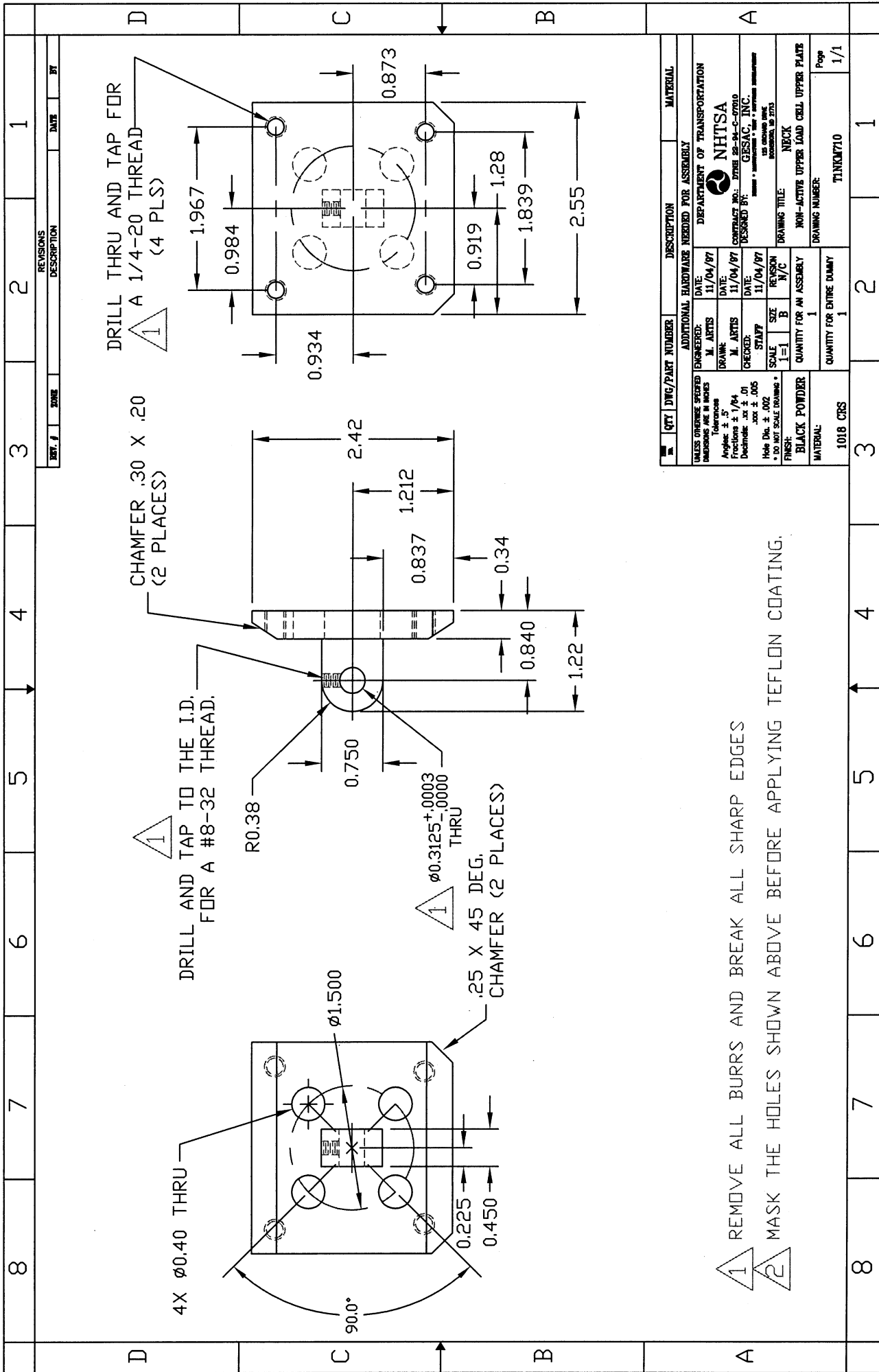
2 REMOVE ALL BURRS AND BREAK ALL SHARP EDGES



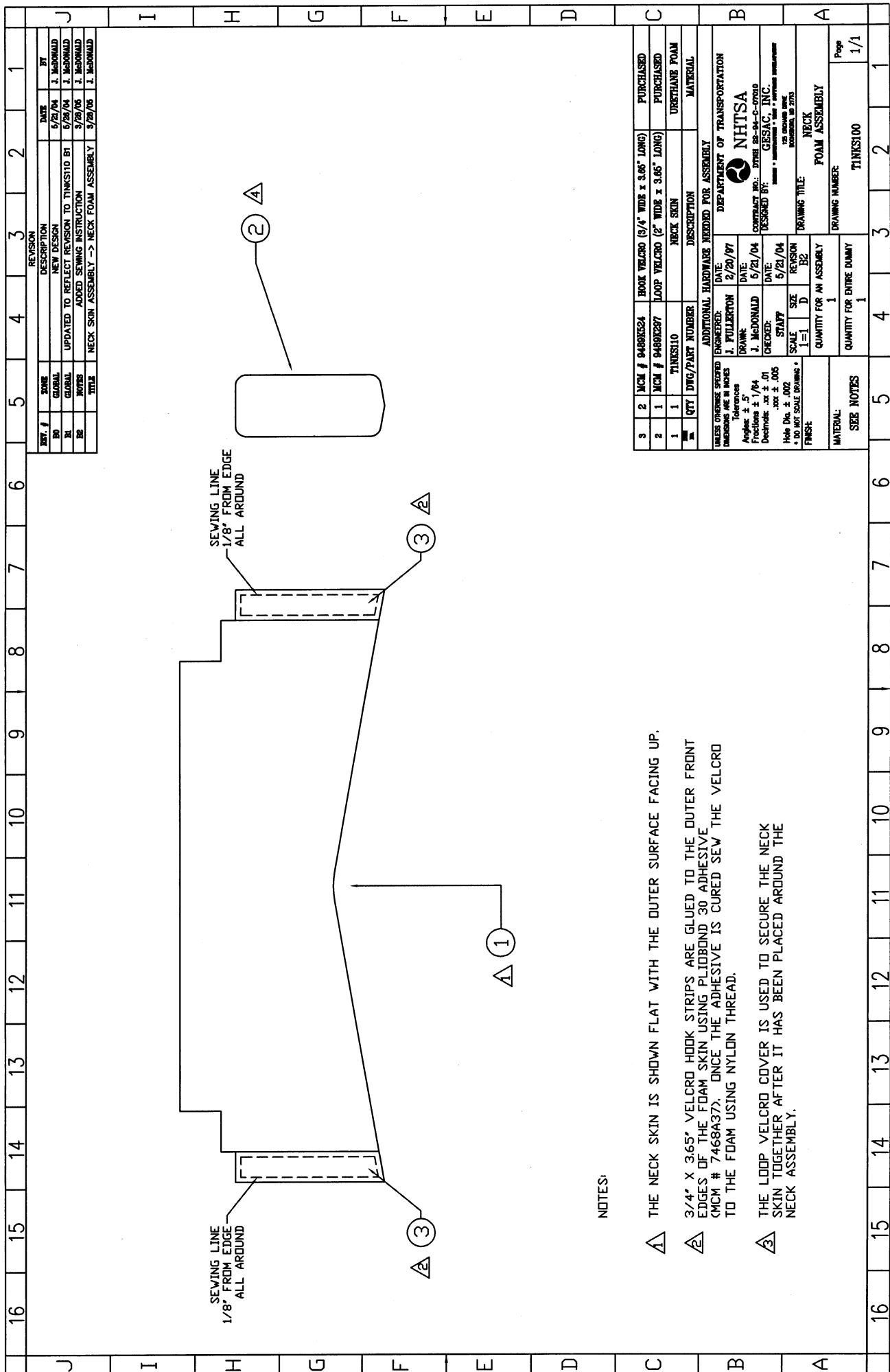
NOTES:

1 USE PERMANENT LOCTITE 262 ON SCREWS.

4	1	MCM # 91458A17	PERMANENT LOCTITE 262	PURCHASED
3	4	MCM # 91253A536	1/4"-20 X 1/8 F.H.S.C.S.	PURCHASED
2	1	TINKM711	BOTTOM PLATE	8081 AL
1	1	TINKM710	UPPER PLATE	1018 CRS
M	QTY	DTWG/PART NUMBER	DESCRIPTION	MATERIAL
ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY ENGINEERED: DATE: 11/04/97 M. ARTIS DRAWN: DATE: 11/04/97 M. ARTIS CHECKED: DATE: 11/04/97 STAFF SCALE: SIZE: REVISION 1=1 B N/C QUANTITY FOR AN ASSEMBLY: 1 QUANTITY FOR ENTIRE DUMMY: 1 MATERIAL: TINKM700				
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES Tolerances Angles: ± 5° Fractions: ± 1/64 Decimals: .xx ± .01 Hole Dia: ± .002 FINISH: * DO NOT SCALE DRAWING *				
DEPARTMENT OF TRANSPORTATION NHTSA CONTRACT NO.: DTRR 26-94-C-07610 DESIGNED BY: GESSAC, INC. 401 WASHINGTON ST. WASHINGTON, DC 20535				
DRAWING TITLE: NECK MECH. ASSEM.				Page
NON-ACTIVE UPPER LOAD CELL				1/1
DRAWING NUMBER: TINKM700				



8	7	6	5	4	3	2	1																																
D		C		B		A																																	
<p>REVISIONS</p> <table border="1"> <tr> <th>REV. #</th> <th>ZONE</th> <th>DESCRIPTION</th> <th>DATE</th> <th>BY</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>								REV. #	ZONE	DESCRIPTION	DATE	BY																											
REV. #	ZONE	DESCRIPTION	DATE	BY																																			
<p>DRILL THRU AND C'SINK FOR A 1/4-20 SCREW (4 PLS)</p> <p>.265 DIA. THRU .40 DIA. C'BORE .410 DEEP (4 PLACES)</p> <p>90.0°</p> <p>∅1.500</p> <p>.25 X 45 DEG. CHAMFER (2 PLACES)</p> <p>2.42</p> <p>0.66</p>																																							
<p>NOTE: BREAK ALL SHARP EDGES</p>																																							
<table border="1"> <thead> <tr> <th>QTY</th> <th>DWG/PART NUMBER</th> <th>DESCRIPTION</th> <th>MATERIAL</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>8061 AL</td> <td>NON-ACTIVE UPPER LOAD CELL LOWER PLATE</td> <td>BLACK POWDER</td> </tr> <tr> <td>1</td> <td>TINKM711</td> <td>QUANTITY FOR ENTIRE DUMMY</td> <td></td> </tr> </tbody> </table>								QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL	1	8061 AL	NON-ACTIVE UPPER LOAD CELL LOWER PLATE	BLACK POWDER	1	TINKM711	QUANTITY FOR ENTIRE DUMMY																					
QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL																																				
1	8061 AL	NON-ACTIVE UPPER LOAD CELL LOWER PLATE	BLACK POWDER																																				
1	TINKM711	QUANTITY FOR ENTIRE DUMMY																																					
8	7	6	5	4	3	2	1																																
<table border="1"> <thead> <tr> <th colspan="2">ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY</th> <th colspan="2">DEPARTMENT OF TRANSPORTATION</th> </tr> </thead> <tbody> <tr> <td>ENGINEERED:</td> <td>M. ARTIS</td> <td>DATE:</td> <td>11/04/97</td> </tr> <tr> <td>DRAWN:</td> <td>M. ARTIS</td> <td>DATE:</td> <td>11/04/97</td> </tr> <tr> <td>CHECKED:</td> <td>STAFF</td> <td>DATE:</td> <td>11/04/97</td> </tr> <tr> <td>SCALE:</td> <td>1=1</td> <td>REVISION:</td> <td>N/C</td> </tr> <tr> <td>SIZE:</td> <td>A</td> <td>QUANTITY FOR AN ASSEMBLY:</td> <td>1</td> </tr> <tr> <td>FINISH:</td> <td>BLACK POWDER</td> <td>QUANTITY FOR ENTIRE DUMMY:</td> <td>1</td> </tr> <tr> <td colspan="2">MATERIAL:</td> <td colspan="2">8061 AL</td> </tr> </tbody> </table>								ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY		DEPARTMENT OF TRANSPORTATION		ENGINEERED:	M. ARTIS	DATE:	11/04/97	DRAWN:	M. ARTIS	DATE:	11/04/97	CHECKED:	STAFF	DATE:	11/04/97	SCALE:	1=1	REVISION:	N/C	SIZE:	A	QUANTITY FOR AN ASSEMBLY:	1	FINISH:	BLACK POWDER	QUANTITY FOR ENTIRE DUMMY:	1	MATERIAL:		8061 AL	
ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY		DEPARTMENT OF TRANSPORTATION																																					
ENGINEERED:	M. ARTIS	DATE:	11/04/97																																				
DRAWN:	M. ARTIS	DATE:	11/04/97																																				
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SCALE:	1=1	REVISION:	N/C																																				
SIZE:	A	QUANTITY FOR AN ASSEMBLY:	1																																				
FINISH:	BLACK POWDER	QUANTITY FOR ENTIRE DUMMY:	1																																				
MATERIAL:		8061 AL																																					



REV. #		ZONE		DESCRIPTION		DATE		BY	
1		GLOBAL		NEW DESIGN		6/21/04		J. McDONALD	
2		GLOBAL		UPDATED TO REFLECT REVISION TO THINKSTIO B1		6/22/04		J. McDONALD	
3		NOTES		ADDED SEWING INSTRUCTION		5/22/05		J. McDONALD	
4		TITLE		NECK SKIN ASSEMBLY -> NECK FOAM ASSEMBLY		5/22/05		J. McDONALD	

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
1	1	THINKSTIO	NECK SKIN
1	1	NECK SKIN	URETHANE FOAM

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	ENGINEERED:	DATE:	ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY
Tolerances	J. KILLERTON	2/20/07	
Angles: ± .5°			
Fractions: ± 1/64			
Decimals: .xx ± .01			
Whole Dts: ± .002			
* TO NET SCALE DRAWING *			

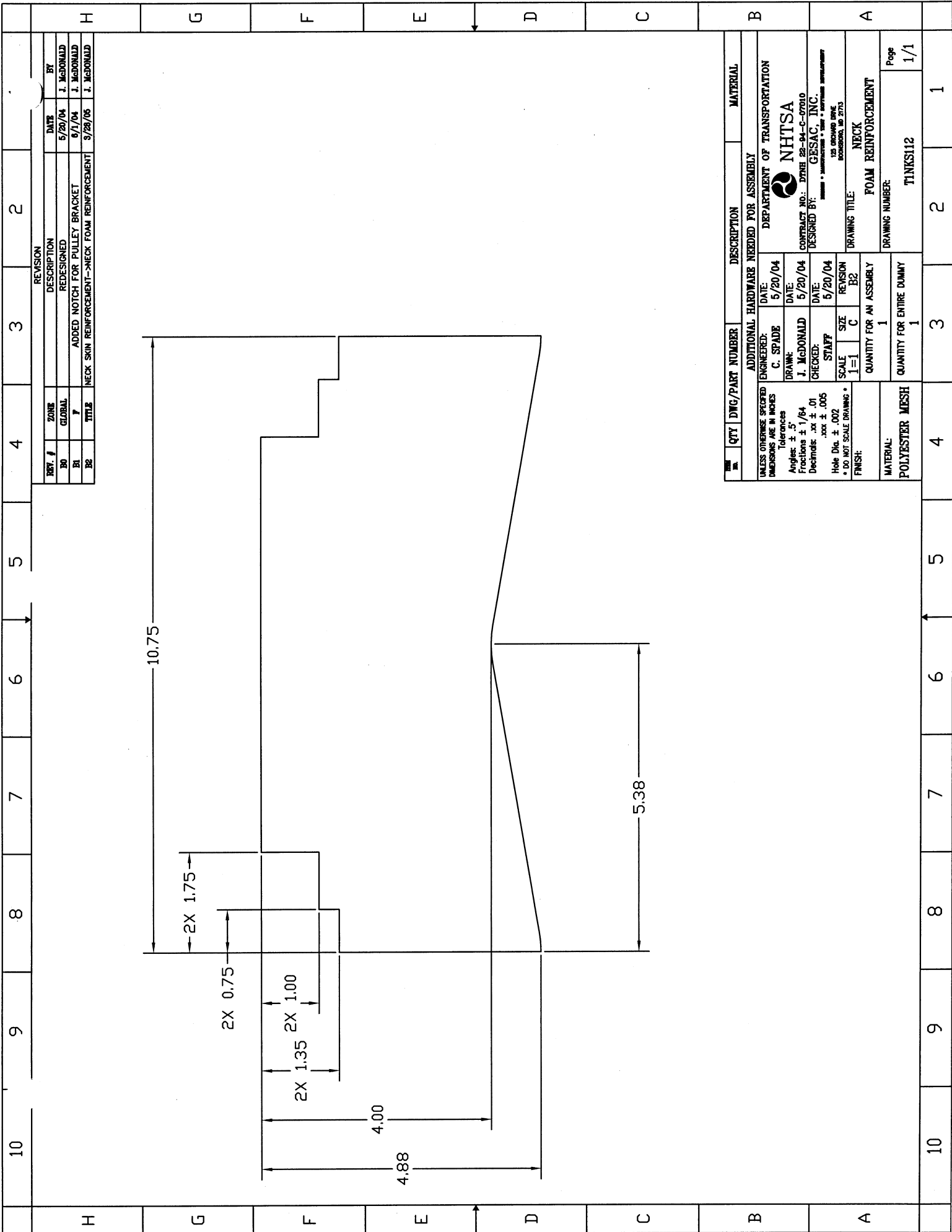
DEPARTMENT OF TRANSPORTATION	NHTSA
CONTRACT NO.: DTMB 28-04-C-0700	
DESIGNED BY: GESSAC, INC.	
12400 WILSON BLVD	
ROCKVILLE, MD 20850	

QUANTITY FOR AN ASSEMBLY	REVISION	DRAWING TITLE	NECK FOAM ASSEMBLY
1	B2		
1			

MATERIAL:	QUANTITY FOR ENTIRE DUMMY	DRAWING NUMBER:	Page
SEE NOTES	1	THINKSTIO	1/1

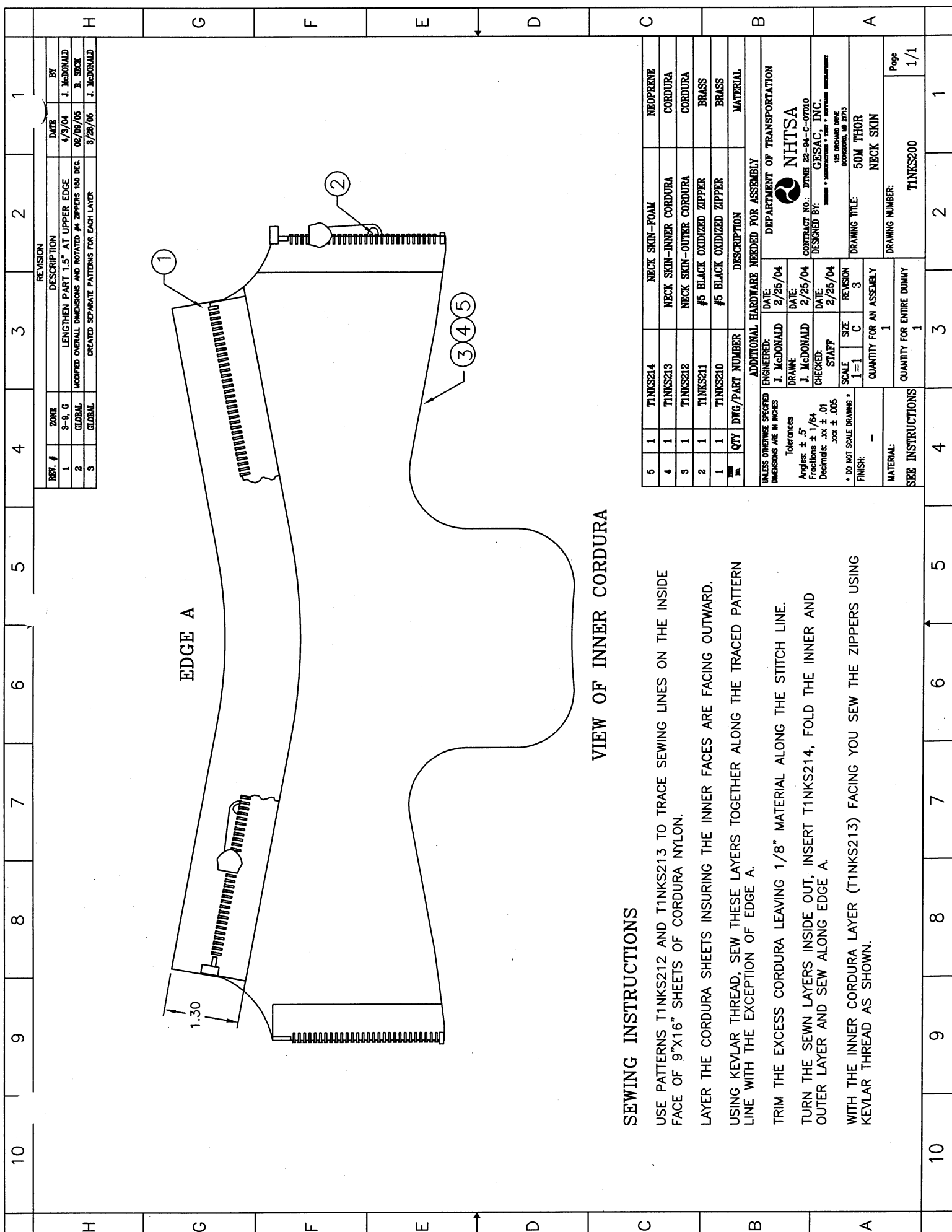
NOTES:

- △ THE NECK SKIN IS SHOWN FLAT WITH THE OUTER SURFACE FACING UP.
- △ 3/4" x 3.65" VELCRO HOOK STRIPS ARE GLUED TO THE OUTER FRONT EDGES OF THE FOAM SKIN USING PLIOBOND 30 ADHESIVE (MCM # 7468A37). ONCE THE ADHESIVE IS CURED SEW THE VELCRO TO THE FOAM USING NYLON THREAD.
- △ THE LOOP VELCRO COVER IS USED TO SECURE THE NECK SKIN TOGETHER AFTER IT HAS BEEN PLACED AROUND THE NECK ASSEMBLY.



REV. #	ZONE	DESCRIPTION	DATE	BY
B0	GLOBAL	DESIGNED	5/20/04	J. McDONALD
B1	F	ADDED NOTCH FOR PULLEY BRACKET	6/1/04	J. McDONALD
B2	TITLE	NECK SKIN REINFORCEMENT--NECK FOAM REINFORCEMENT	3/28/05	J. McDONALD

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
1		ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES			
Tolerances			
Angles: ± .5°			
Fractions: ± 1/64			
Decimals: .xxx ± .01			
.xxx ± .005			
Hole Dia. ± .002			
* DO NOT SCALE DRAWING *			
FINISH:			
I=1 C B2			
SCALE: I=1 C B2			
STAFF: I=1 C B2			
CHECKED: J. McDONALD			
DATE: 5/20/04			
DRAWN: J. McDONALD			
DATE: 5/20/04			
ENGINEERED: C. SPADE			
DATE: 5/20/04			
DEPARTMENT OF TRANSPORTATION			
NHTSA			
CONTRACT NO.: DTNH 22-94-C-07010			
DESIGNED BY: GESAC, INC.			
125 ORCHARD BLVD			
BOSSBORO, MD 21733			
DRAWING TITLE: NECK			
FOAM REINFORCEMENT			
DRAWING NUMBER: TINKS112			
Page 1/1			



EDGE A

VIEW OF INNER CORDURA

SEWING INSTRUCTIONS

USE PATTERNS T1NKS212 AND T1NKS213 TO TRACE SEWING LINES ON THE INSIDE FACE OF 9"x16" SHEETS OF CORDURA NYLON.

LAYER THE CORDURA SHEETS INSURING THE INNER FACES ARE FACING OUTWARD.

USING KEVLAR THREAD, SEW THESE LAYERS TOGETHER ALONG THE TRACED PATTERN LINE WITH THE EXCEPTION OF EDGE A.

TRIM THE EXCESS CORDURA LEAVING 1/8" MATERIAL ALONG THE STITCH LINE.

TURN THE SEWN LAYERS INSIDE OUT, INSERT T1NKS214, FOLD THE INNER AND OUTER LAYER AND SEW ALONG EDGE A.

WITH THE INNER CORDURA LAYER (T1NKS213) FACING YOU SEW THE ZIPPERS USING KEVLAR THREAD AS SHOWN.

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
6	T1NKS214	NECK SKIN-FOAM	NEOPRENE
4	T1NKS213	NECK SKIN-INNER CORDURA	CORDURA
3	T1NKS212	NECK SKIN-OUTER CORDURA	CORDURA
2	T1NKS211	#5 BLACK OXIDIZED ZIPPER	BRASS
1	T1NKS210	#5 BLACK OXIDIZED ZIPPER	BRASS

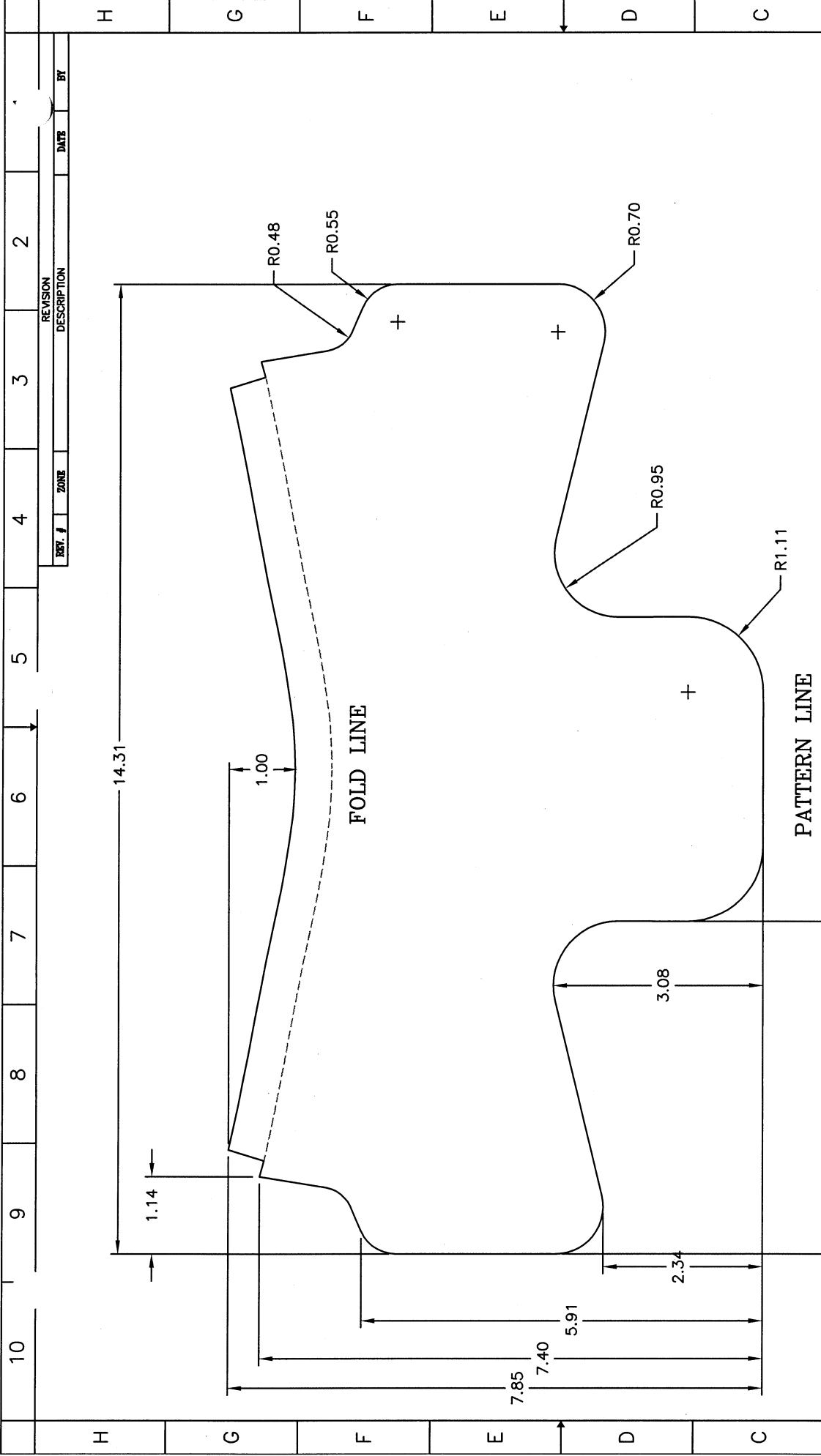
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		ENGINEERED:	DATE:
Tolerances		J. McDONALD	2/25/04
Angles: ± 5'		DRAWN:	DATE:
Fractions: ± 1/64		J. McDONALD	2/25/04
Decimals: .xxx ± .01		CHECKED:	DATE:
.xxx ± .005		STAFF	2/25/04
* DO NOT SCALE DRAWING *		SCALE	SIZE
FINISH: -		1=1	C
MATERIAL:		QUANTITY FOR AN ASSEMBLY	REVISION
SEE INSTRUCTIONS		1	3
		QUANTITY FOR ENTIRE DUMMY	
		1	

ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
DEPARTMENT OF TRANSPORTATION	
NHTSA	
CONTRACT NO.: DTRM 22-04-C-07010	
DESIGNED BY: GESAC, INC.	
125 ORCHARD WALK	
BOWLING, MD 21775	
DRAWING TITLE: 50M THOR	
NECK SKIN	
DRAWING NUMBER: T1NKS200	
Page 1/1	

REV. #	ZONE	DESCRIPTION	DATE	BY
1	3-9, G	LENGTHEN PART 1.5" AT UPPER EDGE	4/3/04	J. McDONALD
2	GLOBAL	MODIFIED OVERALL DIMENSIONS AND ROTATED #5 ZIPPERS 180 DEG.	02/09/05	B. SECK
3	GLOBAL	CREATED SEPARATE PATTERNS FOR EACH LAYER	3/29/05	J. McDONALD

8	7	6	5	4	3	2	1																																																								
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	Page: 1/1																																		



REV. #	ZONE	DESCRIPTION	DATE	BY

QTY	PG#	DWG/PART NUMBER	DESCRIPTION	MATERIAL
1	1	W9350RD	9"X16" CORDURA FABRIC (RED)	CORDURA

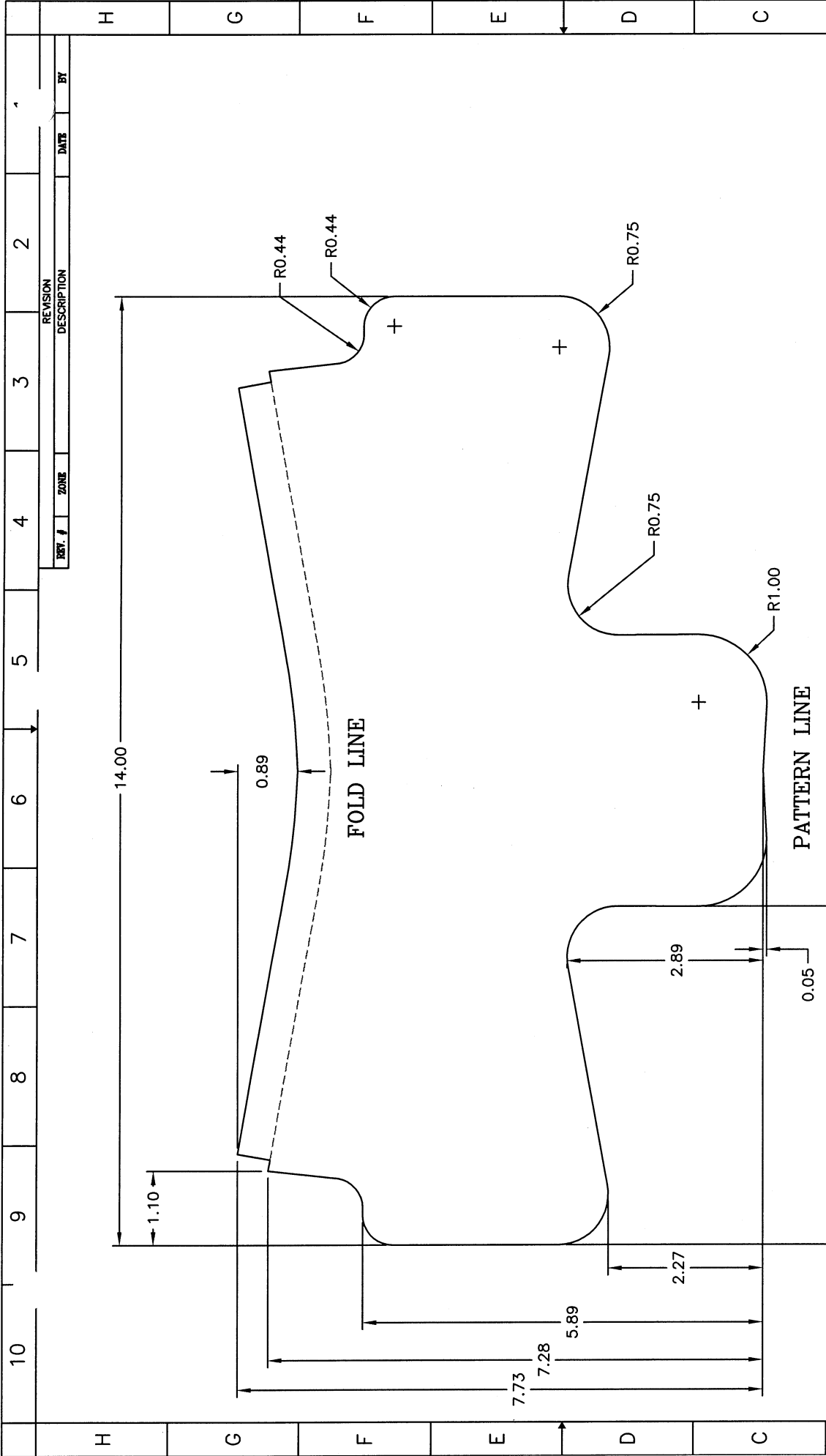
ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
ENGINEERED:	J. McDONALD
DATE:	2/25/04
DRAWN:	J. McDONALD
DATE:	2/25/04
CHECKED:	J. McDONALD
DATE:	2/25/04
SCALE:	1=1
SIZE:	C
REVISION:	N/C
QUANTITY FOR AN ASSEMBLY:	1
QUANTITY FOR ENTIRE DUMMY:	1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	
Tolerances	Angles: ± .5°
	Fractions: ± 1/64
	Decimals: .xx ± .01
	.xxx ± .005
	* DO NOT SCALE DRAWING *
FINISH:	-

DEPARTMENT OF TRANSPORTATION	
NHTSA	
CONTRACT NO.:	DYWB 22-04-C-07010
DESIGNED BY:	GESAC, INC.
125 ORCHARD DRIVE ROCKFORD, IL 61153	
DRAWING TITLE:	NECK SKIN-OUTER CORDURA
DRAWING NUMBER:	TINKS212
Page	1/1

NOTES:

1 PATTERN LINE = SEWING LINE, TRACE PATTERN ONTO 9"X16" SHEET



REV. #	ZONE	DESCRIPTION	DATE	BY

QTY	DWG/PART NUMBER	DESCRIPTION	MATERIAL
1	PG# W9350RD	9"X16" CORDURA FABRIC (RED)	CORDURA

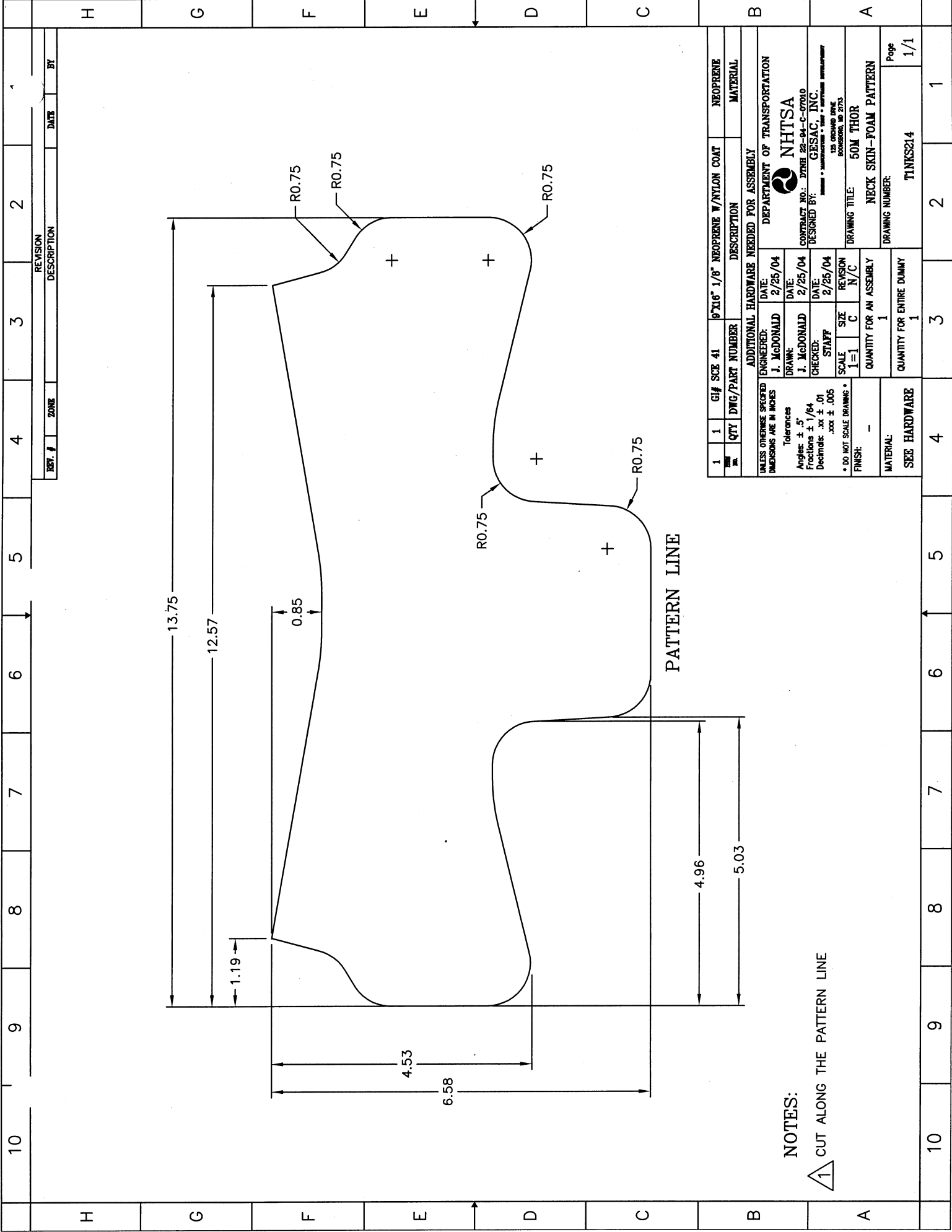
ADDITIONAL HARDWARE NEEDED FOR ASSEMBLY	
ENGINEERED:	DATE: 2/25/04
J. McDONALD	
DRAWN:	DATE: 2/25/04
J. McDONALD	
CHECKED:	DATE: 2/25/04
STAFF	
SCALE:	SIZE: N/C
1=1	
QUANTITY FOR AN ASSEMBLY:	1
QUANTITY FOR ENTIRE DUMMY:	1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	
Tolerances	
Angles: ± .5°	
Fractions: ± 1/64	
Decimals: .xx ± .01	
.xxx ± .005	
* DO NOT SCALE DRAWING *	
FINISH:	-

DEPARTMENT OF TRANSPORTATION	
NHTSA	
CONTRACT NO.: DTRM 25-94-C-07010	
DESIGNED BY: GESAC, INC.	
125 ORCHARD DRIVE ROCKFORD, IL 61153	
DRAWING TITLE:	50M THOR
NECK SKIN--INNER CORDURA	
DRAWING NUMBER:	TINKS213
Page	1/1

NOTES:

1 PATTERN LINE = SEWING LINE, TRACE PATTERN ONTO 9"X16" SHEET



NOTES:

1 CUT ALONG THE PATTERN LINE

REV. #	QTY	DATE	DESCRIPTION	MATERIAL
1	1	9/21/06	1/8" NEOPRENE W/NYLON COAT	NEOPRENE

ENGINEERED:	DATE:
J. McDONALD	2/25/04

DRAWN:	DATE:
J. McDONALD	2/25/04

CHECKED:	DATE:
STAFF	2/25/04

SCALE	SIZE	REVISION
1=1	C	N/C

FINISH:	QUANTITY FOR AN ASSEMBLY
-	1

MATERIAL:	QUANTITY FOR ENTIRE DUMMY
SEE HARDWARE	1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	DEPARTMENT OF TRANSPORTATION
Tolerances	NHTSA
Angles: ± .5°	CONTRACT NO.: DTMB 22-04-C-07010
Fractions: ± 1/64	DESIGNED BY: GESAC, INC.
Decimals: .xx ± .01	125 ORCHARD DRIVE
.xxx ± .005	BOZEMAN, MT 59715
* DO NOT SCALE DRAWING *	DRAWING TITLE: 50M THOR
	NECK SKIN-FOAM PATTERN
	DRAWING NUMBER: TINKS214
	Page 1/1

4 3 2 1

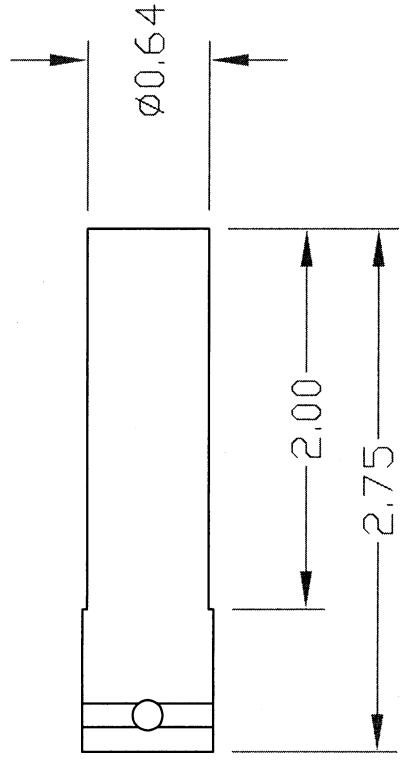
REV. #	ZONE	DATE	BY

D

C

B

A



NOTE:
MODIFY PURCHASED PART AS SHOWN

D

C

B

A

REV. #	QTY	McM#	DWG/PART NUMBER	3/8" DEEP SOCKET	DESCRIPTION	PURCHASED MATERIAL
1	1	5653A45				
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: 1=1 A N/C						
ENGINEERED: J. POLAND DATE: 03/16/01						
DRAWN: J. POLAND DATE: 03/16/01						
CHECKED: M. ARTIS DATE: 5/2/01						
SCALE: 1=1 A N/C						
QUANTITY FOR AN ASSEMBLY: 1						
QUANTITY FOR ENTIRE DUMMY: 1						
MATERIAL: SEE NOTE						
DRAWING TITLE: NECK TOOL SPRING ADJUSTMENT SOCKET						
DRAWING NUMBER: TINKT010						
Page 1/1						

4 3 2 1

4 3 2 1

D

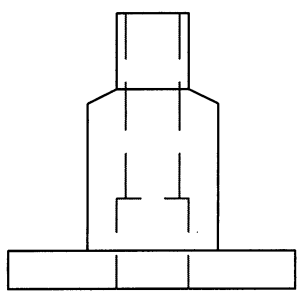
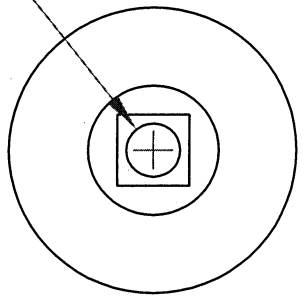
C

B

A

REVISIONS			
REV. #	ZONE	DATE	BY
1	2.C	6/17/04	J. McDONALD
DESCRIPTION CHANGE .280 TO .28			

Ø.28 THRU



NOTE: MODIFY PURCHASED PART AS SHOWN

1	McM# 5622A27	3/8" RATCHET SPINNER	PURCHASED
QTY	DTG/PART NUMBER	DESCRIPTION	MATERIAL
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: J. POLAND DATE: 03/16/01			
DRAWN: J. POLAND DATE: 03/16/01			
CHECKED: M. ARTIS DATE: 5/2/01			
SCALE: 1=1 SIZE: A REVISION: 1			
QUANTITY FOR AN ASSEMBLY: 1			
QUANTITY FOR ENTIRE DUMMY: 1			
MATERIAL: SEE NOTE			
DRAWING TITLE: NECK TOOL			
DRAWING NUMBER: TINKT011			
DEPARTMENT OF TRANSPORTATION			
NHTSA			
CONTRACT NO.: DTRR 22-94-C-07010			
DESIGNED BY: GESAC, INC.			
125 BRIDGE DRIVE ROCKFORD, IL 61273			
Page 1/1			

4 3 2 1

D

C

B

A