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**ARMED SERVICES TECHNICAL INFORMATION AGENCY
ARLINGTON HALL STATION
ARLINGTON 12, VIRGINIA**



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62-4-6

MOLDED INSULATION COMPANY

335 E. PRICE STREET PHILADELPHIA 44, PA. code 215 Victor 4-2626

PRODUCTS

283 618

CATALOGED BY ASTIA
A. AD No.

SUBMITTED TO:

ARMED SERVICES TECHNICAL
INFORMATION AGENCY
ARLINGTON HALL STATION
ARLINGTON 12, VIRGINIA

SUBJECT:

SUMMARY REPORT OF THE
PRODUCTION ENGINEERING OF
THE M18A1 MINE

CONTRACT:

DA-28-017-ORD-3079

SUBMITTED BY

Michael Garrity

M. Garrity
Project Engineer

APPROVED

R. F. Hurst

R. F. Hurst
Vice President



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1. INTRODUCTION

The purpose of this report is to outline the processes used in the production of the M18A1 APERS Mine and to illuminate any difficulties encountered and suggest changes that will facilitate production.

This item will be procured in quantities of fifty thousand or greater so this report will deal only with large quantity production.

The design changes that occurred during this production study will not be discussed.

2. MATERIAL NOTES

The mine assembly is unique in anti-personnel mine systems in as much as it can be aimed when set in place and fired by remote control. This assembly is built to withstand a drop test of six feet to a steel plate without impairing its service.

Durability for the mine is important for it is given rough treatment from the time it is issued to the foot soldier until its destruction. The fiberfil material is compounded of fiber glass and polystyrene which coupled together make a strong but not brittle material yet flexible enough to withstand high impact. The high percentage of glass imparts good dimensional stability and the styrene bonds easily to itself or other plastics. This is the reason that this material was used for the various items.

3. CASE NO. 8800915

The predominant feature is the Case no. 8800915. This is injection molded of Fiberfil per MIL-M-21347. Due to the molded threads in the detonator well cavities two loose pins are required for each mold cavity. Orientation of the thread termination in relation to the case proper must be considered when designing the mold and an additional set of pins will increase the mold production. Two minutes cycle time is sufficient to produce a perfectly molded part regardless of a single cavity or multicavity mold. The gate location should be in the vicinity of the detonator wells to give a good fill with a minimum cylinder pressure. This will also maintain flash that can be removed by tumbling.

Fiberfil material is hydrostatic and should be stored in a dry area and warmed prior to loading in the injection cylinder. The Fiberfil Corporation of Warsaw, Indiana will cooperate in the design of the mold and processing of the raw material.

4. COVER NO. 8800916

The Cover no. 8800916 is the mating part for the case and of less complex configuration which results in less costly mold design and higher production figures. This part can be produced in a completely automatic press using the same material precautions as with the case and simply tumbled to remove molding flash.

• 5. DETONATOR WELL ADAPTER

The Detonator Well Adapter no. 8800913 is made of the same material as the case and cover and it too can be molded automatically.

6. DETONATOR WELL PLUG

The Detonator Well Plug no. 8800923 is ideally suited for automatic molding and its material linear polyethelene requires no special handling.

7. ANGLE BRACKET

The Angle Bracket no. 8800907 is an example of simplicity in design for the lowest cost with out sacrifice of function. Low carbon steel as specified is in abundance and the cheapest wrought material available. The progressive die necessary to produce this part can be made in any tool room and run in a press at one hundred strokes per minute. The tool necessary to do one good part will turn out several million.

8. LEG NO. 8800908

The Leg no. 8800908 is designed to support the mine on any terrain with some penetration of the leg into whatever surface it may be placed. Again low carbon steel is used with the best results but the die is a little different in design. Shaping the punch is the most difficult part but once shaped it can be fitted to the die steel. A good toolmaker can make this tool in fifty hours. This part can also be run at approximately one hundred strokes per minute.

9. WASHER - SPRING

The Washer - Spring no. 8837131 is a standard part produced by Shakeproof Incorporated and should be checked for hardness and temper retention.

10. WASHER - FLAT

Washer - Flat no. MS15795-308 can be manufactured with simple tools or can be purchased at any flat washer organization for very nominal prices.

11. STEEL BALL

Steel Ball no. 8800922 is similar to parts of like nature produced by all of the ball manufacturers. The material is low carbon steel in the range of 1009 to 1014 carbon and hardened to R_C 43-47 to a depth of .020 to .030.

The first stage of manufacturing is heading where the steel wire is thread thru a die clamped and peened to form a shape roughly the same as a ball but with an equator raised about fifteen thousandths above the shaped diameter with a base section approximately ten to fifteen thousandths thick.

Production rate for the size ball required is in the neighborhood of three hundred per minute. After this operation the balls are then poured in a hopper of a grinding machine. This is a single purpose machine whose sole function is to rough grind the equator off the headed ball. Thousands of these balls are run thru this machine at one time recirculating about every two or three minutes to pass the multisegmented grinding wheel that is the heart of this machine. It takes several machine hours to process a single batch of balls.

Succeeding this grinding operation the balls are then heat treated to full hardness in a rotating carbonizing furnace. After this a temper drawing operation is conducted to reduce the full hardness down to the R_C 45.

The depth of the case dictates the length of time in hours to achieve the proper ball characteristics. A light acid dip is sufficient to remove the fire scale.

13. LEG ASSEMBLY

The Leg Assembly no. 8837129 can be processed on a standard riveting machine with standard tooling. This operation can be automated fully with hopper feeds for all parts in the proper sequence, but the tooling cost would require production figures of at least one million pieces.

Riveting the leg assemblies to the case is performed in the same manner as assembly of the legs on the same equipment.

12. BALL POTTING MATERIAL

Several combinations of Devcon "A" and resins were tried to provide the best all around compound. The iron filings as found in the Devcon "A" are essential to provide a mat to support the resin prior to setting-up and when detonation occurs it, offers a density similar to the balls which tends to retard the blast as it escapes thru the small openings that exist between balls. The resin mines provide ease of handling and a tough body after curing.

14. ASSEMBLY NOTES

The balls can be dispensed within the count tolerance from an Exact Weight Scale into the front tray. After experimenting on many different fixtures and devices, the most economical method was to provide an operator with a small vacuum type probe which could lift a single ball and transport it to another section. The probe was also used to move many balls at one time and in a short training period, an operator could orient the tray full of balls in less than one minute.

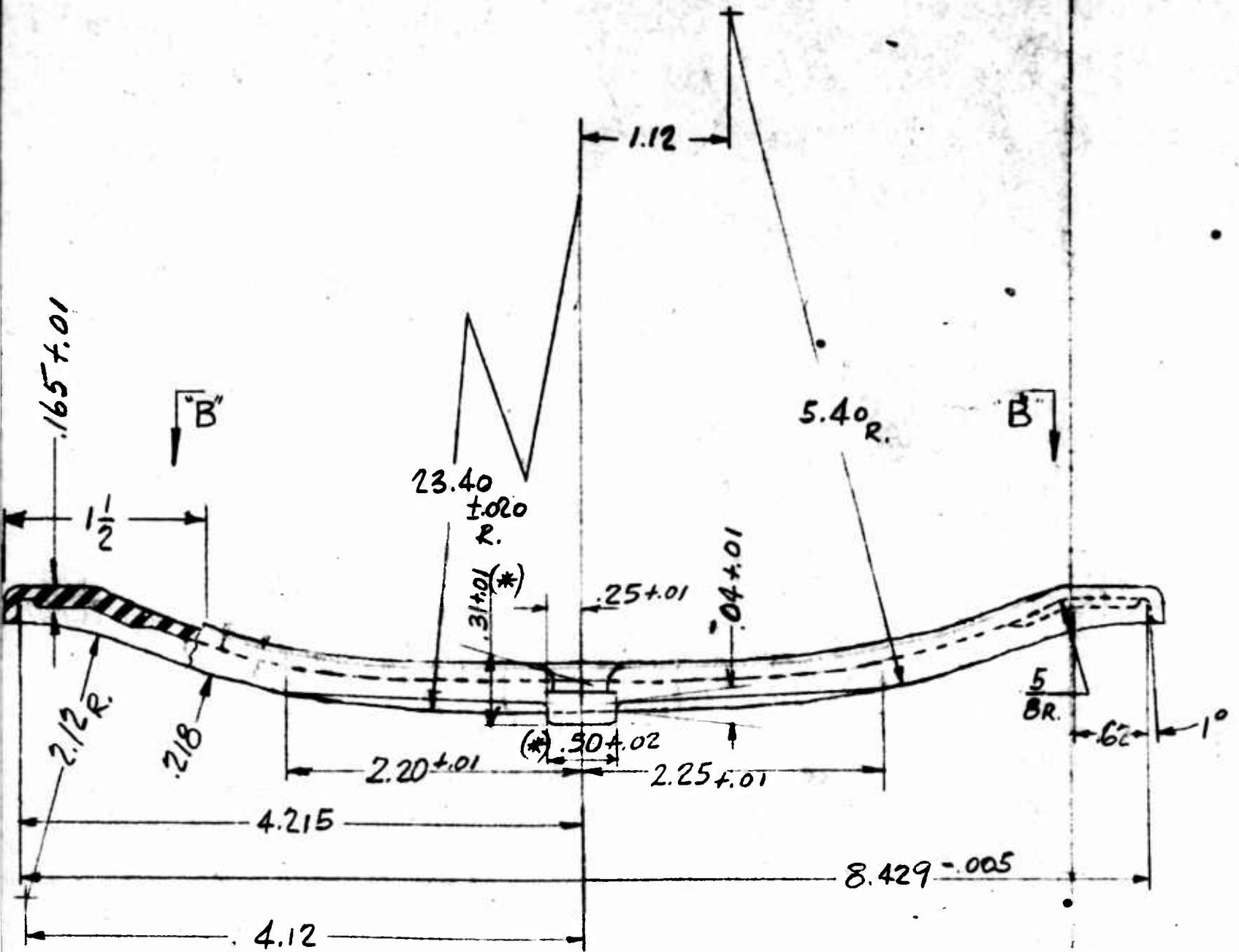
The potting material can be dispensed from any of the many available grease gun type dispensers available. Enough potting compound can be mixed for one day's production and stored in a cold box until used. When dispensing, the operator should trace a line about one inch from each case side for the entire length of the tray and do the same at each end except that the line should be about one half inch from the case end. Coordination of the movement of the gun and the volume of compound dispensed will deposit the right amount on the balls. The "right amount" being enough to cover thoroughly the balls without puddling in low spots of the case contour. A polyethelene paddle makes a very handy spreader to usher compound into starved areas. Water acts as a good lubricant on tools in contact with the compound and industrial alcohol is a good solvent.

The principle resin used is epoxy, and particular care should be exercised in cleaning the hands and tools as well as providing adequate ventilation.

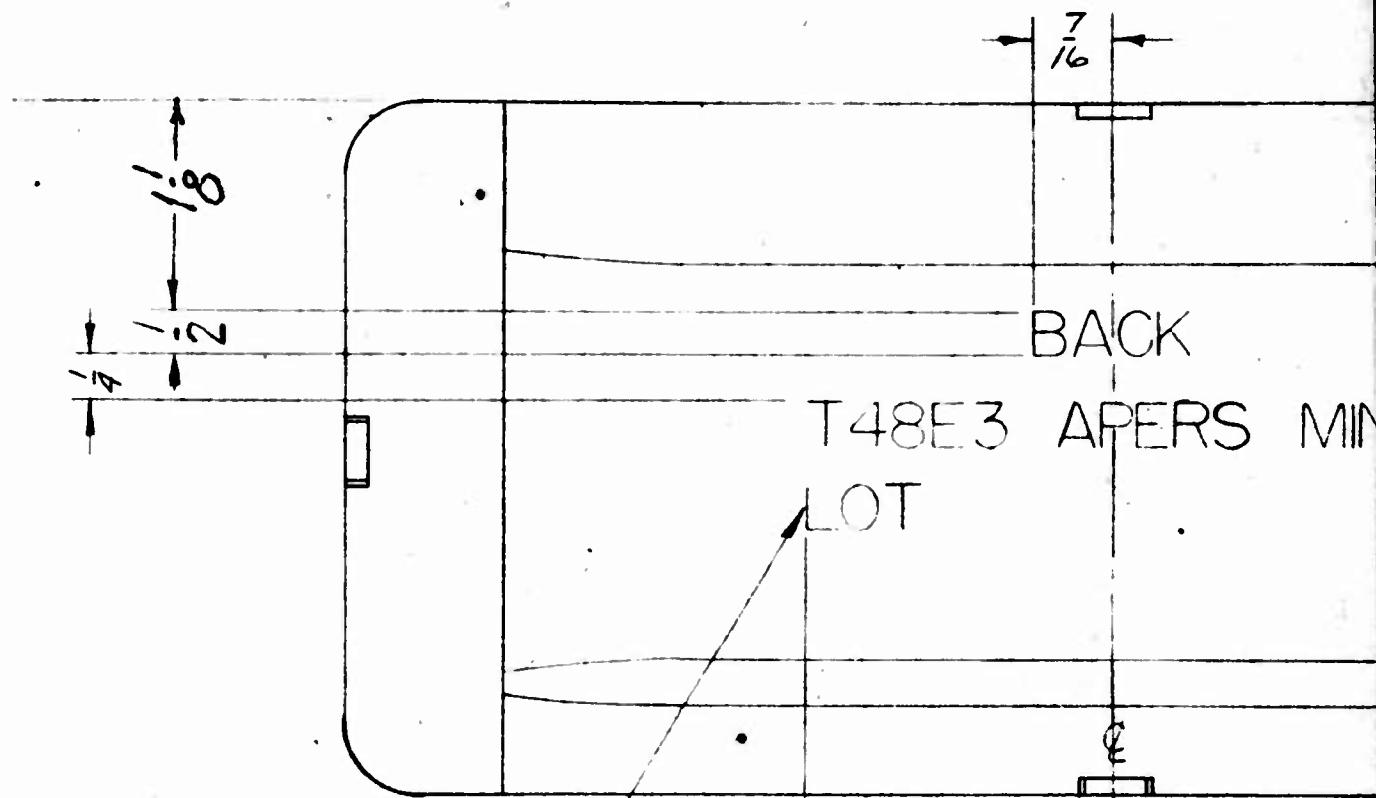


10-.005





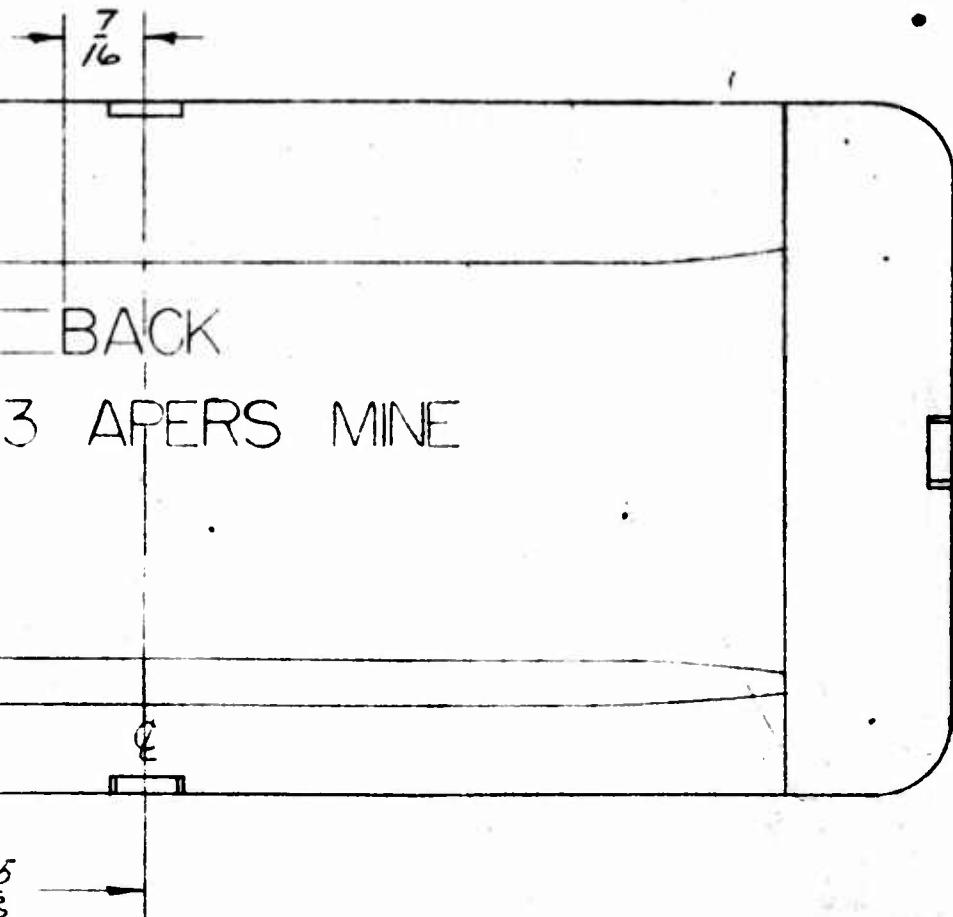
2



SEE NOTE 4 & 5

VIEW "B-B"

3



BACK

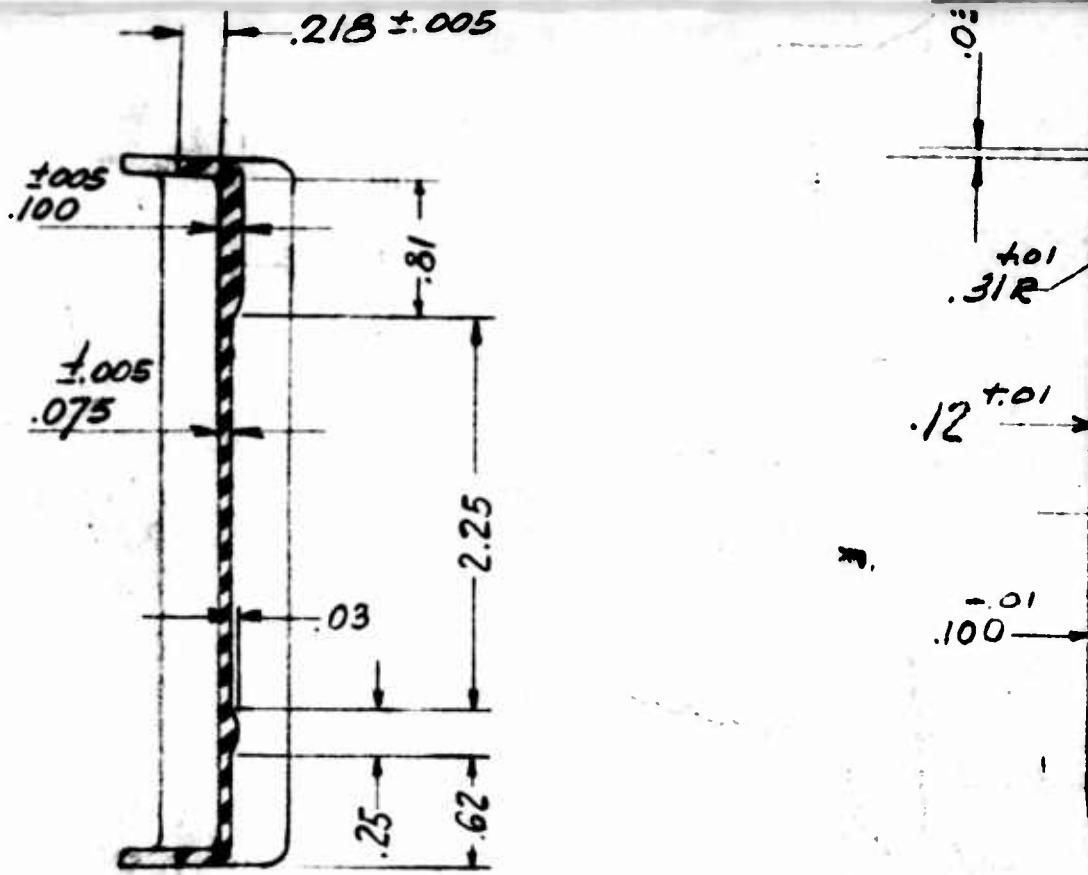
T48E3 APERS MINE

LOT

TE-4 & 5

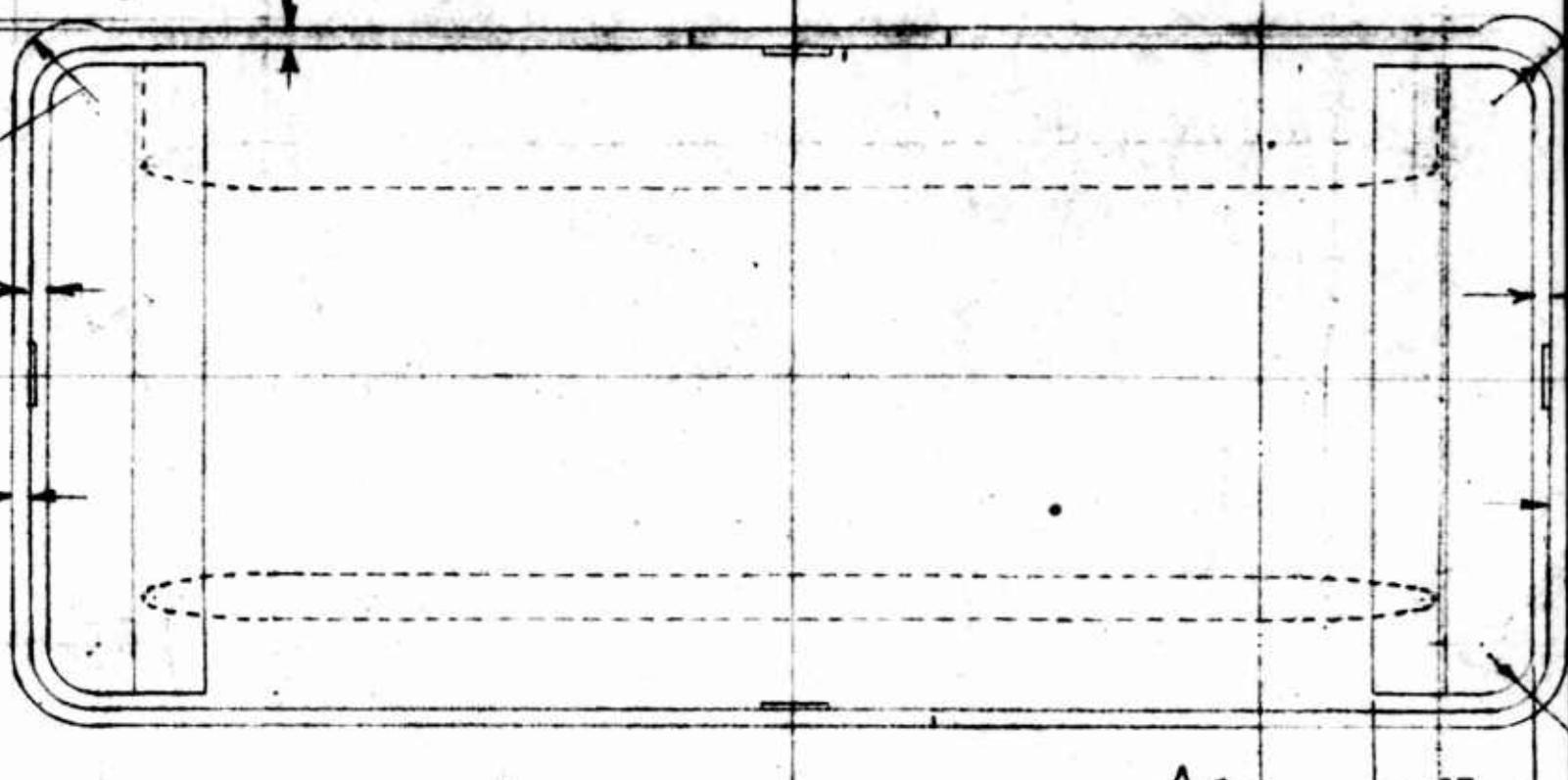
VIEW "B-B"

4

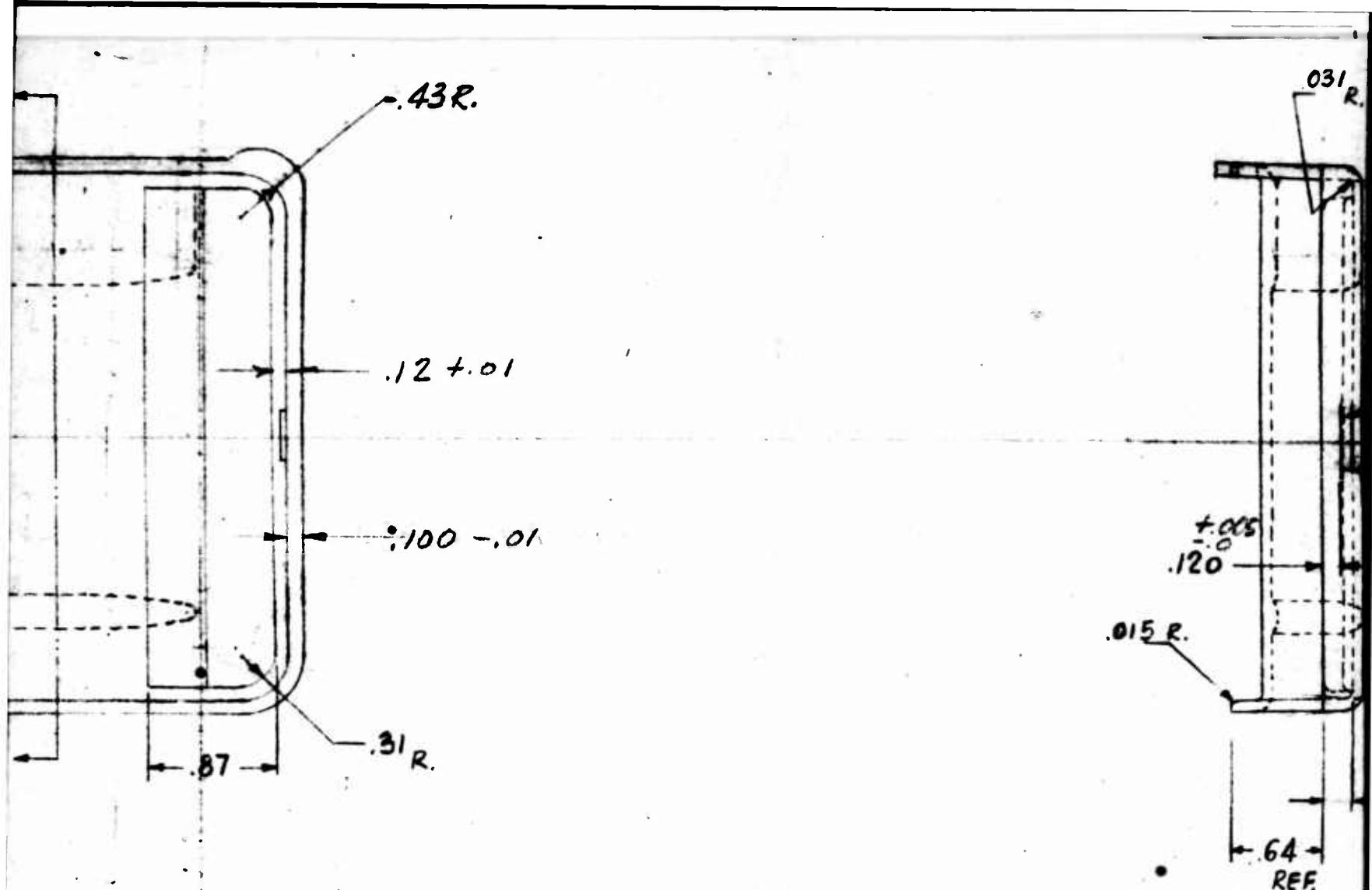


SECTION A-A

5



6

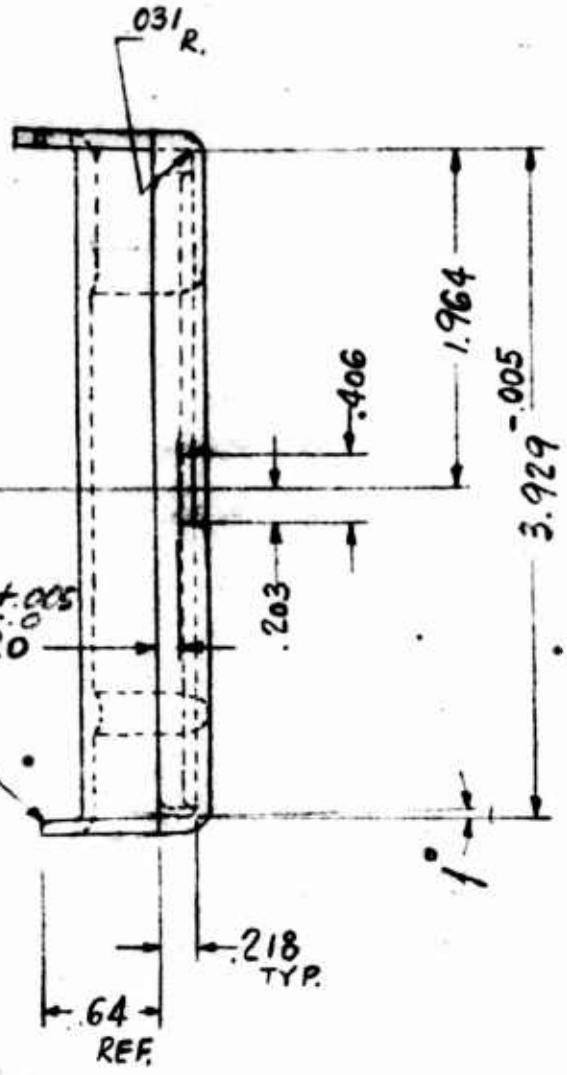


- 4- LETTERING TO BE CENTERED AS SHOWN
- 5- CHARACTERS TO BE ENGRAVED, $\frac{1}{16}$ HIGH,
 $\frac{1}{32}$ RAISED, $\frac{1}{16}$ WIDE LETTERING
- 6- THESE DIMENSIONS WILL NOT BE PUT INTO
EFFECT UNTIL NOTIFICATION FROM PIC. ARSENAL.



ORDNANCE PART NO. 8800916

MATERIAL
FINISH:
DESIGNED
ALL DIMES LIMITED FOR ANGLES *
SUPERSEDED
RELEASER



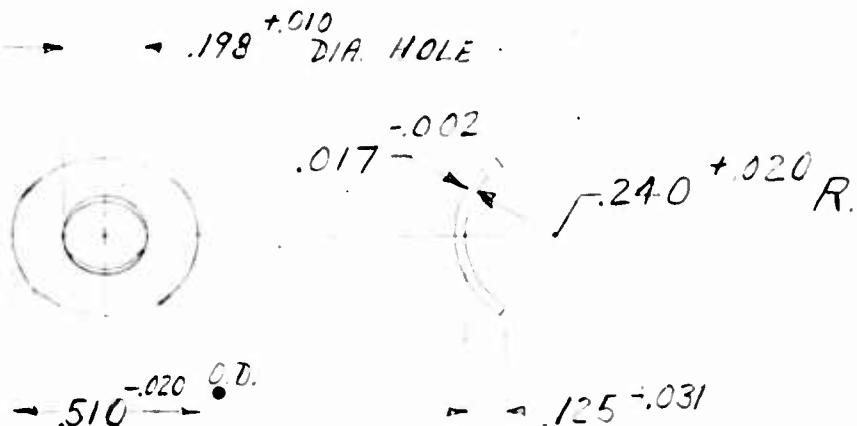
NOTES -

- SHOWN
1/4 HIGH,
PUT INTO
M PIC. ARSEN'AL.
- 1) MATERIAL-GLASS FILLED STYRENE PER MIL-P-3796,
NATURAL COLOR
 - 2) A 2° DRAFT ANGLE MAY BE USED WHERE NECESSARY TO
FACILITATE MOLDING.
 - 3) COVER CONTOUR MUST MATCH A MINIMUM TEMPLATE
AND CASE SURFACE OF .06 MAXIMUM AT ANY POINT.

CHANGES: 0 REDRAWN
C 6-15-60 C/T-ACTS PENDING
WITH CHANGES
X-T-FY MAR. 31, 1960

MATERIAL: SEE NOTE 1		SCALE: FULL SIZE		DATE: 7 MAR. 1960	
FINISH: NONE		DRAWN: S.T.FRY		CHECKED:	APPR'D:
DESIGNED FOR:	FILE:				
ALL DIMENSIONS ARE IN INCHES. LIMITS: FRACTIONS $\pm 1/64$ " DECIMALS $\pm .005$ " ANGLES $\pm 1/4^\circ$ UNLESS OTHERWISE NOTED.					
SUPERSEDES:	SUPERSEDED BY:	MOLDED INSULATION CO. 338 E. PRICE ST., PHILADELPHIA 44, PA. U.S.A.			
<input checked="" type="checkbox"/> CHECK WITH ENGINEERING DEPT. ON LATEST VALUE BEFORE USING THIS PRINT.		DATE OF PRINT.		7007-11	

8



NOTES:-

1. SPEC. MIL-G-2550 APPLIES.
2. MATERIAL - STAINLESS STEEL.
3. APPROVED SOURCE: SHAKEPROOF
DIV. OF ILL. TOOL WORKS
ST. CHARLES RD., ELGIN, ILL.
SHAKEPROOF PART NO. 3535-10-02

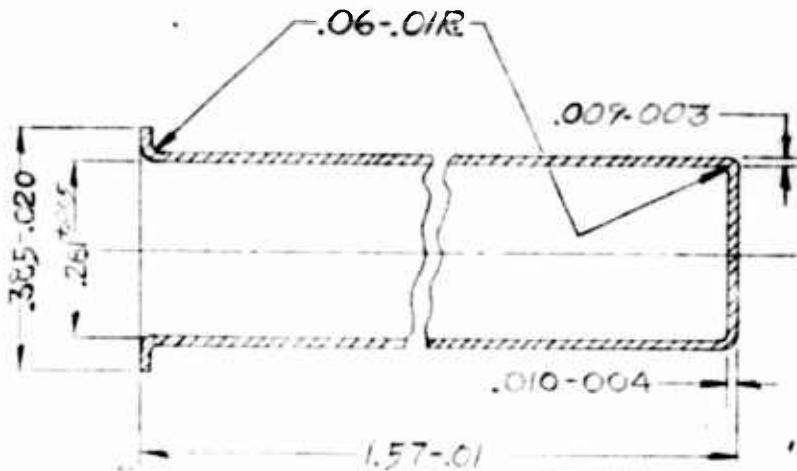
CHANGES:

ORD. DWG NO. 8937131

WASHER, SPRING

MATERIAL: S.S.	
FINISH:	
DESIGNED FOR:	FILE:
ALL DIMENSIONS ARE IN INCHES. LIMITS: FRACTIONS $\pm 1/64$ " DECIMALS $\pm .005$ " ANGLES $\pm 1/4^\circ$ UNLESS OTHERWISE NOTED.	
SUPERSEDES:	SUPERSEDED BY:
CHECK WITH ENGINEERING DEPT. ON LATEST ISSUE BEFORE USING THIS PRINT.	

SCALE: 1"	DATE: 12 MAY 61
DRAWN: <i>MR</i>	CHECKED: _____
APPR'D: _____	
MOLDED INSULATION CO. 335 E. PRICE ST., PHILADELPHIA 44, PA. U.S.A.	
DATE OF PRINT.	7007-21
ISSUE	



NOTES:

1. SPEC. MIL. G-2550 AND MIL. STD:10 APPLY
2. MATL: ALUMINUM ALLOY, SHEET, 1100F, SPEC. QQ-A-561
3. FINISH: ALL OVER 125/

CHANGES:

ORD. PART NO. 3837133

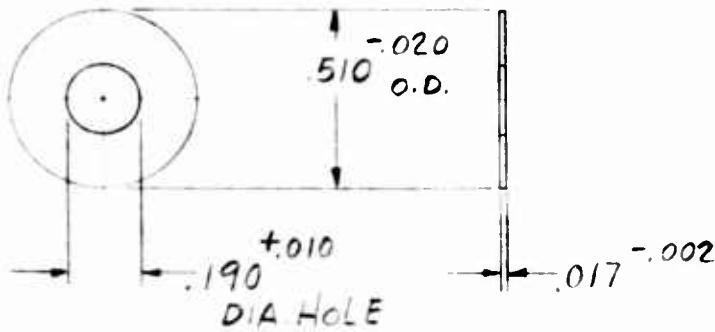
CUP. WELL

MATERIAL: SEE NOTES		SCALE: 4-1 DATE: 8 MAY 1961		
FINISH: SEE NOTES				
DESIGNED FOR:	FILE:	DRAWN: <i>h.s.</i>	CHECKED: <i>W.M.</i>	APPR'D:
ALL DIMENSIONS ARE IN INCHES. LIMITS: FRACTIONS $\pm 1/64"$ DECIMALS $\pm .005"$ ANGLES $\pm 1/4^\circ$ UNLESS OTHERWISE NOTED.				
SUPERSEDES:	SUPERSEDED BY:	MOLDED INSULATION CO. 335 E. PRICE ST., PHILADELPHIA 44, PA. U.S.A.		
<input checked="" type="checkbox"/> CHECK WITH ENGINEERING DEPT. ON LATEST ISSUE BEFORE USING THIS PRINT.		DATE OF PRINT.	7007-23	

PHYSICAL PROPERTIES		APPLICATION		REVISIONS			
YP	WEIGHT ASST	USED ON		SYM	DESCRIPTION	DATE	APPROVAL
TS	SEE ENGINEERING RECORDS						
EL2	8837139	T-48-E3					
RA							
BH							
RH	DO NOT	APPLY PART NO					
	AS SPECIFIED						

A HS15795-308

MS15795-308-15/5/2024



NOTES:

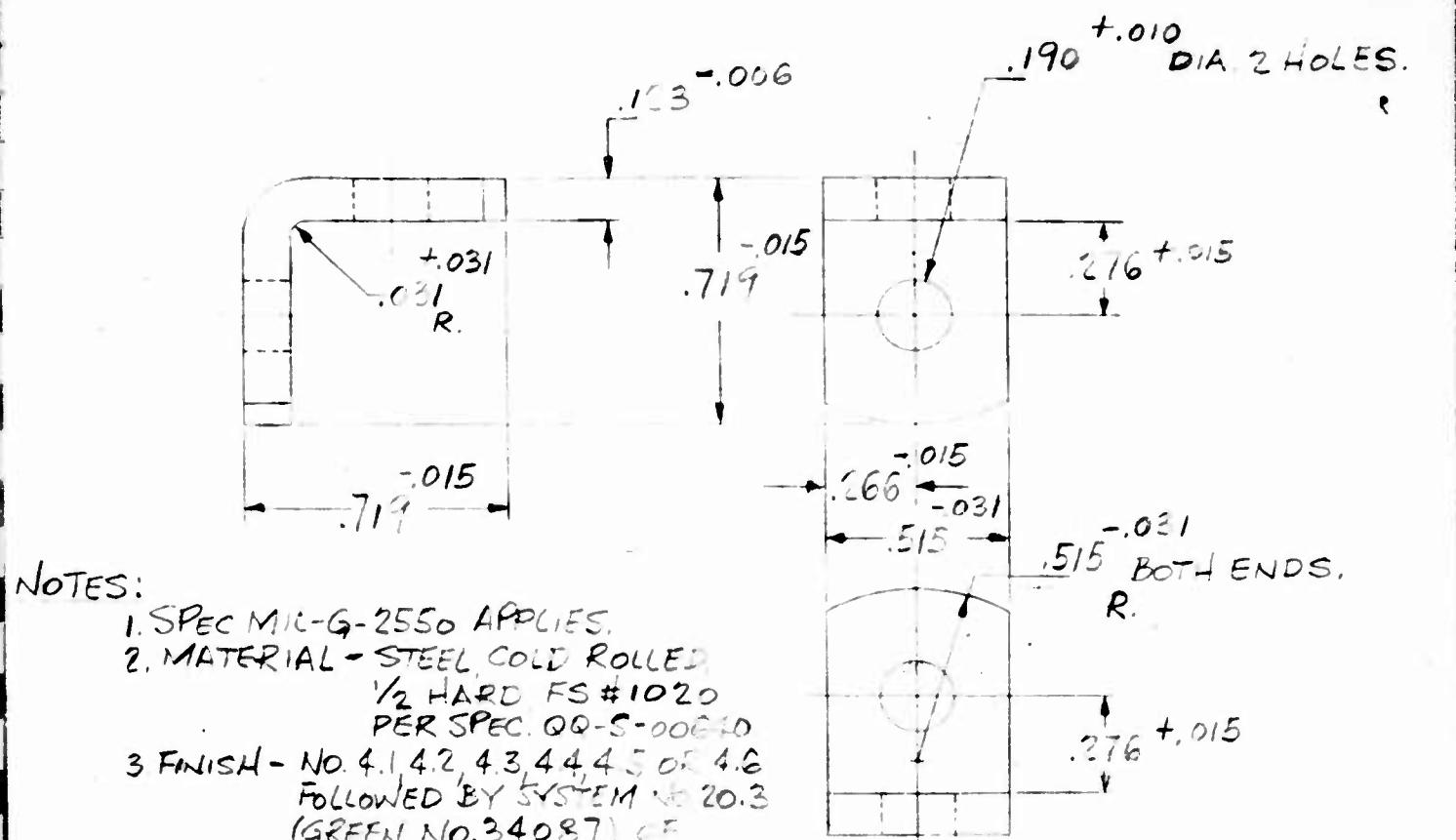
1. SPEC. MIL-G-2550 APPLIES.
2. MATERIAL - STEEL COLD ROLLED $\frac{1}{2}$ HARD, FS 1020,
PER SPEC. QQ-S-00640.
3. FINISH - CADMIUM PLATE (ELECTRODEPOSITED) PER SPEC.
QQ-Z-325 CLASS 3 TYPE 2.
4. REMOVE ALL BURRS & SHARP EDGES.

ORDNANCE PART NO. MS15795-308 M.I.C. PT.NO.7007-28

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		ORIGINAL DATE OF DRAWING	2/29/60	WASHER BEARING.		PICATINNY ARSENAL ORDNANCE CORPS DEPT OF THE ARMY DOVER, NEW JERSEY.	
TOLERANCES ON -		DRAFTSMAN	FRY	CHECKER			
DECIMALS FRACTIONS AMOUNTS		TRACER		CHECKER			
MATERIAL SEE NOTE 2.		ENGINEER		ENGINEER			
HEAT TREATMENT NONE		SUBMITTED					
FINAL PROTECTIVE FINISH SEE NOTE 3.							
		APPROVED BY ORDER OF THE CHIEF OF ORDNANCE		ORD CORPO	SCALE 2=1	UNIT WT	DWG SIZE A
							MS15795-308
							SHEET 1 OF 1

A 8800907

PHYSICAL PROPERTIES		APPLICATION		REVISIONS			
TYPE	WEIGHT ASSY.	USED ON		SYM.	DESCRIPTION	DATE	APPROVAL
TS	SEE ENGINEERING RECORDS	8837139	T-48-E3				
EL2							
RA							
BH							
RH	DO NOT	APPLY PART NO.	X-SPEC'D				



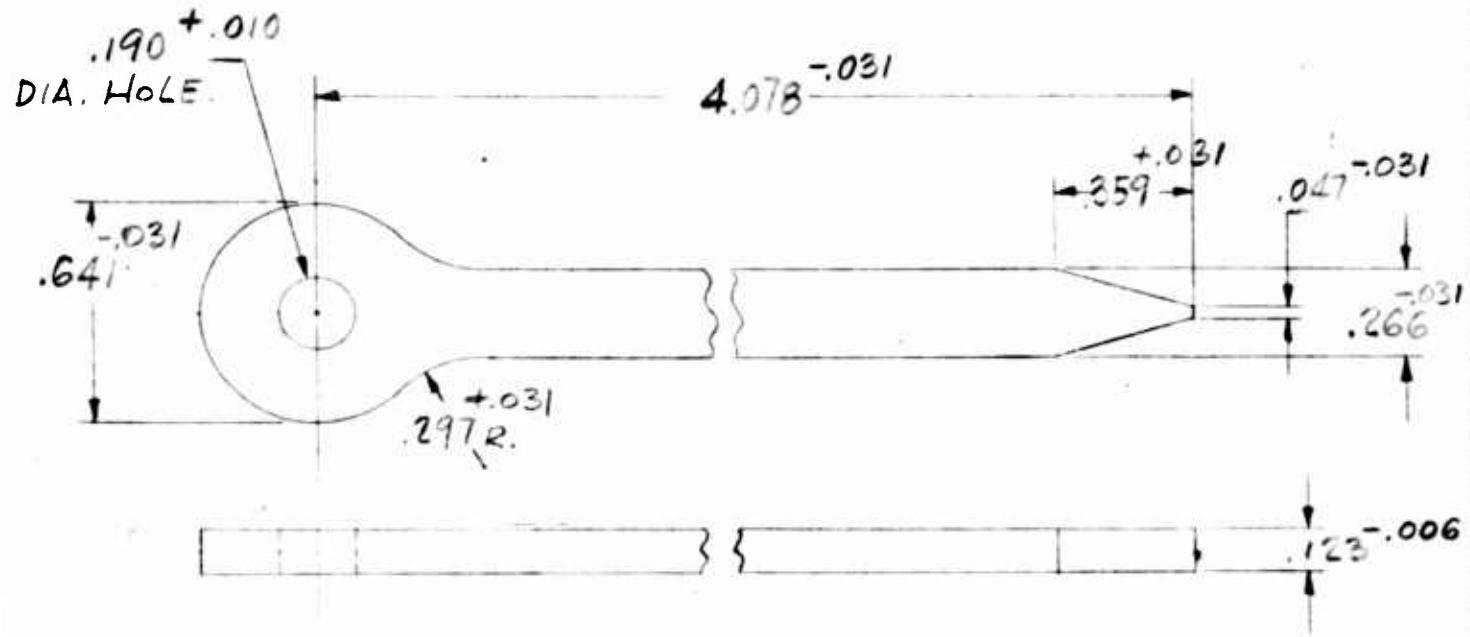
ORDNANCE PART NO. 8800907 REV.B M.I.C. 7007-26

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		ORIGINAL DATE OF DRAWING	2/29/60	BRACKET LEG	PICATINNY ARSENAL ORDNANCE CORPS DEPT OF THE ARMY DOVER, NEW JERSEY		
TOLERANCES ON -		DRAFTSMAN	FRY		CHECKER		
DECIMALS		TRACER			CHECKER		
FRACTIONS		ENGINEER			ENGINEER		
ANGLES		SUBMITTED			ORD CORPS		
MATERIAL				APPROVED BY ORDER OF THE CHIEF OF ORDNANCE		DWG SIZE	8800907
SEE NOTE 2.				ORD CORPS		A	
HEAT TREATMENT				SCALE 2=1	UNIT WT	SHEET 1 OF 1	
NONE						ARMY-PICATINNY ARSENAL (NMPCT), NETTUCHE, NJ-57-600	
FINAL PROTECTIVE FINISH						21	
SEE NOTE 3.							

PHYSICAL PROPERTIES		APPLICATION		REVISIONS			
TYPE	RENT ASST	USED ON		REV	DESCRIPTION	DATE	APPROVAL
TS	SEE ENGINEERING RECORDS						
EL2	8837139	T-48-E3					
RA							
BH							
RH	DO NOT	APPLY PART NO					
	DC	XXXXXXXXXX					

A 8800908

8800908



NOTES:

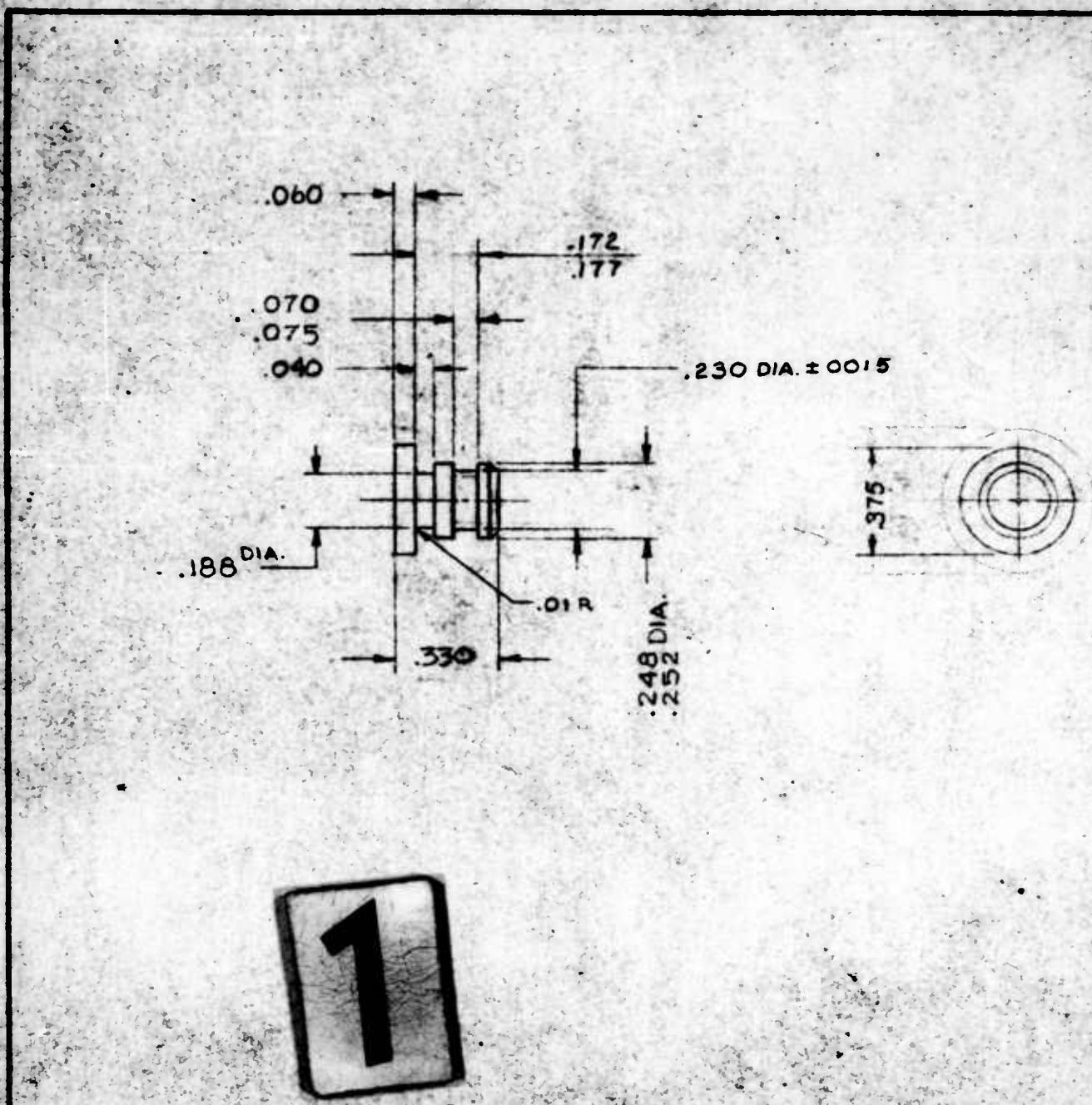
1. SPEC. MIL-G-2550 APPLIES.
2. MATERIAL - STEEL COLD ROLLED 1/2 HARD.
FS #1020 PER SPEC. QQ-S-00640.
3. FINISH - NO. 4.1, 4.2, 4.3, 4.4, 4.5 OR 4.6 FOLLOWED
BY SYSTEM NO. 20.3 (GREEN NO. 34087)
OF MIL-STD-171 ALL OVER.
4. REMOVE ALL BURRS & SHARP EDGES.

Rev. A

ORDNANCE PART NO. 8800908

M.I.C. PT NO. 7007-25

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		ORIGINAL DATE OF DRAWING	2/29/60	LEG MINE	PICATINNY ARSENAL ORDNANCE CORPS DEPT OF THE ARMY DOVER, NEW JERSEY.		
TOLERANCES ON -		DRAFTSMAN	FRY		CHECKER		
DECIMALS		TRACER			CHECKER		
FRACTIONS		ENGINEER			ENGINEER		
ANGLES		SUBMITTED					
MATERIAL							
SEE NOTE 2.							
HEAT TREATMENT							
NONE							
FINAL PROTECTIVE FINISH							
SEE NOTE 3.							
					DWG SIZE	8800908	
					A		
				SCALE 2=1	UNIT IN		



1

PHYSICAL PROPERTIES				UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		ORIGIN OF DRAWING
T _P				TOLERANCES ON DECIMALS XX \pm .010		DRAFTSMAN
T _S				ANGLES \pm 5°	FRACTIONAL XX \pm .005	TRACER
T _{E2}				MATERIAL	.500 DIA. STEEL	ENGINEER
T _R				BAR - TYPE	1010-1020 COML GR.	SUBMIT
T _W				HEAT TREATMENT		
SPEC. AMRY		USED ON		APPROV. CHIEF OF DE		
APPLICATION				NO. 21.4 OF MIL-STD-171 (ORD.)		
DO NOT	APPLY PART NO.					
DO	AS SPECIFIED					

SUPERSEDED BY

MS 16535-302

M. GARRON
7/10/61

2

SYN	DESCRIPTION	DATE	APPROVAL
REVISIONS			

ALL ARE IN INCHES	
EX ± .010	
MAX ± .015	
TEEL	
COMIL GR.	
SUBMITTED	
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE	
ORD CORPS	
ORD CORPS	
H (ORD)	

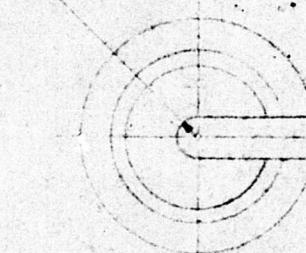
PIN

SCALE 2/1	UNIT WT.
E	8800
RECD	RECD

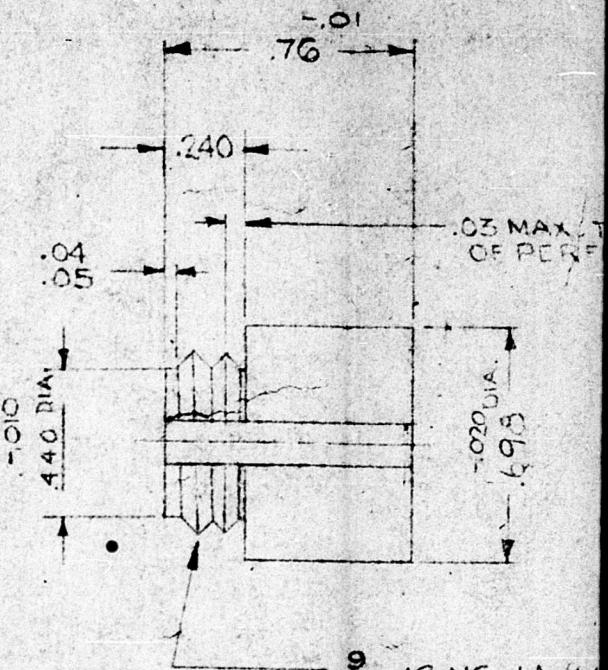
ORDNANCE CORPS
DEPT OF THE ARMY

1

FULL R



.240
+.00
-.00



$\frac{9}{16}$ - 12 NC-1A (M)
MAJ. DIA.
PITCH DIA.
MINOR DIA

NOTE:

- 1- SPEC MIL-G-2520, MIL-STD-8, MIL-S-9, MIL-STD-10, PA-PD AND 30-1-7
- 2- GLASS FILLED STYRENE PER MIL-P-3796 NATURAL COLOR
- 3- UNTOLERANCED DIMENSIONS NEED NOT BE GAGED.
- 4- FINISH ALL OVER $\sqrt[3]{25}$

ORDNANCE PART NO. 8800913

PHYSICAL PROPERTIES				UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	TOLERANCES ON DECIMALS	ORIGINAL DATE OF DRAWING
TP				ANGLES	FRACTIONS	DRAFTSMAN VV
TS				MATERIAL		TRACER
EL 2				SEE NOTE 2		ENGINEER
RA	8837104	MIL-E, APERS T48E3		HEAT TREATMENT		SUBMITTED
BH		NEXT ASSY	USED ON			
		APPLICATION				
RH		DO NOT	APPLY PART NO.	FINAL PROTECTIVE FINISH		APPROVED BY CHIEF OF ORDNANCE
		DO	AS SPECIFIED			

2

.03 MAX. TO MAJOR DIA AT START
OF PERFECT THDS.

.020 DIA.
.0935

$\frac{9}{16}$ - 12 NC-1A (MODIFIED)
MAJ. DIA. .5601 -.0182
PITCH DIA. .5060 -.0109
MINOR DIA. .4579 MAX.

PA-PD: AND 30-17 APPLY

COLOR

D.

SUPERCEDED BY
ADAPTER TRIMMING
MI-A4

2/29/60
8800913
M.Gaff

SYM	DESCRIPTION	DATE	APPROVAL
MIC-7007-8 REVISIONS			

8800913

ARE IN INCHES	ORIGINAL DATE OF DRAWING	JAN 20 1957
DRAFTSMAN	CHECKER	
TRACER	CHECKER	
ENGINEER	ENGINEER	
SUBMITTED		
ORD CORPS		
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE		
ORD CORPS		

ADAPTER -
DETONATOR

SCALE 2/1 UNIT WT

PICATINNY ARSENAL
ORDNANCE CORPS
DEPT OF THE ARMY
DOVER, NEW JERSEY

DWG SIZE	8800913
B	
SHEET	OK

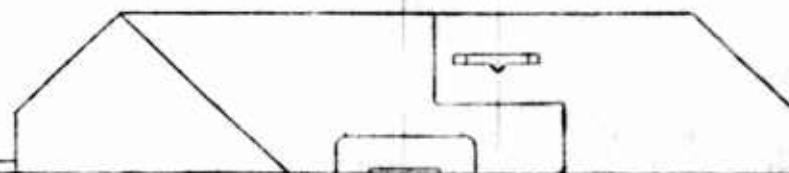
NOTICE -- WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.



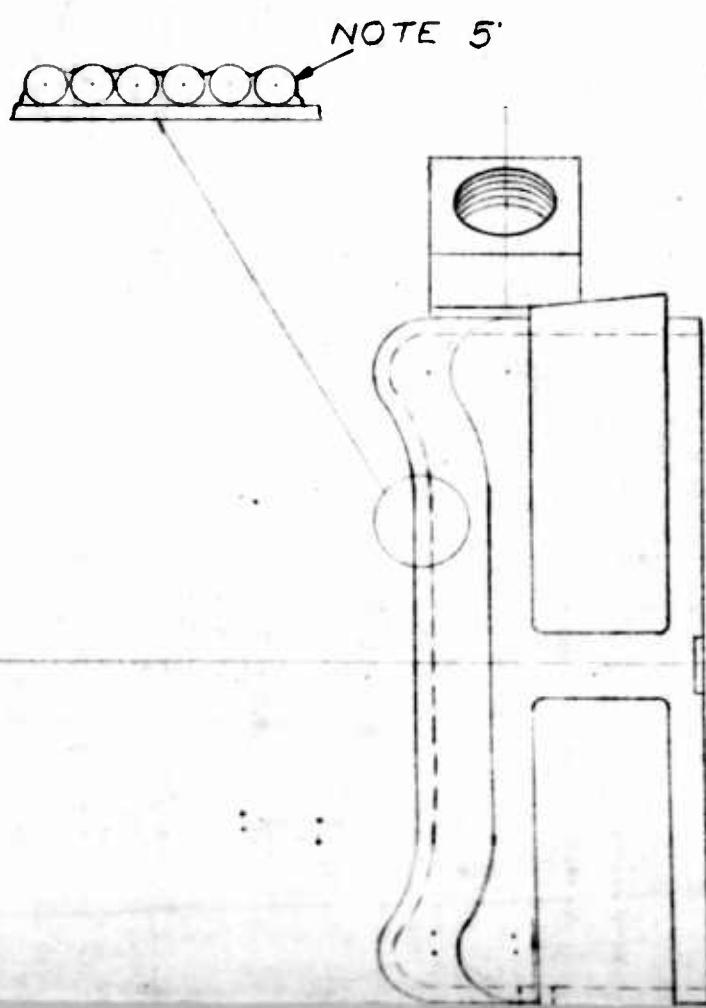
2- WASHER, FLAT
MS 15795-308



2



FRONT
TOWARD ENEMY



3

D

REVISIONS

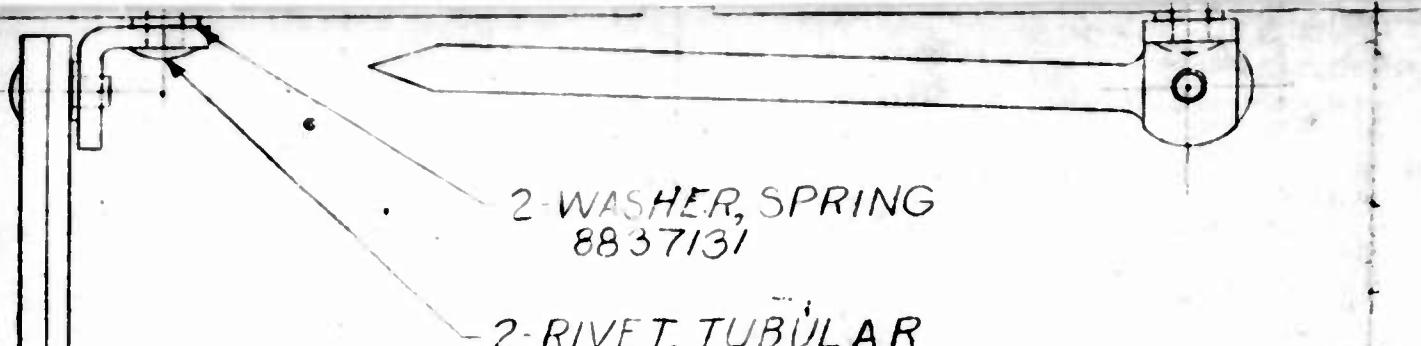
SYM	DESCRIPTION	DATE	APPROVAL



NOTES:-

- 1-SPEC MIL-G-2550 APPLIED
- 2-NO VOID LARGER THAN ONE BALL PERMISSABLE. BALLS TO BE FLUSH WITH BOTTOM OF CASE.
- 3-BOND BALLS TO CASE AS SHOWN USING DEVCON A. SEE NOTE 6.
APPROVED SOURCE: CHEMICAL DEVELOPMENT CORP, DANVERS, MASS., OR APPROVED SUBSTANTIAL EQUAL. NOTE 4
- 4-ALL SOURCES MUST COMPLY WITH THE PHYSICAL AND FUNCTIONAL REQUIREMENTS OF THE MANUFACTURER'S ITEM INDICATED.
- 5-REMOVE ALL EXCESS RESIN TO MAINTAIN INNER CONTOUR.
- 6-ADVISORY: THIN DEVCON A TO ALLOW FOR A MIXTURE OF 75% STEEL.
- 7-THE LEG AND BRACKET ASSEMBLIES SHALL NOT ROTATE ABOUT PIVOT JOINT WHEN A MIN. TORQUE OF .25 FT. LBS. IS APPLIED AND SHALL ROTATE WHEN A MAX. TORQUE OF 1.75 FT. LBS. IS APPLIED.

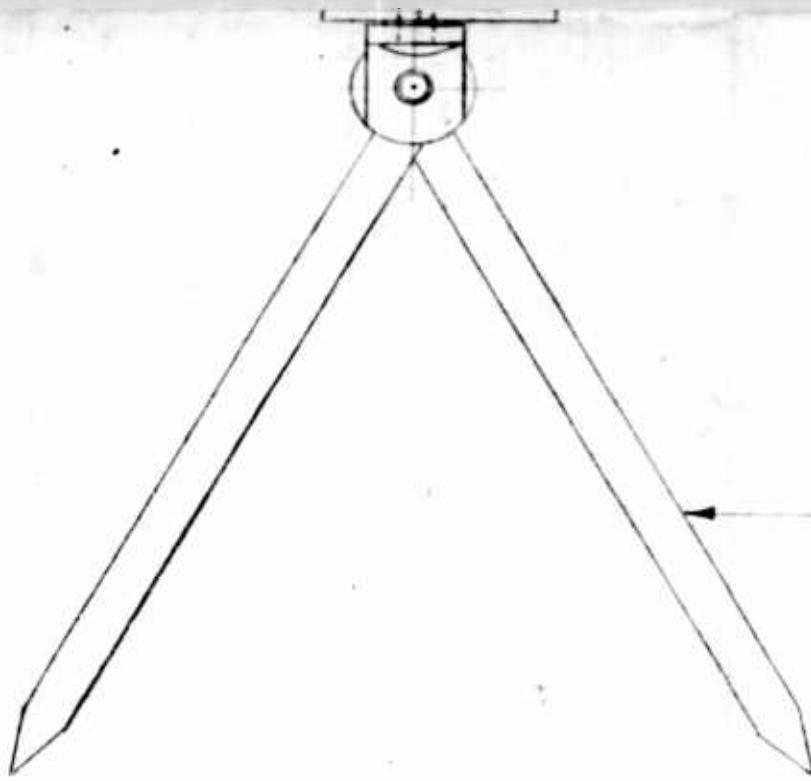




2-WASHER, SPRING
8837131

2-RIVET, TUBULAR
MS 16535-302
NOTE 7

6



2-LEG AN
ASS'Y 8

7

		PHYSICAL PROPERTIES		<p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES</p> <p>MATERIAL</p> <p>HEAT TREATMENT</p> <p>FINAL PROTECTIVE FINISH</p>	ORIGINAL DATE OF DRAWING 2/29/60	
		YP			DRAFTSMAN	CHECKER
		TS			TRACER <i>NO</i>	CHECKER
		EL 2			ENGR	ENGR
		RA			SUBMITTED	
		BH			D&D CORP	
		RH			APPROVED BY ORDER OF THE CHIEF OF ORDNANCE	
D8800919 MINE APERS T48					D&D CORP	
NEXT ASSY	USED ON					
APPLICATION						
DO NOT	APPLY PART NO.					
DO	APPLY					

2-LEG AND BRACKET
ASS'Y 8837129.

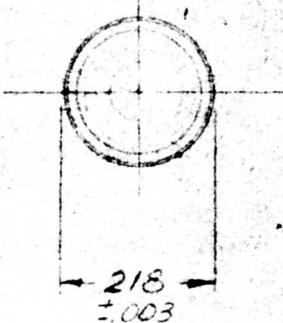
8

ORDANCE PART NO. 8800918

1ED	ORIGINAL DATE OF DRAWING	2/29/60	CASE ASSEMBLY		PICATINNY ARSENAL ORDNANCE CORPS DEPT OF THE ARMY DOVER, NEW JERSEY	
2S	DRAFTSMAN	CHECKER			DWG SIZE	8800918
NGLES	TRACER	CHECKER			SHEET OF	
	ENGR	ENGR				
	SUBMITTED					
	ORD CORPS					
	APPROVED BY ORDER OF THE CHIEF OF ORDNANCE					
	ORD CORPS		SCALE 1:1	UNIT WT		

A8800922

PHYSICAL PROPERTIES		APPLICATION		REVISIONS			
TYPE	UNIT ASS.	USED ON	ITEM	REV.	DESCRIPTION	DATE	APPROVAL
TS	8800919	MINE AFTER TABES					
EL2							
PA							
BH							
PH	BG NOT DG	APPLY PART NO AS SPECIFIED					



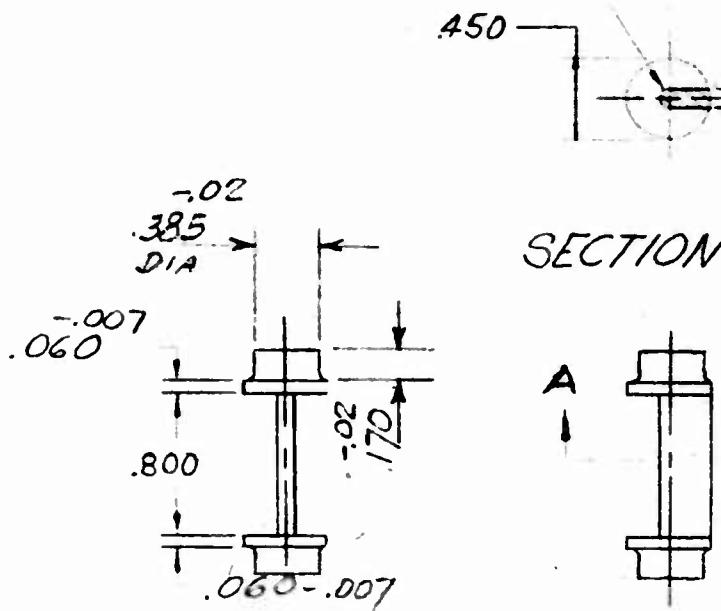
NOTES:-

1. SPEC MIL-G-2550, MIL-STD-8, MIL-STD-14.
2. MATERIAL - LOW CARBON STEEL
3. FLAMED & HARDEN TO ROCKWELL C-43 TO C-48
4. BALL MUST BE SPHERICAL WITHIN THE
SPECIFIED TOLERANCES

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON-	ORIGINAL DATE OF DRAWING JAN-26-60	BALL, FRAGMENTATION		PIKATINNY ARSENAL ORDNANCE CORPS DEPT OF THE ARMY DOVER, NEW JERSEY	
DECIMALS FRACTIONS ANGLES	DRAFSMAN F.D. TRACER ENGINEER	CHEKER CNSRER ENGINEER			
MATERIAL <i>SEE NOTE-2</i>	SUBMITTED				
HEAT TREATMENT <i>SEE NOTE-3</i>	APPROVED BY ORDER OF THE CHIEF OF ORDNANCE	ORD CORPS	SCALE 41/1	DMT INT	DRAW SIZE A SHEET 07
FINAL PROTECTIVE FINISH					

NOTICE--WHEN GOVERNMENT DRAWINGS SPECIFY DRAWINGS OR OTHER DATA AND USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE "COMPILED" PLANS, SHEETS, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE RECORDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

.047 R



SECTION A-A

NOTES:

- 1-SPEC MIL-G-2550, MIL STD-8 PA-PD APPLY
- 2-MATERIAL HIGH DENSITY OLIVE DRAB POLY STYRENE
- 3-ALL CORNER RADII .010 MAX
- 4-UNTOLERANCED DIMENSION NEED NOT BE GAGED



ORDNANCE PART No. 8

		PHYSICAL PROPERTIES	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES	ORIGINAL DATE OF DRAWING
S-57104 REV 7-54		100	MATERIAL	10/14
NEXT ASSY	USED ON	100	HEAT TREATMENT	MAINTENANCE
APPLICATION		100	FINAL PROTECTIVE FINISH	APPROVED BY ORDER OF CHIEF OF ORDNANCE
DO NOT	APPLY PART NO			
DO	AS SPECIFIED			

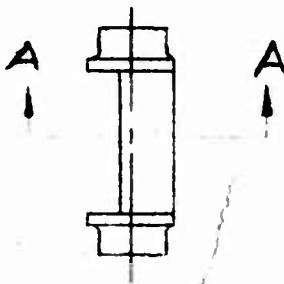
REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
A	ADDED TO AGREE WITH CHANGES MADE BY DIA CATINNY ARSENAL	1-3-61	MIL. 1-3-61

.047 R



SECTION A-A



SUPERSEDED BY
EO PA 7116 5/12/61

1-3-61



NANCE PART NO. 8800923

MIC-7007-20

SPECIFIED IN THIS DRAWING		ORIGINAL DATE OF DRAWING	44N 2760
BY DRAFTSMAN		CHIEF CHECKER	
REVIEWED		CHECKED	
EMBODIED		EMBODIED	
APPROVED		APPROVED	
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE			
		SCALE	1/1
		UNIT	1

PLUG,
DETONATOR,
WELL

ORDNANCE CORPS
DEPT OF THE ARMY
WHITE HALL 55225

8800923

B SHEET OF 27

CHECKED & APPROVED BY MIL. 1-3-61

PHYSICAL PROPERTIES		AMPLIFICATION		REVISIONS		
TYPE	WEIGHT	USED ON		ISSUE DATE	DATE	APPROVAL
TS	SEE ENGINEERING RECORDS	T-48-E3				
E12						
RA						
BH						
RH	DO NOT	USE IN PART NO.				
	=	=====				

BEVEL SPRING WASHER-8837137(2)

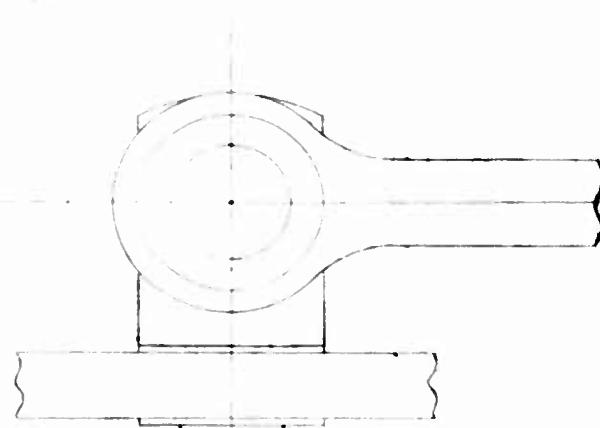
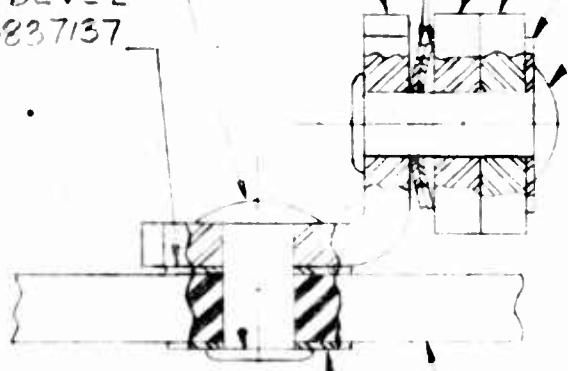
LEG-8837135

LEG BRACKET-8837136

BEARING WASHER-8837138

RIVET-
MS 16535-307

RIVET-MS 16535-307

WASHER BEVEL
SPRING-8837137

CASE ASSEM. 8800918

BEARING WASHER-8837138

NOTE:

1. SPEC MIL-G-2650 APPLIES.
2. THIS ASSEMBLY EXISTS AT TWO LOCATIONS ON EACH CASE.

ORDNANCE PART NO. 8837129 REV.C M.I.C. PT. NO. 7007-29

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		ORIGINAL DATE OF DRAWING 2/29/60	LEG BRACKET ASSMBLY		PICATINNY ARSENAL ORDNANCE CORPS DEPT OF THE ARMY DOVER, NEW JERSEY	
TOLERANCES ON - DECIMALS FRACTIONS ANGLES		DRAFTSMAN FRY TRACER ENGINEER	CHECKER CHECKER ENGINEER	3 1960		DWG SIZE A
MATERIAL ~	SUBMITTED		ORD CORPS		8837129	
HEAT TREATMENT ~	APPROVED BY ORDER OF THE CHIEF OF ORDNANCE		SCALE 2=1		UNIT WT	SHEET 1 OF 1
FINAL PROTECTIVE FINISH ~						

UNCLASSIFIED

UNCLASSIFIED