

LORAL AERONUTRONIC**FACSIMILE TRANSMISSION COVER SHEET****TO:****FROM:****NAME:** Doug Broadus**NAME:** Robert H. Swenson**TELEPHONE:** 301-415-5847**TELEPHONE:** 714-459-4572**FAX No:** 301-415-5369**FAX No:** 714-459-4132**Mr. Broadus:**

I have recently taken over responsibility for some of Bob Marsoun's activities, including the request for changes to our Registry of Radioactive Sealed Source and Devices which was initially submitted to the NRC last June 14th.

In conjunction with Aeronutronic's NITE Hawk Laser Target Designator/Ranger Program Office, I have prepared the attached draft response to questions which were raised during your telecon with Mr. Marsoun on October 31st.

Ted Ludford (NITE Hawk Program Office rep) and I would like to call you this afternoon at 2:00 EST to discuss these responses and determine if they are acceptable to the NRC, or if additional information is required.

Please call me as soon as possible, if 2:00 this afternoon is not convenient. Otherwise, I look forward to speaking with you then.

DATE: February 16, 1996**COVER +** Seventeen (17) **PAGES**

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DRAFT**LORAL**
Aeronutronic

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United States Nuclear Regulatory Commission
Washington, DC 20555

P840-96-S047
February 16, 1996

Attention: Mr. Douglas Broadus

Subject: Registry of Radioactive Sealed Source and Devices
F/A-18 Laser Target Designator/Ranger

References: (a) Registry No. NR-313-D-102-S, dated June 6, 1991
(b) Aeronutronic letter M110-RPM-95-271, dated June 14, 1995
(c) Telecon between NRC and Aeronutronic on October 31, 1995

Dear Mr. Broadus:

The following information is provided to address questions and concerns that were raised in the course of the reference (c) telecon:

Issue No. 1:

Provide assurance that Electro-Optics Industries, Ltd. (ELOP) is required to conform to the same Laser Transceiver (LTR) design specification imposed on Litton Laser Systems (LLS). Also, what mechanisms are employed by Aeronutronic to insure that ELOP is conforming to those specifications and standards?

Response:

ELOP utilizes Source Control Drawing (SCD) 66910280, Rev. B to procure the Americium Source Assembly from the Amersham Corporation, located in Arlington Heights, Illinois. This is the same SCD that LLS uses.

Aeronutronic has conducted a physical comparison of the SCD used by LLS and the SCD used by ELOP, and has verified that they are identical - except that ELOP has assigned its own internal control number (SU-8635-5037-00) to its copy of the SCD. (ELOP's SCD appears to be a photocopy of the SCD that LLS uses, with ELOP's internal control number added to the bottom of the first page.)

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Issue No. 2:

How does Amersham Corporation identify the foil used in the Sealed Source? Is there a registered model number under which Amersham has obtained a license (other than P/N 188322) from another regulatory agency?

Response:

Aeronutronic's reference (b) request for revisions to its reference (a) Registry mistakenly identifies Amersham's Americium-241 Source as P/N 188322. The correct Amersham P/N is 188326.

The Am-241 foil used in this assembly is Product Code AMMK5026, Model No. AMM. This assembly is registered with the Illinois Department of Nuclear Safety under Model No. AMM.

Issue No. 3:

Provide detailed drawings of the Source Holder and specifications for the adhesive used in its assembly.

Response:

Amersham's detail drawing of the Source Holder (Amersham's Drawing No. P288255) is provided herewith as Attachment 1.

The adhesive used in its assembly is called out in paragraph 3.2.2 of the SCD, pertinent portions of which are provided as Attachment 2 to this letter.

Technical data describing the physical properties of the specified adhesive are provided in Attachment 3 hereto.

Issue No. 4:

Provide assurance that the female thread in the Access Cover matches the male thread on the Sealed Source. How is the Source held in place?

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Response:

The Optical Access Cover (P/N 66910106-9) drawing specifies that the cover will be drilled and tapped for a .086-56 UNC-2B Helical Coil Insert (see Attachment 4). This thread size matches the .086" diameter #2 - 56 UNC-2A threads on the source holder as noted on Amersham's detail drawing (see Attachment 1) and Sheet 9 of the SCD (see Attachment 2). The "B" in the Optical Access Cover drawing thread specification denotes a "female" thread. The "A" in the Source Holder drawing and SCD thread specifications denotes a "male" thread.

The source is held in place by torquing it to 27-37 inch-ounces as specified in Transmitter Subassembly drawing (P/N 66910150, Rev. B) "Note 15."

Issue No. 5:

Provide confirmation that the laser manufacturer is the only one able to open the laser cavity to gain access to the Sealed Source.

Response:

McDonnell Douglas Aerospace has primary responsibility for creating and publishing the U.S. Navy's Laser Target Designator/Ranger System Technical Manuals, although Aeronutronic often provides technical data and information for incorporation therein.

Paragraph 2 of Intermediate Maintenance Technical Order No. AW-240AC-740-070 prohibits opening of the Optical Module by Intermediate Level Maintenance personnel. Access to the Optical Module is restricted to Depot Level Maintenance personnel only (see Attachment 5). Additional precautions relative to the Optical Module are contained in paragraphs 3, 4, 5 and 6 of this Technical Order.

Issue No. 6:

Provide confirmation that installation of the laser is the same, regardless of pod configuration.

Response:

The Laser Transceiver is one of twelve Weapon Replaceable Assemblies (WRAs) which comprise the Laser Target Designator/Ranger pod system variously known as 1) F/A-18 Detecting Set, AN/AAS-38A; 2) F/A-18 LST Detecting Set, AN/AAS-38B; 3) F/A-18 Detecting Set, AN/AAS-46; and 4) NITE Hawk Self-Cooled (SC) Targeting FLIR System.

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The Laser Transceiver is identical for each of these four Pod systems, and simply "plugs-in" to the main structure of any one of these four configurations. There are no physical differences, internal or external, between the LTRs used in any of these pods.

Issue No. 7:

Provide reference to appropriate technical manuals, etc., which preclude other than the manufacturer from opening the Laser Cavity (Optical Module).

Response:

See Response to Issue No. 5 above.

Issue No. 8:

Provide a statement correcting page 2, "Description" to state that the Depot maintenance facility does not have access to the Sealed Source.

Response:

Aeronutronic will resubmit its reference (b) request. This resubmittal will replace the last sentence in the second paragraph of the section entitled "Description:" with the following:

"Once assembled, there is no access to the Am-241 Sealed Sources except for Depot Maintenance. The U.S. Government has not yet established a Depot repair capability for the LTR, and therefore, the only authorized access to the Sealed Source resides with the Laser Transceiver manufacturers, Litton Systems, Inc., Laser Systems Division, P.O. Box 547300, Orlando, FL 32854-7300; and Electro-Optics Industries, Ltd. (ELOP), P.O. Box 1165, Rehovot 76111, Israel."

Please call me at (714) 459-4572 or fax a message to my attention at (714) 459-4132 if you have any questions, or require additional information.

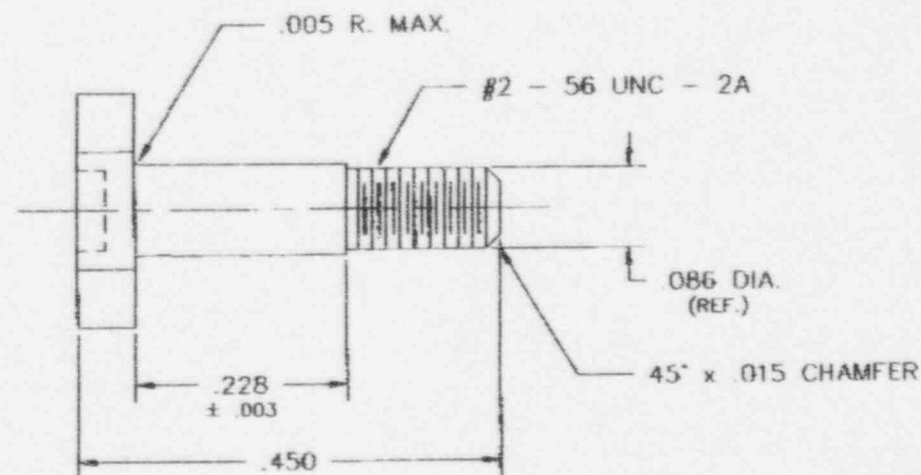
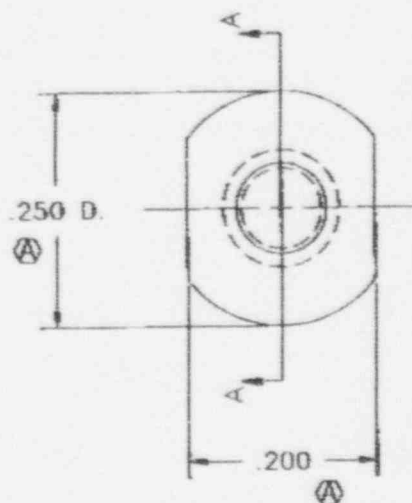
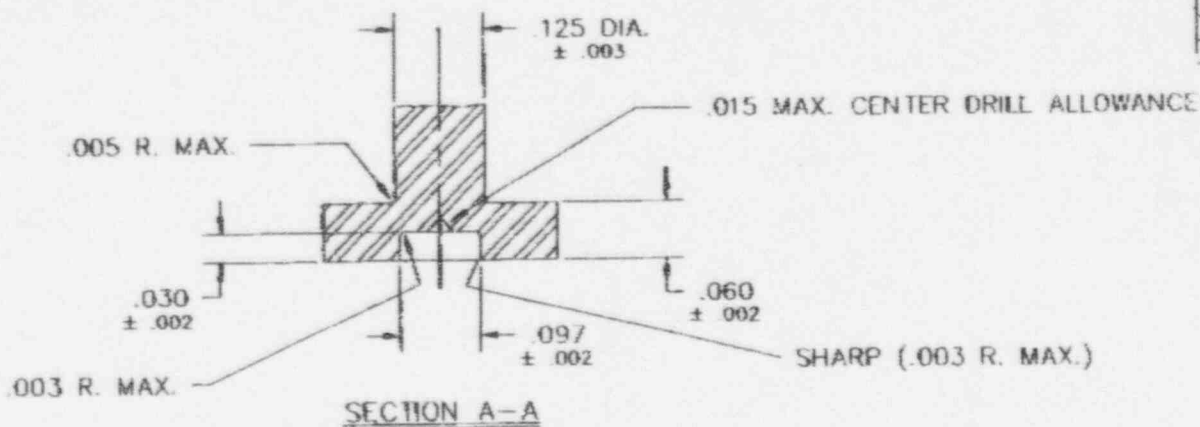
Sincerely,

DRAFT

Robert H. Swenson
Sr. Subcontract Administrator

P288255

SYMBOL	REVISION DESCRIPTION	DATE	BY	APP'D
BEL	LOG B145	03/17/84		
A	LOG B149 ADDED 250 DIA. DERIVED "DIA." FROM 200	01/28/84		
B	LOG B157 - ADDED CENTER DRILL ALLOWANCE SPEC	01/23/84		
	REBRAIN ON COMPUTER - INT	06/22/88		



NOTES:

1. MATERIAL: 303 STAINLESS STEEL
2. PART TO BE FREE OF ALL BURRS AND SHARP EDGES.
3. PART TO BE FREE FROM ALL CONTAMINANTS. (i.e. GREASE, CUTTING OIL, ETC.)

ITEM	DESCRIPTION	DOC. NO.	WATERM.	RECD
USED WITH	N/A			
MATERIAL	AS NOTED			
FINISH	N/A			
SHR. ROK.	✓			
UNLESS NOTED OTHERWISE	REMOVE ALL BURRS AND SHARP EDGES DO NOT SCALE			
TOLERANCES	FRAC. ± 1/32 X ± 0.000 XX ± 0.010 XXX ± 0.005 ANG. ± 1/4°			
DESIGN	N/A			
CORRUM	DLE			
CHART	176			
REC. APP'D	N/A			
SEC. APP'D	N/A			
SCALE	N.T.S.			
PART NO.	288255			
PROJ. NO.	312/84			
DATE				
BY				
CHKD				
APP'D				
AMERSHAM CORPORATION	2530 S. CHARLTON DR. Arlington Heights, IL 60005 (312) 583-8300			
ALPHA FOIL SOURCE HOLDER				
THIS DRAWING IS THE PROPERTY OF AMERSHAM CORPORATION AND MUST NOT BE LOANED, COPIED, OR REPRODUCED WITHOUT WRITTEN PERMISSION.				
SIZE	C			
SHEET	1 of 1			
DOC. NO.	P288255			
REV	B			

3.2 Construction. The construction, and physical dimensions shall be as specified herein.

3.2.1 Source holder assembly. The source holder assembly shall be as shown in Figure 1.

3.2.1.1 Source dimensions. The Americium 241 source dimensions shall be as required to fit the source holder as indicated in Figure 2.

3.2.1.2 Activity. The activity present in the source shall be 4.0 ± 0.5 micro Curies.

3.2.1.3 Leakage. When examined per Appendix B, the maximum allowable leak shall not exceed 11100 DPM ($.005\mu\text{C}$) of activity.

3.2.2 Source Assembly. The source assembly shall be assembled as shown in Figure 1. The source shall be retained within the holder, Figure 2, using 5 crimps as specified in 4.2.2. The protective screen as detailed in Figure 3 shall be held in place using 4 tack bonds of either Hysol (CAGE 04347) products division adhesive 1C, or 3M (CAGE 04963) 2216B/A structural adhesive. The tack bonds shall be uniform in appearance and shall not mask the active area exposed by the foil source.

3.2.2.1 Source holder. The source holder shall be in accordance with Figure 2.

3.2.2.2 Protective screen. The protective screen shall be in accordance with Figure 3.

3.2.2.3 Workmanship. Workmanship shall be in accordance with MIL-STD-454, Requirement 9. Parts shall be free of oils, dirt or other debris.

3.3 Part Marking. Marking shall be in accordance with MIL-STD-130. Each source assembly shall be marked with the following information.

- a. Serial number
- b. Part number
- c. Isotope
- d. Radiation symbol
- e. Activity level

3.4 Environmental requirements. The source assembly shall be capable of operating and withstanding the following environmental conditions.

3.4.1 Temperature.

Ambient Temperature -66°C to $+95^{\circ}\text{C}$

SIZE A	CAGE CODE 34860	DRAWING NO 66910280	REV B
SCALE NONE	SHEET 4 OF		

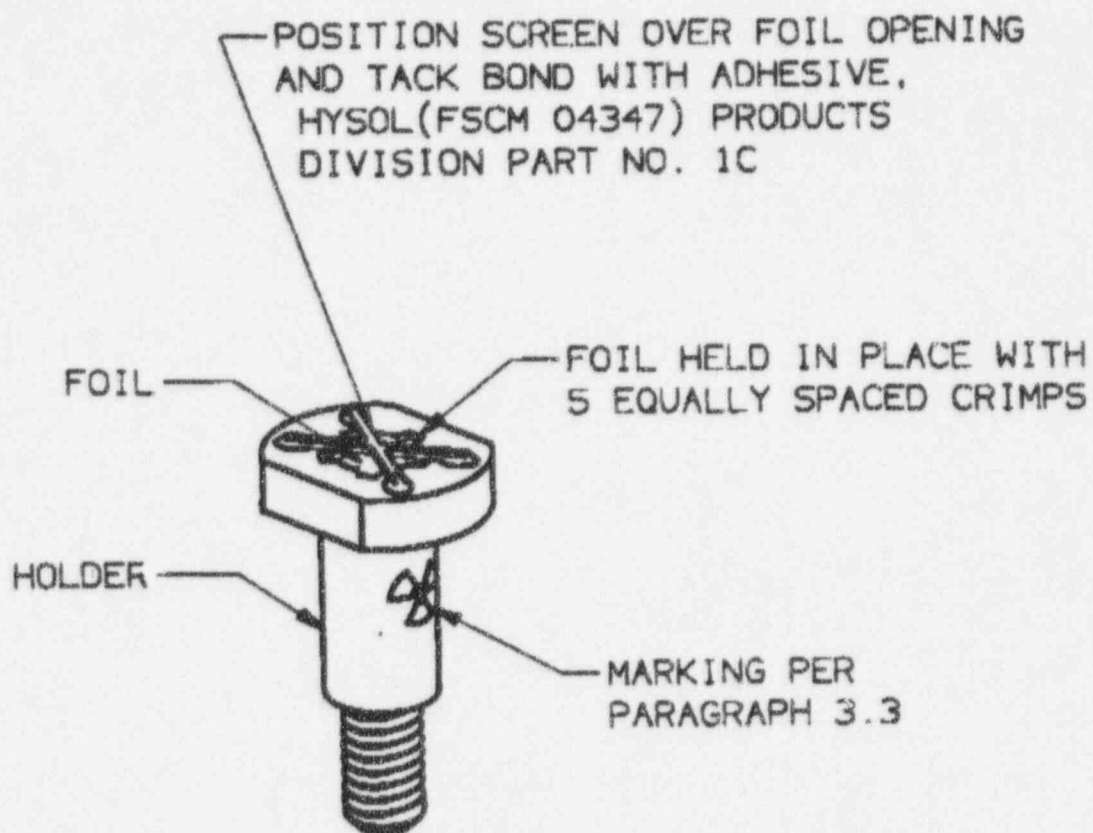
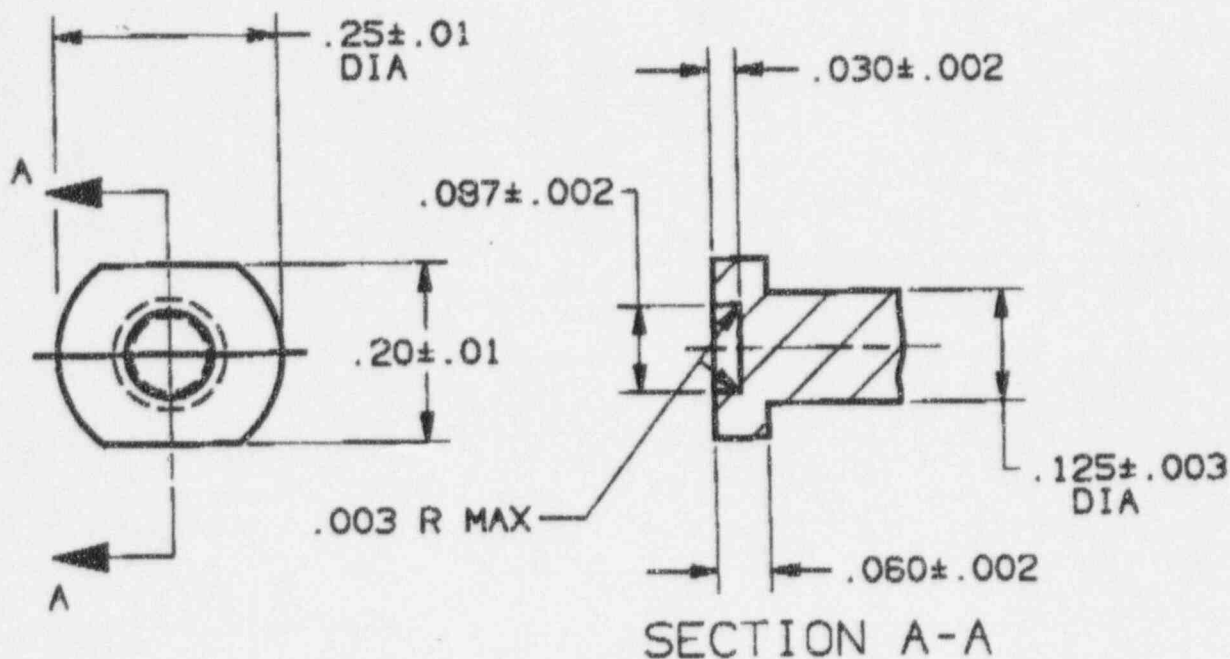
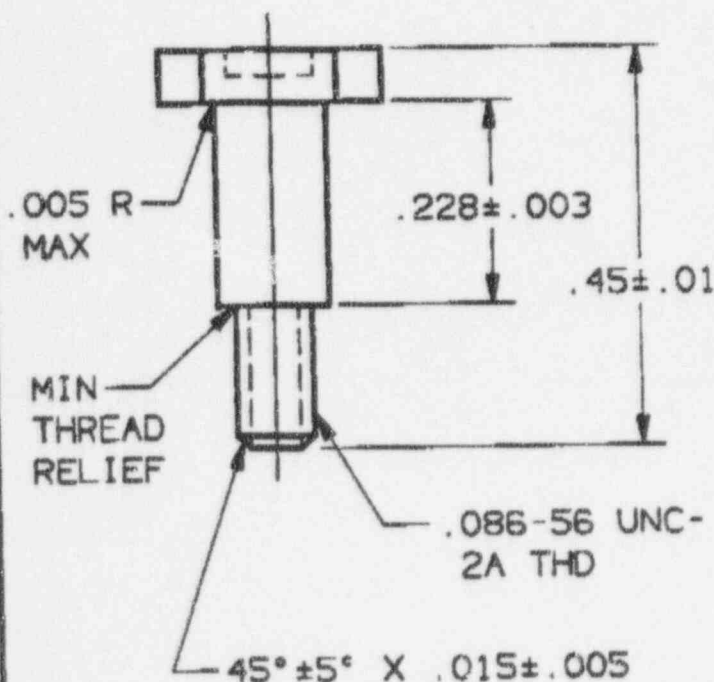


FIGURE 1: SOURCE HOLDER ASSEMBLY

COMPUTER FILE:	SIZE A	CAGE CODE 34860	DRAWING NO. 66910280	REV B
/f18p/66910280#8_b.cad	SCALE NONE		SHEET 8	



NOTES: UNLESS OTHERWISE
SPECIFIED.



1. INTERPRET DIMENSIONS AND TOLERANCES PER ANSI Y14.5-1973
2. REMOVE BURRS AND BREAK SHARP EDGES.
3. MATERIAL: CRES. TYPE 303 PER QQ-S-763.
4. SURFACE FINISH: $63\sqrt{\text{MAX}}$.
5. FINISH: PASSIVATE, TYPE II PER QQ-P-35.

FIGURE 2: SOURCE HOLDER

COMPUTER FILE:	SIZE	CAGE CODE	DRAWING NO.	REV
/f18p/66910280#9_b.cad	A	34860	66910280	B
SCALE NONE			SHEET 9	

NOTES: UNLESS OTHERWISE SPECIFIED

1. INTERPRET DIMENSIONS AND TOLERANCES PER ANSI Y14.5-1973.
2. REMOVE BURRS AND BREAK SHARP EDGES.
3. MATERIAL: CRES. TYPE 302 PER QQ-SS-763.
THICKNESS .008 \pm .002.
4. SURFACE FINISH: $63\sqrt{\text{MAX}}$.
5. FINISH: PASSIVATE, TYPE VII PER QQ-P-35.

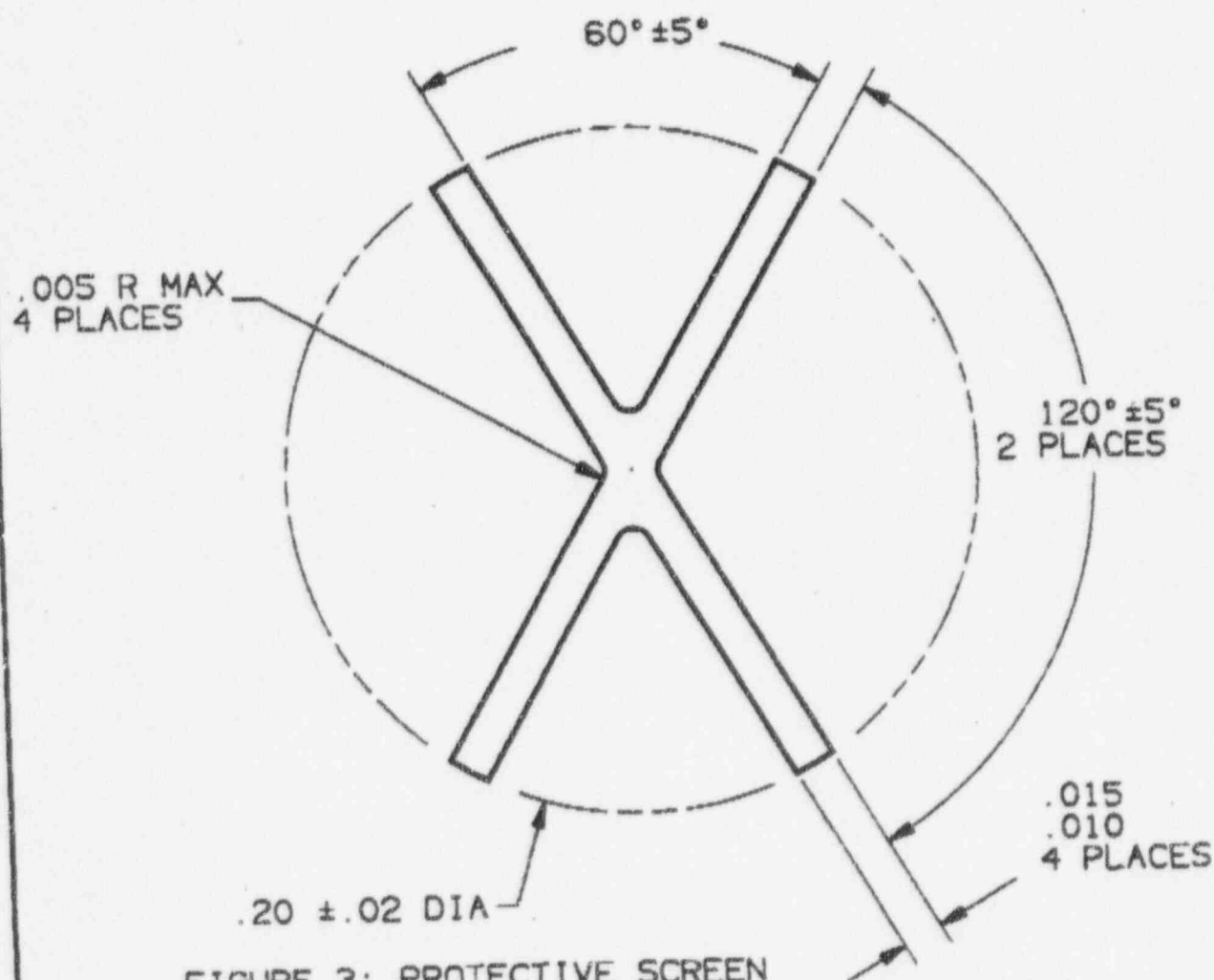


FIGURE 3: PROTECTIVE SCREEN

COMPUTER FILE:	SIZE	CAGE CODE	DRAWING NO.	REV
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SCALE NONE		SHEET 10		

Scotch-Weld**3M****Technical Data****June 1, 1993**
(Supersedes July 1, 1991)**2216 B/A Gray**
2216 B/A Tan NS
2216 B/A Translucent
Epoxy AdhesivesATTACHMENT 3
Page 1 of 6

Scotch-Weld™ EC-2216 B/A Gray, Tan, Translucent are flexible, two part, room temperature curing epoxies with high peel and shear strengths.

Features

- Excellent for bonding metals, wood, most plastics and rubbers and masonry products.
- EC-2216 B/A Gray meets DOD-A-82720.
- Tan 2216 provides a non-sag product for greater bondline control.

Typical Uncured Physical Properties:

Note: The following technical information and data should be considered as representative or typical only and should not be used for specification purposes.

Product	Color	Base	Net Wt. Lbs./Gal	Viscosity (cps) (Approx.) Brookfield RVF #7sp. @ 20 rpm	Mix Ratio (By Weight)	Mix Ratio (By Volume)	Work Life (Approx. Time for 100 Grs Qty. @ 75° F)
2216 B/A Gray							
Base	White	Modified Epoxy	11.1-11.6	75,000-150,000	5 parts	2 parts	90 minutes
Accelerator	Gray	Modified Amine	10.5-11.0	40,000-80,000	7 parts	3 parts	
2216 B/A Tan NS							
Base	White	Modified Epoxy	11.1-11.6	75,000-150,000	5 parts	2 parts	120 minutes
Accelerator	Tan	Modified Amine	12.1-12.6	550,000-700,000	7 parts	3 parts	
2216 B/A Trans.							
Base	Transparent	Modified Epoxy	9.4-9.8	11,000-15,000	1 part	1 part	120 minutes
Accelerator	Amber	Modified Amine	8.0-8.5	5,000-9,000	1 part	1 part	

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2216 B/A Gray							
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Accelerator	Gray	Modified Amine	10.5-11.0	40,000-80,000	7 parts	3 parts	
2216 B/A Tan NS							
Base	White	Modified Epoxy	11.1-11.6	75,000-150,000	5 parts	2 parts	120 minutes
Accelerator	Tan	Modified Amine	12.1-12.6	550,000-700,000	7 parts	3 parts	
2216 B/A Trans.							
Base	Transparent	Modified Epoxy	9.4-9.8	11,000-15,000	1 part	1 part	120 minutes
Accelerator	Amber	Modified Amine	8.0-8.5	5,000-9,000	1 part	1 part	

Typical Cured Physical Properties:

	2216 Gray	2216 Tan	2216 Translucent
Color	Gray	Tan	Translucent
Shore D Hardness ASTMD 2240	50-65	65-70	35-50
Time to Handling Strength	8-12 hrs.	8-12 hrs.	12-16 hrs.

Typical Cured Electrical Properties:

	2216 Gray	2216 Translucent
Arc Resistance	130 seconds	
Dielectric Strength	408 volts/mil	630 volts/mil
Dielectric Constant @ 73°F	5.51—Measured @ 1.00 KC	
Dielectric Constant @ 140°F	14.17—Measured @ 1.00 KC	
Dissipation Factor @ 73°F	0.112—Measured @ 1.00 KC	
Dissipation Factor @ 140°F	0.422 Measured @ 1.00 KC	
Surface Resistivity @ 73°F	5.5×10^{11} ohms—@ 500 volts DC	
Volume Resistivity @ 73°F	1.9×10^{14} ohms-cm—@ 500 volts DC	3.0×10^{12} ohms-cm @ 500 volts DC

Typical Cured Thermal Properties:

	2216 Gray	2216 Translucent
Thermal Conductivity	0.228 BTU/HR/SQ.FT./°F/FT.	0.114 BTU/HR/SQ.FT./°F/FT.
Coefficient of Thermal Expansion	102×10^{-6} in./in./°C between 0-40°C	81×10^{-6} in./in./°C between -50-0°C
	134×10^{-6} in./in./°C between 40-80°C	207×10^{-6} in./in./°C between 60-150°C

Handling/Curing Information:**Direction for use:**

1. For high strength structural bonds, paint, oxide films, oils, dust, mold release agents and all other surface contaminants must be completely removed. However, the amount of surface preparation directly depends on the required bond strength and the environmental aging resistance desired by user. For specific surface preparations on common substrates, see the following section on Surface Preparation.
2. Use gloves to minimize skin contact. Do not use solvents for cleaning hands.
3. These products consists of two parts. Mix thoroughly by weight or volume in the proportions specified in the Uncured Properties Section. Mix approximately 15 seconds after a uniform color is obtained.
4. For maximum bond strength apply product evenly to both surfaces to be joined.
5. Application to the substrates should be made within 90 minutes. Larger quantities and/or higher temperatures will reduce this working time.
6. Join the adhesive coated surfaces and allow to cure at 60°F or above until firm. Heat up to 200°F, will speed curing.
7. The following times and temperatures will result in a full cure:

Cure Temperature	2216 Gray	2216 Tan	2216 Translucent
	Time		
75°F	7 days	7 days	30 days
150°F	120 minutes	120 minutes	240 minutes
200°F	30 minutes	30 minutes	60 minutes

8. Keep parts from moving until handling strength is reached. Contact pressure is necessary. Maximum shear strength is obtained with a 3.5 mil bond line.
9. Excess uncured adhesive can be cleaned up with ketone type solvents.*

Adhesive coverage: A 0.005 in. thick bondline will yield a coverage of 320 sq. ft./gallon

Application and Equipment Suggestions:

These products may be applied by spatula, trowel or flow equipment.

Two part mixing/proportioning/dispensing equipment is available for intermittent or production line use. These systems are ideal because of their variable shot size and flow rate characteristics and are adaptable to most applications. For more information, contact your local 3M sales representative.

Surface Preparation:

For high strength structural bonds, paint, oxide films, oils, dust, mold release agents and all other surface contaminants must be completely removed. However, the amount of surface preparation directly depends on the required bond strength and the environmental aging resistance desired by user.

The following cleaning methods are suggested for common surfaces:

Steel

1. Wipe free of dust with oil-free solvent such as acetone or alcohol solvents.*
2. Sandblast or abrade using clean fine grit abrasives (120 grit or finer).
3. Wipe again with solvent to remove loose particles.
4. If a primer is used, it should be applied within 4 hours after surface preparation. If Scotch-Weld 1945 B/A two part primer is used, apply a thin coating (0.0005") on the metal surfaces to be bonded, air dry for 10 minutes, then cure for 30 minutes at 180°F prior to bonding.

Aluminum

1. Vapor Degrease - Perchloroethylene condensing vapors for 5 - 10 minutes.
2. Alkaline Degrease - Oakite 164 solution (9-11 oz./gallon water) at 190°F +/-10°F for 10-20 minutes. Rinse immediately in large quantities of cold running water.
3. Acid Etch - Place panels in the following solution for 10 minutes at 150°F +/-5°F.

Sodium Dichromate	4.1 - 4.9 oz./gallon
Sulfuric Acid, 66°Be	38.5 - 41.5 oz./gallon
2024-T3 aluminum (dissolved)	0.2 oz./gallon minimum
Tap Water	Balance of volume
4. Rinse: Rinse panels in clear running tap water.
5. Dry: Air dry 15 minutes; force dry 10 minutes at 150°F +/-10°F.
6. If primer is to be used, it should be applied within 4 hours after surface preparation.

Plastics/Rubber

1. Wipe with isopropyl alcohol.*
2. Abrade using fine grit abrasives (120 grit or finer).
3. Wipe with isopropyl alcohol.*

Glass

1. Solvent wipe surface using acetone or MEK.*
2. Apply a thin coating (0.0001 in. or less) of Scotch-Weld EC-3901 Primer to the glass surfaces to be bonded and allow the primer to dry a minimum of 30 min @ 75°F before bonding.

*Note: When using solvents, read manufacturer's hazard communication and follow manufacturer's recommended guidelines for safe handling of the cleaning solvents.

Adhesive Performance Characteristics:**A. Minimum Overlap Shear Strength**

(PSI) ASTM D-1002-64

Aluminum FPL Etch

Test Temp.	2216 B/A Gray	2216 B/ATan	2216 B/A Trans.*
-67°F	2000	2000	3000
75°F	2500	2500	2500
180°F	400	400	200

B. Minimum T-Peel Strength

(PIW) ASTM D-1876-61T

Aluminum FPL Etch

Test Temp.	2216 B/A Gray	2216 B/ATan	2216 B/A Trans.*
75°F	25	25	25

*2216 B/A Translucent will reach full strength in 30 days.

*Note: Data developed using 7 day cure @ 75°F, 2 psi.

C. Etched Aluminum Overlap Shear Strength After Environmental Aging**Test Results (75°F)**

Environment	Time	2216 B/A Gray	2216 B/A Tan	2216 B/A Translucent
100% Relative Humidity @ 120°F	14 days	2950 psi	3400 psi	
	30 days	1985 psi	2650 psi	1390 psi
	90 days	1505 psi		
Salt Spray @ 75°F	14 days	2300 psi	3900 psi	
	30 days	500 psi	3300 psi	1200 psi
	60 days	300 psi		
Tap Water @ 75°F	14 days	3120 psi	3250 psi	
	30 days	2942 psi	3700 psi	1950 psi
	90 days	2075 psi		
Air @ 160°F	35 days	4650 psi	4425 psi	
Air @ 300°F	6 days	4000 psi	4450 psi	3500 psi
Anti-icing Fluid @ 75°F	7 days	3300 psi	3050 psi	2500 psi
Hydraulic Oil @ 75°F	30 days	2500 psi	3500 psi	2500 psi
JP-4 Fuel	30 days	2500 psi	2750 psi	2500 psi
Hydrocarbon Fluid	7 days	3300 psi	3100 psi	3000 psi

Adhesive Performance Characteristics (Cont.)**D. Overlap Shear Strength on Abraded Metals, Plastics, and Rubbers.**

Overlap shear strengths were measured on 1" wide 1/2" overlap specimens. These bonds were made individually using 1" by 4" pieces of substrate. (Tests per ASTM D-1002-72).

The thickness of the substrates were: cold rolled, galvanized and stainless steel - 0.056-0.062", copper - 0.032", brass - 0.036", rubbers - 0.125", plastics - 0.125". All surfaces were prepared by solvent wiping/abrading/solvent wiping

The jaw separation rate used for testing was 0.1" per minute for metals, 2" per minute for plastics, and 20" per minute for rubbers.

EC-2216 B/A Gray

Substrate	Overlap Shear (PSI) @ 75°F	
	2216 B/A Tan NS	
Aluminum/Aluminum	1850	2350
Cold Rolled Steel/Cold Rolled Steel	1700	3100
Stainless Steel/Stainless Steel	1900	
Galvanized Steel/Galvanized Steel	1800	
Copper/Copper	1050	
Brass/Brass	850	
Styrene Butadiene Rubber/Steel	200*	
Neoprene Rubber/Steel	220*	
ABS/ABS Plastic	990*	1140*
PVC/PVC, Rigid	940*	
Polycarbonate/Polycarbonate	1170*	1730*
Acrylic/Acrylic	1100*	1110*
Fiber Reinforced Polyester/Fiber Reinforced Polyester	1660*	3600*

*The substrate failed during the test.

Storage and Shelf Life:

Storage: Store products at 60-80°F for maximum storage life.

Shelf Life: When stored at the recommended conditions in the original, unopened containers, these products have a shelf life of one year.

Precautionary Information: Refer to Material Safety Data Sheet for Health and Safety information before using Product.

IMPORTANT NOTICE: All statements and technical information contained in this 3M product data sheet are based on tests and data which 3M believes to be reliable, but the accuracy or completeness of such statements and technical information is not guaranteed. **3M MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** User is responsible for determining whether this 3M product is fit for a particular purpose and suitable for user's method of application.

LIMITATION ON REMEDIES AND LIABILITY: If this 3M product is proved to be defective, **THE EXCLUSIVE REMEDY, AT 3M'S OPTION, SHALL BE TO REFUND THE PURCHASE PRICE OF OR TO REPAIR OR REPLACE THE DEFECTIVE 3M PRODUCT.** 3M shall not otherwise be liable for loss or damages, whether direct, indirect, special, incidental, or consequential, regardless of the legal theory asserted, including negligence, warranty, or strict liability.

For Additional Product Safety and Health Information:
Material Safety Data Sheet, or

78-6900-0930-8

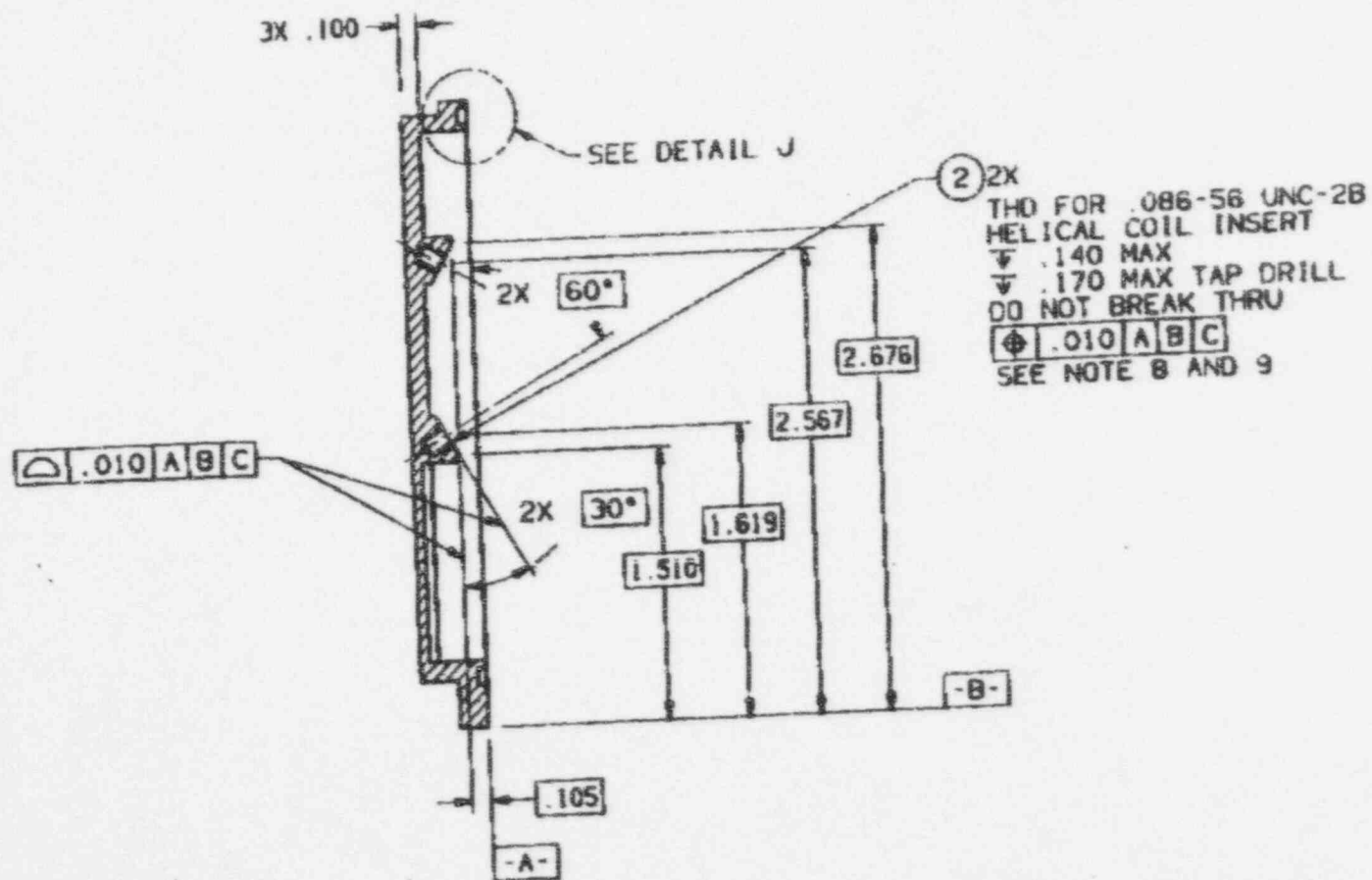
Adhesive Systems
3M Industrial Tape and Specialties Division

3M Center Blvd. 55359 MN

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ATTACHMENT 4
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SECTION G-G

AW-240AC-740-070**004 00**

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Change 1 - 1 August 1994

INTERMEDIATE MAINTENANCE**PREPARATION FOR USE, STORAGE AND SHIPMENT****LASER TRANSCEIVER RT-1673/AAS-38A
PART NUMBER 66910100-29**

This work package supersedes WP 004 00, dated 16 November 1992.

Reference MaterialPreservation, Packaging, and Packing
of Military Supplies and Equipment

NAVSUP 503, VOL II

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Record of Applicable Technical Directives

None

1. RADIOACTIVE MATERIAL.**9 MICROCURIES OF AMERICIUM-241 201**

2. The optical module of the transmitter subassembly of the laser transceiver contains nine microcuries of Americium-241 (Am-241). To preclude potential radiation exposure, opening of the optical module at intermediate level maintenance is prohibited. Access to the optical module is restricted to depot entry in accordance with labels on the WRA.

3. PREPARATION FOR SHIPMENT.**9 MICROCURIES OF AMERICIUM-241 201**

4. For defective optical modules or for optical modules suspected of damage, the transmitter subassembly will be shipped to a depot repair facility that holds an NRC or agreement state specific license authorizing its servicing and repair.

5. If the integrity of the sealed optical module is suspect, it will be double-sealed in plastic bags, packaged to prevent puncture of the plastic bags and then shipped to the licensed repair facility. Gloves will be worn while handling and placing the device in plastic bags.

6. Refer to NAVSUP 503, VOL II, Preservation, Packaging, and Packing of Military Supplies and Equipment.