



**U.S. NUCLEAR  
REGULATORY  
COMMISSION REQUEST  
FOR AMMENDMENT**

**PRESENTED TO:**

**MR. JOHN P. JANKOVICH**

**TRUGLO,® Inc.**

525 International Parkway

Richardson, Texas 75081

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www.truglo.com

WHEN BRIGHTNESS COUNTS™

December 30, 2013

Mr. John P. Jankovich  
United States Nuclear Regulatory Commission  
Materials Safety and Inspection Branch  
Division of Industrial and Medical Nuclear Safety  
Two White Flint North  
11545 Rockville Pike  
North Bethesda, MD 20852-2738

Dear Mr. Jankovich:

Please accept the enclosed documents as a request for an amendment to TRUGLO's existing U.S.N.R.C. License #42-23889-01E and Registration Certificate # NR-1180-D-101-E/Docket or Reference #030-36055. Please note that the sole purpose of this request for amendment is simply to broaden the scope of models to the already existing "aiming sights" approved and included on TRUGLO's existing license. The request for this amendment has absolutely no affect on the original safety evaluation of the device. The intended purpose is to simply broaden the scope of approved models to allow TRUGLO to fulfill market demands and needs.

We once again have followed the original format of the Sealed Source & Device Evaluation & Registration for Certificate # NR-1180-D-101-E in an attempt to present information for the additional "aiming sights" in a concise and efficient manner for your convenience.

In the event that information within a section of these documents remains exactly the same as previously submitted, accepted and approved by the U.S.N.R.C. for TRUGLO's existing license and registration certificate respectively, than the following phrase appears under the particular section in blue ink: "Please refer to the same information as previously submitted, accepted and approved by U.S.N.R.C. for TRUGLO License #42-23889-01E and Registration Certificate # NR-1180-D-101E."

In the event that only part of the information contained within the section of these documents has changed, the "new" or "revised" text appears in "blue" print to



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distinguish it from the original text submitted by TRUGLO in accordance with the issuance of our current respective license and registration certificate.

Any section containing only "new" information has all information appearing in "blue" print as well to help distinguish that the information being provided is "new" and pertains to the requested amendment.

No fee has been enclosed with these documents as it remains our understanding that no fee currently applies to this request. Please feel free to contact me with any questions or comments. I can be reached by telephone at 972-774-0300 ext. 113 or e-mail at [lhellinghausen@truglo.com](mailto:lhellinghausen@truglo.com).

Thank you in advance for your time and consideration.

Sincerely,  
TRUGLO, INC.



Lorraine L. Hellinghausen  
Radiation Safety Officer

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FROM TEXAS DEPARTMENT OF  
STATE HEALTH SERVICES



APPLICATION FOR AMENDMENT TO  
U.S.N.R.C. LICENSE #42-23889-01E  
FOR THE APPROVED SEALED SOURCE & DEVICE  
EVALUATION  
& REGISTRATION CERTIFICATE #NR-1180-D-101-E

NAME & ADDRESS OF APPLICANT:

TRUGLO, INC.  
525 INTERNATIONAL PARKWAY  
RICHARDSON, TX 75081

INDIVIDUAL TO BE CONTACTED FOR ADDITIONAL INFORMATION:

LORRAINE HELLINGHAUSEN  
RADIATION SAFETY OFFICER  
972-774-0300  
972-774-0323 FAX  
[lhellinghausen@truglo.com](mailto:lhellinghausen@truglo.com)

TRUGLO, INC. is applying to be both the manufacture and distributor of the specified product(s).

PRODUCT NAME USED BY THE INDUSTRY:

The product(s) proposed for the amendment is commonly known in the industry as an "aiming sight" or "gun sight". A "gun sight" is considered part of the same category as "aiming sights" which are products distributed to persons exempt from licensing under 10 CFR 30.19.

PRODUCT(S) IS FOR USE BY:

The product(s) proposed for the amendment is intended for use by the recreational sportsman or law enforcement personnel to improve low-light shooting capabilities. It will be sold to the general public.

PRINCIPAL USE CODE:

The principal use code for this product(s) is "W" – Self-Luminous Light Source.

### LEAK TEST FREQUENCY:

Please refer to the same information as previously submitted, accepted and approved by U.S.N.R.C. for TRUGLO License #42-23889-01E and Registration Certificate # NR-1180-D-101-E dated 3-11-13

### SEALED SOURCE INFORMATION:

Please refer to the same information as previously submitted, accepted and approved by U.S.N.R.C. for TRUGLO License #42-23889-01E and Registration Certificate # NR-1180-D-101-E dated 3-11-13.

### GASEOUS TRITIUM LIGHT SOURCE (GTLS) HYDROGEN-3 (TRITIUM)

All sealed sources suggested for use in this device(s) are approved by the U.S.N.R.C.

### SEALED SOURCES FOR THIS DEVICE:

MB-MICROTECH – MODEL 400/1  
UP TO 30 mCi PER SEALED SOURCE  
NRC REGISTRY NO: NR-446-S-102-S

### MODEL INFORMATION:

The model numbers designated for these new products are revisions to the already existing and approved TG131/TG231 Series Gun Sights as listed in Registration Certificate # NR-1180-D-101-E amended on 3-11-13.

As already registered, the TRUGLO TG131/TG231/TG13 Series consists of front and rear sight combinations or front sights only. The newly submitted models for this series are related products to TG131/TG231 Series only. The newly submitted models fall within the current designs and tolerances of the TG131/TG231 Series Gun Sights.

The TG131/TG231 Series – Revision 3 consists of the previously NRC approved TRUGLO patented technology of combining a GTLS with fiber optic material to form an aiming device. The newly submitted device models for the TG131/TG231 Series – Revision 3 are as follows:



### Model Chart for Revision 3:

<u>TG131 Series – A1</u>	<u>TG131 Series – A2</u>	<u>TG131 Series – B1</u>	<u>TG231 Series – A1</u>	<u>TG231 Series – A2</u>	<u>TG231 Series – B1</u>
TG131WT	TG131AT	TG131AT	TG231W	TG231A	TG231A
	TG131BT	TG131BT		TG231B	TG231B
	TG131FT	TG131FT		TG231F	TG231F
	TG131NT	TG131NT		TG231N	TG231N
	TG131RT	TG131RT		TG231R	TG231R
	TG131TT	TG131TT		TG231T	TG231T
	TG131YT	TG131WT		TG231Y	TG231W
		TG131YT			TG231Y

Front sight proposed to contain one 30 mCi (maximum) GTLS unit.  
Rear sight proposed to contain two 30 mCi (maximum) GTLS units.

Maximum of 30mCi per sealed source and maximum of 90mCi per weapon.

TRUGLO's intent is to continue to have these model numbers listed as a "series" due to the similarity of the design and construction of the submitted products. The detailed engineering drawings submitted with this application will help illustrate this statement. Please note that the GTLS is protected by at least .019" of material in all designs.

### BYPRODUCT MATERIAL INFORMATION:

Please refer to the same information as previously submitted, accepted and approved by U.S.N.R.C. for TRUGLO License #42-23889-01E and Registration Certificate # NR-1180-D-101-E amended and re-issued on 3-11-13 in its entirety.

### STRUCTURAL MOUNTING OF GTLS:

TRUGLO TG131/TG231 Series - Revision 3 – (Please refer to specified models contained in section MODEL INFORMATION of this application for amendment.)

Please note that the procedure for the structural mounting of the GTLS is the same exact procedure as previously submitted, accepted and approved by the U.S.N.R.C. for TRUGLO License #42-2388901E Amendment 01 and Registration Certificate #NR-1180-D-101-E amended and re-issued on 3-11-13. The protection of GTLS in the newly submitted models remains uncompromised in each device design respectively.



## DEGREE OF ACCESS TO HUMAN BEINGS:

By design, each of the newly proposed devices prevents direct access to the GTLS at any time during normal handling and use by a human being. The GTLS is permanently affixed within the metal "bow and/or gun sight" housings respectively as previously submitted, accepted and approved by the U.S.N.R.C. for TRUGLO License #42-2388901E Amendment 01 and Registration Certificate #NR-1180-D-101-E amended and re-issued on 3-11-13. No compromise has been taken to increase the direct access to human beings.

## TOTAL QUANTITY OF BYPRODUCT MATERIAL EXPECTED TO BE DISTRIBUTED ANNUALLY:

### TG131/TG231 Series – Revision 3

The anticipated sales of the newly proposed devices are expected to be approximately 5,000 – 10,000 units in the first year. The 5,000 -10,000 units include all newly proposed device models contained in this application for amendment. A total quantity of 95,000 units is inclusive of all existing and approved models of the TG131/TG231/TG13 Series and TG20 Bow Sights Series plus the newly proposed models.

These newly proposed "gun sight" devices are not expected to increase sales beyond the 95,000 units from the already existing models in the marketplace during the first year. Reason being is that existing models in the marketplace of the TG131/TG231/TG13 Series and TG20 Bow Sights Series to date have not yet exceeded the 95,000 units proposed. Also diminishing sales for older gun sight models and bow sight models will have a negative impact on the total units sold into the marketplace. However, beginning in the second and third years as the new models are accepted into the marketplace, it is anticipated that sales will continue to grow to some extent and possibly exceed the 95,000 units at some future date.

Based on a maximum calculation of 90 mCi per front and rear sight combination X 95,000 units, there could be approximately a maximum of 8,550 Curies per year of tritium distributed across the United States in the first year. The maximum of 90 mCi per device is calculated by adding together the following:

1 Front Sight containing one 30mCi GTLS + 1 Rear Sight containing two 30mCi GTLS

However, it is important to please note that although front and rear sights are commonly used in combination with each other to complete the sighting device of a firearm, it is possible for the firearm to feature only one front sight containing a single GTLS (30mCi) in combination with a traditional non-illuminated rear sight; or feature only one rear sight containing 2 GTLS (60mCi) and a traditional non-illuminated front sight. Or furthermore, it is possible for a firearm such as a shotgun to feature only a front sight containing a single GTLS (30 mCi) and no rear sight at all. In any of the referenced circumstances, the total amount of tritium per device would be lessened and need to be considered in



the above equation illustrating the "maximum" set of circumstances at 90mCi per combination of front and rear sight to satisfy the U.S.N.R.C.'s evaluation.

To support the fact that not all approved devices contain the maximum of 90 mCi GTLS as proposed in the example calculation listed above, please refer to the enclosed 2012 TRUGLO Material Transfer Report for USNRC License #42-3889-01E respectfully submitted for your convenience. The report demonstrates the exact number or millicuries distributed by TRUGLO, Inc. in 2012 as well as how many millicuries per each approved device. Please refer to Attachment "E".

#### ACTIVITY STORED IN ONE LOCATION:

As previously submitted, accepted and approved in Amendment 01, ideally large quantities of product are not held in stock due to economic considerations and inventory constraints. Product in general is produced on an "as needed" basis to fill orders as efficiently as possible without the burden of having excess inventory.

Again, based on a combination of considering already registered devices and other types of tritium illuminated aiming devices that TRUGLO is proposing in this application for amendment, although unlikely, it is estimated that the maximum activity to be stored at any one time contained in exempt devices would not exceed 3,600Ci. For example purposes only, consider that this would allow for 40,000 front and rear gun sight combinations at a maximum of 90 mCi per set for a total of 3,600Ci to accumulate in one location at a given point in time for a grand total of 3,600Ci.

Please refer to Attachment "F" - RADIOACTIVE MATERIALS LICENSE FROM TEXAS DEPARTMENT OF STATE HEALTH SERVICES

#### CONDITIONS OF USE:

All information for this section remains exactly the same as previously approved by the U.S.N.R.C. for TRUGLO License #42-2388901E Amendment 01 and Registration Certificate #NR-1180-D-101-E amended and re-issued on 3-11-13 for both TG20 Series Bow Sights and TG131/TG231/TG13 Series gun sights.

Again, normal use of the newly proposed devices for TG131/TG231 Series – Revision 3 is by the recreational hunter or target shooter (general public) or possible law enforcement personnel. The likely environment remains to be the outdoors. Since the tritium illuminated aiming devices remain attached for example to a firearm or bow, they are only in close proximity to the shooter on a limited basis.

No accident conditions can be thought of with the exception of the firearm or bow/crossbow being dropped to the ground from the hands of a person standing on the ground. Damage to the actual GTLS is estimated to be a very remote chance since the actual firearm/bow would take the impact of the fall to the ground. Firearms and



bows/crossbows in general are designed to withstand compromising circumstances such as falls or drops to the ground although not recommended. Submitted prototype testing confirmed that the GTLS was not compromised in any way when subjected to possible accident conditions.

### EXTREME CONDITIONS:

All information for this section remains exactly the same as previously approved by the U.S.N.R.C. for TRUGLO License #42-2388901E Amendment 01 and Registration Certificate #NR-1180-D-101-E amended and re-issued on 3-11-13 for TG131/TG231/TG13 Series gun sights.

Again, the proposed devices will not be subject to any extreme conditions as listed under Section 10.2 "Conditions of Use" of the NUREG-1556 Volume 3, Rev. 1 since it will always be in the possession of the person handling the firearm or bow/crossbow. Firearms, bows/crossbows even in the absence of the proposed tritium aiming devices must be handled with care to avoid unwanted and unexpected adjustments to the equipment; especially the bow or gun sight itself that will directly affect the accuracy and performance of the firearm.

### ESTIMATED WORKING LIFE OF THE DEVICE:

All information for this section remains exactly the same as previously approved by the U.S.N.R.C. for TRUGLO License #42-2388901E Amendment 01 and Registration Certificate #NR-1180-D-101-E amended and re-issued on 3-11-13 for TG131/TG231/TG13 Series gun sights.

Due to the radioactive nature of tritium and its radioactivity decay half-life of 12.3 years, the amount of tritium decreases with time. Tritium can also diffuse slowly through glass causing the brightness of the GTLS to dim over time. However, the estimated working life of the device is indefinite. Even if the tritium source expires and dims to the point that there is no visible illumination by the tritium, the fiber-optic material used in combination with the expired tritium source allows the aiming device to possess an indefinite life span. The fiber optic material can continue to be used as the aiming point for the firearm or bow/crossbow even in the absence of the illuminating properties of the tritium component. Even at this point, the aiming device is still completely functional and is considered competitive with existing aiming device technologies. Thus, both the already approved and newly proposed devices have an indefinite working life-span.

Again, TRUGLO anticipates the working life of the devices to be indefinite and the decay half-life of the tritium in 12.3 years. This statement is confirmed with the fact that even in the absence of the illuminating ability of the tritium, the fiber-optic material can continue to be used as the aiming point for the firearm or bow/crossbow.



MAXIMUM EXTERNAL RADIATION LEVELS AS REFERRED TO IN 10 CFR 32.22  
(a)(2)(vi):

All information for this section remains exactly the same as previously approved by the U.S.N.R.C. for TRUGLO License #42-2388901E Amendment 01 and Registration Certificate #NR-1180-D-101-E amended and re-issued on 3-11-13 for TG131/TG231/TG13 Series gun sights.

CONSTRUCTION OF THE PRODUCT:

The contained documents illustrate the construction of the proposed gun sights included in the Revision 3:

TG131/TG231 Series – Revision 3

TG131 Series - Attachment A  
TG231 Series - Attachment B

Certain tolerances (such as dovetail dimensions) are considered as variations in shape or size and are contained in these drawings to be considered as part of the "Series". Such variations are referenced for your convenience on the drawings.

Again, please note that small modifications to the cosmetic or aesthetic appearance ONLY of various metal sight housings may be implemented by TRUGLO, Inc. at a point in time to better suit market demand and/or customer needs and satisfaction.

MATERIALS USED IN CONSTRUCTION OF THE PRODUCT:

Materials used in the construction of the products are stated on the submitted product drawings of the proposed aiming devices.

All materials used are the same as previously approved by the U.S.N.R.C. for TRUGLO License #42-2388901E Amendment 01 and Registration Certificate #NR-1180-D-101-E amended and re-issued on 3-11-13 for TG131/TG231/TG13 Series gun sights.

The materials are re-capped as follows for your convenience:

1. BOW OR GUN SIGHT BODY: Materials such as but not limited to: Steel or Aluminum.
2. BOW OR GUN SIGHT FIBER: (Applicable to TG131/TG20 TRITIUM FIBER OPTIC SERIES only.) Fluorescent plastic fiber.
3. TRITIUM VIAL ASSEMBLY: GTLS and structural mounting bracket.
4. GLUING AGENTS: Such as but not limited to: silicone based adhesives, clear optical glue (acrylic adhesives), elastomer adhesive such as but not limited to trade name "Black Max" by Loc-Tite and/or epoxy.



## LABELING:

All information for this section remains exactly the same as previously approved by the U.S.N.R.C. for TRUGLO License #42-2388901E Amendment 01 and Registration Certificate #NR-1180-D-101-E amended and re-issued on 3-11-13 for TG131/TG231/TG13 Series gun sights.

As stated in the actual Registration #NR-1180-D-101-E, since it is not physically possible to mark or label the GTLS itself, "Each sight is permanently marked with "TG" and the symbol for tritium (H-3). The logo and H-3 are marked on the side of the bow sight pins and the gun sights. The preferred method of labeling still remains to be engraving or laser engraving. However, TRUGLO is not limited to considering other permanent methods of labeling in the future as technology becomes accessible or available. In addition, packaging of the device will contain information identifying the fact that the device contains tritium gas along with the proper instruction for the return of an unwanted device or defective product back to the manufacturer for disposal."

## PROTOTYPE TESTING of PROPOSED GTLS SOURCES:

All information for this section remains exactly the same as previously approved by the U.S.N.R.C. for TRUGLO License #42-2388901E Amendment 01 and Registration Certificate #NR-1180-D-101-E amended and re-issued on 3-11-13 for TG131/TG231/TG13 Series gun sights.

## PROTOTYPE TESTING OF PROPOSED DEVICE:

TRUGLO previously performed the following prototype tests for all sights: chemical, temperature, humidity, temperature shock, vibration, pressure, penetration, and mechanical shock.

All prototype testing was conducted in accordance with NUREG-1556, Vol. 8, Appendix "O" as required. Prototype testing was performed to show the product's integrity in protecting the GTLS from damage or destruction. Please note that there is no external radiation hazard from tritium. No structural degradation of the "bow or gun sight" or structural mounting bracket containing the GTLS is anticipated.

As previously identified, tritium decays with a characteristic half-life of 12.3 years. Tritium is known to slowly diffuse through glass and can oxidize to tritium oxide in the atmosphere.

Each sample was visually inspected between each test and after completion of all the tests to ensure that no detrimental effects occurred. The prototype testing exhibited NO tritium leakage or breakage of the sight or source.

Due to the structure of the proposed new model sights included in Revision 3 being exactly the same as the already approved TG131/TG231 Series with the exception of dovetail dimensions, no new prototype testing was performed for the proposed models. Again, the protection of GTLS in the newly submitted models remains uncompromised in each device design respectively.

#### ESTIMATED EXTERNAL RADIATION DOSES & RADIATION DOSES RELEVANT TO 10 CFR32.23 & 32.24:

All information for this section remains exactly the same as previously approved by the U.S.N.R.C. for TRUGLO License #42-2388901E Amendment 01 and Registration Certificate #NR-1180-D-101-E amended and re-issued on 3-11-13 for TG131/TG231/TG13 Series gun sights.

#### QUALITY ASSURANCE AND CONTROL:

All information for this section remains exactly the same as previously approved by the U.S.N.R.C. for TRUGLO License #42-2388901E Amendment 01 and Registration Certificate #NR-1180-D-101-E amended and re-issued on 3-11-13 for TG131/TG231/TG13 Series gun sights.

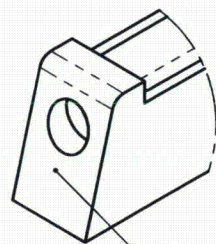
As stated in Registration #NR-1180-D-101-E, "TRUGLO, Inc. has submitted a quality assurance and control (QA/QC) program that has been found to be acceptable by the NRC for the production and distribution of the TG-20, TG131/TG231/TG13 Series sights by TRUGLO. A copy of this program is on file with the NRC."



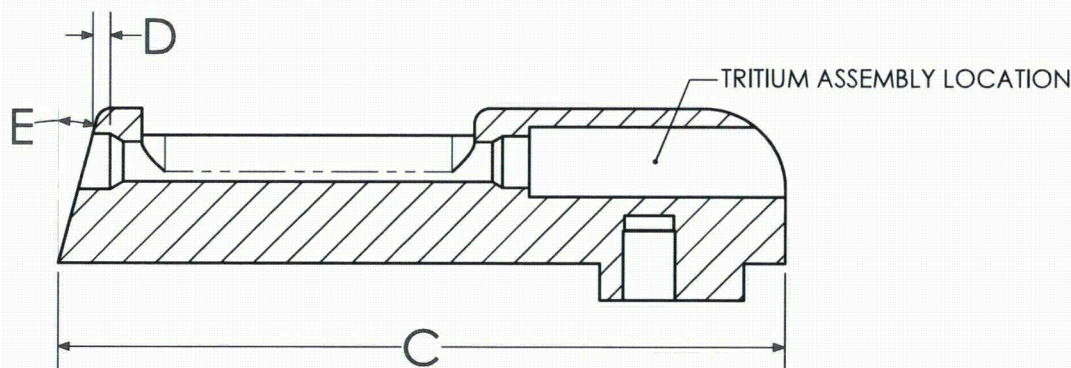
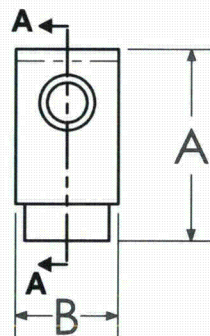
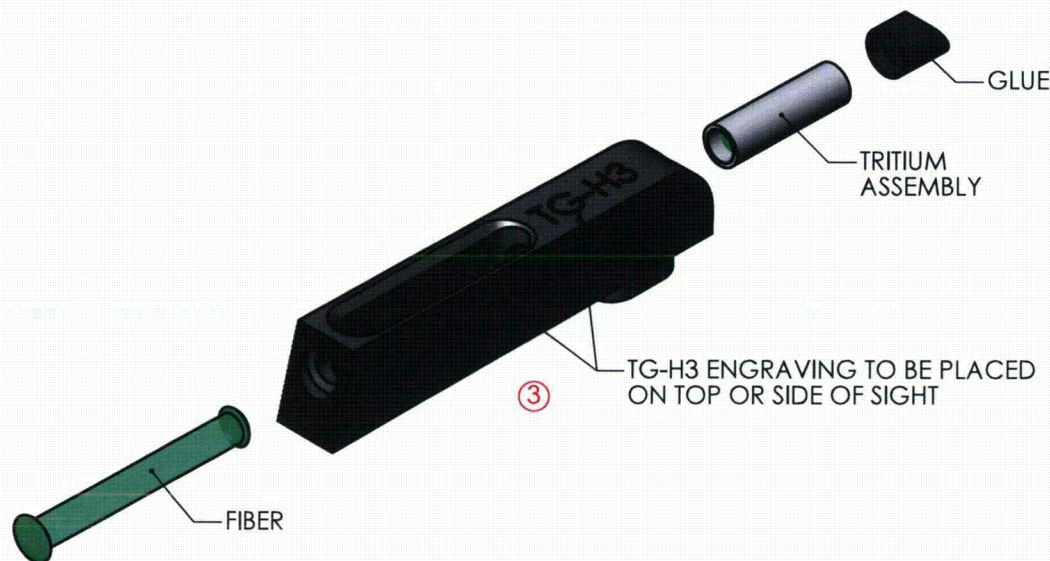
## ATTACHMENT "A"

# TG131 SERIES REVISION 3

TG131WT – Series A1
TG131AT – Series A2
TG131BT – Series A2
TG131FT – Series A2
TG131NT – Series A2
TG131RT – Series A2
TG131TT – Series A2
TG131YT – Series A2
TG131AT – Series B1
TG131BT – Series B1
TG131FT – Series B1
TG131NT – Series B1
TG131RT – Series B1
TG131TT – Series B1
TG131WT – Series B1
TG131YT – Series B1



NOTE:  
FACE RECESS MAY  
OR MAY NOT EXIST.



**SECTION A-A**

③

**NOTES:**

1. MINIMUM MATERIAL PROTECTION FOR GTLS 0.019"
2. MACHINED PART: STANDARD PRACTICES TO BE FOLLOWED
3. METAL INJECTION MOLDED PART: STANDARD PRACTICES TO BE FOLLOWED INCLUDING THE INSERTION OF MATERIAL SAVING CAVITIES WHERE POSSIBLE, WHILE STILL MAINTAINING THE MINIMUM MATERIAL PROTECTION FOR THE GTLS.
4. SEE CHART FOR MODELS COVERED BY THIS SERIES

Dim.	Min.	Max.
A	0.112"	0.781"
B	0.103"	0.368"
C	0.500"	1.278"
D	0.000"	0.100"
F	0°	35°

TG 131 SERIES-A1  
INCLUDES:

TG131GT1

TG131GT2

③ → TG131WT

525 International Parkway  
Richardson, Texas 75081  
972-774-0300  
972-744-0323 FAX

**TRUGLO**

DESCRIPTION

**TG 131 Series-A1**

TG NUMBER

THIRD ANGLE  
PROJECTION

SHEET  
1/1

PART NO.

TG 131 Series-A1

REV.

3

MINIMUM TOLERANCES:  
(UNLESS OTHERWISE SPECIFIED)  
FRACTIONS DECIMALS ANGLES  
±1/16" ±0.005 ±1°  
X.XX ±0.010  
X.XXX ±0.005  
X.XXXX ±0.001

MINOR CHANGES MAY BE MADE TO  
DRAWING FOR EASE OF MANUFACTURE,  
ONLY IF APPROVED BY TRUGLO.

ALL SURFACES: 63/  
A. NO TOOL MARKS OR SCRATCHES.  
B. REMOVE ALL BURRS AND BREAK ALL  
CORNERS OR SHARP EDGES R.003 MAX.  
C. ALL DIMENSIONS & TOLERANCES  
APPLY AFTER FINISH.

DIMENSIONS ARE IN INCHES  
DO NOT SCALE THIS DRAWING

MATERIAL

FINISH

PROJECT ENG  
K.NORMAN

DESIGNER  
K.NORMAN

ORIGINAL DATE

5-20-2003

3 ADDED MODEL TG131WT, UPDATED BORDER, COLLECTED NOTES, ADDED EXPLODED VIEW

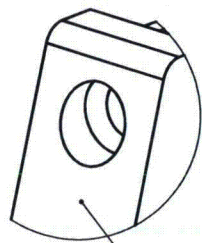
2 ADDED ENGRAVING NOTE/ DELETED PROPRIETARY INFORMATION NOTES

1 RELEASE TO PRODUCTION

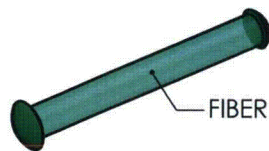
REV DESCRIPTION DATE APPROVED

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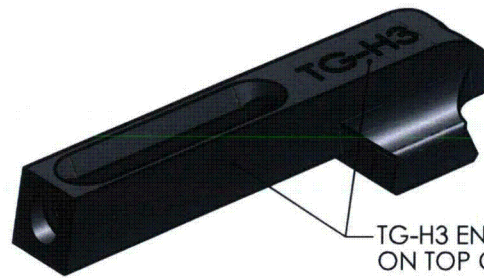




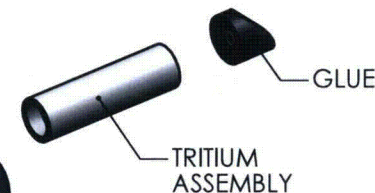
NOTE:  
FACE RECESS MAY  
OR MAY NOT EXIST.



FIBER

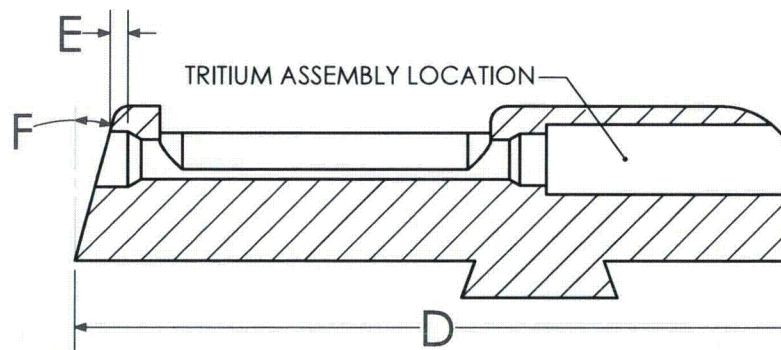
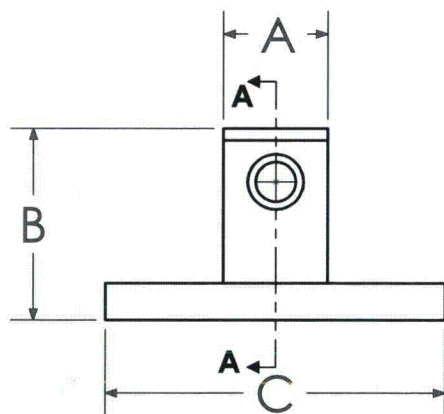


TG-H3 ENGRAVING TO BE PLACED  
ON TOP OR SIDE OF SIGHT



TRITIUM  
ASSEMBLY

GLUE



SECTION A-A

TG 131 SERIES-A2  
INCLUDES:

TG131ST1

TG131ST2

TG131HT

TG131KT

TG131XT

TG131MPT

TG131AT

TG131BT

TG131FT

TG131NT

TG131RT

TG131TT

TG131YT

③

NOTES:

1. MINIMUM MATERIAL PROTECTION FOR GTLS 0.019"
2. MACHINED PART: STANDARD PRACTICES TO BE FOLLOWED
3. METAL INJECTION MOLDED PART: STANDARD PRACTICES TO BE FOLLOWED INCLUDING THE INSERTION OF MATERIAL SAVING CAVITIES WHERE POSSIBLE, WHILE STILL MAINTAINING THE MINIMUM MATERIAL PROTECTION FOR THE GTLS.
4. SEE CHART FOR MODELS COVERED BY THIS SERIES

Dim.	Min.	Max.
A	0.103"	0.368"
B	0.112"	0.781"
C	0.103"	0.873"
D	0.500"	1.278"
E	0.000"	0.100"
F	0°	35°

REV	DESCRIPTION	DATE	APPROVED
3	ADDED SEVERAL MODELS (SEE TABLE), UPDATED BORDER, COLLECTED NOTES	10-22-2013	G.WEBB
2	ADDED MODEL 'TG131MPT', UPDATED BORDER, ADDED NEW EXPLODED VIEW	3-5-2010	J.ESTRIDGE
1	RELEASE TO PRODUCTION	5-20-2003	K.NORMAN

MINIMUM TOLERANCES:  
(UNLESS OTHERWISE SPECIFIED)  
FRACTIONS DECIMALS ANGLES  
±1/16" .005" .010" .015" .020"

MINOR CHANGES MAY BE MADE TO  
DRAWING FOR EASE OF MANUFACTURE,  
ONLY IF APPROVED BY TRUGLO.  
ALL SURFACES: 63"  
A. NO TOOL MARKS OR SCRATCHES.  
B. REMOVE ALL BURRS AND BREAK ALL  
CORNERS OR SHARP EDGES R.003 MAX.  
C. ALL DIMENSIONS & TOLERANCES  
APPLY AFTER FINISH.

DIMENSIONS ARE IN INCHES  
DO NOT SCALE THIS DRAWING  
MATERIAL  
FINISH

PROJECT ENG  
J.ESTRIDGE  
DESIGNER  
K.NORMAN  
ORIGINAL DATE  
5-20-2003

**TRUGLO**

525 International Parkway  
Richardson, Texas 75081  
972-774-0300  
972-744-0323 FAX

DESCRIPTION

**TG 131 Series-A2**

THIRD ANGLE  
PROJECTION

SHEET  
1/1

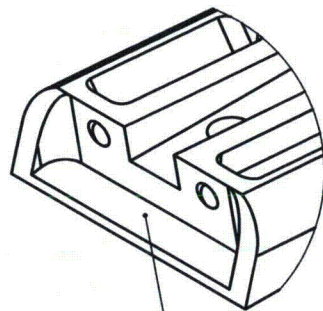
PART NO.

**TG 131 Series-A2**

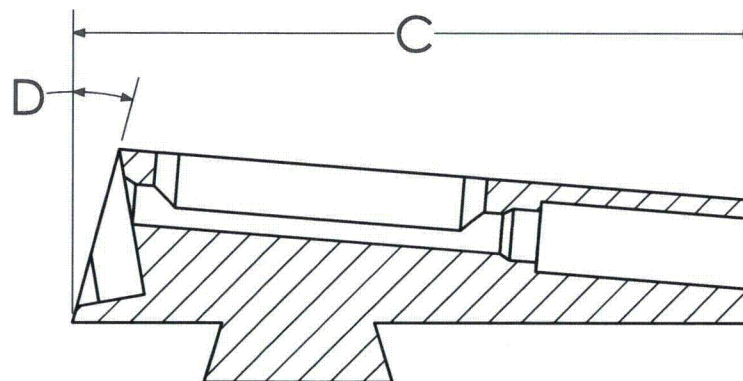
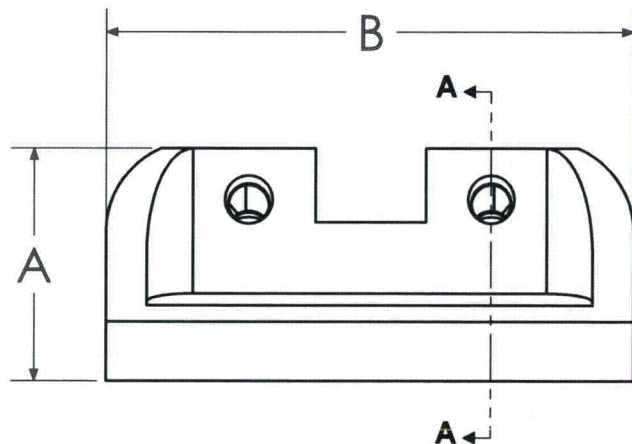
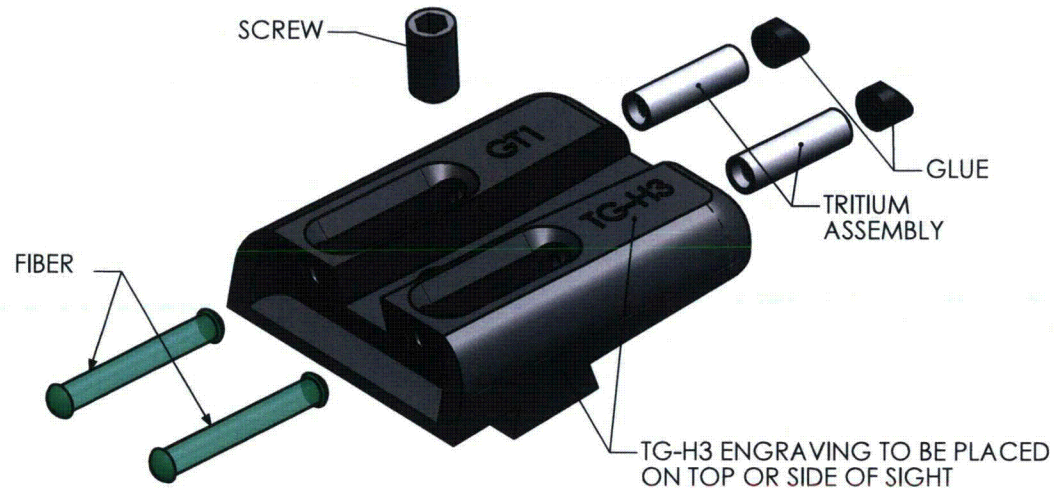
REV.

**A**





NOTE:  
FACE RECESS MAY OR  
MAY NOT EXIST.



SECTION A-A

③

NOTES:

1. MINIMUM MATERIAL PROTECTION FOR GTLS 0.019"
2. MACHINED PART: STANDARD PRACTICES TO BE FOLLOWED
3. METAL INJECTION MOLDED PART: STANDARD PRACTICES TO BE FOLLOWED INCLUDING THE INSERTION OF MATERIAL SAVING CAVITIES WHERE POSSIBLE, WHILE STILL MAINTAINING THE MINIMUM MATERIAL PROTECTION FOR THE GTLS.
4. SEE CHART FOR MODELS COVERED BY THIS SERIES

Dim.	Min.	Max.
A	0.198"	0.875"
B	0.509"	1.198"
C	0.311"	1.253"
D	0°	35°

REV	DESCRIPTION	DATE	APPROVED
3	ADDED NEW MODELS (SEE CHART), UPDATED BORDER, COLLECTED NOTES	10-24-2013	G.WEBB
2	ADDED MODEL 'TG131MPT', UPDATED BORDER, ADDED NEW EXPLODED VIEW	3-5-2010	J.ESTRIDGE
1	RELEASE TO PRODUCTION	5-20-2003	K.NORMAN

MINIMUM TOLERANCES:  
(UNLESS OTHERWISE SPECIFIED)  
FRACTIONS DECIMALS ANGLES  
±1/16" ±0.030 ±1°  
X.XX ±0.010  
X.XXX ±0.005  
X.XXXX ±0.001

MINOR CHANGES MAY BE MADE TO  
DRAWING FOR EASE OF MANUFACTURE,  
ONLY IF APPROVED BY TRUGLO.  
ALL SURFACES: 63"  
A. NO TOOL MARKS OR SCRATCHES.  
B. REMOVE ALL BURRS AND BREAK ALL  
CORNERS OR SHARP EDGES R.003 MAX.  
C. ALL DIMENSIONS & TOLERANCES  
APPLY AFTER FINISH.

DIMENSIONS ARE IN INCHES  
DO NOT SCALE THIS DRAWING

MATERIAL

FINISH

PROJECT ENG  
J.ESTRIDGE  
DESIGNER  
K.NORMAN  
ORIGINAL DATE  
5-20-2003

**TRUGLO**

525 International Parkway  
Richardson, Texas 75081  
972-774-0300  
972-744-0323 FAX

DESCRIPTION

**TG 131 Series-B1**

THIRD ANGLE  
PROJECTION



SHEET  
1/1

PART NO.

**TG 131 Series-B1**

REV.

3

TG 131 SERIES-B2  
INCLUDES:

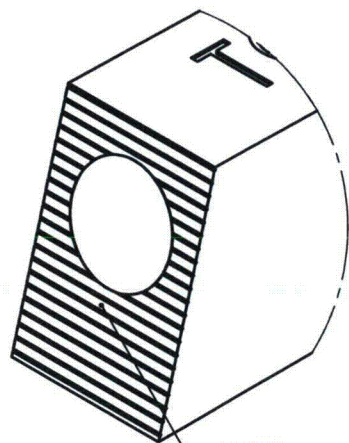
TG131GT1  
TG131GT2  
TG131ST1  
TG131ST2  
TG131HT  
TG131KT  
TG131XT  
TG131MPT  
TG131AT  
TG131BT  
TG131FT  
TG131NT  
TG131RT  
TG131TT  
TG131WT  
TG131YT

## ATTACHMENT "B"

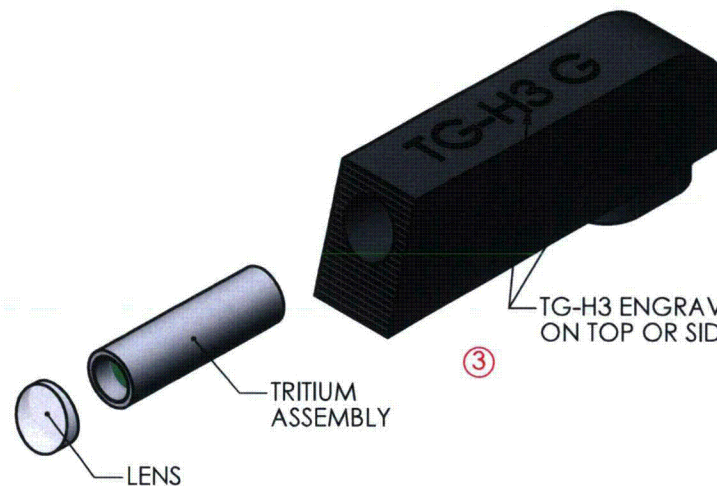
# TG231 SERIES REVISION 3

TG231W – Series A1
TG231A – Series A2
TG231B – Series A2
TG231F – Series A2
TG231N – Series A2
TG231R – Series A2
TG231T – Series A2
TG231Y – Series A2
TG231A – Series B1
TG231B – Series B1
TG231F – Series B1
TG231N – Series B1
TG231R – Series B1
TG231T – Series B1
TG231W – Series B1
TG231Y – Series B1

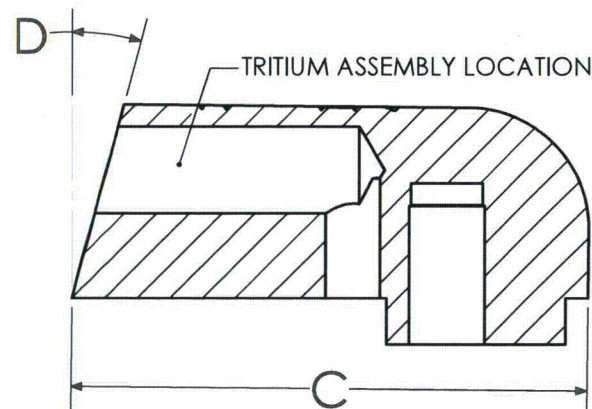
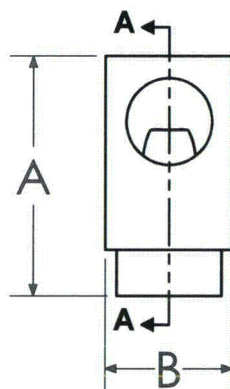




NOTE:  
FACE RECESS MAY  
OR MAY NOT EXIST.



TG-H3 ENGRAVING TO BE PLACED  
ON TOP OR SIDE OF SIGHT



# SECTION A-A

③

## NOTES:

1. MINIMUM MATERIAL PROTECTION FOR GTLS 0.019"
2. MACHINED PART: STANDARD PRACTICES TO BE FOLLOWED
3. METAL INJECTION MOLDED PART: STANDARD PRACTICES TO BE FOLLOWED INCLUDING THE INSERTION OF MATERIAL SAVING CAVITIES WHERE POSSIBLE, WHILE STILL MAINTAINING THE MINIMUM MATERIAL PROTECTION FOR THE GTLS.
4. SEE CHART FOR MODELS COVERED BY THIS SERIES

Dim.	Min.	Max.
A	0.112"	0.781"
B	0.103"	0.368"
C	0.301"	1.115"
D	0°	35°

TG 131 SERIES-A1  
INCLUDES:

TG231G1

TG231G2

③ → TG231W

**TRUGLO**

525 International Parkway  
Richardson, Texas 75081  
972-774-0300  
972-744-0323 FAX

DESCRIPTION  
**TG231 Series-A1**

TG NUMBER

THIRD ANGLE  
PROJECTION

SHEET  
1/1

PART NO.  
TG231 Series-A1

REV.  
3

REV	DESCRIPTION	DATE	APPROVED
3	ADDED MODEL "TG131W", UPDATED BORDER, ADDED EXPLODED VIEW, COLLECTED NOTES	10-28-2013	G.WEBB
2	ADDED ENGRAVING NOTE/ DELETED PROPRIETARY INFORMATION NOTES	9-8-2003	K.NORMAN
1	RELEASE TO PRODUCTION	5-20-2013	K.NORMAN

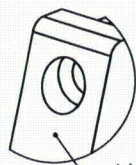
MINIMUM TOLERANCES:  
(UNLESS OTHERWISE SPECIFIED)  
FRACTIONS DECIMALS ANGLES  
±1/16" .005" ±1°  
X.XX ±0.03  
X.XXX ±0.010  
X.XXXX ±0.005  
X.XXXXX ±0.001

MINOR CHANGES MAY BE MADE TO  
DRAWING FOR EASE OF MANUFACTURE.  
ONLY IF APPROVED BY TRUGLO.  
ALL SURFACES: 63  
A. NO TOOL MARKS OR SCRATCHES.  
B. REMOVE ALL BURRS AND BREAK ALL  
CORNERS OR SHARP EDGES R.003 MAX.  
C. ALL DIMENSIONS & TOLERANCES  
APPLY AFTER FINISH.

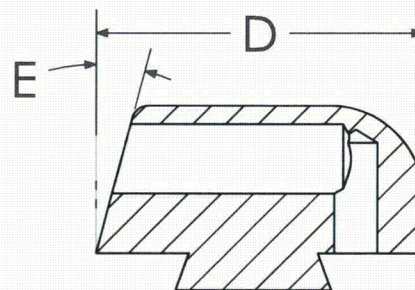
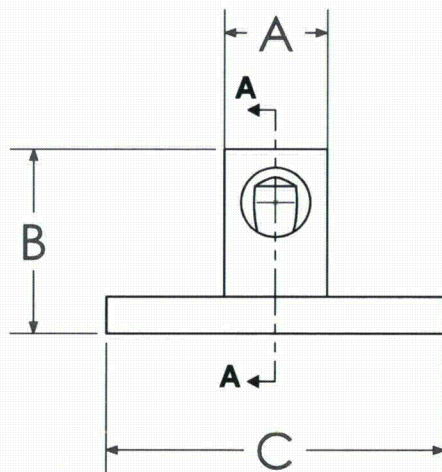
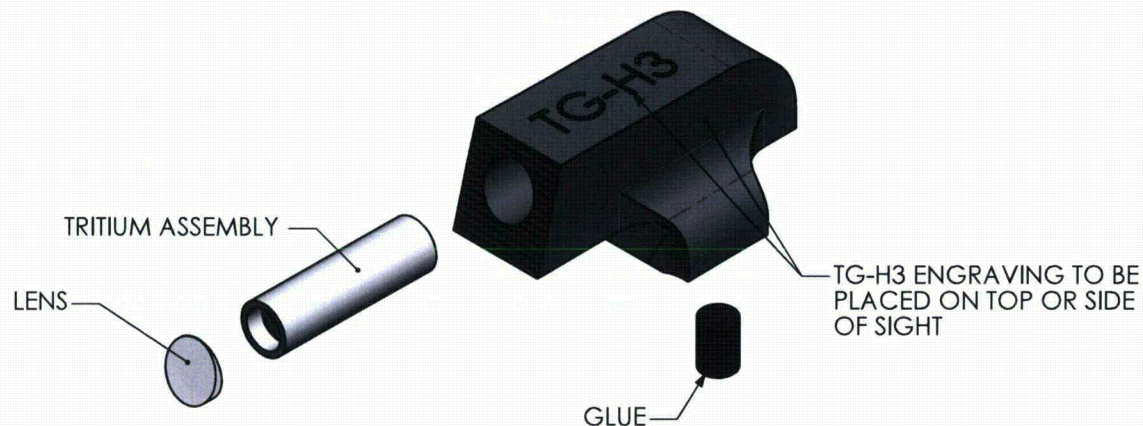
DIMENSIONS ARE IN INCHES  
DO NOT SCALE THIS DRAWING  
MATERIAL  
FINISH

PROJECT ENG  
K.NORMAN  
DESIGNER  
K.NORMAN  
ORIGINAL DATE  
5-19-2013

8 7 6 5 4 3 2 1



NOTE:  
FACE RECESS MAY  
OR MAY NOT EXIST.



SECTION A-A

③

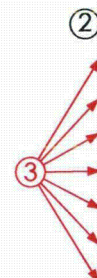
NOTES:

1. MINIMUM MATERIAL PROTECTION FOR GTLS 0.019"
2. MACHINED PART: STANDARD PRACTICES TO BE FOLLOWED
3. METAL INJECTION MOLDED PART: STANDARD PRACTICES TO BE FOLLOWED INCLUDING THE INSERTION OF MATERIAL SAVING CAVITIES WHERE POSSIBLE, WHILE STILL MAINTAINING THE MINIMUM MATERIAL PROTECTION FOR THE GTLS.
4. SEE CHART FOR MODELS COVERED BY THIS SERIES

Dim.	Min.	Max.
A	0.103"	0.368"
B	0.112"	0.781"
C	0.103"	0.873"
D	0.301"	1.115"
E	0°	35°

TG 231 SERIES-A2  
INCLUDES:

TG231S1  
TG231S2  
TG231H  
TG231K  
TG231X  
TG231MP  
TG231A  
TG231B  
TG231F  
TG231N  
TG231R  
TG231T  
TG231Y



**TRUGLO**

525 International Parkway  
Richardson, Texas 75081  
972-774-0300  
972-744-0323 FAX

DESCRIPTION  
**TG231 Series-A2**

TG NUMBER

THIRD ANGLE  
PROJECTION



SHEET  
1/1

PART NO.

TG231 Series-A2

REV.

3

REV	DESCRIPTION	DATE	APPROVED
3	ADDED SEVERAL MODELS (SEE TABLE), UPDATED BORDER, COLLECTED NOTES	10-20-2013	G.WEBB
2	ADDED MODEL "TG231MP"; UPDATED BORDER; ADDED EXPLODED VIEW	3-5-2010	J.ESTRIDGE
1	RELEASE TO PRODUCTION	5-20-2003	K.NORMAN

MINIMUM TOLERANCES:  
(UNLESS OTHERWISE SPECIFIED)  
FRACTIONS DECIMALS ANGLES  
1/16" .001" .01°

MINOR CHANGES MAY BE MADE TO  
DRAWING FOR EASE OF MANUFACTURE,  
ONLY IF APPROVED BY TRUGLO.  
ALL SURFACES: 63'  
A. NO TOOL MARKS OR SCRATCHES.  
B. REMOVE ALL BURRS AND BREAK ALL  
CORNERS OR SHARP EDGES R.003 MAX.  
C. ALL DIMENSIONS & TOLERANCES  
APPLY AFTER FINISH.

DIMENSIONS ARE IN INCHES  
DO NOT SCALE THIS DRAWING  
MATERIAL  
FINISH

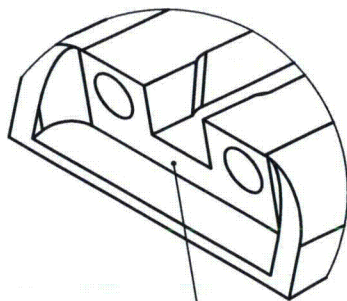
PROJECT ENG  
J.ESTRIDGE  
DESIGNER  
K.NORMAN  
ORIGINAL DATE  
5-20-2003

8 7 6 5 4 3 2 1

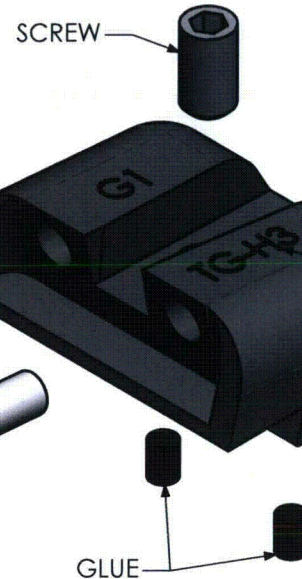
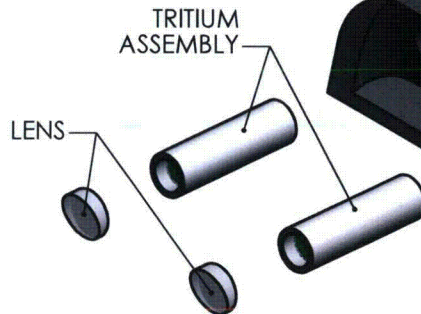


H  
G  
F  
E  
D  
C  
B  
A

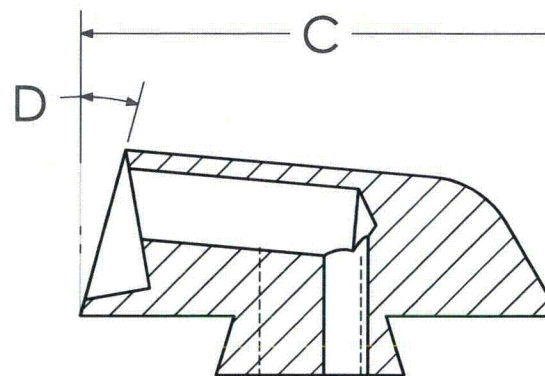
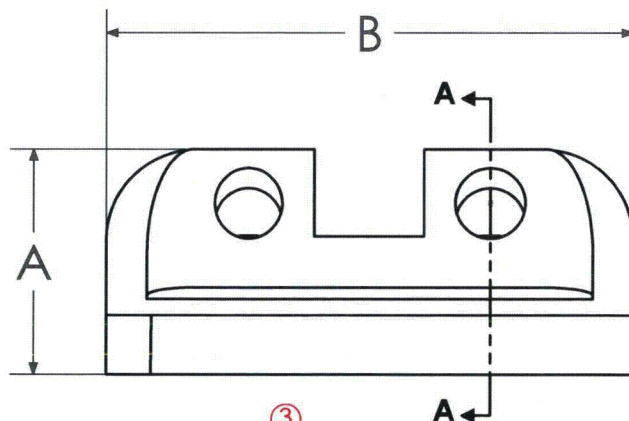
H  
G  
F  
E  
D  
C  
B  
A



NOTE:  
FACE RECESS MAY  
OR MAY NOT EXIST.



TG-H3 ENGRAVING TO BE PLACED  
ON TOP OR SIDE OF SIGHT



**SECTION A-A**

③

**NOTES:**

1. MINIMUM MATERIAL PROTECTION FOR GTLS 0.019"
2. MACHINED PART: STANDARD PRACTICES TO BE FOLLOWED
3. METAL INJECTION MOLDED PART: STANDARD PRACTICES TO BE FOLLOWED INCLUDING THE INSERTION OF MATERIAL SAVING CAVITIES WHERE POSSIBLE, WHILE STILL MAINTAINING THE MINIMUM MATERIAL PROTECTION FOR THE GTLS.
4. SEE CHART FOR MODELS COVERED BY THIS SERIES

Dim.	Min.	Max.
A	0.198"	0.875"
B	0.509"	1.198"
C	0.311"	1.253"
D	0°	35°

TG 231 SERIES-B1 INCLUDES:
TG231G1
TG231G2
TG231S1
TG231S2
TG231H
TG231K
TG231X
TG231MP
TG231A
TG231B
TG231F
TG231N
TG231R
TG231T
TG231W
TG231Y



REV	DESCRIPTION	DATE	APPROVED
3	ADDED SEVERAL MODELS (SEE TABLE), UPDATED BORDER, COLLECTED NOTES	10-24-2013	G.WEBB
2	ADDED MODEL "TG231MP", UPDATED BORDER; ADDED EXPLODED VIEW	3-5-2010	J.ESTRIDGE
1	RELEASE TO PRODUCTION	5-20-2003	K.NORMAN

MINIMUM TOLERANCES: (UNLESS OTHERWISE SPECIFIED)		
FRACTIONS	DECIMALS	ANGLES
XX	±0.030	±1°
.XX	±0.010	
.XXX	±0.005	
.XXXX	±0.001	

MINOR CHANGES MAY BE MADE TO  
DRAWING FOR EASE OF MANUFACTURE  
ONLY IF APPROVED BY TRUGLO.

ALL SURFACES: 63

A. NO TOOL MARKS OR SCRATCHES.  
B. REMOVE ALL BURRS AND BREAK ALL  
CORNERS OR SHARP EDGES R.003 MAX.  
C. ALL DIMENSIONS & TOLERANCES  
APPLY AFTER FINISH.

DIMENSIONS ARE IN INCHES  
DO NOT SCALE THIS DRAWING

MATERIAL

FINISH

PROJECT ENG  
J.ESTRIDGE

DESIGNER  
K.NORMAN

ORIGINAL DATE  
5-20-2003

**TRUGLO**

525 International Parkway  
Richardson, Texas 75081  
972-774-0300  
972-744-0323 FAX

DESCRIPTION  
**TG231 Series-B1**

TG NUMBER

THIRD ANGLE  
PROJECTION

SHEET  
1/1

PART NO.  
**TG231 Series-B1**

REV.  
3

## ATTACHMENT "C"

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES  
SAFETY EVALUATION OF DEVICE  
(AMENDED IN ITS ENTIRETY)

NO.: NR-1180-D-101-E      DATE: March 11, 2013

PAGE: 1 of 7

DEVICE TYPE: Bow and Gun Sights

MODEL: TG-20 and TG-20X Series (bow sights)  
TG-131 and TG-231 Series (gun sights)  
TG13 Series (gun sights)

MANUFACTURER /  
DISTRIBUTOR: TRUGLO, Inc.  
525 International Parkway  
Richardson, TX 75081  
(formerly 710 Presidential Drive  
Richardson, TX 75081)

<u>SEALED SOURCE MODEL</u>	SRB Technologies, Model M-1
<u>DESIGNATION:</u>	Mb-Microtec, Model 400/1

<u>ISOTOPE:</u>	<u>MAXIMUM ACTIVITY:</u>
Hydrogen-3	30 mCi (1110 MBq)
	90 mCi (3.33 GBq) per gun sight device (3 x 30 mCi)

LEAK TEST FREQUENCY: Not Required

PRINCIPAL USE: (W) Self-Luminous Light Sources

CUSTOM SOURCE: Yes X No



REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES  
SAFETY EVALUATION OF DEVICE  
(AMENDED IN ITS ENTIRETY)

NO.: NR-1180-D-101-E    DATE: March 11, 2013

PAGE: 2 of 7

DEVICE TYPE:    Bow and Gun Sights

DESCRIPTION:

The TG-20 and TG-20X Series bow sights are primarily used by recreational hunters or target shooters to improve low-light shooting capability. The sight pins are mounted on archery sights and affixed to the bow. Likewise, the TG-131, TG-231, and TG-13 Series gun sights are primarily used by recreational hunters or law enforcement personnel to improve low-light shooting capability. The front and rear gun sights are secured in a structural mounting and affixed to a gun.

The byproduct material is tritium (H-3) in gaseous form, sealed into borosilicate glass tubes. The sources used are Mb Microtec Model 400/1 (NRC registration certificate NR-446-S-102-S) or SRB Technology, Inc. Model M-1 registration certificate NC-585-S-102-S. The manufacturer states that the working life of a sight is indefinite. The decay half-life of tritium is 12.3 years. Each archery pin or front gun sight contains one source with a maximum activity of 30 mCi (1.11 GBq). A rear gun sight combined activity of 60 mCi (2.22 GBq). An individual gun may use one front and one rear sight, for a maximum combined activity of 90 mCi (3.33 GBq).

In bow sights, the gaseous tritium light source (GTLS) units are placed in a structural mounting bracket of plastic tubing which is inserted into a steel casing. A gluing agent is used to permanently affix the plastic tubing in the steel casing. The sources are inaccessible to the user. The sight is mounted to the bow by means of a screw/clamp connection. The overall dimensions for the TG-20 Series are 1.2 inches in length and 0.2 inches in width. The TG-20X Series dimensions are 2 inches in length and 0.25 inches in width.

The TG-20 Series bow sights consist of three models. The difference between the three models is the shape of the base. The base may be square, rectangular, or round.

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES  
SAFETY EVALUATION OF DEVICE  
(AMENDED IN ITS ENTIRETY)

NO.: NR-1180-D-101-E    DATE: March 11, 2013

PAGE: 3 of 7

DEVICE TYPE:    Bow and Gun Sights

DESCRIPTION (Cont.):

In gun sights, the GTLS units are placed in a structural mounting bracket of plastic tubing. A silicone gluing agent, acetoxysilicone rubber or equivalent, is used to permanently affix the GTLS in the plastic tubing. An acrylated urethane adhesive creates a lens at the end of the GTLS assembly. The plastic tubing and GTLS assembly is inserted into a metal gun sight housing. The housing is machined from 12L14 steel, or metal of equivalent physical and chemical properties, with a minimum wall thickness of 0.019 inches (0.048 cm). A silicone gluing agent affixes the GTLS to the metal housing. Finally, the GTLS is sealed in the metal housing with an elastomeric adhesive to make the sources inaccessible to the user. The maximum dimensions of a front gun sight are 1.3 inches (3.3 cm) length, 0.37 inches (0.94 cm) width, and 0.78 inches (2.0 cm) height. The maximum dimensions of a rear gun sight are 1.3 inches (3.3 cm) length, 1.2 inches (3.0 cm) width, and 0.88 inches (2.2 cm) height. The maximum dimensions of a TG13 front sight are 2.5 inches (6.4 cm) in length, 0.4 inches (1.0 cm) in width, and 1.5 inches (3.8 cm) in height. The maximum dimensions of a TG13 rear sight are 2.0 inches (5.1 cm) in length, 1.0 inch (2.5 cm) in width, and 1.0 inch (2.5 cm) in height.

In the TG-131 and TG-231 Series gun sights both series have Models A1, A2 and A3 are front gun sights, containing one radioactive source, while B1 and B2 are rear gun sights containing two radioactive sources. Differing models have screw/clamp, stake, or dovetail mounting connection. The TG-131 Series contains a fiber optic cable and the TG-231 Series does not. Additionally, TG-131 Series A and B sights contain Models TG-131AR, TG-131SG, TG-131ML, TG-131ST1, TG-131ST2, TG-131HT, TG-131KT, TG-131XT, TG-131MPT, TG-131GT1, and TG-131GT2 with variations in physical configurations, mounting and routing of the fiber optic cable. TG-231 Series A and B sights contain Models TG-231S1, TG-231S2, TG-231H, TG-231K, TG-231X, TG-231MP,



REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES  
SAFETY EVALUATION OF DEVICE  
(AMENDED IN ITS ENTIRETY)

NO.: NR-1180-D-101-E    DATE: March 11, 2013

PAGE: 4 of 7

DEVICE TYPE:    Bow and Gun Sights

TG-231G1, and TG-231G2 with variations in physical configurations and mounting.

In the TG-13 Series gun sights, the front sights are Models A1 through A7 and the rear sights are Models B1 and B2. These gun sight models are made of steel, protecting the GTLS fiber capsules. The TG13 Series is similar to the TG131/231 Series gun sights. The TG13 uses a single GTLS in the front sights and two GTLS in the rear sights. An O-ring is used to center and cushion the GTLS fiber capsule assembly. This assembly is held in by a press-fit steel aperture ring and a secondary chemical lock. The models vary with the gun mount design.

LABELING:

Each sight is permanently marked with the TRUGLO logo "TG" and the symbol for tritium (H-3). The logo and H-3 are marked on the side of the bow sight plans and on the top or side of the gun sights. In addition, packaging of the device will contain information identifying the fact that the device contains tritium gas along with the proper instruction for the return of an unwanted device or defective product back to the manufacturer for disposal.

DIAGRAMS:

See Attachments 1 through 17.

PROTOTYPE TESTING:

TRUGLO performed the following prototype tests for all sights: temperature, humidity, temperature shock, pressure, penetration, and mechanical shock. In addition, vibration and firing tests were performed to establish the integrity of the gun sights.

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES  
SAFETY EVALUATION OF DEVICE  
(AMENDED IN ITS ENTIRETY)

NO.: NR-1180-D-101-E    DATE: March 11, 2013

PAGE: 5 of 7

DEVICE TYPE:    Bow and Gun Sights

PROTOTYPE TESTING (Cont'd):

The same sight pins were used for each test of the TG-20 Series. Five sets of sights from each of the two gun sight series, TG-131 and TG-231, were tested. A test set included two sights: one front sight (Model A1) and one rear sight (Model B1). Each of the gun sights tested used a stake mounting connection. Each sight was visually inspected between each test and after completion of all the tests to ensure that no detrimental effects occurred. The prototype testing exhibited no tritium leakage or breakage of the sight or source.

Five sights each of the TG13 Series Model A1 and Model B1 were tested. Each sight was visually inspected between each test and after completion of all tests. Visual inspections conducted in a darkroom, showed no reduction in light output or brightness. The Models A1 and B1 were selected as representative for prototype testing because their gun mounts have the smallest cross-sectional area.

QUALITY ASSURANCE AND CONTROL:

TRUGLO, Inc. has submitted a quality assurance and control (QA/QC) program that has been found to be acceptable by NRC for production and distribution of sights by TRUGLO. A copy of this program is on file with the NRC.

SAFETY ANALYSIS SUMMARY:

Based on our review of the information provided and test data cited above, we conclude that TRUGLO, Inc.'s bow and gun sight models meet the safety criteria set forth in 10 CFR 32.23. Furthermore, we conclude that the sealed tritium light sources would maintain containment integrity under normal conditions and accidental conditions of use. Therefore, we conclude that the bow sights and gun sights are acceptable for exempt licensing purposes



REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES  
SAFETY EVALUATION OF DEVICE  
(AMENDED IN ITS ENTIRETY)

NO.: NR-1180-D-101-E    DATE: March 11, 2013

PAGE: 6 of 7

DEVICE TYPE:    Bow and Gun Sights

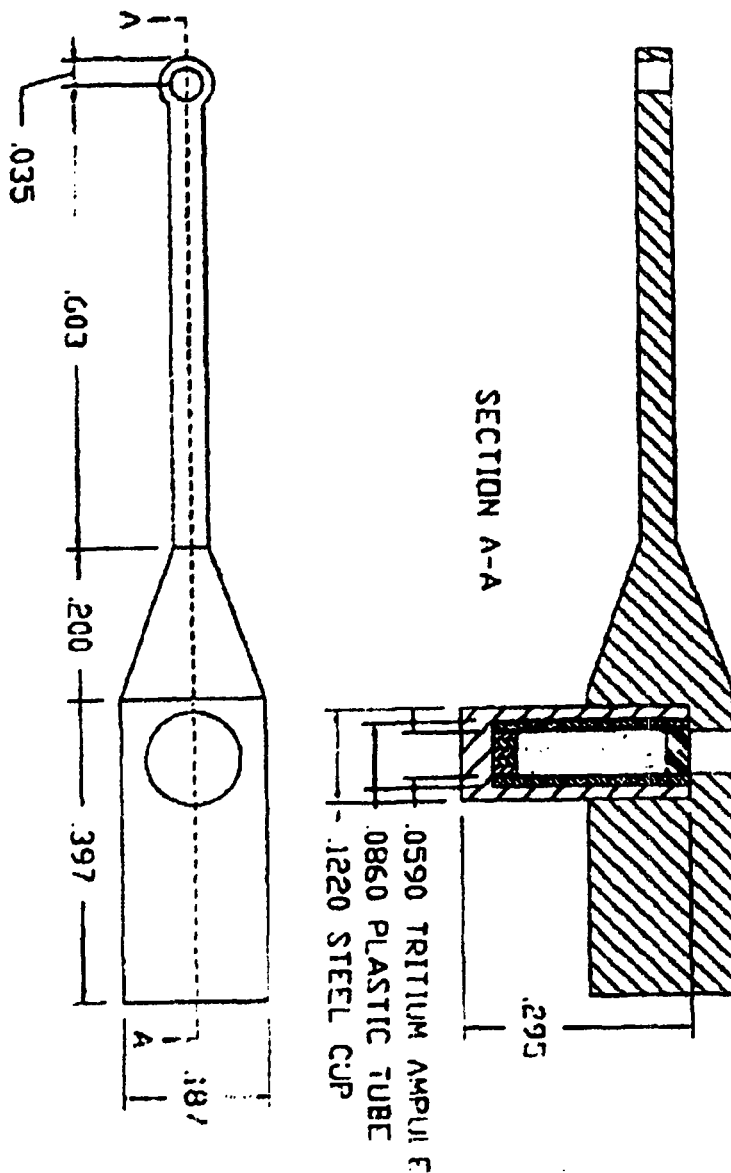
REFERENCES:

The following supporting documents for TRUGLO, Inc. bow and gun sights are hereby incorporated by reference and are made a part of the registry document.

- TRUGLO, Inc. device registration and exempt materials license applications dated June 12, 2002, with enclosures thereto.
- TRUGLO, Inc. letters dated August 29, 2002 and September 26, 2002 with enclosures thereto.
- TRUGLO, Inc. device registration and exempt materials license amendment applications dated May 20, 2003, with enclosures thereto.
- TRUGLO, Inc. letters dated September 11, 2003, and October 14, 2003, with enclosures thereto.
- TRUGLO, Inc. electronics mails dated October 11, 2003, October 15, 2003, October 20, 2003, and October 28, 2003, with enclosures thereto.
- TRUGLO, Inc. letter dated January 25, 2005 and June 17, 2005 with enclosures thereto.
- TRUGLO, Inc. application dated November 30, 2005, and electronic mail dated January 23, 2006, with enclosures thereto.
- TRUGLO, Inc. application dated March 8, 2010, and electronic mails dated March 19, 2010 and March 23, 2010, with enclosures thereto.

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES  
SAFETY EVALUATION OF DEVICE  
(AMENDED IN ITS ENTIRETY)

NO.: NR-1180-D-101-E    DATE: March 11, 2013    ATTACHMENT: 1 OF 17

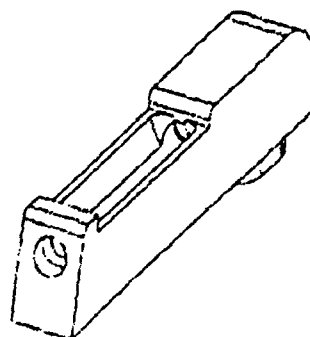


TG-20 Series Bow Sight

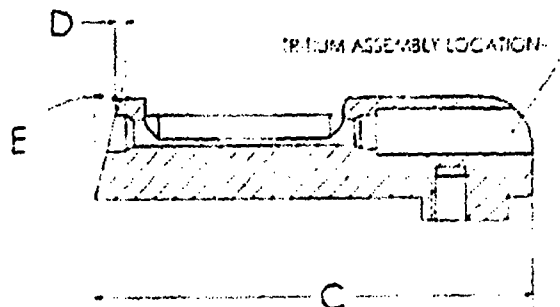


REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES  
SAFETY EVALUATION OF DEVICE  
(AMENDED IN ITS ENTIRETY)

NO.: NR-1180-D-101-E    DATE: March 11, 2013    ATTACHMENT: 2 OF 17



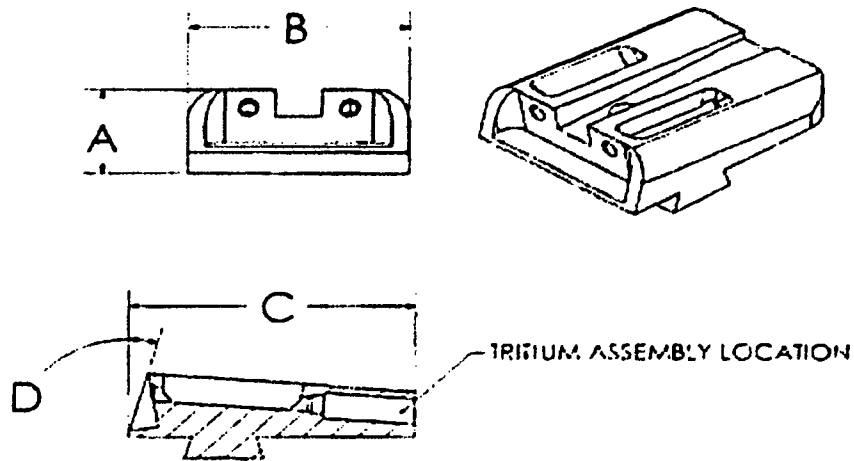
Dim.	Min.	Max.
A	0.112"	0.781"
B	0.103"	0.368"
C	0.500"	1.278"
D	0.000"	0.100"
E	0°	35°



TG-131 Series Front Gun Sight

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES  
SAFETY EVALUATION OF DEVICE  
(AMENDED IN ITS ENTIRETY)

NO.: NR-1180-D-101-E    DATE: March 11, 2013    ATTACHMENT: 3 OF 17



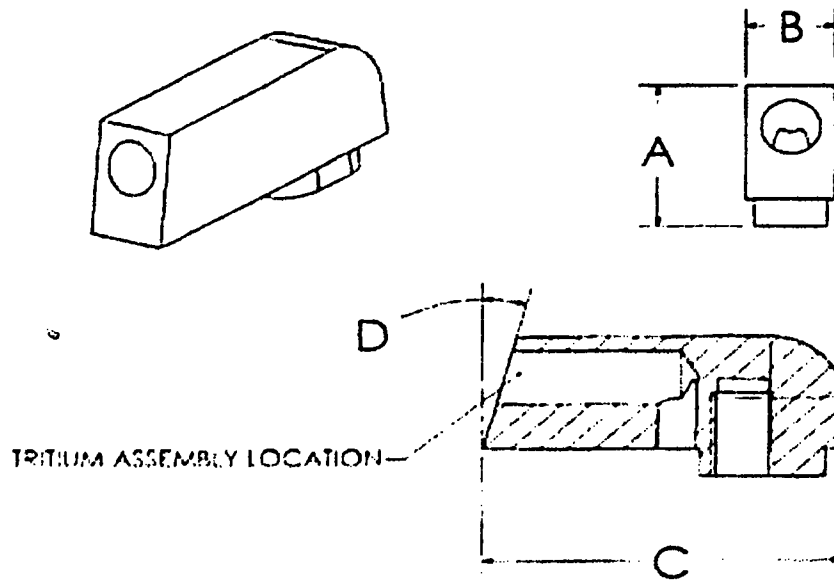
Dim.	Min.	Max.
A	0.198"	0.875"
B	0.509"	1.198"
C	0.311"	1.253"
D	0°	35°

TG-131 Series Rear Gun Sight



REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES  
SAFETY EVALUATION OF DEVICE  
(AMENDED IN ITS ENTIRETY)

NO.: NR-1180-D-101-E    DATE: March 11, 2013    ATTACHMENT: 4 OF 17

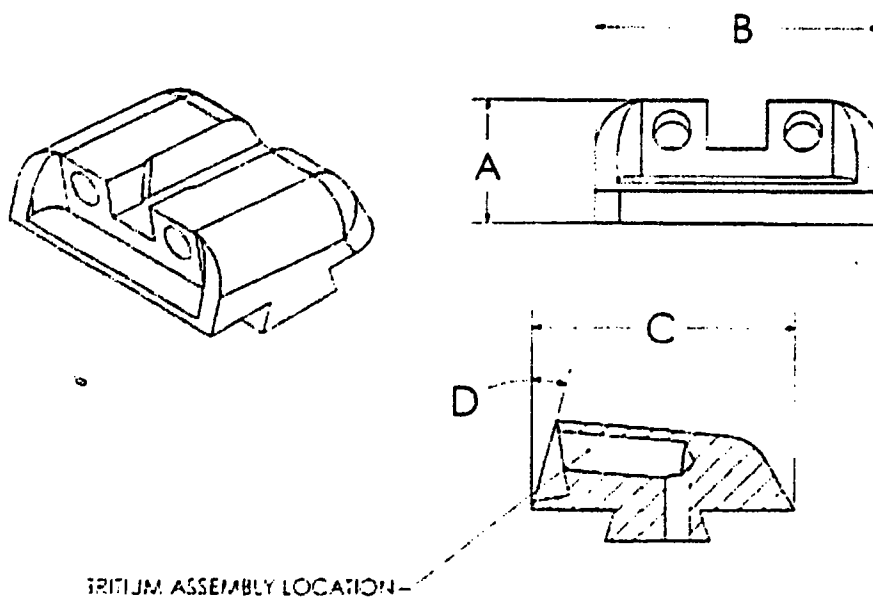


Dim.	Min.	Max.
A	0.112"	0.781"
B	0.103"	0.368"
C	0.301"	1.115"
D	0°	35°

TG-231 Series Front Gun Sight

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES  
SAFETY EVALUATION OF DEVICE  
(AMENDED IN ITS ENTIRETY)

NO.: NR-1180-D-101-E    DATE: March 11, 2013    ATTACHMENT: 5 OF 17



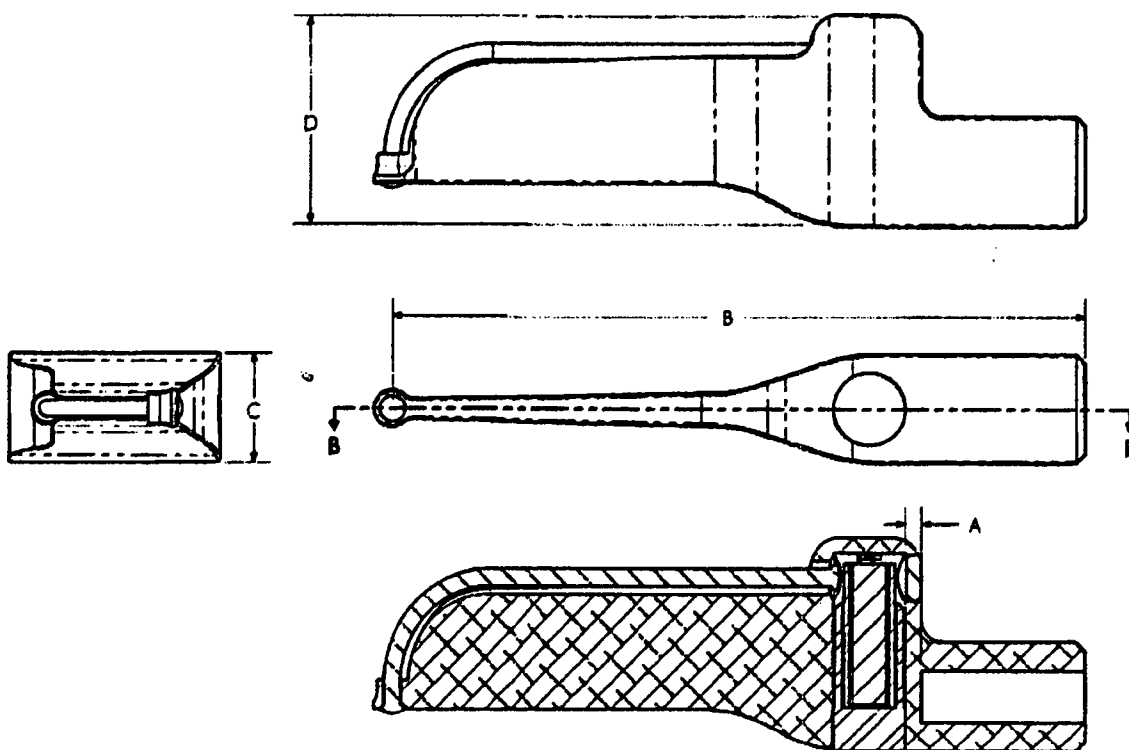
Dim.	Min.	Max.
A	0.198"	0.875"
B	0.509"	1.198"
C	0.311"	1.253"
D	0°	35°

TG-231 Series Rear Gun Sight



REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES  
SAFETY EVALUATION OF DEVICE  
(AMENDED IN ITS ENTIRETY)

NO.: NR-1180-D-101-E    DATE: March 11, 2013    ATTACHMENT: 6 OF 17

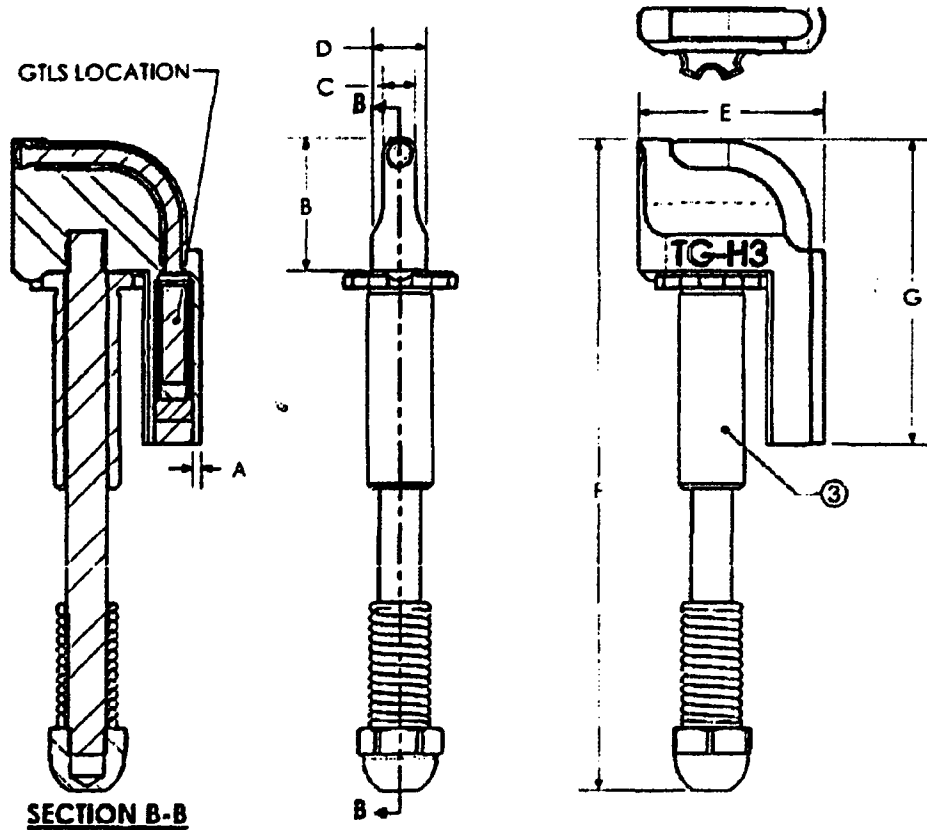


DIM.	MIN. (INCHES)	MAX. (INCHES)
A	0.019	N/A
B	0.500	2.000
C	0.050	0.250
D	0.100	1.000

TG-20X Series

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES  
SAFETY EVALUATION OF DEVICE  
(AMENDED IN ITS ENTIRETY)

NO.: NR-1180-D-101-E    DATE: March 11, 2013    ATTACHMENT: 7 OF 17



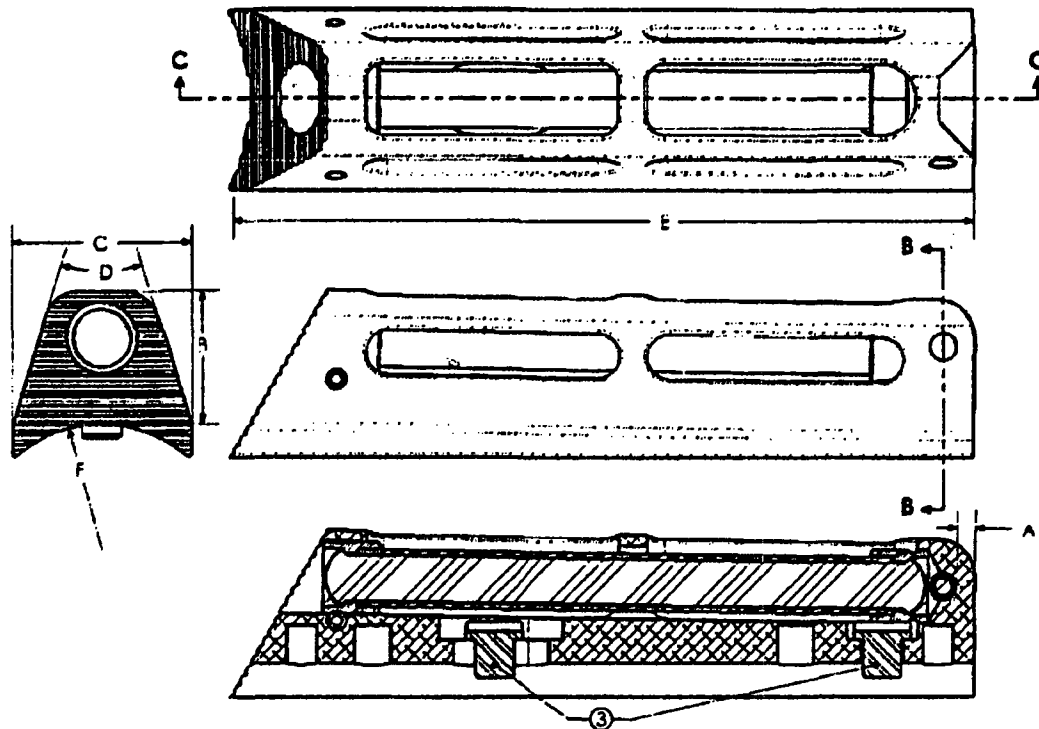
DIM.	MIN. (INCHES)	MAX. (INCHES)
A	0.019	N/A
B	0.200	0.600
C	0.020	0.200
D	0.050	0.300
E	0.200	1.000
F	0.500	3.000
G	0.300	2.000

MODEL TG-131AR



REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES  
SAFETY EVALUATION OF DEVICE  
(AMENDED IN ITS ENTIRETY)

NO.: NR-1180-D-101-E    DATE: March 11, 2013    ATTACHMENT: 8 OF 17



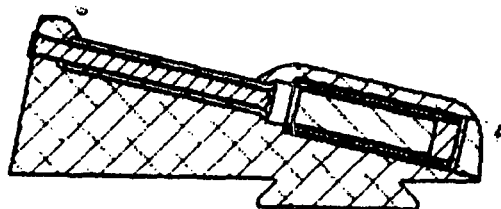
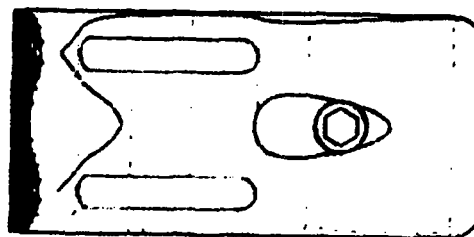
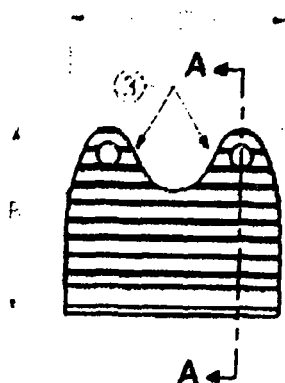
SECTION C-C

DIM.	MIN. (INCHES)	MAX. (INCHES)
A	0.019	N/A
B	0.100	2.000
C	0.100	1.000
D	0 degrees	90 degrees
E	0.500	5.000
F	0.100	1.000

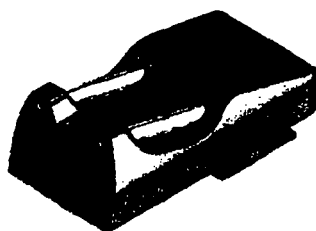
MODEL TG-131SG

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES  
SAFETY EVALUATION OF DEVICE  
(AMENDED IN ITS ENTIRETY)

NO.: NR-1180-D-101-E    DATE: March 11, 2013    ATTACHMENT: 9 OF 17



SECTION A-A

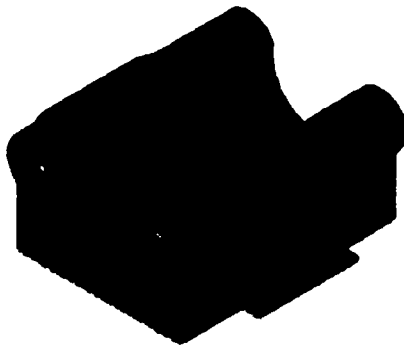
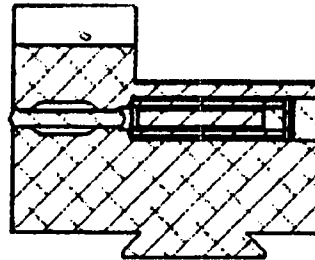
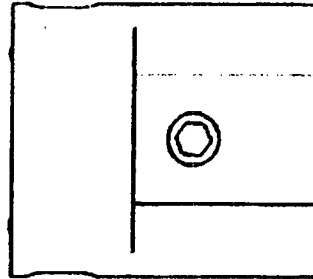
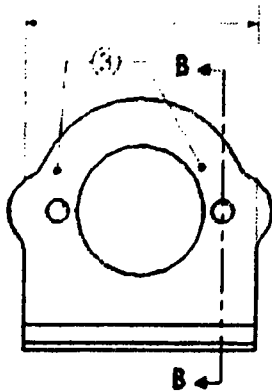


DIM.	MIN. (INCHES)	MAX. (INCHES)
A	0.019	N/A
B	0.200	1.000
C	0.100	1.000
D	0.200	1.500

MODEL TG-131ML

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES  
SAFETY EVALUATION OF DEVICE  
(AMENDED IN ITS ENTIRETY)

NO.: NR-1180-D-101-E    DATE: March 11, 2013    ATTACHMENT: 10 OF 17



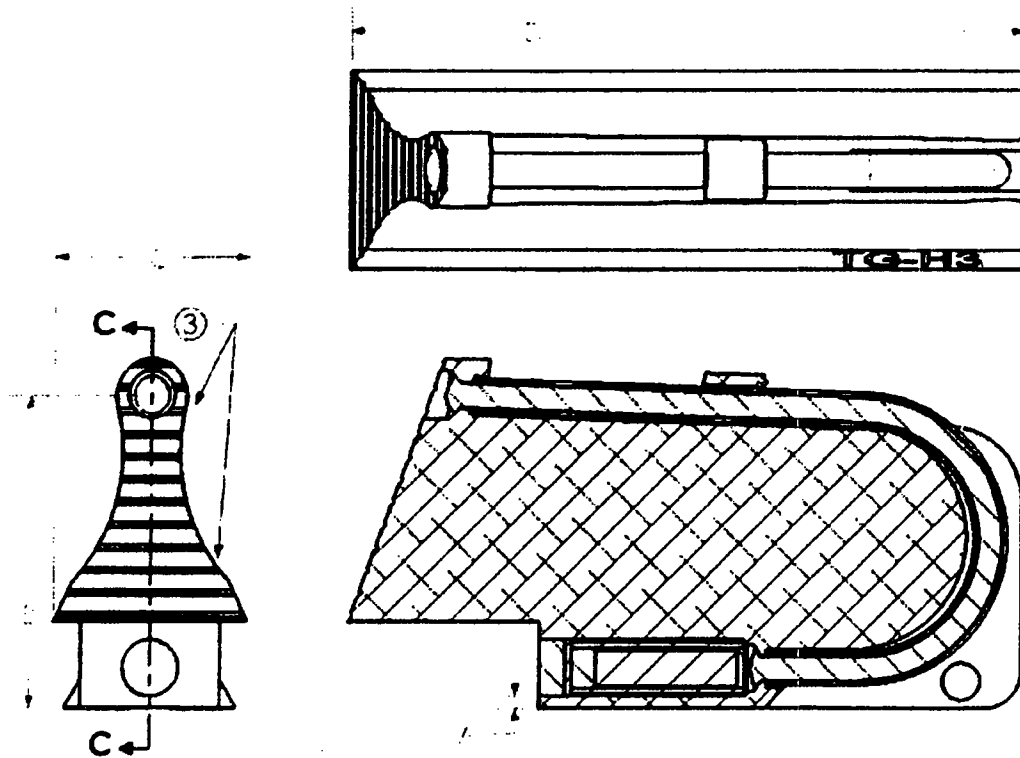
DIM.	MIN. (INCHES)	MAX. (INCHES)
A	0.019	N/A
B	0.100	1.000
C	0.100	1.000
D	0.200	1.000
F	0.200	2.000

MODEL TG-131ML



REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES  
SAFETY EVALUATION OF DEVICE  
(AMENDED IN ITS ENTIRETY)

NO.: NR-1180-D-101-E    DATE: March 11, 2013    ATTACHMENT: 11 OF 17

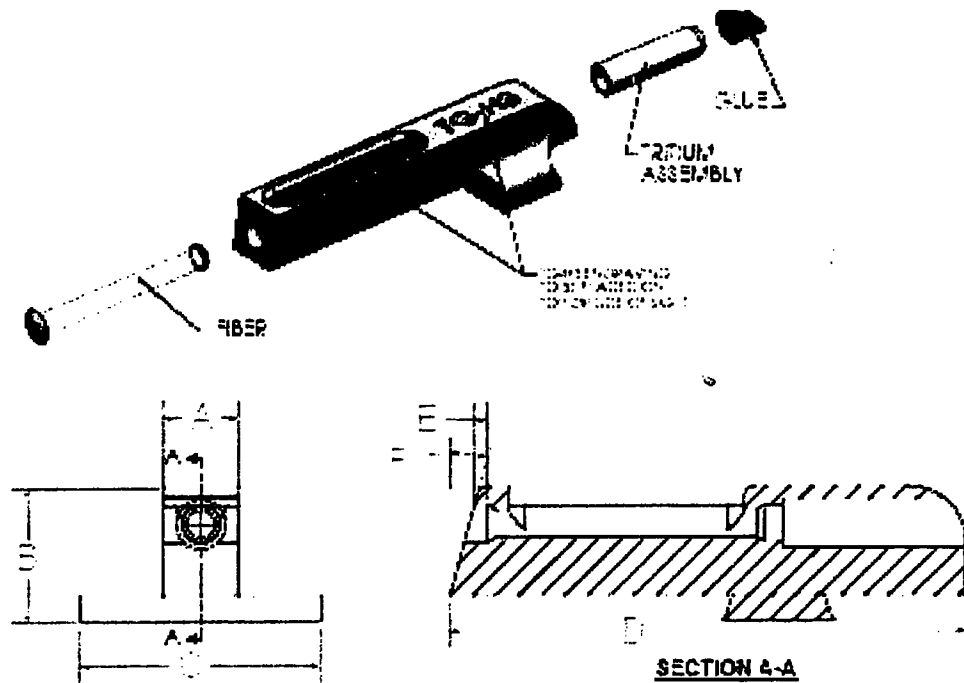


DIM.	MIN. (INCHES)	MAX. (INCHES)
A	0.019	N/A
B	0.100	1.500
C	0.100	1.000
D	0.200	2.000

MODEL TG-131ML

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES  
SAFETY EVALUATION OF DEVICE  
(AMENDED IN ITS ENTIRETY)

NO.: NR-1180-D-101-E    DATE: March 11, 2013    ATTACHMENT: 12 OF 17



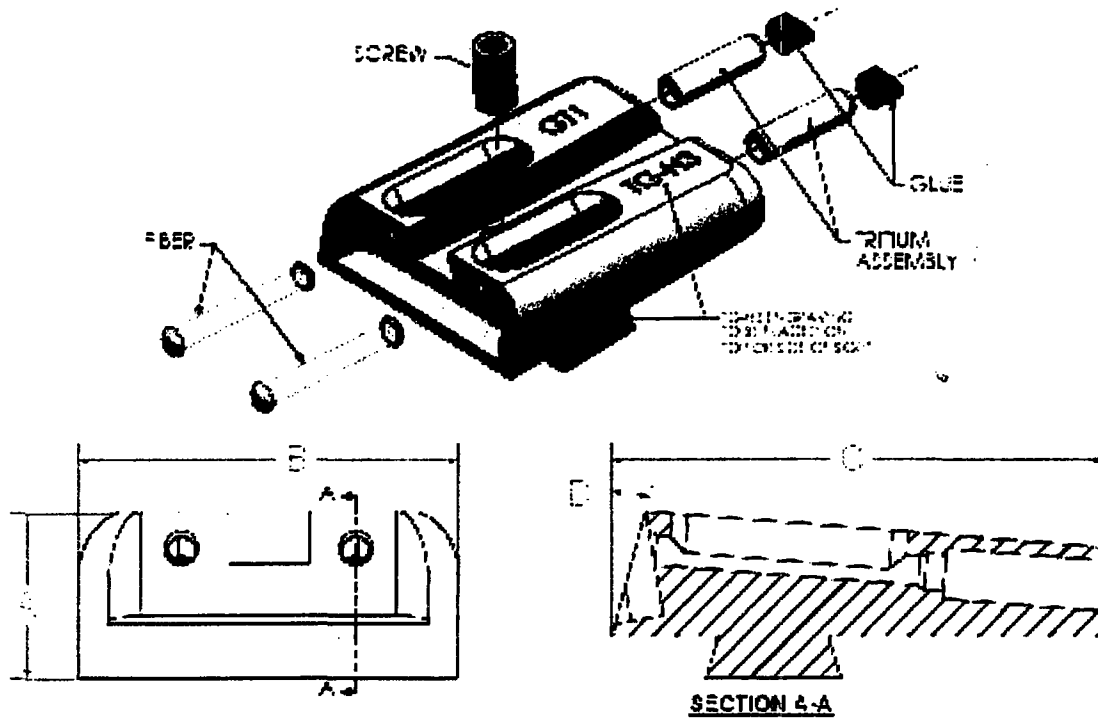
Dim	Min	Max
A	0.163"	0.368"
B	0.111"	0.170"
C	0.163"	0.873"
D	0.500"	1.270"
E	0.000"	0.168"
F	C	E

WHL WATER AL PROTECTION FOR GLS 0019

TG131 Series A2

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES  
 SAFETY EVALUATION OF DEVICE  
 (AMENDED IN ITS ENTIRETY)

NO.: NR-1180-D-101-E    DATE: March 11, 2013    ATTACHMENT: 13 OF 17



D.m	V.in	Vax
A	0.168"	0.675"
B	0.029"	1.188"
C	0.311"	1.253"
D	0"	35

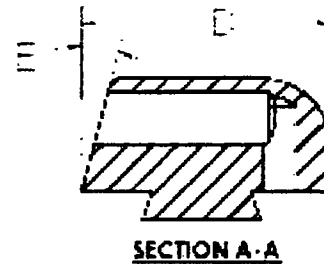
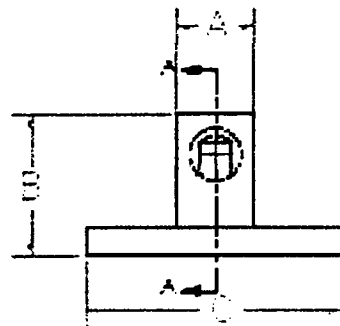
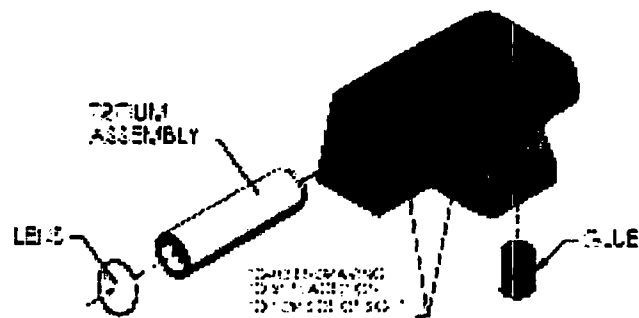
MINI MATERIAL PROTECTION FOR GT 0.019"

TG131 Series B1



REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES  
 SAFETY EVALUATION OF DEVICE  
 (AMENDED IN ITS ENTIRETY)

NO.: NR-1180-D-101-E    DATE: March 11, 2013    ATTACHMENT: 14 OF 17



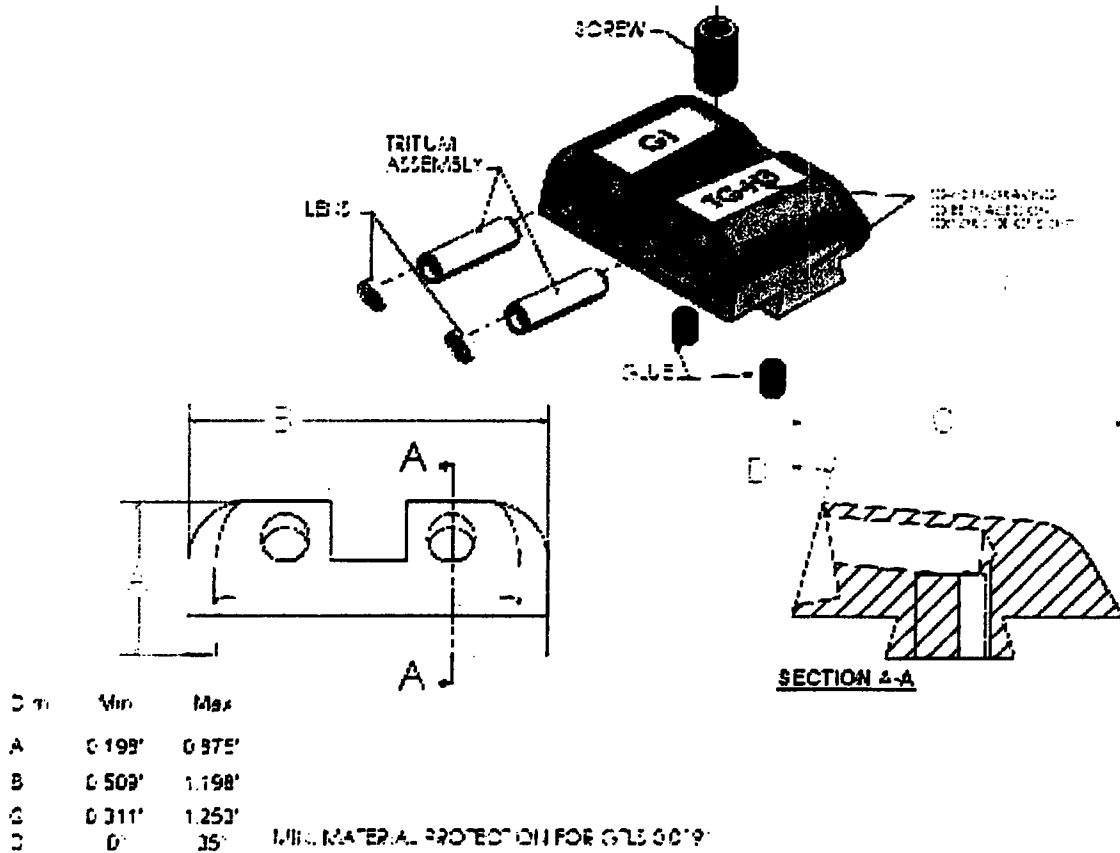
Dim	Min	Max
A	0.183"	0.208"
B	0.112"	0.161"
C	0.163"	0.273"
D	0.381"	0.410"
E	0	0.05

MIN MATERIAL PROTECTION FOR GLUE 0.019"

TG231 Series A2

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES  
 SAFETY EVALUATION OF DEVICE  
 (AMENDED IN ITS ENTIRETY)

NO.: NR-1180-D-101-E    DATE: March 11, 2013    ATTACHMENT: 15 OF 17

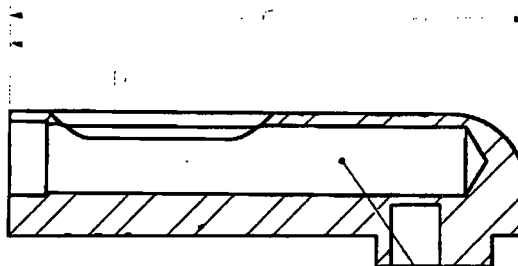
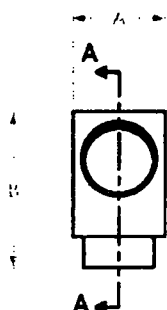
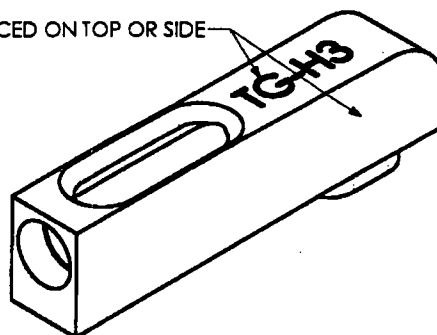


TG231 Series B1

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES  
SAFETY EVALUATION OF DEVICE  
(AMENDED IN ITS ENTIRETY)

NO.: NR-1180-D-101-E    DATE: March 11, 2013    ATTACHMENT: 16 OF 17

"TG-H3" ENGRAVING TO BE PLACED ON TOP OR SIDE



SECTION A-A

TRITIUM ASSEMBLY LOCATION

TG13 Series Front Sight (Typical)  
Models A1 through A7

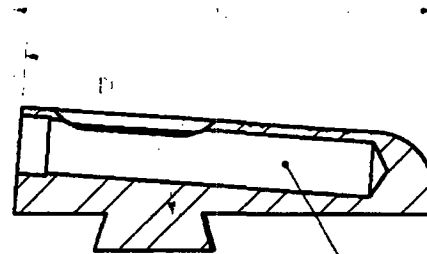
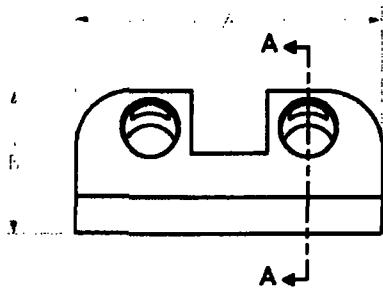
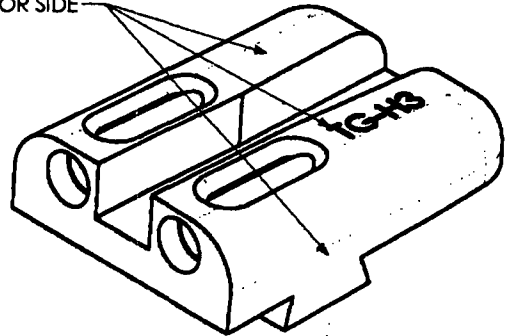
(Note: The maximum dimension are found in the text.)



REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES  
SAFETY EVALUATION OF DEVICE  
(AMENDED IN ITS ENTIRETY)

NO.: NR-1180-D-101-E    DATE: March 11, 2013    ATTACHMENT: 17 OF 17

"TG-H3" ENGRAVING TO BE PLACED ON TOP OR SIDE



TRITIUM ASSEMBLY LOCATION

TG13 Series Rear Sight (Typical)  
Models B1 & B2

(Note: The maximum dimension are found in the text.)

# ATTACHMENT "D"

NRC FORM 374

U.S. NUCLEAR REGULATORY COMMISSION

PAGE 1 OF 2 PAGES  
Amendment No. 08

## MATERIALS LICENSE

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 36, 39, 40, and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations, and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee	In accordance with application dated May 20, 2013
1. TRUGLO, Inc.	3. License number 42-23889-01E is amended in its entirety to read as follows:
2. 525 International Parkway Richardson, Texas 75081	4. Expiration date February 28, 2022
	5. Docket No. 030-36055 Reference No.

- |   |   |  |
|---|---|--|
| 6. Byproduct, source, and/or special nuclear material | 7. Chemical and/or physical form  | 8. Maximum amount that licensee may possess at any one time under this license |
| A. Hydrogen 3   | A. Sealed self-luminous light sources (SRB Technologies Model M-1, and Mb-Microtec Model 400/1) | A. Not applicable (See Condition 11)   |

### 9. Authorized use:

Pursuant to 10 CFR 32.22, "Specific Domestic Licenses to Manufacture or Transfer Certain Items Containing Byproduct Material"; the licensee is authorized to distribute sealed self-luminous light sources in archery pins and gun sights manufactured in accordance with NRC Registration No. NR-1180-D-101-E containing sealed sources as specified in Condition 10 of this license to persons exempt from the requirements for a license pursuant to 10 CFR 30.19, or equivalent provisions of the regulations of any Agreement State.

## CONDITIONS

10. The licensee is authorized to distribute the following series of self-luminous archery pin and gun sight devices:

<u>Device Model</u>	<u>Maximum Activity</u>
TG-20 Series (Bow Sights)	30 millicuries (1110 MBq) per bow sight
TG-20X Series (Bow Sights)	30 millicuries (1110 MBq) per bow sight
TG-131 Series (Gun Sights)	90 millicuries (3330 MBq) per weapon
TG-231 Series (Gun Sights)	90 millicuries (3330 MBq) per weapon
TG-13 Series (Gun Sights)	90 millicuries (3330 MBq) per weapon

**MATERIALS LICENSE  
SUPPLEMENTARY SHEET**License Number  
42-23889-01EDocket or Reference Number  
030-36055

Amendment No. 08

11. This license does not authorize possession or use of licensed material.
12. The licensee is authorized to distribute only from its facilities located at 525 International Parkway, Richardson, TX 75081.
13. The licensee shall file periodic reports as specified in 10 CFR 32.25(c).
14. Except as specifically provided otherwise by this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. The U.S. Nuclear Regulatory Commission's regulations shall govern unless the statements, representations, and procedures in the licensee's application and correspondence are more restrictive than the regulations.
- A. Application dated June 12, 2002 (ML113350059);
  - B. Letter dated August 29, 2002 (ML023180016);
  - C. Letter dated September 26, 2002 (ML023180023);
  - D. Letter dated May 20, 2003 (ML032120281);
  - E. Letter dated September 11, 2003 (ML113350066);
  - F. Letter dated October 14, 2003 (ML033110162);
  - G. Letter dated January 25, 2005 (ML050340039);
  - H. Letter dated June 17, 2005 (ML051820241);
  - I. Letter dated November 30, 2005 (ML060410687);
  - J. Letter dated March 8, 2010 (ML100690453);
  - K. Letter dated September 20, 2011 (ML112690267);
  - L. Email dated November 29, 2011, with attachments (ML113340472);
  - M. Application dated October 26, 2012 (ML12313A262);
  - N. Email dated December 6, 2012 (ML13056A635);
  - O. Letter dated January 29, 2013 (ML13046A066); and
  - P. Email dated February 22, 2013 (ML13056A637).

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date May 28, 2013By 

Shirley S. Xu  
Licensing Branch  
Division of Materials Safety and State Agreements  
Office of Federal and State Materials and  
Environmental Management Programs  
Washington, DC 20555



# ATTACHMENT "E"

## TRUGLO

### Material Transfer Report for USNRC License # 42-3889-01E 2012

Device Model	TG Item Number	Description	Units 2012	Vials	Millicuries 2012
TG - 131 Series	5000-00-000999G	DISPLAY GUN - GLOCK	93	3	8,370
TG - 20 Series	5400-00-0000020	TFO PIN .040 GRN	318	1	9,540
TG - 20 Series	5400-00-000019G	TFO PIN .029 GRN	652	1	19,560
TG - 20 Series	5400-00-000019Y	TFO PIN .029 YLW	45	1	1,350
TG - 20 Series	5400-00-000020Y	TFO PIN .040 YLW	30	1	900
TG - 20 Series	5400-00-000700T	PENDULUM TFO BLK	149	1	4,470
TG - 20 Series	5400-00-000701T	PENDULUM ADJUST BRKT TFO BLK	87	1	2,610
TG - 20 Series	5400-00-004102B	TSX CMPCT 4 TFO BLK	4	1	120
TG - 20 Series	5400-00-004302B	TSX CMPCT MICRO 4 TFO BLK	1	1	30
TG - 20 Series	5400-00-005102B	TSX 5 TFO BLK	22	1	660
TG - 20 Series	5400-00-005202B	TSX TOOLLESS 5 TFO BLK	10	1	300
TG - 20 Series	5400-00-00520XB	BRITE-SITE XTRM 5 TFO	213	1	6,390
TG - 20 Series	5400-00-005302B	TSX MICRO 5 TFO BLK	26	1	780
TG - 20 Series	5400-00-006102B	RANGE ROVER 1 TFO BLK	119	1	3,570
TG - 231 Series	5600-00-000231H	TRITIUM SET - H&K	14	3	1,260
TG - 231 Series	5600-00-000231K	TRITIUM SET - KIMBER	451	3	40,590
TG - 231 Series	5600-00-000231X	TRITIUM SET - SF XD	1,128	3	101,520
TG - 131 Series	5600-00-00131AR	TFO FRNT SIGHT AR-15	891	1	26,730
TG - 131 Series	5600-00-00131HT	TFO SET - H&K	138	3	12,420
TG - 131 Series	5600-00-00131KT	TFO SET - KIMBER	1,514	3	136,260
TG - 131 Series	5600-00-00131ML	MUZZLE-BRITE TFO UNIV	130	3	11,700
TG - 131 Series	5600-00-00131SG	TFO FRNT SIGHT SHOTGUN	185	1	5,550
TG - 131 Series	5600-00-00131XT	TFO SET - SF XD	4,439	3	399,510
TG - 231 Series	5600-00-00231G1	TRITIUM SET - GLOCK LOW	4,549	3	409,410
TG - 231 Series	5600-00-00231G2	TRITIUM SET - GLOCK HIGH	1,171	3	105,390
TG - 231 Series	5600-00-00231MP	TRITIUM SET - S&W M&P	965	3	86,850
TG - 231 Series	5600-00-00231S1	TRITIUM SET - SIG #8/#8	215	3	19,350
TG - 231 Series	5600-00-00231S2	TRITIUM SET - SIG #6/#8	91	3	8,190
TG - 131 Series	5600-00-0131GT1	TFO SET - GLOCK LOW	20,404	3	1,836,360
TG - 131 Series	5600-00-0131GT2	TFO SET - GLOCK HIGH	5,125	3	461,250
TG - 131 Series	5600-00-0131HTY	TFO SET - H&K - YLW RS	100	3	9,000
TG - 131 Series	5600-00-0131KTY	TFO SET - KIMBER - YLW RS	504	3	45,360
TG - 131 Series	5600-00-0131MPT	TFO SET - S&W M&P	3,508	3	315,720
TG - 131 Series	5600-00-0131ST1	TFO SET - SIG #8/#8	861	3	77,490
TG - 131 Series	5600-00-0131ST2	TFO SET - SIG #6/#8	678	3	61,020
TG - 131 Series	5600-00-0131XTY	TFO SET - SF XD - YLW RS	1,439	3	129,510
TG - 131 Series	5600-00-131GT1Y	TFO SET - GLOCK LOW - YLW RS	5,304	3	477,360
TG - 131 Series	5600-00-131GT2Y	TFO SET - GLOCK HIGH - YLW RS	1,286	3	115,740
TG - 131 Series	5600-00-131MPTY	TFO SET - S&W M&P - YLW RS	1,109	3	99,810
TG - 131 Series	5600-00-131ST1Y	TFO SET - SIG #8/#8 - YLW RS	303	3	27,270
TG - 131 Series	5600-00-131ST2Y	TFO SET - SIG #6/#8 - YLW RS	216	3	19,440
TG - 131 Series	6600-00-2737001	SIG FRNT TFO #6 .231/5.88	23,650	1	709,500
TG - 131 Series	6600-00-2737002	SIG FRNT TFO #8 .220/5.60	5,661	1	169,830
TG - 131 Series	6600-00-2737003	SIG FRNT TFO #6 .231/5.88 V2	3,129	1	93,870
TG - 131 Series	6600-00-2737004	SIG FRNT TFO #8 .220/5.60 V2	3,832	1	114,960
TOTAL			94,759		6,186,870

Note: All above products have been transferred for use under 10 CFR §30.19



## Department of State Health Services

**RADIOACTIVE MATERIAL LICENSE**

Pursuant to the Texas Radiation Control Act and Texas Department of State Health Services (Agency) regulations on radiation, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess and transfer radioactive material listed below; and to use such radioactive material for the purpose(s) and at the place(s) designated below. This license is subject to all applicable rules, regulations and orders of the Agency now or hereafter in effect and to any conditions specified below.

<b>LICENSEE</b>			This license is issued in response to the letter	
1. Name	TRUGLO INC ATTN LORRAINE L HELLINGHAUSEN		Dated: May 20, 2013	
2. Address	525 INTERNATIONAL PKWY RICHARDSON TX 75081		Signed by: Lorraine L. Hellinghausen	
			3. License Number L05519	Amendment Number 11
<b>PREVIOUS AMENDMENTS ARE VOID</b>				
			4. Expiration Date March 31, 2022	
<b>RADIOACTIVE MATERIAL AUTHORIZED</b>				
5. Radioisotope A. H-3	6. Form of Material A. Sealed source (MB-Microtec Models 400/1, 400/2 and 400/3)	7. Maximum Activity A. 120,000 sources not to exceed 30 millicuries each; Total: 3,600 curies	8. Authorized Use A. Manufacture and storage of archery pins and gun sights containing self-luminous light sources pending distribution pursuant to U.S. Nuclear Regulatory Commission License No. 42-23889-01E.	

9. Radioactive material shall only be stored and used at:

Site Number  
002

Location  
Richardson - 525 International Parkway

10. Each site shall maintain documents and records pertinent to the operations at that site. Copies of all documents and records required by this license shall be maintained for Agency review at Site 002.
11. The licensee shall comply with the provisions (as amended) of Title 25 Texas Administrative Code (TAC) §289.201, §289.202, §289.203, §289.204, §289.205, §289.251 and §289.252.
12. The individual designated to perform the functions of Radiation Safety Officer (RSO) for activities covered by this license is Lorraine L. Hellinghausen.
13. Radioactive material shall be used by, or under the direct supervision of, individuals designated by the RSO only after each worker has successfully completed a training course determined by the Agency as appropriate. Documentation verifying the successful completion of the training for each worker shall be maintained by the licensee for inspection by the Agency.
14. Sealed sources containing radioactive material shall not be opened.
15. The licensee shall conduct a physical inventory, at least every six months, to account for all sealed sources received and possessed under the license. The records of the inventories shall be maintained for inspection by the Agency for three years from the date of the inventory and shall include the radionuclide, number of curies, location of each source of radiation, the name of the individual making the inventory, and the date of the inventory.



Department of State Health Services

## RADIOACTIVE MATERIAL LICENSE

LICENSE NUMBER	AMENDMENT NUMBER
L05519	11

16. The licensee shall conduct radiation contamination surveys of all radioactive material use and storage areas at intervals not to exceed 30 days or when it is suspected that a tritium light source has become compromised. Surveys shall be taken in the form of surface wipes using appropriate media for subsequent gas proportional counting or liquid scintillation counting. If analysis reveals the presence of radioactive contamination in excess of the limits contained in 25 TAC §289.202(ggg)(6), the licensee shall immediately enable contamination control actions and notify the agency of the analysis findings.
17. Except as specifically provided otherwise by this license, the licensee shall possess and use the radioactive material authorized by this license in accordance with statements, representations, and procedures contained in the following:

application dated March 1, 2012, and  
letters dated January 29, 2013 and February 21, 2013.

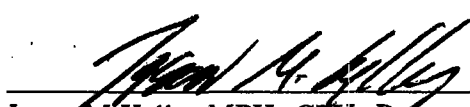
Title 25 TAC §289 (as amended) shall prevail over statements contained in the above documents unless such statements are more restrictive than the regulations.

JMK

FOR THE DEPARTMENT OF STATE HEALTH SERVICES

Date

September 19, 2013

  
Jason M Kelly, MPH, CPH, Program Coordinator  
Advanced Technology Licensing Program

The

From: (972) 774-0300

Kristy Reed

TRUGLO, Inc.

525 International Parkway

Richardson, TX 75081

Origin ID: TRLA

**FedEx**  
Express



J13201306280326

SHIP TO: (972) 774-0300

Mr. John P. Jankovich

U.S. Nuclear Regulatory Commission

Two White Flint North

11545 Rockville Pike

NORTH BETHESDA, MD 20852

BILL SENDER

Ship Date: 30DEC13

ActWgt: 1.4 LB

CAD: 1068014/NET3430

Delivery Address Bar Code



Ref #

Invoice #

PO #

Dept #

USNRC Amend

TRK#

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7975 2825 3030

TUE - 31 DEC 10:30A

PRIORITY OVERNIGHT

ASR

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