

QUALITY ASSURANCE PLAN		Document No.: DRDO-ARDE-DOA-TOT-239-2017		
Issue No : 1	Date: 22.09.17	Revision No: 00	Date:	Page: 1 of 1
Component / Assembly		TRACER NUT		

1. Drawing No : 1006 13 21 00 02 000 00TA
2. Method of Manufacture : Assembly
3. Receiving Inspection : Nil.
4. In-Process Inspection : Nil
5. Stage Inspection: Nil

6. Final Inspection:

6.1. Visual Inspection:

6.1.1. Features for Visual Examination and Acceptance Criteria:

	Details of Features	Sample Size	Acceptance Criteria
	Washer	100%	Presence.

6.2. Dimensional Inspection: Nil.

6.3. Details of Tests / Checks on Finished Items and Acceptance Criteria:

6.3.1 Test on Finished Items: Sample Size: 2% or minimum qty 03 nos whichever is more

6.3.2 Check the assembly for leakage test under pressure of 0.2 bar

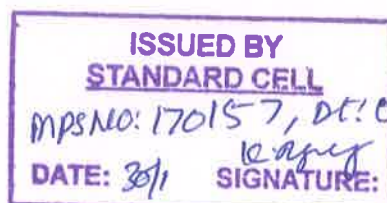
7. Details of Tests and other information: Tracer Nut assembly

The following components will be assembled in this assembly

Sr. No.	Component	Drg No.	Quantity
1	Washer	1006 13 21 00 02 002 00 TA (Ref: C WSH 1254 800 3)	01
2	Tracer plug	1006 13 21 00 02 001 00 TA (Ref: C OTP 1254 801 2)	01

Assembly procedure-

1. Clean the tracer plug cavity properly using high pressure dry air.
2. Apply the adhesive prepared by mixing shellac 40 % (as per ASTM- D- 237 type 1 grade D) with denaturated ethyl alcohol (as per AA-59345 grade 5) in the cavity with strand of metal wire.
3. Take the washer and place it in the tracer plug cavity.
4. Leave the assembly for curing at room temperature.



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Component / Assembly		TRACER PLUG		

1. Drawing No : 1006 13 21 00 02 001 00TA
2. Method of Manufacture : Machining & Coating
3. Receiving Inspection
- 3.1. Raw Material : Hot Rolled Bars ASTM A321 OR Cold Drawn Bars Class A, Grade 1117 ASTM A311 OR Free Cutting Steel 214M15 (En202) Per BS 970.

Test / Checks and Acceptance Criteria for Raw Material:

Sl	Properties	Acceptance Criteria
1.	UTS (MPa)	760 min
2.	Yield Strength (MPa)	520 min
3.	% Elongation	18 min

4. In-Process Inspection: Nil

5. Stage Inspection: Nil

6. Final Inspection:

6.1. Visual Inspection:

6.1.1. Features for Visual Examination and Acceptance Criteria:

Sl	Details of Features	Sample Size	Acceptance Criteria
1.	Sharp Edges/ Burrs	100%	Not permitted.
2.	Damage to Threads	100%	Not permitted.

6.2. Dimensional Inspection: Dimensions apply before coating.

~~6.3.1.~~ Critical Dimensions: Sample Size: 100%

6.2.1

Sl	Dimensions	Drg Zone	Inspection Method
1.	Thread 3/4"-20 UNEF-2A-LH	D2	Thread Gauge

~~6.3.2.~~ Geometrical Features: Sample size 10% or minimum qty 03 nos whichever is more

6.2.2

Sl	Geometrical Features	Drg Zone	Inspection Method
1.	Run out (0.1)	D3	Dial Gauge
2.	Position (0.15)	C1	Position Gauge

~~6.3.3.~~ Major Dimensions: Sample Size : 100%

6.2.3

Sl	Dimensions	Drg Zone	Inspection Method
1.	Φ14.5	B2	Gen. Engineering / Gauge
2.	Ø13.2±0.10	E2	Gen. Engineering / Gauge
3.	Ø9.10±0.05	D2	Gen. Engineering / Gauge
4.	Ø12.15±0.05	E2	Gen. Engineering / Gauge

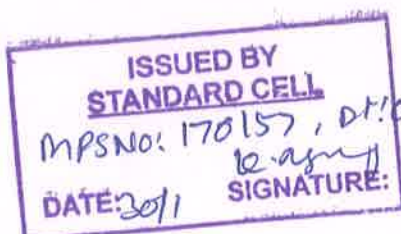
6.3.4. Minor Dimensions: Nil

6.3. Test on Finished Items: Sample Size: 10%

Details of Tests / Checks on Finished Items and Acceptance Criteria:

- Presence of Phosphate Coat as per MIL STD-171D, Finish No. 5.3.2.3 and Chromate Seal (Alternatively, Ultra-Tech 500 Seal by LEA Manufacturing Company) OR Zinc Coating as per ASTM-B-633, Fe/Zn5, Type II) to be ensured. Certificate of conformance to be submitted.

7. Details of Tests and other information: Nil.



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Component / Assembly		BRASS WASHER		

1. **Drawing No** : 1006 13 21 00 02 002 00TA
2. **Method of Manufacture** : Machining/ Punching
3. **Receiving Inspection** :
- 3.1. **Raw Material** : Brass Strip CuZn37 F30 or CuZn30 F35 ACC to DIN 17670 or Brass Strip Alloy No. 260 HO1 (Quarter Hard) as per ASTM B36.

Test / Checks and Acceptance Criteria for Raw Material:

- 3.1.1 Chemical Composition: As per DIN 17670 or ASTM B36.
- 3.1.2 Mechanical Properties:

Sl	Mechanical Properties	Acceptance Criteria
1.	Tensile Strength (MPa)	340-405
2.	Hardness Rockwell- B Scale	40-61

4. **In-Process Inspection**: NA
5. **Stage Inspection**: Nil
6. **Final Inspection**.
- 6.1. **Visual Inspection**:
- 6.1.1. **Features for Visual Examination and Acceptance Criteria**:

Sl	Details of Features	Sample Size	Acceptance Criteria
1.	Burrs/ Sharp Edges	100%	Not permitted.

- 6.2 **Dimensional Inspection**:
- 6.2.1 **Critical Dimensions**: Nil.
- 6.2.2 **Geometrical Features**: Nil
- 6.2.3 **Major Dimensions**: Sample Size: 100%

FOR REFERENCE

Sl	Dimensions	Drg Zone	Inspection Method
1.	$\varnothing 12.025 \pm 0.075$	B4	Dimension to be verified on the punching tool.
2.	Thickness 0.08 ± 0.04	E3	

- Punch tool report to be enclosed.

- 6.2.4 **Minor Dimensions**: Nil
- 6.3. **Test on Finished Items**:
- 6.3.1 **Details of Tests / Checks on Finished Items and Acceptance Criteria**:
 - Presence of Protective Finish as per DEF STD 03-12/1 to be ensured.
7. **Details of Tests and other information**: Nil.

