1.0 PURPOSE / EC DESCRIPTION

This engineering change provides the qualification for the Replacement Once Through Steam Generators (ROTSGs) for operation in accordance with the Extended Power Uprate (EPU) project. The ROTSGs will operate at 3030 MWt (3014 MWt core power plus 16 MWt added by the Reactor Coolant Pumps).

This change includes the implementation steps required to reset the ROTSG flow orifice as required for operation at EPU.

2.0 WORK SCOPE

The purpose of this task is to rotate the orifice ring in RCSG-1A to the pre-determined setting for operation at the EPU power level of 3030MWt.

3.0 SPECIAL TOOLS AND EQUIPMENT

Orifice ring adjustment tools

Quantity	Description	Part Number (Dwg – Item)	Figure (see Note above)	CR3 Part Number
2	Adjustable Tool Sleeve Assembly	3P-26052-1	#1	9220188407
2	Adjustable Shaft Assembly	3P-26052-2	#1	9220188408
2	Shaft Extension	3P-26052-10	#1	9220188410
4	1 inch plain washer	3P-26052-11	#1	9220188411
4	Socket head cap screw, 1”-8 UNC x 3”	3P-26052-12	#1	9220188412
2	Rubber gasket	3P-26052-13	#1	9220188415
2	Tab Unbending Tool	2P-25475	#2	9220192442
2	Tab Locking Tool	3P-25601	#3	9220192443

Special Tooling

Quantity	Description	Reference
4	ROTSG R17 Gap Gauges	See Att. Z08
4	ROTSG Handhole Protector	See Att. Z09
10	ROTSG Handhole Shielding (4 per SG, 2 spare)	See Att. Z10
2	ROTSG Locking Washer Unbending Tool	See Att. Z11
2	Ratcheting box wrench, 1-1/2”, 6 or 12 point, 0° offset, (Gear Wrench model 9042, or equal) modified per Att. Z03 (for orifice ring locking bolts)	See Att. Z03
2	Reversible ratcheting box wrench, 3/4”, 6 or 12 point, 0° offset (Stanley Proto model JSCV24, or equal) (for tab locking tool 3P-25601)	NA

Other tools and materials

Quantity	Description
2	Torque wrench 50 – 250 ft-lbs, ½ inch drive
1	Lubricant N-5000 high performance, high purity anti-seize
2	1 inch socket, ½ inch drive (for shaft 3P-26052-2)
2	¾ inch Allen wrench for 1" socket head cap screws
2	Torque wrench 0 – 80 ft-lbs, ½ inch drive
2	1/2" x 6" socket drive extension
20	Socket head cap screw, 1"-8 UNC x 3"
50 ft	Lanyard line
2	Tool box or container for small tools and parts
As req'd	Shop cloth or other material to protect tooling and fasteners

4.0 LIMITS & PRECAUTIONS/INITIAL RISK ASSESSMENT

CAUTION: The (RC) system is considered an Administratively Controlled RCA. Contact HP for survey and RWP requirements prior to breeching system.

— The Planner has performed a "Quality Critical" evaluation and determined that this Work Order does meet the criteria established via Attachment 4 of MNT-NGGC-1000 to warrant critical step(s) identification.

— The Responsible Engineer (Garry Prater) must be made aware of technical problems and items affecting cost or schedule. Work Order problems should be brought to the Planner (Canon McCray) for resolution.

— This component has been identified as "ZTEF" Class "C", Critical to Plant Operation. A failure of this component could result in loss of system availability, generating capacity, or entry into a Limited Condition of Operation.

— Ensure this equipment is returned to service free from any defects that could impair its function.

— Initial risk assessment is medium due to work on or in ZTEF Class "C" equipment, confined space entry, and high risk FME area.

— The ROTSG handholes are FME boundaries for the secondary side of the ROTSGs. All required FME precautions per MNT-NGGC-0007 shall be observed including:

- Tools and equipment used inside the ROTSG from handhole openings shall be secured from outside by a lanyard (including the gap gauges, see Att. Z08).

NOTE – The shaft assembly (see Fig. 1) will not have a lanyard, however, because of its dimensions and when used as instructed, it poses low risk of dropping into the ROTSG. Use care to make sure the shaft assembly remains engaged when installing and removing the sleeve assembly.

- Temporary shielding covers (see Att. Z10) will serve as FME barriers and shall be installed when the handholes are not being used for access required by work steps.

— Caution shall be used to minimize damage to the ROTSG handhole openings or other interior parts.

NOTE – Extreme caution shall be used to prevent any contact with the ROTSG tubes.

— The handhole flange surfaces shall be protected by installation of Handhole Protectors as shown in Att. Z09.

— The handhole areas are expected to be high radiation areas. All ALARA precautions shall be observed including:

- Installation of temporary shielding covers when handholes are not being used for access required by work steps (see Att. Z10).
- Minimize work durations by use of ROTSG mockup for practice and detailed Pre-Job Briefs.

— All internal work in the ROTSG (breaking the plane of the handhole openings) shall be monitored by Progress Energy (PE) engineering.

— Internal cleanliness for the OTSGs secondary side shall be maintained and inspected to Class C requirements per AI-1001.

— Secondary Handhole cover weight is 100lbs per cover. Handhole Temporary Sheilding cover weight TBD. All Lifting and Rigging shall meet the requirements of MNT-NGGC-0005 *(Control of Rigging and Temporary Loads).*

5.0 **PREREQUISITES** (Note: Prerequisites require an *ACTION* to be performed)

— *NOTIFY* the Work Control Center prior to start of work.

— System Engineer shall *DEVELOP* and *IMPLEMENT* an FME Project Plan per MNT-NGGC-0007.

— *CHARGE* all labor and material to this Work Order.

— *COORDINATE* this work with the Eddy Current Testing (ECT) work in progress during the same time period as follows:

- Scaffolding for this work should not interfere with ECT and should provide protection over ECT work area to prevent dropped objects
- Request ECT to schedule testing for the outer tubes to be completed after completion of the orifice plate adjustments to ensure inadvertent damage during implementation is detected.

— *OBTAIN* special tooling as shown in the following attachments:

- Att. Z03, ROTSG Locking Bolt Wrench
- Att. Z08, ROTSG R17 Gap Gauges
- Att. Z09, ROTSG Handhole Protector
- Att. Z10, ROTSG Handhole Shielding
- Att. Z11, ROTSG Locking Washer Unbending Tool

— *CONDUCT* training sessions for the following steps using the ROTSG Mockup. Contact Engineering for guidance.

— *LOCATE* the lower secondary handholes indicated on Att. Z04 at elevation 108'-4½" on RCSG-1A (see drawing 150FE001) and INSTALL temporary labels as shown below. The labels are specified to match the work steps and the tooling that will be used at each location.

Access Opening	Description (see Att. Z04)	Label
Secondary Manway	One manway per SG	Do Not Remove
6" Handhole	X-1/Y-2 quadrant (1 per SG) (near Gap #09)	Do Not Remove
6" Handhole	Y-1 and Y-2 (Two places)	Locking Bolt
6" Handhole	X-1/Y-1 quadrant RCSG-1A (near Gap #05)	RCSG-1A Gap 5 – 3.17"
6" Handhole	X-1/X-2 quadrant RCSG-1A (near Gap #17)	RCSG-1A Gap 17 – 3.03"

— For the handhole covers to be removed at the Y-1 and Y-2 locations, *INSTALL* temporary labels ("Bolt") to designate the upper left bolt hole and lower right bolt hole for each opening (see Fig. 4). These bolt holes will be used to attach tooling or shielding during this procedure.

SPECIAL INSTRUCTIONS

— *CLEAN* fasteners (socket cap screws, 1" – 8 UNC x 3") used to hold the sleeves and shielding. *VERIFY* the threads show no damage.

Verified By: _____ Date: _____

— *VERIFY* that the rubber gaskets are installed onto sleeve assemblies (see Fig. 1). **CRAFT to VERIFY.**

Verified By: _____ Date: _____

— *ASSEMBLE* shaft extensions to two shaft assemblies (see Fig. 1) and hand-tighten. *ENSURE* the threads are clean and properly lubricated with anti-seize.

— *VERIFY* that the OTSGs are out of service and the secondary side is vented and drained. **WCC to VERIFY.**

WCC Signature: _____ Date: _____

6.0 WORK INSTRUCTIONS

NOTE: Throughout the following steps, temporary shielding covers (see Att. Z10) will serve as FME barriers and shall be installed when the handholes are not being used for access required by work steps.

NOTE: The following steps are to be performed in sequence.

NOTE: Only personnel previously trained on the OTSG Mockup should perform the following work steps.

__ 1. *CONTACT* Field Engineer to confirm all Prerequisites and Special Instructions are complete and the temporary labeling is correct.

Engineering Signature: _____Date: _____

NOTE: Secondary Handhole Cover weight is 100lbs per cover.

__ 2. *RIG and REMOVE* the following four RCSG-1A lower secondary handhole covers (Elev. 108'-4½") with diaphragms and bolting as indicated on Att. Z04 and in accordance with MP-110B, Section 4.5:

___ Y-1Locking Bolt Location

___ Y-2 Locking Bolt Location

___ X-1/Y-1 quadrant (window 5)

___ X-2/Y-2 quadrant (window 17)

__ 3. *PROTECT*, bag, label and store the bolting, diaphragms, and covers for reinstallation later.

Document Storage Location: _____

__ 4. *DISCARD* the handhole gaskets.

NOTE: The tape to cover the two bolt holes previously identified per Fig. 4 must be easily removed to secure the tooling and shielding as described in the following steps.

__ 5. *SECURE* ROTSG Handhole Protectors (Reference Att. Z09) in position on the handhole flanges with approved tape while keeping the interior openings clear for the tooling sleeves.

__ 6. *COVER* the bolt holes with the approved tape.

__ 7. *VERIFY* the bolt holes designated to hold the sleeve or shielding assemblies are clean. **CRAFT to VERIFY**.

___Y-1 Locking Bolt location

___Y-2 Locking Bolt location

___ X-1/Y-1 quadrant (window 5)

___ X-2/Y-2 quadrant (window 17)

Verified By: _____ Date: _____

__ 8. *LUBRICATE* the bolt holes designated to hold the sleeve or shielding assemblies with anti-seize lubricant. See Figure 4 for orientation.

___Y-1 Locking Bolt location

___Y-2 Locking Bolt location

___ X-1/Y-1 quadrant (window 5)

___ X-2/Y-2 quadrant (window 17)

__ 9. *UNBEND* the lock washers approximately 45°, using the tab unbending tool 2P-25475 (see Fig. 2) at the following locations:

___Y-1 Locking Bolt location

___Y-2 Locking Bolt location

__ 10. *STRAIGHTEN* the lock washers using ROTSG Locking Washer Unbending Tool (see Att. Z11).

CAUTION: Do not remove the locking bolts identified below; they will be used to engage the shaft assembly.

__ 11. *LOOSEN* the two locking bolts (at Y-1 and Y-2 locations) using the special 1-½" offset box wrench (see Att. Z03) to allow the orifice plate to move. Ensure thread engagement remains as much as possible while being loose enough to allow movement of the orifice plate.

CRITICAL STEPS

The use of the S.T.A.R. (Stop, Think, Act, Review) method shall be utilized to aid in the successful performance of the critical step(s).

__ 12. *ROTATE* Orifice plate to OPEN position in the following manner:

NOTE: Maintain positive control of the shaft assembly in the following steps to ensure it remains engaged with the locking bolt while installing or removing the sleeve assembly.

NOTE: Maintain a light pressure on the shaft assembly to ensure it does not disengage from the locking bolt during the following steps.

Y-1 Shaft/Sleeve Assembly installation:

NOTE: The shaft assembly (see Fig. 1) will not have a lanyard, however, because of its dimensions and when used as instructed, it poses low risk of dropping into the ROTSG.

__ 12.1 *INSERT* the shaft assembly at the Y-1 Locking Bolt location (see Fig. 1).

__ 12.2 *ENGAGE* the shaft assembly onto the locking bolt leaving the shaft extension protruding from the handhole opening.

__ 12.3 *POSITION* the tool shaft and set the orientation of the engagement arm with the locking bolt using Fig. 5. Maintain this orientation during the insertion of the sleeve assembly into handhole.

__ 12.4 *PUSH* the sleeve assembly into the handhole while guiding the shaft extension through the #1 sleeve bearing. Maintain pressure on the shaft assembly to ensure it remains engaged with the Locking Bolt.

__ 12.5 *SECURE* the sleeve assembly to the handhole opening using the 1" – 8 UNC x 3" socket cap bolts. Hand-tighten the bolts with a ¾" Allen wrench.

__12.5 Carefully *UNSCREW* the shaft extension from the shaft assembly.

Y-2 Shaft/Sleeve Assembly Installation:

__ 12.6 *INSERT* the shaft assembly at the Y-2 Locking Bolt location (see Fig. 1).

__ 12.7 *ENGAGE* the shaft assembly onto the locking bolt leaving the shaft extension protruding from the handhole opening.

__ 12.8 *POSITION* the tool shaft and set the orientation of the engagement arm with the locking bolt using Fig. 5. Maintain this orientation during the insertion of the sleeve assembly into handhole.

__ 12.9 *PUSH* the sleeve assembly into the handhole while guiding the shaft extension through the #1 sleeve bearing. Maintain pressure on the shaft assembly to ensure it remains engaged with the Locking Bolt.

__ 12.10 *SECURE* the sleeve assembly to the handhole opening using the 1" – 8 UNC x 3" socket cap bolts. Hand-tighten the bolts with a ¾" Allen wrench.

__12.11 Carefully *UNSCREW* the shaft extension from the shaft assembly.

Rotate Orifice Ring to OPEN

__12.12 Using torque wrenches, gradually increase torque as required on each tool shaft in unison (simultaneously) in a clockwise direction to open the orifice ring (maximum torque 250 ft-lbs). If 250 ft-lbs torque is NOT sufficient to rotate orifice ring, contact Engineering and consult the O&M Manual 02608-001 for guidance.

__ 12.13 From an open handhole, *DETERMINE* when the gap window is sufficiently open to install the gap gauges.

__ 13. *ROTATE* Orifice Ring to Final Gap in the following manner:

NOTE: Each gap gauge is stamped with info matching the temporary label for its corresponding handhole.

NOTE: Tools and equipment used inside the ROTSG from handhole openings shall be secured from outside by a lanyard (including the gap gauges, see Att. Z08)

__13.1 *CONFIRM* the correct Gap Gauge (see Att. Z08) is staged at each designated handhole per the temporary labeling.

__13.2 Manually *POSITION* each gap gauge into the designated orifice plate windows. The gauge should rest on top of the upper (adjustable) orifice plate as shown in Figure 6.

__13.3 Using torque wrenches, gradually increase torque on each tool shaft in unison (simultaneously), in a counter-clockwise direction until the orifice ring gap closes on the gap gauges.

__ 13.4 *VERIFY* that at least one gap gauge is snug and the other has less than approximately 1/16” movement in the circumferential direction (estimated by manual manipulation). **System Engineer to VERIFY:**

System Eng. Signature: _____ Date: _____

__ 13.5 Remove all tooling and gap gauges from handhole openings and orifice plates.

CRITICAL STEPS

The use of the S.T.A.R. (Stop, Think, Act, Review) method shall be utilized to aid in the successful performance of the critical step(s).

NOTE: Due to the high risk of Foreign Material intrusion into the ROTSG, the preference is to keep and RE-USE the existing locking washers if they are determined to be acceptable by the OTSG System Engineer. However, IF it is determined that a locking washer needs to be replaced, THEN the instructions in the CONTINGENCY SECTION shall be used to document the removal and replacement.

__ 14. *TIGHTEN* the Orifice Ring Locking Bolts in the following manner:

__ 14.1 System Engineer to visually *INSPECT* the locking washers and document decision to re-use or replace. Document below:

Y-1 Locking Bolt location: RE-USE: _____ REPLACE: _____

Y-2 Locking Bolt location: RE-USE: _____ REPLACE: _____

System Eng. Signature: _____ Date: _____

LOCKING WASHER RE-USE:

__ 14.2 **CAREFULLY** *LOOSEN* each locking bolt only enough to disengage the head from the hex recess in the locking washer.

__ 14.3 *ROTATE* the lock washer 180° to ensure a different portion of the lock washer is used for the new locking bend.

__ 14.4 *ENGAGE* the lock washer on the hex head of the bolt and hand tighten.

__ 14.5 *VERIFY* the head of the bolt is seated in the hex recess of the locking washer. **CRAFT to VERIFY.**

Verified By: _____ Date: _____

__ 14.6 *DOCUMENT* the locations below, at which the locking washers have been re-used:

_____

_____

LOCKWASHER REPLACEMENT:

**********CONTINGENCY SECTION**********

This section will be used **ONLY** if a locking washer needs to be replaced. Steps may be marked "N/A" if not used.

NOTE: **Tools and equipment used inside the ROTSG from handhole openings shall be secured from outside by a lanyard. Use good FME control work practices per MNT-NGGC-0007.**

CAUTION: **REMOVAL AND INSTALLATION OF THE LOCKING BOLT AND LOCK WASHER ASSEMBLY IN THE FOLLOWING STEPS POSES A RISK OF LOOSE PARTS WITHIN THE ROTSG. USE EXTREME CARE TO ENSURE THAT THE PARTS ARE NOT DROPPED.**

__ 14.7 **CAREFULLY** *REMOVE* each locking bolt and lock washer assembly.

__ 14.8 *DISCARD* the lock washer and *INSTALL* a new locking washer (see BOM Item 1) on each locking bolt.

__ 14.9 **CAREFULLY** *INSTALL* the Locking Bolt with new lock washer and hand-tighten.

__ 14.10 *VERIFY* the head of the bolt is seated in the hex recess of the locking washer. **CRAFT to VERIFY.**

Verified By: _____ Date: _____

__ 14.11 *DOCUMENT* the locations below, at which the locking washers have been replaced:

_____

_____

__ 14.5 *CONTACT* QC to witness the torque to be applied to the locking bolts and the bending of the lock washers in the following steps.

__14.6 *VERIFY* vertical gap between orifice plates at the following locations: **System Engineer to VERIFY maximum gap ≤ 1/8"**:

___Y-1 Locking Bolt location

___Y-2 Locking Bolt location

___ X-1/Y-1 quadrant (window 5)

___ X-2/Y-2 quadrant (window 17)

System Eng. Signature: _____ Date: _____

__ 14.7 *TORQUE* the locking bolts to 50 – 70 ft-lbs. **QC to VERIFY.**

Torque Documentation Y-1 location:

Torque Wrench SQC #: _____ Date Calibrated: _____

Torque Applied: _____

QC Signature: _____ Date: _____

Torque Documentation Y-2 location:

Torque Wrench SQC #: _____ Date Calibrated: _____

Torque Applied: _____

QC Signature: _____ Date: _____

__ 14.8 *BEND* the lock washers using the tab locking tool 3P-25601 and a ¾" wrench to. See Figure 7.

__ 14.9 Visually *VERIFY* the lock washer is bent at least 60° (estimated). **QC to VERIFY.**

QC Signature: _____ Date: _____

__ 15. *REMOVE* all tooling from the handholes.

__ 16. *PERFORM* visual cleanliness inspection of the internal volume per MNT-NGGC-0007 to ensure no loose parts remain within RCSG-1A.

__ 17. *PERFORM* system cleanliness closeout inspection IAW AI-1001, Internal Cleanliness of Fluid Systems. Document on the Attached AI-1001 Cleanliness Class "C" inspection form.

_____/_____ _____/_____
Performed by/Date Verified by/Date

__ 18. *RETRIEVE* the RCSG-1A handhole covers, diaphragms and bolting from storage and new 6" gaskets, EC 75004 BOM Item 2 (4 required for RCSG-1A). *STAGE* materials for installation.

__ 19. *REMOVE* the tape and ROTSG Handhole Protectors from the handhole flanges.

__ 20. *REMOVE* any tape residue.

__ 21. *DOCUMENT* QC Inspection of the gasket sealing surfaces per vendor manual 02608-001, Section 8.9 acceptance criteria.

__ ACCEPT ___REJECT

QC Signature: _____ Date: _____

__ 22. *INSTALL* the handhole covers, diaphragms and bolting and new 6" gaskets at each handhole location IAW MP-110B, Section 4.6. See drawing 150FE370, Detail J, for torque and tightening sequence requirements.

— *Y-1 HANDHOLE COVER*; MP-110B Section 4.6 performed and documentation inserted into this WO task.

_____/_____ _____/_____
Performed by/Date Verified by/Date

— *Y-2 HANDHOLE COVER*; MP-110B Section 4.6 performed and documentation inserted into this WO task.

_____/_____ _____/_____
Performed by/Date Verified by/Date

— *X-1/Y-1 quadrant (window 5) HANDHOLE COVER;* MP-110B Section 4.6 performed and documentation inserted into this WO task.

_____/_____ _____/_____
Performed by/Date Verified by/Date

— *X-2/Y-2 quadrant (window 17) HANDHOLE COVER;* MP-110B Section 4.6 performed and documentation inserted into this WO task.

_____/_____ _____/_____
Performed by/Date Verified by/Date

__ 23. *REMOVE* all temporary labels.

__ 24. *CONTACT* insulators to begin the installation of the Layout-G2 insulation (Ref. dwg. RG-49663-GA-SH001) for RCSG-1A.

__ 25. Document all work performed in the completion comments section of this Work Order Task.

The above instructions have been satisfactorily completed.

_____/_____ _____/_____
Performed by/Date Verified by/Date

7.0 FOLLOW UP ACTIONS

__1 NOTIFY Engineering when EC implementation is complete so the configuration update can be performed.

CLASS "C" INSPECTION ACCEPTANCE CRITERIA

Accessible Internal Surfaces

Visual Inspections:

- Surface free of particulate contaminants such as sand, metal chips, weld slag, rust, etc.
- NO traces of oil, grease, preservatives, or other organic films
- Thin uniform rust is acceptable on carbon steel surfaces
- Scattered areas of rust are permissible provided the area of rust does NOT exceed 15 square inches in any one square foot area (144 square inches)
- Deposits that are NOT detrimental may be accepted, such as stains due to heat treatment or temper films resulting from welding or post weld heat treatment.
- When visual inspections are NOT possible, a dry white-cloth wipe followed by a white, lint free cloth or swab saturated with alcohol shall be used to determine the surface condition.
- A visible discoloration or particulate on the cloth indicates that cleaning is NOT satisfactory.

Freedom from Acids and Alkalis

Freedom from acids and alkalis should be tested by using pH-indicating paper while the piping and/or component is still wet from the final rinse or after wetting with water.

Inaccessible Surface Inspections (New Construction or installation of new component)

Where inaccessible surfaces exist, flushing will constitute assurance on the cleanliness of the pipe and/or component. The system shall be evaluated by examining a 20 mesh or finer particulate filter attached to the discharge pipe or nozzle. The system is considered clean after it has been flushed at normal design velocity (or other velocity, if specified by engineering documents) and the following criteria are met:

- A slight particle speckling and NOT more than a slight rust staining is acceptable.
- Collected particulate matter shall be NOT greater than 1/32" in any dimension.
- Fine hairline slivers of less than 1/32" thickness are permissible up to 1/16" long.
- There is NO evidence of organic contamination in the effluent or on the filter.

CLEANLINESS INSPECTION DOCUMENTATION SHEET

NOTE: Refer to NOS–NGGC-0500 for inspection related requirements.

SYSTEM / EQUIPMENT: **RCSG-1A**	REQUIRED CLEANLINESS CLASSIFICATION: **C**	
Q GROUP (S) Safety, (B) Fire system, or (SBO) Station Blackout Requirement:	**YES**	
Modification or Non-Routine Maintenance	**YES**	
Equal To Or Greater Than 4” (Inches) Nominal Size:	**YES**	

Initial Cleanliness Check:

Comments: _____

_____

_____

Completed by:_____/Date: _____

Final Cleanliness Inspection:

IF Equipment Q GROUP is S, B, or Requirement is SBO,

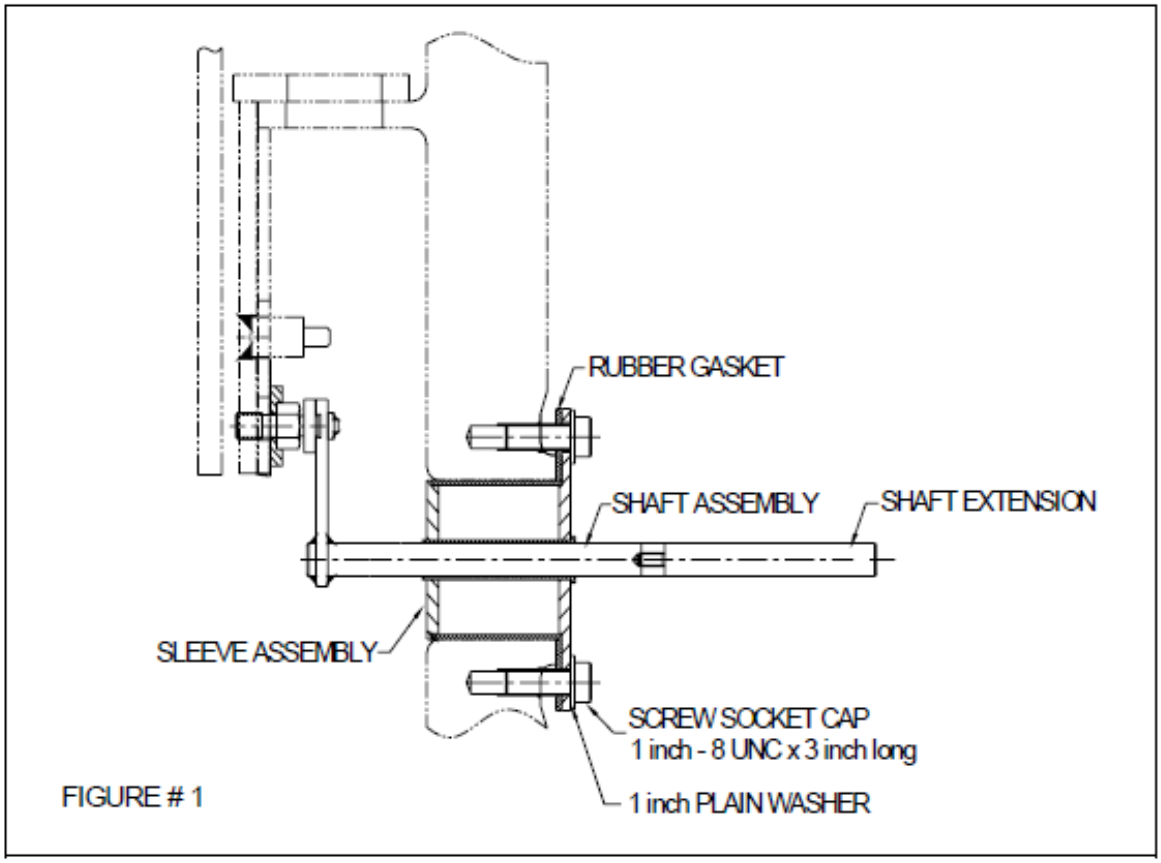
- QC / PEER cleanliness inspection is required for opening equal to or greater than 4” (inches) nominal size.
- Craft cleanliness inspection is required for opening less than 4” (inches) nominal size.

- QC cleanliness inspection is required Modification or Non-Routine Maintenance regardless of opening size.

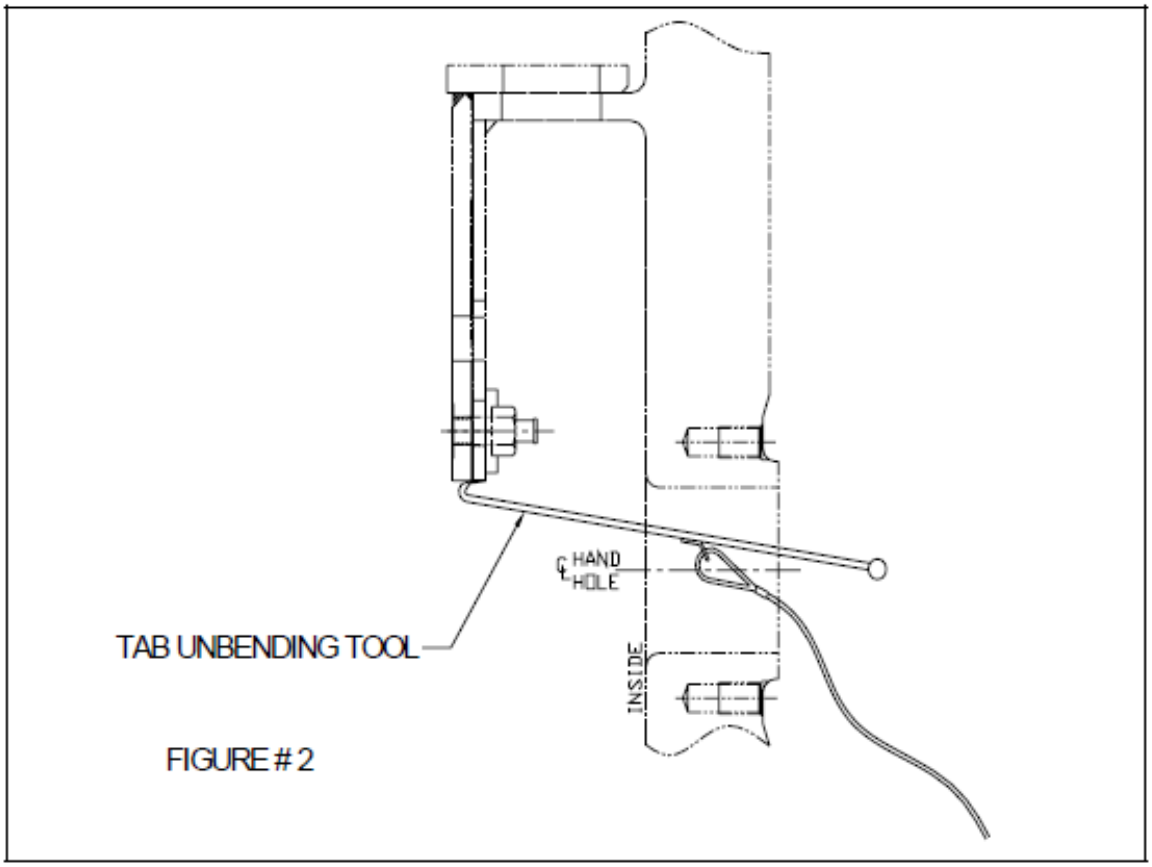
Accepted / Rejected (Circle one) QC Inspection by _____DATE_____

G.1 Installation Sketches

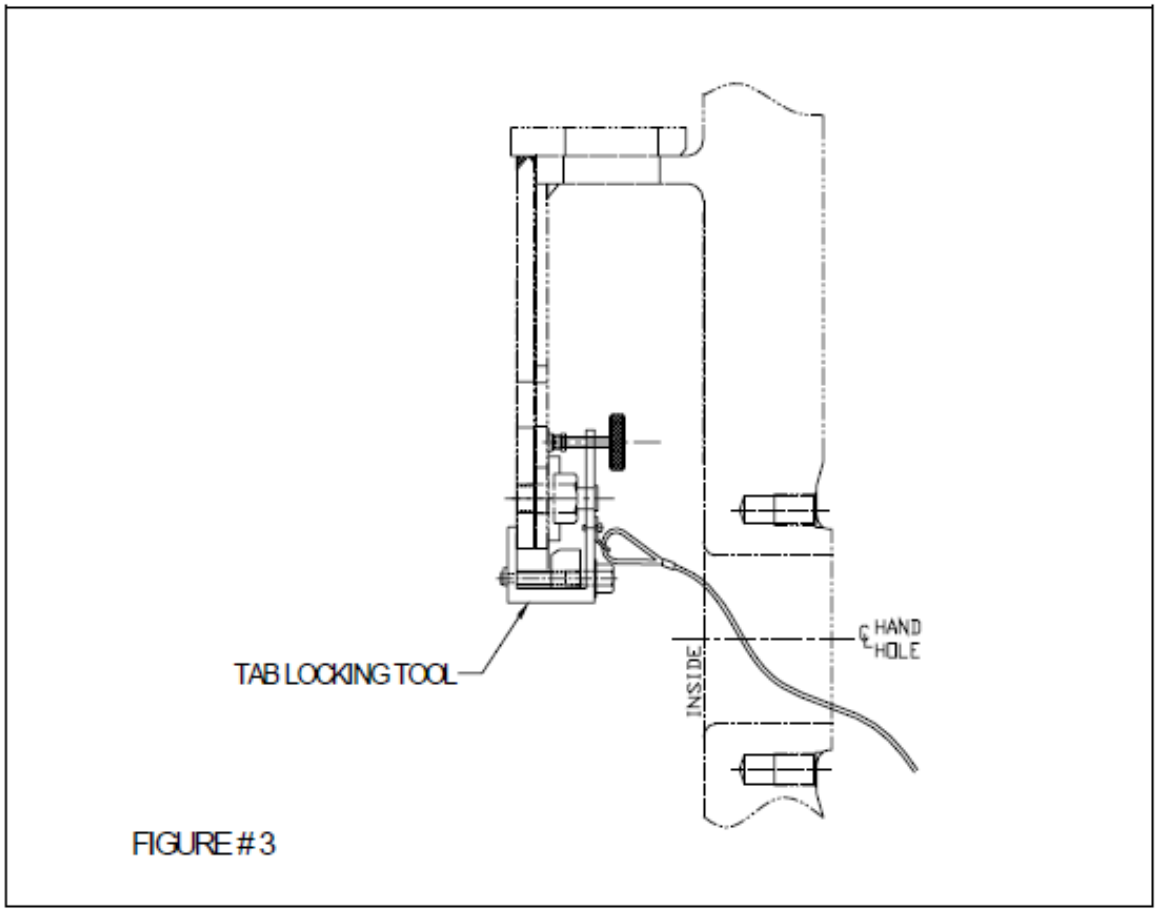
Sketch Number	Sht	Rev	Title
SK-75004-01	1	0	Figure #1 - Sleeve and Shaft Assembly
SK-75004-02	1	0	Figure #2 – Tab Unbending Tool
SK-75004-03	1	0	Figure #3 – Tab Locking Tool
SK-75004-04	1	0	Figure #4 – Sleeve and Shaft Positions
SK-75004-05	1	0	Figure #5 – Adjusting Tool Rotation
SK-75004-06	1	0	Figure #6 – Orifice Gap Gauge Position
SK-75004-07	1	0	Figure #7 – Tab Locking Tool Operation



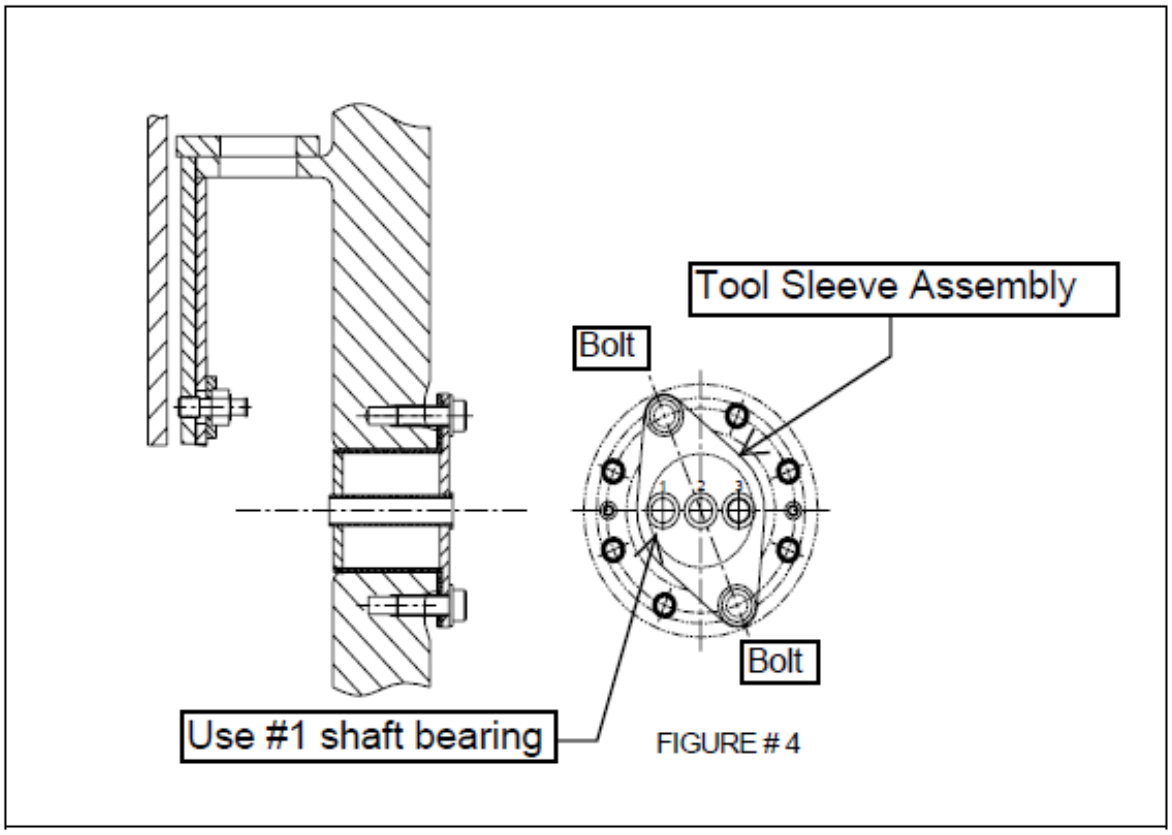
SK-75004-01, Rev. 0, Figure #1 - Sleeve and Shaft Assembly



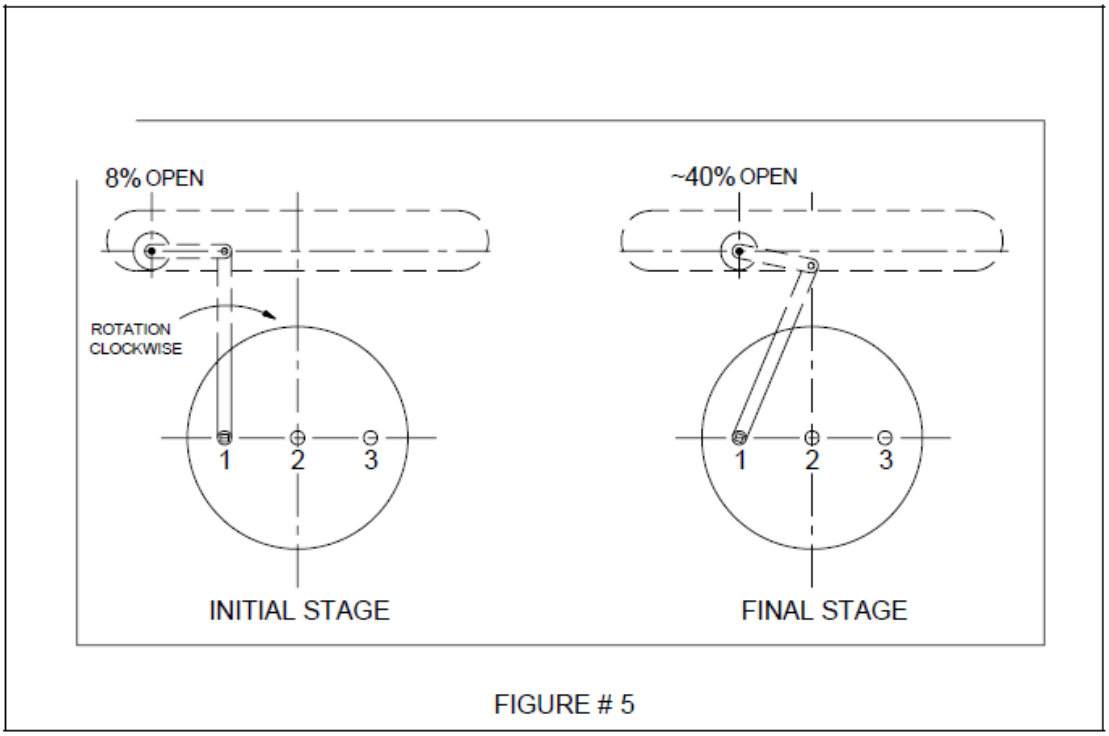
SK-75004-01, Rev. 0, Figure #2 – Tab Unbending Tool



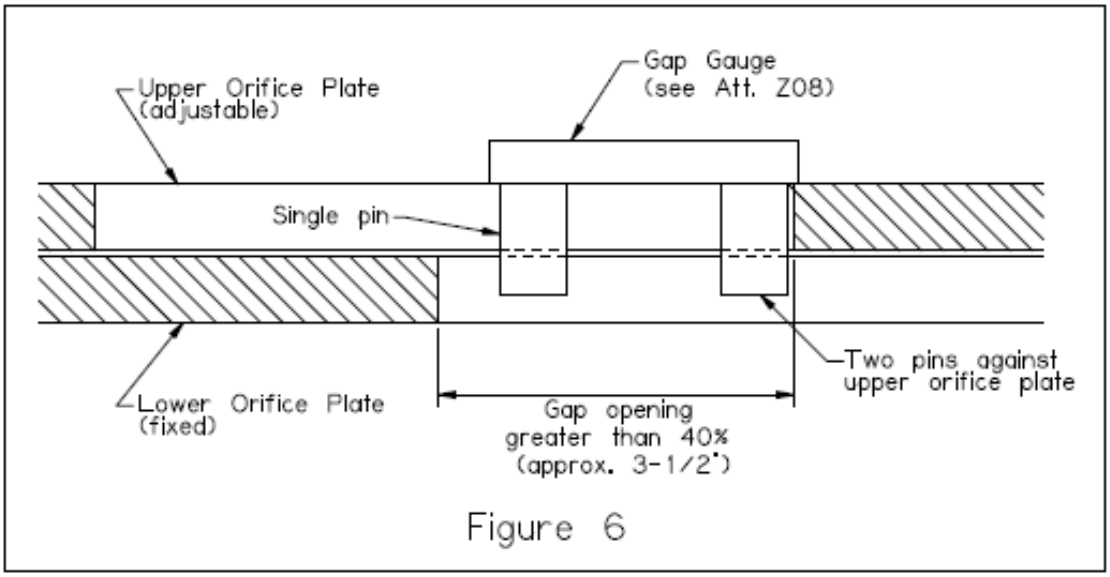
SK-75004-01, Rev. 0, Figure #3 – Tab Locking Tool



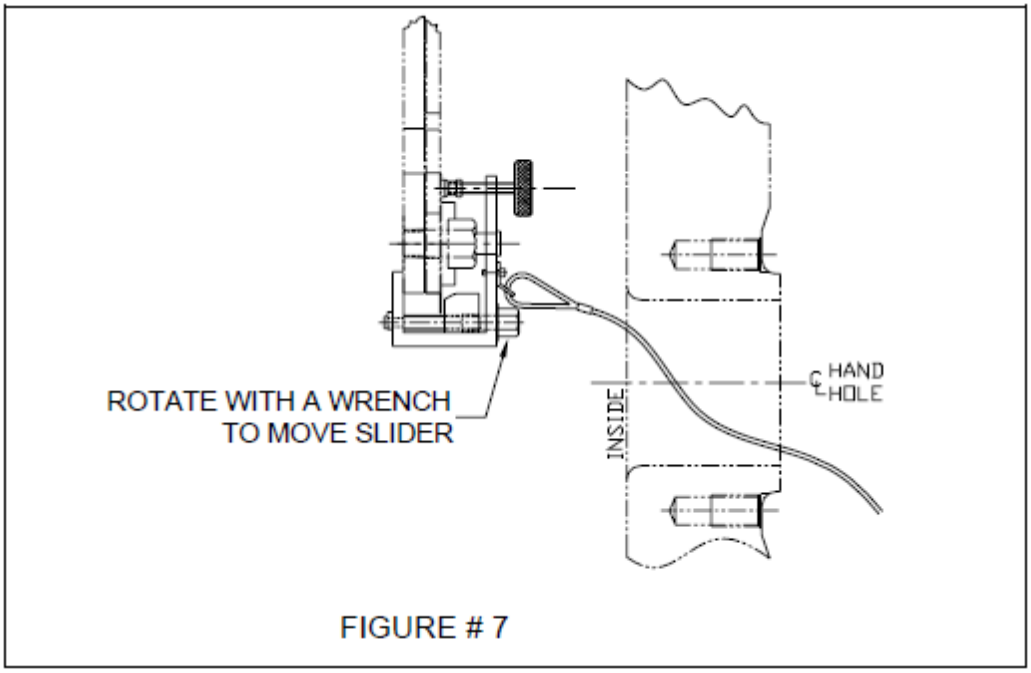
SK-75004-01, Rev. 0, Figure #4 – Sleeve and Shaft Positions



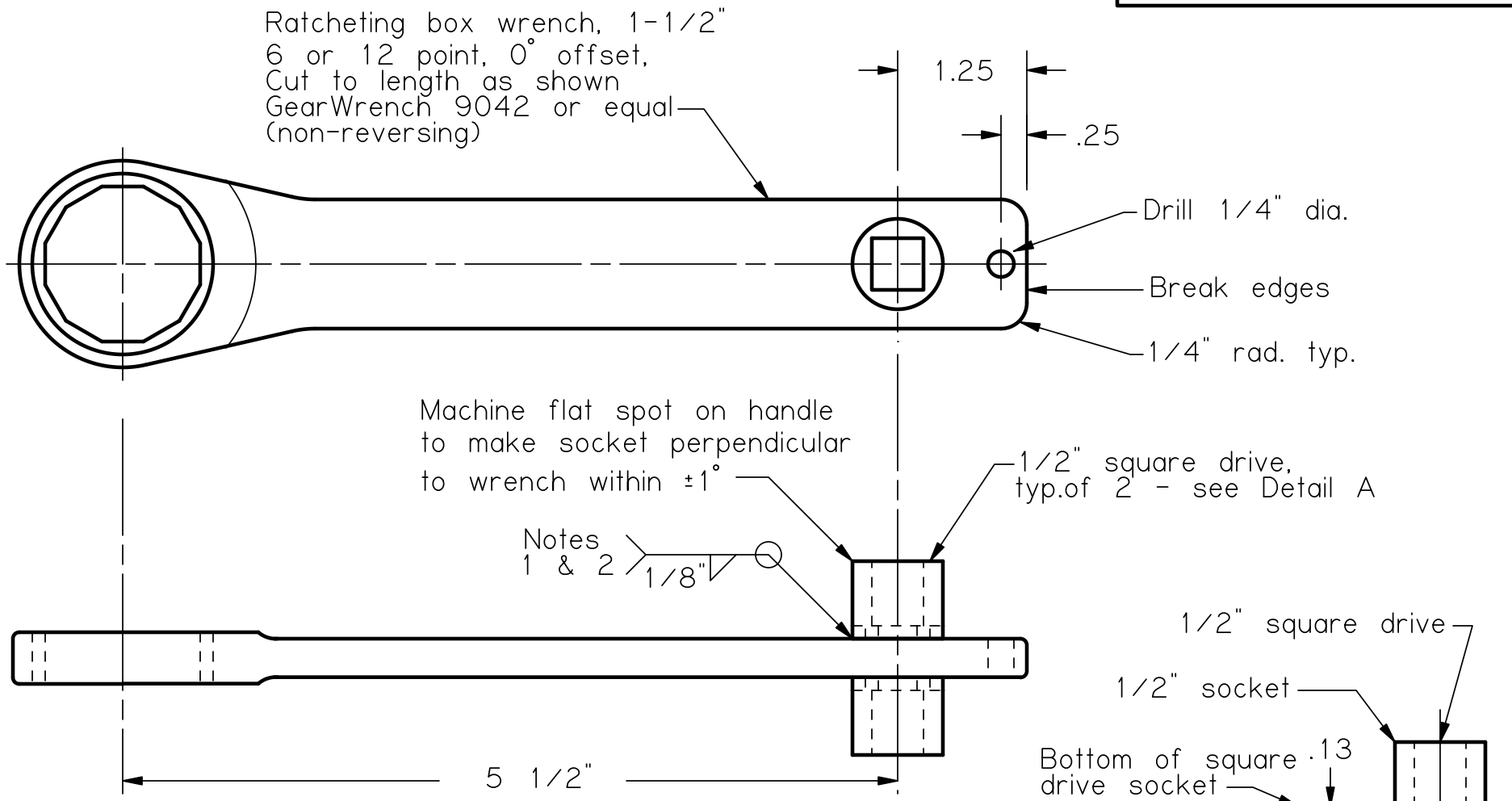
SK-75004-05, Rev. 0, Figure #5 – Adjusting Tool Rotation

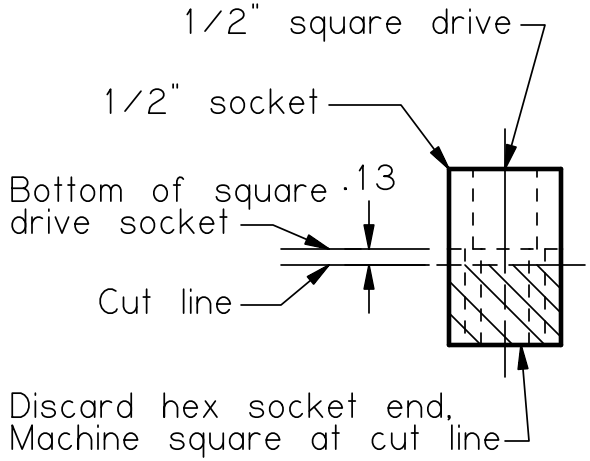


SK-75004-06, Rev. 0, Figure #6 - Orifice Gap Gauge Position



SK-75004-07, Rev. 0, Figure #7 – Tab Locking Tool Operation

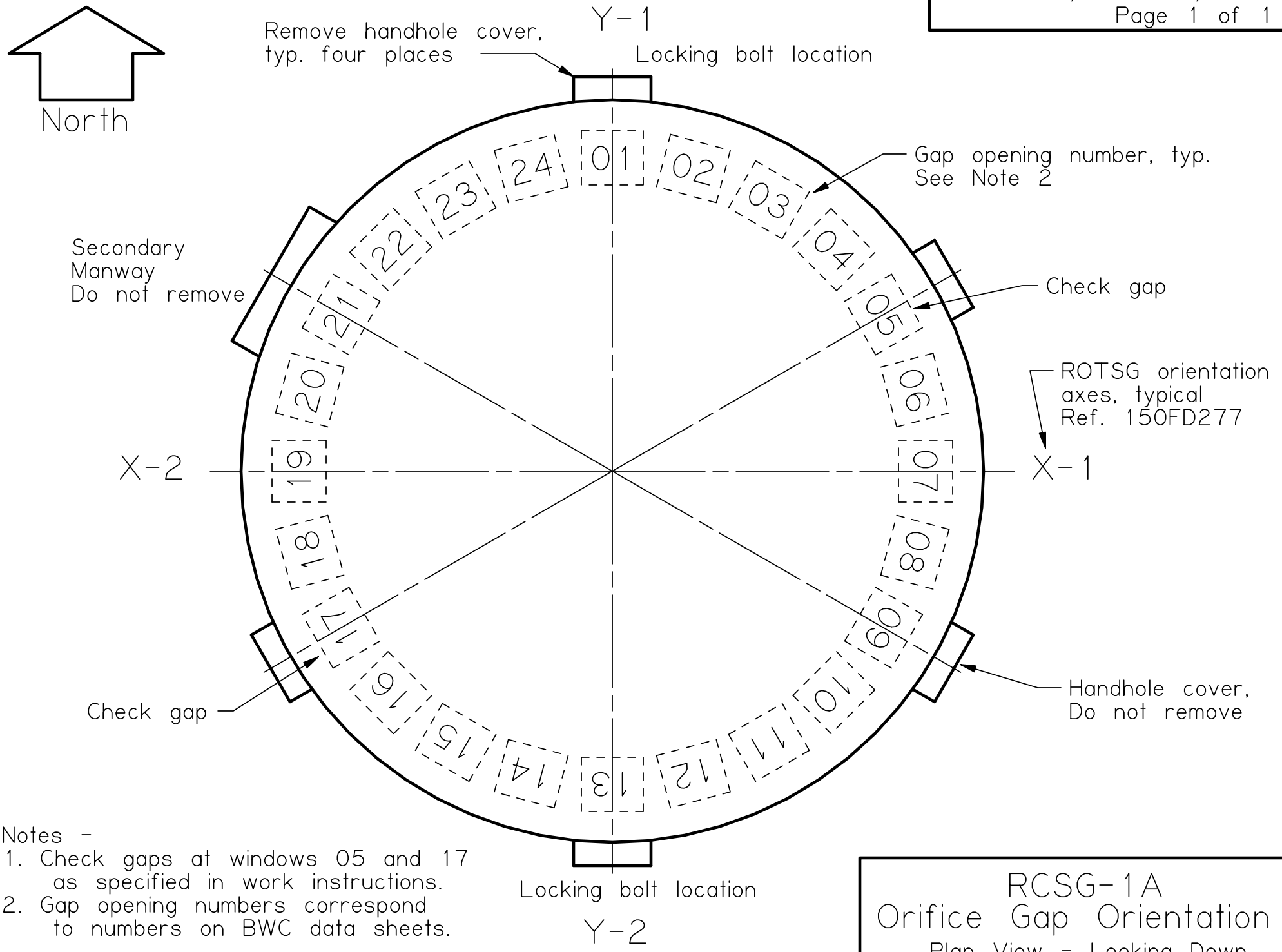




Detail A

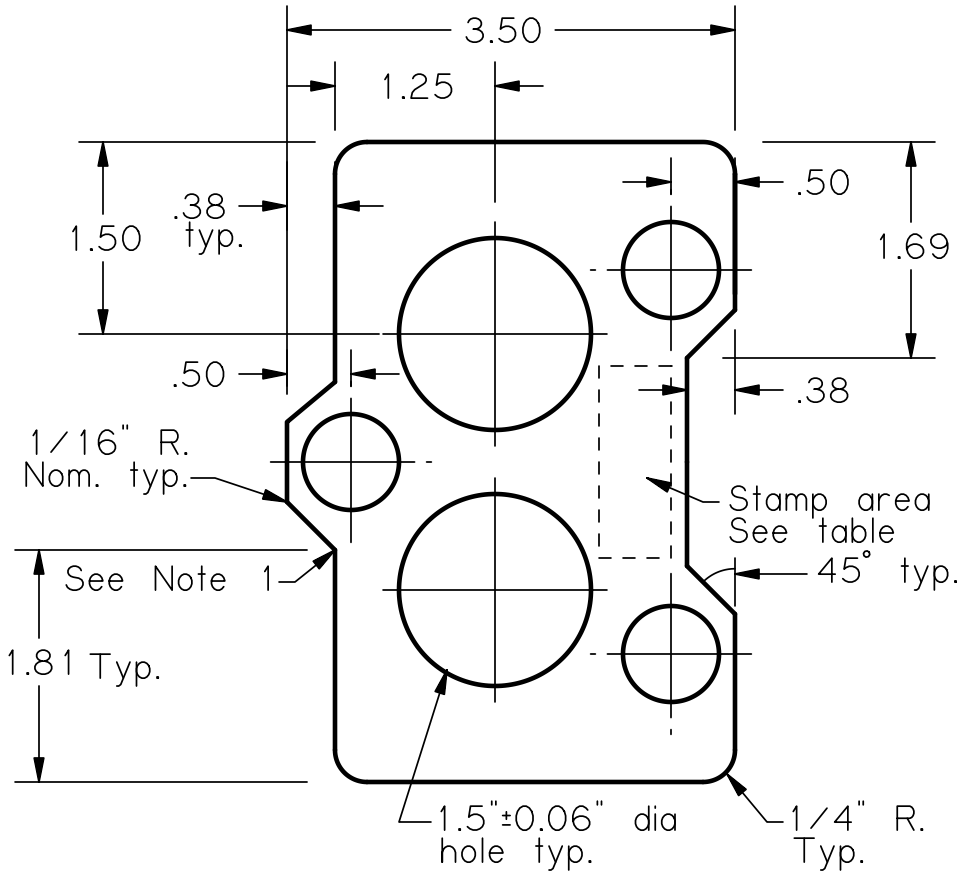
Notes -
1. Remove chrome plating in weld area.
2. Use 309L filler metal.
3. Tolerances - ±0.03"

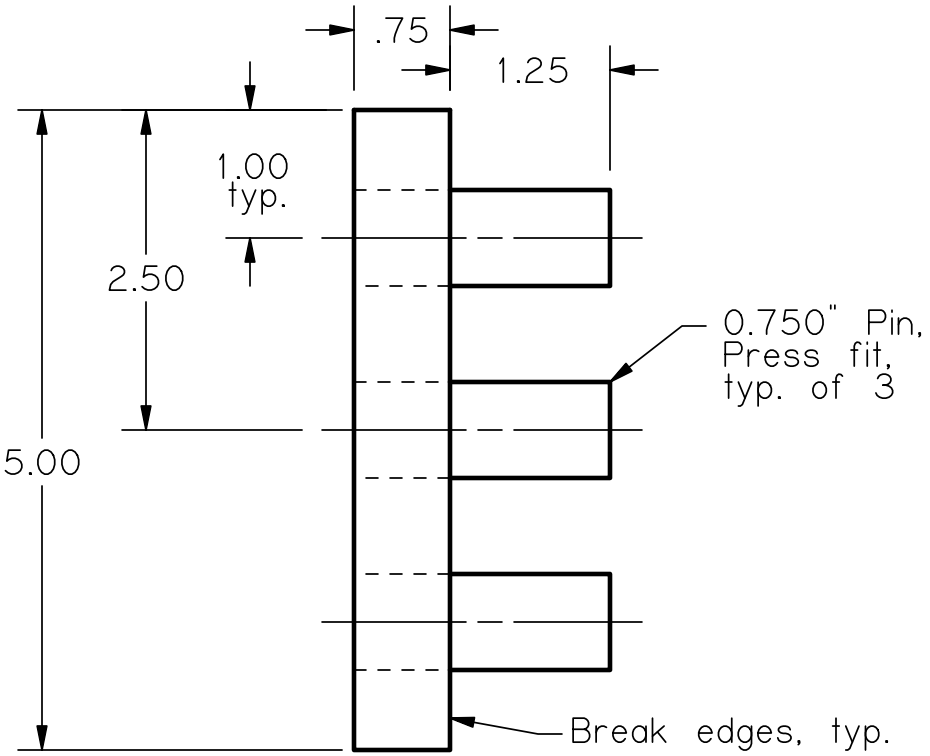
ROTSG Locking Bolt Wrench

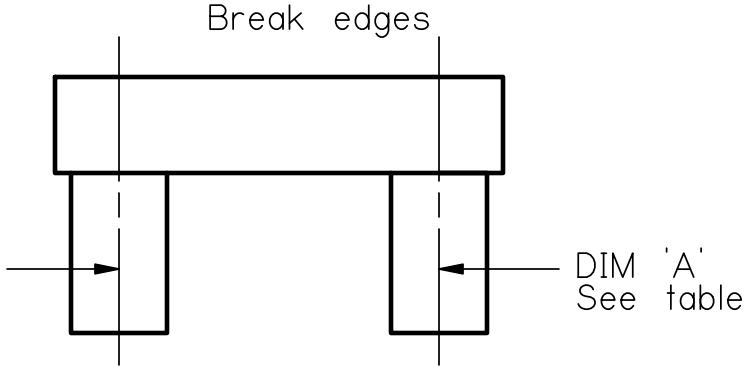


Notes -
1. Check gaps at windows 05 and 17 as specified in work instructions.
2. Gap opening numbers correspond to numbers on BWC data sheets.

RCSG-1A
Orifice Gap Orientation
Plan View - Looking Down







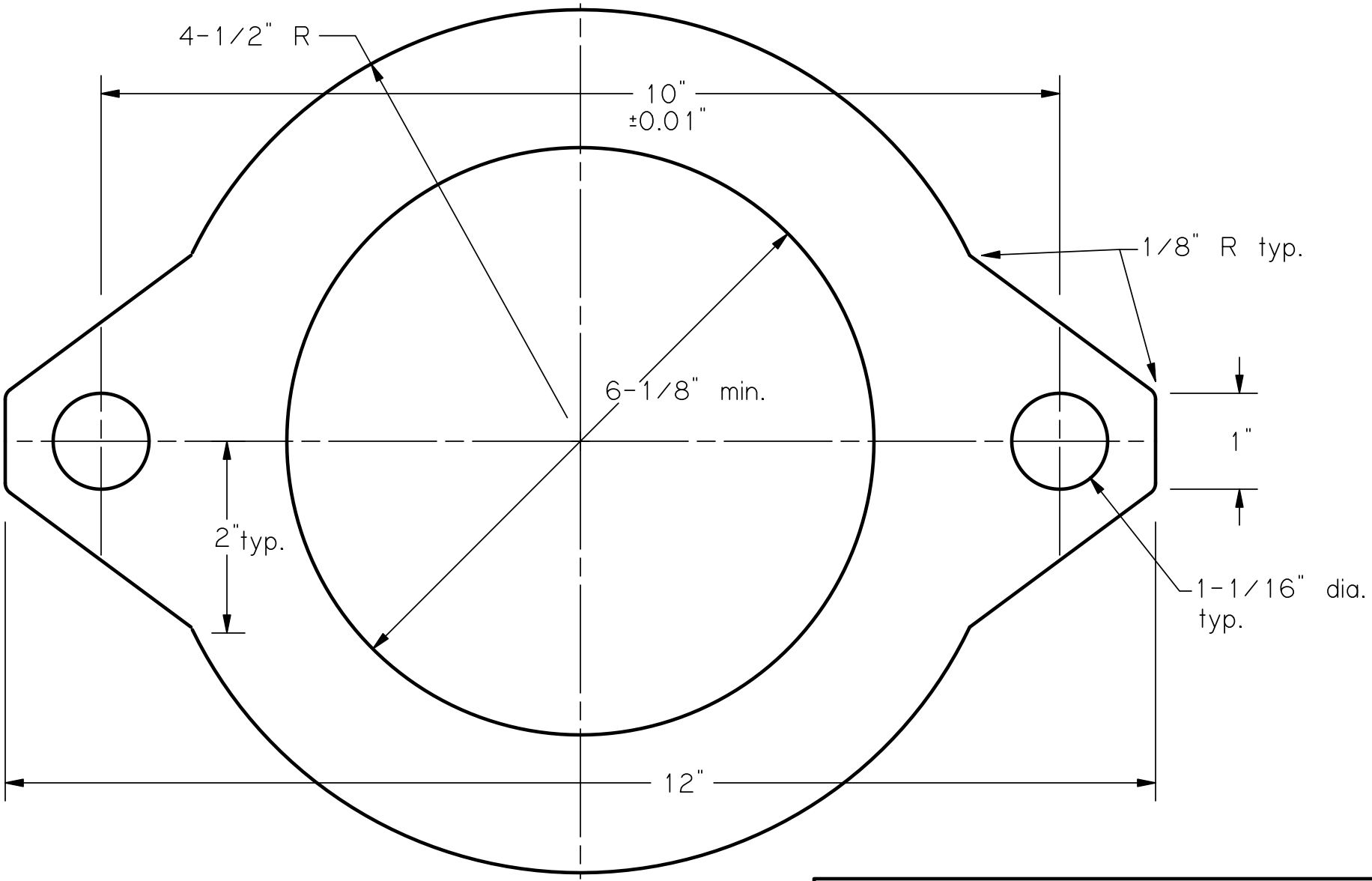
Item	Dim 'A'	Stamp Info
1	2.42"	RCSG-1A Gap 5 - 3.17"

Notes -
1. Inside corners may be 0 to 1/2" R.

Tolerances -
Dim 'A' - ±0.01"
Others - ±0.03"

ROTSG R17 Gap Gauge

Qty - 4 Req'd (see table)
Mat'l - carbon steel

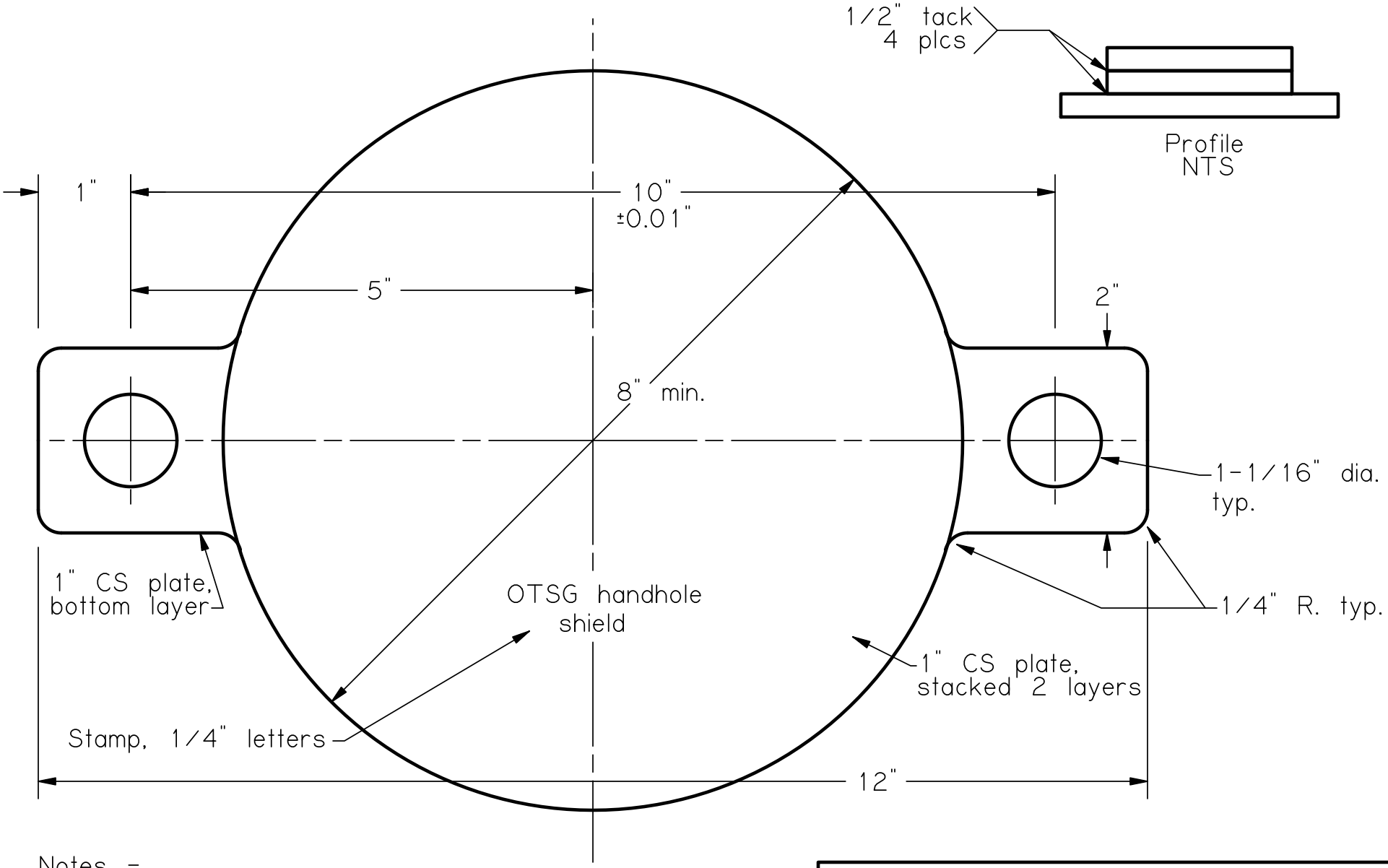


Tolerance - ±1/16" except as noted.

ROTSG Handhole Protector

Qty - 4 Req'd

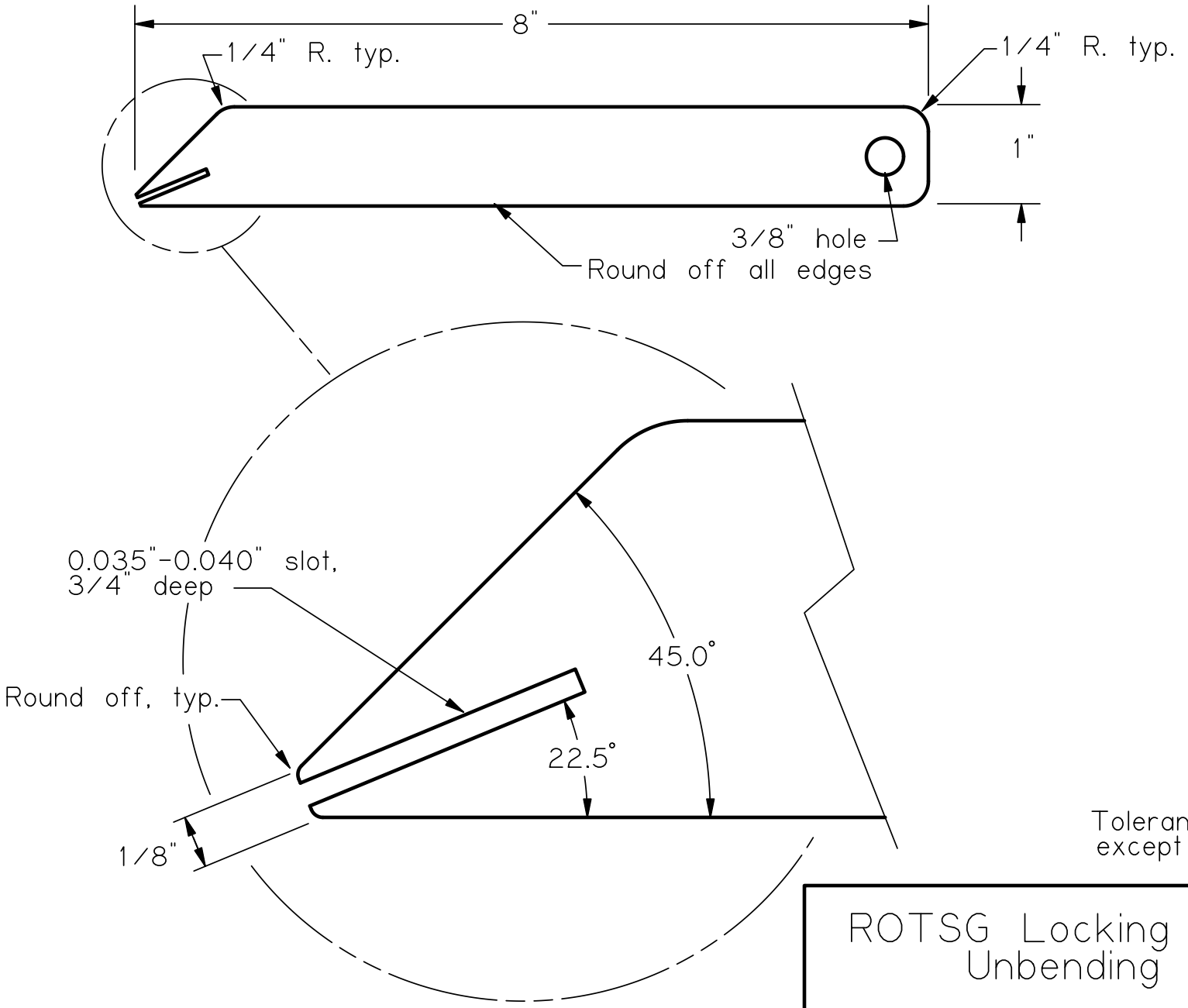
Mat'l - 3/8" hard plastic or heavy rubber



Notes -
1. Break all edges to remove burrs and sharp edges.
2. Tolerance - ±1/16" except as noted.
3. Estimated weight - 50 lb.

ROTSG Handhole Rad Shield

Qty - 12 Req'd
Mat'l - A106 carbon steel, 1" plate



Tolerance - ±1/16"
except as noted

ROTSG Locking Washer Unbending Tool

Qty - 3 Req'd
Mat'l - 1/2" carbon steel

Note - Slot is sized to work with 22 ga. SS sheel metal.