**INCREMENTAL CHANGE** Release Notification Date: 07/25/2022

**SPM 70-48-22 REPLACEMENT OF RING-LOCK INSERT**

# DISCLAIMER

The Incremental Changes published by GE Aviation are considered Instructions for Continued Airworthiness. These Incremental Changes, along with the current Manual revision and published Temporary Revisions, constitute the latest Instructions for Continued Airworthiness.

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## HIGHLIGHTS

| HIGHLIGHT REFERENCE | DESCRIPTION OF CHANGE |
|---|---|
| tk70-48-22-350-801 | Technical Change: Changed procedure to remove and replace the ring-locked inserts. Also, changed the applicable figure. |
| tk70-48-22-350-801 | Technical Change: Added special procedure for the removal and replacement of the ring-locked self-locking inserts. |

TASK 70-48-22-350-801

1. General.

A. This repair provides the instructions for the removal and replacement of ring-locked inserts.

2. Tools and Equipment.

Subtask 70-48-22-350-001

—Drill Set
—Drill Stop Collar Set
—Drive Tool
—Swage Tool
—Hex Head Drive
—Wrenches (Allen keys)
—Punch
—Pointed Pick
—Shop Vacuum
—0.3215-24 UNJF-3B tap
—0.3750-24 UNJF-3B tap
—0.4375-20 UNJF-3B tap
—0.4375-28 UNJEF-3B tap
—Bolt - Inconel 718 (Bolt thread 0.2500-28 UNJF-3A, Pitch diameter 0.2243-0.2251 inch (5.698-5.717 mm))
—Bolt - Inconel 718 (Bolt thread 0.3125-24 UNJF-3A, Pitch diameter 0.2827-0.2836 inch (7.180-7.203 mm) (standard bolt 0.3125-24)

—Bolt - Inconel 718 (Bolt thread 0.375-24 UNJF-3A, Pitch diameter 0.3450-0.3460 inch (8.763-8.788 mm)) (standard bolt 0.375-24)
—0.250 inch (6.35 mm) heavy duty flat washer with 0.063 inch (1.60 mm) minimum thickness x 0.50 inch (12.7 mm) minimum outer diameter
—0.3125 inch (7.938 mm) heavy duty flat washer with 0.060 inch (1.52 mm) minimum thickness x 0.62 inch (15.7 mm) minimum outer diameter
—0.375 inch (9.52 mm) heavy duty flat washer with 0.060 inch (1.52 mm) minimum thickness x 0.75 inch (19.0 mm) minimum outer diameter

3. Consumable Materials.

Subtask 70-48-22-350-002

**NOTE:** Equivalent alternatives can be used for Consumable Materials.

| Consumable Product | No. |
|---|---|
| 3M-250 Tape | C10-189 |
| Tape, Plastic | C10-021 |
| Oil, Engine Lubricating | C02-019, C02-023 |
| Primer Paint | C03-100 |

4. Procedure.

Subtask 70-48-22-350-003

A. Procedure for removal of the ring-locked insert.

**NOTE:** You can replace the insert without damage to the threads of the parent material. Ring-locked inserts use an oval shaped ring with serrations to tighten and lock the insert in its position.

(1) If necessary, clean the work area prior to attempt any repairs to prevent contamination of the assembly.

(2) Remove the non-serviceable threaded insert and ring-lock from the assembly. Refer to Figure 1, Figure 4, Figure 6, and as follows:

(a) Use a plug or tape C10-189 or C10-021 to seal the openings around the repair area in the assembly to prevent contamination or other means to protect the assembly from contamination. Use tape C10-021 or C10-189 to cover the inner side of the bolt holes repaired on the engine case to prevent debris that fall through the bolt holes.

**WARNING:** METAL PARTICLES FROM DRILLING CAN CAUSE DAMAGE, INJURY, OR IRRITATION TO YOU. USE PERSONAL PROTECTION EQUIPMENT.

**CAUTION:** DO NOT DRILL INTO THE ASSEMBLY PARENT MATERIAL. DAMAGE TO THE ASSEMBLY WILL OCCUR.

**CAUTION:** MAKE SURE THAT THE ASSEMBLY DOES NOT MOVE DURING THE DRILLING PROCEDURE. DAMAGE TO THE ASSEMBLY CAN OCCUR.

(b) With the correct use of the size drill bit with stop collar, set the collar to a drill depth of 0.090 inch (2.28 mm), align the drill bit with the center-line of the damaged insert, and drill into the insert.

(c) Use a vacuum during the drilling procedures to reduce the possibility that metal particles contaminates the assembly.

(d) Use a punch to assist the removal of the ring-lock as follows:

1 Put the punch on one end of the ring-lock and use a hammer to tap the punch lightly.

2 Carefully, lift the ring-lock from the oval shaped counterbore hole.

(e) Use the correctly sized allen key or locally manufactured installation drive tool to remove the damaged insert.

1 The damaged insert cannot be used again and should be discarded.

(f) Remove all the unwanted material from the assembly repair area.

(3) Do a visual inspection of the threads in the assembly repair area. Refer to Figure 6 and as follows:

(a) If necessary, remove the high metal from the threaded hole with a tap to chase the threads.

(b) Use clean compressed air to remove the loose metal chips from the tapped hole.

(c) If more than the first thread remains damaged after to chase the threads, this part cannot be repaired by this procedure.

(4) Blend the counterbore and countersink by hand to remove the high metal. Refer to TASK 70-42-00-350-002 (70-42-00, Blending and Removal of High Metal Procedures).

**NOTE:** Full removal of the high metal in the counterbore and countersink will decrease the risk of interference in the ring-lock installation and prevent further removal of the ring-lock.

**WARNING:** USE EYE PROTECTION WHEN YOU USE COMPRESSED AIR TO CLEAN, COOL, OR DRY PARTS OR TOOLS. PARTICLES CAN CAUSE AN INJURY TO YOUR EYES. ENSURE COMPRESSED AIR PRESSURE IS LESS THAN 30 PSIG (207 KPA). DO NOT POINT COMPRESSED AIR AT YOURSELF OR OTHER PERSONS.

(5) Use clean compressed air to remove the loose metal chips from the tapped hole.

(6) If required, clean the counterbore.

(7) Do a dimensional inspection of the counterbore. Refer to Figure 2 and as follows:

(a) If the dimensions do not agree with the limits, you cannot repair the assembly with this procedure.

(8) Do an inspection of the threads in the hole that is repaired as follows:

(a) If the threads are not serviceable, you cannot repair the assembly with this procedure.

B. Procedure for the Installation of the Ring-Lock Insert

**NOTE:** You can replace the insert without damage to the threads of the parent material. Ring-locked inserts use an oval shaped ring with serrations to tighten and lock the insert in its position.

(1) Install the new insert and the new ring-lock in the assembly. Refer to Figure 2, Figure 3, Figure 4, and as follows:
  (a) Make sure that you remove all the unwanted material from the threaded hole and the counterbore before you install the new threaded insert and the ring-lock.
  (b) Use the same size insert as the damaged threaded insert that you removed.
  (c) Install the new threaded insert into the threaded hole of the assembly as follows:
    1 If the assembly is not aluminum, apply engine lubricating oil C02-019 or C02-023 to the insert OD as necessary to assist with insert installation.
    2 If the assembly is aluminum, wet install the insert and ring-lock as follows:
      a Apply paint C03-100 on the shanks, threads, and bearing surface of the insert and ring-lock.
    3 Put the insert into the threaded hole with the correctly sized allen key wrench or locally manufactured installation drive tool and as follows:
      a Install the insert in the case until the top face of the insert is 0.010-0.030 inch (0.25-0.76 mm) below the assembly surface.

(2) Install the new ring-lock on the threaded insert and into the oval shaped hole of the assembly. Refer to Figure 3 and as follows:
  (a) The word TOP on the ring-lock must face out from the assembly.
  (b) Align the serrations on the threaded insert with the serrations of the ring-lock.

(3) Swage the new threaded insert into the ring-lock. Refer to Figure 3, Figure 5, and as follows:
  (a) Make a swage tool to meet the dimension requirements.
  (b) Put the swage tool into the screw insert and the ring-lock.
  (c) Push the ring-lock to make contact with the bottom of the counterbore.
  (d) Use a hammer to tap the swage tool until the nylon stop washer of the swage tool touches the pad on the assembly.

(4) Remove the swage tool.

(5) Do an inspection of the insert and ring-lock. Refer to Figure 3 and as follows:
  (a) Use 10X magnification.
  (b) Make sure that the insert serrations are swaged into the serrations of the ring-lock.
  (c) Make sure that the ring-lock is a minimum of 0.002 inch (0.05 mm) below the assembly surface.
  (d) Use a pointed pick to try to lift the ring-lock with light hand pressure on the pick and make sure that the ring-lock does not lift out of the counterbore.

**CAUTION:** DO NOT CONTINUE TO SCREW THE STANDARD BOLT THROUGH THE SCREW INSERT WHEN YOU DO A CHECK OF THE MINIMUM LOCKING TORQUE. DAMAGE TO THE ASSEMBLY WILL OCCUR.

(6) In case you use the self-locking ring lock insert, do a check of the self-locking torque of the threaded insert. Refer to Figure 7 and as follows:
  (a) Install the correct size bolt and washer into the replaced ring-locked self-locking insert.

  **NOTE:** If the hole in the washer is too small for the bolt to pass through, you can use a washer with larger inner diameter as long as head of the bolt will not go through the washer. Make sure to use a washer with specified thickness.

  (b) Use a torque wrench to torque the installed bolt in the torque range and as follows:
    1 The lock-ring can rotate in the counter bore if the torque range is met.

  **NOTE:** Torque check is not required for inserts 2838M72P02 and 2838M72P05.

  (c) Remove the bolt and flat washer from the threaded insert.

**CAUTION:** MAKE SURE THAT CONTAMINANTS DO NOT FALL IN THE ASSEMBLY. DAMAGE TO THE ASSEMBLY CAN OCCUR.

(7) Remove any masking tape, plugs, or other means that were used to keep contaminates from the entering assembly.

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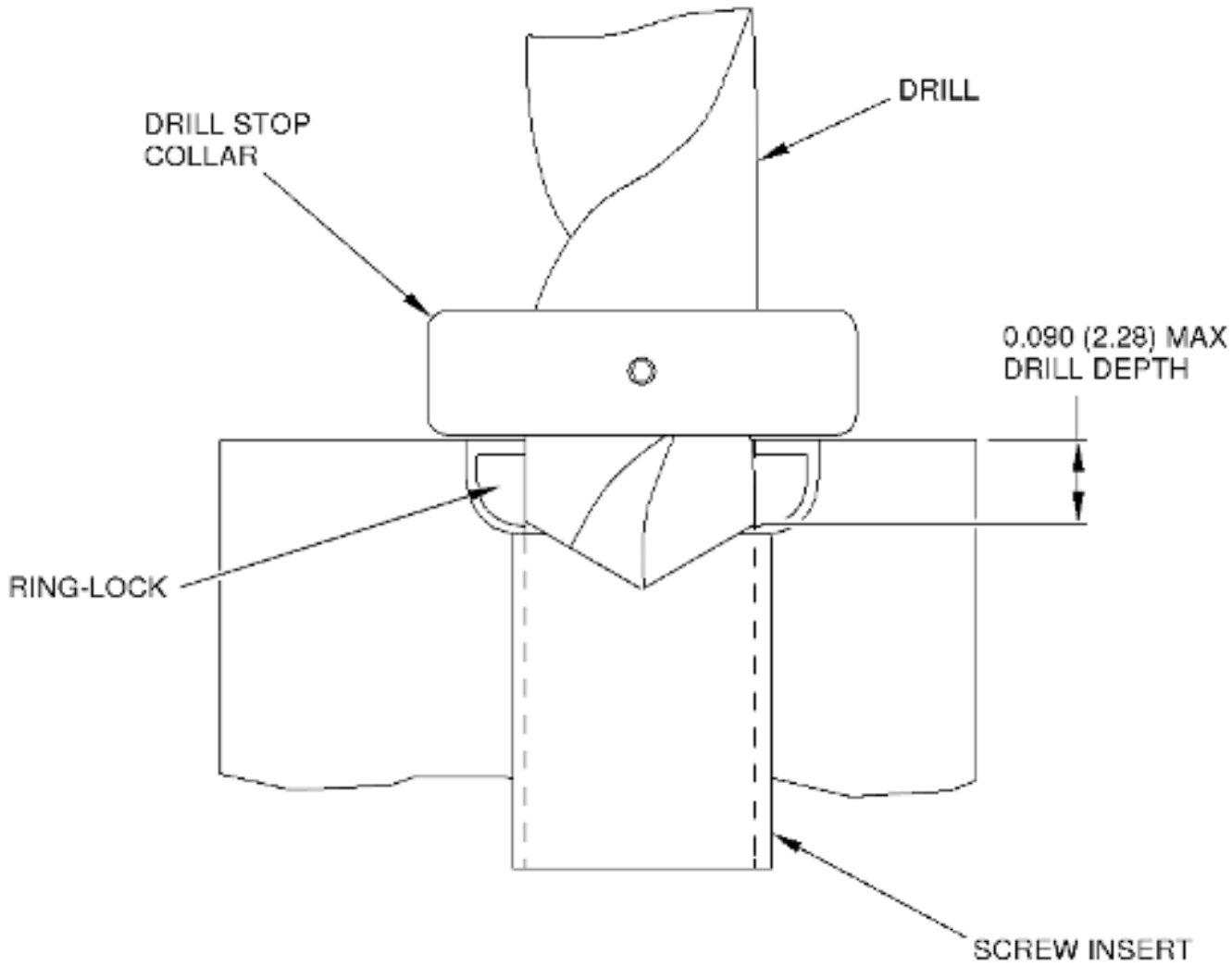


**NOTE:**
DIMENSIONS ARE IN INCHES WITH
MILLIMETERS IN PARENTHESES.

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Figure 1 (Sheet 1) Ring-Lock and Threaded Insert Removal

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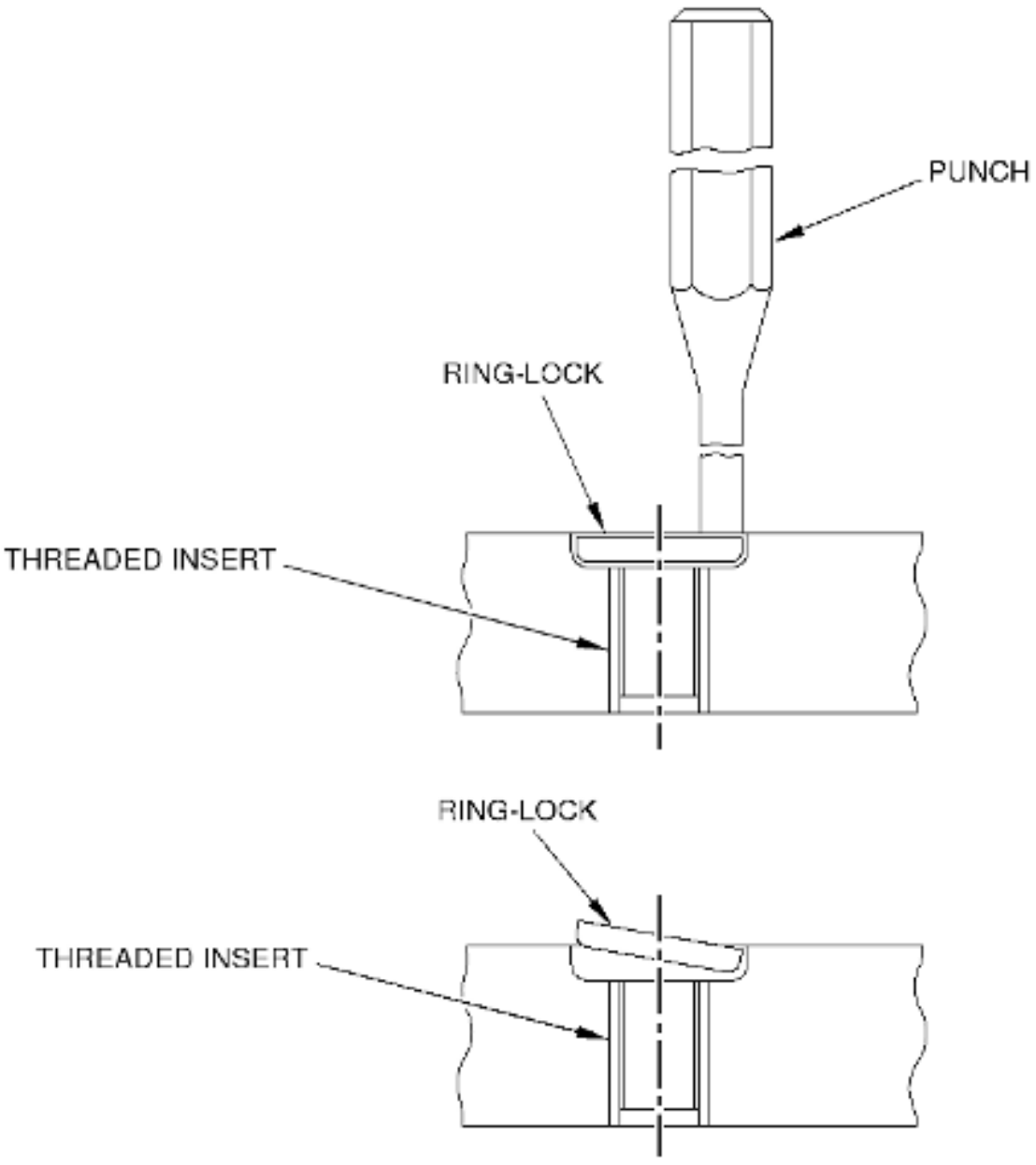


Figure 1 (Sheet 2) Ring-Lock and Threaded Insert Removal

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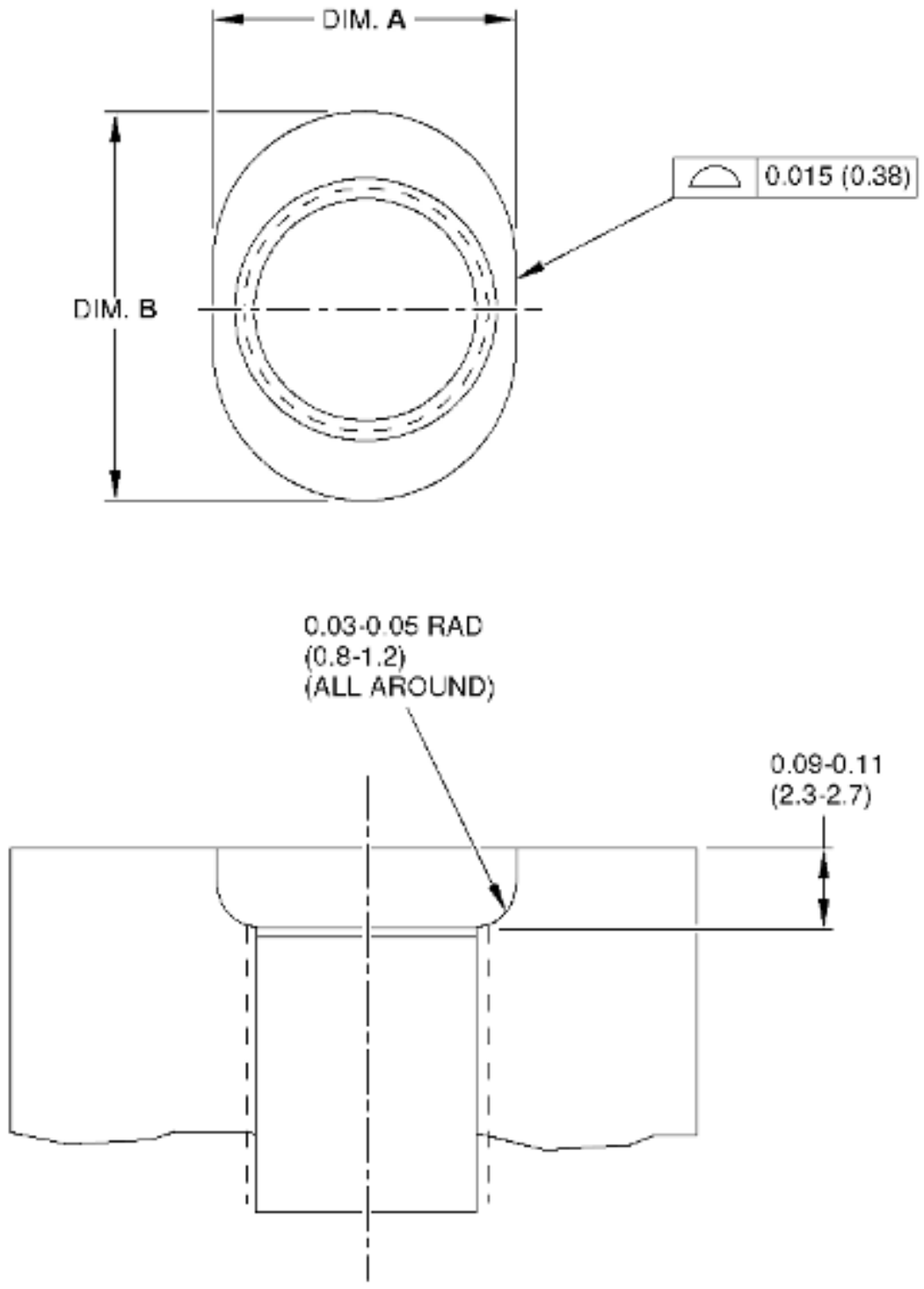


Figure 2 (Sheet 1) Ring Lock Counterbore Dimensions and Threaded Insert/Ring-Lock Part Numbers

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| THREADED INSERT P/N | RING-LOCK P/N | INSERT KIT P/N | DIM. A (+/- 0.015 (0.37)) | DIM. B (+/- 0.015 (0.37)) |
|---|---|---|---|---|
| 1693M83P04 | 1689M74P02 | -- | 0.438 (11.13) | 0.550 (13.97) |
| 1693M83P13 | 1689M74P06 | 738L579G10 | | |
| 1693M83P15 | 1689M74P08 | 738L579G11 | | |
| 1693M83P18 | 1689M74P06 | 738L579G08 | | |
| 1693M83P19 | 1689M74P08 | 738L579G09 | | |
| 1693M83P07 | 1689M74P04 | 738L579G05 | 0.500 (12.70) | 0.610 (15.49) |
| 1693M83P08 | 1689M74P04 | 738L579G06 | | |
| 1693M83P17 | 1689M74P11 | 735L579G07 | | |
| 1693M83P11 | 1689M74P05 | 738L579G02 | 0.563 (14.30) | 0.670 (17.02) |
| 1693M83P12 | 1689M74P07 | 738L579G03 | | |
| 1693M83P14 | 1689M74P09 | 738L579G04 | | |
| 2644M69P02 | 2644M69P03 | 2644M69P01 | 0.500 (12.70) | 0.610 (15.49) |
| 2644M69P08 | 2644M69P09 | 2644M69P07 | | |
| 2644M69P14 | 2644M69P15 | 2644M69P13 | | |
| 2838M72P02 | 2838M72P03 | 2838M72P01 | | |
| 2630M98P02 | 2630M98P03 | 2630M98P01 | | |
| 2630M98P08 | 2630M98P09 | 2630M98P07 | | |
| 2630M98P14 | 2630M98P15 | 2630M98P13 | | |
| 2630M98P20 | 2630M98P21 | 2630M98P19 | | |
| 2644M69P05 | 2644M69P06 | 2644M69P04 | 0.563 (14.30) | 0.670 (17.02) |
| 2644M69P17 | 2644M69P18 | 2644M69P16 | | |
| 2838M72P05 | 2838M72P06 | 2838M72P04 | | |
| 2630M98P05 | 2630M98P06 | 2630M98P04 | | |
| 2630M98P17 | 2630M98P18 | 2630M98P16 | | |

**NOTE:**
DIMENSIONS ARE IN INCHES WITH MILLIMETERS IN PARENTHESES.

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Figure 2 (Sheet 2) Ring Lock Counterbore Dimensions and Threaded Insert/Ring-Lock Part Numbers

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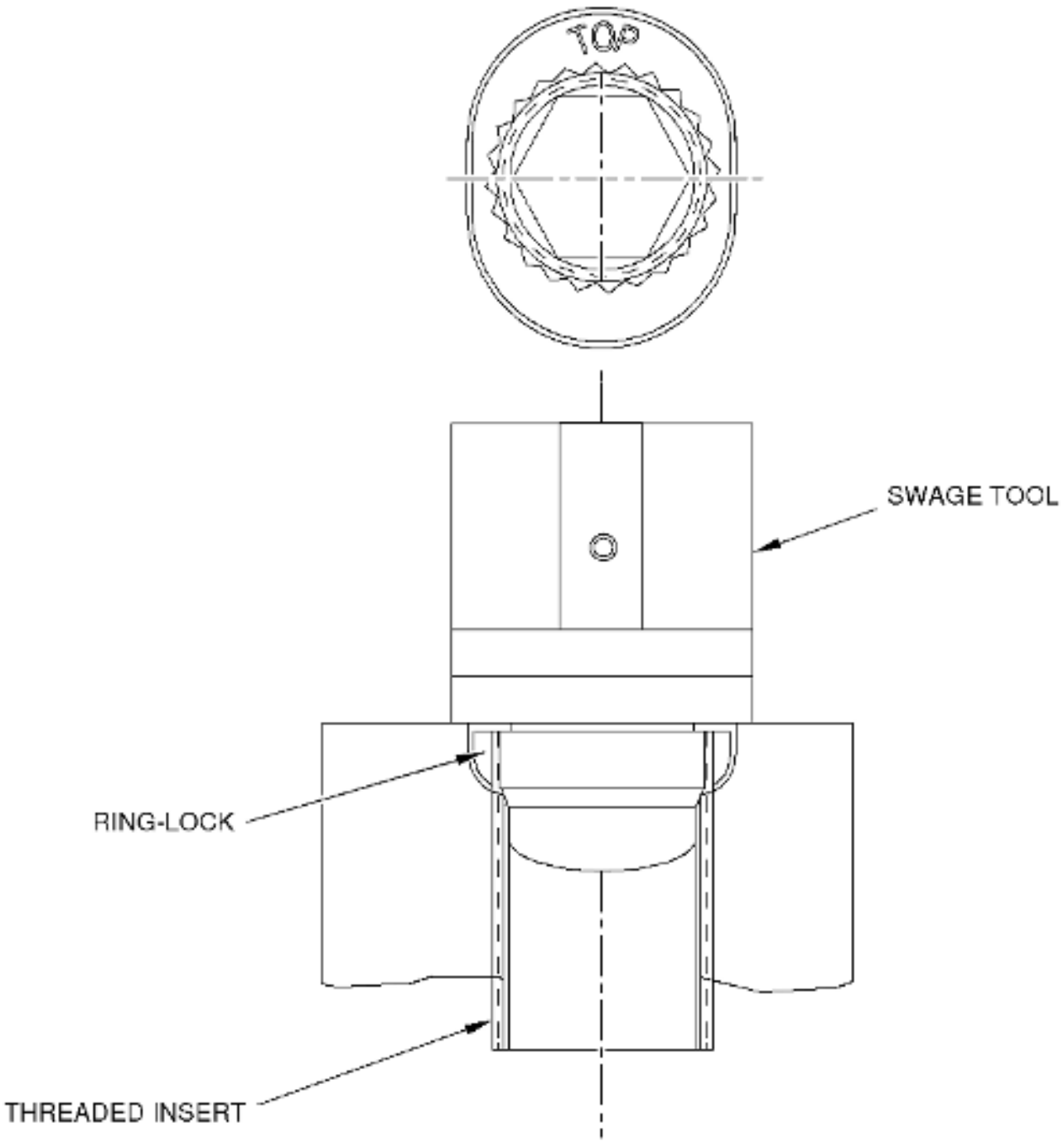


**NOTES:**
1. DIMENSIONS ARE IN INCHES WITH MILLIMETERS IN PARENTHESES.
2. APPLIES TO ALL THREADED INSERTS.

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Figure 3 (Sheet 1) Ring-Lock and Threaded Insert Installation Swage Tool

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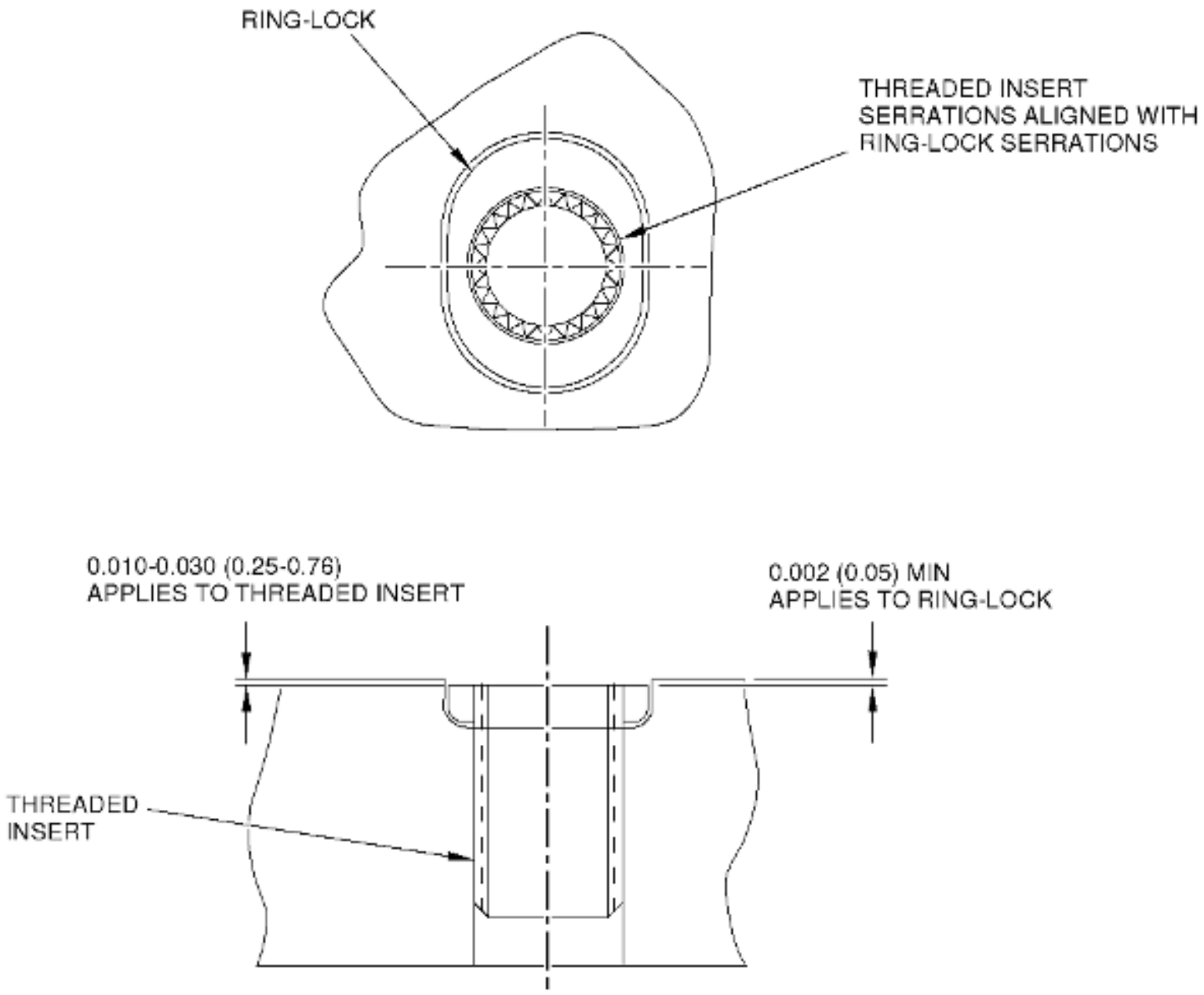


**NOTES:**
1. DIMENSIONS ARE IN INCHES WITH MILLIMETERS IN PARENTHESES.
2. APPLIES TO ALL THREADED INSERTS.

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Figure 3 (Sheet 2) Ring-Lock and Threaded Insert Installation Swage Tool

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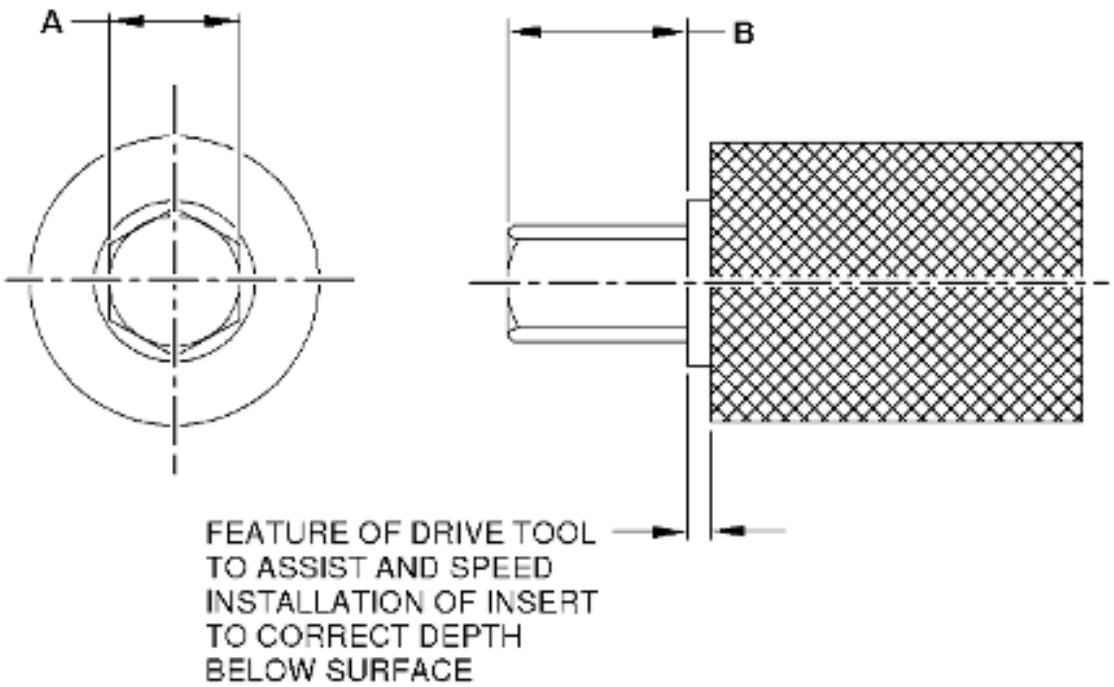


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Figure 4 (Sheet 1) Drive Tool Dimensions

*** * * FOR ALL**

| THREADED INSERT P/N | INSERT KIT P/N | A | | B |
|---|---|---|---|---|
| | | MIN | MAX | |
| 1693M83P04 | -- | 0.199 (5.05) | 0.209 (5.31) | 0.227 (5.77) |
| 1693M83P07 | 738L579G05 | 0.251 (6.38) | 0.258 (6.55) | 0.266 (6.76) |
| 1693M83P08 | 738L579G06 | 0.251 (6.38) | 0.258 (6.55) | 0.266 (6.76) |
| 1693M83P11 | 738L579G02 | 0.307 (7.80) | 0.317 (8.05) | 0.331 (8.41) |
| 1693M83P12 | 738L579G03 | 0.307 (7.80) | 0.317 (8.05) | 0.331 (8.41) |
| 1693M83P13 | 738L579G10 | 0.199 (5.05) | 0.209 (5.31) | 0.227 (5.77) |
| 1693M83P14 | 738L579G04 | 0.307 (7.80) | 0.317 (8.05) | 0.331 (8.41) |
| 1693M83P15 | 735L579G11 | 0.199 (5.05) | 0.209 (5.31) | 0.227 (5.77) |
| 1693M83P17 | 738L579G07 | 0.251 (6.38) | 0.258 (6.55) | 0.266 (6.76) |
| 1693M83P18 | 738L579G08 | 0.199 (5.05) | 0.209 (5.31) | 0.227 (5.77) |
| 1693M83P19 | 738L579G09 | 0.199 (5.05) | 0.209 (5.31) | 0.227 (5.77) |
| 2644M69P08 | 2644M69P07 | 0.199 (5.05) | 0.209 (5.31) | 0.227 (5.77) |
| 2644M69P20 | 2644M69P19 | 0.199 (5.05) | 0.209 (5.31) | 0.227 (5.77) |
| 2630M98P08 | 2630M98P07 | 0.199 (5.05) | 0.209 (5.31) | 0.227 (5.77) |
| 2644M69P02 | 2644M69P01 | 0.199 (5.05) | 0.209 (5.31) | 0.227 (5.77) |
| 2644M69P14 | 2644M69P13 | 0.199 (5.05) | 0.209 (5.31) | 0.227 (5.77) |
| 2630M98P02 | 2630M98P01 | 0.199 (5.05) | 0.209 (5.31) | 0.227 (5.77) |
| 2630M98P14 | 2630M98P13 | 0.199 (5.05) | 0.209 (5.31) | 0.227 (5.77) |
| 2644M69P05 | 2644M69P04 | 0.251 (6.38) | 0.258 (6.55) | 0.266 (6.76) |
| 2644M69P17 | 2644M69P16 | 0.251 (6.38) | 0.258 (6.55) | 0.266 (6.76) |
| 2838M72P02 | 2838M72P01 | 0.199 (5.05) | 0.209 (5.31) | 0.227 (5.77) |
| 2838M72P05 | 2838M72P04 | 0.251 (6.38) | 0.258 (6.55) | 0.266 (6.76) |
| 2630M98P05 | 2630M98P04 | 0.251 (6.38) | 0.258 (6.55) | 0.266 (6.76) |
| 2630M98P17 | 2630M98P16 | 0.251 (6.38) | 0.258 (6.55) | 0.266 (6.76) |

**NOTE:**
DIMENSIONS ARE IN INCHES WITH
MILLIMETERS IN PARENTHESES.

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Figure 4 (Sheet 2) Drive Tool Dimensions

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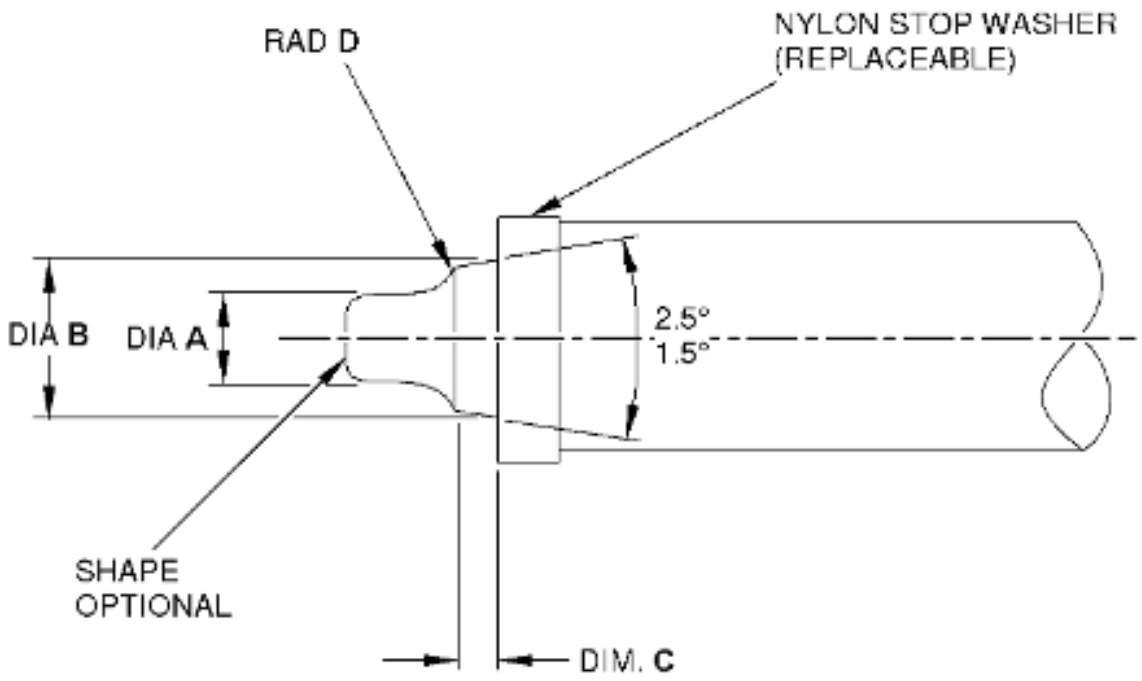


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Figure 5 (Sheet 1) Swage Tool Dimensions

*** * * FOR ALL**

| THREADED INSERT P/N | INSERT KIT P/N | A MAX | B (+/- 0.0006) | C (+/- 0.005) | RAD D (+/- 0.010) |
|---|---|---|---|---|---|
| 1693M83P04 | -- | 0.197 | 0.2805 | 0.032 | 0.032 |
| 1693M83P07 | 738L579G05 | 0.256 | 0.345 | 0.032 | 0.039 |
| 1693M83P08 | 738L579G06 | 0.256 | 0.345 | 0.032 | 0.039 |
| 1693M83P11 | 738L579G02 | 0.315 | 0.4085 | 0.032 | 0.043 |
| 1693M83P12 | 738L579G03 | 0.315 | 0.4085 | 0.032 | 0.043 |
| 1693M83P13 | 738L579G10 | 0.197 | 0.2805 | 0.032 | 0.032 |
| 1693M83P14 | 738L579G04 | 0.315 | 0.4085 | 0.032 | 0.043 |
| 1693M83P15 | 735L579G11 | 0.197 | 0.2085 | 0.032 | 0.032 |
| 1693M83P17 | 738L579G07 | 0.256 | 0.345 | 0.032 | 0.039 |
| 1693M83P18 | 738L579G08 | 0.197 | 0.2085 | 0.032 | 0.032 |
| 1693M83P19 | 738L579G09 | 0.197 | 0.2085 | 0.032 | 0.032 |
| 2644M69P08 | 2644M69P07 | 0.197 | 0.2085 | 0.032 | 0.032 |
| 2644M69P20 | 2644M69P21 | 0.197 | 0.2085 | 0.032 | 0.032 |
| 2630M98P08 | 2630M98P07 | 0.197 | 0.2085 | 0.032 | 0.032 |
| 2644M69P02 | 2644M69P01 | 0.197 | 0.2085 | 0.032 | 0.032 |
| 2644M69P14 | 2644M69P13 | 0.197 | 0.2085 | 0.032 | 0.032 |
| 2838M72P02 | 2838M72P01 | 0.197 | 0.2085 | 0.032 | 0.032 |
| 2630M98P02 | 2630M98P01 | 0.197 | 0.2085 | 0.032 | 0.032 |
| 2630M98P14 | 2630M98P13 | 0.197 | 0.2085 | 0.032 | 0.032 |
| 2644M69P05 | 2644M69P04 | 0.256 | 0.345 | 0.032 | 0.039 |
| 2644M69P17 | 2644M69P16 | 0.256 | 0.345 | 0.032 | 0.039 |
| 2838M72P05 | 2838M72P04 | 0.256 | 0.345 | 0.032 | 0.039 |
| 2630M98P05 | 2630M98P04 | 0.256 | 0.345 | 0.032 | 0.039 |
| 2630M98P17 | 2630M98P16 | 0.256 | 0.345 | 0.032 | 0.039 |

**NOTE:**
DIMENSIONS ARE IN INCHES WITH
MILLIMETERS IN PARENTHESES.

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Figure 5 (Sheet 2) Swage Tool Dimensions

*** * * FOR ALL**

| INSERT | RING-LOCK | KIT P/N | THREADED INSERT REMOVAL DRILL DIA | THREADED HOLE TAP | INT. THREAD DIA / PITCH |
|---|---|---|---|---|---|
| 1693M83P04 | 1689M74P02 | -- | 0.2785 | 5/16-24 UNJF | 0.2500-28 (6.35) |
| 1693M83P07 | 1689M74P04 | 738L579G05 | 0.3405 | 3/8-24 UNJF | 0.3125-24 (7.938) |
| 1693M83P08 | 1689M74P04 | 738L579G06 | 0.3405 | 3/8-24 UNJF | 0.3125-24 (7.938) |
| 1693M83P11 | 1689M74P05 | 738L579G02 | 0.4010 | 7/16-20 UNJF | 0.3750-24 (9.52) |
| 1693M83P12 | 1689M74P07 | 738L579G03 | 0.4010 | 7/16-20 UNJF | 0.3750-24 (9.52) |
| 1693M83P13 | 1689M74P06 | 738L579G10 | 0.2785 | 5/16-24 UNJF | 0.2500-28 (6.35) |
| 1693M83P14 | 1689M74P09 | 738L579G04 | 0.4010 | 7/16-20 UNJF | 0.3750-24 (9.52) |
| 1693M83P15 | 1689M74P08 | 735L579G11 | 0.2785 | 5/16-24 UNJF | 0.2500-28 (6.35) |
| 1693M83P17 | 1689M74P11 | 738L579G07 | 0.3405 | 3/8-24 UNJF | 0.3125-24 (7.938) |
| 1693M83P18 | 1689M74P06 | 738L579G08 | 0.2785 | 5/16-24 UNJF | 0.2500-28 (6.35) |
| 1693M83P19 | 1689M74P08 | 738L579G09 | 0.2785 | 5/16-24 UNJF | 0.2500-28 (6.35) |
| 2644M69P02 | 2644M69P03 | 2644V69P01 | 0.3405 | 3/8-24 UNJF | 0.2500-28 (6.35) |
| 2644M69P08 | 2644M69P09 | 2644V69P07 | | | |
| 2838M72P02 | 2838M72P03 | 2838V72P01 | | | |
| 2644M69P05 | 2644M69P06 | 2644V69P04 | 0.4010 | 7/16-28 UNJEF | 0.3125-24 (7.938) |
| 2838M72P05 | 2838M72P06 | 2838V72P04 | | | |
| 2630M98P02 | 2630M98P03 | 2630V98P01 | 0.3405 | 3/8-24 UNJF | 0.2500-28 (6.35) |
| 2630M98P08 | 2630M98P09 | 2630V98P07 | | | |
| 2644M69P14 | 2644M69P15 | 2644V69P13 | | | |
| 2630M98P14 | 2630M98P15 | 2630V98P13 | | | |
| 2630M98P20 | 2630M98P21 | 2630V98P19 | | | |
| 2630M98P05 | 2630M98P06 | 2630V98P04 | 0.4010 | 7/16-28 UNJEF | 0.3125-24 (7.938) |
| 2630M98P17 | 2630M98P18 | 2630V98P16 | | | |
| 2644M69P17 | 2644M69P18 | 2644V69P16 | | | |

**NOTE:**
DIMENSIONS ARE IN INCHES WITH MILLIMETERS IN PARENTHESES.

6035410-00

Figure 6 Threaded Insert/Ring-Lock/Kit Part Numbers and Threaded Insert Removal Information

*** * * FOR ALL**

| THREADED INSERT P/N | WASHER | BOLT | MIN TORQUE (LBF-IN. (N-m)) | MAX TORQUE (LBF-N (N-m)) |
|---|---|---|---|---|
| 1693M83P04 | A | A | 5.3 (0.60) | 30.0 (3.39) |
| 1693M83P07 | B | B | 9.7 (1.10) | 60.0 (6.78) |
| 1693M83P08 | B | B | 9.7 (1.10) | 60.0 (6.78) |
| 1693M83P11 | C | C | 14.2 (1.60) | 80.0 (9.04) |
| 1693M83P12 | C | C | 14.2 (1.60) | 80.0 (9.04) |
| 1693M83P13 | A | A | 5.3 (0.60) | 30.0 (3.39) |
| 1693M83P14 | C | C | 14.2 (1.60) | 80.0 (9.04) |
| 1693M83P15 | A | A | 5.3 (0.60) | 30.0 (3.39) |
| 1693M83P17 | B | B | 9.7 (1.10) | 60.0 (6.78) |
| 1693M83P18 | A | A | 5.3 (0.60) | 30.0 (3.39) |
| 1693M83P19 | A | A | 5.3 (0.60) | 30.0 (3.39) |
| 2644M69P02 | A | A | 5.3 (0.60) | 30.0 (3.39) |
| 2644M69P08 | A | A | 5.3 (0.60) | 30.0 (3.39) |
| 2644M69P20 | A | A | 5.3 (0.60) | 30.0 (3.39) |
| 2644M69P05 | B | B | 9.7 (1.10) | 60.0 (6.78) |
| 2630M98P02 | A | A | 5.3 (0.60) | 30.0 (3.39) |
| 2630M98P08 | A | A | 5.3 (0.60) | 30.0 (3.39) |
| 2644M69P14 | A | A | 5.3 (0.60) | 30.0 (3.39) |
| 2630M98P14 | A | A | 5.3 (0.60) | 30.0 (3.39) |
| 2630M98P05 | B | B | 9.7 (1.10) | 60.0 (6.78) |
| 2630M98P17 | B | B | 9.7 (1.10) | 60.0 (6.78) |
| 2644M69P17 | B | B | 9.7 (1.10) | 60.0 (6.78) |

| WASHER | WASHER DIMENSIONS |
|---|---|
| A | 0.250 (6.35) ID x 0.50 (12.7) MIN OD x 0.062 (1.60) MIN THICKNESS |
| B | 0.3125 (7.94) ID x 0.62 (15.7) MIN OD x 0.060 (1.52) MIN THICKNESS |
| C | 0.375 (9.52) ID x 0.75 (19.0) MIN OD x 0.060 (1.52) MIN THICKNESS |

| BOLT | MATERIAL | THREAD DETAILS | PITCH DIA |
|---|---|---|---|
| A | INCO 718 | 0.2500-28 UNJF-3A | 0.2243-0.2251 (5.698-5.717) |
| B | INCO 718 | 0.3125-24 UNJF-3A | 0.2827-0.2836 (7.180-7.203) (STANDARD BOLT 0.3125-24) |
| C | INCO 718 | 0.375-24 UNJF-3A | 0.3450-0.3460 (8.763-8.788) (STANDARD BOLT 0.375-24) |

**NOTE:**
DIMENSIONS ARE IN INCHES WITH
MILLIMETERS IN PARENTHESES.

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Figure 7 Torque Check Requirements