

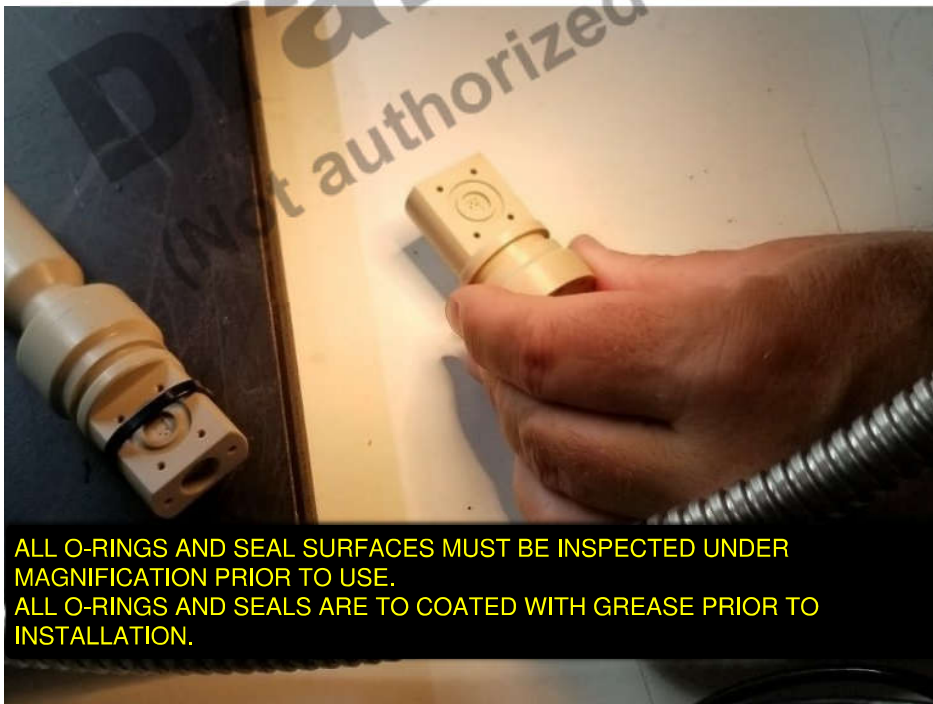
Guide no.: **46801**Version no.: **0.1**Name: **MBARI PH SENSOR 100221682**ERP reference no.: **040-xxxx-000**Version status: **Draft**Guide status: **Active**Template: **No**Last update: **2022-07-18 19:50:51**Creation date: **2022-07-06 20:55:55**Author: **Rick Borges**

reviewer:

Location: **San Jose, CA**Work center: **Assembly**Category: **Work Instructions / SOP**Folder: **Applied Engineering/Work Instructions/MBARI**Product no.: **100221682**Product revision no.: **D**

Product internal revision no.:

Description:



Step 1/49

Standard O-ring installation procedure.

Step 2/49

1. Use only lint free cleaning tools. Foam tipped swaps are preferred. Fiber tipped swaps are not acceptable.
2. Inspect O-ring for defects: Excess flash, foreign materials, surface defects, flow marks, indentations, nicks, voids etc.
3. Inspect O-ring groove for damage
4. Clean O-ring groove with denatured alcohol. Use compressed air to clean and dry.
5. Clean O-ring with denatured alcohol. Use compressed air to clean and dry.
6. Apply a light film of grease to all surfaces of O-ring. No clumps or build-up.
7. Inspect, install, inspect

Step 3/49

O-Ring Defect Description: MIL-STD-413C

Description	Definition
Excess Flash or Parting Line Projection	Parting Line Projection: A continuous ridge of material on the parting line at the ID and/or OD. Flash: A fin-like material which extends from the parting line at the ID and/or OD, and may be superimposed on the parting line projection.
Flow Marks (Flow Lines)	A thread-like recess, usually curved, of very slight depth with normal surface texture and radial edge.
Foreign Material	Any extraneous, imbedded matter, or depression formed by its removal.

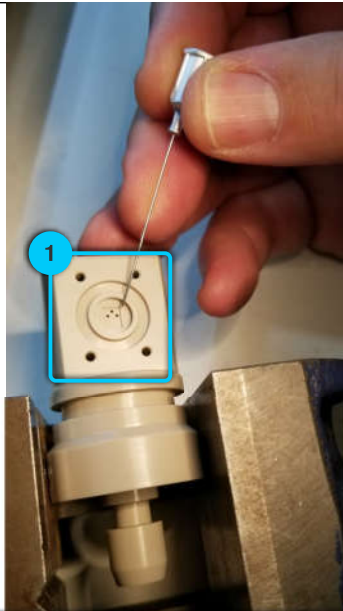
O-Ring Defect Description: MIL-STD-413C (Continue)

Description	Definition
Mold Deposit (Dry Mold)	Surface indentations, irregular in shape, with a rough surface texture.
Nicks or Parting Line Indentation	A shallow, saucer-like recess, sometimes triangular in shape, located on the parting line at the ID or OD, and usually divided by the parting line. The edges are smoothly flared into the O-ring surface and have similar texture.
Non-Fill or Void	A randomly spaced, irregularly shaped, surface indentation having a coarser texture than the normal O-ring surface. It may have mottled edges which may or may not join.
Off-Register and Mismatch	Off-Register: Misaligned O-ring halves. Mismatch: Cross section of each half are different sizes.
Backring	A longitudinal recess of wide angle "U-like" or "W-like" cross sections orientated circumferentially and located only at parting lines.

Step 4/49

Numbered annotations (1)

- 1 Carefully use a .020" gage pin or needle to verify the 3 fuzzy button holes are clear of debris.

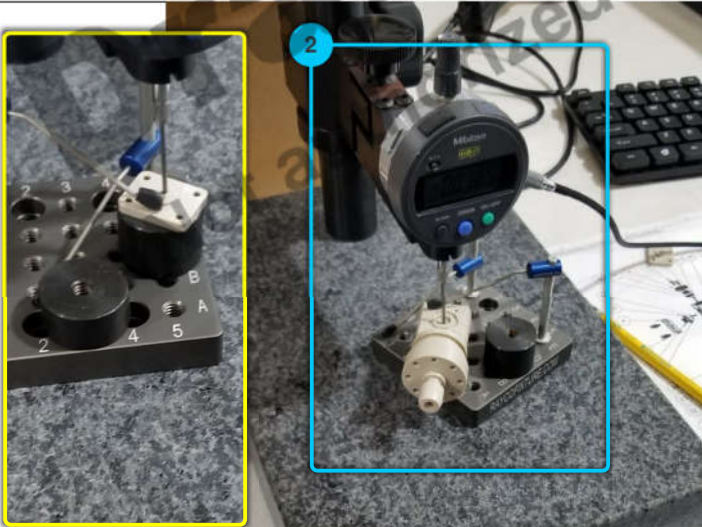


Carefully use a .020" gage pin or needle to verify the 3 fuzzy button holes are clear of debris.

Step 5/49

Numbered annotations (1)

- 2 Measure and record dimensions of 100221681 and 100221678 on following sheet



Measure A thru G and complete record on next page

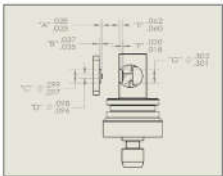
Step 6/49

Numbered annotations (1)

- 3 Complete production traveler for measurements taken and gasket compression calculations.

3

GDF Production Traveler							
Serial Number:							
Version:							
Installed on Float WMO:							
Step No.	Description	Date	By	Notes			
1	Kit parts						
2	Visual inspection						
3	Coverplate						
	Dim A	Dim B	Dim C	Dim D	Dim E	Dim F	Dim G
4	Gasket thickness						
	Gasket material						
5	Gasket compression						
6	Build sensor						
6	Photos front and back						
7	Other photos						
8	V _I pellet resistance						
9	Substrate-Drain voltage						
9	Substrate-Source voltage						
10	Counter electrode resistance						
11	Seawater Cond. (num. days)						
12	K2 cal (file name)						
13	H(p) cal (file name)						
14	Install on endcap						
15	Test / Calibration: 60						
16	Shipped to						
17	Deployed						



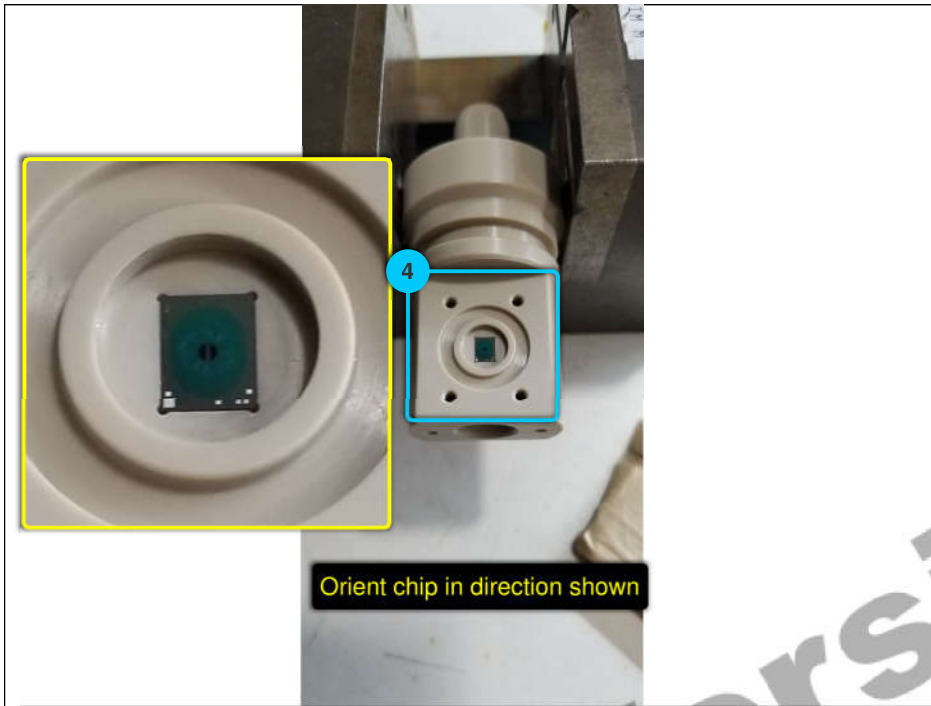
comments:

Complete production traveler for measurements taken and gasket compression calculations.

Step 7/49



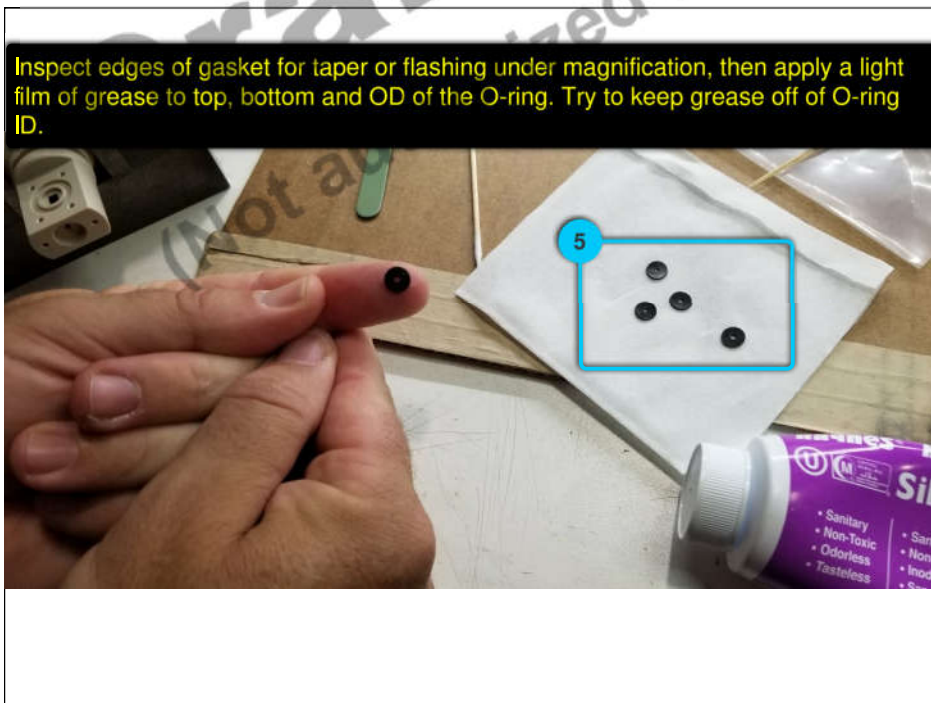
Place item 2 DuraFETchip6 front up in pocket of housing



Step 8/49

Numbered annotations (1)

- 4 Place item 2 DuraFETchip6 front up in pocket of housing
Orient chip in direction shown



Step 9/49

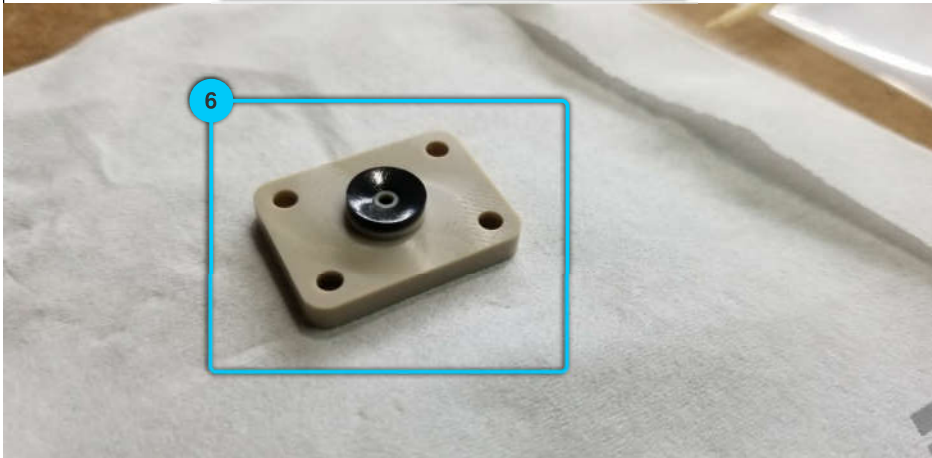
Numbered annotations (1)

- 5 Inspect edges of gasket for taper or flashing under magnification, then apply a light film of grease to top, bottom and OD of the O-ring. Try to keep grease off of O-ring ID.

Step 10/49

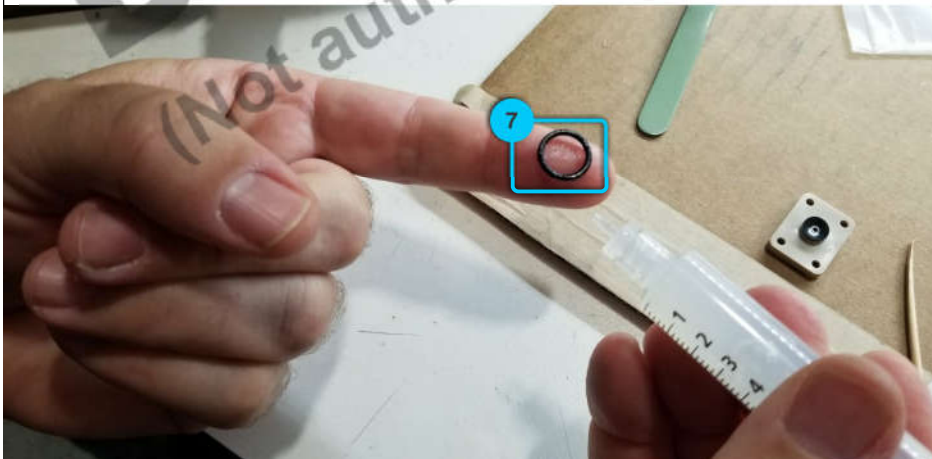
Numbered annotations (1)

- 6 Install item 3 gasket on item 4 cover plate

**Step 11/49**

Numbered annotations (1)

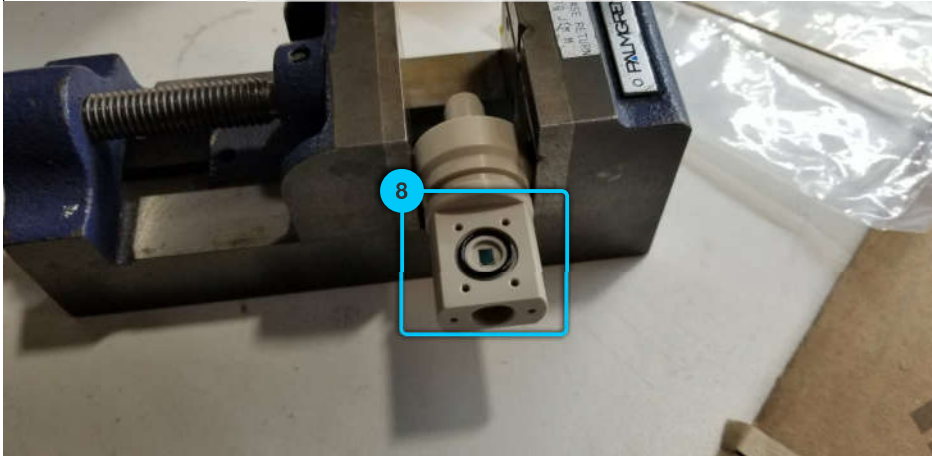
- 7 Inspect and apply a light film of grease to all O-ring surfaces.



Step 12/49

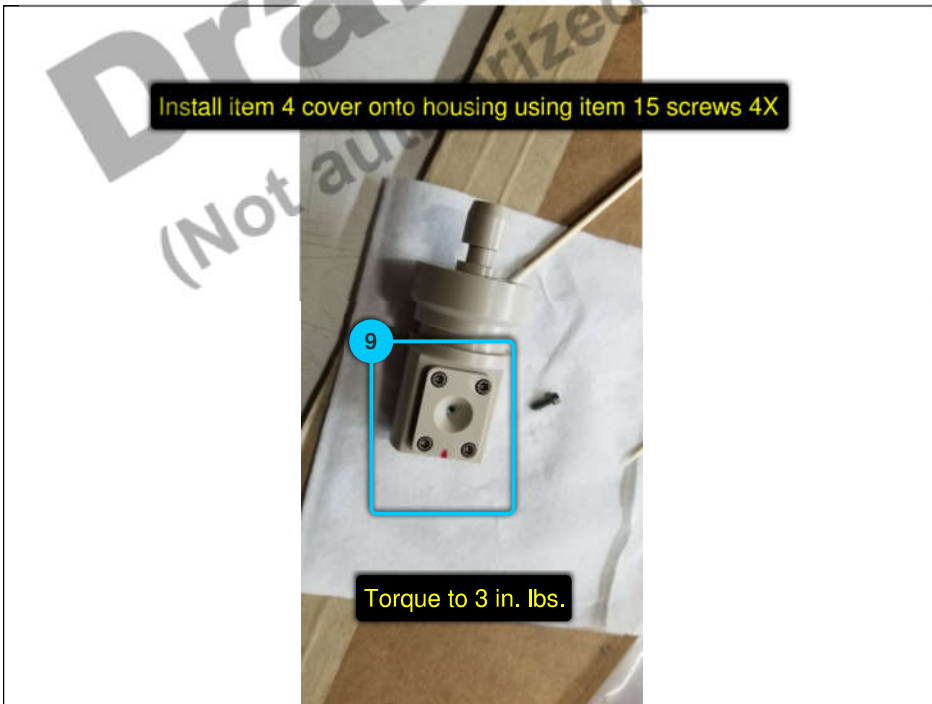
Numbered annotations (1)

- 8 Install o-ring item 17 in housing

**Step 13/49**

Numbered annotations (1)

- 9 Install cover onto housing using item 15 screws 4X



Step 14/49

Numbered annotations (1)

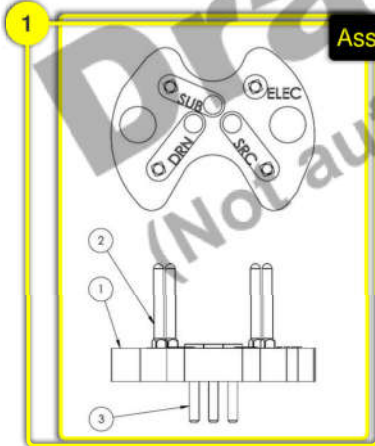
- 10 Use magnetic tweezers to lift and insert 3X item 16 fuzzy buttons into housing.
DO NOT SQUEEZE fuzzy buttons with tweezers they could be damaged.



Step 15/49

Numbered annotations (1)

- 1 Assemble and solder per attached BOM and drawing.

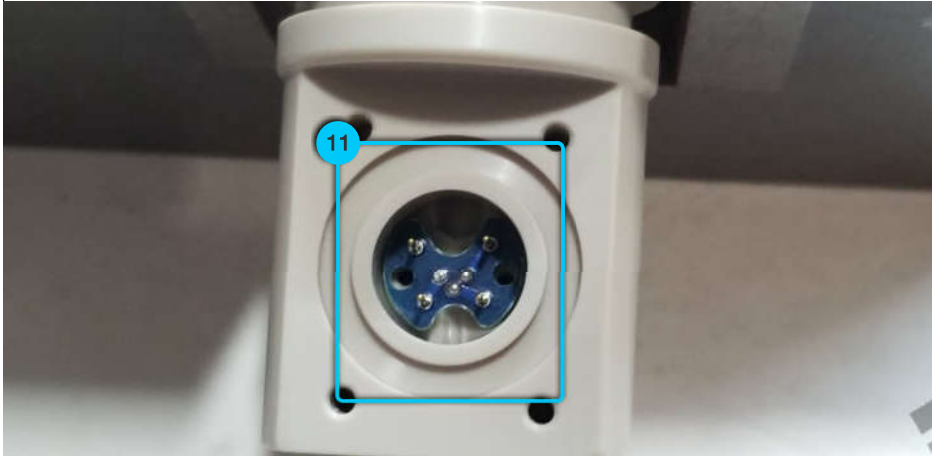


Assemble and solder per attached BOM and drawing.

MBARI BOM							
ITEM NO.	Revision	SW-File Name(File Name)	Vendor	VendorNo	Manufacturer	ManufacturerNo	ASSY. QTY.
1	B	100221480rb2_jsfetinterfacepcb			MBARI	100221480rb2	1
2	B	mill-max-8969-0-05-21-00-00-03-0	Mill-Max	8969-0-05-21-00-00-03-0			4
3	B	mill-max-4068-0-00-15-00-00-33-0	Mill-Max	4068-0-00-15-00-00-03-0	Mill-Max	4068-0-00-15-00-00-03-0	3

Step 16/49

Insert item 30 PCB into housing in direction shown

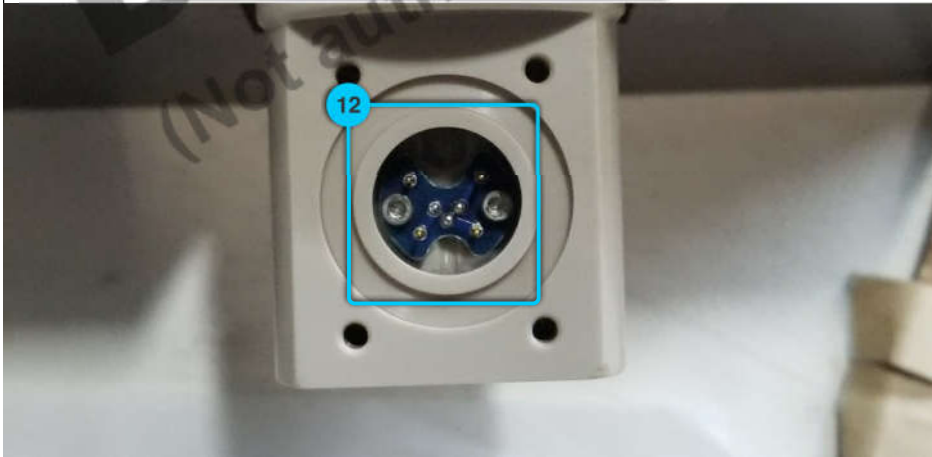


Numbered annotations (1)

- 11 Insert item 30 PCB into housing in direction shown

Step 17/49

Afix the PCB to the housing using item 14 2X



Numbered annotations (1)

- 12 Afix the PCB to the housing using item 14 2X

Torque to 1.0 in. lb.

Step 18/49

Numbered annotations (1)

- 13 Test connections for continuity (Detail to be provided by MBARI)



Step 19/49

Numbered annotations (1)

- 14 Install item 25 Pellet Contact into housing, threading blue wire thru hole to the PCB cavity.

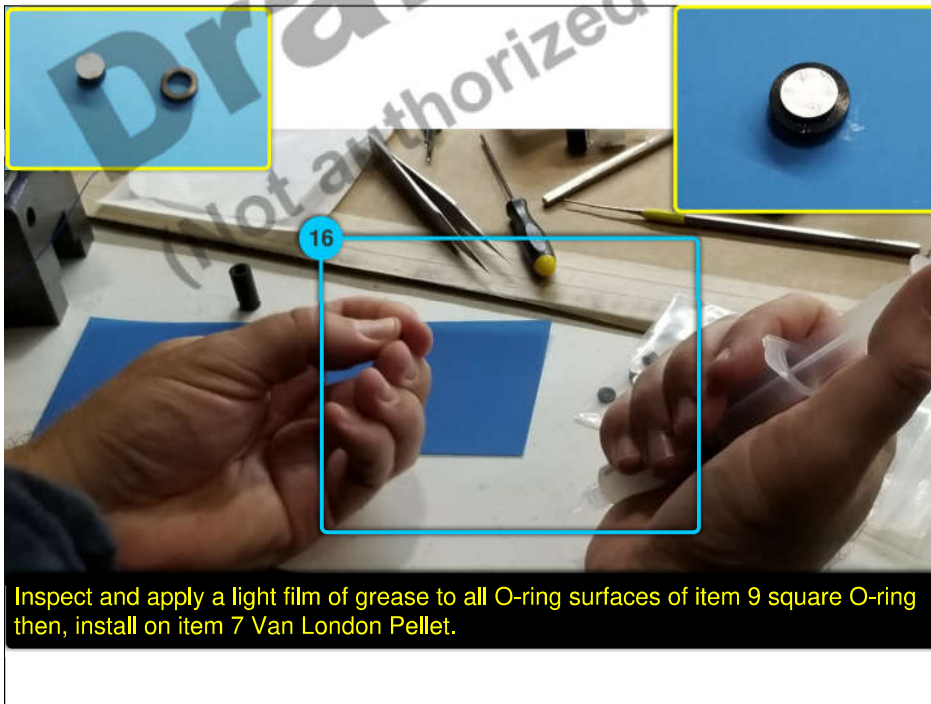




Step 20/49

Numbered annotations (1)

- 15 Seat contact into hole using a 1/6" Ø X 3/4"L dowel pin and arbor press.



Step 21/49

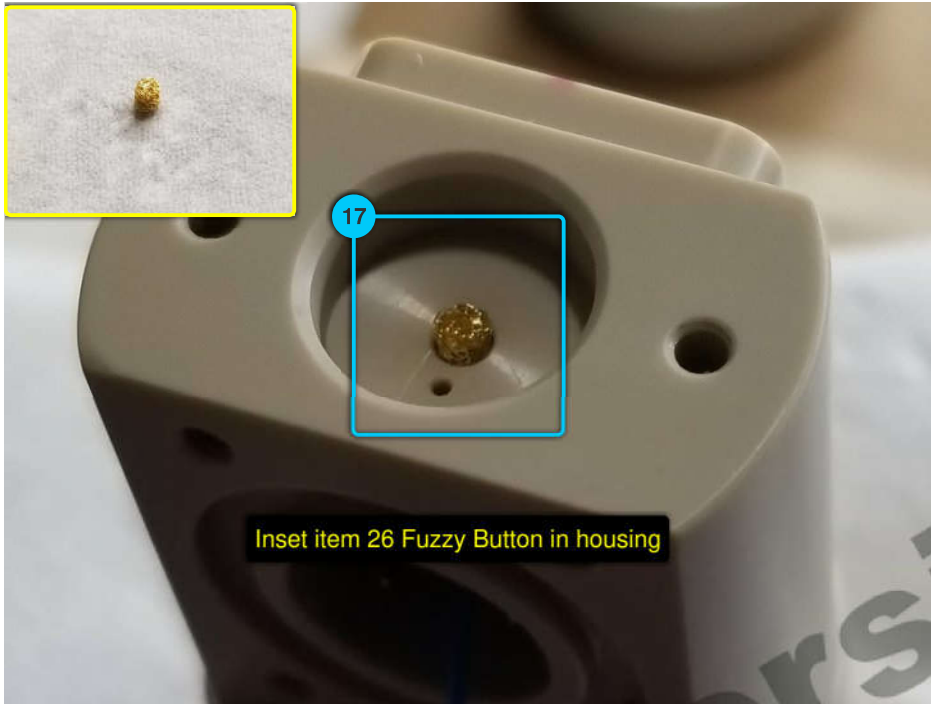
Numbered annotations (1)

- 16 Inspect and apply a light film of grease to all O-ring surfaces of item 9 square O-ring then, install on item 7 Van London Pellet.

Step 22/49

Numbered annotations (1)

- 17 Inset item 26 Fuzzy Button in housing

**Step 23/49**

Numbered annotations (1)

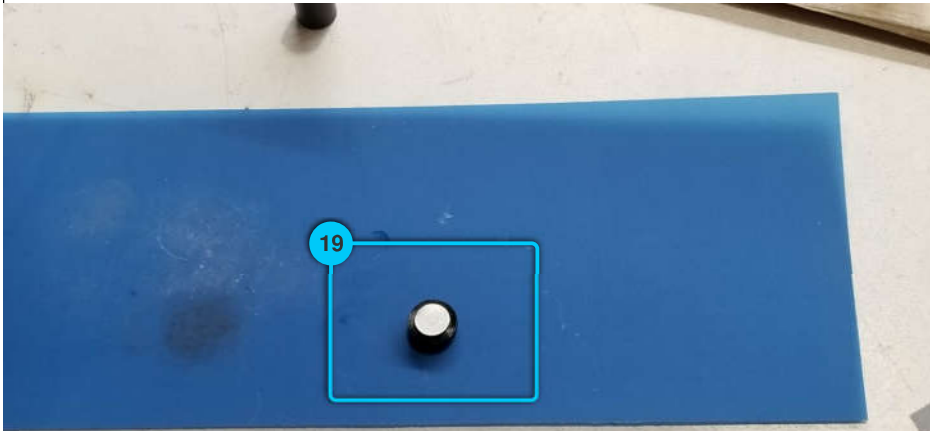
- 18 Afix the pellet install tooling collar on top of the housing



Step 24/49

Numbered annotations (1)

- 19 Lightly sand the non-silver side of the pellet using item 44 prior to installation to remove oxidation and grease.

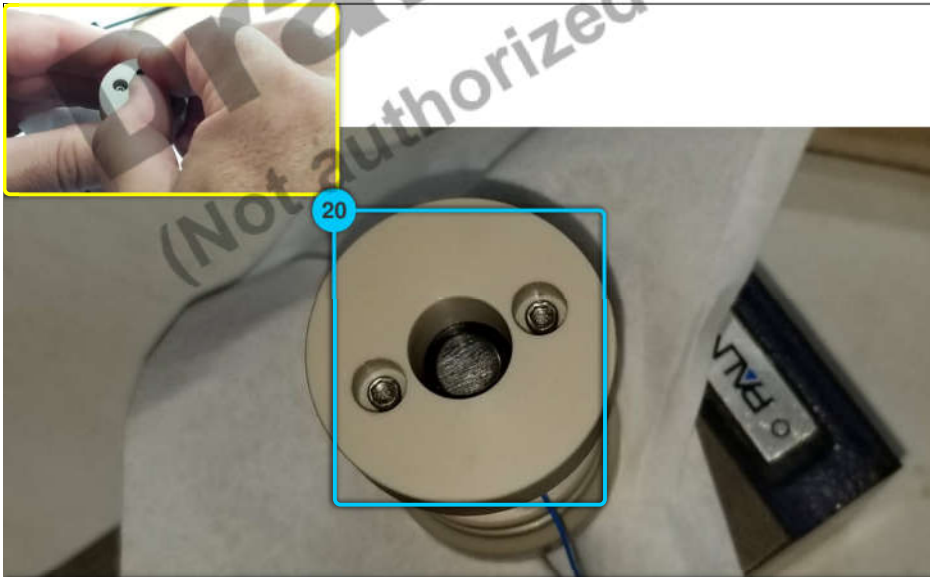


Lightly sand the non-silver side of the pellet using item 44 prior to installation to remove oxidation and grease.

Step 25/49

Numbered annotations (1)

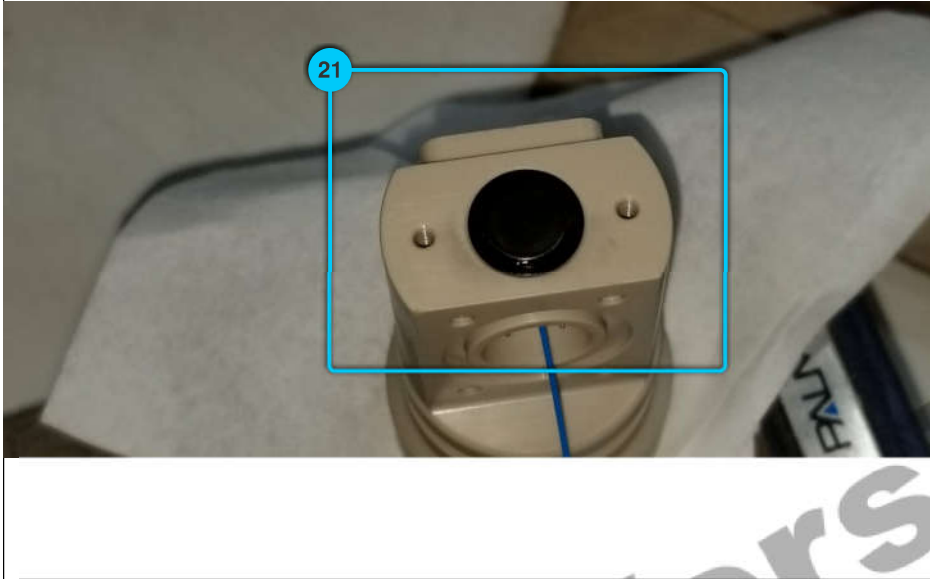
- 20 Install the pellet with square o-ring into the tooling silver side down and use the black pusher tool to work the pellet and o-ring down to the bottom of the housing cavity using a rotating rocking motion.



Install the pellet with square o-ring into the tooling silver side down and use the black pusher tool to work the pellet and o-ring down to the bottom of the housing cavity using a rotating rocking motion.

Step 26/49

Remove the pellet install tooling and verify the pellet is flush to the top of the housing

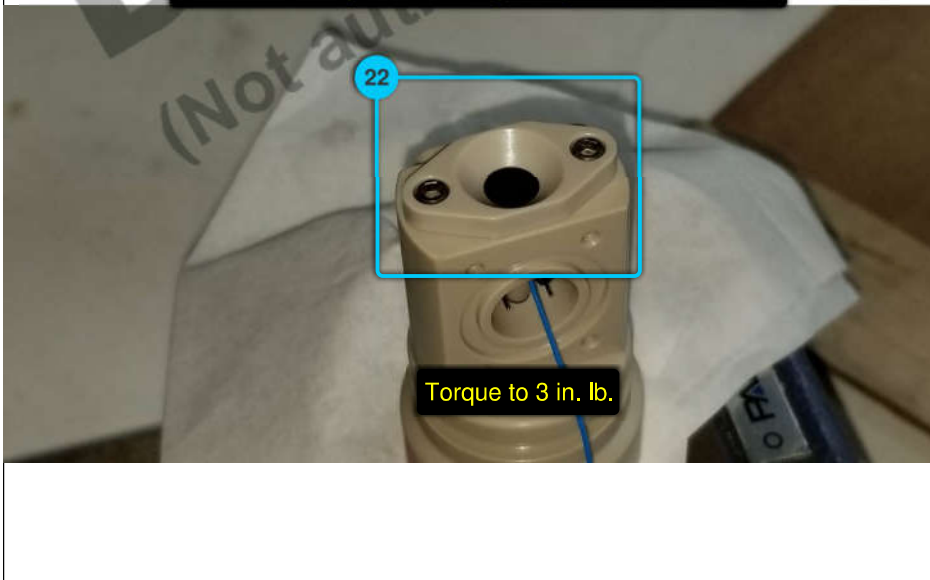


Numbered annotations (1)

- 21 Remove the pellet install tooling and verify the pellet is flush to the top of the housing

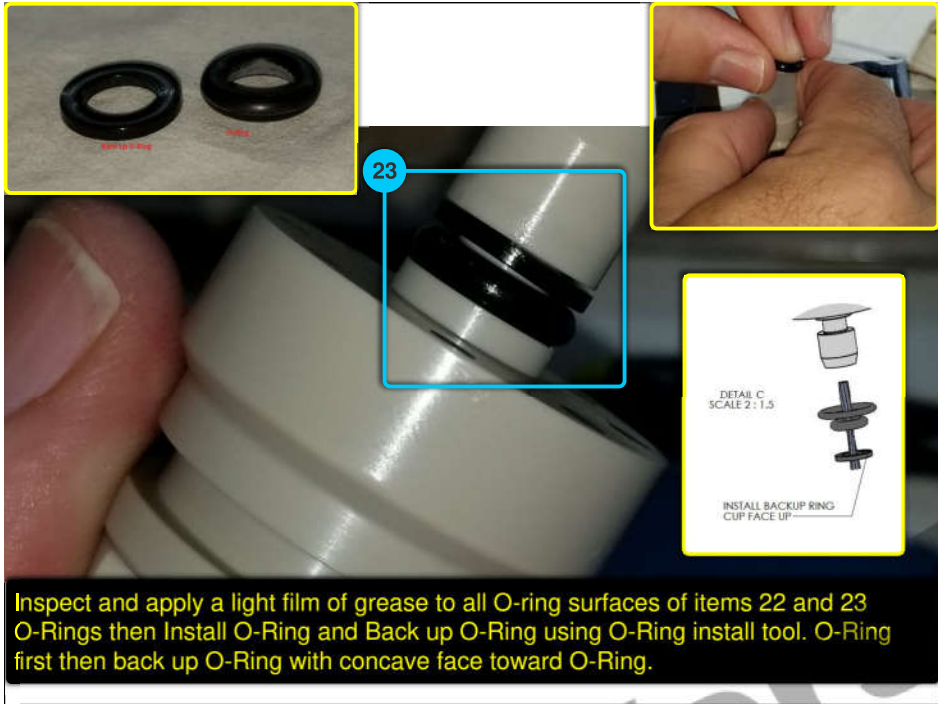
Step 27/49

Install item 8 cap onto housing using item 15 screws 2X



Numbered annotations (1)

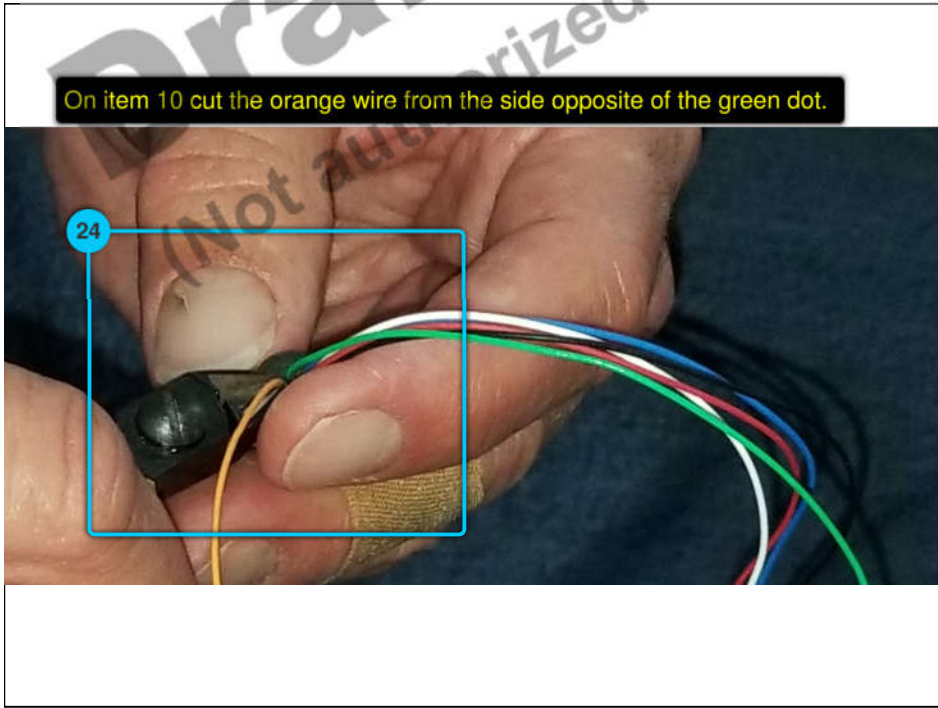
- 22 Install item 8 cap onto housing using item 15 screws 2X



Step 28/49

Numbered annotations (1)

- 23 Inspect and apply a light film of grease to all O-ring surfaces of items 22 and 23 O-Rings then Install O-Ring and Back up O-Ring using O-Ring install tool.



Step 29/49

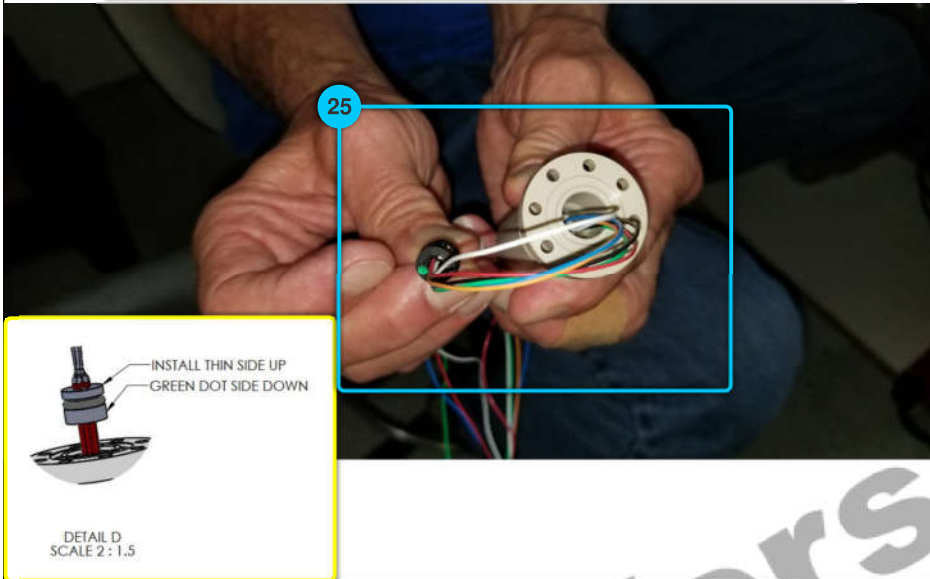
Numbered annotations (1)

- 24

Step 30/49

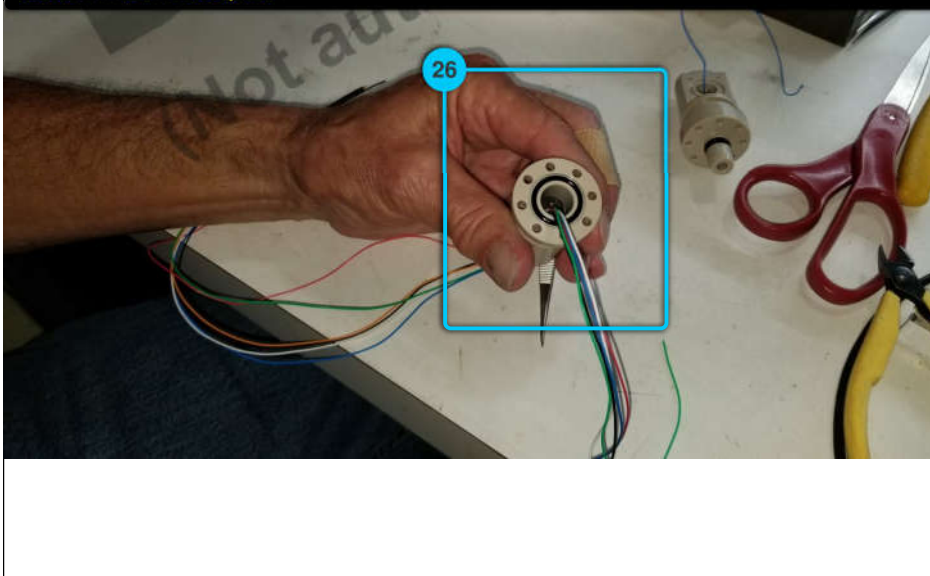
Numbered annotations (1)

25

Thread item 10 leads thru item 6 adapter with green dot side down.**Step 31/49**

Numbered annotations (1)

26

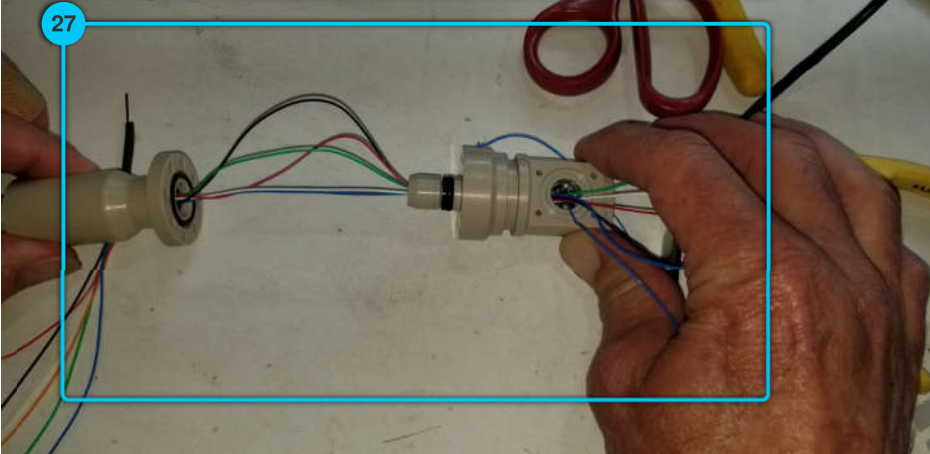
Inspect and apply a light film of grease to all O-ring surfaces of item 20 O-ring then install on item 6 adapter.

Inspect and apply a light film of grease to all O-ring surfaces of item 20 O-ring then install on item 6 adapter.

Step 32/49

Feed wires thru the end of item 1 and out the hole with the PCB.

27



Numbered annotations (1)

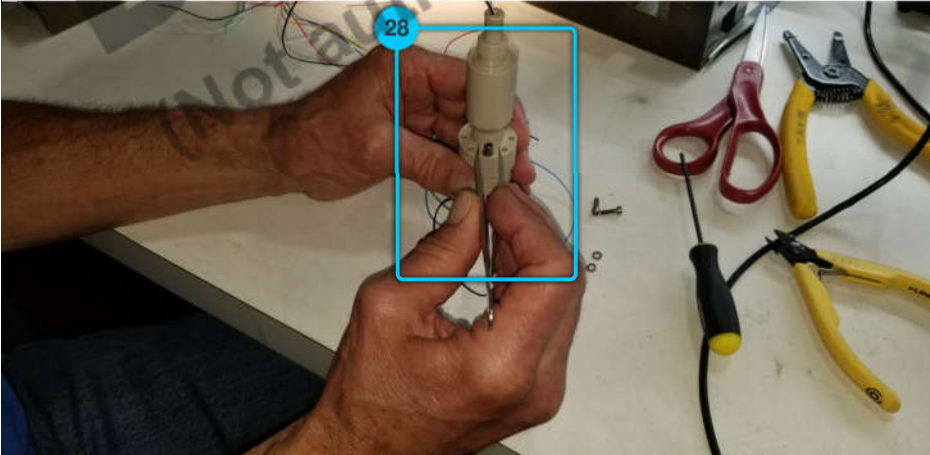
27

Feed wires thru the end of item 1 and out the hole with the PCB.

Step 33/49

Pull the wires until the adapter meets the housing then install items 12 and 13 4X ea. at 4 opposing holes with an open hole next to each screw.

28

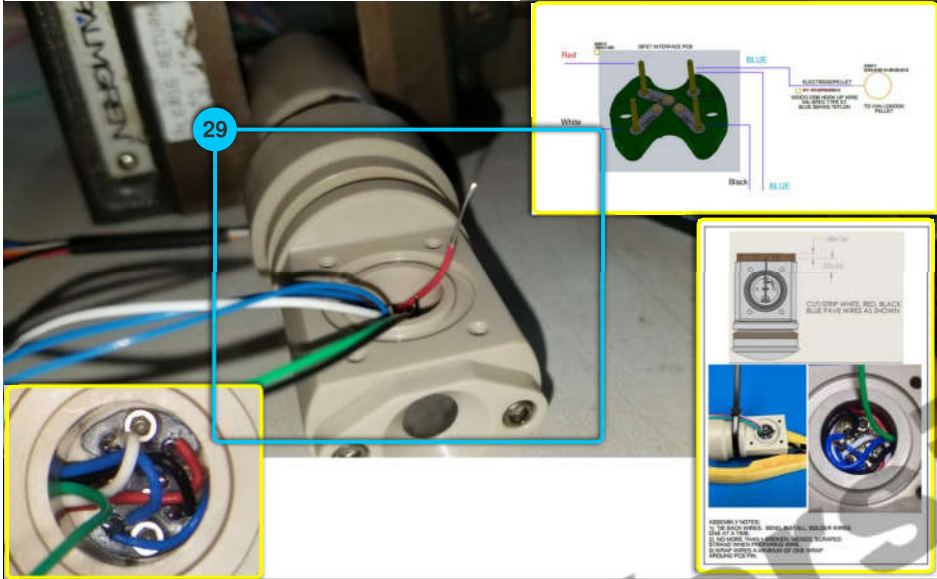


Numbered annotations (1)

28

Pull the wires until the adapter meets the housing then install items 12 and 13 4X ea. at 4 opposing holes with an open hole next to each screw.

Cut the Red, white, blue, and black wires to about 1" long then strip 1/2" on each wire and solder to PCB per 100221659 wire diagram.



Step 34/49

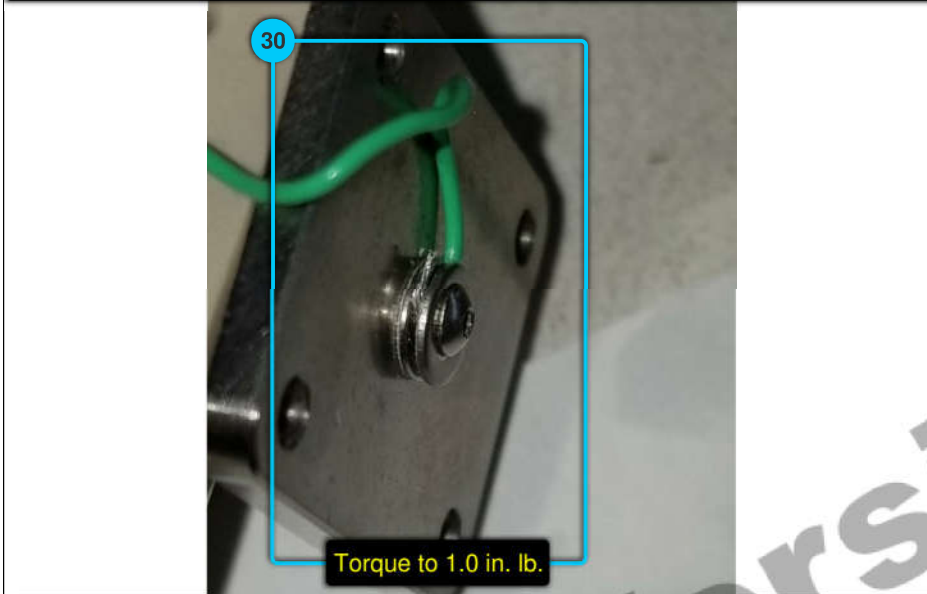
Numbered annotations (1)

- 29 Cut the Red, white, blue, and black wires to about 1" long then strip 1/2" from each wire and solder to PCB per 100221659 wire diagram.

Inspect and apply a light film of grease to all O-ring surfaces of item 18, pass the green wire thru the O-ring and place O-ring in the groove in the housing.

Step 35/49

Cut the green wire about 2" long and strip 0.5" .
Attach item 24, 28, 29 to item 5 then wrap min. 2 turns of green wire around the screw between the washers.



Step 36/49

Numbered annotations (1)

- 30 Cut the green wire about 2" long and strip 0.5" .
Attach item 24, 28, 29 to item 5 then wrap min. 2 turns of green wire around the screw between the washers.

Step 37/49

Numbered annotations (1)

- 31 Attach item 5 cover to item 1 housing using item 15 screws 4X



Step 38/49

Cut the wires coming from the adapter to 12" long. Install 11" of shrink tubing over the white, green, red, and black wires.

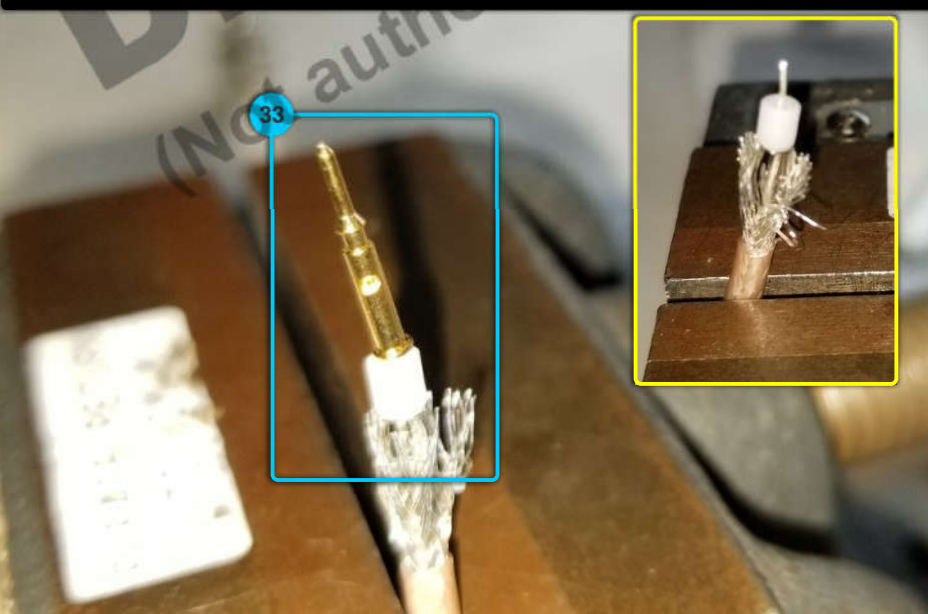


Numbered annotations (1)

- 32 Cut the wires coming from the adapter to 12" long. Install 11" of shrink tubing over the white, green, red, and black wires.

Step 39/49

Install the insulator sleeve and pin over core wire and solder thru the hole in pin to the core wire



Numbered annotations (1)

- 33 Install the insulator sleeve and pin over core wire and solder thru the hole in pin to the core wire

Install the connector on the end of wire and crimp the shoulder to secure to the cable.

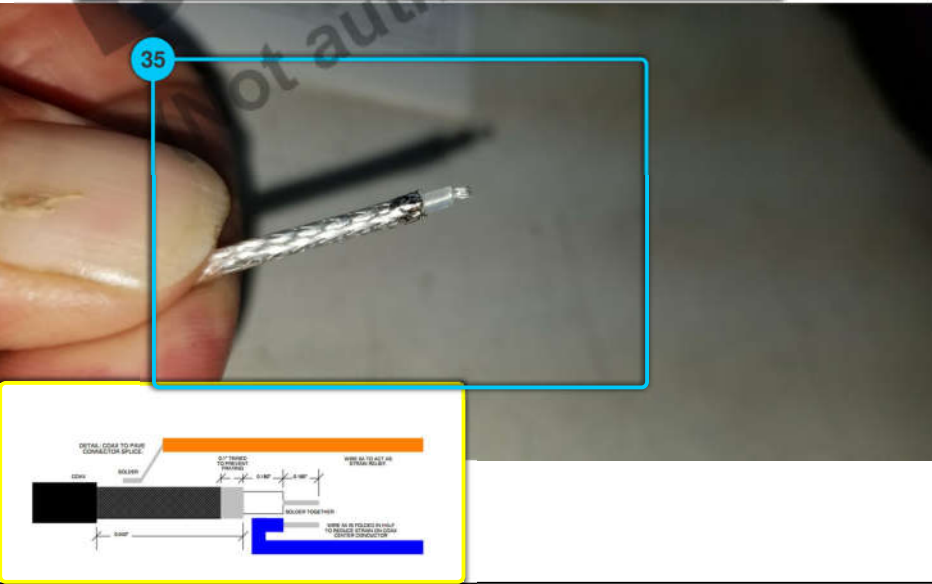


Step 40/49

Numbered annotations (1)

- 34 Install the connector on the end of wire and crimp the shoulder to secure to the cable.

Prepare the end of 100221659 item 4 per page 3 of 100221659.



Step 41/49

Numbered annotations (1)

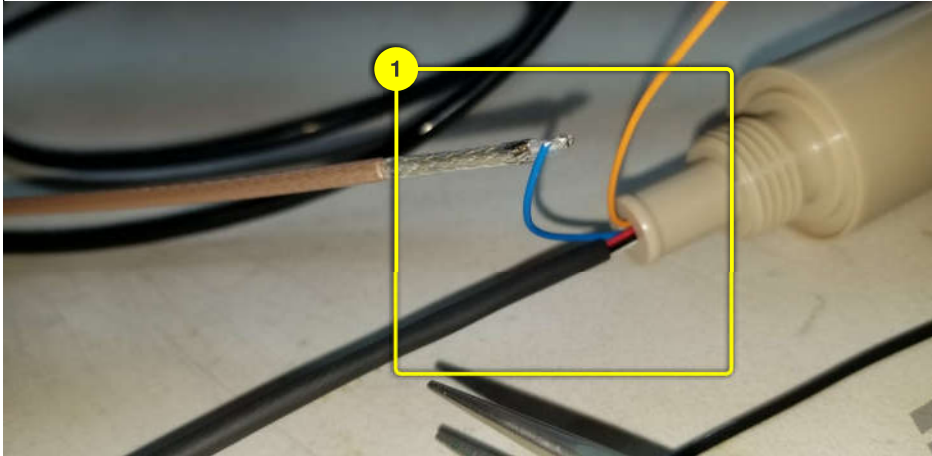
- 35 Prepare the end of 100221659 item 4 per page 3 of 100221659.

Step 42/49

Numbered annotations (1)

- 1 Solder the blue wire to the core wire of the coax.

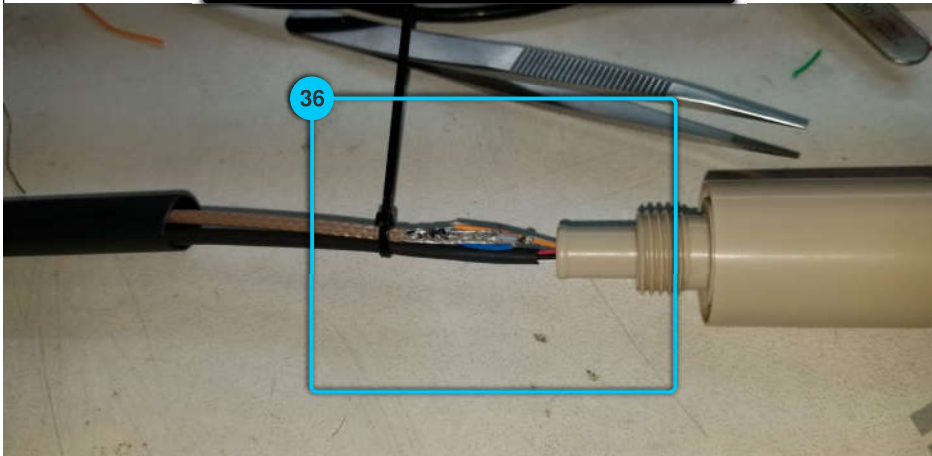
Solder the blue wire to the core wire of the coax.

**Step 43/49**

Step 44/49

Numbered annotations (1)

- 36 Solder the orange wire to the shield of the coax.

**Step 45/49**

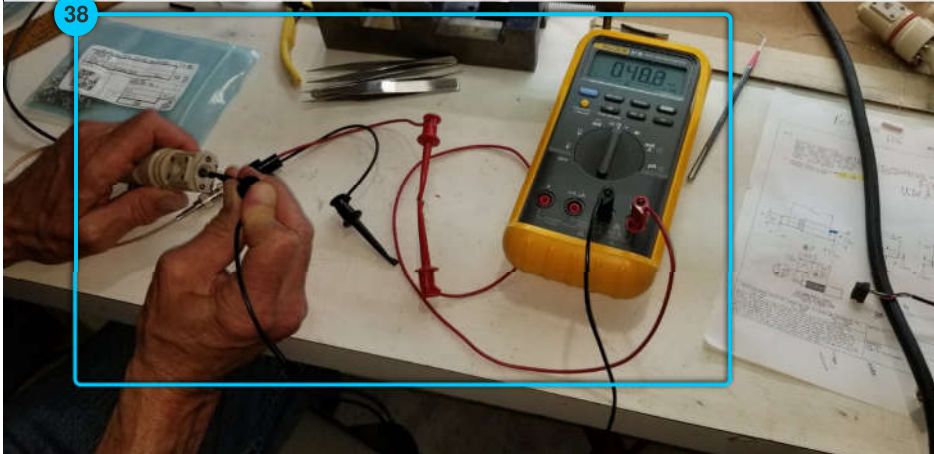
Numbered annotations (1)

- 37 Crimp pins on the ends of the white, red, green, and black wires.



Test the VL Pellet resistance at the exposed surface of the pellet and the core wire of the coax and record on step 8 of the production traveler.

38



Step 46/49

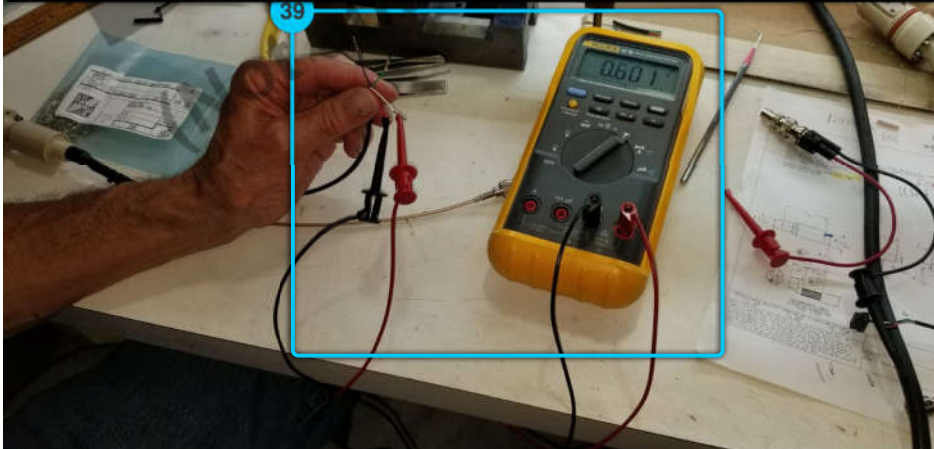
Numbered annotations (1)

38

Test the VL Pellet resistance at the exposed surface of the pellet and the core wire of the coax and record on step 8 of the production traveler.

Test Drain Voltage at connections of the red and white wires and record on step 9 on production traveler.

39



Step 47/49

Numbered annotations (1)

39

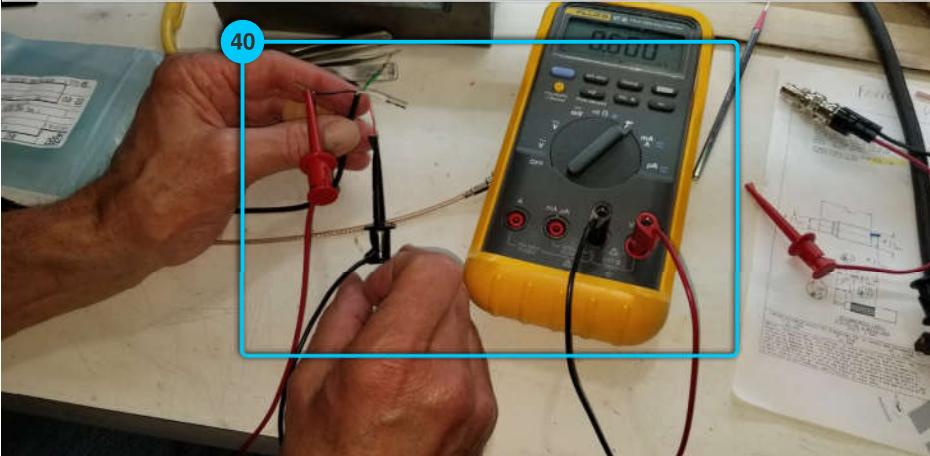
Test Drain Voltage at connections of the red and white wires and record on step 9 on production traveler.

Step 48/49

Numbered annotations (1)

- 40 Test Source voltage at connections of the green and black wires and record on step 9 on production traveler.

Test Source voltage at connections of the green and black wires and record on step 9 on production traveler.

**Step 49/49**

Numbered annotations (1)

- 41 Test Counter Electrode resistance at green wire and cover and record on step10 of production traveler.

Test Counter Electrode resistance at green wire and cover and record on step10 of production traveler.

