



Instruction Manual

Models SA864

KEY FEATURES

- Installation
- Calibration
- Operation
- Maintenance

Valve Retraction Sensor Assembly

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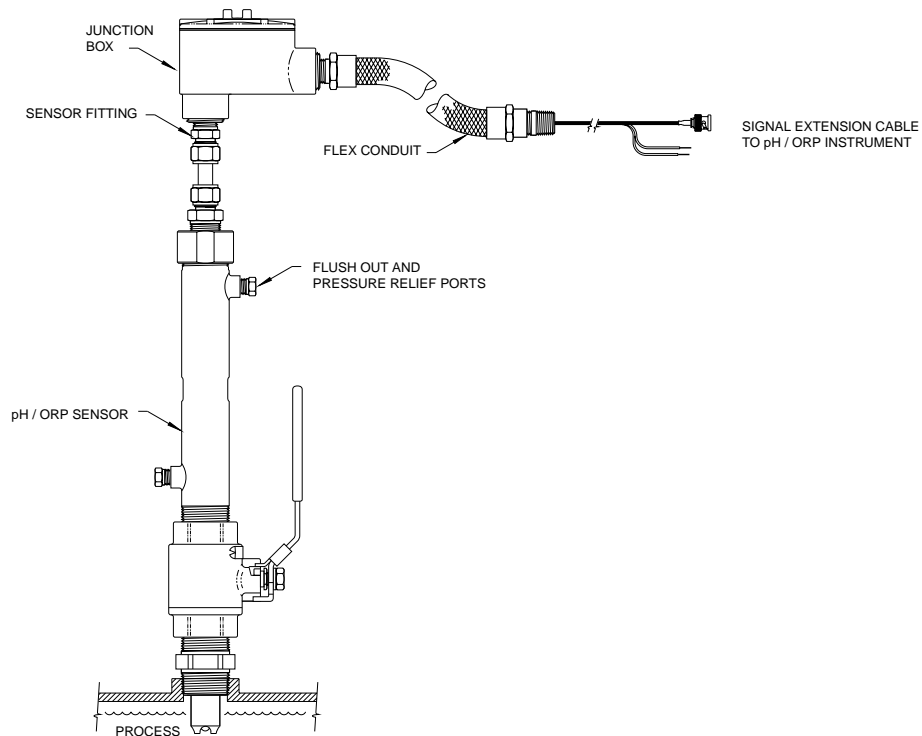
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Model SA864 Sensor Installation Preview

NOTE: THE FOLLOWING INFORMATION IS INTENDED TO PROVIDE THE USER WITH A PREVIEW OF WHAT WILL BE REQUIRED TO INSTALL THE MODEL SA864 SENSOR ASSEMBLY. PLEASE REVIEW THE DIAGRAM AND GUIDELINES BEFORE PROCEEDING.

Typical Sensor Installation Diagram:



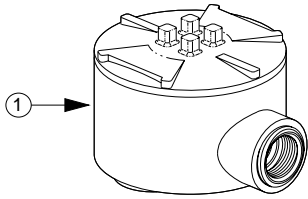
Sensor Installation Guidelines:

- [1]. Install DynaProbe® sensor in pipe or vessel between vertical and 15° above horizontal.
- [2]. Connect flex conduit with adequate service loop to junction box.
- [3]. Make connection of DynaProbe® sensor cable to the extension cable inside the junction box.
- [4]. Keep cable run between junction box and pH / ORP instrument as short as possible.
- [5]. Disconnect sensor cable in junction box prior to removing DynaProbe® sensor for service.



Model SA864 Sensor Assembly Instructions - Stage #1

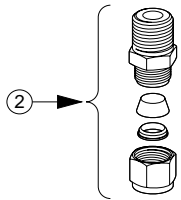
BEGIN STAGE #1 ASSEMBLY OF THE MODEL SA864 SENSOR BY FOLLOWING THE STEP-BY-STEP INSTRUCTIONS [A] THROUGH [F] IN ORDER AS SHOWN BELOW:



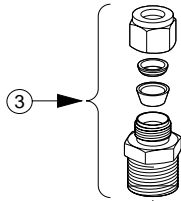
[Step F]. THREAD JUNCTION BOX (1) ONTO TUBE FITTING (2) USING TEFLON TAPE TO SEAL THREADS.

THE ASSEMBLY OF THE SA864 SENSOR SHOULD APPEAR AS SHOWN BELOW.

CONTINUE WITH THE STAGE #1 ASSEMBLY PROCEDURES FOR SENSOR INSTALLATION AND CALIBRATION.



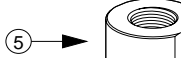
[Step E]. INSERT TUBE FITTING (2) ONTO END OF INSERTION TUBE (7) UNTIL IT STOPS. TIGHTEN LOCKING NUT AND FERRULES.



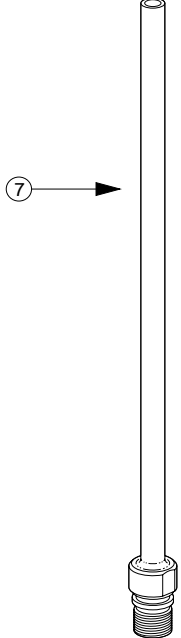
[Step D]. THREAD PACKING GLAND (3) INTO END CAP (5) USE TEFLON TAPE TO SEAL THREADS. KEEP LOCKING NUT AND FERRULES LOOSE BUT ATTACHED TO PACKING GLAND.



[Step C]. INSTALL PACKING GLAND O-RING (4) INTO PACKING GLAND (3).



[Step B]. INSTALL O-RING (6) INSIDE END CAP (5).



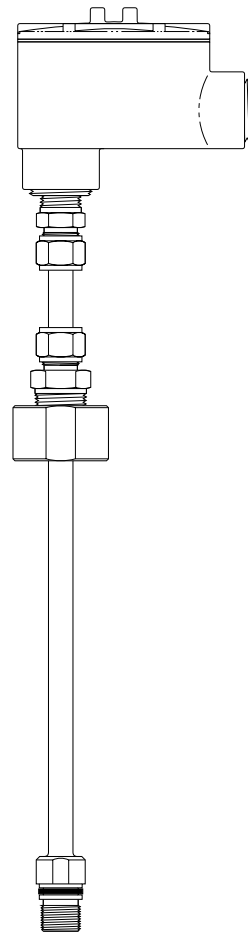
[Step A]. STRETCH O-RING (8) INTO GROOVE ON INSERTION TUBE ASSEMBLY (7).

PLEASE NOTE

(1) REFER TO EXPLODED VIEW DRAWING ON PAGE 12 AND ITEMIZED PART NUMBER LIST FOR DESCRIPTIONS OF EACH SENSOR ASSEMBLY COMPONENT

(2) ALL O-RINGS REQUIRE PROPER LUBRICATION. PRIOR TO SERVICING, WE RECOMMEND THE USE OF PARKER O LUBE OR EQUAL FOR THIS PURPOSE. FOLLOW THE LUBRICATION INSTRUCTIONS PROVIDED WITH LUBRICANT.

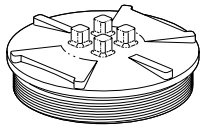
(3) FOR HIGH PRESSURE APPLICATIONS APPROACHING 300 PSIG IT IS RECOMMENDED TO CHANGE THE KYNAR FERRULES, ITEMS 2A AND 3A ON PAGE 12, EACH TIME THE SENSOR IS SERVICED IN ORDER TO MAINTAIN 300 PSIG RATING.



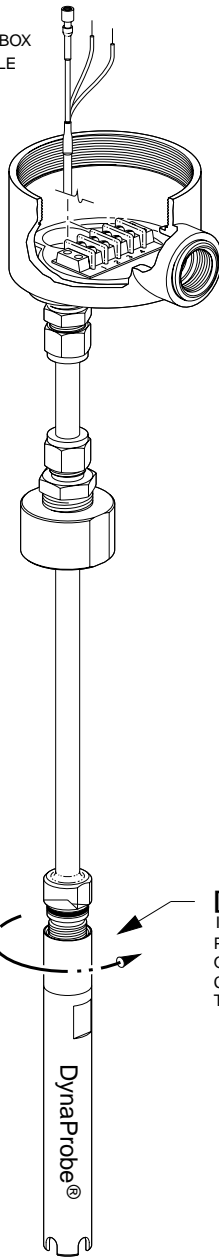
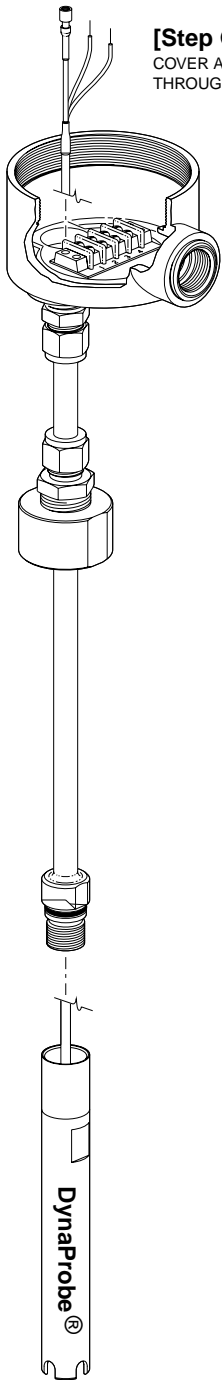


Model SA864 Sensor Assembly Instructions - Stage #1

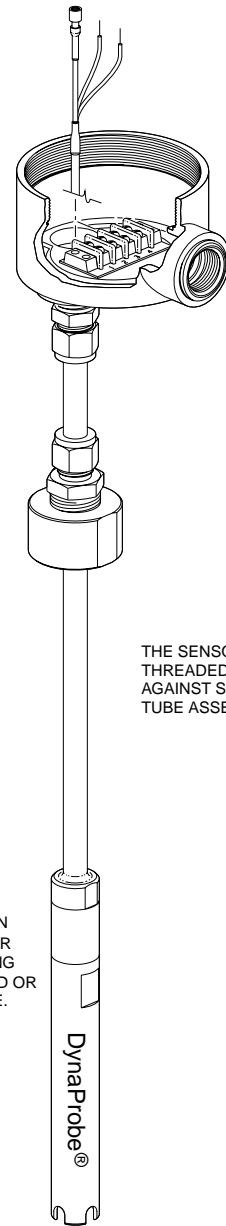
CONTINUE STAGE #1 ASSEMBLY OF THE MODEL SA864 SENSOR BY FOLLOWING THE STEP-BY-STEP INSTRUCTIONS [G] AND [H] IN ORDER AS SHOWN BELOW:



[Step G]. REMOVE JUNCTION BOX COVER AND THREAD SENSOR CABLE THROUGH STAGE #1 ASSEMBLY.



[Step H]. VERIFY THAT INSERTION TUBE O-RING IS IN PLACE THEN THREAD SENSOR ONTO INSERTION TUBE TAKING CARE NOT TO CROSS THREAD OR TO EXCESSIVELY TWIST CABLE.



THE SENSOR SHOULD BE THREADED UNTIL SEATED AGAINST SHOULDER ON INSERTION TUBE ASSEMBLY, AS SHOWN



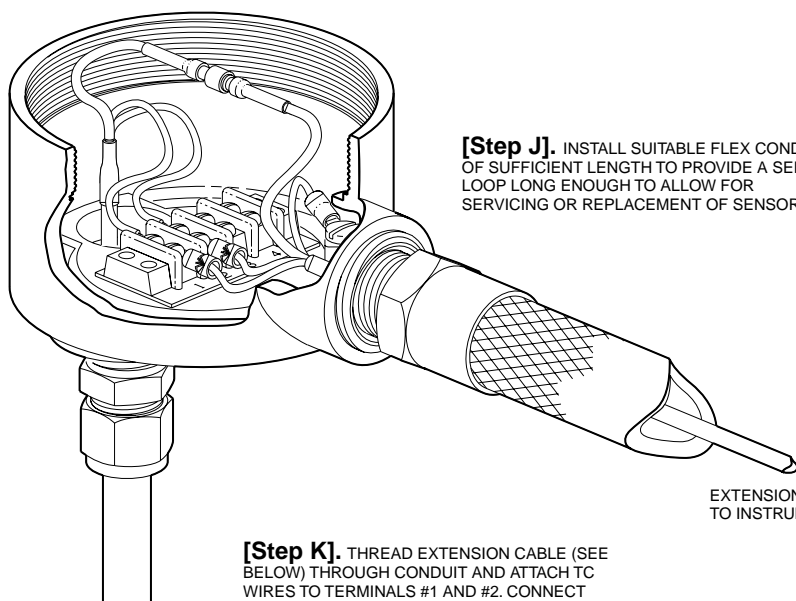
Model SA864 Sensor Assembly Instructions - Stage #1

COMPLETE STAGE #1 ASSEMBLY OF THE MODEL SA864 SENSOR BY FOLLOWING THE STEP-BY-STEP INSTRUCTIONS [I] THROUGH [L] IN ORDER AS SHOWN BELOW:

[Step I]. CONNECT SENSOR TC WIRES TO TERMINALS #1 AND #2 OF THE JUNCTION BOX 4 POSITION TERMINAL STRIP

[Step L]. THE STAGE #1 ASSEMBLY OF THE SA864 SENSOR IS NOW COMPLETE AND SHOULD APPEAR AS SHOWN BELOW. IF REQUIRED, CONNECT TEMPORARY SOLUTION GROUND AS SHOWN BELOW. PERFORM A 2-POINT CALIBRATION WITH pH BUFFER SOLUTIONS BEFORE PROCEEDING FURTHER WITH THE ASSEMBLY AND INSTALLATION.

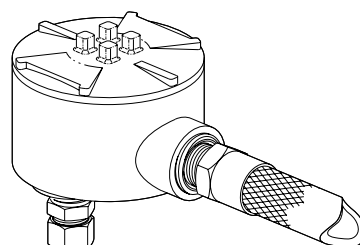
CONTINUE WITH THE STAGE #2 ASSEMBLY PROCEDURES TO COMPLETE THE FINAL ASSEMBLY.



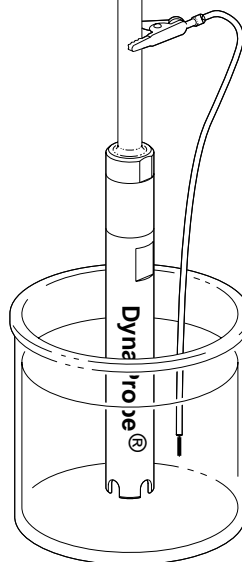
[Step J]. INSTALL SUITABLE FLEX CONDUIT OF SUFFICIENT LENGTH TO PROVIDE A SERVICE LOOP LONG ENOUGH TO ALLOW FOR SERVICING OR REPLACEMENT OF SENSOR.

EXTENSION CABLE TO INSTRUMENT

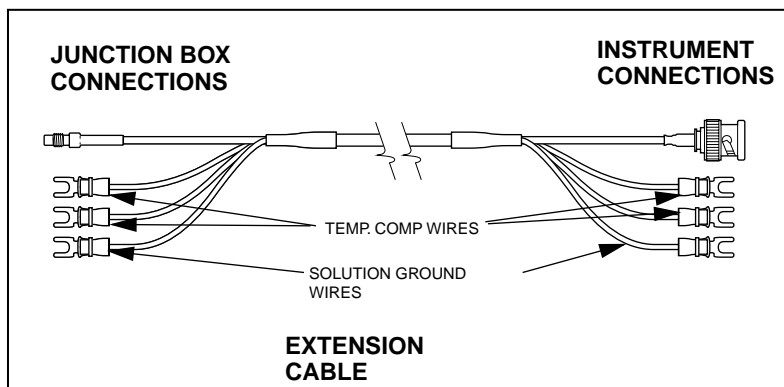
[Step K]. THREAD EXTENSION CABLE (SEE BELOW) THROUGH CONDUIT AND ATTACH TC WIRES TO TERMINALS #1 AND #2. CONNECT SOLUTION GROUND LEAD TO GROUND TERMINAL IN JUNCTION BOX. FINALLY, CONNECT COAXIAL CONNECTORS FROM SENSOR AND EXTENSION CABLE.



TEMPORARY SOLUTION GROUND CONNECTION (IF REQUIRED)



BUFFER SOLUTION



Model SA864 Sensor Assembly Instructions - Stage #2

BEGIN STAGE #2 ASSEMBLY OF THE MODEL SA864 SENSOR BY FOLLOWING THE STEP-BY-STEP INSTRUCTIONS [A] THROUGH [D] IN ORDER AS SHOWN BELOW:

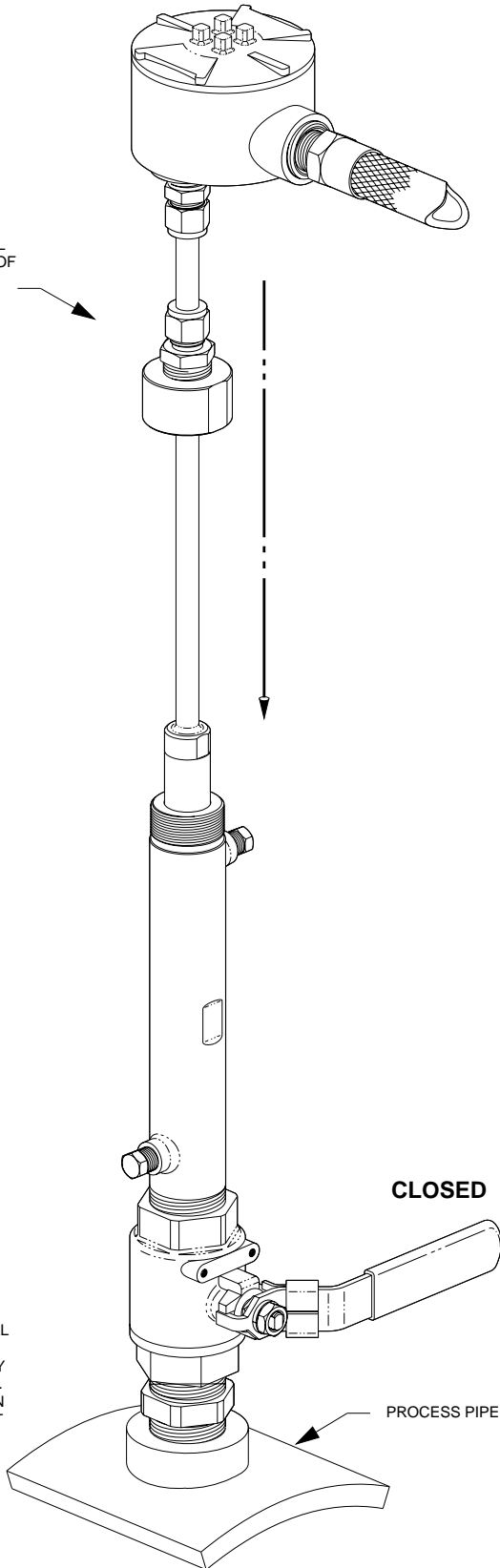
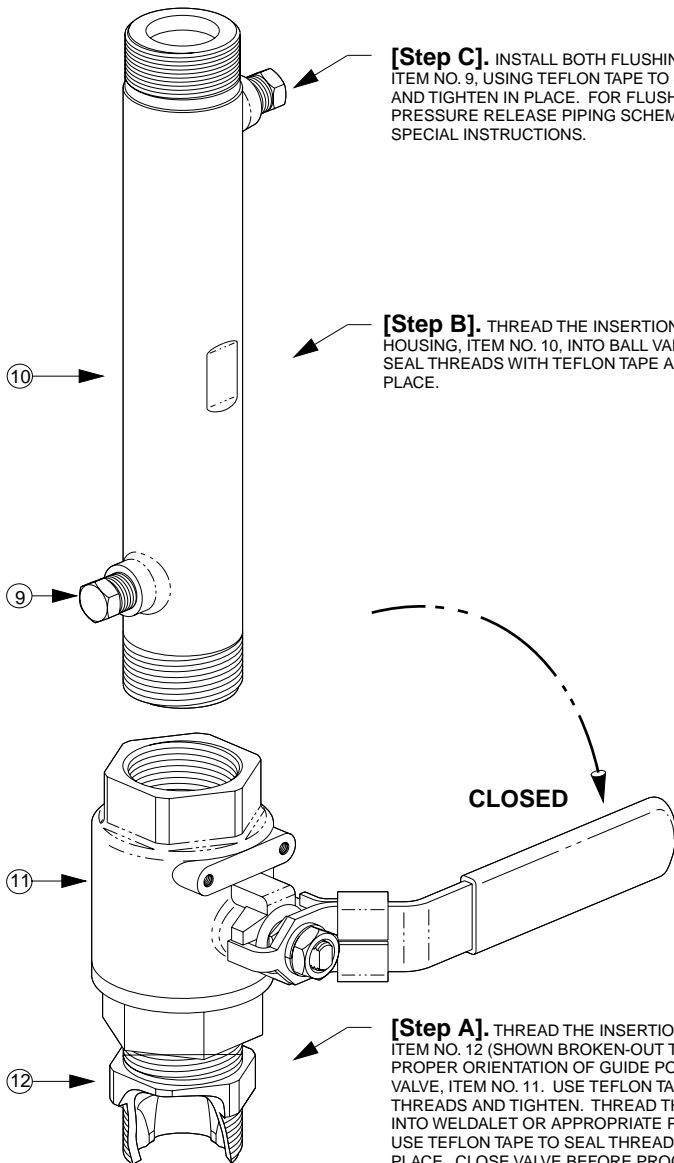
○ → REFER TO EXPLODED VIEW DRAWING AND ITEMIZED PART NUMBER LIST FOR DESCRIPTIONS OF EACH SENSOR ASSEMBLY COMPONENT

[Step D]. INSTALL STAGE #1 SUBASSEMBLY INTO THE INSERTION / RETRACTION HOUSING. BE CAREFUL NOT TO SLAM THE SENSOR INTO THE BALL PORTION OF THE VALVE TO PREVENT BREAKAGE OF THE GLASS BULB.

[Step C]. INSTALL BOTH FLUSHING PLUGS, ITEM NO. 9, USING TEFLON TAPE TO SEAL THREADS AND TIGHTEN IN PLACE. FOR FLUSHING / PRESSURE RELEASE PIPING SCHEME, REFER TO SPECIAL INSTRUCTIONS.

[Step B]. THREAD THE INSERTION / RETRACTION HOUSING, ITEM NO. 10, INTO BALL VALVE, ITEM NO.11. SEAL THREADS WITH TEFLON TAPE AND TIGHTEN IN PLACE.

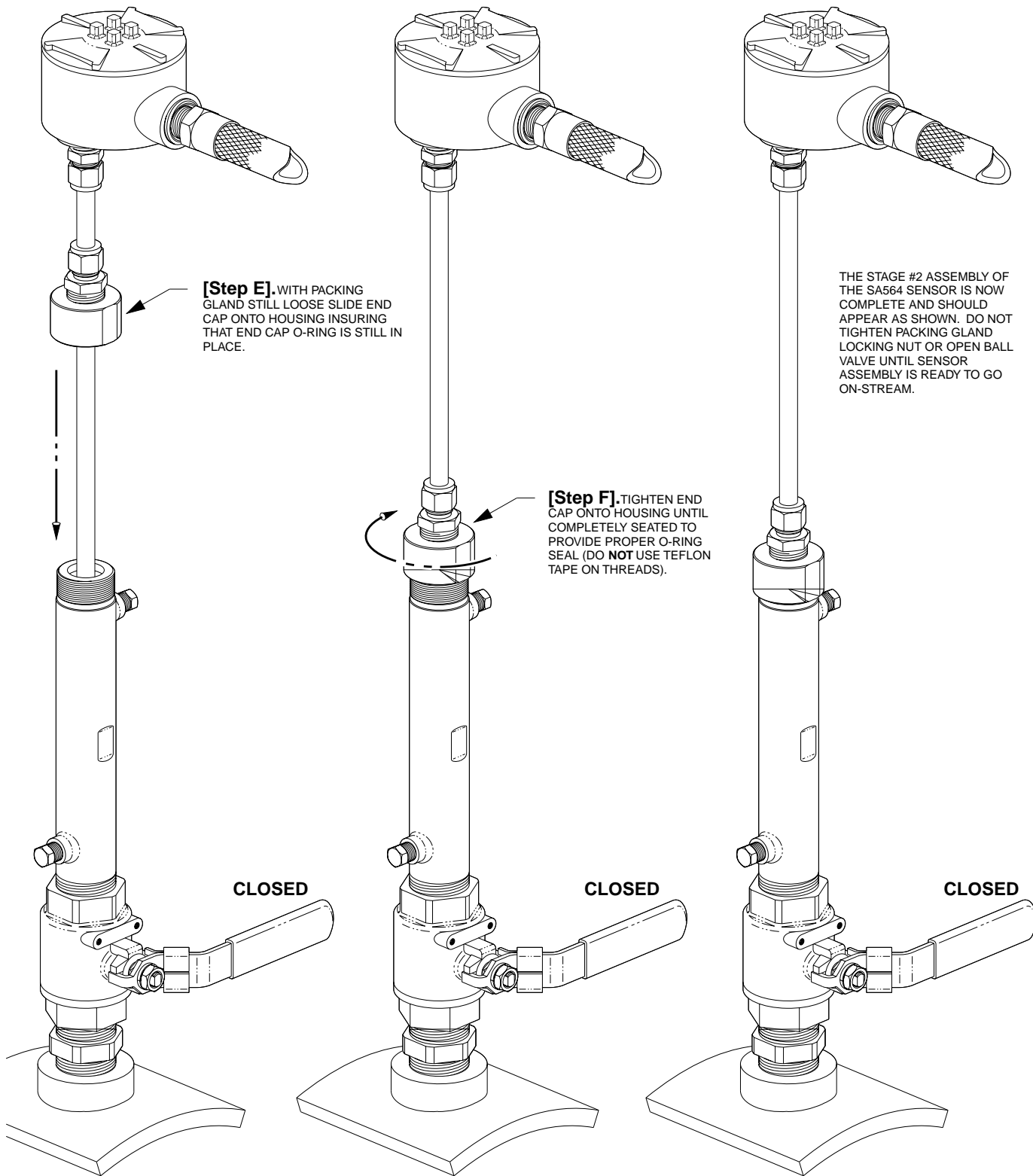
[Step A]. THREAD THE INSERTION GUIDE NIPPLE, ITEM NO. 12 (SHOWN BROKEN-OUT TO ILLUSTRATE PROPER ORIENTATION OF GUIDE PORTION), INTO BALL VALVE, ITEM NO. 11. USE TEFLON TAPE TO SEAL THREADS AND TIGHTEN. THREAD THIS SUBASSEMBLY INTO WELDALET OR APPROPRIATE PROCESS FITTING. USE TEFLON TAPE TO SEAL THREADS AND TIGHTEN IN PLACE. CLOSE VALVE BEFORE PROCEEDING TO NEXT STEP.





Model SA864 Sensor Assembly Instructions - Stage #2

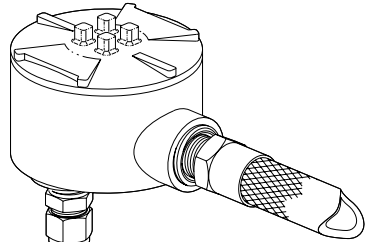
COMPLETE STAGE #2 ASSEMBLY OF THE MODEL SA864 SENSOR BY FOLLOWING THE STEP-BY-STEP INSTRUCTIONS [E] AND [F] IN ORDER AS SHOWN BELOW:



Model SA864 Sensor Assembly Instructions - Stage #3

COMPLETE STAGE #3 ASSEMBLY OF THE MODEL SA864 SENSOR BY FOLLOWING THE STEP-BY-STEP INSTRUCTIONS [A] THROUGH [C] IN ORDER AS SHOWN BELOW:

○ → REFER TO EXPLODED VIEW DRAWING AND ITEMIZED PART NUMBER LIST FOR DESCRIPTIONS OF EACH SENSOR ASSEMBLY COMPONENT



THE FINAL ASSEMBLY IS NOW READY TO BE PLACED INTO SERVICE, WITH END CAP TIGHTENED, PACKING GLAND LOCKING NUT ENGAGED BUT NOT TIGHTENED AND SENSOR IN THE RETRACTED POSITION..

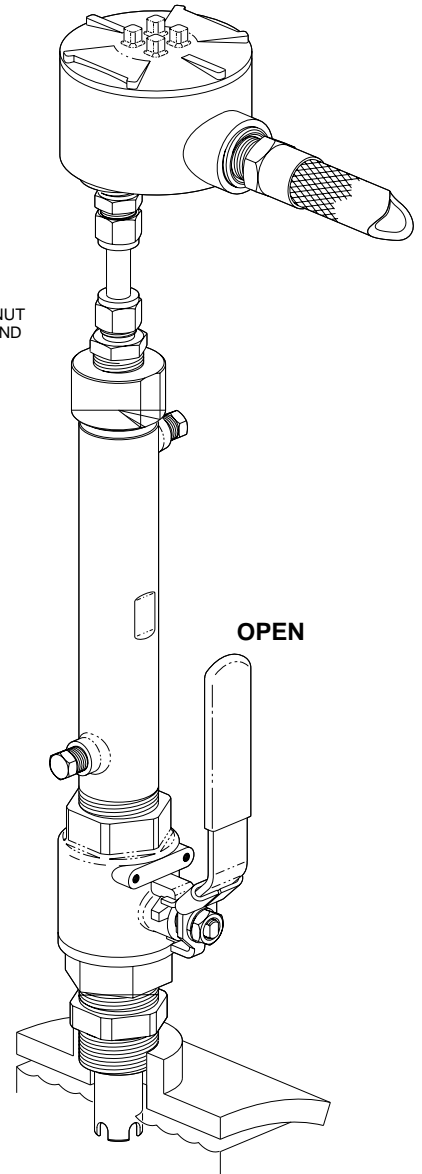
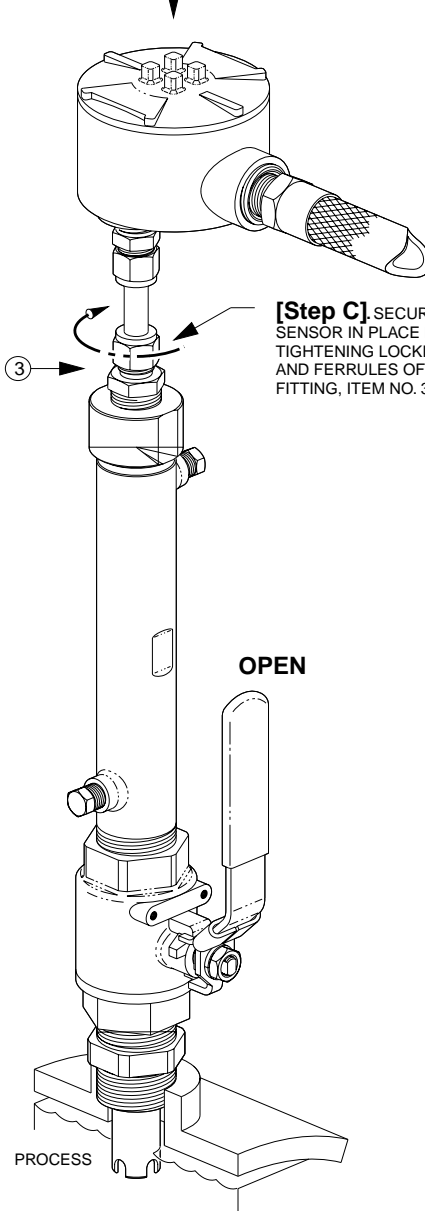
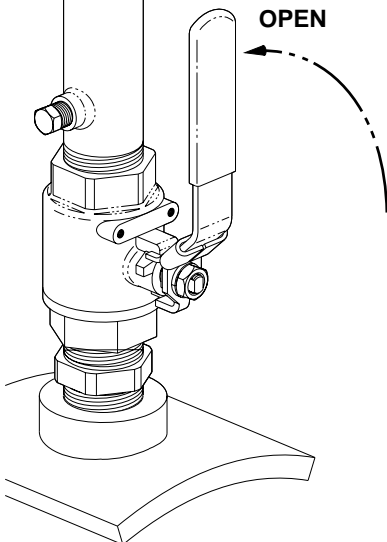
[Step B], INSERT STAGE #1 SUBASSEMBLY INTO PROCESS.

THE IN SERVICE ASSEMBLY SHOULD APPEAR AS SHOWN BELOW.

[Step A], TO PLACE ASSEMBLY INTO SERVICE OPEN BALL VALVE COMPLETELY.

Caution: OPENING VALVE SUBJECTS SENSOR ASSEMBLY TO LINE PRESSURE. IF THE SENSOR IS NOT RETRACTED COMPLETELY AGAINST STOP, OPENING THE VALVE COULD RESULT IN THE SENSOR SUDDENLY RETRACTING THE REMAINING DISTANCE CAUSING DAMAGE TO THE SENSOR ASSEMBLY OR INJURY TO THE SERVICE PERSON.

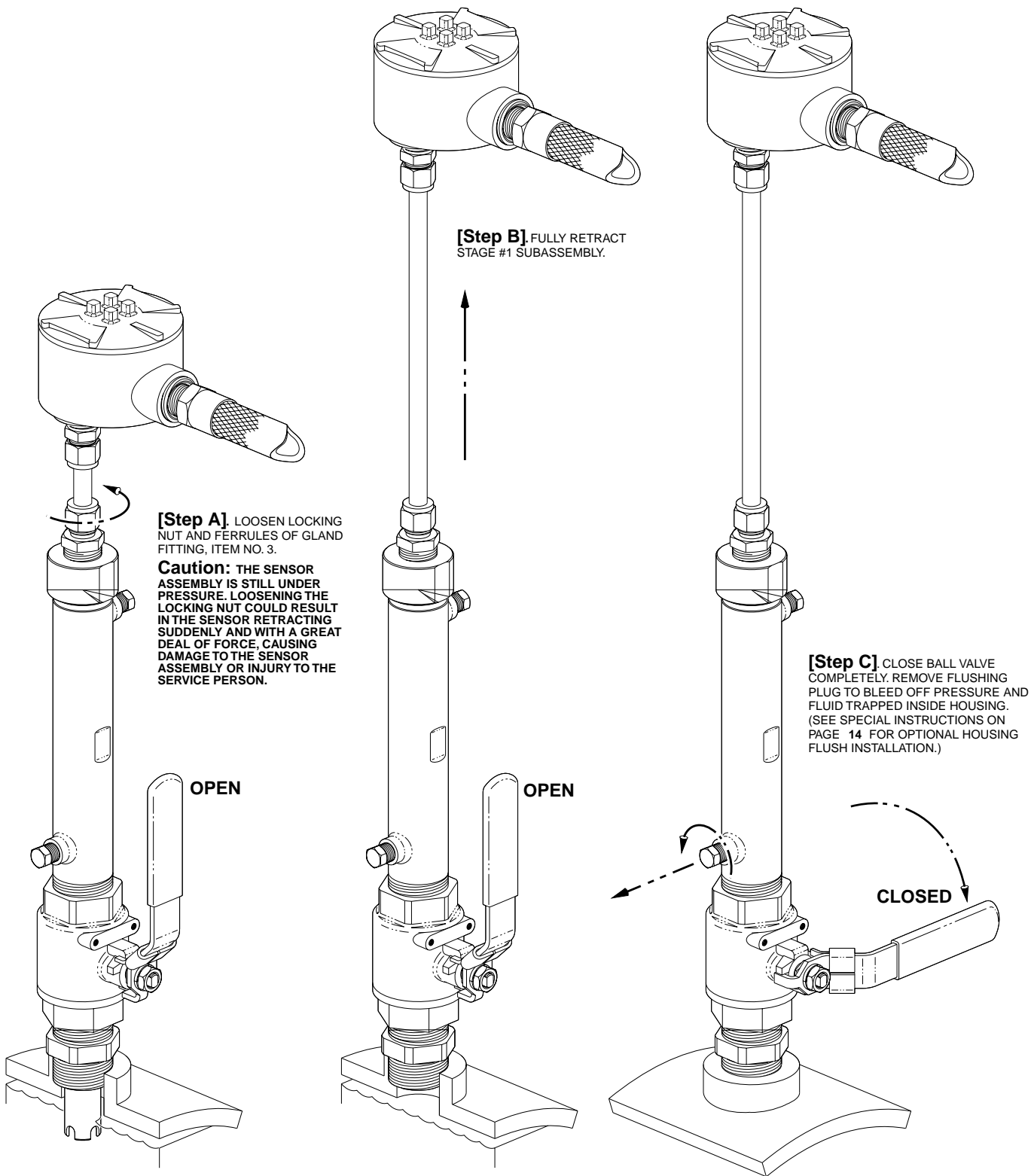
[Step C], SECURE SENSOR IN PLACE BY TIGHTENING LOCKING NUT AND FERRULES OF GLAND FITTING, ITEM NO. 3.





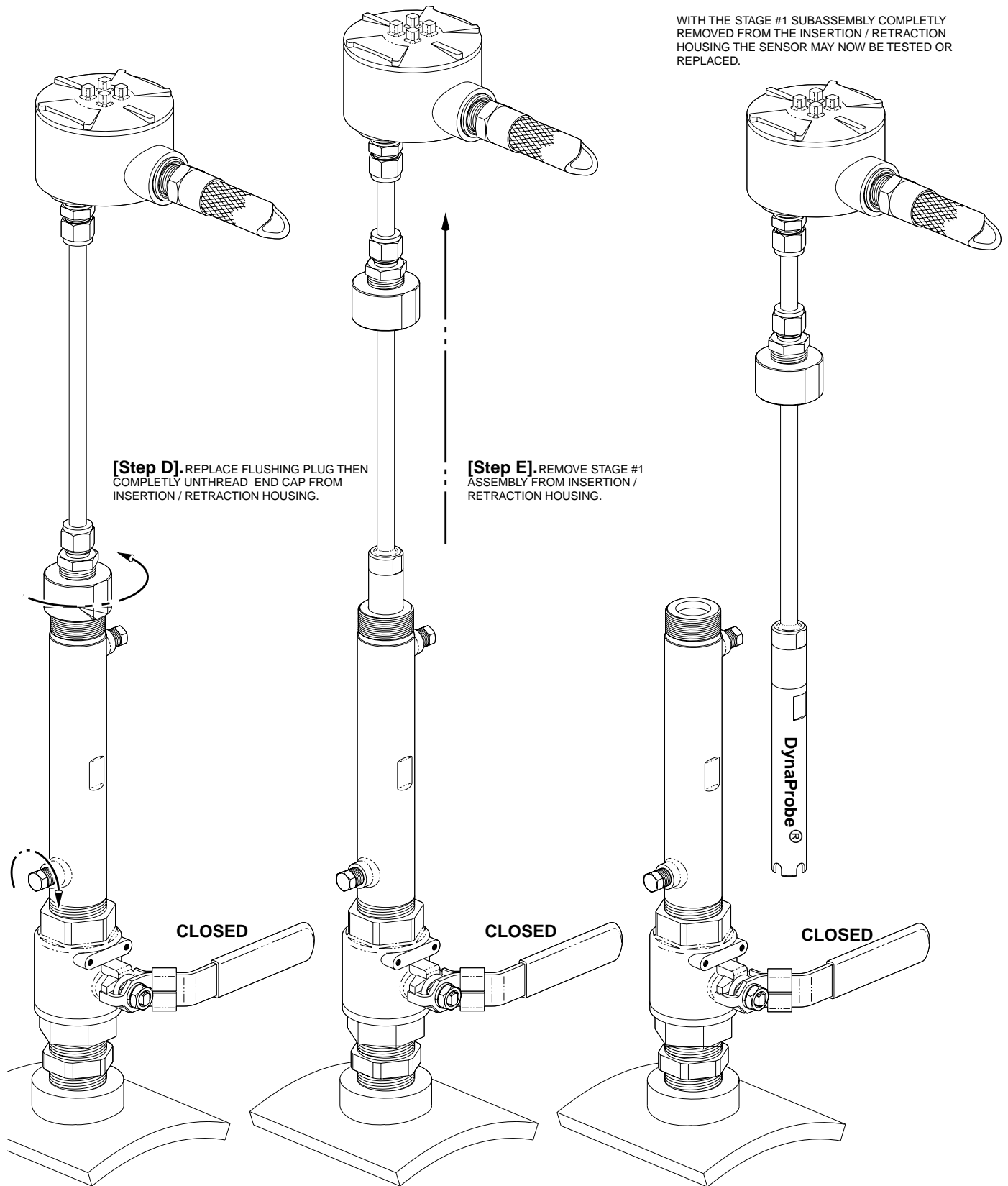
Model SA864 Sensor Service Instructions

BEGIN SERVICING BY REMOVING THE MODEL SA864 SENSOR FROM SERVICE FOLLOWING THE STEP-BY-STEP INSTRUCTIONS [A] THROUGH [C] IN ORDER AS SHOWN BELOW:



Model SA864 Sensor Service Instructions

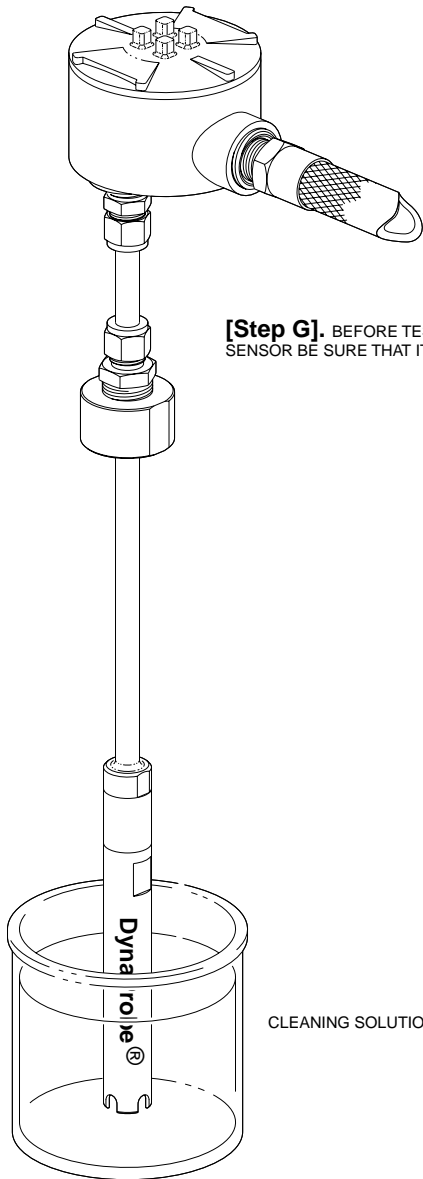
CONTINUE SERVICING BY COMPLETING THE REMOVAL OF THE MODEL SA864 SENSOR FROM SERVICE FOLLOWING THE STEP-BY-STEP INSTRUCTIONS [D] AND [E] IN ORDER AS SHOWN BELOW:





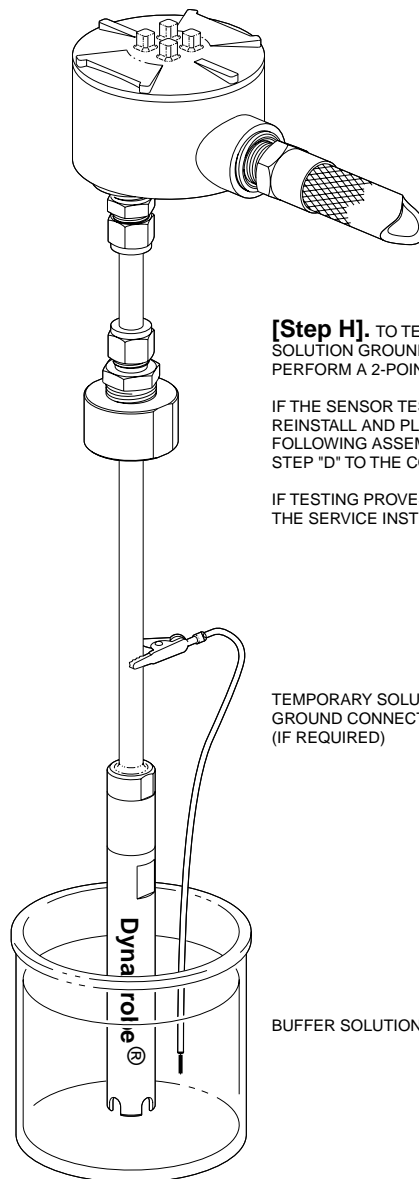
Model SA864 Sensor Service Instructions

CONTINUE SERVICING OF THE MODEL SA864 SENSOR BY FOLLOWING THE STEP-BY-STEP INSTRUCTIONS [G] AND [H] IN ORDER AS SHOWN BELOW:



[Step G]. BEFORE TESTING THE SENSOR BE SURE THAT IT IS CLEAN.

CLEANING SOLUTION



[Step H]. TO TEST SENSOR CONNECT TEMPORARY SOLUTION GROUND (IF REQUIRED) AS SHOWN BELOW AND PERFORM A 2-POINT CALIBRATION WITH pH BUFFER.

IF THE SENSOR TESTS WITHIN ACCEPTABLE LIMITS REINSTALL AND PLACE SENSOR BACK IN SERVICE BY FOLLOWING ASSEMBLY INSTRUCTIONS FROM STAGE #2 STEP "D" TO THE COMPLETION OF STAGE #3.

IF TESTING PROVES SENSOR TO BE FAULTY CONTINUE WITH THE SERVICE INSTRUCTIONS FOR SENSOR REPLACEMENT.

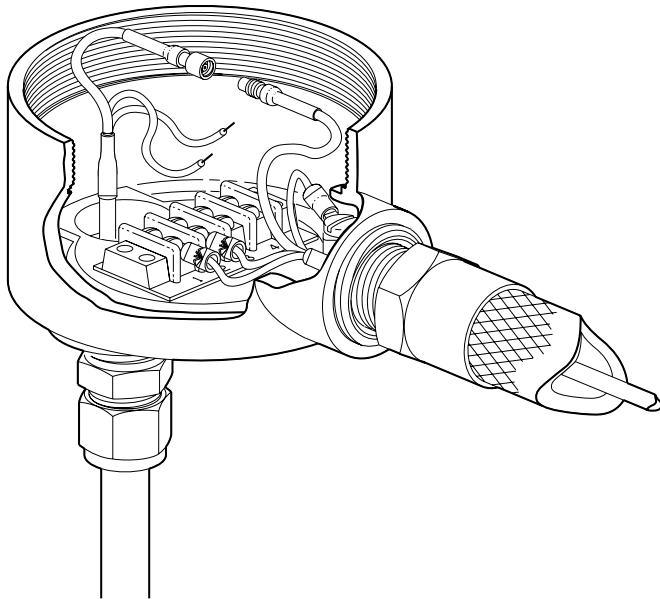
TEMPORARY SOLUTION GROUND CONNECTION (IF REQUIRED)

BUFFER SOLUTION

Model SA864 Sensor Service Instructions

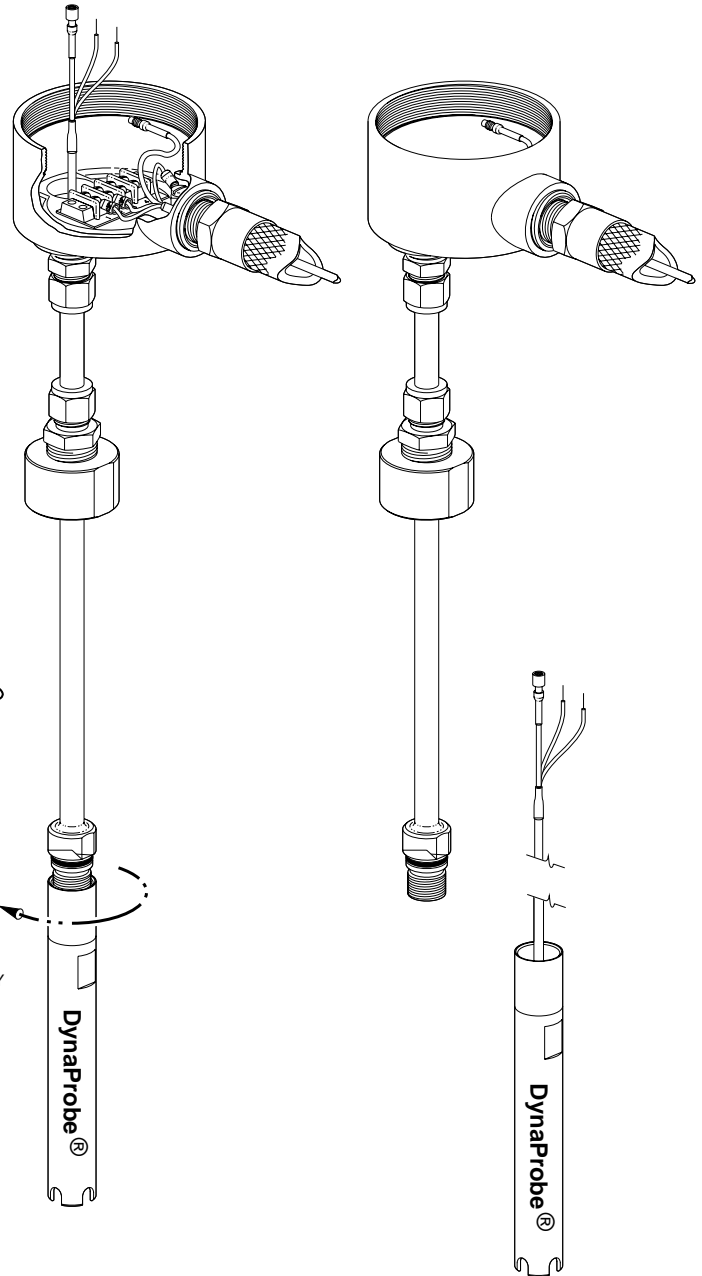
CONTINUE SERVICING OF THE MODEL SA864 SENSOR BY FOLLOWING THE STEP-BY-STEP SENSOR REPLACEMENT INSTRUCTIONS [I] THROUGH [K] IN ORDER AS SHOWN BELOW:

[Step I]. REMOVE JUNCTION BOX COVER. DISCONNECT SENSOR TC WIRES FROM TERMINALS 1 AND 2 AND UNPLUG SENSOR COAXIAL CABLE CONNECTOR FROM EXTENSION CABLE.



[Step K]. REMOVE SENSOR BY PULLING SENSOR CABLE THROUGH INSERTION TUBE ASSEMBLY

TO INSTALL A NEW SENSOR AND RETURN THE MODEL SA864 TO SERVICE FOLLOW THE ASSEMBLY INSTRUCTIONS STARTING FROM STAGE #1 STEP "G" TO THE COMPLETION OF STAGE #3 BUT EXCLUDING STEPS "J" AND "K" OF STAGE #1 AND STEPS "A", "B" AND "C" OF STAGE #2.



[Step J]. UNTHREAD SENSOR FROM INSERTION TUBE ASSEMBLY

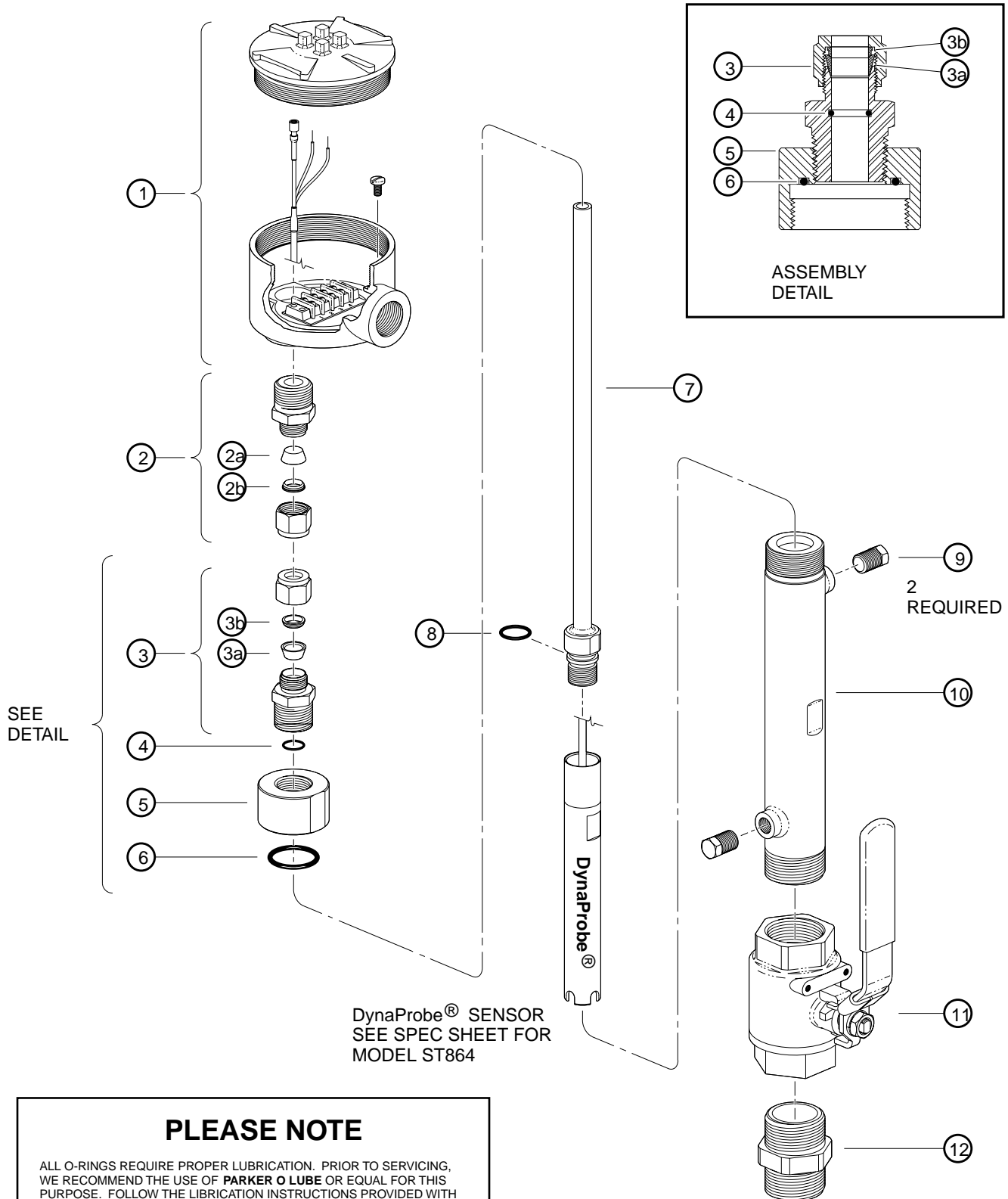
PLEASE NOTE

FOR HIGH PRESSURE APPLICATIONS APPROACHING 300 PSIG IT IS RECOMMENDED TO CHANGE THE KYNAR FERRULES, ITEMS 2A AND 3A ON PAGE 12, EACH TIME THE SENSOR IS SERVICED IN ORDER TO MAINTAIN 300 PSIG RATING.



SA864 SENSOR HOUSING ASSEMBLY

See Itemized List for Part Number & Description



PLEASE NOTE

ALL O-RINGS REQUIRE PROPER LUBRICATION. PRIOR TO SERVICING, WE RECOMMEND THE USE OF **PARKER O LUBE** OR EQUAL FOR THIS PURPOSE. FOLLOW THE LIBRICATION INSTRUCTIONS PROVIDED WITH LUBRICANT.



SA864 SENSOR HOUSING ASSEMBLY

EXPLODED VIEW ITEMIZED PART NUMBERS AND DESCRIPTIONS

<u>Item</u>	<u>Part Number</u>	<u>Description</u>
1	SA864-A-P100	Junction Box Assembly
2	SA864-A-P105	Fitting, 1/2" Tube to 3/4" MNPT, 316L SS
2a	SA864-A-P110	Ferrule, Front, PVDF, 1/2" Tube Fitting
2b	SA864-A-P120	Ferrule, Back, 316 SS, 1/2" Tube Fitting, Split
3	SA864-A-P115	Packing Gland, 1/2" Tube to 3/4" MNPT, 316L SS, O-RING
3a	SA864-A-P110	Ferrule, Front, PVDF, 1/2" Tube Fitting
3b	SA864-A-P120	Ferrule, Back, 316 SS, 1/2" Tube Fitting, Split
4	SA864-A-P125	O-Ring, Packing Gland, Viton
5	SA864-A-P140	End Cap, 316L SS
6	SA864-A-P145	O-Ring, End Cap, Viton
7	SA864-A-P130	Insertion Tube Assembly, 316L SS
8	SA864-A-P135	O-Ring, Insertion Tube, Viton
9	SA864-A-P150	Flushing Plug, 1/4" MNPT, 316L SS
10	SA864-A-P155	Insertion / Retraction Housing, 316L SS
11	SA864-A-P160	Ball Balve, Full Port, 1 1/4" NPT, 316L SS
12	SA864-A-P165	Insertion Guide Nipple, 1 1/4" MNPT, 316L SS
Sensor	See Spec Sheet	DynaProbe® Sensor Model ST864



Model SA864 Sensor Flush/Pressure Release Installation

