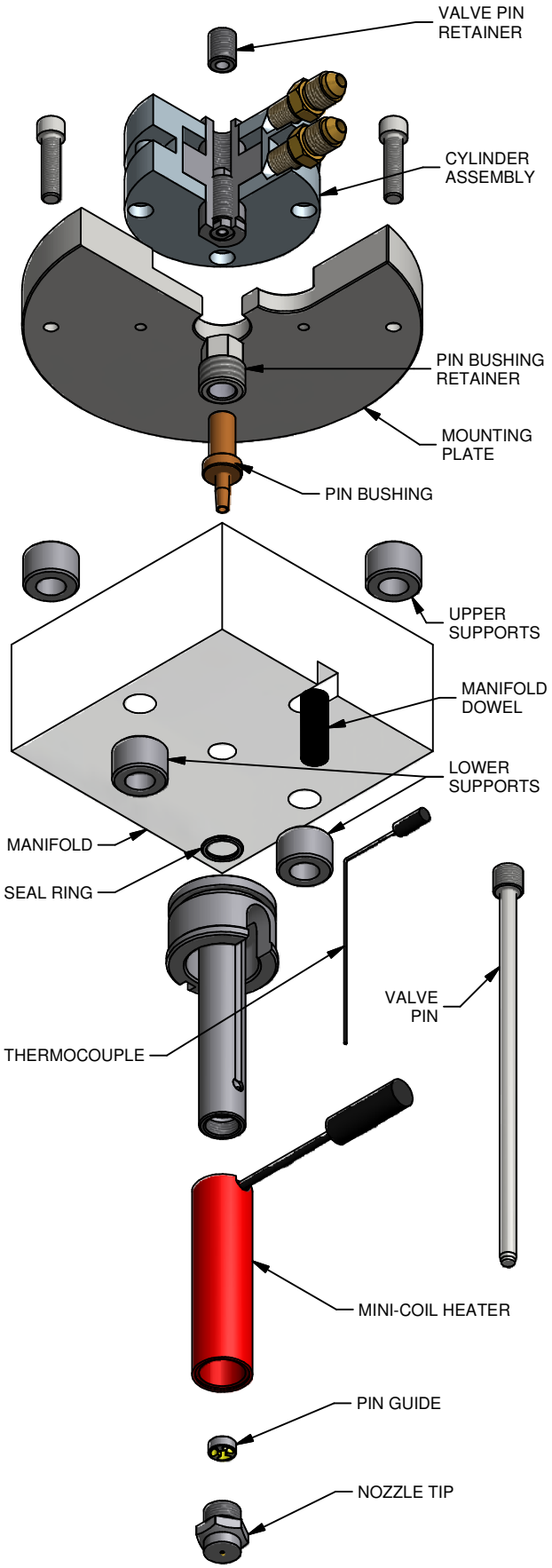
VGN - ASSEMBLY & DISASSEMBLY



VGN Manifold System Assembly in Plates.

1. Fit nozzles into nozzle plate.
2. Number and route wires for nozzles.
3. Position the lower support above the threaded holes in the nozzle plate.
4. Install the center dowel and locating dowel in the nozzle plate.
5. Position the center support over the center dowel.
6. Install the manifold onto the nozzles using the dowels to locate the manifold.
7. Install the manifold hold down bolts and torque to bolt specifications.
8. Ensure manifold is flat and located correctly.
9. Number, route, and clear wires for manifold.
10. Insert and tighten manifold hold down screws through the lower supports into the nozzle plate. (Torque is per machinist's handbook for bolt size.)
11. Install valve pins into the cylinders using the OSCO valve pin installation instructions.
12. Install the valve pin/cylinder assembly by inserting valve pin into the valve pin bushing in the manifold until the cylinder sits flat on the HCA Mount Plate.
13. Tighten the bolts on the HCA Mount Plate to machinist's handbook torque spec per bolt size.
14. Plumb the cylinders per tool design.
15. Connect all wiring per tool design.
16. Assemble top clamp plate and any side rails to the tool per design.
17. Set valve pins to ensure proper stroke and shut off per the OSCO vale pin installation instructions.
18. Test system on the bench to ensure all wiring is correct and all valve pins actuate correctly.

VGN Manifold Disassembly in Plates / Replacing Manifold Heaters

1. Disconnect the VG lines from the cylinders and remove the fittings from the cylinder.
2. Remove valve pin retainer from the cylinder, then spin the cylinder off the valve pin. (Pin is threaded.)
3. Remove the HCA Mount Plate (cylinders sit on HCA Mount Plate) from the manifold. Be careful to not lose the small pillar supports under the HCA Mount Plate.
4. Once the manifold is cool enough to touch, take out the small, flat hold down screws on the manifold heaters near the connection point. *(Skip this step if not replacing manifold heaters.)*
5. Pull out the manifold heaters. *(Skip this step if not replacing manifold heaters.)*
6. Install new heaters using the OSCO manifold heater installation instructions, then power up the manifold with the new heaters to loosen the plastic on the valve pins. Remember to power up the nozzles. *(Skip this step if not replacing manifold heaters.)*
7. Once plastic has heated enough to allow you to remove the valve pins, pull out the valve pins.
8. Shut system down to cool manifold so you do not burn your hands and/or fingers when proceeding to the next step.
9. Remove hold down screws from manifold.
10. Turn on nozzles just enough to loosen the plastic between nozzle and manifold.
11. Once plastic allows you to lift manifold away from nozzles, please do so. Be careful not to lose the lower pillar supports, or the alignment dowel under the manifold.
12. Remove all seal rings. Replace w/new during reassembly.
13. Flip manifold over and remove failed heaters as in step #5. *(Skip this step if not replacing manifold heaters.)*
14. Install new heaters as in step #6. *(Skip this step if not replacing manifold heaters.)*
15. Reassemble system, ensuring nozzles are flat in their counter bores, and manifold is flat. Torque specs are to machinist's handbook.
16. Align each lower support to nozzle plate at threaded hole locations.
17. Reattach HCA Mount Plates and cylinders.
18. Turn manifold and nozzles on so you can insert valve pins. Cylinder's piston should be completely forward.
19. Thread valve pins into cylinder/piston assembly so they are flush to the gate, then install valve pin retainer.
20. Reattach hydraulic connections.
21. Fine tune valve pin set position per OSCO VG pin setting instructions.

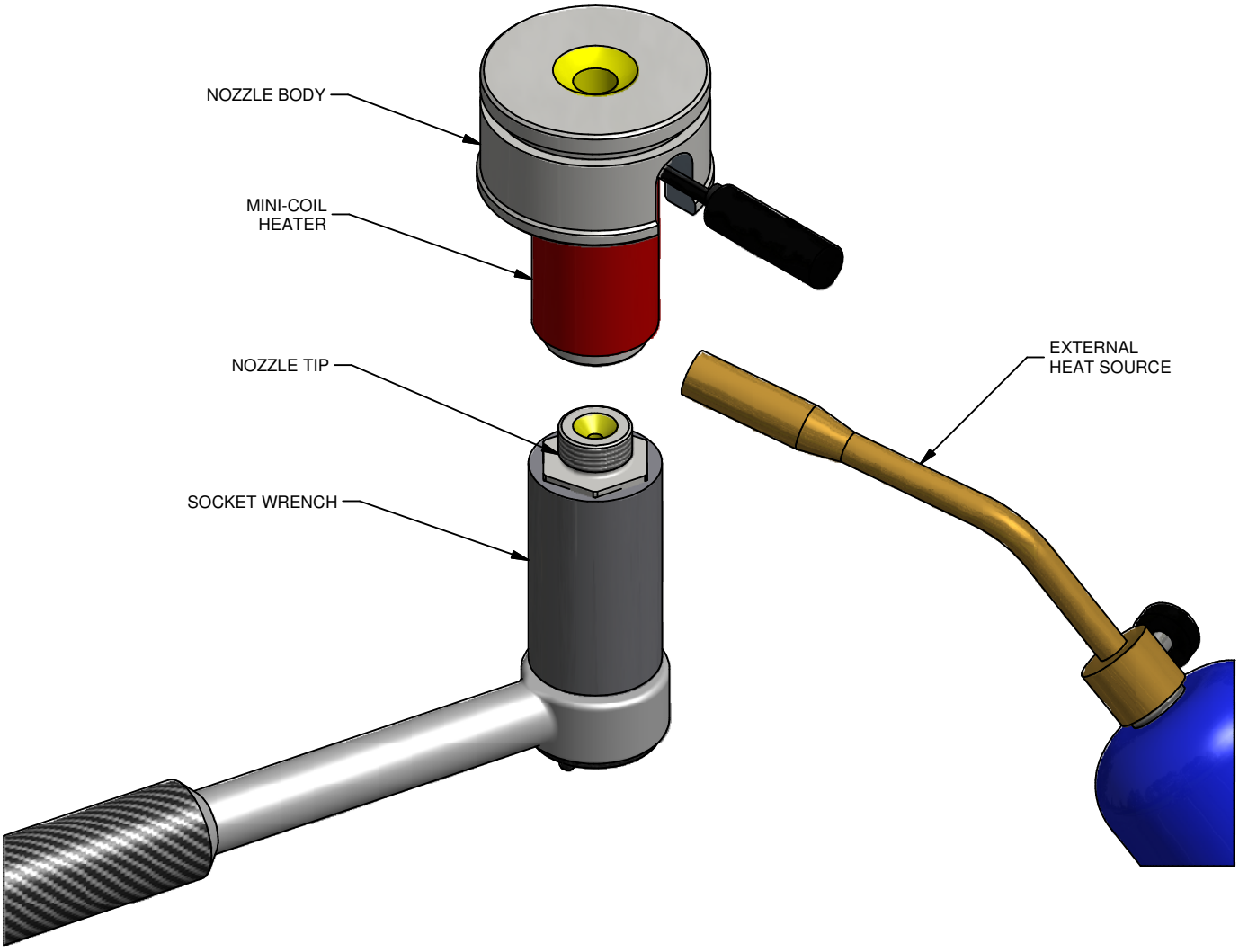
FREQUENTLY ASKED QUESTIONS

HOW DO I.....

Question: How do I remove a previously installed Nozzle Tip?

Answer: Over time, the Nozzle Tips can become seized into the Nozzle body. The best way to remove them is to use heat. Using an external heat source, gradually heat the lower part of the Nozzle body, particularly where the threads are located. Once the area is heated, use correct socket and wrench to loosen the tip.

**Note: In some applications, you will be able to remove the body heater. If you are able to slide the heater(s) over the tip, it is recommended that you do so.



**NOTE: THIS VIEW SHOWS A NOZZLE ASSEMBLY WHERE THE HEATER IS UNABLE TO SLIDE OVER THE NOZZLE TIP.

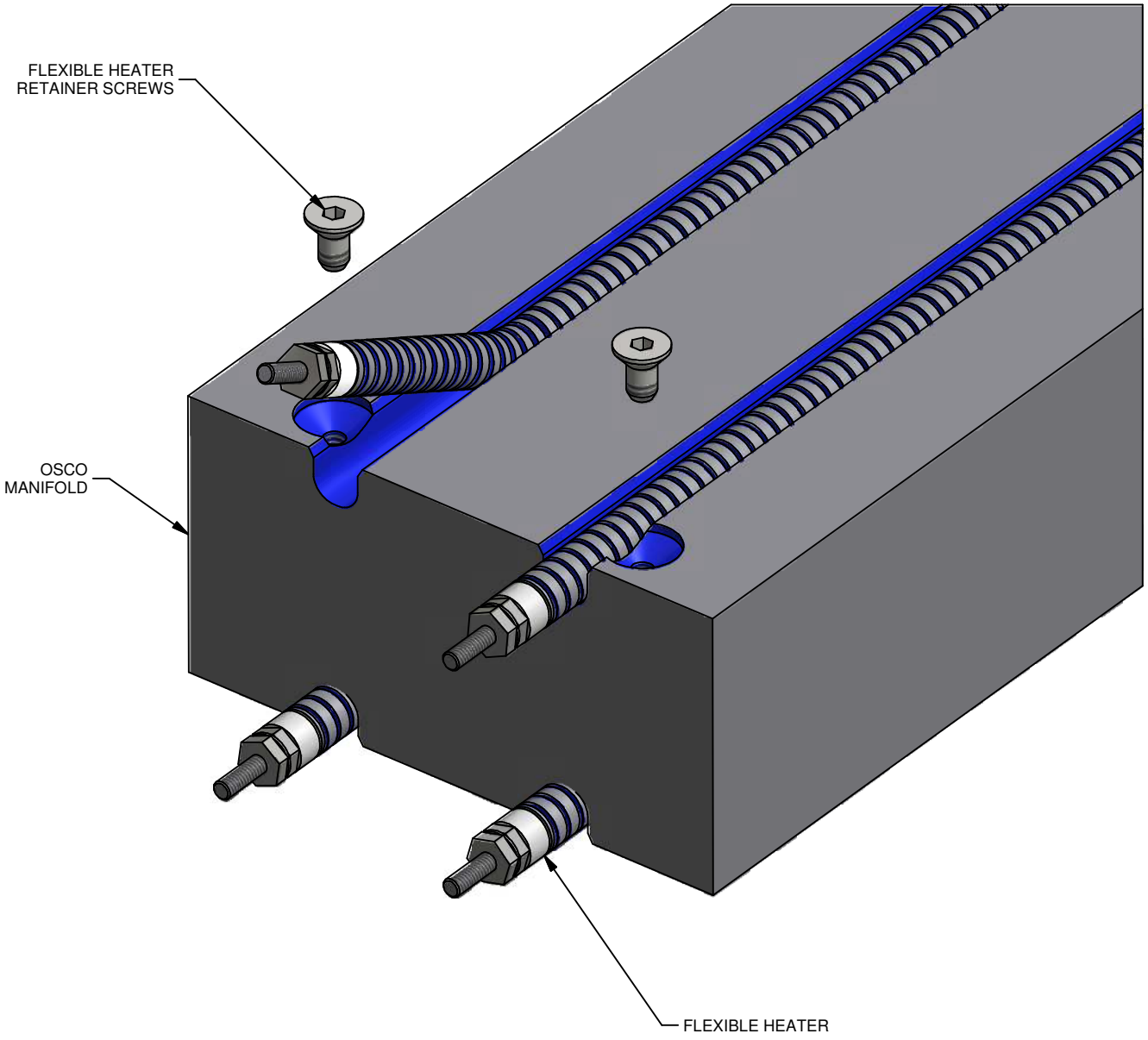
FREQUENTLY ASKED QUESTIONS

HOW DO I.....

Question: How do I remove a previously installed flexible manifold heaters?

Answer: Occasionally there may be reason for you to replace your existing Flexible Heaters. To do this, simply disconnect the heater lead wires and remove the hold-down screws. Starting at one end, pry up on the Flexible Heater with a soft metal instrument continuing to follow the heater path as you pry upward. Repeat these steps for each heater.

**Note: This procedure is only applicable to Flexible Heaters.



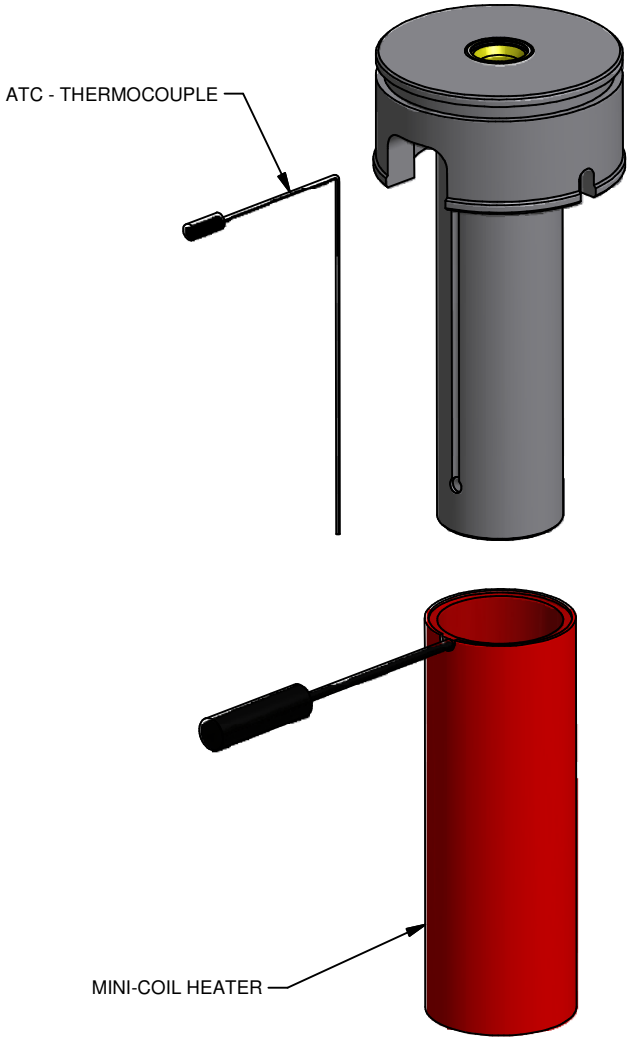
FREQUENTLY ASKED QUESTIONS

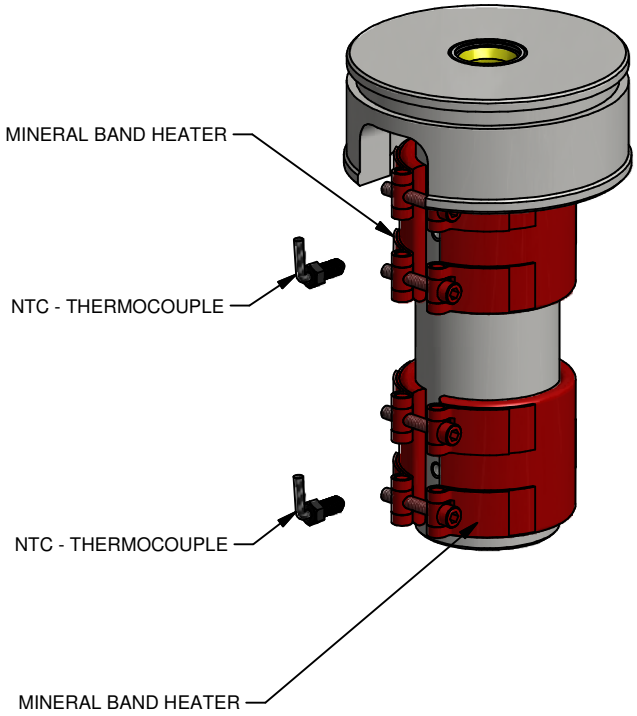
HOW DO I.....

Question: How do I replace a nozzle T/C (Thermocouple)?

Answer: There are (2) two types of thermocouples used in Osco Nozzle Assemblies. The ATC thermocouple is used with "MC" Mini-Coil Heaters and the NTC thermocouple is used with "MBH" Mineral Band Heaters. To remove an ATC thermocouple, you will need to remove the "MC" Heater entirely to be able to gain access to the contact point of the thermocouple. If your Nozzle Assembly contains an "MBH" Heater, you will need a 1/4" open-end wrench to remove the NTC thermocouple. You may access the NTC thermocouples without the need to remove the "MBH" Heaters.

**Note: This procedure may not be applicable to a 'customer-specific' nozzle assembly.





OSCO Torque Specifications

20 Series HSN/CVT		
Component	**Thread Size**	**Suggested Torque**
Tip	3/8" – 24	15 ft. lbs.
Manifold Hold Down Screws	5/16" – 18 or 3/8" – 16	32 ft. lbs.
MNS/MEN	5/8" – 18	55 ft. lbs.
Manifold Plug Retainers	5/8" – 18	55 ft. lbs.
Thermocouple	#8 – 32	20 inch lbs.
Thermocouple	¼" – 28	60 inch lbs.

50 Series HSN/CVT		
Component	**Thread Size**	**Suggested Torque**
Tip	½" – 24	30 ft. lbs.
Manifold Hold Down Screws	3/8" – 16	32 ft. lbs.
MNS/MEN	¾" – 16	100 ft. lbs.
Manifold Plug Retainers	¾" – 16	100 ft. lbs.
Thermocouple	#8 – 32	20 inch lbs.
Thermocouple	¼" – 28	60 inch lbs.

100 Series HSN/CVT		
Component	**Thread Size**	**Suggested Torque**
Tip	5/8" – 24	55 – 60 ft. lbs.
Manifold Hold Down Screws	3/8" – 16	32 ft. lbs.
MNS/MEN	¾" – 16	100 ft. lbs.
Manifold Plug Retainers	7/8" – 14	100 ft. lbs.
Thermocouple	#8 – 32	20 inch lbs.
Thermocouple	¼" – 28	60 inch lbs.

200 Series HSN/CVT		
Component	**Thread Size**	**Suggested Torque**
Tip	1" – 16	90 – 100 ft. lbs.
Manifold Hold Down Screws	3/8" – 16	32 ft. lbs.
MNS/MEN	1" – 12	120 ft. lbs.
Manifold Plug Retainers	1" – 14	120 ft. lbs.
Thermocouple	#8 – 32	20 inch lbs.
Thermocouple	¼" – 28	60 inch lbs.

50 Series VGN		
Component	**Thread Size**	**Suggested Torque**
Tip	½" – 24	30 ft. lbs.
Manifold Hold Down Screws	3/8" – 16	32 ft. lbs.
MNS/MEN	¾" – 16	100 ft. lbs.
Manifold Plug Retainers	¾" – 16	100 ft. lbs.
Pin Bushing Retainer	5/8" – 11	55 – 60 ft. lbs.
Thermocouple	#8 – 32	20 inch lbs.
Thermocouple	¼" – 28	60 inch lbs.

100 Series VGN		
Component	**Thread Size**	**Suggested Torque**
Tip	11/16" – 20	55 – 60 ft. lbs.
Manifold Hold Down Screws	3/8" – 16	32 ft. lbs.
MNS/MEN	¾" – 16	100 ft. lbs.
Manifold Plug Retainers	7/8" – 14	100 ft. lbs.
Pin Bushing Retainer	¾" – 16	100 ft. lbs.
Thermocouple	#8 – 32	20 inch lbs.
Thermocouple	¼" – 28	60 inch lbs.

200 Series VGN		
Component	**Thread Size**	**Suggested Torque**
Tip	1" – 16	90 – 100 ft. lbs.
Manifold Hold Down Screws	3/8" – 16	32 ft. lbs.
MNS/MEN	1" – 12	120 ft. lbs.
Manifold Plug Retainers	1" – 14	120 ft. lbs.
Pin Bushing Retainer	1" – 14	120 ft. lbs.
Thermocouple	#8 – 32	20 inch lbs.
Thermocouple	¼" – 28	60 inch lbs.

Miscellaneous		
Component	**Thread Size**	**Suggested Torque**
300 Series Tips	1-3/16" – 18	90 – 100 ft. lbs.
MGN Probes	9/16" – 18	40 ft. lbs.
SCV-200 Tips	1" – 16	90 – 100 ft. lbs.
SCV-400 Tips	1-1/4" – 16	100 – 110 ft. lbs.
DSV-500 Tips	1-3/8" – 18	120 – 130 ft. lbs.