

SERIES 20 SECTIONAL DIRECTIONAL CONTROL VALVES INSTALLATION & USER GUIDE

SPECIFICATIONS:

- Rated for 0-6 gpm (0 - 23 lpm).
- Rated for 4500 psi (301bar) parallel or 3000 psi (207 bar) series.
- Std. port sizes (consult factory for others).
 - #6 SAE (9/16-18) all ports.
- 400 psi (27 bar) max tank back-pressure
- Weights:
 - Inlet: 2.6 lbs (1.2 kg).
 - Work section: 3.1 lbs (1.4 kg), 12 sections max.
 - Outlet: 2.2 lbs (1.0 kg).
- 10-Micron filtration recommended.
- 85 inch-lbs tie-rod torque

MOUNTING, ADJUSTMENT & ASSEMBLY INSTRUCTIONS:

- **Mounting** – Valve can be mounted in any orientation. Valve must be mounted on a flat surface. Special attention should be paid to not bend or twist the casting when mounting. Doing so may cause the valve to fail.
- **Relief Adjustment** – Relief setting is factory preset to 2000 psi, unless otherwise noted within model code. Relief valve can be set anywhere within the range of 500 psi to 4000 psi by switching out the relief spring to one of the following:
 - **500-1100 psi (34-76 bar)** – Use spring P/N: S065 (Silver)
 - **1200-3000 psi (83-207 bar)** – Use spring P/N: S059 (Brown, Standard Option)
 - **3100-4000 psi (214-276 bar)** – Use spring P/N: S064 (Blue)

To adjust relief pressure: First, remove the acorn nut with 1/2" wrench and loosen hex jam nut. Using a 5/32" allen wrench on the relief adjustment screw one full turn clockwise will increase pressure by 200 psi.
- **Handle Assembly** – The majority of the handle(s) will be assembled to the valve sections(s) out of the box.
 - **"A" Style, i.e. Joystick (see figure 2):** Thread the jam nut onto the handle, if not done at the factory. Thread the handle onto the joystick assembly. Using a 9/16" wrench, tighten the handle jam nut.
 - **"B" Style, i.e. Bent Handle (see figure 3):** Thread the jam nut onto the handle, if not done at the factory. Thread the handle onto the handle assembly. Using a 1/2" wrench, lock the handle by tightening the jam nut.
 - **"C" Style, i.e. Straight Handle (see figure 4):** Thread the jam nut onto the handle, if not done at the factory. Thread the handle link (S047) on the handle. Attach the handle assembly to the valve with the button head screw (S048) and tighten with a 3/16" allen wrench. Using a 1/2" wrench, tighten the jam nut to secure the handle.

FREQUENTLY ASKED QUESTIONS (FAQ):

Q: Can I plumb another valve downstream from this valve, using the outlet of this valve?

A: No. The outlet of this valve should be plumbed back to tank. If the valve is equipped with power beyond, a separate port will be available, on the outlet section, for downstream functions.

Q: Can I convert my valve to utilize "Power Beyond"?

A: Yes, if you have a field convertible outlet section. To do so, remove the side conversion plug out of the valve, if applicable. Then install the 20-AGPB cartridge using a 3/4" [19mm] wrench. Finally, plumb either the Top or End port back to tank as the low pressure return. See Figure 1 for more information.

Q: Can I convert my valve to operate in a "Closed" system?

A: Yes, if you have a field convertible outlet section. To do so, remove the side conversion plug out of the valve, if applicable. Then install the 20-AGCC cartridge using a 3/4" [19mm] wrench. Finally, plumb either the Top or End port back to tank as the low pressure return.

Q: Can I paint the valve?

A: Painting valves is acceptable as long as the following precautions are taken:

- 1- All ports must be plugged
- 2- Spool must be masked or taped off completely.

Any paint on the spool will cause leakage when it chips off. Warranty is void if any valve is returned with paint on the spool.

FREQUENTLY ASKED QUESTIONS cont'd:

Q: What is the correct torque for the tie rod nuts?

A: The correct torque spec on the tie rod nuts is 85 inch pounds [9.6Nm]. Using a 1/2" socket and wrench, both nuts on each rod should be tightened at the same time to prevent bind in the section.

Q: Can I rotate my handle(s)?

A: Yes, all handle types can be rotated 180° with the following instructions:

- "A" Handle: Yes, remove the handle from the joystick assembly. Remove the black rubber dust boot. Remove the two mounting screws using a 3/16" allen wrench. Now, remove the joystick assembly and rotate the assembly 180° and reinstall the screws, boot and handle (See Figure 2).
- "B" & "C" Handles: Remove the handle, if applicable. Remove the two cap screws with a 5/32" allen wrench. Rotate the enclosed handle assembly and reinstall the cap screws (See Figure 3 and 4, respectively).

Q: How do I convert my Inlet & Outlet section porting?

A: Field convertible Inlets & Outlets will have two -6 SAE plugs in them. To convert them, remove the plug from the desired Inlet/Outlet with a 1/4" allen wrench and reinstall it the undesired Inlet/Outlet port.

Q: How does my joystick control my functions?

A: See Figure 1.

STACK VALVE ASSEMBLY GUIDE:

Inlet Section:

Check the machined mounting surfaces of the sections, the section washers and o-rings are clean of contaminants. Install one split washer and 5/16" nut to each of the three tie rods. Install the three tie rods into the mating holes in the Inlet valve section with the washers and nuts on the outside end of the Inlet section.

Work Sections:

Install the three thin washers [shims] packaged with the Work Section, on to the tie rods. Slide these shims against the machined side of the Inlet section. Check the work section o-rings are clean and free of contamination and installed into the Work Section. Slide the entire Work Section down the tie rods with the o-rings facing the machined side of the Inlet section. Repeat for the remaining Work Sections.

Outlet Sections:

Install the Outlet section following the same procedure as the Work Sections. Install the remaining split washers and nuts, then hand tighten.

Tighten the tie rod nuts to the correct torque setting: see "[What is the correct torque for the tie rod nuts?](#)" in the FAQ section. Be sure the mounting feet are flat against the table while the nuts are tightened to the torque setting.

If your Outlet section came ordered with the Power Beyond, i.e. the "W" model callout, install the power beyond cartridge per "[Can I convert my valve to utilize "Power Beyond?"](#)" in the FAQ section.

SAFETY PRECAUTIONS:

- It is the purchaser's responsibility to determine the suitability of any Brand Hydraulics Co. product for an intended application, and to ensure that it is installed in accordance with all federal, state, local, private safety and health regulations, codes and standards. Due to the unlimited variety of machines, vehicles and equipment on which our products can be used, it is impossible for Brand Hydraulics Co. to offer expert advice on the suitability of a product for a specific application. It is our customer's responsibility to undertake the appropriate precautions, testing and evaluation to prevent injury to the end-user.
- Overpressure may cause sudden and unexpected failure of a component in the hydraulic system, resulting in serious personal injury or death. Always use a gauge when adjusting a relief valve.

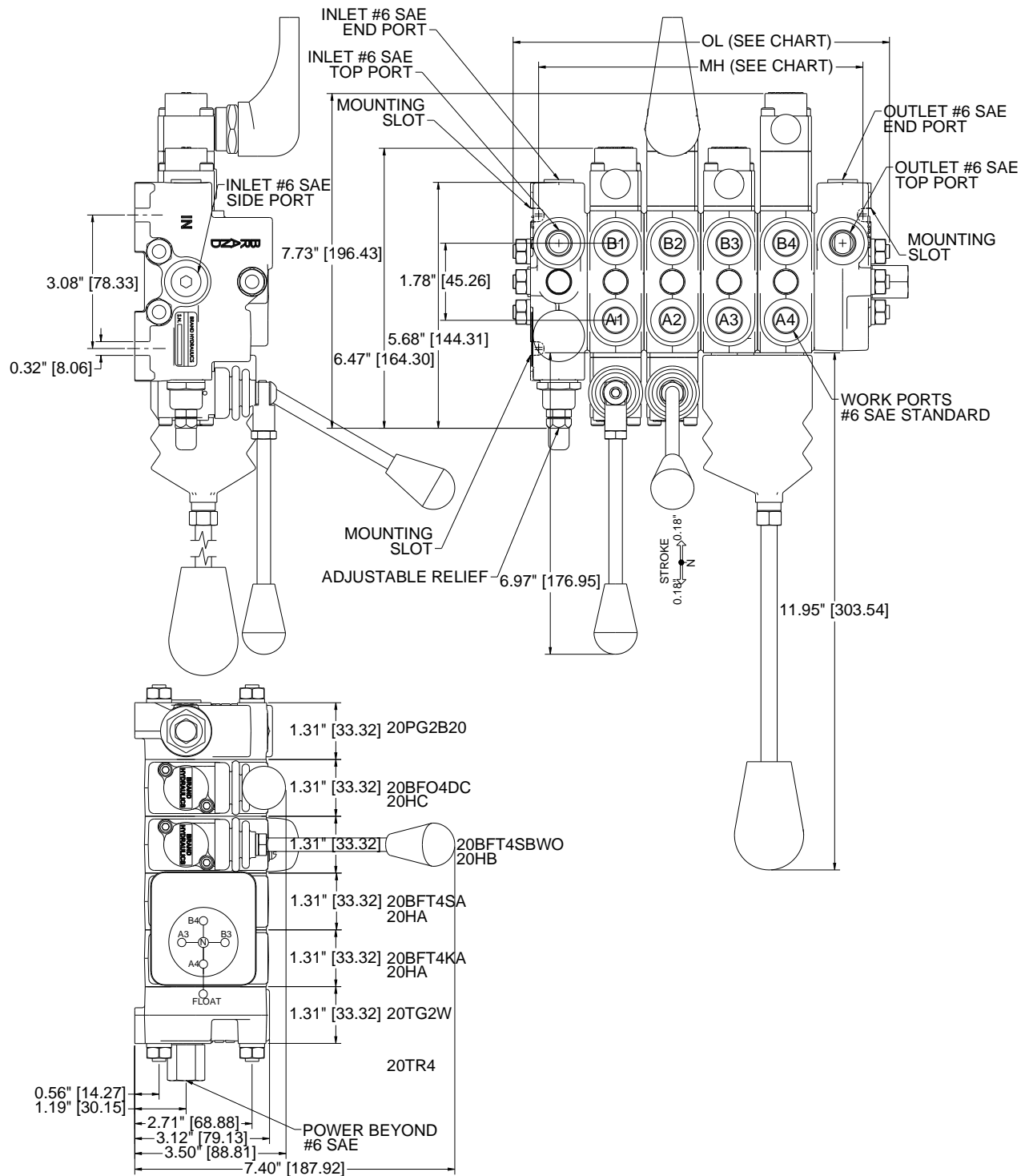


Figure 1: Dimensional Data for Series 20 Stack Valves in inches [millimeters]

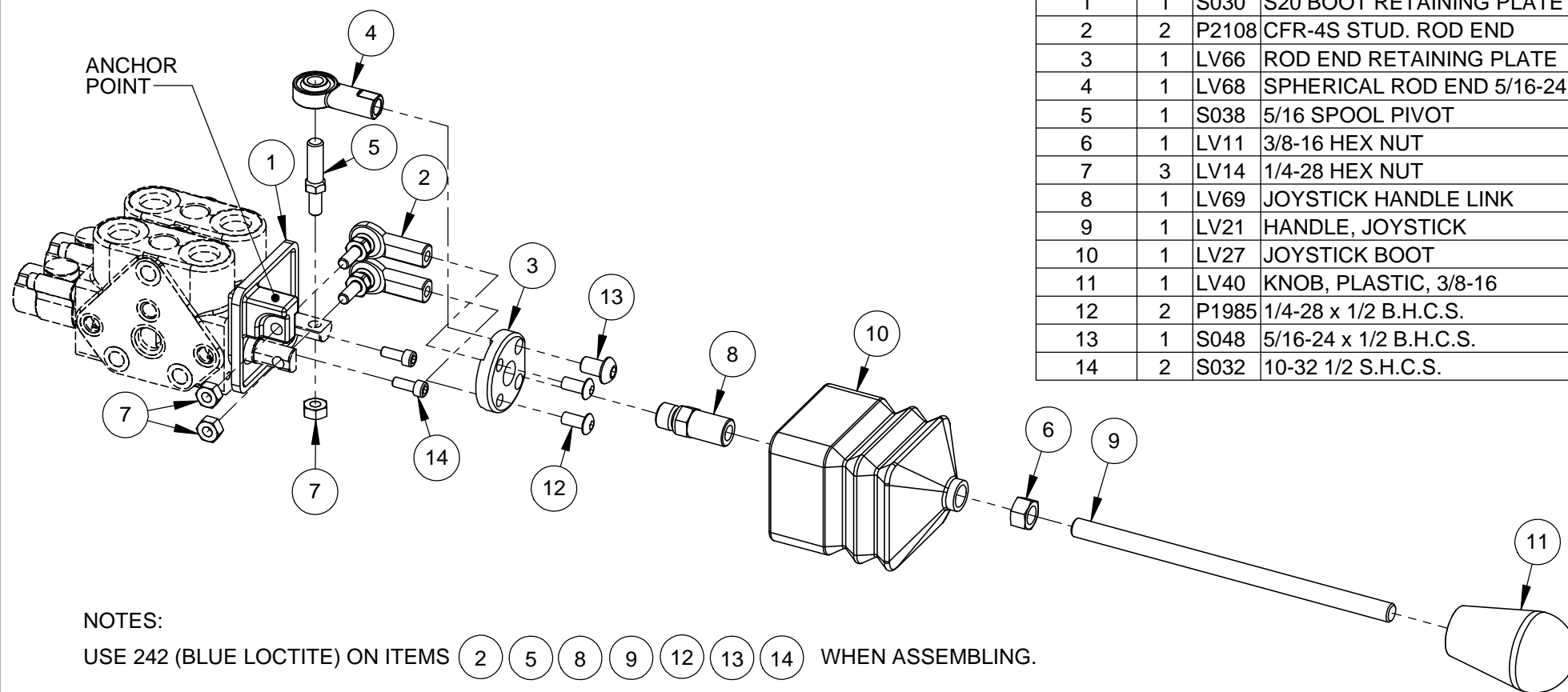
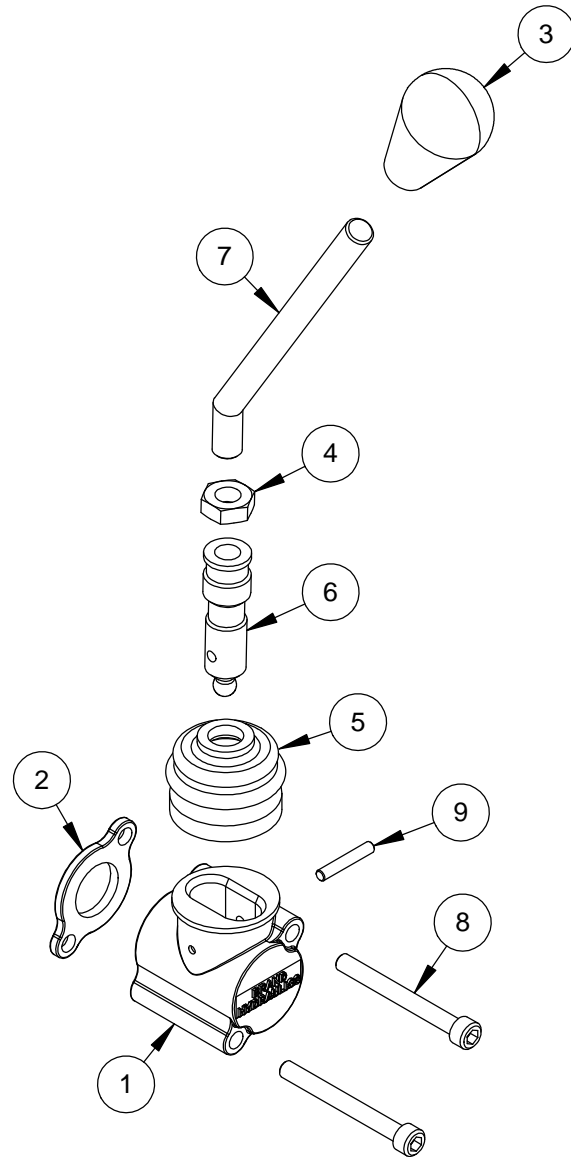


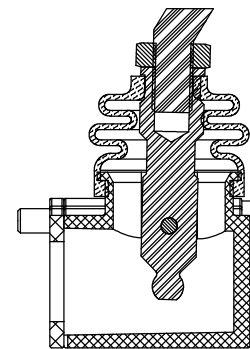
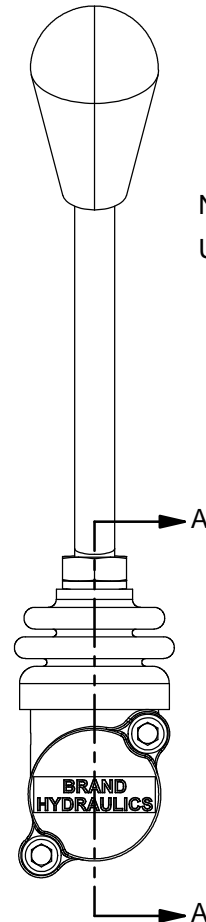
Figure 2: S20 Joystick Assembly Drawing



ITEM NO.	QTY.	P.N.	DESCRIPTION
1	1	S002	S20 HANDLE ENDCAP
2	1	S007	S20 SEAL RETAINER
3	1	P1268	KNOB
4	1	P1305	5/16-24 NSF JAM NUT
5	1	P1939	BOOT FOR ENCLOSED HANDLE
6	1	S008	S20 HANDLE ADAPTER
7	1	S039	S20 HANDLE
8	2	S024	10-32 1-3/4 S.H.C.S.
9	1	P2022	DOWEL PIN

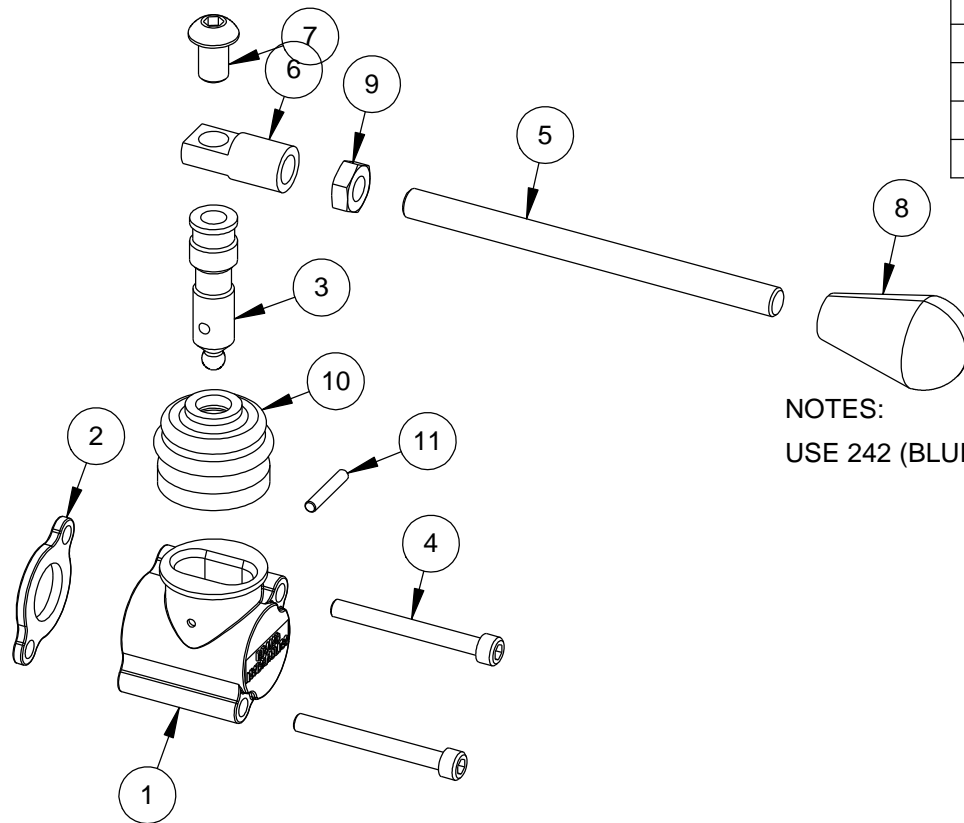
NOTES:

USE 242 (BLUE LOCTITE) ON ITEMS 7 8 WHEN ASSEMBLING.



SECTION A-A

Figure 3: 20HB Assembly Drawing



ITEM NO.	QTY.	P.N.	DESCRIPTION
1	1	S002	S20 HANDLE ENDCAP
2	1	S007	S20 SEAL RETAINER
3	1	S008	S20 HANDLE ADAPTER
4	2	S024	10-32 1-3/4 S.H.C.S.
5	1	S039S	S20 HANDLE
6	1	S047	HANDLE LINK FOR 20HC HANDLE KIT
7	1	S048	5/16-24 x 1/2 B.H.C.S.
8	1	P1268	KNOB
9	1	P1305	5/16-24 NSF JAM NUT
10	1	P1939	BOOT FOR ENCLOSED HANDLE
11	1	P2022	DOWEL PIN

NOTES:

USE 242 (BLUE LOCTITE) ON ITEMS 4 5 7 WHEN ASSEMBLING.

Figure 4: 20HC Assembly Drawing