

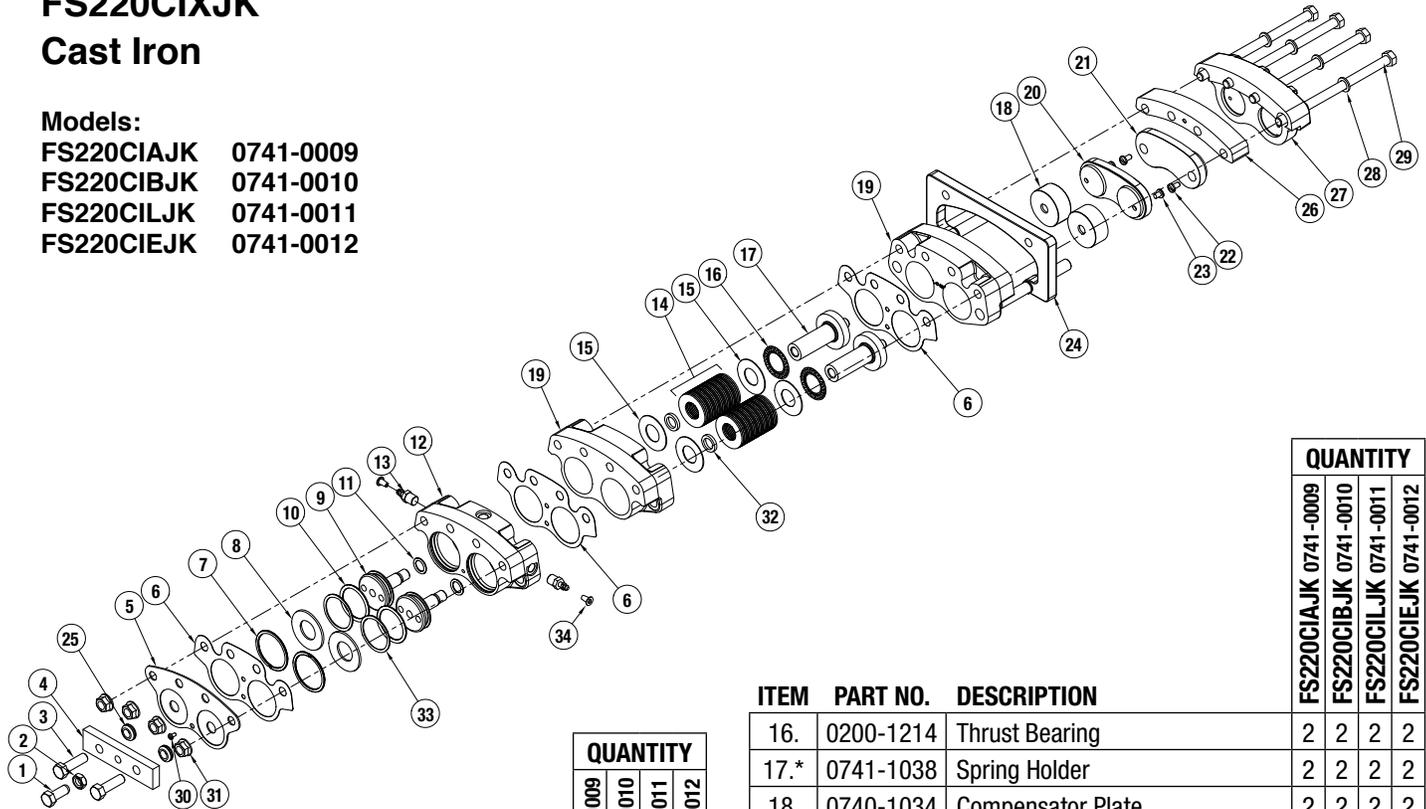
Spring-Actuated Brake

FS220CIXJK

Cast Iron

Models:

FS220CIAJK	0741-0009
FS220CIBJK	0741-0010
FS220CILJK	0741-0011
FS220CIEJK	0741-0012



QUANTITY			
FS220CIAJK	0741-0009		
FS220CIBJK	0741-0010		
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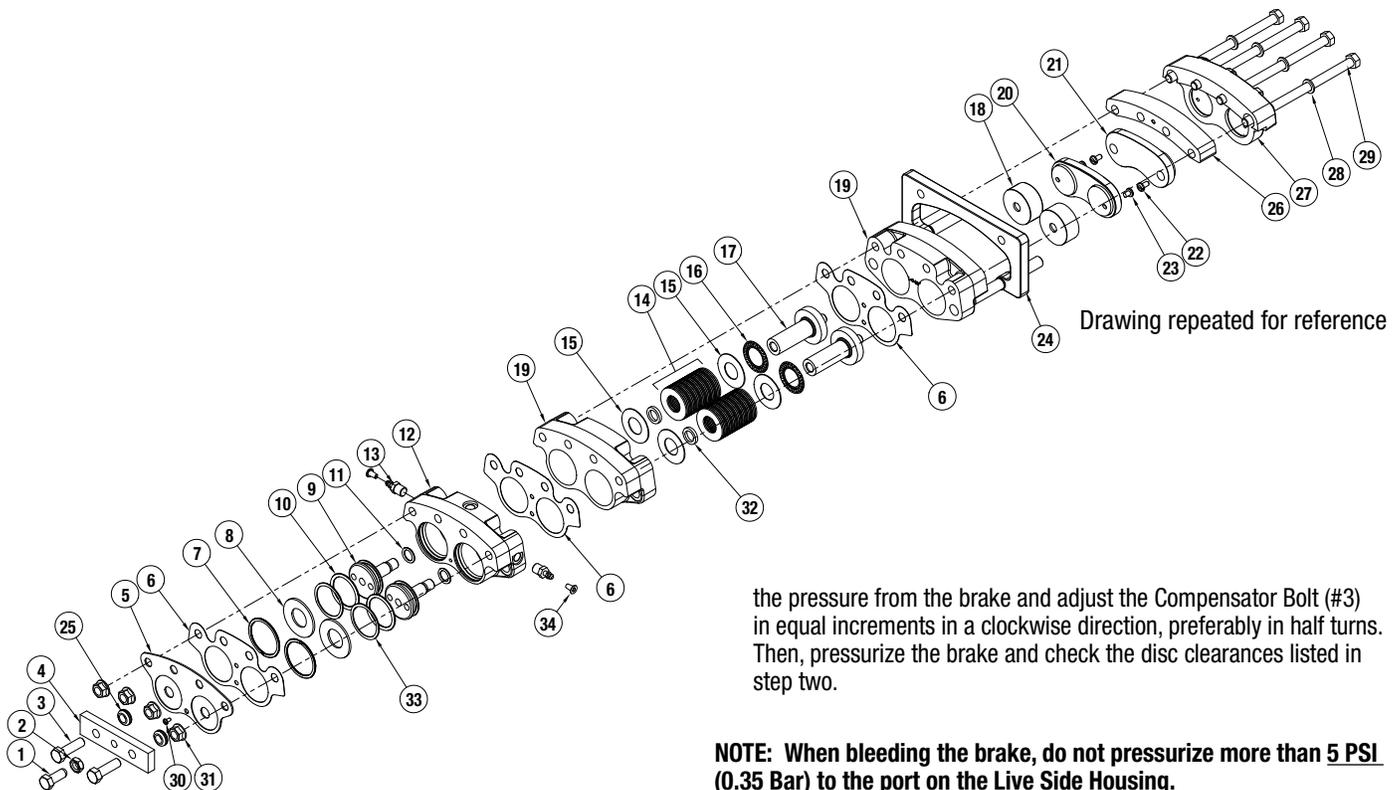
List of Parts

ITEM	PART NO.	DESCRIPTION	FS220CIAJK	0741-0009	FS220CIBJK	0741-0010	FS220CILJK	0741-0011	FS220CIEJK	0741-0012
1.	0740-1020	Retractor Screw	1	1	1	1				
2.	0740-1022	Hex Nut	1	1	1	1				
3.	0740-1019	Compensator Bolt, Grade 5	2	2	2	2				
4.	0740-1021	Retractor Plate	1	1	1	1				
5.	0737-1021	Cover Plate	1	1	1	1				
6.	0737-1028	Gasket	3	3	3	3				
7.	0740-1027	Retaining Ring	2	2	2	2				
8.	0740-1028	Belleville Spring Washers	2	2	2	2				
9.*	0740-1064	Piston	2	2	2	2				
10.	0720-1004	O-Ring, Buna-N	2	2	2	2				
11.	0741-1035	O-Ring, Buna-N	2	2	2	2				
12.	0737-1003	Live Side Housing	1	1	1	1				
13.	0740-1002	Bleeder Valve	2	2	2	2				
14.	0740-9028	Belleville Spring Washers	2	2	2	2				
15.	0720-1007	Thrust Washer	4	4	4	4				

ITEM	PART NO.	DESCRIPTION	FS220CIAJK	0741-0009	FS220CIBJK	0741-0010	FS220CILJK	0741-0011	FS220CIEJK	0741-0012
16.	0200-1214	Thrust Bearing	2	2	2	2				
17.*	0741-1038	Spring Holder	2	2	2	2				
18.	0740-1034	Compensator Plate	2	2	2	2				
19.	0738-1003	Housing Spacer	2	2	2	2				
20.	0740-1081	Puck, Friction	1	1	1	1				
21.	0740-1033	Puck, Friction	1	1	1	1				
22.	0720-1026	Pan Head Screw, Brass	2	2	2	2				
23.	0737-1024	Pan Head Screw, Brass	2	2	2	2				
24.	0739-9002	Mounting Bracket Assembly	1	1	1	1				
25.	0740-1026	Grommet	2	2	2	2				
26.	0733-1110	"A" Spacer, .562" thick	1							
	0733-1112	"B" Spacer, .656" thick		1						
	0733-1113	"L" Spacer, .780" thick			1					
	0733-1114	"E" Spacer, .906" thick					1			
27.	0740-1037	Dead Side Housing	1	1	1	1				
28.	0740-1007	Washer, Flat	4	4	4	4				
29.	0741-1009	Hex Head Bolt, Grade 8	4							
	0720-1102	Hex Head Bolt, Grade 8		4	4	4				
30.	0740-1024	Pan Head Screw, SS	1	1	1	1				
31.	0720-1008	Flexlock Hex Nut	4	4	4	4				
32.	0740-1014	Spacer Ring	2	2	2	2				
33.	0740-1050	B-Ring, Buna-N	2	2	2	2				
34.	0778-1013	Plug, Vinyl, Bleeder Screw	2	2	2	2				

* Items #9 and #17 must be replaced in pairs on calipers manufactured prior to 12/1/91.

LEGEND: "C" = Release pressure of 1,500 PSI (103.4 Bar) and a maximum pressure of 2,000 PSI (137.9 Bar); "I" = cast iron housings; "A" = spacer for a 5/32" thick disc; "B" = spacer for a 1/4" thick disc; "E" = spacer for a 1/2" thick disc; "L" = spacer for a 3/8" thick disc; "J" = a Manual Retractor; "K" = a Manual Compensator.



the pressure from the brake and adjust the Compensator Bolt (#3) in equal increments in a clockwise direction, preferably in half turns. Then, pressurize the brake and check the disc clearances listed in step two.

NOTE: When bleeding the brake, do not pressurize more than 5 PSI (0.35 Bar) to the port on the Live Side Housing.

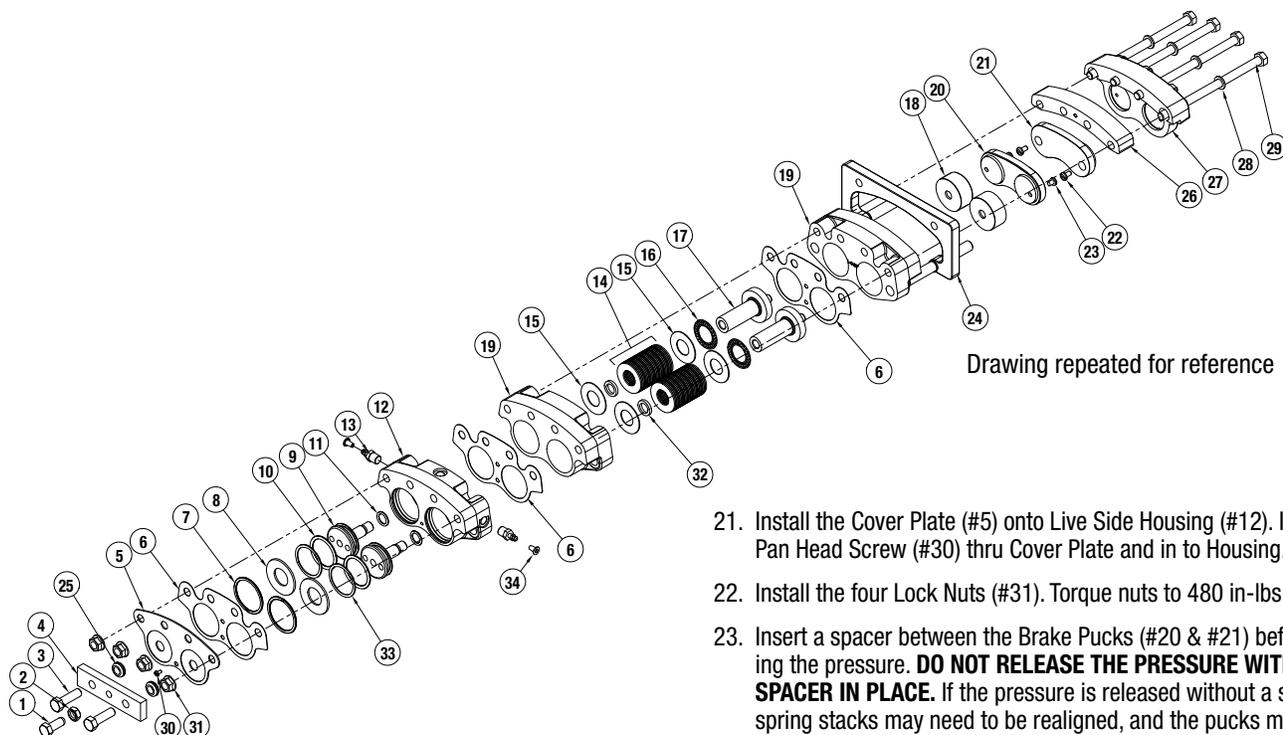
Installation Instructions

WARNING: THIS CALIPER IS UNDER SPRING TENSION. DO NOT REMOVE BOLTS WITHOUT FIRST PRESSURIZING THE BRAKE TO RETRACT THE BRAKE PISTONS. AFTER DISASSEMBLY, RELEASE PRESSURE SLOWLY. DO NOT ATTEMPT TO RETRACT THE PISTONS BY TIGHTENING THE BOLTS ON THE REASSEMBLY, USE HYDRAULIC PRESSURE INSTEAD.

1. When mounting the brake, connect the hydraulic fluid system to the External Fluid Port on the Live Side Housing (#12). Bleed the brake by loosening the Bleeder Valve Screws (#13) and pressurizing the brake to 5 PSI (0.35 Bar). Then pressurize the brake gradually up to 1,500 PSI (103.4 Bar). At this pressure, the brake pucks retract to create the necessary gap for the brake disc.
2. Slip the brake over the disc and align it so the pucks are parallel with the disc. Proper clearance between the pucks and the disc is 0.010 inch per side to a maximum of 0.031 inch per side when new.
3. To prevent excessive wear, be certain that the disc does not rub against the housing or the pucks when in the retracted position.
4. To insure maximum life and braking action, the brake disc must be free of dirt and grease.
5. Do not pressurize the brake above 2,000 PSI (137.9 Bar).
6. When plumbing the fluid system, use a minimum amount of pipe thread sealant on joints to prevent the sealant from entering the fluid system and damaging the hydraulic system.
7. This brake is provided with a Manual Retractor Plate (#4). To retract the caliper manually, loosen the Hex Nut (#2) and turn the Retractor Screw (#1) until the disc is free.
8. This brake is also provided with a Manual Wear Compensator, which provides a means for adjusting the Belleville Spring Stacks to compensate for friction puck wear. To use the Compensator, release

To Reassemble:

1. Insert Friction Puck (#21) into Dead Side Housing (#27). Insert and tighten 2 Brass Screws (#22) through the Friction Puck and into the Dead Side Housing.
2. Insert [4] Bolts (#29) and Washers (#28) into the Dead Side Housing (#27). When completed, lay the Dead Side Housing onto the work surface with the threaded bolts pointing upward.
3. Slide Spacer (#26) (if applicable) over the threads of the bolts on the dead side housing.
4. Lubricate O-Rings (#11) with a good O-Ring grease such as Lubriplate 105 and place into the grooves in the Live Side Housing (#12).
5. Lubricate O-Rings (#10) and Backup Rings (#33) along with the internal diameters of the bores on the Live Side Housing (#12). Place O-Rings (#10) and Backup Rings onto the Pistons (#9). *****Note the back-up ring must be on the non- pressure side of the piston with the concave surface of the back-up ring mating with the O-ring.*****
6. Insert Pistons (#9) into the piston bores, being careful not to damage O-Rings (#10 & #11).
7. Slide over the Spring Holder (#17); a Thrust Bearing (#16), Thrust Washer (#15), the Spring Stack (#14), Spacer Ring (#32) and an additional Thrust Washer (#15).
8. Apply Thread Locker (Blue 242) to the piston threads; screw the entire assembly together, with the Piston (#9) into the Spring Holder (#17). Use a spanner tool on Spring Holder and torque to 150 in-lbs (203.4 Nm).
9. Screw in Compensator Plates (#18) into the Spring Holders (#17) hand tight only. **NO THREADLOCKER ON THIS JOINT! Note: Left hand threads.**



Drawing repeated for reference

10. Apply Never-Seize to the pins on the Mounting Bracket Assembly (#24).
11. Install Gasket (#6) and Spacer Housing (#19) over the spring stack assembly on to the Live Side Housing (#12). (see drawing for orientation)
12. Install second Gasket (#6), the Mounting Bracket Assembly (#24) and second Spacer Housing (#19) over spring stack assembly.
13. Check height of spring stack assemblies with flat piece of material over the top of compensator caps adjust if needed by turning the compensator cap.
14. Align holes in Compensator Plates (#18) to Puck (#20) and attach with Brass Screw (#23) into Compensator Plates.
15. Apply small amount of Thread Locker (Blue 242) into the threads of the Housing (#12) and not on the threads of the brass portion of Bleeder (#13). Install Bleeders into the housing. Do not apply any thread locker to the small steel portion of the Bleeder.
16. Lay the dead side and live side assemblies on the bench and install the live side over the Bolts (#29) of the Dead Side Housing (#27).
17. Place Belleville Spring Washers (#8) into the Live Side Housing (#12) oriented so the center of the Washer will contact the Piston (#9) and the outside of the Washer will contact the Retaining Ring (#7).
18. Install Retaining Rings (#7).
19. Install Gasket (#6) over the 4 Bolts (#29).
20. Install Grommets (#25) into the Cover Plate (#5).

21. Install the Cover Plate (#5) onto Live Side Housing (#12). Install the Pan Head Screw (#30) thru Cover Plate and in to Housing.
22. Install the four Lock Nuts (#31). Torque nuts to 480 in-lbs (54.2 Nm).
23. Insert a spacer between the Brake Pucks (#20 & #21) before releasing the pressure. **DO NOT RELEASE THE PRESSURE WITHOUT A SPACER IN PLACE.** If the pressure is released without a spacer, the spring stacks may need to be realigned, and the pucks may be damaged.
24. Energize the unit again while holding the test spacer. Pull on the test spacer while the pressure builds. At the time the spacer can be removed by hand is considered the "Release Pressure". Verify the pressure at that point falls within 1500-1800 PSI. If it does, move on to step 26. If the reading is below 1500 PSI perform the instructions in step 25.
25. Release the pressure without the test spacer between the Pucks (#20 & #21). Install two (minimum 2" long) 3/8-24 bolts thru the Grommets (#25) in to the Piston (#9) until they bottom out. Turn both bolts in equal turn increments. Re-pressurize and install test spacer. Verify release pressure is within 1500-1800 PSI with the spacer. If not repeat these steps until the unit meets specification.
26. Keep the unit pressurized for 1-2 minutes and observe for any reduction in pressure or leaks. None is permitted. Place the brake over the disc, or insert a spacer between the Brake Pucks before releasing the pressure. **DO NOT RELEASE THE PRESSURE WITHOUT A DISC OR SPACER IN PLACE.** If the pressure is released without a disc or spacer, the spring stacks may need to be realigned.
27. Install Compensator Bolts (#3) thru the Retractor Plate (#4) and thru the Grommets (#25) in the Cover Plate (#5) into the Pistons (#9).
28. Install Jam Nut (#2) onto Retractor Screw (#1) and thread into the Retractor Plate (#4) until it contacts the Cover Plate (#5). Jam the nut against the Retractor Plate and ensure the Retractor Plate is not loose. Follow installation instructions to re-install.

NOTE: DO NOT PRESSURE BLEED THIS BRAKE WITH MORE THAN 5 PSI (0.35 Bar). EXCESSIVE PRESSURE WILL CAUSE THE O-RINGS ON THE BLEEDERS TO EXTRUDE, WITH THE POSSIBILITY THAT THEY MAY BE SHEARED WHEN TIGHTENED. MAKE CERTAIN THE O-RINGS ARE PROPERLY SEATED BEFORE TIGHTENING THE BLEEDER VALVES.



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