PowlVac Circuit Breaker; "Main" or "Closing" Spring Assembly Removal Procedure

The following instructions outline the procedure for removing the "*Main*" or "*Closing*" spring assembly on PowlVac standard and replacement breakers equipped with standard "*PowlVac stored energy*" spring charge mechanisms. This procedure is applicable for most ratings and models of these breakers. Refer to the specific PowlVac Instruction Bulletins for further details.

Important: This procedure ***does not apply*** to Powell breakers equipped with "***PVCB***" or "***AT***" type stored energy mechanisms. Please refer to applicable Powell instruction bulletins for instructions pertaining to these breaker types.

IMPORTANT SAFETY NOTES:

All breakers must be removed from service prior to performing any maintenance. Before any adjustments, servicing, parts replacement, or any other act is performed requiring physical contact with the electrical working components or wiring of this equipment, the POWER SUPPLY MUST BE DISCONNECTED.

Only qualified personnel should attempt performing maintenance on any power circuit breaker.

Caution: Extreme care must be taken when removing or handling a compressed main spring assembly. The stored mechanical energy released when a main spring assembly violently decompresses can cause serious injury or death.

WARNING

WHEN ANY MAINTENANCE PROCEDURE REQUIRES THE OPENING OR CLOSING OF THE CIRCUIT BREAKER OR THE CHARGING OF ANY OF THE STORED-ENERGY MECHANISM SPRINGS, EXERCISE EXTREME CAUTION TO MAKE SURE THAT ALL PERSONNEL, TOOLS, AND OTHER OBJECTS ARE KEPT WELL CLEAR OF THE MOVING PARTS OR THE CHARGED SPRINGS. FAILURE TO DO THIS MAY CAUSE SERIOUS DAMAGE OR INJURY TO THE CIRCUIT BREAKER OR PERSONNEL.

PowlVac Breaker - Main Spring Assembly Hardware Layout

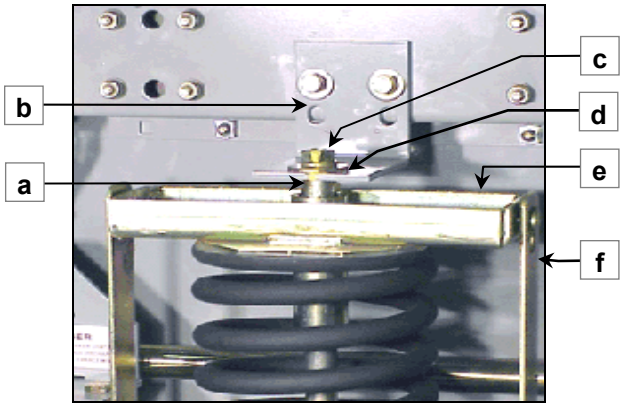

Figure 1. Main Closing Spring Assembly, (installed)

a. *Spacer* ***b***. *Closing Spring Top Bracket* ***c***. *½" x 1¼" Bolt*
d. *½" Flat Washer* ***e***. *Closing Spring Yoke*
f. *Main Spring Connecting Rod, (typical both sides)*

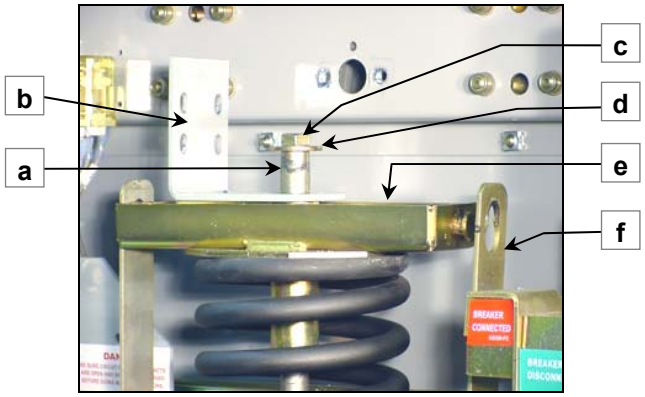

Figure 2. Main Closing Spring Assembly (Compressed for Removal)

a. *Spacer* ***b***. *Closing Spring Top Bracket* ***c***. *½" x 1¼" Bolt*
d. *½" Flat Washer* ***e***. *Closing Spring Yoke*
f. *Main Spring Connecting Rod, (typical both sides)*

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Tools Required For Performing This Procedure: ⇨	Standard Wrench Set • Ratchet / Socket Set • "*Removable Type*" Thread-Locking Compound

IMPORTANT: Please carefully review and understand all steps before initiating this procedure.

A: Removal of the "*Main*", or "*Closing*" spring assembly from a PowlVac Circuit Breaker.

1. With the main closing spring **Discharged** and the circuit breaker contacts **Open**, remove the *½" bolt* (Figure-1, item "c"), at the top of the spring rod, together with the flat washer and lock washer.

2. Remove the "*closing spring top bracket*" (Figure-1, item "b"), by unfastening the two $^{5}/_{16}$" attachment bolts from the breaker's rear frame.

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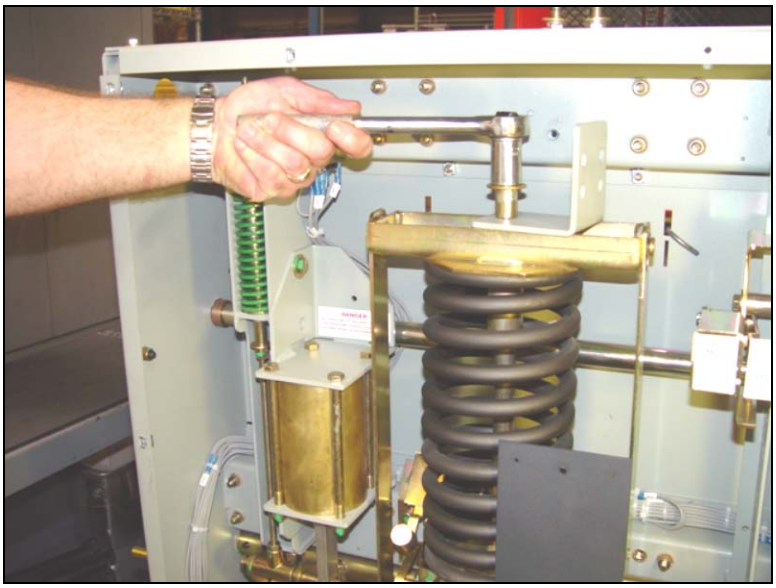
3. Rotate the bracket 90°, and re-position it on top of the spring yoke.

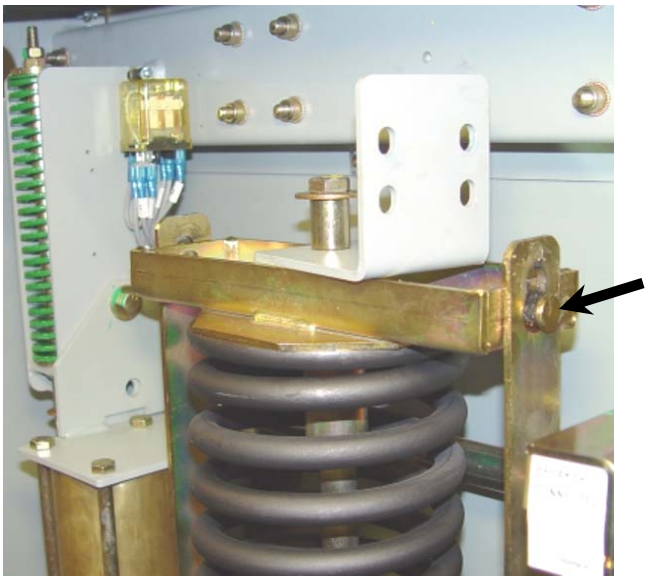
Remove the *1" spacer*, (Figure-1, item "a") from below the bracket and move the spacer to the top of the bracket with the flat washer above it.

Temporarily remove the lock washer from the ½" bolt.

Re-install the ½" bolt through the spacer / bracket assembly.



4. Tighten the ½" bolt, compressing the spring down until the spring yoke connecting pins move down until they are centered at the lower slotted hole on the top of both *main spring connecting rods*, (Figure-1, item "f").



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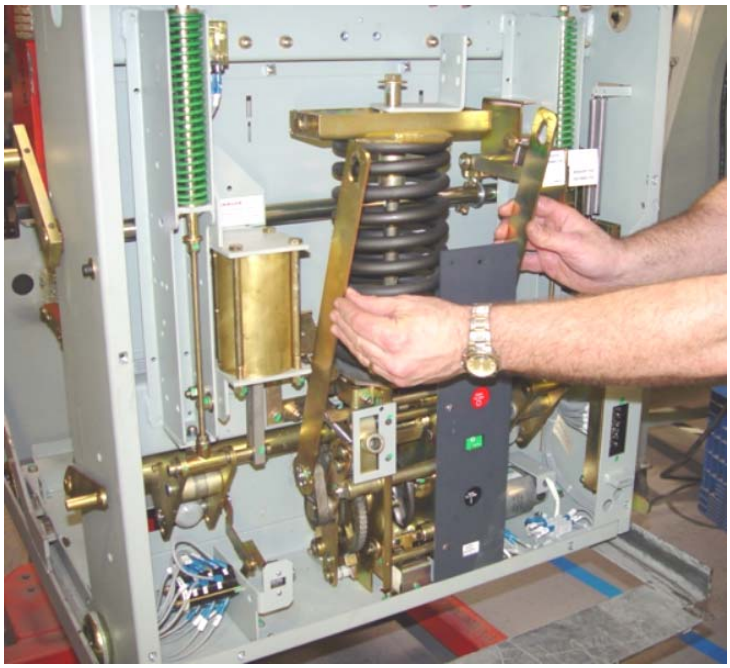
5. Using a slight rocking motion of the main closing spring assembly, unhook the connecting rods from the pins on each side of the spring yoke. The main closing spring assembly is ready to be removed from the breaker.	
6. Lift out and remove the main spring assembly, allowing the connecting rods to fall and rest freely against the front of the breaker assembly. **Note**: The lower ends of the connecting rods do not need to be disconnected unless specific maintenance work requires them to be removed.	

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Note: The main spring has been removed from the breaker assembly and all breaker maintenance work that requires the main spring assembly removed may now be performed on the breaker.

B: Re-Installation of the "*Main*", or "*Closing*" spring assembly on a PowlVac Circuit Breaker.

7. Perform the above steps in reverse order to re-install the main spring assembly back on the breaker. (Apply thread-locking compound and re-install the ½" lock washer on the ½" *"spring rod"* bolt and 5/16" *closing spring top bracket* attachment bolts during re-installation).

Caution: Special care must be taken to ensure that both connecting rods stay properly aligned during re-installation. *Do Not* remove the ½" bolt from the spring rod unless the upper slotted holes on both connecting rods are fully seated within the main spring yoke connecting pins.

Important: Apply *removable thread locking compound* to the ½" bolt and both 5/16" *closing spring top bracket* attachment bolts prior to re-installing the main spring assembly on the breaker.

END OF PROCEDURE

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