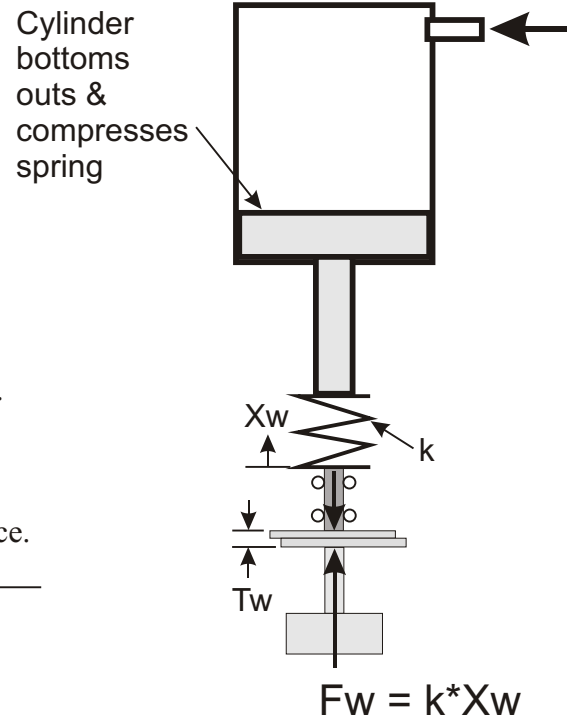


### Initial Process Validation

1. Determine acceptable force range for weld.
2. Insert WP9000 MicroForce Calibrator between electrodes.
3. Turn off current.
4. Fire solenoid manually to ensure weld tips stay in contact with Calibrator.
5. Adjust spring compression to obtain desired force.
6. Release pressure.
7. Set WP9000 to peak (or MAX) mode and zero the value.
8. Insert WP9000 between electrodes.
9. Initiate weld (w/ current off).
10. Check MAX force and perform this several times.
11. Readjust spring setting if required to achieve desired force.



### Periodic Process Revalidation

1. Check for worn spring.
2. Detect excessive friction in ram due to loss of lubricant or misadjustment of cam followers.
3. Detect altered position of lower electrode.
4. Detect worn electrodes.

### Symbol Key:

- $k$  = spring constant (lb/in)  
 $X_w$  = spring compression during weld (in)  
 $T_w$  = thickness of workpiece (in)  
 $F_w$  = force applied during weld (lb)

