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**Subject: *GV Mixing Valve Repair – for Model GV Gas Boilers Series 1 & 2 Only (Rev 1)***  
*(This information is only required if it is determined that mixing valve needs replacement.)*

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Weil-McLain Model GV Series 1 & 2 boilers utilize a mixing valve arrangement as part of the internal piping in the boiler. Repair parts for both the mixing valve and mixing valve element for GV Series 1 & 2 boilers are no longer available from their suppliers. As a result, alternative repair methods have been developed to help resolve the non-availability of these repair parts. Note that the GV Series 3 and GV Series 4 boilers are not affected by this situation since they use a bypass circulator instead of a mixing valve to help maintain the temperature in the boiler.

For Model GV Series 1 & 2 boiler installations where the system return water is consistently above 130°F, the GV mixing valve spring and element can be removed and the bypass plugged as follows Note: For radiant systems or large water volume systems (such as with cast iron radiators) where boiler return water temperature can consistently remain below 130°F, follow the instructions shown below entitled “GV Series 1 & 2 Boiler Bypass for Systems with Low Return Water Temperatures”.

**For GV Series 1 – System return water temperature consistently over 130°F**

If a repair is required on the mixing valve/element on a Model GV Series 1 that has a system return water temperature that is consistently over 130°F, plug the mixing valve bypass as follows:

1. Turn boiler off and let it cool to 100°F or lower.
2. Drain the boiler so that water level in the boiler is below the mixing valve.
3. While holding the mixing valve body to keep it from turning, remove the cap plug on top of the mixing valve. *(If the mixing valve cap plug cannot be removed, carefully cut mixing valve from piping, replace piping with iron or copper piping and plug ½” bypass tee that was connected to bottom of mixing valve. Skip steps 4-7. Go to steps 8 & 9 below.)*
4. Remove the spring and element inside the mixing valve.
5. Insert a ½” nominal copper sweat cap by turning the cap upside down and inserting into the opening in the bottom of the mixing valve.
6. Using a hammer and a punch with a diameter to fit inside the upturned copper cap, tap the ½” nominal copper sweat cap into the bottom mixing valve opening. Tap the cap until it is firmly seated into the opening.
7. Replace the cap plug on top of the mixing valve and tighten securely.
8. Re-fill boiler and purge the air from the boiler and system.
9. Turn on boiler and test for proper operation.

**For GV Series 2 – System return water temperature consistently over 130°F**

If a repair is required on the mixing valve/element on a Model GV Series 2 that has a system return water temperature that is consistently over 130°F, plug the mixing valve bypass as follows:

1. Turn boiler off and let it cool to 100°F or lower.
2. Drain the boiler so that water level in the boiler is below the mixing valve.

3. While holding the mixing valve body to keep it from turning, remove the cap plug on top of the mixing valve. *(If the mixing valve cap plug cannot be removed, carefully cut mixing valve from piping. The GV Series 2 mixing valve is connected into the boiler with a 3/4" nipple. Remove the mixing valve from the nipple or remove the nipple from the boiler casting. Plug the 3/4" tapping in the boiler. Then replace the boiler return piping with iron or copper pipe and fittings. Skip steps 4-7. Go to steps 8 & 9 below.)*
4. Remove the spring and element inside the mixing valve.
5. Insert a 3/8" ACR (Air Conditioning/Refrigeration) copper sweat cap by turning the cap upside down and inserting into the opening in the bottom of the mixing valve.
6. Using a hammer and a punch with a diameter to fit inside the upturned copper cap, tap the 3/8" ACR copper sweat cap into the bottom mixing valve opening. Tap the cap until it is firmly seated into the opening.
7. Replace the cap plug on top of the mixing valve and tighten securely.
8. Re-fill boiler and purge the air from the boiler and system.
9. Turn on boiler and test for proper operation.

### **GV Series 1 & 2 Boiler Bypass for Systems with Low Return Water Temperatures**

For large water volume systems (such as those with cast iron radiators) or radiant systems connected to GV Series 1 & 2 boilers, when the mixing valve is plugged as per the appropriate instructions detailed in one of the above sections, an external boiler bypass between the supply and return **must** be piped as per one of the drawings below. With the bypass properly installed, run the boiler. While the return water is still cool, adjust the bypass ball valve to achieve a minimum of 130°F return water at the boiler return temperature gauge.

