MECHANICAL TROUBLESHOOTING

MACHINE WILL NOT STEP

1. Step Enable is toggled ON or OFF by pressing FUNCTION-RETRACT (a short beep indicates No Step, and a long beep indicates Step is activated).
2. The Step Limit switch in the BoreWelder may not be working properly. Check pins 3 and 14 of the BoreWelder's AMP connector for continuity. To do so, rotate the BoreWelder spindle by hand so the Step switch drops into the detent. The meter will read continuity at this point. If it does not work, remove the red shroud and check the switch directly. The wiring may be at fault. Also be sure pin 3 shows no continuity to the BoreWelder frame.
3. The Control Cable may be damaged. Check for continuity between pin 14 at the BoreWelder end and pin 8 at Control Box end. Then, check for continuity between pin 3 at the BoreWelder end and pin 9 at the Control Box end. Both should have continuity.
4. Check to be sure the RETRACT and EXTEND buttons move the quill. If not, then refer to "Machine Cannot be Retracted or Extended" below.
5. Ensure the motor armature ohms across the BoreWelder pins 1 and 9.
6. There may be a problem with the Control Box. If all of the above check out, it is likely the Control Box is at fault.

MACHINE CANNOT BE RETRACTED OR EXTENDED

1. Check for a motor failure. Can you hear the motor operate when either RETRACT or EXTEND is pressed? If Yes then skip to Step 4.

   There should be continuity between BoreWelder pins 1 and 9 (through the motor armature). If there is no continuity, it is possible that a light tap on the side of the motor may restore operation. If so, contact Bortech for a new style of motor brush. Or, give the brush springs a slight kink to ensure electrical contact when at rest.
2. Check for a wiring problem. There should be continuity between the BoreWelder's AMP connector pins 3, 6, and 13 when the quill is not at an extreme end of stroke. Pins 3 and 6 are for the top limit and pins 3 and 13 are for the bottom limit. If travel is limited to only one direction, continuity through one of the limit or pins may be worn. Limit switches could be suspect although limit pins also can be worn out.
3. Check for a Control Cable problem. Check the cable for continuity as per cable drawing (see Figure 12 on page 26 in Chapter 2).
4. Check for a Control Box problem.
5. Check to determine if the Worm Roll pin is sheared. If the motor operates but the quill does not move, it is likely that the roll pin is sheared or the gear train is otherwise damaged. This is usually due to a quill travel limit switch failure caused by dirt and grease restricting the Limit Feelers. Be sure the cause is corrected before putting the machine back in service.

NOTHING HAPPENS WHEN THE WELD BUTTON IS PRESSED

1. Check to see if the machine is completely retracted. Press EXTEND to move the quill off its limit and try again.
2. Check the Inlet Fuse.

MACHINE MOVES OR WELDS WITHOUT PRESSING BUTTONS TO CONTROL THESE ACTIONS

1. Check the membrane switch panel or cable for damage, usually cause by spatter.
2. Check for a metallic debris in the Control Box.

MACHINE ROTATES, STEPS, AND FEEDS WIRE OUT BUT DOES NOT WELD

Check the continuity of the power supply control cable.

NO VOLTAGE CONTROL

Check the continuity of the power supply control cable.