Burr OAK Tool Inc.
405 West South Street, Sturgis, Michigan 49091
Ph: 269-651-9393 Fax: 269-651-4324
sales@burroak.com www.burroak.com

TROUBLESHOOTING THE VERTICAL BEND HAIRPIN BENDER

The following guide lists the problem or condition first, then where to check to correct the problem. This is only a quick guide. If a specific solution cannot be found, please refer to your Machine Manual or contact Burr Oak Tool Inc., and we will try to help resolve the problem to return your machine to full production.

VERTICAL BEND HAIRPIN BENDER LINE

PROBLEM	CAUSE	SOLUTION
Scratch on side of bend.	Misalignment between clamp, form block and Wiper Block.	Check and realign if necessary.
	Sharp edge on side of groove in Form Block or Wiper Block.	Stone or hand-grind carefully to remove sharp edge.
	Not enough pressure.	Increase Wiper pressure according to write-up.
Hairpin bends have curving legs.	Indicates too much or too little pressure on the straightening rolls.	See roller adjustment write-up.
All leg length in a cycle were incorrect. *Machines with power leg length.	Incorrect positioning of the bender in relation to the Cutoff.	Adjust Bender position.
	Incorrect positioning of the Switch Tower.	*Check Anchor Block screws, Bearing Housing screws, pin in ball screw, Tie Rod bolts, Ball Nut, Tie Rod clamp and encoder.
		Adjust the Switch Tower position.
Free leg inconsistent.	Switch Tower is moving.	Check to see if mandrel rod support is hitting the back of the switch tower when the mandrel cylinder stroke is coming forward.
	Make sure feed belts are in good condition and that they have the right spacers.	Replace feed belts and spacers.
	See if you have adequate mandrel oil.	Add oil as needed.
	Are the mandrels the right size and are the stripper tubes the same length (mandrels .008 smaller than I.D.).	Replace mandrels and stripper tubes.

Burr OAK Tool Inc.
405 West South Street, Sturgis, Michigan 49091
Ph: 269-651-9393 Fax: 269-651-4324
sales@burroak.com www.burroak.com

VERTICAL BEND HAIRPIN BENDER LINE (Con't)

PROBLEM	CAUSE	SOLUTION
Free leg inconsistent (Cont'd)	Misadjusted actuator switches.	Pull the switch tower slide back and slide the switch actuator sleeve back one at a time until they make the end of the feed switches. They should make the switch and the flange of the switch actuator sleeve should be about .030 from bottoming out on the stripper stop plate.
Tubes are not feeding.	Insufficient air pressure.	Increase air pressure to feed belts. Turn air feed on or to 6 instead or 0.
	Feed belts are too tight.	Adjust rear belt pulley until the belt is snug without any stretch.
	Wax on inside of belts (lack of or too much).	Add wax if necessary. If too much is found, clean the belts and re-wax.
	Faulty air feed manifold or pressure pads.	Check by activating each pad individually. Replace if necessary.
	Loss or air pressure.	Check for gasket breakage and replace.
	Loss of hydraulic pressure.	System pressure must be 77.3 kg/cm^2 (1100 lbs/in^2). Check pump compensator setting. Check regulator valve and repair if necessary.
	Excessive oil on belts.	Wipe clean with any commercial solvent. Turn down air pressure or mixture.
	Faulty hydraulic motor.	Repair or replace motor.
	Feed bearing failure.	Replace bearing.
	Lack of lubrication on inside of tubing.	Check adequate oil flow for inside of tube and clean mandrel rod hole if necessary.

Burr OAK Tool Inc.
405 West South Street, Sturgis, Michigan 49091
Ph: 269-651-9393 Fax: 269-651-4324
sales@burroak.com www.burroak.com

VERTICAL BEND HAIRPIN BENDER LINE (Con't)

PROBLEM	CAUSE	SOLUTION
Tubes are not feeding. (Con't)	Hydraulic feed valve solenoid does not energize.	Check components of line 18 on electrical schematic with voltmeter.
	Feed proportional valve has air in it.	Bleed the proportional valve.
	Old machines with POT may get low voltage burn if left at the same setting over any period of time.	Move POT.
	For quick change tooling, the waffle spacers may have not been pulled out.	Pull out waffle spacers for quick change tooling.
Tubes are feeding in slow speed.	Feed slow limit switch at switch tower is tripped.	Check decel switch at the switch tower for malfunction.
	Fuse has blown because feed and feed backup were pressed at the same time.	Check fuses and replace if blown.
Tubes will feed almost to the switch tower, and then stop.	Faulty air feed manifold or pressure pads.	Check by activating each pad individually and replace if necessary.
One or two tubes feed to switch tower, then pulse back and forth.	Oil on feed belts.	Wipe clean with any commercial solvent.
	Tubes pulled tight at coil stand.	Check air brakes Check coil stand for entanglement of tubing
	Tube slipping in clamp sections.	Replace clamp equalizer pad or increase clamp pressure.
All tubes feed to switch tower, then pulse back and forth.	Clamp pressure switch set too low or faulty.	Adjust clamp pressure switch to 150 psi below clamp pressure check for malfunction & replace if necessary.
	Clamp pressure too low.	Increase clamp pressure.
	Undersize tubing.	Check tubing size and sizing roller settings.
	Feed backup pressure too high.	Lower feed backup pressure.

Burr OAK Tool Inc.
405 West South Street, Sturgis, Michigan 49091
Ph: 269-651-9393 Fax: 269-651-4324
sales@burroak.com www.burroak.com

VERTICAL BEND HAIRPIN BENDER LINE (Con't)

PROBLEM	CAUSE	SOLUTION
Tubes feed to switch tower, and feed belts continue to feed slowly.	End of feed switches may be not be made.	Check end of feed switches to see if they are actuated. Adjust end of feed switch assembly as needed to allow switch actuator sleeves to trip switches. If not all tubes are being run at this time, check to see that the ones not being run are turned off.
Tube continues to back-up after cutoff.	Possible misalignment of outer telescoping guide tubes at the fiber opting feed back-up switch or obstruction.	Align the guide tubes so that the holes are in line with one another and with the two optic sensors. Check for obstructions.
	Fiber optic module malfunctioned.	Check fiber optic module for malfunction and replace if necessary.
Cutoff rotating but bearing plate not retracting.	Possible pressure and temperature compensating valve malfunction.	Check and replace if necessary.
No cutoff rotation.	Motor or valve malfunction.	Refer to hydraulic schematic, check and replace if necessary.
	Possible clamp pressure switch malfunction.	Adjust pressure switch to 20 kg/cm^2 (285 psi) and check for malfunction and replace if necessary.
Only one side of cutoff rotates.	Broken or slipped belt.	Check and replace if necessary.
		Check for a broken cam in the cutter head and replace if necessary. Replace bearing.
Slowed cutoff speed.	Possible obstruction in orifice that supplies cutoff motor.	Carefully remove cutoff directional valve and clean orifice.
Cutoff rotates but does not cutoff tubing.	Possibility of wrong size cutters or no cutters at all.	Remove cutoff front plate and check cutters.
	Cutter depth not set deep enough.	Set stop for cutter depth for deeper cut per instructions in manual.

Burr OAK Tool Inc.
405 West South Street, Sturgis, Michigan 49091
Ph: 269-651-9393 Fax: 269-651-4324
sales@burroak.com www.burroak.com

VERTICAL BEND HAIRPIN BENDER LINE (Con't)

PROBLEM	CAUSE	SOLUTION
Cutters are breaking.	Misalignment of cutoff head due to the timing belt jumping a tooth. This causes the cutters to scrape the tubing.	Inspect both shafts of the cutoff to see if the keyways are both pointing up when looking at them. If not, then adjust as necessary. This will get the timing correct.
Cutter carriage does not return.	Fiber optic feed back-up switch may not be activated.	Check telescoping guide tubes are properly aligned. Check for obstruction. Check electrical components.
No bend.	The carriage retracted and mandrels in limit switches may not be tripped or may have malfunctioned.	Check switch actuator is making contact with the switch. Check electrical components.
	The clamp is clear limit switch may be tripped or may have malfunctioned.	Check for broken tube or some obstruction preventing the clamps from clearing. Check switch.
No bend return.	The clamp is clear limit switch may not be tripped or may have malfunctioned.	Check for broken tube or some obstruction preventing the clamps from clearing. Check switch.
Improper bend or bend return speed.	Possible valve malfunction.	Check valves and replace if necessary.
	Wrong bend or bend return cam or possibly none at all.	Check cams: Should be for same length, and both the same. Replace if necessary.
	Fuse has blown because bend & bend return were pressed at the same time.	Check fuses & replace if blown.
	Worn cams.	Remove one of the two shims between the decel valve and the mounting bracket so speed can increase to normal amounts. If removing both shims makes no difference, obtain new cams.
Oil temperature too high.	Insufficient water supply.	Increase water supply by adjusting temperature control valve.
All hydraulic powered motions are slow.	Insufficient system pressure or flow.	Check system pressure and adjust if necessary. Check pump and relief valve.

Burr OAK Tool Inc.
405 West South Street, Sturgis, Michigan 49091
Ph: 269-651-9393 Fax: 269-651-4324
sales@burroak.com www.burroak.com

VERTICAL BEND HAIRPIN BENDER LINE (Con't)

PROBLEM	CAUSE	SOLUTION
Pump seems excessively noisy.	Possible air leak.	Check suction line for air leak and air filter on tank for obstruction.
Pump seems excessively noisy.	Worn pump.	Repair or replace pump.
No strip.	Limit switch sequence may be interrupted.	Check “end of bend” and “carriage retracted” limit switches. Replace if necessary.
Strip activates but stalls.	Clamp cylinder may still be extended.	Check clamp valve and replace if necessary.
	Mandrel cylinder may still be extended.	Check mandrel valve and replace if necessary.
Strip activates but stalls.	Tube O.D. may not have adequate lubrication.	Check oil level, and increase flow.
	Guide tubes may be bent.	Check guide tubes and replace if necessary.
	Strip pressure set too low, or nonexistent.	Check pressure setting and adjust if necessary.
No strip return.	The “strip extended” limit switch may not be tripped or may have malfunctioned.	Check switch and replace if necessary.
Damage to end of tube.	Improper cutoff.	See list for cutoff problems.
	Misalignment with mandrel tip.	Make necessary alignment corrections.
	End of tube damaged by the stripper tube.	Make necessary alignment corrections.
	End of tube damaged by the stripper tube.	Check stripper tube assembly is moving freely in its holder.
	Tube end sizer not properly aligned.	Check alignment with tubing in the bent position. Allow 1” of travel for the end sizer to move.
	Bent mandrel rods.	Check rods for bends which may cause switch actuator sleeves to stick.
	Stripper tube protector may be positioned wrong.	Reposition the stripper tube protector.

Burr OAK Tool Inc.
405 West South Street, Sturgis, Michigan 49091
Ph: 269-651-9393 Fax: 269-651-4324
sales@burroak.com www.burroak.com

VERTICAL BEND HAIRPIN BENDER LINE (Con't)

PROBLEM	CAUSE	SOLUTION
Damage to end of tube (Cont'd)	Tube end sizer may be adjusted incorrectly.	Check the alignment of the end sizer bushings and bullets. Check the size of the bullets (they should be the same size as the mandrel tips.) The end sizer has a 1" stroke, ensure the tube doesn't bottom out on the back of the bushings.
	No feed slow sequence.	Check the "feed slow" limit switch and replace if necessary.
	Feed belt low pressure of "Hi-Low pressure" sequence is set too high.	Check feed belt low pressure reading and set to 35 psi.
	Clamp plate not releasing correctly before strip.	Check the clamp cylinder plate retainer ring for fracture and replace if necessary.
Tubing coil back-lash.	Coils move too easily, air brakes not working correctly.	Check air brakes, and repair or replace as necessary.
Air brakes coming on at wrong time, causing excessive drag.	Tube positions are swapped.	Tube #1 is closest to the operator. Make sure the first coil directly behind the straightener is laced into this groove.
Tubing working up inside edges of cardboard reel and then breaking.	Not enough compression on the reel by the cardboard reel supports.	Compress the outer plywood disc of the cardboard reel support by rotating the inner handle.
Flattened tubing.	Misalignment of sizing and/or straightening rolls.	Check alignment of rolls.
	Coil damaged during shipment.	Check coil for further damage.
Flattened tubing.	Feed belt air pressure too high.	Decrease "high" air pressure setting to 70-80 psi as shown in this manual.
Bump on outside of bend.	Mandrel tip too far forward.	Adjust mandrel rod position.
	Wrong mandrel tips.	Check size of mandrel tips.
	Thinning of tube wall.	Check tubing for irregularities.
Clamp marks on outside of upper leg of the hairpin.	Excessive clamp pressure.	Decrease clamp pressure until desired results obtained.

Burr OAK Tool Inc.
405 West South Street, Sturgis, Michigan 49091
Ph: 269-651-9393 Fax: 269-651-4324
sales@burroak.com www.burroak.com

VERTICAL BEND HAIRPIN BENDER LINE (Con't)

PROBLEM	CAUSE	SOLUTION
Clamp marks on outside of upper leg of the hairpin. (Con't)	Tubes are not evenly clamped (tubes in middle have more clamp marks than those on the outside).	Replace clamp equalizer pad.
Tubing is pulled out of the bend clamps before it is cutoff.	Clamp pressure is too low.	Increase clamp pressure.
	Feed backup pressure is too high.	Decrease feed backup pressure.
	Tubing is undersize.	Inspect tube diameter coming out of cutoff head and adjust sizing rolls if necessary.
	Clamp equalizer pad is worn out.	Replace equalizer pad.
Wrinkled bend.	Insufficient wiper pressure.	Adjust cam on the front of the mandrel carrier plate for correct wiper pressure.
	Worn wiper.	Replace wiper.
	Too much oil on outside of tube.	Replace wiper block.
	Too much oil inside of tube.	Lower the oil flow to the outside of the tube.
	Wrong size mandrel tip.	Reduce oil to air mixture.
	Mandrel tip too far back.	Check size of mandrel tip.
	Tube too hard.	Adjust mandrel rod position.
	Clamp slipping.	If possible change tubing. Increase clamp pressure.
		Check tube O.D.
Flat bend.	Mandrel tip too far back.	Adjust mandrel rod position.
	Clamp slipping.	Increase clamp pressure. Check tubing O.D.
	Insufficient wiper pressure.	Adjust cam on the front of the machine.
PROBLEM	CAUSE	SOLUTION
Variations in bends.	Mandrels are all adjusted to different positions.	Determine which hairpin has the best bend and set the rest of the mandrels to that position.

Burr OAK Tool Inc.
405 West South Street, Sturgis, Michigan 49091
Ph: 269-651-9393 Fax: 269-651-4324
sales@burroak.com www.burroak.com

VERTICAL BEND HAIRPIN BENDER LINE (Con't)

PROBLEM	CAUSE	SOLUTION
Variations in bends. (Con't)	Not getting enough lubrication to the mandrels.	Check to see that all quick disconnects are in place at the end of the mandrel rods. Check all the nylon tubing that attaches to the mandrel rod quick disconnects for kinks. Check the mandrel tips or mandrel rods for obstruction.
Variations in bends.	Mandrel tips may be broken.	Inspect the mandrel tips and replace if needed.
Scratching, gaulding or scarfing on tubing.	Out-of-line, dirty, dented, or worn guide tubes.	Check alignment, clean, de-burr or replace guide tubes.
	Sizing or straightening rolls are not rotating due to bearing failure.	Check bearings and replace if necessary.
	Lack of oil to O.D. of tube.	Adjust oil flow.
	Build up on guide tube bushings at cutoff.	Hone bushings to remove foreign material. Adjust cutter oiler for more lubrication.
	Dirt build up, lack of oil or misalignment in cut-off assembly.	Clean, adjust oil flow or align assembly as required.
	Misalignment of form block in relation to clamp sections.	Check and adjust alignment if necessary.
	Interference by the switch actuator bar.	Turn adjustment screws on the switch actuator arms until the setting is correct.
	Misalignment of the wiper block or mandrel keeper.	Check alignment and correct if necessary.
	Some cross axis tube sizer shafts may have rotated, and cut outs on spacers are pressing against tubing.	Check cross axis tube sizer, and adjust as necessary.
	Feed belt pressure may be too high and may be flattening the tubing.	Decrease the “high” feed belt pressure to 70-80 psi.
	Misalignment of cutoff head due to the timing belt jumping a tooth or two. This causes the cutters to scrape the tubing.	Inspect both shafts of cutoff to see if keyways are pointing up when looking at them. If not, adjust as necessary. This will get the timing correct.

Burr OAK Tool Inc.
405 West South Street, Sturgis, Michigan 49091
Ph: 269-651-9393 Fax: 269-651-4324
sales@burroak.com www.burroak.com

VERTICAL BEND HAIRPIN BENDER LINE (Con't)

PROBLEM	CAUSE	SOLUTION
Burr on tube.	Maladjustment of cutting cycle.	1. Set cutter depth to min. by using micro cutter depth adjustment.
Burr on tube (Cont'd)	Maladjustment of cutting cycle.	2. Vary back up pressure & cutoff rate to improve cut. 3. Set backup pressure to 450-650. You must have tubing into the clamp, hold camp button & push feed back up to read pressure on gauge. Do not exceed clamp pressure or you risk pulling tubing back. 4. Cutoff rate, key lock-able flow control on manifold back side of straightener. Adjust to vary the speed at which bearing plate pulls back (or cutters enter the tubing). Normal setting 2-4 on dial.
Too much roll-in at the end of the tube at cut-off.	Dull cutters.	Check cutters and replace if necessary.
	Rate of cut-off too high.	Adjust flow control valve for slower cut-off speed.
	Cutters advance too far into the tube.	Adjust cut-off stop with the micro adjust.
Distorted cut.	Depth of cut, cutoff rate and back up pressure are important. (Cutoff rate and back up pressure settings vary due to type of copper, hardness, rifled or smooth and the amount of tubes being cut.	Cutoff rate is normally set at 2 to 4 on the key lock-able flow control mounted on the straightener manifold. Old style flow controls with dual scales a6 to a8. Back up pressure 400 to 650 psi.
	Are mechanical components intact, bolts tight and lubricated?	Replace broken components. Tighten loose components. If bearings are worn they should be replaced. Lubricate per instruction manual.

Burr OAK Tool Inc.
405 West South Street, Sturgis, Michigan 49091
Ph: 269-651-9393 Fax: 269-651-4324
sales@burroak.com www.burroak.com

VERTICAL BEND HAIRPIN BENDER LINE (Con't)

PROBLEM	CAUSE	SOLUTION
Distorted cut (Con't)	Is the depth of cut set to cut just through the tubing?	Adjust micro cutter depth control or jam nuts on stop, center of cutoff unit.
	Are dowel pins in back cutter head plate?	Replace dowel pins.
	Is cutoff in time?	Cam vertical, 3/16 dowel pin in shaft retainer to the upper right.
	Cutters backwards in cutter plate.	Remove front plate, and reverse cutters.
Not backing up during cutoff.	Backup pressure too low.	Adjust back pressure.
	Cutter cylinder pressure too low.	Adjust cutter pressure.
Not backing up during cutoff.	Feed belts too tight.	Adjust feed belt tension.
	No wax on belts.	Wax belts.
Machine will not start up.	Guard may be open.	Check all guards are closed.
	Switch malfunction.	Check switches and replace if necessary.
	Loss of power.	Check for power and repair if necessary.
Stripper tube is breaking or being damaged.	Wrong end in stripper spool.	Make sure the red end of the stripper tube is not in the stripper spool. It should be the end that the tubing hits against.
Stripper tube is breaking.	The Stripper Tube Protector is in the wrong position.	Refer to the manual and make necessary adjustments. Put tie rod stops back on the switch tower.
	Feed speed is too fast.	On machines with flow control on feed speed, slow fast speed down.
	The Low pressure applied to the feed belt pressure pads is too high.	Reduce low pressure to operate between 25-45 psi. Belts should slip over the tubing. Adjustment is at the back of the feed unit.
	Short hairpins 6-12” are being produced and stripper tubes are sticking out of the Stripper Tube Protector.	Slow feed speed down and reduce the low air pressure to feed belt pressure pads. If large production, contact Burr Oak Tool Inc. about special Mandrel Keeper available.

Burr OAK Tool Inc.
405 West South Street, Sturgis, Michigan 49091
Ph: 269-651-9393 Fax: 269-651-4324
sales@burroak.com www.burroak.com

VERTICAL BEND HAIRPIN BENDER LINE (Con't)

PROBLEM	CAUSE	SOLUTION
Stripper tube is breaking. (Con't)	Mandrel rods bent.	Check and replace if needed.
Tube continues to feed past the Out of Tube Sensor and into the machine when coil runs out.	Sensitivity of photo switch is adjusted too low.	Take cover off and adjust the sensitivity as per the literature enclosed with the manual.
	Defective switch.	Check and replace if necessary.
Mandrel rods bending during feed.	Tube positions are swapped.	Tube #1 is closest to the operator. Make sure the first coil directly behind the straightener is laced into this groove.
	Feed belt low air pressure on valve at back of feeder is too high.	Adjust air pressure to proper setting. Use 35 psi for starting point.
	Mandrels are wrong size.	Check size of mandrels for that tubing.
	Excessive roll-in at cutoff.	Adjust cutoff to limit roll-in. See section in write-up.
Hairpins start to strip out of bend head then bend up.	Guide tubes in boom may be bent causing upper leg to "hang up".	Check guide tubes for dents or burrs. If it is only one tube, then switch with another and see if the problem switches also.
Hairpins start to strip out of bend head then bend up.	There may be a burr on the bend clamps or wiper block.	De-bur bend clamps and wiper block grooves.
	The bend clamps may not be retracting.	Remove the bend clamps, clamp spacer and inspect for mobility. Check to see if the clamp cylinder retainer ring has broken. This is connected to the clamp cylinder connector block.
	Not enough oil on the outside of the tube.	Turn up the oil mixture on the O.D. oiler.
	Tube end sizer is not aligned properly.	Align tube end sizer with end of hairpins.

Burr OAK Tool Inc.
405 West South Street, Sturgis, Michigan 49091
Ph: 269-651-9393 Fax: 269-651-4324
sales@burroak.com www.burroak.com

VERTICAL BEND HAIRPIN BENDER LINE (Con't)

PROBLEM	CAUSE	SOLUTION
Axis problems (HIGH TECH BENDERS) NOTE: check messages on screen and the messages on the massage log to help determine the problem area.	Malfunctioning valve.	Bleed valve and check hydraulic connections for leaks.
	Axis not responding.	Reseat Card (remove card from circuit board and them reinsert card into circuit board.
	Bad solder connection.	Re-solder as necessary.
	Valve not responding.	Check to see if hydraulics are properly connected and that the proper electrical controllers are in place.
	Over-travel.	Check encoder readings to determine if axis has over-traveled (manual movement of the axis may be necessary to restart machine). Re-homing of machine may be required. Reset limits of axis travel or part program if problem persists.
	Malfunctioning counter balance valve.	Bleed valve and possibly readjust pressure if necessary. Replace valve if problem is still encountered.
	Proportional directional valve (LVDT) valve.	Bleed valve. If problem persists the LVDT should be nulled. Use procedure outlined in setup instructions provided by manufacturer (#10).
Feed axis feeding up to the switch tower and then getting a position error.	System pressure too low.	Adjust system pressure to 1100 PSI.

Burr OAK Tool Inc.
405 West South Street, Sturgis, Michigan 49091
Ph: 269-651-9393 Fax: 269-651-4324
sales@burroak.com www.burroak.com

VERTICAL BEND HAIRPIN BENDER LINE (Con't)

PROBLEM	CAUSE	SOLUTION
When homing, an axis gets a position error and will not move.	Possible bad cable connection or broken wires in the cable.	Check input value out of the proportional valve card when the axis is trying to home. If the reading is zero or close to zero then refer to the electrical schematic to determine which cable to check. Check for continuity on each line.
	Proportional valve card has become loose or has malfunctioned.	Reseat card (remove card from circuit board and them re-insert card into circuit board). MAKE SURE PUMP IS OFF WHEN ATTEMPTING THIS. Replace the card with a new one or swap with one that has THE SAME MODEL NUMBER.
	Proportional valve has debris in it and won't shift.	Check the actual value out of the proportional valve card when the axis is trying to home. If the reading is zero or close to zero and the previous steps have been taken, then replace the proportional valve and bleed it per the instructions in this manual.
	Check for physical obstruction.	Clear axis of obstruction.
Tubing not feeding and machine continues to cycle without tubing.	All the tube selector switches are turned to the off position.	Turn the tube selector switches to the on position.
	All the end of feed switch fingers are pressed tight against the mandrel rods and are actuating the end of feed switches.	Go to the input display and see if the end of feed switch inputs are on. If so, move the end of feed switch assembly up.

Burr OAK Tool Inc.
405 West South Street, Sturgis, Michigan 49091
Ph: 269-651-9393 Fax: 269-651-4324
sales@burroak.com www.burroak.com

VERTICAL BEND HAIRPIN BENDER LINE (Con't)

PROBLEM	CAUSE	SOLUTION
Bend head bangs hard on both sides of bend.	Boom proximity switch is not adjusted properly.	Adjust proximity switch out with bend in zero position (bend return) until it senses boom actuator.
	Wrong boom switch actuator is on the boom or none at all.	Check the automatic operation screen to see what boom is listed. Measure the top fixed bar of the boom and see if it compares. If not, check manual assembly drawings and parts list for proper actuator and install.
Each axis runs very rough. Even after bleeding the proportional valves. It is noticed that a milky white substance comes out of the valves when bleeding them.	The water cooled heat exchanger may have sprung a leak causing water to flow into the hydraulic fluid reservoir. Water will move to the bottom of the reservoir and be pumped through the system.	Drain some oil out of the reservoir and verify that it is oil. If it is water, then replace the heat exchanger and the oil. Bleeding of the valves will be a on going procedure until all the water is out of the system. It may be required to let the system set for a while before replacing the oil again.