

10.1 Press Brake Malfunctions

10.1.1 Hydraulic pump drive motor will not start.

Cause	Solution
Shop electrical supply disconnect switch is OFF.	Turn disconnect switch ON.
Press brake main disconnect switch is OFF.	Turn disconnect switch ON.
Emergency STOP pushbutton is pushed in.	Turn Emergency STOP pushbutton 1/4 clockwise to release, then push START pushbutton.
Control circuit fuse FUI is blown.	Check for possible cause. Remedy cause and replace fuse.
Loose wire connections in control circuit wiring.	Check for electrical control wiring continuity using a multimeter and control schematic. Repair as required.

10.1.2 Hydraulic pump drive motor is running but press ram will not cycle.

Cause	Solution
Ram control is disabled. (RAM ACTIVE light is flashing.)	Toggle RAM ENABLE key.
Backgauge control is disabled.	Enable backgauge control.
Control setting is not the mode being used. (Hand or foot light is flashing.)	Change control mode to desired setting.
Neither calibration, run, nor third party control mode are selected.	Select calibration, run or third party control mode.
Ram (Y-axis) is uncalibrated.	Calibrate ram.
Backgauge (X-axis) is uncalibrated.	Calibrate backgauge.
Operational CNC systems interface is incompatible with existing electrical control.	Contact CNC system dealer/manufacturer.
ETS system parameter configuration is incorrect.	Consult factory service for procedures in re-setting system configuration.
Motor rotation is incorrect.	Check phase sequence at main supply voltage connection to disconnect switch. Ensure sequence is: 1-2-3 (red-black-white).
Loose connection/broken wire in operator control pedestal cable or defective electrical contact blocks.	Check for electrical continuity from operator control pedestal to the main electrical cabinet. Repair as appropriate.
Defective ram down overrun limit switch or loose/broken electrical connection.	Check for electrical continuity from the footswitch through to the DOWN solenoids. Repair as appropriate.
Hydraulic relief valve is stuck in OPEN position.	Try to cycle the press ram down using hydraulic valve manual override controls. If no ram motion occurs, remove relief valve cartridge and inspect the O-rings and sliding spools for defects or obstructions.

10.1.3 Press ram will cycle down in slow speed only.

Cause	Solution
Speed change position is not set correctly.	Optimum setting for speed change is at punch contact of part being formed.
High volume valve DOWN solenoid is defective.	Check electrical continuity to and at the solenoid. Repair as appropriate.

10.1.4 Ram hesitates / stops at speed change point or part contact point.

Cause	Solution
Press ram is free falling faster than the system can deliver oil to the hydraulic cylinders.	Check the press ram ways assembly. Refer to 9.3, "Mechanical System Adjustments".
High pressure relief valve is not maintaining preset relief pressure setting.	Remove the high pressure relief cartridge assembly from the manifold block and inspect the O-rings for damage. Check the center sliding spool to confirm valve functionality. Clean with solvent and compressed air to remove any foreign particles. Re-install and test valve.

10.1.5 Press ram will not return to the program up-limit.

Cause	Solution
Control mode is set to JOG.	Switch to AUTO or MAN mode, then activate footswitch or palm pushbuttons.
Loose connection/broken wire in operator control pedestal cable or defective electrical contact block.	Check for electrical continuity from the operator control pedestal through to the up solenoids. Repair as appropriate.
The ram up-limit switch is stuck or damaged in activated position.	Check limit switch mechanical functionality and electrical continuity. Repair as appropriate.

10.1.6 Press ram does not stop at bend point.

Cause	Solution
Hydraulic directional valve malfunction.	Manually activate the overrides to check pilot valve mechanical functionality. Make sure there is no obstruction of the pilot spool or the valve spool centering springs.

10.1.7 Ram stops and/or reverses before developing full tonnage or completing the bend.

Cause	Solution
Program bend point setting is incorrect.	Check program bend point to see if the press ram reaches the recorded position.
Tonnage control is set too low to complete the bend.	Check tonnage display and adjust for higher tonnage.
Excessive off center load is causing torsion safety limit switch activation.	Move part being formed closer to center on the press bed.
Slow speed change position setting is incorrect.	Optimum setting for speed change is at punch contact of part being formed.

10.1.8 Press tonnage display shows full tonnage but the press fails to complete the bend.

Cause	Solution
Part's material properties are incompatible with the press brake and die configuration.	<p>Check material properties to confirm that the bend can be executed with the existing set-up.</p> <p>Increase die opening to reduce the press ram tonnage required to form the part.</p> <p>Decrease part length being formed to reduce the press tonnage required.</p>

10.1.9 Backgauge will not advance to the next flange length step.

Cause	Solution
Incorrect programming of number of steps for the job.	Confirm backgauge program steps reflect the job requirement.
Backgauge position dimension per step is not programmed.	Verify or modify backgauge step program dimension.
STOP pushbutton is detented OFF.	Reset backgauge STOP pushbutton to ON (1/4 turn clockwise).

10.1.10 Hydraulic system is overheating.

Cause	Solution
The program up-limit setting is incorrectly adjusted and the ram up-limit switch is failing. This is allowing cylinders to fully retract, which relieves hydraulic flow over the system relief valve.	Check ram up-limit switch adjustment and functionality to stop ram up travel, and ETS HIGH set position.
Operator is continuously attempting to form parts over the capacity of the press brake.	Ensure the press brake speed change point is above the material to be formed and the tonnage indicator is registering within the rated tonnage.
Hydraulic system high pressure relief valve is relieving prematurely.	Remove the high pressure relief cartridge assembly from the manifold block and examine O-rings for damage. Push the center sliding spool to confirm valve functionality. Clean with solvent and compressed air to remove any foreign particles. Re-install then test valve.
High pressure pump cartridge is defective or worn, resulting in loss of flow and pressure.	Test the pump flow delivery and pressure at a hydraulic service center. If such facilities are not convenient, the high pressure cartridge "P2" can be removed and examined for mechanical damage and wear. Replace the cartridge or the complete pump, as required.
The coupling element between the electric motor and hydraulic pump is worn or disintegrated.	Inspect and replace as required.

10.1.11 Hydraulic pump is noisy.

Cause	Solution
Hydraulic fluid level is low.	Check fluid level when press ram is in up position. If required, add fluid until visible in sight gauge.
Pump inlet suction strainer is plugged or obstructed.	Check fluid condition. Replace hydraulic strainer, fluid and hydraulic filter as required.
Hydraulic inlet piping or connections are loose, causing pump to ingest air.	Check piping connections, O-ring at pump to inlet flange, and tighten inlet flange bolts.
Hydraulic pump shaft seal is defective, causing pump to ingest air.	Check shaft seal for wear or damage. Replace if required.

10.1.12 Operating modes will not toggle to next setting.

Cause	Solution
EDIT selector switch is set to LOCK.	Verify written job operating procedure and modify operating mode for compliance.

10.1.13 ETS or third party CNC gauging is inoperative / malfunctioning.

Cause	Solution
Incorrect CNC gauging interface.	Verify interface documentation and installation. Contact factory service to confirm press brake interface requirements.

10.2 Forming Variance

10.2.1 Unequal angle at each end of formed part.

Cause	Solution
Variance in metal thickness.	Check material thickness at both ends of the part. Offset the ram parallel to compensate for material thickness variance.
Variance in tooling height build-up at each end.	Offset the ram parallel to compensate for any tooling variance.

10.2.2 Inconsistency in formed parts.

Cause	Solution
Press ram, bed and tooling are coated with rust-proofing.	Remove die set, clean all parts with solvent, re-assemble and readjust.
Tooling does not lie flat on press bed cap.	Check clearance with feeler gauges. Shim between press bed and tooling, or mechanically straighten as required.
Tooling is worn.	Remachine forming surfaces of tooling. Utilize localized shimming practices to compensate for worn areas.

10.2.3 Each formed part exhibits a consistent angle from end to end, but there is inconsistency from part to part.

Cause	Solution
Press ram is free falling	Check press ram ways assembly adjustment.
High pressure directional control valve is defective or worn.	Disassemble and inspect for damaged or worn spools landings, spools, springs, or for contaminants.

10.2.4 Each formed part exhibits an inconsistent angle from end to end.

Cause	Solution
Rocker arm clamping screws are loose.	Locate and retorque.
Right ram lug clamping screws are loose.	Locate and retorque.
Left ram lug clamping screws are loose.	Locate and, if loose, consult factory service before retorquing.
Connecting rod clamping screws are loose.	Locate and, if loose, consult factory service before retorquing.
Connecting rod lower spherical bearing is worn or damaged.	Locate and, if loose, consult factory service before retorquing.

10.2.5 Under bending in the middle of the formed part.

Cause	Solution
Tooling is worn in the center due to continuous forming of small parts in one location.	Remachine forming surfaces of tooling. Utilize localized shimming practices to compensate for worn areas.
Press bed and ram are worn in the center due to continuous forming of small parts in one location.	Remachine forming surfaces of press bed and ram. Utilize localized shimming practices to compensate for worn areas.

10.3 ETS Messages

The software includes detailed messages to describe machine operation. One or more messages will be displayed to either explain an error or diagnose a problem.

10.3.1 Error Messages

If the palm pushbuttons or footswitch are activated and there is no motion for two seconds, error message(s) will be displayed. In this case the message(s) will explain the error. Each message has an associated number:

100 series - indicates problems are normally corrected by proper machine setup and operation.

900 series - indicates parts should be replaced, or the machine requires servicing.

The "Explanation/Solution" column gives the most common reasons and/or possible solutions for the message, starting with the most probable.

Number	Message	Explanation / Solution
099	ACR held on by NNN	<p>The number NNN signifies why the Auto-Cycle-Relay remains on at the end of the cycle when the controls have been released.</p> <ol style="list-style-type: none"> 1) Over 16 - two pedestal problem. 2) 12 thru 16 - both palm pushbuttons are sensed on 3) 8 thru 12 - right palm pushbutton is sensed on. 4) 4 thru 8 - left palm pushbutton is sensed on. 5) Under 2 - footswitch is sensed on.
901	Fuse F2 Blown	<ol style="list-style-type: none"> 1) Random failure - replace fuse. 2) Chronic failure = normally indicates a failed solenoid valve.
102	Hydraulics Off	<ol style="list-style-type: none"> 1) Check that the pedestal STOP button is released. 2) If '901' also, replace main PLC board fuse. 3) Check overloads on main contactor. 4) Check for power at J4, G9, G10, J8. 5) Hydraulics safety cutout must be on <ul style="list-style-type: none"> - check that there is no voltage at J6 when the start button is pushed. - if 120V at J6, problem with main PLC board. 6) If pump is running there is a PLC sensor fault, machine operation is not affected.
103	Ramup Activated	<ol style="list-style-type: none"> 1) Ensure that RAM UP is not being pushed. 2) Check for power at G1 <ul style="list-style-type: none"> - if power present, suspect short in snake, pedestal wiring, or RAM UP switch. - if no power, there is a PLC main board problem.
104	Hand Required- Not Foot	<ol style="list-style-type: none"> 1) Check that control mode is correct. 2) Pedestal problem: <ul style="list-style-type: none"> - fault in top contact of footswitch. - break in wiring to pedestal board P1-6. - pedestal board fault (R14).

Number	Message	Explanation / Solution
105	Foot Required - Not Hand	<ol style="list-style-type: none"> 1) Check that control mode is correct 2) Pedestal problem: <ul style="list-style-type: none"> - fault in contact of palm pushbutton. - break in wiring to pedestal board P1-3 or P1-4. - pedestal board fault (R7 or R8).
906	H/FtOn, NoAC Pwr	<ol style="list-style-type: none"> 1) Footswitch not fully depressed. 2) Pedestal logic problem <ul style="list-style-type: none"> - change control modes and error message should change to 104 or 105, follow message instruction. 3) Check for obstruction under footswitch. 4) Check continuity from J4 to G3 with footswitch engaged. 5) Check continuity from J4 to G2 with palm pushbuttons engaged. 6) Check that hand/foot relay (RE2) is 12VDC. 7) Main PLC board has failed (not user replaceable).
107	Down Limit Open	Down limit microswitch is open.
108	Torque LimitOpen	Torque limit microswitch is open.
109	LightCurtainOpen	Light curtain has been activated.
110	3 rd Party DnOpen	3 rd party down limit is open.
111	Not Run-Calib Md	Need to switch to run mode or calibration mode.
112	Ram uncalibrated	Need to calibrate press ram (Y- axis).
113	Ram not enabled	Enable press ram by pressing the RAM ENABLE button.

Number	Message	Explanation / Solution
114	Xaxis off target	<ol style="list-style-type: none"> 1) Wait for backgauge to reach programmed position. 2) Enable the backgauge by pressing the GAUGE ENABLE button. 3) Check for any obstruction of the backgauge. 4) Re-calibrate the backgauge X-axis.
115	Anti-tie-downErr	<ol style="list-style-type: none"> 1) Operate palm pushbuttons simultaneously. 2) Check for switch or wiring error in pedestal.
116	DownLimit Reached	Ram has reached its target position and can go no further. This is not a fault.
117	TonLimit Reached	<ol style="list-style-type: none"> 1) Check that tonnage limit is set properly. 2) Check setting of K factor, or other parameters. 3) Tonnage sensor failure.
118	Retrip RDS/HFT	In either Ram Double-Stop mode or Hand-Foot transfer mode, the hand/foot switch was not released within 2 seconds at the slow speed change point.
119	Retrip ErrBitSet	<p>Press ram will go up with next activation. Ram has stopped as a result of:</p> <ol style="list-style-type: none"> 1) Switched out of JOG mode or changing modes. 2) Ram enabled when not at top of stroke. 3) HI point reduced when hydraulics are on. 4) Any other unauthorized motion.
120	Retrip ACRBit Set	Press ram is prevented from going up at the end of the stroke. Ram will go up with next activation.

10.3.2 Diagnostic Messages

If the palm pushbuttons or footswitch continue to be activated after a press ram cycle is completed, these messages will be displayed. They are used for diagnostic purposes and give the reason why the cycle was terminated.

Number	Message	Solution
121	TonSensorProblem	1) Adjust zero on PLC board. 2) Check ton sensor input wires and connector. 3) Failed ton sensor.
122	Valid Bend Limit	Usually indicates desired operation.
123	Valid Ton Limit	Usually indicates desired operation.
124	Error Ton Cutout	Usually indicates ton limit set too low.
125	Ramup Sw Cutout	Occurs when Ram Up is activated before the bend limit has been reached. Usually this is the operator's intent.
126	Pedestal PwrLoss	Occurs if the hand/foot is de-activated before the ram has reached the bend limit. Usually this is the operator's intent.
127	X axis target loss	Retract must be programmed at least 0.300 from top of stroke.