CHAPTER 5
TROUBLESHOOTING

The following troubleshooting instructions are intended for use by Model-83 Punch Press maintenance personnel. If a problem develops that is not covered in this troubleshooting chapter, contact Spartanics or your service representative for help.

The following troubleshooting instructions are divided into two sections. The first section is a troubleshooting index. When you have a problem with the Model-83 Punch Press, find the problem on the troubleshooting index. The index will then refer you to the proper troubleshooting chart. The second section is made up of troubleshooting charts. Each chart will guide you through your press's problem until the problem is solved.

5.1 TROUBLESHOOTING INDEX

PROBLEM	REFER TO:
1. Press will not turn on when "ON" button is pressed and released.	Section 5.2.1
2. Press cycles 2 or more times when foot switch is pressed once.	Section 5.2.2
3. Press does not complete full cycle or does not cycle at all when foot switch is pressed in either automatic or manual mode.	Section 5.2.3
4. Hold-down unit does not come down when press is automatically or manually cycled. The hold-down unit is the device that clamps down on the sheet of material that's punched when the foot switch is pressed.	Section 5.2.4
5. Hold-down unit comes down after foot switch is pressed but does not come up after foot switch is released.	Section 5.2.5
6. Hold-down unit damages or warps sheet of material being punched.	Section 5.2.6
7. Hold-down unit does not clamp sheet of material tight enough.	Section 5.3.7

5.1 Troubleshooting Index

PROBLEM	REFER TO:
8. Press will not punch a target in automatic mode but will punch in manual mode. Hold-down unit comes down and clamps material (or bolster plate)firmly.	Section 5.2.8
9. Press is not punching target accurately.	Section 5.2.9
10. Slug vacuum does not work.	Section 5.2.10
11. Target light is not square-shaped or lit at all when the "TARGET" switch is in the "LITE" or "DARK" position.	Section 5.2.11
12. Punch makes a "clicking" sound when it pulls out of the punched material.	Section 5.2.12
13. End of punch assembly (stripper) has fallen off.	Section 5.2.13
14. Press punches poor quality holes (i.e. hole is rough, mushroomed, or printed circuit pad around hole is lifted off board).	Section 5.2.14
15. Punch counter does not work.	Section 5.2.15
16. "CONVERTER" switch is set to "ON" but converter arm does not flip onto target or does not come back up.	Section 5.2.16

5.2 TROUBLESHOOTING CHARTS

Use the following troubleshooting charts to track down and solve problems that the Model-83 Punch Press may have.

5.2.1 PUNCH PRESS WILL NOT TURN ON WHEN "ON" BUTTON IS PRESSED

PROBLEM	POSSIBLE CAUSE	REMEDY
Punch press will not turn on when "ON" button is pressed.	1. Set up switch is in "OFF" position.	Turn set up switch to "RUN" position. See Section 3.1.2. If problem still exists, go to possible cause 2.
	2. Disconnect Switch is turned off.	Turn disconnect switch on. See Section 3.1.5. If problem still exists, go to possible cause 3.
	3. Press's circuit breakers are blown.	Reset breakers according to Section 8.1.1. If problem still exists, go to possible cause 4.
	4. Power supply line circuit breaker is blown.	Reset power supply line circuit breaker. If circuit breaker blows again quickly, replace Sola transformer according to Section 8.1.3. If circuit breaker is OK and problem still exists, go to possible cause 5.
	5. Electronics package cables are not properly connected.	Connect cables to electronics package according to Figure 2.3 B. If problem still exists, go to possible cause 6.
	6. Power supply line is not connected to press.	Connect power supply line to press according to Section 2.5. If problem still exists, go to possible cause 7.
	7. Sola transformer is bad.	Test and (if necessary) replace Sola transformer according to Section 8.1.3. If Sola transformer is OK, go to possible cause 8.

5.2.1 PUNCH PRESS WILL NOT TURN ON WHEN "ON" BUTTON IS PRESSED

PROBLEM	POSSIBLE CAUSE	REMEDY
Punch press will not turn on when "ON" button is pressed.	8. Electronics package is bad.	Test and (if necessary) replace electronics package according to Section 8.1.4. If electronics package is OK, go to possible cause 9.
	9. Set up switch is bad.	Test and (if necessary) replace set up switch according to Section 8.1.5. If set up switch is OK, go to possible cause 10.
	10. Motor starter relay is bad.	Test and (if necessary) replace motor starter relay according to Section 8.1.6.

5.2.2 PRESS CYCLES MORE THAN ONCE

PROBLEM	POSSIBLE CAUSE	REMEDY
Punch press cycles two or more times when foot switch is pressed once.	1. Press is wired backwards which causes drive motor to run backwards.	Hook up power supply wires to press according to Section 2.5. If press is wired OK, go to possible cause 2.
	2. Gibs are too loose.	Inspect and (if necessary) tighten gibs according to Section 9.3. If gibs are OK, go to possible cause 3.
	3. Ram switch is bad.	Test and (if necessary) replace ram switch according to Section 8.2. If ram switch is OK, go to possible cause 4.
	4. Ram switch timing needs to be adjusted.	Check and (if necessary) adjust ram switch timing according to Section 9.4. If timing is OK, go to possible cause 5.

5.2.2 PRESS CYCLES MORE THAN ONCE

PROBLEM	POSSIBLE CAUSE	REMEDY
Punch press cycles two or more times when foot switch is pressed once.	5. Brake needs to be adjusted.	Adjust brake according to Section 9.1. If problem still exists, go to possible cause 6.
	6. Brake shoes are worn out.	Inspect and (if necessary) replace brake shoes according to Section 8.3.1. If shoes are OK, go to possible cause 7.
	7. Electronics package is bad.	Replace electronics package according to steps 7-14 in Section 8.1.4.

5.2.3 PUNCH PRESS DOES NOT CYCLE AT ALL

PROBLEM	POSSIBLE CAUSE	REMEDY
Punch press does not complete full punch cycle or does not cycle at all when foot switch is pressed in *either* automatic or manual mode.	1. Set up switch is not in "RUN" position.	Turn set up switch to "RUN" position. Refer to Section 3.1.2 for location of set up switch. If problem still exists, go to possible cause 2.
	2. Air supply is not hooked up to press and regulated between 85-125 psi. [4400-6500mmHg].	Make sure that air supply is hooked up to press. If none of the air driven parts of the press work when air supply is hooked up, the air filter is probably plugged up. If this is the case, clean the air filter according to Section 7.6. If press is getting air pressure, go to possible cause 3.
	3. Press needs to be greased.	Grease press according to Section 7.2. If press is already greased, go to possible cause 4.

5.2.3 PUNCH PRESS DOES NOT CYCLE AT ALL

PROBLEM	POSSIBLE CAUSE	REMEDY
Punch press does not complete full punch cycle or does not cycle at all when foot switch is pressed in either automatic or manual mode.	4. Drive belt is loose or broken.	Inspect and (if necessary) tighten or replace drive belt according to Section 9.5. If drive belt is OK, go to possible cause 5.
	5. Drive motor is bad.	Test and (if necessary) replace drive motor according to Section 8.4. If motor is OK, go to possible cause 6.
	6. Brake solenoid tubing is disconnected.	Inspect and (if necessary) reconnect tubing according to Section 8.3.4. If tubing is OK, go to possible cause 7.
	7. Foot switch is bad or disconnected.	Inspect and (if necessary) connect or replace foot switch according to Section 8.5. If foot switch is OK, go to possible cause 8.
	8. Brake solenoid or electronics package is bad.	Test and (if necessary) replace solenoid or electronics package according to Section 8.3.2. If solenoid is OK, go to possible cause 9.
	9. Brake stroke needs to be adjusted.	Adjust brake Stroke according to Section 9.2. If problem still exists, go to possible cause 10.
	10. Gibs are too tight.	Inspect and (if necessary) loosen gibs according to Section 9.3. If problem still exists, go to possible cause 11.
	11. Ram switch is bad.	Test and (if necessary) replace switch according to Section 8.2. If switch is OK, go to possible cause 12.

5.2.3 PUNCH PRESS DOES NOT CYCLE AT ALL

PROBLEM	POSSIBLE CAUSE	REMEDY
Punch press does not complete full punch cycle or does not cycle at all when foot switch is pressed in either automatic or manual mode.	12. Ram switch needs to be adjusted.	Test and (if necessary) adjust ram switch according to Section 9.4. If ram switch is OK, go to possible cause 13.
	13. Clutch or electronics package is bad.	Test and (if necessary) replace clutch or electronics package according to Section 8.3.2.

5.2.4 HOLD-DOWN UNIT DOES NOT COME DOWN

PROBLEM	POSSIBLE CAUSE	REMEDY
Hold-down unit does not come down when press is automatically or manually cycled.	1. Air supply is not hooked up to press and regulated between 85-125 psi. [4400-6500mmHg].	Make sure that air supply is hooked up to press. If none of the air driven parts of the press work when air supply is hooked up, the air filter is probably plugged up. If this is the case, clean the air filter according to Section 7.6. If press is getting air pressure, go to possible cause 2.
	2. Obstruction (slug, pencil, etc.) under hold-down unit. This is a fairly common problem.	Inspect area under hold-down unit for obstructions according to Section 6.1. If no obstructions are found, go to possible cause 3.
	3. Hold-down valve needs adjustment.	Adjust valve according to Section 9.6. If problem still exists, go to possible cause 4.
	4. Hold-down linkage, cylinder, or air supply tubing bad.	Inspect and (if necessary) repair or replace hold-down linkage, cylinder, or air supply tubing according to Section 8.7.1. If linkage, cylinder, and tubing are OK, go to possible cause 5.

5.2.4 HOLD-DOWN UNIT DOES NOT COME DOWN

PROBLEM	POSSIBLE CAUSE	REMEDY
Hold-down unit does not come down when press is *either* automatically or manually cycled.	5. Foot switch is bad or disconnected.	Inspect and (if necessary) connect or replace foot switch according to Section 8.5. If foot switch is OK, go to possible cause 6.
	6. Hold-down solenoid or electronics package bad.	Test and (if necessary) replace solenoid or electronics package according to Section 8.7.2.

5.2.5 HOLD-DOWN UNIT COMES DOWN BUT WILL NOT COME UP

PROBLEM	POSSIBLE CAUSE	REMEDY
Hold-down unit comes down when foot switch is pressed but does not come up after foot switch is released.	1. Hold-down spring is broken or missing.	Inspect and (if necessary) replace hold-down spring according to Section 8.7.3. If spring is OK, go to possible cause 2.
	2. Foot switch is bad.	Test and (if necessary) replace foot switch according to Section 8.5. If switch is OK, go to possible cause 3.
	3. Hold-down solenoid or electronics package bad.	Test and (if necessary) replace solenoid or electronics package ccording to Section 8.7.2.

5.2.6 HOLD-DOWN UNIT DAMAGES SHEET OF MATERIAL BEING PUNCHED

PROBLEM	POSSIBLE CAUSE	REMEDY
Hold-down unit damages or warps sheet of material being punched.	1. Hold-down valve needs adjustment.	Adjust hold-down valve according to Section 9.6. If problem still exists, go to possible cause 2.

5.2.6 HOLD-DOWN UNIT DAMAGES SHEET OF MATERIAL BEING PUNCHED

PROBLEM	POSSIBLE CAUSE	REMEDY
Hold-down unit damages or warps sheet of material being punched.	2. Hold-down pads are worn or damaged.	Inspect and (if necessary) replace hold-down pads according to Section 8.7.4. If pads are OK, go to possible cause 3.
	3. Hold-down pads are too rugged for type of material being punched.	Replace hold-down pads with flex hold-down pads according to Section 8.7.4.

5.2.7 HOLD-DOWN UNIT DOES NOT CLAMP MATERIAL TIGHT ENOUGH

PROBLEM	POSSIBLE CAUSE	REMEDY
Hold-down unit does not clamp sheet of material tight enough.	1. Air supply is not hooked up to press and regulated between 85-125 psi. [4400-6500mmHg].	Make sure that air supply is hooked up to press. If none of the air driven parts of the press work when air supply is hooked up, the air filter is probably plugged up. If this is the case, clean the air filter according to Section 7.6. If press is getting air pressure, go to possible cause 2.
	2. Hold-down valve needs adjustment.	Adjust hold-down valve according to Section 9.6. If problem still exists, go to possible cause 3.
	3. Obstruction (slug, pencil, etc.) under hold-down unit. This is a fairly common problem.	Inspect area under hold-down unit for obstructions according to Section 6.1. If no obstructions are found, go to possible cause 4.
	4. Hold-down pads are worn, damaged, or missing.	Inspect and (if necessary) replace hold-down pads according to Section 8.7.4.

5.2.8 PRESS WILL NOT WORK IN AUTOMATIC MODE

PROBLEM	POSSIBLE CAUSE	REMEDY
Press will not punch a target in automatic mode but will punch in manual mode. Hold-down unit comes down and clamps material firmly.	1. Control panel controls are not set properly.	Set control panel controls according to Section 3.2.2. If controls are set properly, go to possible cause 2.
	2. Poor target placement by operator.	Place center of target within .050" [1.25mm] of target lamp. If target is placed properly, go to possible cause 3.
	3. Poor target quality.	Make sure targets meet specifications listed in Chapter 4. If targets are OK, go to possible cause 4.
	4. Corrector pads are jammed by obstruction.	Inspect pads and remove any obstruction according to Section 6.2. If pads are OK, go to possible cause 5.
	5. Target lamp is burned-out or lamp shield is covered up with slugs. This is the cause of the problem only when the "TARGET" switch on the control panel is set to the "CLEAR" position.	Inspect and (if necessary, repair or replace lamp according to Section 8.8.1. If lamp is OK, go to possible cause 6.
	6. Converter arm is not flipping squarely onto the target when the "CONVERTER" switch is set to "ON" (This applies only to presses equipped with a converter).	Refer to Section 5.2.16.If converter is OK, go to possible cause 7.
	7. Dirty sensing head lenses.	Clean sensing head lenses according to Section 7.5. If problem still exists, go to possible cause 8.

5.2.8 PRESS WILL NOT WORK IN AUTOMATIC MODE

PROBLEM	POSSIBLE CAUSE	REMEDY
Press will not punch a target in automatic mode but will punch in manual mode. hold-down unit comes down and clamps material firmly.	8. Sensing heads are not properly mounted or their cables are not properly connected.	Check sensing head mounting and cables according to Section 8.9.1. If heads and cables are OK, go to possible cause 9.
	9. Servo motor system is not working or cable is disconnected.	Test and (if necessary) repair servo motor system according to Section 8.10. If servo motor system is OK, go to possible cause 10.
	10. Sensing heads or electronics package is bad.	Test and (if necessary) replace sensing heads or electronics package according to Section 8.9.2.

5.2.9 PRESS IS NOT PUNCHING TARGET ACCURATELY

PROBLEM	POSSIBLE CAUSE	REMEDY
Press is not punching target accurately.	1. Control panel controls are not set properly.	Set control panel controls according to Section 3.2.2. If controls are set properly, go to possible cause 2.
	2. Poor target placement by operator.	Place center of target within .050" [1.25mm] of aiming lamp. If target is placed properly, go to possible cause 3.
	3. Poor target quality.	Make sure targets meet specifications listed in Chapter 4. If targets are OK, go to possible cause 4.
	4. Sensing head dials are not adjusted properly.	Inspect and (if necessary), adjust sensing head dials according to Section 9.7. If dials are adjusted properly, go to possible cause 5.

5.2.9 PRESS IS NOT PUNCHING TARGET ACCURATELY

PROBLEM	POSSIBLE CAUSE	REMEDY
Press is not punching target accurately.	5. Not enough hold-down pressure.	Refer to Troubleshooting Section 5.2.7. If hold-down pressure is OK, go to possible cause 6.
	6. Target lamp is burned-out or lamp shield is covered up with slugs. This is the cause of the problem only when the "TARGET" switch on the control panel is set to the "CLEAR" position.	Inspect and (if necessary, repair or replace lamp according to Section 8.8.1. If lamp is OK, go to possible cause 7.
	7. Converter arm is not flipping squarely onto the target when the "CONVERTER" switch is set to ON" (This applies only to presses equipped with a converter).	Refer to Section 5.2.16. If converter is OK, go to possible cause 7.
	8. Dirty sensing head lenses.	Inspect and (if necessary) clean sensing head lenses according to Section 7.5. If lenses are clean, go to possible cause 9.
	9. Gibs are too loose.	Inspect and (if necessary) tighten gibs according to Section 9.3. If problem still exists, go to possible cause 10.
	10. Sensing heads or electronics package is bad.	Test and (if necessary) replace sensing heads or electronics package according to Section 8.9.2.

5.2.10 SLUG VACUUM DOES NOT WORK

PROBLEM	POSSIBLE CAUSE	REMEDY
Slug vacuum does not work.	1. Air supply is not hooked up to press and regulated between 85-125 psi. [4400-6500mmHg].	Make sure that air supply is hooked up to press. If none of the air driven parts of the press work when air supply is hooked up, the air filter is probably plugged up. If this is the case, clean the air filter according to Section 7.6. If press is getting air pressure, go to possible cause 2.
	2. Slug bin is full.	Empty slug bin according to Section 7.4. If bin is not full, go to possible cause 3.
	3. Lamp shield is upside down or broken.	Inspect and (if necessary) repair lamp shield according to Section 8.8.1. If shield is OK, go to possible cause 4.
	4. Air supply tube is broken or disconnected.	Inspect and (if necessary) repair tube according to Section 8.8.2. If tube is OK, go to possible cause 5.
	5. Vacuum switch or air solenoid is bad.	Test and (if necessary) replace solenoid according to Section 8.8.3.

5.2.11 TARGET LIGHT DOES NOT WORK

PROBLEM	POSSIBLE CAUSE	REMEDY
Target light beam is not square-shaped or lit at all when the "TARGET" switch is in the "LITE" or "DARK" position.	1. Target lights' potentiometer is out of adjustment.	Adjust target lights' potentiometer according to Section 9.8. If target light beam cannot be properly adjusted, go to possible cause 2.

5.2.11 TARGET LIGHT DOES NOT WORK

PROBLEM	POSSIBLE CAUSE	REMEDY
Target light beam is not square-shaped or lit at all when "TARGET" switch is in "LITE" or "DARK" position.	2. Sensing heads are not properly mounted.	Remount heads according to Section 8.9.1. If problem still exists, go to possible cause 3.
	3. Sensing heads or electronics package is bad.	Replace sensing heads and electronics package according to Method #1 in Section 8.9.2.

5.2.12 PUNCH MAKES CLICKING SOUND WHEN IT PULLS OUT OF MATERIAL

PROBLEM	POSSIBLE CAUSE	REMEDY
Punch makes a clicking sound when it pulls out of material.	1. Die is too small.	Change to a die that is .001" [.025mm] - .002" [.050mm] larger. If die is OK, go to possible cause 2.
	2. Dull/worn punch or die.	Change or sharpen punch and die according to Section 8.11.2. If punch and die are OK, go to possible cause 3.
	3. Stripper retaining spring is bad.	Replace spring and check tooling alignment according to Section 8.11.4. If problem still exists, replace stripper rods according to Method #2 in Section 8.11.2.

5.2.13 END OF PUNCH ASSEMBLY (STRIPPER) IS BROKEN OFF

PROBLEM	POSSIBLE CAUSE	REMEDY
End of punch assembly (stripper) has fallen off.	1. Stripper retaining spring is broken.	Check tooling alignment and replace stripper retaining spring according to Section 8.11.4.
	2. Stripper rods are broken.	Replace stripper rods according to Method #2 in Section 8.11.2.

5.2.14 PRESS PUNCHES POOR QUALITY HOLES

PROBLEM	POSSIBLE CAUSE	REMEDY
Press punches poor-quality holes.	1. Gibs are loose.	Check gibs and (if necessary) adjust gibs according to Section 8.11.4. If gibs are OK, go to possible cause 2.
	2. Tooling is misaligned.	Check tooling alignment and (if necessary) align tooling according to Section 8.11.4. If tooling is OK, go to possible cause 3.
	3. Punch and die are dull, worn or damaged.	Replace or sharpen punch and die according to Section 8.11.2.

5.2.15 PUNCH COUNTER DOES NOT WORK

PROBLEM	POSSIBLE CAUSE	REMEDY
Punch counter does not work.	1. Punch counter or electronics package is bad.	Test and replace counter or electronics package according to Section 8.12.

5.2.16 CONVERTER DOES NOT WORK

PROBLEM	POSSIBLE CAUSE	REMEDY
"CONVERTER" switch is set to "ON" but convertor arm doesnot flip squarely and flatly onto target or does not-come back up.	1. Converter needs adjustment.	Adjust converter according to Section 8.13.2. If problem still exists, replace converter according to Section 8.13.1.