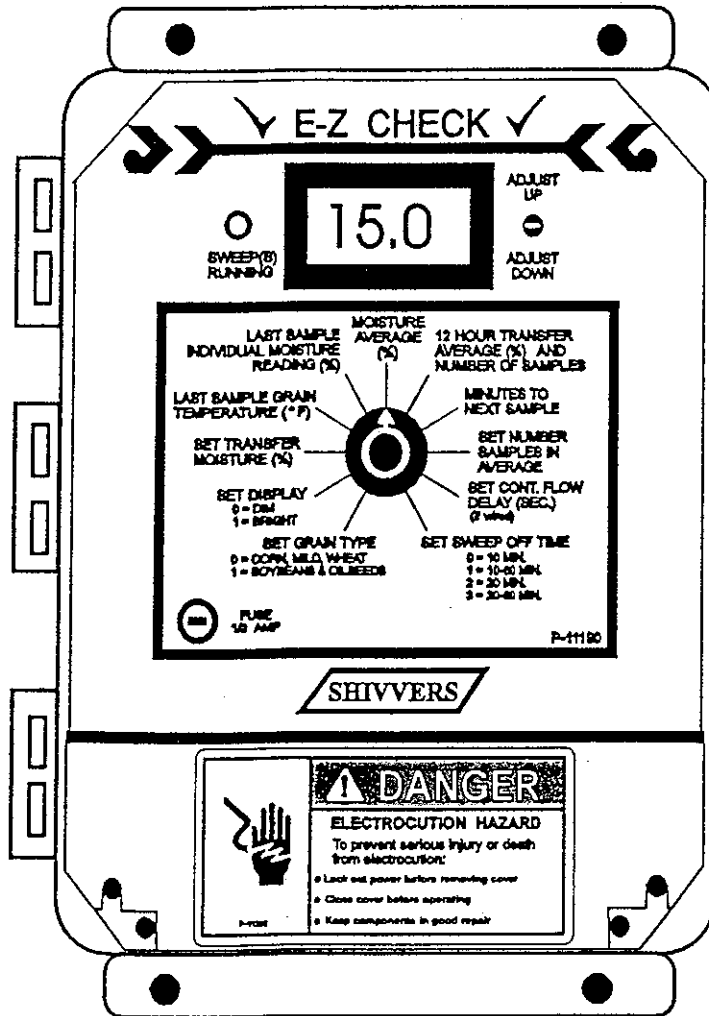


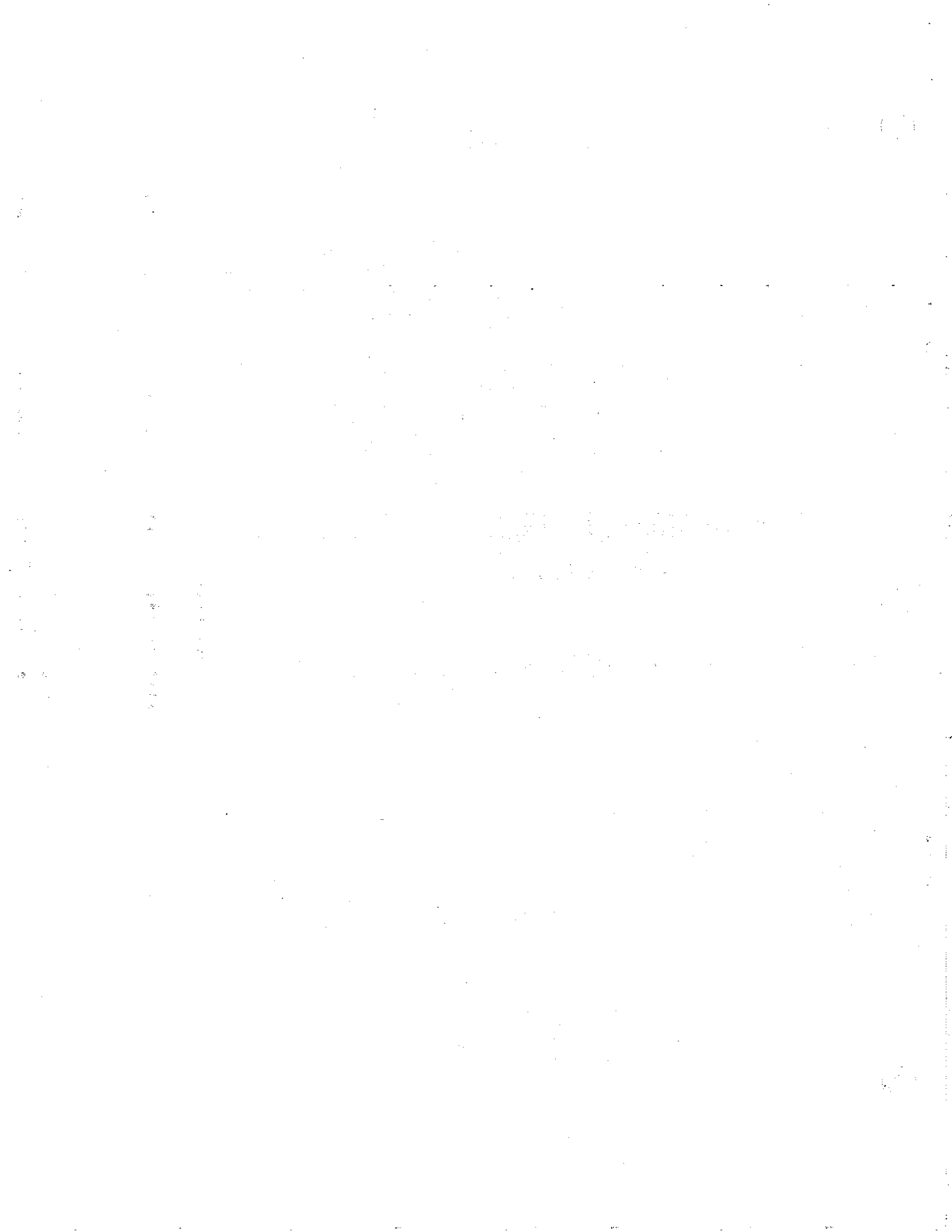
✓ E-Z CHECK ✓



SERVICE MANUAL AND PARTS LIST For Model 597Y-001A



SHIVERS INCORPORATED
614 WEST ENGLISH
CORYDON, IOWA 50060
515/872-1005



**SERVICE MANUAL AND PARTS LIST
FOR
E-Z CHECK MOD # 597Y- 001A**

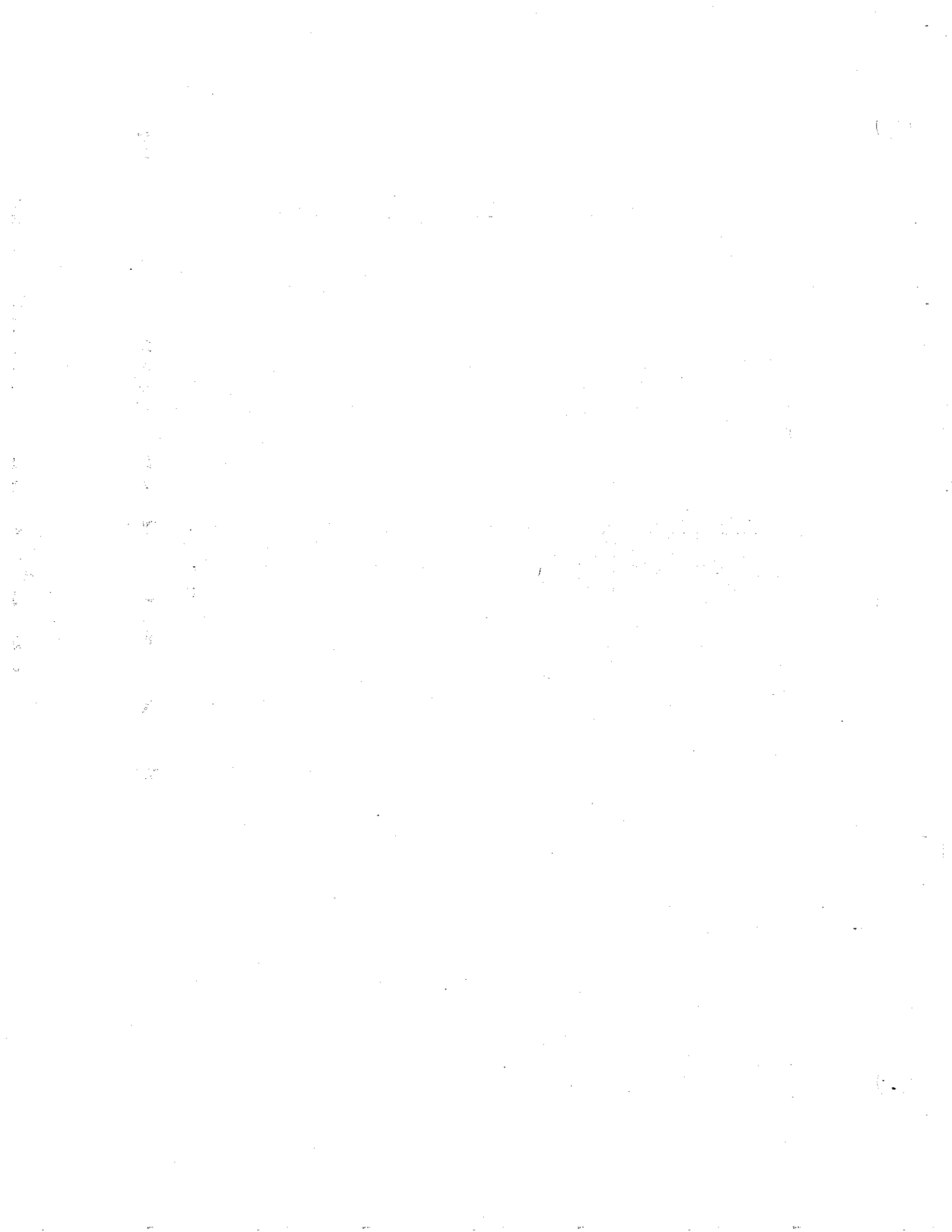
This manual will provide basic information to check out the E-Z Check control for proper operation. It will provide test procedures for the E-Z Check as well as some for the original dryer controls. Error codes and some troubleshooting tips are included as well as a parts break down and terminal description to aid in repairs.



DANGER

IN SOME CASES IT IS NECESSARY TO TAKE VOLTAGE MEASUREMENTS WHILE THE CIRCUIT IS "HOT". THESE CHECKS SHOULD ONLY BE PERFORMED BY COMPETENT SERVICE PERSONNEL. VOLTAGE LEVELS

MAY BE AS HIGH AS 220 VOLTS. PERSONAL INJURY IS POSSIBLE. COMPUTER COMPONENTS AND CIRCUIT BOARD TRACES ARE VERY SENSITIVE. THEY MAY BE DESTROYED BY SHORT CIRCUITS. IF YOU ARE IN DOUBT ABOUT WHAT YOU ARE DOING, DON'T DO IT. CALL THE FACTORY FOR ASSISTANCE.



CHECK OUT PROCEDURE

CHECK OUT OF ORIGINAL DRYER CONTROLS



DISCONNECT AND LOCKOUT ALL POWER BEFORE ATTEMPTING TO CHANGE DRIVE CLUTCHES. LOCK OFF BIN ENTRANCE, AND MAKE SURE ALL PERSONNEL ARE CLEAR BEFORE STARTING.

If the control panel is wired with grain thermostat backup, the E-Z Control switch will need to be in the TSTAT position for this part of the procedure.

1. Make sure all power to controls is locked off. Disengage the Machine motor from the augers so that only the motor will run. Make sure bin and transfer equipment is clear of tools and all personnel. Set all switches in control panel to "OFF". Turn grain thermostat to highest (driest) setting.
2. Turn power on to control panel. Set LGSO to "ON" or "BYPASS". On Compact Control Center, push "ON" switch.
3. Turn machine switch to "ON". Machine should run. Center vertical units should not be transferring. Turn Machine switch "OFF".
4. Turn Continuous flow switch to "ON". Cont. flow auger should run. Turn cont. flow switch "OFF". Check all cont. flow and auxiliary auger switches.
5. Set Machine switch to "AUTO". Turn grain thermostat down until the machine runs. If the temperature is below 60 degrees, it may be necessary to heat up the grain probe some way (place it in a bucket of hot water, for example). Turn grain thermostat all the way up and the machine should stop.
6. Turn one or more of the cont. flow switches to "AUTO". On some models the auger may run until it times out. After it stops running, lower the grain thermostat again. The machine and cont. flow augers should both start and run. Turn the grain thermostat all the way up. The machine should stop and the cont. flow auger run until the timer shuts it off (if so equipped).

CHECK OUT OF E-Z CHECK CONTROL

7. With power to E-Z Check turned off, put selection knob straight down (HLP position), then turn power on. Within 30 seconds of power on hold adjust "DOWN" until HLP stops blinking, then release. Display will alternate between moisture reading and temperature reading. Temperature should be close to ambient temp at the sensor. Moisture reading should be between 00.0 and 01.0 without any grain. Make sure no error messages occur. Turn power off to E-Z Check.

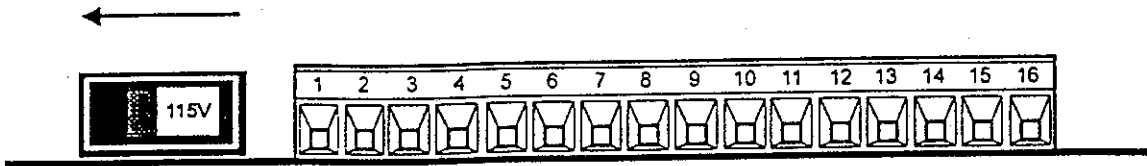
- 8A. This test will check systems wired with no control of transfer auger, or bottom unload machines.
Turn select knob away from HLP position. Make sure everyone is clear of machinery. If switch is added, set to E-Z Check control. When machine switch is set to auto, E-Z Check will come on. When the display flashes the program version (P1.X) move the adjust switch up or down to start the drying program. Turn the function knob to minutes to next sample selection, and adjust down until display shows 0. The machine should turn on. The transfer augers should also run. If E-Z Check terminals 5 and 6 are used in bottom unload machines, the transfer augers will come on before the machine will. If there is no grain in the bin, or the clutch is disengaged the sensor will send an error to the E-Z Check control, (Readings out of range error "E04"). Machine will shut off and the transfer auger will time out. Turn power to E-Z Check and controls off.

- 8B. This test will check center vertical systems wired to transfer dry grain only (no grain transferred during samples). Make sure everyone is clear of machinery. Turn function knob to HLP position. Turn power on to E-Z Check and hold adjust "UP" until HLP stops blinking. Reconfigure E-Z Check to 1. See Final Configuration section for details. After reconfiguring the control, turn cont. flow switch to auto. Turn function select knob to minutes to next sample, and adjust down to 0. The transfer augers should come on first (approximately 4 seconds before machine comes on). After 60 seconds, if there isn't any grain on the sensor, display will show "E04" (readings out of range). Machine will shut off and transfer auger will time out. After machine and augers stop, turn all controls OFF. Turn function select knob to HLP position and turn power on. Hold adjust up in the same manner as above and reconfigure the E-Z Check for 0. Repeat test. This time machine will run but transfer auger won't. This concludes the check out procedure for the E-Z check.

FINAL CONFIGURATION

SET VOLTAGE INPUT

The E-Z Check comes preset for 115V AC but can be set to run on 230V AC. The voltage selector switch is to the left of the 16 pole terminal strip on the E-Z Check. (See Control Box Parts Identification for location)



For 115V applications the red part of the switch should be slid to the left.



For 230V applications the red part of the switch should be slid to the right.

The voltage setting must be checked before power is applied to the E-Z Check. Improper voltage selection will damage E-Z Check control.

SET MACHINE TYPE

After the E-Z Check has been wired, the control may be configured for the type of machine it is going to run. This procedure needs to be performed only if the continuous flow augers are wired to E-Z Check terminals 5 and 6.

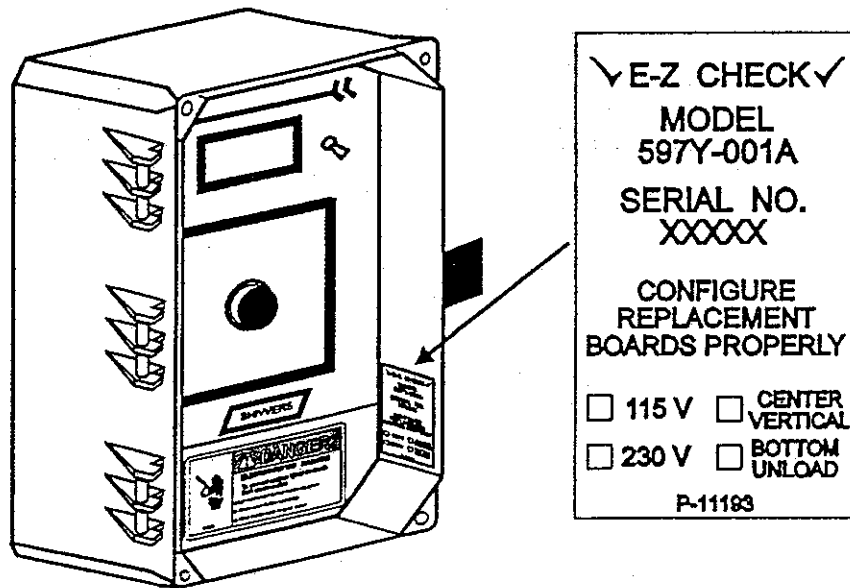
FOR CENTER VERTICAL MACHINES

If the machine type is set to 0, the E-Z Check will not energize CR2 until the moisture readings are below set point. Grain will recirculate in the drying bin while sampling.

FOR BOTTOM UNLOAD MACHINES

If machine type is set to 1, the E-Z Check will energize CR2 4 seconds before energizing CR1. This will allow pneumatic transfer systems to come up to speed before grain is discharged.

1. Turn power to E-Z Check OFF.
2. Turn function select knob clockwise until pointer is positioned straight down.
3. Turn power to E-Z Check ON. Display will show HLP.
4. Within 30 seconds of "POWER ON", hold adjust switch to "ADJUST UP" for 5 seconds. Display will start blinking showing the machine type setting.
 0 = CENTER VERTICAL (CIRCU-LATOR)
 1 = BOTTOM UNLOADER (DRI-FLO)
5. When display stops blinking, release adjust switch. Machine type setting is shown. Press adjust switch up or down to change setting. After about 10 seconds the display will show HLP and programming machine type is complete. Turn function select knob to desired setting.



After the voltage and machine configuration have been set, be sure to mark the voltage and the machine type on the model/serial tag on the inside wall of the E-Z Check box. This will provide a record for future reference should the E-Z Check require any service.

METER TEST MODE

The following procedure will allow you to check the moisture sensor without turning on the machine or transfer auger.

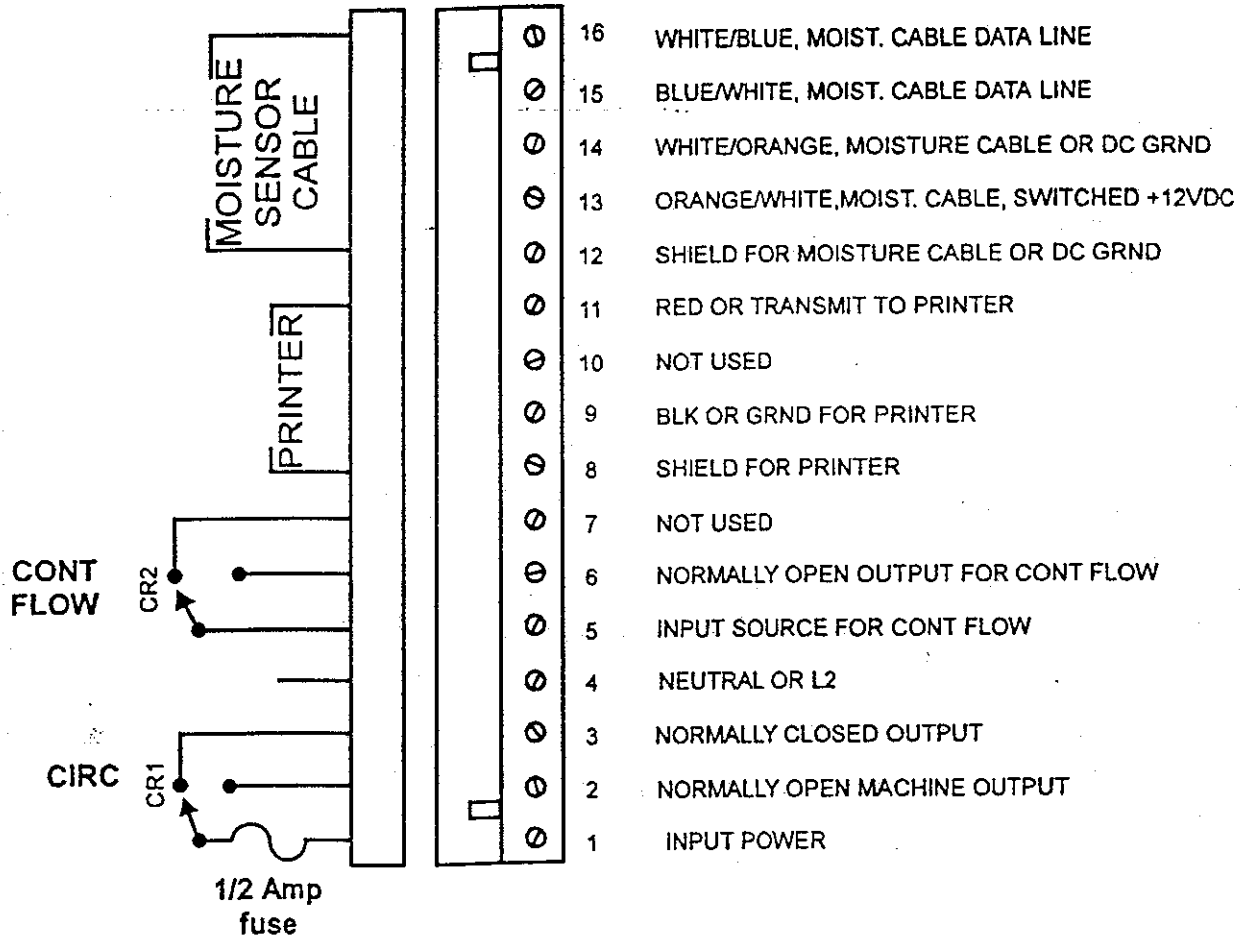
1. Turn power to E-Z Check off.
2. Turn function select knob clockwise until pointer is positioned straight down.
3. Turn power to E-Z Check on. Display will show HLP.
4. Within 30 seconds of "POWER ON," hold adjust switch to "ADJUST DOWN" for 5 seconds. The display will start blinking HLP. When HLP stops blinking release "ADJUST DOWN".
5. Display will alternate between moisture reading and temperature reading. Moisture readings have a decimal point (00.0), temperature reading does not (070).

If E05 shows in the display there is either a bad sensor or no input from the sensor. Any error messages displayed will be sent to the printer, if connected.

Moisture and temp readings received in this mode are "RAW" readings. They are not calibrated and are not temperature compensated.

With no grain on sensor, reading should be from 00.0 to 01.0, for moisture. Temperature reading should be close to ambient temperature at the sensor. For example: 070.

16 POLE CONNECTOR DESCRIPTION



1. 110VAC input power to E-Z Check.
2. *Normally open machine output, should have power present when controller is sampling or transferring grain.
3. *Normally closed machine output should have power present when machine is off.
4. Neutral terminal or L2 for 220V applications.
5. Input source for continuous flow circuit.
6. *Normally open output for cont. flow circuit should have power present when controller is transferring grain.
7. *Normally closed output for cont. flow circuit, should have power when transfer system is off. (Not normally used)

8. Shield termination point for printer cable.
9. Black or ground for printer cable.
10. Not used.
11. Red wire or transmit line for printer cable.
12. Shield or DC ground for moisture sensor cable.
13. Orange /white wire on moisture sensor cable. Switched +12VDC supply voltage for sensor.
14. White /orange wire or DC ground for sensor cable.
15. Blue /white wire from sensor cable. Data line.
16. White /blue wire from sensor cable. Data line.

* Due to 5ma leakage current from the snubber networks across the AC outputs, an AC voltage can be measured if there is no load connected to the output. To prevent loads from latching on, any loads connected to these outputs should have at least a 20ma current draw.

TROUBLE SHOOTING TIPS



DANGER

Trouble shooting should be done by trained personnel only. Never work on equipment unless main power is disconnected and locked off.

Symptom	Possible Cause	Remedy
No power to E-Z Check.	Machine switch not in auto. Grain tstat backup switch not in E-Z Check mode. 1/2 amp fuse blown in E-Z Check. Control fuse blown in Circu-trol.	Put machine switch to auto. Put switch in E-Z Check mode. Replace fuse .
E-Z Check not operating.	Drying program not started. Power may have flashed off. Error in drying program occurred.	Move adjust switch up or down to start program. See error codes to determine fault(s).
E-Z Check sampling but not transferring grain.	Cont Flow switch not in auto. Grain not reaching setpoint.	Put switch in auto. Check sensor calibration. Check dryer (temp, static pressure, etc.). Check off time (slower mode may be needed).
Machine running but E-Z Check sweep(s) running light is off.	System may be wired in parallel with grain T-STAT. System may be wired with low current draw relay coil.	Turn grain T-STAT to highest (driest) setting. Have electrician make sure relay coil requires at least 20 mA.

E-Z CHECK ERROR CODES

Display shows	Error definition	Possible cause/remedy
* Px.x	Program version number	Power was off or grain type was changed. Move adjust up/down to restart program.
* E02	Watch dog timer reset	Computer malfunction. Shut system off to clear error.
E03	Readings not changing	Grain not moving past sensor. Sweeps not running, bin out of grain.
E04	Reading out of range	Grain is too wet, too dry, not on sensor. Take manual sample and check calibration.
* E05	Moisture sensor or cable problem	Check moisture cable at sensor and E-Z Check. Replace sensor.
E06	Bad grain temperature	Check grain temp. Check temp calibration. Check drying temperature.
* E07	Drying parameter read error	Can't read stored drying settings. Will revert to default. Reenter settings and calibration if needed.
* E08	No rotary switch input	Shut power off to clear. Rotate switch around to clean contacts .
<p>* Will stop sampling if this error occurs. Adjust up or down to restart drying program.</p>		

Error codes will be sent to the printer if one is installed with the unit. Contact your dealer if further assistance is needed.

E-Z CHECK PARTS LIST

EZ CHECK CONTROL BOX 597Y-001A			
NO.	PART#	DESCRIPTION	QTY
1	597-666A	EZ-CHECK CONTROL ASSEMBLY ORDER PART # 423-336-001A FOR REPLACEMENTS	1
2	E-6030	CONNECTOR, 16 POLE PHOENIX PLUG, WITHOUT NUMBERS	1
3	597-665A	EZ-CHECK MOISTURE SENSOR ORDER PART # 423-337-001A FOR REPLACEMENTS	1
4	597-644P	RAIN SHIELD	1
5	E-6251	MOISTURE SENSOR CABLE	75'
6	*	SENSOR MOUNTING HALFBAND 6' OR 8' SEE PARTS BREAKDOWN AT RIGHT	1
7	P-10367	DECAL, READ MANUAL BEFORE DPR.	1
8	E-6255	PANEL ADJUST KIT, CARLON	1
8A	-	ANGLE BRACKET	(4)
8B	-	POINTED SCREW:#10-32 X 3/8" SLOT	(4)
8C	-	SCREW:#10-32 X 3/8" SLOT/PHIL/PAN	(4)
9	E-6256	BODY, CARLON: 10 X 8 X 6	1
10	E-6267	KIT, QUICK RELEASE LATCH	1
11	597-662A	EZ WIRING SACK SEE PARTS BREAKDOWN BELOW	1
12	E-6265	LID, CLEAR: FOR E-6256	1
13	E-6266	KIT, MOUNTING FLANGE: FOR E-6256	1
13A	-	FLANGE	(2)
13B	-	SCREW, FLAT HD: 1/4-20 X 1/2 SLOT	(4)
14	P-11193	DECAL, EZ-CHECK SERIAL #	1
15	H-2200	COVER PLATE, WIRING EZ-CHECK	1
16	P-11232	DECAL, DANGER VOLTAGE	1
17	P-11234	DECAL, WIRING: EZ-CHECK	1
18	P-11235	DECAL, ERROR CODES: EZ-CHECK	1
19	597-405A	SENSOR MOUNTING HARDWARE	1
	* 597-663A	EZ CHECK MANUAL SACK	1
	* P-11230	EZ CHECK INSTALLATION MANUAL	1
	* P-11231	EZ CHECK OPERATORS MANUAL	1

603V-001A 6" PARTS BOX			
NO.	PART#	DESCRIPTION	QTY
6	597-660W	TOP 6" BAND E-Z WELDMENT	1
	* 597-268P	BOTTOM 6" HALFBAND	1
	* E-6248	JUNCTION BOX COVER	1
	* 597-401A	HARDWARE SACK, HALFBAND	1
	* 597-405A	HARDWARE SACK, SENSOR MOUNTING	1
11	597-662A	E-Z WIRING SACK	1
	* F-1619	12" HOSE CLAMP	3
6C	597-643A	SENSOR GAGE ASSY, FLAT PLATE	1

603W-001A 8" PARTS BOX			
NO.	PART#	DESCRIPTION	QTY
6	597-661W	TOP 8" BAND E-Z WELDMENT	1
	* 597-362P	BOTTOM 8" HALFBAND	1
	* E-6248	JUNCTION BOX COVER	1
	* 597-401A	HARDWARE SACK, HALFBAND	1
	* 597-405A	HARDWARE SACK, SENSOR MOUNTING	1
11	597-662A	E-Z WIRING SACK	1
	* F-1619	12" HOSE CLAMP	3
6C	597-643A	SENSOR GAGE ASSY, FLAT PLATE	1

* = NOT PICTURED

597-662A EZ WIRING SACK PARTS			
NO.	PART#	DESCRIPTION	QTY
11A	E-6250	SILICONE FILLED WIRENUT, GREY	3
11B	E-5051	PLASTIC BUSHING	1
11C	E-5012-02	TERM. SPADE, INS. #10 STUD	2
11D	F-1121	1" SELF TAPPING SCREW	4
11E	F-1222	#10 STAR LOCK WASHER	1
11F	F-1448	10-32 NYLOC LOCKNUT	1

