

KBH AUTOMATIC BRIDGE CONTROLLER USER'S MANUAL



Your Automatic Cotton Module Builder is a computerized, integrated machine that helps you make uniform cotton modules efficiently. It is very simple to use: Level the cotton inside the module builder, then turn the switch on the controller to RUN. Everything else after that is fully automatic. The machine will tamp continuously without your intervention until you turn the switch to OFF position.

1. FEATURES

- ☞ Simple Operation – turn the switch to RUN and it works. No adjustment necessary.
- ☞ Integrated Design – all functions are packaged in a watertight fiberglass enclosure
- ☞ Dynamic Tamping Heights – the machine adjusts the height of the tamping strokes automatically
- ☞ Turbo Operating Mode – you can start the machine with the shortest tamping height by turning the switch to TURBO position
- ☞ Heavy Duty Custom Molded Cables – all cables are custom molded to operate under harsh environments
- ☞ Solid State and Low Power Design – all control components are electronic, no moving parts. Low power consumption for longer life and greater reliability.
- ☞ Smooth Operation – no bumping of the bridge against the end stops of the builder

2. HOW TO OPERATE

- ☞ Your automatic machine needs a 12 volts DC power to operate. Connect the battery cable to the battery terminals of your tractor: **RED** clip to the **POSITIVE (+)** terminal and **BLACK** clip to the **NEGATIVE (-)** terminal.
- ☞ Some tractors use two 6-volt batteries. To make sure your system gets 12 volts of power, connect the **BLACK** clip of the battery cable to the **CHASSIS** of the tractor and connect the **RED** clip to the **POSITIVE** output terminal of the alternator.
- ☞ Level the cotton: use the valve levers to manually level the cotton in the builder.
- ☞ Turn the switch of the Controller Unit to **RUN**. The indicator labeled, "POWER", on the front panel of the controller will light and an eight-second warning beep will sound, after which the automatic tamping process will begin. The machine will start the tamping process by doing

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three strokes then the bridge will move one step toward the rear of the builder, after that it will tamp two strokes and move one more step. After completing the two-stroke move, each of the subsequent step will be followed with one stroke, until the bridge reaches the end of the module builder. From the end of the builder, the three-two-one stroke sequence mentioned above will start all over again as the bridge steps toward the front end.

The length of step on the first trip toward the end of the builder is approximately twice the normal length. The height of each stroke is reduced every time the bridge reaches an end of the builder. The reduction in stroke height continues until the minimum height is reached.

- ☞ The movement of bridge and the tamping process continue until the selector switch is turned to OFF position.
- ☞ If you start the machine by turning the switch from OFF to TURBO, it will start tamping with the shortest tamping height. You normally do this if the cotton in the builder has been tamped before and you want to continue tamping after an interruption.

3. MAINTAINING YOUR MACHINE

- ☞ Tie down cables using cable ties to prevent unnecessary wearing or breaking due to movements or accidents. The cable should not be under tension at any time, they are not made to support mechanical loads.
- ☞ Wrap exposed wire with electrical tape as soon as you see one. Replace damaged cables with new ones.
- ☞ Check all connectors periodically for loose connections.
- ☞ When storing the module builder for a prolonged period of time (i.e. the end of a season), do the following preparation:
 - loosen the bolts holding the top stopper of the tamping cylinder (see Photo 1). Turn the stopper upside down (see Photo 2) and secure it with the bolts. This will prevent the stopper from contacting the sliding rod of the sensor thus removing loading to the internal springs.
 - Cover the controller box with a piece of cloth or a wooden board to protect it from sunlight.
- ☞ Power up and check the system about two weeks before the start of a

harvesting season. Check the TROUBLESHOOTING section if you en-

counter problems.

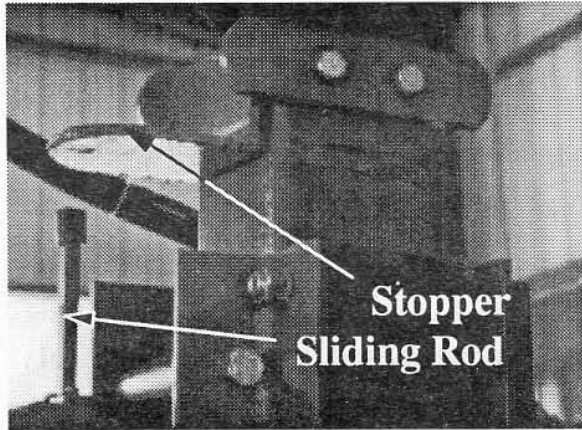


Photo 1: Tamper Sensing System

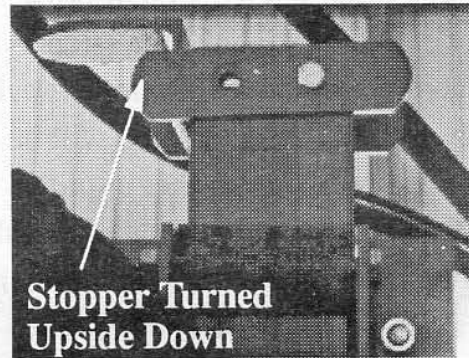


Photo 2: Tamper Stopper in Storage Position

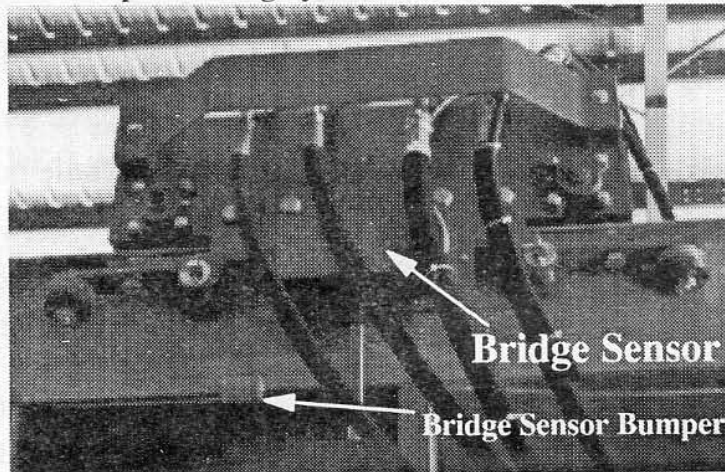


Photo 3: Bridge Sensing System

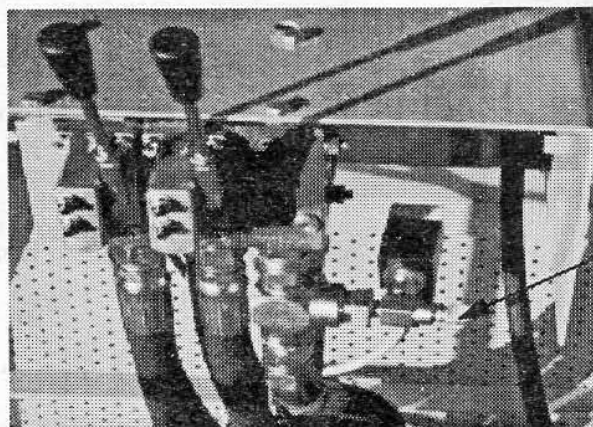
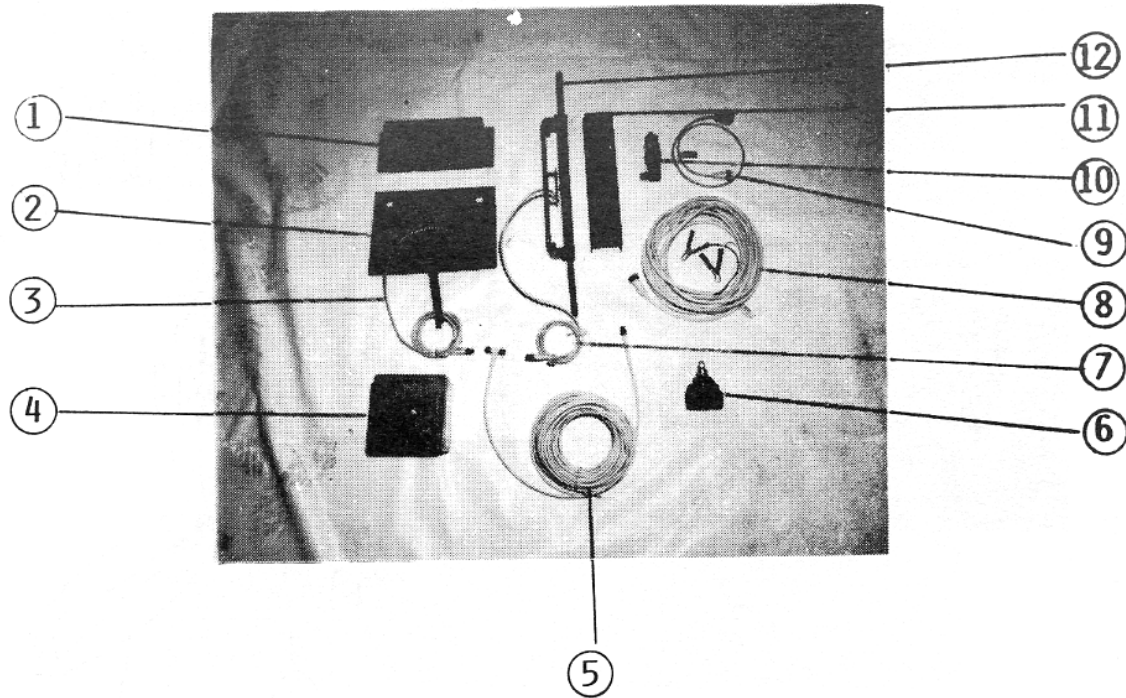
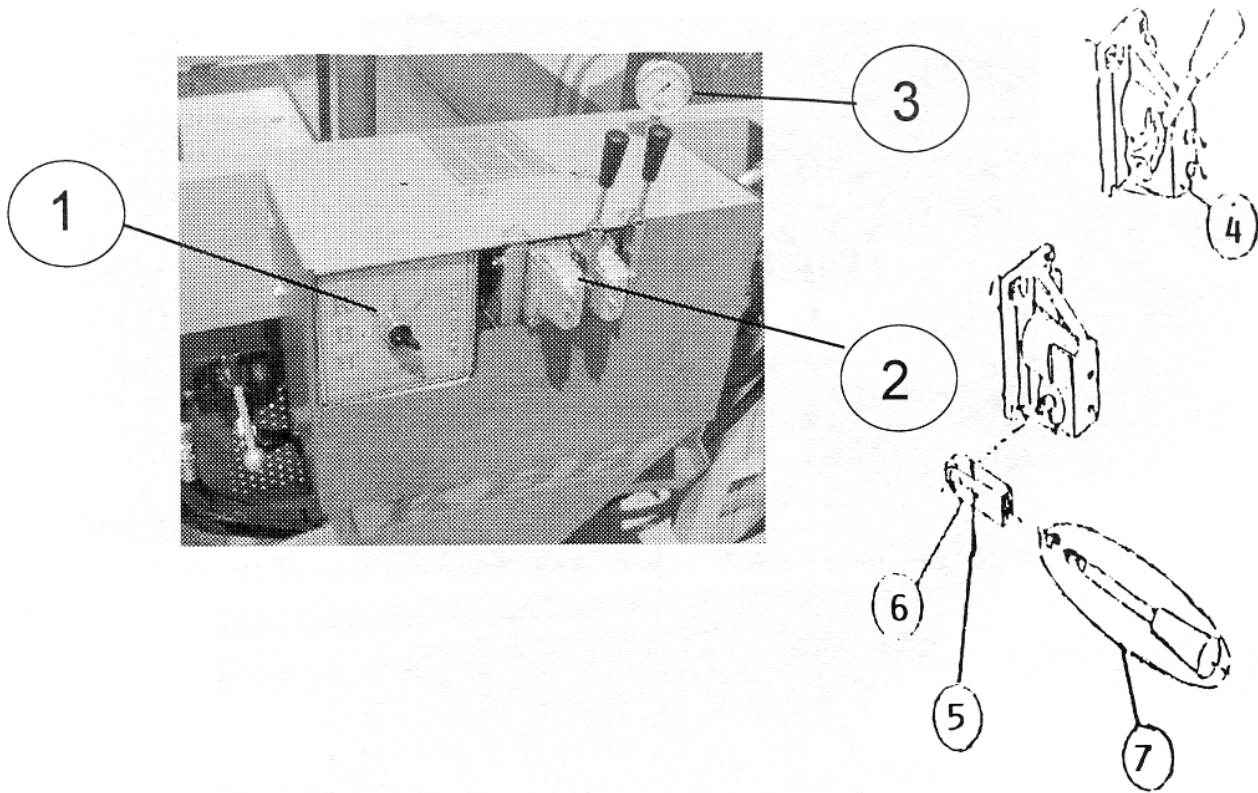


Photo 4: Pressure Switch Location



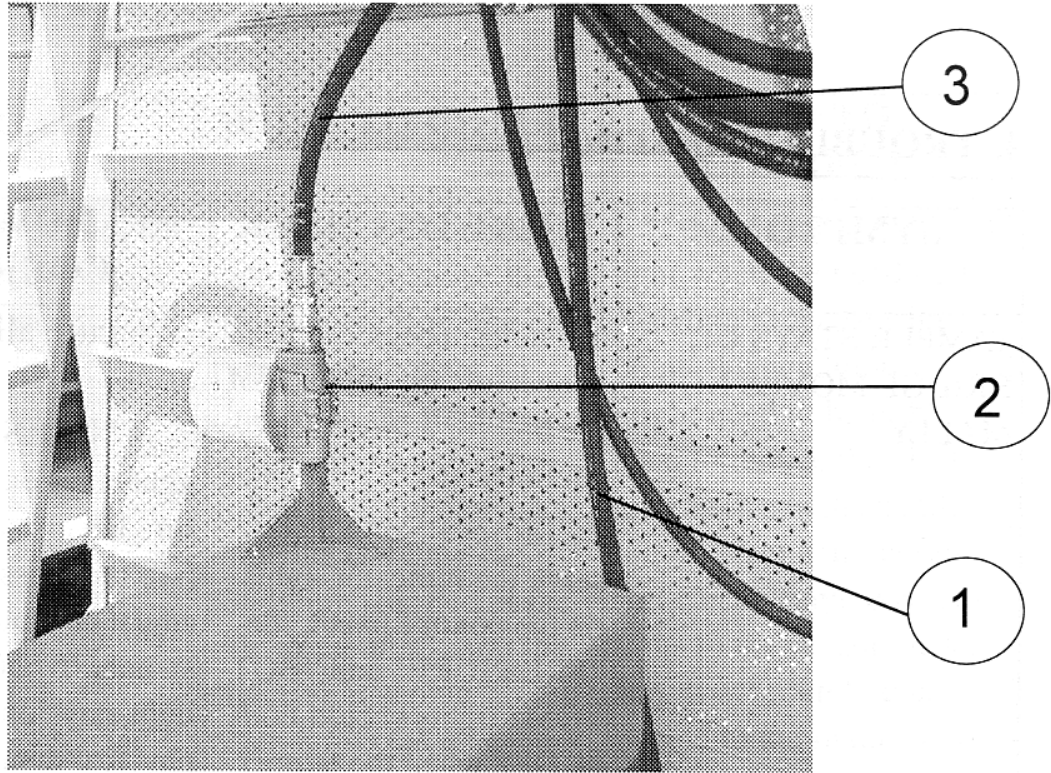
AUTO-GLIDE PARTS

REF	PART NUMBER	DESCRIPTION
1	MB151	Pendulum Cover
2	MBSAO26	Pendulum Assembly
	MB148	Pendulum Rod
	MB149	Counter Balance
	134015	Pendulum Spring
	151004	Magnet
3	MBSA012B	Bridge Sensor Cable
4	151209	Auto Control
5	103016	Main 50' Cable
6	117015	In-Line Relief
7	MBSA012T	Tamper Sensor Cable
8	MBSA013	25' Battery Cable
9	103022	3' Gray Cable
10	117043	Electric Press-Switch
11	MBSA027	Tamper Sensor Assembly
12	MB147	Tamper Sensor Cover
	134014	Tamper Sensor Spring



AUTO CONTROLLER AND VALVE

REF	PART NUMBER	DESCRIPTION
1	MBSA011	Auto Controller
2	117030	Electric Hydraulic Valve
3	117043	Electric Pressure Switch
	117074	Valve Spool Solenoid (behind valve)
4	117120	Valve Handle and Housing Assembly
5	117038	Valve Handle Foot Base
6	117121	Screw
7	117037	Handle



IN-LINE PRESSURE RELIEF

REF	PART NUMBER	DESCRIPTION
1	MBP0453	3/4 x 144 Hose - Pump to Relief
2	117015	In-Line Pressure Relief
3	MBP0447	3/4 x 60 Hose - Relief to Valve

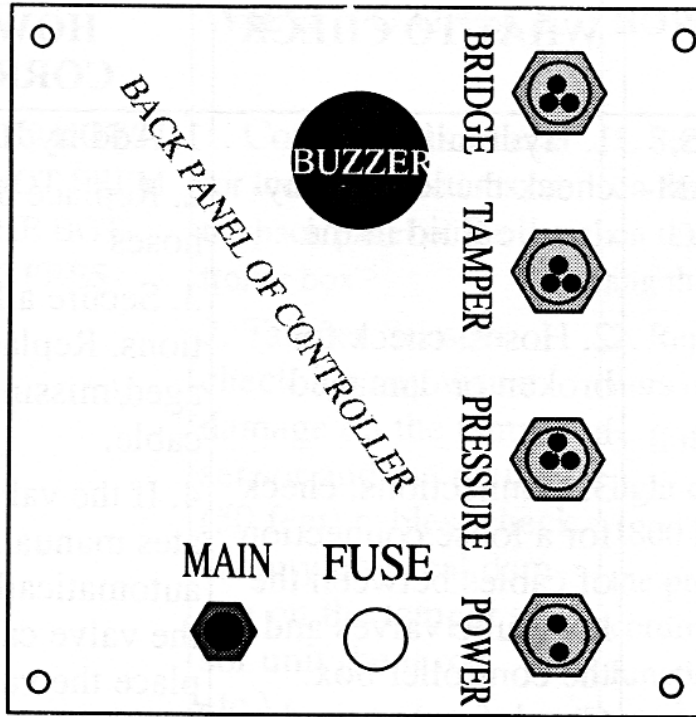
4. TROUBLESHOOTING

SYMPTOMS	WHAT TO CHECK	HOW TO CORRECT
<p>TAMPER STAYS UP, BRIDGE MOVES NORMALLY</p>	<ol style="list-style-type: none"> 1. Cables: check cable connectors on the back of the box for a loose connections. 2. Tamper Sensor: observe the indicator lights on the control panel, the "PRESSURE" and "BOTTOM" lights should both be OFF when the tamper is not at its bottom position. 3. Use your hands to move the sliding rod up and down, it should have springing reactions both ways, and the rod should be normally centered (top end and bottom end are about the same length) 	<ol style="list-style-type: none"> 1. Secure all connections 2. If "PRESSURE" light stays on at a pressure lower than 1800 PSI (see the pressure gage), adjust or replace pressure switch. If "BOTTOM" light stays on, check for physical damage on the sliding bar of tamper sensor. 3. If sliding rod is bent, straighten it (you have to disassemble the sensor unit on order to do this). If the sensor inside appears to be damaged, replace it with a new one. <p>CAUTION: DO NOT UNSCREW THE PRESSURE SWITCH WHILE TRACTOR IS RUNNING.</p>

SYMPTOMS	WHAT TO CHECK	HOW TO CORRECT
BRIDGE HITS THE END OF THE BUILDER AND DOES NOT STOP, and DOES NOT RETURN	<p>1. Turn off the controller and manually move the bridge away from the end. Turn off the tractor engine. With the tractor turned off, turn the controller on again and ask someone to swing the pendulum (located at the side of the bridge) to the direction it should go when it hits the end-detector bar. Observe the "BACK" light on the control panel, it should be ON when the sensor senses the pendulum position.</p> <p>2. Visual check for broken sensor or sensor cable</p>	<p>1. If the indicator does not light when the pendulum is swung to the sensing point, the pendulum might need to be tightened to reduce the clearance between the pendulum magnet and the sensor. Check cable connections to the sensor, make sure it is securely connected to the main cable (the 50-foot cable)</p> <p>2. Replace broken/damaged sensor.</p>
BRIDGE MOVES FIVE STEPS IN ONE DIRECTION THEN STARTS TO MOVE IN REVERSE	<p>1. Check the tractor speed, it should not be over 1400 RPM. The pendulum can swing wildly when the tractor is running too fast.</p>	<p>1. Slow down the tractor. If slowing down the tractor does not help, stop the tractor and tighten the pendulum's retaining nut a little so that it swings smooth and less wildly at a tractor speed of 1300 to 1400 RPM.</p>

SYMPTOMS	WHAT TO CHECK	HOW TO CORRECT
NO BEEP, NO LIGHT	<ol style="list-style-type: none"> 1. Check the fuse. The fuse is located on the back panel of controller box. 2. Check battery cable and connection 3. Defective Controller box 	<ol style="list-style-type: none"> 1. Replace burned out fuse with a new 1.5A slow-blow fuse. DO NOT USE FUSE THAT IS LARGER THAN 1.5A 2. Repair any damaged wore or corroded clip. Make sure the RED clip is connected to the POSITIVE terminal of a 12-volt battery and the BLACK clip is connected to the NEGATIVE terminal of the battery or the chassis of the tractor. Turn the switch to RUN position. 3. Replace controller box





SYMPTOMS	WHAT TO CHECK	HOW TO CORRECT
<p>THE SYSTEM BEEPS, BUT BRIDGE OR TAMPER IS NOT MOVING</p>	<ol style="list-style-type: none"> 1. Hydraulic Fluid: check the level of hydraulic fluid in the tank 2. Hoses: check for broken or damaged hoses 3. Connections: check for a loose connection of cables between the hydraulic valves and the controller box. Check for damaged or missing cables. 4. Hydraulic Valve: turn off the controller and operate the hydraulic valves manually a few times to make sure that the valves are mechanically functional. 	<ol style="list-style-type: none"> 1. Add hydraulic fluid 2. Replace damaged hoses 3. Secure all connections. Replace damaged/missing valve cable. 4. If the valve operates manually but not automatically, replace the valve cable or replace the valve's solenoid. If the valve does not operate manually, replace the entire valve.

SYMPTOMS	WHAT TO CHECK	HOW TO CORRECT
<p>TAMPER GOES DOWN AND DOES NOT SEEM TO SENSE THE BOTTOM OR THE PRESSURE</p>	<ol style="list-style-type: none"> 1. Connections: check for loose connections on the back panel of the controller box. 2. Tamper Sensor: check for any visual damage on the tamper sensor and the main (50 feet) cables, check for any physical damage on the tamper sensor unit (bent rod, etc.) 3. With the tractor running, manually move the tamper down and hold it there for a few seconds until the pressure gage reads 1800 PSI or more. The "PRESSURE" light on the controller should light. 4. Turn off the tractor and mode the tamper down. Ask someone to pull the tamper sensor's rod down while you observe the "BOTTOM" light on the controller box. The light should turn on when the rod reaches the sensing point. 	<ol style="list-style-type: none"> 1. Secure all connections on the controller box and on the bridge by tightening them with your fingers. 2. Replaced damaged sensors or damaged cables. 3. If the "PRESSURE" light does not light at 1800 PSI or above, adjust the pressure switch accordingly. Replace malfunction pressure switch. 4. If the "BOTTOM" light stays on all the time, disconnect the sensor from the bridge and see if the light goes off. If it does, replace the sensor. If the "BOTTOM" light never turn on eventhough the rod is at its sensing position, tighten the connectors on the bridge and the connector of the 50-foot cable behind the controller box. If this does not correct the problem, the 50-foot cable may have been damaged or the sensor is damaged. Replace damaged sensor and damaged cable.

SYMPTOMS	WHAT TO CHECK	HOW TO CORRECT
<p>NOTHING WORKS RIGHT, THE CONTROLLER BEEPS NON-STOP</p>	<p>1. TOO HOT or TOO COLD: The controller will not work properly at a temperature above 120° F or below 32° F</p> <p>2. Intermittent power connection</p> <p>3. Defective controller box</p>	<p>1. If the temperature is too cold, operate the module builder manually for a while until the hydraulic fluid gets warm enough that the heat generated in the hydraulic lines warms up the controller box. If the temperature (of the hydraulic fluid) is too hot, stop the tractor and wait for it to cool down until the temperature is suitable.</p> <p>2. Secure power connections to the tractor's power source and secure the power connector behind the controller box.</p> <p>3. Replace defective controller box.</p>
<p>CONTROLLER POWER LIGHT IS ON, BUT NO BEEP AND NO MOVEMENT ON THE TAMPER OR THE BRIDGE</p>	<p>1. Make sure there is a 12-volt going to the controller. Some tractors use two 6-volt batteries instead of one 12-volt battery.</p> <p>2. Bad controller</p>	<p>1. Connect the battery cable to the 12-volt source of the battery. BLACK clip goes to the chassis, RED clip goes to the PLUS terminal of the battery of alternator.</p> <p>2. Replace bad controller</p>

Which Cable Goes Where

