MAXIMUM TECHNOLOGY

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Professional Bowling Products

Installation instructions 82-70 Control Board

Installing the boards:
Place the PC Boards into the chassis. Controller board into slot 5, jumper board into slot 3, pindication board into slot 4. See photo

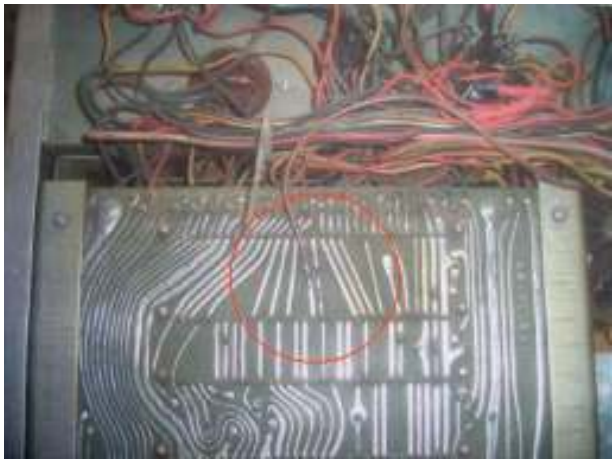
Sweep Reverse Relay connections:
Place the sweep reverse relay in the Back End Control Box. Pull the wire with the female AMP terminal through the wire way to the C2A plug. Insert the AMP terminal into C2A-25X. If there is a wire in C2A-25X, it can be removed and insulated.

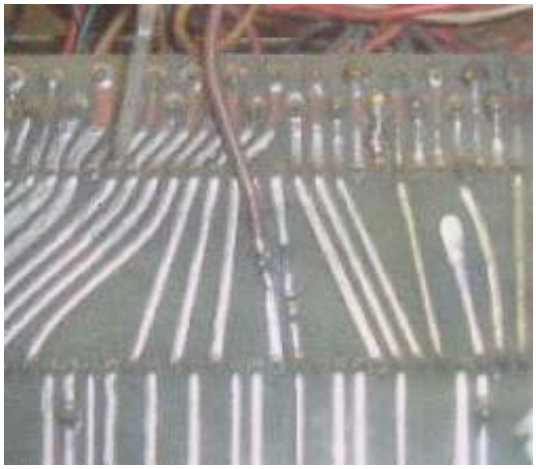
Connect terminal A1 of the Sweep Reverse Relay to the 24VAC on the Sweep and Table switch. This is the wire that Sweep and Table switch have in common. Connect terminal A2 to the ground terminal board on the bottom of the BE control box.

Remove the wire from the centre terminal on the lefthand side of the Sweep Reverse switch and connect this wire to terminal 22 of the Sweep Reverse Relay (bottom row second from the left). Connect the wire from terminal 21 (top row, second from the left) to the centre terminal on the lefthand side of the Sweep Reverse switch.

Remove the wire from the centre terminal on the righthand side of the Sweep Reverse switch and connect this wire to terminal 32 of the Sweep Reverse Relay (bottom row, third from the left). Connect the wire from terminal 31 (top row, third from the left) to the centre terminal on the righthand side of the Sweep Reverse switch.

Chassis conversion
Insert the short wire with the male AMP terminal into C2A-25X and solder the other side to the bottom of the motherboard. See photos.





Connector J2 on pindication board in slot 4.

Pin 1 - 2: NC contact for switching off the BE motor when machine is idle for a few minutes. This contact can be connected in series with one of the wires that go to the coil of the Back End Relay in the chassis.

Pin 3 - 4: NC contact for switching off the ballreturn when both machine of one lanepair are idle for a few minutes. Can be connected in series with the wire going from the M1 relay to C2a

APS or Qubica strike connections:

Connector J2 on Control Board

Pin 1 - 2: Relay contact to keep the machine on until it has completed its cycle. Can be connected to the A&MC plug in the channel. (A&MC-XXX and A&MC-XXX) or TBB-XX and TBB-X in the A&MC Box on the curtain wall.

Pin 3: APS Data
Pin 4: APS Clock
Pin 5: APS GND

If a scoring system with standard APS is connected (Qubica, Steltronic, MaxS …) dipswitch 6 must be in off position. To use the Qubica fast strike signal, the normally closed contact from the F-Box must be connected to pin 3 and 5 with dipswitch 6 in on position.

Complete the installation:

Because the Maximum Technology controller board uses software filtering to detect bad micro switches, the stop position of sweep and table must be slightly readjusted. Not doing so could result in interlocks (Sweep overruns 1st guard position) or a machine not spotting pins (Table overruns zero position).

The installation is now finished. Run the machine to check the stop position of sweep and table. Readjust the micro switches if necessary.

Check the manual sweep reverse function:

Bring the sweep down to guard position with the Sweep Run Switch on the Back End Control Box. Try to bring the sweep back up to zero position by holding down the Sweep Reverse Switch and pressing the Sweep Run Switch. The sweep motor should run backwards up to zero position without clearing the deck. If not, check the wiring between Sweep Reverse Relay and Sweep Reverse Switch in the Back End Control Box.

Check the auto offspot function:

Put the machine in 1st ball and switch it off. Place a pin on the pindeck on a position where the table will come on top of it on it's way down to pick up the pins. Turn the machine on and press the cycle button. When the table hits the top of the pin, the offspot switch is activated and after the table has reached zero position the sweep should start running backwards to zero position and the machine should be in 2nd ball ready to bowl. If the sweep runs forward leaving an empty pindeck, check the offspot switch and its wiring. Check the new wire from Sweep Reverse Relay terminal A1 to the motherboard of the chassis (through C2a-25X). Check the ground wire from Sweep Reverse Relay terminal A2 to the ground terminal strip in the Back End Control Box.

Check the APS functions:

!!!! Before you test the APS sweep reverse function, make sure that the manual sweep reverse and the auto offspot function are working correctly as described above. This will make troubleshooting the APS function much easier since you will only have to deal with the APS input signal. **!!!!**

APS functions like fast strike cycle and sweep reverse can only be tested by opening the lane with the scoring system and watch the machine cycle on strike and gutter ball during play. Your scoring system might need some changes in the lane parameter setup to activate these special functions (See your scoring system manual). If the Maximum Technology Controller Board has not received any valid APS pindata within 2.5 seconds after the sweep has reached 1st guard position, the table will come down to pick up the pins and the display will show an error number starting with "E5-".

E5-1: No APS signal received. There was no clock or data signal detected. No connection with scoring. APS cable unplugged or wrong connection of clock and data signals. The table will always come down to pick up the pins and the machine will switch over to 2nd ball.

E5-2: APS signal not valid. The board did receive APS data, but that did not contain valid pin information. The table will always come down to pick up the pins and the machine will switch over to 2nd ball.

E5-3: APS Timeout. The board does receive the clock signal but no data. The table will always come down to pick up the pins and the machine will switch over to 2nd ball.

The list of error code numbers can be downloaded from:
http://www.maximumtechnology.nl/GB/manuals/82-70FoutcodesGB.pdf

The list of dipswitch settings and a description of the testfunction for the microswitches can be downloaded from http://www.maximumtechnology.nl/NL/manuals/DipSwitches.pdf