ELECTRICAL

TOPICS

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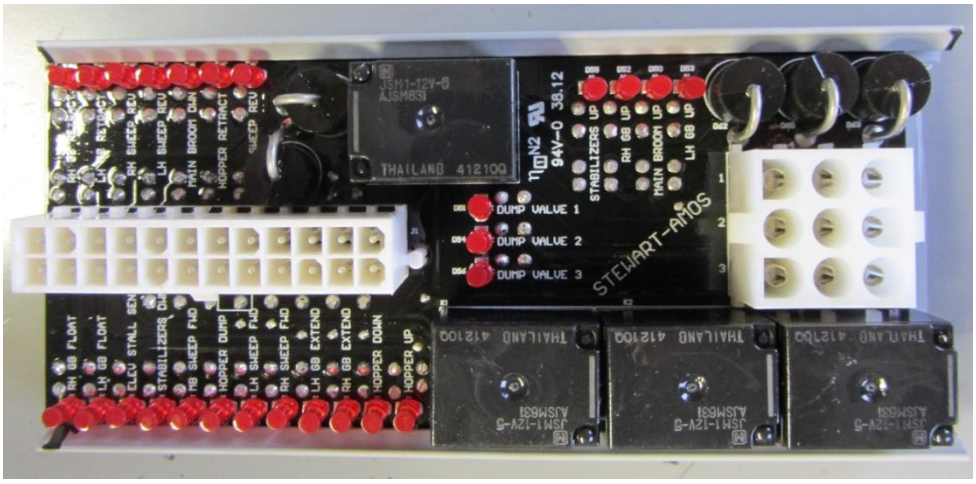
The electrical system on Stewart-Amos sweepers is very simple and basic electrical controls. There are no computers or complicated equipment. The components consist of automotive type rocker switches and relays. The wire marking system used is heat stamped numbers every 2-3”. All valve connections are labeled as well as lighting up when activated. This makes it very easy to diagnose problems in the hydraulic system, electrical connections and wiring harnesses just by using the diagnostic board in the control panel and the lights of the connectors.

Diagnostic board

This is the closest the electrical system gets to a computer. This board has LED lights on it that will light up when a function switch is activated. The LED lights on the board will coincide with the LED lights at the valves. Other than the diagnostic function of the board it has little to do with the control system. This board is used on all models of Stewart-Amos sweepers.



Troubleshooting (using diagnostic board)

When a function switch is pushed it turns on more than one valve. The manifold that is used is a series/parallel manifold, which means the front portion of the manifold is a parallel system and the last few functions are in series. When using a manifold in this way the manifold must use what is called a dump valve to build pressure for functions to operate. When troubleshooting, remember that when a switch is pressed to activate a function more than one valve lights up. There will be a function valve and a dump valve.

When looking for a problem with a specific function, with the engine running, push the switch for that function and see which valve connectors light up. Remember there is more than one valve being used and both need to operate to have the function work. If the correct valves are lite then the problem is in the valve itself. If the connectors do not light then the problem is electrical. If it is electrical then that system needs to be diagnosed further using the diagnostic board. The diagnostic board can be found by removing the switch cover on the control box in the cab. The diagnostic board can be found attached to the back wall inside the box. The LED lights on the board should match the lights on the valve. If the lights on the board do not match then the problem is in the electrical harness between the valve connectors and the box. This could mean moisture in a connector or a wire that has been broke or rubbed through and causing a short somewhere. If the lights do light up but are not the correct lights then the problem could be moisture in a connector or a function switch failure causing the problem.

Proximity Switches

These switches are maintenance free and do not wear. The switches only sense when in proximity of magnetic steel. When the switch is activated a small LED light on the back of the switch lights. When the steel is out of proximity to the switch it breaks contact and LED goes out.

In normal operation the hopper and elevator are prevented from colliding by the 2 proximity switches. If the main broom/elevator proximity switch is out of adjustment and the hopper is up or the door is open and the elevator moves. The hopper function could be lost. To correct this problem put the chassis in reverse while holding the brakes and the elevator should rise. If not then put a piece of metal in front of the hopper proximity switch and then the elevator can go up and the hopper can come down. When everything is up in transport position the elevator proximity switch needs to be re adjusted.