

CDS TROUBLESHOOTING

SECTION I. VACUUM

1.0. Weak vacuum at wand. Gauge reads normal (10hg to 14hg)

1.1. **Clogged hoses or wand tube.** Disconnect hoses and carefully check for an obstruction.

1.2. **Excessive length of hoses connected to machine.** Make sure machine is rated for the conditions under which it is being operated.

2.0. Vacuum gauge will not come up to 14" hg. 4.6/4.8 CDS

2.1. **There is an air leak somewhere in the vacuum system.** Check vacuum relief valve for proper adjustment. Check all hoses for cuts and breaks. Check recovery tank lid gasket. Make sure the recovery tank drain valve is fully closed.

2.2. **The vacuum gauge is defective.** Test and replace as necessary.

2.3. **Vacuum blower is turning too slowly. (4.8 only)** Check *engine* RPM at tachometer on dash of machine. Adjust vacuum pods necessary.

2.4. **Vacuum blower is turning too slowly. (4.6 only)** Check *blower* RPM at tachometer on dash of machine. Adjust vacuum pods necessary.

3.0. Vacuum gauge reads high with no hoses attached

3.1. **Filter in recovery tank is clogged.** Remove and clean or replace as necessary.

3.2. **Hose from recovery tank to blower is collapsed internally.** Inspect and replace as necessary.

4.0. Noisy Vacuum Blower

4.1. **Vacuum blower is low on oil.** Inspect oil level and replenish as necessary
NOTE: *Running blower low on oil will cause severe internal damage to the blower.* If this situation occurs, it should be inspected by a qualified service technician.

4.2. **There is internal damage to blower.** Refer to qualified service technician.

5.0. Vacuum Blower is locked and will not turn

5.1. **The machine has been unused for a period of time and the blower was not properly lubricated when it was shut down, causing rust to build up on internal surfaces.** Spray penetrating oil into blower and let sit for at least one hour. Then *very carefully* use pipe wrench on outer diameter of pulley on blower shaft and attempt to free up blower. *Do not use wrench directly on blower shaft.* If unable to free up blower in this manner refer to a qualified service technician.

5.2. **There is internal damage to blower.** Refer to qualified service technician.

SECTION II. HIGH PRESSURE SYSTEM

1.0. Will not come up to normal cleaning pressure

1.1. **Pressure adjusting valve is defective or dirty.** Disassemble valve. Repair or replace as necessary.

1.2. **Worn seals or valves in pump.** Test pump output volume directly from pump at normal running RPM. If volume is below manufacture's specifications, replace seals and inspect for defective valves.

1.3. **Pump RPM is too low.** Check RPM at dash tachometer. Adjust RPM as necessary.

1.3.1. Check for loose belt at pump. Adjust as necessary.

1.4. **(SALSA X2 only) Bypass orifice on back of manifold is allowing water past it, instead of through it.** Remove filter housing and inspect for loose orifice. Tighten or replace as necessary.

2.0. No pressure reading on PSI gauge

2.1. **Pump switch is not turned on.** Turn on rocker switch.

2.2. **Pump belt is broken.** Replace belt.

2.3. **Pump clutch is not activated. There *is no* water in the mix tank.** See section 5.0.

2.4. **Pump clutch is not activated. There *is* water in the mix tank.** Check for 12 volts at the clutch. If 12 volts *is* present, replace the clutch assembly.

2.4.1. If 12 volts *is not* present and there is water in the box, check for power at pin 87 on the pump clutch relay. If there is no power, check the low water float for continuity. If the float has no continuity when in the up position replace the float.

3.0. PSI gauge reads normal; low pressure from wand

3.1. **There is a restriction in the cleaning tool.** Inspect tool jet and clean or replace as necessary. Inspect any filters in the cleaning tool and clean or replace as necessary.

3.2. **There is a defective quick connect in the system.** Inspect each quick connect and replace as necessary.

3.3. **There is a restriction in one of the solution hoses.** Remove quick connects and inspect hoses individually. Clean or replace as necessary.

3.4. **There are hard water deposits restricting the system in the water-to-coolant heat exchangers.** The machine must be descaled to remove the obstruction. If this does not solve the problem, disassemble this portion of the system until the blockage is found.

4.0. Pressure pulsation

4.1. **Water in the mix tank is too hot and is approaching boiling point.** Check temperature of water in the mix tank. If it is too high, refer to Heating System, section III.

4.2. **There is an air leak between the water box outlet and the pump inlet.** Physically check all hoses and fittings for cuts, breaks, cracks and tightness. Repair as necessary.

4.3. **One of the intake or outlet valves in the high-pressure pump is defective or is being held open by debris.** Remove each valve and inspect for correct operation.

5.0. Mix tank empty or fills slowly

5.1. **There is a restriction in the water supply system.** Inspect the supply system from the source through the mix tank solenoid valve. Look for kinks, clogs or restricted filters.

5.2. **One or both inlet switches in the mix tank are defective.** Check both switches for continuity. Replace as necessary.

6.0. Mix tank overflows

6.1. **There is debris caught in the solenoid or the valve seal is bad.** Disassemble the valve and repair or replace as necessary.

6.2. **One or both inlet switches in the mix tank are defective.** Check both switches for continuity. Replace as necessary.

SECTION III. HEATING SYSTEM

1.0. Vehicle overheats and shuts off CDS

1.1. **The high-temperature shutdown switch has activated or is faulty.** Unplug the 219 degree hi-temperature shutdown sensor from the top coolant heat exchanger see if the machine starts. If it *does start*, inspect the vehicle cooling system for the following:

1.1.1. Low coolant level in the vehicle. Check coolant level of the truck to make sure it is full, including the overflow bottle. If coolant level is low, check hoses, fittings, water pump and radiator cap for leaks. Repair or replace as necessary. **Note:** *When adding coolant to the system, do not mix green antifreeze with the DEXCOOL (pink) antifreeze. Severe damage to the cooling system will result.*

1.1.2. The vehicle engine fan clutch is faulty. Refer to vehicle dealer for repair.

1.1.3. The thermostat in the vehicle engine is faulty. Refer to vehicle dealer for repair.

1.1.4. The vehicle radiator is plugged. Refer to vehicle dealer for repair.

1.1.5. The vehicle water pump is faulty. Refer to vehicle dealer for repair.

2.0. Unable to achieve normal cleaning temperature

2.1. **There is hard water or chemical build-up in the heat exchangers.** This will not allow the heat to transfer properly. Descale and flush as necessary.

2.2. **Cleaning solution flow is too great.** Measure flow at tool.

2.2.1. The jet in the cleaning tool is too large or worn out. Test the tool for water flow and replace or repair jet as necessary.

2.2.2. Cleaning solution pressure is too high. Adjust pressure to normal. Inspect pressure gauge for accurate reading.

2.3. **The SALSA X2 system thermal valve is stuck open.** Remove recovery tank lid and check for premature flow from thermal valve hose at tank. The machine must be at or below normal operating temperature for this test. Replace or repair as necessary.

2.4. **The CDS is being operated at too low RPM or too low vacuum setting.** The SALSA X2 system must be at *full operating RPM and full vacuum load* to achieve full operating temperature. These values must be set per manufacture's specifications. Adjust vacuum or RPM as necessary.

3.0. System attains normal heat but drops off sharply

3.1. **Solution flow at cleaning tool is too high.** Orifice in tool is too large or worn out. Test flow of tool. Repair or replace as necessary.

3.2. **RPM of machine is set too low.** Adjust as necessary.

3.3. **Recirculation orifice from hi-pressure outlet manifold plugged, giving incorrect reading at gauge.** Clean filter screen and inspect orifice. Clean or replace as necessary.

3.4. **Cleaning solution pressure is too high.** Adjust pressure to normal. Inspect pressure gauge for accurate reading.

SECTION IV. CHEMICAL SYSTEM

1.0. Inadequate or no chemical flow

1.1. **Filter on feed line in chemical jug is clogged.** Inspect and clean.

1.2. **Check valve on feed line in chemical jug is stuck.** Inspect and repair or replace.

1.3. **Feed line from chemical jug is loose, pinched or cut.** Inspect and repair.

1.4. **The ball indicator in the flow meter is stuck.** Tap gently on the flow meter or use low (5# to 10#) air pressure in the chemical feed line to free the ball indicator.

1.5. **The venturi in the mix tank solenoid valve is restricted.** Remove venturi and clean or replace as necessary.

SECTION V. ELECTRICAL SYSTEM

1.0. CDS will not turn on

1.1. **The main fuse under the hood has blown.** Remove CDS cowling and engine cover and check all wiring from the power source back to the CDS console for damage. Replace fuse only after locating the problem that caused the fuse to blow. If unable to locate problem, refer to qualified service technician.

1.2. **The plug-in connection at the base of the recovery tank is corroded.** Clean up and seal connection to protect it from moisture.

1.3. **The main circuit breaker has blown on the dash of the machine.** Reset breaker and look for loose connections or damaged wires. Check all wires from the control panel forward to the front of the vehicle. If no problem is found but the breaker still trips refer to qualified service technician.

1.4. The park position switch on the side of the transmission is out of adjustment or faulty. This switch interrupts power to the CDS drive clutch and the speed control vacuum solenoid when the transmission gear selector is not in park. Inspect switch for proper adjustment and for continuity. Adjust or replace as necessary.

2.0. CDS turns on but will not come up to speed

2.1. Throttle cables are broken or out of adjustment. Inspect throttle cables for proper adjustment. Adjust or replace as necessary.

2.2. Throttle pod is defective. Inspect throttle pods to ensure they will hold vacuum when compressed. Replace as necessary.

2.3. There is no vacuum at throttle pods. Inspect all vacuum lines to the pods and to the vacuum solenoid. Replace or repair as necessary.

2.4. There is no power to the vacuum solenoid. Check for 12 volts and a ground at the vacuum solenoid with the machine key on and the vehicle off. If there is 12 volts and a ground at the solenoid but it does not activate, replace the solenoid.

2.4.1. If there is *not* 12 volts and a ground at the solenoid, check the wiring back to the CDS console. Repair as necessary. *Note: The ground wires at the connection point on the blower frame can look and feel tight but still be corroded. It is a good idea to periodically remove, clean and re-tighten these wires.*

3.0. CDS will not maintain proper RPM

3.1. The secondary throttle cable is out of adjustment or broken. Readjust or replace as necessary.

3.2. The secondary vacuum pod is defective. Test pod to see if it holds vacuum. Replace as necessary.

3.3. The vacuum source to the secondary pod is not sufficient. Check hose from blower inlet to secondary pod and repair or replace as necessary.

3.4. Vacuum is set too high. Cap off both vacuum inlets on the recovery tank. If vacuum gauge reads over 14", re-adjust the vacuum relief valve.

4.0. Horn activates when machine is turned on

4.1. Emergency brake lever is not depressed when machine is turned on. Depress brake and restart machine.

4.1.1. If the horn still sounds when the emergency brake is depressed, check wire connections at horn and emergency brake switch. If connections appear to be good, refer to qualified service technician.

5.0. CDS shuts off while in use

5.1. **Recovery tank is full.** Empty tank and restart machine.

5.2. **Recovery tank float switch is dirty or defective.** Inspect float to see if the triangle mark on the float is facing up. If it is, and the float slides freely on the post, replace the float assembly.

5.3. **The 219 degree thermal sensor has activated.** Refer to section III, 1.0.

5.4. **The vehicle gear selector has moved.** Inspect the gear selector to be sure it is in the proper position. If selector has moved, refer to qualified service technician. **Note:** *This is a dangerous condition and needs to be repaired immediately.*

5.5. **Park position switch has come out of adjustment or is faulty.** Adjust or replace as necessary.

SECTION VI. MISCELLANEOUS

1.0. Vehicle radiator overflows into coolant overflow container while machine is in use.

1.1. **Internal leak in coolant heat exchanger.** Pressure test each heat exchanger separately to determine which heat exchanger is faulty. This process requires heated water and high pressure to simulate the same conditions that are causing the leak. Refer to qualified service technician if necessary.

2.0. Vehicle overheats

2.1. **Faulty thermostat in van.** Refer to dealer

2.2. **Faulty water pump on van.** Refer to dealer

2.3. **Faulty radiator (plugged) limited water flow.** Refer to dealer

2.4. **Faulty fan clutch, limited air-flow.** Refer to dealer

CDS TROUBLESHOOTING

Index

SECTION I. VACUUM SYSTEM

- 1.0. Weak vacuum at wand. Gauge reads normal (10" to 14" with hoses and wand attached)
- 2.0. Vacuum gauge will not come up to 14" hg
- 3.0. Vacuum gauge reads high with no hoses attached
- 4.0. Noisy vacuum blower
- 5.0. Vacuum blower is locked and will not turn

SECTION II. HIGH PRESSURE SYSTEM

- 1.0. Will not come up to normal cleaning pressure
- 2.0. No pressure reading on PSI gauge
- 3.0. PSI gauge reads normal; low pressure from wand
- 4.0. Pressure pulsation
- 5.0. Mix tank empty or fills slowly
- 6.0. Mix tank overflows

SECTION III. HEATING SYSTEM

- 1.0. Vehicle overheats and shuts off CDS
- 2.0. Unable to achieve normal cleaning temperature
- 3.0. System attains normal heat but drops off sharply

SECTION IV. CHEMICAL SYSTEM

- 1.0. Inadequate or no chemical flow

SECTION V. ELECTRICAL SYSTEM

- 1.0. CDS will not turn on
- 2.0. CDS turns on but will not come up to speed
- 3.0. CDS will not maintain proper RPM
- 4.0. Horn activates when machine is turned on
- 5.0. CDS shuts off while in use

SECTION VI. MISCELLANEOUS

- 1.0. Vehicle radiator overflows into coolant overflow container while vehicle is in use
- 2.0. Vehicle overheats