

Reed Switch Adjustment— Motor Control

Proper alignment of the magnet and reed switch are essential for the operation of motors for the ADC44 and ADC66.



The ADS reed switch (291-3011) is different than other manufacturer's reed switches. It has no printed circuit electronics contained in the body of the switch. The reed alone is only capable of switching current measured in watts rather than amps. This is the reason other reed switches employ a small circuit board to do the actual amperage switching. However, a circuit board is subject inadvertent motor starting caused by typical spikes and electrical noise found in commercial kitchens. This motor starting could cause injury to operators.



A typical reed WITH printed circuit board



ADS reed WITHOUT printed circuit board

To avoid this motor hazard, the design of the ADS motor control uses a single reed switch with no internal switching board. The ADS reed sends the signal for the motors by activating a double-pole relay (291-3005), which then carries the greater current to motor contactors. The ADS reed is N/C, it is always closed. This means its motor is normally on, the motors will be running if the machine is turned on. The only way to turn the motor off then is if a strong magnet (N52 or lift 10 lbs) is within .50" radius sensing range of the reed. With proper alignment, every time the magnet swings back to its "rest" position, it is over the reed and pulls the switch off. This motor control design is not affected by electrical noise or voltage spikes.

(Commentary: This is a much less troublesome way to turn motors on rather than attempting to have a swinging magnet meet with a N/O reed positioned at the exact end of the swinging magnet pendulum. The N/O reed type of arrangement is subject to mechanical interruptions and higher service calls. Especially when old and worn dish racks are being used to move the pendulum.)



The reed switch is held to the bottom of the wash tank and rinse tank by stainless holders (286-6113). This holder can be used on either side of the machine. There are three slotted holes that will align with the two weld-studs fastened to the bottom of each tank. To position the reed correctly, use the last two holes on the holder facing the edge of the machine, this will align the reed with the magnet, see pictures above. Pictures are shown for either the wash side or the rinse side.



NOTE: reed at top of the potted case, the most sensitive to the magnet



Proper orientation of reed to the bottom of the tanks

When positioning the reed switch, there is a “sweet spot” which is more sensitive to the influence of the magnet (285-6109). The magnet is suspended inside the respective tanks from the sequence bars on the forward tray track. The sweet spot is on what appears to be the top of the plastic case (see photo above). With only 0.50” sensing range of the reed to the magnet, this means the two must be aligned closely. After accounting for the metal thickness of the tank, the play inside of the holder and the material thickness of the magnet holder tube, the proper distance for the magnet inside the tanks is .040” off the bottom surface of each tank or the thickness of a credit card.

TROUBLESHOOTING TIP: For a motor that keeps running, put a strong magnet up to the reed switch, if the motor shuts down, the switch and electrical is good. The problem of not turning off will be because of magnet alignment. If it does not shut off with the magnet—it is a bad reed switch or stuck contactor.



It is not recommended that the front tray track be moved or changed from the factory set-up, but if it should require replacement or repair, it is recommended that it be returned to the original position. That position can be marked with a marker before removal. When completed, the magnet should be hanging down at the "6:00" position in the center of the guard slot. If adjustment is needed for rack travel between the tray tracks, adjust the rear tray track only.

The magnet should be above the reed switch location at approximately these measurements.

For R to L:

Wash magnet 2.5" from the front edge, 6.5" from soil side.
Rinse magnet 2.5" from the front edge, 3.375" from clean side.

For L to R:

Wash magnet 2.5" from the front edge, 6.5" from soil side.
Rinse magnet 2.5" from the front edge, 3.375" from clean side.



Adjustments for tightness should only be done on the rear tray track



A broken or leaning front tray track will push the magnet pendulums out into the tank, this will cause the motors to keep running after a rack exits the machine. See above

Marking the original position is highly recommended for the holders of the reed switches also, it will save a great deal of time in the replacement and alignment of the new control parts.



The reed switch signals go to the coil of wash motor relay and the rinse motor relay. When the relay pulls in, each relay will send voltage signals to two separate contactors. For the wash relay, the red wire goes to the wash pump contactor and the brown wire to the conveyor motor contactor. For the rinse relay, the blue wire goes to the rinse pump contactor and the brown wire to the conveyor motor contactor. The rinse relay will also send voltage at the terminal of the blue wire to the final rinse water solenoid by a purple wire.



ADC-44 Relays



ADC-66 Relays

TROUBLESHOOTING TIP: Each relay sends signals to two motors. If a pump motor or conveyor motor is not turning, look at the other motor on the relay. If both motors are not working it will be a reed switch or relay issue. If only one motor fails to run, it will be a contactor/overload or motor issue.

Center relay to the wash pump (red wire) and conveyor motor contactors (brown wire)

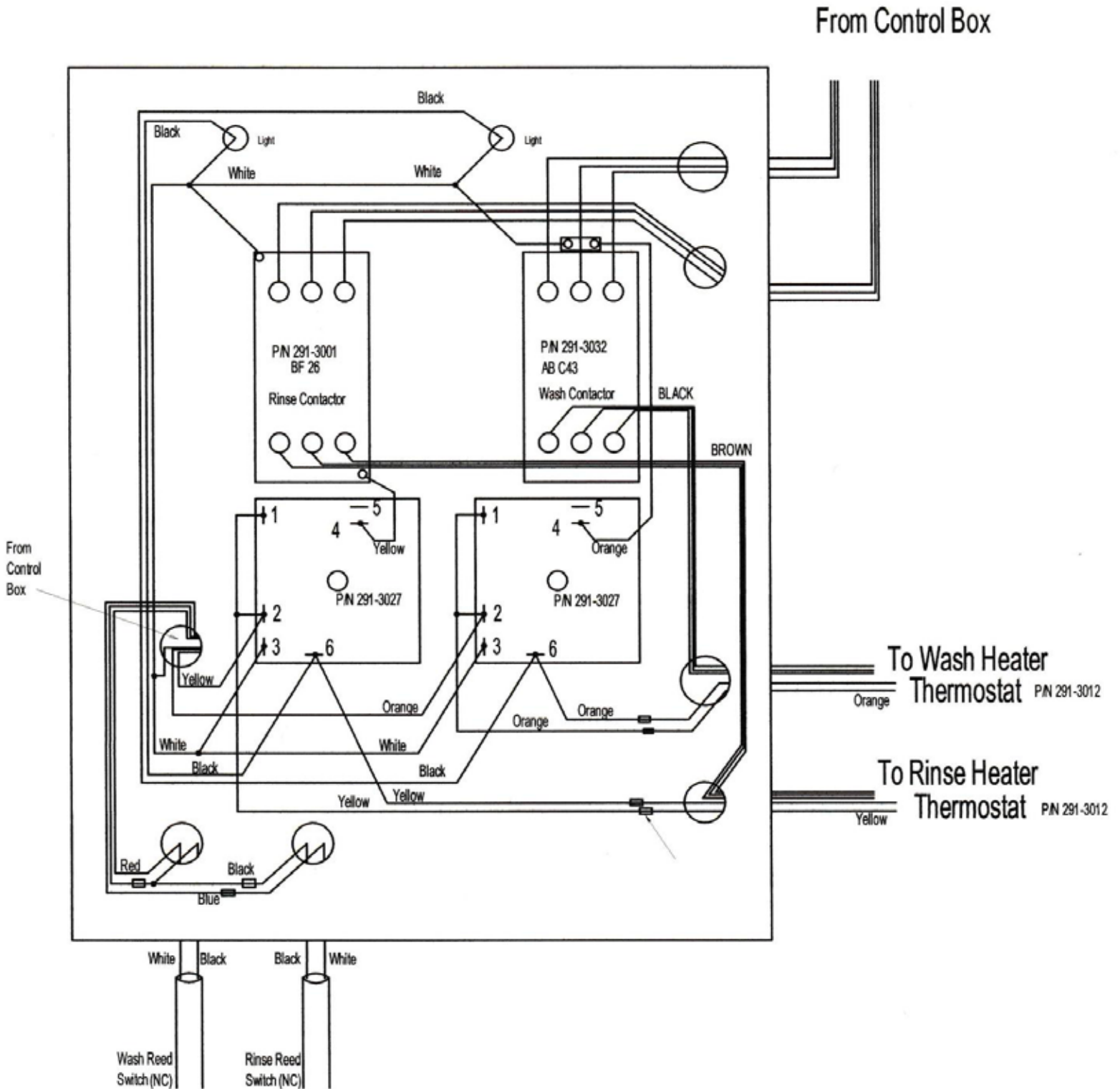
Left relay to the rinse pump (blue wire) and conveyor motor contactors (brown wire)

Far Left relay (ADC66 only) to the scrapper pump (black wire) and conveyor motor contactors (brown wire). There is a second N/O (291-3022) reed switch wired inline with the front N/C reed. It is on the back of the scrapper tank to stop the scrapper motor if the basket is left out of the power scrap tank (see ADC-66 Reed Switch Wire Diagram).

Right relay is only a cut-off for the fill solenoid if the door is opened and not concerned with motor control.

ADC-44

Reed switch and heater relay wires



**This page is left blank
intentionally.**



American Dish Service

**Manufacturer of low and high temperature Commercial
Dishwashers and Glasswashers**

© American Dish Service

900 Blake Street | Edwardsville, Kansas, 66111
913.422.3700 | Toll-Free: 800.922.2178 | Fax: 913.422.6630
orders@americandish.com | **americandish.com**

