Preface

Good service work requires extensive training as well as well-structured training materials. This service manual has been created to assist certified service technicians via instructional and reference guides.

If you should require additional assistance, have corrections or questions regarding this document, please do not hesitate contacting us at: www.karcher.com/us and click on customer feedback to enter any info you may have for us or you can also contact any of our Technical Support Specialists at 800-444-7654.

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Safety

The BRC40/22 (Armada) uses 120VAC as a power source, proper precautions must be used to prevent electrocution. It is important to unplug the device when performing repairs however, much of the troubleshooting must be performed with the device plugged into a power source to perform component testing. When electrical troubleshooting is required on any piece of equipment the use of insulated tools is required. The capacitors on the control board do not discharge, it is important to take care when handling the controller to not touch the back side of the board.

ESD Protection

Most of the equipment manufactured today use modern computerized technology and computerized circuit boards. it is important to use ESD (Electro Static Discharge) protection when working on equipment to prevent damaging the Integrated circuit chip within the printed circuit boards.
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How the machine works:

The Armada is a 120 volt AC dual purpose carpet extractor intended for commercial use. This machine performs Interim maintenance cleaning as well as deep restorative extraction. The solution is applied during interim cleaning and agitated into the carpet fiber using a rotating cylindrical brush. The solution is not recovered but left to dwell on the carpet surface to be vacuumed up once the solution has completely dried to the touch (approximately 20 minutes). When using the appliance during deep extraction mode the solution is applied to the carpet agitated into the carpet fiber using the cylindrical brush and recovered by the wet vacuum system. The soiled water is stored in the recovery tank to be disposed of when tank is at full capacity.

The appliance applies chemical at a reduced rate during interim cleaning using jet orifice reduction. The water is applied to the floor surface using a .001 Promax jet using a 100 psi pump with reduced pressure to 50 psi. In deep extraction the water is dispensed through all three jets one .001 jet and two .003 jets at 100 psi. This is accomplished by the operators discretion using the specific functions on the selector switch.

The appliance is equipped with the capability to use an optional hand tool or spotting wand that can be attached using the male quick disconnect fitting located on the brush head and vacuum hose located at the top of the vacuum shoe.

The appliance is designed with an articulating brush head controlled by the operators handle. This feature along with the capability of reversing the brush rotation allows the appliance to clean in tight work spaces. The handle is adjustable to the operators preference using the telescoping adjustment feature.

The appliance functions are controlled by the operator using the rotating selector switch to select the appropriate operating mode. The operation of the brush and solution spray is controlled by the solution switch and switch bar located on the steering console. The rotation of the brush is controlled by the forward/reverse switch located on the steering console.
## Technical Specifications

<table>
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<tr>
<th>ITEM</th>
<th>DIMENSION/CAPACITY</th>
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<tbody>
<tr>
<td>Construction</td>
<td>Plastic Injection-molded chassis with rotationally molded polyethylene tank</td>
</tr>
<tr>
<td>Vacuum Motor</td>
<td>Three stage, bypass, 1.5 hp (1,119 watts), 100 cfm (2.8m³/min), 120&quot; (3050 mm) waterlift</td>
</tr>
<tr>
<td>Solution Pump</td>
<td>50 psi (3.5 bar) - Interim&lt;br&gt;100 psi (7 bar) - Restorative</td>
</tr>
<tr>
<td>Brush Motor</td>
<td>.53 hp (400 watts) DC</td>
</tr>
<tr>
<td>Brush</td>
<td>16&quot; (406 mm), ABS core</td>
</tr>
<tr>
<td>Cleaning Path</td>
<td>18&quot; (40.6 cm)</td>
</tr>
<tr>
<td>Flow Rate</td>
<td>Interim - 0.10 gpm (0.38 lpm)&lt;br&gt;Restorative - 0.65 gpm (2.5 lpm)</td>
</tr>
<tr>
<td>Solution Spray</td>
<td>Interim - One quick-disconnect jet&lt;br&gt;Restorative - Two quick-disconnect jet</td>
</tr>
<tr>
<td>Solution Tank</td>
<td>8 gallons (22 L)</td>
</tr>
<tr>
<td>Recovery Tank</td>
<td>5 gallons (19 L)</td>
</tr>
<tr>
<td>Vacuum Shoe</td>
<td>19&quot; (483 mm) wide</td>
</tr>
<tr>
<td>Wheels</td>
<td>10&quot; (254 mm) non-marking rubber</td>
</tr>
<tr>
<td>Power Cable</td>
<td>50' (15 m) detachable</td>
</tr>
<tr>
<td>Weight</td>
<td>100 lbs (45.5 kg) with cord</td>
</tr>
<tr>
<td><strong>NOISE EMISSION</strong></td>
<td></td>
</tr>
<tr>
<td>Sound Pressure Level</td>
<td>88.4 dB(A) Normal&lt;br&gt;65.3 dB(A) ECO</td>
</tr>
<tr>
<td>(EN 60704-1)</td>
<td></td>
</tr>
<tr>
<td><strong>MACHINE VIBRATION</strong></td>
<td></td>
</tr>
<tr>
<td>Vibration Total Value</td>
<td>0.70 m/s²</td>
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ISO 5349
Product Overview

Components
1. Operator Controls and Display
2. Recovery Lid
3. Recovery Tank
4. Scrub Deck
5. Solution Fill Cover
6. Solution Tank
7. Vacuum Air Clear Observation Cover
8. Dirty Water Clear Observation Cover
9. Recovery Drain Hose
10. Control Height Adjustment - Operator Controls
11. Deep Extraction Jets
12. Interim Jet
13. Power Cord Connection
14. Cord Holder
15. Grips for lifting machine
Controls

Display
The LED lights in the center are (from left to right):
1. Power
2. Vacuum
3. Brush
4. Solution
5. Ecol Mode.
The switch on the left controls the solution flow. The switch on the right allows the operator to reverse the
brush motor, effectively moving the machine in an
opposite direction.
The yellow trigger switch on the steering wheel will turn
on the brush and solutions depending on which mode
the control switch is in.

Main Rotary Control Switch
Beginning with the off position and working clockwise, the modes of operation are:
Brush Only
Encapsulation Mode
Ecol Mode Extraction
Deep Extraction
Vacuum Only
Accessory Tool
DEFINITIONS OF SELECTOR SWITCH

1. Brush only
2. Interim cleaning
3. Eco deep extraction
4. Deep extraction
5. Vacuum only
6. Accessory tool
7. Off

When in mode 2 solution will come out of the center nozzle only
When in mode 3 & 4 solution will come out of all 3 nozzles
When in mode 1, 5 & 6 solution will not come out of the nozzles
When in mode 2, 3, 4 & 6 the pump is energized
Tools required

It is important for a technician to have all the appropriate tools available either in the field or in the shop.

These tools include but are not limited to the list below.

- Standard and metric socket sets both 1/4” and 3/8” drives.
- Standard and metric combination wrenches.
- Standard and metric ratcheting box end wrenches (optional).
- Standard and metric Hex keys.
- Complete Torx driver set.
- Complete plyers set including needle nose and channel lock plyers.
- Diagonal (side cutter) wire cutters.
- Wire strippers
- Wire crimpers
- Complete set of screw drivers both Philips and flat blade.
- Vacuum gage.
- Pressure gage 0 to 1500 psi.
- Snap ring pliers with assorted tips.
- Complete vice grip set including needle nose vice grips.
- EDS grounding wrist strap.
Vacuum motor removal procedure

Using a T-20 Torx driver remove the 4 screws holding the rear access panel onto the machine exposing the vacuum motor and electronics.

Using a 1/4” ratchet with a 3/8 drive socket remove the 5 bolts holding the vacuum housing together, the 5th bolt is behind the housing on a raised stand-off.
Carefully work the motor out of the lower vacuum housing. Using the T-20 Torx driver remove the 3 screws holding the upper housing to the vacuum motor.

Using a #2 Philips screw driver remove the 2 screws holding the carbon brush cover on. Inspect the lower vacuum housing and motor for evidence of dry vacuuming in the form of dry dirt and water from foam.
Vac motor carbon brush removal.

Using a smell screw driver, push the tab on the brush holder to release the pin.

Once the pin is released you can remove the carbon brush.

Inspect the carbon bush, once it reaches 3/8" in length replace the brush. If the brush is allowed to wear further it will damage the motor.
Pump removal procedure

Remove the recovery tank from the machine exposing the pump access cover. Using the T-20 Torx driver remove the 3 screws holding the cover in place.

To remove the pump push the gray ring in towards the elbow and pull on the hose at the same time releasing it from the fitting. Turn the lift the pump and turn it slightly upward then lift it out. Remove the other hose from the pump.

When reinstalling the pump, care must be taken to place the holes in the rubber shock mounts onto the pins in the housing (left).

Before placing the pump into the housing insert the hose into the inlet side of the pump (right).
Before inserting the pump make sure that the harness to the pump, pump harness and outlet hose are accessible.

Once the pump is in place, connect the harness and insert the hose into the pump outlet fitting. Insure the hose is locked in place by pulling back on the hose.

The pump is properly installed when you can see the white pin in each of the rubber shock mounts.

If the pump is not properly installed, the cover will not fit correctly and damage will occur when tightening the screws.
Brush motor removal and disassembly process

Rotate the head until the vac shoe hose is exposed. Remove the hose from the mount by pulling it toward you.

Place the adjustment knob into position 1 and tip the machine on its back, note the position of the cam. Using a 10 mm socket on a 1/4” drive ratchet, remove the nut on the height adjustment screw.

Using a T-25 Torx driver, remove the 3 screws on the outer left side of the upper deck housing.

Remove the 3 screws from the Right side of the deck housing.
To access the screws holding the electrical cover and upper deck cover, you must remove the pump per the pump removal procedure starting on page 13.

With the screw access holes in the bottom of the pump housing exposed, Rotate the head to align the screws. Using a T-25 Torx driver, remove the 4 screws.
The lower deck can be removed from the upper deck housing.

To access the motor mount screws, the belt cover must be removed. Using a T20 Torx driver remove the 4 screws holding the cover on.

Using a T20 Torx driver, remove the 4 screws holding the brush drive housing and brush motor to the lower deck frame.

Disconnect the brush motor and thermistor harnesses from the main harness. Lift the motor out of the lower deck assembly.
To remove the brush housing from the motor, remove the 4 screws holding the assembly together. Using a T-30 Torx to remove the 2 crews inside the housing then to 2 outside of the housing.

Remove the coupler, the bearings are not replaceable. If the bearing in the gear case fail the entire gear case must be replaced.

To remove the belt use a screw driver to work the belt out and the lower pulley then peel it off with your fingers.

If you need to replace the gear box and the pulleys are reusable, place the brush drive gear in a vice and remove the screw using the T-30 Torx driver. The easiest way to remove the drive pulley is to reattach the motor to the gear box and hold the fan while removing the screw.
To remove and check the carbon brushes, use a flat screw driver to rotate the cap counter clockwise until it is out, then remove the brush.

When the carbon brush wears to 3/8” inches it needs to be replaced. If it is allowed to wear further, damage to the motor commutator will occur.
Solenoid valve removal process

In order to access the solenoids you must remove the lower deck as described in the brush motor removal section starting on page 15.

Most machines will have a finger guard over the solenoids. To remove the finger guard you will need the #20 Torx driver to remove the single screw holding it in place.

With the finger guard released use a 3/8” wrench to remove the Ground wire from the guard.

Once the finger guard is removed, release the water lines from the John Guest fittings on the solenoid valve assembly by pushing the ring and hose in continuing to hold the ring in, pull the hose out of the fitting. It is necessary to remove the screw and retaining clamp from the blue line to release it from the fitting. Disconnect the electrical connections.
Using the T-20 Torx Driver, remove the 2 screws holding the solenoid valve assembly to the upper deck cover.

If you have determined that the valves are good and do not leak or are not stuck according to the solution system troubleshooting section and discovered the coils are bad, it is easier to replace the coils than re-plumb the entire valve assembly. Using a metric 4 hex key (Allen Wrench) Remove the failed coil and replace it with one from the new solenoid.

The solenoid coils have been removed and are ready to be replaced.

If the valve bodies need to be replaced, remove the mounting plate from the assembly.
Gently place the valve in a vice, using a 17mm open end wrench remove the fittings from the valve. Set the fittings aside to use on the replacement valve bodies.

Place the valve assembly into the upper brush deck taking care to align the plastic tabs with the slots in the valve bracket and the holes for the screws.
Steering column removal process

Unlike the BR35/12 the bearing set that holds the steering column and deck pivot cannot be accessed by removing the recovery tank. The process below describes the most efficient way to access the bearing set.

To reduce the amount of time to remove the steering shaft assembly, it is recommended that a hole be drilled in the upper deck cover to align with the screws in the pivot mount. Using the two plastic tabs as reference pace a mark at 5/8” front to back then a then intersect that line at 9/16” from the tab to the right. Using a 1/2” drill bit place a hole in the upper cover, by rotating the head you can align with each of the 4 screws holding the deck to the pivot. Once finished with the repair, plug the hole with a stopper or waterproof tape on the top side of the deck cover.
Remove the 8 screws holding the steering shaft to the tank.

Once the screws have been removed lower the head and shaft assembly to the table. Rotate the head assembly to orient the brass pin horizontally.
Once the pin is horizontal use snap-ring pliers to remove the snap-ring, then push the pin out of the pivot joint.

With the brass pin removed push the wrist pin out of the joint. Collapse the two pieces of the remaining portion of the bearing set into itself then remove.
Lift the rubber seal off of the deck pivot and work it up the wire harness to expose the snap ring. On machines built with the waterproof harness this seal is not present.

Using a pair of snap-ring pliers, remove the snap-ring separating the pivot from the mount.

There is a ball bearing in the trough of the pivot, it is the steering stop, remove it and place it where it won’t get lost.
Using the Torx 20 driver, remove the two screws holding the solenoid mounting bracket to the upper deck.

Remove the screw holding the hose clamp on the black hose from the pump. Depress the outer ring push the hose into the fitting then pull it out. To separate the pivot from the upper deck, remove the 4 screws holding it on.

To remove the harness from the pivot, disconnect the harness from the brush motor and solenoid valves. Work each connector through the hole in the pivot until the harness is removed.

It is critical to inspect the snap-ring groove in the pivot for damage. If the upper lip is cracked or partially missing it the pivot needs to be replace.
Reverse these steps to reinstall the upper deck to the machine.

There are three critical steps when attaching the upper deck that will require additional work if missed (see below).

Make sure the ball bearing is placed back into the groove in the pivot.

Once the snap ring is installed you should inspect it to make sure it is completely seated in the groove. If the snap ring comes loose the scrub head will sag and dig into the carpet during use.

Place the pivot support onto the deck once it is seated the snap ring groove will be visible.

Reinstall the rubber seal (if equipped), using a blunt tool press the center of the seal into the pivot to prevent interference when operating the machine.
Tower removal process

Removal of the tower allows access to the solution tank cover/gasket, the strainer assembly and outlet hose from the tank to the strainer. The Steering shaft removal process needs to be performed in order to remove the tower assembly (see instructions on pages 23-28).

Using the T-20 Torx driver remove the 5 screws towards the front of the tower.

Lay the machine on it’s side and remove the 10 screws from the bottom of the tank.

Remove the 4 screws holding the axel/wheel assembly.

Remove the screws from the wheel wells (2 on each side).
Remove the two screws in the back of the machine.

Remove the pig tail neutral line from the switch and the black line wire from the breaker. Remove the ground wire from the ground stud on the control board panel. Remove the retaining nut on the strain relief for the handle harness.

Disconnect the handle harness from the board.

Remove the screw holding the cord hook in place.
Solution tank access

Once the tower has been removed you have access to the tank cover, and the strainer.

If the solution cover has a metal plate holding part of the cover it will leak water onto the deck if the tank is left full.

If this is the case you will need to upgrade to the new one piece cover and gasket kit p/n 8.641-726.0. The kit on Windsor service bulletin 16-WS8-07 includes the tank cover, seal, replacement screws and instructions.

The strainer body can only be accessed by removing the tower. It is important to check the solution hose from the strainer to the tank. If it is not inserted correctly, water will pour out of the right rear corner of the machine.
Control board removal process

Using a T-20 Torx driver remove the rear panel as described on page 10.

Caution:

When handling control boards it is important to protect against electro static discharge. Always wear an anti ESD wrist strap grounded to the work bench.

The control board contains two large capacitors that do not discharge when powered down, the control board comes with the mounting plate to prevent accidental shock.

Remove all electrical connections including the ground wires. The 12 v power supply in the upper right corner does not need to be removed. The fan is part of the assembly do not attempt to disconnect it.

Remove the screw holding the assembly in place and remove the circuit board and mount.
To remove the power supply from the controller assembly squeeze the 4 standoffs to release them.
Miscellaneous repairs

Glide wheel replacement

The front glide wheels are an important part of the deck assembly, if they get jammed with debris they will wear prematurely causing the deck to dig into to the floor.

To remove the glide wheel use a screwdriver to slide the axel pin out.

Pull the axel pin out with a pair of needle nose pliers and remove the wheel. Reverse the process to reinstall.

Kickstand assembly replacement

Using a flat screwdriver gently pry the assembly out on each end.

To reinstall, align the spring so that are applying tension and reinsert the assembly by pressing down.
Spray shield and baffle plate replacement process

To replace a damaged spray shield or brush motor baffle plate you will need to follow the procedure for removing the lower brush deck on pages 15-17.

Using the T20 Torx driver to remove the spray shield from the lower deck. Reverse the process to replace the shield.

To remove the bush motor baffle plate you will need to remove the brush motor according to the instructions on page 17. Remove the two screws holding the plate on. Reverse the process to replace the plate.

Accessory quick disconnect

You will need to separate the lower deck from the up as described in pages 15-17.

Using a T-20 Torx driver, remove the two screws holding the retaining plate.

Remove the quick disconnect from the access hole. Reverse the process to reinstall.
Jet body replacement

You will need to separate the lower deck from the upper according to the process described on pages 15-17.

To replace a jet body, remove the hose from the John Guest fitting by pushing the green outer ring and holding it then push the hose in then pull it out.

Remove the two screws holding the jet body in place.
Electrical Troubleshooting

Explanation of technology

The Armada controller is unique to the industry and uses several methods to supply power to the electrical components.

- The Pic Duo controller uses a 12 Volt DC power supply to operate the logic of the board. It uses 120 VAC inputs to supply power to the components. The Pic Duo technology gives us the ability to make changes to the operating firmware using a Picket 2 programmer to upload the firmware change.

- The DC brush motor operates at 120 VDC instead of AC voltage, with no load the voltage input can get as high as 135 VDC. The controller monitors both amp draw and operating temperature using a thermistor mounted on the motor. The current firmware, Rev E will allow the brush motor to run as high as 5 amps with spikes up to 8 amps.

- The thermistor’s resistance is 10,000 –15,000 Ohms at ambient temperature, as the motor heats up the resistance goes down. This combination allows the controller to protect the brush motor by lowering the amp draw threshold depending on the temperature of the motor. Under normal use the motor will operate at 3-4 amps it can run up to 5 amps spiking at 8 however as the motor heats up the thresholds decrease from 8 amps to 5-6 amps to trigger the brush error light.

- The vac motor operates at 120 VAC in deep extraction and around 80 VAC in Eco mode. The amp draw in deep extraction is around 10 amps, in Eco mode the amp draw drops to around 7-8 amps. The Pic Duo monitors the motor current consumption looking for drops and increases in the amp draw. A drop in amps indicate a clog in the vacuum system an increase in amps indicate water or debris entering the motor. The motor field resistance is 1-2 Ω.

- The solenoid valves operate at 120 VAC at .00 to .02 amps. The coil resistance is 190-250 Ω.

- The water pump operates on AC voltage, the controller uses pulse width modulation to control the flow. When testing with a volt meter you should see around 35 VAC in encapsulation mode and around 41 VAC in deep extraction mode. The current draw is .2-.3 amps in eco and .5 amps in deep extraction. The field resistance is 11.8 mΩ.
Electrical schematic
Wire color code
Skeletal view with electrical test points.

This is the complete inner workings of an Armada the electrical test points are circles for identification.
The main controller operates all of the machiness devices. Its computer logic operates on 12 volts provided by the power supply. Line voltage into the board provides 12 VAC to operate the devices.
The 12 volt power supply provides power to the logics of the main controller.
Solution system flow
The machine is switched on but does not power up.

1. With your volt meter set on AC voltage, check voltage at the wall outlet, is there 120+ VAC? (figure 1)
   - Yes Move to step 2.
   - No Check the wall breaker at the building’s electrical panel.

2. With your volt meter set on AC voltage, check the line and neutral of the extension cord, is there 120+ VAC? (figure 2)
   - Yes Move to step 3.
   - No Replace the extension cord.

3. With your volt meter set on AC voltage, check for voltage at the connection of the pigtail on the machine main switch and breaker, is there 120+ VAC? (figure 3)
   - Yes Move to step 4.
   - No Replace the pigtail cord.

4. With your volt meter set on AC voltage, check for voltage on the input of the main switch, is there 120+ VAC? (figure 4).
   - Yes Move to step 5.
   - No Reset or replace the circuit breaker.

5. With your volt meter set on AC voltage, check for voltage on the output side of the switch, is there 120+ VAC? (figure 5)
   - Yes Move to step 6.
   - No Replace the main switch.

6. With your volt meter set on AC voltage, check for voltage at the 120 V input on the power supply board, is there 120+ VAC? (figure 6)
   - Yes Move to step 7.
   - No Repair/replace wiring.

7. With your volt meter set on DC voltage, check for 12 VDC at the output from the power supply to the main controller, is there 12 VDC? (figure 7)
   - Yes Move to step 8.
   - No Check the 2.5 amp fuse on the power supply if the fuse is bad replace it if the fuse is good replace the power supply board.

8. With your volt meter set on DC voltage, check for 12 VDC on the connector on the main controller, is there 12 VDC? (figure 8)
   - Yes Replace the main controller.
   - No Repair replace the wires between the two connectors.
Machine powers up, nothing will operate.

1. With your volt meter set on AC voltage, check for power on the accessory line input of the main controller, is there 120 VAC? (figure 1a)
   
   **Yes** Replace main controller.
   
   **No** Replace or repair the wiring.
Machine powers up everything works except the brush motor, the brush light is solid red

1. With your volt meter set on DC voltage, check for power at the brush motor connector on the main controller is there 135 VDC. (figure 1b)
   - Yes Go to step 2.
   - No Replace the main controller.

2. You will need to separate the upper and lower deck as described on pages 15-17. With your volt meter set on DC voltage, check for power at the brush motor connector, is there 134+ VDC? (figure 2b)
   - Yes Check wiring to brush motor/replace brush motor.
   - No Check the wiring between the brush motor and main controller, repair/replace as needed.
Machine powers up everything runs except the vac motor the icon is red.

1. It is not possible to check for voltage to the vac motor if it is disconnected from the harness, the controller will put out 35 VAC. With your volt meter set on AC voltage, and the main switch in a vacuum mode, check for voltage at the vac motor connector in the harness, is the output 35 VAC? (figure 1c)

   Yes Test the motor wires for resistance if greater than .3Ω replace the motor. If the reading is OL check the wiring to the motor repair as needed. If the wiring is good, replace the vac motor.

   No Replace the main controller.
Machine powers up everything runs except the pump will not run

1. It is not possible to check for voltage to the vac motor if it is disconnected from the harness, the controller will only put out 21 VAC. Remove the pump cover as described on page 13. With your volt meter set on AC voltage, and the pump switch turned on with the main switch in a solution mode, pull the yellow hand lever and check for voltage at the connector in the harness, is there only 21 VAC? (figure 1d)

   Yes  Check the pump motor for resistance if it is greater than 12mΩ replace the pump. If the reading is OL, check the wiring, if it is good replace the pump.

   No  Check the wiring to the controller if it is good replace the main controller.

Figure 1d
Machine powers up everything runs except the solution will only spray from the center jet in deep extraction

1. Remove the 2 black jets from the machine, with the main switch in a deep extraction mode and the pump switch on press the yellow hand lever, does water flow from the jet bodies?
   - **Yes** Clean or replace the jets.
   - **No** Move to step 2.

2. Place your positive test probe into the blue wire #29 in the 6 pin connector on the main controller, place your negative test probe on the neutral lead of the main switch. With your volt meter set on AC voltage, operate the machine as described in step 1, is there 120+ VAC? (figure 1e)
   - **Yes** Move to step 3.
   - **No** Replace the controller.

3. You will need to separate the upper and lower deck as described on pages 15-17. Place your test probes into the blue and white connector for the solenoid. With your volt meter set on AC voltage, operate the machine as described in step 1, is there 120+ VAC? (figure 2e)
   - **Yes** Replace the solenoid valve.
   - **No** Check the wiring back to the controller repair or replace as needed.
Machine powers up everything runs except the solution will not spray from the center jet in interim mode.

1. Remove the 2 white jets from the machine, with the main switch in a deep extraction mode and the pump switch on press the yellow hand lever, does water flow from the jet body?
   - Yes  Clean or replace the jet.
   - No   Move to step 2.

2. Place your positive test probe into the orange wire #30 in the 6 pin connector on the main controller, place your negative test probe on the neutral lead of the main switch. With your volt meter set on AC voltage, operate the machine as described in step 1, is there 120+- VAC? (figure 1f)
   - Yes  Move to step 3.
   - No   Replace the controller.

3. You will need to separate the upper and lower deck as described on pages 15-17. Place your test probes into the orange and white connector for the solenoid. With your volt meter set on AC voltage, operate the machine as described in step 1, Is there 120+- VAC? (figure 2f)
   - Yes  Replace the solenoid valve.
   - No   Check the wiring back to the controller, repair or replace as needed.

![Figure 1f](image1)
![Figure 2f](image2)
Error code trouble shooting

Vacuum codes:

Vacuum icon solid red—follow procedure on page 41
Vacuum light blinks 2X—vacuum motor is stalled, check motor for debris of rusty bearings.
Vacuum light blinks 4X—Vacuum motor is running above specified current.

Brush codes:

Brush light blinks orange, continues to run—brush is running higher than specified current reduce brush pressure to 1 or 2 positions 3 and 4 are not necessary and will cause the motor to overheat. The brush may be worn out causing the head to drag on the carpet.

Brush light blinks 2X—The main controller is overheating, reduce brush load by setting the brush height to 1 or 2. Check the fan on the controller make sure it is operating correctly.

Brush light blinks 3X—The brush motor has stalled, check the brush for debris and remove anything that is preventing it from turning.

Brush light blinks 5X—The brush motor is overheating, allow motor to cool and raise the brush height to 1 or 2.

Brush light blinks 6X—The thermistor is disconnected or has failed.

1. Open the rear panel and disconnect the 6 pin connector back probe the purple wires #34 and #35 you should read 10,000 15,000 ohms (10KΩ—15KΩ) depending on room temperature.
   Yes  Check the pin in the connector for good contact if it’s OK replace the controller.
   No   If the thermistor reads 5,000 ohms or less at ambient temperatures it needs to be replaced. If it reads OL move to step 2. (figure 1G)

2. You will need to separate the upper and lower deck as described on pages 15-17. Disconnect the thermistor from the harness Back probe the wires if it is OL replace the thermistor. If it reads 10K-15KΩ check the wires between the thermistor and the controller repair or replace as needed. (figure 2g)

Vac light flashes 2X with vacuum motor turned off—Due to water spilling into the pump housing corrosion can occur causing the errant code to appear. Follow the water proofing procedure on pages 54-59.
In December 2016 starting with serial number 10080600000744 the vac shoe alignment plate was change to prevent binding and breakage of the vac shoe mounting bracket.
Steps to Prevent Water Intrusion in Armada Harness Connectors

Required materials: Electrical tape, Dielectric grease (Permatex recommended), Scissors

Wrap a piece of electrical tape around the “windows” on the sides of the 3-pin and 9-pin connectors.

Fill the wire side of the taped 3-pin connector with dielectric grease, paying close attention to make sure the grease completely covers the area between the wires and connector.
Fill the cavity of the pin side of the 3-pin connector with dielectric grease until the grease is level with the end of the connector.

Wrap the 3-pin connector and wires with electrical tape until the grease on the wire end is fully enclosed by the tape. Note: Tightly wrapping the tape around the wires to cinch them into a bundle is recommended.
Fill the wire side of the taped 9-pin connector with dielectric grease, paying close attention to make sure the grease completely covers the area between the wires and connector.

Fill the cavity of the pin side of the 9-pin connector with dielectric grease until the grease is level with the end of the connector.
7. Wrap the 9-pin connector and wires with electrical tape until the grease on the wire end is fully enclosed by the tape. Note: Tightly wrapping the tape around the wires to cinch them into a bundle is recommended.

8. Fill the wire side of the other 3-pin connector with dielectric grease, paying close attention to make sure the grease completely covers the area between the wires and connector.
9. Fill the cavity of the pin side of the 3-pin connector with dielectric grease until the grease is level with the end of the connector.

10. Wrap the 3-pin connector and wires with electrical tape until the grease on the wire end is fully enclosed by the tape. Note: Tightly wrapping the tape around the wires to cinch them in to a bundle is recommended.

11. Fill the wire side of the other 9-pin connector with dielectric grease, paying close attention to make sure the grease completely covers the area between the wires and connector.
12. Fill the cavity of the pin side of the 9-pin connector with dielectric grease until the grease is level with the end of the connector.

13. Wrap the 9-pin connector and wires with electrical tape until the grease on the wire end is fully enclosed by the tape. Note: Tightly wrapping the tape around the wires to cinch them into a bundle is recommended.
New waterproof wiring harness

Starting with s/n 10080600001129, a new waterproof wiring harness was introduced to prevent corrosion of the electrical connections and errant fault codes.

Old Molex connectors should be greased

New TE water proof connectors no grease needed.
New material to strengthen the vac shoe mount

The new vac shoe mounts were implemented on 7/12/2018, starting with the following serial number.

10080600001778