



SINGLE LEG TRAILER JACKS AM & AJ SINGLE (MANUFACTURED AFTER 2007)

Troubleshooting of single leg jacks generally starts with the pump assembly.

It will be necessary to determine the pump type and model number of the pump for the proper procedure. The trouble shooting is basically broken into two categories based on the pump type (Uni-Directional or Bi-Rotational).

UNI-DIRECTIONAL PUMP ASSEMBLY # 1531, 2016, 2142, ,3126, 3170 & 3170KS

Jack will not run in either direction (Extend or Retract)

Note: if the jack is fully extended or fully retracted also see section on jack only runs one way.

MOTOR DOES NOT RUN

1. Check to verify that the key switch (if equipped) is turned to the on position.
2. Check to verify that the power disconnect switch (if equipped) is in the on position.
3. Check to verify that the battery is in good state of charge and that the battery cable connections are tight and free from corrosion.
4. Check to verify that the power and ground cables at the pump assembly are tight and are free from corrosion.
5. The voltage measured at the pump between the pump ground stud and the battery terminal on the solenoid should be equal to the voltage measured at the battery. Any reading less than 12 VDC is weak or marginal.

PERFORM MOTOR /SOLENOID TEST

Short the two large terminals on the motor solenoid together using a screwdriver or other conductive item. If the motor does not run, then either the motor is defective or there is not sufficient power or ground to the pump unit. (Note this is a high current draw. A small wire or similar is not sufficient).

NEXT, SHORTING THE TERMINALS MAKES THE MOTOR RUN

Short from the battery terminal on the motor solenoid to the small terminal on the motor solenoid (with a screwdriver or other conductive item) with the wire coming from the switch harness. If the solenoid does not “click in” and make the motor run, then it is defective. If the solenoid does “click in” and makes the motor run, then there is an issue would be with the switch and or wiring/harness. See section on switch and wiring

MOTOR RUNS IN BOTH SWITCH POSITIONS

JACK ONLY EXTENDS IN BOTH SWITCH DIRECTIONS WILL NOT RETRACT REGARDLESS OF WHICH WAY THE SWITCH IS PRESSED

NOTE: THIS IS THE MOST COMMON COMPLAINT ON THIS TYPE THIS IS MOSTLY FOUND TO BE LOW VOLTAGE TO THE DIRECTIONAL CONTROL VALVE WHEN TRYING TO RETRACT

1. Verify that the knob on the end of the directional control valve is in the normal in position (check the owner’s manual under manual override for verification on this). If the knob is missing, damaged or it is in the out position and won’t return to the normal in position then the valve and coil must be replaced.
2. Check the directional control valve wiring. Verify that the wiring is connected to its coil. Later model units have 2 wires to it earlier only 1. The wire (most likely green in color) should have at least 10 volts (VDC) applied to it when attempting to retract the jack. If there is no voltage, then the issue is with the switch or wiring. If there is voltage but it is below 10 VDC then the battery is weak or the connections from the battery to the jack are not sufficient. There should be no voltage on the green wire when trying to extend (Trailer up). If the valve coil has two terminals one terminal must be connected to the pump ground stud. If there is good voltage to the coil above 10 VDC and its ground is good, then the directional valve and or its coil is defective.

MOTOR RUNS (NO JACK OPERATION EXTEND OR RETRACT)

1. Verify that the reservoir has proper fluid level. The reservoir should be near to full when the jack is retracted. The reservoir should have at least 2 inches of fluid in the reservoir when the jack is fully extended.

2. Check to see that the hand pump assembly is fully screwed into the pump housing, the hexagonal body part of the hand pump should not move it should be tight. The plunger and linkage parts may pivot or move. If the hex part is loose unscrew the hand pump assembly from the pump housing and inspect the o-rings on the nose. The o-ring must be intact with no cuts or missing parts, it will have an accompanying backing ring that may be of the split type or the solid type. If the o-ring is damaged it must be replaced. The hand pump has a check valve built into the nose. There is a small hole in the end of the nose and one in the side. You should only be able to blow air through in only one direction. If air passes both ways, then the hand pump is defective and must be replaced. When reinstalling the hand pump into the pump housing tighten to 20 lb. ft.

3. Check the pump pickup tube: Remove the reservoir from the pump housing. On units 2142, 3126, 3126, 3170 Check the pickup tube where it attaches to the pump. There is a black plastic nipple that push fits into the pump. Check for a broken or cracked black plastic nipple. If there are any cracks or if it is broken it must be replaced. The 3170KS unit will not have the black plastic nipple. The 3170KS has a hard plastic pickup tube that threads into the gear pump.

4. Remove the motor. Check the coupler that connects the motor shaft to the pump shaft. If the coupler is broken or damaged check the pump shaft to verify that it will turn freely. If it will then replace the coupler. If it seems to be bound up the gear pump is bad and you must replace the complete pump assembly (motor, port plate and tank assembly). There are no internal pump parts available.

Note on removing motor: The motor bearing should come out with the motor. If it is stuck/seized in the port plate housing the complete assembly will need to be replaced. This is possible mostly on older units where the bearing could corrode into the housing.

MOTOR ONLY RUNS IN ONE DIRECTION MOTOR ONLY RUNS IN RETRACT (TRAILER DOWN) OR EXTEND (TRAILER UP)

If the motor only runs in one switch direction generally this is an issue with the switch or harness assembly. Check all the wiring connections including the wiring going thru the harness plug connector (if equipped). See section on checking the switch and harness.

BI ROTATIONAL UNITS

There are two basic types. The type must be identified to properly diagnose.

PUMP #S 2390, 2532 & 2542

These units can be identified by the presence of two motor solenoids, one on each side of the motor. One of these makes the motor run in the extend direction the other runs the motor in the retract direction.

MOTOR WILL NOT RUN IN EITHER DIRECTION (EXTEND OR RETRACT). MOTOR DOES NOT RUN

1. Check to verify that the key switch (if equipped) is turned to the on position.
2. Check to verify that the power disconnect switch (if equipped) is in the on position.
3. Check to verify that the battery is in good state of charge and that the battery cable connections are tight and free from corrosion.
4. Check to verify that the power and ground cables at the pump assembly are tight and are free from corrosion.
5. The voltage measured at the pump between the pump ground stud and the battery terminal on the solenoid should be equal to the voltage measured at the battery. Any reading less than 12 VDC is weak or marginal.

PERFORM MOTOR /SOLENOID TEST

Short the two large terminals on one of the motor solenoids together using a screwdriver or other conductive item. If the motor does not run, then either the motor is defective or there is not sufficient power or ground to the pump unit. (Note this is a high current draw. A small wire or similar is not sufficient). Repeat this on the other (second) motor solenoid. Note that it is possible that the motor will run one way but not the other. If the motor will not run in both directions, then the motor is defective.

IF THE MOTOR DOES RUN (BOTH WAYS)

Short from the battery terminal on one the motor solenoids to the small terminal on the motor solenoid (with a screwdriver or other conductive item) with the wire coming from the switch harness. If the solenoid does not “click in” and make the motor run, then it is defective. Repeat this on the other (second) motor solenoid. If the solenoid does “click in” and makes the motor run both ways, then this would indicate is an issue with the switch and or harness.

THE MOTOR RUNS BUT THERE IS NO JACK MOVEMENT

1. Verify that the reservoir has proper fluid level. The reservoir should be near to full when the jack is retracted. The reservoir should have at least 2 inches of fluid in the reservoir when the jack is fully extended.
2. Check the pump pickup tube(s). Remove the reservoir from the pump housing (4 screws). Check the pickup tube(s) where it attaches to the pump. There are two black plastic nipples that push fit into the pump. One is for retract the other for extend. Check to verify that they are not cracked or broken. Replace if found to be cracked or broken.
3. Remove the motor. Check the coupler that connects the motor shaft to the pump shaft. If the coupler is broken or damaged check the pump shaft to verify that it will turn freely. If it will then replace the coupler. If it seems to be bound up the gear pump is bad and you must replace the complete pump assembly (motor, port plate and tank assembly). There are no internal pump parts available.
4. There are internal valves and other parts that could cause this, generally caused by debris causing them to stick or not operate properly. These internal parts are not serviceable. Contact EQ systems for replacement pump assembly (motor, port plate, tank).

PUMP #S 3043, 3195, 3200, 3201, 3195KS, 3200KS & 3201KS

These units use a motor that the direction is determined by polarity reversing. There will be one solenoid or contactor attached to the motor to control this.

MOTOR DOES NOT RUN IN EITHER DIRECTION

1. Check to verify that the key switch (if equipped) is turned to the on position.
2. Check to verify that the power disconnect switch (if equipped) is in the on position.
3. Check to verify that the battery is in good state of charge and that the battery cable connections are tight and free from corrosion.
4. Check to verify that the power and ground cables at the pump assembly are tight and are free from corrosion.
5. The voltage measured at the pump between the pump ground stud and the battery terminal on the solenoid should be equal to the voltage measured at the battery. Any reading less than 12 VDC is weak or marginal.

PERFORM MOTOR /SOLENOID TEST

Using a voltmeter measure between the two motor terminals.

When the switch is pressed in either/both direction/position you should get a voltage reading of at least 10 VDC. If voltage is present and the motor does not run, then the motor is defective.

If there is no voltage reading on one or both switch positions, then either the contactor is defective, or the switch and harness assembly is not triggering the contactor. Or there is not power and or ground to the contactor.

Note: That in one direction/position of the switch the voltage reading may/will be negative depending on the meter lead polarity connections to the motor terminals.

There are three small wire connections on the side of the contactor. The center terminal goes to ground. The two outside terminals connect to the switch harness. One of them triggers the contactor to run the motor in extend direction the other terminal runs the motor in the retract direction. Using a voltmeter or test light check for plus voltage at these terminals when operating the switch. One terminal should receive voltage in one switch position, the other terminal should receive voltage in the opposite switch position. If this is correct, then the switch and harness are working, and the issue is most likely the contactor/solenoid.

ADDITIONAL CHECKS

The motor and contactor may be tested in the following manor if a voltmeter is not present.

Using a small piece of wire jump plus voltage from the battery terminal connection on the contactor to one of the small outside terminals blue or green wire on the contactor. One terminal should click the contactor in and make the motor run in the extend position (blue). The other terminal should make the motor run in the retract direction (Green). If not one or both then the contactor may be defective. This is assuming that there is adequate power and ground to the contactor.

An additional check on the motor may be done by using jumper cables directly from the battery. Prior to connecting remove the wire connections at the motor and put the nuts back on the studs. Then using jumper cables connect the battery directly to the motor studs. The motor should run, reverse the connections and the motor should run the opposite way. If in doing this the motor will not run in both directions, then the motor is defective. This is assuming that the battery is adequate.

Note: Important; Failure to remove the wires from the motor studs prior to connecting jumper cables will cause a dead short to ground through the contactor and wiring. This will be of very high current draw which will damage the contactor and wiring.

ALL PUMP TYPES

SWITCH AND HARNESS CHECKS

Use a voltmeter or test light to check the wiring and switches. There should be plus voltage to one terminal on the key switch. If there is no voltage check the wiring through the harness back to the pump assembly. The voltage for the key switch comes from the battery terminal on the motor solenoid.

When the key switch is turned to the on-position voltage should pass through the key switch to the wires feeding the center terminals of the rocker switch.

Note that not all systems/units will have the key switch.

When the rocker switch is pressed plus voltage should pass from the center terminals of the switch to the outer terminals on the switch. Press the switch one way and plus voltage should be present on two of the outer terminals. Press the switch the other way and plus voltage should be present on the other two outer terminals. If not, then the switch is defective. If the switch tests good, then an issue with the wiring/harness between the switch and pump may exist. Check for damaged wiring and connections.

BATTERY VOLTAGE AND CONNECTIONS

These units are high current draw units. Battery and connections that are weak and or in poor condition will cause performance issues or no operation. See installation manual for proper battery/wire/cable connections. A fully charged 12 VDC battery will have a measured voltage of at least 12.6 VDC. A battery measuring less may have operational issues when running the jack.

JACK WILL NOT HOLD TRAILER LOAD IN PLACE (TRAILER LOWERS UNDER ITS WEIGHT)

IF A JACK WILL NOT HOLD THE LOAD ONE OF THE FOLLOWING 3 ITEMS IS THE CAUSE

1. External fluid leak. Fluid leakage of the upper hose assembly or adaptor fittings connecting the pump to the jack cylinder will allow fluid pressure and volume loss allowing the jack to lower or collapse. The leaking item must be located and corrected.
2. Internal check valve at the pump assembly. If the check valve does not hold, pressure/volume of fluid can bleed back and into the reservoir. This allows for the jack to lower under the weight of the trailer.
3. Internal fluid bypass of piston/seal of the hydraulic cylinder. If the piston seal does not hold fluid pressure and volume can leak to the opposite side of the piston causing the jack to not stay in place.

TEST

1. Extend the jack so that it is supporting the weight of the trailer and to a sufficient height that will allow it to lower at least 6 inches (or more is better).
2. Mark the fluid level in the reservoir with tape or a marker.
3. After the jack has lowered (collapsed) check the fluid level in the reservoir.
4. If the fluid level rose above the mark, then the check valve in the pump is not holding. This may require the replacement of the pump assembly.
5. If the fluid level stayed the same, then this indicates a defective/bypassing piston seal of the hydraulic cylinder in the jack. This will require the replacement of the hydraulic cylinder.

THE JACK WILL NOT STAY RETRACTED (DRIFTS) FROM THE STOWED OR FOOT UP POSITION

1. External fluid leak. Fluid leakage of the lower hose assembly or adaptor fittings connecting the pump to the jack cylinder will allow fluid pressure and volume loss allowing the jack to drift. The leaking item must be located and corrected.
2. Internal check valve at the pump assembly. If the check valve does not hold the pressure/volume of fluid can bleed back and into the reservoir. This allows for the jack to not stay in position.
3. Internal fluid bypass of piston/seal. If the piston seal does not hold, fluid pressure and volume can leak to the opposite side of the piston causing the jack to not stay in place.

TEST THE CYLINDER FOR INTERNAL BYPASS

1. Fully retract the jack.
2. Remove the upper hose connection and adaptor fitting from the upper port of the jack/cylinder.
3. Press the switch (run the pump) in the retract direction. Hold for up to 20 seconds.
4. If fluid comes out of the upper port of the jack/cylinder, then the cylinder piston seal is defective, and the cylinder needs to be replaced. Note that you may get a short “squirt” of fluid at the start as everything compresses, but there should be no continuous fluid flow/leakage from the port

OTHER HYDRAULIC ISSUES

PULSATION OR RATCHETING/CHATTERING DURING RETRACTION

1. Verify that there is proper fluid in the reservoir. The system requires fluid pressure and flow for proper retraction. When a jack is fully extended there should still be at least 2 inches of fluid in the reservoir. Less can cause the unit to pull air and aerate the fluid. When the jack is fully retracted the fluid level should be approx. 1 inch from the fill cap.
2. External fluid leak. Identify and repair.

3. Air in system. Verify that the reservoir is near full. Then fully extend the jack. Allow to sit for ten minutes. Next fully retract the jack. If the fluid in the reservoir becomes foamy/aerated allow 10 minutes for fluid to clear. Then repeat the process. If after 3 times the issue is not reduced or eliminated or worsens then the pump/pickup tube is pulling air not fluid. Remove the reservoir and inspect the pickup tube and its attachment. Correct issue if found. Then repeat. If the issue will not go away, then it could be pulling air from the pump shaft seal or housing sections. Internal parts are not available so this would require replacement of the complete pump assembly.
4. Incorrect flow restriction. EQ Systems uses a flow restriction fitting at the top port of the jack leg. The one shipped with the system is designed to provide proper flow for 90 percent of applications. Due to multiple variables, it is possible that a tighter/greater restriction is needed. If during the above in item 2 does not correct and the fluid always remains clear (no foaming) then this may be needed. Call EQ systems for help with this.
5. Internal pump failure. Replace pump assembly.

PULSATION OR DELAYS/PAUSES DURING EXTENSION

1. See items 1 and 2 above under Pulsation or ratcheting/chattering during retraction.
2. External fluid leak. Identify and repair.
3. Weight on jack over capacity. Get weight on jack, compare to jack rating.
4. Pressure relief valve not properly set or leaking internally. This is an internal pump part. Not field serviceable. Replace pump assembly.
5. Internal pump failure. Replace pump assembly.

PARTS

MANY PARTS ARE AVAILABLE ON THE WEB SITE, IF IDENTICAL IS NOT FOUND CALL EQ SYSTEMS PARTS DEPARTMENT FOR ASSISTANCE.

PUMP PARTS

Motor, solenoid, reservoir, valves etc. The tag numbers from the motor, port plate or reservoir tag are needed to identify. If no numbers are available, take photos and send them to EQ Systems.

JACK LEG PARTS

CYLINDER IDENTIFICATION

IF SQUARE TUBE JACK

Measure the square dimension of the outer tube and the length of the outer tube. This is the fixed part that is attached to the trailer. A chart under replacement parts identification on the web site will help to identify the jack and proper replacement hydraulic cylinder. Advise EQ Systems of this information.

If complete jack is required, take photos so that mounting type can be determined.

IF ROUND TUBE JACK

Measure diameter and length of cylinder body and take photos so that size and mounting style can be determined. A chart under replacement parts identification on the web site will help to identify the jack and proper replacement hydraulic cylinder. Provide the info and photos to EQ Systems.

SWITCH AND HARNESS ASSEMBLY

On later model switch and harness assemblies using the rocker style switch with 4 pin square connector. Replacement switches are available. Or replace the complete switch and harness assembly.

On older units with toggle style and or round connector parts are not available. Replace complete switch and harness assembly.



(800) 846-9659

EQSystems.us