



720 SERIES ACTUATOR – BASIC SETUP

1. Complete the wiring of the electrical system per the enclosed wiring diagram (Actus drawing number 999-0172). Note the 3 Amp (slow blow) breaker in the circuit. This is highly recommended as a standard practice to protect the actuator from overload and failure. A slow blow fuse is required because draw can reach 7 amps when stalled.
2. Before applying power, double check the following important areas:
 - a. Proper wiring technique is critical. All wires and cables should be tied down and positioned so they will not be accidentally pulled or knocked loose. All wiring subject to high wear or vibration should be run through loom to protect from shorting to the vehicle frame.
 - b. Double check all ground wires as shown on the wiring diagram. All frame grounds should be free of corrosion, paint, and dirt. Wires shown running direct to the negative post of the battery should be attached there, or to a similar good direct ground. Frame grounding is not recommended for these wires. Note that this actuator is grounded with terminal #3. Terminals #4 and #5 provide bi-directional motor control.
 - c. This is a negative ground, 12 or 24 VDC system. Be sure correct power is applied and regulated.
 - d. Certain motor speeds require different wiring. Check the truth table on the wiring diagram.
3. Mount actuator to device that is to be stroked. Check to make sure mounting mechanism on the actuator matches mounting required to stroke the lever. This is a linear actuator and will be damaged if it is stroking a mechanism that is not moving in a straight linear motion. This arcing motion requires the actuator to be mounted with the pivot pin mounting bracket option. Also be sure to minimize side loads to the actuator rod end.

4. Before connecting the linkage, run unit back and forth to make sure that the stroke of the actuator matches that of the lever to be moved. If the stroke of the actuator needs to be adjusted, proceed as follows:
 - a. Run unit back and forth and note how the adjustment pins contact the limit switches to set the stroke length.

NOTE

Before attempting any adjustment of the limit switches, turn the power off to prevent any accidental short circuits or injury.

- b. Determine which limit switches must be adjusted. Loosen the set screws, with the Allen wrench supplied, and slide the pins in or out to adjust the stroke as needed. Do not over tighten set screws.

CAUTION

Do not attempt to adjust the stroke by bending the contacts on the limit switches. This is the most frequent mistake which causes failure of the limit switches and inevitable failure of the entire unit.

5. With the proper stroke set, connect linkage to lever and run unit back and forth to make sure that the actuator runs freely without any binding.

NOTE

Be sure that the actuator contacts the limit switch before reaching the end of its mechanical stroke. Failure to do so could result in damage to the actuator.

6. Replace actuator cover.
7. Ready to begin operation.



720 SERIES ACTUATOR – TERMINAL BLOCK

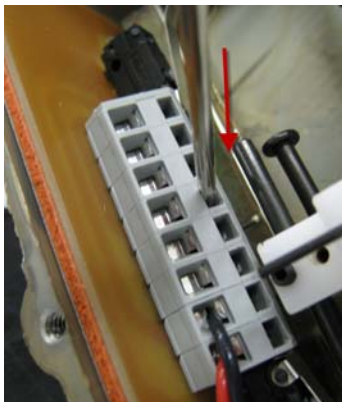
Here is the terminal block:



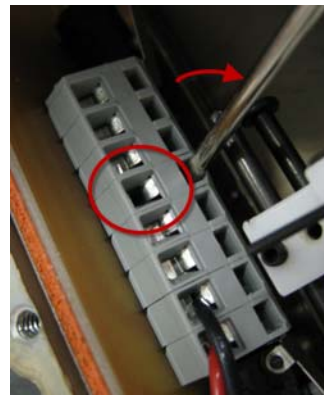
1. Take a small flat blade screw driver and insert it into the slot above where you want the wire to go.



2. Press down



3. As you continue to press down, push the screwdriver towards the housing and the terminal block will open.





720 SERIES ACTUATOR – TROUBLESHOOTING GUIDE

In the event of failure or improper operation, please follow the steps outlined below.

System Check

1. Double check all wiring. Make sure you are using the Actus wiring diagram drawing number 999-0172. Proper wiring technique is critical. 90% of all field problems can be traced to a poor connection or improper wiring. Please check the following areas:
 - a. All wires and cables should be tied down and positioned so they can not be accidentally pulled or knocked loose. All wiring subject to high temperature or vibration should be run through a loom to protect it from shorting to the vehicle frames.
 - b. Double check all ground wires as shown on the wiring diagram. All frame grounds should be free of corrosion, paint, and dirt. Wires shown running directly to the negative post of the battery should be attached to a similar good direct ground. Frame grounding is not recommended for these wires. Note that this actuator is grounded with terminal #3. Terminals #4 and #5 provide bidirectional motor control. Improper ground will make the limit switches fail to operate properly.
 - c. This is a negative ground, 12 or 24 VDC system. Be sure correct power is applied and regulated.
 - d. Check system fuse/circuit breaker for proper indication.
 - e. Certain motor speeds require different wiring. Check the truth table on the wiring diagram.
2. Check the actuator mounting position. The actuator should move the device freely without binding. Temporarily disconnect linkage to remove any load from actuator.

Actuator Trouble Shooting

3. Remove the screws holding cover and gasket to actuator housing.
4. Refer to drawing 999-0172 to check wiring
5. Verify the BLUE wire (terminal block position #3) to negative ground potential.
6. Attach the RED wire (terminal block position #4) to negative ground.
7. Attach the BLACK wire (terminal block position #5) to 12 volts. This should cause the actuator to extend until contacting the limit switch.
8. Now reverse the ground and 12 volts on the RED and BLACK wires. This should cause the actuator to retract until contacting the limit switch. If actuator operates as described, proceed with the following potentiometer (pot) check, (where applicable). If the actuator DOES NOT operate, continue with step #12 under **Motor Check**.
9. If the actuator has a 2000 ohm linear pot attached to the P.C. board, this pot provides a position feedback signal. If the pot is defective, the actuator may run to either the fully retracted or extended position limit switch then stop. It is rare that the pot will fail but it can be easily checked with an ohmmeter.
10. Place the probes of the ohmmeter across the ORANGE and BROWN wires. A reading of approximately 2000 ohms should be read.
11. Place the probes of the ohmmeter across the ORANGE and YELLOW wires. Run the actuator back and forth as described earlier. As the actuator moves from one end to the other, the pot value should move between zero and 2000 ohms. If the actuator operates as described, proceed with step #12. If the pot does not operate properly, the P.C. board assembly can be replaced by ordering Actus part number 024-0577.

Motor Check

12. Disconnect the RED and BLACK wires from the terminal block positions #1 and #2 INSIDE the actuator. The motor can now be run directly by applying 12 volts and ground to those wires.

CAUTION

In this configuration, the actuator limit switches are by-passed. Be sure that the actuator is always connected to run toward the furthest limit and power is applied only momentarily.

13. To extend the actuator, place 12 volts on the RED wire, ground on the BLACK wire.
14. To retract the actuator, place 12 volts on the BLACK wire, ground on the RED wire.
15. If the actuator operates as described, the problem points to the limit switches. The switches can only be replaced by ordering a complete P.C. board. Actus part number 024-0576 (024-0577 – P.C. board with feedback pot). If the motor will not operate, it must be replaced.

720 Actuator Wiring Diagram

CAUTION: SET SCREW THREADS CAN BE STRIPPED IF OVER TIGHTENED. MAX TORQUE 4.5 IN-LBS

USE ALLEN WRENCH TO ADJUST SWITCH PINS IN OR OUT FOR SETTING ACTUATOR STROKE.

