

TROUBLESHOOTING GUIDE

The Zip Dee

Evolution **Series**

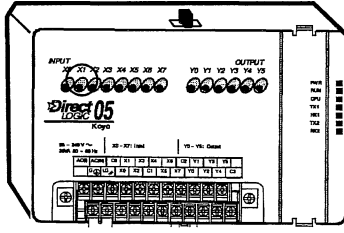
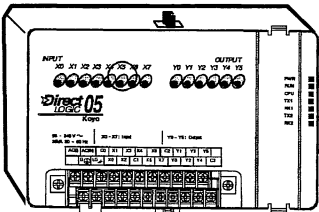
AutoAwn - Automatic Patio Awning

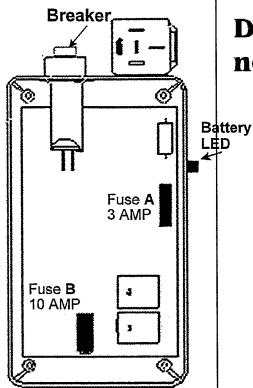
**24 VOLT D.C. System
gas spring system**

AUTOAWN REPLACEMENT PARTS (AutoAwn with Gas Rafter)

PART NO.	DESCRIPTION
215310	HEAD CASTING, AUTOAWN, (FRONT OR REAR)
26001F-XXX	MAIN ARM ASSEMBLY, AutoAwn, w/ Bar, FRONT (-Vehicle code)
26001R-XXX	MAIN ARM ASSEMBLY, AutoAwn, w/Bar, REAR (-Vehicle code)
262100	AUTO GAS RAFTER Assembly
261911	MAIN ARM HINGE ASSEMBLY, w/pin, AutoAwn
263910	RAFTER ARM MOUNTING BASE Assy. w/ set screw & stop pin
263911	RAFTER ARM MOUNTING BASE Assy XL2 w/ set screw & stop pin
201420	MOTOR ASSEMBLY, 24 VDC, W/PLUG IN
269194	CONTROL BOX ASSEMBLY WITH REMOTE
318062	TRANSMITTER ONLY
299620	AUTOAWN TOOL KIT W/ wind & adj. tool, & knob
269091	COMPRESSOR & TANK
318091	ANEMOMETER

Troubleshooting

Symptom	Cause	Solution	
Awning doesn't open.	Transmitter is too far from receiver.	Move to within 4-6 feet of control box. If no response, see "battery weak" below.	
	Power to box is off.	Open Control Box and find "PLC" slide switch. Move to <i>ON</i> position.	
	Power fuse is blown	Unscrew cover of Charger Box (4 Phillips screws in corners) and lift off. Find Fuse A. Pull out and, if center metal strip is blackened, replace with 3 amp automotive fuse.	
	Transmitter battery is weak or dead.	To test battery, open control box door. Look at LED X0 on the controller. Press the OPEN button on the transmitter. If LED X0 does not light, open battery cover on transmitter and replace 9V battery. If transmitter is broken or lost, use "open" slide switch in box (see Exhibit A) to operate awning. Note: there is no emergency stop provision when using box controls!	
	Air pressure is low	Check that LED light X5 on the controller is on. If the X5 light is off, then the incoming air pressure is insufficient (less than 80 psi) to run the awning. Check compressor for proper operation. If you suspect leaks or breaks in the air system, contact Dealer or Zip Dee.	
Power from Coach is low.	Check your vehicle battery level. Voltage should be a minimum of 11 VDC to power PLC and charge awning batteries.		



DC motor does not run.

Operate motor direct with Slide Switch in Control Box (see "Motor Adjustments", Appendix A). If motor does not respond:

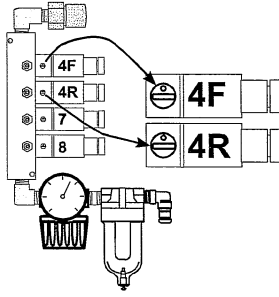
- a) reset the breaker on the Control Box or
 - b) [2002 or later models] Check and replace Fuse B (Automotive 10 amp)
- Note: Fuse B reacts to short in wire to motor. Check connections and splices in this wire.**

Troubleshooting

Symptom	Cause	Solution
Awning doesn't open (continued)	Ignition is on.	Turn off vehicle ignition. As safety, a relay on the charger box cuts off power to the awning when the ignition is on. The LED light X6 on the PLC (controller) should be on (see above). If the X6 light is off, the PLC is getting a signal that the ignition is on.
Awning does not open or runs slowly	One or both awning batteries (inside the control box) are drained or dead.	To check voltage with meter, open Control Box and pull off the 2 wires from Charger box to "+" and "-" terminals on batteries (one on each battery). Read voltage between these terminals. If below 24 volts, allow batteries to charge for 8 hours. If still low, replace batteries. 2003 or later models: LED on side of charger box (see above) is normally off. If red light comes on, even briefly, batteries are low. If light stays lit, one or both batteries are dead and must be replaced.
Awning opens, but fabric does not completely unroll.	Program out of sequence	Use the "MTR" slide switch in the control box to open the awning completely. (See Appendix A) Then push the "Close" button on either the remote control or Slide switch in Box.
	Limit switch needs to be adjusted.	Check status of the motor batteries as described above. If motor does not respond, limit switch on the motor needs adjustment. (see Motor Adjustments, Appendix A). If adjusting limit switch is ineffective, call Zip Dee, Inc.
Awning doesn't close.	See "Awning doesn't open"	If "awning doesn't open" procedures cannot locate the problem, follow the "Emergency Closing Procedure, Appendix A.

Awning closes, but fabric does not completely roll up.	See "Awning opens, but fabric does not completely unroll"	Perform procedures in "Awning opens, but fabric does not completely unroll" above, but in reverse order: first try the CLOSE button, then OPEN, to see if power is flowing to motor.
Main arm(s) do not extend.	If <u>both</u> arms, air pressure is low.	See "Awning doesn't open: Air pressure is low" (page 3).
	If only <u>one</u> arm, bar portion of main arm may be bent or damaged.	Push upward on Roller to pull bar out of tube. Lift until lock pin engages to lock arm out. If arm will not extend or grinding is heard, bar is probably bent and needs replacement.

Troubleshooting

Symptom	Cause	Solution
Main arm(s) do not extend. (continued)	Air line to that arm is blocked or kinked.	<p>Unroll awning if it is not already open. Find air valve for unextended arm: 4F (front arm) or 4R (rear arm) mounted on the right side of the control box. With a small screwdriver turn the red screw (shown at right) on the appropriate valve 1/4 turn clockwise, which opens air valve to that arm. If the arm still does not move, the main arm bar may be bent or damaged. Call Zip Dee.</p>  <p>Warning: activate valve override screws ONLY when directed by this manual and always return screws to their original position!</p>
Main arm(s) do not stay extended	Low air pressure; arms do not travel far enough to engage arm locks.	See "Awning doesn't open: Air pressure is low" (page 3).
	Water in air line.	Purge water from air tank and air lines.
	Lock pin in main arm lock is not dropping into place.	Call Zip Dee
	Lubricant in arm	Extend arms manually several times to free movement.

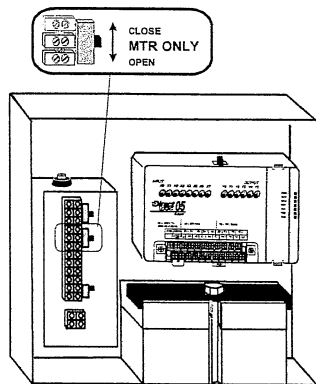
	is low or settled from lack of use.	Then attempt to operate with controls. See Appendix A for lubricating directions.
Main arm(s) do not <u>completely</u> retract.	Bent arms; pinched air line; internal failure	Call Zip Dee. Arm may need to be replaced.
Roller does not rotate: arms continue to open or close.	Breaker in line has opened because of overload: Motor burned out	Open Control box and reset (push down) breaker button on top of Battery Charger Box. If no response, see "Emergency" procedures, Page 7.

Adjustment Procedures

Motor Adjustments

Note: Motor adjustments should not be attempted except as directed in the Troubleshooting Guide or by the factory. The 24V dc motor, installed in the front end of the awning roller tube (i.e., the end nearest the front of the vehicle), provides the power to rotate the roller and wind/unwind the fabric. The motor is assisted by a powerful torsion spring installed in the rear end of the roller tube. **The motor runs** when power is applied to the motor terminals, either through the PLC program or by the motor control switch in the control box. **The motor stops running** when the program cuts power (a timed event) or when the motor reaches a limit switch located inside the motor housing.

Direct Motor Operation



To operate the motor without running the program, open the control box door and locate the MTR slide switch located on the terminal strip (**Fig. A1**). Moving the slide switch to either "OPEN" or "CLOSE" will cause the roller motor to operate in that direction for as long as the switch is held. **Note: the motor will stop moving once it has reached a limit switch stop.** To test the motor, briefly slide the switch toward the command that will move the motor in the opposite direction (eg. "Open" if the awning is currently closed). This will verify that there is sufficient power to operate the motor. Also check the breaker on the Charger Box in the Control Box and reset if needed. (See Exhibit A)

Fig. A1

Limit Switch Adjustment

The limit switches have been set and tested before vehicle delivery and seldom need adjustment. Adjustment needs to be made if the awning does not full open or close, usually due to fabric stretch or shrinkage.

Adjustments are made using the two small sockets in the exposed section of the motor at the right end of the roller tube. (**Fig. A2**) Use the **Motor Limit Adjusting Key** provided or a 5/32" hex wrench in the appropriate socket.

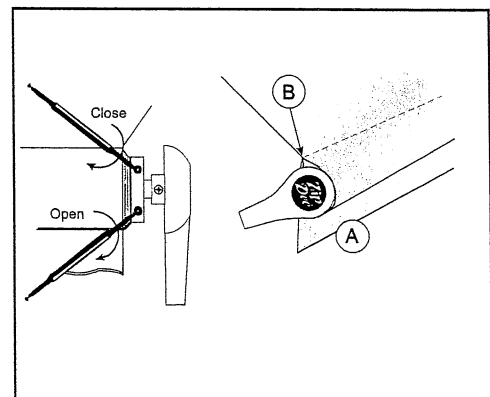


Fig. A2

To open the awning more:

Turn the *lower* socket clockwise. One revolution will cause the awning to open about 1-1/4". Use the manual motor buttons, as described above, to operate the motor--*first* in the *opposite* direction you want to move the roller, then back again, holding the motor button until the limit switch is reached and the motor turns off. Continue adjusting the switch and "jogging" the awning back and forth until the awning is fully unrolled. At the "*Fully Unrolled*" position, the valance (**A**) will be fully extended and hang straight down from the seam of the pocket and an open "V" will be seen behind the roller tube (**B**). (**Fig. A2**)

To close the awning more:

Turn the *upper* socket clockwise and follow the same sequence as above. **Use caution! The roller will stop if *either* the limit switch is reached or there is nothing left to wrap around the roller; in the latter case, the motor will continue to run and should open the circuit breaker in the Control Box (see Exhibit A) or the main power line fuse in the vehicle. .** Make sure the motor has stopped because it has reached the limit switch. You can do this by briefly pushing and releasing the manual CLOSE switch in the control box. If you hear an audible *click* at the motor, the motor is still under power. Turn lower socket counter clockwise until no click is heard. This indicates the limit switch has been properly set. If the motor suddenly will not run in either direction, check all breakers and fuses.

Emergency Closing Procedures

In the unlikely event there is no power available to operate the roller motor, no air pressure to operate the arms, or the roller motor is inoperative, follow these steps to manually close the awning.

1. Unlock and retract the main arms.
 - a) **Make sure no one is under the roller tube as it may fall suddenly.**

- b) Screw the provided manual lock release knob (or any 10/32 large head screw) into the threaded recess in the top of either main arm lock (the small box [on the main arm] that is farthest from the vehicle).
- c) With one hand, grasp the arm tightly just in behind of the head casting. This will prevent the bar from retracting with too much force.
- d) With the other hand, pull the release knob straight up, then allow the arm to retract gently into the tube: Repeat on the other main arm.

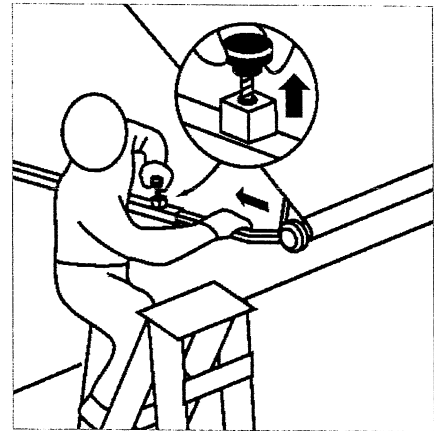


Fig. A3

- e) Unscrew the release knob and store.

2. Roll up the awning.

- a) If batteries (in control box) are charged, use the CLOSE motor control slide switch in the control box (**Fig. A1**) Hold the switch in the "Close" direction until the awning is fully rolled up and the motor stops (by reaching the limit switch).
- b) If batteries in control box are drained, but alternative 24 vdc power (or 2 - 12 volt batteries in series) is available, use the supplied emergency cord to provide power directly to the motor. Unplug the roller motor (at the roller) from the electrical lead that extends out of the top of the main arm and connect the emergency extension cord to lead from roller.
Caution: To avoid possible short circuit, cover exposed prong with tape or pull connectors (coming from terminal strip) off battery terminals. If the motor does not run, reverse the connections at the battery.
- c. If electric power *is not* available, follow these steps:

- 1) Unplug the roller motor (at the roller) from the electrical lead that extends out of the front main arm near the Head casting. (See *Caution, Step 2b*)
- 2) Disconnect rafter arms (**Fig. A4**): Unbolt from head castings using $\frac{1}{2}$ " hex wrench. Release set screw in rafter base on coach ($\frac{3}{32}$ hex key) and slide rafter arms off and store.
- 3) Screw the threaded end of the shaft retention tool (A) (or a $\frac{1}{4}$ -20x2" bolt with a washer under the head) through the hole in the center of the Zip Dee Logo in the front main arm head into the shaft of the motor. (**Fig. A5**) Sung tight with $\frac{1}{2}$ " socket wrench,--don't use excessive force. **Note: the retention tool keeps the head and motor fastened together to step 6.**

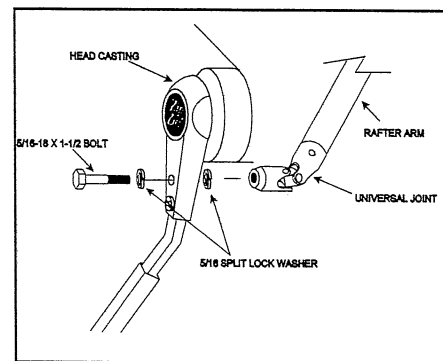


Fig. A4

- 4) Remove the $\frac{10}{32}$ head bolt (B) that passes through the head casting and the motor shaft, along with the self-locking nut. **Note: there is spring tension present--it may be necessary to hold and twist the roller to free the bolt.**
- 5) Twist the roller a few times to roll it up manually (there should be enough spring tension present to make this easy).
- 6) Realign the holes in the motor shaft and the head casting. Reinsert and secure the head bolt. This secures the awning against the coach during travel. Unscrew and remove the shaft retention tool.

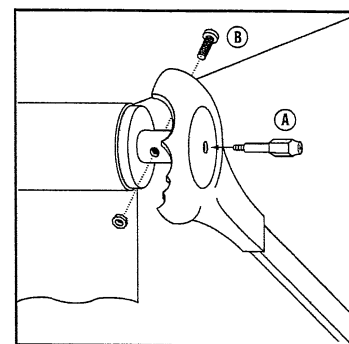


Fig. A5

MAIN ARM LUBRICATION (ONCE PER YEAR)

Mix a slurry of light bearing grease & machine oil ("3in1" type) to a consistency that is just about to run. Total volume of about two teaspoons. Do not use liquid oil or spray silicone. Then place this mixture into a plastic syringe or small squeeze bottle.

Open the awning by using the "mtr. Only" switch (**Fig. A1**) until the awning is at approximately a 45 degree angle from the coach. (**Fig. A6**) Pull outward on the main arms to pull the roller away from the coach until gravity allows the fabric to continue to unroll.

Remove the $\frac{1}{2}$ " hex bolt (Stop Screw) and washer, located about 6" below the lock cylinder (**Fig. A6**) and squirt half the mixture into each arm. Replace the bolt & washer.

Using the "mtr. Only" switch again. Return the awning to the closed position.

Now run the awning thru two or three complete cycles to distribute the lubrication inside of the arm. Note: control is programmed to lock out for 10 minutes between cycles to allow compressor to cool. To by-pass, turn power off and on).

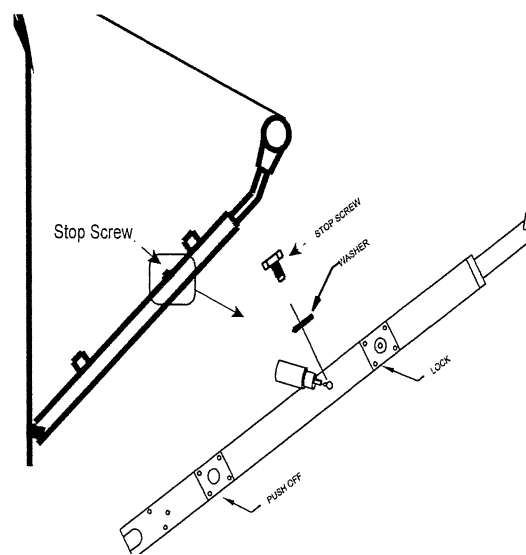


Fig. A6

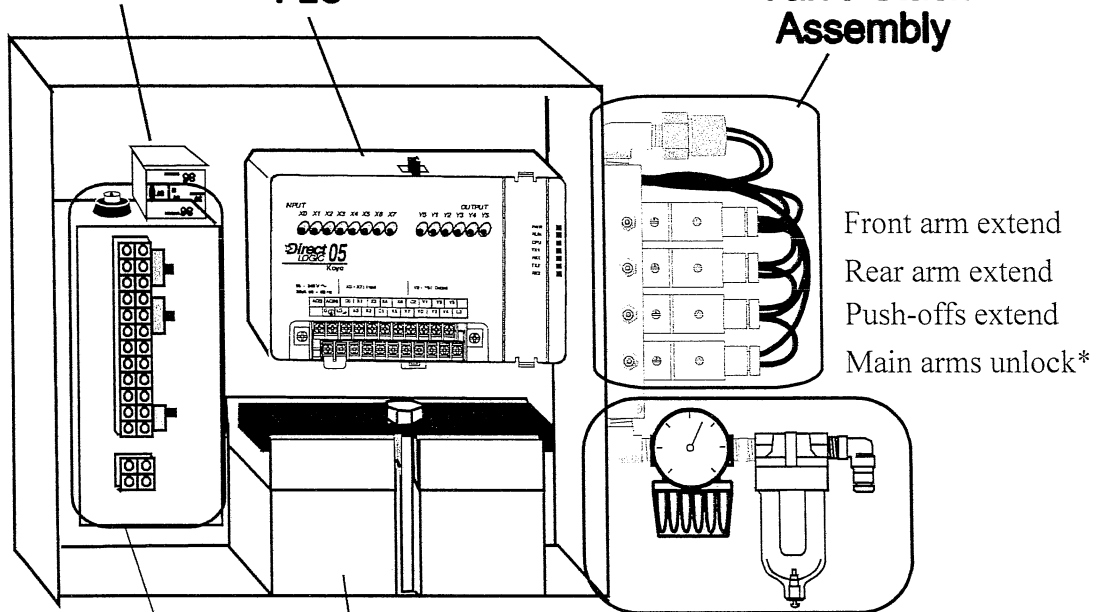
Exhibit A

Control Box Identification

Ignition cut off switch

PLC

Valve Stack Assembly



24 Volt Power Supply (2-12 V Batteries)

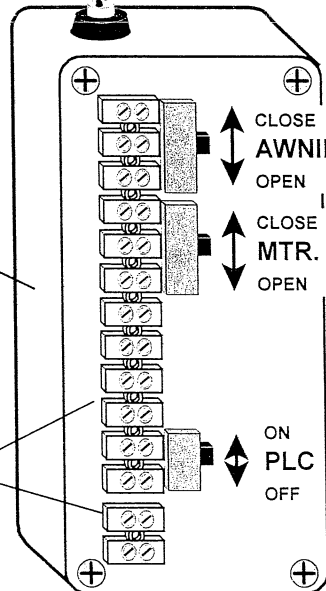
Regulator, Pressure gauge & Filter

*Caution: unlocking main arms while awning is in open position may cause roller to suddenly drop.

5 AMP CIRCUIT BREAKER FOR MOTOR

Battery Charger Box

Terminal Strips



To run awning through automatic cycles

CLOSE AWNING
OPEN

CLOSE MTR. ONLY
OPEN

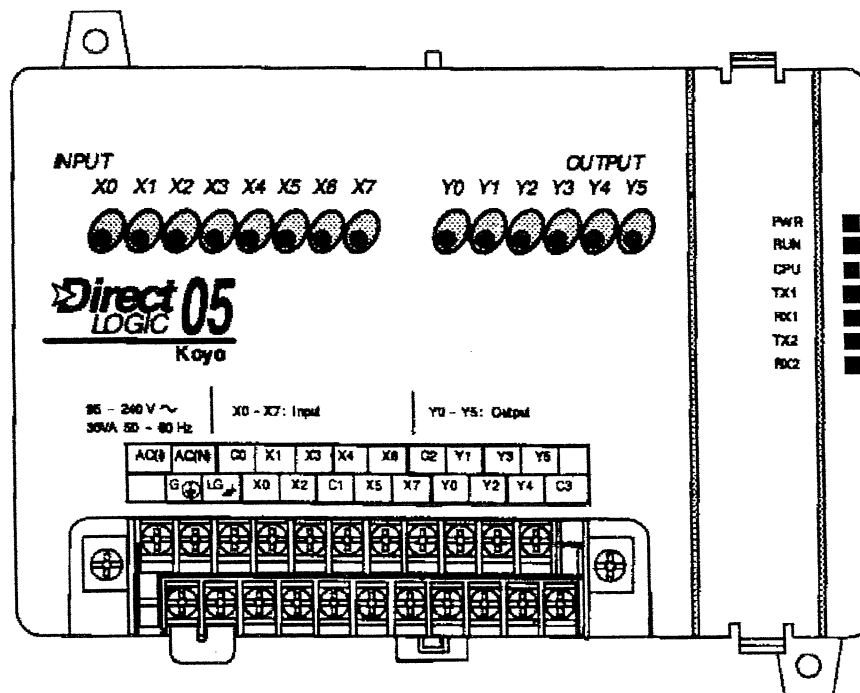
Runs motor: use only as directed for repairs or testing

For extended storage: cuts off power to PLC controller, not charger

ON PLC
OFF

DO - 05 PROCESSOR (PLC) (Gas: December 2000 - Present)

Indicator light identification



INPUTS

- X0 = Momentary lit when "OPEN" signal received from Remote or Control Box.
- X1 = Momentary lit when "CLOSE" signal received from Remote, Control Box.
- X2 = Momentary lit when "CLOSE" signal received from "MTR" slide switch
- X3 = Momentary lit when "OPEN" signal received from "MTR" slide switch
- X4 = Momentary lit when STOP signal received from Remote.
- X5 = Normally lit when AIR PRESSURE is sufficient to run awning (90 psi)
- X6 = Normally Lit when IGNITION is off.
- X7 = Momentary lit when "CLOSE" signal received from Anemometer

OUTPUTS

- Y0 = Lit when power is directed by program to run MOTOR CLOSED
- Y1 = Lit when power is directed by program to run MOTOR OPEN
- Y2 = Lit when air is directed by program to EXTEND MAIN ARMS (valves 4F & 4R)
- Y3 = Lit when air is directed by program to EXTEND PUSH OFF (valve 7)
- Y4 = Lit when air is directed by program to OPEN LOCKS and RETRACT PUSH OFF (valve 8)
- Y5 = UNUSED

PROCESS LIGHTS (Right side of PLC processor)

- PWR - Normally lit when processor has power.
- RUN - Normally lit when processor has power and ready to run program; dark when 12 vdc power is interrupted or program is being downloaded or changed. Flip PLC power switch off-on to re-establish connection.
- CPU - Normally dark; lit only to indicate program problem.
- TX! - Normally dark; lit only to indicate program problem.
- RX1 - Normally dark; lit only to indicate program problem.
- TX2 - Normally dark; lit only to indicate program problem.
- RX2 - Normally dark; lit only to indicate program problem.

SWITCH (shown at right) located on top of processor
For factory use only; Should always be in left (RUN) position.

