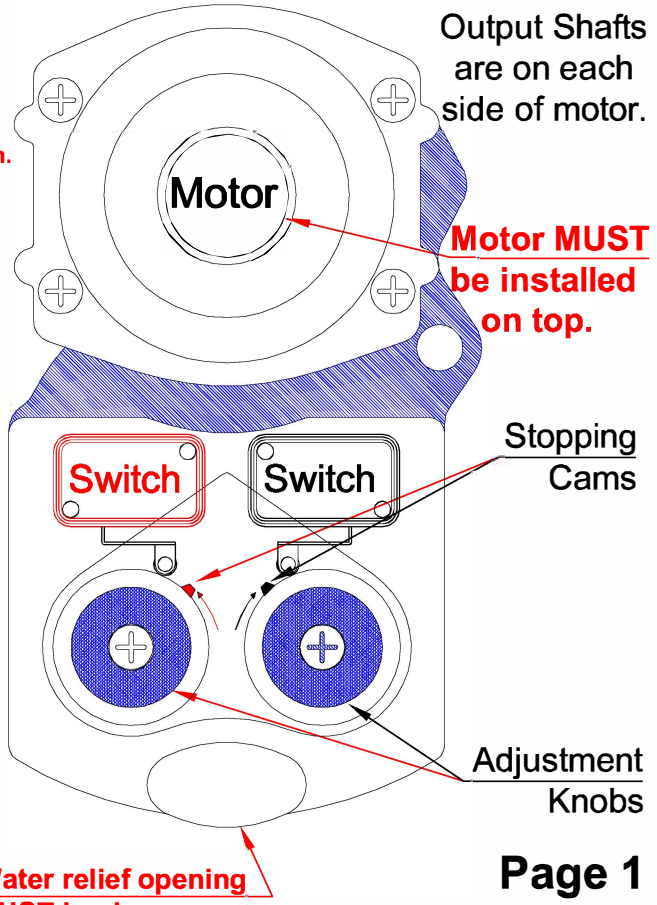
Parts View
LVM100_2D
2 directional output
24 volt motor.

These are 24 Volt DC motors!!
ALWAYS use a proper 24Volt DC Power Source!!

NOTE:
RED Switch controls roll-bar's counter clockwise rotation.
Red Cam stops motor when cam deflects RED switch.

Black Switch controls roll-bar's clockwise rotation and Black Cam stops motor when cam deflects Black switch.

(if a cam was about $\frac{1}{4}$" away from a switch, the motor will run about 40 seconds until the cam meets the switch, and the roll-bar would turn approximately 3 revolutions.)



All low voltage motors REQUIRE a special power supply to change normal 110 volt power to 24 volt power. It must then also be changed from AC power to DC power.
NEVER APPLY 110 VOLT AC or 220 VOLT AC to a low voltage motor.
AC power will immediately destroy the motor, and void any warranty.

We offer **Controllers** that will provide these proper power sources, and at the same time control the movement of the curtain motor in stages, according to temperature. And we offer **Controller Interface Boxes (CIBs)** that will allow your controller to talk to and control the directional Opening/Closing motion of these Low Voltage Motors.
Our Controllers and/or CIB's are also properly fused to protect the motors when they run in either direction.
(Directional change comes from reversing the polarity of the DC power) .

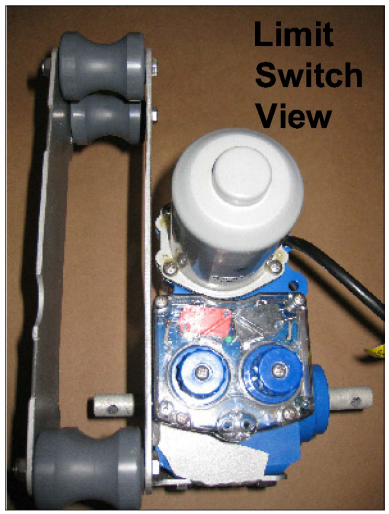
For the installation phase and for testing and setting the adjustments, or during emergency times, the motors can be run with a DC battery of 24 Volts, 18 Volts or 12 Volts. Using less than the 24 volts will result in less power and less than normal speed.
(Remember, it is only for short duration use for emergency and setting limit switches during installation).

Use #14 multi strand 2 conductor wire from your power source to all motors. If the distance is greater than 120 LF, use #12 AWG multi strand wire. (SOJ type wire is good)
(If your local codes requires a ground wire to 24 Volt motors, follow your local codes)

Always be sure the Strain Relief connector is tight to prevent water penetration, and **always provide a downward Drip Loop before the wire enters the Strain Relief, to prevent water from trying to follow the wire down and into the motor.**

Low Voltage Motor package contents

1 each - LVM motor 100NM-2D
2 each - Roll Bar Adapters
1 each - Set of Guidewheels
1 each - Guidepipe Hrdwe Kit
2 each - 5/16" x 1-3/4" SS bolts
2 each - 5/16" SS locknuts
3 each - plastic wireties



The "motor" MUST always be in the "up" position, above the limit switches.

Limit Switch Settings View

Low voltage motors have their direction of rotation changed by reversing the polarity of the motor's two wires. Before permanently attaching the motor to the Roll-bar, you must determine if the motor will rotate in the correct rotation direction to "Open" and to "Close" that particular curtain, according to the Controller or the Controller Inteface Box.

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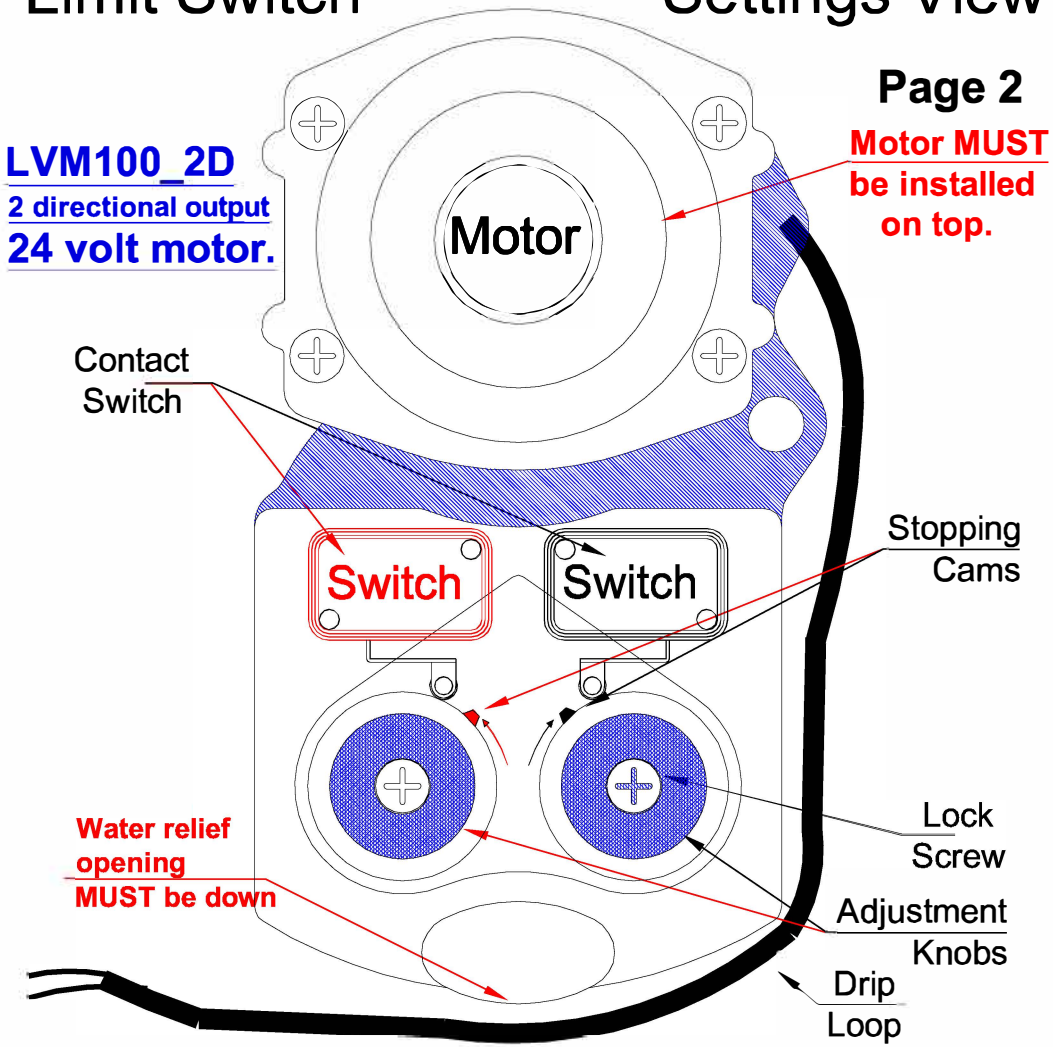

Connect the motor to the motor's proper power supply (CIB or Controller) and trigger the motor to "Open" **momentarily**, to determine if it will rotate in the correct desired rotation direction. If the motor is rotating in the wrong direction to open correctly, change wire connections within the junction box located nearest the motor, and try it again.

Your motor should have been ordered with the correct adapters for the Roll-Bar you are using. The motor's adapters should fit inside your Roll-Bar. If the adapter has one attachment hole in it for one bolt, drill a 5/16"hole thru one side of your Roll-Bar at the correct offset distance from the Roll-Bars end. Align that hole with the hole in the motor's shaft and drill out thru the other side of the Roll-Bar.

LIMIT SWITCH NOTES:
- the **"Cams"** on each Limit Switch wheel. When the motor is turned on, both Cams will rotate around their respective wheels at the same speed. One Cam will move closer to it's switch while the other Cam will move away from it's switch.
- It only takes a small Cam movement to result in a fair amount of Roll-Bar motion. *(The motors are capable of almost 40 revolutions of the roll-bar.)*
- Either or Both Limit Switches can be adjusted. When you rotate an adjustment knob clockwise, it's Cam will rotate counter clockwise, and vice versa.
- Each **"Adjusting Knob"** has a **"Lock Screw"**. Slightly loosen the Lock Screw to turn the Adjustment Knob. *(Leaving some tightness on the screw allows better control on the adjustment knobs.)*

When the motor is used to roll curtains "UP" to Open the Curtain and roll it "DOWN" to Close the curtain, attach the motor to the Roll-Bar, when the Roll-Bar is suspended fully downwards and hanging from it's maximum down position.

1. Move both "Cams" slightly away from their respective switches, (perhaps $\frac{1}{8}$") so the motor can move either direction a small amount, so you can check movement direction and action.

2. When beginning to get familiar with the adjustments, use small adjustments until you become comfortable with the motor's directions, and how far it moves with a certain action. Turn the motor on, to Roll the curtain "UP" (If it's rolling direction is wrong, you may have to switch it's motor wires within the junction box closest to the motor.) It should stop shortly when it's Cam reaches that directional switch

3. Turn the motor to Roll the curtain "DOWN" and watch it reach the "Down" limit switch. **Make careful note of which knob will adjust each direction** If it goes too far, you can lessen a direction by propelling the motor in the opposite direction until it's Cam moves away from it's switch, and then readjust that switch.

4. Now, complete your adjustment of the "UP" direction. With the motor switched to "UP" or "Open" you can rotate the up limit switch a little at a time according to your comfort with the limits, and the motor will automatically restart as you move it's "Cam" away from it's respective switch. **WARNING: Motors are powerful.** Do not run the roll-bar so far that it damages the curtain or top clasp. Also observe the wheelset getting close to the Guidepipe attachment and avoid running the wheel-set too high.

5. Be sure to create a "Drip Loop" in the motor's cord so that water running down the motor's cable will drip off the cord rather than following the cord inside the motor, before it reverses back up. Plastic wire ties are included to assist in controlling the cord during the motor's movement.

6. Be sure to tighten the Lock Screws on each Adjustment Knob when your adjustments are complete.

Note: If your curtain is "LOCKING DOWN with a Roll-Lock when it closes, and must rise up under the Roll-Lock to "Lock Down" you will have to increase the "Down" or "Close" direction to have the motor climb the back side of the Fabric to stop properly at the Roll-Lock. (Also see instructions for the LSARL-LVM that would be included with that occurance.)