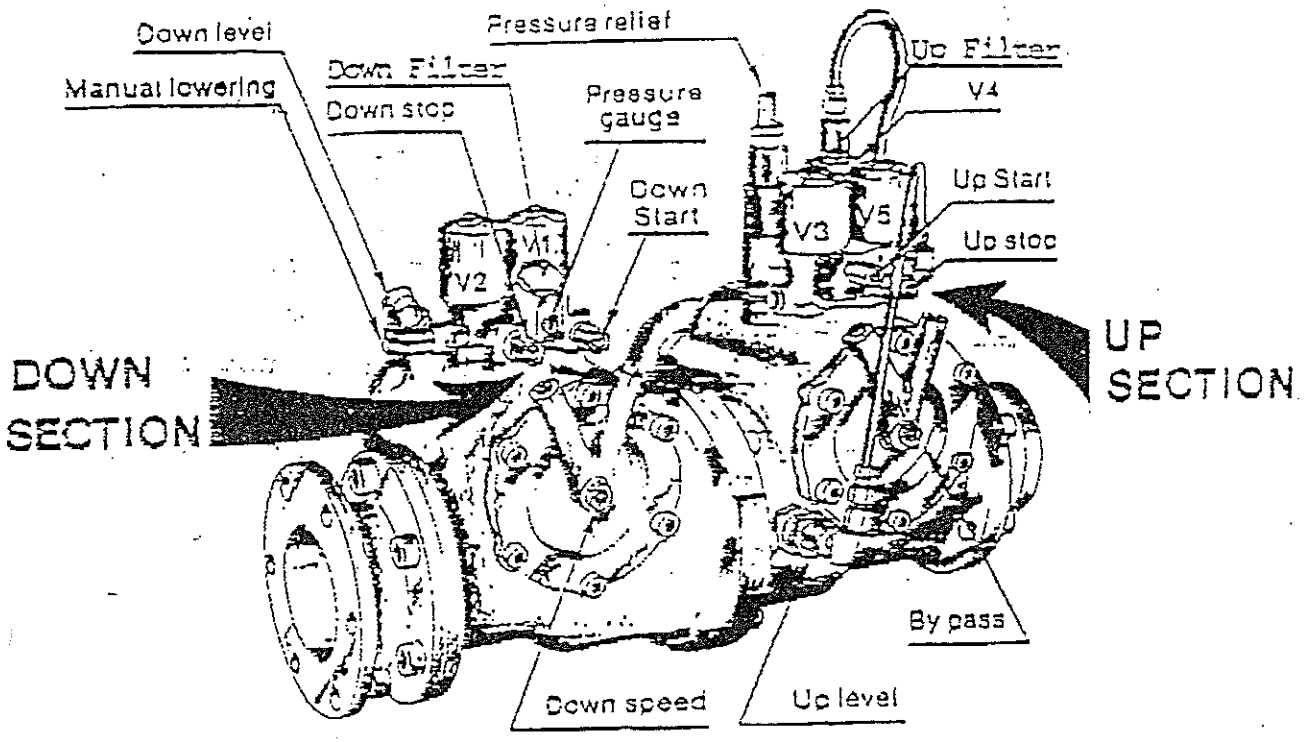
ESCO

E-100

E 100 Valve with U8 and D8 Control Manifolds



UP ELECTRICAL SEQUENCE ● Indicates Coil Energized M Indicates Motor	V3	V4	V5	M
Car stopped				
Up start & up full speed	●	●		●
Up stop car slowing down		●	●	●
Leveling		●	●	●
Car stopped				
Up level (re-leveling)		●	●	●

DOWN ELECTRICAL SEQUENCE ● Indicates Coil Energized	V1	V2
Car stopped		
Start down – full speed down	●	
Pick up stop start slow down		●
Leveling		●
Car Stopped		
Down level relevel		●

Exception: on Wye Delta up start do not energize V3 and V4 until motor is running on Delta.

ESCO ELEVATORS, INC.
P.O. BOX 445 ■ FORT WORTH, TEXAS 76101 ■ 817-478-4251

TROUBLE SHOOTING
E-10 and E-100 VALVES
DOWN OPERATION

CAR WILL NOT START DOWN AT FULL SPEED

Check the following:

1. Mainline valve to the cylinder. Be sure it is open completely.
2. V1 pilot valve. Be sure there is power to the coil and that the coil is not open. Be sure trash is not preventing pilot valve from opening.
3. Down stop adjustment. It may be open too far.
4. Down start adjustment. It may be closed too far.
5. Down full speed adjustment. Be sure it is not closed too far.
6. Piston rings. Be sure they are not broken or worn.

CAR FAILS TO SLOW DOWN IN DOWN DIRECTION CAUSING CAR TO OVER SHOOT FLOOR

Check the following:

1. Filter in down section. Be sure it is clean. (see instructi
2. V1 pilot valve. Be sure there is no voltage on the coil whe the stop is initiated. Be sure trash is not preventing pilo valve from closing.
3. Down stop adjustment. May be closed too far.
4. Down stop cam. May be too close to the floor.
5. Down level adjustment. Must be closed mechanically when car is running down at full speed. Be sure trash not preventing it from closing.
6. If problem noted early in morning when oil is cold, and is okay after car has made a few trips, open down stop adjustment so car will not overshoot with cold oil.
7. Oil. Valves are designed and set for 150 SSU oil at 100°F. Oil at greater viscosity will cause problems.
8. Piston rings. Be sure they are not broken or worn.

CAR MOVING-SLOW UP START AND SLOW UP SPEED (cont'd)

6. V8 pilot valve. Be sure no voltage to coil. Be sure trash not preventing pilot valve from closing.
7. Main line valve to cylinder. Be sure to open completely.
8. Oil level in tank. Be sure oil level is above baffle.
9. If problem is noted early in morning and okay after car has made a few trips, open the up start adjustment so that the car will start and run with cold oil.
10. Oil. Valves are designed and set for 150 SSU oil at 100°F. Oil at greater viscosity will cause problems.
11. Pump. May be worn or damaged.

ROUGH UP START

Check the following:

1. If car fails to slow down and overshoots the floor, the next up start could be rough. Check the valve operation and slow-down distance. Be sure car slows to leveling speed before stopping. (A rough start could also occur following an emergency stop in the up direction).
2. Car leveling too fast will give same results as failing to slow down. Set leveling speed at 10 FPM.
3. Up start adjustment. May be open too far.
4. By-pass adjustment. Be sure it will by-pass with empty car.
5. V4 pilot valve. Be sure no voltage to coil when car stops.
6. Possible mechanical bind -- tight guide shoes, tight packing.
7. Rings on piston. Be sure not broken or worn.

ROUGH UP SLOW-DOWN

Check the following:

1. Up stop adjustment. May be open too far.
2. V4 pilot valve. Be sure voltage to coil until car stops, and that coil is not open. Be sure trash not preventing pilot valve from closing.
3. Possible mechanical bind -- tight guide shoes, tight packing.

NO UP LEVEL

Check the following:

1. Check and adjust up level flow devices.
2. V3 pilot valve. Be sure voltage to coil and coil is not open. Be sure trash not preventing pilot valve from opening.
3. Pressure relief adjustment. May be set too low or may be overload on car.
4. Belt tension.*
5. V4 pilot valve. Be sure no voltage to coil. Be sure trash not preventing pilot valve from closing.
6. Oil level in tank. Be sure oil level is above baffle.
7. If problem noted early in morning and okay after car has made a few trips, open up start adjustment so car will start and run with cold oil.
8. Oil. Valves are designed and set for 150 SSU oil at 100°F. Oil at greater viscosity will cause problems.
9. Pump. May be worn or damaged.
10. Check-valve spring. If broken or weak, it will not maintain pressure on check-valve piston. Replace if necessary.
11. Up stop needle. May be open too wide.

ROUGH UP STOP

Check to following:

1. Up leveling speed. May be closed too much.
2. Possible mechanical bind -- tight guide shoes, tight packing.

CAR OVERSHOOTING FLOOR UP

Check the following:

1. Up stop adjustment. May be closed too much.
2. Up flow control device. Must be closed mechanically when car is running full speed. Be sure trash is not preventing it from closing.
3. V3 pilot valve. Be sure no voltage on coil when up stop is initiated. Be sure trash not preventing pilot valve from closing.

*NOTE: NOT APPLICABLE TO SUBMERSIBLE UNITS.

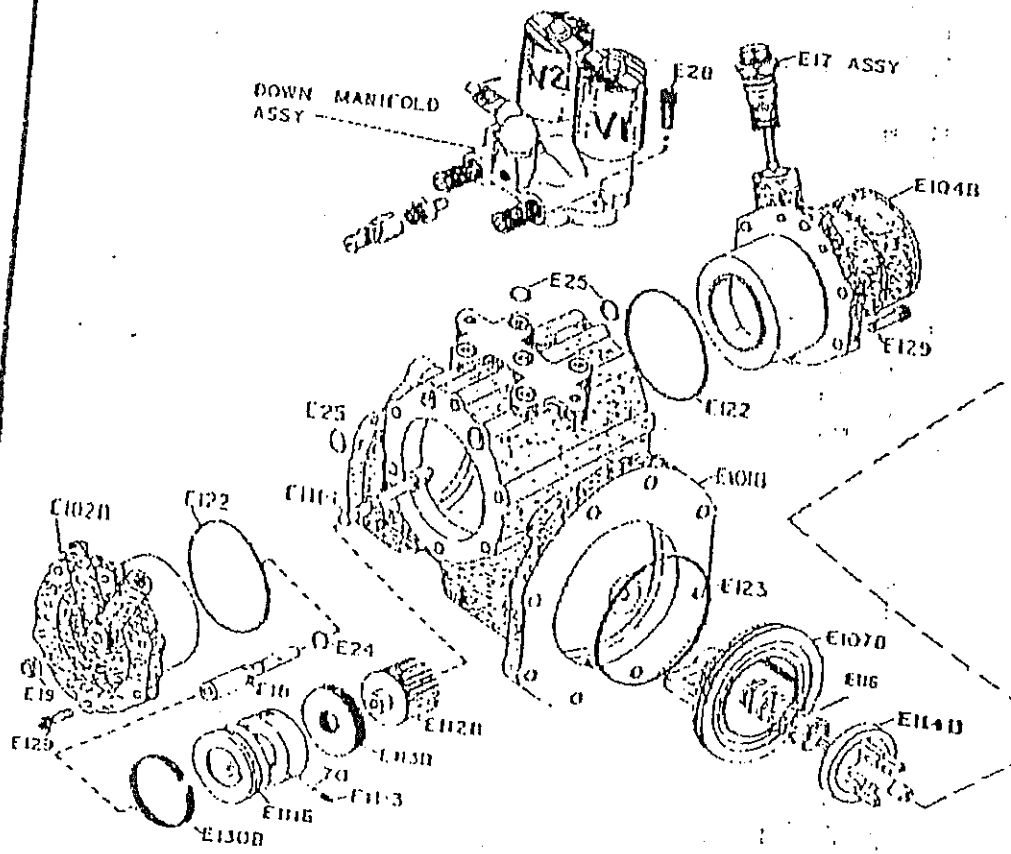
TROUBLESHOOTING FLOOR UP (cont'd)

4. Stop cam. May be too close to floor.
5. Leveling speed. Set at 10 FPM.
6. Piston in valve. Be sure piston not binding in closed position.
7. Piston rings. May be broken or worn. Replace if necessary.
8. V5 pilot valve. Be sure voltage to coil and coil is not open. Be sure trash not preventing pilot valve from opening.

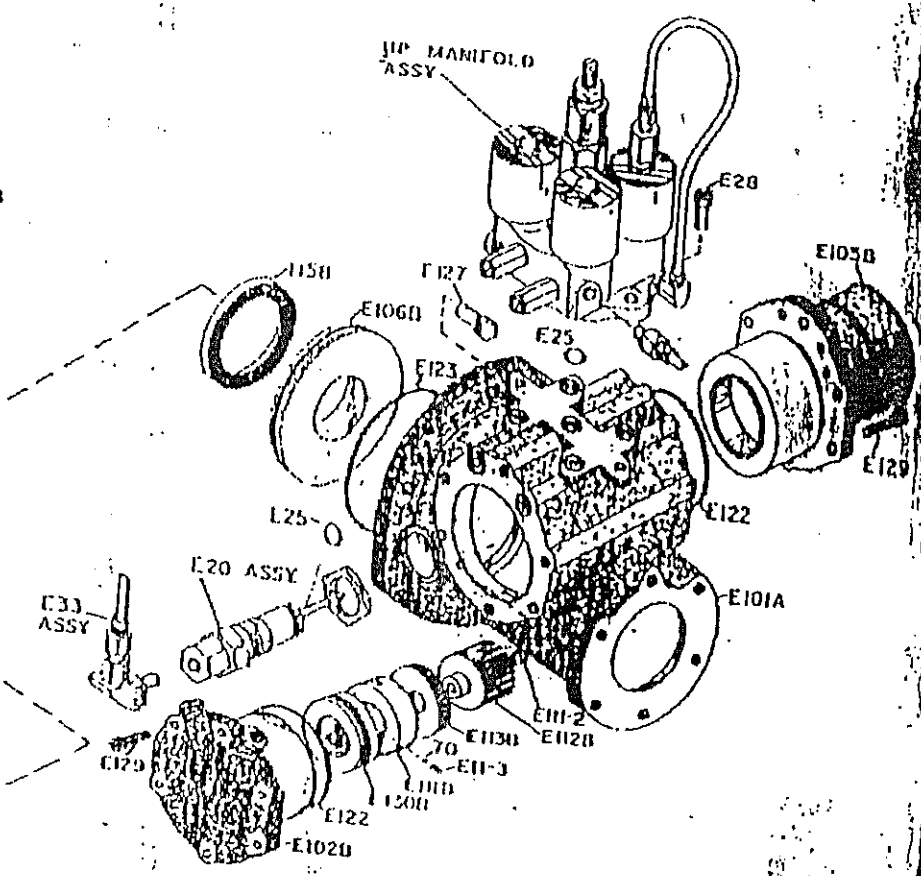
All valves are factory adjusted based on the anticipated system pressure of the job with the empty car at the lowest level. Only minor field adjustment should be required.

If problems arise which are not covered by detailed instructions pressure readings should be correctly taken, as well as "UP" and "" running pressures, empty car. Give these pressure readings to our Engineering Department when contacting us for assistance.

E-100D Valve Assembly



E-100U Valve Assembly



33424 Revised 3-16-81
KEVIN

E 100 VALVE
Parts and Assembly Data

ESCO

TROUBLE SHOOTING

E-10 and E-100 VALVES
U8 and D8 MANIFOLD

UP OPERATION

PUMP RUNS - CAR DOES NOT MOVE

Check the following:

1. Main line valve to cylinder. Be sure it is open.
2. Tank pump suction shut-off.* Be sure it is open.
3. Oil level in tank. Be sure oil level is above baffle.
4. Direction of motor toration. Rotation direction arrow is found on pump.
5. Filter in up section. Be sure it is clean. (see instructions)
6. V3 pilot valve. Be sure voltage to coil and coil is not open. Be sure trash is not preventing pilot valve from opening.
7. V4 pilot valve. Be sure voltage to coil and coil not open. Be sure trash not preventing pilot valve from closing.
8. Pressure relief. Adjustment may be set too low, or there may be overload on car.
9. Up start adjustment. May be closed too far.
10. If Wye-Delta start, be sure DE contractor picked up and AUX contact made which completes circuit to V3 and V4 pilot valves.
11. V5 pilot valve. Be sure no voltage to coil. Be sure trash not preventing pilot valve from closing.

CAR MOVING - SLOW UP START AND SLOW UP SPEED

Check the following:

1. Filter in up section. Be sure it is clean. (see instructions)
2. Up start adjustment. May be closed too far.
3. Pressure relief adjustment. May be set too low or there may be overload on car.
4. Belt tension.*
5. V4 pilot valve. Be sure voltage to coil and coil is not open. Be sure trash not preventing pilot valve from closing.

*NOTE: NOT APPLICABLE TO SUBMERSIBLE UNITS.

R LEAKS DOWN AFTER STOP

Check the following:

1. Manual lowering valve. Be sure it is closed.
2. Valve seal disc. Be sure it is not worn or piece of trash embedded in it, preventing it from sealing.
3. V1 and V2 pilot valves. Be sure pistons are sealing.
4. Check-valve seal. Be sure trash is not preventing piston from sealing.
5. "O" ring on manual lowering insert. Replace if defective.

OTHER CONDITIONS THAT COULD ALLOW A CAR TO LEAK DOWN

Check the following:

1. Jack packing. Check for excessive amount of oil in pit.
2. Hole in cylinder. Close off valve between the jack and the pump unit. If there is a hole on the cylinder, the car will still leak down.

(WITH CONDITIONS 1 AND 2 ABOVE, THERE IS LOSS OF OIL IN THE TANK)

3. Air in the system. When an elevator is first started excessive air may become trapped in the system and, as the air leaks out, the elevator will move down.

All valves are factory adjusted based on the anticipated system pressure of the job with the empty car at the lowest level. Only minor field adjustment should be required.

If problems arise which are not covered by detailed instructions pressure readings should be correctly taken, as well as "UP" and "DOWN" runnings pressures, empty car. Give these pressure readings to our Engineering Department when contacting us for assistance.

TROUBLE SHOOTING
E-10 and E-100 VALVES
DOWN OPERATION

CAR WILL NOT START DOWN AT FULL SPEED

Check the following:

1. Mainline valve to the cylinder. Be sure it is open completely.
2. V1 pilot vlave. Be sure there is power to the coil and that the coil is not open. Be sure trash is not preventing pilot valve from opening.
3. Down stop adjustment. It may be open too far.
4. Down start adjustment. It may be closed too far.
5. Down full speed adjustment. Be sure it is not closed too far.
6. Piston rings. Be sure they are not broken or worn.

CAR FAILS TO SLOW DOWN IN DOWN DIRECTION CAUSING CAR TO OVER SHOOT FLOOR

Check the following:

1. Filter in down section. Be sure it is clean. (see instructi
2. V1 pilot valve. Be sure there is no voltage on the coil whe the stop is initiated. Be sure trash is not preventing pilo valve from closing.
3. Down stop adjustment. May be closed too far.
4. Down stop cam. May be too close to the floor.
5. Down level adjustment. Must be closed mechanically when car is running down at full speed. Be sure trash not preventing it from closing.
6. If problem noted early in morning when oil is cold, and is okay after car has made a few trips, open down stop adjustment so car will not overshoot with cold oil.
7. Oil. Valves are designed and set for 150 SSU oil at 100°F. Oil at greater viscosity will cause problems.
8. Piston rings. Be sure they are not broken or worn.

D3 MANIFOLD DOWN ADJUSTMENT WITH NO LOAD ON CAR

1. Set strikers on tapes according to slow down chart.

2. Close Down Stop and Down Start needles →, then open 8 turns ←.

3. Register a down call.

4. Close Down Stop until car runs down →. Note start may be rough. Do not worry about that at this time.

5. Down Speed has been set in factory. Turn Down Speed in → to decrease speed, turn out ← to increase speed.

6. Close Down Stop until a smooth transition is achieved from slow to leveling →. Note start may be rough.

7. Set leveling speed for approximately 10 F.P.M. Turn in on Down Level for a faster leveling speed →. Turn out on Down Level for a slower leveling speed ←.

8. Close Down Start until smooth start is achieved.

9. If necessary move slow down strikers to achieve 3 inches of steady leveling.

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E-10 and E-100 VALVES
DOWN OPERATION

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7. Oil. Valves are designed and set for 150 SSU oil at 100°F. Oil at greater viscosity will cause problems.
8. Piston rings. Be sure they are not broken or worn.

MANIFOLD ADJUSTMENTS

U8 MANIFOLD UP ADJUSTMENT WITH NO LOAD ON CAR

1. Set strikers on tapes according to slow down chart.

2. Close Up Start and Up Stop needles ↷.

3. Open Up Stop needle 8 turns ↶.

4. Open Up Pass stud ↶.

5. Disconnect V3 and V4 coils by removing wires marked 2 and 8.

6. Register an up call. With motor running close By Pass until car moves →. When car begins to move open By Pass until car stalls ↶. Then open ½ turn extra ↶.

7. Reconnect V3 and V4 coil wires to terminals 2 and 8.

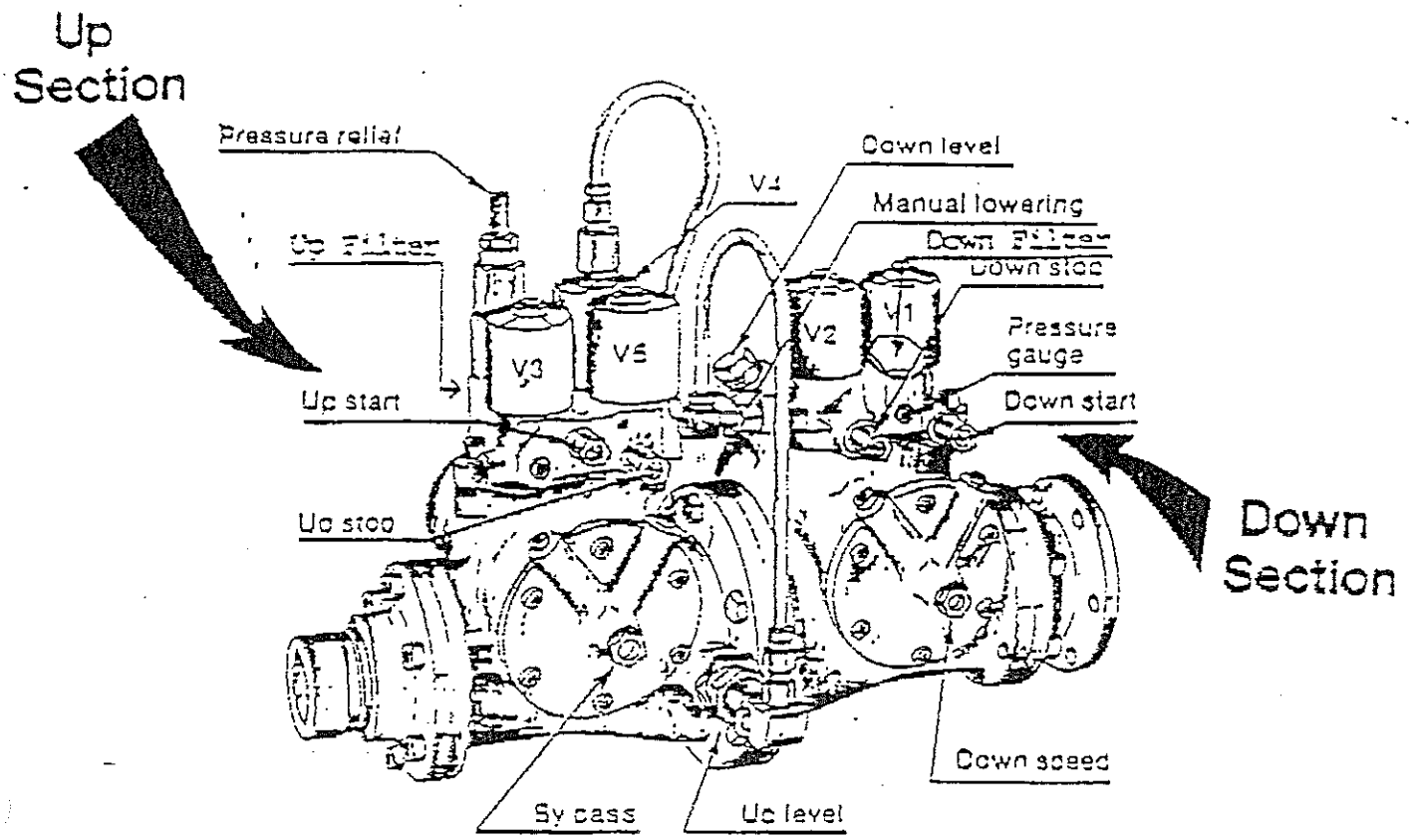
8. Register an up call. Open Up Start needle until car accelerates smoothly ↶. Close Up Stop until a smooth transition is achieved from slow down to leveling ↷. (Note Up Stop will affect up level speed).

9. Set leveling speed for approximately 6 to 8 F.P.M. Turn in on Up Level for a faster leveling speed ↷. Turn out for a slower leveling speed ↶.

10. If necessary move slow down strikers to achieve 3 inches of steady leveling.

11. Set pressure relief as outlined. See index.

E 10 Valve with U8 and D8 Control Manifolds



UP ELECTRICAL SEQUENCE ● Indicates Coil Energized M Indicates Motor	V3	V4	V5	M	DOWN ELECTRICAL SEQUENCE ● Indicates Coil Energized	V1	V2
Car stopped					Car stopped		
Up start & up full speed	●	●		●	Start down – full speed down	●	
Up stop car slowing down		●	●	●	Pick up stop start slow down		●
Leveling		●	●	●	Leveling		●
Car stopped					Car Stopped		
Up level (re-leveling)		●	●	●	Down level relevel		●

Exception, on Wye Delta up start do not energize V3 and V4 until motor is running on Delta.

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