SEQUENCE TABLE

OPERATION	LS	M.1	M.2	R.1	F.1	F.2	F.3	F.4	B.1	B.2	ACC. POS'N.
POWER	×	×		×							1-74
	×	×	×	×							75-79
	×	×	×	×		×					80-84
	×	×	×	×	×	×					85-89
	×	×	×	×	×	×	×				90-94
	×	×	×	×	×	×	×	×			95-99
COAST					×	×	×		×	×	99-90
					×	×			×	×	89-85
						×			×	×	84-1
BRAKE					×		×		×	×	99-90
					×				×	×	89-85
									×	×	84-1

REF. DWG. A.5008

P.B. AUGUST 1967

Preparations

(1) Remove the cover from the Motor Cut-Out switch box and move switch to "All Out" position.

(2) Lock the foot interlock pedal in its running position - to do this place the switch iron loop end over the foot interlock pedal with the shank hooked by the chain located under the operator's arm rest, or place switch iron between grab rail and gang switch to hold foot interlock down. This will in turn release the brake pedal to its "OFF" position.

(3) Move the Reverser handle to the forward position.

(4) Connect the master voltmeter across the GA and GAA terminals of the voltage regulator panel.

(5) Place the trolley pole on the trolley wire.

(6) Move the M.G. switch and the front door switch to their "ON" positions.

(7) Close the battery knife switch and after the motor generator set has started open the battery knife switch.

(8) Close the front doors from outside the car by moving the switch located under the right hand advertising hood to the door closed position.

(9) By means of the knurled calibration screw on the voltage regulator panel reduce the generator voltage to 24 volts. The voltage may also be reduced by connecting the resistor. 75 ohm 10 watt supplied for this purpose across the terminals of the 78 ohm resistor on the voltage regulator panel.

(10) Place a small piece of paper between the moving carbon and back silver contact of the limit relay.

(11) By means of the proper controller operating wrenches operate the master controller as follows.

(12) Refer to the sequence procedure for the type of cars being tested.

SEQUENCE TESTS OF CONTROL EQUIPMENT

SEQUENCE PROCEDURE — Cars 4000-4139

(1) Operate the Master controller to the "ON" position.
F3 and F4 contactors pick up.
F2, B1 and B2 contactors drop out.
Line Switch, M1 and R1 contactors pick up.

Operate controller slowly several times to make sure the above contactors drop out and pick up as outlined above.

(2) Operate Master Controller to "ON" position and hold it in this position. Rotate the pilot motor shaft by hand to move the Accelerator from position 1 to position 99 and observe that the contactors operate as follows:

Position 4 F3 contactor drops out.
Position 6 F4 contactor drops out.
Position 72 M2 contactor picks up.
Position 74 F1 contactor picks up.
Position 75 F2 contactor picks up.
Position 77 F3 contactor picks up.
Position 78 F4 contactor picks up.

(3) Release the Master Controller to the "OFF" position.

Line switch M1, M2, R1, F3 and F4 contactors drop out and B1 and B2 contactors pick up, F1 and F2 remain picked up.

Operate the controller several times to make sure the above changes take place and observe each contactor while it is operating to make sure it operates without binding or hesitation and that it seals in properly, and also that the interlocks have the required compression.

(4) With the controller in the "OFF" position rotate the pilot motor shaft to move the Accelerator from position 99 towards position 1.

Position 74 F1 contactor should drop out.

(5) Remove paper from between limit relay contacts - do not withdraw paper with contacts closed. Operate the Master controller several times allowing the Pilot Motor time to run up or down between each operation. Observe that the Accelerator operates freely. Check that the rollers roll over the main fingers smoothly and that they compress the fingers to the bus bar as they pass over the fingers. Check that the interlock fingers lift up on their segments with the proper compression and that they maintain the compression while sliding over the entire segment. Check that 11 finger breaks the pilot motor

SEQUENCE PROCEDURE - (cont'd)

circuit at position 97 and that 12 finger breaks the pilot motor circuit at position 4. Check that the lock out fingers L9 and B- break contact with their segment before the 12 finger breaks the pilot motor circuit. Check the pilot motor shaft for excessive wobble and looseness.

(6) By means of the Knurled Calibration screw on the voltage regulator panel raise the Generator voltage to 36 volts. Make sure the knifed edge of the Calibration screw fits into the slot in the bracket. If a resistor was used to lower the voltage, remove the resistor.

(7) With the Master controller in the "OFF" position press the limit relay armature so that the moving carbon contact touches the front or "18" silver contact. Observe that the Accelerator moves from position 1 to position 99.

(8) With the Master Controller in the "ON" position and the Accelerator at position 99 press the Limit Relay armatures as in 7 above and observe that the Accelerator moves from position 99 to position 1.

(9) Operate the Master Controller and check the speed at which the Pilot Motor drives the Accelerator.
At 36 volts the Accelerator should move from -

Position 1 to position 97 in 3 seconds.
Position 99 to position 4 in 3 seconds.

(10) Connect a 32 volt non-short circuiting lamp across the limit relay contact #15 to B- and check the "OFF" tension of the relay.

Tension for cars 4000-4139, 5 ounces.

(11) One man to go up into the car open the front doors from the outside front door switch and operate the brake pedal as follows:

Depress the brake pedal slowly from the "OFF" position to Emergency Latch position.

The man under the car to observe the following:

(a) Track brake commutator and brushes for proper commutation. Excessive burning usually indicates open circuits in the wiring or sticky brushes.

(b) All four track shoes must pull down to the rails.

When the brake pedal is in the Emergency position, the gong must ring and the sanders must operate. The man operating the brake pedal to check as follows:

SEQUENCE PROCEDURE - (cont'd)

(a) That the brake pedals latches and unlatches easily in the service latch, second latch and emergency latch positions.

(b) That the brake pedal secondary spring has sufficient tension to indicate full service between position and that the track brake warning light is set to light up when the pedal is depressed past the full service position.

(c) When the brake pedal is in the Emergency position the doors are to be balanced.

(12) Restore the car to the proper Car House parking conditions:

(a) Remove the trolley pole from the trolley wire.

(b) Place brake pedal in service latch position and remove switch iron from foot interlock pedal.

(c) Move reverser handle to extreme forward position.

(d) Move M.G. Switch to the "OFF" position.

(e) Move Motor Cut-Out switch to "All In" position and replace cover.

(f) Disconnect Master Voltmeter.

CARS 4150-4299, 4575-4601

Preparations

(1) Remove the cover from the Motor Cut-Out switch box and move switch to "ALL OUT" position.

(2) Lock the foot interlock pedal in its running position - to do this place switch iron loop end over the foot interlock pedal and the shank supported by the route and destination sign index board to hold it in its running position.

(3) Move the Reverser handle to the forward position.

(4) Connect the master voltmeter across the G.A. and GAA terminals of the voltage regulator panel.

(5) Place the trolley pole on the trolley wire.

(6) Move the M.G. switch and the front door switch to their "ON" positions.

(7) Close the battery knife switch and after the motor generator set has started open the battery knife switch.

(8) Close the front doors from outside the car by moving the switch located under the right hand advertising hood to the door closed position.

(9) By means of the knurled calibration screw on the voltage regulator panel reduce the generator voltage to 24 volts. The voltage may also be reduced by connecting the resistor. 75 ohm 10 watt supplied for this purpose across the terminals of the 78 ohm resistor on the voltage regulator panel.

(10) Place a small piece of paper between the moving carbon and back silver contact of the limit relay.

(11) By means of the proper controller operating wrenches operate the master controller as follows.

(12) Refer to the sequence procedure for the type of cars being tested.

SEQUENCE PROCEDURE CARS 4150-4299: 4575-4601.

(1) Operate the Master Controller to the "ON" position.

F3 and F4 contactors should pick up.
F2, B1 and B2 contactors should drop out.
Line switch, M1 and R1 contactors should pick up.

Operate the controller several times to make sure the above contactors drop out and pick up as outlined above.

(2) Operate Master Controller to "ON" position and hold it in this position. Rotate the pilot motor shaft by hand to move the accelerator from position 1 to position 99 and observe that the contactors operate as follows:

Position 4 F3 contactor drops out.
Position 6 F4 contactor drops out.
Position 75 M2 contactor picks up.
Position 78 F1 contactor picks up.
Position 79 F2 contactor picks up.
Position 81 F3 contactor picks up.
Position 82 F4 contactor picks up.

(3) Release the Master Controller to the "OFF" position.

Line Switch M1, M2, R1, F1, F3 and F4 contactors should drop out and B1 and B2 contactors should pick up and F2 remained picked up.

Operate the controller several times to make sure the above changes take place, and observe each contactor while it is operating to make sure it operates without binding or hesitation and that it seals in properly, and also that the interlocks have the required compression.

(4) With the Master Controller "ON" and the contactors picked up hold the R1 contactor in by hand and release the Master Controller to the "OFF" position. The Line Switch M1, M2, F1, F3 and F4 should remain in as long as the R1 is held in by hand. This ensures that the easy shut-off of the control sequence is correct.

CAUTION

DO NOT TOUCH THE COIL TERMINALS OF THE R1 CONTACTOR AS THEY ARE ENERGIZED BY 600 VOLTS.

(5) With the controller in the "OFF" position rotate the pilot motor shaft to move the accelerator from position 99 towards position 1.

SEQUENCE PROCEDURE - Cont'd.

(6) Remove the piece of paper from the contacts of the Limit Relay and operate the Master Controller several times allowing the Pilot Motor time to run up or down between each operation. Observe that the Accelerator operates freely. Check that the rollers roll over the main accelerator fingers smoothly and that they compress each finger to the bus bar in turn as it passes over them. Check that the interlock cam switch rollers roll on their respective segments and that the cam switches open or close properly. Check that they have the proper compression when closed. Check that 11-13 cam switch breaks the pilot motor circuit as position 97 and that the 12-62 cam switch breaks the pilot motor circuit at position 4. Check the pilot motor shaft for excessive wobble and looseness.

(7) By means of the knurled calibration screw on the voltage regulator panel raise the generator voltage to 36 volts. Make sure the knifed edge of the calibration screw fits into the slot in the bracket. If a resistor was used to lower the voltage remove the resistor.

(8) With the master controller in the "OFF" position press the limit relay armature so that the moving carbon contact touches the front or "18" silver contact. Observe that the accelerator moves from position 1 to position 99.

(9) With the master controller in the "ON" position and the accelerator at position 99 press the Limit Relay Armature as in 8 above and observe that the accelerator moves from position 99 to position 1.

(10) Operate the Master Controller and check the speed at which the Pilot Motor moves the Accelerator.

At 36 volts the Accelerator should move from positions

1 - 97 - 3 seconds.
99 - 30 - 2 seconds.
30 - 4 - 2½ seconds.

(11) Connect a 32 volt non-short circuiting lamp across the limit relay contact #15 and B- and check the "OFF" tension of the relay.

Tension for cars 4150-4299 is 7 ounces.
4574-4601 is 7 ounces.

(12) One man to go up into the car, open the front doors from the outside front door switch and operate the brake pedal as follows:

SEQUENCE PROCEDURE - Cont'd

(12) Continued.

Depress the brake pedal slowly from the "OFF" position to the Emergency Latch position.

The man under the car to observe the following:

(a) Track brake commutator and brushes for proper commutation - Excessive burning usually indicates open circuits in the wiring or sticky brushes.

(b) All four track brake shoes must pull down to the rails.

(c) When the brake pedal is in the Emergency Latch position the gong must ring and the sanders must operate.

The man operating the brake pedal to check as follows:

(d) That the brake pedal latches and unlatches easily in the service latch, second latch and Emergency latch position.

(e) That the brake pedal secondary spring has sufficient tension to indicate full service brake position and that the track brake warning light is set to light up when the pedal is depressed past the full service position.

(f) When the brake pedal is in the Emergency latch position the doors are to be balanced.

(13) Restore the car to the proper Carhouse parking conditions

(a) Remove the trolley pole from the trolley wire.

(b) Place the brake pedal in service latch position and remove the switch iron from the foot-interlock pedal.

(c) Move the reverser handle to the extreme forward position.

(d) Move the M.G. switch to the "OFF" position.

(e) Move the motor cut-out switch to the "ALL IN" position, and replace the cover.

(f) Disconnect the master voltmeter.

Preparations

(1) Remove the cover from the Motor Cut-Out switch box and move switch to "ALL OUT" position.

(2) Lock the foot interlock pedal in its running position - to do this place switch iron loop end over the foot interlock pedal and the shank supported by the route and destination sign index board to hold it in its running position.

(3) Move the Reverser handle to the forward position.

(4) Connect the master voltmeter across the G.A. and GAA terminals of the voltage regulator panel.

(5) Place the trolley pole on the trolley wire.

(6) Move the M.G. switch and the front door switch to their "ON" positions.

(7) Close the battery knife switch and after the motor generator set has started open the battery knife switch.

(8) Close the front doors from outside the car by moving the switch located under the right hand advertising hood to the door closed position.

(9) By means of the knurled calibration screw on the voltage regulator panel reduce the generator voltage to 24 volts. The voltage may also be reduced by connecting the resistor. 75 ohm 10 watt supplied for this purpose across the terminals of the 78 ohm resistor on the voltage regulator panel.

(10) Place a small piece of paper between the moving carbon and back silver contact of the limit relay.

(11) By means of the proper controller operating wrenches operate the master controller as follows.

(12) Refer to the sequence procedure for the type of cars being tested.

GENERAL INFORMATION

CHECKING ACCELERATOR DRUM INTERLOCK FINGERS FOR PROPER SEQUENCE

CARS 4000-4139

Rotate the pilot motor shaft to run the accelerator down to the bottom stops, then rotate the pilot motor shaft slowly from position 1 to position 99 and observe that the interlock fingers have sufficient tension on the segments and that they make a break as follows:

Position 1	Fingers 11, 13, 20, 43 and 44 are in contact with their respective segments.
Position 4	-½+1 Finger 12 makes contact with segment for 11, 12 and 13 fingers.
Position 4	-½+1 Finger 43 breaks contact with segment for 20, 43 and 43 fingers.
Position 5	-½+1 Finger L9 and B- (Lock out coil circuit)make contact with their segment.
CAUTION:	Finger 12 must make contact at least ½ pos. before finger L9-B- and LO. This important as a failure of LR and LO - L9-B- to break contact before 12 finger results in no air brake being applied at the end of the braking cycle.
Position 6	-½+1 Fingers 20 and 44 break contact with their segment.
Position 72	-½+1 Fingers 20 and 21 make contact with their segment.
CAUTION:	Fingers 20 and 21 must make contact at this point otherwise M2 contactor will lag behind in picking up and cause excessive burning of the main bus bar and fingers around the 75th position.
Position 74	-½+1 Fingers 33 and 41 make contact on the segment for 33, 41 and 42 fingers.
Position 75	-½+1 Finger 42 makes contact with segment for 33 41 and 42 fingers.
Position 77	-½+1 Fingers 55 and 43 make contact with the segment for 55, 43 and 44 fingers.
Position 78	-½+1 Fingers 44 makes contact with the segment 55 and 43 and 44 fingers.
Position 97	-½+½ Finger 11 breaks contact with segment for 11, 12 and 13 fingers.

CHECKING ACCELERATOR DRUM CAM SWITCHES FOR PROPER SEQUENCE:

Continued.

Rotate the pilot motor shaft to run the accelerator down to the bottom stop. Then rotate the pilot motor shaft slowly from position 1 to position 99 and observe that the cam switches operate as follows:

Cars 4150 - 4299 & Cars 4575 - 4601

Position 1	Cam switches 11-13, 33-43, 33-44 and 20-33 are closed. All other cam switches are open.
Position 3	-½◇1 Cam switch 12-62 closed.
Position 4	-½◇1 Cam switch 33-43 opens.
Position 5	-½◇1 Cam switch LR, LR2 closes.
CAUTION:	Cam switch 12-62 must close at least one position ahead of LR-LR2.
Position 6	-½◇1 Cam switches 20-33 and 33-44 open.
Position 30	-1◇½ Cam switch 12-13 closes.
Position 32	-½◇1 Cam switch 12-62 opens.
CAUTION:	Cam switches 12-13 and 12-62 must overlap. Both cam switches must be closed for at least one position.
Position 75	-1◇½ Cam switch 20-21 closes.
CAUTION:	Cam switch 20-21 must close at position 75 otherwise M2 contactor will lag in picking up and cause excessive burning of the bus bar fingers at the 78 position.
Position 78	-1◇1 Cam switch 33-41 closes.
Position 79	-1◇1 Cam switch 33-77 closes.
Position 81	-1◇1 Cam switch 33-43 closes.
Position 82	-1◇1 Cam switch 33-44 closes.
Position 97	-1◇½ Cam switch 11-13 opens.

MASTER CONTROLLER SEQUENCE

Checking controllers for proper cam switch sequence.

It is essential for the proper operation of control equipment that the degrees that separate the opening and closing of the cam switches be maintained as described below.

By means of the proper controller wrench advance the controller from the "OFF" position to the "ON" position and check the cam switches as follows:

CARS 4000-4139

Controller OFF	B1 plus	to	7		closes.
	50	to	42		closes.

All other cam switches open.

Controller ON 12°	10	to	20		closes.
Controller ON 14°	50	to	42		opens.
	50	to	10	or E7	closes.
	B1 plus	to	7		opens.
Controller ON 17°	31	to	G		closes.
Controller ON 18°	33	to	55		closes.
Controller ON 24°					

CARS 4150-4199 AND 4575-4601

Controller OFF	B1 plus	to	7		closes.

All other cam switches open.

Controller ON	8°	31		to	G	closes.
Controller ON	10°	55	or 20	to	10	closes.
Controller ON	12°	50		to	35	closes.
Controller ON	14°	B1 plus		to	7	opens.
Controller ON	19°	77		to	42	closes.

CARS 4200-4299

Controller OFF		B1 plus		to	7	closes.

All other cam switches open.

Controller ON	8°	31	or 37	to	G	closes.
Controller ON	10°	55		to	20	closes.
Controller ON	12°	50		to	10	closes.

MASTER CONTROLLER SEQUENCE: Cont'd.

CARS 4200-4299: Cont'd.

Controller ON	14°	B1 plus	to	7	opens
Controller ON	19°	77	to	42	closes

CARS 4300-4399

Controller OFF					
Controller ON	7°	31	to	G	closes
Controller ON	8°	20	to	20A	closes
Controller ON	9°	10	to	20	closes

CARS 4400-4499

Controller OFF		5B	-	5C	closed
Controller ON	10°	B2	-	4	closes
	12°	3	-	3A	closes
	14°	3	-	6C	closes
	32°	5B	-	5D	closes
	40°	5B	-	5C	opens
	52°	5B	-	5E	closes
	60°	5B	-	5D	opens
	72°	5B	-	5G	closes
	80°	5B	-	5E	opens
	100°	5B	-	5G	opens

CARS 4500-4549

Controller OFF					
Controller ON	7°	4	-	G	closes
	8°	3C	-	3G	closes
	9°	3B	-	3C	closes

CARS 4550-4574

Controller OFF					
Controller ON	7°	T3	-	T3A	closes
	8°	5B	-	5E	closes
	9°	5A	-	5B	closes

MASTER CONTROLLER SEQUENCE: Cont'd

CARS 4625-4674

Controller OFF		5E	-	5A	closes
ON	10°	B6	-	4	closes
	14°	6D	-	3	closes
	32°	5E	-	5B	closes
	40°	5E	-	5A	opens
	52°	5E	-	5C	closes
	60°	5E	-	5B	opens
	72°	5E	-	5D	closes
	80°	5E	-	5C	opens
	100°	5E	-	5D	opens

CARS 4675-4699

Controller Off		5B	-	5C	closes
ON	10°	C3	-	3R	closes
	12°	3A	-	3	closes
	14°	3	-	6C	closes
	32°	5B	-	5D	closes
	40°	5B	-	5C	opens
	52°	5B	-	5E	closes
	60°	5B	-	5D	opens
	72°	5B	-	5G	closes
	80°	5B	-	5E	opens
	100°	5B	-	5G	opens

CARS 4700-4747

Controller ON	7°	T4B	-	G	closes
	8°	5B	-	5C	closes
	9°	5A	-	5B	closes

CARS 4750-4779

Controller OFF		3D	-	3E	closed
ON	8°	3D	-	3E	opens
	8°	A4B	-	G	closes
	9°	5A	-	5B	closes

BRAKE CONTROLLERS

Cars 4000-4139

Controller OFF		B1⏚ - 50	closes.
		C8 - C9	closes.
		B4 - B5	closes.
		All other cam switches open.	
ON	8°	B4 - B5	
	10°	B1 ⏚ 7	
		B1 ⏚ 33	closes.
		LO - L9	
	12°	B1 ⏚ 50	opens.
	124°	C8 - C9	
		LO - L9	opens.
	126°	H6 - H5	
		D2 - C9	closes.

Cars 4150-4299

Controller OFF		B1 ⏚ 50	
		61 - 30	closes.
	B4 or	B44 - B5	
ON	10°	B1⏚ - 7	
		B1⏚ - 33	closes.
		B1 - LR1 or LO)	
ON	17°	B1⏚ - 50	opens.
ON	25° B4 or	B44 - B5	opens.
ON	124°	B1 - LR1 or LO	
		71 - 30	opens.
ON	126°	G5 - 17	
		28 - G9	closes.

Cars 4300-4399 Front Cam Switch Board

Controller OFF		45 - B-	
		B1⏚ - 5	closes.
		B7 - 28	
		B5 - B44	
ON	5½°	B1⏚ - 5	
		45 - B-	opens.
ON	6½°	B5 - B44	opens.
ON	11½°	B1⏚ - 53	closes.
ON	123 °	B7 - 28	opens.
ON	128 °	76 - B-	closes.

Rear Cam Switch Board

Controller OFF		8C - C8	
		8C - 8A	closes.
		8C - 8B	
ON	7°	8C - C8	opens.
	36°	8C - 8A	opens.

BRAKE CONTROLLERS (Cont'd)

Controller ON				
	61°	8C	8B	opens
	90°	C9	9F	closes
	94°	9D	9B	closes
	106°	9D	9A	closes
	116°	9D	C9	closes
	128°	B3	41	closes

CARS 4400-4499

Front Cam Switch Board

Controller OFF				
		B2	6A	closed
		B2	5C	closed
		B16	11	closed
ON	7½°	5B	5D	closes
	11°	B2	6A	opens
	14°	B2	5C	opens
	14°	B16	12	closes
	34°	5B	5D	opens
	42°	B16	11	opens
	70°	B16	12	opens
	78°	Parking Latch		
	94°	B2	8	closes
	105°	B2	10	closes
	116°	B2	8	opens

Rear Cam Switch Board

Controller OFF				
		14	14C	closed
	7°	B2	18A	closes
	26°	5B	5E	closes
	46°	5B	5G	closes
	54°	5B	5E	opens
	70°	5B	5G	opens
	78°	Parking Latch		
	116°	B2	15B	closes
	121°	14	14C	opens
	123°	B+	0	closes
	123°	10A	0	closes

CARS 4500-4549

Front Cam Switch Board

Controller OFF				
		4C	B-	closed
		B2	3	closed
		X3A	X3B	closed
		B7	28	closed
ON	5½°	4C	B-	opens
		B2	3	opens
	6½°	X3A	X3B	opens
	11½°	B2	53	closes
	123°	B7	28	opens
	128°	76	B-	closes

BRAKE CONTROLLERS (Cont'd)

Cars 4500-4549 (Cont'd)

Controller OFF

ON 7°
36°
61°
90°
94°
106°
116°
116°
128°

Rear Cam Switch Board

11A	-	11D	closed
11B	-	11D	closed
11C	-	11D	closed
11A	-	11D	opens
11B	-	11D	opens
11C	-	11D	opens
B+	-	8F	closes
8B	-	10A	closes
8A	-	10A	closes
B+	-	10A	closes
B+	-	10A	closes
B1	-	41	closes

Cars 4550-4574

Controller OFF

Front Cam Switch Board

3L	-	B-	closed
B6	-	5	closed
28A	-	B3	closed
6C	-	6B	closed

All other cam switches open

Controller ON $5\frac{1}{2}$°
$5\frac{3}{4}$°
$6\frac{1}{2}$°
$11\frac{1}{2}$°
123°
128°

3L	-	B-)	opens
B6	-	5)	
6B	-	6C	opens
B6	-	53	closes
28A	-	B3	opens
76	-	B-	closes

Controller OFF

Rear Cam Switch Board

B6	-	8	closed
8C	-	8	closed
8B	-	8	closed
B6	-	8	opens
8C	-	8	opens
8B	-	8	opens
B+	-	9F	closes
B+	-	9A	closes
B+	-	9D	closes
B+	-	9C	closes
B+	-	9C	closes
B2	-	41	closes

ON 7°
36°
61°
90°
94°
106°
116°
116°
128°

BRAKE CONTROLLERS (Cont'd.)

Cars 4575-4601

Controller OFF

71	-	30	closed
B4	-	B5	closed
70	-	E5	closed
88	-	5	closed

All other cam switches open

Controller ON	6°	70	- E5	opens
	10°	88	- 7	closes
		21A	- 21	closes
	10°	EM	- LR1	closes
	12°	88	- 5	opens
	25°	B4	- B5	opens
	124°	B1	- LR1	opens
	124°	71	- 30	opens
	126°	65	- 17	closes
		28	- B-	closes