SECTION 7 - FUTURA ADJUSTMENT PROCEDURES WITH DSD 412

SPU Communication Verification

1. Verify all components are connected to the SPU Link.

2. Place the Wizard into Terminal Mode.

3. Turn off the mainline disconnect for 5 seconds then back on.

4. Verify the Wizard Terminal Screen confidence test does not list any errors. Verify the CPU LED is flashing along with the green LEDs on the SMIC boards.

5. At the Wizard Terminal, enter the password "INSTALL".

6. At the Wizard Terminal window, enter the CMC command. (See Car Commands, section 12, for details.)

7. Verify that all the devices are communicating with the SPU.

   Note: *Depending on job configuration, there may be more CAR address location than shown. Check job folder for details.*

8. Access the Wizard Diagnostic screen.

9. Run the car in the Up direction and verify VEL is equal to SP *(if not, change motor RPM in drive).* Also verify both SR and VEL have green arrows. Run the car in the Down Direction and verify speed. Then verify the SR and VEL green arrows change to red.

Hoistway Completion and Verification

Counter-weighting

1. Place a balanced load on the elevator. This is usually 40 to 45% of capacity.

   Note: *Check original layouts for proper percentages.*

2. Run the car on inspection about 20 feet above the counterweight.

3. Set the cars inspection speed to 20 fpm.

4. Set the drive to monitor current (parameter 611).

5. Run the elevator down to 20 feet past the counter-weights and note the current.

6. Run the elevator back up to 20 feet above the counter-weight and not the current.

7. Compare these two readings. They should be within 2 - 3 amps of each other.

8. If they are not, then weight will have to be added to or removed from the balanced load until proper current readings are established.

9. If weights are added to the balanced load, then the counter-weights are too heavy and the added amount of weight added will need to be removed from the counter-weights.

10. If weights are removed from the balance load, then the car is too heavy and weights will have to be added to the counter-weight frames.

11. Leave balanced load on the elevator.

    Note*: Make sure the elevators are properly counter-balanced in order for the drive to operate correctly.*

Magnet and Switch Placement

Magnet Placement (when using Tape)

The Futura tape system incorporates a series of magnets for leveling. The magnets consist of a 12" Leveling Magnet.

1. Place the car floor exactly floor level.

2. Scribe a mark across the tape that is even with the top of the CPT.

Note: ***Do not mark across the slide bearing box.***

3. Using the template provided, place the template on the right side of the tape.

4. Align the top of the template to the scribed mark. Place the 12" magnet at the position shown on the template with its white mark outward.

5. Using template provided, place the template on the left side of tape.

6. Align the top of template to the scribed mark. Place a 2.5 inch magnet where required according to chart. Magnet placement is a binary count with the Odd Parity (OP) to ensure all magnets are present.

Tapeless Magnet Placement

See Supplement at end of section 1.

Magnetic Placement Table

Floor	R16	R8	R4	R2	R1	OP
1	-	-	-	-	M	-
2	-	-	-	M	-	-
3	-	-	-	M	M	M
4	-	-	M	-	-	-
5	-	-	M	-	M	M
6	-	-	M	M	-	M
7	-	-	M	M	M	-
8	-	M	-	-	-	-
9	-	M	-	-	M	M
10	-	M	-	M	-	M
11	-	M	-	M	M	-
12	-	M	M	-	-	M
13	-	M	M	-	M	-
14	-	M	M	M	-	-
15	-	M	M	M	M	M
16	M	-	-	-	-	-
17	M	-	-	-	M	-
18	M	-	-	M	-	M
19	M	-	-	M	M	-
20	M	-	M	-	-	M
21	M	-	M	-	M	-
22	M	-	M	M	-	-
23	M	-	M	M	M	M
24	M	M	-	-	-	M
25	M	M	-	-	M	-
26	M	M	-	M	-	-
27	M	M	-	M	M	M
28	M	M	M	-	-	-
29	M	M	M	-	M	M
30	M	M	M	M	-	M
31	M	M	M	M	M	-

Table B   (reverse magnet for R32)

7. Repeat steps 1 through 6 until all floors have a leveling magnet installed.

8. Adjust ULZ and DLZ sensors for 12.5 inch (from center to center) to allow for a + or – ¼ " dead zone.

Switch Placement

1. Verify **All Temporary Jumpers** have been removed and all circuits are operational.

2. Verify that the Terminal Slowdown Switches are at the required distance from the terminal floors for the required contract speed and the TSV values are also correct for that speed. TSV values can be viewed and modified under the Wizard program sub-menu "Limits." See Table 1. ESV values are 5-10 ft/min greater than TSV.

Slowdown Limit Switch Table (approx, greater values permitted for high decelerations)

FPM (m/s)		SLD1/TSV1		SLD2/TSV2		SLD3/TSV3		SLD4/TSV4	
100	(0.51)	14"	(36 cm)/80						
200	(1.02)	19"	(48 cm)/160						
250	(1.27)	29"	(74 cm)/210						
300	(1.52)	42"	(107 cm)/260						
350	(1.78)	54"	(137 cm)/310						
400	(2.03)	48"	(122 cm)/310	90"	(220cm)/360				
450	(2.29)	48"	(122 cm)/310	90"	(220cm)/410				
500	(2.54)	48"	(122 cm)/320	102"	(259cm)/460				
600	(3.05)	48"	(122cm)/320	102"	(259cm)/460	143"	(363cm)/550		
700	(3.56)	48"	(122 cm)/320	119"	(302cm)/500	198"	(503cm)/650		
800	(4.06)	48"	(122 cm)/330	119"	(302cm)/500	198"	(503cm)/650	240"	(610cm)/750
900	(4.57)	48"	(122cm)/330	119"	(302cm)/500	198"	(503cm)/650	240"	(610cm)/850
1000	(5.08)	48"	(122 cm)/330	119"	(302cm)/500	198"	(503cm)/650	264"	(670cm)/950
1200	(6.09)	48"	(122cm)/330	119"	(302cm)/500	198"	(503cm)/650	264"	(670cm)/950

Table 1 >1200-call CEC   **ESV values are 5-10 ft/min greater than TSV**

3. Note: If ETS switches are required, they are placed to open approximately 12" after the first slowdown switch opens. Then the remaining switches open. Estimate initial ETV parameter 5 ft/min less than highest TSV.

4. Verify that the Up and Down normal limits stop the car as close to floor level with the car running on access speed of 50 fpm.

5. Place the car on Panel Test and all other Inspection switches in the Automatic position.

6. Verify on the Wizard car diagnostics the PT input is activated.

7. Verify the type of service states Inspection.

DPP Setup
Note: Tape reader is adjusted at factory

AC Voltmeter Method

1. Connect a voltmeter between DPP1+ and DPP1- on the SPU LINK.

2. Run the car Up and Down on Inspection at 50fpm.

3. Adjust the meter settings to monitor the DC Pulsed voltage. Reading should be 2.7 VAC +/-0.5 VAC.

4. If not in tolerance, adjust the distance between the sensor and the magnet.

5. Repeat steps 2-4 until the reading is in tolerance.

6. Repeat for DPP2.

Oscilloscope Method

An alternate and more accurate method of verifying the DPP signals is using the Oscilloscope method. It is the preferred method but can bypassed if an Oscilloscope is not available.

1. With an isolated dual channel oscilloscope, connect the one channel to DPP1+ and the other channel to DDP2+ [with ground on TP4 (GND) on the SPU LINK.

2. Run the car Up and Down on Inspection at 50fpm.
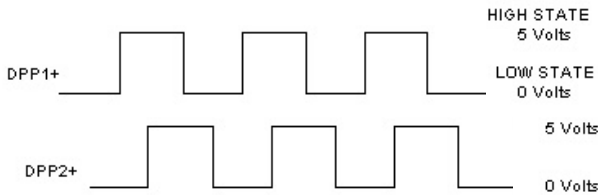
3. Verify the proper waveforms and amplitude of the square waves are correct.

Figure 7-1

4. Verify the two signals are 90° out of phase with each other.

Verify the following conditions **do not** exist in the DPP signals on the display.
• Excessive Noise Spikes
• Ringing or Oscillations
• Distortion
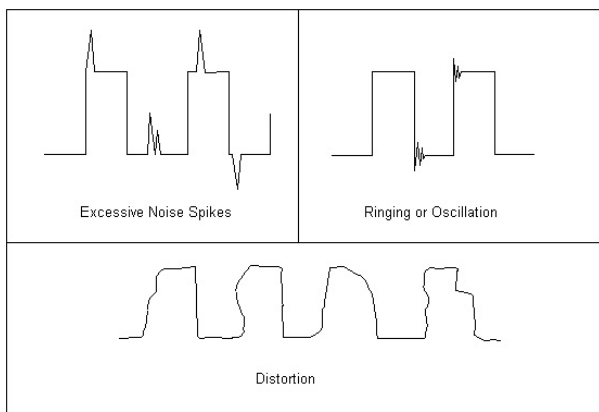(See figure 7-2 for examples of incorrect waveforms.)

Figure 7-2

If any of these conditions exist, verify the following:
• The DPP signal is wired (continuous run) through the twisted shielded cable.

• The shielded cable is grounded on the controller ground terminal.
• The DPP wiring is not run in the same traveling cable with the high voltage signals.
• The minimum wire gauge for the DPP signal is 18 AWG.

Correct as necessary.

Auto-Setup

1. Place temporary jumpers from LCS to UNL and DNL. This will disable these direction limit switches.

2. Set IVE = 100

3. Place the elevator below the bottom floor with just the ULZ and UFLZ inputs activated.

4. Activate the Wizard Terminal window (black screen).

5. Set IVE=20 and press Enter.

6. Type **ASU** and press Enter.

7. Press and hold the up button on the controller.

   Note: Should car stop before the top floor, setup will be invalid

8. While elevator is running up activate the Wizard Car Diagnostics window.

   Note: *DPC value will change 100 to 1000 upon acceptance of the ASU command.*

9. Verify the DPP count is increasing in value and the DPP LEDs are flashing on the front of the SPU.

10. Once car has stopped above the top floor return to the Wizard Terminal window.

11. Type FCP command and press Enter. Verify default values have changed to the actual floor counts, i.e. 1000, 1420, 1881, etc

12. Verify that the EUR, EDR, and ETV parameters have acceptable values.

13. Once the FCPs are verified that the scan was successful, type **WRT** and press Enter.

14. Select **Door Disconnect** from the panel buttons. This will start the Door Disc. LED to flash.

15. Place the Panel Test switch to Auto and verify the car re-levels down to the top floor. Remove jumpers.

Running High Speed

> **Note:** *The "S Curve" for the Futura has been pre-programmed by the factory for overall performance and ride quality. Leave these values at factory settings for the following procedures.*

1. Once the elevator has re-leveled to the top floor, enter **STD** and verify the cars runs on automatic to the next floor below.

2. Continue to enter **STD** and verify the car stops at every floor. Once the car reaches the bottom floor, type **STU** and press Enter. This will run the car to next floor in the up direction.

3. Continue to enter **STU** and verify the car stops at every floor.

4. Once the elevator reaches the top floor, type **SCC#** (# floor number so the car reaches high speed, usually 2 to 3 floor below top landing) and press Enter.

5. Verify the elevator will make high-speed multi floor runs up and down the hoistway.

6. Once you have verified the elevator will make high-speed runs, place a call so the car will run on high speed for almost the entire length of the hoistway.

> **Note:** K*eep from running into Terminal Landings.*

DSD 412 Final Adjustments

Note: *The following procedure must be performed only after the Futura Adjustment Procedures "Running High Speed" has been performed.*

1. Verify the velocity and the speed reference equal +/- 3 fpm in the Car Diagnostics window.

2. If the car velocity is off, change the RPM (INP11 of Drive) value until the velocity is within 2 to 3 fpm.

> **Note:** *If the speeds are different, verify Speed Reference on the car status is demanding contract speed and verify the RPM setting on the drive is correct. If speed reference is incorrect, check FLT for any faults. See Error Code Section 15, for more details.*

3. Verify the motor data and the parameters in the drive are in agreement.

4. Set IVE to 10 and press Enter.

5. Start with a parameter 40 on the SCR drive at a value of 7.

6. From the panel test buttons at the controller press the down direction button monitoring the drive sheave.

7. Note the amount of up roll back.

8. Increase the drive parameter 41 (System Inertia) until there is very little roll back.

9. Note: Some roll back is required but very little.

10. Set the IVE parameter to 50 and run the elevator up and down.

11. Observe the machine for any vibrations.

12. Should vibration exist lower the SCR drive parameter 40 (Response) until the vibration is eliminated.

13. Using the SDCU, scroll to parameter 994 and save the new settings. (See Section 3 "Drive Startup Procedures" Step 2e for details).

    Note: *It may be necessary to reduce SCR parameter 41 should vibration occur at top speed.*

"S Curve" and Floor Accuracy Adjustments

1. Display the Car Diagnostics Window.

   Note: *The "S Curve" for the Futura has been pre-programmed by the factory for overall performance and ride quality.*

2. Place a balanced load on the elevator.

3. Run the elevator on multi-door runs up and down into the same mid hatch floor.

4. Using the parameters listed in **Figure 7-4**, adjust the "S Curve" profile for the desired acceleration and deceleration ride profile.

5. Once the desired "S Curve" pattern is achieved, observe the elevator's approach to the floor. Adjust parameter LVE (leveling velocity) for the best overall approach into the floor.

Brake Adjustment

   Note: *The brake assembly MUST be in good working condition in order to achieve proper brake operation. Do not continue until any operational problems have been corrected.*

   Note: *See Figure 7-3 on following page for acronyms.*

1. Verify brake can stop and hold 125% of the capacity of the elevator. See manufacturer's information for details.

2. With capacity load on the elevator, adjust parameters BLV (Brake Lift Voltage), BLT (Brake Lift Time) and BSL (Brake Start Lift Voltage) so that the car does not drift down on a one floor run up from the bottom floor.

3. Adjust parameter BHV (Brake Hold Voltage) and BHD (Brake Hold Delay) so that the brake will pick fully then drop to economy value without rubbing.

4. Adjust the parameters BDD (Brake Drop Delay) (BCD on modulated brake) and BDT (Brake Drop Time) to allow the brake to start setting when the elevator reaches the 2" from the floor mark and be set once the elevator is stopped (electrically) by the drive.

5. Manually pick the brake slightly to allow the elevator to sag below the floor. Adjust the parameters BRT, BRV and RVE to allow the elevator to re-level into the floor without dropping further. See Figure 7-3 for full brake parameter details.

6. Set parameter MCT=25 and press Enter.
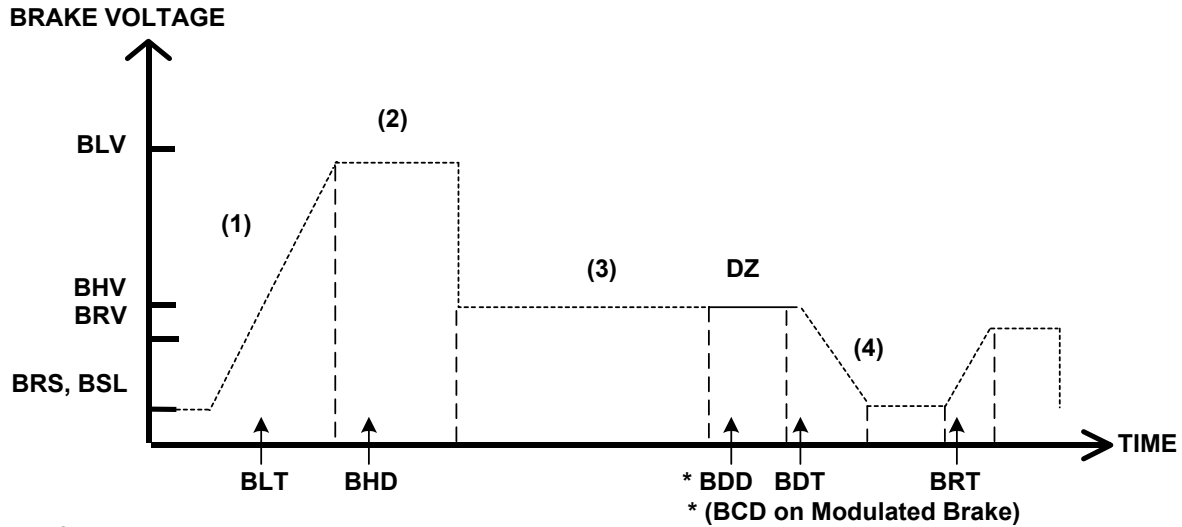
7. Type **WRT** and press Enter.

Brake Step Settings

Figure 7-3

Adjustment Parameters			
Parameter	**Range**	**Units**	**Description of Car Adjustment Parameters**
BMV	20-500	VOLTS	**B**rake **M**aximum line **V**oltage. - AC line voltage applied to the Brake board.
BMA	1-20	AMPS	**B**rake **M**aximum **A**mps. – Maximum Amps used by the brake.
BLV	10-500	VOLTS	**B**rake **L**ift **V**oltage. – Initial Brake voltage. Maximum value is 90% of the Brake Maximum Voltage (BMV) parameter.
BHV	0-500	VOLTS	**B**rake **H**old **V**oltage. - Brake voltage when the car is running.
BLT	0-320	1/64 SEC	**B**rake **L**ift **T**ime. -Amount of time from Brake Start Lift (BSL) voltage to Brake Lift Voltage (BLV).
BHD	0-320	1/64 SEC	**B**rake **H**old **D**elay. - Mount of time from when brake voltage reaches Brake Lift Voltage (BLV).
BSL	0-100	VOLTS	**B**rake **S**tart **L**ift voltage. - The brake voltage output to the brake when a run is initiated.
BRV	1-500	VOLTS	**B**rake **R**e-level **V**oltage. - Lift voltage during a re-level.
BRT	0-320	1/64 SEC	**B**rake **R**e-level lift **T**ime. - The amount of time from the Brake Re-level Start voltage (BRS) to the Brake Re-level Lift Voltage (BRV).
BRS	0-500	VOLTS	**B**rake **R**e-level **S**tart lift Voltage. - The voltage output to the brake when a re-level is initiated.
BDD	0-320	1/64 SEC	**B**rake **D**rop **D**elay. - Time delay after the 2" (5 cm) door zone Brake voltage is reduced to zero volts.
BDT	0-320	1/64 SEC	**B**rake **D**rop **T**ime. - The rate at which the brake voltage is reduced to zero volts.
BRR	0-65535	NUMERIC	**B**rake **R**esistance **R**atio – Brake Board scaling factor *PWM (3 AMP) board only*

$$BRR = (100 R_{coil} \times R_{Brake\ Resistor})$$

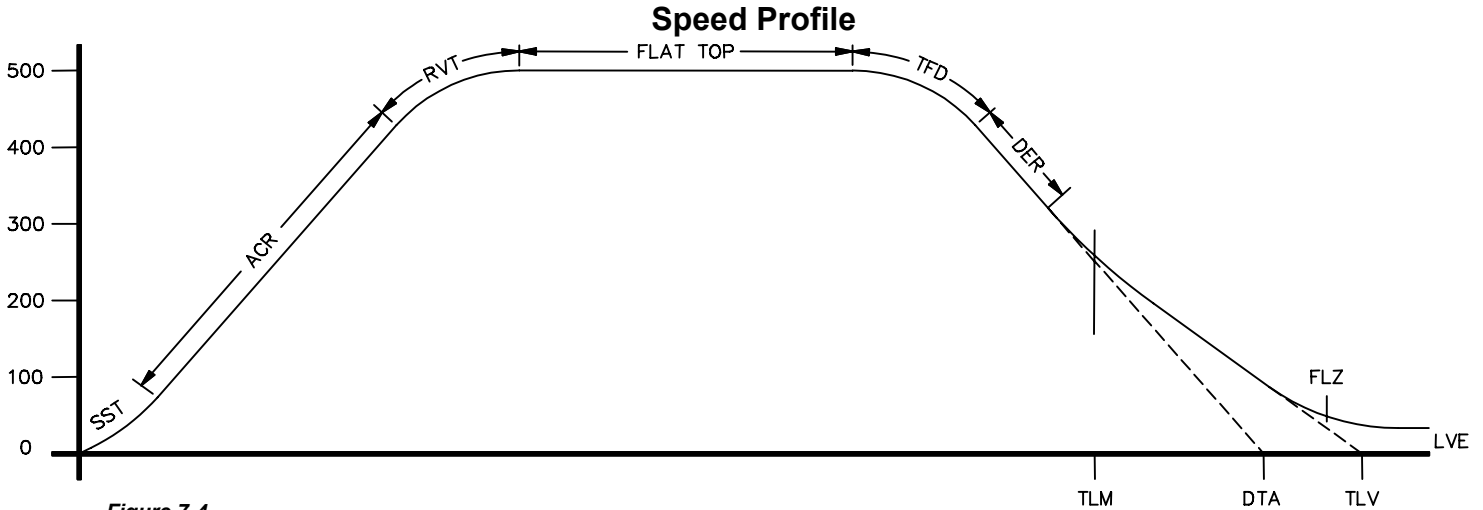**Note**: *BDD and BDT will be set up after the car is H.S.*

Table 2

CEC: [v. 04.06]   **Section 7– 7**

Speed Profile

Figure 7-4

Parameter	Range	Default	Units	Description of Car Adjustment Parameters
LVE	1-20	8	fpm	**L**eveling **VE**locity (feet per minute).
TLV	0-10	5	DPP	**T**ransfer to **L**eveling **V**ane (DPP): Distance from floor level at which the constant leveling velocity takes effect. **NOTE:** When car enters the 2 inch Leveling Zone (5 cm), a constant leveling velocity is introduced.
SST	0-96	16	1/64 sec	**S**tart **S**tart **T**ime (1/64 of a second): Time period needed to attain rated acceleration from zero speed (ACR parameter).
ACR	75-300	150	Feet/ min/ sec	**AC**celeration **R**ate: The rate of constant acceleration for the car to top speed. Divide ACR parameter by 60 to convert value into feet-per-second. (multiply ACR by 0.00508 to convert to m/s^2)
RVT	8-60	20	FPM	**R**oll **V**elocity for **T**op speed (feet per minute): Velocity at which the transition from acceleration mode to flat top (top speed) begins, e.g. for RVT=25, the transition will start at 325 FPM for a rated 350 FPM car. (Where 200 FPM is about 1 m/s)
TFD	1-4	1	Number	**T**op speed **F**lat top travel **D**istance: Similar to FTK parameter but used only when Top speed is
DER	80-300	150	Feet/ min/ sec	**DE**celeration **R**ate: The rate of Constant Deceleration of the car to the transfer to leveling. Divide DER by 60 to convert to feet per second. (or multiply DER by 0.00508 to convert to m/s^2).
TLM	10-50	25	DPP	**T**ransfer to **L**eveling **M**ode (DPP): Distance from floor level at which the computation changes from Deceleration to Leveling mode. The ratio between the TLM and DTA parameters determines the slope at which the car will level. **NOTE: The leveling mode does not refer to the leveling operation. In this mode the velocity is directly proportional to the distance remaining from floor. TLM must be the larger value.**
DTA	8-40	18	DPP	**D**eceleration **TA**rget (DPP Count): This is the distance form the floor level that deceleration speed reference is calculated.

Table 3

Final Approach

Note: *A well-adjusted "S Curve" will have the car stopping at the same DPP position in the hoistway up and down.*

1. With the car stopping at the same position up and down, run the car to each landing recording the elevators leveling accuracy from the car.

2. Once all floor differences have been measured, return to the main menu and select Car Hoistway.

3. Type **FCP#** (# is the individual floor number) and press Enter.

4. Enter either an increased or decreased FCP number. An increased FCP# will bring an elevator higher when stopping at that floor. A decreases FCP# will bring an elevator lower when stopping at that floor.

   Note: *This can only be done once the elevator has been adjusted to stop in the same position in the hoistway as discussed in steps 3 and 4 above, and can change only ± 3/8 inch.*

5. Once all floors have been changed, recheck each floor for leveling accuracy. If further adjustment is needed, repeat steps 8 and 9 until you are satisfied with the floor accuracy.

6. Type **WRT** and press Enter to Save all above work to Flash memory.

7. Return to the Car Diagnostics Window.

 Note: *If floor levels are off more than 3/8 inch, recheck magnet placement and move as necessary. If moved, perform a new auto setup.*

Miscellaneous Safety Parameter Adjustments

1. Using the Terminal Window set the following parameters. See Table 4.

VEE	Highest difference between Speed Reference and Velocity during Acceleration plus 30.
MLV	160
MRV	60
CDL	DPP position count of the elevator when the platform is even with the top of the counter-weight. **Only if CWT derailment is required.**
CDH	DPP position count of the elevator when the crosshead is even with the bottom of the counter-weight. **Only if CWT derailment is required.**

Table 4

2. IF hoistway access is provided, run the car from both switches. Using parameter **ACB** for the bottom landing and **ACT** for the top landing, set the access travel limits*.*

Terminal and Emergency Slowdown Limit Adjustments

1. Perform multiple types of floor runs (1, 2, 3 and high speed) into the top terminal landing.

2. Type ULB and press Enter after each run into the terminal landing. Record the Up Limits Position lowest DPP count and speed.

3. Repeat for the bottom terminal landing using DLB and record the Down Limits positions highest DPP count.

4. Compare the ULB and the DLB limit positions recorded in step 2 and 3. They should be within 3 DPP counts of each other. If not adjust either ULR or DLR values for each switch, i.e. ULR1 for SU1, DLR1 for SD1, etc.

5. Set the corresponding TSV (TSV1 is for SU1 and SD1, etc.) value approximately 15 fpm higher than what was recorded in the previous steps.

6. Set parameter LPE to a value between 20 to 30.

7. Make multiple runs into the terminal landings and verify no fault 11 occurs. IF an 11 error occurs, the LPE value may have to be higher.

8. Set the ESV parameters to approximately 25 fpm higher than the corresponding TSV values, ESV1 higher than TSV1, etc.

9. Run the car at high speed into the top landing.

10. Enter the ELB command.

    Note: *ETSU must be in position 5 and ETSD in position 17 on the VFC* board. If not, contact CEC for changes.

11. Note the Emergency Terminal Slowdown velocity and the ETS UP Limit position.

12. Set parameter EUR = ETS Up Limit position in step 11.

13. Run the car high speed into the bottom floor and enter the ELB Command.

14. Note the Emergency Terminal Slowdown velocity and the ETS DN Limit position.

15. Set parameter EDR = DN Limit position in step 14.

16. Compare the Emergency Terminal Slowdown velocities in step 11 and 14. Note the Higher value.

17. Set ETV = to the higher value recorded in step 16 + 20FPM.

18. Type WRT and press Enter.

Load Weigher Setup *(see sec.14)*

1. Ensure the CSW bits are set. (CS7,6-9)

2. Place the elevator with no load at the bottom landing on car top inspection.

3. Using a voltmeter on the DC scale, connect the positive lead on **LW2** and the negative lead on **GND** in the CPT.

4. Adjust the sensor on cartop until the voltmeter measures **+1.0** to **+1.4** Volts DC (for Isolated platform mount (bottom mount) sensor the voltage will be between +4.2 and +4.6 VDC).

5. Lock the sensor in place with the lock nut.

6. Place the car on Independent Service.

7. Using the Wizard Terminal Window, perform the following setup:

    Note: S*etup Load Weigher in terminal mode only.*

    A. Type **LWU** and press Enter*.*

    B. Select the Proximity Sensor Setup.

    C. Select the installation type (either cross head mount or Isolation frame mount) and press Enter.

    D. With the car empty at the bottom floor, type **LWU1**.

    E. Once the display shows LWU1 OK, press Enter.

    F. Place full load on the Elevator.

    G. Type **LWU2**.

    H. Once the display shows LWU2 OK, press Enter.

    I. From inside the elevator, run the fully loaded car on Independent to the top floor.

    J. Type **LWU3**.

    K. Once the display shows LWU3 OK, press Enter.

    L. Remove all weights from inside the elevator.

    M. Type **LWU4**.

    N. Once the display shows LWU4 OK, press Enter.

    O. Enter WRT command to save these readings.

P. Type **LWU** and press Enter.

Q. Select Activation Offset Calibration.

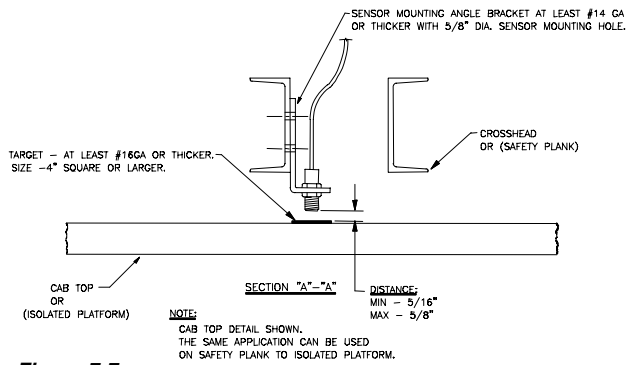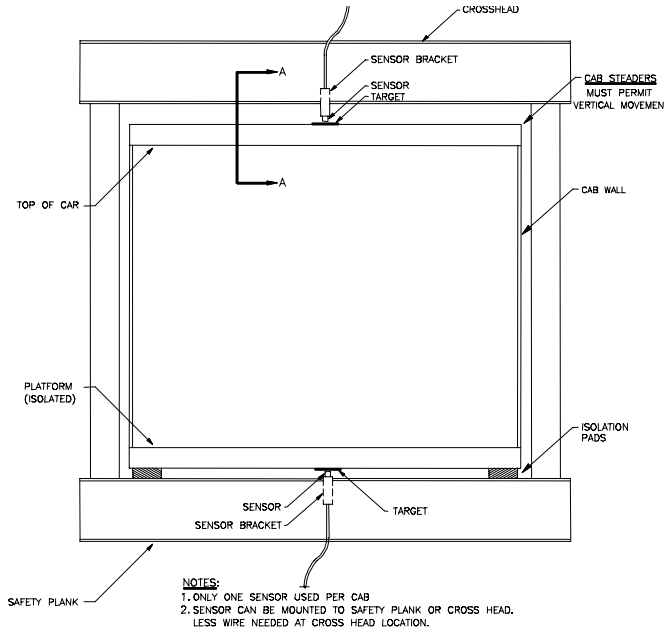R. Type **WRT** and press Enter.

Load Weigher Mounting
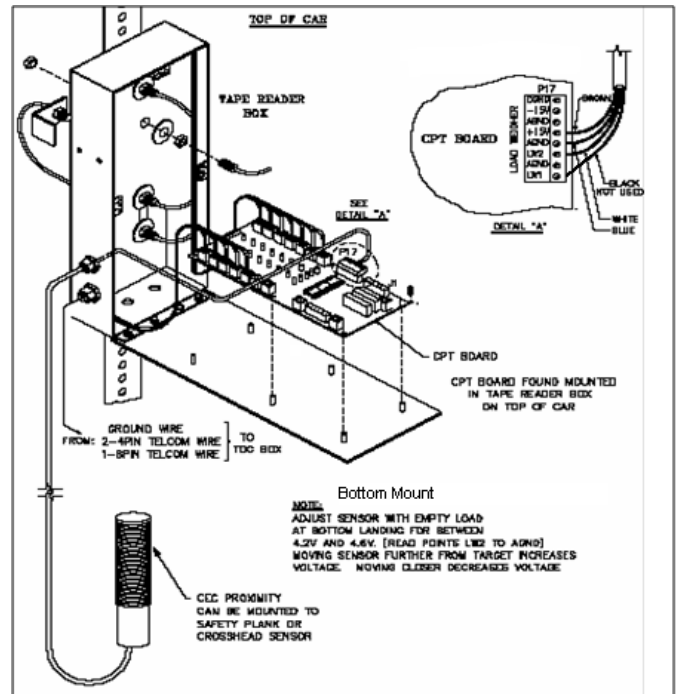

Figure 7-7

Load Weigher Wiring

Figure 7-8

Note: Always refer to job specific drawings for connection details.

PRE-TORQUE SETUP (TORQUE COMPENSTATION)

1. Place an empty car at the top floor on door disconnect.

2. Set CSW8 bit 9 (bits 8,9).

3. Set SST parameter to 1.

4. Run the car down 1 floor at a time and note the roll back.

5. Increase parameter TRC until the roll back is just eliminated.

6. Increase PDT for the amount of delay Pre-Torque required before the "S" curve pattern is started.

7. Increase SST parameter until the desired start acceleration is achieved.

8. Enter the WRT command.

9. Verify the settings are correct by placing the full load at the bottom floor and running the car one floor at a time in the up direction.

Note: If roll back exists on a fully loaded car then further adjust TRC and PDT until it is just eliminated.

Miscellaneous Adjustments

Setting the Hoistway Access

1. Place the car at the top floor on Inspection (ICA)

2. Set parameter ACT to a value to stop the car to a preferred level.

   Note: *ACT and ACB values are not used until the car travels off of SD1 or SU1.*

3. Access car down verifying car stops where desired.

4. Repeat at bottom floor setting ACB.

Note: If top access is located other that top floor, set ACF to the Top Access Floor

Setting Earthquake Collision (If required)

1. Run the car on inspection 1-2' below the point where the bottom of the counterweight would strike the car.

2. Record the DPC count.

3. Set CDL to the value recorded in step 2.

4. Run the car up 1-2' beyond the point where the bottom of the car would strike the counterweight.

5. Record the DPC count.

6. Set CDH to the value recorded in step 5.

7. Enter the WRT command.

Door Limit Check

Verify the following modules:

PARAMETER	OPEN	HALF OPEN	CLOSED
DOL	LOW	HIGH	HIGH
DLC	HIGH	HIGH	LOW
DL6	HIGH	HIGH	LOW

Various Door Parameter and Control Status Word Settings

CSn	Bit	DEFAULT	DESCRIPTION
		DOORS	
0	13	R	When set and on independent service, the doors will close automatically when a car call is registered.
1	4	R	When set, pre-opening is disabled for the front doors.
1	5	R	When set, front door pre-opening will occur at the 2" leveling zone.
2	1	R	If set, pressing the door close button shortens the door open time. If reset, DCB has no affect on door open time.
2	8	R	Does not allow reopening of doors with the safety edge or the electric eye during nudging.
3	13	R	If set, door-nudging operation is disabled.
4	5	R	If set, front door pre-opening will occur when car reaches 6" from floor level.
5	3	R	If set, car will shutdown if car goes out of the level zone and doors are open.
6	3	R	Set to disable electronic detector edge time out.
6	4	R	Set to enable electronic detector edge operation Vs. mechanical safety edge.
6	5	R	Set to enable electronic proximity edge operation Vs. mechanical safety edge.
6	14	R	Set to enable drive fault GLR error. (both GLR input and DOL input active while at the floor)
7	10	R	Set to invert detector edge input.
9	5	R	Set to require DCL on (with GLI and GL) to start car.

PAR	RANGE	UNIT	DESCRIPTION
		DOORS	
CDT	16-200	1/16s	Door Open Time: Time for doors after answering a car call.
DCC	2-20	Units	Door Cycle protection Counter: Normally adjusted for 6 cycles before removing power form doors.
DCP	5-20	Sec.	Door Close Protection time: The amount of time the doors are given to close before taken out of service on door protect.
DDT	0-80	Sec.	Door open Time after activation of DOB input.
DHT	0-64	1/16s	Door Hold Time: Delay time before high-speed door opening. Only used on Dover OHS door operator circuits.
DOH	0-360	Sec.	Extra Door Open button Hold time: Only used with door hold buttons.
DOP	5-20	Sec.	Door Open Protective time: Amount of time allowed to open the doors before taken out of service on door protects
DOT	0-60	Sec.	Door Open button Time-out: Maximum amount of time doors are allowed to remain open form the door open input.
LDT	32-200	1/16s	Long Door open Time: Time used when car answers a hall call.
NDT	5-120	Sec.	Nudging Door Time: Time doors are allowed to be held open before nudging goes into effect.
SDT	4-48	1/16s	Short Door Time: Door time after electric eye or safety edge has been activated.

FIRE			
PAR	RANGE	UNIT	DESCRIPTION
FAL	1-# FLs	Unit	Fire recall Alternate Floor: The alternate floor to which car recalls when main fire floor sensor is activated.
FBT	1-65535	1/64s	Fire Bypass Timer for GSA fire standard.
FIR	1-# FLs	Unit	Fire Recall Floor: The main fire floor for phase 1 recall mode.
IFT	0-300	Sec.	Independent Fire Time: Time system takes to override independent service during fire phase 1 operation.

FIRE			
CSn	Bit	DEFAULT	DESCRIPTION
1	8	R	When set, the fire buzzer is pulsed.
1	9	R	When set, the fire emergency light is pulsed.
1	10	R	When set, the stop switch is not bypassed. When reset, it is bypassed according to bit 11.
1	11	R	When set, stop switch is bypassed all the time. When rest, the stopswitch is bypassed according to ANSI code standard.
1	13	R	When set, the in-car fire service light also operates during phase II.
1	14	R	When set, the doors will close when a car call is registered. If reset, the door must be closed with the door close button.
3	3	R	If set, allows car to shut automatically after phase II key switch is set to "OFF" and phase I condition exists.
3	5	R	When set, the door open button is disabled during phase I fire service.
3	14	R	If set, door-nudging operation is activated during phase I fire service operation while the door is closing. **This bit will override bit 13 (disable nudging).**
4	0	R	If reset, car will open front door automatically when it reaches the fire floor during phase I.

CALL			
CSn	Bit	DEFAULT	DESCRIPTION
0	4	R	Dumps all calls after consecutive car calls answered per CCD parameter number order with no electric eye break.
4	10	R	If set, car calls will not be cancelled when the car has a reversal slowdown.
4	11	R	If set, cancel car calls for positions above the car when the car is moving down and cancel car calls below the car when the car is moving up.
7	15	R	Set to pulse car call output for low intensity lights.

BUFFER TEST

Following are the steps to follow in preparing the controller for buffer tests:

1. Place the controller on Door Disconnect.

2. Run the car to a position that will allow the car (or counter-weight) to reach constant contract speed or the reduced stroke buffer speed before striking the buffer. If a reduced stroke buffer is used, set CS7=20H and set the MMS parameter for the rated speed of the buffer.

3. Jumper all the UP or DOWN slowdown limits high, depending on a car (or counter-weight) buffer test. Example: LCS to SU1, SU2, etc.

4. Jumper the ETSU or ETSD (Emergency Terminal Slowdown limits) high, depending on a car or counter-weight buffer test. Example: LCS to ETSU or ETSD.

5. RESET bit 1 of CSW0 to prevent the DPP count from resetting at the start of a run.

   Type **BITR0, 1** (Note: the 0 in BITR0 is a zero, not the letter 'O').

   Type **WRT** to store the data in FLASH memory in case power is interrupted.

6. Remove the UNL or DNL module, depending upon direction of the car for the test. This will cause the position (POS) and FCP (Floor Count Position) to default to the top or bottom terminal.

7. Change the current DPP count of the car by typing DPC = 1000 (for the lowest landing default) or DPC = top floor FCP.

8. Type **SCC1** (or SRC1 if position 1 is a rear call) for the lowest landing, or SCCn, where n is the floor number of the top call (type **SRCn** if the position is a rear call). The car or counter-weight will start its run to the respective buffer. The status of the directional and final limits will be up to the local code authorities and/or the installation company.

9. After the test, remove all jumpers; replace the UNL or DNL modules. Set the CSW0, 1 bit by typing BITS0, 1; set CS7 = 0h, then type **WRT**.

OVERSPEED TEST

Following are steps to follow in preparing the controller for overspeed tests:

1. Place the controller on Door Disconnect.

2. Run the car to one floor below the top or one floor above the bottom terminal (depending on car or cwt. overspeed test).

3. Place a temporary jumper from LCS to GV.

4. Set Weak Field Current (F# 49) to the value needed to attain mechanical governor tripping speed.

   Example: Contract car speed is 300 FPM (1.5meters/sec), motor RPM is set to 1150 and the <u>overspeed</u> must be 30% higher than contract speed. 1150 RPM X 130% = 1495 RPM. Enter the calculated value into F# 11.

5. Set Weak Field Current (F# 11) to the value needed to attain mechanical governor tripping speed.

6. Set the <u>Overspeed % (F# 12) to 150%.</u>

7. <u>Set VEE = 300.</u>

8. Place a call that will permit the car to reach its overspeed condition.

<u>After completing the overspeed test, remove all jumpers and restore all parameters to their original values.</u>

ETS TEST

Following are steps to follow in preparing the controller for ETS tests:

1. Place the controller on Door Disconnect.

2. Run the car to a position that will allow the car to reach contract speed before actuating the ETS limit(s).

3. Set the ETV parameter to a value equal to or less than the speed rating of the buffer. The physical position of the limit (distance from limit to buffer) is critical to the proper operation of the ETS switch. This will ensure that when the car shuts down on an ETS (emergency stop), it (or the counter-weight) will be at a speed equal to or less than the speed rating of the buffer. (Setting ETV to a low number will drop brake)

4. RESET bit 1 of CSW0 to prevent the DPP count from resetting at the start of a run. Type **BITR0, 1** and press **enter** (Note: the 0 in BITR0 is a zero, not the letter O). Type **WRT** to store in FLASH memory in case power is interrupted.

5. Remove the UNL or DNL module, depending on direction of the car for the test. This will cause the position (POS) and FCP (Floor Count Position) to default to the top or bottom terminal.

6. Change the current DPP count of the car by typing DPC = 1000 (for the lowest landing default) or DPC = top floor FCP.

7. Type **SCC1** (or SRC1 if position 1 is a rear call) for the lowest landing, or SCCn where n is the floor number of the top call (or SRCn if the position is a rear call). The car will start its run to the respective ETS limit switch. The status of the directional and final limits will be up to the local code authorities and/or the installation company.

After the test, replace the UNL or DNL modules, set the CSW0, 1 bit by typing BITS0, 1, enter, then type WRT, enter,

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