"S Curve" and Floor Accuracy Adjustments

1. Run the elevator on multi-door runs up and down into the same mid hatch floor.
2. Using the parameters listed in **Figure 7-4**, adjust the "S Curve" profile for the desired acceleration and deceleration ride profile.
   Set TLM=25 DTA=18 TLV=5
3. 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.
4. Type **WRT** and press Enter.

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

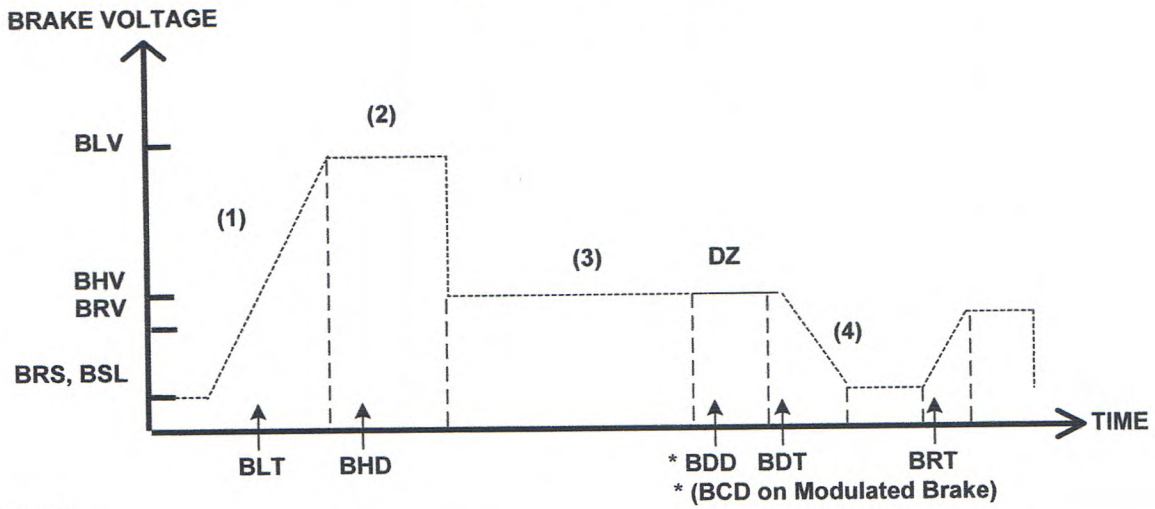

Figure 7-3

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*

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

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

Table 2

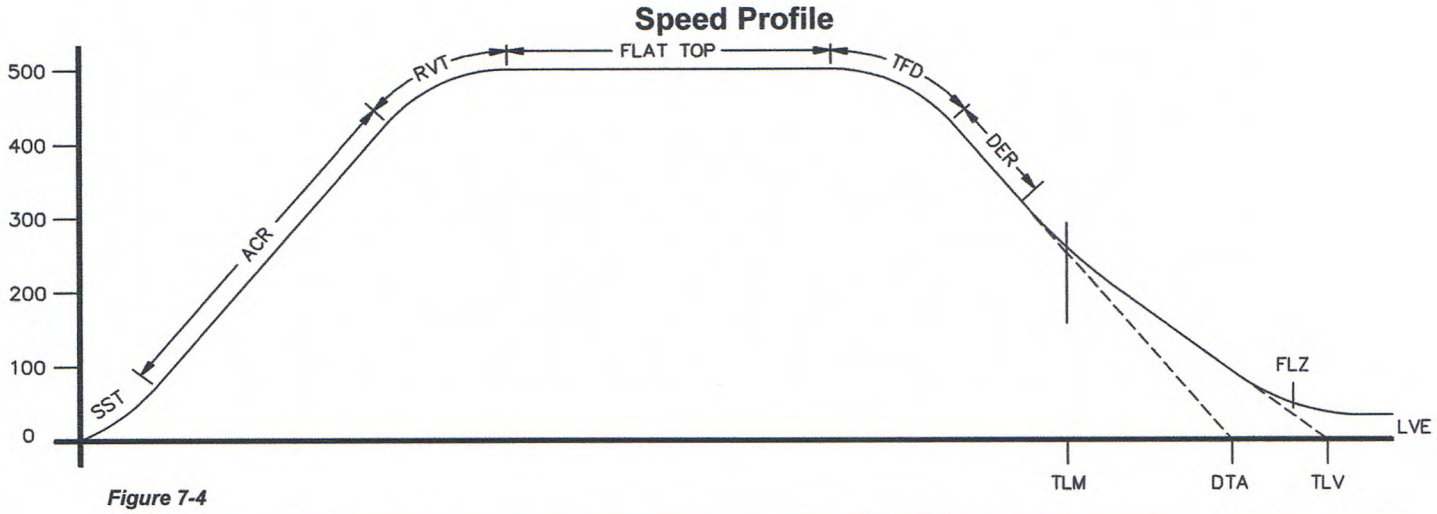

Figure 7-4

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: *Setup 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.

UP limit ULL Limit POS ULR

ULB

1. 219 1. 2902 2921
2. 300 2. 2797 2797

LPE 50

DLB

1 227 1125 DLR 1126
2 339 1282 1280

TSV 1. 240
2. 375

*ESV = TSV + 25 fpm.

ELB uplimit Vel ETS limit POS

1 22N 2904

2 307

ETV = 2345

ETS Vel 222

Down Dir EIB

1. 232 1118

2. 3~~5~~6

ETSvel 224

ETV = ETS vel (highest) + 20 Fpm

141 ETS POS Count

EUR
EDR } EIB