GE Electric Vehicle Systems

INSTRUCTIONS
EV100 HANDSET

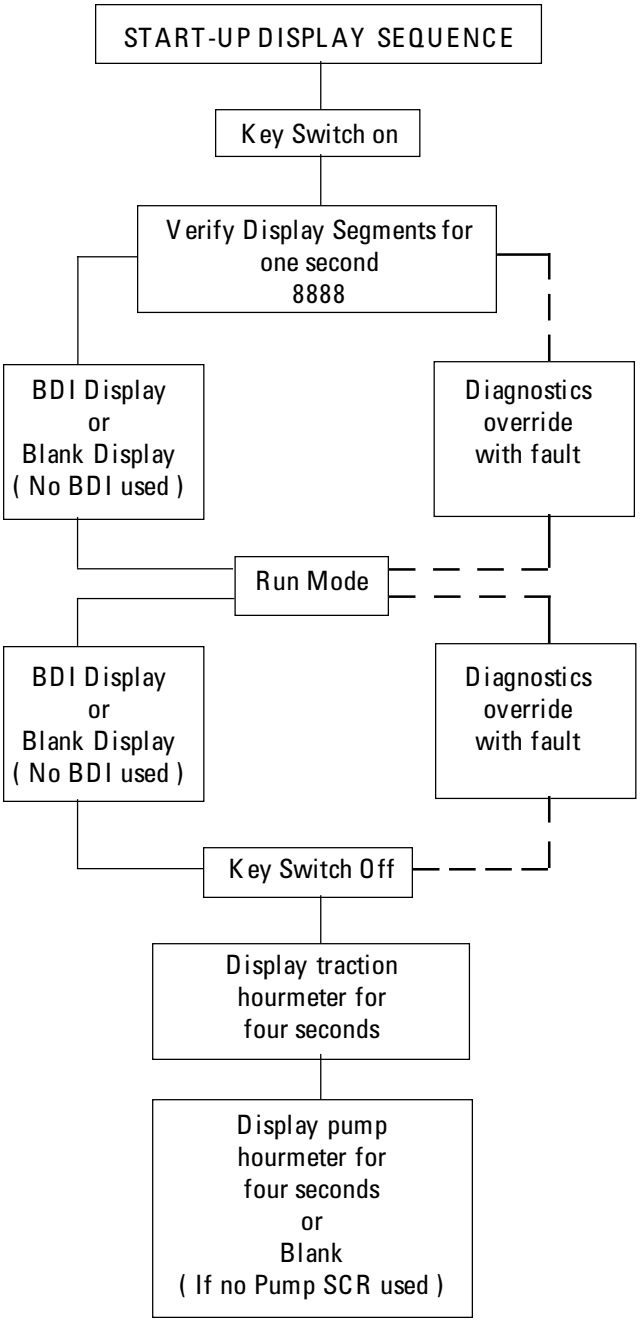
GENERAL
The Handset is a multi-functional tool to be used with the EV100/200 LX and LXT SCR controls. The Handset consist of a Light Emitting Diode (LED) display and a keyboard for data entry.

PURPOSE:
The purpose of the Handset is to allow **authorized personnel** to perform the following functions:

- Monitor existing system fault codes for both traction and pump SCR systems
- Monitor intermittent random status code
- Monitor battery state of charge on LXT systems
- Monitor hourmeter reading on traction and pump SCR systems
- Monitor or adjust the following control functions:
  - Creep speed
  - Controlled Acceleration and 1A time
  - Current Limit
  - Steer pump time delay and define signal input (seat switch or directional switch)
  - Plugging distance (Current)
  - Pedal position plug range or disable
  - 1A drop out current or disable
  - Field Weakening drop out
  - Field Weakening pick up
  - Regen braking current limit
  - Regen braking drop out
  - Speed limit points (SL1,SL2, and SL3)
  - Truck Management fault speed limit
  - Internal resistance compensation for battery state of charge indication
  - Battery voltage (36/48 volts is auto ranging)
- Selection of card operation type:
  - Standard traction card selection:
    - Standard traction with Field Weakening
    - Standard traction with speed limits
    - Standard traction with Regen/Field Weakening
    - High or low current limit for all of the above.

OPERATION:
Warning : Before connecting or disconnecting the handset tool, jack up the drive wheels of the vehicle, turn off the key switch, unplug the battery and discharge the capacitors.

At the SCR control traction card, unplug the " Y plug " if the dash display is in use and plug in the handset to the plug location " Y " on the control card. After installing the handset tool, plug in the battery and turn on the key switch. The following is the start-up display sequence that will occur:



NOTE: The vehicle can be operated with the handset connected, **however, the adjustment knob must be set fully clockwise to insure the control operates at top speed.**

FUNCTION SET-UP PROCEDURES:

Warning: Before making any adjustments to the control you must consult the operating and maintenance instructions supplied by the vehicle manufacturer. Failure to follow proper set up instructions could result in misoperation or damage to the control system.

With the Handset connected , hold down the CONT key and turn on the key switch. This will place you in the set up mode, ready to monitor or adjust control function settings.

NOTE: The term push, means to depress key for approximately **one second**.

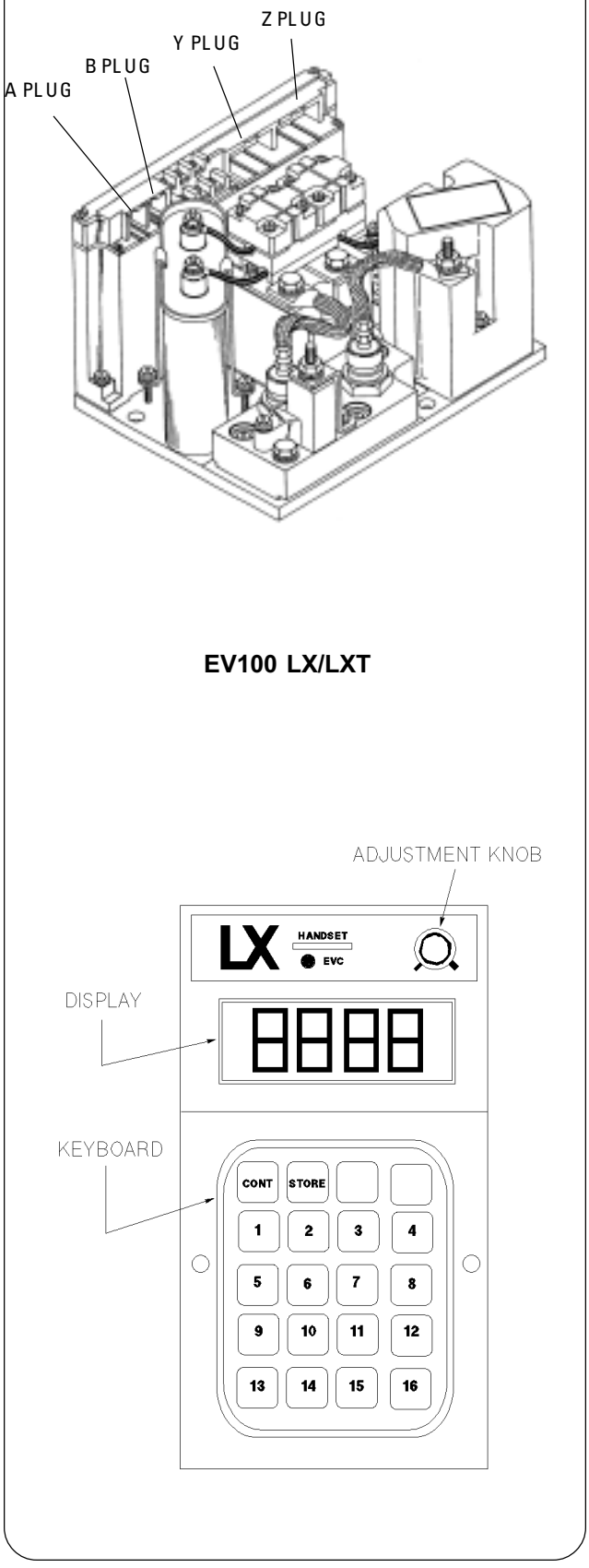
SET UP MODE

Action	Display shows	Remarks
Hold down CONT, turn on key	8888	Segment check displayed
Push function number	U 005	Selected function number is displayed
After one second time delay	085	Stored value for the function is displayed
Push CONT	085	Displayed value will blink
Change value with adjustment knob	125	Value changes while blinking
Push STORE	125	New value stored and blinking stops
Push ESC	8888	Segment check displayed

At this point another function can be monitored/changed by pushing another function number, or the vehicle can be placed in the run mode by holding the ESC key down for one second or longer. The display will return to either the diagnostics mode or the BDI display or a blank display (if BDI is not used and there are no fault codes). The vehicle can now be operated with the handset connected or the handset can be disconnected before operation.

NOTE: You can return to the segment check mode at any time, by holding down the ESC key until 8888 appears in the display.

DESCRIPTION AND LOCATION



DESCRIPTION OF FUNCTION NUMBERS FOR:
Control Cards IC3645EVLXCD1TT AND
IC3645EVLXCD1TX

FUNCTION 1 STORED FAULT CODE
(Push 1)

This function register contains the last fault that shut down vehicle operation (PMT type fault that is reset by cycling the key switch) . This fault code will be over written each time a new fault occurs and can be cleared from memory by adjusting the value to zero.

FUNCTION 2 CREEP SPEED
(Push 2)

This function allows for the adjustment of the creep speed of the vehicle. A constant creep speed frequency will be maintained when an accelerator input voltage between 3.7 and 3.5 volts or an accelerator ohmic input between 6K and 4.7K ohms is provided.

Range	2% to 15% on time
Set	0 to 255
Resolution	.03% per set unit
Example:	Setting of 20 = 2.6% on time

FUNCTION 3 CONTROLLED ACCELERATION AND 1A TIME
(Push 3)

This function allows for the adjustment of the rate of time it takes for the control to accelerate to 96% applied battery voltage to the motor on hard acceleration. The 1A contactor will automatically close .2 seconds after the controlled acceleration stops and the accelerator input is less than .5 volts or less than 50 ohms.

Range	.1 to 22.0 seconds
Set	0 to 255
Resolution	.084 seconds per set unit
Example:	Setting of 20 = 1.8 seconds C/A and 2.0 1A time.

FUNCTION 4 CURRENT LIMIT
(Push 4)

This function allows for the adjustment of the current limit of the control. The rating of the control will determine the range of adjustment for this function. Please refer to the operating instructions for the control used in your vehicle.

Range	See control C/L curves
Set	0 to 255
Example:	0 = min. current, 255 = max. current

FUNCTION 5 PLUGGING DISTANCE (CURRENT)
(Push 5)

This function allows for the adjustment of the plugging distance of the vehicle. The larger the current setting, the shorter the stopping distance.

Range	200 to 1000 amps (EV100) 300 to 1500 amps (EV200)
Set	0 to 255
Resolution	3.14 amps per set unit (EV100) 4.7 amps per set unit (EV200)
Example:	Setting of 20 = 263 amps (EV100)

Warning: Plug settings must be in accordance with control operating instructions. An excessively high setting could cause damage to control system or traction motor.

FUNCTION 6 1A DROP OUT CURRENT
(Push 6)

This function allows for the adjustment of the 1A contactor drop out current. The 1A contactor will be dropped out and the vehicle motor torque will be limited to SCR current limit when the set drop out current is reached.

Range	450 to 1260 amps (EV100) 675 to 1890 amps (EV200)
Set	0 to 250
Resolution	3.24 amps per set unit (EV100) 4.86 amps per set unit (EV200)

Settings above 250 set units will disable 1A drop out function (1A will not drop out).

Example	Setting of 20 = 515 amps (EV100)

FUNCTION 7 FIELD WEAKENING PICK UP
(Push 7)

This function allows the adjustment of field weakening contactor pick up current. This setting allows the FW contactor to pick up when the vehicle has returned to about 150% of its full load level running current after acceleration.

Range	52 to 466 amps (EV100) 78 to 699 amps (EV200)
Set	0 to 255
Resolution	1.6 amps per set unit 2.4 amps per set unit
Example	Setting of 20 = 84 amps

FUNCTION 8 FIELD WEAKENING DROP OUT
(Push 8)

This function allows for the adjustment of the field weakening contactor drop out current. This setting allows the FW contactor to drop out when the vehicle requires greater than 300% of the full load level running current for greater torque.

Range	65 to 895 amps (EV100)
	98 to 1343 amps (EV200)
Set	0 to 255
Resolution	3.25 amps per set unit (EV100)
	4.88 amps per set unit (EV200)
Example	Setting of 20 = 130 amps

FUNCTION 9 REGEN BRAKING C/L
(Push 9)

This function allows for the adjustment of the Regen braking current limit. The higher the current the shorter the stopping distance.

Range	75 to 630 amps
Set	0 to 255
Resolution	2.2 amps per set unit
Example:	Setting of 20 = 119 amps

FUNCTION 10 REGEN START
(Push 10)

This function allows for the adjustment of the percent on time at which the control will start to regen. Adjustment of this function allows the OEM to set the regen start speed of the vehicle to eliminate regen attempts when motor regen current is low.

Range	0 to 95% on time
Set	0 to 255
Resolution	.37% per set unit
Example:	Setting of 20 = 7.4% on time

FUNCTION 11 SPEED LIMIT 1 (SL1)
(Push 11)

This function allows for the adjustment of the speed limit (maximum battery volts to the motor) when the SL1 limit switch input signal is received by the control card. SL1 limit switch is a normally closed switch connected to battery negative, the switch opening enables speed limit.

Range	96% to 0% battery volts
Set	0 to 180

Setting of 0 set units will disable speed limit function and allow top speed with no limit switch connected.

FUNCTION 12 SPEED LIMIT 2 (SL2)
(Push 12)

Same as Function 11 except using SL2 limit switch for input.

FUNCTION 13 SPEED LIMIT 3 (SL3)
(Push 13)

Same as Function 11 except using SL3 limit switch for input.

The SL3 set speed limit is also activated by the Truck Management Module fault codes 90 and 93. See instructions for IC3645TMM1A Truck Management Module for details.

FUNCTION 14 INTERNAL RESISTANCE COMPENSATION
(Push 14)

This function is used when the Battery Discharge Indicator is present. Adjustment of this function will improve the accuracy of the BDI. In order to made this setting the voltage drop of the battery under load must first be determined by following the steps listed below.

1. Load the traction motor to 100 amps in 1A and record the voltage (V_0) at the SCR positive and negative power terminal.
2. Load the traction motor to 200 amps in 1A and record the voltage (V_L) at the SCR positive and negative power terminal.
3. Calculate voltage drop (V_D) as follows:
   $V_D = V_0 - V_L$
4. Use the table below to determine the setting using the calculated V_D as a reference.

Setting	EV100 VD	EV200 VD	Setting	EV100 VD	EV200 VD
2	11.44	07.63	17	01.34	00.89
3	07.60	05.07	18	01.27	00.85
4	05.72	03.81	19	01.20	00.80
5	04.57	03.05	20	01.14	00.76
6	03.81	02.54	21	01.09	00.73
7	03.27	02.18	22	01.04	00.69
8	02.86	01.91	23	00.99	00.66
9	02.54	01.69	24	00.95	00.63
10	02.28	01.52	25	00.91	00.61
11	02.08	01.39	26	00.88	00.59
12	01.90	01.27	27	00.85	00.57
13	01.76	01.17	28	00.82	00.55
14	01.63	01.08	29	00.79	00.53
15	01.52	01.01	30	00.76	00.51
16	01.43	00.95	31	00.74	00.49

FUNCTION 15 BATTERY VOLTS
(Push 15)

This function allows for the adjustment of voltage range for controls equipped with the Battery Discharge Indication function. In order for the BDI to operate properly, the setting

as shown in the table must be entered .

Battery volts	Set units
24 volts	Between 0 and 31
36 volts	Between 32 and 44
48 volts	Between 45 and 69
72 volts	Between 70 and 80
80 volts	Between 81 and 183
36/48 volts	Between 184 and 250
No BDI	Between 251 and 255

The following functions have function numbers larger than the numbers on the Handset keyboard. To access these functions, push the CONT key and the number shown in the following instructions at the same time.

FUNCTION 16 PEDAL POSITION PLUG
(Push CONT and 1)

This function will allow the adjustment of the pedal position plug range. Pedal position will reduce the plugging current to the current value set by this function as the accelerator is returned to the creep speed position. Maximum plug current is obtained with the accelerator in the top speed position.

Range	100 to 930 amps (EV100) 150 to 1425 amps (EV200)
Set	0 to 255
Resolution	3.2 amps per set unit (EV100) 5.0 amps per set unit (EV200)
Example	Setting of 20 = 164 amps

To disable the pedal position plug function, adjust the current value to the same current value as the plug distance current.

Example: If plug distance current Function 5 is set at 500 amps, then set pedal plug current at 500 amps. With this setting pedal position will have no effect on plugging distance.

FUNCTION 17 CARD TYPE SELECTION
(Push CONT and 2)

This function allows for the selection of the card type used for your vehicle's application. The table below shows the setting to select card application type depending on which control card is used.

EV100 Function	Standard with FW	Speed Limit	Regen/FW
STD C/L	0 to 4	20 to 24	40 to 44
High C/L	5 to 9	25 to 29	45 to 49
STD C/L (Auto plug)	10 to 14	30 to 34	50 to 54
High C/L (Auto plug)	15 to 19	35 to 39	55 to 59

EV200 Function	Standard with FW	Speed Limit	Regen/FW
STD C/L	64 to 68	84 to 88	104 to 108
STD C/L (Auto plug)	74 to 78	94 to 98	114 to 118

Settings for these function should be made in between the values shown.

Warning: These settings must be changed by authorized personnel only, following instructions supplied by the manufacturer. Card type selection must be made within the capabilities of the SCR control panel used and the supporting electro-mechanical devices. Failure to comply with proper application standards could result in misoperation or damage to the control and/or motors.

FUNCTION 18 STEER PUMP TIME DELAY
(Push CONT and 3)

This function allows for the selection of steer pump contactor pick up input, either seat switch or directional switch closing and adjustment of the time delay for the contactor drop out.

Pick up on seat switch closure and time delay drop out on seat switch opening.

Range	1.5 to 65 seconds
Setting	Between 0 and 128
Resolution	.5 seconds per set unit
Example:	Setting of 20 = 10.5 seconds

Pick up on directional switch closure and drop out time delay on directional switch opening.

Range	.5 to 63 seconds
Setting	129 to 255
Resolution	.5 seconds per set unit
Example:	Setting of 149 = 10.5 seconds

Drop out will be 1.5 seconds after the seat switch opens.

DESCRIPTION OF FUNCTION NUMBERS FOR:
Control Cards IC3645EVLXCD1MT AND
IC3645EVLXCD1MX

FUNCTION 1 STORED FAULT CODE
(Push 1)

This function register contains the last fault that shut down vehicle operation (PMT type fault that is reset by cycling the key switch) . This fault code will be over written each time a new fault occurs and can be cleared from memory by adjusting the value to zero.

FUNCTION 2 CREEP SPEED
(Push 2)

This function allows for the adjustment of the creep speed of the vehicle. A constant creep speed frequency will be maintained when an accelerator input voltage between 3.7 and 3.5 volts or an accelerator ohmic input between 6K and 4.7K ohms is provided.

Range	2% to 15% on time
Set	0 to 255
Resolution	.03% per set unit
Example:	Setting of 20 = 2.6% on time

FUNCTION 3 CONTROLLED ACCELERATION AND 1A TIME
(Push 3)

This function allows for the adjustment of the rate of time it takes for the control to accelerate to 96% applied battery voltage to the motor on hard acceleration. The 1A contactor will automatically close .2 seconds after the controlled acceleration stops and the accelerator input is less than .5 volts or less than 50 ohms.

Range	.1 to 22.0 seconds
Set	0 to 255
Resolution	.084 seconds per set unit
Example:	Setting of 20 = 1.8 seconds C/A and 2.0 1A time.

FUNCTION 4 CURRENT LIMIT
(Push 4)

This function allows for the adjustment of the current limit of the control. The rating of the control will determine the range of adjustment for this function. Please refer to the operating instructions for the control used in your vehicle.

Range	See control C/L curves
Set	0 to 255
Example:	0 = min. current, 255 = max. current

FUNCTION 5 PLUGGING DISTANCE (CURRENT)
(Push 5)

This function allows for the adjustment of the plugging distance of the vehicle. The larger the current setting, the shorter the stopping distance.

Range	200 to 1000 amps (EV100) 300 to 1500 amps (EV200)
Set	0 to 255
Resolution	3.14 amps per set unit (EV100) 4.7 amps per set unit (EV200)
Example:	Setting of 20 = 263 amps (EV100)

Warning: Plug settings must be in accordance with control operating instructions. An excessively high setting could cause damage to control system or traction motor.

FUNCTION 6 1A DROP OUT CURRENT
(Push 6)

This function allows for the adjustment of the 1A contactor drop out current. The 1A contactor will be dropped out and the vehicle motor torque will be limited to SCR current limit when the set drop out current is reached.

Range	450 to 1260 amps (EV100) 675 to 1890 amps (EV200)
Set	0 to 250
Resolution	3.24 amps per set unit (EV100) 4.86 amps per set unit (EV200)

Settings above 250 set units will disable 1A drop out function (1A will not drop out).

Example	Setting of 20 = 515 amps (EV100)

FUNCTION 7 PA4 INPUT SWITCH FUNCTION SELECTION
(PUSH 7)

This function allows for the selection of PA4 input function. The PA4 input can be adjusted to operate in either of the following modes:

1) To activate a speed limit if a normally closed switch is opened between PA4 and negative.

2) To reverse the direction of the in-board motor and activate a speed limit if a normally open switch is closed between PA4 and negative.

Set 128 or greater to select option 1 above.

Set 0-127 to select option 2 above.

FUNCTION 11 SPEED LIMIT 1 (PA5 OR PA6)
(Push 11)

This function allows for the adjustment of the speed limit (maximum battery volts to the motor) when the L1 or R1 limit switch input signal is received by the control card. L1 or R1 limit switch is a normally open switch connected to battery negative, the switch closing enables speed limit.

Range	96% to 0% battery volts
Set	0 to 180

Setting of 0 set units will disable speed limit function and allow top speed with no limit switch connected.

FUNCTION 12 SPEED LIMIT 2 (PA4)
(Push 12)

Same as Function 11 except using L2 or R2 limit switch for input. See function 7 for switch operation.

FUNCTION 13 SPEED LIMIT 3
(Push 13)

This speed limit is activated by the Truck Management Module fault codes 90 and 93. See instructions for IC3645TMM1A Truck Management Module for details.

FUNCTION 14 INTERNAL RESISTANCE COMPENSATION
(Push 14)

This function is used when the Battery Discharge Indicator is present. Adjustment of this function will improve the accuracy of the BDI. In order to made this setting the voltage drop of the battery under load must first be determined by following the steps listed below.

1. Load the traction motor to 100 amps in 1A and record the voltage (V_0) at the SCR positive and negative power terminal.
2. Load the traction motor to 200 amps in 1A and record the voltage (V_L) at the SCR positive and negative power terminal.
3. Calculate voltage drop (V_D) as follows:
   $V_D = V_0 - V_L$
4. Use the table below to determine the setting using the calculated V_D as a reference.

Setting	EV100 VD	EV200 VD	Setting	EV100 VD	EV200 VD
2	11.44	07.63	17	01.34	00.89
3	07.60	05.07	18	01.27	00.85
4	05.72	03.81	19	01.20	00.80
5	04.57	03.05	20	01.14	00.76
6	03.81	02.54	21	01.09	00.73
7	03.27	02.18	22	01.04	00.69
8	02.86	01.91	23	00.99	00.66
9	02.54	01.69	24	00.95	00.63
10	02.28	01.52	25	00.91	00.61
11	02.08	01.39	26	00.88	00.59
12	01.90	01.27	27	00.85	00.57
13	01.76	01.17	28	00.82	00.55
14	01.63	01.08	29	00.79	00.53
15	01.52	01.01	30	00.76	00.51
16	01.43	00.95	31	00.74	00.49

FUNCTION 15 BATTERY VOLTS
(Push 15)

This function allows for the adjustment of voltage range for controls equipped with the Battery Discharge Indication function. In order for the BDI to operate properly, the setting as shown in the table must be entered .

Battery volts	Set units
24 volts	Between 0 and 31
36 volts	Between 32 and 44
48 volts	Between 45 and 69
72 volts	Between 70 and 80
80 volts	Between 81 and 183
36/48 volts	Between 184 and 250
No BDI	Between 251 and 255

The following functions have function numbers larger than the numbers on the Handset keyboard. To access these functions, push the CONT key and the number shown in the following instructions at the same time.

FUNCTION 16 PEDAL POSITION PLUG
(Push CONT and 1)

This function will allow the adjustment of the pedal position plug range. Pedal position will reduce the plugging current to the current value set by this function as the accelerator is returned to the creep speed position. Maximum plug current is obtained with the accelerator in the top speed position.

Range	100 to 930 amps (EV100)
	150 to 1425 amps (EV200)
Set	0 to 255
Resolution	3.2 amps per set unit (EV100)
	5.0 amps per set unit (EV200)
Example	Setting of 20 = 164 amps

To disable the pedal position plug function, adjust the current value to the same current value as the plug distance current.

Example: If plug distance current Function 5 is set at 500 amps, then set pedal plug current at 500 amps. With this setting pedal position will have no effect on plugging distance.

FUNCTION 17 CARD TYPE SELECTION
(Push CONT and 2)

This function allows for the selection of the card type used for your vehicle's application. The table below shows the setting to select card application type depending on which control card is used.

EV100 Function	**Standard with FW**
STD C/L	0 to 4
High C/L	5 to 9
STD C/L (Auto plug)	10 to 14
High C/L (Auto plug)	15 to 19

EV200 Function	**Standard with FW**
STD C/L	20 to 24
STD C/L (Auto plug)	30 to 34

Settings for these function should be made in between the values shown.

Warning: These settings must be changed by authorized personnel only, following instructions supplied by the manufacturer. Card type selection must be made within the capabilities of the SCR control panel used and the supporting electro-mechanical devices. Failure to comply with proper application standards could result in misoperation or damage to the control and/or motors.

FUNCTION 18 STEER PUMP TIME DELAY
(Push CONT and 3)

This function allows for the selection of steer pump contactor pick up input, either seat switch or directional switch closing and adjustment of the time delay for the contactor drop out.

Pick up on seat switch closure and time delay drop out on seat switch opening.

Range 1.5 to 65 seconds
Setting Between 0 and 128
Resolution .5 seconds per set unit
Example: Setting of 20 = 10.5 seconds

Pick up on directional switch closure and drop out time delay on directional switch opening.

Range .5 to 63 seconds
Setting 129 to 255
Resolution .5 seconds per set unit

Example: Setting of 149 = 10.5 seconds

Drop out will be 1.5 seconds after the seat switch opens.

DESCRIPTION OF FUNCTION NUMBERS FOR:
Control Card IC3645EVLXCD1PX

FUNCTION 1 STORED FAULT CODE
(Push 1)

This function register contains the last status code that shut down vehicle operation (PMT type fault that is reset by cycling the key switch) . This status code will be over written each time a new fault occurs and can be cleared from memory by adjusting the value to zero.

FUNCTION 2 INTERNAL RESISTANCE COMPENSATION START
(Push 2)

This function allows for the adjustment of the current level at which the internal resistance compensation feature (Function 16) will take effect.

Range	0 to 1325 amps
Set	52 to 255
Resolution	6.5 amps per set unit
Example:	Setting of 72 = 130 amps

FUNCTION 3 CONTROLLED ACCELERATION AND 1A TIME
(Push 3)

This function allows for the adjustment of the rate of time it takes for the control to accelerate to 96% applied battery voltage to the motor on hard acceleration. The 1A contactor will automatically close .2 seconds after the controlled acceleration stops and the accelerator input is less than .5 volts or less than 50 ohms.

Range	.1 to 5.5 seconds
Set	0 to 255
Resolution	.021 seconds per set unit
Example:	Setting of 20 = .52 seconds C/A and .72 seconds 1A time.

FUNCTION 4 CURRENT LIMIT
(Push 4)

This function allows for the adjustment of the current limit of the control. The rating of the control will determine the range of adjustment for this function. Please refer to the operating instructions for the control used in your vehicle.

Range	See control C/L curves
Set	0 to 255
Example:	0 = min. current, 255 = max. current

FUNCTION 11 SPEED LIMIT 1 (SL1)
(Push 11)

This function allows for the adjustment of the speed limit (maximum battery volts to the motor) when the SL1 limit switch input signal is received by the control card. SL1 limit switch is a normally open switch connected to battery negative, the switch closing enables speed limit.

Range	0% to 100% battery volts
Set	0 to 255
Resolution	.375 volts per set unit
Example	Setting of 50=18.75 volts

FUNCTION 12 SPEED LIMIT 2 (SL2)
(Push 12)

Same as Function 11 except using SL2 limit switch for input.

FUNCTION 13 SPEED LIMIT 3 (SL3)
(Push 13)

Same as Function 11 except using SL3 limit switch for input.

FUNCTION 14 SPEED LIMIT 4 (SL4)
(Push 14)

Same as Function 11 except using SL4 limit switch for input.

The following functions have function numbers larger than the numbers on the handset keyboard. To access these functions, push the CONT key and the number shown in the following instructions at the same time.

FUNCTION 16 SPEED / TORQUE COMPENSATION
(Push CONT and 1)

This function is used to stabilize pump speed at heavy loads. This function is set using information obtained from the speed torque curve of the motor used. See OEM service manual for your vehicle for this setting.

SPEED / TORQUE COMPENSATION TABLE

Setting	Voltage Drop	Setting	Voltage Drop
2	11.44	17	01.34
3	07.60	18	01.27
4	05.72	19	01.20
5	04.57	20	01.14
6	03.81	21	01.09
7	03.27	22	01.04
8	02.86	23	00.99
9	02.54	24	00.95
10	02.28	25	00.91
11	02.08	26	00.88
12	01.90	27	00.85

Setting	Voltage Drop	Setting	Voltage Drop
13	01.76	28	00.82
14	01.63	29	00.79
15	01.52	30	00.76
16	01.43	31	00.74

FUNCTION 17 CARD TYPE SELECTION (Push CONT and 2)

This function allows for the selection of the card type used for your vehicle's application. The table below shows the setting to select card application type depending on which control card is used.

Function	With Pump Ctr/PMT	Without Pump Ctr/PMT
STD C/L	0 to 8	36 to 44
High C/L	9 to 17	45 to 53
STD C/L BDI (Lockout)	18 to 26	54 to 62
High C/L BDI (Lockout)	27 to 35	63 to 71

BDI Lockout means that the BDI signal from the traction control must be present in order for the pump control to operate. This control will stop operation when the battery state of charge reaches 10%.

Settings for these functions should be made in between the values shown.

Warning: These setting must be changed by authorized personnel only, following instructions supplied by the manufacturer. Card type selection must be made within the capabilities of the SCR control panel used and the supporting electro-mechanical devices. Failure to comply with proper application standards could result in misoperation or damage to the control and/or motors.