

POWERHOUSE™

CAB-04e

Intermediate Cab



Operation Manual

NCE Corporation

This manual was written by the NCE Publications Department. Please address any comments to:

NCE Publications Dept.
1260 Creek Street. Suite 100
Webster, NY 14580

The identifying product names Master Series, Powerhouse Pro, PH-Pro, ProCab and identifying product numbers PB105, PB205, PB205a and PB110 are trademarks of NCE Corporation. All non-NCE brands and product names are trademarks or registered trademarks of their respective companies.



CAB-04e

To the left is an illustration of the CAB04e Intermediate Cab. Following is a description of the various controls and indicators of the cab.

ADDRESS TOGGLE SWITCH

The CAB-04e can act as *two* independent cabs depending on which way (to the left or right) the toggle is thrown. This way one CAB-04e can act as two separate cabs controlling two different trains.

The ‘left’ side cab can have one cab address and the ‘right’ side cab can have a completely different cab address and a completely different cab setup.

STATUS LED

Toward the top left of the cab, is a status LED. It will briefly flash whenever a key is pressed or will glow continuously to indicate when data entry is required.

SPEED KNOB

This knob controls the speed of the locomotive. It turns a digital encoder inside the plastic case. If the cab is set to “yard” mode the knob is “center off”, turning it to the left goes faster in reverse, turning it to the right goes faster in forward.

DIRECTION KEYS

Pressing the **FWD** key will cause the Loco to move in a forward direction. The **REV** key will cause the Loco to move in a reverse direction.

OPTION KEY

This button comes factory set up to act as a direction toggle. Each push of this button will change the direction of the locomotive. This button can be programmed to act as any button you wish (see **SETTING UP YOUR CAB**). The factory setting is “DIRECTION”. Each press of the button will change direction of the locomotive.

HORN

This button is factory set to operate Function 2 which is the de-facto standard for the horn/whistle feature of DCC sound systems. Unlike other keys which toggle functions on and off this key is momentary, activating the function only as long as the button is held down. If you wish Function 2 to stay on and off use the “2” button.

NUMBER KEYS

The keys 0 through 9 serve two purposes. First, when operating a locomotive if a number key is pressed it toggles the corresponding function on the loco (if that function is connected and supported by the decoder). The second purpose is for entering numeric data that is required for selecting a locomotive or other device.

HEADLIGHT

The “0” button (the headlight is Function 0) toggles the Headlight on and off.

ENTER

Used to confirm numeric input.

SELECT LOCO

This allows the selection of a locomotive/consist to operate. When this key is pressed, the Status LED will light indicating that a numeric entry is expected. Enter the loco/consist number, then press **ENTER**.

MACRO

Macros are explained in detail in our system reference manual. When this key is pressed, the Status LED will light indicating that a numeric entry is expected. Enter the macro number, then press **ENTER**. Macros are used to control one or more accessory decoders with a single command. In operation this is much easier than using the “Select Accy” button to control switches.

SETTING UP YOUR CAB04e

Just as every locomotive has a separate number (address in DCC terms) each cab needs a separate address so the command station can distinguish one cab from another. Each CAB04e is shipped from the factory set to addresses of 5 and 6. If you have another cab with either of these addresses you will need to change one or both addresses before using the cab.

To change the cab address:

- 1) Turn on the command station
- 2) Unplug your cab from the command station
- 3) Push the Address Toggle to the side you wish to change the cab address on.
- 4) Press and hold down the SELECT LOCO button on the cab while plugging in the cab. The cab will now enter its internal setup program. This is indicated by a flashing status LED.
- 5) Press “1” to enter the **cab address setup** mode. Notice the flashing of the LED slows signaling it is ready to accept the new address.
- 6) To change the address, type in a new address followed by the ENTER key. Valid cab addresses are 0 to 63. If you enter a number outside this range the LED will flash rapidly indicating an error. If you get an error press SELECT LOCO to cancel the error and allow you to re-enter the data correctly. An address of 0 sets

the cab back to its original factory settings (cab address 5 on the 'left' and 6 on the 'right'). If you set the cab back to its factory settings by entering cab address 0, both halves of the cab will be reset to factory settings including both addresses.

To change between REGULAR and YARD modes:

- 1) Turn on the command station
- 2) Unplug your cab from the command station
- 3) Press and hold down the SELECT LOCO button while plugging in the cab. The cab will now enter its internal setup program. This is indicated by a flashing status LED.
- 4) Press "2" to enter the **mode setup** mode. Notice the flashing of the LED slows to indicating it is ready to accept the new data.
- 5) To change YARD mode press "1", to use REGULAR mode press "0". If you enter a number outside this range it will not be accepted and the cab will continue to wait for "0" or "1".
- 6) The status LED will blink as the speed knob travels through speed 0

To set ballistic tracking rate for the encoder:

- 1) Turn on the command station
- 2) Unplug your cab from the command station
- 3) Press and hold down the SELECT LOCO button while plugging in the cab. The cab will now enter its internal setup program. This is indicated by a flashing status LED.
- 4) Press "3" to enter the **ballistic tracking rate setup** mode. Notice the flashing of the LED slows to indicating it is ready to accept the new data.
- 5) Press a digit from 0 to 7. A value of 0 essentially turns off ballistic mode and a value of 7 is maximum tracking rate. Entering a low number will cause speed knob to change locomotive speed more slowly as the knob is turned, larger numbers will cause a greater change of speed as the knob is turned. The factory setting is 3 and values from 0-7 will be accepted.

To display the cab version number (not normally needed):

- 1) Turn on the command station
- 2) Unplug your cab from the command station
- 3) Press and hold down the SELECT LOCO button while plugging in the cab. The cab will now enter its internal setup program. This is indicated by a flashing status LED.
- 4) Press "0"
- 5) After 2 seconds the LED will flash indicating a 2 digit software revision number. It will flash the number of "tens" in the number followed by the number of "ones". There will be a 3 second pause and the process will repeat. Press and hold ENTER for 5 seconds to continue using the cab without unplugging. The version should be 22 for this production release of the cab.

Setting the OPTION key:

- 1) Turn on the command station
- 2) Unplug your cab from the command station
- 3) Press and hold down the SELECT LOCO button while plugging in the cab. The cab will now enter its internal setup program. This is indicated by a flashing status LED.
- 4) Press “4” to enter the **OPTION key setup** mode. Notice the flashing of the LED slows to indicating it’s ready to accept the new key value.
- 5) Enter a new value for the OPTION key from the table below followed by the ENTER key. If you enter a number less than 64 or greater than 127 the LED will flash rapidly indicating an error. If you get an error press SELECT LOCO to cancel the error and allow you to re-enter the data correctly.

Value	Key Name	Value	Key Name
64	Enter	96	Assign Loco to Cab
65	Program	97	Program on Main
66	Recall	98	Set Clock
67	Direction (factory setting)	99	Use program track
68	Setup consist	100	Setup command station
69	Add loco to consist	101	Setup Procab
70	Delete loco from consist	102	Setup macros
71	Kill consist	103	Setup old consist
72	Select loco	104	Setup advanced consist
73	Horn/Whistle	105	Display LCD lines 3 and 4
74	1 Speed step faster	106	Forward
75	1 Speed step slower	107	Reverse
76	Emergency Stop	108	“Key 32” from old CAB01
77	Bell	109	“Key 33” from small cabs
78	Select Accy (do NOT use)	110	reserved
79	Expn (Expansion) key	111	Momentum (future)
80	Headlight, Zero key	112	F10
81	F1, number 1 key	113	F11
82	F2, number 2 key	114	F12
83	F3, number 3 key	115	reserved
84	F4, number 4 key	116	reserved
85	F5, number 5 key	117	reserved
86	F6, number 6 key	118	reserved
87	F7, number 7 key	119	reserved
88	F8, number 8 key	120	reserved
89	F9, number 9 key	121	reserved
90	4/10 seed steps faster	122	reserved
91	4/10 seed steps slower	123	reserved
92	Macro	124	reserved
93	14/28/128 select	125	“no key” pressed
94	Brake	126	reserved
95	do not use	127	do not use

Notes on OPTION key settings:

Some of the possible values for the OPTION key are impractical as they require many visual prompts on the LCD of a ProCab. In the above table the most practical key values are listed in bold type. If you are adventurous you can try some of other key values. We use Programming On The Main fairly often.

What we did to use programming on the main:

1. Set the option key value to 97
2. Use Programming on the Main with your ProCab and record the key strokes to access CV programming. (PROGRAM ON MAIN, ENTER, ENTER, 2, CV#, CV value, ENTER [the last ENTER exits programming])
3. Press OPTION on the CAB04 and notice the LED will light indicating data entry mode. Press the keys you recorded in step 2.

If you set the OPTION key to EMERGENCY STOP (76)

Pressing the **E-STOP** key once will stop the active loco/consist for this Cab only. Speed will be immediately set to zero (no momentum). Loco is restarted by changing the speed or direction.

WHOLE LAYOUT EMERGENCY STOP

Pressing the **E-STOP** key three times in quick succession will bring the *entire* layout to a stop. The Status LED will light and is cleared by pressing the **ENTER** key. Only the Cab that executed the Emergency Stop can clear it. Each Loco or Consist can now be restarted by sending it a command, such as a speed step increase or decrease, or by toggling a Function output.

If the E-Stop does not clear, press E-Stop until the status LED lights, then press ENTER again.

If you set the OPTION key to SELECT ACCESSORY (78)

You will probably lose control of your cab if you press OPTION. This happens because you currently need to press PROG/ESC to exit from the accessory control mode so the cab will appear to “hang”. The only way you can correct this by cycling the power to the command station which will take the cab out of Select Accessory mode.

To reset the cab to the original factory setup:

Set the cab address to 0. The cab will then automatically set it's internal parameters to:

Cab Address: 5 on 'left' side cab and 6 on 'right' side cab

Yard Mode (both sides): Disabled (setting of 0)

Ballistic Tracking rate(both sides): 3

Option Key(both sides): 67 (Direction toggle)