POWERHOUSE™

CAB-04p
Intermediate Cab

Operation Manual

NCE Corporation

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

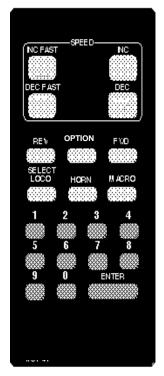To the right is an illustration of the CAB04 Intermediate Cab. Following is a description of the various controls and indicators of the cab.

CAB-04

STATUS LED

Toward the top of the Cab, between the speed control buttons, 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. If you have a CAB04e it turns a digital encoder inside the plastic case. If you have a CAB04p the knob turns a potentiometer 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. These buttons are disabled when the cab is in "yard" mode (use the knob to change 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). If left to the factory setting of "DIRECTION" the button will be disabled in "yard" mode (use the knob to change direction).

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 toggle 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 be the decoder). The second purpose is for entering numeric data that is required for selecting a locomotive or other device.   Use the **0** key for Headlight and the **1** or **3** key for Bell if you have a sound system.

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 CAB04

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 CAB04 is shipped from the factory with the address of 5. If this is not your first CAB04 you will have to change the address before using the cab.

To change the cab address:

1) Turn on the command station
2) Unplug your cab from the command station
3) 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.
4) 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.
5) To change the address, type in a new address such as 3 followed by the ENTER key. Valid cab addresses are 1 to 63. If you enter a number outside this range the LED will flash rapidly indicating an error. If you get an error go back to step 2. This finishes setting the cab address.

NOTE: previous versions of the cab required setting internal "DIP" switches to the cab address. This switch is no longer included inside the cab.

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 "**2**". If you enter a number outside this range it will not be accepted and the cab will continue to wait for "**1**" or "**2**".

To change the BALLISTIC TRACKING rate (CAB04e only):

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) Ballistic tracking provides a means the speed will ramp up/down quickly if the

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knob is turned fast and it will ramp up/down slowly if the knob is turned slowly. This gives you very fine control by turning the knob slowly yet allows quickly changing speed if you want by turning it fast. The factory setting is 3. Lower numbers lower the sensitivity and higher numbers increase the sensitivity to how fast the knob is turned. If you enter a number outside this range it will not be accepted and the cab will continue to wait for a number in the range of 0 to 7. The valid range is 0 to 7.

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 go back to step 2.

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 CAB05 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".   You can correct this by cycling the power to the command station which will take the cab out of Select accessory mode.

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