CAB-06/Cab-06r

Intermediate Cab

Operations Manual
For
CAB06 & CAB06r version 1.0

Before you do Anything Else . . .

The Cab 06 comes to you with its Cab Address set to 3. If you are using it as the additional Cab for a Power Cab, you're all set. You don't need to do anything. However, if you are using one of our other systems and you already have a Cab that is set to Cab Address 3, then you will need to change its number.

Setting the Cab Address:

1) Turn on the DCC system.

2) Unplug your Cab06 from the cab bus.

3) Plug the cab back in while holding down the **SELECT** button.

4) Release the **SELECT** key.

5) The cab will now enter its internal setup program indicated by "*Adxx*" on the LED display where *xx* is the current cab bus address.

6) If you DO NOT wish to change the address press **SHIFT/ESC** to exit.

7) If you wish to change the address type in the new address number. Addresses 1-63 are valid for all systems except the Power Cab (3) or the SB3a (2-5). Press the **ENTER** key. Pressing the "**SHIFT/ESC**" at any time will cancel the operation. If you enter Cab Address 00, the Cab06 will reset to its factory settings.

8) When you see: "nor" or "Ard" press the **Shift/Esc** key to exit setup mode.

Make sure you have the right software

With the Power Cab, SB3 or SB3a you have the right software. However, if you have a PH Pro, PH10, CS02 or PowerHouse, you need to check which software you have:

- With the system on, press the **Prog/Esc** key 5 times (**Set CMD Station**). Press the **Enter** key once. On the bottom line will be a date. The one you're looking for is **MAR 1 2007C**. If you have an earlier version, call 585-265-0230 to place a chip order.

Cab06 Operations Manual

To the right is an illustration of the CAB06 Intermediate Cab. Following is a description of the various controls and indicators.

LED DISPLAY

This 4 digit display normally indicates the current locomotive address and its forward/reverse status (decimal points above the "F" and "R").

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 KEY

Pressing the **DIRECTION** key will cause the loco to change direction. This button is disabled when the cab is in "yard" mode.

SELECT

This selects the locomotive/consist to operate. Type in the loco/consist
number, then press **ENTER**.

HORN

This button is factory set to operate Function 2 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 want Function 2 to toggle on and off use the "**2**" button. This button also turns on the cab if it is radio equipped.

SHIFT/ESC

All of the buttons of the CAB06 have several different uses. For example, the SELECT button acts as Select Loco but it may also be used as Select Accessory if SHIFT is pressed before pressing SELECT. The SHIFT button selects the "shift level" of the other cab buttons. Pressing SHIFT once puts the cab at Shift Level 1. The decimal point above the "1" on the LED display will light indicating Shift Level 1. If SHIFT is pressed a second time the "2" will light ("1" turns off) indicating Shift Level 2. If SHIFT is pressed a third time both the "1" and "2" will light indicating Shift Level 3.

The CAB can be set up to have 0, 1, 2 or 3 shift levels (level 0 has both the "1" and "2" out).

When the cab is waiting for you to enter numbers the SHIFT button acts as the ESC (escape) key.

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. Use the **0** key for Headlight and the **1** 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.

SETTING UP YOUR CAB06

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 CAB06 is shipped from the factory with the address of 3. If this is not your first CAB06 you will have to change the address before using the cab.

Entering Setup mode for the CAB06:

1) Turn on the DCC system.

2) Unplug your Cab06 from the cab bus.

3) Plug the cab back in while holding down the **SELECT** button.

4) Release the **SELECT** key.

5) The cab will now enter its internal setup program indicated by "*Adxx*" on the LED display where *xx* is the current cab bus address.

$$\overline{Adxx}$$

Setting the cab address (also reset to factory settings):

1) If you DO NOT wish to change the address just press **ENTER** to move on to the Yard/Normal option.

2) If you wish to change the address type in the new address.

- If you are using the Cab06 with a Power Cab, the Cab06 address must be 3.

- If you are using the Cab06 with an SB3, SB3a, SB5 or SB10 the Cab06 address must be in the range of 2-5.

- All other systems can use the Cab06 in the 1-63 range.

3) If you enter cab address 00 the cab will reset to its factory settings. This finishes setting the cab address.

Set Yard/Normal mode:

$$\overline{Ard}$$

$$\overline{nor}$$

If the cab is set to Yard mode, the knob is "center off" and turning it to the left will increase the speed in reverse while turning it to the right will increase the speed in forward.
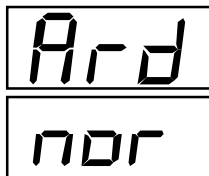
1) The LED will display "*Ard*" if the cab is in Yard mode or "*nor*" if it is in Normal mode.

2) If you DO NOT wish to change this press **ENTER** to move on to the Ballistic Tracking Rate option.

3) If you wish to change the operating mode press 0 for Normal mode or 1 for Yard mode. Pressing "**SHIFT/ESC**" at any time will cancel the operation.

Set Ballistic Tracking Rate:

Ballistic tracking provides a means where the speed will ramp up/down quickly if the 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 will lower the sensitivity and higher numbers will increase the sensitivity to how fast the knob is turned. The valid range is 0 to 7. 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.

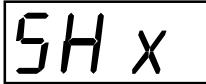1) The LED will display "*baLx*" where *x* is the current tracking rate.

2) If you DO NOT wish to change this press **ENTER** to move on to the Shift Level.

$$bALx$$

3) Any digit between 0-7 is valid . Pressing "**SHIFT/ESC**" will cancel the operation.

Set the Maximum number of shift levels:

1) The LED will display "*SH x*" where *x* is the current maximum "shift" level.

2) If you DO NOT wish to change this press **ENTER** to move on to the display cab software version number.

$$SH \ x$$

3) Any digit between 0-3 is valid. Pressing "**SHIFT/ESC**" cancels the operation.

Show Cab Version Number

This is an identifier that will show you which version of the cab is yours.

$$- \ 1.0 -$$

Set Number of Recalls:

If your NCE DCC System allows more than two Recalls, you can adjust this number from 2 to 6. Do the following:

1) Press the Shift/Esc key three times (both of the decimal points above the 1 and 2 of the LED display will be on).

2) Press the Direction key. Enter a number, any digit from 2 to 6 is valid.

The LED display will immediately return to its normal screen.

Using Recalls:

To enter locomotive numbers that you wish to be in the Recall "stack," do the following:

1) Select a locomotive or consist. When the loco number is on the display, press the Shift/Esc key once (the decimal point above the 1 will light).

2) Press the Direction key. This will add this locomotive number in the Recall "stack." You will now see the next available space in the Recall stack.

3) Repeat this process until all of your Recall spaces are filled.

4) When using the Recall feature, press the Shift/Esc key once, then press the Direction key. Keep doing this until you get to the locomotive or consist you wish.

Cab06r - Radio Equipped Operation

Update Chip for Power Pro Customers ONLY:

Satisfactory operation of this Cab06r with an NCE Power Pro system requires software version Mar 1 2007C, or newer (included in this package). Please see installation instructions on separate page.

About your wireless Cab06:

The wireless version of the Cab06 is designed to eliminate the need for tethered operation of an NCE Cab. It is equipped with an **Internal Antenna**. The radio is battery powered and will supply power for both cab operation and the radio itself. The Cab has a built in battery chamber for four AAA battery cells.

Wireless communications:

We are continuously asked about the operating distance of the wireless cab. There are many factors governing the useful range of wireless products. The Cab06r operates in the ISM (Industrial, Scientific and Medical) radio band at 916.5 MegaHertz (Mhz). Many cordless phones, wireless computer networks, home automation systems, and wireless security devices also operate in this portion of the radio band and all contribute to radio interference. In any radio system, propagation of the radio signal will suffer in the presence of 'in band' interference. When devices operate in the same frequency band they may contribute interference to the point where your cab may not work at all. On the other hand your wireless cab may interfere with the operation of the other devices you already own. Radio waves are like one big 'cocktail party' where everyone is talking at once. A device using these radio waves must attempt to sort out what 'voices' are relevant to its operation and which ones are 'noise'. If there is too much noise it can't do this successfully and will operate poorly or not at all. Indoor radio propagation is an issue for special consideration. The human body readily absorbs RF energy in the frequency band used by the Cab06 radio. Placement of the base station can mitigate blocking of the radio signal due to human body absorption. In most indoor situations 'dead spots' can be found where reception is very difficult. These can occur even if there appears to be a direct line of sight between the transmitter and receiver. These dead spots, or 'nulls', are the result of multiple radio transmission paths between two points caused by reflections off metal objects such as steel beams, screen wire, concrete rebar, metal door and window frames, ceiling tile frames, model railroad track, etc. Nulls occur where the path lengths differ by an odd ½ wavelength (about 6 inches at 900 MHz). Deep nulls are usually very localized and can be avoided by moving slightly, usually only a few inches. When performing complex tasks involving many messages displayed on the Cab,

communications between the cab and command station may take longer than expected thus slowing down your operation. In these instances you may find it more expedient to plug in the cab while doing extensive programming or system setup.

Operation of the Radio Cab:

To turn on the cab:
Press "HORN" key. The Cab06 will activate and the LED on top of the case very briefly flash. Once the cab communicates with the base station normal operations can begin just as if you were plugged in to the cab bus.

Description of LED activity:
The LED on top of the cab will flicker every time it communicates with the base station. A regular pulse of this LED indicates good quality communications. The flickering will become erratic when you are getting out of range from the base station. You can use this LED "heart beat" to 'map out' weak signal areas and 'nulls' of the layout room. Priority is placed on commands getting from the cab to the base station. As you approach the maximum range of the cab, updates to the LED (on/off) will lag behind the commands being sent to the base. If the base station is not able to read the LED updates it will try to re-send them 16 times before giving up. The base station LEDs flash brightly when it is trying to send display update information.

To turn off the cab:
Just let it "timeout" and shut itself off. Optionally, you can press the **SHIFT** key then the **HORN** key at the same time. The Cab06 will turn off.

Automatic shutdown:
As it comes from the factory, the cab will automatically shut itself off after 10 minutes of inactivity.

Cab Addresses:
The wireless **Cab06** works best when set to cab addresses in the range of 19-49. It will operate more slowly when set in the range of 2-17.

Tips:

• We recommend having several of our UTP or DIN plug-in panels located around the layout where you can plug in the cab in case the battery goes dead or conditions such as severe interference cause loss of control via radio. We usually hang a short cab cable about 2 feet long from a small number these panels to facilitate plugging in during an emergency.

- The cab may not operate when you get within 1 foot (300mm) of the base station (other cabs will still operate normally). This is due to 'overloading' of the base station receiver.

- The cab works better while it is vertical rather than pointing towards the base station.

- In crowded layout rooms we've had good luck attaching the base station to the ceiling with its antenna pointing down.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause interference with radio and television reception. This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules.

This device and been tested and found to comply with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
1) This device may not cause harmful interference.
2) This device must accept any interference received, including interference that may cause undesired operation.

Notice: The FCC regulations provide that changes or modifications not expressly approved by NCE Corporation could void your authority to operate this equipment. These limits are designed to provide reasonable protection against harmful interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference with radio or television reception, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by one or more of the following measures:
• Reorient the receiving antenna.
• Relocate the system with respect to the receiver.
• Move the system away from the receiver.
• Plug the system into a different outlet so that the system and the receiver are on different branch circuits.

If necessary, consult a representative of NCE Corporation or an experienced radio/television technician for additional suggestions.

Warranty

This product is fully factory tested and warranted against manufacturing defects for a period of 1 year. As the circumstances under which this product is installed can not be controlled, failure of the product due to installation problems can not be warranted. This includes misuse, miswiring, operation under conditions beyond the design range of the product. No guarantees are expressed or implied as to the suitability of the product for its intended use by the purchaser. No guarantees can be made as to the communications range or performance of this product in the presence of radio or other electromagnetic interference. It is possible that interference can cause undesired operation including loss of control of speed, direction etc. Damage to purchaser's equipment due to loss of control is not warranted or covered by NCE.
For warranty or non-warranty service, call 585-265-0230 Monday through Friday 9:00am till 4:00pm.

Cab06 Shift Reference

SHIFT/ESC	Normal	First Shift	Second Shift	Third Shift
SELECT	Select Loco	Select Accy	Select Macro	
DIRECTION	Direction	Recall		Set Recalls
HORN	Horn			28/128
0	F0	F10	F20	Speed 0
1	F1	F11	F21	
2	F2	F12	F22	
3	F3	F13	F23	
4	F4	F14	F24	
5	F5	F15	F25	
6	F6	F16	F26	
7	F7	F17	F27	
8	F8	F18	F28	
9	F9	F19		
Enter	Accepts last Entry			Refresh Display

Cab06 Radio On/Off

Radio On = HORN

Radio Off = Hold SHIFT while pressing HORN

SEL	-Loco	^SEL	- Accy
DIR	-Direction	^DIR	- Recall
0-9	-F0-F9	^0-9	- F10-F19
HORN	-Horn	^Horn	-
^^SEL	-Macro	^^^SEL	-
^^DIR	-	^^^DIR	- Set Recall
^^0-9	-F20-F28	^^^0	- Speed 0
^^HORN	-	^^^HORN	- 28/128
Horn	-Radio On	^+Horn	- Radio Off

Setup	**-hold Select while plugging in**
Adnn	-Sel cab address (1-63)
Nor	-0=normal, 1=yard
BAL	-Ballistic tracking (1-7)
SH-n	-Max shift level (0-3)

Spare copy of rear label