



Power Pro Software Update Notes

Effective date: 1 March 2007

Summary of some of the new features

- ✓ **Ability to delete or replace lead/rear locos from advanced consists**
- ✓ **Improved turnout control**
- ✓ **Introduction of “playable” whistles for sound decoders**
- ✓ **28 Functions now available with all cabs**
- ✓ **Improved OPs mode programming of sound decoders**
- ✓ **Addition of new NMRA OPs programming modes for accessory/signal decoders**
- ✓ **Support for Analog Fast Clocks**
- ✓ **Improved support for Signal decoders**
- ✓ **Clear recalls, selected locos of all cabs without resetting whole system**
- ✓ **Clear all advanced consists from system memory without resetting whole system**
- ✓ **New, improved computer operation and programming commands**

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If you are updating from version:

DEC 21, 2004: Macros, consists and system setup memory will be preserved. Currently selected locos and recall stacks of all cabs will be cleared.

APR 9, 1999 or earlier: All memory will be cleared and reset back to factory default conditions.

Fixes for bugs in the Dec 21, 2004 version of system software:

1. The AIU broadcast mode was always on regardless of the BROADCAST ENABLE setting in the SET CMD STA menu.
2. OPS programming packets may have had intervening speed or function packets. This resulted in the inability to program some CVs in sound decoders on the main.
3. Function group 2 commands sent to the *consist* address did not have bit 4 set resulting in a function group 3 command being sent. The proper commands for F5-F8 are now sent to consists. Function commands to lead, rear and individual locomotives were always sent correctly.
4. The <BRAKE> button works again. When <BRAKE> (the default value of the ProCab OPTION button) is pressed the current loco's speed is set to zero. This was broken in the 2004 version. Apparently no one noticed.
5. Computer command 0x81 did not set the previous locomotive speed to 0 or clear out any old function information when assigning a new loco to that cab. This has been fixed. Assigning a consist to the cab by the lead or rear loco address will still not be recognized as a consist by the cab. Assigning an advanced consist by its short consist address will work.
6. When using the 0xA2 or 0xA4 binary commands for locomotive control, speed updates for the locomotive controlled by the computer were occasionally displayed on ProCabs attached to the cab bus. Which cab displayed the speed was random due to stack corruption. This has been fixed.
7. The command station no longer prints redundant speed zero messages to the ProCab LCD every time the thumbwheel is moved downward when the speed is already at 0. This improves radio performance by reducing Tx buffer overflows in the radio base station.

Fixes for bugs in older versions of system software:

1. 128 speed mode commands from 2-126 were sent 1 step lower than the display on the cab indicated.
2. The HORN button would repeat after 4 seconds causing an interruption in long duration horn sounds.

Changes to features found in previous versions of system software:

1. The SET CAB ADDR feature has been removed from the SET_CAB_PARAMS menu. This feature was little used. It is actually easier to set the cab address by holding down SEL_LOCO and plugging in the cab.
2. The clock is now updated (almost) immediately when you plug in a cab. This helps eliminate the "AB V1.3" message on the top line of the display until the clock changes time when the cab is plugged in.
3. FUNCTION REFRESH (in the SET CMD STATION menu) has been changed from a numeric value to ON or OFF.
4. When Function Refresh is enabled no refresh packets are issued for function "groups" where all functions are off. There are 3 function groups: FG1 = F0-F4, FG2 = F5-F9, and FG3 = F9-12. Functions 13-28 do not need to be refreshed because decoders are required to remember function states for functions F13 or higher.
5. The "status" LED on the right half of the Power Pro system box now lights when using the program track via binary mode. This is the only time this LED should be lit
6. OPs mode CV programming now allows programming of CV numbers 1-999. If CV0 is entered CV1024 will be programmed. CVs 1000-1023 are not programmable due to space limitations on the LCD. Those CVs can still be programmed through the computer port.

New features in this version

Consists:

It is now possible to drop the lead or rear loco from an advanced consist. If you drop one of these locos you will be prompted for a new lead (or rear) loco. The new lead (or rear) loco *MUST ALREADY* be a member of the same consist.

The mid-consist loco is "promoted" to lead or rear status and the consist can now be selected by that address just as it could be selected by the old lead loco.

Just pressing <ENTER> at the prompt for a new lead loco will clear out the lead (or rear) loco address "slot" in system memory. If you drop both the lead and rear locos without adding at least one in the lead or rear, any mid-consist locomotives will remain in the consist. The consist then can only be selected by the consist address as no lead or rear loco is in memory to identify it.

The locomotive that was dropped from the consist will be selected for operation. We assume that if you drop the loco you will want to move it away from the remaining consist.

If the same consist is in a cab recall slot that was selected by the dropped locomotive address, the cab can operate the consist but the cab display will still show the dropped loco's address as the lead loco. Reselecting the consist will correct the problem.

Playable Whistle:

If you have advanced sound decoders such as Soundtraxx™ Tsunami or Digitrax Sound FX™ you can setup your NCE ProCab or Cab04e to access the playable whistle feature of the decoder. You will play the whistle by holding the HORN button down while operating the thumbwheel. When you release the HORN button you will be returned to speed control.

The ballistic tracking of the thumbwheel applies to the whistle as well as speed control. If you move the thumbwheel fast the whistle will reach maximum pitch faster. You may want to adjust the ballistic tracking in the cab for a better feel.

In factory default configuration the HORN button sends only momentary function on/off commands. To enable sending of playable whistle commands you must set the ANALOG HORN CHANNEL (in the SET CAB PARAMS menu) to match the analog horn channel of the decoder. Values from 0-255 are valid. If 0 is chosen no analog commands will be sent. The playable whistle channel is normally 127.

Once the analog horn channel is set to the proper channel you should set the ANALOG BIAS.

This is the starting pitch value for playing the horn (whistle). Values can be from 0-15, we normally use 8. If you leave the bias set to 0 the whistle will always start at its lowest pitch.

You can have different analog channels on each cab. Every cab can also have its own bias point as well to match each operator's personal taste

If configured for playable whistle the HORN button simultaneously sends analog commands along with normal function on/off commands. This allows you to sound the whistle on non-playable whistle decoders or play the whistle on advanced decoders without having to change the horn settings of the cab when running different locomotives.

Enabling the playable whistle on sound decoders:

Soundtraxx™ Tsunami - Set CV47 = 127

Digitrax™ Sound FX - Set CV150 = 1

Alternate Playable Whistle using the <OPTION> button:

The OPTION button can also be used to control playable whistles when programmed for AUX analog operation

The analog channel for the OPTION button can be chosen under the SET CMD STA menu. Values from 0-255 are valid. If 0 is chosen no analog commands will be sent.

You can play the whistle in the same manner as when the HORN button is set for playable whistle. Hold the OPTION button while operating the thumbwheel. When you release the button you will be returned to speed control.

You must program the OPTION button of the ProCab to 123 for this feature to work.

Programming the OPTION button:

- unplug the ProCab
- hold down the SEL LOCO button while plugging it in
- press ENTER (about 5 times) until you are prompted for the OPTION button value
- put in 123 and press ENTER
- press PROG/ESC to get back to operations mode

Functions 13-28:

Control of functions F13-F28:

To access these function numbers program the OPTION key of any cab to a value of 122.

Pressing OPTION will display "F10-F19" on the bottom line of the ProCab LCD. Pressing a digit will then toggle that function number plus ten. For example pressing 6 will issue an F16 command.

Pressing OPTION a second time will display "F21-F28" on the LCD. Pressing a digit with this display will toggle that function number plus twenty.

Pressing OPTION a third time will return to the F10-F19 display.

Pressing PROG/ESC at any time will abort the operation.

Display of function F1-F28 status:

Pressing EXPN key will now show the status of functions 1-28.

The top line of the LCD has functions 1-14, '-' means the function is off and a digit (1=F1, 2=F2, etc.) means the function is on.

The bottom LCD line shows functions F15-F28 in the same manner.

Pressing EXPN a second time returns the cab to the normal display.

Support for "New" Accessory OPs programming:

Accessory OPs programming now issues both the old "legacy" (5 byte) OPs command for accessories plus the "new" accessory OPs command (6 byte).

The old command could only address accessory decoders in groups of four. The new command can address one single decoder address. For the new command to work your accessory decoder must support the new packet. NCE SWITCH8, SIG12, SIG4, SNAP-IT (rev B), SWITCH-IT (Rev. C) and the Circuitron SMAIL decoders support the new packet.

Clear all advanced consists:

Under the SET CMD STA menu an new option to "CLEAR ALL ADV CONSISTS" has been added. Press "1" to clear the consists. This will clear command station memory of all lead, rear and mid-consist locomotive addresses. A broadcast command will be sent to all locomotives on the layout to exit advanced consist mode (CV19=0).

Any cabs that have advanced consists selected (or in recall) will still show CON: on the top line of the LCD display but not be able to control the consist (as far as the command station is concerned the consist does not exist). To clear the CON: just select a new locomotive to run.

Clear all cab memory:

Under the SET CMD STA menu an new option called "CLEAR ALL CAB MEMORY" has been added. Press "1" to clear the cabs. This will clear out all currently selected locos, all recalls, function status, speed and direction information for every cab. Cab address 2 will have locomotive 3 selected automatically, all other cabs will have short address 0 selected. Consist, Macro and computer cab information will be preserved.

Enhanced accessory control:

The command station now keeps a database of the last accessory (turnout) command sent for all accessory addresses. The bottom line of the SELECT ACCY prompt on the ProCab LCD has been changed to reflect the current status of the accessory.

The database is updated for every accessory command issued by the SEL ACCY button, macros, macro panels, or computer control of turnouts with the 0xAD command (but NOT via the 0x93 command).

An added convenience feature has been added. Pressing SEL ACCY twice at the normal display will toggle (reverse) the position of the current accessory.

Lockout certain cabs from consist menus:

You can now set the highest cab number to setup, kill or modify consists. This is found in the SET CMD STA menu. As always a value of 0 allows all cabs access.

All cabs are still able select and run consists.

Broadcast Programming on the Main:

Broadcast programming has been added to the PROGRAM ON THE MAIN menu.

Option 0 forces the OPs programming address to short address 0. Use of this feature can be very dangerous as it *WILL* program *all* decoders on the layout at once.

The system will force you to have a valid loco address selected before you can enter PROGRAM ON THE MAIN. When you select option 0 the top line of the LCD will display "LOC: 000" indicating you are now in broadcast programming mode.

Use caution - ALL programming mode options are available to you at this point.

When you exit PROGRAM ON THE MAIN short address 0 will still be selected so you must enter a valid address to perform any normal system tasks.

COMPUTER RELATED STUFF

DELETIONS

All ASCII mode RS232 commands have been removed.

CHANGES:

The version returned by binary command 0xaa is now 6.2.0

ADDITIONS

New binary mode RS232 commands (see below)

New 0xAD command sends accessory or signal packets.

This command can also issue NCE macros

Command Format: 0xAD <addr_h> <addr_l> <op_1> <data_1>

Addr_h and Addr_l are the accessory/signal address as a normal binary number (NOT in DCC format).

Ex: Accessory Address 1 = 0x00 0x01 (hi byte first)

Ex: Accessory Address 2 = 0x00 0x02 (hi byte first)

Ex: Accessory Address 513 = 0x02 0x01 (hi byte first)

NOTE: accy/signal address 0 is not a valid address

Op_1	Data_1	Operation description
01	0-255	NCE macro number 0-255
02	0-255	Duplicate of Op_1 command 01
03	0	Accessory Normal direction (ON)
04	0	Accessory Reverse direction (OFF)
05	0-1f	Signal Aspect 0-31
06-7f	reserved	reserved

Returns: != success

1 = bad accy/signal address

Addition of functions F13-F28 is to the 0xA2 command

Detail of command 0xA2:

Command Format: 0xA2 <addr_h> <addr_l> <op_1> <data_1>

Addr_h and Addr_l are the loco address in DCC format.

If a long address is in use, bits 6 and 7 of the high byte are set.

Examples: Long address 3 = 0xc0 0x03

Short address 3 = 0x00 0x03

op_1 data_1 Operation description

01	0-7f	Reverse 28 speed command
02	0-7f	Forward 28 speed command
03	0-7f	Forward 128 speed command
04	0-7f	Reverse 128 speed command
05	0	Estop reverse command
06	0	Estop forward command
07	0-1f	Function group 1 (same format as DCC packet for FG1)
08	0-0f	Function group 2 (same format as DCC packet for FG2)
09	0-0f	Function group 3 (same format as DCC packet for FG3)
0a	0-7f	Set reverse consist address for lead loco
0b	0-7f	Set forward consist address for lead loco
0c	0-7f	Set reverse consist address for rear loco
0d	0-7f	Set forward consist address for rear loco
0e	0-7f	Set reverse consist address for additional loco
0f	0-7f	Set forward consist address for additional loco
10	0	Del loco from consist (use lead loco address)
11	0	Kill consist (use lead loco address)
12	0-9	Set momentum
13	0-255	No action always returns success
14	0-255	No action always returns success
15	0-255	Function 13-20 control (bit 0 of data_1 = F13)
16	0-255	Function 21-28 control (bit 0 of data_1 = F21)
17-7f	reserved	reserved

Returns: != success

1 = bad loco address



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The Addendum's Addendum

The process to access additional Function numbers (F10 through F28) of the Pro Cab in the Addendum is correct. However, there is an easier way to do it!!

Without changing any of the key values, press and **HOLD DOWN** the SHIFT key. **While** holding the Shift key down, press the HEADLIGHT key once to access F10 through F19. **While** holding the Shift key down, press the Headlight key one more time to access F20 through F28. Release both buttons. You will see the F10-F19 or F20-F28 displayed on the Pro Cab LCD in the lower, right corner.

To turn on or off a function, just press the **LAST** digit of the function number. For example: To turn on Function 14, press and **HOLD DOWN** the SHIFT key **while** you press the HEADLIGHT key. Release the Headlight and Shift key. Then press the 4 button. Function 14 will turn on.

To turn on Function 23, press and **HOLD DOWN** the SHIFT key **while** you press the HEADLIGHT key **TWICE**. Release the HEADLIGHT and SHIFT key. Then press the 3 button. Function 23 will turn on.

This is a toggle key sequence. When you turn a Function on, you will need to go through the sequence again to turn the Function off.

If the cab is tethered (NOT in radio mode), press the EXPN key and you can see which function is turned on or off. This is a display only, you must go back to SHIFT and HEADLIGHT keys to actually turn a function on or off.



LOC: 1234 12:25 AM
FWD: 000 F10-F19

LOC: 1234 12:26 AM
FWD: 000 F20-F28

The LCD Screen at the lower, right is where you will see the indication that you are in F10-F19 or F20-F28 Functions.

F: _____
F: _____

Pressing the EXPN key will show the above. Press the PROG/ESC key to exit this screen.