

**“PRODIGY ADVANCE, ADVANCE SQUARED, WIRELESS CONVERSION SET,
AND EXPRESS TIPS AND TRICKS”**

By Frank Verrico, M.R.C. Tech Support
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When you get your new Prodigy Advance or Express DCC system up and running for the first time you should clear your handheld, [cab], before running any locomotives. Due to factory testing there are “ghost” addresses in the display that may confuse the first time user.

Press and hold the “Delete” button until only one address remains in the display, [it has to show something].

Keep pressing your “Recall” button to make sure that address is the only one left.

At this time input one of your own addresses or Default Address #3, [used for checking new decoder installations or if you purchased a brand new loco with a factory equipped decoder that has never been programmed].

Unplug the cable from the bottom of your handheld.

“Svda” flashes briefly.

Now plug the cable back in and your handheld is now clear of the “ghost” addresses.

If you already have locomotives that have addresses assigned to them, now is the time to run them to check the operation of the DCC system.

Press the select “LOCO” button.

Input your loco’s address, [up to 4 digits].

[If you have a loco with an address of example “003” or “03”, just input a plain “3”. Prodigy Advance and Express will not recognize zeros at the beginning of an address. An address like “4003” is a valid address and is inputted as “4003” not “43”]

Press the “Enter” button.

Repeat above steps for each additional loco

****The above steps do not program an address into the decoder/loco, it allows you to acquire an already known address.***

You can enter up to approx. 25 locomotive addresses at this time for your stack, but the system will only remember the last 5 used when you shut the system down, **remember this for the future.**

Use your “recall” button to scroll through the loco addresses. When you find the loco you want to operate stop scrolling.

Check the locos functions- Use the throttle knob, make sure the loco moves, use with “Direction” button to check forward and reverse movement.

Press the “Light” button, function number “F0” to make sure headlights work.

If the loco has sound, press any of the sound function buttons, “F1-F19”, to check sound functions.

If everything works at this point, use your “Recall” button to check your other locomotives in the same manner.

***Note- If you were previously running locomotive addresses on an older DCC system like the M.R.C. Command 2000, or AD150-Prodigy DCC, and some other manufacturer DCC systems, and the locomotive will not now run on the Advance or Express, and you have not changed the address since running on that older system...Try Re-programming that locomotives same address on the Advance or Express, then try to run it again...**

Due to advances in technology the newer systems may not recognize that same address programmed into a decoder from an older DCC system, simply re-programming it's old address or programming a new address into, should get it to run again. Or, like me, you might have simply forgotten that locomotive's address if you haven't run it in awhile, and the address is not the locomotives road number...*It happens to the best of us.*

“HINT”:

If most of your locomotives work, but some do not, chances are there is not a problem with your MRC DCC system. Check the locomotive/decoder for trouble. A slight mistake in decoder installation can go unnoticed underneath the body shell.

TO SAVE YOUR FAVORITE, [up to], FIVE LOCOS at the end of your operating session, either:

Use you “Recall” and “Delete” buttons to scroll through the loco addresses you want and don't want, or...

Use your “Recall” button to scroll for, and run your five locos.

BEFORE SHUTTING DOWN YOUR SYSTEM...

Unplug the cable from the bottom of your handheld.

“Svda” Flashes briefly.

Plug the cable back into the handheld.

Then turn off your “Power” Switch on the Prodigy Advance or turn off the layouts main power or unplug the power supply if your are using the Prodigy Express.

Note: If you use multiple handhelds on your layout, [using the 0001501, or 0001502 extension plates], or just plugged into the base unit. Perform the above steps for each handheld that you would like to save the addresses in from the operating session.

If you add or change locos during an operating session, these steps should be done after each and every operating session, before turning off the main power. This will ensure that your locos are in the handheld's memory for the next time you run your trains.

Handheld Display- Your Prodigy Advance or Express handheld has a LCD, [liquid crystal display], which is very sensitive. If upon setting up your DCC system, and connecting it to your layout, the display does not show anything, check the following:

*Make sure it is plugged into the correct port on the base unit.

*Make sure LED on power supply is on, [Prodigy Advance only], this shows you have power in your power supply.

*Check to see if your Base unit's pilot light is on. This shows that your base unit has

power.

If all of the above is working properly, [power supply light is on, base unit pilot light on], remove the green plug from the rear of the base unit, or disconnect the “to track” wires from the base unit to your layout. If the display now works, check your layout for a small short circuit, [low impedance]. This type of short circuit may not activate the circuit protection in the base unit, [pilot light/link light flashing], but will prevent your handheld’s display from showing anything.

***NOTE:** Do not leave or use your handheld in direct sunlight for a long period of time, this will cause the display, [LCD], to malfunction.

Using more than one handheld:

When you add extra handhelds to your Prodigy Advance or Prodigy Express you must assign an individual address to each handheld. This address is remembered by the handheld and it cannot be the same address as any other handheld in use. ***All*** handhelds regardless of each type come with a factory default address of Cab #1. If the handhelds are not assigned individual addresses the system may run slower or not run correctly. You should always have one handheld assigned **Master Address #1**, and then each additional handheld should be numbered consecutively.

With the Prodigy Advance System, [base unit], if you use more than eight handhelds, flip the handheld switch to the appropriate setting on the base unit. This switch allows the system to operate at its optimum speed.

To change handheld addresses:

Prodigy Advance handheld-

Press “SYS” button, followed by, [function] 6 button.

“Cab” will show in display, [present address flashes briefly].

If this is the address you want for this handheld, use “RECALL” button to escape without changes.

If you want this handheld to have a different address, use the function buttons to input the address and press, “ENTER”.

Prodigy Express handheld-

Hold down the function button #6, while unplugging the cable from the bottom of the handheld.

“SvdA” flashes in the display.

Keep holding down button #6, while plugging the cable back in.

“Cab” shows in the display, present cab address flashes briefly.

If this address is what you want, press, “RECALL” to escape without changes.

If not, use the function buttons to input the address, then press, “ENTER”.

Note-*** *If you purchase a new Advance handheld or Express handheld and initially plug it in, you might get a display reading-“00FF”. If this occurs just input 5 loco addresses into the recall stack, [they can be just ghost addresses if you do not have 5 locos]. Unplug the cable from the bottom of the handheld, “SvdA” flashes briefly. Plug the cable back in and resume operation, after assigning the new handheld it’s own unique address. At this time you can either delete the extra addresses entered, or just leave them be.*

Checking Your System's Power Output:

If you feel the need to check voltage at the rails of your main layout or the rails of your program track you should use a "Digital Multi-meter" available at most Electronic Supply Stores or Home Improvement Stores. You can purchase different types of test lights made for DCC systems through some after market retailers, but these will only indicate that there "is" or "is not" voltage at the rails, it will not give you a numerical value for trouble shooting.

On The Main Tracks:

Without any locos or lighted passenger cars on the rails. This is a no load test. [Any type of a load on the rails lowers your track voltage, and you will not get a correct reading]. Set the meter to the "A.C." scale, [you will not get a correct reading on the D.C. scale]. You should get approximately anywhere from 14 to 16.5 volts a.c., [plus or minus a volt or two would be in an acceptable range]. This would indicate that your systems output to the main track rails is at an acceptable level and in good working order.

On The Program Track:

Normally there is **No Power** on the Program Track until you enter the Programming Mode and input data.

With your meter still set to the A.C. scale, and no loco on the track, attach the test leads to both rails of the program track, [if your meter came equipped with alligator clips this is most useful].

Enter The Program Mode-

Press the "Program" button once.

Your display will read-"Pro9 Prog Track", [By the way, the "9" in "Pro9" is the displays way of indicating a "g". this is normal".

Press the "Enter" button.

Your display will now show - " _ _ _ _ Prog Track" with Adr under the 4 bars.

Just input any value with your "numbered buttons", [0 0 0 0 is good, remember this is just a test].

Press the "Enter" button

Your "Link" light will flash.

And your meter will register a brief 10.5 volts a.c., [again there could be a plus or minus 1 or 2 volt variable].

This indicates that the programming side of your DCC system is operating correctly.

If both tests are positive, then your system is in good working order, and should be trouble free, and you will be able to operate your locos. If your systems fails one of the above tests, contact M.R.C. Tech Support at 732-225-6360 for further help.

PROGRAMMING LOCOMOTIVES:

Most decoders and factory equipped decoder locos come pre-set with a factory default address of #3. You should always test run your loco/decoder on address #3, before programming anything into it to make sure it runs properly.

“A good rule of thumb is ...If it don’t work on address #3, check the following”

Is your power supply plugged into the wall outlet.

Is your power supply plugged into your DCC system base unit.

Check the wiring from your DCC system to the layout.

Check all layout wiring.

If you were using blocks with cab control, are all switches flipped to the correct side for your track power.

If you installed the decoder, check your installation.

If your loco came with a factory installed decoder, contact the manufacturer, and be guided by their Tech Support help.

If your initial testing went as planned, the loco responded to address #3 and all it’s functions are working properly, now it is time to [re-] program it.

Note- Always test a newly installed decoder on a test track with the proper voltage limiting resistor installed in-line. This prevents full voltage from going to the loco/decoder combination to avoid burning out the decoder, if the decoder is installed incorrectly. If your address #3 check does not work on the test track, disassemble the loco and check your installation.

Always perform your initial programming on a program track, [a separate piece of straight track, that is as long as your longest loco will do]. This track does not have to be part of the layout proper, if it is make sure to use insulated rail joiners on both rails on both ends of the track if your program track is included in your main layout tracks somewhere. Make sure that the terminals marked “Program Track” are correctly hooked up to your Program Track.

Initial programming should be assigning the loco/decoder a new address, other parameters can be programmed into the decoder later on after running it awhile, and seeing how it reacts to throttle settings and other layout related items. If your decoder supports programming on the main, [ops mode programming], these other parameters can be done on the mainline later on.

With the loco on the program track, enter the “Program Mode”

Press the “Program, [PROG]” button once.

Your display will show- “Pro9 Prog Track”.

Press the “Enter” button.

Your display will show- “_ _ _ _ Prog Track”, with “Adr” below the four bars.

Input your locos new address, [0-9,999].

Press the “Enter” button.

Your “Link” light will flash, and your display will flash “Send”.

Move the loco to your mainline.

Press the Select “LOCO” button.

Input the new address into the display.

Press “Enter”

Your Loco should now respond to throttle movement and function button inputs.

If Your loco works on it’s new address, run it for awhile, to see how it operates, then you can program it’s other parameters either on the main or program track.

Programming other parameters:

With the Prodigy Advance or Express, there really is no need to know which CV numbers are used to program your loco's running characteristics, like "Start Voltage, [SV]", "Acceleration, [Acc]", "Deceleration, [dEc]", and "Top Voltage, [TV]", once you enter the address and press "Enter" the next step comes up.

There is no hard, fast, rule of thumb, on what values to input into these running characteristics. Most decoders come with a CV chart showing the minimum and maximum values that these CV's can accept, plus what the factory default value is. Also most manufacturers do not have hidden CV's in their decoders, the CV's that are listed, are usually the only ones built into the decoder. You have to experiment with the different values for each particular locomotive to get it to run like you expect it to. The best way to do this, is to set every to zero, then go up one value at a time.

Something to remember- if you set these values while the locomotive is running "light", [no rolling stock being pulled], any piece of rolling stock you add or subtract will affect the settings. That is where "no hard, fast, rule" applies, you might have to adjust these settings for the train that the locomotive is hauling at the time.

Start Voltage- Some locos may need more voltage to get their motors and gearing moving. If you turn up the throttle on your DCC system and for example the loco does not start to move until a higher number is showing on your display, then you have to add a higher value into the Start Voltage CV.

Acceleration and Deceleration- Otherwise known as "Momentum", these settings affect the time that the loco goes from a standstill to full throttle setting to simulate the drag a real train experiences when hauling a load. Again a locomotive traveling "light" will start and slow down faster then it will when pulling a mile long freight train. ****An easy...steady hand on the throttle can give you the same effect for the conditions at hand.***

Top Voltage- This setting can limit the top speed that the locomotive can travel... The higher the value the faster it can go. For example if you have a fast passenger locomotive you would want it's maximum speed, [higher value], if the locomotive was a diminutive switcher, you would input a lower value into it's Top Voltage setting, so it travels slower, but gives you full range of the throttle knob.

This setting is also good, if you know someone with an itchy trigger finger, who likes to operate your trains as if they were slot cars. Set any train that they use to a lower Top Voltage setting, this will avoid having you constantly picking up your trains from the floor.

Programming CV#29- This CV is the heart, soul, and brains of the decoder, a wrong value inputted into this CV can put the decoder to sleep. If you must change the value of this CV, please visit our website www.modelrectifier.com and check out our CV #29 chart.

Programming other functions- For changing other functions, like lighting, sound effects or decoder function re-mapping, please read your decoders instructions carefully. If you are doubt about any programming that you need to do, you can contact the decoder manufacturer for help.

Re-setting a decoder to it's Factory Defaults- Most newer decoder have a CV to re-set the decoder back to it's original settings. If you goof, and your decoder does not respond to it's address or functions, follow the decoders instructions to re-set. On some older decoders that do not have this feature, sometimes going CV by CV, and following the default setting values listed in the instructions, and inputting these values into each CV, might bring the decoder back to life.

Programming Broadway Limited/OSI Locomotives- Depending on the vintage of these locomotives, some program well on a program track, some program well on the mainline, and some need a combination of programming on both. These dual function, sound equipped locomotives come with a Factory Default address of #3, and as stated previously, it is better to run them first on address #3, to make sure everything works correctly. Programming a four digit address into them can be a bit tricky, due to the fact that as you program them, they talk back to you to acknowledge the programming inputs. Programming a four digit address is a two step process automatically performed by your DCC systems programming mode. First the system inputs the correct values into CV #17 and CV #18, to assign the four digit address, then step number two, your systems inputs the correct value into CV #29 to activate the four digit address. Because this two step process is sent to the decoder in micro-seconds, the decoder misses the second step, while the decoder is talking back to you to confirm the first step. In my experience with trying to program a four digit address into them:

Place loco on program track

Enter the Program Mode on Program Track

Input in your 4 digit address, [By the way, any address from 128 to 9,999 is considered a 4 digit address in computer language].

Press the "Enter" button.

Wait a few seconds, or for the verbal confirmation from the locomotive to finish speaking.

Press the "Enter" button four more times to enter the CV Programming Mode.

Your display shows- "CV# Prog Track", with " _ _ _ " underneath.

Input "29", [for CV #29].

Press the "Enter" button.

Your display now shows- "CV Prog Track", with " _ _ _ Data".

Input "34", [as a value].

Press the "Enter" button.

Press the "Recall" button to exit the Program Mode and return to the Run Mode.

Place the locomotive on your main track.

Press the Select "Loco" button, and input the address that you assigned to this locomotive.

Press the "Enter" button.

Try running the loco.

If you have lights and sound functions, but no movement, chances are the loco is not receiving the CV #29 packet, so try one more step while the loco is on the mainline; Press the “Program” button twice.

Your display will show “Pro9 Main Track”

Press “Enter”.

Your display will show “LOCO, flashing address of your loco, Main Track”.

If the address flashing is the correct address for this loco;

Press the “Enter” button six times.

Your display will show- “CV# Main Track” with “ ___ ” underneath.

Input “29”, [for CV #29].

Press “Enter”.

Your display now shows- “CV Main Track”, with “ ___ ” underneath.

Input “34”, [as a value].

Press “Enter”

Press the “Recall” button to exit the Program on the Main Mode, and scroll for the loco’s address.

Try running loco again.

If this does not work, try re-setting the loco as per the instructions to it’s factory default settings. Then contact the manufacturer for further guidance.

***NOTE: Some newer locomotives with OSI sound systems have an extra CV added to them. CV #62 let’s you disable/enable the verbal announcements. To disable the verbal announcements so the decoder does not miss the CV #29 packet input a value of “0” in CV #62. Once you have the locomotive programmed you can then enable the verbal announcements by inputting a value of “1” back into CV #62. Please consult your locomotives instruction book to see which version of OSI you have.**

Programming Older Decoders With The Advance Or Express- Older MRC decoders such as the AD305, AD310, AD315, and decoders found in older Athearn and Walther’s Trainline Locomotives can not accept the address programming packets sent all at once by these new highly efficient DCC systems. The same could be true of some older Digi-Trax, N.C.E., and Lenz decoders. Also these older decoders might not accept 4 digit addresses or any speed step higher than 14 speed steps, [erratic operation of the lights or running characteristics might be encountered if you program them to either 28 or 128 speed steps]. These decoders might not be able to be “Programmed On The Main”, or “Read Back” on a Program Track.

To program these types of decoders:

Place locomotive on the Program track.

Press the “Program” button once to enter the Program Mode.

Your display will show- “Pro9 Prog Track”.

Press the “Enter” button six times, [skipping over the Program Address Mode, and going directly to the CV Program Mode].

Your display will show- “CV# Prog Track” with “ ___ ” underneath.

Input “29”, [for CV #29].

Press “Enter”.

Your display now shows- “CV Prog Track’ with “ ___ Data” underneath.

Input "0"

Press "Enter"

Your display now shows- "CV# Prog Track" with " _ _ _ " underneath.

Input "1", [for CV#1, your short address CV].

Your display now shows- "CV Prog Track" with " _ _ _ Data" underneath.

Input the value of the address you want to use, [1-99 only. I've found that most older decoders do not accept a 2 digit address higher than "99"].

Press "Enter"

Your display now shows- "CV# Prog Track" with " _ _ _ " underneath.

Again input "29", [for CV #29].

Press "Enter"

Your display shows- "CV Prog Track" with " _ _ _ Data" underneath.

Input "0" again.

Press "Enter"

This may seem redundant, but this is the only way I've gotten these older decoders to respond to Address Programming.

Press the "Recall" button to exit the Program Mode and try to run the loco on the main track.

Through all of the above steps, each time you input a value into a CV, then press the "Enter" button, your handheld's display should flash "Send", and the "Link Light" on your base unit should also flash. If this does not happen, there may be a problem with your DCC system or wiring to your Program Track.

Speed Step Button, {SPD STEP}- This button *only* sets the throttle control of the handheld to match the decoders programmed speed step. It does not program the speed step into the decoder. When the decoder's address is acquired, press the speed step button until the display shows which speed step you want, then press the "ENTER" button. Unplug the cable from the handheld, "SvdA" appears on your screen. This locks in the speed step for this particular decoder. If you do not lock in the speed step, the system will default to 28 speed steps for this decoder when you turn the system off, then on again.

Myth- you cannot program a decoder for just 28 speed steps, or just 128 speed steps, both 28 and 128 speed steps use the same bit in CV#29, [that is why it is written as 28/128 speed steps], it is the throttle's speed step button that lets you determine what speed step you want the decoder to run on... You can, however, program a decoder to run on just 14 speed steps in CV#29.

With the Prodigy Advance or Express DCC systems, your locomotive will run, no matter which speed step the decoder has programmed into it, and which speed step your handheld has locked in for that decoder.

CONSISTS-

A Consist is running more than one locomotive at the head of a train, other wise known as "M.U. ing", Multiple Unit Lash-up", or just a "Lash-up". These can be considered "Head-End Helpers". There are other types of "Helper" locomotives than can go mid-

train, or at the rear of a train, but in real life these other Mid-train, and Rear-end helpers are usually controlled by their own Engineers. A Head-End Lash-up of locomotives have their mechanical/electrical controls hooked together, and is controlled by one engineer, usually in the lead locomotive.

***Note- If you are uncertain about which is the front of the locomotive, test it first ... “B” units look the same front and back, and some prototype railroads ran some types of locomotives long hood forward, while others ran the same type of locomotives, short hood forward. Most model train manufacturers follow the prototype’s running method and just like the real railroads, the manufacturers place a little “F” on the locomotive to denote “Front”. If you do your own decoder installations, make sure the loco runs forward as denoted by the “F”, [if there is no “F”, always remember which end of the loco is forward]. If not things can get confusing when setting up or running consists.**

With your Prodigy Advance or Express, you can build one “Universal” or “Old Style” Consist or as many “Advanced” Consists as you like. You can build the “Universal”, or “Old Style” Consist with the Express, but you need to purchase an Advance Handheld to access the software.

Universal or Old Style Consist- This type of Consist has the locomotives memorized by the base unit of the DCC system. As long as you have this type of consist running the locomotives will run as a consist on **your layout**, if you remove the locos and bring them to another layout, they will not run as a consist, but they will run on their own individual addresses.

Even if you have more than one handheld for your Advance or Express DCC system, you can only use one “Universal” consist at a time...Not one per handheld.

Always clear the “Universal” consist from the DCC system, and “Delete” the consist address from the handheld[s] that were using it, when you are finished running it, [refer to your instruction book for setting up and clearing consists].

***NOTE: When you delete the “Old Style Consist” address from your handhelds display, [with the Delete Button], this also deletes the lead locos original address from the “RUN” display. To re-acquire this locos address, use the “Select Loco” button to enter the address again.**

Advanced Consists- This type of Consist is carried inside your decoder, if the decoder supports this type of Consist, [your decoders instructions will state this fact]. There is a special CV , [CV #19], built into these decoders that take a two digit Consist address, [1-127]. Once a decoder is assigned a Consist address in this manner, this Consist address will override the original address of the locomotive whether it is a 2 digit address or a 4 digit address. If you remove these loco’s from your layout and bring them to another layout, they will run as a Consist, until you clear the Consist address from CV #19 [refer to your instruction book for setting up and clearing Advanced consists].

***Always write down or remember this Consist address-**If you forget this address, simply re-program the decoder to it's current address. If this does not work, you will have to re-program the decoder on a Program Track, to It's Factory Defaults, or [if the decoder let's you], use CV Programming to input a value of "0" into CV #19.

Although the Prodigy Advance, Prodigy Advance Squared, Advance Wire-less, and Prodigy Express Handhelds, [Cabs], have the *same family look* to them, there are slight differences that may confuse you, or other operators.

This is especially true when setting up and clearing consists with each type of handheld. *If you use both types of handhelds with your DCC system, please make note of their differences.*

Prodigy Express Handheld- To set up an advanced consist using this handheld you use the "Program" button to scroll through the various menus until you get to the "Consist" menu. Then follow the prompts on you display.

***Note-** *The F11 button on your Express handheld does double duty: Press and release quickly to activate or de-activate function 11, or hold it down to use as a "Delete" button, [some early version handhelds]. Later version production handhelds, may have a different button set up.*

****Note- Due to the fact that the Prodigy Express is a basic starter system, certain features have been left out. Although the software is in the base unit for the Express, you need an Advance Handheld to access all of it's features, this is true when setting up an "Advanced Consist" with the Express. The Express Handheld does not let you reverse the direction of the trailing locomotives in an "Advanced Consist", but there are some ways of getting around this.***

Easiest way- Just program all the locomotives you want in a certain consist to the same address, [don't even bother with going into the consist mode]. In the trailing loco's that you want to run in reverse, program CV # 29 to the following values: "3" if you are using a 2 digit address, or "35" if you are using a 4 digit address. Then run the loco's. The only drawback with this method is that if you activate a function like the horn or bell, all the loco's will play their horn or bell. If the decoder[s] in the loco's have an "off" feature for the horn, bell or other functions, then simply use this feature to de-activate those functions in the trailing units.

Method #2- Pick your "Advanced Consist" address. This is a 2 digit address, [1-127]. Program the trailing locomotives that you want to run in reverse with this consist address instead of their normal address, [CV #1-short address CV, not CV # 19 for the advanced consist address], and continue into CV programming...Program CV # 29 to a value of "3" for each of these reverse running loco's. So now you have these loco's programmed to the advanced consist address and also to run in reverse, [when the handhelds display indicates forward, the loco's will run backwards and vice versa]. Once this is done, place all the loco's you want in the consist together on the track, make sure the reverse running loco's are last, pointing in the opposite direction of the forward running locomotives. Use

the “Program” button to enter the “Consist” mode, then follow the prompts on your display, make sure to use the consist address you programmed into the reverse running loco’s. Then enter the forward running locos’ first, and then down the line to the reverse running loco’s. Once you are done entering the loco’s in this consist, press the “Recall” button to exit the consist mode and enter the run mode. Use the “Select”, “Loco” buttons and input the consist address, press “Enter”. Now this consist will behave as it is supposed to. To activate the horn, bell or any accessory functions you want for the lead locomotive while running this consist, use the “Recall” button to scroll to the lead loco address, activate the function[s], the scroll back to the consist address to continue running control of the train.

Some decoders have a special CV built into them that lets you turn on/off the functions while the loco’s are in an advanced consist mode, [CV #19 activated], and moves the functions so they follow the consist address. This lets you activate the horn, bell or other functions without having to scroll to the lead loco’s address. Read the decoders instruction sheet to see if it includes this feature.

Method #3- Purchase an Advanced Handheld, and consist set up becomes a breeze.

Prodigy Advance Handheld- This handheld has it’s own “Consist” button. You use this button to scroll through the consist menu to set up or clear the type of “Consist” you want.

***Hint- If you experience erratic operations of locomotives during or after using a “Universal/Old Style” Consist, you may have entered the Consist wrong, or tried to add another “Universal/Old Style Consist, without clearing the previous one. Make sure to clear any “Universal/Old Style Consists”. If at the start of a new operating session, you can not remember if you previously cleared a “Universal Consist”, go to “Consist, then, “Old Clear”, and press the “Enter” button.**

In the “Run Mode”, on either handheld “Universal/Old Style” consists will show in the display as “Cons” with an address, [the lead locos address], and an Advanced Consist will show as “Loco” with a 2 digit, [1-127], consist address.

The Base Units of both systems share the same software and features of the Prodigy Advance, but because of the slight differences of both types of handhelds, you can not access all of the features found in the Prodigy Advance with the Express handheld. This is true when it comes to setting up Consists. The Express handheld when setting up a Consist will not let you set up to run one or more locos in reverse in the consist. To get these locos to run in reverse you would have to program CV #29 in these locos to run in reverse, [refer to the CV #29 chart on our website to input the correct value of the type of address you are using –2 digit or 4 digit]. You need to program this using the locos current running address, not the Consist address you plan to use.

Prodigy Advance Squared Handheld-The “Shift” button on the handheld lets you access accessory functions F10 to F28, without having to use another button as a double shift button. To access these higher functions; press the “Shift” button once. “SFT”, shows on your display. Input the numbers of the function you want to access. Example- “Shift” button + “1” + “9” = Function 19. The function, [if applicable to your decoder], should activate, and “SFT” on your display will disappear. The above will also be the same for Prodigy Advance handhelds that have been upgraded for the MTH K-4/NMRA F28 features.

Prodigy Advance Wire-less Conversion Set, Item # 0001411- This is a 2 piece set consisting of a receiver unit and a wire-less handheld transmitter. The receiver unit simply plugs into any handheld port on your base unit or extension plate. Only one receiver is needed regardless of how many wire-less handhelds you are using. For best operation, the receiver unit should not be placed under the layout in a tangle of wires or where scenery mesh-screening may interfere with the radio transmissions. The wire-less handheld comes complete with on-board rechargeable batteries, and the battery level should be checked prior to using the handheld for the first time. Best operation is accomplished with fully charged batteries. There is a “Power Switch” on the right side of the handheld, and the handheld should be switched off when not in use to conserve battery life. The handheld has the same cable connection on the bottom as the tethered handhelds, and to recharge the batteries, simply plug a Prodigy handheld cable into the bottom of the handheld, and the other end of the cable into your base unit. You are still able to use all the features of this handheld, [as a tethered handheld], while the batteries are recharging. If you need to, you can substitute 4 “AAA” alkaline batteries for use.

Note: Do not mix alkaline and rechargeable batteries together, and do not attempt to recharge alkaline batteries inside the handheld!!!!

The wire-less handheld has the same family look as all the other Advance/Express handhelds, but has a few more features for convenient use.

Note: Do not forget to assign an individual address for wire-less handhelds. They can not be assigned the same addresses as your tethered handhelds if they are being used at the same time.

You can do everything with the wire-less hand held as it’s tethered cousins; program on a program track, or program on the main, acquire and run all locos, set up consists and routes, and access accessory decoders. Button layout is familiar as the Advance handheld with the addition of three extra buttons:

“Prog CV On Main”- This button lets you automatically go into CV programming of the locomotive you are presently operating without having to press the “program” button and “enter” button numerous times to reach this feature. You can enter this programming mode, change the decoders parameters, and exit the program mode anytime you want and as many times as you want.

“Save”- This button is used to save your current locomotives to your recall stack before shutting of the power switch to the handheld, and shutting your base unit power off. Enter

your locos as you would normally with any of the tethered handhelds, and just press the “save” button.

Note: just turning off the wire-less handheld power switch does not automatically save your locomotives in the recall stack for your next operating session.

“Bat Voltage”- This is your battery voltage indicator button. Just press it to monitor the voltage level present in the on-board batteries, [this will read out on the LCD display]. 5.5 volts is maximum voltage, and the handheld should be recharged anytime the indicator read 4 volts or below.

If you want all of the features of the Prodigy Advance, [except the current output], for your Express DCC system, all you have to do is purchase an “Advance” handheld, [part #0001407], the new “Prodigy Advance Squared” handheld, [part #0001415], or the new “Advance Wire-less Conversion Set”, [part #0001412].

Using the Advance Squared or the Advance Wire-less handheld with the Prodigy Express will not give the higher functions to F28. Your Express base unit would need to come in for the NMRA F28/MTH K-4 upgrade to give you up to F28.

If you also want to bring your current output up to the Advance’s, purchase the Prodigy Advance District Booster, [part #0001505].

USING THE “READ-BACK” FEATURE-

The “Read-Back” Feature of the Advance or the Express, or any other DCC system is not a 100 percent effective. There are some issues involved with this feature:

It can only be done on a “Program Track”.

Some older decoders do not support or can not be read back.

Most newer sound decoders, due to a higher capacitance in their design, can not be read back.

Just because you do get a reading of a CV during read back and it looks a bit strange, do not rely on this reading as the correct value in the CV you are trying to read.

It might take a couple of tries to read back the CV to get the correct reading.

“255” is usually an error message and not a correct reading.

The best way to know what is in your loco’s CV’s is to maintain a log of each Loco and it’s decoder. This way you know what values are in each CV, and update the log if you change a CV value in that decoder. This will help you keep track of changes, that you made in the decoder and how the loco responded to these changes for the better or worse.

Prodigy Express and Reverse Loops-

The Prodigy Express because of it’s lower output rating, [1.6 amp.], is very sensitive to short circuits on the layout. It will display the “*SvdA*” message on the display when a short circuit or overload condition happens on the layout. When this occurs, unplug the cable from the bottom of the handheld, wait approx. 1-2 seconds, then plug the cable back in to regain control of your loco[s]. The message should be gone. If not there is

most likely a problem somewhere on your layout. You will also get this message when using a reverse loop controller such as our AD520 Reverse Loop Controller. The reverse loop controller acts as a momentary short circuit as the loco passes over the insulated gaps in the reverse loop. This situation can get annoying every time the loco goes through the loop and you have to reset your handheld. There is an upgrade for the Prodigy Express, which involves sending the complete system back to M.R.C. with a small fee. This gets you a higher output power supply, [2.5 amp.], and a software upgrade to handle the higher load output. See the explanation below:

“Regarding the Prodigy Express DCC system...

In some instances with a large home layout, using multiple handhelds, and numerous locomotives, there may not be enough power with your DCC system’s power supply to activate an MRC AD520 Reverse Loop Controller, if you have a reverse loop also in the layout.

You can have your Prodigy Express DCC system upgraded to a 2.5 amp output, and receive a new higher output power supply for just a small fee to cover shipping and handling.

Send your Prodigy Express system in, [all 3 pieces] to:

Model Rectifier Corp.

80 Newfield Ave.

Edison, N.J. 08837

Attn: Prodigy Express Upgrade

Include a note with:

Your Name

Address

Daytime phone number

Check or money order for \$\$\$\$ {U.S. Funds}.”

It is best to call M.R.C. in advance of sending the unit in, to see what the current cost for the upgrade will be.

Accessory Decoders-

There are many accessory decoders on the market today. These types of decoders are used to operate switch machines, [turnout motors], both twin coil and slo-motion, [Tortoise type], turn on/off lights and other types of accessories. Basically they are a DCC controlled on or off switch. They are assigned a specific address, just like on-board locomotive decoders, and they are controlled by your handheld, [cab].

M.R.C. #AD360 Accessory Decoder- This is a simple one output decoder that uses on-board locomotive 2 digit addresses, [1-127]. This decoder was designed for early types of DCC systems, that are limited in what types of C.V.'s can be programmed, and that are also limited in operation. It is recommended not to assign this decoder the same address as a locomotive in use, or if you activate certain functions in the locomotives decoders, you might change the orientation of a turnout without realizing it. With today's newer DCC systems that support 4 digit addresses, it is advised to give all your locomotives a 4 digit address, [if the decoder supports 4 digit addresses], and use the 2 digit addresses for these decoders. This decoder can be used with the older original "Prodigy" DCC system, [#AD150], and the "Prodigy Express" DCC system without the need for additions to the DCC system. Follow the decoders instructions for set-up and use, and see the section on "Programming Older Decoders with the Advance/Express" above if you are using the Advance or Express and the AD360 will not take a 2 digit address with normal programming on the program track.

M.R.C. #0001628 Accessory Decoder- This decoder has 4 separate outputs so 4 separate accessories can be hooked up to just one decoder, [Basically it is 4 decoders, with 4 separate addresses in one]. The addresses used for this decoder are "Accessory" addresses and are completely separate from on-board locomotive mobile decoder addresses. You cannot program this with regular address programming, as you must use C.V. programming. The decoder's main address gets programmed into C.V. #513, and the decoder automatically assigns the outputs sub addresses. For example; if you assign the decoder a main address of "1", the outputs automatically become "1, 2, 3, and 4", so you can operate each output separately. A second 0001628 should be assigned main address "#5", which would give it's outputs sub addresses of "5, 6, 7, and 8", and so on down the line. Follow the decoder's instructions for set-up and use.

Note- This decoder cannot be used with the older original "Prodigy" DCC system, [#AD150], and to use it with the Prodigy Express, you have to purchase a Prodigy Advance handheld to access the "Accessory" feature.

Atlas T.C.U., [Turnout Control Unit]- This accessory decoder can not be used with the older original "Prodigy" DCC system, [#AD150], and to use it with the Prodigy Express you have to purchase a Prodigy Advance handheld. This is a 6 output accessory decoder. Follow the hook-up directions as per the Atlas instructions that come with the decoder. The factory default address for this decoder is #1 to #6. To program an address with the Prodigy Advance or Prodigy Express, with an Advance handheld...***Do not enter any programming mode!!!!***

On Advance Handheld:

Press "Accy" button

Pick address desired for each T.C.U.-multiple of 6, 1 or 7 or 13 or 19, etc., [add 6 to the last T.C.U. address]. Use numbered function buttons for this step.

Press "Enter"

On T.C.U.:

Press button until LED lights, [approx. 3 seconds].

Release button immediately when LED lights.

Back to Prodigy Advance Handheld:
Press either "F1" or "F2"
Press "Enter" to lock address in.

To adjust timing of the decoder's outputs or programming non-sequential addresses, follow the Atlas instructions thoroughly, most of this programming is performed on the T.C.U. itself.

On Prodigy Advance Handheld: ***Do not enter any programming mode!!!!***

Everything is done with the "Accy" button, and Function Buttons "1 or 2", [F1/F2].
It is done almost the same way as address programming above.