HiLine™ Specialty sound installation instructions:

OVERVIEW: This device is an electronic, self contained, sound system for installation in model diesel locomotives that are designed to operate with any type of track (AC or DC), radio receiver with either track or battery power, digital (DCC) or other types of command control systems including, also as a stationary sound unit. This unit is also capable of operating with standard DC track power with track side triggers, not included, to operate it's auto-horn and bell via track side magnets.

An on/off switch is not necessary since this sound unit will turn itself on when enough voltage has been present for a short period of time. It will aslso turn itself off whenever this voltage has diminished or has become inadequate to sustain proper audio operation. The audio amplifier can produce 1.5 watts of power. Speaker impedance should be 8 ohms or higher. Sound volume is adjustable via a push button which also has remote connections to an off board switch or receiver function. Volume settings are remembered after changes occur. Refer to our catalog for available speakers. See our web site or catalog for speaker choices available. Remember, the larger the speaker the better!

Sounds produced include user controlled horn and bell. All sounds can be selected to not operate via the "select" process. Receiver operators also have access to operate the "force notch 8" function which is to force the motor sound to full rpm regardless of the present motor speed. Nonuser controllable sounds include, brake release and motor which automatically adjusts to speed and load conditions.

This sound system, when used with conventional DC track power, requires the use of either remote magnet triggers (item 988) with reed switches (item 989) and a 3 pin harness (item 223 or 225). Radio operators, DCC and other command control operators can use remote functions on their systems to activate the same functions. For stationary installations, these functions can be accessed by switches. Larger gauge, where you ride the locomotive (1" and up), would be similar to a stationary installation since the power for the sound unit is supplied by a fixed battery and sounds are controlled by switches.

INSTALLATION INSTRUCTIONS: The sound system consists of a printed circuit board which comes with one 2-pin wire harness, and two 6-pin wire harness's. Other harnesses can be purchased seperately or are included with the options desired. Speakers are not included since one size does not fit all types of engines.

Refer to the drawing below to familiarize yourself with the connectors and controls on the sound board. Then refer to the specific instruction sheets for the type of installation you intend to make. Before proceeding with the installation read the balance of the instructions carefully so you will be completely familiar with what is required and what sounds you should hear.

The circuit board should be mounted so that at minimum, the "Select/Volume" switch is accessible either through the frame or via a hatch or a hole in the locomotive body shell. If that's not pos-

Full list of connections:

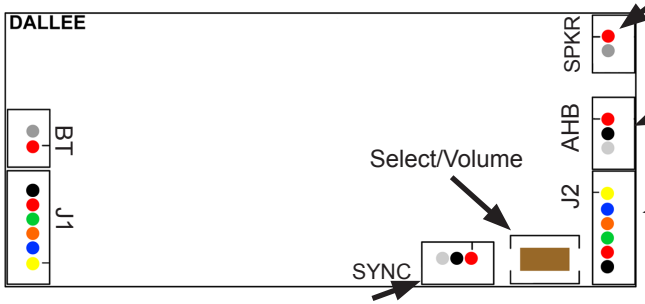
Not all connections are required for operation. Connections vary by method of operation.

BT: optional rechargeable battery backup, use item #1596.

NEVER connect a standard battery!

J1: Power connections:

Black "-"
Red "+"
Green - Power Input 2
Orange - Power Input 1
Blue - Motor sense #1
Yellow - Motor sense #2



SPKR - speaker

SYNC - not used.

AHB:

Red - Horn Reed Switch
Black - Reed Switch common
White - Bell Reed Switch
(requires 3 pin harness, either 223 or 225, and reed switches, 989. Item 1590: complete. See page 5 for pictures.)

J2: Remote operations.

Yellow - Horn
Blue - Bell
Orange - Force N8
Green - n/c (reserved)
Red - remote Select/Volume
Black - ground ("-"), same as J1 Black.
All remote operations are activated by switching to ground.

The following connectors all connect to the J1 Black wire, which is the sound units ground ("-") reference. These are connected internally on the board and do not need to be connected externally!

SYNC - Black, AHB - Black, J2 - Black, and BT - Gray.

The extra connections are made for ease of wiring individual options.

sible, a remote switch (item 1590), or a function on a receiver, can be used. Be certain that the components on the circuit board do not come in contact with any metal objects as such contact can destroy the sound system. The speaker should be mounted as per available space bearing in mind that sound reproduction is enhanced when a speaker is properly enclosed and baffled.

This HiLine™ Sound unit is equipped with "super capacitors" to keep it playing after sufficient track voltage or other power has ceased. When power is first applied to the sound unit, a delay of several seconds will be noticed before any sound is produced. This is normal since the system is charging the super capcitors. When power is removed from the sound unit, sounds will continue to play until the storage has been depleted. The duration of play time is determined by the amount of charge and how loud the volume is set. A battery rechargeing circuit (utilizing the "BT" connection and battery) and an automatic on/off circuit is also incorporated into this sound unit. Those operating with a fixed on board battery or other fixed power can skip to the next section since it is not relevant to your operation.

The battery will assist conventional AC or DC track power operators by enabling the sound to turn on earlier and leave it play longer after sufficient voltage to sustain operation has disappeared. This is a user option. We recommend using the sound system first without it and then deciding it's necessity. When the rechargeable battery option, item 1596, is used with the sound unit, it will turn itself on as normal but the sound unit will turn itself on earlier (a few seconds earlier) and stay on after track power is removed for as long as the rechargeable battery has enough energy or approximately 5+ minutes has transpired or it has been switched off. Otherwise the sound unit will automatically turn off after many seconds. With the rechargeable battery, the time that the sound unit stays on after track voltage is no longer present, is determined by how well the on board charge is and how loud the volume is set. The sound system will automatically charge the battery whenever sufficient input power to the system is available and it is switched on. The sound system will also control the charge to prevent overcharging. DO NOT connect a conventional battery to the "BT" connector. Doing so will cause a standard battery to cook out.

When connecting power leads, and any other wires, be absolutely certain that the wires connect to the proper locations. Incorrect wiring can damage the sound unit. This type of damage is not covered under any warranty. The sound system is thoroughly tested and inspected before packing to insure proper function. There is a minimum charge of $50.00 plus s/h for repair.

SOUND INFORMATION:

MOTOR: sounds range from idle to full RPM with linear response. With no power to the motor input (J1 Blue and Yellow), and power to the sound unit, the sound system will produce motor idle sounds. As motor voltage is increased to put the unit in motion, a brake release will sound (if enabled) and the motor will accelerate to the correct RPM setting for units speed. There will be a volume increase during acceleration. When using a remote receiver or stationary switch utilizing the Force N8 function (J2 Orange) will direct the sound system to accelerate to full RPM regardless of motor voltage. Deactivating this input will release the sound system and return to the correct RPM setting. This feature allows the simulation of a heavy load with very slow unit speed.

AIR POPS (spitter valve): Air is pumped continuously in an engine, if it has an air system, to maintain pressure in the brake system and for other purposes. Periodically the pressure will increase and the excess will be released through the safety valve. These AIR POP sounds are generated at random intervals during idle and at all notch settings. These can be turned off in the "Select" menu.

BRAKE RELEASE: sound is produced when the throttle is advanced from the idle position, if enabled. This brake release should always precede locomotive movement but will only occur if the motor sound is actually at idle. This requires approximatly 1.25 volts of input voltage to the motor input to sense that the motor is running.

HORN: sound is controlled by the HORN button on a conventional AC transformer or controller, via a momentary push button when used stationary, a remote function via radio receiver or DCC receiver function, or by reed switch/magnet activation. All dependent upon the type of installation. The HORN will sound as long you are holding the control on. This will allow you to actually play the sound as on a real locomotive. Some control systems may have a sound delay for on and off which is caused by the control system response time and not that of the sound system. Auto-Horn operation is activated via Reed Switch (item 989) and Magnet (item 988), or other switch input. The "Auto-HORN" play can also be activated by a receiver or momentary switch contact from the RED to the BLACK wire of the "AHB" connector. When the Auto-Horn is activated, a horn pattern is played for a moving locomotive. The patterns are different on each activation.

BELL: sound is controlled by the BELL button on a conventional AC transformer or controller, via a momentary push button when used stationary, a remote function via radio receiver or DCC receiver function, or by reed switch/magnet activation. All dependent upon the type of installation. The BELL sound is activated by a momentary press of the button. It will deactivate by pressing again. As with the "Auto-Horn", the "AHB" connection can be utilized with a reed switch and track magnet. The first trigger will start the bell. A second trigger will stop the bell. This way the bell can be started and left ringing while sitting at a station. It would then be triggered off via a track side magnet after leaving the station or wherever desired.

SPEAKER MOUNTING: The speaker generally should be mounted so that the sound can actually "get out" of the locomotive. A hole in the floor or fuel tank is acceptable but open grills or a doorway may be a better choice as the sound can exit upward rather than down toward the track. In some cases, particularly with plastic body shells, just mounting the speaker against the shell will be adequate as the vibrations of the shell can enhance the sound. Enclosing the speaker in a chamber will also enhance sound reproduction. A very simple enclosure can be made with a tube or cut off bottle. The longer the tube, the better the speaker will reproduce low frequency sound which is inherent in diesel prime movers. It is best to seal the tube so there are no air passages to the rear of the speaker, thus creating a sound chamber. By carefully sealing all openings it may be possible to use the entire body shell as a sound chamber. A simple wall behind the speaker may be all that is possible or perhaps all that is needed. It's always best to make an air tight enclosure to prevent premature speaker failure and for the best sound. Prewired, enclosed speakers, are also available. See our web site, catalog, or price schedule for details.

Enclosures can be made with plastic, wood, card stock or even metal. Medicine bottles make excellent sound chamber enclosures for small diameter speakers. Stiff items are best. Attachment with "Quick Grip", silicone or other plyable glue is best since they can also be used as a gap filler when creating an enclosure and not crack from the speakers vibrations over time.

A second speaker, wired in series with the main speaker, can also enhance sound quality and will permit a higher volume without damage to the individual speakers. A tube with a speaker at each end, known as a "bass tube", or a speaker in a doorway at each end of a body shell is an excellent approach. A four speaker approach will yield the highest volume while still maintaining the 8 ohm speaker requirement. Drawings for this are included in the speaker instructions and installation examples are shown on our web site.

Speaker enclosure is an art and experimentation is definitely in order for your installation so as to gain the maximum benefit of the superb sound quality available from this sound system.

Those needing more amplification can utilize the DALLEE 22 Watt Amplifier (item 672). Unlike most other systems, this sound system produces pure analog type audio. Therefore amplification without hash is possible! The 22 watt DALLEE amplifier will operate from 12 to 24 volts DC and contains a Treble and Bass control to tailor your sounds. Details for wiring with the amplifier are available from our web site.

INITIAL SOUNDS: The HiLine™ Specialty Sound unit is preset to the first selection in each of the sections. That means that the sound system will play: BELL: BELL1, HORN: Leslie A-125, MOTOR: Alco Switcher Engine, SPITTERS: ON. To change these sounds, you have to go through the “SELECT MODE” of operation. This is done after properly wiring everything up and having a properly operating sound unit. If the sound unit is presently powered and playing you will have to remove power to the sound unit and wait for it to stop playing since you can only enter the “select” mode from a non-powered sound unit.

When powering the sound unit for this process you must have sufficient voltage to keep the sound unit operating. A good value would be 8 volts or higher. If you are a standard DC type operator, then you will have to either turn the motor off so that your engine doesn’t run or lay it on the side and clip lead power to the track pickup’s.

To enter the select mode, the “Select/Volume” switch must be depressed within the first 10 seconds of sound play. During that time, hold down the “Select/Volume” switch (or on your remote when wired into the Red wire of J2) for at least 5 seconds. When entering, the sound will turn off and then a beep will play. Release the switch after the “BEEP” plays. When the switch/input is released, the first bell will start to ring. With each momentary press you will select the next bell. Upon hearing the bell, or no bell, desired hold down the “Select” function until you hear a “BEEP” which will then set the selection and allow you to proceed to set the volume of the selected sound. With each push the volume will change. Press and hold the "Select/Volume" button until the desired volume is set. Remember, there is an overall volume setting for the entire sound unit so some sounds may not be desired to be at full for a proper sounding locomotive. When the correct volume level is reached, again hold the "Select/Volume" button until you hear a "BEEP" to proceed to the next selection. This process is repeated throughout each section until you are finished. If power is lost to the sound unit through this process or you will not store any selections and will have to start over after the sound unit has completely discharged it’s on board storage. It is advisable to not have the rechargeable battery connected (connector “BT”) at this time since that will make the sound unit take over 5 minutes to turn off.

Bells:

Bell-1, Bell-2, Bell-3, Bell-4, mute bell

next press, back to the first one.

Remember to hold the “Select/Volume” button until a “BEEP” is heard. Which sets the selection you want in order to proceed to the next selection. In this case the Horn is next.

Horn selection and order is as follows: (when a Horn is being played for sampling the sound, you can also manually play the Horn by activating your Horn function.)

item #1530 horns:

Leslie A-125

Leslie A-156 (Trackmobile)

Leslie A-200

Galloping Goose Horn

Hancock Air Whistle

Leslie Honker 1

Leslie Honker 2

Nathan K1R2

Rail Diesel Car (RDC) Horn

mute horn

next press, back to the first one.

Remember to hold the “Select/Volume” button until a “BEEP” is heard which sets the selection you want in order to proceed to the volume setting. Press the "Select/Volume" button until the desired volume is set, then hold it on until a "BEEP" is heard which then you can proceed to the next selection, in this case, the Motors.

Motors and order is:

1 - Alco Switcher, 2 - Doodlebug, 3 - Fairbanks Morse, 4 - Galloping Goose

5 - Railbus - Newer (Mack Engines), 6 - Railbus - Older (Model T Type)

7 - Rail Diesel Car (RDC), 8 - Speeder, 9 - Trackmobile

mute motor

next press, back to the first one.

Remember to hold the “Select/Volume” button until a “BEEP” is heard which sets the selection you want in order to proceed to the volume setting. Press the "Select/Volume" button until the desired volume is set, then hold it on until a "BEEP" is heard which then you can proceed to the next selection, in this case, the SPITTERS.

Spitters (the spitters will not play as fast as they do when in the “select” mode. Their rate of randomness is changed via the type of motor selected.)

spitters ON, spitters OFF (mute spitters), next press, back to the first one.

Remember to hold the “Select/Volume” button until a “BEEP” is heard which sets the selection you want in order to proceed to the volume setting. Press the "Select/Volume" button until the desired volume is set, then hold it on until a "BEEP" is heard which then you can proceed to the next selection, in this case, the SPITTERS.

Brake Release (the Brake Release will not play as fast as they do when in the “select” mode.)

Brake Release ON, Brake Release OFF (mute Brake Release), next press, back to the first one.

Remember to hold the “Select/Volume” button until a “BEEP” is heard to store which selection you want. If the Brake Release is selected, then press the "Select/Volume" button until the desired volume is set, then hold it on until a "BEEP" is heard which finishes the selection process.

At this point you’re back to normal operation. The “Select/Volume” control now reverts to a volume control. The first press, or remote operation via J2 RED function, of this will turn the volume up, the next press turns the volume down. After releasing the “Select/Volume” switch the volume will be stored for the next time you power up the sound unit.

Upon re-entering the “Select” routine, you will start with the first sound at the top of the list, and proceed from there as though it was a new unit. This was done to prevent missing turning items on that were selected to be off from a previous setting.

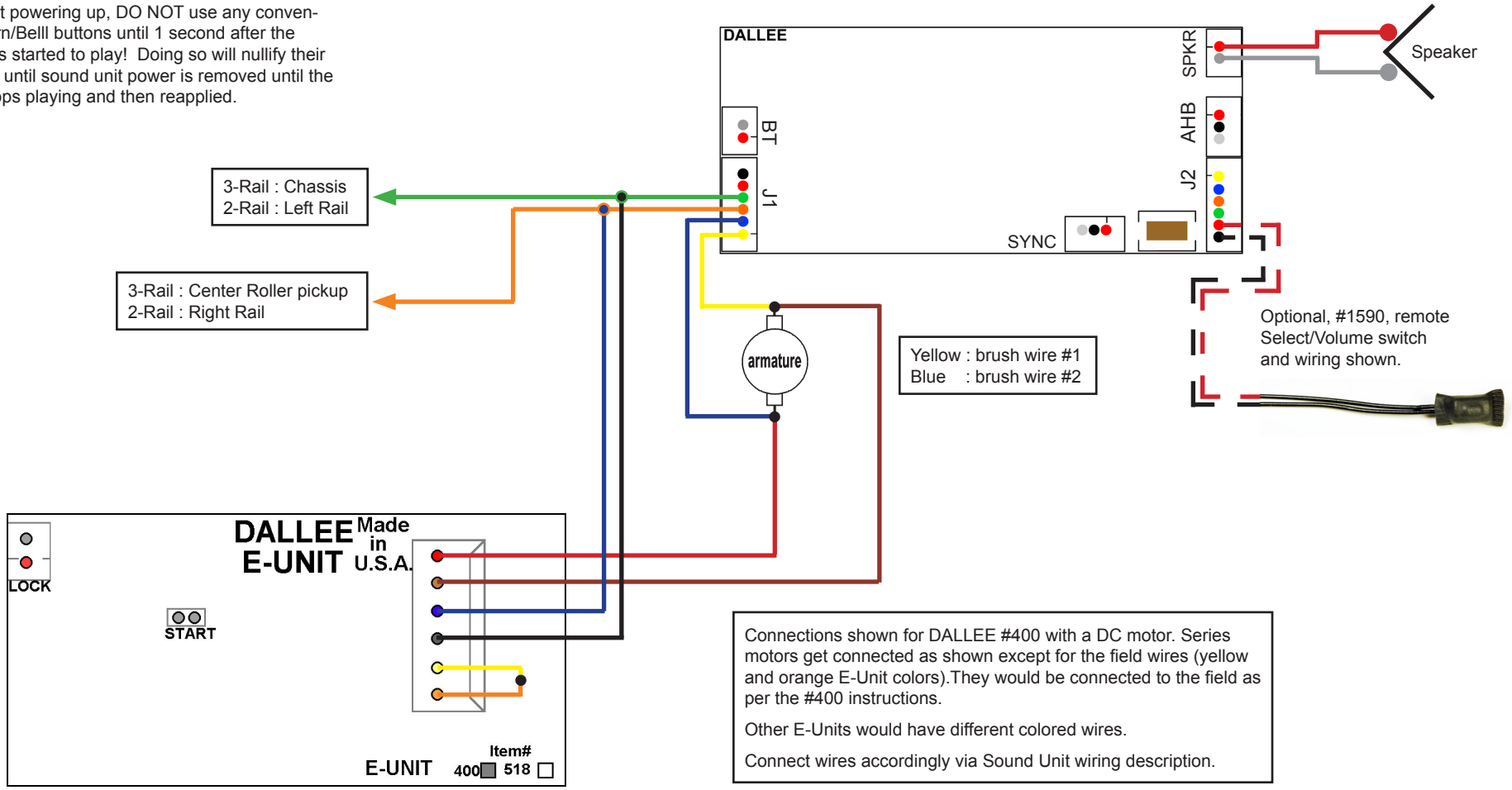
rev 3.1

Common Horn signals

SOUND	INDICATION	SOUND	INDICATION
short	apply brakes, stop	2-long, short point	approaching meet or wait
2-long	release brakes, proceed	2-long, short, long	approaching grade crossings
long, 3-short	flagman protect rear of train	continuous long	approaching stations or junctions
4 or 5 long	recall flagman	successive shorts	alarm for something on track
2-short	acknowledgment		
3-short	back up movement		
4-short	call for signals		
short, long	inspect train line for leak or brakes sticking		

AC track power wiring:

When first powering up, DO NOT use any conventional Horn/Belll buttons until 1 second after the sound has started to play! Doing so will nullify their operation until sound unit power is removed until the sound stops playing and then reapplied.



Connections shown for DALLEE #400 with a DC motor. Series motors get connected as shown except for the field wires (yellow and orange E-Unit colors).They would be connected to the field as per the #400 instructions.

Other E-Units would have different colored wires.

Connect wires accordingly via Sound Unit wiring description.

Wiring for AC track power is as simple as shown. The brush wires remain connected to the existing E-Unit and also to the sound unit as shown. Which brush wire is used for #1 or #2 is not of importance. Failure to connect these wires will result in the sound unit's diesel prime mover to remain at idle regardless of the motor / engine speed.

If wiring in a dummy unit, either wires need to be passed to the powered unit or another E-Unit (preferably the same as in the motorized unit so that they will stay in synch like the Dallee #518, 400, 1400 E-Units) will be needed for the Yellow and Blue brush wires. The motor brush wires can also be connected to the track power but the motor sound will then ramp up/down according to the track voltage regardless of motor/engine motion.

Options:

Remote Select/Volume switch, #1590, can be added via the J2 Red and Black wires.

If only two of the 6 pin wire harness is required, then item #222 or #224 (a 2 pin wire harness) may be desired to use instead since these are two pin wire harness. The color code will not match but that's not important, only that it is plugged into the lower part of J2 so that it connects to the marked Red & Black location.

Another option is the rechargeable battery, item #1596. This unit merely plugs into the "BT" connector. The battery will enable the sound system to power up sooner upon it's first "power up" from being off for some time. It will also keep the sound unit operational for >5 minutes, or until the battery charge is depleted, after the track power has been removed.

DC track power utilizing Auto Horn / Bell feature:

Optional item #1596,
rechargeable battery

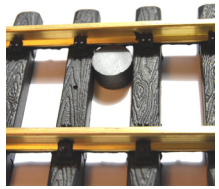
Reed switches
shown in fuel tank.

Optional, #1590, remote
Select/Volume switch
and wiring shown.

These items are not included with the sound unit. See “Accessory Items” for a partial listing of other items.

Reed switches with 3 pin wiring harness, item #1589.

Activation via track magnet, item #988.



Accessory items:
- 222 - 2pin wire harness, 6”
- 223 - 3 pin wire harness, 6”
- 224 - 2 pin wire harness, 18”
- 225 - 3 pin wire harness, 18”
- 524 - miniature SPDT toggle
- 988 - track side magnets
- 989 - reed switches
- 991 - small magnet 0.045 x0 .1 x 0.2
- 1589 - AHB input components, 2 reeds with 3 pin wire harness
- 1596 - Rechargeable battery w/harness
- 1590 - remote Select/Volume switch

In this application the motor voltage is the same as the track power, therefore the motor brush wires (Yellow and Blue) are wired to the track power wires (Green and Orange) as shown.

Operation: When track power is of enough voltage for long enough, the sound card will “come alive” and play the prime mover as well as whatever sounds are required to play at that time. When track voltage ceases to be of sufficient voltage, the sound unit will turn itself off. If longer times are desired, or more sound at lower voltages, then the optional rechargeable battery needs to be installed (item #1596). The only other option would be to operate the sound unit from a battery of at least 6 volts or more, utilizing the Red and Black wires from J1. This is shown on the next page.

Operation: When the power from the battery is switched on to the sound unit, the sound unit will begin to play. The prime mover sound will adjust according to the track voltage. The Horn and Bell will still be controlled via the reed switches and trackside magnets. Whenever the engine passes over a magnet, where the Horn reed switch is located, the Horn will play a pattern for a moving locomotive. When passing over the Bell reed switch, the Bell will start to play. A second pass over the Bell reed switch will turn the Bell off.

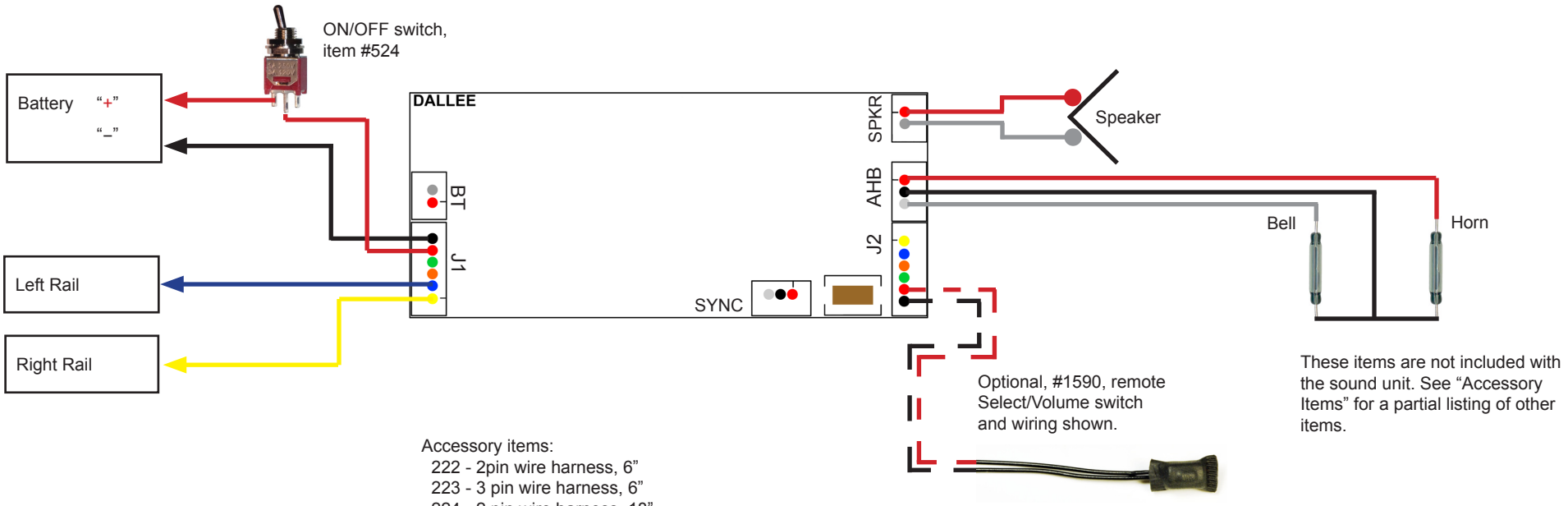
Options:

Remote Select/Volume switch, #1590, can be added via the J2 Red and Black wires.

If only two of the 6 pin wire harness is required, then item #222 or #224 (a 2 pin wire harness) may be desired to use instead since these are two pin wire harness. The color code will not match but that’s not important, only that it is plugged into the lower part of J2 so that it connects to the marked Red & Black location.

Another option is the rechargeable battery, item #1596. This unit merely plugs into the “BT” connector. The battery will enable the sound system to power up sooner upon it’s first “power up” from being off for some time. It will also keep the sound unit operational for >5 minutes, or until the battery charge is depleted, after the track power has been removed.

Battery power operation with any type of track power utilizing Auto Horn/Bell feature:



Accessory items:
- 222 - 2pin wire harness, 6"
- 223 - 3 pin wire harness, 6"
- 224 - 2 pin wire harness, 18"
- 225 - 3 pin wire harness, 18"
- 524 - miniature SPDT toggle
- 988 - track side magnets
- 989 - reed switches
- 991 - small magnet 0.045 x0 .1 x 0.2
- 1589 - AHB input components, 2 reeds with 3 pin wire harness
- 1596 - Rechargeable battery w/harness
- 1590 - remote Select/Volume switch

Power for the sound unit is obtained from a separate battery. The battery voltage can be from 6 to 30 volts DC. Power is connected to the J1 Red and Black wires with an on/off switch for the sound unit.

The engines motor voltage is still the track power, therefore the motor brush wires (Yellow and Blue) are connected to the track power.

Operation: When the power from the battery is switched on to the sound unit, the sound unit will begin to play. The prime mover sound will adjust according to the track voltage. The Horn and Bell will still be controlled via the reed switches and trackside magnets. Whenever the engine passes over a magnet, where the Horn reed switch is located, the Horn will play a pattern for a moving locomotive. When passing over the Bell reed switch, the Bell will start to play. A second pass over the Bell reed switch will turn the Bell off.

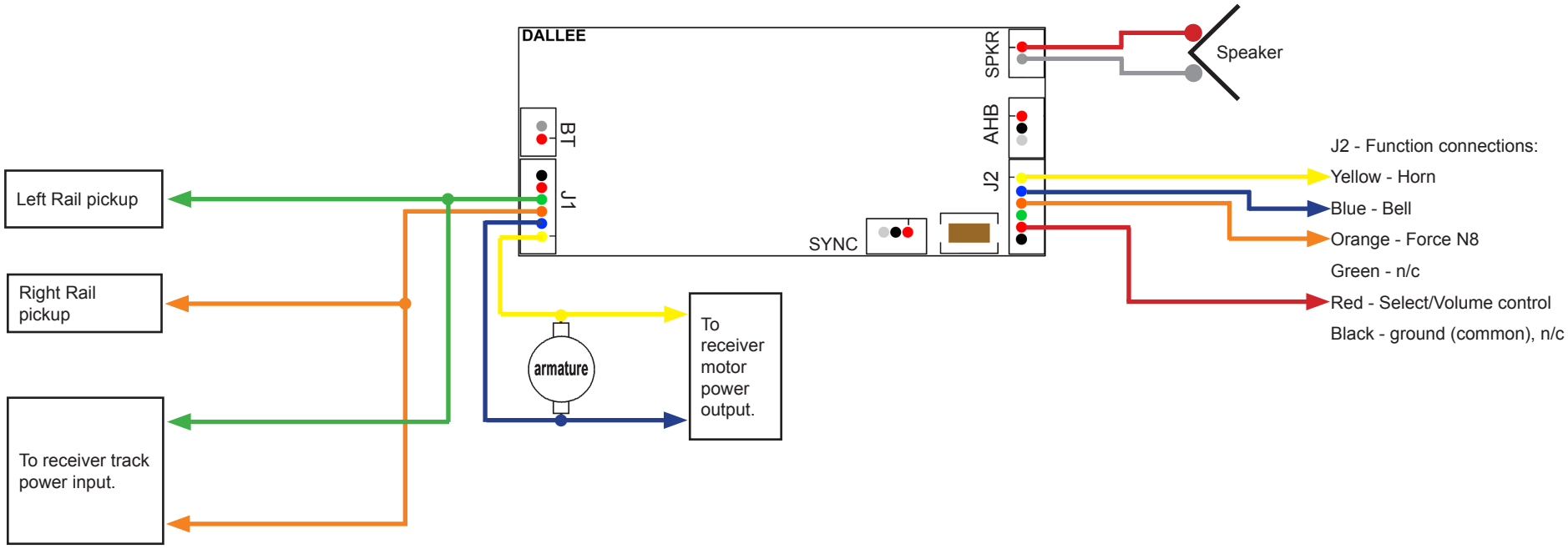
Options:

Remote Select/Volume switch, #1590, can be added via the J2 Red and Black wires.

If only two of the 6 pin wire harness is required, then item #222 or #224 (a 2 pin wire harness) may be desired to use instead since these are two pin wire harness. The color code will not match but that's not important, only that it is plugged into the lower part of J2 so that it connects to the marked Red & Black location.

Another option is the rechargeable battery, item #1596. This unit merely plugs into the "BT" connector. The battery will enable the sound system to power up sooner upon it's first "power up" from being off for some time. It will also keep the sound unit operational for >5 minutes, or until the battery charge is depleted, after the track power has been removed.

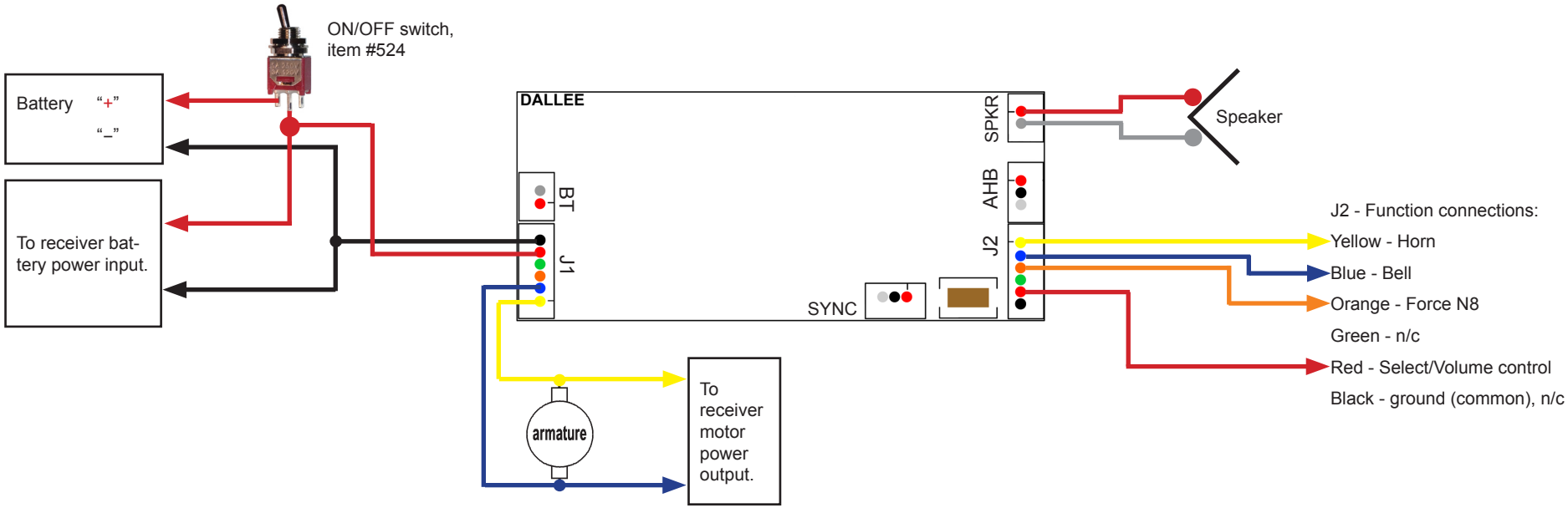
Any type of track power with any type of receiver:



This wiring covers any type of radio receiver or DCC decoder operating on the same track power as the sound unit. Since both are operating on the same power, and both units contain a bridge rectifier (normally they do), then both share the same ground (common). This is why the black wires from J1 and J2 do not need to connect to the receiver ground. Doing so will not cause any problems.

All function connections are to be connected to an “open collector” type switch to ground. This is the standard method for function operation. All functions are momentary except for the Force N8 function. This input will only keep the prime mover at full RPM (N8) when pulled low (to grouind, “-”).

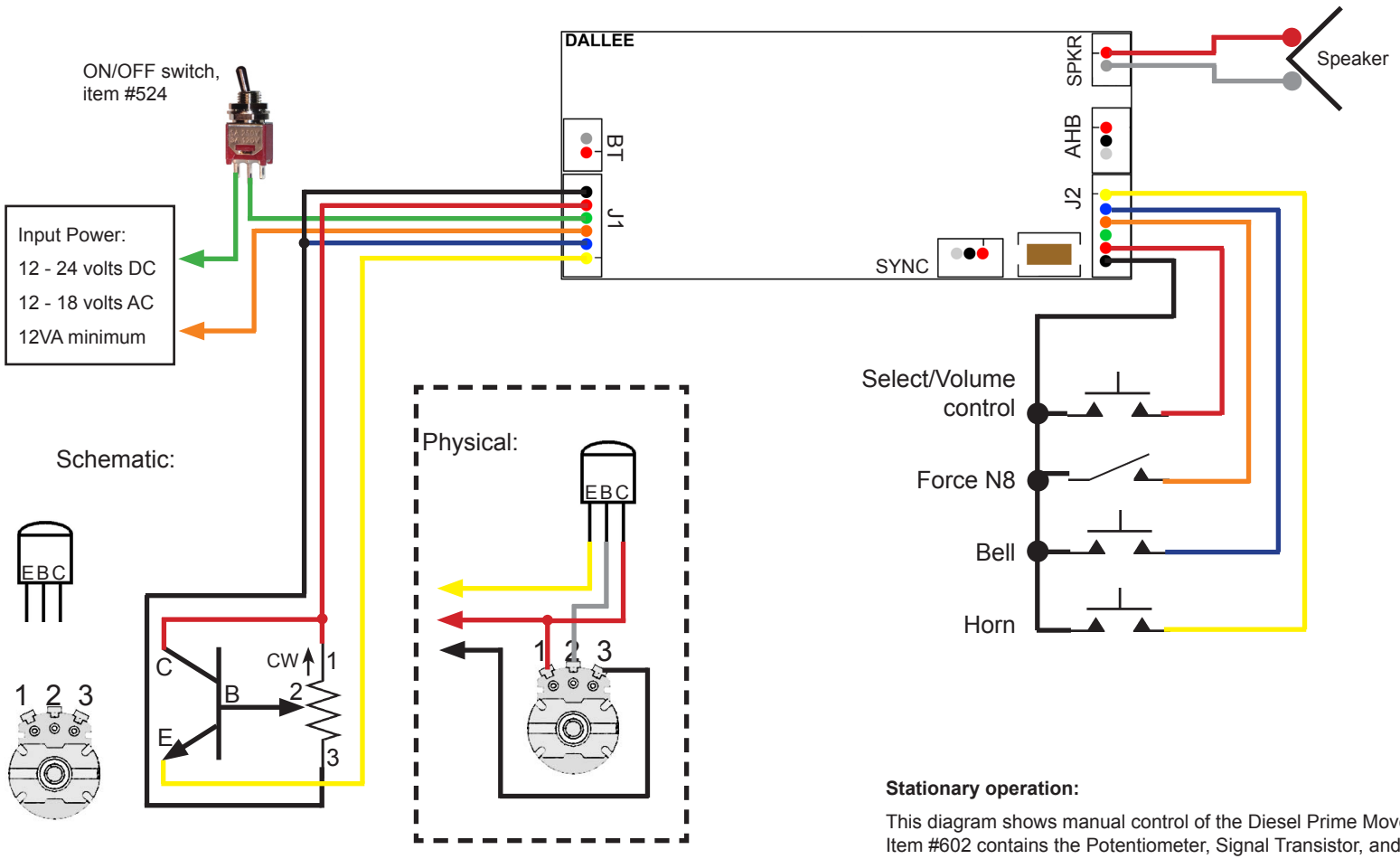
Battery power with any type of receiver:



This wiring covers any type of radio receiver operating on the same battery power as the sound unit. Since both are operating on the same power, and both units share the same ground (common). This is why the black wire from J2 does not need to connect to the receiver.

All function connections are to be connected to an "open collector" type switch to ground. This is the standard method for function operation. All functions are momentary except for the Force N8 function. This input will only keep the prime mover at full RPM (N8) when pulled low.

Stationary and “In Locomotive” for larger “ride on” gauges (1” and larger)



Connect switches for operation desired.

J2 - Function connections:

Yellow - Horn

Blue - Bell

Orange - Force N8

Red - Select/Volume control

Black - ground (common)

Item #618 - push button switch

This wiring covers any type of stationary operating or “in locomotive” for larger scale riding locomotives (1” and larger).

Operating in Large Scale / Riding Locomotives:

This diagram shows manual control of the Diesel Prime Mover RPM sound (for example, if the engine is gas powered). Item #602 contains the Potentiometer, Signal Transistor, and Knob as shown.

If an electric motor is present and it’s motor voltage (up to 24 volts) is desired to operate the Diesel Prme Mover RPM instead then connect the J1 Yellow and Blue wires to the motor brushes instead of what’s shown in this diagram.

Stationary operation:

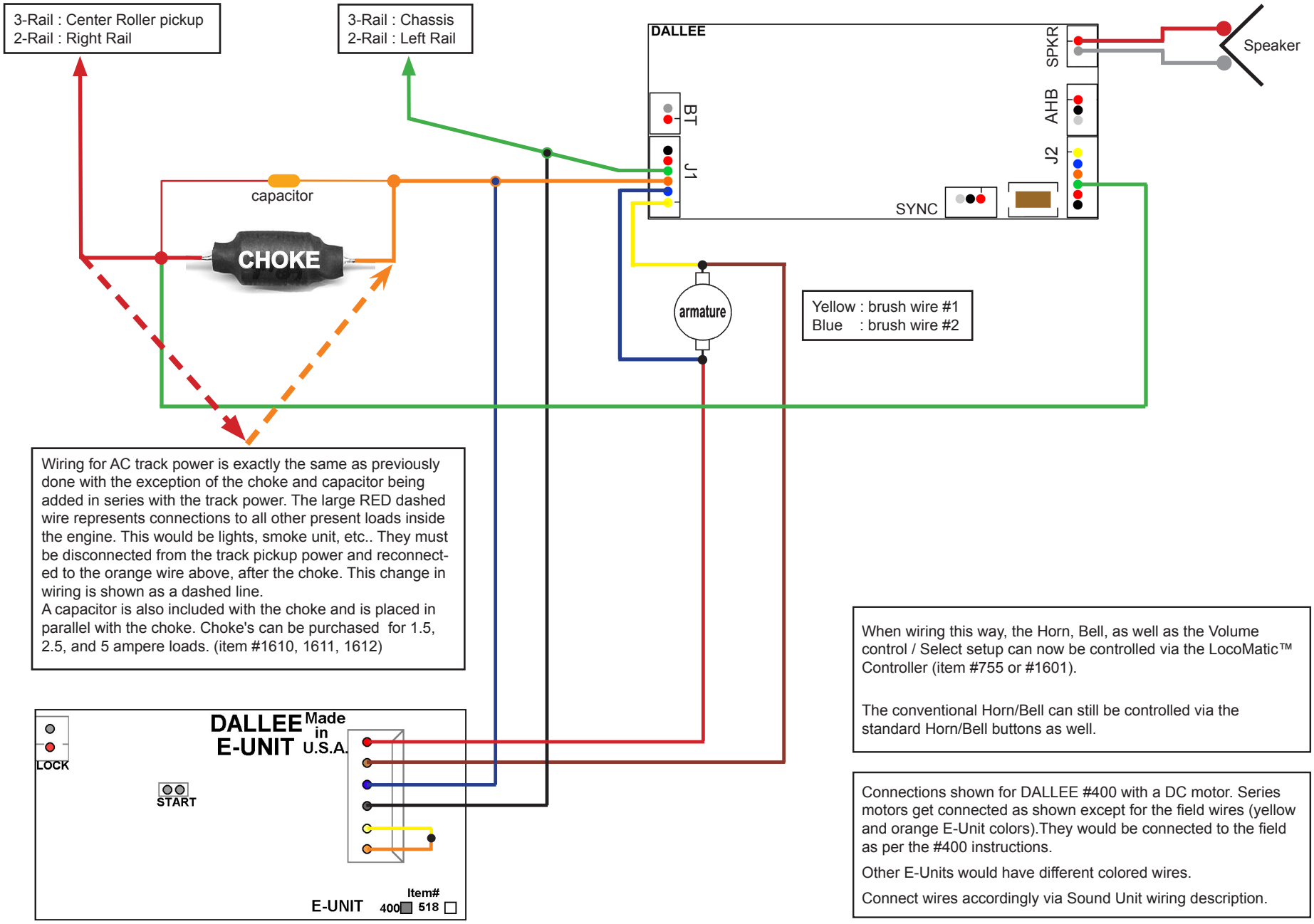
This diagram shows manual control of the Diesel Prime Mover RPM sound (no track power utilized). Item #602 contains the Potentiometer, Signal Transistor, and Knob as shown.

If track voltage is desired to control the sound unit’s Diesel Prime Mover RPM sound, then connect the J1 Yellow and Blue wires to the track power (AC or DC) desired to control this sound instead of what’s shown in this diagram.

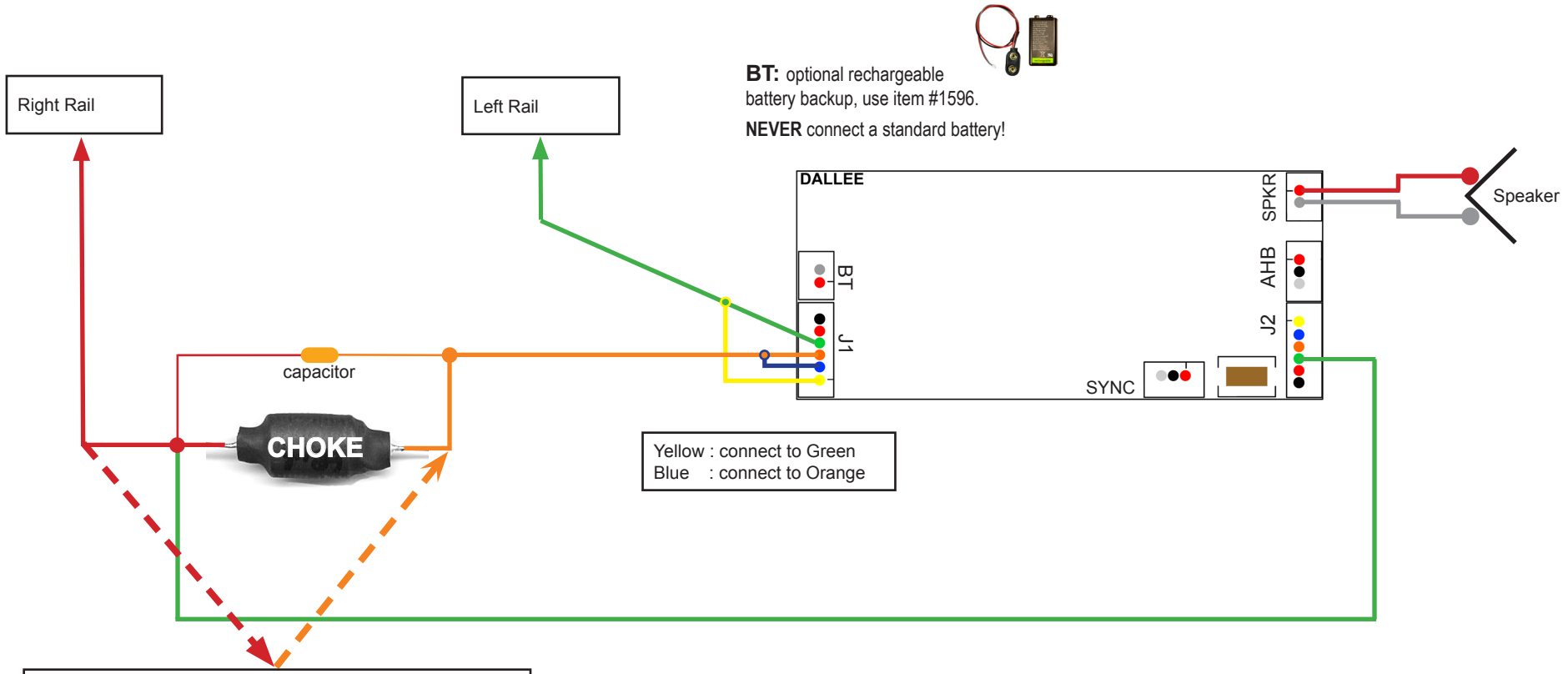
Sounds are operated via switches shown above. Momentary switches are required for the Horn, Bell, and remote Volume operation (if desired). A toggle switch is requred to operate the “Force N8” operation. Item #618 is a nice panel mounted momentary switch. Item #524 is a small toggle switch.

Battery operation is done by either powering as shown or via the J1 RED and BLACK wires. Polarity has to be observed when powering via the RED and BLACK wires.

AC track power utilizing LocoMatic™ Controller:



DC track power utilizing LocoMatic™ Controller:



Wiring for DC track power is exactly the same as previously done with the exception of the choke and capacitor being added in series with the track power. The large RED dashed wire represents connections to all other present loads inside the engine. This would be lights, smoke unit, etc.. They must be disconnected from the track pickup power and reconnected to the orange wire above, after the choke. This change in wiring is shown as a dashed line.
A capacitor is also included with the choke and is placed in parallel with the choke. Choke's can be purchased for 1.5, 2.5, and 5 ampere loads. (item #1610, 1611, 1612)

In this application the motor voltage is the same as the track power, therefore the motor brush wires (Yellow and Blue) are wired to the track power wires (Green and Orange) as shown.

Operation: When track power is of enough voltage for long enough, the sound card will “come alive” and play the prime mover as well as whatever sounds are required to play at that time. When track voltage ceases to be of sufficient voltage, the sound unit will turn itself off. If longer times are desired, or more sound at lower voltages, then the optional rechargeable battery needs to be installed (item #1596). The only other option would be to operate the sound unit from a battery of at least 6 volts or more, utilizing the Red and Black wires from J1.

Operation: When the track power becomes sufficient enough for the sound unit to start, the optional backup battery, item #1596, is switched on to the sound unit, and the sound unit will play the brake release and the prime mover sound will accellerate to it's appropriate rpm. The Horn, Bell and, Force Notch 8 On/Off, as well as the Volume control / Select setup can now be controlled via the LocoMatic™ Controller (item #755 or #1601). When track power is turned off, the motor sounds will return to idle. Of coarse, you can also set the other sounds to play via the LocoMatic™ Controller.