

(Control Box Face Plate and Functions)

**NOTE: DO NOT ATTEMPT TO RAISE OR LOWER THE PANTOGRAPHS MANUALLY BY HAND, DAMAGE WILL RESULT. IF THE LOCOMOTIVE SOUND SYSTEM SWITCH IS LEFT ON, THE BATTERIES WILL BE DRAINED OF POWER EVEN IF ALL SOUND EFFECTS ARE TURNED OFF.**

#### **LOCOMOTIVE CARE AND MAINTENANCE**

Routine maintenance consists of periodic lubrication as described under the heading 'Preparing For Operation' and replacement of the sound system batteries covered under the heading 'Sound System'. It is advisable to periodically check the tightness of the small fasteners used to assemble the detailing to make certain that parts will not be lost. If the model will not be operated for an extended period of time, remove the batteries from the locomotive .

#### **SERVICE**

The Kohs & Company Pennsylvania GG-1 is covered by a limited lifetime warranty to the original owner. We will repair any model requiring service as a result of normal use, but not abuse. All of our guidelines for operation must be followed including the use of a proper power supply, otherwise the warranty is voided. We will not replace consumable items such as light bulbs and batteries as a matter of course, but will make such items available to customers on a cost basis. Please contact us prior to returning any model or component for service. If you have technical questions or questions regarding service, please contact us directly:

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## **Pennsylvania Railroad GG-1 Locomotive**

### *OPERATION AND MAINTENANCE INSTRUCTIONS*

The Kohs & Company Pennsylvania Railroad GG-1 locomotive is an exact scale replica of the original prototype. It is constructed of formed and fabricated brass and incorporates many scale operational features. Although the model is very sturdily built, the body shell, pantographs and particularly the detailing are very susceptible to damage by rough or careless handling. To prevent damage, please exercise great care in unpacking and handling the model. The locomotive is best handled by lifting under the main frames on both sides at the center of the model, when touching the painted surfaces, be advised to wear the supplied gloves to protect the finish.

This locomotive model is designed to operate on Direct Current (DC) electricity. Any application of Alternating Current (AC) **WILL DESTROY THE INTERNAL ELECTRONIC COMPONENTS OF THIS MODEL**. Kohs & Company will not be responsible for damage caused by the application of AC power to the model. We will offer further power supply specifications under the heading of 'Power Supply Requirements', please make note of these recommendations.

Before unpacking, handling or operating this model **PLEASE TAKE THE TIME TO FULLY READ THIS MANUAL**. This is a small investment of time to protect your substantial financial investment and to prevent unnecessary disappointment and frustration.

### ***PREPARING THE LOCOMOTIVE FOR OPERATION***

Although your GG-1 is ready to operate, a few preventive maintenance steps should be taken to ensure the smooth operation and longevity of the model. The locomotive has been lubricated during assembly and testing, while this will suffice for initial operation and break-in, you may wish to further lubricate areas where moving parts are in contact with each other by applying 1 or 2 drops of good quality fine oil. Your local hobby dealer should be able to guide you in the selection of a suitable lubricant.

The locomotive was shipped to you with a scale 'tite-lock' style coupler installed for display purposes. For operating and pulling consists you may replace the display coupler with the Kadee unit of your choice, the holes are predrilled and tapped for the installation.

### ***POWER SUPPLY REQUIREMENTS***

The Kohs & Company 'Hudson' is a Direct Current (DC) electric scale locomotive. **Do not attempt to use AC power as damage will occur.** The following criteria should be used when selecting your power supply:

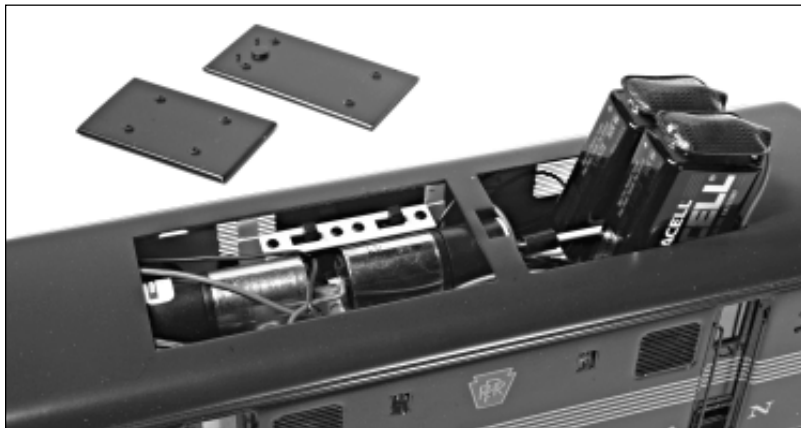
- 1) Direct Current (DC) which is filtered
- 2) 0-18 volts (DC)
- 3) Minimum available current should be approximately 8.0 amps

Should you choose to use a less expensive power supply or one which does not meet the above criteria, undesirable operating characteristics may result as well as possible damage to the electronics used in the model. If you have questions regarding your selection, do not hesitate to contact us for advise.

### ***PREPARING THE SOUND SYSTEM FOR OPERATION***

The locomotive contains a state-of-the-art sound system which digitally recreates actual locomotive sounds including air-horn, bell, blowers, brake release and pantograph air release. While this sound unit requires track voltage to actuate certain sounds, the actual power used to operate the sound system is supplied by two standard 9 volt batteries that are placed in the center section of the cab (refer to figure #1) during the operation of the locomotive,. When you disconnect the batteries, **do not pull on the wires.**

**NOTE: If you do not plan to use your locomotive for an extended period of time it is highly recommended that you remove these batteries and store them separately as with age they may leak and cause substantial damage to the model.**



(figure #1)



(figure #2)

The supplied sound system controller needs to be wired in-line between your power supply and the track in order to control the internal sound system. There are four (4) screw terminals at the front of the box and they are labeled in two pairs, 'from trans' and 'to track', these should be pretty self-explanatory. Each terminal is further labeled either 'A' or 'U', these are the international markings for (+) and (-) with the 'A' indicating (+) and the 'U' indicating (-). The power for the controller is supplied by the included 9V wall adapter which simply plugs into the round receptacle on the front of the box, that being the side facing away from you while reading the face plate. (refer to figure #2)

### ***OPERATING THE LOCOMOTIVE***

The minimum radius for operation is 70" with well laid consistent rail alignment, turnouts need to be #6 or larger. It is recommended that you operate the locomotive at a varying speeds and in both directions during the break-in period, the break-in period should last for a total of approximately 60 minutes (this may be accomplished on an incremental basis). This will help the drive system to 'run-in' resulting in smoother running characteristics.

You are now ready to put the locomotive into operation. To activate the sound system, locate the sound system switch under the center roof hatch it is labeled 'sound', slide it to the on position making certain the 'panto' switch is in the 'rail' position to take power from the rail or in the 'panto' position to take power from an overhead cantenary system. With the locomotive stationary you will not hear any sounds until they are manually activated or track power is applied. When track power is applied you will hear the brake release sound and once the locomotive starts to move you will hear the blowers turn on. When the locomotive is stopped, the blowers will automatically turn off.

The manual sound control functions are as follows:

- 1) 'Bell' one touch on and one touch off
- 2) 'Horn' sounds the horn when ever the button is depressed
- 3) 'Front Pan' raises the front pantograph while depressed
- 4) 'Front Pan' & 'Alt' lowers the front pantograph while depressed
- 5) 'Rear Pan' raises the rear pantograph while depressed
- 6) 'Rear Pan' & 'Alt' lowers the rear pantograph while depressed
- 7) 'Blowers' & 'Alt' manually controls the blower sound
- 8) 'Sound' & 'Alt' allows you to remotely turn the sound off while operating
- 9) 'Aux 1' no function currently
- 10) 'Aux 2' no function currently