Operations Manual

Thank you for purchasing the Blackstone Models K-27!

Before your Mudhen whistles off, we want to tell you about a few things that will enhance your operating experience and ensure that your locomotive is maintained for years of pleasure.

We are pleased that we were able to produce some very fine details for this model. Be aware that some of these parts are wire, styrene and celcon. Thoughtful handling of the locomotive right out of the box will ensure that detail parts are not broken or damaged.

The locomotive and tender are coupled together in the box. Figure 1 shows the best way to hold the locomotive and tender with the drawbar securely connected. Be sure your hands are free of dirt and oils, or use lightweight gloves if desired. While the drawbar connection of the locomotive and tender is of substantial strength, be careful not to twist at the connection when handling in this manner.

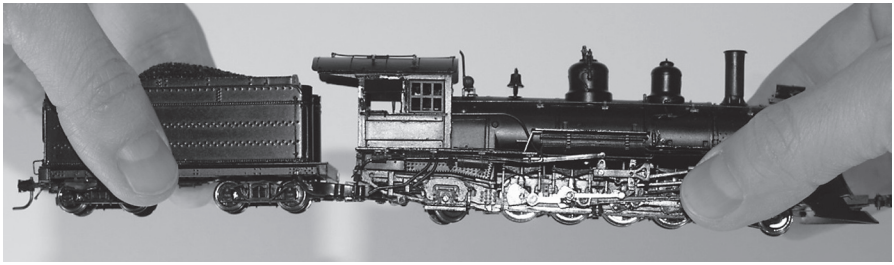

Figure 1 – Handling the Locomotive and Tender

The drawbar connector also serves as the conduit for the wires that run between the tender and locomotive. These wires transfer the track pick up from the locomotive drivers and tender wheels to the motor and lights. In addition, wires which provide many more functions in sound-equipped DCC models are also served by this connector.

The 2-piece drawbar connector is secured by two snaps located on the top and bottom of the male (locomotive side) connection. We have made this snap connection fairly tight to ensure that you will have plenty of drawbar strength. You may wish to separate the locomotive and tender at some point. If you do so, start by gently prying the bottom snap over the tab located on the connector.

Note in Figure 2 that a small screwdriver is used to lift the snap, then another screwdriver is gently twisted between the connector to separate the two parts.

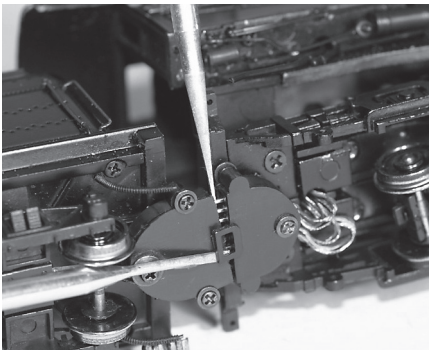

Figure 2 – Separating the Connector

Take a closer look in the box and you will notice that we have added a locomotive tool box and cinder catcher along with some extra screws. The tool box was often seen on the pilot deck of the K-27's. For an example of this placement, see the photograph of number 461 on page 5 of our Historical Pamphlet included in the box. We recommend the use of RTV silicon to attach this piece as it will allow easier removal at a later date. ACC glue is best if you wish to permanently affix the tool box.

While each K-27 has been test run at the factory, a little break-in time is always a good idea to enhance the running qualities of your engine. We recommend operating the locomotive for approximately 2-3 hours in both directions at varying speeds. We have designed your locomotive for smooth and consistent electrical pick-up. In order to enhance your operation, ensure that your track is kept clean on a regular basis.

Maintaining your Mudhen

Before you run your K-27 it is best to place some light lubrication on the rods, bushings, and electrical contact points. The gearbox is lubricated at the factory and will not need immediate attention. In order to keep the mechanism running smoothly, please follow these instructions.

After some running time and prior to adding new lubrication, be sure to wipe off old/dirty oils and grease that have accumulated on various parts of the locomotive. Isopropyl alcohol may be used for this purpose. Always ensure that any cleaning fluids used will not remove any paint or glues from the model. Remember to periodically wipe the tread of all wheels to keep them free of accumulated dirt and oil. Based on our testing, Blackstone Models recommends lubricants from **Aero-Car Hobby Lubricants*.**

* **Aero-Car Hobby Lubricants, Inc**
P.O. Box 336
Western Springs, IL 60558-0336
www.aerocarlubricants.com
708-246-9027

The following products should be applied within the time intervals stated:

Motor Bearing Lube ACT 2112: Apply a small drop at the union of each side rod and where the rods attach to the counterweight/crank. (Initially and after every 25 hours of operation). See Figures 3 and 4. Apply to all moving points on the valve with particular attention to the points shown in Figure 4.

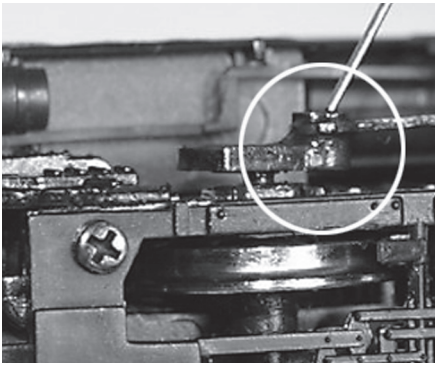

Figure 3 - Apply lubricant to all the side rod connections

Conducta-Lube ACT 3753: Apply a small drop between the inside of the counterweight/crank and the main axle bearing on each of the four axles on both sides of the locomotive (Initially and after every 25 hours of operation, Figure 5).

Apply a small drop on each of the four tender axles where the electrical wiper fingers contact the axles. (Initially and after every 25 hours of operation.) See Figure 6.

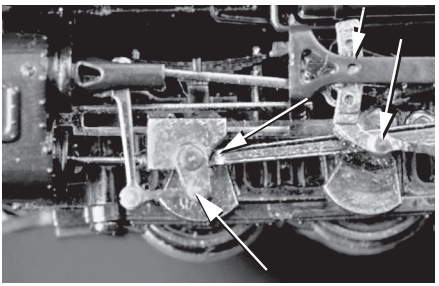

Figure 4 - Apply to the valve and running gear with attention to the points shown above.

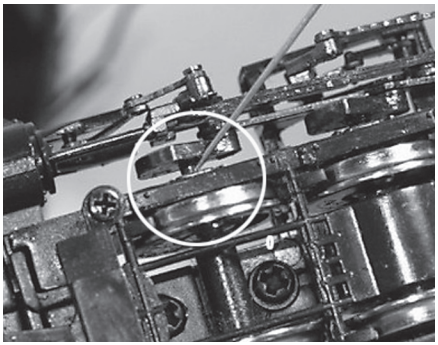

Figure 5 - Lubricate axle bearings.

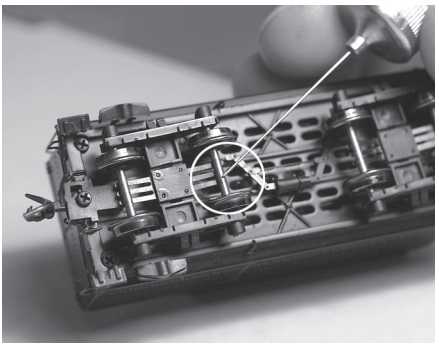

Figure 6 - Lubricate tender axles.

When re-lubricating this area, check to see that the wiper fingers are still properly contacting the wheel axles. If for any reason one or more of the wipers are not making solid contact, remove the axle from the truck frame by slightly widening the frame and pulling out the desired wheel set.

Using a small jeweler's screwdriver or pair of small tweezers, carefully bend each wiper finger upward just enough to where it will contact the axle when replaced. To replace the wheel set, gently spread the truck frame apart and re-insert in the appropriate location.

Don't forget that each tender truck is insulated from the rail on one side. ***Important!*** The wheels on the front truck are insulated from the right rail pick-up, while the wheels of the rear truck are insulated from the left rail pick-up. Please see Figure 7 showing the proper placement of these insulated wheels and be sure to replace accordingly. Failure to adhere to this could cause serious electrical issues to your locomotive. If you have an unexpected loss of electrical contact after replacing wheel sets, this is probably where you should look first!

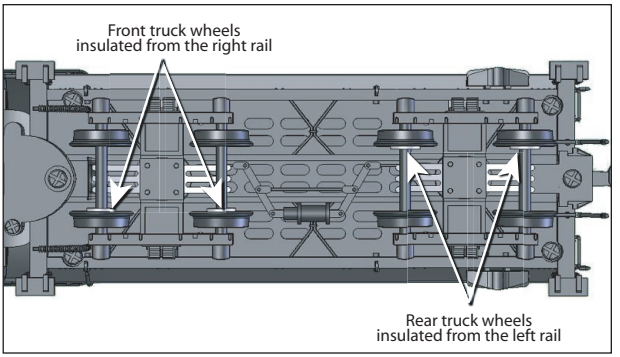

Figure 7 – Proper placement of insulated wheels.

NG Jell Gear Lubricant ACT 1111: Inspect the gearbox after 50 hours of operation to determine the need for cleaning or adding more lubrication. If you do not see a reasonable film of grease throughout the worm and teeth, apply an appropriate amount to coat the gear teeth throughout. Lifting the motor from the gearbox frame will allow you to rotate the drivers freely, which will spread the grease throughout the gears. *Remember that an abundance of grease collecting around the gears in the box will only attract dirt and other foreign matter. Focus on the gear teeth contact points and avoid over-lubrication of the gearbox.*

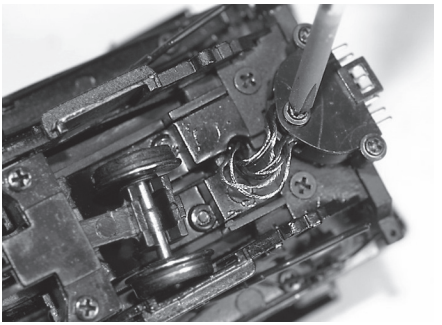

Figure 8 – Remove the Phillips head screw on the male drawbar connector

The instructions for removing the motor are illustrated in Figures 16 through 19. *Before any of this begins, you will first need to remove the boiler from the chassis* as shown in Figures 8 through 13.

Removing the Boiler

1. Remove the male drawbar connector by removing the Phillips head screw as shown in Figure 8.

2. Move the drawbar aside. Just behind the drawbar support pin you will see a small Phillips head screw that attaches the rear chassis to cab. Remove this screw (Figure 9).

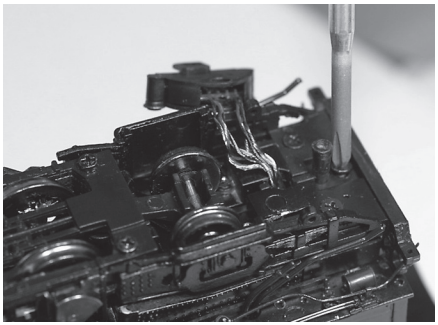

Figure 9 – Remove the screw that attaches the rear chassis to the cab.

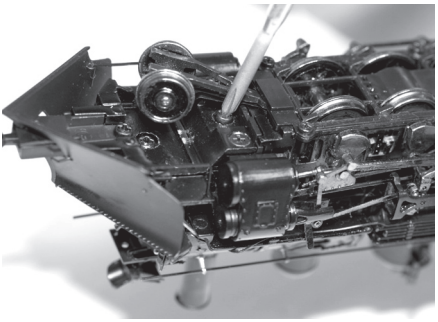

Figure 10 – Remove the Phillips head screw under the pony truck

3. Remove the center screw located just under the pony truck frame (Figure 10).

4. Remove the boiler supports from each side of the smokebox as shown in Figure 11.

5. Gently pull the reversing reach rod on the right side from the tumbling shaft lever as shown in Figure 12.

6. The vertical handrails at the rear of the cab plug into the rear cab support frame located on the chassis. These will need to be replaced in the proper holes when re-assembling. Note the proper location and routing of the sander pipes (one on each side just ahead of the number two driver) and the

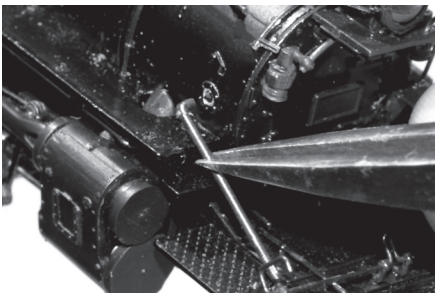

Figure 11 – Remove the boiler supports from both sides of the smokebox

Figure 12 – Pull the reversing rod from the tumbling shaft lever

injector pipes (behind the brake cylinders below the cab) before disassembling.

7. Lift the rear of the boiler assembly, pull it back slightly, and remove the assembly from the chassis as shown in Figure 13. *Again, please note that sander pipes, cab rear handrails, and the injector piping all need special care when separating the boiler from the chassis.*

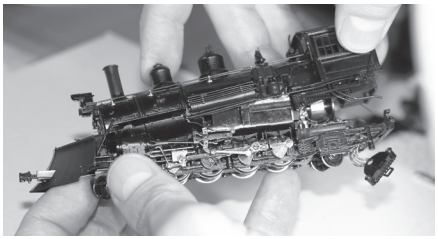

Figure 13 – Remove the assembly from the chassis

Accessing the Gearbox to Lubricate

1. Remove the worm gear cover by removing the screw as shown in Figure 14.

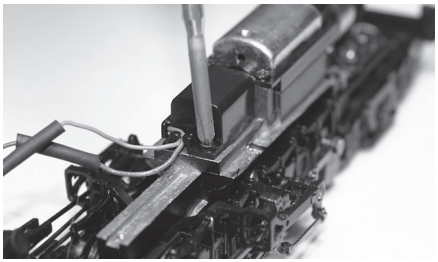

Figure 14 – Remove the worm gear cover

2. Apply the NG Jell with an applicator (or toothpick as shown in Figure 15) to the worm and gears. *Again, it is best to remove the motor to allow you to rotate the drivers and spread the grease throughout the gear teeth.* See Figures 16 and 17.

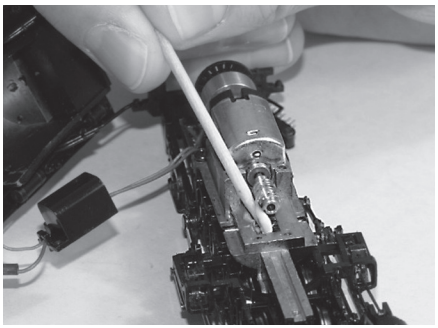

Figure 15 – Lubricate the worm and gears

3. **<u>Motor Bearing Lube ACT 2112</u>:** Apply this oil very sparingly to the motor bearing on each side of the motor ***only*** if you notice any unusual noise or obvious drag on the motor due to friction at these locations. *These bearings are self lubricating and generally should last for the running life of the locomotive without supplemental lubrication.* Please note that over-lubrication on motor bearings could potentially shorten motor life as excessive lubricant may work into the commutator or magnet areas of the motor.

Remove the Motor for Lubrication

1. Detach the motor securement clip by first removing the two Phillips head screws shown in Figure 16.

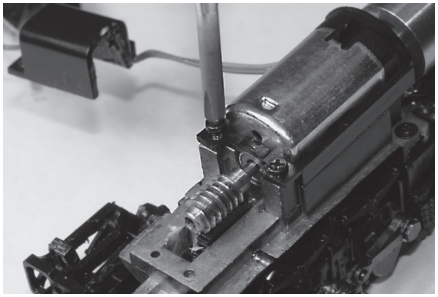

Figure 16 – Remove the two Phillips head screws on the front of the motor clip

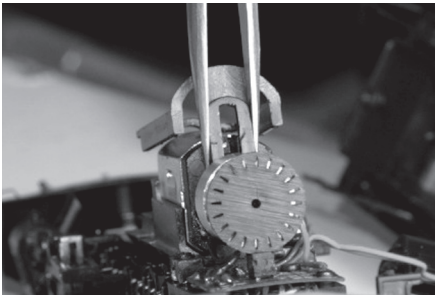

Figure 17 – Lift the securement clip

2. Using tweezers, compress the rear of the clip and lift up from where it snaps into the rear of the gear box chassis (see Figure 17).

3. Place a *small* drop of lubricant on the front shaft where the bearing is located as shown in Figure 18.

4. Place a *small* drop of lubricant on the rear shaft where the bearing is located (Figure 19).

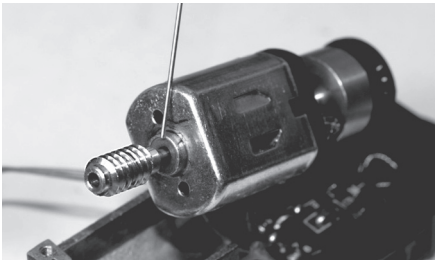

Figure 18 – Lubricate the front shaft

When performing routine maintenance on your locomotive, remember to inspect the screws that secure the side rods and various moving parts for the proper tightness. When re-assembling your locomotive, replace screws with only enough pressure to ensure that the parts properly contact and will not work loose. Over tightening of screws could hinder operation and movement of certain parts.

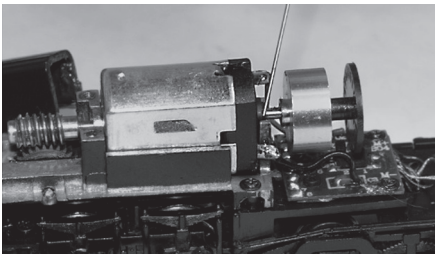

Figure 19 – Lubricate the rear shaft

Using the Alternative Coupler Pocket on Snowplow-Equipped Models

Included with the snowplow-equipped locomotives is an alternative coupler pocket (shown in Figure 20). This shorter pocket will provide a more prototypical look for your snowplow if desired. However, bear in

Figure 20 – Alternate Short Coupler Pocket

mind that with the short coupler pocket in place, you will not be able to uncouple your locomotive using a magnetic uncoupling system because the uncoupling pin must be altered when making this change.

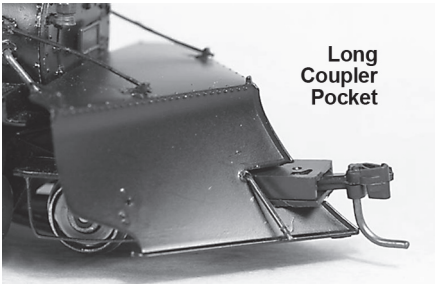

Figure 21 – Long Coupler Pocket

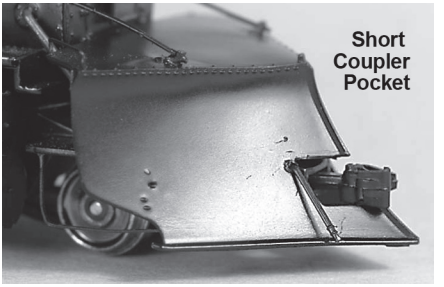

Figure 22 – With Alternate Coupler Pocket

This decorative coupler conversion may cause the trip pin on cars to which it is coupled to improperly contact the bottom of the plow and you may wish to make appropriate alterations to the car's trip pin if deemed necessary.

The following procedure will allow you to remove the long coupler pocket and replace it with the short coupler pocket.

Tools Needed

- Tweezers
- #0 Phillips Screwdriver
- #00 Phillips Screwdriver
- X-Acto Knife
- Wire Cutter

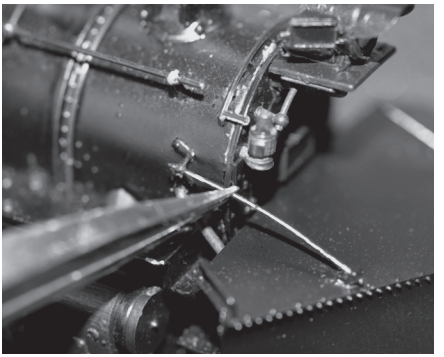

Figure 23 – Remove the snowplow support rods from the smokebox

Disassembly Instructions

1. Remove the locomotive from the packaging and set it on a secure work surface. A foam pad is recommended to protect against breaking the locomotive's detail parts. With the tweezers, gently pull both snowplow support rods from each side of the smokebox (shown in Figure 23).

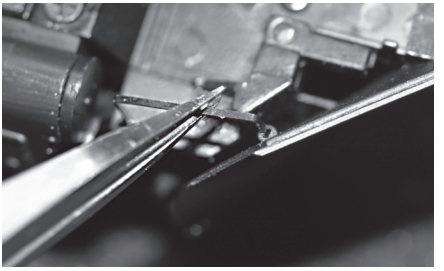

Figure 24 – Remove the snowplow foot stirrups

2. Gently roll the locomotive over to reveal the underside. With tweezers, gently pull both snowplow foot stirrups from the plow (shown in Figure 24).

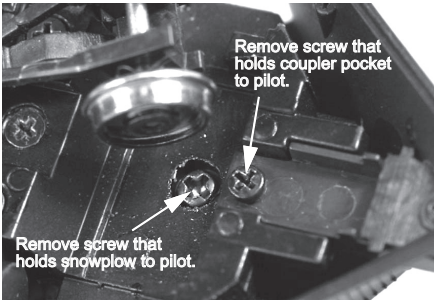

Figure 25 – Remove the screws holding the snowplow and coupler pocket to the pilot.

3. Place the pony truck over to one side to expose the screw that secures the snowplow to the pilot as shown in Figure 25. Remove this screw. Next, remove the screw that holds the coupler pocket to the pilot. You will need to remember which screw goes where for re-assembly. Set both of these screws aside for re-use.

4. Clamp the coupler pocket and the bottom front of the snowplow between your thumb and index finger and gently wiggle the snowplow and coupler pocket up and down to dislodge the snowplow from the pilot.

5. Once you have removed the snowplow and coupler pocket, remove the coupler pocket assembly from the snowplow by grasping the rear of the coupler pocket and pulling it through the rear of the plow. You will need to gently maneuver the coupler through the hole in the plow by twisting the coupler pocket to the side (See the photo progression below in Figure 26.).

Figure 26 – Remove the coupler pocket assembly

Note: You cannot push the coupler pocket through the front of the snowplow.

6. Remove the screw holding the coupler assembly together and set it aside for re-use. Remove the coupler cover and the Kadee coupler from the long coupler pocket. *Note: when removing the cover, be careful not to lose the spring that goes with the Kadee coupler!*

This completes the disassembly of the snowplow and long coupler pocket.

Re-Assembly Instructions

7. Take the short pocket and re-assemble the Kadee coupler by placing the coupler halves over the round pin in the pocket. With the tip of the X-Acto knife, spear the spring between the coils and wedge it between the round pin in the coupler pocket and the rear of the coupler halves (See Figure 27).

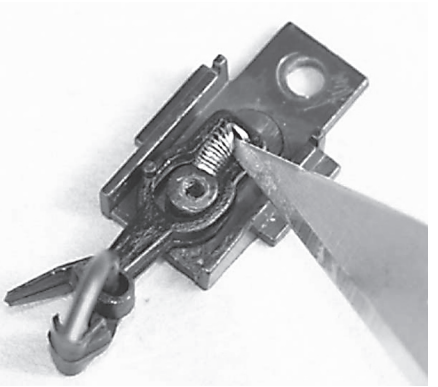

Figure 27 – Re-assemble the Kadee Coupler

8. Place the pocket cover over the assembled Kadee coupler and screw it together using the screw that was removed from the long coupler pocket assembly.

9. Use cutters to snip the uncoupling pin flush with the bottom of the coupler. See Figure 28. The coupler will now fit into the snowplow. The remainder of the uncoupling pin will keep the coupler halves together so that they will function correctly. Again, you will no longer be able to use a magnetic uncoupling system.

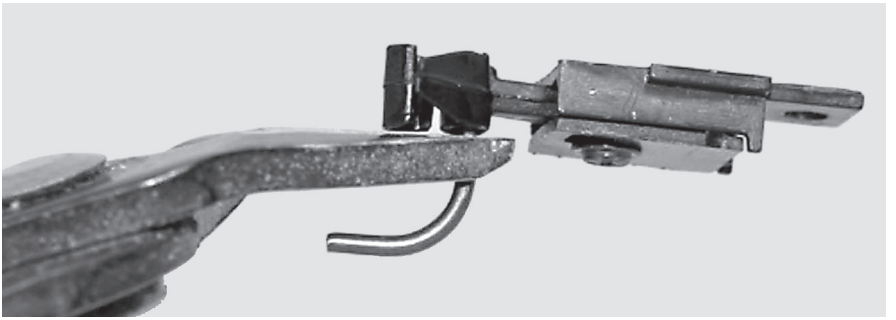

Figure 28 – Snip the uncoupling pin flush with the bottom of the coupler

10. Roll the locomotive right side up and install the coupler pocket onto the pilot by angling it in from the top, then straightening it out and pushing it all the way in as shown in Figures 29 and 30. Roll the locomotive upside down and replace the screw that attaches the coupler pocket to the pilot.

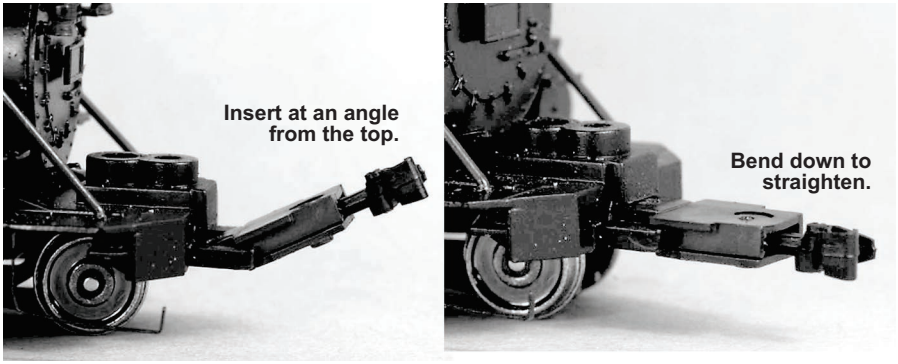

Figure 29 – Insert the new coupler pocket assembly

11. Turn the locomotive right side up and place the pins on the underside of the snowplow into the bosses on the top of the pilot, making sure to insert the coupler into the hole in the plow. See the photos in Figure 31 for clarification.

12. Roll the locomotive upside down and replace the screw that holds the snowplow to the pilot. Also replace the snowplow foot stirrups by inserting the wire back into the holes in the bottom of the snowplow. Then, turn the locomotive right side up and replace both snowplow support rods in their proper holes on each side of the smokebox.

This completes the re-assembly of the snowplow with the short coupler pocket installed.

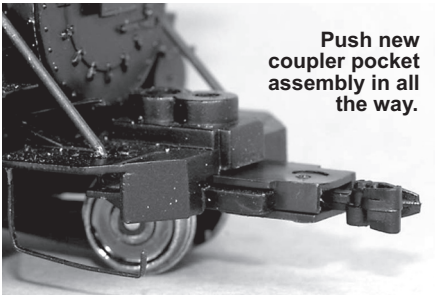

Figure 30 – Push the coupler pocket assembly in all the way

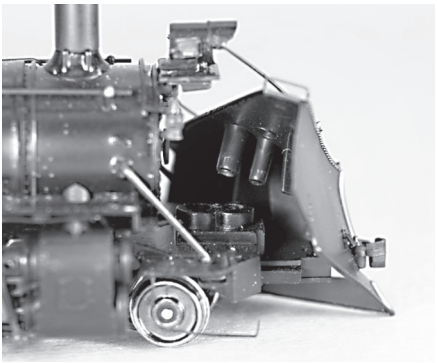

Figure 31 – Re-attach snowplow assembly

Blackstone Models™

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