



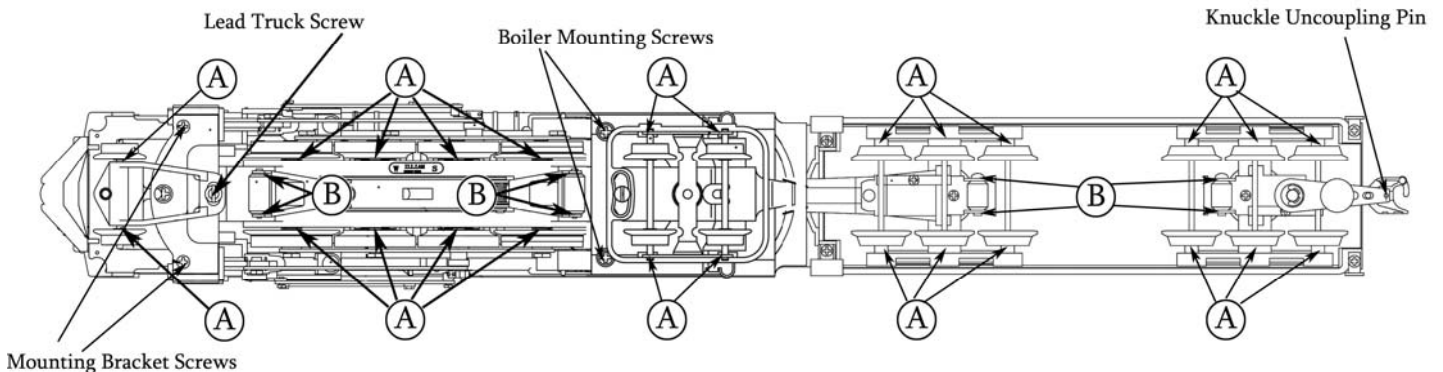
Bachmann Industries, Inc.  
 1400 East Erie Avenue, Philadelphia, PA 19124 USA  
 www.bachmanntrains.com  
 Customer Service Telephone 800-356-3910

## BERKSHIRE LOCOMOTIVE & TENDER INSTRUCTIONS

Thank you for purchasing a Williams by Bachmann® locomotive. This locomotive has been manufactured to provide years of use and enjoyment. Please follow the simple instructions below.

This locomotive has been greased and tested before leaving the factory. Before operating, please lightly lubricate the points shown in the diagram below. Do not over-lubricate and take extra care to avoid getting lubricants on the wheel surfaces or traction tires.

Figure 1



1. For the axles and coupler pivot points **Marked A**, we recommend that you lubricate with a small amount of light oil such as Bachmann E-Z Lube® #99984 Light Gear Oil. You may also want to put a very small amount on the rotating points of the side rods. **Do not over-lubricate.**
2. For areas that require electrical flow, such as roller pick-ups **Marked B**, please use Bachmann E-Z Lube® #99981 Conductive Contact Lube. **Never use any Teflon® based oil on these areas because this type oil has insulating properties.**

### OPERATION

After unpacking the locomotive, make sure that the uncoupling plunger is in the correct position with the pin inserted in the knuckle (see figure 1). Failure to do so will allow the uncoupling plunger to contact the center rail and a direct short will occur when power is applied to the track. We recommend using an AC hobby transformer with maximum voltage output of 18 VAC and a wattage rating of **at least 90 watts.**

### Throttle Control

The throttle control will allow you to operate your train at a wide range of speeds. Slowly turn the control knob until you are familiar with the response of the locomotive that you are operating. Please note that our sound systems require 6 volts or greater to operate correctly.

### Whistle Operation

To operate the horn of your locomotive, simply depress the horn /whistle button on your transformer. Our True Blast™ Whistle will play a 6 second sequence one time.

### Bell Operation

To operate the bell on your locomotive, press and hold the bell button for one second. To stop the bell, press and hold the button for one second.

### Direction Control

Williams reverse units sequence FORWARD, NEUTRAL, REVERSE, NEUTRAL, and again FORWARD. To sequence the reverse board, simply depress and hold the direction button, release the button 1 second after the train has come to a complete stop. **PLEASE NOTE:** If you do not wait for your train to come to a complete stop the reverse unit may not always sequence properly. After approximately 7 seconds without power, the reverse board will reset to FORWARD.

### Smoke Unit

This locomotive is equipped with an operating smoke unit. If you wish to use this feature add 10-15 drops of the supplied smoke fluid into the smoke stack of the locomotive. Use only Williams by Bachmann® or Bachmann® Fluid. Other brands may be too thick and clog the unit.

### Uncoupling

This locomotive is equipped with operating knuckle couplers on the rear of the tender. To uncouple, position the uncoupling plunger over the center of electro-magnetic track uncoupling section and activate the magnet.

## PERIODIC MAINTENANCE

### Disassembly Instructions

For periodic maintenance, you will have to remove the body shell to gain access to some of the parts that require servicing. The body shell is attached with three screws on the bottom of the locomotive chassis. The front screw is located under the lead truck mounting bracket. You will have to remove the lead truck to gain access to this screw. There are two additional screws in the rear. See Figure 1 for the location of the rear mounting screws. After servicing, carefully guide the handrails into the holes on the front pilot. Next re-attach the body shell using care not to over-tighten the screws.

### Lubrication

We recommend that you lubricate as directed on page 1 every 10 hours of operation. In addition, you also should check the motor gearbox every 25 hours. To gain access to the gearbox, remove body shell as instructed above. Next, unscrew the screws that cover the grease box (two small Phillips-head screws in front of the motor assembly). Inspect the gears and apply any necessary lubrication. We recommend Bachmann E-Z Lube® #99982 Grease, or equivalent. Replace the gear box cover when complete.

### Traction Tire Replacement

Our traction tires are very durable and should not need replacing very frequently. They should last hundreds of hours under normal conditions. If they wear out prematurely, check to make sure your track joints are tight. Gaps in your track can cause damage to the tires. To replace the traction tires, you will need to remove the side rods. There are three Hex screws and one Phillips-head screw on each side. Note the positions of the rods and any spacers. Remove old tire if present, clean wheel groove with any degreasing agent **making sure to follow the safety and handling instructions on the degreasing agent's bottle**. Wipe dry with paper towel or clean rag. Stretch the new traction tire over the wheel making sure that it does not twist and seats smoothly in the wheel groove. Re-attach the side rods. Test to make sure the rods move freely before applying power to the locomotive. Check at least one complete rotation of the wheels before applying any power. You can manually spin the flywheel on the end of the motor to make the wheels spin,.

### Light Bulb Replacement

This locomotive uses an 8 volt grain of wheat light bulb Part Number 344-02-04. It plugs into the voltage regulator board.



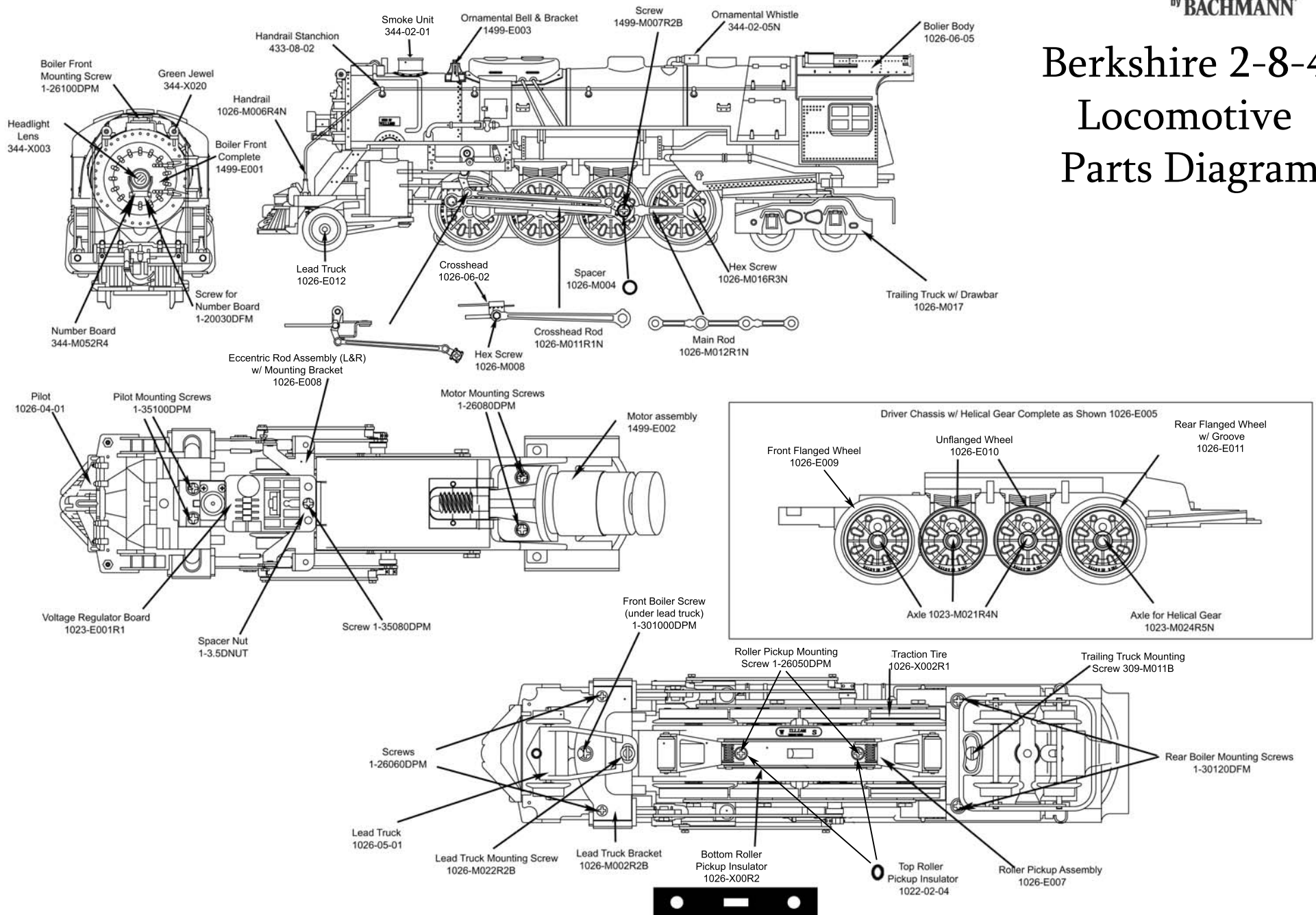
by BACHMANN

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Part Number	Description	Number Used
<b>BERKSHIRE BODY &amp; BODY PARTS</b>		
1026-06-05	Boiler Body	1
1499-E003	Ornamental Bell & Bracket	1
1-26060DPM	Bell Mounting Screw	1
344-02-05N	Ornamental Whistle	1
433-08-02	Handrail Stanchion	8
1026-M006R4N	Handrail	2
1499-E001	Boiler Front - Complete	1
1-26100DPM	Boiler Front Mounting Screw	1
344-X020	Green Marker Jewel	4
344-X003	Headlight Lens	1
344-M052R4	Number Board	1
1-20030DFM	Screw for Number Board	1
1-30100DPM	Boiler Mounting Screw - Front (under lead truck bracket)	1
1-30120DFM	Boiler Mounting Screw - Rear	2
<b>CHASSIS PARTS</b>		
1026-E005	Drive Chassis w/ helical gear	1
1026-E009	Front Flanged Wheel	2
1026-E010	Center Unflanged Wheel	4
1026-E011	Rear Flanged Wheel w/ groove	2
1026-X002R1	Traction Tire for Rear Wheel	2
1023-M021R4N	Axle	3
1023-M024R5N	Axle for Helical Gear	1
1026-E008	Eccentric Rod Assembly (includes Left & Right)	1
1026-06-02	Crosshead	2
1026-M008	Hex Screw for Crosshead	2
1026-M011R1N	Crosshead Rod	2
1026-M004	Spacer for Crosshead Rod	2
1499-M007R2B	Screw for Center Wheel	2
1026-M012R1N	Main Rod	2
1026-M016R3N	Hex Screw for Main Rod	6
1026-E012	Lead Truck	1
1026-M022R2B	Lead Truck Mounting Screw	1
<i>6-X106-18</i>	<i>Washer for Lead Truck</i>	<i>1</i>
<i>1212-M016</i>	<i>Spring for Lead Truck</i>	<i>1</i>
1026-M002R2B	Lead Truck Bracket	1
1-26060DPM	Screw to Mount Lead Truck Bracket	2
1026-M017	Trailing Truck w/ drawbar	1
309-M011B	Trailing Truck Mounting Screw	1
1026-04-01	Pilot	1
1-35100DPM	Pilot Mounting Screw	2
1026-E007	Roller Pickup Assembly	1
1022-02-04	Roller Pickup Insulator - Top	2
1026-X00R2	Roller Pickup Insulator - Bottom	1
1-26050DPM	Roller Pickup Mounting Screw	2
<b>MOTOR PARTS</b>		
1499-E002	Motor Assembly w/Motor Mount	1
1-26080DPM	Motor Mounting Screws	2
<b>ELECTRONICS</b>		
<i>00247</i>	<i>Reverse Board (available from your dealer)</i>	<i>1</i>
1023-E001R1	Voltage Regulator Board	1
1-35080DPM	Screw to mount Regulator Board	1
1-3.5DNUT	Spacer Nut for Regulator Mounting Screw	1
<i>344-02-04</i>	<i>Light Bulb w/ attached plug</i>	<i>1</i>
344-02-01	Smoke Unit with Plug	1

See Diagram on opposite side for identification. Parts shown in Italics are not illustrated.

# Berkshire 2-8-4 Locomotive Parts Diagram





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Part Number	Description	Number Used
<b>BERKSHIRE TENDER BODY &amp; BODY PARTS</b>		
1499-E006	Tender Body Complete	1
1026-M033	Metal Tender Floor	1
1-26060DPM	Body Mounting Screw	4
344-03-08	Front Tender Step	2
344-M049	Rear Tender Step	2
<i>1-26050DPM</i>	<i>Screw to Mount Tender Steps</i>	<i>4</i>
<b>CHASSIS PARTS</b>		
344-M047A	Front Tender Truck w/ Drawbar	1
312-08-01	Rear Tender Truck w/ Coupler	1
1499-E004	Roller Pickup Assembly	2
1-20060DPS	Roller Pickup Mounting Screw	2
293-E001	Operating Coupler Assembly	1
<b>ELECTRONICS</b>		
<i>00246</i>	<i>True Blast II - Steam Version (available from your dealer)</i>	<i>1</i>

See Diagram on opposite side for identification. Parts shown in Italics are not illustrated.



# Berkshire Tender Parts Diagram

