

Owner's Manual: KSR ZDM1 Locomotive in 16mm scale

PLine

Built in Brass



KSR ZDM1 Locomotive Model (*16mm scale*)

PLEASE READ THIS OWNERS MANUAL CAREFULLY BEFORE OPERATING THE MODEL

Prototype Information:

The ZDM-1 Diesel Narrow gauge Locomotives hauled mixed traffic on the Himalayan 2' 6" gauge Line from Kalka to the Hill Town of Shimla, in Northern India. Originally manufactured by Jung (Arn Jung Lokomotivfabrik GmbH), Germany in 1955 for "Kalka Simla Railway" these 2'6" B+B diesel hydraulic locomotives were delivered as 700-704 and retained these numbers. 700 was rebuilt to 2'0" gauge in 1976 and became CR(Matheran) 500. 701/3/2 were similarly rebuilt and became CR (M) 504-6. No. 704 remained as 2'6" gauge locomotive and went to Pragati Maidan, New Delhi to haul joy ride trains.

General Description of PLine ZDM1 Loco:

This model is accurately crafted in 16mm to the foot scale, and is of all metal construction (Brass, Steel, Copper and Phosphor bronze). It is powered by 2 Powered Bogies each having an all metal gear

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drive delivering a gear ratio of 1:36 per bogie. The Bogies are driven by two high speed & torque 12v PM DC motors.

The Model comes painted and ready to install a RC set of your choice to control the direction and speed of the Model. The main power switch is a 3-way, "Centre off" type toggle switch located inside the cab. The Switch is accessible through any of the cab's side larger windows. The switch operates in 3 positions, centre 'off', above to 'Charge' the battery, and bottom to power the model 'on'. To Charge the battery of the Locomotive, turn the 3-way switch to the 'Charge' position (above), and insert the charger jack in to the charging socket located on the cab's dashboard.

The Directional lights of the Model can be switched on by flipping the smaller toggle switch on the cab's dashboard downwards, now if the model is driven forward or in reverse the respective headlamp, ditch lights & tail lamps will light up. The ZDM1 uses miniature LED's (connected in parallel) for all illuminations.

The Main fuse is located inside the cab. To replace a fuse, remove the cabin roof, by unscrewing the 4 small screws that hold the roof in place. The Model uses a 10Amps, cartridge type, commercial fuse.

Coupler Selection:

Your PLine ZDM1 comes with a pair of factory installed (with our standard) doubly sprung "Chopper" couplers ; you may use any other body mounted "Chopper" or "Drawbar" type couplers, available from other manufacturers. These couplers can be mounted by screwing the couplers with Brass 8BA screws to the front and rear buffer beams.

Care should be taken while opening the cab doors, or the engine room access hatches. They all have small brass latches that can be turned to lock & unlock these Doors & Access hatches.

We do not recommend you to try and disassemble this large and complex model. Also please take care while lifting this heavy model up. It should always be picked by grasping it by under the frames on both ends.

Technical Specifications of PLine ZDM1 Loco:

- ◆ Scale: 1:19 scale
- ◆ Gauge: 45mm or 32mm (gauge adjustable)
- ◆ Length: 446mm (over buffer beams)
- ◆ Width: 110mm
- ◆ Height: 148mm

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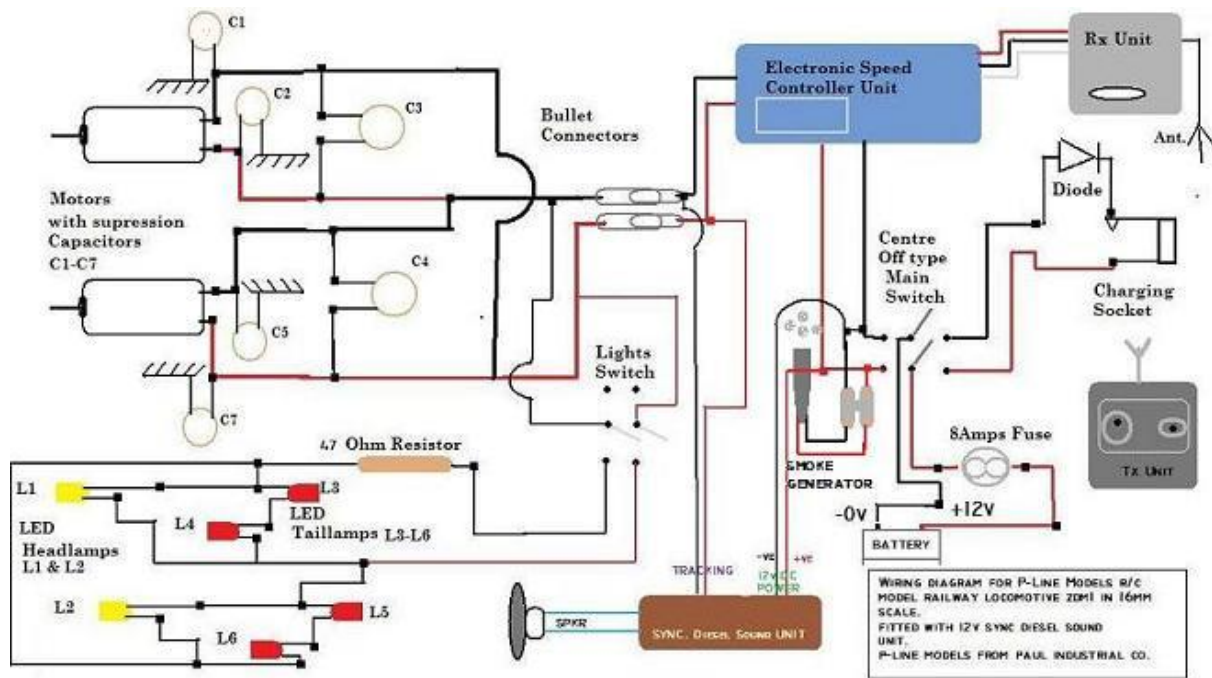
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- ◆ Weight: 6.8 Kilograms (w/o batteries)
- ◆ Wheel Dia: 32mm (tread dia)
- ◆ Motors: 2 X 12v DC PM type(torque 250 gm-cm)
- ◆ Gear Ratio: 1:36 on each bogie
- ◆ Minimum turning Radius: 700mm
- ◆ In-Cab controls: Main switch (3-way with "Centre Off"), Light switch, Cartridge Fuse holder & Charging Socket



Battery Pack Selection:

Your P-Line ZDM-1 does not come with the Battery Pack due as per International Shipping & Security norms. We recommend any deep-cycle Battery pack with an output of 12v rated at 4.0AH (or higher rating). You can use Gel-Cells, Dry lead-Acid, NiCad or Metal Hydride rechargeable battery packs.

Once the RC set and sound units have been installed, connect your preferred battery pack to the black Connector strip inside the Engine bonnet by unscrewing the small 8 screws on the sides of the Bonnet Lid that hold it in place. BE CAREFUL TO CONNECT THE CORRECT POLARITY OF THE BATTERY TERMINALS TO THE CONNECTOR STRIP. THE WIRE AT THE OTHER END OF THE CONNECTOR STRIP

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GIVE YOU THE POLARITY (RED WIRE IS POSITIVE & THE BLACK IS NEGATIVE). INCORRECT POLARITY CONNECTION CAN DAMAGE THE CONTROL SYSTEM OF YOUR MODEL. REFER TO THE WIRING DIAGRAM ABOVE WHILE INSTALLING THE CONTROL ELECTRONICS.

Caution!!

This model is an accurate replica of the original locomotive. It has sharp and moving parts. The locomotive drive gears are brass & stainless steel with sharp edges.

AT ANY TIME, OPERATORS MUST NOT COME IN CONTACT WITH THE MODEL WHILE IT IS POWERED. UNDER NO CIRCUMSTANCES SHALL Model Engineering Company OR ANY OF ITS ASSOCIATES BE HELD RESPONSIBLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING IN REGARD TO ANY PLINE PRODUCT.

Model Features:

The Model ZDM1 is a commemorative model to celebrate 150 years of the Indian Railways. This is a handcrafted brass model and is available painted in 2 different liveries.

- ◆ The Model is handcrafted in Brass, with bronze and Steel parts
- ◆ Directional headlamps, ditch lights and tail lamps on motors
- ◆ Working Cabin doors, & engine hatches
- ◆ All scale fittings like Handrails, Air horn, vent, ditch lights, footboards, door handles, door latches are turned brass & copper.
- ◆ Front and rear radiators are Brass
- ◆ Cab front & rear Windows, are glazed
- ◆ Supplied with 2 Photo-etched Brass Nameplates & fitted with Photo-etched Brass Builders Plate.

Operating & Maintenance:

Like any other Engineering masterpiece, there are a few precautions to be taken before you can actually run it on a layout.

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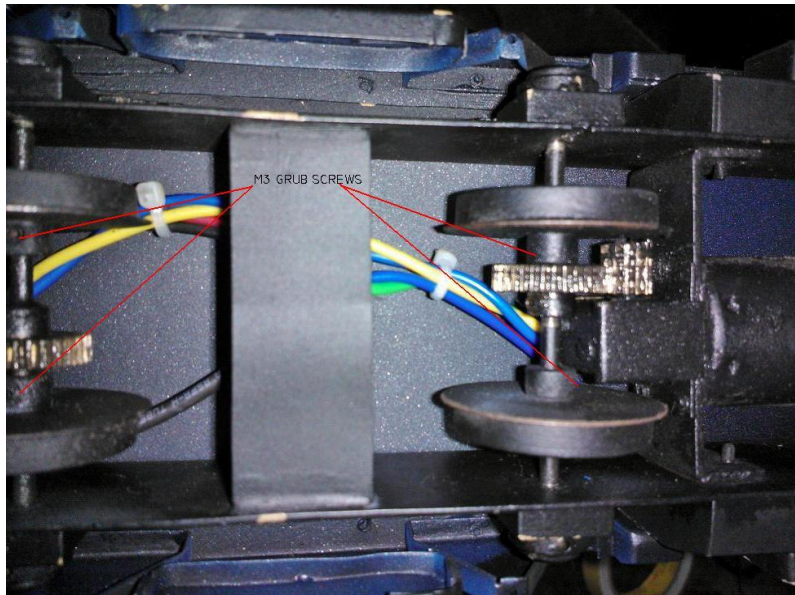
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Before you start running your model outdoors, you need to lubricate all the moving parts and break it in. This is because the gearboxes and the bushes must be worn in sufficiently to allow smooth running.

Altering wheel gauge:

Your ZDM1 locomotive is fitted with gauge adjustable wheels to run on both 32mm & 45mm gauge tracks. Before altering wheel gauge, make sure that the battery pack for the locomotive is disconnected and removed from the model. Turn the model upside down on a clean piece of cloth, so that you have access to the wheels. The wheels are locked in place using M3 grub screws. Use a suitable M3 Allen wrench to loosen the M3 grub screws on the wheel hubs (at the rear of the wheels). Slide the wheels on the axles to get the required gauge. Once the desired gauge has been attained, tighten the M3 grub screws with the Allen wrench to lock the wheels for the desired gauge. For reference the back to back wheel distance for 45mm gauge is 40mm while that for 32mm gauge is 28mm.



Lubricating:

With a bit of care, your ZDM1 should give you many years of pleasure and reliable service. Lubrication is of prime importance for a model of this type with many moving parts. Always use quality lubricants. This should not be a problem, for there are many modern lubricants available in hobby and sport shops. Light oil such as Labelle #108 or Hoppe's Gun Oil would be good enough for lubricating most of the moving parts. For gears use a suitable gear grease such as Permatex Super Lube or another hobby gear lubricant.

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The gear boxes in the Power Bogies have 'lift-up' lids to cover the worm & wheel arrangements, which can be lifted using a fine flat blade screw driver and the worm-wheel should be greased. Do replace the 'lift-up' lids back in position once the worm-wheels are greased. The bigger gears can be lubricated by applying grease on the gear teeth using a small screw driver.

To access the many moving parts of this model it is best to carefully place it on its side on a soft towel or foam sheet. A drop of light oil on every moving part is necessary, and there aren't many on this locomotive. Use oil that is a bit heavier to lubricate the axle bushings and pivot points of the Power Bogies. Each Model is provided with Oiler holes on the Axle boxes of each wheel. There are 8 Oiler holes on each Locomotive with their openings facing upwards towards the underside of the Chassis frames. Use a drop of Lubricating Oil to lubricate each Axle box. Also apply a drop of Lubricating Oil at the base of the pivot bolts (space between the Delrin washers and the underside of the floorboards) that attach the wheel bogies to the Chassis of the Model. Be sure to lubricate all the wheel bearings, gear bearings etc. that you can see.

Do not over lubricate, for excess oil only picks up unwanted dirt. Be careful to keep lubrication off the painted surfaces as this causes shiny areas.

The main gear box is lubricated in the factory and will not need any attention when you first run your model. However, in time, you should make sure that the gears are will lubricated with suitable gear grease.

Thorough Lubrication of the locomotive should be done every 5 hours of operation.

Operating:

Start by inserting the batteries in the RC Transmitter (Tx) by removing the cover of the Battery compartment at the back of the Tx. Be careful to place the batteries in the correct polarity order.

Place your model on a small stretch of flat test track.

Now connect the Battery Pack terminals in the model to the Battery connector inside the Model, again make sure that the polarity is correct and your model's battery pack is adequately charged for a short run.

Next, check that you have a 8Amp cartridge fuse inside the Fuse Holder in the cab. Make sure the Light switch is turned off.

Always SWITCH ON the Tx first before POWERING ON the model. You can power on the model by flipping the 3-way switch to the 'above' position.

You should hear the Engine idling sound from your loco while the loco is stationary.

Now slowly increase the throttle on the Tx joystick in any direction. CAUTION: DO NOT RUN THE MOTORS YET ON FULL THROTTLE. Run the model at half throttle in any one direction for a few minutes, then stop, and then run it again at half throttle for a few minutes more. As the loco speeds up the sound emitted through the internal speaker should also change. Repeat this procedure for about half an hour until the model runs smoothly in both directions.

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Once you have run your Model on half throttle in both directions on a test track for atleast about an hour, your model should be ready to run at Full throttle on the Outdoor layout.

Maintenance:

Clean the body of the Model with a clean soft lint free cotton cloth. To remove stubborn grease stains from the painted surface use a detergent solution with a lint free cloth. With a little care your PLine Locomotive will give you years of trouble free running.

IMPORTANT!

Some parts may have loosened during shipment. Inspect your model prior to any operation. Please contact PLine at info@pline.co.in for more assistance.

THANK YOU!

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