For Sale: New Release Direct Drive Power: All Nation Line Prime Mover Kit for F3/F7 A or B unit 4000RPM 12V DC Motor with Drop in Ready Platform PN#271AN



Easy drop in place motor replacement chassis, fuel tank, motor and connection hardware for F3/F7 All Nation Diesel engine models. This item is for a single power truck replacement for modelers that

want to upgrade their engines. The motor starts the engine moving smoothly at low currents and is entirely controllable over the range of voltages to 12 volts for realistic operating speeds.

For a demonstration of this motor and chassis configuration, you can view our EMD F7 Demo engine at:

https://johnwubbel.com/crh/Brass-Investments-Project-Web-Show/InLinePrimeMoverDrive.mp4

This kit requires intermediate modeling skills and some tools to complete the project. When completed, a fully functional model for 2 Rail O Scale layouts will give many years of enjoyable operation. If technical support is needed please contact us for assistance.

## Parts List Included in this kit:

- 1 4000RPM 12V DC Motor
- 2 Universal Joints 3×3
- 6 Metric M2 Set Screws for Universals
- 1 Coupler interface for Universal to Drive Shaft connection
- 1 2-56 screw for Coupler interface on drive shaft
- 4 2-56 Screws (Fuel Tank Mounts to Chassis)
- 1 Drop in Ready Chassis Floor Platform

1 Fuel Tank with in tank motor mount bracket, to be mounted to chassis

- 4 Metric motor mount screws
- 8 4-40 x ¼ Flat Head Screws for chassis floor mount to engine body

2 All Nation Power Truck, Small Gear Unit Assembled PN#9027

2 All Nation Bottom Spur Gear Pan with Retainers & Screws 3D Print PN#253AN

1 5/32 x 5/16 rod for universal connection

## Some Recommended Tools Required to build this kit.

1 Dremel

- 1 Cutting Disk for Dremel
- 1 Tube of CA or Loctite glue just in case.
- 1 Allen Wrench for 2M set screws

## **Assembly Instructions**

In order for the model to operate and go around curves on your layout, universal joints are required to accommodate the swivel as the power truck takes the curve. In fact, a double joint universal is required or else it will bind. In order to engineer the most compact transmission power drive line from the motor to the power truck, you will have to connect the 2 3x3 universal joints together with the 1 5/32 x 5/16 rod using the set screws to secure the 2 in place. Be sure not to over tighten the set screws as they can be stripped. If there is slippage at any time during testing and operation, some CA or Loctite Glue might be required between the 2 connecting universal. NOTE: when connecting the 2 universals, they must be in phase. If not you may not have a smooth operating mechanism.





U-Joints with correct and incorrect phasing

We have roughly calculated the distance available between the motor and the power truck being driven. If you are replacing an older drive mechanism or putting this new power into say an unpowered A or B Unit, you will need to user your existing trucks by setting aside the old wheel sets and installing our 2 small gear box units PN#9027. Note also that one side of the gear box units have insulated wheels.

The fuel tank can be mounted to the chassis frame with the 4 2-56 screws. You will notice that the motor is set back to gain the distance needed for the drive train. The motor can be mounted in the fuel tank. We have deliberately left the drive shaft long on the motor and once the small gear boxes are installed into the truck side frames and the universal and drive shaft coupler



have been installed, the modeler can size up and measure how much of the motor drive shaft needs to be shortened. Using a Dremel motor tool with a cutting disk, cut the motor shaft to length and then debur the end of the shaft. The black coupler male end slides onto the universal and the opposite end connects to the drive shaft coming off the small gear unit. The coupler is a tight tolerance on the universal so set screws may not be required.



Once the power truck has been assembled with the small gear units, the original power truck platforms can be discarded. Reuse of the brass king pin and c/e clip, the power truck can now be connected to the chassis frame as well as the other non-powered end. The final universal connection to the drive shaft can be made using the 2 set screws. If you have wire connections for power pick up from the rails via the truck side frames, the wire can be threaded through the holes in the chassis and connected to the leads on the motor. Make sure the trucks have the insulated wheels opposite so as to not short out the motor when you put power to the track.

The small gear box units have the PN#253AN assembly with a centered 0-80 screw if power pick up wipers are desired by the modeler and installed. Wipers do not come with this kit presently.

Once the kit has been assembled, lubricate the small gear box units at which point you are ready to install the finished kit into the body of the engine using the 8 4-40 screws. Check your coupler height on the engine. A thin shim washer might be needed on the king pin under the c/e clip. If you are using a different king pin mount of the power truck to the chassis than the common All Nation method, additional checking might be required. Given the original All Nation F units did not have fuel tanks, this fuel tank that houses the motor sits low and should have about 2mm of rail head clearance.