

Installation Guide

USA Trains NW2 & CamPac Components

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USA Trains NW2 fitted with CamPac Box™ equipped with Kadee 907 centerset couplers, spring & lid



Installing 3-D Printed pedestal, coupler box & pilot plug components on NW2 Cow & Calf units

Overview

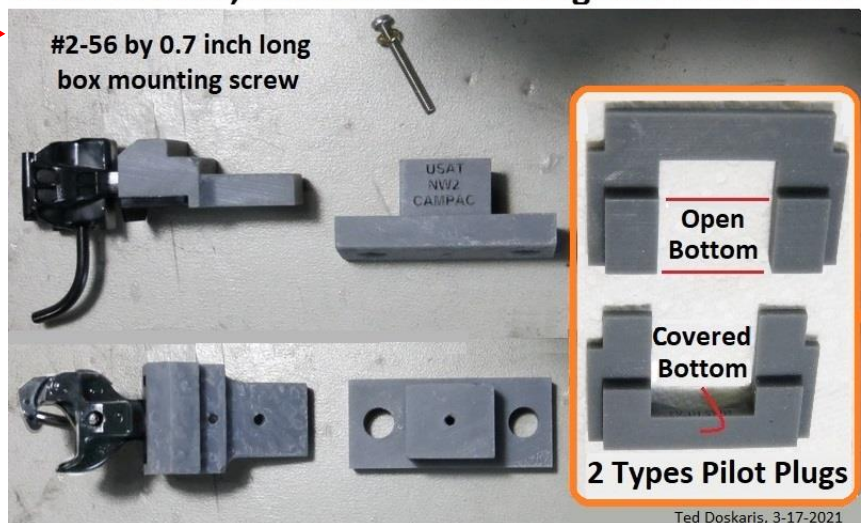
- Instructions are provided as a guide for the installer of 3-D printed *CamPac Box™*, pedestal and pilot plugs on the USA Trains brand EMD NW2 Cow & Calf “G” (1/29) scale diesel locomotive¹. With *CamPac* components properly installed, layout operation is intended for 8 foot diameter or greater track curves.
- The *Calf* unit is like *Cow* unit. (Revision to both units includes same pilot cutout at either end to accept coupler box.) **Note: Revisions or modifications made to the loco are irrevocable, which will affect the resale value to the possible detriment or benefit of the loco.**
- The installer is to have access to tools and have adequate skills to make cuts and do finish work.
- Tools needed include Phillips type P1 screwdriver, razor saw, hack saw in blade hand holder, sharp pencil or pointed scribe or razor knife (if needing to mark cut lines), medium & small size files. (Measuring tools include ½ inch wide by 6 inch long machinist scale, caliper optional.)
- *CamPac* 3-D printed components include coupler boxes (2), pedestals (2) and customer selection for type of pilot plug (open or covered bottom) (2). Other items are #2-56 long screw (2), #2 lock washer (2), #2-56 flathead screw (4)
- Not included: The installer will need to supply a Kadee 907 kit (1) of which all (but the plastic box & lid screw) will be fitted onto each *CamPac Box*

Coupler Box and Pedestal Relationship & Pilot Plugs

Instructions provided to accomplish:

- ✓ Install Kadee kit parts onto *CamPac Box™* (coupler box)
- ✓ Cut out notch in front & rear pilot to accommodate box
- ✓ Install pilot plug on both ends of loco
- ✓ Install mounting pedestal & coupler box assembly on both ends of loco
- ✓ If needed, adjust front & rear cut levers to clear couplers

CamPac Box™, Pedestal & Pilot Plugs for USAT NW2



The user can specify which type pilot plug is desired when ordering - given the following consideration:

Some prototype NW2s had the pilot area below the draft gear and coupler covered whilst others had an open area below the coupler - usually extending down by the width of the draft gear. Also, some prototype NW2s of the same railroad may have evolved from one type to the other type over time.

Moreover, some prototype NW2s had hoses emanating from the area below the draft gear and coupler as compared to the USA Trains NW2 factory hose configuration that is on the pilot front beside the draft gear.

¹ **Caution:** When operating the locomotive, abrupt excess force (e.g. collision/yanking) to the coupler may result in damage to coupler, coupler box, or other components. Operating the locomotive coupled to a car with truck mount coupler on tight curve track is incompatible - the car can be pulled off the track and loco may derail.

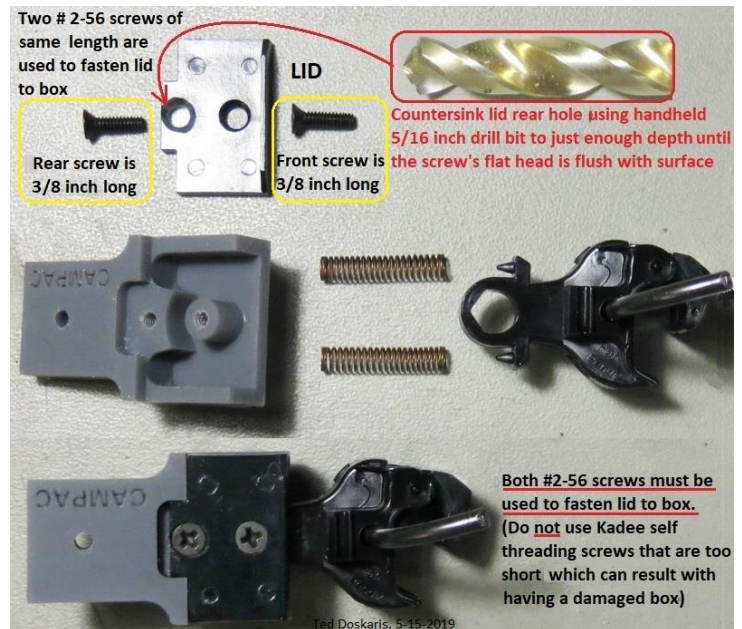
Installation Steps:

Step 1 – Coupler Box Preparation

Install selected parts from a Kadee² 907 Kit in the *CamPac Box*. (Box to be fastened to pedestal & mounted later)

Advisory:

The *CamPac Box*TM is optimized for the "G" scale, preferential late version, AAR E type coupler from the Kadee 907 kit not having a completely round shank hole compared to its introduction version or older predecessor coupler from the 789 kit. Both prior version couplers can bind on box mounting post. (Shank hole would need to be enlarged to fit)



CamPac BoxTM for USA Trains NW2



Verify installed coupler freely swings side to side & self-centers. If not, slightly back out lid screws one at a time. Also, try to tighten the lid's tail screw with front screw loosened. Burnishing the coupler shank pivot surfaces can be beneficial, too.

Note: For now, don't mount the box assembly on the pedestal. This will be done in Step 6.

Step 2 – Loco Placement

Without pressing on the NW2 side railings - *delicate plastic retaining eyelets subject to breaking*, carefully place the loco on its back (with underbody facing up) on a soft surface with nose propped in such a way so that any delicate top components (i.e. exhaust stacks, bell) are not at risk of damage. Ensure braced so not to fall over.

Note: If working on a new loco, it's preferable to not install the USA Trains factory detail parts until later.

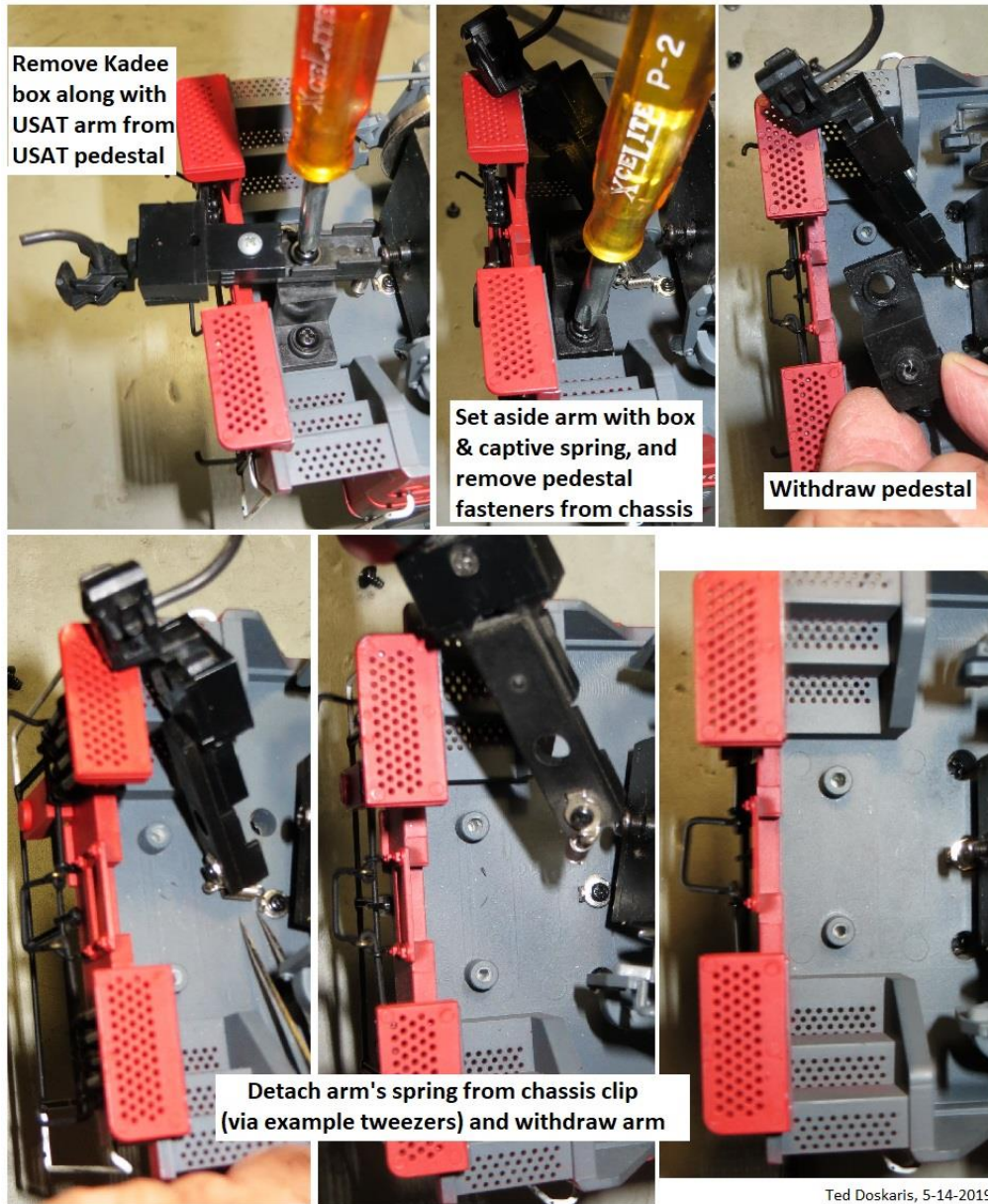
² Kadee is a registered trademark of Kadee Quality Products Co., White City, Oregon, USA.

Step 3 – Parts to Remove

Remove factory (or aftermarket) coupler & pedestal from both ends of loco chassis. (The *Cow* and *Calf* locos are similar.)

Example NW2 Cow shown is with aftermarket Kadee offset coupler *mounted on USA Trains swinging arm* - other possibilities include USA Trains knuckle coupler and hook & loop.

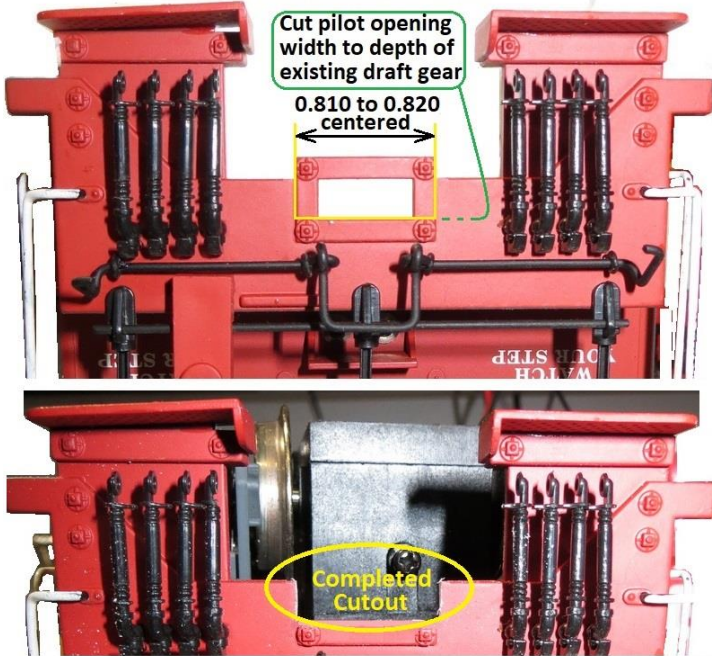
Removal Example of NW2 with aftermarket Kadee large offset coupler assembly



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Step 4 – Pilot Cutout

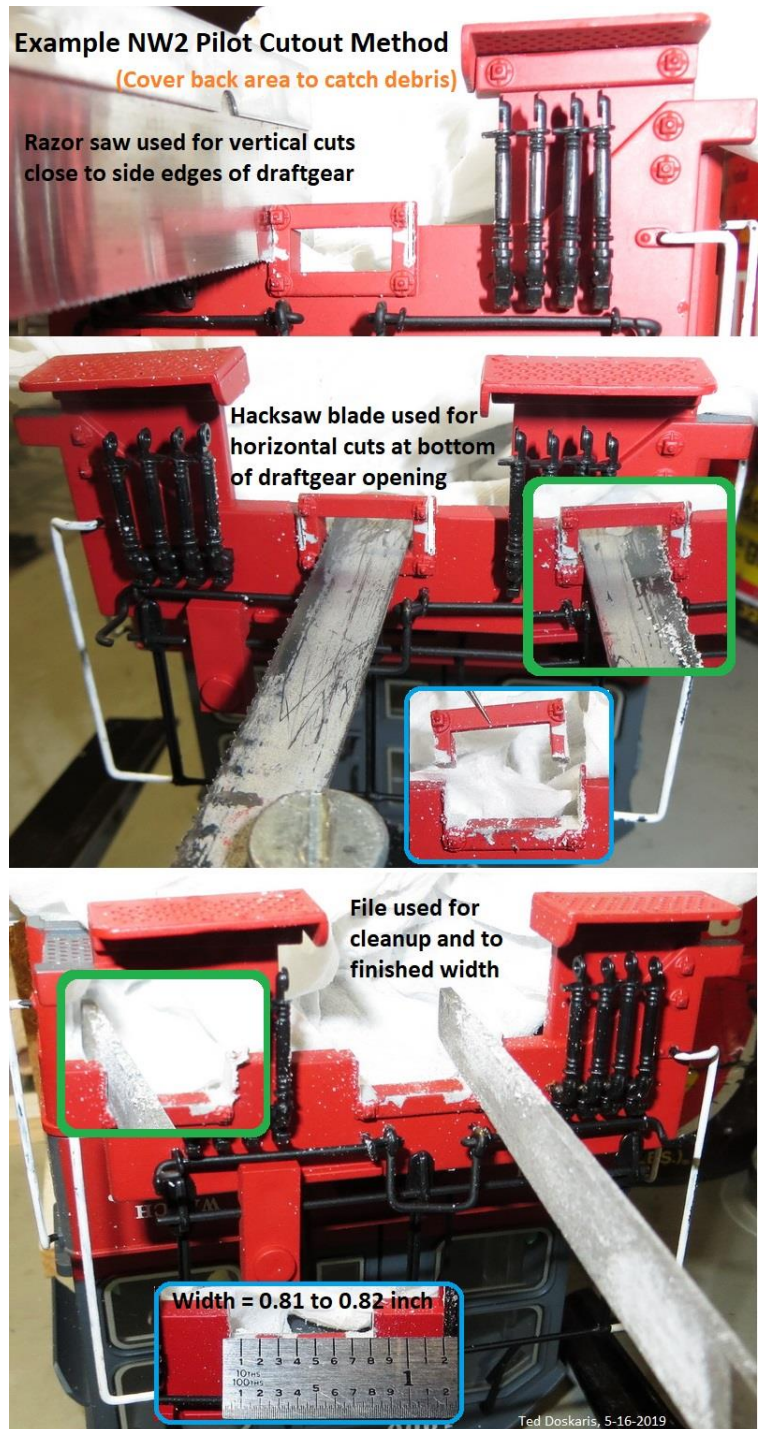
Modification to NW2 Pilot for CamPac Box™
(Same at both ends of loco)



The pilot area as outlined is to be cut to dimensions shown for both ends of the loco.

In the example method illustrated:

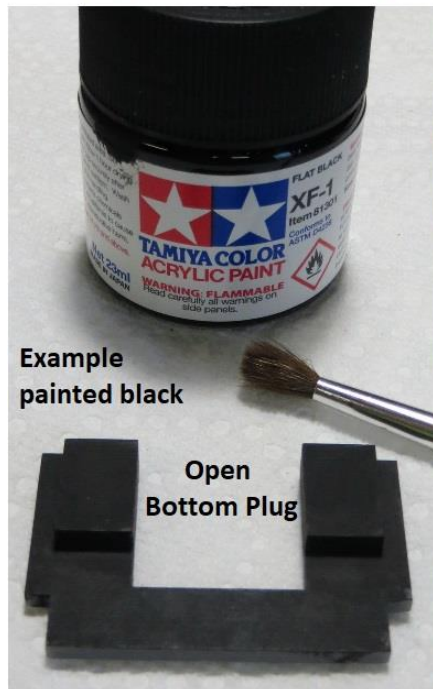
- Initially, a razor saw is used to make a vertical cut near each side extremity of the existing draft gear - though not beyond
- Then a hacksaw (held in a blade holder) is inserted into the draft gear opening to make a horizontal cut in one direction and flipped over to make the cut in the opposite direction
- A file is used to finish the cutout to the dimension shown



Step 5 – Preparing CamPac Components

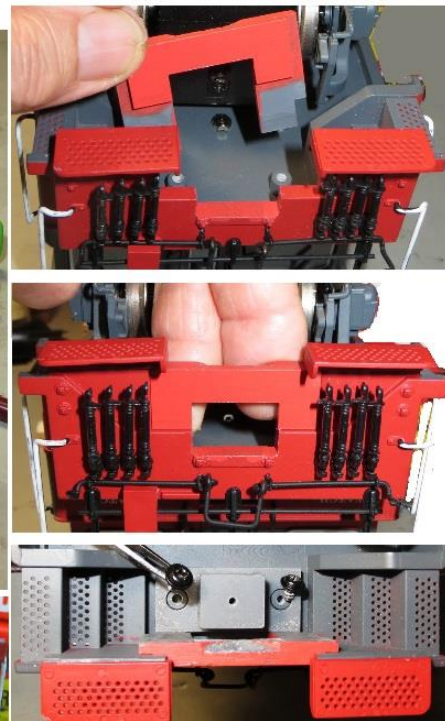
Pilot plugs and coupler box assemblies are best pre-painted to match the livery of the loco before installing them.

Example painted CamPac components



Open bottom (above) & covered bottom (below) installed plugs look more integrated when painted. They are held against pilot when pedestal installed.

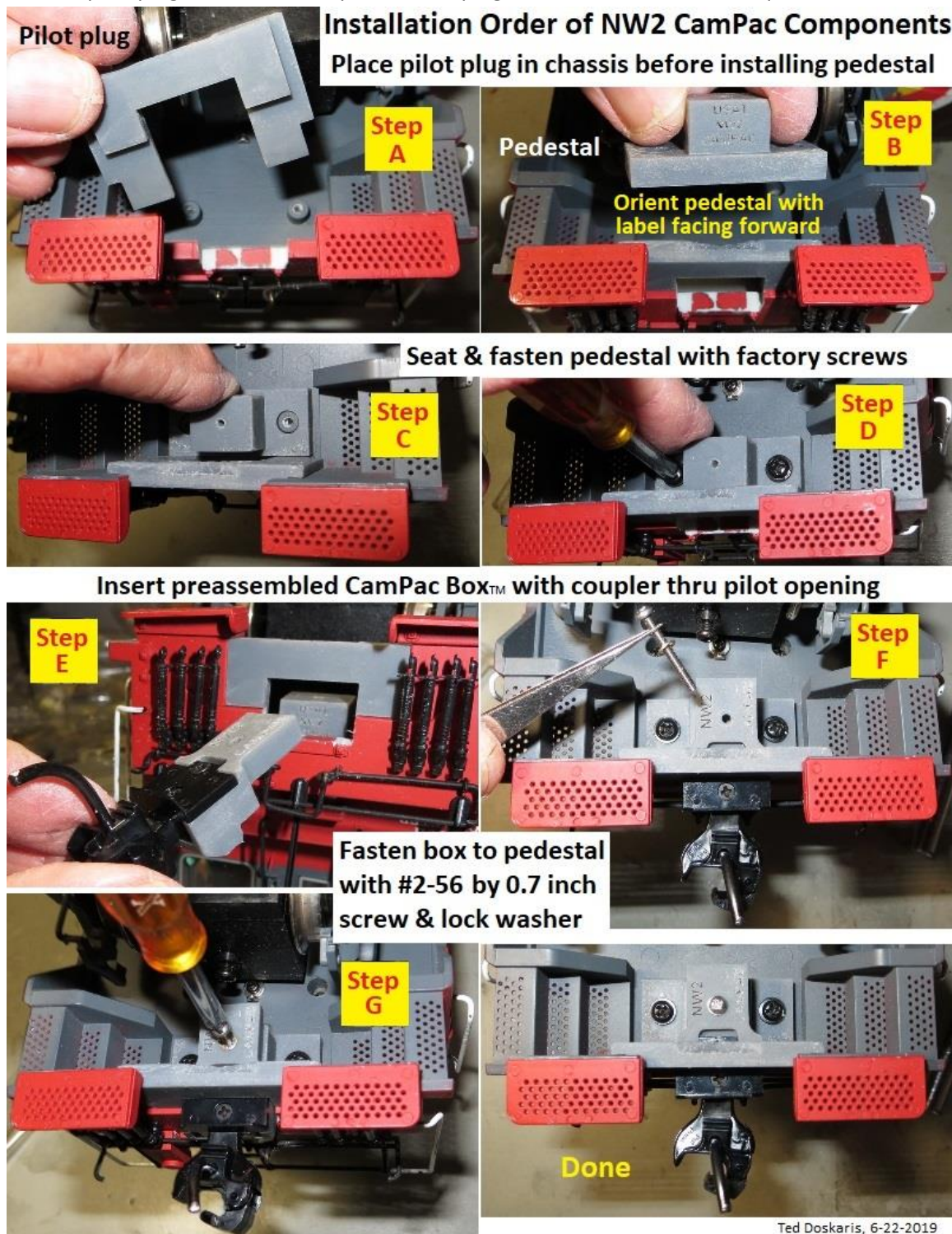
Example Painted SP Red/Orange



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Step 6 – CamPac Components Installation

Components depicted in the illustration below are unpainted to better show fitment contrast. An example *covered bottom* pilot plug is shown. The *open bottom* plug is installed in the same sequence.



Advisory: The coupler box mounting screw is to be temporarily loosened when needing shim/s to attain proper coupler alignment - described next.

Step 7 – Cut Lever Clearance & Coupler Alignment

At both ends of the loco (example cab end shown) check the pilot's cut lever "hoop" for clearance at top of coupler, and adjust if needed so coupler can freely swing.



Coupler Alignment (example cab end shown):



Note: In the event coupler does not align with the Kadee 980 coupler height gauge (illustrated above), shim/s from the Kadee 907 kit's capsule may be needed - placed between box tail and its pedestal mounting surface.

Operational Advisory:

Layouts with "S" bends having tight curves (8 foot diameter & possibly greater) are to have a straight track section at least the length of your longest rolling stock between opposite diverging paths or risk derailing the NW2's coupled car and possibly the NW2 loco, too.

!!!*Done*!!!

Congratulations

The USA Trains NW2 now looks more like the prototype with capability to perform on tight curves when coupled to other body mounted locos or rolling stock having *properly equipped* Kadee centerset type couplers.