INSTRUCTIONS FOR #100700 PRR I–1 DECAPOD KIT 1–2003

These instructions provide photographs of completed model, exploded view drawings, diagrams, step–by–step instructions and an itemized parts list. If for reasons beyond our control, any shortage or faulty part is found, write directly to the manufacturer including name of your dealer and date of purchase. Return any defective parts for exchange. The builder should study the instructions and drawings to attain a working knowledge of proper procedure. Assembly work should be in sequence outlined in this manual to assure proper construction. We have included some extra parts in case you misplace or drop them on the floor.

DO NOT RUN THE MECHANISM OR ENGINE UPSIDE DOWN.

TOOLS

This is a builders kit, you will need a few tools. You will find use for the following: small hammer, several small pattern files, jewelers screwdriver (a set is convenient), a 6" flat file with a fairly fine cut, knife, pliers, flush cut nippers like Mascot #413 and tweezers.

BEFORE PAINTING YOUR MODEL OR DETAILING THE BOILER, WE RECOMMEND THAT YOU BUILD THE COMPLETE MECHANISM ATTACH THE UNDECORATED BODY AND THOROUGHLY TRACK TEST IT.

STEP #1

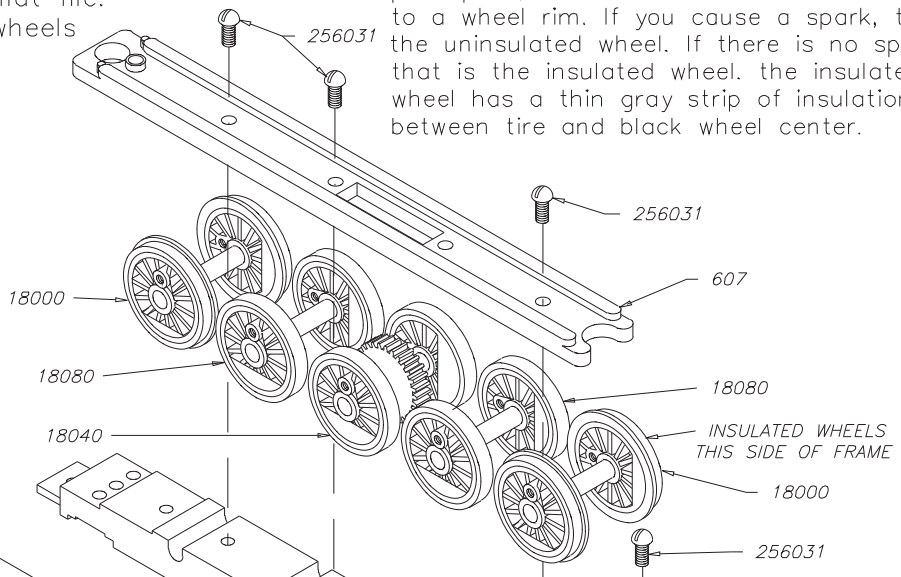
Clean flash from edges of parts. File mating surfaces on a flat file. Assemble and assure the wheels spin freely. Oil lightly.

SUBKIT 100703, 100706

256031

FULL SIZE

Identify which wheel of each set of drivers is insulated. With two wires hooked to your powerpack, touch one to the axle and one to a wheel rim. If you cause a spark, that is the uninsulated wheel. If there is no spark, that is the insulated wheel. the insulated wheel has a thin gray strip of insulation between tire and black wheel center.



STEP #2

Assemble side rods as shown. The fluted surface faces out. Assure the wheels spin freely. Enlarge holes with round file in side rods to eliminate any binds. Oil lightly.

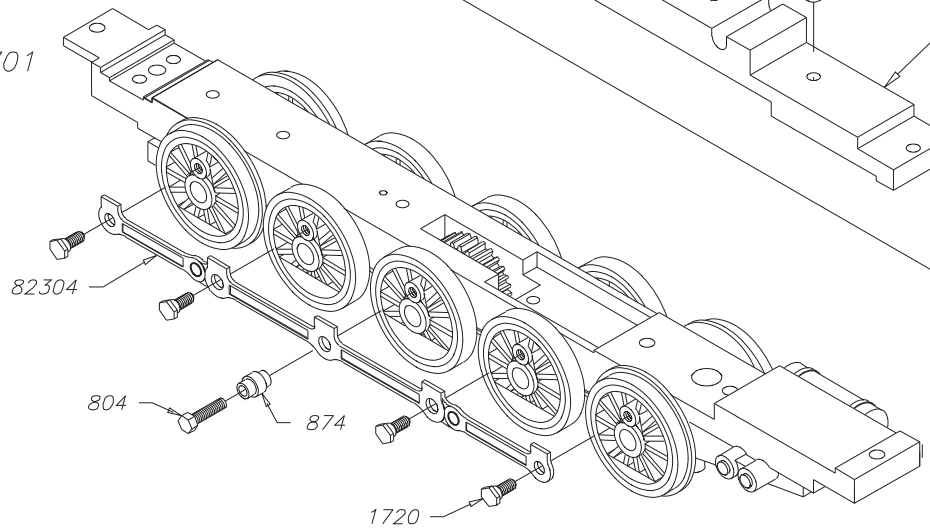
SUBKIT #100701

1720

804

874

FULL SIZE



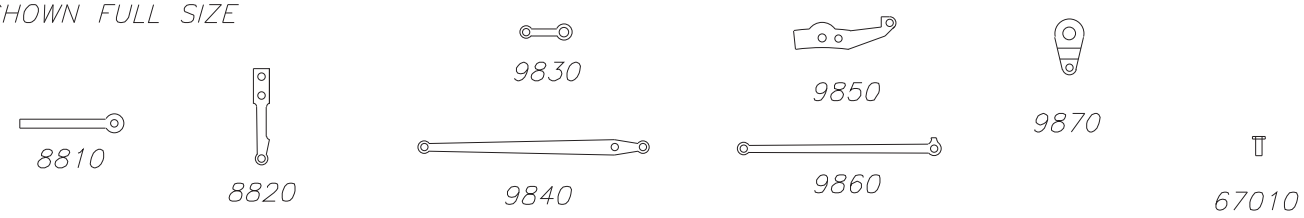
100720–1

FIG 3

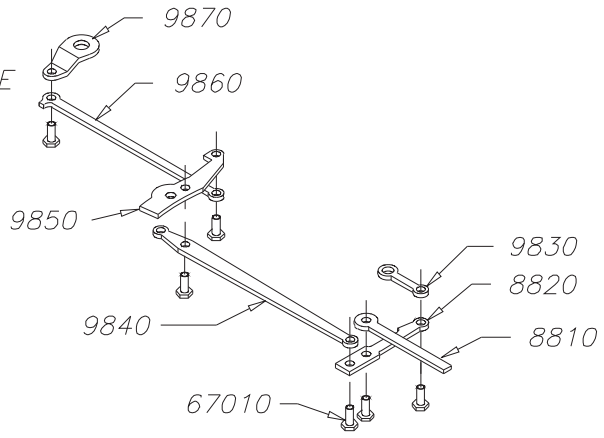
SUBKIT #100705

PARTS IDENTIFICATION LIST
SHOWN FULL SIZE

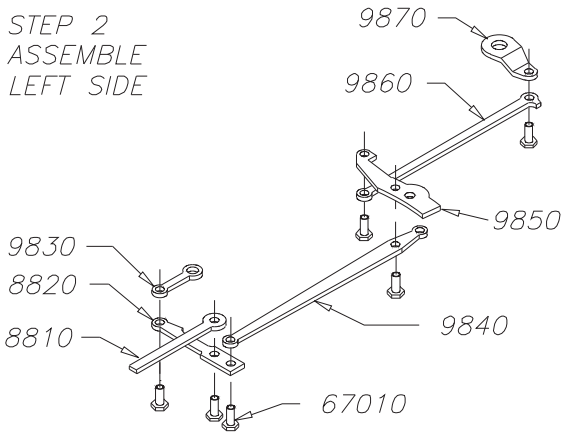
SET #36 RIVETOOL WITH CENTER POINT IN HOLE IN END OF RIVET.
TAP WITH LIGHT HAMMER UNTIL RIVET IS PROPERLY FLARED.
BE CAREFULL NOT TO MAKE JOINT TOO TIGHT.



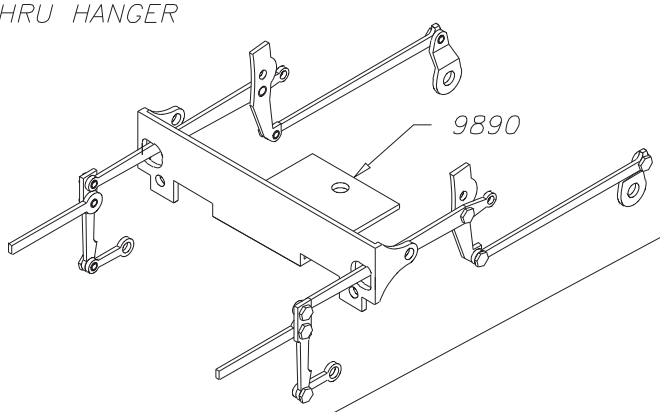
STEP 1
ASSEMBLE
RIGHT SIDE



STEP 2
ASSEMBLE
LEFT SIDE

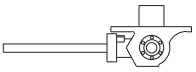


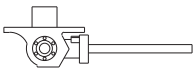
STEP 3
INSERT VALVE GEAR
THRU HANGER

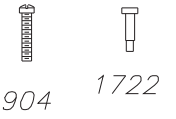


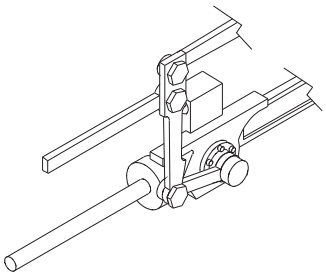
STEP 4
ASSEMBLE CROSSHEAD AND
MAIN ROD TO VALVE GEAR.
FLUTED SIDE OF MAIN
ROD FACES OUT.

SUBKIT # 100701 & 100705

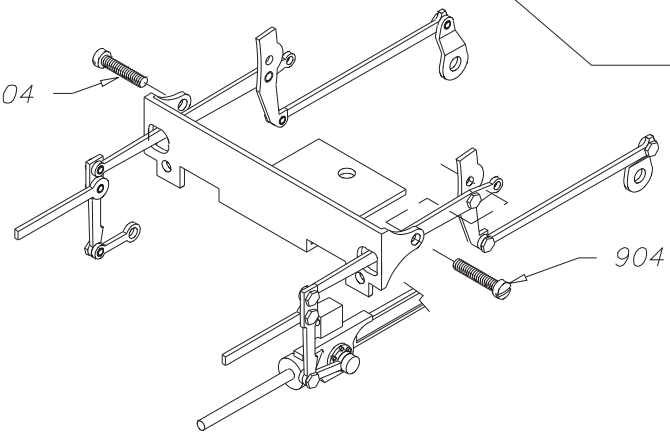




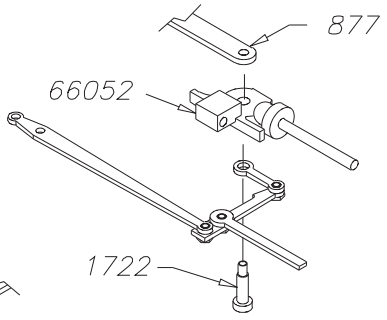




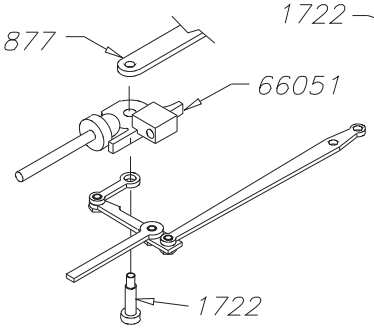
STEP 5
ASSEMBLE TO CROSS-
HEAD GUIDE HANGER.
PUT A DROP OF GLUE ON
THREAD TO KEEP SCREW FROM
BACKING OUT.



RIGHT SIDE



LEFT SIDE



100720-2

FIG #4

SUBKITS
100703

806

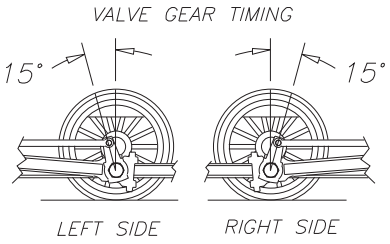
256053

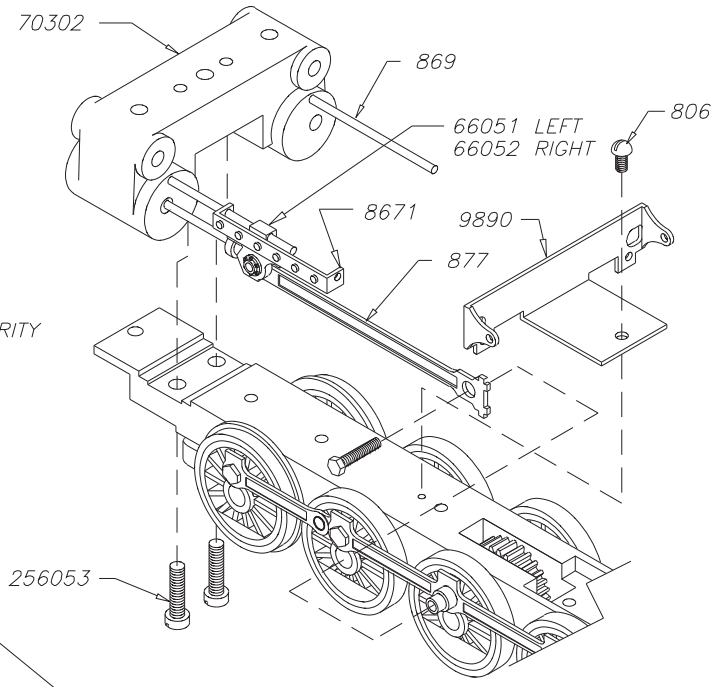
Assemble 70302 cylinder on frame with 256053 screws. Slide one end of 8761 crosshead guide onto 869 guide rods. Slide crossheads onto guides. Slide back end of crosshead guide onto guide rods. Slide 8810 valve rod into top hole of cylinder block. Slide valve gear hanger onto crosshead guides guides and onto underframe. Hold hanger 9890 in place with 806 screw. The crossheads must move freely.

<u>The following is done one side at a time.</u>

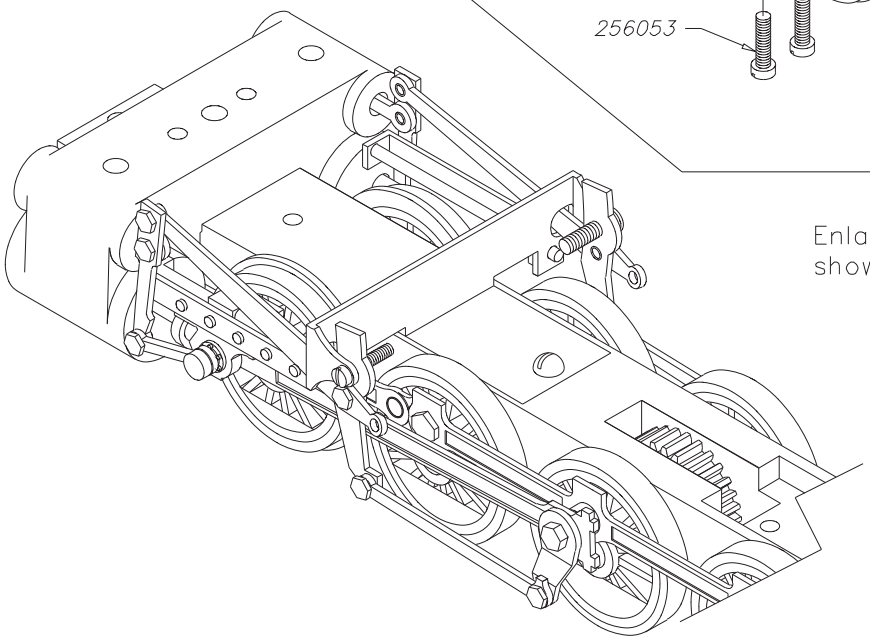
Remove 804 screw from driver, pass 804 thru 9870 eccentric and reassemble to drivers.

Set the eccentric crank 15° forward (see diagram). Check for binds. Be sure this runs freely before proceeding to the second side. Oil lightly.



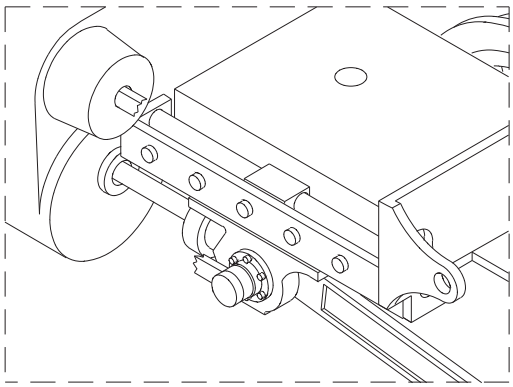


VALVE GEAR NOT SHOWN FOR CLARITY

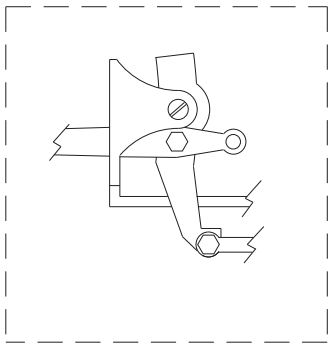


Enlarged view of mechanism showing valve gear installed.

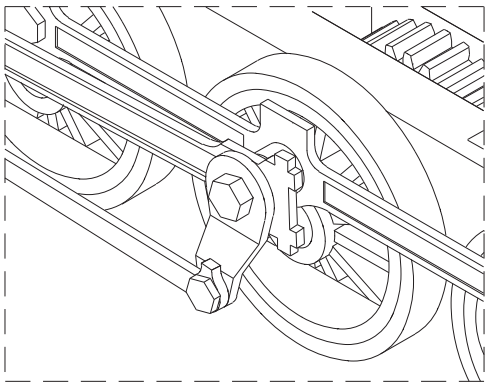
100720-3



Enlarged view of installed crosshead.
Valve gear has been removed for clarity.

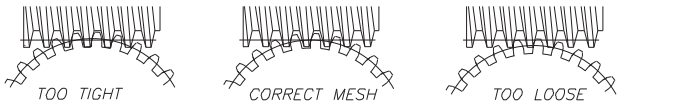


Enlarged view at valve gear hanger
Left side



Enlarged view of installed eccentric crank.

STEP #5



TOO TIGHT
WORM BOTTOMS
IN ROOT OF GEAR
CAUSING EXCESSIVE
DRAG ON GEARS.
EQUIRES WASHER AT FRONT.

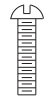
CORRECT MESH
SEVERAL TEETH
IN CONTACT.

TOO LOOSE
POOR TOOTH CONTACT
CAUSING EXCESSIVE
BACKLASH IN GEARS.
REQUIRES WASHER AT REAR.

SUBKIT #100703

FULL SIZE

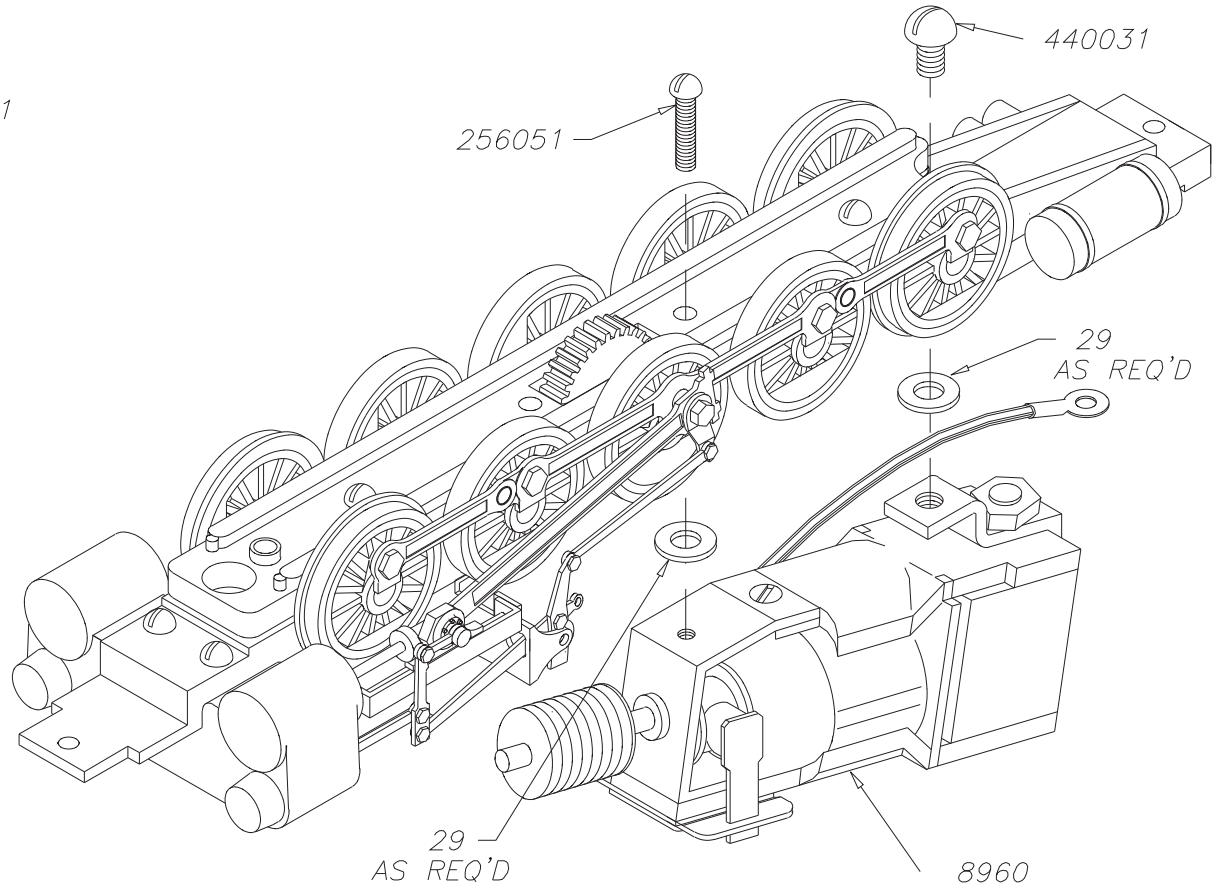
Adjust gear mesh by adding or removing #29 washer to obtain correct mesh as shown in the diagram above.



256051

440031

29



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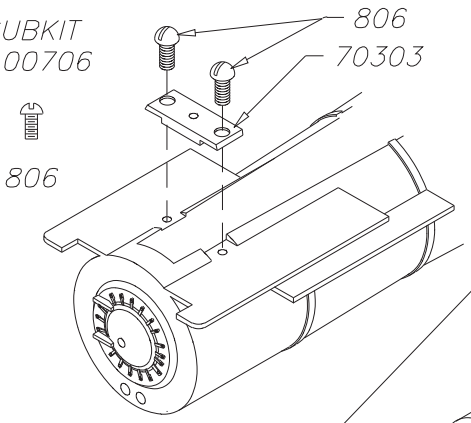
STEP #6

Install boiler mounting bracket

SUBKIT #100706



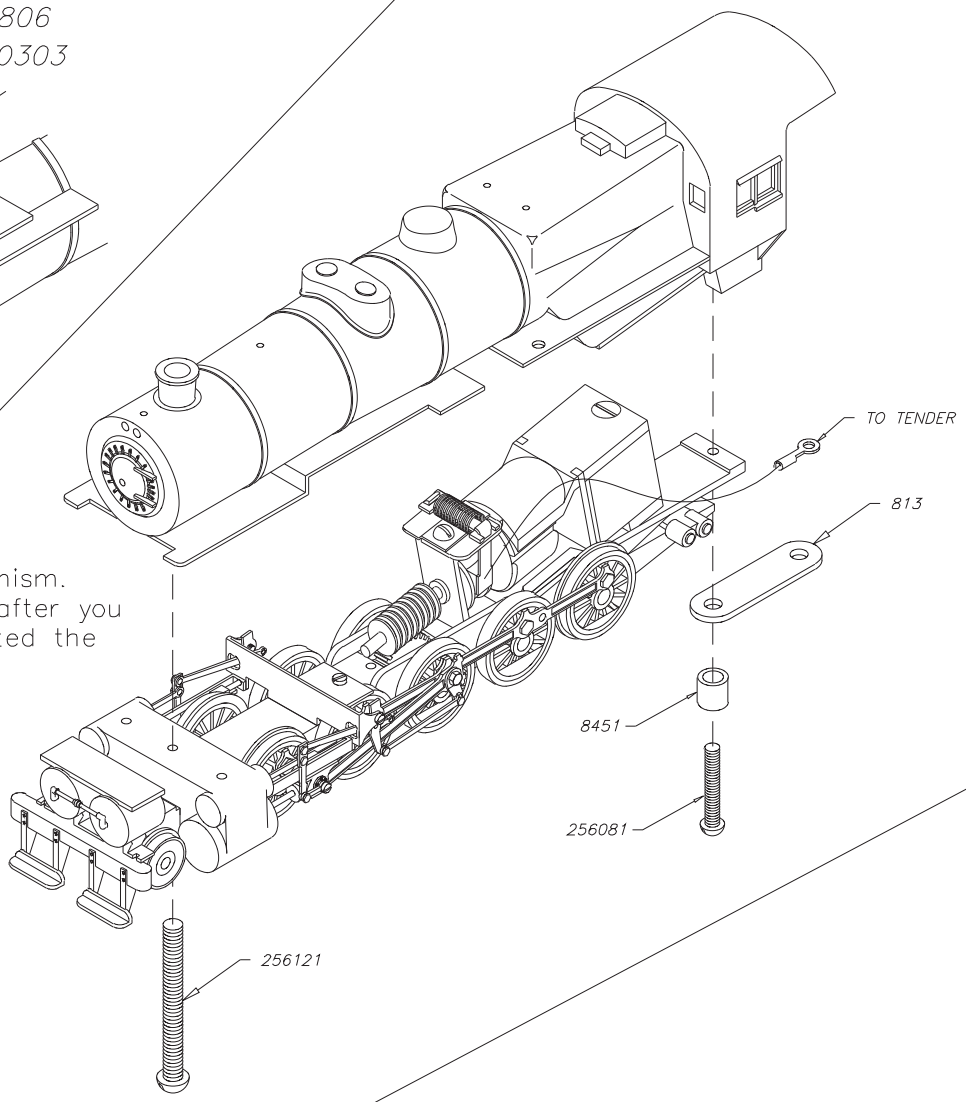
STEP #7

Assemble boiler to mechanism. Do not detail boiler until after you have thoroughly track tested the mechanism.

SUBKIT #100803, 40006

8451

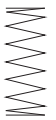
256081 256121



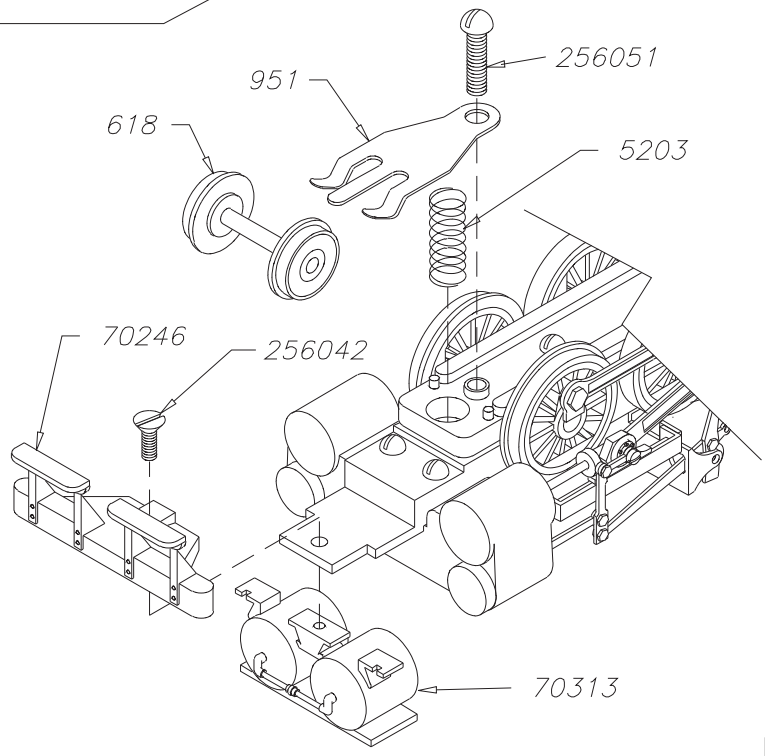
STEP #8

Install pilot and air tank.
Assemble and install lead truck.

SUBKIT #100703, 100704, 100706



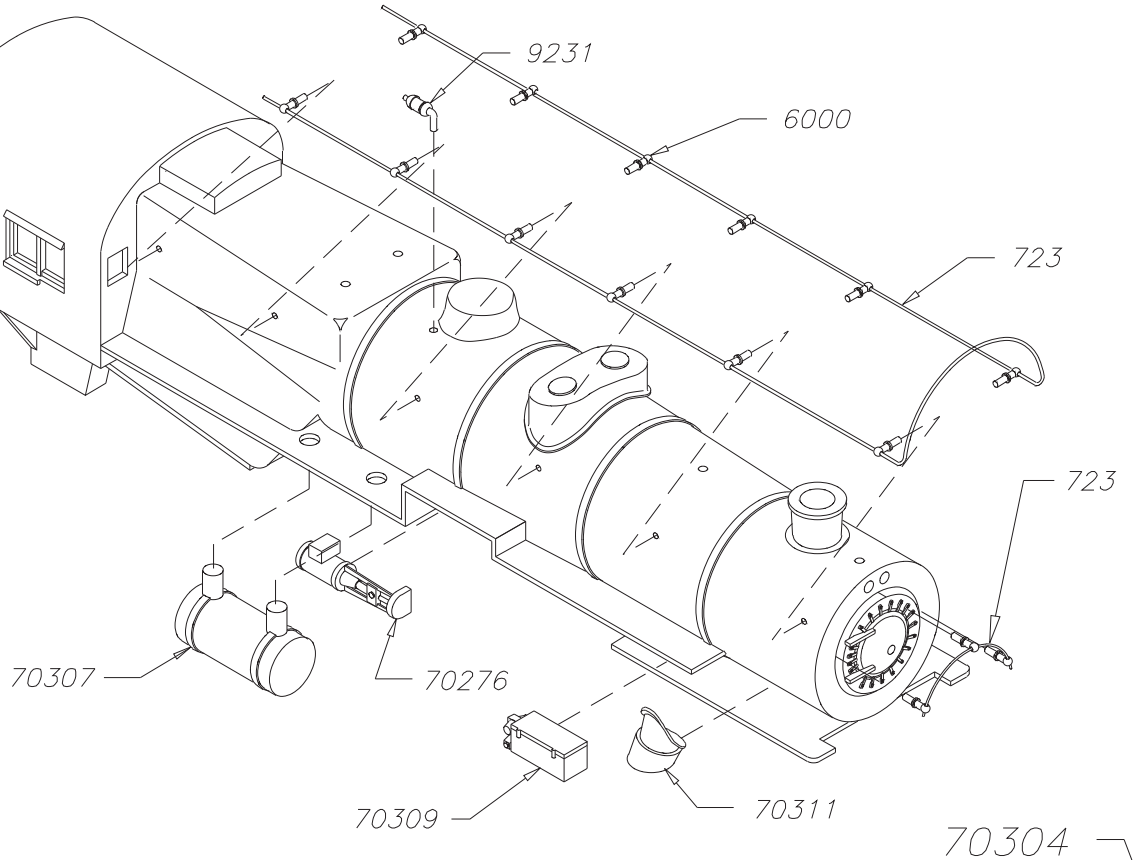
5203 256051 256042

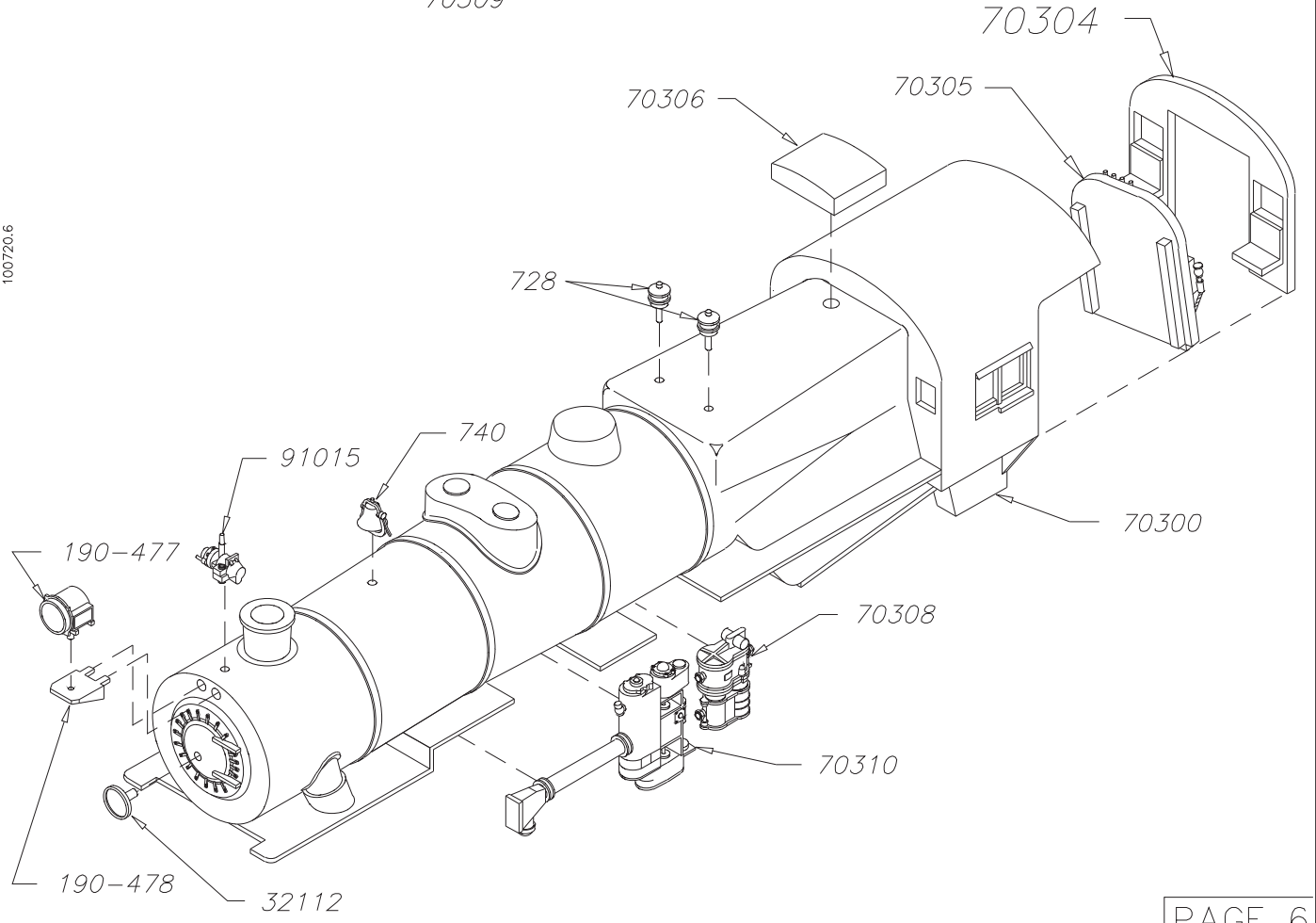


100720-5

STEP #9

After track testing, remove boiler from mechanism and detail.





100720.6

STEP #10

256031

256038

256041

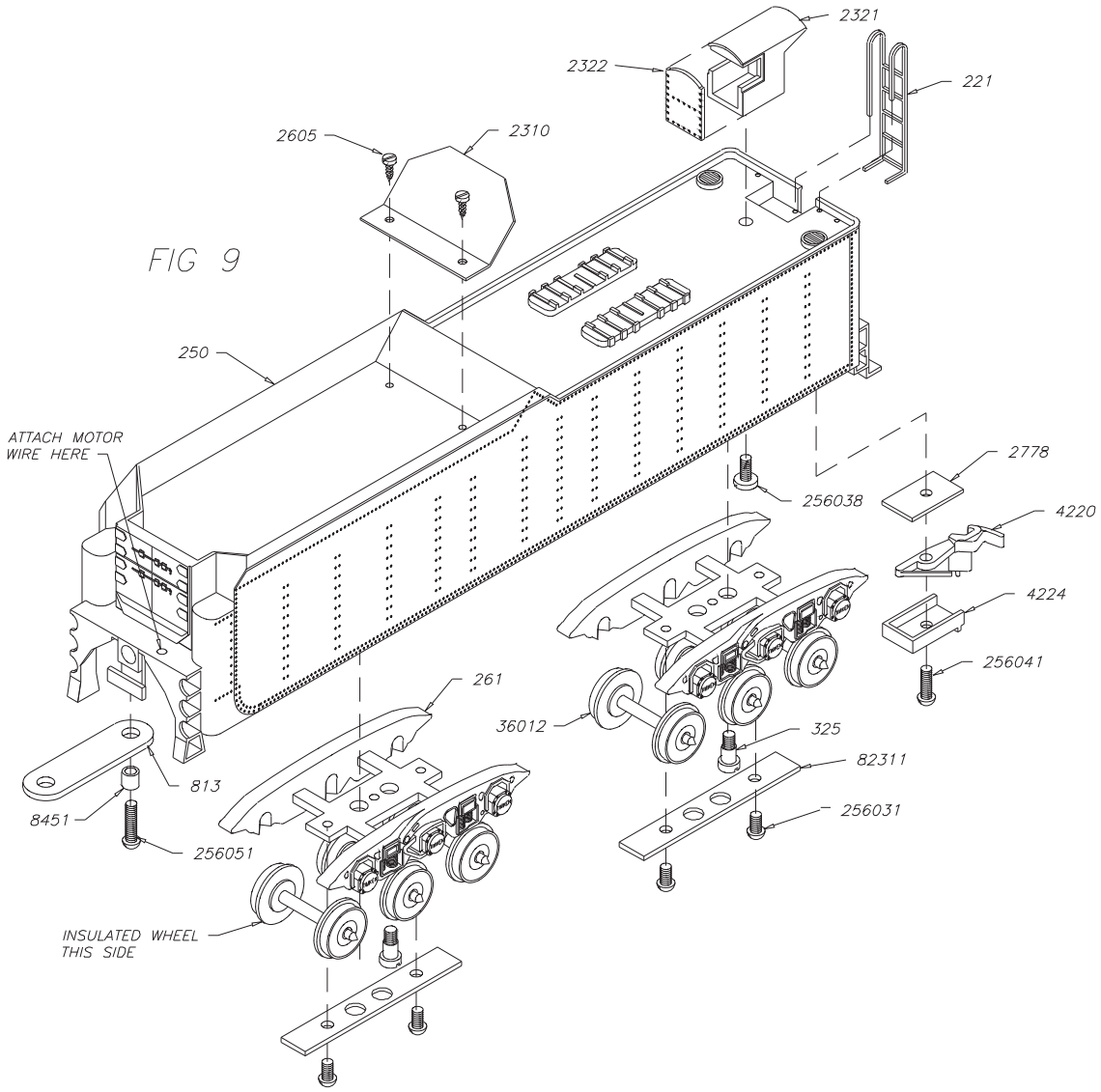
256051

325

8451

2605

FIG 9



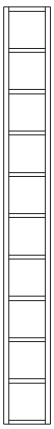


FIGURE 1

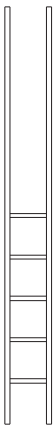


FIGURE 2

FIGURE 3

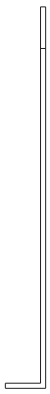


FIGURE 4

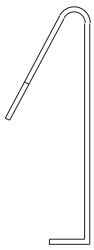


FIGURE 5

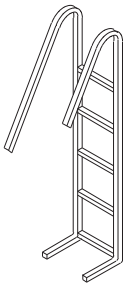


FIGURE 6

(SCALE: FULL SIZE)

Miscellaneous Building Tips

TIP 1: Painting Metal
You may want to superdetail your loco before painting.
We suggest that you do not paint your loco until it is thoroughly track tested as disassembly and handling generally ruins a paint job. Take your locomotive apart so that the various parts may be painted without getting paint on moving parts. Valve gear, side rods, bearings, pony truck, etc. will not operate properly if paint gets into the joints of moving parts.
Parts to be painted should be degreased with a solvent like paint thinner and pickled in acetic acid solution (vinegar) or oxalic acid solution (5%) for a few minutes before applying paint.
DO NOT USE THIS VINEGAR FOR COOKING OR EATING.
Rinse with clean water. Do not handle the surfaces to be painted. CAUTION: Do not immerse wheels, underframe or cover plate in acid solution or cleaners. Brush cleaner and acid solutions on metal frames of lead and trailing trucks and on underframe surfaces to be painted (NOT ON WHEELS, AXLES OR BEARING SLOTS). Drivers are pre-blackened and can be touched up, after removing flash, without using cleaner or acid. I recommend a glossy paint be used (PRR locos were painted Brunswick Green). Apply a smooth, uniform coat of good grade model railroad paint. I like to spray paint my models. Work carefully to avoid piling up paint around small details. Painting exposed surfaces of main frame will add to final appearance of model, but be careful not to get paint in any bearings.

TIP 2: Hex Head Wrench (Cheap and Easy)
Go to your hardware store and buy Socket Head Cap Screws or Set Screws in many different sizes. They have the hex shape machined in the head and will work for tightening hex head screws.

TIP 3: Soldering Tips
Wear Eye Protection
First be sure everything is clean.
Put flux on both parts. Hold together and place solder iron at joint. The solder will flow to the hot area. Solder should not form a ball. This indicates the area was not hot enough. To tin your soldering iron so that solder will stick to it.
When cold clean the tip with a file. Put a little flux on tip. Turn on iron and apply solder to the tip as soon as it gets hot.
If this does not work. Clean the tip while hot and dip tip in a drop of flux (while hot) and immediately put solder on tip.

TIP 4: Cleaning A File When the Grooves Fill
When filing parts, the grooves in a file will fill with the metal you are filing.
This metal can be removed quickly by using a small piece of thin steel (1/16 to 1/8" thick) and sliding the steel on the file in the direction of the grooves. The chips that remain can be removed by sliding a sharp knife in each groove. This may take awhile to clean each groove. I do this only as a last resort. To keep most of the chips from sticking while you file, apply a thin oil to the file before filing.

TIP 5: Drilling Small Holes
To drill metal with small drills it is best to use powered tools. Dremel tool or a small drill press. Hand drilling with a pin vise will work but is much slower. You must drill straight. Drills do not bend they break. Use a lubricant on the drill. Cutting oil is best, but you can use a bar of Ivory Soap. Put the lube on the drill before starting. I recommend peck drilling.
(Drill about 1 or 2 times the diameter of the drill and remove the drill from the hole. Clean off the chips. Lube the drill and repeat.)
Take your time. It is very important to clean the chips from the flutes of the drill. When the flutes fill with chips the drill will break.
The smaller the drill the more you need to peck drill.

TIP 6: Tapping a Drilled Hole
First be sure your hole is the proper size.
00-90 Taps #60
0-80 Taps #55
2-56 Tap #49
4-40 Tap #43
These drill sizes are one size larger than the charts.
We feel they work very well for steel, brass and zinc.
You must tap straight. Taps do not bend they break.
Use a lubricant on the tap. Cutting oil is best but you can use a bar of Ivory Soap.
Put the lube on the tap before starting.
Turn in tap to get it started (1 or 2 turns). Back off 1/2 turn. This breaks the chips that form when tapping.
Repeat above. As the hole gets deeper you will have to back off the tap more often. If you are tapping a very deep hole you will have to back off the tap after as little as 1/2 turn