

INSTRUCTIONS FOR BOWSER #100430 PRR M-1 KIT

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

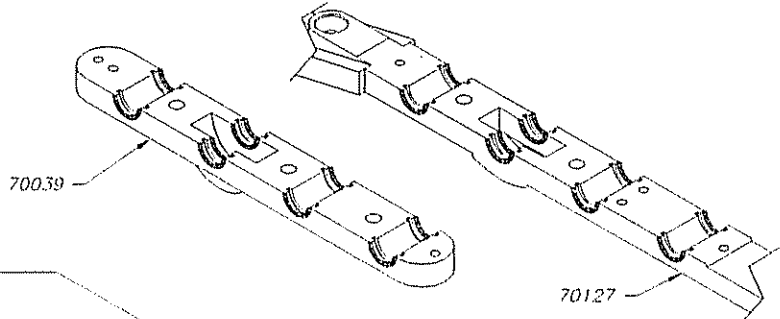
This is a builders kit, you will need a few tools. You will find use for the following: small hammer, several assorted pattern files, Jewelers screwdriver (a set is convenient), a 6" flat file with a fairly fine cut, knife, pliers, flush cut nippers like Mascot #413 and tweezers.

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

STEP #1

Clean flash from frames.

CLEAN ALL FLASH FROM EDGES OF BEARING SLOTS OF UNDERFRAME AND COVER PLATE WHERE SHOWN AS DARK LINES. CHECK TO SEE THAT FRAMES ARE STRAIGHT.

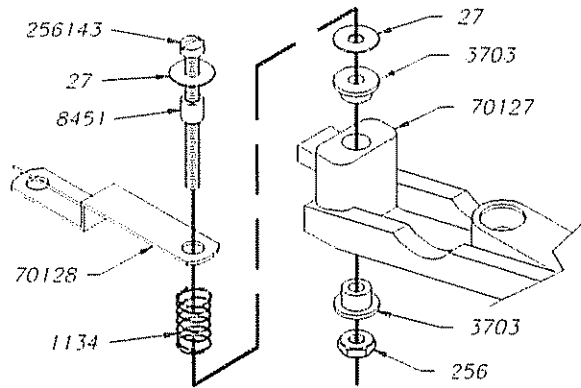
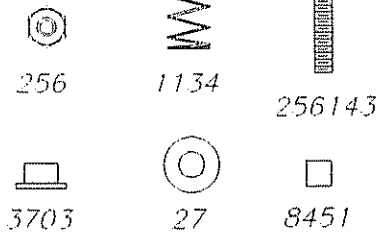


STEP #2

Assemble draw bar.

Subkit 100453

FULL SIZE



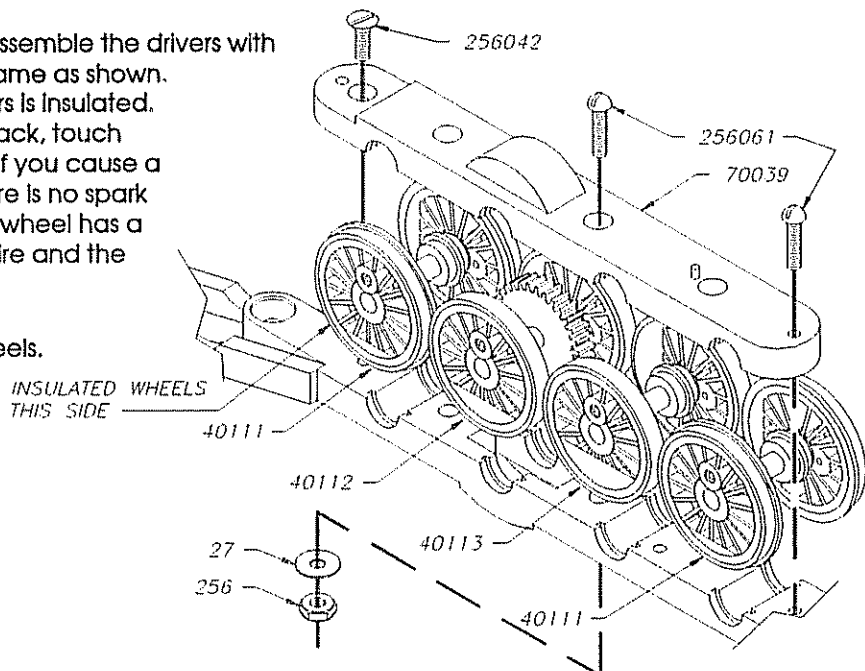
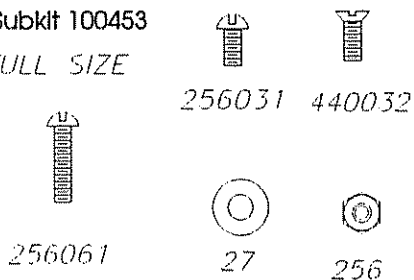
STEP #3

Check to see that the frame is straight. Assemble the drivers with insulated wheels on the left side of the frame as shown. Identify which wheel of each set of drivers is insulated. With two wires attached 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 the tire and the black wheel center.

Assure the wheels spin freely. Oil lightly. See Step 3a for method of loosening wheels.

Subkit 100453

FULL SIZE

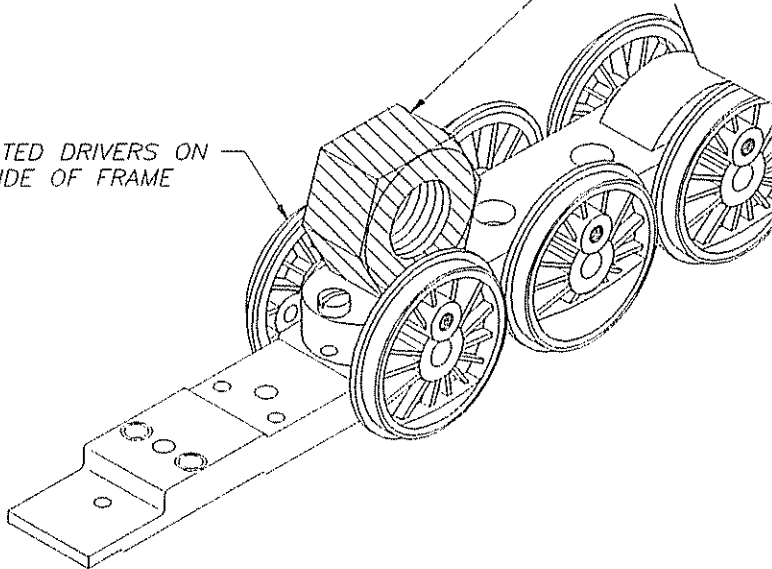


STEP #3a

Assemble draw bar as shown.

TO SEAT BEARINGS, SUPPORT FRAME ON FINGERS NOT A SOLID BLOCK. PLACE A 5/16 NUT OVER BEARINGS AND STRIKE A SHARP BLOW USING A TACK HAMMER OR OTHER LIGHT HAMMER. REPEAT OVER EACH AXLE UNTIL EACH DRIVER SPINS FREELY. DO NOT PROCEED ANY FURTHER UNTIL ALL DRIVERS WILL SPIN FREELY

INSULATED DRIVERS ON THIS SIDE OF FRAME



STEP #4

Assemble side rods to drivers.
Assure wheels spin freely.
If binding occurs ream holes
in side rods until eliminated.
Oil lightly.

WHEELS MUST SPIN ABSOLUTELY FREE.

Subkit 100451

FULL SIZE



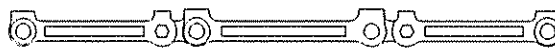
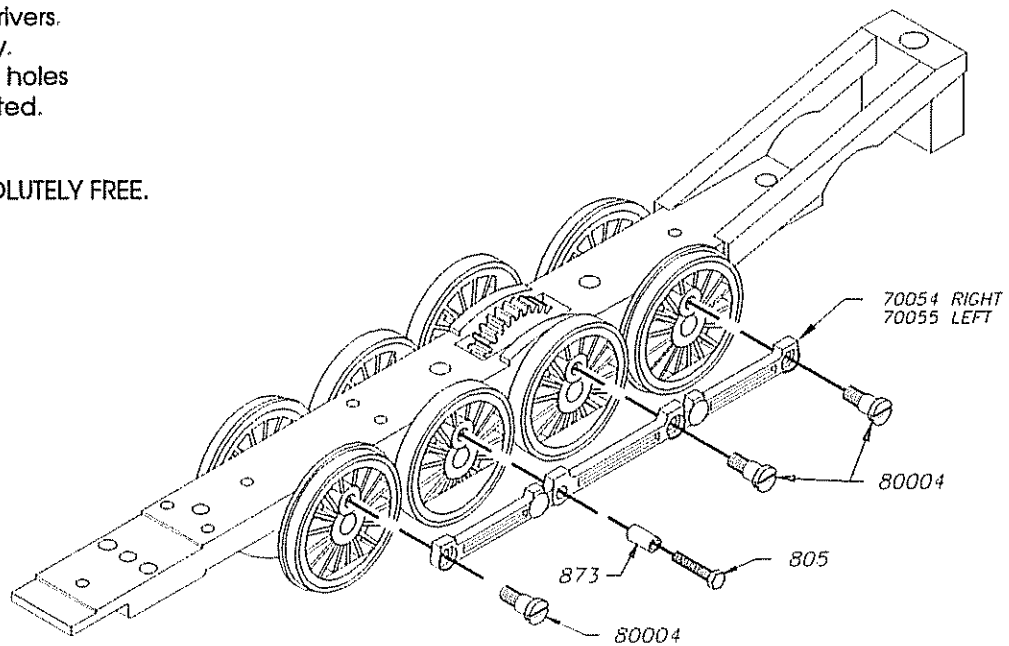
80004



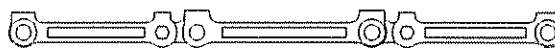
805



873



70054 RIGHT



70055 LEFT

STEP #5

Assemble cylinders, crossheads
& main rods.

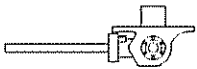
Crossheads must slide freely
on guide rods.

Subkit 100451, 100456

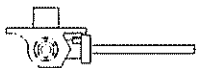
FULL SIZE



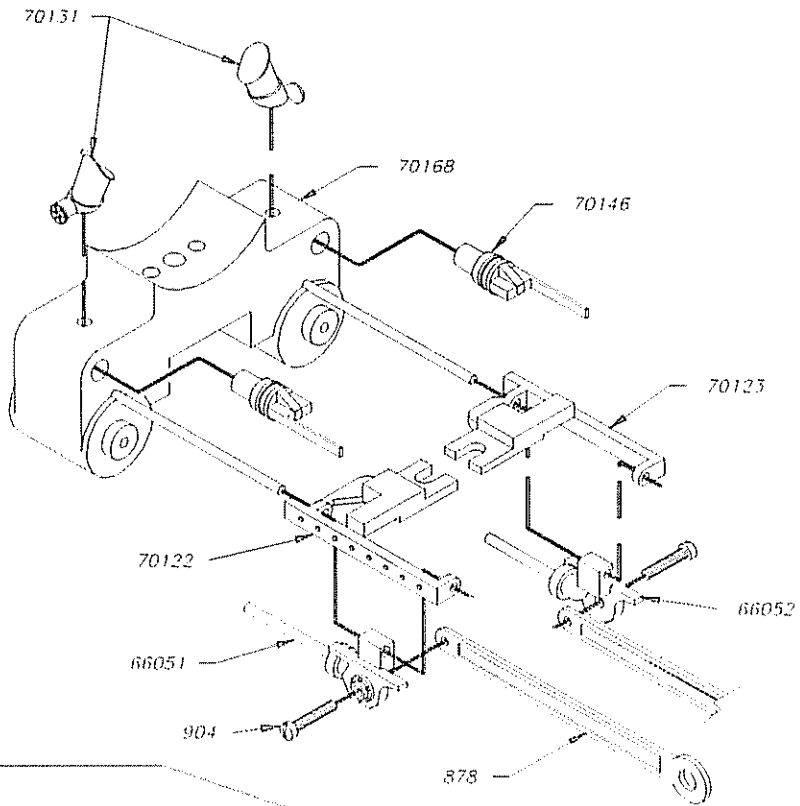
904



66051



66052



STEP #5a

Assemble cylinders, crossheads
& main rods to mechanism.

Crossheads should slide freely
on guide rods. There must not
be any binding in mechanism.

Subkit 100452

FULL SIZE



256031



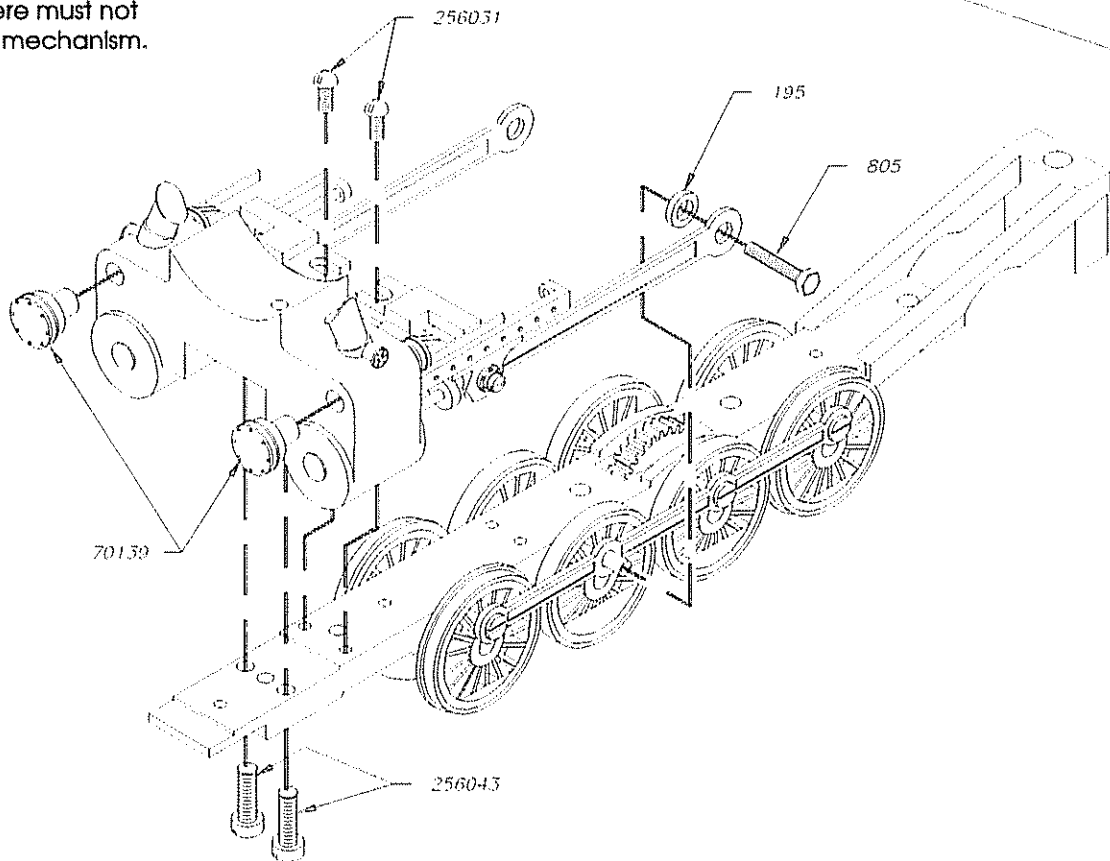
256043



195



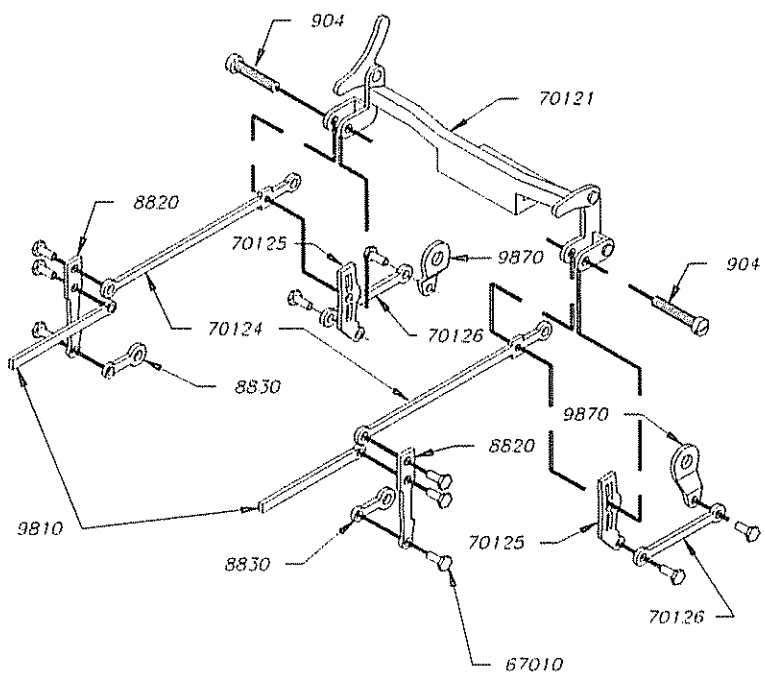
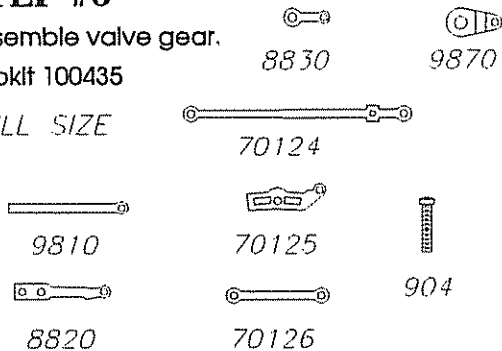
805



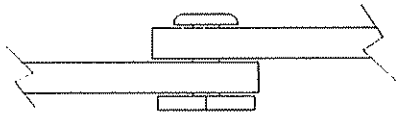
STEP #6

Assemble valve gear.
Subkit 100435

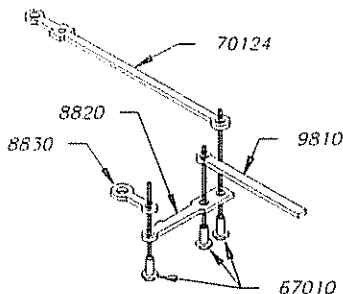
FULL SIZE



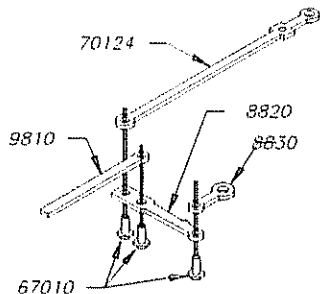
SET RIVETOOL WITH CENTER POINT IN HOLE IN END OF RIVET. TAP WITH LIGHT HAMMER UNTIL RIVET IS PROPERLY FLARED. BE CAREFUL NOT TO MAKE JOINT TOO TIGHT



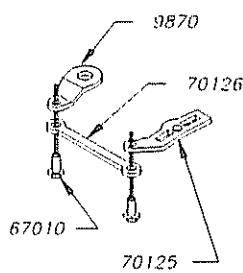
SIDE VIEW OF RIVET SHOWN 10X SIZE
NOTE CLEARANCE



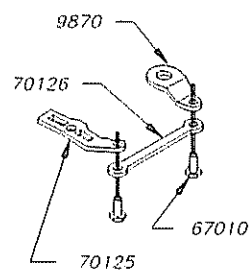
LEFT SIDE FRONT UNIT



RIGHT SIDE FRONT UNIT

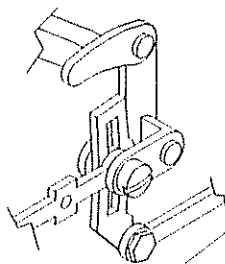


LEFT SIDE REAR UNIT

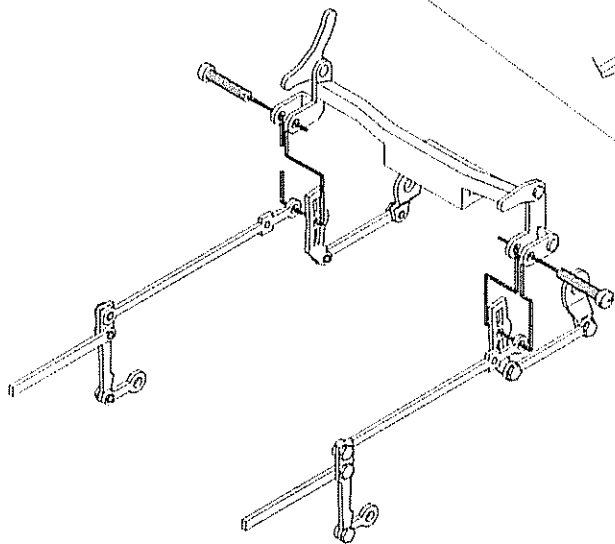


RIGHT SIDE REAR UNIT

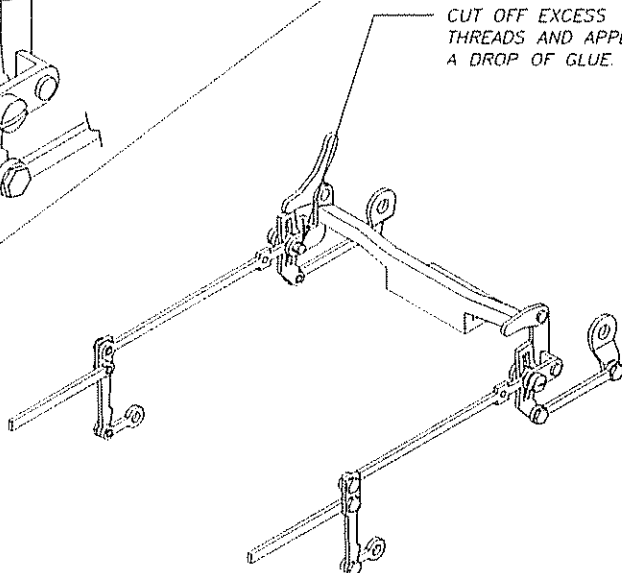
ENLARGED VIEW LEFT SIDE



CUT OFF EXCESS THREADS AND APPLY A DROP OF GLUE



READY TO ASSEMBLE TO HANGER



READY TO INSTALL ON MECHANISM

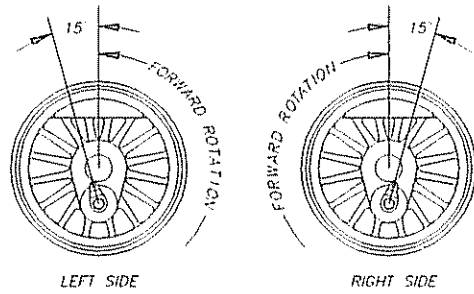
MT100435-4 06/19/96 07:39

STEP #6a

Install valve gear on mechanism.

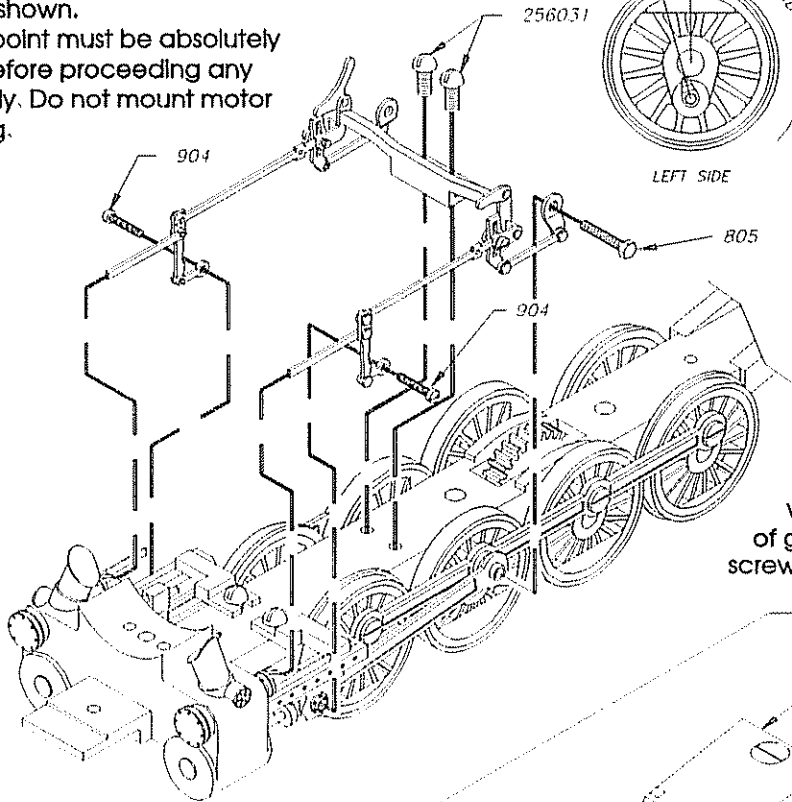
Time valve gear as shown.

Mechanism at this point must be absolutely free of any binds before proceeding any further with assembly. Do not mount motor until it is free running.



Subkit 100435

FULL SIZE



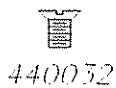
Cut-off 904 screw flush with main rod. Put a drop of glue on threads to keep screw from backing out.

STEP #7

Install motor. Check gear mesh as shown in drawing. Adjust mesh using #29 washers.

Subkit 100435

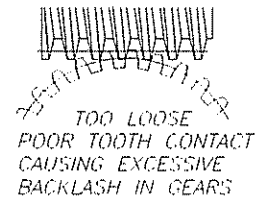
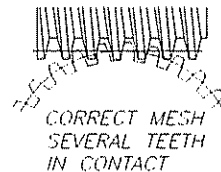
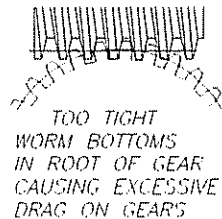
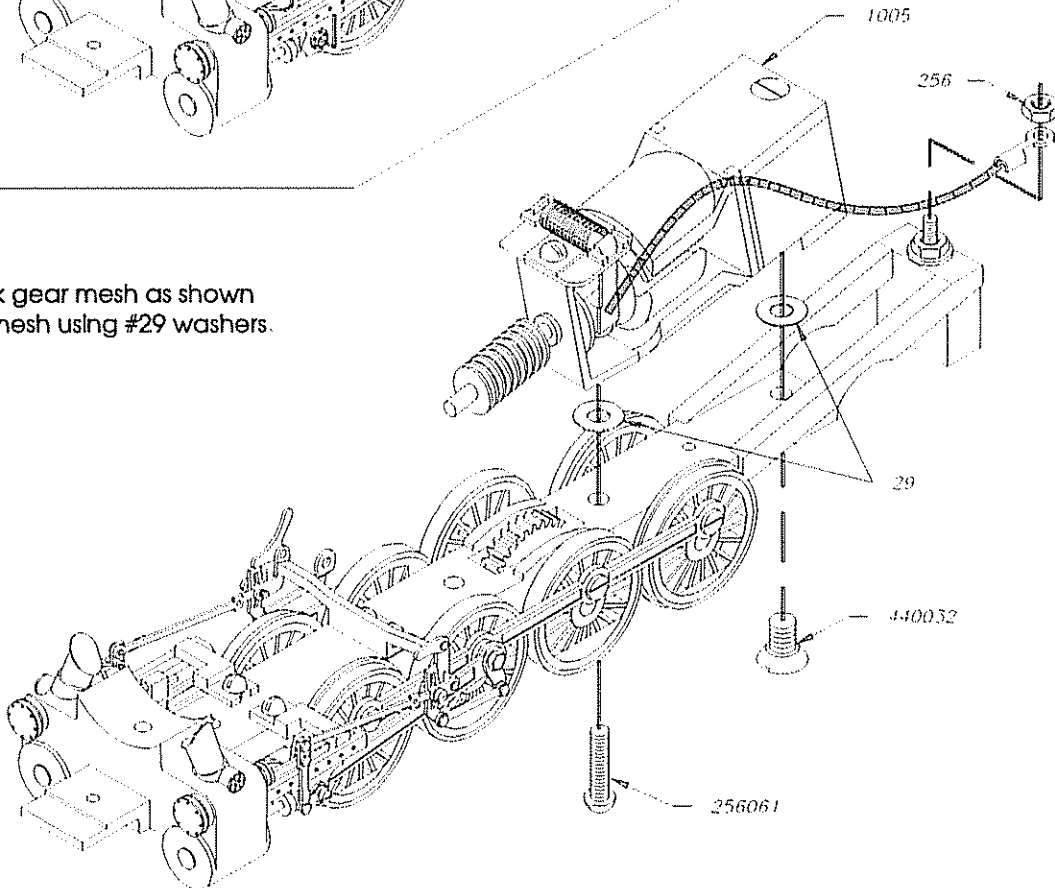
FULL SIZE



256



29



STEP #8

Assemble trailing truck.

Subkit 100437

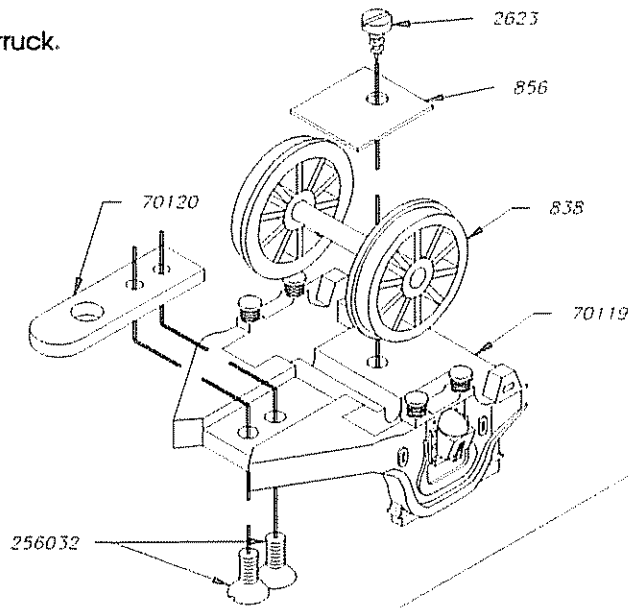
FULL SIZE



256032



2623



STEP #9

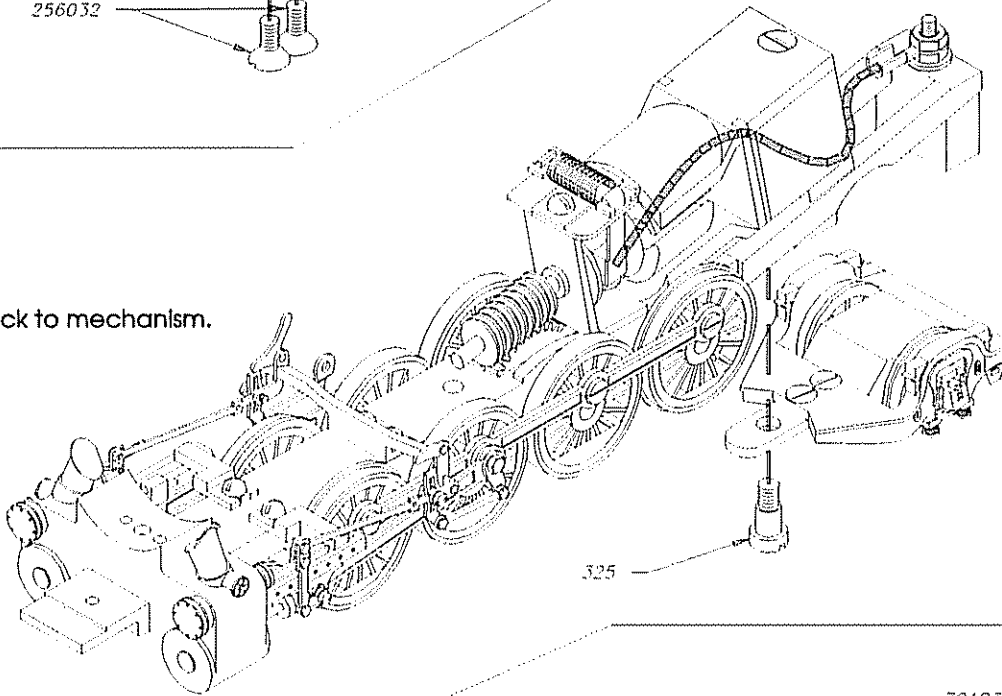
Install trailing truck to mechanism.

Subkit 100437

FULL SIZE



325



STEP #10

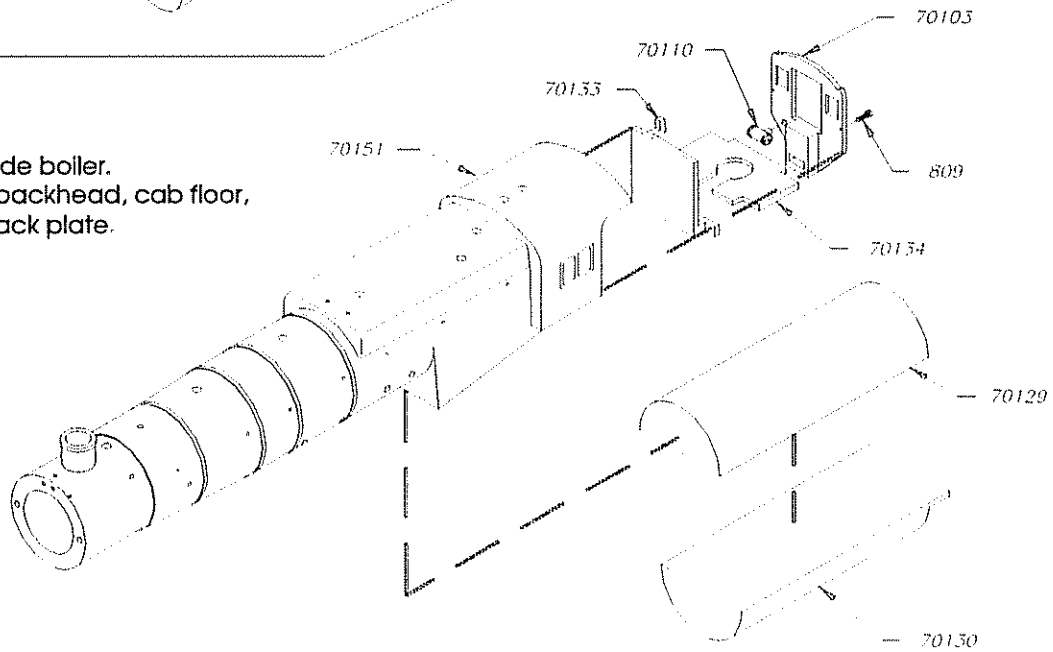
Glue weights inside boiler.
Assemble boiler backhead, cab floor,
air tank & cab back plate.

Subkit 100456
& 100459

FULL SIZE



809



STEP #11

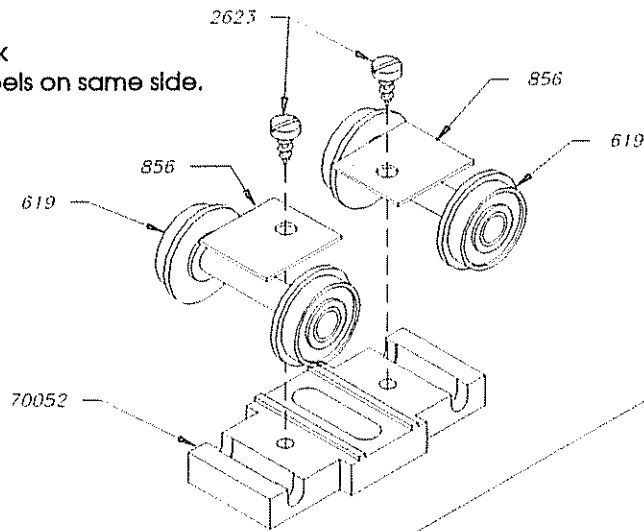
Assemble lead truck
Keep insulated wheels on same side.

Subkit 100404

FULL SIZE



2623



STEP #12

Assemble boiler & lead truck
to mechanism.

Subkit 100404

FULL SIZE



5203



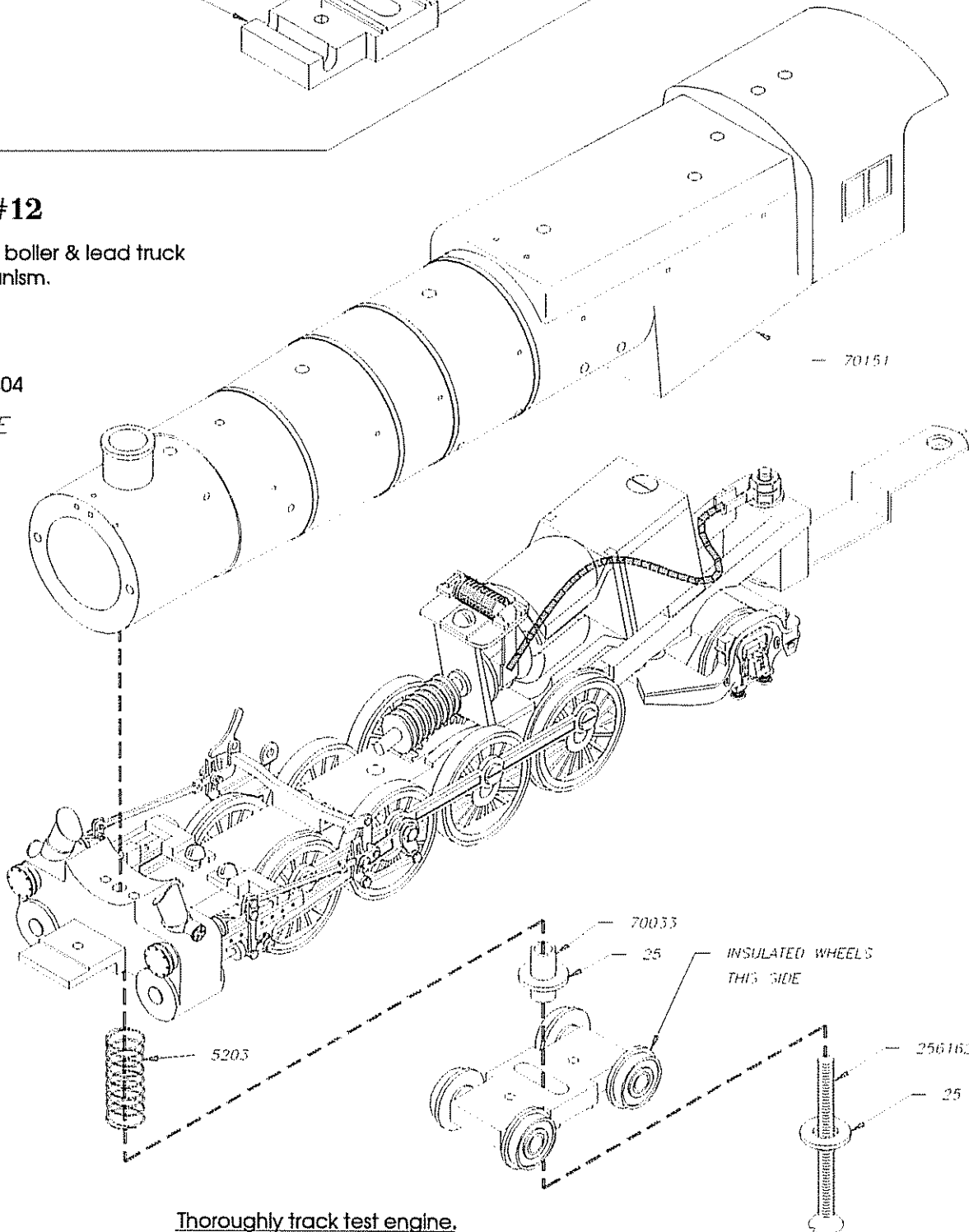
25



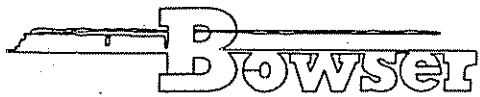
256162



70033

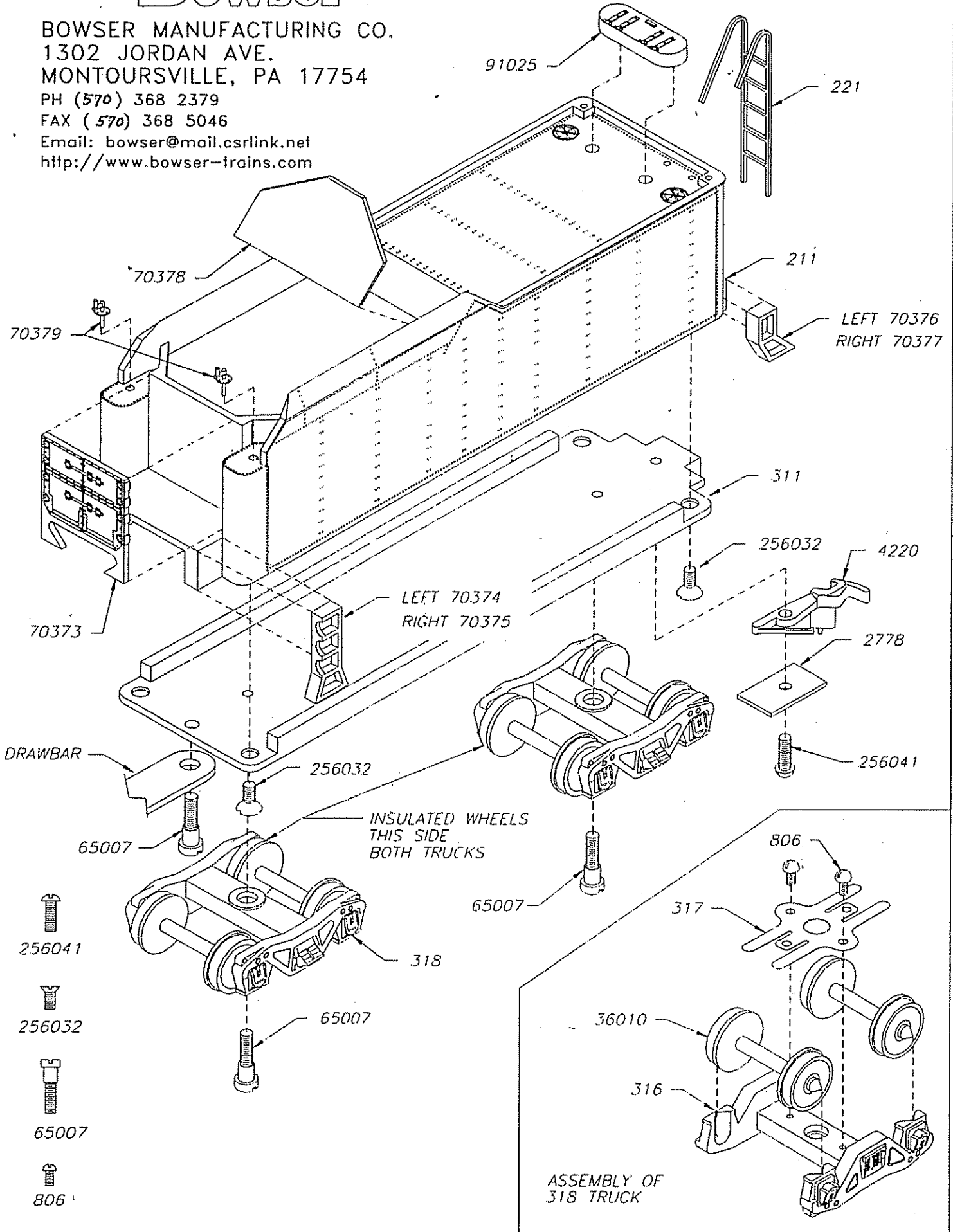


Thoroughly track test engine.



13000 GAL TENDER KIT 150635

BOWSER MANUFACTURING CO.
 1302 JORDAN AVE.
 MONTOURSVILLE, PA 17754
 PH (570) 368 2379
 FAX (570) 368 5046
 Email: bowser@mail.csrlink.net
 http://www.bowser-trains.com



STEP #14

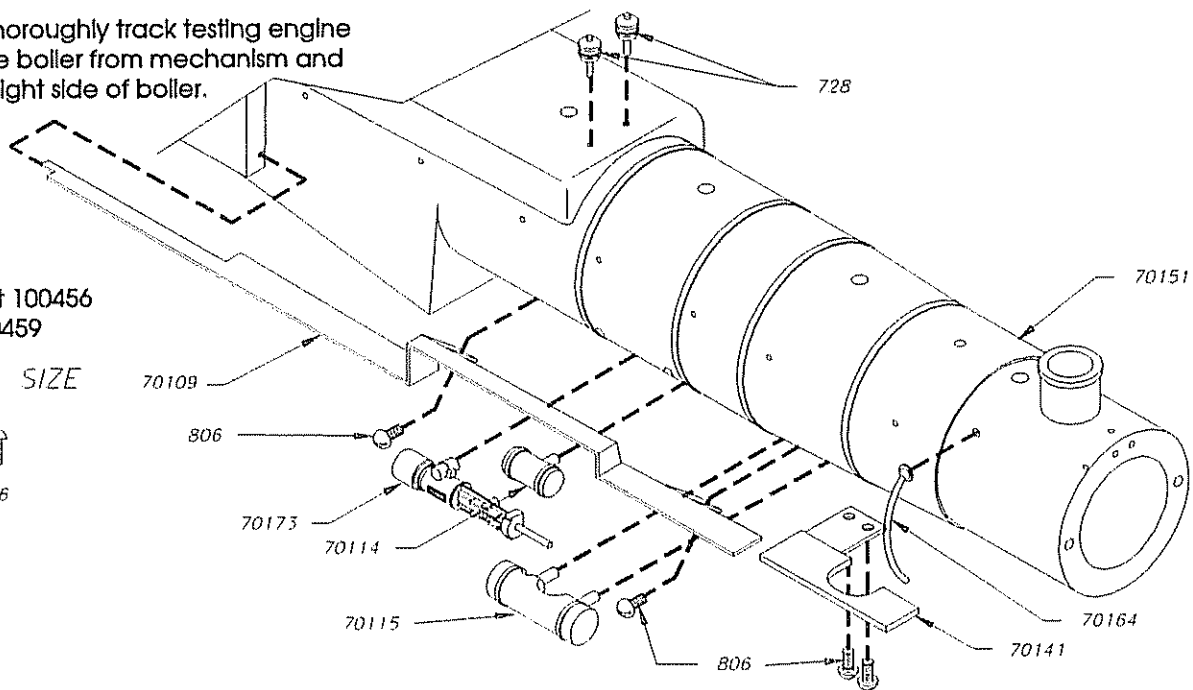
After thoroughly track testing engine remove boiler from mechanism and detail right side of boiler.

Subkit 100456 & 100459

FULL SIZE



806



STEP #15

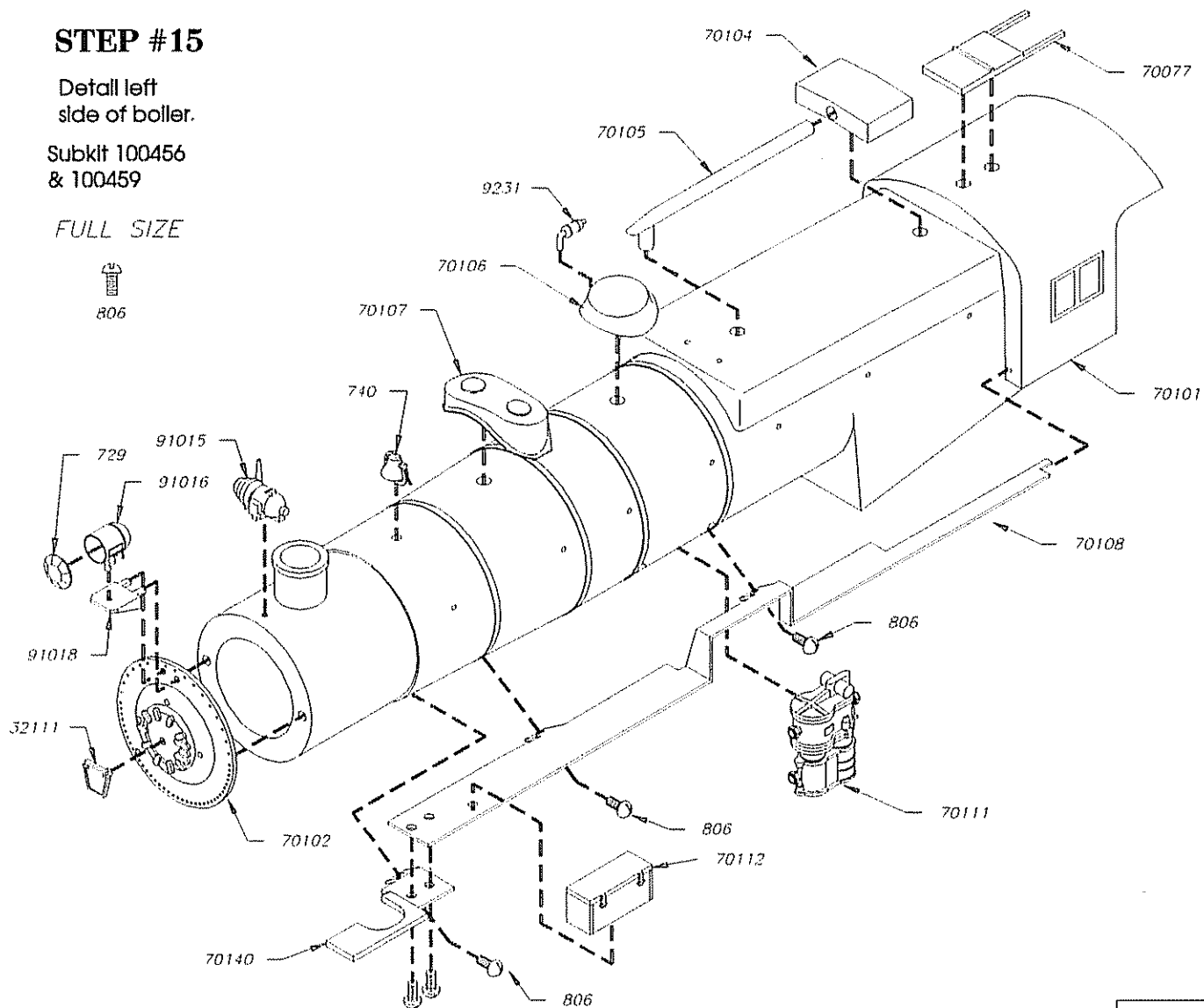
Detail left side of boiler.

Subkit 100456 & 100459

FULL SIZE



806

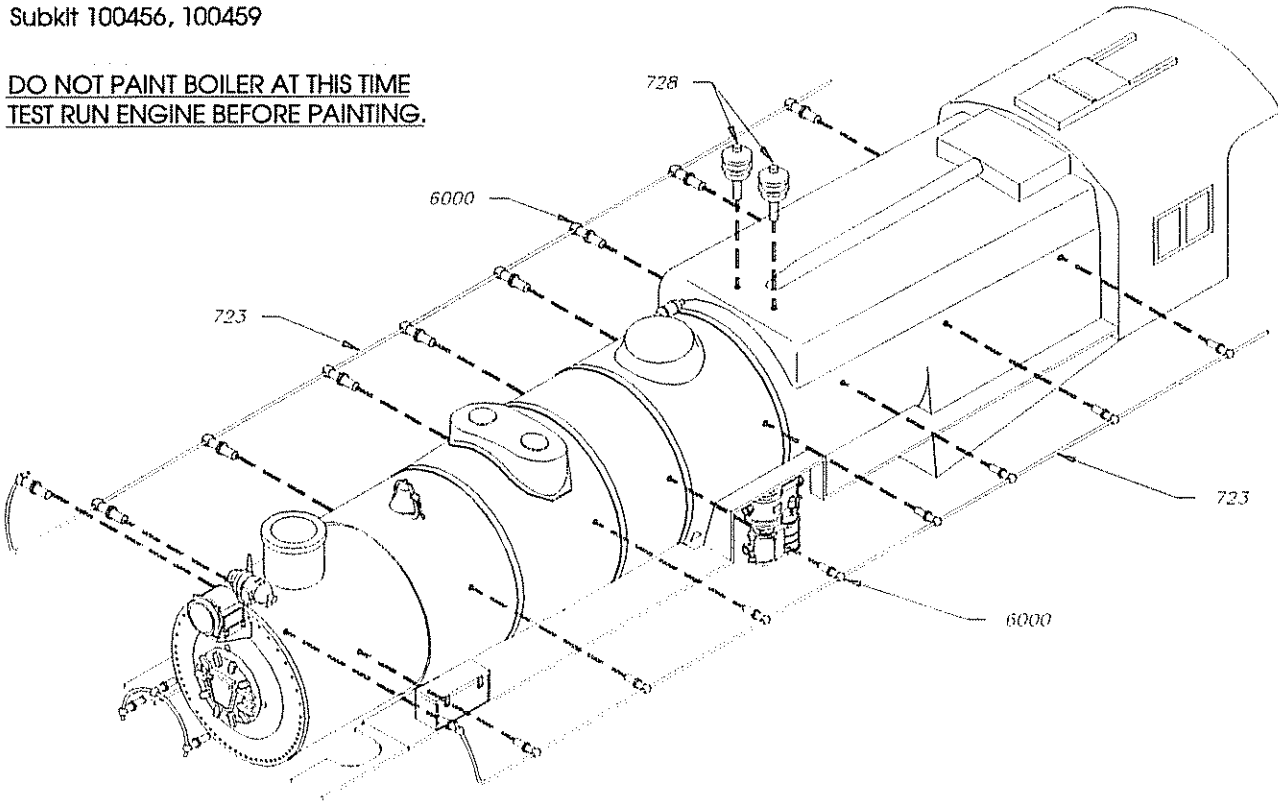


STEP #16

Install handrails & pop valves.

Subkit 100456, 100459

DO NOT PAINT BOILER AT THIS TIME
TEST RUN ENGINE BEFORE PAINTING.



Handrails shown in 2 pieces for clarity.

STEP #17

Assemble pilot & air tank to mechanism.

Subkit 100456, 100459

FULL SIZE

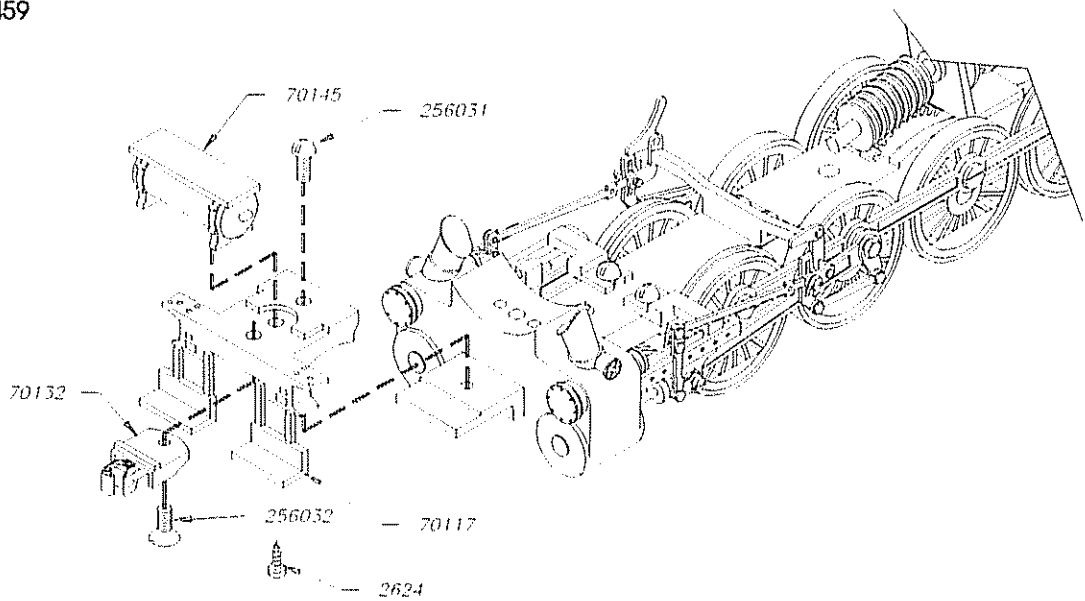


256031

256032



2605



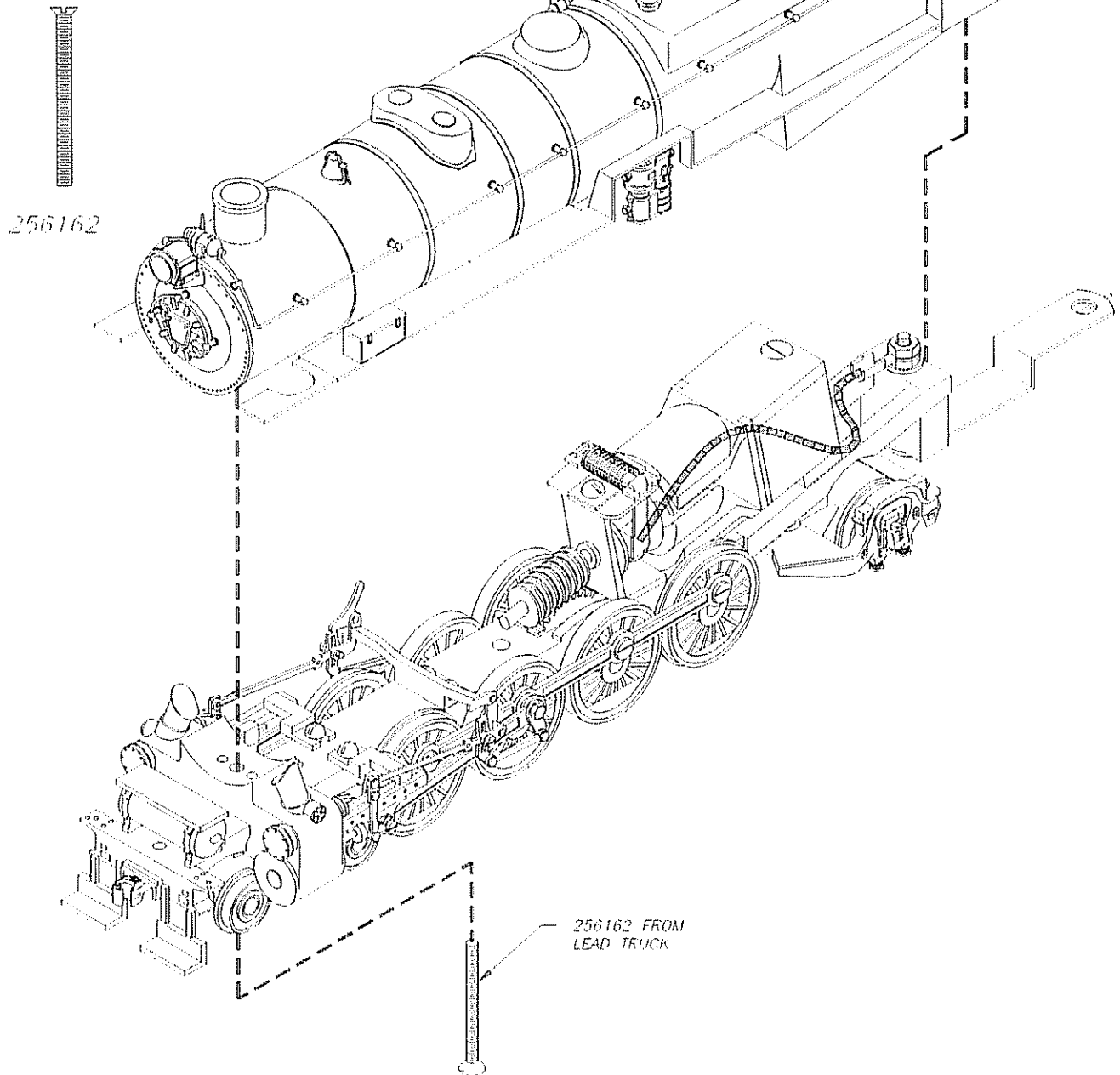
STEP #18

Assemble boiler to mechanism.

DO NOT PAINT BOILER AT THIS TIME
TEST RUN ENGINE BEFORE PAINTING.

Subkit 100453

FULL SIZE



STEP #19

Disassemble mechanism. Clean, paint, reassemble and ENJOY.

OPERATING SUGGESTIONS

You will want to make a test run. This model is built to run on direct current, not to exceed 12 volts. Lubricate all wheel and motor bearings with light oil and make sure gears and axles are well lubricated at all times.

If loco does not operate satisfactorily, check assembly and electrical connections. See that motor is mounted securely with gears properly meshed. Make sure all **INSULATED WHEELS** are on **LOCOMOTIVE'S LEFT** and **TENDER'S RIGHT**.

Our locomotives run best after a long break in period. Ten to twenty hours is a good start.

DETAILING THE BOILER

Remove the body from the mechanism.

Glue smokebox front (70102) to boiler. Press and glue headlight bracket (91018) to smokebox front. Glue headlight (91016) to bracket. Cut a piece of handrail wire 1-1/4" from long end of formed handrail (500723). Form to a 5/16" radius. String three handrail posts (6000) on wire and press into place. Glue Keystone (32111) into center hole.

Mount generator in hole in front of smoke stack. Mount bell (740) in first hole behind smoke stack. Mount large dome (70107) in second hole behind smoke stack. Mount small dome (70106) in third hole from stack with whistle hole in dome's right. Mount turret 70104 and bridge pipe 70105 in front of cab. Mount cab hatch (70077) on the cab.

Clean the short walks (70140 & 70141). Screw left short walk to the left walk (70108) using two 0-80 x 1/4" screws (804). File the screws flush on the top of the walks. Measure 5/32" from the front of right walk (70109) and bend downward 90 degrees. Mount the left walk assembly and the right walk to the body using 0-80 x 5/32" screws (806). Mount the right short walk to the body using two 806 screws. File right short walk to clear the long right walk. The short walks are very flexible and may be bent into position.

Glue train control box (70112), air compressor (70111), power reverse (70113), small tank (70114) and large tank (70115) in place.

String eight handrail posts (6000) on each leg of formed handrail wire (500725). Starting at front of boiler, drive shanks of handrail posts into holes in boiler casting. Cut excess wire off near the cab.

Screw pilot (70117) to frame using a 2-56 x 3/16" screw (256031). Screw on the front tank (70116) using a #2 x 1/4" self tapping screw (2624). Screw on the dummy coupler (70132) using a 2-56 x 3/16" flat head screw (256032).

Glue the front valve cover (70139) in the cylinder block. Clean surface of steam pipe (70131) that will fit against the boiler. Press and glue the steam pipes to the cylinder block. Slip the boiler over the mechanism.

Screw on the lead truck as before. The engine is now complete.

PAINING

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 joints or moving parts.

Parts to be painted should be degreased with a solvent like paint thinner and pickled in vinegar for a few hours before applying paint. Several manufacturers make etching agents for this purpose. See your dealer.

CAUTION: Do not immerse wheels, underframe or coverplate in vinegar or cleaners. Brush cleaner and/or vinegar on metal frames of lead and trailing trucks and on underframe surfaces to be painted, **NOI ON WHEELS, AXLES OR BEARING SLOTS**. Drivers are preblackened and can be touched up, after removing flash, without using cleaner or acid.

We recommend BRUNSWICK GREEN as the proper color. Apply a smooth, uniform coat of good grade model railroad paint. 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. After paint is dry, glue headlight jewel (729) in place.

PARTS AND SERVICE

Contact your local dealer for Bowser parts. If he does not carry them, or if your dealer is too far away to readily contact him, you may order directly from the factory. All parts orders must be accompanied by a check, money order, Visa or Master Card numbers and expiration date.

IF YOU ARE REQUESTING MISSING PARTS OR REPLACEMENTS FOR DEFECTIVE PARTS, you must include the NAME OF THE DEALER from whom the kit was purchased and the approximate DATE OF PURCHASE.

Defective parts must be returned for replacement.