

# ROLLIN J. LOBAUGH

JONES & LAUGHLIN STEEL CORPORATION  
20,000 Gal. COAL TAR TANK CAR

## BILL OF MATERIAL

Quantity	Part No	Description
2	9801	End sill channel
2	9805	Center sill
1	9806	Center sill cap
2	9807	Tank end
2	9808	Tank running board
1	9812	Tank shell
3	9813	Dome with lid
9'	50003	1/32 brass wire
40"		Ribbon brass
1		Instructions
1		Inventory
1		Blueprint
1		Decals
1		Post card

Quantity	Part No.	Description
4	8553	Brake wheel:2 for gate valve
4	8601	Car steps
12	9316	Turnbuckles
4	9320	Placard board
14	9323	Running board support
2	9330	Poling pocket - L
2	9331	Poling pocket - R
2	9642	Brake wheel staff sup.
8	9802	Saddle angle
4	9803	Saddle angle cap
8	9804	Frame end cross brace
8	9809	Ladder side
2	9811	End walk
5	9814	Tank strip
16	10787	Grab iron
Env. #3		
4	#3	Side frames
4	5001	33" freight wheels
2	5211	Center bolster
4	5214	Shouldered spacer- pl.
2	9644	Bolster ins. bushing
2	10853	Bolster ins. washer
4		2-56x3/16 fil. hd. screw
2		6-32x1/4 R.H. screw

Quantity	Part No.	Description
3"	8552	Brake chain
2	8560	Coupler striking plate
2	8561	Coupler pocket
2	9325	Center band plate
4	9326	Tank band washer
2	9350	Tank outlet valve pipe
4	9637	2 1/4 crossbearer-curved
2	9639	Bolster bushing
2	9640	Brake cyl.mtg. bracket
1	9643	Ribbon brass
4	9810	Saddle
1	9815	Air reservoir
2	9816	Gate valve wheel boss
2	9817	Center tank support
1	10779	Brake cylinder
2	10307	Coupler
2	10839	Air hose
7	22663	Frame channel stiffener
1		2" 1/16 wire
2		0-80x5/16 fil. hd. screw
12		1-72x1/2 fil. hd. screw
2	#2	Brass washer
2		2-56 brass nut
2	#4	Brass washer

"Standard of the World in O Gauge"



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## ASSEMBLY INSTRUCTIONS

A good beginning in the construction of any model equipment is to lay out all the various components of the kit and familiarize yourself with them. An aid to identification of the various items is to group them by the number of similar pieces and then check with the Bill of Material for the name.

Start the actual assembly with the long frame channels or center sills. Thread them through the crossbearers. The crossbearers go back to back at the truck centers and the bolster bushing is then pushed in. The truck centers are  $9 \frac{3}{16}$ ". Tack this assembly at one or two places lightly. Incidentally a good clean heavy duty soldering iron about two or three hundred watts will give best results. Keep the iron hot and well tinned; keep the work clean; use a good non-corrosive flux and 50-50 (half tin - half lead) solder and you should encounter no difficulty. Nokorode paste or Hydrochloric acid in a water solution with zinc dissolved works very well as flux.

Back to the frame:- Locate two of the #9814 tank binders on the frame channel ends and the two coupler pockets. Snap the coupler pockets in place and solder them. Then sweat the tank binders to the top of the center sills at each end. These are to compensate for the added height of the crossbearers to the frame. Now form the end sills carefully making sure that they are bent at precisely  $90^\circ$ . Solder them at the seams before sweating them to the crossbearers and to the tank binders that are soldered to the top of the center sills. Find four of the #9804 end brace channels and trim them to fit between the corner of the end sill and the crossbearers. Solder them in and also solder the bolster bushing solidly from the top. Now take the other four channels and trim them only enough to fit at the angle shown between the center sill and the crossbearers. Solder them in.

Next solder the tank saddles to the end sill assembly. It may be necessary to make a slight file fit. Sweat on the saddle angles and the frame channel stiffener between them. Then trim the saddle angle caps at  $45^\circ$  as shown in the print and solder them in. Before sweating on the center sill cap solder the three frame channel stiffeners between the center sills. They are placed toward the bottom of the center sill. Now add the center sill cap. Tack it at several places before soldering it throughout its entire length. Here comes the ticklish operation. Press the #4 washers over the shank of the outlet pipe, thread on the #3 nut and pull it up tight. Push the threaded portion of the outlet pipe through the center sill cap and screw on the #9817 center tank supports. Next push the washer up against the center sills and tack the assembly. Solder the gate valve wheel boss to the wheel with lots of solder; then tin the outlet pipe. Holding the underframe assembly vertically, sweat the boss and wheel to the outlet pipe by applying the iron to the head of the outlet pipe and allowing the solder to flow out of the wheel boss on to the outlet pipe. Bend a small "V" shaped brace from the #9643 ribbon brass and solder it to the frame. After this has been done, sweat on the other small details---grab irons, stirrup steps, poling pockets, coupler plate and placard boards. Their locations may be determined from the print. Before the final step of adding the brake detail to the underframe don't forget the center tank band plates. They sweat to the center sill channels as shown in the side elevation.

Now let us turn to the tank itself. Insert the end walks in the slots in the ends. Center the end walks and solder them from the inside of the ends. Place the ends in the tank to spring it out to the proper diameter. Gripping the tank firmly sweat on the tank binders where they will not be seen at saddle centers, and one at the exact center of the tank between the location of the two outlet pipes. This

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will make the tube rigid.

Remove the ends. Notch the end walks to receive the long ladder side as shown on the print. The short ladder side butts against the bottom of the end walk. Then tin the end all around with as little solder as possible. Put the ends back in the tube and using the end walks to sight along make sure they are in line with each other, and solder them securely.

Now locate the tank on the underframe centrally and squarely and tack it lightly to the saddles. It may be necessary to file the top of the center supports to allow the tank to seat properly. Cut six lengths of the ribbon brass slightly oversize and solder one turnbuckle on each piece. Thread the screws through the holes into the turnbuckles about one turn; then pull the band down on the opposite side and trim it to length. Now add the rest of the turnbuckles and pull them down snugly with the screws. Butt solder the long running boards to the end walks; then slide the running board supports in from below. Care must be exercised to make sure that all is level and square before soldering completely. On the ends the running board support must be cut in two pieces to give the appearance of passing below and behind the end walk.

Now locate the domes precisely and trace around them with a scribe. Tin the area within the circle and also the bottom of the domes---then sweat them on. Cut the dome hinge pins from the 1/16 wire supplied and solder them to the dome boss only so that the hinged lid may swing freely.

Make up the ladder using the 1/32 wire supplied for rungs and mount them as shown in the print. Don't forget to add the grab irons on the tank ends and on the ladders. Now sweat the brake staff support to the underside of the end walk and add the brake staff and wheel to each end. The retainer pipe and air hoses may be mounted now also. In mounting the air hoses, scrape off a little of the insulation and solder it directly to the center sill. Now prepare six inverted "U" shaped pieces of 1/32 wire measuring 1 3/4" wide and 3/4" deep and solder them to the running board supports. The railing itself is two "L" shaped pieces of 1/32 wire measuring 10 3/4" long and 1 3/4" wide which are soldered to the inverted "U" braces.

Now assemble the trucks using the bottom hole in the side frame if two exist. Press in the insulating bushing and 6-32 screw from the bottom of the truck bolster and place the fiber washer on the top. Mount the trucks on the car.

The car may be cleaned for painting by washing in a hot solution of one of the many detergents on the market, such as "Tide", rinsing with hot water and an oven drying. Then clean finally by brushing with laquer thinner. Allow to dry thoroughly; then spray paint it with a high-grade automotive aluminum laquer. The entire car is aluminum, including the trucks.

Decal as shown in the photo if you wish the car lettered for the way it is lettered for service today. There is additional decal material included to letter it the way it was when built. Substitute "Woodlawn, Pa." for "Alquippa, Pa." and leave off the black squares saying "J&L Steel".

Mount the couplers and the car is ready for coal-tar service.

End.

## "HOW TO SOLDER"

Soldering is a process, whereby metals are joined together by adhesion through the application of heat, and the use of a third alloy or metal called "solder." This third metal, or "solder," has a lower melting point than that of the metals being joined.

In order to perform a soldering operation the following equipment is needed:—

1. A soldering iron — or torch.
2. A soldering flux — NOKORODE Soldering Paste is recommended.
3. A tin-lead solder. The 50/50 mixture is recommended and this should be in the wire form.

Before beginning any soldering operation, the surfaces of the metals that are to be joined together must be thoroughly cleaned. This cleansing process is a double one.

First, the metal is mechanically cleaned of all grit, dirt, grease, etc. This is done with emery cloth or with a scratch brush.

Secondly, the parts in question are chemically cleaned through the use of a soldering flux — NOKORODE Soldering Paste is again recommended. This soldering flux dissolves the oxide film that forms on metal surfaces.

This second cleansing operation is carried on simultaneously with the actual soldering operation. The procedure for the entire operation is as follows:—

When a new soldering iron is put into use, it is necessary to coat the tip or point with solder. This is called "tinning" the iron.

The first step in tinning is to file or clean or brighten with emery cloth, all four sides of the iron tip. Now, heat the soldering iron and when hot apply NOKORODE Soldering Paste with a small swab to all four sides. DO NOT DIP THE IRON IN THE FLUX.

Immediately apply the wire solder to all four sides and while hot, rub quickly with a cloth until bright and shiny like new tin.

The parts to be soldered are now cleaned with emery cloth and after cleaning are placed in position and, preferably, clamped. The parts are now fluxed with NOKORODE along the seam to be soldered.

Place the hot soldering iron on the seam and apply solder to the bottom of the copper. When the solder begins to flow, draw the iron slowly along the seam. Be sure that the solder flows between the metals and not over them. Allow the parts to cool and wipe with clean dry cloth.

If the above procedure is followed, clean, sound joints will result.

*For Further Technical Information Write*

**THE M. W. DUNTON CO.**

MANUFACTURERS OF

NOKORODE SOLDERING FLUXES AND SOLDERS

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