

Shay - Boiler Cosmetics - Part II

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Initial:3/04/04 Last Revised: 06/06/2004

The task here is to do the jacket and bands. The following photo of Cass 5 jacket and bands is repeated here to keep the goal in mind.



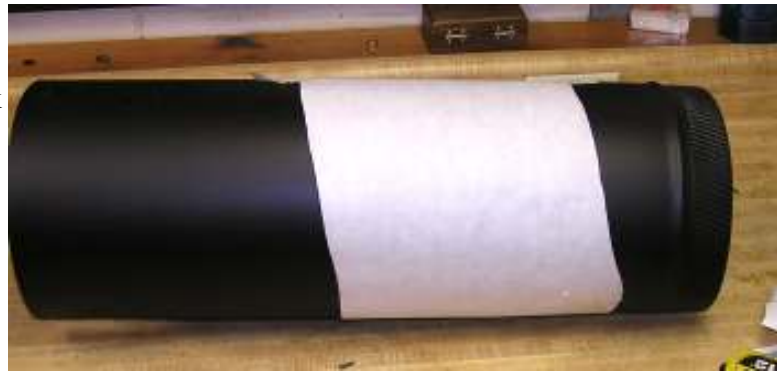
The photo on the right shows how the jacket and bands are fastened on the underside of the boiler.



This photo shows the front edge of the jacket. Note that the jacket is slit and then bent over to cover the front edge of the lagging.



Jacket: I'd been dreading the jacket for months ---- hate to work with sheet metal. Decided to bite the bullet and start with the jacket over the forward sloped section. Kenneth suggested black stove pipe. Obtained some 24 gauge 8" diameter at local hardware. The photo shows a rough heavy paper pattern taped to a section of stove pipe.



Tried to cut the stove pipe with my old snips ---- what a chore ---- that's why I hate to work with sheet metal. Found that the local Harbor Freight store had the power shears shown in photo on sale for \$30. They cut that 24 gauge like a hot knife through butter.



The 8" OD pipe was about a half inch too short but the gap will be filled with the legs of the 1/16" X 1/2" X 1/2" angle fastened to the bottom joint. The photo shows the initial positioning of the piece. After the angles were tightened there was some slack so the angles were moved back on the pipe.



This photo shows the piece positioned properly. The fit was very good. The tape is to mark the edges for later trimming. The power shears were used to trim the edge close correct position. The edge was then finished with a file to bring it even with the front edge of the spacer.

At this point the piece had been off and put back on so many times that a zipper or Velcro straps looked like a better alternative.



This shows the trimmed edges. The jacket is flattened over the spacers so that the bands will lay flat. The edges of the sloped section were slit about every half inch to relieve the bend. Slitting with hand shears were tried first but the gap was too narrow to make much relief and the shears marked the jacket beyond the slit. What worked best was to make the slits using a Dremel abrasive cutoff disk. After all the slits were made the edges over the spacers were pounded flat.



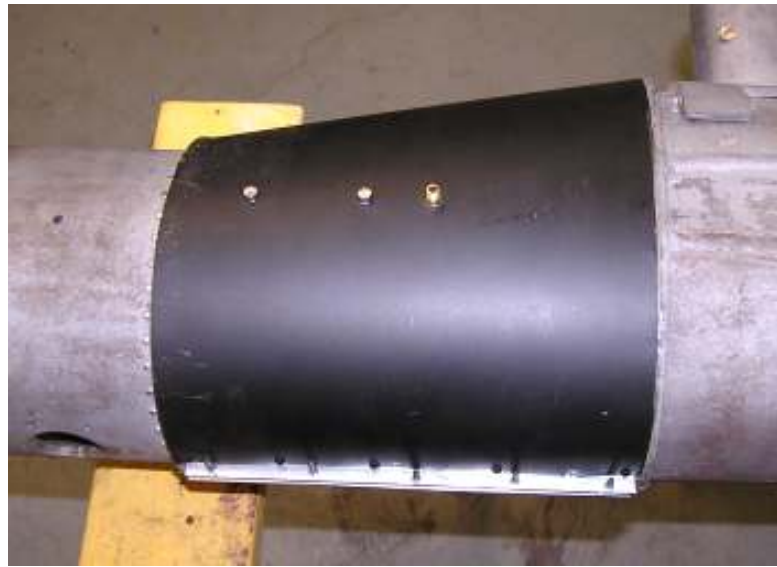
Sort pieces of 3/23" rod were inserted in the pump mounting holes and a hole drilled in the plug in the left feed water hole as show in the photo. The rods were used to mark the holes to be drilled in the jacket.



The jacket was reinstalled and positioned properly and then a wood block was placed over the jacket in the area of the holes and then the block was hit with a hammer. The photo shows the resulting dimples. These holes were drilled. The same technique was use to locate the feed water hole on the other side.



The final step was to mill the protruding leg of the angles to 3/8" and then add a few more screws holding the angles to the jacket and also between the angles. The jacket is really tight and smooth ---- like a drum. It wasn't so bad after all.



Before making the middle jacket section a piece of of ~ 0.050" steel was cut to cover the part of the firebox visible above the frame. The piece is positioned behind the spacer as shown in the photo. There is a #2 screw on each side to hold it in place.



The middle section was next. The hole for the steam chamber was cut with a Dremel abrasive cutoff disk. The hole was then trimmed with a hand nibbler.



This photo shows the the nearly finished middle section. Note that a ~1" piece was added to make it large enough. The only critical step was to keep the slit up each side straight and to end it at the proper point. The cuts were made with the power shears with good results.



The plan was to position the boiler on the frame and mount the cab before cutting the rear jacket piece. However, when the boiler was positioned it was found that something was holding the boiler above the correct position (I knew things were going too smoothly). The angles under the front jacket piece were against the top of the front truck bolster cross channels. That problem was solved by relocating the front screw holding the two angles together so that it was between the two channels. The part of the angles directly over the channels were then cut back to eliminate the interference. The next problem was that the boiler rested on the new frame cross brace just to the front of the fire box. Rats! I forgot that the bottom of the boiler jacket is about 1/8" below the top of the frame. A recess was ground in the center of the cross brace to eliminate the interference. That worked well. The 1.25" high cross brace could have been aligned with the bottom of the frame I beams like the truck bolsters to eliminate this problem. However, I like the brace in the higher position where it's more noticeable from the sides.

On To The Last Jacket Section: A section of stove pipe was cut to a length that left a small gap between the middle and rear sections. This will allow some adjustment if necessary to keep the rear edge of the jacket against the front of the cab. The manufactured pipe edge was positioned against the cab front. The left side was secured to the spacer with two #2 screws as shown in the photo. The rear screw is a flat head because it is behind the boiler clamp.



The holes for these two screws were elongated front to back to permit some adjustment of the jacket.

This photo shows the boiler mount clamp temporarily in position. Note the slit in the cab front for the input water pipe to the air compressor/pump is behind the clamp. The pipe will have to be raised a little to clear the clamp.



Note that edge of the middle jacket section has been secured with three #1 button head screws.

This photo shows the right side of the rear jacket section. The piece of aluminum angle was attached to the jacket with a screw. The little clamp allows the jacket to be adjusted front to back if necessary so that there is no gap between the rear edge of the of the jacket and the front of the cab.



This side of the jacket is hidden behind the engine.

Bands: Before starting the rear jacket section described above, brass strips were ordered for the bands. The first thought was to use 1/4" wide strips. However, review of some Cass photos suggested the bands were wider. Measurements of the bands on the photos and some calculations indicated the bands are about 2 inches wide, which would scale to 1/2". As a double check, 1/2" strips of blue masking tape were put on the model, a photo taken and then edited so that the boiler length was the same length as the boiler in a photo of Cass 5. The two photos were overlapped and positioned so that a band and a piece of tape lined up. The following is this combined photo. The bands indeed should be about 1/2" wide. However, I think the tape looks too wide. I ended up ordering 3/8" wide bands and a couple pieces of 1/4" and 5/16" in case I want to use a narrower band on the front. The bands came from Special Shapes.



The rear band was made first since the the boiler was in position on the frame. The left side was secured with a #2 button head screw as shown in the photo. .



The photo shows the right side, which was equipped with a small angle similar to the rear jacket section. A screw with clamp to hold down the band angle will be added after the boiler is removed (making it easier to drill and tap the hole).



Each end of the middle and front bands were equipped with small angles. Screws through the angles closed the bands. The photo shows the under side of the boiler. None of this is visible from the side of the locomotive.



This photo shows the middle and front bands in place. All three bands are 3/8" wide.

The next task is to paint the boiler, jacket, and bands and then reassemble these pieces and get the boiler on the frame for good.

The remainder of the boiler cosmetics such as the domes, bell, lamps, handrails will be done after everything needed to get it running is finished.



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