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“An exhaust combining fabrication”

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My 2-8-2 project combines quite a few design elements of both the Britannia and the 9F B.R. standards. Both of these designs specify a swept exhaust branch bolted to the frames between the cylinders, and what at first glance appears to be a simple fabrication is in fact quite difficult to make.

The first attempt at putting 90-degree bends in two pieces of 5/8" thick-walled copper tube resulted in some rippling on the inside of the bends. I rejected these because although they would work and could not be seen on the finished locomotive, I felt I could do better. On searching the internet, I found some commercial 90-degree 15mm bends of quite generous proportions and as these were machine bent from relatively thin-walled tube, the internal cross-sectional area did not differ greatly from original 5/8" tube I had intended to use. As can be seen from the photographs the two halves were roughly cut down with a hacksaw and then finished until they just fitted into a standard 15mm fitting. After making the bolting flanges I then had to make a one-off fixture to hold all the parts in the correct alignment. After silver soldering and pickling the finished fitting was tried in the frames and fitted perfectly.

This arrangement is supposed to give a free steaming exhaust, however on my Leader design due to limited clearances I had to use commercial 15mm Tee's for the exhaust branches and I am not sure if anyone could detect any difference, in fact the Leader came second to Lionel's original Britannia in Imlec '97 at Llanelli, but there are of course many other factors to consider when it comes to efficiency with a free steaming exhaust being just one.

