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## 5" Gauge Kitson- Meyer locomotive

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### BUILDING AN UNUSUAL LOCOMOTIVE

Having successfully designed and built a 5" gauge version of the Southern Leader, I began looking for a new project to undertake when, by chance, I spotted a picture of a very handsome Kitson-Meyer locomotive in a book on world locomotives. This prompted me to find out more, so I bought a copy of the Kitson-Meyer Locomotives by Donald Binns. This had two good photographs of the locomotive seen in the book, plus a dimensioned side elevation drawing. A visit to the N.R.M. by my friend, Arthur Bellamy of Leeds S.M.E., produced a ¼" to the foot version of the same side elevation drawing, along with the information that all other drawings were destroyed when Kitson of Leeds ceased trading in 1935.



So, with the two photographs and said side elevation drawing, I started work on my second four-cylinder articulated locomotive, which was to occupy much of my spare time for the next twelve years. A bogie drawing was made, and the four side frames laser cut from 10 mm steel. When I built the Leader, I made patterns for the wheels and cylinder blocks and had them cast in grey iron. On this locomotive, however, I thought I may save some time by using existing commercial castings. To this end, 9F cylinders were suitably modified and the sixteen main drivers were 7¼" Royal Scot tender wheels, which machined down nicely to the 4.7" required. A valve gear drawing was made next, and good events were obtained after my eldest son's 2 maths 'A' levels were brought to bear. For the next couple of years, I amused myself by making and assembling all the bits for both power bogies – a not inconsiderable amount of work, similar perhaps to building two 2-8-0 chassis and valve gear, but without the drawings. The mainframe drawing was tackled next, and the frames duly laser cut from 10mm steel – these came out at nearly 7' long, giving a total locomotive length of 96½". This was shorter than it should have been, as the scale has been reduced on some dimensions from the correct ratio of 1.6" to 1' to 1.5" to 1' in order to produce a more compact locomotive.

Thoughts now turned to the boiler, and since this was to be 38" long, it had to be made of steel. A side elevation drawing was made and proportioned to fit the chassis. The full-size boiler dimensions were referred to and two major changes made. Firstly, the barrel was shortened and the smoke box length increased to give a tube length of just over 23". Then the firebox length was reduced to give a total grate area of 55 square inches. The boiler is a standard round top firebox design as used on traction engines, etc., but with the addition of four radiant superheater flues. A full set of detailed drawings was produced, as required by the boiler inspectors and the correct grade steel obtained, complete with certification from Thomas Hatchard of Portslade just before they ceased trading.

Interestingly, the seamless hot drawn tube for the barrel was imported from Italy, as it appears British Steel no longer have the capacity to produce it. The plasma cutting and welding was carried out by Paul Whiteman at "The Forge" Horsham. All other prep work and fitting of stays, etc. were carried out in my home workshop. The 16 5/8" flue tubes and the 4 1" superheater tubes were expanded in with purpose made stainless taper

drifts. This last operation had to be carried out twice in order to seal a couple of leaks. The 4lb sledge used to expand these copper tubes certainly got the neighbours' attention!

However, this was nothing compared to the reaction of several Goring residents when I came to stamping the boiler number and B.S. numbers on the 10mm thick back head, because having assembled the correct letters and numbers into the punch, it became apparent it would need a hefty whack with my trusty 4lb sledge and, more importantly, it would need a really solid support. Eventually, I found what I needed. Unfortunately, it was in the form an Ordnance Survey triangulation point in the middle of Goring beach. What I do remember is the bemused look on the faces of the locals as some bloke with a big hammer was thumping hell out of something on the beach!

Once the boiler was finished, the tender and cab section were made from 16 gauge mild steel sheet and riveted with 3/32" copper rivets and 3/32" stainless drive screws, over 1,400 of the latter being used in the construction of the locomotive. Final assembly of the heavy pieces was relatively simple. The main chassis was mounted on the two power bogies. The two pivots consist of a bolster and 5" diameter cast iron turntable under the tender end, and a double row self-aligning ball race at the front. This allows the front bogies to tilt in all planes, essential on a locomotive of this length.

The boiler was then lowered on to its mountings and since it weighs 13 stone, this was accomplished by using a modified wheelchair hoist. The tender and cab sub assembly was bolted on next and piped up. The four flexible stainless inlet and exhaust pipes were fitted next. These pipes gave me a few worrying moments as, having been made about 10 years earlier and put away safely, they could not be found! Eventually, they were found buried at the back of a filing cabinet drawer (sounds familiar?)

Now it was time to make all the various bits and pieces necessary to complete the project. Snifting valves, superheaters, dummy side tanks, regulator, safety valves, ashpan, grate, turret, tender hand pump, non-return valves, clacks and all the associated pipe work were all duly completed - the pressure gauge, injectors, lubricators and some of the valves being the only bought in items.

As stated earlier, about twelve years have whizzed by since I started this project, but watching the home-produced DVD of the locomotive gliding around our track with all 8 passenger cars in tow makes all the work worthwhile.

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Now – where did I put that book?