Battalion Bits BT7: Kleinlokomotive Köf II

Introduction

In 1930, the Reichsbahn instituted a series of measures to improve rail transport in Germany. One of these was standardization of locomotive designs. In addition to the larger freight and passenger steam locomotives, a number of smaller diesel powered engine designs were instituted. The Köf series (K for 'kleinlokomotive' or small locomotive, ö for 'öl' or diesel (as opposed to Benzol or gasoline) and f for 'Flűssigkeit' or hydraulic transmission) were built in three series; I (less than 50 HP), II (51 to 150 HP) and III (more than 150 HP). Köe used an electrical motor for propulsion. Generally, these engines were intended for yard work, and small distance hauling. They were also built for one-man operation and the cab was intentionally very low to the ground to allow for quick access so the operator could couple cars as required.

Although standardized, there was considerable variation between manufacturers (AEG, BMAG, Deutz and others) in terms of engine and auxiliary equipment placement so there are detail differences in engine cowling and fuel tank locations.

These engines were used throughout the 30s, and through WWII. After the war, a number were taken into service with the post war German rail system as the BR 321.

First Steps

Like most resin kits, this will benefit from a good scrubbing with a strong detergent to remove any oils or parting agents. Remember that resin dust is not good for you, so wet sand wherever possible and wear a mask if you can't.

This kit is an experiment in that the majority of instructions are by way of photographs supplied on CD. That CD also includes a number of photos of real Köf s, mostly mined from the internet. Original sources are not identified, but if you recognize a photo and want credit (or would like it removed from the CD), please get in touch with Belcher Bits. This text is also available on the CD.

No special tools are required; the entire model can be made with a sharp hobby knife, a sanding stick and cyanoacrylate glue. However, it REALLY helps to have a flat surface like a small piece of glass to start the construction, and a small square also helps to get the build off on the right foot. Some of the resin used for the cab sides is chosen for its rigidity, but this also means it is slightly brittle, so be careful when cutting or flexing. Finally, remember that cyano glue really sticks well to resin, so the preferred construction method is to fit parts together dry, and when satisfied that the joint is OK, run a small amount of cyano in the joint.

Step 1

Open up the flashed-over slots and holes in the side plates and place on a flat surface upside down. The front plate fits to the front of the side plate (the space ahead of the front axle hole is greater than the space behind the rear). The middle is fitted at the rear. Make sure this step is done flat and square, and everything afterwards will run smooth.

Step 2

Turn the structure over and glue on the cab floor on the rear. It should key into the space below the middle plate.

Step 3

Open up the flashed-over spaces on the top of the access box. Glue on the fuel tank.

Step 4

Glue on the access box to the rear of the main structure. Its base should fit between the main beams, and just ahead of the middle plate.

Step 5

Open up the flashed-over windows and bottom slot in the cab forward plate. This plate will attach just in front of the access box; the three discs below each window represent engine dials and should face to the rear. Clean up the engine housing, removing the spreader bar inside the rear of this piece (the rear should be flat, the front should have a slight recess inside the lip. This should sit nicely between the main beams. Sit the cab front in place, slide the engine housing up to it so it is 'sandwiched' between the engine housing and the access box, and glue in place.

Step 6

Clean up the axle housings and glue in place where shown.

Step 7

Fit the engine housing front. If all works properly, it should just sit in the remaining space between the main beams.

Step 8

Glue the gearbox to the transmission as shown, and glue that assembly to the spreader bar. On the real machine, the drive axle extends from the side of the gear box, ending in two chain sprockets. A substantial chain drive to each axle provides the drive power. This feature, difficult to see on this kit, is not represented. The diesel engine is also not provided, since none of it is visible below the main beams.

Step 9

Clean out the flash on the hand-brake wheels, and glue on per side to the access box on the small disc provided.

Step 10

Fit the small box between the front plate and the strip cast into the side of the side plate, matching the strip on the rear of the box. These strips will serve as supports for the floor plates in the next step.

Step 11

Clean up the floor plates and fit in place, sitting on the strips. Note the rear plates are slightly less wide than the front. The gaps in each plate provide access to the axle housing and leaf springs.

Step 12

Clean up the buffer plates. There are small holes cast into the front plate showing the centre location, but it works out that the top of the buffer palte is flush with the top of the front plate, and they are centred on the edge of the main beams.

Step 13

Glue the rear set of buffer plates in place, also flush with the top of the back plate, and the same distance apart. Glue on the cab rear plate after opening up the windows. Note that the angle along the bottom of this plate sits flush with the rear plate, and the side plates face front.

Step 14

The cab sides require a little work. Two identical pieces are supplied, with the window area scribed in place. Make a left and right part, by cutting out the window and the part behind that window, The cuts should leave an angle shelf just flush with the cut area. Glue these in place to the cab front plates; there is a strip to position this piece, and the top of the cab side should be even with the top of this strip. When attached to the cab front, turn the machine over and glue the cab side plates to the cab floor plates as well.

Step 15

The roof plates are provided in two halves. Clean the edges, and cut a piece of 0.020” x 0.125” strip 1.5” lg. Place two roof halves together upside down, matching the wider spaces along the edges. Glue the plastic strip in the space.

Step16

Mark the centre of the cab front and rear plates, fit the roof plates so that the interior support strips butt up against the front and rear plates and glue in place.

Step 17

Cut a piece of 0.020” x 0.060” strip 0.5” long and glue just behind the front plate flush with the top.

Step 18

Clean up the storage boxes, and glue in place sitting on the bottom box, with the rear face just touching the end of the leaf spring assembly. The two hinge plates are at the bottom. The top of these boxes will be slightly above the level of the main beams.

Step 19

Cut the 0.125” dia rod supplied to exactly 1.47” long, two pieces. Clean up the wheels and spokes, and slide the wheels on the axle as shown. It will be easier to fit the axle in place if the wheels are near the centre.

Step 20

By gently flexing the axle, it is possible to pop them into place in the holes in the side plates (now covered on the outside by the axle housings). Once the axles are in place, slide the wheels out to the maximum extent possible and tack them in place to the axles. If done carefully, the axles will be able to turn afterwards. However, this vehicle will never be a runner!

Step 21

Slip the transmission assembly into place; the spreader bar will sit in spaces outlined by strips on the side plates. Make sure you do this step after placing the axles, because once the spreader bar is glued in place, it will be much more difficult to pop the rear axle into place.

Step 22

Glue the headlights in position sitting on the top of the front plate, immediately over the buffer plates. Glue the hook in place centred between the buffers (front and rear)

Step 23

The sketch shows how the links, turnbuckle and shackle are attached to the hooks at either end.

Step 24

There are a few handrails on most machines, although some of the positions vary a bit. Use 0.030" brass wire and make as required. Generally there is a grab rail about even with the front wheels that goes up from the main beams, out and down to the floor plates. There is often a grab rail on the front of the cab plate, and another running from the rear of the cab side plate shelf up to the roof. Consult photos for details.

Painting instructions

Wartime machines were generally overall dark grey, and likely somewhat dirty. Postwar machines were red with a cream interior, although privately owned machines such as used in various yards were a wide variety of colours.

References

There are excellent references for these machines. If I read German, I am sure I could have provided a much better history and description. As it is, I have both references and the photos and drawings alone are well worth the price of the books!

1. **Die Diesellokomotiven der Wehrmacht**, Stefan Lauscher, Eisenbahn Kurier, 1999. Covers all WWII German military diesels including a small section on the Kleinlokomotiven
2. **Die Einheits-kleinlokomotiven Leistungsgruppen I und II**, Peter Grosse and Horst Troche, Eisenbahn Kurier 2002. Strictly covers the small diesel shunters but what coverage! Everything you need to know … I think.