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## Zenith 24T2 Carburettor - Tim Reynolds

### **Introduction**

After the war ended, basic petrol ration was restored in June 1945, withdrawn in mid-1947 and re-introduced in June 1948 at a third of the previous value. Petrol rationing continued until May 1950. New cars produced in the UK were nearly all diverted overseas to earn foreign income and it was impossible to buy a new car until after 1950, unless special condition applied (e.g. you were a doctor or other essential user). This led to many pre-war cars being recommissioned after a period of storage, which worked well in the case of late 30s cars (Rubies and Big Sevens) with a few tens of thousands of miles on the clock; such cars, if they had been carefully laid up were in almost new condition and commanded high prices. Older cars (in our case, Box saloons etc.) may have had more miles and their condition was variable. Many vintage cars (Chummies and Top Hats of various types) had already been scrapped before the war; those that survived would have been the better, less used examples.

A particular problem existed with the 1929 – 32 cars. These had a 15mm choke, Zenith updraft carburettor based on the earlier bronze 22FZ type but made using an injection moulding technique and termed the 22FZB. The material was changed to "MAZAK", a smooth flowing casting alloy of Magnesium, Zinc, Aluminium and Chromium. This material was subject to corrosion, probably due to high levels of Magnesium and by 1945, many 22FZB carburettors were weakened by corrosion, leading to cracks and breakage. The Zenith Carburettor Company was helpful and adapted a carburettor, already in post war production, so that it could be bolted on to an Austin Seven to replace a broken 22FZB.



Fig 1 - 24T2 Carburettor

The carburettor that was used was the 24T2, an updraft fitted to the Ferguson T20 tractor and various stationary engines, mainly of JAP, Lister, Petter and Villiers manufacture. These engines were used to power generators, concrete mixers and other industrial and agricultural machinery. Zenith did some development work and released a version of the 24T2 in the late forties or early fifties, to satisfy the demand for getting older Austin Sevens roadworthy again.

There are some advantages to using this carburettor in place of the earlier updraft types, most notably that the carburettor has better changeover from idle to power and produces power more smoothly with better economy. It is also (if in good condition), less prone to leaks and may be less susceptible to vaporization. There are some disadvantages as well; it is very difficult to clear a blocked jet at the roadside and the carburettor does not have a "vintage" appearance. If you actually drive an early car however (rather than using it for shows), the 24T2 may be an option worth considering.

### **Buying a 24T2**

There are a number of traps for the unwary. There are many versions of the 24T2, with different mounting holes, main jet, throttle arrangements and so on. Because the carburettor was used on many engines from the 2 litre Ferguson Tractor (aka Standard Vanguard) OHV wet liner engine to 600cc single cylinder concrete mixer engines, the version you may be looking at on a random Autojumble stall is probably not an Austin Seven variant. The key thing to look for is the Zenith type number "F1372" stamped adjacent to the petrol inlet. If this number is present, the carb was originally produced with the setting for use on a Seven.



Fig 2 - Zenith type number "F1372" denotes this carburettor was built to be fitted to an Austin 7

The setting is as follows:

- Choke tube 14
- Main Jet 75
- Slow Running jet 50
- Air Cap 150
- Needle valve 1.5

Any other number means that the carburettor has a different setting and while this may be able to be changed, some carbs were produced with physical differences that preclude this.

Regarding condition, the main thing to consider is the state of the main jet housing and thread, which is covered by a brass plug, below the petrol input. Check that the brass plug can be unscrewed and that the long thread revealed is sound, especially where the plug fits as it is essential that this can be tightened fully.



Fig 3 - Location of the main jet cover plug.

Underneath the plug, at the end of the thread is the main jet; this should be a 75 (0.75mm dia) and it should unscrew, revealing a red fibre washer beneath. Ensure that you use a parallel, well-fitting screwdriver to release this jet as a wedge screwdriver will damage the vulnerable thread.



Fig 4 - The correct screwdriver is on the left. Using the one on the right will damage the main jet thread.

Unfortunately, many carburetors on offer will fail at this point because they may have been stored on engines, out in the open and filled with water, causing corrosion of the MAZAK. Previous "mechanics" may also have damaged the thread by using the wrong screwdriver. If the type number is right and the main jet thread looks good, you can buy the carb and move on to overhaul.

### Overhauling the 24T2

Start by stripping the carb down entirely and checking that the setting, given above is correct. The throttle spindle will be worn, remove the two screws and the butterfly disc, which will enable the throttle spindle to be removed. Inspect the castings and try the new spindle for fit. There should be negligible play in the spindle; the casting can be bushed if very worn but this is quite expensive. Excessive play at this point will cause slow running issues later. Soak the castings in cellulose thinners to remove the petrol gum. The gasket will have shrunk and must be replaced.



Fig 5 - Lower assembly, showing layout of jets etc.

Overhaul kits are available from Burlen Services and contain a throttle spindle, screws and disc, gasket, washers and a new needle valve. Unfortunately, 75 main jets are unobtainable at the moment, however 82 jets are available and may “do” at a pinch.

Inspect the main jet thread, it is a metric thread, 10mm dia, 1.0mm pitch. Tooling is available from Tracy Tools in Devon, however there is very little meat here to effect repairs and this thread must be in good condition.



Fig 6 - Main jet thread. The main jet can be glimpsed at the bottom of the thread.

Make sure that the top and the bottom faces of the carb are flat and true; if necessary use a piece of glass and some “wet or dry” to face them off. You may need to remove the choke tube to do this but be careful not to damage the tube or the seating.

The choke tube must be firmly fixed in the housing, if it has worked loose it may have worn both tube and housing which results in the tube sitting low. You may be able to rectify with some gaskets, cut from thick paper, aiming to get the tube slightly above housing level and thus held in when reassembled.

The top mounting flange will be warped and can be carefully faced off with a sharp, 2nd cut file, making sure that all traces of filings are removed in the cleaning bath.

After cleaning, blow through all passages with compressed air or a tyre pump and lay out the parts, ready for assembly. Make sure all the jets and passages are completely clear. Replace the throttle spindle with the new item from the overhaul kit, screw in the new butterfly disc and lock the screws into position. Replace the operating arm and reassemble the carb with a new gasket, not forgetting to add the float and its valve.

### **Fitting a 24T2**

You will need to fit a ball joint type connection to the operating arm for the throttle. These are usually fitted to 26VA carburettors on later cars. Make sure you can get the full range of movement and adjust so that the throttle fully closes when released. Choke connection will depend on your car; the standard wires will probably need a special link bending to fit. Note that the input gasket supplied in the rebuild kit will be too large; use a gasket from one of the A7 suppliers or cut one from thick paper.

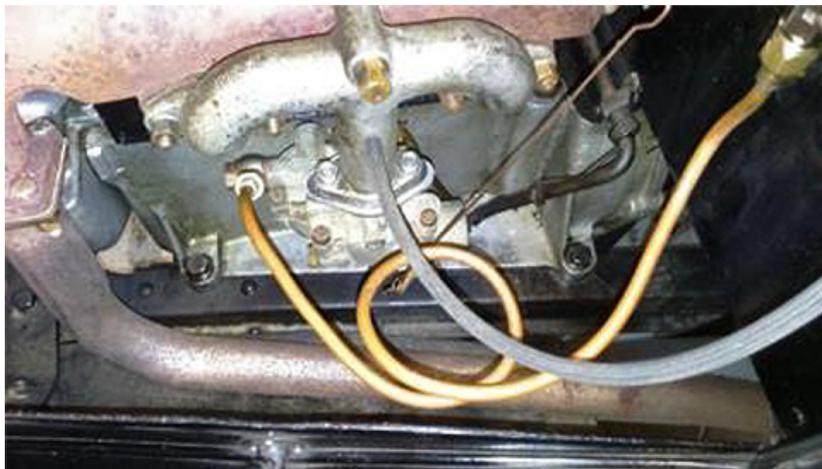


Fig 7 - 24T2 installed on my 1927 Chummy.

The petrol input will probably need a special feed pipe making up, make sure that petrol is always flowing downhill, never up. You must have a good, fine filter on the input because the main jet is not easy to clear in the event of a blockage, requiring the removal of the carburettor, which is not a quick job at the roadside. You can use an external filter, suitable for gravity feed or a fine mesh filter in the input banjo.

Once the carburettor is fitted, adjust the air screw about one or two turns off its seat and start the engine. Set the idle speed and adjust the air screw for slow, even running, with no noticeable "fluffing" when the throttle is opened.

Finally, road test and enjoy !