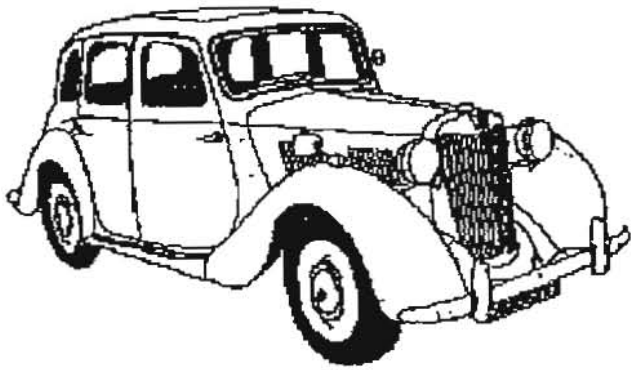

The Classic 'Y'

Issue No.187 August 2005

N.T.G. Filter Canister Replacement Problem

The oil filter on YA/YT and other early XPAG engines (on TCs and early TDs) consisted of a fabricated can made from two similarly shaped flanged "cups". Two internally threaded bosses attached to the upper cup take the oil union pipes which pass oil from the pump to the engine via the filter. One boss is in the top and one is on the side. Presumably, the paper element was inserted into the two cups, clamped together, and then "spot" welded around the lips - although the welds appear as a series of lines all around the flange.

I believe I acquired a substitute canister in the mid-seventies, when obtaining disposable canisters was becoming difficult. You had to send a used one to N.T.G. and they then converted the body by cutting the bottom off, inserting an internally threaded "ring" section into the base of the body (presumably welded) and replacing the bottom with a large cast and machined aluminium threaded "plug" with a 9/16" Whitworth hexagon boss on the lower face. A rubber gasket was then trapped in (what appears to be) a slightly tapered slot that is formed by the new "ring" and the "plug", to seal it. It was designed to take a replacement disposable paper element, and it appears that the "plug" just traps the 2" diameter (internal diameter, 1.375") paper gaskets at either end of the filter between the top inner face of the canister and its flat inner face.

How the bosses were fixed in place is not clear. I am told that one method of fixing them could involve basically applying tremendous pressure to the inside of the pre-shaped bosses and effectively burring them over and "riveting" them into place (I think the technical term might be "swaging"). Inside my canister is the imprint of a circular die, which does tend to support this theory (see later photo). However, they may have been silver-soldered into place, something that would have been a bit tedious on a mass-produced disposable item, I would have thought.

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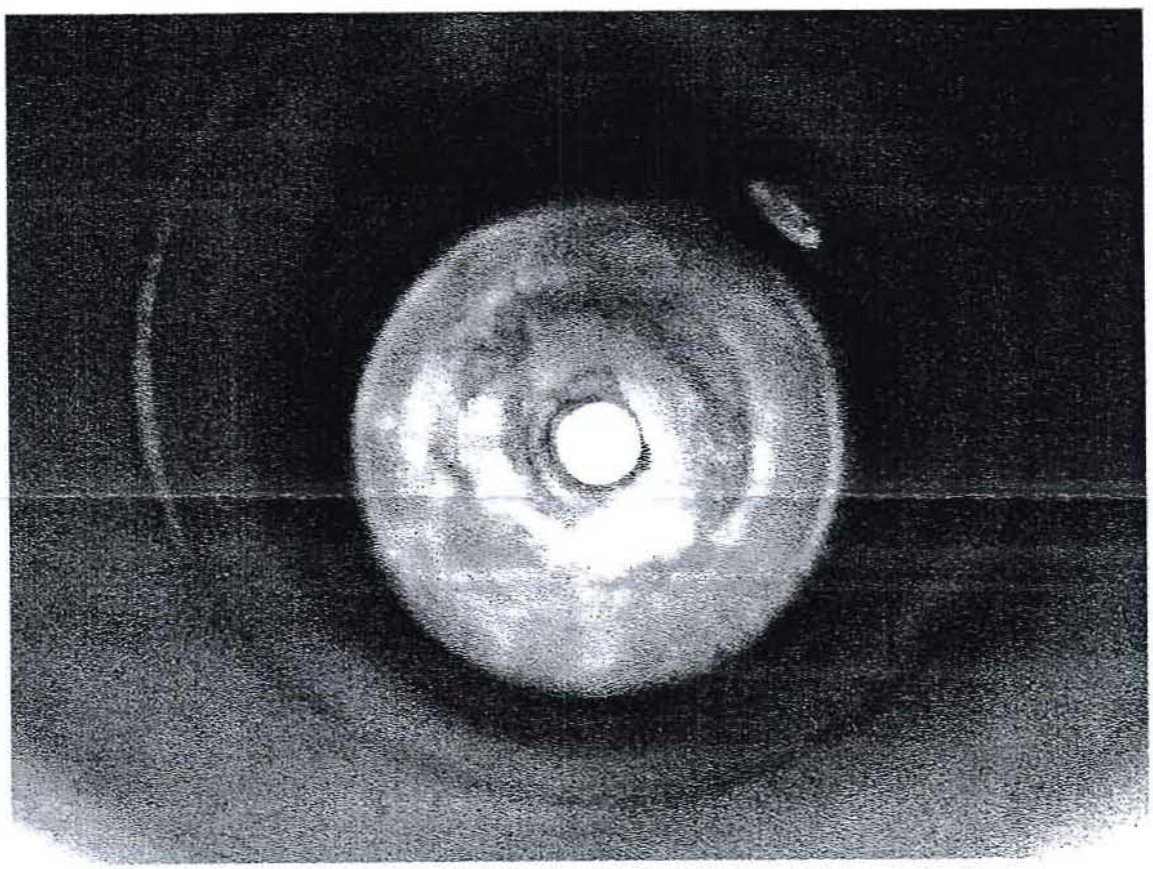
No room for the credits this time!! - JGL.

I understand that the oil is actually filtered by entering the inner core of the folded "tubular" paper filter and passing through the filter to the exit boss. Apparently, there were concerns about the paper element collapsing under the outward pressure (usually the oil goes the other way, I am advised) so the early ones were spirally wound with a thin wire; but recent ones have been wrapped in an expanded metal mesh. My experience is that later ones have been difficult to fit (the aluminium end-caps can only be persuaded past the threaded ring if they are tapped to a smaller diameter or the excess material filed away. In the latter case, make sure that the filter is wrapped in something first - any filings on that side go straight through to the engine).

I recently had what could have been a big problem with my now-elderly canister, when it sprang a leak from under the top boss. The oil in the sump doesn't last long with even a small hole there, and there was no way of fixing it temporarily. On examining a few other cars fitted with replacement canisters, it appears that the design has probably been improved over the years. On some there is a hefty fillet weld (or possibly a braze) around the base of each boss. I have also been told that some are entirely an aluminium casting. I thought I would see if mine could be repaired, and decided to have each boss brazed around its base (I thought that the lower heat required was less likely to distort the relatively thin material the can is made from - see later photo). It seems to have worked. I think the moral of the story is to at least check whether the bosses have any evidence of a fillet. If not, think about replacement or repair.



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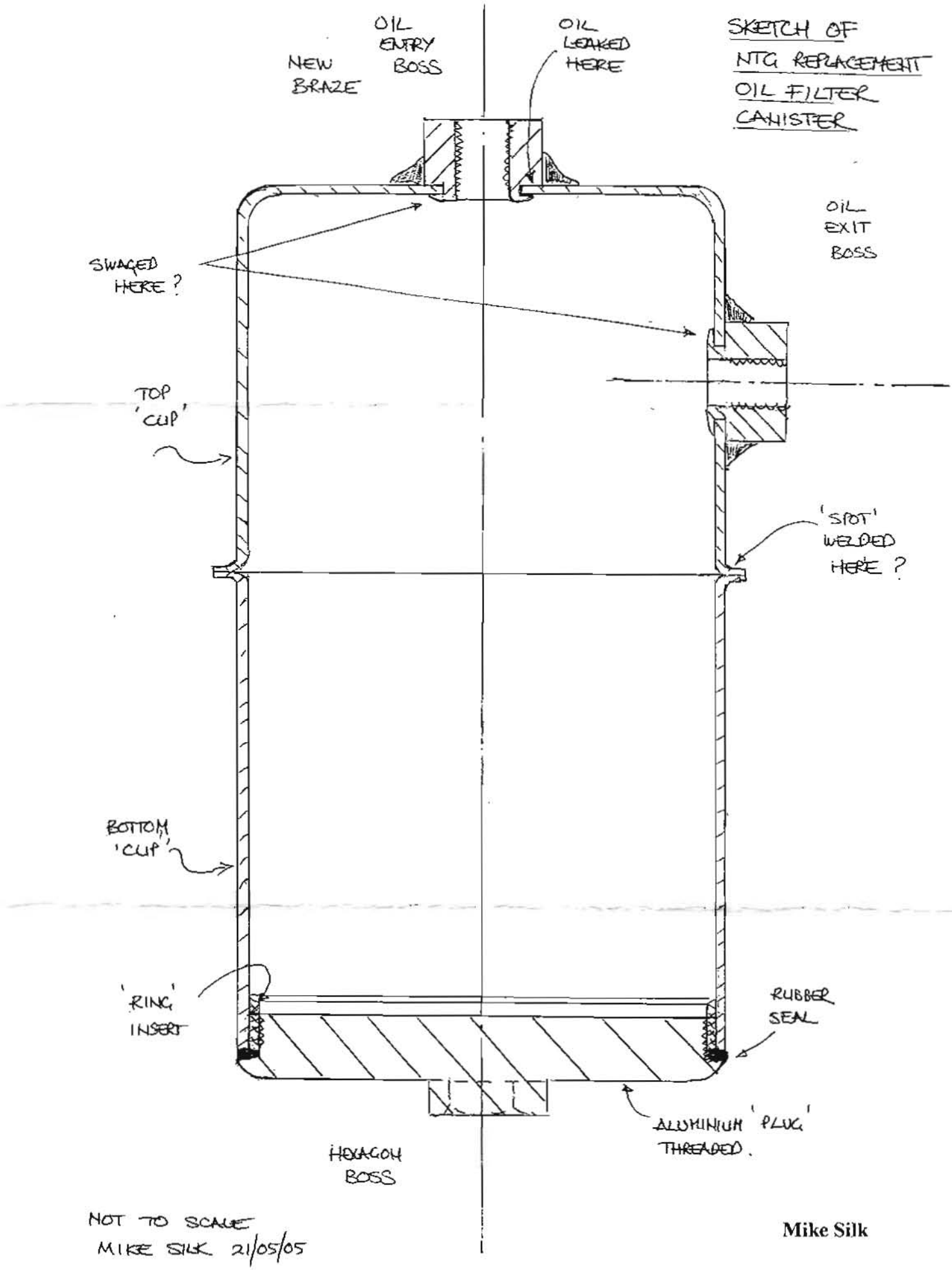
SKETCH OF NTG REPLACEMENT OIL FILTER CANISTER
OIL ENTRY BOSS
NEW BRAZE
OIL LEAKED HERE
OIL EXIT BOSS
SWAGED HERE ?
TOP 'CUP'
'SPOT' WELDED HERE ?
BOTTOM 'CUP'
'RING' INSERT
RUBBER SEAL
ALUMINIUM 'PLUG' THREADED.
HEXAGON BOSS
NOT TO SCALE
MIKE SILK 21/05/05
Mike Silk