

# Hydraulic Hiccup – Plus, Plus

by  
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Perhaps a lesson learned as a RAF pilot back in the 1950s can be a pointer for all developing pilots. On the 5th August 1955 I was detailed to pilot a Meteor NF14 on a most boring assignment. The object of this sortie was to assist in the calibration of the new Ground Control and Interception (G.C.I.) equipment installed at Sandwich in the English South-eastern county of Kent..

Ken, my navigator/radar operator sitting twiddling his electronic knobs behind my back, and I were required to fly from a point overhead Sandwich, along a track of 030°, up the North Sea towards Norway, this to be carried out at a height of 33,000 feet.

The idea was for the Sandwich radar operators to follow my 'blip' on their radar until it disappeared from the screen. This meant flying to extreme range. It was for this reason that the under-wing auxiliary tanks had been filled with additional fuel. Based at Wattisham, in Suffolk, Meteor NF 14s were the only fighter aircraft suitable. The other two squadrons on the station had only recently taken delivery of the new Hawker Hunters. They certainly didn't have the range, besides they were suffering teething troubles. If their engines 'flamed out' in flight, they couldn't be restarted. The powerless aeroplane would have to be guided down in a fast glide to a, one-chance only 'dead stick' landing; hardly ready yet for long overseas trips. All this became relevant later.

So it was that Ken and I found ourselves, at the prescribed height, turning over Kent for a leisurely cruise up the North Sea. We settled down for our flight at constant height, constant speed and constant heading; what a bore for a fighter crew. The only consolation was the view. It was a totally clear day and a large part of southern England could be seen together with, in the same sweeping glance, a fair chunk of the continent.

Cruising peacefully, the engines hardly audible within the cockpit, now abreast of Ipswich and having little to do, I relaxed and gazed at the scene steadily sliding below us.

Abruptly, everything changed. A misty flash across my face jerked me into a state of alertness. *"WHAT THE HELL WAS THAT?"* I exclaimed to myself. Like as if she heard me, the answer immediately came; a fountain of high pressure oil filled the cockpit with a fine mist, getting under my visor and into my eyes.

*"HELL'S BELL'S"* I yelled, wiping my face with the back of my gloved hand but, already it too was soaked with the slimy liquid. I couldn't see for my smarting eyes, but all the while I could feel myself being saturated with this highly penetrating hydraulic oil.

*"GOOD GOD,"* my heart pounded, *"DOES THIS STUFF REACT LIKE GREASE WHEN IT COMES INTO CONTACT WITH NEAT OXYGEN?"* I was aware that grease and oxygen make an explosive mix but I didn't know if it applied to hydraulic oil; apparently, it does. The cockpit was now a highly charged 'bomb' just waiting for the trigger. *"SHOULD WE BALE OUT BEFORE IT BLOWS,"* I wondered, but I didn't fancy the prospect at this height. Ejector seats were omitted from this variant of the Meteor to save weight for the improved attack radar in the nose and the crew member to operate it.

Leaping out at six and a half miles above the ground would be no joke. *"BETTER GET DOWN WHERE WE CAN SWITCH OFF THE OXYGEN,"* I thought, as I pulled back the throttles and, instinctively, operated the air brake lever to steepen the descent. The air brakes, normally as effective as hitting a barn door, remained retracted. *"OF COURSE, I'VE LOST ALL THE HYDRAULIC FLUID - TWIT,"* I cursed at myself.

*"83 TO SANDWICH, I HAVE A PROBLEM; RETURNING TO BASE,"* I radioed.

*"ROGER 83, PITY ABOUT THAT. GOOD LUCK."*

*"I THINK I'M GOING TO NEED IT."* I murmured.

While continuing to clear my eyes, I changed radio channels to the Wattisham approach frequency.

*"83 WATTISHAM, DO YOU READ ?"*

*"STRENGTH 5 – 83."*

*"LETTING DOWN FROM THE EAST WITH EMERGENCY - HYDRAULICS HAVE BURST IN THE COCKPIT."*

*"ROGER 83, STANDING BY,"*

I was beginning to see clearer now, within the cockpit at least. The oily film completely obscured external vision through the windscreen and the Perspex canopy. The instrument panel was no better, none of the dials could be read, I was flying 'by the seat of my pants', just as they did in the old days.

Gradually, with some aid from the sleeve of my flying suit, the slimy mess drained down revealing once again the essential instruments. My descent, even with the throttles closed right down, was still too slow.

*"I WONDER IF I CAN GET SOME FLAP DOWN,"* I pondered as I selected 30 degrees on the lever. Not surprisingly, nothing happened.

*"RIGHT THEN, I'LL TRY THE HAND PUMP."* I muttered to myself.

The emergency hand pump, to the right of the seat, was designed for use if the engine-driven pump failed; now, its operation only succeeded in pumping the last few dregs out of a split in the pipe joint to the pump.

We were now below 20,000 feet and still descending, albeit rather slowly, so I instructed Ken, quietly sitting behind his radar scope - unable to help, to switch off his oxygen as I did myself - just in case. I now felt a whole lot safer; visions of going up in a ball of flame receding.

External viewing was still rather poor since the oily mist hadn't entirely cleared. At the earliest opportunity I reduced speed, de-pressurized the cockpit, and opened the canopy. This way I could have a clearer outlook whilst the fresh air would help clear the mess. The howling noise of the slipstream, the chill of the air, the slimy saturated feeling and that revolting taste in my mouth, all stacked up to make thoughts of the landing somewhat a mixed bag; I closed the canopy.

The sooner I was down the better but, without flaps, it would have to be a fast approach and the air brakes were not available to kill the speed after touch-down. I would have to be careful; most important though - the problem of the undercarriage. No high pressure hydraulics to release the retraction locks and re-lock in the lowered position. The hand pump was designed to overcome that problem but it too, was proven useless.

In the last resort I would have to do a belly landing but this presents another problem - underneath the Meteor is an auxiliary fuel tank, designed to hold 175 gallons. Although this would be empty, it would be full of volatile fumes which, no doubt, would explode on impact. To overcome this it was made jettisonable but one would have to take care not to drop it on anybody.

One last facility remained to be tried. The aircraft designers had, thoughtfully, provided a bottle of compressed air. This was piped to the undercarriage hydraulic system. To discharge the air, a pin was released by pulling on a 'D' ring connected by wire. This arrangement was to be used as a last resort since the oil restrictor valves would not work with high pressure air and everything would happen very fast.

'Well, this certainly is my last chance, so here goes.' I muttered to myself, as I pulled the ring.

Normally, the undercarriage is not lowered until the aircraft was ready to commence the final approach to land but, in this case, I felt it desirable to be sure the emergency air would function properly before committing to a landing pattern.

CRASH, BANG, WALLOP. Down came the undercarriage with such a thump I thought it would have snapped off the wings. Anyway, it worked. Three green lights on the instrument panel indicated that the wheels were down and locked.

Everything did now seem to be as well as could be expected, so I called Wattisham tower.

*"83, WITH UNDERCART DOWN, JOINING FROM THE NORTH EAST."*

*"ROGER 83, RUNWAY 24, QNN.H. 1013, WINDS LIGHT AND VARIABLE."* replied the tower, giving runway and weather details; all routine.

As I brought 755 over the runway at 1,000 feet, I thought "Just my luck, no headwind to slow me down. Just when I could do with a howling gale, we have calm conditions." I turned through 180 degrees to fly parallel whilst I carried out checks before landing.

*"83, DOWNWIND," I called.*

*"83, CLEAR TO FINALS."*

As I throttled back to commence a wide descending turn towards the runway, I was taking care to keep the airspeed 20 to 30 knots higher than usual, due to lack of flaps. Without warning the port wing dropped dramatically. Instantly, my left hand thrust forward on the throttles to give renewed power to the faithful Derwent engines.

*"83, GOING AROUND."* I called.

*"ROGER, 83."* came the calm reply.

Having recovered from the sudden stall condition, I pondered on the incident. "What caused that?" I asked myself, "Why should she stall? I'd better do a test on the straight and level."

Gaining another 1,000 feet for added safety, as I cleared away from the airfield, I throttled back. Keeping her level, I watched the speed drop off; 170, 160; "There it goes," I mumbled, as the left wing fell away quite viciously.

"Something queer going on here," I thought, "I know - I'll bet only the port wheel is down. That would cause drag on that side and the starboard being 'clean' would have greater lift. Yes, that's it." I confirmed to myself, "My three green lights are probably in error due to the severe shock of blasting the 'cart' down with the pneumatics. Hell! If that's the problem, it's worse than having no wheels at all. Better get the tower to check visually." I explained my fears over the radio while manoeuvring to a position for a straight run over the tower. As I flew by, they observed carefully, with binoculars, the state of my undercarriage.

*"UNDERCARRIAGE APPEARS TO BE DOWN AND LOCKED OK"* they reported.

*"DON'T UNDERSTAND CONDITION, THEN,"* I retorted, *"WILL MAKE LONG STRAIGHT APPROACH, FOR SAFETY."*

*"ROGER 83, EMERGENCY FACILITIES STANDING BY."*

I flew around in a wide, gentle circuit to commence my straight approach near Needham Market, over five miles away.

*"83, COMMENCING STRAIGHT-IN APPROACH - 5 MILES."*

*"ROGER 83."*

"That's odd," I thought, as I routinely checked my fuel state, "It's surprisingly low. Mind you, I have been prancing about at low level for a while with the undercarriage down; I'd better make sure I can get in *this* time. There is not enough fuel for an overshoot followed by another wide circuit and long approach." No sooner was I settled on this suspenseful new attempt at an approach and hopefully, safe landing, when a new voice was heard on the radio.

*"HUNTER 46 MAKING DEAD STICK - WATTISHAM, DO YOU READ ?*

*"ROGER 46 CONTINUE, WHAT HEIGHT? OVER."*

*"5,000, ALMOST OVERHEAD."*

*"ROGER, METEOR 83 - CAN YOU GO ROUND AGAIN?"* the tower enquired.

*"83, NEGATIVE. FUEL STATE NOW 40/40."* I replied.

*"ROGER 83 CONTINUE."*

Eighty gallons, forty in each of two main tanks, was normally enough for a second attempt but having to fly so wide to avoid the stall made me reluctant to add further to my problems. As I came properly in sight of the runway, I could see another aircraft ahead, a Vampire just touching down. It would be well clear by the time I landed.

*"83 FINALS."* I called as I eased back the throttles, gingerly. Before the tower had time to acknowledge, *"46 FINALS."* came the Hunter pilot.

*"83 CLEAR LAND - 46 USE THE GRASS TO PORT OF RUNWAY."*

*"ROGER."* was the simple reply from both of us.

Just as I crossed the runway threshold, I observed the Vampire turning off at the end of its landing run. In the agitation caused by the double emergency behind him, the Vampire pilot mistakenly selected, not only FLAPS UP, but UNDERCARRIAGE UP; the aircraft flopping onto its belly. A crash tender was immediately dispatched.

At that moment, the Hunter made its arrival on the grass beside the runway with the other crash tender racing after it, in readiness. There was now no emergency facility left, as I gently brought 755 down onto the tarmac surface and pulled back both throttles. The aircraft careered down the runway with the long nose held high for maximum drag, as I cursed the lack of wind to slow down this flap-less, airbrake-less, over-speed landing run.

As the speed slowly reduced, I allowed the nose to drop so that wheel brakes could be used to the maximum. A hefty squeeze, on the column mounted brake lever, knocked down the speed but then the brakes had to be released to avoid fade, due to overheating. With another big squeeze matters were getting in hand. As the end of the runway approached, a final squeeze brought the speed down sufficiently to safely swing off.

My big sigh confirmed it was all now ok. We were down safely at last.

Having taxied back to the squadron 'apron', Ken & I gratefully clambered out, I was absolutely saturated in foul smelling oil. I immediately ordered any smokers to put out their cigarettes. Ken admitted that when the drama had started, with the sudden spray of liquid in the cockpit, he thought I'd had a nose bleed. This was the only comment Ken had made during the entire trip.



POSTSCRIPT.

By the time I arrived home, a few miles to the west of the airfield, the soles of my shoes came off and my other clothing had started to disintegrate due to the impregnation of hydraulic oil. It is just as well we didn't bale out - my parachute was also ruined.

It was established later, that due to suddenly cutting engines at high altitude, the fuel transfer system had malfunctioned. This caused the port external wing tank to remain full whilst the starboard tank emptied. With the resulting 1,000lbs difference, it is no wonder that the port wing dropped when the speed was reduced. This also accounted for the surprising shortage of fuel - unrecognized since the auxiliary tanks were not fitted with contents sensors..

Ah well, the dodgy 'do' added unforeseen excitement instead of suffering a boring trip. However, I don't recommend it as an alternative.

The moral to the story is that - notwithstanding what had just happened, my confidence had increased due to realizing that RAF training had prepared me for such an unusual sequence of difficulties. All pilots should be fully aware of the systems of the aircraft they are flying; one cannot predict every possible emergency so – as the Boy Scout motto declares, BE PREPARED.

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