



"Flight" photograph

Flying in the Valiant

By C. M. LAMBERT

THE mainstay of the country's whole defence system is the V-force, whose bombers would deliver the great deterrent if any attack should be made on Britain. The first type in the V-force, the Vickers Valiant, is now well established in service and its hand-picked crews have reached a high state of operational efficiency and preparedness.

Last week I was allowed to fly in Valiant XD826 of No. 7 Sqn. (W/C. A. H. C. Boxer) from Honington on a two-hour general training flight. I watched a crew operating the aircraft on a straightforward flight from Honington to a point some miles north of Glasgow and back. On returning to Honington we made, by way of demonstration, a normal touch-and-go landing, a three-engined approach and a final landing with only two of the four Avons giving power. The Valiant is evidently a superb machine and is well liked by its crews.

No. 3 Group of Bomber Command has all the Valiants and will have Victors in due course. This particular machine was captained by G/C. J. E. Grindon, the Station Commander, who is a fully qualified Valiant captain and has his own navigator and bombardier. They are S/L. J. W. Abrey, Station Navigation Officer, and S/L. J. Hammond, Station Weapons Officer. For this flight I replaced the latter. Co-pilot and Air Electronics Officer were F/L. P. N. Farley and F/O. R. D. Brown.

A Valiant is an extremely valuable and potent aircraft and all crews are picked and highly trained in order to match the machine. The operating procedure is planned in the minutest detail and nothing is left to chance. Each flight, therefore, is virtually made on the ground before take-off, the airborne part of it being something of an exercise to check the accuracy of pre-flight planning. Specialist briefings are completed, the two navigators and the air electronics officer working out all the details (unfortunately unmentionable in public print), while the co-pilot calculates the fuel plan, fuel distribution and fuel sequencing routine. The c.g. is carefully watched and the fuel system is managed by the co-pilot, who also operates pressurization and powered control systems. A large book of graphs is consulted to find out the exact unstick speeds and other important values for the take-off under the particular conditions to be encountered. Each V-bomber runway is marked with a white mark, and the speed which the aircraft ought to have attained by the time it passes this point is calculated. This gives an exact check on take-off acceleration.

While this is going on the crew chief, who looks after the particular aircraft, is preparing it for flight. Some time before take-off the two pilots make a complete external check with the first of a long series of check lists. Then the crew climbs in and more checks are read out by the air electronics officer and carried out by everyone. They start with strapping in, go through every system in detail, including control functioning, and lead up to engine starting. The crew chief, with his own external intercom lead, follows through from outside. The engines started, further checks are made preparatory to taxiing. Short of the runway, more checks; on the runway, still more checks; and, finally, the great surge of take-off power.

Perched on the top of the navigator-plotter's rearward-facing seat, I watched this procedure and had an excellent view of the runway from between the pilots' ejector seats. We were taking off at about 120,000 lb, the bomb bay empty and the aircraft with much less than full fuel load. The nosewheel was lifted at 80 kt,

acceleration check-point speed was 110 kt and unstick speed 112 kt—a long, long way before the end of the 3,000-yd runway. At over 2,000ft/min, we climbed at 190 kt till 20 deg flap setting and wheels were cleaned up and then the climb was begun at 4,000ft/min and 275 kt, reducing to 240 kt at 30,000ft and 230 kt at 40,000—exactly. The cruise climb was begun at 43,000ft with 7,350 r.p.m. and 0.75 Mach—exactly. All the way up we checked pressure and oxygen. We wore A13-A pressure-breathing masks, but used the cruise pressure setting of 9 lb/sq in differential, giving 9,000ft cabin height at all aircraft heights above 30,000ft. Masks were therefore used only for speaking on the intercom.

The A.S.I. read 215 kt as we drifted up in the cruise; the calculated T.A.S. was 430 kt and a dial showed a groundspeed of 425 kt with two or three degrees of drift. It all seemed so effortless until I remembered the experience, training and detailed preparation which lay behind every move and thought. We knew with amazing precision where we were and where we had to go. The cabin was at just the right temperature for our shirtsleeves-and-flying-suit garb; and remained so throughout.

As we drifted up to 46,000ft the sky began to get deep blue and lightless. A shaft of brilliant sunlight illuminated part of the navigator's plotting chart, but an electric desk-lamp was needed to see the rest of it. Most light came from the cloud-layers far below. I climbed down into the bombardier's visual sighting position, under a trapdoor (my oxygen pipe and intercom lead allowed me this freedom) and lay looking down at a kaleidoscope of cloud and land moving past at about eight miles a minute. Still drifting up past 47,000ft, now with an I.A.S. of 190 kt, I drank a tin of orange juice and then climbed on to the sharp edge of the navigator's seat for another look at the pilots' picture. At full arm's length I grasped the control wheel and was allowed to make a couple of 30 deg-banked turns. It was effortless and precise.

North of Glasgow we turned and headed back for base. Even with my helmet off there was only a noise as of a small rushing mountain stream and speech was clearly audible without assistance from the intercom. My back-type parachute lay, unworn but ready, on my rearward-facing seat and I was very comfortable. The whole cabin is much larger than at first appears, with the two pilots tucked away on a high shelf under the canopy. They sit on fully automatic Martin-Baker Mk 3 ejection seats. The three crew-members sit facing rearwards, side by side at a long desk surmounted by equipment racks. They wear barometrically controlled back-type parachutes and would escape by jettisoning the main entrance door and extending a blast shield to help them clear the airframe. Interior colouring is black round the pilots and drab green round the crew-members. A "combat" pressurization setting of 3 lb/sq in is used near the target.

Some 80 miles out from Honington we started the let-down, air-brakes giving a powerful decelerative tug as we went down at 220 kt, 6,000 r.p.m. and 3,000ft/min. Overhead base at 24,000ft, dead on E.T.A., we turned on to the outbound heading. Another Valiant, similarly letting down without assistance from the ground, flew on exactly our heading a few miles ahead. Turning back on to the QDM at 10,500ft we knew exactly how far we were from touchdown and, levelling off at 2,200ft we swapped airbrakes for 20 deg flap and undercarriage at 160 kt. The co-pilot calculated the c.g. with a special slide-rule and announced the aircraft weight as 90,000 lb. The standard fuel reserve is 9,000 lb which allows diversion from cruising altitude to either St. Eval or Leuchars. Steaming down the I.L.S. localizer beam with our navigator and Honington's A.C.R.7 telling us our range, we reached the final approach after some more cockpit checks. The captain called quietly for steady reductions in power, full flap and finally idling power and we settled, mainwheels first, on to the runway.

On much less than full power we got airborne again, raised the flaps with a great surge of acceleration and came round for another landing with No. 4 engine idling. There seemed nothing to it. The same quiet procedure again, the same gentle touch-down, the same effortless overshoot, with just a faint rumble to indicate the tremendous power from the engines. A final circuit with both starboard engines idling. The air electronics officer was seeing that the remaining engines gave all the electrical power needed.

The checks started again during the landing roll and continued on the way back to dispersal. For taxiing we used the hand-operated brakes and tiller-steered nosewheel. Toe-pedals provide differential braking if required. Controls were locked and the hydraulic power system shut down before taxiing. Finally our crew chief, Chief Technician E. T. Fletcher, received us back in the dispersal and, with more checks, the engines were shut down.

The final touch was a ride back to the aircrew centre in a bus fitted with an air-conditioning system and individual outlets for ventilated suits. A heater also would prevent crews catching cold after landing in a hot aircraft in winter. At the aircrew centre we handed in clothing for safekeeping in special drying rooms and the crew was debriefed. My two hours in a Valiant could not have been more routine; and neither could they have given me a better idea of what the V-bomber force means.