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SWISSAIR PREPARES FOR THE DC-8

by CAPT. PETER BOIS.

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In 1960 Swissair will enter the jet age with the introduction of three of these giant Douglas DC-8 jet liners on the long-haul routes. They will seat up to 140 passengers and fly non-stop from Switzerland to New York in under eight hours.

Like a ship in harbour an aircraft on the ground earns nothing! When that aircraft has a revenue potential of some £22,000 per working day it becomes vitally important to ensure that it is employed one hundred per cent from the day it leaves the factory. Furthermore when the size, speed, cruising altitude and capacity are double that of previous equipment and the power plant unfamiliar, some very considerable preparation is required by the purchasing airline.

The Douglas DC-8 jets which Swissair are acquiring in 1960 for use on the long-distance routes present just this situation. To tackle it a special organisation was set up to examine the problems involved. This is appropriate since it is realized that although the problems are not inherently difficult many are different from those encountered on conventional aircraft. These differences extend throughout the whole spectrum of the airline's activity, whether it be crew training or passenger seating, power plant maintenance or refueling and new techniques must be learned and applied by all departments to achieve a satisfactory solution.

The objective of the organisation set up by the Swissair Planning Department in 1956 was to ensure the widest possible representation of Company personnel in tackling the problems. The working groups formed are flexible in composition according to the aspect of problem involved and are able to call on the assistance of any specialists they require.

It is, unfortunately, impossible to undertake anything more than a short description of some of the highlights of these activities in an article of this length and only a limited picture of their scope can be given. Let us start with one of the most interesting studies: the "Paper Operation". The more cynical

reader may jump to the conclusion that there is nothing very new about this and reflect that airlines today seem to need nearly as much paperwork to run their operation as they need fuel! However, this definition of paper operation is a comparative newcomer to the airline world.

The object of the exercise is to accumulate as much detailed knowledge as possible of the day to day operation of the DC-8 over the most critical sector of the routes on which it is to be used. A special Working Group prepares daily all the data which would be required to dispatch an aircraft over this route according to the proposed timetable. A weather forecast is obtained and several flight plans prepared. One is selected which will yield the best payload and fuel requirement and a departure message sent, exactly as if the aircraft had actually taken off. Information on weather conditions for the arrival time is prepared, together with any known traffic delays and flights are subsequently analyzed on the basis of later meteorological information to compare this with the forecast. A wealth of facts can now be deduced and summarized. These give the answers to the vital questions which will be all important for the success of the operation. How much payload can be carried? How much reserve fuel is necessary? Can the aircraft be operated on the planned timetable? How often will there be delays due to weather? Which routings will be used? How flexible is the cruising procedure and which is the best for Eastbound and Westbound flights and so on.

Apart from statistical data the Paper Operation is of great value in educating personnel to think about the aeroplane in the right terms. An example — the fuel required for one minute of cruising flight is equivalent to the weight of one passenger! Six months

before the first DC-8 is delivered Swissair expect to have a Flight Simulator in operation. This device, whilst being used primarily for crew training, can also be used to confirm many of the procedures developed in the Paper Operation. Thus crews will become familiar with all phases of the operation before doing any actual flying. On this latest type of simulator a closed circuit television camera "flying" over a model airport will project a true picture of the runway to the pilots for take offs and landings. This feature, together with the already proven ability of simulators in instrument flight and emergency training, will allow the DC-8's to be put into service with a great economy in flight time and the crews will be trained to an even higher standard.

A Cockpit Group has been formed to specify the instruments and other devices to be used by the operating crew. Despite the incredible ability of electronics to ease the cockpit work load the function of decision must still be the duty of the human crew. Instruments must be devised and arranged so that the maximum of information is displayed in a manner that is easy to interpret without error and controls designed so that their function and settings can be determined by feel rather than sight. Navigation aids for rapid determination of position must be installed and improved air-ground communication links provided. All this is necessary, not because the jet is more difficult to fly (rather the reverse) but because it is thirsty of fuel in terms of time rather than distance. Thus the necessity for correct and rapid decision is vital, not only for reasons of safety but also for economy.

Engineering and Maintenance have to study ways of achieving the very rapid turn around of equipment which the DC-8 schedules will call for as well as assimilating the turbo-jet engine.

The Cabin Group must design an interior which facilitates the rapid embarkation and disembarkation of some 120 passengers, whilst ensuring that the galley supplies necessary to maintain the standards of Swissair service can be loaded at the same time. This has to be coordinated with other ground handling problems — fuel uplifts of 14,000 Imperial gallons — high powered towing equipment — baggage handling and so on.

Although some of these problems are peculiar to Swissair there are many which are common to other European DC-8 operators. It is most encouraging to see the efforts being made to pool information and reach agreement on the solutions. Primary interest is in those areas affecting safety and economy but the many meetings and discussions have gone much further and show, once more, that aviation is a field in which international amity can blossom.

The attack on all these fronts is continuing and as new knowledge is gained the plans will be modified and refined. Swissair is confident that when their inaugural DC-8 service is flown it will be as close to a "routine" affair as human ingenuity can make it

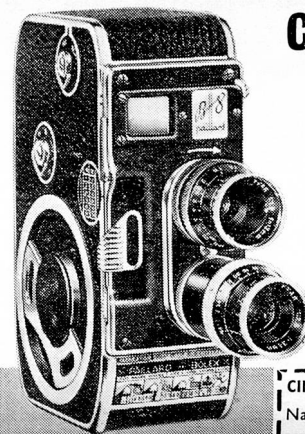
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