When not in use, the very compact galley of the V.744/5 is hidden from sight by a neat roller blind (left). At right is shown the pantry and sink. The steward's station also incorporates a control panel.

THE DOLLAR-EARNING VISCOUNT . . .

ductory Viscount services, but the majority of their new aircraft will almost certainly operate as 48-seaters. Provision is made on their V.745s and 745Ds for installation of five-abreast seating—presumably for "coach" services. All Viscounts now have the necessary seat-attachment rails permitting four- or five-abreast seats to be fitted at the operator's discretion, and the only modifications required in this instance were a two-inch movement of the "cornice" structure (to give more headroom to passengers on the window-side seats) and adaptation of the passenger-service panels installed at each side of the cabin.

A small but interesting item of equipment peculiar to the T.C.A. Viscount is its "potable water system." This, according to the airline's director of engineering, was fitted in order that "water from anywhere may be loaded into the airplane and pure water will come out of the taps." Mr. Dyment added: "This is accomplished by super-chlorinating the water in the system and then removing the super-chlorination and suspended material by carbon filters just before the water comes out of the tap. For those who are interested in such a system I suggest that they would be well advised to refer to the water system on the Viscount. In our opinion Vickers did a much better job than one of our American manufacturers in meeting T.C.A.'s requirements in this regard."

Mr. Dyment, who was addressing an S.A.E. meeting in New York, continued: "This might be an appropriate point to mention that we on this side of the Atlantic are inclined to believe that we can do most things in aviation better than those on the other side. T.C.A., who buys equipment from both, have found that no one has a monopoly on best design or best quality. We get good, and bad, equipment from both sides of the ocean. One example of the result of this experience is that while we use Godfrey cabin superchargers from England we use Airesearch pressurization controls from the United States. We think this particular combination is unbeatable at the present time."

The pressurization system maintains sea-level conditions in the cabin up to cruising heights of 15,000ft, or a "cabin altitude" of 8,000ft at an actual height of 30,000ft. Designed maximum differential pressure is 6½ lb/sq in. Any one of the three engine-driven blowers can maintain the full cabin pressure. In addition to regulating cabin pressure during the cruise, the Airesearch controller also regulates rate of change during ascent or descent, over a range of 100-1,000ft/min. To maintain cabin temperature at a comfortable level under abnormally cold conditions, T.C.A.'s V.724s are fitted with Janitrol combustion heaters, and Capital's aircraft have built-in provision for the installation of Janitrol, if required.

As illustrated on an earlier page, the fuel system was also re-worked to North American requirements. Previous V.700s employed a total of 18 tanks containing 1,720 Imp. gal of fuel. Each engine now has its individual tank, made up of a number of cells (three cells each for inboard engines, seven for outboards). Total capacity is 1,916 Imp. gal and the system is adaptable for use of kerosine or JP4 (wide cut gasoline); T.C.A. Viscounts run on JP4, but Capital, like other V.700 operators, use kerosine. On the American airline's V.745s, provision is made for attachment of slipper-type external fuel tanks, increasing total fuel capacity by 290 Imp. gal and still-air range by almost as many miles for a speed penalty of 4-5 m.p.h.

As mentioned earlier in this account, the major difference betwen the V.745 and V.745D for Capital Airlines lies in the type of Rolls-Royce Dart turboprop fitted. The three V.744s and the 745s, probably numbering a dozen or thereabouts, will have Dart 506s; the remaining 40-plus Capital Viscounts will be 745Ds, powered with Dart 510s.

Both versions of this famous turboprop are based on the Dart 505 which, in service with B.E.A. and other operators, has built up most of the 350,000-plus engine-hours flown to date in scheduled airline service. The characteristics of the three were summed up as follows in the recent lecture, *Operating Experience with Turboprop Aircraft*, given by B.E.A.'s chief executive, Mr. Peter Masefield, at Los Angeles:—

M.o.S. Desig.	Mark No.	Red. gear ratio (one to:)	Take-off power		Typical cruising power (e.h.p.)
			s.h.p.+thrust	e.h.p.	
R.Da.3	505	0.106	1,400+365	1,547	912
R.Da.3	505	0.106	1,400+365	1,547	1,002
R.Da.6	506	0.093	1,600+370	1,780	1,021

As recounted in *Flight* for January 14th, the additional cruising and/or take-off power obtained with the later Darts accrues from refinement of internal design. Use of a new reduction gear enables the Dart 510 to deliver additional power at take-off as well as in cruising flight, whereas the 506 offers improved power (and specific consumption) only in the cruise. B.E.A.'s Viscount 701s, incidentally, are being progressively fitted with Dart 506s instead of 505s, increasing their cruising speed by some 20 m.p.h. The V.724s now serving T.C.A. were the first civil aircraft to use the Dart 506, though some of the 26 Viscounts ordered by the Canadian airline will have 510s.

Capital's V.745/745Ds cannot be distinguished externally, because both types have the slightly fatter cowling developed for the long-fuselage Viscount 802 ordered by B.E.A. and also to be powered with the later-mark Dart.

Engine synchronization on both American and Canadian Viscounts is achieved with a Rotol automatic system which synchronizes both power output and speed, and is reported to be giving extremely good results.

In addition to the development highlights described above, the North American Viscount embodies a number of relatively minor airframe modifications. Too numerous to discuss here, these alterations range from cold-weather measures—such as the addition of fuselage ice-guards or seals of special "winterized" rubber—to features giving faster turn-round: e.g., replacement of screw-type by bayonet-type bulbs, and improved cargo lighting.

Modifications notwithstanding, the aircraft remains in essence and appearance a Viscount—an aircraft of British conception and construction. Its acceptance in North America marks the beginning of a new chapter in the already-promising ten-year history recorded elsewhere in this issue of *Flight*. With spares, Viscounts sold to North American operators will earn for this country about $100m—and many times this amount for their owners.

Design of the V.744/5 Viscount for Capital Airlines was based on that of the highly successful Trans-Canada V.724 illustrated here.