



Pakistan Air Force Pilots who have completed their commissions are undergoing helicopter training with British Executive Air Services at Kidlington, Oxon, in preparation for Pakistan International Airlines' inauguration of domestic helicopter services with Sikorsky S-61Ns later this year ("Flight International," April 11). Seen here with a Brantley B.2 are three of the five pilots—l to r, Flt Lts A. Hussain, Hassan Zaheer and Nisar Chughtai

WORLD NEWS . . .

Percival hot-gas tip-jet helicopter and the Armstrong Siddeley series of liquid-oxygen/kerosine rocket engines. The Hawker P.1121 Hurricane does not appear in the list because it was never under Government contract; but the Supermarine 508 and 545 might have been expected to be listed. Conversely, it is curious that the "Swift crescent-wing research fighter" should be included, because this was a single research aircraft never intended for operational use.

The point may also be made that the expenditure quoted for Blue Streak is £17m more than the figure quoted by the Comptroller and Auditor-General in February 1961 as being the total spent on the programme up to the cancellation.

Lest readers should conclude from these figures that British weapon-system management is excessively faulty, it must be placed on record that US judgment has been no better. On June 16 Dr Harold Brown, US Department of Defense Director of Research and Engineering, stated that during the past ten years DoD had cancelled 61 major programmes costing more than \$6,000m (£2,143m).

Ferranti Chief Test Pilot

Mr P. Field, AFC, chief test pilot of Ferranti Ltd for the past ten years, has retired and been succeeded by Mr Colin W. Curtis, who joined the company as a test pilot in 1959.

"Gracie" Field, who joined Ferranti in



Mr C. W. Curtis



Mr P. Field

F-104Gs for India?

It is reported that the United States has agreed to supply Denmark, Norway, Greece and possibly India with Lockheed F-104Gs. These will be in addition to those being manufactured in Europe for the German, Dutch, Belgian and Italian air forces. The number of aircraft delivered to India "depends on Pakistani reaction."

Cranfield Fellowship and Prizes

The English Electric Co Ltd, "mindful of the need to encourage academic research workers to make a larger contribution than hitherto in the fields of electrical, electronic and control engineering as applied in aeronautics," have endowed a Research Fellowship in the Department of Electrical and Control Engineering at the College of Aeronautics, Cranfield. The field of research may be in any branch of electrical technology or physics which has application to aeronautical or space technology.

The college also announce that the Worshipful Company of Fan Makers intend to make available annually an award for the purpose of providing prizes for students in the departments of aerodynamics and electrical and control engineering. This replaces an equal sum donated annually by Woods of Colchester Ltd for the past seven years.

TT Race Special

On sale today, June 27, is the third special issue of *Motor Cycle* published in connection with the TT Races in the Isle of Man—the TT Review Number.

MAJOR CANCELLED PROGRAMMES

Project	Cancellation	£m	Remarks
Transport aircraft:—			
Brabazon	Feb 1952	6.45	Bristol 167, Mks 1 and 2
Princess	May 1954	9.1	Saunders-Roe SR.45
Vickers military transport aircraft	Dec 1955	4.0	V.1000 (VC7 civil version)
Orion turboprop aero engine	Jan 1958	4.75	Bristol BE.25
Rotodyne helicopter	Feb 1962	11.0	Westland (ex-Fairey Aviation)
Operational aircraft:—			
Developed Sturgeon anti-submarine aircraft	Mar 1951	0.5	Short SB.3
D.H. fighter aircraft	May 1952	2.5	D.H. 110 to RAF (F.4/48) specification
Developed Hawker Hunter	July 1953	0.14	Reheat Sapphire 7, 50° sweep
Swift fighter aircraft	Feb 1955	22.0	Development up to Mk 4
Swift photo-reconnaissance and fighter	June 1955	0.3	FR. Mk 5 and Mk 7 (Fireflash)
Swift crescent-wing research fighter	Dec 1955	1.6	H.P.88, research for Victor
Avro rocket interceptor aircraft	Sept 1955	1.0	Avro 720, specification as SR.53/177
Thin-wing Javelin all-weather fighter	June 1956	2.3	Gloster G.50, two Olympus
Fairey supersonic fighter aircraft	Mar 1957	0.15	Two-seat, all-weather (OR.329)
Supersonic bomber (including engine)	Mar 1957	2.05	Avro 730; (Armstrong Siddeley P.176)
Naval interceptor	Dec 1957	3.2	Saunders-Roe SR.177
Scorpion rocket engine	Feb 1959	1.25	Napier, for Lightning
Spectre rocket engine	Oct 1960	5.75	D.H. Engines, for SR.177 and V-bombers
Missiles:—			
Guided bomb with television eye	June 1954	3.1	Vickers Blue Boar, flip-out wings
Vickers flying bomb	Sept 1954	0.7	Red Rapier, Soar turbojet
Air-to-ship guided bomb	Mar 1956	0.9	Blue Boar derivative, EMI/Fairey
Air-to-air missile with radar guidance	June 1956	7.5	Vickers Type 888 (Red Dean)
Long-range surface-to-air guided weapon	May 1957	1.5	Part of Bloodhound family
Heavy anti-tank missile	Sept 1959	2.4	Fairey Orange William
Blue Steel Mk 2	Dec 1959	0.825	Extended range
Bloodhound Mk 3	Mar 1960	0.6	Replacement in hand
Blue Streak ballistic missile	Apr 1960	84.0	D.H. propellers, R-R, Smiths/Sperry
Low-level surface-to-air guided weapon	Dec 1961	0.8	BAC PT.42B
Medium-range surface-to-surface missile	Aug 1962	32.1	BAC Blue Water
Skybolt air-to-surface ballistic missile	Dec 1962	27.0	Vulcan mods, training and support