

reconnaissance role, a change from the interceptor role it has filled since 1952.

No. 439 Squadron has been serving within NATO for almost 12 years, since its arrival on June 15, 1952 at North Luffenham, England, as the third squadron on strength of the newly formed No. 1 Wing.

The retired Sabres were flown to Prestwick, Scotland, for disposal.

New Aircraft

TSR-2 details released

Details released by British Aircraft Corporation indicate that the TSR-2, the new strike/reconnaissance aircraft for the RAF, should make its first flight early in 1964. It is designed to undertake any operational task from tank-busting to strategic bombing and is expected to be a front-line weapon with the RAF for 10-15 years.

The first prototype of the aircraft is nearing completion at BAC's Weybridge and Preston divisions and, if the present schedule is maintained, could conceivably be seen flying at the next SBAC Farnborough Show in September. Work on the project began in 1957, and there have been protests by the official Opposition in the British parliament recently, at the costly and involved development program. The Royal Australian Air Force, who the British had been trying to interest in the TSR-2, recently announced its intention of buying the American TFX aircraft instead.

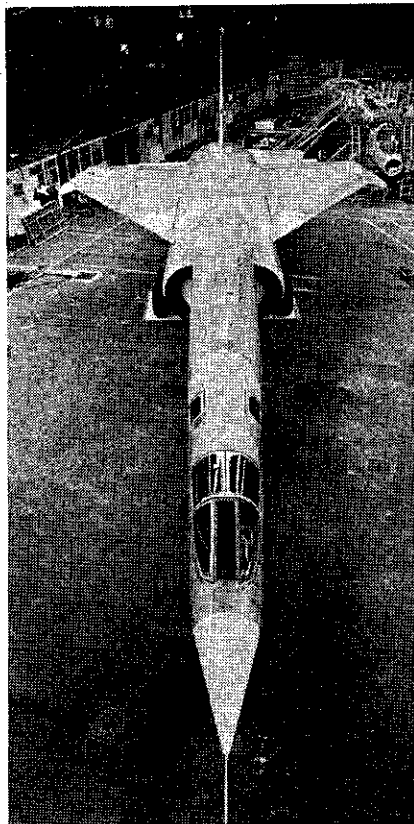
Reasons for the extended development time are reminiscent of the causes of rising cost in the Avro Arrow program. It is felt by the critics that military dictates are resulting in an attempt to cram too much into one weapons system. Certainly the TSR-2 promises to be all things to all men, whether sailors, soldiers or airmen.

There is also quite a similarity in appearance between the Arrow and the new British aircraft. Both have the rectangular fuselage cross section, and shoulder wing position, and in some views the TSR-2 looks as though it has the Arrow's complete Delta planform; but in fact it has a separate tailplane. The placement of the twin jet engines and intakes is almost identical on the two types.

The TSR-2 possesses some unusual design features. It is a two-seat aircraft, roughly the size of the Canberra, which it is to replace. It has an all-moving fin and an all-moving tailplane which replaces the normal elevators and ailerons. All control is by means of this "taileron", leaving the wing clear for weapons stores or fuel tanks and for the fitting of full-span blown flaps to ensure the necessary short field performance.

To cater for operation from rough airstrips, TSR-2 has a long-stroke undercarriage and low pressure tires. The nose-wheel strut can be extended during the take-off run so that the aircraft assumes its take-off attitude before its wheels lift from the runway.

The aircraft is powered by two turbo-



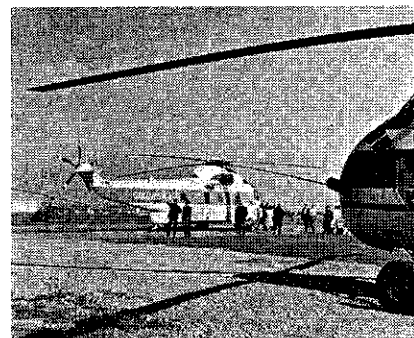
Britain's TSR-2

jet engines — developed versions of the Bristol Siddeley Olympus 22R — which ensure the thrust/weight ratio necessary to achieve a short take-off run and have good high altitude performance.

Turbine 'copter on show

First look at the new Sikorsky S 61-A helicopter was afforded people at Vancouver International Airport last month, when the machine visited the headquarters of Okanagan Ltd. The twin-turbine helicopter attracted a good deal of interest among forestry and hydro people and provided demonstration rides for prospective buyers.

The big copter interests Okanagan because at 6,000 lb lift, it will give 50% more load than the company's present S 58s, but the price tag is substantial. The Royal Canadian Navy is taking delivery of the military anti-submarine warfare version. After Vancouver, the demonstrator called at Calgary before returning to the U. S.



Sikorsky S-61A at Vancouver

S 61-A specifications: cruise at normal gross wt 125K; range 540 miles; gross weight 19,000 lb; payload 9,089 lb; seat capacity 26 passengers and crew of two; fuselage length 54 ft 9 in.; rotor diameter 62 ft; engines GE T-58 GE-8B gas turbines, with 1,250 hp for take off.

BAC 111 accident cause

An interim report on the crash of British Aircraft Corporation's One Eleven prototype has been issued by the manufacturer. Early analysis of the accident, which occurred on October 22 this year, was made possible through the recovery of the flight data recorders carried on the aircraft. These indicate that the One Eleven became uncontrollable during stalling trials. The seven men aboard, including pilot Mike Lithgow, were killed in the resulting crash.

The BAC statement said the impact marks, and the distribution of the wreckage show that the aircraft struck the ground in approximately horizontal attitude at a high vertical speed and low forward speed. Severe fire after impact destroyed most of the aircraft except the tail assembly.

On the 53rd flight, four approaches to the stall in the clean configuration had been carried out at a centre of gravity of .38 s.m.c. It was on the fifth test on the same centre of gravity with flaps out at eight degrees that the accident occurred. Information from the two flight recorders shows that during this test the incidence increased substantially above the figure anticipated.

The flight recorders show that the G break at the stall was large and abrupt, causing downward acceleration and further rapid increase of incidence. A condition rapidly developed in which it would be impossible for a pilot even of Lithgow's calibre to appreciate the situation soon enough and therefore prevent further build up of incidence.

As the incidence increased due to downward acceleration, the elevator started to trail up. This trail up was arrested and partial down elevator applied some three seconds after the G break. But the aircraft's response, as would be expected under these conditions of low forward speed and aft centre of gravity, was too slow to stop further increase of incidence.

Eventually the incidence increased to a value where the effectiveness of tail plane and elevator was reduced to a fraction of the normal value. At this incidence the elevator servo tab power was insufficient to stop the elevator from trailing up, and it reached the up-stop in spite of a large push force on the control column.

The aircraft continued to descend at a high rate of descent, the fuselage attitude being substantially horizontal, and hit the ground flat. The aircraft did not spin and there is no evidence of structural or mechanical failure.

Flight recorder data indicates that the engines were running and were used during the attempt to recover from the stall. The wreckage indicates that the engines were still revolving when the aircraft