

JACK BRABHAM won the 1966 World Championship using a rather remarkable car. For the first year of the 3-litre Formula One, Brabham drove a car which had been built the year before, to take a flat-16 instead of a V-8, a one-and-a-half litre engine rather than a three-litre.

It could even be added that the flat-sixteen which was intended to be used was a highly-refined thoroughbred Grand Prix engine, which never propelled a race car, whereas the V-eight which took its place was a budget-price maiden design from Repco, based on a passenger car block and intended originally for sports cars and Tasman Formula use only.

On first glance, there seemed to be many reasons for believing the South African journalist who saw the V-8 Repco-Brabham on its first appearance in the South African Grand Prix, and wrote that the car could not possibly be regarded as a serious G.P. contender.

The first surprise about the car is its simplicity. It is very small in overall dimensions, and the engine compartment, for a car running in a long-awaited "hairy monster" formula, is curiously empty. The eight exhaust pipes form two simple manifolds on either side of the vee; there is only one slim cam-cover per bank; the eight Lucas injection horns stand free of complicated piping.

Nor is there anything "hairy monster" about the frame and suspension. A tubular space-frame is still used, and the suspension looks like any other

Brabham from the past few years (there are many minor differences) and retains the unfashionable exposed spring-shocks and anti-roll bar at the front, and even perseveres with a mass-produced forged-steel front-suspension upright where everyone else uses an alloy casting.

What Brabham gains from all this is well worth having in the first year of a new Formula: his car was very similar to a well-sorted design, and—being intended for an engine of half the size—the chassis was very light.

Brabham's car is so much lighter than the opposition it is almost laughable, and the good, uncluttered overall shape of the car must have helped him at the top of the speed range with a low-powered engine.

The engine, however, is a very successful first-season effort. Ignoring the wonderful achievement by Repco of actually producing the engine at all, special mention must be given to its reliability. The engine was also well-suited to its chassis. Useful mid-range torque was allied with a safe rev-limit (9,000 r.p.m.), twelve hundred revs above the point of maximum power — a margin which a busy driver would greatly appreciate.

During the year, four different cars were used by the works' team in Formula One races.

Brabham himself won all his races with the 1965 car, designated a BT 19. In the early races, Dennis Hulme drove a four-cylinder Climax powered car, an

Illustrated with this article is the BT 22 (see cutaway). This is the "real" Formula One Brabham. The BT 19 differs considerably in the chassis, although the only way to tell from most photographs is by the 13", 4-stud front wheels (and the colour of the driver's helmet!).

The BT 19 was the car brought out for the Surfers race, and is the only current Brabham to have been seen locally so far; the rear section of the frame looked a bit vague, and the BT 20 seems to be a little neater here. However, the somewhat unorthodox stepped joint in the top main tubes at the roll-bar has been continued, the extra width being needed to clear the cam boxes.

It should be noted that the roll-bar mentioned in the last paragraph is not



Brabham refers to his title-winning car—the 1965 built BT19—as "the old mill." NIGEL SNOWDON

THE WORLD CHAMPION'S CAR



only braced rearwards, but can be seen from photos to slightly exceed the height of the driver's head. There is no provision for fitting harness, and if the fuel tanks, which surround the driver, contain cellular plastic as a fire precaution, the fact has not been made public.

There is less use of oval tubing in the BT 20, and, using mainly 18 g. in 1" and 1" diameters, the bare frame is stated to weigh only 70 lbs.

The BT 20 is also dimensionally bigger, but not by much. Front track is 1" more than the BT 19, at 4'6 1/2"; rear track is 1" greater, at 4'6 1/2".

Wheelbase is greater by 1 1/2" at 7'9 1/2", continuing the longer-wheelbase policy, begun for necessity with the Honda-engined Formula Two cars and built into the Formula Three cars as well when an improvement in handling was found.

Brake sizes have gone down on the latest car, and are now 11". All the brakes are mounted outboard, and as well are "outboard" of the suspension uprights, avoiding complication in the hubs but masking the disc in the wheel rim to some extent.

The bodywork is minimal. The nose section is virtually off-the-shelf Brab-

ham, made in fibreglass. There is a lid for the engine cover, but no side pieces, and the outer skin of the fuel tanks is contoured to suit the lines of the nose and painted so that they pass unnoticed.

All suspension pick-up points are Rose-jointed, permitting complete adjustment, and the front suspension uprights are modified to use a ball-joint at the bottom end. External, full-width roll bars are used at both front and rear.

The gearbox is Hewland, model DG, with five forward speeds dog-engaged, plus reverse, and incorporating a ZF limited slip differential.

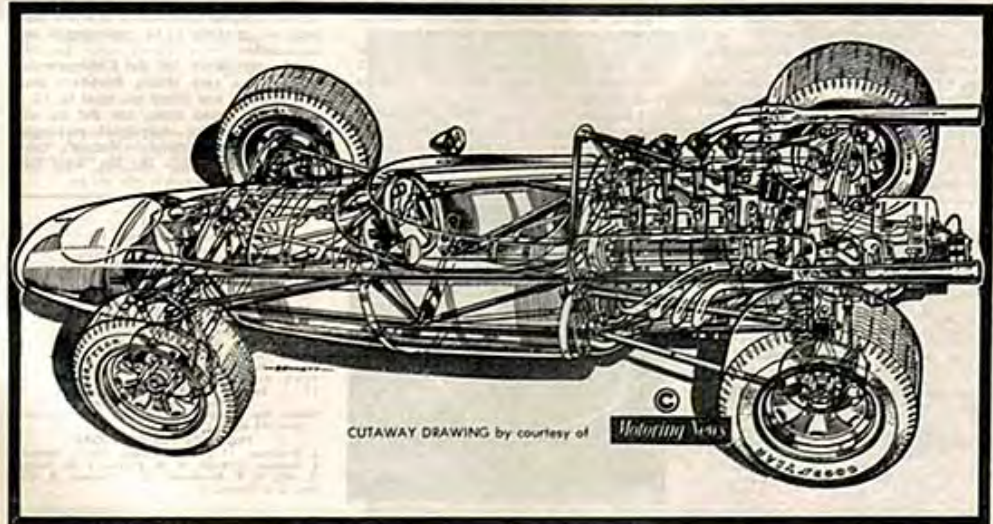
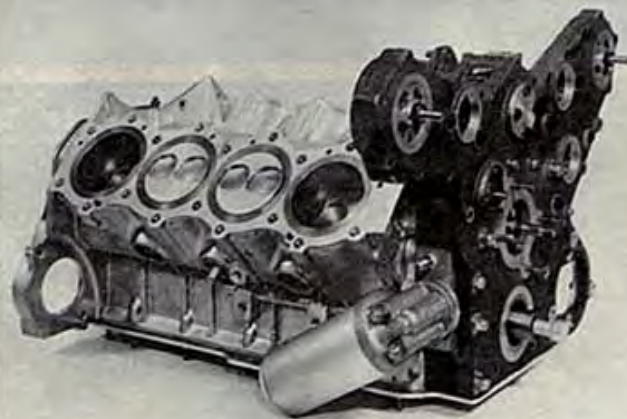
Intercontinental chassis by Tauranac's catalogue, typed as a BT 22. So far, only one of each of these designs has been built, though the suitability of the BT 22 for Tasman racing is obvious and more of this version might appear locally.

When the second Repco engine became available, Hulme used it in a new car designed from the start to take the V-8, and carrying the type number BT 20. Late in the season Brabham also tried one of the new cars, but preferred the earlier to stay with the older versions. This has been his custom for several years.

ABOVE: Front row of the grid at Zandvoort for the Dutch Grand Prix. Brabham (16) looks across at Gerry Hulme and Jim Clark. Brabham's 60-lap duel with Clark before finally winning was the epic of the series. NIGEL SNOWDON

LEFT: The Repco-Brabham V8 now bears little resemblance to the original Oldsmobile block from which it was born.

RIGHT: Cutaway drawing (reproduced by courtesy of the English "Motoring News") illustrates the advances made by Brabham in ultra light yet very rugged frames.



CUTAWAY DRAWING by courtesy of

Motoring News