

POWER DRIVE AND A DRAGSTER

BY SPANNER

DRAG racing, I am told, is one of the most exciting motor sports ever to have come out of America. Exciting it undoubtedly is but, for the driver, the excitement must be pretty short-lived for, as I see it, the actual drag race lasts only a matter of seconds on a tiny $\frac{1}{4}$ mile-long course. In this distance, however, from a standing start, a dragster will attain phenomenal speeds—often in excess of 170 m.p.h.—which makes you wonder what sort of a car is involved.

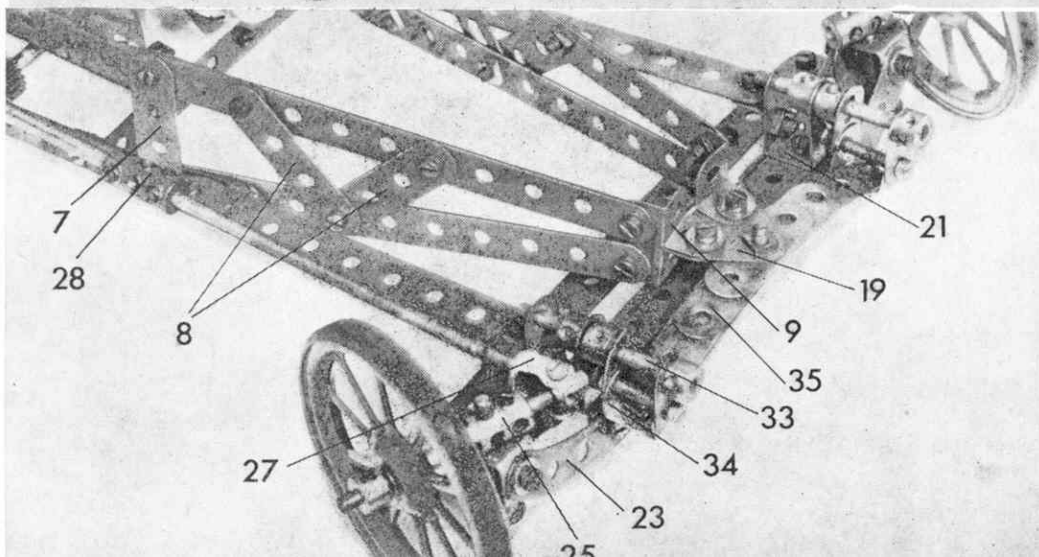
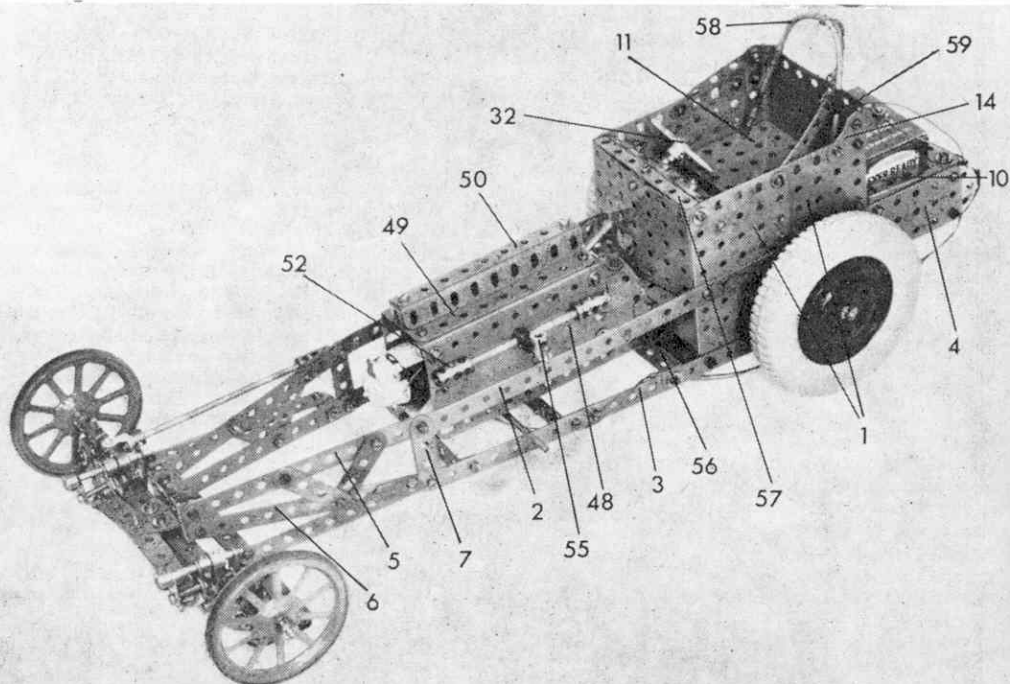
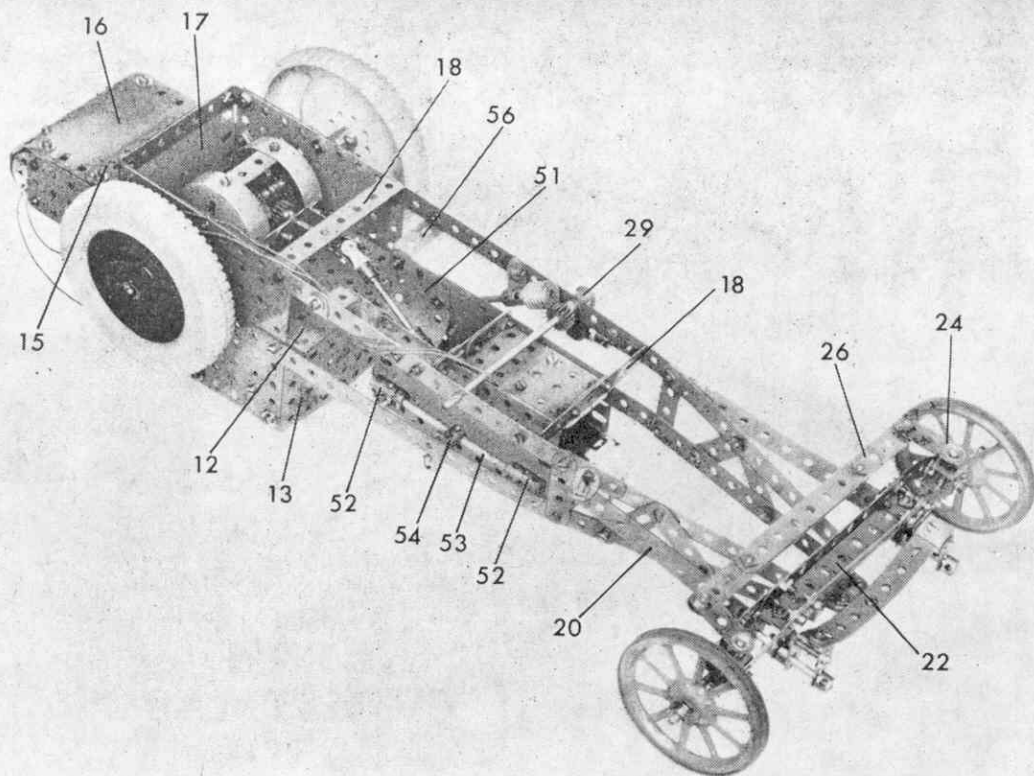
'Car', here, is definitely the wrong word. In fact, a dragster couldn't look much less like a car. All it appears to be is a huge engine, mounted on a skeleton chassis equipped with enormous rear tyres and spindly front wheels that look little bigger than those on a bicycle, with the driver 'stuck in' where there's room. The overall effect is one of immense power, barely leashed and ready to break forth at a moment's notice.

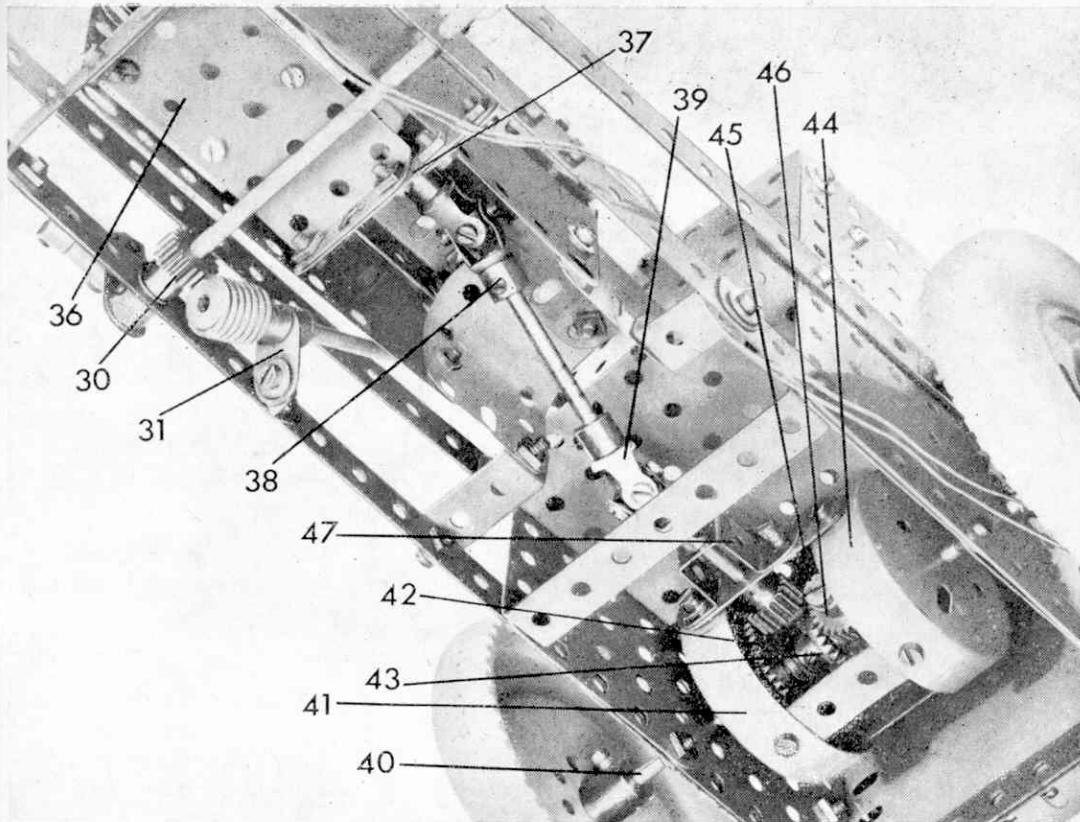
In my opinion, a dragster can not be termed ridiculous-looking, but it is certainly unique and, for this reason, we felt it was about time that a Meccano Dragster appeared on the scene. We put the problem to our model-building expert who, before long, turned up with the rather splendid—and typical—example described below.

CHASSIS

Both sides of the chassis are similarly built from two $4\frac{1}{2}$ in. by $2\frac{1}{2}$ in. Flat Plates 1, bolted together and extended forward by two $12\frac{1}{2}$ in. Strips 2 and 3, and extended to the rear by a 3 in. by $1\frac{1}{2}$ in. Flat Plate 4. Note that Strip 3 should converge slightly on Strip 2, an operation that can be easily performed by making use of the elongated holes in Plates 1. Strips 2 and 3 are themselves both extended forward by two $5\frac{1}{2}$ in. Strips 5 and 6, overlapped three holes, at the same time fixing a 2 in. Strip 7 between the upper and lower Strips.

A further two 2 in. Strips 8 are fixed between Strips 5 and 6, but note that these Strips are first





brought almost together at the front when they are connected by a Fish-plate, at the same time securing one right-hand and one left-hand Corner Angle Bracket 9 in position. At the rear, two 2½ in. Angle Girders 10 are bolted one to the upper edge of Flat Plate 4 and the other to its lower edge, the rear securing Bolts also holding an 8-hole Wheel Disc in place.

The sides can now be joined together. First of all, a 3½ in. by 2½ in. Flanged Plate 11 is bolted between rearmost Flat Plates 1 through their fourth holes from the top, then a second, inverted, 3½ in. by 2½ in. Flanged Plate 12 is bolted between forward Plates 1, this time through their centre holes. Also bolted, vertically, between forward Plates 1 is a third 3½ in. by 2½ in. Flanged Plate 13, while a 4½ in. by 2½ in. Flexible Plate is bent to shape and bolted vertically between rearmost Plates 1, as shown, at the same time securing two 1 in. Corner Brackets 14 in place.

Fixed to lower Angle Girders 10 is a 3½ in. Flat Girder 15, to which a 3½ in. by 2½ in. Flexible Plate 16, extended by another similar Plate, is bolted. This latter Plate 16 is curved round the Wheel Discs and is bolted to upper Angle Girders 10. A third 3½ in. by 2½ in. Flexible Plate 17 is bolted to a 3½ in. by ½ in. Double Angle Strip which is fixed between rearmost Plates 1. Two further 3½ in. by ½ in. Double Angle Strips 18 are fixed between Strips 3 at each side, as can be seen from the accompanying pictures. At the front, Corner Angle Brackets 14 are brought close together and are bolted to each side of a 1 in. Triangular Plate 19.

STEERING ARRANGEMENT

One end of a 4½ in. Strip 20 is fixed by an Angle Bracket to each Strip 3, while its other end is fixed,

also by an Angle Bracket, to one lug of a 1 in. by ½ in. Double Bracket 21. A 'U' Section Girder 22 is now built up from two 4½ in. Angle Girders and is bolted to the back of Double Brackets 21. Each end of Girder 22 is extended three holes by two 2½ in. Curved Strips 23, the ends of which are joined by two Double Brackets to form a box. Journalled in these Double Brackets is a 1½ in. Rod held in place by a Crank 24, below the Double Brackets, and a Coupling 25 above them. Another 1½ in. Rod is fixed in the longitudinal bore of this Coupling and carries a loosely-mounted Spoked Wheel, held in place by a Collar. A wide elastic band is glued round the rim of the Spoked Wheels to increase adhesion. Lock-nutted between the arms of Cranks 24 is a compound 7 in. Strip 26, built up from two 5½ in. Strips, overlapped eight holes.

Mounted in the longitudinal bore of off-side Coupling 25, in addition to the 1½ in. Rod, is a 1 in. Rod on which the 'spider' of the Swivel Bearing 27 is fixed. Mounted in the boss of this Swivel bearing is a 4½ in. Rod, extended by a Coupling 28 and a 2½ in. Rod, on the end of which a second Swivel Bearing is fixed. The 'spider' of this Swivel Bearing is loose on a ½ in. Bolt fixed by Nuts in the arms of Crank 29 on a 4½ in. Rod journalled in Strips 3 and held in place by a ½ in. Pinion 30. This Pinion engages with a Worm on a 6½ in. Rod mounted in Flanged Plate 31 attached to Strip 3 by an Angle Bracket. A Steering Wheel 32 is fixed on the end of the Rod, which is held in place by a Collar against Fishplate 31.

Returning to the front axle, a 2 in. Rod 33 is held by Collars in the lugs of each Double Bracket 21. Slipped on to this Rod, and held by a Collar, are two Fishplates which are pivotally fixed to the lugs of a Double Bracket 34 by a ½ in. Bolt. A Leaf-spring 35 is then built up

from one 4½ in., one 3½ in., one 2½ in., and one 1½ in. Strip, all bent to shape, and is bolted between Double Brackets 34, also being fixed to Triangular Plate 19 by a ½ in. Bolt.

MOTOR AND DRIVE

Motive power for the Dragster is supplied by the versatile Power Drive Unit disguised by a cover, designed to represent a scale 'engine'. The Unit is secured to a 2½ in. by 1½ in. Flanged Plate 36 bolted to forward Double Angle Strip 18 and connected to nearside Strip 3 by a 1 in. by ½ in. Angle Bracket extended by a 2½ in. Strip 37. A Universal Coupling 38 fixed on the output shaft is connected to another Universal Coupling 39 by a 2 in. Rod. This latter Universal Coupling will later be connected to the differential.

The differential, itself, is more or less of standard construction. A 3½ in. Rod 40 carrying a Boiler End 41, a loose 1½ in. Contrate Wheel 42, and a fixed ½ in. Contrate Wheel 43 is fitted partway in to the longitudinal bore of a Coupling, while another 3½ in. Rod, also carrying a Boiler End 44 and a fixed ½ in. Contrate Wheel is fitted into the other end of the longitudinal bore of the Coupling. Note that Contrate Wheel 42 is spaced from Boiler End 41 by four Collars, and from Contrate Wheel 43 by three Washers, whereas the other ½ in. Contrate Wheel is spaced from Boiler End 44 by two Washers.

Fixed in the central transverse smooth bore of the Coupling is a 1½ in. Rod, carrying a Collar at each end. These Collars are attached to Contrate Wheel 42 by 1 in. Screwed Rods, secured by Nuts in diametrically opposite holes in the face of the Contrate Wheel. Fixed in the central transverse tapped bores of the Coupling are two Pivot Bolts 45, carrying loose ½ in. Pinions 46. These Pinions engage with the ½ in.

Contrate Wheels, and remember that the 3½ in. Rods are loose in the longitudinal bore of the Coupling. Boiler Ends 41 and 44 are connected by four 2 in. Strips, to one of which a Double Bent Strip 47 is bolted. Journalled in this and the corresponding Strip is a 1½ in. Rod carrying a ½ in. Pinion that engages with Contrate Wheel 42. Universal Coupling 39 is fixed on the end of the Rod. Two 4½ in. Road Wheels are fixed on the ends of the 3½ in. Rods which, by the way, are held in Flat Plates 1 by Collars.

The imitation 'engine' is built up from two 4½ in. by 2½ in. Flexible Plates 48, each bolted to a 4½ in. Angle Girder, the upper flange of which is extended by a 4½ in. Flat Girder 49. These Flat Girders are overlapped and are bolted together by two ½ in. Bolts at the same time fixing in place two 4½ in. Angle Girders 50 arranged in an inverted 'U' with the ends enclosed by Angle Brackets. Two 2½ in. by 1½ in. Flexible Plates 51 are bolted together and are fixed to Flexible Plates 48. The rear ends of the Angle Girders at the top of Flexible Plates 48 are joined by a 1½ in. Strip attached by Angle Brackets, at the same time securing two 1 in. Corner Brackets in position to enclose the remaining space. Two Couplings 52, joined by a 3½ in. Rod 53 carrying a Short Coupling 54, are fixed to nearside Flexible Plate 48, then a ½ in. Bolt carrying another Coupling 55 is fixed in the longitudinal bore of the Short Coupling. The completed 'engine' is attached to Strips 3 by two 1 in. by ½ in. Reversed Angle Brackets 56.

Finally a dashboard is obtained from a 3½ in. Flat Girder, attached to Flat Plates 1 by Angle Brackets, with the resulting space between the Flat Plate and Flanged Plate 13 being covered by a 3½ in. Narrow Strip 57, also attached by an Angle Bracket. Dials and gauges are represented on the dashboard by ordinary and ¼ in. Washers. A roll bar is provided by a 1½ in. Rod 58 bent to shape and inserted in Flanged Plate 11. It is secured by two 2½ in. Narrow Strips 59 bolted to Plates 1 and attached to the Rod by right-angled Rod and Strip Connectors. The battery for the Motor, incidentally, is carried in the compartment behind the driver's seat.

PARTS REQUIRED

4 of No. 1	5 of No. 18a	2 of No. 74
6 of No. 2	1 of No. 18b	1 of No. 77
5 of No. 2a	2 of No. 19a	2 of No. 82
1 of No. 3	2 of No. 24a	2 of No. 103c
1 of No. 4	2 of No. 25	2 of No. 103d
2 of No. 5	2 of No. 26	5 of No. 111
10 of No. 6	1 of No. 28	2 of No. 124
1 of No. 6a	2 of No. 29	4 of No. 133a
2 of No. 9	1 of No. 32	2 of No. 140
4 of No. 9a	164 of No. 37a	2 of No. 147b
8 of No. 9d	146 of No. 37b	2 of No. 154a
7 of No. 10	34 of No. 38	2 of No. 154b
1 of No. 11	3 of No. 38d	2 of No. 162a
2 of No. 11a	1 of No. 45	2 of No. 165
12 of No. 12	3 of No. 48b	1 of No. 185
1 of No. 13	1 of No. 51	2 of No. 187b
1 of No. 14	3 of No. 53	2 of No. 188
2 of No. 15a	4 of No. 53a	3 of No. 190a
2 of No. 16	10 of No. 59	3 of No. 191
1 of No. 16a	3 of No. 62	2 of No. 212a
1 of No. 16b	7 of No. 63	2 of No. 235
3 of No. 17	1 of No. 63d	1 of No. 235b
		1 Power Drive Unit