

A new model using the contents of  
Meccano Outfit No. 4,

# OCTOPUS FAIRGROUND RIDE

**THIS is a fully operational model of the popular fair-ground machine with a set of chairs pivoted at the ends of arms that rise and fall as they revolve. If the meaning of 'octopus' (Greek = eight-legged) is strictly followed, this model should be a Tetrapus (four-legged). Those who wish to add four legs to their model can easily do so with a little extra expenditure. The basic mechanism using a 11053 'Crane' motor powered by a Battery Box will drive the chairs fast enough to provide any imaginary 'occupants' with adequate vertigo! The mechanism is adapted from a description in the Meccano Magazine for January 1953. In the constructional account, 'front' refers to the part of the model toward the elevated platform. 'Right' and 'left' are as viewed from the front as in fig. 1.**

## THE BASE, Figs 3 & 4

A parallel pair of  $9\frac{1}{2}$ " Angle Girders 1 are bolted front and rear to another pair of  $9\frac{1}{2}$ " Angle Girders 2 and 2A. The rear Girder 2 is fixed with its slotted hole flange down and braced by diagonally placed  $4\frac{1}{2}$ " Narrow Strips. The front  $9\frac{1}{2}$ " Angle Girder 2A is bolted with its slotted hole flange facing upward and with eight free holes to the left. Four  $2\frac{1}{2}$ " x  $\frac{1}{2}$ " Double Angle Strips bolted to the first pair of  $9\frac{1}{2}$ " Angle Girders 1 support a  $3\frac{1}{2}$ " x  $2\frac{1}{2}$ " Flanged Plate 3, (fig 7). Note the positioning of these Double Angle Strips. A Flat Trunnion is affixed to each  $9\frac{1}{2}$ " Girder 1, a  $2\frac{1}{2}$ " Perforated Strip 5 is bolted across the Girders 1, and another  $2\frac{1}{2}$ " Strip 4 is bolted to the top face of the right hand  $9\frac{1}{2}$ " Girder 1 as shown, (fig. 5). This converts the elongated holes into round ones which allow the rotation of Rods used later in construction. A Channel Bearing supporting a 11053 'Crane' motor is also fixed to the right hand Girder 1.

## THE MECHANISM Fig. 7

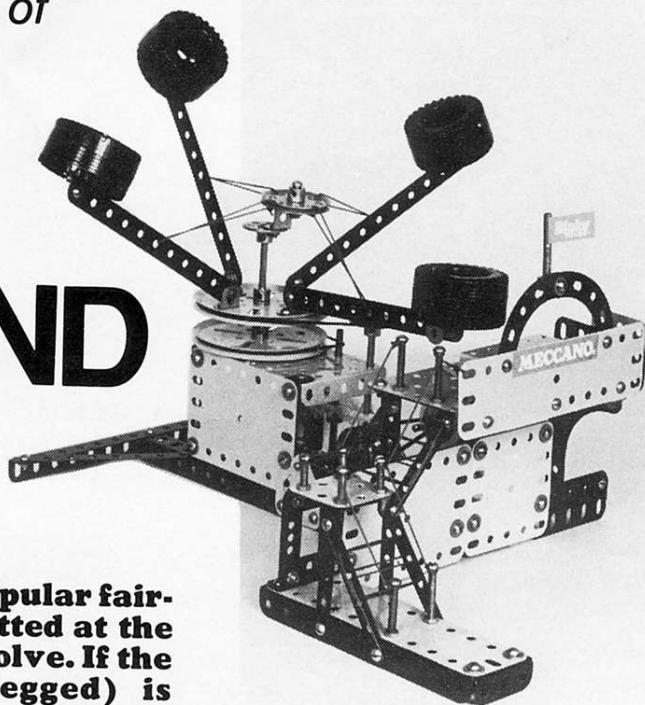
The main shaft is a 4" Axle Rod 6 journalled in the  $3\frac{1}{2}$ " x  $2\frac{1}{2}$ " Flanged Plate 3 and lengthened below by a Long Threaded Pin attached by a Rod Connector. A Nut is secured on the threaded portion of the Pin, this plus a Washer bear against the  $2\frac{1}{2}$ " Strip 5 in its centre hole. On the portion of the Rod 6 above the Flanged Plate 3, the following are placed: Three Washers, a 3" Pulley boss upward and fixed to the Rod, two more Washers, another 3" Pulley boss downward and loose on the Rod 6, yet another Washer and a Collar. The upper 3"

Pulley before being fixed in place should have  $\frac{1}{2}$ " x  $\frac{1}{2}$ " Angle Brackets bolted to the four outer round holes, the lugs directed as shown. The top of the Rod 6 carries a 1" Bush Wheel to which is bolted a  $\frac{1}{2}$ " Reversed Angle Bracket. A  $1\frac{1}{2}$ " Pulley 7 rotates freely between Washers on a  $\frac{1}{2}$ " Bolt lock-nutted in the top hole of the Reversed Angle Bracket.  $5\frac{1}{2}$ " Strips lock-nutted at one end to the Angle Brackets carry at their other ends,  $\frac{1}{2}$ " x  $\frac{1}{2}$ " Angle Brackets in the case of two, and Double Brackets in the case of

the other two. The Brackets support the 'chairs' which are represented by hard Plastic Tyres free to rotate on  $\frac{1}{2}$ " Bolts that pass through one of their holes to be lock-nutted to the Brackets at the outer ends of the  $5\frac{1}{2}$ " Strips.

## THE GEAR AND PULLEY DRIVES Figs. 5 & 6

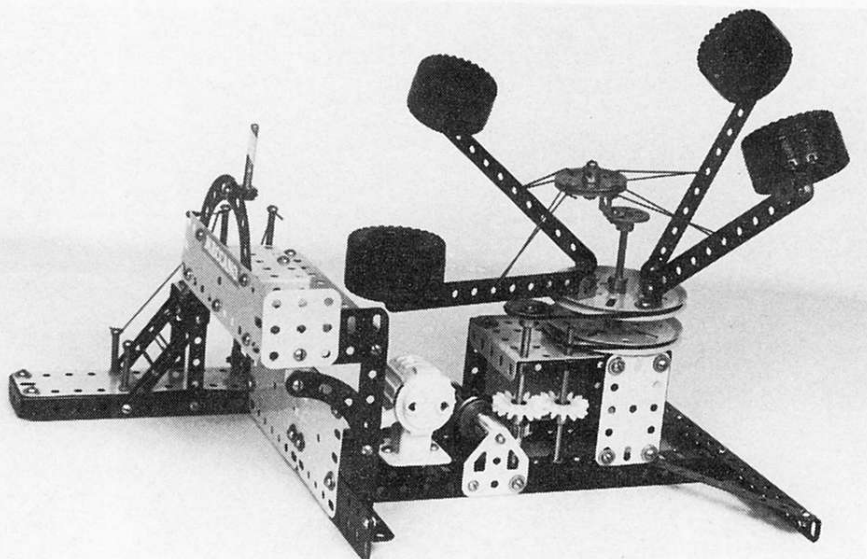
A 6" Driving Band on the motor output shaft drives a 1" Pulley on a 3" Rod 8 journalled in the apex holes of the Flat Trunnions bolted to Girders 1. The Rod 8 also carries a Worm gear,



*designed and  
described by  
Dr. Keith Cameron*

Fig. 1.  
Above: A general view of the Octopus Fair-ground Ride described by Dr. Cameron.

Fig. 2.  
Below: The right/front/side of the model.



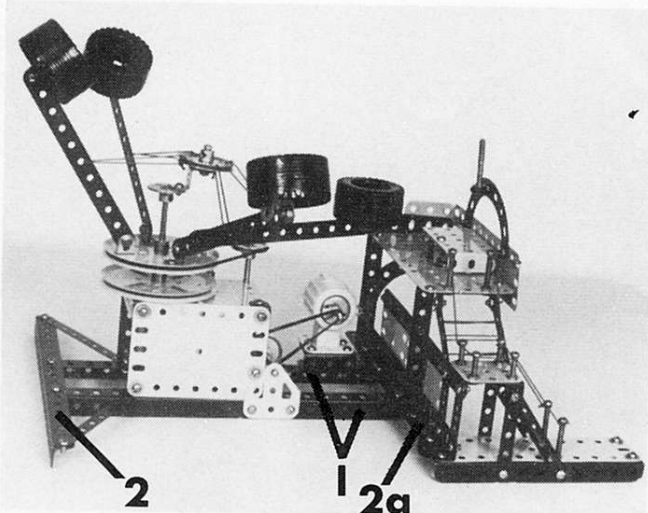


Fig. 3. A general view of the left side.

Washers and a Spring Clip. The Worm gear meshes with a 19t  $1\frac{1}{2}$ " Pinion fixed to a vertical 4" Rod 9 journaled below in the  $9\frac{1}{2}$ " Angle Girder 1 overlaid with  $2\frac{1}{2}$ " Strip 4, and above in the Flanged Plate 3. The Rod 9 also carries Washers, two Collars and a Multi-Purpose Gear wheel which drives a similar Gear on a vertical  $3\frac{1}{2}$ " Rod 10 journaled in the same manner as the Rod 9 and 1" (two holes) behind it.

The 4" Rod 9 has a 1" Pulley fixed boss down at its upper extremity, and this drives the upper 3" Pulley via a 10" Driving Band. The  $3\frac{1}{2}$ " Rod 10 carries Washers and two Spring Clips and drives the lower (fixed) 3" Pulley via a 6" Driving Band around its upper end. Cords connecting the  $5\frac{1}{2}$ " Strips and the  $1\frac{1}{2}$ " Pulley 7 can now be added, making sure that the  $5\frac{1}{2}$ " Strips in their lowest position clear the 1" Pulley atop the 4" Rod 9. Fill in the sides with a  $3\frac{1}{2}$ " x  $2\frac{1}{2}$ " Flexible Plate and a  $2\frac{1}{2}$ " x  $1\frac{1}{2}$ " Plastic Flexible Plate bolted to the  $2\frac{1}{2}$ " Double Angle Strips. Lightly oil and check out the mechanism for correct running.

#### PLATFORM AND STAIRWAY, Figs 9 & 10

A  $5\frac{1}{2}$ " x  $2\frac{1}{2}$ " Flat Plate 11 is supported at its rear corners by the lugs of  $3\frac{1}{2}$ " x  $1\frac{1}{2}$ " Double Angle Strips bolted to the front  $9\frac{1}{2}$ " Angle Girder 2A. The Plate 11 is supported at its right hand edge by a  $2\frac{1}{2}$ " Stepped Curved Strip bolted to the right hand  $3\frac{1}{2}$ " x  $1\frac{1}{2}$ " Double Angle Strip and to a  $1\frac{1}{2}$ " x  $1\frac{1}{2}$ " Angle Bracket, this Bracket also carrying a  $2\frac{1}{2}$ " Flat Girder 12 and a  $1\frac{1}{2}$ " x  $1\frac{1}{2}$ " Flat Plate 12A. Along the front edge of the Plate 11 is a  $5\frac{1}{2}$ " x  $1\frac{1}{2}$ " Flexible Plate connected by corner angle brackets and supporting two  $2\frac{1}{2}$ " stepped curved strips in the form of a semi-circle, the top centre Bolt holding a Collar in which a  $1\frac{1}{2}$ " Axle Rod is fixed to carry a suitable emblem or flag.

A  $2\frac{1}{2}$ " x  $1\frac{1}{2}$ " Flanged Plate 14 is bolted to a Double Bent Strip fixed at the front centre of the Plate 11 to provide an elevated section for passengers entering and leaving the chairs. The upper section of the stairway consists of two  $2\frac{1}{2}$ " Narrow Strips fixed above to a  $1\frac{1}{2}$ " x  $1\frac{1}{2}$ " Double Angle Strip at the left hand of the Plate 11, held by two  $1\frac{1}{8}$ " Bolts. The intermediate stair platform is a  $1\frac{1}{2}$ " x  $1\frac{1}{2}$ " Flat Plate with a  $1\frac{1}{2}$ " Angle Girder 15 fixed along its rear edge by lock-nutted  $\frac{3}{4}$ " Bolts. To the free flange of the Girder 15 are bolted a  $7\frac{1}{2}$ " Strip 16 which projects horizontally to the right, and the rear  $2\frac{1}{2}$ " Narrow Strip and two 2" Strips which are fixed below to the  $9\frac{1}{2}$ " Angle Girder 2A.

A  $1\frac{1}{2}$ " x  $1\frac{1}{2}$ " Double Angle Strip 17 fixed to the front of the Flat Plate has a  $2\frac{1}{2}$ " and a 3" Narrow Strip bolted to its lugs arranged as shown, bolted below to  $5\frac{1}{2}$ " Angle Girders

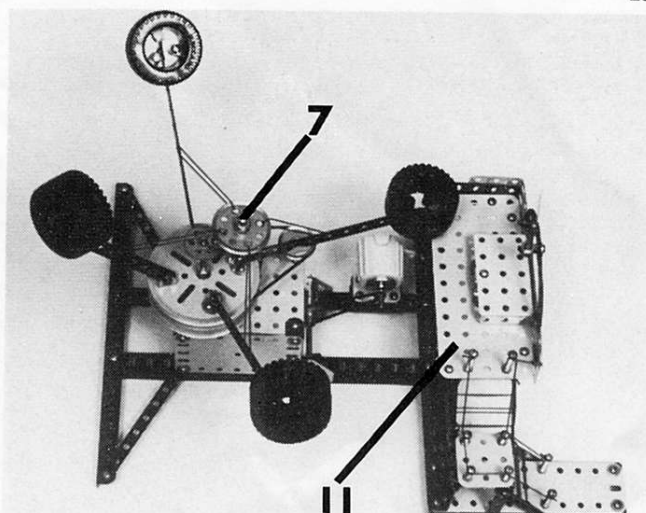


Fig. 4. A semi-plan view, note arrangement of  $1\frac{1}{2}$ " Pulley 7.

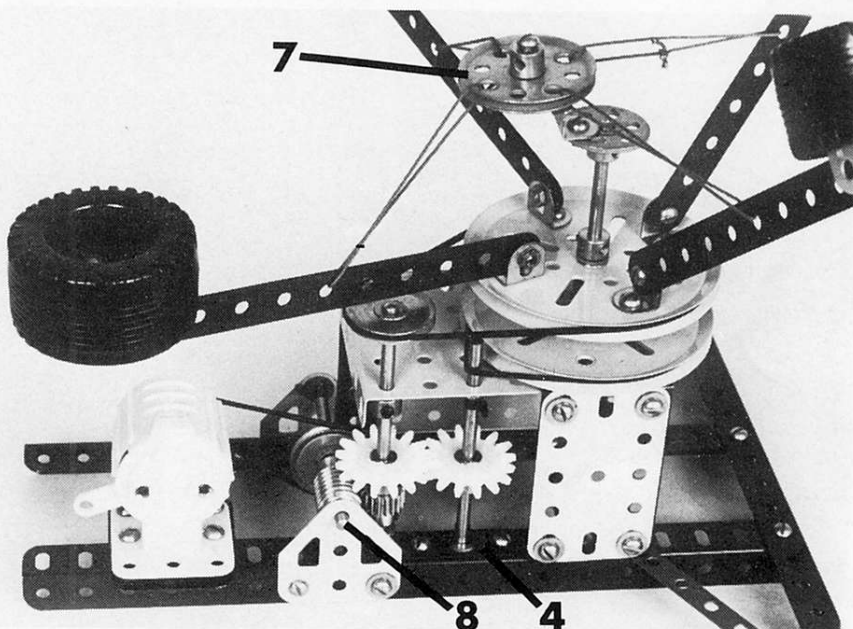
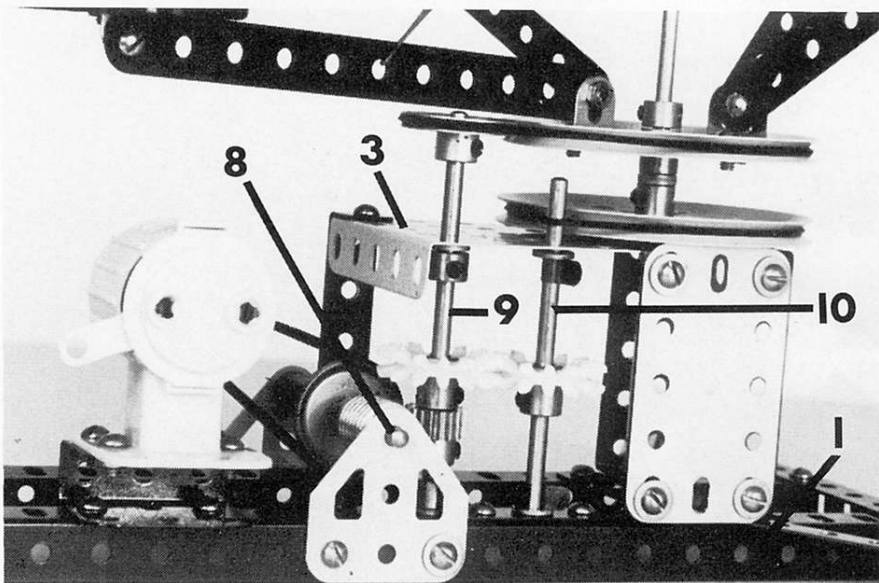


Fig. 5. Above: The right hand side of the mechanism as seen from above.

Fig. 6. Below: Arrangement of the driving gears and pulleys.



which are affixed to the  $9\frac{1}{2}$ " Angle Girder 2A and have a  $5\frac{1}{2}$ " x  $1\frac{1}{2}$ " Flexible Plate across their flanges. Further  $1\frac{1}{8}$ " Bolts are lock nutted at the bottom of the stairway. Cords are strung

around the tops of the  $\frac{3}{4}$ " and  $1\frac{1}{8}$ " Bolts to represent handrails. Cord is also strung through the holes in the Narrow Strips to represent the steps, but note the method of string-

ing depicted in the diagram. Any other method results in un-professional looking sloping strings. Bolt Flexible Plates to the 7½" Strip 16 to complete the model.

**Diagram.** Method of threading cord through strips so that it lies parallel from strip to strip. Another length of cord is treated in the same way but tied under the upper bolt heads to give a doubling and more solid appearance. The loops in actual practice are pulled tight; they are shown loose to make clear the sequence of threading.

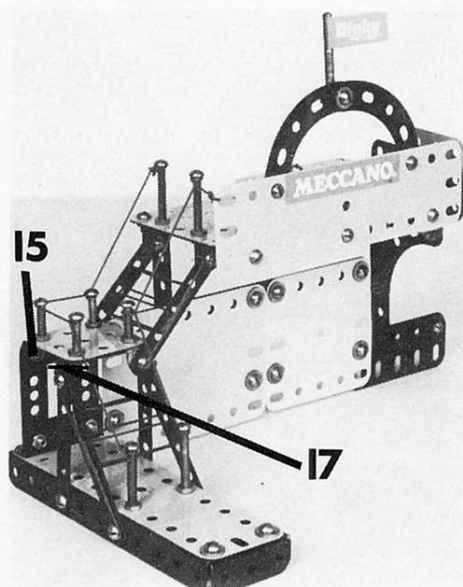
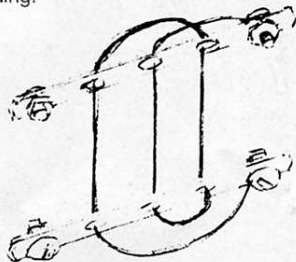


Fig. 9. Above: A front view of the platform and stairs, separated from the rest of the model.

Fig. 10. Below: A rear view of the platform and stairs.

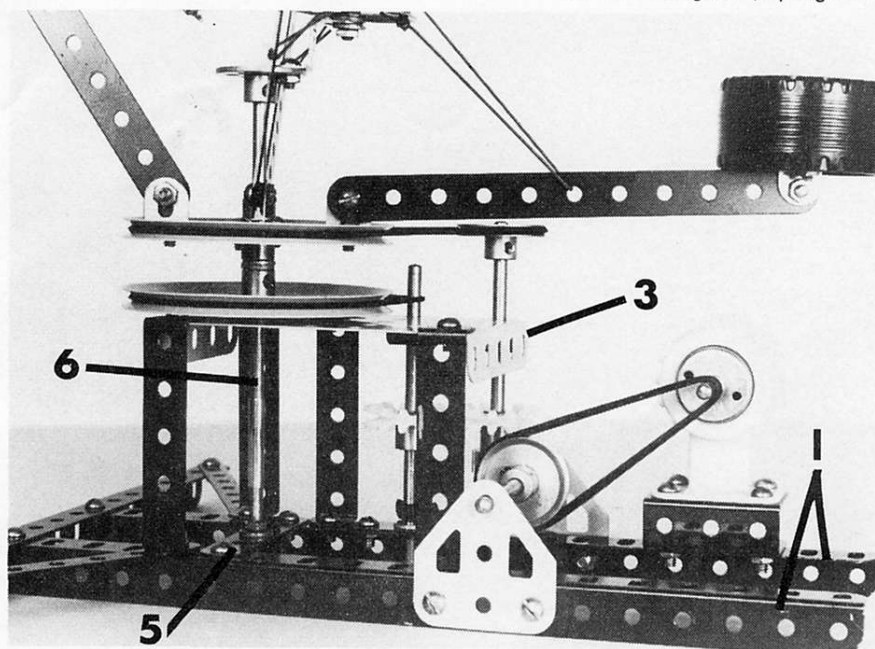
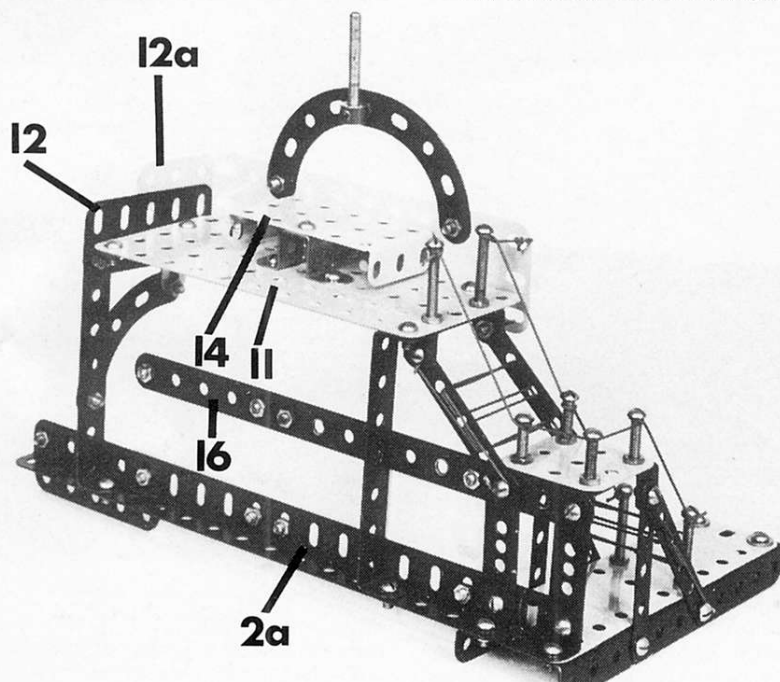


Fig. 7. The left hand side of the mechanism.

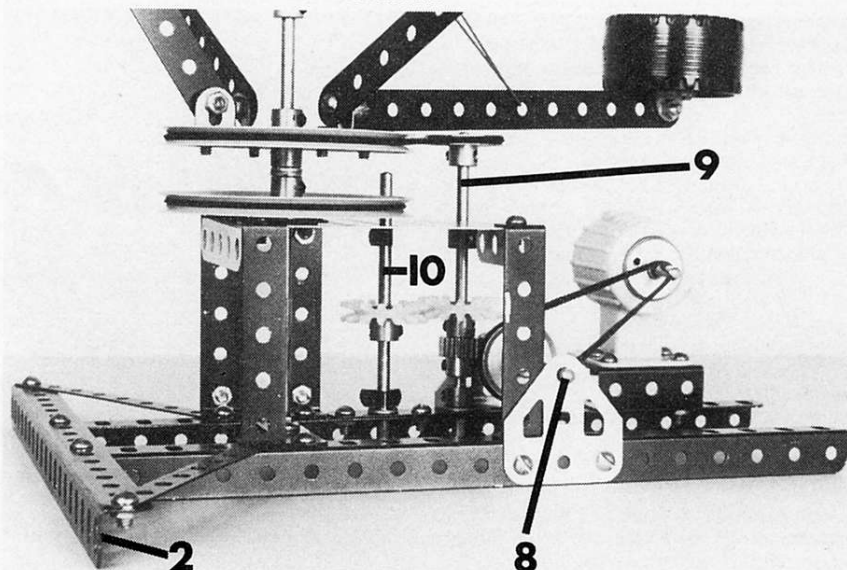


Fig. 8. The 5½" Strips forming the Octopus Arms must clear the 1" Pulley on Rod 9.

#### PARTS REQUIRED

1 of No. 1B	1 of No. 51
4 of No. 2	1 of No. 53
2 of No. 5	4 of No. 59
2 of No. 6	1 of No. 70
4 of No. 8A	2 of No. 74
2 of No. 9	3 of No. 90A
2 of No. 9F	2 of No. 103F
2 of No. 11	4 of No. 111
1 of No. 11A	5 of No. 111A
6 of No. 12	4 of No. 111D
2 of No. 12B	1 of No. 115A
2 of No. 15B	1 of No. 125
1 of No. 16	2 of No. 126A
1 of No. 16B	1 of No. 154A
1 of No. 18A	1 of No. 154B
2 of No. 19B	1 of No. 160
1 of No. 21	2 of No. 186A
2 of No. 22	1 of No. 186B
1 of No. 26	2 of No. 189
2 of No. 27F	2 of No. 190A
1 of No. 32	1 of No. 194
98 of No. 37B	1 of No. 194A
120 of No. 37C	1 of No. 213
38 of No. 38	4 of No. 235
1 of No. 40	2 of No. 235A
1 of No. 45	2 of No. 235D
2 of No. 48	4 of No. 187C
4 of No. 48A	Motor and Battery
2 of No. 48B	Box.