OTHER SYSTEMS NEWSLETTER

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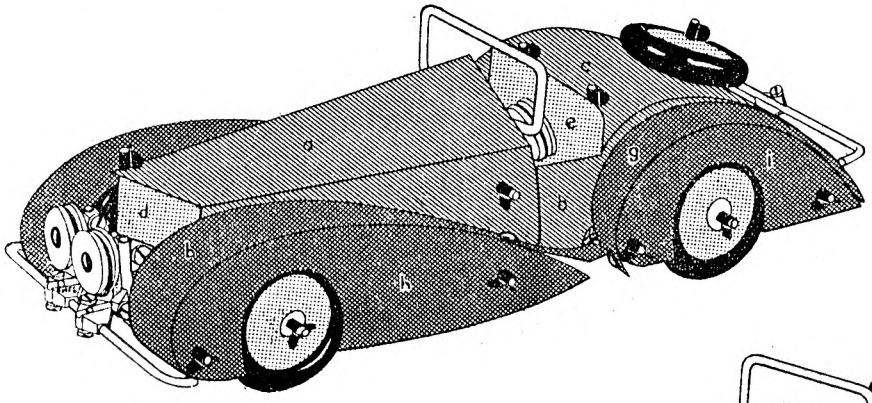
EDITORIAL Nearly everyone approved of the smaller type used last time even though my printer was not giving of its best and hence the poor definition of many of the characters. It should be better in this issue. The general complaint was Page 33 being the wrong way round, and that was a simple blunder.

I have been thinking about the Index of Literature and MCS Supplementary Information features which I started in OSN 1 - these have not attracted much interest from readers and I have only received one contribution. So since they take time to compile I shall give a low priority to providing these data in a systematic way. I have revised the format for describing the manuals to make it easier to use and, as in this issue, it can provide a fairly definitive reference to the subject under discussion. For the MCS Supplementary material I hope in the (very) long run to put it, together with the basic MCS data, into a spreadsheet format so that changes and searches can be made easily. For the moment I want to record for my own purposes the type of screwthread and axle diameter of the systems I have myself and as I have had several requests for this specific information, I will include it in OSN when it's ready, and hope that others will add to it. Let no one though be deterred from sending me fuller details of manuals or systems, for me a high priority for OSN is to provide detailed information, and I will be pleased to receive anything of that sort.

Several overseas subscribers have commented on the excessive cost of sending small sums abroad by cheque, to pay for OSN for example. The cheapest way is to send bank notes, in Pounds Sterling if possible, and about half of all overseas subscriptions arrive in this way. The sender does of course take the risk of the money going astray in the post but in practice this seems to be small provided that it is not obvious that a letter contains money. Non UK subscribers please see also the note about Payment on the back page.



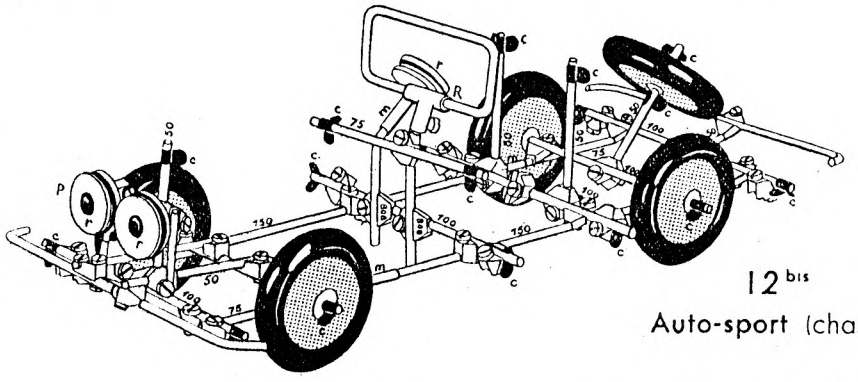
BOB

Model from an Instruction Sheet in a BOB Auto-Sport set. See also p27.

12
Auto sport

Carrosserie
14 pièces

capot	a
carrosserie 3 pièces	b c
radiateur	d
siège	e
ailes avant	f
» arrières	g
flasques avant	h
» arrières	i



12 bis
Auto-sport (chassis)

37	joints	3	poulies de..... 20 m/m	2	tringles 150 m/m
18	cavaliers	5	roues à pneus	6	» 100 m/m
7	rivets	2	pare-chocs	3	» 75 m/m
3	manchons	1	pare-brise	6	» 50 m/m
1	raccord	2	tringles coudées de 100 m/m	3	» 25 m/m

HISTORY OF MARKLIN CONSTRUCTIONAL SETS In 1989 MARKLIN issued a 12 page booklet entitled Die Geschichte des Marklin-Metallbaukastens, to mark the 75th anniversary of their metal constructional sets. Dennis Higginson lent his copy and thanks are due to Mrs Chris Marien for her invaluable help with translation. Part 1 below is a selection of the facts and figures from it, and Part 2 (which will be in OSN 5) is comment and some amplification using MARKLIN manuals and other literature.

PART 1. MARKLIN started making constructional sets 75 years ago. Before WW1 they had been the sole representative for MECCANO on the continent and after 1912 they had produced 60,000 clockwork motors a year for them. In 1914 the MECCANO property in Berlin was confiscated by the German government and in August 1917 MARKLIN officially acquired all MECCANO assets and rights. In February 1918 they registered patents covering MECCANO parts. The name MARKLIN Metal Construction Outfits (Metall-Baukasten Marklin) was used for the first time in the 1919 catalogue and there were 7 sets (0 to 6) with conversion sets 0a to 5a. The parts were black and the sets were packed in strong cardboard boxes, although sets 5 and 6 were also available in walnut coloured wooden boxes with lock and key, as sets 5H and 6H. Set 0 had 88 parts and set 6, 1380. There were 2 clockwork motors (Nos 201 and 202), 2 electric mains motors (301 and 302), and 2 steam engines (401 and 402), both of which could be set up with the boiler either horizontal or vertical. There was also an electro-magnetic crane grab, No 300.

In 1929 coloured parts were introduced, green for strips and girders, blue for round plates and wheels, red for plates and flanged wheels, black for brackets, etc. Nuts and bolts, and gears were in their natural brass colour. 'Black' sets were produced in parallel with coloured ones, both with the same contents as earlier sets; the black sets had the suffix S after the set number, with F for the coloured ones. At this time set 5A was available in two parts, 5AA and 5AB. In 1939/40 the production of 'black' sets (and black parts as an alternative to coloured ones) ceased.

In 1930 set 6 contained 700 more parts than 10 years earlier and over 250 different parts were listed in the 1930 catalogue. During the 1930's certain supplementary sets (Zusatzkasten) were introduced which were to be used with standard sets to make models on particular themes. Examples are 101/1 and 101/2 for 'Transport', 105/1 and 105/2 for Bridges and Machinery, and 102 for clocks, using the 202 clockwork motor.

In 1931/32 ELEX was added (sets 501 and 502 with a connecting set 501A) and these continued until 1962. MARBI came in 1933/34 (sets 601 and 601A) with parts identical to standard MARKLIN but unpainted, and continued until the beginning of WW2. Production of MINEX started in 1939/40 with parts that were half the size of standard pieces, many of them being made of unpainted aluminium alloy. In the larger sets there were electrical parts, red 'composition' wheels and yellow and red painted, thin steel plates. There were 3 sets (01, 02 and 03 with 957 parts), 2 connecting sets (01A and 02A) and an electric motor, 301G. Production ceased in 1945.

After the war shortage of materials prevented production until 1947 when new parts and revised sets based on the prewar standard sets were introduced. The numbering of both parts and sets was changed and the basic sets were now 99 to 105 with linking sets 99A to 105A. Special sets Z99 to Z105 were available during 1947-49 to convert prewar sets to the new standard. The new parts were flexible plates made of light alloy finished in blue/aluminium and red/ivory, and these and a selection of motor tyres were included in the new sets, together with some electrical parts in sets 102A upwards.

The numbering system changed again in 1957 with basic sets 1009 to 1015 and connecting sets 1029 to 1036 (1035 and 1036 both adding to 1015). The electrical sets became 1052 and 1053, connected by 1063, and the motors were 1070 (clockwork), 1071 (electric) and 1072 (universal electric).

In 1962 production of the electrical sets ceased as well as sets 1035 and 1036. The largest basic set 1015 was dropped in 1963 and in 1971 the small sets 1009 and 1029 were deleted. In 1973 parts were made available in 10 different packs 1040 to 1049 as well as individually.

The remaining sets which were still essentially based on the prewar ones, continued until 1975/76 when a completely new range was introduced under the name MARKLIN METALL. There were 3 basic sets A, B and C (1051-1053) with connecting sets E1 and E2 (1061, 1062), and 2 motors 1072 and 1073. The new manuals had colour photos on a grey background. In 1978 an add-on set E3 (1063) was introduced and also (for 2 years only) 3 special sets, 1001 to 1003, sold in black finished wooden boxes, each of which allowed a railway locomotive to be made. 1001 was an 'E-Lok der BR 160', 1002 the 'Adler', 1003 a 'Guterzuglok BR 050'.

In 1980 3 theme sets were launched, 1054 for Farm Machinery, 1055 for Excavation Machinery, and 1056 for Lorries. The parts in these sets which would have normally been red and green, were painted orange, and there were also new black and white plastic parts included. A Cable Car Set (1057) was added to the range in 1981.

In 1987 the 'orange' sets were dropped and the basic sets were revised and renumbered. This gave m30

(No 1004, 343 parts), m50 (1005, 458 parts) and m60 (1006, 664 parts), with linking sets E30 (1016) and E50 (1017). There followed packs of extra parts (1040-1047), a Robot set (1007, 649 parts including 4 motors), a Solar set (1008, 215 parts with a solar panel which would work from a 60 watt light bulb), and 3 smaller special sets to make a Motorcycle (1034, 96 parts), Cable Car (1035, 141 parts) and a Helicopter (1037, 113 parts). The 16 volt 1073 motor was discontinued and a new 6 volt d.c. with 4 speed gearbox (1018) added, also a new pattern of screw head was adopted which combined a hexagonal recess with the conventional screwdriver slot. An electric screwdriver was added to the range.

In 1989 there was a new special set to make a model of the Eiffel Tower, 185 cm high. It contained 4000 parts, weighed 16 kg and was supplied in a wooden case.

In order to make Part 2 as complete as possible if anyone has details of the contents of the sets listed below I would be grateful to have details -

Sets through No 6 for any year about 1930.
Set 105A (1947-57).
Sets 1035 and 1036 (1957-62).
Sets A, B, C and E3 (1976-86).
Sets m30, m50 and m60 (1987 onwards).

REVIEW

BRITISH TIN TOYS by Marguerite Fawdry, New Cavendish Books, £25. (240 pp)

Marguerite Fawdry has had a lifelong love of British toys of all kinds and is the founder of Pollock's Toy Museum off the Tottenham Court Road in London. Over the last forty years she has amassed a tremendous collection of original source material on British toys. In particular she owns a complete collection of the major toy trade journal 'Games and Toys' from 1914 until its demise in the late 60's. From this material she and her assistants have built up an unrivalled, cross-referenced set of records on British toys and their manufacturers.

Drawing on these records Mrs Fawdry has already written books on English dolls and rocking horses and has now moved on to British Tin Toys. In fact the title is misleading in that the book deals with all manner of metal toys and not just those made from tinplate. This includes metal constructional toys and hence the importance of the book to readers of this journal.

The book begins with a brief history of tinplate manufacture in Britain and its use in toy making but then launches into its most important section, an 'A-Z of British-Made Metal Toys'. Included in this are famous and not so famous brand names and the toys produced under them. Also listed are manufacturers of metal toys and sections on special interests such as Guns, Musical Toys, Trains and Constructional Toys. These latter sections are largely a cross-referencing exercise directing the reader to all the manufacturers of such toys to be found elsewhere in the directory, but are none-the-less a very useful device when researching a particular topic.

Under Constructional Toys we find the well known firms such as Meccano, Juneero and Trix but we also discover Gray and Nicholls who in 1919 were making a constructional kit called Framus and we find Paton, Calvert Ltd who in 1915 were making a tubular construction toy called Happynak. Both these latter firms were based in Liverpool, in fact Paton, Calvert was in Binns Rd opposite Meccano Ltd, yet neither appear (yet) in MCS. And there are several more obscure manufacturers listed which fact alone makes this book of great interest to readers of OSN. But beyond this we also learn a lot more about the background to more well known constructional toys. For instance, there is an interesting section on William Bailey Ltd of Birmingham, who made both Kliptiko and Wenebrik, which provides dates of manufacture, patent numbers and significant events in the history of the firm.

The book is completed by a series of appendices which consist of reproductions of original advertising literature. The seventh of these is entitled 'Lesser Known Constructional Outfit Makers' and has material relating to Juneero. Presticon, Pioneer and Kliptiko.

The book is lavishly illustrated throughout with original advertising literature, good black and white photographs and superb colour ones from the New Cavandish archive. This does mean that those who own books in the Hornby Companion Series will have seen some of the colour pictures before but there should be plenty of new snaps to keep such people happy.

I have to admit that since acquiring a copy of this book it has become an essential reference to me and I find myself reaching for it whenever I come across a new obscure item I need further information on. Seldom has it let me down.

Malcolm Hanson

TRIX MOTORS A search through the TRIX material available, largely from Frans Boerdijk and Harry Marien, has produced a clockwork motor (Fig 6) and electric ones with half a dozen or so different reference numbers. But from the illustrations of them, and leaving aside the modern TRIX motor (shown in MCS - FB's version), there seem to have been only two basic types, the d.c. with the horseshoe magnet (Fig 1) and the universal a.c./d.c. with a coil to produce the necessary magnetic field (Fig 2). There were also two main types of base plate, again shown in Figs 1 and 2, and some motors were partially cased, either with a short version (Figs 4 and 5) or a longer one (Fig 3). In the Sheffield Newsletter No 11 it is said that the base of the 2161 is made of brass, rather than the steel commonly seen on permanent magnet motors in the UK. Perhaps all universal motors have brass bases.. Whether the electrics varied in ways not obvious from the illustrations is not known but in all the references the d.c. motor was said to run on 4-8 volts and the universal on 8-12v a.c. Sometimes 6-8v d.c. was mentioned for the latter as well. In the earliest illustrations from the Dutch material the brushes of motors 2052 and 2062 are shown as not being divided into two along part of their length (see Fig 2), unlike later ones.

The Table below lists all the references to motors found and it seems to show that all motors with a '0' as the second digit of their reference numbers have no casing and all with a '1' are cased (assuming that the sideplates of the C/W motor count as a casing); further for d.c. permanent magnet motors the third digit is always '5', for a.c./d.c. it is '6', and for the C/W '7'. This pattern may be a coincidence and no meaning for the fourth digit has been found. Some of the illustrations of motors may also be misleading, for example those of the 2055 motor in the French leaflet [E] and of the 2052 in the 1933 Dutch catalogue are identical. Some TRIX literature carries printing references which may look as if they include date codes, but certainly in some cases these do not seem to fit with other evidence as to the likely date of publication.

REF NO	COUNTRY	DATE	CASING*	BASE**	SOURCE/NOTES	PRICE
DC MOTORS						
2050					Mentioned in a German language leaflet (ref 410/06)	
2051	UK	1949-55	0	2	1949 &'55 editions of manual. Often called 'Permag'.	
2051	Belgium	1949			Leaflet with ad for competition closing 1/49.	95 fr
2052	Holland	1933-?	0	1	1933 catalogue & leaflet (ref 1052/la). [A]	90/95 cent
2052	Holland		0	1	MCS TRIX (4)5. [B]	fl.1.25
2055	Belgium	Post 1934	0	2	Catalogue with letters from 1934 shown in it.[C]	15 fr
2055	Belgium				Mentioned on page from leaflet or catalogue. [D]	
2055	France	Postwar ?	0	1	Leaflet on poor paper. [E]	
2155	Belgium		1	2	As [D] above.	25 fr
AC/DC MOTORS						
2062	Holland	1933-?	0	1	As [A] above.	90/95 fr
2062	Holland				As [B] above.	fl.1.25
2065	Belgium	Post 1934	0	2	As [C] above.	15 fr
2161	UK	Late '30's ?	1	2	Sheffield Meccano Guild Newsletter No 11.	
2165	Belgium		1	2	As [D] above.	25 fr
2165	France	Postwar ?	2	3	As [E] above.	
C/W MOTORS						
2170	Belgium		C/W	2	As [D] above.	30 fr
2170	Holland		C/W	2	Illustration & description from unknown document.	

* 0 = none, 1 = as in Figs 4 & 5, 2 = as in Fig 3.
** 1 = as in Fig 2, 2 = as in Fig 1, 3 = as in Fig 3 (cf #2)
NOTE. All the Belgian literature above is in the French language.

The modern motor shown in MCS [(3)3/4] is called GM 1 and is stated to work on d.c. Although in appearance it looks more the shape of the earlier universal motors it is not possible to see much detail in the illustration. Its base though looks like the second type but with an extra hole to complete the top row.

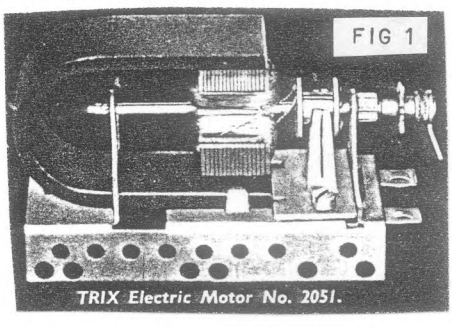
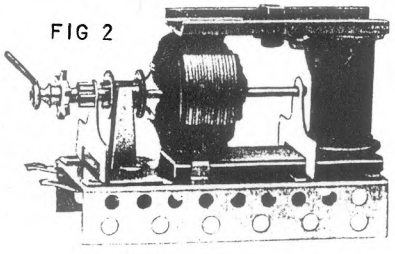


FIG 2



TRIX-electro-motor 2062
met electro-magneet voor wisselstroom 8-12 Volt (Transformator).

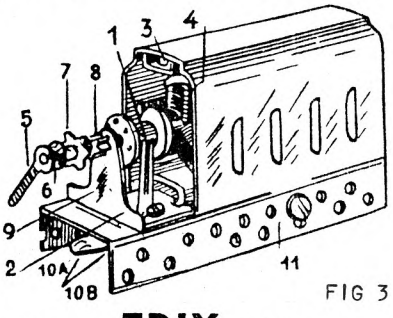
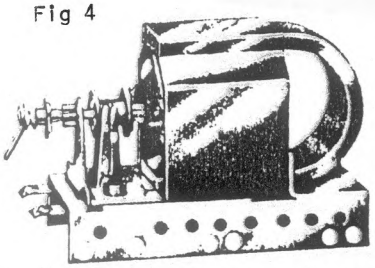


FIG 3

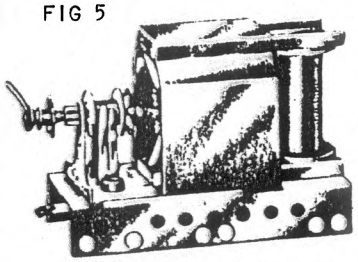
Moteur TRIX 2165

Fig 4



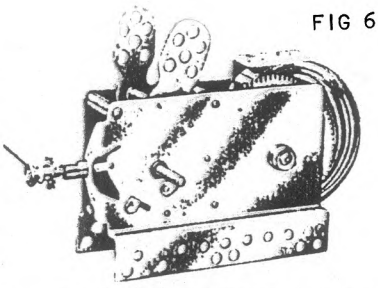
Moteur 2155

FIG 5



Moteur 2165

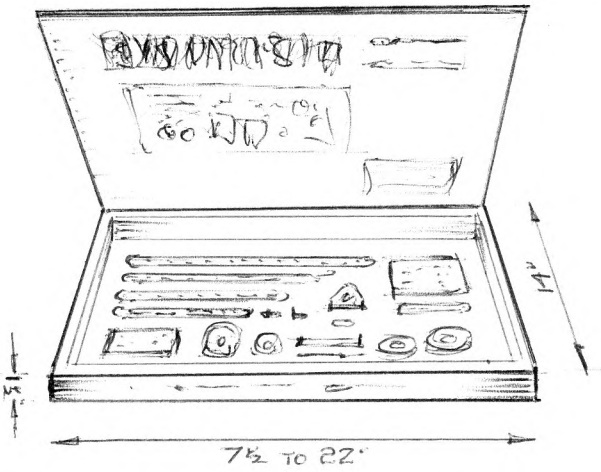
FIG 6



Moteur 2170

STORAGE OF 'OTHER SYSTEM' PARTS

by Frank Beadle



If Sets are boxed the problem does not occur,only when one has parts of 'OS', even most of the parts,it is required to store them in such a way that they are presentable in case of being required for a disply or simply just to keep them intact and neatly presented.

I have over 60 display boxes of 'OS' parts, all display trays are purpose made with the brief description as follows:-

All boxes are the same size (front to back) of I4" (35cm), also the same height of I½" (38mm) though the widths are from 7½"(I9cm) to 22" (56cm), accomodating all types of systems.

The boxes or trays are simply made, all sides being of I½" x ½" softwood (38 x I2mm) all the sides are same length, only the edges of to (back) and bottom (front)vary in size as mentioned.

The base has 6mm or 8mm plywood, whilst the top lid, which has no frame is of thinner 4mm plywood.The heavier base allowing for screwing on parts with 9mm screws either c/s or domed. The lid is fixed by piano hinges, not of genuine brass but cheaper brassed steel,or any twin smaller hinges will suffice.

It is better to make several boxes at once,perhaps even I0 or so, and a simple arrangement of parts of a system on box base will soon indicate whether they will fit with an arrangement to show them to their best,taking into account colour, mass, wheels gears etc.

The boxes or trays are all painted three times inside and inside of lid in white (blanc) undercoat, avoid gloss,matt is better, with the outsides painted at a later date in grey, after some trimming of the lid has taken place,this can be done with parts fixed.

No real skill is needed, corner joints of the frame are of the simple 'butt' type (flat end to end) with small headless nails used

I have over 60 boxes of this type and occasionally make a few more as parts come in, sometimes boxes of one dimension stay for a few months empty, but some system parts always are found in the end.

The lid(inside) is used to show the system name in large letters usually in the style of the manual, hand done in black felt pen and often fun with some names,whilst an illustrated parts list and the counry of origin can be added to make a worthwhile display.

I hope this is of help to those with parts without their boxes.

QUERIES

7. Martin Perl found some 'foreign' parts in a FORGEACIER set which were stamped NEO-STRUCTOR BREV. FR. & ET. Any information on NEO-STRUCTOR please.

8. 'Taffy' Williams would like information on/illustrations of a TRICY TRIX model of a 4 cylinder (coils) V4 engine. It would be prewar, probably the 1937-39 period.

ELEKTRISKAIS KONSTRUKTORS 'SKOLNIEKS' In OSN 3 there was debate as to whether this set is related to ELEKTROMEHANISKAIS KONSTRUKTORS (called ONbITOB in MCS, I will call it EMK here for convenience). Keith Cameron has kindly sent a copy of the manual for SKOLNIEKS and since the details of this set have not appeared elsewhere some parts of it are reproduced here. Nearly everything is in the two languages but, where appropriate to save space, only the Lettish version is shown. Comparing the illustrated list of parts (Fig 1) to that in MCS for EMK it is clear that the illustrations common to both are identical, also with one or two exceptions all the parts in SKOLNIEKS are included in EMK. So even though the part numbers do not correspond it is almost certain that the two sets come from the same source.Some of the parts that are illustrated in what appears to be the layout of parts in the SKOLNIEKS carton (Fig 3), vary slightly from those in the illustrated parts list. The set contents are shown at Fig 2.

The word ONbITOB (meginajums in Lettish) seems to mean 'models' because on the front cover of the SKOLNIEKS manual it says 21 ONbITOB and there are 21 models shown in the manual. Models 1 to 17 are simple circuits using lights and switches, 18 and 19 use the coil as an electromagnet and the most complicated model, No 21 is shown as Fig 4. Inside the manual the name Elektrokonstruktors 3 'SKOLNIEKS' is used, with underneath "Elektrokonstruktors 1.-3. klases skoleniem" - a similar phrase also occurs in some introductory text and 104 models, electric and magnetic (elektriba un magnetisma), are also mentioned in this section. Conceivably there are three sets, No 3 is the smallest, and the largest makes 104 models. Whether the EMK set in MCS could be one of these three sets is doubtful because of the difference in part numbers, and because not all the parts in SKOLNIEKS are included in the EMK. Two groups of figures which are surmised to be dates, are mentioned in some small print (Russian only) at the bottom of page 2 of the SKOLNIEKS manual, 24.03.83 and 28.03.83, but it is not obvious what they refer to.

One point of interest about the MCS entry for EMK is the illustration of the estate car model shown, it is exactly the same as the MECCANO Model 5.2 of 1962-69 except that the MECCANO part numbers have been replaced by EMK ones.

SUMMARY OF MANUAL

#Name: ELEKTRISKAIS KONSTRUKTORS 'SHOLNIEKS'. #Details of maker: none. #Dates or Ref Nos: what may be a printing ref contains '28.03.83' and '24.03.83', which may be dates. #Page size: Approx 150x210mm deep. #No of pages: 32 plus 4 unnumbered as covers. #Language: Lettish and Russian. #Printing: the models are illustrated in halftone and line drawings.The cover is the same style as that of ONbITOB in MCS - the top light panel contains the names of the set, the next, separated from the first by a thin blue band, has 21 instead of 45, and in the bottom red panel INSTRUKCIJA is arranged with the last 4 letters on a lower line. These letters are blue against a light 'shadow'. #Page nos of Parts List & highest PN: 7-9. 25. #Page nos of Set Contents & highest PN: 6. 25. #Sets covered: 1 (may be set 3). #No of models for set: 21. #Name, model no, page no of first and last model of each set: Spuldzites pieslegsana tiesi baterijai (bulb in holder connected directly to terminals of battery), 1, 11; Elektriskais zvans (electric bell), 21, 32. #Other notes: details taken from photocopy and written notes.

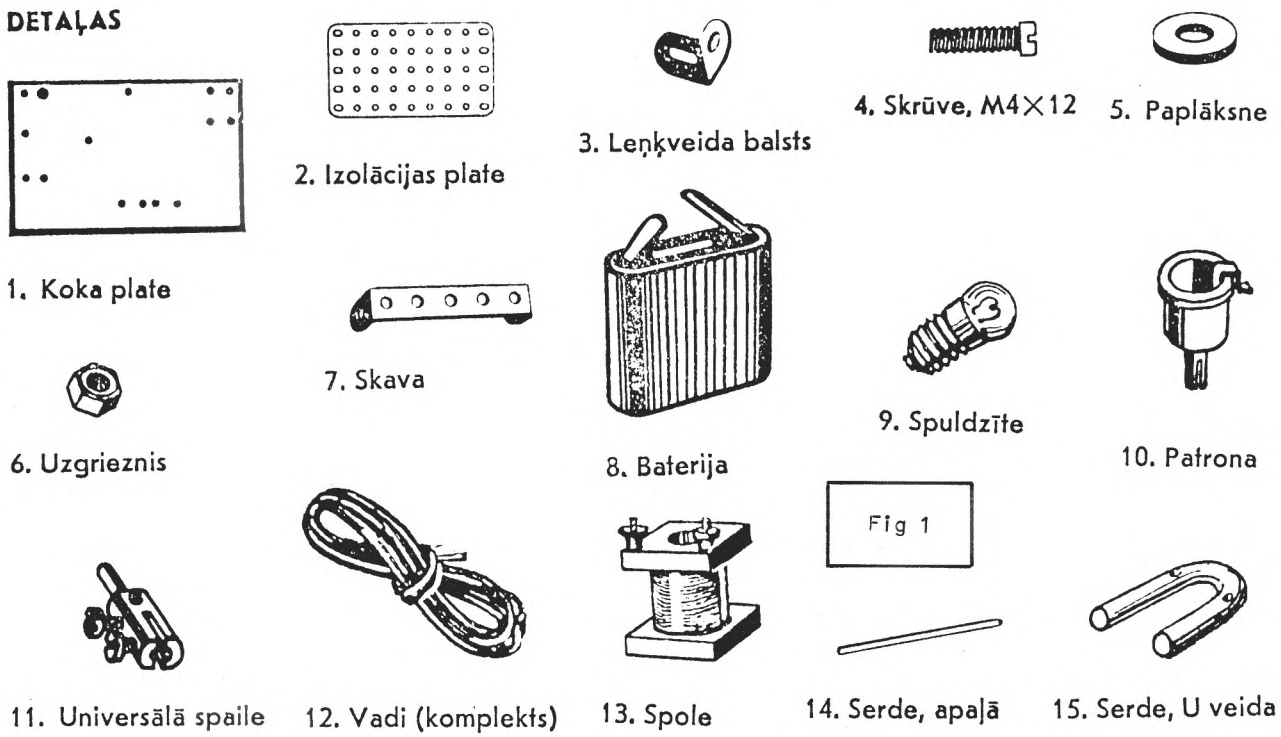
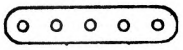
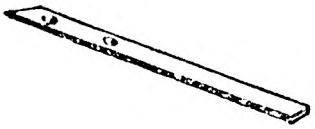


Fig 1



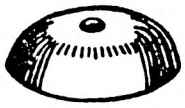
16. Sloksne, 62 mm



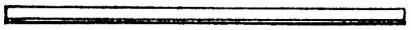
17. Misiņa plāksne

18. Savienotājskrūve

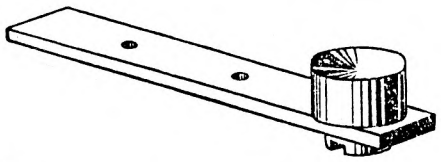
19. Stienis, īsais



20. Zvana kupols



21. Koka statīvs



22. Slēdža plāksnīte

Fig 1 cont.

DETAĻU SARAKSTS

Detaļas Nr.	Nosaukums	Skaits
1.	Koka plate	1
2.	Izolācijas plate	2
3.	Leņķveida balsts	4
4.	Skrūve, M4×12	14
5.	Paplāksne	30
6.	Uzgrieznis	15
7.	Skava, 37×12 mm	4
8.	Baterija	1
9.	Spuldzīte	3
10.	Patrona	3
11.	Universālā spaile	3
12.	Vadi un uzgaļi	1 komplekts
13.	Spole	1
14.	Serde, apaļā	1
15.	Serde, U veida	1
16.	Sloksne, 62 mm	2
17.	Misiņa plāksne	2
18.	Savienotājskrūve	1
19.	Stienis, īsais	2
20.	Zvana kupols	1
21.	Koka statīvs	1
22.	Slēdžu plāksnīte	2
23.	Uzgriežņu atslēga	1
24.	Skrūvgriezis	1
25.	Savienotājspaile	3

Fig 2

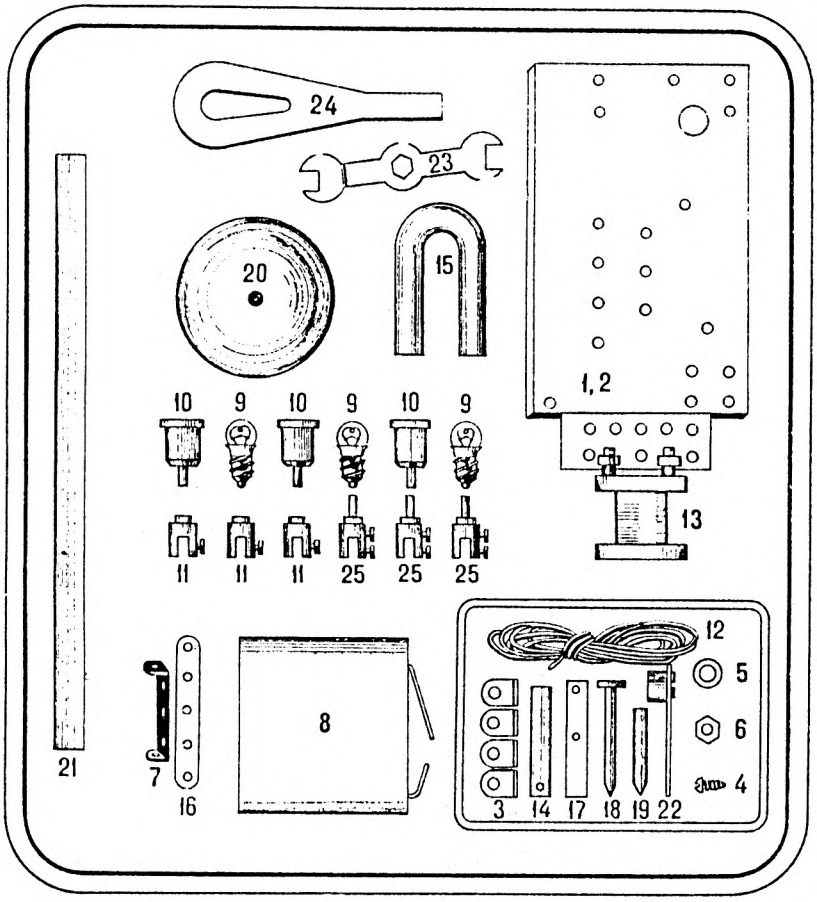


Fig 3 **DETAĻU IZVIETOJUMS**

Piezīme.

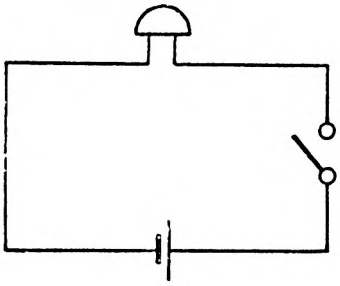
Detaļu Nr. 11 un 25 skrūvītes ievietotas plastmasas kastītē kopā ar skrūvēm Nr. 4.

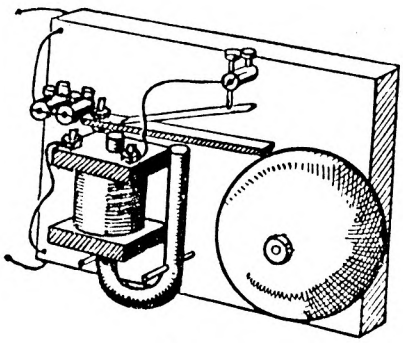
23. Uzgriežņu atslēga

24. Skrūvgriezis

25. Savienotājspaile

Mēģinājuma shēma
Схема опыта





20. zīm.
рис. № 20

21. Elektriskais zvans

Fig 4

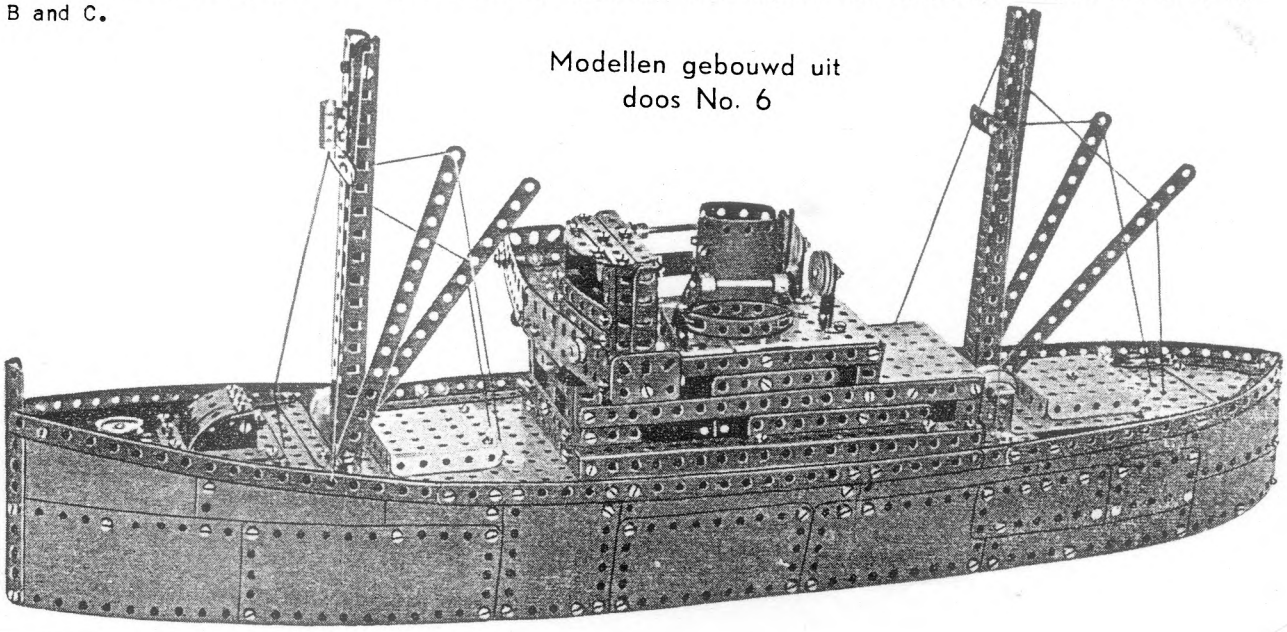
NEW FACTS - NECOBO Thanks to Harry Mariën it has been possible to examine 4 NECOBO manuals, summaries of which are included opposite. These together with 2 NECOBO price lists of sets and parts from Geoff Wright allow some amplification of the data in MCS.

One price list has no date and the other is dated Sept 1961, they both show identical parts and sets except that the dated one lists a Junior set, smaller than Set 0. There are no dates on any of the manuals but, from the changes to the ranges of parts and contents of sets that are shown in them, it is possible to make a good guess as to their chronological order, and the summaries are so listed. The information in MCS seems to fit in all respects between the second and third manuals, that is the 0-4 and the 3-4. From its appearance the earliest manual might be from the 1950's and the last from the 60's. The latter shows the same range of sets as the price lists (apart from the Junior set) but the set contents section of the manual contains far fewer parts than the lists. This could mean that there were in fact fewer parts in the system at the time of the manual in question, but this is very probably not the case because the Set Contents sections of two of the manuals list only the parts needed for the largest set then available.

The dated price list is reproduced overleaf at slightly reduced scale and it shows that by 1961 the standard range of sets had increased to the Junior plus 0-6 (from 0-4 in MCS), and in addition there are sets A, B and C. The parts shown, over 200 of them, far exceed those in MCS, and they form quite a comprehensive system with a reasonable selection of gears and sprockets but with no large circular parts. There are though quite a number of variations on MECCANO parts and quite a few of MARKLIN origin. It also appears from the undated list that the manufacturer had changed to Bé & Bé, unless this was the distributor (quote "een Kwaliteitsproduct van Bé & Bé, Industrie en Handelsonderneming, Strijkviertel 30, DE MEERN. - Tel. (03406) 2025").

Returning to the manuals (and with the assumed date order) it is stated in the Introduction to the earliest that the range of sets was 0-3 and the Part Numbers in the Set Contents section contain none with a letter after the number except those for Axle Rods. With the exception of PN's 75-79 and 85 and 86, all numbers through 94 are used although many are not needed to define the contents of the sets. So this may have been the complete list of parts at that time. Among those listed, but not used in Sets 0-3, are a few which are not in the Price Lists. They are Flat Girders 3, 15, 19, 25 holes long (PN's 12, 19, 20, 21), and DAS with 2x5x2 and 3x5x3 holes (PN's 39,40). Compared with MCS the contents of Set 3 lacked the parts 85 and 86 as well as 118, 119 and 125.

Generally the contents of sets did not vary very greatly during the period under review. The most significant changes, apart from the parts 85 to 125 mentioned above which first appear in the second manual, were the inclusion of a Flanged Plate in Set 0, this being first shown in the MCS data, and the introduction, in the last manual, of Rubber Rings for the 2.5 cm Pulleys in all the sets instead of only in Set 4. Otherwise changes were confined to a few extra Nuts and Bolts, Washers, Axles and the like, as time went on. Obviously the most important changes were the introduction of Sets 5 and 6, and A, B and C. These are first mentioned in the last, 0-2, manual: in the Introduction, Sets 0-5 are mentioned and after the illustrations of the models for Sets 0-2 there are pictures of sample models from Sets 3, 4, 5 and 6; on the rear cover Sets A, B and C are advertised, but not illustrated, and 3 models shown - all are mechanisms using gears. Unfortunately the Set Contents section of this manual only covers Sets 0-2. There is no evidence that there were any gears in Sets 5 and 6, no doubt this aspect was catered for with the sets A, B and C.



The models shown in the manuals stayed the same throughout except that additional models for Sets 0 and 1 were introduced in the last (0-2) manual, making use of the Flanged Plate that had been added to Set 0 and the Rubber Rings as tyres. These new models, as well as many models throughout the range, had quite a good appearance except that the larger vehicles made from Sets below No 4 lacked suitably sized wheels, a fault in the models from the smaller sets of many systems. None of the models were shown motorised and there was no mention of a motor in any of the literature described.

Finally MCS gives the colour of the parts as green for Strips and red for Plates; this is borne out by the coloured covers of the manuals except that Flexible Plates are shown there as being blue.

SUMMARY OF MANUALS

Name:	NECOBO	NECOBO	NECOBO	NECOBO
Details of maker:	NEderlandse COstructie BOuw, d.w.z.	NEderlandse COnstructie BOuw, d.w.z.	None	Nederlandse COnstructie BOuw, d.w.z.
Dates or Ref Nos:	<------- All have DRUKKERIJ VAN LONKHUYZEN ZEIST on back cover ------->			
Page size:	237x152mm deep	237x148mm deep	240x165mm deep	240x171mm deep
No of pages:	40 unnumbered	48 unnumbered	20 unnumbered	48 (3-46 numbered)
	<---------- Including covers ---------->			plus covers.
Language:	Dutch	Dutch	Dutch	Dutch
Printing:	*1 *2	*1 *2	*1 *3	*1 *4
Page nos &) of Parts List:	*5 *6	*5	*5	*5 *6
Highest PN) of Set Contents:	38, 39. (94)	44, 45 (125)	18, 19 (125)	47, 48 (125)
Sets covered:	0-3	0-4	3-4	0-2
No of models for each set:	8, 21, 17, 11	8, 21, 17, 11, 6	11, 6	27, 45, 17
Name, model no, page no of first and last model of each set:	*7	*8	*9	*10
Other notes:	The manuals are listed in what is believed to be chronological order.			

*1 All models are shown in halftone.

*2 Front cover, below left, is in halftone. The crane is predominantly red and green and the letters of NECOBO are red, green, red, gold, green, gold respectively. The industrial skyline is purple with a light brown foreground and a blueish sky above.

*3 See below centre. As *2 except for contents of parallelogram, top right.

*4 Front cover, below right, is in fine halftone. The background is green at the bottom, changing to yellow, with the industrial skyline above in dark blue. The sky is blue with a white cloud; the boy is wearing a blue jumper and the crane is mostly green. The letters of NECOBO are red and under the righthand end is METAAL BOUWDOZEN in small black capitals.

*5 A description with some illustrations, of the parts used in the sets is included in the Set Contents section.

*6 Some other parts, not used in the sets described in the manual, are also included.

*7 0: Weegschaal, 1, p5; Schommel, 8, p8. 1: Bewaakte Overweg, 9, p9; Draaimolen, 29, p19. 2: Mijnlocomotief, 30, p20; Hijskraan, 46, p28. 3: Draaimolen, 47, p28; Hijskraan, 57, p37. NB. Model numbers only appear in the complete list of models on p4.

*8 As *7 but add - 4: Haven-Portaalkraan, 58, p38; Veetransportauto, 63, p43.

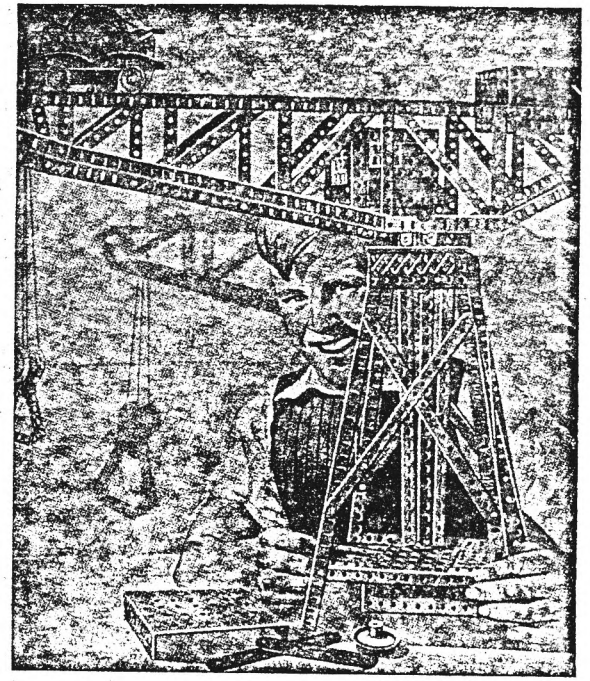
*9 3: Draaimolen, p2: Hijskraan, p11. 4: Haven-Portaalkraan, p12; Veetransportauto, p17. NB. There are no model numbers.

*10 0: Hijskraan, 1, p3; Autoped, 27, p11. 1: Bewaakte Overweg, 1, p12; Rivierkruiser, 45, p34. 2: Mijx-Locomotief, 1, p35; Hijskraan, 17, p42. NB. Sample models from Sets 3, 4, 5 are shown on pp43-46; 3 models from Sets A, B, C appear on the back cover.

[Cont >]

Jalink's Geschenkenhuis
Lievevrouwestraat 8
BERGEN OP ZOOM

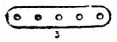
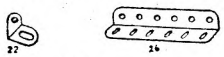
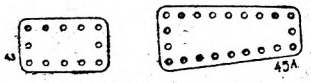
SEPTEMBER 1961

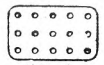
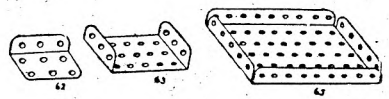
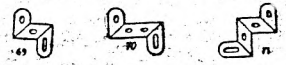


NECOBO

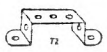
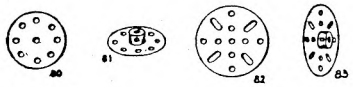
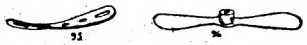
NECOBO-BOUWDOZEN		NECOBO-AANVULLINGSDOZEN	
Junior	f 2.75		
No. 0	- 7.50	No. 0a completeert No. 0 tot No. 1	f 6.—
No. 1	- 12.25	No. 1a „ No. 1 tot No. 2	- 9.75
No. 2	- 21.50	No. 2a „ No. 2 tot No. 3	- 19.50
No. 3	- 40.—	No. 3a „ No. 3 tot No. 4	- 23.—
No. 4	- 63.—	No. 4a „ No. 4 tot No. 5	- 23.75
No. 5	- 86.—	No. 5a „ No. 5 tot No. 6	- 24.50
No. 6	- 108.—		

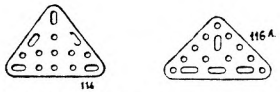
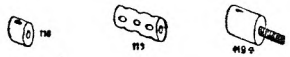
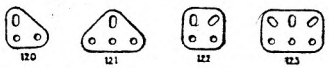
Aandrijfdoos A ..... f 10.50
Aandrijfdoos B ..... - 10.50
Aandrijfdoos C ..... - 11.50

Bestel No.	ONDERDEEL	Prijs
		
1	Strip 4 cm 3 gaten	0.10
2	„ 5 4 „	0.12
3	„ 6 5 „	0.14
4	„ 7½ 6 „	0.16
5	„ 9 7 „	0.18
6	„ 11½ 9 „	0.22
7	„ 14 11 „	0.26
8	„ 19 15 „	0.30
9	„ 24 19 „	0.36
10	„ 32 25 „	0.42
		
11	Platte balk 1½ cm	0.03
11A	Stomphoekbalk 1½ cm	0.05
13	Platte balk 5 cm 4 gaten	0.16
14	„ „ 6 5 „	0.20
15	„ „ 7½ 6 „	0.23
16	„ „ 9 7 „	0.26
17	„ „ 11½ 9 „	0.30
18	„ „ 14 11 „	0.35
		
22	Hoekbalk 1½ cm	0.04
23	„ 4 cm 3 gaten	0.15
24	„ 5 4 „	0.18
25	„ 6 5 „	0.22
26	„ 7½ 6 „	0.26
27	„ 9 7 „	0.30
28	„ 11½ 9 „	0.32
29	„ 14 11 „	0.36
30	„ 19 15 „	0.42
31	„ 24 19 „	0.50
32	„ 32 25 „	0.60
		
33	U-strip 1½ cm	0.06
34	„ 4	0.14
35	„ 6	0.18
36	„ 9	0.22
37	„ 11½	0.28
38	„ 14	0.32
		
41	L-strip 1½ × 2½ cm	0.10
42	L-strip 2½ × 2½ cm	0.14
		
43	Bekledingsplaat 4 × 6 cm	0.20
44	„ 4 × 9	0.25
45	„ 4 × 11½	0.30
45A	„ 4 × 5 × 11½	0.34

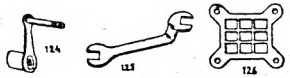
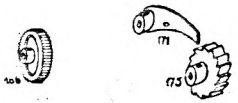
Bestel No.	ONDERDEEL	Prijs
46	Bekledingsplaat 4 × 14	0.35
47	„ 6 × 6	0.24
48	„ 6 × 9	0.32
49	„ 6 × 11½	0.40
49A	„ 5 × 6 × 11½	0.44
50	„ 6 × 14	0.50
		
51	Vlakke mont.pl. 4 × 6 cm	0.30
52	„ „ 4 × 9	0.36
53	„ „ 4 × 11½	0.42
53A	„ „ 4 × 14	0.46
54	„ „ 6 × 6	0.44
55	„ „ 6 × 9	0.46
56	„ „ 6 × 11½	0.50
57	„ „ 6 × 14	0.60
60	„ „ 9 × 14	0.75
60A	„ „ 9 × 9	0.65
60B	„ „ 11½ × 11½	0.80
60C	„ „ 11½ × 14	0.95
		
61	Omgez. montagepl. 2½ × 5 cm	0.30
62	„ „ 2½ × 4	0.32
63	„ „ 4 × 6	0.35
64	„ „ 6 × 9	0.50
65	„ „ 6 × 11½	0.75
66	„ „ 6 × 14	0.80
66A	„ „ 6 × 6	0.70
66B	„ „ 9 × 9	0.80
66C	„ „ 9 × 11½	0.95
66D	„ „ 9 × 14	0.110
		
67	Platlager	0.15
67A	Platlager met naaf *	0.40
67B	Platlager	0.18
67C	Platlager met naaf *	0.42
68	Hoeklager	0.18
68A	Hoeklager met naaf *	0.42
68B	Hoeklager	0.20
68C	Hoeklager met naaf *	0.45
		
69	Z-strip 1½ cm	0.12
70	Z-strip 2½ cm	0.15
71	W-strip 1½ cm	0.18

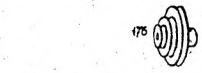
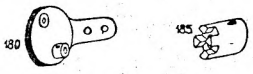
* worden met stelschroef geleverd.

Bestel No.	ONDERDEEL	Prijs
	 	
72	Brugstuk 4 cm	0.25
73	Brugstuk 1½ cm	0.30
74A	Assen 2½ cm	0.05
74B	Assen 4 cm	0.05
74C	,, 5	0.06
74D	,, 6	0.08
74E	,, 7½	0.08
74F	,, 9	0.10
74G	,, 10	0.10
74H	,, 11½	0.12
74 I	,, 13½	0.14
74K	,, 16½	0.16
74L	,, 20	0.18
74M	,, 29	0.20
		
80	Schijf 4 cm	0.25
81	,, 4 cm met naaf *	0.60
82	,, 6 cm	0.40
83	,, 6 cm met naaf *	0.70
		
84	Halve schijf	0.35
85	Snaarschijf 13 mm	0.32
86	Snaarschijf met naaf 16 mm *	0.55
		
87	Loopwiel 2½ cm	0.25
88	Loopwiel 2½ cm met naaf *	0.50
88A	Loopwiel 6 cm met naaf *	0.75
88B	Rubberband voor no. 87	0.26
88C	Autoband voor no. 88A	0.90
89	Krukas	0.18
90	Kraanhaak	0.06
91	Schroevedraaier	0.40
92	Bout 6 mm met moer	0.05
92A	Bout 16 mm met moer	0.07
92E	Ringen (24 stuks)	0.24
93	Stelschroef	0.04
94	Veerclips	0.02
		
95	Boogstrip	0.18
96	Propeller met naaf *	0.50

Bestel No.	ONDERDEEL	Prijs
		
97	Brugleuning 9 cm	0.32
98	Brugleuning 11½ cm	0.38
98A	Brugleuning 14 cm	0.45
99	Sectorplaat 10 cm	0.75
100A	Voorbeeldenboekje junior	0.35
100B	Voorbeeldenboekje no. 0 - 2	1.40
100C	Voorbeeldenboekje no. 3 - 4	1.—
101	Aanvullingsboekje no. 5 - 6	1.—
104A	Handl. v. aandr. A.B.C.	0.75
		
106	Verbindingsstrip 3 cm	0.12
107	,, 4½ cm	0.15
108	,, 6 cm	0.18
109	Vlakstrip 8 cm	0.14
		
109A	Gleufstrip 11½ cm	0.20
109B	Gleufstrip 11½ cm	0.20
		
110	Cirkelboogstrip 8 cm	0.16
111	Enkele kruk 4 cm *	0.40
112	Dubbele kruk 4 cm *	0.40
113	U-strip 4 cm met naaf *	0.46
114	U-strip 1½ cm met naaf *	0.40
		
116	Driehoeksplaat 6 cm	0.28
116A	Driehoeksplaat 6 × 6 cm	0.28
		
118	Stelring *	0.28
119	Askoppelbus *	1.10
119A	Aseindkoppeling met moer *	0.65
		
120	Schetsplaat	0.15

* worden met stelschroef geleverd.

Bestel No.	ONDERDEEL	Prijs
121	Schetsplaat	0.18
122	,,	0.15
123	,,	0.18
		
124	Kruk met naaf *	0.60
125	Moersleutel	0.22
126	Raam	0.45
		
132	Con. tandwiel 20 tanden *	1.40
135	Transm.-spiraal 16 cm	0.32
136	Transm.-spiraal 20 cm	0.40
140	Spoorkranswiel *	0.95
		
145	Rondsel 19 tand. br. 6 mm *	0.70
146	,, 19 tand. br. 12½ mm *	0.90
147	,, 19 tand. br. 19 mm *	1.15
148	,, 25 tand. br. 6 mm *	1.00
149	,, 25 tand. br. 12½ mm *	1.25
150	,, 25 tand. br. 19 mm *	1.50
		
151	Tandwiel, 50 tanden *	0.95
152	Tandwiel, 57 tanden *	1.00
153	Tandwiel, 95 tanden *	1.20
		
160	Kroonwiel, 25 tanden *	0.70
161	Kroonwiel, 50 tanden *	1.00
		
165	Worm *	0.85
166	Wormwiel, 38 tanden 6 mm *	1.90
170	Pal zonder naaf	0.15
171	Pal met naaf *	0.30
172	Draaibout met 2 moeren	0.20
173	Pal met naaf en draaibout *	0.50
174	Trekveer	0.24
175	Palwiel *	0.95

Bestel No.	ONDERDEEL	Prijs
		
176	Kegelriemschijf 19/25/32 diam. *	2.60
		
177	Scharnier	0.26
		
180	Excentriek slag 6½ mm *	1.50
185	Klauwkoppeling 2-delig *	1.00
		
186	Draadstangeindkoppeling *	0.35
187	Draadstangkoppeling *	1.10
188	Schroefdraadpin met moer	0.35
189	Tuimelaar	0.20
190	Tuimelaar met naaf *	0.48
195A	Draadstangen 2½ cm	0.14
195B	,, 4 cm	0.15
195C	,, 5 cm	0.16
195D	,, 6 cm	0.20
195E	,, 7½ cm	0.22
195F	,, 9 cm	0.45
195G	,, 10 cm	0.55
195H	,, 11½ cm	0.70
195 I	,, 13½ cm	0.80
195K	,, 16½ cm	0.95
195L	,, 20 cm	1.10
195M	,, 29 cm	1.30
200	Transmissieketting 1 meter	1.10
	Kettingwielen	
201	14 tanden, 19 mm diam. *	0.55
202	18 tanden, 25 mm diam. *	0.60
203	28 tanden, 38 mm diam. *	0.65
204	36 tanden, 50 mm diam. *	1.00
205	56 tanden, 75 mm diam. *	1.40
		
210	Scharnierplaten 4 × 6 cm	0.90
211	Scharnierplaten 6 × 6 cm	1.00
212	Scharnierplaten 6 × 11½ cm	1.25
215	Deurscharnieren 4 × 6 cm	0.80
216	Deurscharnieren 6 × 6 cm	0.95
217	Deurscharnieren 6 × 11½ cm	1.15

* worden met stelschroef geleverd.

CONSTRUCTO V-8 AND V-12 SETS Thanks to Don Redmond for sending some details of a CONSTRUCTO V-8 set which was once sold in Canada; it seems to contain MERKUR parts, as of course did other Canadian CONSTRUCTO sets, apart from perhaps the electric motor. The manual mentions a second set called V-12.

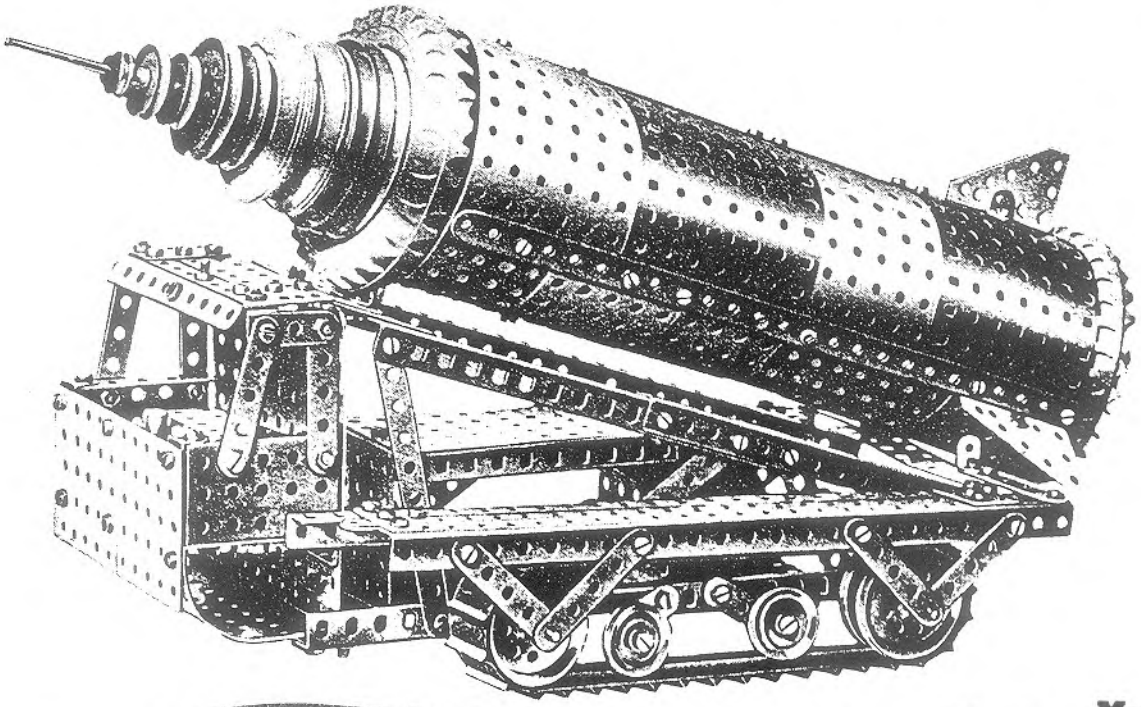
The illustrated parts pages in the manual are identical to those shown in MCS for MERKUR sets 201 and 202, and the V-8 box lid shows models which with one or two minor changes are identical to those in a recent MERKUR 201/202 manual. The biggest change is to the tyres fitted to the NO 82 Tyred Wheel - they have a much larger section than those in the Czech set, which are as illustrated in the illustrated parts section of the CONSTRUCTO manual. These fatter tyres can be seen in the two models at the bottom of this page, which appear on the box lid of the set.

Don notes that on the underside of the box is a coloured chart of parts which lists in addition to the parts shown in the manual, the following: 26A Curved Strip, large radius, stepped ends; 62A Shaft 20cm; 63 Shaft 32cm; 46A, 56, 47, 47A Gears 2.5 to 8.5cm; 93 Spring Cord; 37A Corner Gusset; 43 Pulley 7.5cm; 43A Pulley 10.5cm; 41 Bush Wheel 3.5cm; 44 Worm; 58, 58A Double Braced Girders 6 and 12cm. All these are standard MERKUR parts except that 62A is shown in MERKUR manuals as 17cm long, but they are not included in sets 201/202. It is not certain whether they were in the V-8/V-12 sets or whether they were just parts available within the Canadian range of MERKUR parts. Another difference is that there is a motor in the Canadian sets but not in the Czech ones.

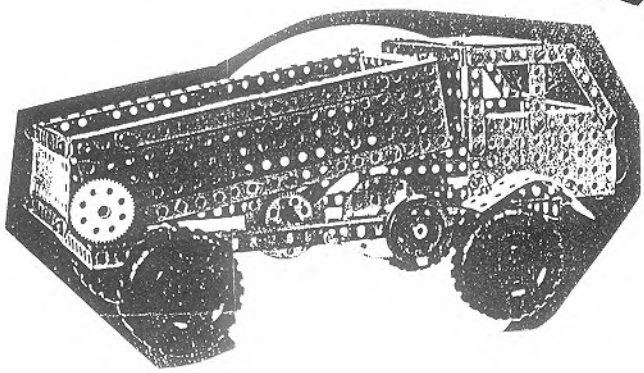
The cover of the manual is shown below natural size, the address on the back cover is Paramount Industries, 2175 Theodore, Montreal. The box lid measures about 13½"x18".

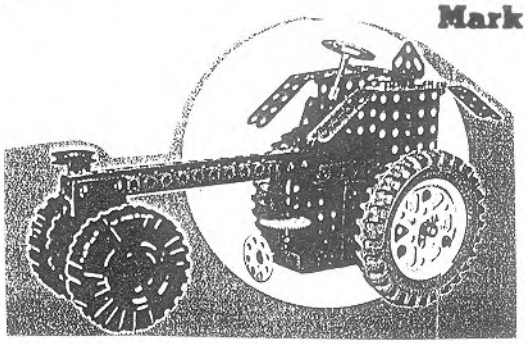
MANUEL CONSTRUCTO MANUAL

BUILT-O-MATIC SETS MOTORISED



Mark V-8, V-12.





VENTO Peter Page sent the illustrated parts list below (reduced in size and rearranged a bit). He writes "Here is another East German system which was offered by VENTO a few years ago at the Design Exhibition. Its sale was taken over by Philip Harris Education who offer at least part of it (I have an incomplete copy of their out of print catalogue - they also offer STOKYS, LEGO and plastic systems). This system could be a 'toy'. I spoke to Nick McNulty last week, they never knew the name of the manufacturer; they picked it up from (and deal only with) an educational supplier at a Hanover fair. I have somewhere a sample plastic base plate and from memory it was marked S M; could this indicate SCHEFFLER METALL? The thickness of the metal parts would make them very strong."

There are no ordinary nuts or bolts listed so perhaps not all the parts are in these lists. It is odd for example that the only part that could be used as an axle is the 3.9mm brass rod. Also the use of the tubes VTT 131 and 132 is not evident, how would they be attached to other parts for instance, and although the 5mm 131 would slide on 130, the 6mm 132 would appear from its wall thickness not to fit over 131. I'm not sure whether it could be a toy, cutting the metal strips and angle girders would require a sturdy tool or a hack saw, and even the 2mm plastic plates would need more than mum's kitchen scissors. But the road wheels look quite toy like. In the description of VTT 125 there is mention of O.H.P: if that means overhead projector, it might reflect a commercial application.

NEW PRODUCT

Vento TEACHING TECHNOLOGY

STEEL MATERIAL — ZINC PLATED

	Part No	Description	Price
	VTT 100	Punched Strip 15 x 500 x 1.5mm 4.5mm Ø 15mm Pitch	6.60/10
	VTT 101	Slotted Strip 15 x 500 x 1.5mm 4.5mm x 25mm Slot	7.20/10
	VTT 102	Angled Punched Strip 15 x 15 x 500 x 1.5mm 4.5mm Ø 15mm Pitch	2.04 Each
	VTT 103	Angled Slotted Strip 15 x 15 x 500 x 1.5mm 4.5mm x 25mm Slot	2.04 Each
	VTT 104	Double Punched Strip 30 x 500 x 1.5mm 4.5mm Ø 15mm Pitch	1.32 Each
	VTT 105	Double Slotted Strip 30 x 500 x 1.5mm 4.5mm x 25mm Slot	1.32 Each
	VTT 107	Base Plate 20 x 20 x 170 x 500 x 1mm 4.5mm Ø 15mm Pitch	6.87 Each
	VTT 111	Steel Tooth Rack 5 x 10 x 250mm For Use With Gears	3.75 Each
	VTT 112	Plain Strip Unpunched 15 x 500 x 1.5mm	9.30/10
	VTT 113	Plain Strip Unpunched 30 x 500 x 1.5mm	15.30/10

BRASS TUBE, SPACERS & ANCILLARIES

	VTT 130	Brass Rod 3.9mm Ø 500mm Long	1.05 Each
	VTT 131	Brass Tube 5mm Ø 0.5 x 500mm Long	1.14 Each
	VTT 132	Brass Tube 6mm Ø 1mm x 500mm Long	1.85 Each
	VTT 133	Brass Spacer 5mm Ø x 0.5mm 2mm Long	2.43/100
	VTT 134	Brass Spacer 5mm Ø x 0.5mm 15mm Long	3.42/100
	VTT 214	Wing Nut M4 Zinc Plated	4.59/100
	VTT 217	Brass Collar With 4mm Bore	23.88/100
	VTT 221	Zinc Plated Hook	8.40/100

For details contact Nick McNulty at:
VENTO-SOLENOIDS LIMITED
43 Burnett Lane South,
Kiln Farm, Milton Keynes,
Buckinghamshire, MK11 3HA, England.
Tel (0908) 562815 Telex. 826230 (VENTO G)

NOW CALLED AUTOMATRON ???

NOW SOLD BY PHILIP HARRIS EDUCATION
STONE
LICHFIELD

POLYSTYROL — LEAD FREE THERMOPLASTIC

	Part No	Description	Price
	VTT 120	Polystyrol Plate 500 x 1000 x 2mm Unpunched — Red or Blue	TBA 8.05
	VTT 121	Polystyrol Plate 500 x 1000 x 2mm Punched 4.5mm Ø 15mm Pitch — Red or Blue	23.60 25.53 Per Sheet
	VTT 125	Polystyrol Base Plate — Punched 4.5mm Ø 15mm Pitch — Red, Blue & Transparent 15 x 15 x 74 x 149 x 2mm With Underside Marking On U Profile For Cutting. Transparent Plate For use With O.H.P.	7.50/10 5.18/5
	VTT 126	Polystyrol Strip — Punched 4.5mm Ø 15mm Pitch — Red & Blue 15 x 149 x 2mm	2.05/10

ELECTRICAL COMPONENTS

	VTT 301	4mm Jack Plug (Banana)	0.27p Each
	VTT 350	6v Motor With Flying Lead	2.60 Each
	VTT 351	Terry Clip For Mounting Motor (2 Recommended)	0.42p Each
	VTT 352	4mm/2mm Reducing Bush For Interfacing Motor With Wheels And Pulleys — Black Plastic	6.66/100

GEAR WHEELS, WHEELS & PULLEYS

	VTT 140	Gear Wheel 58 Teeth 60mm O.D. — Red	4.50/10
	VTT 143	Gear Wheel 12 Teeth 15mm O.D. — Red	3.30/10
	VTT 144	Bevel Gear 45° Angle 25mm O.D. — Red	4.45/10
	VTT 145	Worm Gear For Use With Gears 12mm O.D. x 26 mm — Black	5.40/10
	VTT 146	Pulley 50mm O.D. — Red	8.10/10
	VTT 147	Pulley 40mm O.D. — Red	7.20/10
	VTT 148	Pulley 30mm O.D. — Red	6.00/10
	VTT 149	Pulley 10mm O.D. — Red	4.80/10
	VTT 151	Wheel 51mm O.D. — 20mm Width — P.V.C.	1.50/10
	VTT 152	Wheel 51mm O.D. 20mm Width With Brass Bearing — P.V.C.	3.00/10
	VTT 161	Gear Wheel 45 Teeth — Red	6.00/10
	VTT 162	Gear Wheel 30 Teeth — Red	5.10/10
	VTT 163	Gear Wheel 15 Teeth — Red	4.80/10

CONSTRUCTION [info from Brian Rowe, Peter Page and Karst Quast] Two new sets have appeared in the UK, C13 and C21, and one in Holland, C14. A model from each set, their contents and new parts are shown here. The Dutch catalogue which lists C14 also includes C01, C02, C03+6, C04, C07, and C12 as well as 8 small packs of parts. Apart from C12 and a few C01 sets none of these have been reported on sale in the UK, but C10 and C20 have been reported several times as well as C13 and C21.

Several models can be made from the C13 set including a Road Grader and Tractors with Buckets (made from 4x1584 with a 1585 at each end). The slewing of the C14 Crane is achieved by a Worm acting on a Gear Wheel and the winding shafts for the hoisting/lowering motion, and the luffing of the fly jib can each be locked by a Pawl engaging in a Pinion. The leaflet for the C21 shows 5 space vehicles of different sorts, all quite attractive but with no working parts.

The packs of parts have been described as containing – C101, Angle Girders, long Strips; C102, Flat Plates and Strips; C103, Brackets; C104, Face Plates, Discs, Rods; C105, Gears, Couplings, Collars; C107, Flanged Plates. The C105 contains much more than the earlier C4 Gear Pack with one of each Bevel and the Worm, 2 of all other gears, the Universal and the Coupling, plus Collars and small Pulleys.

Super Set 4 was mentioned in OSN 3 and Peter says that a secondhand set so marked was identical to C07 including the instructions, the only difference was in the lid design.

Brian has tracked down the main importer of CONSTRUCTION – The Royle Group, Royle Works, Royle Road, Castleton, Rochdale. Lancs. Tel: 0706 344383. He also sent a photo of a Steam Plant made from CONSTRUCTION using some of the plastic parts to very good effect for the boiler and chimney. The eccentric was made by drilling an off centre hole in the large Washer and mounting it on a Screwed Rod, surrounded by 2 of PN 1271 (Double Angle Strip), bolted together and to the eccentric rod. It is driven by the motor from the C04 set and for identification purposes this has a bright yellow plastic casing with 'Piko' stamped on the metal housing. Also on parts, in the latest C03+6 set (obtained from Holland) the largest tyres, formerly in rubber, are now black plastic. And he spotted an error in OSN 3, on p35 the captions C12 and C20 should be interchanged. Finally Brian says that he can supply most CONSTRUCTION sets from UK and Dutch sources, so contact him (address on p 42 of OSN 3) if you need anything.

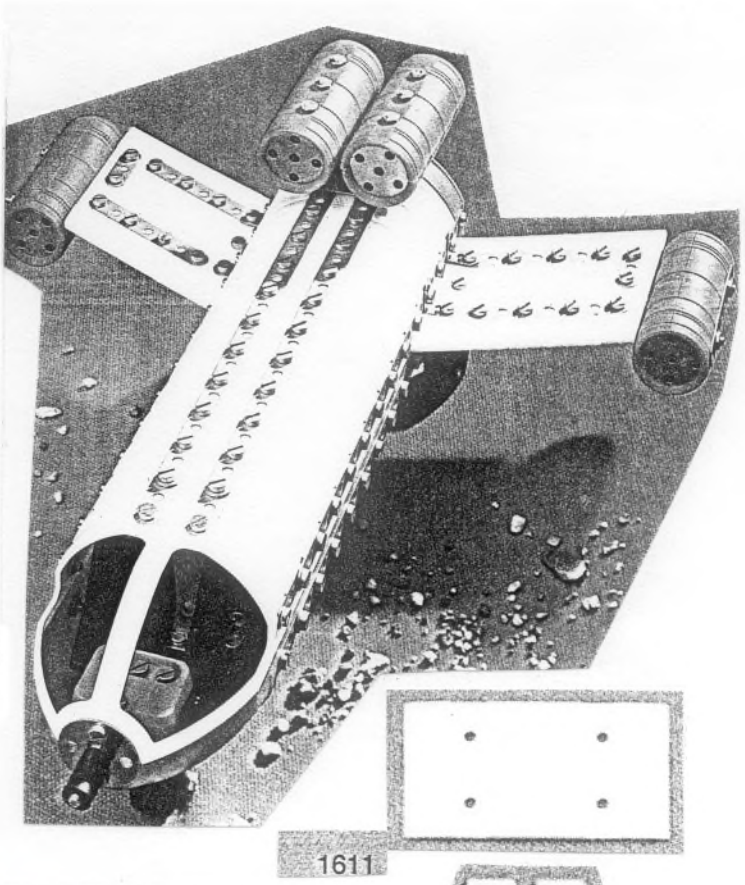
	Description				
1001	Flat bar, 2 holes	4	1362	Shaft, 120 mm with threaded ends	2
1002	Flat bar, 3 holes	10	1372	Threaded rod, 44 mm	1
1003	Flat bar, 4 holes	3	1381	Grub screw	2
1004	Flat bar, 5 holes	6	1401	Adjusting ring	2
1006	Flat bar, 7 holes	2	1402	Elastic adjusting ring	25
1007	Flat bar, 9 holes	2	1415	Tie block	1
1008	Flat bar, 11 holes, slots	3	1423	Tyre	2
1009	Flat bar, 15 holes	2	1424	Tyre, ∅ 90 mm	2
1051	Angle bar, 10 holes	2	1501	Screw M 4 × 6	85
1113	Plate, 5 × 3 holes, bent either side	3	1502	Screw M 4 × 8	17
1121	Trapeziform plate, 3 × 3 holes	2	1503	Screw M 4 × 16	5
1146	Panel, 30 × 40	3	1511	Nut M 4	125
1151	Disc, ∅ 10 mm	17	1570	Seat member	2
1152	Disc, ∅ 20 mm	4	1572	Steering wheel	1
1201	Bracket, 1 × 1 hole	3	1575	Cover segment 3	4
1202	Bracket, 3 × 1 hole	7	1576	Cover segment 4	2
1221	Bracket, 3 × 1 hole, small	1	1577	Cover segment 5	3
1251	Angle, 1 × 1 hole	3	1578	Radiator core	1
1252	Angle, 1 × 1 hole, slot	3	1581	Mud guard 80	2
1253	Angle, 2 × 1 hole	6	1582	Control platform	1
1261	Z-angle	2	1584	Shovel member	6
1304	Wheel rim	2	1585	Shovel member, closed	2
1306	Wheel rim, ∅ 42 mm	2	1551	Screw driver, 4 mm	1
1351	Shaft, 35 mm	2	1552	Screw driver, 6 mm	1
1352	Shaft, 65 mm	2	1553	Spanner	2
1353	Shaft, 95 mm	3	1554	Screw holder	1
1360	Shaft, 65 mm with threaded ends	1			
1361	Shaft, 95 mm with threaded ends	3			

C13

C14

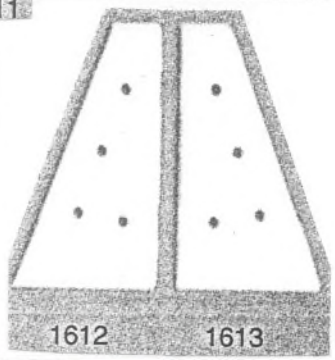
	Stückliste				
1001	Flachstab 2 Loch	4	1253	Winkel 2 × 1 Loch	4
1002	Flachstab 3 Loch	2	1301	Radfelge ∅ 20 mm	9
1004	Flachstab 5 Loch	3	1311	Schnurlaufrad ∅ 14 mm	2
1006	Flachstab 7 Loch	8	1351	Achse 35 mm	2
1007	Flachstab 9 Loch	7	1352	Achse 65 mm	1
1009	Flachstab 15 Loch	2	1361	Achse 95 mm mit Gewindeenden	2
1010	Flachstab 20 Loch	2	1362	Achse 120 mm mit Gewindeenden	1
1011	Flachstab 25 Loch	2	1372	Gewindestift 44 mm	1
1005	Flachstab 6 Loch, Langloch	4	1381	Gewindestift mit Querschlitz M 4 × 4	8
1008	Flachstab 11 Loch, Langloch	13	1402	Elastikstellring	9
1041	Bogenflachstab 8 Loch, Langloch	4	1411	Kurbel	3
1051	Winkelstab 10 Loch	2	1412	Lasthaken	1
1052	Winkelstab 15 Loch	4	1413	Sperrklinke	2
1053	Winkelstab 20 Loch	2	1415	Winkeltasche	1
1102	Platte 3 × 3 Loch	1	1441	Schnur 2 m	1
1103	Platte 7 × 3 Loch	4	1451	Zahnrad 37 Zähne mit Buchse	1
1104	Platte 9 × 5 Loch	2	1461	Ritzel 13 Zähne	2
1111	Platte 5 × 5 Loch, zweiseitig abgewinkelt	1	1471	Schnecke eingängig	1
1112	Platte 11 × 5 Loch, zweiseitig abgewinkelt	1	1501	Schraube M 4 × 6	118
1122	Trapezplatte 5 × 3 Loch	4	1502	Schraube M 4 × 8	2
1146	Verkleidungsplatte 30 × 40	2	1503	Schraube M 4 × 16	10
1151	Scheibe ∅ 10 mm	12	1511	Mutter M 4	160
1152	Scheibe ∅ 20 mm	1	1575	Mittelsegment 3	3
1161	Scheibe ∅ 50 mm mit Buchse	3	1578	Kühlerblock	2
1201	Bügel 1 × 1 Loch	1	1551	Schraubendreher 4 mm	1
1202	Bügel 3 × 1 Loch	2	1552	Schraubendreher 6 mm	1
1203	Bügel 5 × 1 Loch	1	1553	Schraubenschlüssel	2
1251	Winkel 1 × 1 Loch	2	1554	Schraubenhalter	1

List op parts					
1002	Flat bar, 3 hole	21	1505	Screw M 4 × 12	26
1004	Flat bar, 5 hole	8	1511	Nut M 4	200
1005	Flat bar, 7 hole	10	1552	Screw driver, 6 mm	1
1009	Flat bar, 15 hole	8	1553	Spanner	2
1011	Flat bar, 25 hole	8	1554	Screw holder	1
1103	Plate, 7 × 3 hole	1	1570	Seat member	4
1121	Trapeziform plate, 3 × 3 hole	2	1582	Control console	1
1122	Trapeziform plate, 5 × 3 hole	2	1602	Cockpit 80	1
1151	Disc, ⌀ 10 mm	16	1604	Nose segment 80	1
1153	Disc, ⌀ 30 mm	10	1605	Cylinder segment	12
1154	Disc, ⌀ 50 mm	1	1607	Cylinder rear panel	2
1201	Bracket, 1 × 1 hole	1	1611	Wing segment	4
1203	Bracket, 5 × 1 hole	1	1612	Wing attachment, left	4
1251	Angle, 1 × 1 hole	8	1613	Wing attachment, rihgt	4
1252	Angle, 1 × 1 hole, slot	11	1615	Cylinder segment, ⌀ 34	8
1253	Angle, 2 × 1 hole	4			
1261	Z-angle	2			
1305	Wheel, ⌀ 28	3			
1352	Axle/shaft, 65 mm	2			
1371	Threaded rod, 29 mm	2			
1372	Threaded rod, 44 mm	10			
1402	Elastic adjusting ring	13			
1501	Screw M 4 × 6	122			
1502	Screw M 4 × 8	22			
1503	Screw M 4 × 16	15			

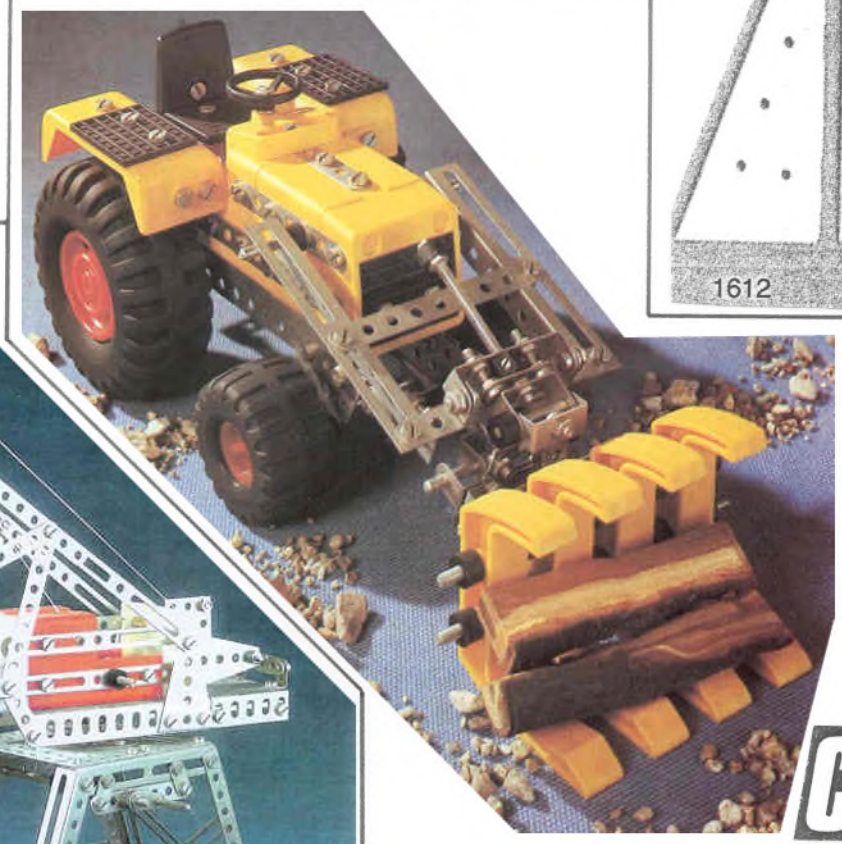


C21

1611



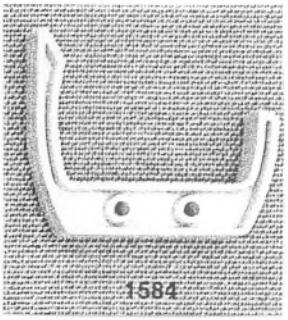
1612 1613



C14

1505

C13



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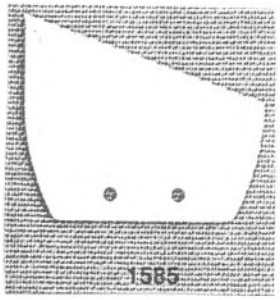
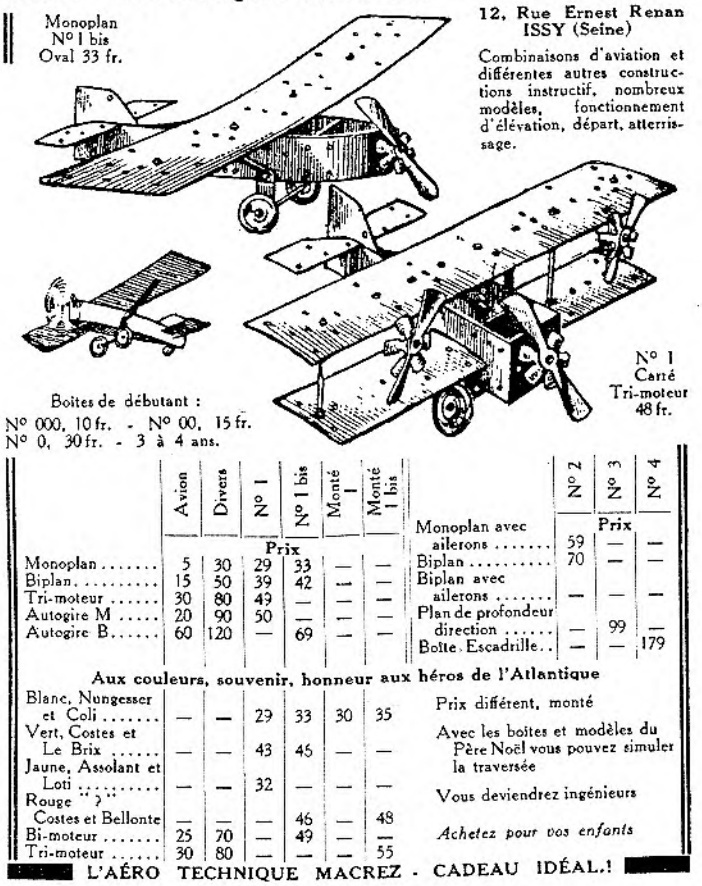


1585

PERE NOEL / AERO TECHNIQUE MACREZ

MCS lists this system under PERE NOEL and quotes the same name for the manufacturer. Under comments it notes "could be the same as AERO TECHNIQUE MACREZ." In fact it is, or certainly was in 1930-31, because there were a series of advertisements in the French Meccano Magazine, running from Sept 1930 until June 1931, all of which link the names, although whether LE PERE NOEL was the name of the maker or that of a shop isn't clear. Two of the ads are reproduced here and as can be seen there is a degree of complexity about the structure of the sets, and just which models can be made from any particular one is not clear to me. There seem to have been at least 7 sets, 000 to 4, but if you count every price mentioned there are 33 plus 4 for the ready assembled versions, if that is what "monté" means. I say that because the prices only seem to increase by one or two francs for the monté ones, which doesn't seem very much. For comparison in Dec 1930 a MECCANO 000 set cost 15 Fr, a No 1 was 68 and a No 7 2155. The bottom table in the larger advert concerns colour schemes, as used on aeroplanes that had been flown across the Atlantic by the "heros" named, but again the final two lines appear anomalous. Any explanations of all these little mysteries would be welcome. In the smaller ad it is claimed that the makers had created the first aircraft that could be taken apart. Also that the models were made of "alumi-laiton" (aluminium-brass?), cellulo (celluloid I suppose) and uninflammable wood. That doesn't seem right, even if the wood won't ignite the celluloid will. Again comments invited.



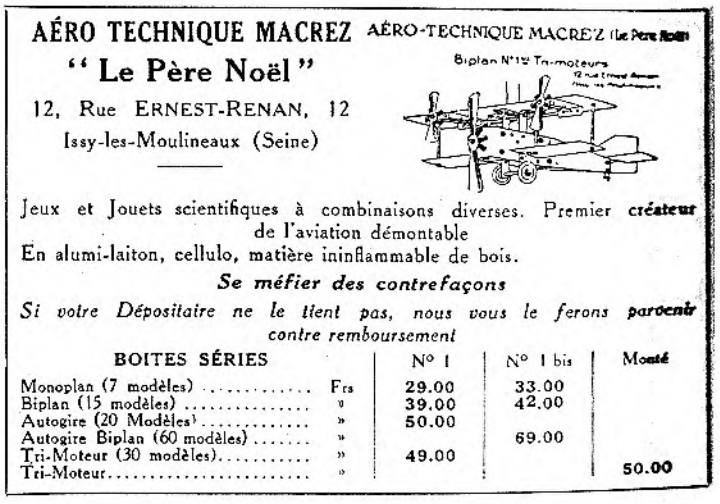
	Avion	Divers	N° 1	N° 1 bis	Monté 1	Monté 1 bis
			Prix			
Monoplan	5	30	29	33	—	—
Biplan	15	50	39	42	—	—
Tri-moteur	30	80	49	—	—	—
Autogire M	20	90	50	—	—	—
Autogire B	60	120	—	69	—	—

	N° 2	N° 3	N° 4
	Prix		
Monoplan avec ailerons	59	—	—
Biplan	70	—	—
Biplan avec ailerons	—	—	—
Plan de profondeur direction	—	99	—
Boîte Escadrille	—	—	179

Aux couleurs, souvenir, honneur aux héros de l'Atlantique

Blanc, Nungesser et Coli	—	—	29	33	30	35	Prix différent, monté
Vert, Costes et Le Brix	—	—	43	46	—	—	Avec les boites et modèles du Père Noël vous pouvez simuler la traversée
Jaune, Assolant et Loti	—	—	32	—	—	—	Vous deviendrez ingénieurs
Rouge " ? " Costes et Bellonte	—	—	—	46	—	48	*Achetez pour vos enfants*
Bi-moteur	25	70	—	49	—	—	
Tri-moteur	30	80	—	—	—	55	

L'AÉRO TECHNIQUE MACREZ - CADEAU IDÉAL.!



BOITES SÉRIES		N° 1	N° 1 bis	Monté
Monoplan (7 modèles)	Frs	29.00	33.00	
Biplan (15 modèles)	»	39.00	42.00	
Autogire (20 Modèles)	»	50.00		
Autogire Biplan (60 modèles)	»		69.00	
Tri-Moteur (30 modèles)	»	49.00		
Tri-Moteur	»			50.00

SMALL ADS

Wanted, pre-war Trix Constructional Sets, (not individual parts), German Motosand, Trix boats, Scientrix, Experie Trix, Chemie Trix, Chemitrix, Trix Morse Set and pre-war Trix literature. Early Trix model railway items including buildings. Meccano 'X' series sets. Contact A. Matthewman, 12 Ballagarey Road, Glen Vine, Isle-of-Man. Tel:- 0624 851 693.

Marklin sets for sale. Never used. Blue/green sets 1014 + 1034 from early 1970's (together comparable sizewise to a Meccano set somewhere between a red and green period no. 9 and a no. 10 set); sets 1054, 1055, 1056 and 1057 which I believe were still manufactured up until last year. Further details from Alan Curtis, 34 Mighell Avenue, Redbridge, Ilford, Essex, England IG4 5JW. Phone no. (in UK) 081-550 4695.

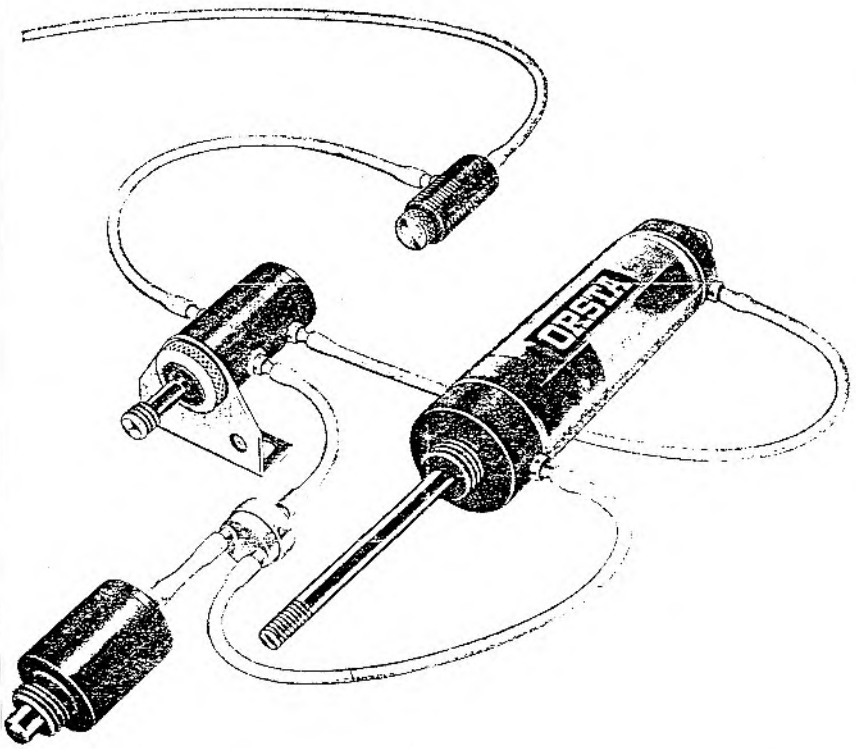
CONSTRUCTION manual, 60 A4 pages. 45 models, some in colour, from sets C01, C02, C03, C04, C06. Several available. £0.75 plus postage - Editor OSN.

VEB ORSTA PNEUMATICS P02

VEB who make CONSTRUCTION in Germany have more than one string to their bow; Keith Cameron has kindly sent some details, reproduced here at reduced scale, of a pneumatics set. One or two of the parts such as PN 4,7,9 and 16 look identical to those found in CONSTRUCTION sets. The reference no under the illustrated parts reads III/7/1 k 258/85 5 0 7891. It would be interesting to know what pressure the system can accept. By the look of it the piston rod is probably 4mm and the fixing thread is M10, so the body of the cylinder would be about 20mm in diameter by some 8cm long.

ORSTA modelltechnik p02

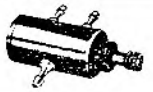
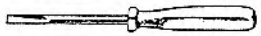
Montageanleitung · Montageanleitung · Montageanleitung



Baukasten für pneumatische Steuerungen und Antriebe

VEB Hydraulik Dippoldiswalde
Betrieb des VEB Kombinat ORSTA-Hydraulik
DDR - 8230 Dippoldiswalde

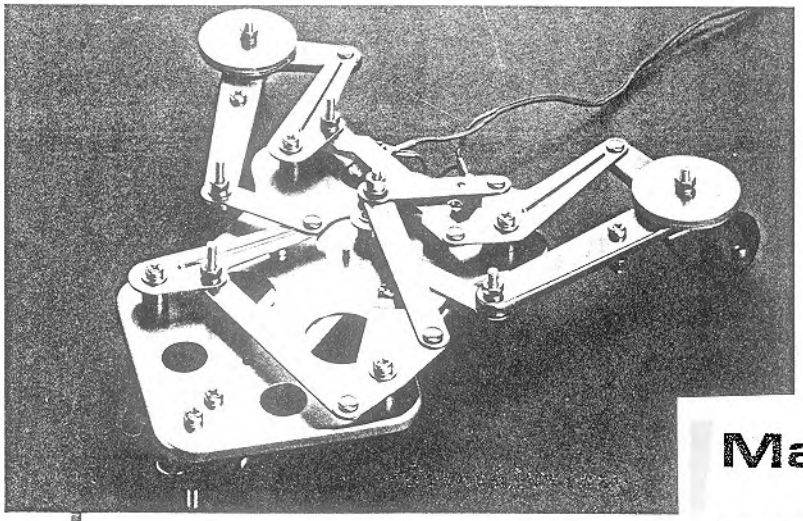
Inhaltsverzeichnis CONTENTS P 02

Lfd. Nr.	Stück	Benennung	Bild	Nummer
1	2	Arbeitszylinder DOUBLE ACTING CYLINDER		3001
2	2	Wegeventil 3/2 WAY VALVE		3002
3	2	Drosselventil ADJ. ORIFICE		3003
4	2	Druckanzeiger INDICATOR		2005
5	10	Befestigungswinkel		2008
6	4	Bügel 1×2 Loch		2015
7	20	Schraube M4×8		2022
8	4	Schraube M4×20		2023
9	25	Mutter M4		2024
10	12	Mutter M10×1		2007
11	2	Verteiler CA2		2021
12	1	Verteiler CB2		3005
13	3	Blindverschluß		2020
14	3 m	Schlauch		3004
15	1	Schraubendreher		2019
16	1	Schraubenschlüssel		2018

III/2/1 k 258/85 5 0 7891

MECHANIMALS Denis Higginson was good enough to send an instruction sheet and parts lists for various of these creatures, and he also drew my attention to a mention of them in the North Midlands Newsmag No 18 (Aug 1980). It seems that there were kits for 6 animals, made by Gaku Ken Ltd in Tokyo, an Inchworm, a Squid, a Frog, a Baby Snake, a Worm and a Beetle. The models are made largely of aluminium parts, they are operated by remote control (through wires), and while they do not look particularly true to life, their movements are said to be remarkably realistic. The piece ends with "These toys have something in common with the cybernetic sculpture, 'The Senator', by Edward Ihnatowicz (see pp.56,61), where the movement and not the appearance conveys the impression of the animal."

The instruction sheet was for the Frog and full details of parts and assembly are given in Figs 1, 2 and 3. These have been reduced in size, note the centimetre scale along the bottom of Figs 2 and 3.



Martian Frog

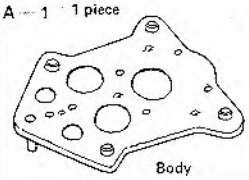
Instructions for Assembly

Fig 1

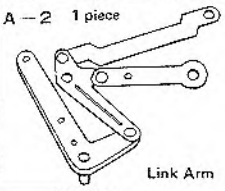
Parts List

A

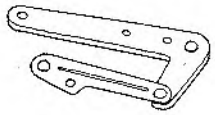
A—1 1 piece — Body



A—2 1 piece — Link Arm

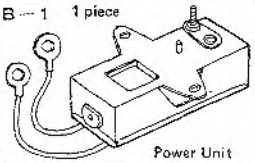


A—3 1 piece — Link Arm

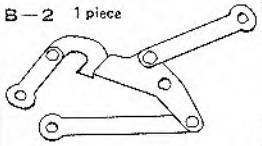


B

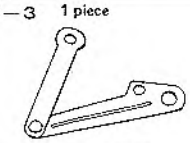
B—1 1 piece — Power Unit



B—2 1 piece — Joint

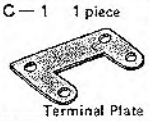


B—3 1 piece — Joint

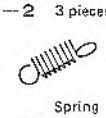


C

C—1 1 piece — Terminal Plate

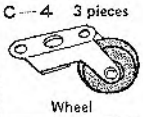


C—2 3 pieces — Spring



C—3 4 pieces — Weight

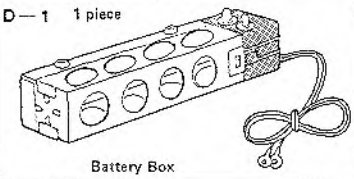
C—4 3 pieces — Wheel



C—5 1 piece — Step Bushing

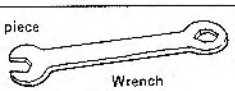
D

D—1 1 piece — Battery Box



D—2 1 piece — Screwdriver

D—3 1 piece — Wrench



E

E—1 23 pieces — Nut

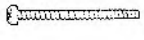
E—2 23 pieces — Spring Washer

E—3 14 pieces — Washer

E—4 19 pieces — Screw (actual size) 12mm

E—6 7 pieces — Brass Bushing

E—5 4 pieces — Screw (actual size) 25 mm



E—7 2 pieces — Brass Pipe

Fig 2

The parts list for the Inchworm, Spider (not mentioned in the Newsmag article) and Snake are shown in Figs 4 and 5 (.65 full size). I don't have pictures of them but in case you ever need to know my dictionary tells me that an inchworm is another name for a measuring worm and that "it is the larva of a geometrid moth: it has legs on its front and rear segments only and moves in a series of loops. It is also called a looper."

Read instructions carefully before beginning assembly.

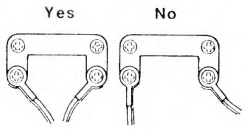
To assemble follow numbered sequence.

1 Attach wheel C-4 to body. First insert and tighten E-4 screw then attach wheel and insert and tighten E-5 screw.
2 Attach B-1 power unit and C-1 terminal plate to body.
3 Attach wheels C-4 and weights C-3 to A-2 and A-3.

After securing the wheels to A-2 and A-3 be sure they move freely.

4 Attach E-7 pipes and spring C-2 first to A-2 and A-3 and then connect to wheels C-4.
5 Connect A-2 to B-2 using step bushing C-5.
6 Connect A-2 to A-3 using E-6 bushing.
7 Connect B-3 to B-2 and A-3 using E-6 bushing at both connections.
8 Following diagram attach A-2/A-3/B-2/B-3 assembly to body. Connect assembly to power unit crank arm.
9 Connect wires from power unit and battery box at terminal plate C-1.

Wire terminals should be flat against each other.



* Using batteries, test the rotation of B-1 crank arm. Counterclockwise rotation is most efficient. If rotation is clockwise, reverse battery box wires at terminal plate.
* If no movement occurs when power is applied check terminal connections.
* If movement is heavy and intermittent, check steps 3, 5, 6, 7, 8.

Parts Necessary for Assembly

A-1	Body
A-2	Link Arm
A-3	Link Arm
B-1	Power Unit
B-2	Joint
B-3	Joint
C-1	Terminal Plate
C-2	Spring
C-3	Weight
C-4	Wheel
C-5	Step Bushing
D-1	Battery Box
E-1	Nut
E-2	Spring Washer
E-3	Washer
E-4	Screw 12mm
E-5	Screw 25mm
E-6	Brass Bushing
E-7	Brass Pipe

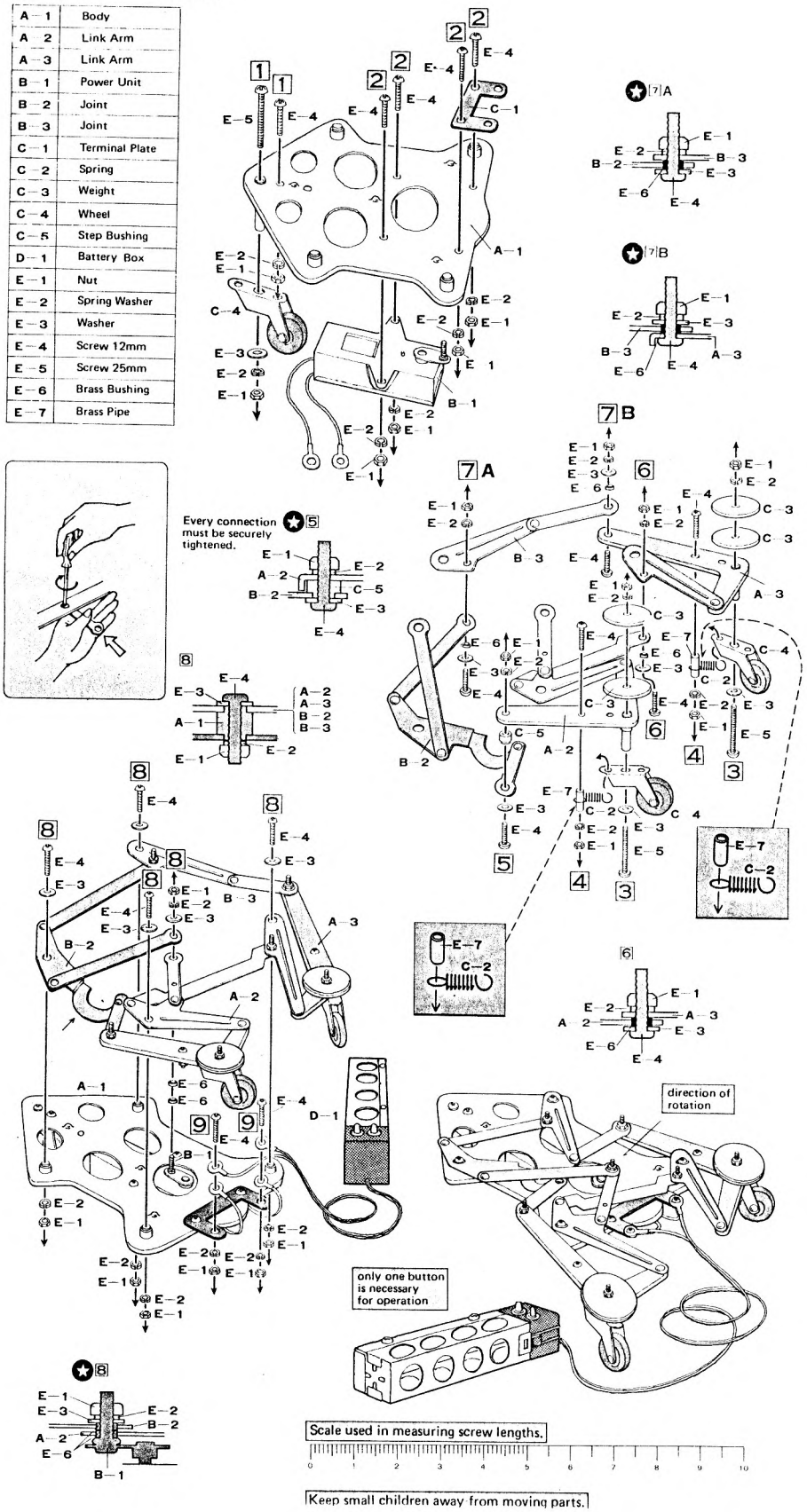


Fig 3

[Cont >]

MECHANIMAL 3 PARTS LIST (All three animals included)

MB

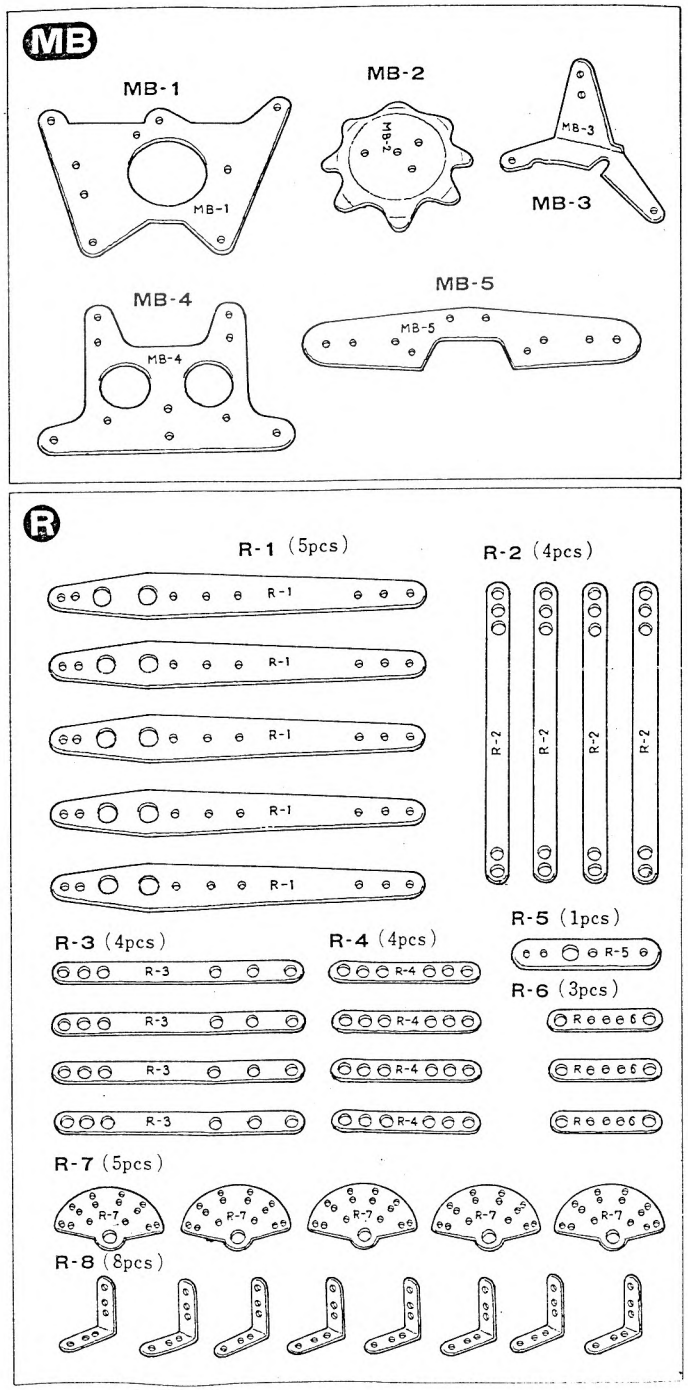
MB-1 Inchworm main body
MB-2 Inchworm rotary plate
MB-3 Inchworm rotary plate bracket
MB-4 Spider main body
MB-5 Snake main body

R

R-1 Arm (5 pcs)
R-2 Arm (4 pcs)
R-3 Arm (4 pcs)
R-4 Arm (4 pcs)
R-5 Arm (1 pc)
R-6 Arm (3 pcs)
R-7 Sector plates (5 pcs)
R-8 "L" brackets (8 pcs)

MECHANIMALS

Fig 4



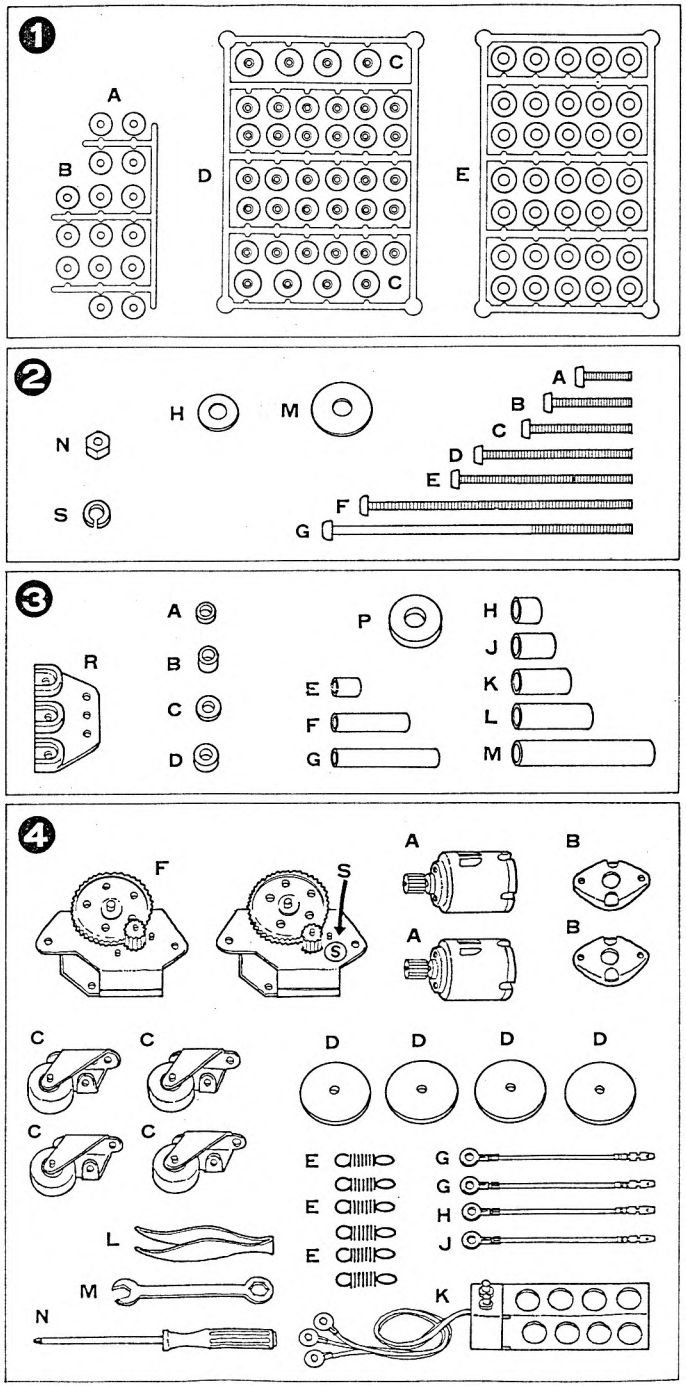
1 Molded Parts
A. Plastic spacer (sm) (14 pcs)
B Plastic spacer (lg) (3 pcs)
C Step bushing (lg) (8 pcs)
D Step bushings (sm) (30 pcs)
E Plastic washer (35 pcs)

2 Screws, nuts & washers
A Screw 3×10 (40 pcs)
B Screw 3×16 (20 pcs)
C Screw 3×20 (10 pcs)
D Screw 3×30 (2 pcs)
E Screw 3×35 (6 pcs)
F Screw 3×53 (5 pcs)
G Special screw 3×60×20 (1 pc)
H Metal washer (sm) (6 pcs)
M Metal washer (lg) (55 pcs)
N Nut (60 pcs)
S Spring washer (60 pcs)
Extra screws, nuts and washers are included.

3 Bushings and pipes
A Brass bushing (sm) (30 pcs)
B Brass bushing (lg) (8 pcs)
C Brass collar (sm) (8 pcs)
D Brass collar (lg) (3 pcs)
E Brass pipe 4×6 (4 pcs)
F Brass pipe 4×14 (4 pcs)
G Brass pipe 4×20 (8 pcs)
H Aluminum pipe 6×4 (2 pcs)
J Aluminum pipe 6×7 (11 pcs)
K Aluminum pipe 6×10 (2 pcs)
L Aluminum pipe 6×14 (4 pcs)
M Aluminum pipe 6×27 (4 pcs)
P Aluminum spacer (2 pcs)

Fig 5

4 Other parts
F Gear box (high speed, 1 pc)
S Gear box (low speed, 1 pc)
A Motor RE260 (2 sets)
B Motor plate (2 pcs)
C Caster (4 pcs)
D Weight (4 pcs)
E spring (6 pcs)
K Battery box (1 pc)
L Tweezers
M Wrench
N Driver



MECHANIX Gary Higgins has sent the following notes from New Zealand.

"The first part I found was a 1" Pulley Wheel. It is cast from a lightweight alloy, much like pewter, and is painted light green. The word MECHANIX is stamped around the upper (non boss) surface but note the N, it's the wrong way round. Whether this is on purpose or not I cannot tell. The boss is cast with the pulley and has only one tapped hole with a typical MECCANO screw and thread. From the side as can be seen in Fig 3 the wheel shows flattened edges approximately 1mm across. The centre of the groove is somewhat rough from being badly cast. In Fig 1 the area around the central bore is raised slightly. The Pulley is a loose fit on a MECCANO shaft.

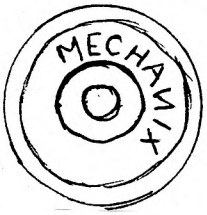


Fig 1

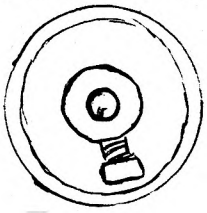


Fig 2

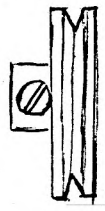
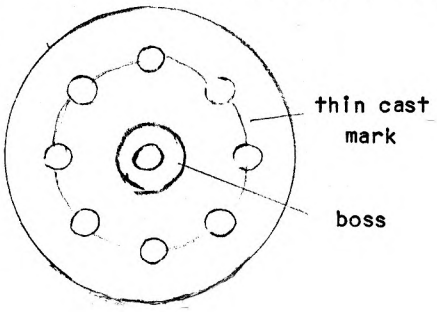
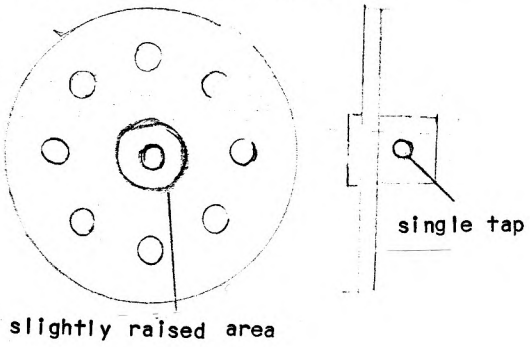


Fig 3

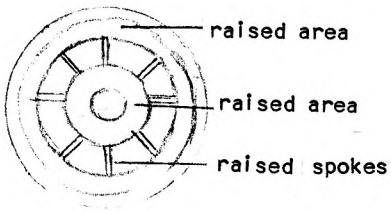
I came across the parts below in a MECCANO set recently. There were also some Pulley Wheels which are identical to the one above except that they do not have the the name stamped on them.

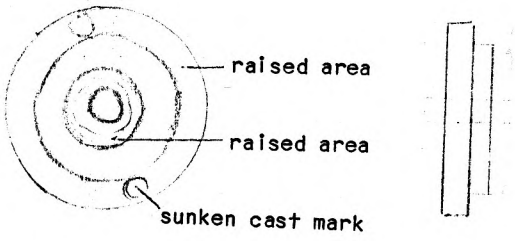
BUSH WHEEL This is painted yellow and is also cast in one piece from a lightweight alloy.



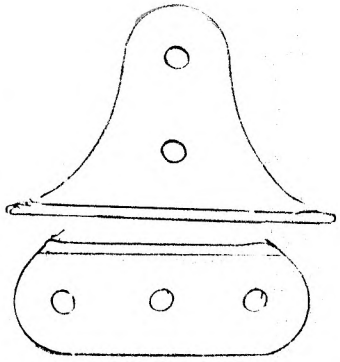


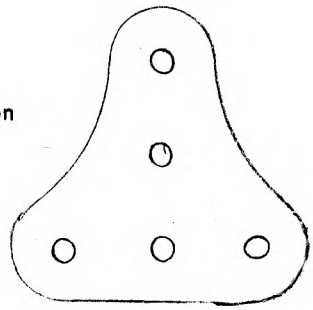
TRAIN WHEEL There is no boss on these wheels, they are cast as above and painted the same light green as the Pulley Wheel.



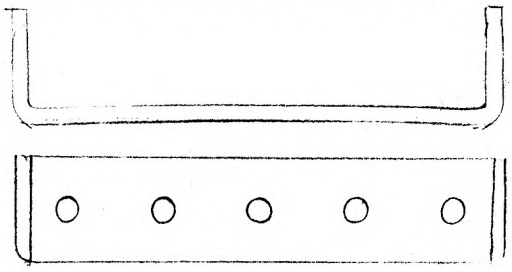


TRUNNIONS These are from a heavier gauge steel than standard MECCANO and are painted a grey/blue colour.

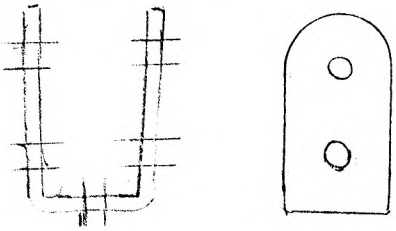




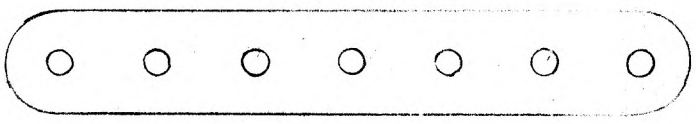
ANGLE BRACKET This is identical to the MECCANO 2½" DAS but with gauge and colour of the Trunnions above.



BENT STRIP Again the heavier metal and grey/blue colour.



STRIPS In addition to the 3½" Strip shown there were 2½" and 5½" ones; all of the same form, the same heavy gauge and the same grey/blue colour".



ITEMS FROM LETTERS

1. Dr J L Figureau sent me a list of the sets that he has in his collection and I have included it below because he is prepared to correspond (in English or French) with anyone seeking information. He has already sent me the notes on EFEL which will appear in OSN 5 and I hope to ask him more questions in due course. His address is 32 Bd. Aristide Briand, 43100 Brioude. France. Please copy to the Editor anything that might be of interest to other readers. In the list below I've put Cyrillic characters into English letters.

TRIX (FR)	EFEL (FR) 3 versions	BOB (BEL)
EDOBAUD (FR)	VOGUE (GB)	STANDARD L-R (FR)
STOKYS (SW)	CONSTRUCTOR (FR)	MEHANOTEHNIKA (YU)
WISDOM (CH)	PHILIPS (NL)	INGENIUM (FR)
PRIMUS (GB)	TUBEPLAC (FR)	BEAVER (GB)
KITOU (FR)	MAC ET NICK (BEL)	CHARPENTO (FR)
ASSEMBLO (FR)	FORGEACIER (FR) = N-G-NEERO	BRAL (IT)
CONDOR (IT)	CONSTRUCTION (GDR)	MARKLIN (GER)
IMPERATOR (GER) 1910?	MECAVION (FR) aero set	MERKUR (CZ)
MUSALA (BUL)	KLIPTIKO (GB)	KONSTRUKTORS ELECTRISKAIS (HUN)
KON STRUK TOR (RUS) - has better	finish than > > > > > > >>	KONSTRUKTOR-SHKOPNIK (RUS)
ELEKTRO-KONSTRUKTOR (RUS)	MULTI-MOTEUR (FR)	TECHNOR (FR) plastic with nuts

Plus some architectural toys.

Continuing his letter he says "I am a little short of time because I have just returned from Egypt where I was helping in the organisation of Pharaoh's Rally. I covered 4000 miles in 12 days in the Sahara. Hot country! I had one free day in Cairo and I found WISDOM sets in the souk. I bought the two biggest boxes, Nos 5 and 6, but sets 0,1,2,3 and 4 were also available. On the MICO-TRIX motor, I own one, mint and boxed with leaflet, it is 220 volt. A big motor!"

2. From Brian Rowe, "I am now getting more TEMSI through the UK agent, Paul J Day, and the parts in a recent parcel have a good enamel finish - sadly lacking in previous supplies. The parts include a heavy gauge Flanged Plate of $4\frac{1}{2}$"x$1\frac{1}{2}$" size in red, a $2\frac{1}{2}$"x$1\frac{1}{2}$" Flanged Plate with round holes in the flanges, and a Single Flanged Plate of $2\frac{1}{2}$"x$1\frac{1}{2}$", also Flat Girders up to $24\frac{1}{2}$" long. I can now supply most TEMSI parts through the agent and can supply a photocopied price list on request". [see OSN 3, p40 for Brian's address] In a later letter he said ref OSN 3, p40 that the contents of TEMSI sets remain the same but the labels of the lids have been changed. He also sent the January 1990 list of sets available as follows -

Main sets, INTRODUCTION - 0, START - 1, JUNIOR - 2, PIONEER - 3, PROMINENT - 4, MASTER - 5.
Connecting sets, called COLLECTBOX (sic) - 0A, 1A, 2A, 3A, 4A.
COLLECTBOX - X and COLLECTBOX - Y, each of which cotain a selection of parts including Flexible Plates (X) and Angle Girders (Y).
A CHAINBOX - KA (gears, etc) and DRIVINGBOX - A (sprockets, chain).
An AJUSTABLE TRAFO - 208 (220 to 0-14 volts transformer, .75 amp) and an ENGINE (WITH REDUCTION) - 300 (the 6 speed motor).

3. Dennis Higginson has an example of the STOKYS Part 108, Chimney mentioned in OSN 3, p31, it is painted black and is attached to the model by means of a woodscrew.

4. Don Redmond noted that a list of parts available from Quincaillerie No 10 in France (printed in the NZ Federation magazine), contains many of the non MECCANO brackets, etc that he mentioned in his article in OSN 3. He also sent comments on material in the last issue and other matters -

"Gas regenerator" (PRIMUS model, p.48): The Shorter Oxford dictionary says "regenerator" is "a fuel-saving device attached to a furnace, consisting of layers of fire-brick which, becoming heated by the hot air and gases from the furnace, impart the heat to an incoming current of cold air or combustible gas acting alternately with the outgoing current". I suspect the PRIMUS model is this sort of apparatus, arranged to run on rails along a row of coke ovens. The mechanical movements would appear to be either damper controls, or possibly apparatus for discharging coke from ovens. If it had not been called specifically a "regenerator" I would have called it a coke-oven charging machine, or something of the sort.

The "tracteur agricole" by CONSTRUCTOR (p.29) looks more like that would be called in Florida a swamp buggy (for traversing shallow flooded areas)! What a lack of any approach to realism!

Cyrillic alphabet: Sorry, I must disagree with your comments (p.44). There are standard forms of transliteration from Cyrillic to roman. One is at the end

of the Concise Oxford dictionary (copy enclosed); it is the British Standard form. There are two other recognized systems, a UNESCO standard which differs chiefly in using š and č instead of sh and ch; and a (U.S.) Library of Congress standard which uses i͡a and i͡u instead of ya and yu. Both the British and American systems indicate the "soft" vowel mark (a Cyrillic letter which is not separately pronounced) by a ' and the "hard vowel" mark by ". Sorry, there can be no justification for "approximating" the shape of Cyrillic letters by roman letters that look something like them. The problem is compounded, too, by the fact that there are "lower-case" cyrillic letters---actually, script forms--not used in ordinary cyrillic text printing but used for display headings---which look like roman characters but differ from both the "upper-case" or ordinary cyrillic characters and the roman in what they stand for. Thus M in cyrillic means m (roman), but "m" (cyrillic script) means t! Thus, note in MCS, KONSTRUKTOR, where the lettering on the manual cover is "koHcmpykmop". It serves no useful purpose, provided an illustration of the original cyrillic is given in whatever is reproduced, to give an "approximation" in roman characters. The correct transliteration is just as easy to give, and must be used in arranging foreign names in an index, etc. A translation given in () is useful to explain the foreign name or text, and can be used as cross-reference to the foreign name; but a system should not be listed under either the translation or an "approximation" as an entry heading.

The suffix s as in "konstruktors" is a characteristic nominative ending in Latvian (Lettish), and also in plural, in various grammatical cases. The -s ending does not appear to be characteristic of Russian at all. I suspect Andreas Konkoly has given a Russian version of the bilingual sets he has advertised--remember he is Hungarian, hence writing "Konstruktor" rather than the Lettish "Konstruktors".* In no case would the final -s imply "something that needs to be constructed"; in Russian such an ending would perhaps be more likely -tsia. To repeat, "ONbITOB" in MCS is meaningless, and is not the name of the system. Please go back and re-read what I have previously written. I do not pretend to read Russian but I studied Russian for a couple of years 25 years ago, and have used it from time to time for many years.

You're quite right. The name of the new system shown in OSN 3 appears to be VINTIK I SHPUNTIK, not "shluntik". I had to go to the university library for a Russian tehcnical dictionary. It translates roughly as "little screws and slots"--"shpuntik" being a groove, rabbet, or particularly a keyway. Sorry about my first misreading, but those rather blobby cyrillic letters were not very clear. "I" in Russian means of course "and".

Which leads me to an item in a letter from Keith Cameron the other day, saying he sent you the ELEKTRISKAIS KONSTRUKTORS manual and noting that the box had on it "21 Meginajums". The same word is on the ELEKTROMEHANISKAIS KONSTRUKTORS manual: "45 Méginájumi/Opitov" and we've established that "Opitov" means "experiments" so "21 Meginajums" (Meginajumi??) must similarly mean "21 experiments"--or models?

I have not been able to find any other verification of Keith Cameron's statement that CONSTRUCTO was sold in Canada by Radio Shack (p.38). Norman LaCroix verifies that it was marketed in Canada by Science Master Toys, the boxes bearing the name "Paramount Industries". The contents of the V-8 set I bought were quite as they should have been, not wildly erratic. I may have been lucky.

I see WISDOM/SAGESSE on the shelves of Kingston toyshops this season, a No.4 Wisdom being about $25 compared to a No.4 Meccano at something over $100. !! They are not exactly comparable, of cours,e but one can perceive customer reaction to the relative prices. No BRAL here, only seen in Ottawa and Toronto at one chain of toyshops.

There is a series of monthly "Erector Notes" in an American toy collectors' magazine called Yesterdaze Toys, Box 57, Otisville, Michigan 48463, USA.

[Cont >]

*Remember that Latvia has been part of the USSR since 1940; hence anything from Latvia would quite correctly be said to be Soviet in origin.

The series is by Al Sternagle, who is producing a history of Erector, to be one of the Greenberg Guides to collectibles, and who is probably the premier Erector historian. Yesterdaze Toys costs $12 US for 2 years (monthly)."

[The Cyrillic alphabet is reproduced elsewhere in this issue. So transliteration seems the way to go for Cyrillics, how then should Chinese and Japanese names be treated, please - Ed]

5. Gaston Marette wonders if the ERECTOR leaflet showing Mystery Part No 1 (the 5x4 hole Plate) was the Instruction Sheet from the very first Pocket set. He writes that "recently I found mixed in with a lot of Meccano, 10 5-hole Strips (like MECCANO but thinner gauge except one that is thicker), 3 9-hole Strips (as above in the thinner gauge), 2 5x4 hole Plates (badly cut), 4 1x1 hole Angles (ERECTOR type but ½" wide), 4 Washers/Discs (lost in my stock) and 1x32mm Pulley (similar to ERECTOR type but with a different profile). The parts are rather rusty but originally had a bright finish. In the models in the Leaflet I think I can count 1 5x4 hole Plate, 6 of the 5 hole Strips and 2 of 9 hole, so perhaps my parts are the remains of 2 Pocket sets or one slightly larger Super Pocket ERECTOR." He also recalls that Gabriel Industries issued a Pocket ERECTOR set in 1973 which followed the Pocket MECCANO of 1971 and the slightly different MECCANO de Poche from MECCANO-FRANCE, and would like to know the name of the 1920's ERECTOR 'Pocket' set and whether it could have inspired the MECCANO version.

6. From Peter Page - "Hales (see OSN 3, p30) told me that they would only handle BRAL sets - who will offer spares? Also does anyone have a current illustrated parts list?

7. Jeannot Buteux responded to a question that I had asked him about ARTS ET METIERS - there were 3 systems with this name, (i) the STABIL type as shown in MCS, (ii) one with all wooden parts, and (iii) another with both wood and metal parts, the latter being quite small. These all disappeared with WW1, afterwards only systems (French or foreign) that were actually made in France could be marketed, and thus STRUCTATOR, KLIPTIKO, PRIMUS ENGINEERING and others were no longer available. MECCANO had to open a French factory and TRIX followed suit in 1930; MARKLIN did not and never sold its sets in France. He added that his latest find (in Holland) is EREKTIT, possibly a UK brand.

8. Frank Beadle mentioned 2 'new' systems that he is going to include in his Part 5 of MCS, HAPPYNAK (rather like TUBA) and ENGINEERIT from Australia.

9. Ashok Banerjee wrote of a new set in India called METABUILD which has centimetre spacing, and promises more details later. Adding to his notes on PLANO in OSN 3 he has recently found out that PLANO was in fact in production in Delhi until a few months back, why it stopped being made is not known. Some old stock may be available in Delhi and he is investigating.

MCS MCS is arranged alphabetically and this is a sensible way in which to issue it, but I found after using it for some time that it was not the most convenient way for me. If for example I had some unknown parts with the holes at greater than the MECCANO spacing I had to go through the index to find which systems to check to try to identify them. Even then although the original index contained information on hole spacing the later up to date ones don't and so I had to look at all the systems entered since the first index. I thought about improving the index but there were other foreseeable problems particularly if like me your memory is not as good as it was. For instance if I wanted to know the names of the other two sets that had parts similar to VOGUE, it was a long hunt to find PALIKIT and PIONEER. Again if I wanted to compare all the different systems that have parts reminiscent of STABIL it meant going through the whole work to find them. And so on.

In the end I decided to split MCS into smaller units which would each cover a particular area. Obviously no method is perfect for all purposes and the best way must be a matter of individual choice, but I thought that it might be of interest to set out the way I did it myself. First I took out all the systems (or parts of them) that could be identified as belonging to the following units

#Aero - all things aeronautical including space eg DAN DARE, ERECTOR ZEPPELIN.
#BAUFIX - all sets that have those sort of parts.
#Buildings - eg STOKYS CITY, ERECTOR SKYSCRAPER, BILT-E-Z.
#DIY - where some of the parts are made by the builder eg JUNEERO.
#DK - sets with elements of the same general form as those in DINKY BUILDER eg STANLO.
#Elec - systems with a largely electrical or scientific orientation eg ELMEC, CONSTRUMENTS, MERKUR ELEKTRO.
#Hungarian - a certain number of sets that have parts in common eg FEMEPITO, TECHNOKID.
#PHILIPS - all, mechanical or electrical, eg NORELCO.
#Prof - systems designed primarily for industrial use eg FAC, PROTO.

#Rods - those where the basic framework is made from rods or tubes eg BOB, LIONEL.
#TRIX - all with the holes arranged rather like TRIX, including TRIX electrical parts and MECCANO X eg ABRA, INVICTA O.
#UK - a number of sets of UK origin which have certain rather unusual parts in common eg LYNX, LONE STAR, VOGUE, KONSTRUKTA.
#Vehicles - all sets intended to make cars, lorries, chassis, etc. eg PRIMUS MOTOR CHASSIS, MECCANO MOTOR CAR OUTFITS.

Thus MARKLIN ELEX would be under Elec but the MARKLIN set to make chassis would be in Vehicles. There is no overlap likely within this group except for TRIX and PHILIPS where rigorously the electrical sets from these systems should be in the Elec unit. IF this was required it would simply mean putting the main entry for TRIX and PHILIPS into the next group.

For the second group I took from the remaining systems the following units
#ERECTOR - all sets that have parts looking like ERECTOR parts eg STEEL ENGINEERING, EL NUEVO INGENIERO ARGENTINA.
#MARKLIN - ditto eg PIONIER, UNIMETAL.
#MARKLIN/MECCANO - the systems which draw on both eg AMI LAC.
#MECCANO - all genuine MECCANO that hadn't fitted into any previous unit.
#MERKUR - and similar eg YMEAEU, BUILD-O.
#STABIL - ditto eg ARTS ET METIER, KONSTRUKTOR (4).
#Non MECCANO - not based on equispaced holes joined by nuts and bolts eg MORECRAFT, STANDARD L R.

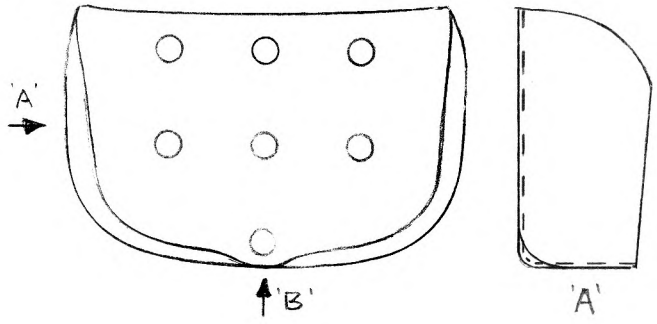
The third group consisted of 2 units, those of the remaining systems with a hole spacing of more than $\frac{1}{2}$" (ie 12.7mm) eg PHANTASIE, STRUC; and those with a spacing less than $\frac{1}{2}$" eg MIGNON, MODELLO. Finally I divided what was left into 2 units, those that were more or less copies of MECCANO but might have a few parts of different design eg TEMSI, AMERICAN MODEL BUILDER; and the rest which were based on the MECCANO idea but for one reason or another differed significantly eg STOKYS, STRUCTO. Each of these units turned out to be quite thick and was divided alphabetically into 3 sections of convenient size, but perhaps some different subdivision would have been more helpful.

Each unit was bound with a slide binder and an Index added to each as a front page showing the systems within, and also some cross referencing to ensure that when I wanted to check for example systems with 'short spacing', those located in units outside the specific 'short space' unit would not get forgotten eg MERKUR, MERKUR ELEKTRO, STABIL. Then I marked the MCS Index to show where each system there would be found in the units. One day I will put the cross referencing into the Index as well.

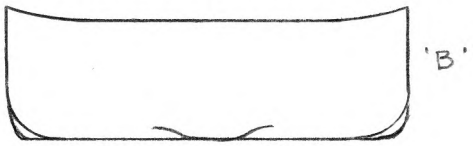
Its some 2 years now since I took the plunge and I'm sure that it has made life a bit easier. It was a fairly long job to create all the units but an interesting one as well, each time I go into MCS I find something I never knew or had forgotten.

While on the subject of MCS it is worth mentioning that Frank Beadle has, since he described the history of MCS in OSN 1, revised his Parts 1 to 4 by adding some 20 new systems or new parts of known systems, and by adding a considerable amount of detailed information and better photocopies that have become available. This is good news in itself but it does mean that at the moment those with the unrevised Parts or with the New Zealand edition have no way of getting this new information without buying the revised version, which isn't an economic proposition. Frank recognises the problem and may issue a supplement for those who want to catch up or perhaps have a special edition of his forthcoming Part 5 with the missing information in it. If you would like to have the update, by one means or another, it would be worth letting Frank know so that he can gauge demand. For the time being references to MCS in OSN will indicate if the material in question may only be found in the revised Parts, but, although Frank has kindly given me details of the new material, it is rather complicated keeping track and errors may sometimes occur.

MYSTERY PART No 8.



This part is found in the UK from time to time, usually with MASTERBUILDER parts. It is a steel pressing (.022" thick) and is sometimes painted grey and sometimes medium red. The holes are .156" dia. It bears no reference marks. Is it MASTERBUILDER and what is it used for? A tractor seat or dredger bucket have been suggested.



NOTES ON MEASURING PARTS These notes are intended for those who may not be sure of the most practical ways of making measurements and considered in turn below are the most likely areas of difficulty.

OUTSIDE DIAMETERS. The best way is to use a micrometer or good quality vernier callipers. Micrometers are more accurate (better than +/- 0.001" or +/- 0.01mm) and more easily used but the type commonly available can only measure up to 1". The callipers can also measure larger diameters and used with care are just capable of measuring to +/- 0.001" or +/- 0.02mm; some may have jaws designed to measure inside diameters (above a certain minimum size, perhaps $\frac{1}{4}$") as well. Failing either of these very cheap vernier callipers are available (locally at about £2) that can measure to the nearest 1/10mm (.004") at best, and these would be suitable for many OS purposes provided the zero reading with the jaws closed is correct and the engraved scale on them is accurate. Another way of estimating a small diameter such as an Axle Rod is by comparing it with the shanks of several twist drills or lengths of wire of known diameter. For example with drills of 4.0, 4.1 and 4.2mm it is easy to see that a MECCANO axle is close to 4.1mm diameter, and with .1mm steps the accuracy will be, say, +/- .002". The only snag is that drill shanks are often smaller than the nominal diameter of the drill - of 4 with diameters between .15" and 11/64" that I have just measured one was the correct size and the other 3 were about .002" less in each case. For larger diameters such as pulleys or gear wheels ordinary callipers used with a steel ruler graduated in 1/50's of an inch or $\frac{1}{2}$mm's will give an accuracy of +/-.005" or .1mm if care is taken and a magnifying glass is used. Where the ruler can be placed flat across the diameter callipers are not essential but in either case great care has to be taken to avoid parallax reading errors by keeping the eye directly in line with the edge being measured. At a pinch quite successful callipers can be made from MECCANO or the like; it might even be possible to make a useful micrometer based on MECCANO screwed rod which has 32 tpi. Then a measurement could be the number of whole turns of the rod, that is for n turns, n/32", plus some part of a turn as measured on a rotating disc whose circumference would be divided into $31\frac{1}{4}$ divisions, each of which would represent .001". If the disc were 2" in diameter the spacing of these would be about .2". A design broadly on these lines was shown in the Meccanoman's Journal, Vol 23, p648.

INSIDE DIAMETERS. For larger holes the methods above using suitable vernier callipers or ordinary inside callipers and a ruler can be used. For holes that are too small to be measured by these means drill shanks, etc can again be used on a go/no go basis. There are special instruments made to measure small holes but they are uncommon and expensive; a serviceable alternative is to obtain a length of steel (for preference), uniformly tapered along its length, and calibrate it by using a micrometer or vernier to measure its diameter, or width if it is flat, at suitable intervals, and marking it every, say, 1/100". This can be inserted into the hole to be mesured and the diameter estimate from the scale. If the gauge is of rectangular section the thickness should be kept to a minimum and each corner edge rounded off along its length to prevent false readings being obtained. My own gauge was made from steel .012" thick and was about 5" long with markings from .06" to .23" at intervals of 1/100", giving a spacing of approximately $\frac{1}{4}$". Diameters can be measured to within perhaps .002". Cutting and filing such a gauge from steel needs some tools and a little experience in using them, but even one cut from suitable sheet plastic with a craft knife and a straightedge can give useful results provided it can be calibrated accurately.

LENGTHWISE MEASUREMENTS. A micrometer or vernier calliper may be used where there is access to the ends of the part but otherwise, to measure hole spacing for example, a ruler and magnifying glass is the only practical way. Obviously when hole spacing is required it is best to measure over as many holes as possible and then divide the result by the number of spaces spanned. Also the measurement should be between the corresponding edges of the outer holes rather than trying to judge where the hole centres are. If such a measurement can be made to within .2mmm over say 10 spaces the resulting error in the spacing is .2% or better, which is acceptable for most purposes.

PRESENTATION OF RESULTS. To avoid the risk of misleading others the precision or otherwise of a measurement should as far as possible be clear from the way the result is expressed, that is the number of decimal places used. (The number of decimal places is the number of digits after the decimal point including noughts, thus both 0.030 amd 0.036 are to 3 decimal places.) Measurements made in inches with a micrometer or vernier callipers are usually quoted to 3 decimal places or 2 for millimetres. With a ruler 2 and 1 places should be used for the corresponding cases. When converting from inches to millimetres or vice-versa the general rule is that the number of significant figures should stay the same, that is the total number of digits on both sides of the decimal point including any nought at the end which arises from the accuracy of the measurement. So if using vernier callipers 2.040" was found, there are 4 significant figures but if a ruler had been used the result would have been 2.04", that is 3 significant figures. the corresponding decimal equivalents are 5.182mm and 5.18mm, but notice that these numbers imply an accuracy

greater than would have been obtained using the metric versions of the instruments in question and in such cases it is preferable to round down to the next decimal place, that is 5.18 and 5.2.

There are many problems in making accurate measurements and in expressing the results fairly, and taking into account the variations often found between nominally identical OS parts, it may be thought that the some of the finer points discussed above are a little academic. I would defend them on two grounds, first if one strays far from them, for example a slightly careless measurement with a ruler, converted into different units and the result quoted to several places of decimals, the information can easily be misleading; secondly a certain minimum accuracy is sometimes a real help in identifying parts. Two examples come to mind - to know the diameter ef an axle accurately is very reassuring when in some OS the axle is a very loose fit in the holes, and at the other extreme in terms of the need for care rather than expensive measuring equipment, are the errors which occur in data on hole spacing, STABIL for instance has sometimes been shown as 12.7mm (that is the same as MECCANO) instead of 12.5mm.

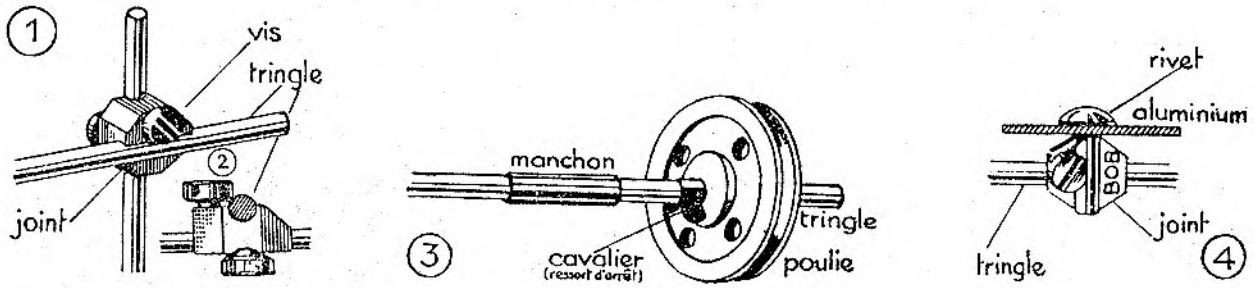
THE RUSSIAN ALPHABET

Capital	*Lower-case*	*Approx. Pronunciation of Name*	*English transliteration in this dictionary*	*Capital*	*Lower-case*	*Approx. Pronunciation of Name*	*English transliteration in this dictionary*
А	а	(ah)	a	Р	р	(ĕr)	r
Б	б	(bĕ)	b	С	с	(ĕs)	s
В	в	(vĕ)	v	Т	т	(tĕ)	t
Г	г	(gĕ)	g	У	у	(o͞o)	u
Д	д	(dĕ)	d	Ф	ф	(ĕf)	f
Е	е	(yĕ)	e	Х	х	(χah)	kh
Ё	ё	(yŏ)	ë	Ц	ц	(tsĕ)	ts
Ж	ж	(zhĕ)	zh	Ч	ч	(chĕ)	ch
З	з	(zĕ)	z	Ш	ш	(shah)	sh
И	и	(ē)	i	Щ	щ	(shchah)	shch
Й	й	(ēkră′tkŏyĕ)	ĭ	Ъ	ъ	(tvyŏr′dĭznahk)	” (‘hard sign’)
К	к	(kah)	k	Ы	ы	(ĭ)	y
Л	л	(ĕl)	l	Ь	ь	(myah′k-kĭznahk)	’ (‘soft sign’)
М	м	(ĕm)	m	Э	э	(ĕŏberŏ′tnŏyĕ)	é
Н	н	(ĕn)	n	Ю	ю	(ū)	yu
О	о	(ŏ)	o	Я	я	(yah)	ya
П	п	(pĕ)	p				

ÉLÉMENTS ET MONTAGE DU **BOB**

BOB utilise comme éléments essentiels :

1. — Des **joints brevetés,** comportant deux gorges perpendiculaires dans lesquelles une tringle métallique est maintenue par la pression d'une tête de vis (fig. 1 et 2).



2. — Des **poulies, roues, manchons, cavaliers,** etc..... (fig. 3).

3. — Des **plaques d'aluminium** dont la fixation est assurée, soit par une tringle qui les traverse, soit par un rivet maintenu par un joint (fig. 4).

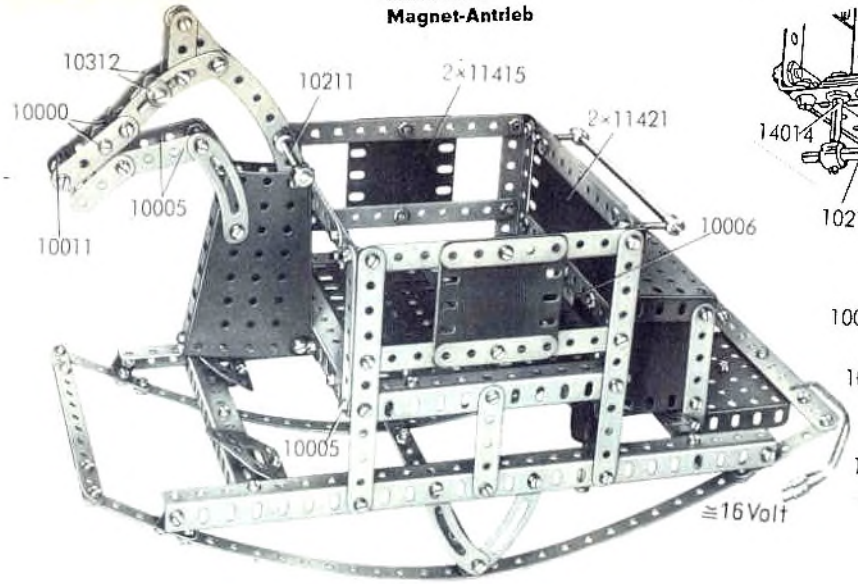
Translation:

1. The patented joints with two [semi-circular section] grooves at right angles to one another, in [each of] which a metal rod can be locked by the head of a screw (fig 1 and 2).
2. Pulleys, wheels, sleeves (rod connectors), spring clips, etc (fig 3).
3. Aluminium plates which are fixed either by a rod passing through them, or by a rivet held in a joint (fig 4).

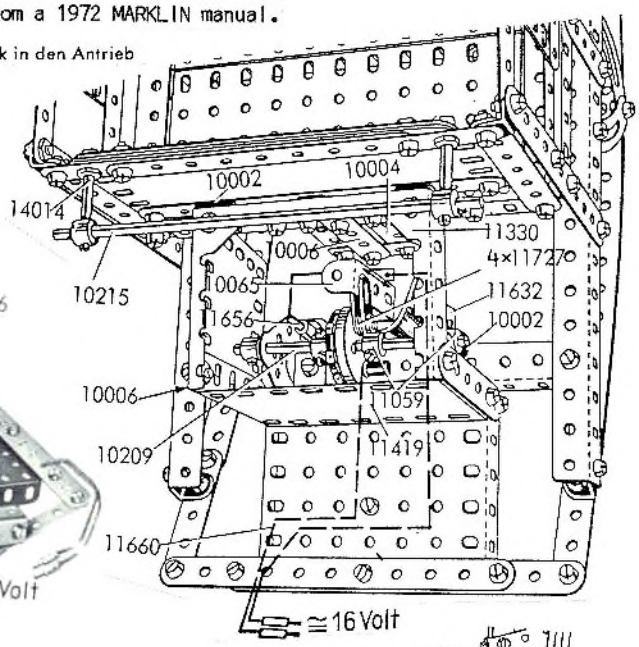
Gebaut mit MÄRKLIN-Metallbaukasten Nr. 1014 (1013 + 1033)

This model from a 1972 MARKLIN manual.

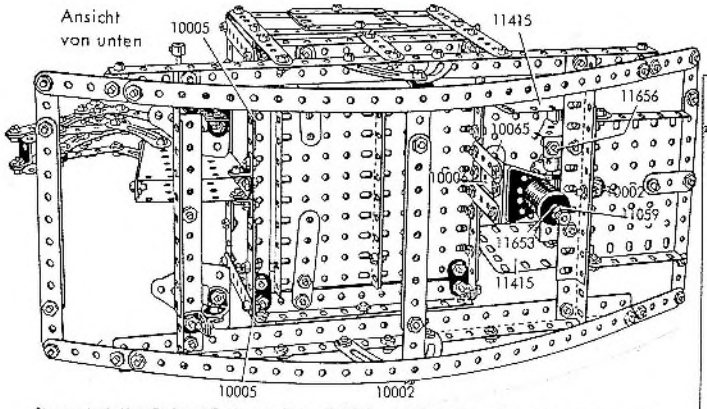
Nr. 1014 - 104
Schaukelpferd mit Elektro-Magnet-Antrieb

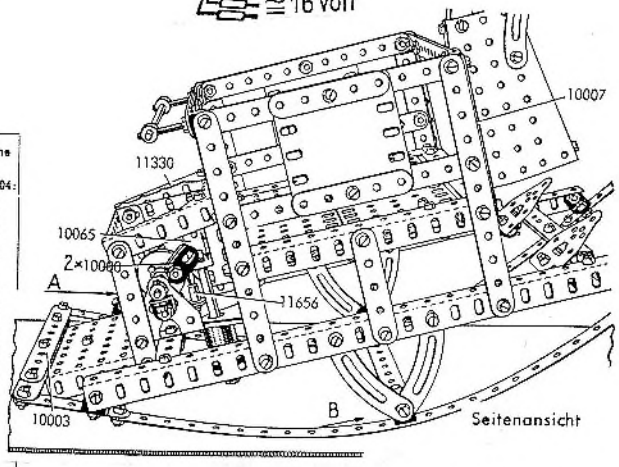


Blick in den Antrieb



Ansicht von unten



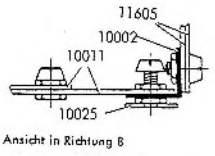


Erforderliche Teile zu Nr. 1014-104:	
8 – 10000	
1 – 10001	
22 – 10002	
7 – 10003	
4 – 10004	
18 – 10005	
3 – 10006	
4 – 10007	
21 – 10011	
2 – 10025	
1 – 10065	
7 – 10111	
2 – 10125	
1 – 10209	
1 – 10211	
1 – 10215	
2 – 10312	
10 – 11059	
2 – 11320	
2 – 11330	
2 – 11340	
6 – 11415	
1 – 11419	1 – 11653
2 – 11421	1 – 11656
8 – 11605	1 – 11660
2 – 11607	1 – 11665
2 – 11631	4 – 11727
2 – 11632	5 – 14010
1 – 11640	157 – 14013
	2 – 14014

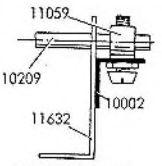
Stromverlauf: Vom Trafo zur Spule, von dort nach 11656 und 11632 (Farbe entfernen). Durch das Modell, zu dem einen Feld von 11665, welches mit der Masseschraube verbunden ist. Berührt die Kohlenbürste von 11665 dieses Feld, so fließt der Strom von der Kohlenbürstenkappe zum Trafo zurück.

Wirkungsweise: Das Schaukelpferd ist auf eine glatte Holzunterlage zu stellen. Ist der Stromkreis geschlossen, so wird die Spule 11640 magnetisch und diese zieht den Eisenkern (11651 und 11653) an. Dadurch wird das Schaukelpferd nach vorne gedrückt. Der Verbindungsbügel 10065 (zwischen 2 × 10000) dreht die Bürstenbrücke von 11665 so weit, daß die Kohlenbürste das stromführende Feld verläßt. Die Spule wird stromlos und das Schaukelpferd kann zurückschaukeln. Bei dieser Bewegung wird die Kohlenbürste wieder auf das stromführende Feld geschaben und das Spiel beginnt von neuem.

Zur Beachtung: Damit die eine Hälfte von 11665, welche die Kohlenbürste enthält, sich nicht zu leicht auf der Welle 10209 bewegt, ist die Mutter 14010, die die beiden Teile Nr. 10000 festhält, gegen den Stellring 11059 zu klemmen.



Ansicht in Richtung B



Ansicht in Richtung A

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