TO START

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BUILDING

TRIX

ELEMENTRIX INSTRUCTION BOOK

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TO START YOU BUILDING

This is the age of the Engineer!

Hardly a week goes by without bringing some new wonder that the Engineer has thought out or constructed. Huge bridges carry railways and roads across chasms, giant liners ply the seas, aircraft shuttle to and fro with great cargoes of passengers and merchandise from the farthest coasts of the world. And the Engineers who thought out all these wonders were themselves, not so long ago, boys at school. How did they start to become Engineers?

Well, they had toys and models of a sort, but for the rest they had to "make do."

They did not have the wonderful help that Trix Constructor sets bring to you.

With this grand box of parts you can make a start right away and learn for yourself one of the great secrets of Engineering—how to secure maximum strength with minimum weight.

You can learn how to join girders, how to fit braces and struts for strengthening frameworks, how to make levers, cranks and bearings, and you can apply all this knowledge to making up your models just as the

Engineer does in "the shops." This box of 98 parts will teach you the elements of engineering by the Trix way—the most absorbing and fascinating way ever invented.

In this book we show you examples of some of the models which can be made. There are, literally, hundreds of other models that can be made from just the parts contained in this box; but the ones we show here have been chosen and grouped together in a special order for a special reason—to start you building. If you will follow these through and build them up according to the simple directions given, you will, by the time you reach the last model, have mastered the elementary principles of Engineering, and you will then be ready to start on really ambitious models as explained on pages 24-31.

Remember, one of the great advantages of the Trix system is that you can go on adding to your stock of parts by small units (like the "A" and "B" units shown here). Each new unit added increases enormously the size and scope of the models you can make (you "buy as you save"), and that is why we say that your Trix outfit is always complete yet never finished. Build your first model now and learn to be an Engineer.

Get to know them

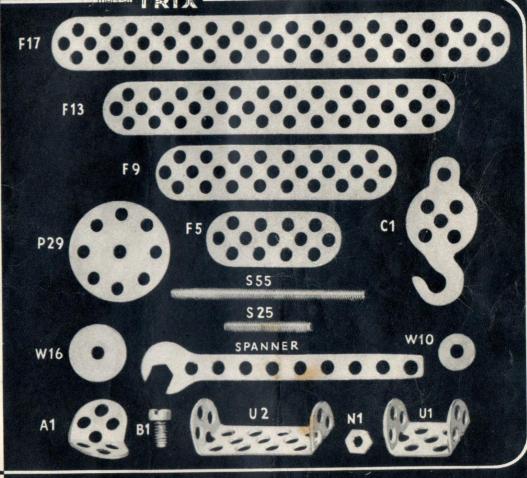
In this box you will find two envelopes, one containing a unit "A" (51 parts), the other a unit "B" (47 parts).

Together these two envelopes form the Elementrix set—to start you building. Later you will wish to add to your stock of parts and build bigger models. You can do this by adding further "A" and "B" units which are sold separately.

Every item in TRIX Constructor Sets is known by a code number; thus a flat strip is called F5, F9, F13, etc., depending on the number of holes in the middle row; P29 is a pierced disc 29 mm. in diameter; \$55 is a screwed spindle 55 mm. long, etc.

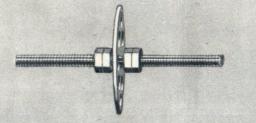
Get to know all your TRIX parts by their code number. You will be referring to them constantly when you follow out the instructions contained in the various TRIX handbooks.

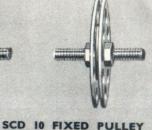
NOTE: Further parts will be released as production becomes available.



STANDARD CONSTRUCTION DETAILS

As you work through the examples of Trix Models given in this booklet, you will find that certain types of construction will recur. Here we give selected examples of 10 engineering constructions and, when giving you hints on how to assemble models, we shall merely refer you to these constructions by their numbers (e.g., SCD7). Study each one carefully until you know how it is made up and what purpose it serves.





SCD 9 LOOSE WHEEL Made with

4 x NI

1 x S25 or S55 1 x P29 or W10 or W16

Made with 2 x NI 2 x P29

1 x \$25 or \$55 1 x W16

(large)



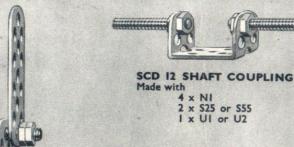
SCD II PULLEY (small) Made with

2 x NI

x \$25 or \$55

x WIO

2 x W16



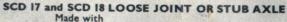


SCD 13 FIXED SHAFT OR AXLE

1 x any strip, U-piece 2 x NI

1 x S25 or S55

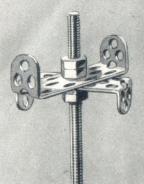




SCD 17

2 x any combination of strip, U-piece or P29

2 x NI



SCD 20 REVOLVING BASE

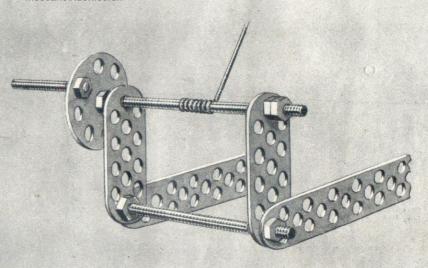
Made with

4 x NI

1 x S25 or S55

2 x UI or U2





SCD 22 HOIST MECHANISM

SCD 23 HOIST MECHANISM WITH BRAKE

Tighten up lock nuts on crank spindle so that distance (a) is less than distance (b). The strips then act as brakes.

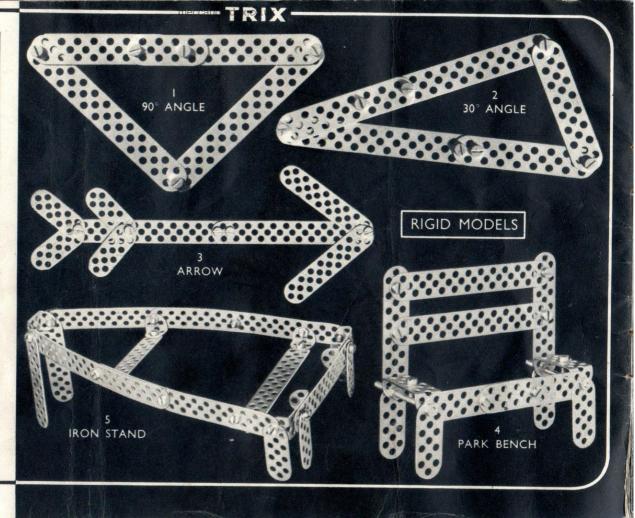
SPECIFICATIONS					
Part No.		Req	uire	No.	•
140.	1	2	3	4	5
AI		(-)			4
BI	5	7	5	8	16
F5	- 1	1	4	4	4
F9	2	3	2	4	3
FI3	2	2	2	2	2
F17			Torris		4
NI	5	7	5	16	16
S55			- III o	2	
UI					1
U2			STATE OF	2	2

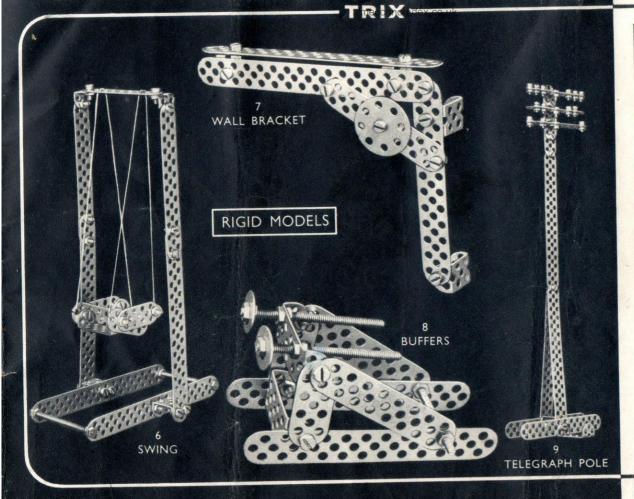
These models are of rigid construction and made by bolting together the different parts as shown in the photos. When building each model make the nuts and bolts a slack fit until all are in place, and then tighten firmly to give rigid construction.

Make seat for Model 4 from card as shown on page 23. Templates shown are exact size.

Study each photo carefully and read construction details before starting building model.

The following Rigid models are only a few examples to start you building. Make other models to your own design.





SPEC	IFI	CAT	101	15		
Part No.	R	Required for Model No.				
No.	6	7	8	9		
AL	2	2		3		
ВІ	20	10	4	22		
F5	4		2			
F9	1	1	2	4		
FI3	2	1	2	2		
F17	4	2		3		
NI	28	10	16	34		
P29		1	1			
\$55	2		3			
UI	2	2		2		
U2	2	1	2	1		
W16			2			

These further models of rigid construction are made in the same way as those on page 6. Use cord to make ropes of swing in Model 6. In Model 8 make the framework first and then add the buffer stops. When making Model 9, fit the NI/BI representing the insulators on cross trees before these are fitted to upright.

In any case of difficulty or for further advice, write to the TRIX Information Bureau, 91, Regent Street, W.I.

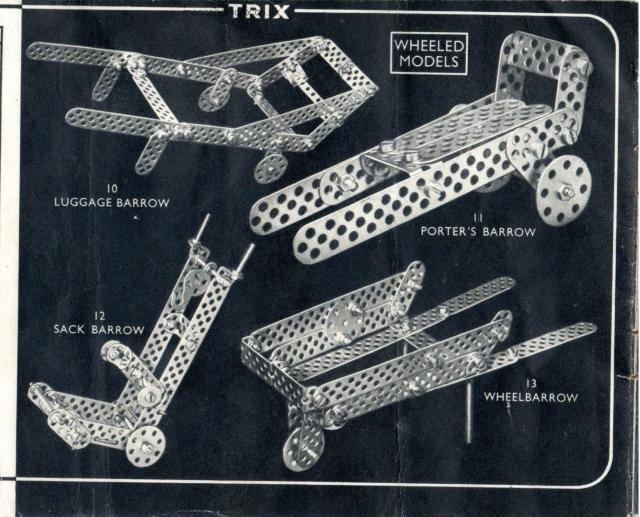
SPE	CIFI	CA	rio	NS			
Part No.	Required for Model No.						
140.	10	11	12	13			
AI	-4	1	4	4			
BI	24	11	16	20			
CI			1				
F5	4	4	2	4			
F9	4	3	3	4			
F13	2	1		2			
F17	4	1	2	4			
NI	27	17	36	28			
P29	2	2	2	4			
525			2	1			
\$55		1	3	2	١		
UI	2			1	Ì		
U2	2	2	2	2	Ì		
W16			2				
Sp.	1						

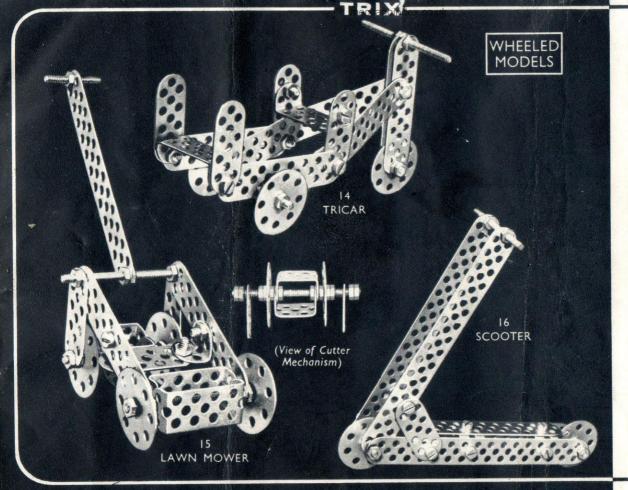
MODEL 10—Use SCD 18 for wheel and stub-axle assemblies. Make back crossbar from I spanner and 2 UI.

MODEL 11—Use SCD 13 for wheel fastenings.

MODEL 12—Use SCD 9 for axle assembly. Use SCD 13 for handles, hook and end support fastenings. MODEL 13—Use SCD 9 for wheel assembly, and SCD 13 for legs.

The following Wheeled models are only a few examples to start you building.





SPECIFICATIONS					
Part	Required for Model No.				
No.	14	15	16		
AI	To d	2	1		
ВІ	8	4	10		
F5	4	3	2		
F9	4	2			
F13	2	-1	1		
F17			4		
NI	19	28	26		
P29	3	4	2		
\$25		1	2		
\$55	2	3	1		
UI		2	2		
U2	2	2	100		

MODEL 14—Use SCD 9 for front wheel and SCD 13 for handlebars and rear-axle assembly.

MODEL 15—Use SCD 9 for front-axle assembly and SCD 13 for handle, front grass box and rear crossbar. Make cutters as shown in inset photo.

MODEL 16—Use SCD 9 for front and rear wheel assemblies. Use SCD 13 for handlebars.

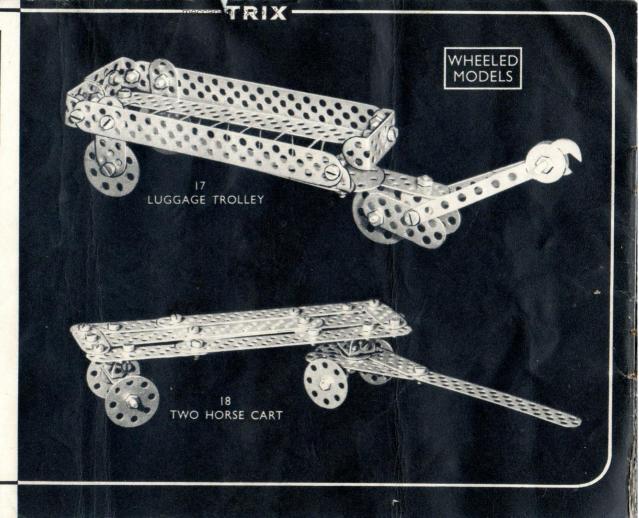
For advice or further information write to TRIX Information Bureau, 91, Regent Street, W.1.

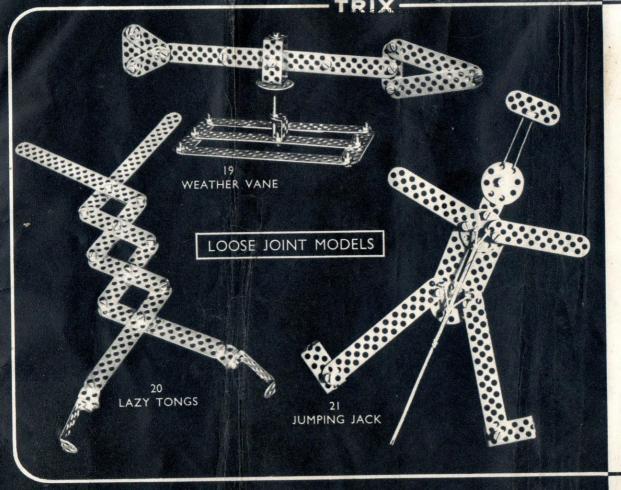
SP	ECI	FIC	ATIC	NC	S
Part No.	17	18	Part No.	17	18
Al	4	4	P29	4	4
BI	20	23	S25	2	1
F5	4	4	\$55		2
F9	1	4	UI	2	2
F13		1	U2	2	2
F17	4	4	W16	-2	2
NI	32	35			

MODEL 17—Use SCD 17 for rear wheels and swivel, SCD 9 for front wheel. Handle is made from 2 W16 and 2 Spanners. Use F9/P29 for front end fitting.

MODEL 18—Make cart platform. Rear axle frame is made from I UI/U2 and 2 AI. The 2 AI are bolted to underside of platform. Make front axle frame from I S25, I UI and 2 WI6 using SCD I7 and I U2 and 2 AI. Fit the 2 AI to platform.

In case of difficulty or for further information, write to TRIX Information Bureau, 91, Regent Street, W.1.





SPECIFICATIONS

Part	Required for Model No.			
No.	19	20	21	
AI.		2		
ВІ	19	14	8	
F5	4		2	
F9	4	4	4	
FI3	2	2	2	
FI7	4	2		
NI	29	24	12	
P29	1		3	
525	1			
\$55	1			
UI	1			
U2	2	2	2	

CONSTRUCTION

MODEL 19—Make arrow, base and swivel. Fit together. Arrow must balance freely.

MODEL 20—Use SCD 17 for all joints of tongs except where Al's and U2's are fitted.

MODEL 21—Use SCD 17 for attaching arms and legs. Tie cord to innermost hole of each limb and knot together as shown. Tie cord from head to F5. Hold F5 and pull lower cord.

These are only three examples of loose joint models to start you building. Make other models to your own design.

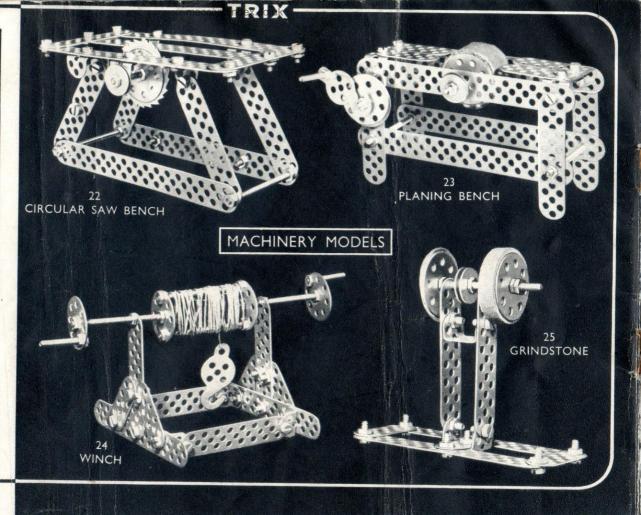
SPECIFICATIONS					
Part No.		Requi Mod	red f	or o.	
140.	22	23	24	25	
AI	4		4		
ВІ	19	8	14	-11	
CI		1	1		
F5	4	4	4	3	
F9	4	4	4	2	
F13	2		2	2	
F17	4	4			
NI	31	32	36	18	
P29	2	4	4	4	
S25	1	2	2		
S55	2	3	4	1	
UI	1			2	
U2		2		1	
WIO	1	1		1	
W16	2	2		2	

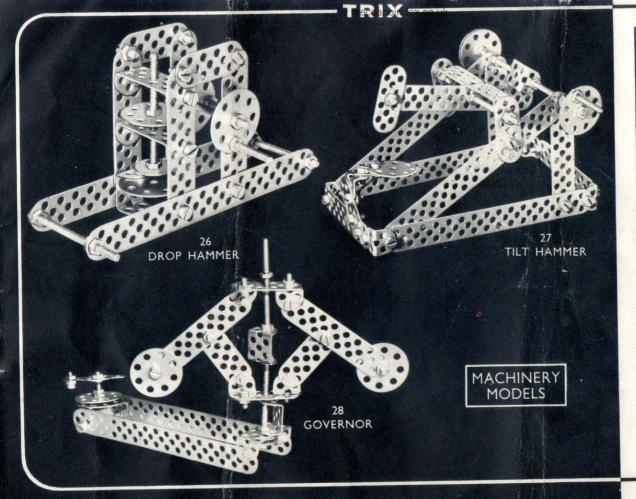
MODEL 22—Use SCD II for pulley and SCD I3 for leg fastenings. Make saw as shown on page 23, and fit between 2 P29.

MODEL 23—Make planing wheel as shown on page 23. Use \$25 for crank drive shaft with SCD 18. MODEL 25—Make buff and

emery wheel as shown on page 23. Use SCD II for pulley.

The following Machinery models are only a few examples. Make other models to your own design.





SPECIFICATIONS						
Part	Required for Model No.					
No.	26	27	28			
Al	Y	4	4			
ВІ	15	18	17			
CI		1	1			
F5	2	4 -	4			
F9	4	4	2 .			
FI3		1				
F17	2	4	2			
NI	35	36	35			
P29	4	4	4			
S25	1	2	1			
S55	4	3	2			
UI	1	2	2			
U2	2	2	2			
WIO			1			
W16	1	1.	2			

MODEL 26—Top P29 of hammer shaft is raised by bolt in P29 on crank S55.

MODEL 27—Make table from P29/CI/AI. Use SCD 12 to make eccentric on crank spindle. Hammer shaft is free to swing on cross shaft.

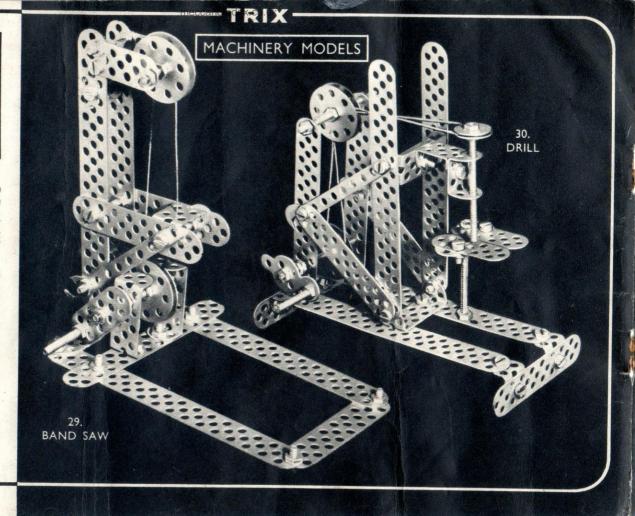
MODEL 28—Use SCD 18 for arms, SCD 11 for lower end of centre shaft, SCD 12 for centre shaft. Use C1 to make crank. Use cord to make belt drive from crank spindle to governor shaft.

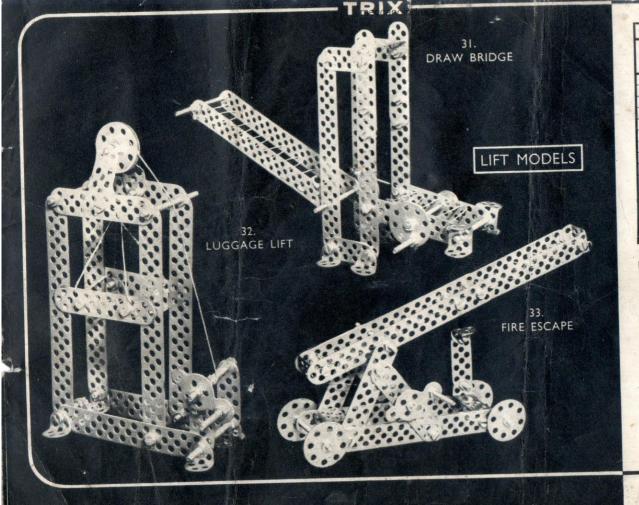
SP	SPECIFICATIONS						
Part No.	29	30	Part No.	29	30		
AI	2	4	P29	4	4		
BI	24	20	S25	2	1		
CI		1	S55	1	4		
F5	3	3	UI	2	2		
F9	4	4	U2	. 2	2		
FI3	- 1	2	WIO		1		
F17	4	4	W16	2	2		
NI	36	36	Sp.	2	2		

MODEL 29—Use SCD 10 for band pulleys. Make crank and base assembly. Make back frame and saw table. Fit both assemblies. Use 2 spanners for saw table supports.

MODEL 30—Use SCD 10 for crank and counter-shaft pulleys, SCD 11 for drill shaft pulley, and SCD 13 for drill table. Make base and counter-shaft frame. Make drill feed bracket and frame. Fit both assemblies. Add drill table. Use cord for belt drive.

In case of difficulty or for further information, write to TRIX Information Bureau, 91, Regent Street, W.I.





SPECI	FICA	TIQI	NS		
Part No.	Required for Model No.				
140.	31	32	33		
Al	4	4	2		
BI	14	11	19		
CI		-1	1		
F5	4	4	1		
F9	4	4	4		
FI3	2	2	2		
F17	4	4	4		
NI	36	34	36		
P29	2	2	4		
S25	1	2	1		
\$55	4	4	4		
UI	2	2	2		
U2	2	2	2		
WIO	1				
W16	2	2			

MODEL 31—Use cord attached to P29 on S55 and crank spindle to raise bridge which swivels on S55. Cord is clamped between 2 W16 on end of crank spindle. Use cord for roadway.

MODEL 32—Use SCD 9 for lift wheel and SCD 22 for hoist. Use CI for crank. Lift must be sliding fit in shaft.

MODEL 33—Ladder is free to swing on S55 of frame. Raise by cord from rear of ladder to crank spindle. Rungs are made of cord.

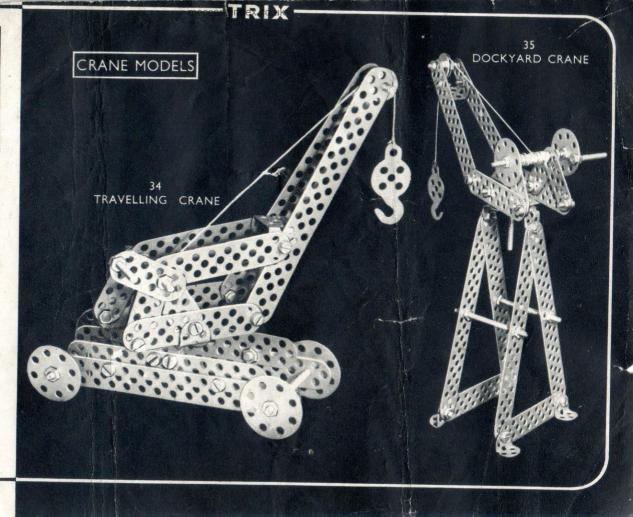
SP	SPECIFICATIONS						
Part No.	34	35	Part No.	34	35		
AI		4	P29	4	4		
BI	16	14	S25	2	2		
CI	1	1	S55	4	4		
F5	4	4	UI	1	1		
F9	4	4	U2	2	2		
FI3	2	2	WIO	.1	1		
F17	4	4	W16	2	2		
NI	36	36					

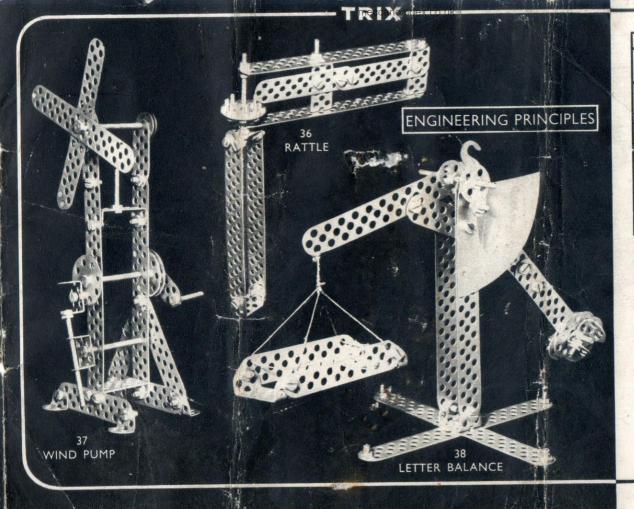
MODEL 34—Use SCD 10 for crane pulley, SCD 20 for turntable, and SCD 22 for hoist. Make crane and undercarriage separately.

MODEL 35—Use SCD 13 for bracing between crane legs. Make swivel from 1 S55 and 2 P29. Make crane and structure separately.

These are only two examples of Crane models to start you building. Make other models to your own design.

See pages 28 and 30 for more advanced Crane models made with TRIX CONSTRUCTION UNITS.





SPECIFICATIONS				
Part	Required for Model No.			
No.	36	37	38	
Al		4	4	
ВІ	22	13	20	
CI	Sept. 18	188	1	
F5	The state of	3	A	
F9	2	4	4	
FI3		2	1 2	
F17	4	2	4	
NI	36	33	28	
P29	F	4	4	
S25	981	2	1	
S55	2	4	1	
UI	2	2	T	
U2	2	2	2	
WIO		1		
W16	ET SALO	2	The same	

MODEL 36—Ratchet is made from bolts fitted to P29 and an F17. Use S25 lock nutted top and bottom for swivel at end of handle.

MODEL 37—Use SCD 18 for con-rod to crankshaft wheel. Pump body must be free to oscillate. Use lock nuts for this.

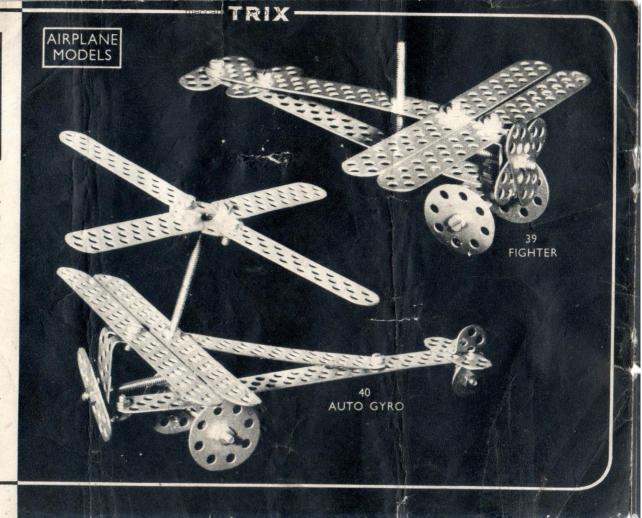
MODEL 38—Exact length of arms and counter-weight give balance which can be adjusted to give accurate readings on scale of true weights. Scale is made from card as shown on page 23.

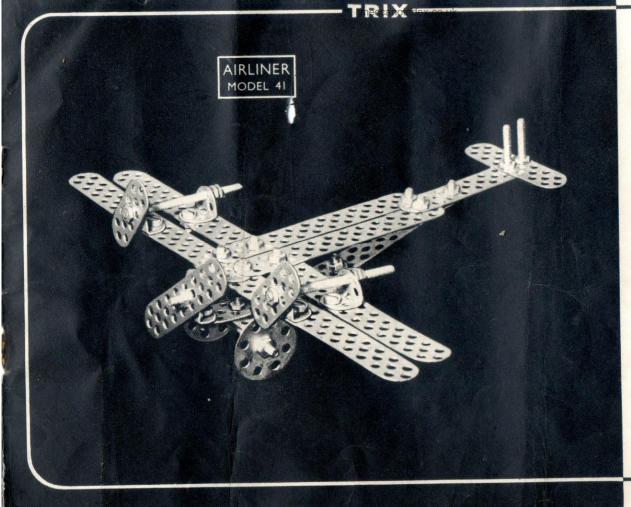
PROPERTY AND ADDRESS OF THE PARTY AND ADDRESS		40 No. 39 40 3 NI 16 23 10 P29 2 3 4 S55 2 3 4 UI I			
SPECIFICATIONS					
Part No.	39	40			40
AI		3	NI	16	23
ВІ	7	10	P29	2	3
F5	4	4	S55	2	3
F9	4	4	UI	-1	
FI3		1	U2	1	2
FI7	2	3	W16	1	1

MODEL 39—Fitairscrew using SCD 13. Use SCD 18 for wheel fastenings. Airscrew shaft should be free to rotate.

MODEL 40—Similar construction as for previous model. Use SCD 13 for gyro blades P29 to shaft.

The following models of Airplanes are only a few examples to start you building. Make other models to your own design.





SPECIFICATION				
Part No.	41	Part No.	41	
Al	4	NI	36	
ВІ	16	P29	2	
F5	4	S25	2	
F9	4	S55	4	
FI3	2	UI	2	
F17	4	U2	1	

The construction of this model is very straightforward and can be clearly seen from the photo. Use SCD 13 for all airscrew fastenings. Lock nut ends of shafts.

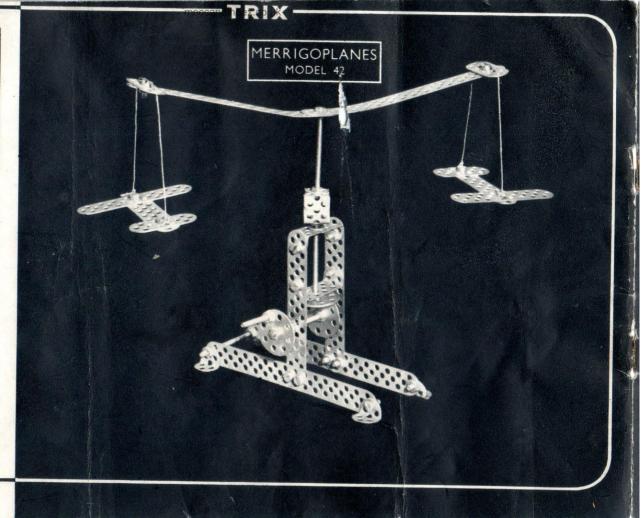
Turn to page 26 and see what a fine model of an Airliner can be made with the addition of further Units.

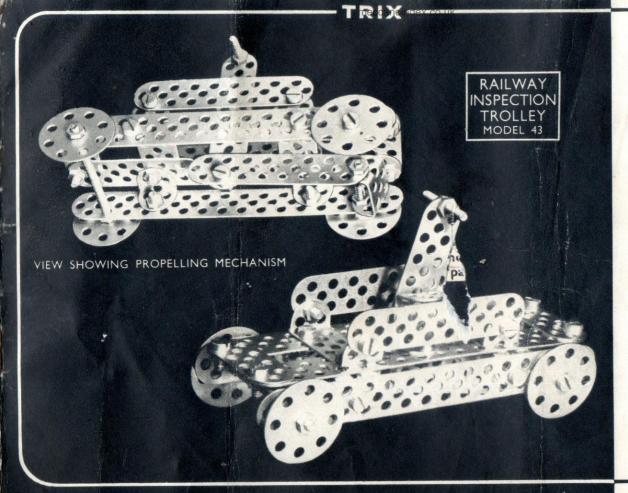
For any further information or advice write to TRIX Information Bureau, 91 Regent St., W.1.

SPECIFICATION			
Part No.	42	Part No.	42
AI	4	P29	3
BI	16	S25	1
F5	4	S55	4
F9	4	UI	2
FI3	2	U2	2
FI7	. 4	WIO	1
NI	36		

Use SCD 13 for fastening revolving arms to main shaft. Use SCD 12 with 2 U1 for shaft coupling. Be sure that P29 at end of main shaft rests firmly on P29 on crank spindle in order that main shaft will turn by friction drive. Set up revolving arms slightly to allow free operation of crank handle.

This fine working model is only one example of the many which you can make using friction drive as motive power. Make other models to your own design.



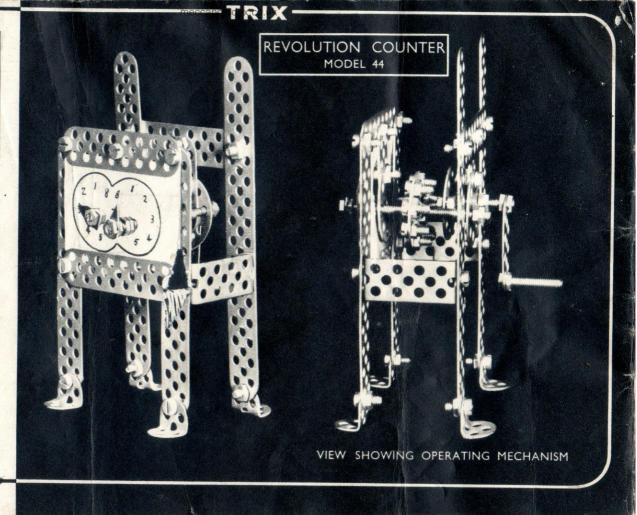


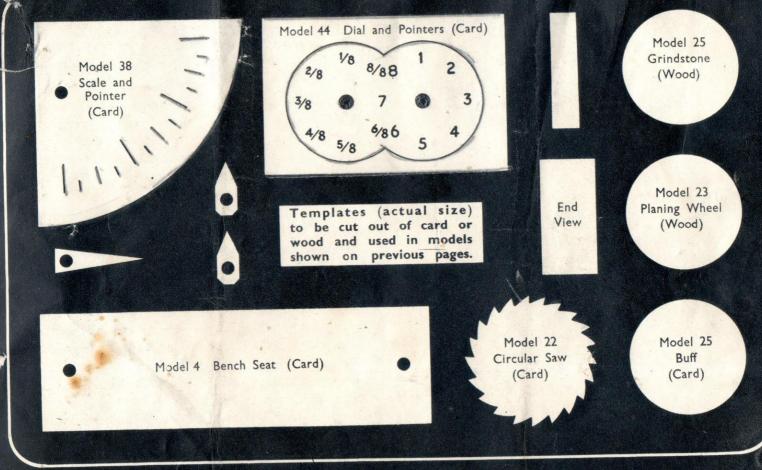
SPECIFICATION				
Part No.	43	Part No.	43	
AI	4	P29	.4	
ВІ	21	S25	2	
F5	2	S55	1	
F9	4	UI	2	
FI7	4	U2	2	
NI	35			

Make trolley floor. Fit brackets, top (U2), bottom (A1). Fit side F17s. Fit front axle. Fit one rear wheel (use SCD 18). Make propelling mechanism by fitting F9 (6th hole) to UI (centre) using SCD 18. Fit handle. Fit the UI to floor (centre). Fit a UI (corner hole) to an F9 (end hole) using SCD 18. This gives crankshaft action. At opposite end of UI fit S25 using SCD 13. Fit through side frame as shown using SCD 13 to fit P29. Join F9s using SCD 17. Make sure correct holes are used. Fit upper side F9s.

SPECIFICATION			
Part No.	44	Part No.	44
AI	- 4	NI	36
BI	24	P29	4
F5	3	S25	1
F9	3	S55	2
F13	2	U2	2
FI7	2	- 1	V.

Make outline frame. Bolt an F5 (end hole) to front ' top F9 (centre hole). Bolt P29 (outside hole) to the F5 (centre hole). Make gear assembly by fitting a P29 to S55. Fit I NI/BI to this P29. Make second gear similarly, but with 8 NI/BI. Fit shafts through opposing holes of P29 on frame with bolt ends facing. Fix P29s on shafts so that the I bolt end strikes any one of 8 bolt ends. Make P29/F5 as used on frame, and fit to back F9 so that other ends of gear shafts pass through. Lock nut ends, leaving room for crank handle on I bolt shaft. Fit crank handle. Make dial (see page 23) and fit. Fit pointers so that 8 bolt shaft overlaps I bolt shaft.





THE SHAPE OF THINGS

THE object of this box of Elementrix has been "To start you building," and now that you have worked through the models which we have given as examples of engineering practice you will naturally ask "What next?"

What do you have to do to build the more ambitious and magnificent models that are possible with Trix Constructor parts?

In the succeeding six pages we have given you some examples of what is possible. If you will examine the list of parts required for each of these models you will be struck by an interesting fact: these models are built up mainly from numbers of "A" and "B" Units like the ones in this box.* This is the great secret of the Trix Constructor system. When an engineer is building a big bridge or ship or crane he decides

what material he will need down to the last nut and bolt before any actual construction is put in hand. But, as a rule, he does not assemble everything on the site at the outset.

The various girders, nuts, bolts and rivets are ordered up from the "shops" as the work proceeds. Special parts, as, for example, the electric motors or engines that work the cranes come up as one unit and are fixed into their frames on the site.

Now, as we have said before, the whole idea behind Trix Constructor sets is to enable you to build up your models in just the same way as you will set to work on big engineering jobs in later life.

And so we made the Trix system as like the real thing as possible in the matter of ordering up your parts. Like the Engineer, you order them as you need them and just as the Engineer opens what is called a "Construction Account" in which he enters up the cost of each batch of stores or supplies as it is sent to the site, so you can build

^{*}A few additional units (such as the "C," "F," etc.) are necessary for the special parts such as gears.

up your big models, bit by bit, unit by unit, purchasing what you want as you need it, and as the money becomes available.

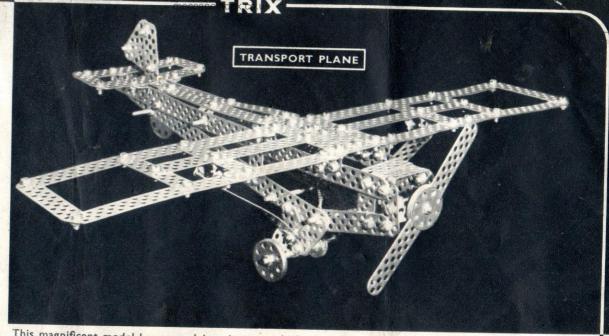
You can start off with just the one unit "A" and the one unit "B" that you find in this box. From these two units you can make up scores -even hundreds-of models. Then comes the time when you wish to make something bigger and better, so you add a further "A" unit. You will now want to know what models you can make from your two "A" units and your one



Learn how the differential gear in the back axle of a motor car works. This working model can be made with your ELEMENTRIX Set and I Unit C, I Unit F, 2 Model rubber tyres, I Motor 2051.

"B." Very well! You will be able to get from your Dealer a copy of our magnificent instruction book and this will give examples of models that can be built by using not only numbers of "A" and "B" units, but

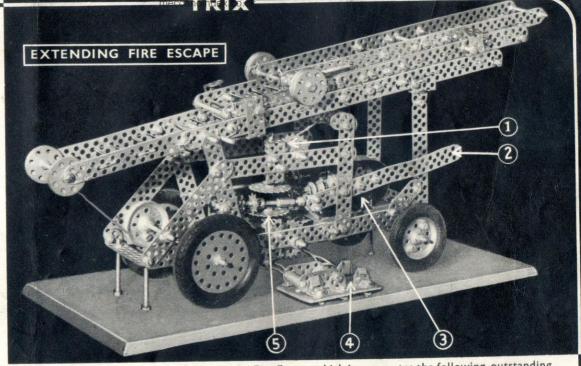
also by adding the "C," "D," "F" and "F" units that will be released just as soon as the materials become available. With the "gear" unit, for example, you will be able to learn all about the various kinds of gearing that form such an important part of Engineering. You will be able to make chain drives, worm



This magnificent model has a revolving airscrew which rotates as the plane is moved along the ground. It can be made by you with your ELEMENTRIX Set and 3 Units A, 3 Units B.

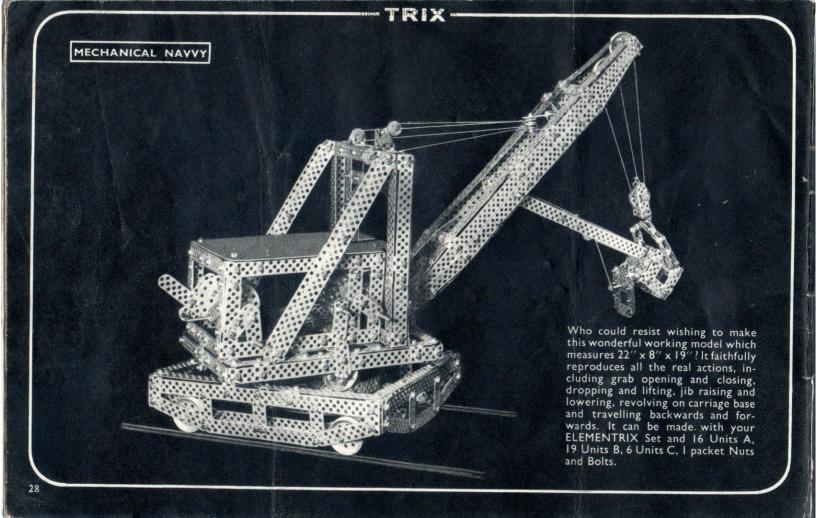
drives, differential gears, sun and planet gears, change speed gears and hosts of others; and you will learn how to build these gears into your models so that they will work just as they do in real machines. Of course, there will be ready-made electric motors (at remarkably low prices!) that you can build into your models and couple up to the gears so that the whole model will work from a small battery.

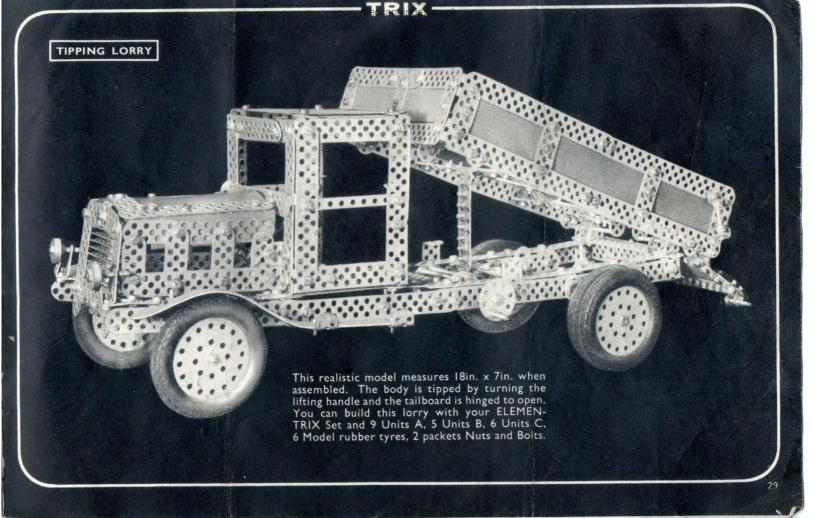
What can more thrilling than to see a massive bascule bridge roll majestically into position to let the traffic go by when you put over the switch? Then beyond this again comes the "electric" unit which contains electromagnets, coils, insulating strips and a range of electrical accessories. From this you can make a wide variety of electrical models. you can explore the mysteries of telegraph sets, you can make morse inkers



Our photo shows a wonderful working model Fire Escape which incorporates the following outstanding features. The gearing mechanism (1) extends the triple ladders and operates the raising gear (5). These are controlled by a change-over lever (2) which enables the motor (3) to work either gear. The 2-way switch (4) is wired so that the motor will turn the driving shaft in either direction, thus permitting raising and lowering at will.

You can make this model with your ELEMENTRIX Set and 5 Units A, 3 Units B, 2 Units C, 2 Units F, 4 Model rubber tyres, 1 Motor 2051.





TRIX.

TRAVELLING GANTRY CRANE

(2

No photo can do justice to this magnificent working model which is 24in. in height and 32in. in length. The 4 electric motors used are shown 1. Motor and gearing which drives the entire gantry structure along ground rails. 2. Motor gearing which drives the entire gantry structure along ground rails. 2. Motor and gearing which drives crane carriage along gantry rails. 3. Motor and gearing for driving crane revolving turntable. and 4. Motor and gearing for crane hoist. You can make this model with your ELEMENTRIX Set and 16 Units A, 26 Units 4 Units C, 6 Units F, 4 Motors 2051.

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that record messages on paper "tape" just like the ones in the Post Office. There are electric clocks that keep time, magnetic relays and signals . . . in fact a veritable treasure house waiting to be explored.

From the time that you start with the single "A" and "B" units in this box, you can go on adding a little bit here and a little bit there. By saving a penny or so out of your week's pocket money you will soon have enough to add yet another unit to your Engineer's Stores.

But, of course, you have a great advantage

over the real Engineer because when you have built one model you can always strip it down and use the same parts over again in later and bigger models.

And remember that the examples we give are only examples. They are meant "to start you building." What we want you to do is to use your

ingenuity. Try out new ideas for yourself. Do not be afraid of making mistakes because the man who never made a mistake never made anything!

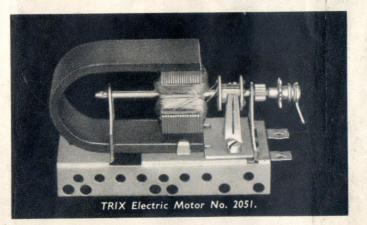
When the time comes round we shall resume

the famous Trix competitions and award valuable prizes. And those prizes will go not necessarily to the fellows who have built the biggest and most spectacular models, but to those whose work shows that they bid fair to become the Engineers of tomorrow.

And finally, remember that the Trix Engineers and the TrixInformation

Bureau are behind you to help you attain your ambition.

If you have difficulty with any particular model or require information about Trix products write to The Trix Information Bureau, 91 Regent Street, London, W.I, and we will always do what we can to help.





TRIX CYCLOMETER

This British made instrument built for long life, has a chromium plated body and clear figures recording up to 9,999.9 miles by 1/10 mile readings. Full instructions for easy fitting are enclosed with each instrument.



TRIX TEN-IN-ONE SPANNER

The spanner for cyclists. Made to fit standard cycle nuts with a perfect grip.

Enquire for these and other TRIX cycle accessories from your local agent.