

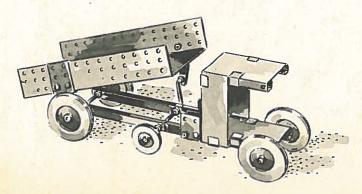
# LIONEL Construction Kits

# Made by the makers of the famous LIONEL TRAINS

The new LIONEL CONSTRUCTION KIT which you have just opened is the finest set of its kind in the world. The following pages show you, by means of easy-to-follow keyed illustrations, how simple it is to make exciting models which will be the envy of your neighborhood. The instructions below will give you a few do's and don'ts. Read them before you begin construction.

It is of the utmost importance that you READ THIS MANUAL CAREFULLY AND STUDY THE ENCLOSED CHART BEFORE STARTING TO BUILD ANY MODELS. Familiarize yourself with the names of various parts so that when directions call for Outer Tubes, Strips, Gussets, Hubs, etc., you will be able to find these items quickly in the Construction Kit box.

When you begin to build keep the Parts Chart handy so that you will be able to refer to it for guidance when necessary. As you become more and more proficient in your model making, you'll probably need to refer to the parts list only occasionally. However, DO



NOT THROW AWAY THE CHART, even though you're certain you've memorized all the names. You'll find the chart is an invaluable aid in making Construction Kit models.

DO NOT ATTEMPT TO BUILD COMPLEX MODELS AT FIRST. Try your hand at something simple, like the Table and Chair, or the Playground Slide. These and similar designs will give you practice in attaching Tubing Members, Grommets, Clips, etc., enabling you to familiarize yourself with the basic building techniques which are found in the larger models.

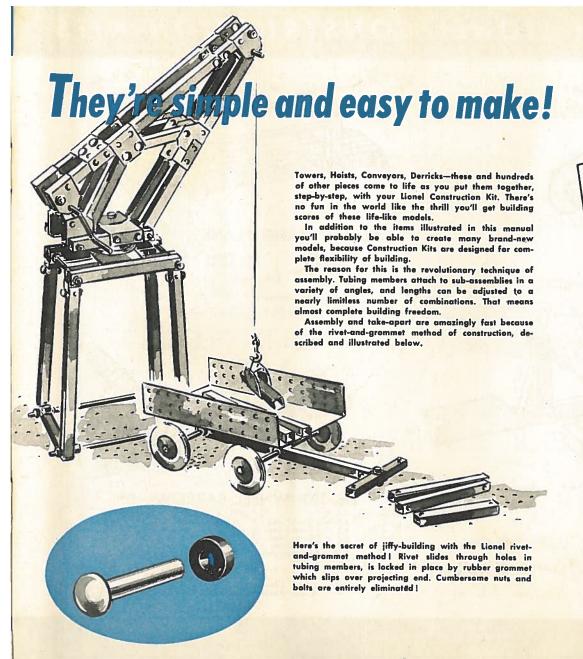
When you examine the parts you will notice that structural members are square tubing, simulating the construction elements used in industry. That's one reason why many of the models you make will be so realistic, so lifelike. Just as in real building, the Cranes, Derricks, Bridges, etc., which you put together will have depth and dimension, making them absolutely authentic.

And now, study the Parts Chart, look over the diagrams and then select your model. You'll be delighted when you discover how fascinating this building game can be with your LIONEL CONSTRUCTION KIT!

#### THE LIONEL CORPORATION

15 EAST 26th STREET

NEW YORK 10, N. Y.





### WHEN YOU BUILD MODELS.

The separate Chart included with this manual is an invaluable aid in making Construction Kit models. All parts and their sizes are illustrated and identified.

Sub-assemblies and the various methods of attaching tubes to gussets, etc., are shown in simplified drawings. Diagrams for wiring the electric motor to models which can be power-operated are also included in this chart. Keep it as a handy reference guide.

DO NOT THROW CHART AWAY!

#### No. 100 GUTTER BRUSH

A 1 — 4 Outer Tubes
A 4 — 4 Outer Tubes
B 10 — 2 Joining Tubes
D 3 — 1 Gusset
E 1 — 4 Connecting Clips
G 1 — 2 Wheels
G 10 — 2 Pulleys
H 3 — 1 Axle
H 4 — 2 Axles

TOTAL pcs. 22

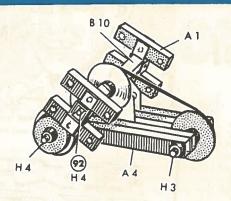
F 10 — 10 Rubber Grommets

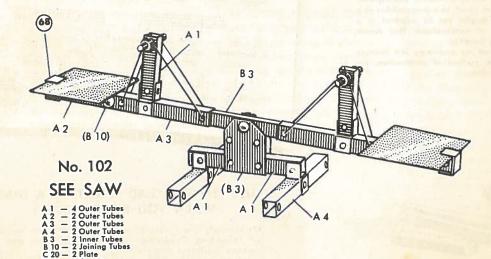
D3 - 1 Gusset

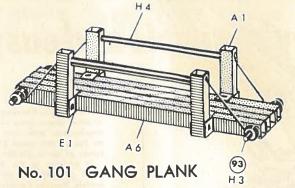
F1 - 3 Rivets F10 - 7 Rubber Grommets

TOTAL pcs. 25

E 1 — 4 Connecting Clips E 3 — 2 Plain Clips H 2 — 2 Axles

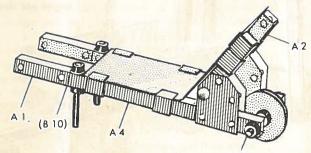






A 1 - 4 Outer Tubes A 6 - 4 Outer Tubes E 1 - 4 Connecting Clips TOTAL pcs. 16

F 10 - 8 Rubber Grommets

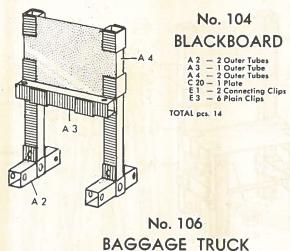


No. 103 WHEEL BARROW

A 1 — 4 Outer Tubes
A 2 — 2 Outer Tubes
A 4 — 2 Outer Tubes
B 3 — 2 Inner Tubes
B 10 — 2 Joining Tubes
C 20 — 2 Plates

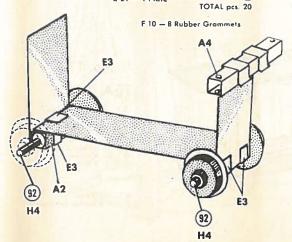
D 3 — 2 Gussets
E 3 — 8 Plain Clips
G 10 — 2 Pulleys
H 2 — 2 Axles
H 3 — 1 Axle
TOTAL pcs. 29

F 1 — 2 Rivets F 10 — 10 Rubber Grommets



#### E3 - 8 Plain Clips

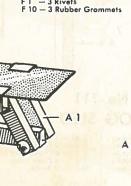
A 2 — 2 Outer Tubes A 4 — 1 Outer Tube C 20 — 2 Plates C 21 — 1 Plate G1-4 Wheels H4-2 Axles



#### No. 105 MUSIC STAND

A 2 - 1 Outer Tube A 3 — 2 Outer Tubes A 4 — 3 Outer Tubes B 10 - 1 Joining Tube C 20 - 1 Plate D3 - 1 Gusset E1 - 3 Connecting Clips E-3 - 4 Plain Clips TOTAL pcs. 16

F1 - 3 Rivets



#### No. 107 TABLE

H 2

A 1 - 4 Outer Tubes C 21 - 1 Plate A 3 — 2 Outer Tubes A 4 — 1 Outer Tube E3 — 4 Plain Clips H2 — 2 Axles TOTAL pcs. 14

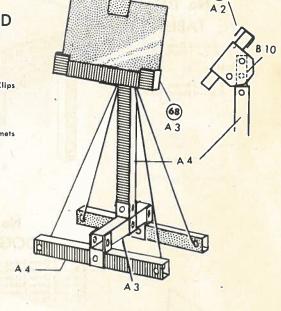
F1 - 4 Rivets F 10 - B Rubber Grommets

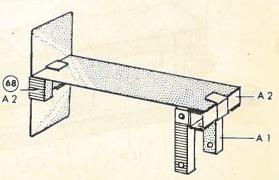
#### No. 108 BED

A 1 — 2 Outer Tubes A 2 — 2 Outer Tubes C 20 — 1 Plate

E1 - 2 Connecting Clips
E3 - 4 Plain Clips

TOTAL pcs. 12



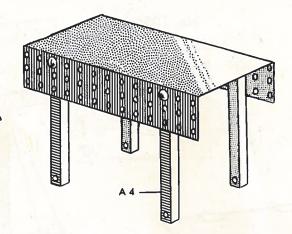


# No. 109 TABLE A4-4 Outer Tubes N1-1 Platform

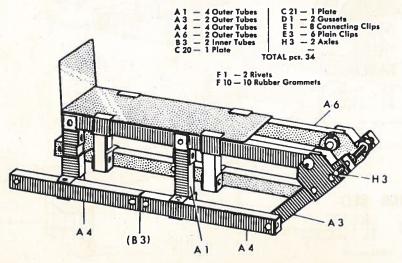
N 1 - 1 Plotform

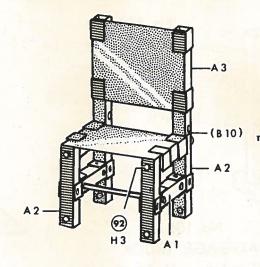
TOTAL pcs. 5

F 1 — 4 Rivets F 10 — 4 Rubber Grommets



#### No. 111 DOG SLED



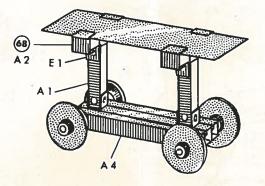


#### No. 110 CHAIR

A 1 — 4 Outer Tubes
A 2 — 4 Outer Tubes
A 3 — 2 Outer Tubes
B 10 — 2 Joining Tubes
C 20 — 2 Plates
E 1 — 4 Connecting Clips
E 3 — 8 Plain Clips
H 3 — 3 Axles

TOTAL pcs. 29

F 10 — 10 Rubber Grommets



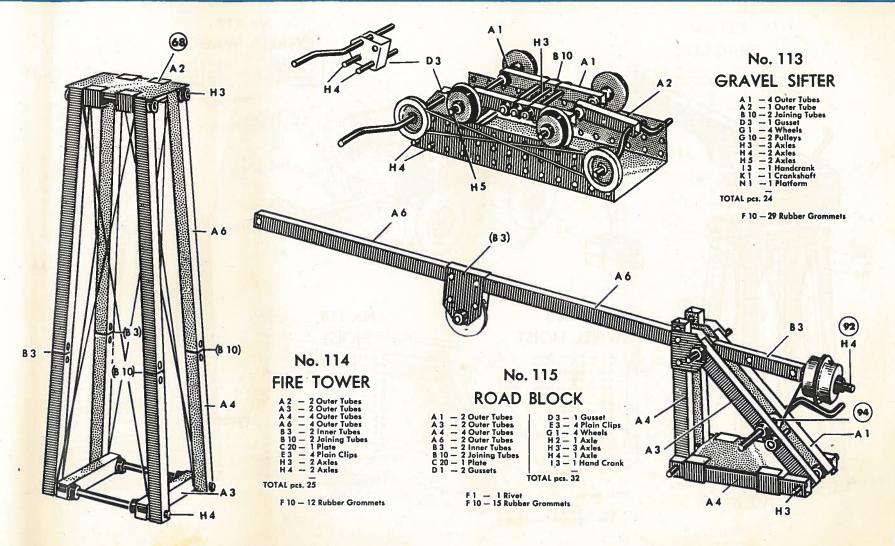
#### No. 112

#### TEA TABLE

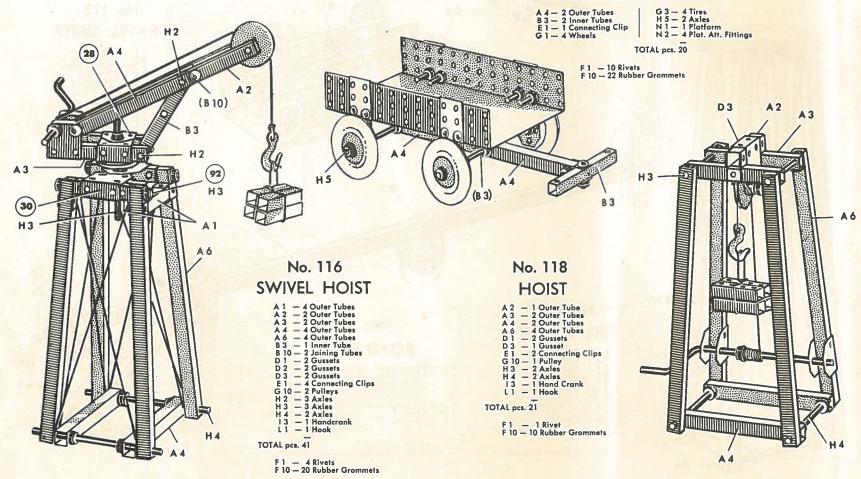
A 1 — 2 Outer Tubes
A 2 — 2 Outer Tubes
A 4 — 3 Outer Tubes
C 21 — 1 Plote
E 1 — 4 Connecting Clips
E 3 — 4 Ploin Clips
G 1 — 4 Wheels
H 3 — 2 Axles

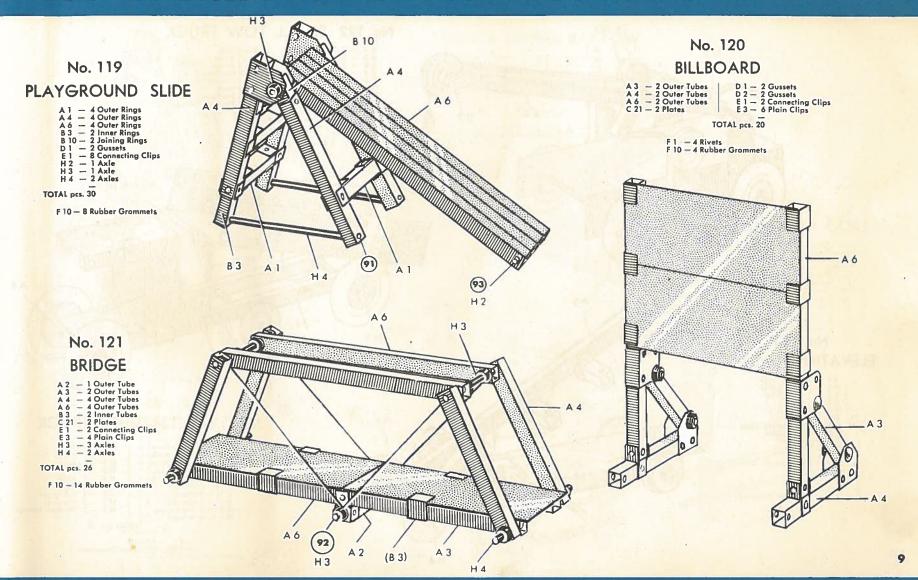
TOTAL pcs. 22

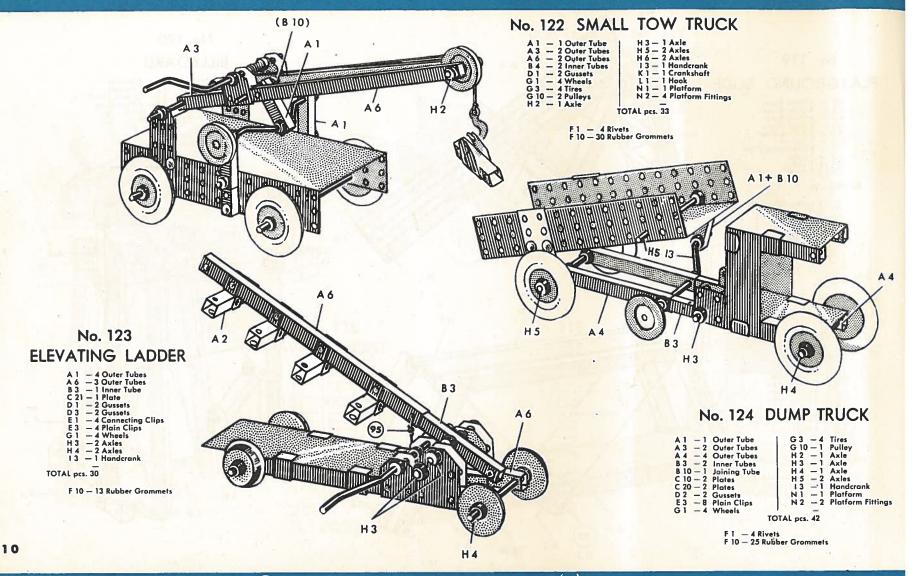
F1 — 2 Rivets F10 — 8 Rubber Grommets

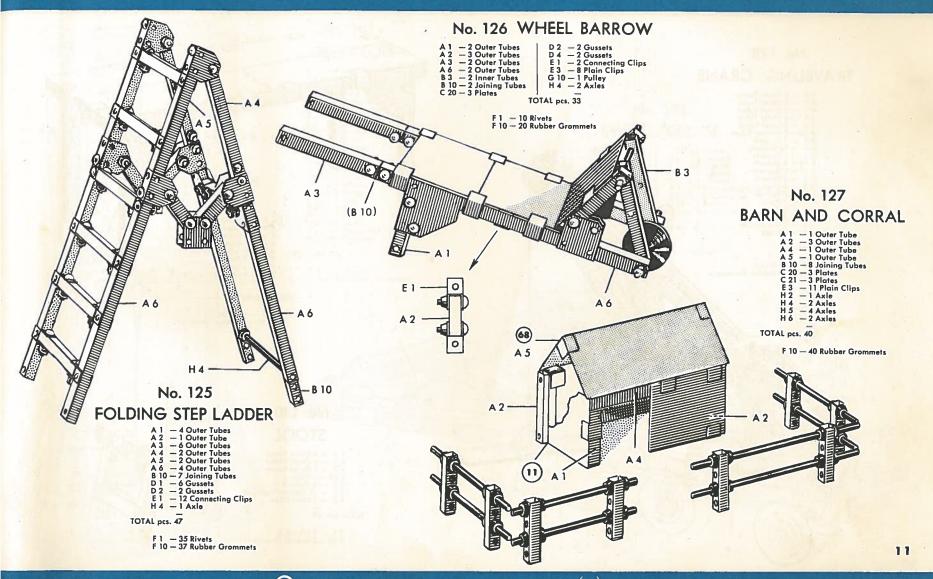


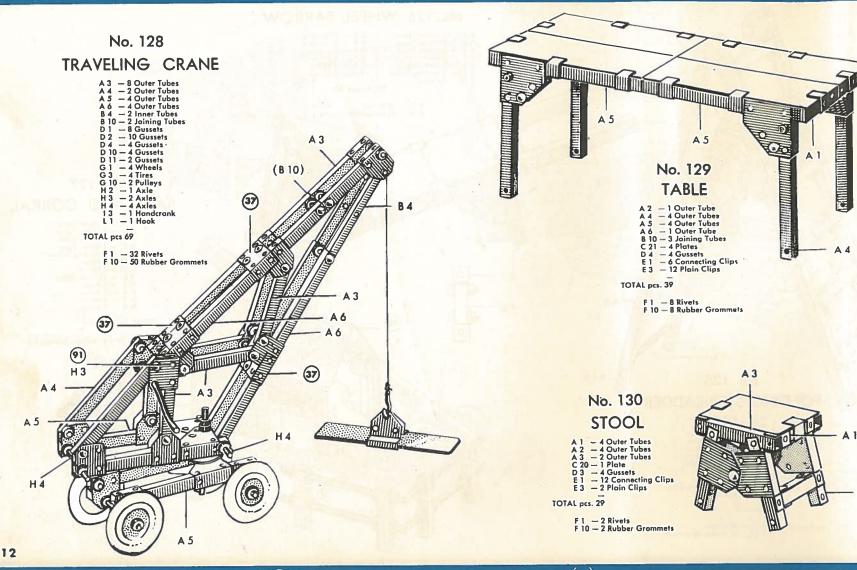
#### No. 117 EXPRESS WAGON

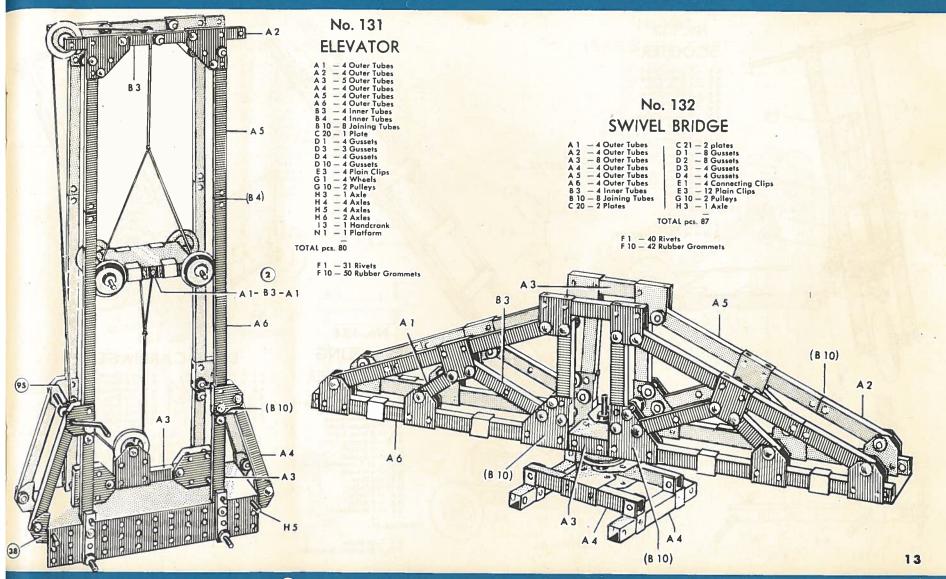


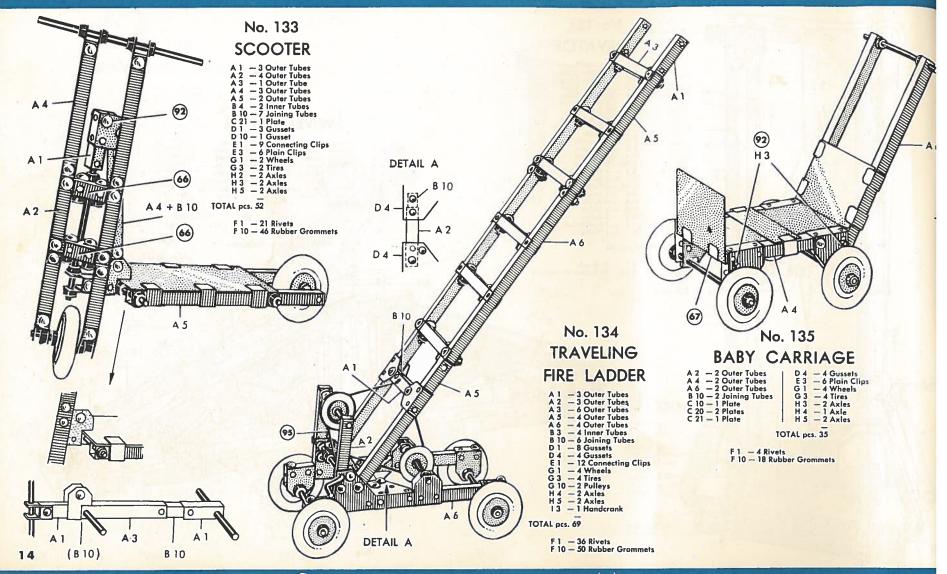


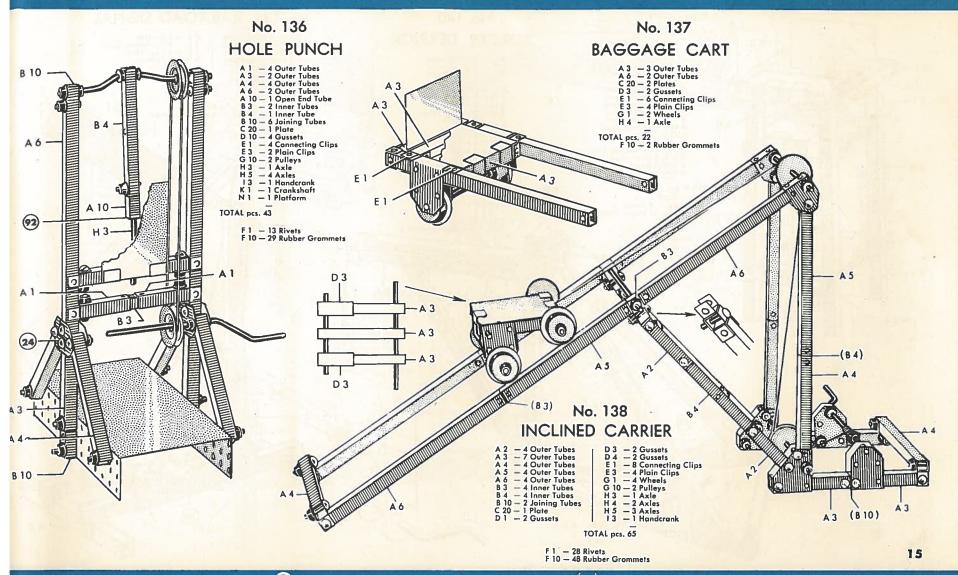


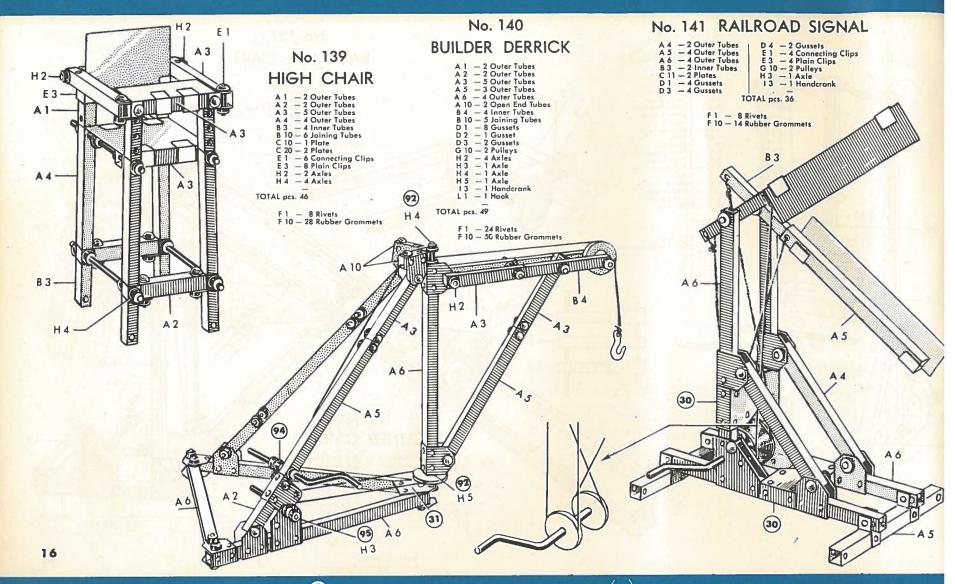


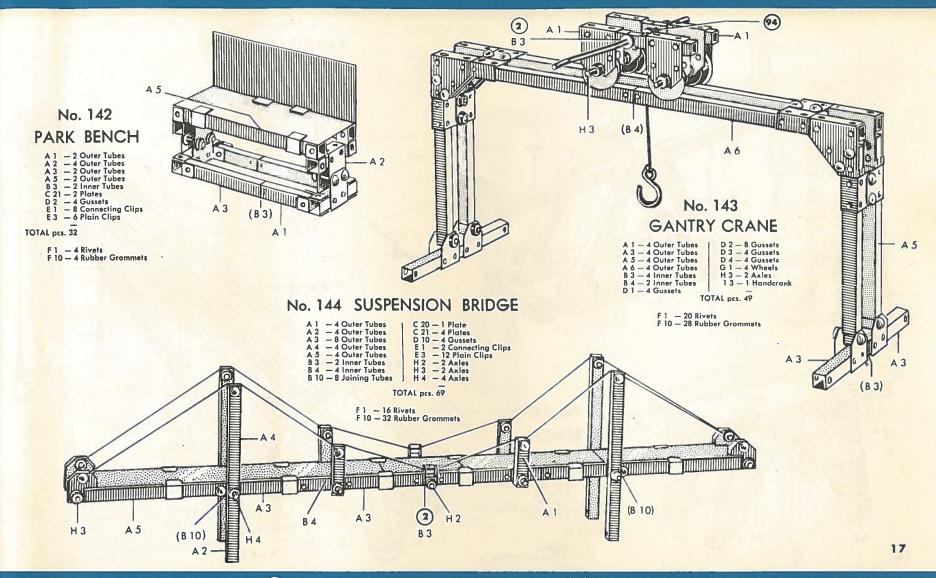


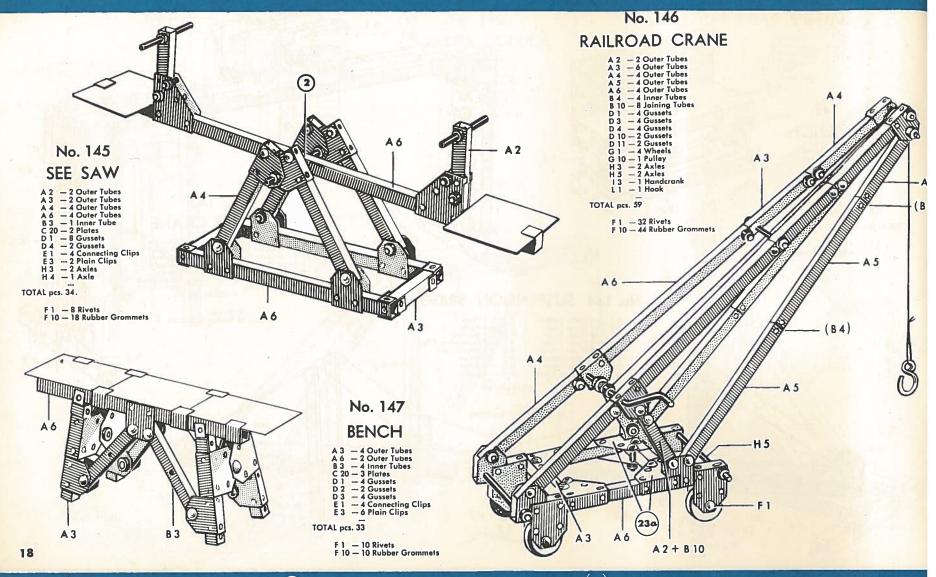


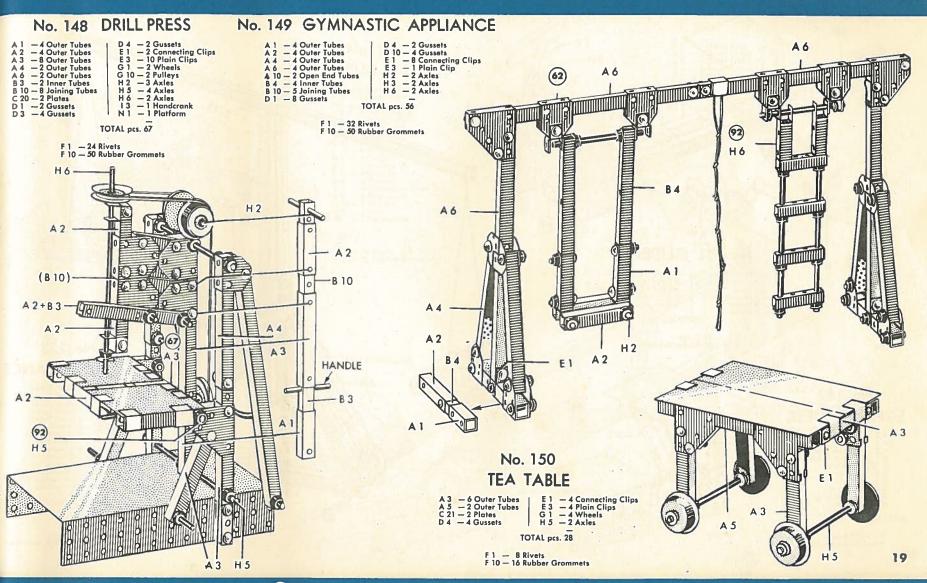






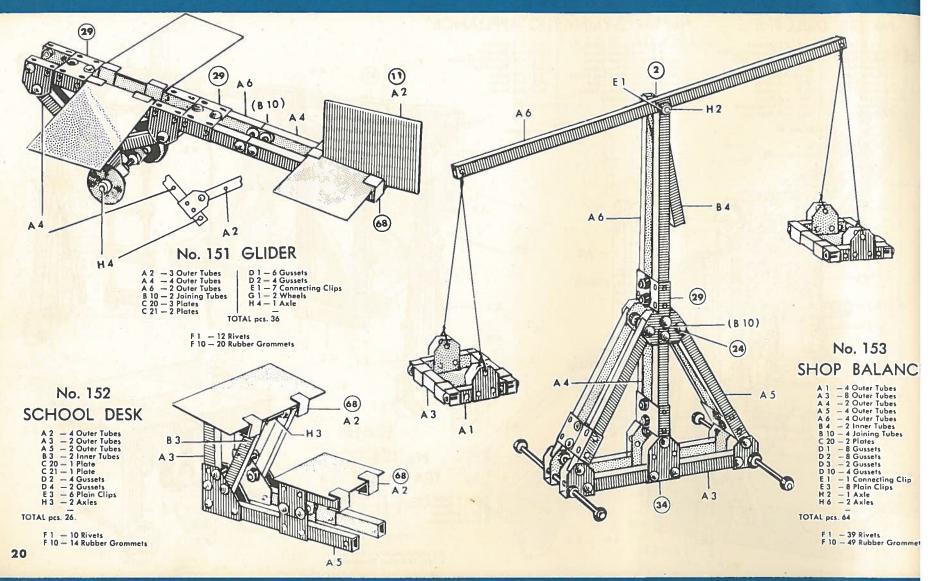


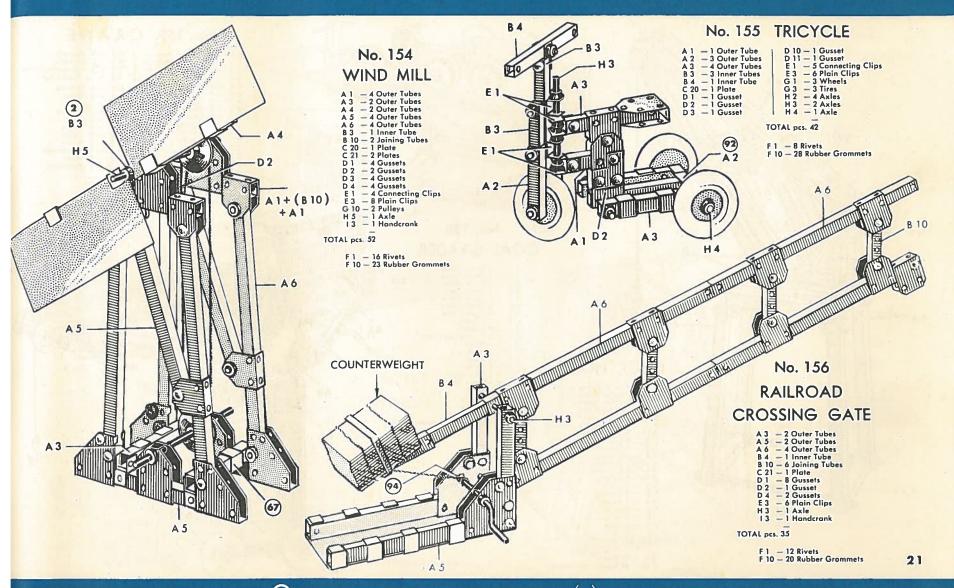


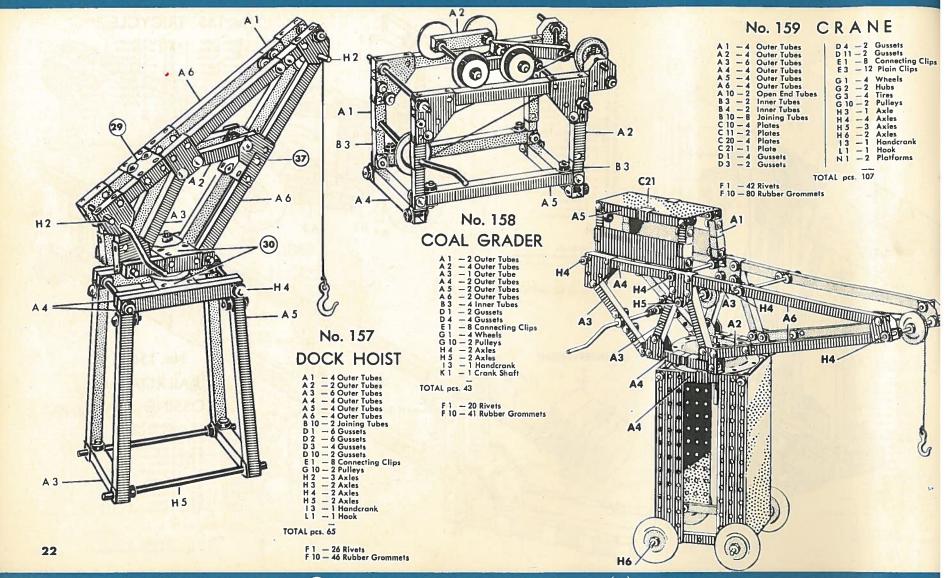


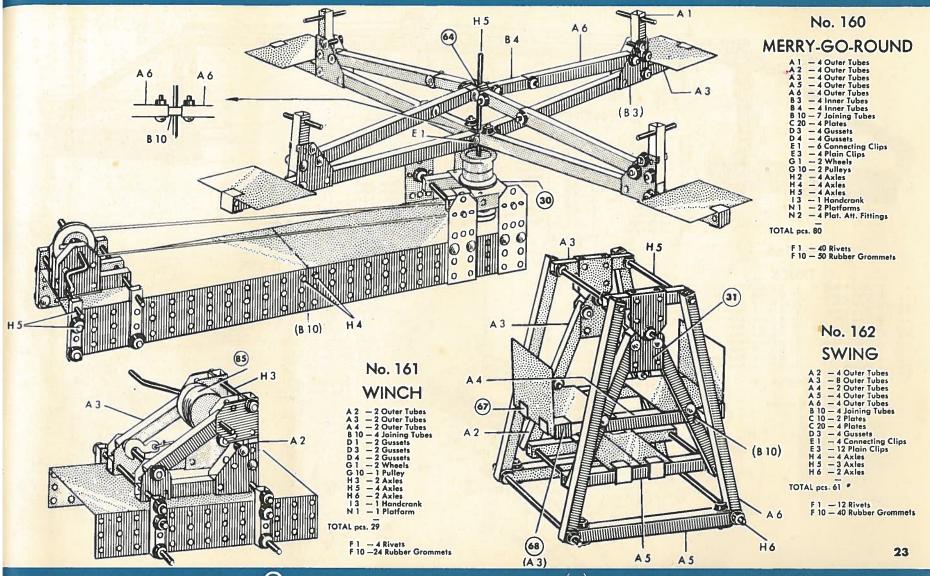
PLEASE NOTE - Number in CIRCLE O refers to one of the Sub-Assemblies shown on separate CHART.

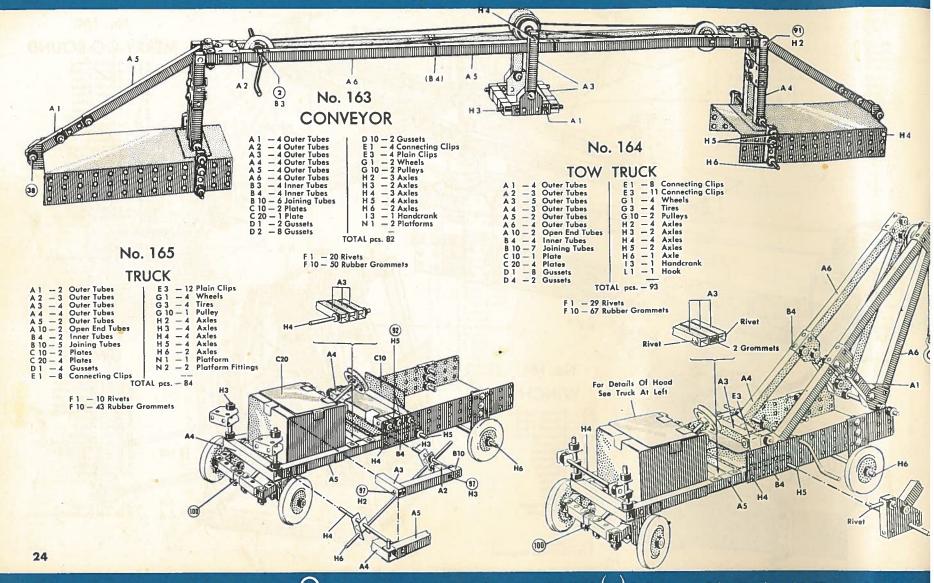
Number in PARENTHESIS ( ) indicates the number of the part that is concealed.

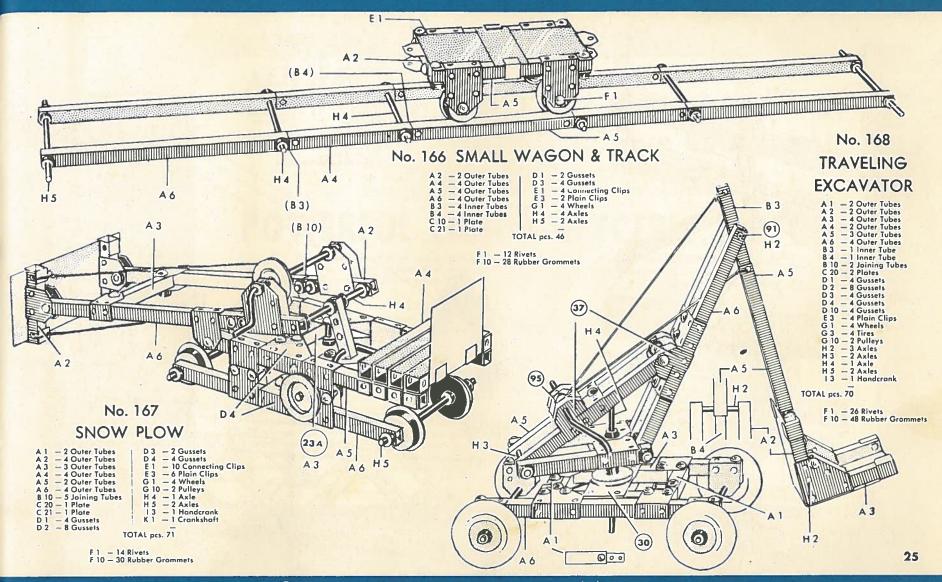


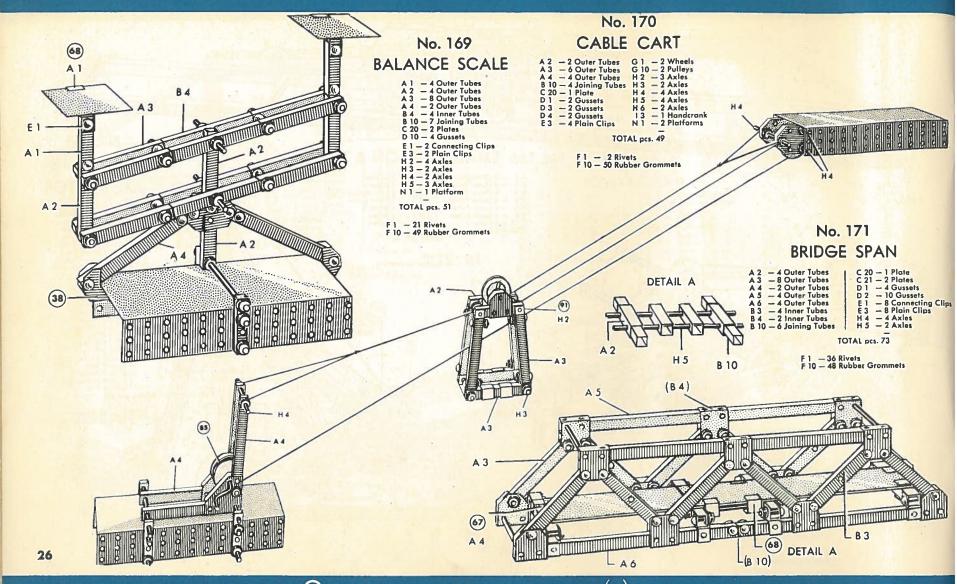












PLEASE NOTE - Number in CIRCLE Orefers to one of the Sub-Assemblies shown on separate CHART.

Number in PARENTHESIS ( ) indicates the number of the part that is concealed.

Other Numbers A1, B2, etc. refer to parts list accompanying model illustrated.



for, larger, more intricate models. Many of them can be made with Construction Kits 343 and 454; all of them can be built with Kit 565.

# POWERFUL LIONEL ELECTRIC MOTOR

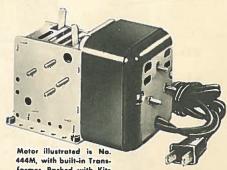
This specially-designed Lionel Motor can be used to put a number of your completed models into realistic, exciting action. With it, you can make Windmills and Fans revolve, you can make Ferris Wheels and Circular Saws turn. You can operate Cranes and Airplane Rides and many, many other models.

Designed by Lionel engineers and built in the same factory that makes the famous Lionel Trains, the Electric Motor packed with your Construction Kit is one of the finest of its kind in the world.

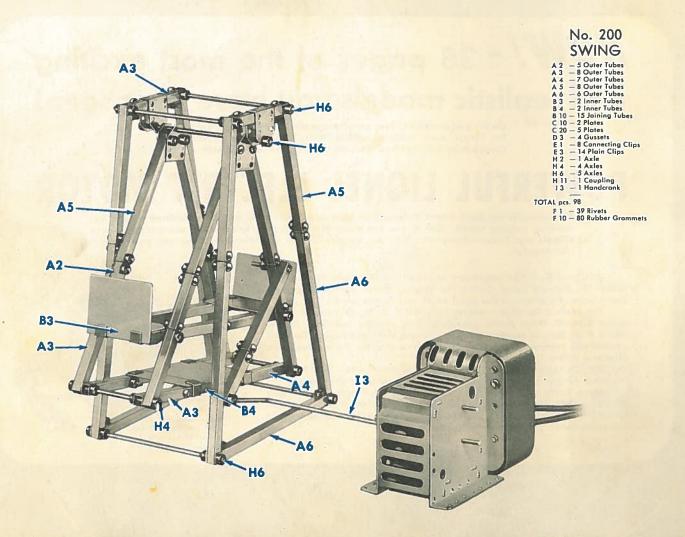
The main drive shaft revolves at 3,000 R. P. M. and provides high speed take-off. Other shafts provide speeds ranging between 50 and 300 R. P. M. Easy-to-manipulate levers having three positions — forward. neutral and reverse — provide easy shaft control for the operator. An all-metal Safety Grill protects the gears.

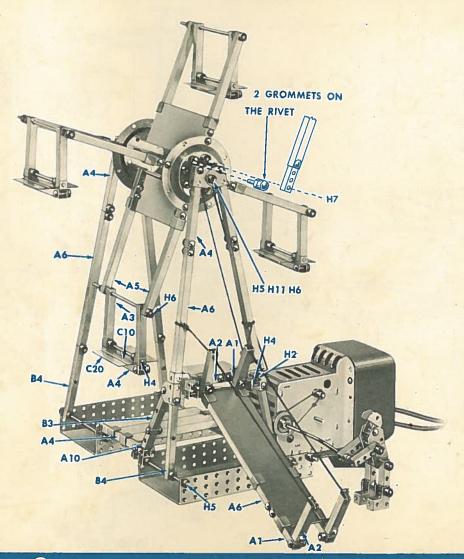
Kit 232 contains Motor 232M, which has two shafts - one forward, the other reverse — in addition to main power take-off drive shaft.

Motor 333M, with four shafts, forward and reverse, is included with Kit 343, while Kits 454 and 565 contain Motor 444M with four shafts forward and reverse plus a built-in Transformer which can be used to illuminate many of the Construction Kit models.



former. Packed with Kits 454 and 565.





#### No. 201 FERRIS WHEEL

- 5 Outer Tubes A 3 - 8 Outer Tubes A 4 - 10 Outer Tubes A 5 - 8 Outer Tubes A 6 - 6 Outer Tubes A 10 - 4 Open End Tubes - 4 Inner Tubes - 15 Joining Tubes - 4 Plates C 11 - 3 Plates C 20 - 6 Plates C 21 - 5 Plates D 1 -8 Gussets D 10 - 2 Gussets E1 - 20 Connecting Clips E 3 - 20 Plain Clips G2 -2 Hubs G 10 - 2 Pulleys H 2 - 4 Axles H4 - 4 Axles H 5 - 6 Axles H 6 - 6 Axles H 10 - 2 Sleeves H 11 - 1 Coupling - 1 Handcrank N 1 - 2 Platforms TOTAL pcs. 165

F 1 - 61 Rivets F 10 - 120 Rubber Grommets

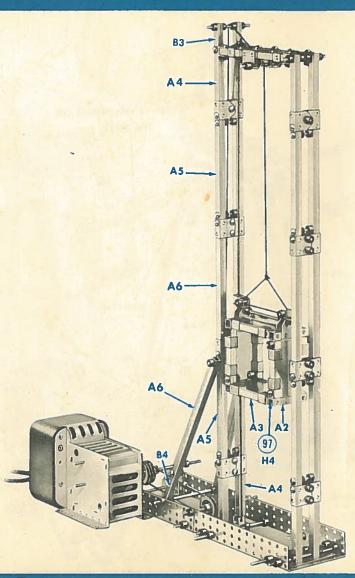
#### No. 202 ELEVATOR

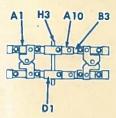
- 8 Outer Tubes - B Outer Tubes A 5 - 8 Outer Tubes A 6 - 6 Outer Tubes A 10 - 2 Open End Tubes B 3 - 4 Inner Tubes B 4 - 4 Inner Tubes B 10 - 15 Joining Tubes B 10 - 13 Joining luces
C 20 - 4 Plates
D 1 - 8 Gussets
D 2 - 12 Gussets
D 4 - 1 Gusset
D 10 - 4 Gussets
E 1 - 20 Connecting Clips
E 3 - 16 Plain Clips
G 10 - 3 Pulleys
H 3 - 6 Axles

H3 - 6 Axles H4 - 5 Axles H 5 — 6 Axles H 6 — 3 Axles H 11 — 1 Coupling

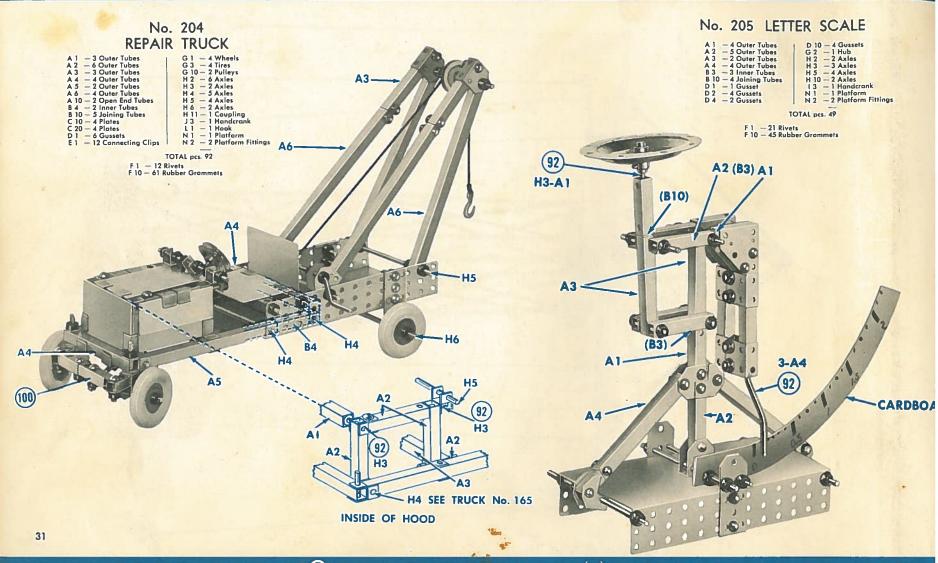
TOTAL pcs. 153

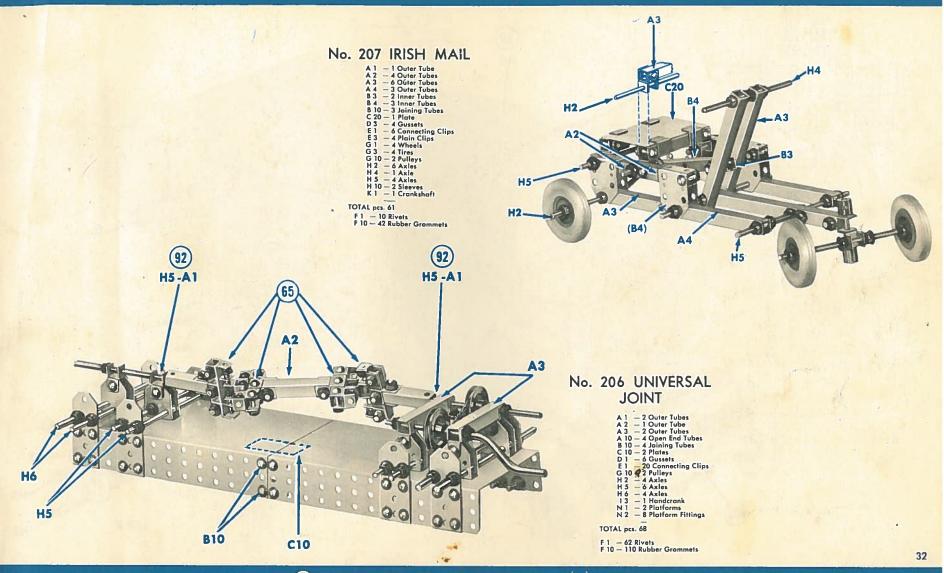
F1 - 68 Rivets F 10 - 120 Rubber Grommets

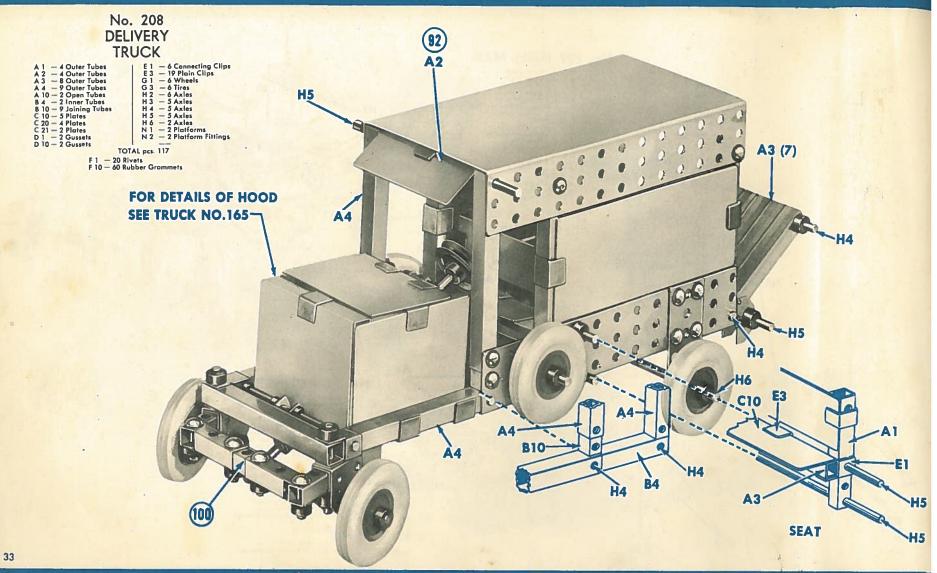


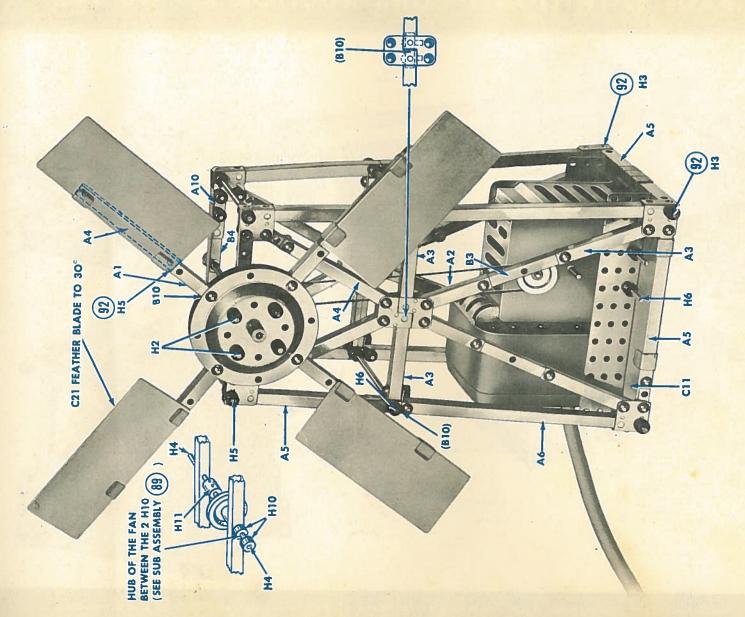


TOTAL pcs. 119 F 1 — 40 Rivets F 10 — 120 Gromi £(2) © °2′ 30



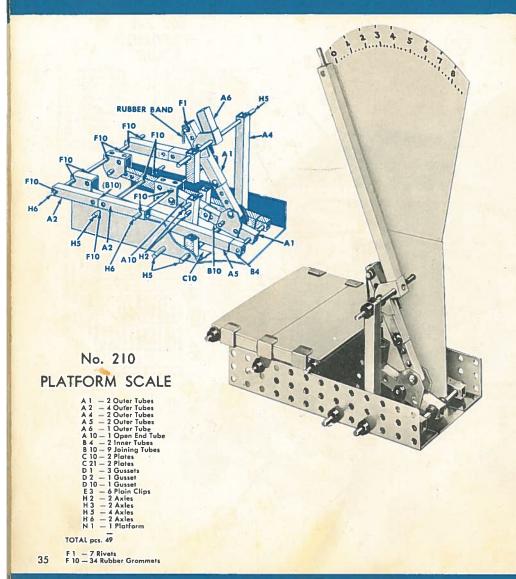




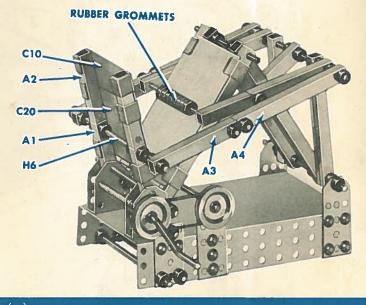


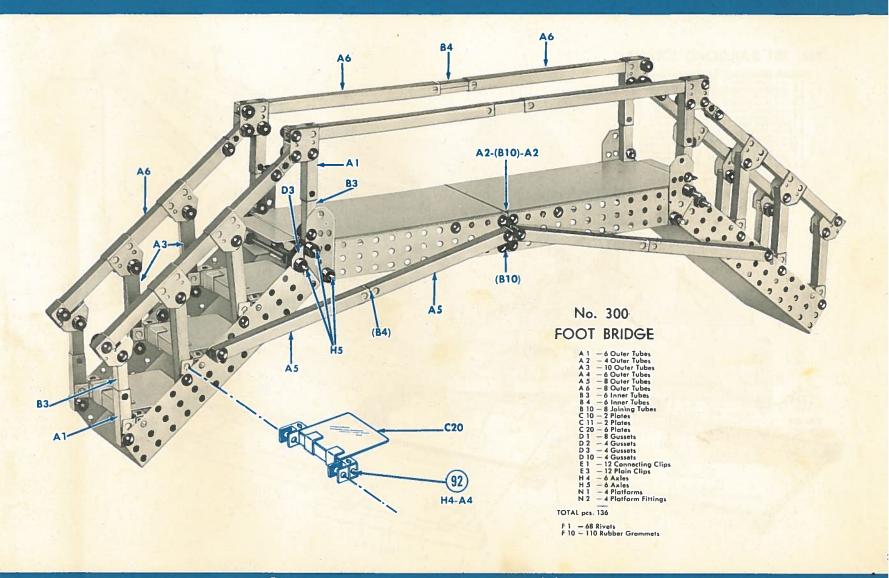
# No. 209 ELECTRIC FAN

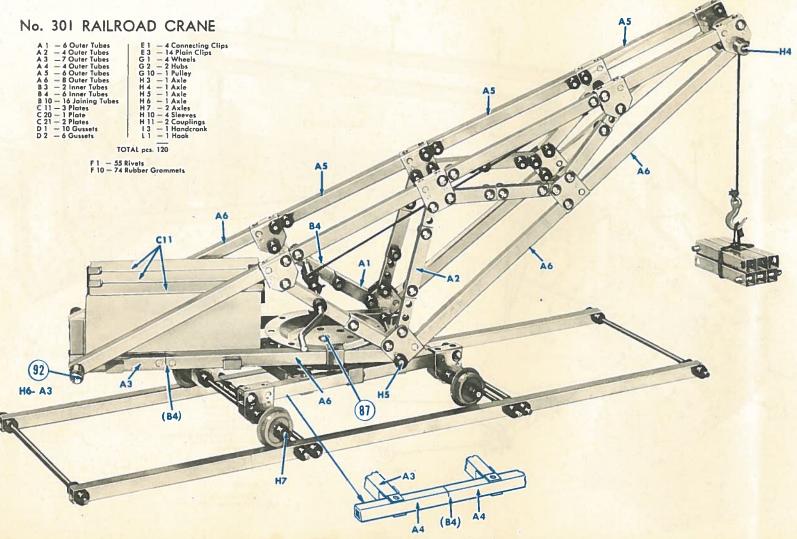
D 11 - 4 Gussets	E 1 - 4 Connecting Clies	E 3 - 20 Plain Clips	G 2 - 2 Hubs	G 10 - 2 Pulleys	H2 - 4 Axles	H3 -4 Axles	H 4 - 2 Axles	H 5 - 2 Axles			H 11 - 1 Coupling			TOTAL pcs. 128	vets	- 108 Rubber Grommets	
A 1 - 4 Outer Tubes	4	A 3 — 8 Outer Tubes	18		4 Outer	- 4 Open	1	B 4 - 2 Inner Tubes	1	12	7	D 2 - 8 Gussets	ABCDEGHN	TOT	F1 - 58 Riv	F 10 - 108 R	



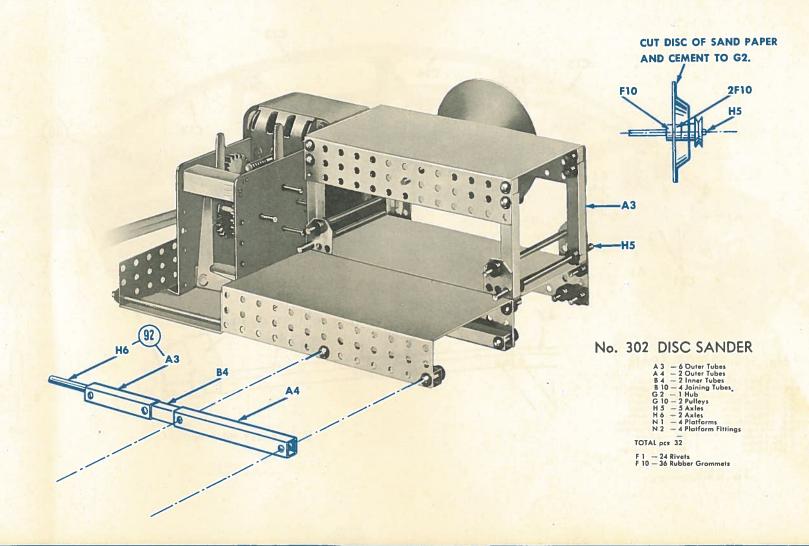


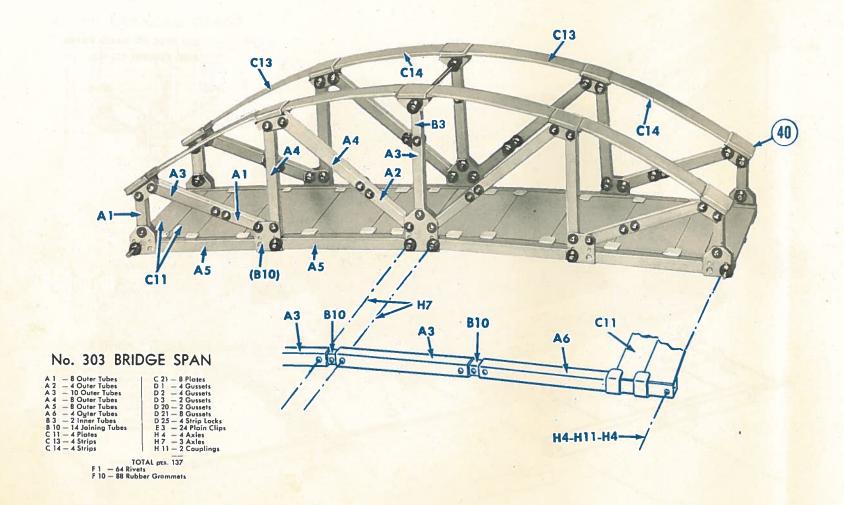


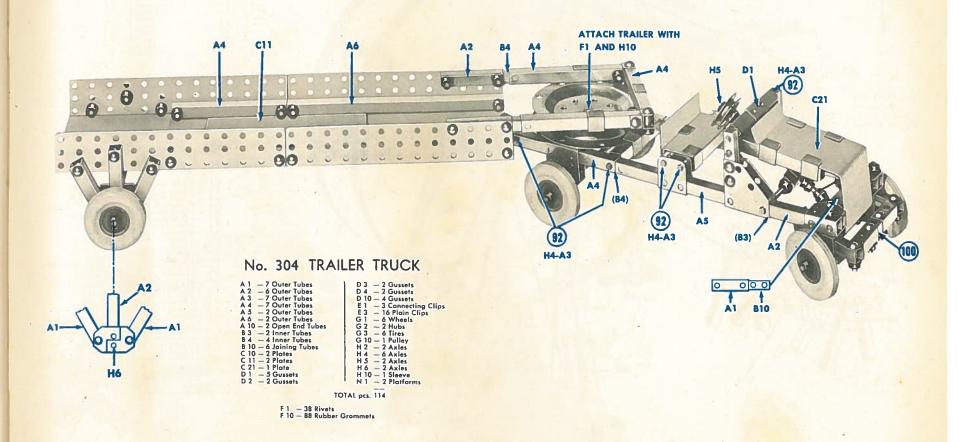


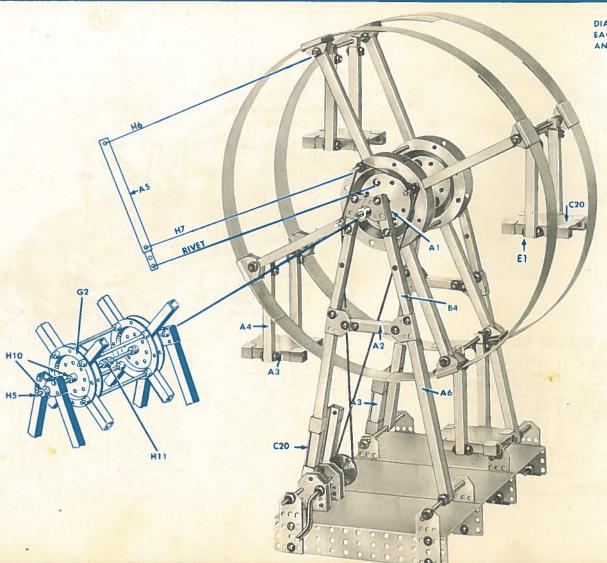


37









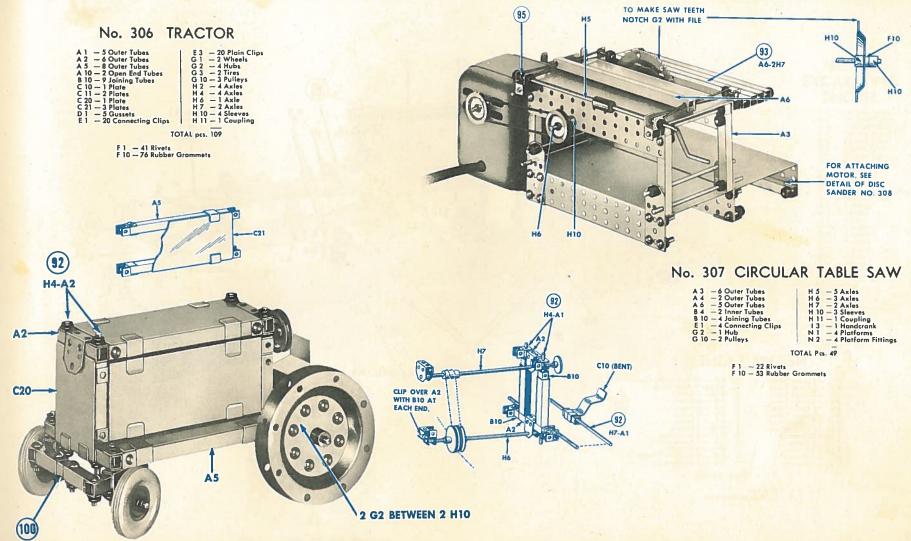
DIAMETER OF THE WHEEL 9-3/4"
EACH WHEEL CONSISTING OF 2 PLATES C13
AND 2 PLATES C14.

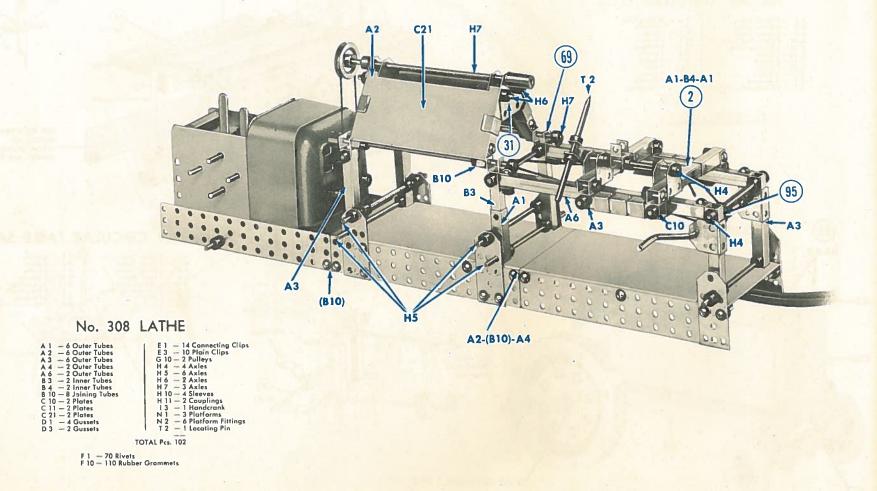
#### No. 305 FERRIS WHEEL

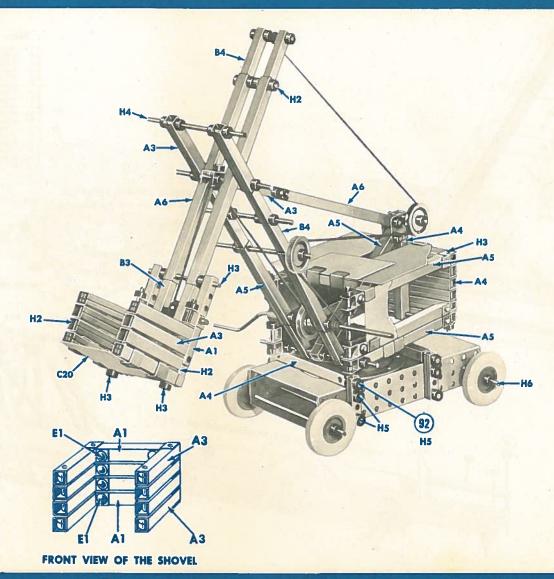
- 4 Outer Tubes - 2 Outer Tubes - 10 Outer Tubes - 8 Outer Tubes - 8 Outer Tubes - 4 Outer Tubes - 4 Inner Tubes B 10 - 10 Joining Tubes C 13 - 4 Strips C 14 - 4 Strips C 20 — 4 Plates D 1 — B Gussets D 3 — 2 Gussets D 20 - 8 Gussets E1 - 16 Connecting Clips - 24 Plain Clips G 2. - 4 Hubs G 10 - 1 Pulley H 5 - 6 Axles - 4 Axles H7 -4 Axles H 10 - 4 Sleeves H 11 - 2 Couplings - 1 Handcrank - 3 Platforms - 8 Platform Fittings

TOTAL pes. 157

F 1 — 58 Rivets F 10 — 110 Rubber Grommets







#### No. 309 EXCAVATING SHOVEL

A 1 - 6 Outer Tubes

A 3 — 11 Outer Tubes
A 4 — 8 Outer Tubes
A 5 — 9 Outer Tubes
A 6 — 3 Outer Tubes
B 3 — 3 Inner Tubes
B 4 — 4 Inner Tubes
B 10 — 9 Joining Tubes
C 20 — 2 Plates
C 21 — 4 Plates
D 2 — 1 Gusset
E 1 — 24 Connecting Clips
E 3 — 22 Plain Clips
G 1 — 4 Wheels
G 2 — 2 Hubs
G 3 — 4 Tires

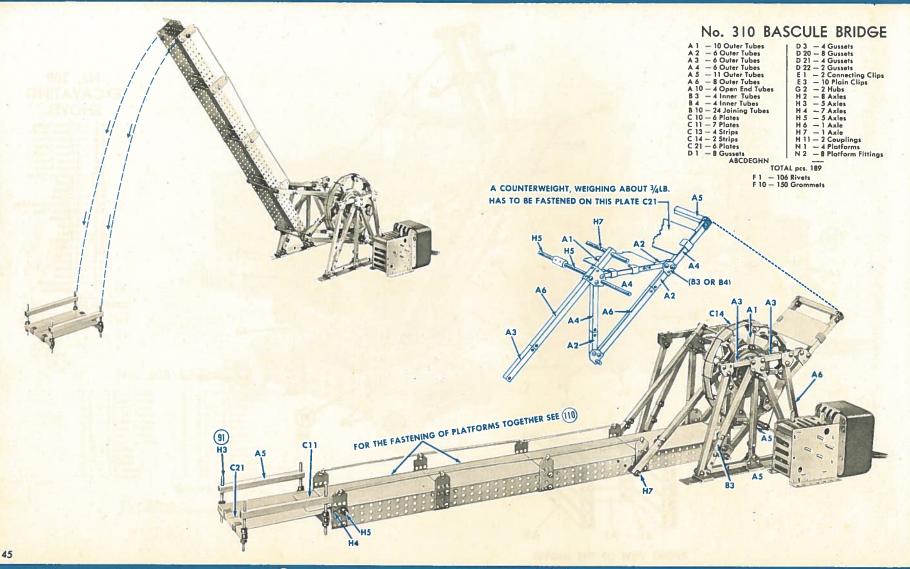
G 3 — 4 Tires G 10 — 3 Pulleys H 2 — 5 Axles H 3 — 8 Axles

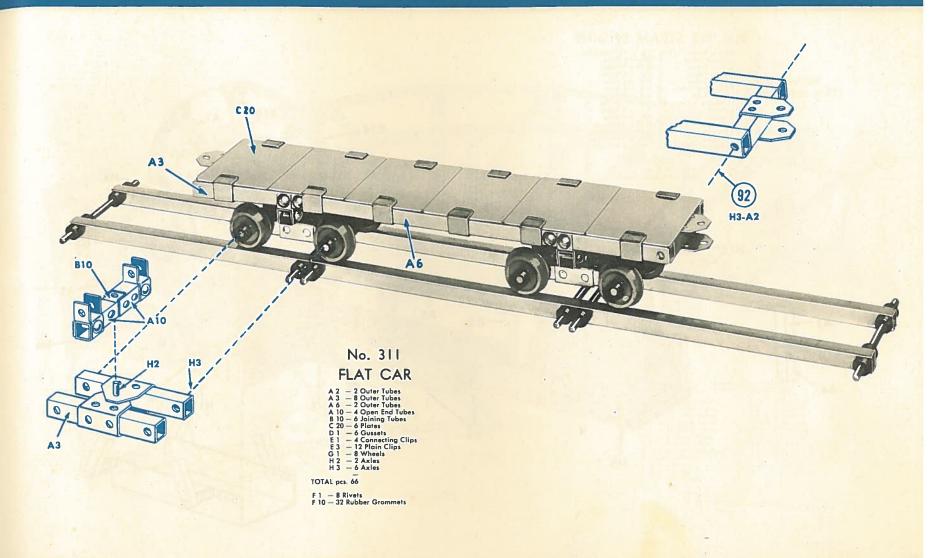
H 4 — 5 Axles H 5 — 7 Axles H 6 — 2 Axles

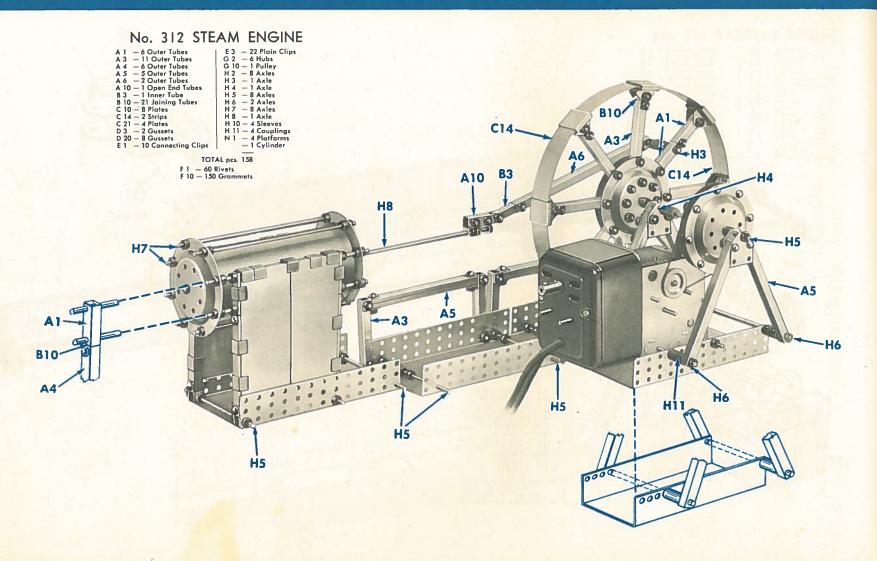
J 3. — 1 Handerank N 1 — 2 Platforms

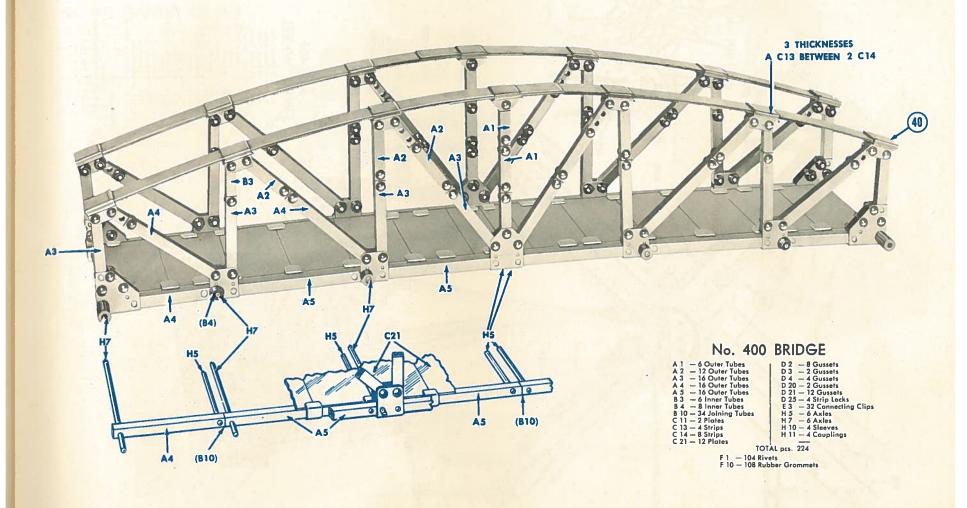
TOTAL pcs. 152 F 1 - 77 Rivets

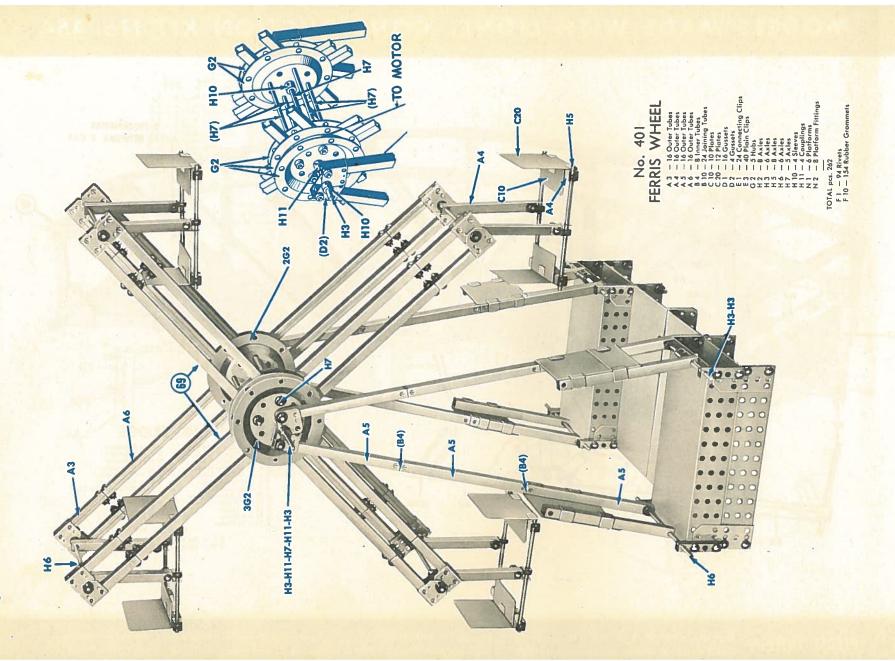
F 10 — 113 Rubber Grommets

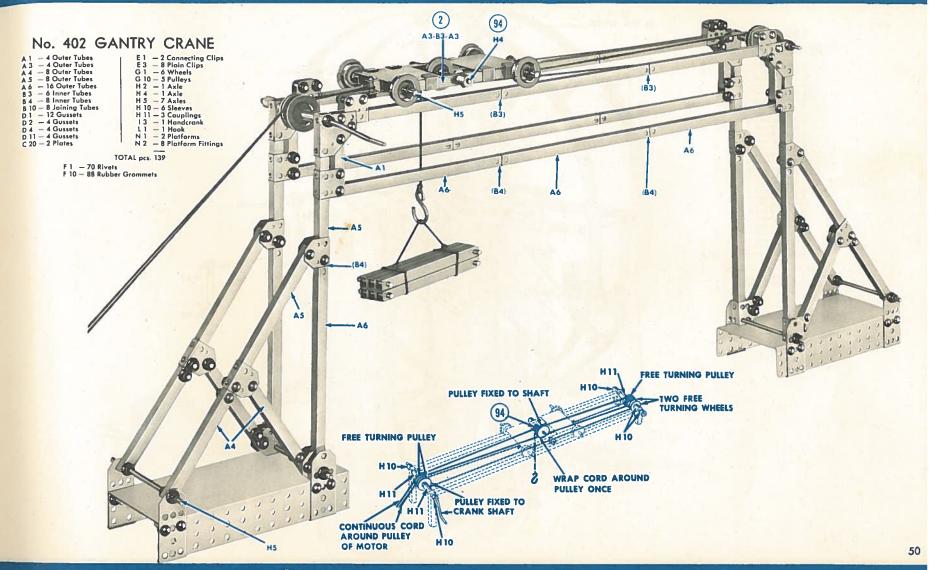










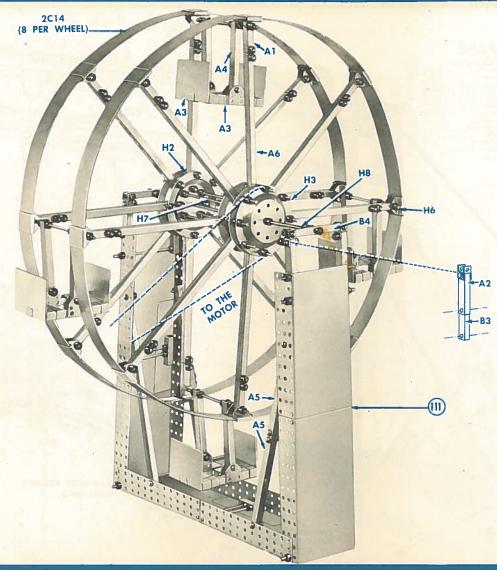


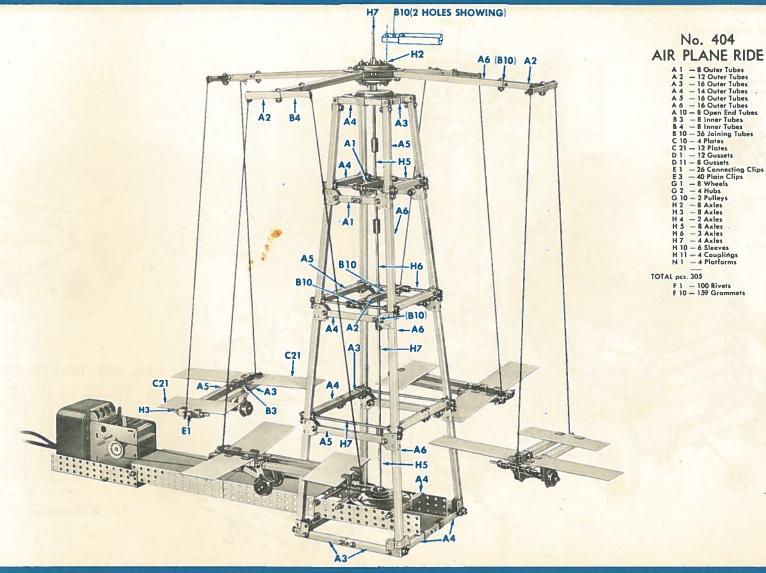
#### No. 403 FERRIS WHEEL

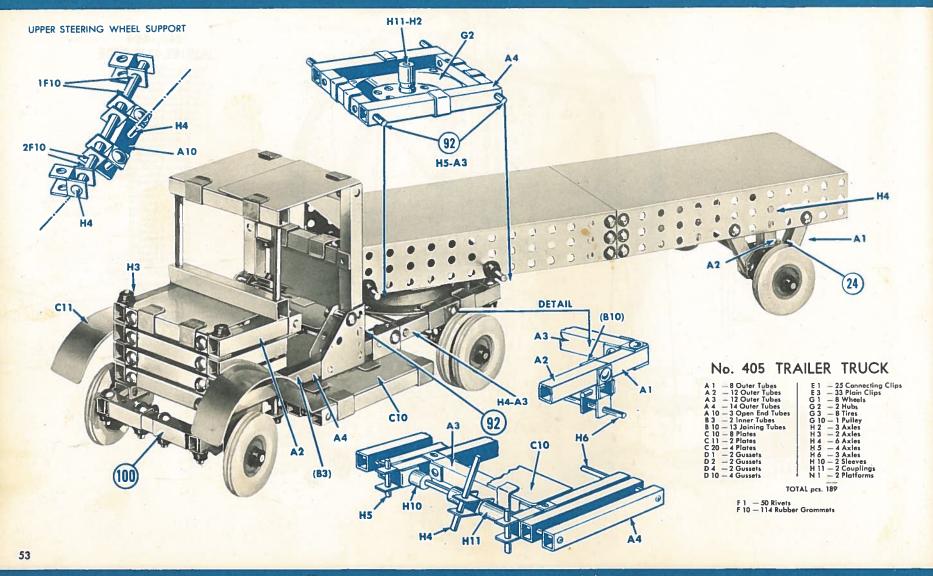
- 16 Outer Tubes - 4 Outer Tubes - 16 Outer Tubes A 4 - B Outer Tubes A 5 - 8 Outer Tubes A 6 - 16 Outer Tubes B3 - 4 Inner Tubes B4 - 2 Inner Tubes B 10 - 42 Joining Tubes C 10 - B Plates C 11 - 6 Plates C 14 — 16 Strips C 20 — 8 Plates D 1 — 8 Gussets D 20 — 16 Gussets E 1 — 4 Connecting Clips E 3 — 40 Plain Clips G 2 - 6 Hubs G 10 - 1 Pulley H 2 - 8 Axles H 3 - B Axles H 4 - 6 Axles H 5 - 6 Axles H 6 - 4 Axles H7 - 4 Axles H8 - 1 Axle H 10 - 2 Sleeves N1 - 6 Platforms

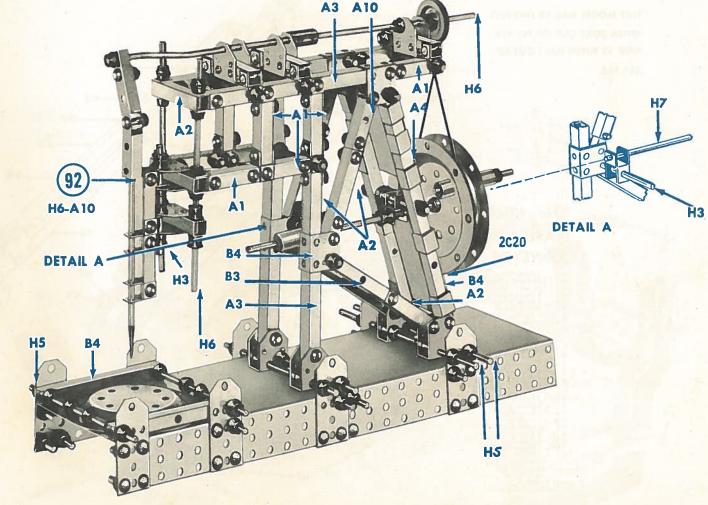
#### TOTAL pcs. 274

F1 - 80 Rivets F10 - 120 Grammets









#### No. 406 SEWING MACHINE

- 16 Outer Tubes - 12 Outer Tubes A 3 — 4 Outer Tubes A 4 — 6 Outer Tubes A 10 - 3 Open End Tubes B 3 - 2 Inner Tubes B 4 — 6 Inner Tubes B 10 — 21 Joining Tubes C 20 - 3 Plates D1 - 7 Gussets D 2 - 6 Gussets E 1 — 26 Connecting Clips E 3 — 10 Plain Clips G 2 - 3 Hubs G 10 - 1 Pulley H2 - 1 Axle H3 - B Axles H 5 - 8 Axles H 6 - 6 Axles H 7 - 1 Axle H 10 - 6 Sleeves H 11 - 3 Couplings 13 - 1 Handerank N1 - 2 Platforms N 2 - 8 Platform Fittings

TOTAL pcs. 170 F 1 - 90 Rivets F 10 - 140 Rubber Grommets

THIS MODEL HAS 10 SHOVELS WHEN BUILT OUT OF SET 454 AND 12 WHEN BUILT OUT OF SET 565

No. 407 TRAVELING

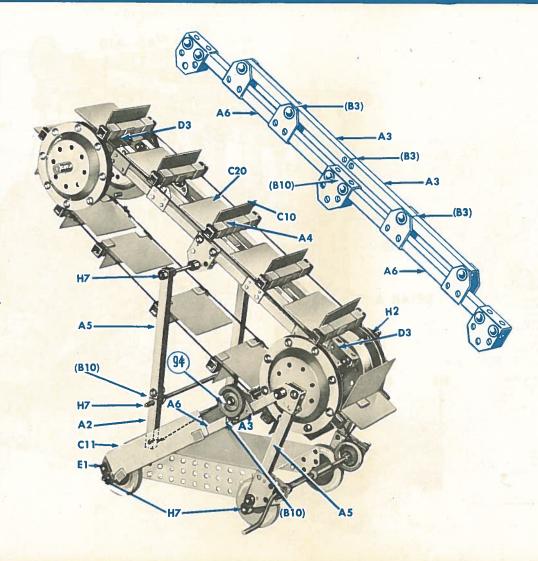
CONVEYOR

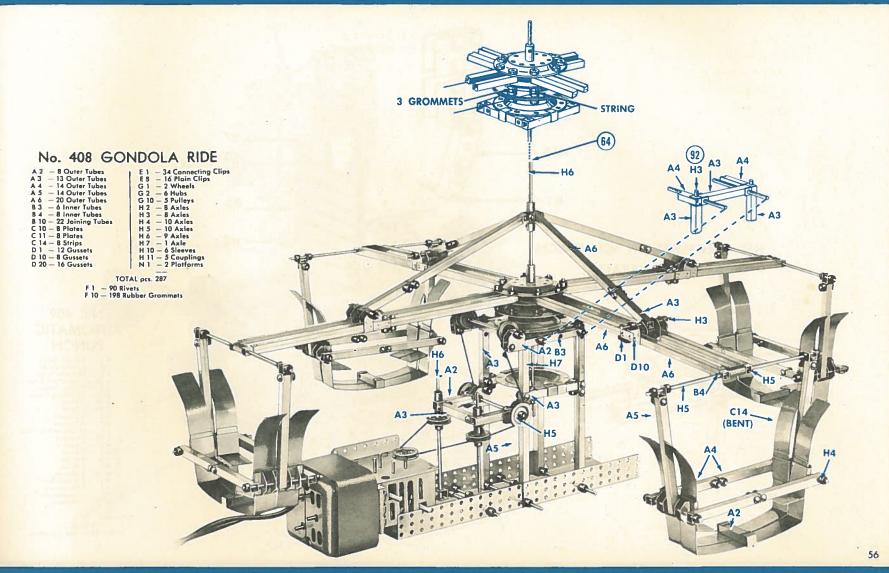
A 2 — 2 Outer Tubes A 3 — 10 Outer Tubes A 4 - 12 Outer Tubes A 5 - 4 Outer Tubes A 6 - 6 Outer Tubes B3 - 6 Inner Tubes B 10 - 8 Joining Tubes C 10 - 12 Plates C 11 - 2 Plates C 20 - 12 Plates D 1 - 12 Gussets D3 - 6 Gussets D 4 - 2 Gussets E 1 - 2 Connecting Clips E 3 — 40 Plain Clips
G 1 — 4 Wheels
G 2 — 8 Hubs G 3 - 4 Tires G 10 - 2 Pulleys H 2 - 8 Axles H4 - 1 Axle H6 - 1 Axle H7 - 6 Axles H 10 - 8 Sleeves H 11 - 3 Couplings

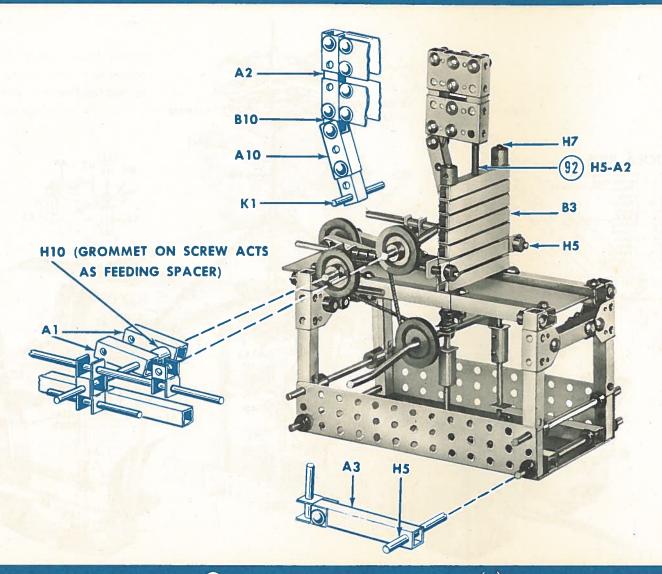
TOTAL pcs. 183

F1 - 58 Rivets F10 - 154 Rubber Grommets

N 1 - 1 Handerank







#### No. 409 AUTOMATIC PUNCH

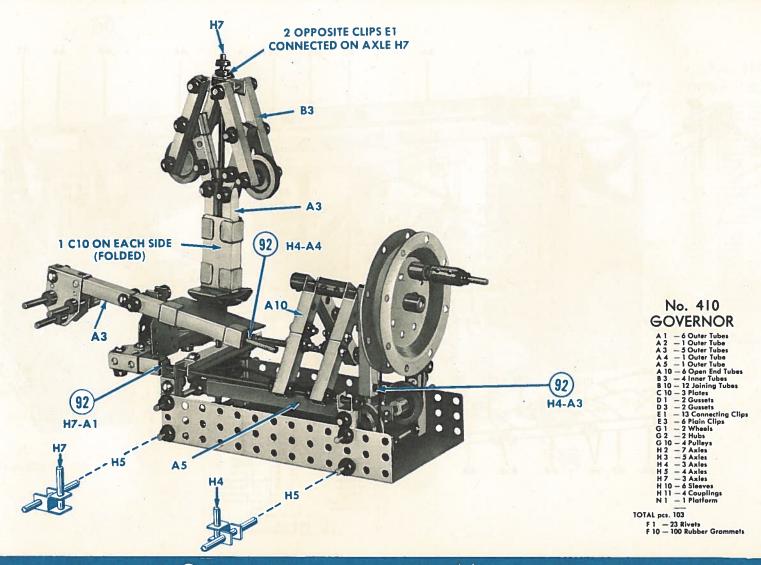
A 2 — 4 Outer Tubes A 3 — 10 Outer Tubes A 10 — 1 Open End Tube B 3 — 7 Inner Tubes B 10 — 1 2 Joining Tubes C 20 — 1 Plate C 21 — 1 Plate D 1 — 4 Gussels D 2 — 4 Gussels E 1 — 18 Connecting Clips G 10 — 4 Pulleys H 2 — 1 Axle

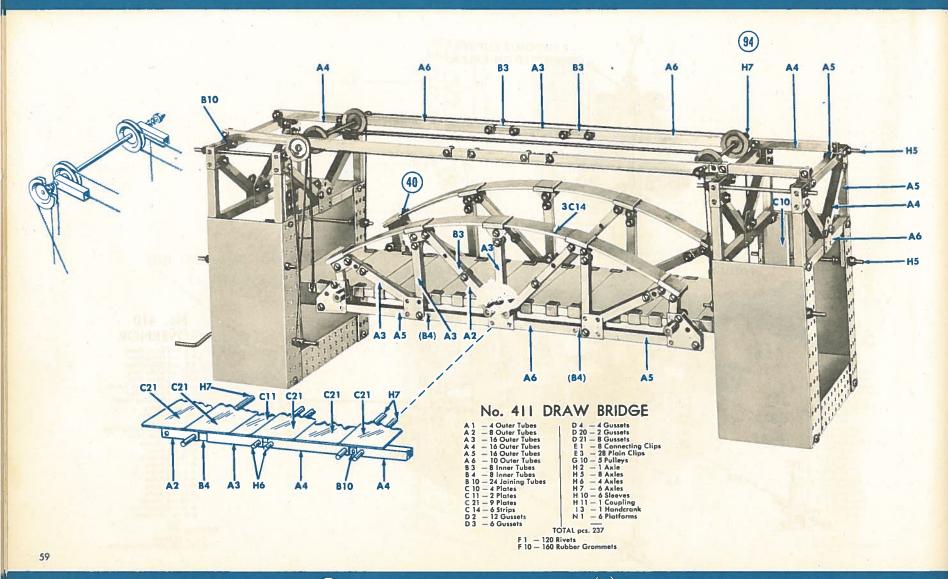
- 4 Outer Tubes

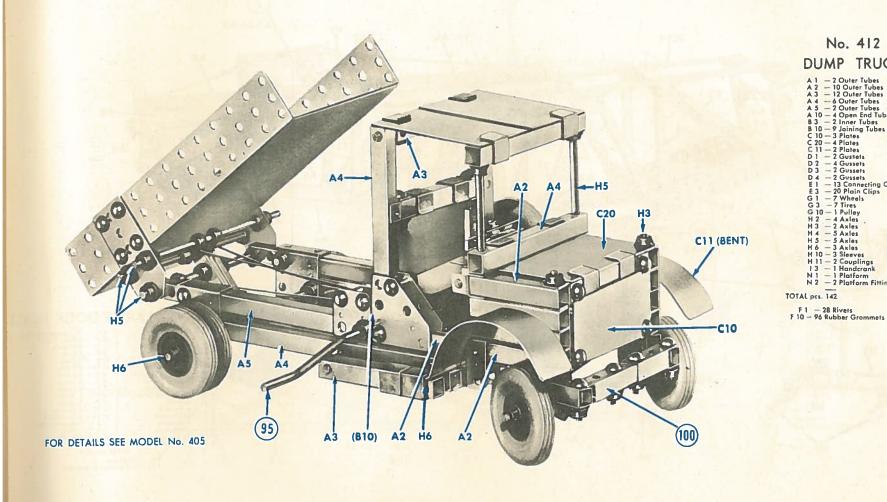
H 3 — 2 Axles H 5 — 8 Axles H 7 — 2 Axles H 10 — 6 Sleeves H 11 — 2 Couplings

13 — 1 Handcrank K1 — 1 Crankshaft N1 — 1 Platform

F1 - 29 Rivets
F10 - 62 Rubber Grommets

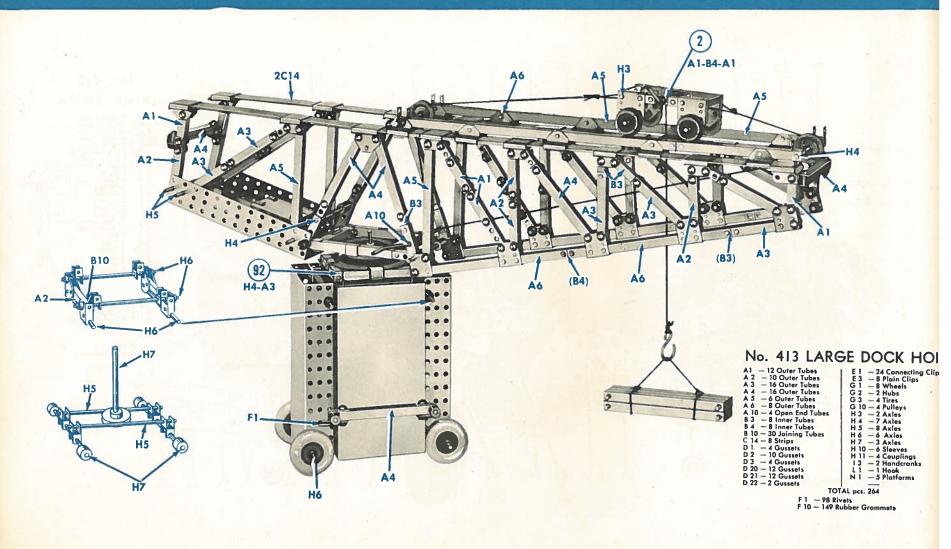


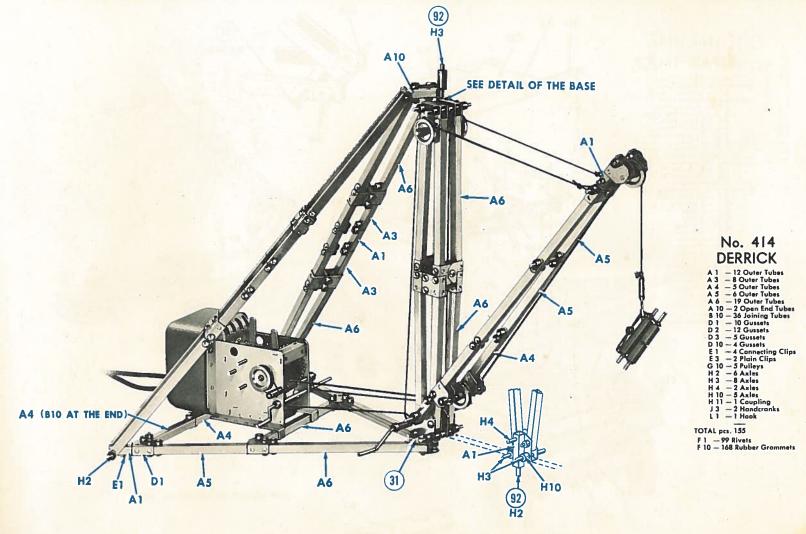




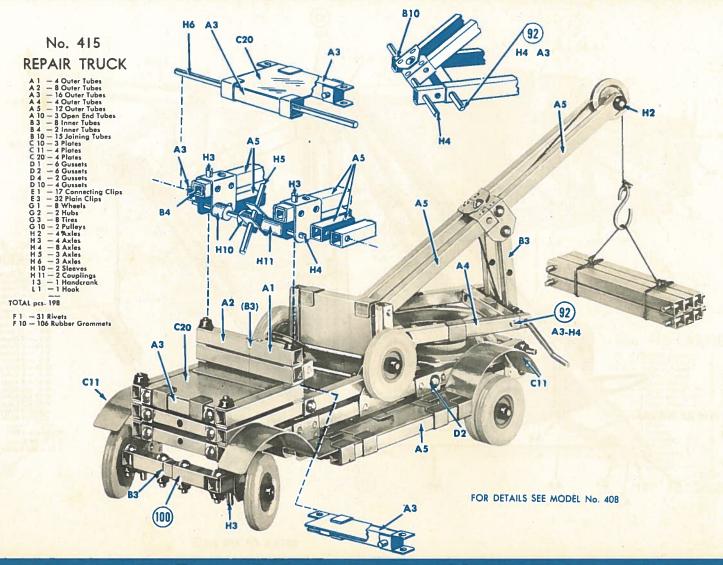
#### No. 412 DUMP TRUCK

A 1 — 2 Outer Tubes A 2 — 10 Outer Tubes A 3 — 12 Outer Tubes A 4 - 6 Outer Tubes A 5 - 2 Outer Tubes A 10 - 4 Open End Tubes B 3 - 2 Inner Tubes B 10 - 9 Joining Tubes C 10 - 3 Plates C 20 - 4 Plates C 11 - 2 Plates D1 - 2 Gussets D 2 - 4 Gussets D3 - 2 Gussets D 4 - 2 Gussets E 1 — 13 Connecting Clips E 3 — 20 Plain Clips G1 - 7 Wheels G3 - 7 Tires G 10-1 Pulley - 4 Axles H 3 - 2 Axles H 4 - 5 Axles H 5 - 5 Axles H 6 - 3 Axles H 10 - 3 Sleeves H 11 - 2 Couplings 13 - 1 Handcrank N 1 - 1 Platform N 2 - 2 Platform Fittings TOTAL pcs. 142

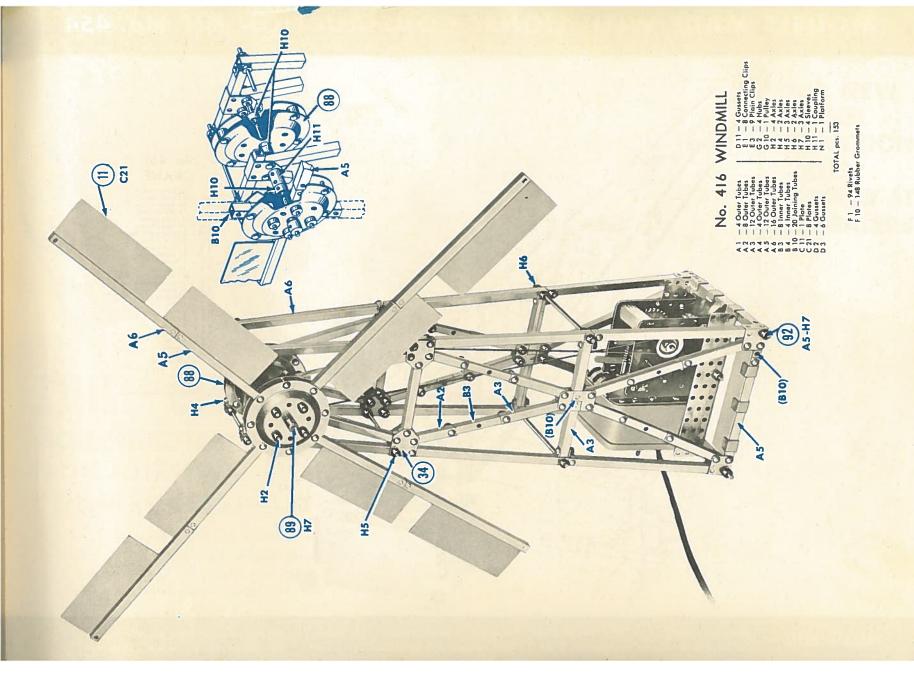


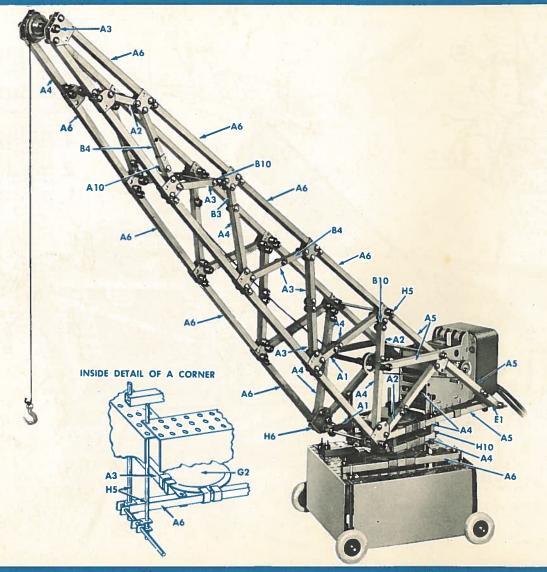


DETAIL OF THE BASE



63





#### No. 417 CRANE

A I — 4 Outer Tubes A 2 — 8 Outer Tubes

A 3 — 16 Outer Tubes
A 4 — 14 Outer Tubes
A 5 — 8 Outer Tubes
A 6 — 20 Outer Tubes
B 3 — 2 Open End Tubes
B 3 — 2 Inner Tubes
B 4 — 4 Inner Tubes
B 10 — 36 Joining Tubes
D 1 — 2 Gussels
D 2 — 16 Gussels
D 3 — 4 Gussels
E 1 — 26 Connecting Clips
E 3 — 50 Ploin Clips
G 1 — 4 Wheels
G 2 — 4 Hubs
G 3 — 4 Tires

H 4 — 3 Axles H 5 — 9 Axles H 6 — 4 Axles H 7 — 1 Axle H 10 — 4 Sleeves

N 1 — 4 Platforms
TOTAL pts. 256

F 1 — 122 Rivets F 10 — 186 Rubber Grommets

