ROBO TIX 3

Motorized

MECHANIX

Engineering System For Creative Kids

8 MODELS

215 PIECES

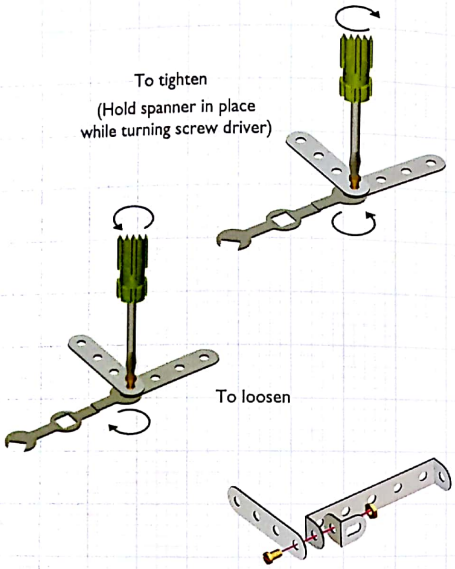
AGE 7+

Do-it yourself manual

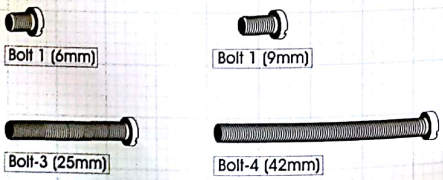
1. Read all instructions carefully before constructing.
2. place all the pieces used in a step on the side before starting.

Dear Friends !
Zephyr brings yet another International class engineering set of Mechanix for you, to have fun & learn. This set contains 215 pieces, crafted from high quality Steel, which are powder coated, superior plastics & selected tools which will be friendly to your little hands so that you have fun while creating various models. You can use these parts over & over again to create at least 8 models and may be many more as far as your imagination flies. So come on get started!

BASIC FITTINGS



Screw size information



"Make sure you are using correct bolts by comparing it to the image in contents. All bolt images are of actual size."

Linkage!

During the monsoons, you must have seen how cars have wipers to wipe water off the windshield. But how do these wipers work? Of course with motors! But a motor only goes round, doesn't it? Then how does the wiper move like that on the windscreen? With the help of linkages! That's right, many machines in the world use linkages to convert motion from one direction to another. As you will see with this simple model, The rotary motion of the motor is converted into an oscillatory motion as in a wiper in a car!
Each connection (like A-7 in the model) are called links, and you can create fantastic linkages by attaching more links in the mechanism.

Every linkage has 4 main components.

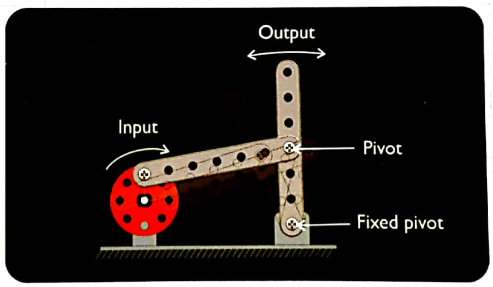
1. Input
2. Fixed Pivot
3. Pivot
4. Output

Input: This is where the input motion is given (like from the motor).

Fixed Pivot: This is the point which is fixed on the machine and doesn't move, but allows the link to move on it. This is very important to control the motion in the direction we want.

Pivot: This is the point which is not fixed on the machine but is allowed to move to create the output motion.

Output: Output is where the desired motion is given (like in the wipers of a car).



Now lets start building our linkage mechanism!

Basic Linkage

Step 1

NUTS 3 pcs.	Bolt 1 (6mm) 3 pcs.

AB-2 1 pc.

Single Motor bracket 1pcs

RT-55 1pc.

Step 2

Motor 1 pc.	Battery Box 1 pc.	Bolt 3 (25mm) 2 pcs.	Bolt 1 (6mm) 2 pcs.	NUTS 4 pcs.

Step 3

NUTS 3 pcs.	Bolt 1 (6mm) 3 pcs.	A-7 2 pcs.	R-8 1 pc.

Do Not Tighten
The Nuts And Bolts.
Keep Them Loose.

Experiment:
Now try and attach the pivot here.What happens? Does the motion become slower and smaller? This way you can design a linkage to move how ever you want.

Gears!

Do you know what is the stick with a knob near the driver in a car? It's a gear lever! But what are gears used for? Two things.

1. To change speed
2. To increase or decrease power.

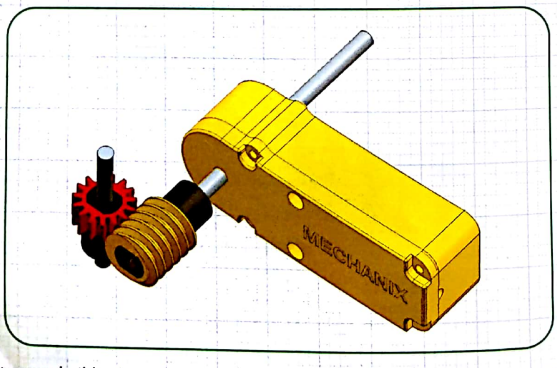
Gears are very interesting because if you increase speed with a gear, the power reduces and if you decrease speed, the power increases. And this happens in inverse proportion, means if the speed becomes half, the power doubles!

So now that we know how this works, can you figure out which gear in a car has maximum power? The first gear! But the speed is least, and in the top gear, the speed is highest but power is low. This is why you might notice that while going up on a slope, you need more power and the driver sometimes has to reduce the gear.

There are many different types of gears, like spur gears, bevel gears, helical gears, worm gears etc.
In this model you will understand how a worm gear works with a spur gear.

Calculations:
This calculation is applicable only for worm gears.
Output speed = Input Speed/Number of teeth (on spur gear)
Therefore in this gear (which has 15 teeth)
Output speed = Input speed/15
Considering that the motor is running at 150 Revolutions per minute,

Output speed = 150/15 = 10.

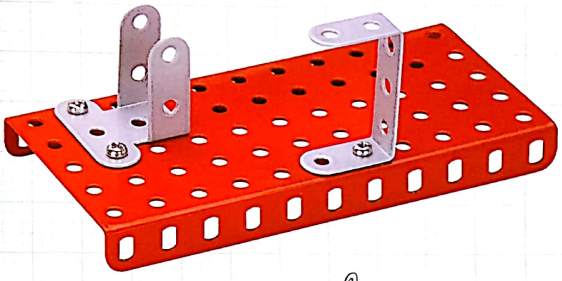


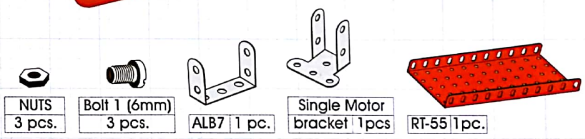
Now lets start building!

MECHANIX

Basic Gear

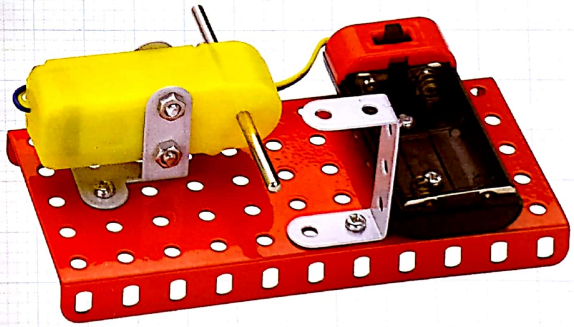
Step 1

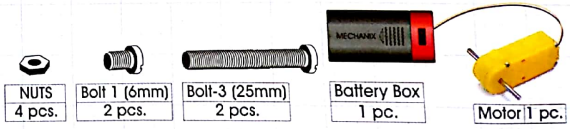




NUTS	Bolt 1 (6mm)	ALB7	Single Motor	RT-55
3 pcs.	3 pcs.	1 pc.	bracket 1pcs	1pc.

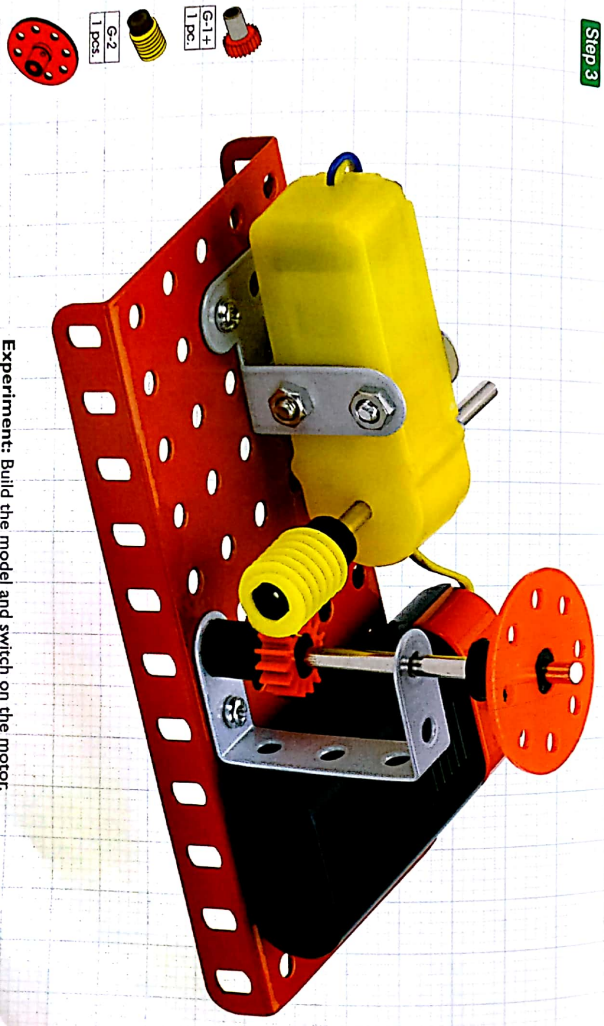
Step 2





NUTS	Bolt 1 (6mm)	Bolt-3 (25mm)	Battery Box	Motor
4 pcs.	2 pcs.	2 pcs.	1 pc.	1 pc.

Step 3



R-8 1 pc.

G-2 1 pcs.

G-1+ 1 pc.

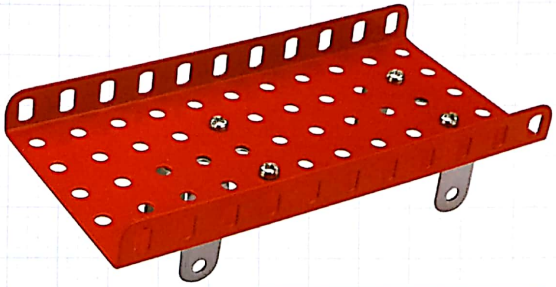
SH-2 (80mm) 1 pc.

Experiment: Build the model and switch on the motor. With a stopwatch measure how many time R-8 rotates in one minute. Calculate how many times the motor is rotating with this formula: Input Speed = Output speed X 15.

MECHANIX

Basic Car

Step 1



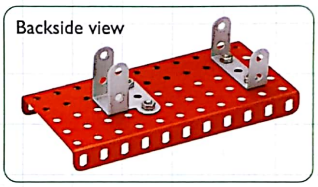
NUTS 4 pcs.

Bolt 1 (6mm) 4 pcs.

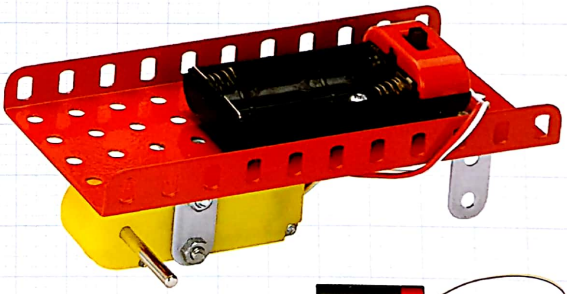
ALB7 1 pc.

Single Motor bracket 1pcs

RT-55 1pc.



Step 2



NUTS 4 pcs.

Bolt 1 (6mm) 2 pcs.

Bolt-3 (25mm) 2 pcs.

Battery Box 1 pc.

Motor 1 pc.

Step 3

SH-2 (80mm) 1 pc.

WHEELS 4 pcs.

MECHANIX

Step 1

NUTS
8 pcs.

Bolt 1 (6mm)
6 pcs.

Bolt 3 (25mm)
2 pcs.

G-2
1 pcs.

AUB-5 1pc.

Single Motor bracket 1pcs

Battery Box
1 pc.

Motor 1 pc.

RT-55 1pc.

Step 2

NUTS
6 pcs.

Bolt 1 (6mm)
6 pcs.

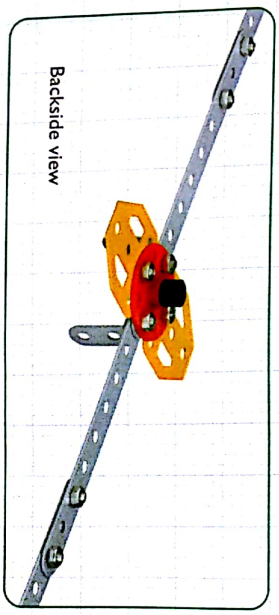
MW-1
1pc.

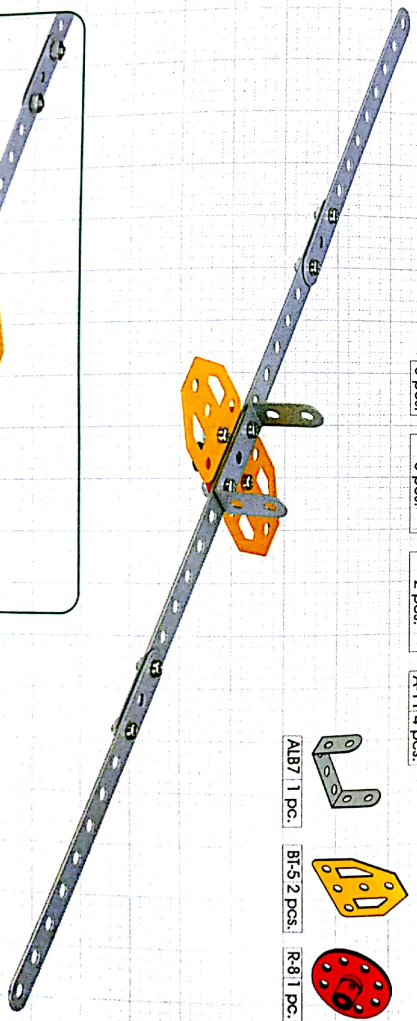
G-1
1 pc.

AB-7 1 pc.

SHAFT (110mm) 1 pc.

A-9 4 pcs.





Step 3

NUTS 8 pcs.

Bolt 1 (6mm) 6 pcs.

Bolt 1 (9mm) 2 pcs.

A-11 4 pcs.

ALB7 1 pc.

BI-5 2 pcs.

R-8 1 pc.

MECHANIX

Step 4

NUTS 12 pcs.

Bolt 1 (6mm) 10 pcs.

Bolt 3 (25mm) 2 pcs.

AB-2 2 pcs.

Spacer 2 pcs.

AB-7 2 pcs.

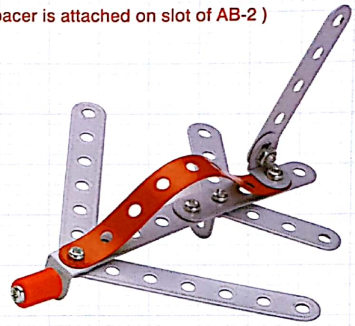
A-4 4 pcs.

A-5 4 pcs.

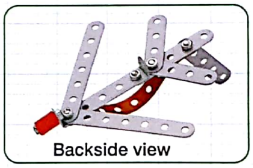
A-7 4 pcs.

SS-9 2 pcs.

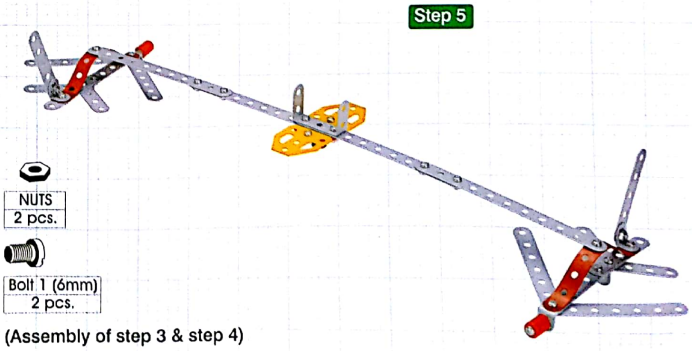
(Make sure spacer is attached on slot of AB-2)



(Repeat construction to make 2 Planes)



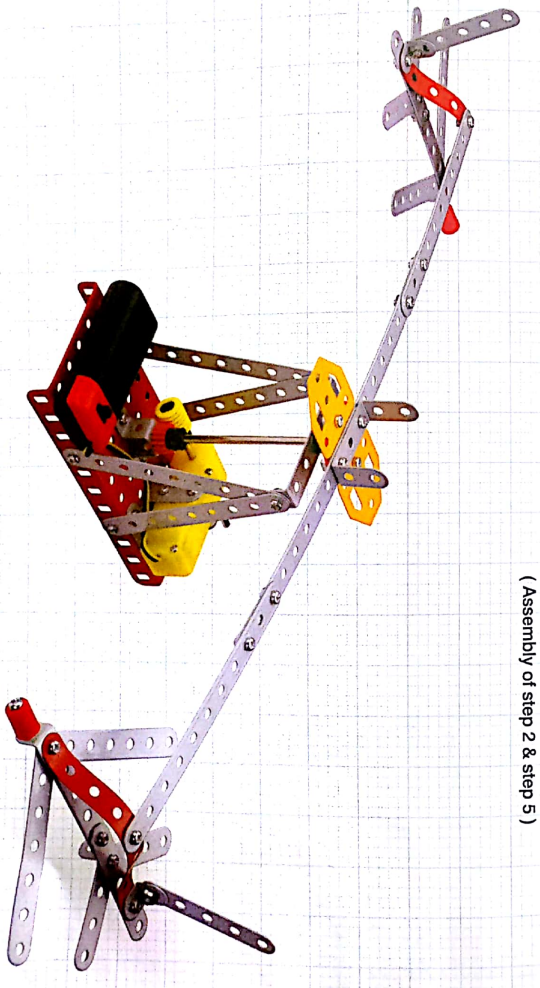
Step 5



NUTS 2 pcs.

Bolt 1 (6mm) 2 pcs.

(Assembly of step 3 & step 4)



Step 6

(Assembly of step 2 & step 5)

MECHANIX

Windmill

Step 1

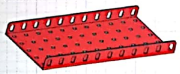

NUTS 12 pcs.

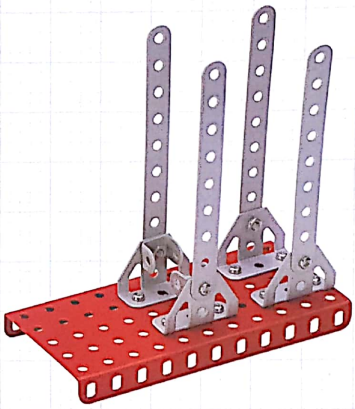

Bolt 1 (6mm) 12 pcs.


AB-3 2 pcs.


BTB-5 4 pcs.

A-9 4 pcs.


RT-55 1pc.



Step 2


NUTS 12 pcs.

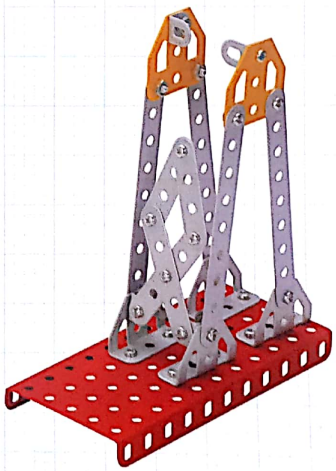

Bolt 1 (6mm) 12 pcs.


AB-2 2 pcs.

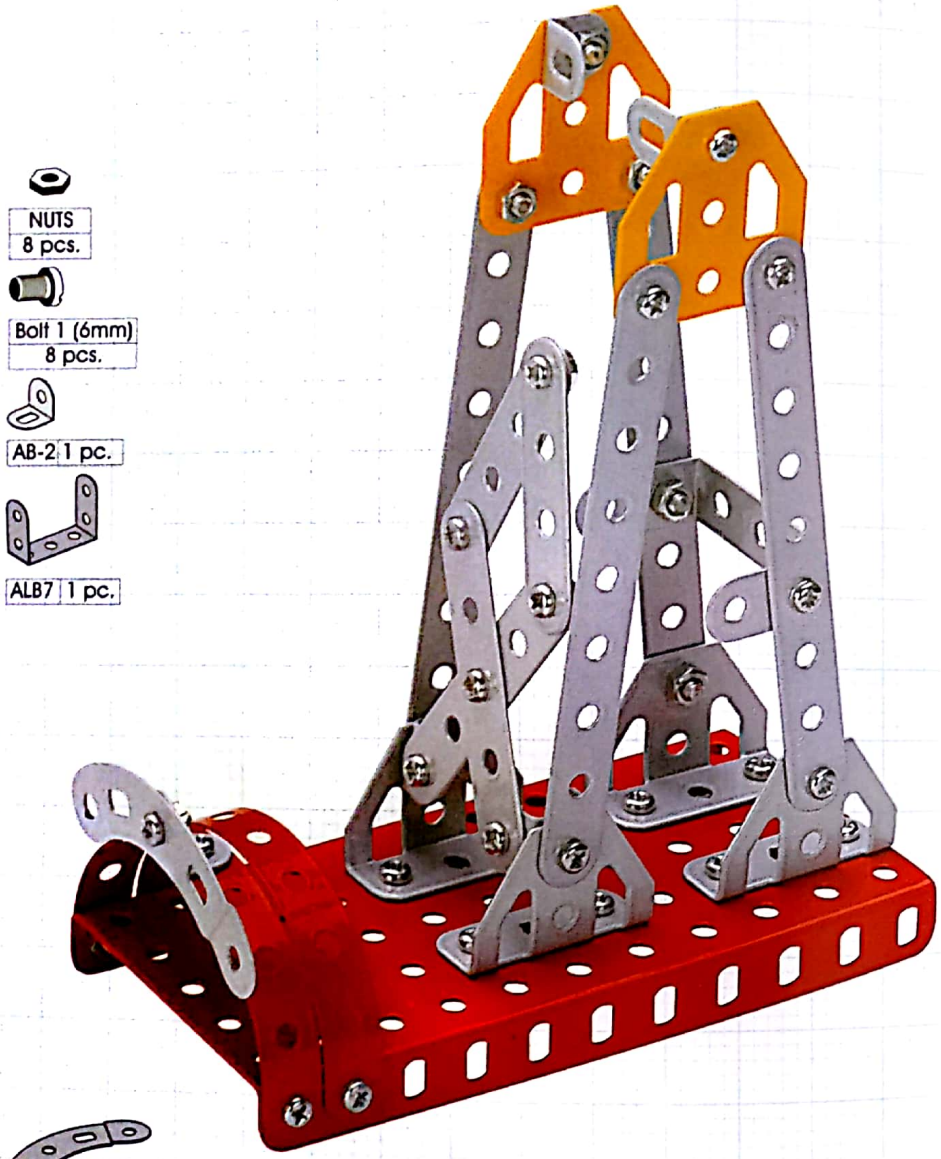

A-4 2 pcs.


A-5 2 pcs.


BT-5 2 pcs.



Step 3



NUTS
8 pcs.

Bolt 1 (6mm)
8 pcs.

AB-2 1 pc.

ALB7 1 pc.

HS-5 1 pc.

SS-9 2 pc.

Step 4

NUTS
7 pcs.

Bolt 1 (6mm)
5 pcs.

Bolt-3 (25mm)
2 pcs.

AB-2 2 pcs.

A-4 2 pcs.

HS-5 1 pc.

Backside view

Battery Box
1 pc.

Motor 1 pc.

Step 5

NUTS
2 pcs.

Bolt 1 (6mm)
2 pcs.

TW-1
2 pcs.

SSLR-20 1pc.

Step 6

NUTS
12 pcs.

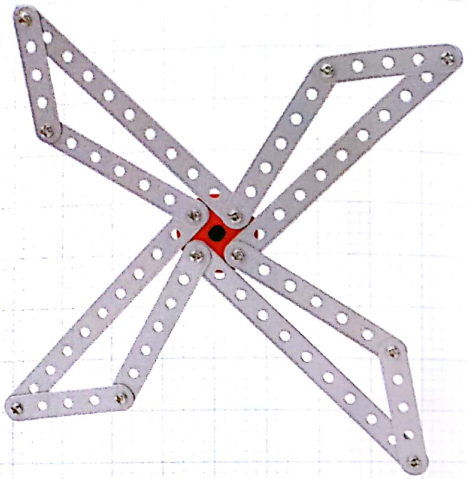
Bolt 1 (6mm)
12 pcs.

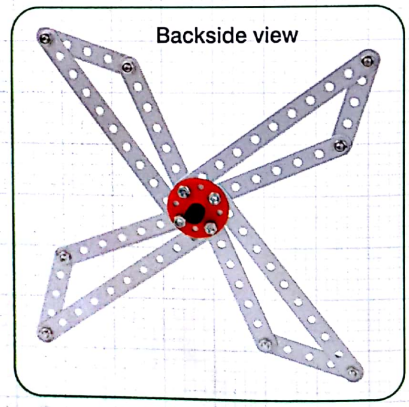
R-8 1 pc.

A-5 4 pcs.

A-7 4 pcs.

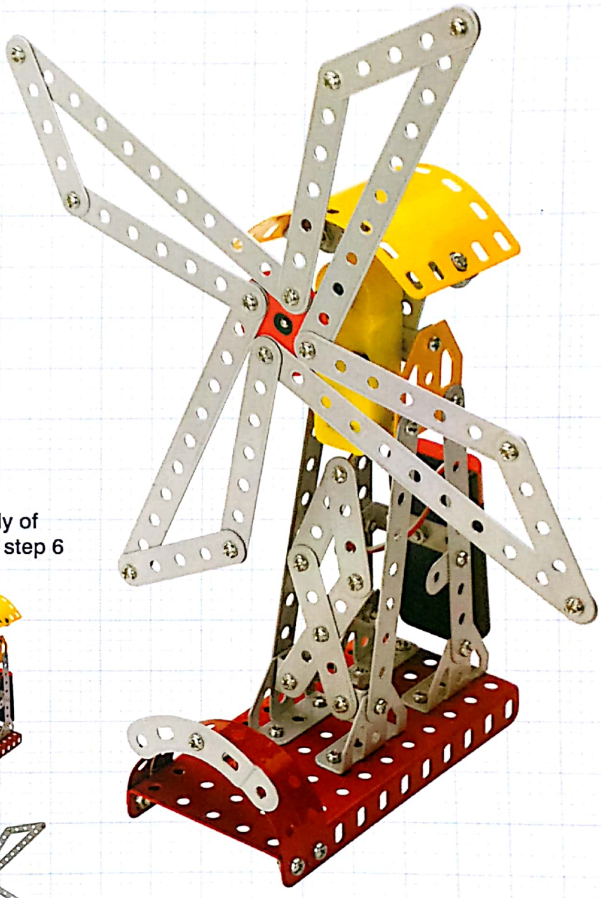
A-11 4 pcs.





MECHANIX

Step 7



Assembly of
step 5 & step 6

Fighter Plane

Step 1

A-11 2 pcs.

A-7 2 pcs.

AUB-5 1pc.

AB-3 1pc.

AB-2 4 pcs.

Bolt 1 (6mm) 8 pcs.

NUTS 8 pcs.

MECHANIX

Step 2

NUTS 6 pcs.

Bolt 1 (6mm) 6 pcs.

AB-2 1pcs.

AB-3 1pc.

A-7 2 pcs.

A-9 2 pcs.

Step 3

NUTS 6 pcs.

Bolt 1 (6mm) 6 pcs.

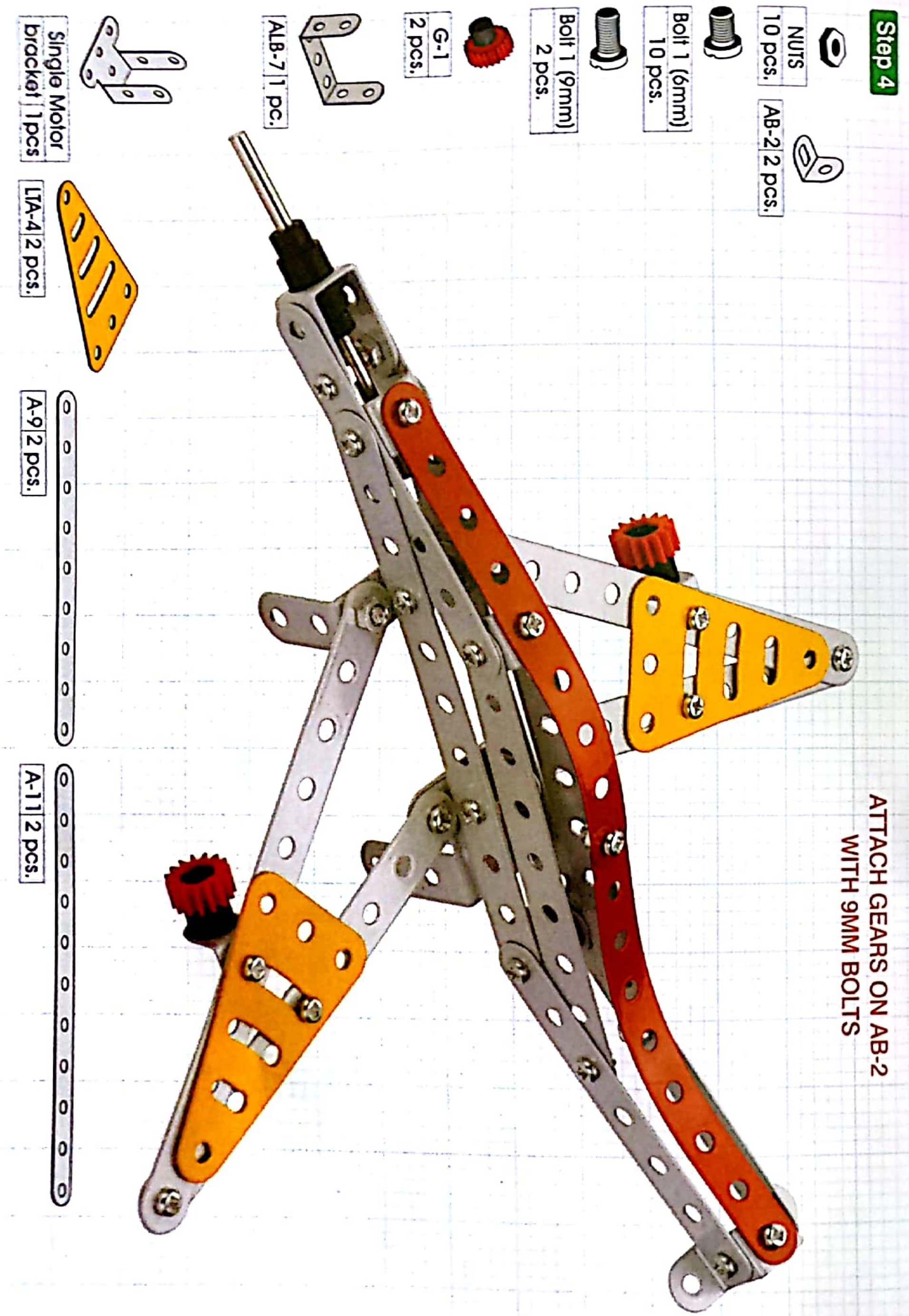
Rubber Bush 2 pcs.

ALB-5 1 pc.

SS-9 2 pc.

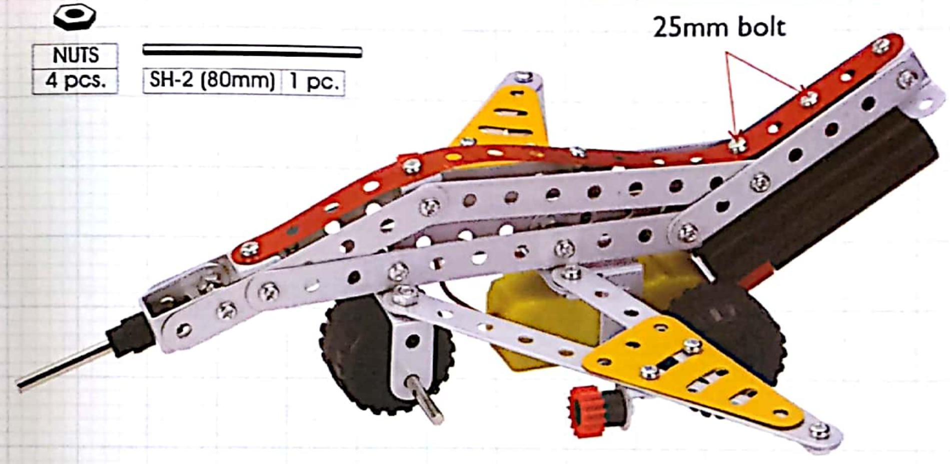
SH-2 (80mm) 1 pc.

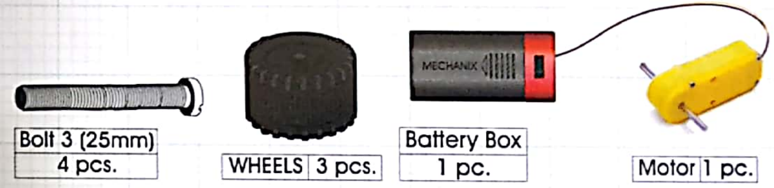
Step 4



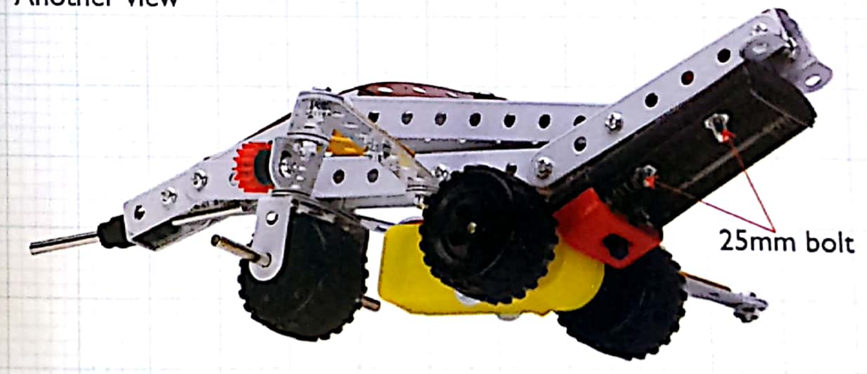
ATTACH GEARS ON AB-2
WITH 9MM BOLTS

Step 5



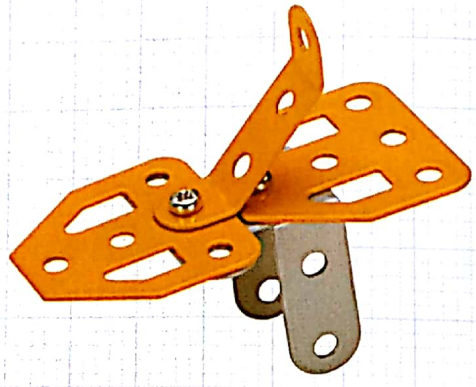


Another view



F1 Car

Step 1

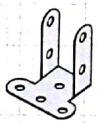


NUTS
2 pcs.

Bolt 1 (6mm)
2 pcs.

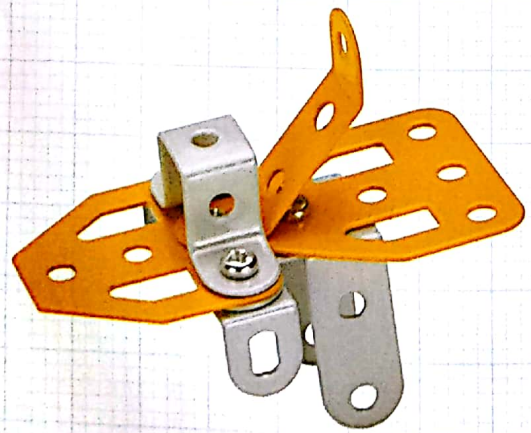
AB4-45 1 pc.

BT-5 2 pcs.



Single Motor
bracket 1pcs

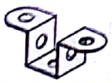
Step 2



NUTS
2 pcs.

Bolt 1 (6mm)
2 pcs.

AB-2 2 pcs.



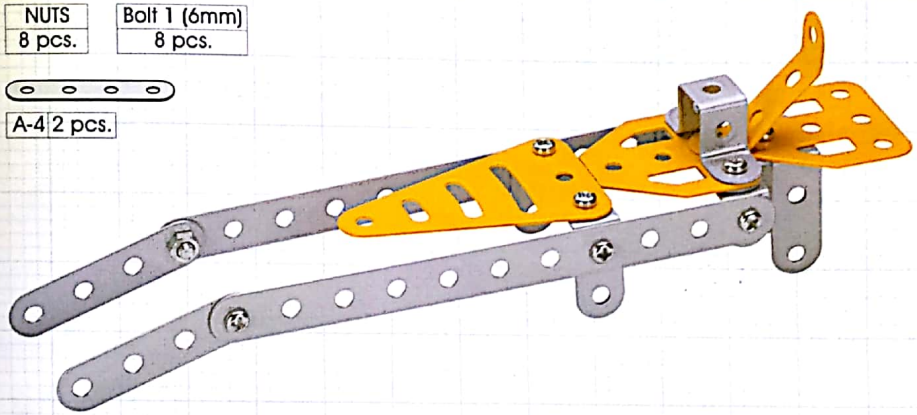
AUB-5 1pc.

Step 3

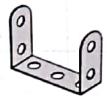
NUTS
8 pcs.

Bolt 1 (6mm)
8 pcs.

A-4 2 pcs.



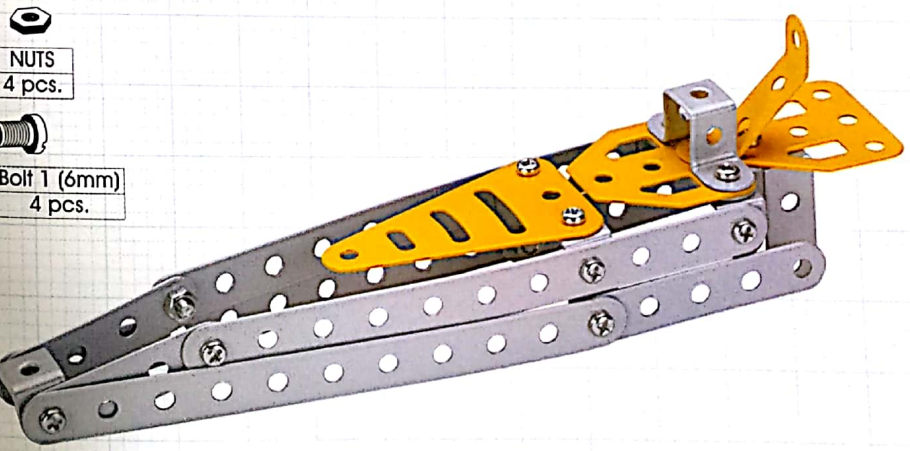
A-11 2 pcs.



ALB7 1 pc.

LTA-4 1 pcs.

Step 4



NUTS
4 pcs.

Bolt 1 (6mm)
4 pcs.

AB-3 1pc.

A-5 2 pcs.

A-11 2 pcs.

Assembly of step 4 & step 5

Step 6

NUTS
2 pcs.

Bolt 1 (6mm)
2 pcs.

Step 5

NUTS
4 pcs.

Bolt 1 (6mm)
4 pcs.

AB-2 2 pcs.

HS-5 1 pc.

A-9 2 pcs.

MECHANIX

Step 7

NUTS
6 pcs.

Bolt 1 (6mm)
4 pcs.

Bolt-3 (25mm)
2 pcs.

A-4 1 pcs.

A-7 1 pcs.

SS-9 2 pc.

Battery Box
1 pc.

Motor 1 pc.

MECHANIX

Moonwalker

Step 1

NUTS	15 pcs.
Bolt 1 (6mm)	15 pcs.
AB-2	2 pc.
AB-3	1 pc.
AUB-5	1 pc.
ALB7	1 pc.
BT-5	4 pcs.
RT-55	1 pc.

Step 2

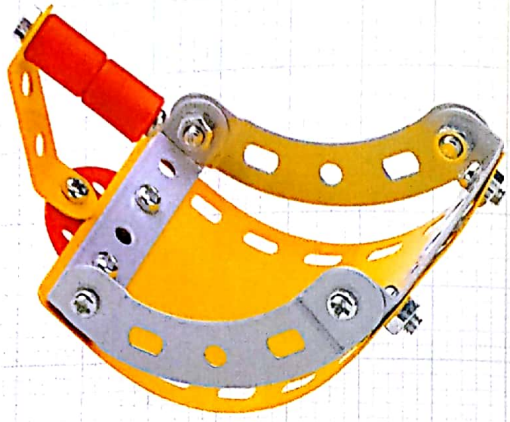
NUTS	2 pcs.
Bolt 1 (6mm)	2 pcs.
TW-1	1 pc.
Rubber Bush	1 pc.
G-1+	1 pc.
SH-2 (80mm)	1 pc.
LTA-4	1 pc.

Step 3

NUTS	6 pcs.
Bolt 1 (6mm)	6 pcs.
AB-2	1 pc.
TW-1	4 pcs.

SH-2 (80mm)	1 pc.
A-5	2 pcs.
AB-7	2 pcs.
WHEELS	4 pcs.

Step 3



NUTS
10 pcs.

Bolt 1 (6mm)
9 pcs.

Bolt-4 (32mm)
1 pc.

Spacer
2 pcs.

AB4-45 1 pc.

AB-7 2 pcs.

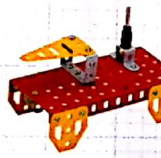
HS-5 2 pcs.

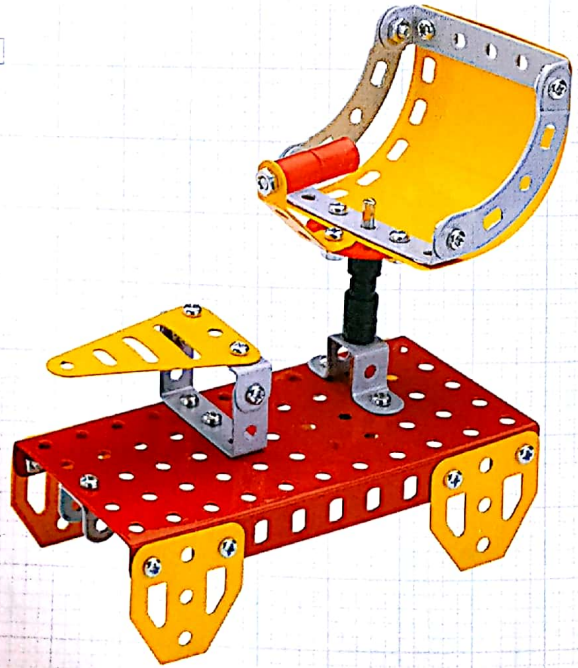
R-8 1 pc.

SSLR-20 1pc.

Step 4

Assembly of step 2 & step 3





Step 5

NUTS
5 pcs.

Bolt 1 (6mm)
3 pcs.

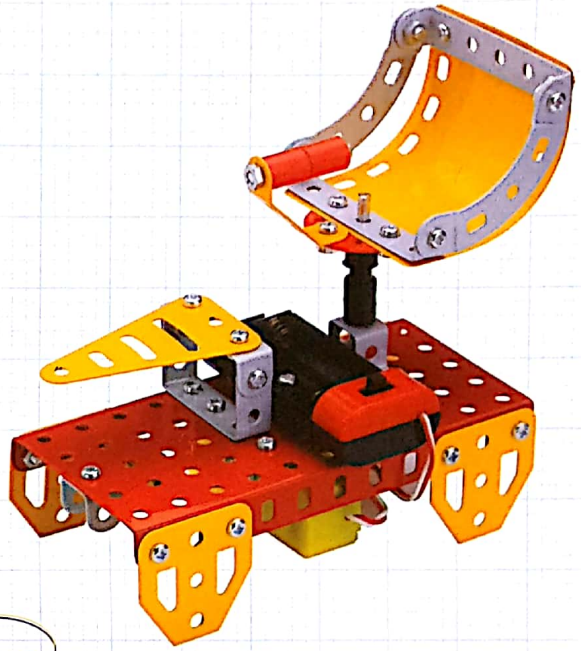
G-2
2 pcs.

Bolt-3 (25mm)
2 pcs.

Single Motor
bracket 1pcs

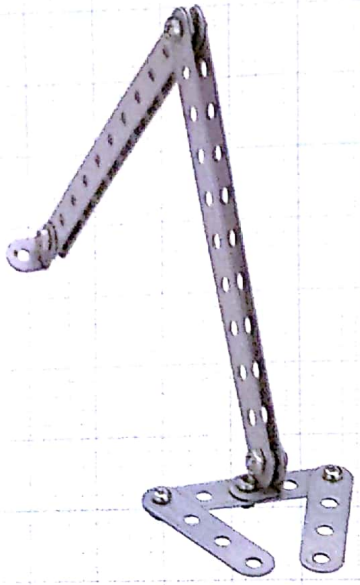
Battery Box
1 pc.

Motor 1 pc.



Backside view

Step 6



NUTS
9 pcs.

Bolt 1 (6mm)
3 pcs.

Bolt 1 (9mm)
3 pcs.

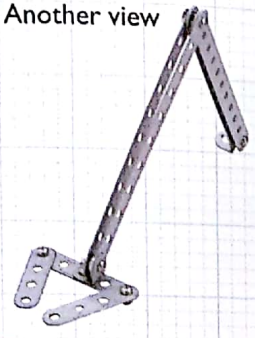
AB-2 2 pcs.

A-4 2 pcs.

A-5 1 pc.

A-11 4 pcs.

Another view

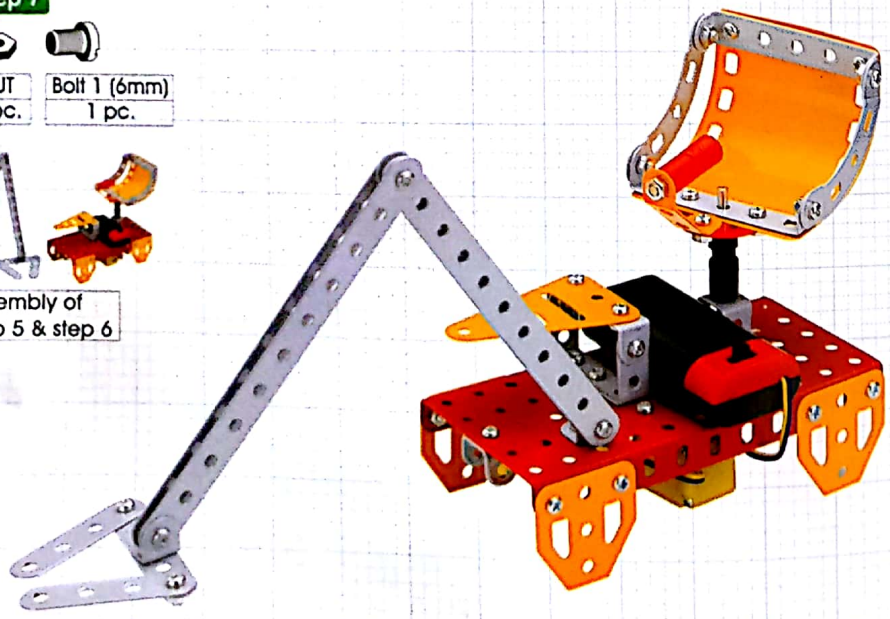


Step 7

NUT
1 pc.

Bolt 1 (6mm)
1 pc.

Assembly of
step 5 & step 6



Step 8

NUTS
11 pcs.

Bolt 1 (6mm)
11 pcs.

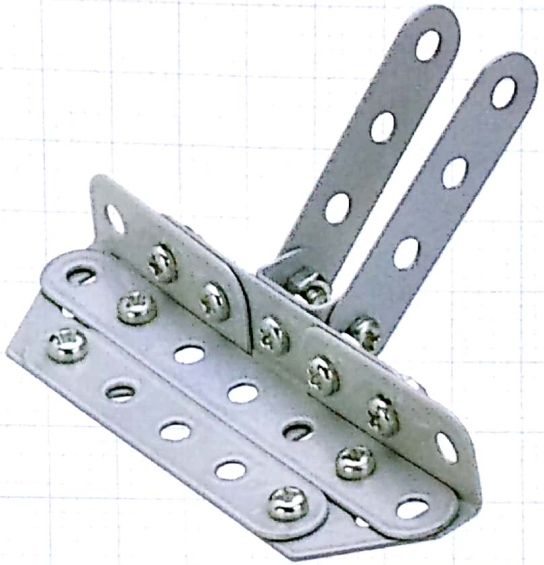
AB-3 1pc.

A-4 2 pcs.

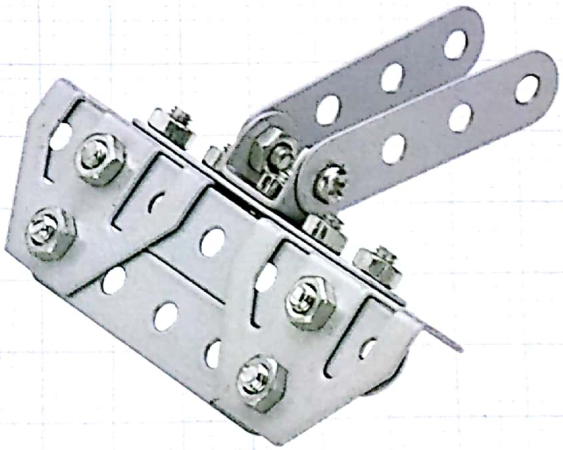
A-5 2 pcs.

A-7 1 pc.

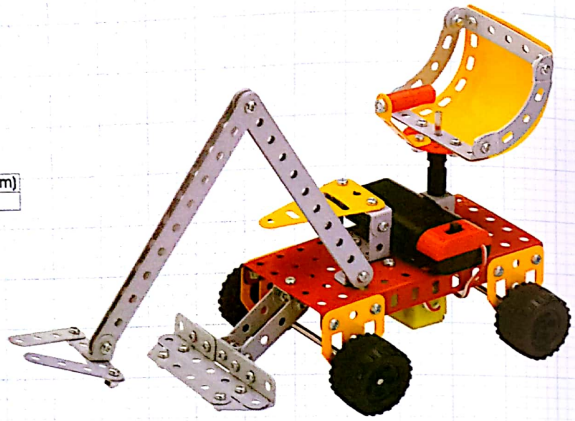
BTB-5 2 pcs.



Backside view



Step 9



NUTS
2 pcs.

Bolt 1 (6mm)
2 pcs.

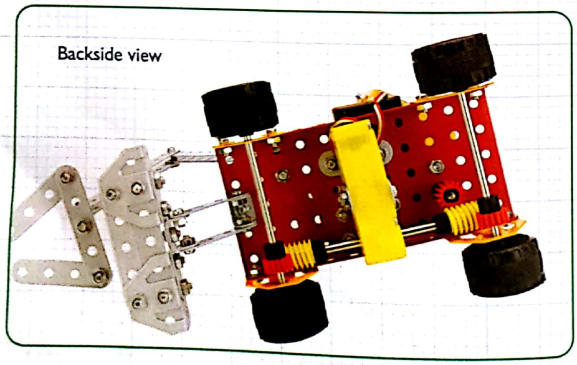
G-1
2 pcs.

SHAFT (110mm) 2 pcs.

WHEELS 4 pc.

Assembly of step 7 & step 8

Backside view



METAL MECHANIX

MECHANIX - NX0
Contents:
- 108 pcs.
- No. of Models: 7

MECHANIX - 0
Contents:
- 98 pcs.
- No. of Models: 5

MECHANIX - 1
Contents:
- 128 pcs.
- No. of Models: 10

MECHANIX - 2
Contents:
- 170 pcs.
- No. of Models: 15

MECHANIX - 4
Contents:
- 263 pcs.
- No. of Models: 20

MECHANIX - 5
Contents:
- 301pcs.
- No. of Models: 25

MECHANIX
Motor Bikes 1
Contents:
- 152 pcs.
- No. of Models: 15

MECHANIX
Eiffel Tower
Contents:
- 2125 pcs.
- Packed in an attractive wooden box

MECHANIX
Racing Cars
Contents:
- 155 pcs.
- No. of Models: 15

MECHANIX
Battle Station
Contents:
- 95 pcs.
- No. of Models: 9

MECHANIX
Battle Station 2
Contents:
- 110 pcs.
- No. of Models: 5

MECHANIX
Robotix 1
Contents:
- 115 pcs.
- No. of Models: 5

MECHANIX
Electro Magnetix
Contents:
- 30 plus experiments
- 52 colourful pages manual
- 45 pcs.
- All connection are magnetic

MECHANIX
Monster Buggies
Contents:
- 98 pcs.
- No. of Models: 5

MECHANIX
Battle Station Transporter
Contents:
- 353 pcs.
- No. of Models: 5

MECHANIX
Robotix 3
Contents:
- 215 pcs.
- No. of Models: 8

POCKET SERIES

MECHANIX - Bikes
Contents:
- 68 pcs.
- No. of Models: 3

POCKET SERIES

MECHANIX - Cars
Contents:
- 65 pcs.
- No. of Models: 3

POCKET SERIES

MECHANIX
Helicopters
Contents:
- 68 pcs.
- No. of Models: 3

POCKET SERIES

MECHANIX
Planes
Contents:
- 82 pcs.
- No. of Models: 3

PLASTIC MECHANIX

AGE 3+

MECHANIX - Cars I

Contents:
- 57 Pcs.
- No.of Models: 4

MECHANIX - Cars 2

Contents:
- 81 pcs.
- No.of Models: 7

MECHANIX - Cars 3

Contents:
- 175 pcs.
- No.of Models: 15

MECHANIX - Planes I

Contents:
- 57 Pcs.
- No.of Models: 4

MECHANIX
Planes 2

Contents:
- 81 pcs.
- No.of Models: 7

MECHANIX - Planes 3

Contents:
- 180 pcs.
- No.of Models: 15

MECHANIX - MobiTech

Contents:
- 110 pcs.
- No.of Models: 14

METAL

MECHANIX

ENGINEERING SYSTEM FOR CREATIVE KIDS

Buy Gears, Motors, and many other spare parts,

only on

zephyrtoys.com

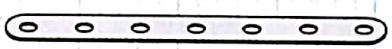
That fresh smile and laughter, giggles and chattering of the little kids are one of the most refreshing happiness that touches the heart. Like the cool evening breeze on the rise that refreshes the soul of a worked up being. That is what Zephyr is all about and about quality, in the true sense of the word. Quality of play, quality of education and quality of product.

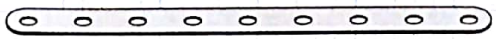
We bring you a whole range of play and educational toys of international standards that undergo through the strict quality control of the Zephyr family itself. Our kits have won quite a few awards and Mechanix is our star set that has won "The Best Educational Toy" and "The Best Toy" award at the TAITMA. We do not do business, at Zephyr's we befriend children. A smile on your child's face is our gain.

Engineering System For Creative Kids


A-4 | 4 pcs.


A-5 | 6 pcs.


A-7 | 4 pcs.


A-9 | 4 pcs.


SS-9 | 2 pc.

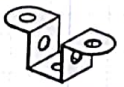

A-11 | 4 pcs.


AB-2 | 7 pcs.

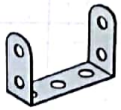

AB-3 | 2pcs.

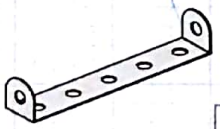

AB4-45 | 1 pc.

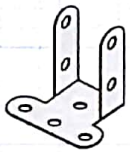

ALB-5 | 1 pc.


AUB-5 | 1pc.


HS-5 | 2 pcs.


ALB7 | 1 pc.

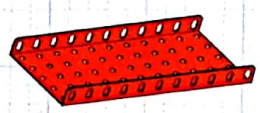

AB-7 | 3 pcs.

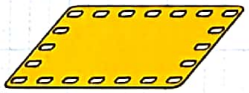

Single Motor bracket | 1pcs

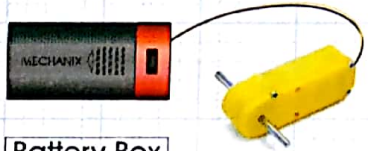

BT-5 | 4 pcs.


BTB-5 | 4 pcs.


LTA-4 | 2 pcs.


RT-55 | 1pc.


SSLR-20 | 1pc.



Battery Box 1 pc.

Motor | 1 pc.


WHEELS | 4 pcs.


R-8 | 1 pc.


G-2 2 pcs.


G-1 2 pcs.


G-1+ 1 pc.


TW-1 4 pcs.


Spacer 2 pcs.


Rubber Bush 2 pc.


MW-1 2 pcs.


NUTS 64 pcs.


Bolt 1 (6mm) 56 pcs.


Bolt 1 (9mm) 4 pcs.

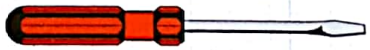

Bolt-3 (25mm) 6 pcs.


Bolt-4 (32mm) 2 pcs.

SH-2 (80mm) 2 pcs.

SHAFT (110mm) 2 pc.


Spanner | 1 pc.


Screw Driver | 1 pc.

ZEPHYR TOYMAKERS PVT. LTD.
A-421, T.T.C. Indl. Area, MIDC, Mahape, Navi Mumbai, - 400710.(India)
Tel: +91 22 27780605 | 27782484 | Fax: +91 22 27782485
www.zephyrtoys.com feedback@ztpl.in
February 2016

ZEPHYR