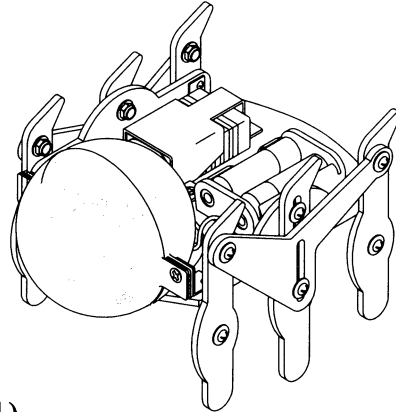


# HEXAPOD MONSTER

This interesting robotic kit uses infrared emitting diodes as its eyes and moves via its six legs. It turns left when it detects obstacles and keeps moving forward if there is no shade in front of the sensor.

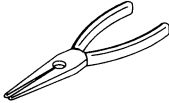

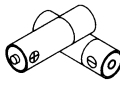

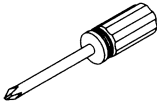
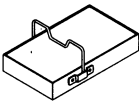
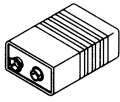



Power source required:



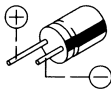
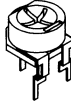
Voltage / Eletronical parts: 9V battery ( not included )

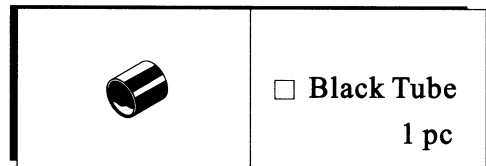
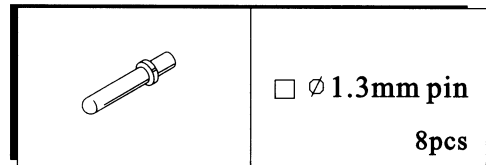
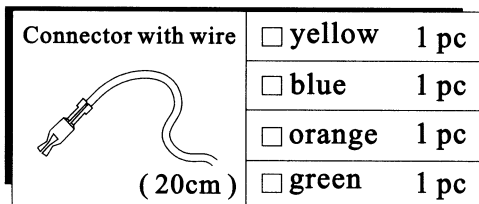
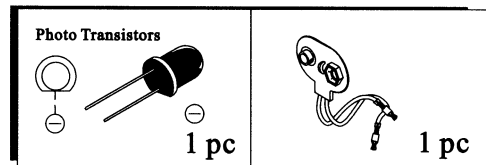
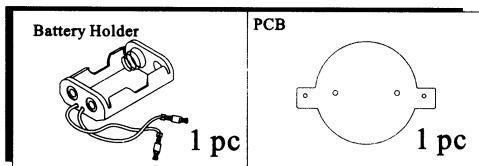
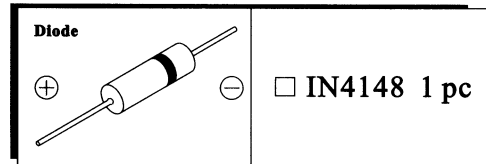
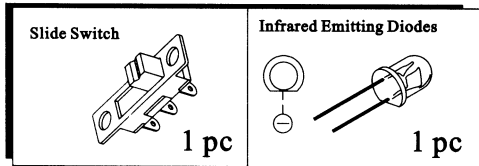
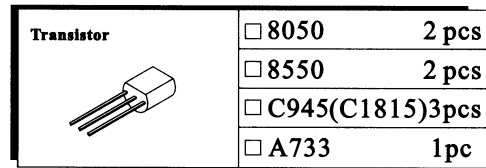
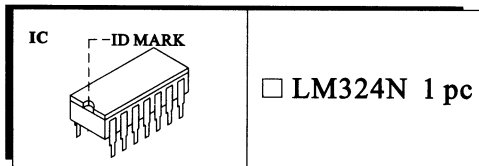
Voltage / Mechanical parts: DC3V 1.5V "AA"x2 batteries ( not included )

## 1. Tools Required

			
<b>Long Nose Pliers</b>	<b>Soldering Iron</b>	<b>2 x AA Batteries</b>	<b>Solder Wire</b>
			
<b>Screwdriver</b>	<b>Soldering Iron Stand With Sponge</b>	<b>1 x 9V Battery</b>	<b>Diagonal Cutter</b>

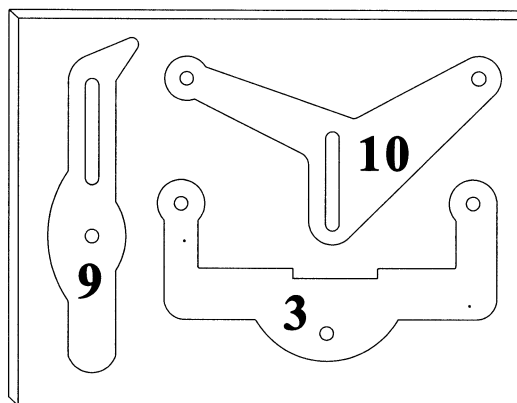
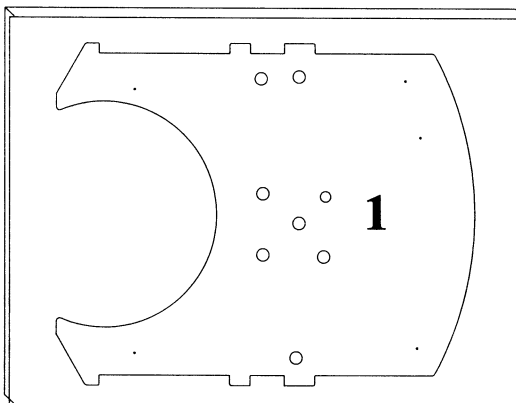
## 2. Electronic Parts List:

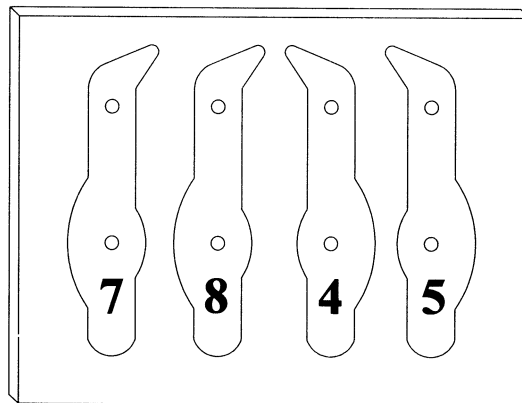
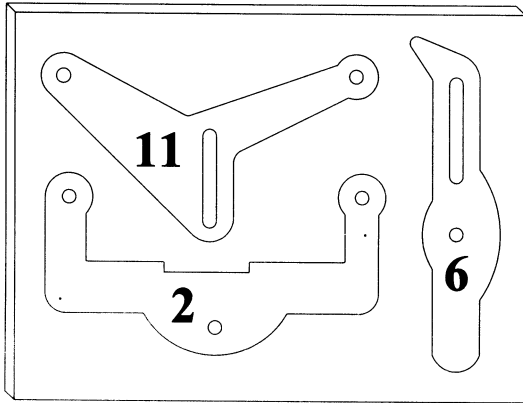
<b>Resistor</b>  <ul style="list-style-type: none"> <li><input type="checkbox"/> 10<math>\Omega</math> ( brown black black gold ) 1 pc</li> <li><input type="checkbox"/> 15<math>\Omega</math> ( brown green black gold ) 2 pcs</li> <li><input type="checkbox"/> 100<math>\Omega</math> ( brown black brown gold ) 2 pcs</li> <li><input type="checkbox"/> 1K ( brown black red gold ) 1 pc</li> <li><input type="checkbox"/> 4.7K ( yellow violet red gold ) 4 pcs</li> <li><input type="checkbox"/> 10K ( brown black orange gold ) 2 pcs</li> <li><input type="checkbox"/> 120K ( brown red yellow gold ) 4 pcs</li> <li><input type="checkbox"/> 1.8M ( brown grey green gold ) 1 pc</li> </ul>	<b>Ceramic Capacitor</b>  <ul style="list-style-type: none"> <li><input type="checkbox"/> 331 1 pc</li> <li><input type="checkbox"/> 104 2 pcs</li> </ul>	<b>Electrolytic Capacitor</b>  <ul style="list-style-type: none"> <li><input type="checkbox"/> 100uf 2 pcs</li> <li><input type="checkbox"/> 4.7uf 1 pc</li> </ul>	<b>VR</b>  <ul style="list-style-type: none"> <li><input type="checkbox"/> 50K 1 pc</li> </ul>
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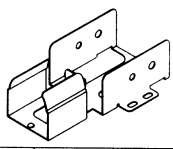


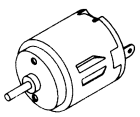
### 3. Mechanical Parts List:

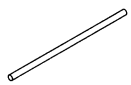
#### Wooden Plate

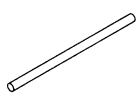





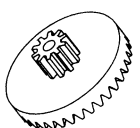
	
P1	Gearbox
Qty:	2 pcs

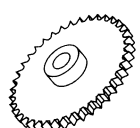
	
P2	Motor DC3V
Qty:	2 pcs

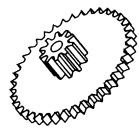
	
P3	Metal shaft
Qty:	2 pcs (2X40mm)

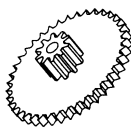
	
P4	Metal shaft
Qty:	2 pcs (3X52mm)


	
P5	Pinion gear10T
Qty:	2 pcs (white)

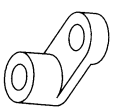
	
P6	Face gear 36T/14T
Qty:	2 pcs (white)

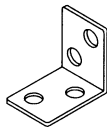
	
P7	Gear 36T/0T
Qty:	2 pcs (white)


	
P8	Gear 36T/14T
Qty:	2 pcs (red)


	
P9	Gear 36T/14T
Qty:	2 pcs (Green)


	
P10	Nylon pad
Qty:	4 pcs (5.6X4.8X1.95)

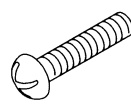
	
P11	Nylon connector
Qty:	2 pcs("N"shape)





	
P12	Fixing plate
Qty:	6 pcs ("L"shape)

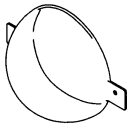
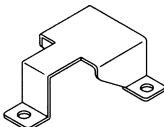


	
P13	Nylon pad
Qty:	24 pcs(Dia:8mm)

	
P14	Screw
Qty:	10 pcs(2X10mm)

	
P15	Screw
Qty:	10 pcs(3X14mm)

	
P16	Screw
Qty:	2 pcs(3X18mm)

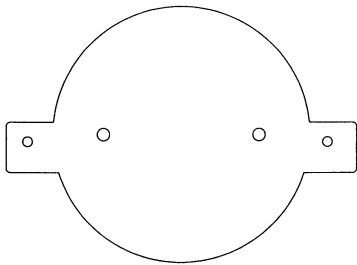
							
P17	Self-taping screw	P18	Nylon nut	P19	Nylon post	P20	Washer
Qty:	11 pcs (2X4mm)	Qty:	12 pcs	Qty:	2 pcs (H:6mm)	Qty:	22 pcs(3.2X10X0.5mm)

							
P21	Clear Blister	P22	9V Battery holder	P23	Nut M2	P24	Washer
Qty:	2 pcs	Qty:	1 pcs	Qty:	10 pcs	Qty:	7 pcs(2.6X6X0.5mm)

#### 4. PCB Assembly:

Step 1: Start from the low-key components first such as the resistors.

The parts identification for each component have been printed on PCB.




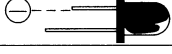
Part I.D.	Description	Color Code	Qty
R11	10Ω	(brown black black gold)	1
R12/17	15Ω	(brown green black gold)	2
R13/16	100Ω	(brown black brown gold)	2
R1	1K	(brown black red gold)	1
R4/9/10/15	4.7K	(yellow violet red gold)	4
R6/8	10K	(brown black orange gold)	2
R2/3/5/7	120K	(brown red yellow gold)	4
R14	1.8M	(brown grey green gold)	1

Step 2: Mount diode, Switch & I.C.

Part I.D.	Description	Qty
D1	Diode IN 4148	1
IC1	I.C. LM324N	1
SW	Slide Switch	1
VR	Variable Resistor 50K	1

Step 4: Mount Infrared Emitting Diodes. Photo Transistor.


°Please note the polarity of these two parts.

Part I.D.	Description	Qty
IR		1
PTR		1

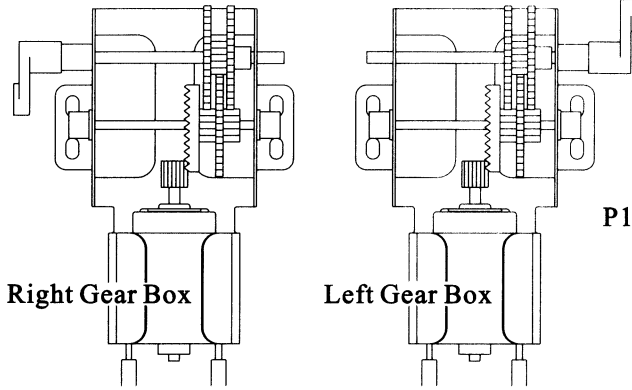
Step 5: Insert the "black tube" onto photo Transistor.



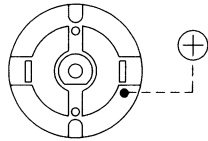
Step 3: Mount transistor.

Part I.D.	Description	Qty
Q4/5	Transistor 8050	2
Q3/6	Transistor 8550	2
Q8	Transistor A733	1
Q1/2/7	Transistor C945 (1815)	3
C2/3	Ceramic Capacitor 104	2
C1	Ceramic Capacitor 331	1
EC1/2	Electrolytic Capacitor 100uf	2
EC3	Electrolytic Capacitor 4.7uf	1
MR+-	PINS 	8
ML+-		
3V+-		
9V+-		

## 5. Mechanical Assembly:

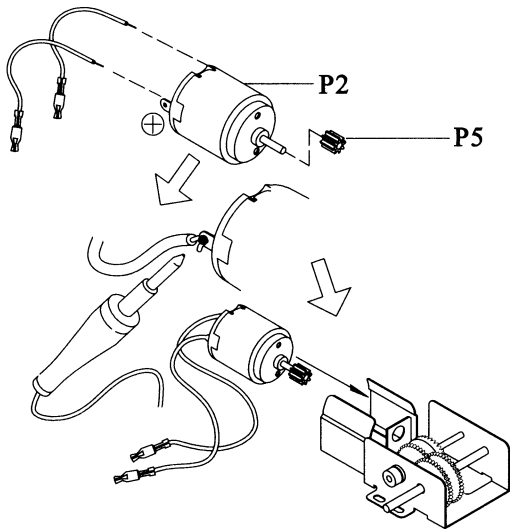


Finished Product

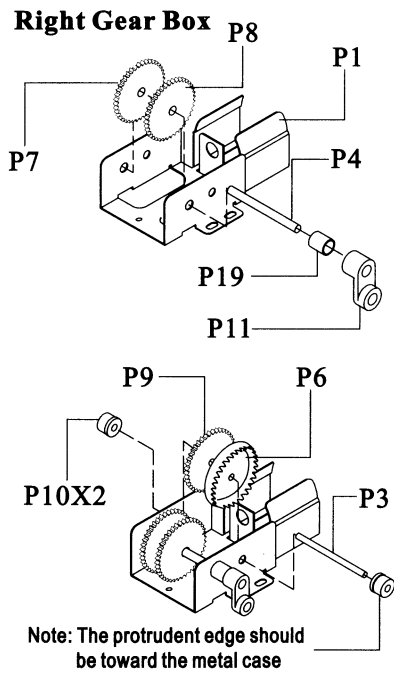
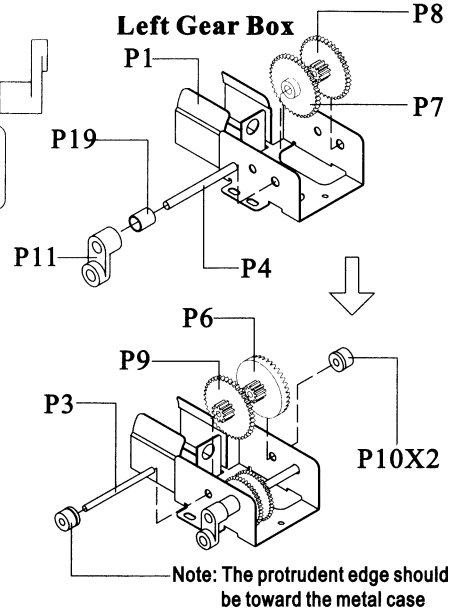


Note: The positive ⊕ marked with "•"

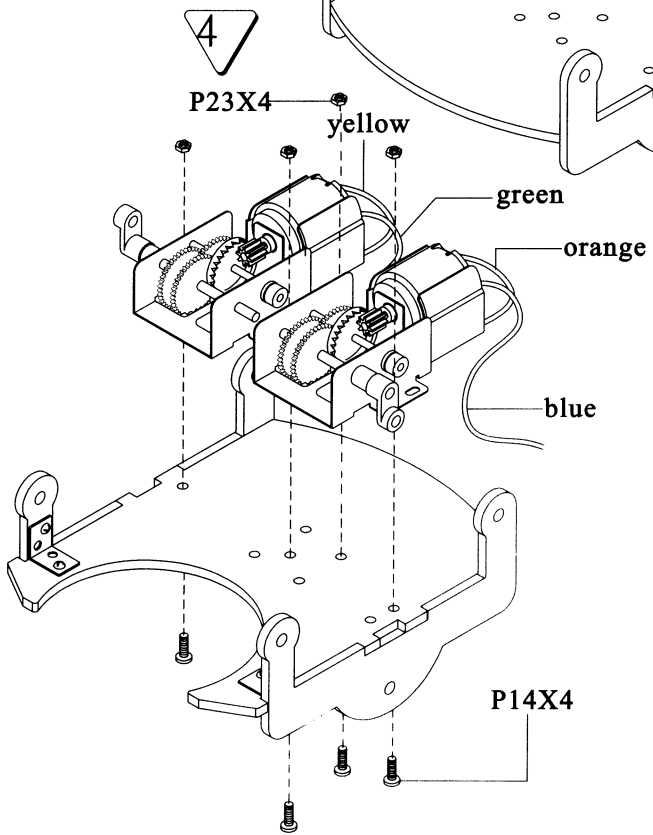
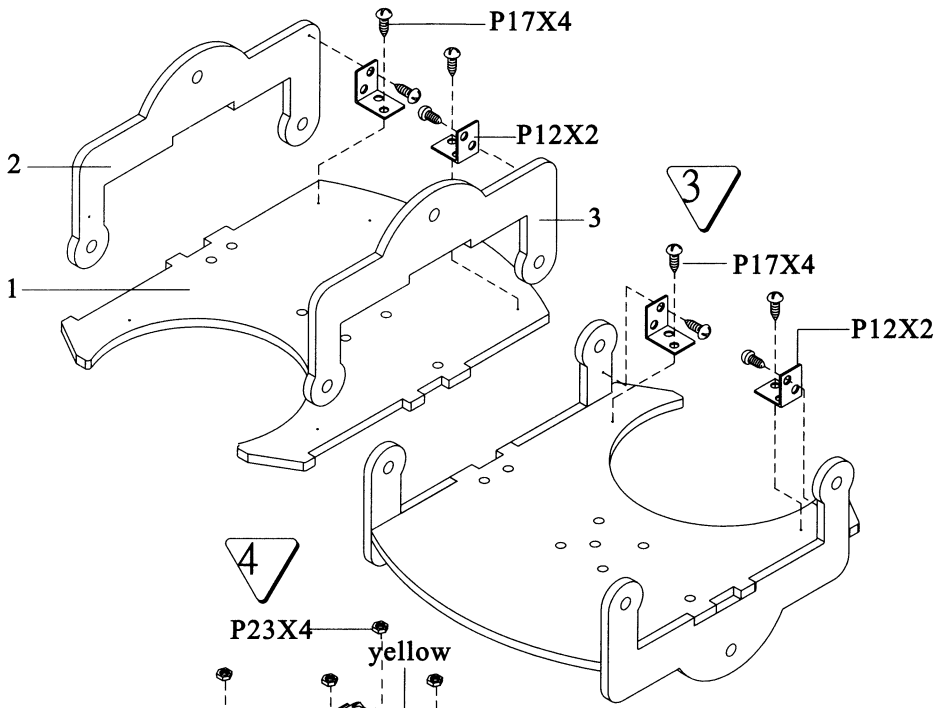
	⊕ positive of Motor	⊖ Negative of Motor
Left Gear Box	Yellow wire 	Green wire 
Right Gear Box	Blue wire 	Orange wire 



## 1 Gear box Assembly

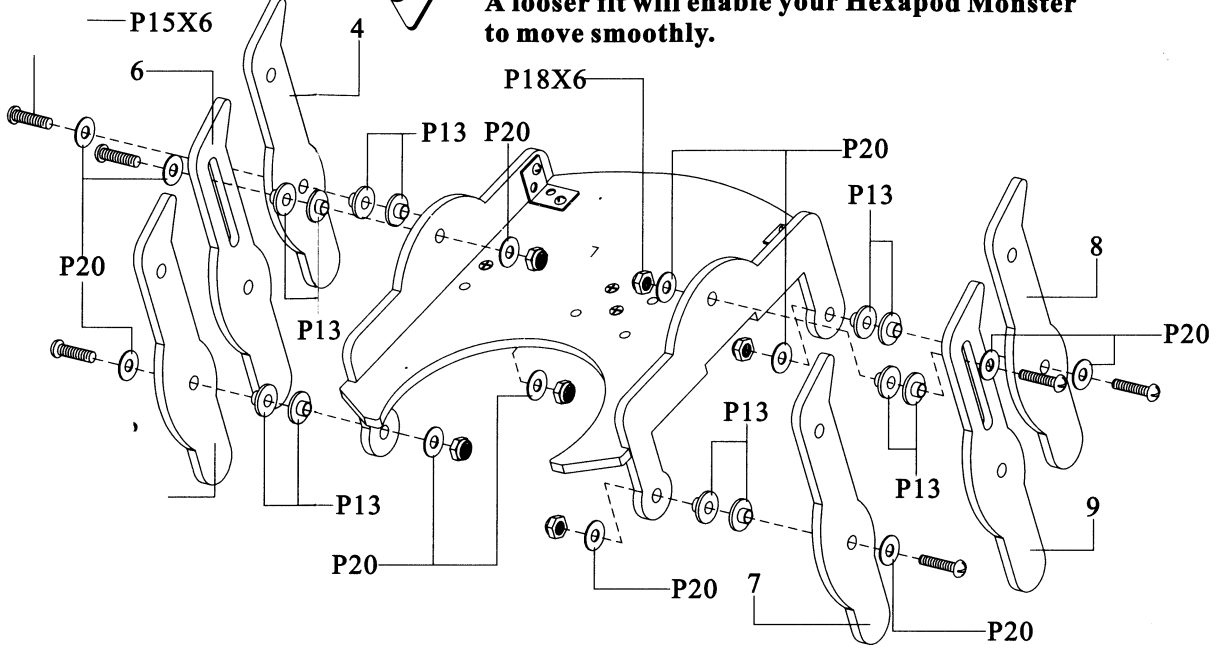


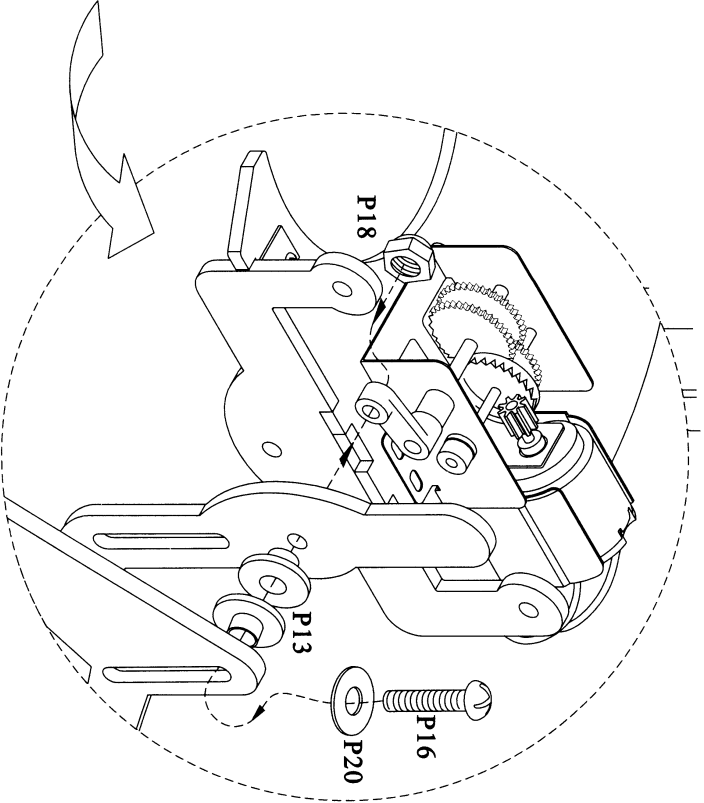
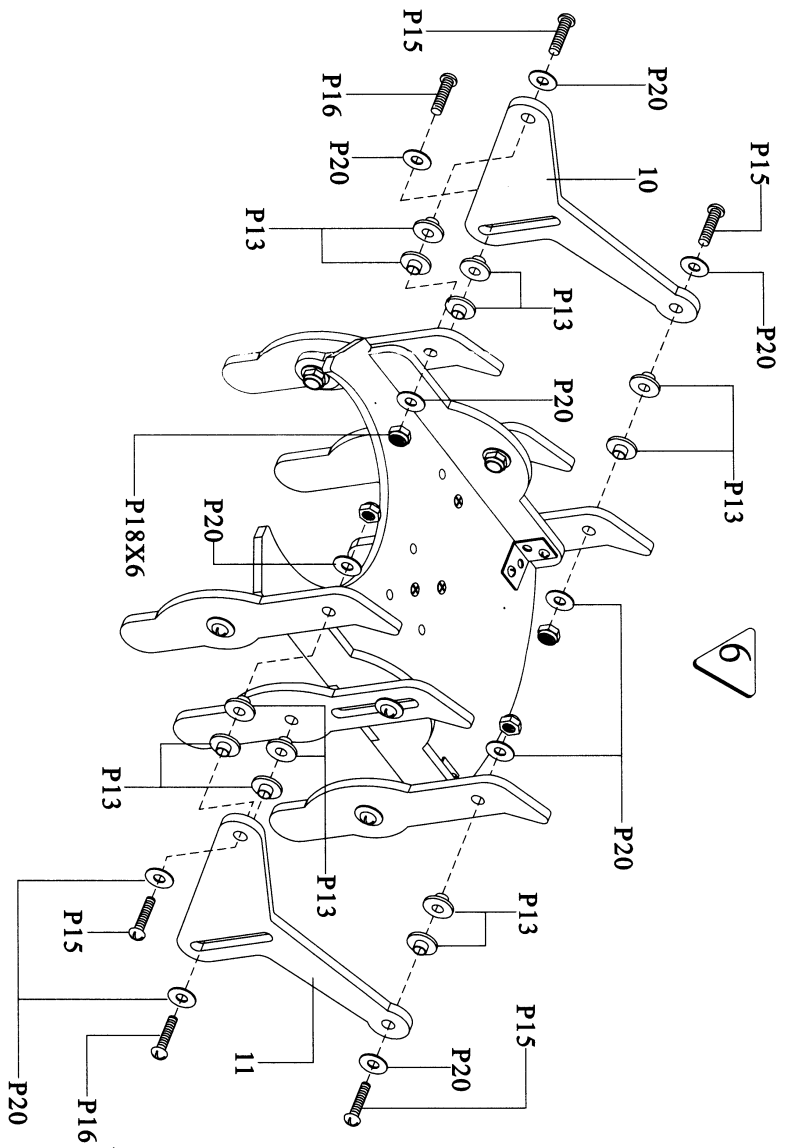
**2** Refer to mechanical parts list and distinguish board No.2&3, Hexapod Monster will not walk if the two boards are at opposite position.



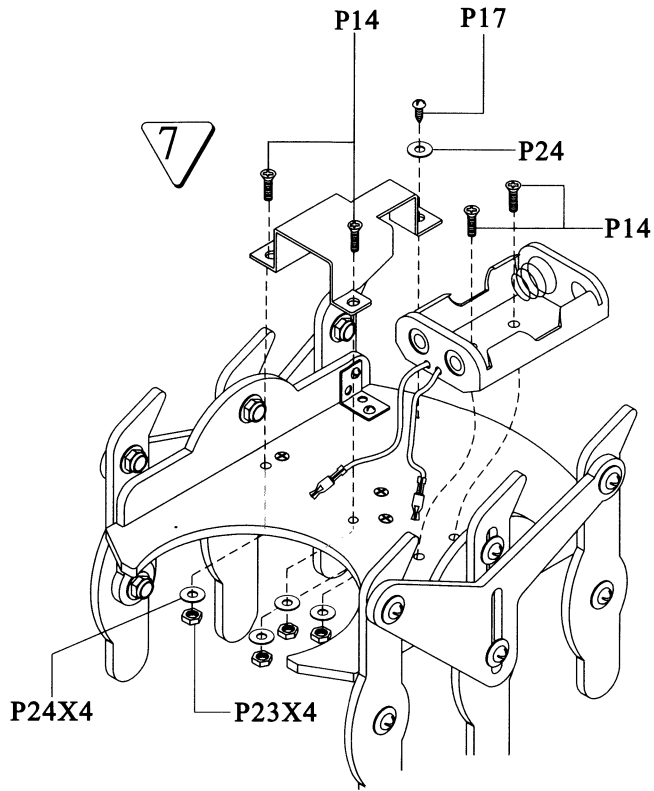
5

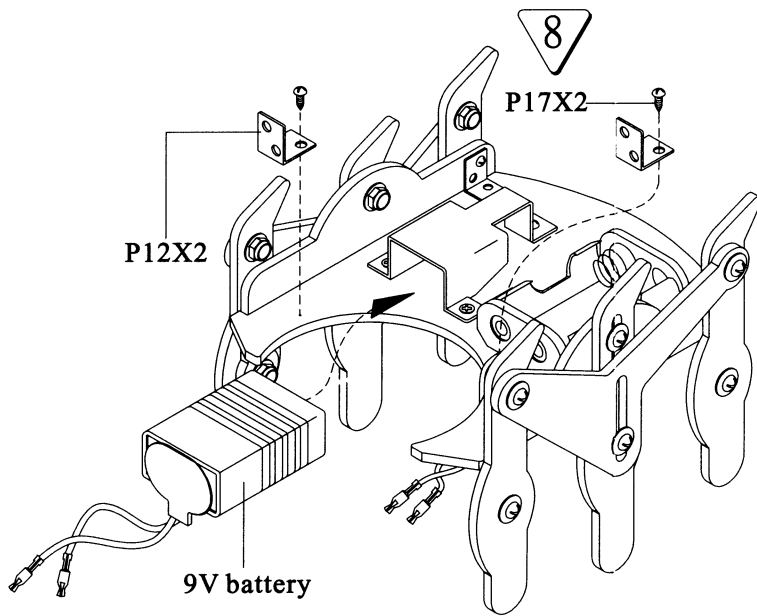
**Don't tighten the legs screws excessively.  
A looser fit will enable your Hexapod Monster  
to move smoothly.**







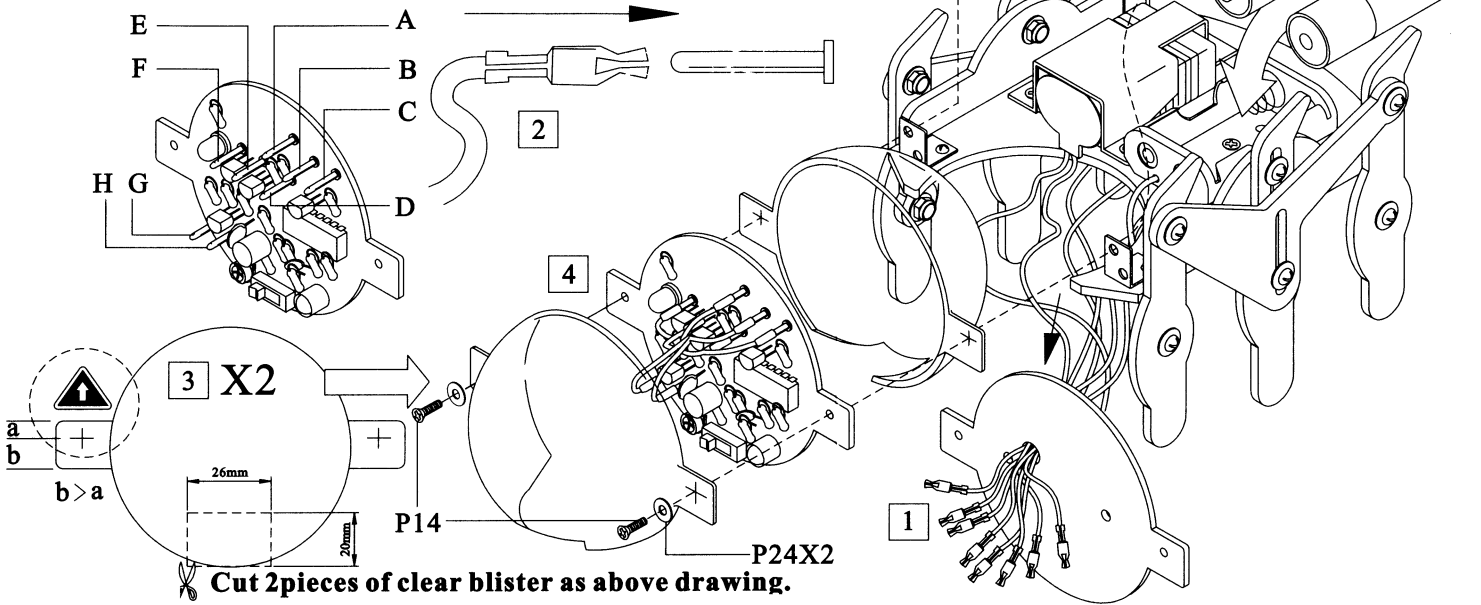


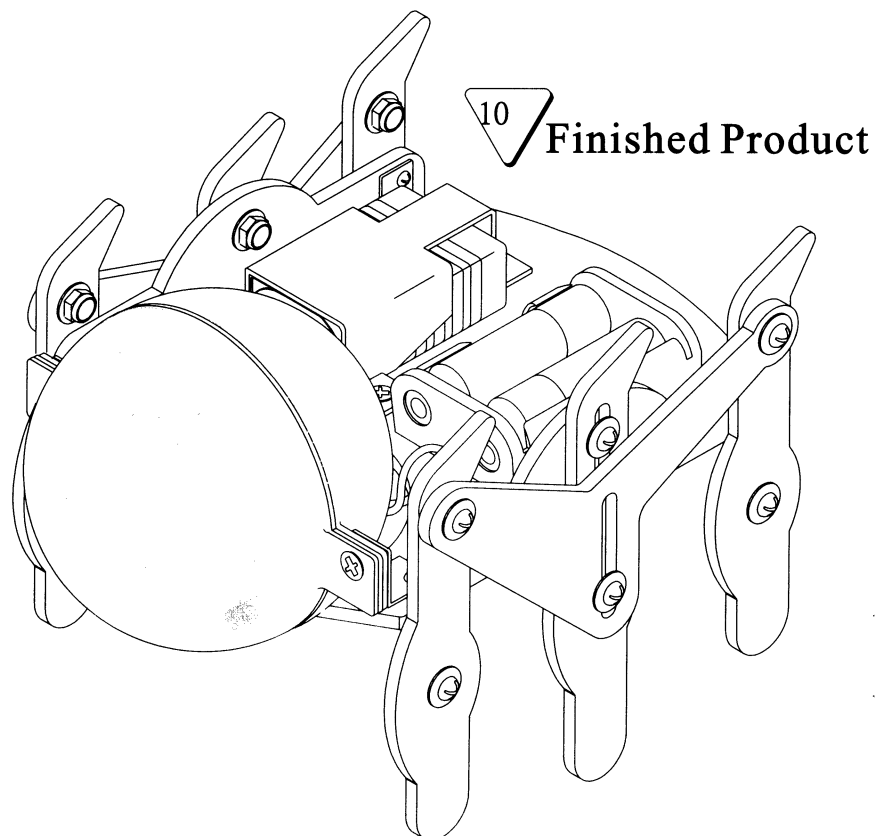




	A	B	C	D	E	F	G	H
	MR(+)	3V(+)	3V(-)	MR(-)	ML(+)	ML(-)	9V(-)	9V(+)
	Yellow	Red	Black	Green	Orange	Blue	Black	Red
	3V						9V	

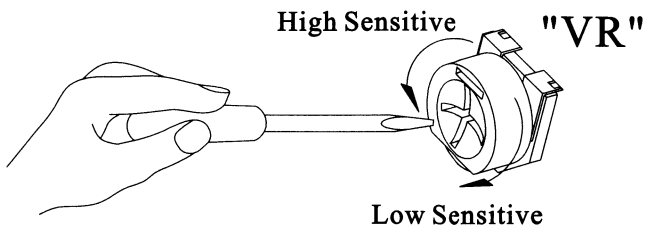
## 9 Wiring





## 6. How to work your Hexapod

1. Switch to the "ON".
2. Place your hand or other obstacle in front of the unit, the Hexapod will reverse and turn right.
3. Remove the obstacle, the unit will go forward continuously.
4. Turn the "VR" to change the detecting distance.



## 7. Troubleshooting:

1. Make sure all parts on PCB are on the correct position, especially note the polarity of Infrared Emitting Diode and photo Transistor are correct.
2. Ensure wiring is correct.
3. Keep turning and reversing, then adjust "VR" to low sensitive position.
4. Place grease between face gear (P6) and 2mm shaft (P3) this will reduce the noise.
5. DO NOT put grease between 3mm shaft (P4) and gears (P7&P8).

## 8. Circuit Diagram :

