

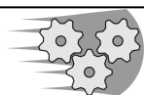
WHICH KITS CAN BE CONVERTED TO “NO-SOLDER”

Unless specifically designated as “NO-SOLDER” kits, all of our kits require soldering:

- Neither the Switches or the Motors have wires
- The Battery holders have wires which need to be soldered to the motor and switch

SOME of our kits can be converted to NO-SOLDER, by ordering additional parts. These have been detailed in this document, providing information on what parts need to be ordered separately and substituted (switches, motors) or added (Terminated wires, Terminals, Twist on connectors).

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LO-RIDER

LO-RIDER




LORIDER

This is a basic four wheeled vehicle, with both front and rear wheels on fixed axles. This vehicle:

- Is capable of forward and reverse motion (direction of travel being controlled by a two-way switch)
- Has a choice of two gearbox ratios (at the construction stage).


SUPPLIED WITH:

1 x Electric motor 3-12V (MOT17)

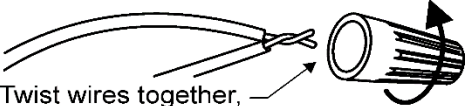

Use terminated wires, which are wiggled CAREFULLY onto the motor terminals	Black - WIRETB75 or WIRETB150; Red – WIRETR75 or WIRETR150	1 of each colour	
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SUPPLIED WITH:

1 x Switch – Sliding Forward – Off – Reverse (SSWL)

Description	Code	Quantity	Picture
OPTION 1: Use small terminals which can be crimped onto hook up wire and used where specified on the 3 position switch	TERMS – Small terminal WIREHU10 - Black - Red	6 Depends on the vehicle's design	
OPTION 2: Can be replaced with a small sliding switch with wires – but you then lose the ability to reverse	SSWS-W	1	
OPTION 3: Can be replaced with two small sliding switch with wires – one becomes an On-Off switch, and the other Forward-Reverse	SSWS-W	2	

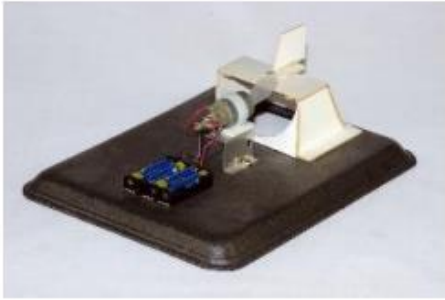
ADD:

<input type="checkbox"/> Twist on connectors to join wires  Twist wires together, insert into connector and screw it on.	CONN-SC	4	
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HOVERCRAFT

HOVERCRAFT

HOVER




One motor, driving a small propeller is enough to make this *HOVERCRAFT* glide along a smooth surface on a bed of air!

The kit comes with both narrow and wide trays, which provides a choice of how big to make the hovercraft.

SUPPLIED WITH:

1 x Electric Motor 3-12V (MOT17)

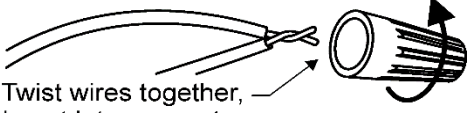

Use terminated wires, which are wiggled CAREFULLY onto the motor terminals	Black - WIRETB75 or WIRETB150; Red – WIRETR75 or WIRETR150	1 of each colour	
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SUPPLIED WITH:

1 x Sliding switch (small) (SSWS)

Replace with a small sliding switch with wires	SSWS-W	1	
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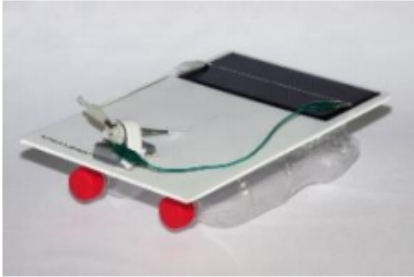
ADD:

<input type="checkbox"/> Twist on connectors to join wires  Twist wires together, insert into connector and screw it on.	CONN-SC	3	
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INTRO SOLAR BOAT

INTRO SOLAR BOAT

SBTINT



This kit contains all the components needed to construct a functional solar powered boat propulsion system. This unit includes instructions on how to assemble these components together with suggested ideas for hull construction in order to build a complete basic boat that works.

By building and experimenting with this boat students will gain a significant insight into renewable energy in the form of electricity from solar, basic electricity, motors and energy conversion from solar power to motion of their boat.

SUPPLIED WITH:

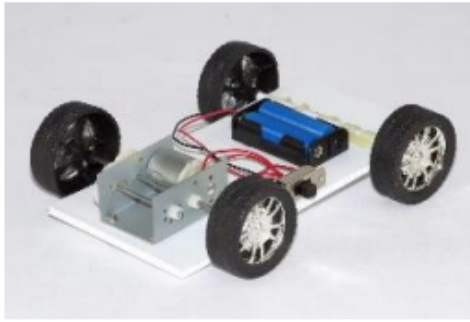
- **3 x Alligator clip with wires (ALLIWIRE3)**

If these are used for the wiring (rather than only for testing) the kit as supplied is a no-solder unit of work.

SIMPLE VEHICLE

SIMPLE VEHICLE

SIMPLE




This project requires the student to design and build a *SIMPLE VEHICLE*. This is the most basic vehicle possible, and is suitable to introduce students to Technology and Electrical components. After completion of the vehicle, it can be used for a variety of experiments (physics or otherwise) or even paired with another vehicle for racing and performance tests.

This is a basic four wheeled vehicle, with both front and rear wheels on fixed axles. This vehicle:

- Is capable of forward and reverse motion (the direction of travel being controlled by a two-way switch)
- Has a choice of gearbox ratios (at the construction stage).



SUPPLIED WITH:

□ 1 x Electric motor 3-12V (MOT17)

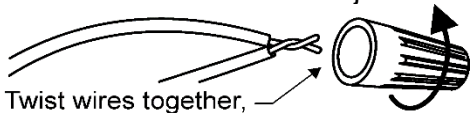

Use terminated wires, which are wiggled CAREFULLY onto the motor terminals	Black - WIRETB75 or WIRETB150; Red – WIRETR75 or WIRETR150	1 of each colour	
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SUPPLIED WITH:

□ 1 x Switch – Sliding on-off-on (SSWL)

Description	Code	Quantity	Picture
OPTION 1: Use small terminals which can be crimped onto hook up wire and used where specified on the 3 position switch	TERMS – Small terminal WIREHU10 - Black - Red	6 Depends on the vehicle's design	 
OPTION 2: Can be replaced with a small sliding switch with wires – but you then lose the ability to reverse	SSWS-W	1	
OPTION 3: Can be replaced with two small sliding switch with wires – one becomes an On-Off switch, and the other Forward-Reverse	SSWS-W	2	

ADD:

<input type="checkbox"/> Twist on connectors to join wires  Twist wires together, insert into connector and screw it on.	CONN-SC	4	
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STOMPER

STOMPER



STOMPER


The *STOMPER* is a six legged device that is driven by two electric motors through a number of gears. It is controlled by two two-way switches, each controlling the legs on one side.

This project requires the student to build a *STOMPER* – a simple robotic device. The student will learn and use a variety of skills – in marking out, cutting materials, drilling, assembling and soldering.

There is a lot of scope in the design of the body, legs and size, as well as being able to use a variety of manufacturing techniques.


SUPPLIED WITH:

2 x Electric motor 3-12V (MOT17)

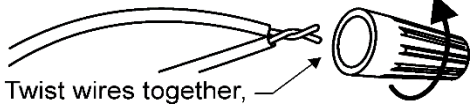

Use terminated wires, which are wiggled CAREFULLY onto the motor terminals	Black - WIRETB75 or WIRETB150; Red – WIRETR75 or WIRETR150	2 of each colour (one of each per motor)	
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SUPPLIED WITH:

2 x Switch – Sliding on-off-on (KSSWL)

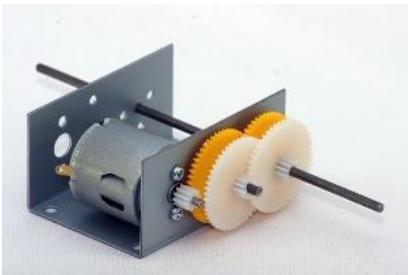
Description	Code	Quantity	Picture
OPTION 1: Use small terminals which can be crimped onto hook up wire and used where specified on the 3 position switch	TERMS – Small terminal WIREHU10 - Black - Red	12 Depends on the vehicle's design	
OPTION 2: Can be replaced with a small sliding switch with wires – but you then lose the ability to reverse	SSWS-W	2	
OPTION 3: Can be replaced with two small sliding switch with wires – one becomes an On-Off switch, and the other Forward-Reverse	SSWS-W	4	

ADD:

<input type="checkbox"/> Twist on connectors to join wires  Twist wires together, insert into connector and screw it on.	CONN-SC	8 - 10	
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GEARBOXES

- BASIC GEARBOX & MOTOR** (Code: GBASIC)
- GEARBOX (BUBBLE version)** (Code: GBOXVBUBM)
- GEARBOX (JOUSTER version)** (Code: GBOXVJOUN)
- INTERMEDIATE GEARBOX KIT** (Code: GINTER)
- MULTI-RATIO ADVANCED GEARBOX KIT** (Code: GADVAN)
- MULTI-RATIO GEARBOX KIT** (Code: GMULTI)
- SHALLOW GEARBOX KIT** (Code: GSHALL)
- TWO RATIO GEARBOX KIT** (Code: GTWOR)
- VERSATILE GEARBOX KIT – 6 SPEED** (Code: GVERS6)




SUPPLIED WITH:

- 1 x Electric motor 3-12V (MOT17)**
- OR
- 1 x Electric motor 1.5-4.5V (MOT22)**
- OR
- 1 x Electric motor 4.5-6V (MOT30)**

Use terminated wires, which are wiggled CAREFULLY onto the motor terminals	Black - WIRETB75 or WIRETB150; Red – WIRETR75 or WIRETR150	1 of each colour	
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PARTS THAT CAN BE USED


FOR THE MOTOR:


TERMINATED WIRES	ITEM NAME	CODE	Qty. per Pack:
	TERMINATED WIRE 75MM BLACK WITH FEMALE SPADE AT ONE END	WIRETB75	10
	TERMINATED WIRE 75MM RED WITH FEMALE SPADE AT ONE END	WIRETR75	10
	TERMINATED WIRE 150MM BLACK WITH FEMALE SPADE AT ONE END	WIRETB150	10
	TERMINATED WIRE 150MM RED WITH FEMALE SPADE AT ONE END	WIRETR150	10

FOR THE SWITCHES:


SWITCHES				
ITEM NAME	CODE	Description	Wires	Qty./ Pack
SLIDE SWITCH – SMALL WITH WIRES	SSWS-W	DPDT. ON-OFF. With 100mm Wires.	YES	5

OR

ITEM NAME	CODE	Qty.
TERMINAL – SMALL	TERMS	10
	Push onto the terminals of the toggle or large sliding switch.	





ITEM NAME	CODE	Qty.
HOOK UP WIRE	WIREHU10	Per 10 metres
	Choice of black / red / blue / green / yellow / white / brown / orange Size (approx.) 21 / 0.08. <i>Please specify colour & length when ordering. If no colour is specified, black (WIREHUBK10) will be delivered.</i>	

FOR THE CONNECTIONS:


CONNECTOR SCREW-ON	CONN-SC	100
	3.8mm Twist on connector for joining 2-3 wires together without soldering (Grey).	

TOOLS REQUIRED

FOR CUTTING AND STRIPPING WIRE:

MINI SIDE CUTTER	SIDECUTM	1	SIDE CUTTER - INSULATED	SIDECUT	1 (1-25) (26+)
	Mini Side Cutters. 120mm long.			150mm long side cutter	
WIRE STRIPPER	WIRESTR	1	WIRE STRIPPER 3	WIRESTR3	1
	TRex design – Automatically adjusts to insulation diameter, and is one handed operation			Adjustable wire stripper. Return spring. Cushion grip 12.5cm (approx.) long.	

FOR CRIMPING TERMINALS (TERMS) ONTO WIRE:

MINI CRIMPING TOOL	CRIMPT	1
	Crimping tool for non-insulated lugs. Suits large terminals (<i>TERML</i>) & small terminals (<i>TERMS</i>).	