

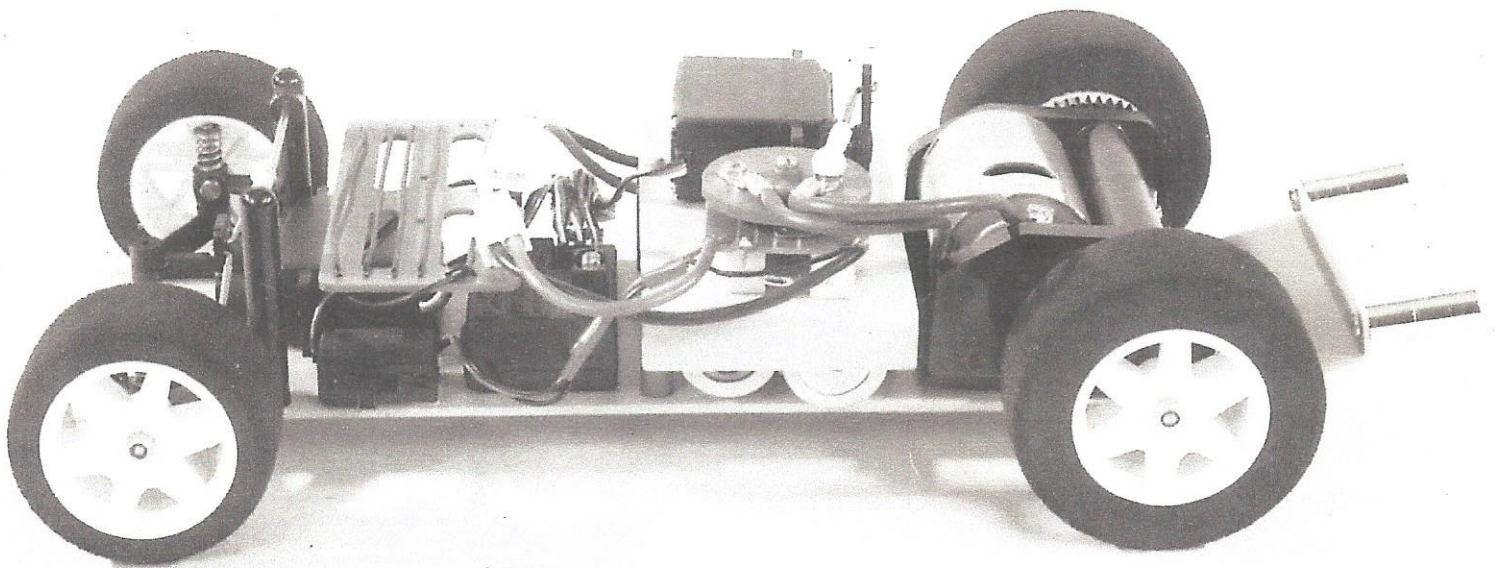
MARDAVE

# V-DUB SPECIAL

ASSEMBLY  
INSTRUCTIONS



Thank you for purchasing Mardave's V-Dub special. We are confident you will have as much fun building and racing it as we had designing and testing it. Please read the instructions carefully and take your time building the car. This will ensure fast and trouble free racing.





## ADDITIONAL ITEMS REQUIRED

The major item required is the radio control equipment. Any good two-channel proportional radio will be suitable. This will include a transmitter, receiver, 2 servos, a battery holder, and a switch. The battery holder will not in fact be used in this model as the receiver and servos are powered by the rechargeable 4.8 volt car battery with a consequent saving in weight, space and cost.

Also required will be a 4.8 volt battery charger. This may use a 12v or mains source of power and should be of the "fast charge" type, i.e. the charge time will be less than 1 hour, possibly as little as 20 minutes depending on the type. For further information see the V-Dub spares price list enclosed.

A small tube of cyanoacrylate (super glue) will be required for fixing the tyres to the wheels. Tools required will include a screwdriver, pliers, 3mm spanner, hobby knife, file, a soldering iron and solder.

## ASSEMBLY INSTRUCTIONS

### Sprues and Flash on Mouldings

Plastic sprues should be removed as necessary with a sharp knife. Every effort is made to minimise flash on mouldings but should this be apparent, again remove as necessary.

### Spare Items

Some extra items are included so there will be some screws, nuts, etc remaining after assembly.

### Self Tap Screws

Self tapping screws are used frequently during assembly. These are light, efficient and vibration proof but care should be taken not to overtighten them or the thread may strip.

## Assembly

The following is the suggested sequence of assembly.

### FRONT SUSPENSION

Open bag 'A' and carefully cut the plastic components from the sprue with a sharp knife (note V5C battery retaining block is not required at this stage)

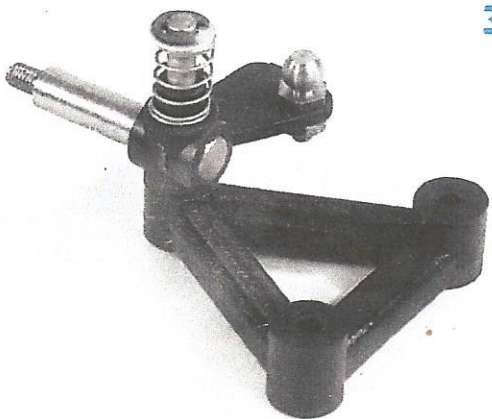
Attach a small E clip to one end of each king pin V6A and press king pins through the outer holes of the front suspension arms V5A (Note which way up the arms fit). Press the stub axles V6B fully into the steering arms V5BL and V5BR and fit over king pins. These should slide smoothly up and down. If they do not, remove the stub axles, turn them through 90° and replace them.

Assemble the coil springs V6C, M3 washers and E clips to the top of the king pins (see photo 3)

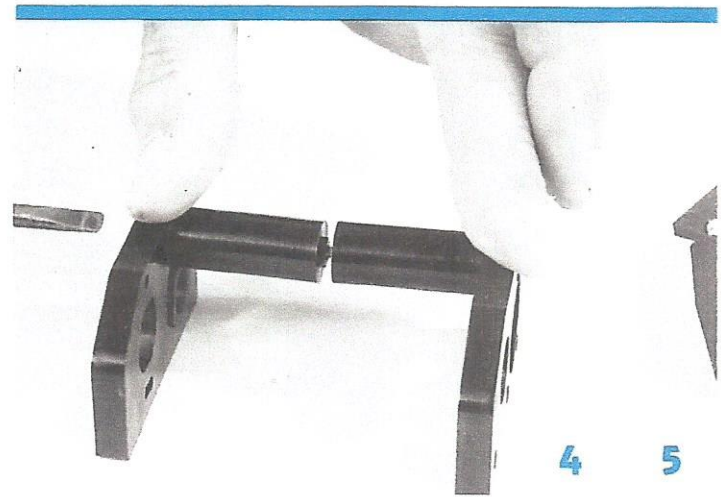
Assemble ball screws V7B to each steering arm with 2.5mm nuts.

Assemble wishbones to chassis with 9mm long self tap screws.

Screw track rods V7A into plastic ball sockets V7C leaving approx 6mm of thread showing



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### REAR SUSPENSION

Open bag 'B' and cut sprues from plastic components as necessary. Cut rear spring locating washers V8C and the 'O' ring holder V8D from the slot in the pivot plate V8B.

Join the 2 motor mount halves V8A together using a 16mm self tap screw. Hold the two halves down on a flat surface when tightening the screw to ensure correct alignment (see photo 4)

Attach motor mounts to the pivot plate V8B using 4 & 9mm countersunk self tap screws (see photo 5)

Assemble the pivot ball nut V9A to the chassis using an 8mm machine screw.

Secure the 2 x 25mm long spring carrying screws to the rear chassis with 3mm nuts.

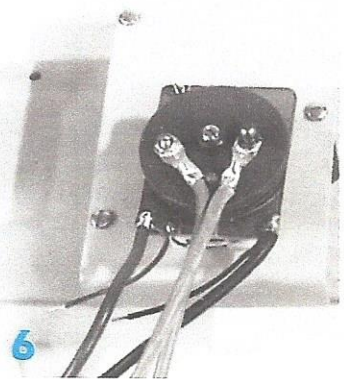
Assemble the guide pin V9B to the chassis with an 8mm machine screw (see photo 6)

Snap fit the motor mount assembly onto the pivot ball on the chassis.

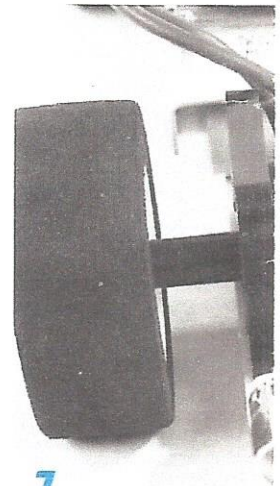
Assemble the coil springs V6C, locating washers and nyloc nuts and adjust the nuts equally to show approx 4mm of thread above the nuts (see photo 7)

Fit the 'O' ring V8F into the plastic 'O' ring holder and assemble to the pivot plate using 2 x 6mm long self tap screws. Do not fully tighten these initially. Varying damping can be achieved by adjusting these screws to vary the tightness of the 'O' ring around the guide pin.

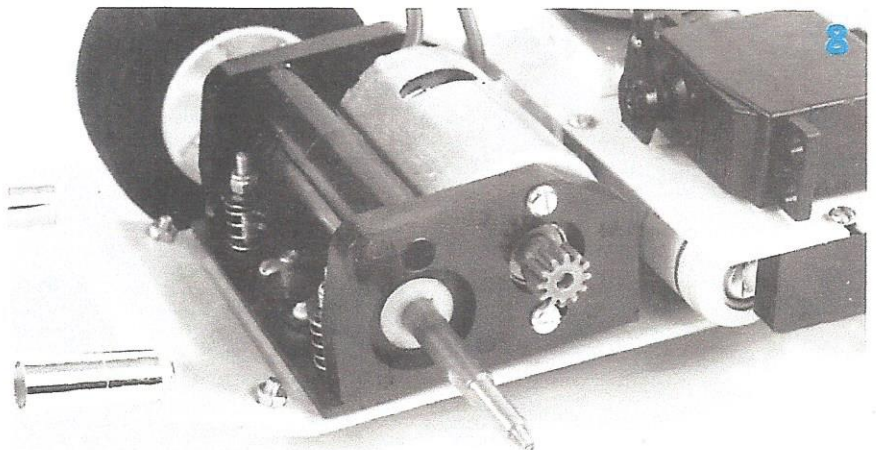
Press fit the 2 plastic rear axle bushes V8E into the motor mounts (see photo 8)



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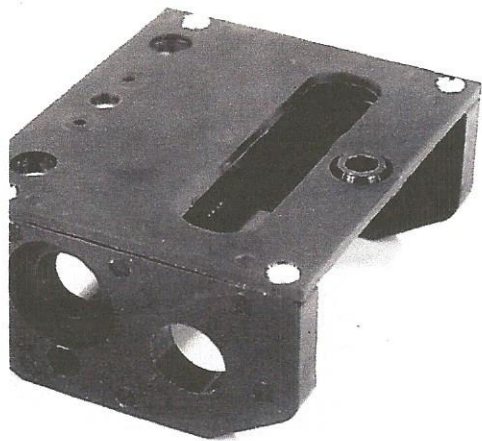


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## REAR AXLE

Open the rear axle pack and slide the rear axle V10 through the bushes and fit plastic spur gear V11A to drive side and spacer V11B to the other side, turning these until the flats on the axle engage with the flats inside the plastic parts.

## WHEELS & TYRES

It is necessary to bond the tyres to the wheels with adhesive. A small tube of cyanoacrylate (super glue) is recommended. Position the tyres carefully on the wheels. We suggest a test spin on an axle to check that the tyre is running true before bonding.

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Place the wheel and tyre face down on a flat surface, stretch the tyre away at one point, inject a small blob of super glue and let go of the tyre immediately. (a third hand may prove helpful here). Repeat this approx. 6 times around the wheel. This should prove sufficient (see photo 9)

Fit the wheels to the car with 3mm nyloc nuts. Tighten the rears but not the fronts.

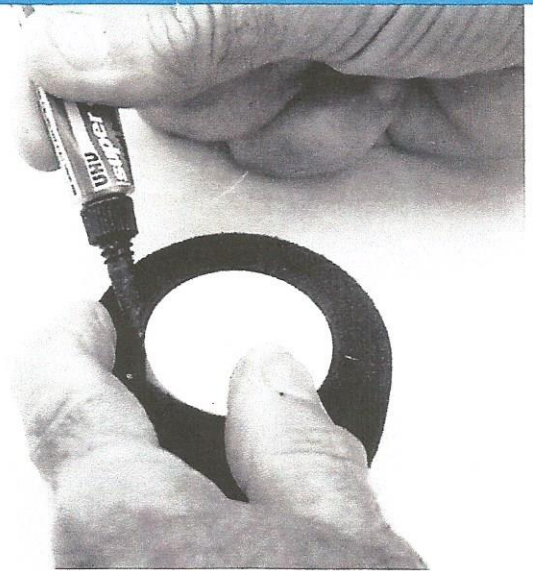
## SPEED CONTROLLER (S/C)

The speed controller supplied is a simple resistor switch unit which is easy and cheap to repair if damaged. Three speeds are available for forwards and reverse, the current being diverted through both resistors for the slowest speed and through one resistor for the second speed. The resistors will get hot in use so wires should not touch them.

Open the speed controller bag and fit the three plastic spacers to the chassis using 9mm long self tap screws (hold with pliers if necessary to prevent them turning) Remove the backing from the foam rubber strip and attach it to the inside edge of the speed control plate, this is to protect the battery once it is installed (see photo 10)

Assemble the S/C onto the spacers with 6mm long screws.

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## MOTOR

Solder the leads from the speed controller onto the motor V14 (see photo 11) Note: shorter lead to top tag on motor.

Position the motor and secure with 2 x 10 mm long machine screws with washers under their heads.

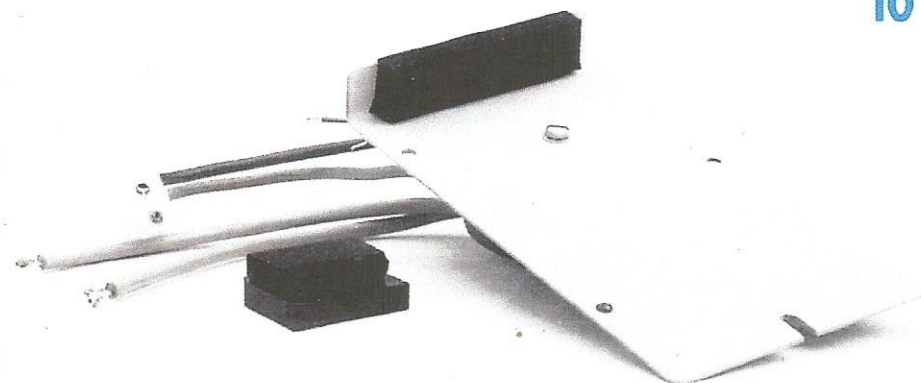
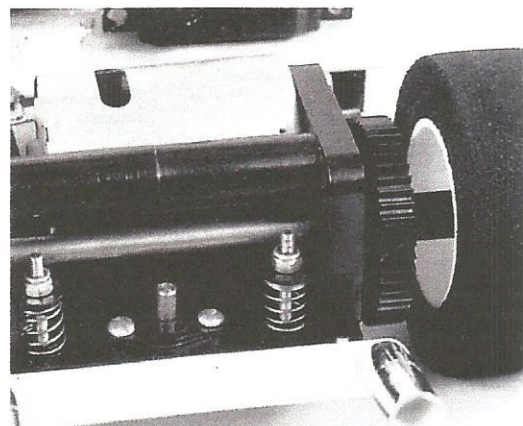
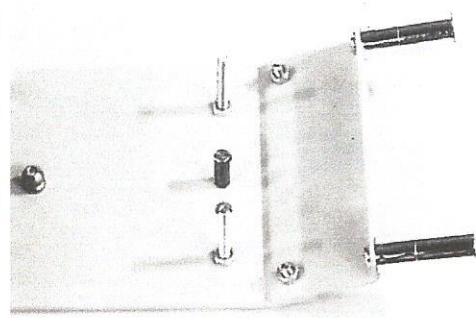
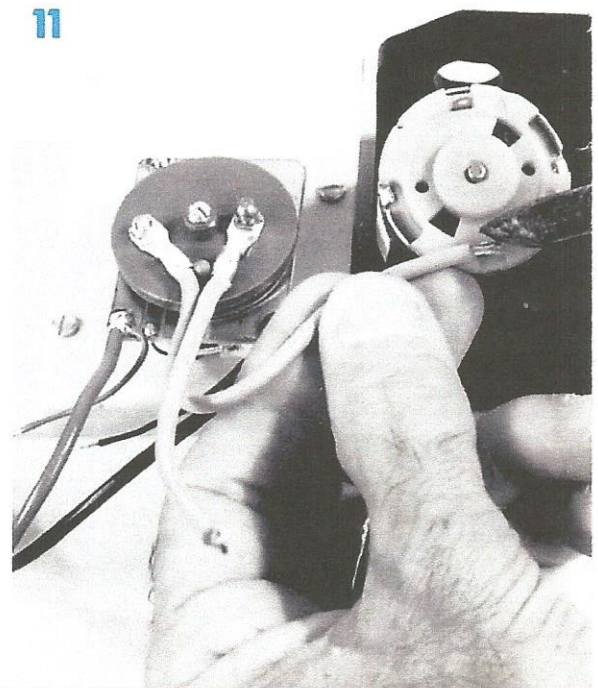
Fit the pinion gear V15 and tighten the grub screws ensuring one is aligned with the flat on the motor shaft. With the motor screw fully back in the adjusting slot, the mesh with the 12 tooth pinion supplied should be correct. i.e. a small amount of backlash should be felt when the wheel is turned.

## REAR BODY MOUNT

Open the rear body mount pack and assemble the chromed tail pipes V18B to the rear mount plate V18A with 9mm long self tap screws.

Assemble the plate to the chassis using 2x8mm long machine screws and M3 nuts. (see photo 6)

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## RADIO INSTALLATION

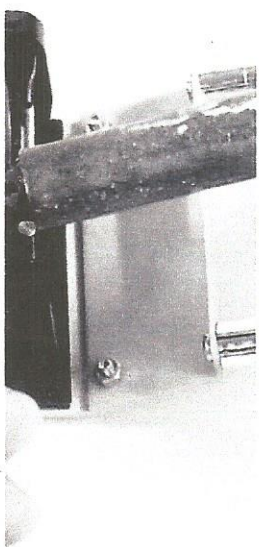
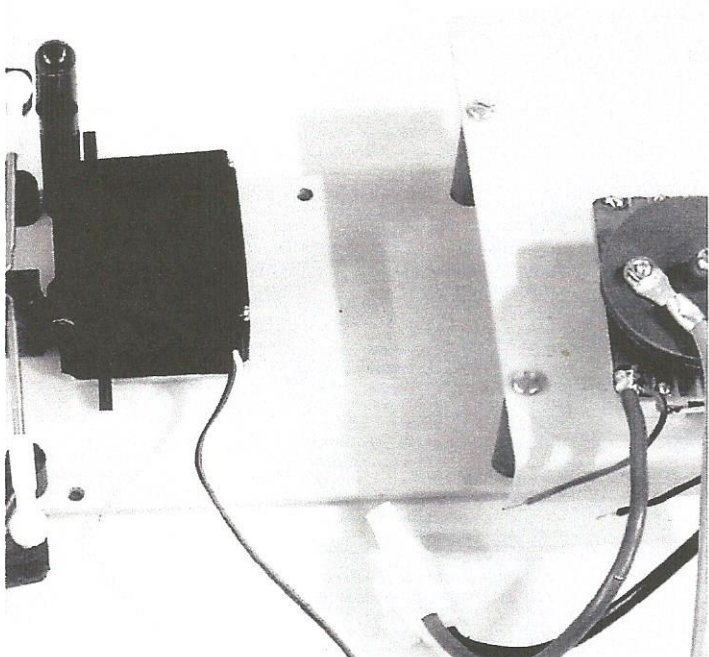
The car is designed for control by two channel radio with two servos. One servo operates the steering and the other operates the speed controller.

Most transmitters have two joysticks. The right hand stick moves from side to side and is used for steering whilst the left hand stick, which moves forwards and backwards, is used for speed and forward and reverse control. It is usual to connect the linkages so that when the steering joystick is moved to the right, the car turns to the right (when moving away from the driver) and when the speed control stick is moved forwards, the car goes forwards. When the speed control stick is moved back, the car goes into reverse.

The two servos in your radio set are the same so it does not matter which is used for steering and which is used for speed control.

## STEERING SERVO

Select one servo for the steering and assemble the servo saver unit V16 to it as per separate servo saver instructions. Before installing this servo, locate the R. H. body mount post in the body mount packet and fit this to the chassis with a 9mm self tap screw.

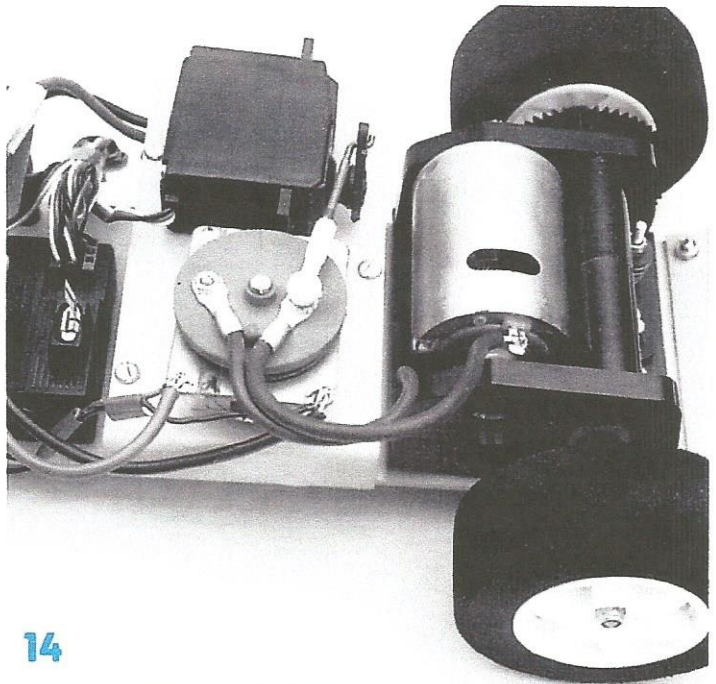


Fit the track rod ends through the holes in the servo saver (Note: the lower holes will provide ample steering lock for this model) and test position on the chassis. Turn the servo saver until it is vertical and, with the wheels pointing straight ahead, position the servo. Note the slight angle backwards of the track rods (see photo 12) Pencil round the servo to mark its position. Cut two pieces of double sided tape approx. 10mm wide, turn the servo over and stick the tapes to the underside (see photo 13). Remove the remaining backing paper and carefully position and press down onto the chassis (as photo 12)

We have always found the double sided tape excellent for fitting the servos in the car. It is necessary however

to ensure that both the surfaces are perfectly clean. If the servos are positioned wrongly and have to be removed, use a sharp thin knife and remove all traces of the tape before starting again.

The sprue in bag A includes two servo mounting posts. These can be used if desired to provide additional support but it will be necessary to drill 2 holes in the chassis to enable these to be attached with 9mm self tap screws.



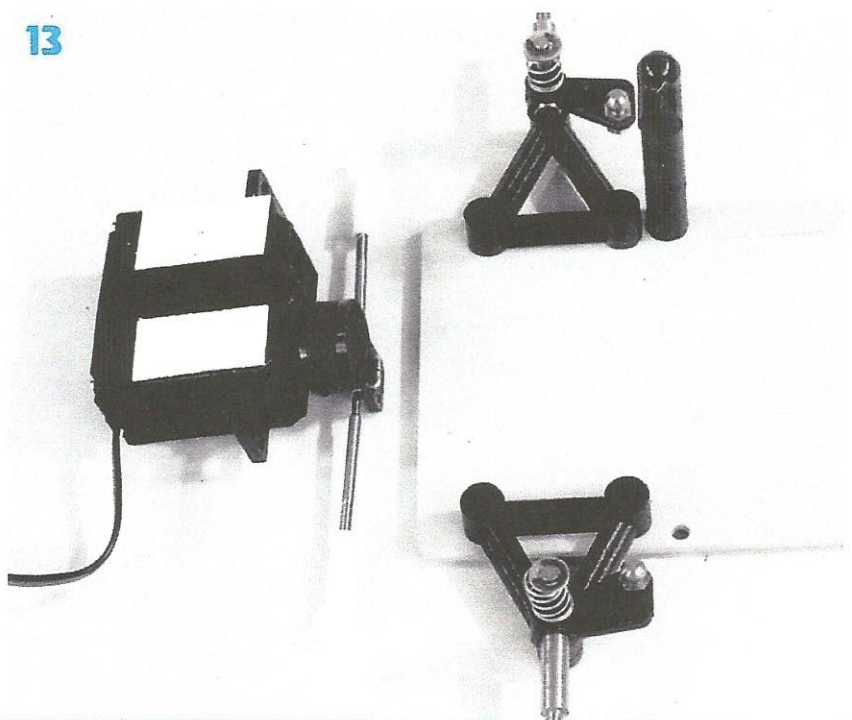
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## SPEED CONTROL SERVO

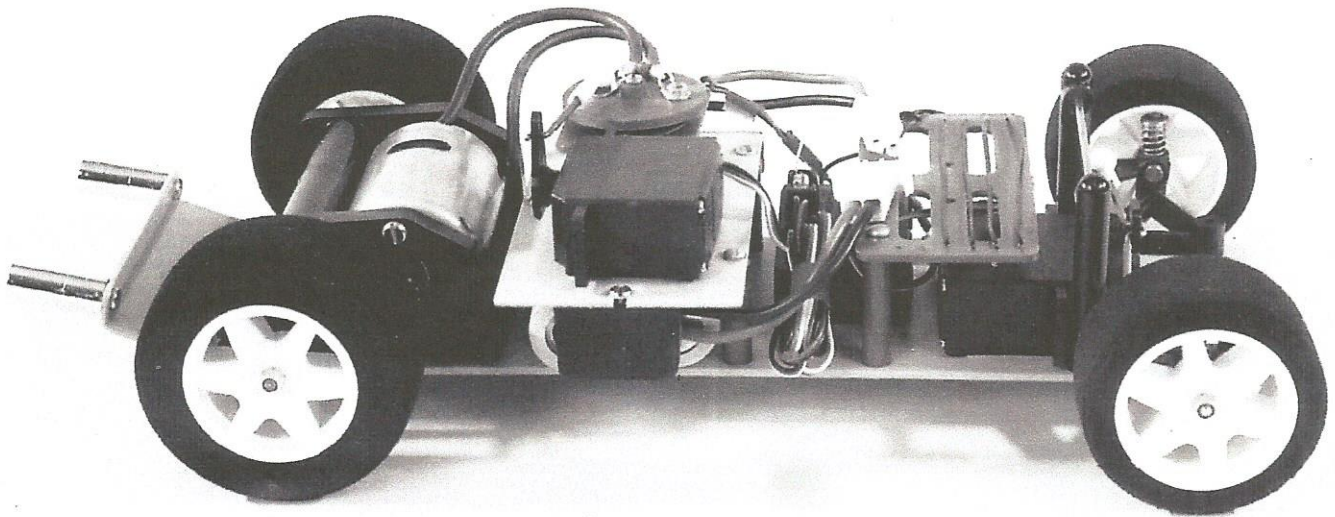
Before fitting the speed control servo, first prepare a suitable output arm. This will probably mean cutting off one or more arms to leave the only one which is required. Fit this to the servo in a vertical position as shown.

Screw the plastic ball socket approx 4mm onto the linkage rod and test position the servo onto the speed control plate. Fit the link through the output arm and snap fit onto the ball screw on the s/c. The servo can just touch the speed controller. Cut two pieces of D/S tape approx 10mm wide, ensure bottom of servo is clean, and stick tapes to the servo. Carefully position and stick down the servo. (Note: the slight angle of the speed controller and the servo) (see photo 14)

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## RECEIVER (R/X)

First attach the aerial mounting pillar V17B to the chassis with a 9mm self tap screw. (see photo 2) Position receiver and fit to the chassis with a small piece (10mm) of D/S tape (see photo 1)

## SWITCH

Attach the switch to the chassis with a similar piece of D/S tape (see photo 1). A separate battery for the radio is not used in the V-Dub. Instead, the radio is powered from the car battery. This saves weight and cost. Two wires are fitted to the speed controller for this purpose.

Cut the battery connector from the switch lead (careful, do not cut off the receiver plug!). Separate the wires, strip approx. 4mm covering from the ends and tin with solder. Then solder to the speed control wires, black to black and red to red and cover the joints with insulation tape or similar. Fit the two servo plugs and the switch plug into the receiver (RX) neatly positioning and taping up the surplus wire.



## AERIAL

Thread the receiver aerial back and forth through the holes in the aerial plate as shown and fit the plate to its mounting pillar with a 9mm self tap screw.

## BATTERY

Attach the small piece of adhesive foam rubber to the battery retainer V5C (see photo 10) Fit a 9mm self tap screw into the retainer block, slide the battery into place under the speed controller and fit the retainer block into the slot and tighten the screw.

## TESTING THE RADIO

Now charge the battery pack (see charging instructions)

Fit the necessary dry batteries into the transmitter (TX), fit crystals into the RX and TX and you are ready to test the radio.

First remove the steering servo saver and the S/C servo output arm. Then switch on. Always switch the TX on first then the RX. Both servos should twitch. Next set the two trim levers at the sides of the TX joysticks to neutral and refit the servo saver and the output arm. Both should be as near to vertical as possible. Remember, the R.H. stick should be operating the steering. If it is not, swap the plugs over in the receiver. Also, if necessary, change the direction switches on the TX so that the car will turn right when the stick is moved to the right and will move forward when the L.H. stick is moved forward.

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## BODY SHELL AND MOUNTING

The body shell requires only a little work to finish. Trim the front and the rear profiles carefully with scissors or shears to the lines etched on the body and smooth with a file and fine emery paper. (see photo 15)

Trim sprues from the remaining body mount parts and assemble the L.H. front body mount post to the chassis along with the catch rod V19D

Assemble the catch plate V19B to the mounting block V19A using one 12mm long self tap screw with the 3 'O' rings which act as a spring. Tighten the screw until the 'O' rings are just compressed slightly (see photo 16)

Fit the mounting unit to the body shell using 2 x 9mm self tap screws. (see photo 17)

Fit the foam rubber anti-vibration washers V18C over the exhaust pipes (not shown on the photos) and test fit the body onto the chassis. Slide the rear end forward over the exhaust pipes and drop the front down onto the catch rod. Centralise the body and press down. The body should snap into place. To remove the body, lift the release lever under the front of the body and lift upwards and rearwards.



## PAINTING AND FINISHING

The bodyshell material is A.B.S plastic. If you wish to paint it, cellulose car touch up sprays or polycarbonate (lexan) paints are both suitable. Otherwise just add the self adhesive decals to achieve the finish shown on the box. Cut closely around the decals with scissors, remove the backing paper and position carefully as shown.

NOTE: The side windows and the rear windows are printed the correct distance apart and therefore can be cut out and attached in one piece.

## CHARGING INSTRUCTIONS

The following instructions apply when using Mardave's 4 cell standard charger.

This charger is intended for charging from a 12 volt battery. The RED lead must always be connected to the Positive+ terminal of the 12v battery and the BLACK lead to the Negative- terminal. When the plug on the lead is connected to the 4.8v battery socket, the red leads should mate together and the black leads together. An indication that the current is flowing can be gained from the aluminium resistor cover plate which will become quite hot. On no account charge for more than 25 minutes from flat or the battery may be damaged. If the battery is not fully flat or discharged, then the charge time must be less than 25 minutes. More sophisticated chargers are available which will automatically time and cut off the charge. These are more expensive but reduce the chance of over charging and ruining the battery pack. (see photo 18)

Your V Dub Special will only run for a few minutes initially because nickel cadmium cells require cycling (charging and discharging) several times before reaching their full capacity. Once cycled, you can expect at least 10 minutes endurance.

## FINALLY....

The steering track rods should be adjusted for length so that the front wheels are parallel or toe in slightly.

When driving the car, the transmitter trims should be adjusted so that the car will run in a straight line 'hands off' and the speed controller will always centralise in the neutral position.

Try to avoid stalling the motor. If the car does not respond to the throttle, switch off immediately and locate the trouble.

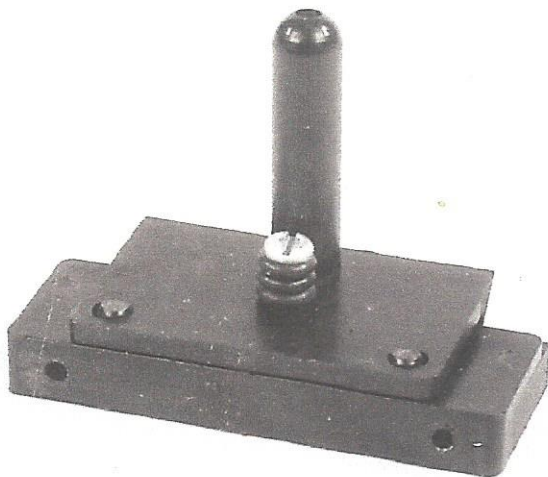
Lubricate the rear axle bushes, front wheels and king pins/steering arms initially and occasionally with a light oil.

The V Dub is supplied with a 12 tooth motor pinion. Larger pinions may give a slightly higher top speed but slower acceleration. When racing on a circuit the choice of gear ratio will depend on the length of the straights and the duration of the race. Higher gear ratios generally use more power

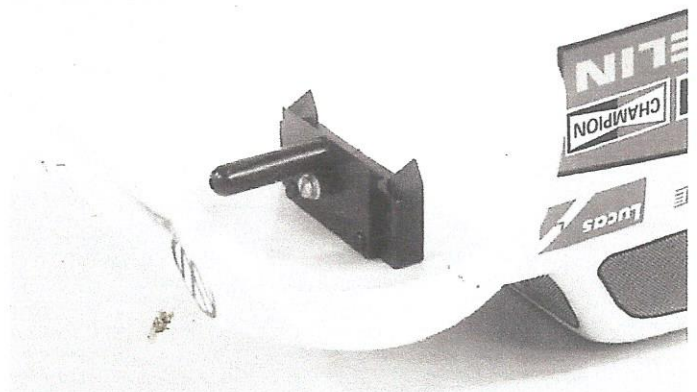
**WARNING:** We recommend that you do not run the car without the bodyshell in place as this protects the wheels and suspension from damage.

# Good Racing!

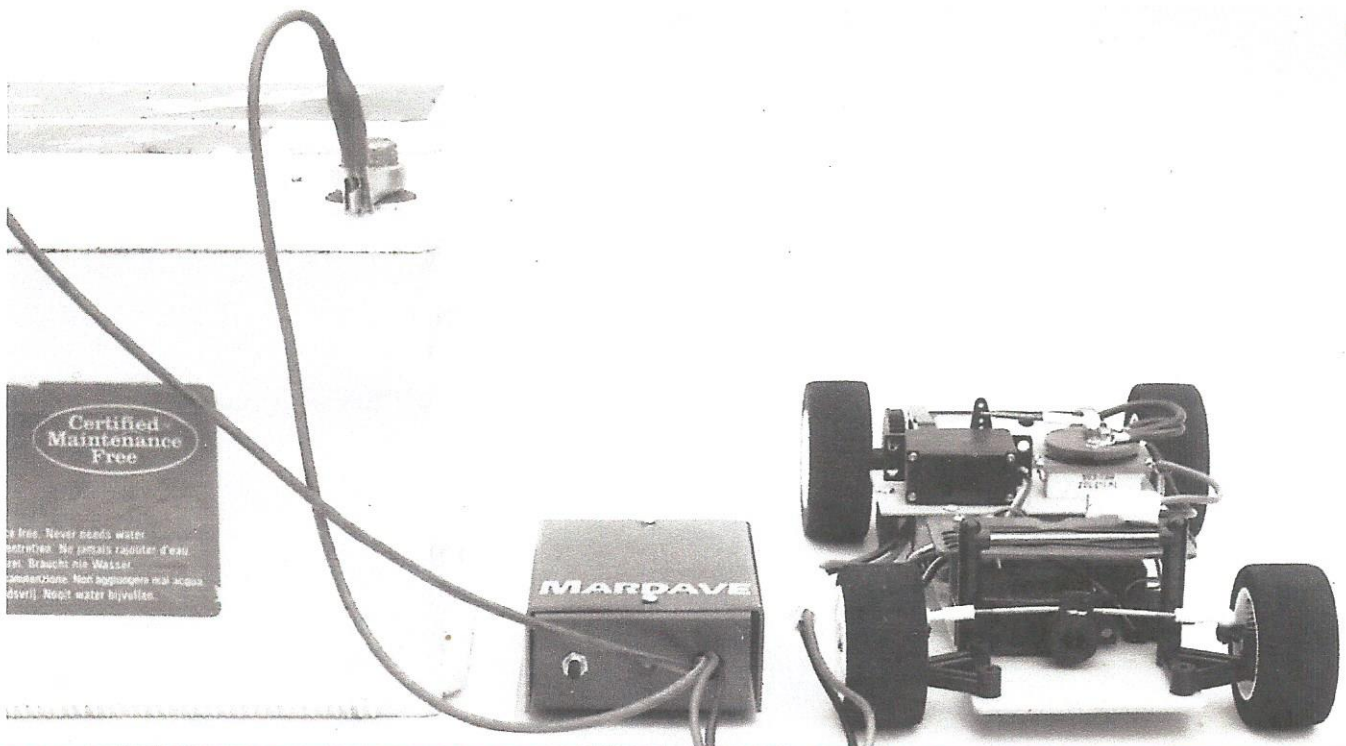
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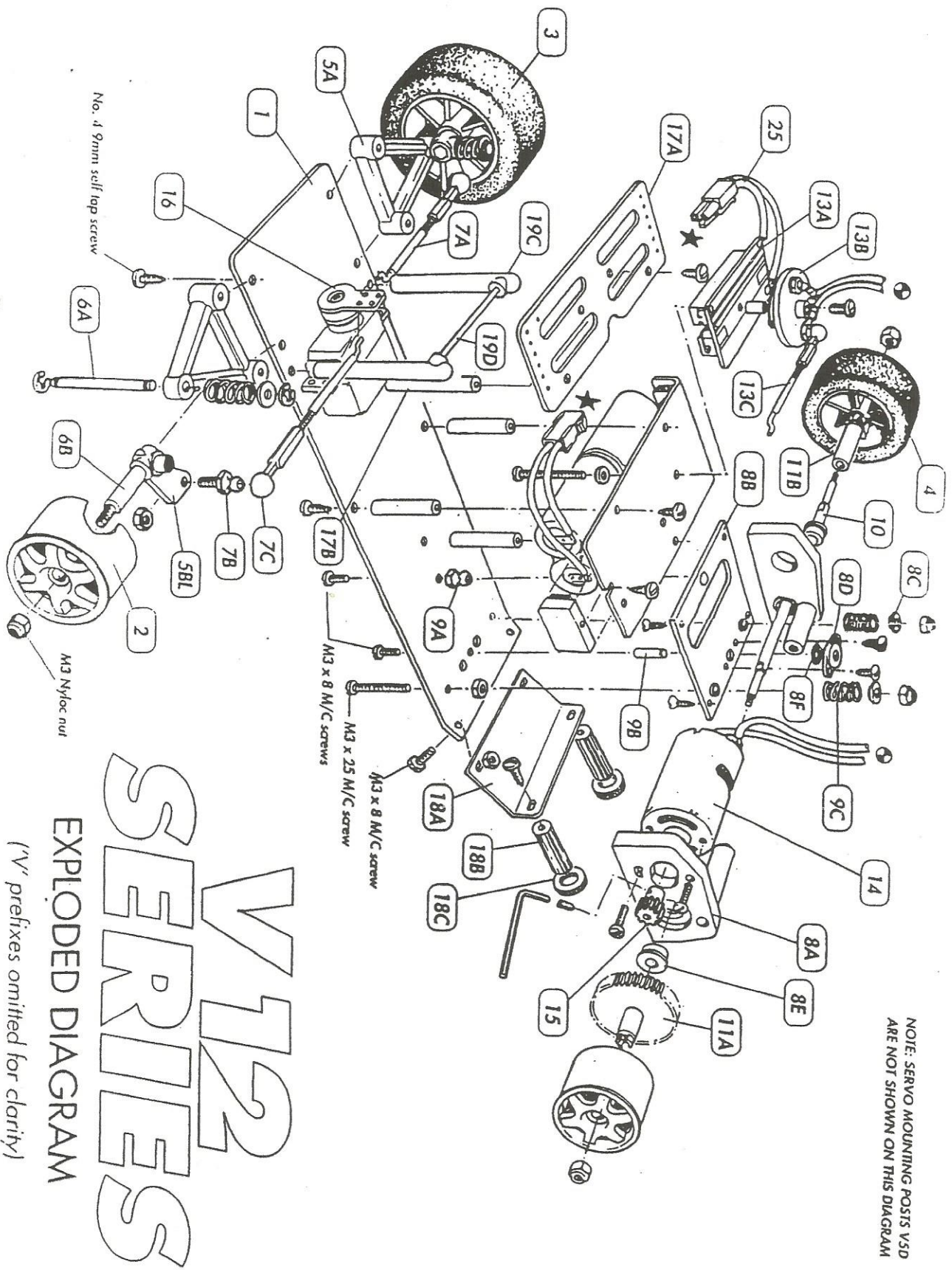


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NOTE: SERVO MOUNTING POSTS VSD  
ARE NOT SHOWN ON THIS DIAGRAM



# V12 SERIES

EXPLODED DIAGRAM

(‘V’ prefixes omitted for clarity)