

USER MANUAL



SUPERBUG
PATENT NO. 03265014.0



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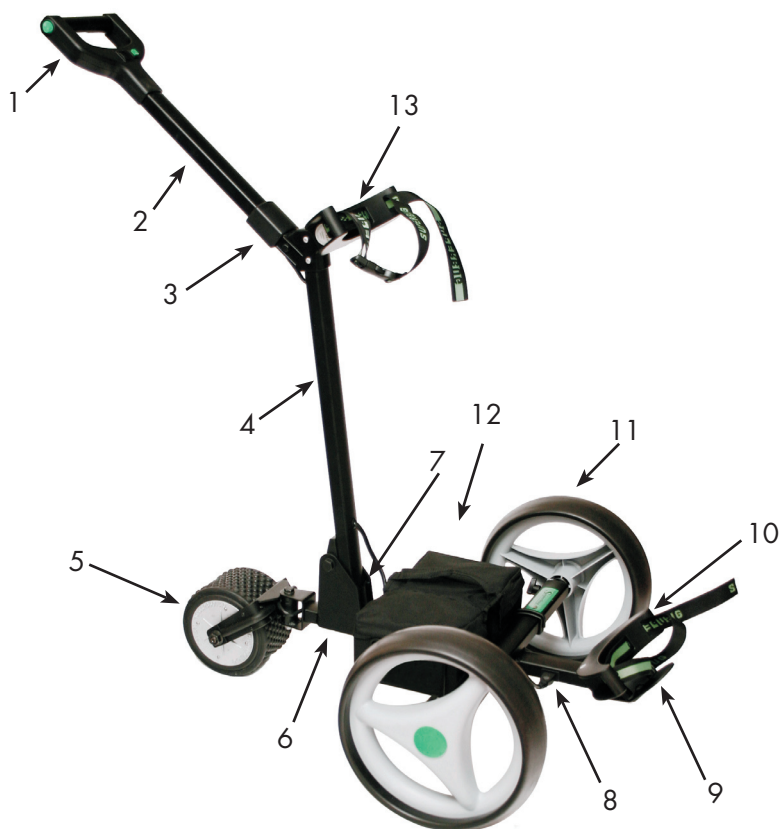


Fig 1

- | | |
|-----------------------------|-----------------------------|
| 1 - 'D' Handle | 7 - Lower handle lock |
| 2 - Upper Handle | 8 - Battery Power Connector |
| 3 - Sliding Lock | 9 - Lower Bag Support |
| 4 - Lower Handle | 10 - Lower Bag Mount |
| 5 - Drivewheel with AT tyre | 11 - Front Wheels |
| 6 - Steering bearing | 12 - Battery Pack |
| | 13 - Upper Bag Mount |

SUPERBUG

Welcome to the world of low stress golf

Congratulations on becoming the owner of a Superbug Electric golf trolley.

The lightweight, powerful Superbug has controllability and ease of use that is second to none.

Please take some time to read this manual carefully so that you will get the most from your Superbug. If you have any problems or queries, please call your retailer.

Safety Notices

- Do not drop or damage the fully sealed batteries as they contain acid which will burn the skin and could cause blindness. Never attempt to open the battery case or incinerate the battery.
- Always charge the batteries in a well ventilated area. During normal use the battery is effectively sealed and practically no gases or acid escape from the case making it very safe. In the event of a charger or battery malfunction however explosive gas may be released.
- Keep the battery away from sparks, flames and dangerous chemicals.
- Always switch off the power at the mains before connecting or disconnecting the charger.
- Do not put anything metallic near the battery terminals as this risks short circuiting the battery with the risk of fire or explosion.
- In operation, ensure that the trolley is under control at all times. If it allowed to collide with other people or property then injury or damage may occur.
- Superbug is designed to carry a golf bag of upto 15Kg - overloading the trolley may cause damage and will invalidate the warranty.

Description

Superbug is designed for the player to walk behind and steer by moving the D-Handle in the desired direction of travel.

The controls are on the D-Handle and are arranged for either a left or right handed operator. All of the weight is taken on the three wheels at all times so the player only has to operate the controls and steer. The two, large diameter front wheels roll freely whilst drive is from the single steering wheel at the back.

The motor is contained within the rear wheel and drives magnetically with no gears, brushes or gears to wear out or create noise.

Superbug folds in just a few seconds to a tiny package to fit in very small cars and for easy storage.

All controls are located on the D-Handle (Fig 2). There are two on/off switches, variable speed control and the auxillary function button.

User Controls



Fig 2

Power Switches:

There are two power switches to make the Superbug user friendly to left and right handed golfers. The switches are marked "O" for off and "I" for on. The Superbug will drive when both switches are in the on "I" position.

Speed Control:

The Speed is set by a roller in the centre of the D-Handle (Fig 3). This can be set to adjust the speed of the trolley from about 2kph to 7kph. The actual speed of the trolley will depend on the speed setting and the terrain.



Fig 3

Auxilliary Functions:

The function of the auxilliary function button differs with each model in the Superbug Range as follows:

Model	Auxilliary Function
Superbug	Power Boost (press and hold)
Superbug D200	Electronic Brake (toggle on/off)
Superbug Remote	Remote / Manual Mode (toggle on/off)

Please refer to the relevant models for more important information on the use of these functions as they differ from model to model.

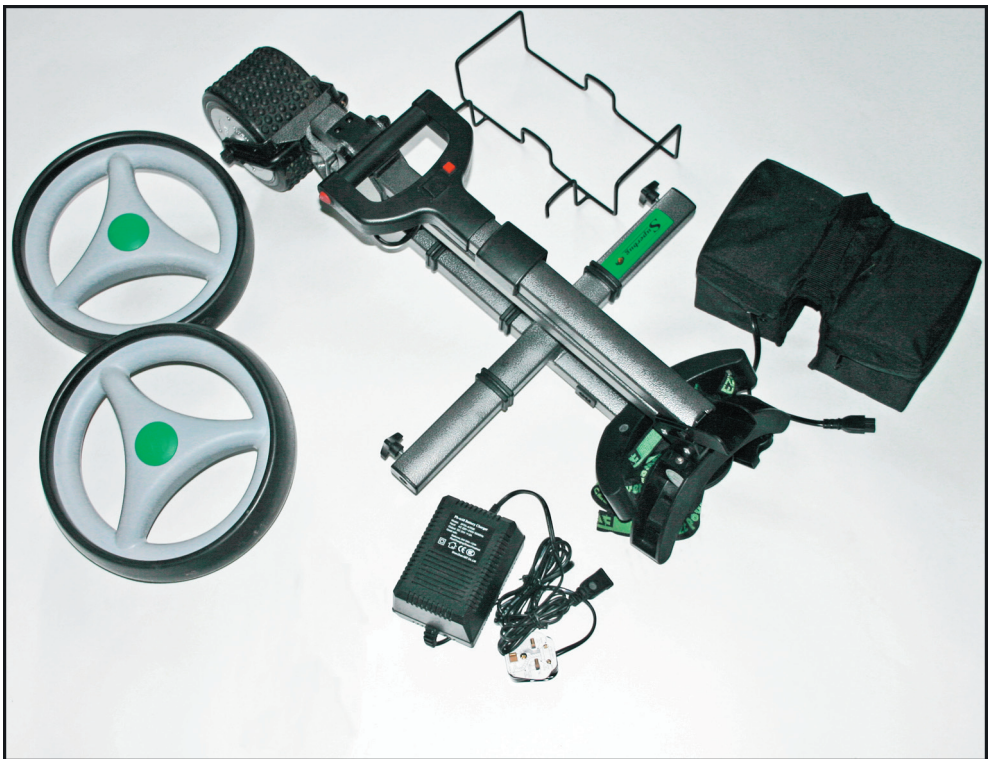
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Superbug Contents

The Superbug carton will contain the following items:

- Frame with handle folded, integral rear wheel and bag straps
- Front wheels x 2
- Wire Frame Battery Carrier
- Batteries in a custom fit battery bag
- Battery Charger
- Transmitter (Superbug Remote only)
- User Manual

If any of these items are missing please contact your retailer immediately.



Superbug Assembly - common to all models

Step 1 : Install the Wheels

The wheels are complete with freewheel axles and bearings and these fit in the holes at the ends of the crossbar and are held in place by a screw with a triangular knob. Slacken the screws if necessary, push the axle fully into the hole and tighten the screws to secure the wheels in place.



Fig 5

Step 2 : Unfold the Handle

The lower handle locks into position in the folded position to make the Superbug easy to carry. To unlock it press the two lock buttons on either side of the main pivot and lift the lower handle. The upper handle locks in place by means of sliding the locking cover fully over the joint.

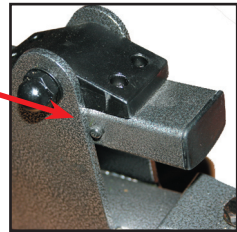


Fig 6

Step 3 : Install the Battery

The battery pack is fitted in a tough nylon bag. The bag is attached to the battery carrier by means of the velcro straps on the bottom. To fit the battery bag to the carrier turn the battery bag upside down with the power lead facing front left and open the velcro straps. Position the battery carrier on top of the battery with the hooks facing forward (Fig 7) and securely close the velcro straps. The battery should now be turned the right way up and may be carried by the integral carry handle.

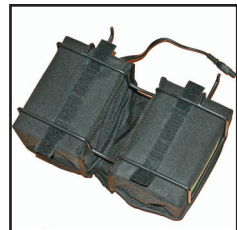


Fig 7

To install the battery onto the Superbug, simply locate the battery carrier hooks over the plastic mounts on the frame. NOTE: when installed on the trolley the powerlead from the battery should be facing towards the front right of the battery carrier.

Step 4 : Connect the Battery

Before connecting the battery ensure that both power switches are set to the off "O" position. The battery cable is plugged into the socket located on the right hand side of the main chassis tube.



Fig 8

SUPERBUG

Step 5 : Position the Golf Bag

Undo the top and bottom straps, rest the golf bag on the mounts and tighten the straps around the top and bottom of the bag. It is important to ensure that the bag is securely attached as the bag braces the Superbug handle and is integral to the rigidity of the Superbug.

Position the golf bag centrally so that the weight is proportionate.

Superbug is now ready for seriously relaxed golf.



Fig 9

Using your Superbug Trolley

Before first use it is vital that the battery is charged for at least 8 hours to ensure that the maximum charge level is attained. See the later section "Charging the Batteries".

All Superbug Models:

All Superbugs incorporate a the features **SAFE START, CRUISE CONTROL, DESCENT CONTROL** and **LOW VOLTAGE PROTECTION**.

SAFE START prevents the motor from driving the trolley until it is pushed. If the Superbug is stationary when the power is switched on **nothing will happen** until the user pushes the trolley forwards to approximately 1kph.

The recommended starting procedure is as follows:

- Turn the speed control to minimum - towards you
- Turn both power switches to the on "I" position.
- Push the Superbug forwards until the motor begins to drive (usually within 1/4 to 1/2 metre) and then adjust the speed of the trolley to your preferred walking pace by means of the speed control.

To stop the trolley turn one of the power switches to the off "O" position. When you want to continue just turn the power on and push the trolley - it will resume at the same speed that it was last set to.

CRUISE CONTROL. Cruise control maintains the speed of the trolley irrespective of terrain, you do not need to continually adjust the speed control of the trolley when going up or down hills to hold a constant speed.

This is very noticable on undulating fairways when the trolley cuts power when going down an undulation and applies power as it starts to go up hill - this is a normal function of the trolley.

DESCENT CONTROL, if the set speed of the Superbug is too fast to negotiate a hill, engaging Descent Control can be activated by setting the speed control to minimum i.e. fully towards you. Descent control will then limit the speed of the trolley

LOW VOLTAGE PROTECTION protects the battery from damage as a result of being excessively discharged. The effect of this is that if the battery voltage drops below 21V +/- 0.5V, the trolley will stop. Just prior to it stopping a vibration may be felt through the trolley - again this is a normal function of the trolley.

Superbug:

The Superbug has a full power button which when pressed allows you to apply full power should you need it for any reason. When released the speed resets automatically to the cruise control setting.

Superbug D200:

The Superbug D200 functions in the same way as the Superbug but has a more powerful motor for very steep courses and instead of a full power button as on the Superbug the function of this button is an electronic brake. This is in addition to the descent control which is standard on all models. The electronic brake can be utilized in the following ways.

If the hill is very steep and requires additional braking the brake button can be switched on and off repeatedly in order to control the speed of the descent or alternatively the brake button can simply be switched on and the trolley will make its descent at a slow crawl.

Please ensure that on starting the Superbug D200 you do not leave the brake engaged as the trolley will not start.

Superbug Remote:

The auxiliary button now is used to toggle the trolley between Remote and Manual Modes. In Manual Mode the trolley works in exactly the same way as Superbug. In Remote Mode the trolley may also be controlled by using the supplied transmitter.

The transmitter provides controls for forward, reverse, left, right, stop, accelerate and decelerate functions.

Braking in manual mode:

Normal slopes

- The red button in addition to engaging the remote will serve to slow the trolley down on a normal slope, simply push it down whilst you are going downhill and the trolley will slow to a low speed.



Fig 10

SUPERBUG

Very Steep Slopes

- Stop the trolley and turn it off with one of the green switches
- Push down the red button
- Turn the trolley on again with the green switches
- The trolley will now be very difficult to push forwards and hence on a steep slope will proceed at a very low speed
- In addition turning one of the green switches on and off in this mode will toggle the braking on and off

Remote Control functions should not be used in areas where a loss of control could cause damage. The transmitter uses a 12v 23A battery - it is recommended that a spare is carried at all times as the transmitter range will reduce as the battery starts to near the end of its useful life..

Horizontal Springs above Yoke

The springs serve to asset the trolley in running in a straight line. They are factory set and should not normally be adjusted. Should adjustment be required, tightening the left spring will cause the trolley to turn more to the left and will correct a trolley that tends to run off to the right and visa versa. Care should be taken not to over tighten as this can reduce the turning circle

Care

The remote is designed to assist hands free use however care should be taken to use the in remote function trolley at a range and in situations where the trolley where a loss of control would not cause damage and where the trolley could easily be taken back under manual control

Do not try to use your Superbug like a conventional trolley. You should not push down on the rear wheel to turn the trolley rather you should steer the trolley in the direction that you want to go by turning the handle.

Best Practice

In very tight spaces you can lift the handle, and therefore the rear wheel and spin the Superbug around on the two front wheels. This is only possible however with a golf bag attached otherwise the handle may move forwards.

On very slippery surfaces more weight on the rear driven wheel will help with traction. This can be done by applying a little downward pressure on the handle.

To negotiate kerbs and other large "step up" obstacles, the correct procedure is to turn the power off, spin the trolley around on its front wheels, place the small rear wheel

in the kerb and pull the trolley onto the kerb. When the trolley is facing in the desired direction the power can then be switched on when required.

When parked on slopes the trolley should be positioned at an angle across the slope that will prevent the trolley from rolling away.

The sliding lock should always be in place and never apply too much downward pressure to the handle.

Caution: Stalling

Do not allow the Superbug to stall. Stalling occurs when the rear drive wheel is turning but power is on. It occurs due to too much weight or too steep a hill and can also be noticed by a vibration from the wheel. If the Superbug starts to stall immediately turn off the power or push the Superbug forwards - never pull the Superbug backwards while under power. Do not use the Superbug in situations where it may stall as heat buildup can cause overheating and failure of the controller circuit.

Superbug is not designed to be used without a golf bag. It is designed to carry a maximum 15Kg golf bag and should not be used to carry excess weight or to pull you along. Neither should you pull the trolley backwards when the power is on as any of these actions may damage the controller and will invalidate the warranty.

Care of the Batteries

The batteries are a valuable part of your investment and must be looked after correctly. Read the safety notice at the start of this manual.

The batteries should never be run flat. The standard batteries are adequate for 36 holes provided that they are played on the same day. You should not play on consecutive days without fully recharging the batteries in between. Very hilly terrain and / or exceptionally high or low temperatures can adversely affect battery performance. The published 36 hole range is based on use under normal conditions.

The batteries must be charged as soon as possible after they have been used, even if for only a few holes. For best battery life we recommend leaving the batteries charging whenever the Superbug is not in use.

Never leave the battery connected to the trolley when it is not in use even if the trolley is switched off as this can drain the batteries.

Charging the Batteries

Only use the charger supplied with the trolley. The use of ANY other charger may damage the batteries and will void the warranty.

Never connect the charger to mains power first. Always connect the charger to the batteries first and then connect the charger to the mains.

The charger has two lights which monitor the charging process.

RED - the mains power is on and the batteries are charging rapidly

GREEN - the batteries are in the last charging phase. This final stage of the process is very important to battery life and must be allowed to complete. Within 1-2 hours of this charging stage (i.e. after the battery charger light has changed from red to green) the batteries are fully charged and are being maintained at peak charge by the charger. Once fully charged it is desirable to leave the charger connected and switched on until the Superbug is to be next used.

Charging Time - After 36 holes of golf the battery will be fully recharged in about 8 hours.

If the charger is switched off, be sure to disconnect the batteries. If the batteries are not used for long periods of time, charge them fully, disconnect them from the charger and store them in a cool, dry place. When stored like this be sure to recharge them for 24 hours at least once every two months.

SAFETY NOTICE :

The charger supplied with your Superbug will go from RED (rapid charge) to Green (trickle charge) within a maximum of 8 hours. If the charger remains on red for a longer period then please disconnect the charger as the battery may be damaged. If this problem persists call your retailer.

The Superbug battery is fused (15A) to protect from over current. The fuse is located inside the battery bag and should be checked in case of apparent power failure.

Superbug Range Technical Specifications**Superbug:**

Frame	High strength aluminium
Motor	140W, 24 volt, high torque, brushless
Weight	18Kg including batteries
Folded Size (wheels on)	77cm x 59cm x 28cm
Folded Size (wheels off)	77cm x 45.5cm x 22.5cm
Range	36 holes
Battery	2 x 12V 12AH (288WH) sealed lead acid
Battery Charger	Three stage automatic 2A output

Superbug D200 : as Superbug with the following exceptions

Motor	200W, 24 volt, high torque, brushless
Weight	18.5 Kg including batteries

Superbug Remote : as Superbug with the following exceptions

Motor	2x 140W, 24 volt, high torque, brushless
Weight	23.3 Kg including batteries
Range	27 Holes

Care of your Superbug

Whilst the Superbug is designed to be used in both wet and dry conditions, like any electronic device it is advisable to limit the amount of rain that it is exposed to during play and it should not be kept standing in the rain.

The Superbug should never be hosed down but rather wiped clean with a damp cloth then dried and stored in a dry place.

From time to time ensure that nuts, bolts and screws are tight, joints should be greased occasionally.

Troubleshooting

We believe that your Superbug is the most reliable golf trolley available. It has no gears or differential to wear, no brushes to wear and a very reliable battery. All pivots have been also designed to eliminate wear and stainless steel and rust proof fastenings have been used throughout.

Notwithstanding our confidence in Superbug, the following guide will help you if you experience any problems:

Symptom	Cause	Remedy
Superbug works for a while but slows and stops before you complete a round	Battery has not been fully charged or is not holding a full charge	Charge the battery for at least 8 hours. Ensure that the charger light goes to red on connection and then changes to green after a maximum of 8 hours.
	The battery may be old or the charger may be faulty.	Return the battery and charger to the retailer for testing.
Superbug won't go (D200 only)	The Electronic brake is engaged	Ensure that the Brake is turned off.

Superbug won't go	Battery not connected or on/off switches incorrectly set	Check connections and settings
	Battery fuse is blown	Check and replace as necessary
	Controller / wiring / motor fault	Contact Retailer or Superbug to arrange for repair service.
Vibration or Stalling from the Motor	The slope is too steep or the bag weight is too heavy	Do not attempt to climb too steep hills or carry bags that weigh >15Kg
	Battery has not been fully charged	See Above
	Battery is old or flat	See Above
Remote Transmitter does not work	Battery is flat	Replace Battery
	Red Button is not engaged	Engage Red Button
	Antenna is not up	Pull out antenna

