GREENCARE DB1

TECHNICAL SERVICE INFORMATION

Technical Service Information covers the practical mechanics and workshop management aspects of Greencare DB1. It is intended to be a guide for Service Managers and Rehabilitation Engineers responsible suitability management and ongoing maintenance of wheelchairs to a satisfactory service standard.

Therapists and users may also find this information useful in gaining an understanding of DB1, and an appreciation of technical and service management to meet user and environmental needs.

The Greencare Website **www.greencaremobility.com** has additionally got current information.

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Service Management

We recommend that wheelchairs and their method of use, are service checked on a preventive maintenance basis, reviewed through assessment of the user and environment. Whilst Greencare DB1 has a lot of maintenance free features, this does not eliminate accidental damage and wear. A service check visit by a technician may find a problem which would otherwise go unnoticed. A problem nipped in the bud is a reduction of potential risk to vulnerable users.

The modularity of Greencare DB1 frame allows a service replacement approach to functional components. It is therefore not necessary to be concerned about scrapping a frame which has been damaged.

The anodised surface finish of DB1 is durable, and does not show surface scratches. Refurbishment of this finish does not require resource intensive painting, and disassembly for configuration change or damaged component replacement is straightforward. Quality control of frame finish, and injection moulded component fit, means that original build or reconfiguration and replacement of frame components does not involve time consuming preparation and sizing of locating and interfacing parts. A simple component replacement in the service workshop, or suitably equipped mobile service vehicle, will allow a damaged or worn wheelchair to be brought back to a serviceable condition quickly and cost effectively.

Users are different, and it is recommended that the approach to preventive maintenance is based upon an assessment by the rehabilitation team. Chairs supplied to active, full time or heavyweight users require more frequent service attention than those supplied to lightweight occasional users, who may never actually require more than the day to day checks advised in the User Guide.

For planning purposes, we suggest service intervals of six months for active users and two years for occasional users, or until a pattern of use is established.

We estimate an expected service life of ten years for a typical occasionally used and well maintained DB1. A DB1 active user wheelchair should also be capable of a service life of ten years, although increased consumable component replacement for wear, and the possibility of some component replacement for damage should be expected over such an extended period of use. Greencare keep a comprehensive stock of spares and offer a service exchange and rebuild process for DB1 frames that are being recycled between users.

The following planning charts are available for reference
gcqa007 technical reference for service staff
gcqa 017 service interval scoring chart
gcqa 018 fleet service planning chart.
gcqa 019 service record check

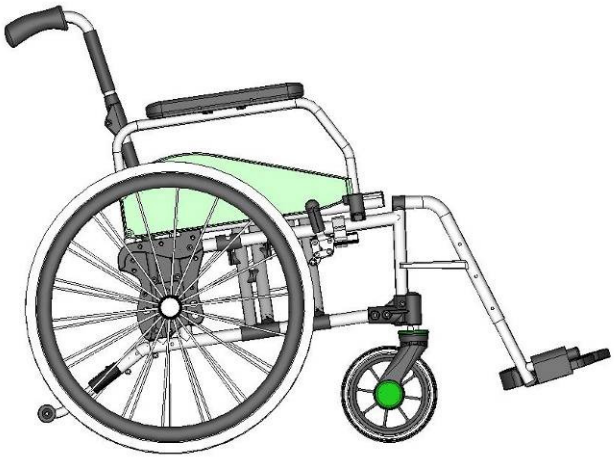
Warranty

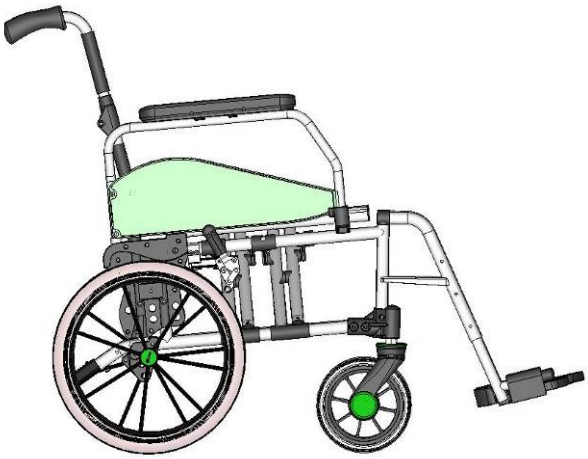
Greencare guarantees products supplied to be free from manufacturing defects, and will replace components where necessary free of charge, for a period of 24 months from the date of purchase. Warranty is subject to the product being used, adjusted and maintained in accordance with user and maintenance instructions supplied by Greencare. This does not affect statutory rights.

Wheelchair materials

Greencare wheelchair frames are a composite assembly using high quality materials to create a lightweight structure. Integrated modularity allows different builds and adaptation without the need for major structural modification.

Components are sourced globally, with key fitting dimensions specified to an approved industrial standard, allowing supply flexibility for some basic spares. Final manufacturing and build to order operations are carried out in UK





Components are designed and manufactured under ISO 9001 quality systems.

Aluminium alloy 6061 frame tubing heat treated in silver anodised finish.

Re enforced polyamide mouldings for critical interface components.

Polycarbonate moulded side panels.

Steel latching pins and fixings electroplated against corrosion.

Fire retardant upholstery and body contact materials

MCP in several densities for arm pads and tyres

Fire safety applies particularly to wheelchair padded upholstery constructions, which comply with ISO 7176-16, and have individual batch identification labels.

Wheelchair materials (continued)

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Aluminium is a strong and durable metal with a natural ability to form a protective oxide layer when exposed to the atmosphere. The structural integrity of aluminium is not impaired by atmospheric attack. This makes aluminium a good choice of material for a lightweight wheelchair frame.

For NHS applications Greencare frames mainly have a silver anodised finish that is close to the original aluminium material natural colour. Anodising is an electrolytic process that produces a dense, chemically stable protective aluminium oxide film that is an integral part of the underlying aluminium - it cannot peel or flake off.

Surface damage to the silver anodised surface, such as scratches, may result in the underlying aluminium showing through, but as this is the same colour as the anodised outer surface, scratches are almost invisible. The natural effect of aluminium to form its own protective layer means that unavoidable surface scratches do not become a source of structural deterioration.

Some small engineered components on DB1 such as brakes and connections, where finish is not critical, are powder coated black.

The bolt together frame construction of DB1 allows selective component replacement. This is cost effective when considering more permanent damage to a wheelchair frame, such as may occur in a crash or similar impact. Greencare can offer a manufacturers service exchange process for frames that are damaged. This includes inspection check and replacement of critical items.

Ongoing Service Management

Greencare stock and supply a comprehensive range of spares and adaptations. Service departments, maintenance workshops, and mobile service vehicles used for carrying out repairs, adaptations and routine checks on wheelchairs, as outlined in this manual, are expected to have all the technical facilities and equipment required and a quality system in line with ISO9002.

Personnel involved in the service and repair of wheelchairs should have an appreciation of the special needs of disabled people and the benefits that can be gained through correct adjustment of a wheelchair, together with technical knowledge to NVQ or equivalent trade standard in a service environment.

Greencare set up training days in convenient locations, where travelling is practical from anywhere in UK. Attendance is recommended.

Greencare accept that adaptations or specialised equipment supplied by another manufacturer may improve the wheelchair for a particular occupant requirement, and we will work in partnership with the clinical team, and other equipment manufacturers. However it is the responsibility of the rehabilitation team to ensure that any retrospective adaptation is formally risk assessed and that installation is carried out to a satisfactory standard.

Ongoing Service Management (cont)

When a particular equipment combination set up is found to have a continual and beneficial operation we will incorporate details of this into the Technical Service Information. We will also include objective recommendations to the contrary where circumstances show a negative aspect, such as concerns with the incorrect use of clamps in transportation, so that everyone can benefit from the ongoing product and application experience.

We recommend that a wheelchair, which has been, customised for the first user, by removal of components, or addition of other equipment, such as a specialised seat, or power pack, should be brought back to a more basic specification, when put back into recyclable stock, prior to re assessment to meet the needs of the next intended wheelchair user. The standard build format is a useful basis for establishing fleet chair specifications.

When wheelchairs are recycled from one user to another, the second user should receive the same level of specification, and protection, as when the wheelchair was first supplied new.

We have developed our build to order (bto) format to make the specifying process simple. Our bto forms incorporate application information to assist in selection of the build choices. Greencare will provide form blanks, by printed or electronic copy. Our customer service staff are trained to deal with enquiries regarding the DB1 wheelchair, and have access to technical support when required, so that we can respond to requests for information.

Service history, adaptations and changes made to a DB1 wheelchair by a service centre should be recorded. We would appreciate feedback of major adaptations and changes carried out to specific chairs for our own product traceability records.

Labelling

Wheelchair cross brace frames are permanently labelled with individual serial number, and batch date reference, together with model and size details, and max occupant weight.

Greencare Ltd has carried out extensive risk assessed component testing across the range of build configurations, to finalise and confirm material specification.

The DB1 modular wheelchair system is a CE marked class 1 medical device and complies with the Essential Requirements of the Council Directive 93/42/EEC concerning Medical Devices, and BS EN 12182 and 12183.

Assembly methods, fixings and tools

Service safety routines can be applied to DB1. Typically, for moving pivots and mechanisms which require adjustment of a self locking nut to achieve operating clearance, the nut are to be tightened up and then backed off half a turn. This creates a joint working clearance of 0.20mm.

Wheelchairs make frequent use of nyloc nuts. This type of fastener in particular should not be used again after a chair has been stripped down e.g. for component replacement. Approved repair contractors should maintain adequate replacement supplies of new nuts and fixings. Our recommendation is that these are obtained from proprietary local fastener suppliers, in the local area concerned, who can maintain deliveries as demand requires.

When using proprietary cleaners, always read the instructions provided by the manufacturer. Do not use anything which may cause a problem for the user afterwards. Wheelchair washing equipment, which is intended to destroy contaminants, is recommended when a wheelchair is recycled between users.

We recommend that seating upholstery and items that have been in close body contact are replaced when a wheelchair is recycled between users. Accessibility to the frame structure for cleaning or reconfiguring is easier when upholstery has been removed.

The following list covers tools and spanner sizes for the standard routines.
For more specific information of when and how these are applicable, see the appropriate sections of the manual covering detailed servicing operations.

The DB1 injection moulded frame connectors act as clamps and locaters. The screws used in these assemblies have an inherent resistance to vibration loosening, and do not require high torques on assembly. It is possible that once familiar with assembly techniques an operator can become sensitive to what applied torque is correct. However the use of regulated torque spanners is recommended initially, in build or reconfiguration training, to ensure that screw fixings are tightened correctly.

- Metric Combination Spanners covering sizes from 8mm A/F to 24mm A/F
- In Particular 8mm A/F, 10mm A/F, 13mm A/F spanners
- No. 3 Pozidrive screwdriver
- 19mm A/F open ended torque spanner
- 19mm A/F standard open ended spanner
- 19mm A/F Bi- hexagon socket spanner
- 22mm A/F Bi-hexagon socket spanner
- 22mm A/F open ended torque Spanner
- Multi-size Spoke Nipple Key for Wheel truing.
- hex allen key set
- spoke Tension Metre
- puncture free tyre assembly fixture
- angle measurement gauge.