

CARA-MOVE II RANGIERHILFE CARA-MOVE II CARAVAN MOVER

920209

Electronics installation guide,
user information and troubleshooting



- DE – BENUTZERHANDBUCH
- UK – USER'S INSTRUCTION
- FR – MANUEL D'UTILISATION
- ES – MANUAL D'INSTRUCCIONES
- IT – MANUALE D'USO
- NL – INSTRUCTIEHANDLEIDING
- FI – KÄYTTÖOHJE
- SE – ANVÄNDARMANUAL

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Introduction

Thank you for choosing this caravan mover. This product has been produced according to high standards and has undergone careful quality control procedures. Simply by using the remote control you can move your caravan effortlessly into any position required within operating guidelines.



Before proceeding with installation and starting to use the mover, please read this manual very carefully and be aware of all the safety instructions! The owner of the caravan will always be responsible for correct use. Keep this manual inside your caravan for future reference.

This User Manual covers the Cara-Move II Mover with Smart Electronics system. The mover system consists of two 12V motor-powered rollers, a 12V electronic control box and a remote control. To function, the motor-powered rollers must be engaged against the tyres of your caravan. The remote control handset enables you to simultaneously engage the rollers of both movers. Once this is done the mover is ready for operation. The remote control will allow you to move your caravan in any direction.

Fitting Guidelines

The chassis clamps provided with this system are suitable for fitting onto most standard caravan chassis that have an L-shape or U-shape profile (Fig.7). Please refer to Fig.3 for reference on dimensions and clearances BEFORE you proceed any further with installation. If your chassis has different dimensions to those shown in Fig.3 then various chassis clamp adapters are available to suit the majority of UK and Continental caravans; please refer to the section of this manual entitled 'Optional Fitting Adapters'.

Specification

Model Name	Cara-Move II
Model Number	920209
Operational Voltage	12 Volt DC
Average Current Consumption	25 Ampere (approx)
Maximum Current Consumption	100 Ampere
Maximum Safe Working Load (SWL)	2500kg
Minimum Width (caravan/trailer)	1800mm
Maximum Width (caravan/trailer)	2500mm
Power Source (caravan leisure battery)	12V

Installation - Safety Guidelines



Read this User Manual carefully before installation and use. Failure to comply with these rules could result in serious injury or damage to property.

Before starting installation of the caravan mover:

DO check that the caravan is disconnected from the battery supply and the mains electrical supply.

DO only use adapters and accessories that are supplied or recommended by the manufacturer.

DO check that the tyres are not over worn (fitting to new or nearly new tyres is the best option).

DO make sure that the tyre-pressures are correct to the manufacturer's recommendation.

DO make sure the chassis is in good condition without any damage and is free from rust, dirt etc.

DO stop work immediately if you are in doubt about the assembly or any procedures and consult one of our engineers.

DO locate the battery isolation switch to be accessible at all times when parking and moving the caravan.

DO NOT remove, change or alter any parts of the chassis, axle, suspension or brake mechanism.

DO NOT operate the unit if you are under the influence of drugs, alcohol or medication that could impair your ability to use the equipment safely.



These instructions are for general guidance. Installation procedures may vary depending on caravan type.



Use appropriate support! Working under a vehicle without appropriate support is extremely dangerous. If you are fitting the mover system yourself, it is advisable that the installation is conducted by two people, as the mover will need to be raised up to the bottom of the caravan's chassis before the clamps can be installed.

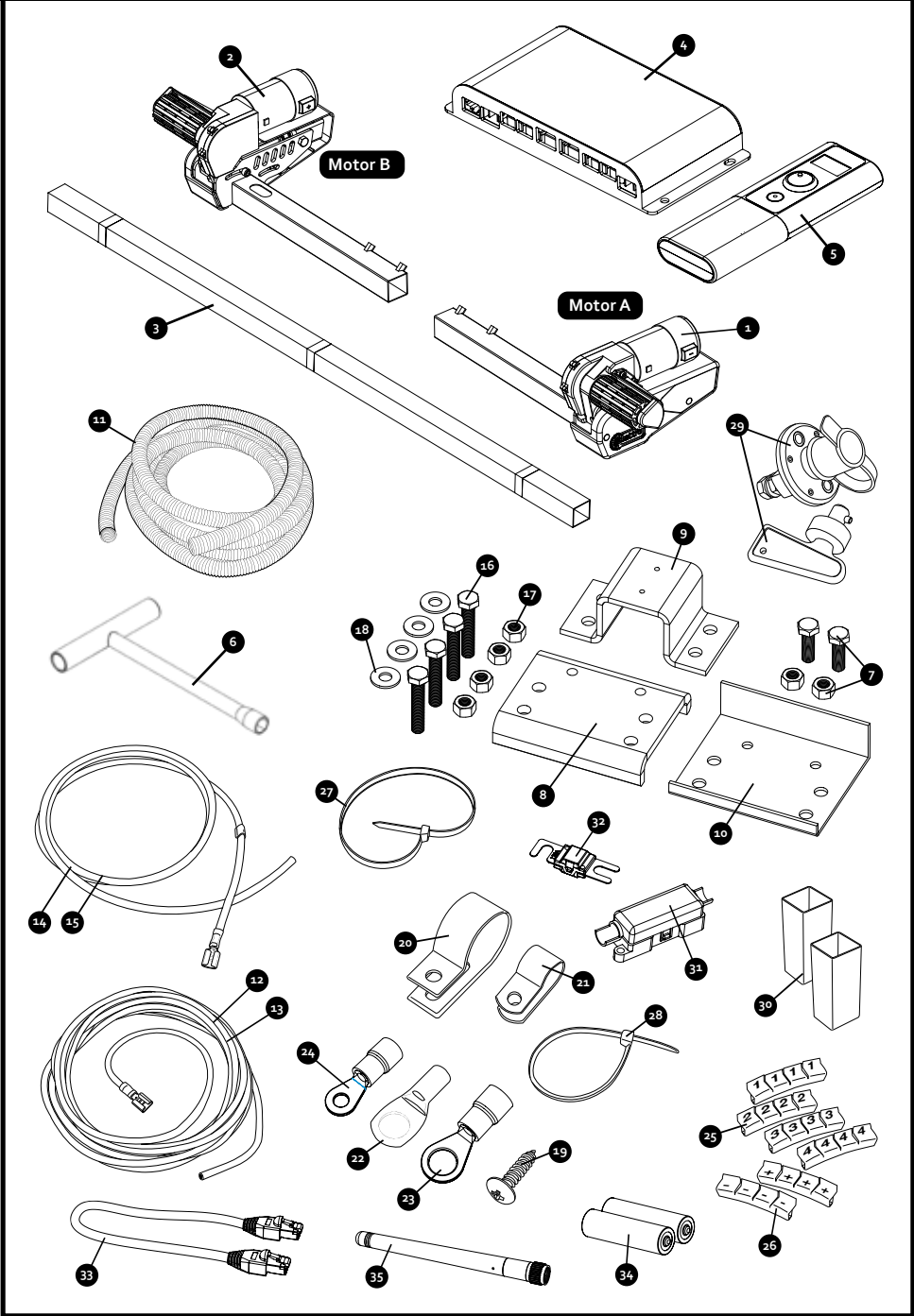


Remember to complete the product registration form with the serial numbers of each motor assembly prior to fitting (see details within the Guarantee section of this manual).

Package Contents (Fig.A)

REF	QTY	DESCRIPTION
1	1	Motor Unit (A)
2	1	Motor Unit (B)
3	1	Main Cross Bar
4	1	Electronic Control Unit
5	1	Remote Control Handset
6	1	Engagement Tool
7	4	Classic Clamp - Stop Nut and Bolt
8	2	Classic Clamp - Upper Plate
9	2	Classic Clamp - U Plate
10	2	Classic Clamp - Lower Plate
11	1	Convuluted Cable Trunking
12	2	Positive (+) Red Motor Wire
13	2	Negative (-) Black Motor Wire
14	1	Positive (+) Red Battery Wire
15	1	Negative (-) Black Battery Wire
16	8	Classic Clamp - M10x55mm Bolt
17	8	Classic Clamp - M10 Nyloc Nut
18	8	Classic Clamp - Ø10mm Washer
19	20	M4x15mm P-Clip Screw
20	10	Cable P-Clips 19.2mm
21	10	Cable P-Clips 10.4mm
22	4	Battery Terminal Connector Ø8mm
23	7	Terminal Ring Connector Ø6mm
24	9	Terminal Ring Connector Ø4mm
25	3	Cable Number Markers (1,2,3,4)
26	3	Cable Polarity Markers (+,-)
27	4	Motor Unit Cable Ties 8x400
28	10	Cable Ties 2x70
29	1	Power Isolation Switch (inc. Key and Fixings)
30	2	20mm Roller Distance Spacers
31	1	In-line Fuse Case
32	1	120A Fuse
33	1	Ethernet Cable (Data Cable)
34	2	'AA' 1.5V Battery
35	1	Antenna

Fig.A



Technical Reference Diagrams

Fig.1

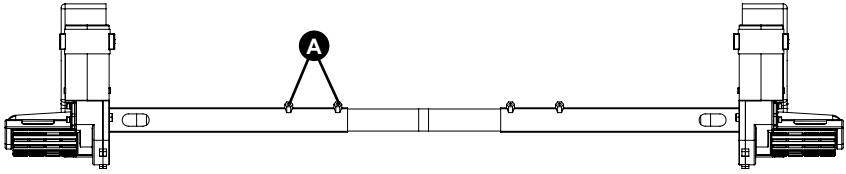


Fig.2

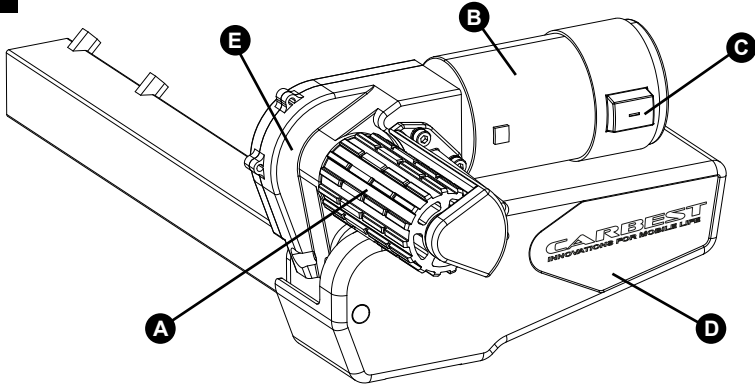
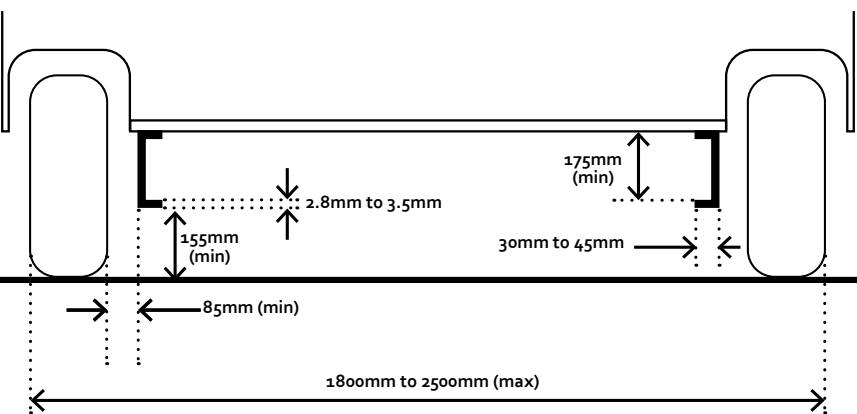


Fig.3



Technical Reference Diagrams

Fig.4

20mm

DISENGAGED

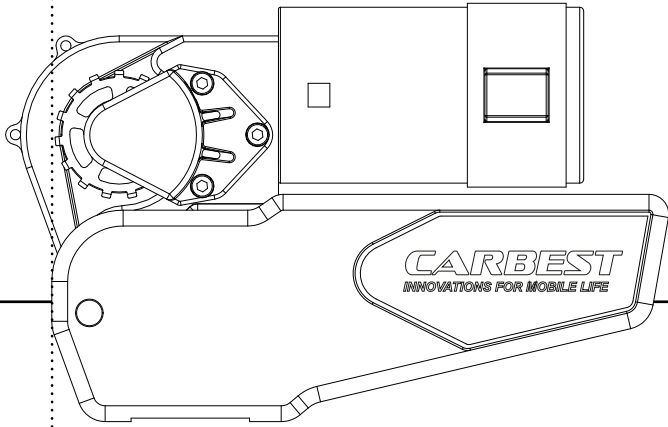
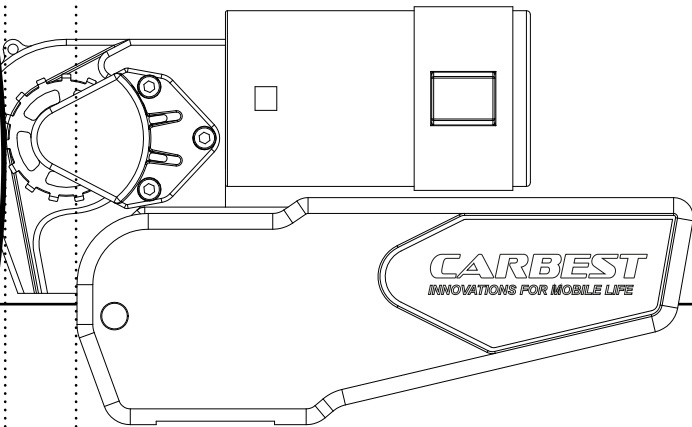


Fig.5

20mm

ENGAGED



Technical Reference Diagrams

Fig.6

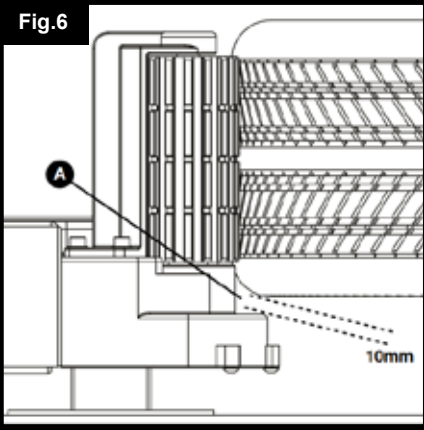


Fig.7

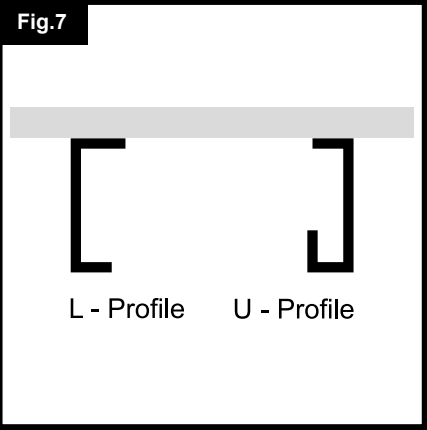
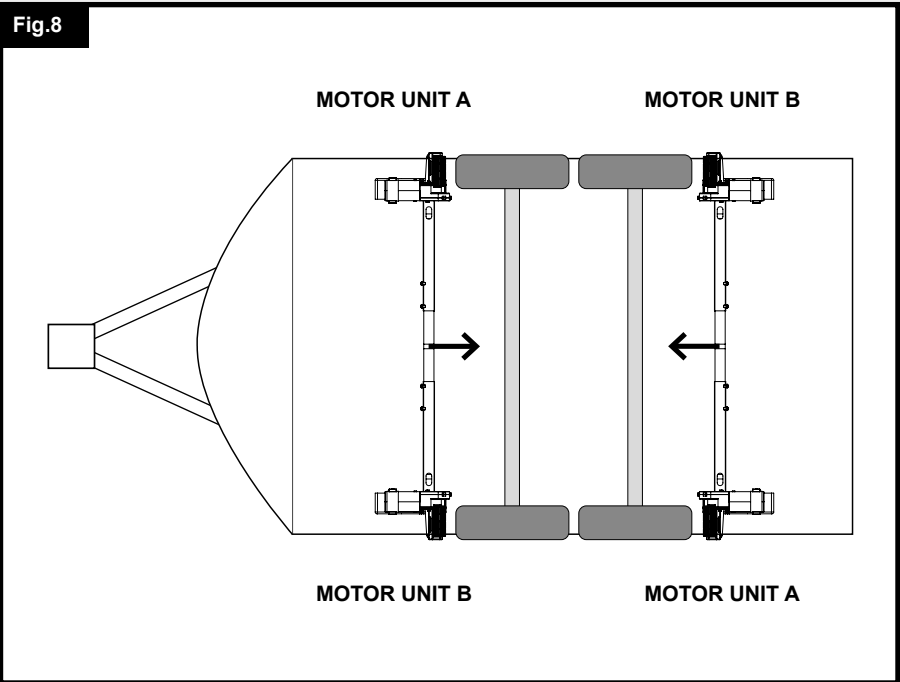
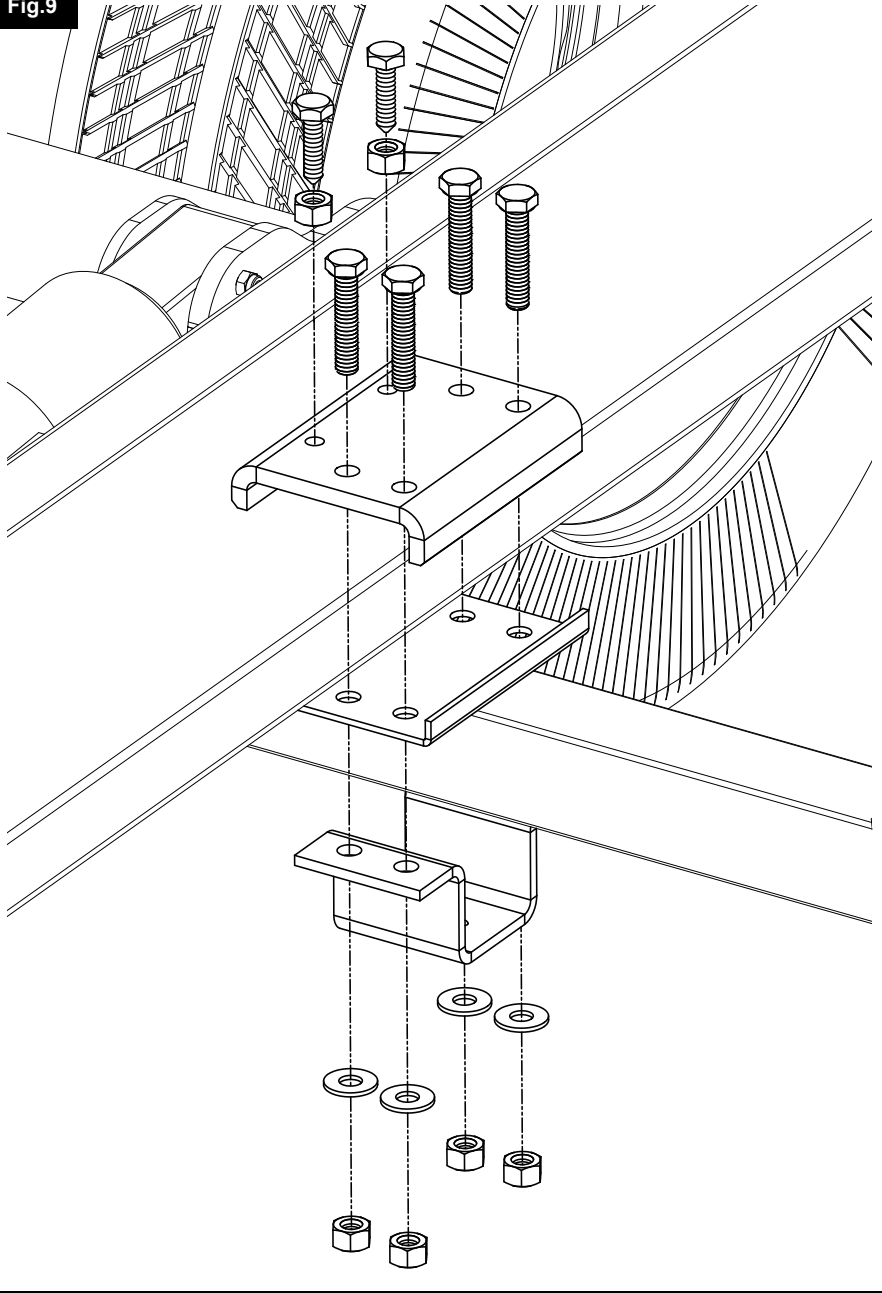


Fig.8



Technical Reference Diagrams

Fig.9



Technical Reference Diagrams

Fig.10

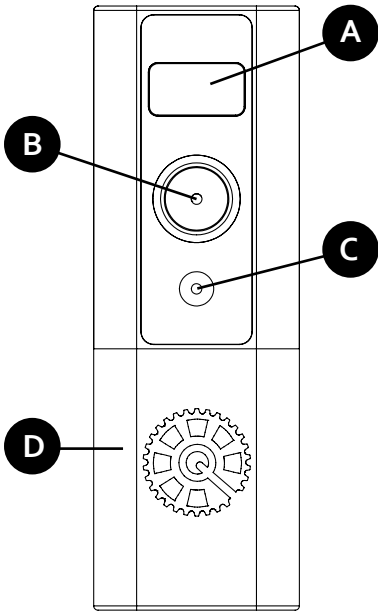


Fig.11

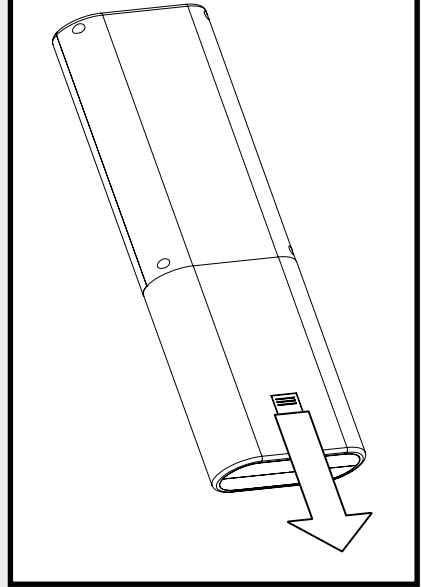
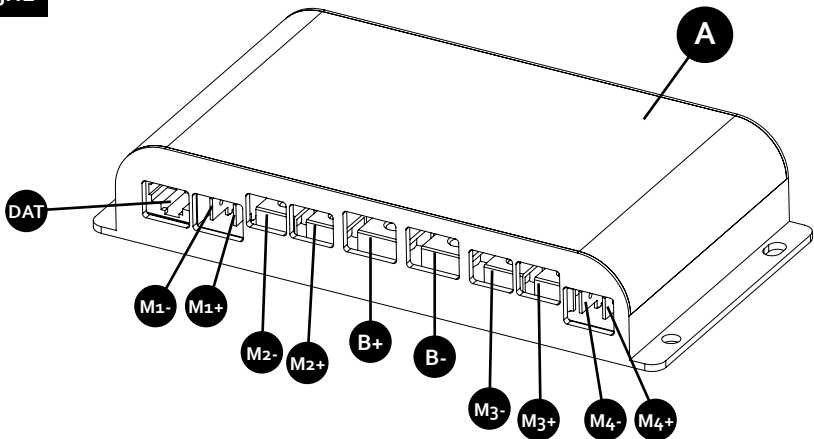


Fig.12



Technical Reference Diagrams

Fig.13

FRONT AXLE FITTING

—— POSITIVE WIRES (+)
- - - - NEGATIVE WIRES (-)

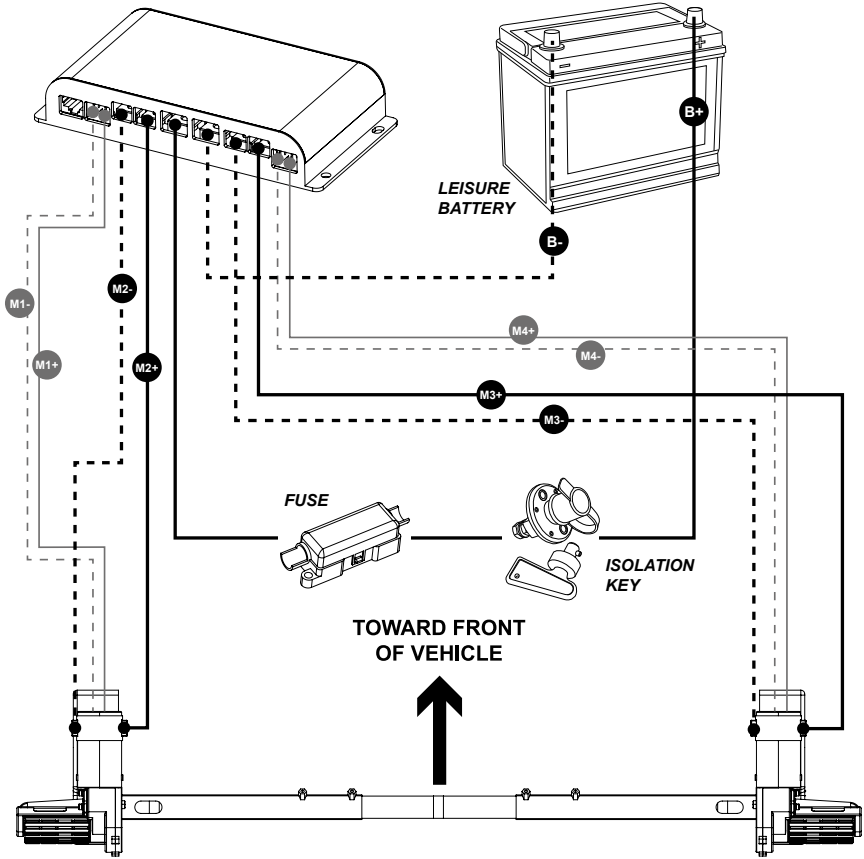
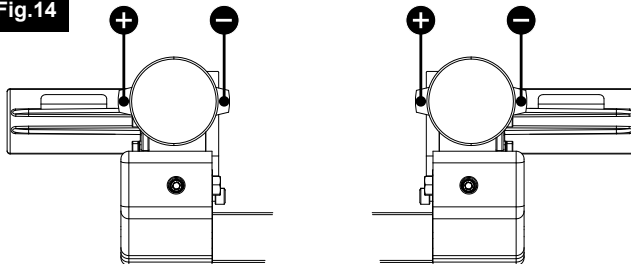


Fig.14

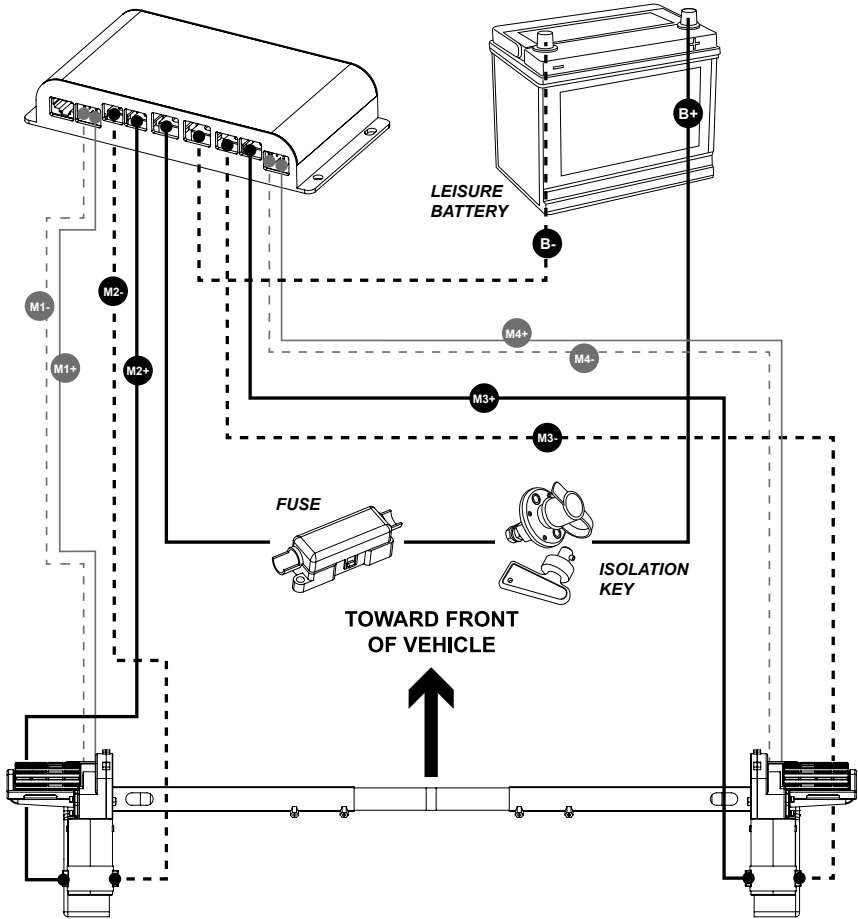


Technical Reference Diagrams

Fig.15

REAR AXLE FITTING

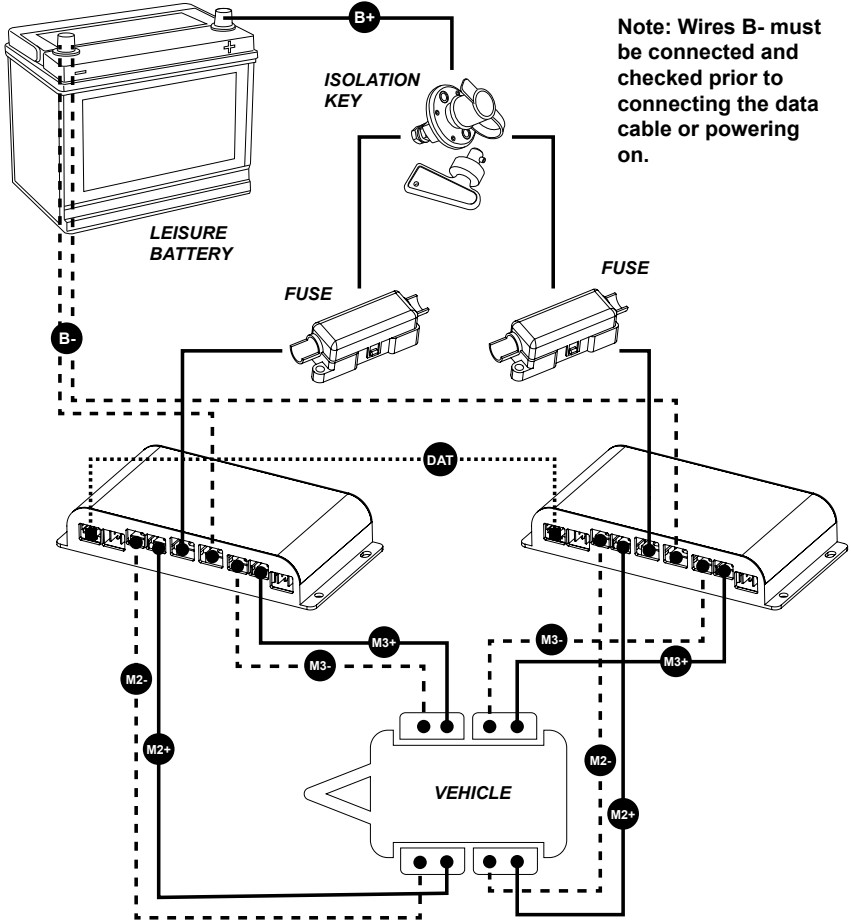
———— POSITIVE WIRES (+)
- - - - - NEGATIVE WIRES (-)



Technical Reference Diagrams

Fig.16

AWD FITTING



Installation - Mechanical Components

To begin mechanical installation, ensure that your caravan is placed on a hard, level surface. Where possible the use of a lifting ramp or an assembly pit is ideal for access and personal safety.

Make sure your caravan is prepared for installation. Clean the relevant mounting areas of your chassis to ensure a secure fitting of the mover system. Check before installation that important areas, such as drains, spare tyres etc. do not cause any obstruction to the installation of the mover system and its intended functionality.

Unpack all of the components and check that all parts are present (see Package Contents Fig.A). The installation instructions will continue to reference the part numbers displayed in Fig.A. Prior to and throughout the installation, ensure that the movers remain in the DISENGAGED position (see Fig.4), as the unit will not fit correctly otherwise.

Loosely assemble motor framework side (1), motor framework side (2) and main cross bar (3) (see Fig.1). The nuts (Fig.1.A) for cross bar fixing must be no more than finger-tight at this stage.

Place the assembly (Fig.1) loosely under the caravan. In principle, the unit should be fitted in front of the caravan road wheels, but if fitting in this position is not possible, it is permissible to fit it to the rear of the wheels by rotating the whole assembly by 180° degrees (note: in this scenario, later refer to Fig.15 for rear axle wiring schematic). Ensure that the Main Cross Bar (3) is positioned in the centre of the caravan/mover assembly (the centre is marked). Adjust the assembly so that the mover rollers are in line with the tyres, this can be adjusted slightly again later.

Study Fig.9. On one side of the vehicle, elevate the framework assembly and loosely fit the clamping assembly to the framework and chassis as per Fig.10. Provided clamp fixings (7,16,17,18) must be no more than finger-tight at this stage. Once self supported via the loose fixings, proceed to repeat the process on the other side of the vehicle.



Take due care when elevating and fixing the framework and clamps. Use lifting aids and/or a second persons when lifting/fitting.

With the main assembly loosely fitted onto the chassis, slide the whole assembly along the chassis until the rollers (Fig.2.A) are 20mm away from the surface of the each tyre (see Fig.4). Two 20mm spacers (30) are provided to set this distance. Note that the movers should be in the disengaged position when the 20mm spacing is set. When setting the spacing, ensure that the rollers on both movers are centrally in line with the vehicle tyres both horizontally and vertically, to allow for the best possible wheel contact (see Fig.6 for reference). If the roller widths exceed that of the tyre, ensure that the end of the roller is aligned with the outer wall of the tyre. Overhang on the inside wall of the tyre is acceptable on thinner tyres, and should not drastically affect function or grip.



It is vitally important that each roller is at exactly the same distance away from the tyre. The whole assembly must be parallel to the caravan/trailer axle for the system to operate as intended.

Installation - Mechanical Components cont.

Once satisfied with mover spacing, fully tighten the four nyloc nuts (17) on both clamping assemblies (Fig.9) to a torque setting of 40 ft lbs/55Nm, then the bolts (Fig.1A) on each motor side framework to a torque setting of 9ft lbs/12Nm. Re-check the distance of 20mm from the rollers to the tyres and if necessary, loosen the bolts and re-adjust the position of the assembly. Once satisfied with the position of the assembly, fit and tighten the Chassis Stop Nuts & Bolts (7) in each of the Classic Clamp Upper Plates (8) (see Fig.9). Tighten to a torque setting of 40 ft lbs/55Nm. The Stop Bolts grip the lip of the chassis and help prevent the mover from sliding along the chassis.

The main mechanical components have now been installed.

Installation - Mechanical Components (AWD Configuration)

To install an All Wheel Drive configuration on your caravan, follow the same instructions outlined in the previous section: 'Installation - Mechanical Components'. AWD set up follows the exact same process, with the only difference being the orientation of the movers. In an AWD configuration, the movers powering the rear axle of the vehicle must be orientated facing the front of the trailer (see Fig.8).

Ensure to follow the Electrical/Electronic AWD configuration section closely to ensure that these motor assemblies work as intended and not against one another.

Installation - Electrical/Electronic Components



Before attempting any electrical work, be sure to isolate the 12V supply from the battery and ensure any 230V electricity supply is disconnected.

Find a suitable place to mount the Electronic Control Unit (4), such as a storage area, under a seat or a bed. Make sure this place is dry and close to the battery (30 cm to 60 cm). Affix the supplied antenna (35) to the rear screw thread at the rear of the electronic control box prior to mounting. The unit can then be mounted on a flat base (horizontal) or on a wall (vertical). When choosing location, ensure that the unit cannot easily be damaged. Fix the Electronic Control Unit (4) into position with four of the screws provided (19). If the length of these screws is not suitable for the desired location/material, please substitute as appropriate.

Drill a 25mm hole through the floor of the caravan approximately 150mm centrally in front of the control unit (4) terminals.



Take care to avoid any chassis members, gas pipes and electrical wires when drilling the required holes and fixing components to your vehicle.

Study Fig.13. The wiring diagram (Fig.13) depicts the wiring route when installing the motor units in FRONT of the wheels/axle, facing the rear of the trailer. Fig.14 displays the polarity of the terminals on the movers. Note that these locations remain the same regardless of whether the motor is the left or right side mover.

Installation - Electrical/Electronic Components cont.

The Power Isolation Switch (29) will now need to be installed. If available, the ideal location for the isolator switch is inside the battery compartment; usually there is a space to the side of the battery. The chosen location needs to be one that will mean the Isolation switch is easily accessible in the event that the system needs to be switched off in an emergency. Nuts and bolts are provided to mount the switch but please substitute as necessary if they are not of a suitable type.

Install the Isolation Switch (29) between the battery and the Control Unit (Fig.13) on the positive [+] cable (14), using two of the 6mm Terminal Ring Connectors (23) to link the cable to the switch terminals. These connectors will require crimping to the end of the wires. Ensure to leave sufficient wire length to reach from the battery to isolation switch and from isolation switch to electronics box.

On the positive cable between the isolation switch and electronic control box, the fuse will also need installing. To do this, mount the 120A fuse (32) into the In-line Fuse case (31). Cut the positive [+] cable where necessary and again crimp 6mm Terminal Ring Connectors (23) to either end to allow mounting to the fuse. The fuse case (31) can be screwed to a wall or floor in the same way as the electronics control unit.

With the supplied battery wires (14,15), proceed to wire the battery to the electronics box, via the previously installed isolation switch and fuse, as outlined in the wiring diagram (Fig.13). 6mm Terminal Ring Connectors are already attached to the battery wires for connection to the electronics box, whilst two sizes of ring connectors (22,23) are supplied for connection to the battery itself.



Caution! Do not attempt to amend wiring that is connected to the battery and live. Always ensure that wires are disconnected from power when being worked on.



Caution! Ensure not to reverse the positive and negative battery connections. Incorrect connection (reverse polarity) will result in damage to the control box.

The motor wires (12,13) now need connecting to the system. Again using Fig.13 for reference, proceed to route the motor wires (12,13) through the hole previously drilled in the vehicle floor and along the underside of vehicle toward the designated motors. Supplied are various components which will aid with the safe fixing of these wires, including: Convuluted Cable trunking (11) - to protect the wires from sharp edges, P-clips/screws (19,20,21) - for mounting the wires to surfaces, and Cable Ties (27) - to fix wires together or to sections of the chassis where necessary. Cable Number (25) and Polarity (26) markers are also supplied to aid with labelling of wires for ease of installation. When routing the wires, aim to keep these as central along the caravan as possible in attempts to keep the wiring the same length.

As with the battery wires, when satisfied with the routing, proceed to crimp the provided 4mm terminal ring connectors (24) onto the ends of the wires for connection to the electronics box. The spade connectors for attaching to the motors are already fixed to the end of the motor wires (12,13).

NOTE: Depending on regulatory requirements, which vary depending on your location, it may be necessary to install heavier gauge cabling between the battery, isolation switch, fuse and control unit when installing a four motor system. Please consult your dealer for further details if necessary.

Once all wires are correctly attached as per Fig.13, the electrical installation is complete.

Installation - Electrical/Electronic Components (AWD Configuration)

To install an All Wheel Drive configuration on your caravan, two separate electronics systems effectively need assembling. These two systems will be configured using the handset prior to initial use, however during installation there are only a few elements which need to be altered.

Start by wiring up your second mover system by following the same procedures stated in the previous section 'Installation - Electrical/Electronic Components'. Fig.15 displays the wiring schematic for this rear axle set up. Fig.16 can also be used for a general overview of how the twin axle wiring should be set up. Follow these diagrams closely to ensure that the movers are powered as intended and do not work against one another in operation.

Regarding the battery wires (14,15), the same isolation key can be used for both systems. To do this, connect the second electronics box using a length of wire from the isolation key to the box itself. There should be only a single positive battery wire connected to the battery itself, with two cables then splitting to the respective boxes via in-line fuses from the isolation switch onward. Use Fig.16 for reference.

To finalise the electrical set up, attach the Data Cable (33) between the two electronic control units (4). Ensure this is firmly in place.

Follow the 'Operation - Handset Pairing' section of this manual closely for instructions on how to set up your remote control to correctly operate the AWD system.

Operation - Safety Guidelines



Caution! Please read these safety guidelines closely BEFORE attempting to operate your caravan mover system.

DO always check movers for any damage, before use.

DO remain aware, at all times, that ground clearance is reduced by around 50mm where the Movers have been fitted.

DO keep a maximum 5 meter distance between handset and electronics box when in use, to maintain signal strength.

DO be aware that the mover increases your caravan or trailer weight. So this reduces the payload of the caravan.

DO always make sure that the rollers are fully disengaged from the tyres when the mover is not in use. This is better for the tyres and for the mover.

DO always make sure that the rollers are fully disengaged before towing/moving the caravan by vehicle or manpower. If not damage can be caused to your tyres, mover and the towing vehicle.

DO always make sure that after you have finished using the Mover, the Battery Power Isolation Switch (29) is switched off, with the key removed and stored in a safe place, out of reach of children or unauthorised people.

DO always make sure that the remote control handset (5) is stored in a safe place, out of reach of children or unauthorised people.

Operation - Safety Guidelines cont.

DO always apply the handbrake after manoeuvring, before disengaging the drive rollers from the tyres.

DO NOT rely on the mover to act as a brake.

DO NOT exceed the stated maximum Safe Working Load (SWL).

DO NOT attempt to move or tow your vehicle with the motor movers engaged on the wheels.

DO NOT make any modifications on the caravan mover (mechanical or electronically). This can be very dangerous! No warranty claim will be accepted and we cannot guarantee the function of the mover if any modifications are made. Reimo Reisemobil-Center GmbH are not liable for any damage whatsoever caused as a result of incorrect installation, operation or modification.



Always ensure that you are close enough to engage the caravan's handbrake, particularly when manoeuvring on uneven terrain and gradients/slopes, in case of mechanical failure. Do not use the mover as a brake, when you have finished manoeuvring always engage the caravan's handbrake.



Warning! Ensure that there are no persons or obstructions in the vicinity of the caravan prior to use.



If in doubt regarding any feature of the mover system and its operation, contact your mover dealer.

Operation - Handset Functions

Using Fig.10 for reference, familiarise yourself with the layout of the Remote Control Handset (5).

Fig.10.A = Handset Display

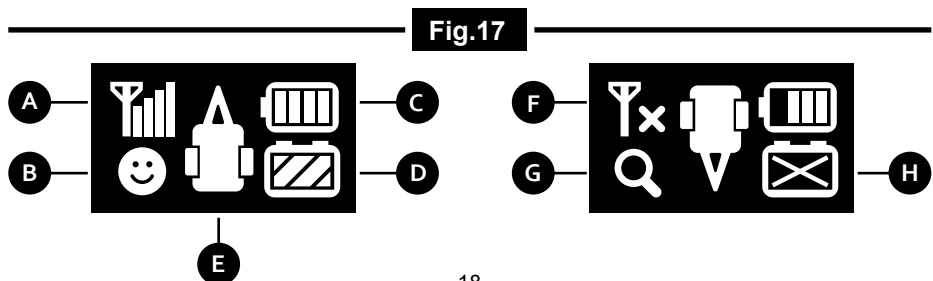
Fig.10.B = Directional Thumb Stick

Fig.10.C = Multi-function Button

Fig.10.D = End Case

The Remote Control handset (5) is powered by two 'AA' 1.5V batteries, to install these slide off the end case (Fig.10.D) of the handset as seen in Fig.11. Ensure only leak proof batteries are used. Check with local authority regarding the correct disposal of used batteries. Remove batteries from handset during long periods of inactivity.

Turn on the handset by double pressing the Multi-function button (Fig.10.C). Once activated the display (Fig.10.A) will illuminate. If the handset has not been used 60 seconds it will power off. Fig.17 below shows the various symbols used on the display.



Operation - Handset Functions cont.

Fig.17.A = **Signal strength**

Indicates signal strength between handset and control unit inside the caravan. If a flashing cross is showing (Fig.17.F) , the handset is not paired to the electronic control unit (4).

Fig.17.B = **System status**

If a smiling face is showing the system is working correctly. If a magnifying glass is showing (Fig.17.G), the handset is waiting to pair. If an 'E' number is showing refer to the 'Troubleshooting' Section.

Fig.17.C = **Handset Battery Status**

Indicates handset battery level in 25% increments.

Fig.17.D = **Leisure Battery Status**

Indicates voltage level of leisure battery, for maximum performance ensure battery is fully charged and showing 4 bars before operating mover. If a cross shows (Fig.17.H), the electronic control unit is not reviving power from a leisure battery.

Fig.17.E = **Vehicle Orientation**

This shows the direction of travel of the caravan, when the thumbstick is moved the caravan will follow in this direction. By default the hitch is designated as the forward direction. At any time press the multi-function button (Fig.10.C) to flip the caravan orientation, the rear of the caravan will then move forward when the thumb stick is moved upwards.

To access options, press down firmly on the Directional thumbstick (Fig.10.B) and Multi-Function button (Fig.10.C) for 3 seconds. Use the Directional thumbstick (Fig.10.B) to negotiate the menu, pressing down to select options. Use the Multi-function button (Fig.10.C) to go back. The following options are available:



Diagnostics



Settings

Within the **Settings** are the following choices:



Handset Pairing - Simply press to start pairing process, for more information on pairing or repairing your handset see the 'Operation - Handset Pairing' section of this manual.

Axle Mode Selection - By default, handsets are set to single axle mode. If installed as a twin axle or AWD system this mode should be change. The white dot indicates the selected mode.



Single Axle Mode

2 movers, on the spot rotation enabled.



Twin Axle Mode

2 movers, on the spot rotation disabled.



AWD Mode

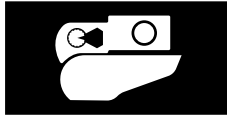
4 movers, on the spot rotation disabled.

Operation - Handset Functions cont.

Mover Model Selection - By default, your handset should be pre-configured for use with the Cara-Move II mover model. Ensure to check this, and never use the movers in the wrong mode. The white dot indicates the selected model.



**Compatible Twin
Roller Movers**



Cara-Move II



**Compatible Manual
Engage Movers**



Volume - Use this selection to mute the handset volume.



Information - Use this selection to view the handset version etc.

Operation - Handset Pairing

The handset pairing procedure differs depending on the mover configuration you have installed on your vehicle. It is vitally important that the handset is set up in the correct mode to ensure that the movers operate as intended. With twin-axle vehicles for example, the turning abilities are of course very different to that of a single axle. Only by setting the movers up correctly, will you get the best possible performance out of your mover system.

Familiarise yourself with the handset functions (see 'Operation - Handset Functions'). To set up the correct mode, see below:

Single Axle Pairing

Turn on isolation switch (29) to provide power to the electronic control unit. Double press multi-function button (Fig.10.C) to turn on handset. If for first operation: your system should automatically pair, allow up to 10 seconds for this process. If your handset does not pair, or you have a new handset (5) or electronic control unit (4) go to settings and initiate the handset pairing option (see 'Operation - Handset Functions'). Ensure that whilst your handset is pairing, the electronic control unit remains powered. The signal strength indicator (Fig.17.A) will indicate when you have paired the system.

Twin Axle Pairing

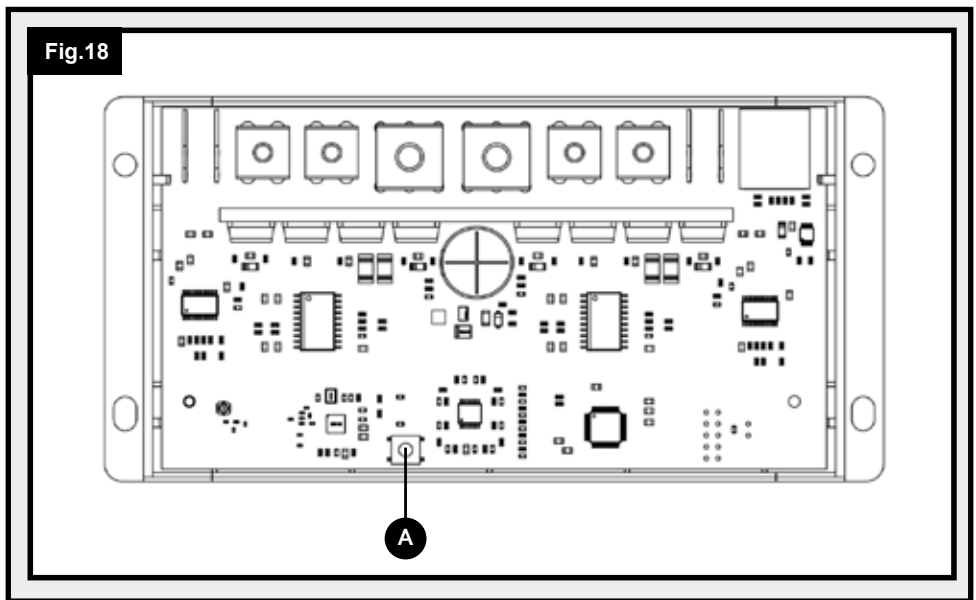
Follow instructions for 'single axle pairing'. Once paired, ensure the correct 'twin axle' mode is selected in the handset settings (see 'Operation - Handset Functions').

Operation - Handset Pairing cont.

AWD Pairing

To configure your system for AWD mode, the handset (5) must be paired with only the front axle electronic control unit (4). To do this, first ensure that as per section 'Installation - Electrical/Electronic Components (AWD Configuration)' the data cable (33) is correctly connected to the two control units. Turn on isolation switch (29) to provide power to both control units, a red and blue LED will illuminate on each box. Remove the top cover (Fig.12.A) of the rear axle electronics box and press the small button (Fig.18.A) as indicated in Fig.18 below. The blue LED on the rear axle box will turn OFF to indicate that the wireless signal has been cut. Double press multi-function button (Fig.10.C) to turn on handset. Allow at least 10 seconds for the handset to pair with the front axle control unit. If your handset does not pair, go to settings and initiate the handset pairing option (see 'Operation - Handset Functions'). Ensure that whilst your handset is pairing, the electronic control units remain powered and the blue LED on the rear axle control box remains OFF.

The signal strength indicator (Fig.17.A) will indicate when you have paired the system. The blue LED on the front axle box will also flash to indicate that it is the unit that is paired. Once paired, ensure the correct 'AWD mode' is selected in the handset settings (see 'Operation - Handset Functions'). Turn off the handset, and cut power to the control units by turning off the isolation switch (29). When you turn the handset and isolation switch back on, the AWD pairing will be complete.



Note: For the handset (5) to be paired correctly for AWD, it must have not previously established a connection with either electronic control unit (4). If this is the case, either use a second, unpaired handset, or unpair the handset (5) from the respective control unit (4). To do this, turn on the isolation key (29) and the handset (5). Go to settings and initiate the handset pairing function, as this starts, double press the multi-function button (Fig.10.C) to stop the pairing process. Screen icon Fig.17.F should show. Turn off the isolation key (29) to cut the power to the control unit and turn off the handset (5). Now continue the standard process as stated above (**AWD Pairing**).

Operation - Mover Engagement/Disengagement

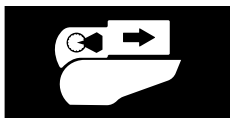


Always ensure your caravan handbrake is on before engaging or disengaging the mover system to prevent unwanted movement of the caravan. Only release the handbrake when the mover is securely engaged to the tyre and you are ready to move the caravan.



Automatic Engagement - During transit/installation the engagement motor end block may rotate causing it to tighten. Before first use, place the manual engagement tool in the rear of the engagement end block (removing rubber cap) and turn the tool clockwise to ensure it is moving freely, there should be little resistance required to turn the tool.

Turn on the handset and then from the home screen hold the multifunctional button (Fig.1C) for 3 seconds to engage or disengage the mover. When engaging/disengaging the following information will be shown on the display (image varies based on mode):



Mover disengaging, press multi-function button (Fig.10.C) to stop at any point.



Mover engaging, press multi-function button (Fig.10.C) to stop at any point.

Once engagement is completed (see Fig.5) the handset will return to the home screen and thumbstick controls will be activated allowing the caravan to be moved. In the event of an issue, an engagement tool (6) is supplied that can be used to engage/disengage the mover. To use this remove the small rubber plug on the rear of the engagement motor and turn the engagement worm manually using the tool.



Warning! When engaging/disengaging, ensure there is nothing obstructing or preventing the movement of the motors. Should the motors stop unexpectedly, check the immediate area for any potential obstructions.

Operation - Manoeuvring



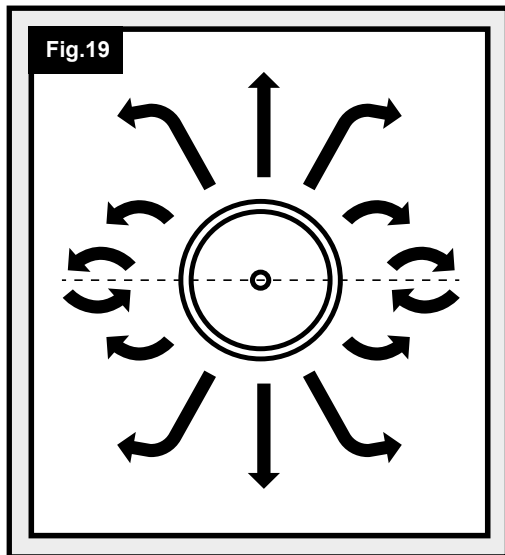
Caution! Please read the operation safety guidelines closely BEFORE attempting to operate your caravan mover system.

The smart electronics utilise a Directional Thumb Stick (Fig.10.B) for precise control of speed and direction. The speed of operation is dictated by how far the stick moves from its centre point, to the outer perimeter. Direction is dictated by the radial position of the thumb stick (moving the stick from left to right). See Fig.19 for reference.

Refer to your handset screen to ensure the caravan is orientated in the desired way (Fig.17.E). For example if the hitch is at the top of the display, when the thumb control is moved upwards the hitch side of the caravan will move forward. If the rear of the caravan is at the top of the display, the rear of the caravan will move forward when the thumb control is moved upwards.

For smooth operation always begin by moving the Directional Thumb Stick in the general direction you would like to head (forwards or reverse), the further the thumb control moves away from the centre, the faster the mover will operate. From this point progressively move the control radially (sideways) to achieve a fluid change in direction. The more the control is moved sideways the tighter the turning radius that will be achieved. **Note:** moving the thumb control to the hard right or left position will engage the spin on the spot function on single axle caravans. Due to the nature of twin axle vehicles, this function is not available in Twin axle or AWD modes.

Operation - Manoeuvring cont.



The Cara-Move II electronics have a regenerative braking feature that allows full directional control to be maintained while moving downhill. This is achieved by feeding energy under braking back from the motors into the battery. Some lithium leisure batteries do not allow this and when an incompatible battery is detected, the feature will be automatically disabled within software to prevent damage. Therefore, when moving down an incline with an unsupported battery, manoeuvring is limited. To ensure the best performance and compatibility on a lithium battery we recommend only using approved batteries.



When manoeuvring is complete, ensure to apply your vehicle handbrake prior to disengaging your movers or turning off your electronics unit or handset. Never rely on the movers to act as a break.

Operation - Hitching and Unhitching



Caution! Please read the operation safety guidelines closely BEFORE attempting to operate your caravan mover system.

It is possible to position the caravan's hitch exactly over a stationary car's tow ball using the mover system, however this should be done with caution.

Use the Directional Thumb Stick (Fig.10.B) on the remote control to bring the caravan to the car. It is better to reach the tow ball with several short "trips" rather than trying to do it in one "trip". When the hitch is right above the tow ball of the vehicle, lower the hitch to the ball and engage in the normal way using the jockey wheel. Hitch the caravan as you would for normal towing. Disengage the movers from the caravan's tyres (Fig.4).



Do not attempt to tow your vehicle with the Movers engaged! Make sure that both rollers are fully disengaged. Trying to drive away with the mover still engaged, will damage the mover, your caravan tyres and strain your tow vehicle!

Maintenance

To prevent your leisure battery from becoming totally discharged during long periods of inactivity it must be disconnected and recharged before using again.

Please check regularly that the rollers of the drive units are free of any dirt, or debris that may have been picked up during use/during periods of inactivity.

Please check regularly the distance between the rollers and the tyres. In the neutral, fully disengaged (Fig.4) position this must be 20mm.

When your caravan is stored for an extended period of time (over winter for example) it is recommended to remove the leisure battery from the caravan. Make sure you keep it charged to ensure it is in good condition the next time you want to use it.

Once a year have your caravan movers maintained and visually inspected. This inspection must include all the bolt/nut connections, the cables and electrical connections and lubrication of movable parts/joints.

It is advised that you regularly check that no wiring connections have come loose across your motor mover system.

Long periods of inactivity generate the potential for elements of the movers to cease. Deal with this accordingly by applying lubrication and removing oxidation where necessary.

DO NOT use any form of pressurised water or chemical cleaning on your caravan movers.



When maintaining your motor mover system, be sure to isolate the electrical supply, failure to do so could result in electrocution.

In case of any failures or problems, please contact your Caravan Mover supplier.

Troubleshooting

Unit fails to operate or moves intermittently. Possible solutions are:

Handset not connected - Ensure that all home screen items (Fig.17) are solid and not flashing. If they are then it is likely that the handset has not yet connected. Move closer to the caravan, if the handset still fails to connect, run through the handset pairing process. Ensure that power is getting to the electronic control unit (4) before beginning the pairing process.

Handset not turning on - Handset battery could be depleted. If empty, renew using two new 'AA' 1.5V batteries.

Caravan battery empty - Check that the leisure battery is fully charged. Refer to handset display (Fig.17.D/H)

Caravan battery low - with the rollers engaged. Ensure that when operating the mover that the leisure battery icon on display (Fig.17.D) remains at least 3 bars under load. If the charge indicator is dropping to 2 or below it may indicate a depleted or damaged battery.

Electronics current limit reached - Allow the mover to sit for 30 seconds, this will allow the electronics to restart and operation will begin again. If the problem persists call your mover supplier.

Troubleshooting cont.

Motor cable issue - Check all connections between motor cables and control unit to ensure these have not come loose or detached.

Battery cable issue - Check battery terminals, clean and connect again.

Low signal - before operating the mover ensure that the signal between the control box and handset is good. Refer to handset display (Fig.17.A). The mover will operate best with at least 3 bars of signal.

Rollers slip on wheels - Check that the disengaged distance of the rollers to the tyres is 20mm on both sides (see Fig.4). Check for correct tyre pressure by referring to your caravan manufacturer's handbook. If the pressure is low, the roller would need to be pushed into the tyre further than usual to gain sufficient traction.

Futher Diagnostics - In the options menu there is a diagnostic feature (see 'Operation - Handset Functions' for reference). Press thumb stick button (Fig.10.B) to select. This will overlay the original home screen with useful information that will allow the user/support technician to identify any areas potentially at fault.

Electronic Control Unit:

On the top face of the electronic control unit, are two small LED light indicators. If you are having an issue with your mover system, refer to the guide below to help identify the possible fault.

Blue LED

Off - Control box is not functioning or receiving power.

Static On - Communication system ok, ready to connect.

Slow flashing - Handset connected.

Fast flashing - Handset signals received (buttons pressed, or thumbstick moved).

Red LED

Off - Control box has no power or is not functioning correctly.

Static On - Motor driver system ok, ready to operate.

Flash once (or fast flashing) - Controller working correctly and driving the motor

Error Codes:

Handset error codes are represented by the letter E followed by 2 digits, these appear as a status icon in the bottom left corner of the handset (5) home screen (location Fig.17.B). The first of these digits is a Major error code, and second digit is a Minor error code. For example: E02 indicates Major=0, Minor=2. All Major error codes and Minor code 'E06' can only be cleared by cycling the power to the control box. All other error codes will be automatically cleared 8 seconds after fault is resolved.

Major Error Codes

Handset Error Code	Red LED Flashes	Description	Possible cause and action
E1x	8 Times	M2 Motor Driver Failure	If problem persists after cycle the power, do not use again and contact dealer for support.
E2x	8 Times	M3 Motor Driver Failure	
E3x	8 Times	M2 and M3 Motor Driver failure	Triggered when output voltage is not detected. -Possible short circuit on the motor. -Possible controller failure.

x = references a minor error code

Troubleshooting cont.

Minor Error Codes

Handset Error Code	Red LED Flashes	Description	Possible cause and action
Ex1	2 Times	Over Current (Motor)	Usually caused by too heavy load on steep slope. -Slowdown the speed or remove a bit of load.
Ex2	2 Times	Over Current (Battery)	Usually caused by too heavy load on steep slope. -Slowdown the speed or remove a bit of load.
Ex3	3 Times	Under Voltage	Usually caused by flat battery. -Charge the battery or check battery voltage.
Ex4	4 Times	Over Voltage	Usually caused by incompatible battery, or when charger is in place while operating. -Check battery type or unplug charger.
Ex5	5 Times	Over Temperature	Usually caused by prolong use on heavy load. -Allow 5 minutes for electronics and motors to cool down. -Break long operation (e.g. a long slope) into several short journeys.
Ex6	6 Times	Critical Low Voltage Lockout	Usually caused by loose or dry connection on the wirings, occasionally caused by end-of-life battery. -Check wiring and terminal conditions immediately -Check battery health by proper equipment.

x = references a minor error code

Document Control

Original Instructions

Manual Reference: QTR-M002

Revision	Description	Issue Date
-	Original Instructions	16/11/2020

Guarantee

Cara-Move (II) caravan mover systems are provided with a UK parts only warranty for a period of 7-years which includes the first 12 months statutory, plus an additional year extended warranty. Any warranty claims must be directed through the place of purchase with a proof of purchase provided. Warranty cover is limited to products within UK mainland only.

Within the two year period, the manufacturer will, at their sole discretion, replace or repair any parts that have failed if deemed to be due to a manufacturing defect.

The manufacturer does not take responsibility for any consequential loss whatsoever.

Upon inspection, components that are missing when checked against the packing contents list must be reported to the place of purchase within 5 working days.

This warranty cover is available only to the original purchaser of the product and is non-transferable.

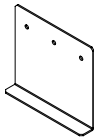
What is not covered:

- Normal wear and tear.
- Damage that is deemed to be due to customer misuse or neglect.
- The cost of repair following accidental damage, abuse of product or deliberate tampering.
- Warranty is not offered for any type of trade or commercial usage.
- As a result of the recall or modification of all equipment in a model range.
- Force Majeure e.g. Damage caused by extraordinary events or circumstance beyond anyone's control.
- Damage as a consequence of water ingress.
- Carriage or any additional charges incurred including travel or labour.
- Caravan electrics, including fuses, plugs, batteries, wiring connections and looms. Scratches, dents, paintwork and cosmetic trim.
- Damage as a result of incorrect installation and/or disregard to manufacturers fitting instructions.
- Cover will not be given to any part or component which is out of manufacture or no longer available.
- Cover will not be given if the product has been modified in any way.
- Damage occurring as a result of the product being used outside manufacturer's load recommendations.

Notes

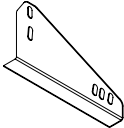
Optional Fitting Adapters

Additional chassis clamp adapters shown below are available for purchase:



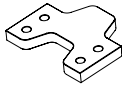
Low Profile Chassis Adapter Plates (Part No. CM-029)

If your chassis frame height is less than 140mm these plates must be fitted to lower the assembly to provide the correct height of 185mm. Drilling of your chassis may be required. Note: In some countries, the installation must be checked by a professional technician in order to adhere to local regulations.



Narrow Gauge Chassis Adapters (Part No. CM-030)

These plates must be utilised if you have an AL-KO Vario III/AV chassis which has a frame thickness of less than 2.8mm. These must be positioned behind the axle using pre-drilled holes already available on the chassis; so your mover must be fitted behind the axle.



16mm Spacers - 1 pair (Part No. CM-028/Q)

Use spacers to lower the mover assembly if your chassis has a frame height of between 140 to 185mm. A maximum of 3 sets of spacers can be utilised to achieve correct frame height of 185mm. A set of extended clamp bolts must be used in conjunction with these spacers (Part No. CM-031).



Set of 8 M10 x 100 Bolts (Part No. CM-031)

Set of 8 extended clamp bolts for use with 16mm spacers.



UK: Photographs & diagrams for illustration purposes only. Actual product may differ slightly. All weights & dimensions are approximate. The manufacturer reserves the right to change product specification without prior notice. E & OE.



Kraftfahrt-Bundesamt

DE-24932 Flensburg

Allgemeine Betriebserlaubnis (ABE) National Type Approval

ausgestellt von:

Kraftfahrt-Bundesamt (KBA)

nach § 22 in Verbindung mit § 20 Straßenverkehrs-Zulassungs-Ordnung (StVZO)
für einen Typ des folgenden Genehmigungsobjektes

Anhänger - Rangierhilfe

issued by:

Kraftfahrt-Bundesamt (KBA)

according to § 22 and 20 Straßenverkehrs-Zulassungs-Ordnung (StVZO) for a type
of the following approval object

trailer maneuvering system

Genehmigungsnummer: **91896**

Approval number:

1. Genehmigungsinhaber:
Holder of the approval:
PURPLE LINE LIMITED
UK-IP9 2BB, Wherstead, Ipswich
2. Gegebenenfalls Name und Anschrift des Bevollmächtigten:
If applicable, name and address of representative:
Entfällt
Not applicable
3. Typbezeichnung:
Type:
EGO500



Kraftfahrt-Bundesamt

DE-24932 Flensburg

2

Genehmigungsnummer: 91896

Approval number:

4. Aufgebrachte Kennzeichnungen:
Identification markings:
Hersteller oder Herstellerzeichen
Manufacturer or registered manufacturer's trademark

Typ
Type

Genehmigungszeichen
Approval identification

5. Anbringungsstelle der Kennzeichnungen:
Position of the identification markings:
Siehe Punkt 2.3 des Prüfberichtes
See point 2.4 of the test report

6. Zuständiger Technischer Dienst:
Responsible Technical Service:
TÜV Nord Mobilität GmbH & Co. KG Institut für Fahrzeugtechnik und Mobilität
DE-45307 Essen

7. Datum des Prüfberichtes des Technischen Dienstes:
Date of test report issued by the Technical Service:
27.10.2020

8. Nummer des Prüfberichtes des Technischen Dienstes:
Number of test report issued by that Technical Service:
8117936774

9. Verwendungsbereich:
Range of application:
Das Genehmigungsobjekt „Anhänger - Rangierhilfe“ darf nur zur Verwendung gemäß:
The use of the approval object „trailer maneuvering system“ is restricted to the application listed:

Punkt 3. des Prüfberichtes
Point 3. of the test report

unter den angegebenen Bedingungen an den dort aufgeführten bzw. beschriebenen Kraftfahrzeugen feilgeboten werden.
The offer for sale is only allowed on the listed vehicles under the specified conditions.



Kraftfahrt-Bundesamt

DE-24932 Flensburg

3

Genehmigungsnummer: 91896

Approval number:

10. Bemerkungen:
Remarks:
Es gelten die im o.g. Gutachten nebst Anlagen festgehaltenen Angaben.
The indications given in the above mentioned test report including its annexes shall apply.
- Die Anforderungen des Artikels 31, Absätze 5, 6, 8, 9 und 12 der Richtlinie 2007/46/EG - Verkauf und Inbetriebnahme von Teilen oder Ausrüstungen, von denen ein erhebliches Risiko für das einwandfreie Funktionieren wesentlicher Systeme ausgehen kann - sind sinngemäß erfüllt.
The requirements of Article 31, paragraphs 5, 6, 8, 9 and 12 of directive 2007/46/EC - Sale and entry into service of parts or equipment which are capable of posing a significant risk to the correct functioning of essential systems - are met.
11. Änderungsabnahme gemäß § 19 (3) StVZO:
Acceptance test of the modification as per § 19 (3) StVZO:
Siehe Prüfbericht
See test report
12. Die Genehmigung wird erteilt
Approval is granted
13. Grund (Gründe) für die Erweiterung der Genehmigung (falls zutreffend):
Reason(s) for the extension (if applicable):
Entfällt
Not applicable
14. Ort: DE-24932 Flensburg
Place:
15. Datum: 29.10.2020
Date:
16. Unterschrift: Im Auftrag
Signature:

Nino Pommerencke





Kraftfahrt-Bundesamt

DE-24932 Flensburg

4

Genehmigungsnummer: 91896

Approval number:

Anlagen:

Enclosures:

Gemäß Inhaltsverzeichnis

According to index

922 91896



Kraftfahrt-Bundesamt

DE-24932 Flensburg

Inhaltsverzeichnis zu den Beschreibungsunterlagen Index to the information package

Nummer der Genehmigung: **91896**
Approval No.

Ausgabedatum: **29.10.2020**
Date of issue:

letztes Änderungsdatum: --
last date of amendment:

Nebenbestimmungen und Rechtsbehelfsbelehrung
Collateral clauses and instruction on right to appeal

Prüfbericht(e) Nr.:
Test report(s) No.:
8117936774

Datum:
Date
27.10.2020

Beschreibungsbogen Nr.:
Information document No.:
Entfällt
Not applicable

Datum:
Date

Liste der Änderungen:
List of modifications:
Entfällt
Not applicable

Datum:
Date

§22, 91896



Kraftfahrt-Bundesamt

DE-24932 Flensburg

Nummer der Genehmigung: **91896**

- Anlage -

Nebenbestimmungen und Rechtsbehelfsbelehrung

Nebenbestimmungen

Jede Einrichtung, die dem genehmigten Typ entspricht, ist gemäß der angewendeten Vorschrift zu kennzeichnen.

Das Genehmigungszeichen lautet wie folgt:

KBA 91896

Die Einzelerzeugnisse der reihenweisen Fertigung müssen mit den Genehmigungsunterlagen genau übereinstimmen. Änderungen an den Einzelerzeugnissen sind nur mit ausdrücklicher Zustimmung des Kraftfahrt-Bundesamtes gestattet.

Änderungen der Firmenbezeichnung, der Anschrift und der Fertigungsstätten sowie eines bei der Erteilung der Genehmigung benannten Zustellungsbevollmächtigten oder bevollmächtigten Vertreters sind dem Kraftfahrt-Bundesamt unverzüglich mitzuteilen.

Verstöße gegen diese Bestimmungen können zum Widerruf der Genehmigung führen und können überdies strafrechtlich verfolgt werden.

Die Genehmigung erlischt, wenn sie zurückgegeben oder entzogen wird, oder der genehmigte Typ den Rechtsvorschriften nicht mehr entspricht. Der Widerruf kann ausgesprochen werden, wenn die für die Erteilung und den Bestand der Genehmigung geforderten Voraussetzungen nicht mehr bestehen, wenn der Genehmigungsinhaber gegen die mit der Genehmigung verbundenen Pflichten - auch soweit sie sich aus den zu dieser Genehmigung zugeordneten besonderen Auflagen ergeben - verstößt oder wenn sich herausstellt, dass der genehmigte Typ den Erfordernissen der Verkehrssicherheit oder des Umweltschutzes nicht entspricht.

Das Kraftfahrt-Bundesamt kann jederzeit die ordnungsgemäße Ausübung der durch diese Genehmigung verliehenen Befugnisse, insbesondere die genehmigungsgerechte Fertigung sowie die Maßnahmen zur Übereinstimmung der Produktion, nachprüfen. Es kann zu diesem Zweck Proben entnehmen oder entnehmen lassen. Dem Kraftfahrt-Bundesamt und/oder seinen Beauftragten ist ungehinderter Zutritt zu Produktions- und Lagerstätten zu gewähren.

Die mit der Erteilung der Genehmigung verliehenen Befugnisse sind nicht übertragbar. Schutzrechte Dritter werden durch diese Genehmigung nicht berührt.

Rechtsbehelfsbelehrung

Gegen diese Genehmigung kann innerhalb eines Monats nach Bekanntgabe Widerspruch erhoben werden. Der Widerspruch ist beim Kraftfahrt-Bundesamt, Fördestraße 16, DE-24944 Flensburg, schriftlich oder zur Niederschrift einzulegen.



Approval No.: 91896

- Attachment -

Collateral clauses and instruction on right to appeal

Collateral clauses

All equipment which corresponds to the approved type is to be identified according to the applied regulation.

The approval identification is as follows: - see German version -

The individual production of serial fabrication must be in exact accordance with the approval documents. Changes in the individual production are only allowed with express consent of the Kraftfahrt-Bundesamt.

Changes in the name of the company, the address and the manufacturing plant as well as one of the parties given the authority to delivery or authorised representative named when the approval was granted is to be immediately disclosed to the Kraftfahrt-Bundesamt.

Breach of this regulation can lead to recall of the approval and moreover can be legally prosecuted.

The approval expires if it is returned or withdrawn or if the type approved no longer complies with the legal requirements. The revocation can be made if the demanded requirements for issuance and the continuance of the approval no longer exist, if the holder of the approval violates the duties involved in the approval, also to the extent that they result from the assigned conditions to this approval, or if it is determined that the approved type does not comply with the requirements of traffic safety or environmental protection.

The Kraftfahrt-Bundesamt may check the proper exercise of the conferred authority taken from this approval at any time. In particular this means the compliant production as well as the measures for conformity of production. For this purpose samples can be taken or have taken. The employees or the representatives of the Kraftfahrt-Bundesamt may get unhindered access to the production and storage facilities.

The conferred authority contained with issuance of this approval is not transferable. Trade mark rights of third parties are not affected with this approval.

Instruction on right to appeal

This approval can be appealed within one month after notification. The appeal is to be filed in writing or as a transcript at the Kraftfahrt-Bundesamt, Fördestraße 16, DE-24944 Flensburg.



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