



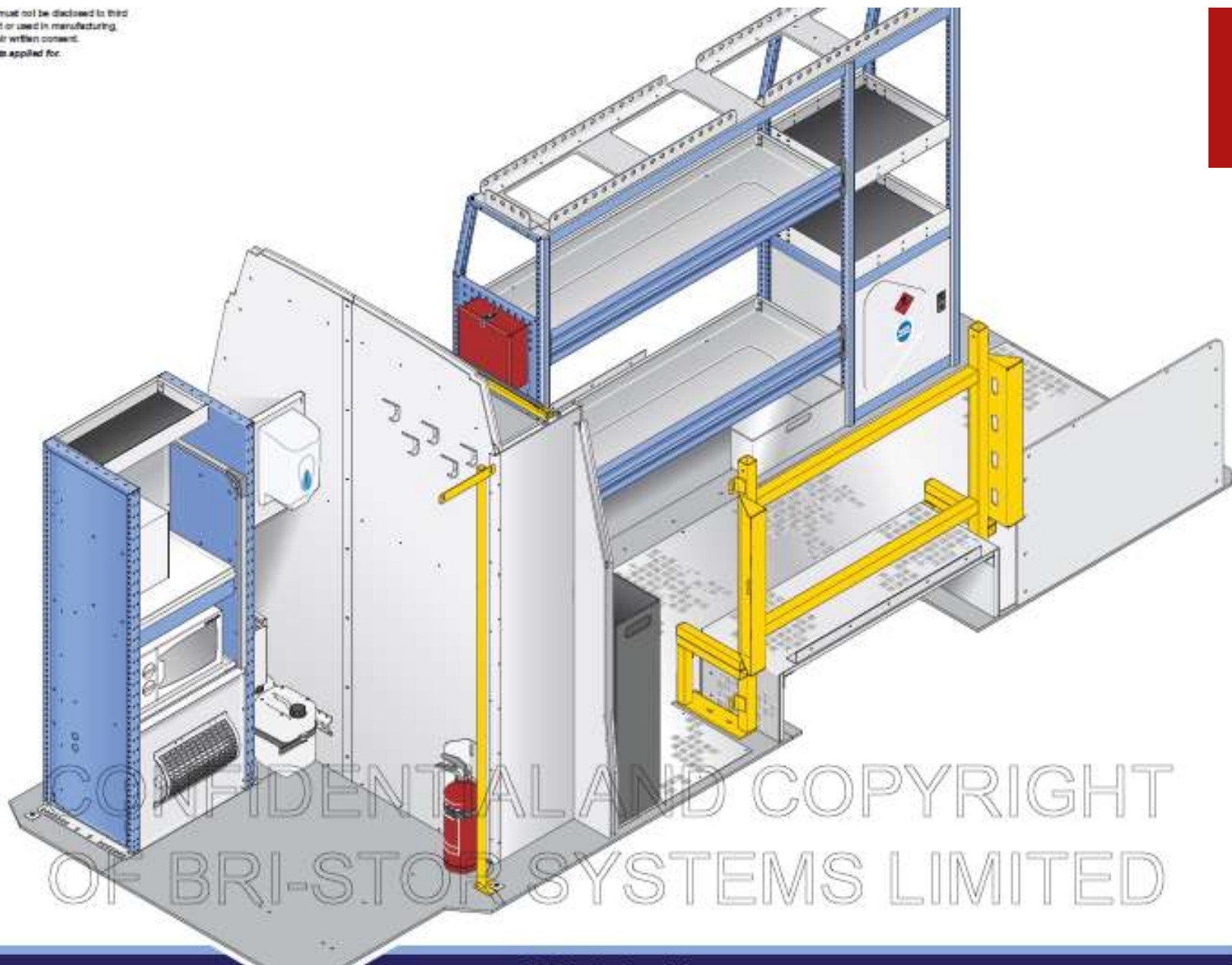
# Guidance for the Safe Loading of the DD027 Welding Vehicles 7 Tonne

© 23/11/2001

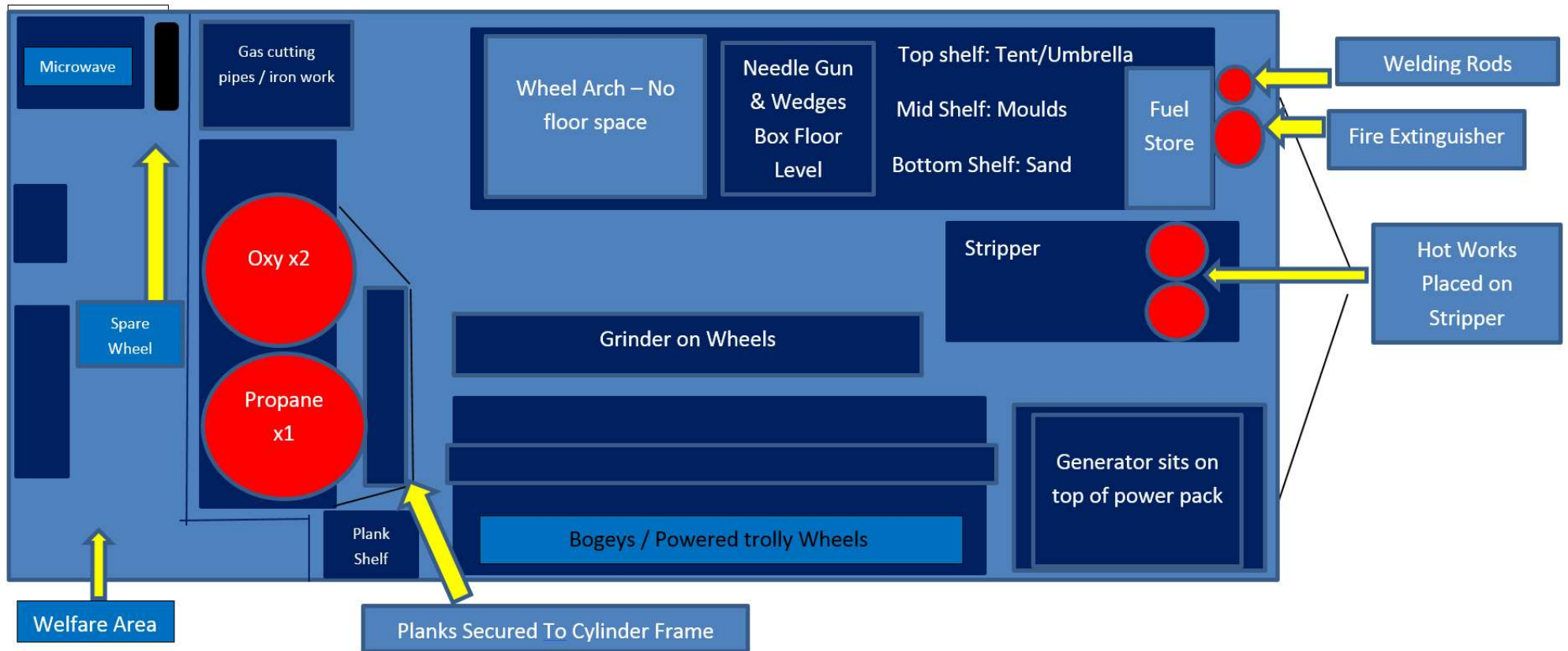
This drawing and any information or descriptive matter set out herein is the confidential and copyright of BRI-STOR SYSTEMS LIMITED. It is issued for information purposes only and must not be disclosed to third parties, loaned, reproduced, in whole or in part or used in manufacturing, tendering, or for any other purpose without their written consent. UK design registration and worldwide patents applied for.



It is issued for information purposes only and must not be disclosed to third parties, copied, reproduced, in whole or in part or used in manufacturing, tendering, or for any other purpose without their written consent.  
UK design registration and worldwide patents applied for.



CONFIDENTIAL AND COPYRIGHT  
OF BRISTOL SYSTEMS LIMITED



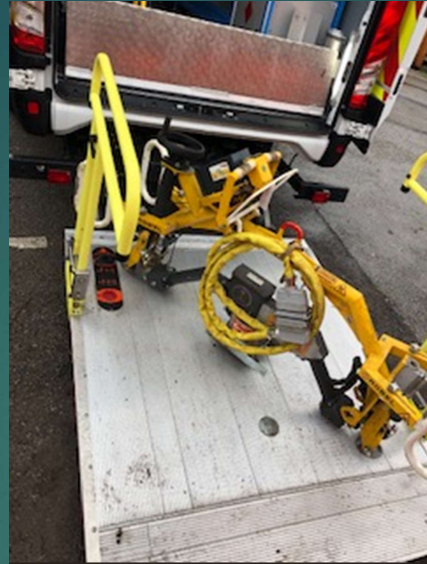
OFFICIAL

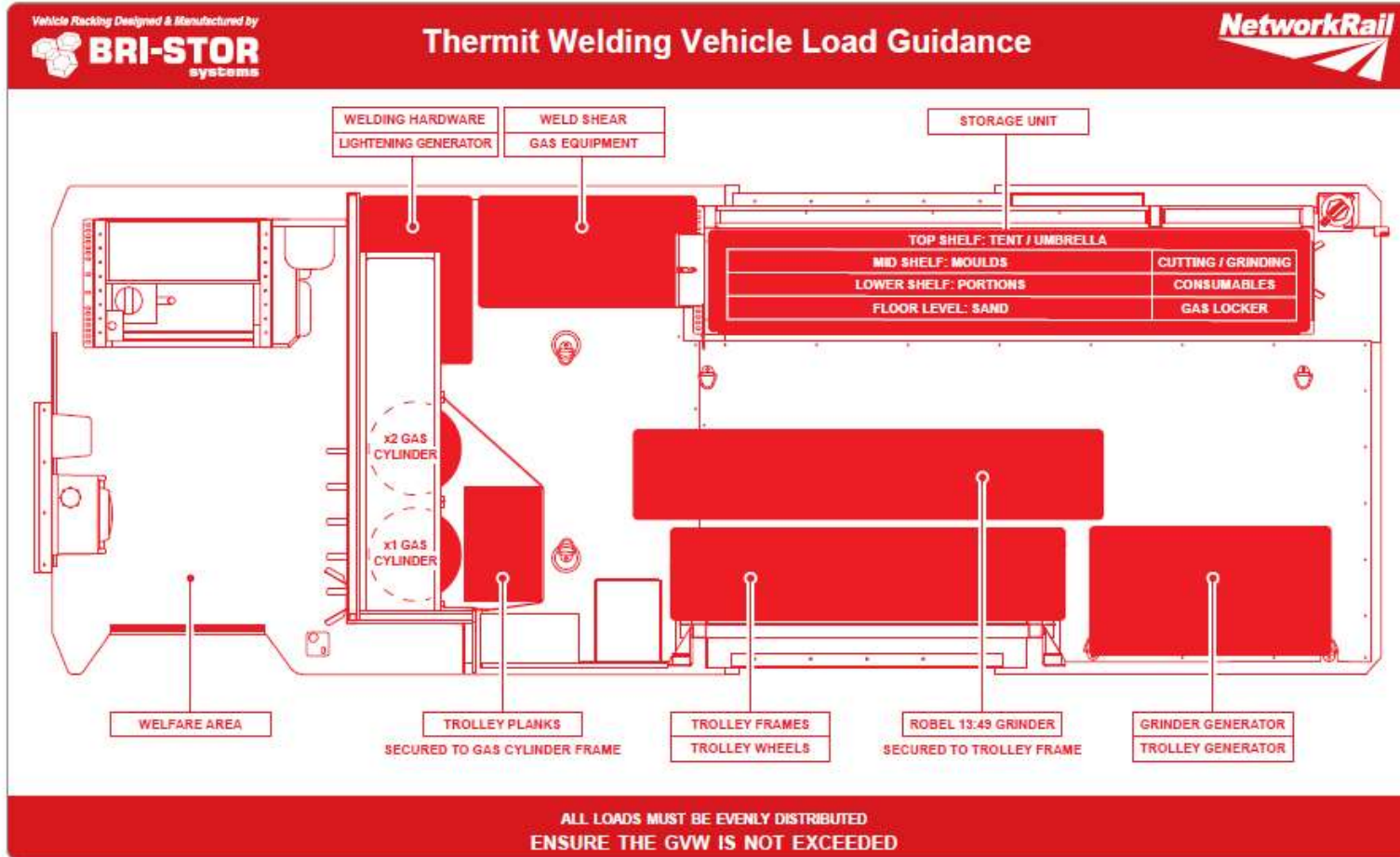
# Overview of how the floor plan would look



OFFICIAL

NetworkRail



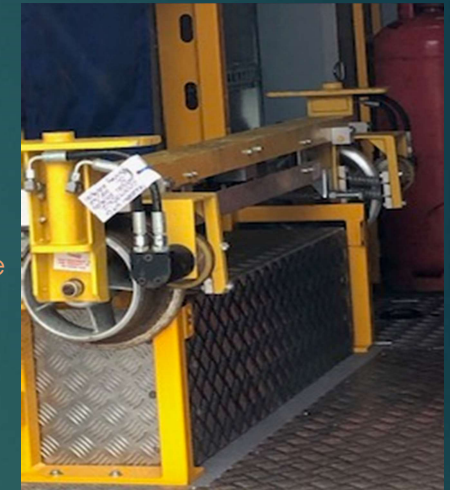




Spare wheel storage, Network Rail does not allow the operator to change the Spare wheel this should be removed before the vehicle is used, and stored safely at the respective depot.



Can metal arms be attached to support Motorised Trolley Wheels? Yes these can be looked at with the new trollies.



RPE Storage, kit can be moved to the front overhead locker. This has enough space for up to 4 kits.





Plank plate too small to store motorised trolley planks. Planks to be strapped against gas and oxy cylinders. **The plank plate to be removed on future builds.**



Shelf above gas cylinders is not suitable to carry the large tool boxes as seen in picture, due to the size and overall weight. **More suitable boxes to be looked in to.**



Bogey wheels pressing against vehicle side. Wear & Tear over time? **The chequer kick plate is 3mm thick and should be sufficient to protect the side of the van.**

OFFICIAL



Hot debris should not be placed in the vehicle until it has reached an ambient temperature, (below 50c)



Straps / support arm / tilted support load bearers to secure the first part of the bogey. Bogey susceptible to tip/fall whilst left unattended to load second part. Looking at having a incline taper on the top edge of the stowage bracket which will stop the bottom of trolley sliding out whilst loading the second half.

OFFICIAL



NetworkRail

To eliminate Slips, trips and Falls through stepping over the Stripper – if you would like to store in the rear of the vehicle we would recommend having a Angle iron frame on wheels to roll into position then secure to the lashing rings supplied



Minimal & awkward limited space on tail lift when loading Grinder. The grinder should be placed n/s rear corner to o/s front which allows use of the foot peddle controls whilst holding the hand rail and the machine.

- 1.No external Lighting- There is one external scene light mounted above the N/S Sliding door operated via dash mounted switch located in the cab. We can add if required externally on the O/S, similar position as Nearside and on rear doors at high level. Additional Cost £181.32
- 2.Tail lift controls can be left on potential leading to battery drain. Battery guard fitted, tail lift wired to main battery, light in cab when tail lift is in operation
3. Rear doors no door stays to hold the doors open potential for the doors closing in high winds when tail lift raising. Standard stays in place, we can add extra stays, 270 Folding Door Stays Additional Cost £45.82
4. Tail lift roll away protection bar trip hazard when raised should this not be black & yellow in colour? Can be taped both sides, 50mm deep Black and Yellow Tape to be applied both sides £10.83
5. Step into driver's cab/passenger height is of concern as we have provided a pull-down step into the welfare area there is no difference in Height, vehicles are all CE approved with step height's taken into consideration.
- 6.The handle grip into the van should this not be yellow & of metal construction as the current handle made of plastic has potential to snap. This is a manufacturers handle, look at making this yellow, We do not believe it to be a viable option to make the manufacturers handle yellow, but recommend if this requires changing that we supply our standard short yellow grab handle at an additional cost of £22.83.
7. Metal plate at the rear of the van is of concern as this could potential used as a step into the rear of the vehicle. This is on a rubber hinge and gives way with any weigh applied on the plate. Do not step sticker to be applied, Additional Label £5.00
- 8.Metal plate at the rear catches on the tail lift anti – slip bar causing the plate to bend a spring back. This is down to miss use of the equipment, training can be provided
- 9.Vehicle tools not dedicated storage area, also the vehicle jack has been provided. No issue tools to be removed and stored at depot.
- 10.Opening the back doors with the tail lift down creates a trip hazard with the side rails still on the floor, maybe review that part of the process? Covered off in the unfolding instructions review video, Doors must be opened when tail lift is down otherwise handles would clash with the doors as evidenced by the video.
- 11-There is no handle on the bridge plate for raising or lowering, thinking about trapped fingers. A handle near the lock pin? We can review if this is possible, A small strap staple can be added on the RHS either side (front and back) of the bridging plate cost in the region of £20
- 12.Side door? Is there a fire risk (trapped at front of vehicle , fire extinguisher at rear?), we can supply a fire blanket if needed, due to the equipment at the rear this is not always needed



13-How strong is the bulkhead in the event of an accident to hold the Gas Cylinders? Should they not be on a side wall?

Bulkhead has been designed to accept the cylinders and the design has been done to ensure maximum safety.

14-The bridging plate in the upright position and using the tail lift from inside causes a trip hazard. Should there be a waist height strap from the grab handle to the other side to prevent that. Like they do on car transporters or flatbed rigids? This is miss use of the equipment supplied

15-The tail lift is silent, should there perhaps be some accompanying warning bleeper? There are hazard lights on the lift and correct procedures in place

16-Do the detonators have to be that close to the Cylinders? Please follow correct loading procedures

17- No alarm if Tail Lift left Down look at having 2 separate lights in the cab.

As it stands the lift is fitted with a sensor and an illuminated cab switch. If the lift is not in the fully stowed position then the light on the cab switch will stay illuminated even if the switch is turned off, this is a warning that the lift is not stowed

The above information was provided by the Tail Lift Manufacturer erroneously, after Bri-Stor testing this it proved not to be the case.

We are now exploring the possibility with the Tail Lift Manufacturer of a buzzer in the cab, they have advised that the signal can be provided from the lift and the wiring is in situ, albeit might need to check its wired at the lift end. Our Electrical Project Engineer has raised several questions to Dhollandia with regards to this, of which I am still awaiting an answer.

18- The shelves with holes are pointless. The gas bottles are inaccessible unless kit removed. The trolley is unsafe when loading/unloading. 1 means of access/escape to/from the back is a concern. Not enough free area inside to turn when loading/unloading. Tim and Julie to look into the design of the trolley rack, shelves have been made to only take lightweight equipment

Trolley amendments requested following the Roadshows were addressed

## Ergonomics Additions

### Upper Shelving with holes

It's not just the weight of something which leads to risk of injury, but also its position. Items further away from your body, or at bad heights - on or near the floor or above your shoulders - increase the chances of you getting injured. Because of this, it's best to store the heaviest items in the middle range of height, and lighter items on or near the floor, or above shoulder height. The shelving with holes has been designed with this in mind as it's designed this way so you can put lighter things on it, like the welding tent, rather than heavier items like welding portions. The recommended loading plan will show the type of items which these shelves are designed to hold, so as to protect your back and shoulders.

### Removal of side door

People often handle things in ways which they shouldn't, and over time the muscles, bones, and tendons become damaged. This is why you find that you hurt your back, for example, when picking up a helmet from the floor. It's not the helmet which has caused the injury; that's simply the last straw. What's caused the injury is all the poor manual handling you've done over the years. Eventually, your body can't do it anymore and it fails over quite a simple action. As you get older, this is more likely to happen. So, we are trying to avoid you doing poor handling by designing things differently. This could mean you can no longer work in the way you have been used to.

In 2016 the ORR told Network Rail we needed to improve manual handling across the network so a project was set up to ensure the risks were managed, and that we met the requirements of the Manual Handling Operations Regulations 1992 (MHOR). As part of this we started doing risk assessments. Once a risk is identified, we have to take steps to reduce it.

Our analysis of the industry database of injuries, SMIS, showed that nationally just under 17% of injuries in the last 5 years to W&G staff are when they are handling gas cylinders. Many of these are when they are manually moving the cylinders in and out of the vans. Because of this we've done risk assessments and these have confirmed the risks are unacceptably high. This is not surprising given the weights of the cylinders, the fact they are handled with one hand only, and that they are usually handled in and out of the side door so the handler is twisting or bending to the side, both of which put immense strain on the spine and carrying shoulder.

We needed to come up with a way to reduce the risks to staff of this activity. It has been custom and practice to take gas cylinders in and out of the side door and we felt staff were unlikely to stop this simply by being asked not to. As a result the side door was removed from the new vehicles so as to avoid these significant risks and enable mechanical handling of the cylinders in and out of the vans.

Other things which you can do to reduce the risks of handling the cylinders:

1. Follow the loading guide for the new welding vans
2. Use the correct cylinder for the job:
  - a. Acetylene – move to J sized smaller lighter bottles. These weigh 33 kg.
  - b. Oxygen – move to Genie smaller lighter bottles. These weigh approx. 30 kg. (Currently approved propane bottles weigh 40 - 57 kg but trials are underway to see if smaller lighter bottles can be used and if successful, these will be approved in due course.)

Note both of these are approved products.

Currently approved propane bottles weigh 40 - 57 kg but trials are underway to see if smaller lighter bottles can be used and if successful, these will be approved in due course.

3. Use a safe handling method – use mechanical aids and where you can't then use the safest manual method - always use two hands. If you are handling alone, carry the cylinder across your body, one hand on the top and one on the bottom:



4. Use mechanical aids:

- a. Use of BOC Genie wheels:



- b. Use removable handles like these from Gas Grab:



- c. Use a sack truck in the depot. You should use manual ones like these



- Or a powered one like this from MGB Easy Handling:

