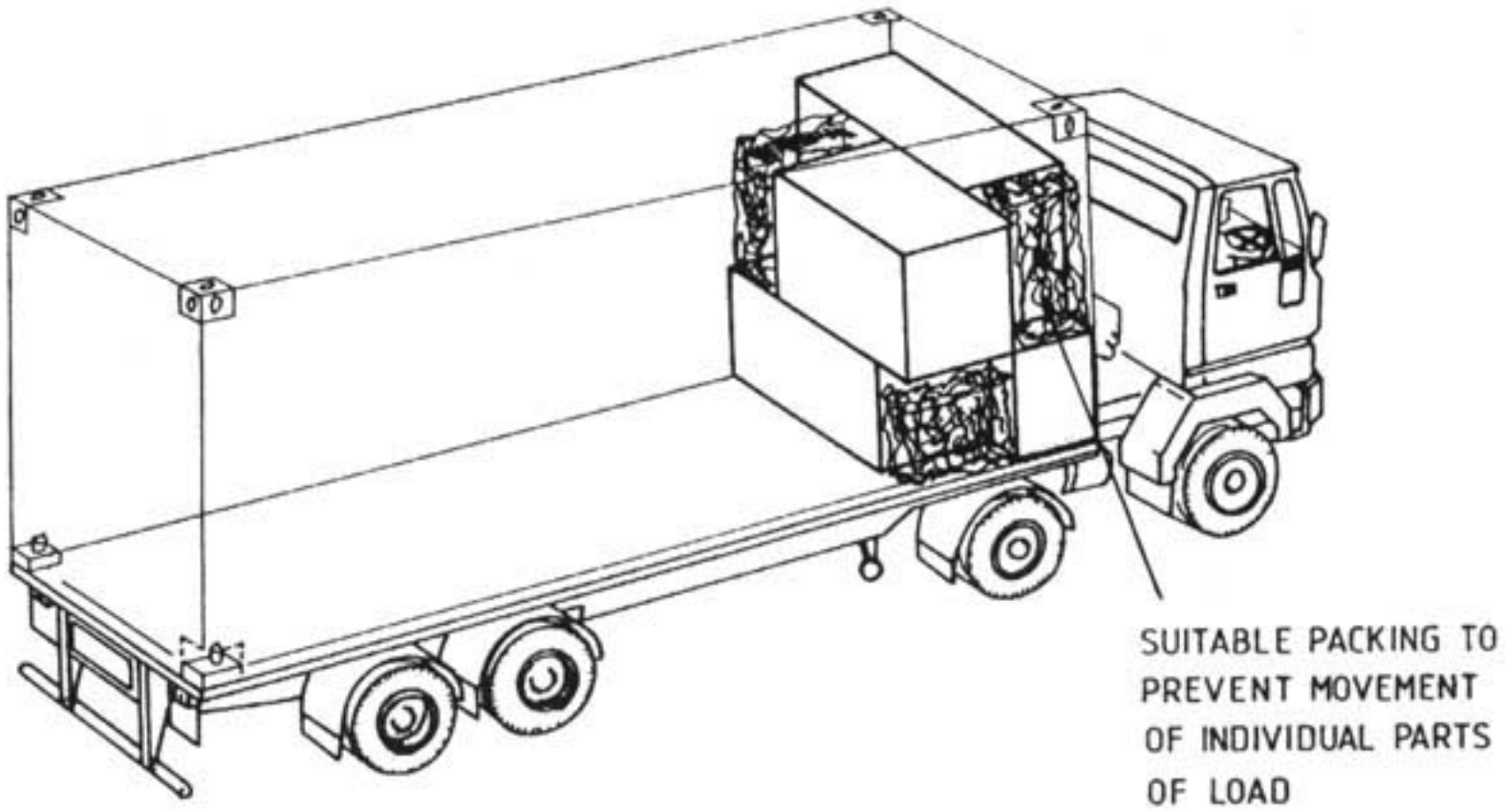
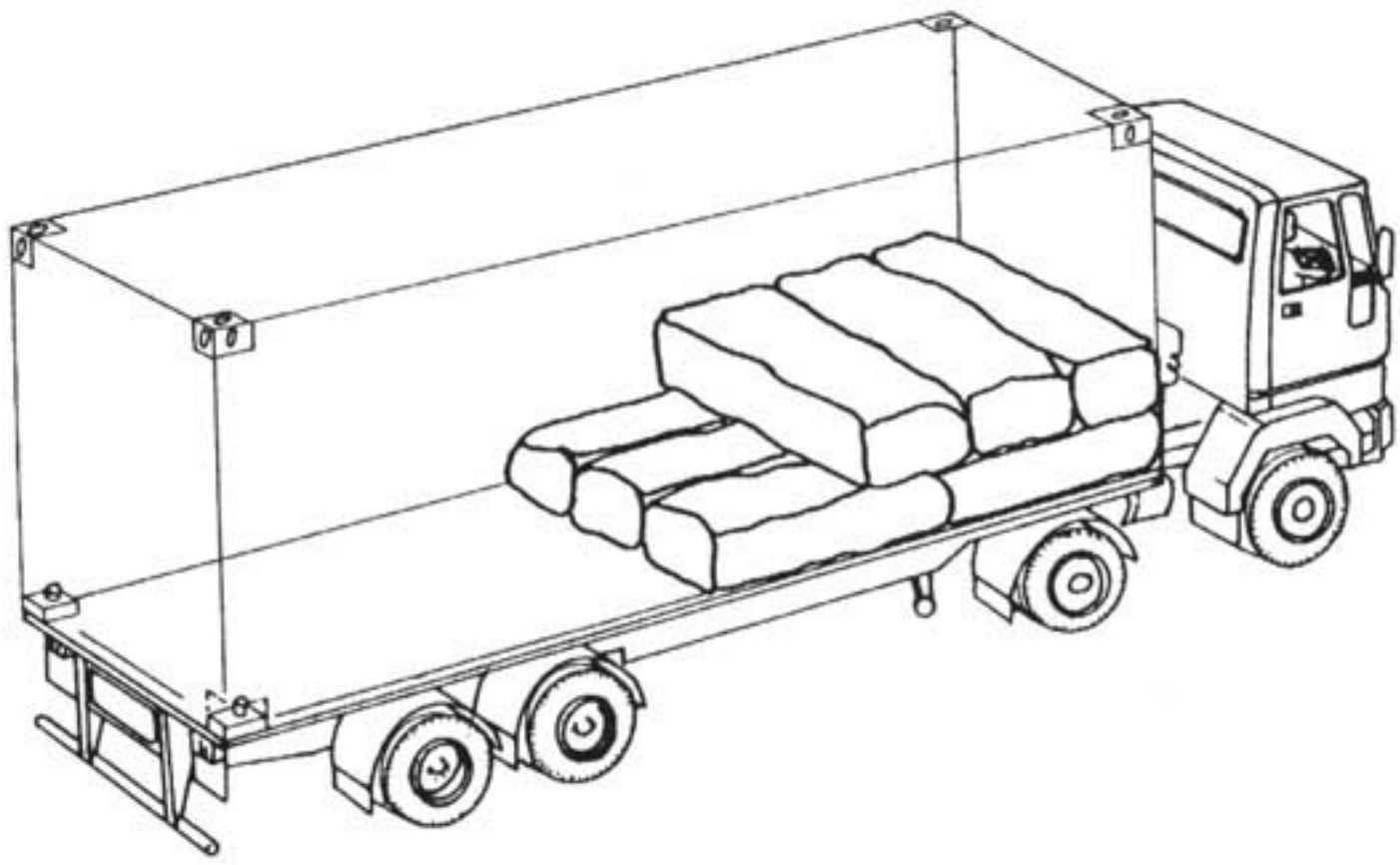


LOAD PACKED IN ALTERNATE LAYERS TO PROVIDE A TIGHT LOAD



ARRANGEMENT OF LOADS IN CONTAINERS

DIAGRAM 3.7.5

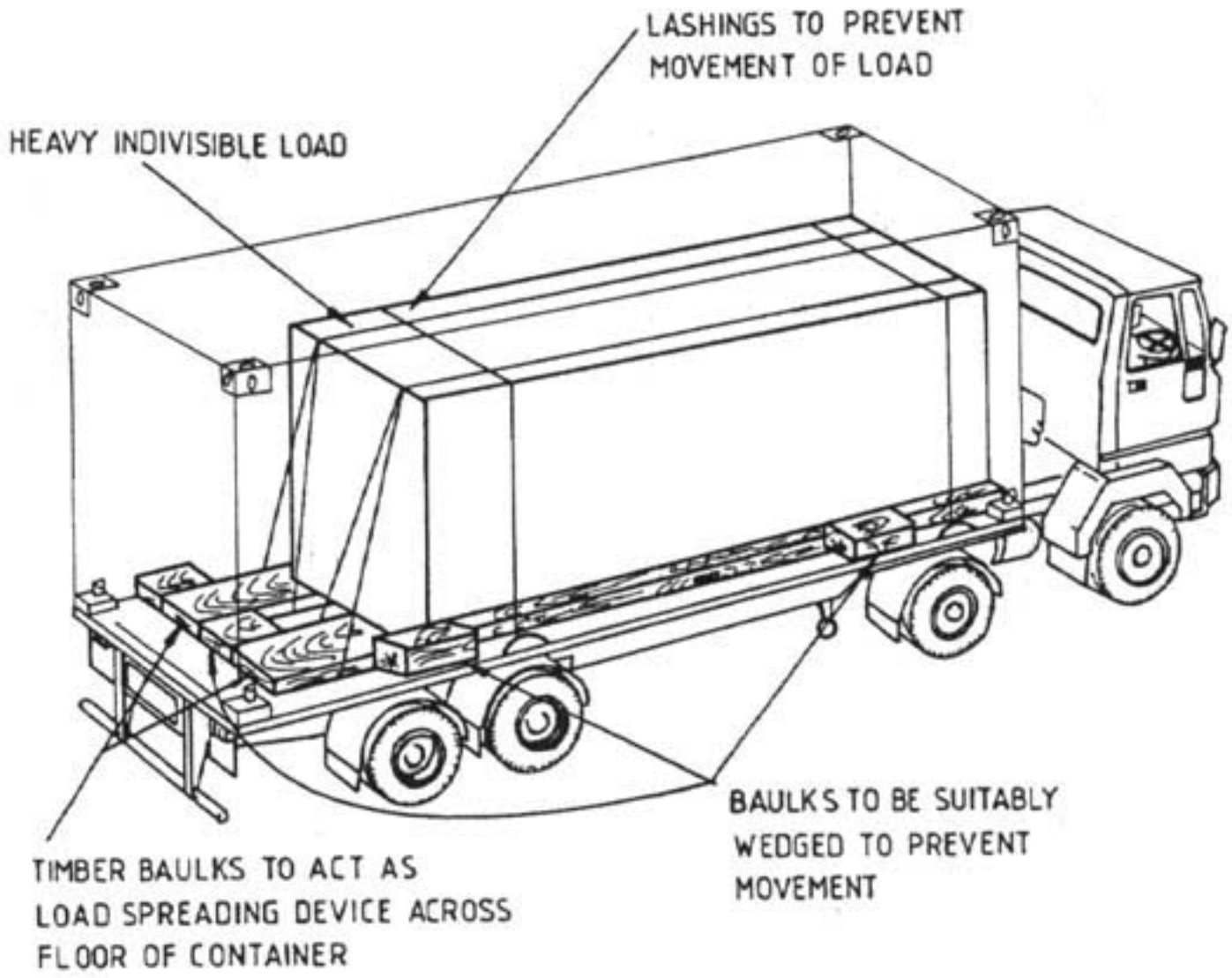
viii) Where heavy objects have been slid over the floor of the container and wax or similar substances has been used to assist this, measures will need to be taken to compensate for the reduction in the friction effect caused by the application of such substance, generally by using chocks or lashings to restrain the load.

ix) Vertical crushing effects, which may cause the load to move, can be significant with certain loads such as fibre board packages. Some reduction in this effect can be obtained by laying planks or boards horizontally between layers to spread the load.

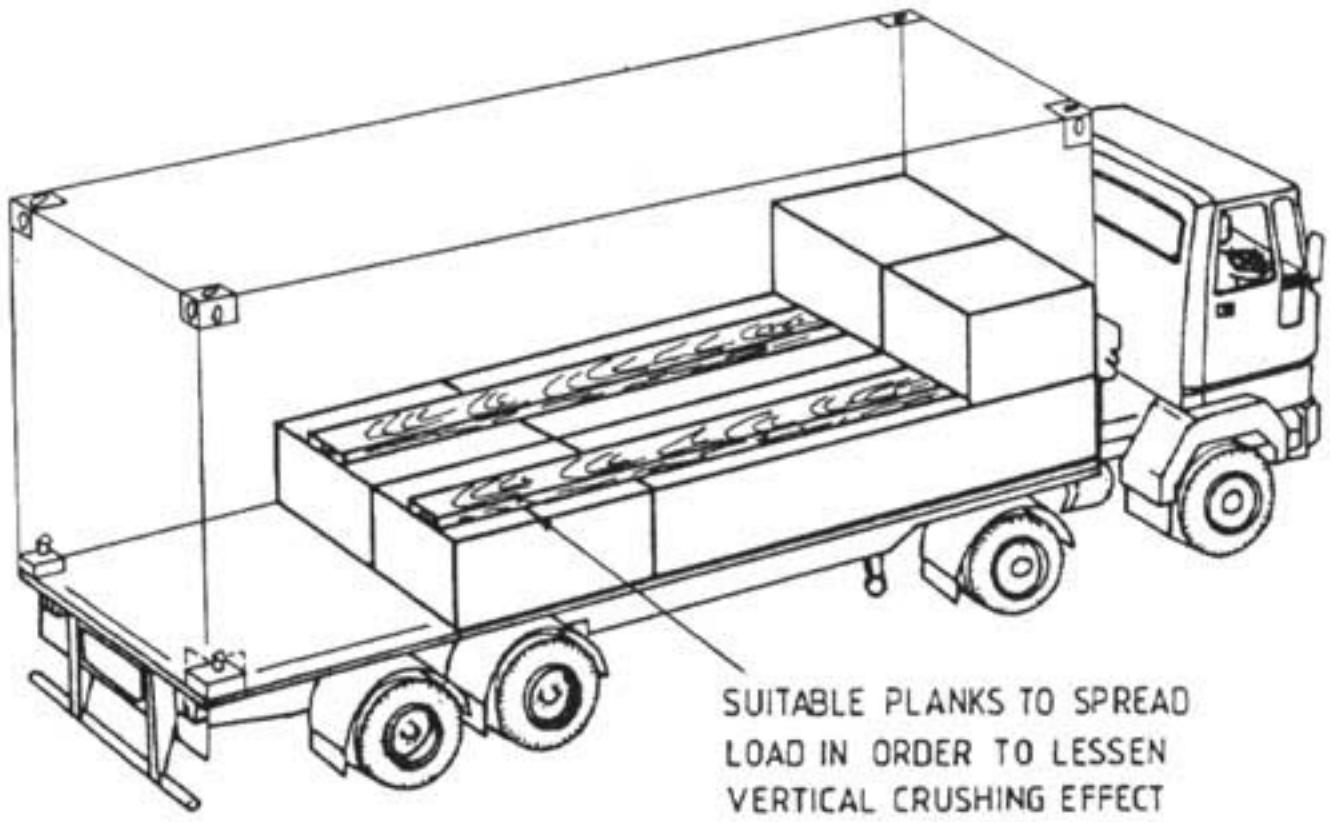
x) When the packing has been completed, it should be checked that it is not possible for the load to fall out when the door is reopened at any time. Lashings, nets, timber or metal gates at the rear and adjacent to the doors are sound safety precautions to take in the event that the load does shift, and will prevent goods from falling onto operatives when the rear doors are opened. However, it is preferable that reliance is not entirely placed on these measures but instead, it should be ensured that the items are properly packed so that they cannot move.

3.7.18 Whilst the advice in paragraph 3.7.17 is generally suitable for most types of loads, there are situations of course when it is not sufficient and further precautions must be taken. For example, additional precautions will be necessary if the container is to be air transported, and in these matters the air cargo authorities should be consulted. Also, special requirements will be necessary where goods require temperature or atmospheric control to be provided and where the provision of optimum air circulation paths is necessary. For these latter situations, specialist advice from manufacturers should be sought as to the packing arrangements to be made.

3.7.19 In respect of the actual transportation of the container, and particularly if it is open-topped or being carried on a vehicle not specially designed for its carriage, it is essential that the top of the container or, if any item is allowed to project out of the container, the top of that item is not higher than 4.6 m above the road surface. Failure to ensure this will not only mean that an offence will be committed because the legal height has been exceeded, but additionally that the load could cause serious damage to any bridges or gantries it attempts to pass under.



CARRIAGE OF HEAVY INDIVISIBLE LOAD



CARRIAGE OF CRUSHABLE PACKAGES

LOAD SPREADING DEVICES IN CONTAINERS

DIAGRAM 3.7.6

3.8 Engineering Plant

3.8.1 Heavy engineering plant should be transported on purpose built vehicles specially designed to provide easy loading and unloading facilities, and equipped with adequate anchorage points for attaching the lashings.

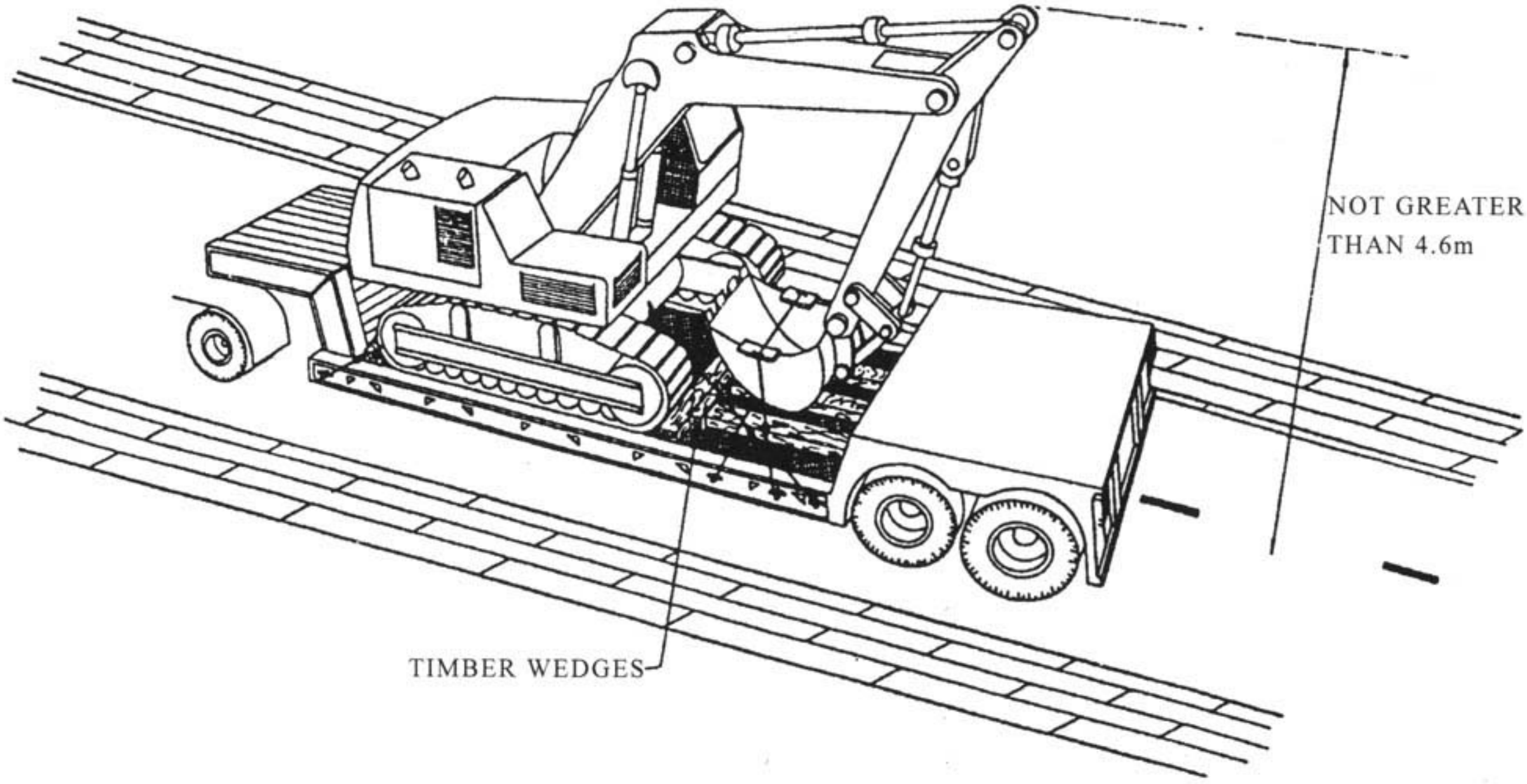
3.8.2 Light engineering plant may be carried on general purpose vehicles providing that the load can be adequately secured.

3.8.3 The Road Traffic (Traffic Control) Regulations prohibit any load on a vehicle being higher than 4.6 m above the adjacent carriageway surface, as shown in Diagram 3.8.1, therefore the height of any engineering plant being carried on a vehicle should be checked to ensure that this is not exceeded. Apart from committing an offence, an overheight vehicle will not able to pass under any bridges or gantries along the route, and in trying to do so may seriously damage these structures, and cause injury to passers-by. Beneath some bridges, gantries and other structures, the clearance provided is less than 4.6 m. In such situations traffic signs are erected to warn drivers. Those drivers transporting high loads should pay particular attention to such signs.

3.8.4 Loads with a high centre of gravity can seriously affect the vehicle's stability, therefore engineering plant of this type should only be transported on vehicles with a low platform height of the type illustrated in Diagram 3.8.1.

3.8.5 Engineering plant may not, unless a wide load permit has been obtained, extend over the sides of the vehicle such that the width of the load and vehicle is greater than 2.5 m.

3.8.6 In respect of engineering plant extending over the rear or front of the vehicle on which it is being carried, whilst the Road Traffic (Traffic Control) Regulations do permit loads to extend forwards by 1.5 m and to the rear by 1.4 m without the need for a long load permit, care will need to be taken where this occurs that the stability of the vehicle is not affected and that the driver's visibility is not impaired. It is recommended that engineering plant is only carried on vehicles where no part of it needs to extend over the front or rear of the vehicle. In this respect engineering plant should if necessary be dismantled in order to keep its dimensions within the width and length limits of the carrying vehicles.



TRANSPORTING AN ENGINEERING PLANT

(MAXIMUM HEIGHT OF LOAD)

DIAGRAM 3.8.1

3.8.7 All movable assemblies such as jibs, brackets, booms, and cabs must be secured in the position recommended for transportation by the manufacturer in order that they do not move when being transported.

3.8.8 Hydraulic booms, arms or similar must be lashed down to prevent any movement during transit. When the machine has been loaded onto the vehicle and the engine stopped, the pressure in the hydraulic system should be relieved by moving all the control levers at least twice through all their positions. Controls should then be set to prevent movement during transit.

3.8.9 Bags, tool kits or other heavy objects should not be left loose in the cab of the plant being carried, and all items dismantled from the plant such as buckets, grabs, blades, shovels or lifting apparatus should be lashed to the deck of the carrying vehicle.

3.8.10 The positioning of the engineering plant and any of its detached equipment must be arranged on the carrying vehicle such that the legal axle weight limits are not exceeded. It will also be necessary to ensure that the clearance between the undersides of the vehicle and the road surface will be sufficient for the roads to be travelled over. Roads with undulating surfaces such as construction roads, and those having sharp humps will need greater clearances to avoid the carrying vehicle from being grounded.

3.8.11 Wheeled or tracked vehicles after being loaded onto the carrying vehicle must have the parking brake applied, but this alone will not be sufficient and the vehicle must also be lashed to the carrying vehicle. It will also be necessary to provide baulking against the front and rear wheels or tracks of the vehicle being carried to prevent it moving forward or backward.

3.8.12 Wheeled and light tracked machines should be restrained so that the effect of bouncing caused by road shocks transmitted from the carrying vehicle and amplified by the machine's tyres or suspension units is minimized. Where this is possible the suspension unit of the machine should be locked and vertical movement limited by lashings or other means of restraint. Alternatively the machine's frame or chassis should be supported on blocks.

3.8.13 The full contact area of the tyres, tracks or rollers, of any machine, unless it is being supported, should rest on the deck of the carrying vehicle. If the tracks of a machine extend outside the frame of the carrying vehicle, then the machine's frame or chassis should be supported.

3.8.14 Apart from any specialized fixing devices, lashings used for restraining engineering plant must be of the following types: -

i) Chains

ii) Steel wire rope not less than 8 mm diameter, or

iii) webbing,

all of which should incorporate a tensioning device to ensure the lashings are properly tightened.

3.8.15 Lashings or other securing devices for restraining the engineering plant should only be attached to those parts of the plant which are of sufficient strength to withstand the stresses likely to be imposed.

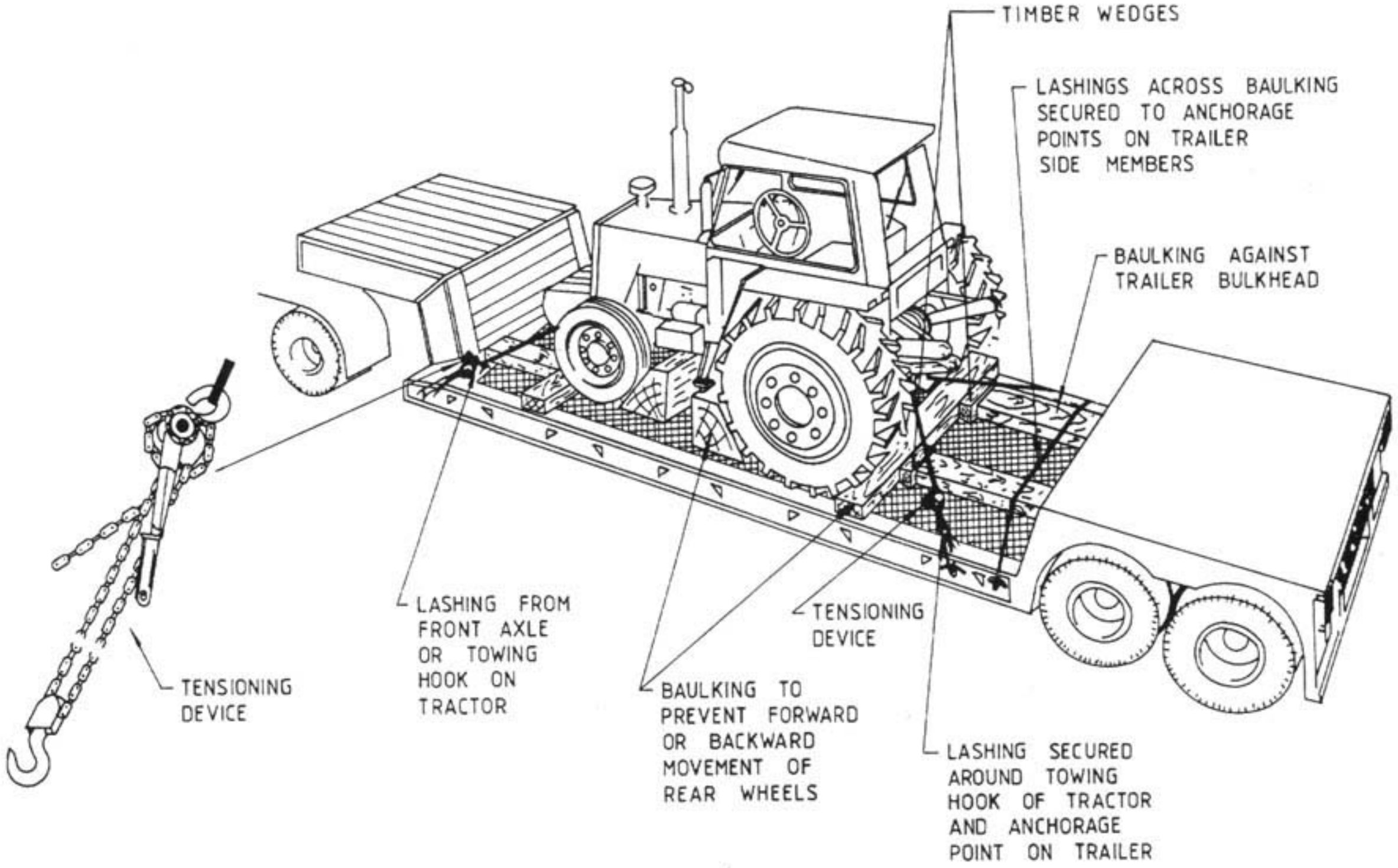
3.8.16 Where a transverse beam is used as a baulk, it must be securely fixed so that all loads imposed on it are transmitted to the carrying vehicle's chassis frame.

3.8.17 Where individual wheels or rollers of engineering plant are bulked, the baulking must be robust enough to resist crushing and be securely attached to the transporting vehicle's platform.

3.8.18 Not less than four anchorage points should be used to secure any engineering plant to the carrying vehicle's platform and the extent to which any further anchorage points will be necessary will need to have regard to the following: -

i) the need to position the machine to achieve the correct load distribution to meet the legal axle load requirements and to ensure that the safe driving of the transporting vehicle is not impaired;

ii) the extent to which other load restraint features are incorporated in the design of the vehicle;



TRANSPORTING A TRACTOR

DIAGRAM 3.8.2

iii) whether the machine has wheels, tracks, or rollers; and,

iv) the weight of the machine to be carried.

3.8.19 Whilst not every eventuality is covered, Diagrams 3.8.2 to 3.8.10 illustrate details of the type of restraints required when transporting certain engineering plants. The type of low loader indicated in the Diagrams is not necessarily indicative of the type that should always be used, but where a different type is employed then the location of the anchorage devices illustrated in the Diagrams may need to be adjusted to suit the particular vehicle. Similarly, chains are generally shown for the lashings but other lashing materials as mentioned in paragraph 3.8.14 may also be used.

3.8.20 Diagram 3.8.2 illustrates the type of restraint required when transporting an agricultural tractor, or similar. Any forward or backward movement is prevented by baulking. Sideways movement is prevented by the lashings.

3.8.21 Diagram 3.8.3 illustrates the type of restraint required when transporting a fork lift truck. Baulking is used to prevent forward and backward movement, with the baulking against the rear wheels of the truck also being butted against the bulkhead. Sideways movement is prevented by the lashings.

3.8.22 Diagram 3.8.4 illustrates the restraint required when transporting a road roller. Forward and backward movement is prevented by baulking butted against the wheels and the trailer bulkhead. Sideways movement is prevented by the lashings.

3.8.23 Although "pedestrian rollers" would generally not be carried on a low loader, Diagram 3.8.5 illustrates the type of restraint required when carried on such vehicles, and an equal restraint system would be necessary if the roller was carried on any other type of vehicle.

3.8.24 Diagram 3.8.6 illustrates the type of restraint required in respect of a wheeled tractor shovel. If the front part of the machine articulates relative to the rear part then in the case of pivot steer machines, the pivot locking bar should be bolted in position. With regard to the bucket assembly, the hydraulic pressure should be relieved by operating all controls twice with the engine switched off. Forward and backward movements should be prevented by baulking butted against the wheel together with lashings to also prevent any sideways movement.