

METHOD OF PLACING A DERAILED TRAM ON GREASED FLAT STEEL PLATES  
PRIOR TO RE-ALIGNING THE DERAILED TRUCK.



FIGURE 1.

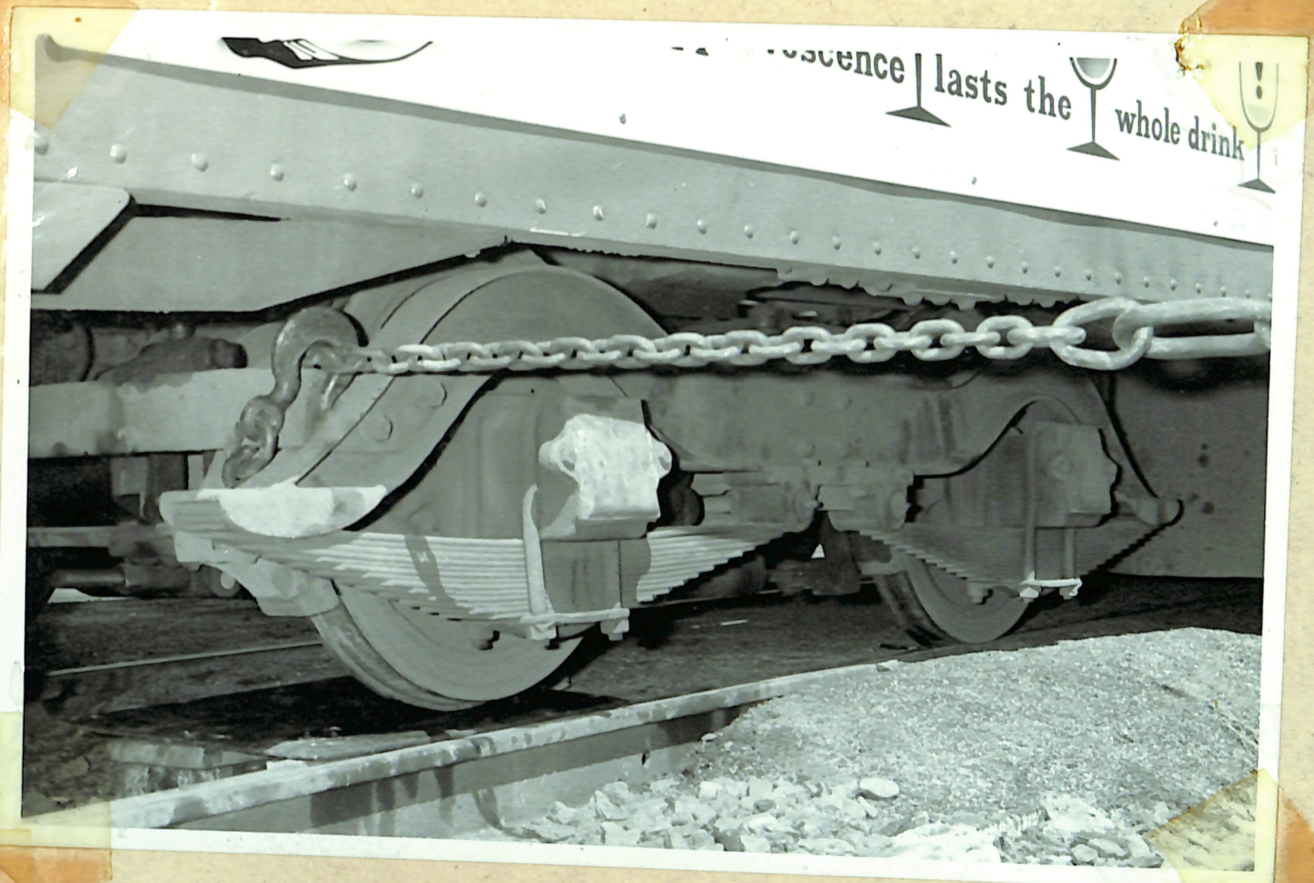
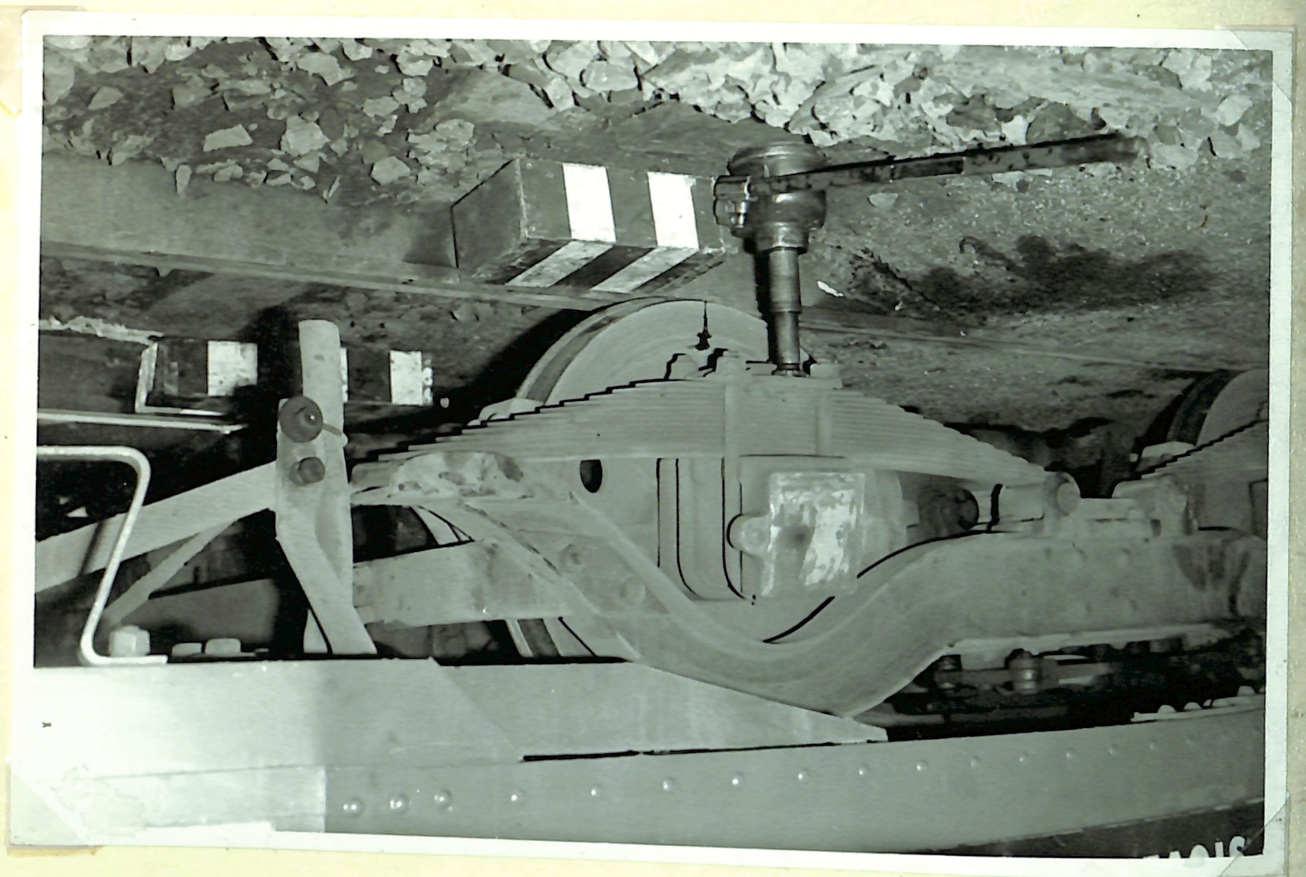


FIGURE 2.



Several methods of re-railing a derailed tram depend for their success on the correct use of greased flat steel plates. These plates allow the derailed wheels or the whole truck to be moved sideways preparatory to rerailing the tram.

On paved track, if the tram cannot be re-railed by driving on to or near the rail, place the de-railed wheels on the greased flat steel plates. If this cannot be carried out directly by driving the tram, lock the truck to the body with the locking beam, chock both sides of a pair of wheels on the unaffected truck, release the brakes and jack the tram until all the derailed wheels are 1" above rail level. Place the plates under the wheels in a suitable position for aligning the wheels with the rails, then lower the tram and remove the jacks. (See Figure 1).

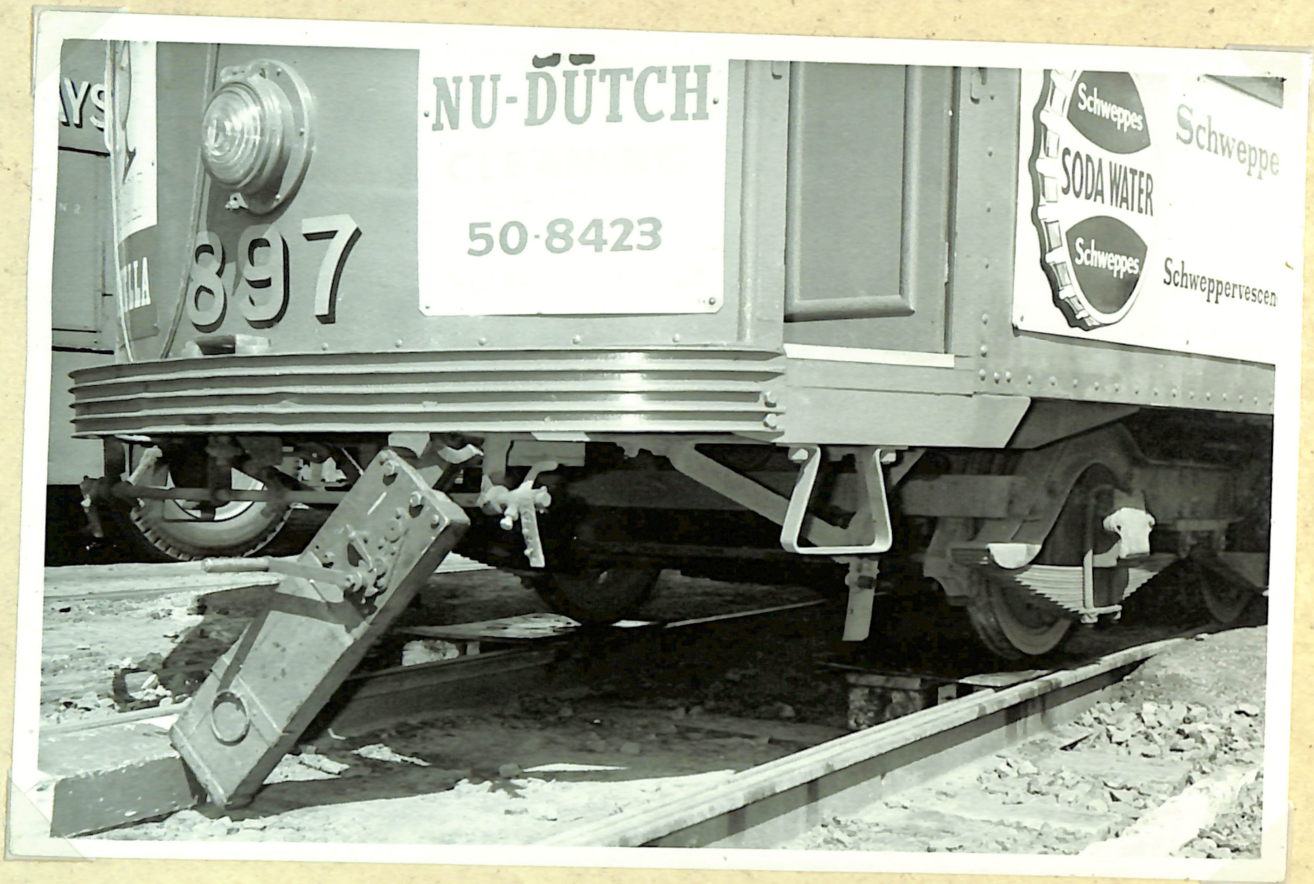
On ballast track, lock the truck to the body, chock the wheels of the unaffected truck and release all brakes, then jack the tram until all derailed wheels are 1" above rail level. Remove loose ballast to allow wooden blocks to be placed under the wheels with the top of the blocks at rail level and the underside of the blocks seated firmly, on top of the sleepers if possible. Place the plates on top of the wooden blocks with one edge of each plate resting on the rail head but not projecting beyond it. If necessary, level the plates using wooden packing or wooden wedges between the plates and blocks. Lower the tram wheels on to the plates and remove the jacks. (See Figure 2).

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Uncouple the Emergency Vehicle, remove the truck locking beam, apply the brakes, remove the chocks used to hold the tram while jacking and drive the tram clear.

If all four wheels are derailed, first align one pair as described then slacken the tow chain but do not uncouple it, lift the tram and remove the pair of plates under that pair of wheels then lower the tram re-railing those wheels. Remove the jacks and align the second pair of wheels, using the Emergency Vehicle. Then uncouple all chains, lift the tram, remove the plates and lower the tram until the wheels are re-railed. Apply the brakes, remove the chocks and truck locking beam and drive the tram clear.

Figure 1 illustrates the method in use where the leading pair of wheels has become derailed in an open section of track and shows a greased flat plate in position on top of properly seated and levelled wooden blocks. The Emergency Vehicle is attached directly to the appropriate end of the truck to traverse that end only.



METHOD OF USING THE EMERGENCY VEHICLE  
TO RE-ALIGN THE WHEELS OF A DERAILED TRUCK.



FIGURE 1.

Where a tram is derailed in an open situation, free from heavy traffic, it is often practicable to re-align the truck by placing the derailed wheels on a greased steel plate and pulling the truck into alignment with the Emergency Vehicle. A steel chain is used with one end terminating in an egg link attached to the towing pin of the Emergency Vehicle and the other end either attached to a chain sling secured to both ends of the truck if the whole truck must be traversed or attached directly to the appropriate end of the truck if only one end of the truck must be traversed.

This is a quick method, particularly where used on a paved track when there is no need to jack the tram.

On paved track, if the tram cannot be re-railed by driving on to or near the rail, place the tram on to the greased flat steel plates as described in the Method for so doing.

Couple the Emergency Vehicle and drive it slowly, under instruction from the Charge Hand, until the truck has been turned to a position suitable for driving to the rails.

Apply the air brake, remove the chocks used to hold the tram whilst jacking, uncouple the Emergency Vehicle, remove the chains and truck locking beam (if used) and drive the tram to the rails. If the wheels will not re-rail, use the pyramid plates or steel angle plates to re-rail the tram finally.

On ballast track, after placing the derailed tram on the plates as described in the Method, couple the Emergency Vehicle and drive it slowly, under instruction from the Charge Hand until one pair of wheels are aligned with the rails; then, if only the one pair of wheels needs re-railing, jack the tram, remove the plates and lower the tram until the wheels are re-railed.

METHOD OF USING A GERMAN JACK AGAINST THE REAR WHEEL OF THE EMERGENCY VEHICLE TO RE-ALIGN THE WHEELS OF A DERAILED TRUCK.



FIGURE 1.

On paved track, if the tram cannot be re-railed by driving on to or near the rail, place the tram on to the greased flat steel plates as described in the Method for ~~doing~~ so doing.

Place the German jack with its head under the axle box, against the semi-elliptic spring (No. 15 trucks) or against the bottom edge of the axle box (No. 1 trucks) & with its base resting on the roadway. Drive the Emergency Vehicle parallel with side of the tram & with the rear wheels in line with & about 3 ft. from the pair of wheels to be re-railed. Place a 6" x 8" x 2' wooden block between the base of the jack & the rear wheel of the Emergency Vehicle. Set the pawl of the jack in the ratchet & jack the wheel pair sideways until the truck has been turned to a suitable position for driving to the rails,.

Remove the German jack, wooden blocks & if used, the steel locking beam. Apply the air brake, removed the wheel chocks & drive the tram towards the rails. When the derailed truck is clear of the flat plates, stop & remove the plates, then drive the tram to the rails. If necessary, use pyramid plates or angle plates to complete re-railing of the tram.

On ballast track, place the derailed tram on the plates as described in the Method. If only one pair of wheels is de-railed, set the German jack in place & drive the Emergency Vehicle into position as described above & jack the derailed wheels sideways until they are aligned with the rails. Remove the German jack, lift the tram & remove the plates, then lower the tram, re-railing those wheels.

Remove the truck locking beam, apply the brakes & remove the chocks, then drive the tram clear. If all four wheels are derailed? re-rail one pair as above then align & re-rail the other pair in the same manner.

Remove the truck locking beam, apply the air brakes & remove the chocks, then drive the tram clear.

Figure 1 illustrates this Method in use in ballast track conditions.

METHOD OF USING A GERMAN JACK TO RE-ALIGN THE WHEELS OF A DERAILED TRUCK ON OPEN BALLAST.

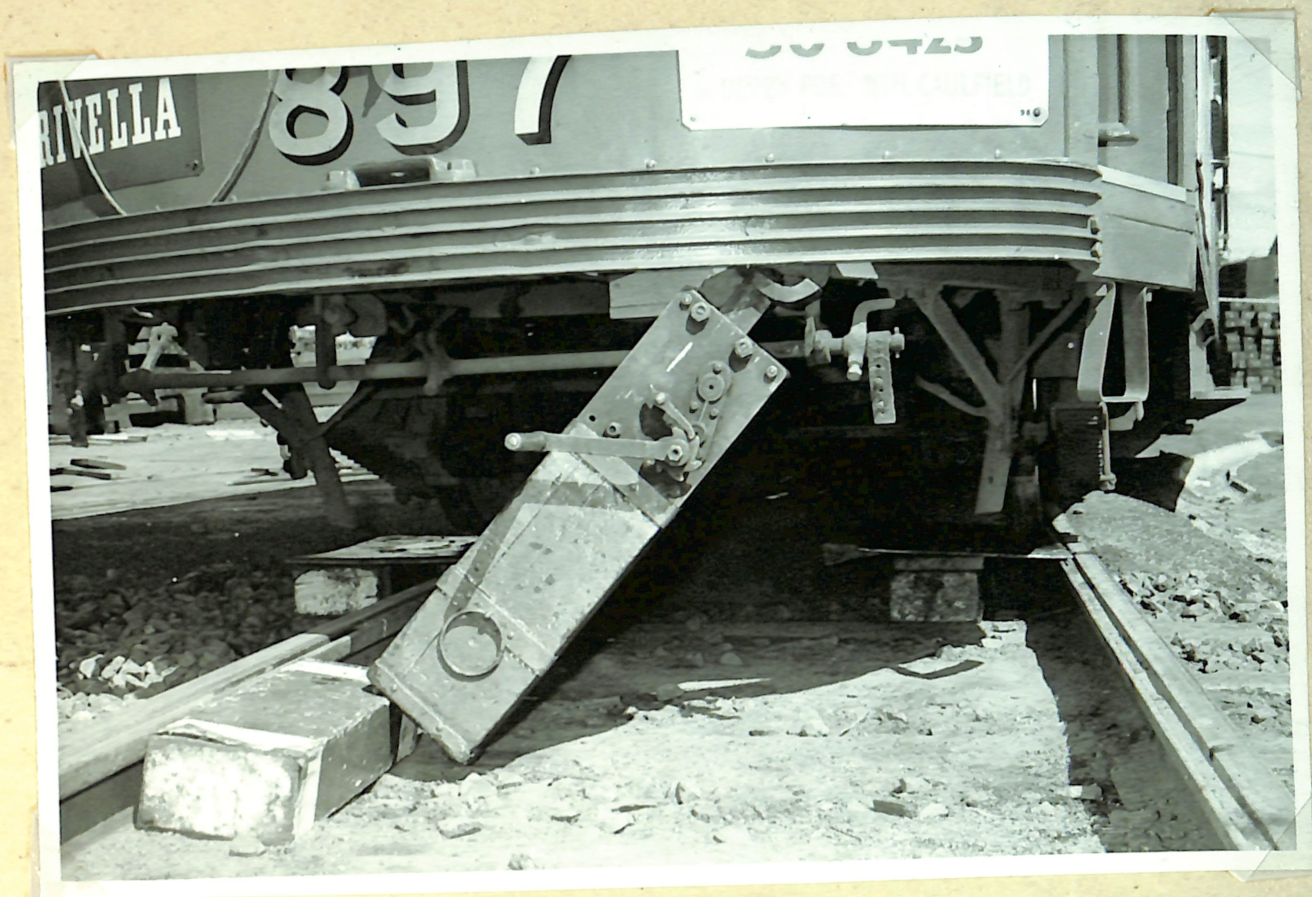


FIGURE 1.

This method of re-railing on open ballast track is particularly applicable in confined or fenced locations.

Place the derailed truck on greased flat steel plates as described in the Method for ballast track. Set up the German jack with a wooden block between its base and the rail and with the head of the jack against the wooden or steel sommers of the tram. Set the pawl of the jack in the ratchet and push the tram sideways until one pair of wheels is aligned with the rails.

If only one pair of wheels is derailed, as shown in Figure 1, remove the German jack, lift the tram, remove the plates and lower the tram until the wheels are re-railed.

If all four wheels are derailed, after aligning one set with the rails, slacken off the German jack, lift the tram and remove the plates from under those wheels then lower the tram to re-rail the first wheel pair and again use the German jack to align the second pair of wheels. Remove the German jack, lift the tram, remove the plates and lower the tram to re-rail the second wheel pair.

Having re-railed the tram, apply the air brake, remove the chocks used during lifting, remove the truck locking beam and drive the tram clear.

METHOD OF TRANSPORTING A TRAM ON FALSE TRUCKS.



FIGURE 1.

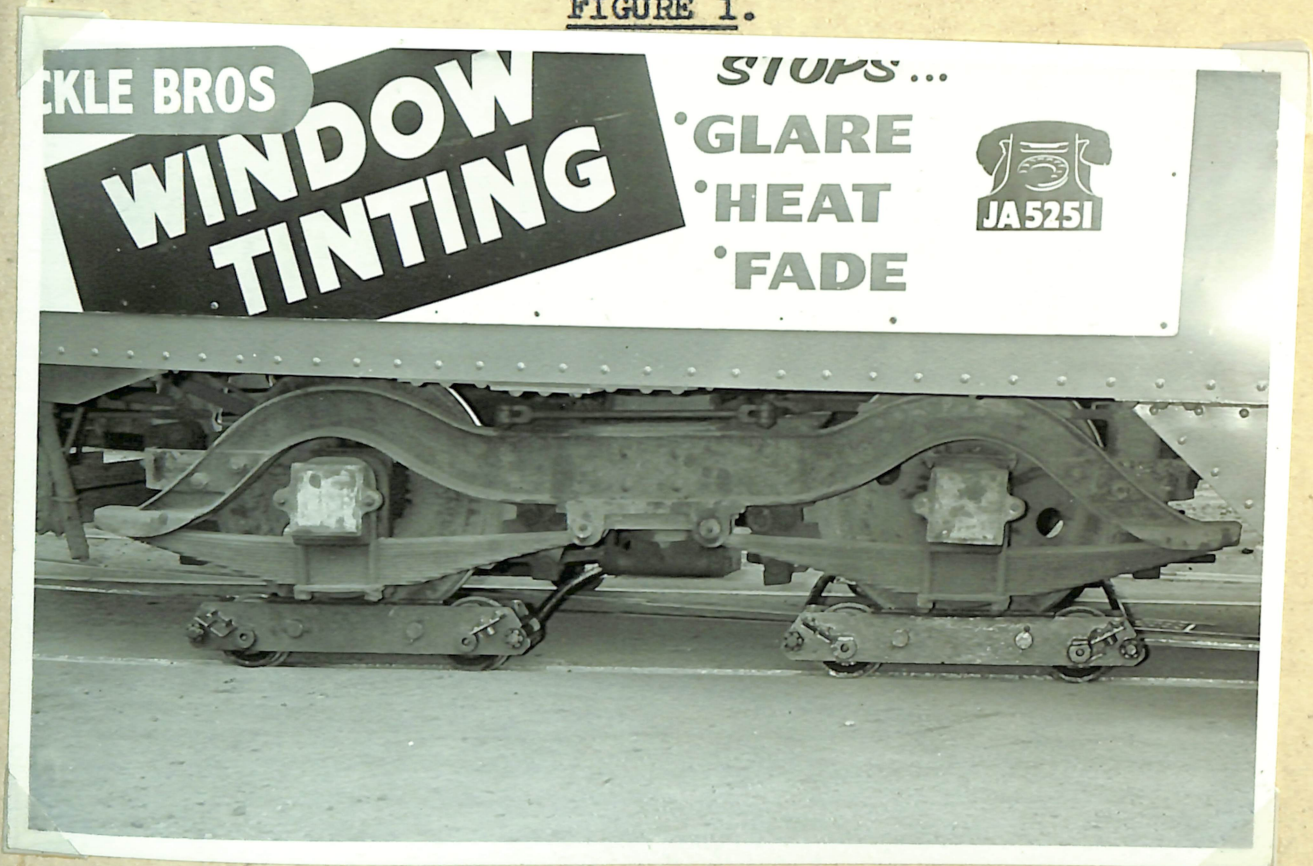


FIGURE 2.



METHOD OF USING A GERMAN JACK AND A GAD IN THE ROADWAY TO RE-ALIGN THE WHEELS OF A DERAILED TRUCK.



FIGURE 1.

On paved track, if the tram cannot be re-railed by driving on to or near the rail, place the tram on to the greased flat steel plates as described in the Method for so doing.

Place the German jack with its head under the axle box, against the semi-elliptic spring (No. 9 or No. 15 trucks) or against the bottom edge of the axle box (No. 1 trucks) and with its base resting on the roadway. Place a 6" x 8" x 2'0" wooden block against the base of the jack and drive a steel gad into the roadway. If the ground is soft, place an extension bar over the top of the gad and detail two men to apply load at the top of the bar towards the tram whilst the jack is operated, as shown in Figure 1. Set the pawl of the jack in the ratchet and jack the wheel pair sideways until the truck has been turned to a suitable position for driving to the rail.

Remove the German jack, wooden block, gad and, if used, the steel locking beam. Apply the air brake, remove the wheel chocks and drive the tram towards the rails. When the derailed truck is clear of the flat steel plates, stop and remove the plates, then drive the tram to the rails. If necessary, use pyramid plates or angle plates to complete re-railing of the tram.

On ballast track, place the derailed tram on the plates as described in the Method. If only one pair of wheels is derailed, set the German jack in place, position the 8" x 2" x 2'0" wooden block and drive the gad into the ground as described above, using the extension bar if the ground is soft. Jack the derailed wheels sideways until they are aligned with the rails. Remove the German jack, lift the tram and remove the plates, then lower the tram, re-railing those wheels. Remove the truck locking beam, apply the brakes and remove the chocks, then drive the tram clear. If all four wheels are derailed, re-rail one pair as above then align and re-rail the other pair in the same manner. Remove the truck locking beam, apply the air brakes and remove the chocks, then drive the tram clear.

The false trucks are used to transport a tram which has a broken axle, broken or badly damaged wheel, loose wheel or tire, locked wheels, whether because of locked gears or other cause, or a damaged spring plank.

Assemble the false trucks, the parts of which are numbered and coloured to mate correctly. A special spanner is carried on the Emergency Vehicle to tighten the tie bar clamping nuts and it is the Charge Hand's responsibility to ensure that the nuts are correctly tightened and that the curves in the tie bars are bowed upwards to provide adequate track clearance as shown in Figure 1.

Remove the carbon brushes from both motors of the defective truck, place the steel truck locking beam in position, chock the wheels of the unaffected truck, release the brakes and jack the tram to lift the faulty truck clear. Place a false truck under each wheel pair of the faulty truck, chock the wheels of the false trucks and lower the tram until the wheels of the faulty truck are correctly located on the false trucks. This is illustrated in the photograph, Figure 2. Apply the air brake, remove all wheel chocks, the jacks and the locking beam.

To save time in clearing the track, place all the equipment used on the defective tram and transfer it to the Emergency Vehicle after the false trucks have been removed. If, in the meantime, another emergency arises, remember to re-load the jacks and truck locking beam into the Emergency Vehicle.

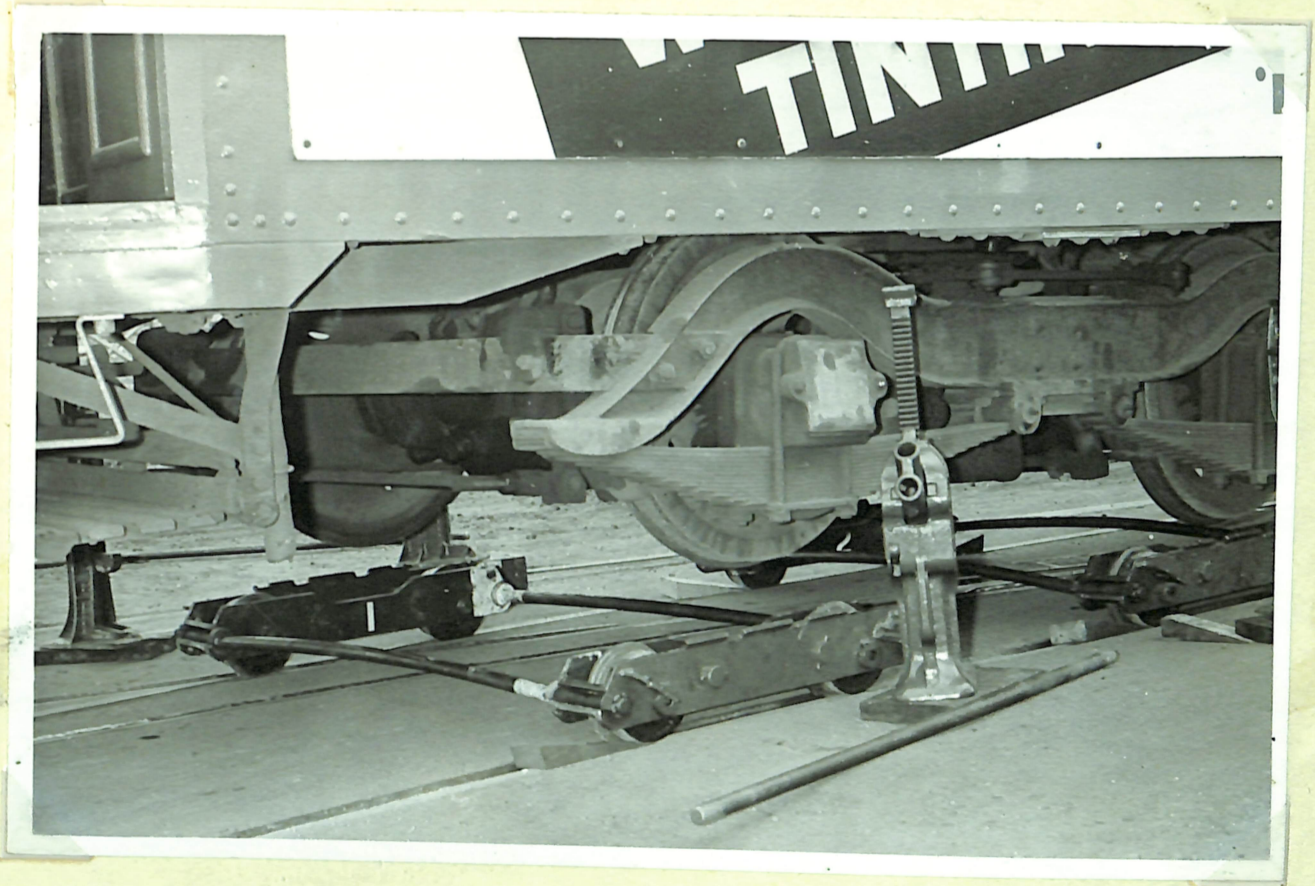
Before the tram is moved, the sand gear must be checked and, if necessary, made operative. The tram driver must be instructed that the brakes are operative on one truck only and that the speed of the tram must be limited to conform with the available braking capacity. Speed must not exceed 10 m.p.h. on straight track and 2 m.p.h. over all special work. To obtain braking assistance on a steep down grade, another tram must be coupled to the defective tram, using a draw bar.

In peak traffic conditions, if the tram is at or near a terminus or siding to which it can be driven, it must be left there until the peak is over. If the Emergency Crew is required to attend another emergency call, a man must be left with the defective tram.

The tram must be driven finally to the nearest depot, where the Depot Foreman or, if the Foreman has ceased duty, the Depot Starter, must allocate a position for berthing the tram so that the normal operation of the Depot is not hindered.

After berthing the tram, remove the false trucks by reversing the procedure for fitting them. On return to South Melbourne depot, the roller bearings of the false trucks must be greased immediately.  
NOTE: Special procedure to be followed with P.C.C. Tram 980: The trucks of P.C.C. tram 980 must be locked as described in the Method for this tram, using the special "U" clamps.

Motor cut outs for this tram are located in the emergency switching box fitted under the seat in the smoking compartment, No. 2 end R.H.S., indicated by the letter "M" painted on the advertisement mould. Before moving the tram, the driver must be warned that no dynamic braking is available and that the drum and magnetic track brakes are operative on one truck only. The tram must be driven with caution and all safety measures for driving a tram on false trucks, described above, must be carried out. Because of the limited braking, when travelling on steep grades, another tram must be attached by means of a draw bar.



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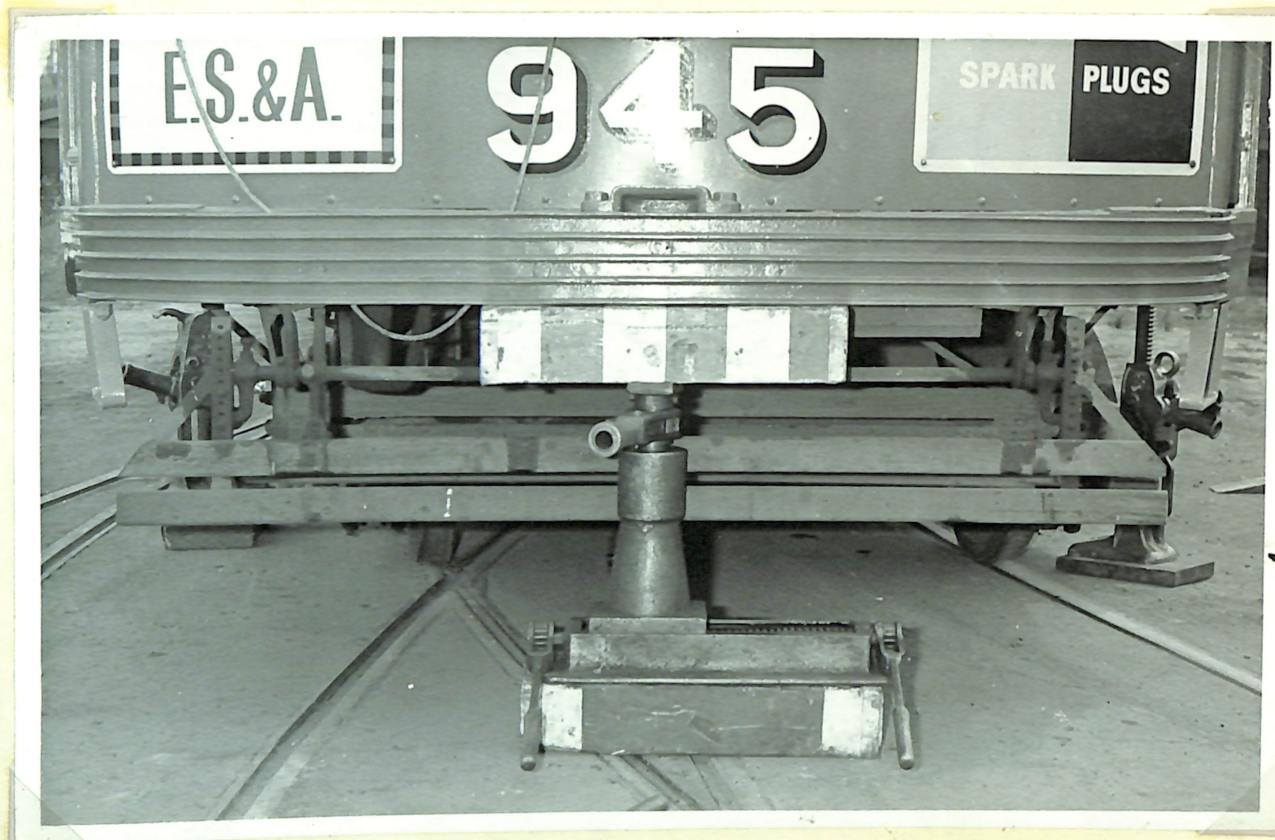
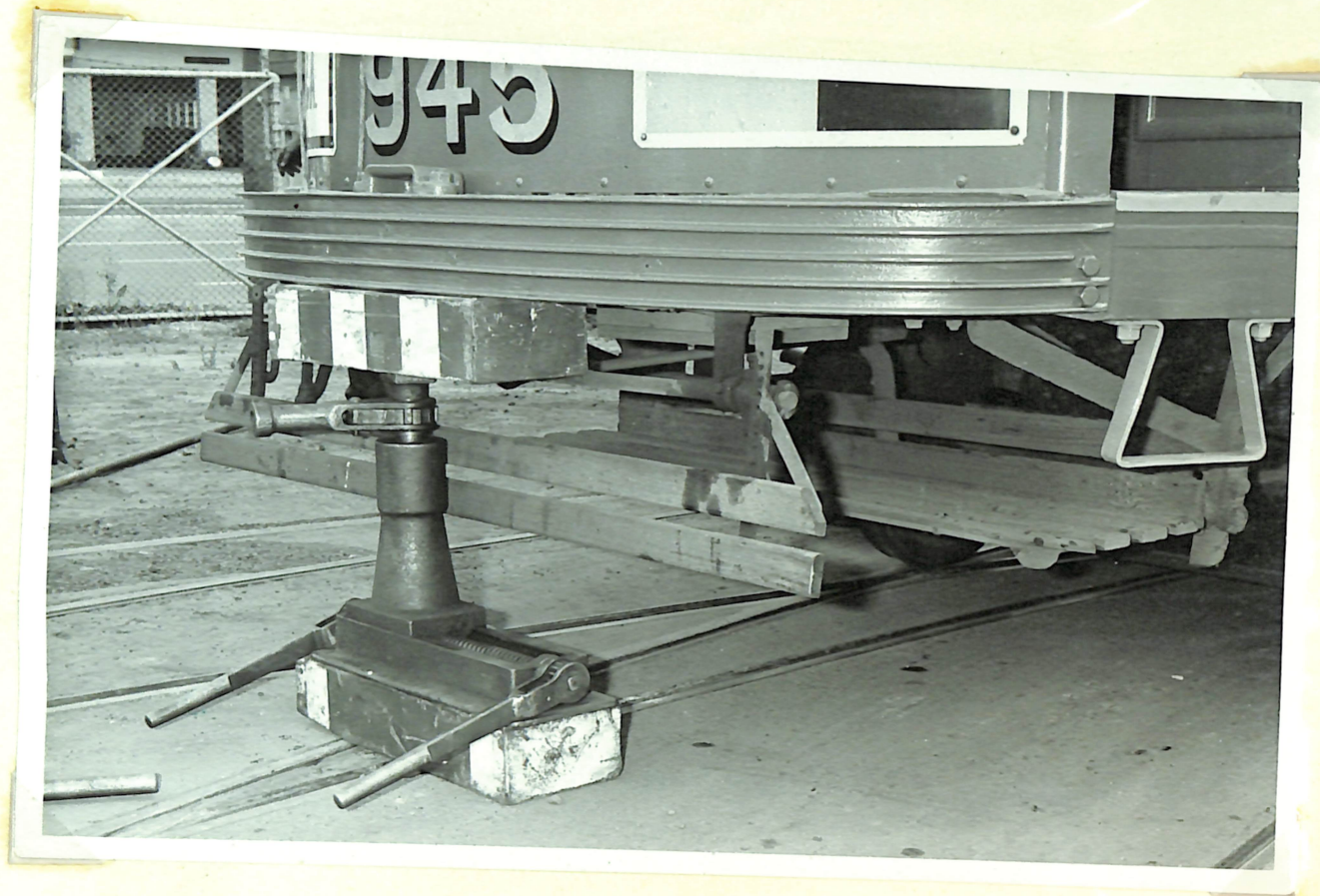
METHOD OF USING THE TRAVERSING JACK TO RECTIFY A DISPLACED BOLSTER.

Chock both sides of one pair of wheels of the unaffected truck, release the air brake & ensure that both hand brakes are released.

Place the body lifting jacks under the side sills & lift the tram body sufficiently to clear the truck bolster springs, but do not lift the truck bolster out of the transom.

Place the head of the traversing jack centrally between the wooden or iron sommers of the car with the clear end of the traversing screw positioned so that the tram will be traversed in the correct direction.

Place one 5" x 9" x 24" wooden block under the base of the jack & another similar block between the top of the jack & the sommers, as illustrated in Figure 1. Raise the lifting screw of the traversing jack to take the weight of the tram body then lower the body lifting jacks clear of the side sills but leave them in position, so that they may be quickly re-aligned for lowering. Fit the two ratchet handles to the squared ends of the traversing screw & traverse the body sideways into the correct alignment. Replace the body lifting jacks, lift the tram body & remove the traversing jack, then lower the truck bolster into position, guiding the bolster springs into their seats if necessary. Remove the jacks, apply the air brakes & remove the chocks.



Method of using the four-wheeled trolley to move a motor truck with a disabled front wheel

Motor vehicles with a jammed, damaged or missing front wheel & which are not in a suitable position to be moved by a tow truck or the hoist of the Emergency Vehicle may be moved using the four-wheeled trolley.

Chock both sides of a rear wheel & jack the vehicle under the front ~~spring~~ spring seats, using a 3 ton hydraulic jack or, if necessary, the 8 ton hydraulic jack used for a lifting of the Emergency Vehicle. Place the four-wheeled trolley in position with the steering wheels in the trailing position & lower the jack. Warning: The brakes of the vehicle may be inoperative or reduced in efficiency.

Before pushing or towing a medium or heavy vehicle clear, attach a steel chain or wire rope between the disabled vehicle & another vehicle or tram, then remove the chocks & tow the vehicle slowly clear of the tracks.

Large depressions in the towing path may be covered with the large steel plates. In the case of light vehicles, these may be handled safely if one man uses a block of wood as a chock.

When the vehicle has been towed clear of the track, preferably to the kerb where it is clear of motor traffic, chock both sides of a wheel, lift the vehicle & remove the trolley.



METHOD OF LIFTING A DISABLED VEHICLE USING THE BEAM AND CHAIN HOIST  
FITTED TO THE REAR OF THE EMERGENCY VEHICLE.

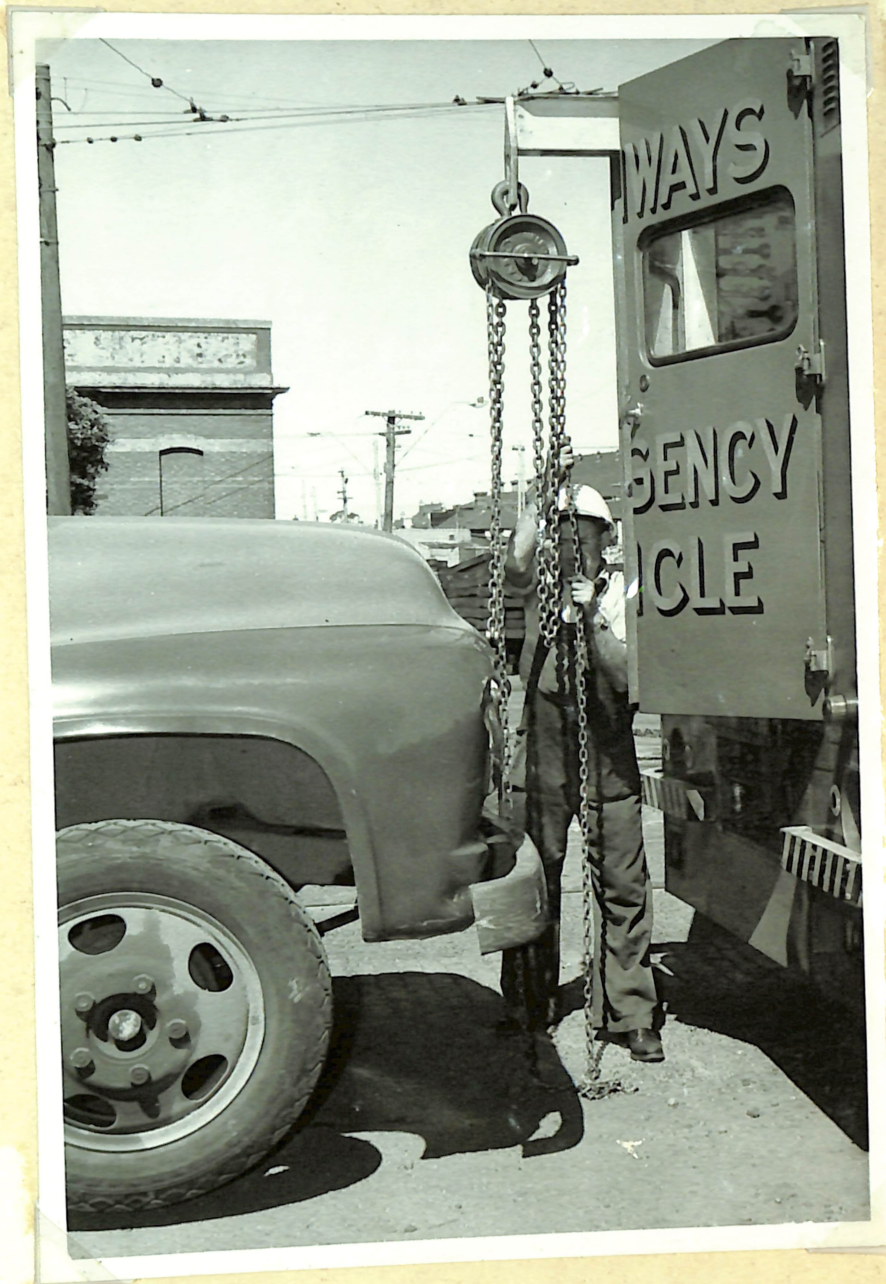


FIGURE 1.

The Emergency Vehicle is fitted with a retractable beam and chain hoist having a safe working capacity of 25 cwt., and which may be operated by one man.

Remove the beam locking pin, extend the beam and replace the pin, locking the beam in position. Remove the canvas bag used to stow the chains. Chock both sides of the unaffected wheels of the disabled vehicle then place a wire sling or steel chain around the bumper or other suitable place for lifting. If it is necessary to tow the disabled vehicle clear of the track, the adjustable spacer bars must be fitted to the towing attachment at the rear of the Emergency Vehicle and securely fastened to the disabled vehicle. Remove the chocks and tow the disabled vehicle to the side of the roadway.

The chain hoist is capable of lifting and towing the front or rear of any motor car, the front of a light or medium truck and lifting the front corner of a bus or truck which has a front wheel or suspension broken or defective.

METHOD OF USING A PAIR OF TWO-WHEELED TROLLEYS FITTED WITH ADJUSTABLE VEE SADDLES TO MOVE A MOTOR TRUCK WITH A DISABLED REAR AXLE.

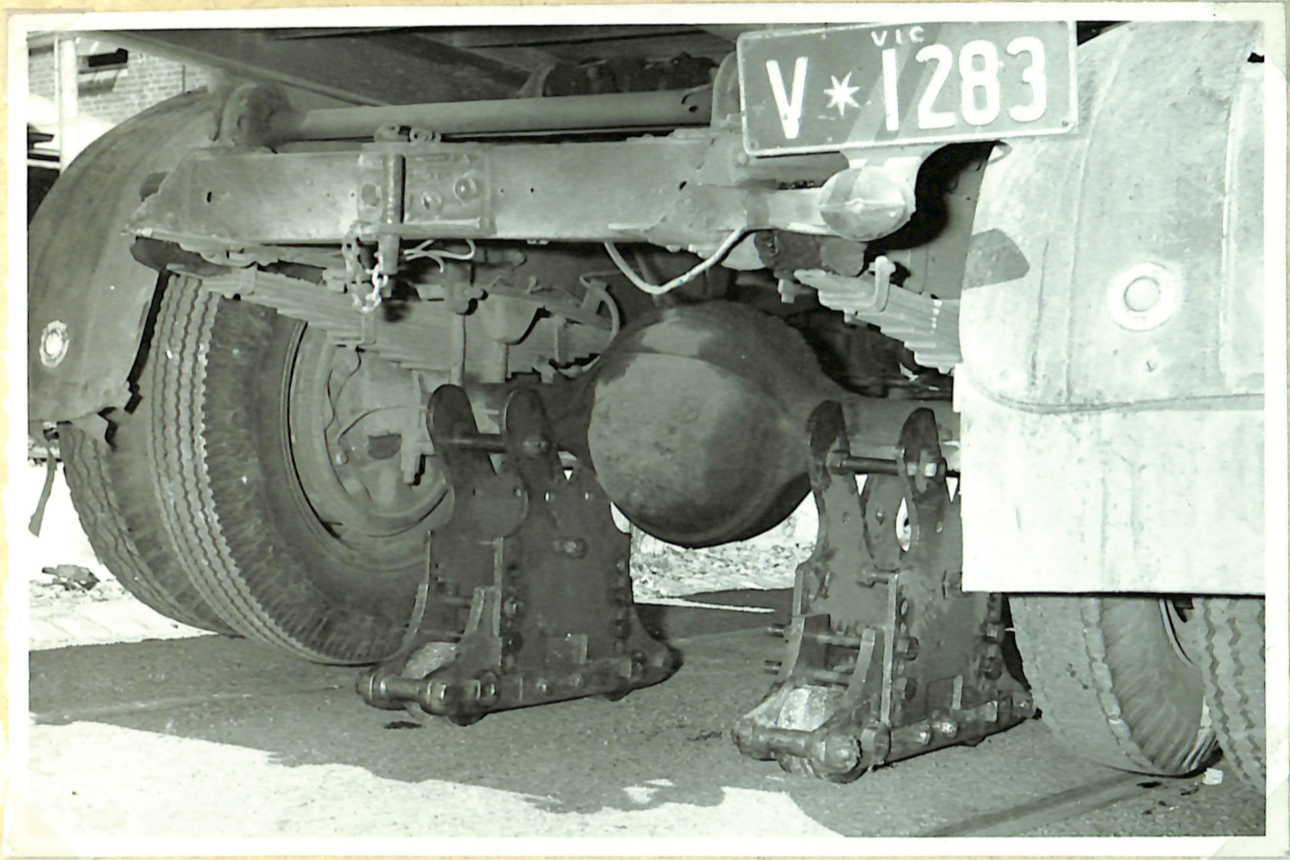


FIGURE 1.

Vehicles with heavy axle loads which have a disabled rear axle, whether by loss of a wheel, locked gears, broken axle or other cause which prevents them from being towed clear of the track by direct means may be moved by using the two wheeled trolleys fitted with adjustable vee saddles.

Chock both sides of a front wheel and jack the vehicle under the rear axle spring seats using the 3 ton hydraulic jack or, if necessary, the 8 ton hydraulic jack used for lifting the Emergency Vehicle, leaving enough room for the trolleys to be placed in position. If the body is heavily laden, it is sometimes necessary also to take the truck body weight with the 15 ton mechanical jack. Adjust the vee saddles to the correct height and place the trolleys under the rear axle housing. Warning: Lifting the rear wheels clear of the roadway renders the hand-brake ineffective. In addition, the nature of the breakdown may cause the foot brakes to be inoperative or reduced in efficiency.

Before pushing or towing a medium or heavy vehicle clear, attach a steel chain or wire rope between the disabled vehicle and another vehicle or a tram, then remove the chocks and tow the vehicle slowly clear of the tracks. Large depressions in the towing path may be covered with the large steel plates; in the case of light vehicles, these may be handled safely if one man uses a block of wood as a chock.

When the vehicle has been towed clear of the track, preferably to the kerb where it is clear of motor traffic, chock both sides of a wheel, lift the vehicle and remove both trolleys.

METHOD OF USING A TRACTION TYPE HOIST TO RE-ALIGN THE WHEELS OF A DERAILED TRUCK.



FIGURE 1.

On paved track, if the tram cannot be re-railed by driving on to or near the rail, place the tram on to the greased flat steel plates as described in the Method for so doing.

If it is necessary to traverse the whole truck, use a chain sling and attach it to both ends of the truck frame. If only one end of the truck needs to be traversed, use a short steel chain with one end fastened to the appropriate end of the truck frame. Attach the hook of the traction hoist to the bull ring in the centre of the chain sling or to the end of the short chain, as the case may be, then attach the other end of the hoist to a length of steel chain anchored to an overhead or light pole by a wire strop around the pole.

Set the body and rope or chain of the hoist in a horizontal position with the operating lever vertical, take up the slack, then traverse the truck by operating the hoist lever to its full extent in either direction until the derailed wheels have been turned to a suitable position for driving to the rail. Release the hoist tension and slacken the rope or chain. Remove the hoist, chains, slings and, if used, the truck locking beam.

Apply the air brake, remove the chocks used to hold the tram whilst jacking and drive towards the rails. As soon as the derailed truck is clear of the steel plates, remove the plates and drive the tram to the rails. If the wheels will not re-rail, use the pyramid plates or steel angle plates to re-rail the tram finally.