

On ballast track, place the derailed tram on the plates as described in the Method. If only one pair of wheels is derailed, fasten a short steel chain to the appropriate end of the truck requiring traversing and attach the hoist between the chain and a suitable pole as before and traverse the truck until the derailed wheels are aligned with the rails. Release the hoist and remove it together with all chains and slings. Lift the tram, remove the steel plates, lower the tram, re-railing the wheels, then remove the chocks and drive the tram clear.

If all four wheels are derailed, fasten a chain sling to both ends of the truck frame and attach the hoist between the bull ring and a pole as before. When one pair of wheels is aligned with the rails, slacken the hoist but do not remove it, lift the tram, remove the steel plates and lower the tram re-railing those wheels. Remove the jacks and align the second pair of wheels in a similar manner. Slacken the hoist again and remove it, complete with chains, slings and wire strop, lift the tram, remove the jacks and truck locking beam, apply the air brake, remove the chocks and drive the tram clear.



Two traction type hoists are used for emergency work, the Tractel hoist, shown in figure 2 and the Reco hoist shown in figure 3.

The Tractel hoist, Model T35, is a patented hand operated pulling and lifting unit with an unlimited rope travel. It works by direct pull on the rope, the pull being applied by means of two pairs of self-energizing smooth jaws which exert a grip on the rope in proportion to the load actually being lifted or pulled. An initial pressure of about 220 lbs. is provided by springs which cause the jaws to grip the rope and start the self-energizing action.

The two levers that actuate these jaws provide a forward or backward motion to the rope, depending on whichever lever is used.

Furthermore, the operating lever L.1 is fitted with a two-speed change. The first speed is used for approach and gives a lifting capacity of about 2 tons (low position); the other allows a slow working speed enabling the unit to be used at full capacity (high position).

#### OPERATION:

1. Uncoil the special rope in a straight line to prevent loops which might untwist the strands or form kinks when under tension.
2. Push release handle 'P' towards the anchor pin into notched position; this opens the jaws.
3. Insert the fused end of the rope at 'a', the machine lying on the ground, as in fig. 1; this is the best position for feeding the rope between the jaws. Push the rope into the machine until it emerges at 'b'.
4. Anchor the machine and the rope hook with correct slings (see further: ANCHORING).
5. Pull the wire rope by hand until it is tight on the load.
6. Push down release handle 'P'.  
The machine is ready for use.  
Lubricate the unit generously before using.

#### PULLING OR LIFTING:

Fix and lock the telescopic operating handle on stub L.1.

Move the lever to and fro to move the rope through the machine.

As the machine has no ratchet, the operating handle need not be used through its full stroke; if space is confined, short strokes can be used. The load is moved on both forward and backward strokes of the handle, and the handle can be left in any position of its stroke without danger of "flying".

Use proper speed according to the load.

#### SLACKING THE WIRE ROPE OR LOWERING:

1. Fix the telescopic operating handle on stub L.2.
2. Place L.1 on fast speed.
3. Move to and fro as above.

TO CHANGE SPEED:

Fast speed (for approach): Lift button on top of L.1 & give "A" a 1/2-turn  
Slow working speed: Reverse above operation.

RELEASING OR DISENGAGING THE WIRE ROPE:

It is impossible to operate Rope Release Lever "P" when there is any load on the machine, as the jaws are locked on to the rope by the tension in the rope. Operate Rope Lever "L" to take load off machine, then pull "P" into notch & remove rope.

WORKING INSTRUCTIONS:

Use only the T.35 special wire-rope, 163 type.

Make absolutely sure that the effort to be exerted is within the rated capacity of the machine, i.e. Lifting: 3 tons. Pulling: 5 tons.

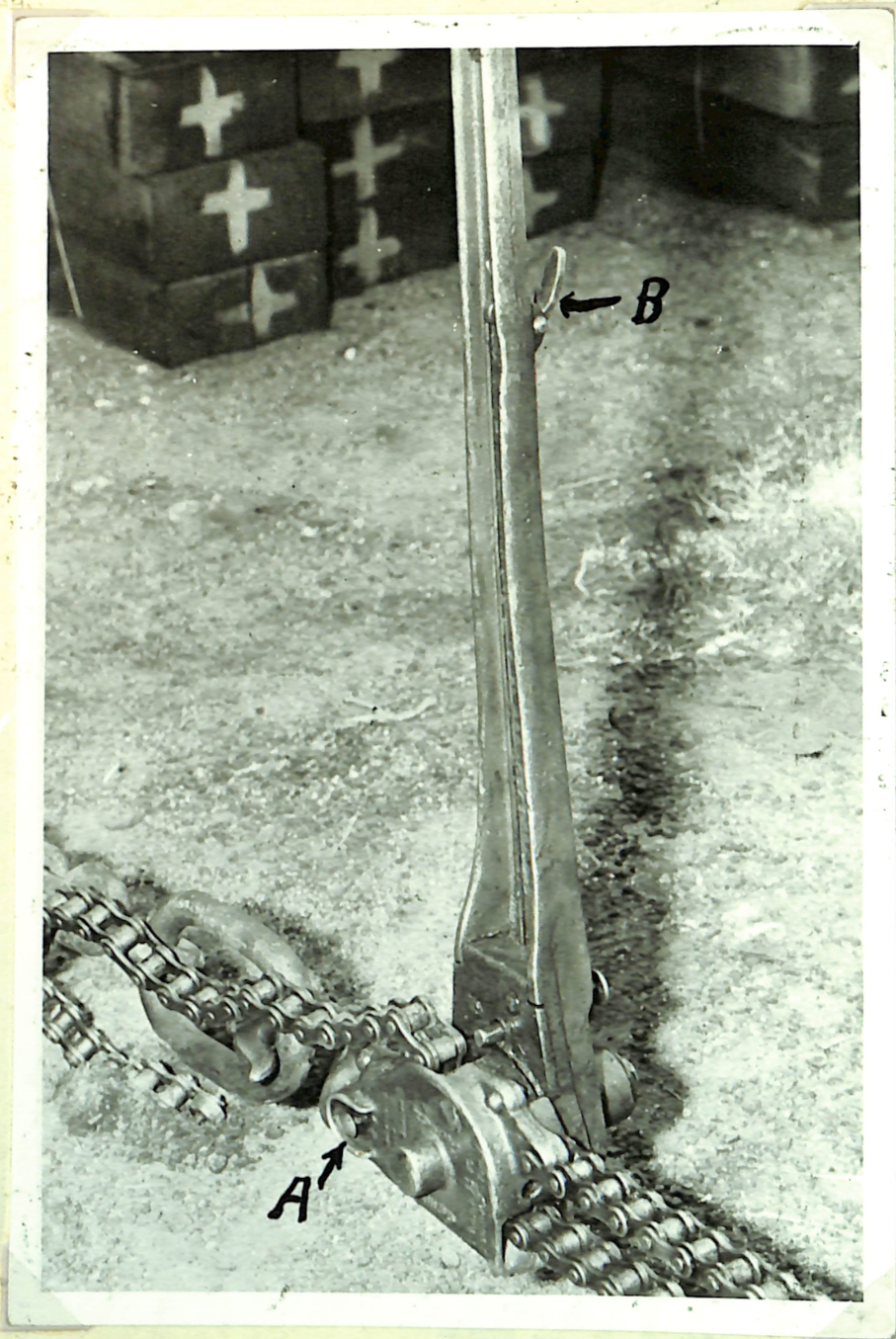
Ensure that there are no obstructions around the machine, which could prevent the rope, machine & anchor from being in a straight line.

Never operate forward & reverse at the same time.

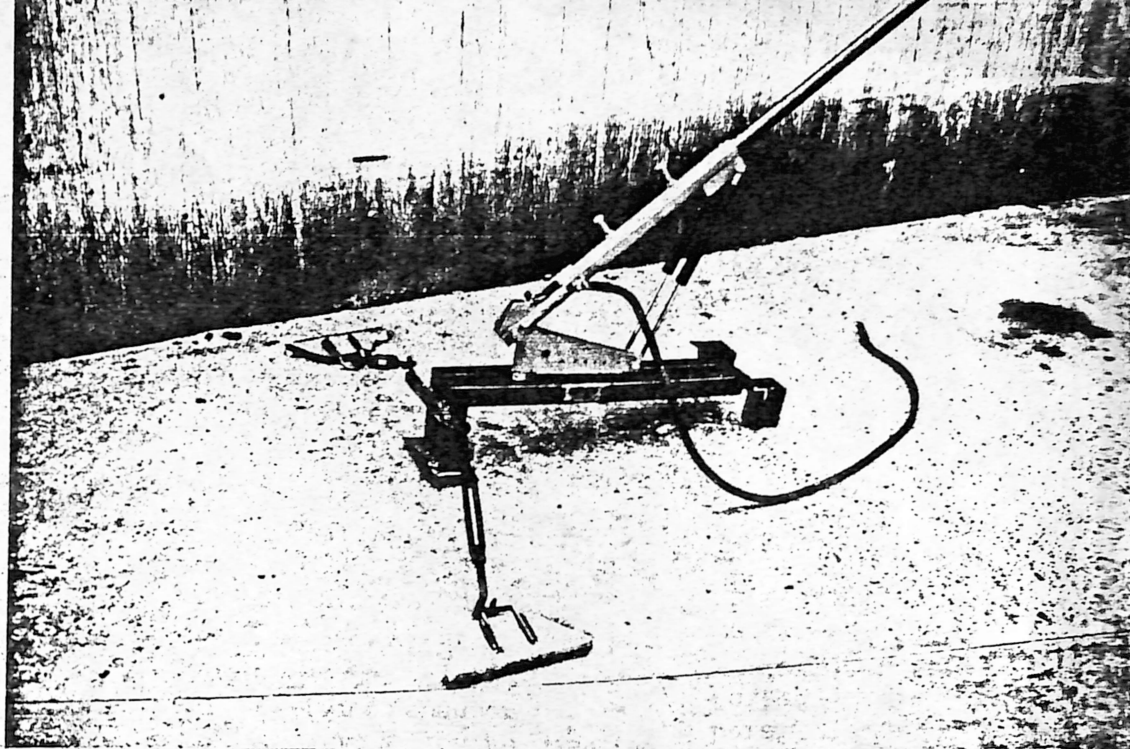
Levers P & L.2 must move freely at all times.

To use the Reco hoist, illustrated in Figure 3 place the body & chain in a horizontal position with the operating lever vertical. Pull on the free end of the hoist chain to take up the slack in the hoist & operate the hoist by moving the operating lever to its full extent in alternate directions. To release the hoist, place the operating lever in a vertical position & depress & hold depressed the button marked "A" in figure 3, then move the operating lever to the full extent in alternate directions; after releasing the load, keep the button "A" depressed & return the operating lever to the vertical position, lift the catch marked "B" in Figure 3 & slacken the chain by pulling with the hand.

With the hoist set in this position, the chain can be pulled by hand in either direction.



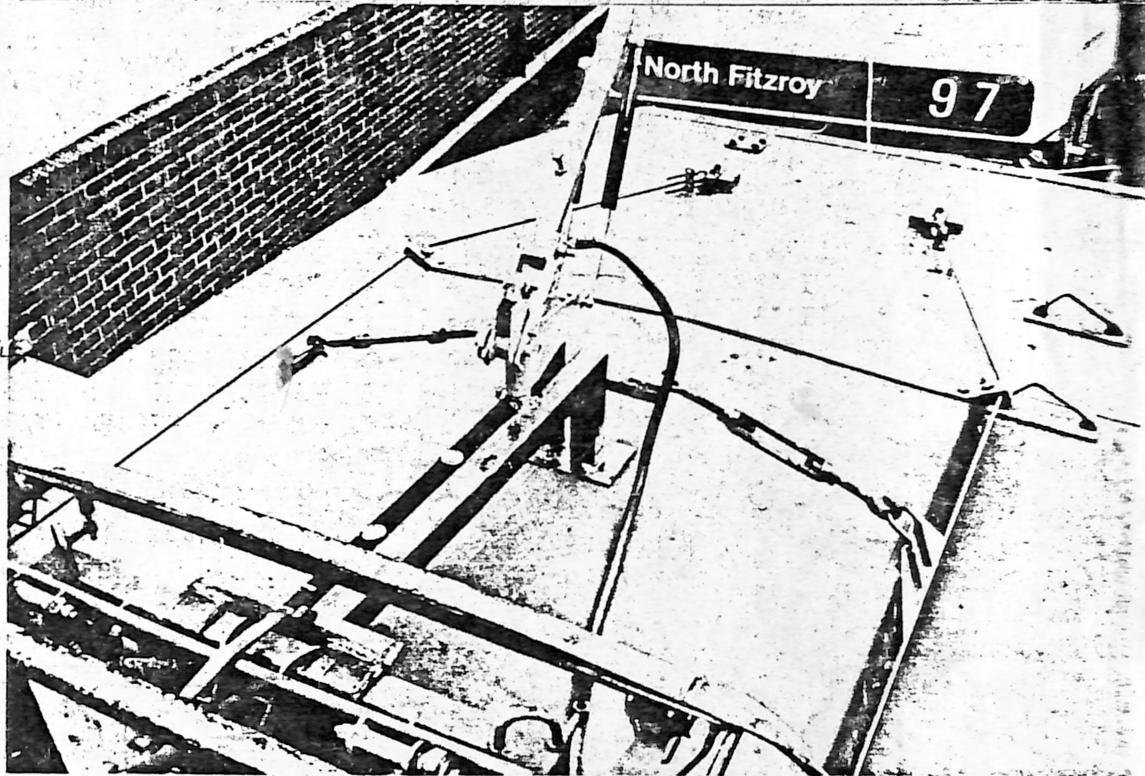
EMERGENCY  
POLE BASE  
FOR USE WHEN  
PANTOGRAPH IS  
DAMAGED.



BOLT UNIT TO  
THE BOX FRAME OF  
THE PANTOGRAPH.

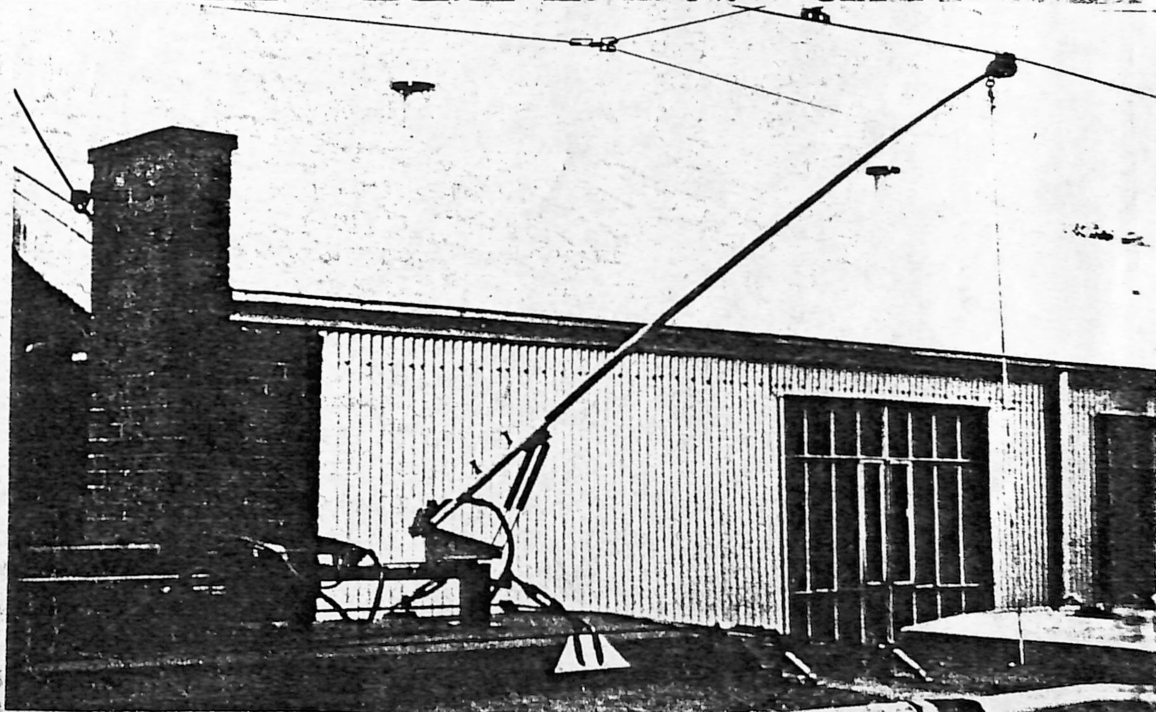
PUT THE TWO  
PLATES UNDER THE  
FIBRE GLASS ROOF  
TIGHTEN THE TURN BUCKLES.

CONNECT THE CABLE  
TO THE PANTO  
TERMINAL BLOCK.



PUT IN AN 'A'  
CLASS POLE  
AND TIGHTEN  
POLE HOLDING  
BOLTS

MAKE SURE  
PANTOGRAPH IS  
SECURE AND SAFE  
TO PROCEED.



- 1 M/M Valves
- 2 Relay Valves
- 3 Governors
- 4 Compressors
- 5 Brake Rigging
- 6 Sand Gear
- 7 Wheels & Axles
- 8 Axle Boxes
- 9 Susp. Bearings
- 10 Brake Shoes
- 11 Motors
- 12 Motor Leads
- 13 Arm. Bearings
- 14 Controllers
- 15 Line Breakers
- 16 R.C. Units
- 17 Resistances
- 18 Trolley Gear
- 19 Bodies
- 20 Lifeguards
- 21 Misc. Elect.
- 22 Air
- 23 Undergear
- 24 S/Doors
- 25 Screen Wipers
- 26 Inspections
- 27 Derailment
- 28 Soiled
- 29 No Defects
- 30 Broken Windows
- 31 Vandalism
- 32 Flats
- 33 Collisions
- 34 Trolley Poles
- 35 Broken Ropes
- 36 Lighting

Z CLASSA MOTORS

- 1 Windings
- 2 Brushgear
- 3 Tachogenerator
- 4 Motor Leads
- 5 Mechanical

B M-A SETS

- 1 Windings
- 2 DC Brushgear
- 3 AC Brushgear
- 4 Battery Charger
- 5 Wiring & Connect.
- 6 Mechanical
- 7 Contactors

C TRACTION CONTROL

- 1 Foot Controller
- 2 Tramiac/CCU
- 3 Cont. Relays
- 4 Line Breaker
- 5 Power Contactors
- 6 Cont. Contactors
- 7 Line Capctr & Fuses
- 8 Chopper & Fan
- 9 Miscellaneous

D F/R CONTROL

- 1 F.O.R. Switch
- 2 Interlock Solenoid
- 3 F/R Contactors

E RESISTANCES

- 1 Resistor Unit
- 2 Points Changer
- 3 Lighting
- 4 Charge/Discharge
- 5 Pre-excitation
- 6 Other

F THERMOSTATS

- 1 Resistor Box
- 2 Points Changer
- 3 Heating Ventilation

G BRAKES, DISC & TRACK

- 1 Pads
- 2 Calipers/Actuators
- 3 Track Brake - Mech.
- 4 Track Brake - Elect.
- 5 Track Brake Contact.

H HYDRAULIC POWER UNIT

- 1 Pump - Mech
- 2 Lines
- 3 Relief Valve
- 4 Elec. Hyd/Mag Valve
- 5 Elec. & Motor
- 6 Pump Contactor
- 7 Hand Pump

I DRIVER'S PANEL

- 1 Lamps & Bezels
- 2 Battery Switch
- 3 Lighting Switch
- 4 Other Sw's & P/B's  
exc. Rev. & P.A.Sw's
- 5 Key Switch
- 6 Speedometer
- 7 Voltmeter
- 8 Buzzers
- 9 Wiring
- 10 Other

J MISCELLANEOUS ELEC.

- 1 Circuit Breakers
- 2 Fuses
- 3 No Volt Relays
- 4 Main Isolator
- 5 Control Wiring
- 6 Points Changer Timer
- 7 Other

K LIGHTING

- 1 Exterior inc. Stepwell
- 2 Interior Fluorescent
- 3 Flasher Unit
- 4 Dest./Route No.
- 5 Contactors inc. Timer

L BATTERY

- 1 Lead Acid
- 2 Nife

M WINDSCREEN

- 1 Wiper Arms Blades
- 2 Wiper Motor
- 3 Heater Demister
- 4 Washer

N HEATING & VENTILATION

- 1 Ceiling Fans
- 2 Control Switch
- 3 Dump Valve
- 4 Transformer
- 5 Heaters
- 6 Fan Fuses
- 7 Fan Contactor
- 8 Heater Fuses

O PUBLIC ADDRESS

- 1 Amplifier & Speakers
- 2 Microphones
- 3 PA Switches
- 4 Relays
- 5 Filter Card

P CONDUCTOR'S DESK

- 1 Switches excl. PA
- 2 Ticket Machine Base
- 3 Coin Dispenser
- 4 Heater
- 5 Ticket Punch

Q DESTINATION EQUIP.

- 1 Unit
- 2 Selector
- 3 Inverter
- 4 Wiring

R DOORS

- 1 Door
- 2 Door Operator
- 3 Tread Mats
- 4 Sensitive Edges
- 5 Microswitches
- 6 Door Key Switch
- 7 Door Rels. & N.Stop

S INTERIOR SIGNALS

- 1 Pull Cord
- 2 Next Stop Light
- 3 Pass. Push Buttons
- 4 Chime

T GONG UNIT

- 1 Electrical
- 2 Mechanical
- 3 Intensifier

U SANDERS

- 1 Electrical
- 2 Mech. inc. Blockage

V TROLLEY GEAR

- 1 Trolley Base
- 2 Trolley Pole & Head
- 3 Take Up Reel
- 4 Catcher
- 5 Carbon Insert

W TRUCKS

- 1 Wheel Shunts
- 2 Gear Box
- 3 Drive Coupling
- 4 Wiring inc. E.shunts
- 5 Other Mech. & Barrier
- 6 Rotary Digitizer

X BODY

- 1 Seats
- 2 Lifeguards
- 3 Locker Door Flaps
- 4 Exterior Mirrors
- 5 Int. Light Fitting
- 6 Ext. Light Fit. (not col)
- 7 Miscellaneous

Y NO DEFECT FOUND

- 1 No Defect Found
- 2 Grabbing Brakes (NDF)

Z OTHER CHANGEOVERS

- 1 Inspection (no defect)
- 2 Flats (no defect)
- 3 Derailment (no defect)
- 4 Soiled
- 5 Broken Window
- 6 Collision
- 7 Vandalism
- 8 Foreign Body Stepwell
- 9 Broken Rope

