

(SCH001)
RIS1530PLT AMENDMENTS

**RAIL OPERATIONS
&**

**EMERGENCY
RECOVERY
PROCEDURES**

RAIL- ABILITY

**TEREX HR42 TRACKED
EXCAVATOR**



Contents

<u>Page</u>	<u>Title</u>
1.	Control Layout
5.	Operating Controls
6.	Operation Safety Precautions
7.	On / Off Tracking
9.	Travelling on the Rail
10.	Emergency Off Tracking
11.	Earth Bonding Straps
13.	Emergency Recovery
17.	Towing

CONTROL LAYOUT

RAIL MASTER SWITCH
Red Light = Rail Systems Active and Rail Axles fully deployed

RAIL AXLE TRANSFER SWITCH
Yellow Light = Lift/Lower control switched from blade/front rail axle to rear rail axle

RAIL DRIVE SWITCH
Green Light = Drive Transferred from Tracks to Rail Gear

AXLE LOCK SWITCH
Blue Light = axle locks engaged (4WD MODEL ONLY)



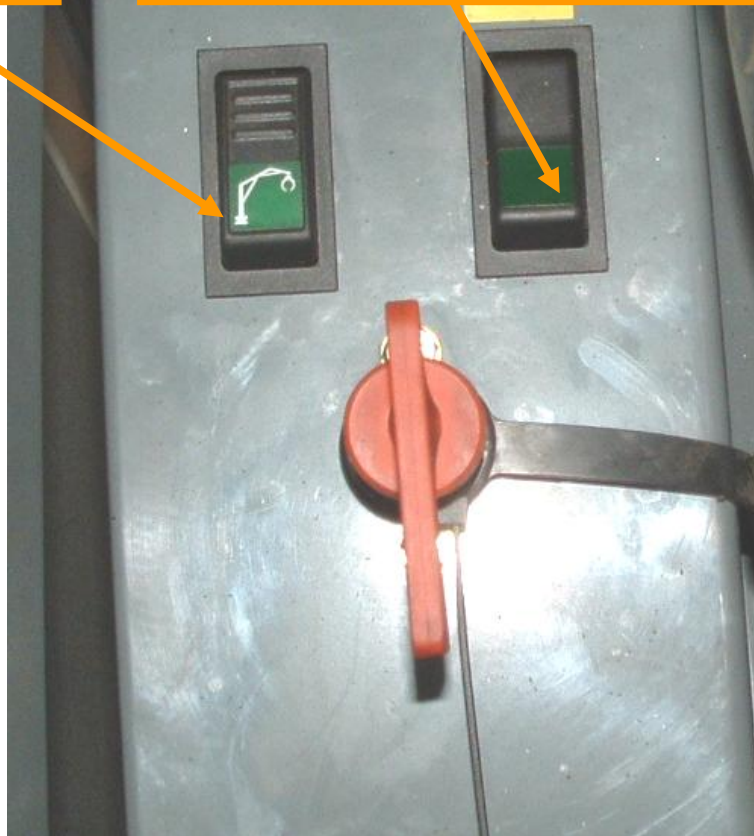
**ARM HEIGHT
LIMITER**

Green Light = W6A
Gauge Arm Height
Limiter active

**Bucket Grab Diverter Activation
4WD MODEL ONLY**

Green Light = Grab active

Also press and hold the top left hand
joystick button to initialise/confirm grab
mode




NOTE: THE MACHINE ENGINE SHOULD NOT BE RUNNING WHEN GRABS/ATTACHMENTS HYDRAULICS ARE CONNECTED AND DISCONNECTED.

The 4WD machine is certificated and approved to be used for lifting operations on rail.


When manoeuvring, THE LOW GEAR RAIL DRIVE can be used for slow movements. LOW GEAR is engaged by pulling/pushing both travel levers together. Then once the machine is rolling the right hand lever can be release, the machine will change up into top gear for normal running mode.

DIPPER ATTACHMENT AUXILIARY HYDRAULIC CONTROLS



-  Bucket grab diverter acknowledge button (Left hand lever)

NOTE: PRESS TO OPERATE GRAB, RELEASE TO OPERATE BUCKET CYLINDER. THE BUCKET GRAB DIVERTER SWITCH MUST ALSO BE ACTIVE FOR THE GRAB FUNCTION BUTTON TO OPERATE

-  2 X Low flow hydraulic auxiliaries (Left and right hand levers)

NOTE: THE EXTRA LOW FLOW ROTATOR/EXTEND FUNCTIONS ARE NOW OPERATED USING THE AUXILIARY ROCKER BUTTONS ON TOP OF THE LEFT AND RIGHT HAND LEVERS.

TEREX HR42 OPERATING CONTROLS

All the operating controls for the excavator arm are the same for rail use as construction site use.

Rail Master Switch

This switch must be operated for all rail-mounted operations. When operated the switch makes the rail drive and rail axle control switches active. It also activates the rail navigation lights.

Rail Drive Switch

This switch changes the forward and reverse direction functions from the tracks to hydrostatic rail wheels.

The machine is still operated by forward/reverse lever as on construction site. However when travelling on rail only the right hand drive lever/pedal is required to be pushed in the direction of travel required to travel the machine under normal conditions. (REMEMBER, as normal, this is reversed each time the machine is slewed 180°) If both levers are used together LOW GEAR is engaged. This can be useful when working on gradients. Once the machine is rolling the right hand lever can be release, the machine will then change up into top gear for normal running mode.

Rail Axle Control Switch

2WD Model:

When the operator wishes to lower or raise the driven rail axle, the rail master switch should be active. To raise or lower the axle, press the rail axle control switch and hold in position, at the same time operate the dozer up/down lever, forwards to lower the rail axle or backwards to raise it.

Note the front bogie, situated under the dozer blade is raised and lowered by operating the dozer control as you would for normal dozer operations.

4WD Model:

When the operator wishes to lower or raise the driven rail axles, the rail master switch should be active. To raise or lower the axles, press the rail axle control switch to select the axle you wish to operate, then operate the dozer up/down lever, forwards to lower the rail axle or backwards to raise it. To raise/lower the other axle press the rail axle control switch into the alternative position then operate the blade lever again, as before.

NOTE: TO ENABLE THE RAIL AXLES TO BE DEPLOYED OR RETRACTED THE PROLEC RCI CAN NOT BE IN LIFTING MODE. 'DIG MODE' MUST BE ENABLED

THE PROLEC LIFT WATCH RAIL RCI IS AN INHERENT AND INTEGRAL SYSTEM WITHIN THE RAIL-ABILITY SAFETY SYSTEMS ON THE MACHINE. COMPLETE FAMILIARITY WITH THE PROLEC OPERATION MANUAL IS VITAL IN COMBINATION WITH THIS MANUAL TO HAVE A COMPLETE UNDERSTANDING OF THE MACHINES SAFETY FEATURES AND OPERATIONAL INTERLOCKS.

Axle Lock Switch

All travel on rail track must be carried out with the axle unlocked, by operating this switch the axle can be locked; this will provide greater stability whilst carrying out stationary rail-mounted operations.

NOTE: ON THE 2WD MODEL ONLY - WHEN STATIONARY THE RAIL AXLE LOCKS ARE LOCKED AUTOMATICALLY.

IF THE MACHINE IS DRIVEN FORWARD OR REVERSE THE AXLE LOCKS RELEASE AUTOMATICALLY.

THE 2WD MACHINE MUST ONLY BE TRAVELLED ON RAIL WHEN THE UPPER STRUCTURE IS SLEWED PARALLEL WITH THE TRACK AND IN THE DIRECTION OF TRAVEL. THE MACHINE SHOULD ONLY BE SLEWED WHEN RAIL MOUNTED IF STATIONARY. CARE MUST BE TAKEN WHEN SLEWED OVER THE SIDE TO ENSURE THAT LOADS ARE NOT PICKED UP AS THIS MAY MAKE THE MACHINE UNSTABLE IN THIS POSITION WHEN THE AXLE LOCK DEACTIVATES FOR TRAVELLING. THE RCI FITTED TO THE 2WD MACHINES ARE FOR LOLER COMPLIANCE ONLY WHEN LIFTING OPERATIONS ARE UNDERTAKEN WHEN THE MACHINE IS IN USE ON ITS CRAWLERS. THE RCI HAS NOT GOT A RAIL DUTY AND THEREFORE CANNOT BE USED FOR RAIL MODE LIFTING.

OPERATIONAL SAFETY PRECAUTIONS

- ALL WORK ON OR NEAR THE RAILWAY INFRASTRUCTURE MUST BE CARRIED OUT STRICTLY IN ACCORDANCE WITH RAILWAY REGULATIONS.
- ATTENTION MUST BE PAID TO RAILWAY GROUP STANDARDS AND ALL SAFETY PRECAUTIONS MUST BE FOLLOWED AT ALL TIMES.
- WHEN WORKING ON ELECTRICALLY OPERATED ROUTES, BE SURE TO OBSERVE OFFICIAL REGULATIONS. ALWAYS OBSERVE MINIMUM CLEARANCE FROM OVERHEAD WIRES.
- ALL STAFF MUST BE FULLY TRAINED AND ASSESSED AS COMPETENT TO USE THIS PIECE OF EQUIPMENT ON RAILWAY INFRASTRUCTURE.

SEE THE NETWORK RAIL VAB ENGINEERING ACCEPTANCE CERTIFICATE FOR ADDITIONAL, SPECIFIC MACHINE LIMITATIONS OF USE.



ON / OFF TRACKING THE TEREX HR 42
GENERAL POINTS

ON/OFF TRACK THE TEREX HR 42 ONLY AT AN APPROVED ACCESS POINT

NOTE – AN APPROVED ACCESS POINT IS ONE OF THE FOLLOWING:

- LEVEL CROSSING
- YARD WHERE SURFACE IS LEVEL WITH THE RAIL TOP
- PROPRIETARY APPROVED TRACK ACCESS SYSTEM WITH RAIL SHIELDS.
- CONSOLIDATED BALLAST TO AT LEAST THE UNDERSIDE OF THE RAIL HEAD WITH RAIL SHIELDS.

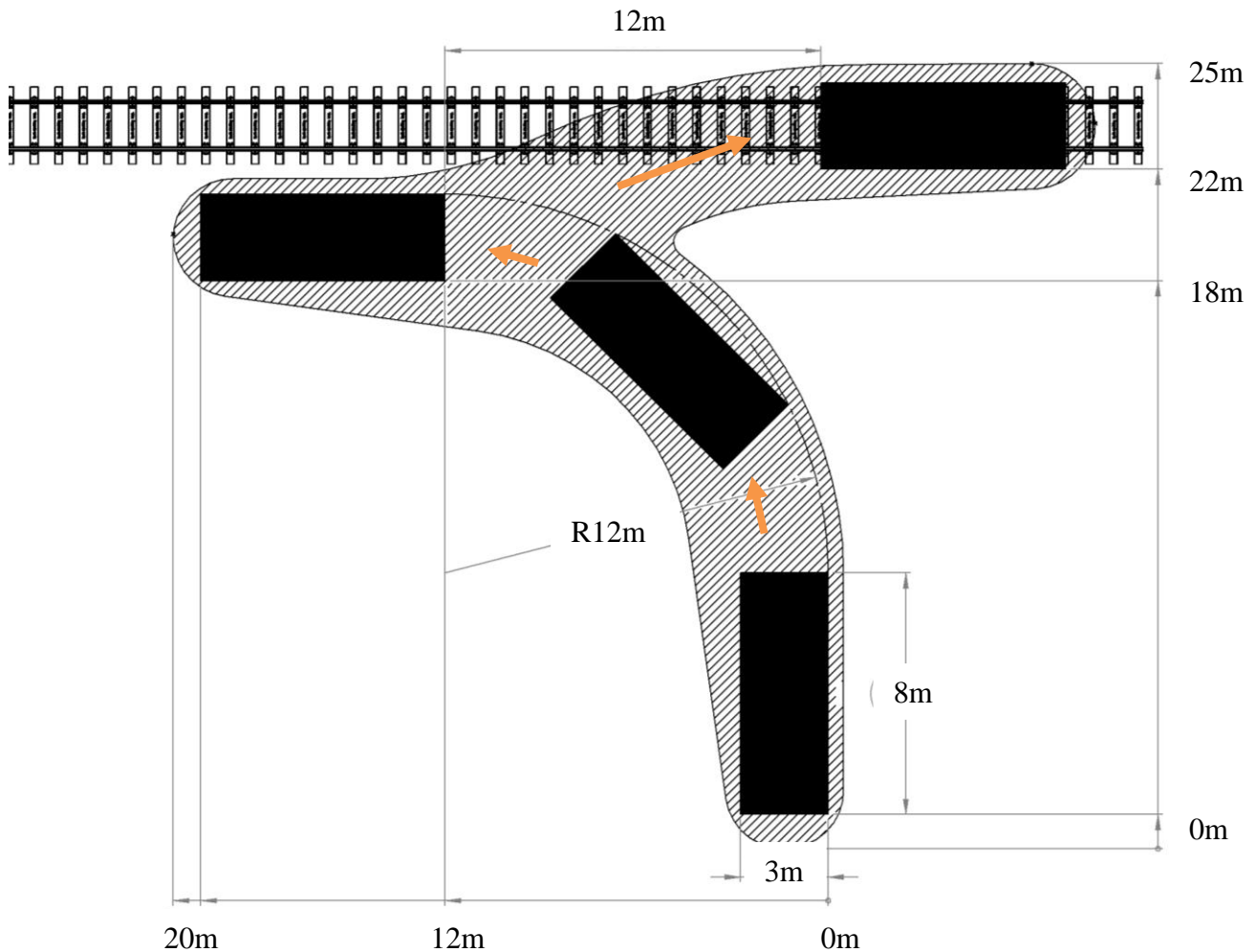
THE FOLLOWING HAZARDS SHOULD ALSO BE ADDRESSED:

- CANT – NOT TO EXCEED 150MM
- BALLAST SHOULDER – HIGH / LOW
- DEEP CESS / SOFT CESS
- DRAINAGE ROUTES, TROUGHING ROUTES AND OTHER SERVICES/CABLES
- OHLE, 3RD RAIL MUST BE WHERE GAP EXISTS ON BOTH SIDES, POWER CABLES.
- CARE SHOULD BE TAKEN WHEN ON/OFF TRACKING WITH TRACKED EXCAVATORS NOT TO DAMAGE THE RAILHEAD, SUITABLE RAIL SHIELDS SHOULD BE USED.

DO NOT ATTEMPT TO MANOEUVRE THE MACHINE WITH THE CRAWLER TRACKS, WHEN THE RAIL GEAR IS SEMI/FULLY DEPLOYED.



Suggested On / Off Tracking Area Requirements



[WARNING: 2WD MODEL] WHEN ON TRACKING, CARE MUST BE TAKEN WHEN LOWERING THE BOGIE ONTO THE RAIL HEAD TO ENSURE ALL FOUR WHEELS OF THE TROLLEY CONTACT THE RAIL BEFORE THE WEIGHT OF THE MACHINE IS EXERTED ONTO THE TROLLEY. IF THE BLADE IS NOT PERPENDICULAR TO THE RAIL WITHIN THE RAIL WHEEL FLANGE TOLERANCE OF THE TROLLEY SEVERE DAMAGE TO THE BOGIE MAY RESULT.

[WARNING 2WD MODEL] DO NOT OVER EXTEND THE BLADE RAMS. IF THE BLADE IS LOWERED EXCESSIVELY SO THAT THE FRONT OF THE MACHINE IS TOO HIGH, EXTENSIVE DAMAGE TO THE BOGIE MAY RESULT.



TRAVELLING ON THE RAIL



MACHINE TRAVEL POSITION AS SHOWN ABOVE AND AS FOLLOWS:

- CROWD RAM FULLY EXTENDED SO THAT BUCKET IS FULLY CROWDED ROUND
- DIPPER RAM FULLY EXTENDED SO THAT THE DIPPER IS FULLY IN
- TAB SECOND STAGE ARM RAMS FULLY EXTENDED SO THAT SECOND STAGE ARE IS FULLY OUT
- MAIN LIFT RAM SET SO THAT THE BUCKET IS APPROXIMATELY 300MM ABOVE THE RAIL HEAD SO THAT THE ARM IS POSITIONED BELOW THE HIGHEST POINT OF THE CAB.

[WARNING] TO ENSURE THE MACHINE IS COMPLYING WITH THE W6 GAUGE REQUIREMENT, BEFORE TRAVELLING ON RAIL, IT IS ESSENTIAL THAT THE MACHINE IS SLEWED SO THAT THE UPPER STRUCTURE IS PARALLEL TO THE LOWER STRUCTURE AND THAT THE ARM IS KNUCKLED PARALLEL TO THE RAIL. MECHANICAL LOCKS ARE PROVIDED AND SHOULD BE ENGAGED TO ENSURE THIS IS MAINTAINED. IT IS ALSO ESSENTIAL THAT THE ARM IS POSITIONED LOWER OR EQUAL TO THE HEIGHT OF THE CAB. THIS IS TO ENSURE OVERHEAD STRUCTURES ARE NOT STRUCK. THE HEIGHT LIMITER FITTED TO THE MACHINE CAN THEN BE SET AND ACTIVATED TO MAINTAIN THIS POSITION USING THE SWITCH SHOWN ON PAGE 4.

[WARNING] EXTRA CARE AND OBSERVATION OF LINE SIDE AND OVERHEAD STRUCTURES IS REQUIRED WHEN THE MACHINE IS FITTED WITH AN ATTACHMENT THAT IS OUTSIDE THE W6 TRAVEL GAUGE IN ANY WAY.

FAILURE TO COMPLY WITH THESE REQUIREMENTS MAY RESULT IN SEVERE DAMAGE TO THE MACHINE AND/OR THE RAIL INFRASTRUCTURE.

W6A GAUGE BOOM HEIGHT LIMITER

- INSIDE THE CAB TURN ON THE ELECTRICAL HEIGHT LIMITING SYSTEM USING THE KEY SWITCH. WITH THE ELECTRICAL HEIGHT LIMITING SYSTEM ENGAGED WITH THE KEY.



KEY SWITCH IN 'ON' POSITION – KEYS CAN ONLY BE REMOVED WHEN THE ELECTRICAL HEIGHT LIMITING SYSTEM IS ENABLED

- ONLY OPERATE THE HR42 UNDER LIVE OLE WITH **THE PROLEC** HEIGHT LIMITER ENABLED.

DO NOT ADJUST THE ELECTRONIC HEIGHT LIMITER FOR OTHER PURPOSES WHERE HEADROOM IS LIMITED. THERE IS A VARIABLE HEIGHT LIMITER BUILT INTO THE PROLEC LIFT WATCH FOR THESE APPLICATIONS.

2WD MODEL: FRONT BOGIE CONNECT/DISCONNECT



The blade trolley locates between the triangular wedges on the blade and the blade retaining profiles on the trolley. This ensures correct blade to trolley alignment is maintained.

To remove the trolley from the blade lower the blade until the trolley contacts level ground.

Disconnect the trolley brake connection hose

Release the twist locks by rotating the orange handles into the rearward facing direction.



Bogie Locked



Bogie Released

The blade can now be raised clear of the bogie and the machine can be moved clear. The blade bogie is compatible with the machine quick hitch to lift the bogie clear of the machine if required.

To reattached the bogie to the machine follow the reverse of this procedure in reverse order.

The handles can be secured from unintentional disengagement by padlocking the handles through the clevis's.

EMERGENCY OFF TRACKING

EMERGENCY OFF TRACKING MAY BE NECESSARY DURING THE WORKING LIFESPAN OF THE MACHINE. IT MUST BE STRESSED THAT THIS IS AN EMERGENCY PROCEDURE ONLY AND SHOULD NOT BE USED IN THE NORMAL CAUSE OF EVENTS. IF YOU ARE ASKED TO OFF TRACK USING THIS METHOD, AT AN UNPREPARED LOCATION, WITHOUT SUITABLE JUSTIFICATION YOU SHOULD REPORT TO YOUR ON CALL MANAGER AND ASK HIS ADVICE BEFORE ATTEMPTING THIS MANOEUVRE. IF THERE IS REAL CAUSE TO USE THIS METHOD THERE ARE CERTAIN PROCEDURES THAT SHOULD BE FOLLOWED:

- THE OFF TRACKING AREA MUST BE INSPECTED FOR ITS SUITABILITY AS NORMAL.
- AN AREA WHERE THERE ARE NO OBSTRUCTIONS SHOULD BE SELECTED. FOR EXAMPLE, THERE SHOULD BE NO CONDUCTOR RAIL PRESENT, NO HIGH BALLAST SHOULDERS AND NO OBVIOUS HAZARDS.
- EMERGENCY OFF TRACKING MUST NOT BE CARRIED OUT ON CANTS.
- EMERGENCY OFF TRACKING MUST NOT BE UNDERTAKEN WITH ATTACHMENTS OTHER THAN THE BUCKET

IN THE EVENT OF A REAL EMERGENCY THE PROCEDURE FOR OFF TRACKING IS AS FOLLOWS:

- APPROACH THE OFF TRACKING AT A SAFE SPEED.
- SOUND THE HORN TO ALERT PERSONNEL AT THE OFF TRACKING AREA AS YOU APPROACH.
- RAISE ALL OF THE RAIL WHEELS.
- TURN THE MACHINE KEEPING THE TRACKS ON THE RAIL HEAD
- MANOEUVRE THE MACHINE ON THE RAILHEAD UNTIL THE MACHINE IS PERPENDICULAR TO THE RAIL
- TRACK THE MACHINE CLEAR OF THE RUNNING RAIL.

WHEN CARRYING OUT THIS OPERATION ALWAYS FOLLOW ANY HAND SIGNALS AND CARRY OUT ALL MOVEMENTS SMOOTHLY AT A SAFE SPEED. ONLY SLEW THE MACHINE AS FAR AS YOU NEED TO ENSURE YOU ARE CLEAR OF OBSTRUCTIONS. THE MACHINE IS FITTED WITH AN OFFSET BOOM; THE ARM MUST BE CENTRED TO AVOID CAUSING INSTABILITY OR A POSSIBLE TIP OVER SITUATION OCCURRING.

[WARNING 2WD MODEL] WHEN OFF TRACKING, CARE MUST BE TAKEN WHEN THE MACHINE MANOEUVRES OFF THE RAIL HEAD. MAKE CERTAIN THAT THE BLADE IS RAISED UP TO THE MAXIMUM HEIGHT FOR TRAVEL. IF THE MACHINE TIPS/TILTS FORWARD SEVERELY ONTO THE TROLLEY WHILE CLIMBING OFF THE RAIL HEAD AND THE WEIGHT OF THE MACHINE IS EXERTED EXCESSIVELY ONTO THE TROLLEY SEVERE DAMAGE TO THE BOGIE MAY RESULT. *GROUNDING OUT, FORCING OR STRIKING THE TROLLEY WHILST THE MACHINE IS TRAVELLING OFF RAIL MAY RESULT IN SEVERE DAMAGE TO THE BOGIE.*

EARTH BONDING STRAPS

EARTH BONDING STRAPS ARE FITTED ON THE MACHINE IN THE FOLLOWING POSITIONS:

- a. BETWEEN FRONT RAIL AXLE AND EXCAVATOR CHASSIS.
- b. BETWEEN MACHINE UPPER STRUCTURE AND CONTINUOUSLY ALONG THE BOOM AND ARM
- c. BETWEEN SECOND STAGE BOOM AND ARM

EARTH BONDING STRAPS MUST BE IN PLACE AT ALL TIMES AND SECURELY FASTENED.

REPLACE IMMEDIATELY IF THERE ARE ANY SIGNS OF BURNING OR DAMAGE.

CHECK IMPEDANCE LEVELS AFTER REFITTING ANY STRAPS.

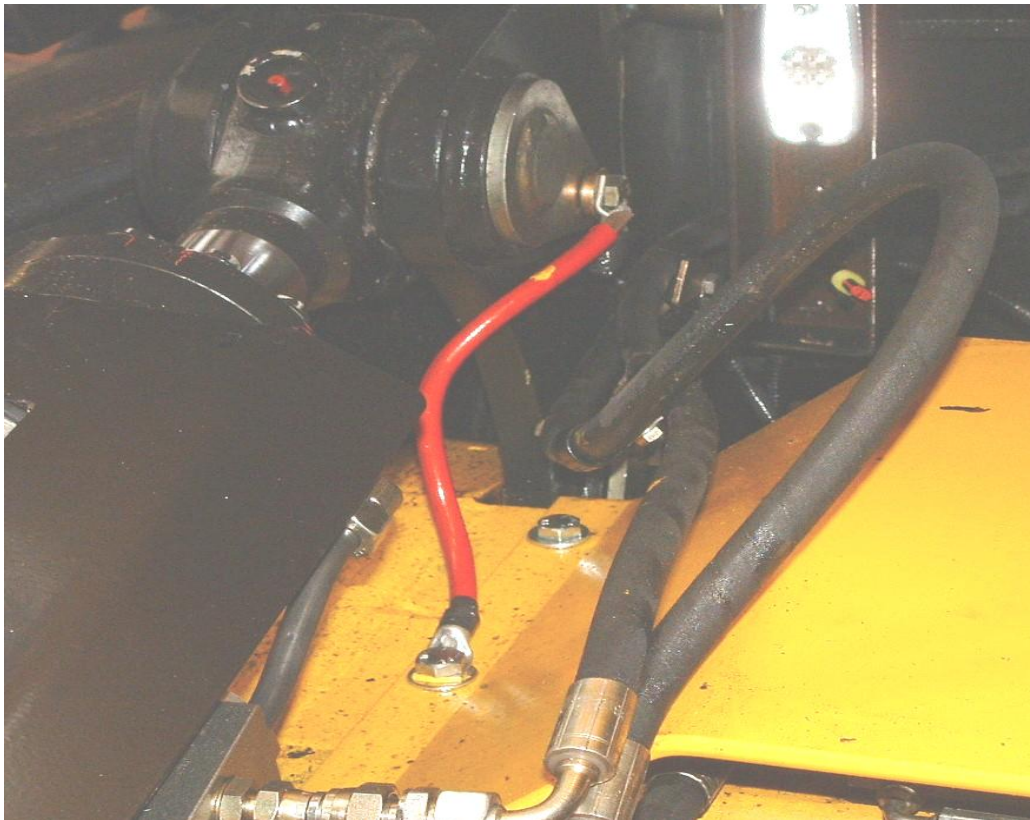


FIGURE a

FIGURE b

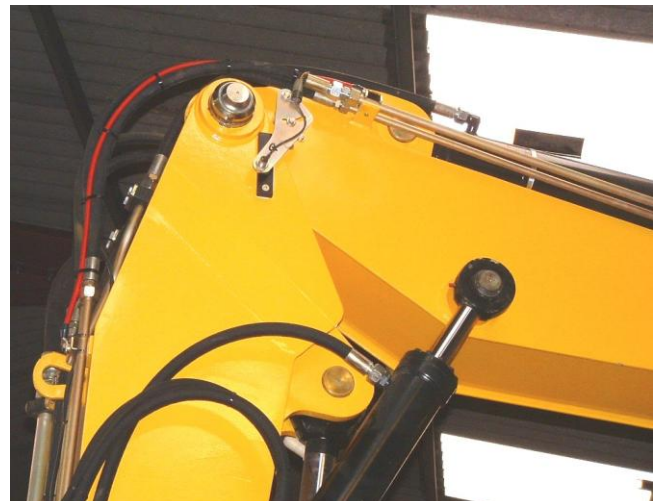
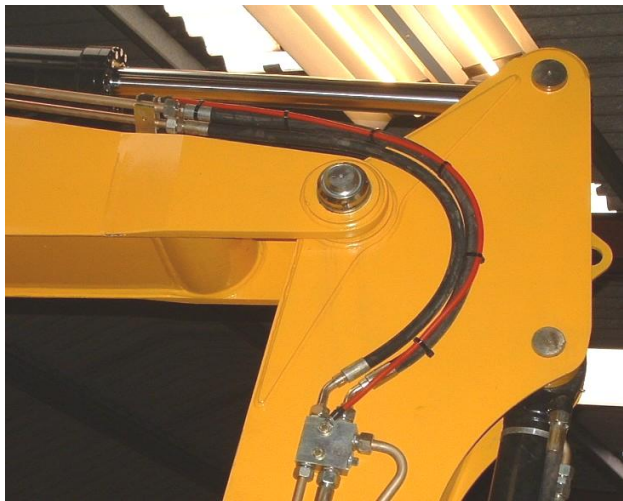


FIGURE c

EMERGENCY RECOVERY

IF YOUR MACHINE BREAKS DOWN IN SUCH A POSITION THAT IT IS LIKELY TO OBSTRUCT AN ADJACENT LINE OR CAUSE AN ACCIDENT OR DAMAGE TO THE RAILWAY INFRASTRUCTURE OR ANY OTHER VEHICLE, IT IS IMPORTANT THAT THE MACHINE IS PLACED IN A SAFE POSITION AS SOON AS POSSIBLE. FOR THIS REASON THE TEREX HR42 RAIL EXCAVATOR HAS BEEN FITTED WITH A AUXILIARY POWER SYSTEM AND TOW BAR BY WHICH ANOTHER MACHINE CAN TOW IT TO SAFETY.

INSTRUCTIONS ON HOW THE AUXILIARY SYSTEM WORKS ARE DESCRIBED BELOW, YOU MUST MAKE A POINT OF READING AND UNDERSTANDING THE PROCEDURES SO THAT IN THE EVENT OF A MACHINE FAILURE YOU ARE ABLE TO PUT THE MACHINE IN A SAFE POSITION.

THE MAIN POINTS ARE:

- THE REMOTE AUXILIARY RECOVERY ENGINE HYDRAULIC POWER UNIT IS REQUIRED AND SHOULD BE MADE AVAILABLE AT ALL TIMES THE MACHINE IS WORKING ON OR NEAR RAILWAY INFRASTRUCTURE.

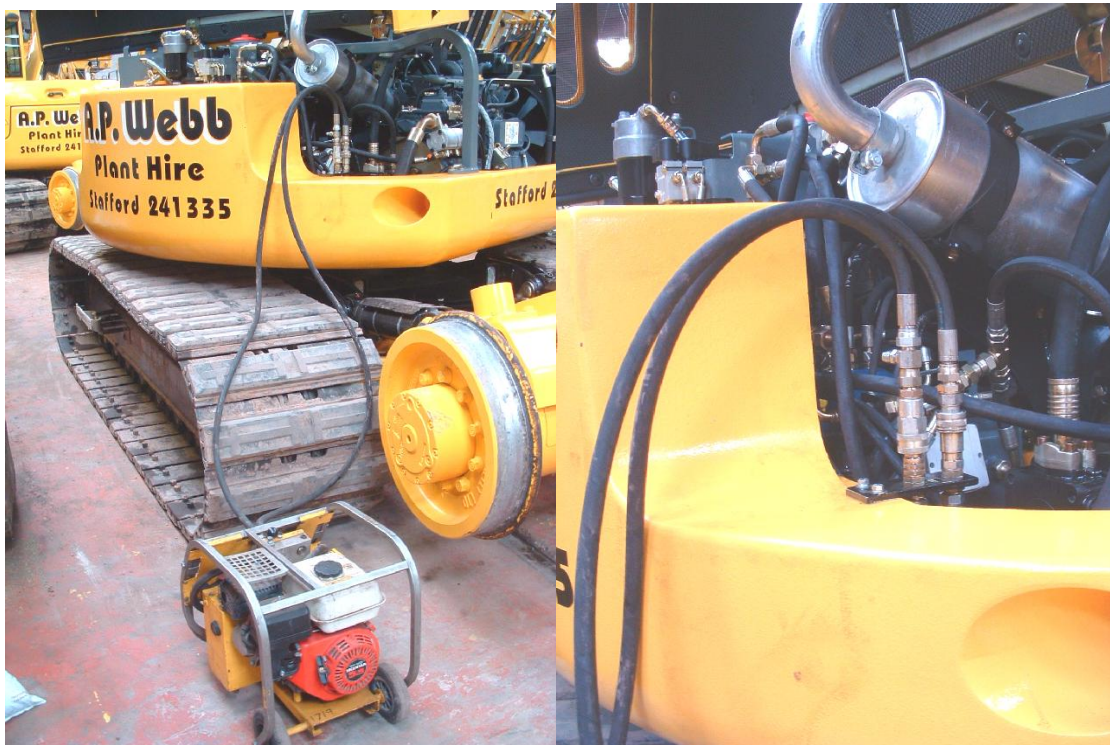
THERE ARE A NUMBER OF WAYS THIS CAN BE ACHIEVED, AS FOLLOWS:-

1. IT SHOULD BE RETAINED BY YOUR LOCAL ON CALL FITTER FOR IMMEDIATE DESPATCH TO SITE SHOULD THE MACHINE FAIL
 2. IT SHOULD BE RETAINED BY YOUR ON SITE FITTER FOR IMMEDIATE USE SHOULD THE MACHINE FAIL
 3. IT SHOULD BE SENT WITH YOUR MACHINE OPERATOR TO SITE FOR THE START OF THE SHIFT
 4. THE UNIT SHOULD BE RETAINED ON SITE SAFELY SECURED SHOULD IT BE REQUIRED DURING MACHINE OPERATIONS.
- SLEW THE MACHINE SO THAT THE ARM IS PARALLEL TO AND CLEAR OF ANY ADJACENT LINE WITH THE COUNTERWEIGHT FACING THE VEHICLE THAT IS TO BE USED FOR TOWING.
 - LOWER THE BOOM SO THAT THE HIGHEST POINT IS NO HIGHER THAN THE TOP OF THE CAB.
 - CONNECT YOUR MACHINE AND RECOVERY VEHICLE TOGETHER WITH THE APPROVED TOW BAR.
 - RELEASE THE AXLE LOCK STABILISERS OF THE FAILED MACHINE.
 - **ONLY RELEASE THE PARK BRAKE OF THE FAILED MACHINE ONCE THE TOW BAR HAS BEEN CONNECTED TO THE RECOVERY VEHICLE OTHERWISE THE MACHINE MIGHT RUN AWAY.**
 - ENSURE THAT TOWING IS CARRIED OUT AT A SLOW SPEED APPROXIMATELY 2 M.P.H AS THE RECOVERY VEHICLE HAS TO BRAKE FOR BOTH VEHICLES, AT A HIGHER SPEED BRAKING DISTANCE WOULD BE GREATLY INCREASED.

REMOTE AUXILIARY RECOVERY ENGINE HYDRAULIC POWER UNIT

NOTE: IF THE ENGINE HYDRAULIC POWER UNIT IS NOT AVAILABLE THIS MAY BE SUBSTITUTED WITH A HAND OPERATED HYDRAULIC PUMP

1. CONNECT HYDRAULIC POWER UNIT FEED AND RETURN LINES TO THE RECOVERY HYDRAULIC COUPLINGS ON THE MACHINE.



2. START RECOVERY ENGINE IN ACCORDANCE TO THE MANUFACTURERS INSTRUCTIONS.
3. PUSH THE HYDRAULIC LEVER ON THE POWER UNIT ACROSS



4. SWITCH ON MACHINE IGNITION SWITCH.
5. SWITCH PROLEC ON AND PLACE IN OVERRIDE FOR DURATION OF THE RECOVERY. (IF PROLEC LIFT WATCH RCI IS FITTED)

6. WHEN THE RECOVERY ENGINE IS RUNNING THE AUXILIARY VALVE BLOCK ON THE MACHINE IS OPERATIONAL THIS PROVIDES THE FOLLOWING ESSENTIAL FUNCTIONS FOR RECOVERY:
 - RAISE AND LOWER OF MAIN ARM LIFT RAM
 - SLEW LEFT AND RIGHT
 - ARM KNUCKLE LEFT AND RIGHT
 - RAISE FRONT RAIL GEAR/BLADE TROLLEY
 - RAISE THE REAR RAIL GEAR
7. OPERATE THE MACHINE CONTROLS IN THE USUAL WAY TO BRING THE MACHINE INTO TRAVEL GAUGE TO PREPARE FOR TOWING.

[WARNING] TO ENSURE THE MACHINE IS COMPLYING WITH THE W6 GAUGE REQUIREMENT BEFORE TRAVELLING ON RAIL IT IS ESSENTIAL THAT THE MACHINE IS SLEWED SO THAT THE UPPER STRUCTURE IS PARALLEL TO THE LOWER STRUCTURE/RAIL AND THAT THE ARM IS KNUCKLED PARALLEL TO THE RAIL. MECHANICAL LOCKS ARE PROVIDED AND SHOULD BE ENGAGED TO ENSURE THIS IS MAINTAINED.

[WARNING] TO GUARANTEE THE MACHINE IS COMPLYING WITH THE W6 GAUGE REQUIREMENT BEFORE TRAVELLING ON RAIL IT IS ALSO ESSENTIAL THAT THE ARM IS POSITIONED LOWER OR EQUAL TO THE HEIGHT OF THE CAB. THIS IS TO ENSURE OVERHEAD STRUCTURES ARE NOT STRUCK. THE HEIGHT LIMITER FITTED TO THE MACHINE CAN THEN BE SET AND ACTIVATED TO MAINTAIN THIS POSITION.

FAILURE TO COMPLY WITH THESE REQUIREMENTS MAY RESULT IN SEVERE DAMAGE TO THE MACHINE AND/OR THE RAIL INFRASTRUCTURE.

TOWING THE MACHINE ON RAIL WHEELS

[WARNING] THE MACHINE SHOULD BE COUPLED TO THE TOWING VEHICLE BEFORE THIS PROCEDURE IS FOLLOWED. THE MACHINE BRAKES ARE DISABLED WHEN IN FREE – WHEEL MODE. **FAILURE TO COUPLE THE MACHINE INITIALLY MAY RESULT IN IT ROLLING AWAY.**

1. REMOVE CENTRE PLUG USING 22MM ALLEN KEY



2. REMOVE CENTRE SHAFT, THIS IS TAPPED M6 TO ASSIST



3. REMOVAL. (KEEP SHAFT IN A SAFE, CLEAN PLACE.)



4. REFIT CENTRE PLUG. (TO PREVENT CONTAMINATION OF GEAR BOX).



5. REPEAT ON EACH GEAR BOX.
6. GEARBOXES ARE IN FREE – WHEEL TO ALLOW THE MACHINE TO BE TOWED TOWING.

2WD MODEL: FRONT BOGIE



FRONT BOGIE BRAKES CAN BE RELEASED BY EITHER OF THE FOLLOWING METHODS.

- BY CONNECTING A HAND PUMP/RECOVERY UNIT INTO BRAKE CIRCUIT
- BY CONNECTING BOGIE BRAKES TO TOWING VEHICLE TRAILER BRAKE COUPLING.

BEFORE RELEASING BRAKES ON BOGIE ENSURE MACHINE IS CONNECTED TO TOWING MACHINE.