

(CAT-003)

RAIL OPERATIONS

&

EMERGENCY RECOVERY PROCEDURES

RAIL- ABILITY

**CATERPILLAR D4G,
TRACK TYPE TRACTOR**



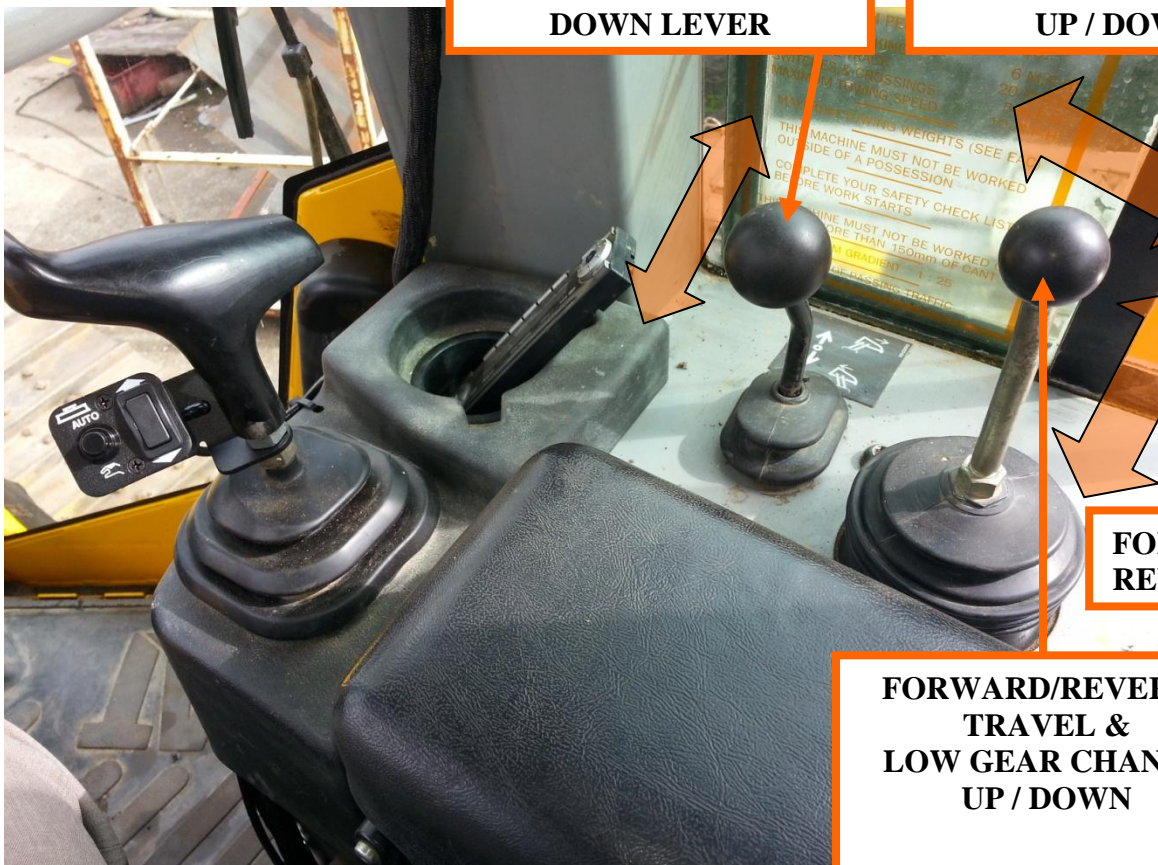
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CONTROL LAYOUT



**RAIL GEAR
ACKNOWLEDGE**



**REAR RAIL AXLE UP /
DOWN LEVER**

**LOW GEAR CHANGE
UP / DOWN**

**FORWARD/
REVERSE**

**FORWARD/REVERSE
TRAVEL &
LOW GEAR CHANGE
UP / DOWN**

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 V.A.B. ENGINEERING ACCEPTANCE CERTIFICATE FOR ADDITIONAL, SPECIFIC MACHINE LIMITATIONS OF USE.



ON / OFF TRACKING THE TRACK TYPE TRACTOR - GENERAL POINTS

ON/OFF TRACK THE TRACK TYPE TRACTOR 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 100MM
- 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.

WHEN ON TRACKING, THE REAR RAIL WHEELS SHOULD BE ALIGNED TO THE RAIL PRECISELY AND THE BOGIE WHEELS ALIGNED TO WITHIN 250MM OF THE RAIL HEAD. THIS MAY TAKE SEVERAL MANOEUVRES. THE BOGIE CAN THEN BE ACCURATELY ALIGNED UTILISING THE TILT AND ANGLE BLADE RAM FUNCTIONS. ONLY ONCE ALIGNMENT HAS BEEN ACHIEVED, SHOULD THE RAIL GEAR BE DEPLOYED.

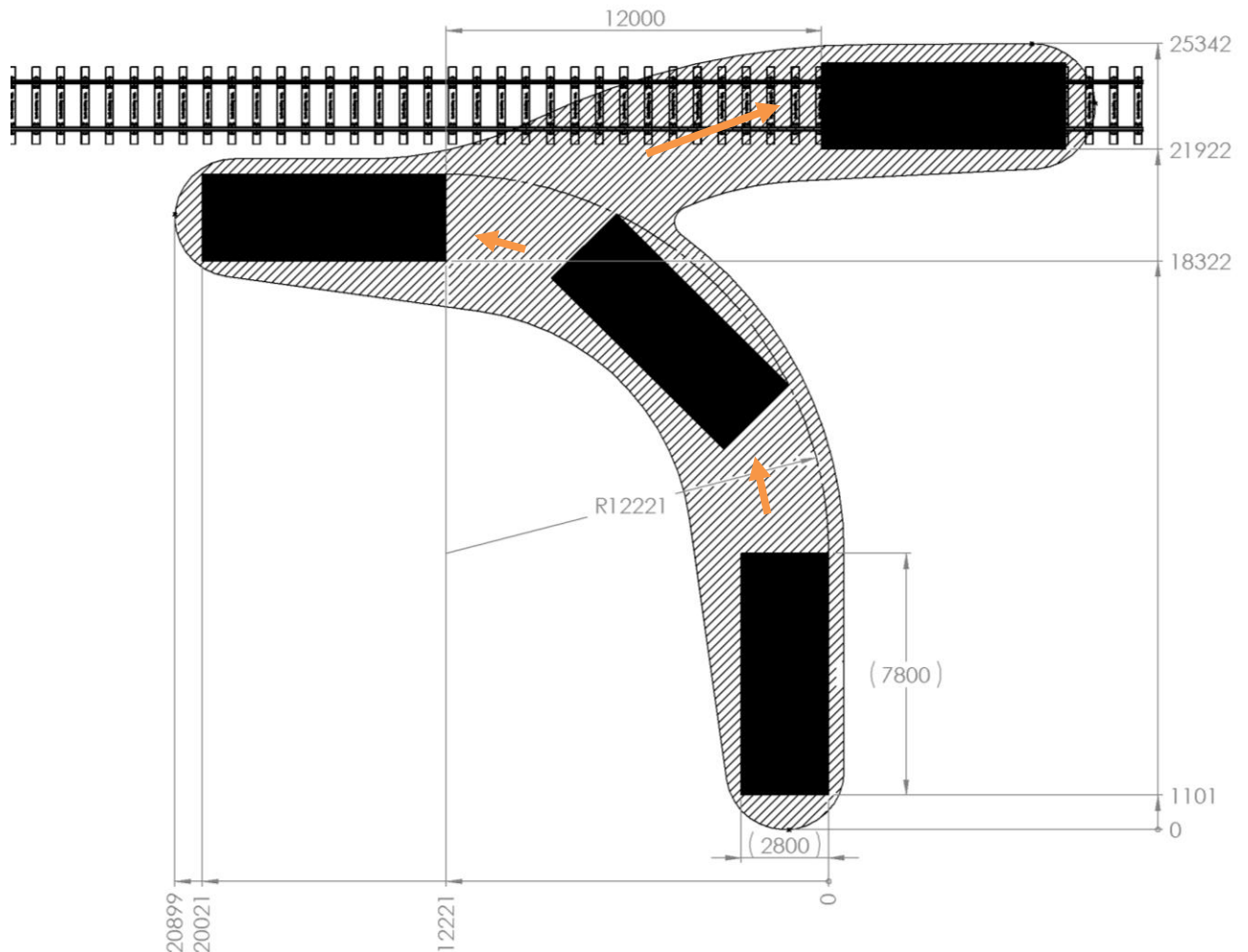
DO NOT ATTEMPT TO MANOEUVRE THE DOZER WITH THE CRAWLER TRACKS, WHEN THE RAIL GEAR IS SEMI/FULLY DEPLOYED.

[WARNING] 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 DOZER IS EXERTED ONTO THE TROLLEY. IF THE BLADE IS



NOT ANGLED PERPENDICULAR WITH THE RAIL SERVER DAMAGE TO THE BOGIE MAY RESULT.

SUGGESTED ON / OFF TRACKING AREA REQUIREMENTS



1. DRIVE FORWARDS AND ALIGN THE MACHINE PARALLEL TO THE TRACK.
2. REVERSE THE MACHINE AT 30° TO THE TRACK FROM THE PARALLEL POSITION TO TRAVERSE THE TRACK
3. RAIL SHIELDS ARE PROVIDED ON THE MACHINE AND SHOULD BE DEPLOYED AT THE POSITIONS THAT THE ROAD TRACKS WILL CONTACT THE RAILS. HEAVY DUTY TRACK ACCESS RAMPS OR A UTAS MUST ALSO BE USED TO ASSIST WHERE NO RRAP IS AVAILABLE

4. POSITION THE MACHINE TRACKS PARALLEL ON TOP OF THE RAIL SHIELDS ALIGNED TO THE RAILS AND ALIGN THE FRONT AND REAR RAIL GEAR WITH THE TRACK
5. DEPLOY THE REAR RAIL AXLE FULLY THEN DEPLOY THE FRONT RAIL GEAR BOGIE FULLY
6. FULLY ANGLE THE BLADE TO MEET W6A GAUGE REQUIREMENTS FOR TRAVELLING
7. INSERT THE BLADE RAM LOCKS

INSTALLATION OF RAM STRUT FOR TRAVELLING ON TRACK

[WARNING] THE RAM STUTS MUST ALWAYS BE INSTALLED WHEN THE DOZER IS ON RAIL. THESE ENSURE THE DOZER BLADE DOES NOT SETTLE AND HENCE KEEPS THE DOZER WITHIN W6 LOWER STRUCTURE GAUGE REQUIREMENTS. FAILURE TO FIT THESE MAY RESULT IN STRIKING LINE SIDE EQUIPMENT AND/OR STRUCTURES.

[WARNING] ENSURE THAT THE BLADE IS ANGLED TO ITS MAXIMUM EXTENT AND THAT AN EQUAL AMOUNT OF BLADE OVER HANG IS ACHIEVED OVER THE SIDES OF THE TROLLEY. THIS ENSURES THE DOZER REMAINS WITHIN W6 GAUGE REQUIREMENTS. FAILURE TO ENSURE THAT THIS IS DONE MAY RESULT IN STRIKING LINE SIDE EQUIPMENT AND/OR STRUCTURES.



OPERATE THE BLADE LEVER TO DEPLOY THE BLADE AND EXTEND THE RAMS JUST ENOUGH TO SLIDE THE STRUTS OVER THE RAM ROD. THEN INSTALL THE RETAINING PINS. GRADUALLY LOWER THE DOZER ONTO THE STRUTS, BY OPERATING THE BLADE LEVER TO RAISE THE BLADE.

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 SERVICES CABLES OR HAZARDS.
- EMERGENCY OFF TRACKING MUST NOT BE CARRIED OUT ON CANTS.

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 THE RAIL WHEELS FULLY. INCLUDING THE FRONT BOGIE
- 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.

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



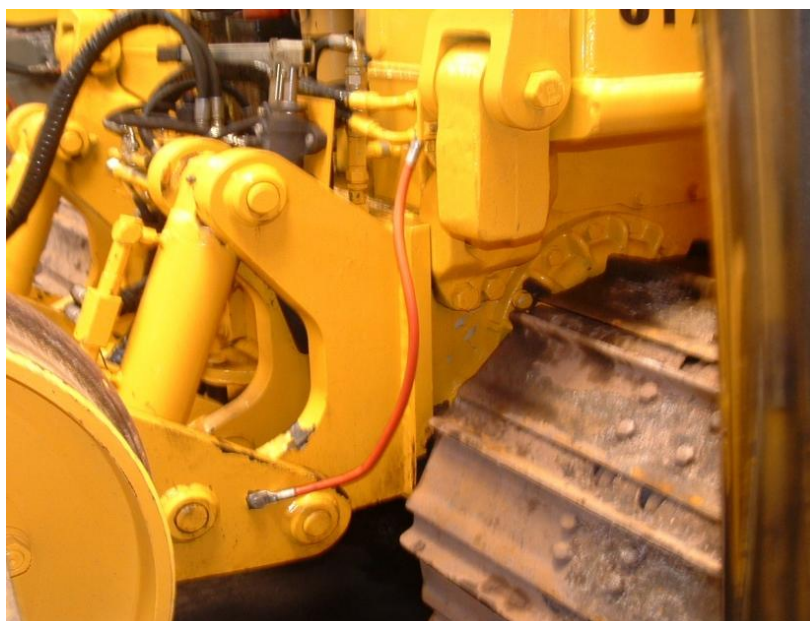
EARTH BONDING STRAPS

EARTH BONDING STRAPS ARE FITTED ON THE MACHINE BETWEEN THE CHASSIS AND REAR RAIL AXLE AND THE CHASSIS TO BLADE.

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

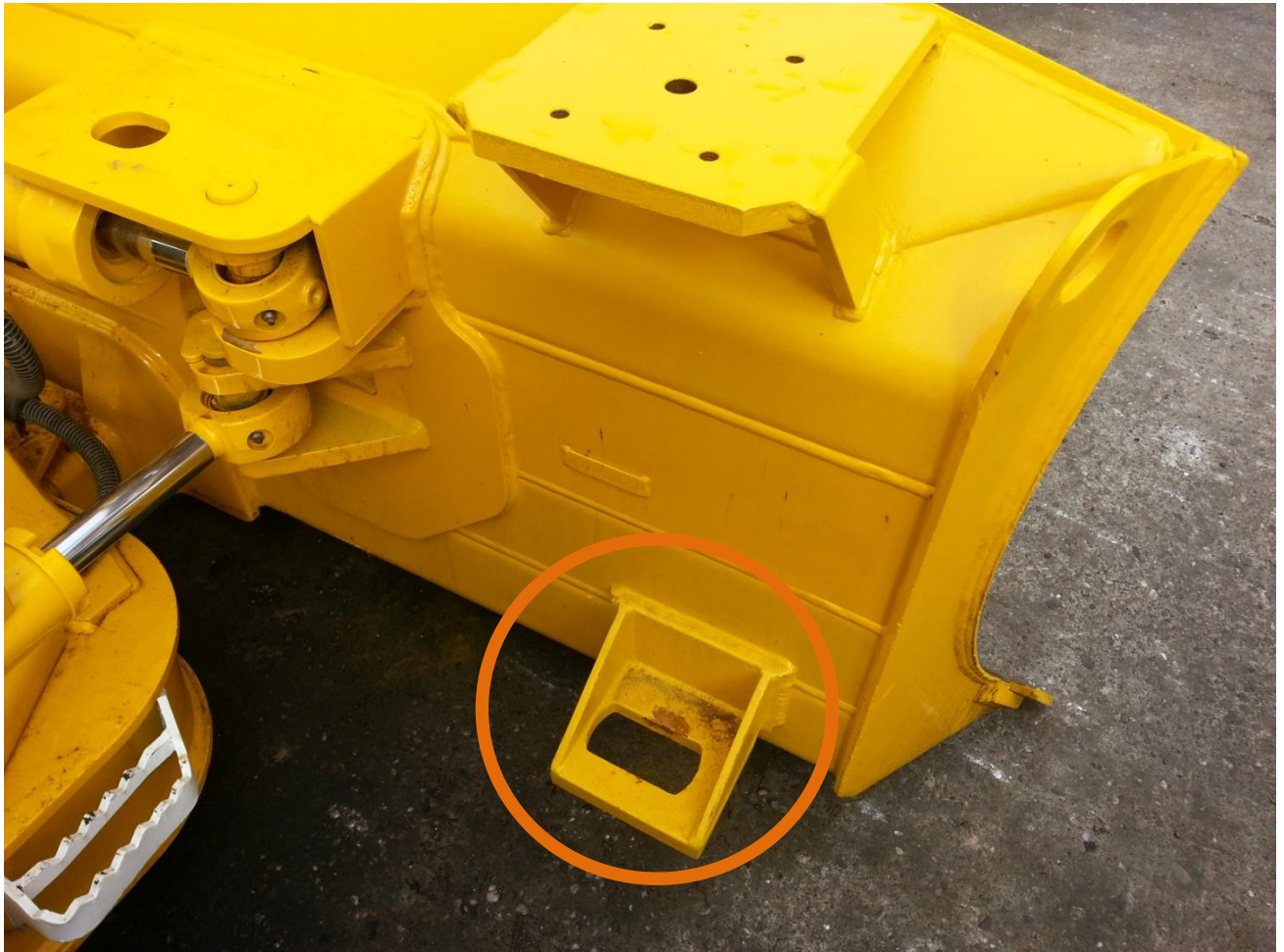
REPLACE IMMEDIATELY IF ANY SIGNS OF BURNING OR DAMAGE.

CHECK IMPEDANCE LEVELS AFTER REFITTING ANY STRAPS.



FRONT BOGIE CONNECT/DISCONNECT

The blade trolley locates between the cutting edge on the blade and the blade retaining profiles on the trolley. The twist locks on the trolley must be aligned with the aperture plates on the back of the blade. This ensures correct blade to trolley alignment is maintained.



To install the trolley under the blade manoeuvre and lower the blade until it aligns with the trolley blade locating profiles and the twist locks align with the blade aperture plates.

Engage the twist locks by rotating the orange handles into the outward facing direction.



Connect the trolley brake connection hose to the machine bonnet hydraulic quick release coupling.

The blade can now be raised fully to lift of the bogie clear of the ground and the machine can be moved.

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

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

Disconnect the trolley brake connection hose

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

EMERGENCY RECOVERY

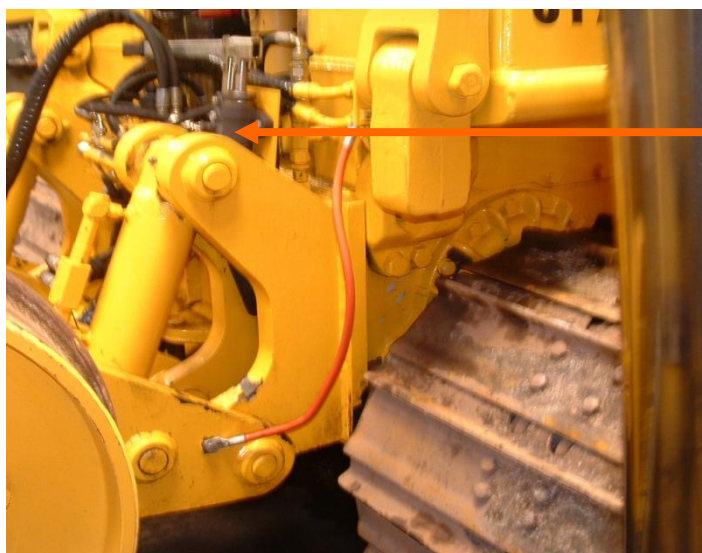
IF YOUR MACHINE BREAKS DOWN IN SUCH A POSITION THAT IT IS LIKELY TO OBSTRUCT AN ADJACENT LINE OR CAUSE AN ACCIDENT OR DAMAGE TO THE RAILWAY INFRASTRUCTURE OR ANY OTHER VEHICLE, IT IS IMPORTANT THAT THE MACHINE IS PLACED IN A SAFE POSITION AS SOON AS POSSIBLE. FOR THIS REASON THE CAT TRACK TYPE TRACTOR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

INSTRUCTIONS ON HOW THE AUXILIARY SYSTEM WORKS ARE DESCRIBED IN A SEPARATE SECTION OF YOUR OPERATORS HANDBOOK; 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:

- CONNECT YOUR MACHINE AND RECOVERY VEHICLE TOGETHER WITH THE APPROVED TOW BAR.
- 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.
- DO NOT REMAIN IN THE CAB OF THE MACHINE BEING TOWED.
- 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.

RECOVERY OF THE MACHINE IN THE EVENT OF A BREAKDOWN WHILST ON THE TRACK



HAND RECOVERY PUMP

PUMP HANDLE STOWED



THE REAR RAIL AXLE CAN BE RAISED TO ENABLE THE MACHINE TO BE REMOVED FORM THE RAIL TRACK BY USING THE HAND PUMP SHOWN ABOVE. (NOTE THE PUMP IS HOSED UP READY FOR RECOVERY (NO OTHER ACTION IS NECESSARY)).

THE HAND PUMP CAN THEN ALSO BE UTILISED TO RELEASE THE BLADE BOGIE BRAKES BY CONNECTING THE BLADE BOGIE HYDRAULIC BRAKE LINE TO THE HAND PUMP



TOWING

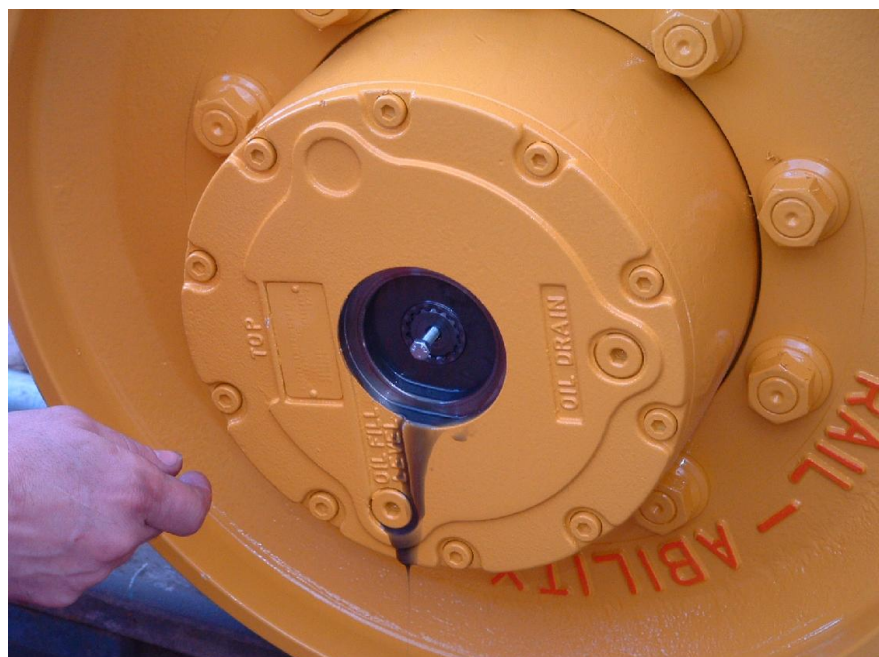
TOWING ON RAIL WHEELS

[WARNING] THE DOZER SHOULD BE COUPLED TO THE TOWING MACHINE BEFORE THIS PROCEDURE IS FOLLOWED. THE DOZER BRAKES ARE DISABLED WHEN IN FREE – WHEEL MODE. ***FAILURE TO COUPLE THE DOZER 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 DOZER TO BE TOWED.

[WARNING] THE TOWING JAW ON THE REAR RAIL GEAR IS FOR MEANS OF TOWING THE DOZER FOR RECOVERY ON RAIL ONLY. OVERLOADING THIS TOWING JAW MAY RESULT IN SEVERE DAMAGE TO THE RAIL GEAR. THIS JAW IS NOT TO BE USED TO TOW THE DOZER WHEN WORKING ON ITS TRACKS.

DO NOT USE THE JAW TO RECOVER THE DOZER IF IT BECOMES BOGGED DOWN.

DO NOT USE THE JAW TO TOW RAIL TRAILERS OR ANY TYPES OF RAIL MOUNTED PLANT. THE DOZER IS NOT APPROVED OR CERTIFIED FOR TOWING WHILST ON RAIL.