**ACTIVITY:** **TRUCK UNLOADER MAINTENANCE**

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* Objective : - Safe replacement of lifter cylinder of truck unloader
* Scope : - Truck Unloader
* Ref. : - Operation & Maintenance Manual
* Responsibility : - Engineer In charge

PPE –s to be used :

* Helmet, Safety shoes, Hand gloves, Cotton cloth and complete sealed goggle

Aspect – impact :

|  |  |
| --- | --- |
| Scrap generation | Resource Depletion |
| Oil Spillage | Land contamination & Resource Depletion |
| Oil traced waste generation | Land contamination & Resource Depletion |
| Welding fumes | Health |

[Hazards identified](file:///C:\Users\00007038\Desktop\wi%20New\4%20RISK%20ASSESMENT\WIMAINT31%20TRUCK%20UNLOADE%20MAINTENANCE.xls) :

Mechanical Hazard -

Slip of person/equipment/material

Fall of person/material/equipment from height

Hitting of material while loading and marching

Entanglement between crane/hydra swing arm/counter weight

Hitting of crane hook

Entanglement of cylinder in platform / other fixed members

Failure of D shackle, sling & crane

Burn injury during gas cutting and welding

Trapping of person /equipment

Failure of crane/ chain pulley block rope and hook

Fall of material from height due to improper slinging

Fall of material on crane cabin

Failure of lifting hook

Fall of object on person

Trapping of person in between cylinder and structure.

Hitting of wheel loaders and trucks

Back Pain due to sudden or heavy load like cylinder.

**Physical Hazard - Pressure,** fall of oil in eyes, mouth, ear. Temperature.

Fire in the power pack

Electrical Hazard - Electric shock due to welding machines, grinders.

**Human behavior aspect of operator**: Operator nature, alcoholism, casual approach, back pain, horse play & non usage of PPE

Work no 1: Lifting cylinder replacement.

Work no 2: Hooking cylinder replacement.

Work no 3: Rear Stopper cylinder replacement.

Work no 4: Changeover of pump.

Work no 1: Lifting cylinder replacement.

1. Take raw material in charge clearance and work permit to replace the lifting cylinder.
2. Barricade the road with barricading tape at entry to stop the truck from coming at truck unloader.
3. Remove the chequered plate above the cylinder to be removed by gas cutting it.
4. Take electrical shutdown of power-pack after releasing the pressure of system by operating the 3 levers of control valve.
5. Loosen the hose and remove both the hoses slowly. Care should be taken as hydraulic oil may come out with pressure if fittings are removed quickly or pressure of system is not released.
6. Plug both fittings of hydraulic cylinder to avoid dust insertion and oil spillage.
7. Put chain block of 2T capacity in the centre of the cylinder or with hydra hook take the load
8. Gas cut the side stoppers put for pin locking at top and bottom pin.
9. Remove top pin of the cylinder.
10. Remove bottom pin of the cylinder.
11. Remove the cylinder outside & put new cylinder.
12. Put bottom pin & top pin of the new cylinder.
13. Weld the stoppers for both pin locking.
14. Connect both the hoses. Keep the hose slightly loose to release the air lock during initial trials from cylinder.
15. Fit the removed chequered plate and weld it.
16. Clear the shutdown & take trial.
17. Tighten the hoses once air is released from the cylinder.
18. Carry out housekeeping as per instruction WI/MAINT/91.

17. Clean the spilled oil from platform.

Work no 2: Hooking cylinder replacement.

1. Take raw material in charge clearance and work permit to replace the hooking cylinder.
2. Barricade the road with barricading tape at entry to stop the truck from coming at truck unloader.
3. Remove the chequered plate above the cylinder to be removed by gas cutting it
4. Take electrical shutdown of power-pack after releasing the pressure of system by operating the 3 levers of control valve
5. Loosen the hose and remove both the hoses slowly. Care should be taken as hydraulic oil may come out with pressure if fittings are removed quickly or pressure of system is not released.
6. Plug both fittings of hydraulic cylinder to avoid dust insertion and oil spillage.
7. Remove the forks from both ends of cylinder.
8. Gas cut and remove the locking plate at cylinder trunion on one side.
9. Remove the cylinder out.
10. Replace the cylinder.
11. Lock the trunion by welding the plate.
12. Connect the forks of cylinder and hoses. Slightly keep the hose loose to release the air lock from cylinder.
13. Fit the removed chequered plate and weld it
14. Clear the shutdown & take trial
15. Tighten the hoses once air is released from the cylinder.
16. Carry out housekeeping as per instruction WI/MAINT/91
17. Clean the spilled oil from platform

Work no 3: Rear Stopper cylinder replacement.

1. Take raw material in charge clearance and work permit to replace the end stopper cylinder.
2. Barricade the road with barricading tape at entry to stop the truck from coming at truck unloader.
3. Take electrical shutdown of power-pack after releasing the pressure of system by operating the 3 levers of control valve
4. Loosen the hose and remove both the hoses slowly. Care should be taken as hydraulic oil may come out with pressure if fittings are removed quickly or pressure of system is not released.
5. Plug both fittings of hydraulic cylinder to avoid dust insertion and oil spillage.
6. Remove the fork from stopper.
7. Gas cut and remove the locking plate at cylinder trunion on one side.
8. Remove the cylinder out.
9. Replace the cylinder.
10. Lock the trunion by welding the plate.
11. Connect the fork of cylinder to stopper and fit hoses. Slightly keep the hose loose to release the air lock from cylinder.
12. Clear the shutdown & take trial
13. Tighten the hoses once air is released from the cylinder.
14. Carry out housekeeping as per instruction WI/MAINT/91
15. Clean the spilled oil from platform

Work no 4: Changeover of pump.

1. Take raw material in charge clearance and work permit to changeover the pump.
2. Barricade the road with barricading tape at entry to stop the truck from coming at truck unloader
3. Take electrical shutdown of both pumps after releasing the pressure of system by operating the 3 levers of control valve
4. Remove the plug from pump inlet port of pump which was not in operation (pump 1)
5. Than connect the inlet pipe flange of pump 2 to pump 1.
6. Fit the plug to pump 2 inlet port and tighten it.
7. Clear the shutdown & take trial
8. Carry out housekeeping as per instruction WI/MAINT/91
9. Clean the spilled oil from platform

DO :

* Release hose pressure before loosening the hoses.
* Use tested chain block to remove the cylinder.
* Train all workmen before putting on the job.
* Check whether shutdown is taken by starting the power-pack motor.
* Ensure to use same capacity ie: 5T and same length of slings and D shackles (5T) while hooking the truck during unloading as slings will take equal load and one sling will not become loose

DO NOT:

* Use slings and D shackles of different capacity and length to unload the truck as truck size may differ.
* Work on hydraulic system while in operation.

**Amendement Record**

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| --- | --- | --- | --- |
| **Date** | **Manual Section Ref. & Para** | **Brief details of Revision** | **New Rev.** |
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| --- | --- | --- |
| **Prepared By:**  Area Engineer | **Reviewed & Issued By:**  Management Representative | **Approved By:**  Mechanical Head |
| **Signature** | **Signature:** | **Signature:** |
| **Review Date: 12.12.22** | **Review Date: 12.12.22** | **Review Date: 12.12.22** |