

Post Accident Inspection of TMT1602

Machine Involved: TMT1602

(Track Maintenance Tamper, 2016 model year, 2nd machine bought)

Manufacturer: Nordco

Model: HSTX

Serial#:220114

Hr Meter: 5,332

Machine was inspected on the Lordsburg Subdivision @ Marsh Siding MP 1012.5

Present during Inspection:	Michael Vavra	Senior Director Work Equipment
	Robert Hill	Director Work Equipment – North
	Don Rhodes	Manager II Work Equipment
	Gerald Blomenkamp	Work Equipment Mechanic
	John Gobert	Field Technician – Nordco

Inspection of Equipment Monday 2/1/2021

- Machine was locked and tagged out of service upon arrival to the site.
- Job briefing was held to strategize the inspection process.
- Safety Work order was opened in SAP to document the inspection #40624821
- Machine needed 3 repairs that had happened during the incident before the team could start.
 - Right front workhead hyd hose had ruptured due to workhead being lowered while the machine was in motion. It was a #12 hose approximately 5' long.
 - Left lower step had been removed to extract the injured employee. Step was returned to service.
 - Middle lower window broken during incident. No window replacement on hand.
- General inspection of the equipment to make sure it was safe to restore energy and to walk around on the machine was conducted. Only defect noted was that the machine was in "tow mode" so it could be towed into the siding after the incident. Tow mode was reversed back to normal operations.
- TMT1602 previous Annual Safety Inspection had been completed on 3/15/2020 documented in the cab. 2021 Annual Inspections will open in February 2021
- Daily logbook PB-21434 had been filled out fully with only the rear travel motor unhooked for defects. Logbook had no mention of any previous machine issues with travel/propel concerns.
- Previous days repairs were noted.
 - Rear travel motor had a leaking output shaft seal on 1/30 that required replacement WO# 40624494.
 - Mechanic also opened a WO# 40624514 to check hyd pressures and fix hyd leak with reference to the motor.
 - Mechanic replaced rear motor with in stock motor.
 - Replacement hyd motor started leaking ¾ mile after replacement. Mechanic didn't have another replacement so the motor chain was removed and the lever for the rear motor was disengaged and removed from service.
- General inspection of the equipment complete.

- Cont'd machine start up and safety inspection. Fluid checks, machine starts and runs as normal and builds air and hyd pressure.
 - Completed inspection after machine warm up noted the following items.
 - Front travel chain out of adjustment but functional
 - All brakes functional but had room for adjustment
 - Small Hyd leak from hose on travel manifold
 - Lower middle window broken during incident
 - Rear travel motor looped off due to external leaking and the chain removed
 - Foot pedal for workhead cycle was inoperative – bad switch in the pedal
- Machine warm up and work cont'd. Use siding to work the machine travel and work functions to simulate operating temperature. Machine functions as normal, no other defects noted during this 2 hour operation.
- Hydraulic system checks:
 - System Pumps
 - P1 rear pump 2750 PSI
 - P2 front pump 2669 PSI
 - Pump system pressures are to be set @ 2700 PSI
 - Travel motor cross over reliefs
 - Front 2910 PSI
 - Reverse 2950 PSI
 - Motor crossover reliefs are to be set @ 2900
- More operations on the siding to warm up and function testing. Machine functions as normal, no other defects noted
- End of Day – tied machine up in siding and locked it out.

Inspection of Equipment Tuesday 2/2/2021

- Job Brief on machine testing for today. Take machine out of switch on to the main line where there is more room and a 1% grade to match the incident site. Perform some structured work mode stopping exercises to simulate the incident and gather time length per function of the machine.
- Group did a general inspection of the machine. No other issues noted.
- 3hr wait for track and time to get out.

Testing results:

- All tests were performed as the machine was set up during the incident and with one travel motor looped around and working upgrade at 1%.
 - Top speed of work mode 9 mph
 - Emergency stop button applied to stop 23'
 - Let off the work joystick brakes applied 21'
 - Time/Distance traveled
 - Tie 1 – Tie 5 - 3:53 seconds
 - Tie 5 – Impact (start at tie 1) - 9:33 seconds
 - Tie 1 – Tie 5 applying E-stop - 11'
 - Machine travel speeds w/ stop
 - Low travel 14mph - 55'
 - High travel 17mph - 17'

Machine shutdown testing:

- Key switch - OK
- Electrical Interlock (yellow button) - OK
- Emergency Stop (red button) - OK

Video descriptions:

- Scenario #1
 - Safety Walk around and checks
 - Strobe
 - Travel lights (directional and flashing)
 - Directional (travel) alarms
 - Horn
- Scenario #2
 - Working speed 4-5mph come to a normal stop
- Scenario #3
 - Working speed w/ E-stop applied

Report prepared by Mike Vavra – Senior Director Work Equipment UPRR

2/9/2021 rev1