



भारत सरकार  
रेल मंत्रालय

GOVERNMENT OF INDIA  
**MINISTRY OF RAILWAYS**

यूटिलिटी ट्रैक व्हेकिल (सैन) मशीन  
की निरीक्षण जांच सूची

**INSPECTION CHECK LIST FOR UTILITY TRACK  
VECHICLE MACHINE (SAN)**

रिपोर्ट संख्या—टी.एम.—216  
**Report No.TM - 216**

मार्च —2019  
March - 2019

अनुसंधान अभिकल्प और मानक संगठन  
लखनऊ—226011  
**RESEARCH DESIGNS & STANDARDS ORGANISATION**  
LUCKNOW- 226 011

# INSPECTION CHECK LIST FOR UTILITY TRACK VEHICLE (UTV-SAN)

**Name & Designation of Inspecting Official :**  
**Date of Inspection :**  
**Machine No. :**  
**Base Station /division :**  
**Working between station : From-----To-----**  
**Location km : From-----To-----**  
**Block hours :**  
**Progress :**

S. No	Items	Remarks given by inspecting officer
<b>1. General :</b>		
1.1	Name of supervisor	
1.2	Machine make(Model)	
1.3	Year of manufacturing	
1.4	First POH of Machine done on	
1.5	Last IOH of M/C done on	
1.6	Next IOH of M/C due on	
1.7	Last POH of M/C done on	
1.8	Next POH of M/C due on	
1.9	Last POH of camping coach done on	
1.10	Next POH of camping coach due on	
1.11	All log book filled properly	
1.12	Pending Maintenance Schedule and reasons, Schedule I,II,III,IV,V,VI,VII	



S. No.	I t e m s	Prevailing Conditions	
		NTA-855L(BC) 298KW @ 2100rpm nominal	
<b>2. ENGINE:</b>			
2.1	Engine hours on date	Dated _____	.....ERH
2.2	Last top overhauling of the Engine if done	Dated _____	.....ERH
2.3	Starting problem	Yes <input type="checkbox"/>	No <input type="checkbox"/>
2.4	Condition of smoke	White <input type="checkbox"/> Normal <input type="checkbox"/>	Black <input type="checkbox"/>
2.5	Leakage in Head gasket	Yes <input type="checkbox"/> Head no .....	No <input type="checkbox"/>
2.6	Belt condition and tension	Ok <input type="checkbox"/>	To be tightened <input type="checkbox"/>
2.7	Calibration of Fuel Injectors (to be done after every 2000 hrs)	done <input type="checkbox"/>	due <input type="checkbox"/>
2.8	Calibration of fuel injection pump(to be done after every 2000 hrs)	done <input type="checkbox"/>	due <input type="checkbox"/>
2.9	RPM of the Engine	Actual-----	(Rated 2100)
2.10	Change of Air Cleaner filters (1000 Hrs Duration)	Dated <input type="checkbox"/>	ERH <input type="checkbox"/>
2.11	Change of engine oil (300 Hrs duration)	done <input type="checkbox"/>	Not done <input type="checkbox"/>
2.12	Change of lub oil filter (300 Hrs duration)	done <input type="checkbox"/>	Not done <input type="checkbox"/>
2.13	Engine oil pressure a) 1.5 Kg/cm <sup>2</sup> at idle speed b) 2.5 Kg/ cm <sup>2</sup> on load after 2 hours working	Ok <input type="checkbox"/> Ok <input type="checkbox"/>	need attention <input type="checkbox"/> need attention <input type="checkbox"/>
2.14	Engine temperature after two hrs. Working (Optimum range 75 <sup>0</sup> c to 85 <sup>0</sup> c for both)	.....°C	
2.15	Any abnormal sound	Yes <input type="checkbox"/>	No <input type="checkbox"/>
2.16	Overall condition of engine	Ok <input type="checkbox"/>	Not satisfactory <input type="checkbox"/>
2.17	Condition of mounting pads of engine.	Ok <input type="checkbox"/>	Not satisfactory <input type="checkbox"/>
2.18	Condition of water radiator and its fins	Ok <input type="checkbox"/>	Not satisfactory <input type="checkbox"/>
2.19	Whether working gauges/display are in order or not		
	a) R.P.M & hour meter	Yes <input type="checkbox"/>	No <input type="checkbox"/>

SI no.	Items	Prevailing Condition			
	b) Engine water Temperature	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
	c) Speedometer	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
	d) Battery charging meter	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
	e) lub. oil pressure gauge	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
	f ) Lub oil Temp. gauge	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
	g) Transmission oil pressure gauge	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
	h)Transmission oil temperature gauge	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
	i) Pneumatic Pr. Gauge	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
	j) VM-Volt meter	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
2.20	Change of diesel filters (300 Hrs)	Done	<input type="checkbox"/>	Not done	<input type="checkbox"/>
2.21	Condition of battery terminals	Ok	<input type="checkbox"/>	To be tightened	<input type="checkbox"/>
2.22	Battery charging system	Ok	<input type="checkbox"/>	Not satisfactory	<input type="checkbox"/>
2.23	Condition of batteries	Ok	<input type="checkbox"/>	Not satisfactory	<input type="checkbox"/>
2.24	Electrolyte level in batteries (Plates should be embedded in electrolyte)	Ok	<input type="checkbox"/>	Need Top up	<input type="checkbox"/>
2.25	Specific gravity of electrolyte (min 1.24)	Ok	<input type="checkbox"/>	Less	<input type="checkbox"/>
2.26	Condition of silencer asbestos rope	Ok	<input type="checkbox"/>	Not satisfactory	<input type="checkbox"/>
2.27	Function of air compressor	Ok	<input type="checkbox"/>	Need attention	<input type="checkbox"/>
2.28	Function of Alternator	Ok	<input type="checkbox"/>	Need attention	<input type="checkbox"/>
2.29	Function of self starter	Ok	<input type="checkbox"/>	Need attention	<input type="checkbox"/>

Remark :-----  
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S. No.	Items	Agent / Description	Prevailing Condition	
<b>3. OIL LEVELS</b>				
3.1	Hydraulic oil		Ok <input type="checkbox"/>	To be attended <input type="checkbox"/>
3.2	Diesel tank		Ok <input type="checkbox"/>	To be attended <input type="checkbox"/>
3.3	Axle gear box		Ok <input type="checkbox"/>	To be attended <input type="checkbox"/>
3.4	Main gear box		Ok <input type="checkbox"/>	To be attended <input type="checkbox"/>
3.5	Engine lube oil		Ok <input type="checkbox"/>	To be attended <input type="checkbox"/>
<b>4. POWER TRANSMISSION:</b>				
4.1.	Oil leakage in gear boxes	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
4.2.	Last change of transmission filter (250 hrs duration)	done <input type="checkbox"/>	Not done <input type="checkbox"/>	
4.3.	Play in universal joint	Ok <input type="checkbox"/>	To be attended <input type="checkbox"/>	
4.4.	Condition of torque support	Ok <input type="checkbox"/>	To be attended <input type="checkbox"/>	
4.5.	Condition and Greasing of all Cardon shafts	done <input type="checkbox"/>	Not done <input type="checkbox"/>	
4.6.	Condition of brake shoes	Ok <input type="checkbox"/>	Not ok <input type="checkbox"/>	
4.7.	Clearance between brake shoe & wheel (3-5 mm)	Ok <input type="checkbox"/>	To be adjusted <input type="checkbox"/>	
<b>5. ELECTRICAL AND ELECTRONICS</b>				
5.1.	Working Head light, Tail light and other light	Working <input type="checkbox"/>	Not working <input type="checkbox"/>	
5.2.	Flasher light	Working <input type="checkbox"/>	Not working <input type="checkbox"/>	
5.3.	Hooter	Working <input type="checkbox"/>	Not working <input type="checkbox"/>	
5.4.	Working of Electric Horn	Ok <input type="checkbox"/>	Need attention <input type="checkbox"/>	
5.5.	Defective / released Relays available with machine	Part no .....		
5.6.	Check operation of all circuit breakers manually	Working <input type="checkbox"/>	Not working <input type="checkbox"/>	
5.7.	Check condition of connections	Ok <input type="checkbox"/>	Need attention <input type="checkbox"/>	

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Sl no.	Items	Prevailing Condition	
<b>6. PNEUMATICS</b>			
6.1.	Condition of pneumatic hoses	Ok <input type="checkbox"/>	To be replaced <input type="checkbox"/>
6.2.	Condition of KE valve (indirect brake)	Working <input type="checkbox"/>	Not working <input type="checkbox"/>
6.3.	Condition of Air unloader	Ok <input type="checkbox"/>	Need attention <input type="checkbox"/>
6.4.	Condition of pneumatics cooling coil	Ok <input type="checkbox"/>	Need attention <input type="checkbox"/>
<b>7. Under Frame Inspection</b>			
<b>7.1 Under Frame</b>			
7.1.1	Visual Inspection of centre pivot mounting Bolts and Mounting of Suspension system ,Bogie Frame etc.	Ok <input type="checkbox"/>	To be attended <input type="checkbox"/>
7.1.2	Examine the shock absorber for damages.	Ok <input type="checkbox"/>	To be attended <input type="checkbox"/>
7.1.3	Check condition of head stock/sole bar of centre buffer Coupler	Ok <input type="checkbox"/>	To be attended <input type="checkbox"/>
<b>7.2 Bogie frame &amp; Wheels</b>			
7.2.1	Visual and Physical inspection of wheel shall be done at a frequency of once in a year or after every 1000 engine running hours whichever is earlier.	Done <input type="checkbox"/>	Not done <input type="checkbox"/>
7.2.2	Visual Inspection of wheels and under gear for any infringement	Ok <input type="checkbox"/>	To be attended <input type="checkbox"/>
7.2.3	Visually inspect all the welding locations.	Ok <input type="checkbox"/>	To be attended <input type="checkbox"/>
7.2.4	Visually check the suspension brackets.	Ok <input type="checkbox"/>	To be attended <input type="checkbox"/>
<b>7.3 Brake Rigging</b>			
7.3.1	Visually check the rubbing plates.	Ok <input type="checkbox"/>	To be attended <input type="checkbox"/>
7.3.2	Examine brake beams breakages/ damages.	Ok <input type="checkbox"/>	To be attended <input type="checkbox"/>
7.3.3	Inspection of Brake hanger bracket , torque support , cardan shaft hanger brackets for damages	Ok <input type="checkbox"/>	To be attended <input type="checkbox"/>
<b>7.4 Draw Gear</b>			
7.4.1	Check condition of the screw coupling/ CBC coupling and replace if required.	Ok <input type="checkbox"/>	To be attended <input type="checkbox"/>
7.4.2	Examine draw hook ,draw bars, rubber pads for damages	Ok <input type="checkbox"/>	To be attended <input type="checkbox"/>

SI no.	Items	Prevailing Condition			
7.4.3	Ensure that wear at any section on draw hook should not exceed 10 mm.	Ok	<input type="checkbox"/>	To be attended	<input type="checkbox"/>
7.4.4	Ensure that wear on screw coupling shackle pins, trunion pins, shackle/link holes and draw hook holes should not exceed 3 mm.	Ok	<input type="checkbox"/>	To be attended	<input type="checkbox"/>
7.4.5	Check condition of draw beam and locking pins on it.	Ok	<input type="checkbox"/>	To be attended	<input type="checkbox"/>
7.4.6	Examine visually draft key locking pins.	Ok	<input type="checkbox"/>	To be attended	<input type="checkbox"/>
<b>7.5 Buffing Gear</b>					
7.5.1	Visually examine the wheel tyre profile and crack with tyre profile gauge as mention in procedure for inspection of wheels (On Track Machines) issued by RDSO report no. TM-170	Ok	<input type="checkbox"/>	To be attended	<input type="checkbox"/>
7.5.2	Examine for corrosion of sole bar and other under frame member with track light or inspection lamp.	Ok	<input type="checkbox"/>	To be attended	<input type="checkbox"/>
7.5.3	Visually examine the buffers casing for cracks/damages.	Ok	<input type="checkbox"/>	To be attended	<input type="checkbox"/>
<b>7.6 Running Gear</b>					
7.6.1	Visually inspect axle box covers.	Ok	<input type="checkbox"/>	To be attended	<input type="checkbox"/>
7.6.2	Inspect wheel tread for shattered rim, spread rim, shelled tread, thermal cracks, heat checks	Ok	<input type="checkbox"/>	To be attended	<input type="checkbox"/>

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S. No.	I t e m s	Prevailing Condition	
<b>8. STAFF</b>			
8.1.	Strength of staff as per IRTMM	Full <input type="checkbox"/>	Deficient <input type="checkbox"/>
8.2.	Safety awareness	Excellent <input type="checkbox"/> Good <input type="checkbox"/>	Very good <input type="checkbox"/> Average <input type="checkbox"/>
8.3.	Staff due for Medical	.....	
8.4.	Competency certificate of the Operator	Current <input type="checkbox"/>	Expired <input type="checkbox"/>
8.5.	Staff due for training	.....	
8.6.	Staff availing rest on due date	Yes <input type="checkbox"/>	No <input type="checkbox"/>
8.7.	Staff amenities as per up to date IRTMM -2000 and latest correction slip	Satisfactory <input type="checkbox"/>	Poor <input type="checkbox"/>
<b>8. SAFETY ITEMS:</b>			
9.1.	Safety equipment as per Annexure-I	Available <input type="checkbox"/>	deficient <input type="checkbox"/>
9.2.	Working of safety Emergency Braking System of the machine	Ok <input type="checkbox"/>	Defective <input type="checkbox"/>
9.3.	Fire extinguisher	Ok <input type="checkbox"/>	Defective <input type="checkbox"/>
9.4.	Visual and Physical inspection of wheel shall be done at a frequency of once in a year or after every 1000 engine running hours whichever is earlier	Done <input type="checkbox"/>	Not done <input type="checkbox"/>
9.5.	Ultrasonic testing of axles of machine shall be done between 40,000 to 45,000 kms of running engine hours or three years, whichever is earlier.	Done <input type="checkbox"/>	Not done <input type="checkbox"/>
9.6.	Inspect the under frame for any welding defects ,cracks, hanging parts etc.	Ok <input type="checkbox"/>	Need attension <input type="checkbox"/>

Remark :-----  
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Date .....

Signature of inspecting officer

**List of Safety Equipments**

<b>Sr. No.</b>	<b>Description</b>	<b>Quantity</b>	<b>Available Yes (✓) / No (x)</b>
1.	Red hand signal flags	2 Nos	
2.	Green hand signal flags	1 Nos	
3.	Tri- colour hand signal lamps/LED torch	2 Nos	
4.	Chain with Padlock	2 Nos.	
5.	Point clamp with Padlock	2 Nos.	
6.	Fire Extinguisher	Each per cabin	
7.	Hooter ( Manually/Remote)	2 Nos.	
8.	Jack 50t	1 Nos.	
9.	Jack 10t with triffor	2 Nos.	
10.	Wooden Blocks of different sizes	4 Nos.	
11.	Crow bars	4 Nos.	
12.	Hydraulic hand pump	1 No.	
13.	Emergency Pneumatic / Hydraulic hose off sizes (complete with end fitting )	As per requirement	
14.	Machine Specific Equipment if any.	As per requirement	
15.	Fog signals ( detonators ) in a tin case	10 No.	
16.	A copy of working time table of this section where the machine is working	1 No	
17.	G & SR book with up to date amendment slips	01 No.	
18.	4 cells flasher light LED lamp cum flasher light (rechargeable )	1 No.	
19.	Banner flags	2 Nos.	
20.	First aid Box	1 No	
21.	Skids	2 Nos	
22.	Safety Helmet for all machine staff	All staff	
23.	Protection clothing , safety shoes and safety gloves	All staff	
24.	Walkie talkie with frequency of SM, guard and loco pilots	01 No.	
25.	Track machine manual with up to date correction slip	1	
26.	Accident manual	1	
27.	Tail Lamp	1	

**Note:** Inspecting official should wear the protective equipment when doing the inspection.

## **ACKNOWLEDGEMENT**

Following officers and staff have made their valuable contributions in finalization of Inspection check list for Utility track vehicle (SAN)

### **RAILWAY**

- |    |        |            |              |
|----|--------|------------|--------------|
| 1. | . SHRI | RAJA VERMA | SSE//TMC/SWR |
| 2. | . SHRI | RAVI KUMAR | SSE//TMC/SWR |

### **SAN ENGG**

- |    |        |              |          |
|----|--------|--------------|----------|
| 1. | . SHRI | DURGA PRASAD | ENGINEER |
|----|--------|--------------|----------|

### **RDSO**

- |    |        |                        |         |
|----|--------|------------------------|---------|
| 1. | . SHRI | MUSLIM AHMAD           | ARE/TM  |
| 2. | . SHRI | VED PRAKASH SRIVASTAVA | SSE/TM  |
| 3. | . SHRI | SURENDRA KUMAR         | SSRE/TM |