



ANDHRA PRADESH STATE ROAD TRANSPORT CORPORATION

OP3/462(VOLVO)/2021-MED

Office of the VC & MD,
RTC House, VJA-13.
Date: 24.06.2021.

To,

All Regional Managers,
APSRTC.

Sub:- VEHICLES: Guidelines for buses on long halt and recommended activities before
Start of operations of Volvo buses- Reg.

Ref: Lr no. OP3/462(3)2020-MED, Dt.06.10.2020.

Due to Curfew imposed w.e.f 05.05.2021 on account of second wave COVID-19 pandemic, APSRTC had stopped operation of AC buses totally. Some AC buses were not operated since complete lockdown imposed last year i.e 23.03.2020.(At Narasaraopeta)

M/s Volvo has recommend the below Guidelines/inspections to be carried at depot level to ensure the condition of vehicles and are available roadworthy once restrictions are lifted-up.

1. Weekly inspection - in order to properly park the vehicle and carryout by weekly inspection to keep the bus ready without any major faults.
2. Guideline before start of vehicle operations - before planning to start operation of buses, checks include chassis and body related checks, test drive. If the vehicle is stopped for six months, replace engine oil and filter, Diesel filter, Water separator, AdBlue & AdBlue filter.

Hence, you are requested to advise the concerned to inspect all the Volvo buses immediately and follow the above instructions during halt at garages and before starting the AC buses.

Encl: Check list is enclosed herewith.

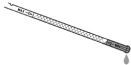


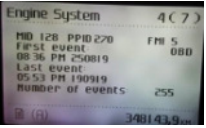



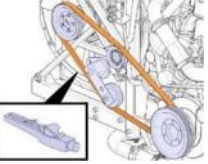

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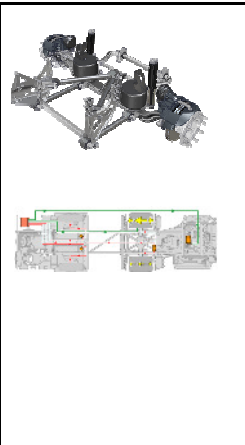

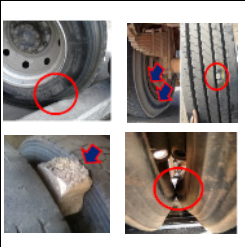
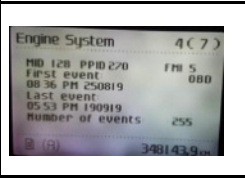
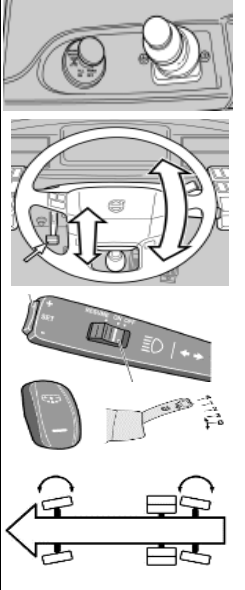
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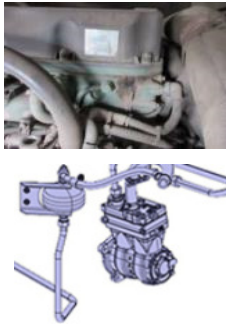


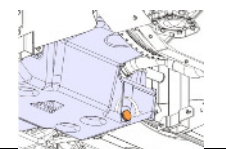
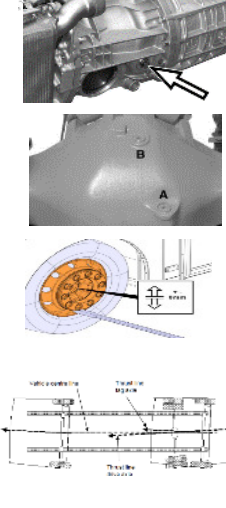
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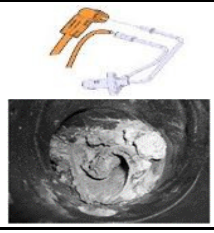

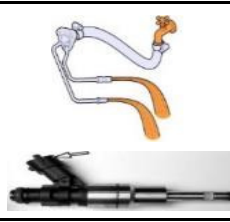
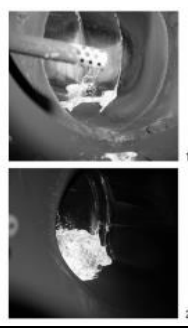
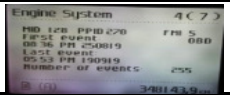
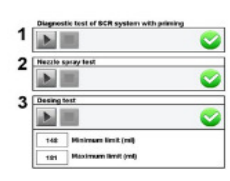
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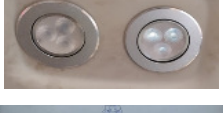





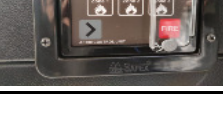

Guidelines before starting of vehicles for operation

Chassis no:		Customer name:	
Current mileage:		Location:	
	Activity	Remarks	Observations
	All oil levels	Check and top-up	
 	Battery Inspection: Check both the batteries Check Voltage 12.6 V or above, Specific gravity 1.26 (+/- 0.01) g/cm ³ or above Voltage below 12.6 V, Specific gravity below 1.26 (+/- 0.01) g/cm ³	No action needed Batteries to be charged in a constant current charges with 12 to 15 A Until: <ul style="list-style-type: none"> ▣ Charging voltage 15.6 to 16.2 V ▣ Specific gravity 1.260+/- 0.01 ▣ Free gassing in all cells ▣ Cell temperature not to exceed 50°C ▣ Check the voltage after 2 to 3 hours after charge. ▣ Use a battery load tester to check the health of battery. 	
	Switch on the vehicle ignition and check for any active error codes	Rectify any errors	
 	Check Electrical distribution box and inverter compartment: <ul style="list-style-type: none"> ▣ Check all fuses are OK ▣ Check for all connectors are connected and properly locked ▣ Check for any moisture / rust accumulation on any electrical components and connectors ▣ Check if any pests / rats which might have damaged the wirings ▣ Check for any rags / foreign objects in inverter compartment and clear the same. 	Rectify any deviations	
 	Check of Engine compartment: <ul style="list-style-type: none"> ▣ Check of all oil and coolant level ▣ Inspect for any leakages fuel/oil/coolant ▣ Inspect drive belts tension and condition ▣ Clean dirt/dust from alternator using dry air ▣ Check the condition of wiring harness and connectors are connected properly. ▣ Check that there is no chafing / rubbing of hoses or wiring against any edges ▣ Check the rubber protection and cable ties are intact ▣ Check all the exhaust hoses are intact ▣ Check condition of rubber hoses (any cracks or hardness) and tightening of clamps. 	Rectify any deviations	

	<p>Under chassis inspection:</p> <ul style="list-style-type: none"> ▣ Check all the suspension components reaction rods, Link rods, Shock absorbers, etc.. Are OK ▣ Check all the air bellows condition are OK and not leaking ▣ Check for all cables and hose routing are OK and no chaffing ▣ Check for any air or fluids leaking ▣ Check for bolts loose or missing ▣ Check for earthing connections (Engine to Chassis, Gearbox to chassis, Battery to chassis, AD Blue pump unit, Body harness earthing connections) 	<p>Rectify any deviations</p>	
	<p>Passenger/Driver compartment and lighting:</p> <ul style="list-style-type: none"> ▣ Check all the passenger seats/Driver seat and seat belt condition are OK. ▣ Check all interior and exterior lighting ▣ Check all the fire extinguisher are OK and pressure in green zone ▣ Check for driver and passenger door operation and proper lubrication ▣ Carry out sanitization of the passenger compartment 	<p>Rectify any deviations</p>	
	<p>Tyres inspection:</p> <ul style="list-style-type: none"> ▣ Check for correct tyre pressure /any air bubble ▣ For any nails/screws/ bolts embedded on tyre ▣ Check air filling valves for any leakage ▣ Check if the tyres are touching with any sharp edges / floor and inspect for any damage ▣ Check for any foreign materials stones in between tyres on rear axle 	<p>Rectify any deviations</p>	
	<p>Start the engine and run for atleast 20 minutes. (Note: Before starting the engine ensure battery is fully charged)</p>		
	<ul style="list-style-type: none"> • Check for alternator charging voltage should be within 27.5V to 28.5V (@ 1000 rpm) 	<p>Rectify any complaints</p>	
	<ul style="list-style-type: none"> • Check for any active error codes 	<p>Rectify any complaints</p>	
	<p>Carry out a test drive for at least 20 kms.</p>		
	<p>Checks before test drive:</p> <ul style="list-style-type: none"> • Parking brake / blocking valve is working 	<p>Rectify any complaints</p>	
	<ul style="list-style-type: none"> • Relief for air pressure occurs 	<p>Rectify any complaints</p>	
	<ul style="list-style-type: none"> • No any air or fluids leaking 	<p>Rectify any complaints</p>	
	<p>Checks during test drive:</p> <ul style="list-style-type: none"> • Check for any active error codes/warnings 	<p>Rectify any complaints</p>	
	<ul style="list-style-type: none"> • Brake performance: is there any noise from brakes or any brake binding 	<p>Brakes noise or binding: Inspect and overhaul brake caliper assembly.</p>	
	<ul style="list-style-type: none"> • Is the steerability normal or any pulling observed 	<p>Rectify any complaints</p>	
	<ul style="list-style-type: none"> • Check if gear shifting is normal 	<p>Rectify any complaints</p>	
	<ul style="list-style-type: none"> • Gear lever operation is normal 	<p>Rectify any complaints</p>	
	<ul style="list-style-type: none"> • Check if the exhaust / Engine brake is working and cruise control is working. 	<p>Rectify any complaints</p>	
	<ul style="list-style-type: none"> • Check if the retarder is working 	<p>Rectify any complaints</p>	
	<ul style="list-style-type: none"> • Check for air suspension leveling function is working (Level-up, driving and kneeling) 	<p>Rectify any leakages or malfunction</p>	
	<ul style="list-style-type: none"> • Check the hydraulic steering is working correctly on the pusher / Tag axle (B11R) 	<p>Rectify any leakages or malfunction</p>	

	<p>Checks after the test drive:</p> <ul style="list-style-type: none"> ▣ Check for any leakages near engine compartment (Fuel/Coolant/Oil) or under chassis ▣ Check condition of air bellows, shock absorbers, Link rod, reaction rods and other suspension components. ▣ Check for any oil throw from air compressor. Check the pipes from air compressor to airdrier and air drier to the main tank for any oil or carbon deposits. 	<ul style="list-style-type: none"> • Rectify any leakages. • Any damaged suspension components to be replaced. • If oil / carbon is found, the pneumatic lines to be cleaned. 	
	<p>Washing & Sanitization:</p> <ul style="list-style-type: none"> ▣ Wash complete vehicle ▣ Sanitise the following: Cab interior high touch points like, switches, dashboard, seats, gear lever , door handle, grab rails etc. 		
	<p>Check for tyre pressure.</p>	<p>Top up as needed</p>	
	<p>At start of operation replace:</p> <ul style="list-style-type: none"> ▣ Engine oil and filter ▣ Diesel filter ▣ Water separator ▣ AD Blue solution and filter 		
	<ul style="list-style-type: none"> ▣ GB oil & filter ▣ Rear axle oil ▣ Coolant concentration 40% to 60%- Check using refractometer antifreeze to be within -25°C and -45°C. Replace coolant if there is deviation. ▣ Air drier: If oil / carbon found in the compressor charging lines. ▣ Drive belts replace ▣ Check for front and rear wheel bearing play and noise: If any noise/play observed bearing to be replaced. ▣ Carry out wheel alignment 		
<p>Checks on the SCR system before start of vehicle operation</p>			

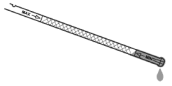


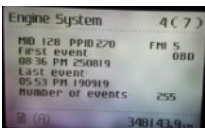

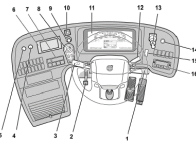



Chassis no:		Customer name:		
Current mileage:		Location:		
<p>Always use protective equipment while working with SCR system. Cover any exposed electrical connector to avoid corrosion.</p>  				
		Activity	Remarks	Observation
		<p>Check the condition of AdBlue in the tank for any visual contaminaton or crystallization</p>	<p>In case of devaiton, drain AdBlue, flush clean the tank/filter and cap with warm water. Replace AdBlue.</p>	
		<p>In case contamination/crystallizaion is found in the tank, also check the pipes between tank and AdBlue pump.</p>	<p>Flush clean with warm water</p>	
		<p>Remove the Adblue delivery nozzle and the delivery pipes from AdBlue pump to nozzle. Check for clogging/crystalliztion in below:</p> <ul style="list-style-type: none"> ■ Delivery pipes ■ Nozzle ■ Silencer muffler 	<p>Individual actions to be taken as given below</p>	
		<p>Clogging / Crystallization in the delivery pipes found</p>	<p>Flush clean with warm water</p>	
		<p>Clogging / Crystallization in the delivery nozzle found</p>	<p>Flush clean with warm water B8R (Albanoir) : Clean with warm water B7R/B11R (Bosch): Clean with warm water with injector solenoid connected to 12V</p>	
		<p>Clogging / Crystallization in the silencer muffler found</p>	<p>Level 1: Wipe of crystals. No further action required. Level 2: noticeable volume, thickness >2 mm contact your Volvo workshop for further checks.</p>	
		<p>If no clogging/crystallization is found in any of the components, start the vehicle and check for any error related to SCR system</p>	<p>Rectify any errors</p>	
		<p>If clogging/crystallization was found in the tank, input pipes and AdBlue has been refilled</p>	<p>Priming of SCR system using Tech Tool to be carried out at Volvo workshop</p>	
		<p>If the vehicle storage is close to 6 months it is advised to replace AD Blue and AD Blue filter</p>	<p>Priming of SCR system using Tech Tool to be carried out at Volvo workshop</p>	
Bus body checks				



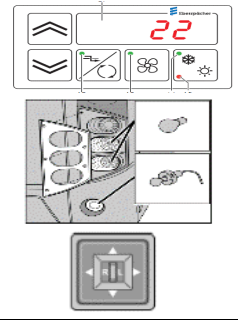
Inspection / activity	Remarks	Observation
	Check for driver and passenger door operation and proper lubrication	Rectify any deviations
	Check for door safety function in running condition and door brake function	Rectify any deviations
	Check the function of destination signs (All route board functions and voice announcement)	Rectify any deviations
	Check for availability of first aid kit	Rectify any deviations
	Check for Driver sun blinder operation & condition	Rectify any deviations
	Check for the greasing is carried out for the nipples provided in door pillars and ensure lubrication	Rectify any deviations
	Check for wheel chair ramp function	Rectify any deviations
	Check all interior and exterior lighting	Rectify any deviations
	Check the function of all body controls and switches (Tube lights, Roof hatch fan, ENT system)	Rectify any deviations
	Check passenger seats condition and seat fabric cleaning and Anti-fungal treatment (once in 3 months)	Rectify any deviations
	Check for passenger seat roof A/C air vents close /open operation is smooth and Check for A/C flow from all the air vents	Rectify any deviations
	Check the ends of condensate drain lines from air conditioning systems. (water outlet)	Rectify any deviations
	Check for roof hatches functioning and its gas springs condition	Rectify any deviations
	Check for grab handle belts condition for joints loosen / Strap condition	Rectify any deviations
	Check all the fire extinguisher are OK and pressure in green zone	Rectify any deviations
	Check the FDSS system, cylinder pressure gauge should be in green and hoses and pipe connection.(Fogmaker make)	City Buses and Coaches
	Check the FDSS system, cylinder pressure gauge should be in green and hoses and pipe connection.(DAFO Make)	Coaches



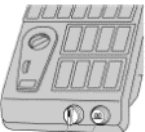

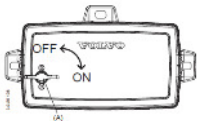
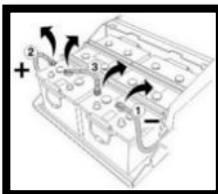
Storage check sheet for buses during non-operation

Chassis no:		Customer name:	
Current mileage:		Location:	

Section-1: Bi-weekly inspection & parking instructions

Inspection / activity	Remarks	Observation
 <p>All oil levels</p>	Check and top-up	
Battery Inspection: Check both the batteries		
 <p>Check Voltage 12.6 V or above, Specific gravity 1.26 (+/- 0.10) g/cm³ or above</p>	No action needed	
 <p>Voltage below 12.6 V, Specific gravity below 1.26 (+/- 0.01) g/cm³</p>	Batteries to be charged in a constant current charges with 12 to 15 A Until: <ul style="list-style-type: none"> ▣ Charging voltage 15.6 to 16.2 V ▣ Specific gravity 1.260 +/- 0.01 ▣ Free gassing in all cells ▣ Cell temperature not to exceed 50°C ▣ Check the voltage after 2 to 3 hours after charge. ▣ Use a battery load tester to check the health of battery. 	
 <p>Start the engine and run for atleast 20 minutes.</p> <ul style="list-style-type: none"> • Check for alternator charging voltage should be within 27.5V to 28.5V (@ 1000 rpm) • Check for any active error codes <p>Note: Before starting the engine ensure battery is fully charged</p>	Rectify any errors	
 <p>Check for any leakages near engine or under chassis</p>	Rectify any leakages	
 <p>Check if the cab controls are working:</p> <ul style="list-style-type: none"> • Parking brake and blocking valve • Accelerator • Air-bellow adjustment 	Check for any leakages in pneumatic lines, brake system & air bellows when operating the controls. Rectify any observed issues.	
 <p>Check for tyre pressure. In order to prevent hardening of tyre surface which is in contact with floor move the vehicle slightly to change the tyre position in contact with floor or slightly over-inflate upto maximum allowed tyre pressure of 130 PSI (Or as mentioned on tyre) to reduce the contact surface with ground.</p>		
 <p>Check the condition of AdBlue in the tank for any visual contaminaton or crystallization. Ensure that Adblue is filled up to maximum level on tank to avoid crystallization.</p>	In case of devaition, drain AdBlue, flush clean the tank/filter and cap with warm water. Replace AdBlue.	

Bus body checks			
Inspection / activity		Remarks	Observation
	Check for front passenger door smooth operation, safety function and Air leakages in door mechanism	City Buses	
	Check for middle passenger door smooth operation, safety function and Air leakages in door mechanism	City Buses	
	Check for parking lamps, roof lamps, front head lamps /Fog lamps /indicator lights function		
	Check headlamp full & dipped (low & high) beams are set correctly as per the recommended standards		
	Check AC control unit function - with and without AC blower high speed/ low speed		
	Check for electrical horn function		
	Check for tail lamp lights function - Parking /Brake / Direction indicators & Reverse.		
	Check for RVM adjustment switch function		
	Park vehicle as per Parking instructions	Refer Vehicle parking instructions	

Vehicle parking instructions			
Inspection / activity		Remarks	Remarks
	Park vehicle in a safe and isolated place: <ul style="list-style-type: none"> ▣ Ensure location preferable under a shed ▣ No flammable material around the vehicle ▣ Bus away from vicinity of electric pole or high voltage transmission line 	When vehicle not is use	
	Ignition key OFF	When vehicle not is use	
	Switch of all switches on dasboard & the inverter main switch	When vehicle not is use	
	Battery main switch OFF (Dashboard)	When vehicle not is use	
	Battery isolator switch OFF (Battery box) (Wait for atleast 5 minutes after you have switched off the battery main switch)	When vehicle not in use for more than 48 hrs	
	Disconnect battery cables	When vehicle not in use for more than 48 hrs	