

1 SAFETY REQUIREMENTS

1.1. GENERAL INFORMATION

1.1.1. Only persons not younger than 17, holders of a tractor driving license, who have been briefed on accident and fire prevention, may be admitted to operate the tractor of drawbar category 3.0.

1.1.2. Prior to operating the tractor, scrutinize the Operator's Manual and the Engine operation manual. Insufficient knowledge of tractor controls and servicing is a potential of likely accidents.

1.1.3 When performing depreservation of the tractor and optional equipment, follow the fire prevention instructions and sanitary requirements when dealing with chemicals, rag wastes and oiled paper.

1.2. SAFETY MEASURES DURING TRANSPORTATION AND DEPRESERVATION.

1.2.1 When transporting and handling the tractor, follow the requirements specified in corresponding sections of this manual.

1.2.2. When performing depreservation of the tractor and optional equipment, follow the fire prevention instructions and sanitary requirements when dealing with chemicals, rag wastes and oiled paper.

1.2.3. Before starting to operate the tractor replace special nuts of rear wheel hubs (one at each hub), used for tractor fastening on the vehicle platform, with the nuts of basic hub configuration, attached in a set of spare parts, tools and accessories. Tighten the nuts with a torque of 700...750 Nm.

1.3. REQUIREMENTS FOR TECHNICAL CONDITIONS OF THE TRACTOR

1.3.1. The tractor should be completely outfitted and in good working order.

1.3.2. Do not allow dismantling of design-stipulated protective enclosures and/or safeguards from the tractor, as well as other parts and/or assembly units which affect its safe operation (protective grille of the fan, rear PTO enclosure, etc.)

1.3.3. The technical condition of the braking system, steering controls and running gear should conform to safety requirements of relevant standards and the present Manual.

1.3.4. The trailed agricultural machines and harvest trailers shall be fitted with a rigid towing coupler which excludes swaying and/or colliding thereof with the tractor during the transportation.

1.3.5. The tractor controls shall be provided with reliable locking in their operative positions.

1.3.6. Keep all the warning decals on the tractor clean and readable. If damaged or lost, replace them with new ones.

1.3.7. No leaks of electrolyte, water, fuel and/or oil shall be allowed.

1.3.8. Make proper use of summer- and winter-grade fuels. Refill the fuel tank at the close of each working day to reduce the moisture condensation at night. Fill the tractor only with fuels and greases that are recommended by the manufacturer. Use of the other grease materials is strictly forbidden.

1.3.9. At tractor stop set gear shift handle into position "O".

1.4. SAFETY REQUIREMENTS DURING TRACTOR OPERATION

- 1.4.1. IMPORTANT! NEVER start the diesel- engine from outside the cab, away from the operator's work station. When starting the engine and manipulating with the instruments, always be in the cab and sitting in the driver's seat.
- 1.4.2. It is not allowed to start and operate the tractor with dismantled sidewalls of the tractor hood.
- 1.4.3. Do not start the tractor by means of towing.
- 1.4.4. Prior to starting the engine, check if the parking brake is engaged, the power take-off (PTO) lever is in the "off" position, the range changeover and GB shifting levers – in the "Neutral".
- 1.4.5. The lever switch of the GB pump drive should be in the "Drive from the engine" position.
- 1.4.6. Prior to getting the tractor moving, make sure that the reserve parking brake is disengaged, give an audible signal to warn bystanders and persons working on the trailed machines, then start moving smoothly.
- 1.4.7. When on hauling sessions, be sure to use seat belts (to be supplied on request).
- 1.4.8. DO NOT leave a moving tractor.
- 1.4.9. Prior to leaving the cab, disengage the PTO shaft, stop the engine, apply the parking brake and take out the starter key.
- 1.4.10. DO NOT operate the tractor in closed spaces without adequate ventilation. Breathing the exhaust gases can cause the lethal outcome!
- 1.4.11. Should the engine or the steering controls fail during the work, stop the tractor immediately.
- 1.4.12. Remember that when the engine is shut down, a considerable greater effort should be applied to the steering wheel to drive the tractor.
- 1.4.13. Do not work or walk under raised agricultural attachments.
- 1.4.14. DO NOT leave the tractor for a long period of time with the mounted implement in raised position.
- 1.4.15. If the tractor front part lifts off the ground when heavy machines/ implements are mounted on the rear hitch linkage, attach front ballast weights.
- 1.4.16. DO NOT operate the tractor with faulty instrumentation.
- 1.4.17. DO NOT admit smoking exhaust of the engine or substantial drop in rpm due to overload.
- 1.4.18. In case of emergency and/or excessive increase in engine crankshaft rpm, cut off the fuel feed immediately and pull the engine emergency stop knob towards yourself.
- 1.4.19. When engaging the PTO, move the PTO lever smoothly to avoid damage to the shafts, gears and/or PTO tail-piece.
- 1.4.20. On detaching the PTO-driven machines from the tractor, remove the universal-joint drive and cover the PTO tail-piece with a protective cap.
- 1.4.21. Prior to starting the engine, set the gear shifter and the range changeover lever to the neutral position.
- 1.4.22. When starting the engine there shall be nobody in front of the tractor, under and behind it as well as between the tractor and the machine attached to it.

- 1.4.23. When hitching or attaching the agricultural machines or implements to the tractor, the trailer hand shall be at a safe distance until the complete stop of the tractor.
- 1.4.24. The hitching or attaching operation should be only started on the operator's signal.
- 1.4.25. Should any malfunction or fault occur, stop immediately the tractor and eliminate the cause.
- 1.4.26. When working with the agricultural machines attached to the tractor, follow additionally the safety precautions specified for operating these machines.
- 1.4.27. Prior to attachment of agricultural machines to the tractor, make sure that automatic catches of the RHL lower and top links are clean and serviceable.
- 1.4.28. DO NOT work with catch inner recesses damaged, clogged up with dirt and/or foreign particles.
- 1.4.29. Prior to lifting or lowering an agricultural implement as well as when making turns, make sure that there is no risk of hitting anybody or running over an obstacle.
- 1.4.30. To avoid breakdown to the tractor and/or agricultural machines/implements it is allowed to start turning of tractor aggregate only when working parts of the machine are not in soil.
- 1.4.31. When on transport trips and undergoing turns with raised machine/implement, preliminary set the rearPTO control lever to the "Brake" position, and switch of the front PTO to avoid breakdown to the tractor and/or agricultural machines/implements.
- 1.4.32. Lower the mounted machine to its working position or lift it to attain position for transport only when the tractor is moving forward in a straight line.
- 1.4.33. The universal-joint shaft transmitting the rotational motion from the tractor PTO to the aggregated agricultural unit tools shall be enclosed.
- 1.4.34. Make sure that any additional equipment and/or auxiliary devices are properly installed and intended and approved for use on your tractor.
- 1.4.35. Keep in mind that your tractor, if carelessly or improperly operated and/or poorly maintained, can be a serious hazard to the operator and others. DO NOT use equipment which is not designated or authorized for installation on the tractor.
- 1.4.36. When machine-and-tractor aggregates are running in a column, the clearance between them must be at least 30 m.
- 1.4.37. When driving on a slippery road with the ADL engaged, run the tractor ganged up with implements at a speed not exceeding 12 km/h.
- 1.4.38. When driving on slopes, increase the tractor wheel track to maximum possible.
- 1.4.39. Avoid sharp turns when driving under full load and/or at a high speed.
- 1.4.40. Operate the tractor in the twilight or at night provided the lightning equipment is serviceable and switched on.
- 1.4.41. Any cleaning, lubricating and repair works should be only performed with the engine shut down and PTO/ FPTO disengaged.
- 1.4.42. When operating the stationary FPTO/PTO-driven equipment, brake the PTO tail-piece and stop the engine before leaving the cab.
- 1.4.43. When working with the FPTO/PTO or in close vicinity to rotating components, DO NOT wear loose clothing.
- 1.4.44. When operating with stationary front and rear PTO-driven machinery, always engage the parking brake and chock both sides of the rear wheels. Make sure that the machine is reliably secured.
- 1.4.45. Check to see that the PTO shaft tail-piece is safely enclosed and, if the PTO is not used, refit the PTO tail-piece hood in place.

1.4.46. The tractor operation on slopes is only permitted in daytime, at a speed not exceeding 10 km/h and the wheeltrack at least 1950mm provided the steepness does not exceed 9°.

1.4.47. When the machine-and-tractor aggregates are working or passing in the vicinity of electric power lines (EPL), the distance from the top aggregate point to the lines should not exceed:

Line voltage, up to, kV	11	20-25	110	154-220	330-500
Distance horizontal, m	1.5	2	4	6	9
Distance vertical, m	1	2	3	4	6

1.5. SAFETY REQUIREMENTS FOR TRANSPORT SESSIONS AND TRACTOR TOWING

1.5.1. When performing the transport works, observe the road regulations adopted in the territory of the country.

1.5.2. The transport works may be performed by the operators with the tractor driving experience of not less than two years who have passed an examination in the road regulations.

1.5.3. When using the tractor for performing the transport works:

- check the serviceability of the brakes;
- interlock the brake pedals, check and, if necessary, adjust the brakes for simultaneous operation;
- check operation of the parking brake;
- check the condition of lighting and audible signalling systems;
- the transport trailers should be fitted with rigid couplers and, besides, connected to the tractor with using a safety chain or cable;
- under no circumstances should the tractor be run downhill with gear disengaged (by coasting); apply the same gear both down and uphill;
- if the trailer weight exceeds that of the total actual weight of the tractor, it is mandatory that it should be equipped with independent brakes. The faster you move and the greater the trailed mass, the longer is the safe stopping distance.

1.5.4. Do not stop the tractor on slopes. If it is necessary to stop, put the tractor into 1st gear and apply the parking brake.

1.5.5. Before operating the tractor, turn on the compressor, check the condition of the brake pneumatic drive, air pressure in the pneumatic system. Remove the faults detected. Connect pneumatic drive of trailer brakes obligatory. Please connect connecting head of the trailer with the connecting head of the tractor only when parking brake is engaged.

1.5.6. The trailers to be combined with the tractor should have a braking system which is able to ensure:

- a) braking the trailer on the run;
- b) applying the brake in case of disconnection of the trailer from the tractor;

- c) keeping the trailer when parked on a slope;
- d) preventing the trailer from pushing actions against the tractor in cases of abrupt changes in speed.

The trailer should be connected to the tractor with using a safety chain.

- 1.5.7. Carrying people in trailers is prohibited.
- 1.5.8. Check the serviceability of braking system of the tractor coupled with machines or implements at speed 3...5 km/h.
- 1.5.9. It is forbidden to transport people in trailer.
- 1.5.10. To avoid tip-over, take care when running the tractor. Set speeds safe with respect to the actual condition of the road surface; especially so, when driving on a rugged terrain, crossing ditches, taking a grade and/or making sharp turns.
- 1.5.11. The road speed at turns should not exceed 5 km/h, on a slippery road – 3 km/h.
- 1.5.12. Ride downhill in first or second gear.
- 1.5.13. Speeds on approach paths and passages should not exceed 10 km/h.
- 1.5.14. When loading/unloading the trailer, brake the tractor by applying the reserve parking brake.
- 1.5.15. Tractors in combination with a trailer used on public roads should be run with the “Tractor&Trailer Rig” warning sign illuminated, in full conformance with the Road Regulations.
- 1.5.16. When driving on the public roads flashing light shall be on.
- 1.5.17. It is forbidden to operate the tractor without accumulator battery in the system of electric equipment.
- 1.5.18. It is forbidden to switch off the electric system with a help of battery disconnect switch when the engine is running.

1.6. SAFETY REQUIREMENTS DURING MAINTENANCE

- 1.6.1. All the maintenance operations shall be carried on a tractor placed on a level ground, with the engine shut down, the parking brake applied and the PTO tail-piece braked.
- 1.6.2. When using hoisting and transport equipment, observe relevant safety precautions.
- 1.6.3. When examining and/or adjusting the parts to be controlled, make use of a 36 V (max.) inspection portable lamp. The lamp should be protected with wire screen.
- 1.6.4. Tools and appliances to be used in the course of maintenance should be in good working order, suitable for their purpose, and ensure safe performance of the works.
- 1.6.5. NEVER inflate the tyres without monitoring the pressure.
- 1.6.6. When servicing the storage batteries:
 - a) keep the skin from contact with electrolyte;
 - b) to clean the storage batteries, use rags soaked in ammonia solution (ammonium hydroxide);
 - c) to top up the electrolyte level in the battery, use only distilled water;
 - d) DO NOT check the state of charge of the storage battery by short-circuiting the terminals;
 - e) DO NOT connect the storage battery in wrong polarity.
- 1.6.7. To keep the electronic units from damage, follow the precautions as given below:

- do not disconnect the storage battery (SB) terminals while the engine is running, since it results in peak voltage in the charging circuit and unavoidable damage of diodes and transistors;
 - do not disconnect the electrical circuit wires until the engine completely stops and all the electrical switches are in the OFF position;
 - take care not to cause short-circuiting due to incorrect connection of wires. Short-circuits or wrong polarity causes damage to diodes and transistors;
 - DO NOT connect the SB to the system of electrical equipment until terminals and voltage are checked for proper polarity;
 - DO NOT check the availability of electrical current by “sparking”, since this causes immediate break-down of transistors;
 - NEVER set the battery disconnect switch to the OFF position while the engine is running;
 - DO NOT operate the tractor without a storage battery.
- 1.6.8. To avoid burns, take special care when draining coolant or water from the cooling system, or hot oil from the engine, hydraulic system and transmission.
- 1.6.9. To exclude the explosion risk, there shall be no sources of naked flame in close proximity to the engine fuel system and/or storage batteries.
- 1.6.10. To install and dismount the engine, use a steel cable fastened to the eye-bolts provided for the purpose on the engine.
- 1.6.11. Any repair works requiring the electric welding to be done on the tractor shall be performed with the battery disconnect switch turned OFF and disconnected power cables of battery pins. Connect with tractor ground near to the welding point.
- 1.6.12. DO NOT make any modifications to the design or structure of the tractor or its components, if not agreed with the Manufacturer. Otherwise, the tractor will be devoid of the guarantee privilege.

1.7. FIRE PREVENTION REQUIREMENTS

- 1.7.1. The tractor should be provided with fire-fighting equipment such as a spade and fire extinguisher. NEVER operate the tractor without fire-fighting equipment.
- 1.7.2. NEVER refill the tractor with the engine running.
- 1.7.3. DO NOT smoke when refilling the tractor.
- 1.7.4. DO NOT fill the fuel tanks completely. Leave some space for fuel expansion.
- 1.7.5. NEVER add gasoline and/or other mixtures to diesel fuel. Such combinations may be a cause of enhanced danger of inflammation and/or explosion.
- 1.7.6. The tractor parking lots, as well as fuel and lubricant depots should be ploughed around to make a strip 3 m wide, and equipped with fire-fighting equipment.
- 1.7.7. Refill the tractor with fuels and lubricants using mechanized means, with engine fully stopped. At night, use a light-up facility. DO NOT refuel the tractor by means of a bucket.
- 1.7.8. When performing the repair works involving electric arc or gas welding under field conditions, clean the parts and assembly units from vegetable leftovers.
- 1.7.9. Keep the manifold and muffler stack clean from dust, fuel and straw residue, etc.
- 1.7.10. DO NOT allow straw to be taken up by rotating parts of the machines ganged up with the tractor.
- 1.7.11. When washing/cleansing the parts and/or assembly units with kerosene or petrol, take adequate measures to exclude the possible inflammation of the flushing fluid vapours.
- 1.7.12. NEVER operate the tractor in fire-hazardous locations, with its bonnet and other protective devices removed from hot parts of the engine.

- 1.7.13. NEVER use open flame to heat oil in the engine oil sump, as well as when refuelling the fuel tanks or burning out the soiled core of the radiator.
- 1.7.14 Whenever a seat of fire is detected, bury the fire with sand, cover it with tarpaulin, sacking or any other dense, thick material.
- 1.7.15 Use a carbon dioxide fire extinguisher for the purpose. NEVER attempt to put out burning fuel with water.
- 1.7.16. Keep an eye that easy inflammable materials are well away from the exhaust manifold and the muffler.
- 1.7.16. When harvesting hay and straw or working in places with higher fire-hazard, make use of spark quenchers in the exhaust system, in conjunction with a muffler, or as separate facilities.
- 1.7.17 Switch off the battery disconnect switch after tractor operation is ended.

1.8. SAFETY REQUIREMENTS TO BE OBSERVED DURING PRESERVATION

- 1.8.1. When putting the tractors for storage, performing the maintenance during the storage and return from the storage to operation, observe the relevant instruction of this Section, as well as safety requirements as per State Standard (GOST) 9.014-78.
- 1.8.2. When stored for a long time, the tractor should be placed on special supports, or trestle, precluding its capsizing or spontaneous displacement.

1.9. HYGIENE REQUIREMENTS

- 1.9.2. The first-aid kit should be completed with bandages, a bottle of tincture of iodine, liquid ammonia, borated petrolatum, a jar of household soda, menthol valerate, and dipyrone.
- 1.9.3. Make use of natural ventilation of the cab or the air heating/cooling unit, as required by operating conditions.
- 1.9.4. Fill the thermos with fresh, clean drinking water every day.
- 1.9.5. If the period of continuous operation of the tractor exceeds 2.5 hours within the working shift, it is necessary to use individual protective means as per State Standard (GOST) 12.4.051-87 to muffle the noise (such as ear muffs, antiphones).