OPERATOR'S MANUAL

Zetor

2/1988

Dear User of a New Zetor Tractor

More than forty years of experience exerted by designers and other specialists from the concern Agrozet-Zetor, gained in the production and operation of tractors, have been concentrated in the products with the trade mark ZETOR.

Zetor tractors have been designed and manufactured with the aim to serve reliably to your satisfaction. We offer you this Operator's Manual to make full use of all favourable characteristics and capabilities which your tractor could give you.

In it you will find information which may prove very useful. Therefore we recommend that you read the Manual through in the order of the individual chapters, rather than search only for the sections, you are interested in at the moment.

By following the instructions given in this Manual you will obtain full warranty of the manufacturer and at the same time you will create conditions for a trouble-free operation, safe driving and long service life of the tractor.

A great many thousands of reliably accomplished engine hours wishes you the manufacturer of your tractor.

Agrozet Zetor

koncernový podnik

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Tables:

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RESPONSIBILITY OF THE ZETOR TRACTOR USER

The user of the ZETOR tractor has to follow the recommended procedures and instructions for safe operation of the tractor. The user is also responsible for carrying out the specified procedures for tractor maintenance, checking its proper operation and ensuring to repair in due course all defects which might cause excessive wear or even serious damage of the individual parts or whole assemblies.

Note:

The service cheque-book for tractors is not a part of the Operator's Manual but it is a separate pocket-book which you will obtain when buying a new tractor. At the same time you get a hand-book from the producer of the storage battery concerning the operation and attendance of the battery.

Attention:

In case of a break-down of the tractor, the owner has to ask the repairing workshop to carry out the warranty-repair, and that either personally or by a registred letter.

Fig. 1. Data plate of the tractor

SAFETY INSTRUCTIONS FOR THE ZETOR TRACTOR USER

Basic safety instructions

1. The tractor may be used only by an experienced and trained operator who has a valid autorization to drive a tractor. Tractors with attached trailers may be operated only by persons over 18 years of age.
2. The operator appointed for tractor attendance should be fully aware of appropriate operational and safety precautions.
3. The tractor driven only by rear wheels may be used on a slope with a maximum inclination of 11°. The tractor equipped with the front and the rear driven axles may be used on a slope with a maximum inclination of 12°.
4. Persons having not been appointed to operate auxiliary equipment of the tractor have to keep clear from the tractor and especially they must not stand between the tractor and the attached machine (implement).
5. Only as many persons as stated in the technical certificate may be transported on a tractor.
6. Use the running board and hand rail to enter the driver's cabin or to leave it.
7. Before the start of a drive, the tractor driver has to check among other things the technical condition of the tractor from the safety point of view, function of brakes, steering, lighting and the condition of tyres.
   Check whether the trailer has been safely coupled and secured against spontaneous uncoupling, and check the air pressure supply to the air brakes, air pressure in the air tank, electrical equipment and condition of tyres as well.
8. It is not allowed to start the tractor by running the tractor down the slope.
9. To start the engine by towing the tractor with help of another tractor or vehicle is allowed but only when using a tow bar (if a ballast weight is attached to the front of the frame, it has to be removed).
   A tractor which has been equipped on special order of the user with the electromagnetic steering lock, must have the key in the position „1" of the steering lock, if pulled by another tractor in order to start the engine. If the battery has not been connected on the tractor, it is not possible to lock the steering and the key cannot be turned, even if the engine is switched off. The key is locked in the position „1".
10. Before the tractor has been put in motion, check whether an uncalled-for person or some obstacle obstructs the way.
11. When driving the tractor, select such a gear ratio and such a speed which is appropriate to the condition of the road or field and is completely safe. It is not allowed to drive the tractor downhill without having engaged the proper gear ratio.
12. Special care has to be taken of a tractor steering if driving on a slope of a muddy, sandy, icy or uneven ground. Keep strictly the determined slope inclination when driving the tractor.

13. Never leave a slowly moving tractor in order to attach a trailer by yourself. Ensure the safety of your assistant as well.
14. If it is necessary to stop the tractor on a slope, take the following precautions: apply the parking brake, stop the engine, engage a low gear and place a block under the wheels.
15. When parking the tractor (tractor set) overnight outside the parking place or on a non lighted public road, do not forget to illuminate it with a light which can be seen both from the front and from the rear side; the light has to be positioned on the side of the tractor (tractor set) which is nearer to the centre of the road.
16. Do not park the tractor with attached implements raised. Before leaving the tractor, do not forget to remove the key from the switch-box or from the steering lock with the electromagnet, and to lock the cabin.
17. To free a „bogged-down" tractor, use a tow bar or a rope. Never use chains. It is dangerous to stand near the tow rope when the tractor is being freed.
18. Never use loose planks or bars inserted between the tractor and the pushed object when pushing other vehicles or trailers.
19. When the tractor engine is running in a closed building or room, it is necessary that there is sufficient ventilation as the exhaust gases are highly harmful for the health.
20. All tasks connected with refueling, cleaning, lubrication and adjustment of the tractor or of attached implements have to be carried out only with the engine stopped and with moving parts at rest, with the exception if checking brake function or charging the battery.
21. Refueling has to be preferably done at the end of the working day. In summer time the fuel tank must not be filled to the brim. Spilled fuel should be wiped off immediately. Do not refill the tank near an open flame and when smoking. A fire extinguisher has to be permanently at hand.
22. Use suitable (specified) personal protecting means when carrying out each task.
23. Do not wear an unbuttoned, free fluttering clothing and do not have long hair. Both could be drawn into moving parts and cause serious accident.
24. Check regularly the contents of the first-aid kit and complete agents to be able to treat small injuries and give first aid.
25. A hitch is attached at the front axle chassis pan which may be used to tow the tractor without a trailer or without any other auxiliary equipment only.
26. Check the electric cable when warming-up the engine with help of a coolant heater. Plug the cable into the heater first and then connect the cable to the mains. When the warming-up has been finished, disconnect the cable from the mains first and then the plug from the heater socket.

WARNING: Danger of electrical accident.

27. Operator who is under the influence of alcohol must neither drive the tractor nor attend agricultural machines.
28. The speed of a tractor-trailer set (saddle trailer) equipped with single-hose air-brakes must not exceed 25 km/h (30 km/h).
29. Tractors of all types supplied to the Czechoslovakia are equipped with a spark arrester as a standard outfit; this arrester is not fitted to the tractor but is freely placed as an accessory of the tractor. The tractor user has to fit the spark arrester to the end of the exhaust silencer when the tractor operates in an environment with inflamable materials (straw, hay). The exhaust system of the tractor equipped with a spark arrester is in compliance with the requirements of the Czechoslovak Standard ČSN 47 0060, article 1.7. Since the upper part of the spark arrester is the highest point of the tractor, it is necessary to take care when driving under low structures, in order not to damage or even to break off the complete exhaust system. When the spark arrester is not fitted to the tractor, it has to be stored so that particles of dust, sand, straw etc. cannot fall into the inner part. This type of exhaust may be fitted to tractors exported to foreign countries even without the spark arrester.

CAUTION!

Do not forget to attach the exhaust flap to the top of the spark arrester (Figure 2).

CAUTION!

Figure 2

30. Validity for the export only.

According to the customer's wishes the tractors may be equipped with an exhaust system having the built-in spark arrester. This spark arrester has no influence upon any of the engine parameters (Figure 3). The outlet of the muffler has been designed so that water cannot penetrate inside and exhaust gases cannot be sucked in by the heater fan or by the cabin ventilator. It is not necessary to do any checking or maintenance of the muffler with the built-in spark arrester during the tractor performance.

31. Tractors are not equipped with special filters for the air sucked into the cabin. For this reason they are not suitable to be used for tasks with aerosols and other materials harmful for the health.

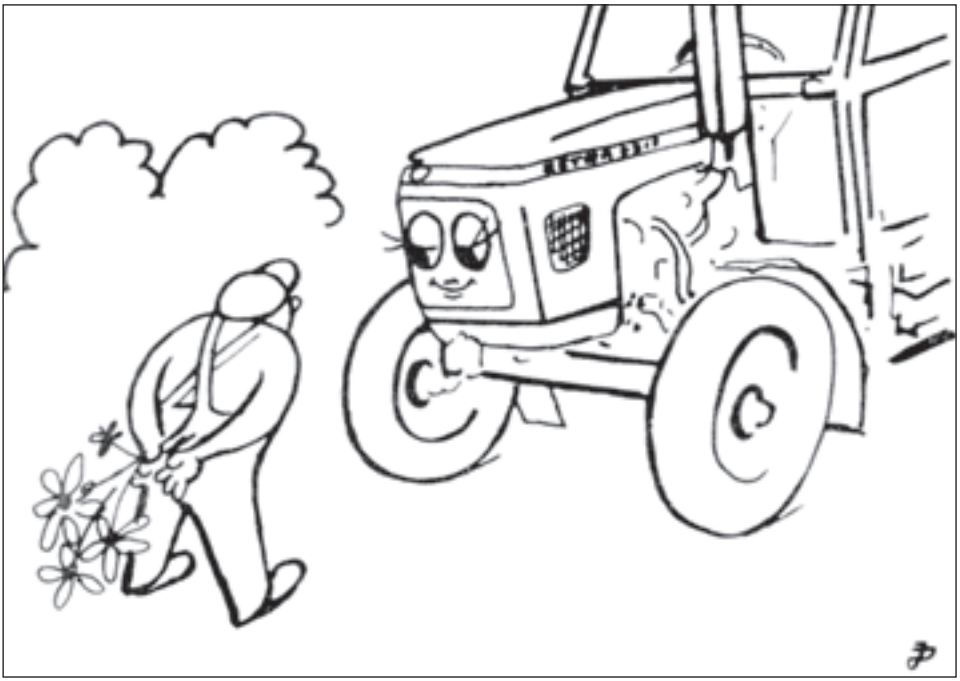
32. Special safety instruction, valid only for tractors ZETOR 7245 HORAL, are given in a separate chapter of this Manual, page 210.

By keeping up the basic safety instructions, you will create good conditions for reliable operation of the Zetor tractor.

Figure 3

Health safeguards when handling oil products

Kerosene, diesel oil, mineral oil and other oil products used during tractor operation and maintenance can cause skin disease by direct contact with the skin, they have irritant effect on mucous membrane and eyes, on digestive organs and upper respiratory organs. Some oil products, when inhaled as vapour or taken internally, can be fatal and cause even total poisoning. Operators who come in touch with oil products have to keep strictly the safety and hygienic safeguards, use suitable protective clothing and work in well ventilated rooms. When they had finished their work or before a meal, it is essential to wash hands with a non-irritant washing agent and apply a suitable regenerating ointment or cream to hands.



ACQUAINTANCE WITH THE TRACTOR

Zetor tractors are of a chassis-less design and are equipped with diesel engines. The tractors Z 5211, Z 6211, Z 7211 and Z 7711 have a swinging beam front axle and the Z 5245, Z 6245, Z 7245, Z 7245 HORAL and Z 7745 have the driven front axle. The front and the rear wheel track is adjustable.

Dashboard (Fig. 4, 5, 6, 7)

1 – Direction indicator pilot bulb (green)
2 – Air-pressure gauge
3 – Warning light module
4 – Engine-speed indicator
5 – Switch for: direction indicator, lights and horn (dipped and the main beam lights, direction indicators, light flasher and sound horn)
6 – Rear worklight switch
7 – Plugged holes for prospective fit of other pilot bulbs
8 – Steering wheel
9 – Pilot bulb of cabin lights
It indicates switching-on the asymmetrical headlights in the cabin roof (tractors with a cabin only)
10 – Headlights switch
It is fitted only on tractors equipped with the steering lock device using an electromagnet

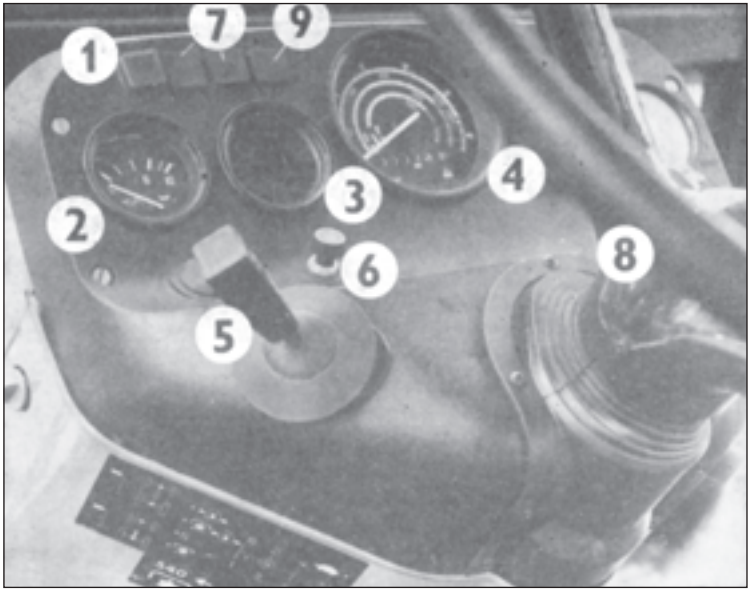


Fig. 4

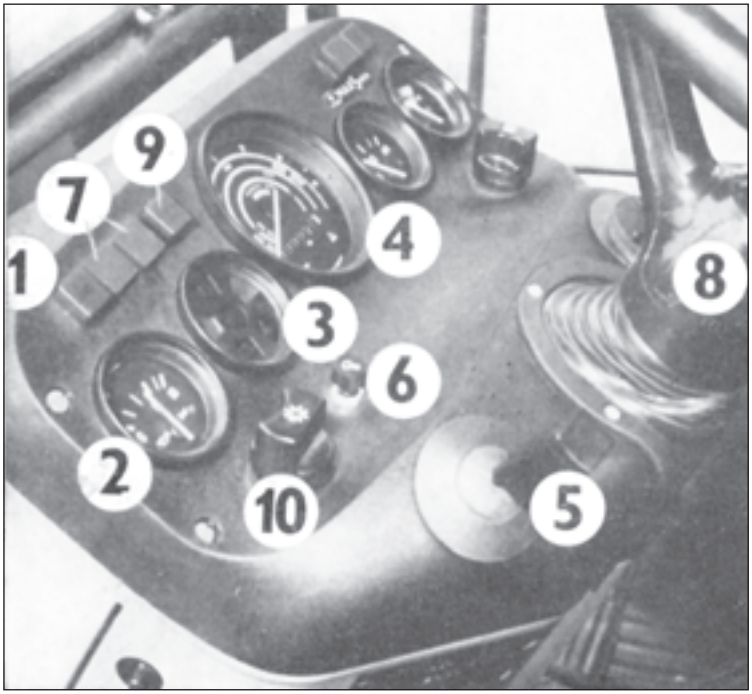


Fig. 5

11 – Fuel gauge

12 – Coolant thermometer

13 – Pilot bulb of the P.T.O.-shaft clutch (red)

14 – Switch box with the key

15 – Low-air pressure pilot bulb (red)
This pilot bulb will light up in case of a failure in the braking system or when the air pressure drops under 390 kPa

16 – Dipped light switch of asymmetric headlights located in the radiator grill or in the cabin roof

17 – Starter button

18 – Switch of the steering lock device with an electromagnet (on special order only)

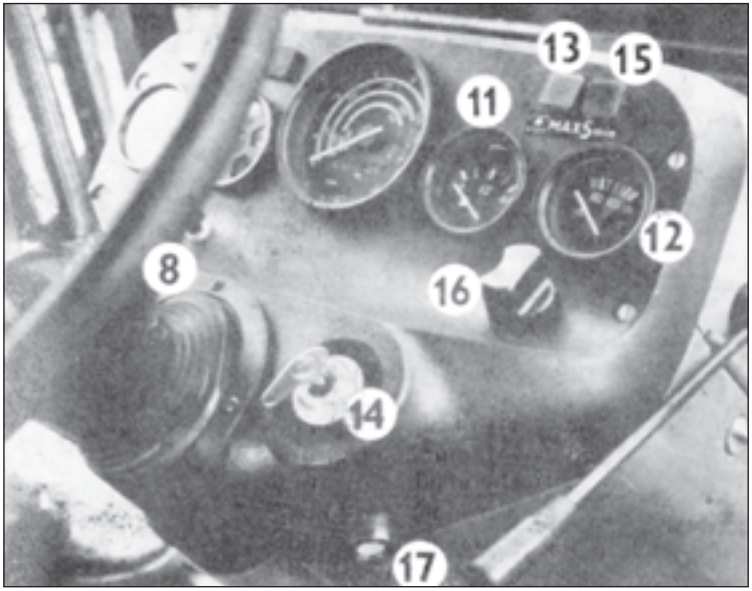


Fig. 6

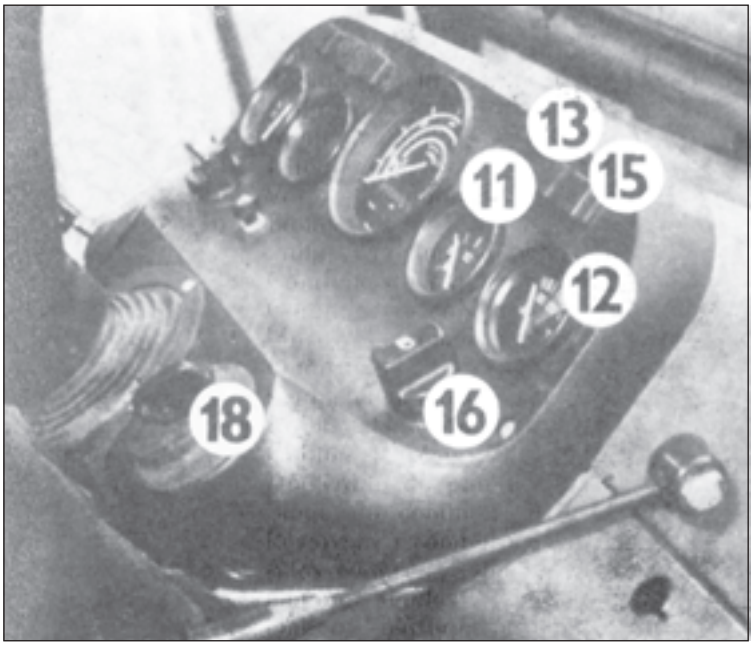


Fig. 7

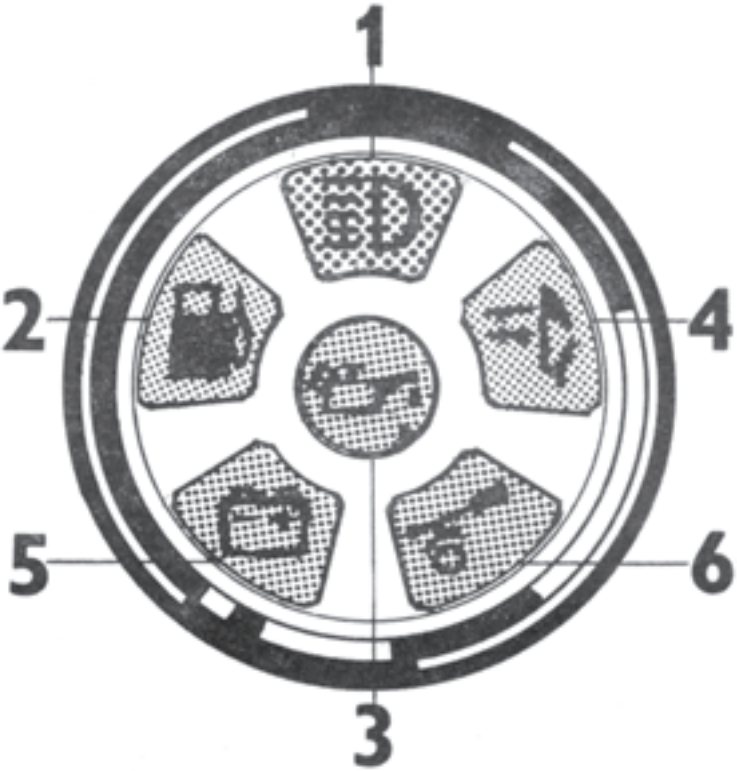


Fig. 8

Warning light module (Fig. 8)

1 — The main beam light (blue)
Is on when the headlights are switched on or when the light horn is used.

2 — Fuel (orange)
Is on when a fuel rest of 1/6 to 1/10 of the tank capacity is left in the tank

3 — Lubricating (red)
Is on when the oil pressure of the engine drops under 120 to 60 kPa

4 — Working light (yellow)
Is on when the rear working light is used

5 — Battery charge (red)
Is on when a failure in charging occurs

6 — Hand brake (red)
Is on when the hand-brake lever is applied

Switch positions (Fig. 9) of dipped lights of the asymmetric headlights in the radiator grill of the tractor or in the cabin roof

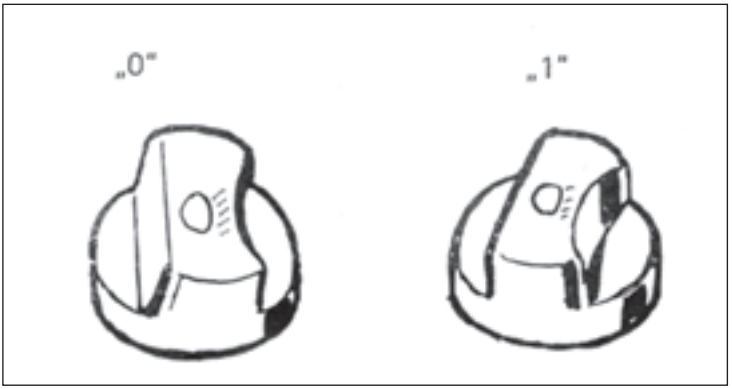


Fig. 9

Position „0" — Dipped lights in the radiator grill of the tractor are on.

Position „1" — Dipped lights in the cabin roof are on.

Note:

Dipped beam of the headlights in the cabin roof are used in cases when the headlights in the radiator grill are covered by an adapter or by a machine coupled to the tractor.

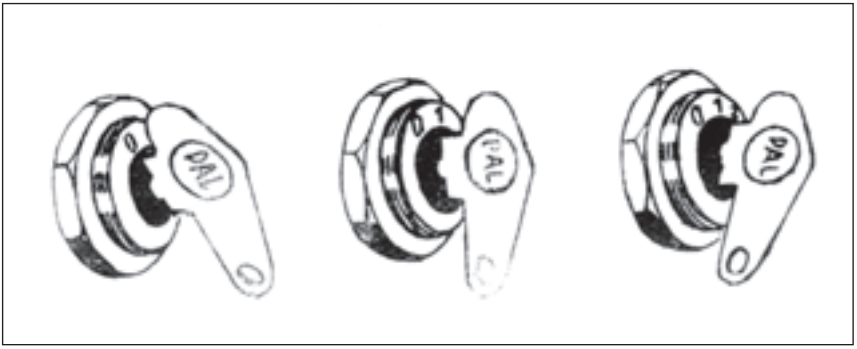


Fig. 10

Switch box with the key (Fig. 10)

When the key is not inserted in the switch box, the circuit of brake lights, the cabin lighting, the sound horn, the headlamp flasher and the switch of the P.T.O.-shaft clutch (the rear working roof-headlights — only on cabins BK 7011 from Vlad Prešov) are permanently switched on.

Electrical devices switched on when the key has been fully plugged in:

Position „0" — Circuit for engine starting, dashboard instruments, direction indicators, windscreen wiper and washer, rear screen washer, heater and ventilation fans, socket for hand light, and pilot bulb for battery charging with pilot bulb for oil pressure which extinguishes as soon as the engine is running; hand-brake pilot bulb which is on when the hand-brake lever is pulled, and the pilot bulb of the minimum air pressure.

Position „1" — Side lights and tail lights, licence plate illumination and all appliances listed in the position „0". The rear working light and its pilot bulb can be switched on by a separate switch.

Position „2" — Dipped beam headlights or the main headlights (according to the switch position of the lights), and all items listed in position „0" and „1".

If the key is inserted in the switch box in positions „1" or „2" only half-way, or if it is completely removed, all appliances will be switched on, with the exception of those mentioned under the position „0".

Warning:

If the engine is running, the key has to be fully inserted in the switch box.

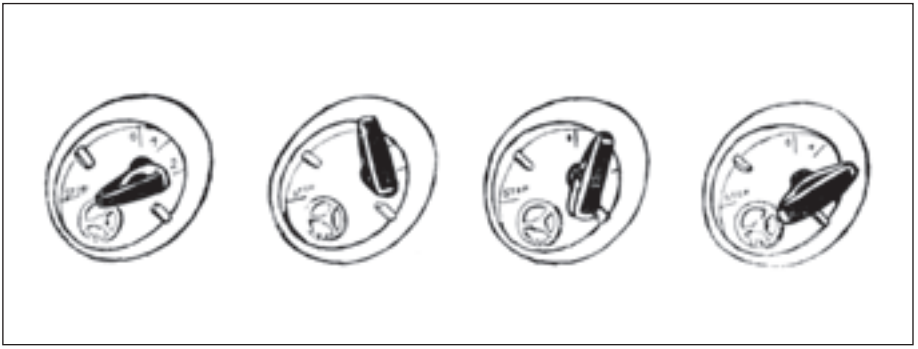


Fig. 11

Steering lock with the electromagnetic locking device (Fig. 11)

This locking device is fitted on special order of the customer and substitutes the switch box (Fig. 10). If this locking device is being attached, the starter button (Fig. 6/17) will not be fitted. Additionally the tractor headlight switch is fitted (Fig. 12).

Warning:

The steering lock with the electromagnetic locking device has to be protected against sprinkling water when carrying out attendance of the tractor.

Wiring of electrical devices (Fig. 11)

If the key is not inserted in the steering lock (the steering wheel locked), or if the key is inserted in **the STOP-position or turned to the „0" position** (the steering wheel unlocked), the following is permanently connected: circuit of brake lights, cabin lighting, sound horn, flasher, headlights, P.T.O.-shaft switch, and the rear working roof-lights in case of the cabin BK 7011 — Vlad Prešov.

Position „1" — Switched on is the following:

Instruments on the dash panel, direction indicators, windscreen wiper with the washer, the rear window wiper, heating and ventilation fans, hand light socket, pilot bulbs of battery charging and oil pressure which are switched off when the engine is running, hand-brake pilot bulb which is switched on when the hand-brake lever is pulled, the minimum air pressure pilot bulb which is switched on when the air pressure drops under 390 kPa, and the electromagnet of the steering locking device.

Position „2" — In this position all electrical devices mentioned above are switched on and additionally the starting circuit.

Note: When the engine is running, the key is locked in the position „1". The electromagnet of the steering locking device has not power supply from the fuse box.

Head light switch (Fig. 12)

This switch will be fitted only in case that the steering lock has the electro-magnetic locking device.

Positions of the switch:

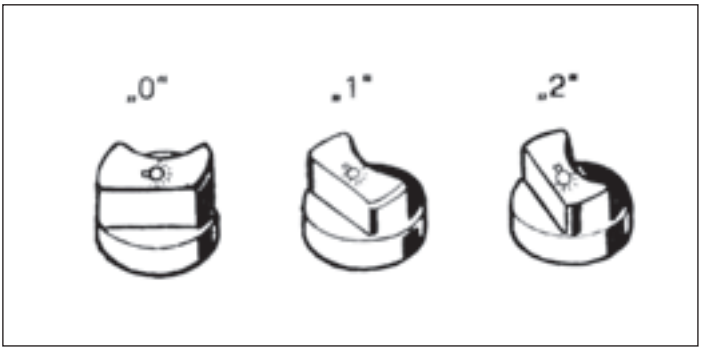


Fig. 12

Position „0" — Headlights off

Position „1" — Switched on is the following:
Parking lights and tail lights, number plate light, instrument lights. The rear working light including the pilot lamp can be switched on by means of a separate switch.

Position „2" — All devices mentioned under the position „1" are switched on and additionally the dipped lights or the main beam lights according to the position of the switch for direction indicator lamps and the light switch (Fig. 4/5).

Note: In the position „2" of the headlight switch and if the switch for direction indicator lamps (Fig. 4/5) is in its position for dipped lights, it is possible to switch on the dipped lights either in the radiator grill or in the cabin roof, according to the position of the switch for dipped lights (Fig. 9). However, the main beam lights may be switched on only in the radiator grill of the tractor, regardless of the position of the switch for dipped lights (Fig. 9).

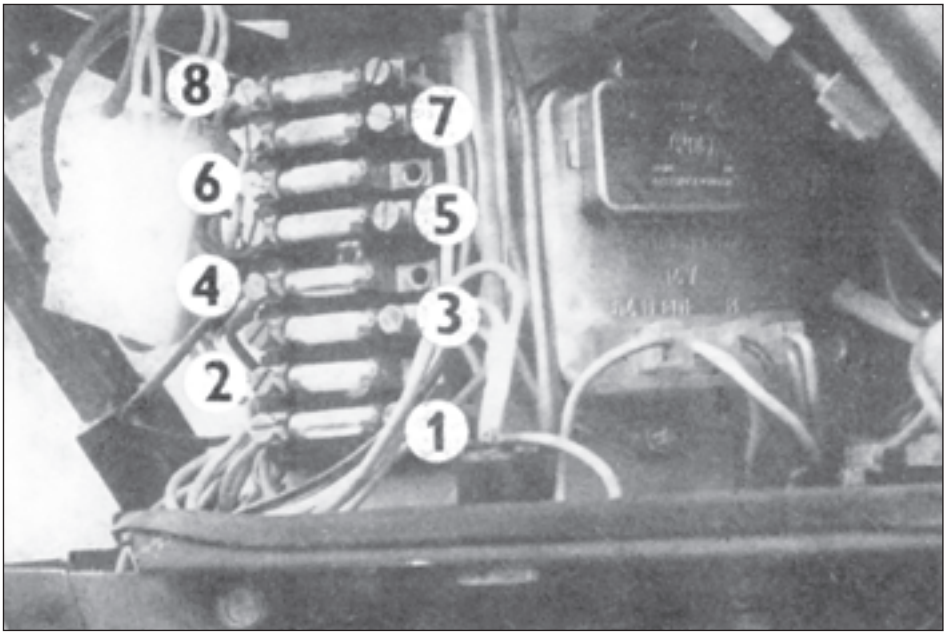
Fuse box (Fig. 13)

The fuse box is accessible after the cover, which is locked by four quick-closing devices, has been removed. The fuse box is of an eight-pole type and contains 15 ampere fuses for the devices. The tractor equipped with a safety cabin has three additional 15 ampere fuses (Fig. 14), and in case of the cabin BK 7011 from Vlad Prešov four fuses.

Wiring of fuses on the panel in the fuse box and location of the control relay and the hand-light socket (Fig. 13).

1. Brakes, sound horn and headlight flasher, P.T.O.-shaft of the clutch
2. Direction indicators
3. Hand-light socket, power supply of the instruments and pilot bulbs
4. Right-hand front and rear parking lights, illumination of instruments and the rear working light
5. Left-hand front and rear parking lights
6. Rigth-hand dipped light in the radiator grill or in the cabin roof
7. Left-hand dipped light in the radiator grill or in the cabin roof
8. The main beam lights and their pilot lamp.

Fig. 13



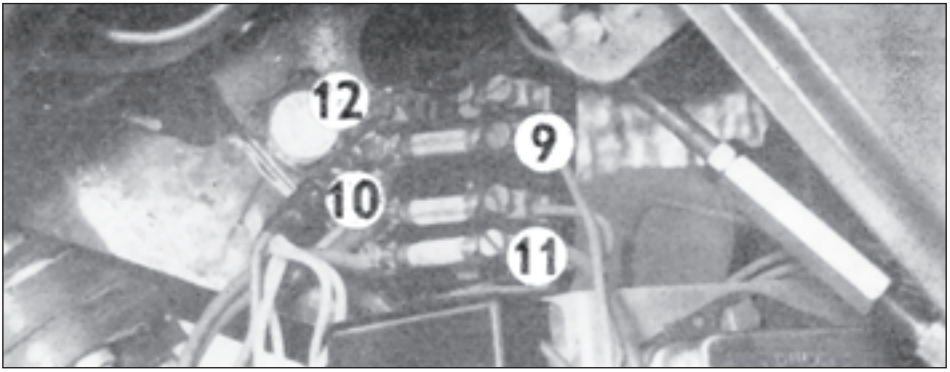


Fig. 14

Fuses for the cabin are situated on a panel above the eight-pole main fuse box (Fig. 14).

9. Windscreen washer, windscreen wiper, rear window wiper and control of heater fan relays (in case of cabin BK 7011 relay for the heated rear window as well).
10. Ceiling lamp and power supply for heater fans
11. Power supply for heater fans
12. Power supply of the rear working roof-lights (in case of the cabin BK 7011 only)
13. Control relay (Fig. 15)
14. Hand-light socket (Fig. 15)

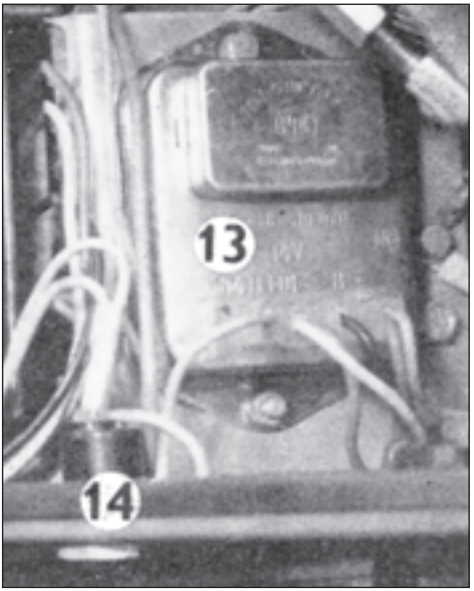


Fig. 15

Symbol explanatory notes

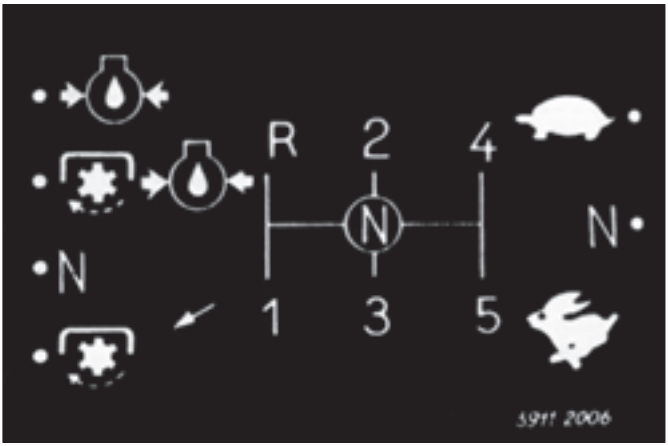


Fig. 16

Hydraulic oil pump and P.T.O.-shaft engagement; Diagram of the gear positions — STANDARD REVERSE GEAR; Gear positions of the road-speed and low--speed gears (hare — turtle) (Fig. 16)

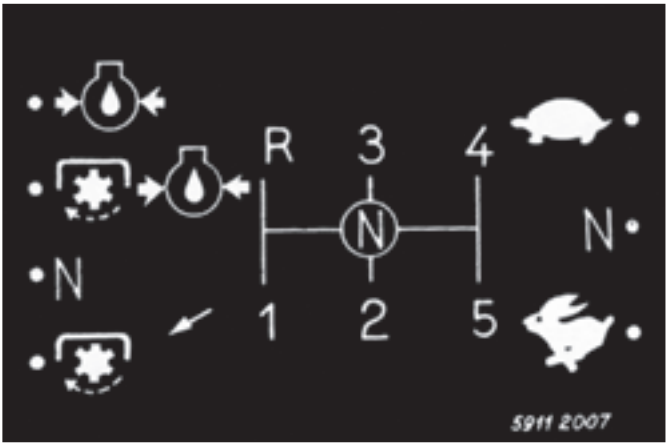


Fig. 17

Hydraulic oil pump and P.T.O.-shaft engagement;
Diagram of gear positions — HIGH REVERSE GEAR (only for tractors Z 5211 and Z 5245 on special order of the customer);Diagram of gear positions of the road-speed and reduced-speed gears (hare — turtle) (Fig. 17).

Fig. 18

Diagram of gear positions of the P.T.O.-shaft 540 and 1000 r.p.m.

Fig. 19

The plate for the P.T.O-shaft clutch disengagement.

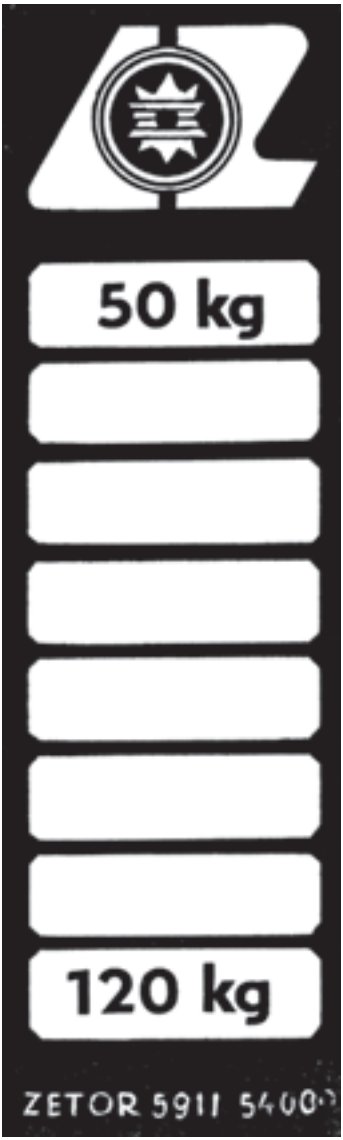


Fig. 20

Plate of the driver's weight for checking the damping adjustment of the driver's seat. Scale grade 10 kg.

Fig. 21

Plate indicating the shifting direction of the driver's seat.

Filling and draining holes

Fig. 22

Filler neck of the fuel tank.

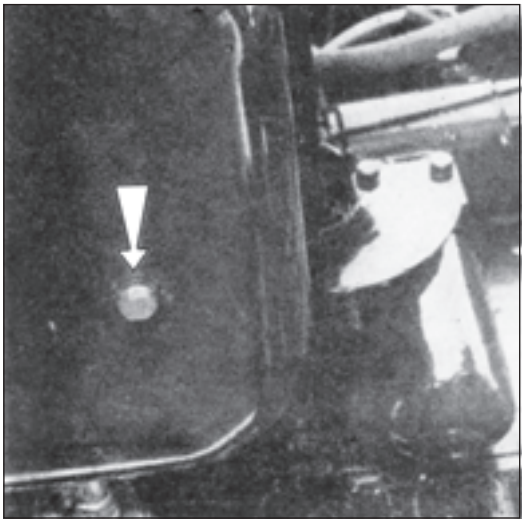


Fig. 23

Fuel tank sedimentation draining hole.

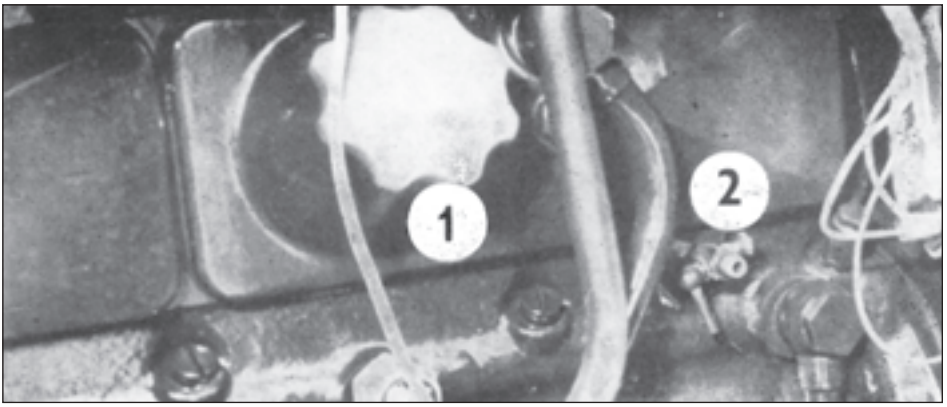


Fig. 24

Engine oil filler cap (Fig. 24/1)

Draining cock for the cooling water from the engine block (Fig. 24/2)

Fig. 25

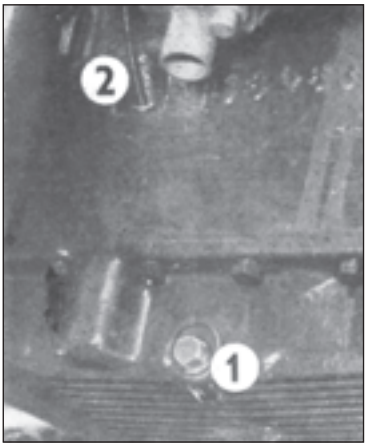
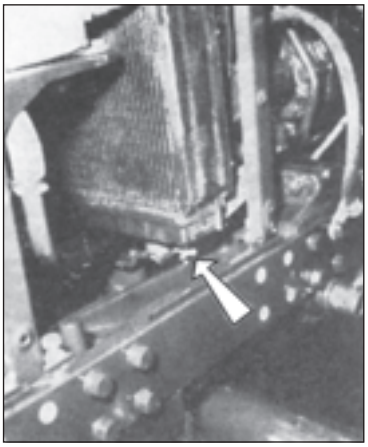


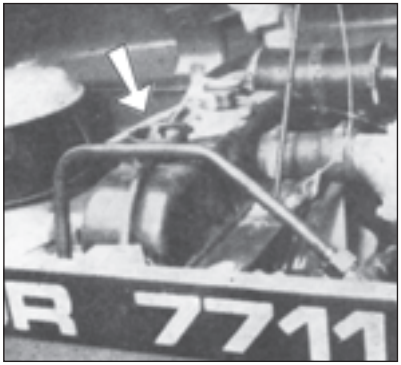
Fig. 25a



Draining cock for the cooling water from the radiator is situated at the left-hand bottom side of the cooler chamber (Fig. 25a).

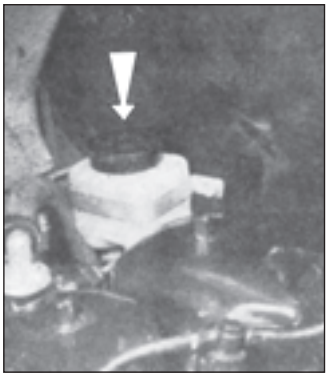
Plugged hole for draining oil from the engine pan (Fig. 25/1).

Dip stick for engine oil (Fig. 25/2).



Radiator filling hole for cooling water

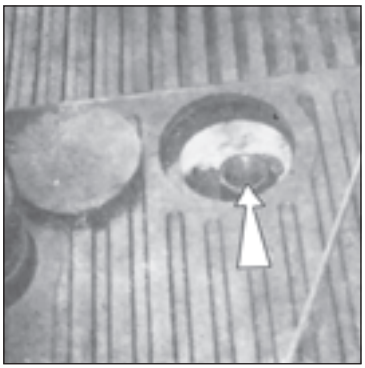
Fig. 26



Filling hole for brake fluid

Fig. 27

The filling hole for oil of the gear-box and the main transmission (the plug serves at the same time as a control dip stick as well).



	5211 6211 7211 7711
Upper mark	32 litres
Middle mark	25,5 litres
Lower mark	16,5 litres

	5245 6245 7245 7745
Upper mark	34 litres
Middle mark	27,5 litres
Lower mark	18,5 litres

Attention: The oil quantities stated are meant with the dip stickscrewed in

Fig. 28

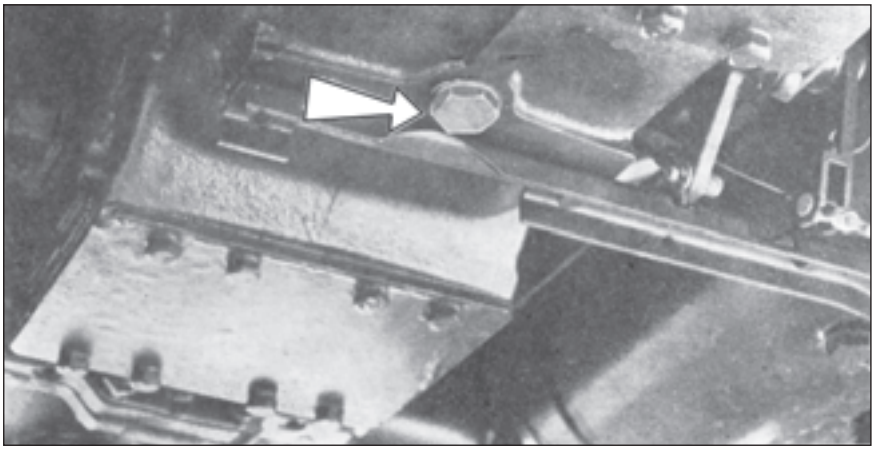
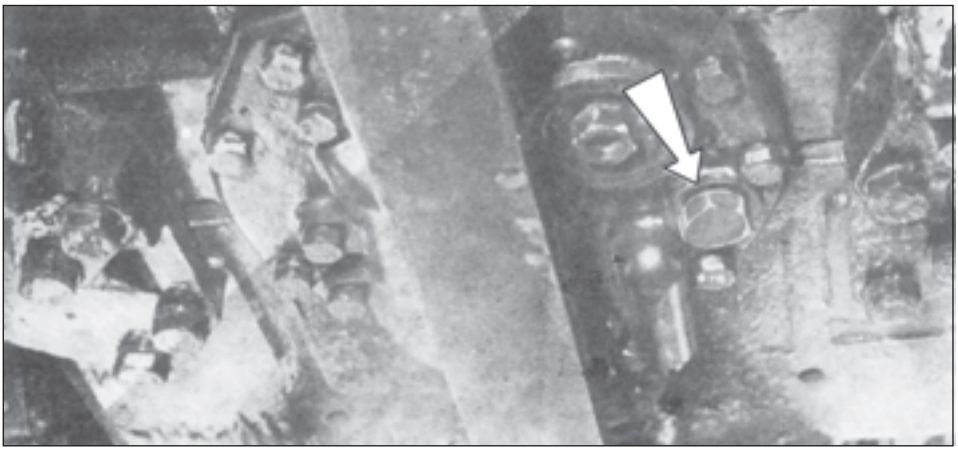


Fig. 29

The draining hole for oil from the gear box on a tractor without the front driven axle.

Fig. 30



The draining hole for oil from the main transmission box (the box of the main transmission)

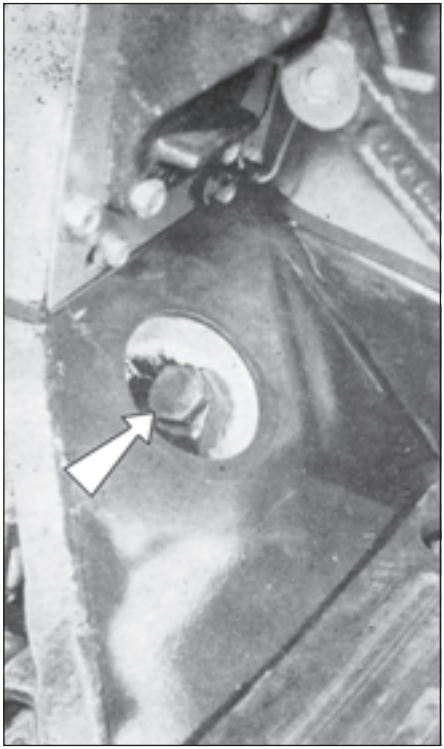


Fig. 31

Oil filling hole of the steering box (the draining hole is in the bottom part of the steering box).

The filling hole serves as the oil level check as well, the correct level is to the top of the neck.

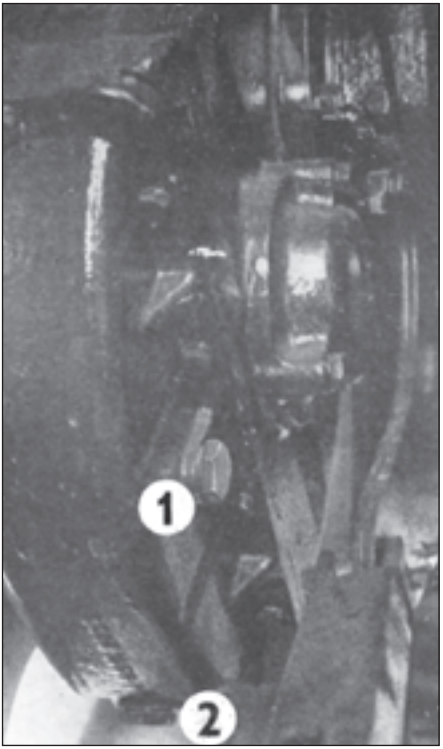


Fig. 32

Oil filling hole of the rear axle bridge (Fig. 32/1). (It serves at the same time also for checking the oil level.)

Draining hole from the bridge of the rear axle (Fig. 32/2).

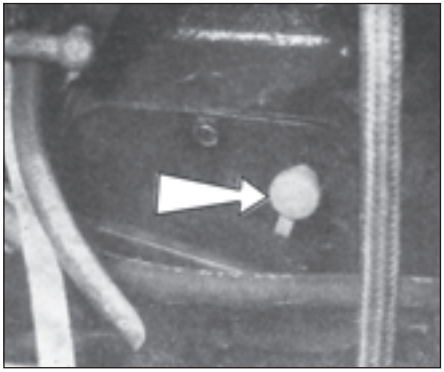


Fig. 33

The hole for additional lubrication of the guide bush of the clutch disengaging bearing (use a few drops of oil only).

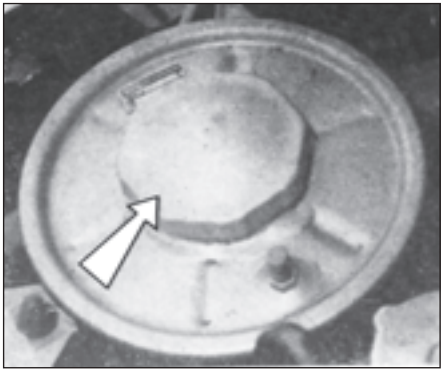
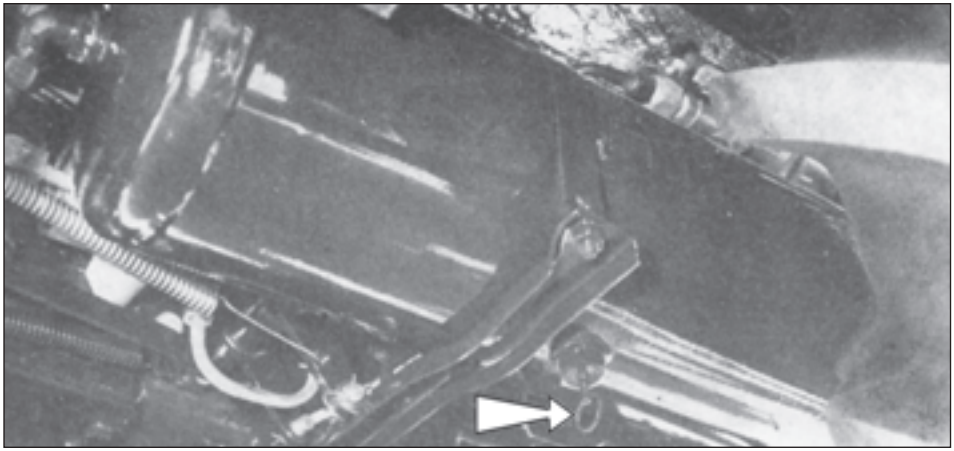


Fig. 34

Oil filling hole for the power assisted steering tank. The draining hole is situated at the bottom part of the tank.

Fig. 35



Draining plug of condensed water from the air reservoir of the pneumatic brakes.

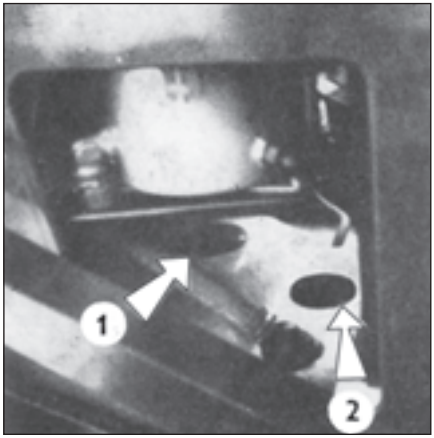
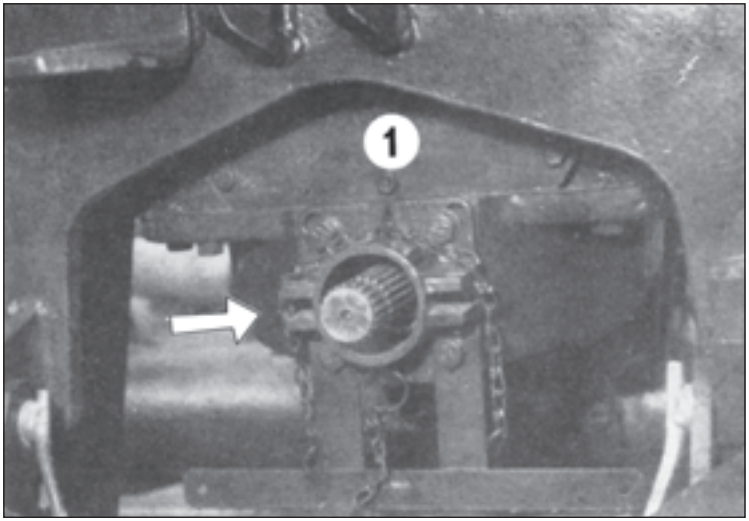


Fig. 36

1. Filling hole to the gear box of the front P.T.O.-shaft (Fig. 36) which will be fitted on special order of the customer.
2. Lubricating point of the front cross-pin cardan joint.

Fig. 37



The checking hole of the front P.T.O.-shaft gear box oil level is situated on the left-hand side of the bottom cover, when viewed from the front of the tractor (Fig. 37).

The draining plug of condensed water and impurities (Fig. 37 1).

Attention: Condensed water in the space of the sealing cuff of the clutch has to be drained before the winter comes. To do this, unscrew the plug (Fig. 37/1) and engage and disengage the P.T.O.-shaft a few times with use of the control lever situated on the dash panel. Possibly present impurities and condensed water will be blown out by compressed air from the space of the cuff. Do not forget to screw in the plug afterwards.

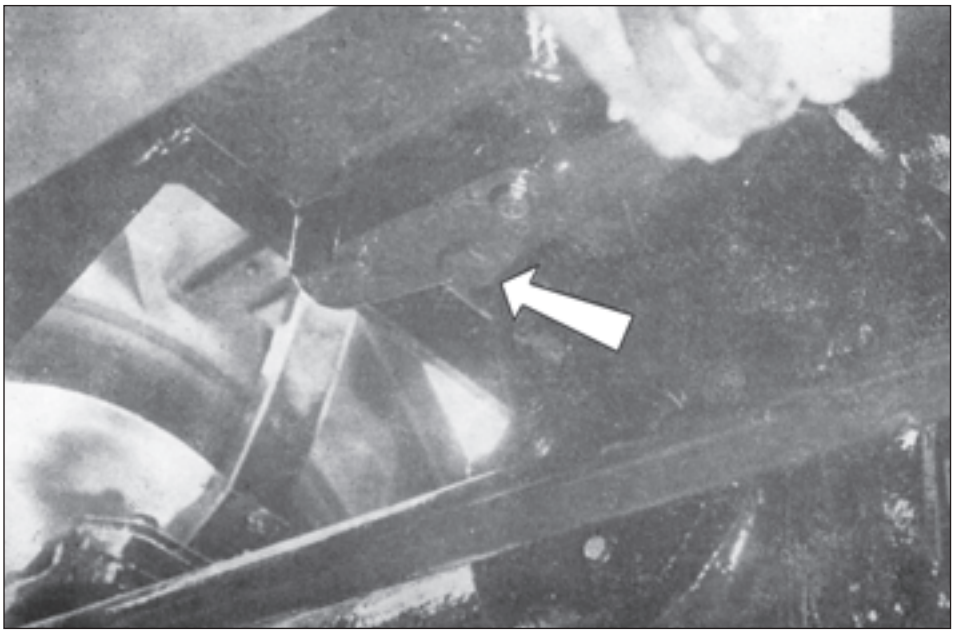


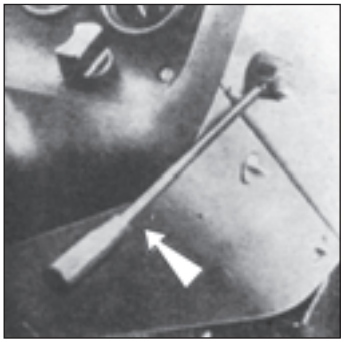
Fig. 38

Oil draining hole from the front P.T.O.-shaft gear box.

LEVERS AND PEDALS OPERATED BY THE DRIVER

Control levers

Manual control of the fuel throttle.



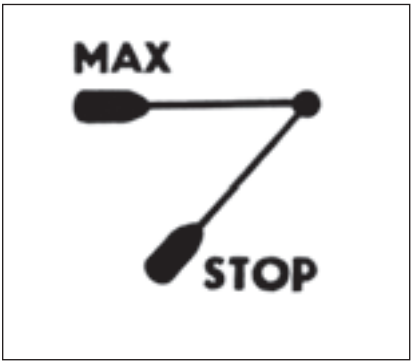
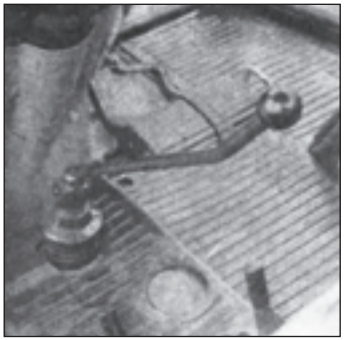


Fig. 39



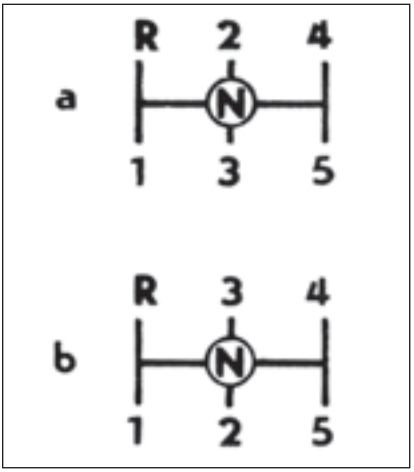


Fig. 40

Gear lever (Fig. 40)

a) Diagram of gear positions by the standard revers gear
b) Diagram of gear positions by the high-speed reverse gear (on special order — only for Z 5211 and Z 5245).

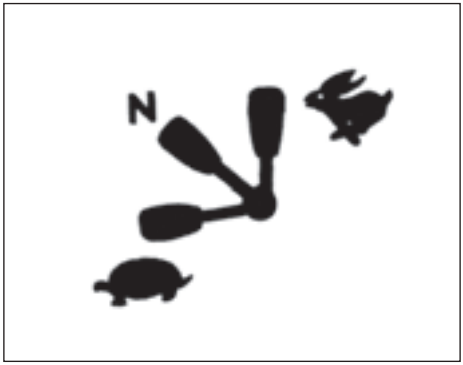
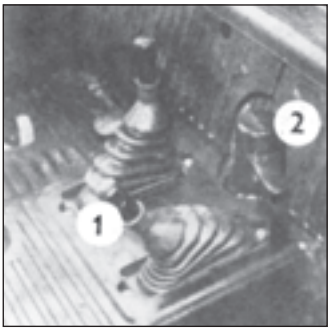


Fig. 41

Range change lever for road speed and reduced speed (Fig. 41/1).
Differential lock pedal (Fig. 41/2).
Foot-operated fuel throttle (Fig. 41/3).



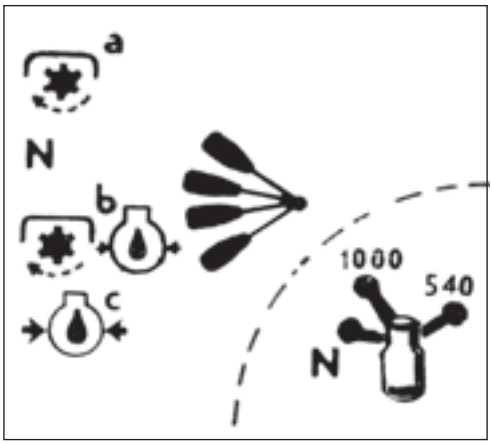
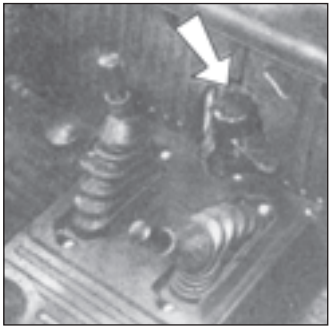


Fig. 42

By use of the hydraulic oil pump and the P.T.O.-shaft engaging lever (Fig. 42/1) the following functions will be engaged:

a) The P.T.O.-shaft is driven by the gear box, i.e. the P.T.O.-shaft speed is dependant upon the engaged gear; the lever is up (the hydraulic pump is disengaged); „N" — neutral position



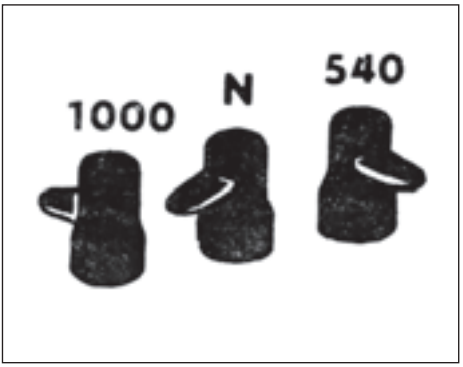


Fig. 43

b) The P.T.O.-shaft on dthe hydraulic pump are engaged (the engaging lever is in its down — first position);

c) The hydraulic oil pump is engaged — the P.T.O.-shaft is not running (the engaging lever is in its lowest position).

The engaging lever of the P.T.O.-shaft for 540 and 1 000 r.p.m. is without exchangeable end-pieces (Fig. 42/2).

The engaging lever of the P.T.O.-shaft for 540 and 1 000 r.p.m. — execution with exchangeable end-pieces (Fig. 43):

— forward position (the cover lever in the driving direction) — neutral position

— left-hand position — 540 r.p.m. of the P.T.O.-shaft

— right-hand position — 1.000 r.p.m. of the P.T.O.-shaft

ATTENTION: When changing the speed from 540 r.p.m. to 1,000 r.p.m. or vice versa, the exchanging lever must be put in its neutral position, taken off and then the correct end-piece of the P.T.O.-shaft has to be inserted. The end-piece for a speed of 540 r.p.m. is equipped with six splines, for 1 000 r.p.m. with 21 splines.

The torque multiplier pedal (Fig. 44/1).

The torque multiplier is engaged by pressing down the pedal.

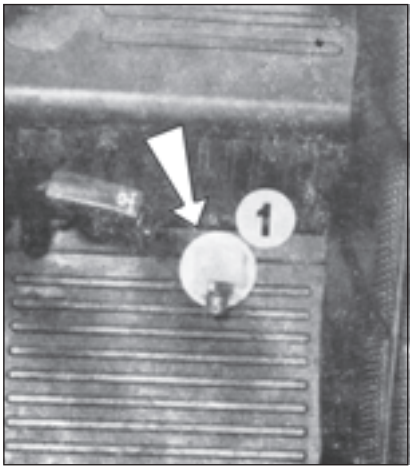
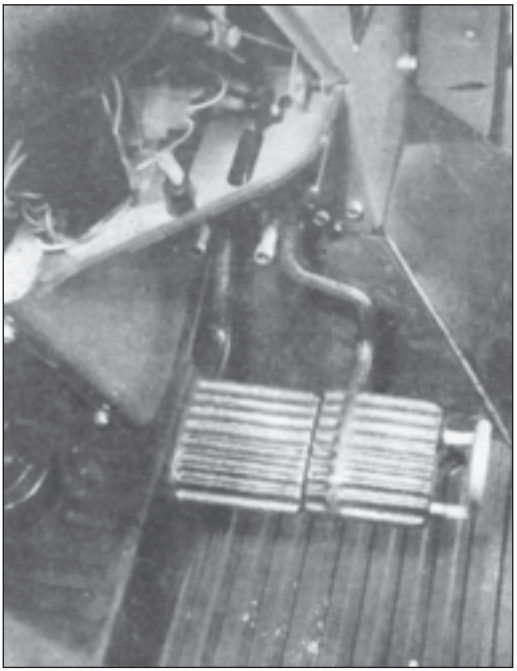


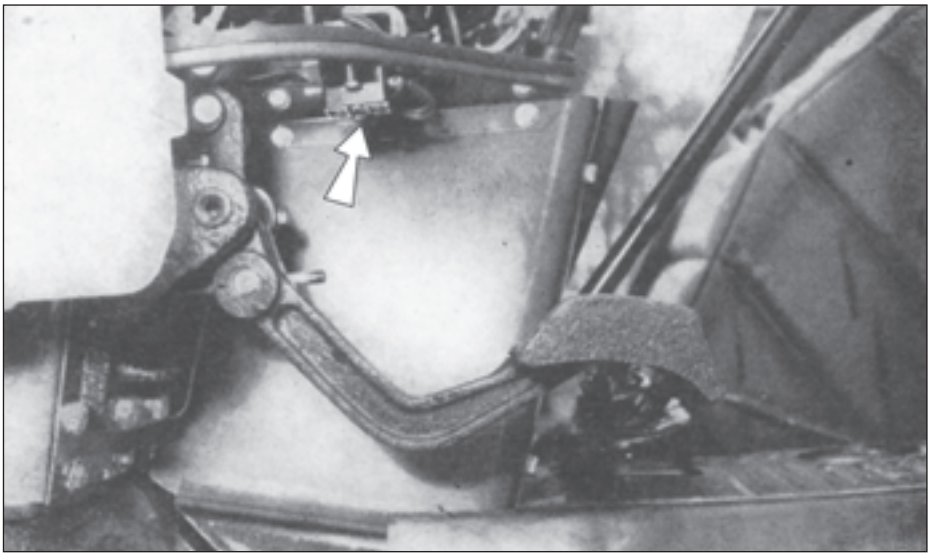
Fig. 44



Foot brake pedals interconnected with pawl. The tractor is equipped with a double-pedal brake system using an automatic pressure equaliser.

Fig. 45

Fig. 46



Driving-clutch pedal of the tractor.

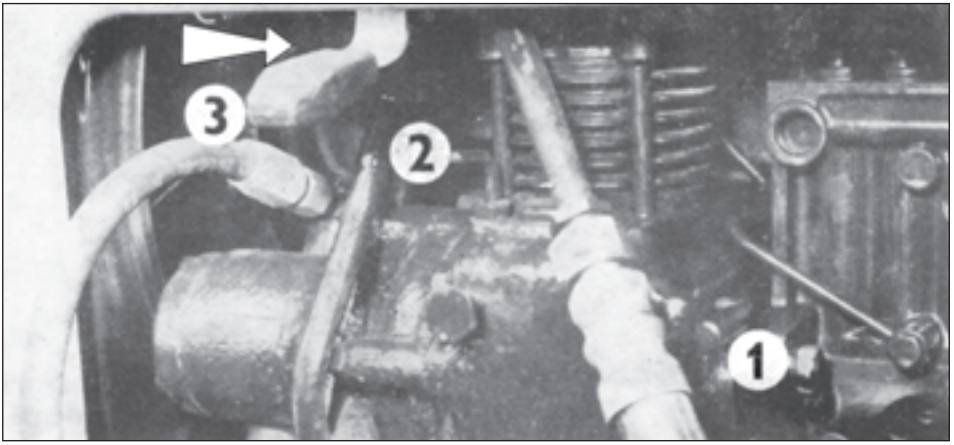
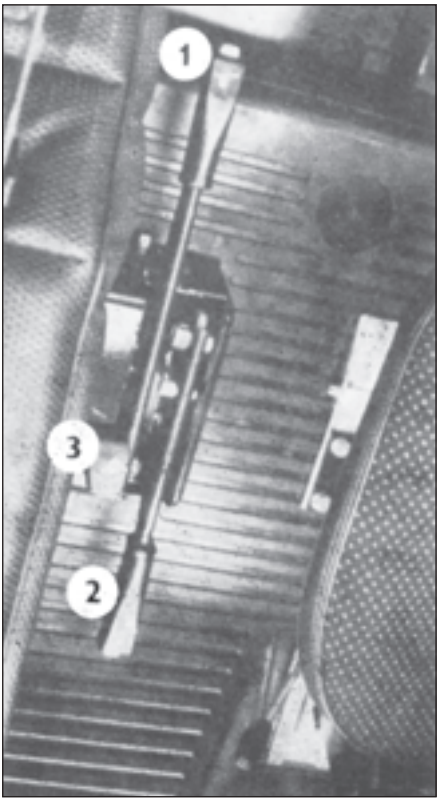


Fig. 47

Compressor engaging lever (Fig. 47/1)
Compressor engaging safety device (Fig. 47/2)
Bonnet opening lever (Fig. 47/3)



Hand-brake lever (Fig. 48/1)
Manual disengaging of the P.T.O.-shaft clutch by a lever (Fig. 48/2)
Pick-up-hitch control lever for a single-axle trailer (Fig. 48/3)

Fig. 48

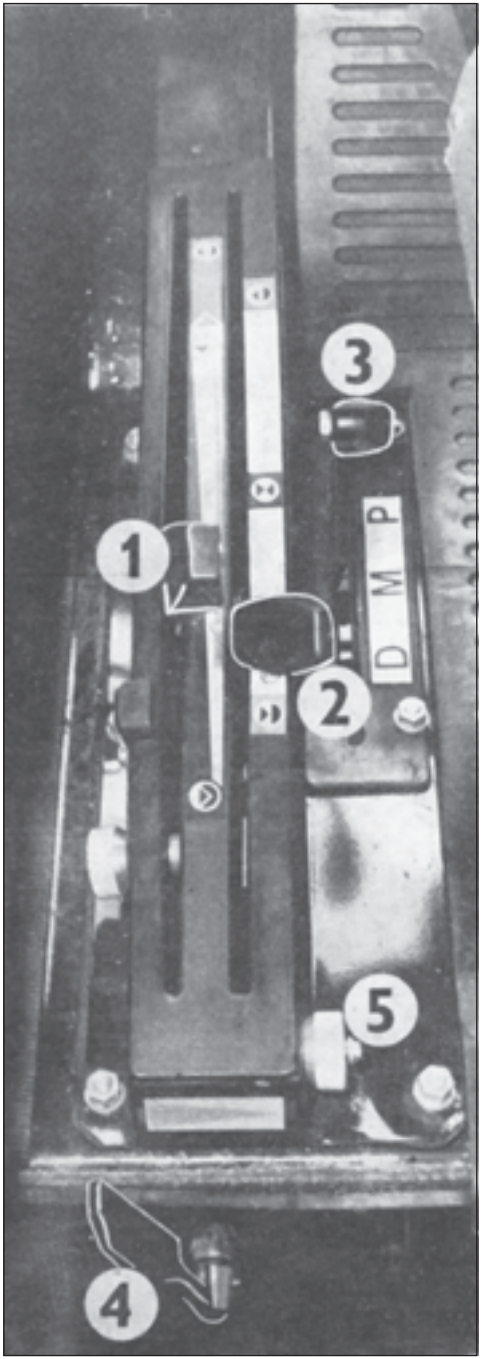
Fig. 49

The control valve lever for the starting clutch of the front P.T.O.-shaft (Fig. 49). To ensure the correct function of the starting clutch, the control valve lever has to be engaged at an air pressure of min. 500 kPa (on the pressure gauge). The valve ensures automatic disengagement of the P.T.O.-shaft if the air pressure drops below the minimum engaging pressure (410 ± 60 kPa).

Important warning:

It is not allowed to do any repair work or to clean functional parts of coupled machines driven by use of the front P.T.O.-shaft when the control valve lever is not in the STOP-position.

If the control valve lever (Fig. 49) is in the STOP-position, then the P.T.O.-shaft is disengaged. To engage the P.T.O.-shaft, the lever has to be raised.



HYDRAULIC LIFTING AND HITCH EQUIPMENT

The ZETORMATIC hydraulic system is used to control agricultural machines and implements. This equipment has two circuits and is controlled with help of a separate lever for the inner circuit and a separate lever for the outer circuit. The functions of these circuits are labelled.

a) **Inner circuit** — It is intended to lift and lower agricultural machines and implements attached. This circuit is controlled by the main inner circuit lever and by two auxiliary levers.

1. The inner circuit lever (Fig. 50/1) controls the following functions:
   - lifting and lowering of agricultural implements into transport or working position;
   - height adjustment of the hitch with attached implements by position control;
   - adjustment of tractive force when used in draft or mixed regulation;
   - adjustment of floating position when using implement with its own supporting wheel
2. Selection lever of hydraulic system (Fig. 50/3) is used when selecting the respective regulation. It has three positions labelled as P, M, D.
   „P" — Position (fixed) control. The attached implement is automatically held in an approximately constant vertical position in relation to the tractor.

Fig. 50

„M" — Mixed control, a combination of the „P" and „D" types of control. The layout of the hydraulic equipment enables operation with the implement having its own supporting wheel in the so called free (floating) position, as well.

„D" — Draft control: The height of the attached implement is automatically adjusted according to the changing soil resistance.

3. Lever for response control (Fig. 50/4). This lever controls the cock for the response rate which is used for the reduction of the quantity of oil flowing into the inner circuit in connection with the necessary speed of reaction of the hydraulic system according to the art of tractor tasks.

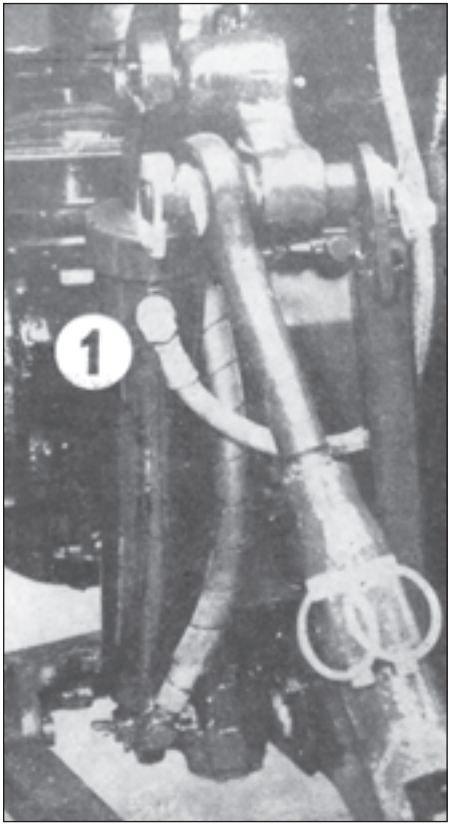


Fig. 51

Throttling the oil quantity supplied from the oil pump to the inner circuit serves for reduction of the response rate, by which responds the hitch control system e.g. to changed resistance of ploughed soil, and by means of the response rate reduction vibration can be eliminated which might occur when ploughing in some types of soil.

The inner circuit consists of the hydraulic oil pump (it supplies oil to the outer circuit as well), the hydraulic distributor box and hydraulic lifting gear. The lifting gear has an internal cylinder, lift arm shaft and lift arms of hydraulics which control the hitch equipment. Tractors with four-cylinder engines are equipped with an additional auxiliary hydraulic cylinder (Fig. 51/1) which is located on the left side of the transmission box and controls directly the left lift arm. This arrangement enables increased lifting performance of the hydraulic equipment.

Fig. 52

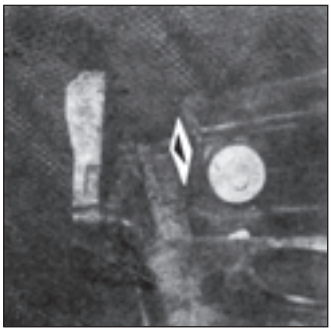
b) **Outer circuit** — This circuit is controlled with a lever (Fig. 50/2). It supplies pressurized oil to machines and implements which have their own single-acting or double-acting cylinders, or rotating hydraulic motors and/or an additional distributor if needed.

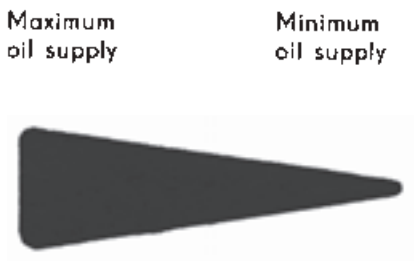
This circuit is equipped with three outlets, each having a quick-coupling device (Fig. 52). The third quick coupling (labelled „O") is directly linked with the inside room of the transmission box and has to be connected to the outlet of the hydraulic motor or of the distributor box attached to the machine.

The ratio of oil supplied to the inner and to the outer circuits is controlled by the response control lever (Fig. 53). When moving this lever in the direction of the arrow, the oil flow coming into the inner circuit is being reduced and the oil flow coming into the outer circuit is being increased, and vice versa. If only the outer circuit is in operation (the slide valve of the inner circuit is not in the lifting position), then the complete quantity of oil will be supplied to the outer circuit, regardless of the position of the response control lever.

The outer circuit lever controls the oil supply to the two quick couplings labelled as „1" and „2" (Fig. 52).

Fig. 53





Art of connection of the outer hydraulic equipment:

The single-acting cylinder will be connected to the quick coupling „1".

1. Lifting — The control lever is in its uppermost position. (The lever has to be held in position with the hand.)
2. Neutral position — The control lever is in the middle position where it is held by a spring.
3. Lowering — The control lever is in the position between the neutral and the lowest position and it is automatically locked (the so-called „floating" position).

The double-acting cylinder will be connected in such a way that the oil from the quick coupling „1" is used for lifting the load and the oil from the quick couplin „2" for lowering the load.

1. Lifting — The control lever is in its uppermost position. (The lever has to be held in position with the hand.)
2. Neutral position — The control lever is in the middle position where it is held by a spring.
3. Lowering — The control lever is in its lowest position.
4. Free (floating) position — The control lever is in the middle between the neutral and the lowest end position and it is automatically locked; both the quick couplings are linked with the outlet for used oil, and it is possible to use such a machine which has its parts frely movable, e.g. when copying an uneven ground.

Rotating hydraulic motor or additional distributor

The oil supply to these appliances (indicated by P) will be connected to the quick coupling „1", the oil outlet (indicated by T) to the quick coupling „0". In case that the reversed hydraulic motor is used, it will be connected to the quick couplings „1" and „2". The control lever has to be moved to the uppermost position in which it can be secured by an adjustable trip dog (Fig. 50'5).

The gear box and the main transmission box have a shared oil filling and the oil is used for the hydraulic system of the tractor as well. The standard quantity of oil is 25 litres. When using the tractor on a hilly ground or when the machine is attached to the outer hydraulic circuit, it is suitable to increase the oil level in the gear box to 32 litres. A minimum quantity of 15 litres of oil must be left for a correct function of the gear box.

ATTENTION: No further oil must be taken from this quantity for the outer hydraulic circuit. The oil quantity have to be increased by two more litres in case of tractors equipped with the front driven axle.

NOTE: A maximum of 10 litres of oil may be taken from the gear box and the main transmission box for the outer circuit of hydraulics.

A maximum ploughing depth when the „D" and „M" control has been selected.

DESIGNATION LABEL OF THE INNER CIRCUIT

Fig. 54

Free position and a maximum lowered position when the „P" control has been selected.

Vertical adjustment of the three-point hitch.

SELECTION LEVER LABELS OF THE HYDRAULIC CONTROL SYSTEM

Fig. 55

Draft control

Mixed control

Position control

Maximum lift

Motion in one direction — lowering for the double-acting cylinder — the control lever is not locked and returns automatically to the neutral position. The lever has to be held with the hand.

Pressurised oil filling in the quick-acting coupling „2" (Fig. 52)

Free position — floating for double-acting cylinder.
Lowering — for the single-acting cylinder. In this position the lever is locked and it is not necessary to hold it.

Neutral position — locked. The lever is locked in this position.

DESIGNATION LABEL OF THE OUTER CIRCUIT

Fig. 56

In this position the pressurised oil is in the quick-acting coupling „1" (Fig. 52).

Motion in the opposite direction — lifting.
The control lever is not locked, it returns automatically to the neutral position. The lever has to be held with the hand.

Fig. 57

Fig. 58

Hydraulic pump

The oil for the inner and the outer circuits of the hydraulics is supplied from a gear pump which is mounted on the bottom cover of the transmission box together with the inlet filter, pump drive braket and safety valve. The hydraulic pump has a delivery rate 32 51 litres of oil per minute at 540/1 000 r.p.m. of the P.T.O.-shaft, the oil pressure of 12.0 MPa and oil temperature 65 ±5°C and a nominal speed of tractor engine 2 200 r.p.m. The safety valve of the pump opens at a pressure 14 ÷ 0.5 MPa. The maximum pressure is limited by a safety valve to 16 −2 MPa.

Important
It is necessary to bear in mind that the P.T.O.-shaft speed of 1 000 r.p.m. should be engaged during tractor operation only for the time which is needed for the attached equipment requiring this speed. Engine power loss caused by use of unnecessary quantities of oil from the hydraulic pump will thus be avoided and consequently it will have favourable influence on total fuel consumption and besides, the oil in the gear box will not be overheated purposelessly.

Hydraulic oil filtration

The oil is sucked to the hydraulic pump through the suction filter which consists of a filter screen, magnetic element and a filter closing valve. The filter is mounted together with the hydraulic pump on the bottom cover of the transmission box (Fig. 57). The specified maintenance (see TM 2) of the filter can be carried out without draining the oil from the gear box. Only the oil in the filter body will be lost.

Attention: Special attention should be paid to regular maintenance. The interval of 200 engine hours, as mentioned in the Technical Maintenance No. 2 (TM 2), is meant for general agricultural operation with intermittent use of the hydraulic equipment. When the tractor will use e.g. a front loader or forest adapters, it will be necessary to provide maintenance more frequently and always when the performance of the hydraulics drops, or when the hydraulic pump will run noisely.

The oil coming from the distributor of regulating hydraulics flows to the fine filter with a paper cartridge having a filtering capacity of 12 to 15 microns. The fine filter is connected by a pipe to the cover of the hydraulics and is situated on the right side of the engine in front of the fuel tank (Fig. 58).

IMPLEMENT HITCH

Three-point hitch (Fig. 59)

The hitch is determined for implements of the I. and II. category. These categories differ in the axis length of the implement which is the centre-distance between the balls on the lower hitch points. The axis length of the I. category implement is 720 mm, the II. category implement 870 mm. The lifting power at the end of lower links is 17.5 kN for tractors Z 5211 and Z 5245, and 24 kN for tractors Z 6211 to Z 7745.
The three-point hitch consists of lower links, an upper link and turnbuckels of lower links.
Extended lower link brackets (Fig. 60) are mounted on tractors Z 7711 and Z 7745 to enable easy fixing of lower links, and their adjusters as well. (Extended lower links for tractors Z 5211 to Z 7245 Horal can be fitted on special order of the customer.)

Fig. 59

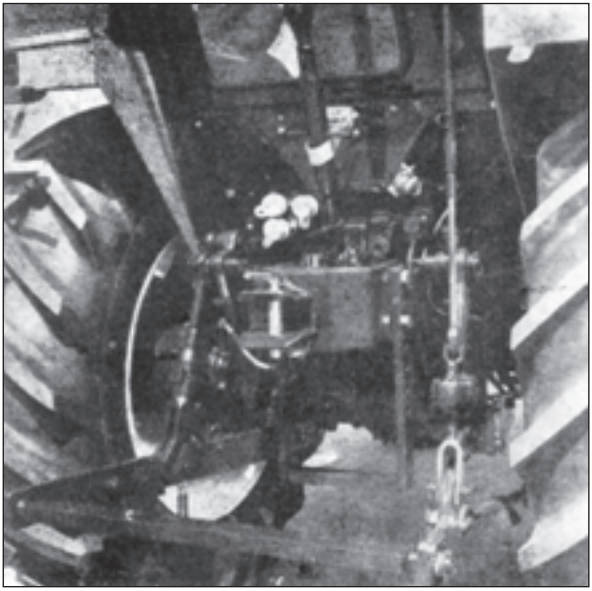
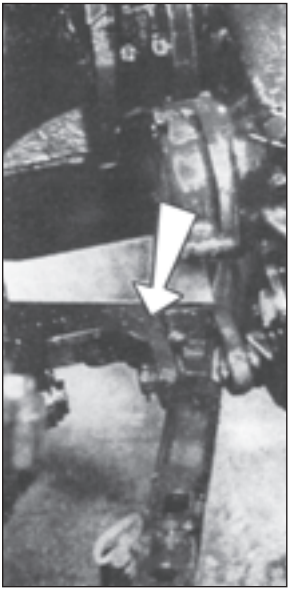


Fig. 60



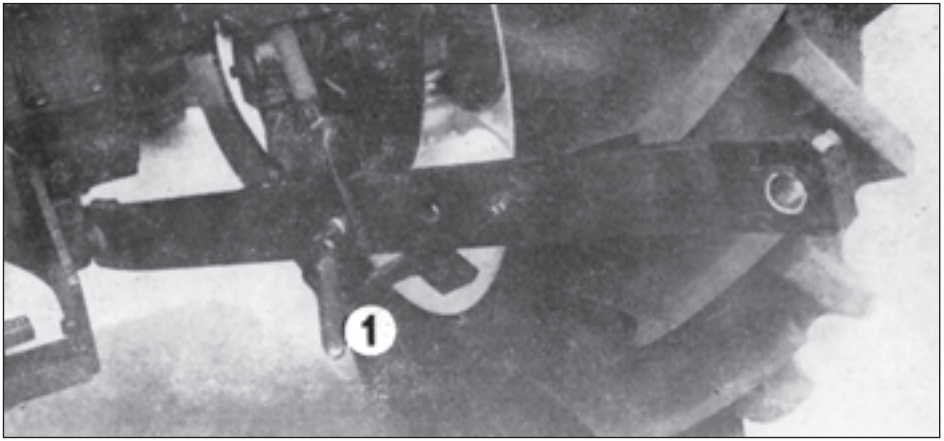


Fig. 61

The lower links are connected with lift rods to hydraulic lifting equipment. Both lift rods have stepless longitudinal adjustment, the right one with a wrench. The design of the left lift rod enables a floating position of the implement by displacement of the pin (Fig. 62) into the groove in the lift rod.

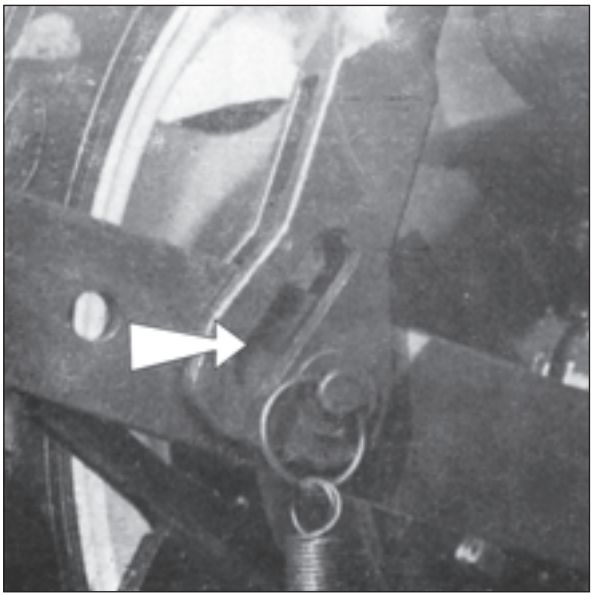


Fig. 62

The top link is attached to the tractor in one of the four holes in the bracket (Fig. 63/1) in dependance on the height of the implement top link hitch point (460 mm to 600 mm), i.e. the vertical distance between the top hitch point and the lower hitch points of the implement or machine. The position to be chosen has to take into account the required sensitivity of the selected draft control or mixed control as well. The greatest sensitivity is on the highest point of the bracket. The top link is continually adjustable.

The stretchers of the lower links are used to eliminate the side swing of the links in the full range of the stroke of the three-point hitch. By lengthening the stretchers it is possible to obtain up to 125 mm side swing of the lower links at the lover hitch points (e.g. for ploughing).

Attention: When driving the tractor without any attached implement, the lower links have to be connected together by springs (Fig. 61/1) and the top link has to be secured by a flexible holder (Fig. 63). When transporting implements, the stretchers on the lower links should be shortened in order to eliminate any unwanted side swing. The adjustment of the linkage axis to 720 mm or 870 mm depends on the rear wheel track. The lower links must not hit the tyres when the implement is being lifted and when it comes to its laterally swinging. For this reason the track of the rear wheels has to be adjusted from 1 425 mm to 1 500 for tyres 16.9—30 and 16.9—34 and for the hitch axis length of 870 mm.

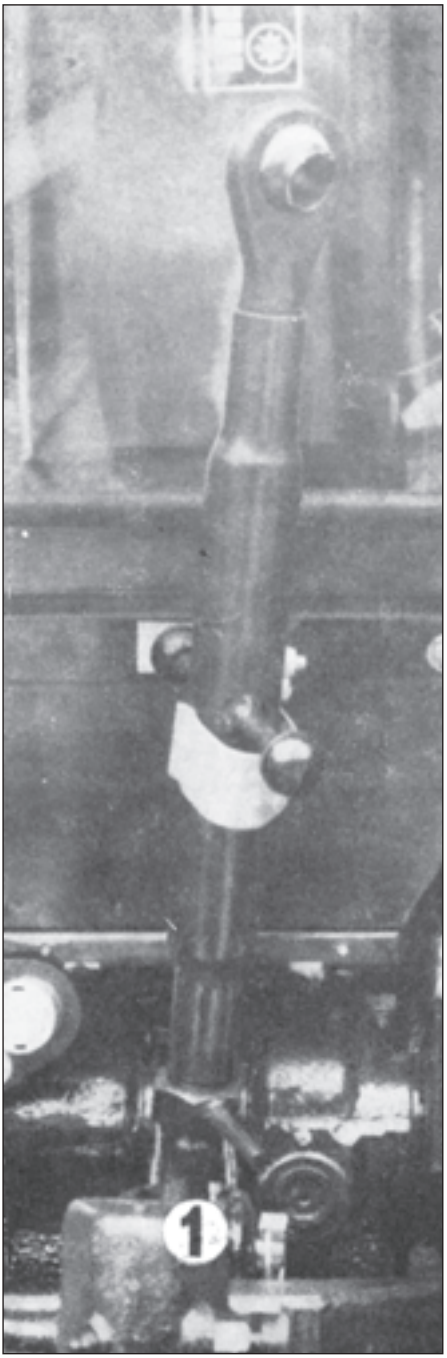
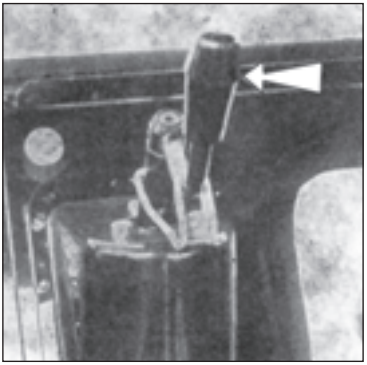


Fig. 63



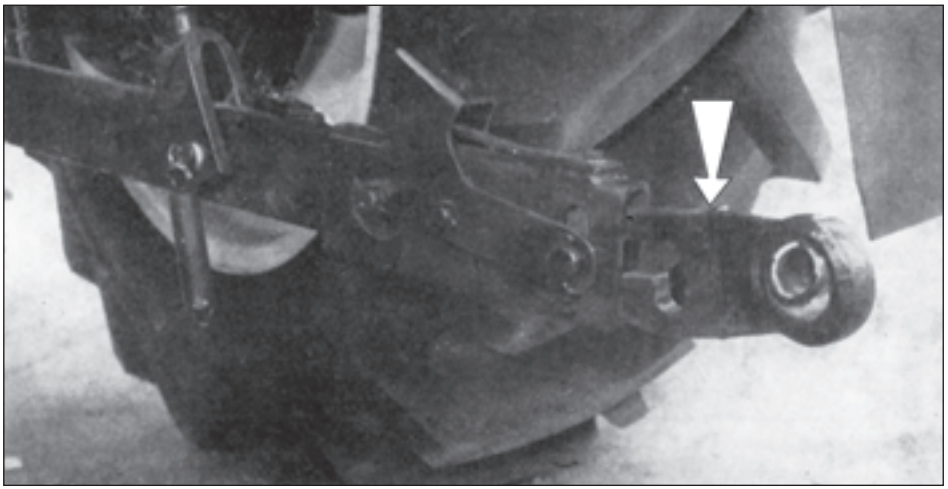
Lift rod control from the safety cabin
(Fig. 64)

Fig. 64

This control enables vertical adjustment of the right lower three-point hitch link from the driver's seat. The main part of the control equipment is a lift rod which can be adjusted longitudinally by use of crank situated in the cabin (Fig. 64).

Lower links with telescopic ends (Fig. 65)

Fig. 65



Telescopic ends enable easy attachment of implement to the three-point hitch by means of freely movable link joints. They replace the lower links fitted with removable cover plates in case of a three-point hitch.

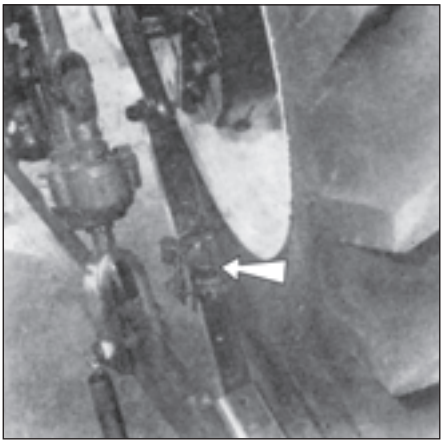


Fig. 66

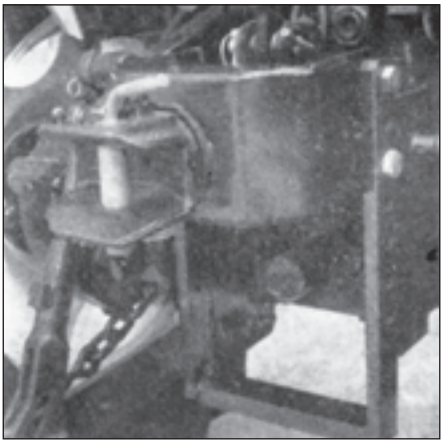


Fig. 67

Limitation bars (Fig. 66)

These bars allow an approximate 125 mm side swing of the lower links to both sides at the lower link joints when working with implements of I. range and 90 mm to both sides when operating with range II implements. Adjustment of limitation bars is done automatically when agricultural implements are attached.

Attention: Both limitation bars must always be attached to the tractor. The side-swing restriction of lower links in the whole lifting range of the three-point hitch will be achieved by locking the limitation bars with use of a setting pin. The hole near the groove should be used for implements of the I. range, the next hole for implements of the II. range.

It is recommended to lock both limitation bars during the transport, especially when transporting agricultural implements. Setting pins **must be secured** with locking rings.

Multistage trailer hitch (Fig. 67)

This hitch is used for attachment of two-axle and light single-axle trailers. The height of the hitch can be adjusted in five positions, in 50 mm steps. The height of the individual mouth positions above the ground depends on the tyres fitted. The permissible vertical statical load must not exceed 10 kN. The hitch is able to withstand a maximum tractive force of the tractor.

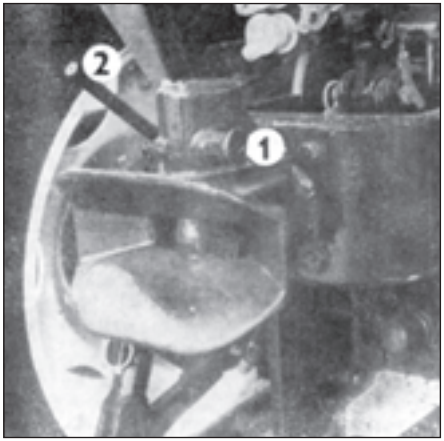


Fig. 68

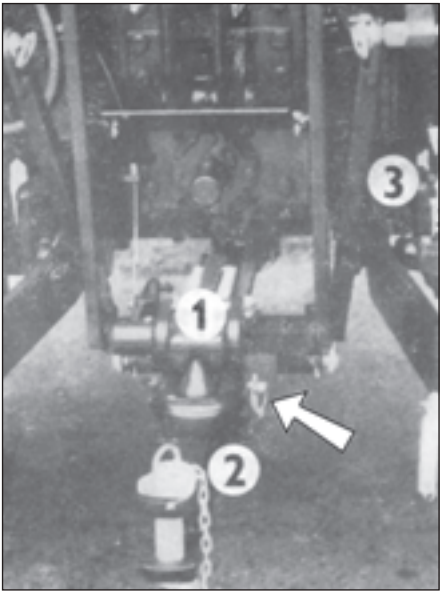


Fig. 69

Automatic tow mouth (Fig. 68)

The automatic tow mouth is mounted in place of the multistagehitch fixed mouth and is fitted to the bracket of the multistage hitch. It enables the driver to couple up the trailer by himself (without the help of an assistant).

Preparing the automatic tow mouth to attach a trailer:

— pull out the locking device (Fig. 68/1)

— using the lever (Fig. 68/2), lift the main pin until it remains in the upper position.

Both these actions have to be carried out simultaneously.

After the trailer has been attached to the automatic tow mouth, check whether the securing element of the closing-up pin has been snapped.

The permissible static load on the hitch must not exceed 10 kN. The automatic tow mouth in connection with the multistage hitch is able to withstand the maximum tractive force of the tractor.

Automatic pick-up hitch (Fig. 69)

This equipment is used for attaching single-axle trailers. The hook of this pick-up hitch is lifted and lowered by means of adjustable telescopic rods used in remote control of tractor hydraulics. These rods are connected with lifting arms of hydraulics.

The permissible vertical static load should not exceed 15 kN.

The hitch is able to withstand a maximum tractive force of the tractor.

The hitch is controlled by the inner circuit lever of the hydraulics (Fig. 50/1) for the chosen position control and by the disengageable lever (Fig. 49/3) on the left side of the driver's seat. Before lowering the hook of the pick-up pin, the safety pin of the carrying hooks has to be removed and hooks thus unlocked. The lowered hook with the eyebolt of the trailer is raised by tractor hydraulics and snapped-in hooks **must be secured by sliding-in the pin which must be provied with a safety pin.** (The arrow, fig. 69).

The lifting arms must then be lowered so that the pick-up hitch rests on the carrying hooks. The pick-up hitch has to be raised slightly when disengaging the trailer to allow the carrying hooks to be unlocked by the disengaging lever.

Attention: Carrying hooks must always be secured by a safety pin if a trailer is attached.

Fig. 70

Pick-up hitch extension (Fig. 70)

This extension is fitted together with a hitch for a single-axle trailer and is used for attaching agricultural machines driven by a propeller shaft having non-rotating cover. The extension is hooked by its eyebolt to the hook of the hitch for a single-axis trailer and besides it is fastened with a pin of carrying hooks and this pin is provided with a securing pin. The permissible vertical static load should not exceed 6 kN. The hitch is able to withstand the maximum tractive force of the tractor.

Adjustment of the automatic pick-up hitch for a single trailer

Engage the position control „P" by means of the system selection lever of the hydraulics (Fig. 50/3). Raise the hydraulic lift arms to their uppermost position (the pin centres of the lift arms have to be 219 ± 7 mm from the upper surface of the main transmission box). Adjust telescopic lift rods (Fig. 69/3) so that they will be connected with the lower eye to the hitch. Shorten the lift rod by one or two turns clockwise and check after each shortening whether the carrying hooks (Fig. 69) and the draw-hook pin have latched in. After the carrying hooks have latched, the upper part of the telescopic lift rods have to be shortened by half a turn again. The upper eyes have then to be put on the pins, washers fitted and secured with pins and rings.

After this adjustment and with the arms of the hydraulics fully fitted, a play of at least 2 mm have to be between the carrying hooks and the pins of each hook (the draw hook can be elevated by hand if the play has been adjusted correctly). This play ensures that the carrying hook will latch, but that the draw hook does not knock against its carrier and so causes an unnecessary overloading of the hydraulic pump. The position of arms of the hydraulics can differ. Therefore the length of the telescopic lift rods has to be adjusted accordingly so that the draw hook in not one-sidedly lifted.

The front three-point hitch (fitted on special order of the customer)

The front three-point hitch (Fig. 71) is used for a frontmounted agricultural machines and implements and for trailed implements as well. Its dimensions are in compliance with the Comecon and ISO recommendations for range II, i.e. the hitch axis 870 mm. The three-point hitch consists of lower fixed links, hydraulically operated lifting cylinders and of an adjustable upper link.

The hitch is lifted by means of two hydraulic cylinders with a diameter 50 mm and a stroke 250 mm which are connected to the outer hydraulic circuit of the tractor as single-acting cylinders. The lifting force at the end of the lower links is 11 kN in the whole lifting range, at hydraulic pressure 16 MPa in the hydraulic circuit of the tractor. The range of stroke of the lower links of the three-point hitch is 145 mm to 931 mm.

The lower links of the hitch are fitted with special eyes on their front ends (Fig. 72) which allow transversal swinging of the connected agricultural machine in the range of ±8°. To secure the transversal movement of the machine during its operation, the securing pins in both eyes of lower links have to be located in the top position (Fig. 73). On the other hand, the lock pins have to be fixed in the low position (Fig. 72) when transporting the machine on slopes or roads. The pins are secured against spontaneous sliding-out by a bayonet lock provided with a spring. If the pin handles are in the vertical position (Fig. 74), then pins are locked, by turning them by 90° to their horizontal position the pins will be unlocked and it is possible to take them out (Fig. 73).

Fig. 71

Attention:

When transporting hitched agricultural machines in their uppermost lifted position on roads or fields, the front hitch has to be mechanically secured in the transport position. To do this, the hitch is provided with two securing pins and lock pins which, when they are positioned as shown in Fig. 75, safeguard the fixed attachment of lower links and of three-point hitch brakets (the so-called mechanical protection). It is recommended to use this mechanical protection even in case when no articultural machine is transported in the three-point hitch. Do not forget to place the securing pins to the top holes before lowering the hitch, otherwise the hitch cannot be lowered to its working position.

Fig. 72

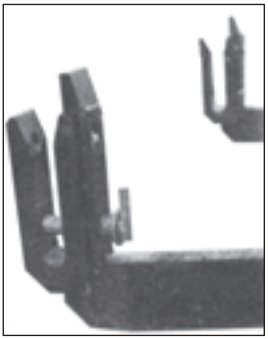


Fig. 73

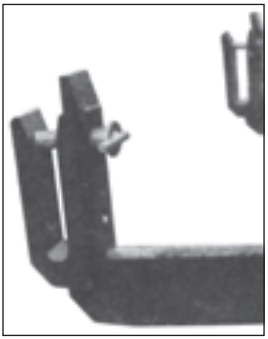
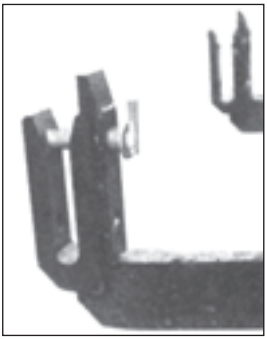


Fig. 74



The high-pressure hose with the throttle non-return valve for the front lifting cylinders of the hydraulics is attached to the quick-acting coupling outlet „1" (Fig. 76). The de-aeration of the lifting hydraulic cylinders is carried out by means of rubber hoses attached to the gear-box filler plug.

The lifting and lowering of the front three-point hitch is controlled by the lever of the hydraulic circuits (Fig. 50/2).

1. Lifting of the front three-point hitch:
   The control lever is in its uppermost position where it must be held with the hand during the whole lifting time. After the lifting stroke has been finished, the lever returns automatically (by means of a spring) to its neutral position. This position of the lever safeguards the transporting position of the front hitch machines on fields and roads.
2. Neutral position:
   The control lever is in its middle position and it is automatically locked.
3. Free position:
   The control lever is in the middle between the neutral position and the lower position. The control lever is automatically locked in this position and does not need to be held or secured. This lever position enables lowering and „floating" position of the hitched and trailed agricultural machines, i.e. the machines can trace the ground surface in the full range.
4. Forced lowering of the double-acting cylinder: The control lever is in its lowest end position.

Important:

It is not allowed to put the lever in this position during the operation with the front three-point hitch. In this position it comes to overheating of oil and to overloading of the hydraulic pump. The lowering speed of the front hitch can be adjusted by the throttle nonreturn valve (Fig. 76/1) in dependance on the weight of the carried machine. The lowering speed can be decreased if rotating the valve body clockwise with the hand (when viewing the valve in the direction from the quick-acting coupling) (the oil flow is throttled), and the lowering speed can be increased if rotating the valve body anti-clockwise. It is recom-

Fig. 75

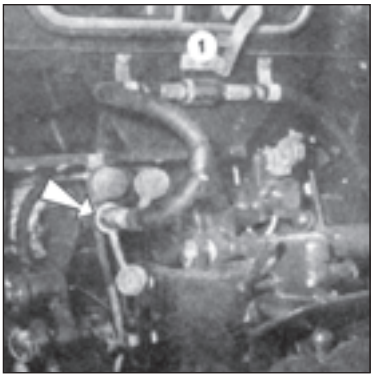


Fig. 76

mended to adjust the lowering speed of the three-point hitch with help of the throttle valve already before starting the machine operation so that 1 to 1.5 sec. are needed to lower the hitch.

Attention: When fitting the front three-point hitch to tractors without the front driving axle, it is necessary to equip the tractor with heavy front axle extensions 6911 3400 and wheels 7.50—16 or 7.50—20.

In case of tractors equipped with the front driven axle it is necessary that the front drive will be engaged permanently, i.e. when driving on a road as well, if heavier agricultural machines and implements are used which have been attached to the front three-point hitch.

When using the tractor without the front-driven axle but equipped with the front three-point hitch, we recommend in case that heavier agricultural machines have been attached to the front, to equip the tractor with front wheels 7.50—20 because of their higher loading capacity.

To maintain the longitudinal stability of the tractor equipped with the front carrying agricultural machines, it is necessary to put on counterweights to the rear wheels.

Attention: The highest speed of tractors with the front carrying agricultural machines is restricted to a maximum 20 km/hour.

The front P.T.O.-shaft

This shaft serves for transmission of the engine power to agricultural machines and implements carried in the front three-point hitch. The P.T.O.-shaft is driven by the front part of the crankshaft by means of a modified pulley, propeller shaft and a clutch. The clutch has been designed as a dry one, two-plate execution, air operated. The end piece of the P.T.O.-shaft is a 21-splined shaft, diameter 35 mm (ČSN Standard 30 7011), speed 1 000 r.p.m. at the engine speed of 1 820 r.p.m. (i.e. at 83 % of the nominal speed). The end piece of the P.T.O.-shaft rotates clockwise when viewing the tractor from the front.

The maximum transmitting engine power by the front P.T.O.-shaft is 30 kW. The clutch of the front P.T.O.-shaft is operated with use of a control valve which is attached to the left side of the panel bracket in the cabin (Fig. 49).

Attention: The P.T.O.-shaft has to be engaged at a reduced engine speed if machines are attached to the tractor. The cross-pin cardan joints of the front P.T.O.-shaft have to be lubricated after every 20 engine hours.

Fig. 77

Lifting spring bracket (Fig. 77)

This bracket will be fitted only on special order of the customer. It serves to hook-on the lifting springs of an agricultural machine which is being carried in the front three-point hitch.

Swinging draw bar and its bracket (Fig. 78)

This draw bar is used for attaching agricultural machinery and trailers. It can be adjusted transversely in five positions and secured in the cross wall of the bracket. Vertically is the draw bar adjustable in four positions (when rotating the swinging draw bar by 180°). If the tractor has been equipped with a multi-stage trailer hitch, then the swinging draw bar is fitted to the bracket of the multistage hitch.

The distance of the tow mouth pin of the swinging draw bar to the end of the P.T.O.-shaft is 400 mm. The maximum vertical static load should not exceed 6 kN. The swinging draw bar has been designed to withstand the maximum tractive force of the tractor.

Tow slat (Fig. 79)

The tow slat will be attached to the lower draw bars of the three-point hitch. Its height is adjustable at will by use of the hydraulic control in the full range of the three-point hitch. Only such agricultural machines may be attached to the tow slat which exert permanent pressure on the tow slat in the downward direction. The maximum static load is 5 kN.

Note: When using the tow slat, remove the carrier of the multistage hitch with its mouth.

Fig. 78

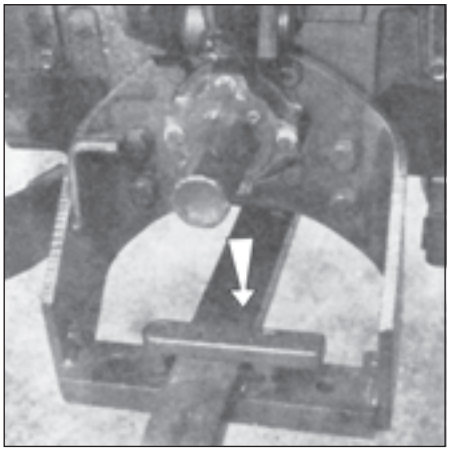
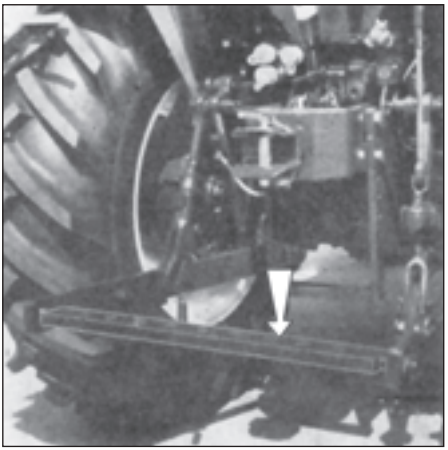


Fig. 79



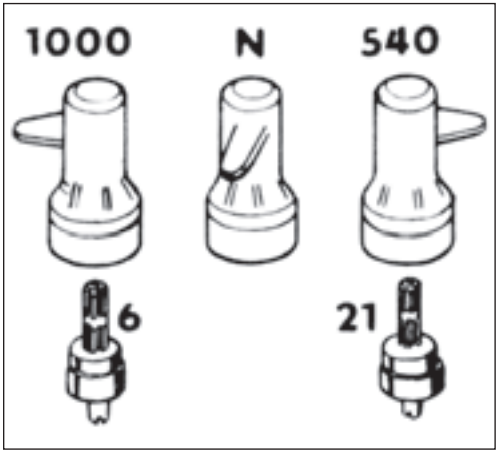


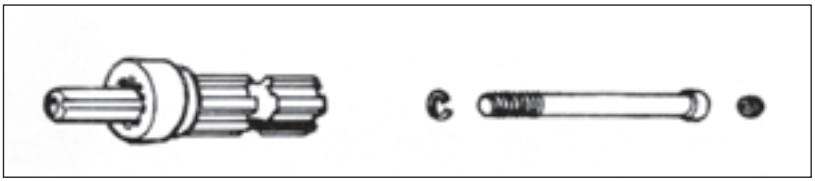
Fig. 80

P.T.O.-shaft for 540 and 1 000 r.p.m.

Changing the P.T.O.-shaft speed may only be carried out with the engine stopped. The end piece for 540 r.p.m. has a six-spline profile and for 1 000 r.p.m. a twentyone-spline, with involute profile. The tractor is delivered from the factory with the six-spline end piece fitted, for 540 r.p.m. To change it, remove first the cover of the P.T.O.-shaft and the plug (Fig. 81) which is securing the end piece in the modified end of the P.T.O.-shaft. The end piece can be then pulled out from inside of the P.T.O.-shaft and be replaced by an end piece having 21 splines for a speed of 1 000 r.p.m. The new end piece has to be taken out from the recess in the gear box cover (Fig. 80). The end piece itself is covered with the control lever that is easily to be removed from the splines of the end piece. To gain access to the recess for removing the end piece, the control lever and thus the end piece must be put to the central — neutral position. Using the opposite procedure, the six-splined end piece removed from the P.T.O.-shaft has to be fitted to the gear-box cover recess.

The interlocking mechanism allows the control lever to be rotated in one direction only, according to the output shaft being used. In case of tractors not equipped with interchangeable end-pieces, the two P.T.O.-shaft speeds are

Fig. 81



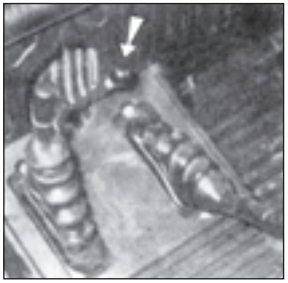
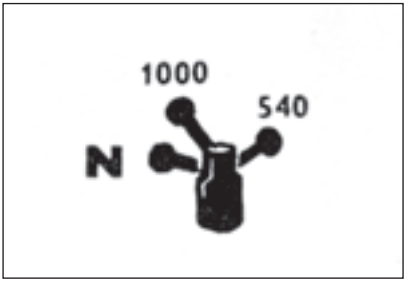


Fig. 82



egaged with the control lever (Fig. 82) in such a way that the position to the left serves for 540 r.p.m., the position to the right is for 1.000 r.p.m., the forward position (in the driving direction) is neutral. The P.T.O.-shaft without changeable end pieces has only six-spline profile.

Attention: The P.T.O.-shaft cover for the Comecon countries is fixed with four bolts M 10×65. In case that the cover has to be replaced by another type, the bolts have to be replaced by M 10×55.

Important:
The P.T.O.-shaft must always be protected by some kind of cover.

Fig. 83

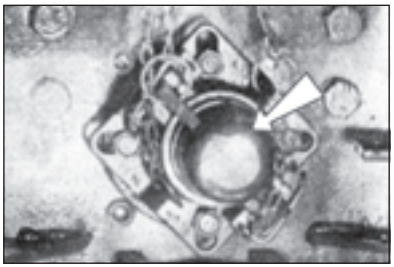


Fig. 84

Fig. 85

Fig. 83 P.T.O.-shaft cover for the Comecon countries

Fig. 84 Metal cover of the P.T.O.-shaft

Fig. 85 Cover ISO of the multistage hitch.

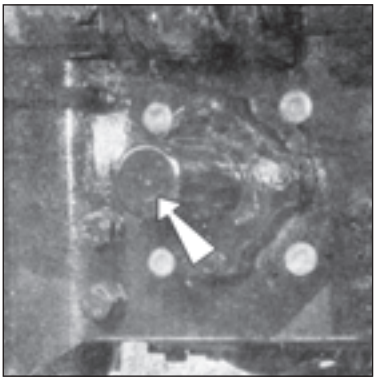


Fig. 85a
P.T.O.-shaft cover made of plastic material

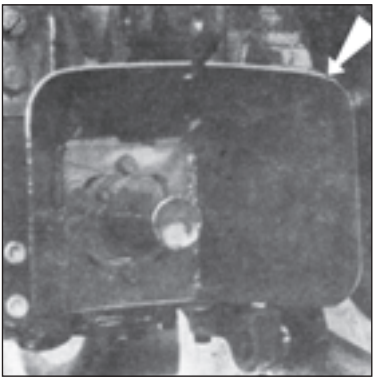


Fig. 86
P.T.O.-shaft cover according to ISO

CLUTCH DISENGAGEMENT OF THE REAR P.T.O. SHAFT

Two types of the P.T.O.-shaft clutch disengagement are available:

1. **Mechanical control** (Fig. 87) consists of a hand lever (Fig. 87/7), Bowden cable (Fig. 87/1), adjusting screw (Fig. 87/2), double-arm lever (Fig. 87/3), draw rod (Fig. 87/4) and a shaft with lever (Fig. 87/5). The correct function of the clutch disengagement will be indicated by means of a switch (Fig. 87/6) and a pilot lamp (Fig. 91/1) which is situated on a panel.

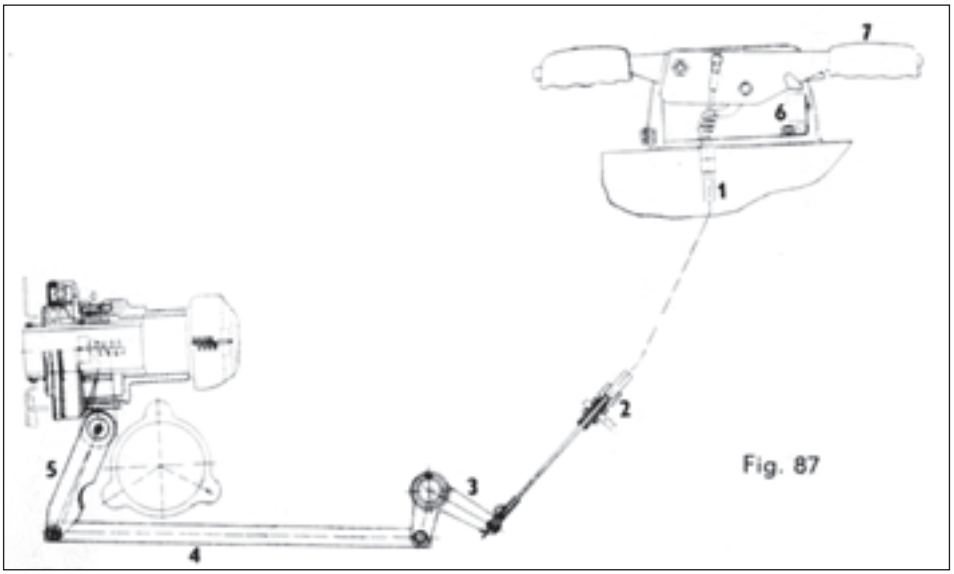


Fig. 87

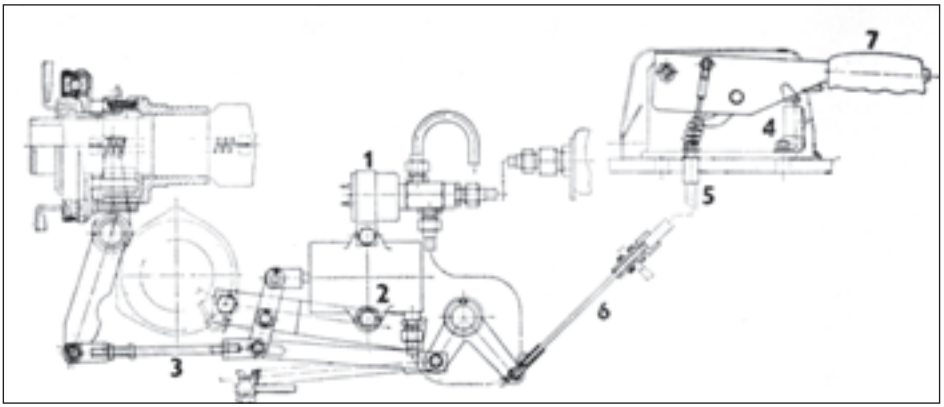


Fig. 88

2. **Pneumatic control with mechanical linkage** (Fig. 88) consists of a hand-operated lever (Fig. 88/7), the switch (Fig. 88/4) which controls the electromagnetic valve (Fig. 88/1) and the pneumatic cylinder (Fig. 88/2) by means of electric circuit and the clutch of the P.T.O.-shaft by use of mechanical transmission equipped with an adjustable bar (Fig. 88/3).

   Method of operation: To disengage the clutch, grasp the lever handle (Fig. 89), the thumb directed forward, and pull the handle upwards and forwards. The lever will be automatically locked in its upper position with a pawl. To release it, lift slightly the lever and press the bottom at the end of the handle. At this type of the execution the P.T.O.-shaft clutch can be disengaged without using the hand lever as well, namely by use of the clutch pedal.

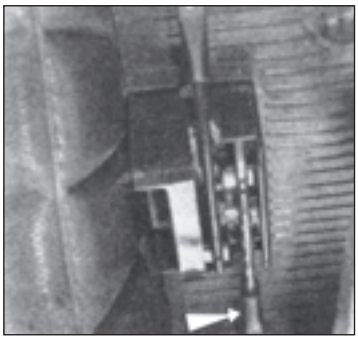


Fig. 89

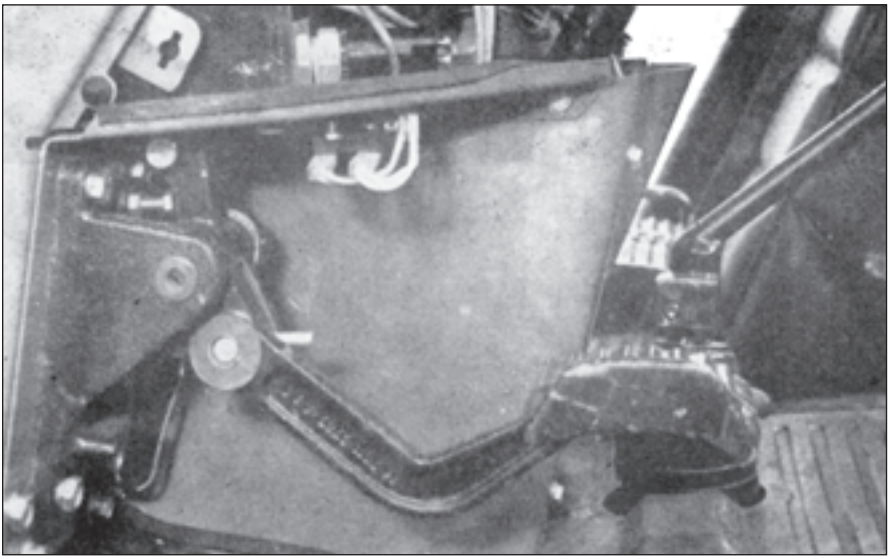
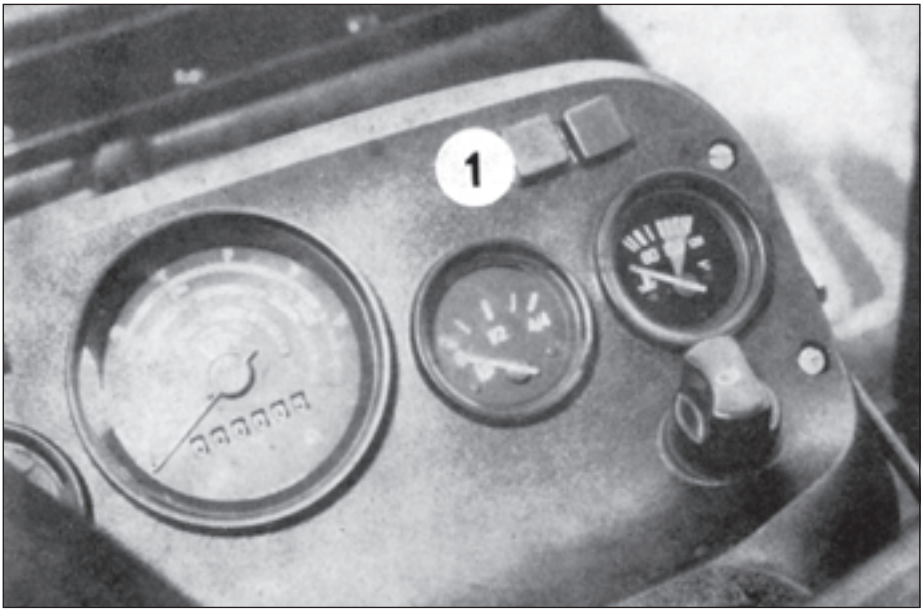


Fig. 90

Fig. 91



When depressing the clutch pedal, the plate of the driving clutch is disengaged at first and after a slight resistance has been overcome and the pedal depressed to a dead stop, the switch near the clutch pedal (Fig. 90) will be switched on. The function of this switch is much the same as when disengaging the P.T.O.-shaft by the hand lever.

The disengagement of the P.T.O.-shaft is indicated with a pilot lamp on the dash panel (Fig. 91/1).

Attention: If the P.T.O.-shaft in not in use during the tractor operation, do not depress the clutch pedal fully when changing the gear. Thus excessive wear of the P.T.O.-shaft clutch plate can be substantially reduced. If the P.T.O.-shaft is in use, the clutch can be disengaged for some short intervals (maximum 5 minutes) either by the hand lever or by the clutch pedal which should be fully depressed. To engage the P.T.O.-shaft for long-term use and to disengage it, solely the lever for turning on the hydraulics and for drive of the P.T.O.-shaft will be used.

Note: In case that the pilot lamp (Fig. 91/1) is permanently switched on even though the P.T.O.-shaft clutch is not disengaged, it is necessary to check the positions of both switches and to adjust them if necessary.

Adjustment of the play of the rear P.T.O.-shaft clutch

The play between the bearing and the lever for disengagement of the P.T.O.-shaft is much the same for mechanical control as for pneumatic control with mechanical linkage, and its value is 4 mm (Fig. 92).

If the clutch lining shows some wear, the play must not drop under 2.5 mm.

The play will be adjusted in the following way:

1. **Mechanical control**

   After the locknut has been released, turn the adjusting screw (Fig. 87/2) and adjust the play to 4 mm. Having checked the correct play, lock the screw by the lock nut.

2. **Pneumatic control with mechanical linkage**

   After the lock nut has been released, rotate the adjusting bar (Fig. 88/3) and adjust the play to 4 mm. Having checked the correct play, secure the adjusting bar with the lock nut.

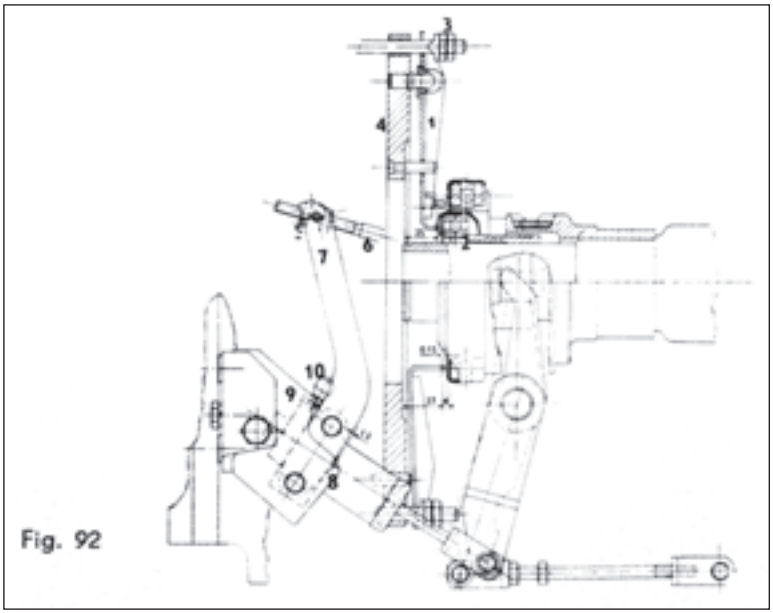


Fig. 92

Fig. 93

Clutch

The clutch is of a dual-purpose type, built-in in the engine flywheel. It has twoplates, one for tractor driving and the other for the P.T.O.-shaft drive. The pressure force is derived from a Belleville spring.
The control of the clutch is hydraulical by means of the clutch pedal, the main hydraulic cylinder and the appropriate mechanism. The thrust bearing is in permanent contact with the disengagement levers of the clutch and therefore it is not necessary to adjust the play between the bearing and the levers (the so-called „dead trave" of the clutch pedal) in the whole life of the clutch lining. The operating linkage of the small gear shifting brake to the clutch control has been designed in such a way not to increase the effort needed on the clutch pedal. Bleeding screw of the clutch disengaging cylinder (Fig. 93).

Torque multiplier

The multiplier enables to change the speed gear by a ratio of 1.31 without disengaging the engine clutch, i.e. without interrupting the torque transmission to the tractor driving wheels. The tangential force to the driving wheels will be thus increased by 31 %. Twenty forward speeds and four reverse speeds are available when using the multiplier. As soon as the increased resistance passes, the torque multiplier can be disengaged without operating the clutch. The multiplier is actuated by a pedal (Fig. 94).

Attention: The tractor must not be braked with the engine if the multiplier has been engaged. If the torque multiplier is engaged, drive can be interrupted by depressing the clutch pedal to the stop in order to snap on the switch of the clutch pedal. In case that the electric circuit has been interrupted and the pilot lamp of manual disengaging of the P.T.O.-shaft clutch does not lights, it is necessary to switch off the tractor drive by means of the hand lever of the P.T.O.-shaft clutch (Fig. 89).

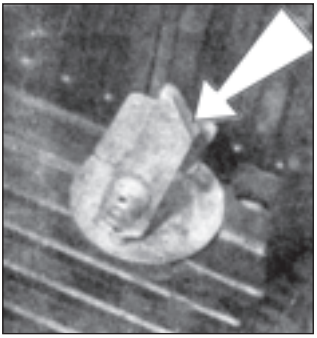


Fig. 94

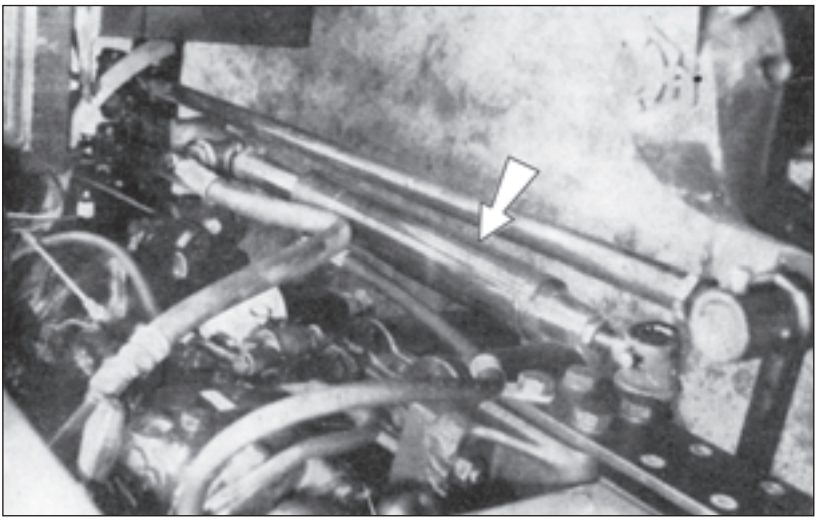


Fig. 95

Power assisted steering (Fig. 95)

The power assisted steering reduces c
driver to steer the tractor. At the same time all impacts from the wheel steering transmitted to the steering wheel are thus dampened. With the engine stopped, the tractor can only be steered by mechanical transmission of driver's effort to the steering wheel.

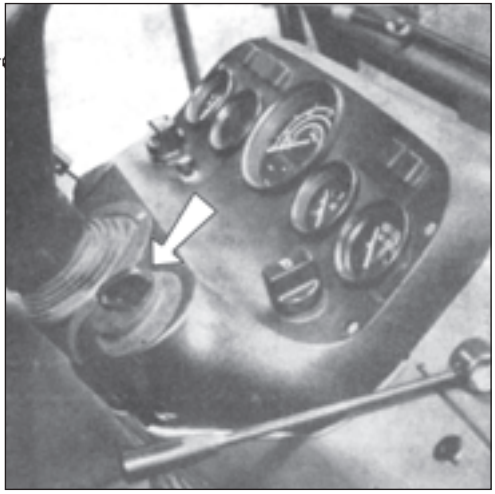


Fig. 96

Steering lock with the electromagnetic locking device (Fig. 96) (Fitted on special order only)

The steering can only be locked **after the engine has been stopped** (by turning the hand throttle for fuel supply to the STOP-position) and **after the pilot lamp for battery charging has lit up,** if the key in the switch box of the steering lock has been turned to the STOP-position and pulled out. When restarting the engine, it is necessary to wait until the pilot bulb for battery charging lights up again, then turn the key from the position „1" to the position „0" and turn the key to the position „2" — START once again (Fig. 11).

When unlocking the steering, wheel, it is necessary to move the steering wheel slightly so that the locking bolt get unlocked and thus the twisting of the key will be prevented.

Important warning:

1. When towing the tractor in case of emergency, the steering wheel lock key has to be in the position „1". If the battery is disconnected, the key is locked in the position „1" and it cannot be turned to the STOP-position and pulled out. For this reason turn the key only to the „0"-position.
2. Never use force when turning the key from the position „1".
3. If the key jams, the steering lock may be spread with a fine graphit only which has to be put into the key-hole (never use oil).
4. After removing the key from the steering lock, especially at tractor without cabins, the little cover has to be swivelled to its stop so that the keyhole is protected against penetration of water and dust.

BRAKES

Hand brake – parking brake – is of mechanical type (band-type, acting at the some time upon the outer diameter of the brake drums of both wheels).

Foot brakes are operated hydraulically and are of shoe-type. The braking system of the tractor uses two-pedal brakes with an automatic pressure equalizer which enables to brake one wheel independently on the other one. The unlatched pedal may be used only when working on a field and when turning „on the stop" on the field. It is essential to link both pedals by means of the latch when driving on a road (Fig. 97).

In case of tractors Z 5245, Z 6245, Z 7245 and Z 7745 the front axle is braked with the engine as well, if the front driving axle is engaged.

Attention: When the brakes are often and heavily used, especially in hot weather, brakes become hot and at the some time the braking effect of the hand brake (parking brake) will be influenced. Therefore it is necessary to tighten the hand brake lever carefully after the tractor has been brought to stop.

Foot brake (Z 7711 and Z 7745)

On special order of the customer available also for types Z 5211 to Z 7245 HORAL.

These brakes are of disk-type, dry, with two disks in each braking unit. They are hydraulically operated. The pressure disks start to work by turning them against each other and by help of balls placed in drop-like cut-outs, when it comes to their expansion and contact with the brake plates. This function is controlled by means of a mechanism using an outer hydraulic cylinder. The functional part of the foot brake and the hand brake is common. The use of the foot brake will enable heavier loads of the tractor even if the transporting speed will be increased to 30 km hour.

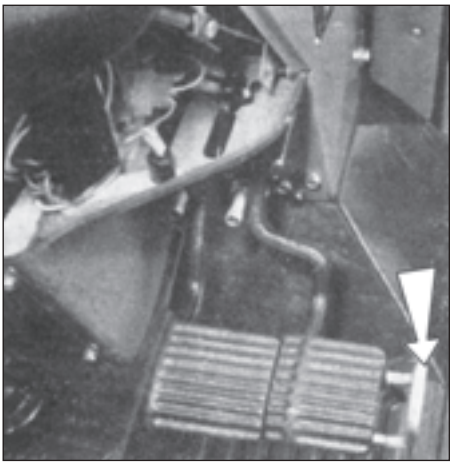


Fig. 97

Hand brake (Z 7711 and Z 7745)

On special order of the customer available also for type Z 5211 to Z 7245 HORAL.

The hand brake is of disk-type, mechanically operated; the brake consists of a hand lever which is locked with a rachet and a pawl, of a Bowden cable, double-arm lever, shaft dividing the force to the left and right side, rods with an elastic element and of dust caps which seal the main transmission box. The hand brake is situated on the left side, beside the driver's seat (Fig. 48/1). The application of the hand brake is indicated by a pilot lamp (Fig. 8/6) on a dash panel and the lamp is actuated by a switch.

Air brakes

Air brakes are used for the control of the brake system at a trailer. The air supply is provided with a single hose from a 20 litre air tank. The actuation of the trailer air brakes is synchronized with the tractor foot brakes in order to be able to control the braking effect of both vehicles sensitively. The tractor has to be braked with the hand brake if the trailer is being connected, thus to ensure that the coupling head (Fig. 98) is not pressurized.

The air pressure is maintained by means of a governor at 590 ±20 kPa, or on special order at 520 ±40 kPa. If the pressure drops below the value of 450 ±30 kPa, a by-pass valve disconnects auxiliary equipment (torque multiplier, clutch of the front and the rear P.T.O.-shaft).

The tractor is equipped with a warning device which actuates a red pilot lamp (Fig. 99) for a minimum air pressure, which is situated on the dash panel, if the pressure drops below 390 kPa. If the pressure drops below 390 kPa, it is not possible to continue in the driving until the pressure raises again. The speed of the set tractor-trailer equipped with single-hose brakes is maximum 25 km/hour.

Fig. 98

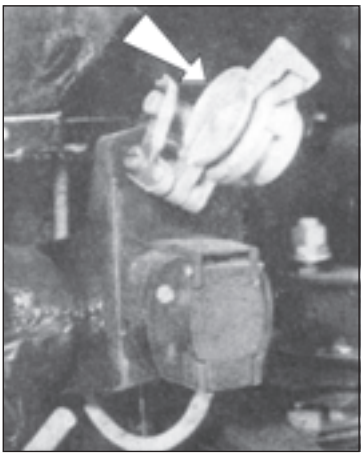


Fig. 99

AIR INTAKE TO THE ENGINE (Fig. 100)

The equipment for air supply if fitted on special order of the customer. The precleaner and the air filter in their standard execution are fitted under the bonnet cover. The precleaner is fitted above the bonnet cover, if the tractor is equipped with the assembly „The front P.T.O.-shaft" or „The front three-point hitch". The pipe connecting the precleaner with the cleaner is led through a hole in the bonnet cover and the hole is provided with a grid.

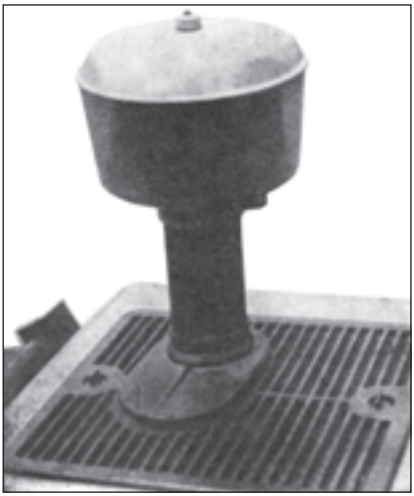


Fig. 100

Fig. 101

COVERS AND BONNETS (Fig. 101)

This outfit will be fitted on special order of the customer. To achieve better cooling air filtration and to prevent dirt entering the room in front of the radiator, the tractor can be on special order equipped with a laminated or metal-sheet cover respectively, in accordance with the tractor outfit. Both the laminated and the metal-sheet covers are fixed to the bonnet. The side walls and the cowling cover can be equipped, on special order too, with removable grids and screens which can be easily disassembled and cleaned of dirt and plant rests. The radiator grill is also equipped with a removable grid with a screen which can be dismantled. If machines with the front three-point hitch fastening are used, it will be necessary to check regularly the screen in the bonnet cover and in the radiator.

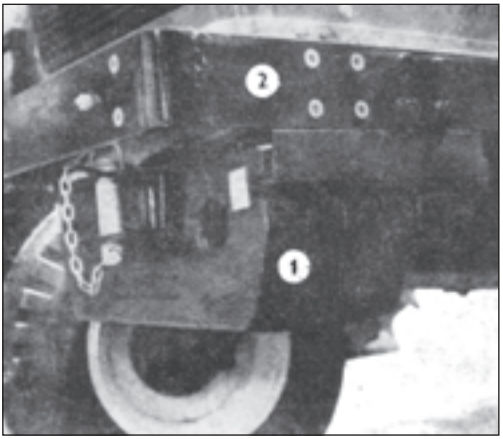
The intervals for checking depend on the dust content of the environment and on the type of agricultural machine which is being used. If the driver finds that the screens of the bonnet are partly blocked (more than one half of its area) which will result in increased temperature of the cooling water, it becomes necessary to dismantle the grids and screens on both sides, in the front and on the top, remove the impurities and then fit the grids and screens to their places again. The grids can be removed after releasing two quick-fitting connections on each grid and in addition it will be necessary to take out the screens from the grids (Fig. 101) and to clean them carefully. After the cleaning procedure the screens and grids have to be refit to the bonnet. It is recommended to clean the screens and to check the area of the radiator and further to blow the radiator clean with help of compressed air at the end of each working shift.

Attention: Before dismantling the upper grid with the screen (Fig. 100), the precleaner situated above the bonnet has to be taken off first.

WEIGHT OF TRAILERS AND SADDLE-TRAILERS

1. When attaching a trailer or a saddle-trailer, the tractor must have a ready weight in the execution for ČSSR, i.e. including weights of the front and the rear axle.
2. When attaching machines to the hitch, the static load of the rear axle must not exceed the permissible load of the rear axle.
3. The maximum weight of the attached braked trailer or saddle-trailer must not exceed the value stated on the warning lable sticked to the extension of the right rear mudguard and the values stated in the technical certificate as well. This value corresponds to a two-and-half multiple of the ready-weight of the tractor in the ČSSR-execution.

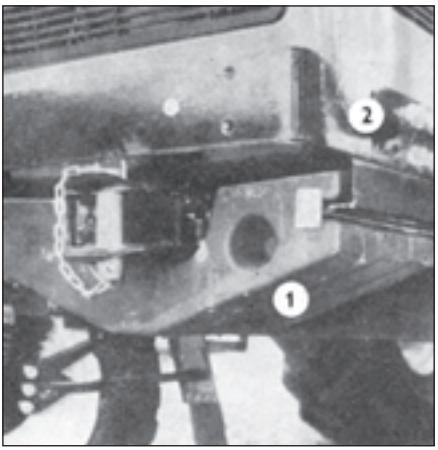
(The above mentioned instructions are valid exclusively for ČSSR.)



BALLAST WEIGHTS

The front ballast weight:
basic weight (Fig. 102.1) - 135 kg
ballast weight frame (Fig. 102.2) - 20 kg

Fig. 102



The front ballast weight:
basic weight II (Fig. 103.1) - 100 kg
ballast weight frame (Fig. 103.2) - 20 kg

Fig. 103

The front ballast weight in front of the radiator (Fig. 104 1) — 210 kg

Ballast weight frame (Fig. 104 2) — 20 kg

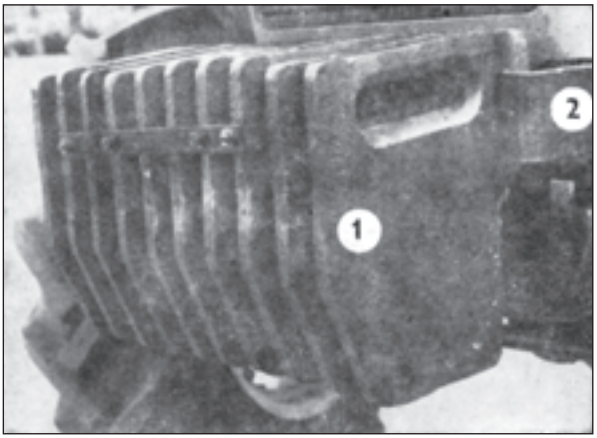
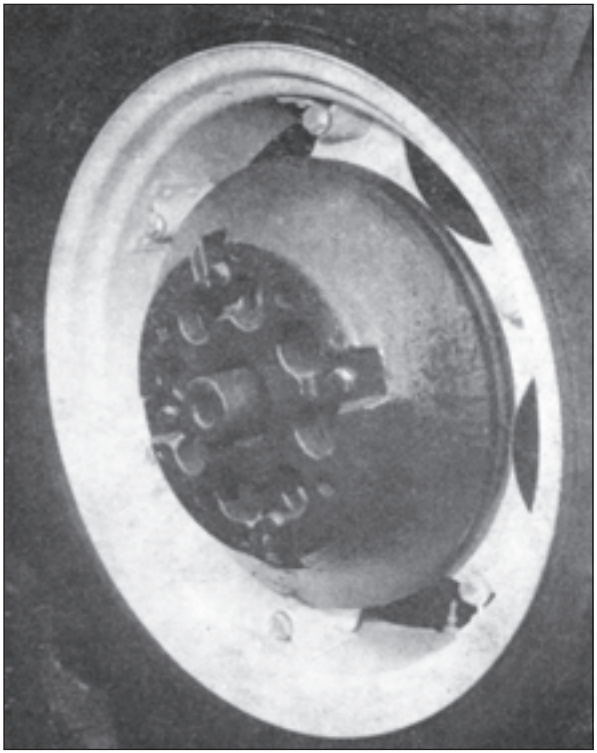


Fig. 104

Fig. 105

The rear wheel weight — mounting variation I (Fig. 105)

For the rear wheel track 1350 and 1500 mm 2 : 4 pieces = 150 kg



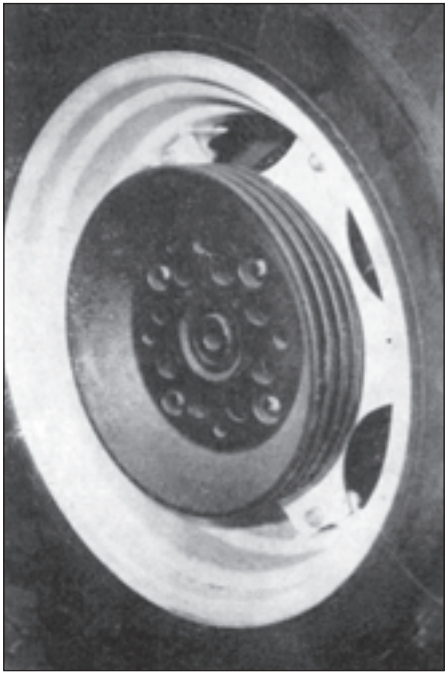


Fig. 106

The rear wheel weight
– mounting variation II (Fig. 106)
2 · 8 pieces = 270 kg
for the rear wheel
track 1575 to 1800 mm

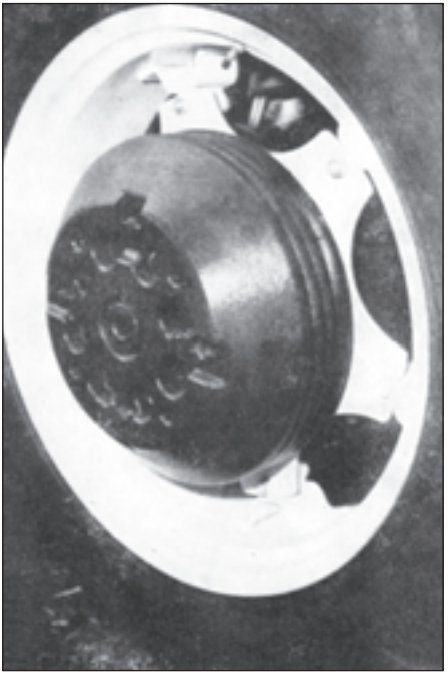


Fig. 107

The rear wheel weight (Fig. 107)
2 · 8 pieces = 270 kg
for the rear wheel
track 1350 to 1500 mm

Ballast weight for the front three-point hitch (Fig. 108)

It consists of a beam, which is hooked in to the lower links of the three-point hitch, and of 12 weights. The total weight including the beam is 260 kg. The ballast weight for the three-point hitch is supplied on special order only.

Fig. 108

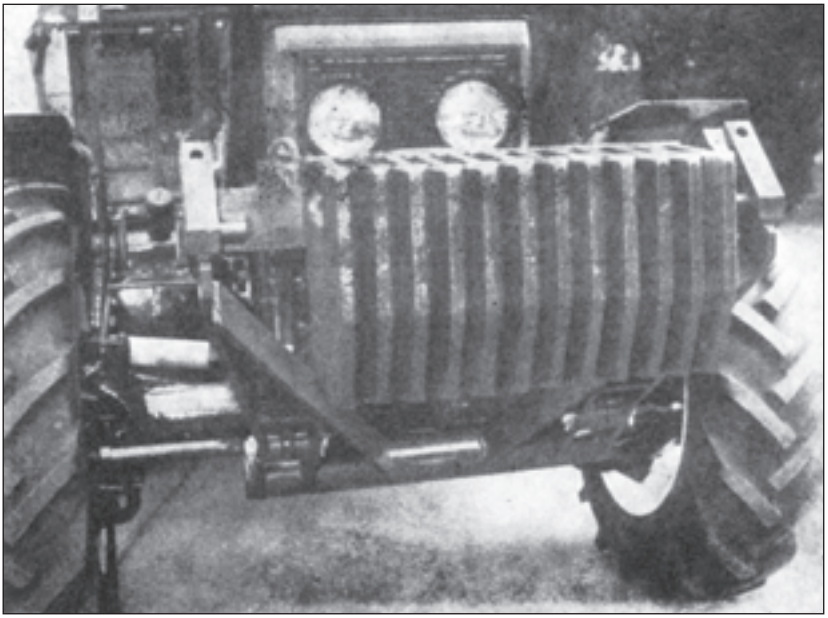


Table 1

Additional ballast weights for tractors

The type of the ballast weight			Tractor type						Ballast weight Fig. ref.:	Note
			Z 5211	Z 5245	Z 6211/7211	Z 6245/7245	Z 7711	Z 7745		
The front axle ballast weights	Rigid front wheel extensions	Light (kg)	100+20 135+20	— —	100+20 135+20	— —	— —	— —	104 103	The ballast weight 210 and 260 kg may be used only with the wheels 7.50-20, fixed extensions or sprung blocked; the wheels 7.50-16 for a speed not exceeding 20 km/hour
		Heavy (kg)	100+20 135+20 —	— — —	100+20 135+20 210+20	— — —	100+20 135+20 210+20	— — —	104 103 105	
	Sprung front wheel extensions	Light (kg)	—	—	—	—	—	—	—	
		Heavy (kg)	100+20 135+20	— —	100+20 135+20	— —	100+20 135+20	— —	104 103	
		blocked extensions	—	—	—	—	210+20	—	105	
The front driving axle ballast weights			— — —	100+20 135+20 —	— — —	100+20 135+20 210+20	— — —	100+20 135+20 210+20	104 103 105	
The front three-point hitch weights including the frame			—	—	—	—	260	260	109	
The rear axle ballast weights			90 150 270						— 106 107	

Note: The front axle ballast weights 100 kg and 135 kg are alternatives. The rear axle ballast weights 90, 150, and 270 kg are alternatives as well. Only one type of a ballast weight may be attached. The frame is used for fitting the ballast weights and its weight is 20 kg. The rear ballast weight of the tractor Z 7245 HORAL has a total weight 200 kg.

ELECTRICAL EQUIPMENT

The electrical equipment has the nominal voltage 12 V. The tractor is equipped with one storage battery 12 D 2.1 placed in the box on the left side of the tractor, under the floor.

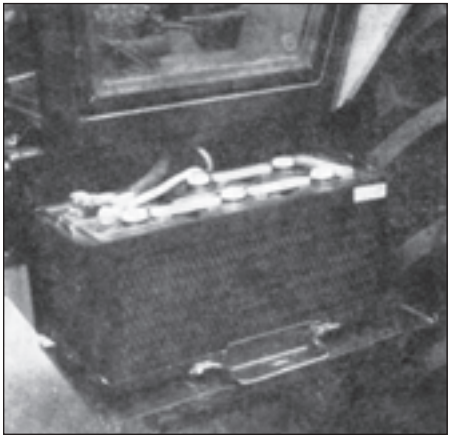


Fig. 109

The charging set consists of an alternator 14 V/55 A and of a semiconductor controller.

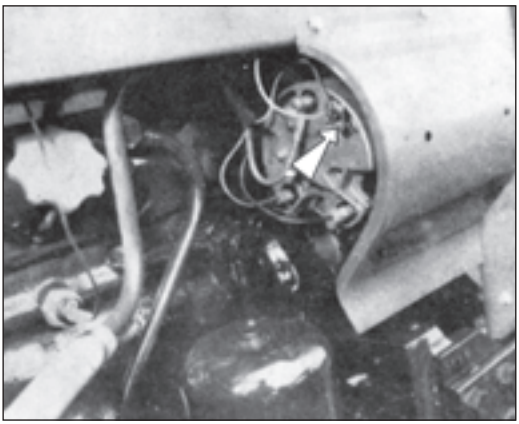


Fig. 110

The electric engine starter has an output 2.9 kW.

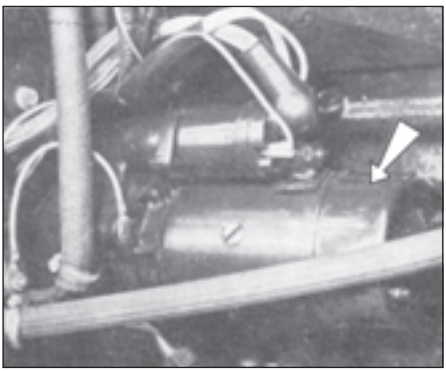


Fig. 111

The tractor is equipped in the front with two asymmetric headlights, each provided with one double-filament bulb 12 V — 45 40 W for the main beam lights and for the dipped lights (Fig. 112). The tractor with a cabin is equipped in the front part of the cabin roof with two dipped lights, each with a bulb 12 V - 45/45 W (the filament for the main beam light has not been connected).

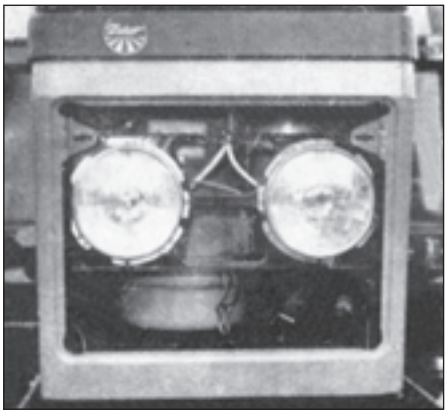


Fig. 112

Fig. 113

The dipped lights are switched on with a switch (Fig. 113) situated on the dash board in such a way that only one pair of lights can be switched on, namely either the lights in the radiator grill or in the cabin roof. Tractors without cabins have a combined lamp with clearance light, equipped with a bulb 12 V 4 W and further a direction indicator with a bulb 12 V 21 W, both situated in the front part of the rear mudguards. Two group lamps with the orange direction indicator equipped with a bulb 12 V 21 5 W are located in the rear part of the tractor. Under the left (or right) rear group lamp is the light illuminating the licence plate which has two bulbs 12 V - 5 W.

Tractors with a cabin have the front combined lamp with bulbs 12 V – 21 W for the direction indicator and 12 V – 10 W for the clearance light situated in the front part of the cabin. The direction indicator is in the front side execution (Fig. 114).

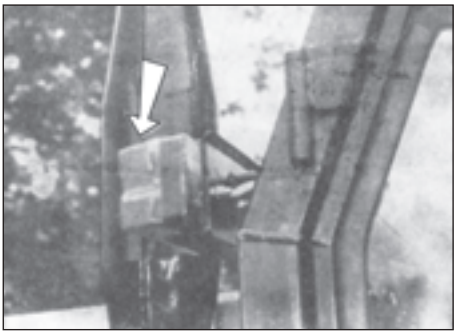
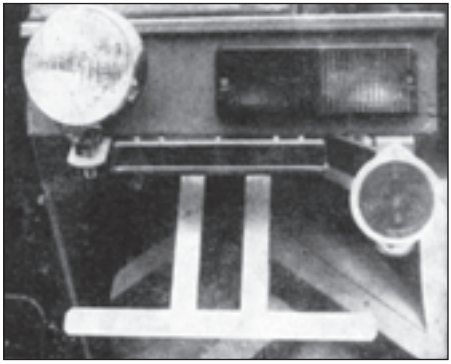


Fig. 114

Fig. 115

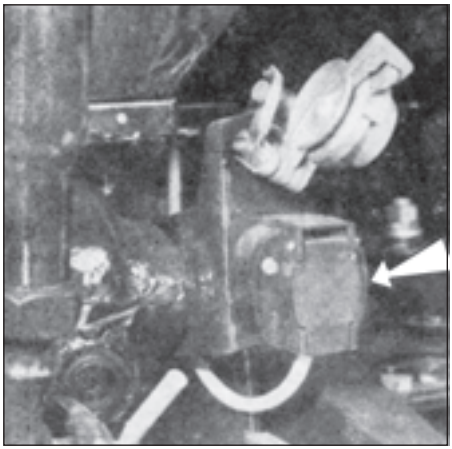
It is possible to equip the rear of the tractor on special order of the customer with a working light completed with a halogen bulb H 3. Fig. 115 shows the execution for long mudguard extensions. Fig. 116 shows the execution for short mudguard extensions.

The microswitch of the pilot lamp for the minimum air pressure is situated on the air reservoir. (Fig. 123)



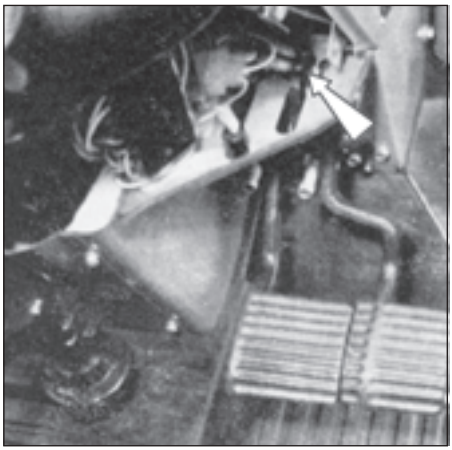
The variation with short mud-guard extensions.

Fig. 116



A seven-pin socket for the trailer lighting equipment is situated in the rear part of the tractor.

Fig. 117



Two brake switches situated close to brake pedals (Fig. 118) are integrated into the brake system. The brake switches actuate brake lights by means of the auxiliary relay.

Fig. 118

SAFETY CABIN

This cabin prevents large deformation should the tractor overturn, and protects the driver against serious injury. The cabin is fitted to the tractor body by four insulation blocks. Safety glasses are used for the windows. There are doors on both sides of the cabin, these doors have lockable handles. The cabin floor, the bridge over the hydraulics, the roof and the mudguards are provided with an insulation against noise.

Fig. 119

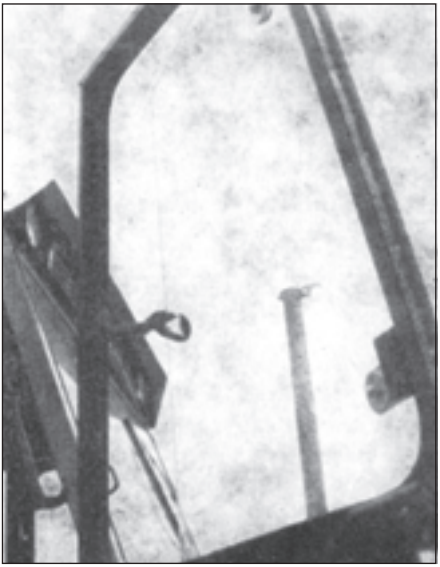
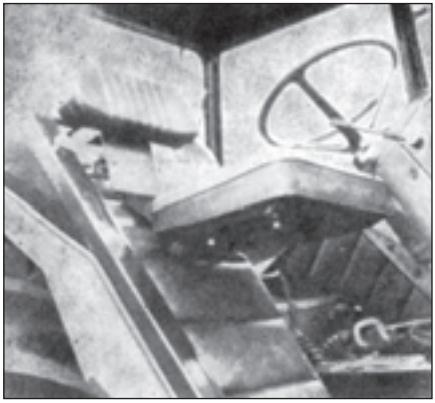


Fig. 120

Safety cabin BK 6011 (Zetor)
(Fig. 119)

The cabin doors are provided with tilting windows (Fig. 120) which warrant together with the open rear window good ventilation of the cabin. The tilting rear window is in its open position locked by telescopic struts. The roof of the cabin has a tilting cover.



The driver's-mate seat (Fig. 121) is situated on the mudguard, beside the driver. This seat can be tilted in order to get better access to the driver's seat.

Fig. 121

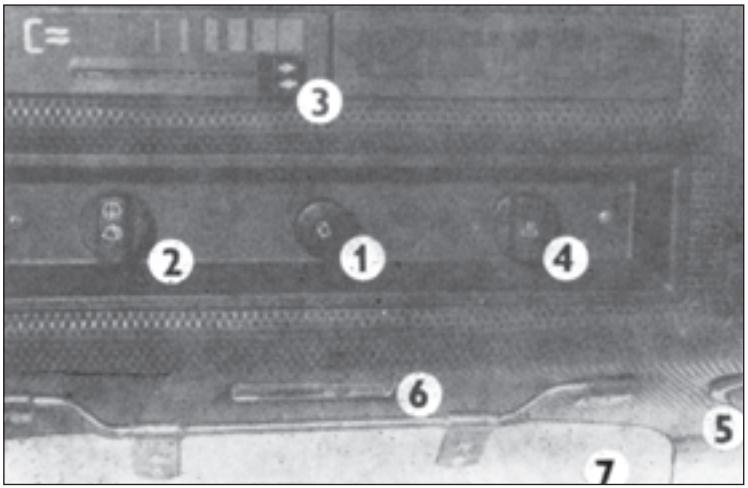


Fig. 122

Roof operating panel of the cabin BK 6011

1 – Switch for the rear window wiper
2 – Switch of windscreen wiper and windscreen washer
3 – Heater control
4 – Two-position switch for the heater fan
5 – Ventilation and heating outlets
6 – Roof light with the switch
7 – Sun visor

The interior of the cabin is lit by a ceiling lamp with a 12 V 5 W bulb. Electric installation enables to install a radio-set in the cabin.

Safety cabin BK 6011 (Fig. 123)

Fig. 123

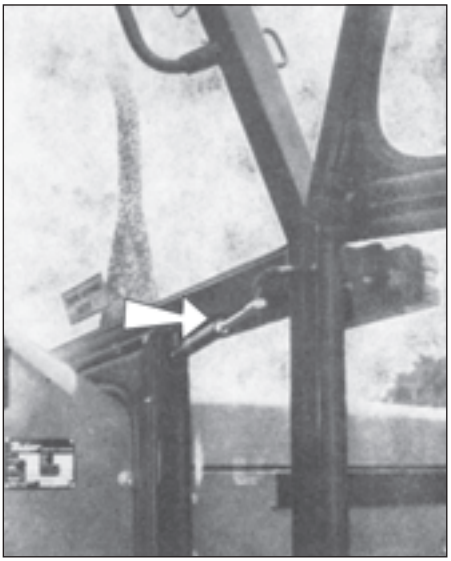


Fig. 124

The cabin doors of the cabin BK 6011 LUX (on special order of the customer) are held open by telescopic struts (Fig. 124).

The cabin roof hatch is held in its open position by telescopic struts. (Fig. 125)

Fig. 125

The sun visor for the cabin BK 6011 LUX.

Fig. 126

The rear bottom sliding window of the cabin BK 6011 LUX.

Fig. 127

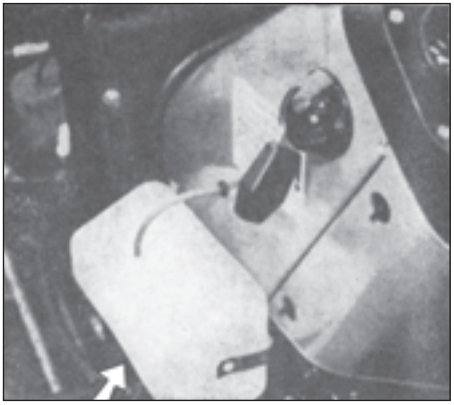


Fig. 128

Windscreen washer (Fig. 128)

The windscreen washer reservoir is situated beside the dash panel on the left side of the steering bracket and has a capacity of 2.5 litres. The reservoir has to be filled with water and for the winter season with the fluid used specially for washers. The washer nozzle (Fig. 130) should be adjusted by inserting a needle or a wire in it so that two jets of the fluid are at an approximate angle of 30°. The washer is actuated by means of a push button (Fig. 122/2) on the cabin dash board. The maximum interval lenght for which the pump of the washer can be run without interruption is 10 seconds.

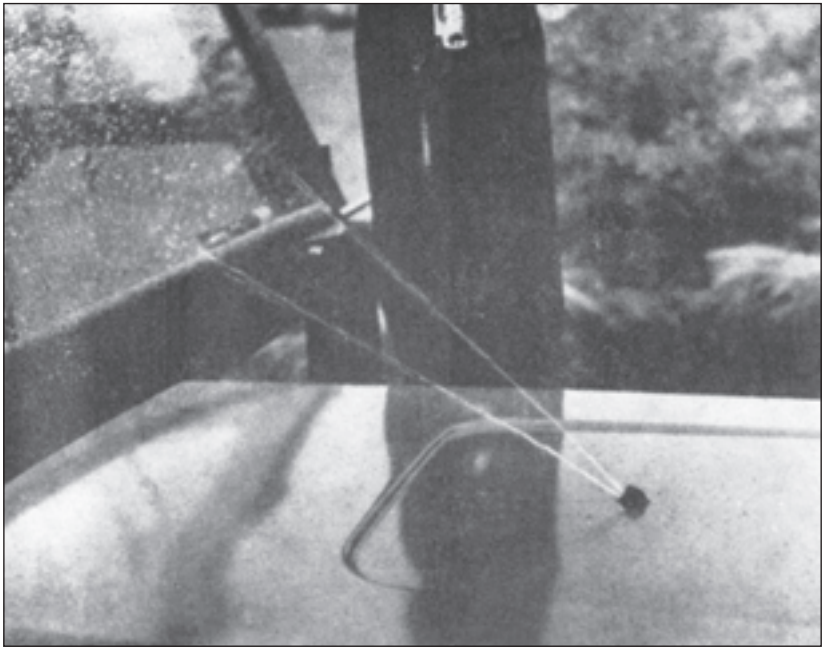


Fig. 130

The nozzle of the windscreen washer of the tractor is placed in the middle of the bonnet.

Heating and ventilation of the cabin BK 6011

The heating together with the ventilation unit is located in the roof panel of the cabin. It is a warm-water heating and the heating unit has a heating capacity approx. 6 000 W at the engine coolant temperature of 80 °C. The heating can be controlled by use of a water valve operated with a lever on the cabin dash board (Fig. 122/3) by opening and closing the valve. If the fluid supply into the heating unit body is completely turned off, this unit will work as ventilation unit. Two ventilators are used to supply the cabin with heated or cool air. Each ventilator is able to supply approx. 250 cubic meters of air per hour. These ventilators are controlled by a two-position switch (Fig. 122/4). The heat control can be carried out by use of high speed or low speed of the fans when changing the position of the two-position switch.

Fresh air enters the heating/ventilation unit through filters situated in the front part of the cabin roof. To gain access to the filters (Fig. 131) it is necessary to remove the grille covering the air intake which is held with quick-couplers.

Regeneration of filters for cabin heating and ventilation has to be done according to te dust contents of the working enviroument by shaking or blowing them with use of compressed air or by washing them in water with some detergent and drying them afterwards. The air can be supplied to the cabin and on the windscreen by vents (Fig. 122/5) which have shutting flaps.

The fans and heating radiators are accessible after the roof panel has been tilted.

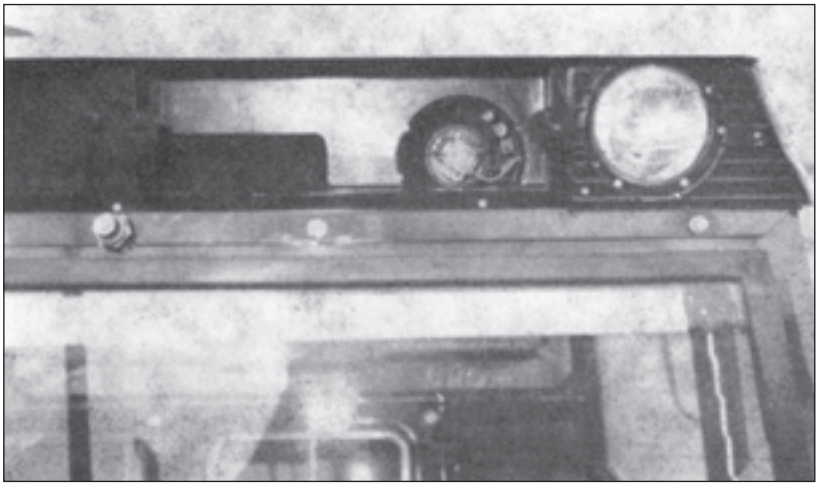


Fig. 131

Safety cabin BK 7011 (VLAD Prešov)

The cabin is fitted to the tractor body in the same way as in the cabin BK 6011. The windows have safety glass, the roof has a tilting hatch which is held in the open position by gas struts (telescopic).

Fig. 132

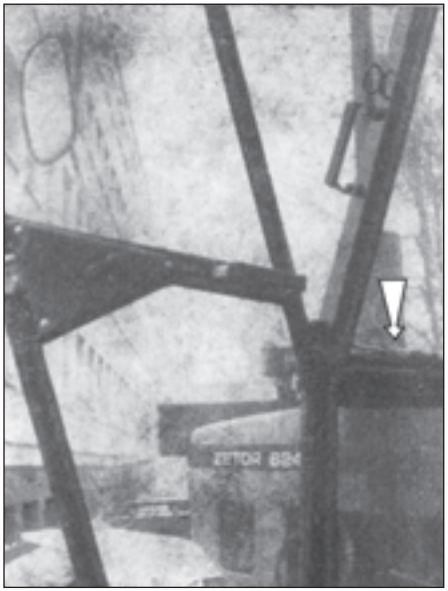


Fig. 133

The cabin doors and the rear window are held in open position by telescopic struts. The doors have lockable handles (Fig. 133).

Safety cabin BK 7011
(VLAD Prešov)

Fig. 134

The hatch of the cabin held by telescopic struts.

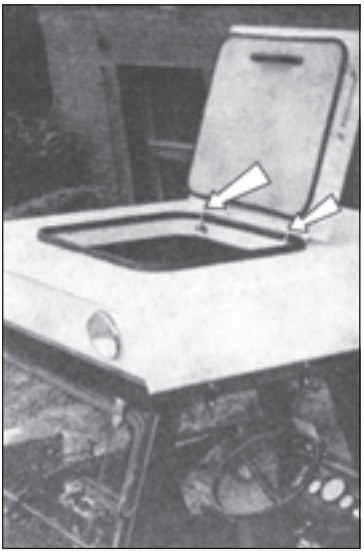


Fig. 135

Fig. 136

The side tilting windows controlled by means of lever mechanism enable ventilation of the cabin (Fig. 136). The battery and the seat of driver's mate are situated in the same way as on the cabin BK 6011.

The rear tilting window of the cabin BK 7011 is heated and equipped with a rear wiper. Working lights are installed in the cabin roof (Fig. 137), both on the front and the rear side.

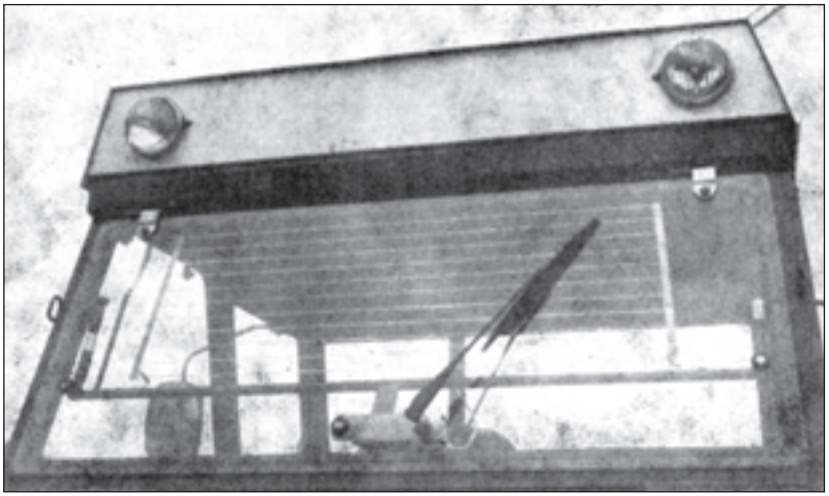


Fig. 137

Heating and ventilation of the cabin BK 7011

The cabin is heated by a hot water heating unit. A valve is used to control the heating and is situated on the right side of the cabin panel (Fig. 138).

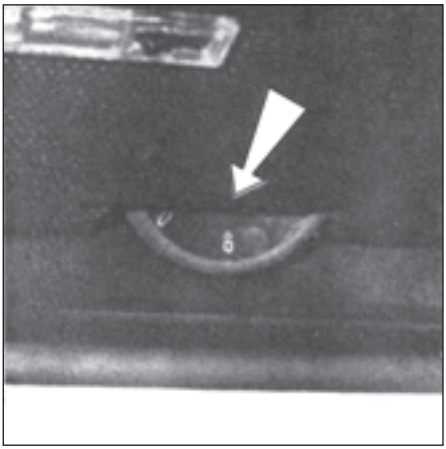


Fig. 138

Fig. 139

The capacity of the heating unit is 6 000 W at the engine coolant temperature 80 °C and with an air supply 500 cubic meters per hour. With the hot coolant turned off, the heating unit has the function of ventilating unit. The air flow can be directed to the cabin space or on the windscreen by means of vents which are equipped with lockable flaps (Fig. 140'7). The air is supplied through Firon filters (Fig. 139) which can be removed by tilting the front part of the cabin after uncrewing two bolts M 8. Filters can be cleaned with compressed air or by washing them in a water-detergent solution and drying (see „Maintenance", the chapter describing the cabin BK 6011).

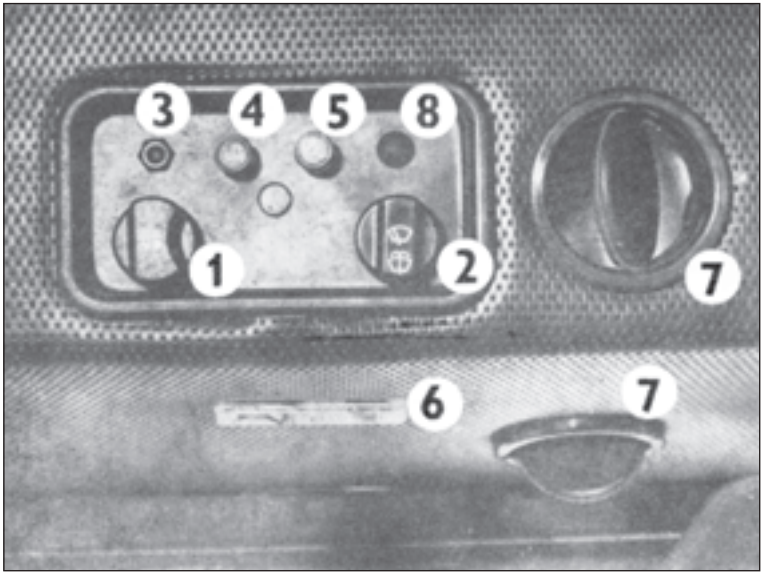


Fig. 140

Roof control console of the cabin BK 7011

1 — five-position switch for heater fans and the heated rear window
2 — windscreen wiper switch with an intermittent cycling device and windscreen washer
3 — pilot lamp for the heated rear window (orange)
4 — switch for the rear working lights located in the cabin roof
5 — switch for the rear wiper
6 — ceiling light with the switch
7 — ventilation or heater vents
8 — pilot lamp of the rear working lights situated in the cabin roof

Note: When compared with the cabin type BK 6011, the electrical installation of the BK 7011 cabin has in addition a heated rear window and two working lights in the rear part of the cabin roof.

The heater fans and the heated rear window are controlled by a boosting relay by means of a five-position switch (Fig. 140/1). This switch has the following positions:

— left position — heating of the rear window
— vertical position — all appliances switched off
— first right position — high speed of the fan
— second right position — slow speed of the fan
— third right position — slow speed of fans and heating of the rear window

When the heating of the rear window is being switched on, an orange pilot lamp will be actuated on the roof panel of the cabin (Fig. 140/3).

The wiper switch (Fig. 140/2) has a built-in semi-conductor cycling device. When carrying out any sort of work, it is **absolutely necessary** to do the following:

1. Never reverse the polarity of the wires (positive pole — connected to the first terminal of the cycling device; negative pole -- to the third terminal of the cycling device).
2. To keep the range of the correct operating voltage (it is necessary to prevent the tractor from operating without the battery, only with an alternator).

If the above precautions are not taken, the semi-conductors in the cycling device are going to be damaged. Also when arc welding on the tractor, it is necessary to disconnect the cycling device from the electrical installation.

Important warning:

The front and the rear roof-headlights must not be used when driving on public roads unless the tractor has an implement carried in the front (or carried in the rear part) fitted which screens the main headlights in the radiator grill. In such a case the roof headlights may be switched on instead of the main ones.

Defrosting the cabin windscreen in winter (Fig. 141)

Quick defrosting of the windscreen can be done by adjusting the lower vent flaps „A" at approx. 30° angle from the vertical. It is recommended to adjust the middle vent flaps to the middle part of the windscreen, i.e. to turn them at approx. 15° angle from the windscreen plane, and to adjust the side vents to be parallel to the windscreen. The rear vents „B" on the bevelled wall of the roof panel has to be closed (see Fig. 141). Approx. 20 to 30 minutes after defrosting the windscreen, the side vents can be directed to the side door windows, if needed, and be defrosted step-by-step as well.

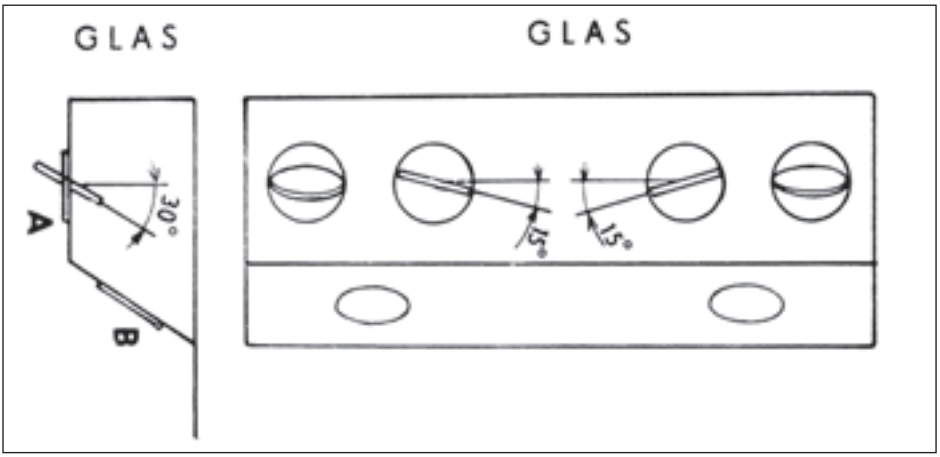


Fig. 141

Proper adjustment and positioning of each vent flap is also very important for the cabin heating as it can directly influence the optimum working comfort of the driver. However, the adjustment of vents during the heating completely depends on the individual requirements of the tractor driver. Principally the vent flaps have to be adjusted so that the stream of warm air is not directed straight on the driver but towards his feet and that the air from the upper vent flaps streams along the side walls to the rear part of the cabin.

Fig. 142

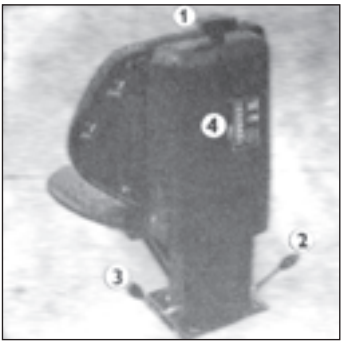


Fig. 143

Driver's seat

Cushions of the driver's seat are covered with washable leatherette (Fig. 142). Fabric covered cushions can be delivered on special order of the customer. Good function presupposes correct preloading of the spring by turning on the square end (Fig. 143/1) of the handle which is situated above the back rest. The pointer placed in the cut-out of the rear cover has to be adjusted according to the driver's weight (Fig. 143/4).

The longitudinal position of the seat can be adjusted by a lever situated on the left side of the seat (Fig. 143/3), the vertical adjustment is carried out by a lever on the right side (Fig. 143/2). The sprung stroke of the seat is 120 mm, the longitudinal adjustment in a range of ± 75 mm (eleven positions), the vertical adjustment in a range of ± 30 mm (three positions).

Fig. 144

Fig. 145

The seat for the tractor driver with arm rests (Fig. 144) and the seat for Z 7245 HORAL with safety belts (Fig. 145) will be delivered on special order.

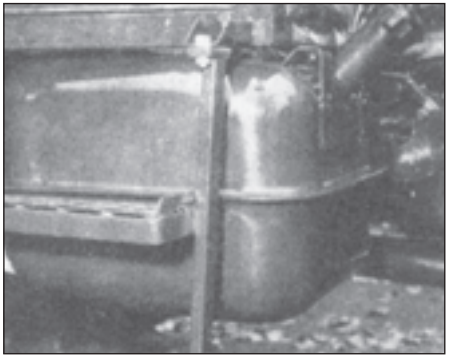


Fig. 146

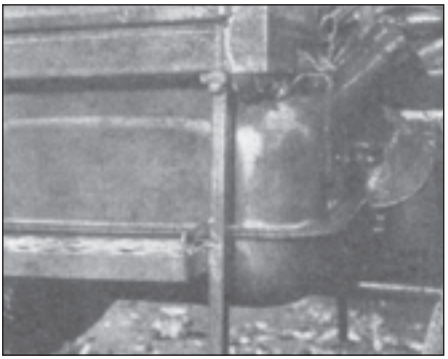


Fig. 147

Fuel tank

The standard fuel tanks for tractors are available in the following capacities:
- 70 litres for tractors Z 6211 to Z 7245 HORAL and Z 7711, Z 7745 (Fig. 146)
- 55 litres for tractors Z 6211 to Z 5245 (Fig. 147)

Fuel tanks of the following capacities can be fitted on special order of the customer:
- 45 litres for tractors Z 5211 to Z 5245 (Fig. 148)
- 55 litres for tractors Z 6211 to Z 7245 HORAL, Z 7711 and Z 7745 (Fig. 147)
- 95 litres for tractors Z 7711 and Z 7745 (Fig. 149)

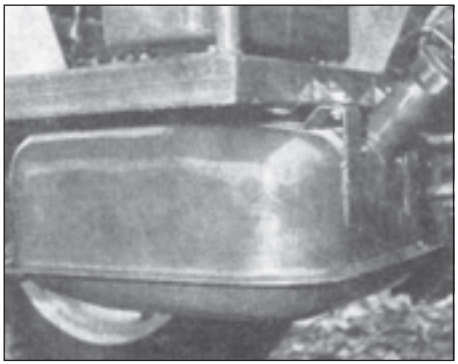


Fig. 148

Fig. 149

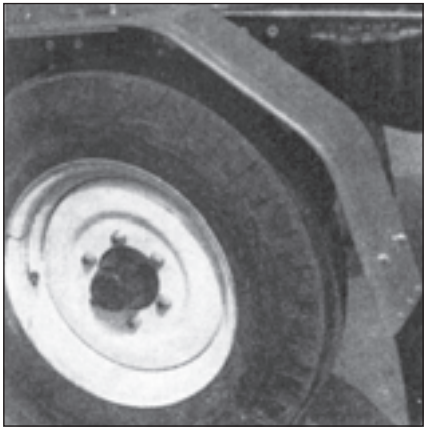
At the moment when the fuel pilot bulb lights up, there is still the following quantity of the fuel in the tank left:

7 to 11.5 litres of fuel (fuel tank 70 litres)
5.5 to 9 litres of fuel (fuel tank 55 litres)
4.5 to 7.5 litres of fuel (fuel tank 45 litres)
9.5 to 14 litres of fuel (fuel tank 95 litres)

Table 2

Average fuel consumption of a tractor in litres per hour

Tractor type	Engine load		
	100 %	80 %	50 %
Z 5211, Z 5245	10,2	8,4	6,4
Z 6211, Z 6245	12,8	10,6	8,0
Z 7211, Z 7245	14,1	11,6	8,8
Z 7711, Z 7745	14,9	12,3	9,3

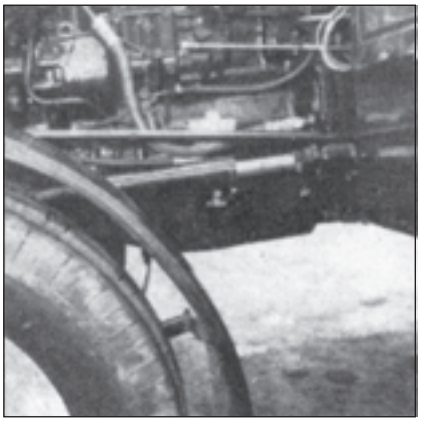


Front mudguards for rigid extensions (Fig. 150)

Fig. 150

Front mudguard for sprung extensions (Fig. 151)

Fig. 151



Front mudguard for 7.50-20 tyres (Fig. 152).

Fig. 152

Rigid extensions with wheels
(Fig. 153)

Fig. 153

Sprung extensions with wheels
(Fig. 154)

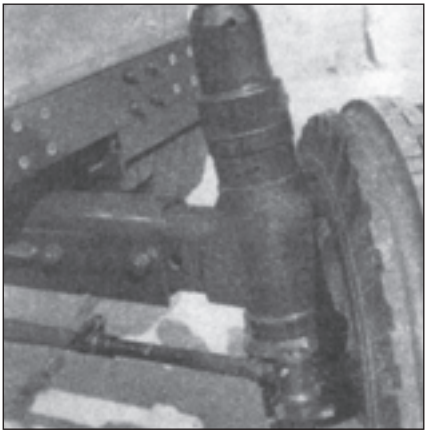


Fig. 154

Sprung extensions with interlocking and wheels (Fig. 155)

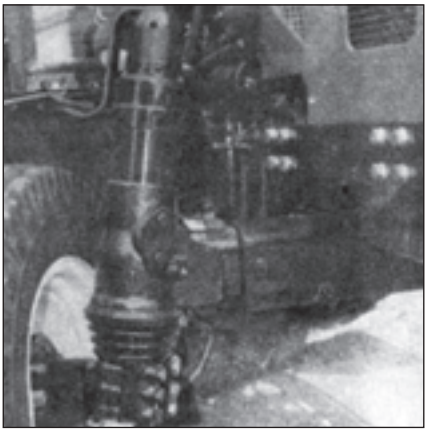


Fig. 155

Use of extensions for the front axle

Tractors Z 5211 and Z 6211 are equipped with sprung heavy extensions with the front wheels 6.50-16. The front wheels equipped with these extensions can be adjusted to wheel tracks 1375 mm, 1455 mm, 1525 mm and 1825 mm. These wheel tracks may be adjusted also in case that rigid heavy-duty extensions have been fixed with wheels 6.50-16 (on special order).

It is possible to interlock the sprung extensions for some types of tasks (Fig. 153) so that the sprung axle becomes a rigid one by this modification and the extension load capacity is increase to 1600 kg (speed up to 20 km/h) or alternatively to 2460 kg (speed up to 8 km/h).

Tractors with front loader have to be equipped with heavy-duty extensions for the front axle (Fig. 153) and with wheels 7.50-16. Load capacities of the interlocked sprung extensions or alternatively rigid extensions with 7.50-16 wheels are in this case 2 010 kg (speed up to 20 km/h) or alternatively 2 980 kg (speed up to 8 km/h). The track adjustment for wheels 7.50-16 is 1.350 mm, 1 425 mm, 1 500 mm and 1 800 mm.

Tractors Z 5211 may fe fitted on special order with optional light rigid extensions with wheels 6.00-16 which have the track adjustment possibility 1 350 mm, 1 500 mm and 1 800 mm.

On special order the tractors Z 6211 can be equipped with heavy-duty extensions or heavy-duty sprung extensions with possibility of interlocking, and 7.50-16 wheels where the track can be adjusted to 1 350 mm, 1 425 mm, 1 500 mm and 1 800 mm. Further it is possible to equip the tractor Z 6211 with light extensions with 6.50-16 wheels where there is the possibility of the track adjustment to 1 350 mm, 1 500 mm, and 1 800 mm. In case that rigid heavy-duty extensions have been fitted, the track can be adjusted to 1375 mm, 1450 mm, 1525 mm and 1 825 mm. Z 7211 and Z 7711 tractors are equipped with sprung heavy-duty extensions with wheels 7.50-16 (Fig. 150). The front wheels may be adjusted to the track 1350 mm, 1425 mm, 1500 mm and 1800 mm. The sprung extensions can be interlocked for some types of tasks so that the sprung axle becomes a rigid one and the loading capacity of the extensions is going to be increased to 2 010 kg (speed up to 20 km/h) or 2 980 kg (speed up to 8 km/h). These loading capacities and possibility of the track adjustment aply to the rigid heavy-duty extension with 7.50-16 wheels (execution on order) as well. As an option, for lighter tasks exists the possibility to equip the sprung heavy-duty extensions with the interlocking or alternatively to equip rigid heavy-duty extensions with wheels 6.50-16. The carrying capacity of the axle is thus increased to 1 660 kg (speed up to 20 km/h) or 2 460 kg (speed up to 8 km/h) and the tracks are 1 375 mm, 1 455 mm, 1 525 mm and 1 825 mm. On special order wheels 7.50-20 can be fitted together with these extensions for heavy-duty tasks. In these cases the loading capacities will be increased to 2 360 kg (speed up to 20 km/h) or to 3 000 kg (speed up to 8 km/h).

The total summary of the permitted loading capacities and the front wheel tracks are given in tables of the main technical data.

Table 3 **The maximum permissible axle loading (Z 5211 to Z 7745)**

The axles of the individual tractor types may be loaded from the axle loading point of view with variable auxiliary implements according to the following values:

ZETOR	Z 5211	Z 5245	Z 6211	Z 6245	Z 7211	Z 7245	Z 7711	Z 7745
The front sprung axle (with interlocking) at a speed up to 25 km/h	12,07 kN	—	12,07 KN	—	14,62 kN	—	12,07 kN (30 km/h) 14,62 kN (25 km/h)	—
The front driven axle at a speed up to 25 km/h	—	18,44 kN	—	19,62 kN	—	19,62 kN	—	20,50 kN (25 km/h) 19,62 kN (30 km/h)
The rear axle at the speed up to 25 km/h	35,32 kN						39,4 kN (25 km/h) 35,32 kN (30 km/h)	
Maximum total tractor weight at a speed up to 25 km/h	4830 kg	5480 kg	4830 kg	5600 kg	5090 kg	5600 kg	5090 kg (30 km/h) 5780 kg (25 km/h)	5600 kg (30 km/h) 6090 km (25 km/h)

Note: If the maximum speed is reduced to 20 km/h or to 8 km/h, or if the tractor has been equippped with other types of tyres than the standard ones, and with the front wheel extensions, the respective increase of the axle loading is stated in the table. – The total maximum tractor weights including attachment must not exceed the stated values when driven on public roads.

Table 4

Use of extensions for the front axle (Z 5211, Z 6211, Z 7211 and 7711)

Table 4 contains the summary regarding the outfit of tractors with different types of the front wheel extensions.

Tractor type	The front axle extensions fitted as a standard	The front axle extensions fitted on special order
Zetor 5211	Sprung extensions, heavy-duty type, group-No. 6911 3600 with 6.50-16 wheels (group No. 6711 6750)	a) Rigid extensions, heavy-duty type, group-No. 6911 3400 with 7.50-16 wheels b) Rigid extensions, light type, group.-No. 4911 3400 with wheels 6.00-16 c) Rigid extensions, heavy-duty type, group-No. 6911 3400 with 6.50-16 wheels d) Sprung extensions, heavy-duty type, group-No. 6911 3600 with 7.50-16 wheels
Zetor 6211	Sprung extensions, heavy-duty type, group-No. 6911 3600 with 6.50-16 wheels (group-No. 6711 6750)	a) Rigid extensions, light type, group-No. 5911 3400 with 6.50-16 wheels b) Rigid extensions, heavy-duty type, group-No. 6911 3400 with 7.50-16 wheels c) Rigid extensions, heavy-duty type, group-No. 6911 3400 with 6.50-16 wheels d) Sprung extensions, heavy-duty group-No. 6911 3600 with 7.50-16 wheels

Zetor 7211 Zetor 7711	Sprung extensions, heavy-duty, group-No. 6911 3600 with 7.50-16 wheels	a) Rigid extensions, heavy-duty group-No. 6911 340 with 7.50-16 wheels b) Rigid extensions, heavy-duty, group-No. 6911 3400 with 6.50-16 wheels (group-No. 6711 6750) c) Sprung extensions, heavy-duty, group-No. 6911 3600 with 6.50-16 wheels (group-No. 6711 6750) d) Rigid extensions, heavy-duty, group-No. 6911 3400 with 7.50-20 wheels e) Sprung extensions, heavy-duty, group-No. 6911 3600 with 7.50-20 wheels (group-No. 78.258.000)

Fig. 156

Fitting and use of dual rear wheels of ZETOR tractors

Tractors can be fitted with dual rear wheels on special order. This execution is intended to be used for the row crop and areal cultivations.

The individual tractor type can be equipped with the dual wheels as stated in the following table.

Table 5 **Use of the rear double wheels**

	Z 5211	Z 5245	Z 4211	Z 4245	Z 7211	Z 7245	Z 7711	Z 7745	Z 7245 HP
Rear double wheels 9.5-32	X	–	–	–	–	–	–	–	–
Rear double wheels 14.9-28	–	–	–	–	–	–	–	–	X
Rear double wheels 9.5-42	–	–	X	–	X	–	X	–	–
Rear double wheels 16.9-30	–	–	X	X	X	X	X	X	–
Rear double wheels 12.4-36	X	–	X	X	X	X	X	X	–

The double-wheel set consists of four wheels of identical dimensions, two intermediate hubs, sixteen nuts M 22 and eight bolts M 16. The double wheels are fitted in such a way that the intermediate hub has to be fitted from the external side to the inside wheels which are adjusted to a standard track (see table 6). To be able to do this, it is necessary to unscrew six nuts M 22, the intermediate hub has to be clamped with four bolts, the six nuts M 22 have to be screwed on again, and using other eight nuts M 22 the external wheel of identical dimensions, adjusted to the maximum track, has to be fitted to the intermediate hub.

Table 6 **Track adjustment of the rear double wheels**

Type of double wheels	Track of the inside wheels	Track of the outside wheels
Rear wheels 9.5-32	1350 mm	2250 mm
Rear wheels 14.9-28	1425 mm	2245 mm
Rear wheels 9.5-42	1350 mm	2250 mm
Rear wheels 16.9-30	1500 mm	2482 mm
Rear wheels 12.4-36	1500 mm	2556 mm

The rear double-wheel set with row-crop tyres, dimension 9.5-32, 9.5-42 and 12.4-36, is especially intended for a row-crop cultivation of sugar beet, silage-maize and other special agricultural plants. It can also be used for sugar beet sowing and harvesting.

The rear double-wheel set with tyres, dimension 14.9-28 or 16.9-30, is intended for top soil cultivation, i.e. with coupled drags, harrows, combined implements etc.

Note: Recommended tyre inflation for all tyres with the rear double-wheels:

tyres 9.5-32
tyres 9.5-42 — 160 kPa

tyres 14.9-28
tyres 16.9-30 — 140 kPa

tyres 12.4-36 — 170 kPa

Scheme of the dual rear-wheel assembly

Fig. 157

Intended for tyres:

14,9—28
16,9—30
**12,4—36

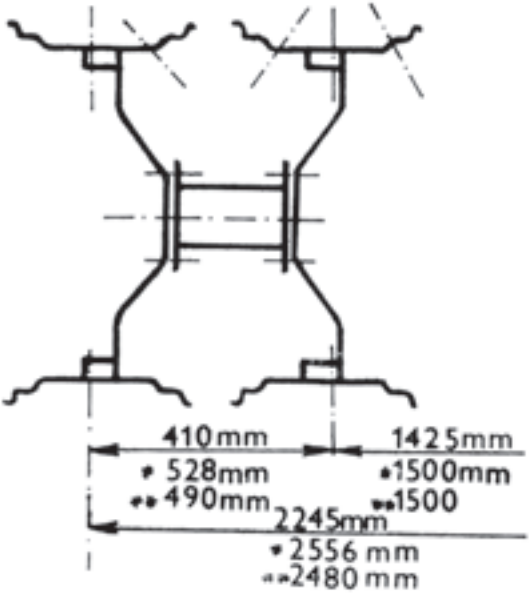
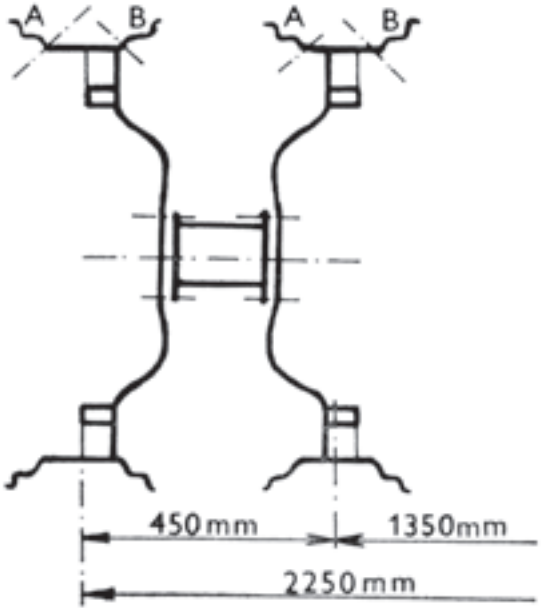


Fig. 158

Intended for tyres:

9,5—42
9,5—32



A — position of the air valve of the 9,5/9—42 wheel
B — position of the air valve of the 9,5/9—32 wheel

Cooling fluid heater (Fig. 159)

(Will be delivered on special order of the customer.)

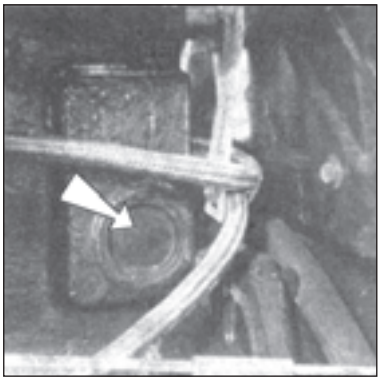
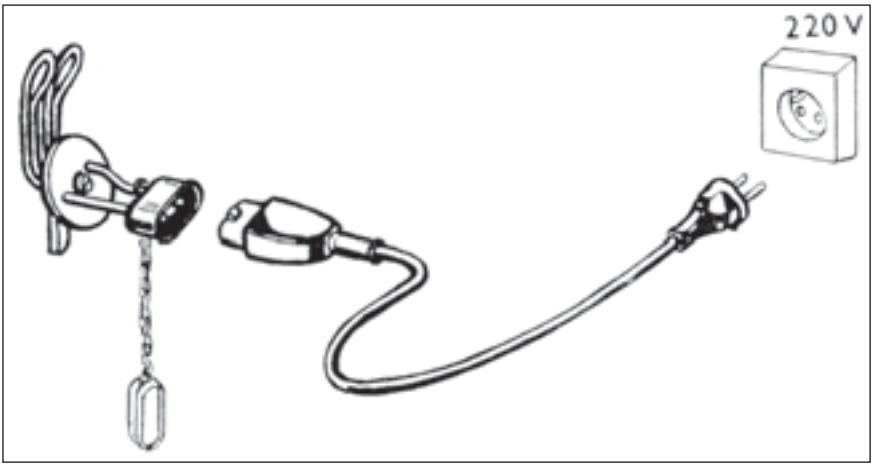


Fig. 159



With temperatures below –10 °C, the starting of the engine can be made easier by use of a cooling fluid heater which has an output 1 000 W at 220 V a.c. The heater is fitted to the engine cooling jacket. The time of the heating has to be adjusted according to the weather.

The cooling fluid heater has to be plugged in the socket first and then to the mains. Electric installation must be in accordance with the valid regulations given by specialized establishment.

Danger of electrical accident.

GENERAL DIRECTIVES FOR OPERATION OF ZETOR TRACTORS

A reliable tractor operation requires not only that the driver has mastered the driving technique perfectly, but also that he has the right knowledge of directives about the operation and use of the special tractor outfit.

A special attention should be given during summer operation to the following points:

1. The cooling fluid level in the cooler and the condition of the radiator pressure cap. The temperature of the coolant may reach 105 °C for a short period. If the temperature exceeds this limit, the pressure cap opens and allows the coolant to run out.
2. The air filter in dusty environment (cleaning should be performed according to the circumstances daily).
3. The storage battery (check the electrolyte quantity and replenish it in once a week with destilled water).

Preparation of the tractor for a drive

Sooner than you start driving, you have to check whether the technical state of the tractor responds to conditions of a safety operation. If a trailer or implements are attached, check their attachment to be sure that the load is properly fastened.

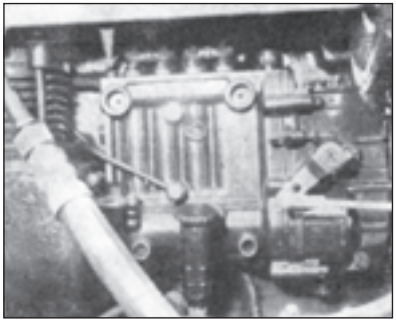
Further it is necessary to check:

— quantity of the fuel in the tank
— quantity of the engine oil
— quantity of the coolant in the tank
— quantity of the brake fluid
— tightness of all joints and whether the wheel nuts are tightened properly
— function of the electric outfit (lamps, direction indicators, brake lights, wipers, sound horn and the trailer lighting)
— Check the compressor connetion if a trailer with air brakes is attached. The minimum air pressure before the start should be 0.45 MPa. Only one trailer or one saddle-trailer may be connected to the tractor and their weight must not exceed the momentary weight of the tractor by 2.5 times.
— Tyre pressure which has to correspond to the required tasks of the tractor
— Cleaness of the license plates

After the checking has been accomplished, start the engine and check:

— state of the steering including the checking of the steering wheel play
— set the tractor in motion for a short time and check the efficiency of the service brake and the parking brake

Repair immediately all discovered failures and replenish the missing fluid to the fixed level.



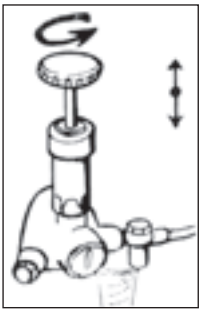


Fig 160

Starting up the engine

Before starting the engine, make sure that the tractor is properly braked and that the gear shift lever and the auxiliary drive lever is in the neutral position. **It is without exception necessary to turn off the drive of the hydraulic pump** (Fig. 42/1) **with a lever, especially if the ambient temperatures are very low.** If the pump drive stays in the engaged position, the hydraulic pump would not suck the oil which has become solid from the frost and the pump might be damaged.

The disengaged hydraulic pump makes the engine starting easier.

When starting the engine, follow the recommendations mentioned below:

1. In case the tractor has been out of operation for a longer time, we recommend (especially in lower ambient temperature) before starting the engine to pump the fuel into the engine fuel system using 5 to 10 strokes of the auxiliary pump handle which is situated on the fuel delivery pump. When it is finished, **screw in the pump handle on the pump body properly** (Fig. 160).
2. Insert the key completely into the switch box in the position „0".
3. Depress fully the clutch pedal which will activate the circuit breaker switch of the start safeguarding (Fig. 46). **As long as the clutch pedal is not depressed, the engine cannot start.**
4. **Depress the starter push-button switch and let the engine run on low speed for 3—5 seconds, then switch off the starter (this operation can be left out if the ambient temperature is somewhat higher).**
5. Adjust the maximum fuel supply by a hand lever.
6. Depress the starter push-button switch. When the engine has started, immediately release the button. **Do not start longer than 15 seconds.**
7. When the tractor is equipped with an electromagnetic steering lock, turn the lock key to the position „2" (START). When the engine has started, immediately release the key and it will automatically return to the position „1". If the engine has not started, wait until the pilot lamp lights up and then turn the key to the position „0" and again in the position „2" START. Do not start longer than 15 seconds. As long as the lubrication pilot lamp is not on after the engine has been stopped, the key is locked in the position „1".

8. After the engine has started, reduce the fuel supply to prevent premature engine running on high speed.
9. If the engine fails to start, wait approximately 30 seconds and repeat the starting (points 6, 7, 8).
10. If the engine fails to start after three attempts, the starting has to be interrupted and you must look for a fault in the engine fuel system or in the electrical circuit for starting (non-sufficient battery capacity etc.).
11. **After the first starting of the engine lasting 5 seconds, a maximum of six starting cycles, one after another, is allowed (the starting according to the points 6—8 with a pause of 30 seconds = 1 cycle). The next starting is allowed after the starter has cooled to the ambient temperature.**

Attention:

Do not increase the engine speed above 2 000 r.p.m. as long as the coolant temperature has not reached 45 °C. Alternate rash increasing of the speed is not allowed. The engine must not be loaded unless the oil pressure has reached 250 kPa.

It is not only quicker to warm up the engine while driving, but also more economical than if the tractor is standing without motion and the engine running idle.

It is not allowed to start the engine in a closed room (garage etc.) as the exhaust gases are dangerous for health. Never help an engine beginning to come to the stillstand with the starter, as the starter might get damaged. It is not allowed to drive the tractor without the key pushed in the switch box.

Driving technique

Before the first drive with a new tractor, first of all get acquainted with the gear-shifting scheme and then try the individual gear lever positions with the engine stopped. Use the double declutching method when changing the individual gears.

Example: To change from the lower to the higher gear (from 2nd to 3rd gear):
- depress the clutch pedal and simultaneously lift your foot from the accelerator,
- at the same time change the gear lever to the neutral position,
- release the clutch pedal (the clutch is engaged),
- depress again the clutch pedal,
- change the appropriate gear,
- continually release the clutch pedal (the clutch is going to be engaged) and at the same time increase the engine speed.

On principle change from the higher to the lower gear with the double declutching in the following way:

- reduce the engine speed by releasing the accelerator pedal and if necessary brake the tractor slightly,

— depress the clutch pedal,
— move the gear lever to the neutral position,
— release the clutch pedal and at the same time quickly increase engine speed — double declutching (engine speed depends on tractor speed).

DO NOT FORGET:

If you drive up a hill and have to change to a lower gear, use light double declutching with a little gas, as the tractor speed decreases extremely. When driving down a hill, use double declutching with more gas, as the tractor speed is increasing.

— Quickly loosen the pedal of the fuel supply and declutch the pedal again.
— Change the lower gear quickly.
— Slowly release the clutch pedal and at the same time increase the engine speed to achieve a smooth gear change.

Note: The selection of the correct gear is a matter of experience and judgement and can influence the tractor life by a great deal.

The gear shifting of reduced speeds is the same as by the road speeds but the speed range selecting lever for reduced speeds can be changed only if the tractor is not in motion. To be able better to judge the proper operation regime of the tractor, the speedometer is used.

Warning: When driving down hill a longer hill or a slope, then the steeper the slope, the lower gear should be selected. This lower gear range should be shifted before coming to the slope, if possible.

REMEMBER: The same gear range used to climb the slope will enable you to drive safely the slope down.

ATTENTION: Keep an eye on the speedometer and use the brake in time so that the engine does not exceeds the nominal speed of 2 200 r.p.m.

Setting the tractor in motion

Before you set the tractor in motion, evaluate correctly the place where you do so (the ground, slope etc.) and have the tractor weight in mind, especially the load weight on the trailer. Hard acceleration might cause high loading of the driving gear and its possible damage, increased fuel consumption and excessive wear of tyres. Quick setting into motion or sudden stopping can cause load displacement or even its damage.

A start with the 1st gear shift has to be used only when driving up hill with a heavy trailer and on a difficult ground.

When on a plane, the tractor is mostly set into motion by use of the 3rd gear range. When the tractor has moved a bit, shift as soon as possible the next gear ranges.

WARNING:

Before the tractor drive, accomplish consequently all operations stated in the chapter. „Preparing the tractor for a drive" and follow the below given proceedings:

— select road speeds or reduced speeds,
— depress the clutch pedal fully,
— start the engine and adjust the engine speed to 750—800 r.p.m.,
— select a suitable gear to get the tractor in motion and slightly increase the engine speed,
— have the hand brake prepared for loosening,
— release the clutch pedal only to the point of engagement of the clutch. Further go on and release the clutch pedal continuously while simultaneously increasing the engine speed,
— fully release the hand brake,
— check the operating regime of the engine regularly while driving, namely: engine speed, lubrication, coolant temperature, air pressure, battery re-charging and fuel state;
— in case that a trailer with load has been attached to the tractor or some other equipment, regularly check their fastening;
— do not use the differential lock while driving in a bend.

Change of the driving speed and tractor stopping

If you must for some reasons reduce the speed, release the pedal of the fuel supply regulation. Shift to a lower gear according to a need and use the maximum braking effect of the engine. This way of gradual speed decreasing saves the braking mechanism and secures a high operational safety. Both the brake pedals have to be secured with a pawl during the drive on a road. Be careful that the tractor or the whole set does not get in a skid if you suddenly brake. Under normal conditions bring the tractor slowly to a stillstand. A short while before a stop, depress the clutch pedal and put the gear lever in the neutral position. Do not forget to secure the tractor or the whole set against a spontaneous start everytime you are stopping the tractor.

ENGINE OPERATING MODE

Engine speed:

— recommended operating speed	1500—2300 r.p.m.
— economical speed	1300—2000 r.p.m.
— idle run	600— 650 r.p.m.

Oil pressure:

— operating pressure	200—500 kPa
— idle run	minimum 50 kPa
Cooling liquid temperature:	80—95 °C

Air pressure according to a regulator adjustment with the compressor running 590±20 kPa.

ATTENTION:

The dashboard is not equipped with an lubricating oil pressure gauge. The pilot lamp indicating a lubricating oil pressure will switch off when the pressure has reached 60 to 120 kPa.

TECHNICAL MAINTENANCE OF THE TRACTOR

Running in a new tractor

When running in a new tractor, follow carefully the below given principles otherwise you may risk a damage of the functional assemblies, especially the engine.

1. Follow all instructions regarding the tractor operation supplied by the producer in the Operator's Manual, especially check the level of the engine lubricating and cooling system.
2. After the engine has been started, check whether the lubrication pilot lamp at the dashboard goes out in a few seconds. If it does not, immediately stop the engine, find out the fault and repair it.
3. Never warm up the engine by a lengthy idle run of the engine. Due to the low temperatures it comes to an incomplete combustion and consequently to an excessive wear of the engine. A carbon is quite risky, it causes the siezed piston rings, especially the sticking of sealing piston rings, clogging of injector nozzles and rubbing of valves in the guide bushes.
4. Allow the engine to idle at 1 000 r.p.m. for about two minutes. During this time check the proper functions of the lubricating system, the storage battery recharging and other functions ensuring a correct tractor operation. Then shift in a low or reduced gear and any further warming-up of the engine can be done while driving.
5. **Gradual running-in of the tractor for the first 100 engine hours**
   a) The first 10 engine hours of running-in the tractor must be done under a very low loading of the engine, without engaging the pump of the hydraulic system. Keep the engine speed between 1 800 and 2 000 r.p.m.
   b) After the 10 engine hours drain the warm oil from the gear-box into a clean vessel and leave it at least two hours to clear. Take out and clean the sieve and magnetic elements of the suction filter of the hydraulic pump. Then carefully decant the oil into another vessel in order to leave any mechanical impurities on the bottom of the vessel and pour the clean oil into the gear-box again. Replenish with new oil if necessary. From this moment on you may use the hydraulic system without any restrictions.
   c) From 10 to 30 engine hours use the tractor for the transport with the required trailer and use the carrying capacity only at 50 %. You can also use light agricultural machines carried in the front and hitched as well, e.g. cutter bars, hay tedders, fertilizer spreaders etc.
   d) From 30 to 70 engine hours you can use all light agricultural machines with the exception of ploughs or cultivators for an areal soil processing, harvesting cutting machines etc., where it is necessary for the engine to work at full output. Remember the principles of shifting the lower gear stages in time, so that the engine is not overloaded. The engine speed must not drop under 2 000 r.p.m. of the given gear stage.
   e) After 70 engine hours drain the oil from the engine, clean the oil filter and fill the engine with a new oil to the prescribed level.

f) After 70 engine hours check whether the nuts of the cylinder head bolts are screwed in (a screwing moment 167 to 177 Nm).
At the same time check the valve play (with cold engine — the play for the suction valve and the exhaust valve as well is 0.25 ± 0.05 mm).

g) After 70 engine hours pull out and clean the sieve and the magnetic part of the suction filter of the hydraulic pump.

h) Between 70 and 100 engine hours you can perform all agricultural tasks with use of the recommended or approved agricultural machines. However, it is necessary that the user does not overloads the engine and that he prevents its overloading by a timely gear shifting to the lower gear stage, so that the engine speed is kept in the range 2000 to 2200 r.p.m.

ch) After 70 engine hours have been accomplished, check whether the nuts (Fig. 161) of the lower flange on the air pressure regulator are properly screwed in.

i) After 100 engine hours tighten the screwed connections of the rear axle bushing and the portal by a tightening moment 276—306 Nm.

6. After 100 engine hours the tractor can be used without restrictions.

Notice:

Follow the operating regime of the engine while the tractor is being run-in. Check the screwed connections daily, especially the tractor carrying parts. In particular check the front axle bracket, further the front axle extensions, the engine — transmission flanges and the transmission -- gear box flanges, the rear bushing flange and portals, steering ball studs, wheel screws, weights etc. Repair immediately the discovered faults. So you prevent a consequent damage exposure or safe operation jeopardy. Stick to this procedure after the tractor overhaul as well.

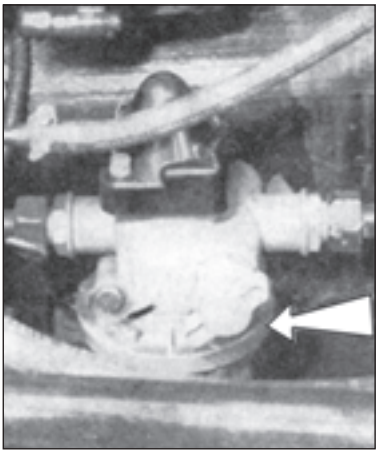


Fig. 161

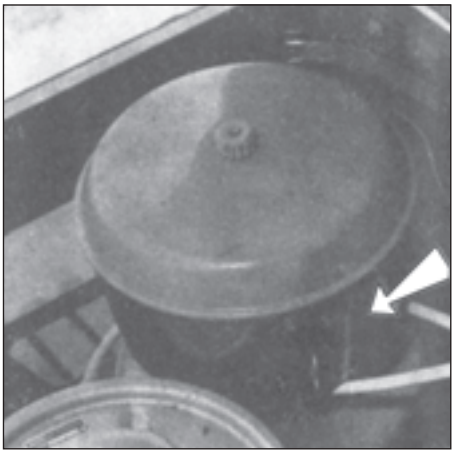


Fig. 162

MAINTENANCE OF THE TRACTOR

Regular and properly done maintenance secures trouble-free operation. Each elemental operation is part of the planned maintenance. Careful maintenance prevents premature occurance of possible technical defects, the tractor is prepared for a safe and reliable operation and the life of its individual parts will be longer.

The scheduled maintenance means:

— daily maintenance
— technical maintenance 1, 2, 3, 4
— technical maintenance after the overhaul

The driver or the user of the tractor can perform most of the scheduled maintenance operations by himself. However, have the more complicated procedures carried out in a specialized service station if you have not the necessary technical outfit. Strictly keep the safety instructions during all operations.

Daily maintenance (DM)

Every 8 to 10 hour of the engine operation check the following:

1. Joint tightness of the cooling systems and refill the evaporated fluid with the mixture Fridex-Spolana plus demineralized water in a ratio 1 : 1.5. If you are using the non-freezing fluid, change it at least every two years.
2. Joint tightness of the lubricating system of the engine and refill the oil to the proper level.
3. Air pre-cleaner (Fig. 162) and clean it if necessary.
4. Tightness of the hydraulic brakes, hydraulic controll of the clutch and the brake fluid quantity. Check the tightness of the pneumatic brake system and efficiency of the brakes, if the tractor is coupled with a trailer.
5. Oil quantity in the tank of the power-assisted steering.
6. Air pressure in the front tyres and in the rear tyres.
7. Bolts and nuts of the steering rods, levers, the front and the rear tyres whether they are properly tightened.
8. Condition of the hitched and connected attachment including the trailer.
9. The front wall of the engine cooler and the bonnet screen should be washed with compressed air after the operation with the machines attached in front.
10. Check the joint tightness of the outer hydraulic circuit of the front three-point hitch.

TECHNICAL MAINTENANCE 1 (TM 1)

The following checking and maintenance should be done after every 100 engine hours:

11. Operations stated in 1 to 10 and carry on with the following checking:
12. Oil quantity in portals

13. Oil quantity in the gear-box and in the final drive (The oil level has to reach to the upper oil gauge line if the gear-box operates on slopes).
14. Oil quantity in the box of the front axle and in the wheel reductors of tractors Z 6245, Z 7245 and Z 7745.
15. Oil in the front axle housing and in the wheel hubs of Z 6245, Z 7245 and Z 7745.
16. Check the level of electrolyte in the storage battery. Oxidized cabel clamps have to be cleaned and a thin film of grease applied.
17. Condition and function of electric appliances and accessories.
18. V-belt tightness of the water pump drive and the alternator drive (the maximum sag 15 mm).
19. Remove dirt from the front fans of the cooler, if necessary.
20. Use a few drops of oil for the clutch engaging socket (approx. 10 drops). (Fig. 163).
21. Oil with a few drops of oil the Bowden cable of the hand brake, manual clutch disengagement of the power take-off shaft and the suspension of the single-point trailer.
22. Grease the front axle bracket pin, wheel extensions, clutch disengaging shaft and tightening nuts of swing limiters of the lower links.
23. Grease the cross-pin cardan joints of the front P.T.O.-shaft.
24. Check the oil level in the gearbox of the front P.T.O.-shaft; inspection hole (Fig. 164).
25. Check the opening pressure of the fuel injector mozzles and the function of the injection nozzles. It will be performed only for the first 100 engine hours of the operation and then every 600 engine hours.

Fig. 163

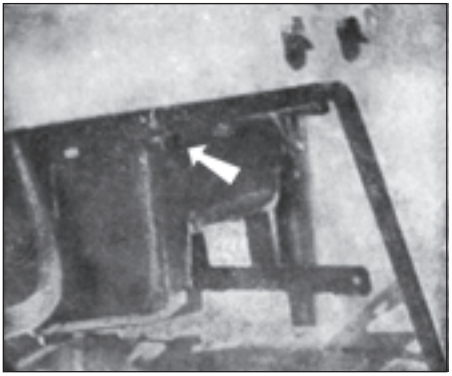


Fig. 164

26. Carry out the deaeration of the fuel system:
Pressurize the fuel system by a few strokes of the hand pump, loosen, the screw 1 (Fig. 169) and let the foam escape, tighten the bolt and repeat the whole operation as long as a clear fuel flows down on the loose bolt. The deaeration in the position of the bolt 2 (Fig. 169) will be done in the same way and the next time not later than after 600 engine hours and always when the tractor fuel system has been manipulated.
27. Maintain the air filter and change the oil filling. On principle the oil must not be replenished (Fig. 165).

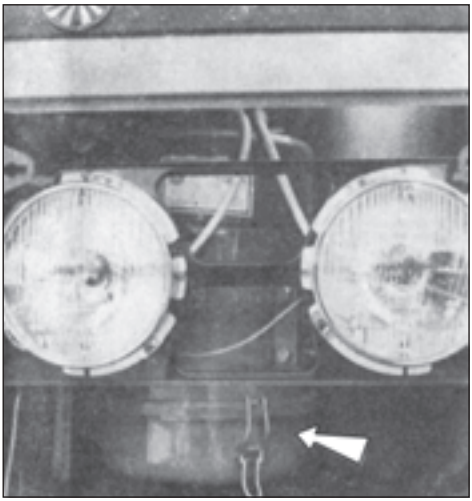


Fig. 165

Fig. 166

TECHNICAL MAINTENANCE 2 (TM 2)

The maintenance will be carried out after every 200 engine hours.

Accomplish operations 1 to 27 and then:

28. Remove the rear windscreen wiper blade (Fig. 137) and the milled nut and lubricate the rear wiper shaft with three drops of engine oil.
29. Change the engine oil after the engine has been warmed up to the working temperature.
30. Visually check the flexible couplings of the steering column whether the surface is not damaged. Replace damaged parts. The flexible couplings should be replaced in a specialized service station at least every three years (Fig. 166).

Fig. 167

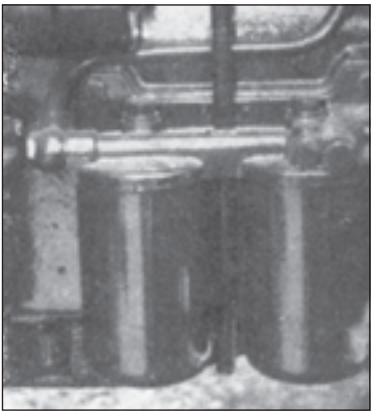


Fig. 168

31. Clean the centrifugal oil filter (Fig. 167) on tractors Z 6211 to Z 7245. Wash filter elements of the main and the by-pass stage of the oil filter (Fig. 168) in petrol on tractors Z 5211 and Z 5245.
32. Wash the sedimentation vessel and the screen of the coarse fuel filter (Fig. 169).
33. Check the function of the seat handle control and the seat roller and if necessary, clean and grease the guide rail surfaces and the seat handle bolt (Fig. 170) after four bolts M 6 and the seat cover have been removed.

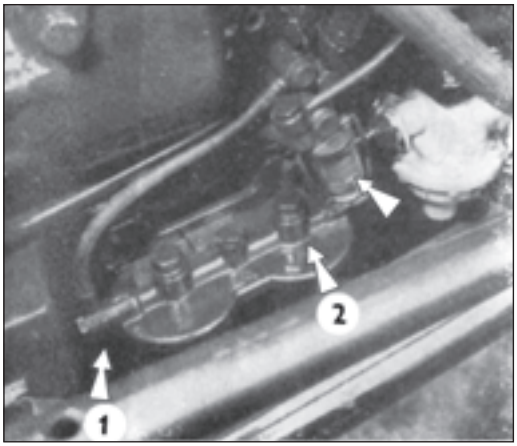


Fig. 169

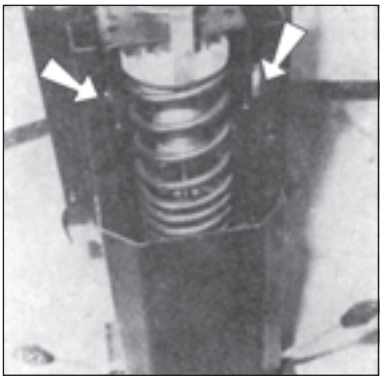


Fig. 170

34. Check the oil level of the steering box (refill if necessary).
35. Grease the head of the power-assisted steering, the head of the cylinder clamping (Fig. 171 and diagram of greasing A/17 — two positions) and the head on steering bars (fours positions).
36. Remove and clean the mesh and the magnetic element of the hydraulic pump suction filter (see the specification, page 46).
37. Grease the yoke of the draft control (Fig. 172).

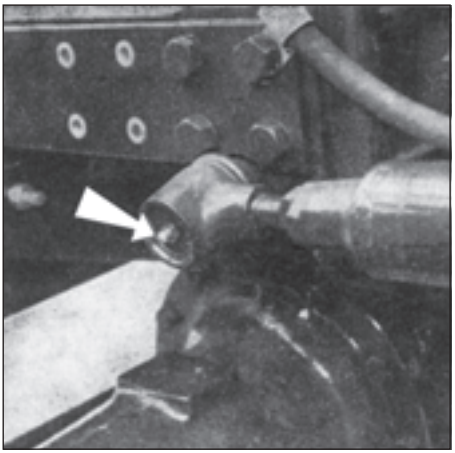


Fig. 171

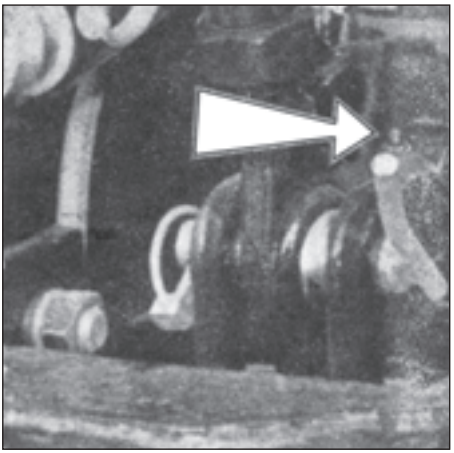


Fig. 172

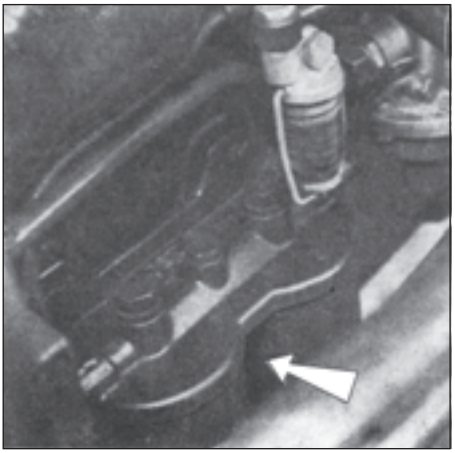


Fig. 173

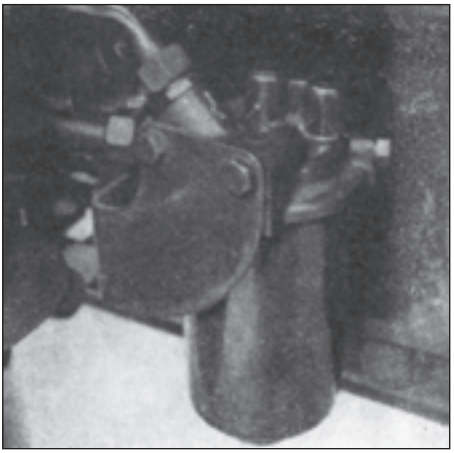


Fig. 174

TECHNICAL MAINTENANCE 3 (TM 3)

The maintenance is to be performed every 600 engine hours.

38. Carry out the operations 1 to 37.
39. Replace the filter elements of the fine fuel filter (Fig. 173).
40. Replace the filter elements of the hydraulic oil filter (Fig. 174).
41. Grease hinges of the safety cabin doors. If the tractor has been equipped with the right strut of the three-point hitch controlled from the cabin, clean and grease again the telescopic shaft.
42. Check the valve clearance (with cold engine; the clearance of the inlet valve and the exhaust valve is 0.25 ± 0.05 mm) (Fig. 176).
43. Check the front wheel toe-in (4—6 mm; in case of a front drive axle toe-out of 12—15 mm).
44. Check the hand brake function and adjust it accordingly, if necessary.
45. Check the function of the seat rollers and clean the guide rail surfaces and grease the rollers if needed.

Fig. 175

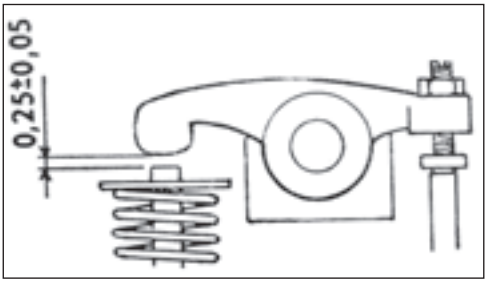


Fig. 176

Fig. 177

46. Drain the condensed water from the air brake tank by pulling the drain valve (Fig. 175).
47. Grease the steering column bearing. Check the bolt tightness of the flexible couplings of the steering shaft using the tightening moment 13—15 Nm.
48. Check the tightness of the hydraulic seat damper. If the fluid is leaking, replace the defective sealing of the piston rod, rinse the damper with petrol and refill it with 70 cm^3 of damper oil (Fig. 170).
49. Grease the pins of the three-point hitch (Fig. 177).
50. Check and adjust, if needed, the disk brakes of the tractor.

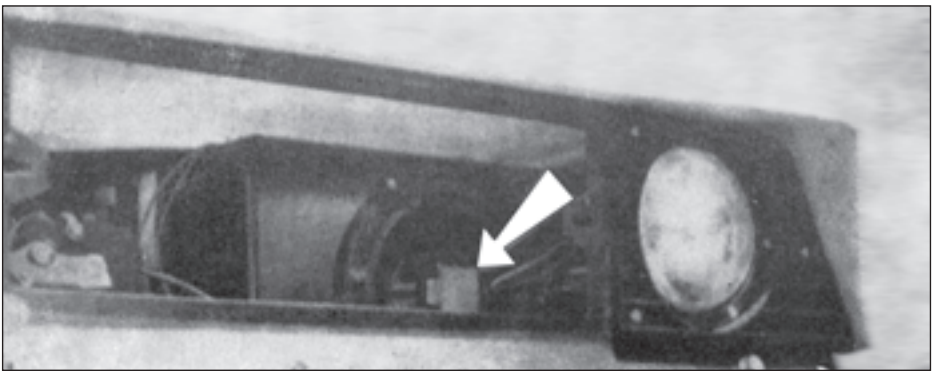
TECHNICAL MAINTENANCE 4 (TM 4)

The maintenance has to be performed regularly after 1 200 engine hours.

Accomplish the operations 1 to 50 and continue:

51. Change the steering box oil.
52. Change the oil in the circuit of the power-assisted steering and change the filter element in the tank of the power-assisted steering.
53. Change the oil in portals.
54. Change the oil in the gear-box and in the final drive.
55. Change the insertion piece of the tyre inflator at the compressor (only regarding tractors which have not the combined air-pressure governor fitted).
56. Lubricate bearings of the heater electric motor with five drops of oil on both shaft ends (Fig. 178).
57. Check the condition of carbon brushes in the electric motors of the heater (Fig. 178)
58. Change the oil in the gear-box of the front P.T.O.-shaft.

Fig. 178



After 2 400 engine hours carry out besides the technical maintenance 4 also the following operations:

59. Replace the oil in the front driving axle casing including the grease change in the double joints and reductors (only for tractors Z 6245, Z 7245, Z 5245 and Z 7745).
60. Check the steering clearance and the backlash of the steering wheel and repair the defect by replacing the worn out parts.
61. Dismantle in the technical maintenance the lower part of the pressure governor (6 nuts, 10 A/F — Fig. 161), clean the filter screen and remove sediment of the separator inside part. It is not allowed to dismantle the safety valve in the inside of the separator. When re-fitting, use a new gasket.
62. Check the condition of the commutator and brushes of the electric starter, blow it with pressure air or clean it from the superfluous grease by a special preparation, e.g. UNISOLVENT (not with petrol etc.). The working surface of the commutator has to be smooth, without a perceptible surface burn-off. Treat the commutator surface with a fine emery cloth.
63. Dismantle disk brakes, check them (the shaft packing), clean the dust from the lining abrassion and change the disks.

Note: Operations requiring not only more sophisticated technical outfit but also a professional knowledge, cannot be accomplished by one person. We recommend to entrust a specialized service station with these tasks.

Common tractor maintenance (CM)

After 2 400 to 3 000 engine hours the common tractor maintenance requires greasing of sliding surfaces on all parts of the pneumatic devices and air braking system with plastic grease LITOL 24. Parts of the hydraulic brakes, i.e. the master brake cylinder, the master clutch cylinder and the brake pressure equalizer, should have the sliding surfaces between the sealing rings and the outer dust boots greased with a special grease for hydraulic brakes (e.g. Pentosin-Special). Check rubber parts at the same time. All rubber parts have to be replaced within five years of the production date. The date of the tractor production itself is to be considered as a production date.
The air tank has to be inspected within five years of its production date or its damage and breakdown according to the standard ČSN 30 3507 as well. This inspection may be done in a specialized service station only.
After 2 400 engine hours dismantle the pressure governor from the tractor and have the diaphragm in a specialized service station replaced, further clean the controlling little piston under the diaphragm and the vent hole in the diaphragm supporting bolt. Reassemble and adjust the pressure governor at the testing station and seal it.
After 2 400 engine hours check bearings of the starter, the brush holders and brushes. At the same time maintain the alternator while checking the condition of bearings, rectifier block and of the brush gear (carbon brushes and the commutator ring). Check the value of the charging voltage at the governor.
Change the oil in the telescopic damper of the driver's seat. Replace the labyrinth packing of the piston rod, if necessary. Rinse the damper with petrol (the oil quantity for one filling is 70 cm^3) before you start to fill it.

Overhaul of the tractor assembly groups

The tractor assembly groups have to be overhauled every time when their further use becomes uneconomic, if the most parts need repair and the general technical condition does not enable a safe operation.

Provided that all routine maintenance instructions according to the technical documentation of the producer have been followed, the average life time of the engine and transmissions is 6 000 engine hours, if the tractor operates in mild climate and on flat ground. This number of engine hours assumes that the tractor tasks have the following schedule:

— ploughing and preparing soil for sowing	15—25 %
— sowing and planting	10—15 %
— harvesting	10—20 %
— agricultural transport	40—65 %

If the tractor has to operate in mountainous or semi-mountainous regions, this sum will be reduced by 15—20 %.

Further, if the tractor operates in severe climatic conditions, the general engine and transmission life will be reduced again by 15—20 %.

Note: The front driving axle too is included to the transmissions.

Technical maintenance of the tractor after an overhaul of the assembly groups

A tractor after an overhaul should be run-in according to the instructions given for running-in of a new tractor. The maintenance has to be performed in the same way as in case of a new tractor.

Oil refilling and oil changing in the engine

Keep the engine oil level between the upper and the lower dipstick gauge line (Fig. 179). When the scheduled oil change is due, drain the sump while the oil is still hot, and do it by screwing out the drain plug on the bottom cover of the engine gear-box (Fig. 179). Clean the plug from sticking metall particles. At the same time clean the centrifugal oil filter (Fig. 181).

Clean filter elements of the main and the by-pass duct of the oil filter, if the three-cylinder engines are involved.

Pour the specified quantity of the engine oil in the filter filling hole (Fig. 180). Start the engine and let it run for 2—3 minutes at 750—800 r.p.m. then stop the engine and allow the oil level to settle and check the level with a dipstick. If necessary, refill to the upper gauge line of the dipstick. Keep everything properly clean.

Fig. 179

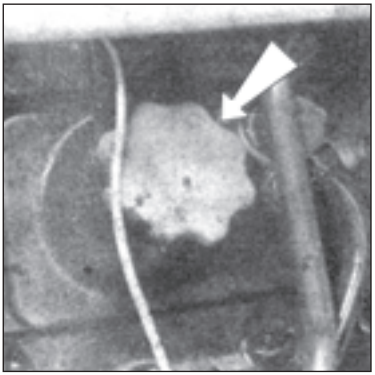


Fig. 180

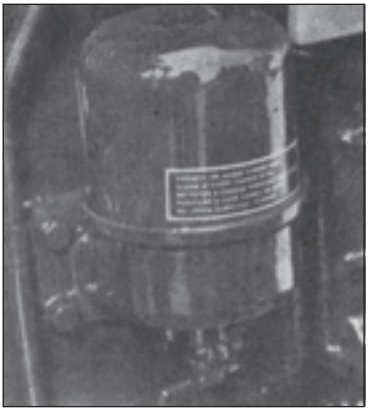


Fig. 181

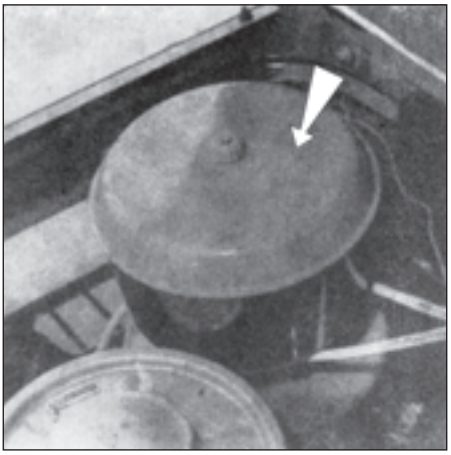


Fig. 182

Centrifugal oil filter (Fig. 181)

After the bolt has been removed, take off the cover, take out the rotor part, unscrew the M 32 nut and separate the rotor components from each other. Carefully clean the upper and the lower parts in petrol or diesel oil, allow them to dry and reassemble them again. When reassembling the filter rotor, make sure that the alignment marks of the lower and the upper parts are opposite each other so that the dynamic balance would not be disturbed. The pressure of the lubricating oil is indicated by a dashboard pilot lamp.

Adjustment and checking of the injector

The injector is checked with help of the test equipment NC 50 or the portable test equipment NC 251 which enable to test the injector directly on the engine without its disassembling. The art and testing procedure are given in the Operator's Manual for these apparatuses which are supplied by Motorpal Jihlava. The opening pressure of the injector is 17.5—0.8 MPa for the engines Z 5201, Z 6201 and Z 7201 and 18.6—0.8 MPa for the engine Z 7701. Adjust at the upper limit of these ranges.

If the injector is going to be dismantled for the checking, it is necessary to clean the contact surface of the injector in the cylinder head. The repaired and adjusted injector has to be cleaned and the injector body greased with the plastic grease LITOL 24 before reassembling it again.

Attention: When refitting the injector on the engine, take care to retain its correct position.

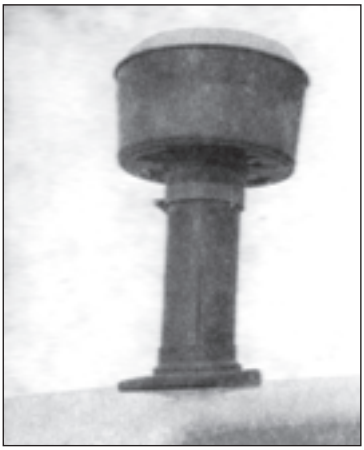


Fig. 183

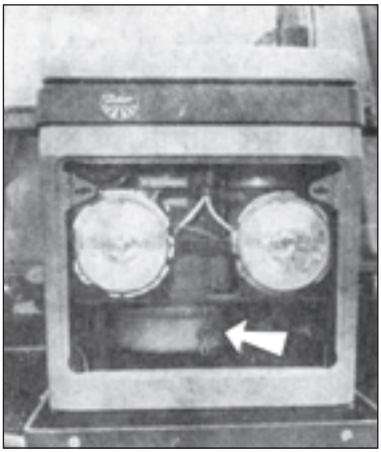


Fig. 184

Maintenance of the air filter IFE-MANN and the prefilter PC 250

1. Check the air-prefilter daily. If the dust bowl is full to the marked level, empty it. To gain the access to the prefilter is quite easy with prefilters fitted above the bonnet (Fig. 183). It will do to unscrew the nut on the cover, to dismantle the prefilter and to empty the dust bowl. If the prefilter is positioned under the bonnet (Fig. 182), it is possible to reach the prefilter after the bonnet cover has been opened, and secured in the open position with a strut which has to be pushed into the hole in the partition wall behind the cooler. The dismantling procedure is then the same.
2. Change the oil in the air-filter after every 100 engine hours. The oil chamber is positioned in the lower part of the air-filter in the dust bowl (Fig. 184). Dismantling will be done after the radiator grill has been removed and the three clips connecting the filter housing with the dust bowl has been released.
3. The access to the lower cartridge situated inside the air-filter body and covered with a deflection plate is when the dust bowl has been dismantled. Remove the deflection plate together with the lower cartridge from the filter, while gently pulling down two handles. Separate the lower cartridge from the deflection plate and clean it. Wash the lower cartridge in diesel oil or kerosene. Do not use petrol, water, benzol, spirit or other organic solvents for washing.
4. After cleaning put the lower cartridge into the deflection plate and place it to the air-filter body. Take care not to deform or squeeze the lower cartridge between the deflection plate and the air-filter body.

5. Fill the cleaned dust bowl with oil up to the oil level mark on the dust-bowl circumference, and use the same oil as for the engine. The oil must not be replenished but the whole filling has to be replaced.
   Note: *In case that the air filter operates at temperatures which are lower than the applicability of the oil, it is allowed to dilute the oil with diesel oil. The content of the diesel oil in the oil mixture must not exceed 30 % in this case. The diluted filling must be replaced, if the temperature rises above the frezing point.*
6. With the oil filled, the dust bowl will be reassembled to the air-filter body and secured with three clips.

Replenishment of the brake fluid and brake system bleeding

The brake-fluid level has to be kept in the tank (Fig. 185) between 3/4 of the tank content (i.e. maximum level) and 1/2 of the tank content (minimum level). Absolute cleaness is essential during the manipulation with the brake fluid. If the brake pedal has a play in the whole stroke, it means there is air in the brake system, and this should be removed by bleeding.

Fill the equalizing tank with the brake fluid.

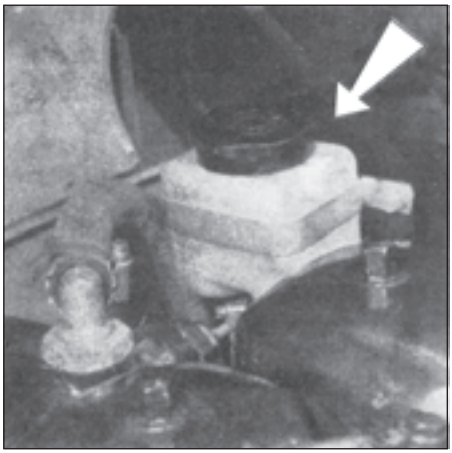


Fig. 185

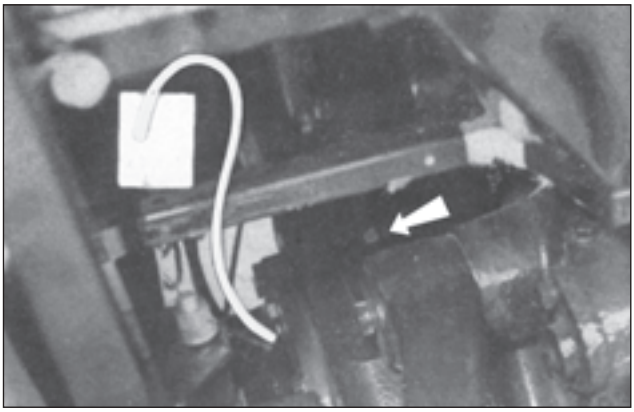


Fig. 186

Fix the bleed screw with a rubber hose and place the other end of the hose to the bottom of the transparent vessel filled with the brake fluid (Fig. 186 and 187). Then unscrew the bleed screw by a maximum of 1/4 turn, depress the brake pedal and tighten the bleed screw again. The pedal can be released as soon as the bleed screw is completely tightened. Repeat this procedure until no bubbles escape from the hose. Take care to hold the bowl as high as possible and to have the hose end still immersed in the fluid. Carry out the bleeding while the brake pedals are unlatched and bleed each wheel brake separately. Make sure there is always fluid in the tank while bleeding to prevent air re-entering the system and take care that the fluid does not get into brakes around the bleed screw. The hydraulic circuit for the clutch disengagement is bleeded in the same way.

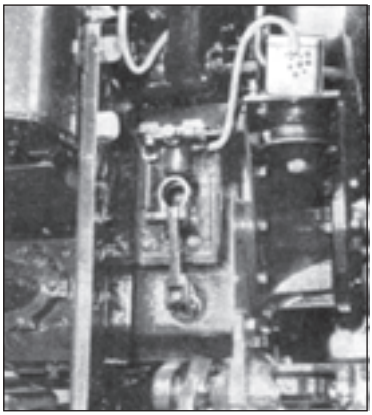


Fig. 187

The bleed screw is positioned on the clutch disengagement cylinder (Fig. 188/10). Replenish solely with a new brake fluid. After two years of operation it is necessary to replace the brake fluid in the whole brake system. These tasks have to be carried out with help of an assistant.

Note: We recommend to dismantle the covering panel of control levers of the hydraulic system to get a better access to the right bleed screw.

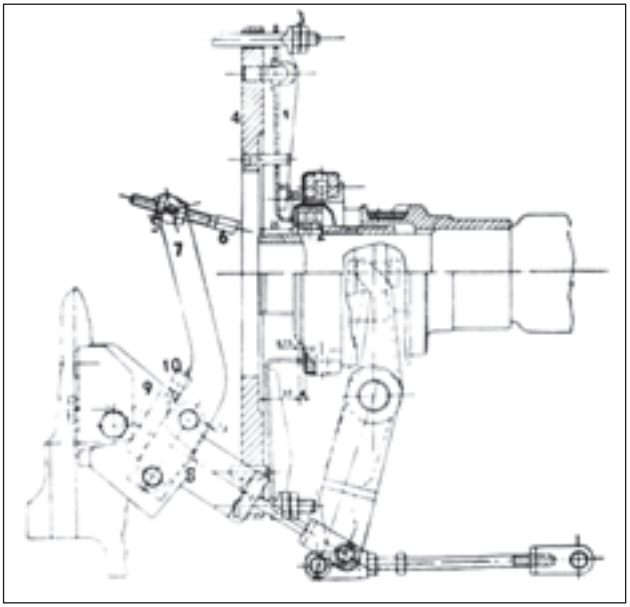


Fig. 188

Engine clutch adjustment

The travel clutch has been designed so that no special adjustment has to be carried out during the whole life time of the clutch lining. All three clutch levers (Fig. 188/1) are flush and in contact with the bearing of the clutch release sleeve (Fig. 188/2). In case that one or two travel clutch levers have greater play than 0.15 mm from the bearing, adjust the levers with the nuts (Fig. 188/3) so that the levers would be in contact with the bearing. A complete wear of the travel clutch lining can be recognized by the clutch slip. When replacing the clutch plate, adjust the clutch to the proper value already when the tractor is dismounted and adjust the clutch lever (Fig. 188/1) by the nuts (Fig. 188/3) to 25 mm from the recess in the clutch shield (Fig. 188/4). The difference in the lever adjustment should not be greater than 0.15 mm. After the engine has been attached to the gearbox, press the clutch pedal fully approx. five times.

Then press the clutch pedal by 150 mm (measured at the edge of the clutch pedal) and adjust the lever (Fig. 188/7) of the transmission brake (Fig. 188/6) by the nuts (Fig. 188/5) to a distance of 1.5 mm from the stop (Fig. 188/8) on the disengaging cylinder bracket (Fig. 188/9) and secure the lock nuts (Fig. 188/5) by tightening them against each other. The clutch is now adjusted. Further check only the flush of the travel clutch lever adjustment during the operation. The bleeding of the clutch cylinder will be done with help of a bleeding screw (Fig. 188/10).
The play between the piston rod of the clutch master cylinder and the clutch pedal should be 0.5 to 1 mm (which corresponds to 3—6 mm stroke at the edge of the pedal.) The play can be adjusted with the pedal stop screw. When an air-operated disengaging cylinder of the torque multipler is being fitted, a piston rod with a protruding end will be used which goes through the pin of the clutch pedal. Check whether a 0.5 to 1 mm play between the master cylinder piston and the piston rod exists by grasping the protruding end of the piston rod with your hand. In this execution the play is not checked at the edge of the clutch pedal.

Checking and adjustment of the band hand brake

In the first place make sure whether the hand lever pins are in the basic position of the band bracket. If not, adjust them. The hand brake lever should be in the unbraked position.

Adjust the hand brake in the following way:

1. Remove the cover of the hydraulic control levers and loosen the adjusting nut on the right band brake.
2. Loosen the adjusting nut on the left band brake — the access to the nut is through the opening in the floor or from the rear side of the tractor (Fig. 186).
3. Pull the hand brake so that the ratchet is in the third tooth of the ratchet wheel. Tighten the adjusting nut on the left band brake so that the spring element of the tie rod is not depressed. After the spring element has been depressed, the ratchet should be able to move to the fifth tooth of the ratchet wheel.
4. During the tractor operation adjust the braking effect on the right band brake with an adjusting nut so that the braking effect would be the same on both wheels when driving forward.
5. After the adjustment replace the cover of the hydraulic control levers.

Checking and adjustment of the foot shoe brakes

After bleeding the brake system check the effectiveness of the foot-operated brakes whether both wheels have the same braking effect. The balance will be achieved by the adjustment of the piston rods of the master cylinder (Fig. 189/1).
In principle each of the two piston rods should have before the adjustment a minimum play of 0.5 mm (which represents a stroke of 3.5 mm on the pedal) with the pedals unlatched.

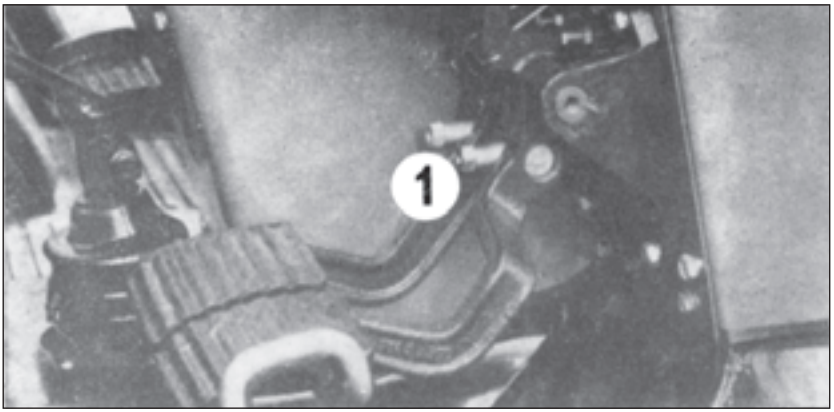


Fig. 189

The adjustment itself is to perform with the pedals latched. The lock nut of the piston rod of the brake master cylinder on the brake with the greater braking effect will be unscrewed and the piston rod will be released so that the previous play of 0.5 mm will be increased. This should be done until the braking effect of the wheels is identical. However, a maximum play between the piston rod and the master brake cylinder may be 5 mm (35 mm on the pedal). But the minimum play of the second piston rod must not drop under 0.5 mm. Secure the piston rods with locking nuts after the adjustment.

Checking and adjustment of the foot brake and the hand disk brake

The checking and the adjustment of brakes, if needed, should be carried out regularly in the technical maintenance 3 (every 600 engine hours), with the exception of the hydraulic brake system regarding a leakage and the level of the brake fluid in the vessel which should be done daily. If the stroke of the latched brake pedals is greater than 140 mm (measured in the middle of the pedal plate), an adjustment must be carried out immediately, without regard to the schedule of the technical attendance.

After removing the cover from the brake cylinder, adjust the self-locking adjusting nuts (Fig. 190/1) on the right and the left side as follows:

— Jack up the rear wheels so that they can be rotated freely by hand,
— tighten the self-locking adjusting nut (Fig. 190/1) until it is no more possible to rotate the rear wheel by hand,
— loosen the nut by 1 turn.

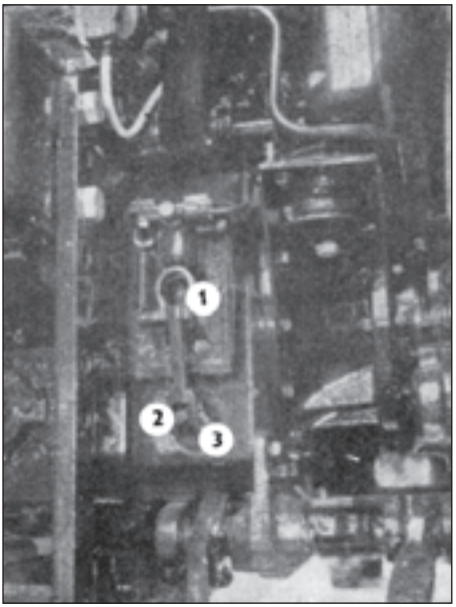


Fig. 190

Repeat the same procedure on the other wheel. This adjustment can be repeated several times during the tractor operation, but when the end of the draw rod protrudes the adjusting nut (Fig. 190/1) by 10 mm or when the braking effect decreases (the disk brake lugs bear against the bearing surface of the brake housing), the brakes are to be inspected and the brake plates replaced.

After the adjustment of the foot brake check the hand brake state. The hand brake lever (Fig. 48/1) has to be in its basic (brake-off) position. The self-locking nut on the hand brake rod (Fig. 190/2) must be in contact with the brake lever pin (Fig. 190/3). If not, carry out the supplementary adjustment, however, take care not to move the disk brake lever from its basic position.

After completing this basic adjustment check the effectiveness of the foot brakes, whether both brakes have the same effect. If not, slacken the adjusting nut (Fig. 190/1) on the brake with the greater braking effect by the necessary value, but not more than by 1 turn.

The play between the master cylinder piston and the pedal piston rod (Fig. 189) should be adjusted within 0.5 to 1 mm which corresponds to a stroke of 3.5 to 6 mm on the pedal.

Notice: Replace the self-securing adjusting nut M 12 (Fig. 190/1) by a new one every time when dismantling the brakes. Replace the self-securing adjusting nut M 8 (Fig. 190/2) by a new one every time when dismantling the hand brake draw rod.

Checking and adjustment of the air brakes

Service brake

In order to coordinate the brakes of the tractor and the trailer, a rocking lever (Fig. 191/3) is inserted between the pressure compensator (Fig. 191/1) and the brake valve (Fig. 191/2). The backlash between the compensator piston and the fork (Fig. 191/4) has to be eliminated. To do so, release the lock nut and turn the draw rod (Fig. 191/5). After the backlash elimination tighten the draw rod with the lock nut. The draw rod is to be attached to the lever (Fig. 191/3), namely in the second hole from the bottom. The other holes, the first or third from the bottom, can be used with regard to the various types of the trailers or saddle trailers after the tractor set has been tested.

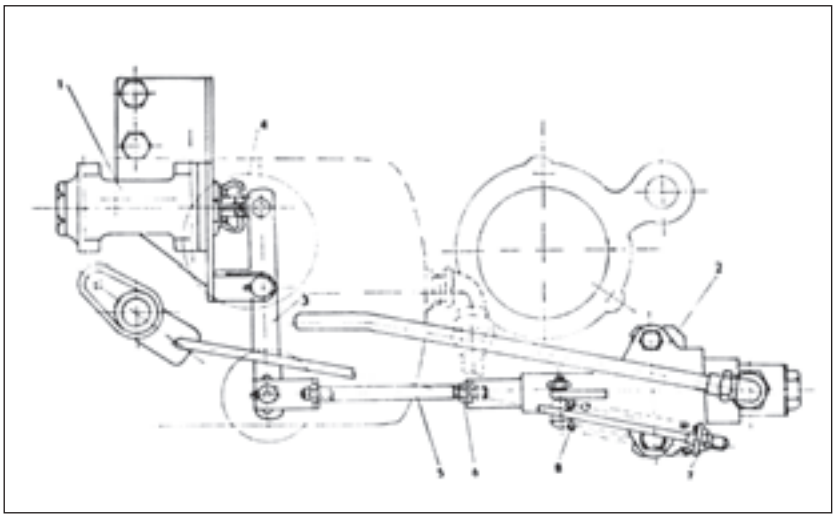


Fig. 191

Alternative adjustment:

1. Fill the air tank with the air to a pressure 590±20 kPa.
2. Screw the draw rod (Fig. 191/5) slowly into the fork till the air „hisses" for the first time from the brake valve and the pressure on the gauge, which has been connected to the clutch head (Fig. 98), partially drops for the first time. Then turn the draw bar by 1/4 up to 1/2 of a turn in the opposite direction. Lock the draw bar (Fig. 191/5) in this position with the nut (Fig. 191/6).
3. Check whether the brake releasing is satisfactory, with the trailer connected.

Notice: The pressure gauge must have the class of accuracy 2.5 %. The pressure governor adjustment or its repair, if need be, has to be performed in a specialized workshop.

Function check

With the brake pedal very slowly depressed, the draw bar (Fig. 191/5) should move 1.2 to 2 mm, then the pressure at the trailer coupling head will drop to zero. Just after this drop, if the pedal is further pressed down, the draw rod must move at least another 2 mm. Similarly, the pressure at the trailer coupling head will drop to zero when pulling the hand brake lever to the third tooth of the ratchet wheel.

Attention: When checking the air brake function, observe the air pressure indicator of the pressure gauge on the dashboard and check whether the pressure governor is correctly adjusted.

Fig. 192

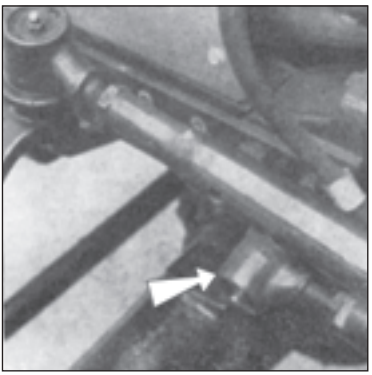


Fig. 193

Parking and emergency brake

The synchronization of the tractor hand brake and the trailer brakes is adjusted with a nut (Fig. 191/7). The nut has to be adjusted so that the spring (Fig. 191/8) is not preloaded and is without a play.

Maintenance of the power-assisted steering

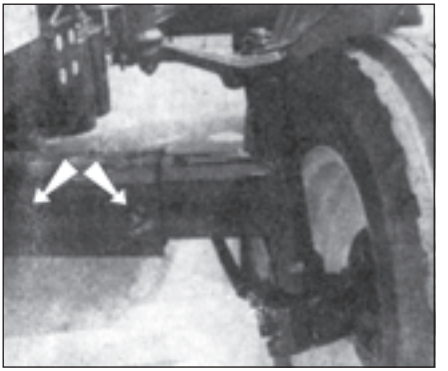
After the wire spring ring has been released, loosen the ball stud cover of the power-assisted steering cylinder (Fig. A/19 — scheme of lubrication) and grease the head. After the greasing turn the steering wheel a few times in both directions, with the engine stopped, in order to remove excessive grease from the head of the power-assisted steering. Then replace the knuckle pin cover and secure it with the wire spring ring.

Play adjustment of the tapered roller bearings of the front wheels

This sort of adjustment will be carried out only on tractors without the front wheel drive axle.

1. Unscrew the bearing cover (Fig. 192) and remove the split pin.
2. Tighten the castellated nut by a torque of 15 Nm.
3. Unscrew the castellated nut by 180° and loosen the bearing by knocking the wheel hub with a wooden mallet.
4. Retighten the castellated nut with a torque wrench by a torque of 3—5 Nm so that the nearest notch is in correspondence with some of the holes in the pivot. The wheel must be able to turn without a perceptible play but without resistance and jamming as well.
5. Secure the castellated nut with a split pin and replace the bearing cover of the front wheel.

Notice: The other wheel is to be adjusted in the same way. The front axle must be jacked up.



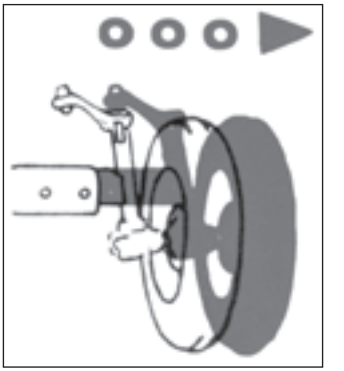


Fig. 194

Adjustment of the front wheel track

According to the type of the tasks it is possible to change the front wheel track on tractors Z 5211, Z 6211, Z 7211 and Z 7711 as follows:

1. Jack up the front axle and support it with a wooden block.
2. Remove the nuts and bolts from the front axle extensions (Fig. 194).
3. Unscrew the nut on the steering connecting rodand slightly pull the rodout.
4. Pull the extensions out to the required wheel track and secure them with nuts and bolts.
   The tracks for the individual types of the axle extensions and various tyres are listed in the section „Main technical data of ZETOR tractors".
5. Screw the bolt into the steering connecting rod and secure it.
6. Check the front wheel toe-in.

Toe-in of the front wheels

In order to prevent a quick and uneven wear of the front tyres, pay attention to the correct toe-in of the front wheels. The tractors Z 5211, Z 6211, Z 7211 and Z 7711 have the toe-in of the front wheels within 2—6 mm.

Notice: We recommend to turn the tyres on the wheel rims every 200 engine hours on tractors used for the transport.

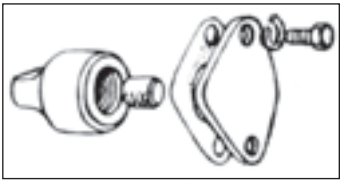


Fig. 195

Way of adjustment

1. Loosen the lock nuts on both ball joints of the steering connecting rod behind the wheels.
2. Adjust the specified toe-in (measured on the wheel rim side) by rotating the central part of the steering connecting rod.
3. Retighten the lock nuts on both ball joints of the connecting rod. The top surfaces of the ball joints have to be parallel.

Note: The toe-in must always be checked after the front wheel track of the front axle has been changed or after having modified the locking of the extensions.

Modification of the sprung extensions (Fig. 195) **to the locked ones**

To prevent damage of the spring in the sprung extensions, which are equipped with the locking device, if the tractor operates with a loader etc., the extensions can be locked by fixing them with a dead stop (Fig. 195). The modification of the sprung extensions to the locked ones proceed as follows:

1. Unscrew bolts and remove the cover from the extension body.

2. Check whether there is a groove in the locking coupling opposite to the hole in the extension body and, if necessary, adjust the correct position by depressing or lifting the axle.
3. Slide the locking piece into the hole of the extension body. The machined part must fit into the groove of the locking coupling.
4. Slide the elastic insertions into the holes of the locking pieces.
5. Refit the cover cap with a gasket and tighten it with bolts. It will be necessary to overcome the resistance of the elastic insertion.

   A bolt 20×1.5 can be used when removing the locking pieces. Screw the bolt into the threaded hole of the locking piece use the bolt as a puller.

Change of the rear wheel track

The adjustment of the individual rear wheel tracks in steps of 75 mm is achieved by changing the wheel rims and disks (Fig. 196) and (Fig. 197).

The track values for the individual tyres are stated in the tables (Main technical data).

The track can be adjusted according to the tyre width ranging from 1 275 to 1 800, from 1 350 to 1 800 or from 1 425 to 1 800 mm.

Change the track only with the rear part of the tractor jacked up, so that the wheels can rotate freely. Do not forget to put wedges under the front wheels to prevent movement before jacking up. Tighten all bolts properly. The bolts connecting the wheel disk to the rim have to be tightened with a torque of 160—180 Nm, the nuts connecting the wheel disk with the wheel shaft have to be tightened with a torque of 450—470 Nm.

Z 5211 to Z 5245

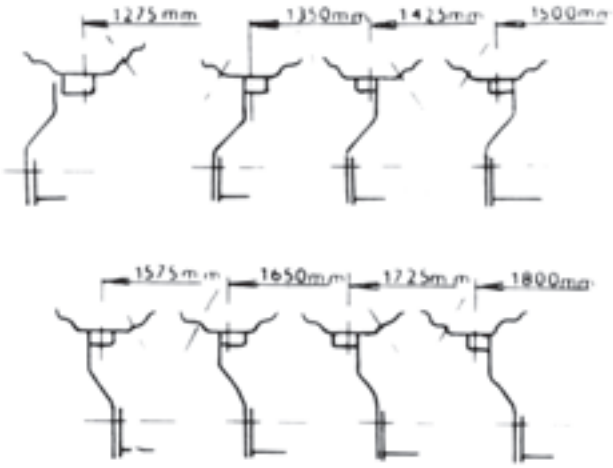


Fig. 196

Z 6211 to Z 7745

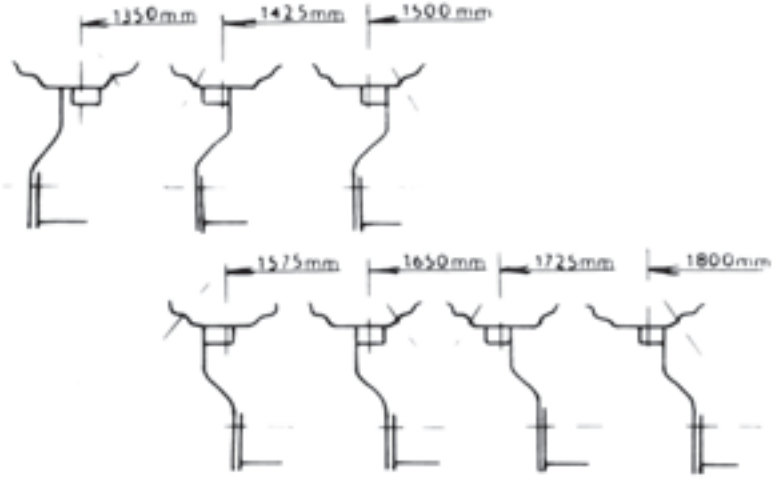


Fig. 197

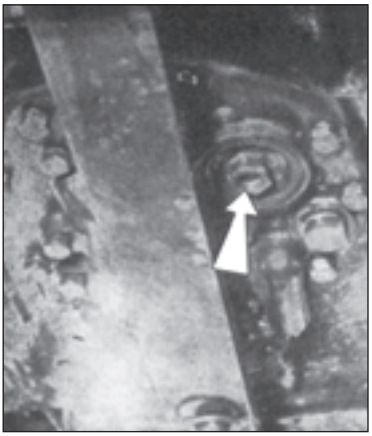


Fig. 198

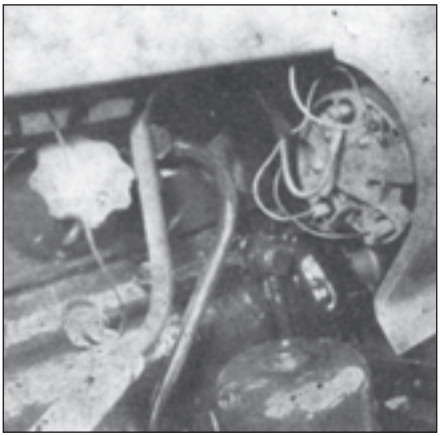


Fig. 199

Hydraulic system maintenance

Cleanliness is very important when changing the oil. The oil filling for the hydraulic system is shared between the gearbox and the final drive. The filling hole for oil is located in the gear-box cover.

Every 200 engine hours clean the suction strainer with the magnetic element (Fig. 198) of the hydraulic pump which is situated on the bottom cover of the hydraulic pump. The removal and cleaning of the suction strainer with the magnetic element is to be performed as follows:

1. Unscrew the nut from the hydraulic pump cover (Fig. 198).
2. Pull the nut with the magnet and the strainer downwards.
3. Pull the strainer down from the magnetic element and wash it in clean diesel oil. Wipe off impurities from the magnetic element.
4. Reassemble the suction strainer with the magnetic element in the reverse order.

Alternator maintenance

The alternator (Fig. 199) requires no maintenance during the operation, however it is important to prevent that water or diesel oil makes its way into the alternator. Further remeber the following recommendations:

1. The negativ pole of the storage battery must alway be earthed to the body and the positive pole to the alternator. A battery connected in the reversed polarity will damage the whole semiconductor system. It will then be impossible to excite the alternator.

2. When using an auxiliary battery for starting the tractor, do not forget to connect it correctly, i.e. the positive pole to the positive pole and the negative pole to the negative pole.
3. When replacing some part in the charging circuit, disconnect the battery. This will prevent random short-circuits on terminals.
4. The battery must not be disconnected when the engine is running.
5. Never put an alternator in a no-load condition into operation, it means with the wire disconnected from the „+B" terminal and with the „M" terminal connected. An extremely high voltage of the alternator would result in this way when increasing the speed, and this would destroy the semiconductors.
6. Never short-circuit the alternator or the regulator terminals during the operation.
7. The alternator must not be excited externally, otherwise the semiconductors would be damaged.
8. Take care of a perfect electric contact on the terminals and a perfect alternator and regulator earthing.
9. It is necessary to replace a burned-out pilot lamp indicating the battery charging.
10. All conductors have to be disconnected from the alternator when the tractor is being repaired with use of an electric welder. Protect the „÷B" wire against short-circuit.
11. The alternator pulley should be tightened by a torque of 45±5 Nm.
12. When starting with the help of an auxiliary source, it must not come to a reverse connection of the terminals or the semiconductor part, destruction will result.

Attendance and maintenance of the storage battery

The storage battery needs a special care in the summer when it is a higher evaporation. Check whether the battery is properly tightened, perfectly connected, check cleaness and the level of the electrolyte at least once in two weeks in the summer and every four weeks in the winter. Replenish the electrolyte solely with the distilled water so that the level would be 5mm above the separators. Replenish always before the drive in order to get proper mixing with the electrolyte. Keep the electrolyte density at 1.28 which corresponds to 32° Bé (in tropic climate 1.23, i.e. 27° Bé). It is allowed to replenish with the electrolyte only if it has been proved that it had been poured out from the battery cells.

ATTENTION: The electrolyte can freeze in a discharged battery in the winter and destroy the battery. Therefore never leave the battery in a discharged condition.
When returning the battery to the box, take care that the conductor from the electric starter to the positive terminal of the battery is clamped securely by a clip to the gearbox and protected by a rubber hose in the entire length, with the exception of the last 10 cm at the battery clamp. The starter cable must form a loop above the battery. The battery contacts must be cleaned and greased with plastic grease.

Replacement of bulbs

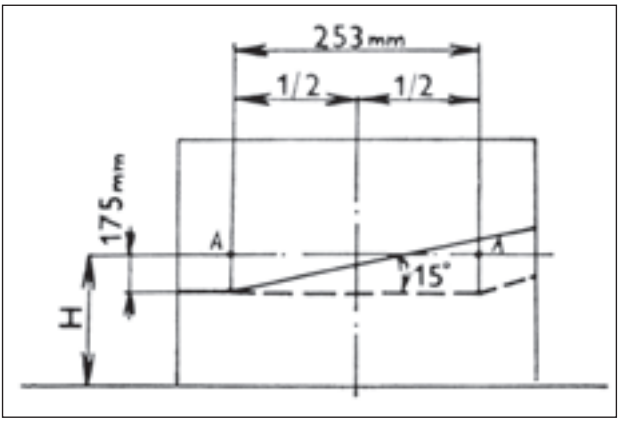
In order not to damage the conductors when replacing bulbs of asymmetric headlights, diameter 130, behind the bonnet front grill (Fig. 184), follow this procedure:

After the grill has been removed, loosen three cross-slotted bolts on the top part of the fastening frame and by turning it slightly pull it out. Remove the optical insertion piece from the holder and take off the rubber cover. Release the asymmetric bulb closure while using light pressure and an anti-clockwise turn and remove the bulb from the parabolic mirror neck. When replacing the bulb, take care that the locking projection on the bulb circumference matches always the slot in the mirror neck. Reassemble the headlight in the reverse procedure. When changing the bulb in the asymmetric headlights with a diameter 110 mm in the cabin roof, take out the side part of the grill after unscrewing three cross-slotted bolts, loosen three bolts with cylindrical head and take out the headlight from the cabin roof while moving it round. Disconnect the socket and take out the bulb in the same way as on headlights in the radiator grill.

Procedure of headlight adjustment

Each headlight of the tractor has to be correctly adjusted. The adjustment should be checked and if necessary corrected every time when the optical insertion piece or the bulb have been replaced. Exact adjustment can be achieved only by use of a special apparatus for lights adjustment. The basic vertical adjustment of the headlights with dimmed light in the tractor grill is measured while standing and at a ready weight of the tractor minus 3.5 %.

Fig. 200



A non-professional checking of the adjustment of asymmetric headlights in the tractor grill is performed in the following way:

1. Drive the tractor within 5 m from a vertical wall. The tractor must be on a horizontal surface.
2. The tyres should be inflated to a specific pressure before the adjustment.
3. Measure the height from the centre of the tractor headlights to the ground (measure H), from this value substract the measure given in the Fig. 200, i.e. 175 mm, and draw a line parallel to the ground on the wall. Then check and if necessary adjust the centres of the area lighted with the distance lights to the point „A".
4. Adjust the dividing line between the light and the darkness with help of the dimmed light so that is lies under the drawed line or at least on the line. The right part of this dividing line is about 15° upwards from the centre of the light (Fig. 200) — the full line refers to the left headlight, the dotted line refers to the right headlight. The dimmed light has to be adjusted so that no point of the lighted area in the road surface towards the left from the vertical axis which runs through the headlight centre would be more distant than 115 metres from the front edge of the tractor. Each headlight has to be adjusted separately (the other headlight has always to be covered).
5. To adjust the headlights, use the bolts placed on the edge of the cases, under the decorative frame. The bolts for a horizontal regulation are on both sides, the bolts for a vertical adjustment are in the upper part.

Notice: Adjust the asymmetric headlights in the cabin roof in such a way that the dividing line of the light and the darkness would in the distance of 15 metres from the tractor lights, correspond to half the headlight height over the ground and that the light beams would be parallel to the longitudinal tractor axis.

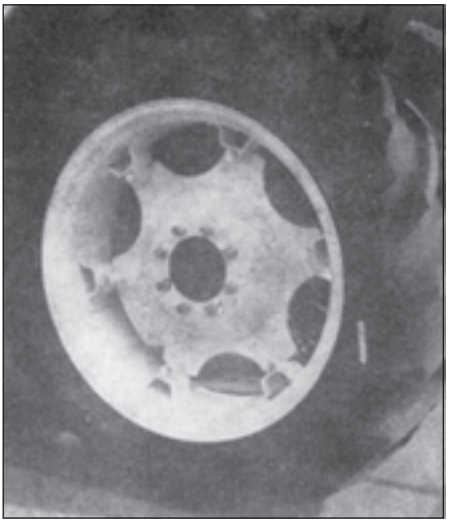


Fig. 201

TYRES

Check regularly the outer surface of the tyre and find out whether the tyres have defects in the sidewall or in the part above the tyre bead and a damaged frame. Defective tyres have to be discarded and not used any more.

Check the pressure regularly. If the tyres are underinflated, it comes to a greater elastic deflection of the frame which results in a greater material stress. A premature failure and a later defect occurence is then the consequence. Check the pressure before the drive, with cold tyres. Tyres are getting warm and the pressure rises during the drive, especially in summer months. It is not allowed to adjust the pressure by deflating the air.

Select the inflation pressure both with regard to the tyre loading by the tractor itself and by the coupled-on equipment, and its working tasks in various soil conditions or in dependence on a specific traction resistance by agricultural tasks or ploughing. It must not come to a corrugation of the tyre side parts by a minimum inflation when ploughing. The basic recommended inflation pressures are stated in the tables. When working in light soil (dry, sandy ground), use the lower stated pressure. The higher pressure is used for tasks in heavy and compact soils. Do not drive on underinflated tyres or on tyres which are deflated as the air has escaped in consequence of a tyre damage, not even to a short distance as such a drive results in tyre casing damage.

If the tractor is left standing for a short time, inflate the tyres to the pressure value recommended for driving on roads. When the tractor has been out of operation for a longer period (storing), place a wooden block under the tractor and reduce the tyre pressure to a minimum. (The wheels must not touch the ground.)

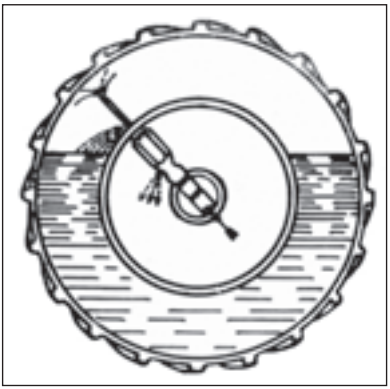
Tyre attendance and maintenance

Use the tyre inflator for inflation. If air brakes or auxiliary pneumatic devices are fitted, a combined air pressure governor replaces the tyre inflator (Fig. 161) which has a function of a pressure regulator, tyre inflator and a safety valve. Before inflating the tyres, unscrew the wing nut of the combined pressure governor and screw in a tyre inflation hose instead. Screw the hose to the threaded end so that the return valve is pressed down. The tyre cannot be inflated just in the moment when the drain valve of the combined pressure governor is going to be open, not before the pressure in the system drops below 0.6 MPa and the drain valve has closed. It is necessary to screw in the wing nut again after the inflation.

Filling the tyres with liquid (Fig. 202, 203)

All inner tubes of the rear tyres are provided with a water valve (Fig. 203) which enables to fill the tubes with water. Either a gravity tank can be used when filling the liquid or the tyres can be filled with water under pressure. To fill the front tyres and the rear tyres 9.5-32 and 9.5-42 with a liquid is not allowed.

Fig. 202



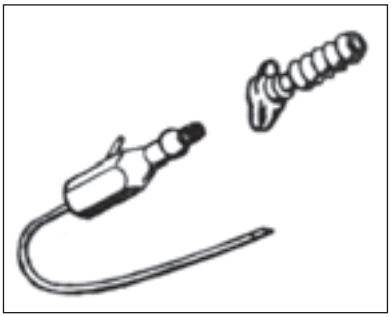


Fig. 203

Table 7

Antifreeze solution for filling of tyres

Water for preparation of solution in litres	Calcium chloride $CaCl_2$ in kg	Hydrated lime in kg	Solution density at 20 °C	Freezing point (approx.) °C	Total volume in litres	Additional weight in kg
45	11.8	0.21	1.13	−18	50	57
45	13.9	0.23	1.18	−25	50	59
45	15.4	0.25	1.21	−30	50	61

Preparation of the solution when filling the tyres in winter:

1. Add anhydrous calcium chloride $CaCl_2$ to water, never the other way round.
2. The solution is not dangerous, however be carefull when handling it. Wash away spilled drops with water.
3. Allow the solution to cool down before you start to fill the tyres. Keep to the specified quantity of hydrated lime.
4. The solution must not come in contact with metallic parts or electrical installation. However, it is not harmful to the valve of the tyre inner tube.
5. The antifreeze solution, prepared in the mentioned mixture, must not be used for the engine cooling system.

Table 8

Maximum weight of the liquid used for the rear tyres in kgs

12.4–28	12.4–32	12.4–36	13.6–36	14.9–28	16.9–28	16.9–30	16.9–34
2×125	2×140	2×160	2×180	2×190	2×215	2×240	2×250

Filling procedure:

1. Lift the tractor to relieve the load of the tyre and position the tyre with the valve upwards.
2. Deflate the tyre completely and unscrew the insert of the water valve.
3. Screw on the adaptor for water filling and fix a water hose to the adaptor. Fill the inner tube with the specified quantity of the liquid.
4. Remove the hose and unscrew the adaptor for water filling.
5. Screw on the insertion piece of the water valve and inflate the tyre to the specified pressure.
6. After inflation of the inner tube replace the dust cap on the valve.
7. Proceed with the other tyre in the same way.

Draining the liquid from the tyres

1. Lift the tractor to relieve the load of the tyre and position the tyre with he valve upwards.
2. Deflate the tyre inner tube and unscrew the insert of the water valve. Position the tyre with the valve downwards.

   Note: It is possible that a vacuum could result in the tyre, therefore turn the wheel half a circle now and then so that the valve is in the top position and turn the wheel back again so that the valve is in its lowest position.
3. Remove the remaining liquid by screwing on the adaptor for water filling and inflate the tyre until the liquid ceases running from the air extension tube.
4. When the tyre inner tube si empty, screw off the adaptor for water filling and fix back the air-part of the water valve.
5. Inflate the tyre to the specified pressure and fix the dust cap on the valve.
6. Inflate the other tyre in the same way.

Table 9 **Reccommended tyre pressure of the front wheels Z 5211, Z 6211, Z 7211, Z 7711**

Note: The total load carrying capacity of the tyres stated in the table must not exceed he loading capacity of the axles as stated in the tables 11—19.

Predominate type of work		Tyre dimensions and execution			
		6,00-16	6,50-16	7,50-16	7,50-20
For cultivation, tasks with light implements	Pressure (kPa)	280—330	280—310	230—280	230—280
	Carrying capacity (kgs)	505—560	575—615	660—745	795—875
For ploughing	Pressure	280—330	280—310	230—280	230—280
	Carrying capacity (kgs)	505—560	575—615	660—745	795—875
For road transport	Pressure	280—330	280—310	230—280	230—280
	Carrying capacity (kgs)	505—560	575—615	660—745	795—875
For tasks with the front loader (8 km/hour)	Pressure	—	385	350	350
	Carrying capacity (kgs)	—	max. 1230	max. 1490	max. 1750

Table 10 **Reccommended tyre pressures of the front wheels for tractors Z 5211 — Z 7745**

Note: The tyre combination for the individual tractor types Zetor 5211—7745 are stated in the table „Main technical data of tractors".

The total load-carrying capacity of the tyres stated in the table must not exceed the loading capacity of the axle as stated in tables 11 to 19.

Predominate type of tasks		Tyre dimensions and execution									
		12,4-28 6 PR	14,9-28 8 PR	16,9-28 8 PR	16,9-30 8 PR	*9,5-32 6 PR	12,4-32 6 PR	16,9-34 8 PR	12,4-36 6 PR	13,6-36 6 PR	*9,5-42 8 PR
For cultivation tasks with light implements	Pressure (kPa)	150—170	90—110	120—140	110—140	* 160	130—150	110—130	120—160	100—130	160
	Carrying capacity (kg)	1185—1275	1265—1405	1765—1925	1730—1990	975—1065	1170—1265	1830—2015	1185—1285	1240—1425	1040
For ploughing	Pressure (kPa)	—	140—160	140—160	140—160	—	150—170	130—150	150—170	140—160	—
	Carrying capacity (kg)	—	1610—1750	1925—2095	1990—2165	—	1265—1355	2015—2200	1335—1440	1490—1615	—
For road transport	Pressure (kPa)	170—200	180—210	170—200	170—200	210—230	170—200	170—200	170—200	160—190	—
	Carrying capacity (kg)	max. 1275	max. 1880	max. 2175	max. 2245	max. 1065	max. 1355	max. 2380	max. 1440	max. 1615	—

* This size of the tyres is used in cases of double rear wheels for cultivation only.

Table 11 **The main technical parameters of the tractor Z 5211 in the MOTOKOV execution** (single-tyre mounting)

Parameter description	6,00-16 12,4-28	6,00-16 12,4-32	6,50-16 14,9-28	6,50-16 12,4-32	7,50-16 12,4-32	7,50-16 14,9-28	7,50-16 12,4-36	7,50-16 13,6-36	7,50-16 16,9-28
The main dimensions (mm)									
Regarding the ready weight of the tractor in Motokov execution with the cabin BK 7011 Allowed tolerance ±2 %									
Overall length without the implement hitch	3308	3358	3360	3358	3358	3360	3410	3435	3395
Overall length with the implement hitch					3630				
Width at the standard rear wheel track 1 425 mm					1800				1854
Height to the top of the exhaust pipe (the extended exhaust silencer with the exhaust flap, without spark arrester)	2614	2628	2653	2651	2668	2670	2683	2691	2676
Tractor height to the top of the cabin (the cabin with the roof opening)	2512	2555	2560	2553	2565	2569	2610	2644	2642
Height to the upper rim of the steering wheel	1752	1784	1800	1796	1805	1810	1839	1857	1831
Ground clearance according to the Czechoslovak standard ČSN 30 0026									
– without implement hitch (under the front axle beam)	462	462	494	494	517	517	517	517	517

Parameter description	6,00-16 12,4-28	6,00-16 12,4-32	6,50-16 14,9-28	6,50-16 12,4-32	7,50-16 12,4-32	7,50-16 14,9-28	7,50-16 12,4-36	7,50-16 13,6-36	7,50-16 16,9-28
– with the implement hitch (under the swinging draw bar at the lowest position)	280	347	347	337	330	340	401	440	389
Height of the implement hitch for a trailer (to the mouth centre) – in 50 mm steps	623–823	690–890	691–891	680–880	673-873	683-883	744-944	783-983	724-924
Height of the swinging bar (to the inner lower fork surface)	320	387	388	377	370	380	441	480	413
Height of the implement hitch for the single-axle trailer (to the hook bearing surface)	371	433	435	426	421	431	487	523	474
Height of the P.T.O.-shaft	603	664	665	666	653	662	714	748	700
Front wheel track – standard	1350 (light extensions)		1350 (light extensions) 1450 (heavy extensions)		1425 (heavy extensions)				
– adjustable for agricultural use	1350, 1500, 1800 (light extensions)		1350, 1500, 1800 (light extensions) 1375, 1450, 1525, 1800 (heavy extensions)		1350, 1425, 1500, 1800 (heavy extensions)				
Rear wheel track – standard	1425								
– adjustable in 75 mm steps for agricultural use	1350-1800		1425-1800	1350-1800		1425-1800	1350–1800		1425-1800
Wheel base	2123								

Parameter description	6,00-16 12,4-28	6,00-16 12,4-32	6,50-16 14,9-28	6,50-16 12,4-32	7,50-16 12,4-32	7,50-16 14,9-28	7,50-16 12,4-36	7,50-16 13,6-36	7,50-16 16,9-28
Distance of the tractor centre of gravity from the rear wheel axle	701	693	688	693	696	691	688	678	673
Height of the tractor centre of gravity above the basic plane	755	855	860	850	860	870	920	950	899
Outer diameter of the turning circle (according to the standard ČSN 30 0552) with one wheel braked					7000^{+500}				
Outer tyre-mark turning circle (according to the ČSN 30 0552) with one wheel braked					6600^{+500}				
Weights (kgs) for the MOTOKOV execution – standard (allowed tolerance ±5 %)	2585	2615	2635	2615	2620	2640	2650	2690	2710
Constructional tractor weight – with the cabin									
thereof: to the front axle	845	845	845	845	850	850	850	850	850
to the rear axle	1740	1770	1790	1770	1770	1790	1780	1840	1860
– without the cabin	2285	2315	2335	2315	2320	2340	2350	2390	2410
thereof: to the front axle	770	770	770	770	775	775	775	775	775
to the rear axle	1515	1545	1565	1545	1545	1565	1575	1615	1635
Ready weight of the tractor – with the cabin	2680	2710	2730	2710	2715	2735	2745	2785	2805
thereof: to the front axle	885	885	885	885	890	890	890	890	890
to the rear axle	1795	1825	1845	1825	1825	1845	1855	1895	1915
– without the cabin	2380	2410	2430	2410	2415	2435	2445	2485	2505
thereof: to the front axle	810	810	810	810	815	815	815	815	815
to the rear axle	1570	1600	1620	1600	1600	1620	1630	1670	1690

Parameter description	6,00-16 12,4-28	6,00-16 12,4-32	6,50-16 14,9-28	6,50-16 12,4-32	7,50-16 12,4-32	7,50-16 14,9-28	7,50-16 12,4-36	7,50-16 13,6-36	7,50-16 16,9-28
Maximum weight of the additional ballast weights									
– in the front					155 (135+20)				
– in the rear					270				
Weight of water in the rear tyres	2×125	2×140	2×190	2×140	2×140	2×190	2×160	2×180	2×215
Maximum allowed axle loading (kgs), inflation (kPa)									
The front rigid axle (track 1 350 mm – light extensions) at a maximum speed									
30 km/h	1120-330		1230-310				–		
25 km/h	1280-330		1410-310				–		
20 km/h	1510-330		1600-310				–		
8 km/h	1600-340		1600-310				–		
The front rigid axle (track 1 425 mm or 1 450 mm – heavy extensions) at a maximum speed									
30 km/h	–		1230-310				1300-280		
25 km/h	–		1410-310				1500-280		
20 km/h	–		1660-310				2010-280		
8 km/h	–		2460-390				2980-350		
The front sprung axle (track 1 350 mm – light extensions without locking) at a maximum speed									
30 km/h	1120-330		1120-280				–		
25 km/h	1120-330		1120-280				–		
20 km/h	1120-330		1120-280				–		
8 km/h	1120-330		1120-280				–		

Parameter description	6,00-16 12,4-28	6,00-16 12,4-32	6,50-16 14,9-28	6,50-16 12,4-32	7,50-16 12,4-32	7,50-16 14,9-28	7,50-16 12,4-36	7,50-16 13,6-36	7,50-16 16,9-28
The front sprung axle (track 1 425 mm or 1 450 mm – heavy extensions with locking) at a maximum speed									
30 km/h (unlocked springing)	–		1215-310				1215-210		
25 km/h (unlocked springing)	–		1215-310				1215-210		
30 km/h (locked springing)	–		1230-310				1300-280		
25 km/h (locked springing)	–		1410-310				1500-280		
20 km/h (locked springing)	–		1660-310				2010-280		
8 km/h (locked springing)	–		2460-390				2980-350		
The rear axle at a maximum speed (track 1 425 mm) – with disk/drum brakes									
30 km/h	2550/-170	2710/-170	3360/-150	2710/-170	2710/-170	3360/-150	2880/-170	3230/-160	3600/-150
25 km/h	2730/2730 -170	2900/2900 -170	3590/3590 -150	2900/2900 -170	2900/2900 -170	3590/3590 -150	3080/3080 -170	3450/3450 -160	3600/3600 -150
20 km/h	3060/3060 -170	3250/3250 -170	3600/3600 -150	3250/3250 -170	3250/3250 -170	3600/3600 -150	3450/3450 -170	3600/3600 -160	3600/3600 -150
8 km/h	3570/3570 -215	3600/3600 -200	3600/3600 -150	3600/3600 -200	3600/3600 -170	3600/3600 -150	3600/3600 -190	3600/3600 -160	3600/3600 -150
Forces (kN) (allowed tolerance ±5 %)									
A maximum tractive force in the swinging bar on concrete ground, the tractor in a ready execution, with the ballast weights at a slippage 15 %									
– with the cabin					23,24				
– without the cabin					21,04				

Parameter description	6,00-16 12,4-28	6,00-16 12,4-32	6,50-16 14,9-28	6,50-16 12,4-32	7,50-16 12,4-32	7,50-16 14,9-28	7,50-16 12,4-36	7,50-16 13,6-36	7,50-16 16,9-28
A maximum tractive force in the hitch for a trailer, the tractor in a ready execution, with the ballast weights and water in the rear tyres									
– with the cabin					25,67				
– without the cabin					23,46				
The lifting force at the end of the lower draw bars of the three-point hitch is guaranteed within the entire range.					17,5				
The lifting force at the end of the lower draw bars of the front three-point hitch is guaranteed within the entire range.					–				
Output and fuel consumption (kW, g/kW.h) The output on the P.T.O.-shaft at the nominal engine speed and engaged 540 r.p.m. of the P.T.O.-shaft.					31 (27,9)				
The specific fuel consumption corresponding to the above given output.					268				

Note: The output values and the fuel consumption are meant after 100 hours run in of the tractor, the value in parentheses is for information and meant for a tractor which has not been run in yet.

Table 11a **The main technical parameters of the tractor Z 5211 in the MOTOKOV execution** (double-tyre mounting)

Parameter description	6,00-16 2×9,5-32	6,00-16 2×12,4-36	6,50-16 2×9,5-32	6,50-16 2×12,4-36	7,50-16 2×9,5-32	7,50-16 2×12,4-36
The main dimensions (mm)						
Regarding the ready weight of the tractor in the execution with the cabin BK 7011 Allowed tolerance ±2 %						
Overall lenght without implement hitch	3302	3410	3302	3410	3302	3410
Length with the implement hitch	3630					
Width with the standard rear wheel track	2491	2797	2491	2797	2491	2797
Height to the top of the exhaust pipe – the extended exhaust silencer with the exhaust flap, without spark arrester	2628	2656	2650	2680	2667	2698
Tractor height to the top of the cabin (the cabin with the roof opening)	2566	2668	2566	2670	2565	2670
Height to the upper rim of the steering wheel	1769	1833	1781	1846	1790	1856
Ground clearance according to the ČSN 30 0026						
– without implement hitche (under the front axle beam)	462	462	494	494	517	517
– with the implement hitche (under the swinging draw bar at the lowest position)	301	438	291	428	234	420
Height of the implement hitch for a trailer (to the mouth centre) in 50 mm steps	637–837	771–971	628–828	762–962	622–822	755–955
Height of the swinging bar (to the inner lower fork surface)	325	462	316	452	308	444
Height of the implement hitch for the single-axle trailer (to the hook bearing surface)	390	516	383	509	378	504

Parameter description	6,00-16 2×9,5-32	6,00-16 2×12,4-36	6,50-16 2×9,5-32	6,50-16 2×12,4-36	7,50-16 2×9,5-32	7,50-16 2×12,4-36
Height of the P.T.O.-shaft	620	736	616	733	613	730
Front wheel track – standard	1350 (light extensions)		1350 (light extensions) 1450 (heavy extensions)		1425 (heavy extensions)	
– adjustable for agricultural use	1350, 1500, 1800 (light extensions)		1350, 1500, 1800 (light extensions) 1375, 1450, 1525, 1800 (heavy extensions)		1350, 1425, 1500, 1800 (heavy extensions)	
Rear wheel track – standard	1350 2250	1500 2482	1350 2250	1500 2482	1350 2250	1500 2482
– adjustable in 75 mm steps for agricultural use	–	–	–	–	–	–
Wheel base	2123					
Distance of the tractor centre of gravity from the rear wheel axle	654	615	654	615	657	617
Height of the tractor centre of gravity above the basic plane	802	910	806	914	813	925
Outer diameter of the turning circle (according to the ČSN 30 0552) with one wheel braked	7600^{+500}					
Outer tyre-mark turning circle (according to the ČSN 30 0552) with one wheel braked	7100^{+500}					
Weights (kgs) for the MOTOKOV execution – standard (allowed tolerance ±5 %)						
Constructional tractor weight – with the cabin	2775	2960	2775	2960	2780	2965

Parameter description	6,00-16 2×9,5-32	6,00-16 2×12,4-36	6,50-16 2×9,5-32	6,50-16 2×12,4-36	7,50-16 2×9,5-32	7,50-16 2×12,4-36
thereof: to the front axle	845	845	845	845	850	850
to the rear axle	1930	2115	1930	2115	1930	2115
– without the cabin	2475	2660	2475	2660	2480	2665
thereof: to the front axle	770	770	770	770	775	775
to the rear axle	1705	1890	1705	1890	1705	1890
Ready weight of the tractor – with the cabin	2870	3055	2870	3055	2875	3060
thereof: to the front axle	885	885	885	885	890	890
to the rear axle	1985	2170	1985	2170	1985	2170
– without the cabin	2570	2755	2570	2755	2575	2760
thereof: to the front axle	810	810	810	810	815	815
to the rear axle	1760	1945	1760	1945	1760	1945
Maximum weight of the additional ballast weights – in the front	155(135+20)					
– in the rear	–					
Weight of water in the rear tyres	–	–	–	–	–	–
Maximum allowed axle loading (kgs) – inflation (kPa)						
The front rigid axle (track 1 350 mm – light extensions) at a maximum speed 30 km/h	–		–		–	
25 km/h	1280–330		1410–310		–	
20 km/h	1510–330		1600–310		–	
8 km/h	1600–340		1600–310			

Parameter description	6,00-16 2×9,5-32	6,00-16 2×12,4-36	6,50-16 2×9,5-32	6,50-16 2×12,4-36	7,50-16 2×9,5-32	7,50-16 2×12,4-36
The front rigid axle (track 1 425 mm or 1 450 mm – heavy extensions) at a maximum speed						
– 30 km/h	–		–		–	
– 25 km/h	–		1410–310		1500–280	
– 20 km/h	–		1660–310		2010–280	
– 8 km/h	–		2460–390		2980–350	
The front sprung axle (track 1 350 mm – light extensions without locking) at a maximum speed						
– 30 km/h	–		–		–	
– 25 km/h	1120–330		1120–280		–	
– 20 km/h	1120–330		1120–280		–	
– 8 km/h	1120–330		1120–280		–	
The sprung axle (track 1 425 mm or 1 450 mm – heavy extensions with locking) at a maximum speed						
– 30 km/h (unlocked springing)	–		–		–	
– 25 km/h (unlocked springing)	–		1215–310		1215–210	
– 30 km/h (locked springing)	–		–		–	
– 25 km/h (locked springing)	–		1410–310		1500–280	
– 20 km/h (locked springing)	–		1660–310		2010–280	
– 8 km/h (locked springing)	–		2460–390		2980–350	
The rear axle at maximum speed						
– 30 km/h	–	–	–	–	–	–
– 25 km/h	3600/3600	3600/3600	3600/3600	3600/3600	3600/3600	3600/3600
– 20 km/h	–180	–110	–180	–110	–180	–110
– 8 km/h						

Parameter description	6,00-16 2×9,5-32	6,00-16 2×12,4-36	6,50-16 2×9,5-32	6,50-16 2×12,4-36	7,50-16 2×9,5-32	7,50-16 2×12,4-36
Forces (kN) (allowed tolerance ±5 %) A maximum tractive force in the swinging bar on a concrete ground, the tractor in a ready execution, with the ballast weights, at a slippage 15 %						
– with the cabin			22,94			
– without the cabin			20,74			
A maximum tractive force in the hitch for a trailer, the tractor in a ready execution, with the ballast weights and water in the rear tyres						
– with the cabin			–			
– without the cabin			–			
The lifting force at the end of the lower draw bars of the three-point hitch is guaranteed within the entire range			17,5			
Output and fuel consumption (kW, g/kW.h) The output on the P.T.O.-shaft at the nominal engine speed and engaged 540 r.p.m. of the P.T.O.-shaft			31 (27,9)			
The specific fuel consumption corresponding to the above given output			268			

Note:

The output values and the fuel consumption are meant after 100 hours run-in of the tractor, the value in parantheses is for information and meant for a tractor which has not been run-in yet.

Table 12 **The main technical parameters of the tractor Z 6211 in the MOTOKOV execution** (single-tyre mounting)

Parameter description	6,50-16 16,9-28	6,50-16 16,9-30	6,50-16 12,4-36	6,50-16 14,9-28	7,50-16 16,9-30	7,50-16 12,4-36	7,50-16 13,6-36	7,50-20 16,9-30	7,50-20 16,9-34
The main dimensions (mm)									
(Regarding the ready weight of the tractor in Motokov execution with the cabin BK 7011)									
Allowed tolerance ±2 %									
Overall length without implement hitch	3530	3555	3545	3495	3555	3545	3570	3555	4005
Lenght with implement hitch					3800				
Width at the standard rear wheel track 1 425 mm	1854	1854	1800	1800	1854	1800	1800	1854	1854
Height to the top of the exhaust pipe (the extended exhaust silencer with the exhaust flap, without spark arrester)	2661	2670	2665	2652	2687	2731	2690	2738	2741
Tractor height to the top of the cabin (the cabin with the roof opening)	2597	2632	2612	2560	2629	2636	2643	2668	2675
Height to the upper rim of the steering wheel	1821	1841	1830	1800	1850	1878	1858	1876	1900
Ground clearance according to the standard ČSN 30 0026 — without hitch implement (under the front axle beam) — with the implement hitch	492	492	492	492	515	515	515	571	571
(under the swinging draw bar in the lowest position)	390	431	408	348	424	400	440	399	468

Parameter description	6,50-16 16,9-28	6,50-16 16,9-30	6,50-16 12,4-36	6,50-16 14,9-28	7,50-16 16,9-30	7,50-16 12,4-36	7,50-16 13,6-36	7,50-20 16,9-30	7,50-20 16,9-34
Height of the implement hitch for a trailer (to the mouth centre) — in 50 mm steps	732—932	773—973	750—950	691—891	766—966	743—943	781—981	735—935	811—1011
Height of the swinging bar (to the inner lower fork surface)	430	471	448	388	464	440	480	423	508
Height of the implement hitch for the single-axle trailer (to the hook bearing surface)	475	513	491	436	508	486	523	489	554
Height of the P.T.O.-shaft	701	736	716	665	734	713	747	720	780
Front wheel track — standard	1350 (light extensions) 1450 (heavy extensions)				1425 (heavy extensions)				
— adjustable for agricultural use	1350, 1500, 1800 (light extensions) 1375, 1450, 1525, 1825 (heavy extensions)				1350, 1425, 1500, 1800 (heavy extensions)				
Rear wheel track — standard	1425								
Rear wheel track — adjustable in 75 mm steps for agricultural use	1425-1800	1500-1800	1350-1800	1425-1800	1500-1800	1350-1800		1500-1800	
Wheel base	2257								
Distance of the tractor centre of gravity from the rear wheel axle	764	751	767	769	754	769	760	754	734
Height of the tractor centre of gravity above the basic plane	875	900	890	843	905	896	915	905	955

Parameter description	6,50-16 16,9-28	6,50-16 16,9-30	6,50-16 12,4-36	6,50-16 14,9-28	7,50-16 16,9-30	7,50-16 12,4-36	7,50-16 13,6-36	7,50-20 16,9-30	7,50-20 16,9-34
Outer diameter of the turning circle (according to the standard ČSN 30 0552) with one wheel braked					7100^{+500}				
Outer tyre-mark turning circle (according to the standard ČSN 30 0552) with one wheel braked					6700^{+500}				
Weights (kgs) for the Motokov execution – standard (Allowed tolerance ±5 %)									
Constructional tractor weight – with the cabin	2760	2810	2750	2740	2815	2755	2790	2815	2895
thereof: to the front axle	930	930	930	930	935	935	935	935	935
to the rear axle	1830	1880	1820	1810	1880	1820	1855	1880	1960
– without the cabin	2460	2510	2450	2440	2515	2455	2490	2515	2595
thereof: to the front axle	865	865	865	865	870	870	870	870	870
to the rear axle	1595	1645	1585	1575	1645	1585	1620	1645	1725
Ready weight of the tractor – with the cabin	2880	2930	2870	2860	2935	2880	2915	2935	3015
thereof: to the front axle	975	975	975	975	980	980	980	980	980
to the rear axle	1905	1955	1895	1885	1955	1900	1935	1955	2035
– without the cabin	2580	2630	2570	2560	2635	2580	2615	2635	2715
thereof: to the front axle	910	910	910	910	915	915	915	915	915
to the rear axle	1670	1720	1660	1650	1720	1665	1700	1720	1800
Maximum weight of the additional ballast weights – in the front					155 (135+20)				
– in the rear					270				

Parameter description	6,50-16 16,9-28	6,50-16 16,9-30	6,50-16 12,4-36	6,50-16 14,9-28	7,50-16 16,9-30	7,50-16 12,4-36	7,50-16 13,6-36	7,50-20 16,9-30	7,50-20 16,9-34
Weight of water in the rear tyres	2×215	2×240	2×160	2×190	2×240	2×160	2×180	2×240	2×250
Maximum allowed axle loading (kgs), inflation (kPa)									
The front rigid axle (track 1 350 mm – ligh extensions) at a maximum speed									
– 30 km/h	1230–310				–			–	
– 25 km/h	1410–310				–			–	
– 20 km/h	1600–310				–			–	
– 8 km/h	1600–310				–			–	
The front rigid axle (track 1 425 mm or 1 450 mm – light extensions) at a maximum speed									
– 30 km/h	1230–310				1400–280			1600–250	
– 25 km/h	1410–310				1600–280			1800–250	
– 20 km/h	1660–310				2010–280			2360–280	
– 8 km/h	2460–390				2980–350			3000–350	
The front sprung axle (track 1 350 mm – light extensions without locking) at a maximum speed									
– 30 km/h	1120–280				–			–	
– 25 km/h	1120–280				–			–	
– 20 km/h	1120–280				–			–	
– 8 km/h	1120–280				–			–	

Parameter description	6,50-16 16,9-28	6,50-16 16,9-30	6,50-16 12,4-36	6,50-16 14,9-28	7,50-16 16,9-30	7,50-16 12,4-36	7,50-16 13,6-36	7,50-20 16,9-30	7,50-20 16,9-34
The front sprung axle (track 1 425 mm or 1 450 mm – heavy extensions with locking) at a maximum speed									
30 km/h (unlocked springing)	1215–310				1215–210			1215–150	
25 km/h (unlocked springing)	1215–310				1215–210			1215–150	
30 km/h (locked springing)	1230–310				1400–280			1600–250	
25 km/h (locked springing)	1410–310				1600–280			1800–250	
20 km/h (locked springing)	1660–310				2010–280			2360–280	
8 km/h (locked springing)	2460–390				2980–350			3000–350	
The rear axle (track 1 425 mm) at a maximum speed with disk/drum brakes									
– 30 km/h	3600/–– –150	3600/–– –150	2880/–– –170	3360/–– –150	3600/–– –150	2880/–– –170	3230/–– –160	3600/–– –150	3600/–– –130
– 25 km/h			3080/3080 –170	3590/3590 –150		3080/3080 –170	3450/3450 –160		
– 20 km/h	3600/3600 –150	3600/3600 –150	3450/3450 –170	3600/3600 –150	3600/3600 –150	3450/3450 –170	3600/3600 –160	3600/3600 –150	3600/3600 –130
– 8 km/h			3600/3600 –190	3600/3600 –150		3600/3600 –190	3600/3600 –160		
Forces (kN) (Allowed tolerance ±5 %)									
A maximum tractive force in the swinging bar on a concrete ground, the tractor in a ready execution, with the ballast weights, at a slippage 15 %									
– with the cabin					24,56				
– without the cabin					22,35				

Parameter description	6,50-16 16,9-28	6,50-16 16,9-30	6,50-16 12,4-36	6,50-16 14,9-28	7,50-16 16,9-30	7,50-16 12,4-36	7,50-16 13,6-36	7,50-20 16,9-30	7,50-20 16,9-34
A maximum tractive force in the hitch for a trailer, the trailer in a ready execution, with the ballast weights and water in the rear tyres									
– with the cabin					27,62				
– without the cabin					25,41				
The lifting force at the end of the lower draw bars of the three-point hitch is guaranteed within the entire range					24,00				
The lifting force at the end of the lower draw bars of the front three-point hitch is guaranteed within the entire range					11,00				
Output and fuel consumption (kW, g/kW.h)									
The output on the P.T.O.-shaft at the nominal engine speed and engaged 540 r.p.m. of the P.T.O.-shaft					39 (35,1)				
The specific fuel consumption corresponding to the above given output					266				

Note: The output values and the fuel consumption are meant after 100 hours run-in of the tractor, the value in parantheses is for information and meant for a tractor which has to been run-in yet.

Table 12a **The main technical parameters of the tractor Z 6211 in the MOTOKOV execution** (double-tyre mounting)

Parameter description	6,50-16 2× 16,9-30	6,50-16 2× 12,4-36	7,50-16 2× 16,9-30	7,50-16 2× 12,4-36	7,50-16 2× 9,5-42	7,50-20 2× 16,9-30	7,50-20 2× 12,4-36	7,50-20 2× 9,5-42
The main dimensions (mm)								
Regarding the ready weight of the tractor in Motokov execution with the cabin BK 7011 Allowed tolerance ±2 %								
Overall lenght without implement hitch	3555	3545	3555	3545	3562	3555	3545	3562
Lenght with implement hitch	3765							
Width with the standard rear wheel track	2985	2795	2985	2795	2490	2985	2795	2490
Height to the top of the exhaust pipe, the extended exhaust silencer with the exhaust flap and without spark arrester	2671	2678	2699	2697	2702	2745	2741	2746
Tractor height to the top of the cabin (the cabin with the roof opening)	2677	2670	2678	2670	2690	2678	2670	2690
Height to the upper rim of the steering wheel	1852	1847	1861	1856	1869	1884	1876	1891
Ground clearance according to the standard ČSN 30 0026 — without hitched implements (under the front axle beam)	492	492	515	515	515	571	571	571
— with the implement hitch (under the swinging draw bar at the lowest position)	438	427	431	420	446	412	403	428
Height of the implement hitch for a trailer (to the mouth centre) — in 50 mm steps	772—972	762—962	765—965	755—955	780—980	748—948	739—939	764—964
Height of the swinging bar (to the inner lower fork surface)	462	452	454	444	470	436	427	452
Height of the implement hitch for the single-axle trailer (to the hook bearing surface)	519	509	514	504	528	501	492	516
Height of the P. T. O. — shaft	741	732	739	730	752	732	723	745

Parameter description	6,50-16 2× 16,9-30	6,50-16 2× 12,4-36	7,50-16 2× 16,9-30	7,50-16 2× 12,4-36	7,50-16 2× 9,5-42	7,50-20 2× 16,9-30	7,50-20 2× 12,4-36	7,50-20 2× 9,5-42
Front wheel track – standard	1350 (light extensions) 1450 (heavy extensions)		1425 (heavy extensions)					
Front wheel track – adjustable for agricultural use	1350, 1500, 1800 (light extensions) 1375, 1450, 1525, 1825 (heavy extensions)		1350, 1425, 1500, 1800 (heavy extensions)					
Rear wheel track – standard	1500/2556	1500/2480	1500/2556	1500/2480	1350/2250	1500/2556	1500/2480	1350/2250
Rear wheel track – adjustable in 75 steps for agricultural use	–		–					
Wheel base	2257							
Distance of the tractor centre of gravity from the rear wheel axle	664	690	667	692	686	667	692	686
Height of the tractor centre of gravity above the basic plane	903	894	907	898	925	915	906	932
Outer diameter of the turning circle (according to the standard ČSN 30 0552) with one wheel braked	7700^{+500}							
Outer tyre-mark turning circle (according to the standard ČSN 30 0552) with one wheel braked	7200^{+500}							
Weights (kgs) for the Motokov execution – standard (allowed tolerance ±5 %)								
Constructional tractor weight – with the cabin	3185	3065	3190	3070	3105	3190	3070	3105

Parameter description	6,50-16 2× 16,9-30	6,50-16 2× 12,4-36	7,50-16 2× 16,9-30	7,50-16 2× 12,4-36	7,50-16 2× 9,5-42	7,50-20 2× 16,9-30	7,50-20 2× 12,4-36	7,50-20 2× 9,5-42
thereof: to the front axle	930	930	935	935	935	935	935	935
to the rear axle	2255	2135	2255	2135	2170	2255	2135	2170
– without the cabin	2885	2765	2890	2770	2805	2890	2770	2805
thereof: to the front axle	865	865	870	870	870	870	870	870
to the rear axle	2020	1900	2020	1900	1935	2020	1900	1935
Ready weight of the tractor – with the cabin	3310	3190	3315	3195	3225	3315	3195	3225
thereof: to the front axle	975	975	980	980	980	980	980	980
to the rear axle	2335	2215	2335	2215	2245	2335	2215	2245
– without the cabin	3010	2890	3015	2895	2925	3015	2895	2925
thereof: to the front axle	910	910	915	915	915	915	915	915
to the rear axle	2100	1980	2100	1980	2010	2100	1980	2010
Maximum weight of the additional ballast weights								
– in the front				155 (135+20)				
– in the rear				–				
Weight of water in the rear tyres				–				
Maximum allowed axle loading (kgs), inflation (kPa)								
The front rigid axle (track 1,350 mm – light extensions at a maximum speed								
– 30 km/h	–			–			–	
– 25 km/h	1410–310			–			–	
– 20 km/h	1600-310			–			–	
– 8 km/h	1600-310			–			–	

Parameter description	6,50-16 2× 16,9-30	6,50-16 2× 12,4-36	7,50-16 2× 16,9-30	7,50-16 2× 12,4-36	7,50-16 2× 9,5-42	7,50-20 2× 16,9-30	7,50-20 2× 12,4-36	7,50-20 2× 9,5-42
The front sprung axle (track 1 425 mm or 1.450 mm – heavy extensions) at a maximum speed								
– 30 km/h	–		–				–	
– 25 km/h	1410–310		1600–280				1800–250	
– 20 km/h	1660-310		2010-280				2360-280	
– 8 km/h	2460-390		2980-350				3000-350	
The front sprung axle (track 1.350 mm –light extensions without locking) at a maximum speed								
– 30 km/h	–		–				–	
– 25 km/h	1120–280		–				–	
– 20 km/h	1120-280		–				–	
– 8 km/h	1120-280		–				–	
The front sprung axle (track 1.425 mm or 1.450 mm – heavy extensions with locking) at a maximum speed								
– 30 km/h (unlocked springing)	–		–				–	
– 25 km/h (unlocked springing)	1215–310		1215–210				1215–150	
– 30 km/h (locked springing)	–		–				–	
– 25 km/h (locked springing)	1410–310		1600–280				1800–250	
– 20 km/h (locked springing)	1660-310		2010-280				2360-280	
– 8 km/h (locked springing)	2460-390		2980-350				3000-350	
The rear axle at a maximum speel – with disk/drum brakes								
– 30 km/h	–	–	–	–	–	–	–	–
– 25 km/h	3600/3600 –110	3600/3600 –110	3600/3600 –110	3600/3600 –110	3600/3600 –150	3600/3600 –110	3600/3600 –110	3600/3600 –150
– 20 km/h								
– 8 km/h								

Parameter description	6,50-16 2× 16,9-30	6,50-16 2× 12,4-36	7,50-16 2× 16,9-30	7,50-16 2× 12,4-36	7,50-16 2× 9,5-42	7,50-20 2× 16,9-30	7,50-20 2× 12,4-36	7,50-20 2× 9,5-42
Forces (kN)								
(Allowed tolerance ±5 %)								
A maximum tractive force in the swinging bar on a concrete ground, the tractor in a ready position, with the ballast weights, at a slippage 15 %								
– with the cabin				25,02				
– without the cabin				22,81				
A maximum tractive force in the hitch for a trailer, the tractor in a ready execution, with the ballast weights and water in the rear tyres								
– with the cabin				–				
– without the cabin				–				
The lifting force at the end of the lower draw bars of the three-point hitch is guaranteed within the entire range				24,0				
The lifting force at the end of the lower draw bars of the front three-point hitch is guaranteed within the entire range				11,0				
Output and fuel consumption (kW, g/kW.h)								
The output on the P.T.O.-shaft at the nominal engine speed and engaged 540 r.p.m. of the P.T.O.-shaft				39 (35,1)				
The specific fuel consumption to the above given output				266				

Note: The output values and the fuel consumption are meant after 100 hours run-in of the tractor; the value in parantheses is for information and meant for a tractor which has not been run-in yet.

Table 13 **The main technical parameters of the tractor Z 7211 in the MOTOKOV execution** (s ngle-tyre mounting)

Parameter description	6,50-16 16,9-28	6,50-16 12,4-36	7,50-16 16,9-28	7,50-16 16,9-30	7,50-16 12,4-36	7,50-20 13,6-36	7,50-20 16,9-30	7,50-20 16,9-34
The main dimensions (mm)								
Regarding the ready weight of the tractor in MOTOKOV execution with the cabin BK 7011 Allowed tolerance ±2 %								
Overal length without implement hitch	3530	3545	3530	3555	3545	3570	3555	3605
Length with the implement hitch	3765							
Width at the standard rear wheel track 1 425 mm	1854	1800	1854	1854	1800	1800	1854	1854
Height to the top of the exhaust pipe (the extended exhaust silencer with the exhaust flap, without the spark arrester)	2661	2665	2679	2687	2682	2731	2738	2741
Tractor height to the top of the cabin (the cabin with the roof opening)	2597	2612	2594	2629	2609	2363	2668	2675
Height to the upper rim of the steering wheel	1821	1830	1831	1850	1838	1878	1876	1900
Ground clearance according to the standard ČSN 30 0026								
– without the implement hitch (under the front axle beam)	492	492	515	515	515	571	571	571
– with the implement hitch (under the swinging draw bar at the lowest position)	390	408	384	424	400	423	399	468
Height of the implement hitch for a trailer (to the mouth centre) – in 50 mm steps	732–932	750–950	727–927	766–966	743–943	766–966	735–935	811-1011
Height of the swinging bar (to the inner lower fork surface)	430	448	424	464	440	463	423	508

Parameter description	6,50-16 16,9-28	6,50-16 12,4-36	7,50-16 16,9-28	7,50-16 16,9-30	7,50-16 12,4-36	7,50-20 13,6-36	7,50-20 16,9-30	7,50-20 16,9-34
Height of the implement hitch for the single-axle trailer (to the hook bearing surface)	475	491	471	508	486	512	489	554
Height of the P.T.O.-shaft	701	716	699	734	713	741	720	780
Front wheel track – standard	1450 (heavy extensions)		1425 (heavy extensions)					
– adjustable for agricultural use	1375, 1450, 1525, 1825 (heavy extensions)		1350, 1425, 1500, 1800 (heavy extensions)					
Rear wheel track – standard	1425							
– adjustable in 75 mm steps for agricultural use	1425-1800	1350-1800	1425-1800		1350-1800		1425-1800	
Wheel base	2257							
Distance of the tractor centre of gravity from the rear wheel axle	761	764	764	751	767	756	751	731
Height of the tractor centre of gravity above the basic plane	875	888	876	905	896	915	905	955
Outer diameter of the turning circle (according to the standard ČSN 30 0552) with one wheel braked	7100^{+500}							
Outer tyre-mark turning circle (according to the ČSN 30 0552) with one wheel braked	6700^{+500}							
Weights (kgs) for the MOTOKOV execution – standard (Allowed tolerance ±5 %)								

Parameter description	6,50-16 16,9-28	6,50-16 12,4-36	7,50-16 16,9-28	7,50-16 16,9-30	7,50-16 12,4-36	7,50-20 13,6-36	7,50-20 16,9-30	7,50-20 16,9-34
Constructional tractor weight								
- with the cabin	2760	2750	2765	2815	2755	2795	2815	2895
thereof: to the front axle	930	930	935	935	935	935	935	935
to the rear axle	1830	1820	1830	1880	1820	1860	1880	1960
- without the cabin	2460	2450	2465	2515	2455	2495	2515	2595
thereof: to the front axle	865	865	870	870	870	870	870	870
to the rear axle	1595	1585	1595	1645	1585	1625	1645	1725
Ready weight of the tractor								
- with the cabin	2890	2880	2895	2945	2885	2925	2945	3025
thereof: to the front axle	975	975	980	980	980	980	980	980
to the rear axle	1915	1905	1915	1965	1905	1945	1965	2045
- without the cabin	2590	2580	2595	2645	2585	2625	2645	2725
thereof: to the front axle	910	910	915	915	915	915	915	915
to the rear axle	1680	1670	1680	1730	1670	1710	1730	1810
Maximum weight of the additional ballast weights								
- in the front				155 (135+20)				
- in the rear				270				
Weight of water in the rear tyres	2×215	2×160	2×215	2×240	2×160	2×180	2×240	2×250
Maximum allowed axle loading (kgs), inflation (kPa)								
The front rigid axle (track T 350 – light extensions) at a maximum speed								
- 30 km/h		–		–			–	
- 25 km/h		–		–			–	
- 20 km/h		–		–			–	
- 8 km/h		–		–			–	

Parameter description	6,50-16 16,9-28	6,50-16 12,4-36	7,50-16 16,9-28	7,50-16 16,9-30	7,50-16 12,4-36	7,50-20 13,6-36	7,50-20 16,9-30	7,50-20 16,9-34
The front sprung axle (track 1 425 mm or 1 450 mm – heavy extensions) at a maximum speed								
– 30 km/h	1230-310		1400-280			1600-250		
– 25 km/h	1410-310		1600-280			1800-250		
– 20 km/h	1660-310		2010-280			2360-280		
– 8 km/h	2460-390		2980-350			3000-350		
The front rigid axle (track 1 350 mm – light extensions without locking) at a maximum speed								
– 30 km/h	–		–			–		
– 25 km/h	–		–			–		
– 20 km/h	–		–			–		
– 8 km/h	–		–			–		
The front sprung axle (track 1,425 mm or 1 450 mm – heavy extensions with licking) at a maximum speed								
– 30 km/h (unlocked springing)	1215-310		1215-210			1215-150		
– 25 km/h (unlocked springing)	1215-310		1215-210			1215-150		
– 30 km/h (locked springing)	1230-310		1400-280			1600-280		
– 25 km/h (locked springing)	1410-310		1600-280			1800-280		
– 20 km/h (locked springing)	1660-310		2010-280			2360-280		
– 8 km/h (locked springing)	2460-390		2980-350			3000-350		
The rear axle (track 1 425 mm) with disk/drum brakes at a maximum speed								
– 30 km/h	3600/–– –150	2880/–– –170	3600/–– –150	3600/–– –150	2880/–– –170	3230/–– –160	3600/–– –150	3600/–– –130
– 25 km/h		3080/3080 –170			3080/3080 –170	3450/3450 –160		
– 20 km/h	3600/3600 –150	3450/3450 –170	3600/3600 –150	3600/3600 –150	3450/3450 –170	3600/3600 –160	3600/3600 –150	3600/3600 –130
– 8 km/h		3600/3600 –190			3600/3600 –190	3600/3600 –160		

Parameter description	6,50-16 16,9-28	6,50-16 12,4-36	7,50-16 16,9-28	7,50-16 16,9-30	7,50-16 12,4-36	7,50-20 13,6-36	7,50-20 16,9-30	7,50-20 16,9-34
Forces (kN) (Allowed tolerance ±5 %)								
A maximum tractive force in the swinging bar on a concrete ground, the tractor in a ready execution, with the ballast weights at a slippage 15 %								
– with the cabin				24,63				
– without the cabin				22,43				
A maximum tractive force in the hitch for a trailer, the tractor in a ready execution, with the ballast weights and water in the rear tyres								
– with the cabin				27,69				
– without the cabin				25,47				
The lifting force at the end of the lower draw bars of the three-point hitch is guaranteed in the entire range.				24,00				
The lifting force at the end of the lower draw bars of the front three-point hitch is guaranteed in the entire range.				11,00				
Output and fuel consumption (kW, g/kW.h)								
The output on the P.T.O.-shaft at the nominal engine speed and engaged 540 r.p.m. of the P.T.O.-shaft				43 (38,7)				
The specific fuel consumption corresponding to the above given output				263				

Note: The output values and the fuel consumption are meant after 100 hours run-in of the tractor, the value in parantheses is for information and meant for a tractor which has not been run-in yet.

Table 13a **The main technical parameters of the tractor Z 7211 in the MOTOKOV execution** (double-tyre mounting)

Parameter description	7,50-16 2×16,9-30	7,50-16 2×12,4-36	7,50-16 2×9,5-42	7,50-20 2×16,9-30	7,50-20 2×12,4-36	7,50-20 2×9,5-42
The main dimensions (mm)						
Regarding the ready weight of the tractor in MOTOKOV execution with the cabin BK 7011 Allowed tolerance ±2 %						
Overall length without the implement hitch	3555	3545	3562	3555	3545	3562
Length with the implement hitch	3765					
Width at the standard rear wheel track	2985	2795	2490	2985	2795	2490
Height to the top of the exhaust pipe (the extended exhaust silencer with the exhaust flap, without the spark arrester)	2699	2697	2702	2745	2741	2746
Tractor height to the top of the cabin (the cabin with the roof opening)	2678	2670	2690	2678	2670	2690
Height to the upper rim of the steering wheel	1861	1856	1869	1884	1878	1891
Ground clearance according to the standard ČSN 30 0026						
– without implement hitch (under the front axle beam)	515	515	515	571	571	571
– with the implement hitch (under the swinging draw bar at the lowest position)	431	420	446	412	403	428
Height of the implement hitch for a trailer (to the mouth surface – in 50 mm steps)	765–965	755–955	780–980	748–948	739–939	764–964
Height of the swinging bar (to the inner lower fork surface)	454	444	470	436	427	452

Parameter description	7,50-16 2×16,9-30	7,50-16 2×12,4-36	7,50-16 2×9,5-42	7,50-20 2×16,9-30	7,50-20 2×12,4-36	7,50-20 2×9,5-42
Height of the implement hitch for the single-axle trailer (to the hook bearing surface)	514	504	528	501	492	516
Height of the P.T.O.-shaft	739	730	752	732	723	745
Front wheel track – standard	1425 (heavy extensions)					
– adjustable for agricultural use	1350, 1425, 1500, 1800 (heavy extensions)					
Rear wheel track – standard	1500/2556	1500/2480	1350/2250	1500/2556	1500/2480	1350/2250
– adjustable in 75 mm steps for agricultural use	–	–	–	–	–	–
Wheel base	2257					
Distance of the tractor centre of gravity from the rear wheel axle	666	691	683	666	691	683
Height of the tractor centre of gravity above the basic plane	907	898	925	915	906	932
Outer diameter of the turning circle (according to the standard ČSN 30 0552) with one wheel braked	7700^{+500}					
Outer tyre-mark turning circle (according to the standard ČSN 30 0552) with one wheel braked	7200^{+500}					
Weights (kgs) for the MOTOKOV execution – standard (allowed tolerance ±5 %)						
Constructional tractor weight – with the cabin	3190	3070	3105	3190	3070	3105
thereof: to the front axle	935	935	935	935	935	935
to the rear axle	2255	2135	2170	2255	2135	2170

Parameter description	7,50-16 2×16,9-30	7,50-16 2×12,4-36	7,50-16 2×9,5-42	7,50-20 2×16,9-30	7,50-20 2×12,4-36	7,50-20 2×9,5-42
– without the cabin	2890	2770	2805	2890	2770	2805
thereof: to the front axle	870	870	870	870	870	870
to the rear axle	2020	1900	1935	2020	1900	1935
Ready weight of the tractor – with the cabin	3320	3200	3235	3320	3200	3235
thereof: to the front axle	980	980	980	980	980	980
to the rear axle	2340	2220	2255	2340	2220	2255
– without the cabin	3020	2900	2935	3020	2900	2935
thereof: to the front axle	915	915	915	915	915	915
to the rear axle	2105	1985	2020	2105	1985	2020
Maximum weight of the additional ballast weights						
– in the front	155 (135+20)					
– in the rear	–					
Weight of water in the rear tyres	–	–	–	–	–	–
Maximum allowed axle loading (kgs), inflation (kPa)						
The front rigid axle (track 1 425 mm – heavy extensions) at a maximum speed						
– 30 km/h	–			–		
– 25 km/h	1600-280			1800-250		
– 20 km/h	2010-280			2360-280		
– 8 km/h	2980-350			3000-350		

Parameter description	7,50-16 2×16,9-30	7,50-16 2×12,4-36	7,50-16 2×9,5-42	7,50-20 2×16,9-30	7,50-20 2×12,4-36	7,50-20 2×9,5-42
The front sprung axle (track 1 425 mm — heavy extensions with locking) at a maximum speed						
— 30 km/h (unlocked springing)		—			—	
— 25 km/h (unlocked springing)		1215-150			1215-210	
— 30 km/h (locked springing)		—			—	
— 25 km/h (locked springing)		1600-280			1800-250	
— 20 km/h (locked springing)		2010-280			2360-280	
— 8 km/h (locked springing)		2980-350			3000-350	
The rear axle (track 1 425 mm) with disk/drum brakes at a maximum speed						
— 30 km/h	—	—	—	—	—	—
— 25 km/h	3600/3600 —110	3600/3600 —110	3600/3600 —150	3600/3600 —110	3600/3600 —110	3600/3600 —150
— 20 km/h						
— 8 km/h						
Forces (kN) (Allowed tolerance ±5 %)						
A maximum tractive force in the swinging bar on a concrete ground, the tractor in a ready execution, with the ballast weights at a slippage 15 %						
— with the cabin			25,06			
— without the cabin			22,85			
A maximum tractive force in the hitch for a trailer, the tractor in a ready execution, with the ballast weights and with water in the rear tyres						
— with the cabin			—			
— without the cabin			—			

Parameter description	7,50-16 2×16,9-30	7,50-16 2×12,4-36	7,50-16 2×9,5-42	7,50-20 2×16,9-30	7,50-20 2×12,4-36	7,50-20 2×9,5-42
The lifting force at the end of the lower draw bars of the three-point hitch is guaranteed within the entire range.	24,00					
The lifting force at the end of the lower draw bars of the front three-point hitch is guaranteed within the entire range.	11,0					
Output and fuel consumption (kW, g/kW.h)						
The output on the P.T.O.-shaft at the nominal engine speed and engaged 540 r.p.m. of the P.T.O.-shaft	43 (38,7)					
The specific fuel consumption corresponding to the above given output	263					

Note: The output values and the fuel consumption are meant after 100 hours run-in of the tractor, the value of output in the parenthesis is for information and meant for a tractor which has not been run-in yet.

Table 14. **The main technical parameters of the tractor Z 7711 in the MOTOKOV execution** (single-tyre mounting)

Parameter description	6,50-16 16,9-28	6,50-16 12,4-36	7,50-16 16,9-28	7,50-16 16,9-30	7,50-16 12,4-36	7,50-20 13,6-36	7,50-20 16,9-34	7,50-20 16,9-30
The main dimensions (mm)								
Regarding the ready weight of the tractor in MOTOKOV execution with the cabin BK 7011								
Allowed tolerance ±2 %								
Overall length without the implement hitch	3530	3545	3530	3555	3545	3570	3605	3555
Length with the implement hitch				3765				
Width at the standard wheel track	1854	1800	1854	1854	1800	1800	1854	1854
Height to the top of the exhaust pipe (the extended exhaust silencer with the exhaust flap and without the spark arrester)	2661	2665	2679	2687	2682	2731	2741	2738
Tractor height to the top of the cabin (the cabin with the roof opening)	2627	2639	2629	2658	2641	2674	2706	2668
Height to the upper rim of the steering wheel	1821	1830	1831	1850	1838	1878	1900	1876
Ground clearance according to the standard ČSN 30 0026								
– without the implement hitch (under the front axle beam)	492	492	515	515	515	571	571	571
– with the implement hitch (under the swinging draw bar at the lowest position)	390	408	384	424	400	423	468	399
Height of the implement hitch for a trailer (to the mouth centre) – in 50 mm steps	732–932	750–950	727–927	766–966	743–943	766–965	801-1011	735–935
Height of the swinging draw bar (to the inner lower fork surface)	430	448	424	464	440	463	508	423
Height of the implement hitch for the single-axle trailer (to the hook bearing surface)	471	491	471	508	486	512	554	489

Parameter description	6,50-16 16,9-28	6,50-16 12,4-36	7,50-16 16,9-28	7,50-16 16,9-30	7,50-16 12,4-36	7,50-20 13,6-36	7,50-20 16,9-34	7,50-20 16,9-30
Height of the P.T.O.-shaft	701	716	699	734	713	741	780	720
Front wheel track – standard	1450 (heavy extensions)		1425 (heavy extensions)					
– adjustable for agricultural use	1375, 1450, 1525, 1825 (heavy extensions)		1350, 1425 ,1500, 1800 (heavy extensions)					
Rear wheel track – standard	1425							
– adjustable in 75 mm steps for agricultural use	1425-1800	1350-1800	1425-1800	1425-1800	1350-1800	1350-1800	1500-1800	1425-1800
Wheel base	2257							
Distance of the tractor centre of gravity from the rear wheel axle	764	766	766	753	769	759	735	753
Height of the tractor centre of gravity above the basic plane	875	888	876	905	896	915	955	911
Outer diameter of the turning circle (according to the standard ČSN 30 0552) with one wheel braked	7100^{+500}							
Outer tyre-mark turning circle (according to the standard ČSN 30 0552) with one wheel braked	6700^{+500}							
Weights (kgs) for the MOTOKOV execution – standard (Allowed tolerance ± 5 %)								
Constructional tractor weight								
– with the cabin	2770	2760	2775	2825	2765	2805	2900	2825
thereof: to the front axle	935	935	940	940	940	940	940	940
to the rear axle	1835	1825	1835	1885	1825	1865	1960	1885

Parameter description	6,50-16 16,9-28	6,50-16 12,4-36	7,50-16 16,9-28	7,50-16 16,9-30	7,50-16 12,4-36	7,50-20 13,6-36	7,50-20 16,9-34	7,50-20 16,9-30
– without the cabin	2470	2460	2475	2525	2465	2505	2600	2525
thereof: to the front axle	870	870	875	875	875	875	875	875
to the rear axle	1600	1590	1600	1650	1590	1630	1725	1650
Ready weight of the tractor								
– with the cabin	2910	2900	2915	2965	2905	2945	3040	2965
thereof: to the front axle	985	985	990	990	990	990	990	990
to the rear axle	1925	1915	1925	1975	1915	1955	2050	1975
– without the cabin	2610	2600	2615	2665	2605	2645	2740	2665
thereof: to the front axle	920	920	925	925	925	925	925	925
to the rear axle	1690	1680	1690	1740	1680	1720	1815	1740
Maximum weight of the additional ballast weights								
– in the front	155 (135–20)							
– in the rear	270							
Weight of water in the rear tyres	2×215	2×160	2×215	2×240	2×160	2×180	2×250	2×240
Maximum allowed axle loading (kgs), inflation (kPa)								
The front rigid axle (light extensions) at a maximum speed								
– 30 km/h	–			–			–	
– 25 km/h	–			–			–	
– 20 km/h	–			–			–	
– 8 km/h	–			–			–	

Parameter description	6,50-16 16,9-28	6,50-16 12,4-36	7,50-16 16,9-28	7,50-16 16,9-30	7,50-16 12,4-36	7,50-20 13,6-36	7,50-20 16,9-34	7,50-20 16,9-30
The front rigid axle (track 1 425 mm or 1 450 mm – heavy extensions) at a maximum speed								
– 30 km/h	1230-310		1490-280			1750-280		
– 25 km/h	1410-310		1710-280			2010-280		
– 20 km/h	1660-310		2010-280			2360-280		
– 8 km/h	2460-390		2980-350			3000-350		
The front sprung axle (ligh extensions without locking) at a maximum speed								
– 30 km/h	–		–			–		
– 25 km/h	–		–			–		
– 20 km/h	–		–			–		
– 8 km/h	–		–			–		
The front sprung axle (track 1.425 mm or 1.450 mm – heavy extensions with locking) at a maximum speed								
– 30 km/h (unlocked springing)	1215-310		1215-210			1215-150		
– 25 km/h (unlocked springing)	1215-310		1215-210			1215-150		
– 30 km/h (locked springing)	1230-310		1490-280			1750-280		
– 25 km/h (locked springing)	1410-310		1710-280			2010-280		
– 20 km/h (locked springing)	1660-310		2010-280			2360-280		
– 8 km/h (locked springing)	2460-390		2980-280			3000-350		
The rear axle (track 1425 mm) with disk brakes – at a maximum speed:								
– 30 km/h	3600-150	2880-170	3600-150	3600-150	2880-170	3230-160	3600-130	3600-150
– 25 km/h	4000-150	3080-170	4000-150	4000-150	3080-170	3450-160	4000-130	4000-150
– 20 km/h	4000-150	3450-170	4000-150	4000-150	3450-170	3870-160	4000-130	4000-150
– 8 km/h	4000-150	4000-215	4000-150	4000-150	4000-215	4000-200	4000-130	4000-150

Parameter description	6,50-16 16,9-28	6,50-16 12,4-36	7,50-16 16,9-28	7,50-16 16,9-30	7,50-16 12,4-36	7,50-20 13,6-35	7,50-20 16,9-34	7,50-20 16,9-30
Forces (kN)								
(Allowed tolerance ±5 %)								
A maximum tractive force in the swinging draw bar on a concrete ground, the tractor in a ready execution, with the ballast weights, at a slippage 15 %								
– with the cabin				24,75				
– without the cabin				22,55				
A maximum tractive force in the hitch for a trailer, the tractor in a ready execution, with the ballast weights and with water in the rear tyres								
– with the cabin				27,73				
– without the cabin				25,53				
The lifting force at the end of the lower draw bars of the front three-point hitch guaranteed within the entire range				24,00				
The lifting force at the end of the lower draw bars of the front three-point hitch guaranteed within the entire range				11,00				
Output and fuel consumption (kW, g/kW.h)								
The output on the P.T.O.-shaft at the nominal engine speed and engaged 540 r.p.m. of the P.T.O.-shaft				46,5 ± 5 % (41,8)				
The specific fuel consumption corresponding to the above given output				262				

Note: The output values and the fuel consumption are meant after 100 hours run-in of the tractor, the value in parantheses is for information and meant for a tractor which has not been run-in yet.

Table 14a **The main technical parameters of the tractor Z 7711 in the MOTOKOV execution** (double-tyre mounting)

Parameter description	7,50-16 2×16,9-30	7,50-16 2×12,4-36	7,50-16 2×9,5-42	7,50-20 2×16,9-30	7,50-20 2×12,4-36	7,50-20 2×9,5-42
The main dimensions (mm)						
Regarding the ready weight of the tractor in MOTOKOV execution with the cabin BK 7011						
Allowed tolerance ±2 %						
Overall length without the implement hitch	3555	3545	3562	3555	3545	3562
Length with the implement hitch	3765					
Width at the standard rear wheel track	2985	2795	2490	2985	2795	2490
Height to the top of the exhaust pipe (the extended exhaust silencer with the exhaust flap, without the spark arrester)	2699	2697	2702	2745	2741	2746
Tractor height to the top of the cabin (the cabin with the roof opening)	2678	2670	2690	2678	2670	2690
Height to the upper rim of the steering wheel	1861	1856	1869	1884	1878	1891
Ground clearance according to the standard ČSN 30 0026						
– without the implement hitch (under the front axle beam)	515	515	515	571	571	571
– with the implement hitch (under the swinging draw bar at the lowest position)	431	420	446	412	403	428
Height of the implement hitch for a trailer (to the mouth centre) – in 50 mm steps	765–965	755–955	780–980	748–948	739–939	764–964
Height of the swinging draw bar (to the inner lower fork surface)	454	444	470	436	427	452

Parameter description	7,50-16 2×16,9-30	7,50-16 2×12,4-36	7,50-16 2×9,5-42	7,50-20 2×16,9-30	7,50-20 2×12,4-36	7,50-20 2×9,5-42
Height of the implement hitch for the single-axle trailer (to the hook bearing surface)	514	504	528	501	492	516
Height of the P.T.O.-shaft	739	730	752	732	723	745
Front wheel track – standard	1425 (heavy extensions)					
– adjustable for agricultural use	1350, 1425, 1500, 1800 (heavy extensions)					
Rear wheel track – standard	1500/2556	1500/2480	1350/2250	1500/2556	1500/2480	1350/2250
– adjustable in 75 mm steps for agricultural use	–	–	–	–	–	–
Wheel base	2257					
Distance of the tractor centre of gravity from the rear wheel axle	687	715	706	687	715	706
Height of the tractor centre of gravity above the basic plane	907	898	925	915	906	932
Outer diameter of the turning circle (according to the standard ČSN 30 0552) with one wheel braked	7700^{+500}					
Outer tyre-mark turning circle (according to the ČSN 30 0552) with one wheel braked	7200^{+500}					
Weights (kgs) for the MOTOKOV execution – standard						
(Allowed tolerance ±5 %)						
Constructional tractor weight – with the cabin	3200	3080	3115	3200	3080	3115
thereof: to the front axle	940	940	940	940	940	940
to the rear axle	2260	2140	2175	2260	2140	2175

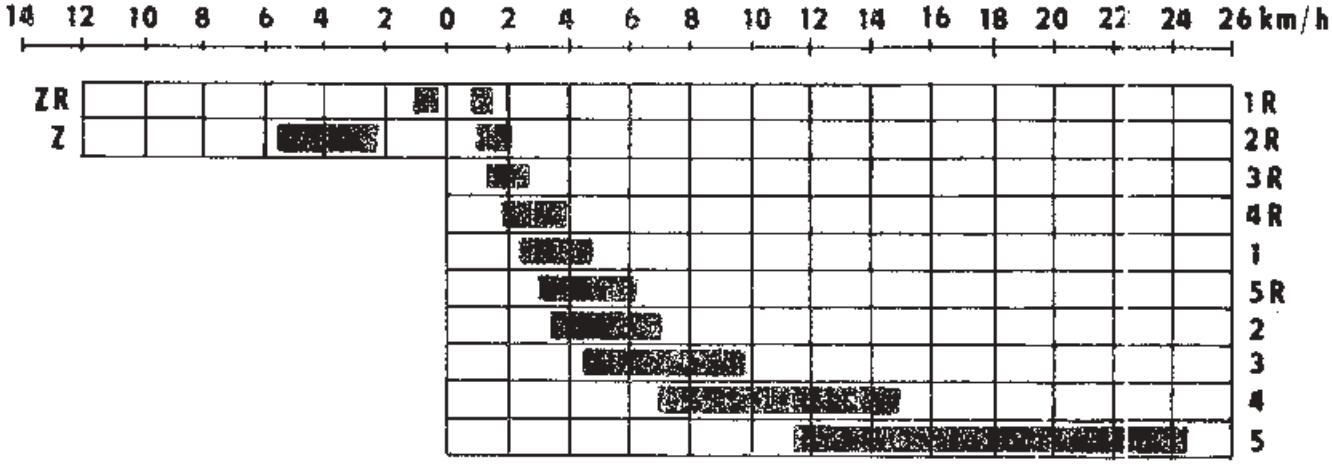
Parameter description	7,50-16 2×16,9-30	7,50-16 2×12,4-36	7,50-16 2×9,5-42	7,50-20 2×16,9-30	7,50-20 2×12,4-36	7,50-20 2×9,5-42
– without the cabin	2900	2780	2815	2900	2780	2815
thereof: to the front axle	875	875	875	875	875	875
to the rear axle	2025	1905	1940	2025	1905	1940
Ready weight of the tractor						
– with the cabin	3340	3220	3255	3340	3220	3255
thereof: to the front axle	990	990	990	990	990	990
to the rear axle	2350	2230	2265	2350	2230	2265
– without the cabin	3040	2920	2955	3040	2920	2955
thereof: to the front axle	925	925	925	925	925	925
to the rear axle	2115	1995	2030	2115	1995	2030
Maximal weight of the additional ballast weights						
– in the front	155 (135+20)					
– in the rear	–					
Weight of water in the rear tyres	–	–	–	–	–	–
Maximum allowed axle loading (kgs) inflation (kPa)						
The front rigid axle (light extensions) at a maximum speed						
– 30 km/h		–			–	
– 25 km/h		–			–	
– 20 km/h		–			–	
– 8 km/h		–			–	

Parameter description	7,50-16 2×16,9-30	7,50-16 2×12,4-36	7,50-16 2×9,5-42	7,50-20 2×16,9-30	7,50-20 2×12,4-36	7,50-20 2×9,5-42
The front rigid axle (track 1 425 mm – heavy extensions) at a maximum speed						
– 30 km/h		–			–	
– 25 km/h		1710-280			2010-280	
– 20 km/h		2010-280			2360-280	
– 8 km/h		2980-350			3000-350	
The front rigid axle (track 1 425 mm – light extensions without locking) at a maximum speed						
– 30 km/h		–			–	
– 25 km/h		–			–	
– 20 km/h		–			–	
– 8 km/h		–			–	
The front rigid axle (track 1 425 mm – heavy extensions with locking) at a maximum speed						
– 30 km/h (unlocked springing)		–			–	
– 25 km/h (unlocked springing)		1215-210			1215-150	
– 30 km/h (locked springing)		–			–	
– 25 km/h (locked springing)		1710-280			2010-280	
– 20 km/h (locked springing)		2010-280			2360-280	
– 8 km/h (locked springing)		2980-350			3000-350	
The rear axle (track 1425 mm) with disk brakes at a maximum speed						
– 30 km/h	–	–	–	–	–	–
– 25 km/h						
– 20 km/h						
– 8 km/h	4000-110	4000-110	4000-160	4000-110	4000-110	4000-160

Parameter description	7,50-16 2×16,9-30	7,50-16 2×12,4-36	7,50-16 2×9,5-42	7,50-20 2×16,9-30	7,50-20 2×12,4-36	7,50-20 2×9,5-42
Forces (kN)						
(Allowed tolerance ±5 %)						
A maximum tractive force in the swinging draw bar on a concrete ground, the tractor in a ready execution, with the ballast weights, with a slippage 15 %						
– with the cabin			25,20			
– without the cabin			22,99			
A maximum tractive force in the hitch for a trailer, the tractor in a ready execution, with the ballast weights and with water in the rear tyres						
– with the cabin			–			
– without the cabin			–			
The lifting force at the end of the lower draw bars of the three-point hitch guaranteed within the entire range			24,00			
The lifting force at the end of the lower draw bars of the front three-point hitch guaranteed within the entire range			11,00			
Output and fuel consumption (kW, g/kW.h)						
The output on the P.T.O.-shaft at the nominal engine speed and engaged 540 r.p.m. of the P.T.O.-shaft			46,5 + 5% (41,8)			
The specific fuel consumption corresponding to the above given output			262			

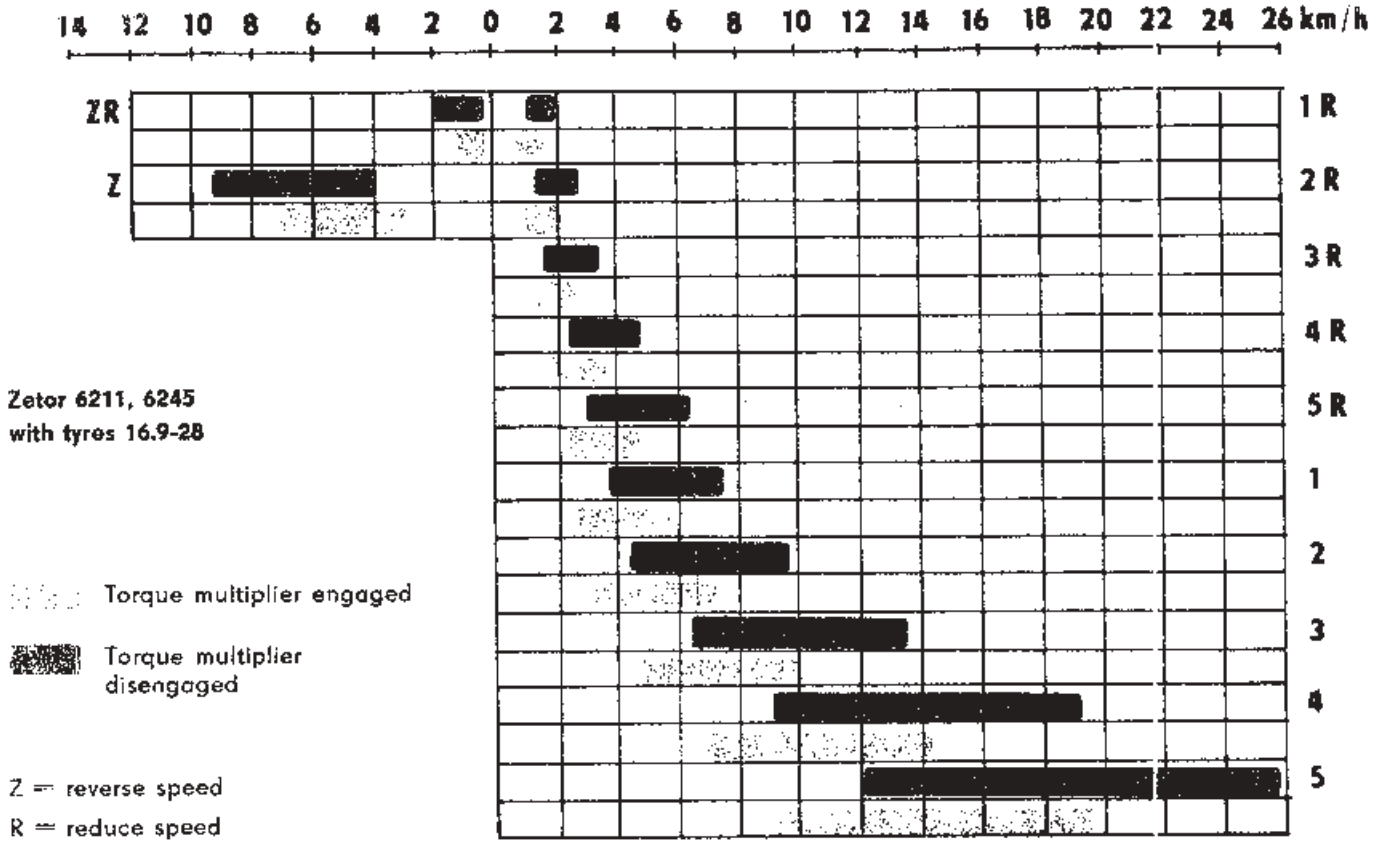
Note: The output values and the fuel consumption are meant after 100 hours run-in of the tractor, the value for output in the parantheses is for information and meant for a tractor which has not been run-in yet.

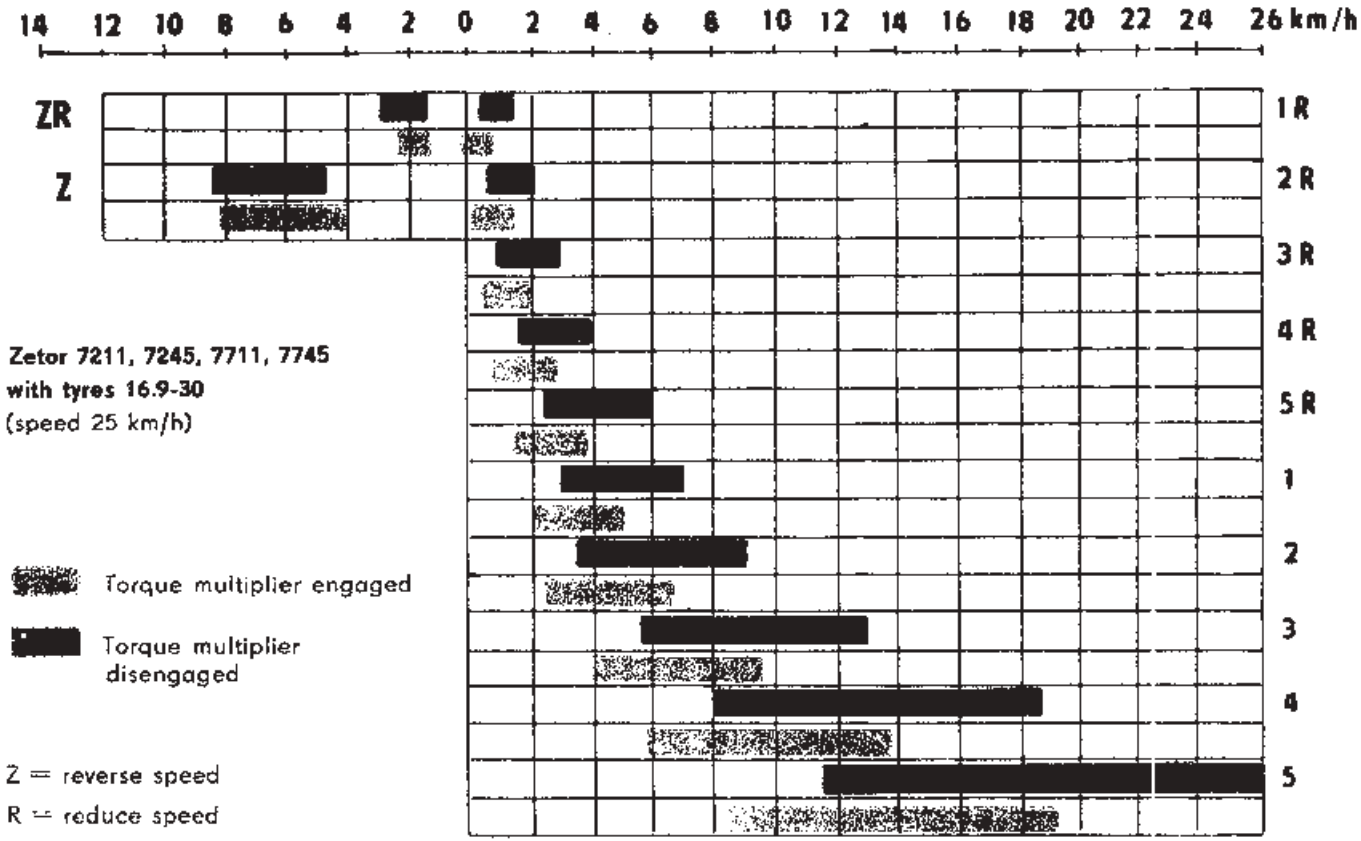
Zetor 5211, 5245 with tyres 14.9-28

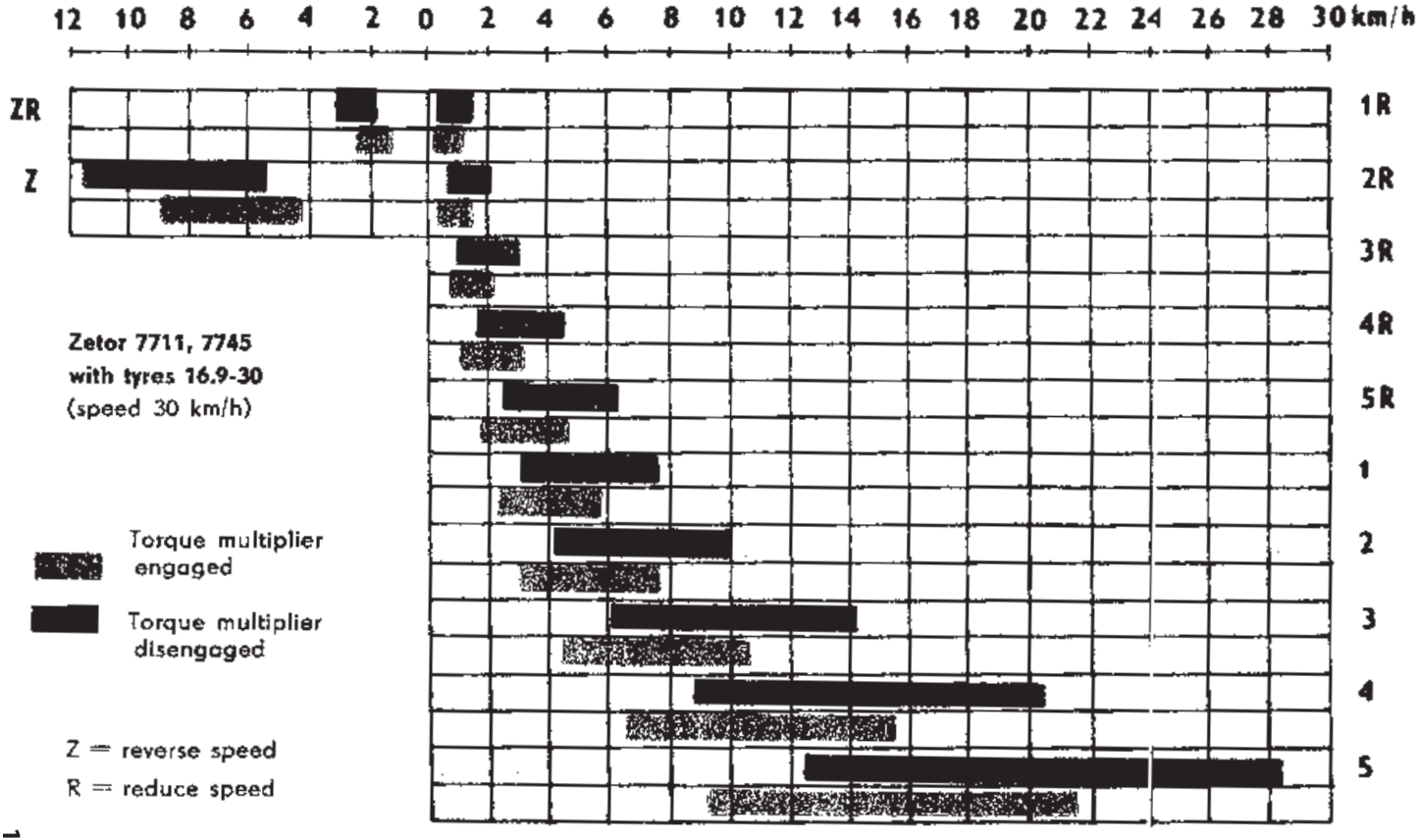


Z — reverse speed

R — reduce speed


14 12 10 8 6 4 2 0 2 4 6 8 10 12 14 16 18 20 22 24 26 km/h
ZR
Z
1 R
2 R
3 R
4 R
5 R
1
2
3
4
5
Zetor 6211, 6245
with tyres 16.9-28
Torque multiplier engaged
Torque multiplier disengaged
Z = reverse speed
R = reduce speed


14 12 10 8 6 4 2 0 2 4 6 8 10 12 14 16 18 20 22 24 26 km/h
ZR
Z
1 R
2 R
3 R
4 R
5 R
1
2
3
4
5
Zetor 7211, 7245, 7711, 7745
with tyres 16.9-30
(speed 25 km/h)
Torque multiplier engaged
Torque multiplier disengaged
Z = reverse speed
R = reduce speed


12 10 8 6 4 2 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 km/h
ZR
Z
1R
2R
3R
4R
5R
1
2
3
4
5
Zetor 7711, 7745
with tyres 16.9-30
(speed 30 km/h)
Torque multiplier engaged
Torque multiplier disengaged
Z = reverse speed
R = reduce speed

Recommended lubrication

Table 15

a) Engine oils

	Oil mark	Viscosity class	Oil performance class according to API	Possibility of use
Original filling and oil changes	OA M5 AD	SAE 20 W/30	SC/CB	For ambient temperature from —7° C to + 30° C
Oil changes	OA M3 AD	SAE 10 W/30	SC/CB	For ambient temperature below —7° C
Oil changes abroad		SAE 20 W/30 SAE 10 W	CB/CC	For ambient temperature below —7° C
		SAE 20 W/30 SAE 20 W/40 SAE 15 W/30 SAE 15 W/40	CB/CC	For ambient temperature from —7° to + 30° C
		SAE 20 W/40 SAE 20 W/50 SAE 40	CB/CC	For ambient temperature above + 30° C

Note: The suitability of the specified oil grades has been determined in accordance with the regulations of the ČSN and SAE — J 300 d standards.
The engine oil of the performance class API-CB is suitable for light and semi-heavy operations, and according to API-CC for semi-heavy operations.

b) **Gear-box oils**

	Oil mark	Viscosity class	Oil performance class
Original filling and for change of oil	OA PP 80	SAE 80 W	API GL-4
For change of oil abroad		SAE 80 W	API GL-4

Note: The suitability of oil has been specified according to regulations in Czechoslovak standards ČSN and in the standard SAE J 306 a.

c) **Oil for the power-assisted steering**

— The durable hydraulic oil OT-H2 according to the PND 23-128-74 (the quality of this oil corresponds with the high pressure hydraulic oils known abroad as oils of the type HLP according to the DIN 51 525 standard or as oils of the class HM according to the ISO/TC 28/SC4 standard).

d) **Oil for the steering dampers of tractors Z 6245, Z 7245 and Z 7745, and for shock absorbers of the driver's seat**

— Damper oil according to the standard ON 65 6890 for Czechoslovakia (oil classification for change of oil abroad according to the regulation ISO VG 15).

e) **Plastic grease**

— Plastic grease LITOL 24 according to the standard GOST 21 150-75 (plastic grease classification suitable for use abroad according to the regulation NLGI-2).

f) **Fuel**

— Diesel oil NM-4 for the summer season according to the Czechoslovak standard ČSN 65 6506 to be used from 1. 4. to 31. 10.

— Diesel oil NM-22 for the winter season according to the Czechoslovak standard ČSN 65 6506 to be used from 1. 11. to 31. 3.

Note: Similarly should be used suitable types of fuel abroad.

g) **Fluid for hydraulic brakes and for hydraulically operated engine clutch**

Brake fluid Syntol 205 HD according to the PND 31-65 680. (Fluid classification suitable for a change abroad in accordance with the regulation ISO 4925, RS 1305-68, group B 47 and in accordance with the regulation SAE J 170 3f, DOT 3. SYNTOL 205 HD is in compliance with this classification as well.)

Note: 1. Fluids of identical classification may be mixed together.

2. The brake fluid must be changed at least every two years, regardless of the tractor engine hours.

h) **Fluid for the engine cooling system and for the heating equipment in the driver's cabin**

— The antifreezing solution — a mixture of FRIDEX-SPOLANA and demineralized water in the ratio 1 : 1.5 gets already frozen at a temperature of minus 25 °C (use the same mixture ratio when refilling). When changing the fluid abroad, the antifreeze solutions have to contain anticorrosive ingredients protecting all materials (including the rubber and cylinder head gasket) of the engine cooling system and of the heating equipment of the tractor.

Note: 1. The fluid FRIDEX-SPOLANA must not be mixed with the fluids of other trade marks.

2. The fluid must be changed every two years of tractor operation.

Zetor

5245

Zetor

6245

Zetor

7245

Zetor

Horal

7245 7745

Zetor 5245, 6245, 7245, 7245 Horal and 7745 — tractors with the front driven axle

Zetor 5245, 6245, 7245, 7245 Horal and 7745 tractors are modified models which have been derived from the basic models of Zetor 5211, 6211, 7211 and 7711 tractors. The Zetor 5245, 6245, 7245, 7245 Horal and 7745 tractors are equipped with a front driven axle instead of the normal front axle with extensions. The front wheels have remained as the steering ones and have smaller diameter than the diameter of the rear wheels. They are mainly used for operation in heavy soils with a difficult through passage and a lower coefficient of adhesion. The tractors are especially suitable for operations on hilly, moist, marshy or sandy ground. They can be used for all other operation as the Zetor 5211, 6211, 7211 and 7711 tractors.

The increased tractive force, better through passage and lower fuel consumption have a favourable influence upon the economical and technical advantages of these tractors.

Tractors **Zetor 5245** are available with the light front driven axle only.

Tractors **Zetor 6245** can be supplied both with the light and the heavy front driven axle.

Tractors **Zetor 7245, 7245 Horal and Z 7745** are available only with the heavy front driven axle.

On a special order of the customer the heavy front driven axles can be equipped with a differential gear with an automatic unblocking device which takes the function of a differential lock. Tractors equipped with this automatic differential gear function are mainly supposed to be used on very heavy soils where the through passage of the tractor can be contingent upon a maximum adhesion weight.

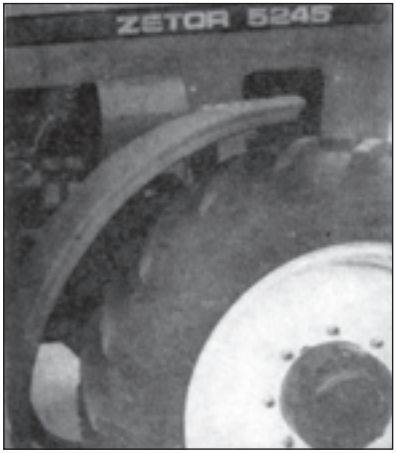


Fig. 204

Fig. 205

Zetor 5245 tractors with a light front driven axle can be equipped with the front plastic mudguards (Fig. 204) on a special order of the customer.

Zetor 6245 and 7245 tractors with a heavy front driven axle can be equipped with sheet-metal mudguards (Fig. 205) on a special order of the customer.

Zetor 6245 tractors with the light front driven axle can be equipped with the front mudguards of the same type as the Z 5245 (Fig. 204) on a special order of the customer.

Zetor 7245 Horal and 7745 tractors are equipped with the front mudguards (Fig. 206).

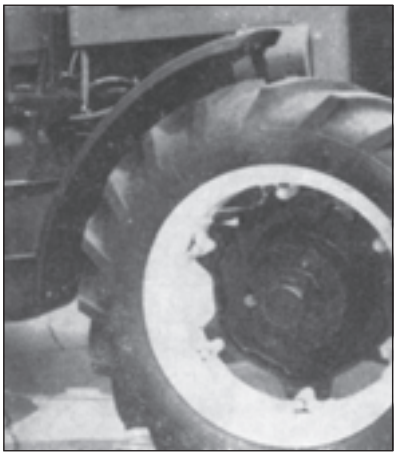


Fig. 206

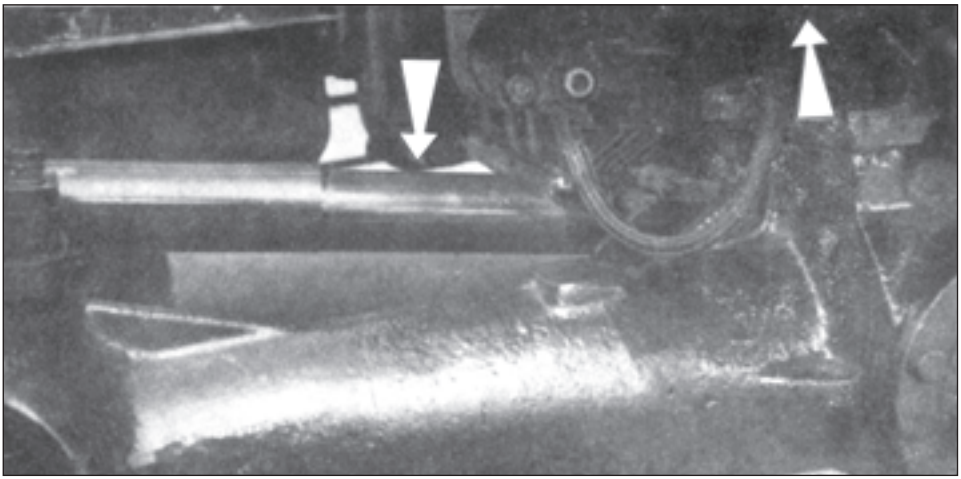


Fig. 207

Notice: Z 6245 and Z 7245 tractors can be equipped with a front driven axle, part No. 7245 9451 or 7245 9455, on a special order of the customer. In case the tractors have been equipped with any of the stated driven axles, the front tyres must always be of size 11.2/10-24 and the rear tyres 16.9/14-34. These sizes of tyres will be fitted to the axle already in the Zetor works. When replacing the tyres, keep to the recommended sizes, otherwise there will be a danger of excessive wear of the tyres.

Engaging diagram of the front driven axle of the Zetor 5245, 6245, 7245, 7245 Horal and 7745 tractors.

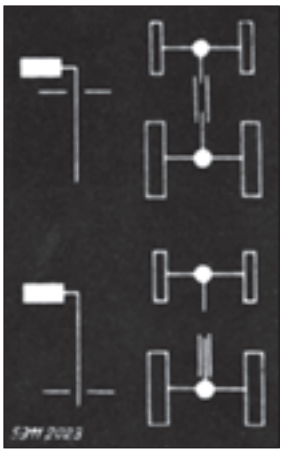


Fig. 208

Fig. 209

To damp the vibrations of the front wheels and to reduce the shocks into the steering mechanism, the Zetor tractors 6245, 7245, 7245 Horal and 7745 with the heavy driven axle are equipped with a steering damper and a tank for the damper fluid (Fig. 207, 210).

Operation of the Zetor 5245, 6245, 7245, 7245 Horal and 7745 tractors equipped with a front driven axle

The front driven axle is engaged from the driver's seat by a lever (Fig. 209) situated on the left side of the gear-box. The front axle is engaged by turning the lever backwards pressing it down and turning it in its original direction. The front driven axle is disengaged in the reverse order. The lever is held in both positions (engaged and disengaged) with an arresting spring. The front driven axle can be engaged or disengaged even when the tractor is moving, it is not necessary to stop the tractor.

Notice:

The front driven axle has to be engaged only when the tractor rear wheels begin to slip, to achieve an increased tractive force of the tractor. When the front driven axle is engaged and the rear wheels do not slip, an excessive wear of the front tyres would result. It is important for a correct function of the front driven axle to use the proper specified dimensions of the front and the rear tyres.

The operation of the other equipment of the Zetor 5245, 6245, 7245, 7245 Horal and 7745 tractors is exactly the same as with Zetor tractors 5211, 6211, 7211 and 7711. The running-in procedure of new tractors or overhauled tractors is the same.

Maintenance and adjustment

These operations have to be carried out in the same way as with the Zetor 5211, 6211, 7211 and 7711. The tractors Zetor 5245, 6245, 7245 Horal and 7745 have the value of toe-out from 12 to 15 mm.

The front wheel track for tractors Z 6245, Z 7245 and Z 7745 with a heavy front driven axle can by adjusted as follows:

1510 mm (as standard) or 1690 mm — tyres 11.2-24

1610 mm (as standard) or 1790 mm — tyres 12.4-24

The track of the Zetor 7245 Horal tractor has to be adjusted only to 1790 mm.

After 100 engine hours (TM 1) is to be checked:

1. The oil level in the tank of the steering damper (the tank is situated between the air filter and the radiator on the right wall of the engine bonnet — Fig. 210) only for tractors Zetor 6245, 7245, 7245 Horal and 7745 with the heavy front driven axle.

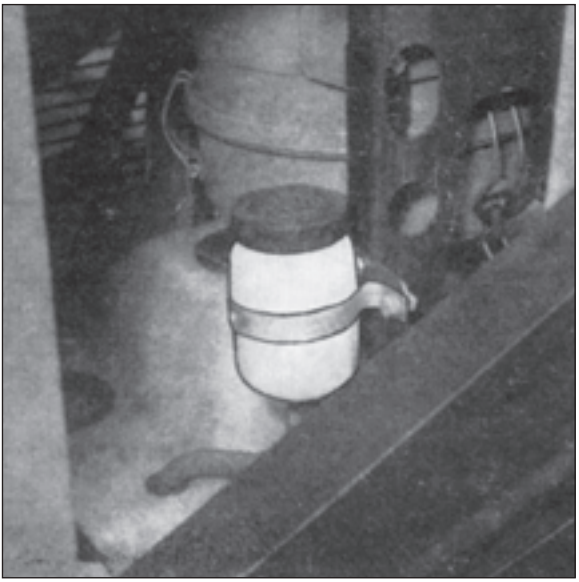
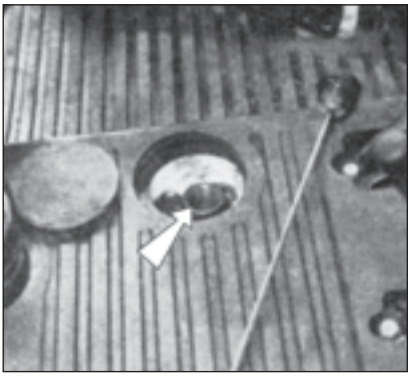
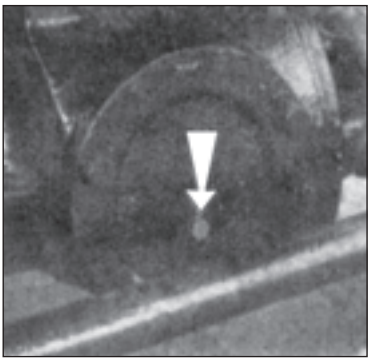


Fig. 210



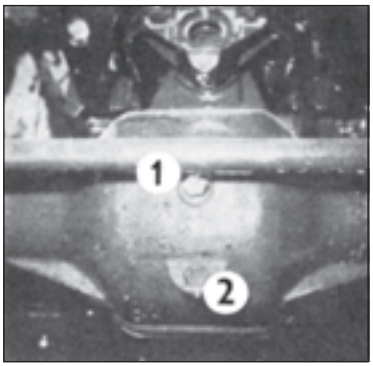
2. The oil level in the transmission box (Fig. 211).

Fig. 211



3. The oil level in the housing of the front driven axle (heavy) at tractors Z 6245, 7245, 7245 Horal and 7745 (Fig. 212).

Fig. 212



The oil level in the housing of the front driven axle (light) at tractors Z 5245 and Z 6245 (Fig. 213).

Fig 213

4. The oil level in the reduction hubs of the front wheels at the heavy front driven axle Zetor 6245, 7245, 7245 Horal and 7745 (Fig. 214/1).

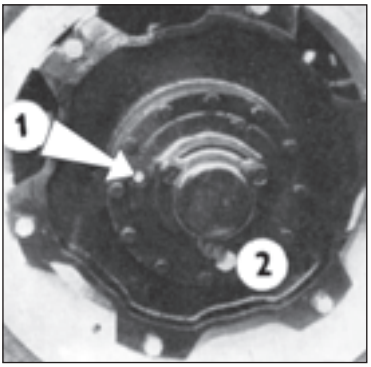


Fig. 214

The oil level in the reduction hubs of the front wheels at the light front driven axle Zetor 5245 and 6245 (Fig. 215/2).

After 600 engine hours (TM 3) is to be checked:

5. The toe-out of the front wheels which has to be in the range from 12 to 15 mm. The adjusting procedure is the same as for the Zetor 5211, 6211, 7211 and 7711 tractors.

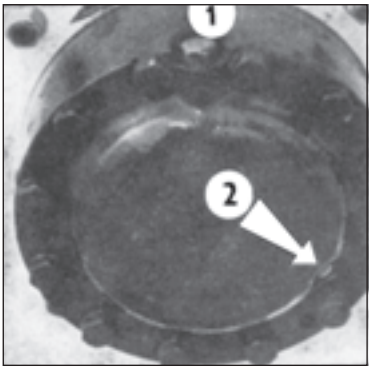


Fig. 215

6. Grease the universal joints of the front drive propeller shaft and its splined sliding shaft. Further grease the crosshead pins of the half-shaft double joints of the front driven axle.

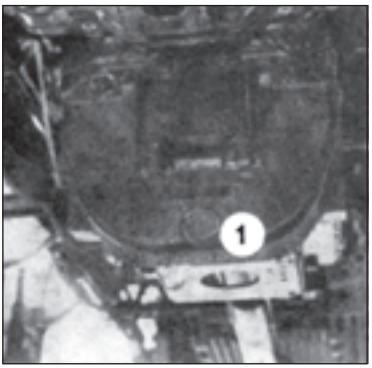


Fig. 216

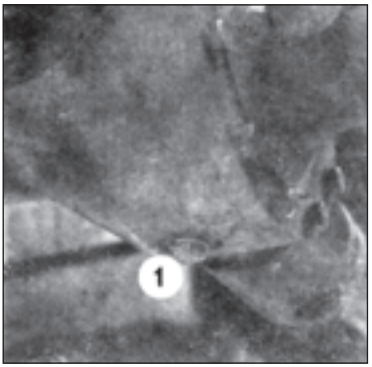


Fig. 217

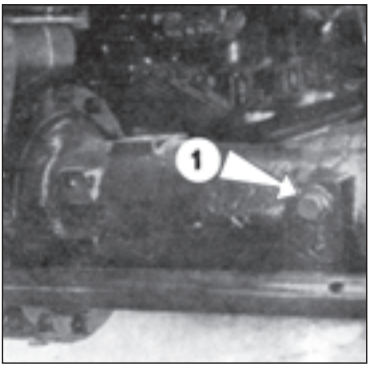


Fig. 218

After 1200 engine hours (TM 4) is to be changed:

7. Change the oil in the transmission box (final drive). The oil is drained through the box which is situated under the gearbox by unscrewing the drain plug (Fig. 216/1).

After 2400 engine hours change:

8. The oil in the housing of the heavy front driven axle. The drain plug is at the bottom of the front driven axle housing (Fig. 217/1). The drain plug on tractors with a light front driven axle is placed in the front part of the axle housing (Fig. 213/2). The oil is filled into the light front driven axle through the filling hole (Fig. 213 1).
   Tractors with a heavy front driven axle have the oil filling hole on the left hand body of the half-axle (Fig. 218/1).
9. Drain the oil from the reduction hub units of a tractor with a heavy front driven axle by unscrewing the plug (Fig. 214/2). This hole is used as an oil filling hole after turning the wheel a little; the bolt (Fig. 214/1) indicates the oil level in the reduction hub after it has been turned into the imaginary horizontal line.

APPLICATION AND DIFFERENCES OF THE TRACTOR ZETOR 7245 HORAL

6001 1200 Air intake
6201 1300 Covering
7247 3900 Power-assisted steering
7047 4300 Steering damper
6211 5300 Cowling
6211 5405 Driver's seat Horal
6011 6000 The front P.T.O.-shaft
7047 6220 Ballast weights for the rear wheels
7011 6300 Ballast weight for the front three-point hitch
6211 6600 Horal outfit
7047 6710 Rear wheels with tyres 530-610
7047 6730 Rear wheels with tyres 18.4-26
6045 6710 Front wheels 9.5-24
6011 6900 Front P.T.O.-shaft control
6947 7000 Front mudguards
6211 7100 Dash panel bracket — alternative 9
6011 7200 Lifting spring bracket
7011 7200 Front three-point hitch
5947 7610 Dirt catchers
6211 9490 Safety cabin BK 6011 SH Zetor with hatch cover
7011 8881 Name plate
Oil PP 80 7 litres (for the gear-box), increased level

Applicability and differences of the Zetor tractor 7245 Horal

Tractors Z 7245 Horal have been designed as mobile energetic means for the mechanization of tasks when tending meadows and pasture lands and for harvesting fodder crops on slopes with the inclination up to 18° on a dry ground, if the tractor has been equipped with the inclinometer DSH 026. The tractor may be used on a wet ground up to a maximum inclination 13°. The driver must fulfil all safety regulations which have been determined, especially for a drive on hillsides and slopes.

The tractor Z 7245 Horal can be used:

- for attachment with a rotating drum mower ZTR-165, ninth modification, hinged in the rear three-point hitch or with a disk mower SP 2-201 hinged in the front three-point hitch,
- for attachment with a self-gathering truck Horal MV 3-022 which is hinged in the multistage hitch of the tractor,
- for attachment with a meadow drag PB 3-023 which is carried in the rear three-point hitch,
- for attachment with a fertilizer spreader DS-RCW-3A-H which is coupled to the single-axle trailer,
- for attachment with a fork-type hay tedder — side delivery rake, coupled to the rear or the front three-point hitch.

In case the user would equip the tractor Z 7245 Horal with other dimensions of

the front and the rear tyres and change the wheel track from the adjusted value of 1790 mm to a smaller dimension, the tractor stability will be reduced to the parameters valid for the basic type of the Z 7245 tractor.

Safety regulations and principles for safety operations with the tractor Zetor 7245 Horal on sloping grounds

There is a risk of skidding if the tractor Z 7245 Horal with attached implements is used on slopes with higher inclination than 12°.

Crucial criterions for operation of the tractor with coupled implements on slopes

a) Longitudinal and transversal stability not only of the tractor, but of the complete set as well.
b) Condition of the ground where the tractor or the complete set has to be in operation, i.e. the type of soil and its moisture content, moisture content of the growth, whether well rooted growth (turf), rich root system and unevenness of the ground.
c) Experiences of the operator and knowledge of the local conditions.
d) How much the ground surface has been damaged due to a slippage of the wheels.
e) The risk of the tractor or the set skidding is increasing with the growing moisture content, with the steepness of the slope and unstable turf.
f) Working position of the operator.
g) Sensitivity with regard to the control of the complete set, especially while manoeuvring (starting, stopping, changing gears, turning).

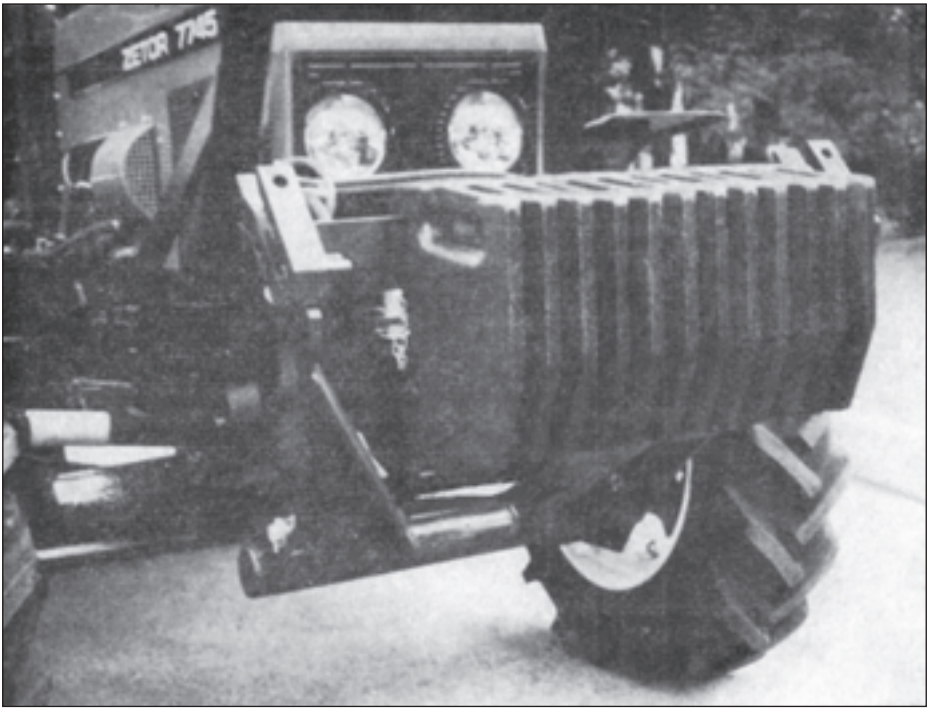
Basic instructions for operation with the tractor Z 7245 Horal and coupled machines

1. Before starting operations with the tractor Z 7245 Horal, the appointed driver has to undergo an interval health examination with a special view to the kinetic system, including the backbone. This examination has to be accomplished by a physician and completed with special medical raports and according to the results of these examinations the physician elaborates a written acknowledgement about the driver's ability to perform this occupation. It is recommended to repeat regular preventive examinations at a health centre once a year.
2. When using the tractor Z 7245 Horal on slopes, the following working schedule has to be adhered to:
   a) A maximum daily working hours must not exceed 6 hours (it means while performing tasks only on slopes).
   b) The driver must have 10 to 15 minutes break for relaxation after a maximum 3 working hours.
   c) After 6 working hours the operator of the tractor has to be replaced by another one.
   d) The tractor operator must have a two-day rest after every 5 working days.
3. The technical condition of the tractor, especially of the tyres, brakes and steering system has to be very good.

4. Before starting with tasks on a hillside, it is necessary to consider the possibility of a safe application of the working set. The surwey will proceed in the following way:
   - The place for the survey has to be chosen so that in an extreme case there will be no ominous danger if the tractor with a coupled machine proceeds in its sliding down.
     Before the driver starts to drive towards the slope, he has to make himself familiar with the ground where the survey is to be performed (the best way is to walk around the piece of land).
     The determination of the soil moisture content by digging out a soil sample. For an informative moisture identification there are the following criteria:
     dry - the soil crumbles
     wet - the soil is viscous
     Perform testing manoeuvers with the complete set on a slope in accordance with the recommended proceedings where it must not come to a 100 % slippage or sliding:

     a) **strainght drive in the gradient line towards the slope**
        -- drive forward - stop and smooth start
           stop and powerful start

Fig. 219



b) **straight drive in the gradient line on the slope**
drive forward with a slow (sensible) stop

c) **drive in circle**

Drive down the slope and towards the slope in a circle using the smallest turning radius, left and right, at a speed up to 2 km hour. This testing of operating possibilities of the complete set on a slope will eliminate occurances of unforseen situations.

DRY GROUND			WET GROUND	
Applicability of the set on a hillside	The top gear engaged	TYPE OF COUPLED MACHINE	Applicability of the set on a hillside	The top gear engaged
15°—16°	4 R	Fertilizer spreader DS (RCW-3A) H	none	--
	5 R	Self-loading trailer Horal MV 3-022 Set of rollers PB 5-027 Spreader of liquid fertilizer RM 6-014 Rotary grass cutter ZTR-165, modification 9 Rotary grass cutter, front type SP 2-201 Rotary grass cutter SP 9-061 Counter-rotating grass cutter, front type SP 2-213 Pasture knife harrow PB 4-102 Hay tedder OZ-4A, SP 4-039 Side-delivery rake SB-4H Spinkler HSU-1000 Three-blade swivelling plough PH 1-441		
17° – 18°	4 R	Meadow-pasture drag PB 3-023	13°	4 R
	5 R	Hay tedder OZ — 2A Side-delivery rake SB — 2A Hay tedder — side-delivery rake OS 250, SP 4-066 Fodder crops rake SP 4-078 Sowing machine SE 1-055 Side-delivery rake — hay tedder universal SO-2U, SP 4-07		
20°	5 R	A maximumum hillside accessibility of the tractor Z 7245 Horal of the tractor Z 7745 Horal		

Fig. 220

5. The drive of the front axle must always be engaged when operating on slopes. If a front disk-type cutter bar is coupled to the tractor, the drive of the front axle must be engaged even during the drive on a road.
6. It is not allowed to use the torque multiplier when driving down the slope.
7. It is not allowed to use another wheel track of the front and the rear axle than that one which has been adjusted in the factory (1790 mm in the front, 1800 mm or 1720 mm for tyres 530—610 in the back).
8. The ballast weights must not be removed when operating on slopes. The ballast weights have to be attached to the front three-point hitch (Fig. 219) if a meadow drag has been coupled to the tractor.
9. The differential lock should not be used when driving down the slope and when taking curves. The differential lock may be used only when driving in the straight direction, and only for a short time and in case of need.
10. The applicability of the set, i.e. the tractor and the agricultural machine, and the highest gear engaged depends on the inclination of the slope and on the moisture content of the soil and is given in the following table. The data and instructions mentioned in this table are valid for tractors equipped with the inclinometer DSH 026 (Fig. 220).
    Unwanted damage of the ground surface (growth) occurs in moist conditions, even on a slope inclination of 13°, on rather heavy soils and on shallow-rooted growth.
11. Before driving on a hillside, it is necessary to check whether the inclinometer (pilot lamps) indicates correctly by successive switch-over to both positions designated as TEST.

12. No other person except the driver is allowed to be present in the cabin.
13. The driver has to fasten the safety belt when driving on slopes with an inclination greater than 11°.
14. It is forbidden to drive without engaged gears or with the travel clutch disengaged.
15. During an operation with coupled machines, it is necessary to observe the safety regulations given in the individual Operator's Manuals for attendance of machines, and when driving on a slope with the inclination limit (16° to 18°) to choose above all the method of driving down the gradient line and turning on headlands by reversing along the contour line. We particularly point out principles given in the Operating Instructions for the rotary grass cutter ZTR-165. During the operation with coupled machines where the weight changes because of the changing volume of the material which is being transported, e.g. in case of the self-loading trailer Horal or the coupled fertilizer spreader etc., it is necessary to choose such a method of driving which does not cause that:
    a) the coupled set starts the operation on the upper part of the slope when filling the trailer (e.g. gathering trailer)
    b) the coupled set starts the operation on the lower part of the slope when emptying the trailer (e.g. fertilizer spreader)
16. When operating on hillsides with a greater inclination than 11°, the maximum permitted weight of the trailer or the saddle trailer is limited to 4500 kg. (This information is also stated on the warning plate which is fastened on the right mudguard of the rear axle.)
17. The machines should operate in groups (at least in pairs) to help each other in an extraordinary situation.
18. If the inclinometer indicates that the permitted inclination of the slope has been exceeded, it is necessary to leave the critical section at once with a

Fig. 221

reduced speed (at the same time observing the principles of a safe operation on hillsides).
If an inclinometer failer occurs, the machine must not operate on sloping grounds.

Additional ballast weights of the rear wheels and the front three-point hitch

To increase the tractive force of the tractor and to get a better stability, the tractor is equipped as a standard with a basic piece attached to the wheel shaft, and three flat plates can further be fitted to this basic piece. The total weight of the ballast weights is 200 kg (Fig. 221).
To get a longitudinal stability of the tractor when rather heavy agricultural machines and implements are carried on the rear three-point hitch, there are used the ballast weights of the front three-point hitch (Fig. 219). The total weight of the ballast weights including the beam is 260 kg. The ballast weights of the front three-point hitch are supplied on special order.

Inclinometer DSH - 026 (Fig. 220)

The tractor Z 7245 Horal is equipped as a standard with an inclinometer in order to increase the safety of operation on slopes. The inclinometer indicates visually and acoustically the gradient of the tractor in a longitudinal and transversal direction with regard to the horizontal plane. The inclinometer (Fig. 220) is fitted to the steering bracket in range of view of the driver. It has been designed as a double-channel one, while two mercury potenciometers are used as sensors for monitoring a tractor inclination. The deflection of the sensors from the position of equilibrium evokes signals which, after being amplified, are compared and the greater value of the longitudinal and the transversal inclination is used as an input into an electronic circuit which will switch on successively the signal lamps if the tractor has reached the corresponding inclination, whereby the signal lamps for a lower angle of inclination do not extinguish. The signal lamp for an extreme limit of the set-up inclination gives a flashing light and at the same time the intermittent acoustic signalization is switched on as well.
The inclinometer consists of two parts, namely of an electronic cabinet and an indication cabinet. Both cabinets are joined with a cover and bolted together.
There are three signal bulbs on the front wall of the indication cabinet:

green — for indication of a safe inclination
yellow — safety reserve
red — for indication of the extreme limit of the slope applicability

Further there is a switch on the front wall of the indication cabinet and the individual positions of the switch (13; 15; 17; 20) designate the values of the slope applicability for the coupled set, i.e. the tractor and the agricultural machine. Before starting tasks on a slope, the driver has to check whether the inclinometer indicates correctly by switching the change-over switch to both positions marked TEST. In case that the inclinometer is in good order, all bulbs have to be lighted up and the acoustic horn has to hoot in the TEST positions. After this inclinometer function check, the driver must switch the knob to the

position which corresponds to the slope applicability of the coupled set, as given in the table.

The basic stage of the signatization is 13°.

Signalling grades:

Stage	Climatic conditions	Limit of the slope applicability (red pilot lamp)
I	Wet	13°
II	Dry	15°
III	Dry	17°
IV	Dry	20°

Signalling zones:

Signalling zone	Pilot lamp colour	Type of the signal
Zone of safety	Green	Visual
Safety reserve	Yellow	Visual
Limit of the slope applicability	Red	Visual
Warning signal	—	Intermittent acoustic signal

These zones are applicable to all four signalling stages, i.e. if the switch is set to the stage III, i.e. 17°, the red pilot lamp lights up (limit of the slope applicability) as soon as the longitudinal or transversal gradient of 17° has been reached, whereby the yellow pilot lamp (safety reserve) will light up when the slope of 14 –15°, i.e. 2 –3° under the extreme limit for switching on the red pilot lamp, has been reached. The acoustic signalling will on the contrary be switched on 1--2° above the limit for switching on the red pilot lamp. The green pilot lamp is on at all these stages, as soon as the key has been inserted into the switch box.

The inclinometer is fitted to its base with four M 6 bolts and it is connected to the electric installation of the tractor by one cable on a cable eye by means of a M 5 bolt; the cable is earthed to the tractor frame (minus pole of the battery) and the second cable is connected to the No. 54 fuse (from the positive pole of the battery). When the inclinometer is being fitted, it is necessary to handle it always in the basic position, i.e. ±35° in the longitudinal and transversal direction. **The inclinometer must not be turned upside down, as the column of the mercury in the sensors could get broken.**

The instrument does not need any attention, it is put into function in the same moment the key inserted into the switch box of the tractor. The inclinometer maintenance consists only of a replacement of faulty pilot lamps. These lamps are accessible after removing the upper cover of the indication box and pulling the lamp socket from the pilot lamp. The inclinometer DSH-026 should undergo

a diagnostic maintenance once a year, before the main season begins, which means to check the function and accuracy of the red signal bulb adjustment indicating the zone of a hillside applicability and if necessary, to adjust it correctly according to the recommendations in the article No. 6 TP (see Operating Instructions).

Inclinometer service

The guarantee- and post-guarantee service of inclinometers is based on exchange of faulty instruments for good ones, and/or their adjustment and checking. These service are provided directly by the manufacturer — Agrozet Brno, concern enterprise, Pořící 3a, Brno.

The rear wheels with tyres 18.4-26

To achieve better stability, to reduce damage of grass growth and to gain the necessary applicability on slopes the tractors are equipped with the wide rear tyres, dimensions 18.4-26. The track of the rear wheels has been adjusted by the manufacturer to 1800 mm and because the rear wheels are of a disk-type design and are massive, it is not possible to change the track of the rear wheels. The specified pressure of the tyres is 100 kPa for tractor tasks on slopes and 150 kPa when driving on roads.

Description or the tyre	18.4-26
PR	10
Outer tyres	1450 mm
Maximum width	467 mm
Carrying capacity	2645 kg at a pressure 180 kPa
Static radius	663 mm
Carrying capacity	1900 kg at a pressure 100 kPa

The tyres are fitted to the wheel rim DW 16×26.

Rear wheels with tyres 530—610 (21.3-24)

The rear wheels can be equipped with tyres 530—610 as an alternative. The wheels are of disk-type design and are adjusted to a track 1720 mm. The change of the track is not possible. The specified pressure of the tyres is 100 kPa for the tasks of the tractor when operating on hillsides and 150 kPa when driving on roads.

Tyre description	530-610
PR	10
Outer diameter of the tyre	1400 ±15 mm
Maximum width	540 mm
Carrying capacity	2500kg at a pressure 160 kPa
Static radius	640±8 mm
Carrying capacity	1900 kg at a pressure 100 kPa

When the tractor is fitted with the rear tyres of dimensions 18.4-26, the teoretical driving speeds of the tractor in km·hour with the nominal engine speed of 2200 r.p.m. (the tractor is equipped with a torque multiplier) are given in the following table:

Speed gear	Without the reduction gear	With the reduction gear
I	7.48 km/h	1.77 km/h
I N	5.71	1.35
II	9.74	2.30
II N	7.44	1.76
III	13.57	3.20
III N	10.36	2.45
IV	19.31	4.56
IV N	14.74	3.48
V	26.50	6.26
V N	20.23	4.78
Z	9.95	2.35
Z N	7.60	1.79

N – torque multiplier

The tractor Z 7245 Horal can be equipped with double rear tyres consisting of 14.9-28 tyres for some operations, e.g. fertilizing, carrying-in green food etc. The double-mounted tyres are supplied on a special order.

The specified pressure of the double-mounted tyres 14.9-28 is 150 kPa. The procedure of attaching the wheels on a tractor is described in the Operating Instructions for the basic types of tractors.

The front wheels 9.5-24 and mudguards of the front wheels

The front wheels are of disk-type, with tyre beads and equipped with 9.5-24 tyres.

Tyre designation	9.5-24
PR	8
Wheel rim designation	W 9 - 24

Pressure (kPa)	220	230	240	250	260	270	280
Carrying capacity (kg)	965	990	1015	1040	1060	1085	1110

If the speed of the tractor is reduced to 15 km/h and the tyres have a pressure 290 kPa, the carrying capacity is increased to 1450 kg.

The recommended pressure for tasks on slopes as well as for the transport on roads is 250 kPa. When operating with agricultural machines carried front in the three-point hitch, the pressure of the front tyres has to be increased to 290 kPa and the driving speed for the transport in terrain and on roads as well has to be limited to a maximum 15 km/h.

Tractors which are not equipped with the front P.T.O.-shaft and with the front three-point hitch can be fitted with the front tyres 9.5-24, type 6 PR. The recommended pressure for these tyres for tasks on slopes and transport on roads is 210 kPa

	Driving speed		
	30 km/h	25 km/h	20 km/h
Carrying capacity of 9.5-24 6 PR tyres with a pressure 210 kPa	940 kg	1006 kg	1128 kg

The mudguards of the front wheels are a standard equipment of the tractor. A rubber mudguard is used as a cover for wheels and it covers the entire width of the tyre profile at the adjusted track of the front wheels 1790 mm.

Safety cabin with heating unit and front lighting

The driver's cabin is in compliance with the safety regulations in respect of the structural design. The cabin frame has been tested according to O.E.C.D. and Czechoslovak standards, and prevents serious deformation if the tractor overturns, and the driver is protected in this case against some serious injuries.

The safety cabin has been constructionally modified in order to get a greater standard track of the rear wheels from the previous 1425 mm to the present 1800 mm (or alternatively 1720 mm) and to equip the tractor with wide rear wheels 18.4-26 or 530-610. The mudguards of the rear wheels have been extended to cover the entire width of the tyre profile. The extension pieces of the rear wheel mudguards have been extended to 530 mm and wide mud flaps are attached to them to catch dirt. The flaps guarantee minimum soiling of the agricultural machines carried or hitched to the rear part of the tractor. To improve conditions with regard to the safety of work, the cabin has been equipped as a standard outfit with an inclinometer attached to the steering bracket and further with a pair of hand rails fitted to the cabin frame which allow the driver to keep a correct position when driving the tractor on slopes.

Differences in the maintenance of the tractor Zetor 7245 Horal
Daily maintenance (DM)

1. Check all pilot lamps in the inclinometer with the help of checking knobs whether they are functioning properly before you start to drive the tractor Z 7245 Horal.
2. Take better care of the condition of trailer implements and attached equipment, of brakes and the complete set.
3. Check whether all wheel nuts have been tightened at a torque 450—470 Nm and the wheel bolt lugs at a torque 160—180 Nm if the rear wheels are equipped with a doublemounted set of wheels.

Table 16 **The main technical parameters of the tractor Z 5245 in the MOTOKOV execution** (single-tyre mounting)

Parameter description	9,5-24 12,4–32	9,5-24 14,9-28	9,5-24 16,9-28	11,2-24 12,4-36	11,2-24 16,9-28
The main dimensions (mm)					
Regarding the ready weight of the tractor in MOTOKOV execution with the cabin BK 7011 Allowed tolerance ±2 %					
Overall length without implement hitch and with the front ballast weights	3358	3360	3395	3400	3420
Length with the implement hitch without the front ballast weights (Length with the hitch implement and with the front ballast weights		3630/3630		3657/3657	
Width with the standard rear wheel track		1850		1850	
Height to the top of the exhaust pipe - the extended exhaust silencer with the exhaust flap, without spark arrester	2704	2706	2717	2730	2755
Tractor height to the top of the cabin (the cabin with the roof opening)	2590	2595	2611	2660	2642
Height to the upper rim of the steering wheel	1823	1829	1850	1862	1868
Ground clearance according to the standard ČSN 30 0026 – without hitched implement (under the front axle beam)	386	386	386	410	410
– with the implement hitch (under the swinging draw bar at the lowest position	313	323	366	395	360
Height of the implement hitch for a trailer (to the mouth centre - in 50 mm steps	657 857	667 -867	710 -910	731 -931	698 -898
Height of the swinging bar (to the inner lower fork surface)	353	363	406	419	384
Height of the implement hitch for the single-axle trailer (to the hook bearing surface)	410	420	460	483	454
Height of the P.T.O.-shaft	646	655	692	713	689

Parameter description	9,5-24 12,4–32	9,5-24 14,9-28	9,5-24 16,9-28	11,2-24 12,4-36	11,2-24 16,9-28
Front wheel track – standard		1510		1510	
adjustable for agricultural use		—		—	
Rear wheel track – standard			1425		
adjustable for agricultural use in 75 mm steps	1425–1800	1425-1800	1425-1800	1425-1800	1425-1800
Wheel base			2140		
Distance of the tractor centre of gravity from the rear wheel axle	839	833	828	839	837
Height of the tractor centre of gravity above the basic plane	872	880	914	931	920
Outer diameter of the turning circle (according to the standard ČSN 30 0552) with one wheel braked			8500^{+500}		
Outer tyre-mark turning circle (according to the standard ČSN 30 0552) with one wheel braked			8200^{+500}		
Weights (kgs) for the MOTOKOV execution – standard (Allowed tolerance ±5 %)					
Constructional tractor weight – with the cabin	2960	2980	3000	3010	3020
thereof: to the front axle	1150	1150	1150	1170	1170
to the rear axle	1810	1830	1850	1840	1850
– without the cabin	2660	2680	2700	2710	2720
thereof: to the front axle	1090	1090	1090	1110	1110
to the rear axle	1570	1590	1610	1600	1610
Ready weight of the tractor with the cabin	3060	3080	3100	3110	3120
thereof: to the front axle	1200	1200	1200	1220	1220
to the rear axle	1860	1880	1900	1890	1900

Parameter description	9,5-24 12,4–32	9,5-24 14,9-28	9,5-24 16,9-28	11,2-24 12,4-36	11,2-24 16,9-28
without the cabin	2760	2780	2800	2810	2820
thereof: to the front axle	1140	1140	1140	1160	1160
to the rear axle	1620	1640	1660	1650	1600
Maximum weight of the additional ballast weights – in the front			155 +20		
in the rear			270		
Weight of water in the rear tyres	2 140	2 - 190	2 215	2 160	2 215
Maximum allowed axle loading (kgs), inflation (kPa)					
The front light driving axle, track 1 510 mm at a maximum speed					
30 km/h		1600–160		1600 150	
25 km/h		1880 210		1880 150	
– 20 km/h		2250 210		2500 180	
8 km/h		2630 270		2820 220	
The rear axle (track 1425 mm) at a maximum speed with disk/drum brakes					
30 km/h	2710/– –170	3360/– –150	3600/ -150	2880/– –170	
25 km/h	2900/2900 –170	3590/3590 –150		3080/3080 –170	
– 20 km/h	3250/3250 –170	3600/3600 –150	3600/3600 –150	3450/3450 –170	3600/3600 150
8 km/h	3600/3600 –200	3600/3600 –150		3600/3600 -190	

Parameter description	9,5-24 12,4-32	9,5-24 14,9-28	9,5-24 16,9-28	11,2-24 12,4-36	11,2-24 16,9-28
Forces (kN)					
(Allowed tolerance ±5 %)					
A maximum tractive force in the swinging bar on a concrete ground, the tractor in a ready execution, with the ballast weights, at a slippage 15 %					
with the cabin			28,53		
without the cabin			26,23		
A maximum tractive force in the hitch for a trailer, the tractor in a ready execution, with the ballast weights and water in the rear tyres					
with the cabin			31,35		
without the cabin			29,05		
The lifting force at the end of the lower draw bar of the three-point hitch is guaranteed within the entire range			17,5		
Output and fuel consumption (kW, g/kW.h)					
The output on the P.T.O.-shaft at the nominal engine speed and engaged 540 r.p.m. at the P.T.O.-shaft			31,0 (27,9)		
The specific fuel consumption corresponding to the above given output			268		

Note: The output values and the fuel consumption are meant after 100 hours run-in of the tractor, the value in parantheses is for information and meant for a tractor which has not been run-in yet.

Table 17 **The main technical parameters of the tractor Z 6245 in MOTOKOV execution** (single-tyre mounting)

Parameter description	11,2-24 16,9-28	11,2-24 16,9-30	11,2-24 12,4-36	11,2-24 16,9-28	11,2-24 12,4-36	11,2-24 16,9-30	12,4-24 13,6-36	12,4-24 16,9-30	12,4-24 16,9-34
The main dimensions (mm)	light front driven axle			heavy front driven axle					
Regarding the ready weight of the tractor in MOTOKOV execution with the cabin BK 7011 Allowed tolerance ±2 %									
Overal length without implement hitch and without the front ballast weights	3495	3520	3410	3495	3410	3520	3535	3520	3570
Lenght with the implement hitch, without the front ballast weights / Length with the implement hitch and with the front ballast weights	3765/3765			3765/4035					
Width at the standard rear wheel track	1850			1980					
Height to the top of the exhaust pipe (the extended exhaust silencer with the exhaust flap, without spark arrester)	2733	2742	2736	2737	2740	2745	2772	2782	2796
Tractor height to the top of the cabin (the cabin with the roof opening)	2660	2675	2666	2663	2668	2678	2700	2667	2715
Height to the upper rim of the steering wheel	1859	1877	1866	1860	1867	1879	1899	1892	1923

Parameter description	11,2-24 16,9-28	11,2-24 16,9-30	11,2-24 12,4-36	11,2-24 16,9-28	11,2-24 12,4-36	11,2-24 16,9-30	12,4-24 13,6-36	12,4-24 16,9-30	12,4-24 16,9-34
Ground clearance according to the standard ČSN 30 0026									
- without hitched implements (under the front axle beam)	370	370	370	374	374	374	406	406	406
- with the implement hitch (under the swinging draw bar at the lowest position)	364	400	377	362	376	399	406	385	447
Height of the implement hitch for a trailer to the mouth centre - in 50 mm steps	708 908	744 944	721–921	706 906	720 920	742 942	750–950	723 923	784 984
Height of the swinging bar (to the inner lower fork surface)	404	440	417	402	416	439	446	409	471
Height of the implement hitch for the single-axle trailer (to the hook bearing surface)	459	492	471	457	470	491	500	480	537
Height of the P.T.O.-shaft	692	728	704	691	703	727	734	714	768
Front wheel track - standard		1510			1510			1610	
- adjustable for agricultural use		...			...			...	
Rear wheel track - standard					1425				
- adjustable in 75 mm steps for agricultural use	1425-1800	1500-1800	1500-1800	1425-1800	1500-1800	1500-1800	1575-1800	1500-1800	1500-1800
Wheel base		2274				2222			
Distance of the tractor centre of gravity from the rear wheel axle	910	896	912	925	927	911	926	921	900

Parameter description	11,2-24 16,9-28	11,2-24 16,9-30	11,2-24 12,4-36	11,2-24 16,9-28	11,2-24 12,4-36	11,2-24 16,9-30	12,4-24 13,6-36	12,4-24 16,9-30	12,4-24 16,9-34
Height of the tractor centre of gravity above the basic plane	900	927	911	905	916	932	945	922	977
Outer diameter of the turning circle (according to the standard ČSN 30 0552) with one wheel braked					8700 ±500				
Outer tyre-mark turning circle (according to the standard ČSN 30 0552) with one wheel braked					8400 ±500				
Weights (kgs) for the MOTOKOV execution – standard Allowed tolerance ±5 %									
Constructional tractor weight – with the cabin	3125	3175	3115	3215	3205	3265	3270	3290	3370
thereof: to the front axle	1250	1250	1250	1340	1340	1340	1365	1365	1365
to the rear axle	1875	1925	1865	1875	1865	1925	1905	1925	2005
– without the cabin	2825	2875	2815	2915	2905	2965	2970	2990	3070
thereof: to the front axle	1200	1200	1200	1290	1290	1290	1315	1315	1315
to the rear axle	1625	2675	2615	1625	1615	1675	1655	1675	1755
Ready weight of the tractor – with the cabin	3250	3300	3240	3340	3330	3390	3395	3415	3495
thereof: to the front axle	1300	1300	1300	1390	1390	1390	1415	1415	1415
to the rear axle	1950	2000	1940	1950	1940	2000	1980	2000	2080
– without the cabin	2950	3000	2940	3040	3030	3090	3095	3115	3195
thereof: to the front axle	1250	1250	1250	1340	1340	1340	1365	1365	1365
to the rear axle	1700	1750	1690	1700	1690	1750	1730	1750	1830

Parameter description	11,2-24 16,9-28	11,2-24 16,9-30	11,2-24 12,4-36	11,2-24 16,9-28	11,2-24 12,4-36	11,2-24 16,9-30	12,4-24 13,6-36	12,4-24 16,9-30	12,4-24 16,9-34
Maximum weight of the additional ballast weights									
in the front		155				155	210		
in the rear					270				
Weight of water in the rear tyres	2×215	2×240	2×160	2×215	2×160	2×240	2×180	2×240	2×250
Maximum allowed axle loading (kgs), inflation (kPa)									
The front light driving axle (track 1 510 mm) at a maximum speed									
30 km/h		1900-180			–			–	
25 km/h		2100-180			–			–	
20 km/h		2500-180			–			–	
8 km/h		2820-220			–			–	
The front heavy driven axle (track 1 510 mm or 1 610 mm) at a maximum speed									
30 km/h		–			1900-180			1900-170	
25 km/h		–			2100-180			2200-170	
20 km/h		–			2500-180			2880-170	
8 km/h		–			2920-225			3360-210	
The rear axle (track 1 425 mm) with disk brakes / drum brakes at a maximum speed									
30 km/h	3600/– –150	3600/– –150	2880/– –170	3600/– –150	2880/– –170	3600/– –150	3230/– –160	3600/– –150	3600/– –130
25 km/h			3080/3080 –170		3080/3080 –170		3450/3450 –160		
20 km/h	3600/3600 –150	3600/3600 –150	3450/3450 –170	3600/3600 –150	3450/3450 –170	3600/3600 –150	3600/3600 –160	3600/3600 –150	3600/3600 –130
8 km/h			3600/3600 –190		3600/3600 –190		3600/3600 –160		

Parameter description	11,2-24 16,9-28	11,2-24 16,9-30	11,2-24 12,4-36	11,2-24 16,9-28	11,2-24 12,4-36	11,2-24 16,9-30	12,4-24 13,6-36	12,4-24 16,9-30	12,4-24 16,9-34
Forces (kN) Allowed tolerance ± 5 %									
A maximum tractive force in the swinging bar on a concrete ground, the tractor in a ready execution, with the ballast weights, at a slippage 15 %									
- with the cabin		28,21					30,82		
without the cabin		25,92					28,53		
A maximum tractive force in the hitch for a trailer, the tractor in a ready execution, with the ballast weights and with water in the rear tyres									
- with the cabin		31,35					34,10		
- without the cabin		29,06					31,80		
The lifting force at the end of the lower draw bars of the three-point hitch is guaranteed within the entire range.									
Output and fuel consumption (kW, g/kW.h)									
The output on the P.T.O.-shaft at the nominal engine speed and engaged 540 r.p.m. of the P.T.O.-shaft					39(35,1)				
The specific fuel consumption corresponding to the above given output					266				

Note: The output values and the fuel consumption are meant after 100 hours run-in of the tractor, the value in parantheses is for information and meant for a tractor which has not been run-in yet.

Table 17a **The main technical parameters of the tractor Z 6245 in the MOTOKOV execution** (double-tyre mounting)

Parameter description	11,2-24 2× 16,9-30	11,2-24 2× 12,4-36	11,2-24 2× 16,9-30	11,2-24 2× 12,4-36	12,4-24 2× 16,9-30
The main dimensions (mm)					
Regarding the ready weight of the tractor in MOTOKOV execution with the cabin BK 7011 Allowed tolerance ±2 %	light front driven axle		heavy front driven axle		
Overall length without the implement hitch and with the front ballast weights	3520	3410	3520	3410	3520
Length with the implement hitch and without the front ballast weights and with the front ballast weights)	4035/3765			4035/3765	
Width with the standard rear wheel track	2985	2795	2985	2795	2985
Height to the top of the exhaust pipe and the extended exhaust silencer with the exhaust flap, without the spark arrestor)	2766	2763	2770	2767	2785
Tractor height to the top of the cabin (the cabin with the roof opening)	2678	2670	2679	2670	2678
Hight to the upper rim of the steering wheel	1890	1884	1891	1886	1899
Ground clearance according to the standard CSN 30 0026 without implement hitch (under the front axle beam)	370	370	374	374	406
with the implement hitch (under the swinging draw bar at the lowest position)	407	397	406	395	399
Height of the implement hitch for a trailer (to the mouth centre) in 50 mm steps	744 -944	733 -933	743 943	732 -932	737–937
Height of the swinging bar (to the inner lower forksurface)	431	421	430	419	423
Height of the implement hitch for the single-axle trailer (to the hook bearing surface)	498	488	497	487	493

Parameter description	11,2-24 2 16,9-30	11,2-24 2 12,4-36	11,2-24 2 16,9-30	11,2-24 2 12,4-36	12,4-24 2 16,9-30
Height of the P.T.O.-shaft	732	720	729	719	726
Front wheel track – standard	1510		1510		1610
adjustable for agricultural use	–		–		
Rear wheel track standard	1500/2556	1500/2480	1500/2556	1500/2480	1500/2556
adjustable in 75 mm steps for agricultural use	–			–	
Wheel base	2274			2222	
Distance of the tractor centre of gravity from the rear wheel axle	804	831	820	847	829
Height of the tractor centre of gravity above the basic plane	923	918	923	918	929
Outer diameter of the turning circle (according to the standard CSN 30 0552) with one wheel braked			9300 ± 500		
Outer tyre-mark turning circle (according to the standard CSN 30 0552) with one wheel braked			9000 ± 500		
Weights (kgs) for the MOTOKOV execution – **standard** (allowed tolerance ± 5 %)	3550	3430	3640	3520	3665
Constructional tractor weight with the cabin	1250	1250	1340	1340	1365
thereof: to the front axle	2300	2180	2300	2180	2300
to the rear axle	3250	3130	3340	3220	3365
without the cabin	1200	1200	1290	1290	1315
thereof: to the front axle	2050	1930	2050	1930	2050
to the rear axle	3675	3555	3765	3645	3790
Ready weight of the tractor with the cabin	1300	1300	1390	1390	1415

Parameter description	11,2-24 2× 16,9-30	11,2-24 2× 12,4-36	11,2-24 2× 16,9-30	11,2-24 2× 12,4-36	12,4-24 2× 16,9-30
thereof: to the front axle	2375	2255	2375	2255	2375
to the rear axle	3375	3255	3465	3345	3490
without the cabin	1250	1250	1340	1340	1365
thereof: to the front axle	2125	2005	2125	2005	2125
to the rear axle			155 + 210		
Maximum weight of the additional ballast weights in the front			–		
– in the rear	–	–	–	–	–
Weight of water in the rear tyres					
Maximum allowed axle loading (kgs), inflation (kPa)					
The front light driving axle (track 1 510 mm) at a maximum speed – 30 km/h	–		–		–
25 km/h	2100-180		–		–
20 km/h	2500-180		–		–
8 km/h	2820-220		–		–
The front heavy driving axle (track 1 510 mm or 1 610 mm) at a maximum speed – 30 km/h	–		–		–
– 25 km/h	–		2100-180		
20 km/h	–		2500-180		2880-170
8 km/h	–		2920-225		3360-210
The rear axle (track 1 425 mm) with disk brakes / drum brakes at a maximum speed – 30 km/h					
25 km/h	–		–	–	–
20 km/h	3600/3600 –110	3600/3600 –110	3600/3600 –110	3600/3600 –110	3600/3600 –110
8 km/h					

Parameter description	11,2-24 2× 16,9-30	11,2-24 2× 12,4-36	11,2-24 2× 16,9-30	11,2-24 2× 12,4-36	12,4-24 2× 16,9-30
Forces (kN)					
Allowed tolerance ± 5 %					
A maximum tractive force in the swinging bar on a concrete ground, the tractor in a ready execution, with the ballast weights, at a slippage 15 %					
· with the cabin	30,45		31,35		
·· without the cabin	28,15		29,06		
A maximum tractive force in the hitch for a trailer, the tractor in a ready execution, with the ballast weights and water in the rear tyres					
·· with the cabin	—		—		
· without the cabin	—		-		
The lifting force at the end of the lower draw of the three-point hitch is guaranteed within the entire range.	24,00				
The lifting force at the end of the lower draw bars of the front three-point hitch is guaranteed in the entire range.	11,00				
Output and fuel consumption (kW, g/kW.h)					
The output on the P.T.O.-shaft at the nominal engine speed and engaged 540 r.p.m. of the P.T.O.-shaft	39 (35,1)				
The specific fuel consumption corresponding to the above given output.	266				

Note: The output values and the fuel consumption are meant after 100 hours run-in of the tractor, the value in parentheses is for information and meant for a tractor which has not been run-in yet.

Table 18 **The main technical parameters of the tractor Z 7245 in the MOTOKOV execution** (single-tyre mounting)

Parameter description	11,2-24 16,9-28	11,2-24 12,4-36	11,2-24 16,9-30	12,4-24 13,6-36	12,4-24 16,9-30	12,4-24 16,9-34
The main dimensions (mm)						
Regarding the ready weight of the tractor in MOTOKOV execution with the cabin BK 7011						
Allowed tolerance ±2 %						
Overall length with implement hitch and without the front ballast weights	3495	3410	3520	3535	3520	3570
Overall length with the implement hitch, without the front ballast weights / overall length with the implement hitch and with the front ballast weights	3765/4030					
Width at the standard wheel track	1980					
Height to the top of the exhaust pipe (the extended exhaust silencer with the exhaust flap and without the spark arrester)	2737	2740	2745	2772	2782	2782
Tractor height to the top of the cabin (the cabin with the roof opening)	2663	2668	2678	2700	2667	2718
Height to the upper rim of the steering wheel	1860	1867	1879	1899	1892	1921
Ground clearance according to the standard ČSN 30 0026 —						
· without implement hitch (under the front axle beam)	374	374	374	406	406	406
· with implement hitch (under the swinging draw bar at the lowest position)	362	376	399	406	385	450
Height of the implement hitch for a trailer (to the mouth centre) — in 50 mm steps	706 – 906	720 – 920	742 – 942	750 – 950	723 – 923	793 – 993

Parameter description	11,2-24 16,9-28	11,2-24 12,4-36	11,2-24 16,9-30	12,4-24 13,6-36	12,4-24 16,9-30	12,4-24 16,9-34
Height of the swinging bar (to the inner lower fork surface)	402	416	439	446	409	490
Height of the implement hitch for the single-axle trailer (to the hook bearing surface)	457	470	491	500	480	541
Height of the P.T.O.-shaft	691	703	732	734	714	772
Front wheel track						
standard		1510			1610	
adjustable for agricultural use						
Rear wheel track						
standard			1425			
- adjustable in 75 mm steps for agricultural use	1425-1800	1500-1800	1500-1800	1575-1800	1500-1800	1500-1800
Wheel base			2222			
Distance of the tractor centre of gravity from the rear wheel axle	923	926	910	925	919	898
Height of the tractor centre of gravity above the basic plane	905	916	932	945	938	977
Outer diameter of the turning circle (according to the standard ČSN 30 0552) with one wheel braked			8700 +500			
Outer tyre-mark turning circle (according to the standard ČSN 30 0552) with one wheel braked			8400 +500			
Weights (kgs) for the MOTOKOV execution standard (Allowed tolerance +5 %)						
Constructional tractor weight - with the cabin	3215	3205	3265	3270	3290	3370

Parameter description	11,2-24 16,9-28	11,2-24 12,4-36	11,2-24 16,9-30	12,4-24 13,6-36	12,4-24 16,9-30	12,4-24 16,9-34
thereof: to the front axle	1340	1340	1340	1365	1365	1365
to the rear axle	1875	1865	1925	1905	1925	2005
– without the cabin	2915	2905	2965	2970	2990	3070
thereof: to the front axle	1290	1290	1290	1315	1315	1315
to the rear axle	1625	1615	1675	1655	1675	1755
Ready weight of the tractor with the cabin	3345	3335	3395	3400	3420	3500
thereof: to the front axle	1390	1390	1390	1415	1415	1415
to the rear axle	1955	1945	2005	1985	2005	2085
– without the cabin	3045	3035	3095	3100	3120	3200
thereof: to the front axle	1340	1340	1340	1365	1365	1365
to the rear axle	1705	1695	1755	1735	1755	1835
Maximum weight of the additional ballast weights						
- in the front	155 : 210					
in the rear	270					
Weight of water in the rear tyres	2 × 215	2 × 160	2 × 240	2 × 180	2 × 240	2 × 250
Maximum allowed axle loading (kgs) / inflation (kPa)						
The front driving axle (track 1.510 mm or 1.610 mm) at a maximum speed						
30 km/h		1900-180			1900-170	
25 km/h		2100-180			2200-170	
20 km/h		2500-180			2880-170	
6 km/h		2920-225			3360-210	

Parameter description	11,2-24 16,9-28	11,2-24 12,4-36	11,2-24 16,9-30	12,4-24 13,6-36	12,4-24 16,9-30	12,4-24 16,9-34
the rear axle (track 1425 mm) at a maximum speed						
30 km/h	3600/— −150	2880/— −170	3600/— −150	3230/— −160	3600/— −150	3600/— −130
25 km/h		3080/3080 −170		3450/3450 −160		
20 km/h	3600/3600 −150	3450/3450 −170	3600/3600 −150	3600/3600 −160	3600/3600 −150	3600/3600 −130
8 km/h		3600/3600 −190		3600/3600 −160		
Forces (kN) (Allowed tolerance ±5 %)						
A maximum tractive force in the swinging bar on a concrete ground, the tractor in a ready execution, with the ballast weights, at a slippage 15 %						
with the cabin			30,86			
without the cabin			28,57			
A maximum tractive force in the hitch for a trailer, the tractor in a ready execution, with the ballast weights and water in the rear tyres						
with the cabin			34,14			
without the cabin			31,84			
The lifting force at the end of the lower draw bars of the front three-point hitch is guaranteed within the entire range.			24,00			
The lifting force at the end of the lower draw bars of the front three-point hitch is guaranteed within the entire range.			11,00			

Parameter description	11,2-24 16,9-28	11,2-24 12,4-36	11,2-24 16,9-30	12,4-24 13,6-36	12,4-24 16,9-30	12,4-24 16,9-34
Output and fuel consumption (kW, g/kW.h)						
The output on the P.T.O.-shaft at the nominal engine speed and engaged 540 r.p.m. of the P.T.O.-shaft	43 (38,7)					
The specific fuel consumption corresponding to the above given output.	263					

Note: The output values and the fuel consumption are meant after 100 hours run-in of the tractor; the value in parentheses is for information and meant for a tractor which has not been run-in yet.

Table 18a **The main technical parameters of the tractor Z 7245 in the MOTOKOV execution** (double-tyre mounting)

Parameter description	11,2-24 2×16,9-30	11,2-24 2×12,4-36	12,4-24 2×16,9-30
The main dimensions (mm)			
Regarding the ready weight of the tractor in the MOTOKOV execution with the cabin BK 7011 Allowed tolerance ±2 %			
Overall length without implement hitch and without the front ballast weights	3520	3410	3520
Length with implement hitch, without the front ballast weights/ Length with the implement hitch and with the front ballast weights		3765/4035	
Width at the standard rear wheel track	2985	2795	2985
Height to the top of the exhaust pipe - the extended exhaust silencer, with the exhaust flap, without the spark arrester	2769	2767	2785
Tractor height to the top of the cabin (the cabin with the roof opening)	2678	2670	2670
Height to the upper rim of the steering wheel	1892	1886	1899
Ground clearance according to the standard ČSN 30 0026 - without implement hitch (under the front axle beam)	374	374	406
- with the implement hitch (under the swinging draw bar at the lowest position)	406	395	400
Height of the implement hitch for a trailer (to the mouth centre) - in 50 mm steps	743 943	732 932	736 936
Height of the swinging bar (to the inner lower fork surface)	430	420	423
Height of the implement hitch for the single-axle trailer (to the hook bearing surface)	497	487	493
Height of the P.T.O.-shaft	729	719	726
Front wheel track standard	1510		1610
- adjustable for agricultural use		—	

Parameter description	11,2-24 2×16,9-30	11,2-24 2×12,4-36	12,4-24 2×16,9-30
Rear wheel track			
-- standard	1500/2556	1500/2480	1500/2556
– adjustable in 75 mm steps for agricultural use		–	
Wheel base		2222	
Distance of the tractor centre of gravity from the rear wheel axle	819	846	828
Height of the tractor centre of gravity above the basic plane	923	918	929
Outer diameter of the turning circle (according to the standard ČSN 30 0552) with one wheel braked		9300 + 500	
Outer tyre-mark turning circle (according to the standard ČSN 30 0552) with one wheel braked		9000 + 500	
Weights (kgs) for the MOTOKOV execution -- standard			
(Allowed tolerance ±5 %)			
Constructional tractor weight			
-- with the cabin	3640	3520	3665
thereof: to the front axle	1340	1340	1365
to the rear axle	2300	2180	2300
-- without the cabin	3340	3220	3365
thereof: to the front axle	1290	1290	1315
to the rear axle	2050	1930	2050
Ready weight of the tractor			
-- with the cabin	3770	3650	3795
thereof: to the front axle	1390	1390	1415
to the rear axle	2380	2260	2380
-- without the cabin	3470	3350	3495
thereof: to the front axle	1340	1340	1365
to the rear axle	2130	2010	2130

Parameter description	11,2-24 2×16,9-30	11,2-24 2×12,4-36	12,4-24 2×16,9-30
Maximum weight of the additional ballast weights			
in the front		155 ; 210	
in the rear		--	
Weight of water in the rear tyres	-	—	--
Maximum allowed axle loading (kgs) / inflation (kPa)			
The front driving axle (track 1 510 mm or 1 610 mm) at a maximum speed			
30 km/h			
25 km/h	2100-180		2200-170
20 km/h	2500-180		2880-170
8 km/h	2920-225		3360-210
The rear axle at a maximum speed (track 1 425 mm)			
30 km/h		-	—
20 km/h	3600/3600	3600/3600	3600/3600
8 km/h	—110	—110	110
Forces (kN) (Allowed tolerance ±5 %)			
A maximum tractive force in the swinging bar on a concrete ground, the tractor in a ready execution, with the ballast weights, at a slippage 15 %			
with the cabin		31,39	
without the cabin		29,09	
A maximum tractive force in the hitch for a trailer, the tractor in a ready execution, with the ballast weights and water in the rear tyres			
— with the cabin		-	
— without the cabin		-	

Parameter description	11,2-24 2×16,9-30	11,2-24 2×12,4-36	12,4-24 2×16,9-30
The lifting force at the end of the lower draw bars of the three-point hitch is guaranteed within the entire range.		24,00	
The lifting force at the end of the lower draw bars of the front three-point hitch is guaranteed within the entire range.		11,00	
Output and fuel consumption (kW, g/kW.h)			
The output on the P.T.O.-shaft at the nominal engine speed and engaged 540 r.p.m. of the P.T.O-shaft		43 (38,7)	
The specific fuel consumption corresponding to the above given output		263	

Note: The output values and the fuel consumption are meant after 100 hours run-in of the tractor, the value in parantheses is for information and meant for a tractor which has not been run-in yet.

Table 19 **The main technical parameters of the tractor Z 7245 Horal in the MOTOKOV execution** (single-tyre mounting)

Parameter description	9,5-24 18,4-26	9,5-24 18,4-26
The main dimensions (mm) Regarding the ready weight of the tractor in the MOTOKOV execution with the cabin BK 7011 Allowed tolerance ±2 %	Regards the mountain adjustment of the tractor Z 7245 without the front P.T.O.-shaft and without the front three-point hitch	Regards the mountain adjustment of the tractor Z 7245 with the front P.T.O.-shaft and with the front three-point hitch
Overall length without the implement hitch and without the front ballast weights	3660	3660
Length with the implement hitch, without the front ballast weights / Length with the implement hitch and with the front ballast weights	3800/4010	4450/4530
Width at the standard rear wheel track 1,800 mm	2260	2260
Height to the top of the exhaust pipe (the extended exhaust silencer with the exhaust flap, without the spark arrester)	2714	2710
Tractor height to the top of the cabin (the cabin with the roof opening)	2622	2618
Height to the upper rim of the steering wheel	1842	1842
Ground clearance according to the standard ČSN 30 0026 without implement hitch (under the front axle beam)	346	340
with the implement hitch (under the swinging draw bar at the lowest position)	368	372
Height of the implement hitch for a trailer (to the mouth centre		
— in 50 mm steps	678–878	700—900
Height of the swinging draw bar (to the inner lower fork surface)	392	397
Height of the implement hitch for the single-axle trailer (to the hook bearing surface)	447	450
Height of the P.T.O.-shaft, front/rear	—/679	696/682

Parameter description	9,5-24 18,4-26		9,5-24 18,4-26
Front wheel track · standard		1790	
· adjustable for agricultural use		--	
Rear wheel track standard		1720	
· adjustable in 75 mm steps for agricultural use		--	
Wheel base		2222	
Distance of the tractor centre of gravity from the rear wheel axle	1041		1095
Height of the tractor centre of gravity above the basic plane	898		898
Outer diameter of the turning circle (according to the standard ČSN 30 0552) with one wheel braked		8900^{+500}	
Outer tyre-mark turning circle (according to the standard ČSN 30 0552) with one wheel braked		8600^{+500}	
Weights (kgs) for the MOTOKOV execution -- standard			
(Allowed tolerance ±5 %)			
Constructional tractor weight · with the cabin	3240		3510
thereof: to the front axle	1390		1660
to the rear axle	1850		1850
Ready weight of the tractor - with the cabin and the ballast weights	3970		4100
thereof: to the front axle	1860		2020
to the rear axle	2110		2080
Maximum weight of the additional ballast weights - in the front	400		252 ÷ 8
- in the rear		200	
Weight of water in the rear tyres	—		—

Parameter description	9,5-24 18,4-26	9,5-24 18,4-26
Maximum allowed axle loading (kgs), inflation (kPa)		
The front driving axle (track 1.790 mm) at a maximum speed		
- 30 km/h	2000-240	
- 25 km/h	2370-220	
- 20 km/h	2660-280	
- 15 km/h	2900-290	
8 km/h	2900-290	
The rear axle (track 1,800 mm) with disk brakes/drum brakes at a maximum speed * tasks on slopes		
- 30 km/h	3600/ - -150	3600/-- -150
25 km/h	3600/3600-150	3600/3600-150
20 km/h	3600/3600-150	3600/3600-150
8 km/h	3600/3600-150/*100	3600/3600-150/*100
Forces (kN)		
(Allowed tolerance ± 5 %)		
A maximum tractive force in the swinging draw bar on a concrete ground, the tractor in a ready execution, with ballast weights, at a slippage 15 %		
- with the cabin	30,37	31,37
A maximum tractive force in the hitch for a trailer, the tractor in a ready execution, with the ballast weights and water in the rear tyres		
- with the cabin	-	-
The lifting force at the end of the lower draw bars of the three-point hitch guaranteed in the entire range.	24,00	24,00
The lifting force at the end of the lower draw bars of the front three-point hitch guaranteed within the entire range.	-	11,00

Parameter description	9,5-24 18,4-26	9,5-24 18,4-26
Output and fuel consumption (kW, g/kW.h)		
The output on the P.T.O.-shaft at the nominal engine speed and engaged 540 r.p.m. of the P.T.O.-shaft	43 (38,7)	
The specific fuel consumption corresponding to the above given output	263	

Note: The output values and the fuel consumption are meant after 100 hours run-in of the tractor, the value in parantheses is for information and meant for a tractor which has not been run-in yet.

Table 19a **The main technical parameters of the tractor Z 7245 Horal in the MOTOKOV execution** (double-tyre mounting)

Parameter description	9,5-24 2 × 14,9-28	9,5-24 2 × 14,9-28
The main dimensions (mm)	Regards the mountain adjustment of the tractor Z 7245 without the front P.T.O.-shaft and without the front three-point hitch	Regards the mountain adjustment of the tractor Z 7245 with the front P.T.O.-shaft and with the front three-point hitch
Overall length without the implement hitch and without the front ballast weights	3660	3660
Length with the implement hitch, without the front ballast weights / Length with the implement hitch and with the front ballast weights	3800/4010	4450/4530
Width at the standard track of the rear wheels	2620	2620
Height to the top of the exhaust pipe (the extended exhaust silencer with the exhaust flap, without the spark arrester)	2710	2705
Tractor height to the top of the cabin (the cabin with the roof opening)	2605	2601
Height to the upper rim of the steering wheel	1839	1837
Ground clearance according to the standard CSN 30 0026 without the implement hitch (under the front axle beam)	346	340
with the implement hitch (under the swinging draw bar at the lowest position)	338	342
Height of the implement hitch for a trailer (to the mouth centre) in 50 mm steps	654 ÷ 854	675 ÷ 875
Height of the swinging draw bar (to the inner lower fork surface)	362	366
Height of the implement hitch for the single-axle trailer (to the hook bearing surface)	430	435
Height of the front/rear P.T.O.-shaft	–/652	696/657

Parameter description	9,5-24 2×14,9-28		9,5-24 2×14,9-28
Front wheel track · standard		1720	
adjustable for agricultural use		--	
Rear wheel track standard		1425/2245	
adjustable in 75 mm steps for agricultural use		--	
Wheel base		2222	
Distance of the tractor centre of gravity from the rear wheel axle	1038		1092
Height of the tractor centre of gravity above the basic plane	884		884
Outer diameter of the turning circle (according to the standard CSN 30 0552) with one wheel braked		9300^{+500}	
Outer tyre-mark turning circle (according to the standard CSN 30 0552) with one wheel braked		8900^{+500}	
Weights (kgs) for the MOTOKOV execution · standard			
(Allowed tolerance . 5 %)			
Constructional tractor weight · with the cabin	3450		3720
thereof: to the front axle	1390		1660
to the rear axle	2060		2060
Ready weight of the tractor · with the cabin and with the ballast weights	3980		4110
thereof: to the front axle	1860		2020
to the rear axle	2120		2090
Maximum weight of the ballast weights in the front	400		252 + 8
in the rear	—		—
Weights of water in the rear tyres	--		--

Parameter description	9,5-24 2×14,9-28	9,5-24 2×14,9-28
Maximum allowed axle loading (kgs), inflation (kPa)		
The front driving axle (track 1,790 mm) at a maximum speed		
- 30 km/h	--	
- 25 km/h	2370-280	
- 20 km/h	2660-280	
- 15 km/h	2900-290	
- 8 km/h	2900-290	
The rear axle with the disk brakes/drum brakes at a maximum speed		
30 km/h	--	—
20 km/h	3600/3600-110	3600/3600-110
- 8 km/h		
Forces (kN) (Allowed tolerance ±5 %)		
A maximum tractive force in the swinging draw bar on a concrete ground, the tractor in a ready execution, with the ballast weights, at a slippage 15 % - with the cabin	30,45	31,45
A maximum tractive force in the hitch for a trailer, the tractor in a ready execution, with the ballast weights and with water in the rear tyres - with the cabin	--	
The lifting force at the end of the lower draw bars of the three-point hitch guaranteed within the entire range.	24,00	24,00
The lifting force at the end of the lower draw bars of the front three-point hitch guaranteed within the entire range.	—	11,00
Output and fuel consumption (kW, g/kW.h)		
The output on the P.T.O.-shaft at the nominal engine speed and engaged 540 r.p.m. of the P.T.O.-shaft	43 (38,7)	
The specific fuel consumption corresponding to the above given output	263	

Note: The output values and the fuel consumption are meant after 100 hours run-in of the tractor, the value in parentheses is for information and meant for a tractor which has not been run-in yet.

Table 20 **The main technical parameters of the tractor Z 7745 in the MOTOKOV execution** (single-tyre mounting)

Parameter description	11,2-24 16,9-28	11,2-24 12,4-36	11,2-24 16,9-30	12,4-24 13,6-36	12,4-24 16,9-30	12,4-24 16,9-34
The main dimensions (mm)						
Regarding the ready weight of the tractor in the MOTOKOV execution with the cabin BK 7011						
Allowed tolerance ±2 %						
Overall length without the implement hitch and without the front ballast weights	3495	3410	3520	3535	3520	3570
Length with the implement hitch and without the front ballast weights / Length with the implement hitch and with the front ballast weights	3765/4035					
Width with the standard rear wheel track 1 425 mm	1980					
Height to the top of the exhaust pipe (the extended exhaust silencer with the exhaust flap, without the spark arrester)	2737	2740	2745	2772	2782	2782
Height of the tractor to the top of the cabin (the cabin with the roof opening)	2640	2650	2670	2686	2666	2728
Height to the upper rim of the steering wheel	1860	1868	1884	1902	1892	1928
Ground clearance according to the standard ČSN 30 0026						
- without the implement hitch (under the front axle beam)	374	374	374	410	410	410
- with the implement hitch (under the swinging draw bar at the lowest position)	362	376	399	406	385	450

Parameter description	11,2-24 16,9-28	11,2-24 12,4-36	11,2-24 16,9-30	12,4-24 13,6-36	12,4-24 16,9-30	12,4-24 16,9-34
Height of the implement hitch for a trailer (to the mouth centre) in 50 mm steps	706 906	720 920	742 942	750 950	722 922	798 998
Height of the swinging draw bar (to the inner lower fork surface)	402	416	439	446	409	490
Height of the implement hitch for the single-axle trailer (to the hook bearing surface)	457	470	491	500	479	541
Height of the P.T.O.-shaft	691	708	732	734	714	772
Front wheel track						
· standard		1510			1610	
· adjustable for agricultural use		—			--	
Rear wheel track						
standard			1425			
adjustable for agricultural use in 75 mm steps	1425-1800	1500-1800	1500-1800	1575-1800	1500-1800	1500-1800
Wheel base			2222			
Distance of the tractor centre of gravity from the rear wheel axle	921	924	908	922	917	896
Height of the tractor centre of gravity above the basic plane	905	916	932	945	922	977
Outer diameter of the turning circle (according to the standard ČSN 30 0552) with one wheel braked			8700 +300			
Outer tyre-mark turning circle (according to the standard ČSN 30 0552) with one wheel braked			8400 +300			

Parameter description	11,2-24 16,9-28	11,2-24 12,4-36	11,2-24 16,9-30	12,4-24 13,6-36	12,4-24 16,9-30	12,4-24 16,9-34
Weight (kgs) for the MOTOKOV execution standard (allowed tolerance ± 5 %)						
Constructional tractor weight						
with the cabin	3225	3215	3275	3280	3300	3380
thereof: to the front axle	1345	1345	1345	1370	1370	1370
to the rear axle	1880	1870	1930	1910	1930	2010
without the cabin	2925	2915	2975	2980	3000	3080
thereof: to the front axle	1295	1295	1295	1320	1320	1320
to the rear axle	1630	1620	1680	1660	1680	1760
Ready weight of the tractor						
with the cabin	3365	3355	3415	3420	3440	3520
thereof: to the front axle	1395	1395	1395	1420	1420	1420
to the rear axle	1970	1960	2020	2000	2020	2100
without the cabin	3065	3055	3115	3120	3140	3220
thereof: to the front axle	1345	1345	1345	1370	1370	1370
to the rear axle	1720	1710	1770	1750	1770	1850
Maximum weight of the additional ballast weights						
in the front	155 ÷ 210					
in the rear	270					
Weight of water in the rear tyres	2×215	2×160	2×240	2×180	2×240	2×250

Parameter description	11,2-24 16,9-28	11,2-24 12,4-36	11,2-24 16,9-30	12,4-24 13,6-36	12,4-24 16,9-30	12,4-24 16,9-34
Maximum allowed axle loading (kgs) / inflation (kPa)						
The front driving axle (track 1 510 mm or 1 610 mm) at a maximum speed						
- 30 km/h		2000-180			2000-170	
- 25 km/h		2230-180			2570-170	
- 20 km/h		2500-180			2880-170	
8 km/h		2920-225			3360-210	
The rear axle (track 1425 mm) at a maximum speed						
- 30 km/h	3600-150	2880-170	3600-150	3230-160	3600-150	3600-130
- 25 km/h	4000-150	3080-170	4000-150	3450-160	4000-150	4000-130
- 20 km/h	4000-150	3450-170	4000-150	3870-160	4000-150	4000-130
- 8 km/h	4000-150	4000-215	4000-150	4000-200	4000-150	4000-130
Forces (kN) (Allowed tolerance ± 5 %)						
A maximum tractive force in the swinging draw bar on a concrete ground, the tractor in a ready execution, with the ballast weights, with a slippage 15 %						
- with the cabin			31,02			
- without the cabin			28,72			
A maximum tractive force in the hitch for a trailer, the tractor in a ready execution, with the ballast weights and with water in the rear tyres						
- with the cabin			34,29			
without the cabin			31,99			

Parameter description	11,2-24 16,9-28	11,2-24 12,4-36	11,2-24 16,9-30	12,4-24 13,6-36	12,4-24 16,9-30	12,4-24 16,9-34
The lifting force at the end of the lower draw bars of the three-point hitch guaranteed within the entire range			24,00			
The lifting force at the end of the lower draw bars of the front three-point hitch guaranteed withing the entire range			11,00			
Output and fuel consumption (kW, g/kW.h)						
The output on the P.T.O.-shaft at the nominal engine speed and engaged 540 r.p.m. of the P.T.O.-shaft			46,5 ± 5 % (41,8)			
The specific fuel consumption corresponding to the above given output			262			

Note: The output values and the fuel consumption are meant after 100 hours run-in of the tractor, the value in parentheses is for information and meant for a tractor which has not been run-in yet.

Table 20a **The main technical parameters of the tractor Z 7745 in the MOTOKOV execution** (double-tyre mounting)

Parameter description	11,2-24 2×16,9-30	11,2-24 2×12,4-36	12,4-24 2×16,9-30
The main dimensions (mm)			
Regarding the ready weight of the tractor in the MOTOKOV execution, with the cabin BK 7011			
Allowed tolerance ±2 %			
Overall length without the implement hitch and without the front ballast weights	3520	3410	3520
Length with the implement hitch, without the front ballast weights / Length with the implement hitch and with the front ballast weights		3765/4035	
Width at the standard rear wheel track	2985	2795	2985
Height to the top of the exhaust pipe (the extended exhaust silencer with the exhaust flap, without the spark arrester)	2769	2767	2785
Tractor height to the top of the cabin (the cabin with the roof opening)	2678	2670	2670
Height to the upper rim of the steering wheel	1892	1886	1899
Ground clearance according to the standard ČSN 30 0026			
- without the implement hitch (under the front axle beam)	374	374	406
- with the implement hitch (under the swinging draw bar at the lowest position)	406	395	400
Height of the implement hitch for a trailer (to the mouth centre) in 50 mm steps	743 -943	732 932	736 -936
Height of the swinging draw bar (to the inner lower fork surface)	430	420	423
Height of the implement hitch for the single-axle trailer (to the hook bearing surface)	497	487	493
Height of the P.T.O.-shaft	729	719	726
Front wheel track			
- standard	1510		1610
- adjustable for agricultural use		—	

Parameter description	11,2-24 2×16,9-30	11,2-24 2×12,4-36	12,4-24 2×16,9-30
Rear wheel track - standard	1500/2556	1500/2480	1500/2556
- adjustable in 75 mm steps for agricultural use		--	
Wheel base		2222	
Distance of the tractor centre of gravity from the rear wheel axle	818	844	827
Height of the tractor centre of gravity above the basic plane	923	918	929
Outer diameter of the turning circle (according to the standard ČSN 30 0552) with one wheel braked		9300^{+500}	
Outer tyre-mark turning circle (according to the standard ČSN 30 0552) with one wheel braked		9000^{+500}	
Weights (kgs) for the MOTOKOV execution – standard (allowed tolerance ±5 %)			
Constructional tractor weights			
- with the cabin	3650	3530	3675
thereof: to the front axle	1345	1345	1370
to the rear axle	2305	2185	2330
- without the cabin	3350	3230	3375
thereof: to the front axle	1295	1295	1320
to the rear axle	2055	1935	2055
Ready weight of the tractor			
- with the cabin	3790	3670	3815
thereof: to the front axle	1395	1395	1420
to the rear axle	2395	2275	2395
- without the cabin	3490	3370	3515
thereof: to the front axle	1345	1345	1370
to the rear axle	2145	2025	2145

Parameter description	11,2-24 2×16,9-30	11,2-24 2×12,4-36	12,4-24 2×16,9-30
Maximum weight of the additional ballast weights			
in the front		155+210	
in the rear			
Weight of water in the rear tyres		--	
Maximum allowed axle loading (kgs) / inflation (kPa)			
The front driving axle (track 1 510 mm or 1 610 mm) at a maximum speed 30 km/h			—
25 km/h	2230-180		2570-170
20 km/h	2500-180		2880-170
8 km/h	2920-225		3360-210
The rear axle (track 1,425 mm) at a maximum speed			
30 km/h	—	—	--
25 km/h			
20 km/h	4000-110	4000-110	4000-110
8 km/h			
Forces (kN) (Allowed tolerance ±5 %)			
A maximum tractive force in the swinging draw bar on a concrete ground, the tractor in a ready execution, with the ballast weights, at a slippage 15 %			
with the cabin		31,55	
without the cabin		29,25	
A maximum tractive force in the hitch for a trailer, the tractor in a ready execution, with the ballast weights and water in the rear tyres			
with the cabin		–	
without the cabin		--	

Parameter description	11,2-24 2×16,9-30	11,2-24 2×12,4-36	12,4-24 2×16,9-30
The lifting force at the end of the lower draw bars of the three-point hitch guaranteed within the entire range		24,00	
The lifting force at the end of the lower draw bars of the front three-point hitch guaranteed within the entire range		11,00	
Output and fuel consumption (kW, g/kW.h)			
The output on the P.T.O.-shaft at the nominal engine speed and engaged 540 r.p.m. of the P.T.O.-shaft		46,5 ± 5 % (41,8)	
The specific fuel consumption corresponding to the above given output		262	

Note: The output values and the fuel consumption are meant after 100 hours run-in of the tractor, the output value in parentheses is for information and meant for a tractor which has not been run-in yet.

Recommended tyre inflation for the front wheels of tractors ZETOR 5245, 6245, 7245, 7245-Horal and 7745

Table 21

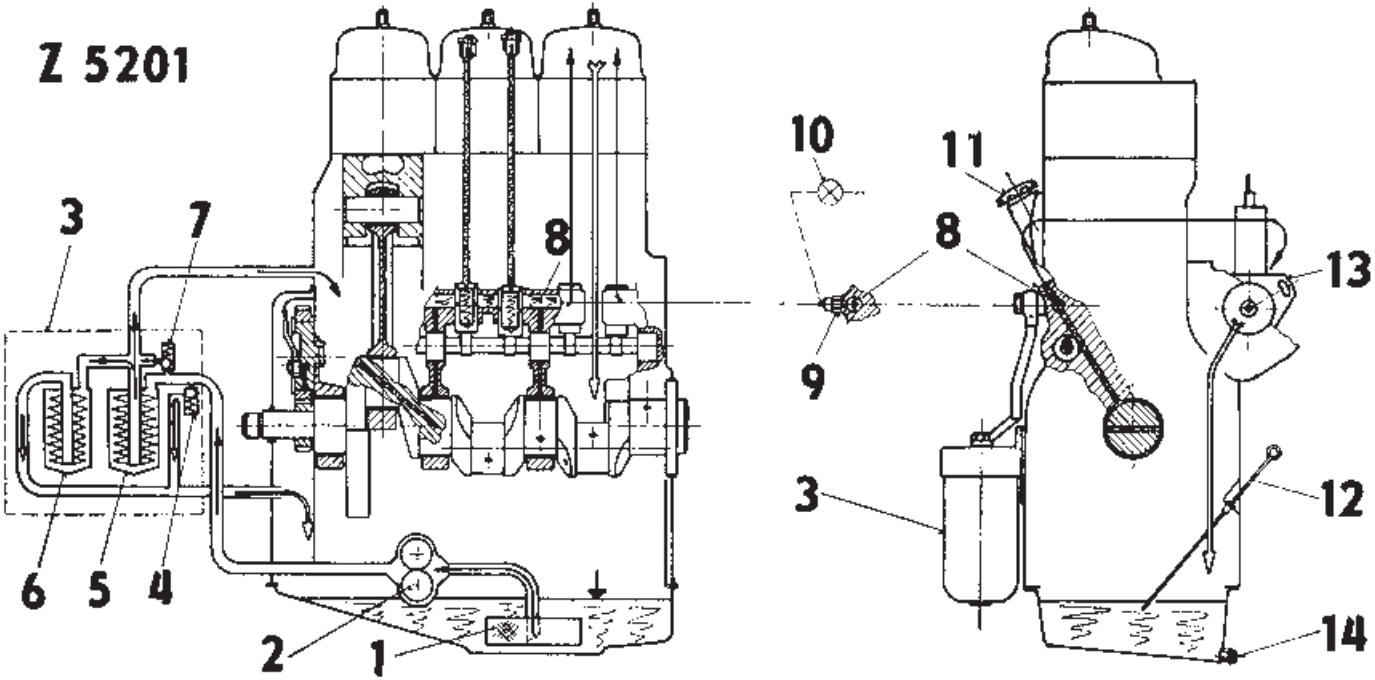
Prevailing operations		Tyre dimensions and execution				
		9,5-24 6 PR	9,5-24 8 PR	11,2-24 6 PR	12,4-24 6 PR	11,2—24 8 PR
For cultivation tasks and operations with light implements	Inflation (kPa)	190—210		170—180	150—170	230—240
	Carrying capacity (kg)	890—940		1010—1045	1115—1200	1200—1225
For ploughing	Inflation (kPa)	190—210		170—180	150—170	230—240
	Carrying capacity (kg)	890—940		1010—1045	1115—1200	1200—1225
For road transport	Inflation (kPa)	190—210	250	170—180	150—170	230—240
	Carrying capacity (kg)	890—940	1040	1010—1045	1115—1200	1200—1225
For tasks with the front loader (8 km/h)	Inflation (kPa)	270	290	230	210	300
	Carrying capacity (kg)	max. 1310	max. 1450	max. 1460	max. 1680	max. 1715
For tasks with the front-mounted machines up to 15 km/h	Inflation (kPa)	290				300
	Carrying capacity (kg)	max. 1450				max. 1470

Table 22 **Quantity of operating liquids (litres)**

Specification	Type	Z 5211	Z 5245	Z 6211 Z 7211 Z 7711	Z 6245 Z 7245 Z 7245 Horal Z 7745
Engine cooling liquid with the heating equipment	Fridex-Spolana + demineralized water	10,5		11,6	
– without heating		9,5		10,6	
Fuel	diesel oil	55 (on request) 45		70 (on request 55)	
Engine oil	M 5 AD, M 3 AD	9,0		12,0	
Oil in the gear-box and in the final drive	PP 80	25	27	25	27
Increased filling in the gear-box and in the final drive when operating on slopes and using outer hydraulic circuit		32	34	32	34
		(Z 7245 Horal 34 litres as standard)			
Oil in the final drives	PP 80	2×1,9			
Oil in the steering box	PP 80	1,6			
Oil in the air filter	engine oil	1,3			
Oil in the steering damper	damper oil	—		—	0,6
Oil in the power-assisted steering box	OT-H2	4,8			
Oil in the box of the front driving axle – light	PP 80	—	4,3	—	4,3
– heavy		—	—	—	4,0
Oil in the planet reduction gear of the front driving axle – light	PP 80	—	2×0,25	—	2×0,25
– heavy		—	—	—	2×0,5
Brake fluid	Syntol HD 205	0,5			
Oil in the gear-box of the front P.T.O.-shaft	PP 80	0,8 for 7711 and 7745, 7245 Horal only			

Engine lubricating system — Z 5201

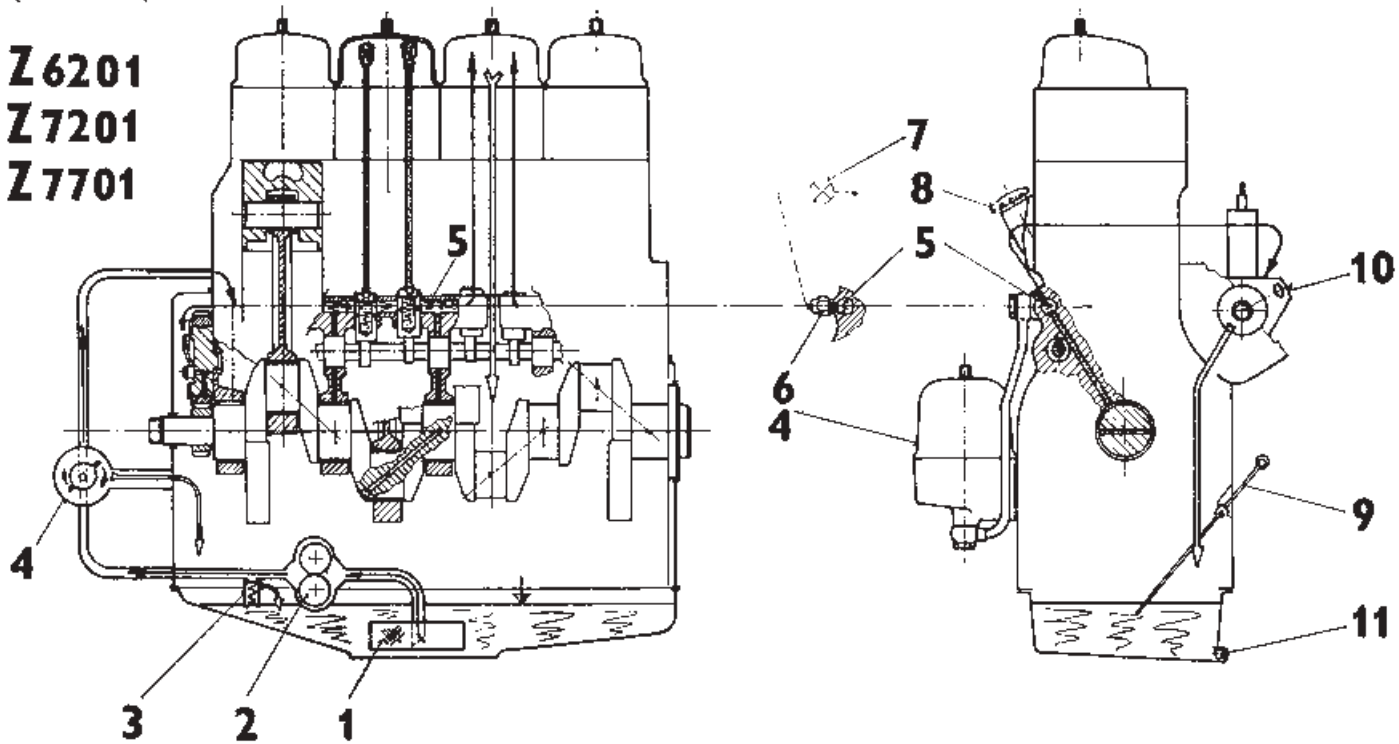
(5201 00015)



1. Suction strainer
2. Oil pump
3. Two-stage filter
4. Oil pressure reduction valve
5. Coarse filter
6. Fine filter
7. By-pass valve
8. Main oil channel
9. Oil pressure switch
10. Indicator bulb
11. Filling neck
12. Dip stick
13. Injection pump
14. Oil drain plug

Engine lubricating system — Z 6201, 7201, 7701

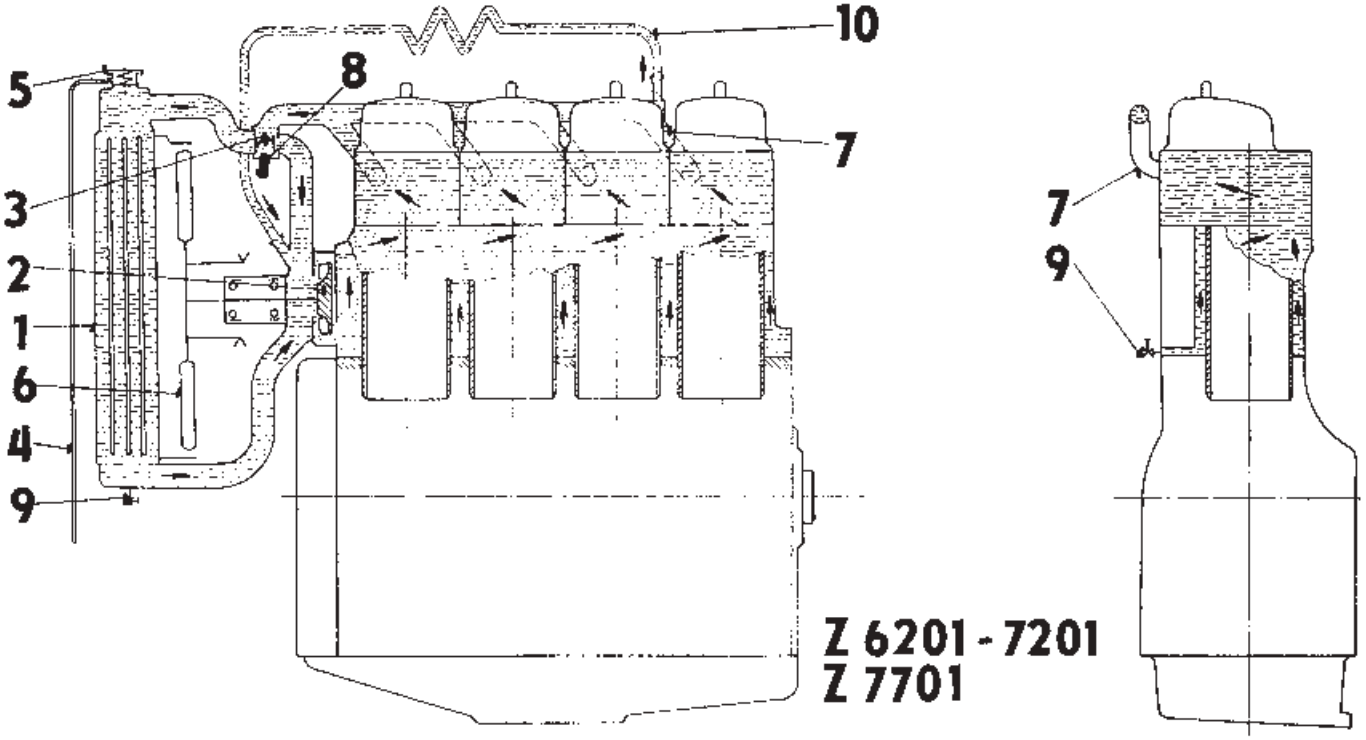
(7201 00011)



1. Suction strainer
2. Oil pump
3. Oil pressure reduction valve
4. Centrifugal oil filter
5. Main oil channel
6. Oil pressure switch
7. Indicator bulb
8. Filling neck
9. Dip stick
10. Injection pump
11. Oil drain plug

Engine cooling system — Z 6201, 7201, 7701

(7201 00015)



1. Radiator
2. Water pump
3. Thermostat
4. Overflow pipe
5. Pressure relieve plug
6. Fan
7. Return piping
8. Sensor of water thermometer
9. Drain cock
10. Cab heating

Diagram of mechanical steering — Z 5211, Z 6211, Z 7211, Z 7711

(7211 00110)

1. Fixed lever
2. Steering connecting rod
3. Steering shaft
4. Steering wheel nut and shaft
5. Flexible coupling

Gear ratio between the steering wheel and the wheels = 12.8.

Number of the steering wheel revolutions from one extreme position to the other = 3.4.

* tyres 6.00—16, 6.50—16
** tyres 6.50—16, 7.50—16, 7.50—20

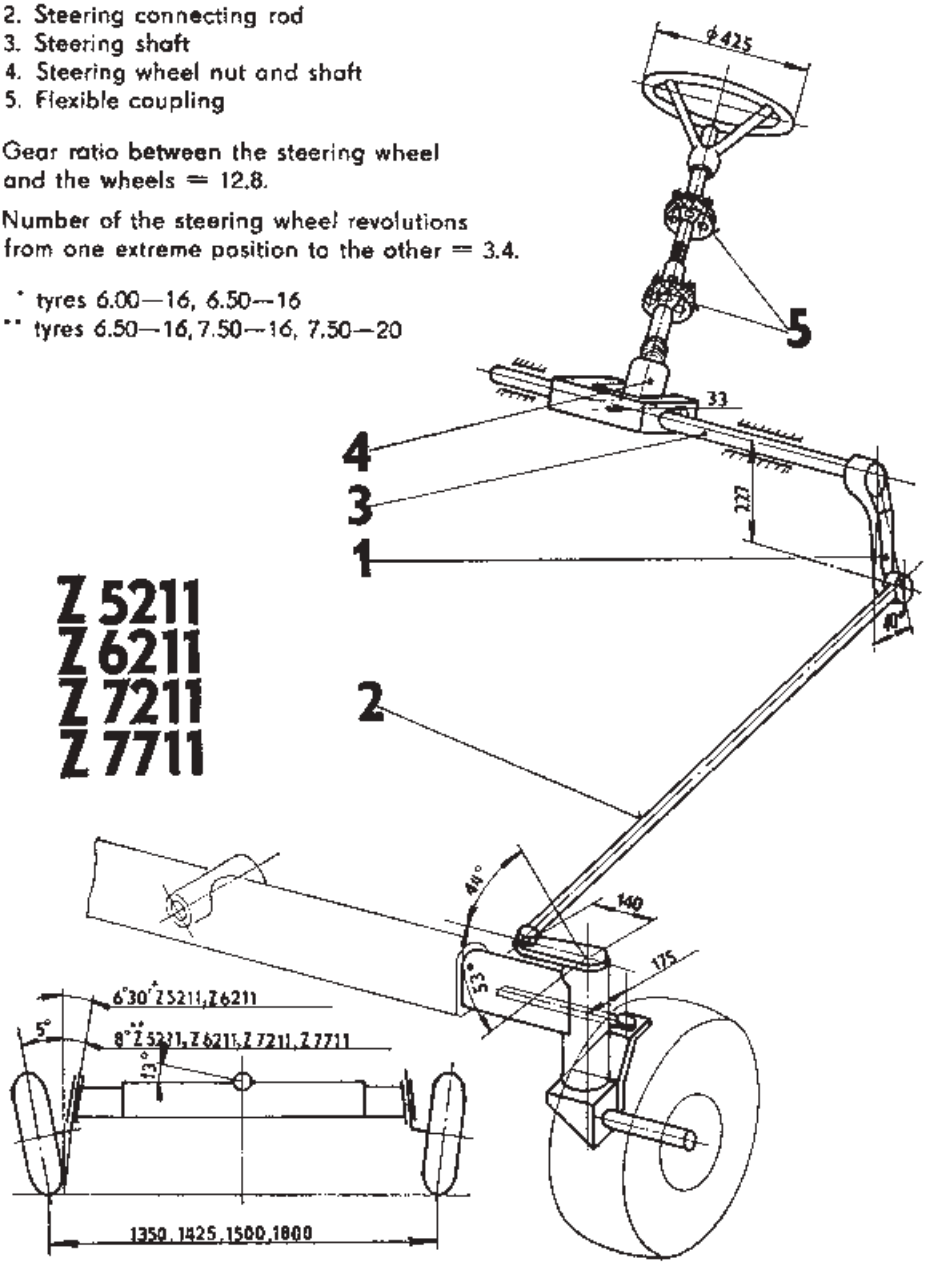


Diagram of the power assistend steering — Z 5211, Z 6211, Z 7211, Z 7711

(7211 00111)

1. Steering ram cylinder
2. Steering oil pump
3. Steering oil reservoir
4. Filter
5. Suction pipe
6. Pressure pipe
7. Return pipe
8. Operating rod
9. Free lever
10. Fixed lever
11. Steering connecting rod
12. Steering shaft
13. Steering wheel nut and shaft
14. Flexible coupling

Gear ratio between the steering wheel and the wheels ≈ 12.8.

Number of the steering wheel revolutions from one extreme position to the other ≈ 3.4.

* tyres 6.00—16, 6.50—16
** tyres 6.50—16, 7.50—16, 7.50—20

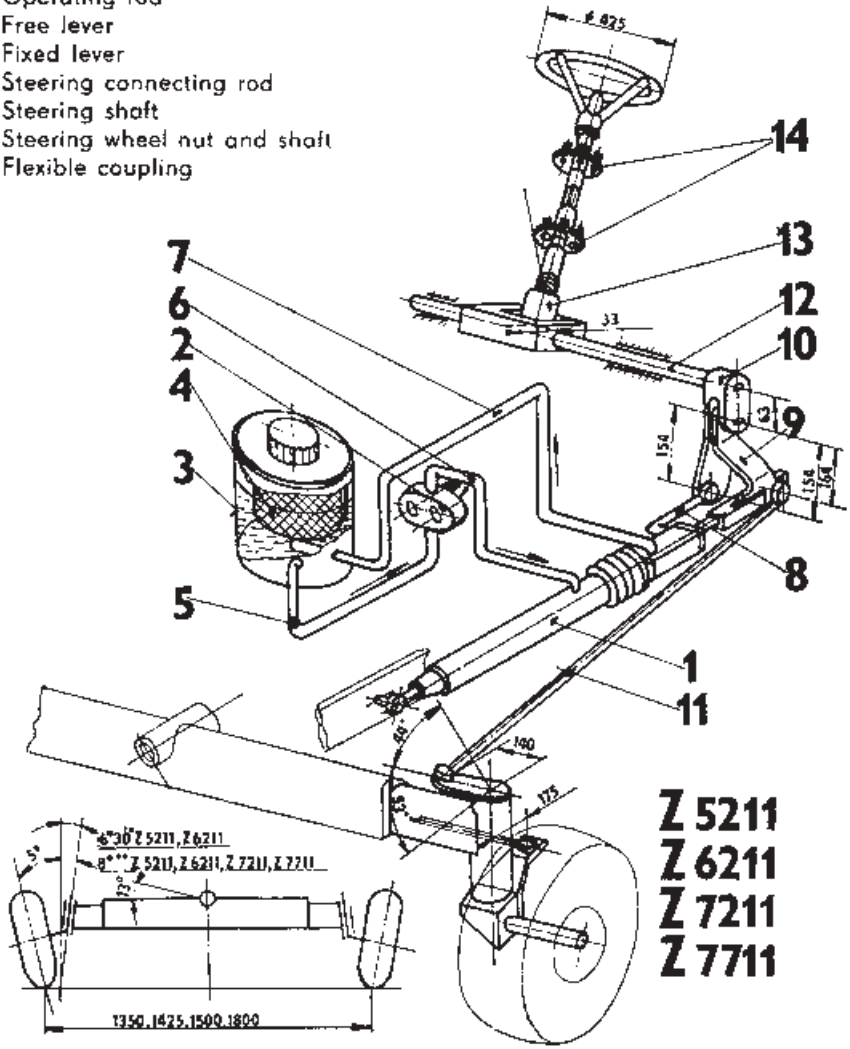


Diagram of the power assisted steering — Z 5245, Z 6245, Z 7245, Z 7245 Horal, Z 7745 (7245 00111)

1. Steering ram cylinder
2. Steering oil pump
3. Steering oil reservoir
4. Filter
5. Suction pipe
6. Pressure pipe
7. Return pipe
8. Operating rod
9. Free lever
10. Fixed lever
11. Steering connecting rod
12. Steering shaft
13. Steering wheel nut and shaft
14. Flexible coupling

Gear ratio between the steering wheel and the wheels = 15.7.

Number of the steering wheel revolutions from one extreme position to the other = 3.0.

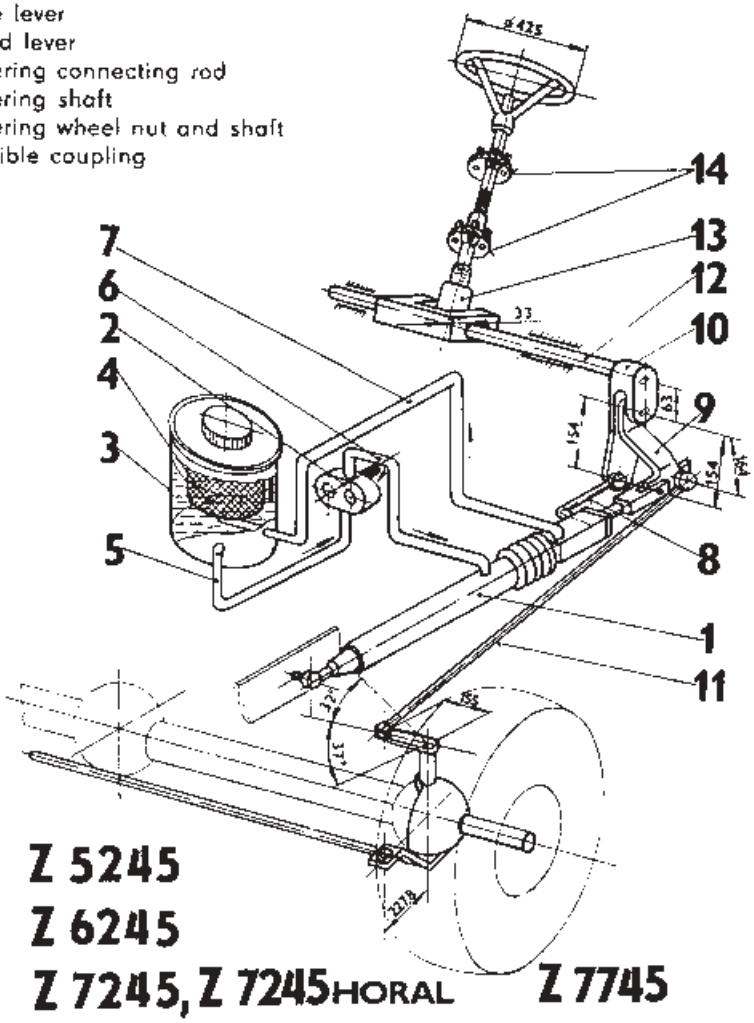


Diagram of the hand brake system — Z 5211, Z 5245, Z 6211, Z 6245, Z 7211, Z 7245, Z 7245 Horal
(7211 00103)

1. Hand brake lever
2. Flexible unit
3. Spring
4. Double-arm lever
5. Draw rod
6. Brake lever
7. Brake band

Brake band width — 50 mm
Braking surface — 324 cm²

The ratio between the hand lever and the band brake — ik = 20

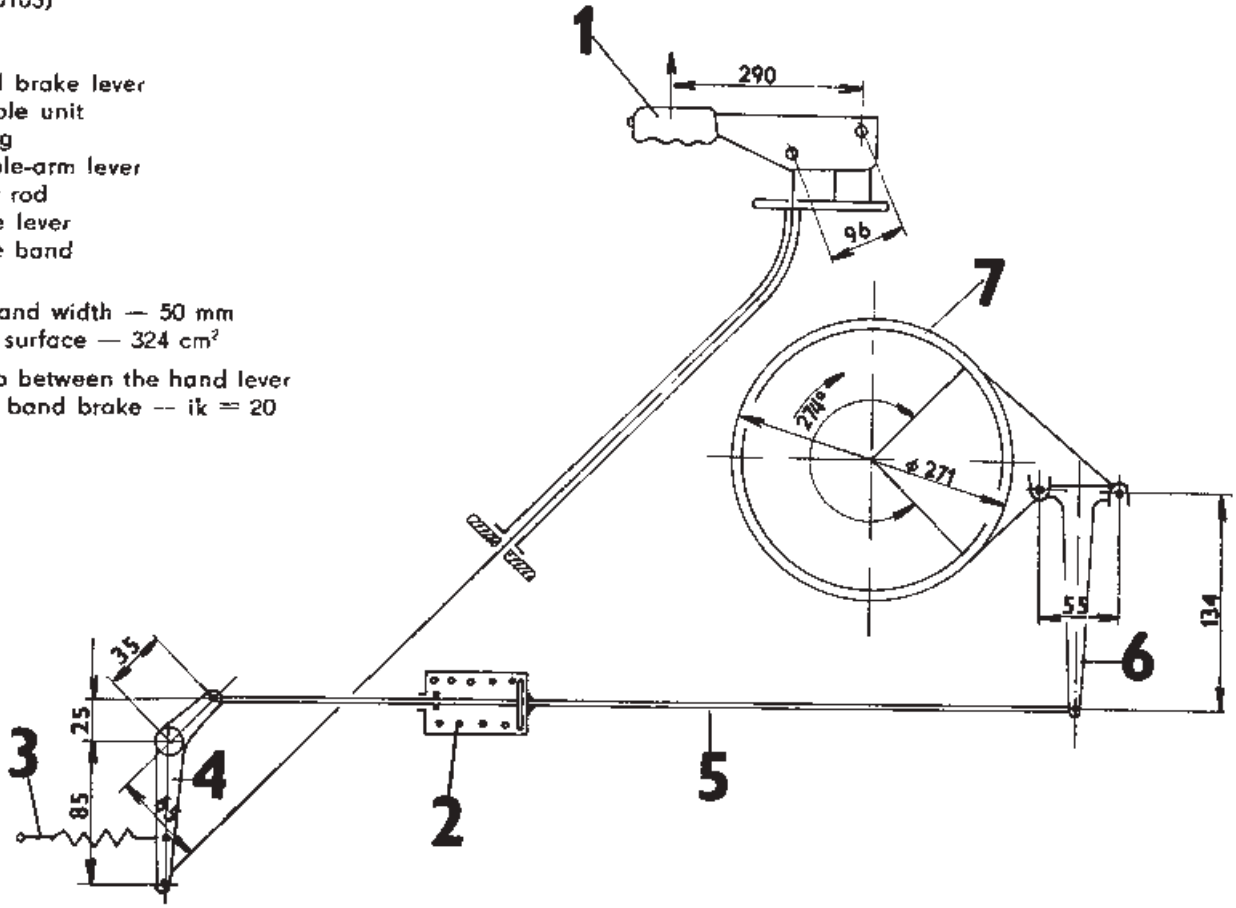


Diagram of the hand brake system — Z 7711, Z 7745

(7711 00103)

1. Hand brake lever
2. Spring
3. Spring
4. Double-arm brake
5. Draw rod
6. Dry disc brake
7. Lever

The ratio between the hand lever and the friction surface of the pressure plate — i = 67

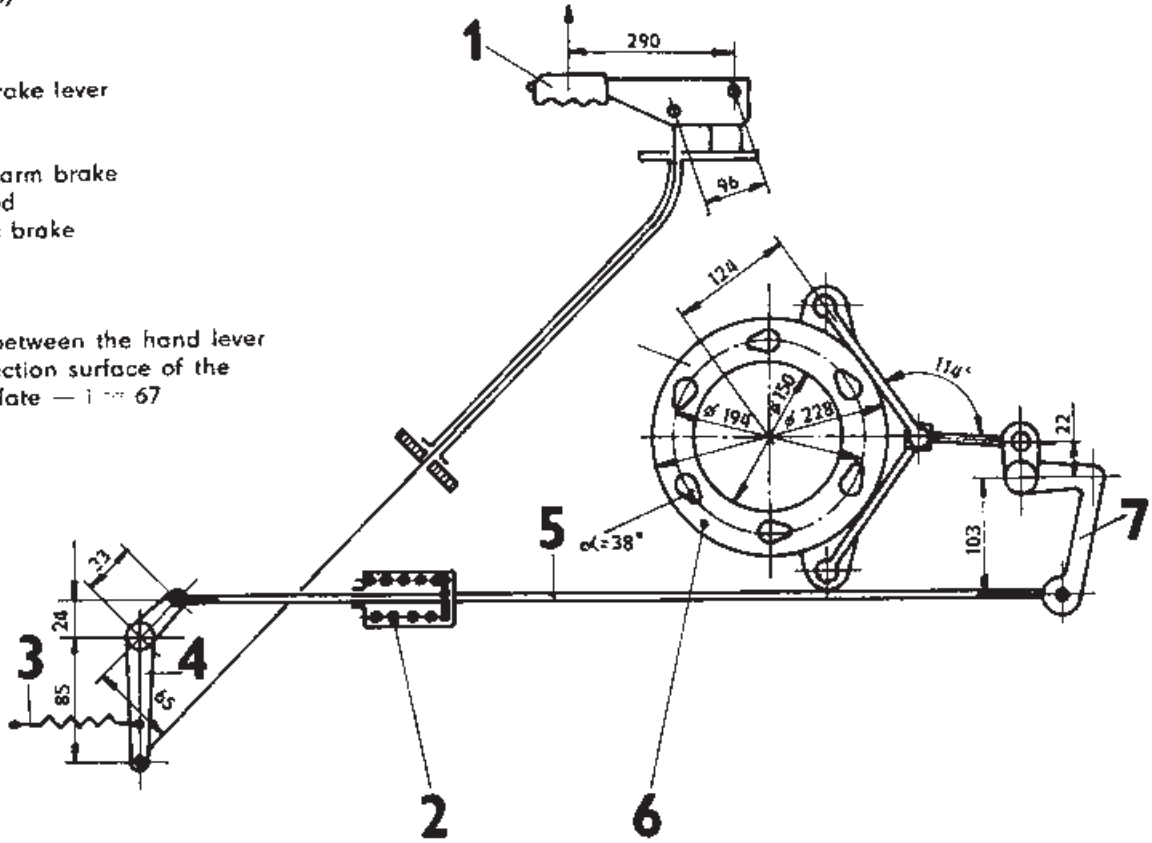


Diagram of the foot brake system — Z 5211, Z 5245, Z 6211, Z 6245, Z 7211, Z 7245, Z 7245 Horal (7211 00108)

1. Brake fluid equalization reservoir
2. Brake master cylinder (dia 19 mm)
3. Brake pipes
4. Brake pedals
5. Pressure equalizer (dia 19 mm) also used for controlling the trailer air brakes
6. Brake fluid supply to the LH brake cylinder
7. Brake fluid supply to the RH brake cylinder
8. Brake cylinder (dia 32 mm) with automatic adjustable play on the leading shoe — 3 mm, on the trailing shoe — 1.5 mm
9. Brake shoe of the foot brake
10. Function surface for the hand brake band
11. Brake shoe lining of the foot brake

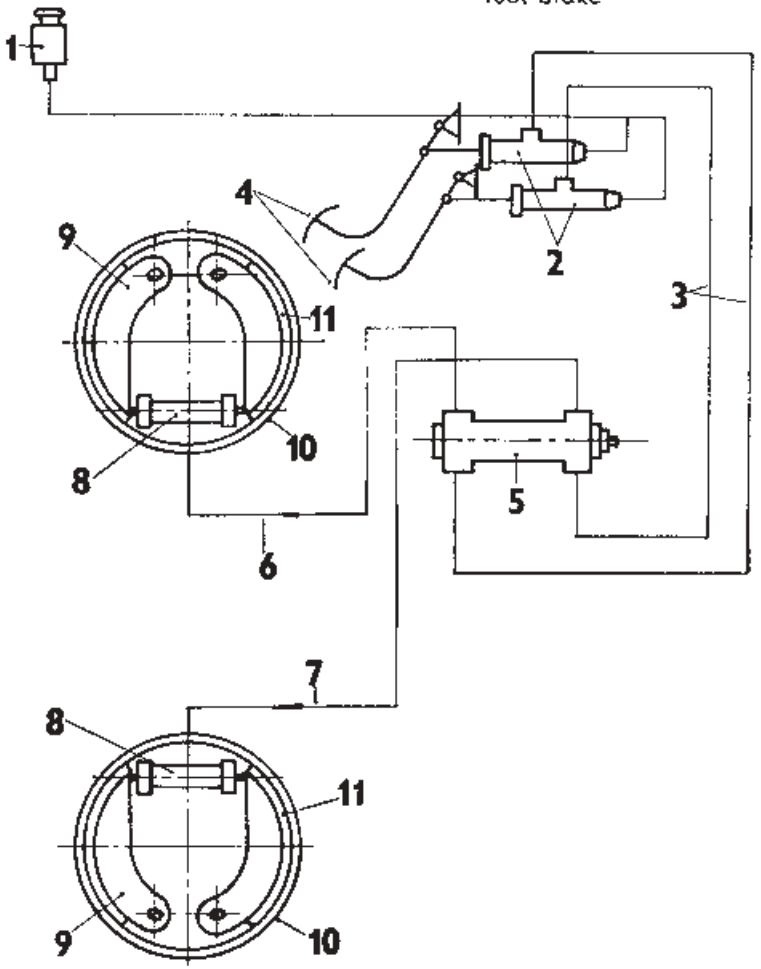


Diagram of the foot brake system — Z 7711, Z 7745

(7711 00108)

1. Brake fluid equalization reservoir
2. Brake master cylinder (dia 19 mm)
3. Brake hoses
4. Brake pipes
5. Pressure equalizer (dia 19 mm) also used for controlling the trailer brakes
6. Brake cylinder (dia 22 mm)
7. Dry disc brake

The end ratio between the rear wheel and the brake — ik = 5.083

The total ratio between the brake pedal and the friction surface of the pressure plate — i = 37

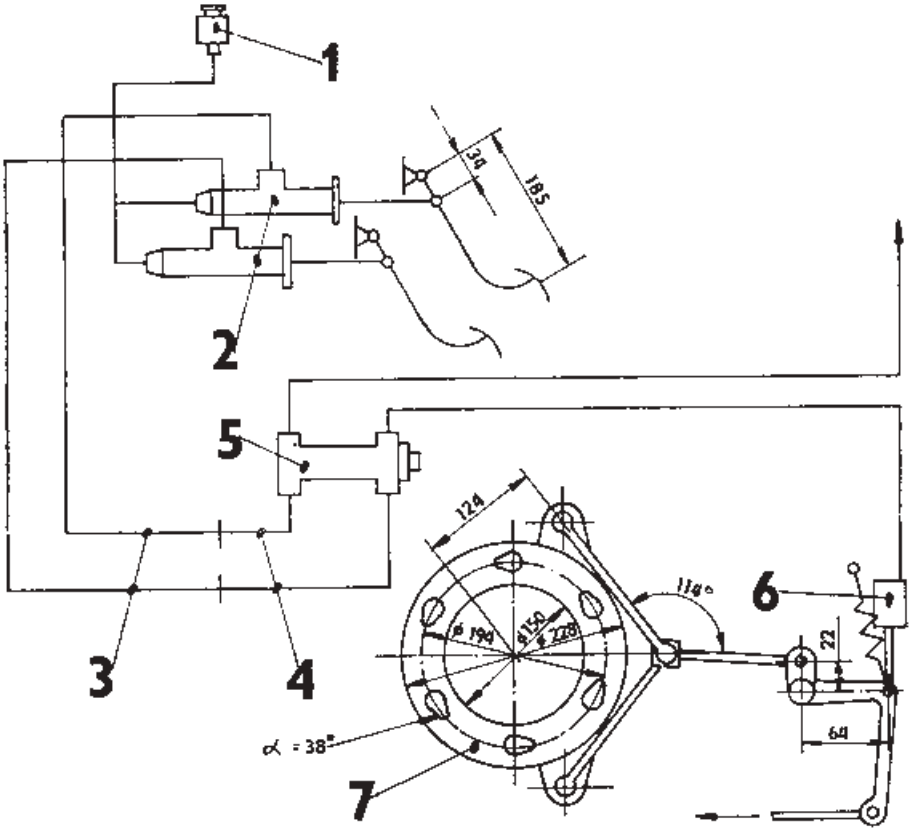


Diagram of the air brake system — Z 5211, Z 5245, Z 6211, Z 6245, Z 7211, Z 7245, Z 7245 Horal (7211 00106)

1. Compressor
2. Air pressure governor
3. Indicator bulb
4. Air pressure switch
5. Air tank
6. Water draining gauge
7. Air pressure valve
8. By-pass valve
9. Brake valve
10. Presure equalizer
11. Lever
12. Trailer connection

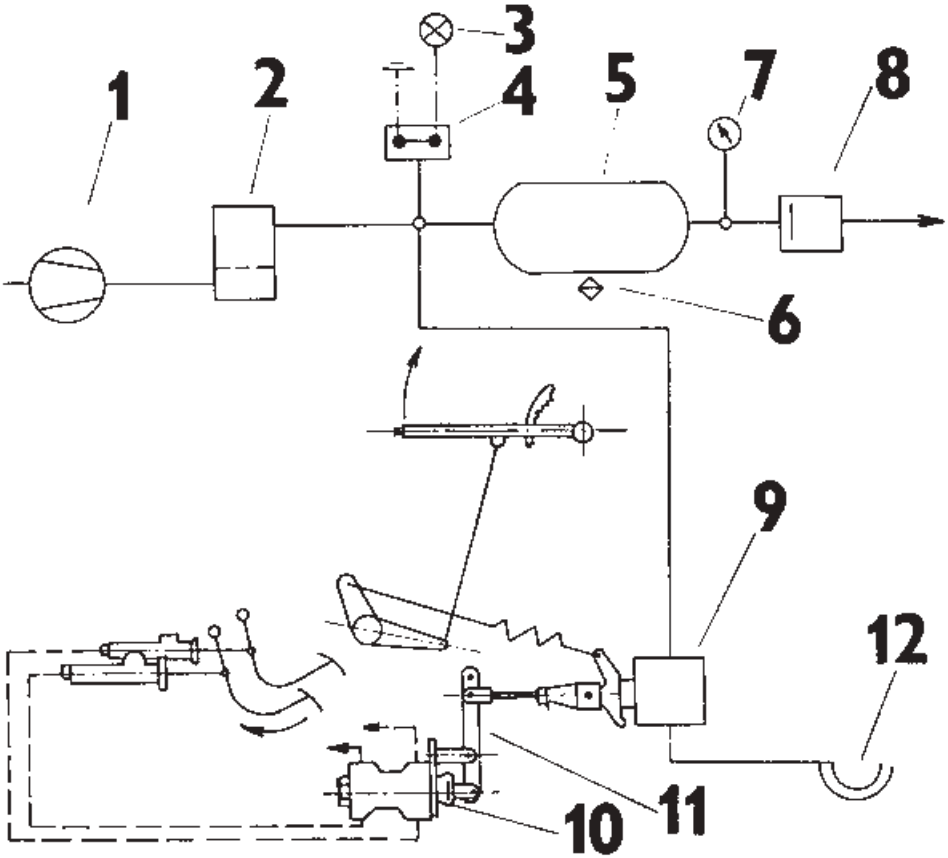
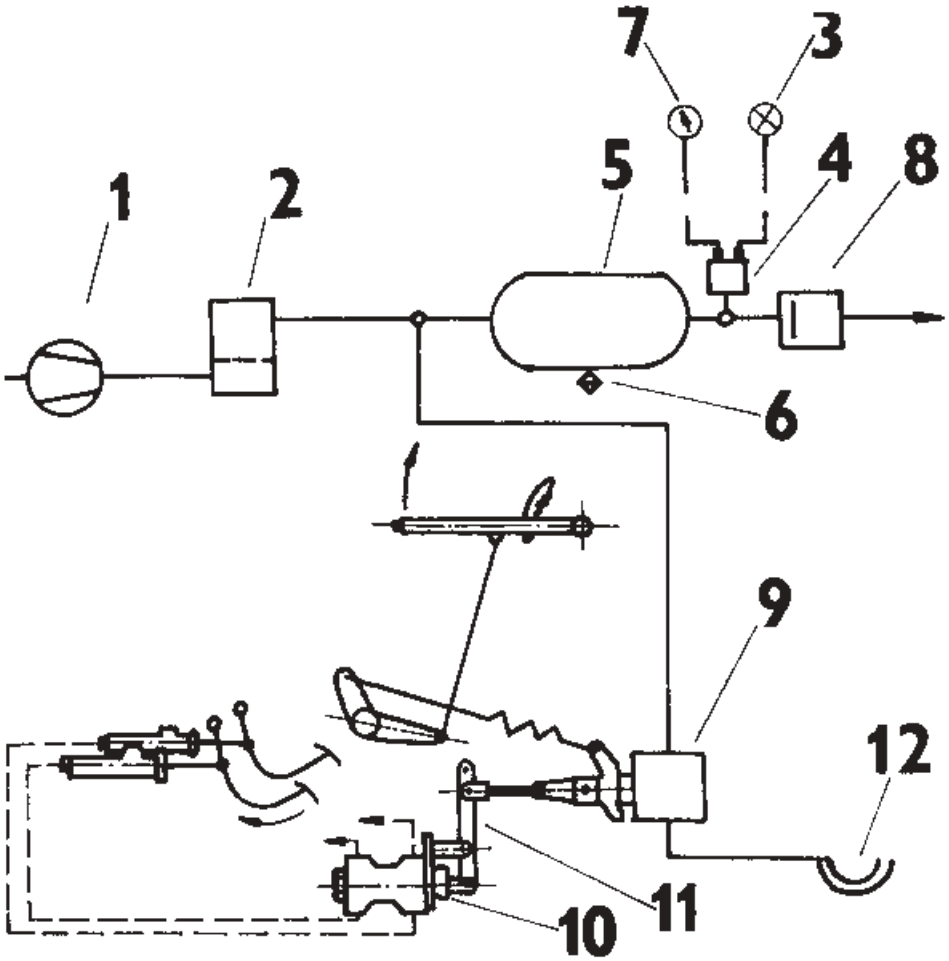


Diagram of the air brake system — Z 7711, Z 7745

(7711 00106)

1. Compressor
2. Air pressure governor
3. Indicator bulb
4. Air pressure switch and warning switch
5. Air tank
6. Water tank
7. Air pressure gauge
8. By-pass valve
9. Brake valve
10. Pressure equalizer
11. Lever
12. Trailer coupling



Notice for owners of ZETOR tractors

As our products ore continuously improved and modernized, it can happen that the wording and illustrations may not correspond exactly with the execution of the delivered tractor.

If you wish to get information concerning the methods of performing repair works and spare parts, there are the following publications available:

Workshop Handbook Zetor 5211 –7745

Catalogue of spare parts Zetor 5211—7745

Wall pictures Zetor 5211—7745

List of recommended spare parts
Zetor 5211—7745

Time standards for repair work
Zetor 5211—7745

Catalogue of the fitted and stand-by
accessories Zetor 5211—7745

Operator's Manual for Zetor 5211, 5245, 6211, 6245, 7211, 7245, 7245 Horal, 7711, 7745

Edition: II. — 15 000 — 1988

Publication number: 735 342 310 220

Published by: AGROZET ZETOR, k. p., Brno
Documentation and Publicity Department
Czechoslovakia

Printed by: Tisk, knižni výroba, n. p., Brno,
provoz 52, Brno, Běhounská 22/24 - 2078-88

Zetor 5211-7745

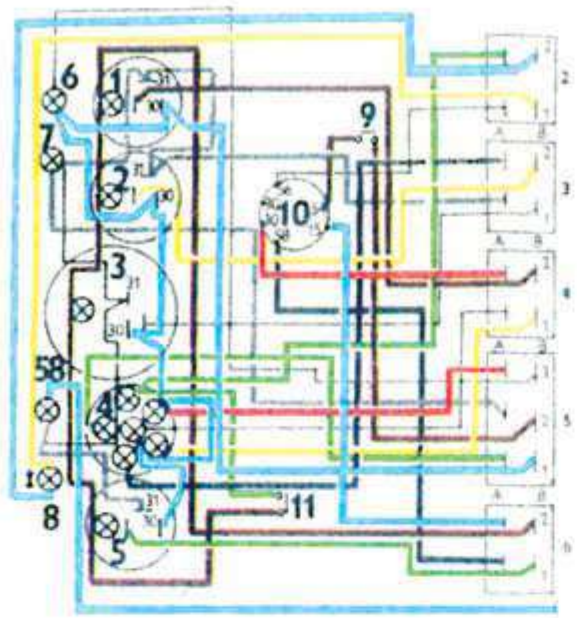
Schéma elektroinstalace traktorů Zetor 5211-7745

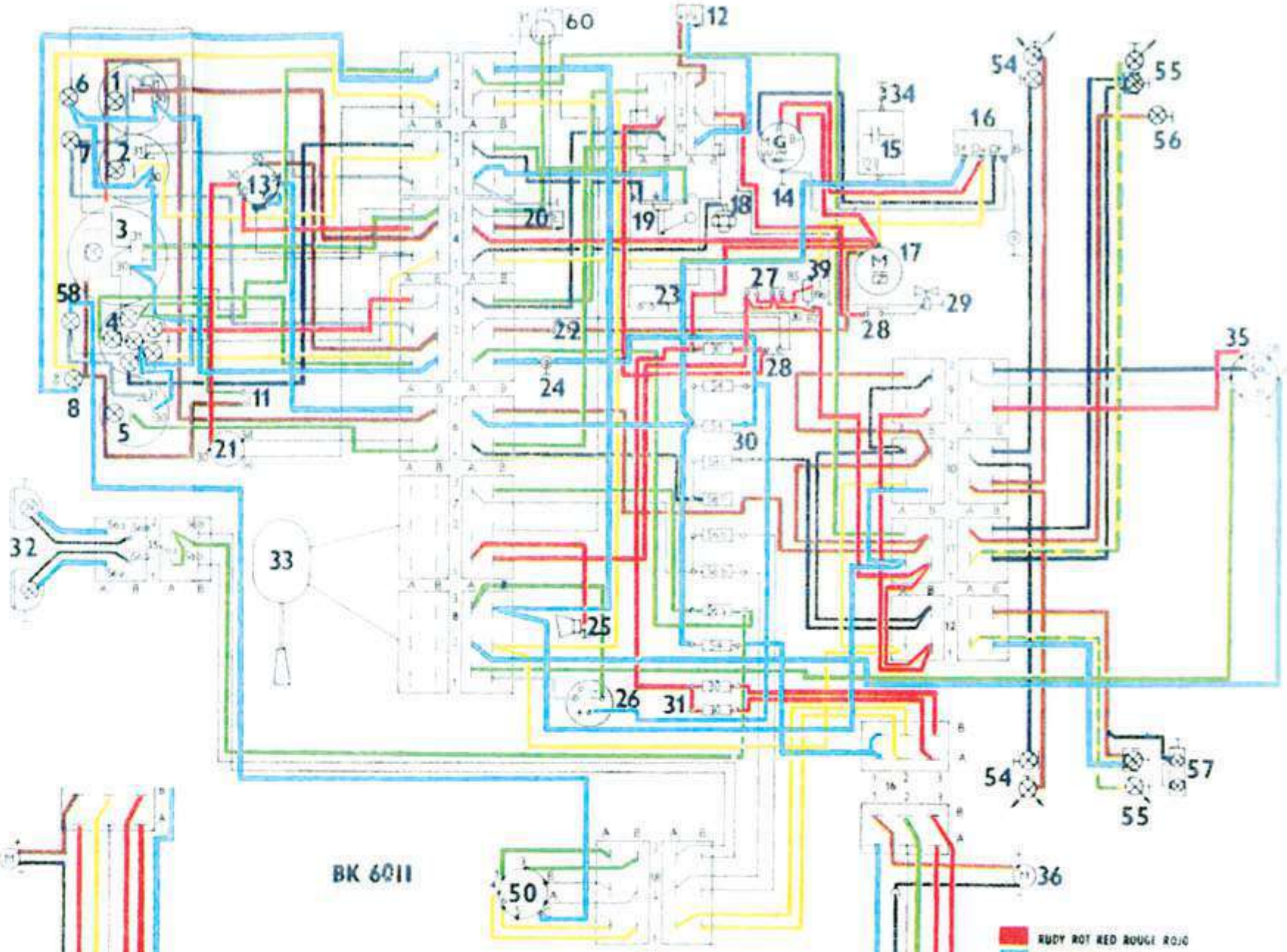
Elektroausstattungsschema der Traktoren Zetor 5211-7745

Wiring Diagram both of Zetor 5211 - 7745 Tractors

Schema de l'installation électrique des tracteurs Zetor 5211 - 7745

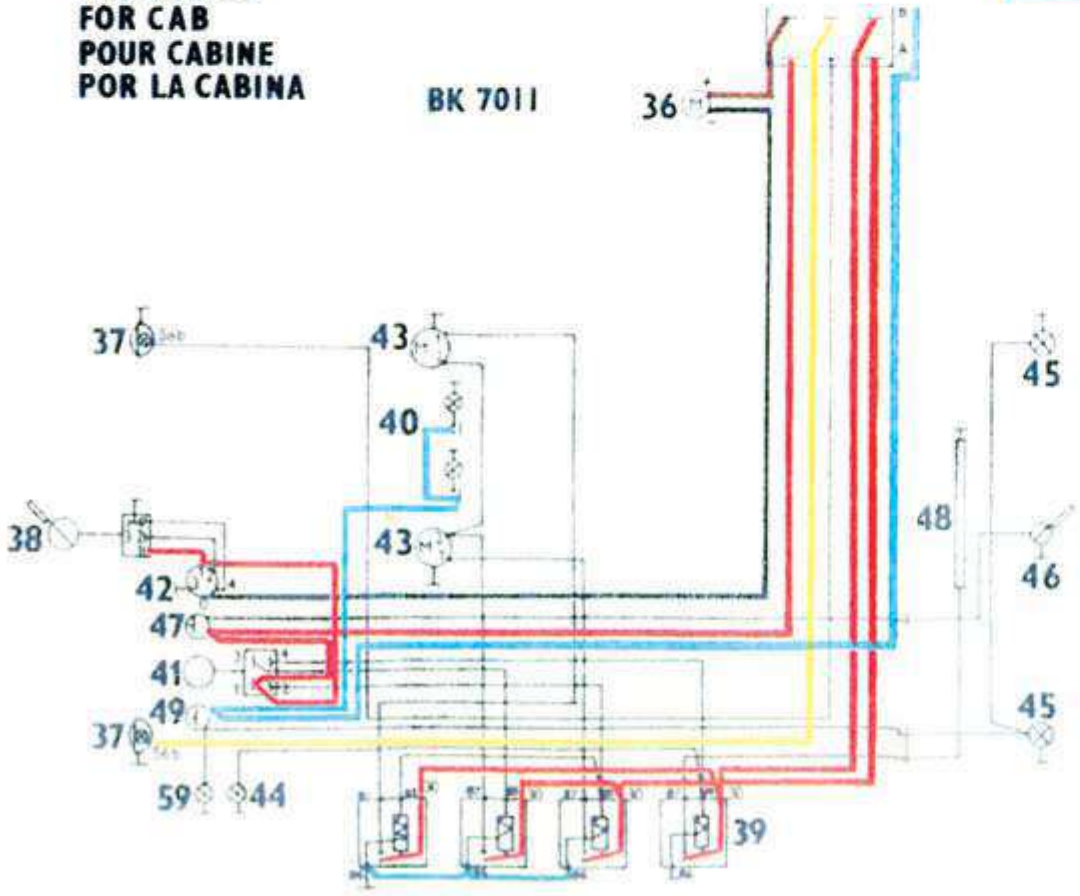
Esquema de la instalación de los tractores Zetor 5211-7745



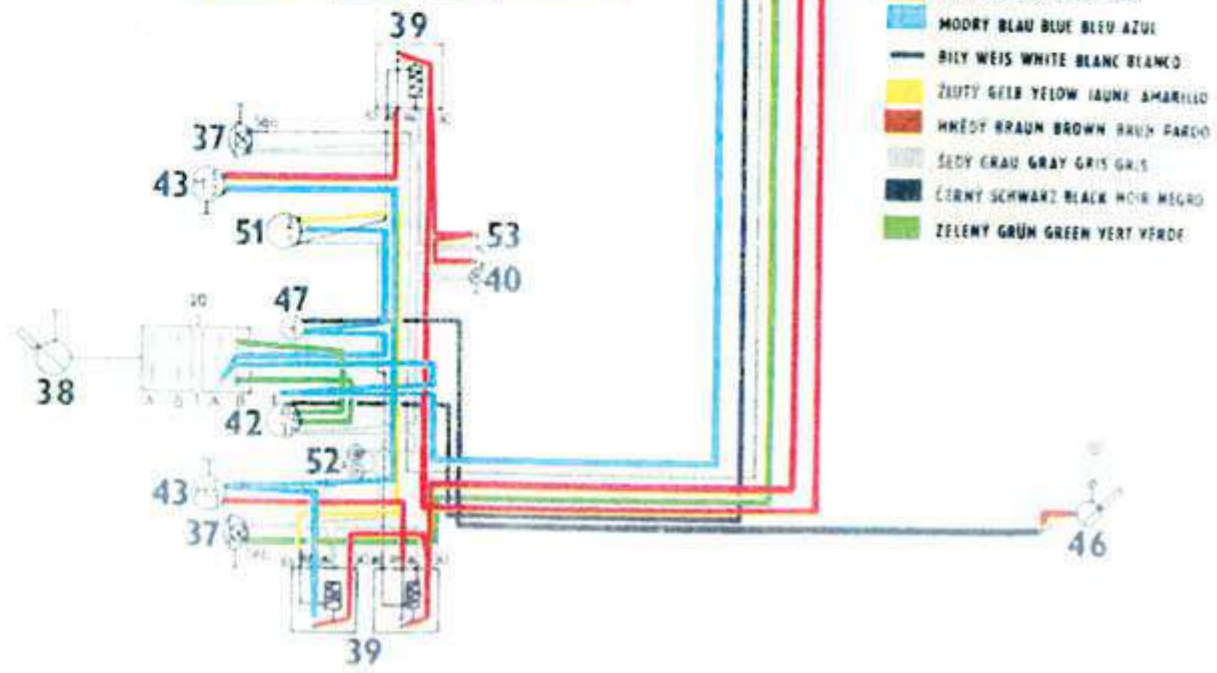


PRO KABINU
FÜR KABINE
FOR CAB
POUR CABINE
POR LA CABINA

BK 7011



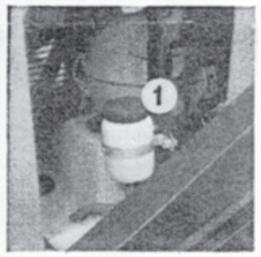
BK 6011

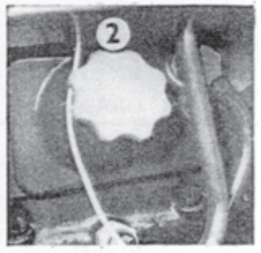


Agrozet-Zetor
koncernový podnik
BRNO

MOTOKOV
PRAHA – CZECHOSLOVAKIA

1. Teploměr Thermometer Thermometer Thermomètre Termómetro
2. Palivoměr Kraftstoffmesser Fuel level indicator Jauge de niveau du combustible Indicador de nivel de combustible
3. Otáčkoměr s počítačem Mh Drehzahlmesser samt Motorstundenzähler Revolution indicator with engine service hours counter Compte-tours avec compteur des heures de service du moteur Cuentarreveluciones junto con contador de horas de servicio del motor
4. Kontrolkový přístroj Kontrolleuchtengerät Pilot lamps supervision device Dispositif de contrôle par lampes témoin Dispositivo de control por luces testigo
5. Tlakoměr Druckmesser Pressure gauge Manomètre Manómetro
6. Kontrolka min. tlaku Mindestdruckkontrolleuchte Minimum pressure pilot lamp Lampe témoin de la pression mini Luz testigo de la presión mínima
7. Kontrolka PTO Zapfwellenkontrolleuchte PTO pilot lamp Lampe témoin de l'arbre de prise de force Luz testigo del árbol de toma de fuerza
8. Kontrolka ukazatele směru Fahrtrichtungsanzeiger-Kontrolleuchte Drive direction indicator pilot lamp Lampe témoin des clignoteurs Luz testigo del indicador de dirección de la marcha del tractor
9. Tlačítko Start Starttaste Starter button Bouton de démarrage Pulsador de arranque
10. Přepínací skříňka Umschaltkasten Switch box Boîte de commutation Caja conmutadora
11. Spínač pracovního světlometu Schalter des Arbeitsscheinwerfers Labour headlamp swith Conjoncteur du phare de labour Conmutador del farol de labores
12. Čidlo tlaku vzduchu s varovným kontaktem Luftdruckfühler samt Warnungskontakt Air pressure sensor with warning contact Capteur de la pression d'air avec le contact avertissant Sensor de la presión del aire junto con el contacto de alarma
13. Zámek řízení Lenkschloss Steering lock Verrou antivol de direction Cerradura antirobo de dirección
14. Alternátor Alternator Alternator Alternateur Alternador
15. Akumulátorová baterie Akkumulatorenbatterie Storage battery Batterie d'accumulateurs Batería de acumuladores
16. Regulátor Regler Regulator Régulateur Regulador
17. Spouštěč Anlasser Starter motor Démarreur Motor de arranque
18. Čidlo tlaku oleje Öldruckfühler Oil pressure sensor Capteur de la pression de l'huile Sensor de la presión del aceite
19. Plovák Schwimmer Float Flotteur Flotador
20. Čidlo teploměru Thermometerfühler Thermometer sensor Palpeur du thermomètre - Sensor del termómetro
21. Spínač světel Lichterschalter Lamps switch Conjoncteur de phares Interruptor de las luces
22. Jistič startu Startschutzschalter Starting circuit breaker Coupe-circuit automatique de démarrage Interruptor automático del circuito de arranque
23. Spínač kontrolky ruční brzdy Schalter der Handbremsenkontrolleuchte Hand brake pilot lamp swith Conjoncteur de la lampe témoin du frein à main Interruptor de la luz testigo del freno a mano
24. Montážní zásuvka Montagesteckdose Mounting socket Prise de courant de montage Caja de enchufe de montaje
25. Houkačka Hupe Horn Avertisseur sonore Bocina (claxon)
26. Přerušovač ukazatele směru Fahrtrichtungsanzeiger-Unterbrecher Drive direction indicator breaker Rupteur des clignoteurs Ruptor del indicador de dirección de la marcha
27. Spínač brzdových světel Schalter der Bremslichter Brake light switch Conjoncteur des feux de frein Interruptor de las luces de frenado
28. Spínač kontrolky PTO Schalter der Zapfwellenkontrolleuchte PTO pilot lamp swith - Conjoncteur de la lampe témoin de l'arbre de prise de force Interruptor de la luz testigo del árbol de toma de fuerza
29. Elektromagnetický ventil spojky PTO Elektromagnetisches Ventil der Zapfwellenkupplung PTO clutch electromagnetic valve Clapet électromagnétique de l'embrayage de l'arbre de prise de force Válvula electromagnética del embrague del árbol toma de fuerza
30. 8pólová pojistková skříň Achtpoliger Sicherungskasten 8-pole fuse box Coffret à fusibles octopolaire Caja de fusibles de ocho polos
31. 4pólová pojistková skříň Vierpoliger Sicherungskasten 4-pole fuse box Coffret à fusibles quadripolaire Caja de fusibles de cuatro polos
32. Světlomety v masce Scheinwerfer in Maske Headlamps in radiator cover Phares dans le calandre Faros en la parilla
33. Přepínač směrníků a světel Umschalter des Fahrtrichtungsanzeigers und der Lichter - Both drive direction indicator and lamps change-over swith Commutateur se l'indicateur de direction de la marche ainsi que des feux Conmutador del indicador de dirección de la marcha y se las luces
34. Odpojovač Abschalter Disconnecting switch Sectionneur Desconectador
35. 7pólová zásuvka Siebenpolige Steckdose 7-pole socket Prise de courant heptapolaire Caja de enchufe de siete polos
36. Motor ostřikovače Motor des Scheibenwaschers Windshield wascher motor Moteur du lave-glace Motor del dispositivo asperjador
37. Světlomety ve střeše Scheinwerfer im Dach Headlamps in the roof Phares dans le toit Faros en el techo
38. Přední stírač Vorderer Scheibenwischer Front windshield wiper Essuie-glace avant Limpiaparabrisas delantero
39. Posilovací relé Verstärkungsrelais Intensification relay Relais intensificateur Relais intensificador
40. Stropní svítilna Decklampe Ceiling lamp Lampe de plancher Lámpara de techo
41. Přepínač ventilátorů a vyhřívání zadního skla Umschalter der Ventilatoren und der Auswärmung des rückwartigen Glases Change-over switch of ventilator fans and rear glass warming device Commutateur des ventilateurs et du chauffage du verre arrière - Conmutador de los ventiladores y del recalentamiento del vidrio trasero
42. Přepínač stírače Scheibenwischer-Umschalter Windshield wiper change-over switch - Commutateur de l'essuie-glace Conmutador del limpiaparabrisas
43. Ventilátory Ventilatoren Fans Ventilateurs Ventiladores
44. Kontrolka vyhřívání Auswärmungskontrolleuchte Warming up pilot lamp Lampe témoin du réchauffage Luz testigo del recalentamiento
45. Zadní střešní světla Hintere Dachlichter Rear roof lights Feux arrières du toit Faroles traseros del techo
46. Zadní stírač Hinterer Scheibenwischer Rear windschield wiper Essuie-glace arrère - Limpiaparabrisas trasero
47. Spínač zadního stírače Schalter des hinteren Scheibenwischers Rear windshield wiper switch Conjoncteur de l'essuie-glace arrière Interruptor del limpiaparabrisas trasero
48. Zadní vyhřívané sklo Hinteres ausgewärmtes Glas Rear warmed up glass Glace arrière réchauffé Cristal trasero calentado
49. Spínač zadních střešních světel Schalter der hinteren Dachlichter Rear roof lights switch Conjoncteur des feux arrières du toit Interruptor de los faroles traseros del techo
50. Přepínač světel – střecha – maska Umschalter der Lichter — Dach — Maske Roof radiator cover lights change-over switch Commutateur des feux — toit — calandre Conmutador de las luces — techo — parilla
51. Přepínač ventilátorů Umschalter der Ventilatoren Fans change-over switch Commutateur des ventilateurs Conmutador de los ventiladores
52. Kostřící body kabiny Erdungspunkte der Kabine Cab earthing points Points de la mise à la masse de la cabine Puntos de contacto a tierra de la cabina
53. Připojení rádia Anschluss des Rundfunksgerates Wireless connection Connexion de la radio Conexión del radioreceptor
54. Přední skupinová svítilna Vordere Gruppenleuchte Front lamp cluster Lanterne avant combinée Lámpara delantera combinada
55. Zadní skupinová svítilna Hintere Gruppenleuchte Tail lamp cluster Lanterne arrière combinée Lámpara trasera combinada
56. Pracovní světlomet Arbeitsscheinwerfer Labour headlamp Phare de labour Faro de labores
57. Osvětlení SPZ Beleuchtung der Kennzeichentafel Registration mark plate lighting Eclairage de la plaque d'immatriculation Alumbrado de la placa matricula
58. Kontrolka střešních asymetrických světlometů Kontrolleuchte der asymmetrischen Dachscheinwerfer Roof assymetric headlamps pilot lamp Lampe témoin des phares asymétriques du toit Luz testigo de los faros asimétricos del techo
59. Kontrolka zadních střešních světlometů Kontrolleuchte der hinteren Dachscheinwerfer - Roof rear headlamps pilot lamp Lampe témoin des phares arrières du toit Luz testigo de los faros traseros del techo
60. Čidlo otáčkoměru Drenzahlmesserfuhler Sensor of speed indicator Organe sensible du compte-tours Sensor de tacométro





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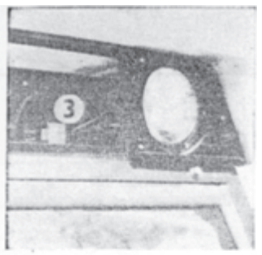

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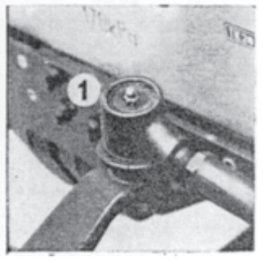
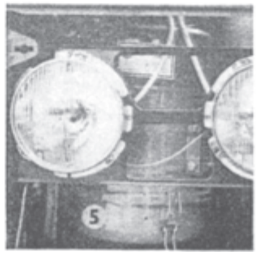
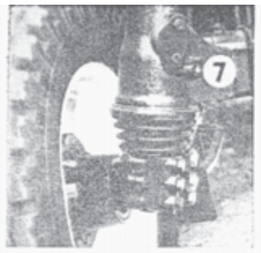
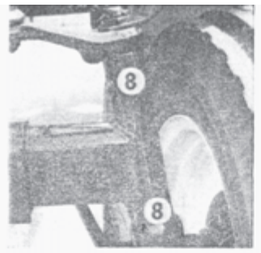
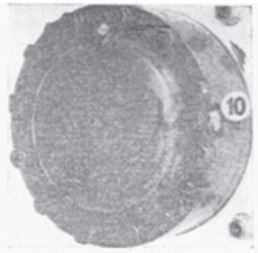
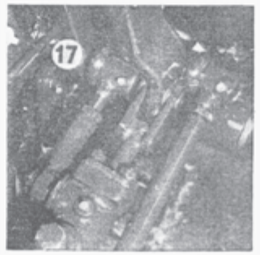








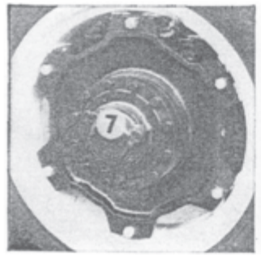


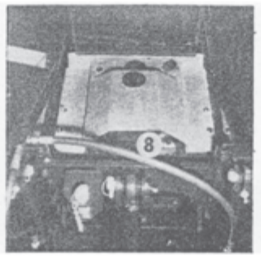


A

LUBRICATION CHART
ZETOR 5211, 5245, 6211, 6245, 7211, 7245, 7245 HORAL, 7711, 7745

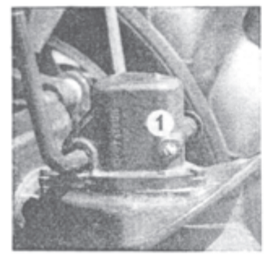
B

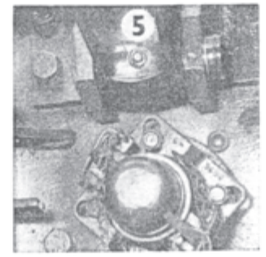


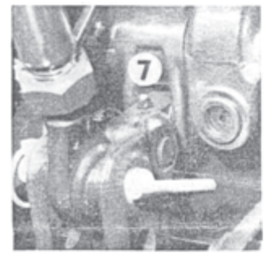


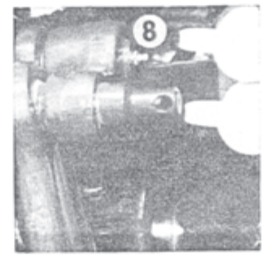
Position	Lubricating point	Action after engine hours 8—10	75	100	200	600	1200	2400	Type of oil or grease
A									
1	Steering joint ball ends				P				LITOL 24
2	Power assisted steering reservoir	K			V*		V		OI NS
3	Heater fan bearings						P		PP 80
4	Front wheel bearings (Z 5211, 6211, 7211, 7711)					D			LITOL 24
5	Power assisted steering joint head				P				LITOL 24
6	Steering box				K				PP 80
7	Front wheel spring extensions (Z 5211, Z 6211, Z 7211, Z 7711)			P			V		LITOL 24
8	Fixed extensions of the front axle (Z 5211, Z 6211, Z 7211, Z 7711)			P			V		LITOL 24
9	Clutch release sleeve			P					PP 80
10	Front axle reduction gears (Z 5245, Z 6245)			K	V*			V	PP 80
11	Front driven axle housing (Z 5245, Z 6245, Z 7245, Z 7745)			K	V*			V	PP 80
12	Front axle bracket			P					LITOL 24
13	Gearbox			K	V*		V		PP 80
14	Cooling system	K							cooling liquid
15	Hand-brake, P.T.O.-shaft clutch and disengaging Bowden cables			P					PP 80
16	Steering-column					P			LITOL 24
17	Clutch release shaft			P					LITOL 24
18	Power assisted steering rod head			P					LITOL 24
19	Power assisted steering rod head			P					LITOL 24
20	Power assisted steering rod head			P					LITOL 24
B									
1	Steering damper reservoir (Z 6245, Z 7245)			K	V*				damper oil
2	Engine	K	V*		V				MS AD
3	Cab door hinges					P			PP 80
4	Brake fluid reservoir	K							SYNTHOL 205
5	Air filter			V					MS AD
6	Steering tie-rod ball ends				P				LITOL 24
7	Front axle reduction gears (Z 6245, Z 7245)			K	V*			V	PP 80
8	Front P.T.O.-shaft gearbox			K	V*		V		PP 80
	Front P. T. O.-shaft Cardan joints			P					LITOL 24
9	Reduction gears Cardan joints			P					LITOL 24
C									
1	Automatic tow mouth			P					LITOL 24
2	Stabiliser turn buckles			P					LITOL 24
3	RH telescopic strut					P			LITOL 24
4	Rear axle housing			K	V*		V		PP 80
5	Three-point linkage bracket pin			P					LITOL 24
6	Auxiliary hydraulic cylinder lower bracket			P					LITOL 24
7	Draft control yoke			P					LITOL 24
8	LH lift arm pin			P					LITOL 24
9	Driver's seat shock-absorber, handle and rollers			P		K			damper oil
	Seat rollers			K					LITOL 24
10	Rear wiper shaft				P				MS AD

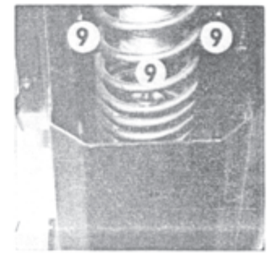
Note: Operations marked by * have to be carried out during the running-in period or after major overhaul.
Key: K = Checking V = Exchange P = Lubricating D = Refilling











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