DEAR OWNER OF THE NEW ZETOR TRACTOR!

The present manual will make you acquainted with the attendance and maintenance of your new ZETOR tractor. Even if you may be familiar with many attendance and maintenance operations in a user of another tractor make, we recommend you to make well acquainted with the just submitted manual.

You will find many items of information that will be very useful to you. We advise you therefore to read the manual very carefully from cover to cover and not to look only for those parts which are interesting to you at present. Solely in that way you can form a true picture of the whole tractor and be well informed where to find individual instructions in the need arises.

By observing all instructions as referred to in this manual you ensure a troublefree performance, a safe travel, an economic utilisation and a long life of your new tractor. Because of a permanent improvement of our tractors it may happen that some instructions and illustrations as given in our manual will not correspond with the tractor supplied. If you wish however, to be informed of carrying out repairs as well as of spare parts you may refer to the following publications:

Workshop Manual — ZETOR 5011—7045
Spare Parts Catalogue — ZETOR 5011 7045

... thousands of reliably performed engine hours...

... wish you ZETOR works, BRNO...

... the manufacturer of your tractor...
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Wiring diagram
Tractor without cab - for export purposes

Tractor with cab - for export purposes
Tractor - Czechoslovak version - with front drive axle

Tractor - Czechoslovak version - with front hand axle
RESPONSIBILITY OF THE ZETOR TRACTOR USER

It is the duty of the Zetor tractor user to make acquaintance with the recommended procedures and instructions for safe operation of the tractor. The responsibility of the user also lies in observing tractor special maintenance, checking its correct operation and removing possible defects which might later cause excessive wear or even serious damage both to individual parts and assemblies.

Guarantee

1. The manufacturer is responsible -- within the guarantee time -- for the design, use of suitable materials for the production and a reliable function of the tractor supplied to the first user (buyer).

2. The repair, replacement of defective parts -- within the guarantee time -- must be carried out in a specialized authorized repair workshop or by experts being authorized to perform repairs of Zetor tractors only.

3. The manufacturer is not responsible for a common type of damage to its individual parts for defects and damage caused by an incompetent use, by not observing operating instructions or by an insufficient maintenance.

4. The warranty does not relate to any damage or accident caused by an inappropriately performed tractor: repair outside or unauthorized repair workshop, and it is common to prove that the damage has been caused by an inappropriately originating from the manufacturer.

5. The warranty does not relate to the operations connected with clearing, attending, oil changing, brake and valve adjusting etc.

The warranty does not concern a depreciation of the storage basket due to incorrect maintenance, a negligent manipulation and a mechanical damage.
SAFETY INSTRUCTIONS FOR THE ZETOR TRACTOR USER

The fitted safety devices can be effective if they are duly used and maintained.

Basic safety instructions

1. The tractor may be operated by a skilled operator only who is fully authorized to operate the tractor.

2. The operator who is to operate the tractor must be well acquainted with operating and safety instructions in advance.

3. A inexperienced operator is not allowed to operate the tractor nor any agricultural machine.

4. The persons who may not be authorized to carry out operations connected with tractor auxiliary equipment are not allowed to stay between tractor and its coupling implements.

5. To get on and off the driver's cab use runboards e.g. help to firmly holders.

6. Before starting to travel the operator must also check the tractor technical condition for safety as well as the adjustment of brakes, steering, illumination and tire condition.

7. On tractors in single axles there it is to check their sole attachment and locking against uncoupling, the connection of pneumatic brakes, the air pressure in air tanks, the electric equipment and tire condition for their correctness.

8. It is not allowed to start the engine by travelling down the hill (slopes).

9. It is allowed to start travelling the tractor in order to start the engine by means of another tractor or another vehicle when using a tow bar only.

10. Before starting to travel the tractor make sure whether a presence of an incompetent person or another obstacle do not hinder you how travelling.

11. When driving the tractor choose such a gear ratio and speed which correspond to the conditions of communication terrain and is completely safe travelling down the hill without engaged gear which is not allowed! Never remove the key from the switch box when travelling — the steering would be locked!
12. A special attention is to be given to the tractor steering when being on a slope, on a muddy, sandy, icy and uneven terrain. When working on slopes, the wheel track must be set to its minimum. Observe strictly the specified angle of slope performance.

13. Never get into a slowly running tractor in order to attach the trailer by yourself. Take also care of your helper's safety.

14. If you stop the tractor on a slope, lock it against any spontaneous travel by braking engine disengaging, shifting a low gear ratio and by pulling a Scotch block under the wheels.

15. When parking the tractor, tractor with coupled implements overnight outside a parking place or area unattended must not be left illuminated by at least one light being visible from both front and rear side and located on tractor or tractor-trailer unit towards the road traffic.

16. Do not park the tractor with (trailer) attached implements in a lifted position. Before leaving the tractor do not forget to remove the key from the switch box and to lock the cab.

17. To lift a sunker (snow-bound) tractor use a low bar or a jack, never use any chains. When lifting the tractor it is dangerous to stay near the tow rope.

18. For pushing other vehicles, trailers are by tractor, never use tightly inserted planks or bars between the tractor and the pushed object.

19. In a closed building or room the tractor engine may run only when a sufficient ventilation is ensured since exhaust gases are noxious for health.

20. All operations connected with fuel refilling, cleaning, lubricating and tractor or attached implements adjusting may be carried out with engine and other moving parts at rest except the checking of the brake function and charging.

21. Fuel refilling is to be performed preferably after you have finished the work. In summer season do not refill the fuel tank up to its rim. Wipe off once spilled fuel. Do not refill the fuel near any open flame and do not smoke.

Extinguisher is to be permanently available.
22. During all operations use suitable (specified) personal protective means.

23. Do not wear any flimsy garments near moving parts. They might be easily drawn in moving parts and cause a serious accident.

24. Check regularly the First Aid kit for its content and readiness means for treating tiny injuries and first aid.

By observing basic safety instructions, you can create good conditions for reliable work operation with the Zetor tractor.

Health protection when working with crude oil products

Kerosene (oils), Diesel oil, mineral oils and other crude oil products being used for internal operation and application may cause various dermatological diseases at a direct contact with skin, exert an irritating effect on the mucous membranes — eyes, gastro-intestinal system and nasal mucous membranes. Some of them may even result after breathing in vapours or eating them — in a toxic intoxication.

The operators who get into contact with crude oil products must consistently observe safety and hygiene regulations. Use suitable protective means and work in well ventilated spaces (rooms).

After having finished their work or before eating it is necessary to wash carefully with a non irritating washing means and to treat one’s hands with a suitable protection ointment - hand cream.
## Basic Technical Data of Zetor Tractors

### Characteristics

Zetor tractors are intended for use and power-operate machines used in agriculture, forestry, transport, building and industry. They can operate with reliable performance on difficult terrains and in different climatic regions.

<table>
<thead>
<tr>
<th>Engine Model</th>
<th>Z 5061</th>
<th>Z 6071</th>
<th>Z 7311</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine Type</td>
<td>In line 4-stroke Diesel with direct fuel injection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cylinder No.</td>
<td>3 4 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cylinder volume (cm³)</td>
<td>2696 3356 3595</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bore and stroke (mm)</td>
<td>132 x 100 x 100 x</td>
<td>102 x 112</td>
<td></td>
</tr>
<tr>
<td>Engine speed (rpm)</td>
<td>- 2200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Minimum</td>
<td>600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Maximum</td>
<td>2460</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compression ratio</td>
<td>17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lubrication type</td>
<td>with hanging valves</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cylinder sequence order</td>
<td>1-3-2 1-3-4-2 1-3-4-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valve clearance (mm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Suction and exhaust</td>
<td>0.25 - 0.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Injection timing (°)</td>
<td>24 5 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Injector opening pressure (MPa)</td>
<td>14 7 15 7 16 8 18 5 0.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dry engine weight (kg)</td>
<td>515 405 405</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRACTOR 25011</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall dimensions (mm)</td>
<td>a tolerance of ±5% is admissible</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Tyres used:</td>
<td>Front:</td>
<td>6.00-16</td>
<td>6.00-16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Overall length (m) without coupled implements (implement with)</th>
</tr>
</thead>
<tbody>
<tr>
<td>with cab</td>
</tr>
<tr>
<td>without cab</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Overall length (m) with coupled implements</th>
</tr>
</thead>
<tbody>
<tr>
<td>34.90</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Overall width (m) of rear wheel truck at 1350 mm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>without bolster weights</td>
</tr>
<tr>
<td>with bolster weights</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Overall height (m) measured to top of exhaust pipe</th>
</tr>
</thead>
<tbody>
<tr>
<td>with safety cab</td>
</tr>
<tr>
<td>without safety cab</td>
</tr>
<tr>
<td>Max. tractor height with cab</td>
</tr>
</tbody>
</table>

| Front wheel track – adjustable | 1.280, 1.375, 1.725 |
| Rear wheel track – adjustable each | 0.75 mm |
| Wheel base | 2.025 |
Outer overall luminary units with core
braked wheel:

- with cab: 2545, 2590, 2515, 2565, 2610, 2625, 2640
- without cab: 2325, 2370, 2395, 2430, 2480, 2420

**Weight (kg)** a tolerance of 1.5% is admissible
tractor weight without driver but with tanks full,
with hydraulic power lift and implement hitch.

<table>
<thead>
<tr>
<th></th>
<th>with cab</th>
<th>2545</th>
<th>2590</th>
<th>2515</th>
<th>2565</th>
<th>2610</th>
<th>2625</th>
<th>2640</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>without cab</td>
<td>2325</td>
<td>2370</td>
<td>2395</td>
<td>2430</td>
<td>2480</td>
<td>2420</td>
<td></td>
</tr>
</tbody>
</table>

Fuel type liquid weight:
- 2725, 2870, 2910, 2940, 2970, 3010

**Max. admissible carrying capacity (kg)**

- Front swinging sprung axle at wheel track
  of 1375 mm and at max. speed of:

  - 25 km/hr: 2040 kg
  - 6 km/hr (driving increased by 25%):
  - 1600 kg

- Front swinging sprung axle at wheel track
  of 1375 mm and at max. speed of:

  - 25 km/hr: 2900 kg
  - 6 km/hr (driving increased by 25%):
  - 1890 kg, 1100 back 1500

  lack 2200 kg
<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed</td>
<td>25 km/h</td>
<td>30 km/h</td>
<td>35 km/h</td>
<td>40 km/h</td>
<td>45 km/h</td>
<td>50 km/h</td>
<td>55 km/h</td>
</tr>
<tr>
<td></td>
<td></td>
<td>27287</td>
<td>3000</td>
<td>2279</td>
<td>5900</td>
<td>3066</td>
<td>2900</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
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<td></td>
<td></td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Max traction force at trailer hitch (height 120 mm), with and without:</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>weights and water in trays:</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>with van</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
</tr>
<tr>
<td></td>
<td>without van</td>
<td>21.58 kN</td>
<td>19.62 kN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Lifting power at the end of three-point hitch lower links within the whole lift:

- Lower links length of 800 mm: 6.3 kN
- Lower links length of 860 mm: 8.8 kN
### T 4011

**Overall dimensions (mm) — a tolerance of ±5\% is admissible**

<table>
<thead>
<tr>
<th>Tyres used</th>
<th>Front.</th>
<th>Rear: 1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6.50-16</td>
<td>6.50-16</td>
<td>6.50-16</td>
<td>6.50-16</td>
<td>6.50-16</td>
<td>6.50-16</td>
</tr>
</tbody>
</table>

**Overall length without implement hitch:**
- with safety cab: __3655__ mm
- without safety cab: __3655__ mm

**Overall length with implement hitch:** __3700__ mm

**Overall width at rear wheel track of 1425 mm:**
- without all-axle weights: __1300__ mm
- with all-axle weights: __1800__ mm

**Overall height measured to top of exhaust pipe:**
- with cab: __2451__ mm
- without cab: __1964__ mm

Max. tractor height with cab:
- Front wheel track: __2510__ mm
- Rear wheel track: __2950__ mm
- Adjustable:
  - Front wheel truck: __1280:1,3,5,1750__ mm
  - Rear wheel track: __1425-1800__ mm
  - Adjustable, each 75 mm:
- Wheel lugs: __2247__ mm
<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>750</td>
<td>500</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>750</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td><strong>Weight (kg)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factor weight without driven but with tanks, hull with hydraulic power lift and implements hitch</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>with cab</td>
<td>2010</td>
<td>3000</td>
<td>3030</td>
<td>3040</td>
<td>3070</td>
</tr>
<tr>
<td>without cab</td>
<td>2910</td>
<td>2800</td>
<td>2830</td>
<td>2840</td>
<td>2870</td>
</tr>
<tr>
<td>Rear tyre load weight</td>
<td>2 × 195</td>
<td>2 × 165</td>
<td>2 × 180</td>
<td>2 × 215</td>
<td>2 × 240</td>
</tr>
<tr>
<td><strong>Max. admissible carrying capacity (kg)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front swinging unsprung axle at wheel track of 1375 mm and at max. speed of 25 km/h</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1240</td>
</tr>
<tr>
<td>6 km/h (inflation increased by 25%)</td>
<td></td>
<td></td>
<td></td>
<td>1600</td>
<td></td>
</tr>
<tr>
<td>Front swinging sprung axle at wheel track of 1375 mm and at max. speed of 25 km/h</td>
<td></td>
<td>1700</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 km/h (inflation increased by 25%)</td>
<td></td>
<td>1400</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Rear axle at wheel track of 1425 mm and at max. speed of:

- 25 km/h: 3600
- 20 km/h: 3600
- 6 km/h (trailing increased by 25\%)

Max.tractive force in tra\'er hitch (hitch height 563 mm), with tanks full, with base weight and water in tanks:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>With cab</td>
<td>3600</td>
<td>3600</td>
<td>3456</td>
<td>3600</td>
<td>3600</td>
</tr>
<tr>
<td>without cab</td>
<td>3600</td>
<td>3600</td>
<td>3600</td>
<td>3600</td>
<td>3600</td>
</tr>
</tbody>
</table>

Lifting power at the end of three point hitch lower links within the whole lift:

- Lower links length: 690 mm
- Lower links length: 660 mm

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>With cab</td>
<td>27.47 kN</td>
</tr>
<tr>
<td>Without cab</td>
<td>25.51 kN</td>
</tr>
</tbody>
</table>

Note: TL front tyres of 7.50-16 with fixed or sprung extensions are used, values of adjacent end more permissible carrying capacity recording in type Z 7071 are applied.
TRACTOR Z 6045

Overall dimensions (mm)  a tolerance of ±0.5% is admissible

<table>
<thead>
<tr>
<th>Types used</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
</table>

Overall length without implement hitch:
- with cab: 3655 mm
- without cab: 3655 mm

Overall length with implement hitch: 3750 mm

Overall width at rear wheel track of 1425 mm:
- without ballast weights: 1950 mm
- with ballast weights: 1980 mm

Overall height measured to top of exhaust pipe:
- with cab: 2475 mm
- without cab: 1985 mm

Max. tractor height with cab: 2535 mm

Rear wheel track (adjustable each 15 mm): 1425 - 1800 mm

Front wheel track: 1510 mm

Wheelbase: 2220 mm
Outer overall turning radius with one braked wheel, with cab
without cab

Weight (kg) - a tolerance of ±5% is permissible with hydraulic power lift and implement hitch:
with cab
without cab

Rear tyre liquid weight

Max. admissible carrying capacity (kg)
Front drive axle at max. speed of:
- 25 km/h and tyre inflating of 0.8 MPa
- 20 km/h and tyre inflating of 0.225 MPa
Rear axle at wheel load of 1425 mm and at max. speed of:
- 25 km/h and tyre inflating of 0.15 MPa
- 20 km/h
- 6 km/h

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outer overall turning radius</td>
<td>8500</td>
<td>8500</td>
<td></td>
</tr>
<tr>
<td>Weight (kg) with cab</td>
<td>3420</td>
<td>3450</td>
<td>3300</td>
</tr>
<tr>
<td>Weight (kg) without cab</td>
<td>3220</td>
<td>3250</td>
<td>3180</td>
</tr>
<tr>
<td>Rear tyre liquid weight</td>
<td>2.215</td>
<td>2.240</td>
<td>2.160</td>
</tr>
<tr>
<td>Max. admissible carrying capacity (kg)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Tractive forces (kN) — a tolerance of ±5% is admissible.

Max. tractive force in implement hitch [hitch height 280 mm]: tractor with tanks full, with ballast weights and water in tires:

<table>
<thead>
<tr>
<th>With cab</th>
<th>Without cab</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>34.34</td>
</tr>
</tbody>
</table>

Lifting force (kN) at the end of three-point lower links within the whole lift:

<table>
<thead>
<tr>
<th>Lower links length — 800 mm</th>
<th>14.76</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower links length — 860 mm</td>
<td>13.76</td>
</tr>
</tbody>
</table>
## Overall dimensions (mm)

<table>
<thead>
<tr>
<th>Tires used</th>
<th>Front</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rear</td>
<td>2,50-16</td>
<td>7,50-16</td>
<td>7,50-16</td>
<td>7,50-16</td>
<td>7,50-16</td>
<td>7,50-16</td>
</tr>
</tbody>
</table>

**Overall length without implement hitch:**
- With cab: 3655
- Without cab: 3875

**Overall length with implement hitch:** 3720 mm

**Overall width at rear wheel track of 1025 mm:**
- Without ballast weights: 1817
- With ballast weights: 1900

**Overall height measured to top of exhaust pipe:**
- With cab: 2475
- Without cab: 1985

**Max. tractor height with cab:**
- 2538
- 2018
- 2008
- 1985

**Front wheel track:** Adjustable

**Rear wheel track:** Adjustable each 75 mm

**Wheel base:** 2747
<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>t</td>
<td>7500</td>
<td>500</td>
<td>7500</td>
<td>1500</td>
<td></td>
</tr>
<tr>
<td>overall turning radius with one broken wheel;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>with cab</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>without cab</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight (kg) - a tolerance of +5% is permissible</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>tractor with lower hull but without driver,</td>
<td>1060</td>
<td>2060</td>
<td>2050</td>
<td>2090</td>
<td>2140</td>
</tr>
<tr>
<td>with cab</td>
<td>7000</td>
<td>2080</td>
<td>2850</td>
<td>2980</td>
<td>2930</td>
</tr>
<tr>
<td>without cab</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rear tyre behind weigh.</td>
<td>2.5</td>
<td>2 x 160</td>
<td>2 x 120</td>
<td>2 x 740</td>
<td>2 x 750</td>
</tr>
<tr>
<td>Max. admissible carrying capacity (kg)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front swinging sprung axle or wheel,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>track of 1050 mm and at max. speed of</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25 km/h; inclining 0.75 MPa</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2500</td>
</tr>
<tr>
<td>a inclining increased by 25 km/h</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2980</td>
</tr>
<tr>
<td>Front swinging sprung axle at wheel track</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>at 1050 mm and at max. speed of</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25 km/h</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1780</td>
</tr>
<tr>
<td>0 km/h</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>locked 1500</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2200</td>
</tr>
</tbody>
</table>
Rear axle at wheel track of 1475 mm and at max speed of:

<table>
<thead>
<tr>
<th>Speed (km/h)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>3600</td>
<td>3028</td>
<td>3456</td>
<td>3000</td>
<td>3600</td>
</tr>
<tr>
<td>20</td>
<td>3300</td>
<td>3456</td>
<td>3630</td>
<td>3600</td>
<td>3600</td>
</tr>
<tr>
<td>6</td>
<td>2600</td>
<td>2630</td>
<td>3600</td>
<td>3600</td>
<td>3600</td>
</tr>
</tbody>
</table>

**Tractive Force (kN)**

A tolerance of 5% is permissible.

Max tractive force in implement hitch (tractor hitch) (hitch height 170 mm), tractor with linkage lift
but without driver and with water in tyres:

- With cab: 27.47
- Without cab: 23.51

Ditching force (power) at the end of three-point hitch within the whole lift range:

- Lower links length: 800 mm
  - 17.16
- Lower links length: 850 mm
  - 16.16
### TRACTOR Z 7045

Overall dimensions (mm) — a tolerance of ±2% is allowable.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tires used:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Overall length without implement hitch:**
- with cab: 3655
- without cab: 3655

**Overall length with implement hitch:** 3720

**Overall width at rear wheel track of 1425 mm:**
- without ballast weights: 1950
- with ballast weights: 1980

**Overall height measured to top of exhaust pipe:**
- with cab: 2495, 2493, 2491, 2523, 2523

**Max. tractor height with cab:** 2535, 2550, 2553, 2595

**Rear wheel track — adjustable each 75 mm:**
- 1425 — 1500

**Front wheel track:** 1510

**Wheel base:** 7920
Outer overall turning radius with one braked wheel:

<table>
<thead>
<tr>
<th>with cab</th>
<th>8300 - 500</th>
</tr>
</thead>
<tbody>
<tr>
<td>without cab</td>
<td>6500 - 500</td>
</tr>
</tbody>
</table>

**Weight (kg)** — a tolerance of 1.5% is permissible

Truthful weight without ballast and driver but with full hydraulic power lift and implement hitch

<table>
<thead>
<tr>
<th>with cab</th>
<th>3400</th>
<th>3490</th>
<th>3470</th>
<th>3550</th>
<th>3530</th>
</tr>
</thead>
<tbody>
<tr>
<td>without cab</td>
<td>2960</td>
<td>2970</td>
<td>3770</td>
<td>3970</td>
<td>3990</td>
</tr>
</tbody>
</table>

Rear tyre liquid weight

| | 8.215 | 7.240 | 7.826 | 7.958 | 7.958 |

**Max. admissible carrying capacity (kg)**

Front drive axle at max. speed of:

| 25 km/h and tyre inflating 0.16 MPa | 2235 | 2276 | 2730 | 2736 | 2400 |
| 20 km/h | 2460 | 2480 | 2680 | 2800 | 2600 |
| 6 km/h and tyre inflating 0.225 MPa | 3135 | 3135 | 3135 | 3135 | 3135 |

Rear axe at wheel trace of 1425 mm and at max. speed of:

| 25 km/h and tyre inflating 0.15 MPa | 3600 | 3600 | 3600 | 3600 | 3600 |
| 20 km/h | 3600 | 3600 | 3600 | 3600 | 3600 |
| 6 km/h | | | | | 3600 |
Tractive forces (kN): a tolerance of ±5% is admissible

Max. tractive force at trailer hitch (hitch height 565 mm), tractor with tanks full, with ballast and water in tyres

- with cab: 54.36
- without cab: 52.37

Lifting power at lower links end within the whole till 1250 kg:

- lower links length 800 mm: 17.16
- lower links length 860 mm: 16.18
## TRACTOR SPEEDS

Tractor travel speeds in km/h at rated engine speed of 2200 rpm - 1.

### On tractor Z 5011 with tyres 12.4/11.28

<table>
<thead>
<tr>
<th>Gear ratio</th>
<th>without reduction</th>
<th>with reduction</th>
<th>dependent PTO rpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>4.44</td>
<td>1.04</td>
<td>250.5</td>
</tr>
<tr>
<td>II</td>
<td>0.60</td>
<td>1.55</td>
<td>329.7</td>
</tr>
<tr>
<td>III</td>
<td>0.19</td>
<td>2.15</td>
<td>519.3</td>
</tr>
<tr>
<td>IV</td>
<td>14.17</td>
<td>3.50</td>
<td>797.5</td>
</tr>
<tr>
<td>V</td>
<td>23.58</td>
<td>5.51</td>
<td>1331.6</td>
</tr>
<tr>
<td>R</td>
<td>5.79</td>
<td>1.35</td>
<td>323.8</td>
</tr>
</tbody>
</table>

### On tractor Z 6011 with tyres 13.9/13.28

- If tractor is not provided with torque multiplier:
  | ,        | 4.35             | 1.33           | 252.9             |
  | II       | 6.47             | 1.53           | 376.1             |
  | III      | 2.01             | 2.13           | 524.3             |
  | IV       | 13.43            | 3.27           | 804.5             |
  | V        | 23.07            | 4.16           | 1344.4            |
  | R        | 5.87             | 1.34           | 330.5             |

- If tractor is equipped with torque multiplier:
  | ,        | 5.76             | 1.35           | 332.0             |
  | I.TM     | 4.35             | 1.03           | 252.9             |
  | II       | 8.40             | 2.00           | 494.2             |
  | II.TM    | 6.47             | 1.53           | 376.3             |
  | III      | 1.83             | 2.79           | 680.0             |
  | III.TM   | 9.01             | 2.13           | 524.2             |
  | IV       | 18.16            | 4.79           | 1056.7            |
  | IV.TM    | 13.93            | 3.77           | 804.9             |
  | V        | 23.07            | 5.45           | 1344.4            |
  | V.TM     | 7.60             | 4.16           | 1024.1            |
  | R        | 7.44             | 1.16           | -447.7            |
  | R.TM     | 5.67             | 1.14           | -330.1            |

25
On tractor Z 7011 with types 16,5,14-28

a) tractor is not provided with torque multiplier:

<table>
<thead>
<tr>
<th>Gear ratio</th>
<th>without reduction</th>
<th>with reduction</th>
<th>dependent, PTC rpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>1.55</td>
<td>1.07</td>
<td>255</td>
</tr>
<tr>
<td>II</td>
<td>2.77</td>
<td>1.60</td>
<td>376</td>
</tr>
<tr>
<td>III</td>
<td>3.43</td>
<td>2.23</td>
<td>524</td>
</tr>
<tr>
<td>IV</td>
<td>14.42</td>
<td>3.42</td>
<td>902</td>
</tr>
<tr>
<td>V</td>
<td>24.18</td>
<td>5.77</td>
<td>1344</td>
</tr>
<tr>
<td>R</td>
<td>5.93</td>
<td>1.49</td>
<td>330</td>
</tr>
</tbody>
</table>

b) tractor is provided with torque multiplier:

<table>
<thead>
<tr>
<th>Gear ratio</th>
<th>without reduction</th>
<th>with reduction</th>
<th>dependent, PTC rpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>2.97</td>
<td>1.41</td>
<td>352</td>
</tr>
<tr>
<td>I. TM</td>
<td>4.55</td>
<td>1.07</td>
<td>574</td>
</tr>
<tr>
<td>II</td>
<td>8.86</td>
<td>2.10</td>
<td>434</td>
</tr>
<tr>
<td>II - TM</td>
<td>6.77</td>
<td>1.60</td>
<td>376</td>
</tr>
<tr>
<td>III</td>
<td>12.38</td>
<td>2.92</td>
<td>688</td>
</tr>
<tr>
<td>III - TM</td>
<td>9.43</td>
<td>2.23</td>
<td>724</td>
</tr>
<tr>
<td>IV</td>
<td>19.50</td>
<td>4.49</td>
<td>157</td>
</tr>
<tr>
<td>IV - TM</td>
<td>11.47</td>
<td>3.42</td>
<td>405</td>
</tr>
<tr>
<td>V</td>
<td>26.16</td>
<td>5.71</td>
<td>1344</td>
</tr>
<tr>
<td>V. TM</td>
<td>18.13</td>
<td>4.35</td>
<td>1024</td>
</tr>
<tr>
<td>R</td>
<td>7.79</td>
<td>1.81</td>
<td>433</td>
</tr>
<tr>
<td>R. TM</td>
<td>5.91</td>
<td>1.40</td>
<td>530</td>
</tr>
</tbody>
</table>

Increased reverse speed

Tractor with types 12,4,11-28
- without reduction from 3.75 to 0.13 km/h
- with reduction from 1.55 to 2.13 km/h

Tractor with types 14,9,13-28

a) is not provided with torque multiplier:
- without reduction from 5.67 to 8.93 km/h
- with reduction from 1.24 to 5.11 km/h

b) torque multiplier fitted
- without reduction from 7.44 to 11.73 km/h
  from 5.67 to 8.93 km/h
- with reduction from 1.76 to 2.77 km/h
  from 1.55 to 2.13 km/h
Tractor with types 16.9/10-28

a) torque multiplier not fitted:
   - without reduction from 5.93 to 9.36 km/h
     with reduction from 1.40 to 2.21 cm/h

b) torque multiplier fitted:
   - without reduction from 7.79 to 2.28 cm/h
     from 5.93 to 9.35 km/h
   - with reduction from 1.84 to 2.90 km/h
     from 1.40 to 2.21 km/h

**Tractor Tyreing:**

<table>
<thead>
<tr>
<th>Tractor</th>
<th>Tyre Size</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZETOR 5111</td>
<td>6.00-16</td>
<td>Standard</td>
</tr>
<tr>
<td></td>
<td>7.50-16</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12.4/11.28</td>
<td>Standard</td>
</tr>
<tr>
<td></td>
<td>14.9/11.28</td>
<td></td>
</tr>
<tr>
<td></td>
<td>13.6-13.36</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9.5/9.52</td>
<td></td>
</tr>
<tr>
<td>ZETOR 6011</td>
<td>6.50-16</td>
<td>Standard</td>
</tr>
<tr>
<td></td>
<td>7.50-16</td>
<td></td>
</tr>
<tr>
<td></td>
<td>14.9/11.36</td>
<td>Standard</td>
</tr>
<tr>
<td></td>
<td>13.6-12.36</td>
<td></td>
</tr>
<tr>
<td></td>
<td>15.9/14.24</td>
<td></td>
</tr>
<tr>
<td></td>
<td>16.9/14.30</td>
<td></td>
</tr>
<tr>
<td>ZETOR 6045</td>
<td>11.7/10.24</td>
<td>Standard</td>
</tr>
<tr>
<td></td>
<td>14.9/14.24</td>
<td>Standard</td>
</tr>
<tr>
<td></td>
<td>12.4/11.36</td>
<td></td>
</tr>
<tr>
<td></td>
<td>15.9/14.30</td>
<td></td>
</tr>
<tr>
<td>ZETOR 7011</td>
<td>7.50-15</td>
<td>Standard</td>
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<td>8.50-16</td>
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<td>ZETOR 7045</td>
<td>11.2/10.24</td>
<td>Standard</td>
</tr>
<tr>
<td></td>
<td>12.4/11.24</td>
<td></td>
</tr>
<tr>
<td>ZETOR 7011, 7005</td>
<td>16.9/14.23</td>
<td>Standard</td>
</tr>
<tr>
<td></td>
<td>12.4/11.36</td>
<td></td>
</tr>
<tr>
<td></td>
<td>13.6/12.36</td>
<td></td>
</tr>
<tr>
<td></td>
<td>16.9/14.30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>16.9/14.34</td>
<td></td>
</tr>
</tbody>
</table>
MAKING ACQUAINTED WITH THE TRACTOR

A basic condition of a correct operation and use of the tractor is to make well acquainted with it. Make acquainted with it in order to ensure its safe and reliable operation.

Zetor tractors are of frameless design equipped with diesel engine. Front axle on Z 8041, Z 9041 and Z 7011 is of swinging portal type. Tractors Z 6045 and Z 7045 are equipped with front drive axle. Front and rear wheel track is adjustable with the exception of front wheel track on tractors Z 6045 and Z 7045.

Fig. 1

Dashboard (Fig. 1):

1. Direction indicator: red = right; green
2. Air pressure gauge
3. Pilot lamp device
4. Speedometer with engine hour counter - engine hour counter counts 1 LH at 1600 rpm of engine crank shaft per 1 hour
5. Fuel gauge
6. Cooling liquid thermometer
7. PTO shaft clutch pilot lamp, red
8. Tail light switch (reverse speed lamp)
9. Lifting switch
10. Direction indicator lights and horn change-over switch (dimmed and distance lights, direction indicator, light and acoustic horn)
11. Switch box with steering lock
12. Free pilot lamp

Pilot lamp device (Fig 2)

Fig. 2

1. Distance lights - blue  
2. Fuel - orange  
3. Lubrication - red  
4. Working headlamp - yellow  
5. Charging - red  
6. Hand brake - red

Lighting switch (Fig 19)

The lighting switch pushbutton is turned to the right into position "1", contain and parking lights, instrument lights, tail light and state identification number lights are switched on.
Il the lighting switch is turned into position “2”,contour-lights, instrument lights, tail lights, with state identification number illumination and passing (distance) lights in headlamps are on. When headlamp lights are on, symbols on light switch label position (Fig. 11/10)

Switch box with steering lock (Fig. 11/11)

Besides gear locking (in tractor with exit) the tractor can be secured against misuse by locking the steering. It is locked in such a way that the key in the switch box is turned to the left from “3” position into "STOP"-position. Upon removing the key and turning the steering wheel, the steering is locked. When unlocking, insert the key into position "STOP", by turning to the right into position “0”, When turning the key to the right into position 1, all electrical consumers are on. If you keep turning against a flexible resistance into position "2 - START", you start the engine (upon a full clutch pedal pressure).

Explanations of symbols located on dashboard
(Fig. 3/1, 2, 3, 4, 5)

1. Use of PTO shaft clutch hand as engaging lever
2. Engaging hydraulic power lift and PTO shaft drive
3. Gear shift diagram
4. Switching on reduced speeds (slow) (Fig. 10/2a)
   road speeds (fast) - (Fig. 10/2b), neutral (Fig. 10/2N)
5. Use of hand (parking) brake.

Fig. 2
Fuse box (Fig. 13.2)

The fuse box is accessible after removing the cover which is latched by two quick-closing devices (Fig. 18.3) and is located underneath the dash-board on the right side of the car. The fuse box is eight-pole and contains consumer fuses (15 A).

A training equipped with a safety cap has two more 15 A fuses which are located on the fuse box rear panel side.
Switching-on fuses on fuse box panel
(Fig. 4.1-3):

1. Distance light and distance light pilot lamp.
2. LH dimmer light.
3. RH dimmer light.
4. RH head and rear contour light, parking light and instrument illumination.
5. RH front and rear contour light, parking light on car auxiliary lights.
6. Assembly socket and power supply.
7. Direction indicators.
8. Brakes and horn.

Lubrication points located on near seat side:
- Windscreen wiper and wash, heating, ventilation - Ceiling, roof and door.

FILLING AND DRAINING HOLES

1. Fuel-filling hole (Fig. 5.2).
2. Coolant liquid filling hole (Fig. 5.1)."
4. Cooling liquid drain cock from engine block (Fig. 5-1).
5. Engine oil filling hole (Fig. 5-2).
6. Engine oil check gauge (Fig. 5-1).
1. Engine oil drain plug (Fig. 7.2)
2. Injection pump body and governor oil filling hole (Fig. 8.1)
3. Injection pump body and governor oil drain plug (Fig. 8.2)
4. Steering wax oil filling hole (Fig. 9.1)
5. Power-assisted steering tank oil filling hole (Fig. 6.2)
6. Power-assisted steering oil drain and is located at tank bottom part.

Fig. 10
12. Gear-box and main transmission housing oil filling hole (Fig. 16:5).
13. Rear half-case part oil filling hole (Fig. 12:1).
14. Rear half-case part oil drain plug (Fig. 12:4).
15. Brake fluid filling hole (Fig. 12:1).
16. Front drive axle oil filling hole (Fig. 14:1).
17. Front drive axle oil drain plug (Fig. 15:1).
18. Reducer oil filling hole (Fig. 16:1).
19. Reducer oil drain plug (Fig. 16:1).
20. Reducer oil check hole (Fig. 16:2).
21. Antenna construction view plug (Fig. 12:2).
22. Fuel tank impurities drain plug (Fig. 15:2).
LEVERS AND PEDALS

Control lever

1. Hand-operated fuel supply control (Fig. 17,1).
2. Gear shift lever (Fig. 18,2) gear-shifting diagram (Fig. 3,3).
3 Reduce all speeds immediately (Fig. 10-2).

4 Hydraulic power till and PTO shall have engagement lever (Fig. 10-2) engage:
   a) PTO shaft drive via gearbox, i.e., PTO shaft revolutions are dependent on the selected gear ratio (gear shift lever is up)
   b) PTO shaft drive: hydraulic power till system (gear shift lever is down: position II)
   c) Hydraulic pump drive (PTO shift does not turn; gear shift lever is in low/most position)
      - Neutral N
Fig. 20

3 PTO shaft speed gear shift lever on 540 and 1000 rpm. (Fig. 19.4) — fitted on 1001-7035 only.

Attention:
When changing speed from 540 to 1000 rpm or vice versa it is necessary to displace the gear shift lever to neutral and use correct exchangeable PTO and pieces. PTO end made for 540 rpm is strengthened.

6 PTO shaft clutch band disengagement lever (Fig. 19.1).
7 Reaction rate lever (Figs. 20.1).
8 Hydraulic power lift outer circuit lever (Figs. 20.3).
9 Hydraulic power lift inner circuit lever (Fig. 20.2).
1. Hydraulic power lift system selector (Fig. 20:4).
2. Single-axle trailer hitch disengagement lever (Fig. 19:3).
3. Hand (parking) brake lever (Fig. 19:2).
4. Front drive engagement lever (Fig. 21:2).
5. Compressor engagement lever (Fig. 5:3).
6. Compressor engagement safety pin (Fig. 8:4).

Pedals

1. Foot-operated fuel supply (throttle) control (Fig. 10:1).
2. Foot brake latched pedal (Fig. 11:2). A two-pedal brake system with automatic pressure equalizer is fitted.
3. Differential lock pedal (Fig. 21:3).
4. Clutch pedal (Fig. 18:1).
5. Torque multiplier pedal (Fig. 21:1).
HYDRAULIC POWER LIFT AND IMPLEMENT MITCH (COUPLING)

Hydraulic power lift system "ZETORMANIC" is used to control agricultural machines and implements. It consists of two circuits, each of which is controlled by a separate inner circuit (Fig. 20.2) and outer circuit control lever (Fig. 20.3). The functions of inner circuit are designated by a label (Fig. 22 and 23).

1. Inner circuit - is intended to raise and lower agricultural hitches (assembled) machines and implements hitched (attached) machines and implements on the outer circuit lever serves for:
   - raising and lowering agricultural implements into horizontal or working position
   - height adjustment of hitched implements in position control
   - inactive raise value adjustment in drain or mixed control
   - adjustment of the so-called float position after working with implement having its own supporting wheels.

Inner circuit is controlled by the main and two auxiliary levers, such as:

1. Hydraulic power lift system preselector (Fig. 20.4) selects control type. Its three positions are designated by marks P, M, S (Fig. 22).
   - "P" - position (fixed) control. The trailed implement is automatically held in an approximately constant vertical position with respect to the tractor frame forming an integral unit with implement so that the tractor swingings are transmitted onto the trailed implement.
   - "S" - dial control. The trailed implements are automatically held in the vertical position being dependent on soil resistance change.
   - "M" - mixed control. Combines both foregoing control types.

The design arrangement of the hydraulic power lift also makes it possible to work with implement provided with supporting wheels in the so-called free floating position.

2. Reclining rate lever (Fig. 20.1) is intended to perform several functions.
- Maximum ploughing depth when selecting D and M control
- Antislip when selecting P control
- Free (floating) position; Maximum lowering when selecting P control
- Three-point hitch vertical adjustment

Maximum oil supply

- Minimum oil supply

Motion reaction speed designation

- Draft control
- Mixed control
- Position control

- Maximum raising

Fig. 22: Inner circuit designation
- in position control it controls the lifting rate and the magnitude of lightening force (on side).

- in mixed and (draft) power control it controls the function sensitivity with the rate at which the control device reacts to the induced deviation formed by soil resistance.

- in all control types it controls the lifting rate of the three-point hitch.

- it regulates oil amount supplied to the outer circuit.

Fig. 24
— Motion in one direction — starting the double-acting cylinder.
— Control lever is not locked, it returns automatically to neutral. The lever must be held.

— Free-floating position for the double-acting cylinder. Starting the single-acting cylinder. In this position the lever is locked and need not be held.

— Neutral — locked position. In this position the lever is locked.

— A similar target designation can be found on the quick coupler (Fig. 24/6, 7), it designates pressure oil supply upon raising.
— Motion in opposite direction — raising. Control lever is not locked, it returns automatically to neutral. The lever must be held.

Fig. 23. Outer circuit designation
o) Outer circuit

Supplies pressure oil to machines and implements having their own hydraulic cylinders outside the tractor, both single-acting (hydraulically controlled tines etc.) and double-acting (loaders, cutter bars, hydromotors etc.). This circuit is provided with two outlets having each a quick coupler (quick coupling device) at its end (Fig. 23, 6, 7, 15, 2, 3).

Outer circuit is controlled on two levels:

1. Hydraulic outer circuit lever;
2. Reaction rate lever.

In hydraulic power lift system, "ZETOROMATIC" both systems, the inner and the outer one, may be used at the same time. The oil amount supplied to individual circuits is controlled by the reaction rate lever. If the reaction rate lever is in its LH utmost position, all oil is supplied to the inner circuit, if it is in its RH utmost position oil is supplied to the outer circuit.

The outer circuit is in operation and the inner circuit control lever is in neutral, the whole amount of oil is supplied to the outer circuit independently of the reaction rate lever position (Fig. 20, 4). If the inner circuit ever is displaced into the position being 20 to 30

![Fig 75](image-url)
In the lowermost position, the amount of pressure oil may be controlled by the manual valve. The outer circuit main lever controls two outlets, i.e.,
- outlet 1 — is attached (coupled with) to single-acting cylinder (Fig. 24, 6, 25-2)
- outlet 2 — is attached (coupled with) to double-acting cylinder (Fig. 24-7, 25-3).

The maximum oil flow from the pump is at 540 l/min, 13 MPa pressure and 20 to 50°C oil temperature — 22 l/min and at 1000 rpm — 35 l. The amount of oil supplied in the outer circuit is 6 l to 10 l.

The outer circuit lever controlling single-acting cylinder connected with outlet 1 has three positions.

1. **Raising** — control lever is in its uppermost position. The lever must be held.
2. **Neutral** — control lever is in its central position and is automatically locked.
3. **Lowering** — control lever is in the middle between neutral and the lowermost position. In this position it is automatically locked and need not be held.

**Use of outer circuit lever when controlling a double-acting cylinder**

The above cylinder is connected with outlet 1" (Fig. 24, 6 and 24-2) and 2" (Fig. 24-7 and 25-3) in such a way that outlet 1" is intended for pressure oil when raising and outlet 2" when lowering. The flow direction is designated on the hydraulic cover by arrows.

When controlling a double-acting cylinder the outer circuit control lever has four positions:

1. **Raising** — control lever is in its uppermost position
2. **Neutral** — control lever is in its central position
3. **Free position** — control lever is in the middle between neutral and its lowermost position, the lowering operation starts. In this position, the control lever is automatically locked and need not be held.
4. **Lowering** — control lever is in its lowermost position.
Three-point hitch

The three-point hitch represents an outer coupling device serving for attaching agricultural machines and implements. It consists of an upper link being longitudinally adjustable (Fig. 2471) and two lower links (Fig. 2472) which are attached by a RH and LH strut (Fig. 2473) to the hydraulic lifting mechanism arms (Fig. 2474). The RH strut is longitudinally adjustable - without disassembling - by means of a crank, bolt and nut, whereas RH lower link is vertically adjustable. The upper link as well as lower links...
The tractor is provided with ball joints and openings enabling lower links arms to swing by ±125 mm. By changing the length of the tension units (Fig. 24.31), a lower links swing can be adjusted within the whole hydraulic mechanism. As long as the tractor is without any attached (combined) implement, the upper link can be hanged onto a licence holder (Fig. 25.1). The tractor provided with a safety collet can be optionally equipped with a longitudinally adjustable RH unit (from the driver's seat) by means of a screw located in the case (Fig. 26.1). When working with such implements, it is necessary to extend lower links by means (Fig. 26.2).

**Multistage trailer hitch** serves for attaching double-axle and lighter single-axle trailers (Fig. 27.3). This hitch enables vertical adjustment into four positions of a fixed and swinging drawbar (positioned) in nine or seven positions of the swinging drawbar, respectively. The height of individual row mount positions, minor ground clearance, and the types used, the pitch of individual mount positions is 50 mm. The minimum vertical static load is 70 kN maximum. Trailer static force is 30 kN.

**Single-axle trailer hitch** (Fig. 27.1):

It is used in place of single-axle trailer. The hitch is fitted and removed hydraulically by means of the three-point linkage, which considerably enables the trailer to be attached to tractor. The hitch can be fitted even if the tractor has been provided with a multistage hitch. Admissible vertical static load is 10 kN.

**Trailer hitch extension** (Fig. 27.2):

It is fitted together with single-axle trailer hitch and is intended for coupling agricultural machines driven by PTO shaft at 5400 rpm. It basically replaces the fixed and swinging drawbar.

**Fixed and swinging drawbar**

It is used on tractors without multistage hitch. The fixed drawbar is intended for coupling trailed agricultural machines and implements.
The swinging drawbar is transversely adjustable into five positions. If the tractor is provided with a multiscope hitch, the swinging drawbar is fixed to the multiscope hitch bracket. Admissible vertical static load is max. 60 et.

Lifting trailer hitch enables the drawbar to be vertically adjusted into three positions and is used for coupling agricultural machines and implements.
DRIVER'S SEAT

The driver's seat has a soft leatherette covered filling. It is sprung by a side spring. The spring-loading is adjustable according to the driver's weight from 63 to 125 lb by a screw nut in the upper seat part. After unlocking the lever on the LH side the seat is longitudinally adjustable by ±73 mm. When unlocking the lever on the RH seat side the seat is vertically adjustable by ±30 mm. The spring travel stroke is 120 mm.

CLUTCH

The clutch is dual-purpose, built-in into the flywheel. It consists of two bodies, the one for tractor travel and the other for PTO shaft drive. The friction force is derived from a Belleville spring.

TORQUE MULTIPLIER

It enables speed ranges to be changed by the gear ratio of 1.31 without disengaging engine clutch i.e. without interrupting the torque transmission onto tractor drive wheels even the pedestrian force on tractor drive wheels is increased by 31%. By using torque multiplier, 20 forward speeds and 4 reverse speeds are obtained. When necessary resistances have crested the torque multiplier can be put out of operation without any clutch disengagement. The torque multiplier is actuated by a pedal (Fig. 211). The tractor equipped with torque multiplier is provided with a hand-operated PTO clutch disengagement (Fig. 191).

No torque multiplier is fitted on E 2011.

ATTENTION.

With torque multiplier engaged, the tractor cannot be started by engine! The tractor travel is disengaged with torque multiplier engaged – by depressing clutch pedal as long as the step not to switch on the switch or clutch pedal. In the event that electric current is interrupted and the pilot lamp of the PTO shaft clutch hand-operated disengagement (Fig. 17) is not on, the tractor driver must be disengaged by the PTO shaft clutch hand-operated disengagement lever (Fig. 107).
STEERING BOOSTER (Fig. 2A-1)

It facilitates tractor steering in such a way that it reduces the force being applied to the steering wheel to steer the wheels. At the same time shocks resulting from wheel steering and being transmitted onto the steering wheel are damped. With the engine at rest, the tractor can be steered by a mechanical transmission driver's force onto the steering wheel.
**BRAKES**

Hand brake - parking brake - is mechanical, hand-type and is simultaneously on both sides of either wheel brake drum.

Front-operated brakes are liquid, shoe-type. The tractor is provided with a two-pedal brake system with an automatic equalizer so as to be able to brake on one or both wheels independently of the other one. Disconnected pedals may be used except when making turns or driving on a field when the tractor is being turned or on the spot. For a road travel it is necessary to hold both pedals (Fig. 17). On tractors Z4045, 7045 with front drive axle and engaged front drive also front axle is braked via transmission. With front drive axle engaged, it is impossible to brake each front wheel separately.

![Fig. 29](image)

**ADDITIONAL BALLAST WEIGHTS (Fig. 29.1, 2 and 30.1)**

In order to increase additional the weight of tractor, additional ballast weights can be used. The use of additional ballast weights is limited by the carrying capacity of the tractor.
Fig. 30

Use of additional bolster weights

<table>
<thead>
<tr>
<th>Tractor model</th>
<th>7 50-1</th>
<th>2 5011</th>
<th>2 6045</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front axle max.</td>
<td>60 kg</td>
<td>60 kg</td>
<td>400 kg</td>
</tr>
<tr>
<td>Rear axle min.</td>
<td>300 kg</td>
<td>300 kg</td>
<td>300 kg</td>
</tr>
</tbody>
</table>

Note: On tractors where tyres with inner tubes provided with valves for water filling are fitted, the weight may be increased — according to the type type — by max. 2' 250 kg.
ELECTRICAL EQUIPMENT

The nominal voltage of the electrical equipment is 12 V. The standard version is provided with one storage battery of 150 cells placed in the housing on the right side underneath the floor (Fig. 31). The current source consists of an alternator 12 V, 25 A (Fig. 51) and a semiconductor governor (Fig. 49). The output of the electric system is 2.9 kW (Fig. 58).
SAFETY CAB (Fig. 32)

It prevents considerable dolomations upon tractor upon and protects the driver from a more serious injury. The cab is lased to the tractor body by means of four silent blocks with interlocking. The windows are of safety glass doors are provided with handles on either side which can be locked. Cab floor, overhanging above hydraulic power lift roof and mudguards are of noise suppressing type.

On LH cab side behind the windscreen (Fig. 31:1), a housing with storage battery is located. After unscrewing two nuts (Fig. 31:6), the cover with mudguard are tilted and the storage battery can be pulled out by its handle on the tilted housing cover.

Make's seat is located on the LH or RH mudguard clear to the driver. To facilitate the access to the driver's seat the make's seat can be tilted.

Front working headlamps are fitted on the cab roof (Fig. 32:1) and are controlled by a switch (Fig. 32:1) when illuminated. The illumination switch must be switched off (Fig. 33:9). The rear working headlamp is placed on the RH rear mudguard and is controlled by a switch from the driver's dashboard (Fig. 33:8).

The windscreen wiper is controlled by the switch (Fig. 33:7).

Fig. 32
Windscreen washer

The windscreen washer vessel which is located underneath the dashboard on the LH side, is accessible after removing the guard locked by two quick closing devices (Fig. 18, 31). The vessel capacity is 2.5 l. It is filled with water and in winter season with the liquid specified for windscreen washers. By pushing down washer control switch located on cab panel (Fig. 33, 12), the washer is started. Maximum washer pump load time is 20 sec.

Cab heating and ventilation

The heating is located together with ventilation in the cab ceiling panel. The heating is of warm-water type of approx. 4600 W output at 80° engine cooling liquid temperature. The heating control can be carried out by opening or closing water cock actuated by a lever on the cab panel (Fig. 33, 31). In the event of a complete water supply shut-off to the heating body, the heating works as a ventilation unit. Heated air is introduced into the cab by means of a ventilation unit consisting of two fans. Each fan can supply approx. 170 m³/h. The fans are controlled by the double-speed switch (Fig. 33, 4). Fresh air is sucked via air cleaners located in cab rear from part. The air cleaners are accessible after removing
decorative grill fitted by quick closing devices (Fig. 32.2).
Air can be directed to the cab space and to the windscreen by means of air blowers (Fig. 33.5) provided with lockable controls.

The illumination of the cab inner space is ensured by a cranking lamp where the switching on and off is controlled by turning the cover (guard) - (Fig. 33.6).

Radio receiver:

An automatic Tesla SPIDER 3210B B (Fig. 33.7) with loudspeakers (Fig. 32.6) can be fitted as an option onto the cab ceiling panel. In the case of a later fitting, it is necessary to proceed according to the automatic manufacturer instructions. A laminate antenna is fixed on the cab front column (Fig. 32.3).
GENERAL PRINCIPLES OF ZETOR TRACTOR OPERATION

A reliable tractor operation requires that the operator well acquainted not only with the technique of usage but also with correct principles of its operation and the use of a specific tractor model.

When operating the tractor in summer season, a special attention must be drawn particularly to:

1. The amount of cooling liquid in radiator and the cooling condition of overpressure valve tank. The temperature of cooling liquid may attain 105°C for a short time only. At a higher temperature, the overpressure valve opens and the cooling liquid escapes.

2. Air cleaner in dusty environment and clean it daily, if necessary.

3. Storage capacity, check the amount of electrolyte daily and add distilled water, if necessary.

How to prepare the tractor for travel:

Before starting to travel, make sure whether the tractor technical condition complies with the principles of a self-operated tractor. If a trailer is or an attached implement are involved, check their attachment and a proper load fixing. Then it is necessary to check the amount of:

- fuel in tank
- oil in engine
- coolant in radiator
- brake fluid

and by checking tightness of all joints (connections) and wheel not overheating.

- function of electrical equipment (lights, traction indicators, brake lights, windshield wipers, horn and indicator illumination)

If a trailer with pneumatic brakes is attached, check the compressor for connection. Before starting to travel, the minimum air pressure is to be 3.5 MPa. It is possible to attach only one trailer to one single-axle trailer to tractor whose weight does not exceed by two and a half the momentary tractor weight. Pressure in tyres which must correspond with the intended work with tractor.

- Start identifier engine because for their cleanness
After having performed the above checking operations, start the engine and check:
- steering condition (incl. steering wheel free travel which must not exceed 15°),
- function of instruments and pilot lamps,
- run the tractor for a short time and check operating and working brakes for efficiency.
All defects found remove at once and fill missing liquids to the specified level.

Starting the engine
Before starting the engine, make sure whether the tractor is duly braked and the gear shift lever of gearbox (ranges) as well as auxiliary drive is in neutral. The procedure in the following way:
- adjust the fuel supply to its maximum,
- insert the key into the switch box, turn it to the right into position 1 and the pilot lamp (red) of recharging and engine lubrication is on,
- depress clutch pedal to stop, whereby the start circuit breaker switch is switched on (without clutch depressing engine cannot be started).
- turn the key to the right into position „2 - START”.

ATTENTION
Never start the engine for more than 10 seconds! If the engine fails to start at once, turn the key back as far as the stop into position „0” and repeat starting once again, but as long as after 30. Never help the starting engine by means of the starter, otherwise you run a risk of damaging it.

Engine starting in winter season
If the ambient air temperature drops below 5°C, the engine starting can be assisted by pushing down a push-button for additional fuel supply on pump (Fig. 9.5) while observing the basic starting procedure.
Lest the coolant temperature has attained 45° do not increase engine speed above 2000 rpm. An artificial sudden speed increasing is not admissible. The engine must not be loaded unless the oil pressure records 0.25 MPa.
Engine warming-up by travel is not only quicker but also more economic than that on the spot at idle run of 750 to 800 rpm.”
Travel Technique

A relatively lightment of working (labour) tasks is also considerably facilitated by a correct and safe tractor operation. A correct driver's sitting position behind the steering wheel is a basic assumption of good travel. The driver's seat can be adjusted according to his weight and tallness in such a way that his left leg, after a full clutch pedal depressing, remains slightly bent in case of the adding fuel by his right leg, the pressure should be, left into the thigh muscle area. The steering wheel must be held with both hands, without violence and both arms are to be slightly bent.

Before starting to travel with a new tractor, make sure acquainted with the gear-shift diagram (Fig 33) and check individual positions of the gear shift lever with the engine at rest. When (gear) shifting individual gear ranges, use double clutch engagement.

Example: When shifting from lower to higher gear ratios (front land to third gear rate range), proceed as follows:

- depress clutch pedal simultaneously releasing fuel accelerator pedal,
- select gear shift lever in neutral at the same time,
- release clutch pedal (clutch is engaged),
- depress clutch pedal once again shift in a higher gear range,
- continuously release clutch pedal (clutch is engaged) and at the same time increase engine speed.

The ending of gear ranges from a higher to a lower gear range is to be carried out basically with inter-gas as follows:

- reduce engine speed by releasing fuel accelerator pedal, brake the tractor, if necessary,
- depress clutch pedal,
- displace gear shift lever in neutral,
- release clutch pedal and at the same time increase quickly engine speed (inter-gas), speed rate depends on tractor travel speed.

Do not forget:

when shifting to lower gear range upon going up the hill, add less inter-gas since tractor speed quickly drops. When going down the hill, add more inter-gas, since the tractor speed is increased! 
— Release quickly fuel accelerator pedal and depress again (release pedal).
— Shift to lower gear range.
— Release slowly clutch pedal upon simultaneous engine speed increasing in such a way to avoid lugging (pulling).

Note:
The choice of correct gear ranges is in a matter of experience and feeling and exposes a considerable influence on tractor life.
The gear shifting at reduced speeds is identical to that of road speeds but the preselector for reduced speeds (Fig. 10.12) can be shifted in when the tractor is at still stand only.

In order to find more exactly a suitable engine operating mode, a speedometer is used.

Attention:
If you run down a longer hill or slope shift in the lower gear range. The slope of the slope is. This lower gear range is to be shifted in as early as before going up the hill — if possible.

Remember:
The gear range in which you manage to go up the hill is also that to be shifted in to go safely down the hill.

Starting the tractor to travel.
Before connecting to trailer consider correctly the spot to start (terrain, slope etc.) and take also into account the tractor weight and particularly load of the tools carried by the trailer.
A very quick starting may cause a considerable stress on the drive mechanism and its possible damage, an increased fuel consumption and an excessive tire wear. Upon a quick starting just or almost stopping, a load displacement or even its damage may take place.
The gear with shifted-in gear range is to be used with a heavy trailer only when going up the slope and on a difficult terrain. On a plane and with the tractor itself start as a rule with 3rd gear range shifted in. After starting shift in — as soon as possible — higher gear ranges.

The use of too high drive mile depends on actual terrain and load conditions
ATTENTION:
Do not use light drive on loose or rough surfaces.
Prior to run the tractor, carry out consequently all operations as laid down in the chapter "How to prepare the tractor for travel" and then proceed as follows:
- select road or reduced gears,
- start the engine and adjust the speed to 750 - 800 rpm (1 - 1/2 times below 600 rpm).
- depress clutch pedal to half declutch.
- shift in suitable gear range for tractor travel and slightly increase engine speed.
- prepare parking (hand) brake for brake releasing.
release clutch pedal just until the moment of clutch engagement. In this moment: the tractor starts to travel. In order to obtain a continuous start to travel, stop releasing clutch pedal for a moment, then vary on continuously releasing the clutch pedal at a simultaneous speed increasing.
release completely parking (hand) brake.
- when traveling check regularly engine oiling mode (oiler), i.e. engine speed (rpm), lubrication, coolant temperature, air pressure, storage battery, charging and fuel level.
- I a trailer or load or other equipment are attached to the tractor, check regularly the luggage.
- when traveling in a curve do not use differential lock.

REMEMBER.
During all operations observe strict safety instructions!

Change of travel speed and tractor stopping
If you have to reduce the speed for any reasons, reduce fuel supply first by releasing throttle pedal. If necessary, shift to a lower gear range and utilize the maximum engine braking effect. This way of a slow speed reducing saves brake mechanism and ensures a high operating safety.
When traveling on a slope, the brake pedal must be latched. Thus a safe tractor motion at both rear wheels is ensured at the same time. Take care that the tractor does not get into slip in case of a sudden braking.
Under usual conditions stop the tractor slowly. Stretch...
before stopping decelerate completely the clutch pedal and displace the gear shift lever in neutral. Whenever stopping do not forget to lock the tractor (tractor combination) against a spontaneous starting to travel.

ENGINE OPERATING MODE (REGIME):

- Engine speed: operating: 2000 - 2200 rpm
  - at idle run: 750 - 830 rpm
- Oil pressure: operating: 52 - 0.5 MPa
  - at idle run: 0.35 MPa
- Coolant temperature: 80 - 95 °C
- Air pressure: min 0.45 MPa

If a trailer with pneumatic brakes is attached the correct pressure is 0.5-0.6 MPa.

Running-in the new tractor

Within the time of running-in the new tractor, observe carefully the following principles, otherwise you run a risk of damaging important components, particularly engine:

1. Observe all instructions for proper operation issued by the manufacturer in its Operators' Manual and especially check the filling of the engine lubricating and cooling system.

2. After engine starting check the lubricating circuit pressure level. In case of any failure stop immediately the engine and remove the failure.

3. Never warm-up the engine by a long-lasting engine idling run. Due to low temperatures an imperfect level combustion and an excessive carbon deposition in the combustion space take place. This carbon is very dangerous, causes the so-called engine pitching and particularly sealing piston ring sticking injector opening, clogging and valve seating in guides.

4. Allow the engine to run at 1000 rpm for about 2 min. Within that time check the vibration, it correct, storage battery, rectifying and other functions ensuring a correct (blue) tractor operation. Then shift to a low or reduced gear range (ratio) and the necessary engine warming-up is to be carried out as late as during the travel.
5. Tractor gradual running-in for first 70 EH (engine hours)

a) Tractor running-in is to be carried out for the first 5 to 10 engine hours with the drive train or with a mounted trailer without hydraulic pump engaged (switched off). Do not use the highest gear range and keep engine speed within the range of 1500-1600 rpm.

b) After 10 engine hours drive/warm-up 5 to 10 times in a clean vessel and allow it to stand for at least 2 hours (preferably overnight). Then drain all the oil carefully as to save mechanics, impurities on the vessel bottom and pour back pure oil into the grease-box. If necessary refill with new (best) oil of the same grade to the specified level. After that switch on hydraulic pump since then you may use hydraulic system without any restriction.

c) From 10 to 50 engine hours use tractor for transport with the encharged trailer and utilize its carrying capacity to full-on's. You may also use lighter agricultural machines, trailed and hitched, such as: cutter bars hay tedders, rotational fertiliser spreaders etc.

d) From 50 to 75 engine hours you may use all lighter agricultural machines except ploughs or cultivators for soil cultivation, crop culturers etc. where in all engine performance is needed. Keep, however, to the principle of not exceeding in length of lower gears in such a way that the engine is not overloaded. Engine speed must not, at a given gear ratio, drop below 2000 rpm.

e) After having run 70 engine hours, drain all oil from engine. Clean oil filter and fill the engine with a new (fresh) oil to the specified level.

f) From 70 to 200 engine hours you may carry out all agricultural works using recommended or approved agricultural machines. It is, however, necessary for the user to take care of the principle not to overload the engine and to prevent its overloading by using shifting-in to a lower gear ratio in such a way so as to maintain engine speed within the range of 2000 to 2200 rpm.

g) After 200 engine hours you may operate your tractor without any restriction.
ATTENTION:

Within the time of running in the tractor, observe the recommended engine operating mode (regime).

Check daily bolt connections (nuts), particularly those of tractor supporting parts. Draw your special attention to front axle brackets, rear axle wheel bolts, shift lever cable connections, to the flange with gear box and gear box main transmission housing, to the flanges of your bushings and pedals, to steering ball joints to wheel bolts, ballast weights etc. Remove immediately all features you may have found that preventing subsequent damages or even a risk of operation safely. This procedure is to be also observed after tractor running.

Tractor maintenance and attendance

A regular and duly carried out maintenance ensures trouble-free tractor operation. All operations of tractor maintenance are included in scheduled maintenance. The scheduled maintenance begins immediately after putting the tractor into operation. By a consistent maintenance, you prevent premature occurrence of possible technical failures, you assure a safe and reliable operation and extend the life of individual tractor components and parts.

A scheduled maintenance means:

Daily attendance:
- technical attendance 1, 2, 3 and 4
- technical attendance following tractor overhaul

Most of scheduled maintenance operations can be carried out by the tractor operator himself. If there is enough, sufficient technical equipment available, have more difficult operations carried out by a specialized workshop.

During all operations observe strict labour safety instructions!

Daily attendance (DO)

After each 8 to 10 tractor (engine) hours we recommend to carry out regularly:

1. If necessary clean the tractor and the implement used (wash with water)
2. Refill the fuel and check fuel system joints for their tightness
3 Check cooling system joints for tightness and refill missing coolant.
4 Lubrication system joints for tightness and refill as to the specified level.
5 Oil amount in air cleaner (Fig. 6-2) and - if necessary - clean the pre-cleaner from dust.
6 Fluid brakes for tightness and brake fluid for its amount. Check brake automatic system for tightness and tractor winch with trailer for efficiency.
7 Oil amount in power-assisted steering tank.
8 Condition and operation of electrics, equipment and accessories incl. storage battery.
9 Air pressure in front and rear tyres.
10 Steering rods, levers, front and rear wheel bolts and nuts for tightening.
11 Water pump drive and alternator belts tensioning (max. sagging 15 mm).
12 Condition of hitched and attached implements incl. trailer.
13 All failures found are immediately to be corrected and do not target to refill missing operating liquids and frosty outlets.

Technical attendance 1 (T0 1)

11 is performed regularly after each 100 engine hours or a fuel consumption of 500 l.
11 Carry out operations 1 to 13 and then proceed as follows.

Check:
15 Oil amount in petrol (Fig. 12-1).
16 Oil amount in gearbox (Fig. 10-5).
17 Oil amount in steering clamp or fork (between oil cleaner and radiator) on 2 6045 and 2 7045 only.
18 Oil amount in front axle housing and in wheel reducer on tractors 2 6045 and 2 7045 (Fig. 14' and 16').
19 Oil amount in steering box (Fig. 5.1)
20 Centrifugal oil filter drum rotor (if necessary clean it, Fig. 5.2).
21 Electrolyte level height in storage battery. Clean oxygenated cable clamps.
22 Power-assisted steering tank plug (Fig. 5.2)
23. When pump and alternator belt tensioning (mark as 15 mm).
24. Lubricate all pump by turning lubricator cover through 90°.
25. Lubricate clutch assembly sleeve and disengaging in-
    rod on pedal with oil (Fig 3/2).
26. Lubricate hand brake, PTO shaft and hand disengaging 
    one single-side roller hitch jawflex cable with some 
    oil dress.
27. Lubricate front axle bracket by means of lubricating 
    dress also wheel extensions (adapters), clutch dis-
    engagement shaft, pedals, three-point hitch RH struc-
    ture control link and power link tension nuts.
28. Perform attendance on air cleaner (based on manu-
    facturer's instructions) — (Fig 6/3).

Technical attendance 2 (TO 2)

1. Is carried out regularly after each 250 engine hours or a 
   fuel consumption of 150L.
29. Carry out operations 1 to 28 and then proceed as 
    follows:
30. Replace oil in engine suction pump and governor.
31. Clean carefully centrifugal oil filter. On section 5 oil 
    clean carefully (wash in petrol); filter elementos in oil 
    filter main and by-pass stage. Drain oil from the 
    indicator or pressure governor (Fig. 28/2).
32. Replace course fuel filter cartridge (Fig 28/5). 
33. Check clearance between clutch disengagement lever 
    and sleeve.
34. Check and if necessary set (adjust) hydraulic valves.

Technical attendance 3 (TO 3)

1. It is to be performed regularly after each 650 engine 
   hours or a fuel consumption of 300L.
35. Carry out operations 1 to 34 and then proceed as 
    follows:
36. Clean fine fuel filter cartridge (Fig. 28/6) and engine 
    oil pump suction strainer.
37. Lubricate safety clutch jaw hinges. If the tractor is 
    provided with a three-point RH strut controlled hid-
    power control line and over link tension nuts.
38. Clean the radiator once (washy) with pure water.
under pressure so as to wash out sediments. When using antifreeze mixture, replace it every two years by a new one.

39. Check valve clearance (on each engine, suction and exhaust). 0.75 ± 0.05 mm. If necessary, reground.

40. Check front wheel toe-in or toe-out and tapered roller bearing clearance of front wheel hubs. Relieve grease in front wheel hubs.

41. Check operation and if necessary adjust hand brake.

42. Check operation of driver's seat liquid damper.

**Technical attendance 4 (TO 4)**

1. Is to be carried out after each 1200 engine hours or a fuel consumption of 6000 l.

13. Carry out operations 1 to 42, then proceed as follows:

Replace:

43. Oil in steering box.

44. Oil in power-assisted steering circuit.

45. Oil in portals.

46. Oil in gearcase and main transmission housing.

47. Fine fuel filter cartridge (Fig. 28.61) and clean coarse fuel filter (Fig. 28.5).

48. Tire inflator hose, or compressor, when no pressure governor is fitted.

49. Clean hydraulic system suction strainers.

After each 2400 engine hours or a fuel consumption of 12000 l carry out besides TO 4 also the following operations:

52. Replace or file front drive axle housing as oil in possible joints and reducers.

51. Check and adjust steering play and steering wheel lever travel. [Must not exceed 15°]

52. Check and attend charging system incl. storage battery.

53. Reverse front wheel tyre coverings due to their possible wear.

Note: The operations as relevant to under 33. 34. 35. 40, 41, 51, 52, 53 and 61 and 52 require a more exacting technical equipment, knowledge and cannot be usually performed by an only operator. We recommend to have these operations carried out by a special service workshop.
## TECHNICAL ATTENDANCE TIME SCHEDULE

<table>
<thead>
<tr>
<th>Eh</th>
<th>10 No</th>
<th>200</th>
<th>600</th>
<th>1200</th>
<th>2400</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Operations carried out each:

- 1200 Eh
- 2000 Eh
- 6300 Eh
- 12300 Eh
- 24700 Eh

### Tractor overhaul (GO)

A tractor overhaul must be immediately carried out if a further operation is uneconomical, if the majority of tractor components and parts are liable to repair and the tractor condition of the tractor does not guarantee a safe operation.

According to the difficulty of operating conditions, an engine overhaul is to be carried out after 4000 engine hours and that of gearbox after 5000 engine hours. Tractor total life is about two overhauls, its time of operation being 7 to 9 years.

### Tractor technical attendance after overhaul

On tractor running-in carry out carefully daily attendance within operation range 1 to 13. After 10 engine hours draw oil from gearbox into a clean vessel, allow to stand for at least 7 hours and pour back. If necessary, refill to the specified level.

After 70 engine hours perform:

- Oil replacement in engine and injection pump
- Oil replacement in steering box
- Check:
- Oil filter for tightness (clear the filter)
- Oil amount in gearbox
- Fan belt: tensioning (max. seg 15 mm).
Technical attendance 1

It is to be performed after each 1,000 engine hours or a fuel consumption of 530 l.

Carry out operations 1 to 28 and then proceed as follows:

29. Clean fuel filters 1 and 2 (drain sediments from vessels).
30. Relighten cylinder head bolt nuts (tightening torque 167–177 Nm)
31. Adjust valve clearance for cold engine 0.25–2.05 mm.

Technical attendance 2

It is carried out after every 200 engine hours or a fuel consumption of 1,500 l.

Carry out operations 1 to 29 and proceed as follows:

32. Oil all grease points.
33. Oil self-acting steering.
34. Oil in gearbox.
35. Clean hydraulic system suction strainer.
36. Check driver's seat liquid damper for operation.

Technical attendance 3

It is performed each 600 engine hours or a fuel consumption of 3,000 l.

Carry out operations 1 to 42 and then proceed as follows:

43. Replace all in front drive axle housing incl. all in double joints and reducers. (Or ≤ 2045 mm ≤ 76151)

Further technical attendance must be carried out regularly as based on the specified extent of TO.
ATTENDANCE INSTRUCTIONS

Oil refilling and replacement in engine

Keep oil level in engine between bottom and top of dipstick gauge mark (Fig. 7-1); upon a scheduled oil replacement or engine drain oil immediately after roiling finished the operation when oil is still warm by unscrewing drain plug on engine housing bottom (Fig. 6-2). Clean drain plug from caught metallic particles. At the same time clean cartridge oil filter (Fig. 6-3). Oil pump suction strainer is to be cleaned during the third oil replacement 7 after 600 engine hours. Pour the specified amount of engine oil through filling hole (Fig. 5-2) then start the engine and allow it to run for 2 to 3 min at 750 to 800 rpm. After stopping the engine allow the oil level to set. Check oil amount by means of oil dipstick and if necessary refill up to gauge mark. Keep impeccably clean.

Centrifugal oil filter (Fig. 5-3)

After unscrewing the nut and removing the gasket, take out the entire part, unscrew the nut M 32 and separate rotating parts from each other. Clean carefully both mm and bottom part in petrol or Diesel oil and allow drying reassemble. When fitting oil filter rotor, oil gauge marks stamped on bottom and top filter part shall face each other not to disturb dynamo balance. The checking of lubrication pressure is ensured by a lubrication oil loss lamp (red); (Fig. 7-3).

Cleaning oil pump suction strainer

After draining oil to remove engine housing bottom guard disassemble oil pump suction strainer and clean it in petrol or Diesel oil. Fix a duly typed suction strainer back onto the pump. Test 1: against loosening and put bottom guard on engine housing suction it with sealing compound. Rethren firmly lining bolts.

Oil refilling and replacement in injection pump

To drain oil from plug (Fig. 8-2) or injection pump and governor is superfluous. Oil replacement is to be carried out parallel with oil replacement in engine housing. A checking plug (Fig. 8-6) gives oil level height.
Taking the tractor out of operation for a longer time, it is necessary to drain oil from injection system.

**Brakes and their bleeding**

It is necessary to maintain brake fluid level in tank (Fig. 13.1) within the range of minimum filling and drop of about 10 mm. During the manipulation with brake fluid, keep a perfect cleanliness.

If the brake pedal is flexible within its whole course, the brake system is full of air and must be bled.

**Brake fluid refilling and bleeding**

1. Equalize bowl (tank) with brake fluid and remove rubber cap (Fig. 34.1) from the brake cylinder bleeding screw. Slide the rubber cap onto the bleeding screw and immerse its other end into a transparent bowl partially filled with brake fluid. Then open the bleeding screw (plug), depress completely brake pedal and tighten the bleeding screw. Pedal may be released as late as after 5 bulb screw tightening. Repeat the same procedure as long as brake fluid free of air bubbles starts escaping from the hole.

Take care to refill the bowl as high as possible and to keep the bowl end immersed in fluid. The same operation.

---

Fig 34
on ; to be carried out on the other wheel too. Bleeding must be performed with pedal's disconnected. Each wheel separately. During the bleeding operation follow the fluid amount in bowl to prevent an suction. Refill now fresh fluid only! The above operations shall be carried out with a helper.

Note: For better access to the RH bleeding screw (plug) we recommend to remove the guard of hydraulic system control lever.

Hand brake checking and adjustment

First: make sure whether lever pins of hand brake band are in basic bracket guard position. In the case that the pin are not in the basic position, adjust them. At the same time it is necessary to have hand brake ever in an unbroken position.

Adjust correct hand brake efficiency in the following way:

1. Unscrew the bolt, screw hand guard (Fig. 31:2) and turn the guard.
2. Pull hand brake lever until it fits into mouth of hand tool.
3. Loosen lock nut (Fig. 31:2) and re-tighten hand brake onto brake drum by means of a bottom nut.
4. Lock brake band by an adjusting nut from brake guard back onto fire by pull.
5. This is to be carried out in the same way also on the other hand brake band. Check the brake for efficiency!

Clearance adjusting in front wheel taper roller bearings

This is to be performed on tractors without front axle only.

1. Unscrew bearing cover (Fig. 32:8) and remove the split pin.
2. Tighten castle nut by tightening torque of 15 Nm.
3. Loosen castle nut through 180° and loosen the bearings by means of wooden hammer knock on wheel hub.
4. Relighten castle nut by torque spanner by a tightening torque of 3-5 Nm in such a way that its cleat matches any opening in the press. The wheel must turn freely but also without resistance and humming.
5. Lock castle nut by split pin and screw on front wheel bearing cover.

Note: Adjust the other wheel in the same way. Front side must be lifted.
Sprung extension (adapter) modification (Fig. 35-2)

In order to prevent sprung extension (adapter) spring damage when working with latches provided with a handle etc., the extensions (adapters) may be locked by means of a stop. The modification of the sprung extension to the latched cone is to be performed as follows:

1. Unscrew base coat cover screws and remove the latches (Fig. 35-3).
2. Check whether there is a groove in the locking connection being operated and the extension body opening and adjust, if necessary, to correct position by compressing or lightening the lock.
3. Slide in a locking insertion into extension body openings. The innermost part must fit into the locking connection groove.
4. Slide in flexible insertions into locking insertion cavity.
5. Put on cover latches with gaskets and retighten by means of bolts. It is necessary to overcome the resistance of the flexible insertion.

When disassembling locking insertions the threaded part of M 25 x 1.5 may be used which is screwed into locking insertion inner thread.

Fig. 35
Front wheel track change

According to the type of work performed, the front wheel track on tractors Z 5011, Z 6011 and Z 7011 can be changed (modified) in the following way:

1. Lift front axle (by jack) and support it.
2. Unscrew front axle extension bolt nuts and remove the bolts (Fig. 35.1).
3. Unscrew the nut of the steering connecting rod and take out the rod.
4. Pull out the extensions to the required track and lock them by bolts and nuts. When using tyres 6.50-18 1280; 1375; 1750 mm. When using tyres 7.50-16: 1430, 1555, 1805 mm.
5. Screw on and lock the bolts on the steering connecting rod.
6. Check front wheels for toeing-in.

Rear wheel track change

On all tractors as referred to in the present Manual, rear track can be changed (modified). On tractor Z 5011 with standard tyres 12.4R18 rear wheel track can be adjusted into seven positions within the range of 1350 mm to 1800 mm. On tractors Z 6011 to Z 7045 with standard tyres 14.9R16 (6.9 R 16.8) rear wheel track can be adjusted into six different positions within the range of 1425 mm to 1803 mm. The adjustment of individual tracks is carried out by a combined assembly change of rims and disk (Fig. 36).

![Fig. 36](image)

The track change shall be carried out with a lifted tractor rear part so that the wheels can freely turn. Prior to lifting do not forget to lock the tractor against movement by wedging-up front wheels. Do not tighten all bolts. Bolts connecting the disk with the rim by the tightening torque of 160-180 Nm nuts connecting the riser with the shell by the tightening torque of 250-470 Nm.
To avoid a quick and asymmetric wear of front tyres, a straight front wheel toe-in and toe-out must be ensured. On tractor Z 5011, Z 6011 and Z 7011 the front wheel toe-in varies within the range of 6 ± 3 mm. On tractor Z 6645 and Z 7045 the front wheel toe-out varies within the range of 12 to 15 mm.

Adjusting procedure:
1. Loosen lock nuts on either steering connecting rod joint hub (Fig. 14/2).
2. By turning connecting rod central part (Fig. 14/3) set the specified toe-in (toe-out) — being measured on rim side.
3. Tighten lock nuts — joint hub upper surfaces must be parallel!

Hydraulic power lift attendance

Keep a perfect cleanliness when replacing oil in hydraulic power lift system. Hydraulic system filling is common with gearbox and main transmission housing. Filling hole is inclosed on gearbox guard (Fig. 10/3).

After 60 working hours of hydraulic system operation clean hydraulic system magnetic clearer (filter) located on hydraulic system guard. For an easier access we recommend to lift the driver's seat. Disassembling and cleaning magnetic filter is to be carried out in the following way:
1. Unscrew the nut from the hydraulic system guard.
2. Slide nut with magnet and strainer upwards.
3. Shove strainer (with magnet) down from magnet and wash a pure Diesel oil. Wash off impurities from the magnet.
4. The assembly of the magnetic filter is to be carried out in the reverse way.

Note: At least once a year remove hydraulic system belt guard and rinse (wash) pump strainer with Diesel oil.

Alternator maintenance

The alternator (Fig. 5/4) does not practically need any maintenance when in operation, it is, however, necessary to prevent penetration of water or Diesel oil pump wash.
my and tractor cleaning into alternator. Moreover observe the following instructions:

1. The storage battery must always be connected by its "minus" pole to the earth and by its "plus" pole to the alternator. An adversely connected storage battery may damage the whole semi-conductor equipment or even the alternator. Alternator cannot be re-excited.

2. When using an auxiliary storage battery for tractor starting, do not forget to connect its outlets to "plus" and "minus" respectively.

3. If replacing a part of charging circuit, disconnect the storage battery. Thus vacuum semi-circuits on alternator or governor terminals are eliminated.

4. During operation the storage battery must not be disconnected!

5. Never put into operation a "non-loaded" alternator, i.e. with a wire disconnected from terminal "B" and a connected terminal "M". This condition could induce, at an increased speed, an extraordinary high alternator voltage which would damage semi-conductors.


7. Alternator must not be additionally excited. In the case of such an intervention a damage of the semi-conductors would take place.

8. Take care of a perfect electrical connection on connecting terminais and of a perfect earthling both of alternator and governor.

9. A burn charging pilot lamp must be replaced at once, otherwise no proper alternator excitation can be ensured.

10. When repairing the tractor by electric arc welding, all wires must be disconnected from the alternator. The wire "Z-3" shall be protected from a short-circuit.

Storage battery maintenance and attendance

The storage battery requires a special attention, particularly in summer season when an increased evaporation takes place. A checking of a correct fastening, a perfect connection, its cleanliness and electrolyte amount are to be carried out in summer every fortnight, in the oldest in winter every 4 weeks. Electrolyte is to be refilled with...
distilled water only in such a way as that its level is at the height of 3 mm above separators. Refilling must be always performed before tractor travel so that a proper mixing with electrolyte takes place. Electrolyte density must be kept at 1.28, which complies with 32° Be (or Topics 1.23, i.e. 27 Be).

Electrolyte can be refilled only when it has obviously been poured out.

ATTENTION:
Electrolyte may freeze in a discharged storage battery in winter and thus damage the battery. Never allow the storage battery to be left in a discharged condition.

Tyre maintenance and attendance

To inflate tyres use tyre inflator (Fig. 329). In the case pneumatic brakes or torque multiplex are fitted, a pressure governor is mounted instead of tyre inflator; functioning as a pressure equalizer, tyre inflator and relief valve. During tyre inflating the wing nut of pressure governor is unscrewed and a hose for tire inflating is fitted instead. The hose is to be screwed into the threaded ends in such a way so that the return valve is compressed. The tyre cannot be inflated in the moment of opening drain valve of pressure governor but as late as the pres-
sure in the system drops below 0.6 MPa and the discharge valve is closed. After inflating has finished, the wing nut must be screwed on again.

**Tyre filling with liquid**

Although it is possible to fill rear tires by using an ordinary valve, the tire tubes are provided with a special valve. When inflating thin tires a gravity tank may be used (Fig. 37b) or the filling can be carried out with water under pressure (Fig. 37b).

Preparation of filling solution in winter:
1. Anhydrous calcium chloride CaCl₂ is added to water, never inversely.
2. Solution is not dangerous but it is necessary to proceed carefully. Spilled drops are to be washed with water at once.

<table>
<thead>
<tr>
<th>Water for solution</th>
<th>preparation in litres</th>
<th>Calcium chloride</th>
<th>CaCl₂ in kg</th>
<th>Hydrated lime in kg</th>
<th>Calcium nitrate</th>
<th>Total volume in litres</th>
<th>Additional weight in kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>45</td>
<td>1.8</td>
<td>0.21</td>
<td>1.13</td>
<td>-18</td>
<td>30</td>
<td>86</td>
<td>37</td>
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<tr>
<td>45</td>
<td>3.6</td>
<td>0.23</td>
<td>1.10</td>
<td>-25</td>
<td>30</td>
<td>86</td>
<td>39</td>
</tr>
<tr>
<td>45</td>
<td>5.4</td>
<td>0.25</td>
<td>1.21</td>
<td>-30</td>
<td>56</td>
<td>86</td>
<td>61</td>
</tr>
</tbody>
</table>
Max. weight of liquid used in rear tyres in kg

<table>
<thead>
<tr>
<th>12.4/11.28</th>
<th>12.4/11.32</th>
<th>12.4/11.28</th>
<th>13.0/12.36</th>
<th>14.9/13.28</th>
</tr>
</thead>
<tbody>
<tr>
<td>2x125</td>
<td>2x140</td>
<td>2x150</td>
<td>2x190</td>
<td>2x215</td>
</tr>
</tbody>
</table>

5. Prior to filling allow the solution to cool. Keep to the specified amount of hydrated lime.
6. The solution must not come into contact with metallic parts and electrical equipment. It is, however, not harmful to the tube valve.

5. Anti-freeze solution prepared in the following composition must not be used for radiator!

Filling procedure:
1. By tilting the tractor lighter, the tyre and turn it with its valve upwards.
2. Drain air completely and unscrew valve air part.
3. Screw on water valve with air extension on which liquid hose is slid. Fill the tube with the specified amount of liquid.
4. Remove the hose and unscrew rear valve with air extension.
5. Screw on valve air part and inflate the tyre to the specified pressure.
6. After inflating screw a protective cap on the valve.
7. Proceed in the same way with the other tyre.

Procedure of liquid draining from tyres:

1. By tilting the tractor lighter, the tyre.
2. Unscrew tube valve air part. ATTENTION! When unscrewing valve air part, some liquid is splashed out. Since under pressure may be produced in tyre during liquid draining, it is necessary to turn the wheel from time to time so that the valve gets to the upper position and then turn the wheel back again so that the valve returns to its bottom position.
### Carrying Capacity of Tyres Used

<table>
<thead>
<tr>
<th>Tyre designations</th>
<th>ply</th>
<th>160</th>
<th>170</th>
<th>180</th>
<th>210</th>
<th>275</th>
<th>300</th>
<th>325</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.00-16</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>745</td>
<td></td>
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<tr>
<td>6.50-16</td>
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<td></td>
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<td>615</td>
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<td>7.50-16</td>
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<td>9.50-32</td>
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<td></td>
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<td>1365</td>
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<td>11.2-19-24</td>
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<td></td>
<td></td>
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<td>12.4-11-24</td>
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<td></td>
<td></td>
<td></td>
<td>1200</td>
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<tr>
<td>14.9-11-28 V</td>
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<td>15.9-11-32 V</td>
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<td>16.9-11-36 V</td>
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<td>1045</td>
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</tr>
<tr>
<td>18.9-11-36 V</td>
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</tr>
<tr>
<td>18.9-13-35 V</td>
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<td></td>
<td></td>
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<tr>
<td>16.9-14-30 V</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td>2985</td>
</tr>
</tbody>
</table>

**Note:**
- Tyres equipped with trailer implements the steering axle carrying capacity may be increased by 35%. The steering axle can accept a capacity of 1.5 times the specified capacity of the tractor.
- Ensure that the tractor is on a firm, level surface.
- Before checking the tire pressure, allow the tires to cool for 2 hours.
- Check the tire pressure with a tire pressure gauge.
- Set the tire pressure to the recommended pressure.

**Procedure:**
1. Remove the tire valve stem cap.
2. Attach a tire pressure gauge to the valve stem.
3. Read the tire pressure and compare it to the recommended pressure.
4. Adjust the tire pressure as needed.
5. Reinstall the tire valve stem cap.

**Carrying Capacity of Tyres Used:**

- Tyre carrying capacity (kPa)
- Tyre inflation (kPa)
When working with light loaders, the crowning capacity of steering tyres may be increased by 130% and that of drive wheels by 50% at max. tractor speed of 6 km/h and tire inflating increased by 25%.

Tyre sizes designated with "V" are supplied with tyre tubes provided with valves for water filling.
### Operating liquids used (l/hrs)

<table>
<thead>
<tr>
<th>Denomination</th>
<th>Sort</th>
<th>ZS011</th>
<th>Z001</th>
<th>Z005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine coolant (dilute with distilled water 5-15)</td>
<td>Friese Stofeno</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel</td>
<td>Distilled oil</td>
<td>70</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>Average fuel consumption</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engine oil</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gearbox and main transmission housing oil</td>
<td>SAF 20 W/30</td>
<td>9</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Oil amount when working in certain on 12 stage and when using hydraulics</td>
<td>SAF 80</td>
<td>19</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>equipment increases</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final transmission oil</td>
<td>SAF 60</td>
<td>25</td>
<td>32</td>
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</tr>
<tr>
<td>Steering box</td>
<td>SAF 80</td>
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<td>Brake fluid</td>
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<td>Air cleaner</td>
<td>SAE 20 W/30</td>
<td>1.2</td>
<td>1.3</td>
<td></td>
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<tr>
<td>Steering damper</td>
<td>SAF 80</td>
<td></td>
<td>0.6</td>
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<tr>
<td>Power assisted steering</td>
<td>CI N2</td>
<td></td>
<td>4.4</td>
<td></td>
</tr>
<tr>
<td>Front wheel planetary reducers</td>
<td>SAF 80</td>
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<td>2×0.5</td>
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<tr>
<td>Front drive axle housing</td>
<td>SAE 80</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Gearbox and main transmission housing on tractors</td>
<td></td>
<td></td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>with front drive axle</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
### Tractor Lubrication Chart

<table>
<thead>
<tr>
<th>Ser. No.</th>
<th>Lubrication point</th>
<th>Operation (No. of lubrication points)</th>
<th>Lubricant sort</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cub door hinges</td>
<td>2400 EH</td>
<td>P:4 QL - N2</td>
</tr>
<tr>
<td>2</td>
<td>Air cleaner</td>
<td>700 EH</td>
<td>K1 V:1 SAE 20 W:30</td>
</tr>
<tr>
<td>3</td>
<td>Clutch disengagement shaft</td>
<td>100 EH</td>
<td>P:4 Litol 24</td>
</tr>
<tr>
<td>4</td>
<td>Driver's seat liquid damper</td>
<td>500 EH</td>
<td>K Litol 24</td>
</tr>
<tr>
<td>5</td>
<td>Front axle brecker</td>
<td>100 EH</td>
<td>P:2 Litol 24</td>
</tr>
<tr>
<td>6</td>
<td>Hand brake, PTO clutch hand disengaging and single-axle trailer hitch control Bowden cable</td>
<td>200 EH</td>
<td>P:1 SAE 80</td>
</tr>
<tr>
<td>7</td>
<td>Engine</td>
<td>2000 EH</td>
<td>K1 V:1 SAE 20 W:30</td>
</tr>
<tr>
<td>8</td>
<td>Front wheels links</td>
<td>500 EH</td>
<td>V:1 Litol 24</td>
</tr>
<tr>
<td>9</td>
<td>Wheel educators (extensions)</td>
<td>100 EH</td>
<td>P:4 Litol 24</td>
</tr>
<tr>
<td>10</td>
<td>Steering wheel sleeve</td>
<td>500 EH</td>
<td>P:1 Litol 24</td>
</tr>
<tr>
<td>11</td>
<td>Pedals</td>
<td>500 EH</td>
<td>P:3 Litol 24</td>
</tr>
<tr>
<td>12</td>
<td>Power-assisted steering</td>
<td>500 EH</td>
<td>K1 V:1 V:1 QL - N2</td>
</tr>
<tr>
<td>13</td>
<td>Pto controls</td>
<td>500 EH</td>
<td>V:2 SAE 80</td>
</tr>
<tr>
<td>14</td>
<td>Gearbox and main transmission housing</td>
<td>100 EH</td>
<td>K1 V:1 V:1 SAE 80</td>
</tr>
<tr>
<td>15</td>
<td>Front axle axle reducers</td>
<td>500 EH</td>
<td>K2 V:2 SAE 80</td>
</tr>
<tr>
<td>16</td>
<td>Front axle axle housing</td>
<td>500 EH</td>
<td>K1 V:1 V:1 SAE 80</td>
</tr>
<tr>
<td>17</td>
<td>Steering box</td>
<td>500 EH</td>
<td>V:1 SAE 80</td>
</tr>
<tr>
<td>18</td>
<td>Steering damper</td>
<td>500 EH</td>
<td>V:1 damper oil</td>
</tr>
<tr>
<td>19</td>
<td>Power control shutoff</td>
<td>500 EH</td>
<td>K1 V:1 Litol 24</td>
</tr>
<tr>
<td>20</td>
<td>Injection pump with governor</td>
<td>500 EH</td>
<td>K1 V:1 SAE 20 W:30</td>
</tr>
<tr>
<td>21</td>
<td>Water pump</td>
<td>500 EH</td>
<td>P:1 Litol 24</td>
</tr>
<tr>
<td>22</td>
<td>Three-point hitch RH: strut</td>
<td>500 EH</td>
<td>P:1 Litol 24</td>
</tr>
<tr>
<td>23</td>
<td>Struts - tension nuts</td>
<td>500 EH</td>
<td>P:1 Litol 24</td>
</tr>
<tr>
<td>24</td>
<td>Lower link RH strut control telescopic shaft</td>
<td>500 EH</td>
<td>P:1 Litol 24</td>
</tr>
</tbody>
</table>

**Note:** Operations designated (marked) with *are carried out during new tractor running-in or after tractor overhaul.

**Abbreviations.**
- D = lubricant refill
- P = lubrication
- K = inspection (checking)
- V = replacement
1 - Dashboard connection with switch-actuator box
2 - Warning lamp connection for check indicator
3 - Handlebars connection for voltage regulator
4 - Dashboard connection with steering lock
5 - Front combined stop light connection with cab and without cab for export

REG - regulating relay
PTO - PTO clutch hand operating switch
C - circuit breaker
RB - hand brake switch
MZ - assembly jacket

Attention: Plug-in socket connections may be connected and disconnected without electrical consumer switches only. Any manipulation with the semi-automatic governor must be carried out with the engine at rest and with the disconnected storage battery.