Approved
Y4R 2026-16 BE-LU

BULLETIN

BELARUS TRACTORS

3522-0000025 OM
Operational Manual

Q-ty of sheets 4
Sheet 1

GROUND: VK OP 3500-892

Bulletin Y4R 2026-16	TRACTOR MODEL	3522 with Weichai WP10HG360E302 engine

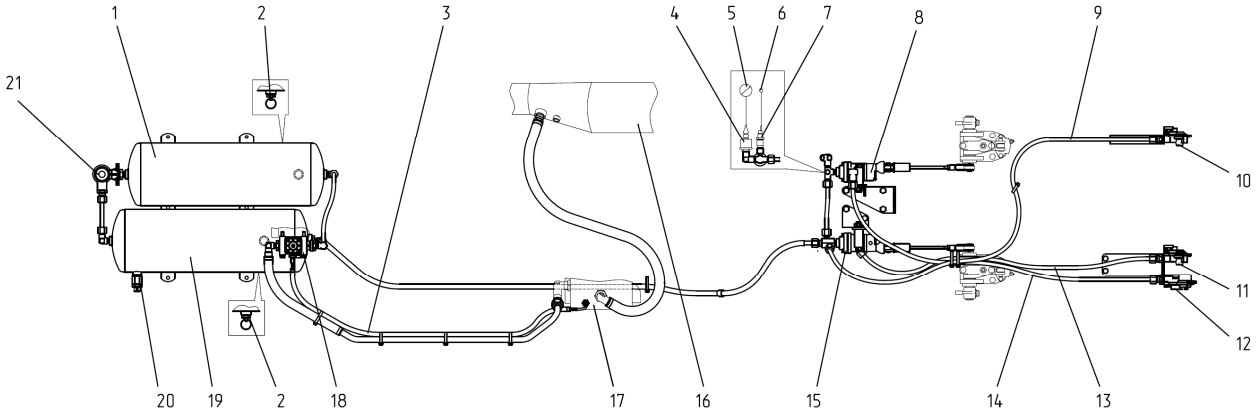
Abstract

In this operational bulletin, subsection 3.10 "Pneumatic system" provides information related to the design change of the pneumatic system at the installation location of the air cylinders and the pressure regulator.

Content of changes

Section 3 "Description and operation of tractor components", subsection 3.10 "Pneumatic system", clause 3.10.1 "General information on pneumatic drive of the BELARUS-3522 tractor" shall be restated in a new version:

The BELARUS-3522 tractors are equipped with a combined pneumatic drive, which provides control of the brakes of trailers and agricultural machines equipped with both single-line and double-line pneumatic brake drives, as well as tire inflation. The arrangement of elements of the BELARUS-3522 tractors combined pneumatic drive is shown in Figure 3.10.1. The basic pneumatic diagram of the the BELARUS-3522 tractors combined pneumatic drive of the trailer brakes is shown in Figure 3.10.2.



1, 19 – cylinders; 2 – condensate removal valves; 3 – compressor idle/running switch line; 4 – air pressure sensor; 5 – air pressure indicator 6 – emergency air pressure signal lamp; 7 – демergency air pressure sensor; 8 – brake valve (single-line); 9 – supply line; 10 – coupling head (double-line); 11 – coupling head (double-line); 12 – coupling head (single-line); 13 – control line; 14 – connecting line; 15 – brake valve (double-line); 16 – engine intake manifold; 17 – compressor; 18 – pressure regulator; 20 – air bleed valve; 21 – pressure limiting valve

Figure 3.10.1 – Arrangement of elements of combined pneumatic drive of trailer brakes of BELARUS-3522 tractors

ATTENTION: BEFORE CONNECTING OR DISCONNECTING THE TRACTOR AND TRAILER AIR LINES, ENGAGE THE PARKING BRAKE! CONNECTION OF THE TRACTOR AND TRAILER AIR LINES MUST BE PERFORMED IN THE ABSENCE OF PRESSURE IN THE TRACTOR AIR SYSTEM!

ATTENTION: ADJUSTMENT OF THE BRAKING SYSTEM AND THE BRAKE DRIVE OF THE TRACTOR, AS WELL AS TROUBLESHOOTING, MUST BE CARRIED OUT WITH THE ENGINE OFF AND WITH THE TRACTOR IN A HORIZONTAL POSITION, WHICH MUST BE FIXED WITH ANTI-ROLL CHAMPS PLACED UNDER THE WHEELS TO PREVENT THE SPONTANEOUS MOVEMENT OF THE TRACTOR!

When connecting a trailer with a single-line pneumatic drive, connect the trailer coupling head to coupling head 12 (black) (Figure 3.10.1) and air enters the pneumatic drive of the trailer. When the brake pedals are pressed or the parking brake is applied, compressed air exits the connecting line 14 into the atmosphere through the brake valve 8.

The air distributor on the trailer is activated, supplying compressed air from the trailer cyl-inders to the brake chambers, and the trailer is braked.

Direct control of the brakes is achieved due to drop of pressure in the connecting line from 14 to 0 MPa when the tractor is braking. In this case, the supply of compressed air to the trailer pneumatic system is stopped.

Automatic brake control (automatic braking) is carried out in the event of a break in the coupling and detachment of the trailer due to a drop in pressure in the trailer's connecting line.

When connecting a trailer with a double-line pneumatic drive, the trailer coupling heads are connected to coupling heads 10 (with a red cap) and 11 (with a yellow cap), i.e. to supply line 9 and to control line 13. In this case, compressed air is constantly supplied to the trailer through supply line 9. When the brake pedals are pressed or the parking brake is applied, compressed air is supplied to the trailer through brake valve 15 and control line 13. The air distributor on the trailer is activated, supplying compressed air from the trailer cylinder to the brake cham-bers, and the trailer is braked.

Direct control of the brakes is carried out by setting the pressure in the control line 13 within the range from 0.65 to 0.8 MPa when braking the tractor. The supply line 9 re-mains under pressure and the supply of compressed air to the pneumatic system of the trailer is maintained.

Automatic brake control (automatic braking) is carried out in the event of a break in the coupling and detachment of the trailer due to a drop in pressure in the trailer supply line.

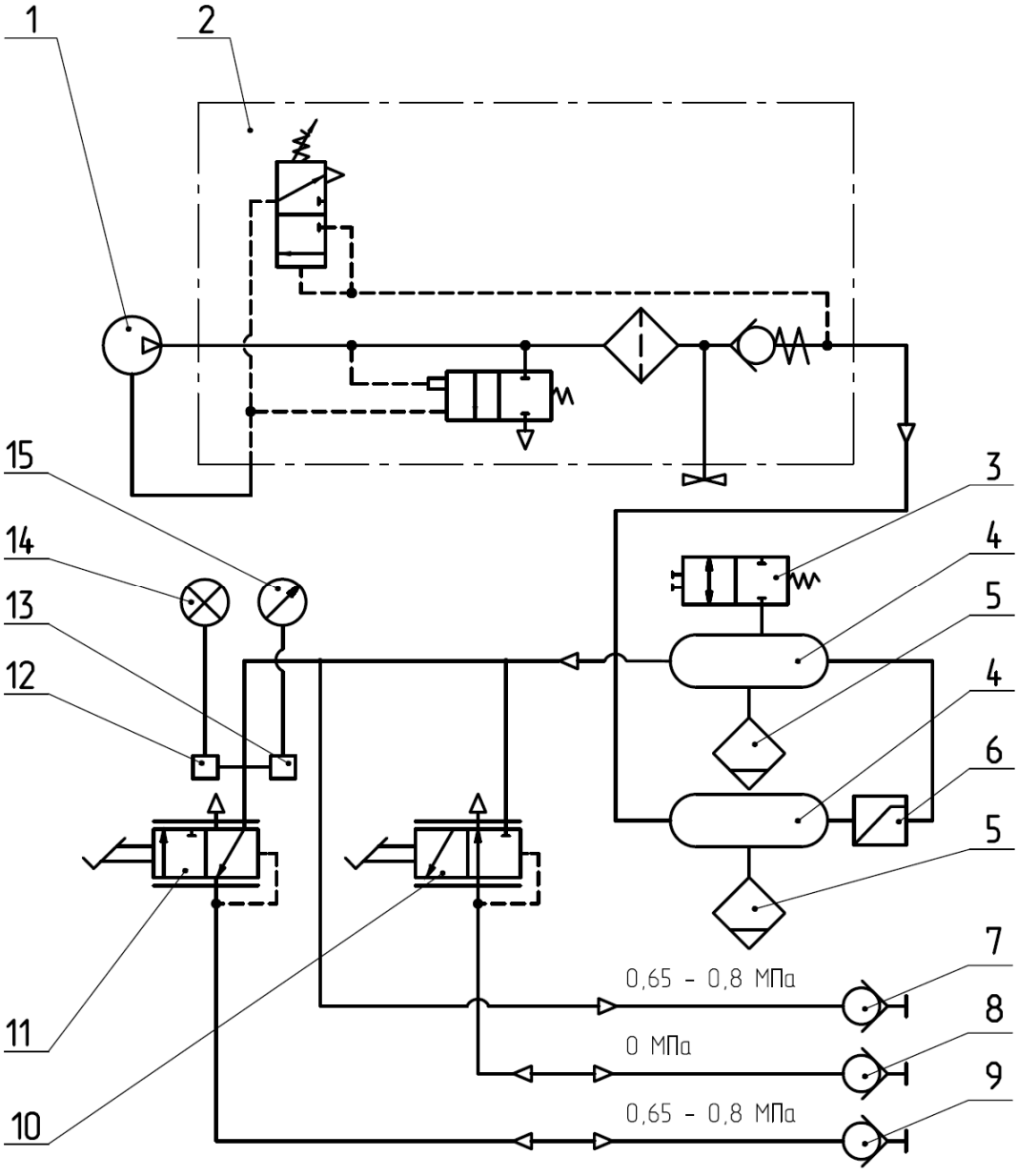
Switching compressor 17 for idle speed and for pumping air into the cylinders is carried out automatically using the pressure regulator 18 through the switching line 3. Pressure regulator 18 maintains the pressure in cylinder 1 from 0.81 to 0.95 MPa, after which the pressure limiting valve 21 reduces and maintains the pressure in cylinder 19 from 0.65 to 0.8 MPa.

At the end of the connecting lines, valve-type connecting heads 10, 11, 12 are in-stalled. The valves of the connecting heads prevent the release of compressed air when using the pneumatic drive without a trailer (for example, when inflating tires). When con-necting the brake lines of the trailer with the brake lines 9, 13, 14 of the tractor, the valves of the connecting heads open, ensuring the passage of compressed air from the pneu-matic drive of the tractor to the trailer. In this case, the connection of the pneumatic lines must be made in the absence of pressure in the cylinders 1, 19 of the tractor.

The air pressure in cylinders 1, 19 is monitored by the air pressure indicator 5 and the red air pressure emergency signal lamp 6 (installed on the instrument panel), by the air pressure sensor 4 and the emergency air pressure sensor 7, respectively.

To remove condensate from cylinders 1, 19 condensate removal valves 2 are provided. Condensate removal is performed by deflecting the pusher ring to the side and upwards.

Air take-off from pneumatic drive (for inflating tires, etc.) is carried out through the air bleed valve 20.



1 – compressor; 2 – pressure regulator; 3 – air bleed valve; 4 – cylinder; 5 – condensate drain valve; 6 – pressure limiting valve; 7 – supply line coupling head (with red cap); 8 – control line coupling head (with yellow cap); 9 – coupling head (with black cap); 10 – кbrake valve (double-line); 11 – brake valve (single-line); 12 – emergency pressure sensor; 13 – pressure sensor; 14 – emergency pressure signal lamp; 15 –pressure indicator

Figure 3.10.2 – Schematic pneumatic diagram of the combined pneumatic drive of the trailer brakes of BELARUS-3522 tractor