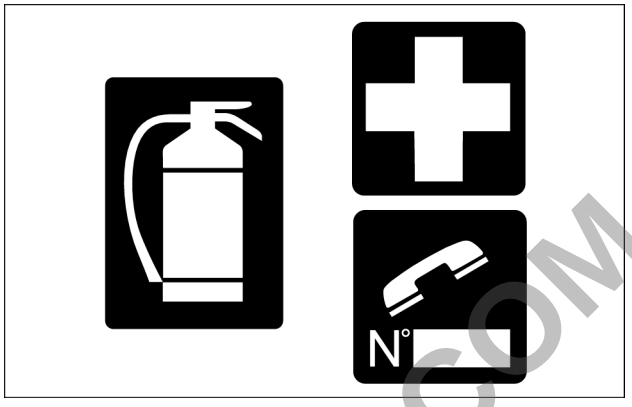
## Emergency

Be prepared for emergencies. Always keep a fire extinguisher and first aid kit readily available. Ensure that the fire extinguisher is serviced in accordance with the manufacturer's instructions.




SMIL12WEX0174AA 3

## Equipment

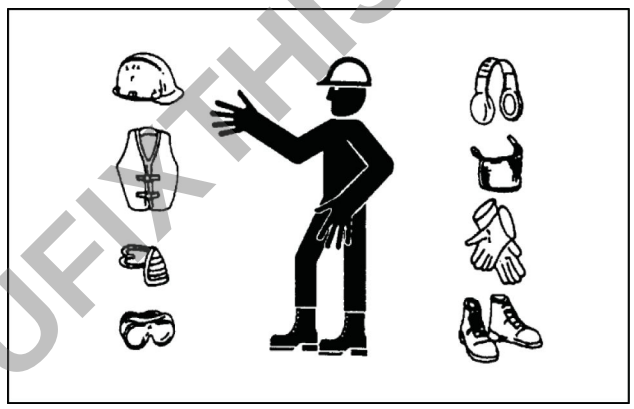
Wear close fitting clothing and safety equipment appropriate for the job:

- Safety helmet
- Safety shoes
- Heavy gloves
- Reflective clothing
- Wet weather clothing

If working conditions require, the following personal safety equipment should be on hand:

- Respirators (or dust proof masks)
- Ear plugs or acoustic ears protections
- Goggles with lateral shield or masks for eyes protection

Do not wear rings, wristwatches, jewels, unbuttoned or flapping clothing such as ties, torn clothes, scarves, open jackets or shirts with open zips which could get caught into moving parts.



TULI12WEX2008AA 4

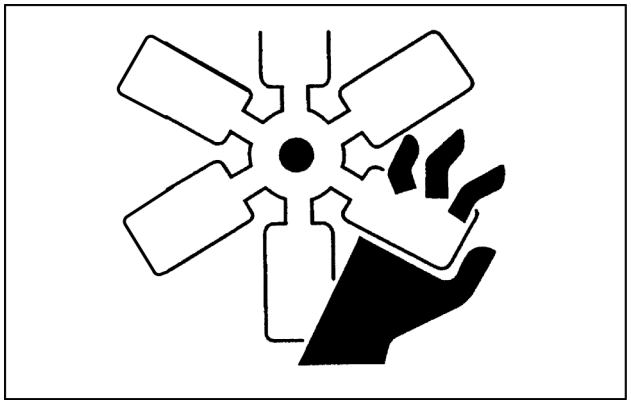
## Engine - Radiator

Never leave the engine running in enclosed spaces without proper ventilation which is able to evacuate toxic exhaust gases- Keep the exhaust manifold and tube free from combustible materials.

Do not refuel with the engine running, especially if hot, as this increases fire hazard in case of fuel spillage.

Never attempt to check or adjust the belts when the engine is running.

Never lubricate the machine with the engine running.



TULI12WEX2009AA 5

PREVIEW - YOUFIXTHIS.COM



Download full manual at youfixthis.com

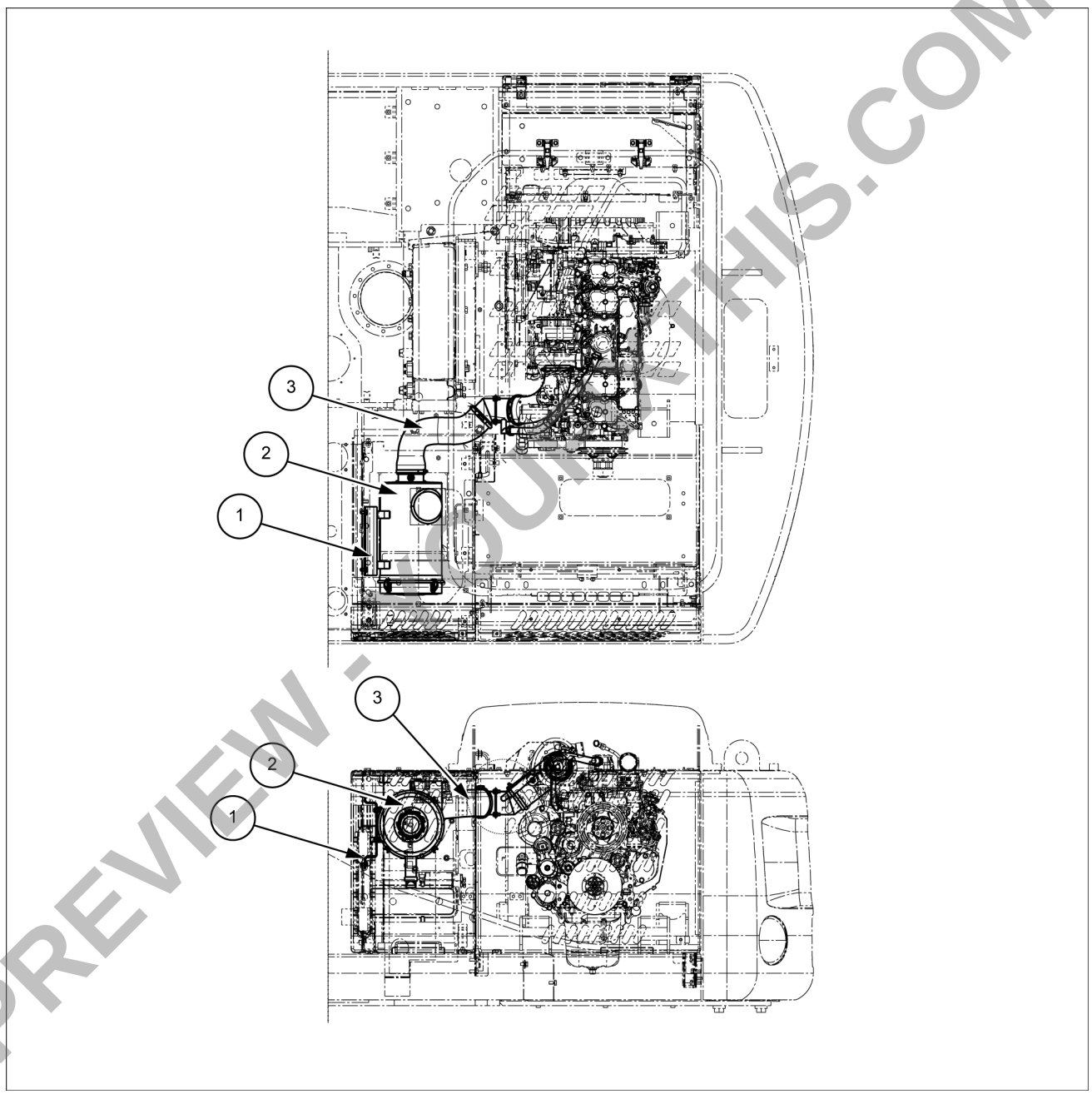
# Air cleaners and lines - Static description

| | |
|---|---|
| WE170B | APAC --- MEA --- WE |

The support **(1)** attaches the air cleaner **(2)** to the frame of the machine.

The air cleaner **(2)** filters the intake air of the engine.

The filtered air flows into the hose **(3)**.




SMIL14WEX0226GB 1

PREVIEW - FIXTHIS.COM

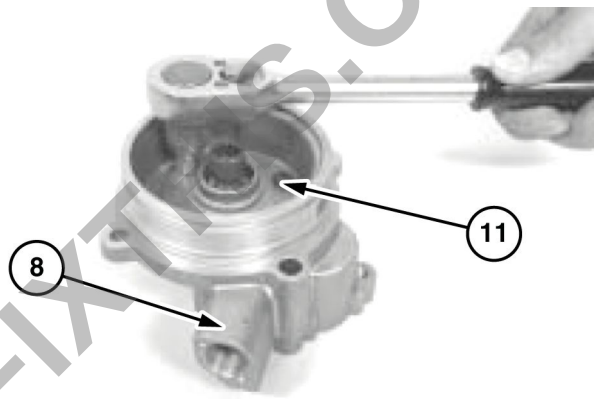

Download full manual at youfixthis.com

Remove the pressure valve **(9)** and both O-rings **(10)** (see the arrows in figure).
Discard both O-rings.



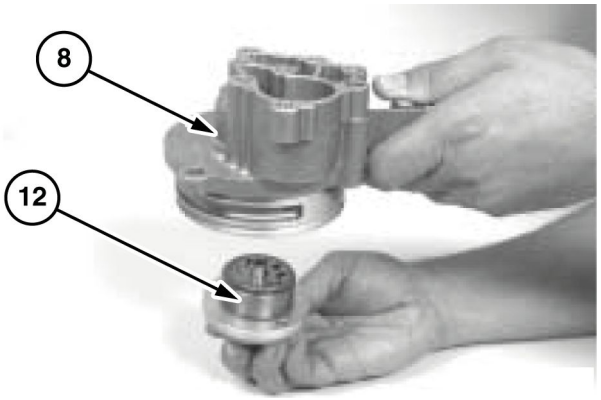

TUPH12WEX3309AB 5

Remove the screws **(11)** that fix the transmission lubrication pump on the housing **(8)**.



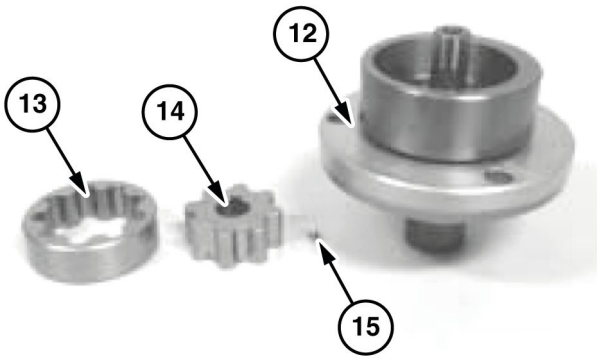

TUPH12WEX3310AB 6

Keep pump in contact with the housing **(8)** and rotate it (180°), then remove the transmission lubrication pump **(12)**. Pay attention to possible release of balls and compression springs.




TUPH12WEX3311AB 7

Remove the inner parts of the transmission lubrication pump **(12)**: Outer rotor **(13)**, internal rotor **(14)** and ball **(15)**.



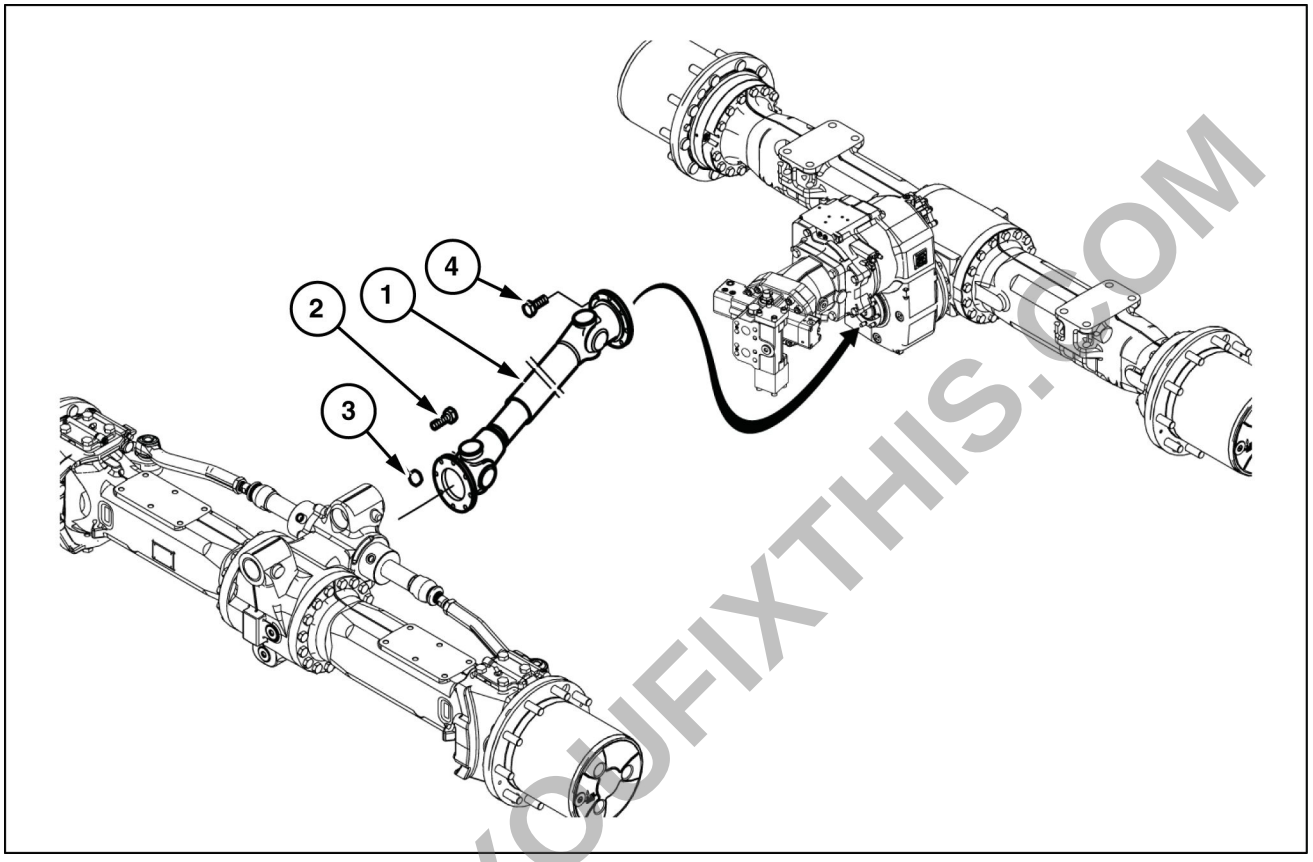

TUPH12WEX3312AB 8

PREVIEW - YOUFIXTHIS.COM


Download full manual at youfixthis.com

# Drive shaft - Exploded view – Single drive shaft

## (Version 20 km/h (12.43 mph))




TULI12WEX3224FB 1

1. Drive shaft
2. Screw
3. Nut
4. Screw

PREVIEW - YOUFIXTHIS.COM


Download full manual at youfixthis.com

## Parking brake disengagement in emergency

If the transmission is locked due to a failure or a pressure drop that does not let to disengage the parking brake, act manually on parking brake emergency release valve to tow the machine and repair the failure.

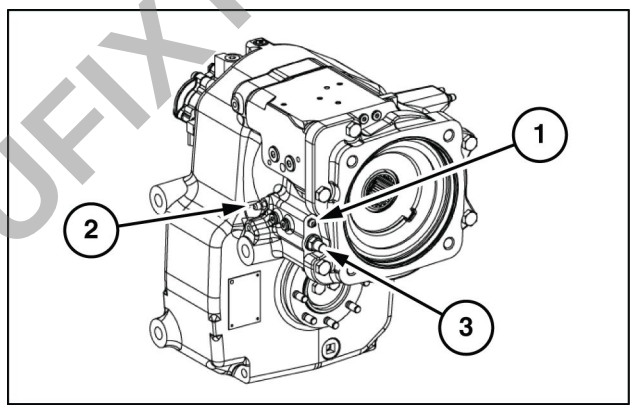
### ⚠ WARNING

**Loss of control hazard!**
**DO NOT exceed maximum road speed when towing the machine. See machine decal for maximum road speed. Use caution when making turns.**
**Failure to comply could result in death or serious injury.**

**W0105A**

***NOTE:*** *Refer to* ***Parking lock relief valve - Disassemble (33.110)*** *and* ***Parking lock relief valve - Assemble (33.110)*** *for the removal and installation of the parking brake emergency release valve and to* ***Hydraulic systems - Static description (35.000)*** *for the transmission operation.*

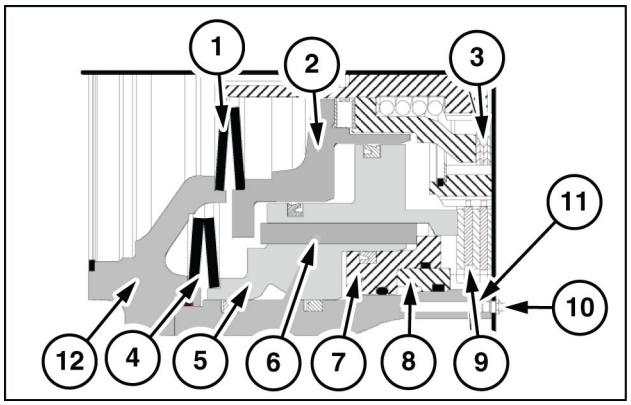
In emergency, pump grease into the nipple **(1)** until it comes visible out of the pressure relief valve **(3)**. To deactivate the emergency actuation, open the bleeder valve **(2)** and shift into the road speed (apply a control pressure of **30 - 35 bar** (**435 - 508 psi**) at the connection of the brake).




TULI12WEX2426AB 3

The figures that follow shown the transmission with emergency actuation deactivated and with emergency actuation activated.

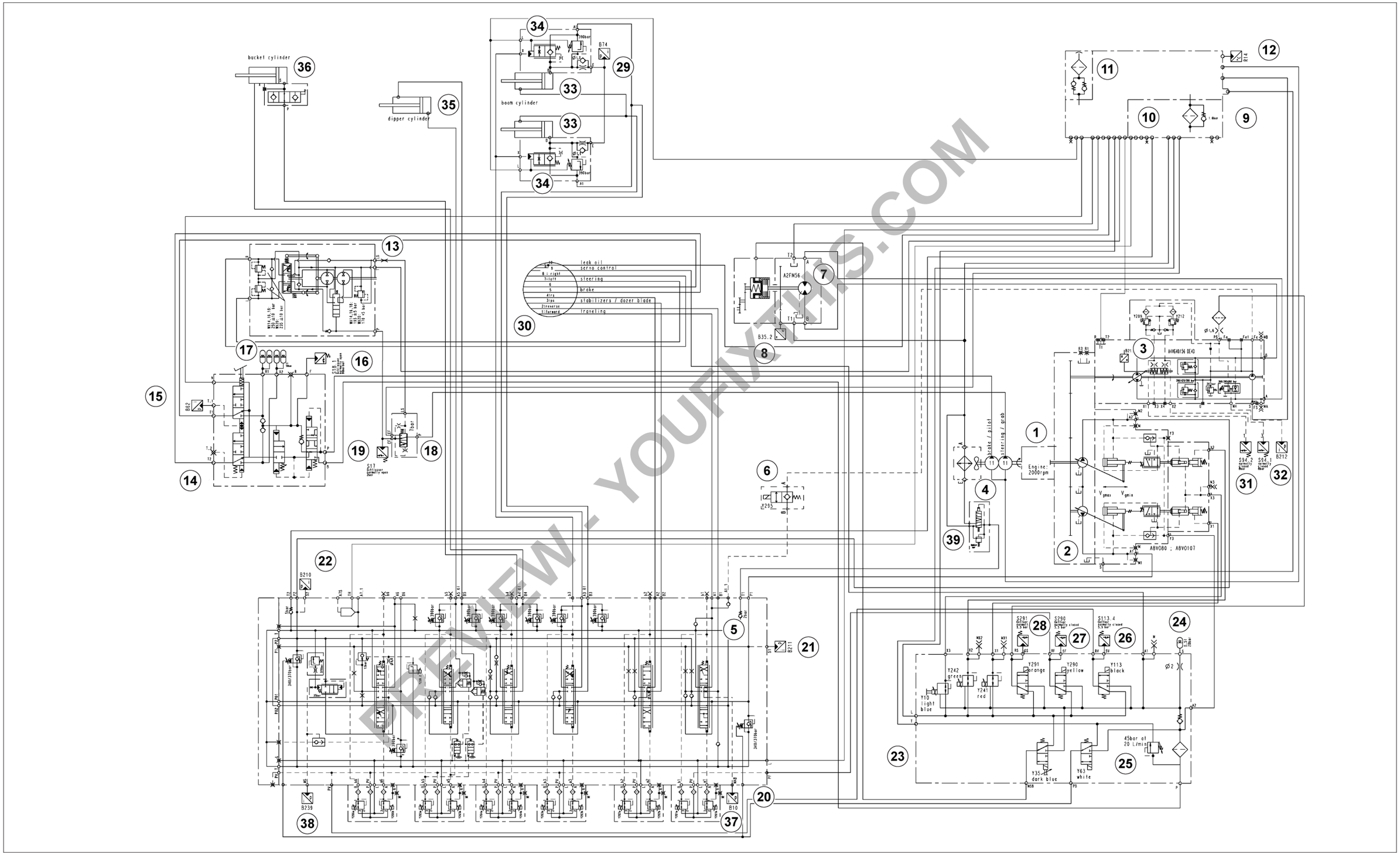
1. Clutch cup springs
2. Clutch piston
3. Clutch disks set
4. Brake cup springs
5. Brake piston
6. Pin
7. Pressure ring for the emergency actuation
8. Ring for the emergency actuation
9. Brake disks set
10. Grease
11. Grease nipple
12. Transmission housing




TULI12WEX2427AB 4

PREVIEW - YOUFIXTHIS.COM


Download full manual at youfixthis.com



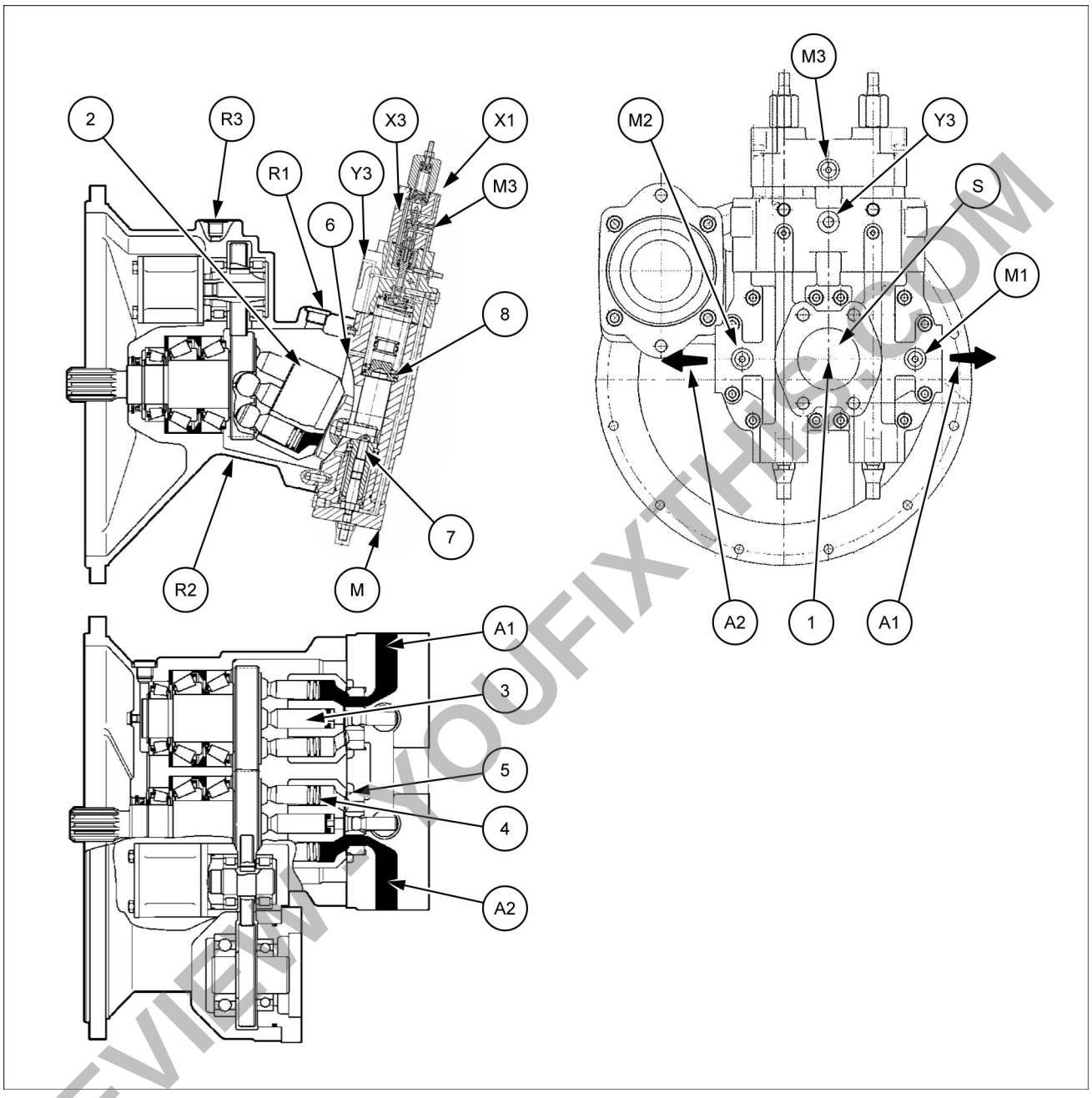

SMIL12WEX0235JB 1

YOUFIXTHIS.COM
PREVIEW - YOU



Download full manual at youfixthis.com

# Variable displacement pump - Dynamic description




SMIL12WEX0238GB 1

1. Suction connection (S)
2. Axial piston cylinder
3. Central pin
4. Spring pack
5. Control plate
6. Control plate gliding track
7. Drive pin
8. Positioning piston

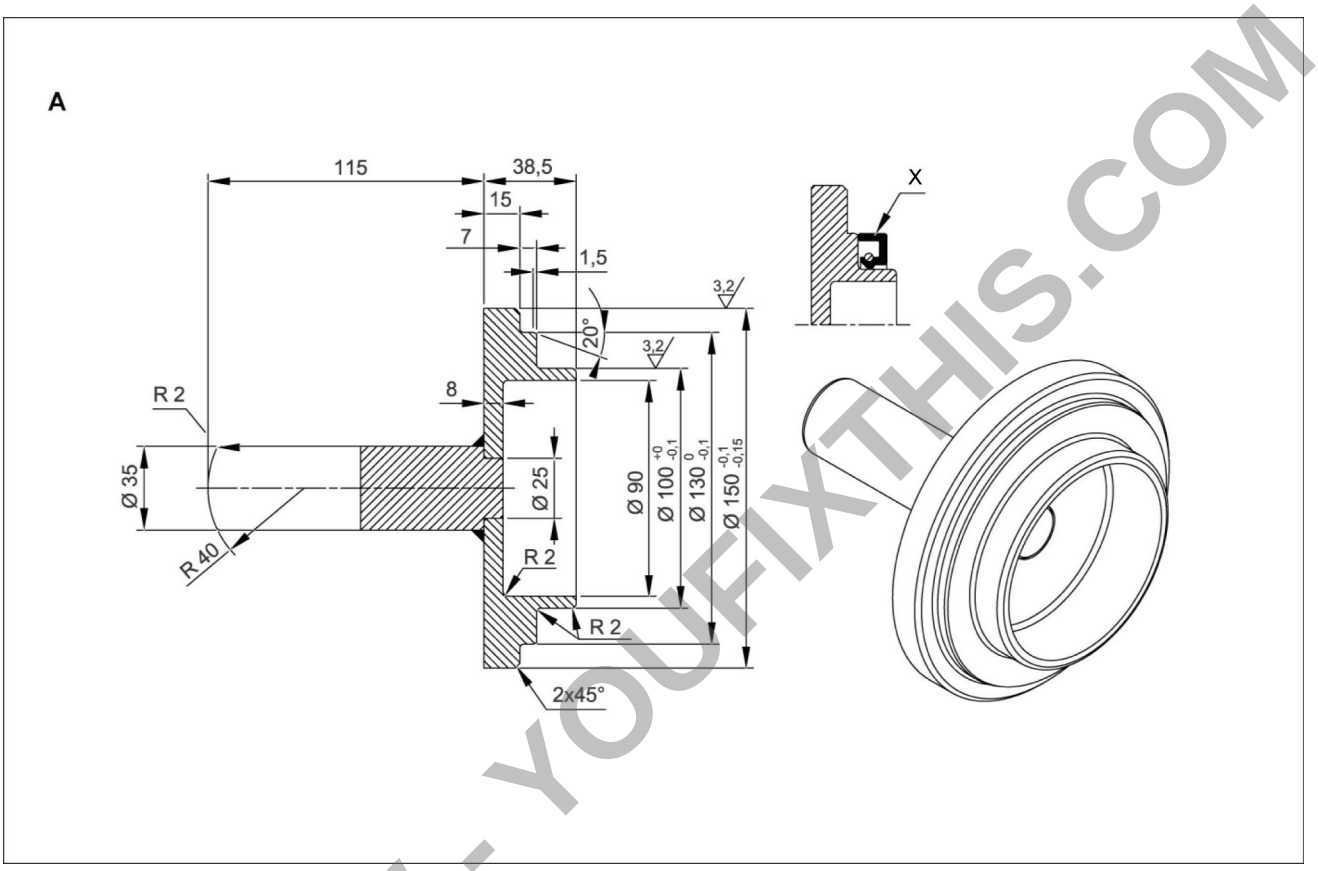
| | |
|---|---|
| A1 | Pump P1 delivery connection |
| A2 | Pump P2 delivery connection |
| S | Suction port |
| R1, R3 | Bleed port |
| R2 | Oil draining |
| X1 | Load-sensing pressure ports |
| X3 | Control pressure for load-limit regulator |
| Y3 | Pilot control pressure |
| M | Measuring point for control chamber |
| M1, M2 | Gauge port |
| M3 | Gauge port for power override |

PREVIEW BY YOUFIXTHIS.COM


Download full manual at youfixthis.com

# Hydraulic swing system - Special tools

| Code | Tool | Operation |
|---|---|---|
| A | Buffer | Seal ring installation |
| B | Buffer | Removal of bearing |
| C | Bushing | Removal of bearing |
| D | Torque multiplier | Tightening/loosening of ring nut |



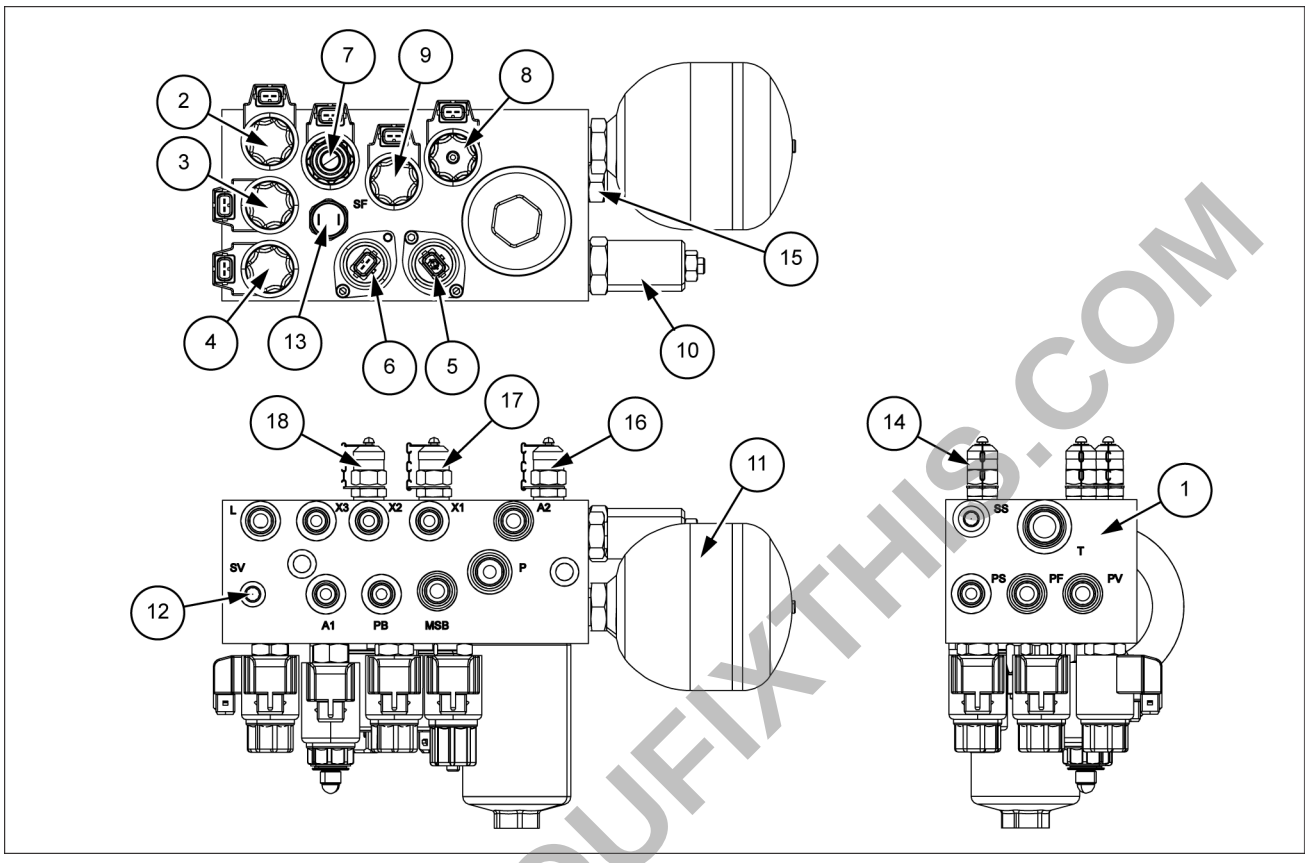

SMIL13WEX0185FB 1

- X shows the correct assembly of the seal ring.

PREVIEW - YOUFIXTHIS.COM


Download full manual at youfixthis.com

# Pilot system - Static description




SMIL12WEX0324FA 1

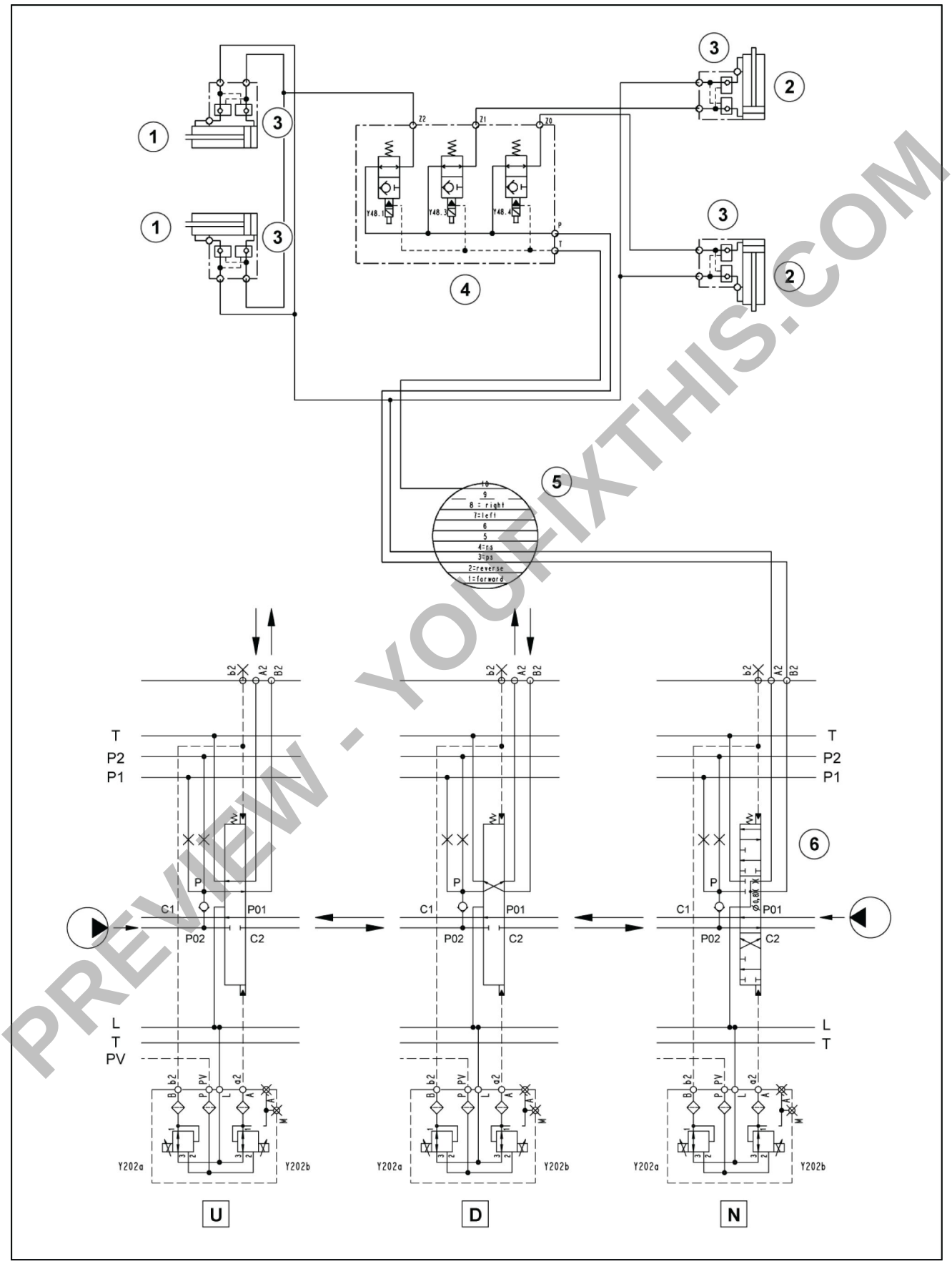
1. Pilot control assembly
2. Electro-valve Y113 - pilot control pressure
3. Electro-valve Y290 - travel pilot control pressure
4. Electro-valve Y291 - slewing pilot control pressure
5. Proportional electro-valve Y241 - pump P1 regulator control
6. Proportional electro-valve Y242 - pump P2 regulator control
7. Proportional electro-valve Y10 - load limit adjustment
8. Electro-valve Y35 - slewing brake control
9. Electro-valve Y63 - power boost control
10. Pressure relief valve
11. Accumulator
12. Pressure sensor S113.4 - pilot control activation
13. Pressure sensor S290 - travel pilot control
14. Pressure sensor S291 - slewing pilot control
15. Check valve
16. Pressure port - Piloting
17. Flow demand pump P1 ( MX1)
18. Flow demand pump P2 ( MX2)

***NOTE:*** *Refer to upper structure and undercarriage hydraulic schemes shown in this section to observe the hydraulic connections of pilot control assembly.*

PREVIEW - YOUFIXTHIS.COM


Download full manual at youfixthis.com

# Stabilizer hydraulic system - Hydraulic schema




TULI12WEX2774HA 1

PREVIEW - YOUFIXTHIS.COM



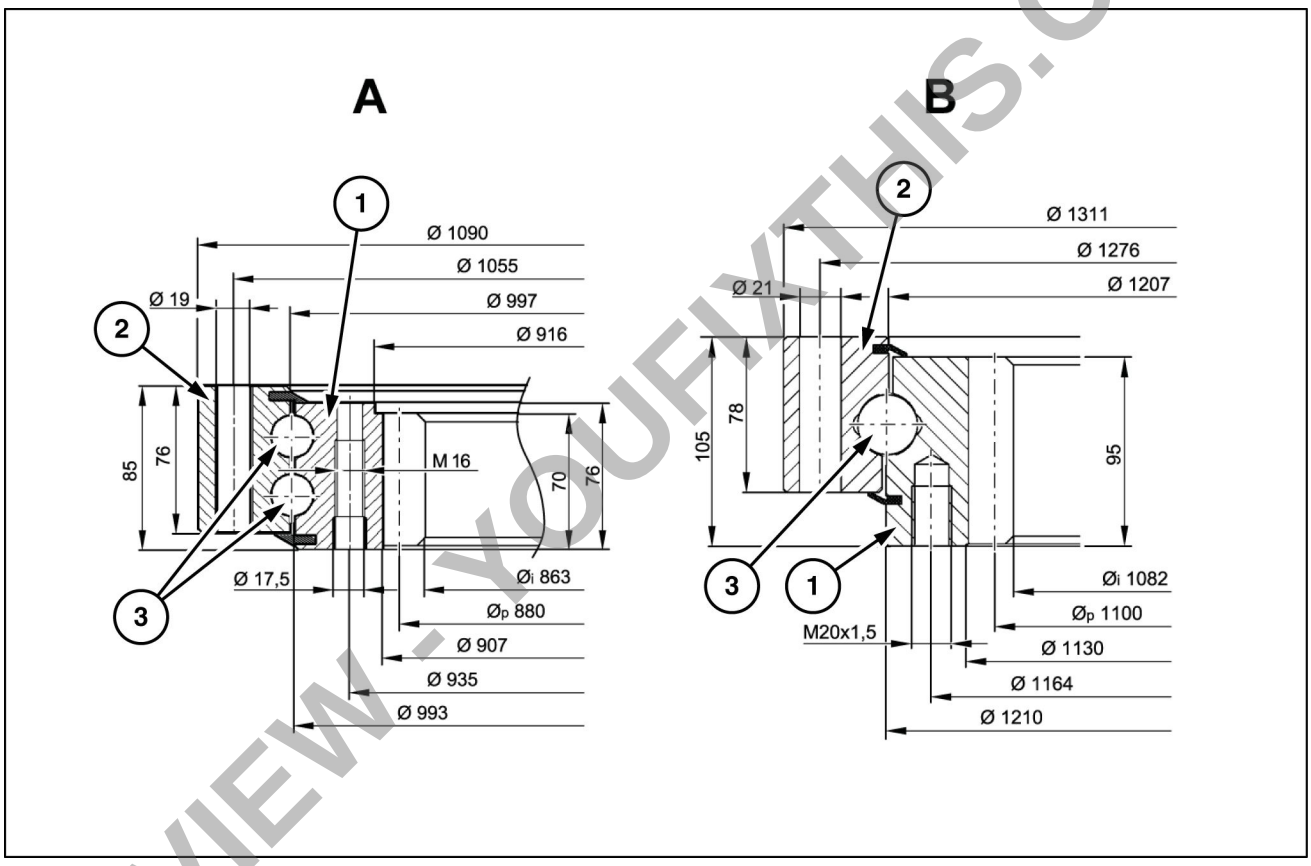
Download full manual at youfixthis.com

# Swing bearing - General specification

The slewing bearing consists of an external ring **(2)** integral with the upper structure, an internal ring **(1)** integral to undercarriage and a series of balls **(3)**, double on models WE170B (A), single on model WE190B (B).

The pinion of the slewing gearbox, controlled by the rotation motor by means of the gears of the gearbox itself, rotates around its own axis and makes a revolution around the centre of the internal ring of the slewing bearing, thus enabling the upper structure to rotate independently from the undercarriage.

| | WE170B (A) | WE190B (B) |
|---|---|---|
| Module | 10 | 10 |
| Number of teeth | 88 | 110 |
| Pressure angle | **20 °C** (**68 °F**) | **25 °C** (**77 °F**) |
| Weight | **180 kg** (**397 lb**) | **244 kg** (**538 lb**) |

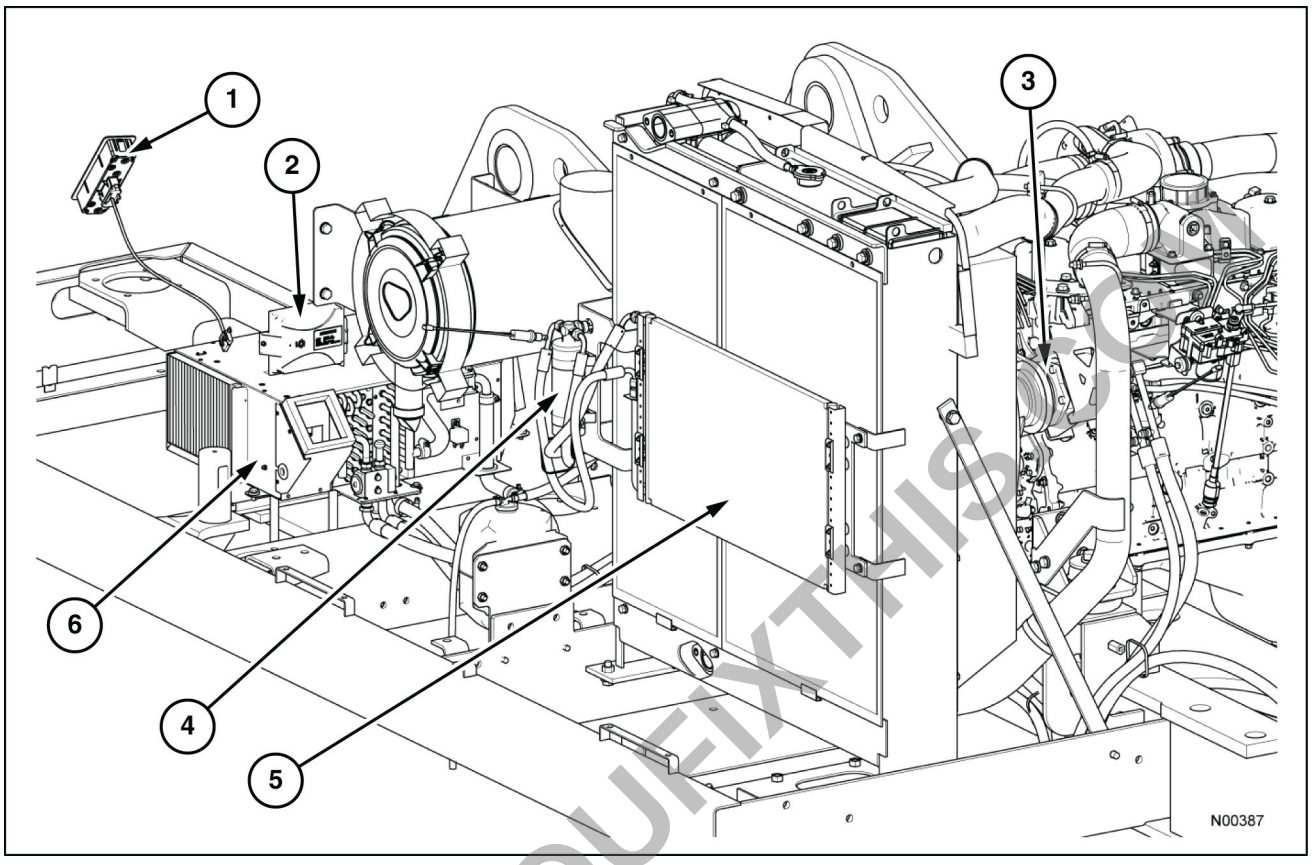



TULI12WEX2059FB 1

PREVIEW - YOUFIXTHIS.COM


Download full manual at youfixthis.com

# Air conditioning - General specification




TULI12WEX2113FB 1

1. Air-conditioning control panel
2. Control unit
3. Compressor
4. Dryer
5. Condenser
6. Box climate unit ATC

Quantity of **R134A** gas: **820 g** (**28.92 oz**).

Air-conditioning system consists of a control panel located in cabin **(1)**, a conditioning control module **(2)**, a compressor **(3)** located near the engine, a dryer **(4)** and a condenser **(5)** installed close to the radiator assy.

Refer to Operator's Manual for operation of air-conditioning system.

PREVIEW - YOUFIXTHIS.COM


Download full manual at youfixthis.com

# Contents

## Electrical systems - 55


[55.000] Electrical system ..... 55.1

[55.010] Fuel injection system ..... 55.2

[55.011] Fuel tank system ..... 55.3

[55.012] Engine cooling system ..... 55.4

[55.014] Engine intake and exhaust system ..... 55.5

[55.015] Engine control system ..... 55.6

[55.020] Transmission speed sensors ..... 55.7

[55.036] Hydraulic system control ..... 55.8

[55.050] Heating, Ventilation, and Air-Conditioning (HVAC) control system ..... 55.9

[55.100] Harnesses and connectors ..... 55.10

[55.110] Electrical rotary joint ..... 55.11

[55.302] Battery ..... 55.12

[55.404] External lighting ..... 55.13

[55.416] Swing control system ..... 55.14

[55.425] Boom, dipper, and bucket control system ..... 55.15

[55.512] Cab controls ..... 55.16

[55.514] Cab lighting ..... 55.17

[55.525] Cab engine controls ..... 55.18


PREVIEW - YOUFIXTHIS.COM



Download full manual at youfixthis.com

# Electrical system - Service instruction - Diagnostic codes

**Diagnostic codes series 7000**

| Diagnostic code | Component involved | Light color on display | Description |
|---|---|---|---|
| 7000 | Pressure switch S12 | Red | Low engine oil pressure or defect to pressure switch S12 |
| 7001 | Pressure switch S17 | Red | Low oil pressure in steering system or defect to pressure switch S17 |
| 7002 | Pressure switch S18.1 | Red | Low oil pressure in brake valve or defect to pressure switch S18.1 |
| 7010 | Alternator G1 Sensor B10.1 | Red | Battery charge control of alternator G1 with engine Off or engine speed control with engine On |
| 7011 | VDO Motor M10 | Yellow | Calibration of VDO Motor M10 not performed |
| 7013 | Sensor S15.1 | Yellow | Air filter contaminated or defect to sensor S15.1 |
| 7021 | Alternator G1 | Yellow | Battery charge control of alternator G1 with engine On |

**Diagnostic codes series 8000**

| Diagnostic code | Component involved | Light color on display | Description |
|---|---|---|---|
| 8000 | Sensor B13.1 | Yellow | Open load on temperature sensor of coolant |
| 8002 | Sensor R14 | Yellow | Open load on temperature sensor of hydraulic oil |
| 8003 | Sensor B13.1 | Yellow | Short circuit on temperature sensor of coolant |
| 8005 | Sensor R14 | Yellow | Short circuit on temperature sensor of hydraulic oil |
| 8006 | Sensor B13.1 | Yellow | Warning of coolant over temperature |
| 8007 | Sensor B13.1 | Red | Coolant over temperature |
| 8008 | Sensor R14 | Yellow | Warning of hydraulic oil over temperature |
| 8009 | Sensor R14 | Yellow | Hydraulic oil over temperature |

**Diagnostic codes series 9000**

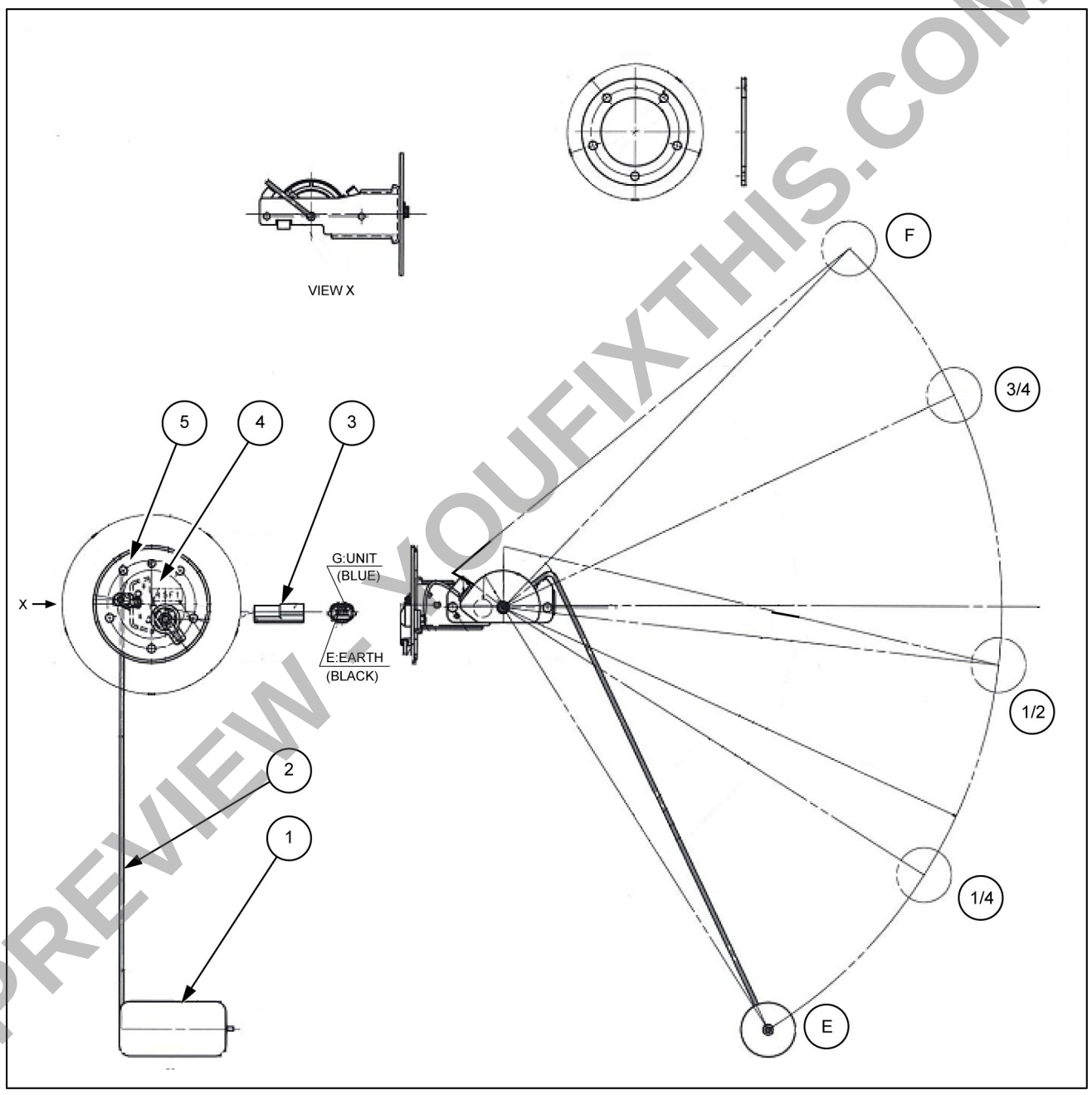
| Diagnostic code | Component involved | Light color on display | Description |
|---|---|---|---|
| 9511 | Switch S113 | Yellow | Open circuit on pilot control safety valve |
| 9521 | Electrovalve Y113 | Yellow | Open circuit on electrovalve Y113 – pilot control pressure |
| 9611 | Proportional electrovalve Y241 | Yellow | Open circuit on electrovalve – pump P1 regulator control |
| 9612 | Proportional electrovalve Y241 | Yellow | Short circuit to ground on electrovalve - pump P1 regulator control |
| 9613 | Proportional electrovalve Y241 | Yellow | Short circuit to supply at electrovalve - pump P1 regulator control |
| 9618 | Pressure sensor B211 | Yellow | Open circuit on pump P1 pressure sensor |


Download full manual at youfixthis.com
PREVIEW - YOUFIXTHIS.COM

# Fuel level sensor - Static description

The fuel level sensor detects the fuel level in the tank.

The main body **(4)** of the sensor is mounted in a fixed position by means of the mounting plate **(5)**. The floating part **(1)** senses the level of the fuel and consequently moves the lever **(2)**. The movement of the lever acts on a variable resistor, which resistance value is available on a connector **(3)**.




SMIL13WEX0176GB 1

PREVIEW - YOUFIXTHIS.COM



Download full manual at youfixthis.com

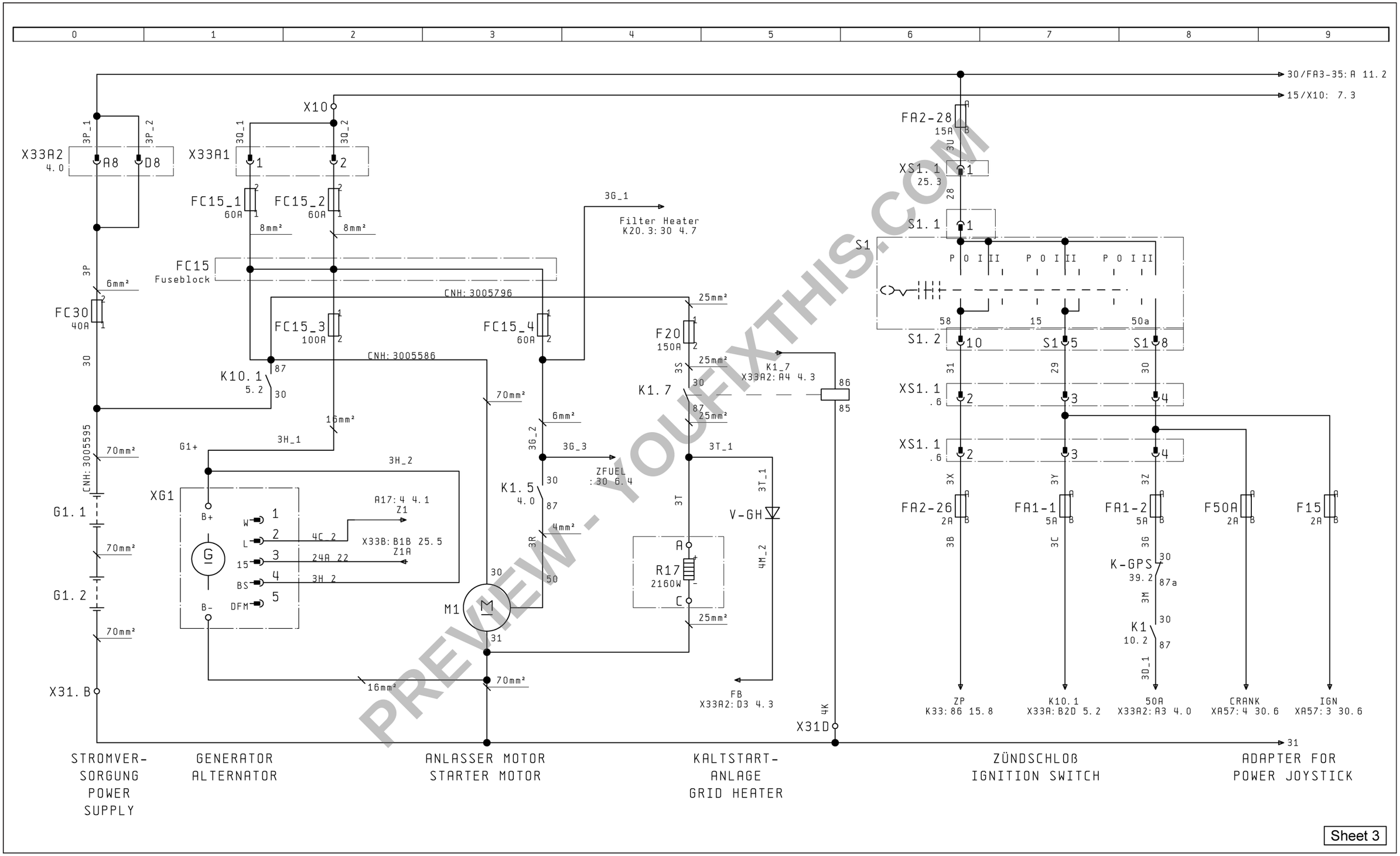
# Electrical systems - 55

## Harnesses and connectors - 100

**WE170B**
**WE190B**

PREVIEW - YOUFIXTHIS.COM


Download full manual at youfixthis.com



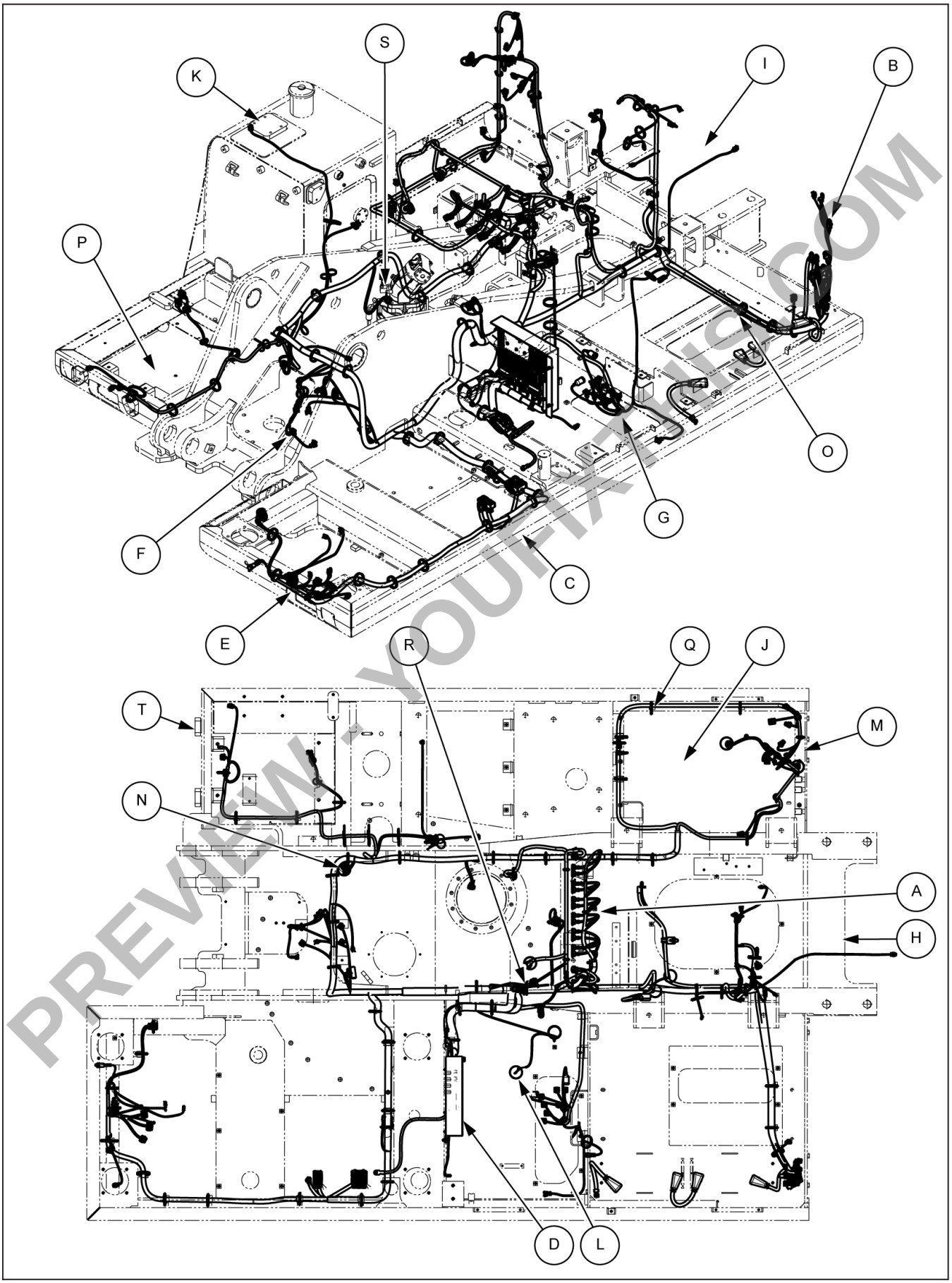

PREVIEW - YOUFIXTHIS.COM

SMIL16WEX0008JB 1



Download full manual at youfixthis.com

## Harness assy




SMIL16WEX0025HB 1

PREVIEW - YOUFIXTHIS.COM



Download full manual at youfixthis.com

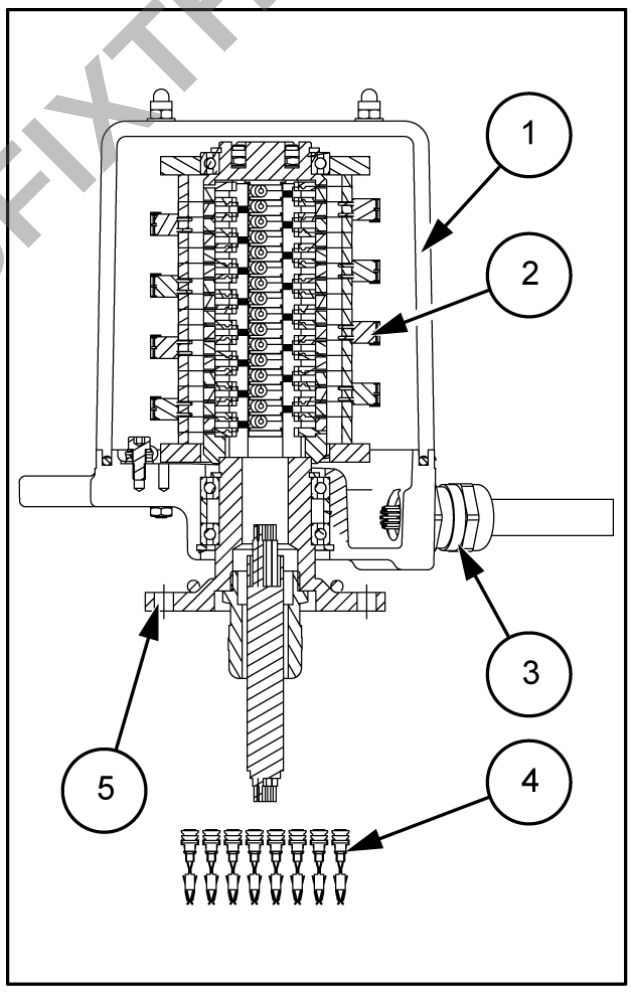
# Swivel joint - Static description

## Electrical rotary joint

The electrical rotary joint is the rotary connection between the upper structure and the undercarriage. Its internal part, called stator, is screwed to the external part of the hydraulic rotor. The stator contains the collector cups, where the cable harness is fastened, which is lead downwards through the central hole. The outer part of the electrical rotary joint is coupled to the stator in a rotary way, and it is connected to the upper structure. The collectors, from which the cable harness for the upper cable comes out laterally, are arranged on the base plate of the outer part. The electrical rotary joint has 16 collector rings, installed and numbered in sequence from the bottom. They are arranged as follows:

| | |
|---|---|
| Collector 1 = Parking brake | Collector 9 = Independent stabilizer control |
| Collector 2 = Creep speed | Collector 10 = Independent stabilizer control |
| Collector 3 = Output revolution sensor 1 | Collector 11 = Independent stabilizer control |
| Collector 4 = Output revolution sensor 2 | Collector 12 = Independent stabilizer control |
| Collector 5 = Sensor voltage supply | Collector 13 = Free |
| Collector 6 = 1st gear | Collector 14 = Free |
| Collector 7 = Floating axle lock | Collector 15 = Ground |
| Collector 8 = Parking brake | Collector 16 = Ground |

1. Cover
2. Stator and rotor
3. Upper structure electric harness
4. Undercarriage electric harness
5. Swivel joint connection flange



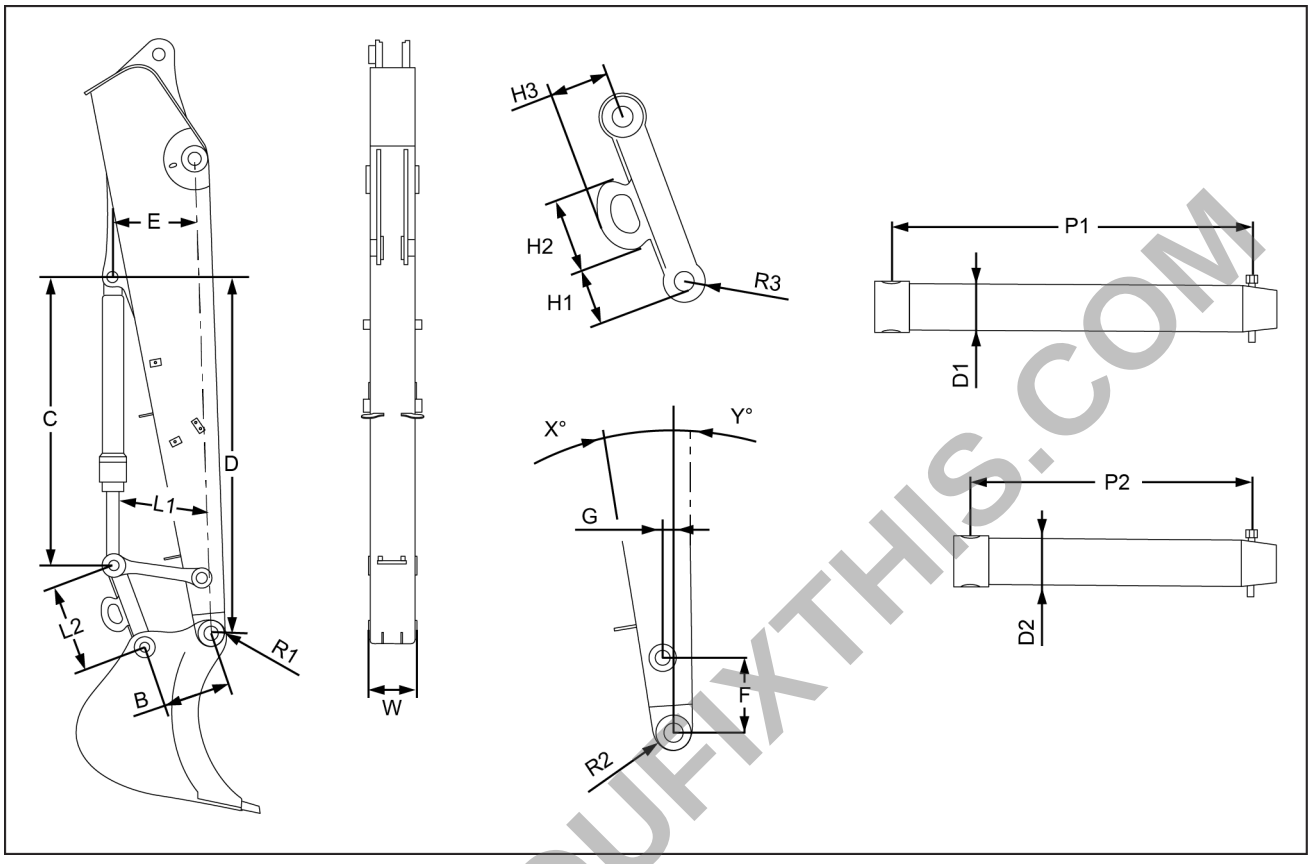

SMIL13WEX0124AB 1

PREVIEW - YOUFIXTHIS.COM



Download full manual at youfixthis.com

## Bucket/dipper arm interface data



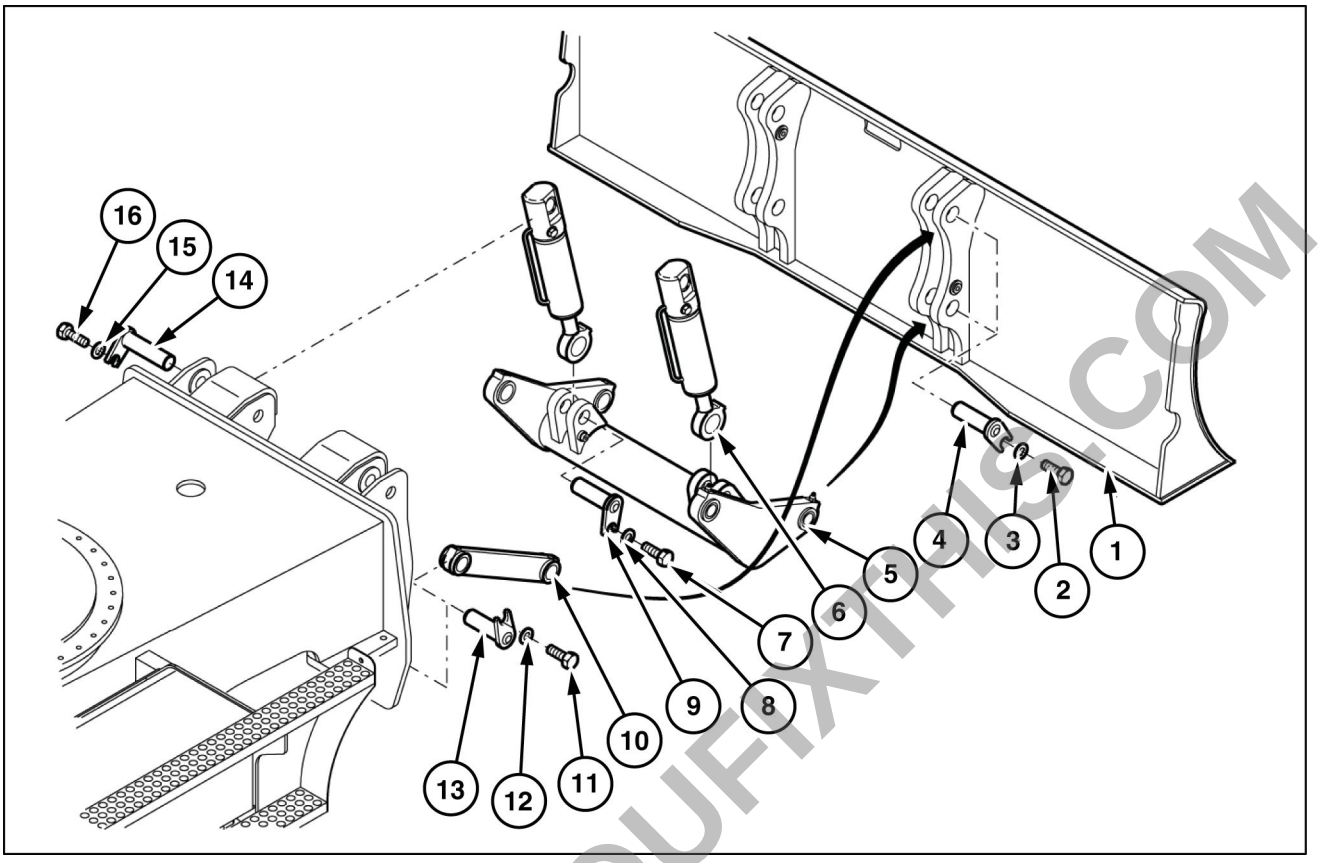

SMIL16WEX0021FA 1

| | | |
|---|---|---|
| B | Bucket pin distance | **400 mm** (**15.75 in**) |
| C | Retracted cylinder length | **1540 mm** (**60.63 in**) |
| | Extended cylinder length | **2565 mm** (**100.98 in**) |
| L1 | Rocker length | **580 mm** (**22.83 in**) |
| L2 | Link length | **525 mm** (**20.67 in**) |
| R1 | Max radius of bucket boss | **105 mm** (**4.13 in**) |
| W | Arm width = Link width | **300 mm** (**11.81 in**) |

PREVIEW - YOUFIXTHIS.COM


Download full manual at youfixthis.com

# Dozer blade - Exploded view




TULI12WEX2393FB 1

1. Dozer blade
2. Screw
3. Washer
4. Pin
5. Connecting rod
6. Blade cylinders
7. Screw
8. Washer
9. Pin
10. Rod
11. Screw
12. Washer
13. Pin
14. Pin
15. Washer
16. Screw

PREVIEW - YOUFIXTHIS.COM


Download full manual at youfixthis.com

# Ladder - Static description

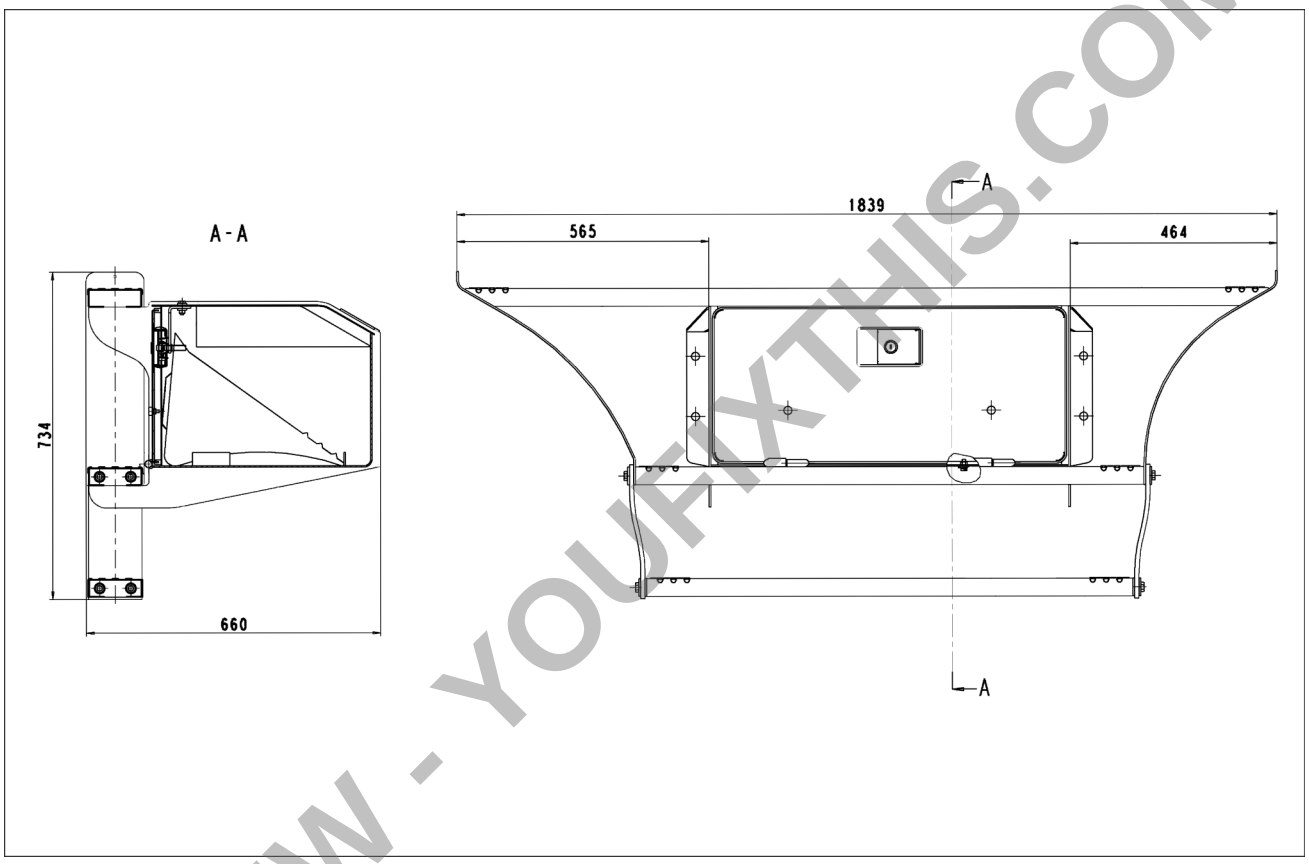
Ladders are used to gain access to the upper structure from both sides of machine.

Keep them constantly clean of mud, ice, etc. in order to prevent slipping.

Ladders can be provided with a storage box, where the tools used for maintenance operations or repairs are stored.

Weight of ladder without storage box: **54 kg** (**119.0 lb**).

Weight of ladder with storage box: **75 kg** (**165.3 lb**).




SMIL12WEX0111FA 1

***NOTE:*** *All dimensions in figure are in mm.*

PREVIEW - YOUFIXTHIS.COM



Download full manual at youfixthis.com

[33.110] Parking brake or parking lock ..... 33.1
[33.202] Hydraulic service brakes ..... 33.2
Hydraulic systems ..... 35
[35.000] Hydraulic systems ..... 35.1
[35.106] Variable displacement pump ..... 35.2
[35.300] Reservoir, cooler, and filters ..... 35.3
[35.304] Combination pump units ..... 35.4
[35.352] Hydraulic swing system ..... 35.5
[35.353] Hydraulic travel system ..... 35.6
[35.354] Hydraulic central joint ..... 35.7
[35.357] Pilot system ..... 35.8
[35.359] Main control valve ..... 35.9
[35.360] Hammer and rotating bucket hydraulic system ..... 35.10
[35.703] Stabilizer hydraulic system ..... 35.11
[35.730] Positioning arm hydraulic system ..... 35.12
[35.736] Boom hydraulic system ..... 35.13
[35.737] Dipper hydraulic system ..... 35.14
[35.738] Excavator and backhoe bucket hydraulic system ..... 35.15
[35.741] Dozer blade cylinders ..... 35.16
Frames and ballasting ..... 39
[39.103] Swing ring assembly ..... 39.1
[39.129] Stabilizers ..... 39.2
[39.140] Ballasts and supports ..... 39.3
Steering ..... 41
[41.101] Steering control ..... 41.1
[41.106] Tie rods ..... 41.2
[41.200] Hydraulic control components ..... 41.3
[41.216] Cylinders ..... 41.4



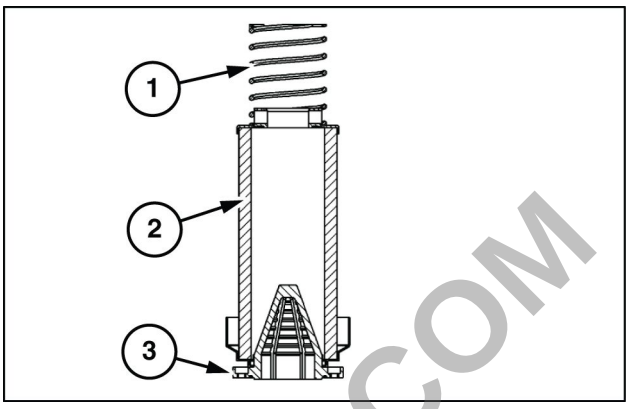
Download full manual at youfixthis.com

PREVIEW - YOUFIXTHIS.COM

# Oil filters - General specification

The filter consists of a spring **(1)**, the filter element **(2)**, and the by-pass valve **(3)**. The filter is used to filter oil any time it runs through the hydraulic system. It holds dust and dirt particles in the oil. With the accumulation of dirt particles on the outer side of the filter, an increase occurs in the pressure difference between the inner and the outer side of the element **(2)** itself. A high pressure difference opens the appropriate by-pass **(3)**, thus preventing the filter element **(2)** from breaking.

***NOTICE:*** *Immediately replace the filter element **(2)** when the by-pass **(3)** opens, otherwise the dirt in the oil could seriously damage the hydraulic components.*




TULI12WEX2136AB 1

The general specifications of the oil return filter are:

- Nominal flow: **500 l/min** (**132 US gpm**)
- Burst pressure: **10 bar** (**145 psi**)
- Opening pressure of by-pass valve: **1.3 - 1.7 bar** (**18.8 - 24.6 psi**)
- Standard operation temperature range: **50 - 90 °C** (**122 - 194 °F**)
- Weight: approx. **3.0 kg** (**6.6 lb**)

PREVIEW - YOUFIXTHIS.COM


Download full manual at youfixthis.com

# Contents

## Wheels - 44

[44.511] Front wheels . . . . . 44.1

[44.520] Rear wheels . . . . . 44.2

PREVIEW - YOUFIXTHIS.COM



Download full manual at youfixthis.com

# PREVIEW ONLY

You're viewing 25 of 1263 pages

## The full manual includes:

- All 1263 pages, complete
- Searchable PDF (find any keyword)
- No watermarks
- Instant download
- Print-ready quality

**GET FULL MANUAL NOW**

**New Holland WE170B, WE190B Service Manual**

**Scan or click anywhere**
**youfixthis.com**

*Click anywhere on this page to get the full manual*