Document Title: **Power transmission, description**	Function Group: **400**	Information Type: **Service Information**	Date: **2014/3/8 0**
Profile: **CWL, L25F [GB]**			

Power transmission, description

The machine drive power, forward and reverse, is achieved with hydrostatic drive. The hydrostatic pump is flanged to the diesel engine and driven directly. The oil flow from the hydrostatic pump passes to a hydrostatic motor flanged to the dropbox. The power from the hydrostatic motor is transferred via the dropbox to the rear axle. Via the propeller shaft joint the front axle is driven at the same time, giving permanent all-wheel drive.
The 100% differential lock integrated in the front and rear axles can be switched hydraulically. Using the inch brake function, stepless adjustment of the drive speed is guaranteed.

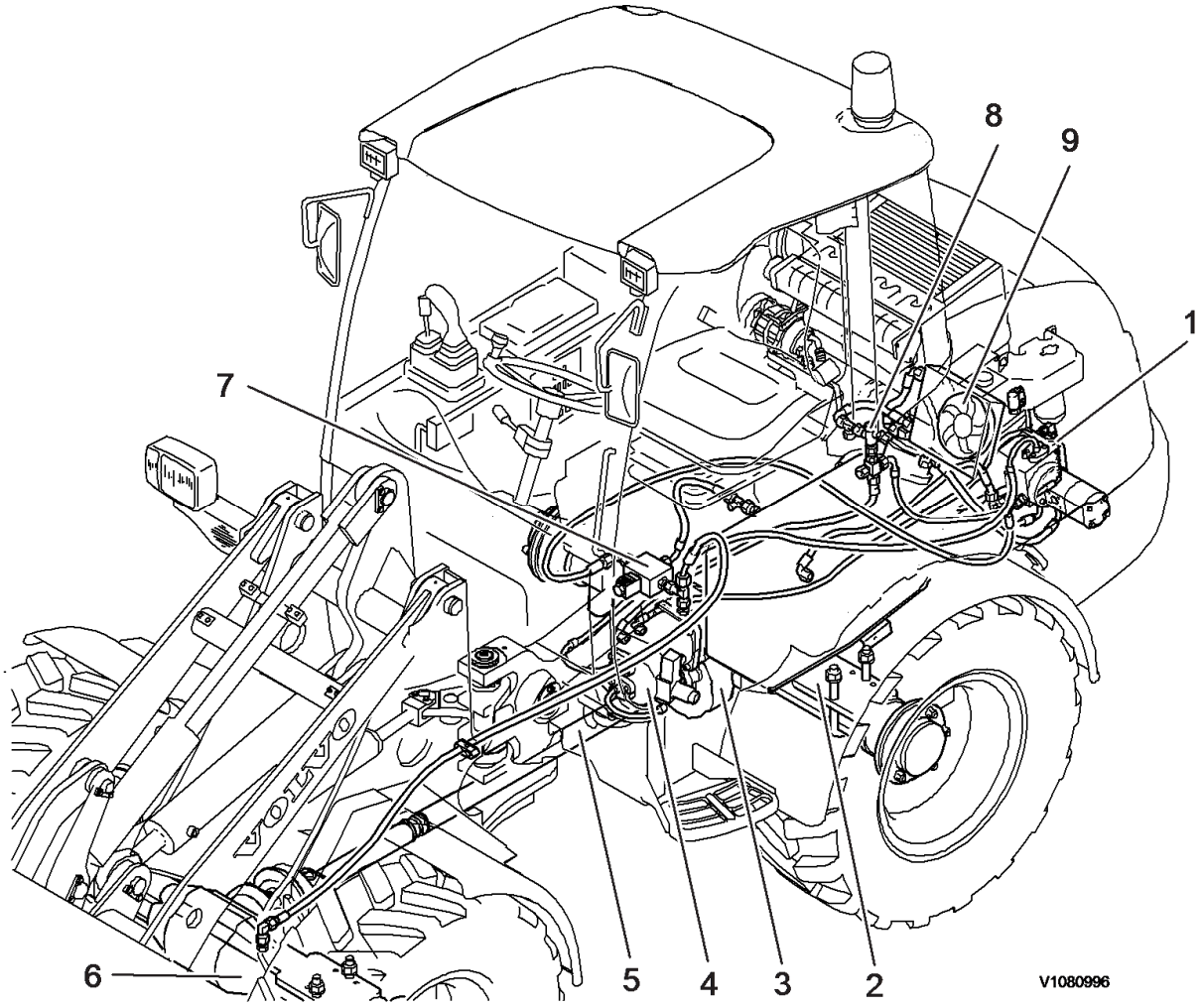


Figure 1

1. Hydrostatic pump
2. Rear axle
3. Dropbox
4. Hydrostatic motor
5. Propeller shaft
6. Front axle

7. Diff. lock solenoid valve
8. Thermostat
9. Oil cooler, drive and engine

VOLVO

Construction Equipment

Service Information

Document Title: **Induction sensor for output shaft, changing**	Function Group: **421**	Information Type: **Service Information**	Date: **2014/3/8 0**
Profile: **CWL, L25F [GB]**			

Induction sensor for output shaft, changing

Only with lifting bracket suspension option (BSS)

Op nbr 421-061

1. Place the machine in service position.
2. Turn OFF the battery disconnect switch.
3. Separate connector for inductive sensor (1) and remove inductive sensor

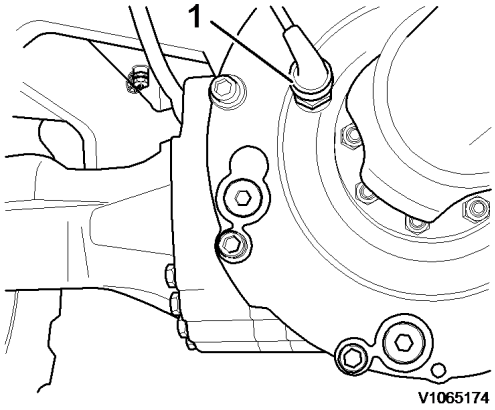


Figure 1

Fit inductive sensor

4. Determine dimension **A** from the gearbox housing contact surface to the spur gear rib (highest rib).
   A = dimension measured from contact surface of gearbox housing to spur gear rib
   B = adjustment dimension, lock nut - inductive sensor
   C = necessary adjustment distance 0.55 - 0.95 mm (0.02 - 0.04 in) mean = 0.75 mm (0.03 in)

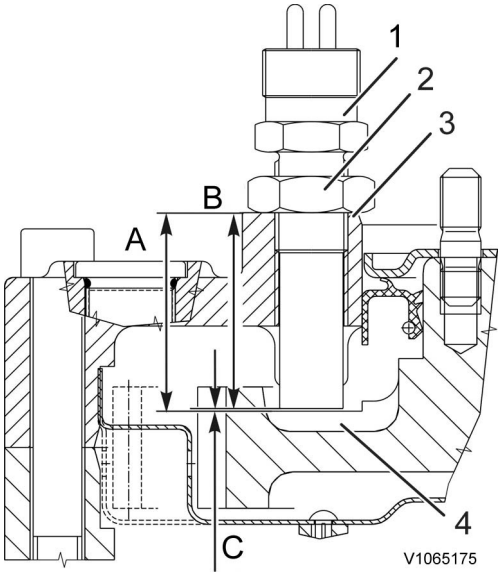


Figure 2
Fit inductive sensor, section view

1. Inductive sensor
2. Jam nut
3. Contact surface gearbox housing
4. Spur gear rib

5. Set adjustment dimension **B** lock nut - inductive sensor

Figure 3
Set adjustment dimension lock nut - inductive sensor

Example, determine adjustment dimension	
Dimension **A**	49.30 mm (1.93 in)
minus adjustment distance **C** (mean)	0.75 mm (0.03 in)
Adjustment dimension **B**	48.55 mm (1.89 in)

NOTE!
Set the position of the lock nut to the adjustment dimension (example: 48.55 mm / 1.89 in). When fitting the inductive sensor, ensure that this dimension does not change.

6. Fit inductive sensor. Tightening torque of lock nut **50 Nm (37 lbf ft)**. Connect connector.

Document Title: **Hydraulic motor, replacing**	Function Group: **441**	Information Type: **Service Information**	Date: **2014/3/8 0**
Profile: **CWL, L25F [GB]**			

Hydraulic motor, replacing

Op nbr 441-002

1. Place the machine in service position.
2. Turn OFF the battery disconnect switch.

WARNING

Hot liquids and machine parts can cause burns. Allow the machine to cool before beginning any work.

WARNING

The work involves handling heavy components - failure to stay alert may result in severe crushing injuries.

Removing

3. Remove universal shaft (1) at gearbox.

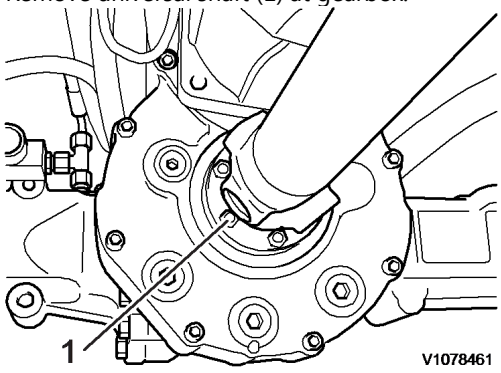


Figure 1

4. Separate electric pin plug connections (1), (2) and (3) from solenoid valve hydrostatic motor.

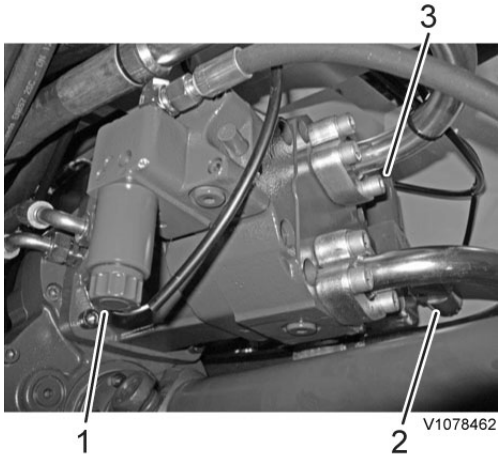


Figure 2

5. Remove high-pressure lines (1), control line (2) and leakage oil lines (3) on hydrostatic motor.
   NOTE!
   Place suitable catchment container below to catch escaping oil.

   NOTICE

   When a hose has been disconnected, plug both the hose and the connection immediately. The hoses should be marked for correct connection.

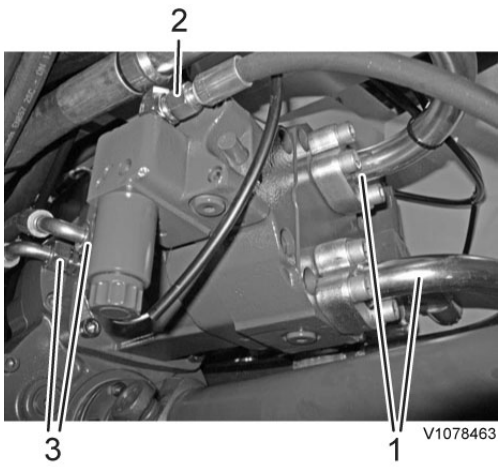


Figure 3

6. Position stand jack below hydrostatic motor.

7. Unscrew fixing bolts (1). Withdraw hydrostatic motor from gearbox. Lower stand jack and withdraw hydrostatic motor below machine.

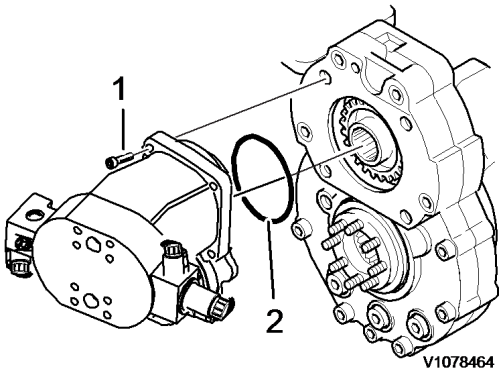


Figure 4

NOTE!
Hydrostatic motor, weight approx. 48 kg (106 lbs).

Installation

8. Bring hydrostatic motor into position below machine using stand jack.

9. Insert hydrostatic motor in the gearbox with a new seal ring (2) and tighten bolts. Tightening torque **85 Nm (63 lbf ft)**.

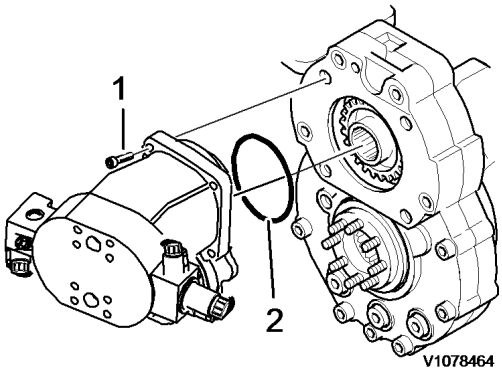


Figure 5

10. Install high-pressure lines (1), control line (2) and leakage oil lines (3) on hydrostatic motor.
    NOTE!
    Tighten bolts on flange halves, high pressure lines, with a tightening torque of 92 Nm (68 lbf ft).

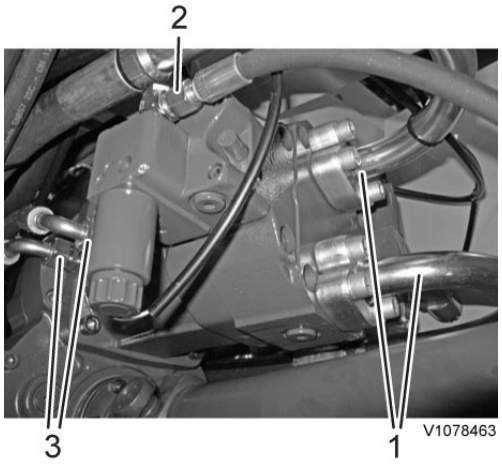


Figure 6

11. Connect electric pin plug connections (1), (2) and (3) of solenoid valve hydrostatic motor.

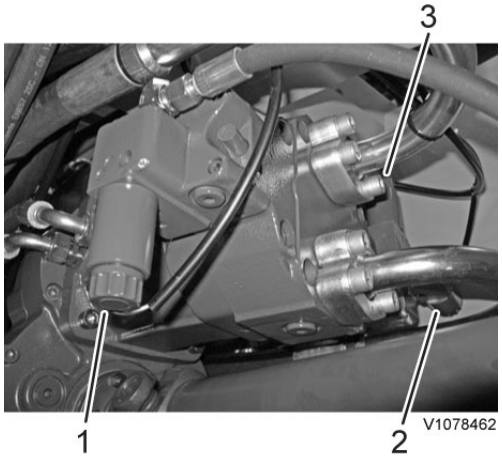


Figure 7

12. Mount universal shaft (1) on gearbox. Tighten lock nuts. Tightening torque **36 Nm (27 lbf ft)**.
    NOTE!
    Use new lock nuts.

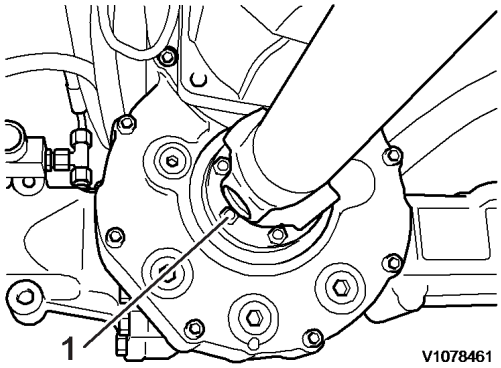


Figure 8

13. Carry out test drive.

14. Check the hydraulic oil level and top up if necessary. See 173 Hydraulic oil level, check

Document Title:	Function Group:	Information Type:	Date:
Hydraulic pump, replacing	**442**	**Service Information**	**2014/3/8 0**
Profile: **CWL, L25F [GB]**			

Hydraulic pump, replacing

Op nbr 442-001

1. Place the machine in service position.

2. Turn OFF the battery disconnect switch.

   WARNING

   The work involves handling heavy components - failure to stay alert may result in severe crushing injuries.

Removing

3. Open engine hood and unscrew fixing bolts (1) on both sides.

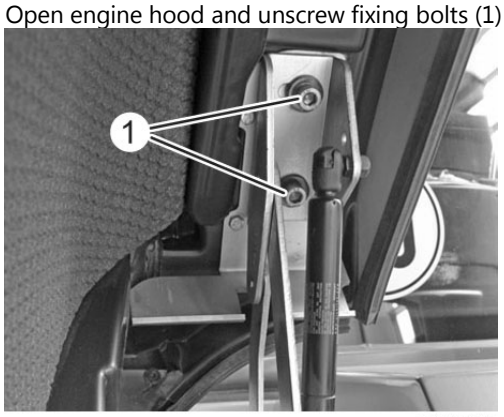


Figure 1

4. Lift off the engine hood and place it on a suitable surface.
   NOTE!
   Engine hood , weight approx. 28 kg (62 lbs).

5. Remove cable ties. Detach pin plug connections at hydrostatic pump.

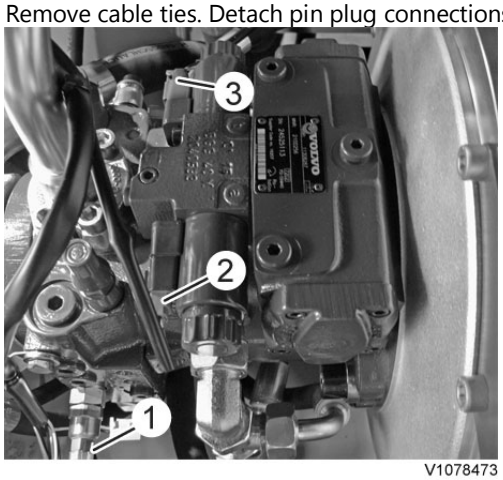
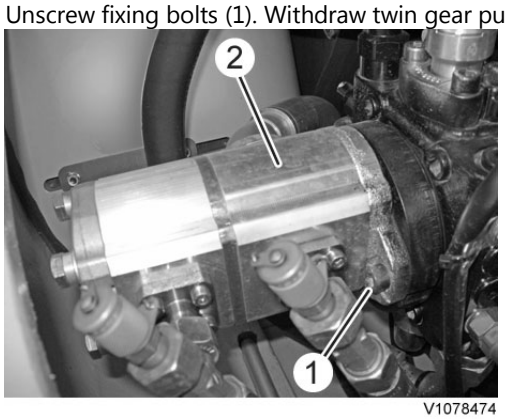


Figure 2

1. Hydraulic oil thermostat (B10)
2. Solenoid valve, reverse drive (Y9)
3. Solenoid valve, forward drive (Y8)

6. Unscrew fixing bolts (1). Withdraw twin gear pump (2) from connection plate and lay on frame plate.



V1078474

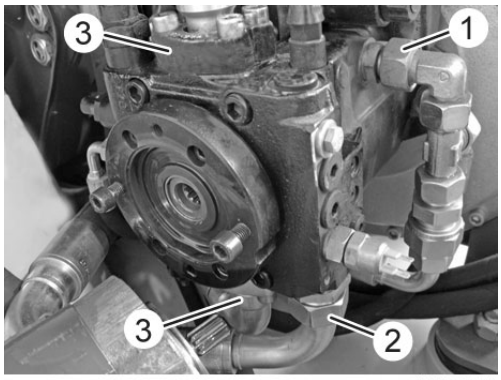
Figure 3

7. Connect vacuum pump. See 900 Vacuum pump, connection

8. Remove leak-oil line (1), suction line (2) and high-pressure lines (3) at hydrostatic pump.
NOTE!
Place suitable catchment container below to catch escaping oil.

NOTICE

When a hose has been disconnected, plug both the hose and the connection immediately. The hoses should be marked for correct connection.



V1078475

Figure 4

9. Remove operating pressure line (1), leak-oil line (2) and feed pressure line (3) at hydrostatic pump.

NOTICE

When a hose has been disconnected, plug both the hose and the connection immediately. The hoses should be marked for correct connection.

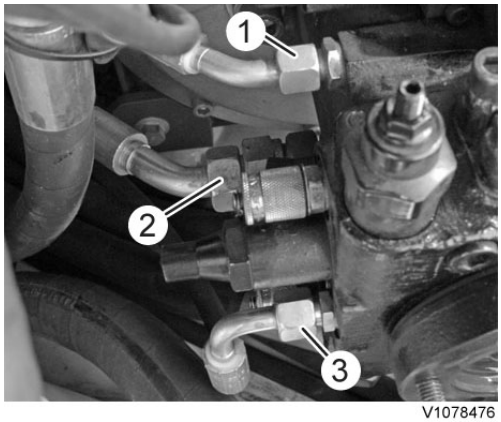


Figure 5

10. Suspend the hydrostatic pump from a crane using suitable hoisting equipment.

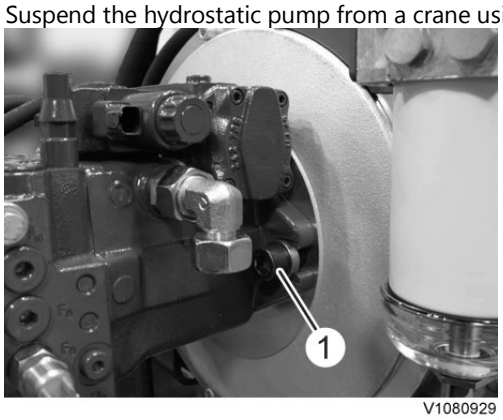


Figure 6

11. Withdraw fixing bolts (1). Remove hydrostatic pump from connection flange and place on suitable surface.
    NOTE!
    Hydrostatic pump, weight approx. 32 kg (71 lbs).

Installation

12. Mount the thermostat and connections for the hydraulic lines on the new hydrostatic pump.
    NOTE!
    Tighten the thermostat with a tightening torque of max. 32 Nm (24 lbf ft).

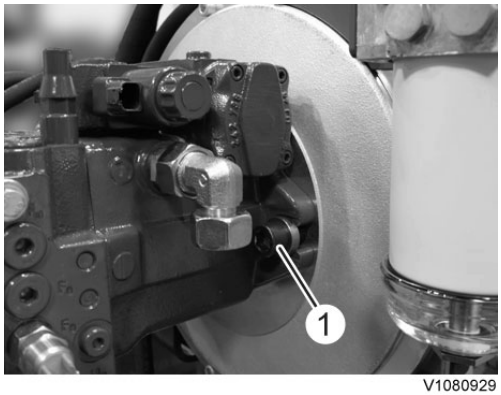


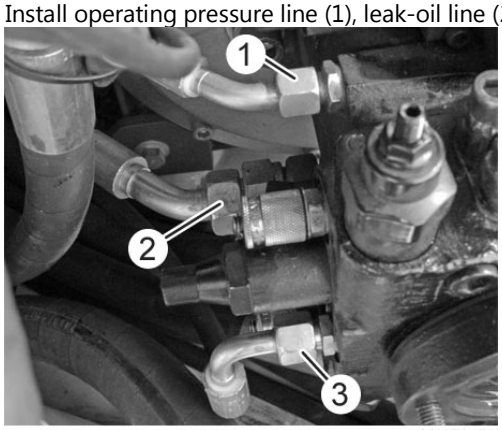
Figure 7

13. Suspend the hydrostatic pump from a crane using suitable hoisting equipment and insert in the connection flange.

NOTE!
Hydrostatic pump, weight approx. 32 kg (71 lbs).

14. Screw in the fixing bolts (1) and tighten to **210 Nm (155 lbf ft)**.

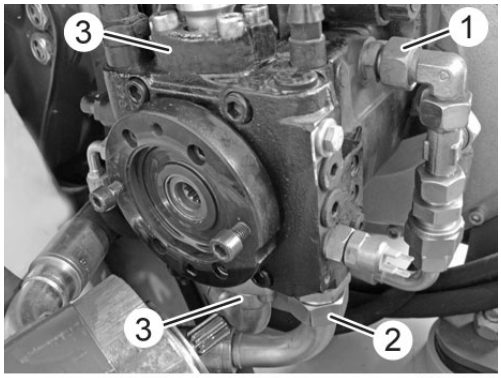
15. Install operating pressure line (1), leak-oil line (2) and feed pressure line (3) at hydrostatic pump.



V1078476

Figure 8

16. Install leak-oil line (1), suction line (2) and high-pressure lines (3) at hydrostatic pump.
NOTE!
Tighten bolts on flange halves, high pressure lines, with a tightening torque of 83 Nm (61.2 lbf ft).



V1078475

Figure 9

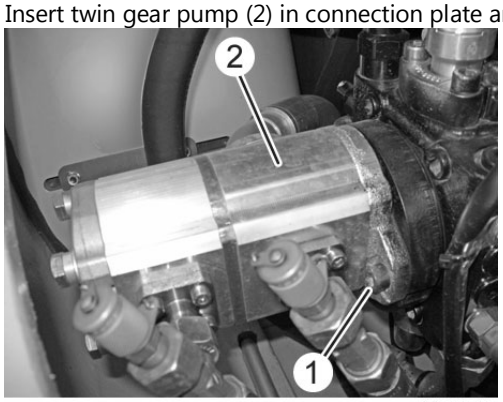
17. Remove the vacuum pump; see 900 Vacuum pump, connection.

18. Place a new seal ring (arrow) in ring groove of the pump housing, and oil.


V1080930

Figure 10

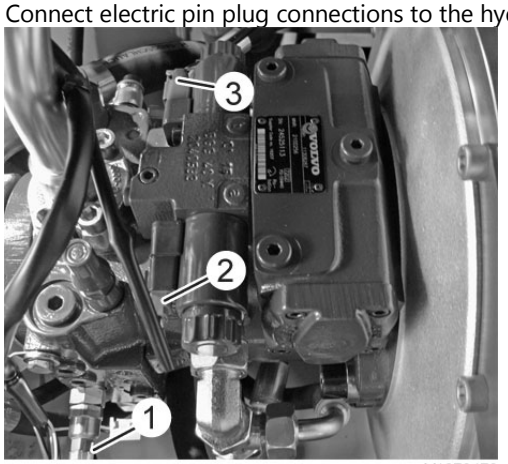
19. Insert twin gear pump (2) in connection plate and tighten fixing bolts (1).



V1078474

Figure 11

20. Connect electric pin plug connections to the hydrostatic pump. Attach cable ties.



V1078473

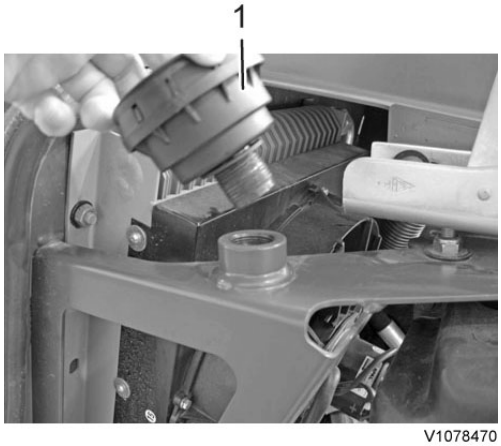
Figure 12

1. Hydraulic oil thermostat (B10)
2. Solenoid valve, reverse drive (Y9)
3. Solenoid valve, forward drive (Y8)

21. Install the engine hood.
    NOTE!
    Engine hood , weight approx. 28 kg (62 lbs).

Bleed hydrostatic pump.

22. Unscrew bleed valve (1).



V1078470

Figure 13

23. Unscrew lock screw (1) at the hydrostatic pump, and prefill the pump housing with hydraulic oil. For hydraulic oil quality, see 160 Recommended lubricants.

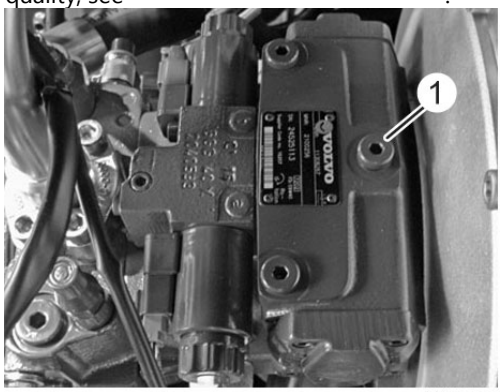


Figure 14

24. Via the inlet screw connection of the bleed valve, blow compressed air (max. 1 bar / 14.5 psi) into the system until oil emerges from the bore at the hydrostatic pump.

25. Screw in bleed valve. Screw lock screw into hydrostatic pump.

Bleed hydraulic oil filter.

26. Remove rubber cap at bleed nipple (1) and connect a plastic hose. Open cover of the oil filler pipe (2) and insert plastic hose.

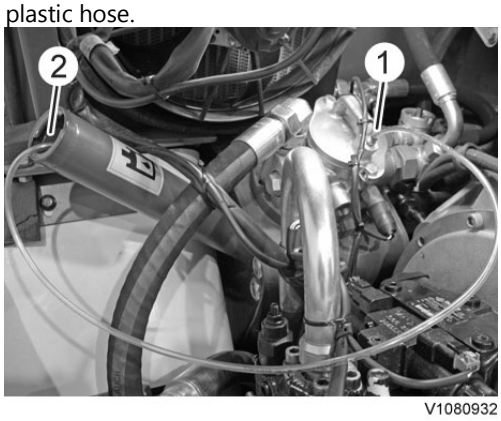


Figure 15
Bleed hydraulic oil filter.

27. Start engine and allow to idle until the oil emerges from the plastic hose without bubbles.

28. Remove plastic hose. Close cover on oil filler pipe. Push rubber cap onto bleed nipple.

29. Carry out test drive.

30. Check the hydraulic oil level and top up if necessary. See 173 Hydraulic oil level, check.

Document Title: **Hydrostatic pump charge pressure, check and adjust**	Function Group: **442**	Information Type: **Service Information**	Date: **2014/3/8 0**
Profile: **CWL, L25F [GB]**			

Hydrostatic pump charge pressure, check and adjust

Op nbr 442-016

88830055 Pressure checking set

NOTE!
Warm up the machine until the hydraulic system is at operating temperature (60°C/140°F).

Inspection item

1. Connect pressure gauge to hydrostatic pump, connection "M_B" (1).

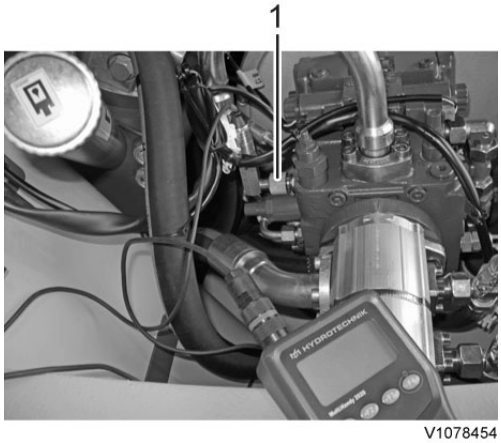


Figure 1
Hydrostatic pump, connection "M

2. Start engine and run with low idle.
   NOTE!
   Tighten handbrake. Do not preselect a gear or direction of travel.

3. Read display on pressure gauge. For nominal feed pressure, see 030 Power transmission, specifications.
   NOTE!
   The feed pressure is fixed and cannot be adjusted from the outside.

Adjust

Document Title: **Start hydraulic pump control, check and adjust**	Function Group: **442**	Information Type: **Service Information**	Date: **2014/3/8 0**
Profile: **CWL, L25F [GB]**			

Start hydraulic pump control, check and adjust

Op nbr 442-017

88830055 Pressure checking set
80872138 Tachometer

NOTE!
Warm up the machine until the hydraulic system is at operating temperature (60°C/140°F).

1. Remove control line (1) at brake cylinder. Seal hose and connection with plugs.

   WARNING

   Hot oil can cause burns. Use protective equipment and handle hot oil with great care. Collect the oil and take care of it in an environmentally friendly way.

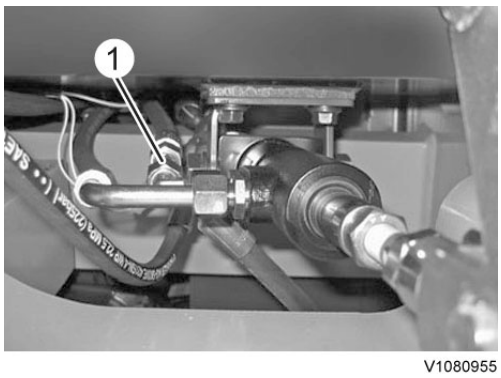


Figure 1

2. Remove the air flow guide plate (1).

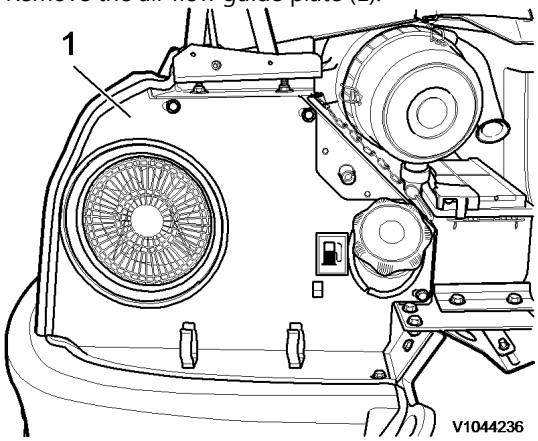


Figure 2

Inspection item

3. Apply reflective sticker (1) to V-belt pulley. Fit speed sensor (2) and connect tachometer 12976108.

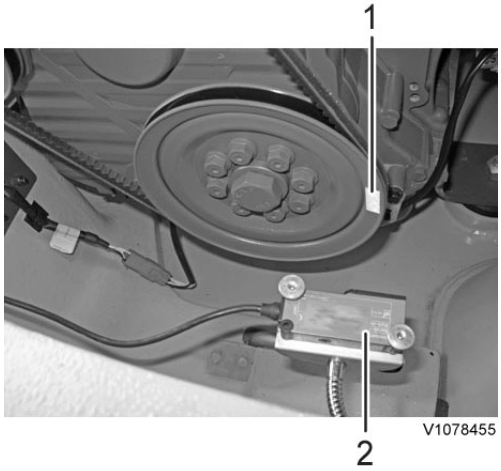


Figure 3

4. Connect pressure gauge to hydrostatic pump, connection “M_B” (1).

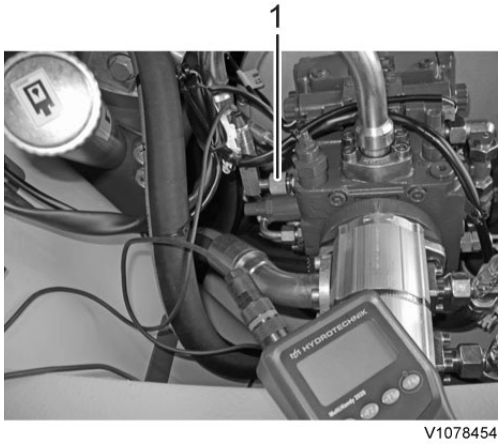


Figure 4
Hydrostatic pump, connection “M

5. Start engine. Preselect gear "1" and direction of travel "Forwards".
6. Slowly increase engine speed until the pressure gauge shows a pressure of **50 bar (725 psi)**.
7. Read speed from tachometer. For nominal value of start engine speed, see 030 Power transmission, specifications.

Adjust

8. Remove plumb cap on controller cartridge (1) and release flange nut of adjustment screw.

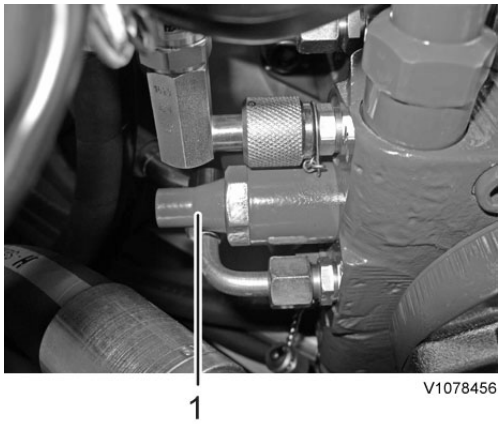


Figure 5
Hydrostatic pump control cartridge

9. Turn the controller cartridge adjustment screw to left or right until the pressure gauge shows a pressure of **50 bar (725 psi)**.
   Turn to right: increase pressure
   Turn to left: reduce pressure

10. Tighten flange nut, **Tightening torque 22 Nm (16.2 lbf ft)** and apply a new plumb cap.

11. Remove speed sensor and tachometer.

12. Fit the air flow guide plate.

13. Fit control line (1) on brake cylinder.

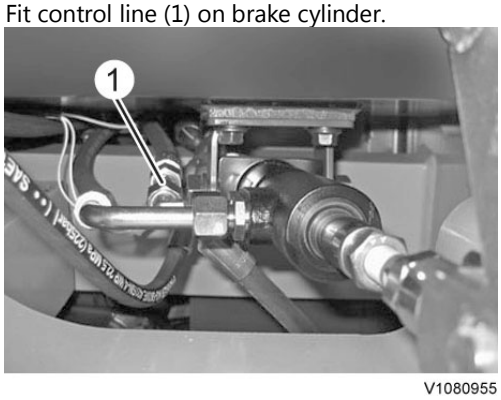


Figure 6

Document Title: **Hydrostatic pump cut off valve, check and adjust**	Function Group: **442**	Information Type: **Service Information**	Date: **2014/3/8 0**
Profile: **CWL, L25F [GB]**			

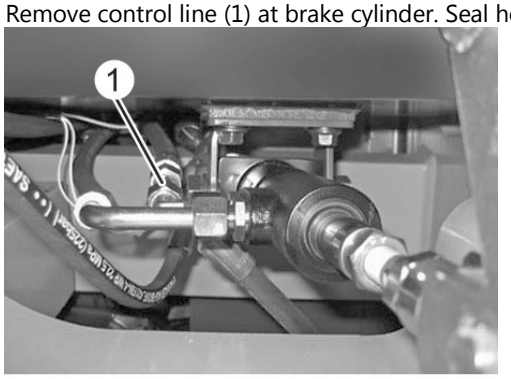
Hydrostatic pump cut off valve, check and adjust

Op nbr 442-018

88830055 Pressure checking set

NOTE!
Warm up the machine until the hydraulic system is at operating temperature (60°C/140°F).

1. Remove control line (1) at brake cylinder. Seal hose and connection with plugs.



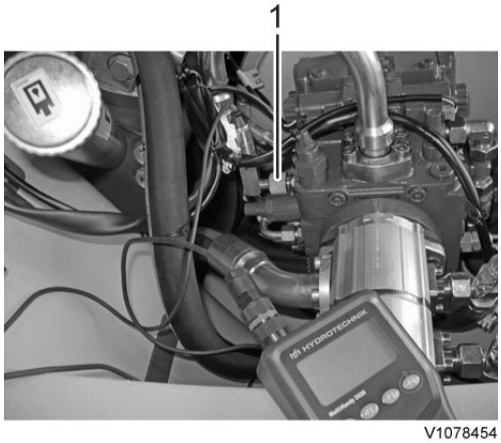
V1080955

Figure 1

WARNING
Hot oil can cause burns. Use protective equipment and handle hot oil with great care. Collect the oil and take care of it in an environmentally friendly way.

Inspection item

2. Connect pressure gauge to hydrostatic pump, connection "M_B" (1).



V1078454

Figure 2

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