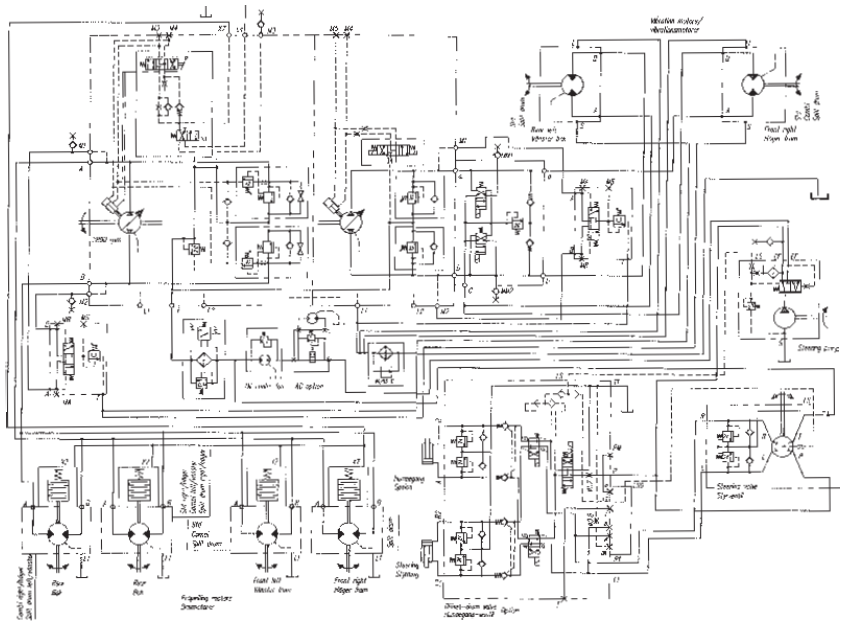
SVEDALA DYNAPAC

Vibratory and Combination Rollers
CC 222/232/322/C and CC422/522/C

Work Shop Manual, Purging of the Hydr. System
W1039EN3

This instruction apply from PIN (S/N)
CC 222: *61710222*, CC 222C: *61810222*
CC 232: *61910232*, CC 232C: *62010232*, CC 322 *62110322*
CC 422: *62510424* , CC 422C *62610423*
CC 522 *62910523*



Contents

Page

Notes

General advice

- Make yourself familiar with the equipment of the machine.
- Only operate the machine if your are completely familiar with the operating and control elements as well as the functioning of the machine.
- Use your safety equipment like helmet, safety shoes and hearing protection.
- Make yourself familiar with your working field.
- Only operate the machine for its intended purpose.

Please observe the guidelines of the machine manufacturer and safety manual, A 281.

Before starting

- Study and understand the operating instructions before starting.
- Check the machine for any serious faults.
- Do not operate the machine with defective instruments, warning lights or control elements.
- All safety devices must be in a secure position.
- Do not carry loose objects or secure them to the machine.
- Keep oily and inflammable material away from the machine.
- Before entering the driver's cab, check if persons or obstacles are in the way of or underneath the machine.
- Be careful when entering the driver's cab, use the steps.
- Adjust your seat before starting.

Start

- When starting, all operating levers must be in ”neutral position”.
- Only start the machine from the driver’s seat.
- Check the indicating instruments after start to ensure that all functions are in order.
- Do not leave the machine unattended when the engine is running.
- When starting with battery connection cables, connect plus to plus and minus to minus.
- Disconnect the earth (negative) first. Connect it last.

Warning

⚠ Exhaust fumes is dangerous. Ensure sufficient fresh air when starting in closed rooms!

Electrical and hydraulic equipment

1. Personal safety must be observed when batteries are handled or tested.
2. A fully equipped medical kit, including eye-wash facilities, should be available and protective clothing, including eye protection, should be worn.
3. ⚠ Acid splashes in the eye should be treated immediately with plenty of clean water and neutralized with sodium bicarbonate solution.
4. Acid splashes on clothing must be treated with an alkali, such as ammonia, if holes are to be avoided.
5. ⚠ A safety hazard exist during or after battery charging due to emission of a highly flammable hydrogen gas. Any testing involving production of sparks, e.g. electrical load test, must not be performed until the gas has dispersed from the cell. A similar hazard occurs when a battery is fitted on to a vehicle immediately after the battery has been removed from a charging plant.
6. ⚠ Hydraulic equipment is under high pressure.
   Fluids (fuel, hydraulic oil) which escape under high pressure can penetrate the skin and cause serious injury.
   Therefor immediately consult a doctor if such injury occurs.
7. ⚠ Notice that failure on the hydraulic or electrical system may give the roller an unpredictable and dangerous function.

Cleaning the hydraulic system before a breakdown.

In order to get a long lifetime on the hydraulic system it is imortant to keep the oil as clean as possible.
If regularly tests of the oil is done that can prevent breakdowns if action is taken to clean the oil in time.

The level of contamination is classified with a ISO standard that is based on the number of particles of a specific size in one ml. of oil.

For DYNAPAC machines the level of contamination must not exceed 18/13.
That meens that the number of particles over 5 µm should be less than 2500 and over 15 µm less than 80 in one ml. oil.

When working with hydraulic there is always important that the area around for example the coupling are cleaned befor opening the system.
The openings in the system should always be kept plugged to prevent dirt to get in the system.
And the particles meassured in the test above are so small that they can not bee seen without a microscope.(A section of a human hair are ca. 75µm).

Purging of the Hydr. Syst.

Cleaning procedure

If the tested oil gives the indication that it should be cleaned (over the ISO grade 18/13) and you dont want to change the oil in the system then you can do like this.

Change the working filter to a running in filter P/N 35 95 52 and drive the machine for 50 hours and after that put in a new working filter.

If possible test the oil again an see if it has been cleaned to the acceptable ISO grade.

But it is still important to change the oil according to the operation and maintenance manual to get the best operation from the hydaulic system.

Equipment needed

The equipment that you need for purging of the hydraulic system are:

One filling pump equipped with a filter for refilling the system with new oil.

One temperature gauge for monitoring the temperature of the oil to prevent it from getting overheated.

Standard workshop tools like wrenches etc.

Plastic plugs to protect the system when open.

Hydraulic diagram

Easy purging of the hydraulic system after a breakdown

The filter parts needed to clean up the hydraulic system in CC222/232/322/C are:

1. Four running in filters P/N 35 95 52.
2. Three filter housings P/N 35 95 51.
3. One working filter P/N 37 22 29.
4. Four JIC 1 1/16" P/N 33 46 17 to disengage the propulsion motors.
5. Two JIC 7/8" P/N 33 45 42 and two JIC 3/4"P/N 33 42 49 to disengage the vibration motors.
6. Four plugs 7/8" P/N 23 20 95 to plug the break hoses.
7. Six couplings P/N 33 44 68 to connect the filters.
8. Two hoses P/N 48 27 78 (530mm)

NOTE: Only the filters has to be exchanged after use.

Purging of the Hydr. Syst.

Filter Parts For CC422/522/C

The filter parts needed to clean up the hydraulic system on CC422/522/C are:

1. Four running in filters P/N 35 95 52.
2. Three filter housings P/N 35 95 51.
3. One working filter P/N 37 22 29.
4. Four JIC 1 1/16" P/N 33 46 17 to disengage the propulsion motors.
5. Two JIC 1 1/16" P/N 33 46 17 and two JIC 3/4" P/N 33 42 49 to disengage the vibration motors.
6. Four plugs 9/16" P/N 23 22 30 to plug the break hoses.
   One connector P/N 33 44 68 and one 1 5/16"JIC-1 5/16"UNF O-ring P/N 33 41 40 to disconnect the cooler
7. Four couplings P/N 33 44 68 to connecting the filters.
8. Two hoses P/N 48 27 78 (530 mm)

NOTE: Only the filters has to be exchanged after use.

How to read this manual and what to do with it

To secure proper function after a breakdown

After a breakdown there are a lot of wearing particles in the system that has to be removed before the roller can be used again. There is always a risk that parts and particles after a breakdown will disturb and/or jeopardize the function of the hydraulic system. This manual will give you information on how to remove wearing particles after different types of breakdowns.

To secure a long lifetime for the hydraulic system after a breakdown

If there are wearing particles left in the system after a breakdown they will decrease the lifetime of the hydraulic system.

Additional tests of all functions

When any component of the hydraulic system have broken down there always is a risk that some other component might be damaged due to contamination, it is therefore extremely recommended that all functions of the hydraulic system are seriously tested after repair.

Purging of the Hydr. Syst. — After a Propulsion Motor Breakdown

Propulsion motor breakdown

1.1 To do before any other work on the roller should be done

Remove the contaminated oil

Empty the tank and all hoses that are close to the broken down component. Replace the broken down motor with a new one (NOTE: Do not connect the new motor to the hoses until the cleaning process is finished.See 1.4.). Remove the hydraulic tank from the roller and clean the tank carefully. Fill the tank with new clean oil in according with the machines operating instruction using a filling pump equipped with a filter.

1.2 What to protect?

Due to the design of the hydraulic system contaminated oil from a broken propulsion motor can reach the propulsion & vibration pump, the other propulsion motor(s), both vibration motors and the cooler.

1.3 How to protect all exposed components in the hydraulic system

1.3.1 To protect the Propulsion & vibration pump

1.3.1.1 Find out if the brake down happened when the machine was driving forward or backward.

1.3.1.2 If the roller was driving forward, place a filter between the forward-return hose from the motor and port (A) at the pump on a CC222/232/322 and port (B) on CC422/522.If the roller was driving backward, place a filter between the backward-return hose from the motor and port (B) at the pump on a CC222/232/322 and port (A) on a CC422/522. *(be carefull so that the filter is connected according to the marks on the filter head. IN should be towards the motor and OUT should be towards the pump).*

1.3.1.3 Also connect a filter between the B hose from the vibration motor and port B on the vibrationpump.

Parts needed for this is:

Filter, two running in filters P/N 35 95 52 + 35 95 51.
Couplings, twoP/N 33 44 68 and two hoses P/N 48 27 78 are needed to mount the filter between hoses and pumps.

1.4 To protect the propulsion motors

1.4.1 Remove the (A) and (B) hoses at the propulsion motors and put them together with a JIC coupling P/N 33 46 17.

1.4.2 Remove the brake hoses (X7) and plug them with plug P/N 23 20 95.(For CC422/522 Plug 9/16" P/N 23 22 30)

Parts needed for this is:
Plugs P/N 23 20 95, two for a CC222/322, three for CC222C, and four for a CC 232/C.
Plugs P/N 23 22 30, two for CC422/522, three for CC422C/522C, and four for CC432/C
JIC coupling P/N 33 46 17, needed in the same number as the plugs above.

1.5 To protect the vibration motors

1.5.1 Remove the (a) and (b) hoses at the vibration motors and put them together with a JIC coupling P/N 33 45 42 .(For CC422/522/C : P/N 33 46 17)

1.5.2 Remove the (S) and (L) hoses at the vibration motors and put them together with a JIC coupling P/N 33 42 49.

Parts needed for this is:
Two JIC couplings P/N 33 45 42 (For CC422/522 : P/N 33 46 17).
Two JIC couplings P/N 33 42 49 (3/4¨).

1.6 To protect the cooler

1.6.1 Remove the hoses from the cooler and connect a filter P/N 35 95 52 + P/N 35 95 51 to the hoses (be carefull so that the filter is connected *according to the marks on the filter head. IN should be connected with the pump hose and OUT should be connected with the tank hose).*

Parts needed for this is:
Cleaning filter and two P/N 33 44 68 couplings.(For CC422/522 : One 1 1/16"JIC-1 5/16" UNF P/N 33 44 68 and one 1 5/16"JIC-1 5/16" UNF P/N 33 41 40).

1.7 Start the cleaning process

1.7.1 Connect a fast and accurate temperature meter on the tank or even better on the charge pressure minimess coupling.

1.7.2 Start the engine and let it run on low idle for one to two minutes.

1.7.3 Stop the engine and refill the hydraulic tank with new oil in according to the machines operating manual.

1.7.4 Again start the engine and let it run on low idle.

1.7.5 If the breakdown occurred when the machine was driving forward then press the forward and reverse lever half way forward.
If the brake down occurred when the machine was driving backward then press the forward and reverse lever half way backwards.
Start the vibrations on high amplitude.

1.7.5 Check the temperature every five minutes *(stop the engine immediately if the temperature raise above 80°C (176°F) during the cleaning period).*

1.7.6 Let the cleaning process continue for one hour.

1.8. After one hour

1.8.1 Remove the JIC couplings and the filter that is placed where the cooler should be and reconnect the cooler, all propulsion motors (old working motors plus the new exchanged motor) and the vibration motors.

1.8.2 Jack up the roller, start the engine and go to point 1.7.5 and run the engine for half an hour.

1.8.3 Put down the roller and disconnect the motor filter and reconnect the motor hose to the pump. Check that all hoses are reconnected.

1.8.3 Carefully test all functions of all hydraulic components.

1.8.4 Change the system filter after 50 h use to a normal working filter.

⚠ **Warning! It is very important that the tank temperature never exceeds 80°C (176°F) during the cleaning period.**

Vibration motor breakdown

2.1 To do before any other work on the roller should be done

Remove the contaminated oil

Empty the tank and all hoses that are close to the broken down component. Replace the broken down motor (NOTE: Do not connect the motor until the cleaning process is finished.). Remove the hydraulic tank from the roller and clean the tank carefully. Fill the tank with new clean oil in according with the machines operating instruction using a filling pump equipped with a filter.

2.2 What to protect?

Due to the design of the hydraulic system contaminated oil from a broken vibration motor can reach the propulsion & vibration pump, the other vibration motor, all propulsion motors and the cooler.

2.3 How to protect all exposed components in the hydraulic system

2.3.1 To protect the Propulsion & vibration pump

2.3.1.1 Find out if the brake down happened when the machine was using high or low amplitude.

2.3.1.2 If the roller was using high amplitude, place a filter between hose (b) from the motor and port (b) at the pump *(be carefull so that the filter is connected according to the marks on the filter head. IN should be towards the motor and OUT should be towards the pump)*.
If the roller was using low amplitude, place a filter between hose (a) from the motor and port (a) at the pump

2.3.1.3 Also connect a filter between the return hose from the propulsion motors and the pump. Port A on CC222/232/322 and port B on CC422/522

Parts needed for this is:

Filter, two running in filters P/N 35 95 52 + P/N 35 95 51.
Couplings, twoP/N 33 44 68 and two hoses P/N 48 27 78 are needed to mount the filter between hoses and pumps.

2.4-2.6 See 1.4-1.6

2.7 Start the cleaning process

2.7.1 Connect a fast and accurate temperature meter on the tank or even better on the charge pressure minimess coupling.

2. 7.2 Start the engine and let it run on low idle fo one to two minutes.

2.7.3 Stop the engine and refill the hydraulic tank with new oil according to the machines operating manual.

2.7.4 Again start the engine and let it run on low idle.

2.7.5 If the breakdown occurred when the machine was using high amplitude then set the switch for amplitude in the high amplitude position and start the vibra tion.
If the brake down occurred when the machine was using low amplitude then set the switch for amplitude in the low amplitude position and start the vibra tion.
Press the forward and revers level half way forward.

2.7.5 Check the temperature every five minutes (stop the engine immediately if the *temperature raise above 80°C (176°F) during the cleaning period*).

2.7.6 Let the cleaning process continue for one hour.

2.8. After one hour

2.8.1 Remove the JIC couplings and the filter placed where the cooler should be and reconnect the cooler, all propulsion motors (old working motors plus the new exchanged motor) and the vibration motors.

2.8.2 Jack up the roller, start the engine and go to point 7.5 running the engine for half an hour.

8.3 Put down the roller and disconnect the motor filter and reconnect the motor and hoses.

2.8.3 Carefully test all functions of all hydraulic components.

2.8.4 Change the system filter after 50 h use to a normal working filter.

⚠ **Warning! It is very important that the tank temperature never exceeds 80°C (176°F) during the cleaning period.**

After a Charge & Steering Pump Brake Down

Purging of the Hydr. Syst.

Charge & steering pump breake down

3.1 To do before any other work on the roller should be done

Remove the charge & steering pump and the contaminated oil

Remove the old charge and steering pump. Empty the tank and all hoses that are connected with the charge and steering pump. Fill the tank with new clean oil according to the machines operating instruction. Put in a new charge & steering pump that should be filled with new hydraulic oil.

3.2 What to protect?

Due to the design of the hydraulic system contaminated oil from a braked down charge & steering pump might reach the steering system.

3.3 How to clean all exposed components in the hydraulic system

3.3.1 Remove the old system filter and replace it with a new running in filter

3.3.2 Remove the cylinder ends of the hoses that are connected with the steering cylinder that controls the articulated link and place the ends in a bucket.

3.4 Start the cleaning process

3.4.1 Ensure that the steering wheel switch is switched so that the steering wheel controls the articulated link.

3.4.2 Start the engine on low idle and quickly turn the steering wheel to maximum right and maximum left. Turn off the engine as soon as possible.

3.4.3 Check the oil level in hydraulic tank and refill if needed.

3.4.5 If the roller is equipped with pivotal steering:

3.4.5.1 Remove the cylinder ends of the hoses that are connected with the steering cylinder that controls the pivotal steering and place the ends in a bucket.

3.4.5.2 Ensure that the steering wheel is controling the pivotal link.

3.4.5.3 Start the engine on low idle and quickly turn the steering wheel to maximum right and left. Turn off the engine as soon as possible.

3.4.5.6 Check the oil level in hydraulic tank and refill if needed.

3.5 After the cleaning

3.5.1 Reconnect all hoses.

3.5.2 Carefully test all functions of all hydraulic components.

3.5.3 Change the system filter after 50 h use to a normal working filter.

After a Propulsion & Vibration Pump Breakdown — Purging of the Hydr. Syst.

Propulsion and vibration pump breakdown

4.1 To do before any other work on the roller should be done

Remove the contaminated oil

Empty the tank and all hoses that are close to the broken down component.Replace the broken down pump(Note: Be careful so that you don't get any contaminated oil in the pump when conecting the filter. see below) Remove the hydraulic tank from the roller and clean the tank carefully. Fill the tank with new clean oil in according with the machines operating instruction using a filling pump equipped with a filter.

4.2 What to protect?

Due to the design of the hydraulic system contaminated oil from a broken propulsion & vibration pump can reach the propulsion motors, both vibration motors and the cooler.

4.3 How to protect all exposed components in the hydraulic system

4.3. To protect the Propulsion & vibration pump

4.3.1 Place a filter between the hoses from the propulsion motors and port (A) at the pump,on a CC222/232/322 or port (B) on a CC422/522, also place a filter between the hoses from the vibration motors and port (B) on the pump *(becarefull so that the filter is connected according to the marks on the filter head. IN should be towards the motors and OUT should be towards the pump).*

Parts needed for this is:
Filter, two running in filters P/N 35 95 52 + P/N 35 95 51.
Couplings, twoP/N 33 44 68 and two hoses P/N 48 27 78 are needed to mount the filter between hoses and pumps.

4.4-4.6 see 1.4-1.6

4.7 Start the cleaning process

4.7.1 Connect a fast and accurate temperature meter on the tank or even better on the charge pressure minimess coupling.

4.7.2 Start the engine and let it run on low idle for one to two minutes.

4.7.3 Stop the engine and refill the hydraulic tank with new oil in according to the machines operating manual.

4.7.4 Again start the engine and let it run on low idle.

4.7.5 Press the forward and reverse lever half way forward, start the vibrations on high amplitude.

4.7.5 Check the temperature every five minutes (stop the engine immediately if the *temperature raise above 80°C (176°F) during the cleaning period*).

4.7.6 Let the cleaning process continue for one hour.

4.8. After one hour

4.8.1 Remove the JIC couplings and the filter placed where the cooler should be and reconnect the cooler, all propulsion motors and the vibration motors.

4.8.2 Jack up the roller, start the engine and go to point 4.7.5 running the engine for half an hour.

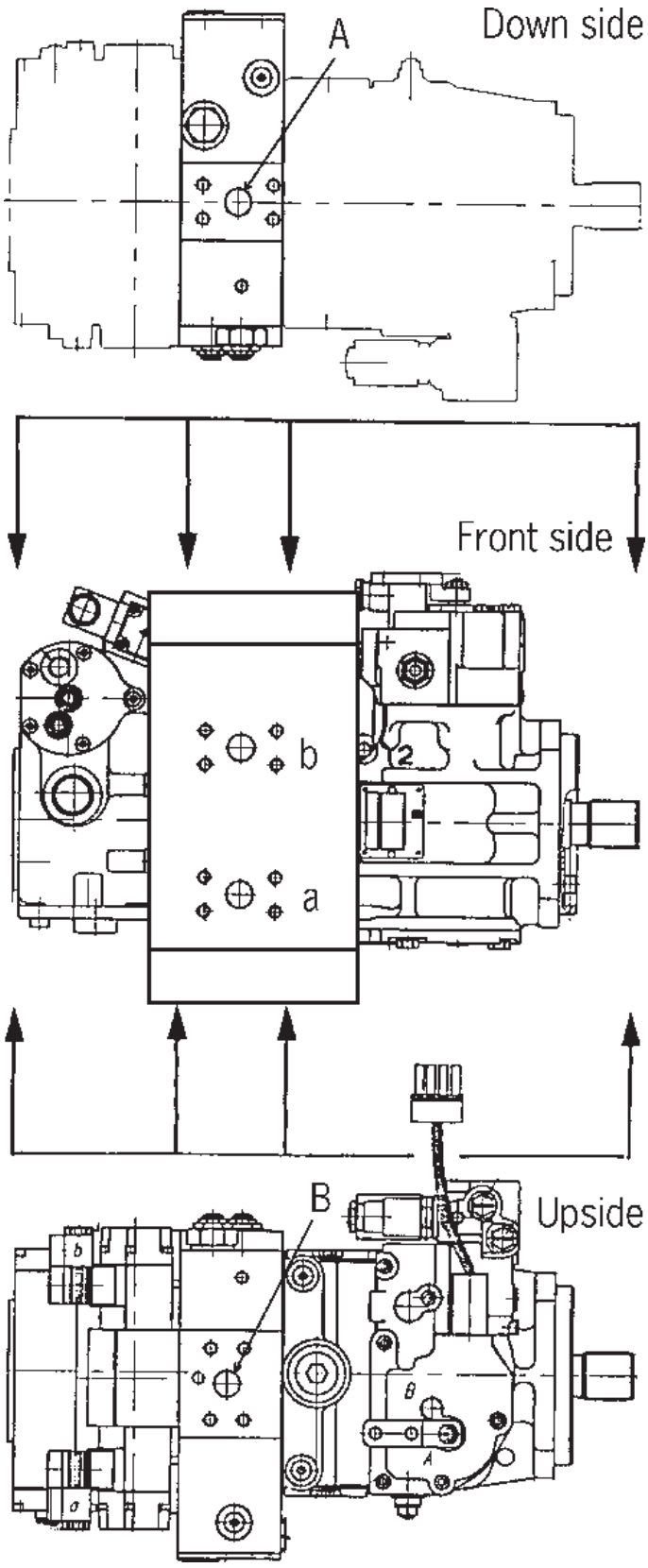
4.3 Put down the roller and disconnect the motor filter and reconnect the motor and hoses.

4.8.3 Carefully test all functions of all hydraulic components.

4.8.4 Change the system filter after 50 h use to a normal working filter.

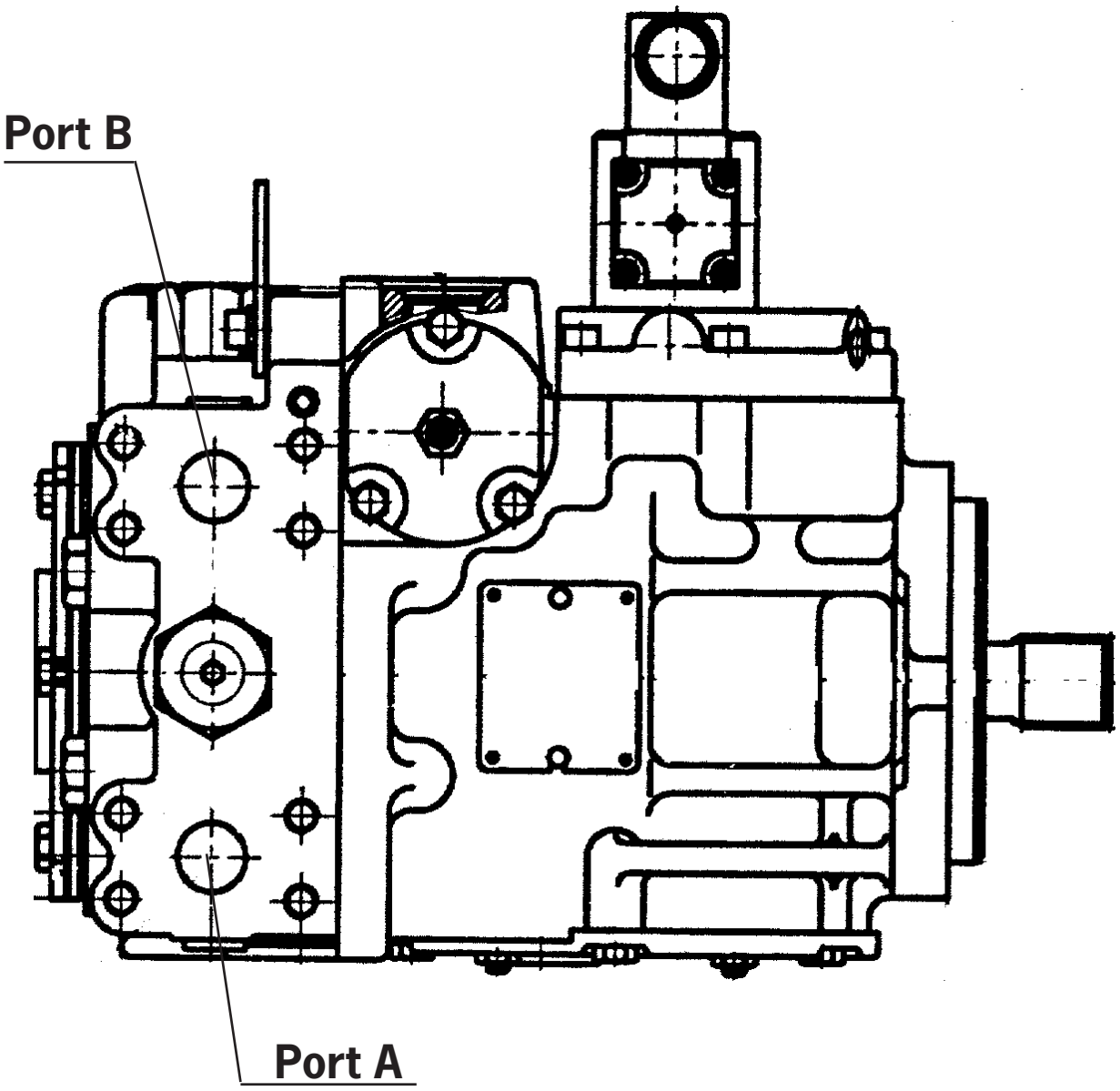
⚠ **Warning! It is very important that the tank temperature never exceeds 80°C (176°F) during the cleaning period.**

Vibration and Propulsion pump CC222/232/322 P/N 37 10 89

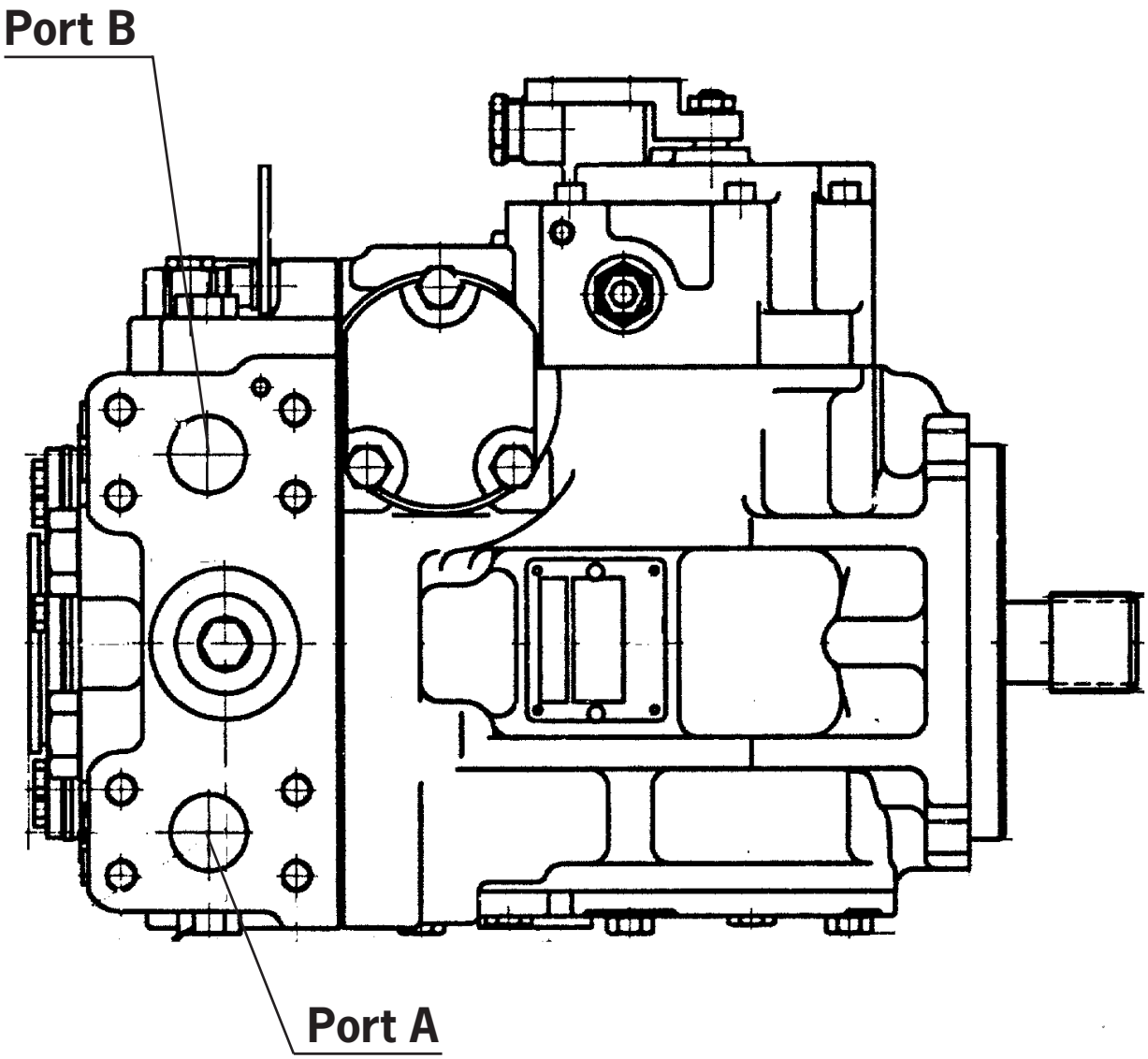


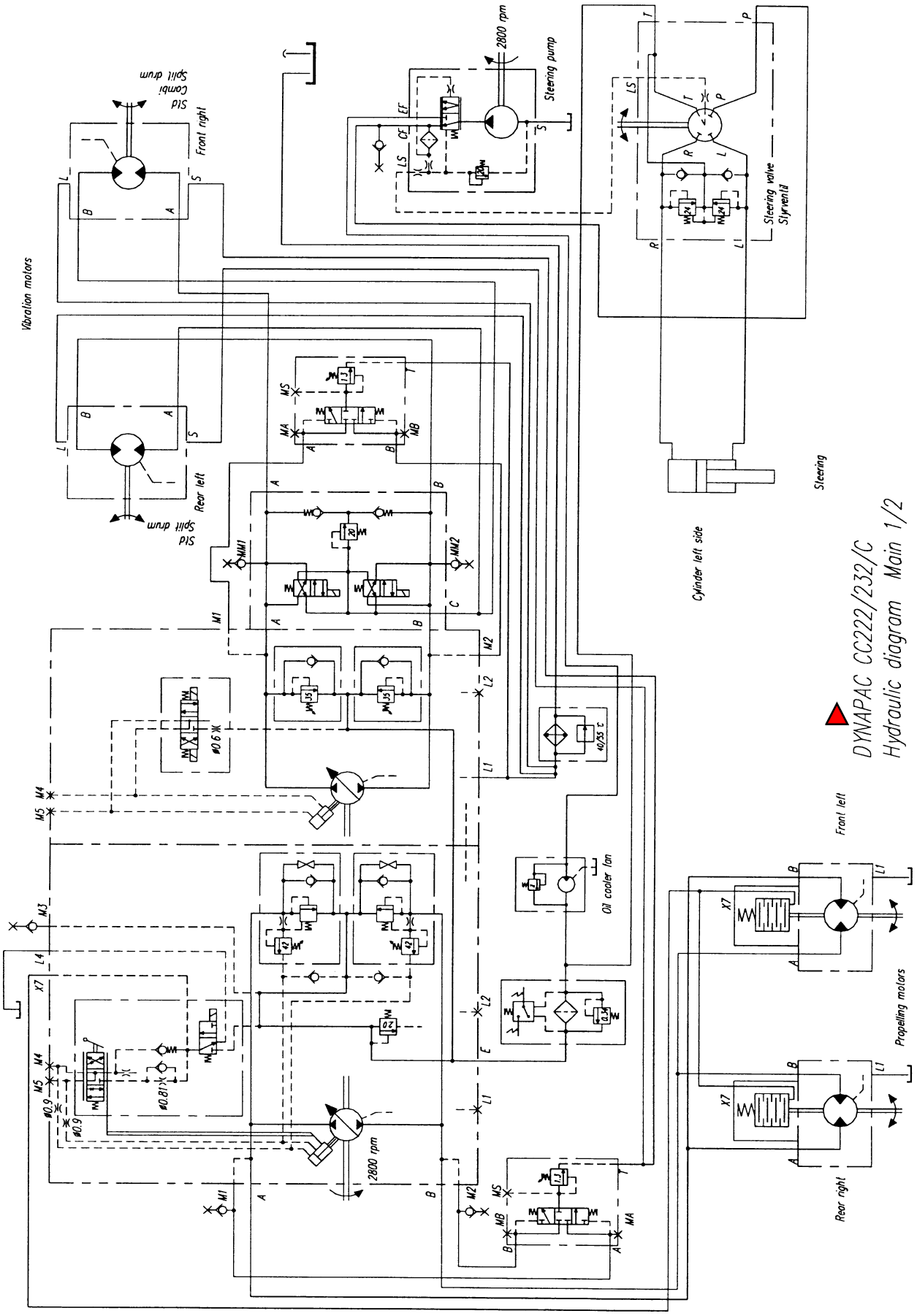
Purging of the Hydr. Syst.

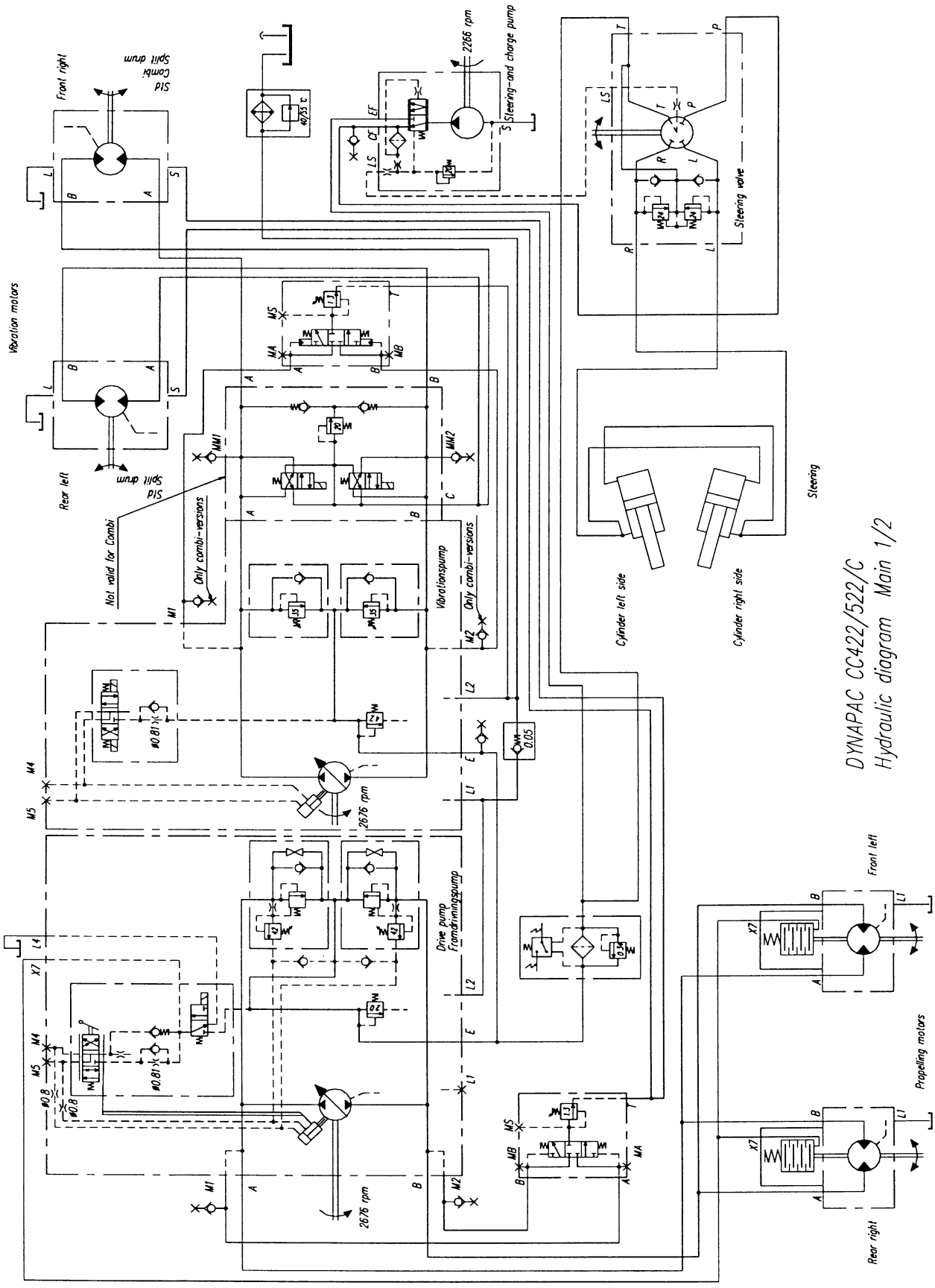
Vibration pump CC422/522 P/N 35 91 41



Propolsion pump CC422/522 P/N 35 91 42




Vibration motors
Std
Combi
Split drum
Front right
Std
Split drum
Rear left
2800 rpm
Steering pump
Steering valve
Styrventil
Steering
Cylinder left side
Oil cooler fan
Front left
Propelling motors
Rear right
2800 rpm
DYNAPAC CC222/232/C
Hydraulic diagram Main 1/2


Front right
Std
Combi
Split drum
Vibration motors
Rear left
Std
Split drum
Not valid for Combi
Only combi-versions
Only combi-versions
Vibrationspump
2266 rpm
Steering-and charge pump
Steering valve
Steering
Cylinder left side
Cylinder right side
2676 rpm
2676 rpm
Drive pump
Framdrivningspump
Front left
Propelling motors
Rear right
DYNAPAC CC422/522/C
Hydraulic diagram Main 1/2