

The excavator hydraulic handbook

Diagnosis, field procedures and the machine map · 2024 edition

06

faults, each with the test that decides it

03

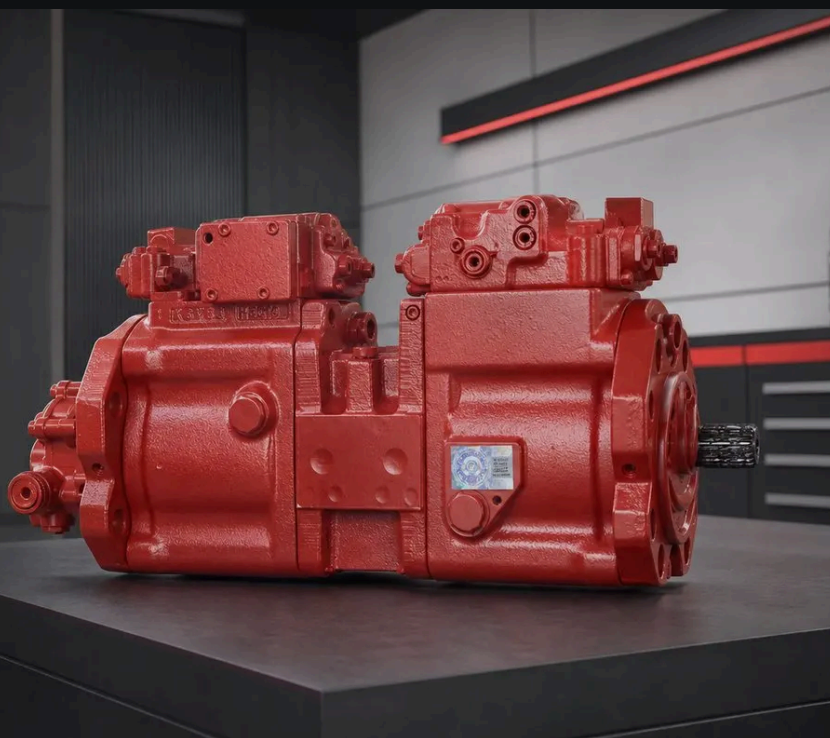
field procedures with the numbers

18

principles, animated online

386

machines mapped to three units



INSIDE

Six faults and the test that decides each	p. 4
Field procedures: regulator, case drain, first start	p. 11
Genuine vs copy: five-year economics	p. 15
Principles in motion	p. 16
The machine map: 386 machines, 25 brands	p. 19

Contents

How to use this book	Genuine vs copy
Six faults	Principles
Field procedures	The machine map

How to use this book

Every fault follows the same order: what you see, what usually causes it (with the probability from our own field records), the test that decides it, and the parts that fix it. Do not skip to the parts page: the test is the part that saves money.

Numbers are ranges, not quotations. Confirm the exact variant — shaft, regulator, control — against the machine plate before ordering.

Six faults

These six cover most of the calls. Each one has a test that costs less than the part.

Swing is slow, or will not hold a load

The house turns, but late and weak. Under a load it creeps back. Nine out of ten times the swing circuit is losing pressure somewhere between the pump and the motor — and the motor's case drain tells you where.

Probable causes

CAUSE	LIKELIHOOD	THE TEST THAT DECIDES IT
Swing relief pressure set low, or relief valve leaking	36%	Tee a 0–60 MPa gauge into the swing relief port, hold against a stall, compare with the rated 34.3 MPa.
Swing motor worn internally	30%	Measure case-drain flow with the motor at relief: over 8–10 L/min at 1,800 min ⁻¹ means the piston group is done.
Parking brake not fully released	18%	Check pilot pressure at the brake release port — it must reach the value in the catalogue, and the brake must open within 0.5 s.
Centre joint (swivel) seals leaking	16%	Compare motor inlet pressure with pump outlet pressure at the same moment; a gap that grows with oil temperature points at the joint.

Test before you buy

1. **Gauge, not guesswork** Tee into the swing relief port at the valve block. Record: stall pressure, pressure at first movement, and pressure after 10 minutes of work.
2. **Case drain** Run the motor at relief for 60 s with the drain hose into a measuring container. Flow, not pressure, is the wear signal.
3. **Brake release** Listen and feel: a brake that drags heats the housing to 70 °C+ within 15 minutes of work.

What fixes it

A seal kit restores a dry motor. A worn piston group is a motor or a sub-assembly, not a kit — ask for both numbers on one quote and compare against a day of downtime.

Parts for this fault: M5X130CHB · M5X180CHB · M5X80

The machine tracks off to one side

It was straight last month. Now any run longer than ten metres needs steering. This is a comparison test, not a diagnosis: two identical circuits, one of them is wrong, and swapping hoses tells you which side in twenty minutes.

Probable causes

CAUSE	LIKELIHOOD	THE TEST THAT DECIDES IT
One travel motor is worn	38%	Swap left and right travel hoses at the swivel. If the drift follows the hose, the fault is in the valve; if it stays with the machine side, the motor is worn.
Counterbalance or relief valve out of adjustment	24%	Compare relief settings left vs right with a gauge at the motor ports. More than 1 MPa difference is a fault, not a tolerance.
Centre joint internal leak on one circuit	22%	Run both tracks against a stall and watch for oil temperature rise on one side only.
Travel straight spool / pilot pressure	16%	Check pilot pressure at both travel pilot ports; a 0.5 MPa difference explains a slow drift at low speed.

Test before you buy

1. **The swap test** Mark the hoses before you touch them. Swap, run 20 m straight, then judge. This one test eliminates half the suspect list.
2. **Track and undercarriage** Seized rollers and uneven track tension mimic hydraulic drift. Check them before quoting a motor.
3. **Case drain, both sides** Measure both motors the same way. The side with 2–3× the flow is the worn one.

What fixes it

Two travel motors are not a matching pair once one is replaced — a new motor beside a worn one will drift again. Price the pair against the lost hours.

Parts for this fault: FTD45 · FDNB12 · FTD70

Travel is weak, or dies on a grade

Flat ground is fine; a slope is not. Weak travel with a normal swing almost always lives in the two-speed control, the travel relief, or the final drive — not in the main pump.

Probable causes

CAUSE	LIKELIHOOD	THE TEST THAT DECIDES IT
Two-speed solenoid or displacement control stuck in high speed	32%	Switch speed 1 / speed 2 and watch travel speed and pressure change. No change means the control is stuck.
Travel relief valve leaking	30%	Stall one track against a bank, read the gauge at the motor port, compare with the catalogue setting.
Final drive / planetary wear	23%	Drain the gear oil: metal paste on the plug magnet means the reducer, not the hydraulics.
Main pump delivery down (both functions affected)	15%	If swing and arm are also slow, test the pump before touching travel. Flow test, not pressure.

Test before you buy

1. **Stall pressure, both tracks** One track at a time against an immovable bank. Compare left and right; within 1 MPa means the fault is shared.
2. **Speed switching** Speed 2 to speed 1 should halve travel speed and roughly double torque. Watch it happen, do not trust the switch light.
3. **Gear oil** Fifty millilitres from the drain plug tells you more about a final drive than an hour on the gauge.

What fixes it

A travel assembly is a motor plus a reducer, sold and shipped as one unit — which is why the quote should state whether the fault is hydraulic or mechanical before it is issued.

Parts for this fault: FDNB08 · FTD48 · FTD80

The pump growls, whines or knocks

Sound is the cheapest sensor on the machine. A growl that disappears when the machine is cold is air; a knock that follows load is metal. Identify which before you take the pump off.

Probable causes

CAUSE	LIKELIHOOD	THE TEST THAT DECIDES IT
Cavitation: suction strainer clogged or air ingress	40%	Vacuum gauge at the pump inlet: over -0.02 MPa means a restricted suction. Look for foam in the tank.
Worn piston shoes / slippers (metal on metal)	28%	Cut the filter open. Brass-coloured particles mean shoes; steel flakes mean cylinder block or valve plate.
Shaft seal letting air in	18%	Oil weep at the shaft, or a whistle at idle that stops when the case is pressurised.
Coupling or alignment	14%	Hand-turn the pump with the engine off: roughness in a quarter-turn means coupling, not hydraulics.

Test before you buy

1. **Cold start listening** Record the first 30 seconds after start with a phone. Cavitation noise is loudest when the oil is thick.
2. **Inlet vacuum** Tee a vacuum gauge before the pump. A new strainer should read under -0.01 MPa at full flow.
3. **Case drain and filter cut** Both together separate air from metal in five minutes.

What fixes it

A pump that is cavitating is not a worn pump — replacing it without fixing the suction kills the new one too. That is the conversation this page exists to start.

Parts for this fault: K3V112DTP · K5V140DTP · K3V140DTP

Pressure drops under load, everything slows

Two functions slow at once and the gauge sags when the bucket bites. When several circuits fail together, the fault is upstream of all of them: relief, regulator, or the pump's rotating group.

Probable causes

CAUSE	LIKELIHOOD	THE TEST THAT DECIDES IT
Main relief valve stuck partially open	34%	Dead-head a function and read the main relief. A value 10–15% below rated and a hot tank confirm it.
Regulator / compensator drift	32%	Watch pump pressure at standby. If it hunts or sits low at no flow, the regulator is the suspect, not the rotating group.
Worn piston group losing volumetric efficiency	22%	Flow test at rated pressure: below 90% of catalogue flow means the group is tired.
Control valve spool / negative control	12%	Check standby pressure and the negative-control line for leaks before opening the pump.

Test before you buy

- Standby and stall** Two numbers, five minutes: standby pressure (no function) and stall pressure (dead-head). Everything else follows from the gap between them.
- Flow, not just pressure** A pump can hold pressure and still deliver half the flow. Measure litres per minute at rated pressure.
- Regulator response** Load and unload a function and watch the pressure recover within one second. Slow recovery is a regulator, not a pump.

What fixes it

A regulator can be replaced on the machine. A rotating group cannot. The quote should separate the two, because the price difference is not small.

Parts for this fault: K5V200DTH · K3V180DT · K5V160DTH

Hydraulic oil runs hot

Heat is a symptom of lost energy, and in hydraulics lost energy is a leak — usually an internal one. The oil cooler is the last suspect, not the first, and it is the one everybody replaces first.

Probable causes

CAUSE	LIKELIHOOD	THE TEST THAT DECIDES IT
Internal leakage in motors or pump (worn groups)	38%	Case-drain flow on each motor and the pump. One hot circuit narrows the search to one unit.
Cooler blocked or fan / hydraulic-driven fan weak	26%	Infrared the cooler inlet and outlet: a working cooler drops 10 °C or more across.
A relief valve blowing continuously	20%	Watch pressure at idle with no function commanded — it should be standby, not relief.
Wrong oil grade or contaminated oil	16%	Viscosity at 40 °C and water content; a 10 °C ambient swing needs a different grade.

Test before you buy

1. **Temperature map** An infrared camera on the tank, each motor housing and the valve block after 30 minutes of work. The hot unit names itself.
2. **Case drain again** Heat and case drain are the same measurement seen two ways.
3. **Oil sample** A 100 ml sample sent for water, viscosity and particle count answers three causes at once.

What fixes it

Overheating is usually a repair-kit conversation, not an assembly conversation — which is why it is worth diagnosing before ordering.

Parts for this fault: M5X180CHB · FTD100 · K5V200SH

Field procedures

Set the regulator, then read the case drain.

Weak digging power with a healthy engine has two causes: a drifted regulator, or a pump bleeding internally. Four ports and one flowmeter separate them, and no amount of screw-turning fixes a worn rotating group.

The four signals the regulator reads

Every K3V / K5V regulator is a small servo bolted to the top of the pump group. It tilts the swashplate so the torque draw never exceeds the engine's rated horsepower. It reads four pressures; if any signal is missing or wrong the pump will behave like a failed regulator even when the regulator is fine.

Hydraulic principles in motion: sequence valves, meter-in throttling, pressure compensation — the behaviours the regulator is trying to manage. From our animation archive.

PORT	SIGNAL	RANGE
Ps	own pump delivery pressure	0–350 bar
Pi	cross-sensing, other pump group	0–350 bar
Pn	negative control from the main valve	0–40 bar
Pf	power-shift (EPPR solenoid)	0–40 bar

Five checks before the cap comes off

- Engine reaches rated high idle. If it only makes 1,900 instead of 2,050 min⁻¹, the torque limit is not the regulator's fault.
- Oil at 45–60 °C. Adjusting on cold oil leaves the machine over-fuelling once it warms up.
- Pilot pressure 35–40 bar with the joysticks centred.
- EPPR coil 20–30 Ω cold. An open coil forces minimum torque.
- Pn line intact: crack the fitting, oil must weep at low pressure with the sticks centred.

Q1 and Q2, with the numbers

Q1 limits maximum displacement; clockwise reduces flow. Roughly a quarter turn is 3–5 % of maximum flow. Never move more than a full turn before re-testing.

FAMILY	Q1 THREAD EXPOSED	LOCK-NUT TORQUE
K3V63DT / K3V112DT	12 ± 0.5 mm	45 N·m
K3V140DT / K3V180DT	14 ± 0.5 mm	50 N·m
K5V80 / K5V140	15 ± 0.5 mm	55 N·m
K5V160 / K5V200	17 ± 0.5 mm	60 N·m

Q2 sets residual flow at idle. It is factory-locked; break the lock-nut only if standby pressure stays above 40 bar with everything centred. After any adjustment: cap on, warm to 55 °C, stall test for no more than 5 s — RPM must not drop more than 200 below rated.

The case-drain test

- Warm to 55 °C. Leakage on cold oil reads misleadingly low.
- Plumb a 0–40 L/min turbine flowmeter into the case-drain hose, before the return filter.
- Baseline with sticks centred: a healthy pump is under 2 L/min.
- Deadhead for 5 seconds only (bucket curled, against the relief), read the loaded flow, release immediately.
- Loaded drain that rises to 10–15 % of pump flow means the rotating group is done — rebuild or replace, not adjust.

One condition before you buy anything: a regulator tune is only legitimate after these numbers are recorded. Send the four pressures and the case-drain flow with the machine model and we will tell you which of the three outcomes it is.

Sources: Kawasaki K3V / K5V regulator field adjustment and case-drain SOP (Belparts technical blog, 2026-08-28); K3VG technical brochure — regulator codes and control curves (GS Global Resources)

Swing: three tests before you take the motor off.

M5X and M2X swing motors are fixed-displacement swash-plate units with a built-in brake and reliefs. Weak swing is usually pressure or brake, not the motor — and the motor only comes off after the third test says so.

Test 1 — relief pressure at the swing port

Tee a 0–60 MPa gauge into the swing relief port and stall the house against the swing lock. Compare with the catalogue rating for the motor (34.3 MPa rated, 41.2 MPa peak for M5X130CHB). More than 10 % low: the relief is passing, and the motor is innocent.

Test 2 — brake release

A dragging parking brake heats the motor housing and mimics a worn motor. Check pilot pressure at the brake-release port and listen: a brake that does not open fully takes the housing past 70 °C within 15 minutes of work.

Test 3 — case drain

Run the motor at relief for 60 seconds with the drain into a measuring container. Flow, not pressure, is the wear signal. If the drain is dry and the swing still drifts, look at the centre joint seals and the swing spool before the motor.

Two photographs decide the order: the machine plate and the motor plate. The full TYPE code, not M5X130 alone — the FRG11 and FRG14 swing devices differ in reduction ratio and brake.

Sources: Kawasaki M2X / M5X swing motors — technical overview (Belparts technical blog, 2026-09-14)

Most new pumps die on the first start.

A unit that was correct on the bench can fail inside a week if the circuit was not flushed, the suction was not sealed, or the machine was started dry. This is the checklist we insist on before a pump leaves the crate.

Before the old unit comes off

Rotating group in section: pistons, shoes, swash plate and valve plate. The three parts that fail when the oil is dirty.

- Cut the return filter open and look at the debris: copper means shoes, steel means block or valve plate. Photograph it — it tells you whether the circuit needs flushing.
- Drain and inspect the tank for water and sludge. Water first, oil second.
- Note the regulator variant and shaft spline before you touch the old unit.

Flush, do not rinse

If metal was found, flush the whole circuit with a low-viscosity flushing oil through a kidney-loop filter until the target cleanliness is reached — typically ISO 4406 18/16/13 or better for the main circuit, and cleaner for servo-controlled regulators. Change the filter after flushing, then again after the first 50 hours.

First start

- Fill the pump case with clean oil before fitting. Never start dry.
- Check the suction line: new O-rings, no cracked flange, no air weep at idle.
- Start at low idle with the functions neutral for 30 seconds, listening for cavitation.
- Run 10 minutes unloaded, then set the main relief and the regulator to the machine's specification — not to the pump's.
- Re-check case drain after the first hour of work; a rising drain is the early warning.

Send the machine plate, the pump plate and the old unit's filter photo with the order. It is the difference between a unit that fits and a unit that comes back.

Sources: Hydraulic fluid cleanliness and contamination control (HYDAC technical documentation); Flushing and cleaning of hydraulic systems — IS 15170:2002 (BIS)

A copy pump is cheaper once. A genuine pump is cheaper twice.

Five years of ownership, measured on the same 20-tonne machine: purchase price, rebuilds, contamination damage and downtime. The numbers below come from a comparison sheet we keep for price arguments, with its sources listed at the end.

	COPY	GENUINE
Purchase price	¥4,500 – 8,000	¥25,000 – 35,000
Design life	1,680 – 5,000 h	8,000 – 10,000 h
Real life, heavy duty	8 – 14 months	4 – 5 years
Purchases in five years	4 – 5	1
Five-year total	¥93,000 – 170,000	¥34,000 – 50,000
Pressure at 1,680 h	180 bar, then failure	320 bar, still holding
Volumetric efficiency after 5,000 h	< 80 %, falling	> 92 %, steady

Four parts decide it

PART	GENUINE	COPY	EFFECT
Swash plate	High-chrome steel, carburised, 0.18–0.22 mm layer	Low-carbon steel, 0.04–0.06 mm plating	A quarter of the layer: it wears through, then scores the pistons
Piston shoes	Bonded molybdenum, HRC 62+, sphere ±0.005 mm	Bare steel, under HRC 62, sphere ±0.02 mm	Four times the tolerance and no friction layer: internal leak rises 30 %+
Cylinder block face	Ground to 0.003 mm flatness, ductile iron	0.028 mm waviness, ordinary cast iron	Nine times the waviness: the seal never closes
Valve plate	Bronze, lapped, 8,200 h still in service	Brass, scratched within 400 h, dead at 1,680 h	A fifth of the life, and the debris goes into the whole circuit

How a copy pump dies

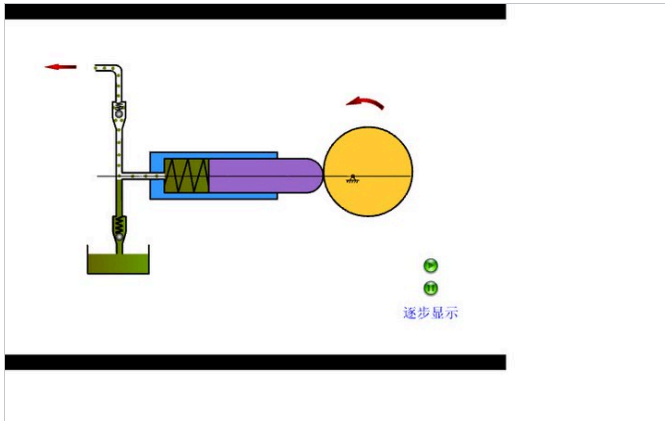
300 – 500 h	Oil film fails Cold machine is quick, hot machine is slow. Ground clearance opens; hot oil leaks past. Cut the filter open: copper powder means shoes, silver means block and pistons.	¥2,000 – 4,000
500 – 1,000 h	Pitting and noise The growl turns into a buzz, then into a rhythmic knock. Buzz is a sticking piston; knock is a broken shoe or a scored face.	¥3,000 – 6,000
1,000 – 1,680 h	The pump takes the machine down Shaft breaks or the block bursts. Metal is already circulating: valve block ¥8,000–15,000, cylinders ¥5,000–10,000 each, flush and oil ¥2,000–5,000, downtime ¥10,000–15,000 a day.	¥4,500 – 8,000, every 5–7 months

Ask before you buy

- Ask for the plate: full TYPE code, not just K3V112.
- Ask which valve plate material: bronze or brass.
- Ask for the shaft and regulator variant in writing.
- Ask what happens to the system when it fails: is the debris path blocked or not.

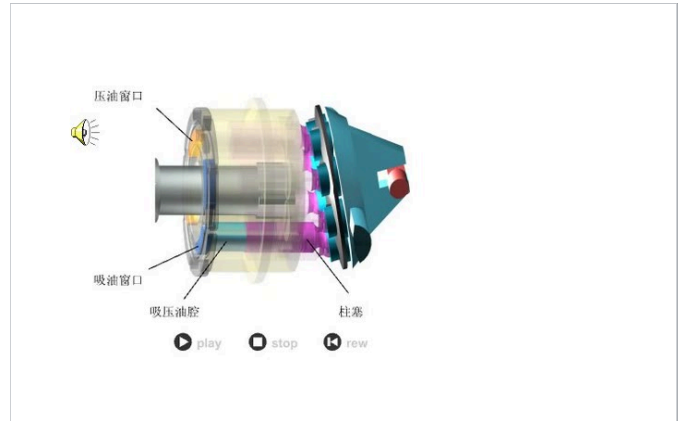
Hydraulic principles, eighteen clips

Each clip in the online library is stilled here to one frame. The full animation is on the site.



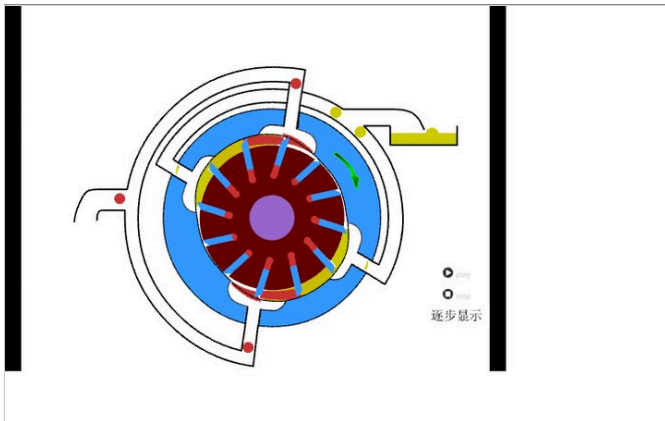
Single-piston pump, end to end

Suction, delivery, check valves and the crank: the smallest complete pump there is.



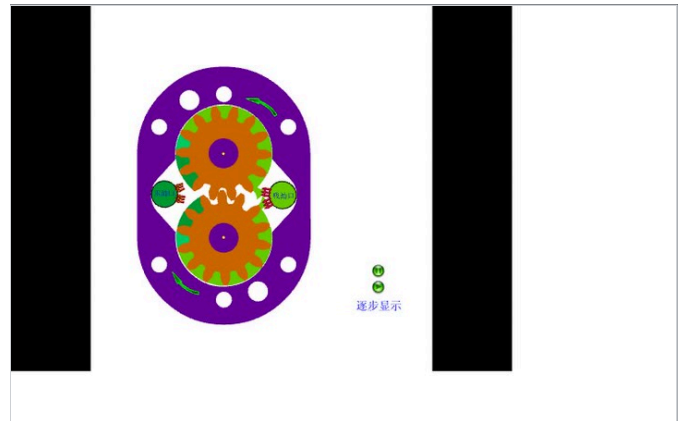
Swash-plate axial piston pump

Nine pistons against one tilted plate. The plate angle is the displacement, and it is what the regulator moves.



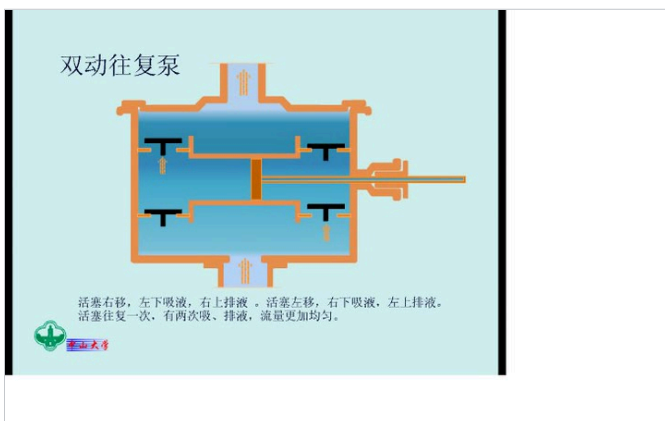
Vane pump, in section

Vaness seal against a cam ring. Compare with the piston group to see why piston pumps survive pressure.



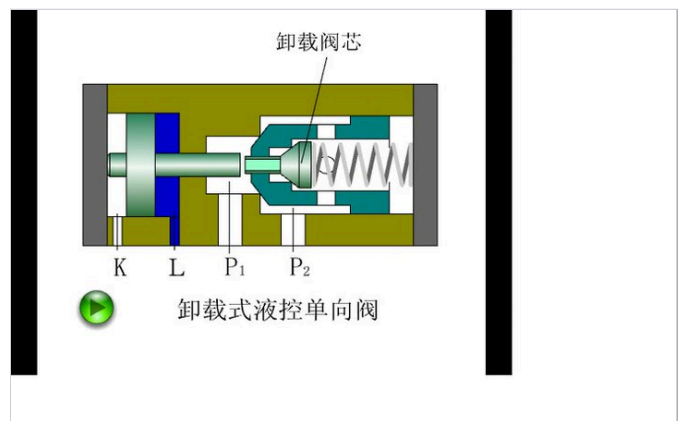
External gear pump

Two gears, one sealed pocket. Simple and cheap, which is why gear pumps stay off the main circuit of an excavator.



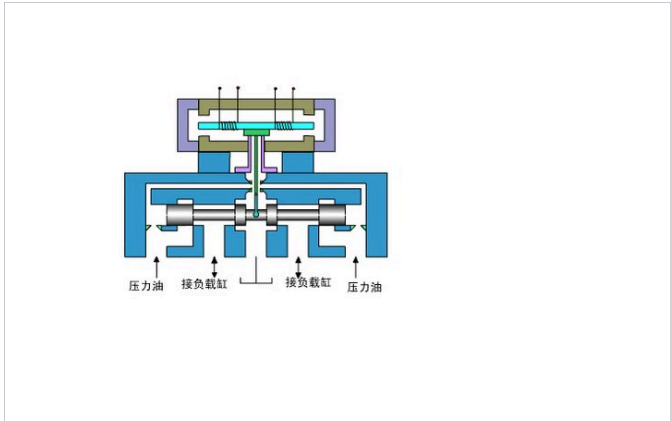
Double-acting reciprocating pump

Both sides of the piston deliver on every stroke: the ancestor of every positive-displacement pump.



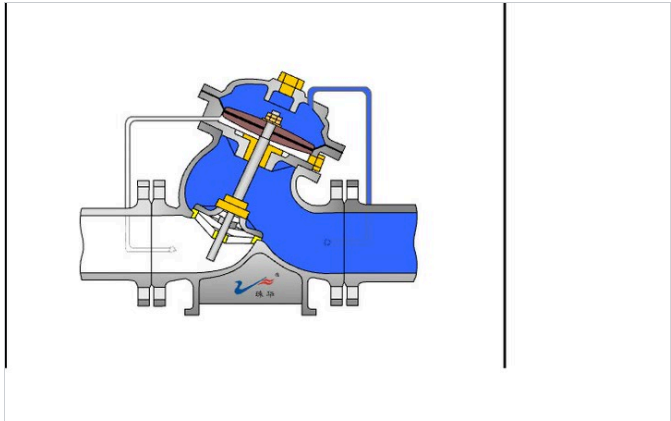
Pilot-operated check valve

Holds a load without leaking, opens only when pilot pressure releases it. The reason the boom stays up.



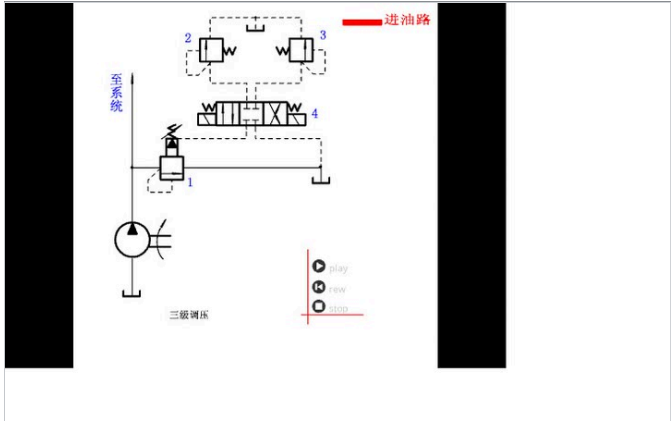
Servo valve

A small signal moves a big flow. The same idea the regulator uses to tilt the swash plate.



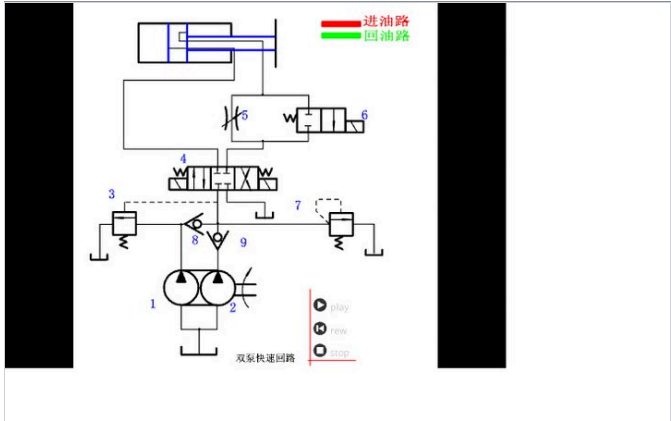
Three-stage pressure circuit

Relief valves in series: each one decides a different working pressure. This is how pressure modes are switched.



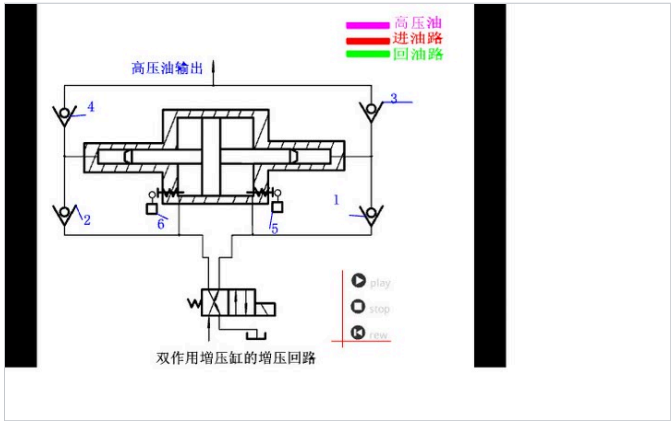
Two-stage pressure circuit

The simplest version: one relief set, the second introduced by opening a valve.



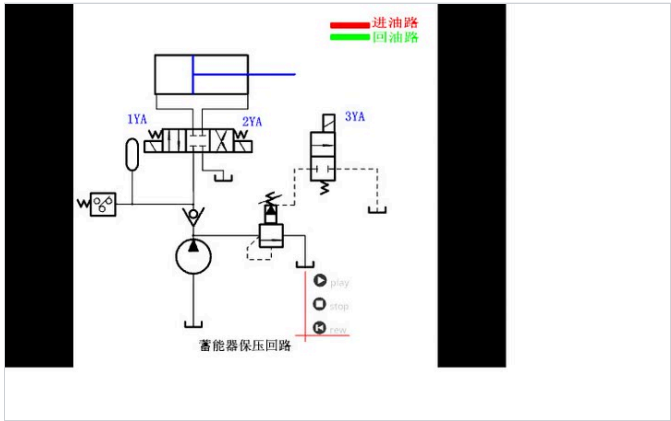
Two-pump speed circuit

Two pumps into one function for speed, one pump for control. Tandem pumps exist for this reason.



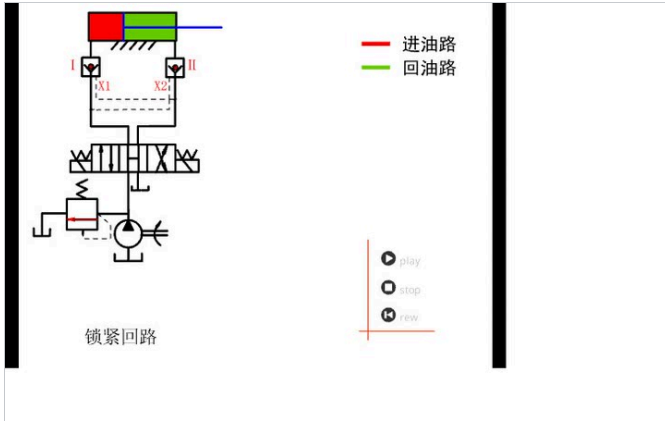
Accumulator holding circuit

Stores energy and holds pressure with the pump idle: what a circuit does when it must hold a load for minutes.



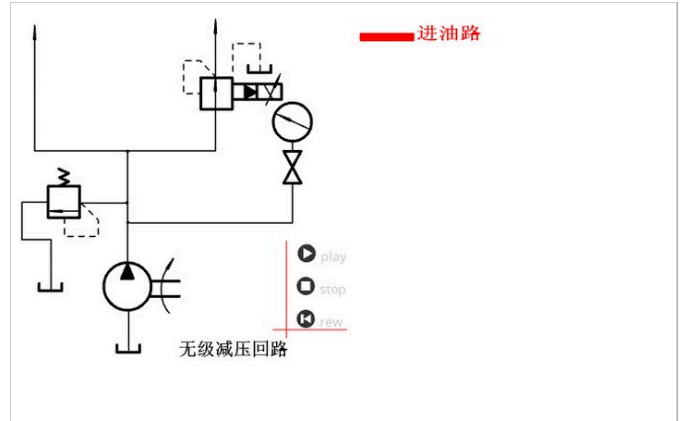
Lock circuit

Trapped oil held by check valves: the excavator version of a parking brake.



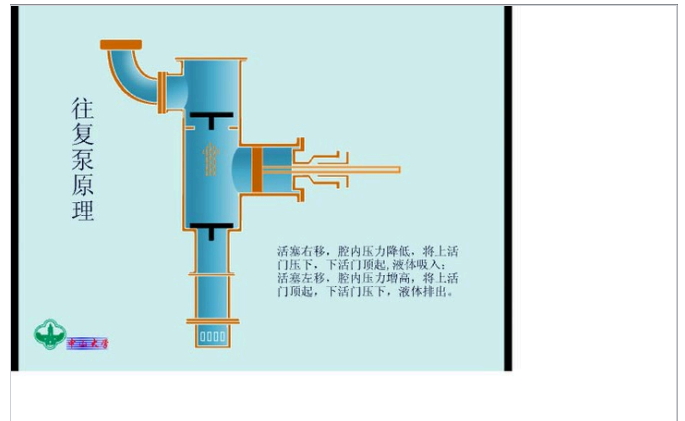
Directional control circuit

The spool decides where the oil goes. Everything the operator feels starts here.



Flushing valve circuit

Flushes the low-pressure side and cools the circuit: why dirty oil kills a closed circuit.

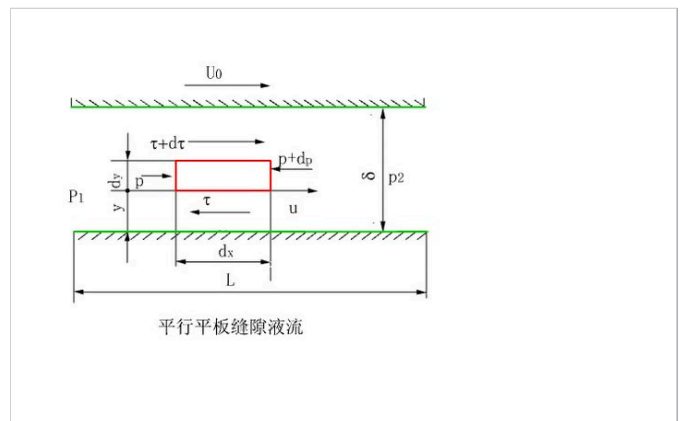
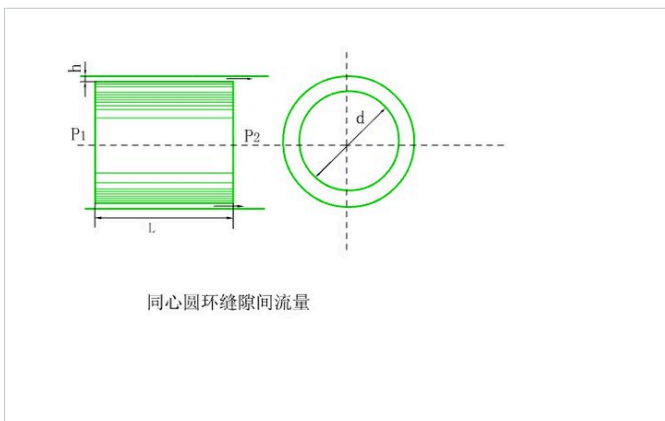


Sequence by limit switch and solenoid

One function finishes, the next begins: the logic behind almost every automatic cycle on a machine.

Leakage through an annular gap

Leakage grows with the third power of the gap and falls with viscosity. Hot thin oil loses pressure.



Leakage through a flat gap

The same equation that explains a worn valve plate: a few microns is the whole game.

Absolute and gauge pressure

Why a gauge reads zero at atmospheric pressure, and why a suction leak is measured in negative numbers.

The machine map

386 machines, 25 brands, mapped to the pump, swing motor and travel drive. Empty cells are unconfirmed.

Case 11

MODEL	T	PUMP	SWING	TRAVEL
CX130	13.0	K3V112S	M5X130CHB	FTD26
CX160	16.0	K3V112S	M5X130CHB	FTD26
CX210	21.0	K3V112DTP	M5X180CHB	FTD45
CX220	22.0	K3V112DTP	M5X180CHB	FTD45
CX240	24.0	K3V112DTP	M5X180CHB	FTD45
CX290	29.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
CX300	30.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
CX330	33.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
CX350	35.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
CX370	37.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
CX490	49.0	K5V200DTH	M5X180CHB	FTD48

Caterpillar 19

MODEL	T	PUMP	SWING	TRAVEL
312	12.0	K3V112S / K5V140S	—	FDNB12
313	13.0	K3V112S	M5X130CHB	FTD26
315	15.0	K3V112S	M5X130CHB	FTD26
318	18.0	K3V112DTP	M5X180CHB	FTD45
320	20.0	K3V112DTP	M5X180CHB	FTD45
323	23.0	K3V112DTP	M5X180CHB	FTD45
326	26.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
330	30.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
336	36.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
340	40.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
349	49.0	K5V200DTH	M5X180CHB	FTD48
352	52.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48
374	74.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48
390	90.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48
395	95.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48
320D	20.0	K3V112DTP	M5X180CHB	FTD45
325C	25.0	K3V112DTP	M5X180CHB	FTD45
330C	30.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
336D	36.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48

Doosan 25

MODEL	T	PUMP	SWING	TRAVEL
DX60	6.0	K3V63S / K5V80S	—	FDNB12
DX75	7.5	K3V63S / K5V80S	—	FDNB12
DX140	14.0	K3V112S	M5X130CHB	FTD26
DX150	15.0	K3V112S	M5X130CHB	FTD26
DX180	18.0	K3V112DTP	M5X180CHB	FTD45
DX200	20.0	K3V112DTP	M5X180CHB	FTD45
DX210	21.0	K3V112DTP	M5X180CHB	FTD45
DX220	22.0	K3V112DTP	M5X180CHB	FTD45
DX225	22.5	K3V112DTP	M5X180CHB	FTD45
DX255	25.5	K3V112DTP	M5X180CHB	FTD45
DX300	30.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
DX340	34.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
DX350	35.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
DX380	38.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
DX420	42.0	K5V200DTH	M5X180CHB	FTD48
DX480	48.0	K5V200DTH	M5X180CHB	FTD48
DX500	50.0	K5V200DTH	M5X180CHB	FTD48
DX530	53.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48
DH150	15.0	K3V112S	M5X130CHB	FTD26
DH220	22.0	K3V112DTP	M5X180CHB	FTD45
DH300	30.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
DH350	35.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
DH370	37.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
DH420	42.0	K5V200DTH	M5X180CHB	FTD48
DH500	50.0	K5V200DTH	M5X180CHB	FTD48

MODEL	T	PUMP	SWING	TRAVEL
ZX70	7.0	K3V63S / K5V80S	—	FDNB12
ZX120	12.0	K3V112S / K5V140S	—	FDNB12
ZX130	13.0	K3V112S	M5X130CHB	FTD26
ZX135	13.5	K3V112S	M5X130CHB	FTD26
ZX200	20.0	K3V112DTP	M5X180CHB	FTD45
ZX210	21.0	K3V112DTP	M5X180CHB	FTD45
ZX220	22.0	K3V112DTP	M5X180CHB	FTD45
ZX240	24.0	K3V112DTP	M5X180CHB	FTD45
ZX250	25.0	K3V112DTP	M5X180CHB	FTD45
ZX270	27.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
ZX300	30.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
ZX330	33.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
ZX350	35.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
ZX360	36.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
ZX370	37.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
ZX400	40.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
ZX450	45.0	K5V200DTH	M5X180CHB	FTD48
ZX470	47.0	K5V200DTH	M5X180CHB	FTD48
ZX490	49.0	K5V200DTH	M5X180CHB	FTD48
ZX500	50.0	K5V200DTH	M5X180CHB	FTD48
EX120	12.0	K3V112S / K5V140S	—	FDNB12
EX200	20.0	K3V112DTP	M5X180CHB	FTD45
EX220	22.0	K3V112DTP	M5X180CHB	FTD45
EX230	23.0	K3V112DTP	M5X180CHB	FTD45
EX300	30.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
EX360	36.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
EX400	40.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
EX450	45.0	K5V200DTH	M5X180CHB	FTD48

MODEL	T	PUMP	SWING	TRAVEL
R55	5.5	FDNB08	—	FDNB08
R60	6.0	K3V63S / K5V80S	—	FDNB12
R80	8.0	K3V63S / K5V80S	—	FDNB12
R110	11.0	K3V112S / K5V140S	—	FDNB12
R140	14.0	K3V112S	M5X130CHB	FTD26
R160	16.0	K3V112S	M5X130CHB	FTD26
R180	18.0	K3V112DTP	M5X180CHB	FTD45
R200	20.0	K3V112DTP	M5X180CHB	FTD45
R210	21.0	K3V112DTP	M5X180CHB	FTD45
R220	22.0	K3V112DTP	M5X180CHB	FTD45
R230	23.0	K3V112DTP	M5X180CHB	FTD45
R250	25.0	K3V112DTP	M5X180CHB	FTD45
R260	26.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
R290	29.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
R300	30.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
R320	32.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
R330	33.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
R340	34.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
R360	36.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
R380	38.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
R430	43.0	K5V200DTH	M5X180CHB	FTD48
R450	45.0	K5V200DTH	M5X180CHB	FTD48
R480	48.0	K5V200DTH	M5X180CHB	FTD48
R520	52.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48
R550	55.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48

JCB 12

MODEL	T	PUMP	SWING	TRAVEL
JS130	13.0	K3V112S	M5X130CHB	FTD26
JS160	16.0	K3V112S	M5X130CHB	FTD26
JS200	20.0	K3V112DTP	M5X180CHB	FTD45
JS205	20.5	K3V112DTP	M5X180CHB	FTD45
JS220	22.0	K3V112DTP	M5X180CHB	FTD45
JS240	24.0	K3V112DTP	M5X180CHB	FTD45
JS260	26.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
JS300	30.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
JS330	33.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
JS360	36.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
JS370	37.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
JS450	45.0	K5V200DTH	M5X180CHB	FTD48

Kato 10

MODEL	T	PUMP	SWING	TRAVEL
HD308	8.0	K3V63S / K5V80S	—	FDNB12
HD512	12.0	K3V112S / K5V140S	—	FDNB12
HD513	13.0	K3V112S	M5X130CHB	FTD26
HD700	7.0	K3V63S / K5V80S	—	FDNB12
HD800	20.0	K3V112DTP	M5X180CHB	FTD45
HD820	20.0	K3V112DTP	M5X180CHB	FTD45
HD823	23.0	K3V112DTP	M5X180CHB	FTD45
HD1023	23.0	K3V112DTP	M5X180CHB	FTD45
HD1430	30.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
HD1638	38.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48

Kobelco 17

MODEL	T	PUMP	SWING	TRAVEL
SK75	7.5	K3V63S / K5V80S	—	FDNB12
SK115	11.5	K3V112S / K5V140S	—	FDNB12
SK130	13.0	K3V112S	M5X130CHB	FTD26
SK135	13.5	K3V112S	M5X130CHB	FTD26
SK140	14.0	K3V112S	M5X130CHB	FTD26
SK200	20.0	K3V112DTP	M5X180CHB	FTD45
SK210	21.0	K3V112DTP	M5X180CHB	FTD45
SK230	23.0	K3V112DTP	M5X180CHB	FTD45
SK250	25.0	K3V112DTP	M5X180CHB	FTD45
SK260	26.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
SK300	30.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
SK330	33.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
SK350	35.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
SK380	38.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
SK450	45.0	K5V200DTH	M5X180CHB	FTD48
SK480	48.0	K5V200DTH	M5X180CHB	FTD48
SK500	50.0	K5V200DTH	M5X180CHB	FTD48

Komatsu 19

MODEL	T	PUMP	SWING	TRAVEL
PC55	5.5	FDNB08	—	FDNB08
PC78	7.8	K3V63S / K5V80S	—	FDNB12
PC110	11.0	K3V112S / K5V140S	—	FDNB12
PC130	13.0	K3V112S	M5X130CHB	FTD26
PC138	13.8	K3V112S	M5X130CHB	FTD26
PC200	20.0	K3V112DTP	M5X180CHB	FTD45
PC210	21.0	K3V112DTP	M5X180CHB	FTD45
PC220	22.0	K3V112DTP	M5X180CHB	FTD45
PC240	24.0	K3V112DTP	M5X180CHB	FTD45
PC290	29.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
PC300	30.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
PC340	34.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
PC350	35.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
PC390	39.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
PC400	40.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
PC450	45.0	K5V200DTH	M5X180CHB	FTD48
PC490	49.0	K5V200DTH	M5X180CHB	FTD48
PC550	55.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48
PC600	60.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48

Kubota 9

MODEL	T	PUMP	SWING	TRAVEL
KX057	5.7	FDNB08	—	FDNB08
KX080	8.0	K3V63S / K5V80S	—	FDNB12
KX121	12.1	K3V112S / K5V140S	—	FDNB12
KX161	16.1	K3V112S	M5X130CHB	FTD26
U17	1.7	FDNB08	—	FDNB08
U27	2.7	FDNB08	—	FDNB08
U35	3.5	FDNB08	—	FDNB08
U48	4.8	FDNB08	—	FDNB08
U55	5.5	FDNB08	—	FDNB08

Liebherr 16

MODEL	T	PUMP	SWING	TRAVEL
R914	14.0	K3V112S	M5X130CHB	FTD26
R916	16.0	K3V112S	M5X130CHB	FTD26
R918	18.0	K3V112DTP	M5X180CHB	FTD45
R920	20.0	K3V112DTP	M5X180CHB	FTD45
R922	22.0	K3V112DTP	M5X180CHB	FTD45
R924	24.0	K3V112DTP	M5X180CHB	FTD45
R926	26.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
R936	36.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
R938	38.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
R944	44.0	K5V200DTH	M5X180CHB	FTD48
R946	46.0	K5V200DTH	M5X180CHB	FTD48
R950	50.0	K5V200DTH	M5X180CHB	FTD48
R954	54.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48
R956	56.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48
R964	64.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48
R966	66.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48

MODEL	T	PUMP	SWING	TRAVEL
CLG9022	22.0	K3V112DTP	M5X180CHB	FTD45
CLG9035	35.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
CLG9045	45.0	K5V200DTH	M5X180CHB	FTD48
CLG9055	55.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48
CLG9065	65.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48
CLG9075	75.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48
CLG9085	85.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48
CLG9105	5.0	FDNB08	—	FDNB08
CLG915	15.0	K3V112S	M5X130CHB	FTD26
CLG920	20.0	K3V112DTP	M5X180CHB	FTD45
CLG922	22.0	K3V112DTP	M5X180CHB	FTD45
CLG925	25.0	K3V112DTP	M5X180CHB	FTD45
CLG930	30.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
CLG936	36.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
CLG939	39.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
CLG945	45.0	K5V200DTH	M5X180CHB	FTD48
CLG950	50.0	K5V200DTH	M5X180CHB	FTD48

Lonking ¹²

MODEL	T	PUMP	SWING	TRAVEL
LG6035	603.5	K5V200DTH / K3V280SH	M5X180CHB	FTD48
LG6060	606.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48
LG6075	607.5	K5V200DTH / K3V280SH	M5X180CHB	FTD48
LG6090	609.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48
LG6135	613.5	K5V200DTH / K3V280SH	M5X180CHB	FTD48
LG6150	615.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48
LG6215	621.5	K5V200DTH / K3V280SH	M5X180CHB	FTD48
LG6225	622.5	K5V200DTH / K3V280SH	M5X180CHB	FTD48
LG6240	624.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48
LG6300	630.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48
LG6335	633.5	K5V200DTH / K3V280SH	M5X180CHB	FTD48
LG6365	636.5	K5V200DTH / K3V280SH	M5X180CHB	FTD48

Lovol ¹⁰

MODEL	T	PUMP	SWING	TRAVEL
FR60	6.0	K3V63S / K5V80S	—	FDNB12
FR80	8.0	K3V63S / K5V80S	—	FDNB12
FR130	13.0	K3V112S	M5X130CHB	FTD26
FR150	15.0	K3V112S	M5X130CHB	FTD26
FR170	17.0	K3V112DTP	M5X180CHB	FTD45
FR220	22.0	K3V112DTP	M5X180CHB	FTD45
FR260	26.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
FR330	33.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
FR370	37.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
FR480	48.0	K5V200DTH	M5X180CHB	FTD48

NewHolland 11

MODEL	T	PUMP	SWING	TRAVEL
E135	13.5	K3V112S	M5X130CHB	FTD26
E160	16.0	K3V112S	M5X130CHB	FTD26
E175	17.5	K3V112DTP	M5X180CHB	FTD45
E215	21.5	K3V112DTP	M5X180CHB	FTD45
E230	23.0	K3V112DTP	M5X180CHB	FTD45
E245	24.5	K3V112DTP	M5X180CHB	FTD45
E265	26.5	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
E305	30.5	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
E330	33.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
E385	38.5	K3V180DT / K5V160DTH	M5X180CHB	FTD48
E485	48.5	K5V200DTH	M5X180CHB	FTD48

MODEL	T	PUMP	SWING	TRAVEL
SY35	3.5	FDNB08	—	FDNB08
SY55	5.5	FDNB08	—	FDNB08
SY60	6.0	K3V63S / K5V80S	—	FDNB12
SY65	6.5	K3V63S / K5V80S	—	FDNB12
SY75	7.5	K3V63S / K5V80S	—	FDNB12
SY95	9.5	K3V63S / K5V80S	—	FDNB12
SY115	11.5	K3V112S / K5V140S	—	FDNB12
SY135	13.5	K3V112S	M5X130CHB	FTD26
SY155	15.5	K3V112S	M5X130CHB	FTD26
SY205	20.5	K3V112DTP	M5X180CHB	FTD45
SY215	21.5	K3V112DTP	M5X180CHB	FTD45
SY225	22.5	K3V112DTP	M5X180CHB	FTD45
SY235	23.5	K3V112DTP	M5X180CHB	FTD45
SY265	26.5	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
SY285	28.5	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
SY305	30.5	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
SY330	33.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
SY335	33.5	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
SY365	36.5	K3V180DT / K5V160DTH	M5X180CHB	FTD48
SY375	37.5	K3V180DT / K5V160DTH	M5X180CHB	FTD48
SY385	38.5	K3V180DT / K5V160DTH	M5X180CHB	FTD48
SY415	41.5	K3V180DT / K5V160DTH	M5X180CHB	FTD48
SY485	48.5	K5V200DTH	M5X180CHB	FTD48
SY550	55.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48
SY600	60.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48
SY650	65.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48
SY750	75.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48
SY980	98.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48

Shantui 11

MODEL	T	PUMP	SWING	TRAVEL
SE60	6.0	K3V63S / K5V80S	—	FDNB12
SE70	7.0	K3V63S / K5V80S	—	FDNB12
SE75	7.5	K3V63S / K5V80S	—	FDNB12
SE135	13.5	K3V112S	M5X130CHB	FTD26
SE215	21.5	K3V112DTP	M5X180CHB	FTD45
SE245	24.5	K3V112DTP	M5X180CHB	FTD45
SE260	26.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
SE335	33.5	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
SE370	37.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
SE470	47.0	K5V200DTH	M5X180CHB	FTD48
SE500	50.0	K5V200DTH	M5X180CHB	FTD48

Sumitomo 18

MODEL	T	PUMP	SWING	TRAVEL
SH75	7.5	K3V63S / K5V80S	—	FDNB12
SH120	12.0	K3V112S / K5V140S	—	FDNB12
SH130	13.0	K3V112S	M5X130CHB	FTD26
SH135	13.5	K3V112S	M5X130CHB	FTD26
SH200	20.0	K3V112DTP	M5X180CHB	FTD45
SH210	21.0	K3V112DTP	M5X180CHB	FTD45
SH225	22.5	K3V112DTP	M5X180CHB	FTD45
SH240	24.0	K3V112DTP	M5X180CHB	FTD45
SH260	26.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
SH300	30.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
SH330	33.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
SH350	35.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
SH360	36.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
SH380	38.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
SH400	40.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
SH450	45.0	K5V200DTH	M5X180CHB	FTD48
SH480	48.0	K5V200DTH	M5X180CHB	FTD48
SH500	50.0	K5V200DTH	M5X180CHB	FTD48

Sunward 9

MODEL	T	PUMP	SWING	TRAVEL
SWE60	6.0	K3V63S / K5V80S	—	FDNB12
SWE70	7.0	K3V63S / K5V80S	—	FDNB12
SWE80	8.0	K3V63S / K5V80S	—	FDNB12
SWE90	9.0	K3V63S / K5V80S	—	FDNB12
SWE150	15.0	K3V112S	M5X130CHB	FTD26
SWE215	21.5	K3V112DTP	M5X180CHB	FTD45
SWE230	23.0	K3V112DTP	M5X180CHB	FTD45
SWE235	23.5	K3V112DTP	M5X180CHB	FTD45
SWE365	36.5	K3V180DT / K5V160DTH	M5X180CHB	FTD48

Takeuchi 7

MODEL	T	PUMP	SWING	TRAVEL
TB135	13.5	K3V112S	M5X130CHB	FTD26
TB215	15.5	K3V112S	M5X130CHB	FTD26
TB230	21.5	K3V112DTP	M5X180CHB	FTD45
TB250	24.5	K3V112DTP	M5X180CHB	FTD45
TB260	26.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
TB280	28.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
TB290	29.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48

Volvo 19

MODEL	T	PUMP	SWING	TRAVEL
EC55	5.5	FDNB08	—	FDNB08
EC75	7.5	K3V63S / K5V80S	—	FDNB12
EC140	14.0	K3V112S	M5X130CHB	FTD26
EC160	16.0	K3V112S	M5X130CHB	FTD26
EC200	20.0	K3V112DTP	M5X180CHB	FTD45
EC210	21.0	K3V112DTP	M5X180CHB	FTD45
EC220	22.0	K3V112DTP	M5X180CHB	FTD45
EC240	24.0	K3V112DTP	M5X180CHB	FTD45
EC250	25.0	K3V112DTP	M5X180CHB	FTD45
EC290	29.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
EC300	30.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
EC340	34.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
EC350	35.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
EC360	36.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
EC380	38.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
EC460	46.0	K5V200DTH	M5X180CHB	FTD48
EC480	48.0	K5V200DTH	M5X180CHB	FTD48
EC700	70.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48
EC750	75.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48

MODEL	T	PUMP	SWING	TRAVEL
XE35	3.5	FDNB08	—	FDNB08
XE55	5.5	FDNB08	—	FDNB08
XE60	6.0	K3V63S / K5V80S	—	FDNB12
XE75	7.5	K3V63S / K5V80S	—	FDNB12
XE135	13.5	K3V112S	M5X130CHB	FTD26
XE150	15.0	K3V112S	M5X130CHB	FTD26
XE200	20.0	K3V112DTP	M5X180CHB	FTD45
XE210	21.0	K3V112DTP	M5X180CHB	FTD45
XE215	21.5	K3V112DTP	M5X180CHB	FTD45
XE240	24.0	K3V112DTP	M5X180CHB	FTD45
XE250	25.0	K3V112DTP	M5X180CHB	FTD45
XE270	27.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
XE300	30.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
XE305	30.5	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
XE335	33.5	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
XE360	36.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
XE370	37.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
XE380	38.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
XE400	40.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
XE450	45.0	K5V200DTH	M5X180CHB	FTD48
XE490	49.0	K5V200DTH	M5X180CHB	FTD48
XE700	70.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48
XE900	90.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48

Yanmar 9

MODEL	T	PUMP	SWING	TRAVEL
SV08	0.8	FDNB08	—	FDNB08
SV17	1.7	FDNB08	—	FDNB08
SV26	2.6	FDNB08	—	FDNB08
SV40	4.0	FDNB08	—	FDNB08
VIO17	1.7	FDNB08	—	FDNB08
VIO25	2.5	FDNB08	—	FDNB08
VIO35	3.5	FDNB08	—	FDNB08
VIO50	5.0	FDNB08	—	FDNB08
VIO80	8.0	K3V63S / K5V80S	—	FDNB12

Yuchai 5

MODEL	T	PUMP	SWING	TRAVEL
YC85	8.5	K3V63S / K5V80S	—	FDNB12
YC135	13.5	K3V112S	M5X130CHB	FTD26
YC215	21.5	K3V112DTP	M5X180CHB	FTD45
YC230	23.0	K3V112DTP	M5X180CHB	FTD45
YC360	36.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48

Zoomlion 16

MODEL	T	PUMP	SWING	TRAVEL
ZE60	6.0	K3V63S / K5V80S	—	FDNB12
ZE75	7.5	K3V63S / K5V80S	—	FDNB12
ZE135	13.5	K3V112S	M5X130CHB	FTD26
ZE155	15.5	K3V112S	M5X130CHB	FTD26
ZE205	20.5	K3V112DTP	M5X180CHB	FTD45
ZE210	21.0	K3V112DTP	M5X180CHB	FTD45
ZE215	21.5	K3V112DTP	M5X180CHB	FTD45
ZE230	23.0	K3V112DTP	M5X180CHB	FTD45
ZE260	26.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
ZE330	33.0	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
ZE335	33.5	K5V140DTP / K3V140DTP	M5X180CHB	FTD48
ZE360	36.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
ZE370	37.0	K3V180DT / K5V160DTH	M5X180CHB	FTD48
ZE480	48.0	K5V200DTH	M5X180CHB	FTD48
ZE550	55.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48
ZE700	70.0	K5V200DTH / K3V280SH	M5X180CHB	FTD48

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Send the machine plate, the pump plate and the reading from your gauge. You get the variant confirmation in writing, and one quote with three options: seal kit, sub-assembly, complete unit.

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