

CATERPILLAR 395 NEXT GENERATION
HYDRAULIC EXCAVATOR

OPERATOR TRAINING



BENGKULU, 12 JULY 2025

Trakindo The Trakindo logo consists of the word 'Trakindo' in a bold, black, sans-serif font, followed by the Caterpillar 'CAT' logo in its signature yellow and black block.

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TRAINING CENTER

PT.CAKRAWALA DINAMIKA ENERGI

PROTOKOL KESELAMATAN & KESEHATAN



Pastikan Anda mengetahui nomor telefon darurat, jalur evakuasi, dan First Aider/ Floor Warden di lokasi Anda.



Perhatikan ergonomi posisi kerja dan bahaya sekitar tempat kerja Anda.



Jangan melakukan virtual meeting sambil menyetir kendaraan.



Laksanakan 5M: Mencuci tangan, Memakai masker, Menjaga jarak, Menghindari kerumunan, dan Membatasi mobilitas dan interaksi.

TATA LAKSANA VIRTUAL MEETING



Matikan mikrofon Anda saat tidak dalam giliran berbicara.



Gunakan raise hand bila ingin bertanya atau menginterupsi.



Jaga kerahasiaan informasi Perusahaan.



Tidak diperkenankan untuk mengambil gambar (foto, screen capture, screen recording).

UNIT 1:INTRODUCTION

1. INTRODUCTION
2. SAFETY
3. MAINTENANCE
4. OPERATOR COMPARTMENT
5. PRE-OPERATING PROCEDURE
6. MACHINE SECURITY SYSTEM (MSS)
FOR NEXTGEN HEX
7. OPERATING PROCEDURES



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Tujuan Pembelajaran

Setelah mengikuti training ini semua peserta mempunyai kontribusi yang tinggi terhadap perusahaan dalam pengoperasian mesin, sehingga produksi yang tinggi dapat tercapai, dengan di dukung oleh peralatan berat Caterpillar.

Alasan Pembelajaran

Sebagai seorang operator harus mampu mengoperasikan mesin dengan baik dan benar sesuai dengan prosedur pengoperasian Caterpillar.



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Metode Pembelajaran

- Presentasi topik
- Pertanyaan terbuka
- Praktek
- Post test minimum 80% untuk kelulusan



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Hasil Pembelajaran

- Mampu mengidentifikasi persyaratan keselamatan kerja bagi pribadi, mesin & site
- Mampu melakukan pemeriksaan keliling pada mesin sesuai prosedur.
- Mampu mengidentifikasi dan menjelaskan lokasi komponen utama pada engine & mesin.
- Mampu mengidentifikasi operator controls, gauges, indicators, and monitoring system functions
- Mampu melakukan pre-operational start-up and shutdown procedures
- Mampu mengoperasikan Machine dengan benar & aman sesuai dengan prosedur Caterpillar.



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Materi Pembahasan

- Keselamatan Kerja
- Dasar Mengenal Simbol & Warning level
- Pemeriksaan Keliling
- Prosedur menyalakan & mematikan machine
- Machine Security System (MSS)
- Prosedur Pengoperasian Machine



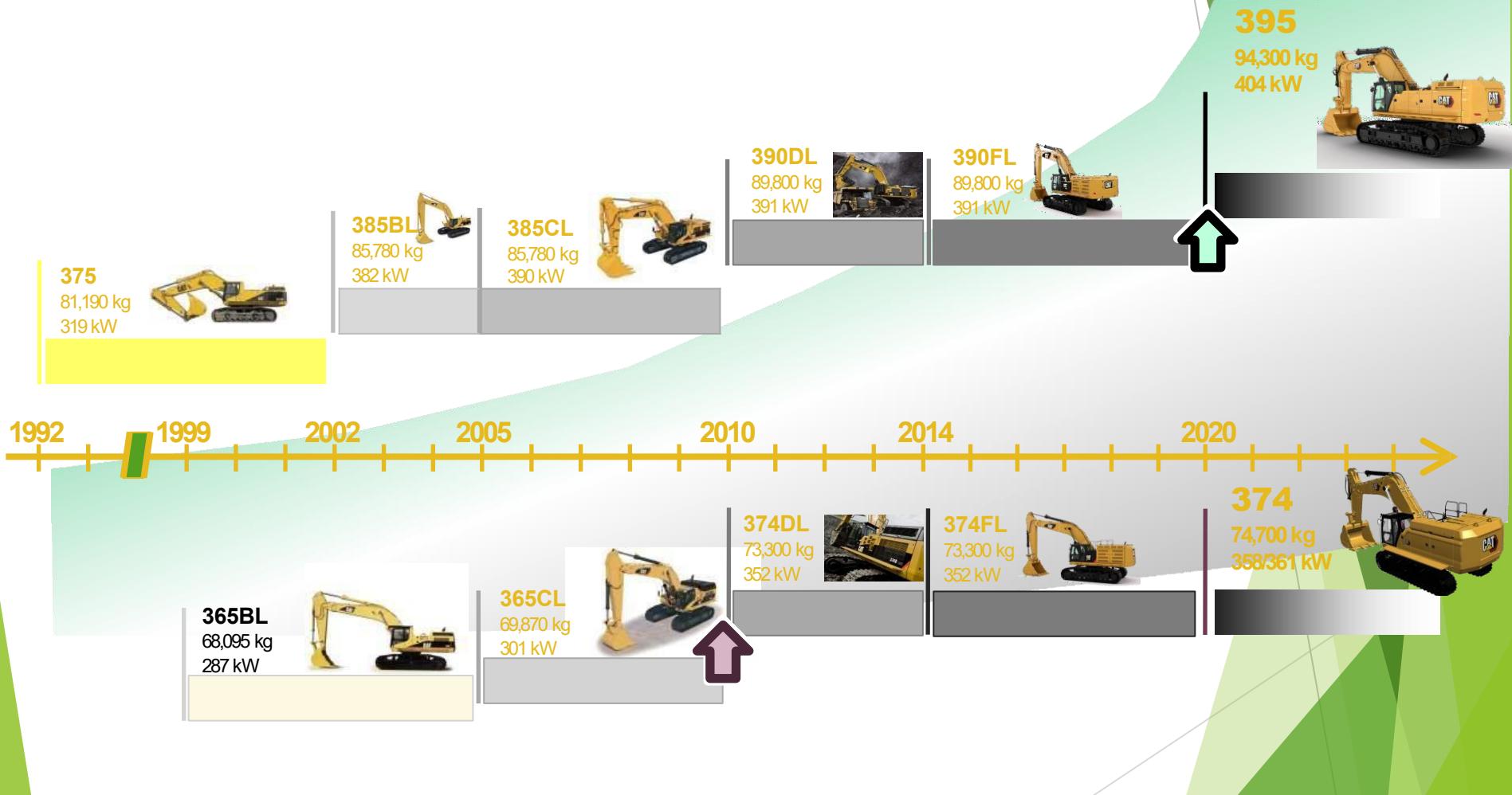
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HEX Model line-up history



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SLHEX Model line-up history



395 Hydraulic Excavator Specifications

Truck Pass Match

| | Hauler | 725 | 730 | 730 EJ | 735 | 740 EJ | 740 GC | 745 | 770G | 772G | 773G | 775G | 777G |
|--|--|-----------------|--|--------------|--------------|------------|--------------|--------------|--|----------------|--------------|----------------|-----------------|
| Capacity - metric tonnes (short tons) | | 24 (26.5) | 28 (31) | 27.1 (30) | 32 (35.3) | 38 (42) | 36.3 (40) | 41 (45.2) | 38.2 (42.1) | 46.8 (51.6) | 55.3 (61) | 64.6 (71.3) | 96.6 (106.4) |
| Model | Bucket Size | Material | | | | | | | | | | | |
| 395 | 6.5 m ³ (8.50 yd ³) | Earth | | | | 3-4 | | 4 | 3-4 | 4-5 | 5-6 | 6 | |
| | | Limestone | | | | 3-4 | 4-5 | 4 | 4-5 | 4-5 | 5 | 6 | 7 |
| | | | Earth | | | | | | Limestone | | | | |
| Material Density | | | 1600 kg/m ³ (2,697 lb/yd ³) | | | | | | 1540 kg/m ³ (2,596 lb/yd ³) | | | | |
| Fill Factor | | | 100% | | | | | | 90% | | | | |
| Minimum Passes | | | 3 | | | | | | 3 | | | | |
| Maximum Passes | | | 8 | | | | | | 8 | | | | |



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Technical Specifications

| Engine | | | Dimensions | | Swing Mechanism | | |
|---|----------------------------|-----------------------------|--|--|---|---|----------------------|
| Engine Model | C18 | | Boom | Mass 7.25 m (23'9") Boom | | | |
| Engine Power – ISO 9249* | 404 kW | 542 hp | Stick | Mass 2.92 m (9'7") Stick | Swing Speed | | |
| Engine Power – ISO 14396 | 405 kW | 543 hp | Bucket | SDV 6.5 m ³ (8.5 yd ³) Bucket | 6.3 rpm | | |
| Bore | 145 mm | 6 in | Shipping Height (top of cab) | 3670 mm | 12'0" | Maximum Swing Torque | |
| Stroke | 183 mm | 7 in | Handrail Height | 3750 mm | 12'4" | 362 kN·m 267,333 lbf·ft | |
| Displacement | 18.1 L | 1,105 in ³ | Shipping Length – Boom, Stick, Bucket Installed | 13 980 mm | 45'10" | Weights | |
| *Net power available at the flywheel when the engine is equipped with fan, air cleaner, muffler, and alternator with engine speed at 1,900 rpm. | | | Tail Swing Radius | 4840 mm | 15'11" | Operating Weight | 94 100 kg 207,400 lb |
| | | | Counterweight Clearance | 1640 mm | 5'5" | Mass boom, M2.92JC (9'7") stick, SDV 6.5 m ³ (8.5 yd ³) bucket, 650 mm (26") double grouser shoes, standard counterweight. | |
| Hydraulic System | | | Ground Clearance | 830 mm | 2'9" | Service Refill Capacity | |
| Main System – Maximum Flow – Implement | 1064 L/min (532 × 2 pumps) | 281 gal/min (141 × 2 pumps) | Track Length | 6350 mm | 20'10" | Fuel Tank Capacity | 1220 L 322 gal |
| Maximum Pressure – Equipment – Implement | 37 000 kPa | 5,366 psi | Track Length to Center of Rollers | 5120 mm | 16'10" | Cooling System | 71 L 19 gal |
| Maximum Pressure – Travel | 35 000 kPa | 5,076 psi | Track Gauge – Extended | 3510 mm | 11'6" | Engine Oil (with filter) | 67 L 18 gal |
| Maximum Pressure – Swing | 31 000 kPa | 4,496 psi | Track Gauge – Retracted | 2750 mm | 9'0" | Swing Drive (each) | 24 L 6 gal |
| | | | Transport Width – Extended – 650 mm (35') Shoes – Without Steps | 4450 mm | 14'7" | Final Drive (each) | 20 L 5 gal |
| | | | Transport Width – Retracted – 650 mm (35') Shoes – Without Steps | 3690 mm | 12'1" | Hydraulic System (including tank) | 740 L 196 gal |
| | | | | | Hydraulic Tank (including suction pipe) | | |
| | | | | | 372 L 98 gal | | |



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374/395 NGH Features & benefits overview



| PRODUCTIVITY | 374 | 395 |
|---|-----|-----|
| ▪ New dedicated hydrostatic swing circuit | ✓ | ✓ |
| ▪ 10% higher swing torque | ✓ | ✓ |
| ▪ Bucket motion with two pumps flow | ✓ | ✓ |
| ▪ Enhanced heavy lift | ✓ | |
| ▪ 10% higher digging force | | ✓ |
| ▪ Up to 15% higher payload | | ✓ |
| DURABILITY | 374 | 395 |
| ▪ Reinforced Boom and stick | ✓ | ✓ |
| ▪ Reinforced swing frame | ✓ | ✓ |
| ▪ Reinforced car body | ✓ | ✓ |
| ▪ Reinforced track link design | ✓ | ✓ |
| ▪ Reinforced track roller | ✓ | |
| ▪ Reinforced cylinders | ✓ | ✓ |
| ▪ New travel motor lines guard protection | ✓ | ✓ |
| ▪ Rounded tool box | ✓ | ✓ |
| OPERATING COSTS | 374 | 395 |
| ▪ Extended maintenance interval | ✓ | ✓ |
| ▪ New dedicated hydrostatic swing circuit | ✓ | ✓ |
| ▪ Independent cooling package | ✓ | ✓ |
| ▪ Linkage type counterweight removal (optional) | ✓ | ✓ |
| ▪ Smart mode | ✓ | ✓ |

| MAINTENANCE | 374 | 395 |
|---|-----|-----|
| ▪ Automatic lubrication ready | ✓ | ✓ |
| ▪ Automatic reverse fan | ✓ | ✓ |
| ▪ Accessible from Ground level, Service Platform and Catwalk. | ✓ | ✓ |
| ▪ Light for service platform | ✓ | ✓ |
| TECHNOLOGY | 374 | 395 |
| ▪ Cat E-fence | ✓ | ✓ |
| ▪ Cat Payload | ✓ | ✓ |
| ▪ Cat Grade Control (w/ 2D, Advanced 2D and 3D) | ✓ | ✓ |
| ▪ Lift Assist | ✓ | ✓ |
| SAFETY | 374 | 395 |
| ▪ Lateral right hand side access | ✓ | ✓ |
| ▪ Premium surrounding lighting package | ✓ | ✓ |
| COMFORT | 374 | 395 |
| ▪ Next Gen Operator station | ✓ | ✓ |
| VISIBILITY | 374 | 395 |
| ▪ Rear view camera (included) | ✓ | ✓ |
| ▪ 360 visibility (optional) | ✓ | ✓ |

374/395 Key specifications

374F

374

390F

395

KEY SPECIFICATIONS

| | | | | |
|--|---------------------------|---|--|--|
| Operating weight (ME + short stick + narrow tracks) | 73,300 kg | 74,700 kg | 89,800 kg | 94,300 kg |
| Engine power (ISO 14396) = Engine gross (J1995) – Inlet/Exhaust loss – Alternator loss | 362 kW | Tier 2/3 – 359kW EU5/NR4: 362kW | 405 kW | 405 kW |
| Net engine power (ISO 9249) = ISO14396 – Fan loss | 352 kW | Tier 2/3 – 358.4 kW EU5/NR4 – 361.4 kW | 391 kW | 404.3 kW EU only: 404.4 kW |
| Max buckets size @ 1.6t/m3 | 5.0 m3 | 5.0 m3 | 5.7 m3 | 6.5 m3 |
| Engine model | C15 | C15 | C18 | C18 |
| Engine displacement | 15.2L | 15.2L | 18.1L | 18.1L |
| Rated rpm (machine operation / travel) | 1600/1700 rpm | Tier 2/3 – 1600/1800 rpm EU5/NR4 – 1600/1700 rpm | HRC: 1750/1900 rpm LRC: 1700/1900 rpm | 1900/1900 rpm EU/TUR: 1800/1900 rpm |
| Maximum implement flow | 2 x 448 L/min = 896 L/min | ← | 2 x 476 L/min = 952 L/min | 2 x 532 = 1064 L/min EU/TUR: 2 x 504 = 1008 L/min |
| Maximum implement pressure | 370 bar | 370/380 bar | 350 bar | 370 bar |
| Maximum swing flow | No swing pump | 247 L/min | No swing pump | 288 L/min |
| Maximum swing pressure | 294 bar | 340 bar | 260 bar | 310 bar |
| Boom cylinder | 190 mm | 190 mm | 210 mm | 210 mm |
| Stick cylinder | 210 mm | 210 mm | 220 mm | 225 mm |
| Bucket cylinder (Reach) | 190 mm | 190 mm | 200 mm | 200 mm |
| Bucket cylinder (Mass) | 200 mm | 200 mm | 220 mm | 220 mm |
| Swing speed | 6.5 rpm | 6.6 rpm | 6.0 rpm | 6.5 rpm |
| Maximum swing torque (100% efficiency) | 271 kNm | 298 kNm | 329 kNm | 362 kNm |
| Maximum travel speed | 4.1 km/h | 4.3 km/h | 4.5 km/h | 4.6 km/h |
| Maximum drawbar pull | 491 kN | 490 kN | 590 kN | 580 rpm |
| Over the front (7.5m away, 1.5m high) | 22,600 kg | 23,100 kg | 29,400 kg | 31,300 kg |
| Over the side (7.5m away, 3.0m high) | 17,300 kg | 17,450 kg | 22,200 kg | 25,200 kg |



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374F

Most pop. Operating weight: **73.3t**



+1.4t

Operating weight

MAINTAIN NOMENCLATURE

374

Most pop. Operating weight: **74.7t**



390F

Most pop. Operating weight: **89.8t**



+4.5t

Operating weight

NEW NOMENCLATURE

39

5th pop. Operating weight: **94.3t**



Nomenclature guidelines:
+/-10% up to 2t of operating weight

Power Mode (THEX – Performance models)

Features

- SMART mode, Eco mode and Power mode options ensure the machines are always working in the most optimal settings for any job (i.e. it provides max power when needed by sensing the load factor and reduces power by 10% when it is not required) and reducing fuel consumption is possible.
- Default mode from factory is SMART mode, can only be reset by Master ID.

Customer Value Message

- Reduce fuel consumption.
- Increase fuel efficiency according to application requirements.

Please refer to
generic sales pack
form more

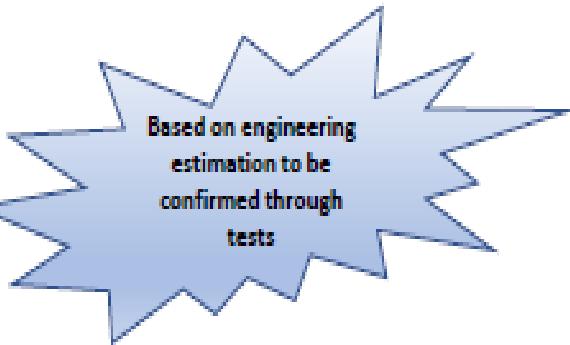
| Value message | Automatically adjust power to required working conditions | Consumption when application doesn't require highest productivity | POWER MODE |
|------------------------|---|---|------------|
| Engine rpm | Depending on working conditions | Medium low rpm | Max rpm |
| Hydraulic power | Depending on working conditions and power needed | ~ -90% than Max power | Max power |
| Impact on fuel cons. | Up to -10% versus Power mode | Up to -15% versus Power mode | - |
| Impact on Productivity | Similar than power mode | ~ -10% versus Power mode | - |

*ECO Mode not available on GC models



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Productivity recap



390F vs. 374F

395 vs. 374

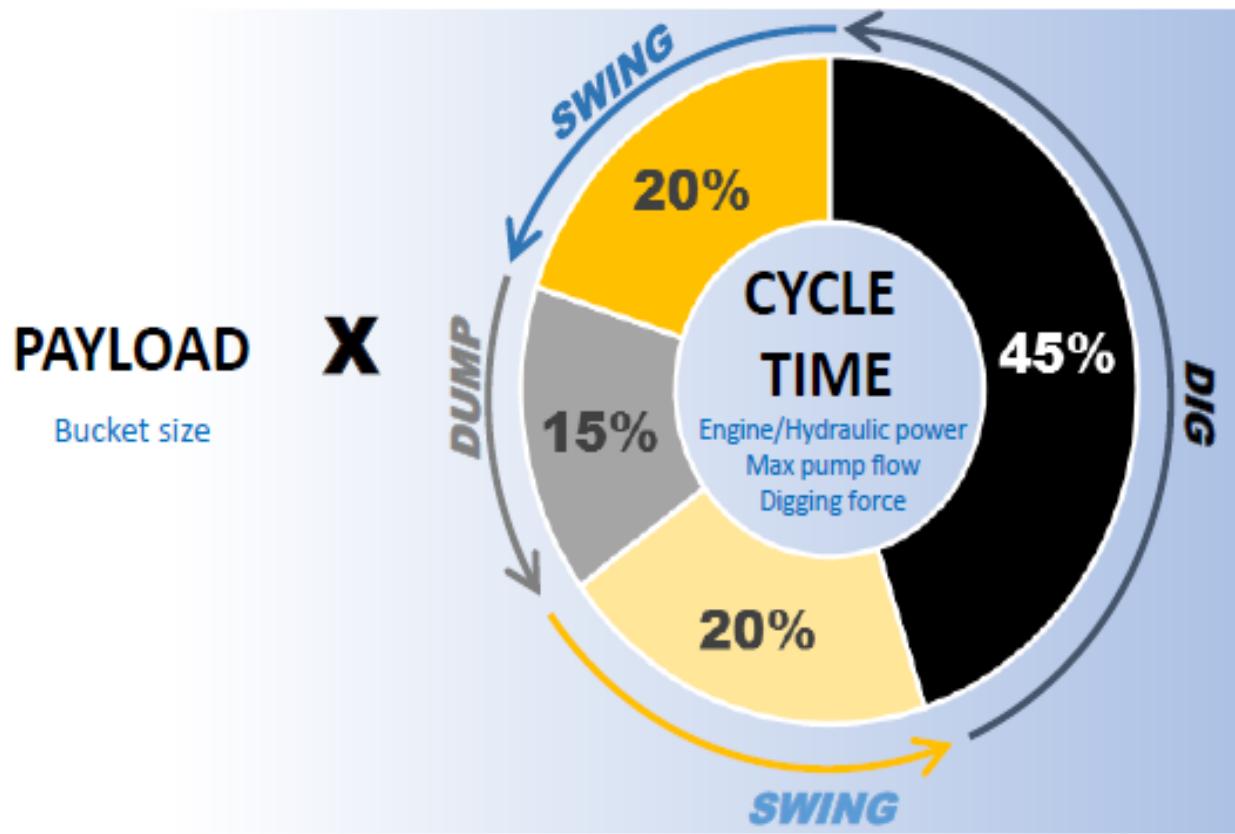
| | | |
|--|-----------|-----------|
| Truck loading with loose/smooth material | Up to 20% | Up to 35% |
| Truck loading with hard digging | Up to 20% | Up to 40% |



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Criteria contributing to productivity

374 395
✓ ✓



TRANSFORMASI (MERUBAH) INDUSTRI



- Phone calls
- SMS
- Snake



- Apps
- Usability
- Music, Videos
- Notes
- email
- Social
- Connected 24/7
- Platform

UNIT 2 : SAFETY

1. INTRODUCTION
2. **SAFETY**
3. MAINTENANCE
4. OPERATOR COMPARTEMENT
5. PRE-OPERATING PROCEDURE
6. MACHINE SECURITY SYSTEM (MSS)
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3 Pokok Penyebab Kecelakaan

- The Machine
- The Conditions
- The HUMAN ELEMENT (80%)



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IMSAFE

- I Illness
- M Medication
- S Stress
- A Alkohol
- F Fatigue
- E Eating



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Personal Safety > Proper Clothing

- Hard hat
- Safety shoes
- Eye protection
- Face protection
- Heavy gloves
- Reflector vests
- Ear protection
- Respirators
- Proper Clothing (No Loose-Fitting Clothes, Jewelry, Etc..)



Personal Safety Overview

- Mengetahui features perlengkapan safety pada machine
- Mengetahui lokasi & fungsi dari semua warning indicators & systems
- Membaca dan mengikuti OMM untuk setiap pengoperasian machine



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Personal Safety

Safety adalah tanggung jawab Anda!

Peringatan adalah kata penting dalam safety

Setiap Jalan Pintas akan menyebabkan pada Kecelakaan

Selalu Waspada!



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Fluid Penetration

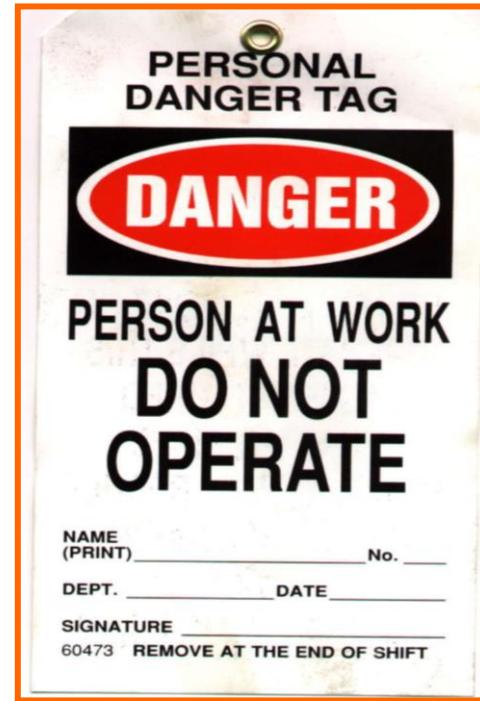
- Jangan memegang hydraulic hose yg sedang bocor.
- Gunakan alat pelindung papan / karton.
- Jika terkena semburan tekanan oli segera bawa kebagian medis terdekat.



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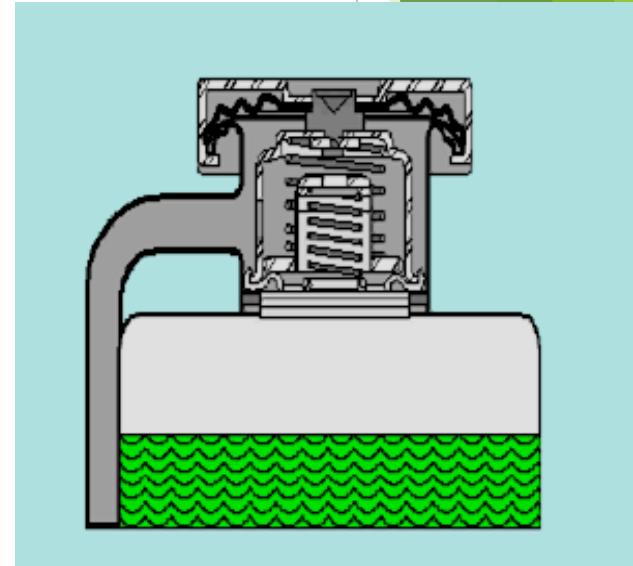
Danger Tags

- Selalu lakukan pengecekan tanda bahaya atau tanda danger out of service
- Tak seorang pun diperbolehkan untuk melepas tanda peringatan kecuali orang yang memasangnya
- Tempat tanda peringatan sesuai dengan aturan yang sudah ditetapkan



MENCEGAH BAHAYA TERBAKAR

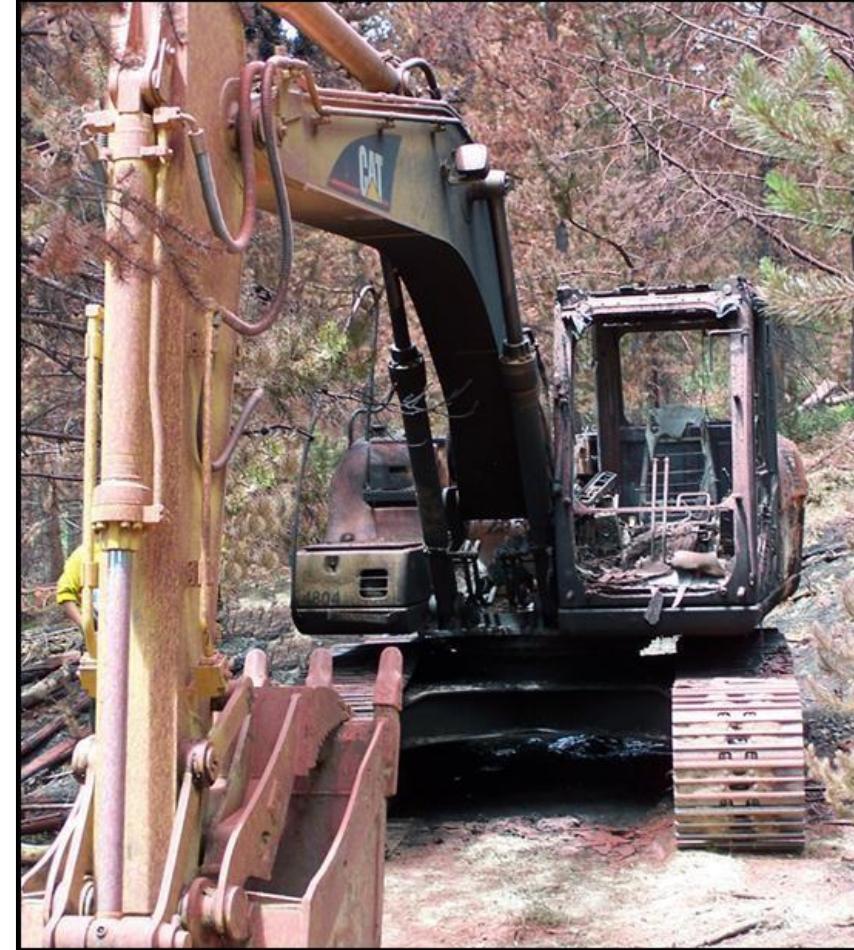
- Air radiator yang bertekanan dapat menyebabkan luka bakar serius.
- Pengecekan air radiator hanya boleh dilakukan pada tabung inhibitor/sign glass.
- Air radiator yang bercampur alkali dapat merusak mata.
- Jangan diminum.



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PENYEBAB KEBAKARAN

- Pengisian BBM
 - Stop engine
 - Tidak Merokok, Percikan Api
- Pemeriksaan Batterai, jumper atau service
 - Tidak dekat sumber atau percikan Api
- Bersihkan semua Sampah dan kotoran
- Periksa kebocoran Oli
- Tidak Merokok ketika menggunakan ether



Safety Features Discussion

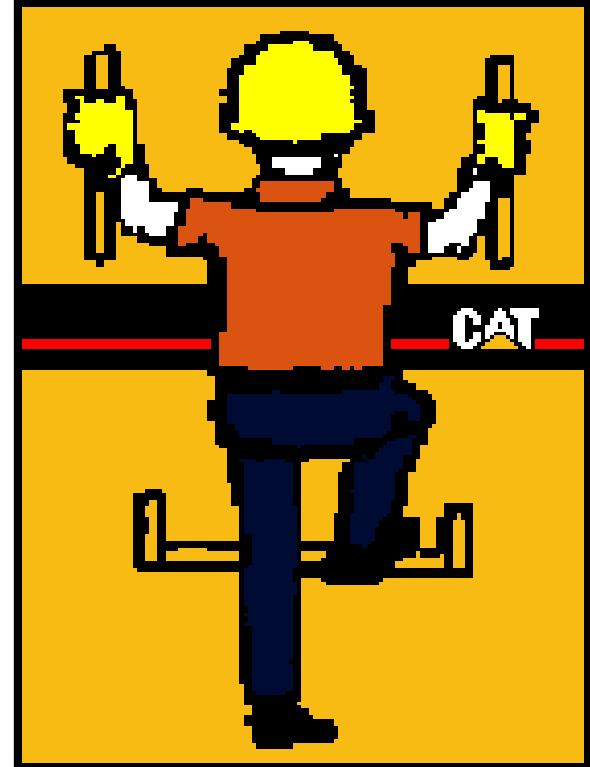
Sebutkan semua nama
Safety Features
Pada Machine Caterpillar?



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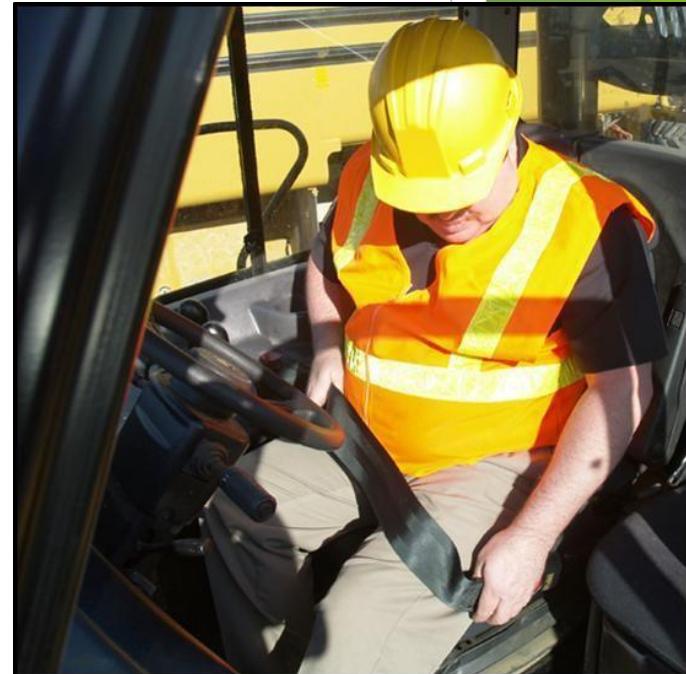
Keselamatan ► Machine Safety ► Naik & Turun Tangga

- Gunakan tangga untuk naik dan turun dari machine.
- Bersihkan tangga dari bekas oli dan grease.
- Gunakan tiga titik tumpuan saat naik dan turun dari unit.
- Naik dan turun posisi menghadap ke unit.
- JANGAN LONCAT!



Keselamatan ► Personal Safety ► Seatbelts

- Gunakan sabuk pengaman setiap mengoperasikan unit.
- Periksa kondisi sabuk pengaman dan mountingnya.
- Ganti jika ada yang aus atau rusak.
- Ganti setiap 3 tahun sekali.



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Keselamatan ► Work Area Safety ► Uraian Umum

Pelajari semua peraturan di tempat kerja:

- Pelajari:
 - Pelajari semua isyarat
 - Arti bendera, tanda & rambu



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Safety Features

- FOPS or ROPS
- Seat belts
- Lights
- Horn
- Guarding
- Shields
- Mirrors
- Camera
- Fire extinguishers
- Warning labels
- Indicator lights and gauges
- Non-slip surfaces
- Hand rails
- O&M Manual (One safe source)

UNIT 3 : MAINTENANCE

1. INTRODUCTION
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Pemeliharaan ► Uraian Pemeriksaan Keliling

- Kenapa pemeriksaan harus di lakukan?
 - Keselamatan
 - Membantu menambah umur dan performa unit
- Saat melakukan pemeriksaan keliling gunakan ke 4 indra anda (penglihatan, penciuman, pendengaran, sentuhan)
- Selalu mengikuti petunjuk OMM



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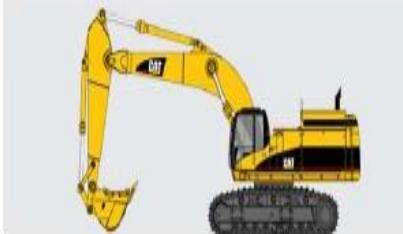
Pemeliharaan ► Pemeriksaan Keliling ► Seberapa Sering

- Seberapa Sering Dilakukan?
- Berapa kali per shift?
 - Awal shift
 - Setiap anda turun dari unit
 - Akhir shift
- Lakukan hal yang sama setiap waktu



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Safety & Maintenance Checklist



Safety & Maintenance Checklist: Hydraulic Excavators

SAFETY.CAT.COM™

Operator/Inspector _____ Date _____ Time _____
Serial Number _____ Machine Hours _____

What are you inspecting? What are you looking for? Evaluator Comments

For more information, please refer to the Operation and Maintenance Manual or any other applicable manuals and instructions for this product. If you have questions, please contact your local Caterpillar dealer.

FROM THE GROUND

| | | |
|---------------------------|--|--|
| Bucket, GET | Excessive Wear or Damage, Cracks | |
| Bucket Cylinder & Linkage | Excessive Wear, Damage, Leaks, Lubricate | |
| Stick, Cylinder | Wear, Damage, Leaks, Lubricate | |
| Boom, Cylinders | Wear, Damage, Leaks, Lubricate | |
| Underneath Machine | Final Drive Leaks, Swing Drive Leaks, Damage | |
| Carbody | Cracks, Damage | |
| Undercarriage | Wear, Damage, Tension | |
| Steps and Handholds | Condition and Cleanliness | |
| Batteries & Hold Downs | Cleanliness, Loose Bolts & Nuts | |



Start-Up and Shut Down Procedures: Hydraulic Excavators

SAFETY.CAT.COM™

Operator/Inspector _____ Date _____ Time _____
Serial Number _____ Machine Hours _____

What are you inspecting? Evaluator Comments

For more information, please refer to the Operation and Maintenance Manual or any other applicable manuals and instructions for this product. If you have questions, please contact your local Caterpillar dealer.

STARTING THE MACHINE

| | |
|--|--|
| Perform walk around inspection | |
| Mount the machine using 3 points of contact | |
| Turn the battery disconnect switch to ON | |
| Ensure circuit breaker reset button remains depressed | |
| Adjust seat, adjust mirrors, fasten seat belt | |
| Move hydraulic lockout control to the LOCKED position | |
| Move the joysticks to HOLD position | |
| Make sure all personnel are clear of machine and sound horn | |
| Use ether start aid switch if necessary (per OMM) | |
| Turn the key start switch to ON | |
| Observe monitoring system self-test and add fluids if necessary | |
| Ensure that "Intake Air Heater On" is not shown on the message display | |
| Turn engine speed dial to "Medium" position | |
| Turn the key start switch to START and crank engine | |

MACHINE WARM-UP

| | |
|--|--|
| Allow machine to warm up (per required time in OMM) | |
| Engage and disengage attachment controls to help speed warm-up of hydraulic components | |



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395 Design change overview

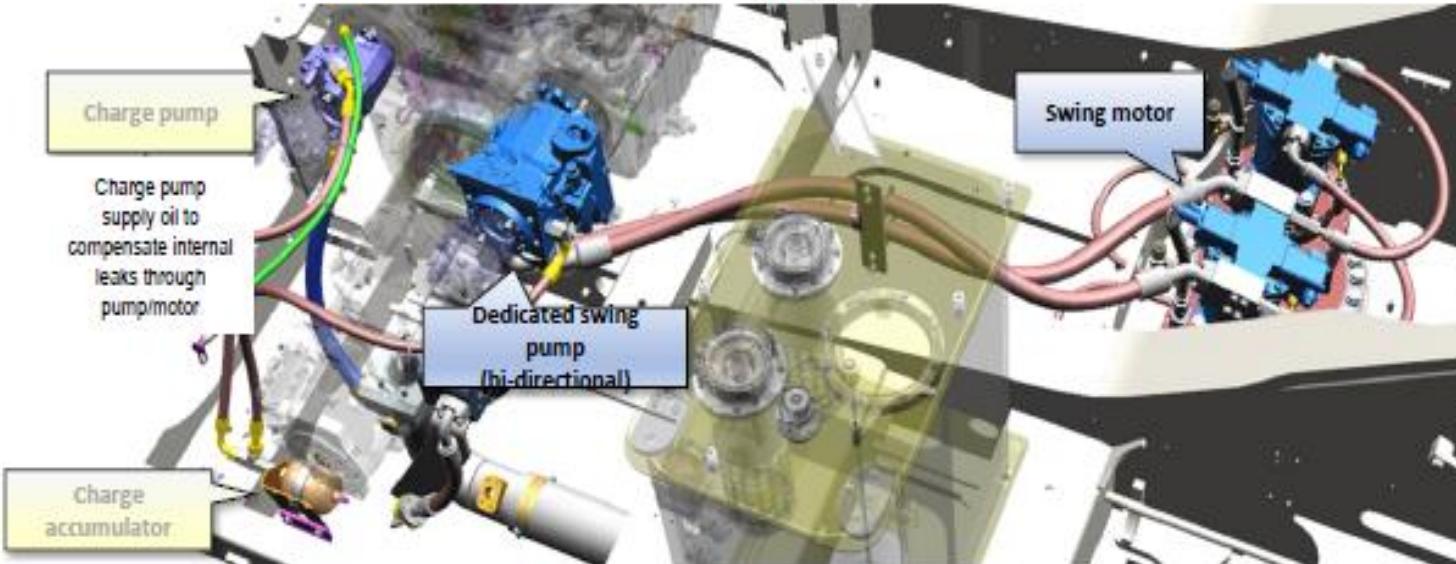


Hydrostatic swing circuit - overview

374 395

✓ ✓

Hydrostatic drive systems consist fundamentally of a pump connected to one or more motors in a closed loop circuit.



Note: A pump and motor combination connected in an open-loop circuit is not usually considered to be a hydrostatic drive, however. To be technically correct, an open-loop circuit still uses hydrostatic principles

395 Swing circuit ghosted view



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Different types of swing circuit - Basics

374 395

✓ ✓

"TRADITIONAL"

- Open-loop circuit
- Common pump for swing and implement



MAIN PUMP(S)

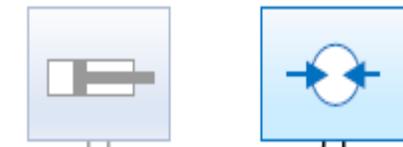
TANK

CONS:

- Management of flow for multioperation
- Swing energy lost while braking lost
- Energy lost through directional valve

"DEDICATED SWING CIRCUIT"

- Open-loop circuit
- Dedicated pump for swing and implement



MAIN PUMP(S)

TANK

PROS:

Management of flow for multioperation

CONS:

- Swing energy lost while braking lost
- Energy lost through directional valve

"HYDROSTATIC SWING CIRCUIT"

- Closed-loop circuit
- Dedicated pump for swing and implement



MAIN PUMP(S)

TANK

PROS:

- Management of flow for multioperation – PRODUCTIVITY
- Recover energy while swinging – OPERATING COSTS
- No energy lost through directional valve

Different types of swing circuit - Basics

374 395
✓ ✓

"TRADITIONAL"

- Open-loop circuit
- Common pump for swing and implement



MAIN PUMP(S)

TANK

CAT MHEX/LHEX/374F/390F

KOMATSU

HITACHI

VOLVO Up to EC750

XCMG

SANY

LIEBHERR Up to 924

"DEDICATED SWING CIRCUIT"

- Open-loop circuit
- Dedicated pump for swing and implement

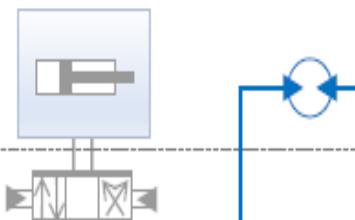


CAT 374/390D

VOLVO EC950

"HYDROSTATIC SWING CIRCUIT"

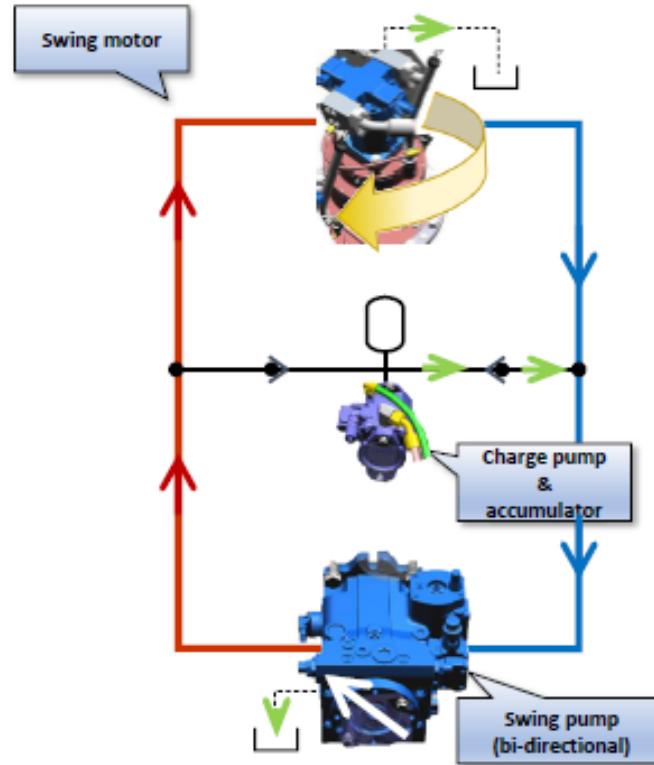
- Closed-loop circuit
- Dedicated pump for swing and implement



CAT 374/395
6015B
LIEBHERR From 926

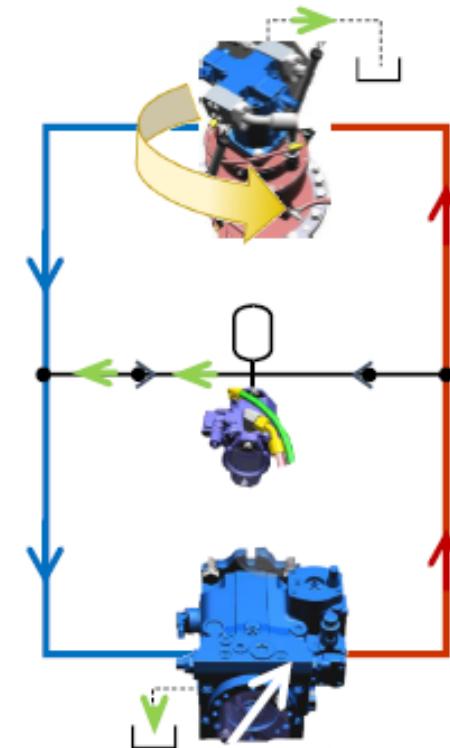
Hydrostatic swing circuit - Operation

374 395
✓ ✓



Charge pump & accumulator supply oil to compensate internal leaks through pump/motor

Swing pump displacement (bi-directional) control the swing speed



Dedicated swing circuit – Productivity benefits

374 395



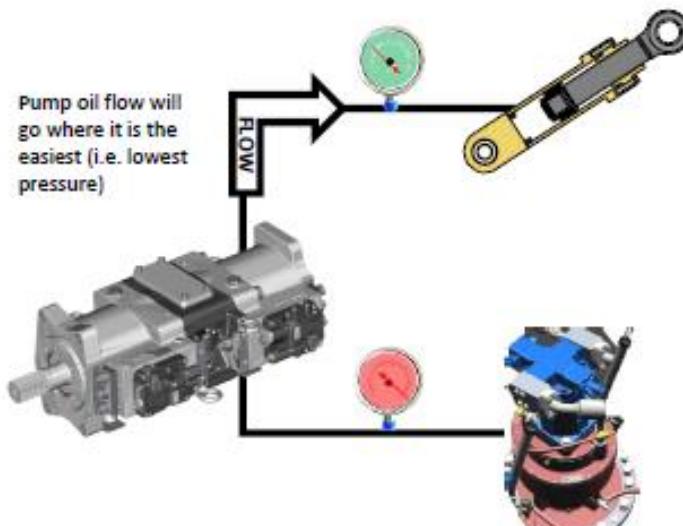
Features

The swing circuit is using a dedicated swing pump distinct from the main pump used to activate implement. Each circuit being independent they don't interact each other which enable to more easily manage repartition of flow amongst implement and swing.

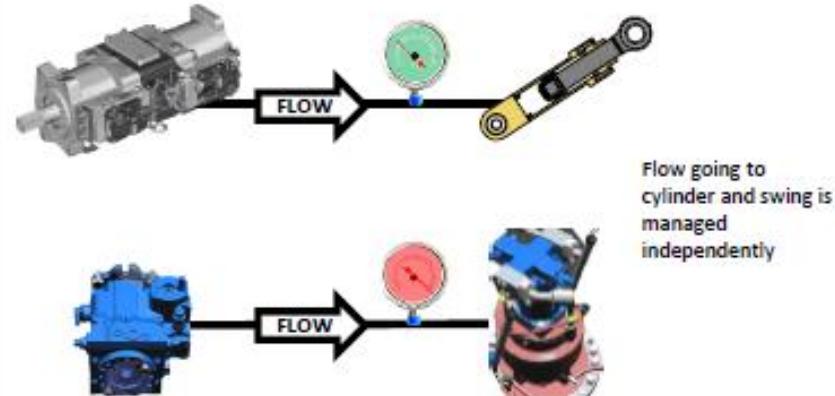
Customer Value Message

While operating in multioperation the speed of swing and implement will remain well balanced w/o generating sudden slowdown which would negatively impact how performance would be perceived.

Common implement/swing pump



Dedicated swing pump



Dedicated swing circuit & Engine rpm – Productivity benefits

374 395
✓

Features

395 feature a dedicated swing pump and higher engine rpm which increase the potential maximum flow available for light load application (i.e. when limiting factor is not driven by engine power).

Customer Value Message

For light load application (ex: cleaning/levelling) the 374 have faster cycle time which positively impact overall performance perception

2 x
280cc/rev
Implement pump



1 x
125cc/rev
Swing pump
NEW



200 rpm



+42%

MAX FLOW
FOR FASTER LIGHT
LOAD OPERATION

| | 390F | 395 |
|----------------|----------------|------------|
| ENGINE RPM | 1700 rpm | 1900 rpm |
| IMPLEMENT PUMP | DISPLACEMENT | 280 cc/rev |
| | MAX PUMP FLOW | 952 L/min |
| SWING PUMP | DISPLACEMENT | N/A cc/rev |
| | MAX PUMP FLOW | 288 L/min |
| | TOTAL MAX FLOW | 952 L/min |
| | | 1352 L/min |

Bucket motion with two pumps flow

374 395
✓ ✓

Features

The section usually used to control swing (not required given close loop circuit swing circuit) is being used to be able to used two pumps flow for the bucket motion.

Customer Value Message

Bucket motion can benefit higher flow for faster operation

W/o Hydrostatic swing circuit



1 pump flow

MAIN VALVE

| STICK #1 | AUXILIARY |
|---|---|
| AUXILIARY | STICK #2 |
| BOOM #2 | BUCKET #1 |
| SWING | BOOM #1 |
| TRAVEL Left | TRAVEL Right |
| <i>Straight TRAVEL</i> | |
|  |  |



374/395



2 pumps flow

MAIN VALVE

| STICK #1 | AUXILIARY |
|---|---|
| AUXILIARY | STICK #2 |
| BOOM #2 | BUCKET #1 |
| BUCKET #2 | BOOM #1 |
| TRAVEL Left | TRAVEL Right |
| <i>Straight TRAVEL</i> | |
|  |  |



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10% higher digging force

374



Features

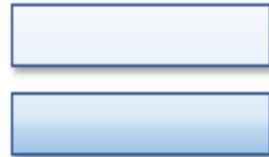
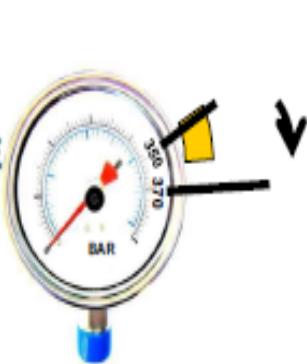
- 395 stick cylinder head diameter increased from 220 mm to 225 mm
- Max relief pressure increased from 350 bar to 370 bar

Customer Value Message

- Higher digging force ease bucket penetration to reduce digging cycle time in most demanding application

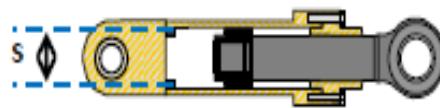
+6%

MAX PRESSURE



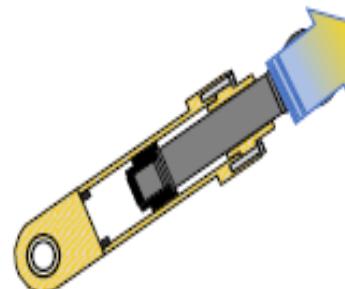
+5%

HIGHER SURFACE



220 mm -> 225mm

Force = Pressure x Section



+10%

HIGHER FORCE

10% higher swing torque

374 ✓ ✓

Features

10% higher swing torque thanks to:

- Maximum swing pressure has been increased by 11% (374) and 19% (395)
- Drive swing ratio increase by 49% (374) and 46% (395)

Customer Value Message

Higher swing torque enable faster swing operation to further shorten cycle time and therefore boost productivity.

+10%
SWING TORQUE



| | | 374 | | 395 | | |
|----------------------|------------------------|-------|------|------|------|------|
| | | F | NGH | F | NGH | |
| Hyd motor | Maximum Swing Pressure | Ratio | 100% | 111% | 100% | 119% |
| | Displacement | Ratio | 100% | 67% | 100% | 63% |
| Reduction Gear Ratio | | Ratio | 100% | 149% | 100% | 146% |
| Total swing torque | | | 100% | 110% | 100% | 110% |



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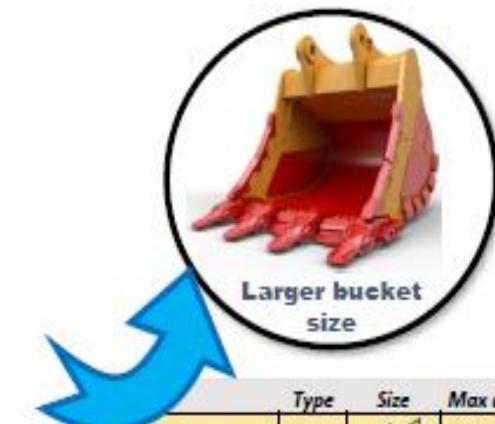
Up to 15% higher payload

+3.3t

From 12.4t to 15.7t Counterweight



| BOOM | STICK | 390F | 395 |
|------------------------|-------|--------|--------|
| REACH (10m) | 4.4m | 7,535 | 8,634 |
| GENERAL PURPOSE (8.4m) | 4.4m | 10,420 | 11,875 |
| MASS (7.25m) | 2.92m | 15,540 | 17,477 |



| Type | Size | Max density |
|------------------------|-------------------------|------------------------|
| 395 (w/ M2.92m stick) | SDV > 6.5m ³ | 1729 kg/m ³ |
| 390F (w/ M2.92m stick) | SDV 5.4m ³ | 1754 kg/m ³ |

| Type | Size | Max density |
|-------------------------|------------------------|------------------------|
| 395 (w/ GP4.42m stick) | SD > 5.2m ³ | 1492 kg/m ³ |
| 390F (w/ GP4.42m stick) | SD 4.6m ³ | 1525 kg/m ³ |

Extended maintenance interval

374 395
✓ ✓

| | | Quantity | | Interval |
|-----------|--------------------------|-------------|-------------|-------------------------|
| | | 374 | 395 | |
| Engine | Primary fuel filter | 1 → 1 | 1 → 1 | 500 hours → 1000 hours |
| | Secondary fuel filter | 2 → 2 | 2 → 2 | 500 hours → 1000 hours |
| | Oil change | 62L | 67L | 500 hours |
| Hydraulic | Main return filter | 2 → 2 | 2 → 2 | 2000 hours → 3000 hours |
| | Pilot/charge pump filter | 1 → 1 | 1 → 1 | 500 → 1000 hours |
| | Case drain filter | 2 → 3 | 2 → 3 | 500 → 1000 hours |
| | Oil refill capacity | 427L → 300L | 512L → 340L | 6000 hours |



TRAINING CENTER
PT.CAKRAWALA DINAMIKA ENERGI

Independent cooling package

374 395
✓ ✓

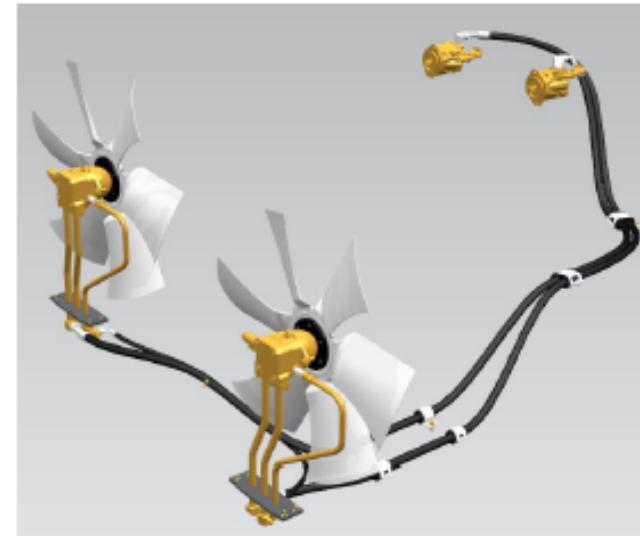
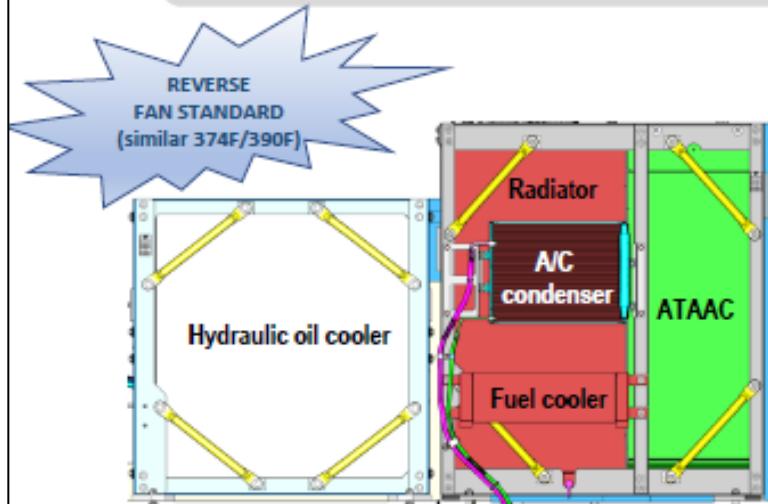
Features

There two distinct and independent hydraulic cooling circuit:

- One for the radiator, ATAAC (fuel cooler and AC condenser)
- One for the Hydraulic oil Cooler

Customer Value Message

- The fan can be activated independently depending cooling requirement



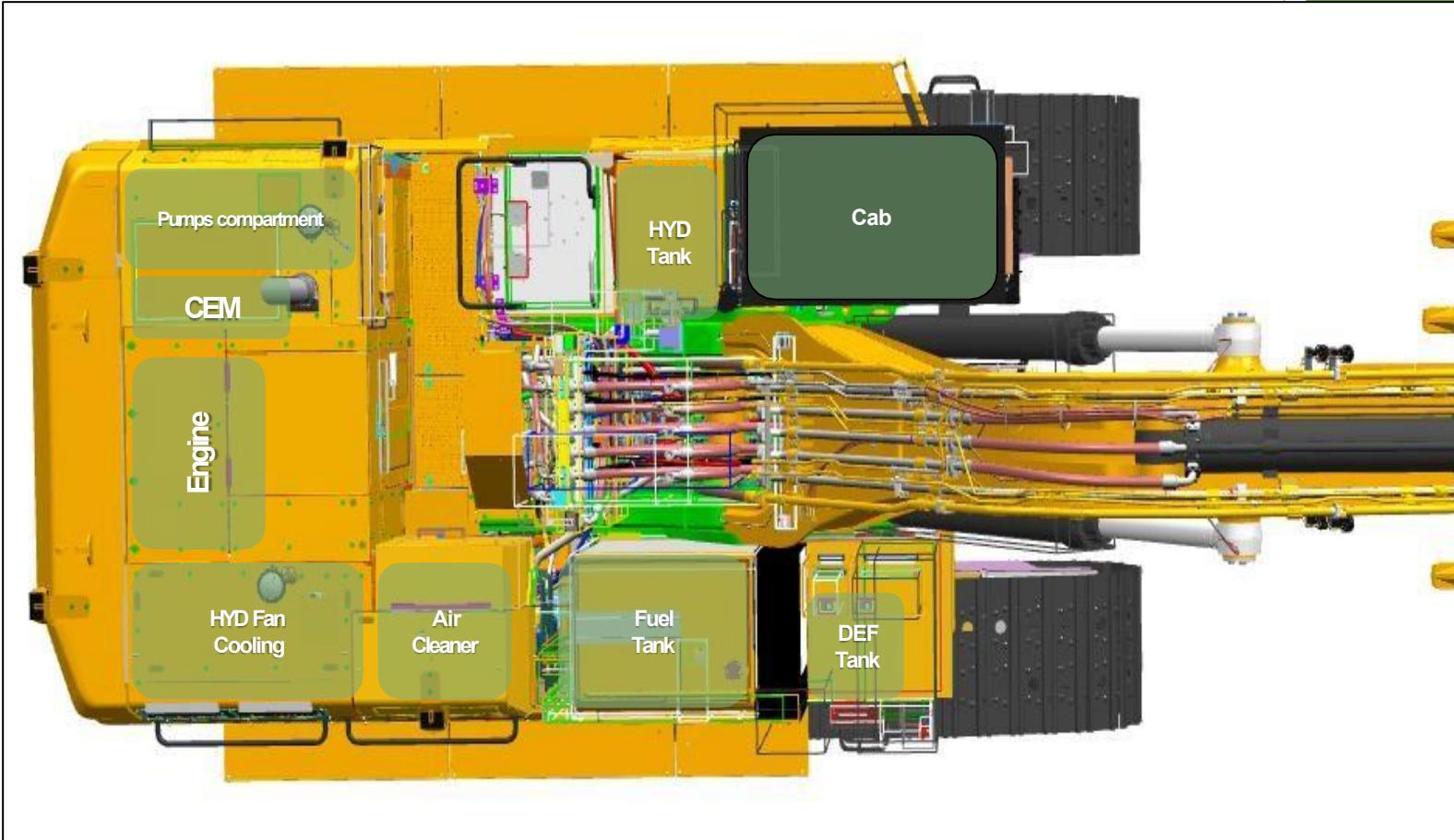
395 Swing circuit ghosted view



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395 overall layout

Major layout change versus 390F

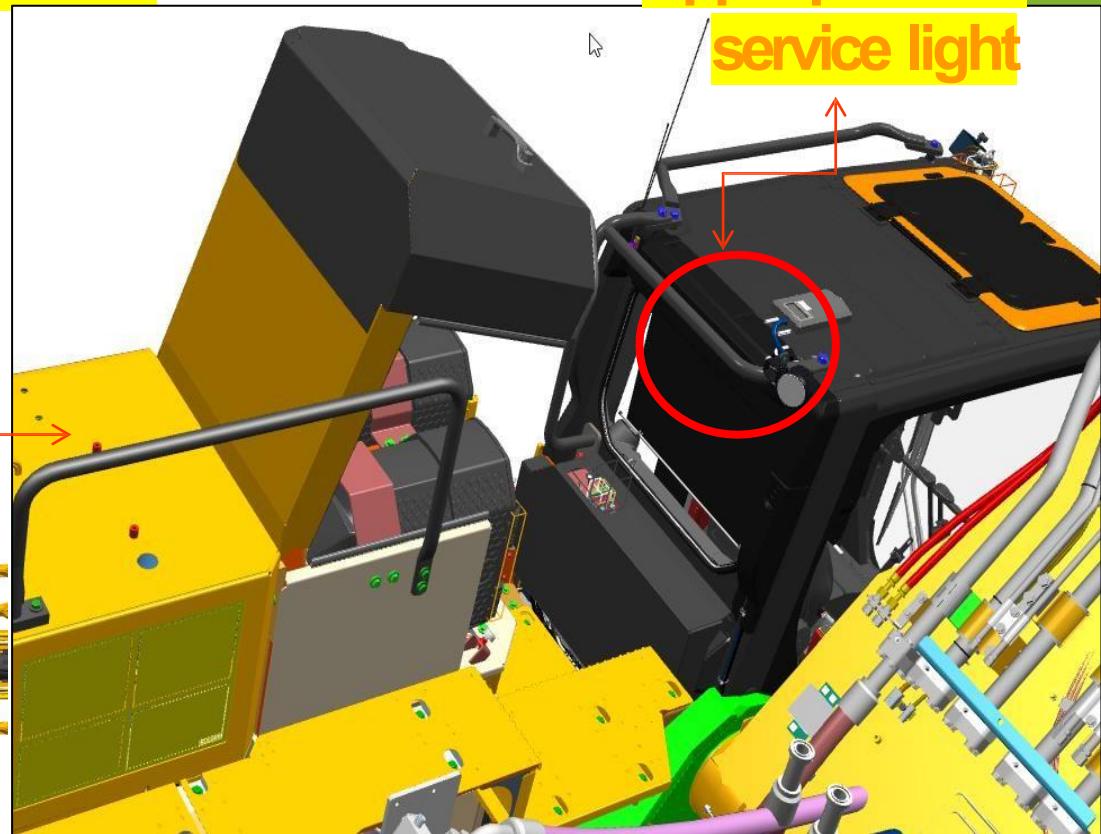


395 overall layout

Major layout change versus 390F

Light for service platform

Upper platform
service light



New layout enable direct access from left hand side

Engine oil level

Secondary fuel filter



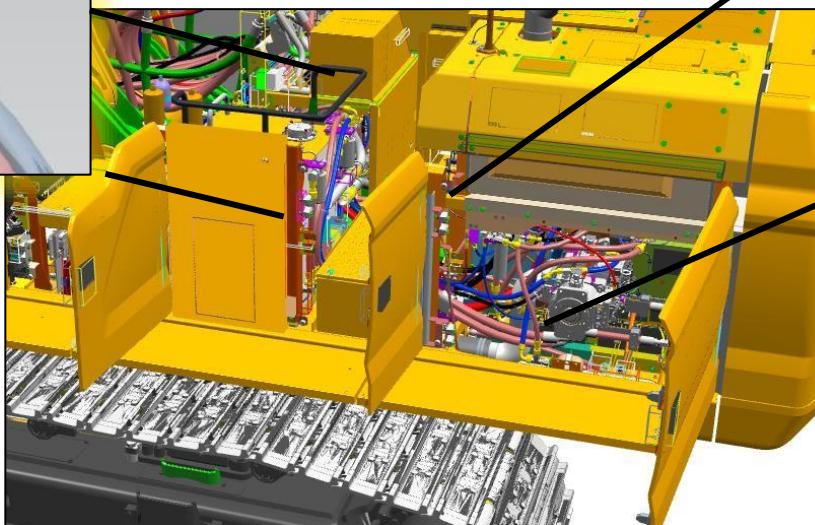
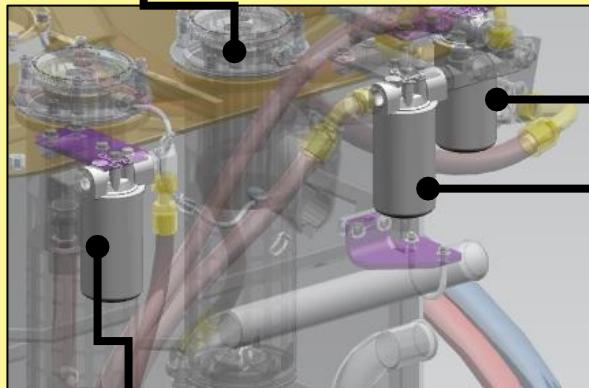
TRAINING CENTER
PT.CAKRAWALA DINAMIKA ENERGI

395 Hydraulic filters accessible from service platform/walkway

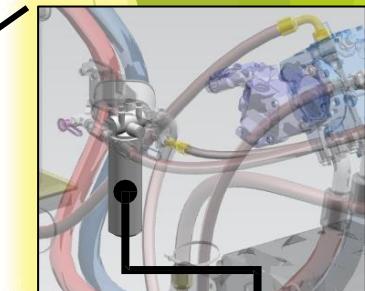
Main hydraulic return filter

Case drain filter
for swing motor

Case drain filter for
main pump, travel
and fan motor



Case drain filter for
swing pump

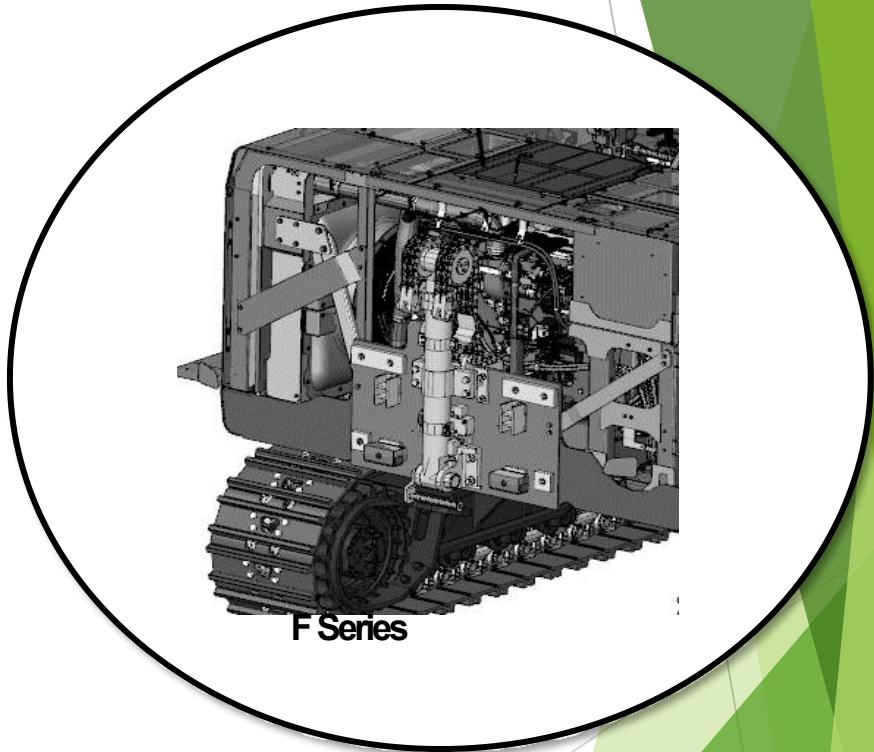
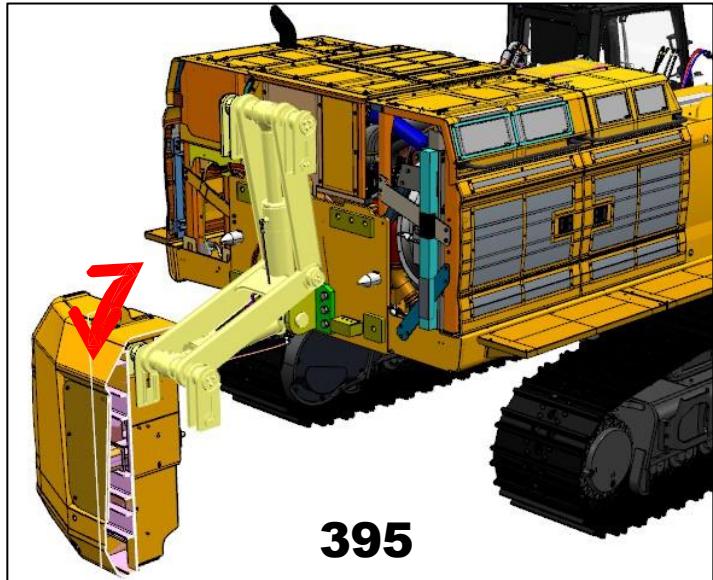


Pilot/Charge pump filter

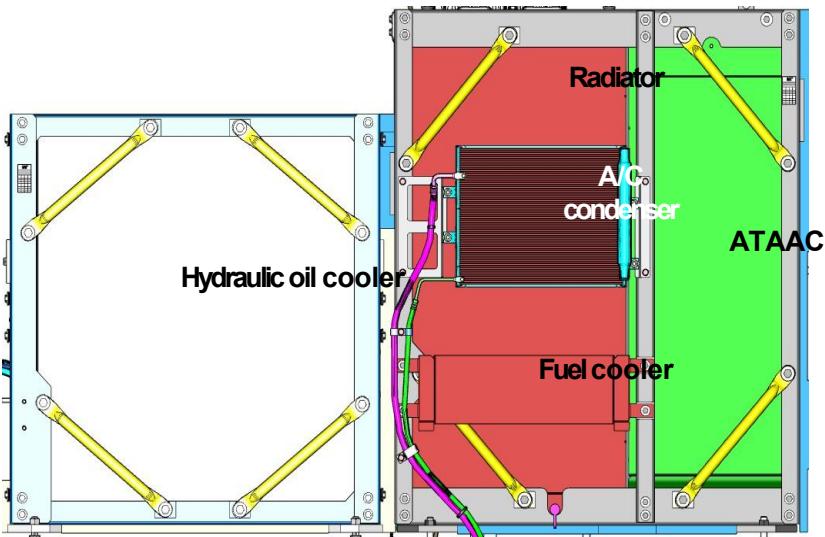
Linkage type counterweight removal device (optional)

Features

- Linkage type counterweight removal



395 Fan circuit ghosted view



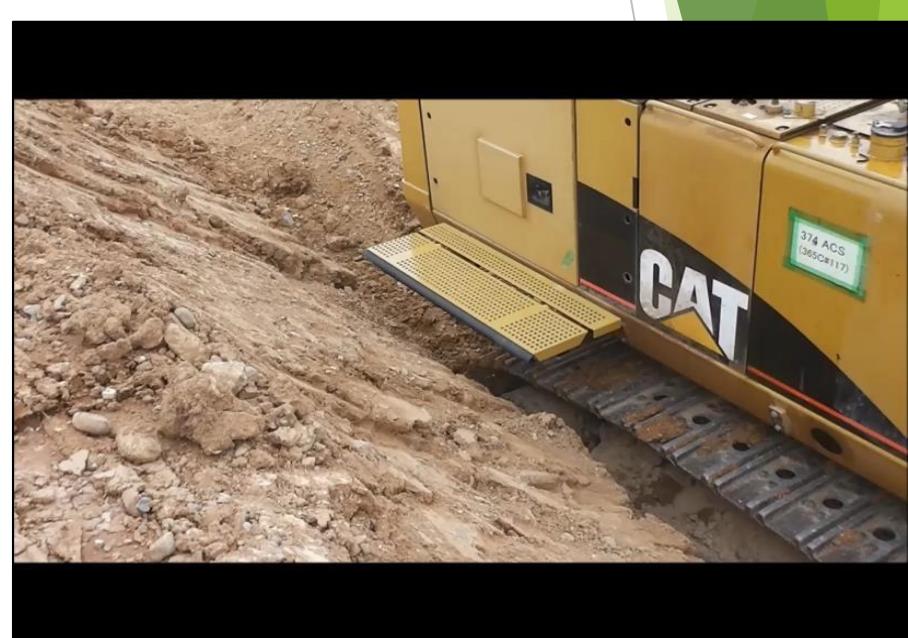
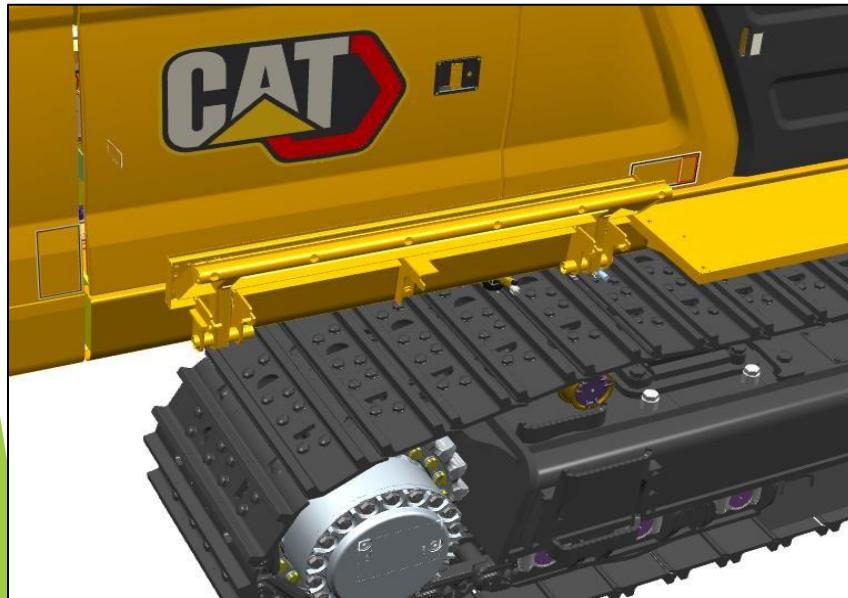
Optional tilt up walkway (already offered on F Series)

Features

- The walkway automatically tilt up in case machine is hits a wall

Customer Value Message

- Walkway isn't damaged; The pump compartment can be opened and operator/mechanics can safety walk on it.



UNIT 4

OPERATOR COMPARTMENT

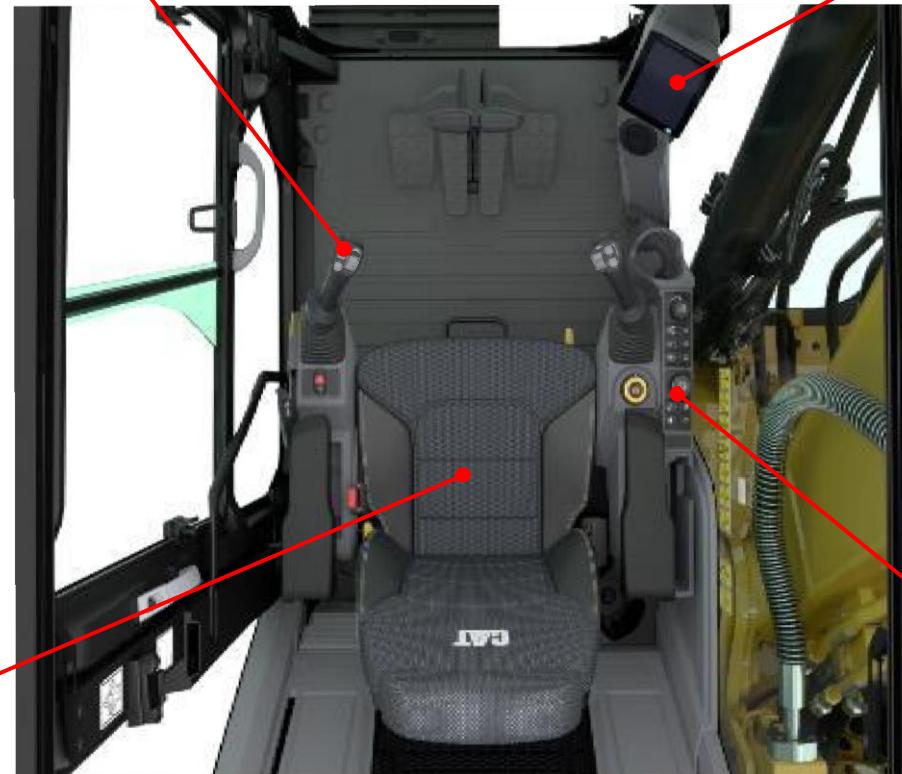
1. INTRODUCTION
2. SAFETY
3. MAINTENANCE
4. OPERATOR COMPARTMENT
5. PRE-OPERATING PROCEDURE
6. MACHINE SECURITY SYSTEM (MSS)
FOR NEXTGEN HEX
7. OPERATING PROCEDURES



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Cabin Compartment

Joysticks dapat di konfigurasi



Monitor layer sentuh

Ergonomic chair

Disain console baru

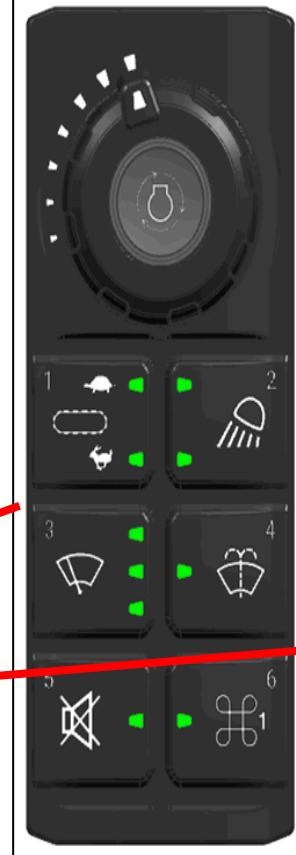


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Cabin Compartment



Start switch

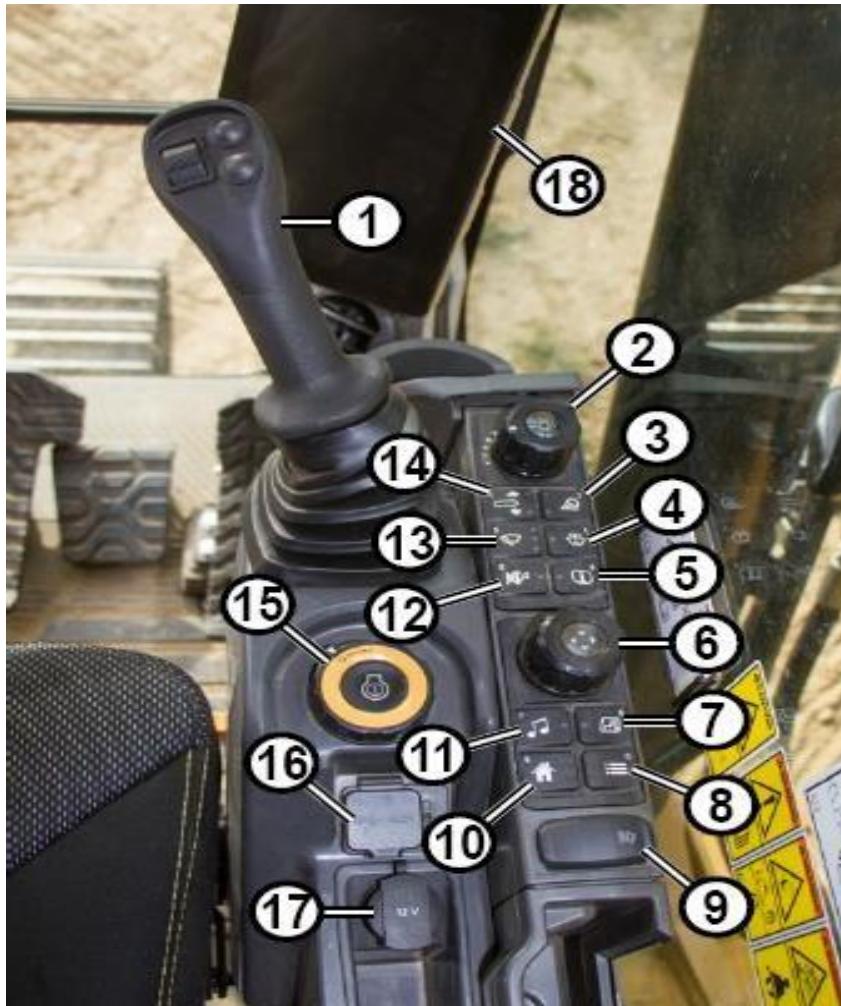


Upper console



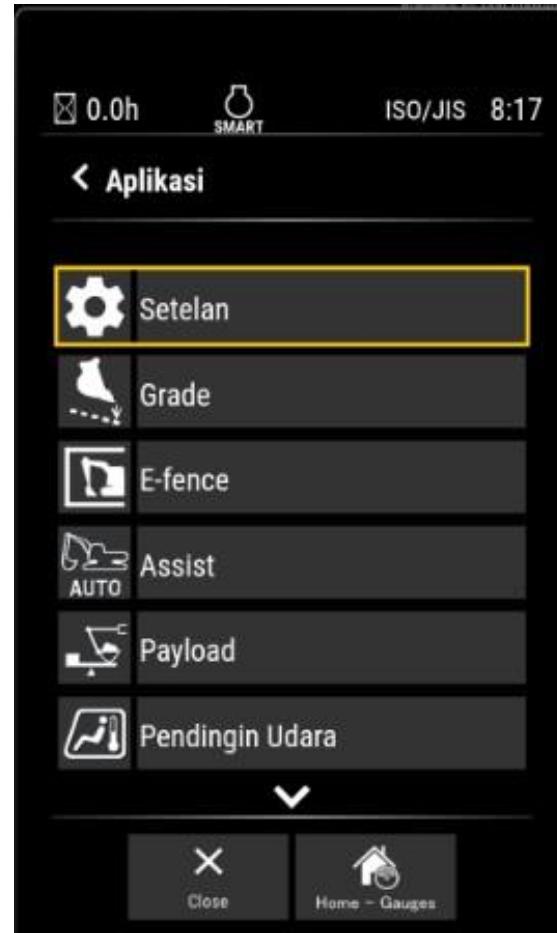
Joylog console

Cabin Compartment



- Joystick (1)
- Engine speed control (2)
- Light switch (3)
- Window washer (4)
- Operator information (5)
- Jog dial (6),
- Heating and air conditioning (7)
- Next menu (8)
- Travel alarm mute (9)
- Home (10)
- Radio control (11)
- Radio mute switch (12)
- Window wiper (13)
- Travel speed control (14)
- Engine start (15)
- USB/Aux ports (16)
- 12V power receptacle (17)
- the monitor (18)

MONITOR



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SISTEM MONITOR

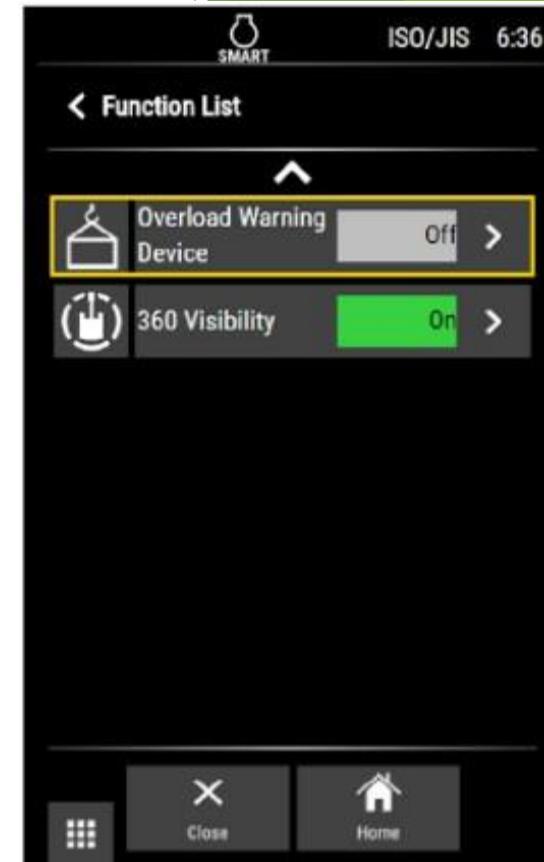


- (1) Action Lamps
- (2) Status Information Area
- (3) Event Indicator Area
- (4) Camera View Area
- (5) Gauge Area
- (6) Navigation Area
- (7) Function List
- (8) Shortcuts

SISTEM MONITOR



SISTEM MONITOR



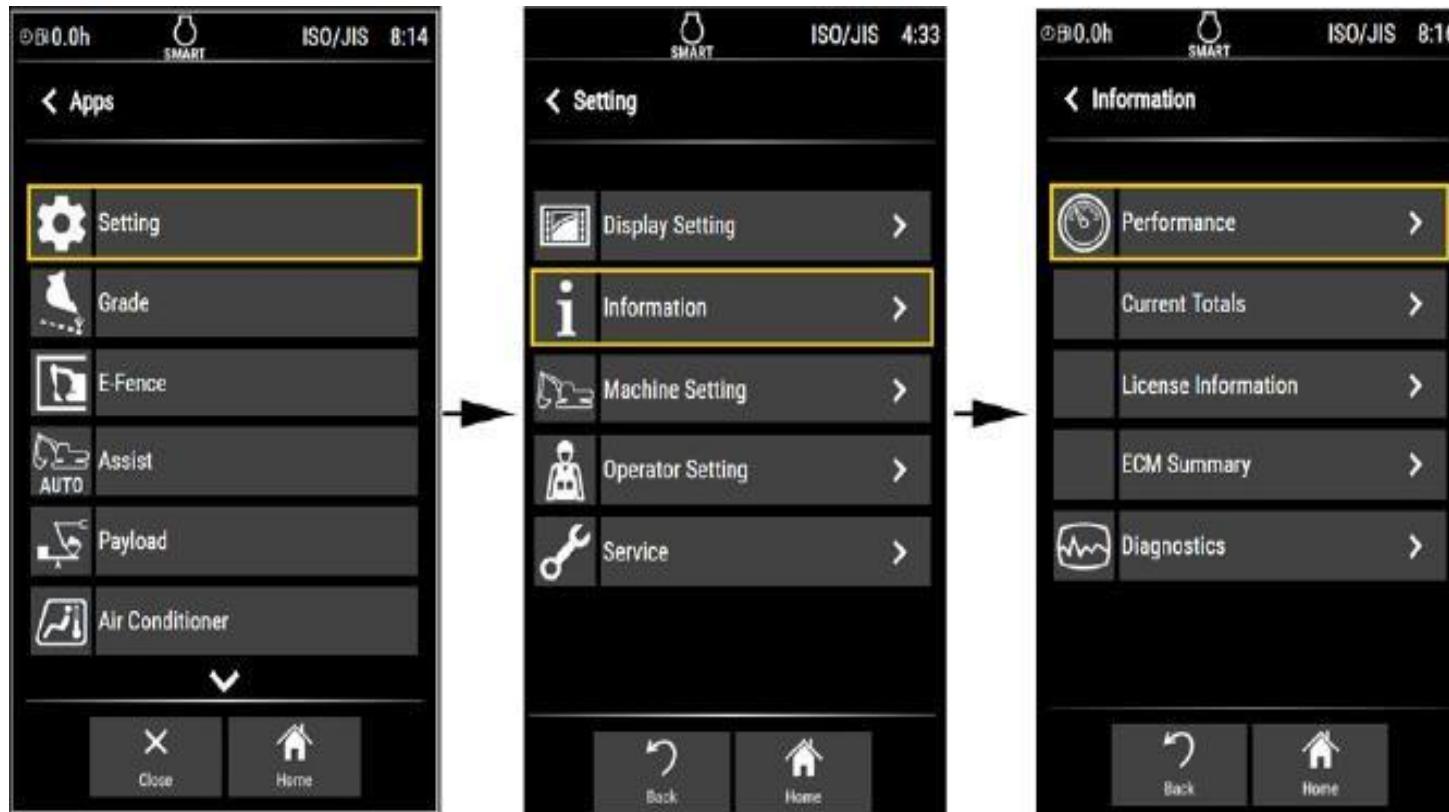
TRAINING CENTER
PT.CAKRAWALA DINAMIKA ENERGI

Setting Menu – Display Setting



TRAINING CENTER
PT.CAKRAWALA DINAMIKA ENERGI

Setting Menu - Information



TRAINING CENTER
PT.CAKRAWALA DINAMIKA ENERGI

Setting Menu – Machine Setting

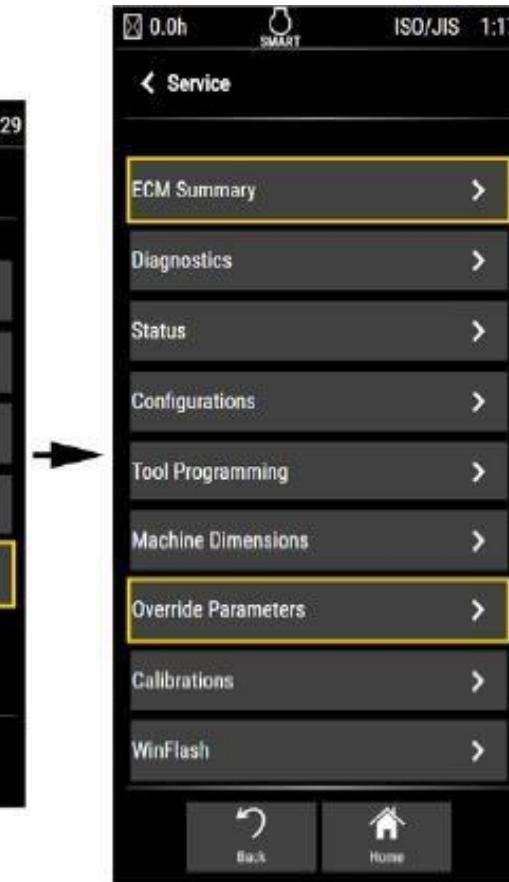


Setting Menu – Operator Setting



TRAINING CENTER
PT.CAKRAWALA DINAMIKA ENERGI

Setting Menu - Service



SYMBOL & WARNING LEVEL

- System

- Engine



- Transmission



- Brakes



- Hydraulics



- Electrical



- Fluids

- Oil



- Coolant



- Fuel



- Maintenance

- Filter



- Hours



- Check



- Conditions

- Temperature



- Pressure



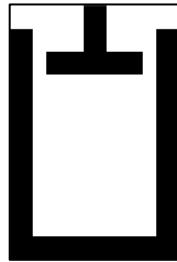
- Flow



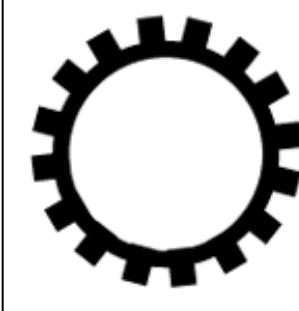
ISO Symbols > Primary Symbols



Engine



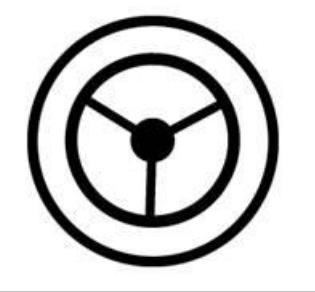
Hydraulic



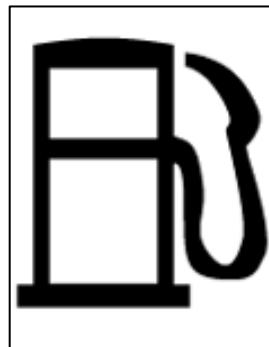
Transmission



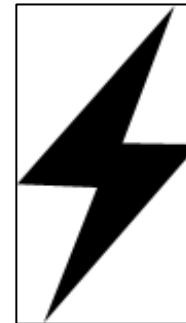
Brake



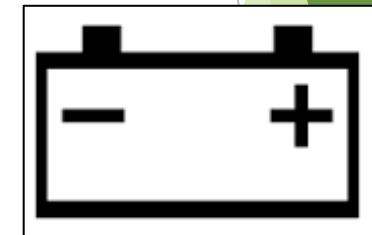
Steering



Fuel



Electrical



Electrical

ISO Symbols > Secondary Symbols



Oil - setetes oli bisa: di dalam atau di atas / bawah simbol



Coolant / water - simbol bisa di dalam atau di atas / bawah simbol



Temperature - thermometer bisa di dalam atau di luar simbol



Pressure - tanda panah bisa di dalam, di luar, mungkin satu atau dua panah



Flow - panah panjang berarti aliran

ISO Symbols > Secondary Symbols



Air – secara umum berarti udara

P

Park – secara umum berarti rem parkir



Filter - setiap garis putus-putus di dalam, di bawah, atau melalui simbol menunjukkan Filter



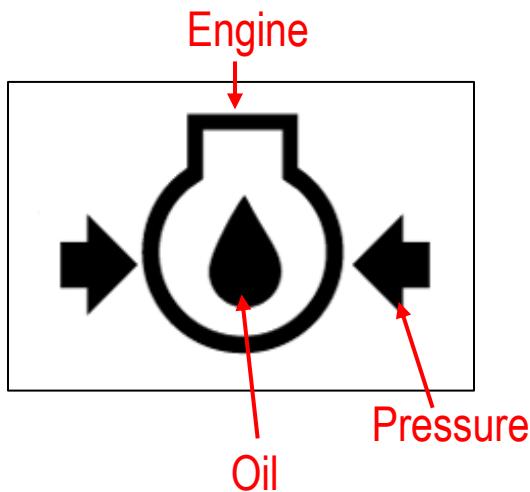
Level – biasanya di bawah simbol



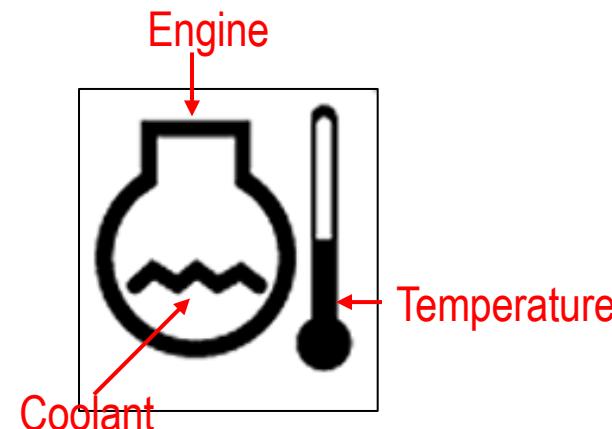
Level – biasanya di samping simbol

ISO Symbols > Building Symbols

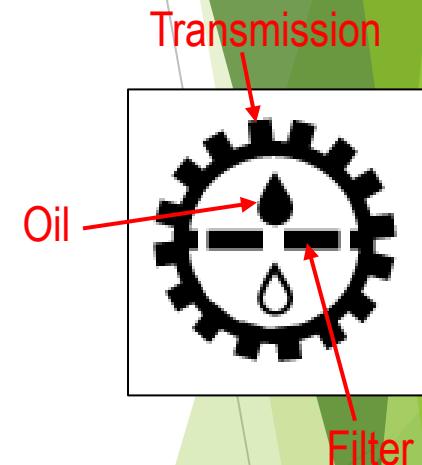
Tips: Selalu melihat ke simbol primer yang pertama, kemudian melihat ke simbol yang kedua yang terpasang atau sudah terdapat di simbol primer.



Engine Oil Pressure



Engine Coolant
Temperature



Transmission
Oil Filter

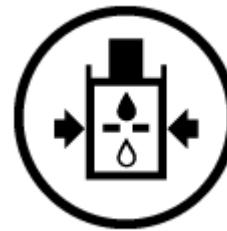
ISO Symbols > Filter Symbols



Transmission
Oil Filter



Power Train
Oil Filter



Hydraulic Oil
Filter



Engine Air
Filter Restriction



Power Train
Oil Filter

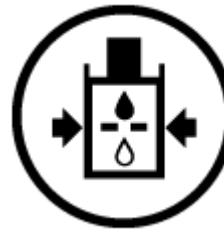
ISO Symbols > Filter Symbols



Transmission
Oil Filter



Power Train
Oil Filter



Hydraulic Oil
Filter

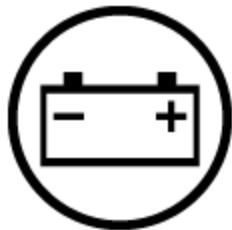


Engine Air
Filter Restriction



Power Train
Oil Filter

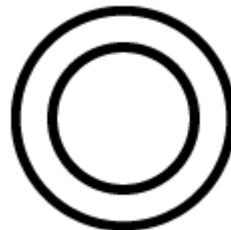
ISO Symbols > Electrical Symbols



Electrical System



Alternator



OFF



ON



START

Engine Start Switch



Rear Lights
and Side Lights



Battery
Disconnect Switch



Battery Disconnect OFF

ISO Symbols > Engine Symbols



Starting Aid –
Ether



Air Inlet
Heater
or
Glow
Plugs



Panel
Test Switch



Digital
Tachometer



Service Hour
Meter

Symbol Review



Engine Oil Pressure



Engine Air Filter Restriction



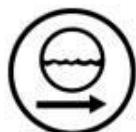
Parking Brake



Hydraulic Oil Temperature



Check Engine



Coolant Flow

Monitoring Systems ► Warning Category 1

- Dalam kategori ini, hanya indicator peringatan yang akan ditampilkan di layar monitor atau jarum pada gauge di garis merah Kategori ini memberi tahu operator bahwa sistem mesin perlu mendapat perhatian.
- Tidak akan membahayakan operator.
- Tidak akan menyebabkan kerusakan serius pada komponen mesin.
- Yang termasuk Warning Category 1 adalah:



Battery Voltage



Restricted Fuel Filter



Restricted Hydraulic
Return Filter



Water Separator



Restricted Air Filter



Fuel Level

Monitoring Systems ► Warning Category 2

- Dalam kategori ini, lampu indicator peringatan yang akan ditampilkan di layar monitor atau jarum pada gauge di garis merah & lampu aksi juga menyala.
- Kategori ini memberi tahu operator stop pengoperasian dan low idle engine untuk menurunkan temperature, jika selama low idle warning event masih berlangsung, stop engine dan lakukan pengecekan.
- Operator harus merubah cara pengoperasian.
- Kegagalan sistem ini akan membahayakan operator.
- Kegagalan ini sistem menyebabkan kerusakan serius pada komponen mesin.
- Yang termasuk Warning Category 2 adalah:

Engine Coolant Temperature



Hydraulic Oil Temperature



Monitoring Systems ► Warning Category 3

- Dalam kategori ini, lampu indicator peringatan yang akan ditampilkan di layar monitor atau jarum pada gauge di garis merah & lampu aksi juga menyala serta alarm berbunyi
- Kategori ini memberi tahu operator untuk segera parkir tempat rata dan aman, stop Machine & engine.
- Cari penyebab problem & dilarang mengoperasikan machine sampai penyebab problem ditemukan dan diselesaikan.
- Kegagalan sistem ini akan membahayakan operator.
- Kegagalan ini sistem menyebabkan kerusakan serius pada komponen mesin.
- Yang termasuk Warning Category 3 adalah:



Engine Oil Pressure



Coolant Flow



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SISTEM MONITOR



Illustration 4
Event Indicator Area
(1) Event Icon List
(2) Pop-up Event Message

Warning Level 1 (Gray)
Warning Level 2 (Amber)
Warning Level 3 (Red)

Abu-abu
Kuning Sawo
Merah

Event Icon List



UNIT 5

PRE-OPERATING PROCEDURE

1. INTRODUCTION
2. SAFETY
3. MAINTENANCE
4. OPERATOR COMPARTEMENT
5. PRE-OPERATING PROCEDURE
6. MACHINE SECURITY SYSTEM (MSS)
FOR NEXTGEN HEX
7. OPERATING PROCEDURES



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PT.CAKRAWALA DINAMIKA ENERGI

Secure Start



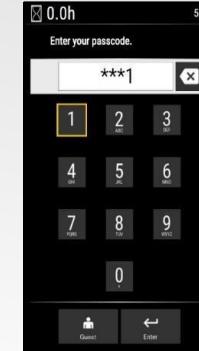
START WITH



Phone App



Key fob



Passcode

PUSH TO START WITH OPERATOR ID



TRAINING CENTER
PT.CAKRAWALA DINAMIKA ENERGI

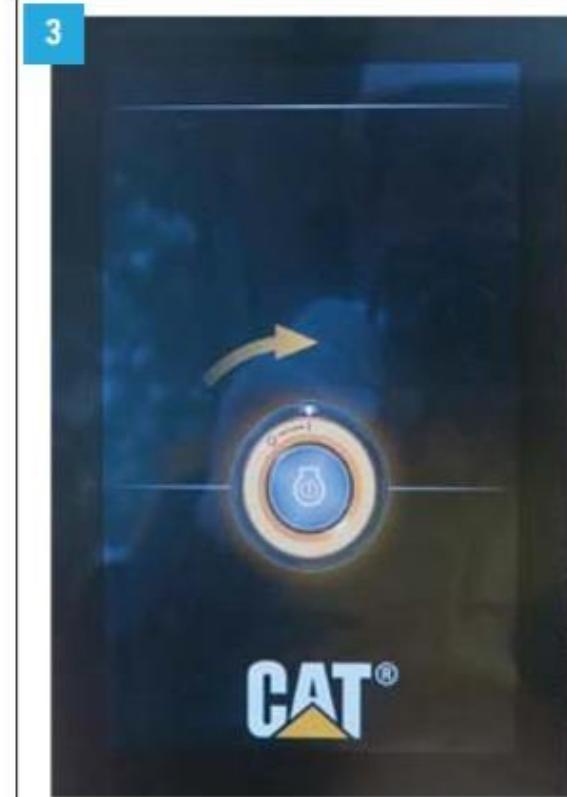
Prosedur Menyalakan Engine



1



2



3

- Pastikan telah melakukan pemeriksaan keliling pada machine.
- Putar kunci “Disconnect Battery” ke posisi “ON”
- Tampilan pada display monitor

Prosedur Menyalakan Engine



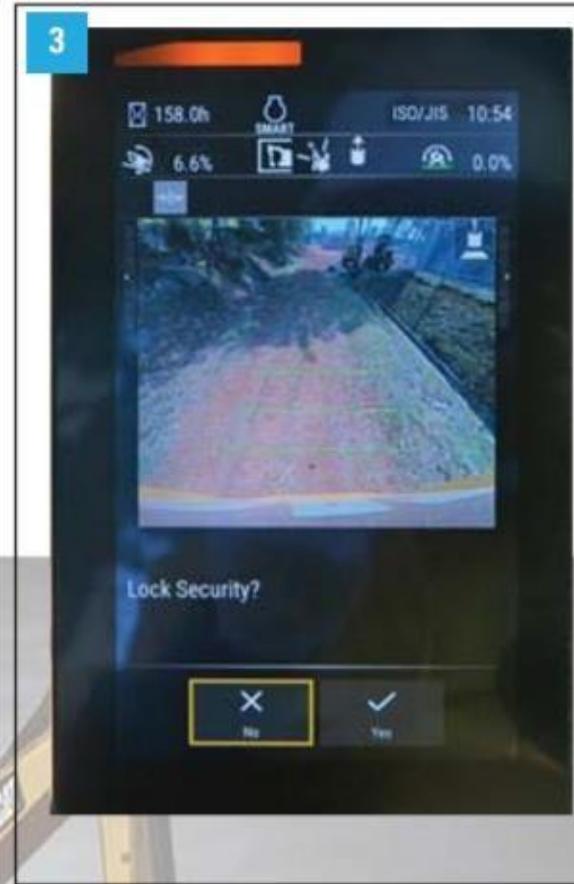
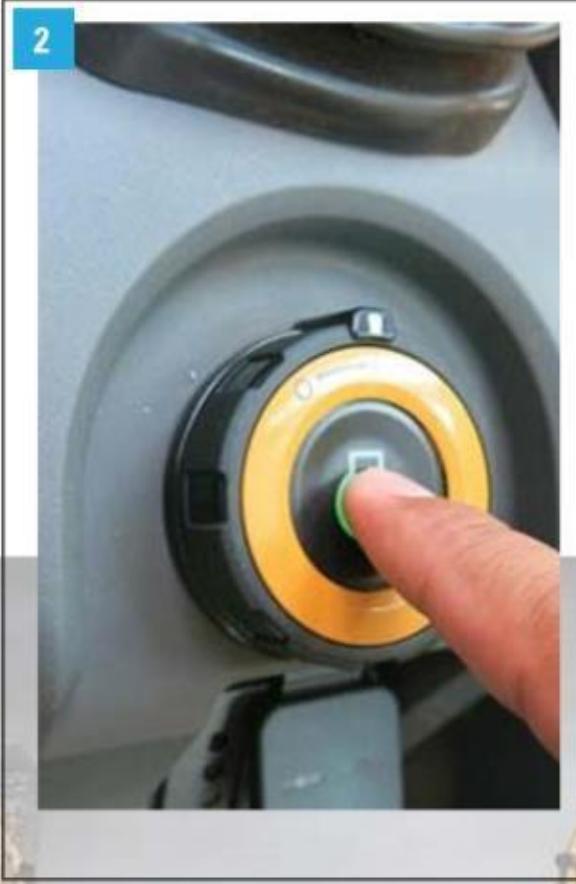
- Putar “Starting Button” ke posisi “ON”
- Masukkan kode sandi pada monitor.
- Tampilan pengguna pada monitor. Pilih “OK”

Prosedur Menyalakan Engine



- Tampilan pada layar utama
- Pastikan "Hydraulic Lock" aktif & lampu "Starting Button" berwarna hijau.
- Tekan tombol untuk menyalakan machine.

Prosedur Mematikan Engine



- Turunkan semua Implement, machine low idle ± 5 menit.
- Matikan semua perangkat elektrik. Tekan/putar "Starting Button" untuk mematikan machine. Pilih "Yes" untuk "Lock Security".

UNIT 6

MACHINE SECURITY SYSTEM (MSS) FOR NEXTGEN HEX

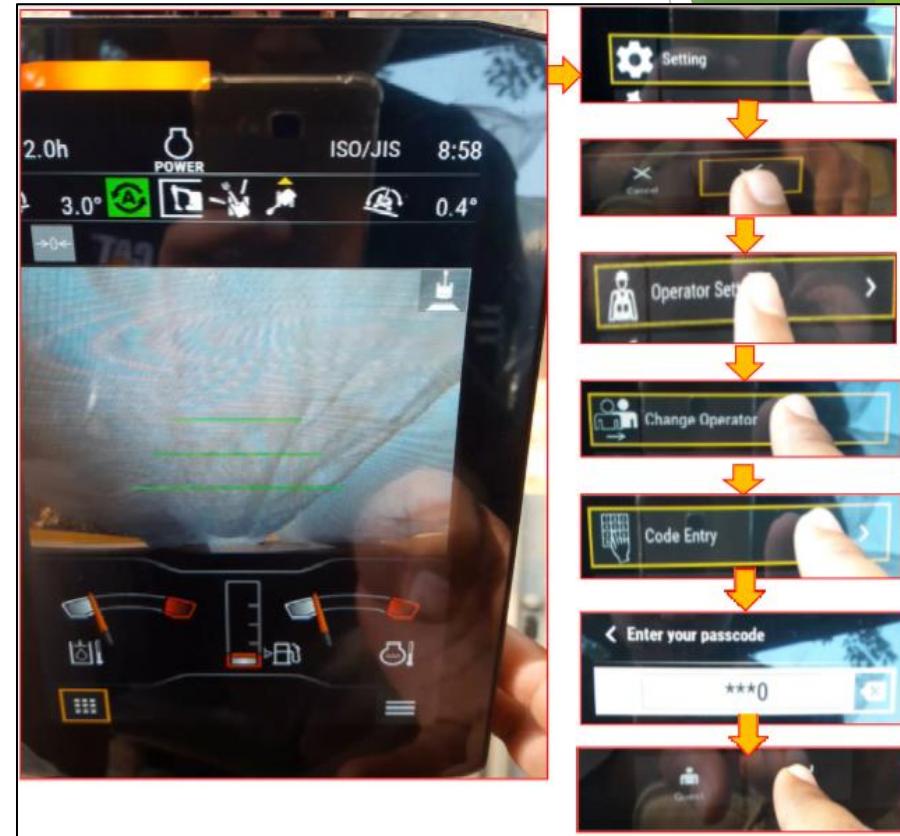
1. INTRODUCTION
2. SAFETY
3. MAINTENANCE
4. OPERATOR COMPARTEMENT
5. PRE-OPERATING PROCEDURE
6. MACHINE SECURITY SYSTEM (MSS)
FOR NEXTGEN HEX
7. OPERATING PROCEDURES



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Langkah Pertama (Pembuatan Passcode Operator)

1. Kunci Battery Dalam Posisi “On”
2. Tombol Start Posisi “On”
3. Tekan Tombol Menu “ Kiri”
4. Pilih “Setting”
5. Muncul Warning Tekan “Ok”
6. Pilih “Operator Setting”
7. Pilih “ Change Operator”
8. Pilih“ Code Entry”
9. Masukkan Id Master (4 digit Angka Belakang SN Unit)
10. Tekan “Ok” Akan Muncul Tampilan Awal Pada Monitor

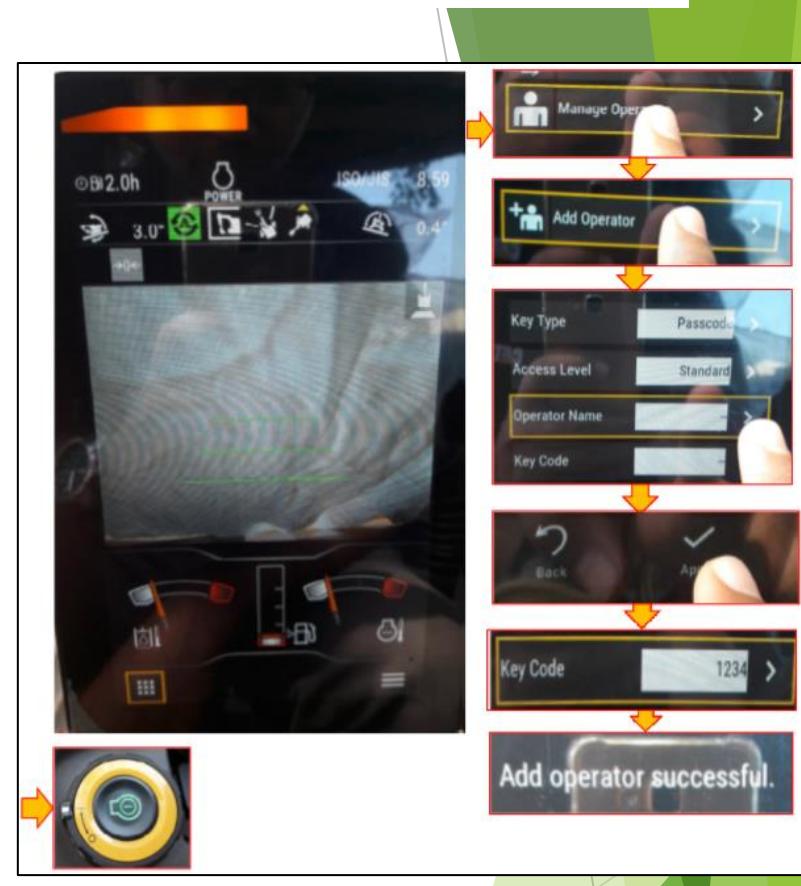


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Langkah Pertama (Pembuatan Passcode Operator)

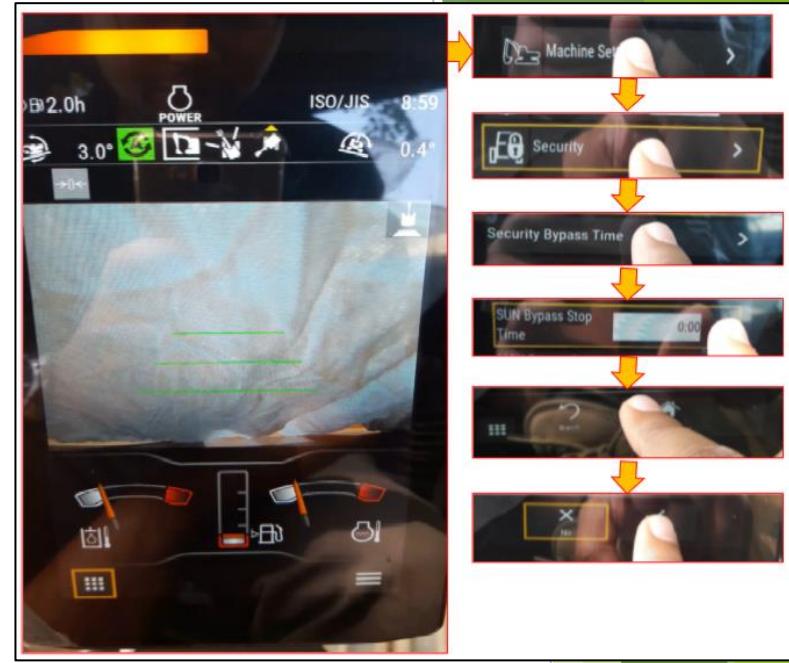
1. Lakukan Dengan Menekan Step No 3-6
2. Pilih & Tekan “manage Operator”
3. Pilih & Tekan “Add Operator”
 - A. Key Type : Pilih “ Pascode”
 - B. Access Level : “ Standard”
 - C. Operator Name: (Contoh Jhoni) “Apply”
 - D. Key Code : (Contoh 1234) Tekan “Ok”
4. Tekan “Apply” akan tampil “ Add Operator Successful ”

Note: Tombol Start masih berwarna hijau



Langkah Kedua (Setting Aktivasi MSS)

1. Kembali Ke Tampilan Awal
2. Pilih Menu Sebelah Kiri
3. Pilih “Setting”
4. Muncul “Warning” Tekan “Ok”
5. Pilih “Machine Setting”
6. Pilih “ Security ”
7. Pilih “Security Bypass Time”
8. Ubah Security Bypass Times
9. Ganti Angka “0” Untuk Semua Bypass Stop Time
(Contoh SUN Bypass Stop Time : 0:00 Dst....)
10. Tekan “Home” (Gb. Rumah)
11. Putar Tombol Start Ke Posisi “Off” dan tunggu 15 menit
atau
12. Putar Battery Disconnect Switch Ke Posisi “ Off”
13. Akan Muncul“Lock Security” Tekan “Yes”



Prosedur Menghidupkan Mesin Setelah MSS Aktif

1. Battery Disconnect Switch Posisi “On”
2. Tombol Start Posisi “On” **Warna Merah**
(Mesin Tidak Bisa Dihidupkan)
3. Masukkan Passcode Operator yang sudah dibuat kemudian tekan Enter
4. Akan muncul “System Starting” dan Nama Operator
5. Tombol Start Akan Berubah **“Warna Hijau”**
6. Tekan Tombol Start Dan Mesin Bisa Dihidupkan



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UNIT 7

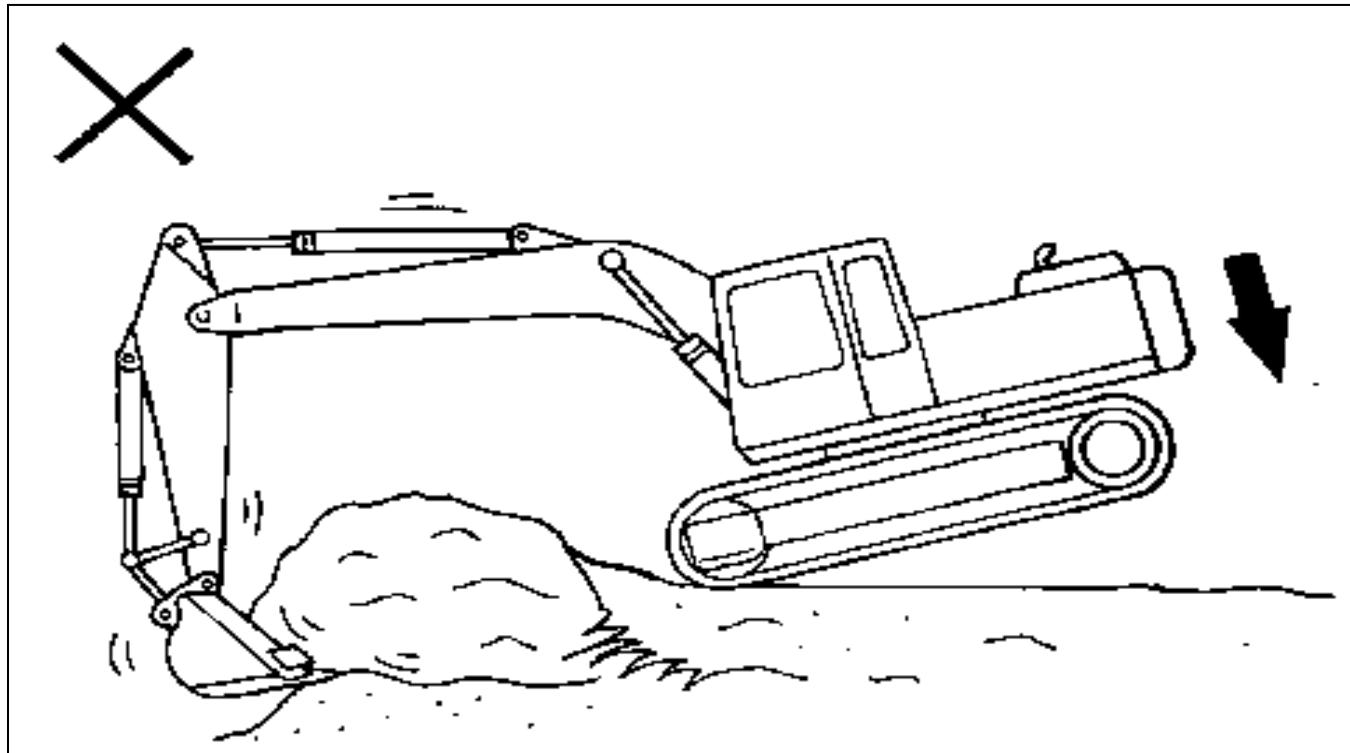
OPERATING PROCEDURE

1. INTRODUCTION
2. SAFETY
3. MAINTENANCE
4. OPERATOR COMPARTMENT
5. PRE-OPERATING PROCEDURE
6. MACHINE SECURITY SYSTEM (MSS)
FOR NEXTGEN HEX
7. OPERATING PROCEDURES



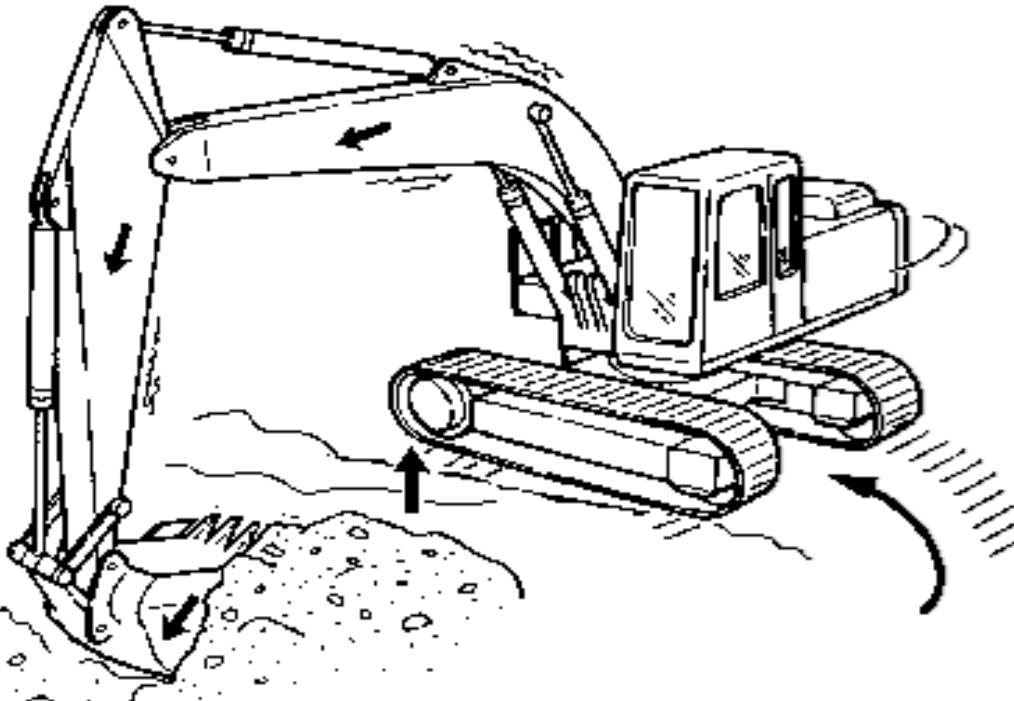
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TEHNIK DASAR PENGOPERASIAN ALAT



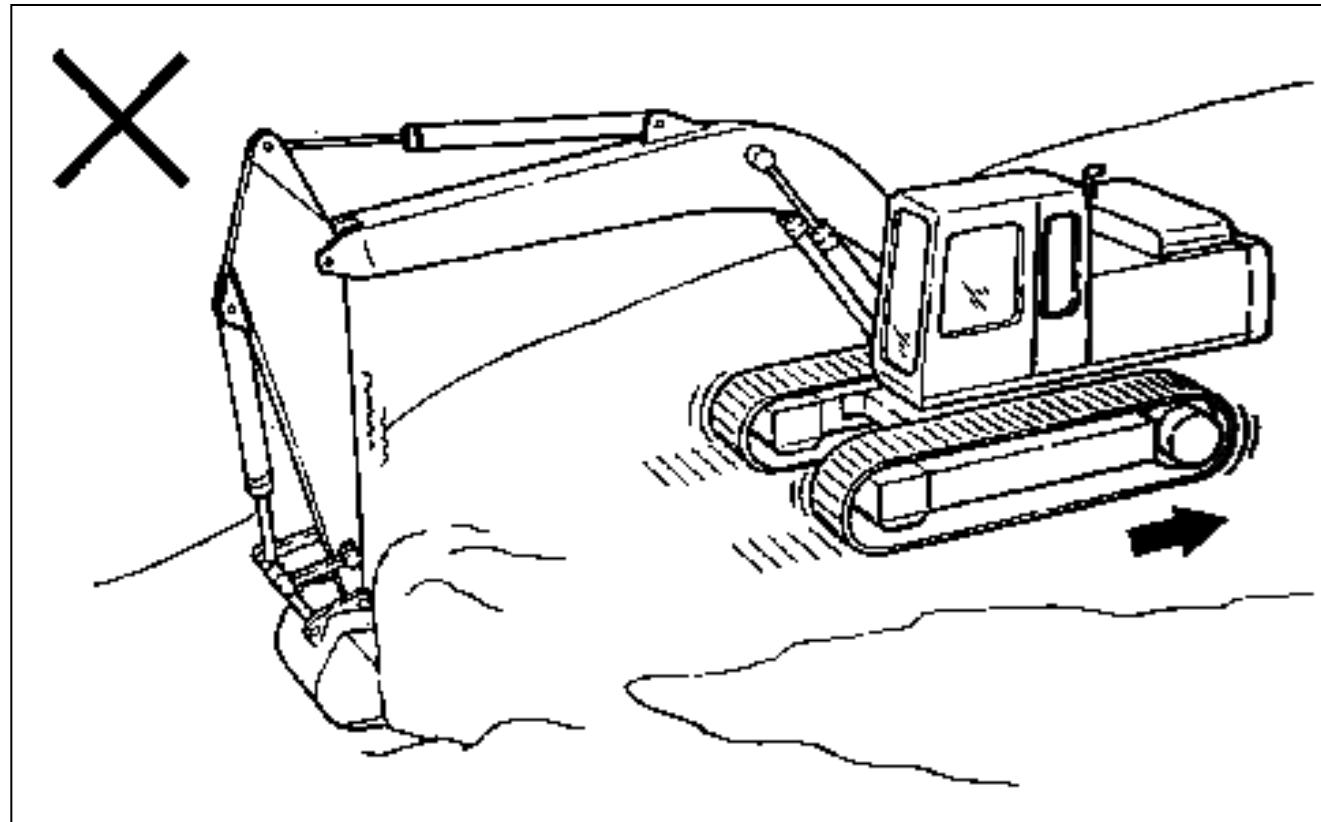
Jangan menggali melebihi kapasitas mesin

TEHNIK DASAR PENGOPERASIAN ALAT



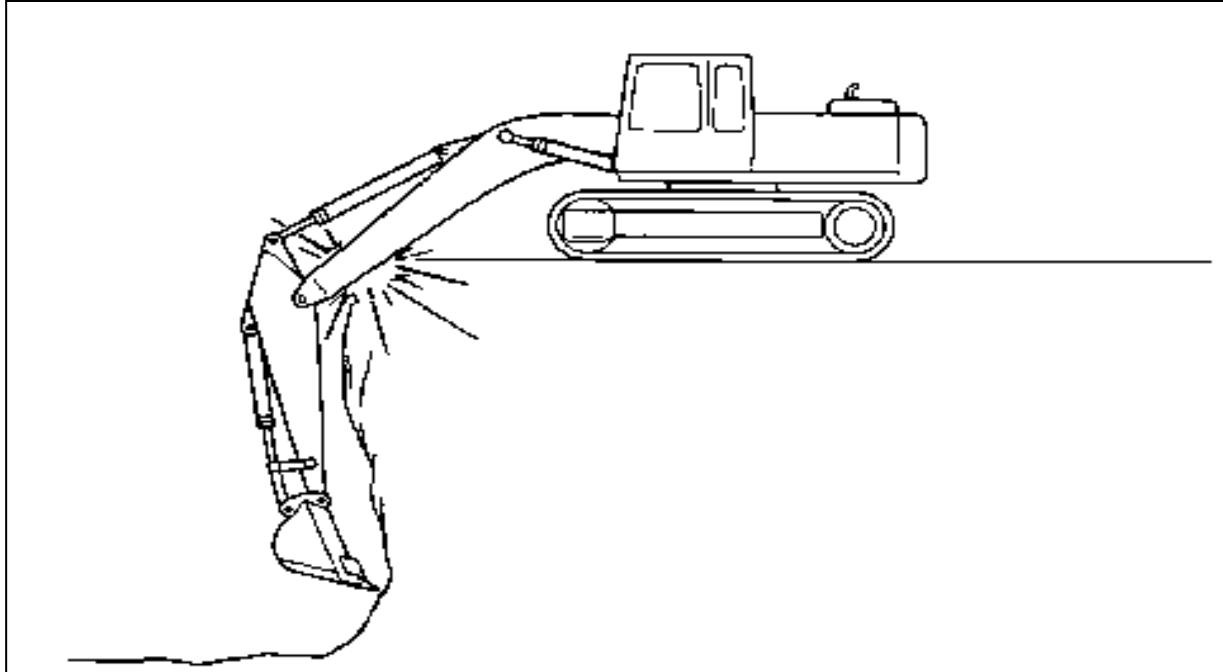
Jangan menggunakan swing motor untuk menggerakkan mesin mundur atau maju

TEHNIK DASAR PENGOPERASIAN ALAT



Jangan menggali sambil travel motor digerakkan kebelakang

TEHNIK DASAR PENGOPERASIAN ALAT

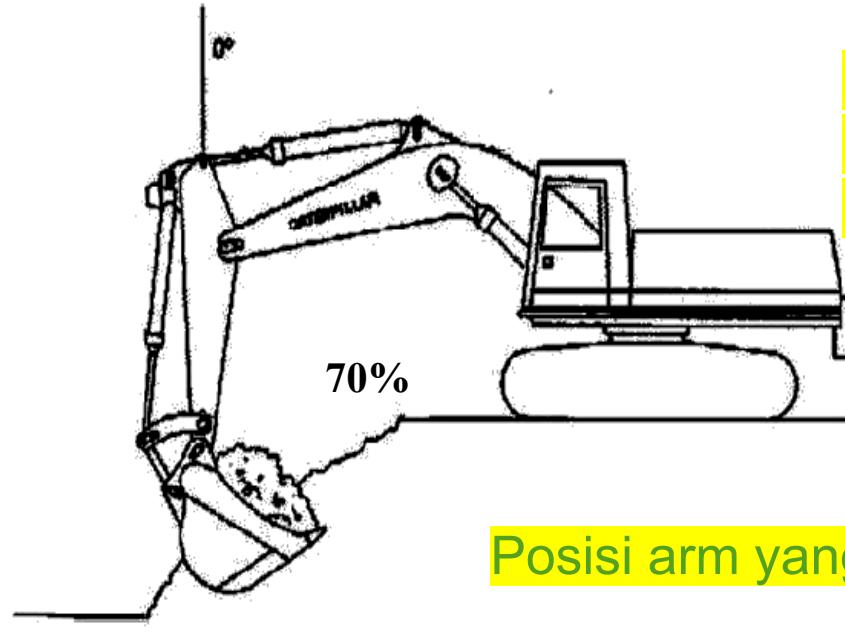


Pada saat menggali lubang yang dalam jangan menurunkan boom sampai bagian bawah boom bersentuhan dengan tanah atau track



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TEHNIK DASAR PENGOPERASIAN ALAT

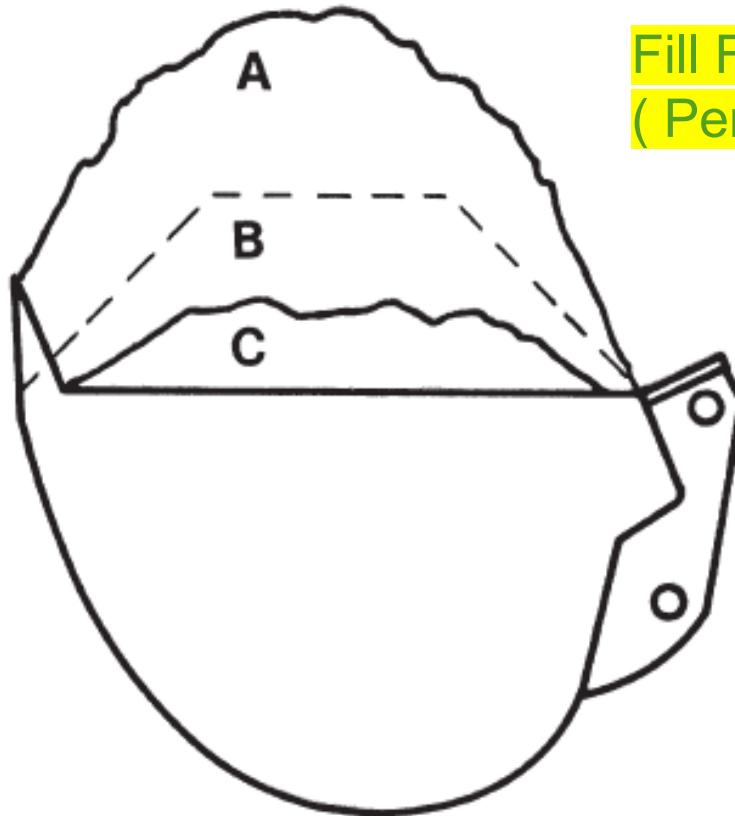


Posisi Arm yang ideal pada saat penetrasi, sudutnya 30° dan sudut Bucket terhadap tanah kira kira 45°

Posisi arm yang ideal saat diangkat vertikal

30°

TEHNIK DASAR PENGOPERASIAN ALAT



Fill Factor Range
(Percent of heaped Bucket capacity)

A – 100 – 110%
B – 90 – 100%
C – 80 – 90%
60 – 75%
40 – 50%

TEHNIK DASAR PENGOPERASIAN ALAT



*Jangan menggunakan
bucket sebagai
hammer*



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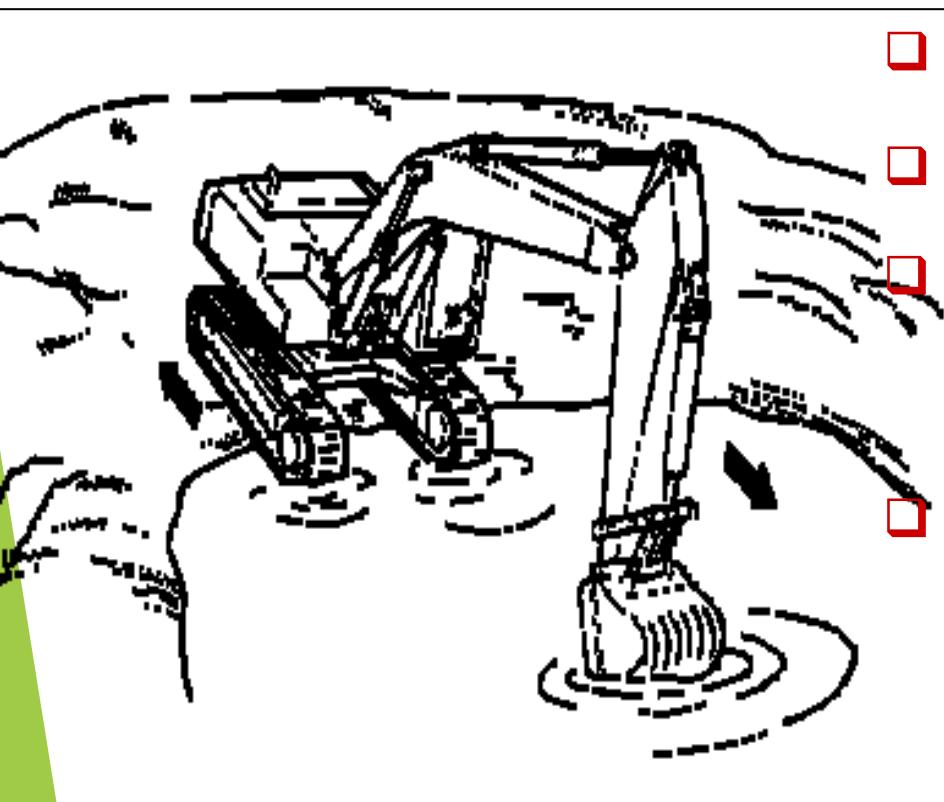
Teknik dasar pengoperasian

“Keluar dari lumpur”



Teknik dasar pengoperasian

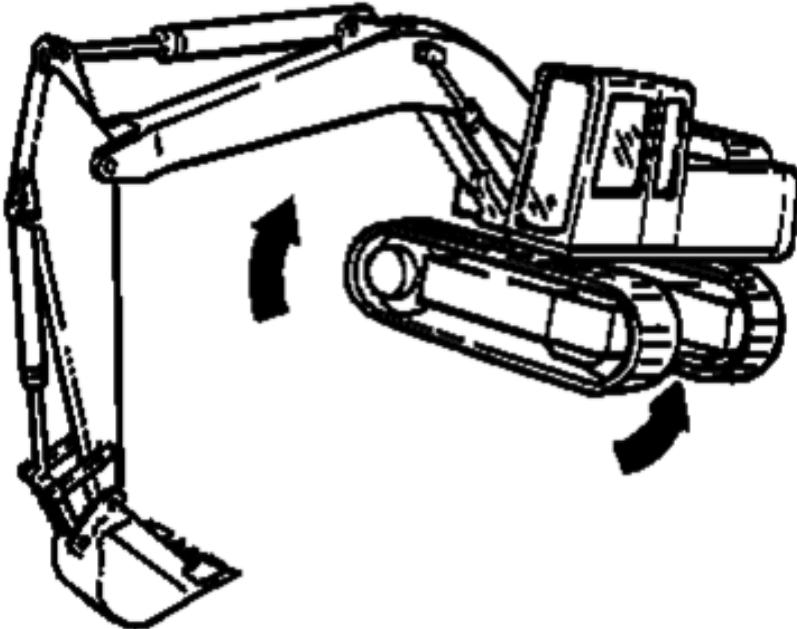
“Keluar dari lumpur “



- Tancapkan bucket ketanah
- Dorong stick kedepan
- Saat stick didorong kedepan travel lever ditekan secara bersamaan
- Ulangi teknik seperti diatas sampai mesin bisa keluar dari lumpur

Teknik dasar pengoperasian

Melepaskan lumpur

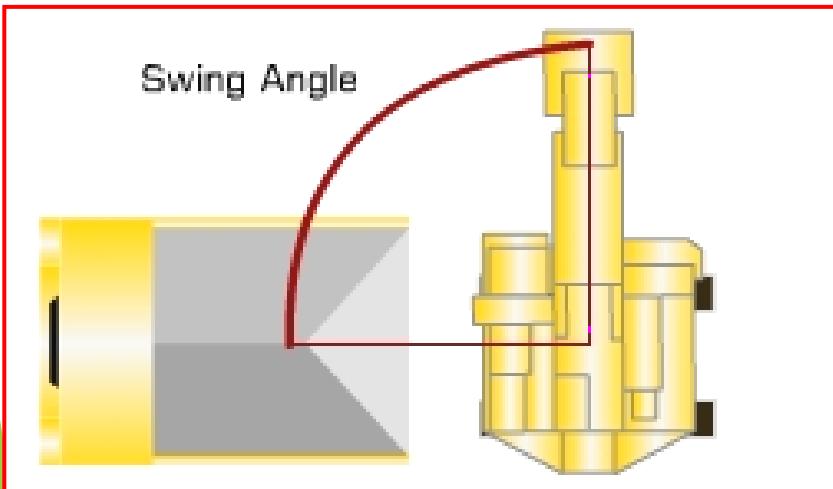


- Posisikan stick 90 derajat dan Bucket rata dengan Tanah.
- Tekan Boom sampai track tidak bersentuhan dengan tanah.
- Tekan travel lever kanan Kedepan dan kebelakang sampai track bisa berputar dengan lancar.

TEHNIK DASAR PENGOPERASIAN ALAT



- ❖ Landasan excavator harus rata & aman
- ❖ Gali material yang paling dekat dengan unit yang sedang diloading
- ❖ Radius swing kurang dari 90° dan bucket diisi penuh sesuai kapasitas
- ❖ Untuk memuat bolder ke truck isi dulu material halus kemudian bouldernya
- ❖ Jangan melipat stick sampai kuku bucket menyentuh track



TEHNIK DASAR PENGOPERASIAN ALAT

Digging di daerah tebing



- Buat lubang untuk menampung runtuhan material pada saat excavator bekerja di samping tebing yang tinggi
- Jaga jarak antara mesin dengan tebing untuk menghindari mesin tertimbun oleh material atau boulder

Excavator Operation

- ▶ **Excavator secara tradisional digunakan di Overburden(OB)**
- ▶ **2 pengaturan yang berbeda untuk menggunakan excavator**
 - ▶ Excavator dan truck di level yang sama
 - ▶ Excavator di atas bench dan truck di bawah
 - Excavator dan truck di level yang berbeda menghasilkan 15-20% lebih banyak produksi



Pengaturan Reguler - Truk di Level bawah

Bench yang lebar

- Lebih sedikit excavator memerlukan reposisi
- Banyak tempat tersedia untuk truck di tempatnya lebih cepat

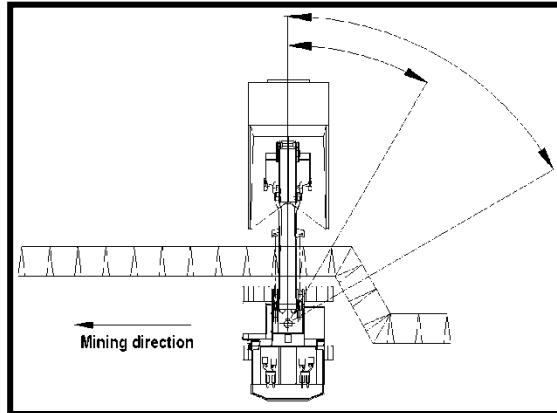
- ▶ Lintasan dan arah perjalanan sejajar dengan permukaan kerja
- ▶ Lebar "iris" sekitar 1 - 1,5x lebar undercarriage
- ▶ Dukungan dozer untuk pembersihan sangat penting



Pengaturan Reguler - Truk di Level bawah

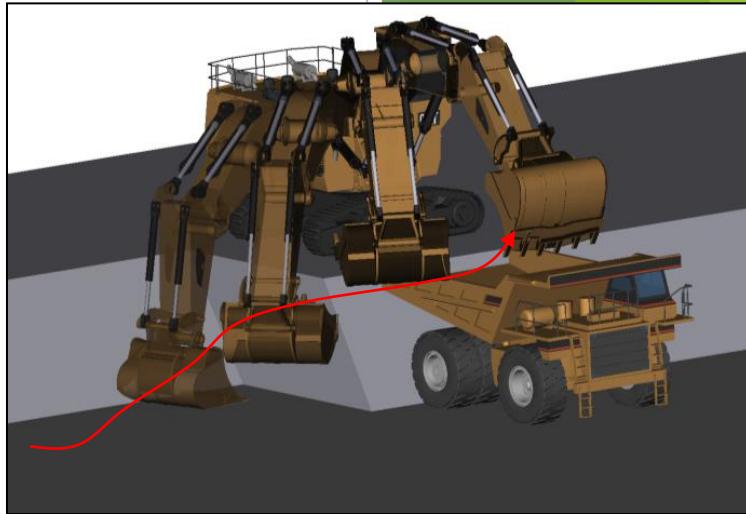
Excavator dan truck di level yang berbeda

- ▶ Pemisahan posisi peralatan yang jelas
- ➔ Lebih sedikit risiko tabrakan
- ▶ Loading bucket di atas dinding sisi body
- ▶ Loading bucket di atas ekor body
- ➔ Upaya pengangkatan yang berkurang untuk siklus yang lebih cepat
- ▶ Kemiringan sudut 30 hingga 60 °



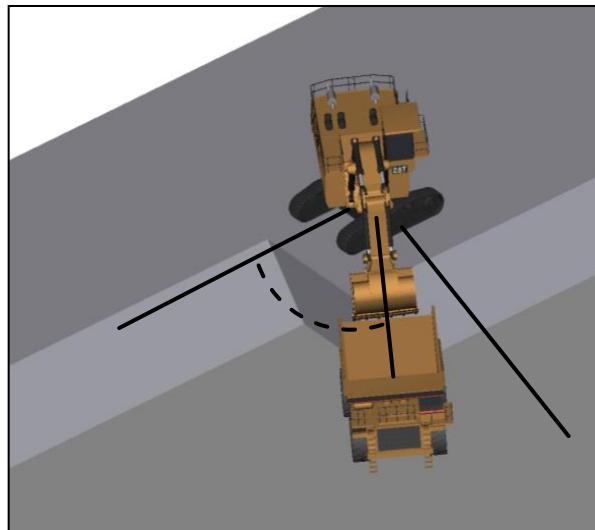
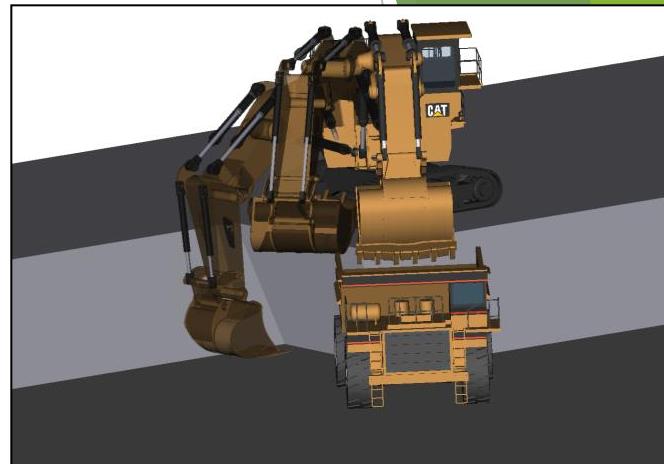
Berbagai cara penentuan posisi truk (1)

- ▶ Sudut Swing: 90°
- ▶ Loading bucket di atas dinding sisi body



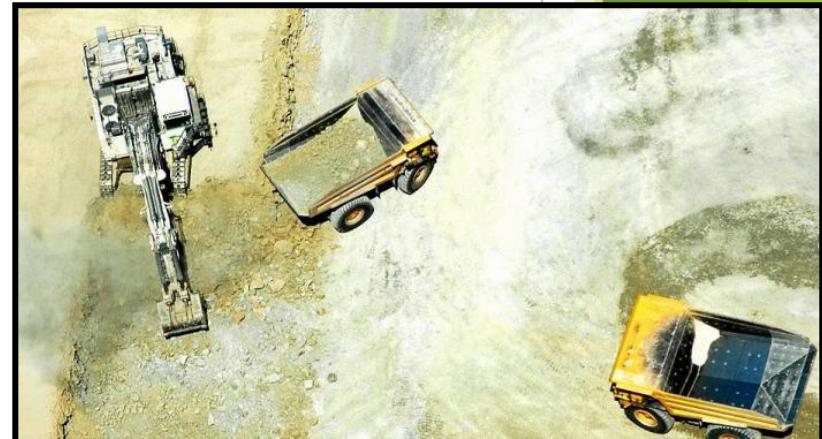
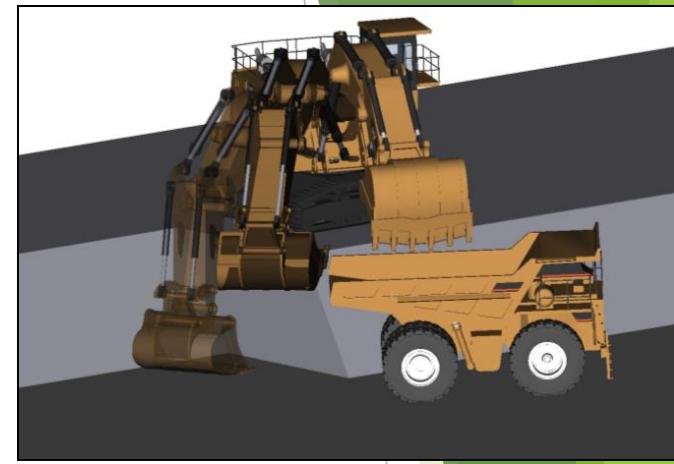
Berbagai cara penentuan posisi truk (2)

- ▶ Loading di atas dinding sisi body
- ▶ Sudut swing berkurang (sekitar 60°)



Berbagai cara penentuan posisi truk (3)

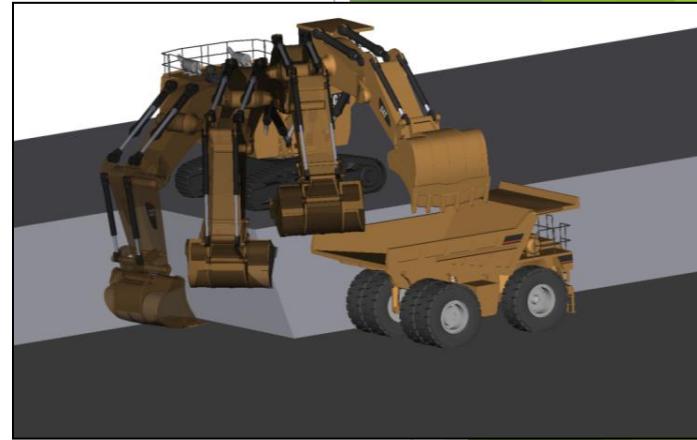
- ▶ Loading di atas ekor body
- ▶ Tidak direkomendasikan jika truk berukuran terlalu kecil
- ▶ Mengurangi sudut swing
- ▶ Mengurangi material lifting effort



Berbagai cara penentuan posisi truk (4)

Drive-by-loading

- ▶ Loading di atas ekor truck body
 - ➔ Mengurangi lifting effort untuk siklus yang lebih cepat
- ▶ Tidak ada maneuver mundur dari truck
 - ➔ penempatan/ memposisikan lebih cepat



Metode & Tehnik Operasi

Excavator dan truck pada level yang sama (Same Level)

- ▶ Meningkatkan mengangkat lebih tinggi dan memungkinkan berbelok yang besar
 - ▶ Cycle time lebih lama
- ▶ Resiko material tumpah
- ▶ Excavator dapat membersihkan area truck
- ▶ Terkadang regular set-up tidak memungkinkan
 - ▶ Digging under water
 - ▶ Drop cuts to open new benches
 - ▶ Selective mining, e.g. coal
 - ▶ Confined space
- ▶ 15 – 20 % less productive



Excavator Bench Height

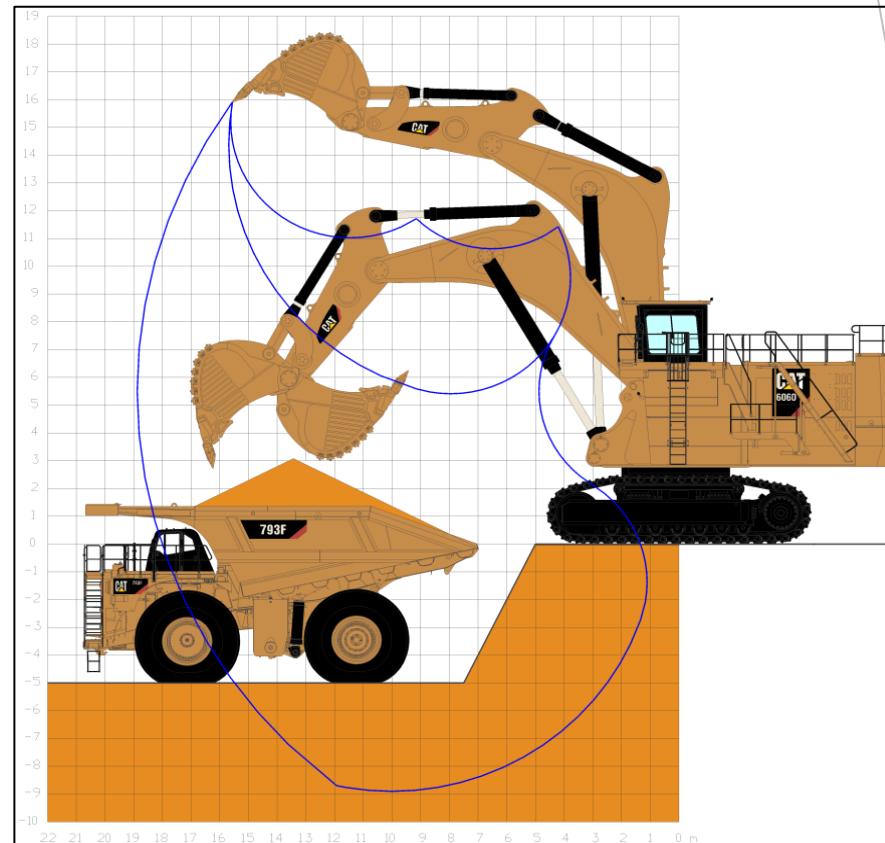
Aturan praktis:

- “Tinggi Bench = Panjang Stick (arm)”

or

- “Tinggi Bench = tinggi dari tepi truck body loading”

(tergantung pada ukuran truck)



Bucket Fill

Fill bucket 80 – 110 % → max. production



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Excavator – Operation

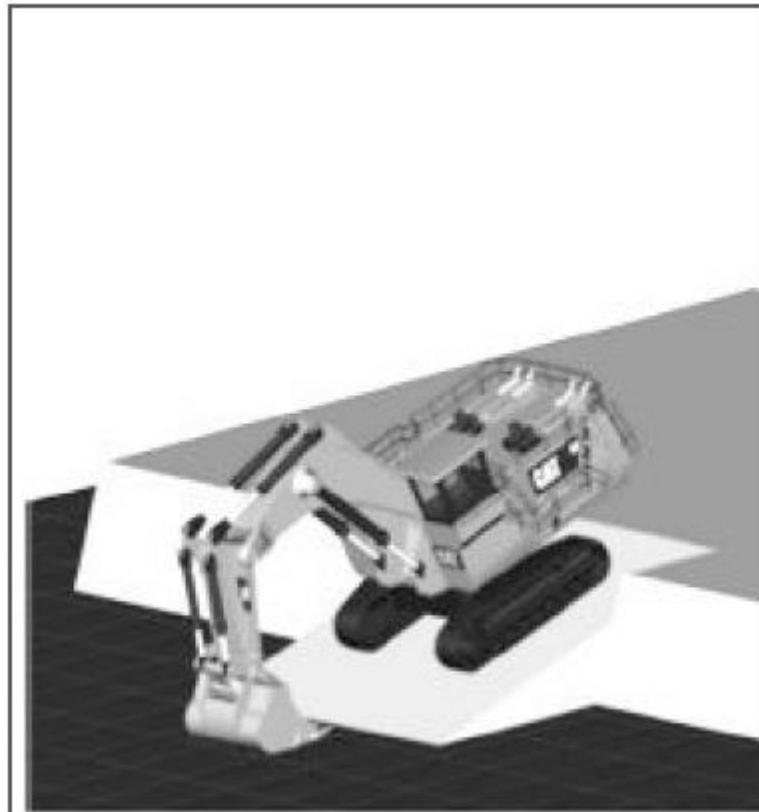
Pada saat menggali drive motor/sprokets selalu di belakang



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Metode & Tehnik Operasi

Naik & Turun Bidang Terjal

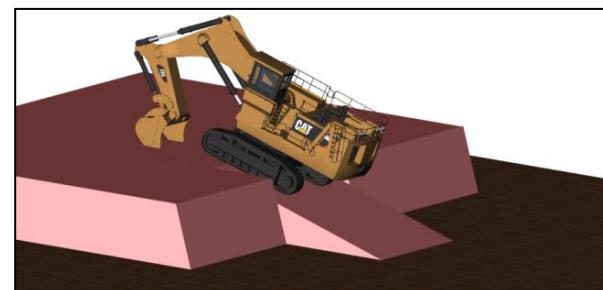
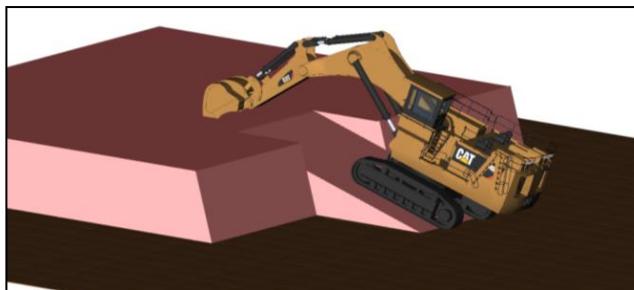
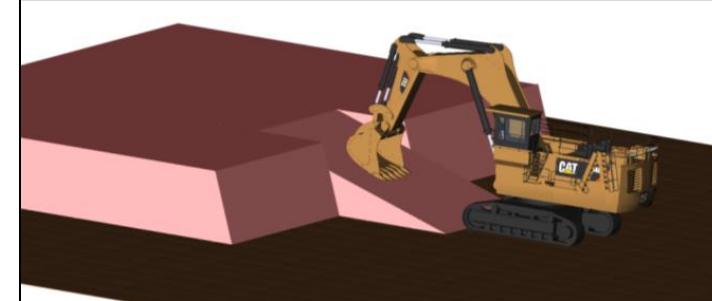
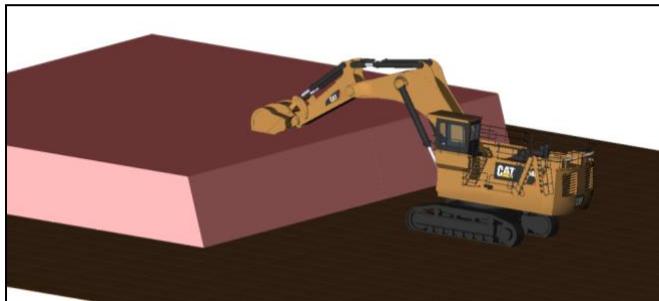


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Mendaki ke bench

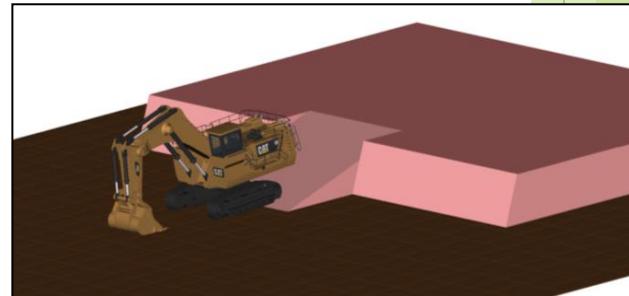
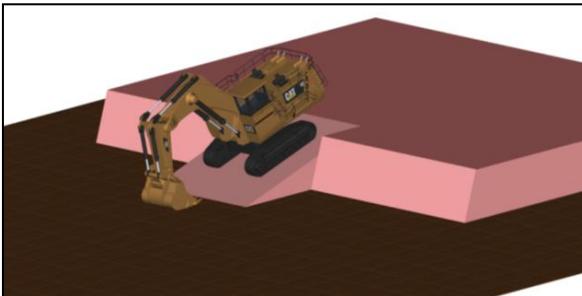
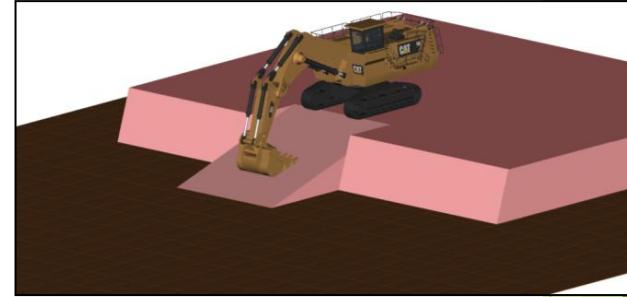
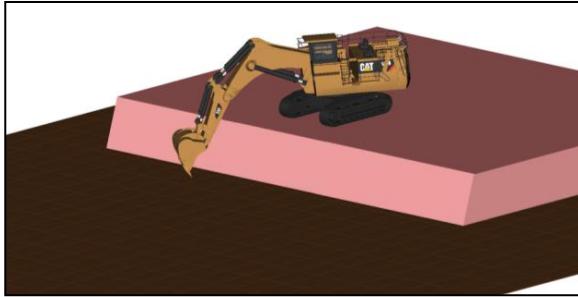
Berjalan menaiki tanjakan menuju bench posisi idlers di depan

- ▶ Menjaga bucket tetap di permukaan tanah
- ▶ Jika memungkinkan gunakan dozer untuk membuat tanjakan di belakang excavator untuk fuel truck dan mechanics
 - ▶ More time on the bench → more production



Berjalan menuruni bench

- ▶ Buatlah lereng
- ▶ Jika bench sangat curam saat membawa excavator menuruni bench **posisi sprocket di depan**
- ▶ Menjaga bucket tetap di permukaan tanah

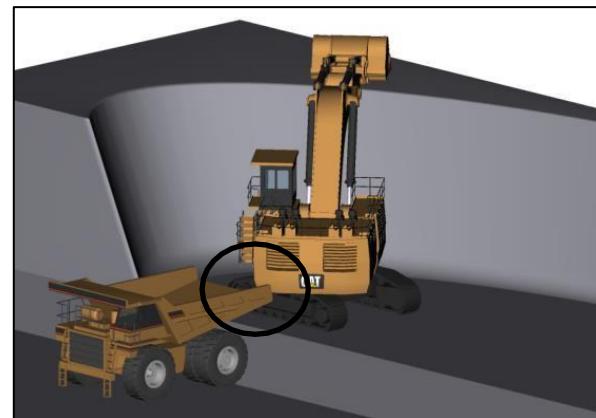
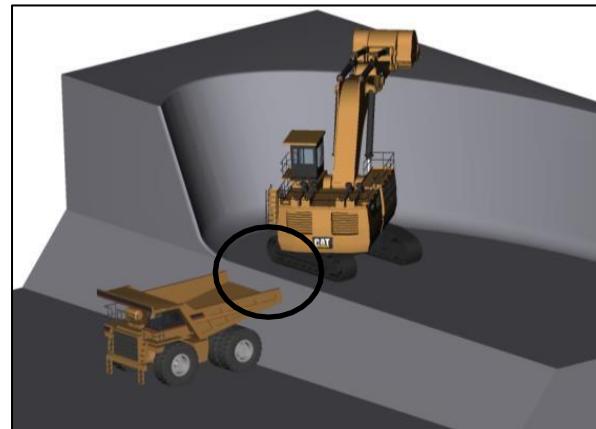
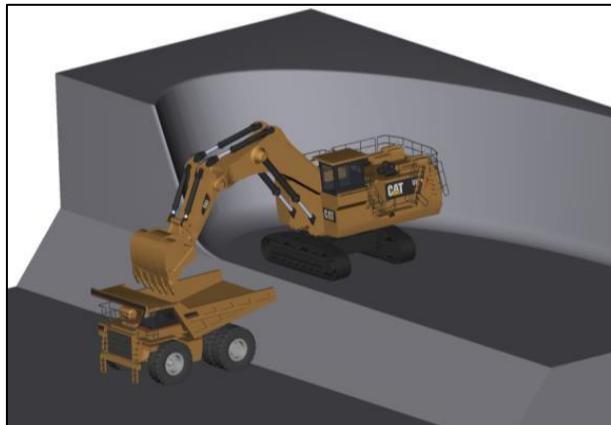


MENGANGKAT MATERIAL



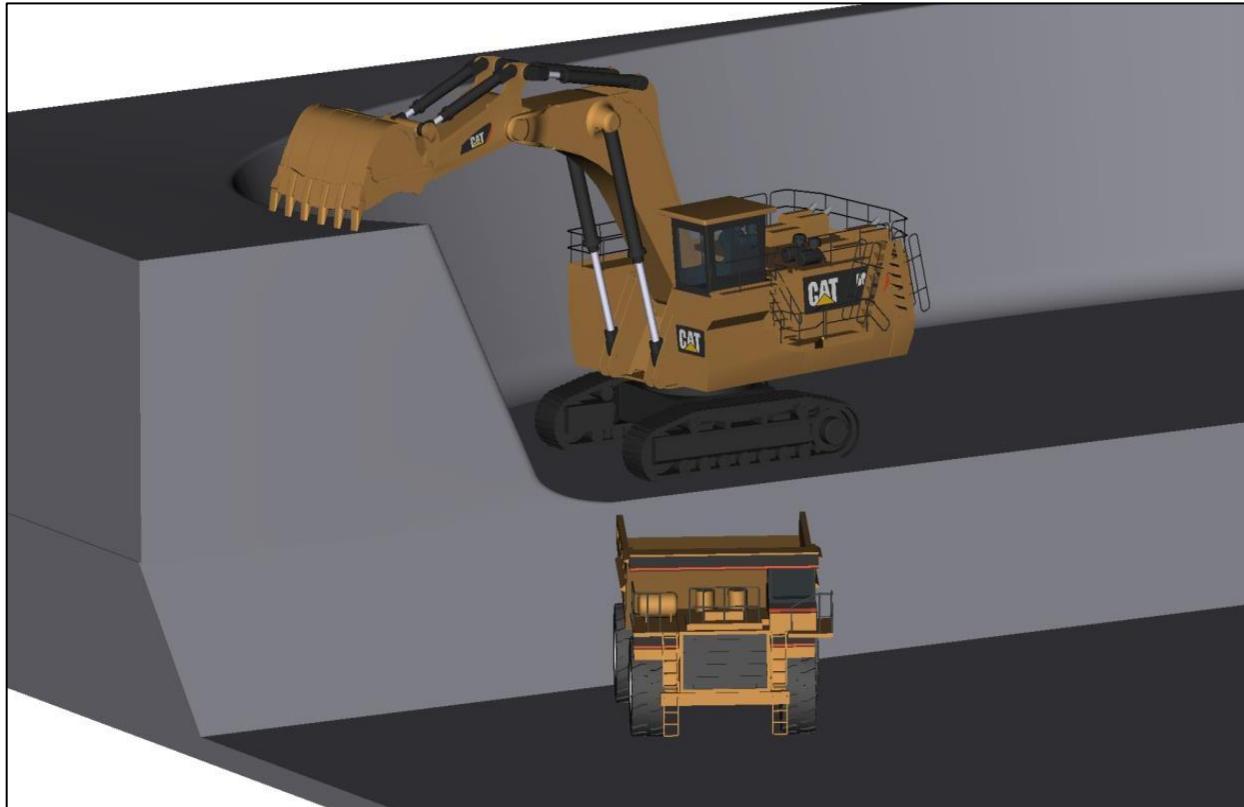
- HITUNG BERAT MATERIAL YG DIANGKAT
- KONDISI TANAH HARUS RATA
- PASANG SLING PADA MATERIAL
- PASANG SLING PADA LINK BUCKET
- ATUR JARAK YANG SESUAI
- ANGKAT PADA POSISI SUDUT MESIN
- NAIKKAN MATERIAL 30 CM DARI TANAH
- LETAKKAN MATERIAL PADA TEMPATNYA

Bench Height: Lower Bench



Bench Height: Upper Bench

Max. bench height: Bucket flat on top of the upper bench



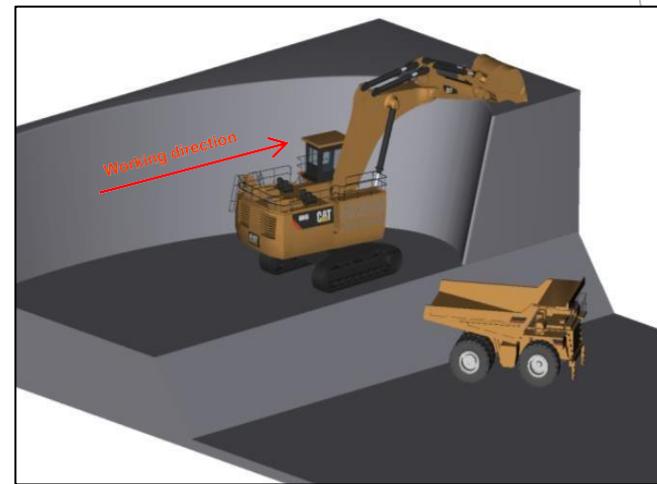
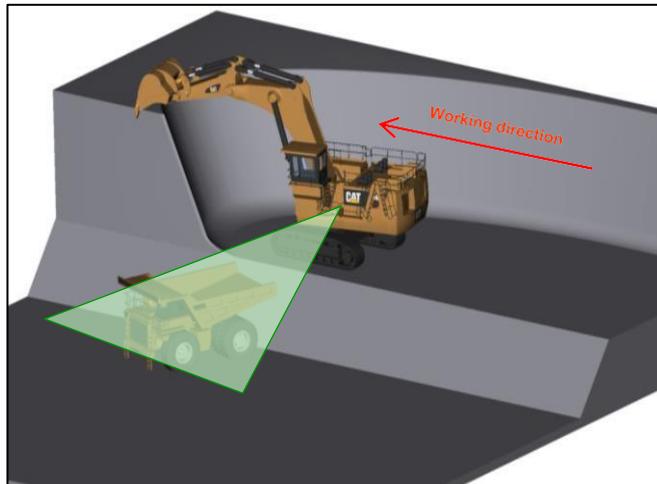
“Double Benching”



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“Double Benching” Set-up

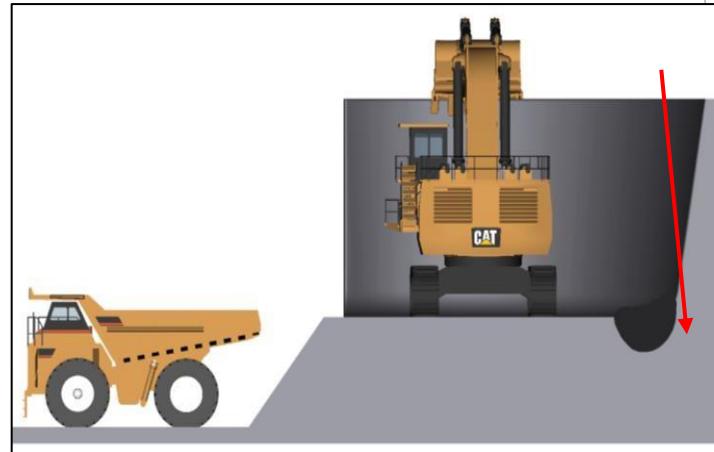
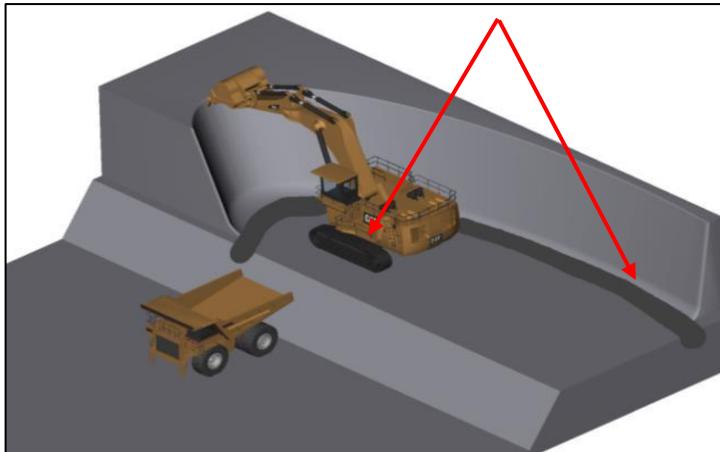
- Good conditions
 - Pengelihatan yang baik keujung bench
 - ketinggian bench sesuai
 - Loading truck dari samping
- Conditions kurang bagus
 - Tepi bench tidak terlihat
 - Ketinggian bench tidak sesuai
 - Loading trucks menjadi blind spot



„Double Benching“ Set-up

Safety untuk bench tinggi

- Sisakan parit didepan sekitar (approx 1.5 metres deep) saat menggali kedepan
- Jika ada tumpahan jatuh itu dikumpulkan di parit dan tidak akan merusak excavator
- Lubang di depan mesin memudahkan pengisian bucket



Prosedure Parkir dan Mematikan Alat

- Pilih tempat yang aman dan rata
- Turunkan Implement ke tanah
- Aktifkan Hydraulic Activation Lever ke posisi mengunci
- Engine running Low Idle selama ± 5 menit
- Matikan Engine
- Turun gunakan tiga titik tumpuan
- Lakukan kembali pengecekan mesin
- Catat semua kondisi mesin
- Cabut kunci battery
- Tinggalkan mesin dalam kondisi aman



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