Internal Use Only

Product Information

START

Introducing the Hitachi EX5500-5 Giant Hydraulic Excavator

CONTENTS

1. Background

The EX5500, since the launching in May 1998, has earned a solid reputation for overwhelming production, along with high performance including reliability and durability. 12 units had been built and delivered to large-scale mines in North America, Australia, and other countries.

The EX5500-5 comes as a member of the "EX-5" family giant hydraulic excavators, focusing on the adoption of the clean engines that comply with current emission requirements – U.S. EPA* Tier 2 enforced in January 2000, as well as numerous improvements done on the EX3600-5.

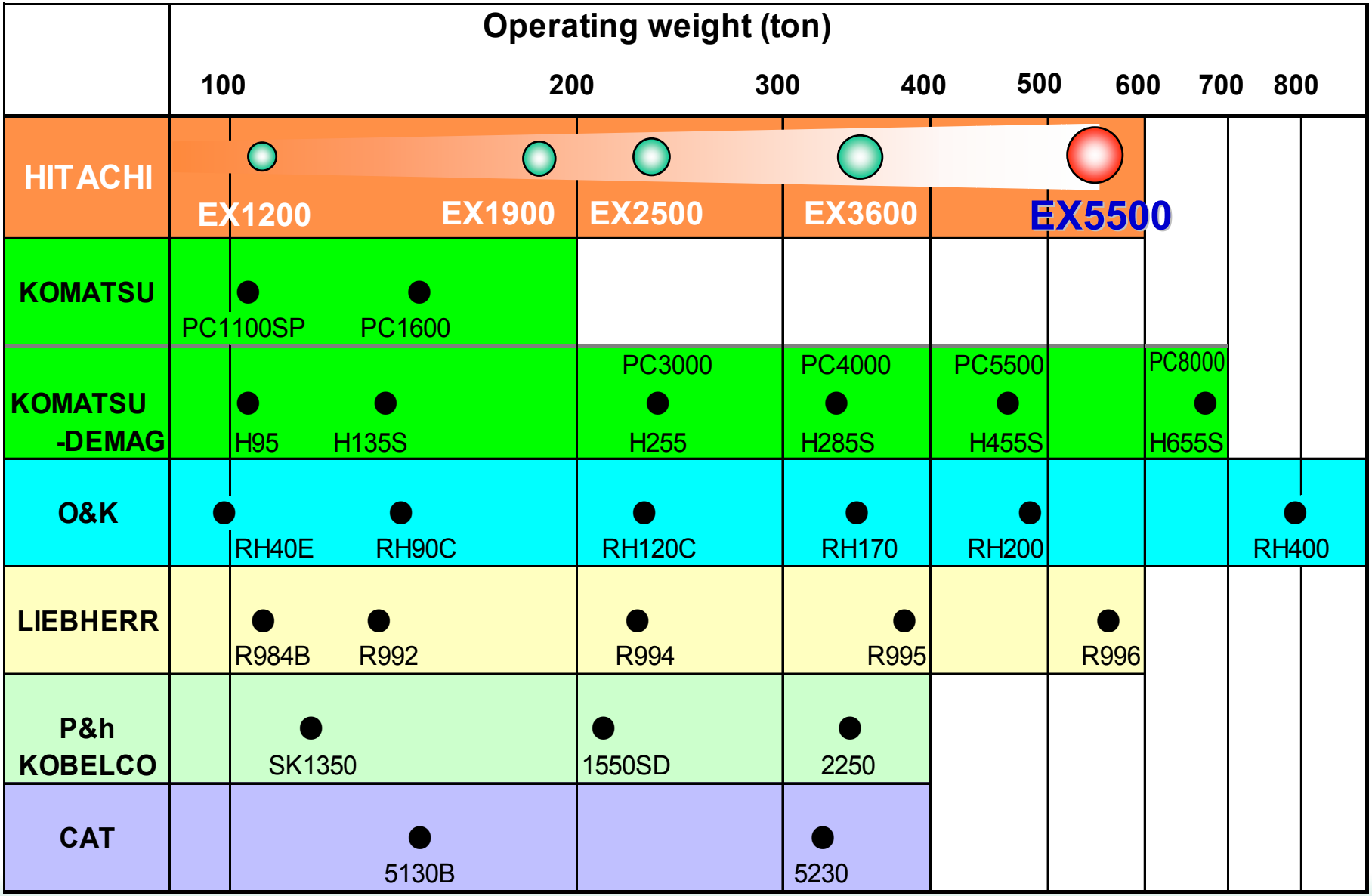
9 units of new EX5500-5 have been built and delivered as tabulated April 2003.

**** U.S. Environmental Protection Agency***

2. Improvement Concept

- Emission control engine conforming to U.S. EPA Tier 2 in 2000
  → Cummins QSK45-C engines
- Enhanced Operator Comfort
  → New-type operator cab (common to the EX3600-5) using fluid-filled elastic mounts
- Improved Reliability, Durability and Maintainability
  → Strengthened cab rear structure, dust ejector, and Machine Information Center (Monitoring System)
- Enhanced Safety
  → Monitoring cameras (option)

Giant Hydraulic Excavators on Global Market



3. Selling Points

1. Dual 1 007 kW (1 370 PS) Powerful Engines Yield Large Production

(Engine Output)

		HITACHI		KOMATSU	O&K	LIEBHERR
		EX5500-5	EX5500	PC5500	RH200	R996
Manufacturer		Cummins	Cummins	Cummins	Cummins	Cummins
Model		QSK45-C	KTA50-C	K1500E	KTA38-C	K1800E
Rated output (gross)	kW	2 014	1 940	1 880	1 568	2 240
Operating weight Backhoe	t	518	515	490	480	573
Output per weight	kW/t	3.89	3.77	3.84	3.27	3.91

2. Bucket Capacity and Working Ranges Well Matched with 220-ton Class Dump Trucks

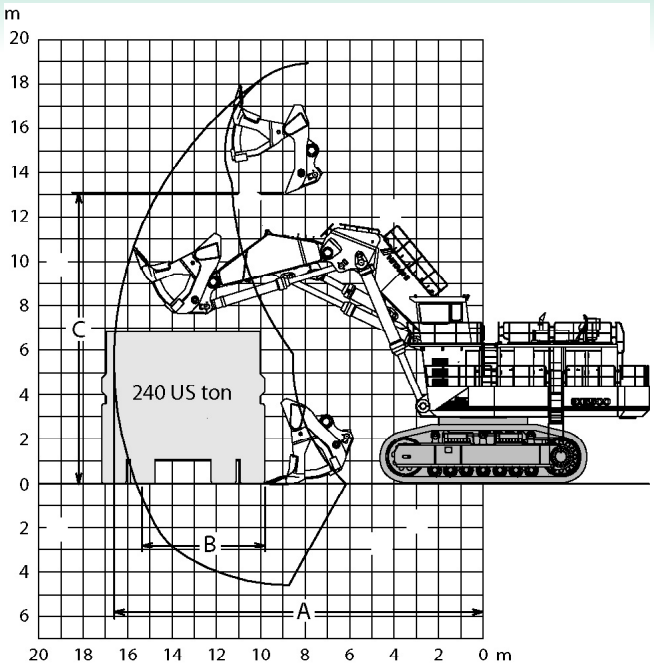
(Bucket Capacity)

			HITACHI		KOMATSU	O&K	LIEBHERR
			EX5500-5	EX5500	PC5500	RH200	R996
Loading Shovel	Operating weight	t	518	515	490	480	575
	Bucket capacity	m^3	27.0	27.0	25.0	25.0	28.0
Backhoe	Operating weight	t	518	515	490	480	575
	Bucket capacity	m^3	29.0	29.0	28.0	23.0	30.0

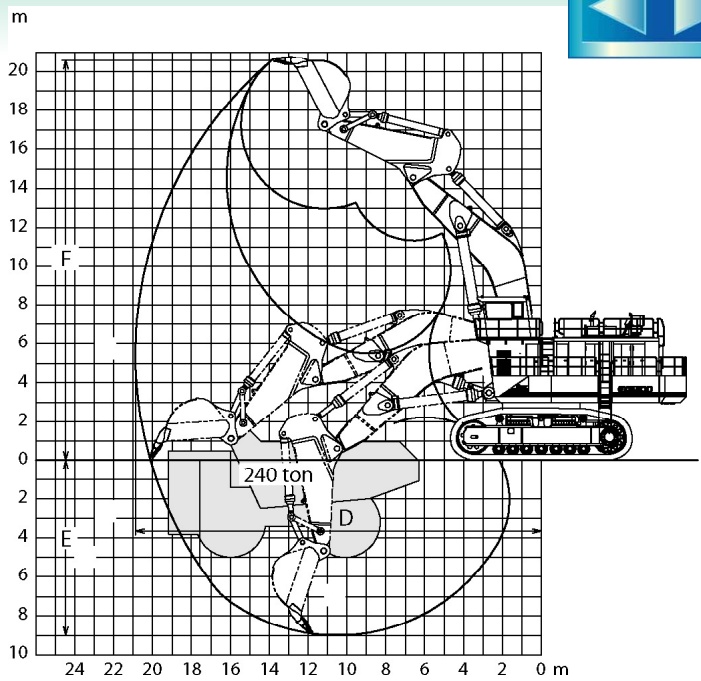
(Companion Dump Trucks)

No. of dumping passes

Dump trucks			EH3000 (102 m^3)	EH3500 (115.1 m^3)	EH4000 (132 m^3)	EH4500 (148 m^3)
EX5500-5	Loading Shovel	27 m^3	4	4	5	5 to 6
	Backhoe	29 m^3				



Loading shovel



Backhoe

(Working Ranges)

			HITACHI		KOMATSU	O&K	LIEBHERR
			EX5500-5	EX5500	PC5500	RH200	R996
Loading Shovel	A: Max. digging reach	mm	16 600	←	16 770	16 150	16 700
	B: Level crowding distance	mm	5 550	←	5 740	5 750	6 390
	C: Max. dumping height	mm	13 100	←	14 090	11 300	14 300
Backhoe	D: Max. digging reach	mm	20 900	←	18 600	20 300	21 000
	E: Max. digging depth	mm	9 000	←	7 600	9 200	8 800
	F: Max. cutting height	mm	20 600	←	14 900	19 300	16 600

3. Proven High-Efficient Hydraulic System

[Major Features]

- Speed-sensing summation system
- 12-pump 6-valve hydraulic system: Swing pumps assist front attachment in digging for higher efficiency.
- Swing-priority simultaneous operations
- Well matched travel and front operation through tandem circuit
- Quick-response control levers through proven pilot-control hydraulic system in which pump delivery flow is guided directly for changeover of control valves.

		HITACHI		KOMATSU	O&K	LIEBHERR
		EX5500-5	EX5500	PC5500	RH200	R996
Swing circuit		Combined operation with front action	Combined operation with front action	Combined operation with front action	Independent swing	Independent swing
Swing flow/Pump flow	L	1 700/4 700	1 700/4 700	1 460/4 380	1 412/5 112	1 652/6 720
Total hydraulic oil capacity	L	6 200	6 200	6 000	7 500	8 200

4. Accumulated Job Achievements

(Shipments)

As tabulated April 2003

Serial No.	Type	Customer	Country	Handling Materials	Shipment	Operating Hours
101	LD	North American	Canada	Oil sand	5/1998	18 678 h
102	LD	Echo Bay	USA	Silver mine	10/1998	13 400 h
		Newmont	USA	Gold mine		16 675 h
		Barrick	USA	Gold mine		19 403 h
103	BH	Peter Champion	Australia	Coal	5/1999	11 000 h
		Roche	Australia	Coal		16 471 h
104	LD	Centralia Coal	USA	Coal	1/1999	14 300 h
		Black Beauty	USA	Coal		17 924 h
105	LD	Fujisaka Crushing Industry	Japan	Crushed stone	3/1999	10 400 h
106	LD	Hibbing Taconite	USA	Iron ore	3/1999	27 000 h
107	LD	Newmont Yanakocha	Peru	Gold mine	6/2001	8 445 h

(Shipments)

As tabulated April 2003

Serial No.	Type	Customer	Country	Handling Materials	Shipment	Operating Hours
108	LD	Newmont Yanakocha	Peru	Gold mine	6/2000	16 000 h
109	LD	Newmont Yanakocha	Peru	Gold mine	6/2000	16 000 h
110	LD	Newmont Yanakocha	Peru	Gold mine	6/2001	8 146 h
111	LD	North American	Canada	Oil sand	10/2000	4 460 h
112	LD	Newmont Yanakocha	Peru	Gold mine	10/2001	4 500 h
501	LD	Cripple Creek	USA	Gold mine	12/2001	8 377 h
502	LD	Drayton Coal	Australia	Coal	5/2001	10 800 h
503	LD	Leighton	Australia	Coal	9/2001	10 365 h
504	LD	Cripple Creek	USA	Gold mine	2/2002	6 646 h
505	BH	Roche	Australia	Coal	3/2002	5 223 h
506	LD	Glamis	USA	Gold mine	2/2002	4 923 h

(Shipments)

As tabulated April 2003

Serial No.	Type	Customer	Country	Handling Materials	Shipment	Operating Hours
507	LD	Glamis	USA	Gold mine	11/2002	343 h
508	LD	North American	Canada	Oil mine	3/2003	–
509	BH	Thiess	Australia	Coal	2/2003	–

USA	10 units
Canada	3 units
Australia	6 units
Peru	5 units
Japan	1 unit

JOB REPORT (1)

October 30, 1998

- Job: Overburden excavation
- Dump Trucks 240 USt
- Bucket Capacity 27.0 m^3
- Specific Gravity 1.65 USt/m^3
- Bucket Efficiency 118 %
- Average Cycle Time 31.9 sec
- Dumping Passes 5.0
- Job Efficiency 85 %
- Production 5 055 USt/h
  3 057 m^3/h

- Work Shifts: 22 hours/day, 2 shifts
- Periodic Servicing: 2 days/2 weeks
- Ambient temperature (winter): -45°C

Serial No. 101: North American Aurora Mine (Alberta, Canada)

Serial No. 102: Echo Bay Minerals Company
(Nevada, USA)

January 6, 1999

- Job: Stone excavation
- Dump Trucks 195 USt
- Bucket Capacity 27.0 m^3
- Specific Gravity 1.87 USt/m^3
- Bucket Efficiency 83 %
- Average Cycle Time 29.0 sec
- Dumping Passes 4.65
- Job Efficiency 81 %
- Production 4 237 USt/h
  2 261 m^3/h

- Work Shifts: 22 hours/day, 2 shifts
- Periodic Servicing: 1 days/2 weeks
- Ambient temperature (summer): 45°C

BDC for engine manuals and specs
https://barringtondieselclub.co.za/

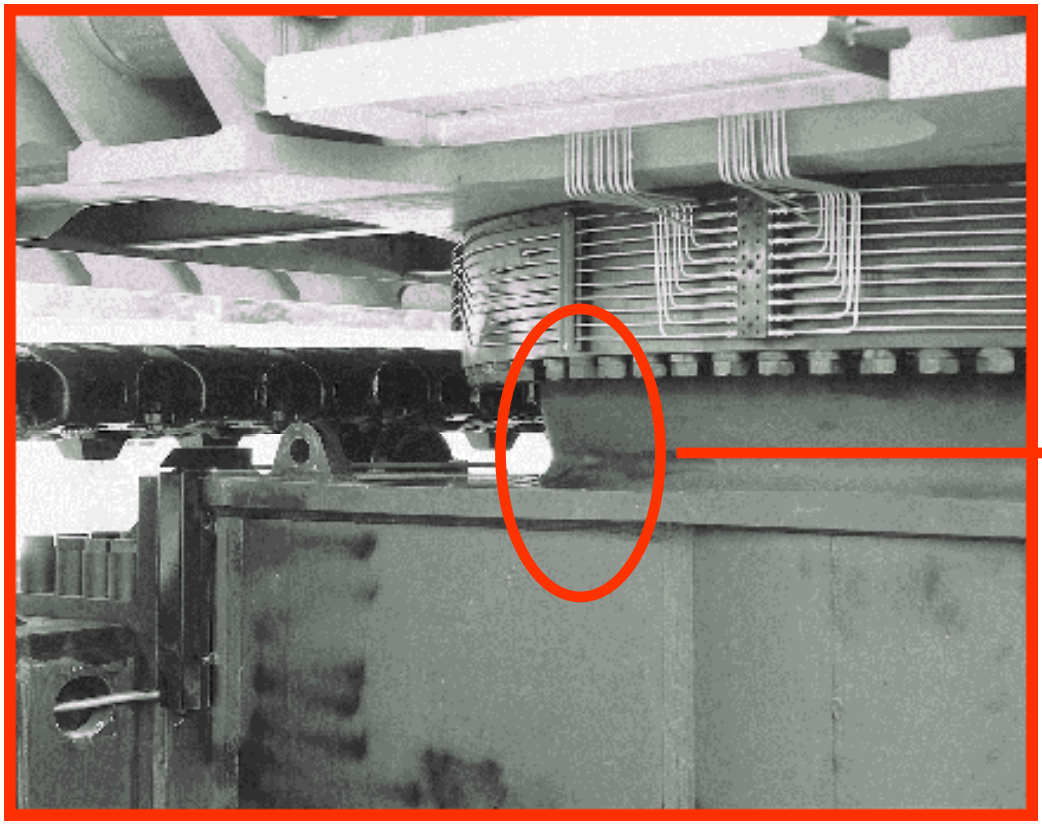
Serial No. 109: Newmont Yanacocha

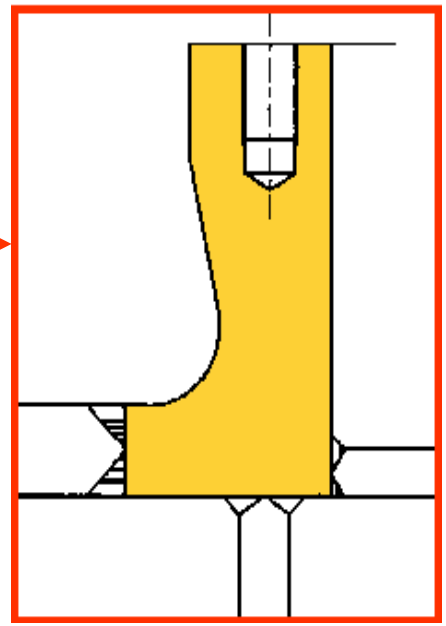
(Cajamarca, Peru)

June 27, 2001

- Work Shifts: Stone excavation
- Dump Trucks 150 USt
- Bucket Capacity 27.0 m^3
- Specific Gravity 1.80 USt/m^3
- Bucket Efficiency 77 %
- Average Cycle Time 31.0 sec
- Dumping Passes 4.00
- Job Efficiency 77 %
- Production 3 333 USt/h
  1 852 m^3/h

1. Monobloc Cast-steel Center Track Frame for Stress Relieving

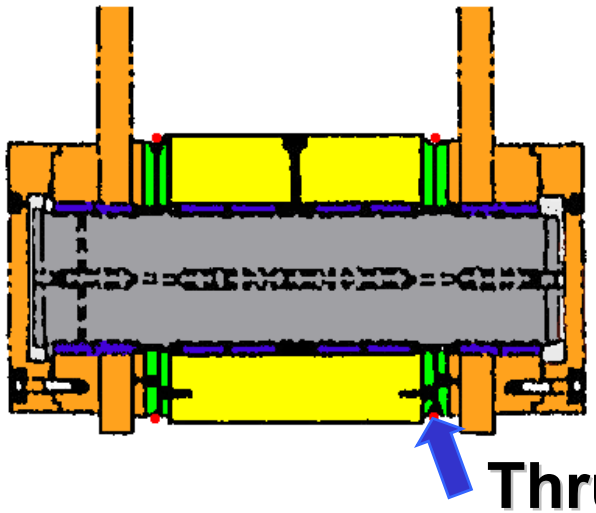




2. Floating Pin at Arm-Bucket Joint, and Thrust Plates at Boss Ends

A floating pin helps reduce wear and prevent the entry of dirt and debris.

Thrust plates are bolted to arm and bucket for easy replacement.



EX5500-5

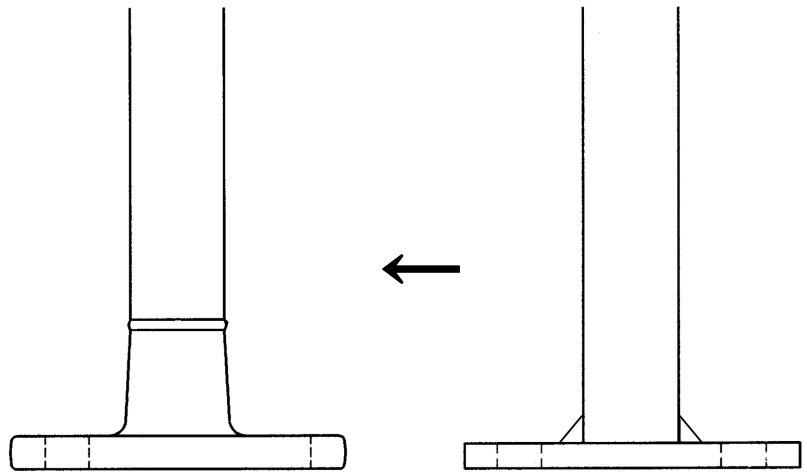
1. Strengthened Cab Rear Structure

Enlarged rear square columns:

Side	**75 mm ← 60 mm**
Wall thickness	**9 mm ← 3.2 mm**

2. Forged Flange at Handrail Foot

Forged flange neck height is increased up to 100 mm as shown.

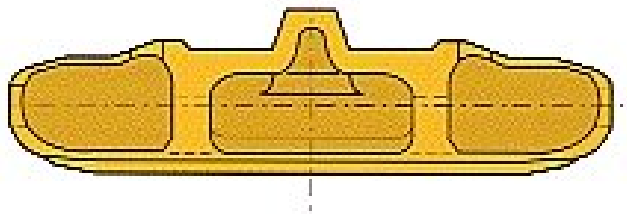


EX5500-5

EX5500

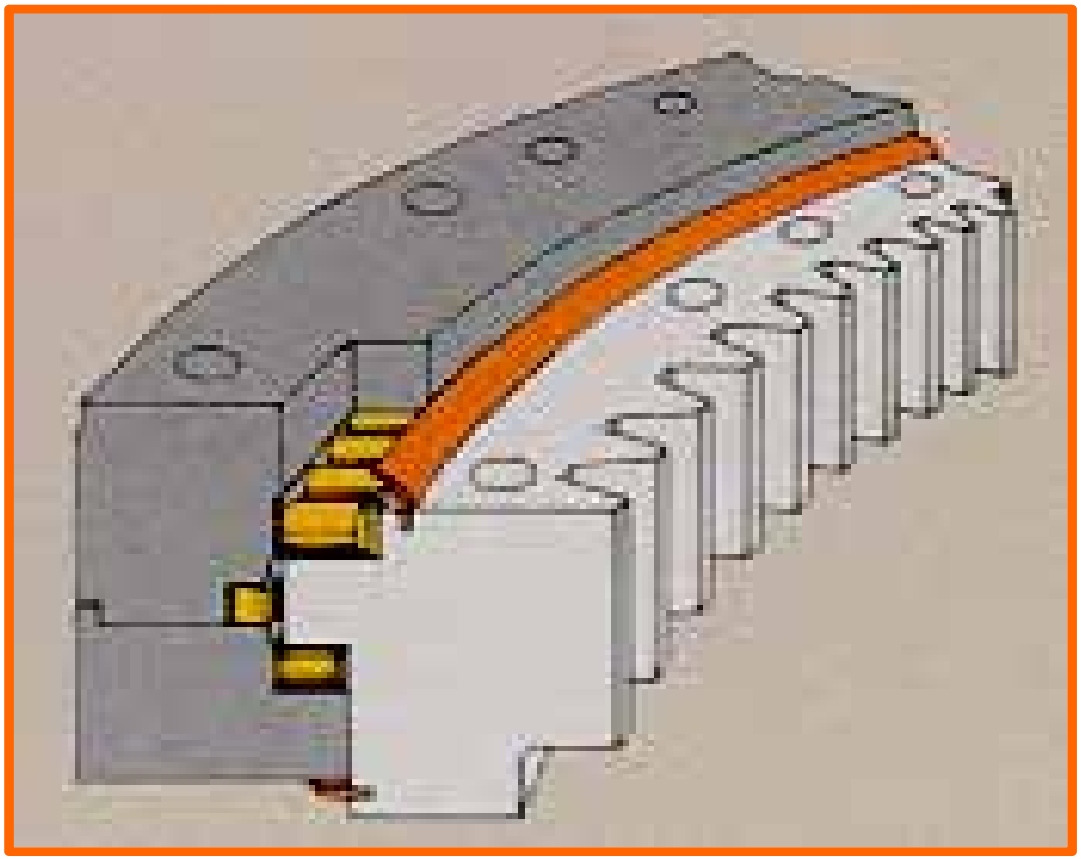
3. Time-Tested Reliable Designs

- **Shovel type undercarriage with lower roller rotation guides**



- **Three-row rollers type swing circle**

Respective rollers sustain vertical and horizontal loads individually.

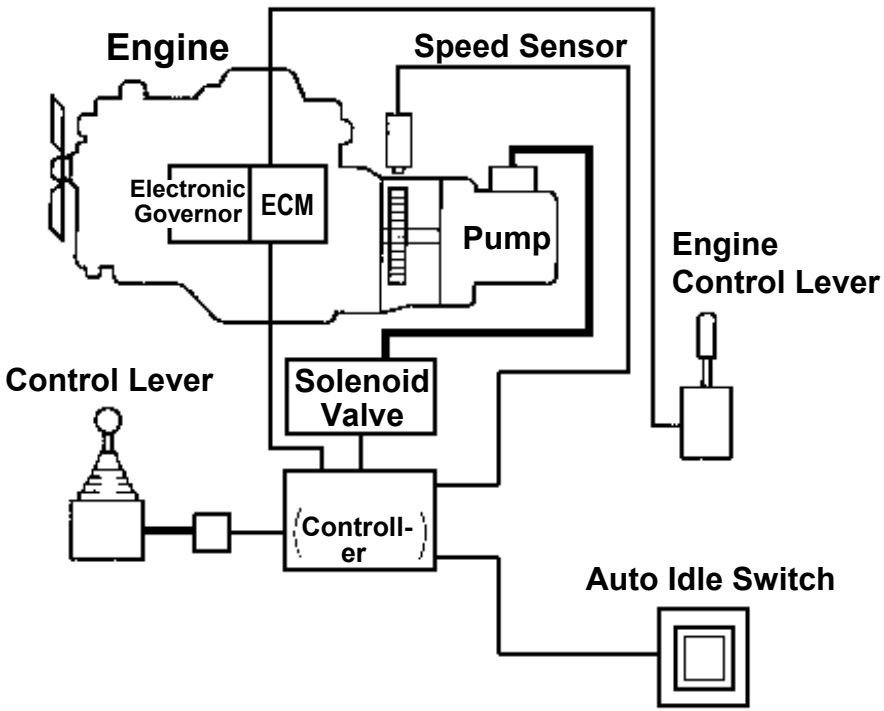


• Radiator/Oil Cooler Separation

Radiator and oil cooler are separated for better heat management.

4. Simple Control System

Even if electronic system fails, the machine can keep operating without interruption. Pump control functions are restricted to reduce occurrences of failures.

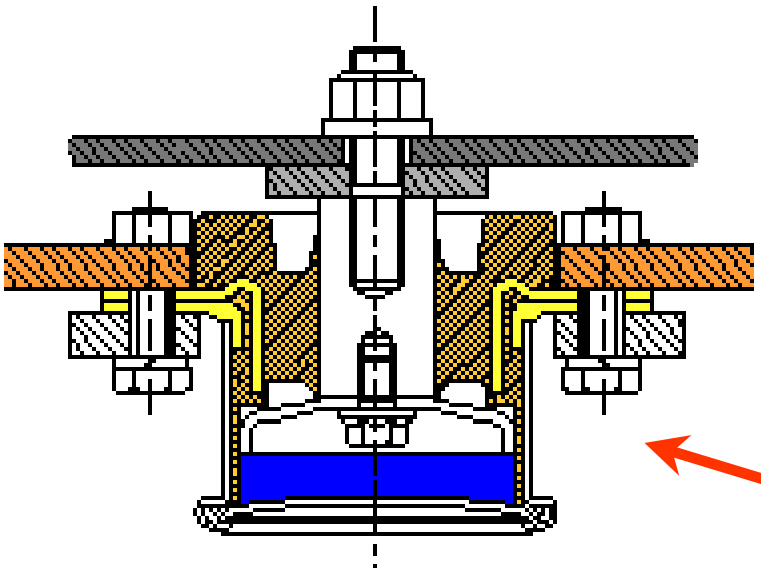


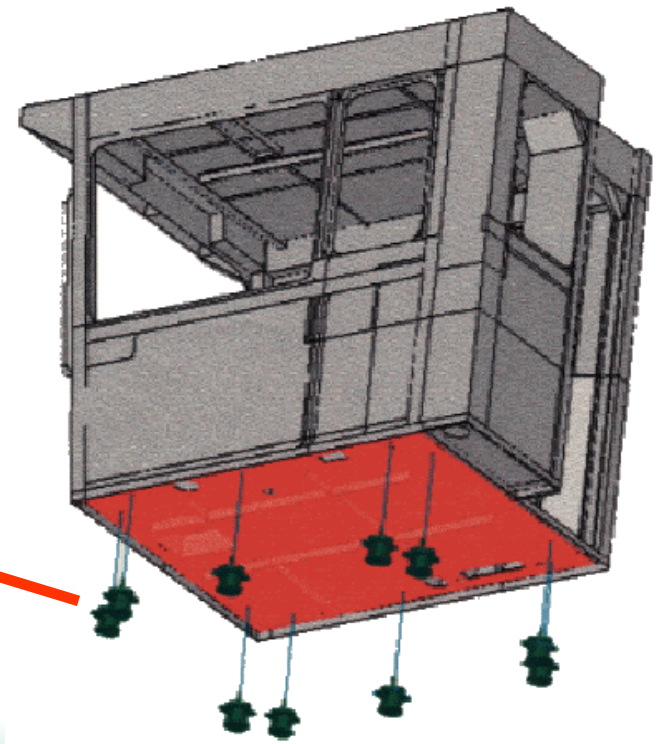
Major Pump Control Functions:

1. External pilot control that increases pump delivery flow for pilot valve operation
2. Speed-sensing summation control
3. Horsepower reduction control that reduces torsional vibration at engine speed of 1 650 min^{-1}(rpm) or lower

1. Fluid-Filled Elastic Mounts

The cab rests on fluid-filled elastic mounts. 10-point support type fluid-filled elastic mounts significantly dampen shocks and vibration for seating comfort, and improve the durability of the cab. These mounts can easily be replaced from under the cab floor, without need for lifting the cab.





2. Pressurized Headguard-Integrated Sturdy Cab

- Headguard-integrated operator cab
- Pressurized type seals out debris and dirt.
- Front window uses laminated glass. (Other windows use reinforced glass.)
- Front, and left and right windows are fixed type.
- Three-mode wiper – intermittent, slow speed and fast speed

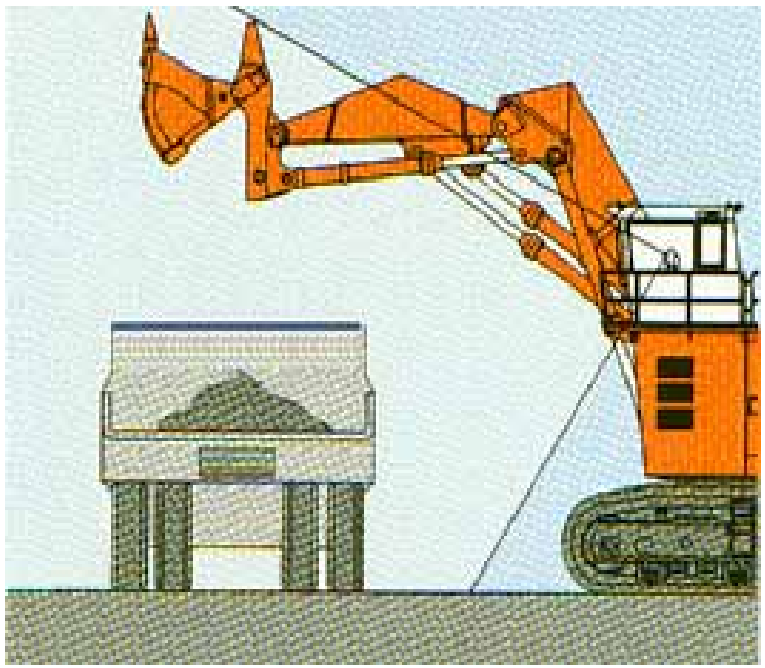
Reinforcement at cab rear

Enlarged rear square columns:

Side	75 mm ← 60 mm
Wall thickness	9 mm ← 3.2 mm

3. Forward Slope Cab for Better Downward Visibility

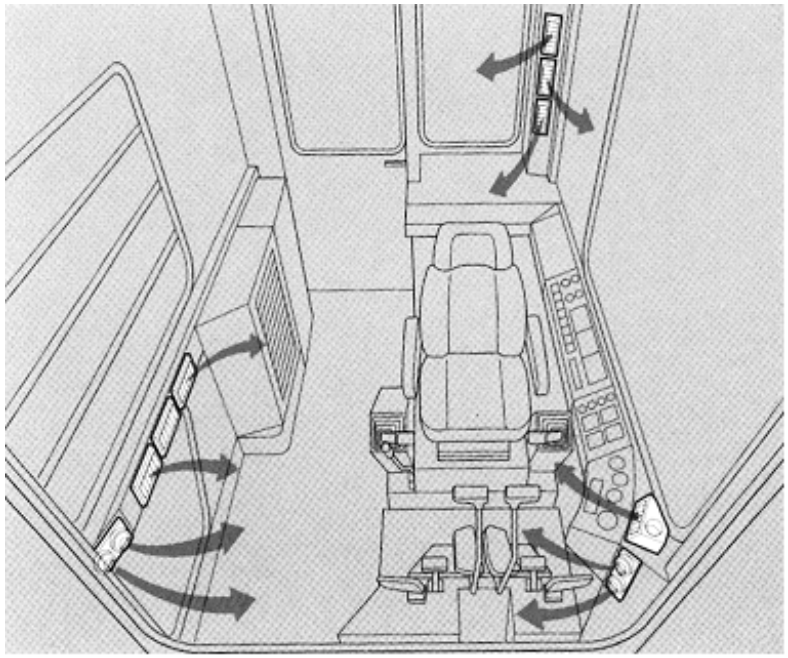
The forward slope cab is designed for better downward visibility through down-tilted front window. Also, operator eye level is high 7.7 m. The vessel of a 270 t dump truck is always in operator's sight for efficient dumping.



4. Time-Tested Sliding Cockpit

- Control levers and operator seat slide separately or together for convenience of operation.
- Fully adjustable operator seat (KAB make) is provided with wide armrests, hard cushion and suspension.
- Recoil seat belt
- Raised operator seat floor enhances visibility.

5. Three Independent Air Conditioners

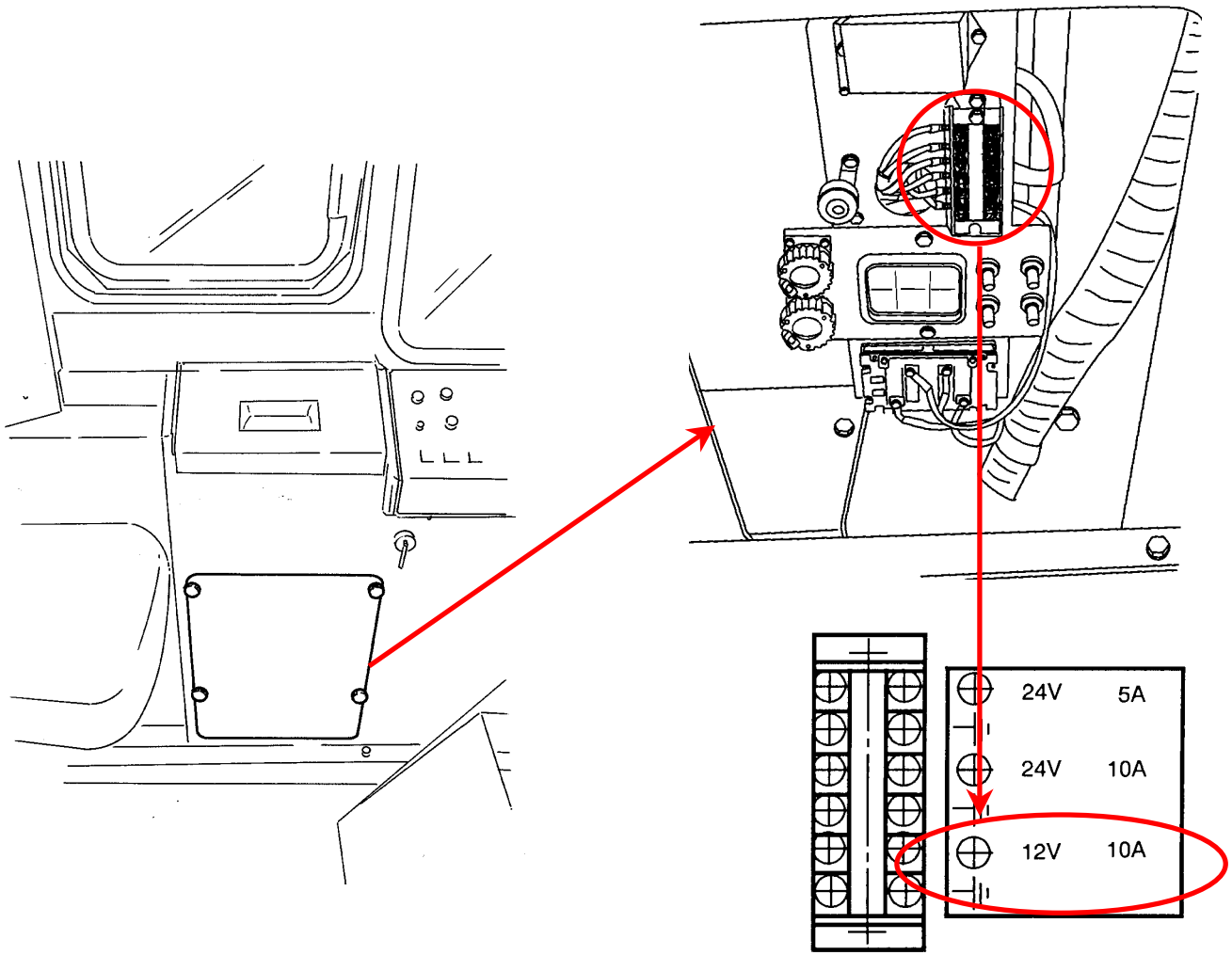


- Three air conditioners, which can be independently controlled, are provided at the cab.
- Air outlets are arranged at the front, rear and right of the operator seat for good air circulation. Front and right air outlets also serve as a defroster.
- Electronic air mixture system facilitates air temperature control like an automobile's.
- Access light keeps on for a while even after turning-off for easy getting off at night, and goes off automatically by a timer.

6. Easy-to-Read Curved Monitor Panel

- Ergonomically curved monitor panel for easy reading
- Tachometer and oil temperature meter provided standard
- Easy-to-control dustproof pushbutton switches
- Air conditioner touch panel
- Easy-to-read back-lit meters and monitors (operating status), with light intensity adjusting pushbutton and dimmer switch

7. 12-Volt Output Terminal at Left Console



8. Trainer Seat behind the Operator Seat

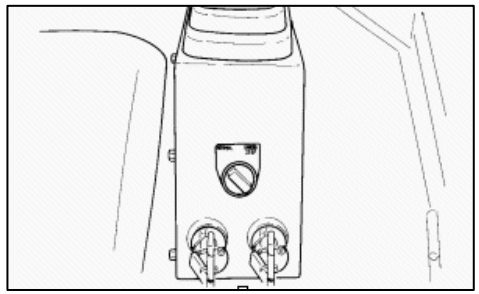
9. Large Storage Box

SOPHISTICATED DESIGNS FOR ENVIRONMENT PRESERVATION, SAFETY AND MAINTENANCE

1. Clean Engines Complying with U.S. EPA Emission Requirements Tier 2 (in 2000)

Cummins QSK45-C engines

2. Engine Stop Switches



Engine stop switches are provided at 7 locations in cab, engine room and pump room for emergency engine stopping.

3. Isolated Engine Room

Engine room is isolated from pump room with a bulkhead.

4. Safety Handrails

Handrails are arranged around machine top and sidewalks for safety inspection and servicing.

5. Large Oil Pan

A large oil pan is utilized to extend engine oil change intervals up to 500 hours.

<EX5500-5 >

Engine oil:	500 hours (260 L x 2)
Engine oil filters:	500 hours (260 L x 2)
(W/bypass filter function)	

< EX5500 >

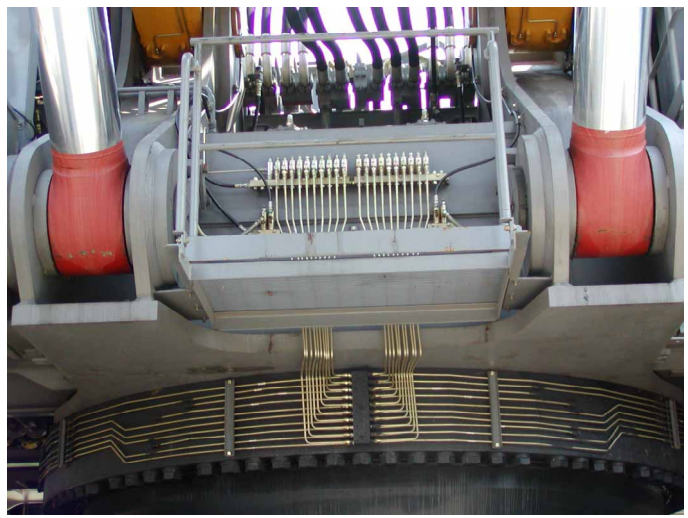
Engine oil:	250 hours (163 Lx 2)
Engine oil filters:	250 hours (5 filters x 2)
Engine oil bypass filter	250 hours (2 filters x 2)

6. Auto Lubricator Provided Standard

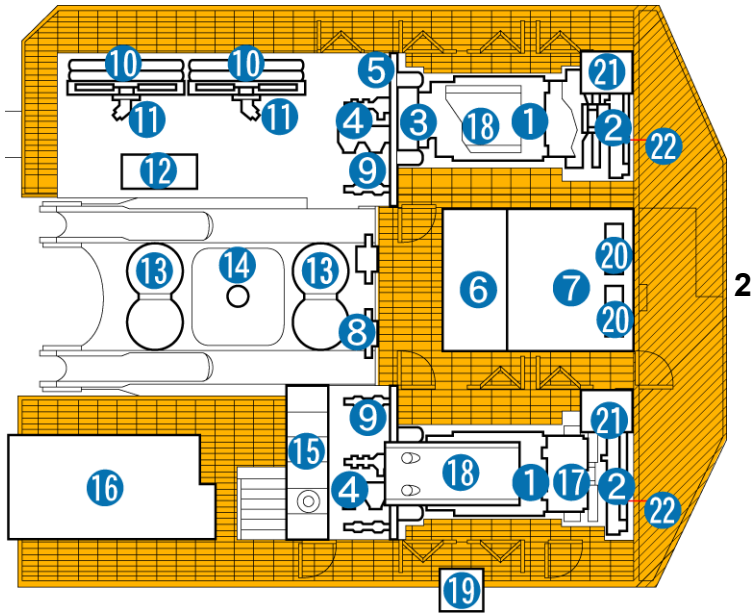
Auto lubrication is made at all lubricating points including bucket pins.

Two lubrication lines are provided: one line for swing circle and center joint, and the other for front attachment to reduce lubricant flow.

Lubricating intervals: 3, 5, 10 and 15 minutes



7. Functional Devices Layout for Simplified Maintenance



12. Lubricator
13. Swing Device x 4
14. Center joint
15. Battery x 6
16. Cab
17. Air Filter x 4
18. Muffler x 2
19. Retractable-Type Ladder
20. Fuel Cooler x 2
21. Water Tank x 2
22. LTA Radiator x 2

- **Large inspection doors, ample utility space, and wide sidewalks for easy maintenance and servicing.**
- **Slip-resistant latticed sidewalk floor**
- **Hydraulic oil tank and fuel tank reside between left and right engines for simple piping.**
- **Fuel tank capacity is ample 10 400 liters enough for 29-hour continuous operation.**
- **Counterweight top is lowered to be flush with sidewalks for easy inspection and servicing.**

8. Sliding Ladder for Easy Machine Climbing

9. Emergency Evacuation Rope

10. New-Type Air Horn

An air horn, operated by electric compressor and air tank, is adopted in place of conventional electronic horn. This increases sound level by 10 dB.

(About 110 dB at 7 m away in forward direction)

11. Battery Ground Shutoff Switch

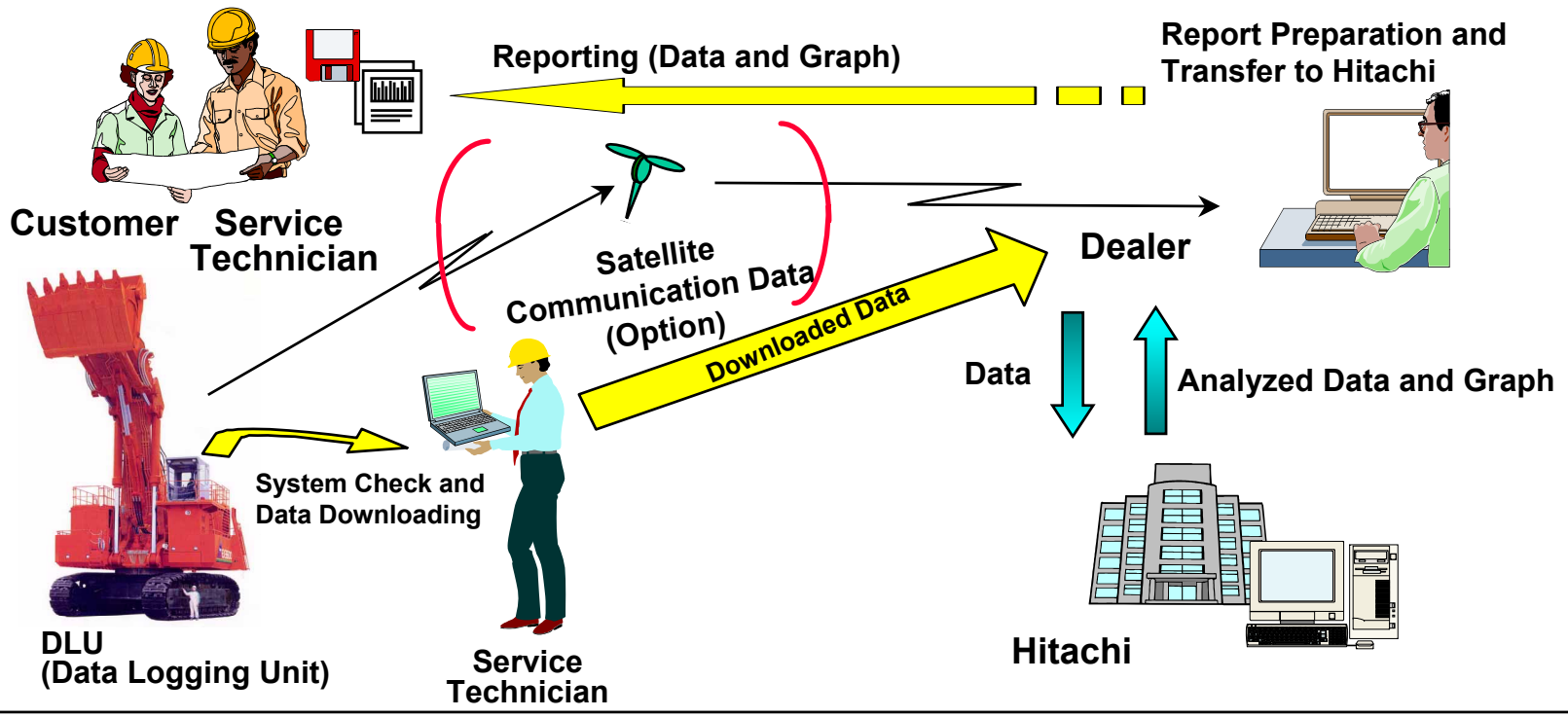
Battery ground can be shut off without disconnecting ground wire during maintenance or when the machine is not in use for a long time.

12. MIC : Machine Information Center (Monitoring System)

(Notice that operating data is not transmitted to users through the Internet like medium-sized hydraulic excavators.)

How to Work

Monitoring System for Giant Hydraulic Excavators



Difference from ZAXIS Series: Operating data is managed for close communications with customers.

(Available as additional optional function)

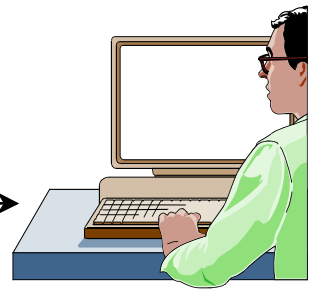
How to Work

Customer

Service Technician

Reporting (Data and Graph)

Report Preparation and Transmission to Hitachi



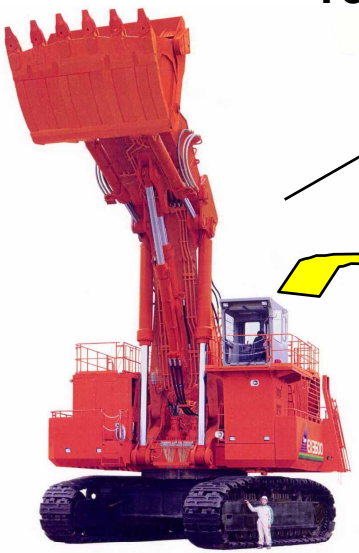
Satellite Communication Data (Option)

Dealer

Downloaded Data

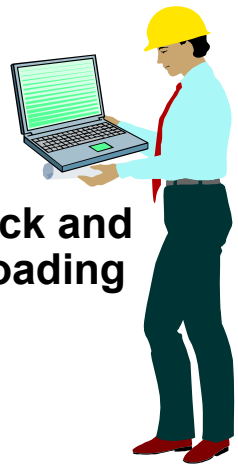
Data

Analyzed Data and Graph

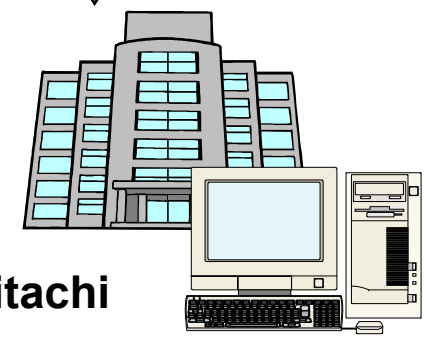


DLU (Data Logging Unit)

System Check and Data Downloading



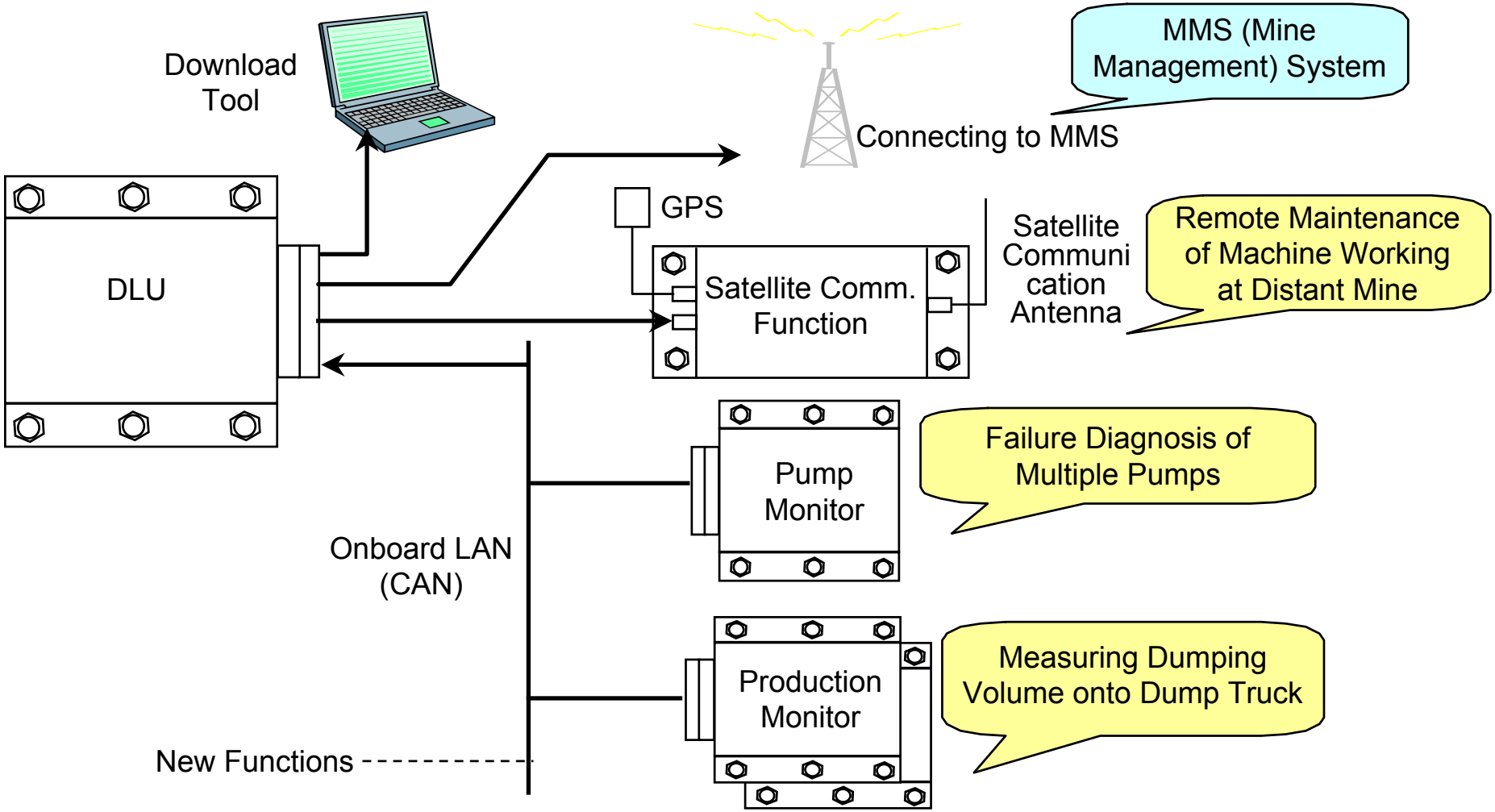
Service Technician



Hitachi

Optional Functions

Monitoring System for Giant Hydraulic Excavators



4. Optional Equipment

- **Rear Monitoring Cameras (Option)**

  Provided at 3 locations in total:
  left (rear), and right (front and rear)

- **Electric Crane**

  24 VDC, lifting capacity –
  2 268 kg/1.52 m, 2 268 kg/1.52 m

- **Discharge Light**

  High-intensity discharge light is provided in place of standard light.

- **Hydraulic Oil Suction Pump**

  24 VDC electric pump sucks hydraulic oil from suction and return lines during maintenance to avoid flow-out of hydraulic oil.

BDC for engine manuals and specs
https://barringtondieselclub.co.za/

● WIGGINS System

The swing-down type piping panel is provided standard for easy change of fuel, engine oil, pump transmission oil, swing gear oil, hydraulic oil, engine coolant, etc. Couplers are optionally available.

● Bolted Travel Motor and Reduction Gear Guards

● Backhoe Arm Bottom Reinforcement

● Monitoring System

- Pump flow
- Production
- DLU data satellite transmission
- Connection to MMS

5. SPECIFICATIONS COMPARISON

Close

Contents To

500-ton Class Hydraulic Excavators (1)

			HITACHI	HITACHI	O&K	DEMAG	KOMATSU	LIEBHERR
	Manufacturer							
	Model		EX5500-5	EX5500	RH200	H455S	PC5500	R996
	Operating weight	(t)	518	515	480	490	490	573
Engine	Manufacturer		Cummins	Cummins	Cummins	Cummins	Cummins	Cummins
	Model		QSK45-C	KTA50	KTA38C	KTA38C	K1500E	K1800E
	SAE J1349(gross)	(kW)	2×1 007	2×970	1 568	1 680	1 880	2 240
	SAE J1349(net)	(kW)	2×971	2×935	1 516	1 600		
	Fuel tank capacity	(L)	10 400	10 400	10 250	7 400	10 300	13 000
Hydraulics	Relief pressure	(MPa)	29.4	29.4	30.0	31.0	31.0	34.0
	Pump flow Total	(L/min)	4 700	4 700	5 112	4 380	4 380	6 720
	Front		8*375	8*375	4*925	6*730	6*730	8*840
	Swing		4*425	4*425	4*353	(2*730)	(2*730)	(4*413)
	Oil tank capacity	(L)	2 200	2 200		3 800	3 800	4 600
	Total hydraulic oil	(L)	6 200	6 200	7 500	5 500	6 000	8 200
Performance	Swing speed	(min^{-1})	3.3	3.3	3.9	3.6	3.6	3.5
	Travel speed	(km/h)	2.3/1.6	2.3/1.6	2.3	2.3	2.3	2.2/1.4
	Traction force	(kN)	2 230	2 230	2 519			3 021
	Gradeability	(%)	60	60	50	60	60	36
Dimensions	Overall height	(mm)	8 500	8 500	7 900	8 803	8 540	8 760
	Eye level	(mm)	7 700	7 700	7 000	7 670	7 835	7 525
	Distance between tumblers	(mm)	7 000	7 000	6 400	6 800	6 800	7 500
	Overall undercarriage length	(mm)	9 350	9 350	8 545	9 082	9 100	9 380
	Overall undercarriage width	(mm)	7 400	7 400	7 000	7 150	7 150	7 400
	Shoe width	(mm)	1 400	1 400	1 400	1 350	1 350	1 400
	Track gauge	(mm)	6 000	6 000	5 600	5 800	5 800	6 000
	Rollers		3/7	3/7	2/6	3/7	3/7	3/7
	Ground pressure	(kPa)	230	230	237	235	239	241
	Rear-end swing radius	(mm)	7 750	7 750	7 580	7 450	7 450	7 795
	Min. ground clearance	(mm)	1 100	1 100	1 050	1 000	970	1 365

500-ton Class Hydraulic Excavators (2)

			HITACHI	HITACHI	O&K	DEMAG	KOMATSU	LIEBHERR
	Maker							
	Model		EX5500-5	EX5500	RH200	H455S	PC5500	R996
Loading Shovel	Operating weight	(ton)	518	515	480	490	490	573
	Bucket capacity, heaped (1:2)	(m^3)	27.0	27.0	26.0	25.0	25.0	*(29.0)
	Bucket capacity, heaped (1:1)	(m^3)	31.4	31.4	30.5	30.0	30.0	34.0
	Bucket	(mm)	4 700	4 700	4 700	4 400	4390	5 500
	Max. bucket opening width	(mm)	2 700	2 700	2 500	2 900	2 900	2 800
	Max. digging distance	(mm)	16 600	16 600	16 150	16 770	16 770	16 700
	Max. level crowding reach	(mm)	15 350	15 350	14 350	15 450	15 450	14 590
	Min. level crowding distance	(mm)	9 800	9 800	8 600	9 550	9 550	8 200
	Bucket striking against body		No striking	No striking	Striking	Striking	Striking	Striking
	Level crowding distance	(mm)	5 550	5 550	5 750	5 740	5 740	6 390
	Max. cutting height	(mm)	18 900	18 900	15 300	20 360	20 360	19 500
	Max. dumping height	(mm)	13 100	13 100	11 300	14 090	14 090	14 300
	Arm digging force	(kN)	1 570	1570	1 500	1 700	1 700	1 905
	Bucket digging force	(kN)	1 570	1570	1 500	1 600	1 600	1 960
Backhoe	Bucket capacity, heaped (1:1)	(m^3)	29.0	29.0	23.0	28.0	28.0	30.0
	Bucket width	(mm)	4 150	4 150	4 390	3 800	4 220	4 700
	Max. digging reach	(mm)	20 900	20 900	19 400	20 000	18 600	21 000
	Max. digging depth	(mm)	9 000	9 000	9 300	9 940	7 600	8 800
	Max. cutting height	(mm)	20 600	20 600	16 700	18 440	14 900	16 600
	Max. dumping height	(mm)	13 000	13 000	11 300	12 250	94 500	10 500
	Arm digging force	(kN)	1 240	1 240	1 200	1 270	1 270	1 500
	Bucket digging force	(kN)	1 370	1 370	1 200	1 400	1 400	1 670

END

Hitachi Construction Machinery Co., Ltd.

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