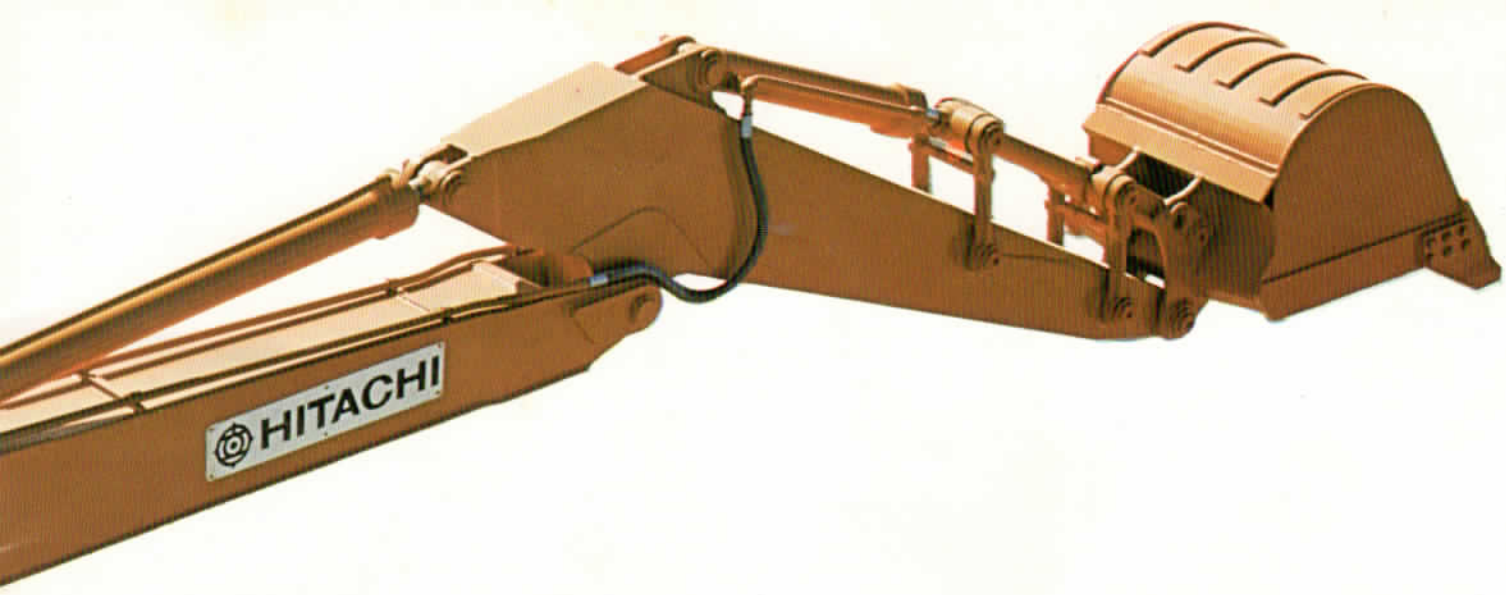
HITACHI
UH07
HYDRAULIC EXCAVATOR


UH07



HITACHI UH07 Is Different– Incredible Work Capacity

Hitachi first introduced the cable-operated backhoe 25 years ago. Since then, the company continued thinking in terms of the "digging concept," and furthered its research and development in hydraulic excavators gaining a wealth of experience. The UH series of hydraulic excavators made an appearance in 1965. So far the UH series has the worthy sales figure of over 20,000 units. The UH07, best seller in the UH series, works on countless jobsites, country to country.

Quick bucket action. Variable displacement pumps ... to transmit power perfectly. Hydraulic system (patented) ... to let the operator control combined actions at will. Tractor-type undercarriage ... for smooth travel and low maintenance. Giving UH07's outstanding serviceability.
The cab seat is designed and human-engineered for operator's comfort and convenience ... for long continuous operation without fatigue.

Hitachi UH07 gives you high maneuverability and saves hard cash.

High Performance... Behind Our Unique

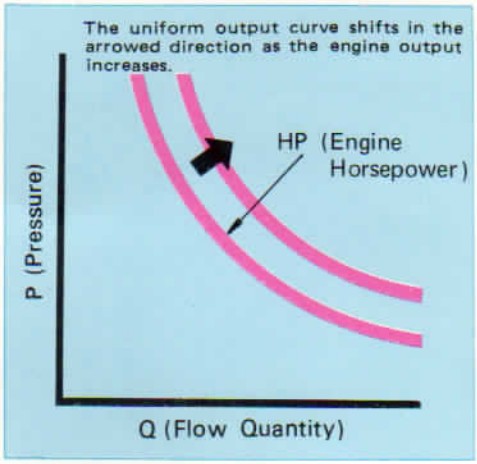
ENGINE HORSEPOWER AND HYDRAULIC PRESSURE

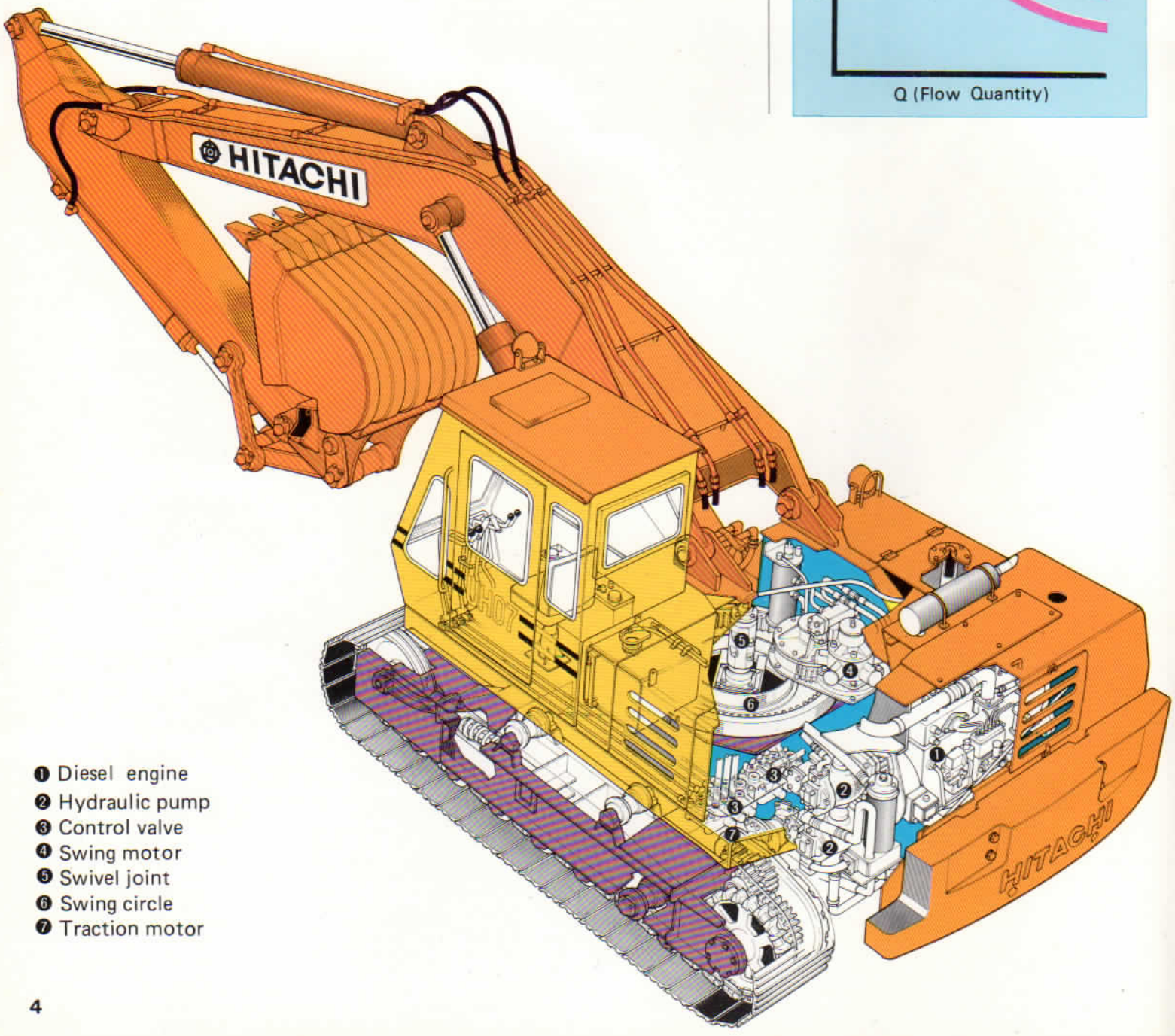
HP = P × Q

Work Force Speed

Engine horsepower is converted into hydraulic energy by pumps. Here, the above equation is established: where, HP is engine horsepower, P hydraulic pressure and Q flow quantity. When the hydraulic excavator works, a similar equation is obtained: Work = Force x Speed

The inference is that hydraulic pressure corresponds to force and flow quantity to speed. Force is inversely proportional to speed. This relation is represented by the hyperbola (called uniform output curve) shown below.





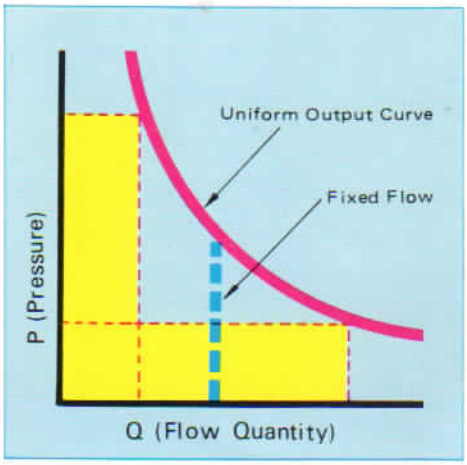
❶ Diesel engine
❷ Hydraulic pump
❸ Control valve
❹ Swing motor
❺ Swivel joint
❻ Swing circle
❼ Traction motor

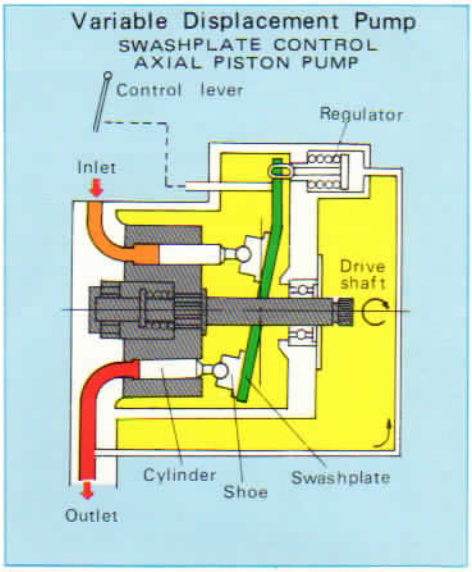
Hydraulic System

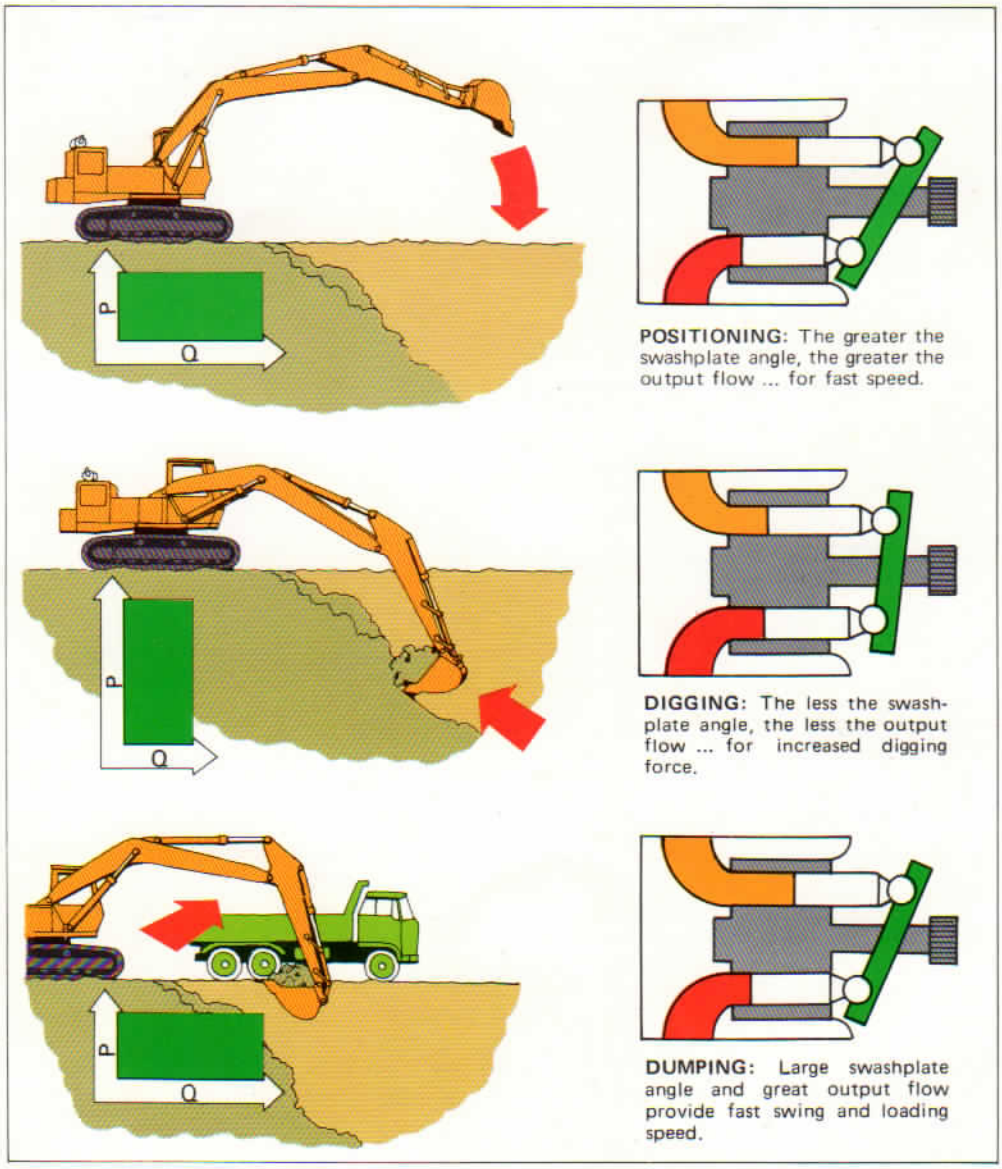
VARIABLE/FIXED DISPLACEMENT PUMPS

A variable displacement pump features the full use of engine horsepower. As a load (corresponding to the hydraulic pressure) changes, the flow quantity automatically fluctuates depending on the uniform output curve shown in the right-hand graph. The higher the pressure, the less the flow. The lower the pressure, the more the flow. That means the engine RPMs remains almost constant under load and the pump automatically adjusts the flow to match the digging force or fast working cycle.

By contrast, a fixed displacement pump (gear or vane pump) results in an inefficient use of engine horsepower. As a load drops, the flow cannot increase (shown by dotted blue line).







POSITIONING: The greater the swashplate angle, the greater the output flow ... for fast speed.

DIGGING: The less the swashplate angle, the less the output flow ... for increased digging force.

DUMPING: Large swashplate angle and great output flow provide fast swing and loading speed.

MATCHING POWER AND SPEED TO ALL YOUR JOBS

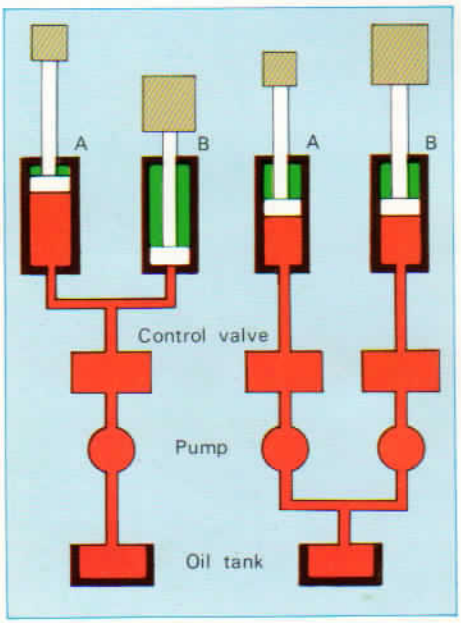
UH07's variable displacement pumps can deliver any flow ... through changes in the swashplate angle. The smaller the angle, the less the output flow ... to increase the power for tough operations. The greater the angle, the more the output flow ... to speed the work under a reduced load. In the digging cycle, full power is needed ... rather than speed. And in dumping or swing back, speed is the need. With the variable displacement pumps, you can have extra power and speed when you need ... for a higher working efficiency. The UH07 has two identical variable displacement pumps.

Another superb operating feature of these pumps: manual lever control. With the lever neutralized, the flow is reduced to a minimum ... resulting in easy engine starting, minimized fuel consumption and prolonged hydraulic fluid life.

A Productive Machine, UH07, Gets Your Jobs

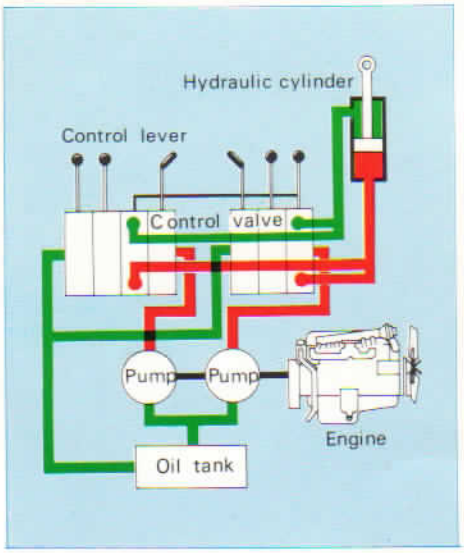
DUAL-PUMP DUAL-VALVE SYSTEM

The dual-pump dual-valve hydraulic system has maximum maneuverability. It offers you fast, smooth and reliable control. For example, arm action, bucket action, swing, travel, all combinations .... Two independent pumps deliver the flow to two independent control valves in such manner that hydraulic pressure fluctuations have no mutual effect.



Assume that one pump powers two hydraulic cylinders (upper left).
Let cylinders A and B have the same cross-section, with A subject to a light weight and B a heavy weight. When the pump delivers the flow to both cylinders, A starts to lift the light weight first. After completing this process, the flow is switched to B. And B actuates when the hydraulic pressure in B increases and exceeds the heavy weight. Obviously, two cylinders cannot operate at the same time.

Compare this to the dual-pump dual-valve hydraulic system (upper right). The system is different. It has two independent pumps connected to two cylinders A and B. So you can operate two cylinders simultaneously.



2-SPEED BOOM

2-speed boom. A distinctive feature of the dual-pump dual-valve hydraulic system. You can make a choice of two boom speeds to match your job ... through changes in lever stroke. It offers not only full power and fast lowering speed, but optimum matching of actions. For example, the boom lifts and swings simultaneously ... with optimum matching at all times.

Done Quickly and Profitably

High Production and Precision Control

Behind the brute power and strength, the UH07 digs in and gets the job done economically and quickly. The result is new productivity to your excavating and trenching work ... with a short cycle time.

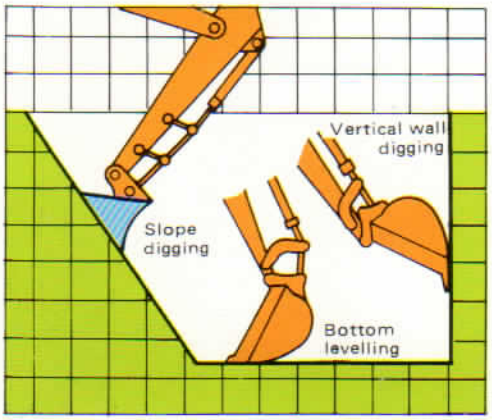
Controllability? The UH07 also offers precise control ... bottom levelling and slope digging are efficient and sufficient. That means eliminating crew-finishing work. And a large wrist angle of the bucket eases vertical and corner digging. Lift operation is safe and positive, too.

SHORT CYCLE TIME

The shorter the cycle time, the higher the productivity. The UH07 has a shorter cycle time. Safely dependent upon reliable and tough components: 93-hp diesel engine, dual-pump dual-valve hydraulic system with variable displacement pumps which transmit engine horsepower perfectly, 2-speed boom, and swing motor of the low-speed high-torque radial piston type. The UH07's extra of matched performance permits the operator to match speed and power to work load and ground conditions.

ACCURATE CONTROL

The UH07's mechanical rod control levers are most suitable for assuring accurate maneuvering. With the natural feel that comes from levers, you can match speed and power to jobsite operations ... bottom levelling, vertical wall digging, corner digging, and trenching. Thus accurately controlled operations are achieved.
The UH07's arm is like a human arm, the bucket a mighty hand.



UH07 on Jobsites

Where You Work, We Work

Reliable Performance and High Controllability

MAXIMUM SERVICEABILITY

Control levers and instrumentation are positioned for maximum operational efficiency. The gauges are easily monitored from the seat position.

The roomy cab achieves a maximum of visibility in all directions ... front, rear, upward and downward, through safety glass windows. The two-section doglegged front window: the upper swings up and stores under the cab roof, while the lower offers downward visibility. The rear window swings open. The cab roof opens for upward visibility. The urethane foam lined walls and rubber matted floor help shock- and noise-absorbing ... to increase operator's comfort.

EASY OPERATION

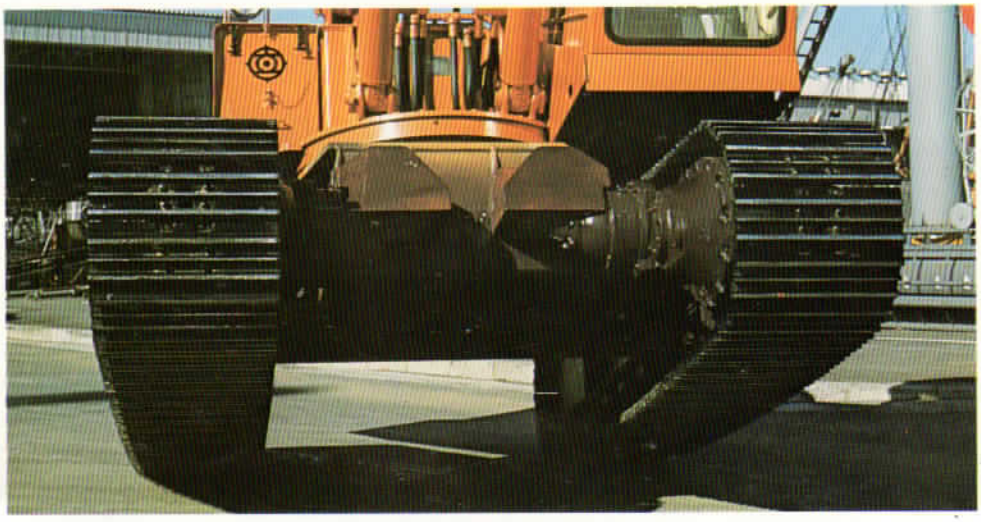
The UH07 has 1 swing lever, 3 implement levers and 2 steering levers. Arm and bucket levers are provided with large pedals, which allow pedalling control instead of manual control. In a working cycle, there is no need to shift your hand from lever to lever. Move the swing lever with the left hand, the arm lever with the left foot, the bucket lever with the right foot, and the boom lever with the right hand. 2 steering levers are mounted at the center so that their grips face each other. Using the 2 grips, you can move the 2 steering levers with one hand at a time.

STANDARD EQUIPMENT

Engine oil pressure gauge
Engine coolant temperature gauge
Air pressure gauge
Electric clock hour meter
Engine oil pressure alarm lamp
Dashboard light
Interior light
Wide screen wiper
Electric horn

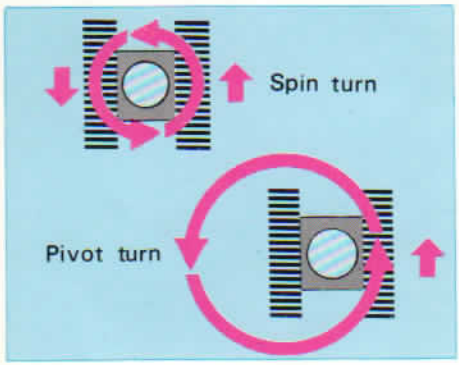
TRACTOR UNDERCARRIAGE

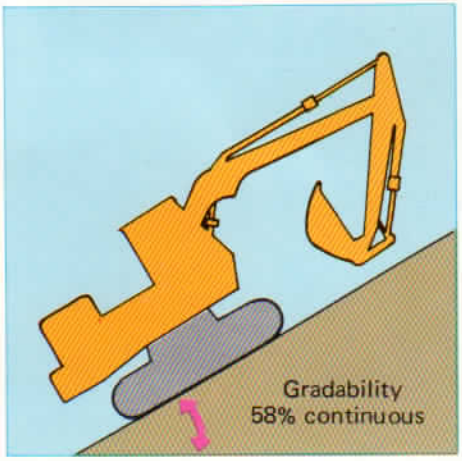
Tough and powerful tractor-type undercarriage granting outstanding mobility and travel ability. Consisting of rugged components: induction-hardened shoes with triple grouser bars, heat-treated links and connecting pins, and shock-absorbing springs. Power transmission has a very high efficiency. Power from the high-torque piston motor comes directly to the sprocket of the drive tumbler through the 2-stage reduction spur gear.
The UH07 can climb a steep slope with ease.



COUNTER-ROTATION TRACKS

Two independent track motors, one on either side, give counter-rotation of the tracks ... for a maximum mobility. The key lies in the use of reversible track motors. You get maximum operating efficiency even in a close quarter with a minimum turning radius.



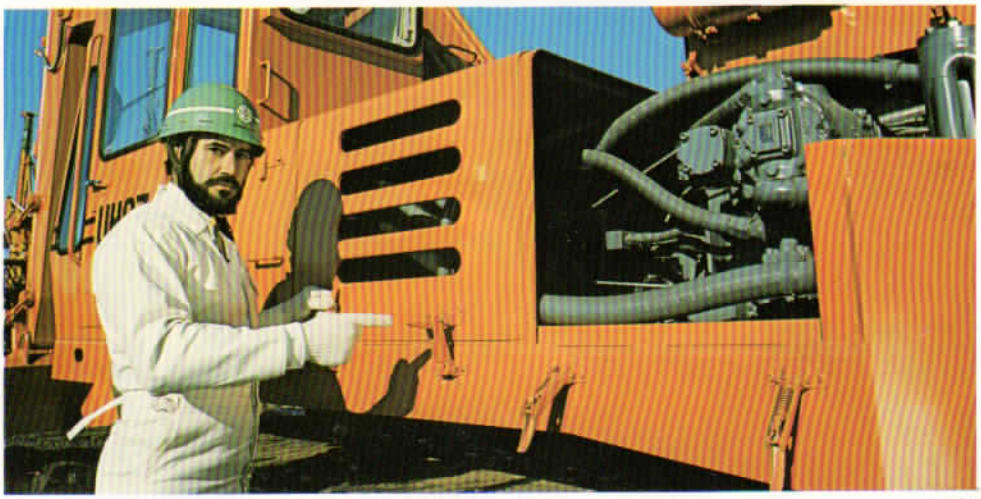


MAINTENANCE-FREE UNDERCARRIAGE

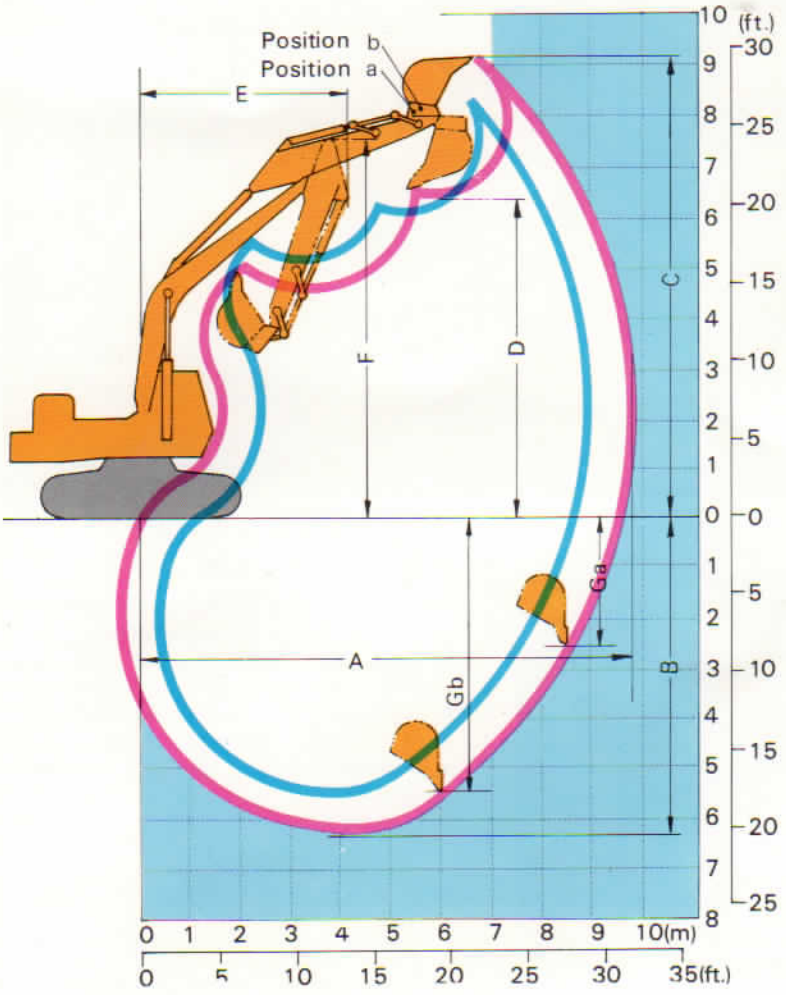
The tracks have sealed drive units, in which the high torque motors drive through the reduction gears. All roller and tumbler bearings are sealed with floating seals. They never need lubricating until overhaul. Hydraulic track adjuster is provided for easy adjustment of track tension.

SIMPLIFIED DAILY MAINTENANCE

Level gauges of hydraulic oil and fuel tanks are positioned for easy inspection. Engine covers and the like are latched with catches and are unlatched easily ... for speedily maintaining and inspecting inside of the body.
The bucket has point type "ESCO" teeth ... for convenience of changing. The seal rings at the bucket pins of the front attachment effectively seal out abrasives: sand and grit.



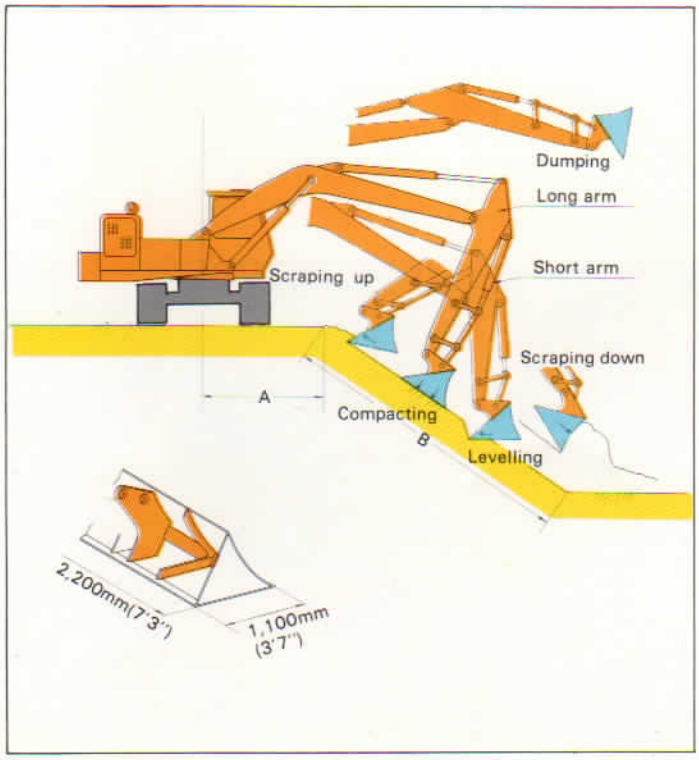
Figures Tell All. UH07... You Deserve a Ch



BACKHOE

mm (ft. in.)

DIMENSION DESCRIPTION		LONG ARM	SHORT ARM
A Max. digging reach		9,700 (31'10")	8,900 (29'2")
B Max. digging depth		6,360 (20'10")	5,600 (18'4")
C Max. cutting height		9,030 (29'8")	8,100 (26'7")
D Max. dumping height		6,280 (20'7")	5,980 (19'7")
E Min. turning radius		4,090 (13'5")	4,020 (13'2")
F Overall height at min. turning radius		7,450 (24'5")	7,450 (24'5")
G Max. vertical digging depth	Position a	2,720 (8'11")	870 (2'10")
	Position b	5,520 (18'1")	3,570 (11'9")



SLOPE-FINISHING BLADE (PATENTED)

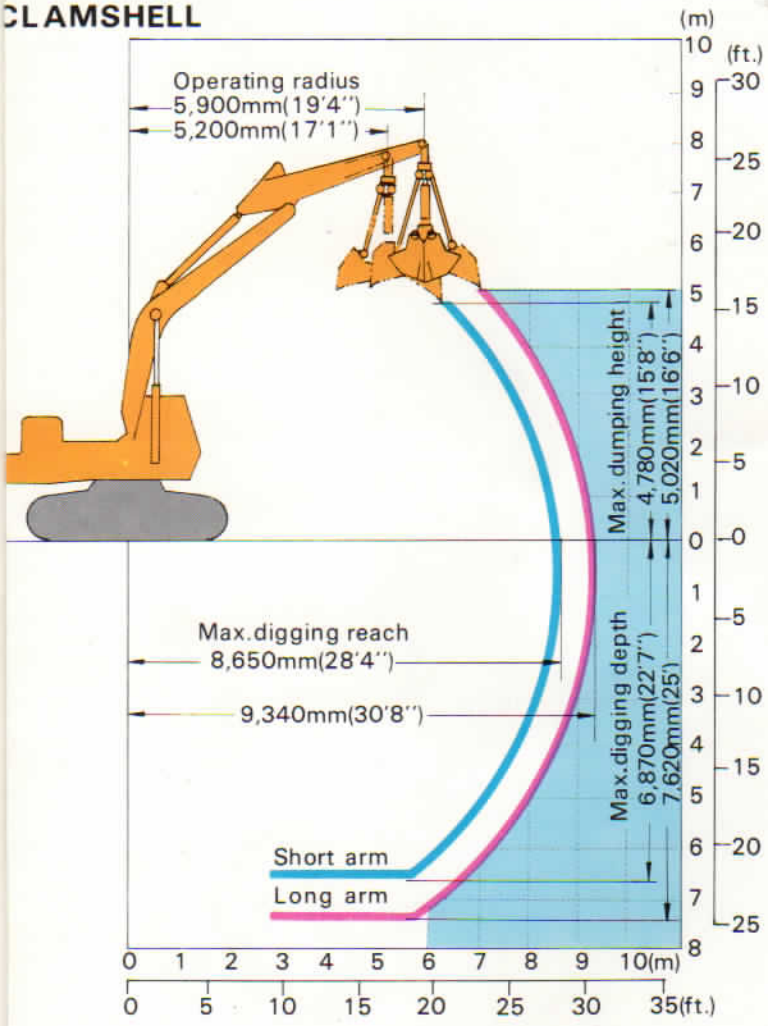
Applications : Slope compacting, grassing, etc.

Compacting area m²(sq.yd.)		2.42 (2.9)			
A mm (ft.in.)		1,355 (4'5")	2,000 (6'7")	3,000 (9'10")	4,000 (13'1")
B mm(ft.in.)	Long arm	7,000 (23')	6,500 (21'4")	5,600 (18'4")	4,750 (15'7")
	Short arm	6,300 (20'8")	5,800 (19')	4,900 (16'1")	4,000 (13'1")

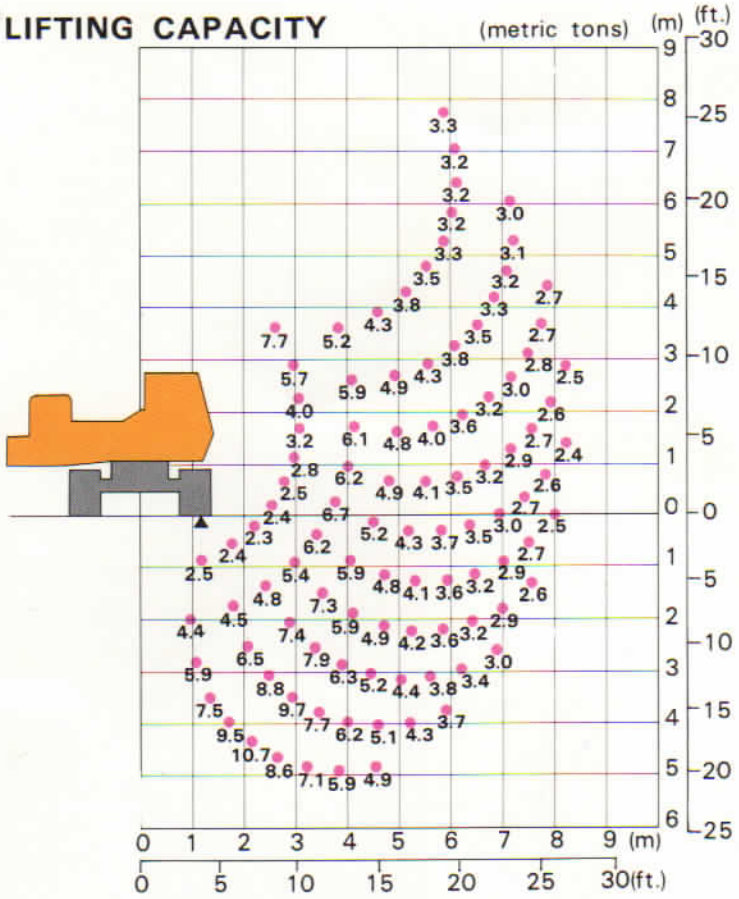
Note : A— Distance between top of slope and center of rotation of machine.
B— Maximum possible length of slope of 13 to 18%.

noice.

CLAMSHELL

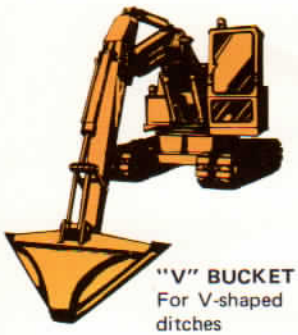


LIFTING CAPACITY

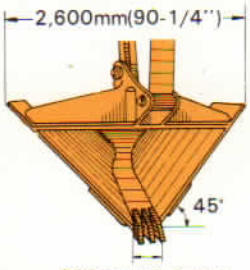


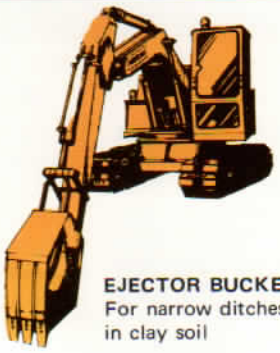
Notes: 1. Shown do not exceed 75% of tipping loads with machine on firm level ground or 87% of full hydraulic capacity.
2. Shown depend on the machine excluding bucket, bucket cylinder and links.
3. Weight of hooks, slings and other lifting equipment is regarded as load.

OPTIONAL BUCKETS

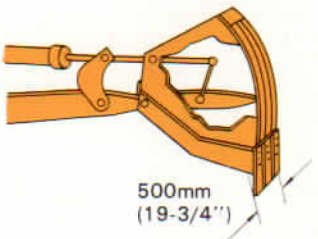


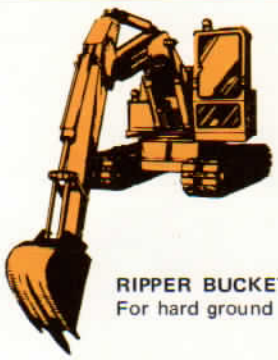
"V" BUCKET
For V-shaped ditches



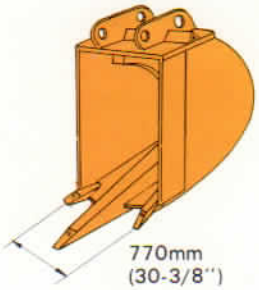


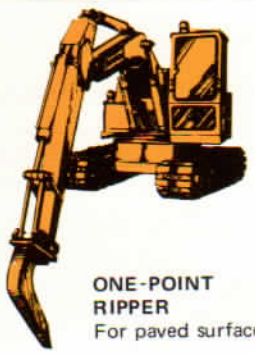
EJECTOR BUCKET
For narrow ditches in clay soil





RIPPER BUCKET
For hard ground





ONE-POINT RIPPER
For paved surfaces

UH07 HYDRAULIC EXCAVATOR

Design Data:

UPPER STRUCTURE

Engine
ISUZU Model DA640 heavy-duty diesel engine, rated at 93 HP/2,000 rpm (net flywheel HP). 4-cycle, 6-cylinder inline, water-cooled, precombustion chamber design.
Barrel face top compression ring seals out gas. Forced lubricating injection pump. Full/partial flow oil filter. Depression device for engine shut down, water-jacketed oil cooler.

Revolving Frame
Deep, full-reinforced box-section made of heavy-gauge steel plates.

Swing Mechanism
High-torque low-speed radial piston motor with single reduction spur gear run in oil.

Swing Circle
Single-row shear ball bearing with induction-hardened internal gear run in oil.
Bearing diameter ..... 1,300 mm (51¼ in.)

Cab
All-weather cab with all-round visibility through safety glass windows. Rubber-matted floor and urethane-foam-lined walls for noise- and vibration-proof.

UNDERCARRIAGE

Tracks
Tractor-type undercarriage. Heavy-duty track frame. Lifetime-lubricated track rollers, idlers and sprockets. Specially heat-treated connecting pins. Track adjuster is of hydraulic type. Induction-hardened rolled alloy track shoes:
Standard = 610mm (24") triple grouser shoes
Optional = 810mm (32") triple grouser shoes
610mm (24") flat shoes
910mm (36") triangular shoes

Drive
Each track is directly driven by an independent high-torque axial piston motor which allows counter-rotation of the tracks for maximum maneuverability in a close quarter.

CONTROLS

4 Levers
Mechanical rod type. Bucket and arm levers fitted with pedals for either manual or pedalling control.
2-speed boom is controllable by single lever.

2 Steering Levers
Mechanical rod type. Independent drive at each track allows counter-rotation of the tracks.

HYDRAULIC SYSTEM

2 variable displacement axial piston pumps and 2 control valves of monoblock structure.
The dual-pump dual-valve system allows both independent and combined operations of all functions.

Brake Valves
Counterbalance type brake valves and relief valves are provided in swing and travel circuits. Then the swing circuit offers smooth swing without air lock. The travel circuit provides positive braking while excavating, eliminating any possibility of run-away on gradients. Circuit safety valves as well as the main safety valve are built in the boom, arm, and bucket circuits for overload protection.

Relief Valve Setting

Main safety circuit	175 kg/cm^2 (2,500 psi)
Overload safety circuit	190 kg/cm^2 (2,700 psi)
Swing circuit (brake valve)	140 kg/cm^2 (2,000 psi)
Travel circuit (brake valve)	175 kg/cm^2 (2,500 psi)

Hydraulic Cylinders
Heavy-duty piston rods are chrome plated for corrosion and pitting protection.
All cylinder pistons are interchangeable.

Cylinder	Cylinder bore	Rod diameter	Stroke
Boom (2 cylinders)	140mm (5-1/2")	85mm (3-1/4")	1,225mm (48-1/4")
Arm	140mm (5-1/2")	85mm (3-1/4")	1,635mm (64-1/2")
Bucket	140mm (5-1/2")	70mm (2-3/4")	810mm (32")

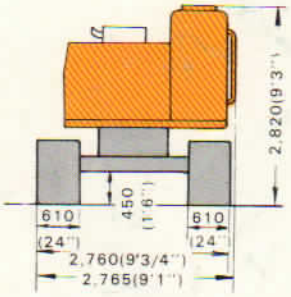
Hydraulic Lines
Double-strength, high pressure rubber hoses and steel tubes used.

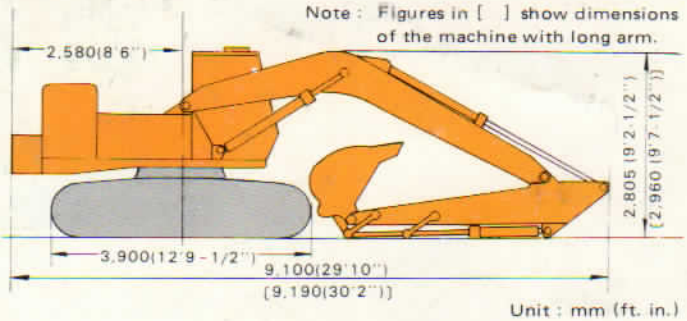
SERVICE REFILL CAPACITIES

	litres	Imp. gal.
Fuel tank	200	44
Hydraulic system	280	61.6
Cooling system	40	8.8
Engine oil	19	4.18
Pump drive	0.8	0.18
Swing drive	17	3.74
Final drive	15	3.3

UH07 HYDRAULIC EXCAVATOR

Specifications:





Unit : mm (ft. in.)

Operating weight (with standard 610mm (24 in.) shoes)

Short arm and 0.7m³ bucket	18.2 t (40,040 lb.)
Long arm and 0.7m³ bucket	18.3 t (40,260 lb.)

Engine

Model	Isuzu DA640
Type	4-cycle 6-cylinder water-cooled diesel
Net flywheel HP	93 HP at 2,000 rpm
Piston displacement	6,373 cc (389 cu.in.)
Fuel tank capacity	200 litres (44 Imp. gal.)
Electric system	24V AC

Hydraulic system

Pumps	2 variable displacement pumps (axial piston type)
Pressure setting	175 kg/cm² (2,500 psi)
Flow (max.)	2x240 litres/min (2x55.6 Imp. gal./min)
Swing motor	Radial piston motor
Travel motors	2 axial piston motors
Hydraulic system	280 litres (61.6 Imp. gal.)

Working force

	Short arm	Long arm
Digging force, arm cylinder	7.12 t (15,700 lb.)	5.68 t (12,500 lb.)
Digging force, bucket cylinder	8.24 t (18,100 lb.)	7.03 t (15,500 lb.)

Control system

Type	Mechanical linkage
No. of control levers	4

Swing device

Swing circle	Single-row, shear ball bearing with internal gear
Swing speed	10 rpm

Undercarriage

Type	Tractor-type track, with lifetime-lubricated rollers, idlers and sprockets. Hydraulic track adjuster. Recoil spring.
No. of shoes	47 on each side.

Shoe width	Std. 610mm (24") grouser shoe	Opt. 810mm (32") grouser shoe	Opt. 610mm (24") flat shoe	Opt. 910mm (36") friangular shoe
Overall crawler width	2,760mm (9'3/4")	2,960mm (9'8-1/2")	2,760mm (9'3/4")	3,060mm (10'1/2")
Ground pressure	0.44kg/cm² (6.25 psi)	0.34kg/cm² (4.83 psi)	0.44kg/cm² (6.25 psi)	0.30kg/cm² (4.24 psi)

No. of upper rollers	2
No. of lower rollers	7
Maximum traction force	14.0 t (30,800 lb.)
Travel speed	0 – 2.4 Km/h(1.5mph)
Gradability	58% continuous

Backhoe bucket range

Bucket capacity		Bucket width (without side cutter)	
0.45m³	9/16 cu.yd.	720mm	38-1/4"
0.55m³	11/16 cu.yd.	870mm	34-1/4"
0.70m³	7/8 cu.yd.	1,030mm	40-1/2"
0.80m³	1 cu.yd.	1,150mm	45-1/4"
0.90m³	1-1/8 cu.yd.	1,330mm	52-1/2"
1.20m³	1-5/8 cu.yd.	1,670mm	65-3/4"

Optional Buckets

	Buket capacity
Ejector bucket	0.45m³ (9/16 cu.yd.)
"V" bucket	0.4m³ (1/2 cu.yd.)
Ripper bucket	0.5m³ (5/8 cu.yd.)
Fork bucket	0.6m³ (3/4 cu.yd.)
Polyp bucket	0.6m³ (3/4 cu.yd.)
Clamshell bucket	0.6m³ (3/4 cu.yd.)
Slope-finishing blade	
One-point ripper	

Notes: 0.9m³ (1-1/8 cu.yd.) backhoe bucket, 1.2m³ (1-5/8 cu.yd.) backhoe bucket, ripper bucket and one-point ripper can be used with short arm only.

These specifications are subject to change without notice.

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