

E X C A V A T O R
690E LC



MILLER
SINCE 1924
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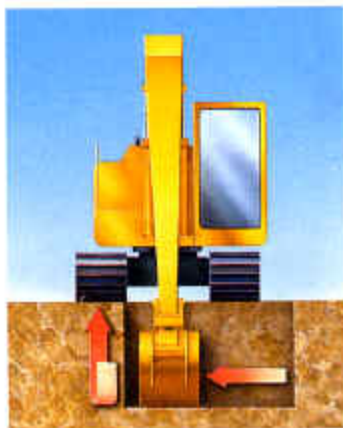


Quadtronic, the 690E LC's computerized engine/hydraulic management system, lets you tailor engine speed and hydraulic flow to match the job and your own operating style. Engine speed is set with one of four Power Modes. You can also fine-tune engine speed in 20-rpm increments by using the throttle buttons. Four work modes regulate pump capacity. Just pick the modes that are right for your application and Quadtronic takes over.

With a high-production machine like the 690E LC, it's tempting to run "full-bore" at all times. But unless your back's against the wall, you're better off working in the Economy Mode. Here's why...

	Power	Economy	Difference
Cycles/hr.	276	261	5% more
Cu. yd./hr.	310	289	7% more
Cu. yd./gal.	48.25	55.42	13% less
Gal./hr.	6.43	5.27	18% less

Besides, you can still out-dig competitive machines when the 690E LC is in the Economy Mode — even when they're in the Power Mode.



Combined-hydraulic-function-capacity (C-H-F-C) saves time when straightening up ragged trench walls. Just back up and arm down.



Fanggs®Teeth are featured on every bucket. Due to their unique profile, Fanggs teeth dig with 23 percent less effort for faster bucket fill and better bucket control.

Gauges and controls are to your right. The monitor panel keeps you up-to-date on vital machine functions. Warning lights alert you to insufficient alternator charge, low engine oil pressure, air filter restriction, high coolant temperature, and low fuel. A buzzer sounds if the coolant temperature gets too high, or the engine oil pressure too low.

BUCKETS

A full line of buckets is offered to meet a wide variety of applications. The buckets have an adjustable bushing for side clearance, with the exception of the ditching bucket. Tooth selection includes either the John Deere Fanggs[®], Standard, Tiger, Twin Tiger, Abrasion panel, or Flare, or the ESCO (Vertalok) Standard, Tiger, Twin Tiger, or Flare tooth. Replaceable cutting edges are available through John Deere parts. Optional side cutters add 6 inches (150 mm) to bucket widths.

Type Bucket	Bucket Width		Bucket Capacity*		Weight		Bucket Dig Force		Arm Dig Force 7 ft. 3 in. (2.20 m)		Arm Dig Force 9 ft. 6 in. (2.90 m)		Bucket Tip Radius		No. Teeth
	in.	mm	cu. yd.	m ³	lb.	kg	lb.	kN	lb.	kN	lb.	kN	in.	mm	
General-Purpose	24	600	0.59	0.45	1,106	502	28,485	126.7	28,705	127.7	22,330	99.3	55.5	1410	4
Plate Lip	30	750	0.77	0.59	1,182	536	28,485	126.7	28,705	127.7	22,330	99.3	55.5	1410	4
	36	900	0.95	0.73	1,401	635	28,485	126.7	28,705	127.7	22,330	99.3	55.5	1410	5
	42	1067	1.12	0.86	1,590	721	28,485	126.7	28,705	127.7	22,330	99.3	55.5	1410	5
	48	1220	1.30	0.99	1,673	759	28,485	126.7	28,705	127.7	22,330	99.3	55.5	1410	6
General-Purpose	30	750	0.95	0.73	1,391	631	27,490	122.3	28,305	125.9	22,070	98.2	57.5	1461	4
High Capacity	36	900	1.16	0.89	1,451	658	27,490	122.3	28,305	125.9	22,070	98.2	57.5	1461	5
	42	1067	1.38	1.06	1,596	724	27,490	122.3	28,305	125.9	22,070	98.2	57.5	1461	5
	48	1220	1.60	1.22	1,785	809	27,490	122.3	28,305	125.9	22,070	98.2	57.5	1461	6
Heavy-Duty	24	600	0.59	0.45	1,358	616	28,485	126.7	28,705	127.7	22,330	99.3	55.5	1410	4
Plate Lip	30	750	0.77	0.59	1,447	656	28,485	126.7	28,705	127.7	22,330	99.3	55.5	1410	4
	36	900	0.95	0.73	1,567	711	28,485	126.7	28,705	127.7	22,330	99.3	55.5	1410	5
	42	1067	1.12	0.86	1,676	760	28,485	126.7	28,705	127.7	22,330	99.3	55.5	1410	5
	48	1220	1.30	0.99	1,759	798	28,485	126.7	28,705	127.7	22,330	99.3	55.5	1410	6
Heavy-Duty	24	600	0.73	0.56	1,401	635	27,490	122.3	28,305	125.9	22,070	98.2	57.5	1461	4
High Capacity	30	750	0.95	0.73	1,528	693	27,490	122.3	28,305	125.9	22,070	98.2	57.5	1461	4
	36	900	1.16	0.89	1,629	739	27,490	122.3	28,305	125.9	22,070	98.2	57.5	1461	5
	42	1067	1.38	1.06	1,701	771	27,490	122.3	28,305	125.9	22,070	98.2	57.5	1461	5
Severe-Duty	24	600	0.59	0.45	1,439	653	28,485	126.7	28,705	127.7	22,330	99.3	55.5	1410	4
Cast Lip	30	750	0.77	0.59	1,551	703	28,485	126.7	28,705	127.7	22,330	99.3	55.5	1410	4
	36	900	0.95	0.73	1,629	739	28,485	126.7	28,705	127.7	22,330	99.3	55.5	1410	5
Severe-Duty	30	750	0.77	0.59	1,760	798	28,485	126.7	28,705	127.7	22,330	99.3	55.5	1410	4
Plate Lip	36	900	0.95	0.73	1,859	843	28,485	126.7	28,705	127.7	22,330	99.3	55.5	1410	4
Ditching	60	1500	0.90	0.69	1,121	508	42,725	190.0	32,985	146.7	25,070	111.5	37.0	940	0
	72	1800	1.06	0.81	1,244	564	42,725	190.0	32,985	146.7	25,070	111.5	37.0	940	0

*All capacities are SAE heaped ratings and with side cutters.

BUCKET SELECTION CHART

Recommended Bucket Size*

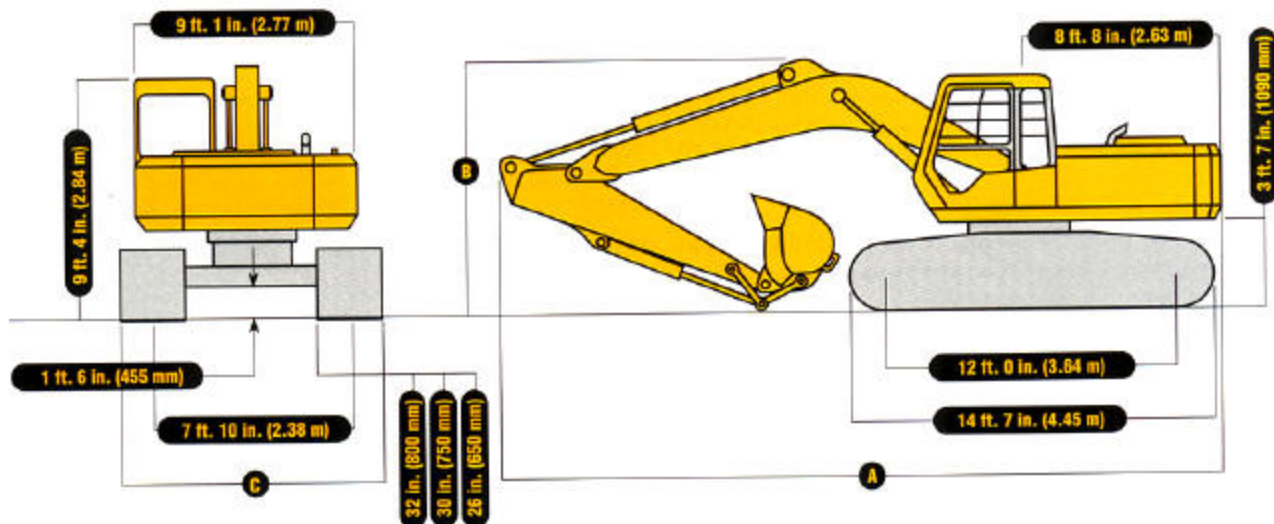
Material (loose weight)	Recommended Bucket Size*	
	General-Purpose Bucket	Heavy-Duty Bucket
Wood chips – 700 lb./cu. yd. (420 kg/m ³)	6.50 cu. yd. (5.0 m ³)	—
Peat, dry – 750 lb./cu. yd. (440 kg/m ³)	5.50 cu. yd. (4.2 m ³)	—
Cinders – 950 lb./cu. yd. (560 kg/m ³)	4.00 cu. yd. (3.1 m ³)	—
Peat, wet – 1,170 lb./cu. yd. (690 kg/m ³)	3.50 cu. yd. (2.7 m ³)	—
Topsoil – 1,600 lb./cu. yd. (950 kg/m ³)	2.50 cu. yd. (1.9 m ³)	—
Coal – 1,780 lb./cu. yd. (1050 kg/m ³)	2.25 cu. yd. (1.7 m ³)	—
Caliche – 2,100 lb./cu. yd. (1250 kg/m ³)	1.38 to 1.75 cu. yd. (1.1 to 1.3 m ³)	1.25 to 1.50 cu. yd. (1.0 to 1.1 m ³)
Earth, loam – 2,100 lb./cu. yd. (1250 kg/m ³)	1.75 cu. yd. (1.3 m ³)	1.50 cu. yd. (1.1 m ³)
Shale – 2,250 lb./cu. yd. (1330 kg/m ³)	1.75 cu. yd. (1.3 m ³)	1.50 cu. yd. (1.1 m ³)
Sand, dry – 2,400 lb./cu. yd. (1420 kg/m ³)	1.75 cu. yd. (1.3 m ³)	1.50 cu. yd. (1.1 m ³)
Clay, dry – 2,500 lb./cu. yd. (1480 kg/m ³)	1.12 to 1.50 cu. yd. (0.9 to 1.1 m ³)	1.38 cu. yd. (1.1 m ³)
Earth, dry – 2,550 lb./cu. yd. (1510 kg/m ³)	1.38 to 1.50 cu. yd. (1.1 m ³)	1.38 cu. yd. (1.1 m ³)
Limestone, broken or crushed – 2,600 lb./cu. yd. (1540 kg/m ³)	1.12 to 1.50 cu. yd. (0.9 to 1.1 m ³)	1.00 to 1.38 cu. yd. (0.8 to 1.1 m ³)
Earth, wet – 2,700 lb./cu. yd. (1600 kg/m ³)	1.50 cu. yd. (1.1 m ³)	1.38 cu. yd. (1.1 m ³)
Clay, wet – 2,800 lb./cu. yd. (1660 kg/m ³)	1.50 cu. yd. (1.1 m ³)	1.38 cu. yd. (1.1 m ³)
Rock, granite, blasted and broken – 2,800 lb./cu. yd. (1660 kg/m ³)	1.38 to 1.75 cu. yd. (1.1 to 1.3 m ³)	1.25 to 1.50 cu. yd. (1.0 to 1.1 m ³)
Sand, moist – 2,850 lb./cu. yd. (1690 kg/m ³)	1.50 cu. yd. (1.1 m ³)	1.38 cu. yd. (1.1 m ³)
Sand and gravel, dry – 2,900 lb./cu. yd. (1720 kg/m ³)	1.50 cu. yd. (1.1 m ³)	1.38 cu. yd. (1.1 m ³)
Sand, wet – 3,100 lb./cu. yd. (1840 kg/m ³)	1.38 cu. yd. (1.1 m ³)	1.25 cu. yd. (1.0 m ³)
Sand and gravel, wet – 3,400 lb./cu. yd. (2020 kg/m ³)	1.38 cu. yd. (1.1 m ³)	1.25 cu. yd. (1.0 m ³)

*Contact your John Deere dealer for optimum bucket and attachment selections. These recommendations are for general conditions and average use. Larger buckets may be possible when using light buckets, for flat and level operations, less compacted materials, and volume loading applications such as mass excavation applications in ideal conditions. Smaller buckets are recommended for adverse conditions such as off-level applications and uneven surfaces. Bucket capacity indicated is SAE heaped.

DIMENSIONS

690E

- A** With 7 ft. 3 in. (2.20 m) arm31 ft. 1 in. (9.48 m)
 With 9 ft. 6 in. (2.90 m) arm30 ft. 10 in. (9.41 m)
- B** With 7 ft. 3 in. (2.20 m) arm9 ft. 6 in. (2.90 m)
 With 9 ft. 6 in. (2.90 m) arm9 ft. 6 in. (2.90 m)
- C** With 26-in. (650 mm) semi-grouser shoes9 ft. 11 in. (3.03 m)
 With 30-in. (750 mm) semi-grouser shoes10 ft. 3 in. (3.13 m)
 With 32-in. (800 mm) semi-grouser shoes10 ft. 5 in. (3.18 m)



LIFT CAPACITIES

Boldface Italic type indicates hydraulic-limited capacities; lightface type indicates stability-limited capacities, in lb. (kg). Ratings at bucket lift hook, machine equipped with 32-in. (800 mm) shoes; 1.06-cu. yd. (0.81 m³) 42-in. (1067 mm) wide bucket; 8,200-lb. (3720 kg) counterweight; and situated on firm, uniform supporting surface. Total load includes weight of cables, hook, etc. Figures do not exceed 87 percent of hydraulic capacities or 75 percent of weight needed to tip machine.

Load Point Height	10 ft. (3.05 m)		15 ft. (4.57 m)		20 ft. (6.10 m)		25 ft. (7.62 m)		30 ft. (9.14 m)	
	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side	Over Front	Over Side
<i>With 7 ft. 3 in. (2.20 m) arm</i>										
20 ft. (6.10 m)					6,250 (2830)	6,250 (2830)	5,250 (2380)	5,250 (2380)		
15 ft. (4.57 m)			11,280 (5120)	11,280 (5120)	9,690 (4400)	9,690 (4400)	6,850 (3110)	6,850 (3110)	6,610 (3000)	5,330 (2420)
10 ft. (3.05 m)			15,440 (7000)	15,440 (7000)	11,690 (5300)	9,810 (4450)	9,920 (4500)	6,950 (3150)	7,080 (3210)	5,180 (2350)
5 ft. (1.52 m)			18,560 (8420)	14,260 (6470)	13,700 (6220)	9,280 (4210)	10,900 (4940)	6,690 (3030)	7,930 (3600)	5,060 (2300)
Ground Line	7,680 (3480)	7,680 (3480)	20,740 (9410)	13,710 (6220)	14,900 (6760)	8,970 (4070)	11,600 (5260)	6,510 (2950)		
-5 ft. (-1.52 m)	13,450 (6100)	13,450 (6100)	14,800 (6710)	14,800 (6710)	15,000 (6800)	8,910 (4040)	11,590 (5260)	6,480 (2940)		
-10 ft. (-3.05 m)	12,870 (5840)	12,870 (5840)	17,950 (8140)	13,990 (6340)	13,760 (6240)	9,050 (4110)				
-15 ft. (-4.57 m)	20,900 (9480)	20,900 (9480)	13,560 (6150)	13,560 (6150)						
<i>With 9 ft. 6 in. (2.90 m) arm</i>										
25 ft. (7.62 m)							4,340 (1970)	4,340 (1970)		
20 ft. (6.10 m)							4,640 (2110)	4,640 (2110)	4,230 (1920)	4,230 (1920)
15 ft. (4.57 m)					8,230 (3730)	8,230 (3730)	7,930 (3600)	7,930 (3600)	4,960 (2250)	4,960 (2250)
10 ft. (3.05 m)	18,800 (8530)	18,800 (8530)	13,710 (6240)	13,710 (6240)	10,350 (4690)	10,350 (4690)	8,930 (4050)	6,900 (3130)	4,950 (2240)	4,950 (2240)
5 ft. (1.52 m)	10,940 (4960)	10,940 (4960)	18,520 (8400)	14,190 (6440)	12,650 (5740)	9,330 (4230)	10,110 (4580)	6,610 (3000)	6,380 (2890)	4,870 (2210)
Ground Line	7,290 (3310)	7,290 (3310)	17,150 (7780)	13,680 (6200)	14,300 (6490)	8,930 (4050)	11,080 (5030)	6,380 (2900)	5,710 (2590)	4,780 (2170)
-5 ft. (-1.52 m)	11,860 (5380)	11,860 (5380)	17,470 (7930)	13,600 (6170)	14,920 (6770)	8,770 (3980)	11,490 (5210)	6,270 (2840)		
-10 ft. (-3.05 m)	13,110 (5950)	13,110 (5950)	18,640 (8460)	13,740 (6230)	14,360 (6510)	8,810 (4000)	10,830 (4910)	6,330 (2870)		
-15 ft. (-4.57 m)	17,640 (8000)	17,640 (8000)	16,050 (7280)	16,050 (7280)	11,870 (5380)	9,080 (4120)				

GROUND PRESSURE DATA**690E**

Average ground pressure

26-in. (650 mm) triple semi-grouser shoes.....	5.59 psi (38.5 kPa); recommended for rocky terrain and stumps
30-in. (750 mm) triple semi-grouser shoes.....	4.92 psi (33.9 kPa); recommended for general/soft terrain
32-in. (800 mm) triple semi-grouser shoes.....	4.64 psi (31.9 kPa); recommended for extremely soft terrain
26-in. (650 mm) single grouser shoes.....	5.64 psi (38.8 kPa); recommended for slick underfoot conditions

CAPACITIES

Fuel tank.....	85 gal. (322 L)
Cooling system.....	44 qt. (42 L)
Engine lubrication, including filter.....	20 qt. (19 L)
Hydraulic system.....	84 gal. (318 L)
Planetary propel drive (each).....	3.5 qt. (3.3 L)

OPERATING WEIGHTS

With full fuel tank; 175-lb. (79 kg) operator; 1.12-cu. yd. (0.86 m³), 42-in. (1067 mm), 1,590-lb. (723 kg) bucket; 9 ft. 6 in. (2.90 m) arm; 8,200-lb. (3720 kg) counterweight; 14 ft. 7 in. (4.45 m) undercarriage length with 7 ft. 10 in. (2.38 m) wide gauge

26-in. (650 mm) triple semi-grouser shoes.....	44,230 lb. (20 063 kg)
30-in. (750 mm) triple semi-grouser shoes.....	44,823 lb. (20 332 kg)
32-in. (800 mm) triple semi-grouser shoes.....	45,120 lb. (20 467 kg)
26-in. (650 mm) single grouser shoes.....	44,610 lb. (20 239 kg)

Undercarriage equipped with

26-in. (650 mm) triple semi-grouser shoes.....	16,688 lb. (7570 kg)
30-in. (750 mm) triple semi-grouser shoes.....	17,283 lb. (7840 kg)
32-in. (800 mm) triple semi-grouser shoes.....	17,578 lb. (7973 kg)
26-in. (650 mm) single grouser shoes.....	17,068 lb. (7742 kg)

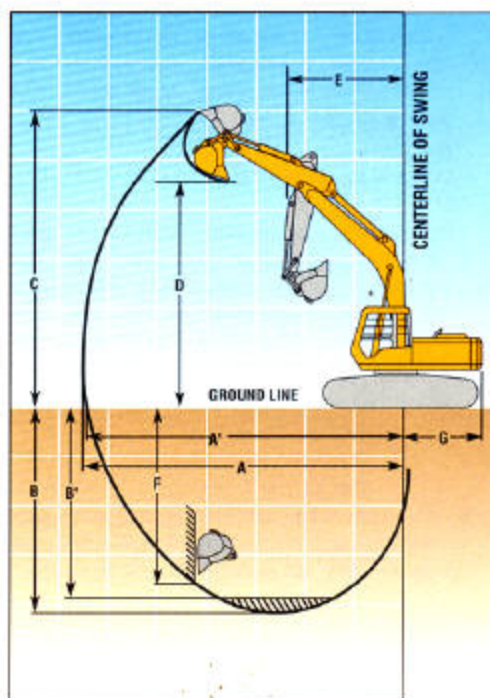
COMPONENT WEIGHTS

Upperstructure (less front attachments, undercarriage, and 8,200-lb. [3720 kg] counterweight).....	10,727 lb. (4866 kg)
One-piece boom (with arm cylinder).....	3,510 lb. (1592 kg)
Arm with bucket cylinder and linkage	
9 ft. 6 in. (2.90 m).....	2,100 lb. (952 kg)
7 ft. 3 in. (2.20 m).....	1,940 lb. (880 kg)
Boom lift cylinders (2) total weight.....	800 lb. (360 kg)
Counterweight.....	8,200 lb. (3720 kg)

OPERATING INFORMATION

	<i>Arm Length 7 ft. 3 in. (2.20 m)</i>	<i>Arm Length 9 ft. 6 in. (2.90 m)</i>
Arm force with 1.12-cu. yd. (0.86 m ³) 42-in. (1067 mm) general-purpose bucket*.....	28,705 lb. (13 048 kg)	22,330 lb. (10 150 kg)
Bucket tangential force with 1.12-cu. yd. (0.86 m ³) 42-in. (1067 mm) general-purpose bucket*.....	28,485 lb. (12 948 kg)	28,485 lb. (12 948 kg)
Lifting capacity over front @ ground level 20-ft. (6.1 m) reach.....	14,900 lb. (6760 kg)	14,300 lb. (6490 kg)
A Maximum reach.....	30 ft. 3 in. (9.22 m)	32 ft. 5 in. (9.88 m)
A' Maximum reach @ ground level.....	29 ft. 8 in. (9.04 m)	31 ft. 10 in. (9.70 m)
B Maximum digging depth.....	19 ft. 4 in. (5.90 m)	21 ft. 8 in. (6.60 m)
B' Maximum digging depth @ 8-ft. (2.44 m) flat bottom.....	18 ft. 7 in. (5.66 m)	21 ft. 0 in. (6.40 m)
C Maximum cutting height.....	30 ft. 1 in. (9.17 m)	31 ft. 6 in. (9.60 m)
D Maximum dumping height.....	21 ft. 3 in. (6.48 m)	22 ft. 6 in. (6.86 m)
E Minimum swing radius.....	11 ft. 7 in. (3.53 m)	11 ft. 7 in. (3.53 m)
F Maximum vertical wall.....	15 ft. 10 in. (4.83 m)	17 ft. 1 in. (5.21 m)
G Tail swing radius.....	9 ft. 0 in. (2.74 m)	9 ft. 0 in. (2.74 m)

*Maximum digging force with power boost.



ENGINE**G90E**

Type	John Deere 6068T with altitude-compensating turbocharger
Rated power	130 SAE net hp (97 kW) / 140 SAE gross hp (105 kW) @ 2,000 rpm
Cylinders	6
Displacement	414 cu. in. (6.785 L)
Maximum net torque	424 lb.-ft. (575 Nm) @ 1,300 rpm
Fuel consumption, typical	3 to 5 gal./hr. (11 to 19 L/h)
Cooling fan	suction-type
Electrical system	24 volt with 45-amp alternator
Batteries (two 12 volt)	reserve capacity: 160 min.

HYDRAULIC SYSTEM

Main pumps	2 variable-displacement axial-piston closed center
Minimum flow	2 x 2.6 gpm (2 x 10 L/min.)
Maximum rated flow	2 x 50 gpm (2 x 189 L/min.)
Pilot pump	one gear
Maximum rated flow	9.5 gpm (36 L/min.)
Pressure setting	400 psi (2758 kPa)
System operating pressure	
Implement circuits	5,000 psi (34 500 kPa)
Travel circuits	5,000 psi (34 500 kPa)
Swing circuits	4,060 psi (28 000 kPa)
Power boost	5,500 psi (37 900 kPa)
Oil filtration	one 4-micron full-flow return filter with by-pass one 40-micron pilot oil filter
Oil cooler	brazed aluminum, mounted beside engine coolant radiator

CYLINDERS

Boom (2)	
Bore	4.72 in. (120 mm)
Rod diameter	3.35 in. (85 mm)
Stroke	48.1 in. (1221 mm)
Arm (1)	
Bore	5.12 in. (130 mm)
Rod diameter	3.74 in. (95 mm)
Stroke	58.1 in. (1475 mm)
Bucket (1)	
Bore	4.33 in. (110 mm)
Rod diameter	2.95 in. (75 mm)
Stroke	41.22 in. (1047 mm)

SWING MECHANISM

Swing speed	0-10 rpm; adjustable to 13 rpm
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UNDERCARRIAGE

Carrier rollers (per side)	2
Track rollers (per side)	9
Idlers (per side)	1
Shoes (per side)	49
Track guides	front and center
Track adjustment	hydraulic
Travel speed	
Low	0-1.3 mph (0-2.1 km/h)
Medium	0-1.8 mph (0-2.9 km/h)
High	0-3.5 mph (0-5.6 km/h)
Drawbar pull	40,300 lb. (18 318 kg)
Tractive gradability (limited by the off-level capacity of the engine)	100% (45 deg.)



An on-board self-diagnostic computer helps field technicians solve problems quickly. In seconds, the computer knows why an engine stalls or what's behind a hydraulic flow problem. It also takes the mystery out of electrical glitches. Once the problem is identified, the computer recommends "corrective action."



Greasing the swing bearing is faster and easier because of the in-cab grease zerk. After applying grease, simply rotate the house 360 degrees and you're ready to go!

When you're down and out

We've been in this business long enough to know that product support is how you measure real value. That's why we look at machine-down situations as golden opportunities to prove our worth.

In fact, we suggest you start your "machine purchase process" by discussing issues like parts availability, 24-hour Hot Lines, shop capacity, and qualified technicians — **then** look at machine performance.

In time, the 690E LC will prove its reliability and ease-of-service to you. So, for the time being, focus on getting to know the people you'll be depending on to keep you up and running. After all, you find out who your friends are when you have problems — not when you're writing out checks.

Our competitors don't like to talk about engine overhauls. That's because their engines have to be "pulled" to be worked on. It's a painful, week-long ordeal that will hit your wallet hard. John Deere engines, with their replaceable wet-sleeve cylinder liners, can be overhauled in-frame in a couple of days — at a fraction of the cost!





Asphalt cutter



Barrel grapple



Ditch forming bucket



Twin head blender



Bucket clamp



Clamshell bucket



Demolition grapple



Clearing grapple



Hydraulic hammer



Lift hooks



Clearing rake



Ripper tooth



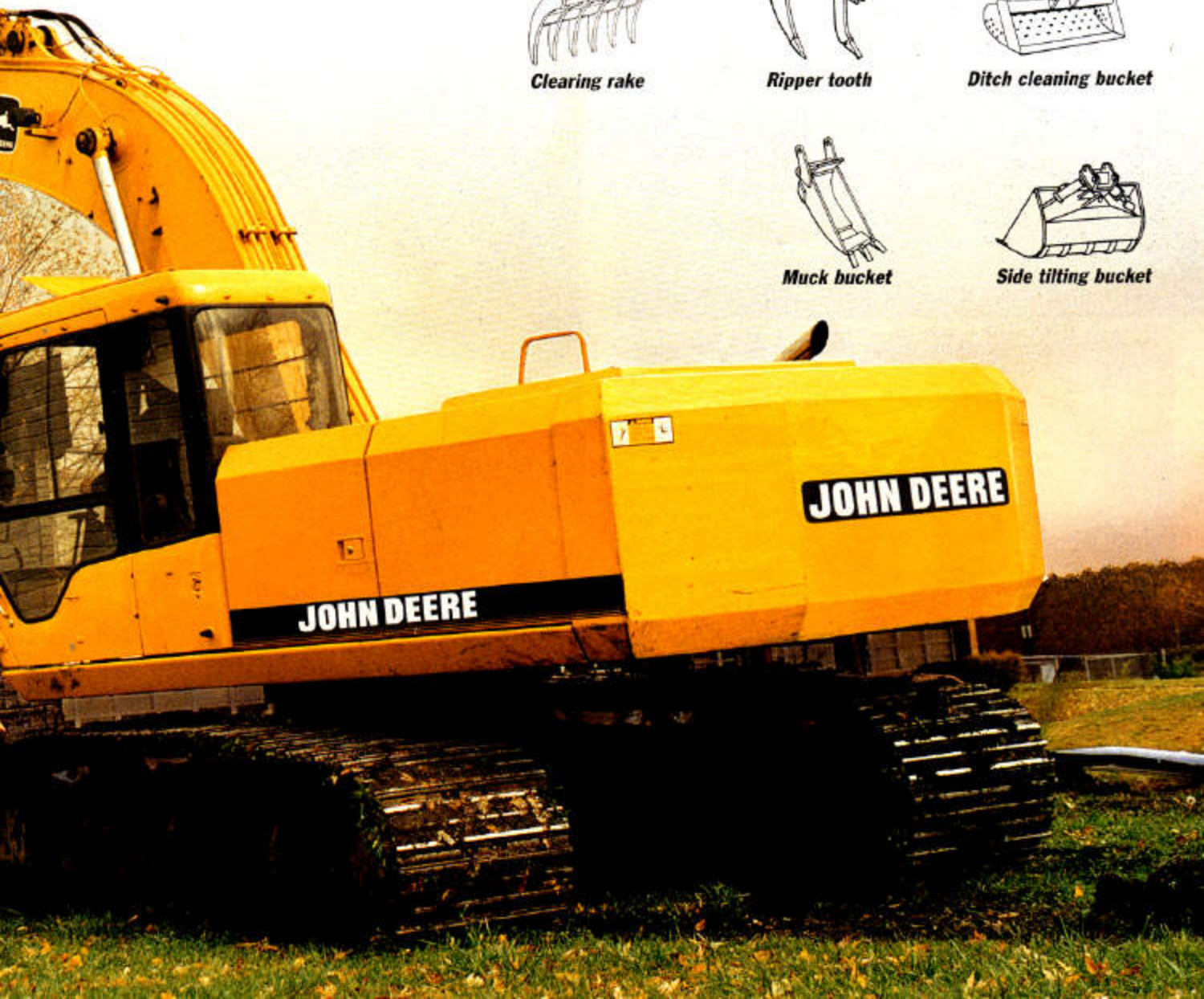
Ditch cleaning bucket



Muck bucket



Side tilting bucket



Creativity has its rewards

The 690E LC can do a lot more than just dig. So, if you've limited your focus to the excavating business, you could be missing the boat. Most likely, there are lots of lucrative markets close-by just waiting for someone with the savvy (and the right equipment) to swoop in on. All you need is the vision.

A good place to start is to schedule a "brainstorm session" with your John Deere dealer. Not only does he have the facts on dozens of attachments, but also some insights on how creativity translates into cash flow.

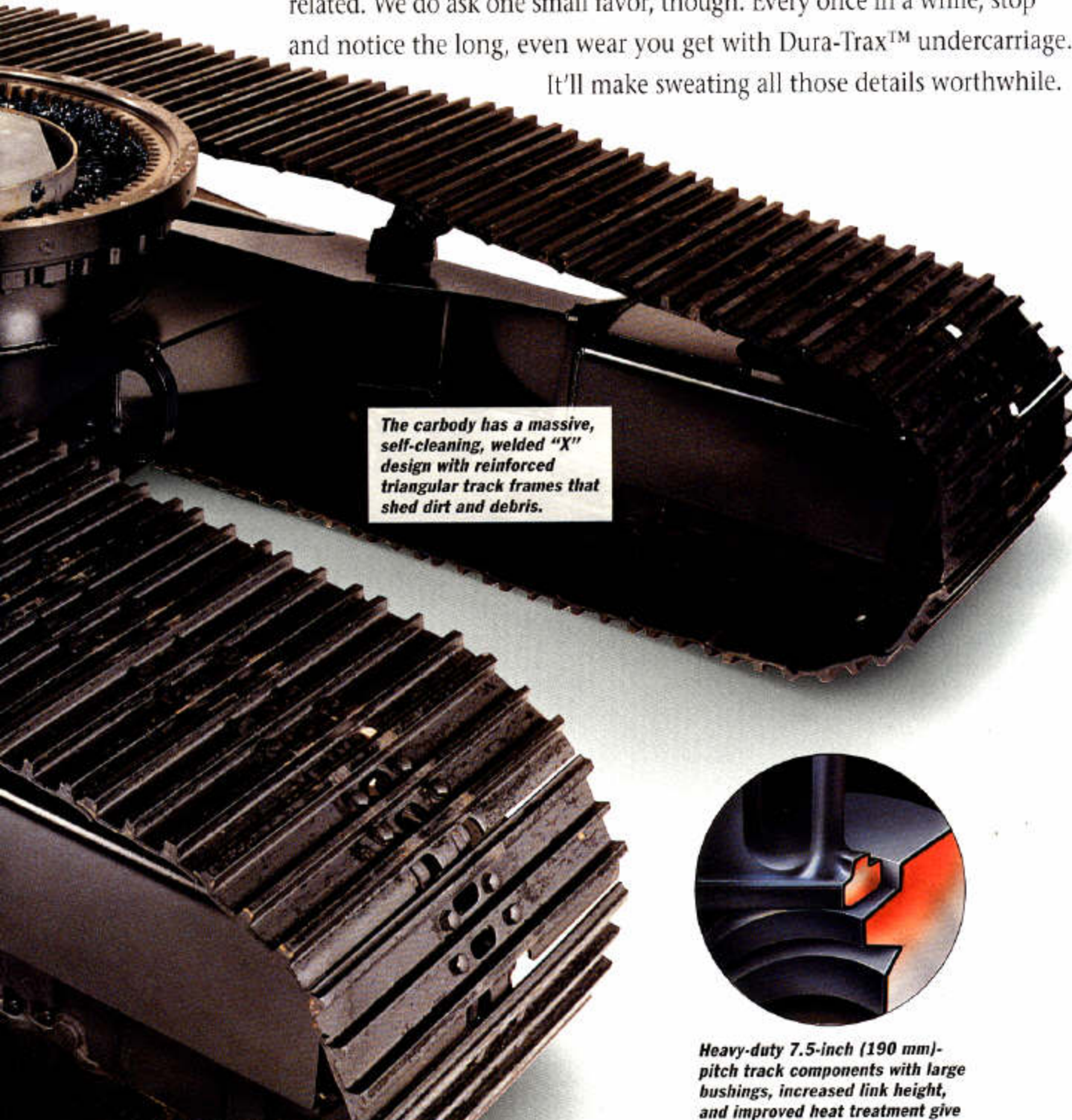
A Slide-Loc™ hydraulic coupler lets you change tools in seconds without leaving the cab. We also offer an impressive list of auxiliary boom, arm, and hydraulic flow packages to maximize your versatility — and profits.



Build your future on a solid foundation

There's a hidden bonus in every 690E LC — over 35 years of experience in the design and manufacture of undercarriage. That's important when you consider that 50 percent of your maintenance costs are undercarriage related. We do ask one small favor, though. Every once in a while, stop and notice the long, even wear you get with Dura-Trax™ undercarriage.

It'll make sweating all those details worthwhile.

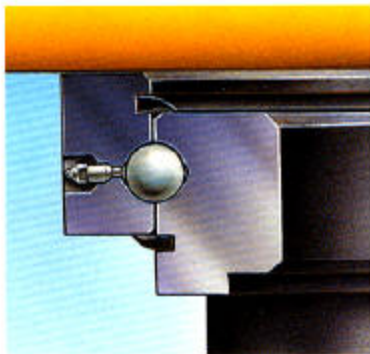


The carbody has a massive, self-cleaning, welded "X" design with reinforced triangular track frames that shed dirt and debris.



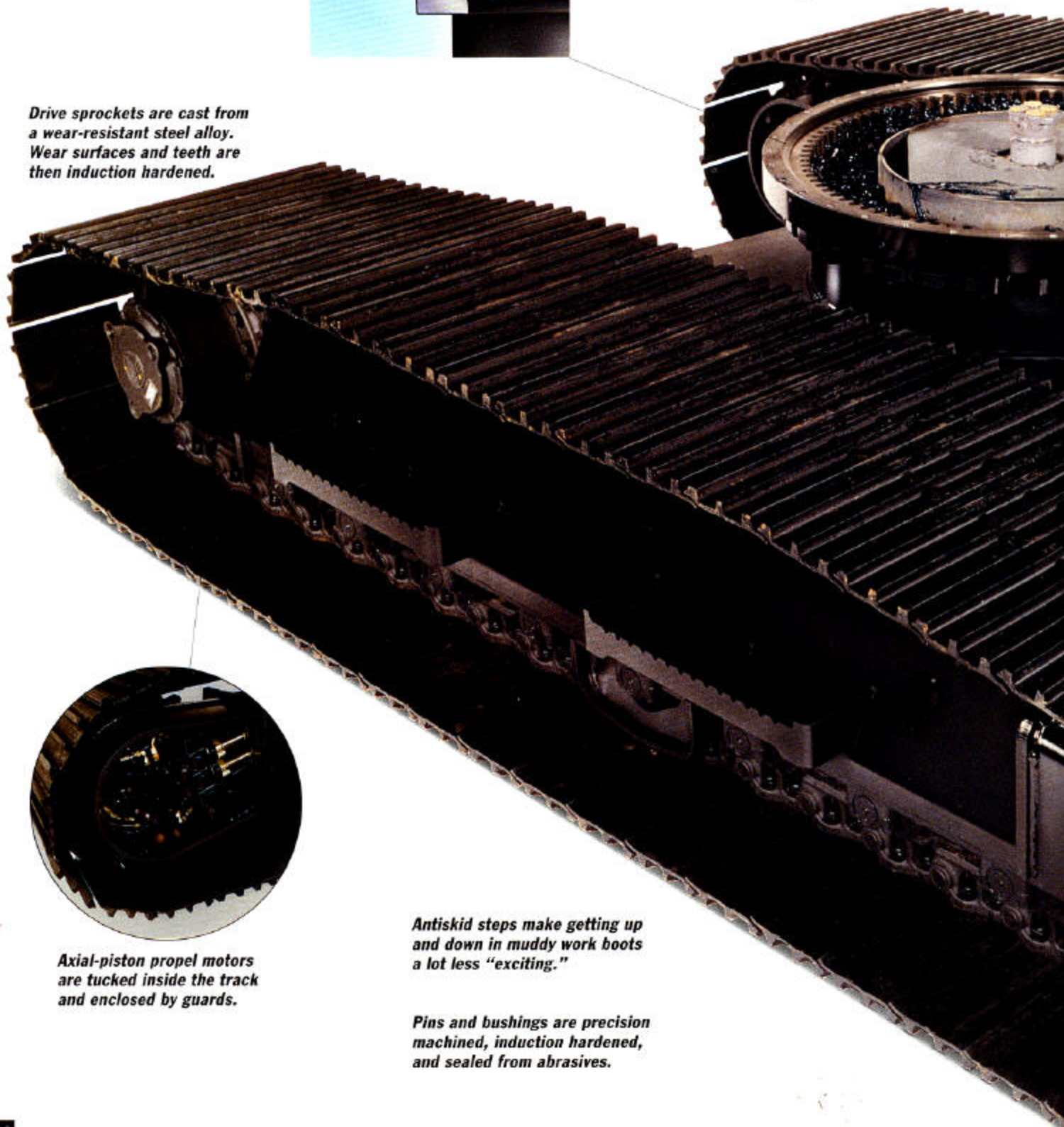
Heavy-duty 7.5-inch (190 mm)-pitch track components with large bushings, increased link height, and improved heat treatment give longer wear-life.

The swing bearing has upper and lower seals to protect it from contaminants. That's why you grease the bearing only every 500 hours — instead of 250 hours as on many other excavators.



Track shoes are made of through-hardened boron steel for added toughness and impact resistance. Three pad options are offered — 26-, 30-, and 32-inch.

Drive sprockets are cast from a wear-resistant steel alloy. Wear surfaces and teeth are then induction hardened.



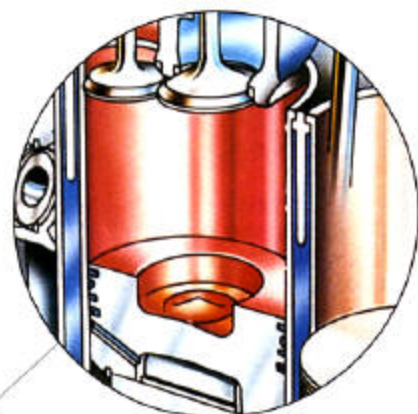
Axial-piston propel motors are tucked inside the track and enclosed by guards.

Antiskid steps make getting up and down in muddy work boots a lot less "exciting."

Pins and bushings are precision machined, induction hardened, and sealed from abrasives.



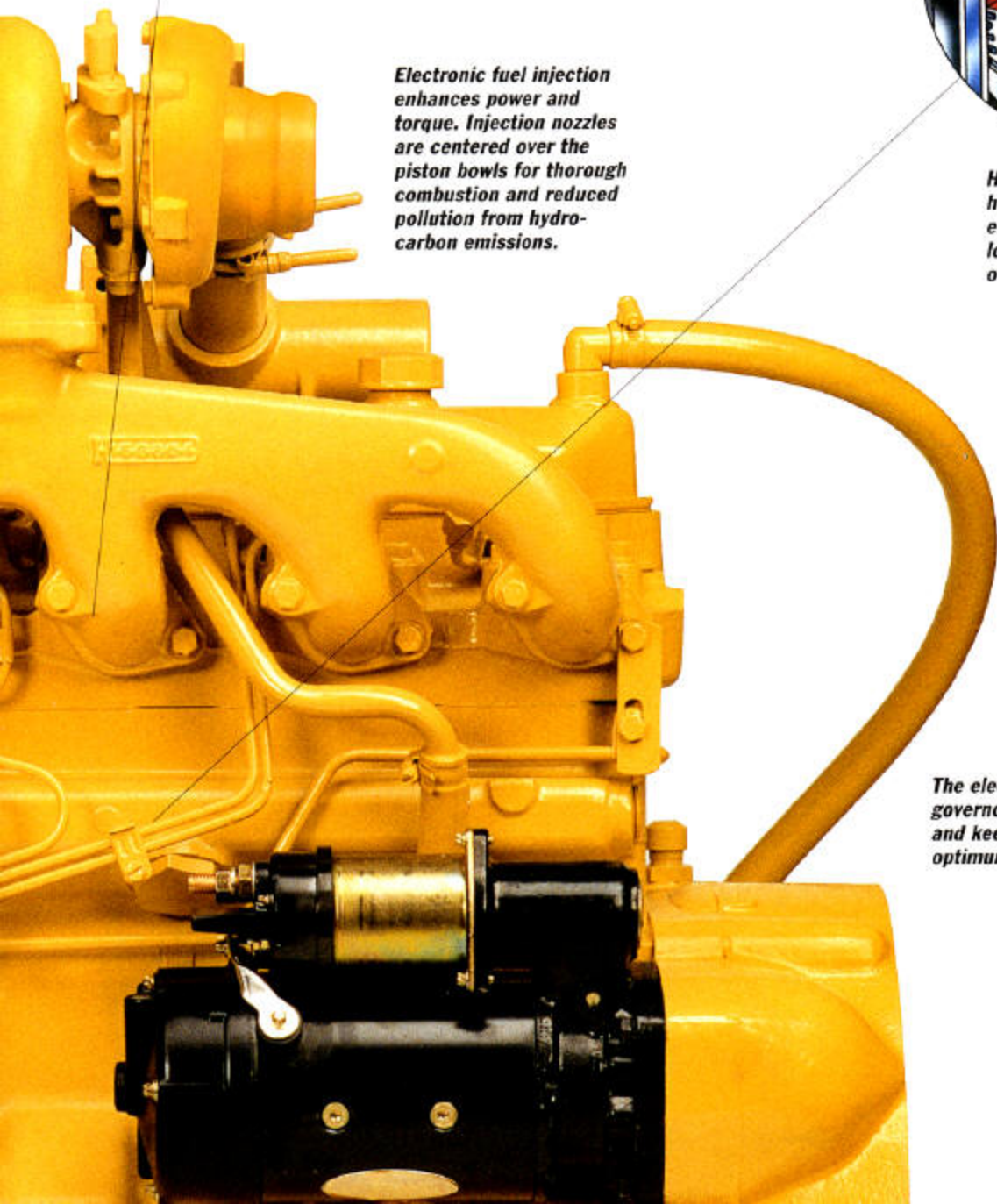
Free-breathing cross-flow cylinder head, specially shaped pistons, and contoured valves increase intake and exhaust flows for maximum power output and top fuel efficiency.



Wet-type, individually replaceable cylinder liners eliminate hot spots.

Electronic fuel injection enhances power and torque. Injection nozzles are centered over the piston bowls for thorough combustion and reduced pollution from hydrocarbon emissions.

High-ring pistons provide a high compression ratio and efficient combustion. Three low-friction rings deliver good oil control and fuel economy.




The electronically controlled governor enhances combustion and keeps engine rpm at optimum performance levels.

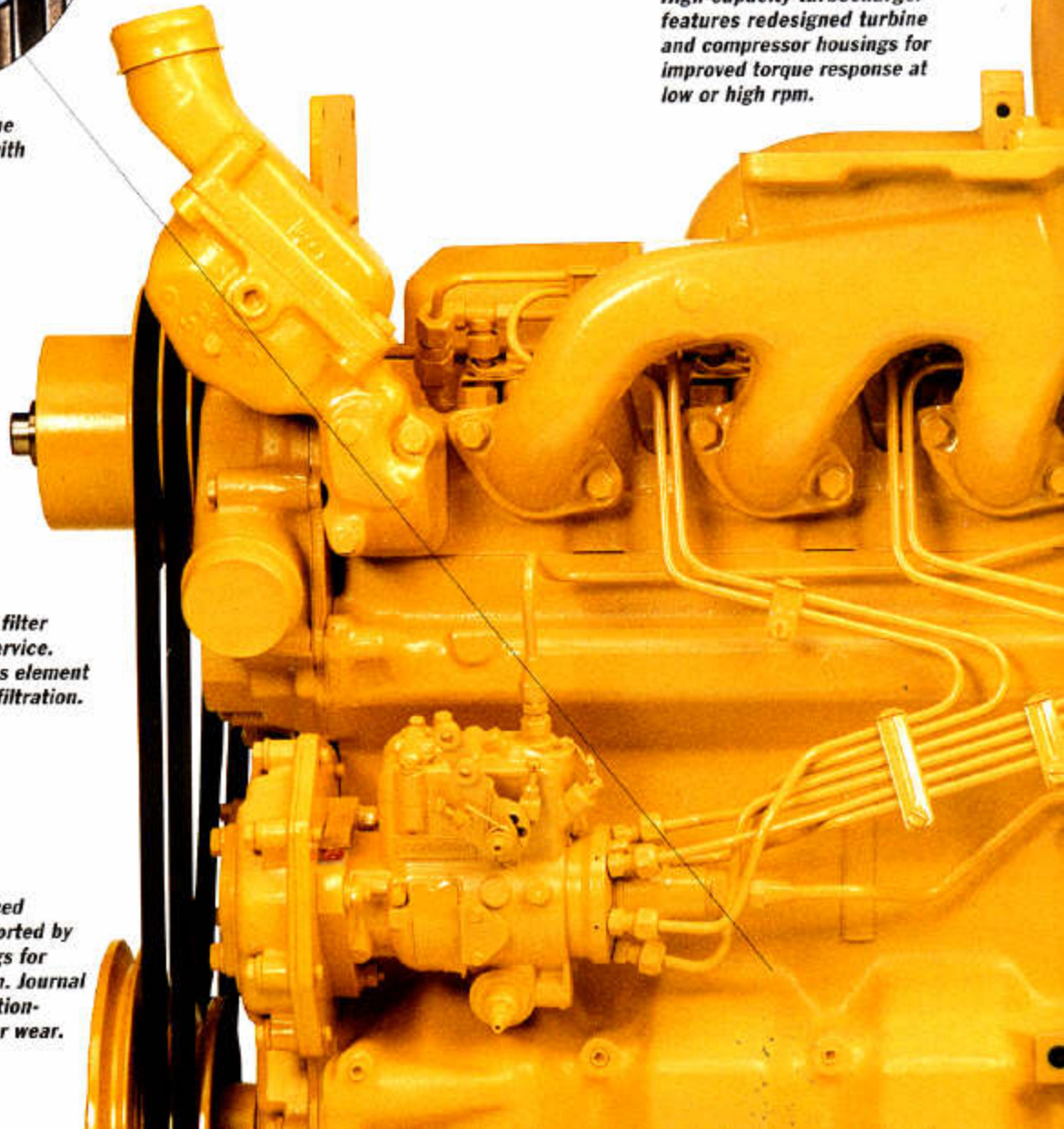
RAW POWER! ... (well, not exactly)

If ever an excavator deserved to be called "macho," it's the 690E LC. But it would be wrong to suggest that this machine is all brawn and no brains. John Deere diesel engines are designed and built with the most sophisticated technology in the business. In fact, they are the only engines in the industry to be dynamically tested throughout their entire speed range. Each engine is tuned to perfectly match the machine, so you get outstanding control and power at low rpm. And that's just one way the 690E LC says "YES!" to high productivity and "NO WAY!" to raw power.

High-capacity turbocharger features redesigned turbine and compressor housings for improved torque response at low or high rpm.



Jet-spray nozzles bathe the bottom sides of pistons with cooled oil for longer life.



Spin-on vertical oil filter allows mess-free service. High-retention glass element provides excellent filtration.

Dynamically balanced crankshaft is supported by seven main bearings for smoother operation. Journal surfaces are induction-hardened for longer wear.



Small hill for a climber

Back when the paper on the drafting table was still blank, the design team for the 690E LC shared a vision. They dreamed of a machine that could deliver a “full-court-press of productivity.” One whose performance would challenge the ability of the operator — not the other way around. Well, it wasn't easy, but the 690E LC is living proof that dreams do come true ...

When you set a lot of pipe, craning capability is critical. That's why the design team gave the 690E LC an unbeatable combination of balance and almost 15,000 pounds of lifting power. Plus, the power boost feature gives you an additional 10-second burst of power when work really gets to be a strain.

A drawbar pull of 40,300 pounds powers the 690E LC up steep slopes and is the reason why it's so maneuverable in soft ground. The 3-speed propel function automatically shifts up and down for different conditions and helps the 690E LC cruise around jobsites at a snappy 3.5 mph. A new package of hydraulic refinements improves speed, control, and fuel consumption.

Redesigned pilot control levers require 13 percent less effort and give you better control.

To save fuel, the auto-idle feature reduces speed to 1,300 rpm when a hydraulic function is not used for four seconds. The engine automatically resumes its preselected speed as soon as you move the control lever.



