

1963

CASE® *Utility*
BACKHOE-LOADER

**42 hp Model 310
Wheel Tractor**



"Matched" digging-loading combination cuts more trench, loads-out more yards per day than competitive-make rigs... yet costs less to own, less to operate and maintain



Manufactured and warranted by
J. I. CASE COMPANY
Utility Sales Division
Racine, Wisconsin, U.S.A.

1st in quality for over 100 years

CASE® 310 *Utility* Backhoe-Loader

beats any digger in its class...cuts



Perfect balance...key to higher output

Here is a "matched" digging-loading team that can save you big money on hundreds of trenching, excavating, and loading jobs. 42 hp Model 310 *Utility* is the *only* tractor-backhoe-loader combination designed and built as a single, perfectly-balanced unit for absolute top-notch performance of complete rig... tractor, front-end loader *and* rear-mounted backhoe.

Every hour, you dig more trench or load more yardage because just-right weight distribution gives you a solid, more stable vehicle for precise cutting, and for faster, safer operation in any terrain. High-torque power plant and big-capacity hydraulic system are properly sized for most efficient control of *both* tools.

The complete 310 *Utility* unit — tractor, loader, backhoe, even the engine — is all engineered, built, and fully warranted by J. I. Case Co. . . and sold thru just one marketing organization. As a result, the price is lower — value higher, dollar-for-dollar — than any competitive tractor with separately-manufactured attachments.

Cuts more trench per hour

Utility backhoe outperforms everything in its class because it has greater physical capabilities, and is faster, easier to operate. Case-built unit digs more "hole" from one position . . . cuts 12½' deep, reaches over 16' from the pivot, and loads heaped bucketfuls into trucks up to 10'7" high. Superior leverage teamed with big-diameter cylinders and 19 gpm hydraulic pump give you maximum breakaway force of 12,000 to 15,000 lbs. You change digging locations quickly — save climbing back and forth — because throttle and loader controls are accessible from the backhoe seat. Independently controlled, telescoping stabilizers provide an 8'2" wide stance . . . firm footing and balance for accurate cutting in any ground.

You make more dig-and-dump cycles per hour because smooth, uninterrupted 180° swing is *foot-operated*, leaving hands free to maneuver bucket and dipper stick while swinging. Left-right hydraulic foot controls are self-centering, with automatic "feathering" action for smooth starts and stops. Hand controls for crowd, lift, bucket and stabilizers may be "feathered" or applied full-power to give the exact flowing motion and speed you want.

Loads extra yards every day

You'll load-out more yardage, faster, steadier, with the Case-built loader. Available with a range of 6 buckets, 11 cu. ft. to 1 cu. yd., Model 310's husky loader frame and box-section arms hold bucket firm for crisp, straight-ahead digging. Unit gets heaped bucketfuls faster, because high-

*SAE rated

trenching-loading costs to rock bottom

torque characteristics of the 42 hp engine supply extra "muscle" just when you need it to pull thru tough going. Extra leverage and high-power hydraulics exert 3000 lbs. breakaway force. You load trucks quicker with less spill loss, less maneuvering, because bucket rolls back 13° at ground level... lifts 1500-lb. loads to clear 10'9¾" height... tilts forward 45° for clean dumping at full lift... reaches more than 2½' ahead of tractor... and lets you back-off without stopping to raise the bucket.

In addition to speedy digging, lifting, and dumping, you can also maneuver faster because tractor steer-turns in 10' radius, and has individual rear-wheel brakes for shorter pivot-turns. Transmission is easy to shift, and tractor quickly accelerates to top speed in any gear. Shuttle transmission (optional) lets you reverse direction with synchro-mesh one-motion shift... backs-up 24% faster than in same forward gear. Optional power-assist steering makes your job still easier... lets you turn with one finger, yet retains mechanical steering "feel". And it won't stray off-course in ruts or broken ground.

One man with Model 310 can handle 2 or more modest-size jobs in a day because the machine is completely self-mobile. Wheel brake pedals lock together for safe, over-the-road travel at speeds to 22.9 mph.

Works more hours per month ... costs less to maintain

Balanced, complete-unit design of 310 *Utility* Backhoe-Loader, plus the added advantage of undivided service responsibility, cuts your repair bills and keeps your "bread and butter" machine working more hours every month. Husky, wrap-around loader main-frame and

sturdy backhoe mount absorb shock and stress... put the load where it belongs... directly on the heavy-duty tractor axles. Power plant and drive-train are matched to all equipment demands. Day-to-day servicing is easier with standard lube fittings and just one simple check-out procedure. There are fewer parts to "go haywire" because there's no duplication, as is often the case with "hung-on" attachments. Your J. I. Case Dealer has direct-from-factory "know-how"... stocks parts for the *entire* rig at one location... and can handle *all* your service requirements at most reasonable cost.

12-month work tools cut hourly equipment cost

Optional *Utility* attachments increase the number and kinds of jobs you can handle... stretch-out your work season... keep your tractor busy full-time. Here is a *partial* list of equipment, ready for quick-mount to Model 310 Backhoe-Loader:

- Side and rear-mount sickle mowers
- Rear-mount rotary mower
- 3-point snap-lock Eagle Hitch, or conventional 3-point flexible hitch
- Agricultural implements
- 6' x 24" dozer blade
- Adjustable pallet fork
- 5' crane boom
- Logging fork
- Post hole digger
- Post driver
- 72" rotary sweeper
- All-purpose blade
- Scarifier-scraper
- Terra-Scoop
- Manure bucket
- All-weather cab
- 5000-lb. line-pull winch

Easy financing with skip-payment privilege

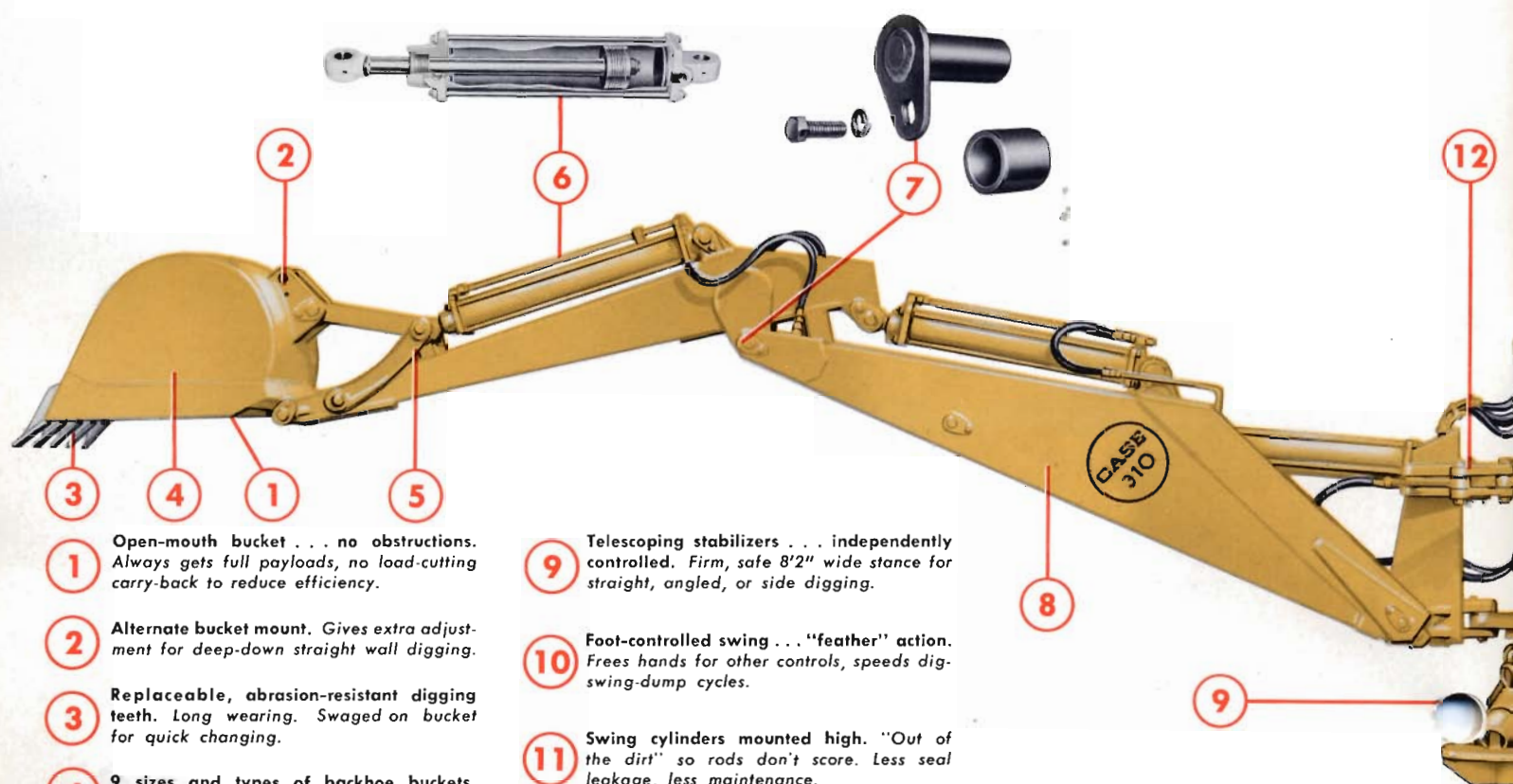
You can get a new, fully equipped Case 310 Backhoe-Loader on a straight lease basis, with only 10% advance rental payment. Or you can lease and retain option to buy — with or without trade-in — and let your lease payments build-up your equity. Or, you can trade-in your present equipment and purchase on liberal monthly terms. Only 5 days' work will support monthly installment payments after average down payment or trade-in. And you can elect skip-payments during 3 off-season months.

Your J. I. Case Dealer offers the best financial arrangement to suit either your pocket-book, your work season, or your tax situation.



35 reasons why the

CASE®



1 Open-mouth bucket . . . no obstructions. Always gets full payloads, no load-cutting carry-back to reduce efficiency.

2 Alternate bucket mount. Gives extra adjustment for deep-down straight wall digging.

3 Replaceable, abrasion-resistant digging teeth. Long wearing. Swaged on bucket for quick changing.

4 9 sizes and types of backhoe buckets. One just right for every purpose.

5 Positive knock-out and action "stops". Insures cleaner dump. Hydraulic cylinders don't "bottom", require less maintenance.

6 Easy-to-service hydraulic cylinders. Removable end-caps with exterior through-bolts. Hardened and chrome-plated rods, multiple chevron packing with self-locking nuts.

7 Stationary hardened pivot-pins . . . renewable bushings. Retain snug fit because pin only turns within bushing.

8 Deep box-section boom and dipper stick . . . welded-in gussets and castings at all strain points. Rugged, rigid, repair-free.

9 Telescoping stabilizers . . . independently controlled. Firm, safe 8'2" wide stance for straight, angled, or side digging.

10 Foot-controlled swing . . . "feather" action. Frees hands for other controls, speeds dig-swing-dump cycles.

11 Swing cylinders mounted high. "Out of the dirt" so rods don't score. Less seal leakage, less maintenance.

12 Mechanical, lever-arm swing linkage. Holds boom firm for accurate cutting . . . doesn't get "sloppy" like chains do.

13 6-spool control valve with individually replaceable spools and bodies. Saves you big money on repair bills.

14 4-bolt mounting. Backhoe easily removable in 10 minutes for using scarifier and other rear attachments. No pins to wear loose or break in the middle of a job.

15 High, comfortable backhoe seat. Full visibility at ALL times.

16 Throttle and loader controls within backhoe operator's reach. No time wasted climbing back and forth when moving backhoe ahead.

17 Choice of loader buckets. 11, 13, 15 cu. ft.; $\frac{3}{4}$, $\frac{1}{2}$, 1 cu. yd.* for all requirements.

18 13° rollback, 90° grading angle at ground; 45° dump, full lift. Easier heaping, smoother grading, cleaner dumping.

19 Box-section arms and cross-bracing, with gusset reinforcement. Rigid, rugged, no side "play" in tough digging.

20 Solid steel trunnion bar. Distributes stresses. Loader frame can't distort.

*SAE rated

9 backhoe buckets...6 loader buckets...to exactly fit your jobs



24"



30"



38"

BACKHOE BUCKETS

14", 16", 19", 24",
30" regular

16", 30"
bell-hole

38" grave
36" combination



13 cu. ft.



1 cu. yd.

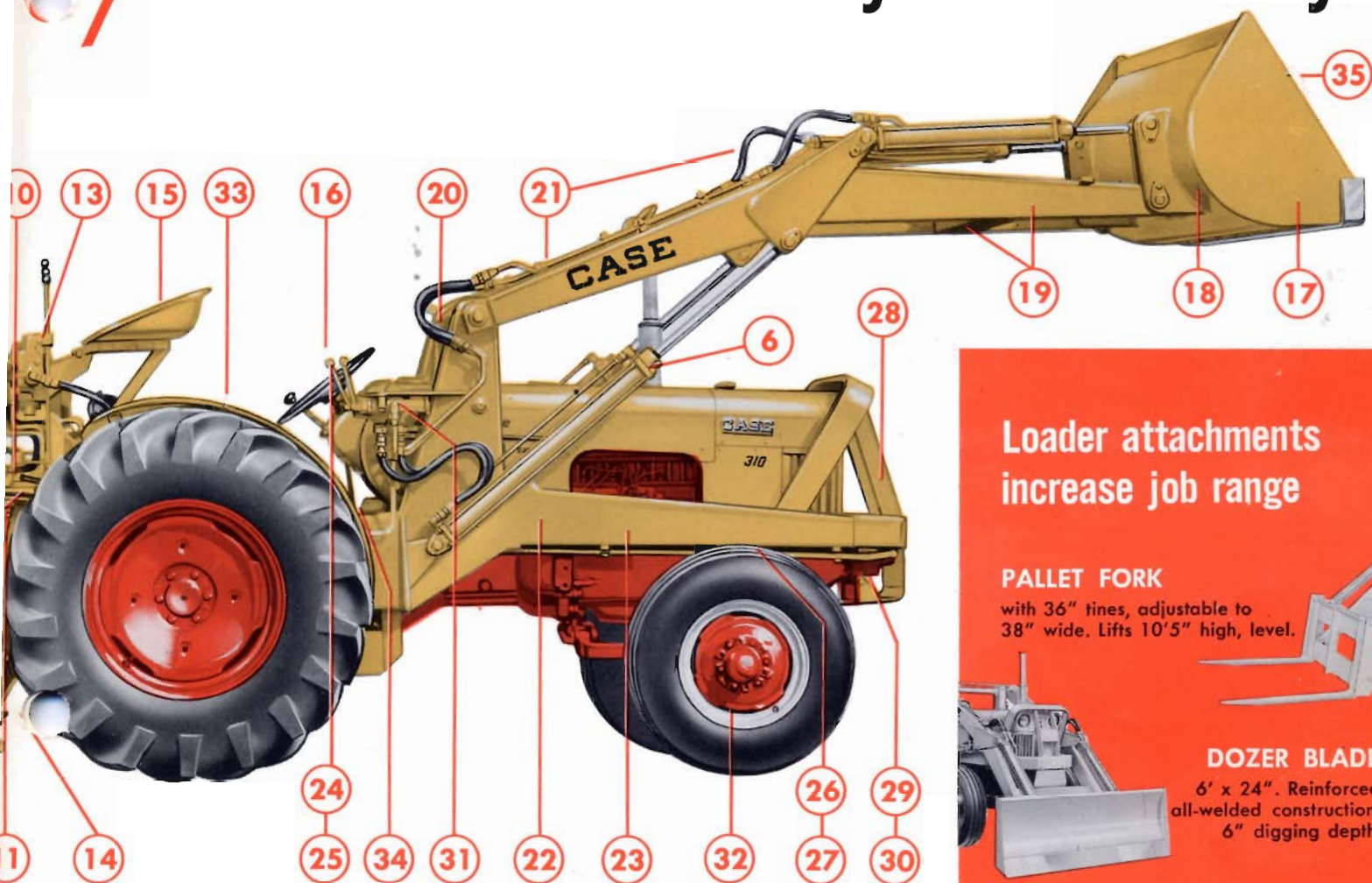
LOADER BUCKETS

11, 13, 15-cu. ft.*
digging

$\frac{3}{4}$, $\frac{1}{2}$ -cu. yd.* light material
1-cu. yd.* snow

Spill guards integral on $\frac{3}{4}$ & 1-cu. yd. buckets; optional on 11, 13-cu. ft. & $\frac{1}{2}$ -cu. yd. buckets.

City Backhoe-Loader is your best buy

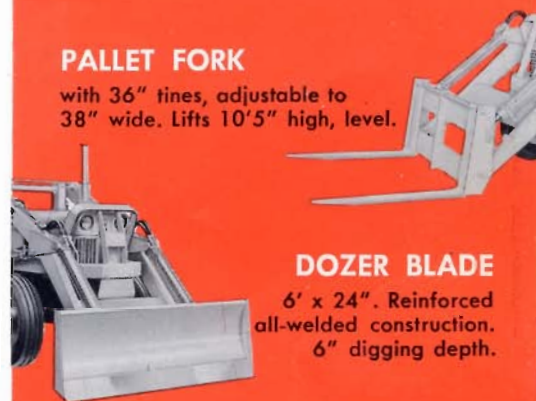


- 21** Seamless steel tubing and double steel wire-braid hose . . . minimum exposed hydraulic lines. Less lag in control, less accidental damage or leakage of fluid.
- 22** Heavy unit-welded loader main frame. Husky and strong. Distributes load to BOTH front and rear axles.
- 23** 11-gallon hydraulic reservoir in main frame. Big capacity, and large exposed surfaces for quick cooling.
- 24** 4 positive-hold control positions. Lift, lower, hold, and bucket "float" are standard.
- 25** Non-restrictive through-flow valves. Always gives full power to backhoe and loader.
- 26** 6-bolt mounting. Loader can be removed in 10 minutes. No loose and "sloppy" pins.
- 27** Frame mounted for over-the-axle weight bearing. No strain on engine and drive. Bolted to main front casting of tractor.
- 28** Husky industrial bumper. Sure protection for hydraulic pump, radiator, grill, and built-in headlights.
- 29** 19 gpm hydraulic pump serves both backhoe and loader. Big capacity for fast action, one pump for less "trouble", expense.
- 30** Direct in-line hydraulic pump mounting with flexible couplings. Long pump life, less downtime. Bolts directly to main front casting of tractor.
- 31** Full-flow hydraulic oil filter . . . 100 mesh cleanable and replaceable cartridge. Keeps dirt particles from fouling control valves.
- 32** One-piece drop-forged axle, forged spindles . . . virtually unbreakable. See page 7.
- 33** Rubber-suspension-mounted, adjustable, safety seat. Adjusts forward and back, up and down. Tilts rear-up for stand-up operation. Smooth and rounded for operator comfort and safety.
- 34** Foot throttle, standard. Over-rides hand throttle setting for extra surge of power when you need it. Ideal for variable-speed work. Safest on the highway.
- 35** Optional loader attachments . . . bulldozer, pallet fork, logging fork, crane boom, manure bucket. See right.

Loader attachments increase job range

PALLET FORK

with 36" tines, adjustable to 38" wide. Lifts 10'5" high, level.



DOZER BLADE

6' x 24". Reinforced all-welded construction. 6" digging depth.



LOGGING FORK

adjustable 36" wide. Lifts 11'2" high; dumps 18° with 53" reach, clears 8'8" after dump.



CRANE BOOM

lifts 12' high at 5'4" ahead of tractor. Heavy-gauge steel tube and bar construction.



MANURE BUCKET

46" wide, has 26" tines. Plate bolts on for dirt and materials.



CASE® 310 *Utility* Tractor

outworks, outlasts any other unit in



You get extra workpower in 310 *Utility* Backhoe-Loader because high-output digging tools are integrated with the top-performing tractor in its class. Precisely-engineered, heavy-duty Model 310 develops over 30 drawbar horsepower, gives you brawn and stamina for steady production at maximum work speed.

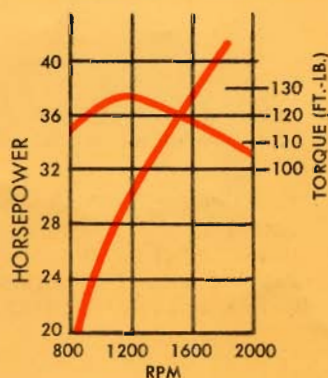
Smooth-running, high-torque engine boosts output... cuts operating costs

Spectacular lugging power, low fuel consumption, and long, trouble-free life are built into the 42 hp, 4 cylinder, Case *Powr-Torq* gasoline engine. This 148-cu. in., valve-in-head, 4-cycle engine develops maximum power at 1900 rpm, peak torque (128 ft.-lbs.) at 1200 rpm... gives you extra pull and push-power just when you need it most, to carry thru tough spots.

High compression ratio plus high-turbulence combustion chamber get maximum

work from every drop of fuel. Intake manifold delivers equal fuel-air charge to all cylinders; large exhaust porting quickly carries off spent gases... with flow thru cylinders for maximum cooling of spark plugs and valves. Rotators on exhaust valves, keep seats snug for full delivery of power. And bypass (radiator and thermostat) cooling system speeds warm-up, maintains cylinder temperatures for peak fuel economy. 12-volt electric system makes starting easy, even in coldest weather.

"Balance" is a key factor. Engine main-bearing seats and caps are machined at one time for perfect crankshaft alignment. The massive, stress-relieved and hardened, forged crankshaft is dynamically and statically balanced. Forged connecting rods, aluminum-alloy pistons, and wet-type replaceable cylinder liners are matched in weight and size to balance forces and pressures within the engine. A gear-type oil pump with floating intake screen supplies clean oil *under pressure* to all main, connecting-rod, camshaft, and valve-lifter bearings.



No-grab, long-wearing clutch speeds cycles, cuts maintenance

You get smooth clutching and de-clutching for almost-continuous gear or direction changes with 9 1/4" dia. single dry-disc clutch, faced with ferrometallic-type lining. This quick heat-dissipating material is applied over the entire surface of friction disc — not just small "buttons" — outlasts ordinary automotive clutch lining about 8 to 1.



the low-price field

The engine in Model 310 is protected 7 ways against dirt. Screw-in type renewable filter cleans the lube oil. A big oil-bath cleaner removes dust from intake air. Fuel is strained. Special seals at front and rear of crankshaft exclude dirt; and there's even protection on the governor shaft and oil dip-stick. The extra care that goes into design and manufacture of a Case-built engine saves you money from the first day of operation.

Extra-sensitive governor lets you "hang into the load"

Model 310 "takes" changing loads with hardly noticeable change in engine rpm. A super-sensitive, *patented*, centrifugal, fly-weight governor is built into camshaft gear. Governor makes lightning-fast adjustments of carburetor setting thru linkage mounted in anti-friction needle bearings... keeps you working within just a few rpm's of the throttle setting, up to full load.

100% anti-friction power-train delivers more "push" to wheels

Model 310 delivers a bigger percentage of developed horsepower to propelling wheels because all gears, shafts, and axles—from engine to ground—are mounted on needle-, roller-, and ball-bearings. Very little horsepower is lost as friction. You get more thrust for tough cutting, for working faster... and fuel cost per job is lower. Long bearing life cuts maintenance expense and downtime.

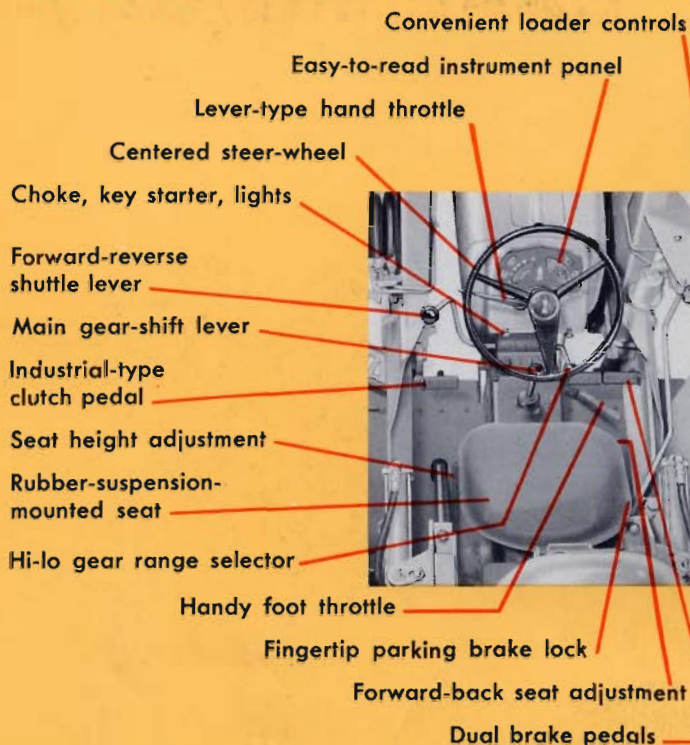
All gears in transmission, differential, and final drive are carburized and hardened for maximum strength and durability. Gear teeth are crown shaved for easy shifting, quiet operation, and extra-long tooth life. Spur-type gears are used throughout, except differential where spiral bevel gears are employed. Final drive gears are *splined* to big 2¼" dia. rear axles. Individual rear-wheel brakes are located on differential shafts, *ahead* of final reduction and axles... where torque load is *lowest*.

Choice of 3 transmissions to suit YOUR type of operation

Standard transmission affords 4 speeds forward, 1 reverse. Most economical for varied service where backhoe work predominates, and loader usually handles light digging or free-running materials. 91.6:1 reduction in low gear.

Shuttle transmission (optional) offers 8 forward speeds, 8 reverse... with synchronized, one-motion, left-hand-operated forward-reverse shift... and with *reverse speeds 24% faster* than in same forward gear. Ideal for general service where extended periods of fast-cycle continuous loading are anticipated; where quick, on-the-job moves

SOLID COCKPIT COMFORT



Heavy, drop-forged front axle ... VIRTUALLY UNBREAKABLE!

Model 310 eliminates axle failure as a cause of downtime and repair expense. The Case axle is a husky, one-piece, forged steel axle, with heavy fork-type drop-forged steering spindles pivoted on large diameter pins. It's almost impossible to break, even with heavy overload in broken ground. Axle oscillates 12° above and below horizontal on big 1⅞" dia. hardened steel pin... keeps full power and traction at work thru rough terrain, yet protects engine and drive from stress.

Power-steering with positive-direction control

Utility power-assist steering (optional) lets you turn your fully-loaded tractor with one-finger pressure... yet retains the ground "feel" of mechanical steering. It employs a basic cam and lever arm steering system, but adds a double-acting hydraulic cylinder to do the work. A slight turn of the wheel opens an axle mounted valve. This applies pressure to steering spindles at speed proportionate to the turn-rate demanded... and halts action when steering wheel is stopped. Model 310 maintains true course... won't stray in heavy ruts or broken ground.

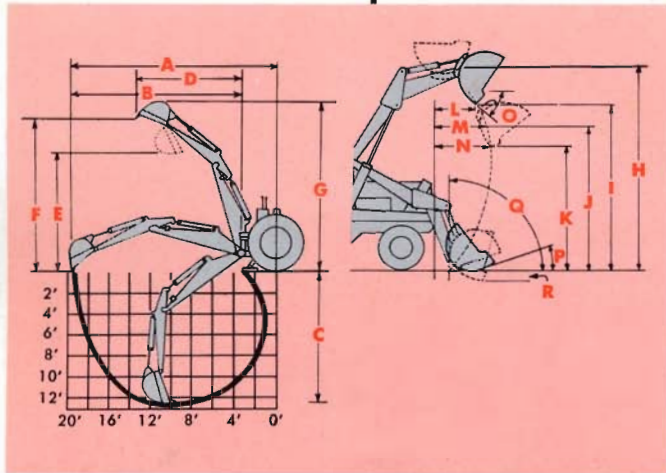


save cost; where good loader digging power is required. 138:1 reduction in lowest gear.

Tripl-Range transmission (optional) provides 12 speeds forward, 3 reverse... 5 standard gear-ratios *plus* step-down reduction *and* overdrive in each gear... for applying full horsepower at any speed in all conditions. 138:1 reduction in lowest gear.

GENERAL SPECIFICATIONS

Model 310 *Utility* BACKHOE- LOADER



A	B	C	D	E	F	G	H	I
18'7"	16'2"	12'	9'10"	10'7"	15'0"	15'6"	10'9 3/4"	9'1 1/2"
J	K	L	M	N	O	P	Q	R
8'	7'	17"	25 3/4"	30 1/4"	45°	13°	90°	4"

BACKHOE OPERATING DATA

Buckets available, width..... 14", 16", 19", 24", 30";
16" and 30" bell-hole; 38"
grave; 36" comb. b-h and gr.

Swing arc, uninterrupted.....180°

Stabilizer spread, ground level.....8'2"

Vertical cut on max. grade of.....10°

LOADER OPERATING DATA

Buckets, cu. ft.

SAE rated capacity.....	11	13	15	18	21	27
SAE struck capacity.....	9	11	12	15	17	23
width.....	47 3/8"	56 1/8"	63 3/8"	63 3/8"	79 3/8"	79 3/8"

Lift capacity to full height.....1500 lbs.

Maximum breakaway (to 12").....3000 lbs.

Cycle: lift.....6 1/2 sec.

dump.....4 sec.

lower.....4 sec.

DIMENSIONS AND WEIGHT

Width, overall (travel pos.).....79"

Height, overall (travel pos.).....11'7"

Height, tractor only.....58"

Length, overall (travel pos.).....21'4"

Tread, front.....47 1/2"

rear.....64 1/4"

Tires, front, std.....7.50-16, 6 ply

rear.....13-24, 6 ply

Wheelbase.....75 1/4"

Ground clearance.....12"

Weight, approx.....7600 lbs.

ENGINE

Make and model.....Case G-148

Fuel.....Gasoline

Gross engine flywheel horsepower @ 1900 rpm.....42*

Drawbar horsepower.....30.92*

Torque, maximum, ft.-lbs.....128 @ 1200 rpm

Cylinders, no. (valve-in-head).....4

Bore and stroke.....3 3/8" x 4 1/8"

Displacement (cu. in.).....148

Compression ratio.....7.25 to 1

Main bearings, steel-backed (3).....2 1/4" dia. x 1 3/4"

Crankpin bearings, steel-backed (4).....2" dia. x 1 1/8"

Ignition.....Coil and dist.

Starting.....12-volt electric

Carburetor.....Up-draft

Fuel supply.....Gravity

Air cleaner.....Oil bath

Oil filter, bypass type.....Renewable screw-in cartridge

Governor.....Mechanical fly weight

Lubrication.....Positive pressure

Cooling system, type.....Pressurized, 4 lb. capacity

pump.....Vane, perm. lub. brng.

*Sea level (calculated) max. hp (based on 60° F. and 29.92" Hg.).
Manufacturer's rating. Nebraska test not yet available.

FUEL TANK, capacity.....13 gal.

POWER TRAIN

Clutch, friction, single dry disc, ferrometallic.....9 1/4" dia.

Transmission.....Sliding spur gear

Travel speeds:	Standard transmission	Optional shuttle transmission	Optional Tripl-Range transmission
Forward, mph	(4) 2.8 to 13.4	(8) 1.7 to 18.3	(12) 1.5 to 22.9
Reverse, mph	(1) 3.3	(8) 2.1 to 22.8	(3) 1.9 to 5.4

BRAKES, foot, double-disc, individual rear wheel,
lock-together for travel, parking lock.....6" dia.

STEERING

Type, standard.....Cam and lever gear

optional.....Power-assist

Turn radius, steered.....10'

HYDRAULIC SYSTEM

Backhoe cylinders, double-acting; chrome-plated rods:

Boom.....(1) 3 1/2" x 35", 1 3/4" rod

Crowd.....(1) 4" x 26 1/8", 2" rod

Bucket.....(1) 3 1/2" x 27 1/4", 1 3/4" rod

Swing.....(2) 2 1/2" x 16 1/2", 1 1/4" rod

Stabilizers.....(2) 3" x 9", 1 1/2" rod

Loader cylinders, double-acting; chrome-plated rods:

Lift.....(2) 2 1/2" x 31 1/4", 1 1/2" rod

Bucket.....(2) 2 1/2" x 20 1/8", 1 1/4" rod

Cylinder design and packing: Easy-to-service with removable end-caps securely joined by four high-strength through bolts. Hardened and chrome-plated rods equipped with multiple chevron packing and self-locking nuts to prevent leaks.

Reservoir: Built into loader frame. 11 gal. capacity. Has full-flow oil filter.

Controls: Four-position double-spool valve with positive-hold "float" position; built-in relief; mounted for right-hand operation of loader. Heavy-duty 6-spool valve with individually replaceable spools and bodies provide precise operation of backhoe boom, crowd, bucket, and stabilizer cylinders. Foot pedals control backhoe swing with feathered action and cushioned stops. Primary relief setting at 1600 psi.

Pump: Tractor-mounted, direct drive with Morflex coupling, gear-type, 19 gpm capacity @ 1900 rpm.

Hydraulic lines: Steel tubing with brazed fittings, and double wire-braid high-pressure hose with swaged fittings.

STANDARD EQUIPMENT: Upright muffler, anti-freeze solution, grille guard, radiator grille screen assembly, 2 headlights, heat indicator gauge, ammeter, fuel gauge, oil pressure gauge, engine speed indicator, hour meter, speedometer, swinging drawbar, large safety platform and rear fenders, easy-ride push-back safety seat, tool box, foot throttle, Model 31 backhoe less bucket, Model 31 loader less bucket.

OPTIONAL TRACTOR EQUIPMENT: 900-lb. cast rear counterweight, weight box, Eagle Hitch, 3-point hitch, shuttle transmission, Tripl-Range transmission, industrial tread tires, PTO, power steering, all-weather cab, auxiliary hydraulics, cigarette lighter, flashing warning signal.

OPTIONAL LOADER EQUIPMENT: Buckets (see operating data), bucket spill guard, crane boom, sweeper, dozer blade, log fork, pallet fork, manure fork, dirt plate for manure fork.

OPTIONAL BACKHOE EQUIPMENT: Buckets (see operating data).

OTHER OPTIONAL EQUIPMENT: Hydraulic and mechanical side-mounted mowers, rear-mounted mechanical mower, 5' rear-mounted rotary mower, all-purpose blade, scarifier-scraper, Terra-Scoop, Case agricultural implements, 5-ton capacity tilt trailer.

IMPORTANT: J. I. Case Co. reserves the right to change these specifications without notice and without incurring any obligations relating to such changes.

Sold and Serviced by: