

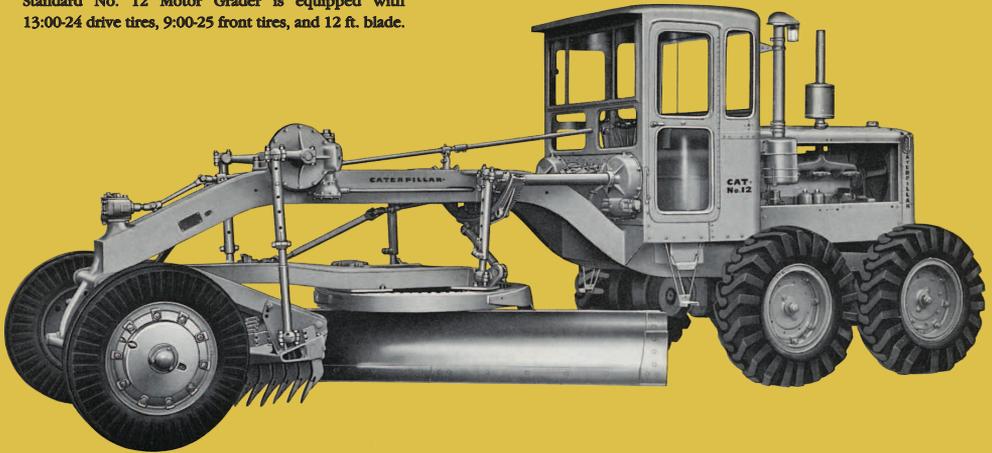
115 Horsepower

Tandem drive

**CATERPILLAR**

**No. 12**  
MOTOR GRADER

Standard No. 12 Motor Grader is equipped with 13:00-24 drive tires, 9:00-25 front tires, and 12 ft. blade.



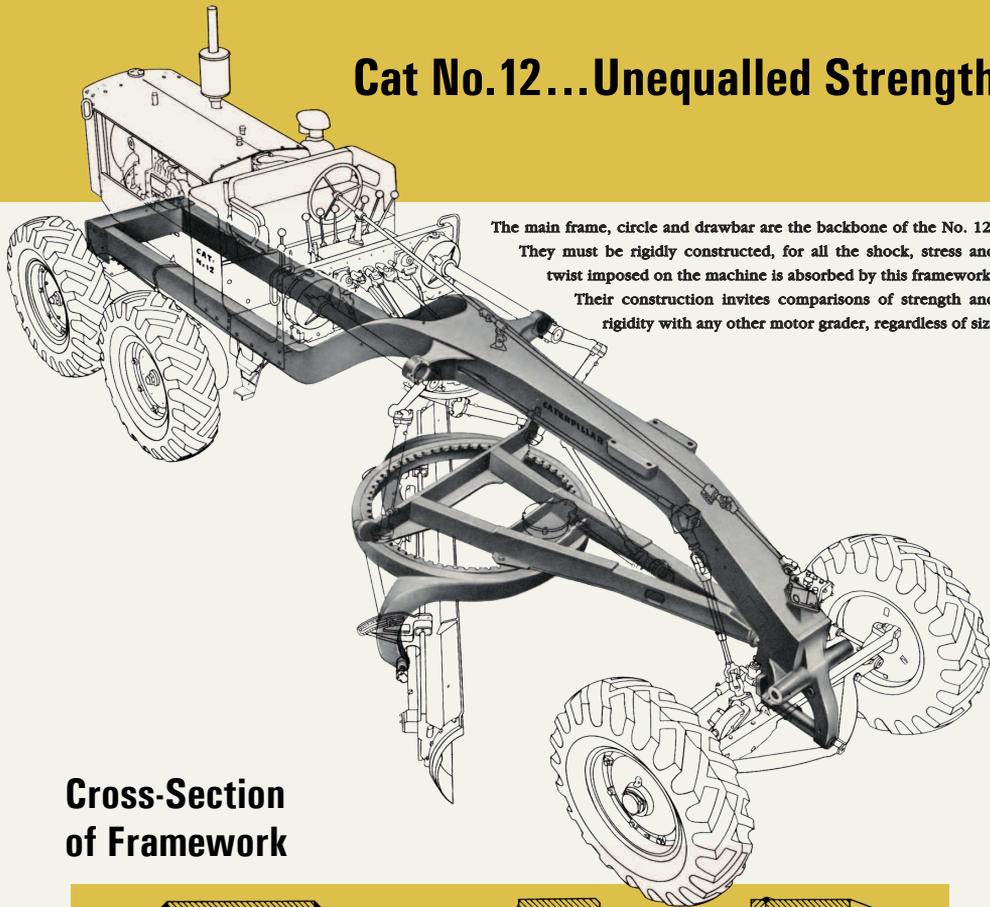
Cab, hot water heater, windshield wiper and defroster available at extra cost.

Mechanically operated scarifier, "V" type or straight, available at extra cost.



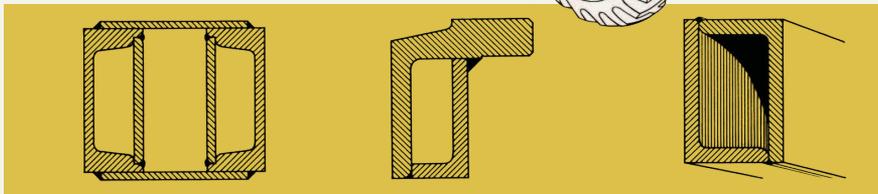
Hydraulic steering booster and large front tires available at extra cost.

# Cat No.12...Unequaled Strength



The main frame, circle and drawbar are the backbone of the No. 12. They must be rigidly constructed, for all the shock, stress and twist imposed on the machine is absorbed by this framework. Their construction invites comparisons of strength and rigidity with any other motor grader, regardless of size.

## Cross-Section of Framework



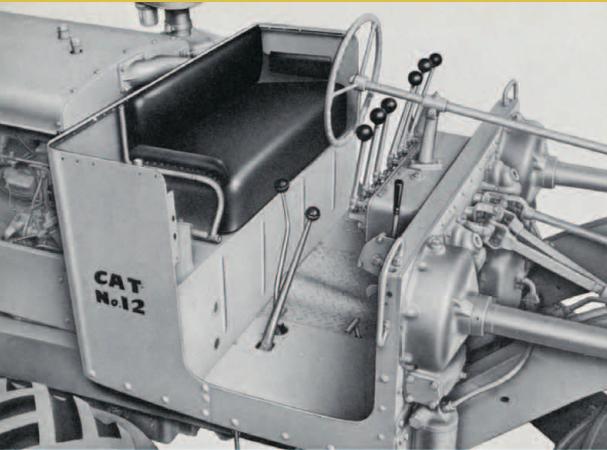
**FRAME**—the main frame of the No. 12 is made from special channels designed to put strength where it is needed. Reinforcement is then added to complete the exclusive triple-box section frame. It is also long enough to allow blade clearance for all positions when machine is equipped with large 14.00-24 front tires.

**CIRCLE**—the special angle used in the No. 12 circle gives more tooth surface. The circle is boxed for rigidity and machined for close fit to the driving pinion.

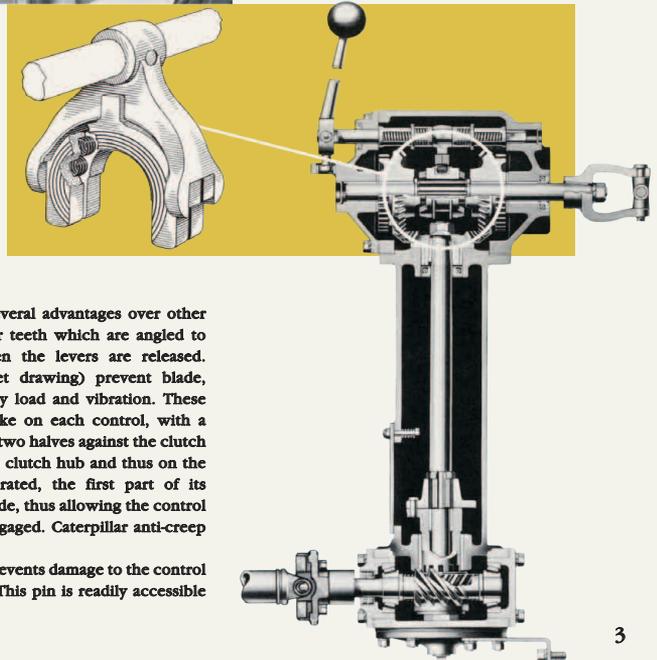
**DRAWBAR**—the double-section draw bar gives widely-spaced four point mounting to the circle and blade. The sections of the drawbar are boxed for added resistance to shock and twist.

# Unequaled Control

## with Fast, Reliable Mechanical Controls



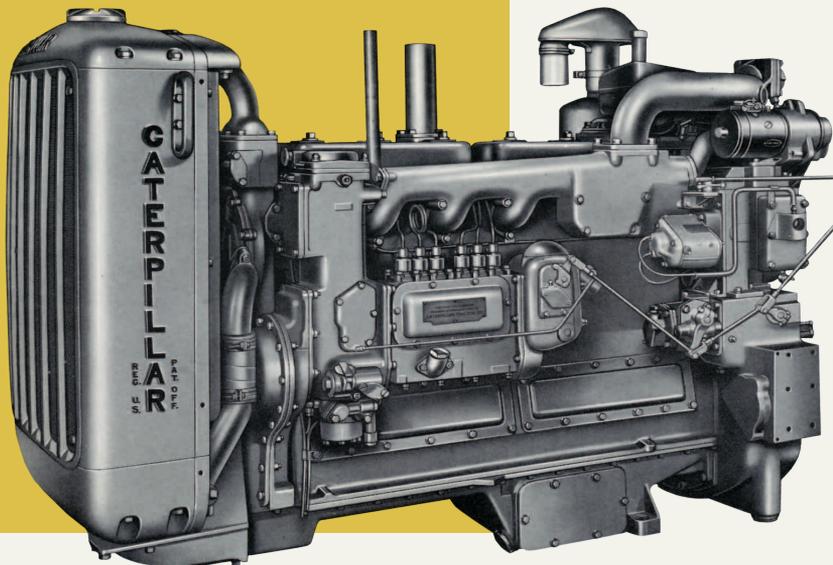
Caterpillar mechanical power controls give range and speed to blade movements not found in any other type of control. As well as increasing versatility, these controls help the operator get the job done more quickly and economically. Powered directly from the engine for positive action, Cat mechanical controls are simple in design and give dependable service without day-to-day maintenance.



### Precision-Built Power Control Box

The No. 12 power control box offers several advantages over other controls. The control clutches have four teeth which are angled to engage easily, yet "kick out" fast when the levers are released. Anti-creep brakes (detailed in the inset drawing) prevent blade, scarifier and wheel lean creep caused by load and vibration. These brakes consist of a two-piece clutch yoke on each control, with a number of small coil springs pressing the two halves against the clutch hub. This pressure acts as a brake on the clutch hub and thus on the entire linkage. When a control is operated, the first part of its movement relieves the pressure on one side, thus allowing the control shaft to turn freely when its clutch is engaged. Caterpillar anti-creep brakes do not require any adjustment.

A shear pin in the vertical drive shaft prevents damage to the control mechanism in case of a heavy overload. This pin is readily accessible and can be replaced easily from the cab.



## Under the Hood...Dependable Cat Diesel Engine

Powering the No. 12 is the 115 HP Caterpillar-built D318 Diesel Engine—a valve-in-head, 4 stroke cycle, 6 cylinder, 4½" bore and 5½" stroke engine. It's noted for its ability to lug hard and give trouble-free operation. Many other important features contribute to the day after day high production experienced by No. 12 owners.

### Positive In-Seat Starting Systems

Two types of starting systems are available, and both feature in-cab, push-button starting. They are direct electric or gasoline starting engine. The direct electric system, with 24-volt motor, utilizes an ether starting aid arrangement and glow plugs to preheat the precombustion chambers, assuring faster starts. The gasoline engine with 6-volt cranking motor will crank the diesel as long as necessary. This system "preconditions" the diesel engine by warming and lubricating it before starting.

### Adjustment-Free Fuel System

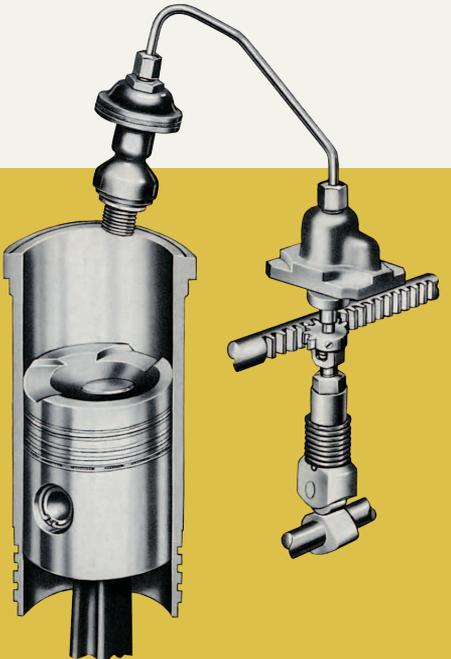
The No. 12's engine utilizes the efficient Cat fuel system with identical component parts for every cylinder—replaceable without adjustments. For example, the capsule-type injection valves are individually replaceable without retiming or "balancing." This inexpensive valve gives long service because of its comparatively large, single orifice which resists formation of carbon deposits that hamper efficiency of fuel injection.

Caterpillar Engines have the inherently designed ability to burn a wide variety of fuels, including No.2 commercial burner oil. The precombustion chambers vaporize the fuel before it enters the cylinders. Such preconditioning allows the engine to burn non-premium diesel fuels with outstanding performance.

## Examples of Durability

The D318 Engine has special *Aluminum Alloy Pistons*—each with a cast-in iron band (shown in color) grooved for the top compression ring. This gives rigid support and a wear resistant surface where ring and groove stress is greatest. For controlled, efficient heat dissipation, the piston crown is cooled by a stream of oil. Each of these extra features extends engine life and performance.

Water-jacketed Cylinder Liners have full-length cooling without "hot spots." Every liner is "Hi-Electro" hardened to provide a hard wear surface (shown in color) while the rest of the liner retains its tough physical properties. All liners are etched to leave a porous surface on the liner walls. This retains lube oil, assures superior break-in. Thus, an "oil lap fit" between liners and rings is achieved.



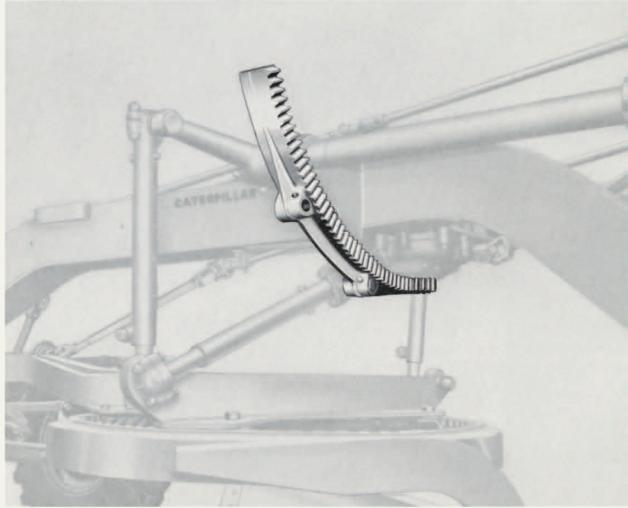
## Final Test—for Rated Performance

Caterpillar Engines give *rated performance* long after the warranty period expires. To assure such performance from the very beginning, the quality of every engine is carefully controlled. When assembled, it is given a final inspection in the test cell. Here, the engine gets a complete break-in and all final adjustments. The horsepower rating is *verified by full load dynamometer tests*.

# Blade Positions—Quickly, Accurately For High Production

## Superior Side Shift Rack

The "secret" in the superiority of blade range of Cat Motor Graders lies in the long radius, curved side shift rack. Not only does this give the No. 12 a full range of blade movement, but it makes any position easy to obtain quickly. The rack also allows the use of a low frame which contributes to good stability and visibility for greater production.



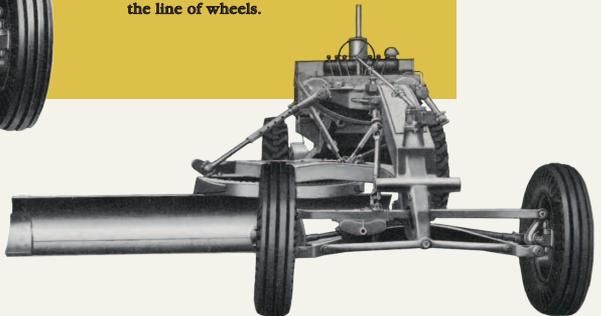
## Extra Long Reach

### Extreme Bank Cut

With simple adjustments to the telescoping links and blade offset, this 90° angle with the standard 12-foot blade is possible.

### Maximum Side Reach

These same adjustments will also produce a side reach of 7' 4" outside the line of wheels.



### WEIGHT:

Shipping (approx.)	22,410 lb.
Weight on front wheels	6,380 lb.
Weight on rear wheels	16,030 lb.

### DIMENSIONS:

Length	25' 2"
Width	7' 9 3/4"
Height, with cab	9' 10"
Height, without cab (top of steering wheel)	7' 5 1/2"
Wheelbase	18' 9 3/4"
Tread, front	6' 8"
Tread, rear	6' 7 1/4"
Distance between center of tandem wheels	4' 7 15/16"
Turning radius, outside of front tire	35' 8"

### SPEEDS (at rated RPM)

	Rev.	Rev.
Gear	1st	2nd 3rd 4th 5th 6th Low High
MPH	2.3	3.6 5.5 8.5 12.0 19.3 4.0 6.3

(Lower speeds available by throttle control.)

### TRANSMISSION

Constant mesh

### CLUTCH, Oil

Double disc

### CONTROLS

Power, mechanical

### STEERING

Standard	Manual
Optional	Hydraulic booster

### BLADE ASSEMBLY:

Blade	12' x 24" x 3/4"
Blade base (center line of front wheels to center of cutting edge)	8' 2"
Blade beams	5 1/2" x 1 1/4"
Blade reinforcing	Special box section

### BLADE RANGE:

Lift above ground (9.0 x 24 tires)	16"
Circle Side Shift	36" R. or L.
Pitch positions, number	15
Maximum bank cutting angle	90°
Maximum shoulder reach (measured outside rear wheels)	7' 4"

### LIFTING MECHANISM:

Type	Worm and gear
Lifting speed, inches per second	3
Material, worm/gear	Steel/Aluminum
Lifting shaft diameter	3 3/4"
Lifting shaft bearings (self-aligning)	Bronze
Lifting crank material	Steel forging
Lifting link diameter, tube, OxDxID	2 3/4" x 1 1/2"
Lifting link construction	Telescoping
Link, crank connections	Ball and socket
Adjustments for wear	Split bearings—shims

### CIRCLE:

Diameter	5' 1/4"
Section, structural steel	Special box section
Circle center to front axle	7' 8"
Circle reverse, power operated	360°

### DRAWBAR:

Welded structural steel	
A-shape box section	5 1/2" x 3 1/2" x 1/2"
Draft connections	Ball and socket

### FRAME:

Special section, all-welded unit	9 3/8" x 11"
Weight, lb. per foot:	
Minimum section	116.2
Maximum section	151.4
Clearance, above ground (9.00 x 25 tires)	4' 7 3/4"

### OPERATOR'S PLATFORM:

Size	27" x 58"
Height, above ground	3' 10 3/4"

### AXEL, FRONT:

Type	Arched, leaning wheel
Spindles, diameter at bearings	2 3/4" and 1 3/4"
Ground clearance (9.0 x 25 tires)	19 3/4"
(13.0 x 24 tires)	21 7/8"
Spindle material	Forged—heat-treated alloy steel

### AXEL, REAR:

Construction	Rigid
Material	Forged—heat-treated alloy steel
Diameter, at bearings	4 1/2"
Wheel axle, diameter at bearings	3 3/16" and 2 7/8"
Axle bearings, type	Tapered roller

### TANDEM DRIVE HOUSINGS:

Section, welded unit	18 1/4" x 7 7/8"
Wall thickness	3/8"
Drive chain—roller pitch	2"

### WHEELS, FRONT:

Bearings, type	Tapered roller
Tires, tubeless:	
Standard (rib tread)	9.0-25
Optional (lug tread)	13.0-24
Tire rims	Demountable

### WHEELS, REAR:

Bearings, type	Tapered roller
Tires, tubeless	13.0-24 12 ply
Tire rims	Demountable
Brake diameter x width	17" x 4"

### LUBRICATION:

Pressure type fittings

### ENGINE: DIESEL, FOUR STROKE CYCLE

Horsepower: Rated at sea level	115
Number of cylinders	6
Bore and stroke	4 1/2" x 5 1/2"
Piston displacement, cu. in.	525
RPM, governed at full load	1,800
NACC horsepower rating for U.S.A. tax purposes	48.6
Lubrication	Full pressure type

### CAPACITIES:

Fuel tank, U. S. gal.	60
Cooling system, U. S. gal.	14 1/2
Crankcase, quarts (includes clutch)	26
Transmission, quarts	58
Tandem drive housing, quarts each	24

**FUEL:** Burns No. 2 Fuel Oil (ASTM Specification D396-48T), often called No. 2 furnace or burner oil, with a minimum cetane rating of 35. Expensive, premium-quality Diesel Fuel may be used but is not required.

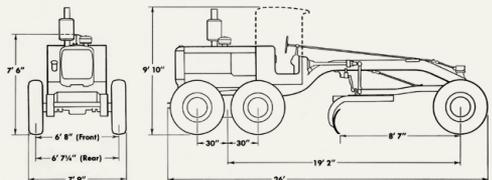
### STARTING METHODS: (Optional):

Gasoline starting engine with 6-volt electric starting motor.

24-volt starting motor for direct electric starting of diesel. Includes glow plugs for preheating of pre-combustion chambers.

All starting controls in operator's compartment adjacent to seat.

Large front tires and/or steering booster available at extra cost



CATERPILLAR TRACTOR CO.  
PEORIA, ILLINOIS, U. S. A.

**CATERPILLAR\***

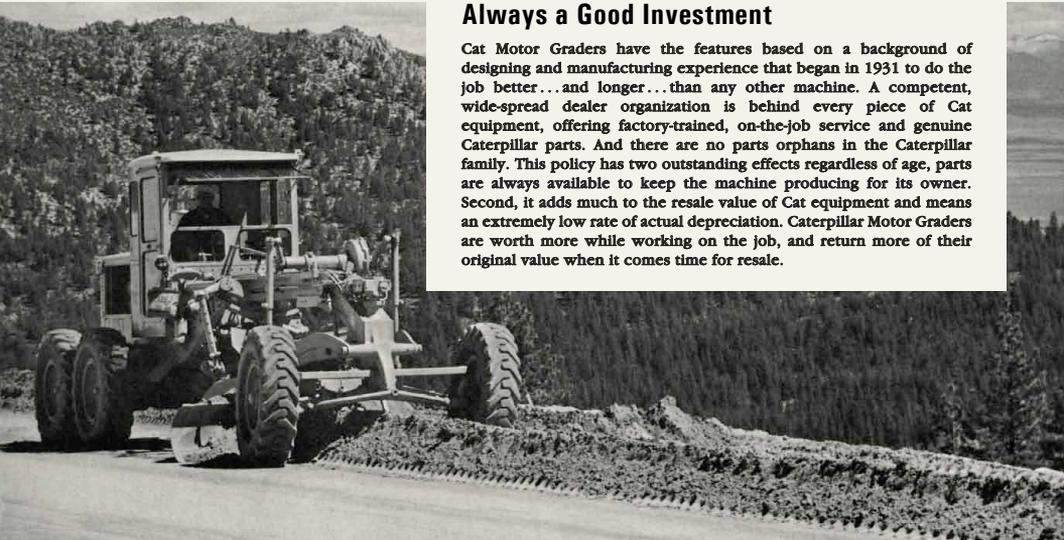
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## No.12 MOTOR GRADER



### Always a Good Investment

Cat Motor Graders have the features based on a background of designing and manufacturing experience that began in 1931 to do the job better...and longer...than any other machine. A competent, wide-spread dealer organization is behind every piece of Cat equipment, offering factory-trained, on-the-job service and genuine Caterpillar parts. And there are no parts orphans in the Caterpillar family. This policy has two outstanding effects regardless of age, parts are always available to keep the machine producing for its owner. Second, it adds much to the resale value of Cat equipment and means an extremely low rate of actual depreciation. Caterpillar Motor Graders are worth more while working on the job, and return more of their original value when it comes time for resale.



# CATERPILLAR

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**DIESEL ENGINES • TRACTORS • MOTOR GRADERS • EARTHMOVING EQUIPMENT**

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