# ECASE:

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RT460 RT560



# Expanding the World... and Your Prospects

With the world at the brink of an information explosion, you need to be ready to handle the workload. And no other line of trenchers is better suited to be the tools you use to get you to your destination. Whether you're getting ready to pave the information superhighway or installing the underground utilities that fuel America, there's an trencher designed to meet and exceed your expectations.

These tool carriers are the top performers in their class. Encore after encore, they consistently earn their keep, even in the harshest underground environments.

When you know what you're up against, get the equipment that produces results — a trencher from Underground.





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# **Engine**

Both the RT460 and RT560 feature state-of-the-art, fuel-efficient engines.

The RT460 is equipped with the Super Five Series generation V1505-B diesel engine from Kubota. This compact engine features advanced technologies for high output, low fuel consumption and clean emissions. Its tunnel bore crankcase construction adds rigidity for low vibration operation, resulting in a smooth, quiet engine.

The larger, V2203-DI-B Kubota diesel engine used in the RT560 offers you the increased horsepower you need for those bigger jobs. This 4-cylinder diesel is designed with a large torque rise for excellent lugging ability at any engine speed - great for any drop plowing or trenching you'll do.

## **RT460 ENGINE**

Model	Kubota V1505-B
	4
Fuel injection	Indirect
Bore/Stroke 3.07"	x 3.09" (78.0 mm x 78.5 mm)
Displacement	91.4 in <sup>3</sup> (1.50 L)
Horsepower*	
	37 (28 kW) @ 3000 rpm
Net	33.5 (25 kW) @ 3000 rpm
Maximum Torque	
Gross	. 73 lb•ft (99 N•m) @ 2000 rpm

#### **RT560 ENGINE**

Model	Kubota V2203-DI-B
Cylinders	4
	Direct
Bore/Stroke 3.43	3" x 3.64" (87 mm x 92 mm)
Displacement	134 in <sup>3</sup> (2.20 L)
Horsepower*	
	51 (38 kW) @ 2800 rpm
Net	46 (34 kW) @ 2800 rpm
Maximum Torque	
Gross116	lb•ft (157 N•m) @ 1600 rpm
Net 108	lb•ft (146 N•m) @ 1600 rpm

\*Gross horsepower per SAE J1995, net horsepower per SAE J1349.



## **ELECTRICAL**

Battery (both units)	12 volt
Alternator	
RT460	12 volt, 30 amp
RT560	12 volt, 45 amp
Starter	
RT460	12 volt, 1.4 kW
RT560	

## **Operator Environment**

These spacious operator compartments feature conveniently located, loweffort controls, full instrumentation and excellent visibility to enhance productivity.

Left and right entry/exit and uncluttered operator's platform permits unobstructed operator movement and comfortable positioning when operating.

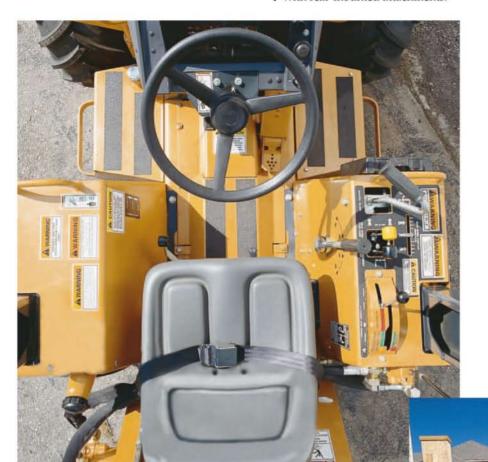
All attachment controls are located within easy reach from the operator's seat. The seat swivels to provide operating comfort when working with rear-mounted attachments.

A swingaway catwalk lets you move freely to and from the operator's compartment to the backhoe, yet allows easy service access to the engine.

The muffler is enclosed in the engine compartment, resulting in improved visibility to the front of the RT460 and RT560.

Single key-start ignition and shutoff for fast and easy starts and stops.

System gauges and indicator lights are grouped for high visibility. Gauges — engine coolant temperature, hydraulic oil temperature, voltage, fuel level, hourmeter, rpm's. Indicator Lights — neutral indicator, engine oil pressure, alternator, air and hydraulic filter restriction.



#### **TIRES**

#### RT460

#### RT560

Standard ......26 x 12.0 - 12, 8 Ply ..... 31 x 15.5 - 15, 8 Ply Optional ......29 x 12.5 - 15, 8 Ply

Water with calcium chloride is approved for use as ballast in these tires. Note: Do not exceed the maximum GVW shown on the ROPS plate.

## TRAVEL/WORK SPEEDS - MPH (km/h)

RT460

RT560

1st...... 0 - 3.6 (0 - 5.8)\* ..... 0 - 1.5 (0 - 2.4) 0 - 4.1 (0 - 6.6)\*\*

<sup>\*</sup>Equipped with 26 x 12.0 - 12 tires

<sup>\*\*</sup>Equipped with 29 x 12.5 - 15 tires Rated speeds in forward or reverse

## **Ground Drive/Chassis**

The hydrostatic ground drive offers a range of working and transport speeds for the different applications and conditions you'll encounter. Heavy-duty 4-wheel drive axles with both front and rear limited-slip differentials provide all the tractive effort you'll need, especially in tough plowing conditions. Outboard planetaries on the RT560 reduce driveline loads for long life and less maintenance. The RT460 is the only trencher in its class utilizing a full-floating axle design to withstand heavy loads for long life.

The RT560 utilizes hydraulic 4-wheel steering to get you in and around tough spots, or to crab steer when working on sloped job sites or offset plowing — optional for the RT460. The front wheels are controlled with the steering wheel and the rear wheels with a control lever that positions the wheels hydraulically.

A rear wheel position indicator displays the angle of the rear wheels.

A 10-degree front axle oscillation provides wheel-to-ground contact when operating over rough terrain or when crossing open trench lines.

RT560

These tool-carrying mainframes are unitized to absorb shock loads from the most demanding applications to protect the driveline components and attachments.

A modular powertrain makes servicing quicker and easier for less downtime. Each component can be removed separately without disturbing the remaining parts.

Neutral position of the hydrostatic drive provides hydrodynamic braking power when the engine is running. A foot-operated emergency/parking brake with disc and caliper on the transmission shaft prevents movement.



#### **GROUND DRIVE DIMENSIONS**

Hydrostatic driveVariable displacement	n
axial piston pum	np
RT460 0 - 27.3 gpm (0 - 103 L/mi	n
RT560 0 - 33.9 gpm (0 - 128 L/mi	
Axle ratio	10000
RT460 5.38	:1
RT560 12.5	

Differentials ...... Limited-slip

# **Hydraulics**

These high-efficiency hydraulic systems are designed to give you exceptional response and smooth power flows for attachment operation and steering.

Open-center hydraulics with direct displacement controls provide ondemand flow control for power when steering and operating attachments simultaneously, and for instantaneous changes in speed and direction.

Hydraulic oil cooler maintains optimum operating temperatures for maximum component life in all climates.

#### HYDRAULIC SPECS

Ground drive pump

RT460..... 27.3 gpm (103 L/min) RT560..... 33.9 gpm (128 L/min)

Attachment drive pump

RT460..... 27.3 gpm (103 L/min) RT560..... 33.9 gpm (128 L/min)

Steering pump

RT460..... 6.5 gpm (24.6 L/min)

RT560..... 7.2 gpm (27.3 L/min)

Accessory pump



## **Trencher**

Trenchers are ideal for deep drops, laying large diameter pipe, or trenching in hard or rocky conditions when plowing isn't possible.



This optional attachment is available with a hydrostatic direct drive or planetary drive with either a standard sprocket or heavy-duty rock boom. Cupped or rock & frost teeth can be equipped on a standard or anti-backflex chain - crumber and restraint bars to match operating conditions.

Dual augers provide spoil removal for the planetary drive trencher. The direct drive trencher has a single auger to deliver spoil to the right-hand side of the trench. The trencher can be mounted to the center or offset positions. The offset mounting allows you to slide the trencher between the center and offset without removing the trencher attachment.

## TRENCHER DIMENSIONS

Dia depths

RT460 ..... to 60.0" (1.52 m) RT560 ..... to 72.0" (1.83 m)

Digging widths

RT460 & RT560... 6.0" to 16.0" (152 to 406 mm)

Chain line speed

RT460 & RT560 direct drive. 647 fpm

(197 m/min)

RT460 & RT560

planetary drive ...... 657 fpm

(200 m/min)

Chain tensile strength

RT460 & RT560...... 50,000 lb

(22,680 kg)

75,000 lb

(34,019 kg)

110,000 lb (49,895 kg)

Drive...... Hydrostatic/reversible

Boom angle from horizontal

RT460 & RT560 direct drive. Up 60°

Down 60°

RT460 & RT560

planetary drive ...... Up 55°

Down 60°

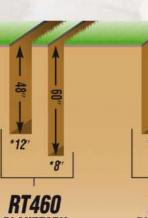
Angle of departure

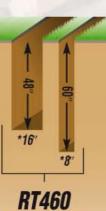
RT460 direct drive...... 22°

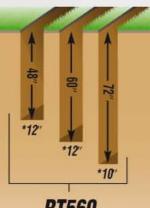
RT460 & RT560 planetary drive 33°

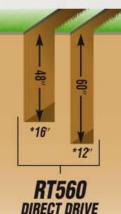
RT560 direct drive...... 25°

The planetary trencher drive features a flywheel, torsion shaft and planetary gearset for smooth operation and long life. A flywheel helps keep the chain line from stalling in tough soil conditions and minimizes pressure spikes in the hydrostatic system. Between the flywheel and planetaries is a torsion shaft that serves as a spring to absorb shock loads from the trencher driveline. Planetary gears multiply the hydrostatic motor torque by 14 times for excellent chain line digging power.











PLANETARY DIRECT DRIVE RT560

## Plow |

Add a vibratory plow to your trencher to take on the expanding underground utility market. Bury telephone, CATV, electric, flexible gas or water lines with little or no restoration.



The P75 vibratory plow is designed as an integral part of the base tractor, yet removable for attachment versatility and greater utilization. Plow features, such as rubber iso-mounts insulate the operator from vibration. A hydraulic-swing plow frame with float position allows the plow to pivot back and forth a full 60° for maximum maneuverability in tight turns and to follow the path of least resistance in hard ground conditions.

The RT560 can be equipped with the heavy-duty P85 vibratory plow to take on your tough conditions. An aggressive shaker speed and amplitude provide plenty of soil fracturing force. The hydraulic swing frame and steerable blade allow you to guide the plow back and forth for maximum maneuverability in tight turns or around obstructions.

A variety of feed blades are available with fixed or floating chutes in various radii to match cable installation requirements and alleviate cable damage.

Whether you're laying cable, electrical, flexible gas lines or telephone, the P75 and P85 vibratory plows can get you where you're going.

### P75 VIBRATORY PLOW FOR THE RT460 OR RT560

Vibration	. Counter-rotating weights
Frequency -	3
maximum	2,000 vpm
	Hydrostatic
Angle of depressi	ion 17°
	e 650 lb
3.0	(295 kg)

### P85 VIBRATORY PLOW FOR THE RT560

FOR THE RIDOU
Vibration Counter-rotating
weights
Frequency -
maximum 2,000 vpm
Drive Hydrostatic
Blade steer angle 30°
Minimum turning radius
@ blade 18.0" (457 mm)
Angle of depression 14°
Offset from centerline 32.0"
(813 mm)
Weight - no blade 1,775 lb
(805 kg)

## **Quad Attachment**

To allow the maximum addition of attachments to the RT560, add an integrated quad-attachment to mount both the direct drive trencher on the right and the P75 plow on the left.

## RT560 QUAD-ATTACHMENT DIMENSIONS

Offset from centerline of machine to center of:

Plow ............ 9.4" (239 mm) Trencher ......... 28.5" (724 mm)

RT560 weight\* 8,200 lb (3719 kg)

\*RT560 equipped with quad-attach, P75 plow, direct drive trencher, 4' rock boom, 75K chain, large cup teeth, restraint bar, D100 backhoe and 16" bucket.

## **Reel Carrier**

Attach a reel carrier to either one of these units to remain highly mobile while plowing without having to pull a separate trailer to the job site, or around as you work — heavy-duty hydraulic lift cylinders on the RT560 reel carrier provide pickup for installation and removal of reels.

## REEL CARRIER DIMENSIONS

RT560 ...... 60.0" (1.52 m)

Angle of approach w/o backfill blade w/36" (914 mm) reel.... RT460 - 28° w/48" (1.22 m) reel RT460 - NA RT560 - 27° w/60" (1.52 m) reel RT460 - NA RT560 - 23° Reel shaft diameter RT460 ...... 1.66" (42 mm) RT560 ...... 1.9" (48 mm) Center of reel -RT560 Hydraulic lift only Pickup height .... 12.0" (305 mm) Maximum height.. 59.5" (1.51 m) Capacity RT460 ...... 300 lb (136 kg) RT560 ...... 1,000 lb (454 kg)





## **Backfill Blade**

An optional 4 or 6-way blade mounts to the front of the RT460, and a 6-way blade to the RT560 for backfilling. These blades have excellent ground clearance in the raised position to get you up and over curbs or most any obstruction. The wide offset outside the tires lets you stay away from the trench wall to prevent cave-ins.

RT460		RT560
Width	62.0" (1.57 m)	72.0" (1.83 m
Height	14.3" (363 mm)	14.3" (363 mm
	15.5" (394 mm)	
	21°	
	8.3" (211 mm)	
	11.9" (302 mm)	
	10.4" (264 mm)	
Angle left or right, each of		
4-way	35°	
	40°	40°
Tilt each direction		
6-way	8°	89

# Hydra-Borer

The optional Hydra-Borer boring system virtually eliminates restoration of surface structures by tunneling underneath them.

The Hydra-Borer system is quick and easy to use without an assortment of other tools. Simply attach boring stems together to increase the boring length as you drill under the surface with the prime mover. Its high rotational torque can bore through tough soil conditions, even when backreaming.

A variety of bits, reamers and backreamers are available in sizes from 2.0" (51 mm) to 12.0" (305 mm) for all your drilling needs.

#### RT460 & RT560 HYDRA-BORER DIMENSIONS

Drive	Hydraulic
Torque 268	3 lb•ft (363 N•m)
Rotation	Bi-directional
Stem length	10.0' (3.05 m)
Drive shaft height.	24.2"
276	(615 mm)
Maximum rpm	276



## **Rockwheel**

Jobs that require cutting concrete, asphalt or any tough material, will be no match for a rockwheel. This heavy-duty attachment is great for trenching frozen soil or making drops in rock, also. The rockwheel mounts to the rear of these two units and is supported by (2) pillow block bearings, not the hydraulic motor. It uses carbide cutting teeth and comes in cutting widths of 3", 4", 5" or 6" with a maximum 24" cutting depth.



#### RT460 & RT560 ROCKWHEEL DIMENSIONS

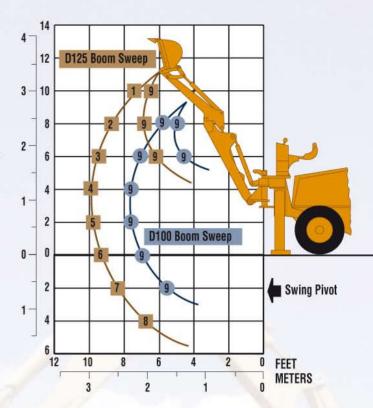
DIMENSIONS	
Cutting widths	3.0" (76 mm)
	or 4.0" (102 mm)
	or 5.0" (127 mm)
	or 6.0" (152 mm)
Cutting depth	Up to 24.0"
	(610 mm)
Weight	1,870 lb (848 kg)
Teeth Replace	eable carbide tips
Drive	Hydrostatic
Lift	Hydraulic

## **Backhoe**

For the increased performance and versatility you need when taking on those bigger jobs, equip your RT460 or RT560 with a backhoe from the leader in backhoe technology.

12

These quick-mounting backhoes are easy to operate with 2-lever controls. A swingaway catwalk for getting to the backhoe from the operator's compartment helps make your job even easier. There's also a wide range of buckets to complement your digging requirements.



#### **BACKHOE LIFTING CAPACITIES\***

RT460	/D100	RT560/D100	
Straight	to front and	Straight to front and	
within s	wing arc	within swing arc	
1.	770 lb (349 kg)	1. 770 lb (349 kg)	
2.	745 lb (338 kg)	2. 745 lb (338 kg)	
3.	710 lb (322 kg)	3. 710 lb (322 kg)	
4.	670 lb (304 kg)	4. 670 lb (304 kg)	
5.	645 lb (293 kg)	5. 645 lb (293 kg)	
6.	635 lb (288 kg)	6. 635 lb (288 kg)	
7.	730 lb (331 kg)	7. 730 lb (331 kg)	
8.	710 lb (322 kg)	8. 710 lb (322 kg)	

\*Backhoe lifting capacities on this chart are 87% of the maximum lifting capacities per SAE standards J31 and J49. Rated backhoe equipped with a 24" (610 mm) trenching bucket. Rated boom is put in the 58° (D100) and 65° (D125) position for the dipper lifting test.

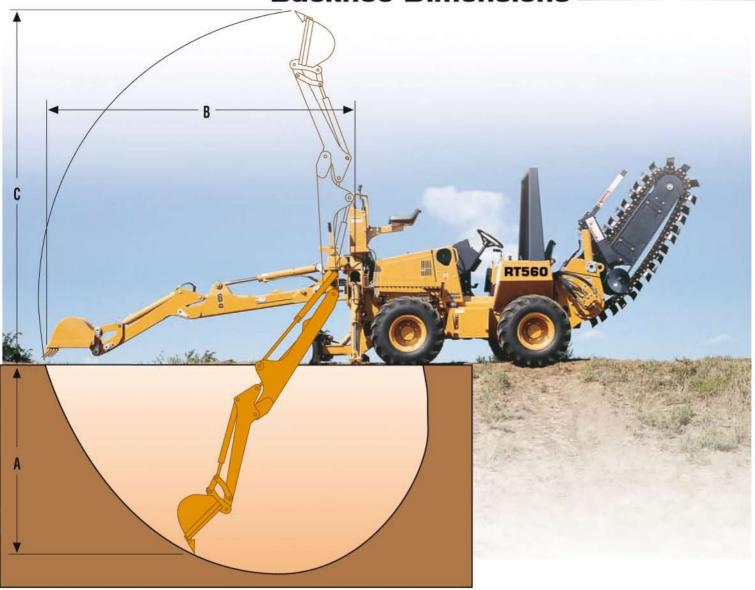
## RT560/D125

Straight to front and within swing arc

- 1. 870 lb (395 kg)
- 2. 900 lb (408 kg)
- 3. 880 lb (399 kg)
- 4. 880 lb (399 kg)
- 5. 830 lb (376 kg)
- 6. 810 lb (367 kg)
- 7. 810 lb (367 kg)
- 8. 790 lb (358 kg)
- 9. 2,000 lb (907 kg) 10. 1,840 lb (835 kg)
- 11. 1,980 lb (898 kg)

BUCKETS RT460/RT560 - D100	Bucket Width	Struck Capacity	Hooned Consoity
General purpose	12.0" (305 mm) 16.0" (406 mm) 18.0" (457 mm) 20.0" (508 mm)	1.0 ft. <sup>3</sup> (0.03 m <sup>3</sup> ) 1.6 ft. <sup>3</sup> (0.05 m <sup>3</sup> ) 1.6 ft. <sup>3</sup> (0.05 m <sup>3</sup> ) 2.2 ft. <sup>3</sup> (0.06 m <sup>3</sup> ) 2.8 ft. <sup>3</sup> (0.08 m <sup>3</sup> )	
Bellhole buckets		1.0 ft. <sup>3</sup> (0.03 m <sup>3</sup> ) 1.4 ft. <sup>3</sup> (0.04 m <sup>3</sup> )	
RT560 - D125 General purpose	18.0" (457 mm)	1.1 ft. <sup>3</sup> (0.03 m <sup>3</sup> ) 1.6 ft. <sup>3</sup> (0.05 m <sup>3</sup> ) 2.2 ft. <sup>3</sup> (0.06 m <sup>3</sup> )	2.1 ft. <sup>3</sup> (0.06 m <sup>3</sup> )

# **Backhoe Dimensions** ■



RT460 -	Model D100	RT560 - Model D100	RT560 - Model D125
A. Digging depth			
- maximum	69.1" (1.76 m)	65.9" (1.67 m)	87.3" (2.22 m)
- 2 foot flat bottom	68.4" (1.74 m)	64.6" (1.64 m)	84.8" (2.15 m)
- 8 foot flat bottom	39.4" (1.00 m)	36.9" (0.94 m)	79.8" (2.03 m)
Bucket digging force 5,380	) lbf (23 931 N)	5,380 lbf (23 931 N)	6,670 lbf (29 669 N)
Dipper digging force 2,380	) lbf (10 587 N)	2,380 lbf (10 587 N)	3,230 lbf (14 367 N)
B. Reach from swing pivot1	04.1" (2.65 m)	103.9" (2.64 m)	135.6" (3.44 m)
Bucket rotation	132°	132°	174°
Swing arc	176°	176°	175°
Loading height	70.1" (1.78 m)	72.6" (1.84 m)	
C. Operating height - fully raised 1	24.0" (3.15 m)	126.5" (3.21 m)	166.2" (4.22 m)
Transport height	90.0" (2.29 m)	92.5" (2.35 m)	112.0" (2.84 m)
Stabilizer spread			
- Working	91.2" (2.32 m)	91.2" (2.32 m)	90.0" (2.29 m)
- Transport	64.4" (1.64 m)	64.4" (1.64 m)	64.3" (1.63 m)
Leveling angle	4°	4°	4°
Backhoe weight w/o bucket 1,4	450 lb (658 kg)	1,450 lb (658 kg)	1,604 lb (728 kg)

## **Service**

You'll be hard-pressed to find another line of trenchers that are easier to service than these... Removable engine panels with rubber latches make maintenance access fast, easy and uncluttered. Panels are lockable to prevent vandalism.

You get engine oil filtering protection with a 100 hour service interval full-flow spin-on cartridge.

Externally accessed air cleaner is easily serviced in seconds without tools or removing any panels. A dust evacuator eliminates the need to empty a dust cup.

Hydraulic reservoir, engine coolant and axles have 1,000 hour service intervals for minimal maintenance. Hydrostatic charge and accessory circuit return filters have 500 hour service intervals and are located inside the right-hand step for easy access.

The ground level hydraulic fluid and engine coolant sight gauges indicate service levels at a glance.

The fuel tank fill cap is located on the left-hand rear corner of the operator compartment for convenient access.

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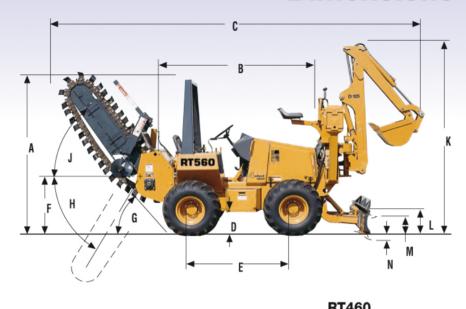
A maintenance schedule decal lists capacity requirements and intervals for convenience of fleet servicing oilers.

Monitoring gauges indicate engine and hydraulic system temperatures, fuel level, battery voltage, filter condition, rpm's and hours.



SERVICE CAPACITIES		
	RT460	RT560
Fuel tank	13.0 gal (49.2 L)	13.0 gal (49.2 L)
Cooling system	3.0 gal (11.4 L)	3.5 gal (13.2 L)
Engine with oil filter	7.0 qt (6.6 L)	8.0 qt (7.6 L)
Hydraulic reservoir	6.0 gal (22.7 L)	8.0 gal (30.3 L)
Total hydraulic	11.0 gal (41.6 L)	14.0 gal (53.0 L)
Transmission	1.0 qt (0.9 L)	3.5 pt (1.7 L)
Axle center (each)	1.0 qt (0.9 L)	1.0 gal (3.8 L)
Planetaries (each)		
Trencher planetary drive	1.5 qt (1.4 L)	1.5 qt (1.4 L)
Hydra-Borer	1.0 qt (0.9 L)	1.0 qt (0.9 L)

# **Dimensions**



A. Overall height prime mover (to top of ROPS)      B. Overall length prime mover      C. Overall transport length w/backhoe	84.2" (2.14 m)	93.0" (2.36 m)
and trencher w/4' boom	246.2" (6.25 m)	D100 - 246.2" (6.25 m) D125 - 242.3" (6.15 m)
Overall transport length w/plow and reel carrier - no ree Angle of approach - prime mover		
D. Minimum ground clearance - no backfill blade  Minimum ground clearance w/backfill blade	12.0" (305 mm)	12.0" (305 mm)
E. Wheelbase	53.2" (1.35 m)	57.1" (1.45 m)
F. Trencher headshaft height		
H. Trencher boom angle down from horizontal: direct (pl	lanetary) 60° (60°)	60° (60°)
J. Trencher boom angle up from horizontal: direct (plane K. Overall transport height w/backhoe		
The System transport Hoight Wibashino	. 5100 00.0 (2.20 11)	D125 - 112.0" (2.84 m)
L. Backfill blade height		14.3" (363 mm)
M. Backfill blade lift height		
N. Backfill blade depth of cut below grade	,	,
Transport height, plow frame base tractor	,	, ,
Plow swing angle		
Plow offset from centerline		32.0" (813 mm)
Angle of departure base tractor/plow attachment raised w/mounted blade	w/24" blade - 11°	
Plow blade tip ground clearance base tractor w/24"		
Overall width base tractor		
Tread width (centerlines) base tractor		
Turning radius (outside) base tractor - 2-wheel steer	, ,	, , ,
Turning radius (outside) base tractor - 4-wheel steer  Operating weight*	,	, ,
oporating weight	,	, ,

<sup>\*</sup>Operating weight of RT460 — Equipped with direct-drive rear trencher, 4' rock boom, 50K chain, weight rack with weights and backfill blade.

\*Operating weight of RT560 — Equipped with planetary-drive rear trencher, 4' rock boom, 75K chain, weight rack with weights and backfill blade.

## PRODUCT SUPPORT

#### **COMMITTED TO EVERY PART**

At Underground we are as proud of our service support as we are of our products. Your dealer has skilled technicians to handle any service requirement with advanced diagnostics and the latest service techniques.

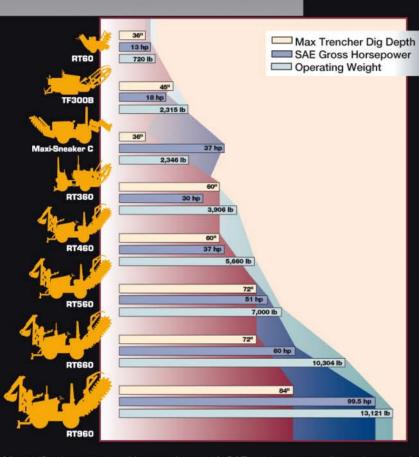
parts support includes well-stocked shelves and a computerized network of parts inventories that crosses the continent. In minutes, we can locate the part you need at its closest location.

See your dealer for prompt service and parts backup to minimize downtime problems.



## **SAFETY NEVER HURTS!**

Always read the Operator's Manual before operating any equipment. Inspect equipment before using it, and be sure it is operating properly. Follow the product safety signs and use any safety features provided.



**NOTE:** All specifications are stated in accordance with SAE Standards or Recommended Practices, where applicable.

**IMPORTANT:** Underground reserves the right to change these specifications without notice and without incurring any obligation relating to such change. Units shown may be equipped with non-standard equipment.

Attachments from other manufacturers are shown for illustration only. Underground does not warrant the safety or reliability of these attachments.

