

SKID STEER LOADERS

The Little, Big Machines

COMPACT, four-wheel-drive, skid steer loaders continue to rise in popularity as industrial materials handling machines. And for good reason: the two most important and obvious features of the little machines are maneuverability and versatility.

And while the dozen or more loader models currently available appear to be almost carbon copies of one another, there are important differences to consider in selecting the best machine for your particular needs.

All skid steer loaders have the same basic design characteristics: they're relatively compact; all four wheels are the same size; each is power driven.

Additionally, not one of a skid steer loader's four wheels pivots for steering. Both wheels on each side of the machine are powered in unison and can be driven forward, reverse, or stopped independently of the wheels on the opposite side. Steering direction is obtained by independent control of the wheel rotation on each side of the vehicle.

Engines on skid steer loaders are located over the machines' rear wheels, providing an effective counterweight for lifting loads. Engine location over the rear places the operator's station up front, affording unobstructed visibility.

Engine power is transmitted by either of two drives,

mechanical or hydraulic. With one set of wheels in reverse and the other set driven in counter rotation, the skid steer loader will pivot around its own midpoint, producing the shortest possible turning radius.

Use Determines Size and Equipment

Skid steer loaders are available in a wide range of sizes. Although the best guidelines to loader size are rated operating load and engine horsepower, a further measure of a machine is its tipping load.

Tipping load is the maximum weight a loader can lift without tipping forward, and the machine's rated operating load is calculated at one-half its tipping load. At rated operating load, then, a loader is well within the limits of safe operation.

Skid steer loaders are available with rated operating loads ranging from 500 to 3,000 lbs., with machines in the 1,000 to 1,500 range representing the most popular sizes.

On all machines, several different bucket sizes are available to adapt the loader for use with various materials. Larger buckets speed productivity when handling relatively light materials. With heavier materials, smaller buckets permit greater maneuver-

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ability while increasing stability. Generally, the range of bucket sizes complements machine horsepower and rated capacity.

Even though skid steer loaders can turn in their own length, differences in overall machine length affect the amount of space required for maneuvering. Factors to compare when evaluating maneuverability include, turning radius over bucket, width without bucket installed, and the overall length with bucket lowered. If you plan to use a loader inside buildings, overall height is important when operating through doorways or under limited overhead clearance.

Turning radius over bucket means, simply, the radius of the circle scribed by the outermost corner of the bucket when turning to the left or right.

Width without bucket installed is the width of the basic machine. The wider the machine, the more room required for maneuvering. On some loaders, the smallest bucket may be narrower than the overall machine width. Yet in many cases it might be desirable to have the bucket or blade the same as the overall width of the machine, especially for clean-up work along sidewalls or barriers.

Some skid steer loaders have a narrow-aisle capability. By reversing and interchanging wheels, overall width can be minimized for tight squeezes. Alternate wheel setting provides maximum width along with increased stability.

Overall length with the bucket lowered is also a good measure for comparing machine size, and it will vary depending on the type of bucket installed on the machine.

Consider Height And Reach

Extreme bucket lift height may not be critical for certain applications. However, once a skid steer loader is put to work, its operator discovers a wide range of applications for the machine, some of which may be affected by the lift height.

To avoid problems, the maximum height of bucket lift should be considered before selecting a loader. Lift heights vary directly with loader size, ranging from 7 ft. to over 10 ft. In some applications, especially when loading materials into dump trucks, loader reach at the maximum dump height can be an important value.

Loader engine power ranges from 13 to 82 hp with most units in the 25 to 35 hp class. Most machines come equipped with a four-cylinder, air-cooled engine.

At present, there are no industry standards for the arrangement of controls for speed and direction or the loader lift and bucket dumping functions. Some machines have two levers that are moved or twisted, one with each hand, to control the various functions. Other loaders have a combination of foot pedals and levers to control operations.

Because skid steer loaders are especially designed for compactness, accessibility of components for servicing or repair can pose a problem. Therefore, it's a good idea to check that the engine and hydraulic system components requiring periodic service are readily accessible.

It's also advisable to have a skid steer loader with oscillating axles if you want to realize the maximum advantages of four wheel drive. This type of axle enables each wheel to maintain ground contact and maximum stability when the loader is traversing rough terrain or climbing obstacles.

The hydraulic system on the skid steer loaders is another key point to consider. It's critical that hydraulic fluid temperatures remain within the normal level range. If fluid temperature climbs too high, the system performance can suffer and permanent damage to hydraulics may result.

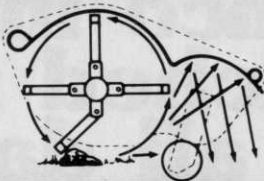
To ensure proper cooling, some loaders come equipped with a heat exchanger resembling an auto radiator. This type of exchanger is extremely vulnerable to clogging of air passages and mechanical damage.

Some manufacturers avoid the problems by utilizing the loader frame itself as the reservoir for hydraulic fluid. The frame of a skid steer loader not only affords

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Operator Protection Systems

Since OSHA and other safety regulations have arrived, operator protection receives a lot of attention in basic machinery design. ROPS (Roll Over Protective Structure) structures and seat belts are now available on most units.

Additionally, cabs are designed to protect operator from objects or materials that could fall while being lifted. Some manufacturers even offer weather protection cabs on machines used outdoors.

In all cases, however, protective superstructures increase overall height of loaders and must be considered for use where overhead clearance is restricted.

One further point concerning safety protection is evident when a skid steer needs servicing or repair, and it's necessary to raise the loader arms. To ensure safety, the arms should be mechanically propped so they aren't dependent on hydraulic pressure to keep them stable.

Certain skid steer loaders have a mechanical locking device built into a machine's basic design. While on others, safety stop mechanisms are offered as accessory equipment.

Attachments For Many Applications

The different attachments are what make skid steer loaders so versatile. Accessory attachments for industrial applications include, forklifts, crane booms, dozer blades and grapple hooks for holding bulky material such as fencing, wire spools and 55 gal. drums.

Power-driven attachments are also available including rotary brooms, snow-blowers and post-hole diggers. These rotary powered attachments are usually driven by hydraulic motor and, some manufacturers offer backhoes that attach to the rear or front of the loaders.

If you plan to add accessory pieces later, be sure to check availability for your particular machine before buying. Most skid steer loader attachments are designed for easy installation and removal, and are not standardized among different manufacturers. □

Guest Editorial

"There Ain't No Free Lunch"

By JOHN KINKEAD
National Mower Company

What this country needs is a common sense approach toward attainable goals.

For instance, it does us little good to obtain a perfectly safe and pollution free environment, and then find everybody starving to death because the country is bankrupt.

On the face it may seem to be a perfectly absurd statement, yet some of the government action lately is anything but a common sense approach; in fact, some decisions are decidedly myopic.

Nobody wants pollution and everybody wants to be safe. And we all know we need to improve. But the time has come to ask; "At what price perfection?" It may sound rather stark and distasteful, but in today's world of inflation we had better check our priorities and find what is attainable.

The Lawn Mower Industry is facing some pretty stiff newly proposed regulations. They are being drawn by

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