IMPORTANT!

READ THIS HANDBOOK BEFORE OPERATING MACHINE

T5 terramite CONSTRUCTION EQUIPMENT

OPERATOR'S HANDBOOK

terramite T5 **Operator's Handbook**

WARNING!

IMPROPER OPERATION OF THIS MACHINE CAN CAUSE INJURY OR DEATH

IMPORTANT! If this machine is used by the owner, an employee, or is loaned or rented, make sure that the following instructions are complied with:

1. The operator has read the Operation and Safety Rules section of the Operator's Handbook.
2. He has been given instructions on the safe and correct use of the machine.
3. He has practiced operating the machine and the use of all controls in a safe, clear area before he operates the machine on a job site.
4. He has read all safety decals on the machine.
5. He has been informed to clear the area of other persons before starting the machine.

This symbol to the left of a paragraph means **ATTENTION! YOUR SAFETY IS INVOLVED.** Carefully read the message and be sure you understand its meaning.

THE TERRAMITE CORPORATION
POST OFFICE BOX 7146
CHARLESTON, WV 25356
(304) 776-4231
toll ★ 1-800-428-3772 ★ free

To the T5 Owner / Operator:

Thank you for purchasing the Terramite T5 Tractor-Loader-Backhoe. We sincerely appreciate your business. We realize you purchased this machine to make or save money, and we will do our best to make your purchase profitable. With a minimum amount of care, this machine will give years of service.

In 1965, Terramite introduced the world's first compact backhoe. Since then, it has been the product of continuous improvements in design to where we feel it represents the safest, most efficient and dependable tractor-loader-backhoe in its class today. These qualities have made the T5 number one in sales in the nation's rental equipment market. This, as well as the T5's ever-increasing acceptance within the construction industry and other markets, reflects the wisdom of our efforts in constantly looking for ways to improve the machine's design and safety.

Thank you again for making the T5 part of your equipment inventory.

Sincerely yours,

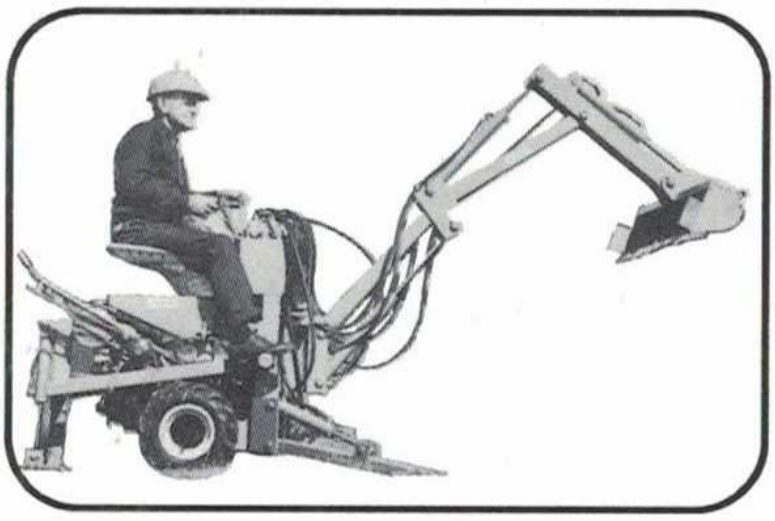
Bob Cunningham
Vice President

terramite

T5 Operator's Handbook

The First Terramite Backhoes

Model 1 1965



Model 2 1969

In 1963, K.G. Cunningham, the founder of Terramite, designed and built a full-functioning backhoe as an attachment for a Gravely tractor. Although it was an instant success with cemeteries and contractors who were looking for a small machine, it soon became apparent that there was a greater need for a compact backhoe that was about a third the size of the larger machines that were available at the time. Following several years of R&D, the Model 1 was introduced in 1965. Realizing the need for a more versatile machine, the Model 2 followed, which added a loader and an all-gear drive.

The need for better control while endloading prompted the hydrostatic drive Terramite 3 in 1972. This was followed by the 3-15 in 1974, the Model 4 in 1976 and the Model 5 in 1979. The T5B was introduced in 1986, and the latest tractor, the T5C, premiered in 1990. Each model represented major as well as minor improvements in the original machine.

Our never ending policy of improvements and enhancements of our original design turned out to be our number one advantage over the competition, as weaknesses, that took four to five years to surface, were detected and were eliminated through continuous improvements in the basic design. This concept can be seen from the above pictures of the Model 2, which is not that much different in appearance from the T5 series today. If we had completely redesigned the machine, we could not have taken advantage of studying its weaknesses and then benefiting from them. In other words, while some companies try to redesign the wheel, we just kept making it rounder and more efficient.

Overview

IMPORTANT

In this section there are very important safety rules that you must be aware of before operating the T5. When you see the symbol on the left, it will indicate that the paragraph to its right contains important safety information.

For the Beginner

Regardless of whether you have purchased or rented the T5 to perform a job that you wish to complete as quickly as possible, it is mandatory that you read through the operating sections of this manual before operating the machine. The few minutes it will take will not only give you a solid basis for learning to operate the T5 correctly, but you will have the assurance that you are operating the machine in a safe manner. We have made every effort to make the T5 the safest machine of its kind in the industry, but that is as far as we can go. The rest is up to you. Please help us by carefully reading this handbook and complying with its safety suggestions.

If You Must Use the T5 Right Now

Without question, it is to your advantage and safety that you take the time to follow the operator training suggestions. Only with some guidance can you expect to become a master at the controls of the T5 in a reasonably short period. However, if this is not possible, first read the operating and safety rules section of the handbook, then at least practice all bucket movements above the ground for the endloader for about twenty minutes, and the backhoe about an hour. Just getting used to how the controls function will make your first attempt at working with the machine far more pleasurable, productive and, most important, safe.

Suggested Training for the Beginner

We believe you will find the training procedures an interesting and very rewarding experience. As you read through the Operator's Handbook, you will note that it is as much a safety guide as it is an instruction manual. Learning the various functions of the machine in a programmed order is the most logical approach to becoming a safe and skilled operator. It will take a little time but it will undoubtedly be the best investment in time and money you can make as a new T5 operator and/or owner. Only when the operator has mastered the control of the machine and is in full command of its capabilities will the owner fully realize the rewards of his investment. Only after the operator has full knowledge of the safety considerations of the T5, which are covered in this handbook, can he be allowed to operate the machine.

The Experienced Operator

We continuously strive to find ways to make the T5 the most maintenance free tractor-loader-backhoe in its class, as well as the safest. However, safe operation procedures and good maintenance habits can only be accomplished with your help. Regardless of how much experience you have in operating a backhoe, we feel a thorough review of the safety aspects in the T5 Operator's Handbook is mandatory before operating the machine.

Do I Need an Instructor?

At this point, it is only natural that there be some apprehension as to whether or not you are taking on something that should require an instructor. There is bound to be some question in your mind as to whether you can possibly hurt the machine or the machine can hurt you. The answer to both questions is definitely YES, but not likely. As to the machine, we have designed the Terramite T5 to protect itself from exceeding its own limits. As to the operator, we have made every

effort to design and build the T5 with your safety in mind. As to the beginner, we have no record of anyone being seriously injured while learning to use a T5 and, to the best of our knowledge, the vast majority have accomplished it pretty much on their own. However, we feel the first step is to read the Operator's Handbook. This should give you some basis for determining whether you may need personal instruction. If you feel you do, contact your local dealer or call Terramite: **1-800-428-3772.**

We have your Safety in Mind

Our experience would indicate that most beginners just climb aboard and start pushing controls. Although it says something about how easy it is to operate the T5, it completely ignores the safety aspects of operating the machine. Even if you have someone assisting you in learning to operate the T5, you will have no way of knowing to what degree he has prepared you as to the safety considerations of the machine. Read the handbook! It may not cover every situation, but at least it covers those we believe to be most important.

An Excellent Safety Record

In our constant reference to safety, we are well aware that we are creating a false impression that the T5 is a dangerous machine to operate. Actually, it is probably much safer than digging the same trench by hand. Regardless, our continuous emphasis on safety is intentional, in the hope of making you a safety minded operator. The T5 has an excellent safety record, but as with a powerful automobile in the wrong hands, it can be very dangerous. Like the automobile, it is mostly a matter of knowledge, attitude and respect for your own safety and the safety of others that determines the degree of risk.

Driving the T5

Note: Throughout this publication the word "drive" will mean to operate the T5 from one place to another. "Operate" will refer to all other functions.

Pre-Operation Inspection

Before starting the engine, check the fuel as well as the engine and hydraulic oil levels, then make a walk-around inspection to determine that everything appears normal. The most important single thing you can do to increase the life of the T5 is to properly lubricate the pivot pins. When new, the pivot pins should be lubricated every four hours the first 20 hours, and every eight hours thereafter. If you are going to haul the T5 to a job, it is usually a good idea to perform the pre-operation inspection before leaving for the job site. This should include starting the engine and testing each control of the endloader and backhoe as well as driving the T5 forward and backward. Do not operate the T5 if you believe that there might be a problem. Some minor problems can become major problems if not attended to.

Hydraulic Pressure Considerations

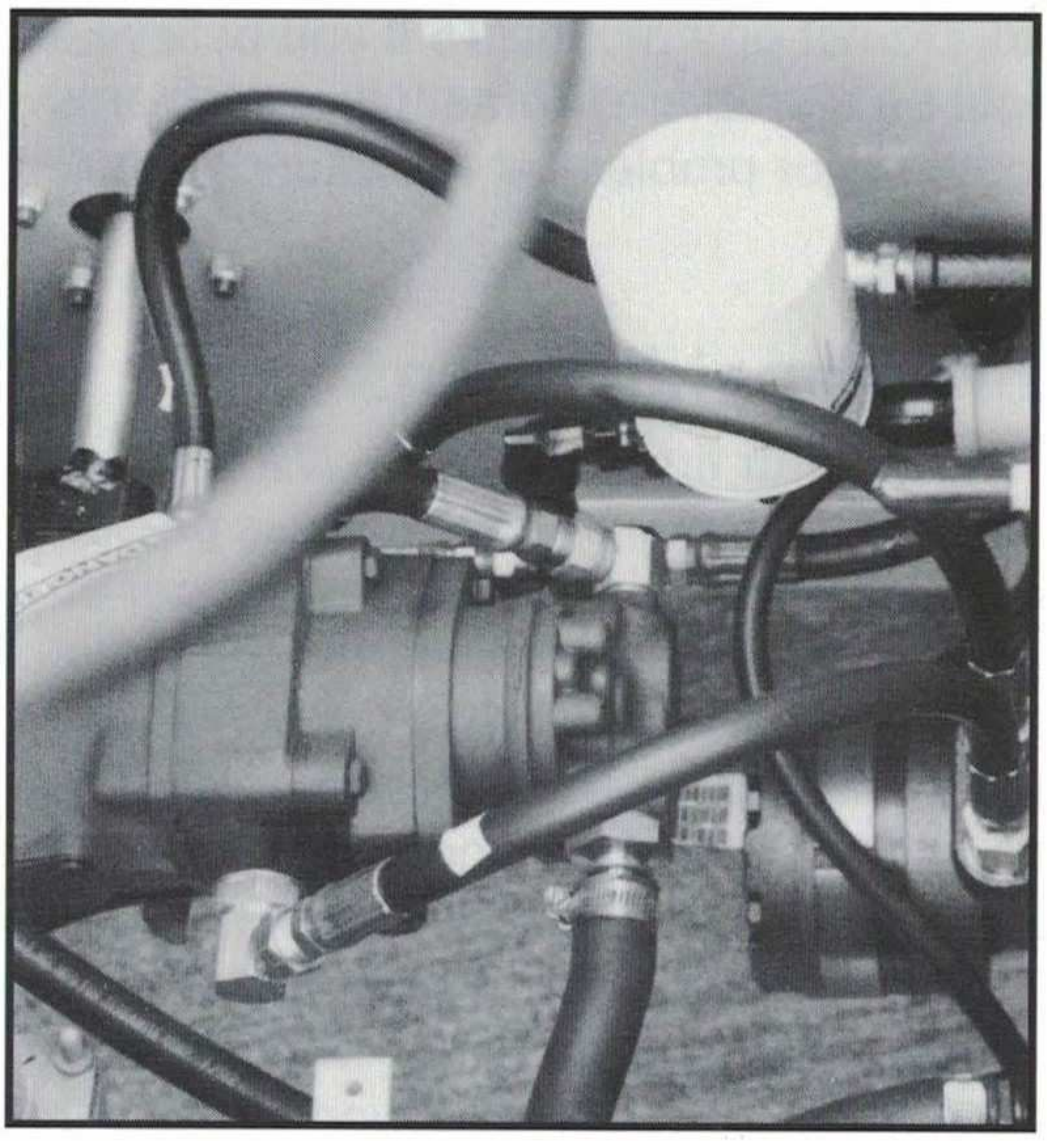
As this may be your first experience with a machine that functions primarily through hydraulic pressure, it is imperative that you be aware of the danger of putting your hands close to any part of the hydraulic components of the machine while the engine is running or within two minutes after being shut down. Be aware that escaping fluid under pressure can have sufficient force to penetrate the skin, causing serious personal injury. Fluid escaping from a very small hole can be almost invisible. Therefore, we recommend that you wear heavy work clothes that will fully cover your body, leather work gloves and safety eye protection when placing your hands around or near hydraulic lines or fittings while under pressure. If you suspect a leak, it can be quickly detected using a piece of cardboard or wood. If injured by escaping fluid, go to the Emergency Room of the nearest hospital. Be certain to inform them that this type of injury can cause serious infection or a reaction such as gangrene. If there is no hospital in the area, call a physician immediately.

Being Mentally Prepared

Now, before attempting to operate the machine, read through the following paragraphs involving driving the T5 and be sure you have a good mental picture of just what you are about to do and how you will do it. Please note that our only goal in this first session is for you to become familiar with the feel of driving the T5 and using its controls.

The Hydrostatic Transmission

The T5 is a very simple machine to operate but somewhat different than driving a car or truck. This is because everything on the T5 is driven by hydraulic pumps. The movements of the loader, the backhoe, the power steering and even the drive wheels are the result of hydraulic pressure developed by these pumps. The pump is driven by the gas or diesel engine. The drive wheels are powered by a hydrostatic transmission. This transmission is a fluid drive device that provides variable flow at a constant RPM from the engine to develop the range of driving speeds used in performing most of the T5's tasks. Only when you wish to bring the T5 up to its maximum road speed or maximum endloader power will you need to increase the engine RPM. For most work, all we do is set the throttle at about half power, or a little less, and leave it. The ground speed and direction of the T5 is controlled by the hydrostatic transmission.



Just a Little Does It

By lightly depressing the foot pedal we develop maximum torque, which develops power like the low gear of a manual transmission in a truck. As we depress the foot pedal further, the engine RPM remains about the same, but the T5 picks up speed over the ground. The big difference between driving the T5 and a truck is that if you want power to start up a hill, you need only depress the foot pedal about a third of the way forward, not to the floor. If you want speed, you start off with a small amount of pedal and keep increasing as the speed builds up and the required torque decreases.

No Gear Shift

When the drive pedal is in neutral position, it's like applying a brake. To make the T5 go into reverse, just apply pressure on your heel and rotate the foot pedal backwards. It works exactly as it did in forward. Anytime the engine tends to slow, let up on the pedal a little. You have to experience it to appreciate it. Many operators say it is the key advantage the T5 has over the competition and makes using the endloader a dream to work with. About the only time you will ever go to full throttle is when running the T5 at its highest road speeds or when you become very proficient using the loader. Although somewhat different in its control, the hydrostatic transmission is very easy to use and very forgiving. It takes only minutes to get used to, and is simpler to use than an automatic transmission in an automobile.

Some "Don'ts"

Excessive RPM can damage the engine and make the controls overly responsive. Do not change the relief valve settings. They are factory set for best machine performance. Do not go from forward to reverse or reverse to forward without pausing at neutral. It may damage the drive train.

Think About What You're Going to Do

CAUTION! Be certain that the T5 is set up as in the picture below. It is important that the backhoe and endloader are in the position shown, to keep the center of gravity as low as possible and to keep the machine from tending to upset in a turn. Also, never allow the backhoe boom to be angled to the right or left of center when moving the machine at anything but a crawling speed. Experienced operators claim this will upset a machine quicker than any other configuration, particularly if the backhoe bucket is extended and/or somewhat raised.

At first, it would be advisable to just operate for a few minutes at very low speed, making a few turns, stopping, starting and backing up, to get the feel of the T5 and its controls. The T5 is so simple to operate that it will take only a few minutes. However, it's a good idea to get the feel and experience of just how tight a turn you can make when maneuvering and positioning in tight places at slow speed. This is what driving the T5 is mainly about. It might help to set up some plastic trash cans, as they do at truck drivers' schools, to practice working in tight places. Getting the feel of driving and positioning the T5 is our only goal in this first session.

Getting Started

Now we are ready to get aboard. Mount the machine from the side. Never mount from the rear. Make certain that there is no oil on the steps, which might cause you to slip and fall. Your seat may be adjusted to different positions by pulling the lever located under the seat. Before starting the engine, be sure to fasten your seat belt. Terramite believes that a seat belt should be worn at all times except in those situations where the operator feels it would be safer not to wear it. We advise that he carefully consider his decision.

To start the engine, place the throttle about midway and activate and release the key as soon as the engine starts. At temperatures below 35 degrees, start with the choke at "FULL" and gradually return to "OFF" position.

Let's Give It a Try

Now it's time to put it in gear and experience just how the T5 drives. Remember, when you finish, lower the buckets and outriggers to the ground and turn off the engine before leaving the seat. We bet you will be saying, "That was easier than driving a car." However, keep in mind, the actual job site may have a few hazards, and you are likely to be hauling heavy material in an area occupied by your fellow workers. A little practice now in using this machine will not only make you a safer operator, but it will keep you from looking like an amateur in front of your customers.

The Loader

Before we discuss the operation of the loader and start the next practice session, we feel it is to your advantage to cover some of the safety aspects of operating the T5. We will first cover some safety tips that apply any time you are operating the T5, then later in this handbook we will cover the safety considerations of working on a slope or hillside. Working on a slope or a hillside probably presents the most dangerous environment possibilities that confront an operator. Do not practice on anything but a level surface until you have mastered driving the T5 and have memorized everything in the section "Working on a Slope," page 29. Even though you will be practicing on a level surface, this may not be the case when you start the job. Unless you work in areas where the land is absolutely flat, the need for knowledge of the various limitations of working on slopes and hillsides cannot be over emphasized when learning to operate the T5.

Using the Bucket Safely

If you will note the picture of the endloader, with the bucket raised to its highest position, the reasoning for the following safety suggestions will become apparent. Although the T5 is not equipped with a self-leveling bucket, the bucket design will keep most material from spilling or rolling backwards onto the operator. Regardless, the safest and best practice is to roll the bucket forward just a little as you raise it. Never overload the bucket, particularly if you will be raising the bucket any height. This is even more dangerous if you are handling round objects, such as round bales, poles, etc. Lifting the bucket too high or rolling the bucket too far back could result in these objects rolling rearward down the loader arms onto the operator. Again, watch what you put in the bucket and how you put it in.

Courtesy of Machine.Market

Some Never, Never, Nevers

Never use the loader bucket for a job it wasn't intended to do. Never use any other part of the machine as a work platform or a personnel carrier. Never allow anyone to be under, or even close to, a raised loader bucket, and be sure the driver is out of the cab during loading. Never leave a load hanging or use the endloader as a ram, as you may very likely damage the machine. Never touch the hydraulic components when, or right after, the machine has been working. They reach temperatures in excess of 200 degrees and can give you a severe burn.

Sudden Stops Can Be Dangerous

When working on a hard, flat surface like concrete, be sure there are no small ridges, ledges, or some item protruding from the surface that the sliding bucket could not move against. Even when your forward speed is only a few miles per hour, an unexpected sudden stop can be dangerous to you as well as the machine. Also, be alert for partially buried rocks or an obscured tree stump.

Hazardous Areas

When working in hazardous areas, be extremely alert. Always walk around the area looking for potential hazards. If possible, two men should work together—one operating the machine and the other directing him and watching for dangers. A hand signal system should be used. See page 42 for recommended hand signals. For complete regulations on working hazardous areas, consult the OSHA handbook.

Slow Down, Speed Kills

Be particularly alert when backing or working in crowded areas. Always operate the loader at a safe speed, keeping in mind your safety and that of any other people working in the area.

A Little Common Sense

A little caution and common sense as to the conditions of the workplace, knowing your limitations as well as those of the T5, plus a thorough knowledge of good, safe operating practices, and you will make the T5 safer to operate than your family car.

Operating the Endloader

In learning to drive and position the T5, you have already covered a very important part of using the endloader. If you watch an experienced operator, you will note just how important maneuvering and proper positioning are in the use of the endloader. With just a minimum of moves, he will pick up a full bucket of material and make a backing turn. Then, as he quickly moves toward a waiting truck or material pile, the bucket will be in the process of being raised to just the right height to clear the bed. At this point he starts the process of rotating to unload as he reaches the place where it will be dumped. When performed by an experienced operator, you could almost put it to music, it's so smooth. With a little time and practice, you will be doing it just as smoothly.

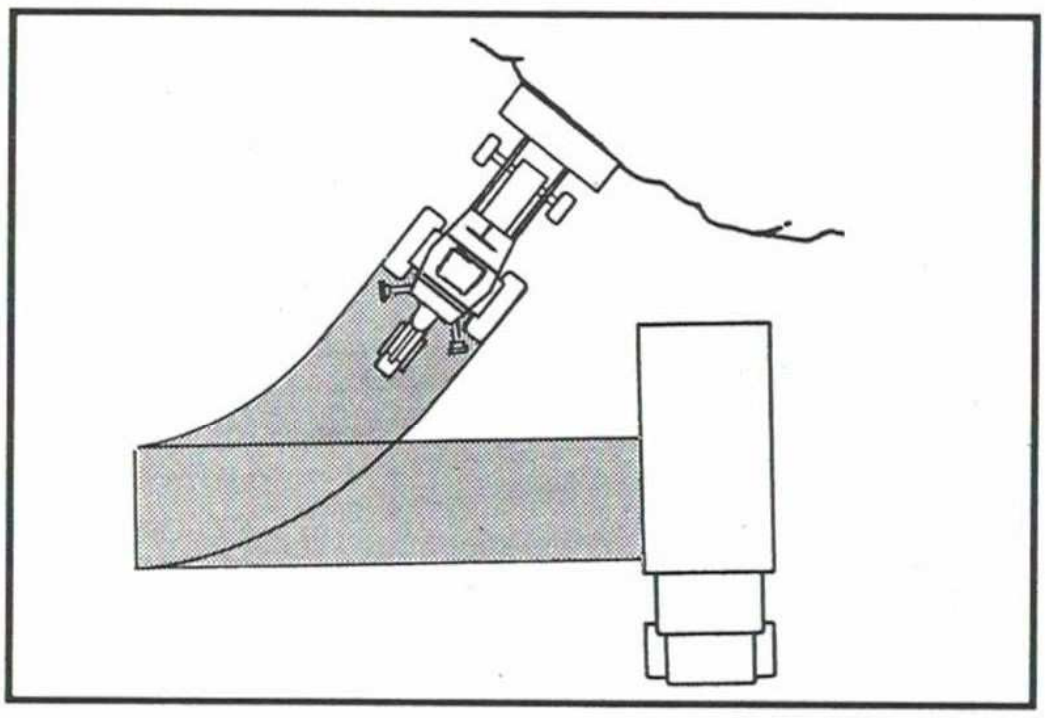
Finding a Good Place to Practice

Just about any place will do that is large enough to imagine the material pile and an imaginary one-ton dump truck parked about 30 feet from it. It should be level and free of ruts. Now, if you just happen to know of a place with a nice big pile of sand, gravel, coal or just about anything else you could use to practice loading, you could start right off doing the real thing and look like an old pro in no time. If there just

happens to be an old door or piece of plywood you can set up to act as the truck bed, all the better.

The Practice Session

For our practice session we will simulate, as close as we can, the various functions of the loader.



First, fill the bucket, then raise it about two feet. Then make a quarter turn while backing, followed by driving about thirty feet to where you stop a few feet in front of where you are going to dump it. Now raise the bucket to about six feet to clear our imaginary tailgate, then pull forward a few feet to dump.

CAUTION: Be sure you do not raise the loader bucket over two feet in the air until you have completed all turns. After you have made several runs and are getting the feel of it, start combining moves. First, complete the backing turn, then as you start forward, begin raising the bucket to a height that will clear the imaginary tailgate, or about six feet. As you begin to get the feel of it, you might start dumping the bucket just before you reach the dump point and are still moving forward.

One Step at a Time

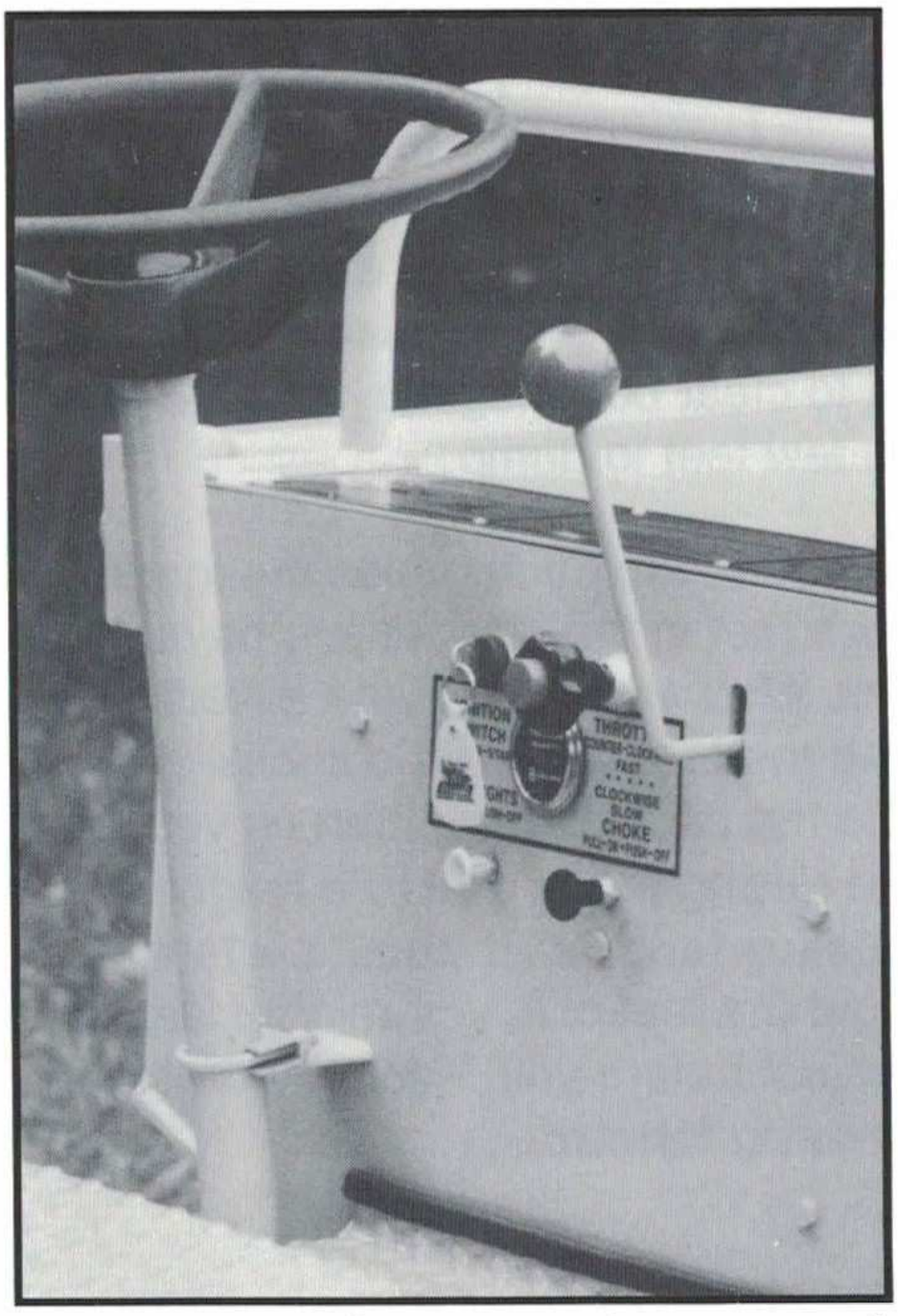
Don't try to accomplish too much too fast. Take it a step at a time until the moves become somewhat automatic. Again, do not raise the bucket until you have completed the turn. Remember, the center of gravity of the T5 goes up as the bucket goes up, and so do the forces pulling from the outside of the turn that tend to want to upset the machine.

Keep Bucket Low

Only through experience can you develop a true sense of balance for the T5 under various conditions of load weight, bucket position and, most dangerous of all, the slope of the ground. Until you do, never allow the bucket to be over a foot or so above the ground in a turn or on a slope.

The Loader Control

Before you start, take a few minutes to plan just what you intend to do. If you have some actual material to load, it will not require such a vivid imagination but, either way, our main interest is to get you started using the controls while seeing and experiencing the motions of the bucket. Note that everything is accomplished with just one control. Notice the logic of the movement of the control lever in relation to the movements of the bucket. While standing still, run the bucket up and down several times, starting and stopping it at different heights. Then take it up about five to six feet and dump it, by moving the control to the right of center. Straighten the bucket back up and repeat the process until you think you have the feel of the control. Do not be concerned when the cylinder bottoms out or encounters an excessive load. The noise you hear is the relief valve letting off excess hydraulic pressure to protect the components.



Note: If the loader bucket stalls when you try to dump while in the fully raised position, tilt the bucket down slightly, to keep the cylinder from running against the relief valve.

Let's Give it a Try

Read the entire paragraph, then proceed with practice. Position the T5 and go through our imaginary loading sequence from start to finish about three times. As soon as you feel you have it under control, try raising the bucket as you drive toward the dumping point. Do not start raising the bucket until after you complete all turns. It can be dangerous. Give this about three rounds, then take a break and think about every move you made. Look for any weakness in your performance and see if you can figure out just why. Continue to practice until the control moves become somewhat automatic.

The Backhoe

Now we come to the part that requires a little more thought, preparation, and practice. It is also the part that makes these machines so useful. It is a little more complicated to learn, and maybe a little more intimidating to the beginner. Although it wouldn't appear to be, it is actually safer than driving or loading with the T5. This is due to the fact that when you are using the backhoe you are in a stationary position. Regardless, keep in mind that you are moving a relatively heavy arm and bucket around like a ball bat, so you must always be alert to anyone being within its range.

But I Need to Use It Now

In the event you have purchased or rented the T5 and have a need to open a trench right now, we suggest that you read through the balance of this section, then advance directly to Crowd Digging, page 28. As this technique can be accomplished with a minimum of control motion, it is the simplest way to get the job done. As soon as you get the feel of the controls, you might read the section on Bucket Digging, page 28, and try your hand at this technique.

But I Need To Use It Now (continued)

By reading the balance of this section before starting, you will have some insight as to what is required to master the operation of the T5. You will be introduced to operating techniques and practice sessions that will make it possible to come up with a smooth, flat bottom trench and keep the sides flat and straight. You will gain the coordination control that is necessary to work around water service pipes and other underground utility services with full control of the bucket's movement. Therefore, if and when you have the time, we highly recommend that you proceed with the practice sessions on the following pages.

A Safe Practice Area

First, locate a safe practice area. The ideal place to practice is a relatively level area with neither a real hard or soft surface. Try to find a place where you can do a little digging, free of any large tree roots or underground utility lines. Pick a spot suitable to dig a small trench, then position the T5.

Changing to Backhoe Postion

When changing from loader to backhoe operating position, make sure the front bucket is on the ground and the engine is turned off before getting off the seat. Now unlatch the swivel lock and turn the seat to face the endloader controls. Make sure the seat locks are in place. Return to the seat and fasten the safety belt. Never operate the controls from the ground, as serious injury, or even death, could result. Terramite suggests the use of the seat belt for most applications. The

Courtesy of Machine.Market

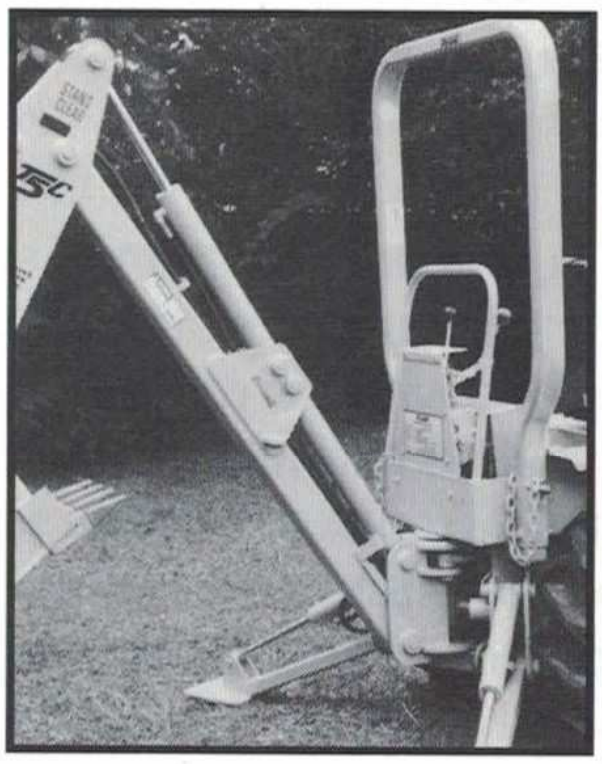
next step is to disconnect the safety chains. Very slowly pull the left lever back until the boom comes back far enough to take the tension off the chains. Shut off engine, dismount and remove the chains.

Make It Easy On Yourself

Before we lower the stabilizers, spend a few minutes reviewing the function of the controls and reading through the balance of this part of the Operator's Handbook. We will take you through each function of the backhoe controls in logical steps, with practice sessions, to give you a chance to get the feel and reaction of each of the eight functions of the backhoe. Each session will include instructions on three or four functions and a practice session designed to make it a little easier to get used to the control coordination required to operate the T5 properly. Do not expect to master the backhoe as quickly as you did the loader. For most people it will take from five to six hours before the controls begin to become a natural reaction.

Control Responsiveness

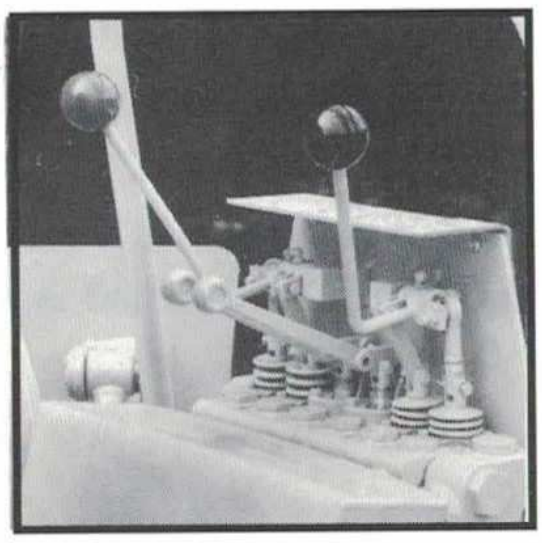
The most difficult part of operating the T5 is the responsiveness of the boom control. At first it will



be a little difficult to keep it from hitting its travel limits. This will not hurt the machine. Note that the speed of the bucket travel depends on how far the control levers are moved and the RPM of the engine. Until you get a little practice, lower the RPM to idle, as this will make the controls a little less responsive. Even at low RPM, the boom control is a little more responsive than the dipstick and will take some getting used to. As you get the feel of it, you will probably prefer the controls set this way, as most experienced operators do.

The Stabilizers

First, read the next three paragraphs, then lower the stabilizers. There is a control function decal below the controls. You can refer to it while actually learning to operate the backhoe. If you will note, there are four levers. The two smaller levers in the center are for setting the stabilizers. These must be lowered, as well as the endloader bucket, before working with the backhoe (see photo to left). To position them, ease both levers forward at the same time until the stabilizers just touch the ground. Then lower them just a little further to where the tires just clear the ground by about an inch or two. Next curl the bucket by moving the lever left until the bucket mouth is all the way forward and facing the ground. Now, lower it all the way to the ground, plus enough more to raise the front wheels about an inch above the ground. The entire machine is now supported by the bucket and the stabilizers, creating a stable platform for the T5. The machine should be leveled as much as possible. You might carry a couple pieces of one-inch plywood to place under the stabilizers to keep them from burying in.



While on the Subject

If the stabilizers tend to bury in, it is an indication of soft soil. Be cautious of digging very close to the stabilizers in soft soil, as the possibility of a cave-in is more likely. The structure of the ground must be taken into consideration in all but shallow trenches. Trenches over three feet deep must be shored up before anyone is allowed to work in the trench. A deep trench in sandy soil can be extremely dangerous as to cave-ins, and even the shoring must be done with the utmost care. Refer to OSHA regulations.

The Stabilizers

While on the subject of stabilizers, there will be times when the ground is not level, and the stabilizers can be used individually to level the machine. Remember, it is essential that the boom and dipstick be straight up and down in relation to gravity when working. If you are working across a slight slope, or there are just some ruts in the ground that require balancing up the backhoe, you can usually accomplish it with the stabilizers. However, if the slope is over 10 degrees, it is better to use the backhoe to cut out and level up while moving in, and dig the trench while working back. In fact, you always dig a trench backing away from it. (Note: The T5 is facing away from the trench when we say backing away from the trench.)

The Dipstick

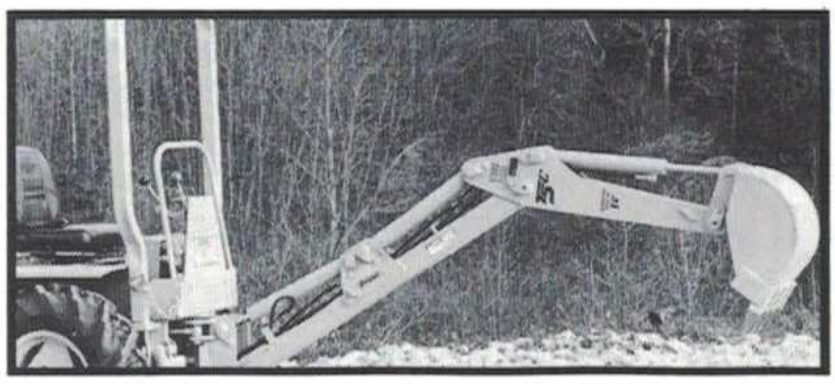
Please read the entire paragraph, then proceed with practice. Before operating the control levers,

be sure that everyone and everything is clear of the travel area of the dipstick. First, very slowly push the right lever forward, and the dipstick will swing away from the machine. As the controls are very sensitive, it will take a little practice to slow it down. When the dipstick reaches its limit, you will hear the bypass valve release so as not to over-pressure and damage the machine. Work the dipstick back and forth a few times until you get the feel of it. It will come with a little practice.

The Backhoe Boom

Please read the entire paragraph, then proceed with practice. If not already there, position the dipstick all the way in toward you and leave it there. (Note: The boom control takes some getting used to, but with a little practice you will master it.) So, very

slowly, move the left control forward and back, lowering and raising the boom until you get the feel of it. Take plenty of time to get used to it. When you get it under control, try to combine working with the boom control and the dipstick control. At first, alternate from one control to the other in an attempt to position the bucket as far away from the machine as you can, keeping the bucket about one foot above the ground as you do (see photo above). Then, bring it back as close to the machine as you can, continuing to keep the bucket about one foot off the ground. Practice this for several rounds to get used to using the two controls.



Using Two Controls at Once

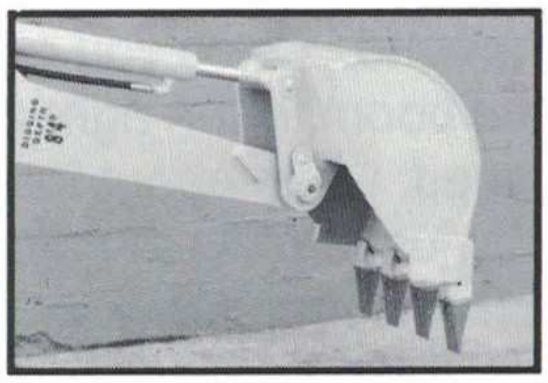
As soon as you get a little feel for it, try using both controls simultaneously. This is not easy, so don't feel discouraged if you find it difficult to do. Practice this three or four times, then take a break. Take it very slowly at first, as this is not an easy task for the beginner. Try as best you can to use both controls at once, so that the boom is moving at the same time the dipstick is moving. If you can, attempt to keep the bucket about one foot above the ground. Do not practice this exercise more than a half-hour without a break. Then, continue working on this practice exercise until it becomes somewhat automatic.

Not Too Much at One Time

As a beginner, this practice will require your total concentration. Therefore, while learning to use the backhoe, we recommend that you do not put in over half an hour of practice without a half-hour break. Confusion and panic can be brought on from mental exhaustion, which can occur very rapidly until the use of the controls becomes a somewhat automatic reaction. Long sessions, requiring extreme concentration, can be potentially dangerous.

Curling the Bucket

Please read the entire paragraph, then proceed with practice. As soon as you get some feel for controlling the bucket height and speed, it will be time to start learning to curl the bucket. First, just practice working the control for a few minutes, changing the position of the bucket. Next, with the dipstick and the boom fully extended and the bucket about one foot above the ground, curl the bucket to where the cutting teeth of the bucket are angled as shown in photo at left. If the teeth are set too far back, the bucket will tend to bury in; if too far forward, the heel will drag instead of cutting in. So, it is important that the angle of attack be within 5 degrees of that shown in the photo. Naturally, as the dipstick drops, the angle will change.



Mastering the Bucket

Keeping this angle constant as you bring the bucket toward you requires continuous change of the curling control as the dipstick travels through an arc, constantly changing the angle of the bucket. In actual work, this means that the operator must continuously correct the angle of the bucket as it is cutting through the trench, to keep the cutting teeth at a constant angle to the ground. Experienced operators accomplish this by "a sort of slapping" at the control. This is the most difficult exercise in control coordination you will ever experience using the backhoe. This exercise will make you use three of the four control valve functions simultaneously much of the time. Fortunately, after just a little practice you can start opening trenches using this technique. It will be a little slow and mentally tiring at first until the moves become more automatic, but if you can find time to practice this technique for a couple hours a day for a few weeks, you will soon be a master at controlling the T5 backhoe.

Now We Add "Swing"

This may take several practice sessions to just get to a point where you don't have to think out every move, but as soon as you can do it without completely fouling up, add one more move. When the bucket has been dragged a little over half way, say three or four feet, start curling the bucket up and raise it to about two or three feet above the ground. Once you get it to this height, start turning the boom to the right and extend it again. As you proceed, when about four feet from its limit, start dumping by just easing the dipstick control to the left while it is still moving outward. Just practice this continuous round robin sequence, simulating the digging of a trench and dumping the dirt, over and over. (Note: This is all being simulated above the ground.)

"Feathering" The Controls

As you gain experience and the moves become somewhat automatic, a technique called "feathering the valves" will help smooth the motion of the backhoe. "Feathering" is accomplished by barely opening the valves. The swing can be cushioned by opening another valve just before you stop the swing motion. This allows the excess oil to surge into another cylinder, like a shock absorber. Don't be concerned with this technique for now, as it will become a natural reaction after you master the controls.

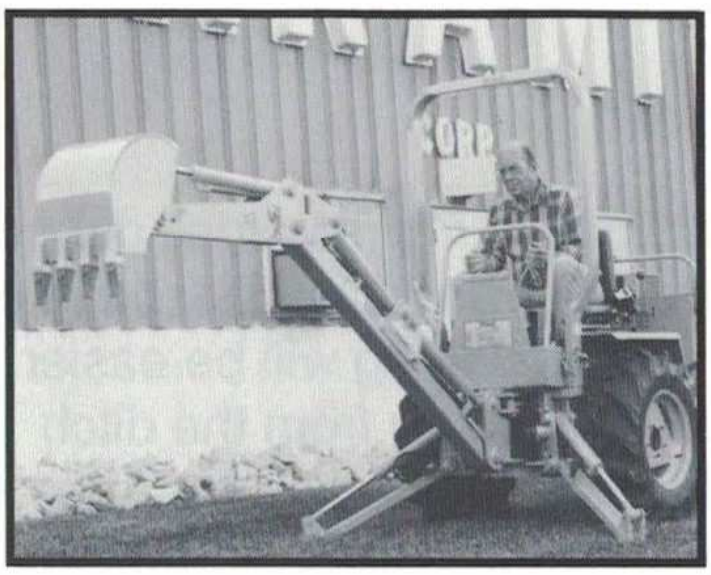
Opening a Trench

In preparation to opening a trench, a line should be drawn, using a string and lime or some other powder for marking. You can set the line either down the center or to the left of center 24 inches, half the width of the tractor. If you choose the latter, you can use a string line and just keep the left tire at the edge of the string to maintain the center of the trench. (Note: This assumes that you will place the spoil on the right side of the trench.) Before starting, be sure that the trench will not cross any utility service or sink holes. If one

end of the trench will end at a wall or other abutment, it will be best to start at that end so you can dig right up to the face of the abutment. A good way to get an estimate of the depth of the trench as you dig is to measure the desired depth from the bottom of the bucket in digging position and note where it ends on the dipstick. If you wish, you can put a line on the dipstick with a piece of electrician's tape to sight your depth. As you dig, you will have to re-position the backhoe about every eight feet. Place spoil about two feet from edge of trench when working in soft or sandy soil to avoid cave-in.

Breaking Through Hard Ground

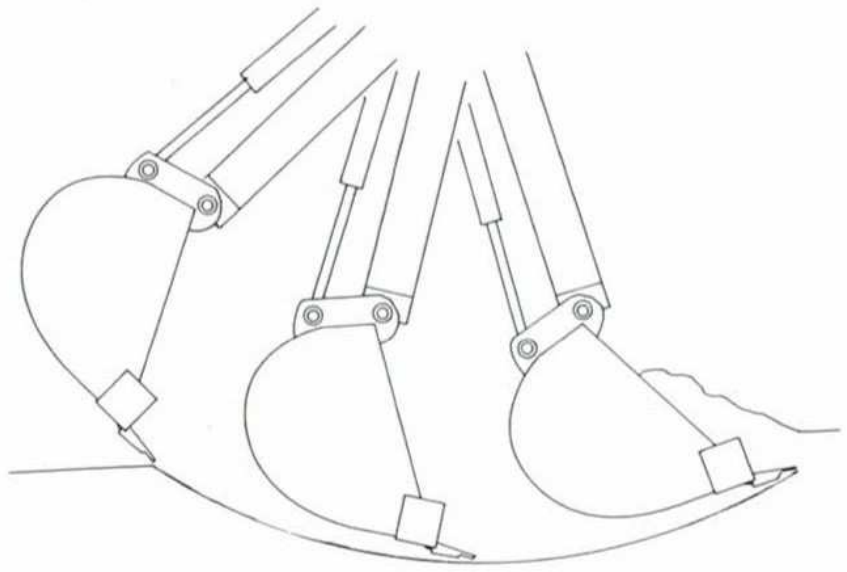
In actual work you will have one more move to contend with that we did not cover in our practice. Often, the surface of the ground is so hard that you have to create a pick action to break through at least the first three to six inches of the surface. This



can be done by positioning the bucket so that you can use the bucket to strike at the ground as you would swing a hammer. You will want the boom and dipstick extended about two-thirds out and about three feet above the ground. The bucket should be at the angle shown (see photo). Just push forward on the boom control and this will drive the bucket into the ground. Using the boom control causes the dipstick to fall almost straight down, keeping the bucket teeth from changing their angle of attack. The bucket teeth must hit the ground almost straight in. Usually this is only necessary along the surface, and once through, you can proceed as previously stated. However, depending on the ground and such things as tree roots, you may have to use this technique throughout the trench. At these times you may find crowd digging preferred once you break through the surface.

Crowd Digging

We will start with Crowd Digging, as it requires much less technique than bucket digging. Position the bucket and roll the bucket until the cutting teeth are angled as shown in the drawing to the left. Now, using only the dipstick control on the right, retract the dipstick in a scooping motion, as shown, until the bucket is approximately half full. Begin to curl the bucket in an upward motion while continuing to retract the dipstick as you raise the bucket out of the ground. (Do not keep crowding the bucket into the dirt after it is full because the dirt will pack into the bucket and make the dirt difficult to dump.) While the bucket is still rising, swing the boom until the bucket can be dumped onto the spoil pile.



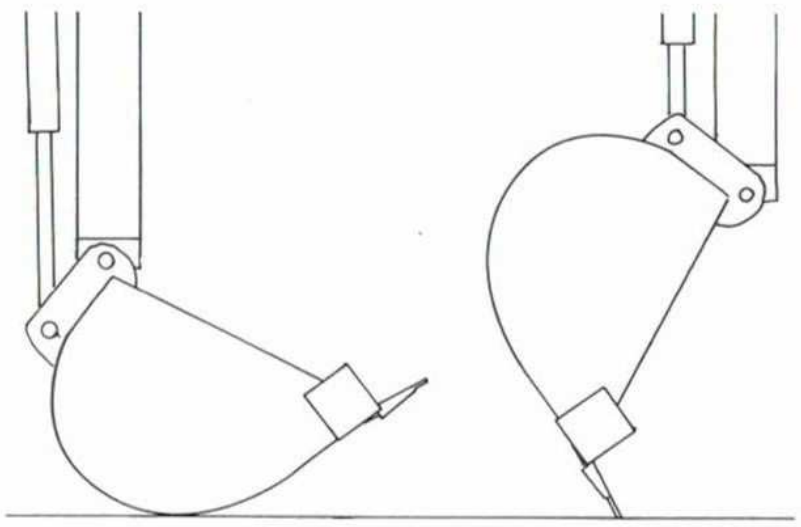
Some Considerations

When operating on hillsides, dump the spoil dirt on the uphill side of the trench. The tractor will be in a more stable position, and backfilling will be easier. Do not push dirt back into or away from the ditch using the side of the bucket. Neither the backhoe nor the endloader was designed to withstand the tremendous forces that can be applied to the hinge points of the boom and dipstick when used in this manner. In fact, never apply pressure to the side of the bucket for any reason.

Bucket Digging

(Note: What follows is covered in detail starting on page 19. For those who have already covered this material, the following may seem somewhat repetitious.) When using the Bucket Digging technique to open a trench, position the dipstick in a vertical

position, as shown below. Then move it away from the tractor approximately 5 feet more. Lower the bucket to the digging area, using down pressure on the boom to force the bucket teeth into the ground, but not to the extent of lifting the machine off the ground. (See breaking through hard ground, page 27.) It is important for the backhoe bucket to be in the proper position when starting to dig. (See drawing below.) Never attempt to dig with the bucket curled in the wrong position — too far forward or too far back. The bucket should be positioned to skim 3 to 4 inches of soil off the surface. As the dipstick comes forward, naturally the pitch angle of the bucket will rise, so you will have to learn to make constant adjustments as you drag the trench, to keep the correct cutting angle. On succeeding passes, lower the boom three to four inches and proceed as before. If the bucket stalls, raise the boom slightly and continue to dig until the bucket is full. Raise the bucket to the top of the trench and dump it on a spoil pile. With practice, raising, swinging and dumping can be accomplished in one smooth motion. (Note: The advantage in bucket digging is that it is the best way to end up with a level floor and sidewalls in the trench.)



Bucket too far forward

Bucket too far back

Working on a Slope (Use Extreme Caution)

Now we will cover one of the most important considerations in operating the T5. Naturally, you will be working on some degree of ground slope much of the time unless you live in very flat country. We feel it is extremely important that we impress upon

you just how treacherous a slope can be when using this machine, particularly under certain conditions. If you operate on a hillside that is slippery and/or steep enough that there is any question that the T5 will not be able to maintain braking action, you will be taking your life in your own hands. Unless you are absolutely sure that you can accomplish the work without risk, do not attempt it. A slick surface, such as dry leaves on even a slight grade, may cause your rear tires to slide out of control without any braking action whatsoever. Working on a slope requires an experienced operator and should not be attempted by anyone until he has had sufficient experience to have mastered all phases of the T5's control.

What Constitutes a Hillside or Slope

In fact, the Equipment Manufacturers' Institute recommends that you not work across a hillside under any circumstances. We feel this is too broad a restriction, as there are no standards to define what constitutes a slope from a hillside, and if there were, the average operator would find it difficult to determine the angle of the slope. As it is common knowledge that our machines, as well as all other brands, are operated every day on varying degrees of slope in hilly and mountainous terrain, we feel an obligation to inform the operator of the risks and hazards, as well as the safest accepted operating procedures generally being used to cope with these dangers.

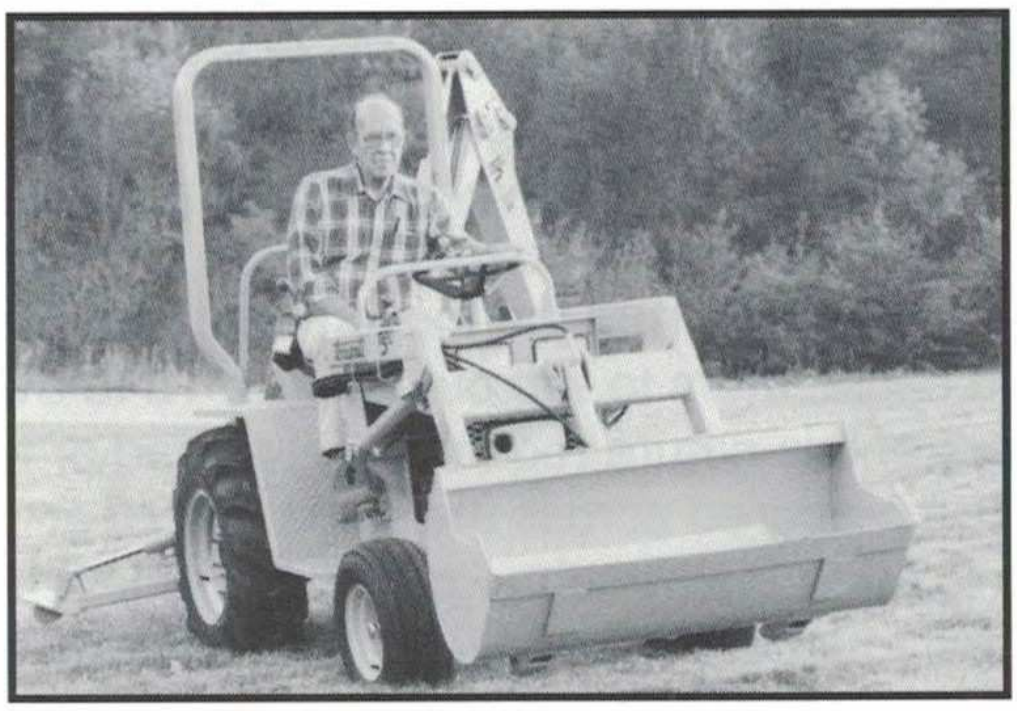
Still a Judgement Call

As you will note on our placard, our DO NOT EXCEED limit is 22 degrees working up and down a slope and 10 degrees working across. These limits represent the degree of slope at which the T5 becomes unstable and in danger of rolling over, regardless of the tire traction and the surface condition of the slope. This has nothing to do with the degree of pitch at which the T5 might lose traction and start to slide. Depending on the nature of the surface, such

as mud, ice or dry leaves, the T5 could slide completely out of control on a slope of only a few degrees. Regardless of your experience, you must always be aware of the nature of the surface when working any degree of slope.

Driving Across a Slope

When driving across a slope, keep the buckets as low to the ground as possible. Swing the backhoe boom up the slope to gain stability. Proceed very slowly, particularly if the terrain is rough. Do not attempt turns on a slope that you feel is steep enough to be dangerous. A stable grip of the tires running across the side of a hill can instantly change with the slightest turn up or down the hill.



Back out if there is any question as to the safety of making a turn. Stop and get off if there is any indication of a loss of traction. If you have to unload the bucket on a slope, swing the boom up the slope. Be extremely cautious when working a hillside that gets steeper the farther down it goes or ends with a cliff. There may be no stopping once you start to slide. If you get yourself in one of those situations on a slope, when you suddenly become aware that the T5 just might slide out from under you, STOP! Lower buckets and outriggers. Get off! Get help!

Practicing on a Slope

After you have developed a feel for the operation of the T5, if you are going to be working a good part of the time in hilly terrain, we suggest you find a place to do a little practice. Pick a place at the foot of a slope or hillside with gradual degrees of incline, where you could not slip more than a foot or two.

Attempt to work across the base of the hillside at varying degrees of slope to get a better feel of the traction of the T5. Naturally, this would be limited to the condition of the surface at that time. Regardless, be very cautious as to just how much slope on which you attempt to practice.

Opening a Trench Across a Slope

This is probably the most dangerous situation in which you can place yourself when operating the T5. In fact, the stabilizers are not designed to be extended far enough for you to be able to level the machine more than a few degrees. Never, under any circumstances, attempt to level the T5 by propping up one of the stabilizers with boards or rocks. A sudden lurch of the machine from the movement of the backhoe could cause them to slip out and the T5 to overturn. Work of this nature requires that a road or level workbed be prepared across the slope before attempting to open the trench. Preparing this level bed is better left to a heavy bulldozer, as the T5 was not designed for work of this nature.

Opening a Trench Down a Slope

If you are going to open a trench from the top to the bottom of a hill or slope, first determine in your own mind that the traction is adequate for the degree of slope. After you set your line, if the trench starts at a steep place on the hill, you will have to back the T5 to the starting point. This way, the backhoe bucket will reach the end of the beginning of the trench without turning the tractor around. Level the machine on the hill, using the endloader bucket and stabilizers, as indicated in the photo. As you work down the slope, be sure to keep the bucket in the bottom of the trench ready to drop, to act as an anchor. Keep the loader bucket and the stabilizers low so they can also be dropped. If you

should start to slide, drop everything as fast as possible, and you should come to a stop. However, if it gets away from you and you suddenly find yourself sliding very fast, drop the bucket you are sliding away from. If you are moving toward a bucket, particularly the loading bucket, and you lower it, it will very likely dig in and cause you to be thrown forward, possibly off and in front of the machine if you do not have your seat belt fastened. Jumping from a moving machine can be difficult.

Emergency Procedures

Before working a hazardous area such as a hillside, take time to consider every possible problem you might encounter. Be sure you are mentally prepared for any situation and know exactly what you might do in an emergency. Remember, panic is your worst enemy, and panic usually comes when you are caught completely off guard and unprepared. Safety conscious operators run through emergency procedures before operating under any conditions that give them concern.

Undercutting a Bank

When undercutting a high bank with the loader, be extremely alert to such dangers as falling rocks, overhanging trees or cave-ins.

To Continue Your Training

We highly recommend "Operating Techniques for the Tractor-Loader-Backhoe," by Gary J. Ober. This 177 page practical manual includes over 200 diagrams and photographs, covering everything from the basics to the most advanced loader and backhoe techniques as well as most applications. It is written for both the beginner and the experienced operator. Except for being written for a larger machine with greater lifting capabilities, all applications are the same. It may be purchased from Terramite for $19.95 plus $4.00 P&H.

SAFETY RULES

Safety is a prime consideration in the design of this machine. Guards, shields and other safety features are built in wherever possible. However, accident reports show carelessness causes the majority of accidents. You can avoid most accidents by observing the safety rules on these pages. Study these rules carefully and enforce them on the job:

NEVER ALLOW MINORS TO OPERATE OR BE IN THE VICINITY OF THE MACHINE WHILE WORKING.

DO NOT ALLOW THE T5 TO BE OPERATED BY ANYONE WHO IS INTOXICATED OR ON MEDICATION THAT WOULD AFFECT HIS JUDGEMENT OR ABILITY TO OPERATE THE MACHINE.

THE MACHINE IS DESIGNED TO BE OPERATED BY ADULTS WHO ARE OF AVERAGE SIZE AND WEIGHT. PERSONS WHO ARE EXTREMELY HEAVY, BIG OR TALL, OR THOSE WHO ARE EXCEEDINGLY SHORT, LIGHT OR WEAK SHOULD NOT RUN THE MACHINE.

Before Operating the T5

Read the Operator's Handbook Never allow anyone to operate the backhoe without reading the owner's manual and safety instructions. This should be followed by supervised training, if possible.

Check Your Equipment Always make a complete inspection of the machine before operating it that day. Check the hydraulic system and the engine oil level. Then check the machine for broken, missing or defective parts. Check the tires for cuts, bulges, irregularities and abnormal wear and proper inflation. Check the neutral position of the foot pedal. A malfunctioning machine invites accidents.

"Do Not Operate" Tag When you service the machine, put a "DO NOT OPERATE" tag on the instrument panel. This tag (Terramite Part Number 1-400.82) is included with each machine.

Keep Your Machine Clean Slippery surfaces are hazardous. Remove oil, grease or mud from the operating area of the tractor. Failure to keep these areas clean could cause a serious accident.

Wear Whatever is Needed for Protection Protect yourself by wearing all the protective clothing and personal safety devices issued to you or required by job conditions. You may need a hard hat, safety shoes, safety glasses, heavy gloves, hearing protection, reflective clothing, wet weather gear and a respirator. Never take chances by wearing loose clothing, watches or rings.

Look For Hazards Walk around a new work area and check for any hidden hazards, such as holes and hidden abutments.

Safety Rules

Read and Heed Safety Decals Make sure the safety and information decals can be easily read. To clean decals, use soap and water only. Gasoline or solvents will destroy the decals. If these decals are missing or illegible, see page 76 for replacement order numbers.

Roll-Over Protective Structure All Terramite T5 tractor-loader-backhoes are equipped with a roll-over protective structure. This is designed to protect the operator in the event of a roll-over. If this machine has been rolled over, the R.O.P.S. must be replaced. It is designed to be used only once.

Driving Pivot Pins When driving pivot pins in or out, use care to guard against injury from particles that may chip off the pin or object used in striking the pin. These pins can fly out at high speed if they are not tapped lightly just before they come out. Make sure there isn't anyone or anything in the way, in case the pin flies out. Safety glasses should be worn.

When Operating the T5

First Aid and Fire Keep a fire extinguisher and a first aid kit nearby and know how to use them.

Loose Clothing Never take chances by wearing loose clothing, watches or rings. Keep clothing and hands away from moving parts.

Only Room for One When in operation, only the operator should be permitted on the machine.

Mounting the Machine Always mount your machine from the side. Grasp the hood handle with one hand and the seat back with the other hand. Put one foot on the machine at a time. Never mount from the rear or while the engine is running. Before you start the engine, always fasten the seat belt. When in operation, do not jump either on or off the machine. Never mount or dismount a moving machine. According to State of California statistics, climbing on or off is one of the leading causes of accidents on these machines.

Starting the T5 Do not attempt to start or operate the endloader or backhoe except from the operator's station. Never operate the controls from the ground, as this could result in serious injury or even death.

Accidental Starting To prevent accidental starting when servicing the engine or equipment, always remove the spark plug or wire from the spark plug. Disconnect the negative wire from the battery. Put a "Lock Out" tag on the machine while being serviced.

Jump Starting If the tractor has to be jump started, be very careful not to create sparks, which could cause a fire or explosion from hydrogen gas from the battery. Batteries contain sulfuric acid, which can cause severe burns. Therefore, avoid contact with eyes, skin or clothing.

When Operating the T5 (Continued)

Antidote: External, immediately flush with water. Internal, drink lots of water followed by magnesia, beaten egg, or vegetable oil. Go to the closest Emergency Room or call a doctor immediately. Clothing can often be saved by soaking them in a solution of baking soda and water.

Other Battery Considerations Do not use the battery charger as a booster to start the engine. Never disconnect the battery when the engine is running. Never attempt to charge or jump start a frozen battery. An explosion may occur.

Operating at Excessive Speed Operating unit at excessive speeds increases the danger of personal injury. Do not change the governor setting or tamper with components which may increase speed.

Excessive Hydraulic Pressure Do not raise the hydraulic pressure beyond 2200 PSI. Components may become overloaded and break, causing serious injury. This also shortens the life of your machine.

Excessive Tire Pressure Never exceed maximum recommended tire pressure, as serious injury or even death may result.

Relief Valve Settings Do not change the relief valve settings. They are factory set for the best machine performance and safety. If it becomes necessary to adjust this setting, refer to the T5 Service Manual for the proper procedure.

Parking Machine If possible, always park your machine on level ground, dropping front loader, backhoe and stabilizers.

Parking End of Day Park your machine on level ground, if possible, when you leave it for the night. The surface may be very slick when you return in the morning if there is dew on the ground. Lower buckets and stabilizers, then turn off the ignition and remove the key. Then block the wheels.

Changing from Loader to Backhoe Operation When changing from loader to backhoe operating position, make sure the front bucket is on the ground and the engine is turned off before getting off the seat and unlatching the swivel lock to turn the seat around. Swivel the seat into position. Make sure the seat locks in place. Then get on seat and fasten safety seat belt.

Prevent Fire Do not use machine around dry, dead grass or brush covered land unless a spark arrester is installed.

Beware of Lightning Keep in mind, the machine is grounded whenever the stabilizers or either bucket touches the ground. Stay clear of the machine until the storm passes.

Transporting the T5

Proper Towing Equipment It is important that you use a truck that is capable of towing the T5 and trailer, and that it is equipped with the proper tie-down equipment for securing it to the trailer. When on a road or highway at night or during the day, use accessory lights and an SMV (Slow Moving Vehicle) sign for adequate warning to other drivers. In this regard, check local governmental regulations.

Do Not Wrap Chains Around Cylinder Rods This may scar or bend them.

Loading the T5 (See page 44 for full details on loading procedure.)

IMPORTANT: Drive the machine slowly onto the trailer, keeping the buckets in a lowered position. Loading the tractor onto a tilt-bed trailer can be very tricky. Drive onto trailer at the slowest possible speed. Otherwise, as you go onto the trailer, the bed will slam down, causing the trailer to seesaw back and forth.

Securing the T5 Be sure the boom locking chain and endloader transport bar are in place before transporting the backhoe. Be careful not to let your fingers get in the way of the chain when you let the boom down. Lower the front bucket, turn off the tractor, then lower the backhoe bucket. Block each side of the front and rear tires. Use chains to bind the machine to the trailer. There are binding rings welded onto the frame under the engine and behind the outrigger mounts. Always put the binders toward the front and the rear of the machine, never straight out. The machine may shift if the binders are placed at 90 degree angles. It is a good practice to use tie wire to keep the handle on load binders from coming loose. Be careful if you use a cheater bar to lock binders down. Fingers have been broken when the binder flings over center. A ratchet binder is the best, followed by over-center binders. Some "come alongs" are not very safe due to their poor construction. Make sure all loose items are secured.

Trailer Tongue Weight IMPORTANT: The front of the trailer must have weight on the tongue. If there is too much weight on the back of the trailer, it will suddenly and without notice start whipping violently back and forth at highway speeds. Remember this when carrying extra payload on the trailer. Be sure the tongue weight does not exceed the maximum weight for the bumper or hitch of your vehicle.

When Transporting the T5 First test the braking capabilities of the truck and trailer combination on a clear stretch of road. Most brake controllers can engage the trailer brakes independently of the towing vehicle's brakes. This feature can be used to help straighten out a skid. Periodically check your trailer and safety equipment.

Hazards and Hazardous Areas

Approved Container Always use an approved container when handling and storing gasoline or solvents.

When Loading Fuel Never fill the fuel tank while smoking, when near an open flame or with the engine running. Leave room for fuel expansion, 1 1/2 to 2 inches. Replace fuel cap securely.

Cleaning Parts Never use gasoline or diesel fuel for cleaning parts. Always use a non-flammable solvent.

Buried Utility Services Call local utility companies before digging in an area where buried pipelines or cables are suspected. Check your phone directory for a number listed under MISS UTILITY. This is a service provided by the utility companies. You won't be liable for damages if you hit a line where they told you to dig.

Fiber Optic Cable A cut fiber optic cable can cause eye injury if you look into the damaged end.

Overhead Wires Watch for overhead wires and cables. Never touch the wires with any part of the machine. If you contact an electric line and you are not being shocked, stay on your machine until help arrives. If you have to jump from the machine, make sure you are not touching the machine as you hit the ground.

Two Men, if Possible When working in hazardous areas, be extremely alert. If possible, two men should work together, one operating the machine and the other directing him and watching for dangers. Develop a hand signal system or use hand signals shown on page 42.

Unventilated Area Never operate the tractor in an unventilated area. Carbon monoxide fumes have no odor and are deadly. Carbon monoxide detectors can be purchased at most airports for just a few dollars and installed on the T5. Also, if there is any reason to believe that methane gas may be present, do not operate in the area without a methane detector. Methane gas detectors are expensive and not likely to be found except around mining areas. Carbon monoxide and methane gas are colorless and odorless. Every year many deaths occur when someone enters an area and succumbs to gas.

Beware of Lightning The machine is grounded and can attract lightning. Stay clear of the machine until after the storm passes.

Explosion Sparks can come out of the muffler or from the electrical system. Do not operate the machine in areas where there are flammable vapors or dusts that are of the nature that would cause an explosion.

Hydraulic System

Danger! Fluid Under Pressure Escaping fluid under pressure can have sufficient force to penetrate the skin, causing serious personal injury. Before disconnecting or connecting lines, be sure to relieve all pressure by working the handles back and forth. Before applying pressure to the system, be sure all connectors are tight and that fittings and hoses are not damaged. Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands, to search for suspected leaks. Do not touch hot mufflers, cylinders, or fins, as contact may cause burns.

Get Immediate Medical Attention If injured by escaping fluid, go to the nearest Emergency Room immediately. If one is not close by, call a doctor at once. Serious infection or reaction may develop if proper medical treatment is not administered immediately.

Pneumatic Grease Guns Similar care should be taken when operating high pressure pneumatic grease guns used to service the machine.

Using the Loader

A Smooth Surface Keep the work area as level as possible. Travel slowly over rough terrain. Avoid spinning your tires and making dangerous ruts. Backdrag occasionally with the loader bucket to maintain a smooth surface. A smooth surface is not only safer but it is more comfortable to work on, is easier on the machine and lets you work quickly and professionally.

Terrain Hazards Be careful of terrain hazards such as wet grass, dry leaves, rocks, obscured stumps, potholes and other dangers.

How to Handle a Load When lifting, be sure the load is properly balanced. Never carry a load over someone's head. Always carry your load as low as possible. Never leave a load hanging. Place it down as soon as possible. If you must leave your machine, lower the load. When loading trucks, be sure the driver is out of the cab and away from the truck before proceeding.

Gravity and the T5 Avoid sudden stops, high speed turns and travel while the endloader bucket is more than two feet above the ground. The sudden shift in gravity may upset the machine.

Roll the Bucket Forward This machine is not equipped with a self-leveling bucket. The bucket design will keep most material from spilling backwards onto the operator. The safest and best practice is to roll the bucket forward as you raise it and, as always, BE CAREFUL!

Using the Loader (Continued)

Watch What You Put in the Bucket Be careful when handling round objects, such as round bales, poles, etc. Lifting too high or rolling the bucket too far back could result in these objects rolling backwards down the bucket arms and onto the operator.

Not a Personnel Carrier Never use the loader bucket or any part of the machine as a work platform or a personnel carrier.

Not a Ram Never use the endloader as a ram. You may hurt yourself and/or damage your machine.

Using the Backhoe

A Changing Center of Gravity A tractor-loader-backhoe has the unique ability to change its center of gravity. Remember this as you raise, lower or swing the bucket. Trying to turn at high speed or on a slope with the bucket raised to a high position can be dangerous. Add a heavy load in either bucket and you increase the possibility of upsetting the machine. Be sure the stabilizers are properly set and the front bucket is lowered before operating the backhoe.

Before Moving the Boom Be sure bystanders are clear before lowering the stabilizers or moving the boom.

Watch For Workers Never move or swing the endloader bucket above the heads of other workers.

Watch Where You Dig Never dig under the backhoe stabilizers. A cave-in may result.

Proper Backhoe RPM It is unnecessary and unsafe to run the engine wide open while operating the backhoe. The pump will develop the same pressure at low engine speeds, making for a safer, smoother, more efficient operation. The service life of the machine will be extended by running at lower engine speeds.

Prevent Cave-Ins Trenches deeper than 3 feet must be shored up to prevent cave-ins when personnel are to be in the trench. A person can suffocate even if his head is not covered, due to the pressure of the dirt around his chest. If this happens, give mouth-to-mouth resuscitation until help arrives. Consult the OSHA handbook before working inside a trench.

Shoring Shoring should be installed working from the top down to the bottom of the trench. When removing, work from the bottom to the top. Ropes should be used to pull out jacks and braces. A ladder should be close to any man working in the trench. Consult OSHA handbook.

Sloping Trenches Sloping trenches may have to be used when working soft or sandy soil or for large, deep excavations. Consult the OSHA handbook.

Using the Backhoe (Continued)

Vibration If a trench is opened close to a source of strong continuous vibration, it may collapse some time following completion of digging. Shoring is the only protection.

Protect the Public Use barricades to keep passers-by from falling into your excavations. Cover unattended holes in hazardous areas with plywood or other coverings.

Fiber Optics Can Be Dangerous A cut fiber optic cable can cause eye injury if you look into the damaged end.

Buried Utility Service Check your phone directory for MISS UTILITY. If not listed, check with your local utility companies before digging in an area where buried pipelines or cables are suspected.

Working on a Slope

Be Prepared Extreme caution should be used when working a slope. Even if the slope is not steep, if the surface is covered with dry leaves, grass or mud, your rear tires may slide without any braking action. Whenever you are maneuvering on a slope, position the backhoe so the bucket may be instantly dropped, teeth downwards, into the ground. Keep the loader bucket and the stabilizers low so they can also be dropped. Avoid using the loader bucket to stop you if you are traveling fast, because you can be thrown off the front of the machine.

Swing Uphill The center of gravity of a backhoe or endloader continually changes as the bucket is raised or lowered. When tramming around a slope, swing the bucket to the uphill side for the best stability. Avoid swinging the bucket in the downhill direction. Establish your spoil pile on the upside of the hill.

On a Steep Slope Be extremely careful going up a steep slope. If one tire slips, your tractor will likely turn sideways and upset. Always use extreme caution when making any kind of a turn on a slope or hillside.

The Most Dangerous Hillside Always use caution when working along the top of a bank that gets steeper as you work down or has a cliff at the edge. If you once start to slide, it will only get worse.

Parking End of Day Park your machine on level ground, if possible, when you leave it for the night. The surface may be very slick when you return in the morning if there is dew on the ground. Lower buckets and stabilizers, then turn off the ignition and remove the key. Then block the wheels. If you have to park on a grade, position the tractor at a right angle to the slope.

Watch Your Fingers When changing buckets, never insert your fingers through the hole to check for alignment. Your fingers can be easily severed or mashed if the backhoe should move.

Purpose and Scope

The purpose of the hand signals is to provide an easy means of communications in the interest of safety. These hand signals are in general agreement with U.S. Army Field Manual, FM21-60, Section II, Standard Arm and Hand Signals. This Standard provides for hand signals to be used in agricultural operations especially when noise or distance precludes the use of normal voice communications.

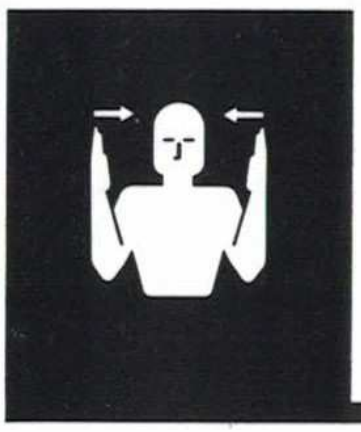


Fig. 1 THIS FAR TO GO Place palms at ear level facing head, and move laterally inward to indicate remaining distance to go.

Fig. 2 COME TO ME Raise the arm vertically overhead, palm to the front, and rotate in large horizontal circles.

Fig. 3 MOVE TOWARD ME - FOLLOW ME Beckon by holding the arm horizontally to the front, palm up, and motioning toward the body.

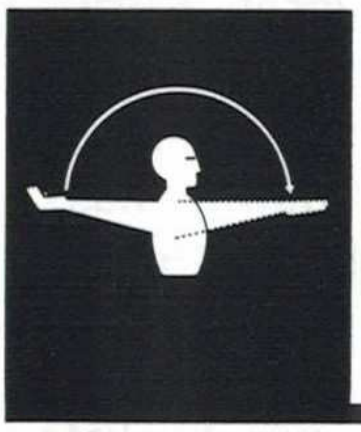


Fig. 4 MOVE OUT - TAKE OFF Face the desired direction of movement; hold the arm extended to the rear; then swing it overhead and forward in the direction of desired movement until it is horizontal, palm down.

Fig. 5 STOP Raise hand upward to the full extent of the arm, palm to the front. Hold that position until the signal is understood.

Hand Signals

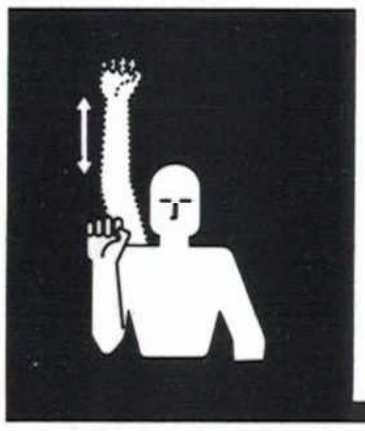


Fig. 6 SPEED IT UP - INCREASE SPEED Raise the hand to the shoulder, fist closed; thrust the fist upward to the full extent of the arm and back to the shoulder rapidly several times.

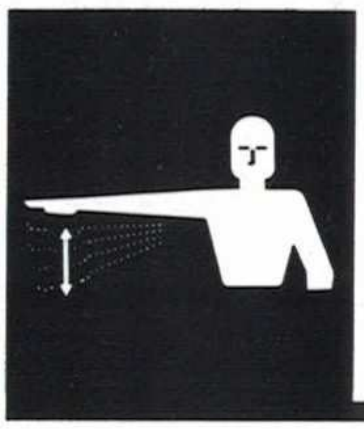


Fig. 7 SLOW IT DOWN - DECREASE SPEED Extend the arm horizontally sideward, palm down, and wave arm downward 45 deg. minimum several times, keeping the arm straight. Do not move arm above horizontal.

Fig. 8 START THE ENGINE Simulate cranking the vehicle by moving arm in a circular motion at waist level.

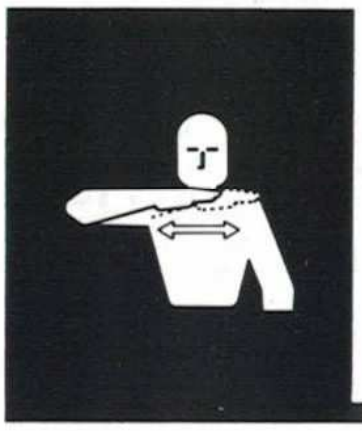


Fig. 9 STOP THE ENGINE Draw right hand palm down, across the neck in a "throat cutting" motion from left to right.

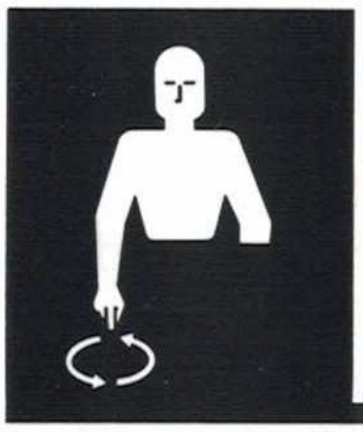


Fig. 10 LOWER EQUIPMENT Make circular motion with either hand pointing to the ground.

Fig. 11 RAISE EQUIPMENT Make circular motion with either hand at head level.

TRANSPORTING THE T5

General Considerations

It is important that you use a truck that is capable of towing the tractor. It must be properly equipped and in good working condition. First, find a level spot in a clear area to load your tractor. Be extremely careful if this is your first time or if you are using a different truck or trailer than usual. Be sure that bystanders are kept clear. Do not leave passengers in your vehicle during the loading process.

Trailer Size and Type

The trailer you select should have a load carrying capacity of at least 7000 lbs. if it is a tandem axle, and should be at least 14 feet long and 54 to 60 inches wide (depending on which rear tires your machine is equipped with). The single axle trailer can be as short as 10 feet, but the front endloader and backhoe will hang off either end and will need to be secured by the transport bar and chains. You will need to check with State authorities as to whether electric or hydraulic surge brakes are permitted.

Loading Can be Tricky

After setting the truck's emergency brake and blocking the wheels of the truck and the trailer, drive the machine slowly onto the trailer, keeping the buckets in a lowered position. Keep in mind that the weight of the tractor going onto the trailer may raise the rear of the truck off the ground, causing the truck, trailer and tractor to roll forward. Driving onto a tilt-bed trailer can also be very tricky as the trailer bed will likely slam down, tending to make you overcompensate by going backwards, thus causing the trailer to seesaw back and forth.

Transporting the T5c

Securing the T5 to the Trailer

Once the tractor is positioned on the trailer, lower the front bucket, turn off the engine, then lower the backhoe bucket. Then block each side of the front and rear tires. Using chains, bind the machine to the trailer. There are binding rings welded onto the frame under the engine and behind the outrigger mounts. Always put the binders toward the front and the rear of the machine, never straight out. The machine may shift if the binders are placed at 90 degree angles. Measure the height of the machine on the trailer so you will know the minimum height under which you can pass.

CAUTION! Always place the load binder handles on the right so you can tighten them down without exposing yourself to oncoming traffic. It is good practice to use a piece of tie wire to keep the handle from flying up. Be careful if you use a cheater bar to lock binders down. Fingers have been broken when the binder flings over center. A ratchet binder is the best, followed by over center binders. Come alongs are not very safe due to their poor construction. Make sure all loose items are secured. Be sure to check tightness after you start, and periodically as you travel, as the load may shift.

Towing the T5

At highway speeds, if there is too much weight on the back of the trailer, it may suddenly and without notice start whipping violently back and forth. This can be very dangerous and is caused by not having enough weight on the tongue. It can be corrected by properly positioning the tractor on the trailer. Too far forward may produce more weight than the hitch or even the truck can handle; whereas, too far back can be dangerous, as described above. It is a good idea

to go to a weigh station and, after determining the best position, mark where to park the wheels. You must also be careful as to just where you place any additional cargo you may take along. Most trailer manufacturers recommend that 10% of the weight be on the tongue.

CAUTION! Test the braking capabilities of the truck and trailer combination on the first clear stretch of road. Most brake controllers can engage the trailer brakes independently of the towing vehicle's brakes. This feature can be used to help straighten out a skid.

Safe Towing Practices

SAFETY FIRST! Always maintain extra distance from the vehicles in front of you and allow extra room when turning corners. Make lane changes slowly to keep the load from shifting, and let other drivers, who may be in your blind spot, get out of your way. Periodically check your trailer and safety equipment. Remember, you are towing the equivalent of a pickup truck behind you.

STORING THE T5

For Storage of More than 30 Days

To insure maximum performance and minimum deterioration, the following procedures should be performed when the tractor will be idle for more than 30 days:

1. Wash tractor and let dry (waxing will help prevent paint oxidation).
2. Change engine oil.
3. Charge battery fully and disconnect the battery leads.
4. Shut off fuel to the engine and let it run out of gas.
5. Fill fuel tank within 2" of filler neck (keeps out condensation) and add fuel conditioner.

6. Remove the spark plugs and squirt a small amount of oil into cylinders, and turn engine over a few times by hand.
7. Rotate engine by hand until it is between the exhaust and intake strokes. (This relaxes the valve springs.)
8. Grease all pivot pins. Liberally apply cup grease to all bare metal surfaces, such as buckets and exposed cylinder rods. Grease all pivot pins. Retract all cylinder rods. Use WD40 on all electrical parts and areas inaccessible to regular grease.
9. Set the tractor on stands so the tires are off the ground. (Keeps tires from developing flat spots.)
10. Deflate tires to 1/2 pressure to relax cords.
11. Use a protective such as ArmorAll on hoses, seat and tires to keep them from dry rotting.
12. If machine is to be stored outside, cover with a tarp or plastic to minimize weathering.

Fuel Considerations when Storing the T5

Shut off fuel to the engine and let it run out of gas. Do not add gasoline while the engine is hot or running. When engine cools, fill fuel tank within 2" of filler neck (to keep out condensation) and add fuel conditioner. Do not over fill the tank, as you must leave room for fuel to expand. The fuel tank holds seven gallons. For best results, use only clean, fresh, regular grade unleaded gasoline with a pump sticker octane rating of 87. There is no need to use an octane rating higher than 87. In countries using the Research method, use 90 octane minimum. Do not use gasohol, as it may attack plastic parts in the carburetor. Fresh gasoline is blended for the season, and reduces gum deposits, which could clog the fuel system. Do not use gasoline left over from the previous season or add oil to the gasoline. Unleaded is recommended, since it leaves less combustion chamber deposits. Gasoline is extremely flammable, and its vapors can explode if ignited. Store gasoline only in approved containers in unoccupied buildings away from sparks or flames.

ENGINE OPERATING INSTRUCTIONS

Note: With your T5 you will receive an operation and service manual for the particular engine supplied with your machine. This manual contains detailed information as to operation, maintenance and repair of the engine and its various components. However, before attempting any major repair of the engine, contact your dealer or the factory as to whether it will affect your factory warranty.

Engine Fuel (Gasoline)

WARNING! Gasoline is extremely flammable and its vapors can explode if ignited. Store gasoline only in approved containers in unoccupied buildings and away from sparks or flames. Do not add gasoline while the engine is hot or running or start the engine near spilled gasoline. Never use gasoline as a cleaning agent.

Fuel Grade Unleaded 87+ (Do Not Use Gasohol)

For best results, use only clean, fresh, regular grade, unleaded gasoline with a pump sticker octane rating of 87 or higher. Do not use Gasohol, as it may attack plastic parts in the carburetor. Do not over fill the tank, as you must leave room for fuel to expand. The fuel tank holds seven gallons. There is no need to use an octane rating higher than 87. In countries using the Research method, it should be 90 octane minimum. Do not use gasoline left over from the previous season or add oil to the gasoline. Fresh gasoline is blended for the season and reduces gum deposits, which could clog the fuel system. Unleaded is recommended, since it leaves less combustion chamber deposits. Regular grade, leaded gasoline may also be used; however, be aware that the combustion chamber and cylinder head will require more frequent service. In the U.S. unleaded is the only fuel that can be purchased.

Starting and Stopping Gasoline Engine

Place the throttle control MIDWAY between the "SLOW" and "FAST" positions. Place the choke control into the "OFF" position. Activate the starter switch. Release the key as soon as the engine starts. In cold weather at temperatures below 35 degrees, start with the choke at full and gradually return the choke control to the "OFF" position after the engine starts and warms up. After starting the engine, it may be necessary to leave the choke partially "ON" for a few minutes before moving it to the "OFF" position.

STOPPING: Place the throttle control MIDWAY between the "SLOW" and "FAST" positions. Allow the engine to run for a minimum of 15 seconds; then stop the engine. If engine backfires when the ignition key is turned off, it is usually caused by the engine continuing to turn over from excessive R.P.M. Engine should be slowed before turning off. If the starter does not turn the engine over, shut off starter immediately. Do not make further attempts to start the engine until the condition is corrected. (Note: These starters have ceramic magnets, so if you strike them on the side it will break the magnet and cause a failure.)

Starting Diesel Engine

Warm Weather For the first start of the day, place the throttle in the half-way position and turn the ignition key counter-clockwise to the pre-heat position. Hold the key in this position until the pre-heat indicator light goes out, and then start engine.

Cold Weather Same as above, except it will take longer for the light to go off. Be sure that you are using the correct grade of fuel and lubrication oil for the season. Summer weight fuel may partially wax up, clogging your fuel filter and, therefore, starving the engine. Do not crank the engine more than 20 seconds without allowing the starter to cool for at least two minutes.

Dirty Air Filter

A dirty air filter can make the engine difficult, if not impossible, to start. We suggest that the air filter be checked weekly in the event you are working in extremely dirty or dusty conditions. Otherwise, check and clean monthly. (See page 56.) **The warranty may be denied if the manufacturer's air filter is not used.**

Do Not Use Ether as a Starting Aid

The engine has a high compression ratio, and using ether will ruin your engine. **The damage will not be covered under your warranty.**

Total Failure of Starter

If the starter does not turn the engine over, shut off the starter immediately. Do not make further attempts to start the engine until the condition is corrected. (Note: These starters have ceramic magnets, so if you strike them on the side it will break the magnet and cause a failure.)

CAUTION! Do not crank the engine continuously for more than 20 seconds at a time. If the engine does not start, allow a two minute cool-down period between starting attempts. Failure to follow these guidelines will burn out the starter motor.

CAUTION! If the engine develops sufficient speed to disengage the starter but does not keep running (a "false start"), the engine rotation must be allowed to come to a complete stop before attempting to restart the engine, or engine damage may result.

WARNING! Do not tamper with the governor setting to increase the maximum engine speed. Over-speeding is hazardous and will void the warranty.

The T5 Engine

Electronic Ignition System

This engine is equipped with a dependable electronic ignition system. Other than periodically checking/replacing the spark plugs, no maintenance, timing, or adjustments are necessary or possible with this system.

Diesel Operation in Hot Weather

Operating the diesel in hot weather is mostly a matter of keeping the coolant at the correct level, the radiator clean and keeping an eye on the fan belt. Also, be certain of the viscosity of lubricants.

Temperatures Below 32 Degrees

There are several precautions which must be followed when the temperature drops below 32 degrees Fahrenheit. The oil in the engine and the hydraulic system needs to be changed to winter weight. The engine should be in good tune, i.e., fresh spark plugs and a new air filter. The battery should be kept at full charge. Never run the starter more than 20 seconds at a time, then let cool for two minutes. Do not hit the outside casing of the starter, you will break the ceramic magnets.

Fuel Conditioner For Diesel Engines

If your tractor has a diesel engine, add fuel conditioner. Diesel fuel gets waxy at low temperatures and may not flow through the filter and pump. The fuel conditioner will help prevent this.

Below 10 Degrees

Special procedures must be followed so your machine may be readily started without damage. The hydraulic system and the engine need to be fitted with electric heaters. The machine can be warmed with a high output forced air heater.

TRACTOR ENGINE SERVICE

Engine Oil (Recommended)

ENGINE OIL Class SF or SG
Using the proper type and weight crankcase oil is extremely important, as is checking oil daily and changing oil and filter regularly as recommended by your maintenance schedule. Use high quality detergent oil of API (American Petroleum Institute) service class SF or SG.

Checking Engine Oil

Before checking the oil, make sure the engine is stopped and resting on a level surface. Also, make sure the engine is cool and the oil has had time to drain into the sump. Before removing the oil fill cup or dipstick, clean the area around these parts to keep dirt and debris out of the engine. Remove the dipstick and wipe oil off. Re-insert the dipstick and push it all the way down into tube. Remove the dipstick and check the level. Add the proper type of oil if the level is low. Bring the level up to, but not over, the "F" mark on the dipstick. Always check the level on the dipstick before adding more oil.
CAUTION: Do not operate the engine with the oil level below "L" mark or over "F" mark.

Periodic Service

General Considerations

These required maintenance procedures should be performed at the frequency stated in the table. They should also be included as part of any seasonal tune-up. Perform these maintenance procedures more frequently when the engine is operated under extremely dusty or dirty conditions. Terramite tractor-loader-backhoes are made of the finest and most durable materials. They will hold up very well with a minimum amount of care. The maintenance procedures are very simple and easy to do.

REQUIRED MAINTENANCE	FREQUENCY	PAGE
Clean Air Intake Screen	Daily	56
Check Engine Oil Level	Daily	54
Check Hydraulic Oil Level	Daily	57
Check/Replace Fuel Filter**	As Required	
Change Oil and Filter	As Specified	55
Service Foam Pre-cleaner	25 hrs.	56
Clean Cooling Fins and External Surfaces	50 hrs. or as req.	
Check Paper Air Cleaner Element	100 hrs. or as req.	56
Check Spark Plugs	100 hrs.	64
Bucket Teeth	Daily	66
Fasteners (tightness)	5 hrs., then 250 hrs.	67
Check Valve-Tappet Clearance**	500 hrs.	
Have Cylinder Heads Serviced**	500 hrs.	
Have Starter Motor Drive Serviced**	500 hrs.	

**See Engine Maintenance Manual

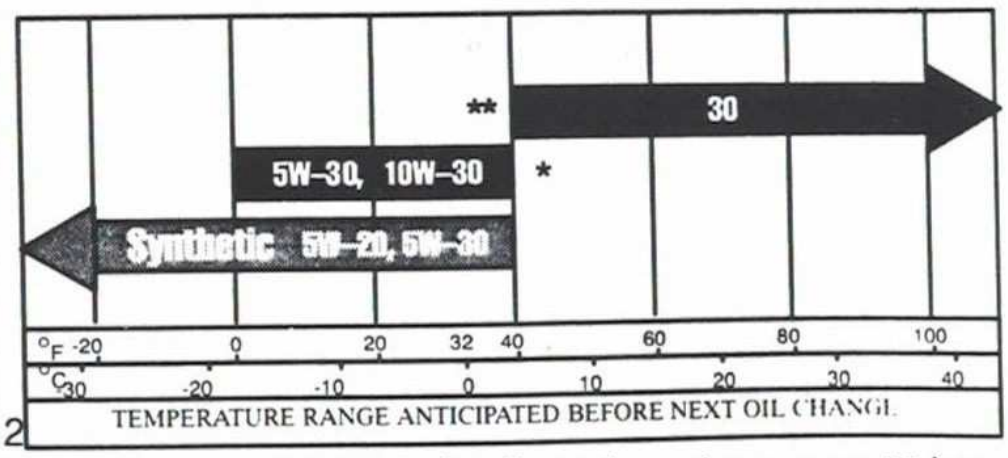
We also suggest that the air filter be checked weekly in the event you are working in extremely dirty or dusty conditions. The manufacturer's air filter should be used, or warranty may be denied. Otherwise, check and clean monthly.

ENGINES AVAILABLE FOR T5

Briggs & Stratton 18 HP

SPECIFICATIONS

Displacement		42.33
Bore		3.44
Stroke		2.28
Comp. Ratio		6 : 1
Weight		117 lbs.
Oil Cap.	Pints	3
Spark Plug Type	Champion	14
Spark Plug Gap	inches	0.030
Ign. Module Air Gap		0.008-0.012
Oil Filter	B&S	492932
Air Filter	B&S	394018
Foam Element	B&S	272490

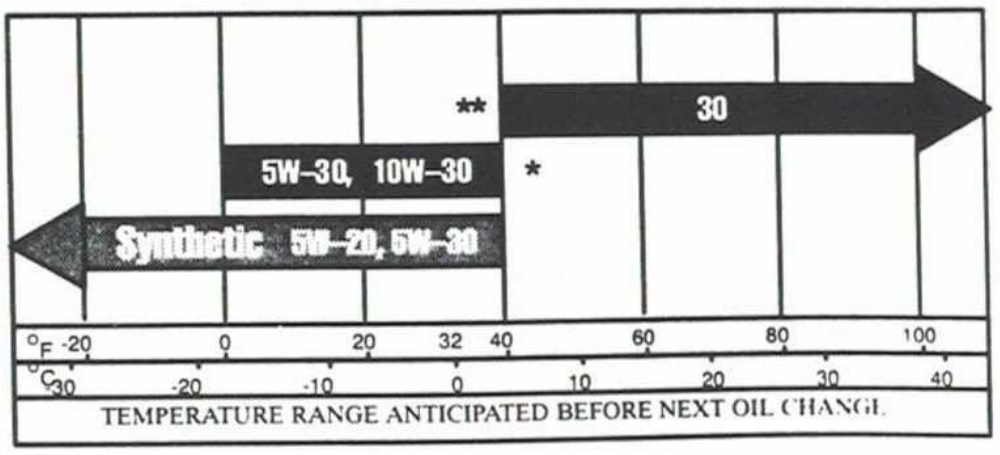


Change oil & filter after first 5 hrs., then every 50 hrs.
Replace Paper Element at least every 100 hrs.
Wash and reoil precleaner every 25 hrs.

Briggs & Stratton Vangard 20 HP

SPECIFICATIONS

Displacement		34.75
Bore		2.83
Stroke		2.75
Comp.Ratio		8 : 1
Weight		84lbs.
Oil Cap.		1.75 qts.
Spark Plug Type	Champion	71
Spark Plug Gap	inches	0.030
Ign. Module Air Gap		0.008-0.012
Oil Filter	B&S	492932
Air Filter	B&S	394018
Foam Element	B&S	272490

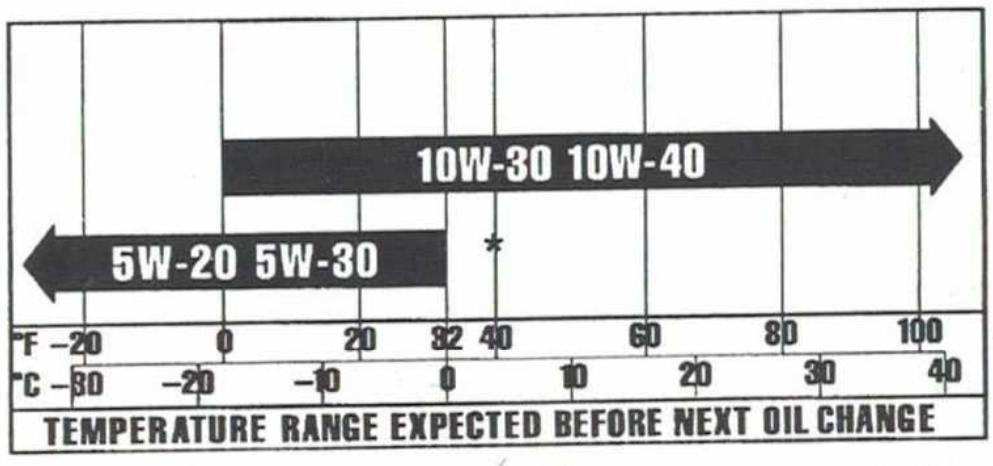


Change oil & filter after first 5 hrs., then every 50 hrs.
Replace Paper Element at least every 100 hrs.
Wash and reoil Foam Element every 25 hrs.

Kohler CH20 Command 20 HP

SPECIFICATIONS

Displacement		38.1
Bore		3.03
Stroke		2.64
Comp. Ratio		8.5 : 1
Weight		90 lbs.
Oil Capacity		2 qts.
Spark Plug Type	Champ.	RC12YC or 71
Spark Plug Gap	inches	0.040
Ign. Module Air Gap		.008-0.012
Oil Filter	Kohler	KH 12 050 01
Air Cleaner	Kohler	KH 47 083 03
Pre Cleaner	Kohler	KH 24 083 02

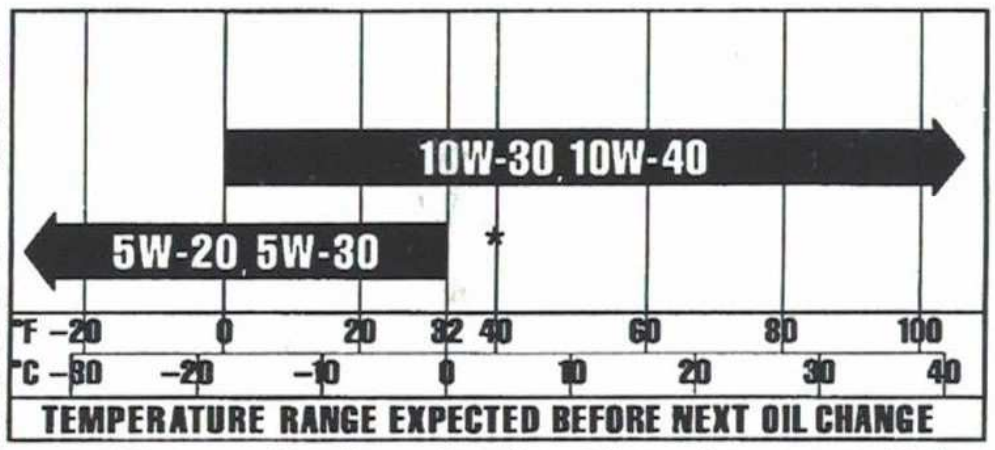


Change oil & filter after first 5 hrs., then every 50 hrs
Replace Paper Element at least every 100 hrs.
Wash and reoil Foam Element every 25 hrs.

ENGINES AVAILABLE

Kohler MS20 Terramite 20 HP

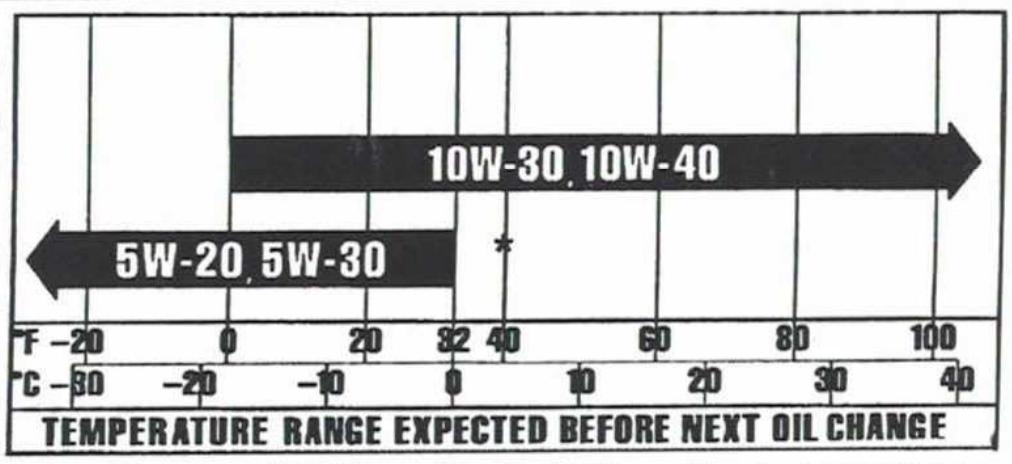
SPECIFICATIONS		
Displacement		46.98
Bore		3.12
Stroke		3.06
Comp. Ratio		6.4:1
Weight		130 lbs
Oil Cap.		1.75 qts
Spark Plug Type	Champion	12
Spark Plug Gap	inches	0.025
Ign. Module Air Gap		0.008-0.012
Oil Filter	Kohler	52 050 02
Air Filter	Kohler	47 083 01
Pre Cleaner	Kohler	52 083 01



Change oil & filter after first 5 hrs., then every 50 hrs.
Replace Paper Element at least every 100 hrs.
Wash and reoil Foam Element every 25 hrs.

Honda GX620 V-Twin 20.5 HP

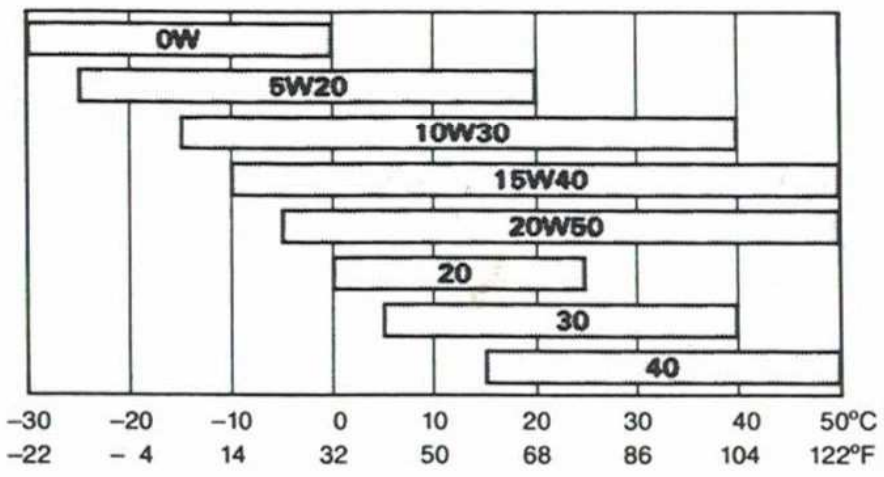
SPECIFICATIONS		
Displacement		37.7
Bore		3.0
Stroke		2.6
Comp. Ratio		8.3:1
Weight		96 lbs
Oil Cap.		1.59 qts
Spark Plug Type	Champion	322
Spark Plug Gap	inches	0.028
Ign. Module Air Gap		0.16-0.008
Oil Filter	Honda	317955
Air Cleaner	Honda	420967
Pre Cleaner	Honda	420970



Change oil & filter after first 5 hrs., then every 50 hrs.
Replace Paper Element at least every 100 hrs.
Wash and reoil Foam Element every 25 hrs.

Perkins 103-10 Diesel 20 HP

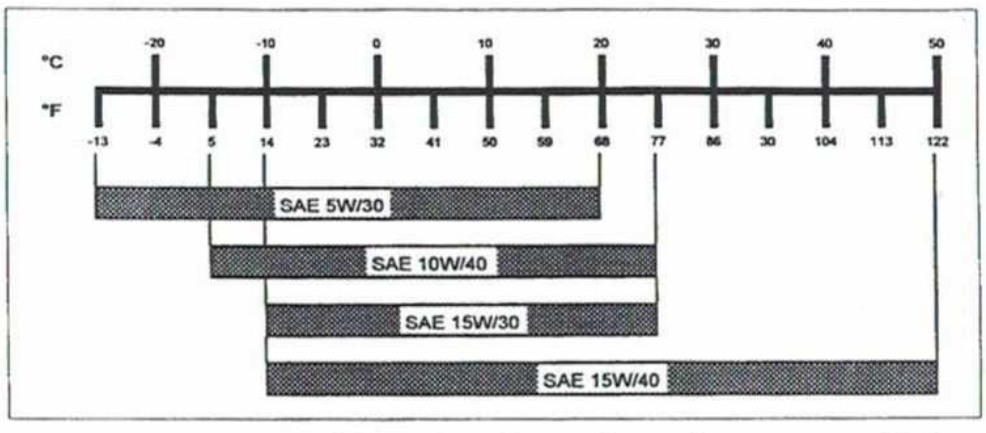
SPECIFICATIONS		
Displacement		58.2
Bore		2.95
Stroke		2.83
Comp. Ratio		23:1
Weight		189 lbs
Oil Cap.	3.5 to 3.75 qts or 2.5 ltrs	
Synthetic Approved	See Engine Manual	
R.P.M.		2800 R.P.M.
Number of Cylinders		3
Oil Filter	Perkins	140516190
Air Filter	Call Terramite Service	
Fuel Filter	Perkins	130366020



Same as for gasoline engines

Lombardini LDW 903 Diesel 20.5 HP

SPECIFICATIONS		
Displacement		916cm^3
Bore		72mm
Stroke		75mm
Comp. Ratio		22.8:1
Weight		85 lbs
Oil Cap.		2.5 ltrs
Synthetic Approved	See Engine Manual	
R.P.M.		3000 R.P.M. Tops
Number of Cylinders		3
Oil Filter		2175-107
Air Filter	Call Terramite Service	
Foam Element		2175-045



Change oil & filter after first 5 hrs., then every 50 hrs.
Replace Paper Element at least every 100 hrs.
Wash and reoil Foam Element every 25 hrs.

Operating on Unlevel Terrain (Oil)

CAUTION! When operating the T5 on unleveled terrain, extreme care should be used to assure the engine receives proper lubrication. It may be advisable to over-fill the crankcase to be certain the engine is picking up and distributing proper lubrication.

Extended Engine Oil Change Intervals

NOTICE: Using other than service class SF or SG oil or extending oil change intervals longer than recommended will cause engine damage which is **not covered by the engine warranty.**

Engine Air Filter (Paper Element)

The gasoline and diesel engines are equipped with a high-density paper air cleaner element. The gasoline engines also include a pre-cleaner element. The paper element should be replaced every 100 hours. Do not wash or use pressurized air to clean the paper element. Before installing new filter, be sure to inspect it for damage and that it fits perfectly when replaced.

Engine Air Filter (Foam Pre-Cleaner)

Clean and re-oil foam pre-cleaner at three-month intervals or every 25 hours, whichever occurs first.

1. Remove knob and cover.
2. Remove foam pre-cleaner by sliding it off the paper cartridge.
3. Wash foam pre-cleaner in kerosene or liquid detergent and water.
4. Wrap foam pre-cleaner in cloth and squeeze dry.
5. Saturate foam pre-cleaner in engine oil. Squeeze to remove excess oil.
6. Install foam pre-cleaner over paper cartridge. Re-assemble cover and screw down tight.

Note: Service the air cleaner more often under dusty conditions.

HYDRAULIC SYSTEM SERVICE

Check Hydraulic Oil Level Daily

Before checking the dipstick, all cylinders should be retracted. The correct oil level is halfway up the dipstick. Note the condition of the fluid. A milky appearance indicates water or air in the oil. A small amount of oil can be put into a glass bottle to determine air or water contamination. Let the glass set for a few hours; air will rise to the top, water will take several days to separate. To avoid damage to the hydraulic pumps, drain and replace milky-looking oil. Proceed as follows to drain the oil out of the reservoir tank.

Hydraulic Oil Filter

When the machine is new, the system oil and filter should be changed within the first 50 hours. After that, every 250 hours. Fill system with API SFCD 15W-40 above 40 degrees, and 10W below 40 degrees. Oil should be changed on a level surface while still warm. Replace with: Parker 9219999, NAPA 1551, WIX 51551 or Terramite 2-200.2C.

Hydraulic Oil Leaks Can Be Dangerous

WARNING! As this may be your first experience with a machine that functions primarily through hydraulic pressure, never inspect or put your hands close to any part of the hydraulic components of the machine while the engine is running or within two minutes after being shut down. If injured by escaping fluid, go to the emergency room of the nearest hospital at once and tell the the nature of the injury. If there is not a hospital in the vicinity, call a physician. Serious infection or a reaction such as gangrene can develop if proper medical treatment is not administered immediately.

Minor Hydraulic Oil Leaks

Oil leaks are often difficult to locate, as oil may leak from areas in the machine that are hidden from view. However, if you can locate the leak, take a cloth and completely dry everything around the leak to determine how fast the oil is escaping. A drop of oil every 10 seconds is only 1/2 oz. per hour. Do not use teflon tape to try to stop a leak, as it can get loose in the system. You can easily over tighten a fitting or hose wrapped with teflon, causing a housing to crack. The preferred sealant is Loktite (tm) hydraulic thread sealant with teflon paste.

Major Hydraulic Oil Leaks

If load drops with valve in power position, you have a serious hydraulic oil leak in the system. Fill oil tank to halfway mark on dipstick, then wipe clean of oil any area where you suspect the leak. Raise both the backhoe and the endloader, keeping them up for several minutes. Shut off engine and wait two minutes. There should be a visible amount of oil around the leak or on the ground. If not, it is usually oil leaking past the control valve and it will have to be repaired or replaced. Repairing most leaks is usually just a matter of tightening or replacing an oil line.

Locating Leak Under Full Pressure

If you still have not found the leak and must look for it while the lines are at full pressure, be aware that escaping fluid under pressure can have sufficient force to penetrate the skin, causing serious personal injury. Fluid escaping from a very small hole can be almost invisible. Therefore, we recommend that you wear heavy work clothes that will fully cover your body, leather work gloves and safety eye protection when placing your hands around or near hydraulic lines or fittings while the engine is running or within two minutes of turning it off. Then use a piece of cardboard or wood to detect the leak.

Hydraulic Considerations

Danger! Oil and Fittings Get Hot

It is normal for the hydraulic oil to reach 170 degrees; and the hydraulic hoses, cylinders and components, acting as a large passive radiator, can reach temperatures of over 200 degrees. However, if the surface or hydraulic oil temperatures exceed these temperatures, it may be caused by having a control valve held open too long. Always return control valve to neutral when not in use. It could also indicate a low oil supply or contaminated oil. If low, refill. If contaminated, drain and refill with new oil, and replace filter. It could also indicate a kink or dent in a hose line or a worn pump. (See Service Manual for pump replacement.)

Note: Always make sure major leaks are contained and the oil disposed of in a proper manner. Stains on concrete may be removed by applying a poultice of oil dry (or kitty litter) and solvent. Let mixture set for a few hours before removal.

Changing the Hydraulic System Oil

1. Make sure all the cylinder rods are fully retracted.
2. Remove the clamps from the sump line. Pull the sump hose from the transmission, allow the oil to drain completely.
3. Remove the sump strainer, wash it in solvent, dry thoroughly.
4. Replace in reverse order.
5. Fill the system with recommended oil until it reaches the proper level.

Note: There is no need to bleed the hydraulic system, the air will come out of the oil by itself. The machine may vibrate for a few minutes until the air purges. Be sure to dispose of your waste oil in a manner acceptable to Federal, State and local authorities.

Some Tips on Hydraulic Hoses

Inspect hoses regularly for nicks, cuts and wear. There are two wire braid layers under the rubber outer cover. When wire is exposed but undamaged, the hose still may be used. Hose life may be extended by switching them end for end. This will put the section that is worn in a different place. It is good practice to keep extra hoses on hand, one of medium length and one of the longest length, in case you must replace a hose while on the job.

If You Need New Hydraulic Hoses or Parts

All hoses are R2AT with male pipe thread ends. These may be obtained from any industrial rubber supplier or hydraulic shop. Return the old hoses so they can match them. Short hoses may be made from the good portion of a damaged hose.

Auxiliary Pump	Eaton 25300
Backhoe Valve	Gresen V-20-327
Drive Motor	TRW Ross ME-180
	White Hydraulics RE-180
Hoses	R2AT
Loader Valve	Gresen SPKYT-4-4-HP
Transmission	Eaton 70142

TRACTOR LUBRICATION

Lubricating the Pivot Pins

The most important single thing you can do to increase the life of the T5 is to properly lubricate the pivot pins. The pivot pins should be lubricated with a good lithium based grease every four hours of operation. Wipe dirt from the fittings before greasing. Replace any lost or damaged fittings immediately.

Tractor Lubrication

How to Ruin a Good Machine

The first 20 hours of use are critical to the life of the machine. The pivot pins have minute edges which need to be broken in just as an autombile engine needs to be broken in. If the pins are not adequately greased, they will break their retainers and work out, possibly causing damage to your machine. An ungreased pin will rust. The next time you use the machine the rust wears off, exposing more metal, which also rusts. The rust and dirt make a destructive grinding compound. If this process continues, your backhoe will soon be worn out. Many people falsely blame the manufacturer for their own neglect in lubricating the machine. Neglect of this kind is not covered under your warranty.

Use Caution when Replacing Pins

When driving pivot pins in or out, use care to guard against injury from particles that may chip off the pin or object used in striking the pin. These pins can fly out at considerable speed if they are not tapped lightly just before they come out. Safety glasses should be worn.

Check Differential with Oil Change

Remove the plug on rear of differential cover. Oil should be level with plug. Fill, if required, with recommended gear lubricant.

Check Front Hubs Every 250 Hours

Grease with wheel-bearing grease any time wheels have been run under water or in mud, otherwise 250 hours. Check for roughness by raising front wheels off ground with loader bucket.

BATTERY & TIRES

Low Maintenance Battery

Your Terramite is equipped with a low maintenance battery. It uses a special construction to minimize water requirements. There is an "eye" on the battery to determine the condition.

Cold Weather Considerations

Note: Cold weather makes a marginal battery useless. A battery fully charged at 80 deg. F will have only 60% of its capacity at 32 deg. F, and only 40% at zero. A half-charged battery has only 32% at 32 deg. F and 21% at zero.

Tire Pressures and Rim Size

FRONT:

Normal use 25 PSI Heavy loads 32 PSI
Rim Size 7 X 10

REAR:

Power Torque 6.50 X 16 16 PSI
Rim Size 8 X 16
Super Terra Grip 31 X15.5 X 15 12 PSI
Soft Trac 31 X 15 12 PSI
Rim Size 13 X 15

Avoid High Tire Pressure

CAUTION! Excessive tire pressures increase the possibility of punctures and cause a rougher ride. The rim or tire could blow out, causing extreme injury or even death!

Tire Traction and Hazards

Avoid excessive wheelspin when loading. On most surfaces, wheelspin causes loss of traction and premature wear out of tires. Watch for hazards such as nails, glass, etc.

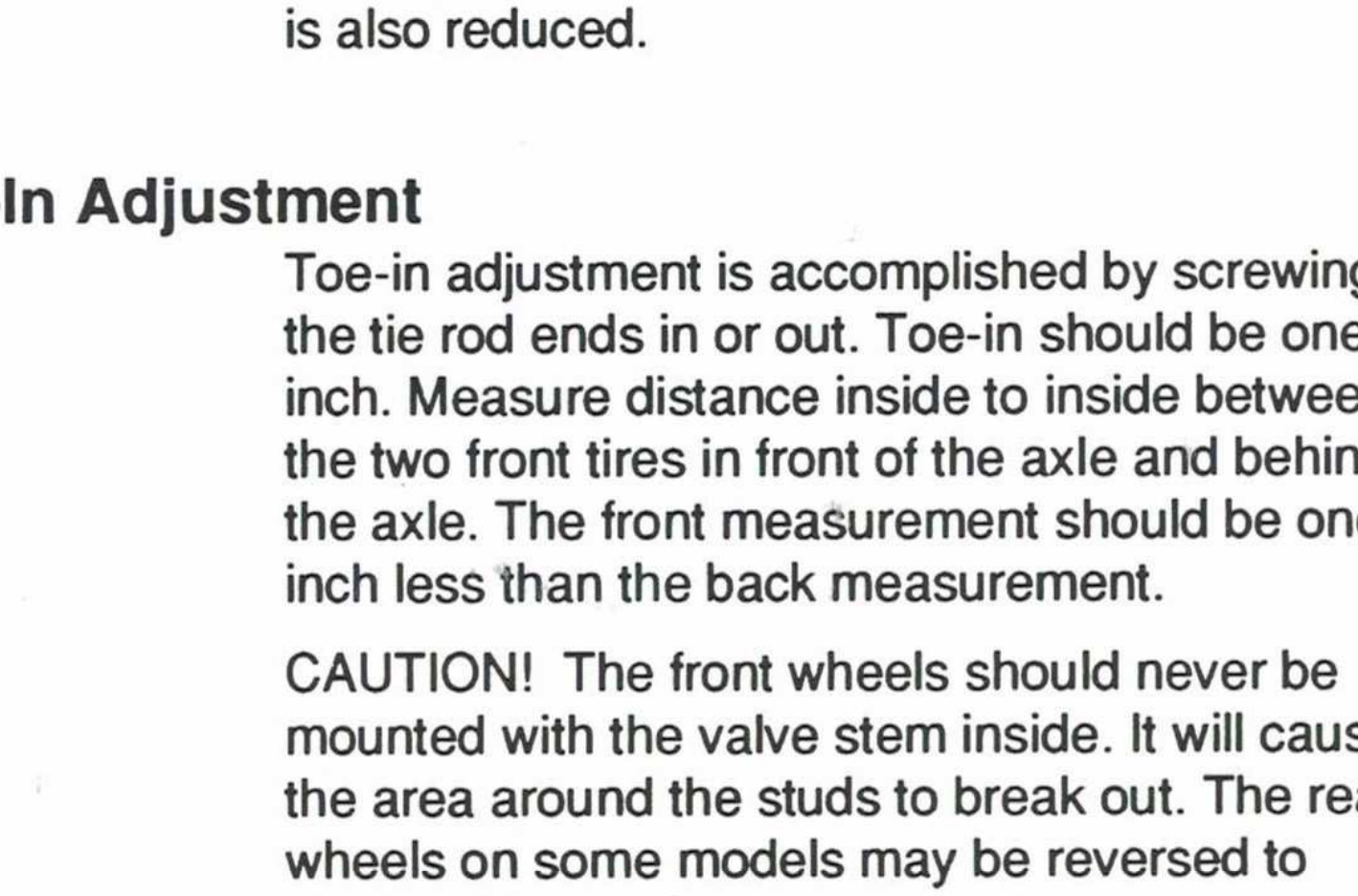
Calcium Chloride or Foam Rubber

NOTE! Calcium chloride or foam rubber can be installed in your tires for extra traction and stability. Many tire dealers can do this for you. Bear in mind that weighting the tires increases machine weight considerably. You may have to cut the tire from the rim to replace the tire when it wears out. It may result in overloading the truck or trailer on which you haul the machine. Flotation in wet soil is also reduced.

Toe-In Adjustment

Toe-in adjustment is accomplished by screwing the tie rod ends in or out. Toe-in should be one inch. Measure distance inside to inside between the two front tires in front of the axle and behind the axle. The front measurement should be one inch less than the back measurement.

CAUTION! The front wheels should never be mounted with the valve stem inside. It will cause the area around the studs to break out. The rear wheels on some models may be reversed to obtain wider track.



MINOR ENGINE ADJUSTMENTS

Spark Plug Replacement

Every 100 operating hours remove the spark plugs, check condition and reset gaps, or replace with new plugs as follows:

1. Before removing spark plugs, clean the area around base of plugs to keep dirt and debris out of engine.
2. Remove plugs and check condition. Incorrect spark plugs, worn or fouled plugs, cracked porcelain, or improper spark gaps can cause hard starting or engine misfire.
3. Check gaps (0.025" for Kohler 20 H.P. and 0.030" for B&S 18 H.P.) using a wire feeler gauge. Adjust the gaps as necessary by carefully bending the ground electrode. Install the plugs and torque to 10-15 ft. lb.

Carburetor Adjustments

First, warm up the engine. If engine troubles are experienced that appear to be caused by the carburetor, check the following areas before adjusting the carburetor.

1. Make sure the fuel tank is filled with clean, fresh gasoline.
2. Make sure the fuel tank cap vent is not blocked and that it is operating properly.
3. Make sure the shut-off valve is open.
4. Make sure the in-line fuel filter is clean and unobstructed. Replace the filter if necessary.
5. Make sure the air cleaner element is clean and all air cleaner components are fastened securely.

After checking the items listed above, if problems still exist with engine starting or operation, it may be necessary to adjust or service the carburetor.

Choke Adjustment

Move control to "choke" position. The carburetor choke should be closed. If not:

1. Place control in "CHOKE" position.
2. Loosen casing clamp screw. Move casing and wire until choke is completely closed.
3. Tighten casing clamp screw.

Speed Control Adjustment

The acceptable operating speed range is 1800 to 3300 RPM, with idle speed 1400 RPM. DO NOT EXCEED this speed. Engine speed is controlled by movement of the control lever. Adjust as follows:

1. Move control lever to slowest engine speed possible. Throttle lever on carburetor should touch idle speed adjusting screw.
2. To adjust, loosen casing clamp screw.

CAUTION: Throttle lever on carburetor MUST touch idle speed adjusting screw when equipment control lever is in slowest position.

Ignition System

The gasoline engines are equipped with an electronic ignition system. Other than periodically checking spark plugs, no adjustments are necessary. If engine fails to start, first check fuel level. Then check plugs and air filter. If this fails, contact your dealer. Attempting to make adjustments without the proper test equipment can damage the engine, requiring repair that would not be covered under the Factory Warranty.

CAUTION! Do not apply 12-V DC to kill terminal of ignition as it will burn out module.

PAINT AND CLEANING

Protecting the Paint

Terramite backhoes are protected with an acrylic polyurethane paint. This is the most durable finish available. Because it is highly resistant to nearly everything, it requires little care. But constant exposure to sunlight will fade it just as other paints eventually fade. A coat of wax will help protect it. Leaving spilled gasoline on your hood is not only an unsafe practice, but will cause stains and will inevitably eat through your paint. Small scratches should be touched up or kept waxed to keep rust from attacking the metal under the paint.

Paint Cleaning Solutions

Some cleaning solutions and solvents used in high pressure washers may bleach the finish if used in high concentration or not rinsed from the machine. This can be avoided by diluting the cleaning solution or not letting it set too long.

BUCKET TEETH AND FASTENERS

Bucket Teeth Wear Out

Bucket teeth should be replaced when worn to within 5/8" of the shank pocket. Always replace any teeth caps lost during operation; otherwise, you will damage the shank, making it impossible to put on a new cap. Save the worn out caps for emergency use in case you run out of new caps. However, new teeth will make the machine dig much better.

Bucket Teeth Replacement

Worn teeth can easily be replaced by knocking the vertical retaining roll pin out with a pin and hammer. Use a soft faced hammer or put a piece of wood between the hammer and the tooth cap to keep metal from flying. Always save some worn out teeth to be used in the event that you lose a good tooth. It will at least keep the shank from wearing until you can get a new tooth cap. (Note: If the shank has been used without a tooth cap, it will soon no longer fit the tooth pocket. The teeth will never stay on properly after this. The only remedy is either install a new shank or weld the tooth to the shank through the back of the tooth pocket.)

Fasteners (Nuts and Bolts)

It is particularly important to check all nuts and bolts for tightness after the first 5 hours of use. All drive train bolts should receive extra attention. Thereafter, check every 250 hours.

PARTS INFORMATION

We have taken the unusual step of providing manufacturers' parts numbers so you may acquire major components and service parts not only from your dealer, but also from local industrial distributors. Many equipment manufacturers will "private label" standard parts or specify odd sizes to assure they have a monopoly on your parts business. However, if you have difficulty acquiring parts, we strive to ship any part you need the same or next day. You will notice in this handbook, as well as our service manual, we have listed components by manufacturers with their part numbers. This allows you to check around for the best price when ordering major component parts.

TROUBLE SHOOTING

If a particular difficulty is experienced, check the symptoms listed below. Possible causes and remedies are given for each symptom. If the trouble is not corrected after following the suggested solution, call your dealer or call Terramite.

Total Failure of Hydraulic Power
(Engine is running, but nothing works)

Stripped engine to transmission coupling. Must be replaced.

Backhoe Fails to Operate

Defective quad ring. The quad ring is the seal to the power beyond the front valve. If it fails, the backhoe will lose all power, but the front loader will still function normally.

Boom Fails to Lift or Swing

Check for:

1. Internal cylinder leakage
2. Insufficient oil in reservoir
3. Pump badly worn or damaged
4. Worn control valve
5. Hose attached improperly

Loss of Pushing Power

This would indicate a worn transmission. Check by removing lines and putting plugs in their place. Start the engine and depress the foot pedal, If the transmission is good, the engine can be stalled immediately. If you can push the pedal down without stalling the engine, the rotating group is worn and will need to be replaced.

Trouble Shooting

Loss of Lifting Power

Check for:

1. Low hydraulic oil.
2. Collapsed hose (hose can collapse internally, not showing any visible signs).
3. Worn Pump. Check pump pressure.
4. Internal Valve leakage. Valves will sometimes develop leaks between the spools, yet not leak outside. Switching hoses to another valve will determine whether the valve section is bad.
5. Blown Cylinder packing. See Service Manual for replacing cylinder packing.
6. Broken or weak relief valve. Check pressure. Check for fatigued or broken relief valve spring. All cylinders will lack power. You will have a little more power when your machine is cold. A weakened spring will lose power so gradually that you may not notice the decline in power until it seriously affects the machine performance. A broken spring will cause a sudden drop in cylinder power.

Sluggish and Slow Operation

Oil still cold. Pump badly worn or damaged. Restriction in suction line. Clogged oil filter or sump strainer.

Load Drops with Valve in Neutral Position

1. Leaking oil lines from control valve to cylinder.
2. Oil leaking past control valve. This can be checked by moving hose to another valve.
3. Internal cylinder leakage. This can be checked by placing your hand on the cylinder while opening the valve. If the seal is blown, the oil rushing by the piston will cause it to get hot.

Load Drops with Valve in Power Position

Leaking oil lines from manifold block to cylinders. Oil leaking past control valve. Can be checked by moving hose to another valve.

Control Valve Sticks or Works Hard

Normally, this is a problem for your dealer's service department. It is usually dirty valves, tie bolts too tight or float detent position adjusted too tight.

Arms Raise On Their Own

Valve hinge sticking. Either lubricate or replace valve hinge mechanism. Broken centering spring.

Tractor Doesn't Move in Either Direction, but Loader and Backhoe still operate

If this happened over a period of time, the transmission is totally worn out. If it happened instantly, check for the following:

1. Foot pedal disconnected
2. Bolts broken on coupling
3. Spider gear shaft on rear axle broken
4. Stripped gear on rear axle
5. Input or Output shaft on drive motor broken

Tractor Creeps Forward or Reverse

Pedal not lubricated, sticking. Lubricate pedal and spring shaft. Pedal misadjusted. Turn the pedal slightly on shaft. This procedure may have to be repeated several times to get a perfect nuetral.

Trouble Shooting

Transmission/Pump Makes Noise

First check the oil viscosity. If too high, replace with specified oil. Then look for a kink or dent in oil lines. If none of these, it may be air in system. See your dealer.

Erratic Tractor Motion

1. Retract all rods and check hydraulic oil level
2. Broken or weak pedal spring
3. Worn transmission

Hydraulic Oil Foams

1. Low oil supply
2. Air leak in line from reservoir to pump
3. Incorrect hydraulic oil
4. Blocked valve restrictor
5. Check sump hose for tightness

Hydraulic Oil Heats

1. Low oil supply
2. Contaminated oil
3. Control valve held open too long

Engine Difficult to Start or Runs Rough (Gasoline)

If engine is difficult to start or does not run smoothly, check the following before making any adjustment to the carburetor:

1. Make sure the fuel tank is filled with clean, fresh gasoline.
2. Make sure the fuel tank cap vent is not blocked.

Engine Difficult to Start or Runs Rough (Continued)

3. If the fuel tank is equipped with a shut-off valve, make sure it is open.
4. If the engine is equipped with an in-line filter, make sure it is clean and unobstructed.
5. Make sure the air cleaner element is clean and all air cleaner components are fastened securely.

If, after checking all the above items, the problem still exists, see Service Manual for directions on adjusting the carburetor, or contact your dealer for service.

Machine fails to move forward and reverse

If the problem happens over a period of time, it is most likely a worn out transmission. If it occurs suddenly, it is most likely one of the following:

1. Foot Pedal Disconnected
2. Bolts broken on coupling between hydraulic motor and rear axle
3. Output shaft on drive motor broken
4. Input shaft on rear axle broken
5. Spider gear shaft on rear axle broken
6. Stripped gear on rear axle

None of the problems listed

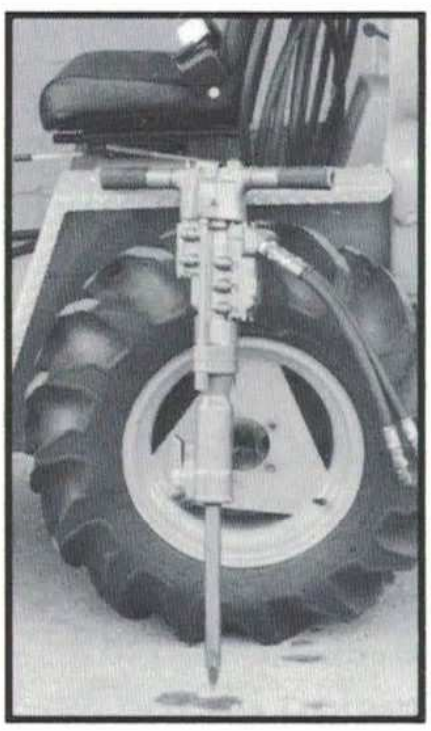
If the problem involves a part of the machine, such as the engine, transmission, hydraulic pump, etc, that is manufactured by someone other than Terramite, first check your service manual for more detailed information. If you do not find it there, contact your dealer or the original manufacturer's service department. If the problem involves any other part, contact your nearest dealer. For dealer locations, call Terramite 1-800-428-3772.

Accessories

Hydraulic Accessories

There is a full line of heavy duty tools, including chain saws, chipping hammers, cut-off saws, drills, pumps, tampers, as well as underwater tools, that can be powered from an accessory quick disconnect coupling when connected to the hydraulic system of the T5.

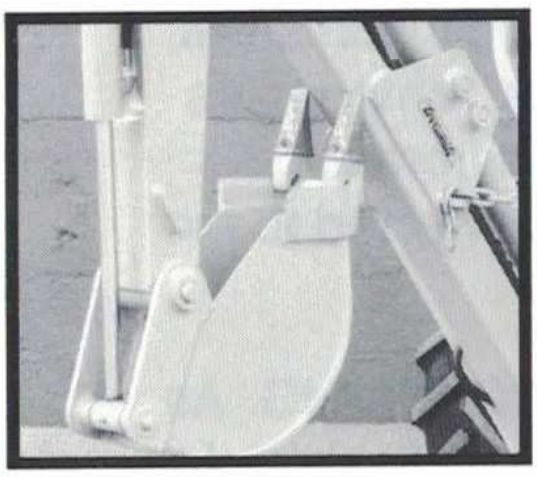
QUICK DISCONNECT COUPLING As the T5 develops 2400 psi by the simple addition of a hydraulic coupling, you can leave your compressor or generator at home and still have the capability of operating many professional tools that demand high power. Uses 1/2" hose.



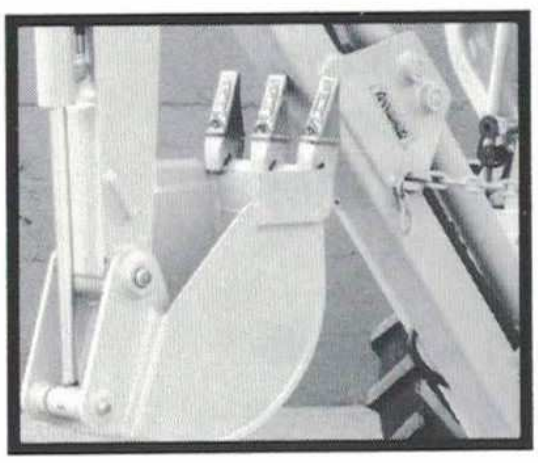
HYDRAULIC HAMMER
This simple rugged design with self-lubrication of internal parts, provides smooth operation with low noise and uses only half the energy of conventional pneumatic tools. Weight 60 lbs., length 25" w/o chisel, WP 1700 psi at 4 to 6.5 gpm. Please note: The T5 does not have a hydraulic oil cooler and therefore the hammer can become very hot if used for extended periods.

McMILLEN EARTH DRILL 810-M
Without leaving the T5, the operator can dig hundreds of holes daily (fence and sign posts, light and utility poles, trees and shrubs) all without leaving his seat. The 810-M offers a unique "in line" drive design eliminating chain and sprocket reductions driving 9", 12" and 15" augers. Develops up to 923 FT/LBS at 2400 psi.

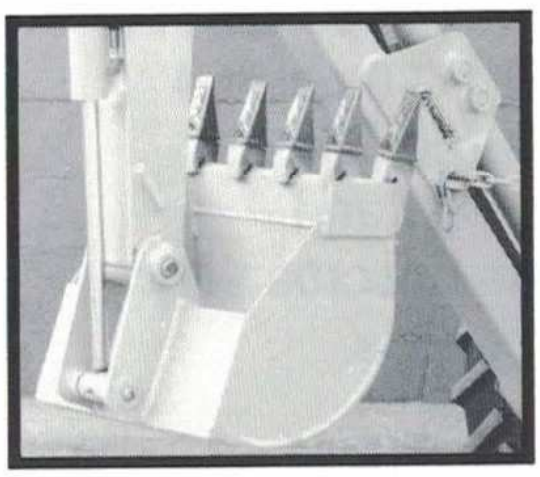
A Bucket for Every Need



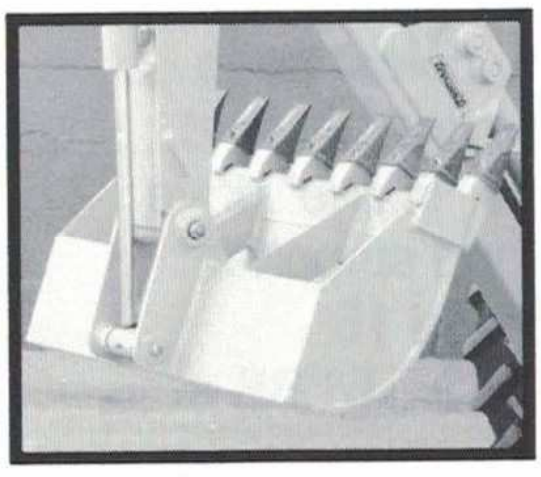
Although we normally configure the T5 with a 16" bucket, you may choose 8", 12", 20", 24" or 36". We also can supply, on request, all sizes in between and up to and including 38". The 16" is considered the best compromise for all around use, considering the power capability of the T5 working in average soil conditions. Although the smaller buckets (the 8" and 12") will penetrate harder ground, they may tend to compact the soil, particularly if slightly damp, in such a way that the soil may tend to stick into the bucket, making it difficult to empty. The 36" is ideally suited for opening grave sites in cemeteries.



All bucket teeth are easily replaced. They are made of cast alloy steel, mounted on shanks with stainless steel pins.



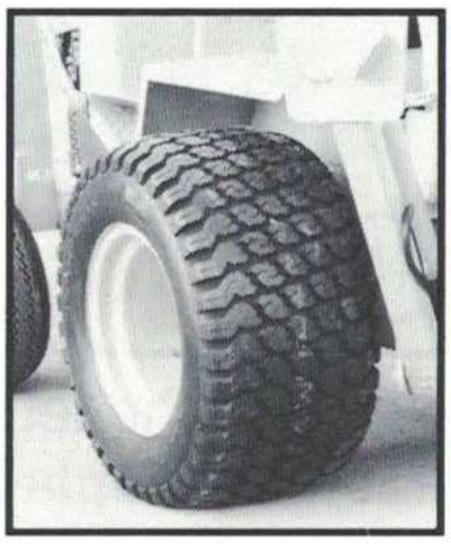
Terramite buckets are designed to be strong enough to withstand or exceed the maximum load forces designed into the backhoe under normal use. Our current buckets represent many design changes over the years in an effort to develop the maximum digging capability per pound of forward pressure.



If you have special needs, please do not hesitate to let us know. As we have a complete engineering department and are capable of fabricating all parts of the T5 here in our plant, we welcome the opportunity to discuss your individual needs.

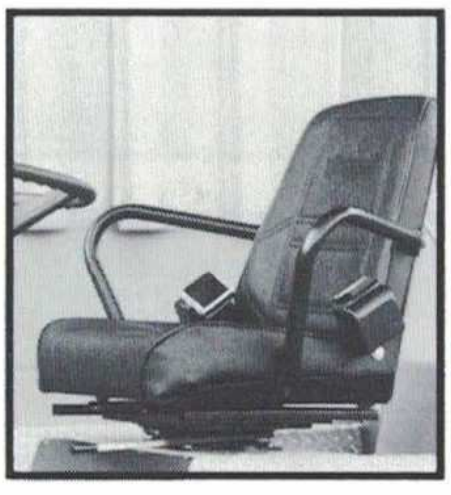
Tires, Sun Roof and Arm Rests

Super Terra Grip Extra Wide Part # 1-17.3 Goodyear's high strength body incorporating specially tempered cord, plus the exclusive angle braced Zig-Zag tread design, insures exceptional traction and long life. Size 31x15.50x15. Requires a 15"x13" rim. Part # 1-18.3

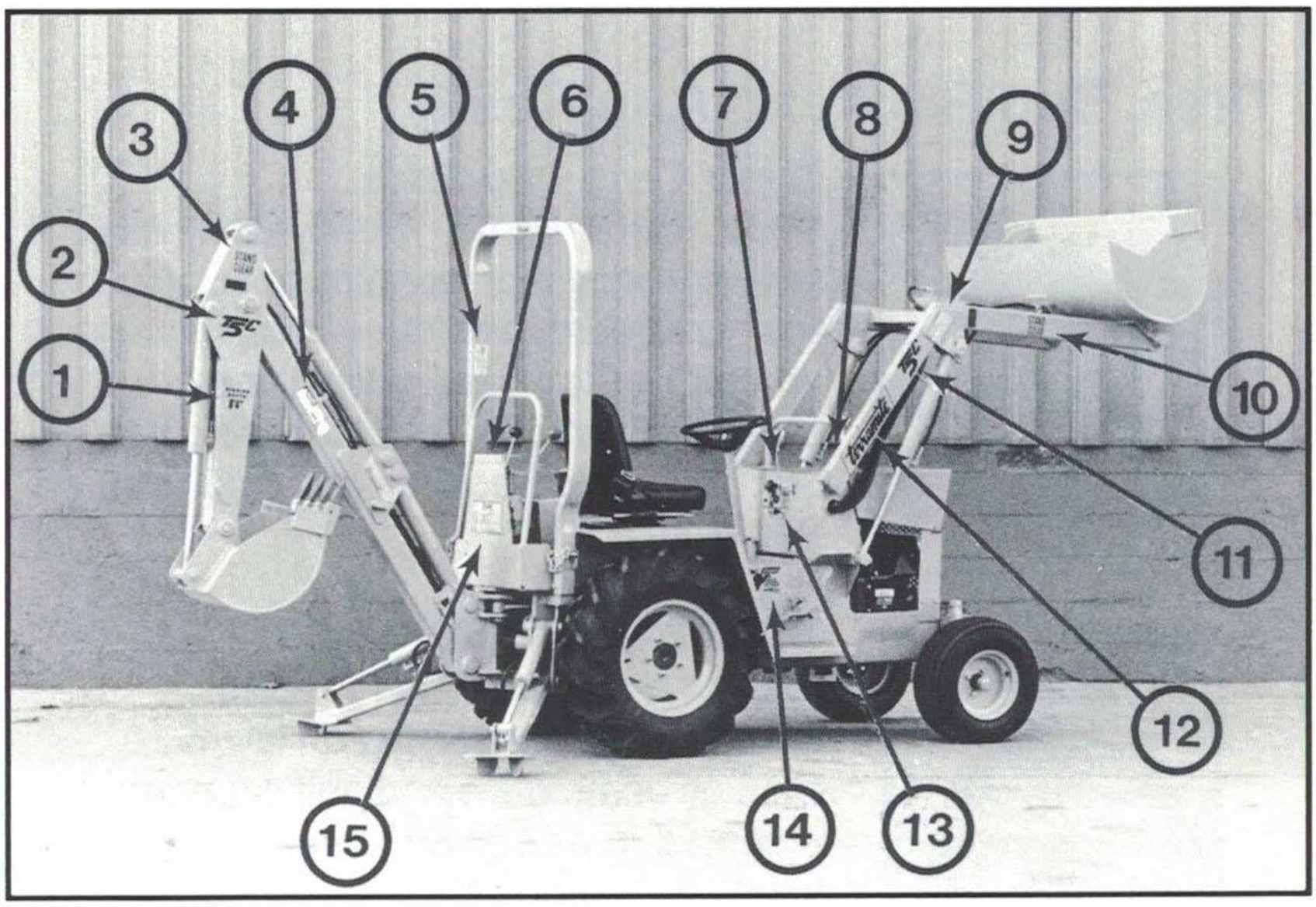


SofTrac Extra Wide Part # 1-17.4 Size 31x15.50x15. Ideally suited for working on lawns, such as cemeteries and golf courses. A special tread contour spreads out the tread surface pressures to achieve uniform distribution of tread surface. Requires a 15"x13" rim. Part # 1-18.3

Fiber Glass Sun Roof Part # CANOPY Ideal for anyone desiring protection from the sun's rays. Can be connected to the T5 using just four U bolts. Note: The Sun Roof is not designed as a protective device for falling objects. Lights are optional. Dimensions 54" X 45".

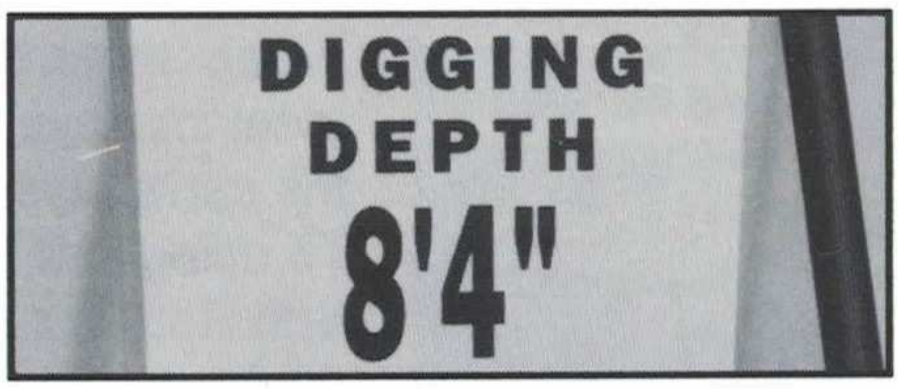


Arm Rests Many operators who use their machines for long uninterrupted periods find arm rests to be less tiring. The arm rests can be installed in just minutes, as the seats come pre-drilled. Part # 1-19.9

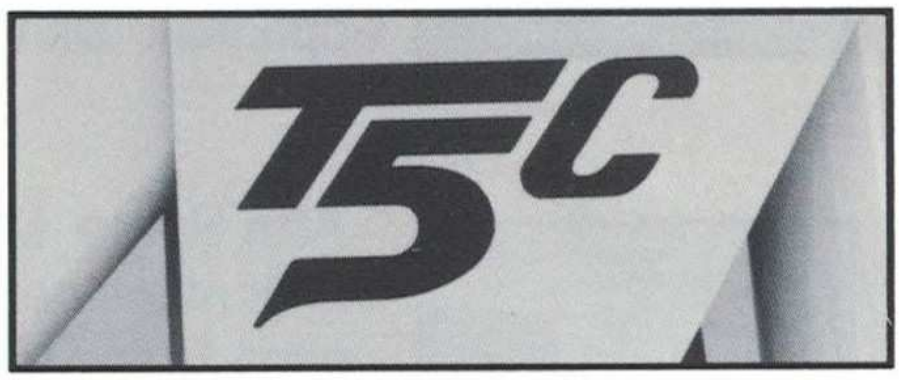


Note: A Terramite part number followed by the letter "R" indicates that it is mandatory that it be displayed.

(1) **1-400.22R**



(2) **1-400.57**



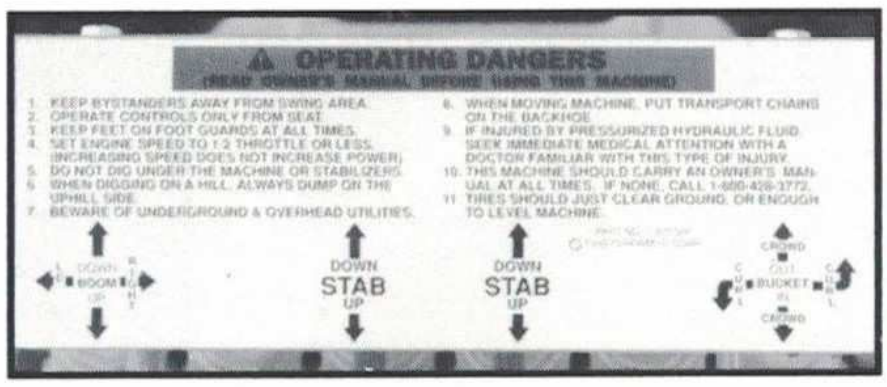
(3) **1-400.4R**

Decal Replacements

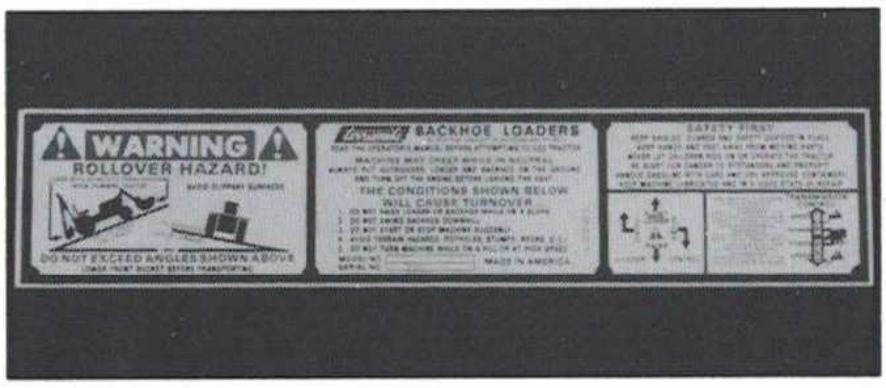
(4) **1-400.54R**

(5) **1-400.32**

(6) **1-400.50AR**

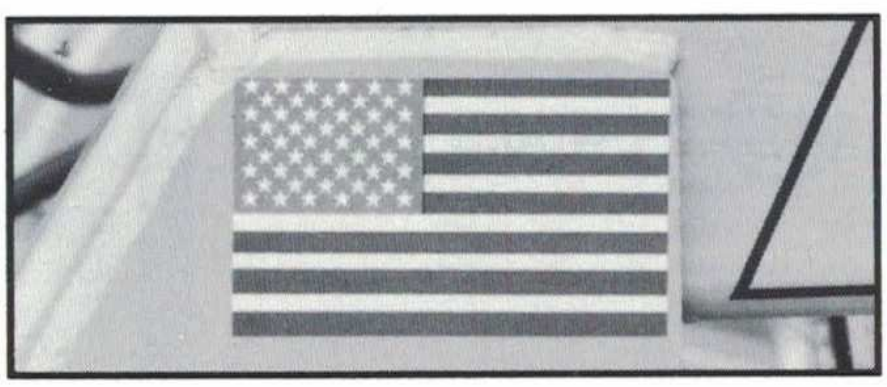


(7) **1-400.20R**



(8) **1-400.51R**

(9) **1-400.99**

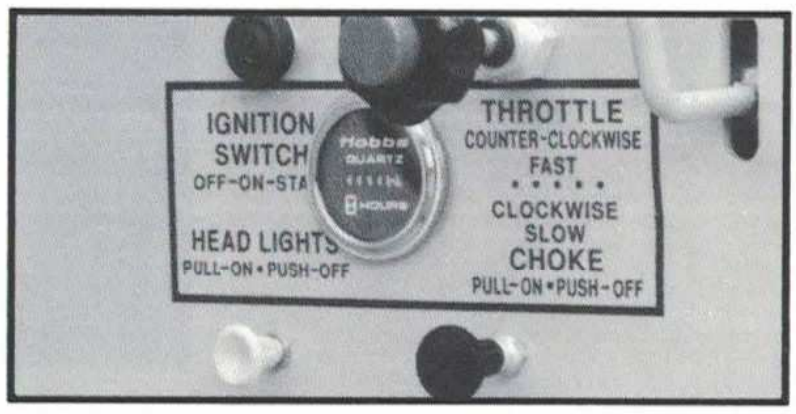


(10) 1-400.4

(11) 1-400.57

(12) 1-400.2

(13) 1-400.58R



(14) 1-400.70

(15) 1-400.5

terramite

MAINTENANCE SCHEDULE

TIME PERIOD	MAINTENANCE ITEM
4 HOURS	CHECK ENGINE OIL LEVEL, GREASE LUBE POINTS
8 HOURS	CHECK HYDRAULIC OIL LEVEL
25 HOURS	CHANGE ENGINE OIL
WEEKLY	CHECK AIR FILTER, AND BATTERY LEVEL
FIRST 50 HOURS	CHANGE HYDRAULIC FLUID AND FILTER
200 HOURS	REMOVE CARBON FROM CYLINDER HEAD, CLEAN SPARK PLUGS
300 HOURS	CHANGE HYDRAULIC OIL AND FILTER
	DIESEL ENGINE MAINTENANCE
8 HOURS	CLEAN AIR FILTER UNDER DUSTY CONDITIONS, CHECK OIL LEVEL
100 HOURS	CHANGE ENGINE OIL, CLEAN COOLING FINS, CLEAN VENT TUBE OF FUEL CAP
300 HOURS	CLEAN OIL FILTER, CHECK TAPPET CLEARANCE, CLEAN FUEL FILTER

KNOW YOUR WARRANTY

We have included the following breakdown of the coverage of your warranty to assist you in quickly determining just what is covered and what is not.

Where Do I Obtain Warranty Service?

For the authorized Terramite Service facility nearest you, call Warranty Service Manager, Terramite 1-800-428-3772.

Who is Covered and For How Long?

Only the original consumer/purchaser of a new T5 for a period of one (1) year from the date of purchase.

What is Covered Under Warranty?

Warranty is limited to replacement and repair of defective parts only that failed under normal use. Warranty does not include the replacement of the machine.

Does this Include Cost of Replacement and Repair?

The warranty does not cover just sending Terramite a bill for the charges incurred in replacement or repair after the job is finished. First, you must call the Terramite Warranty Service Manager, 1-800-428-3772, and obtain an authorization number. Upon our inspection of the replaced part, if it is determined that the item was truly defective, and was not accidentally damaged or abused by failure to perform reasonable and necessary maintenance, Terramite will authorize payment of a reasonable amount for the replacement and/or repair of said item.

Where do I Obtain the Replacement Item?

First, contact your dealer as he may have the needed part in stock. If not, contact our Terramite Warranty Service Manager, 1-800-428-3772. As the manufacturer, we buy these items at a lower price than most dealers. Therefore, we reserve the right to supply all items replaced when under warranty. However, some items are covered under separate warranties from the original manufacturer, such as pumps, motors, tires, etc., which are often honored at their local dealers. Many of these manufacturers include warranty information that can be found in your T5 Service Manual.

Does Warranty Cover Any Other Costs?

Terramite will not be responsible for indirect or consequential damages of any kind, such as lost income, penalties for not completing work on schedule, etc., due to the failure of the warranted machine. Terramite will not cover any added charges, such as renting another machine or the cost of transporting the machine to and from being repaired, etc.

Can This Warranty be Changed by the Dealer?

Terramite will not back up any warranty claim other than what is stated on your official Limited New Product Warranty that accompanies the T5 at time of purchase. This summary of the warranty does not constitute a warranty itself, only answers those questions most often asked. Read your official warranty for full details of its coverage and exclusions.

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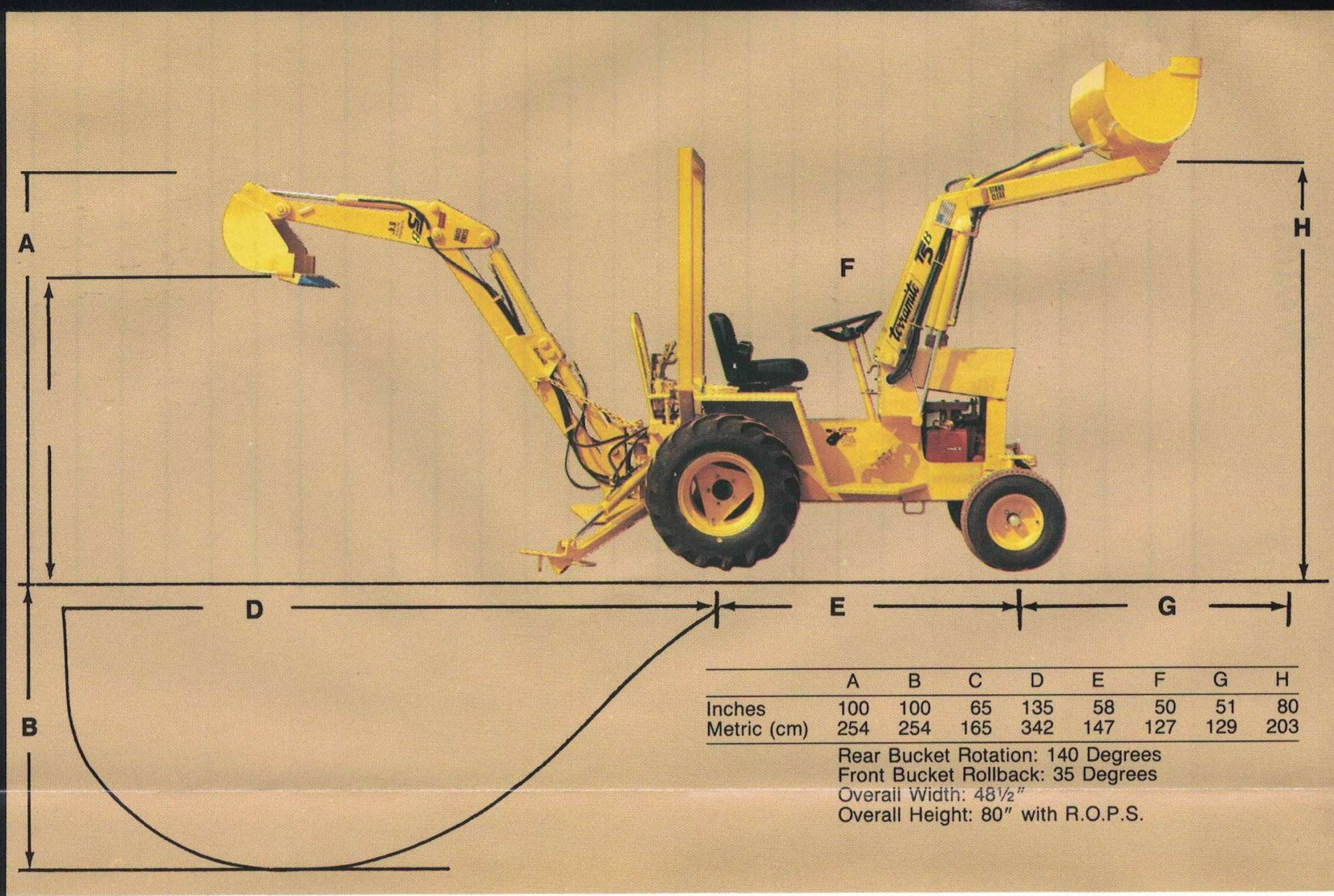
SPECIFICATIONS



	A	B	C	D	E	F	G	H
Inches	100	100	65	135	58	50	51	80
Metric (cm)	254	254	165	342	147	127	129	203

Rear Bucket Rotation: 140 Degrees
Front Bucket Rollback: 35 Degrees
Overall Width: 48½"
Overall Height: 80" with R.O.P.S.

ENGINES

18 HP @ 3600 RPM Briggs & Stratton IC Series
Displacement: 42.33 cu. in., 694 cc 2 cylinder
Block: Aluminum with cast iron sleeves
Lubrication: pressurized w/filter & low oil shutdown

20 HP @ 3600 RPM, Kohler "Magnum 20"
Displacement : 46.98 cu. in., 669.8 cc, 2 cyl
Block: Cast iron detachable cylinders

20 HP @ 3000 RPM Perkins Diesel
Displacement: 58.19 cu. in 954 cc, 3 cyl
Block: Cast Iron, water cooled

Transmission: HD hydrostatic, Eaton 35 HP rated
Drive Motor: HD gerotor type, Ross "Torquemotor"
Rear Axle: Cast Iron, semi float with positraction
Front Axle
Construction: H.D. 1" x 5" crossbeam
Spindle size: 1 1/4" diameter
Tie Rod Ends: H.D. lifetime lubed
Steering: worm & sector

Tires
Front: 20.5" x 8" x 10" 4 P.R. High Flotation
Rear: 9.5" x 16" 6 P.R. Super Sure Grip
Optional: 31" x 15.5" x 15" Super Terra Grip (260 sq. in. of contact area per tire at 3"penetration.)

Capacities
Fuel Tank: 7 Gallons Hydraulic Tank: 7 Gallons

Hydraulic System for Backhoe & Endloader
Pump: Gear type
Flow: 7 GPM at 3600 RPM
Pressure: 2300 P.S.I.
Loader Valve: 2 spool monobloc with float positioner
Backhoe Valve: 6 spool stack type
Cylinders: 2 1/2" and 2" diameter
Weight: 2720 pounds

SAE Dig Forces*			Buckets	Capacity
Dipstick:	2800 Pounds		8"	.90 cu. ft.
Bucket Curl:	3100 Pounds		12"	1.35 cu. ft.
w/opt cyl:	5200 Pounds		16"	1.80 cu. ft.
Backhoe Lift:	750 Pounds	**	20"	2.20 cu. ft.
Front Curl:	2200 Pounds		24"	2.40 cu. ft.
Loader Lift:	1500 Pounds		36"	3.10 cu. ft.

*calculated
** at ground level, fully extended

All Specifications Subject to Change Without Notice

Open For

T5 Specifications

Notes

Periodic Service Record

Date	Hours	Service performed

Periodic Service Record

Date	Hours	Service Performed

Security Card

Protecting The T5 From Theft

Security Card We suggest you fill out the serial number and any additional numbers you place on your machine and file this card with your T5 records. In the event that your T5 is stolen, call Terramite 1-800-428-3772 and we will place the numbers in our computer. In the event the number should show up in our service or warranty records any time in the future, we will notify you.

Additional Numbers We suggest that you place additional numbers or some kind of identification marks on your machine in case the serial number is removed. One place where it will not likely be noticed is on the top of the roll bar. You would have to stand on the seat looking down to see it. Also, you might find a place on the frame somewhat out of sight and place a number or a plus sign. We have requested that our service dealers contact us anytime they find evidence that the serial number has been tampered with on any machine they service.

Please Note: Due to model and design changes, drawings and photographs in this manual may not exactly match your machine. If you furnish us with model and serial numbers when ordering parts, this will assure you that the right parts are shipped. Please fill in the information below for future reference when ordering parts.

_____	#_____	#_____	#_____	_____
Model	**Serial**	**Engine**	**Cert. of Origin**	**Date of Pur.**

Important

Please fill out this card and remove from Operator's Handbook. We suggest that it be kept with your T5 records.

Terramite T5 Security Numbers

Ser. #_____ **Location** _____

I.D. #_____ _____

I.D. #_____ _____

Terramite Customer Acc. #_____

Although the vast majority of T5s are transported on trailers, the T5 is capable of being transported on almost any heavy-duty American pickup. Many building contractors tell us they prefer transporting their T5 this way rather than using a trailer. For those who do, we suggest that you exercise extreme caution when loading the T5, and be sure to maintain a safe driving speed, particularly when negotiating turns. We also recommend that you see your dealer as to obtaining the proper loading ramps as well as safety suggestions in their use.

Before selecting a trailer to transport your T5, we suggest you see your dealer. The use of a trailer that is too light or not properly designed for carrying the T5 can be extremely dangerous to you as well as anyone in your vicinity.

IMPORTANT!
READ THIS HANDBOOK BEFORE OPERATING MACHINE

terramite
CONSTRUCTION EQUIPMENT

600 Goff Mountain Road
P.O. Box 7146
Charleston, WV 25356-7146

1-800-428-3772
OR
1-888-Terramite
8377264

Local: (304) 776-4231

FAX: (304) 776-4845

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