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1010 East Main Street
Waynesboro, Virginia 22980
Telephone 703:942-8205
Cable Address: VEEMET

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Operating and Maintaining the Panzer Model T75 and T758ES Tractor

Your Panzer Tractor will give you years of fun and service. A little time spent learning to operate and care for it will yield big dividends of satisfaction. The following is to tell you, the owner, what you should know about your Panzer and its use.

The Parts Diagram and List is on a separate sheet and should be referred to if needed to find location of parts not shown in the figures here and to get the sizes of the various standard parts. If any problems come up you can't find answers to here, please ask your dealer or write us.

Putting the Panzer Tractor in Service

Your tractor was shipped from the factory in two separate cartons to protect it. The wheels, fenders, steering wheel and rear lift were not installed but packed in smaller boxes, all of which were fitted in around the tractor, except the box containing the rear wheels. Your dealer has probably unpacked, assembled, and serviced your Panzer, but in case he hasn't, proceed as follows:

- 1. Cut strapping and remove the top half of box and fold out and down the sides of the lower half. Lift off the sleeve or inner tube. Lift out the smaller boxes containing the detached parts.
- 2. Pull or pry off the blocks holding the front wheel axles down and take out the lag screw in the bottom of the rear hitch which holds the rear of tractor to skid. Unpack the front wheel box which contains the 2 front wheels, 2 front hub caps, 2 cotter pins and 10 rear wheel lug bolts.
- 3. One at a time lift and block up the front wheel axles and slip a tire and wheel assembly on (keep valve stem out) followed by hub cap. Press hub cap and wheel snugly against backing washer. Insert cotter pin down thru the hub cap and axle, and spread tips. The grease fittings in hubs of these wheels should be greased after installation.

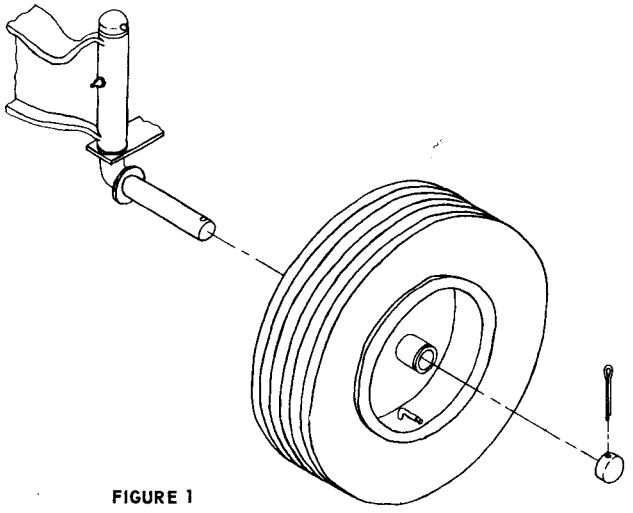


FIGURE 1

- 4. Jack or lift one rear side high enough to let a rear wheel go on. Unpack rear wheel box which contains the right and left rear wheel and tire assemblies.
- 5. Mount the wheel with valve outward and install the 5 lug bolts, pulling them up tight even though this deforms the wheel some. On lug type tires, tread should point downward as tire approaches ground moving forward.

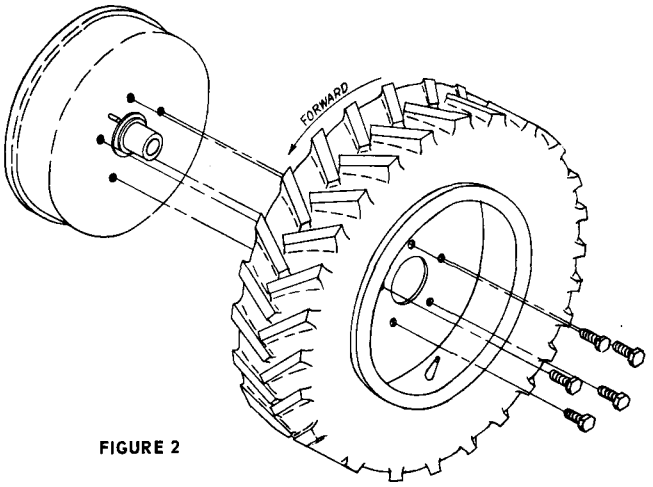


FIGURE 2

- 6. Repeat for the other rear wheel.
- 7. Unbolt steering wheel from top of seat and take masking tape and key from end of steering shaft. Install the steering wheel by slipping it on the steering shaft, inserting the key and tightening the set screws.

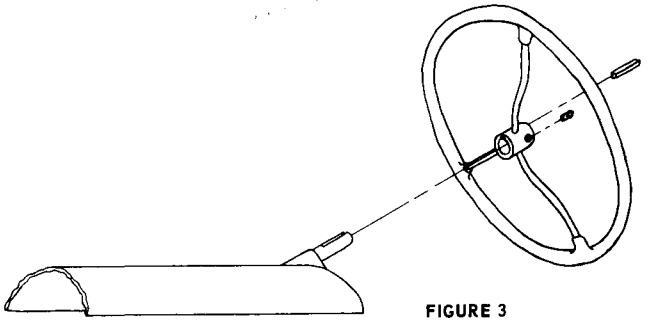


FIGURE 3

The tractor can be rolled on its own wheels now and can be pushed off the carton and skid if desired. (Be sure in neutral and parking brake off)

● 8. Move the seat one hole forward on the seat spring.

● 9. Unpack the fenders and install so that long end comes down in front past brake pedals. Put a fiber washer on each screw after the lockwasher so that the lockwasher won't cut into and chip the fender paint. Tighten the fender bracket bolts after fenders are on.

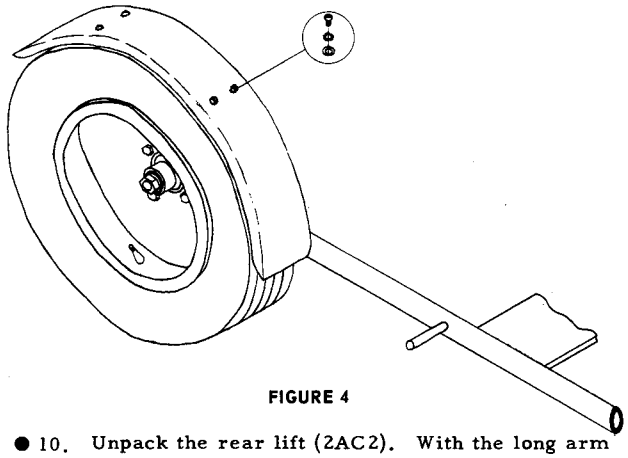


FIGURE 4

● 10. Unpack the rear lift (2AC2). With the long arm pointing down on the left fit the yoke over the tube on top the rear hitch and slip the pivot pin through the assembly and put a clip pin in one end and a cotter pin in the other.

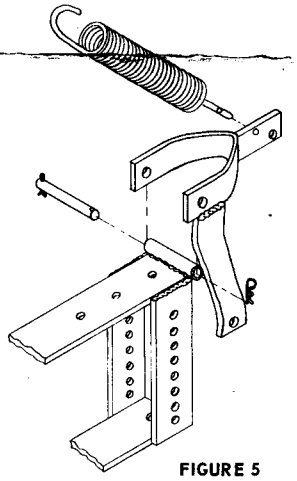


FIGURE 5

● 11. Hook the counterbalance spring through the small hole in the lift eye so that the loop at other end opens upward under tractor seat. Hook other end of spring into the angle bolted under the seat.

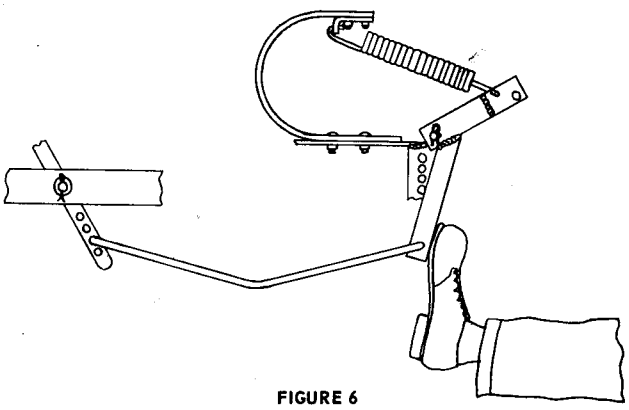


FIGURE 6

● 12. Put one end of the lift link into the second hole from the bottom in the lift handle and put a clip pin in to retain it. Put the lift handle in its most forward position. (Bottom end back).

● 13. Sit down behind the tractor and with your foot push the lower lever on the rear lift forward (stretching the spring) until the lift link can be slipped in place. Insert a clip pin to retain it.

Note If you are not planning to immediately install a mower, or snowblade or other attachment that needs counterbalancing, it is a good idea to not install the counterbalancing spring either. Without a load on it the lift handle flys forward when released and may injure someone.

● 14. If you have a Panzer with electric starter you will have received a carton containing a dry charged battery and bottle of acid. Unpack this battery and fill it with acid following the instructions packed with the battery.

● 15. Install the battery in position under the seat with the terminals toward the outside. This will place the positive terminal toward the rear. After the battery hold-down is in place connect the battery terminals and cables - negative to ground and positive to starter switch. If the battery is put in with terminals to the inside, there is

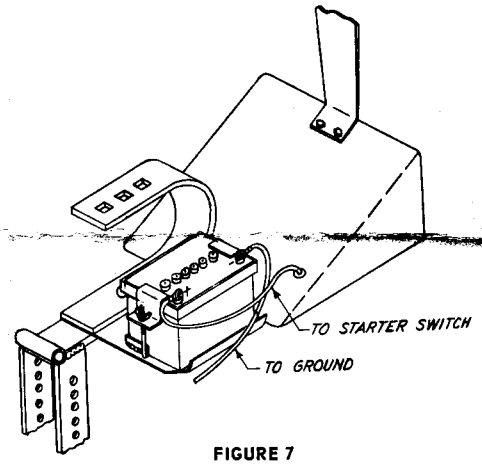


FIGURE 7

danger of the seat coming down and striking the terminals and breaking them off.

This completes the assembly. Grease and oil come next.

DON'T START ENGINE BEFORE PUTTING OIL IN IT!

● 16. At the factory grease was put in the pressure fittings and in the rear end. However, it is essential to (1) look at the fittings to be sure they have been greased and (2) remove filler plug on differential and check with wire or stick that the oil level is within one inch of hole. Also put a few drops of oil at moving spots not otherwise lubricated on lift handle, shift lever and rear lift. Grease should be rubbed on shift lever slot and drive rest also--see lubrication sections.

● 17. The engine on your Panzer has no oil in it! Before starting it put oil in the crankcase and air cleaner following the instructions in the engine manual. A few minutes operation without oil will destroy the engine!

● 18. Check that the gas hose is properly in place, open the gasoline valve and fill the tank with regular gasoline.

● 19. Check tires. Front tires are shipped with 18-20 pounds pressure and rear tires with 6. You may want to change this as noted in the maintenance section.

Driving the T70B Panzer

STARTING ENGINE

● 1. First put tractor in neutral (see below) and apply parking brake as shown.

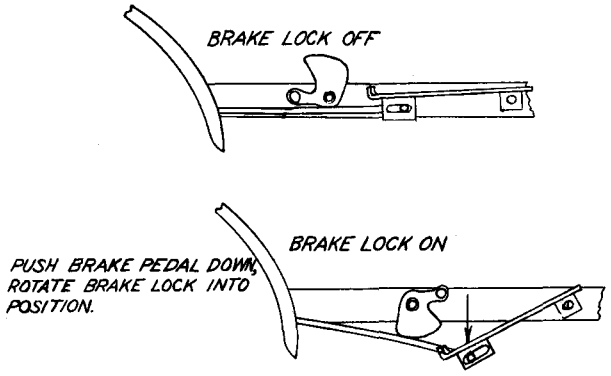


FIGURE 8

● 2. Move choke control to "choke" position if engine is cold or to opposite position if engine is hot. Move throttle control to fast position.

● 3. Turn ignition key clockwise to on position. If engine is manual crank, pull starter rope. If engine is electric start turn key hard clockwise to engage starter, just as on an automobile.

● 4. Push choke slowly to off position and adjust throttle to proper engine speed.

● 5. To stop engine turn key to off position.

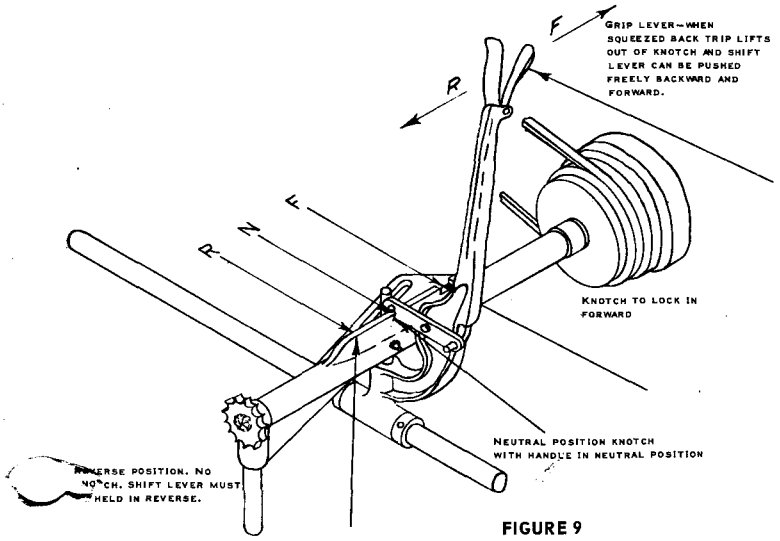


FIGURE 9

DRIVING THE TRACTOR

● 1. Before driving the tractor, study how the Glidamatic shift lever works and where the neutral position is.

● 2. After engine is running smoothly get on tractor and release parking brake. (Push down on brake and rotate the lock out of position.)

● 3. Grasp the shift lever and squeeze the grip lever to lift the latch out of the neutral knotch. Move the lever slowly forward to move the tractor forward or backward to move the tractor backward.

● 4. Releasing the grip while the shift lever is pushed full forward will allow the lever to lock in forward position. To release it from this position squeeze the grip.

● 5. The shift lever for safety reasons cannot be locked in reverse but must be held back. Lock is provided for neutral position and lever should be in knotch when starting or standing with engine running.

● 6. It is a good idea, while in close quarters with the tractor, or going up steep grades to not release the shift lever but rather keep to it in hand for instant stopping or change of direction. The forward speed can be reduced and controlled closely for working in tight spots, trimming, etc., by moving shift lever forward only until desired speed is obtained, rather than full forward. This gives fingertip control of forward speed. This controlling action can also be obtained in reverse, but normally in reverse the shift lever should be held firmly back to eliminate slippage and lengthen reverse disc life.

● 7. The glidamatic drive makes it possible to operate the Panzer without being on it. This is a real convenience at times such as when cutting along the length of a steep bank where it is hard to ride on the tractor but easy to walk beside it on the lower side.

● 8. To turn tractor sharply, turn steering wheel in desired direction and at the same time apply foot pressure to brake on inside wheel. Using the brake in this manner to help steer will prevent any lawn damage from sliding wheels. When a rear wheel spins, traction can be regained by applying the brake on the spinning wheel.

● 9. To change forward speed from low range to intermediate or high first stop the engine. No attempt should be made to change the belt with the engine running. Pull shift lever to reverse position and move belt to the desired pulley grooves. When the belt is in the largest groove on engine pulley, tractor will be operating at highest speed. Mowing and other lawn work will be done in medium or low. Plowing or garden work will be done mostly in low. High is mostly for fun--pulling trailers, etc.

Approximate speeds in miles per hour are as follows:

	Low Throttle	Full Throttle
Low	1.5	3.0
Med.	2.3	4.6
High	3.0	6.0

After moving belt make sure belt is between arms of belt pucker and that belt just misses the arms when engaged in forward position. See Figure 10.

● 10. The lift attachment is operated by squeezing lift grip and moving to position desired. As cautioned before, with the counter-balance spring installed and no attachment in place this lever will fly forward when released.

● 11. The tractor seat can be adjusted to the most con-

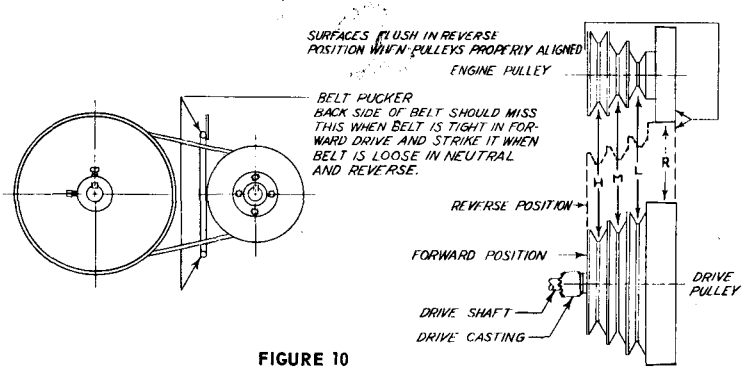


FIGURE 10

venient position. To change position of spring on spring plate, or position of seat on spring, remove nuts and bolts, locate as desired and replace bolts and nuts. The relative position of the bracket that holds the lift spring should be changed to keep its end in same spot.
Caution Moving the seat far back throws the driver's weight more behind the rear wheels which makes it easier for the front wheels to lift off the ground and the tractor roll over backwards. As noted earlier when going up steep grades lean forward and keep your hand on the shift lever.

The Panzer Tractor's combination of clutchless, instantaneous forward and reverse action plus exceptionally short turning radius plus individual wheel brakes make it the most manuverable 4 wheel tractor in the field, and as you become skilled in its operation you will take real pleasure in driving it.

Adjusting and Maintaining the Panzer Tractor

The Panzer Tractor is fundamentally a simple mechanism and most of the working parts are out where you can see and understand them. Panzer is built this way so you can easily take care of your Panzer with simple tools.

The secrets of trouble free operation are:

1. Keep belt and chain properly adjusted and aligned.
2. Keep tractor well oiled and greased.
3. Keep things tightened up by an occasional going over with a wrench.

Because of initial wearing in, it is particularly important to give your Panzer a good checking over on the above three points after the first few hours of operation. Thereafter chain and belt adjustments need be much less frequent, but greasing should be done after every 8 hrs. operation for best results.

Operation and maintenance of the engine are well covered in the Engine Manual furnished with your tractor. Keep engine filled with oil as required by engine instruction booklet. If engine does not idle or run smoothly, adjust engine as set forth in engine instructions. For all minor and preventive maintenance adjustments, follow engine instructions. For all major engine repairs see your nearest gasoline engine service dealer. Contact the engine manufacturer for any engine warranty claims.

TOOL KIT

To care for your Panzer we suggest the following minimum tool list which can be obtained locally.

1 - 1/8" Allen wrench for set screws
1 - 5/32" Allen wrench for set screws
1 - 3/16" Allen wrench for set screws
1 - 8" Crescent adjustable wrench
1 - Set of open end wrenches, including following sizes: 5/16, 11/32, 3/8, 7/16, 1/2, 9/16, 5/8, 3/4
1 - 6" Screw driver
1 - 6" Pliers
1 - Grease gun

BELT ADJUSTMENT

The new drive belt on your Panzer will wear in rather fast at first and become loose. When tightened up it will then run a long time before requiring re-adjusting. Failure to tighten up the belt when it needs it will cause it to slip and wear out quickly.

Need for adjustment is indicated if:

1. Belt slips when tractor is pulling hard.
2. No force is required to push shift lever the last little distance to latch in drive position or
3. With shift lever in drive position (engine stopped) The drive belt can be easily depressed more than one half inch when pressed firmly with the finger at mid-span.

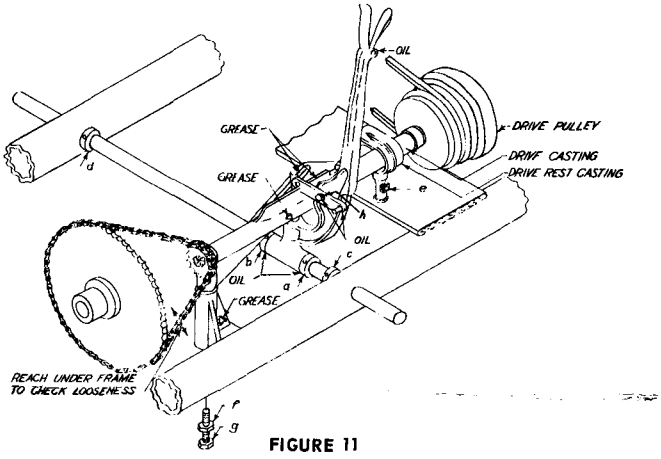


FIGURE 11

Before adjusting the belt tightness check the engine and drive pulley alignment by pulling the shift lever into reverse position and looking at the front edge of the drive pulley and the reverse disc where they come together. They should be flush. (See Fig. 10). If they are not, bring flush by moving the engine pulley on the engine shaft (after checking to make certain drive pulley is tight against end of drive casting where it belongs.)

To tighten belt:

1. Place shift lever in neutral position.
2. Loosen set screw in collar (a) and move collar 1/8" to right and tighten set screw lightly.
3. Slide the shift lever over against collar (a)
4. Loosen set screw in collar (b) and slide it over against the shift lever and tighten screw lightly.
5. Push shift lever into drive position noting the force required and testing how tight the belt is by pressing on it with the finger midway between the pulleys.
6. If belt is tight enough tighten the two collar set screws firmly. If too tight or still loose, readjust collars accordingly.
7. While tightening the belt check that collars (c)and (d) are out tight against the frame pipes so the foot rod cannot move endwise.
8. Also check to see that the shift lock bar is back snugly against the ridges it rides on. It must pivot freely but no more or it will wear or break bolt (h). Adjust if required by tightening bolt(h).

BELT AND REVERSE DISC REPLACEMENT

After adjusting the belt see if the reverse action is still adequate. Eventually as the belt wears and is tight-

ened you will find with the shift lever back as far as it will go no reverse drive can be obtained. At this time the belt and/or the reverse disc must be replaced. The reverse disc diameter is 5" when new and should be replaced when the diameter is down to 4 1/4".

CHAIN ADJUSTMENT

The drive chain also will wear in rather quickly at first and should be tightened when it becomes loose enough to permit more than one inch of movement as shown in Fig. 11 (tractor stopped of course).
To tighten chain: (Refer to Fig. 11)

1. Loosen set screw (e) and free drive rest casting.
2. Loosen lock nut (f)
3. Screw in screw (g) until chain slackness just about disappears -- don't get chain taut.
4. Tighten locknut (f)
5. Raise drive rest casting to point where drive casting moves freely in it without binding -- tighten set screw.
6. Check for belt contact with pucker as noted in Fig. 10. If not correct the pucker can be shifted by loosening the mounting bolts holding it to the engine and shifting it on its slotted holes.

BRAKE ADJUSTMENT

To Adjust Pedal Position: With a 3/4" wrench turn the top of spring loaded hex nut in the upper center of the brake plate toward front of tractor to raise pedal position. Turn it toward rear to lower pedal. If brake is adjusted closely, pedal position cannot be lowered until brake travel is slacked off as instructed below.

To Adjust Brake Travel: Remove brake hole cover plate by prying it straight out with a screwdriver.

With a 5/8" open end wrench reach in from below the frame and turn the brake adjusting sleeve clockwise (viewed from top) to tighten the brake. Turn opposite to loosen.

Replace hole cover by pushing back in so that clip snaps over adjusting sleeve.

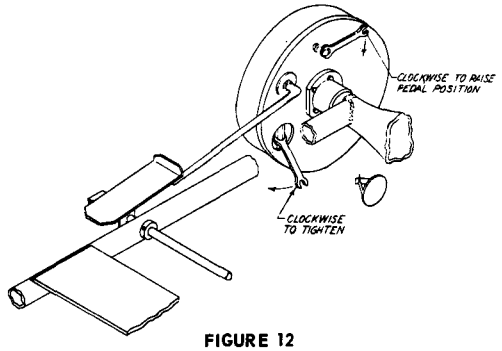


FIGURE 12

The brake shoe can be relined or replaced with a new Plymouth shoe (1949-1956).

STEERING GEAR ADJUSTMENTS

Play in steering may come from wheel being loose on shaft, gears not being tightly in mesh or rubber bushings (Fig. 13) being worn. Tightening and replacing will take care of first and last, while mesh of gears can be tightened by shifting pinion gear up along steering shaft or by shimming up under Pitman housing.

TIRE INFLATION AND CARE

Rear tires are shipped with 6 pounds pressure and front tires with 18 pounds. These pressures give maximum traction and are ideal for plowing, etc. in soil where pulling heavier loads. For use on lawns you will find it desirable to increase the rear wheel pressure to

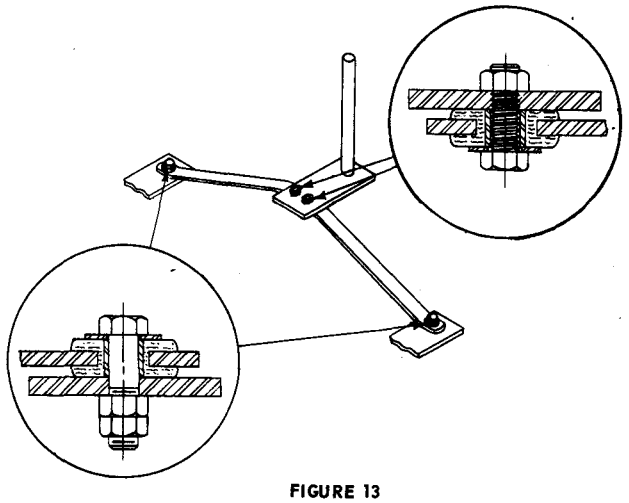


FIGURE 13

15 or 20 pounds and the front wheel pressure to about 25 pounds. This makes the tractor ride higher so you have more clearance and also keeps tractor and mower more nearly parallel to ground on side slopes where the low side tire takes most of weight.

It is important that rear wheel pressures be equal or the tractor and mower will not set straight or level. You can check this by measuring distance from ground to center of each rear axle.

LUBRICATING THE PANZER TRACTOR

1. Oil engine as per engine manual. A drain trough is available for your tractor to tuck up under the engine when changing the oil so that the old oil won't run down all over the tractor frame and lawnmower. One of these will be sent you when your tractor warranty card is received.
2. Grease Fittings - Use grease gun filled with Sinclair Litholine Multipurpose grease or its equivalent and lubricate all fittings every 8 hours of operation or oftener. There are 10 fittings:
   - 3 on front axle
   - 2 hubs of front wheels
   - 2 steering shaft-at steering wheel and at grill
   - 1 steering pitman shaft-in front of engine pulley
   - 1 drive casting - see Fig. 11
   - 1 drive support casting - see Fig. 11
3. Grease applied by hand. Use same type grease and wipe or daub on:
   1. Drive casting as shown in Fig. 11
   2. Steering gears
   3. Gear and quadrant on lift handle
4. Oil with squirt Can - Use #20 or 30 Motor oil and apply a few drops to moving parts not otherwise oiled including:
   1. Points on shift lever pointed out in Fig. 11
   2. Lift lever and rear lift.
   3. Brake pedal arms right where they go into brake plate.
   4. Roller chain if not used under dusty conditions
   5. Throttle cable control all along its length to prevent rust and keep easy working.
   6. Four neoprene bushings in steering tie rods. Two are up in behind center of axle and hard to get at. Other pair are just inside front wheels and easily accessible. (See Fig. 13)

5. Differential. When shipped the differential was charged with 3 pints of #90 E.P. transmission grease or oil. This fills it to within about 3/4 of an inch of the filling hole behind the rear hitch.

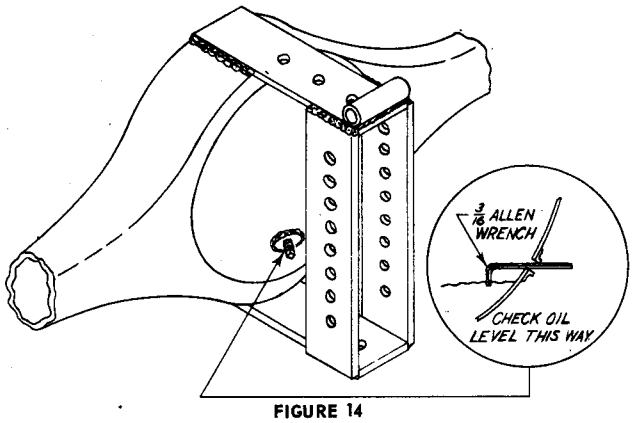


FIGURE 14

Check this level occasionally by removing the plug and measuring the oil level with a 3/16 inch allen wrench as shown. Normally, if no leaks develop, you should never have to add or change the differential oil. In case the oil level is low, 90 EP oil should be added. Since all top openings on the differential have been welded shut to prevent overfilling, adding oil had best be done at a service station where pumping equipment is available. However, it can be added with a large oil can or a piece of tubing or a syringe. Under no circumstances bring the oil level above the filling plug level and preferably keep it 3/4" below. Grease leaking from tractor rear end is usually caused by too much grease in the rear end. If it is not caused by too much grease in the rear ends, and occurs at either rear wheel, the inner seals should be replaced. If leaking at the forward end of the differential, the differential seal should be replaced. Such replacement should be done by an automobile mechanic as he has the pulling equipment to remove the old seals. Leaking can also occur around the gasket or bolts where the gear carrier bolts into the banjo housing or in some cases from holes in the housing itself. These are most easily sealed by carefully cleaning off the spot and applying "plastic steel" or other epoxy resin patching materials sold for this purpose.

TIGHTENING UP

Keep an eye on your Panzer for loose nuts, bolts, set screws, unusual play, etc. When detected correct at once. Periodically check over all fasteners, paying particular attention to the set screws in the pulleys and steering gear.

CARE OF BATTERY, STARTER AND GENERATOR ON ELECTRIC STARTER MODELS

Study the engine maker's data on the electric starter and generator.

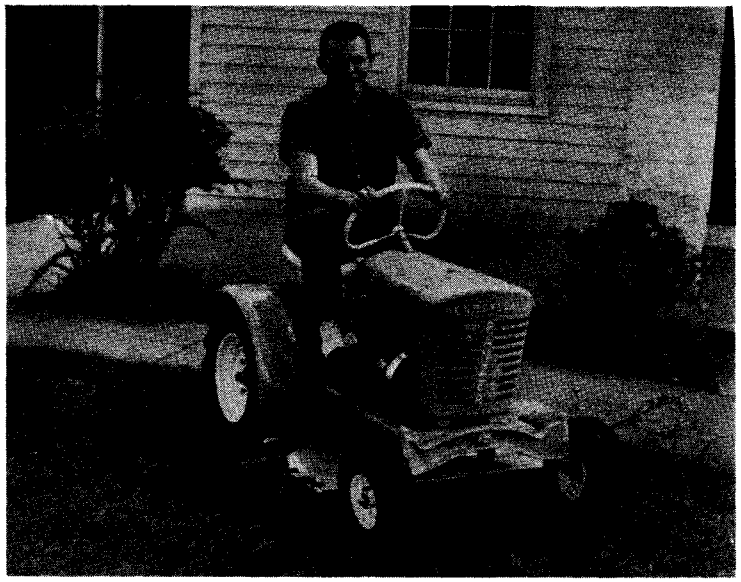
Care for your battery as noted in the instructions packed with the battery. Note this is a low capacity battery and it will be damaged by quick charge techniques used with automobile batteries. Your battery is warranted by its maker and warranty claims should be made to him. If lights or other auxiliaries are installed limit their current draw to 5 amperes or the generator will not keep the battery up.

KEEP IT CLEAN!

Washing your Panzer and its attachments with a hose after each use is the best way to keep it looking new. Don't squirt water on the engine, especially if hot, but the rest of the tractor can take it o. k. Occasional waxing will help preserve the finish.

We at Panzer are here to serve you and welcome your questions and suggestions on Panzer equipment.

We reserve the right to change specifications without notice.



Pennsylvania Lawn Products, Inc.

DIVISION OF VIRGINIA METALCRAFTERS, INC.

Waynesboro, Virginia 22980