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**WAR DEPARTMENT
MAINTENANCE MANUAL
AND PARTS CATALOG**

**TILDOZER, TRACTOR MOUNTING
CABLE OPERATED, MODEL A4 (SP)**

**R. G. LeTOURNEAU, INC.
PEORIA, ILL.**

SEPTEMBER 4, 1943



TM5-1226

TILTDOZER, TRACTOR MOUNTED, CABLE OPERATED, MODEL A4

(FOR USE WITH D4 & R4 TRACTOR, SERIAL
No. 7J-1 AND UP, AND LeTOURNEAU REAR
SINGLE DRUM MODEL "HN" POWER UNIT).

MANUFACTURED BY

R. G. LE TOURNEAU, INC.

PEORIA, ILL.

STOCKTON, CALIF.

(WAR DEPARTMENT PURCHASE ORDER No. 07-5500)

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Tiltadozer, Tractor Mounted, Cable Operated,
Model A4, published by the R. G. LeTourneau, Inc.,
is furnished for the information and guidance of
all concerned.

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Chief of Staff

Official:

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Major General,
The Adjutant General

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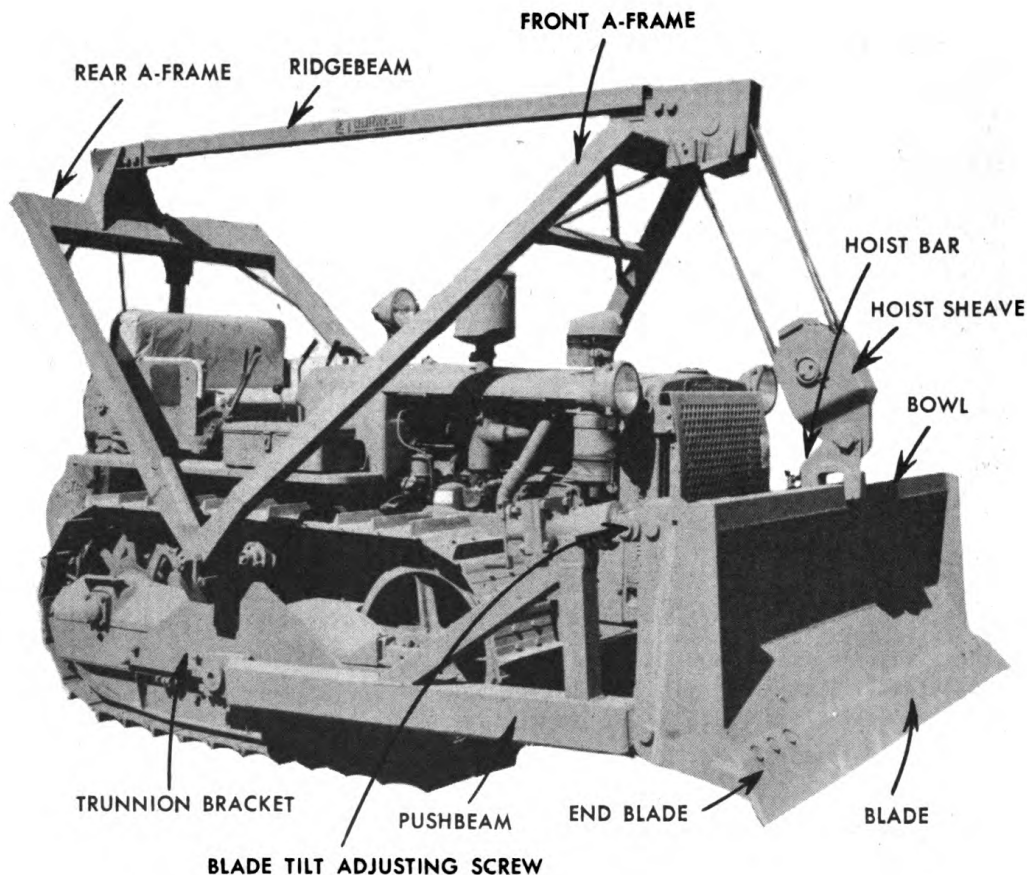
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THE MODEL A-4 TILTDOZER

LeTourneau Tilt dozers are used principally for moving earth, rock etc., short distances; for pioneering roads through hilly, mountainous country; for clearing or removing small stumps and brush; for digging ditches, land-leveling, etc.

The Model A-4 Tilt dozer consists mainly of the steel blade or "bowl" across the front of the tractor. Other principal parts of the Tilt dozer are those which support the bowl in front of the tractor and those related to the raising and lowering of the bowl.

As the tractor moves forward with the bowl lowered, the blade digs into the ground and the material is drifted ahead of the tractor by the Dozer bowl.

The Dozer bowl can be easily and quickly tilted to cause one corner to dig deeper than the other by means of the blade tilt adjusting screws.

The raising and lowering of the Dozer bowl is controlled by means of the Power Control Unit on the rear of the tractor.

Details of Operation and Maintenance procedures will be found on the pages which follow.

PRINCIPAL PARTS OF TILTDOZER

BOWL—Blade-like structure extending across front of tractor which is used to drift dirt ahead of the tractor. The bowl supports the dozer blade and two end blades across its lower edge.

BLADE—The replaceable, heat treated, alloy steel cutting edge which is bolted across the lower edge of the bowl. In addition to being replaceable, Tiltadozer blades can be reversed and worn along both edges to give longer blade life.

END BLADES—The short replaceable blades at each end of the dozer bowl.

PUSHBEAMS—The boxbeam structures which extend forward from the trunnion brackets on the sides of the tractor to support the bowl in front of the tractor. The rear of the pushbeams pivot on the trunnion spools to permit raising and lowering of the bowl.

TRUNNION BRACKETS—The steel plates which are bolted to each side of the tractor track-roller frame containing the trunnion spools (on which the rear of the pushbeams pivot) and the lugs which support the front and rear A-frames and pushbeam.

CORNER BRACES—The braces which extend diagonally from the pushbeams to the rear of the dozer bowl. These braces add rigidity to the dozer.

A-FRAMES—The front and rear A-frames support the ridgebeam as well as the sheave wheels over which the cable from the Power Control Unit runs to raise and lower the dozer bowl.

RIDGEBEAM—The boxbeam structure connecting the front and rear A-frames at the top, through which the cable passes.

BLADE TILT ADJUSTING SCREW—The adjustable, screw-like mechanism at the front of each pushbeam connecting the pushbeams with the top of the bowl, by means of which the bowl can be tilted for digging with either corner.

HOIST BAR—The bar or lug which is connected to the rear of the bowl at the center, to which the hoist sheave housing is attached for raising and lowering the bowl.

HOIST SHEAVE HOUSING—The sheave housing which is attached to the hoist bar directly above the dozer bowl.

OPERATING TERMS

THE CUT—Place where dirt or other material is being excavated.

THE FILL—Place to which dirt or other material is being moved.

FINISHING—Leveling or smoothing the surface of a finished cut, fill, slope, or other plot of ground.

BULLDOZING—Drifting dirt from one place to another, straight ahead of the dozer bowl.

SECT. 1

OPERATION SECTION



OPERATION SECTION

The efficiency of the Tilt-Dozer is more dependant on the ability and skill of the operator than on any one other thing. For this reason, it is hoped that every operator will recognize the importance of his services, and will operate the Tilt-Dozer to the best of his ability at all times.

The operating instructions in this book are brief, and are intended only to familiarize the operator with the accepted methods of operation and the procedure to be used in doing the more common types of Dozer work, as practiced by skilled operators with years of experience.

These instructions should help the new operator in becoming more efficient at his work.

It should be kept in mind, however, that an operator cannot become skilled by reading a book, but can attain skill only through actual operating experience.

On the following pages will be found not only the recommended operating procedures, but also instructions covering the points of maintenance that can be taken care of by the operator.

OPERATING INSTRUCTIONS

THE CONTROLS

The LeTourneau Model A-4 Tiltadozer can be operated by either the LeTourneau Model T or Model HN Power Control Units.

The Tiltadozer requires the use of but one cable drum and therefore when it is operated by the Model T Power Control Unit, the spare drum may be used either to operate other equipment, or left idle.

The 'dozer bowl is connected with the Power Control Unit by means of the control cable, or wire rope. By engaging the Power Control Unit clutch the 'dozer bowl will be raised. By releasing the Power Control Unit brake, the 'dozer bowl will be lowered. The bowl is held in position when the Power Control Unit control lever is in the neutral position.

The instructions below show the direction of movement of the control levers on both the Model HN and the Model T Power Control Units to engage the clutch and release the brake.

MODEL HN POWER CONTROL UNIT

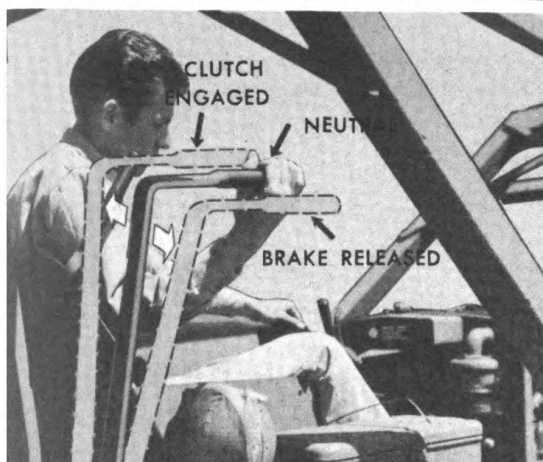
The control lever on the Model HN Power Control Unit is normally in neutral position. To engage the clutch to raise the 'dozer bowl, move the control lever to the rear. Returning the control lever to neutral position holds the bowl in the position to which it was raised. To release the brake for lowering the bowl, move the control lever forward from neutral position.

MODEL T POWER CONTROL UNIT

The control lever on the Model T Power Control Unit is normally in neutral position.

To engage the clutch to raise the bowl, move the right control lever to the left. Returning the control lever to neutral position will hold the bowl in the position to which it was raised. To release the brake for lowering the bowl, move the same control lever to the right from the neutral position.

For further instructions regarding the operation of the Power Control Unit refer to the Power Control Unit Instruction Book.



INSTRUCTIONS FOR THE BEGINNER

When the new operator of the LeTourneau Tiltadozer gets on a tractor to begin operating, he should raise and lower the 'Dozer bowl until he feels sure of what is going to happen when he moves the Power Control Unit control lever.

It should be remembered, however, that a 'Dozer bowl loaded with dirt will act differently than an empty bowl.

One of the most important things to remember when learning to operate a 'Dozer is to raise or lower the bowl only a small amount at a time—approximately $\frac{1}{4}$ " to 1". Otherwise, if the bowl is raised and lowered 2 to 3 inches at a time while operating, it will cause the blade to cut an uneven surface over which the tractor must travel, which will result in the tractor nosing up and down.

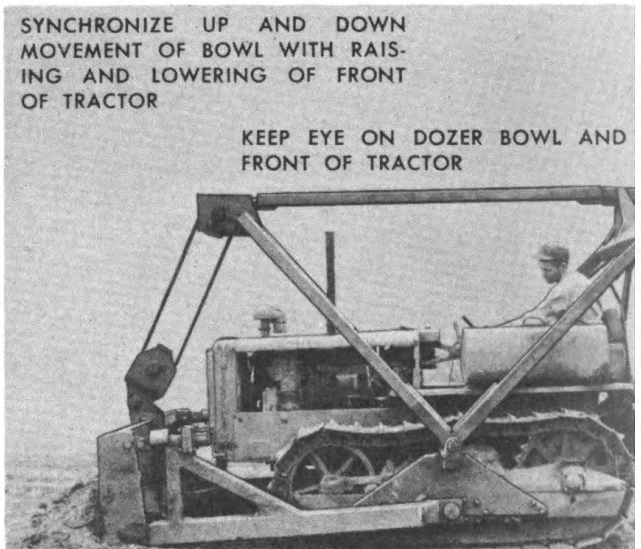
The new operator will soon get in the habit of watching for or anticipating the up and down movement of the front of the tractor when operating over uneven ground. When the front of the tractor starts to raise or nose up, the operator should move the control lever in the direction that will release the Power Control Unit brake, allowing the blade to lower. When the front of the tractor starts to nose down, the Power Control Unit clutch should be engaged to raise the blade, only far enough to compensate for the lowering of the front of the tractor. A smooth cut will thus be maintained.

After operating a while, the new operator will be able to automatically raise and lower the 'Dozer bowl as the front of the tractor raises and lowers without giving it a great deal of thought or special attention.

One important thing to remember when operating is to keep the slack out of the cable at all times, in order to have immediate control over the 'Dozer bowl. Also, it will be found that the cut or roadway can be kept level more easily if the 'Dozer bowl is kept approximately $\frac{1}{2}$ to $\frac{3}{4}$ full of dirt while traveling forward. Nearly every job presents new problems to 'Dozer operators, but once the inexperienced operator gets the feel of the machine and decides to concentrate on his work, he will find that he can overcome most any operating problem and will find it easy and interesting work.

SYNCHRONIZE UP AND DOWN
MOVEMENT OF BOWL WITH RAIS-
ING AND LOWERING OF FRONT
OF TRACTOR

KEEP EYE ON DOZER BOWL AND
FRONT OF TRACTOR



Original from
UNIVERSITY OF CALIFORNIA

BULLDOZING

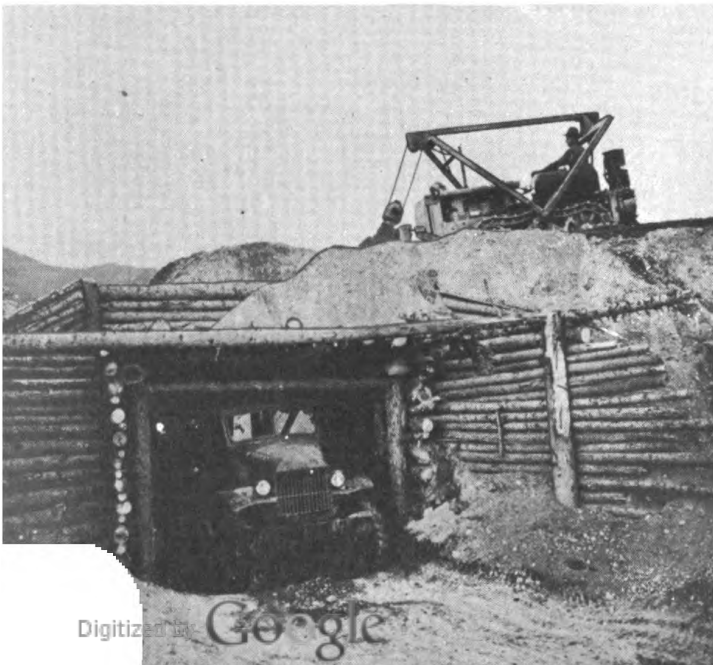
The Tiltadozer is especially adapted for bulldozing or, in other words, for drifting dirt straight ahead in front of the bowl.

The material should be drifted downhill wherever possible in order to increase production. When drifting the material, a ridge of dirt will be formed by dirt spilling out around

the ends of the bowl, thereby causing the unit to work within a trench. Care should be exercised to maintain this trench, in order to get the largest possible loads. Working downhill within such a trench assures loads of maximum size, and sometimes makes it possible to operate the tractor in second or third gear, depending upon the grade.

Sometimes the 'Dozer is used for loading trucks, wagons, etc., with dirt, gravel, sand, or other material by backing the truck or wagon up to a ramp and then bulldozing the material up the

ramp and into the bed of the truck or wagon. More often a "grizzly" is constructed, similar to the one illustrated. An opening is left in the platform above the truck, and by bulldozing the material into this opening or "trap," it falls down into the truck, wagon, or other vehicle which is backed in under the "grizzly."



MAKING SIDE HILL CUTS

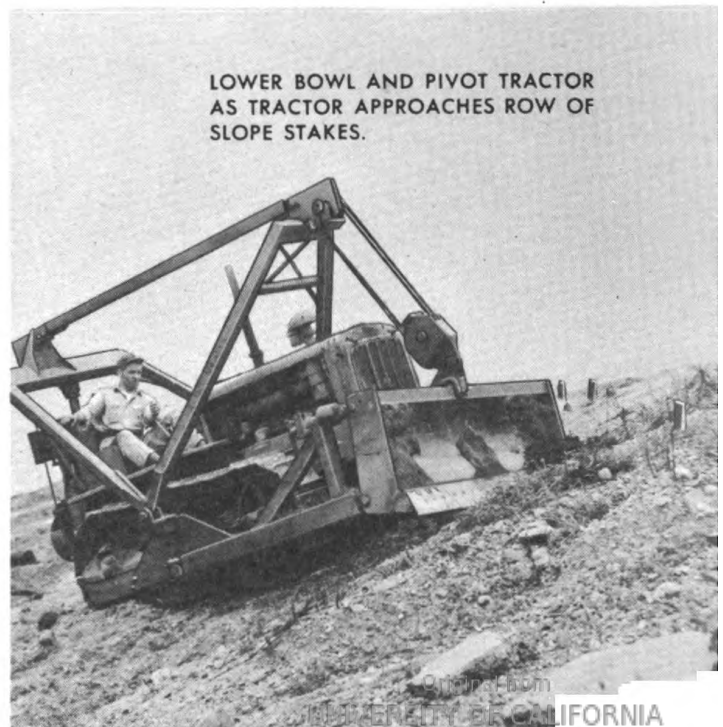
To start a side hill cut with a LeTourneau Tiltadozer, guide stakes should first be set at the top of the slopes on the cuts and at the toe of the fills. One corner of the blade should be tilted lower than the other by means of the blade tilt adjustment.

The tractor should then be brought to the highest point on the back slope to start the cut. Operation is started with the tractor at right angles to the line of slope stakes, with the rear of the tractor pointing downhill. The bowl is then dropped into the ground and the tractor is swung around, with the low side of the blade cutting next to the line of stakes. The unit should be brought close enough to the line of slope stakes so that when the tractor pivots, the point of the bowl will cut right up to the line. Swing the tractor around until it is almost parallel with the slope stakes, at the same time lifting the 'Dozer bowl so that the dirt will roll no further down the slope than the width of the roadway, and not be wasted down the hillside.

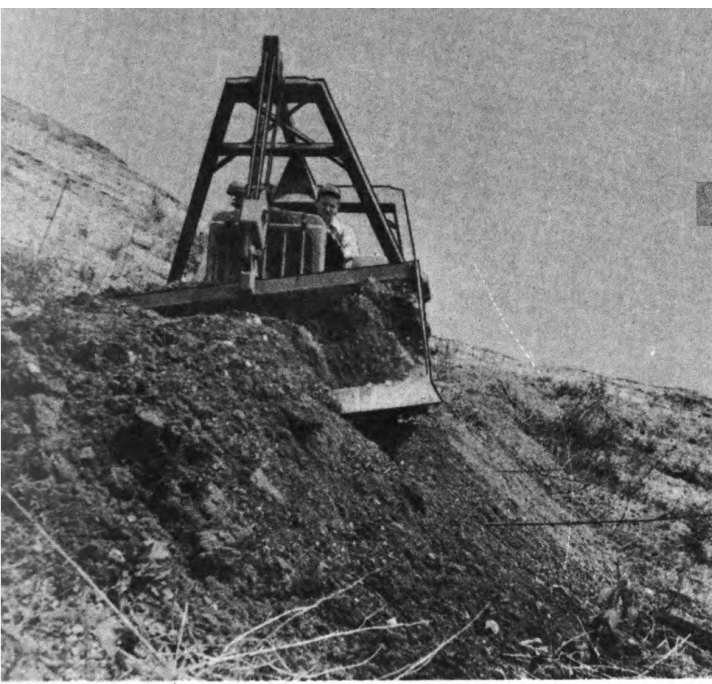
It will be noted that the point of the bowl cutting against the line of stakes swings in a long arc, while the other end of the bowl has very little travel. The point next to the slope stakes is half buried in dirt, while the other end is exposed and not moving any material.

This procedure should be repeated until a level shelf is constructed upon which the tractor can work. The unit can then work parallel to the slope stakes, cutting a level shelf as it proceeds.

In making the cut, the side next to the back slope should always be kept a little lower than the outside, in order to cause the tractor to lean slightly toward the bank and thereby to stay on solid footing. If the machine is operated when leaning away from the bank, the operator will have trouble in maintaining a back



LOWER BOWL AND PIVOT TRACTOR AS TRACTOR APPROACHES ROW OF SLOPE STAKES.



slope. Also, when the bench slopes away from the bank, the tendency of the tractor to ride down over the edge of the loose fill material makes it difficult to place the material where it is needed.

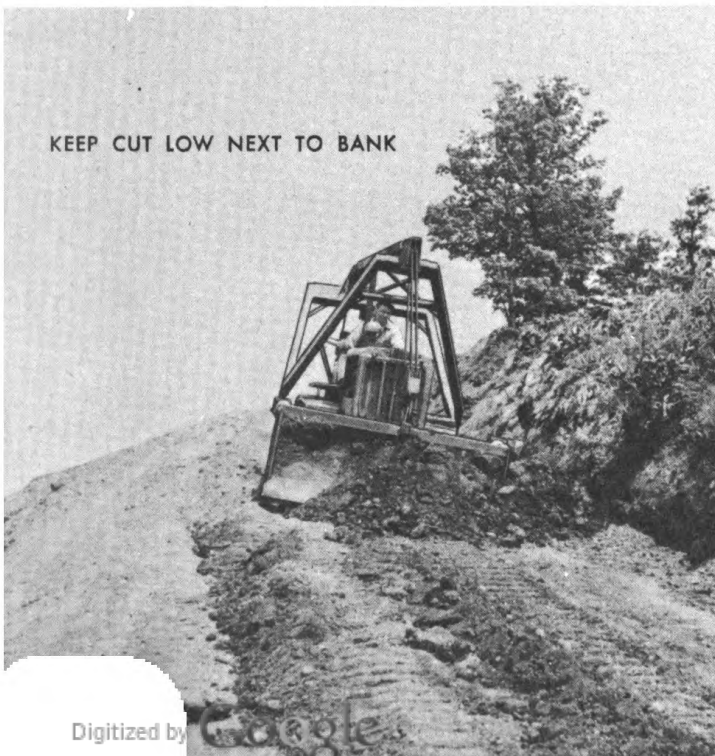
If the cut once starts sloping down hill or to the outside, the material in the 'Dozer bowl will have a tendency to crowd to the outside, loading that corner of the bowl and continual-

ly pulling the tractor over to one side, making it difficult to keep the tractor traveling in a straight line. In instances of this kind, tilt the blade by means of the blade tilt adjustment, causing the side of the blade next to the slope to cut lower than the outside. As the tractor moves forward the side next to the slope will cut deeper than the outside end, leveling up the cut. Several passes may have to be taken in this manner to properly level up the cut.

The required back slopes usually vary in steepness from $\frac{1}{2}$ -to-1 to 2-to-1. When making the cut, try to maintain the correct back slope as the work progresses. The slope is usually cut in a series of steps for a height which is equal to the width of the bowl, and then the steps are

trimmed off by running the tractor along the slope with the 'Dozer bowl lowered only enough to cut off the steps.

'Dozers are often used to open up side-hill cuts for Carryall Scrapers. In instances of this kind the cut is usually made with the 'Dozer until the shelf which has been cut is wide enough to run a Carryall Scraper on. Then the Carryall Scrapers proceed with the cut.



KEEP CUT LOW NEXT TO BANK

CLEARING

REMOVING STUMPS, ROCKS AND BOULDERS

LeTourneau Tiltdozers are quite often used to clear land of small stumps, brush, mesquite, etc.

Stumps that are not too large can be removed with LeTourneau Tiltdozers without any great amount of difficulty, by cutting deep enough around the stump to get the 'Dozer blade below the roots, and then moving forward and hoisting with the 'Dozer bowl at the same time, thereby bringing out the stump.

The procedure for digging out rocks and boulders is similar to that for removing stumps. However, it is difficult to establish a set of rules to be followed in removing rocks, since it seems that a slightly different procedure is required with each rock.

Usually, it is advisable to first dig around the rock with the 'Dozer blade and then to work one corner of the blade down under the rock. When the corner of the blade is caught firmly under the rock, engage the Power Control Unit clutch, thereby hoisting the 'Dozer bowl, and giving the rock a rolling action.

When moving rock on a side-cast job, such as widening out a cut, cutting roads up the sides of a rocky hill or mountain, etc., dig in with the corner of the blade and then, while moving forward, raise the bowl approximately one or two feet, dislodging the rock. Don't repeatedly let the corner of the blade dig in where the tractor keeps stalling. Instead, disengage the steering clutch opposite the corner of the blade which is against the rock, and raise and lower the blade into the rock, thereby causing it to dislodge itself.



FINISHING

Most operators find that it requires somewhat more experience to finish efficiently with a 'Dozer than it does to do most other types of 'Dozer work. However, there are many jobs upon which it is found advisable to finish with 'Dozers, and in instances of this kind any experienced operator can, with a little practice, handle the job without a great deal of difficulty.

When starting to finish, adjust the bowl into the level position. Keep the tractor tracks level on the first cut. By doing this the 'Dozer blade will be started level with the finished grade.

Before lowering the bowl, place the tractor in motion. Then lower the bowl gradually and feed it into the ground. Make sure, however, that the tractor tracks are level as the blade enters the ground. If the bowl should be dropped suddenly, the blade will have a tendency to gouge.

Keep the raising and lowering of the 'Dozer bowl synchronized with the up and down movement of the front of the tractor as outlined in previous instructions, in order to keep the work level.

It is usually found that if the tractor is operated in the fastest gear possible without lugging the motor down, and if it is kept moving at a steady rate of speed, the finished work will be smoother, and the rate of progress will, of course, be faster.

Always keep the bowl at least half full of dirt. This will cause the blade to cut the high spots easier and to fill in the low spots with the extra dirt.

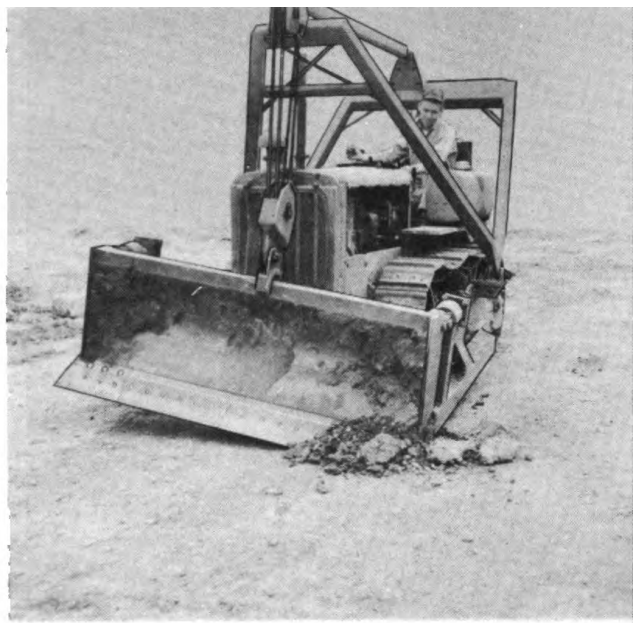
After having finished a part of a job, use the finished work as a guide for the rest of the job by allowing approximately $\frac{1}{4}$ of the blade to overlap the finished work and guide the depth of the cut and spread.

Small irregularities in a finished surface are sometimes smoothed out by dragging the bowl backward over the fill. This should only be done in finishing, however, and should not be done in rocky soil.



FROZEN GROUND

When operating in frozen ground, it is often difficult to break through the top, frozen surface. In cases of this kind, it is necessary to tilt the blade into the extreme tilted position, by means of the blade tilt adjustment. Then, with the blade tilted, work the tractor forward and backward until the corner of the blade has worn down through the frozen top soil.



After once having broken through the top soil, it is a fairly simple matter to break the surrounding frozen soil out in large chunks, by bringing the blade up under the frozen surface and hoisting with the 'Dozer bowl. It will often be necessary to disengage one steering clutch during this operation, to prevent stalling the tractor engine.

DIGGING V SHAPED DITCHES

LeTourneau Tiltdozers are sometimes used for digging V shaped drainage ditches.

To perform this operation, first tilt one corner of the blade into the extreme digging position by means of the blade tilt adjustment. Then start with the corner of the blade digging along the center line of the proposed ditch, at either end. By moving forward, the side of the bowl that was tilted will dig in, and before traveling far, the blade will be cutting a ditch. To keep the sides of the ditch from becoming too steep, the blade can be tilted back into a more nearly straight position across the front of the tractor after this initial part of the ditch has been started. Then, by continuing to travel forward with one end of the blade down at the bottom of the ditch, a semi-V shaped ditch will be cut. If necessary, pivot the tractor occasionally to help side-cast the dirt. By traveling back the opposite side of the ditch, with one track running along the bottom, the 'Dozer will widen the ditch and make both sides taper down at approximately the same angle.

Additional passes may be necessary in order to dig the ditch to the desired depth and to clean out loose dirt that has fallen around the end of the bowl.



INCREASING PRODUCTION

The more often a 'Dozer can push its load through the same path, the more efficient is its performance. The dirt that must obviously waste around the ends of an open blade forms wind-rows. Travel in the same path utilizes the previously windrowed material as wings to keep the dirt in front of the bowl and prevent loss around the ends. In

the case of pushing material several hundred feet, a trench may be formed in which the machine travels. The deeper the sidewalls, the more dirt that can be carried without loss.

Down hill dozing is to be desired because it gives more yardage per hour. A favorite method is to take four or five passes to the brink of the steepest slope, then ride the dirt down to its final resting place in quantities many times in excess of individual loads.

Often, two or three 'Dozers will work abreast in this manner. The idea is to prevent end-spill by having the blades work side by side, preventing end loss except at the two outside edges.



SAFETY PRECAUTIONS

As with all heavy equipment, reasonable precautions must be taken when working around the Tiltadozer. Listed below are safety precautions which should be observed.

1. When changing blades or working underneath the 'Dozer bowl, always block up under the side-arms to prevent the bowl from dropping in event someone should accidentally release the Power Control Unit hoist brake.
2. Keep the hands free from the cable and sheaves while the unit is in operation.
3. Use gloves when handling cable.
4. Do not leave 'Dozer with bowl in raised position.
5. Do not use weak, frayed, cable.

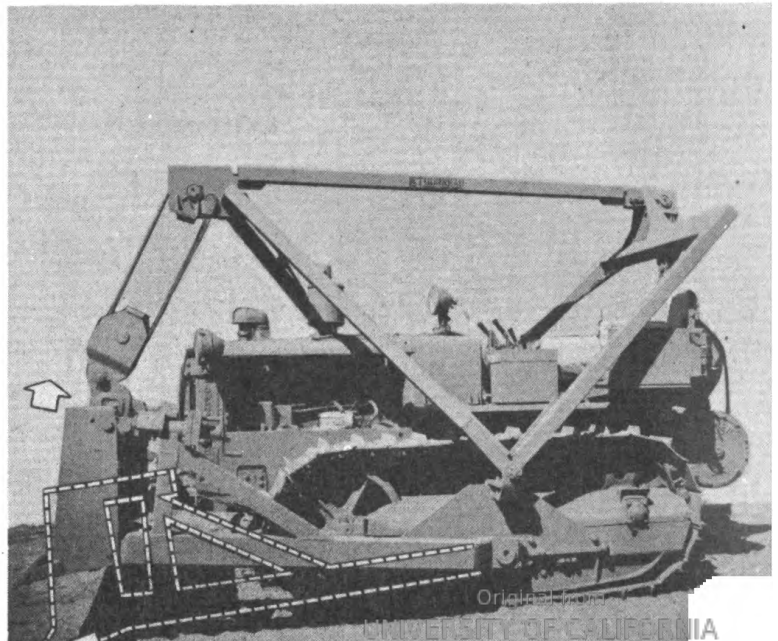
FUNCTIONS

The functions of the Tiltadozer are the raising and lowering of the bowl as the tractor moves forward to cause the blade to dig to the desired depth.

The operator can control accurately the raising and lowering of the bowl by means of the Power Control Unit on the rear of the tractor.

When the Power Control Unit clutch is engaged, the 'Dozer bowl is raised. When the control lever is returned to neutral position, the Power Control Unit brake holds the bowl at the level to which it has been raised. When the brake is released, the bowl is lowered.

Tilting the bowl to cause one corner to dig deeper than the other for special operations is accomplished by means of the blade tilt adjusting screws. (Refer to adjustment instructions on page 15 of the Operation Section.)

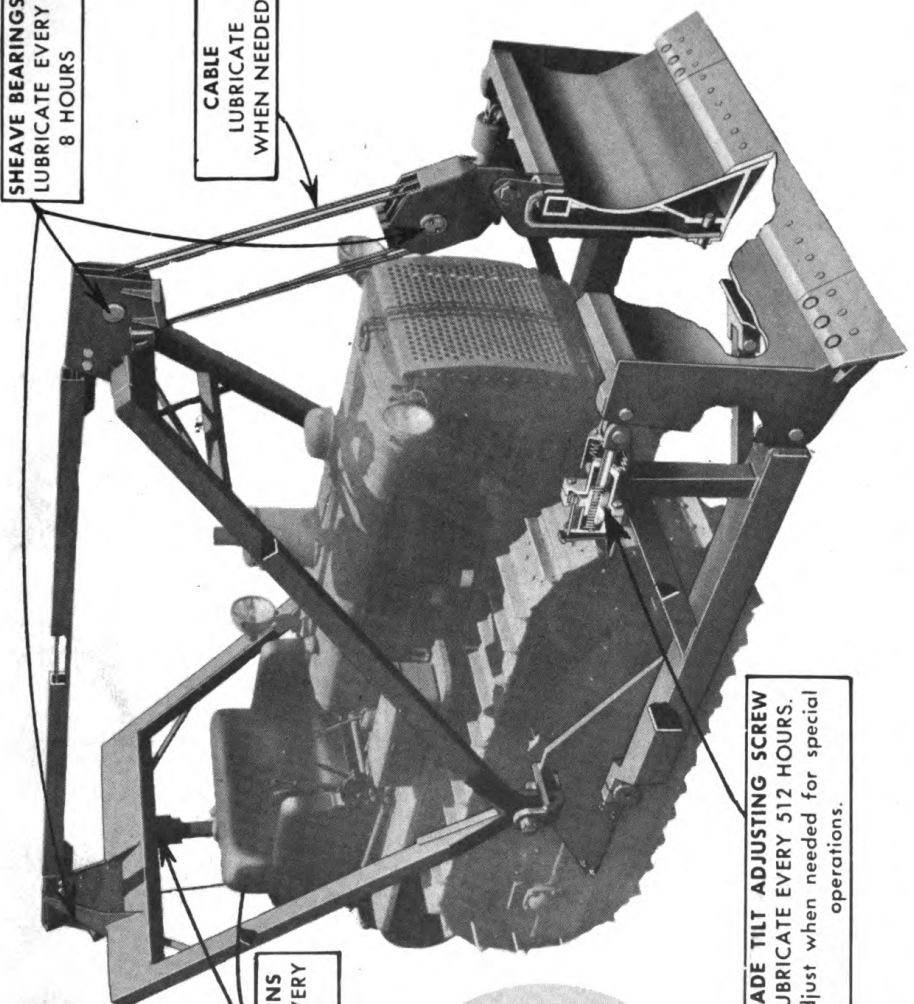
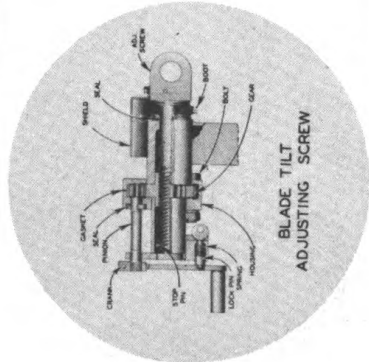


SHEAVE BEARINGS
LUBRICATE EVERY
8 HOURS

CABLE
LUBRICATE
WHEN NEEDED

LINK BAR PINS
LUBRICATE EVERY
8 HOURS.

BLADE TILT ADJUSTING SCREW
LUBRICATE EVERY 512 HOURS.
Adjust when needed for special
operations.



CUTAWAY VIEW OF MODEL A-4 TILDOZER SHOWING POINTS OF LUBRICATION AND ADJUSTMENT THAT CAN BE TAKEN CARE OF BY OPERATORS

SPECIFICATIONS

MODELA-4 Tiltdozer
For Use With.....Caterpillar D4 or R4 Tractors

BOWL

Type of cutting edge—Reversible with hard surfaced replaceable end blades
 Dimensions of center blade..... $\frac{5}{8}$ " x 8" x 4' 8"
 Dimensions of end blades..... $\frac{3}{4}$ " x 8" x 16 $\frac{1}{2}$ "
 Height of bowl.....2' 7"
 Blade tilt adjustment for digging with point.....12"
 Height blade can be raised above ground.....3' 0"
 Depth blade can be lowered below ground.....5' 0"

OVERALL DIMENSIONS

Length (with HN Power Control Unit mounted).....13' 7"
 Length (with Model T Power Control Unit mounted).....13' 11"
 Width7' 5"
 Height8' 3"

CABLE REQUIREMENTS..... $\frac{1}{2}$ " Tournarope—55' long
 (Model T P.C.U.)
 $\frac{1}{2}$ " Tournarope—50' long
 (Model HN P.C.U.)

GENERAL SPECIFICATIONS

Type of Frame used.....Pushbeams detachable from bowl with adjustment for blade tilt
 BearingsRoller
 Weight (approximate) without Power Control Unit.....2,600 lbs.

PREPARATION FOR INITIAL OPERATION

If the Tiltdozer arrives partially disassembled, it is first necessary to assemble the unit and mount it on the tractor. (Refer to assembling instruction on page 7 of the Repair Section.)

After the Tiltdozer has been assembled, thread the cable through the sheave housings as outlined in the cable threading diagram on page 14 of the Operation Section.

Check all points of lubrication to determine if properly lubricated.

Check cable alignment to determine whether it is fouling at any point.

Check blade tilt adjustment to determine if it functions properly.

Raise and lower the 'Dozer bowl, checking for free movement.

When the Tiltdozer has been thoroughly checked and any necessary corrections made, it is ready to be placed in operation.

CABLE

LeTourneau Tiltdozers are designed for use with Tournarope or other high quality wire rope meeting the following specifications: 6 x 19 wire rope of Warrington Construction with strand center, preformed, Langlay, and made from improved plow steel. It should be internally lubricated during the manufacturing process. (Different cable of equal construction can be used without harmful results.)

For size of cable (diameter and length) refer to Specifications on Page 13 of the Operation Section. Do not use larger diameter cable than that specified or damage to the equipment may result. If smaller cable than specified is used, frequent cable breakage may occur.

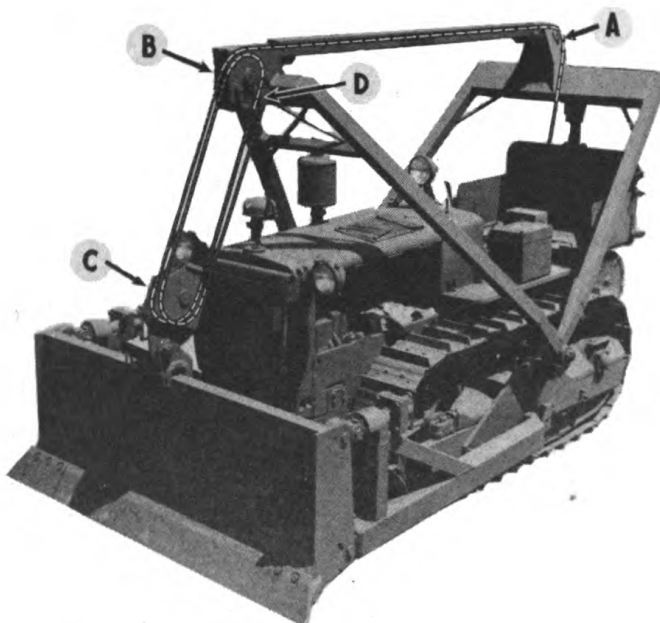
CABLE THREADING

From the Power Control Unit on the rear of the tractor, the cable is threaded up over sheave in housing (A), then forward through the ridgebeam and over the top of right sheave in housing (B), down around the right sheave in housing (C), up and over the left sheave in housing (B), down around the left sheave in housing (C), and then up and dead ended at the cable wedge (D) on the left side of housing (B).

If the Tiltdozer is operated by a Model T Power Control Unit, the cable should be threaded onto the right hand cable drum.

If operated by a Model HN Power Control Unit, the cable runs against a small sheave at the rear of sheave housing (A) which serves as a guide in leading the cable to the cable drum.

For instructions for threading the cable onto the Power Control Unit cable drums, refer to the cable threading instructions in the Manual covering the particular model of Power Control Unit that is used.



BLADE TILT ADJUSTMENT

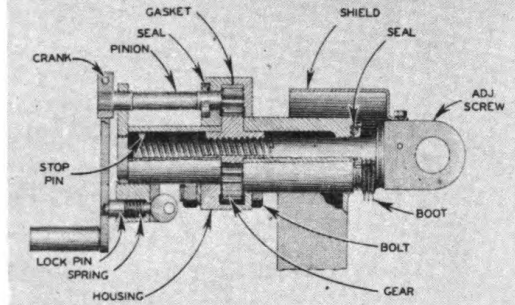
The Tiltadozer bowl can be quickly and easily tilted by one man to cause one corner to dig lower than the other for special operations such as previously discussed in the Operation Section.

This adjustment is performed by means of the blade tilt adjusting screws located at the front of each pushbeam at the top.

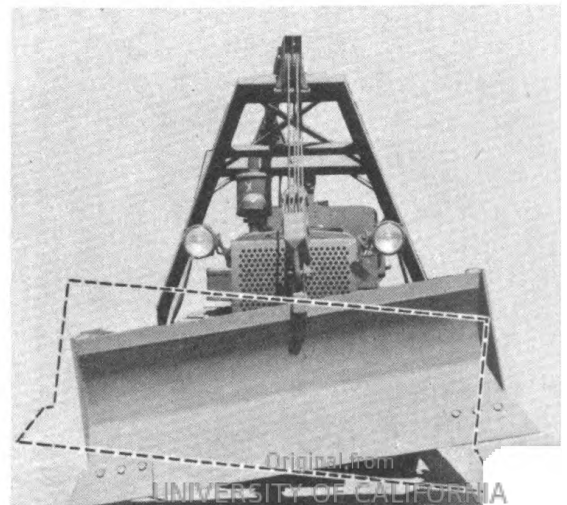
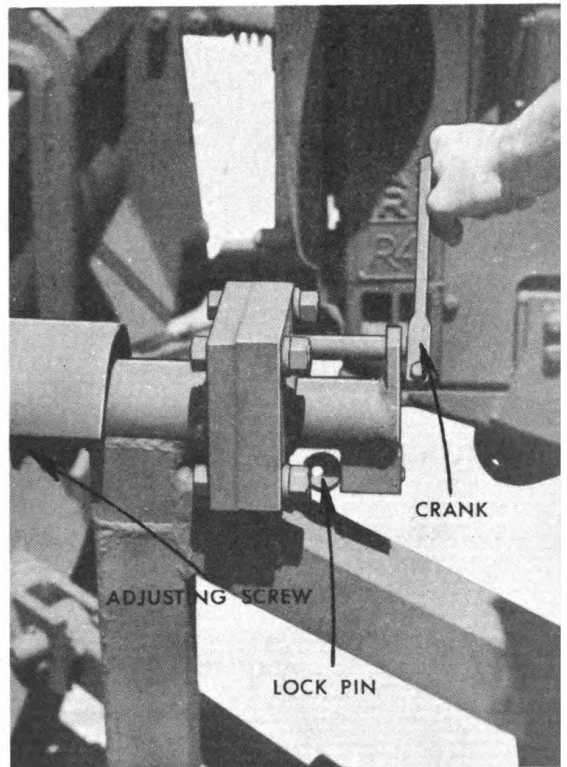
The adjusting screws can be screwed to the front or rear to tilt the blade by turning the crank at the rear of each adjusting screw housing. A plunger type stop-pin is provided in each housing to prevent the crank from turning except when making the adjustment. To release the stop-pin for turning the crank, pull the stop-pin to the rear by hand and turn it $\frac{1}{4}$ turn, thereby leaving it in the released position. After turning the crank enough to tilt the bowl to the desired level, reinsert the stop-pin in the hole in the crank to lock the adjustment.

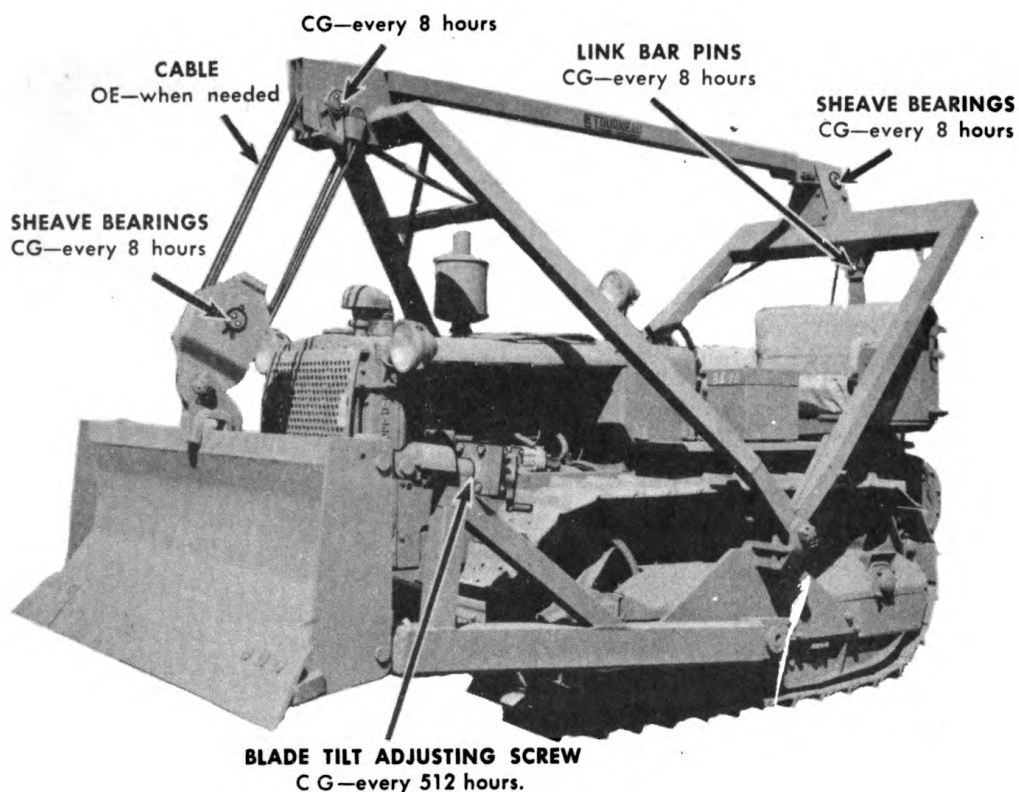
To tilt the bowl to cause the left side of the blade to dig low, turn the crank for the left adjusting screw counter-clockwise and turn the crank for the right adjusting screw clockwise. To tilt the bowl to cause the right side to dig low, turn the crank for the left adjusting screw clockwise and the crank for the right adjusting screw counter-clockwise.

NOTE: Since in making the blade tilt adjustment the top of the bowl may be moved a short distance to the front or to the rear, the digging angle of the blade may be changed slightly, possibly resulting in a change in the digging characteristics of the blade. Any tendency of the 'Dozer to not dig properly after making the adjustment can usually be corrected by adjusting both adjusting screws a like amount either to the front or to the rear.



BLADE TILT
ADJUSTING SCREW





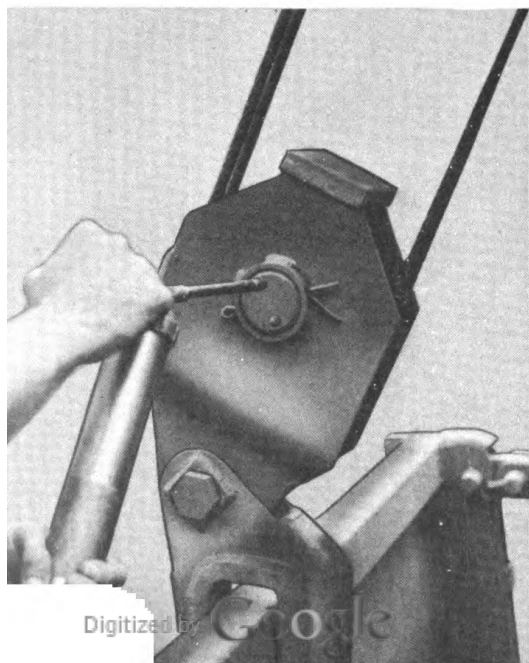
LUBRICATION

Sheave Bearings

Lubricate the sheave bearings every 8 hours of operation, using a conventional pressure grease gun.

Insert one or two shots of grease through the grease fittings, forcing old grease out around the hubs of the sheave wheels. Use CG-1 (grease, general purpose, No. 1) in temperatures from $+90^{\circ}$ F. to $+32^{\circ}$ F., and CG-0 (grease, general purpose, No. 0) in temperatures from $+32^{\circ}$ F. to 0° F.

For instructions when operating in temperatures above $+90^{\circ}$ F., refer to Engineer Field Service Bulletin L-1000-E. In temperatures below 0° F., refer to Engineer Field Service Bulletin L-1000-D.



Link Bar Pins

The pins at the upper and lower ends of the link bar at the rear of the A-frame receive lubrication through the grease fittings in the ends of the pins.

Lubricate these pins at the same intervals and with the same lubricant as is used in the sheave bearings.

Blade Tilt Adjusting Screws

The blade tilt adjusting screws should be hand packed with grease every 512 hours of operation.

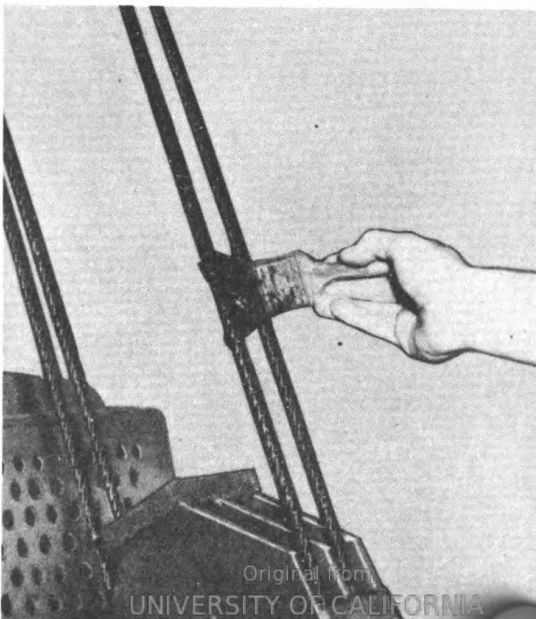
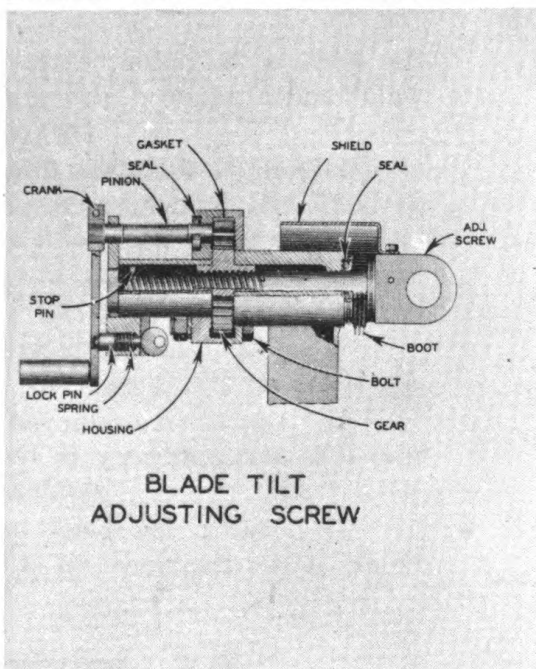
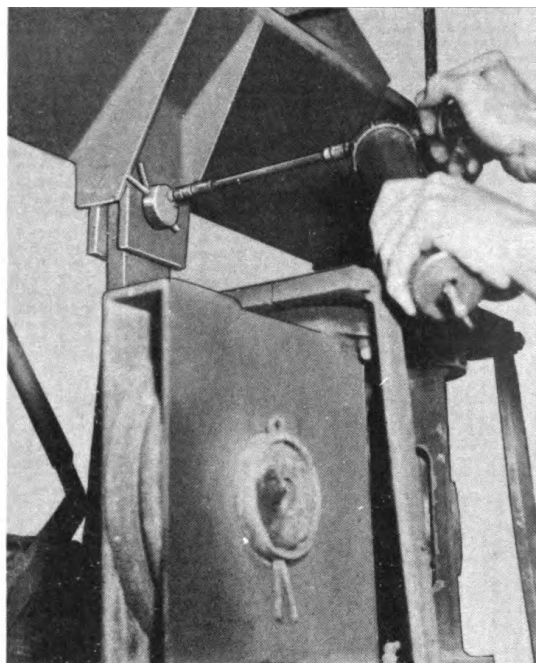
To hand pack the adjusting screws, first disassemble housing (A) by removing bolts (B) and sliding housing to the rear, off the end of the adjusting screw. Then apply grease to the adjusting screw and the interior of the housing and re-assemble.

Use CG-1 (grease, general purpose, No. 1) in temperatures from $+90^{\circ}$ F. to $+32^{\circ}$ F., and CG-0 (grease, general purpose, No. 0) in temperatures from $+32^{\circ}$ F. to 0° F.

For instructions when operating in temperatures above $+90^{\circ}$ F., refer to Engineer Field Service Bulletin L-1000-E. In temperatures below 0° F., refer to Engineer Field Service Bulletin L-1000-D.

Cable Lubrication

Lubricate the cable sparingly at infrequent intervals to serve as a rust preventative, using OE-10 (oil, engine, S.A.E. 10) or OE-30 (oil, engine, SAE 30). If the Power Control Unit is equipped with woven clutch and brake facings, do not lubricate that portion of the cable which wraps onto the cable drum, because of the danger of oil getting onto the facings, causing clutch and brake slippage.



BLADES AND END BLADES

The Tiltadozer bowl is equipped with one center blade and two end blades, each of which is replaceable. In addition to being replaceable, the center blade can be reversed when worn along one edge, thereby doubling the blade life.

The blades should be changed before they wear back far enough to cause

the bowl to be subjected to wear, which would result in damage to welds and ultimate destruction of the bottom of the bowl.

REMOVING BLADES

To remove the blade from the Tiltadozer, first raise the bowl off the ground, high enough to conveniently reach the hex nuts on the lower ends of the blade bolts with a wrench. Place blocks under the bowl to prevent it from dropping in case the Power Control Unit brake should be accidentally released.

Then, using the blade wrench, remove the blade bolts which secure the blade to the bowl.

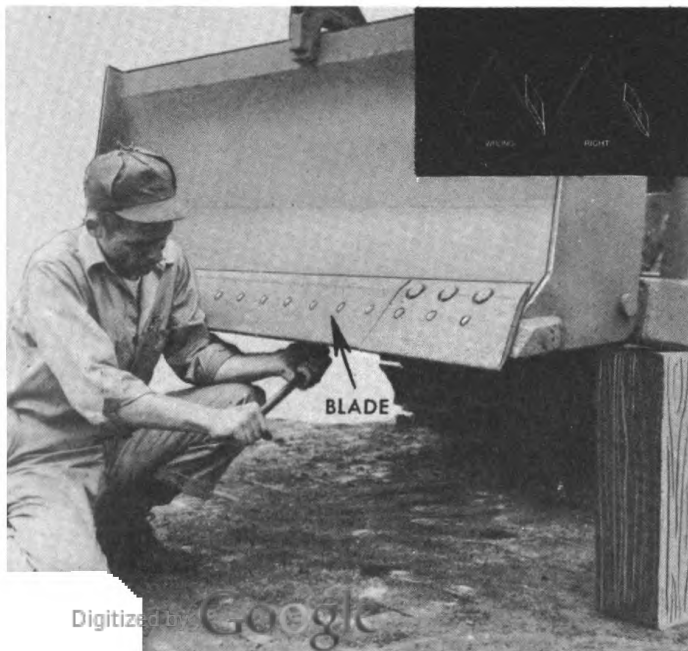
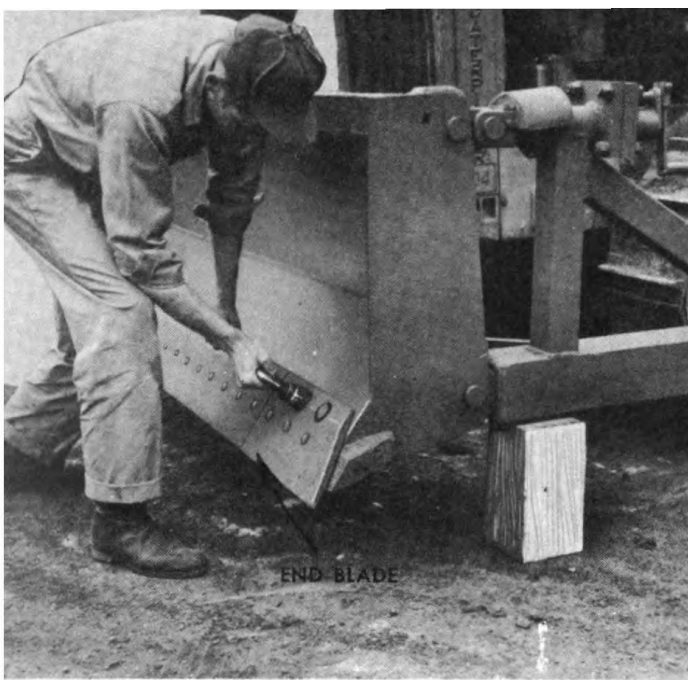
End tips can be removed in the same manner as blades, excepting that it is also necessary to remove the end-tip capscrews.

INSTALLING BLADES

To install a new blade on the Tiltadozer, raise the bowl and place blocks under the sidearms or bowl to prevent the bowl from falling if the Power Control Unit brake should be accidentally released.

After laying the blade in place, the use of a round drift punch will be very helpful in lining up the holes. Re-install the blade bolts, tightening them down evenly and making sure they are tight.

The center blades should be installed with the beveled edges positioned as illustrated.



OPERATION IN DUSTY, MUDDY, LOW TEMPERATURE AND OTHER ABNORMAL CONDITIONS

No special instructions are required for preparing the 'Dozer for operation in dusty, muddy, low temperature or other abnormal conditions. However, if the 'Dozer is operated in frozen ground, the operating instructions on Page 9 of the Operation Section should be followed.

PREPARATION FOR STORAGE

Before placing the 'Dozer in storage, the following steps should be taken:

1. Wash the 'Dozer clean of all dirt, grease, etc.
2. Lubricate all points of lubrication.
3. If the paint has been worn off the bowl and the 'Dozer is to be stored in the open, either paint the bowl or coat it with oil or rust preventative to prevent rust.
4. If the 'Dozer and tractor are to be stored in the open, run the tractor up onto planks and lower the 'Dozer bowl onto blocks.

For further details, refer to Preventative Maintenance Manual—"Storage of Engineer Equipment", (latest revision), published by Engineer Field Maintenance Office.

EXPORT SHIPMENT

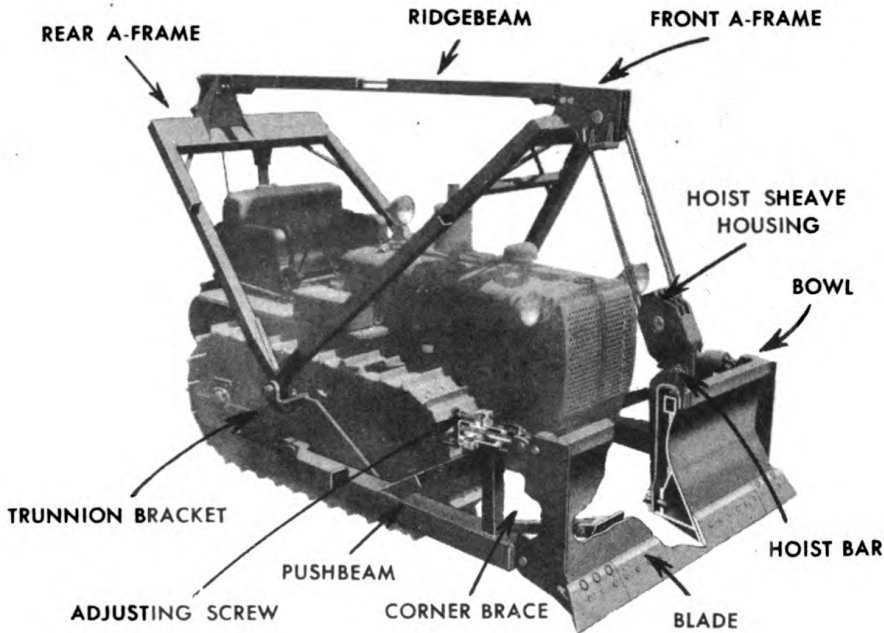
For instructions covering the preparation of the equipment for export shipment, refer to Export Manuals (latest revisions), published by Engineer Field Maintenance Office.

REPAIR SECTION

SECT. 2

REPAIR AND MAINTENANCE

LeTourneau Tiltdozers are comparatively simple in design and are sturdily constructed of special analysis alloy steel by the electric arc welding process. They have few working parts and points of adjustment and if properly operated and maintained, they should give trouble-free service.



ADJUSTMENTS

There are no points of adjustment on the Tiltdozer requiring the attention of maintenance and repair men at specified hourly intervals. However, the eyebolts, mounting bolts, etc. should be kept tight at all times.

Operators adjustments are covered on Page 15 of the Operation Section.

LUBRICATION

Refer to Page 16 of the Operation Section for Lubrication instructions.

CABLE

Refer to Page 14 of the Operation Section for specifications of cable or wire rope to be used.

BLADES

Refer to Page 18 of the Operation Section for instructions covering the removal and installation of blades.

DISASSEMBLING

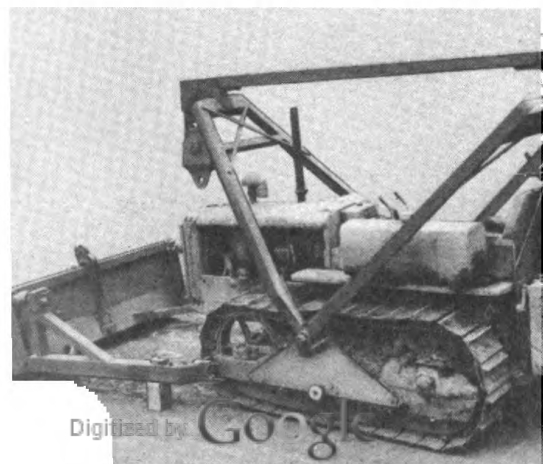
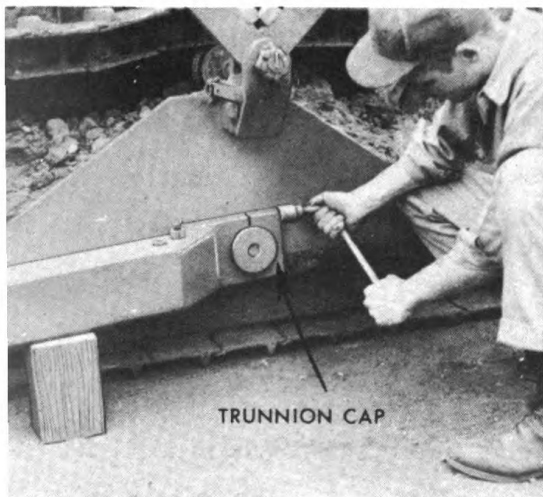
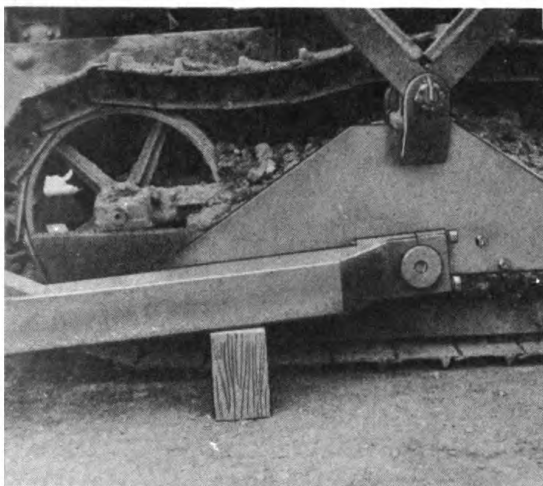
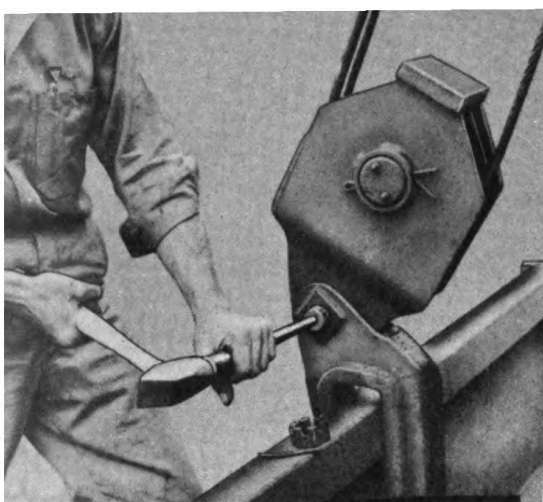
Removing Bowl and Pushbeam Assembly

To remove the Tiltadozer bowl and pushbeams from the tractor, first remove the cotter pin, nut and bolt which attach the hoist sheave assembly to the hoist bar at the top of the dozer bowl, and raise the sheave assembly up against the stop blocks on the A-frame by use of the Power Control Unit.

Block up under the pushbeams on each side as illustrated. This will prevent the pushbeams from dropping when the trunnion caps are removed, thereby eliminating the necessity for raising the pushbeams when re-installing.

Remove the trunnion caps from each of the pushbeams, freeing the pushbeams from the trunnion spools.

After the trunnion caps and hoist sheave assembly have been removed, back the tractor out from between the pushbeams, being careful not to knock the bowl and pushbeam assembly off the blocks.



Disassembling Pushbeams, Corner Braces, and Hoist Bar From Bowl

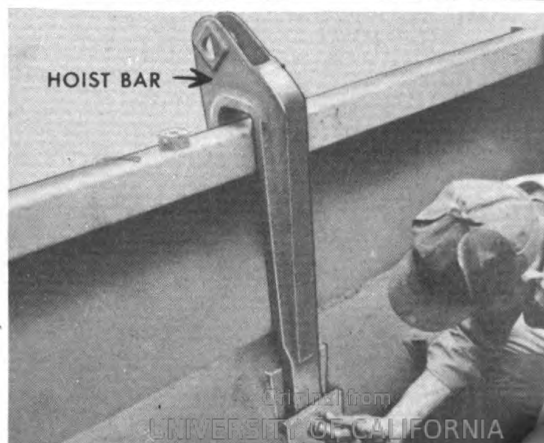
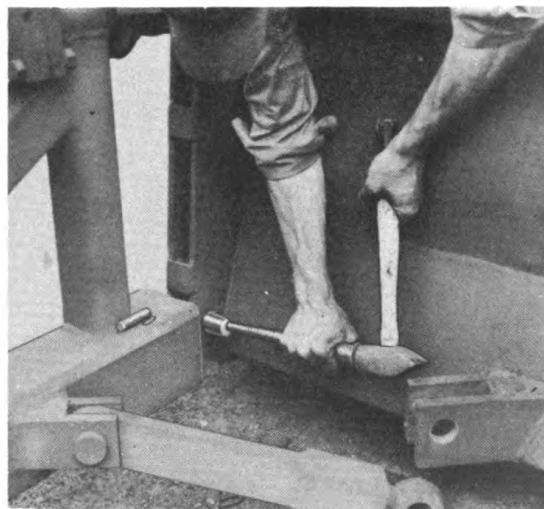
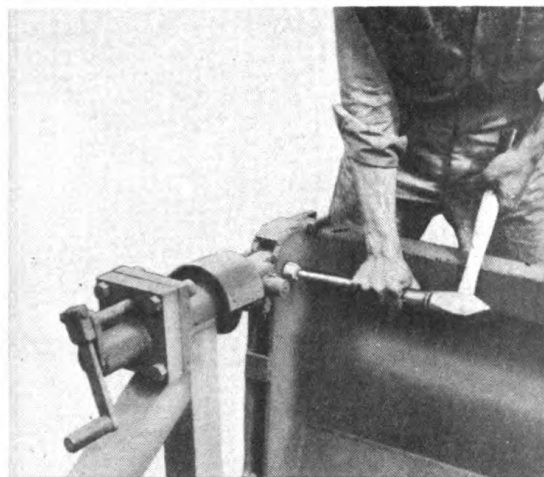
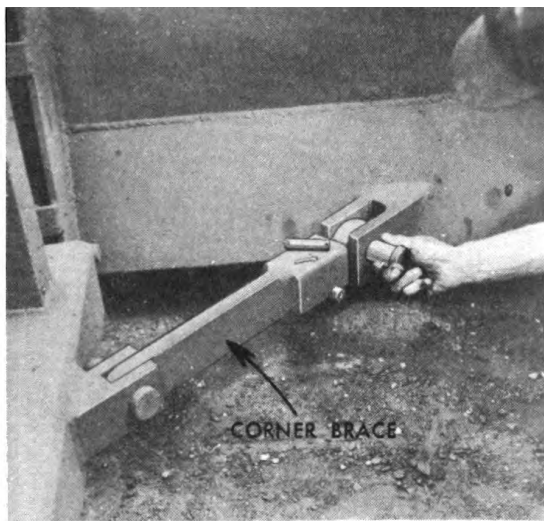
To disassemble the pushbeams, corner braces, and hoist bar from the bowl, first remove the bowl and pushbeam assembly from the tractor as outlined on opposite page. Then remove each part as follows:

CORNER BRACES—To disconnect the corner braces from the bowl, first remove the cotter pins and lock pin from the link pin which connects each corner brace with the dozer bowl. Then drive out the link pin. If the corner braces are to be removed from the pushbeams, remove the link pins which connect them with the pushbeams in a like manner.

PUSHBEAMS—To remove the pushbeams from the 'dozer bowl, first remove the cotter pins and lock pin from the link pin which connects the blade tilt adjusting screw with the top of the bowl. Then drive out the link pin.

The link pin which connects the pushbeam with the bottom of the bowl can be removed in a like manner, thereby freeing the pushbeams from the bowl.

HOIST BAR—To remove the 'dozer hoist bar from the bowl, first remove the cotter pin and lock pin from the pin which connects the hoist bar with the bowl. Then pull the pin and remove the hoist bar.



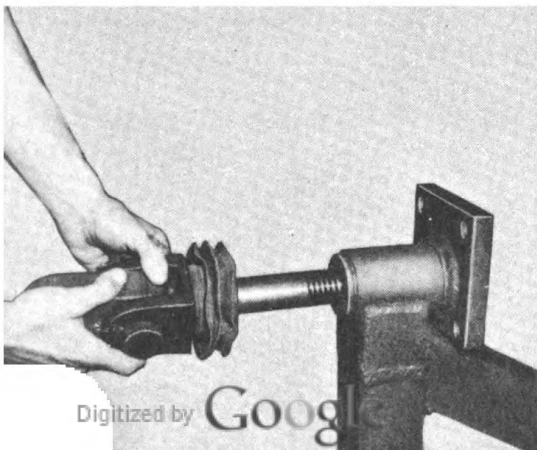
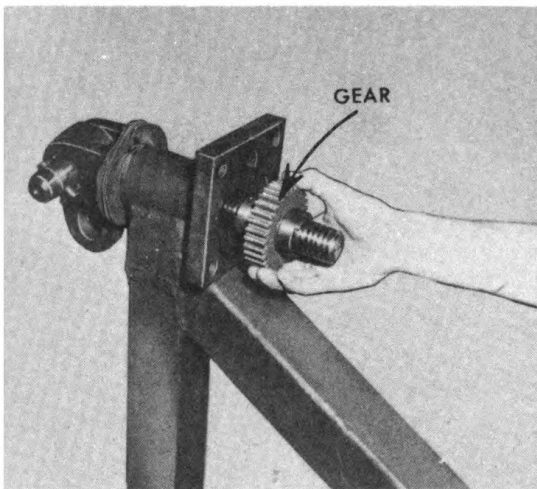
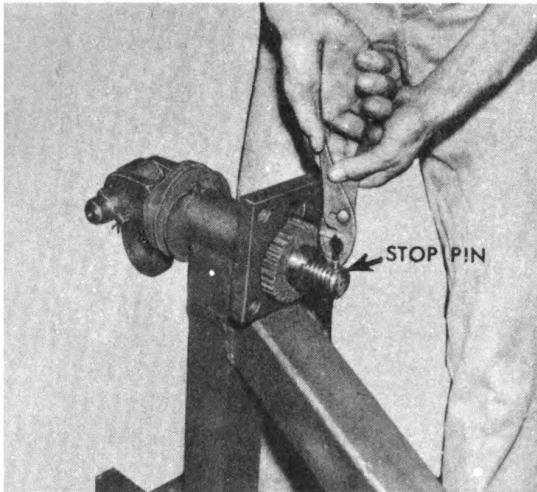
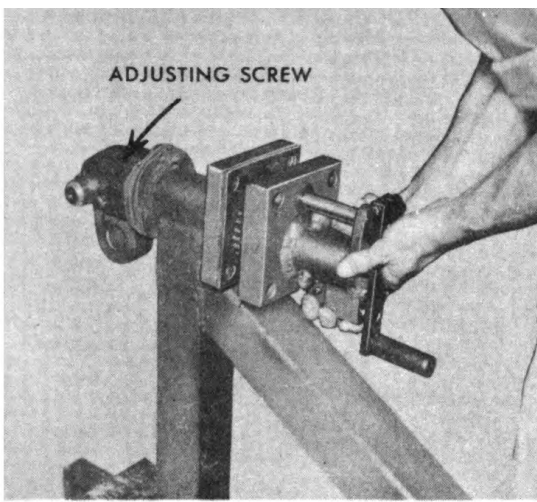
Disassembling Blade Tilt Adjusting Screw Mechanism

To disassemble the adjusting screw mechanism from either the left or right pushbeam, first crank the adjusting screw forward and then remove the pin connecting adjusting screw with bowl. Then remove four bolts which secure front and rear portions of adjusting screw housing together and remove rear housing off over end of adjusting screw, leaving crank installed in housing. **IMPORTANT:** Do not loose dowel pins which align front and rear portions of housing.

Remove stop pin from rear of adjusting screw in order to permit removal of the gear from the adjusting screw.

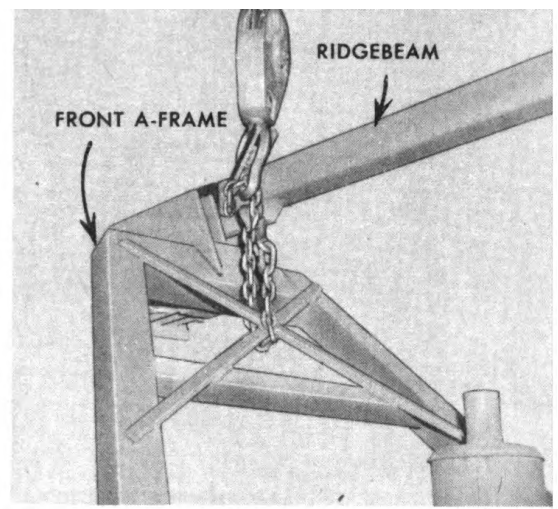
Slide adjusting screw to the rear through the housing and then turn gear off over end of adjusting screw.

Remove shield and boot from front end of adjusting screw and then pull adjusting screw out through front of housing.



Removing Front and Rear A-Frames and Ridgebeam

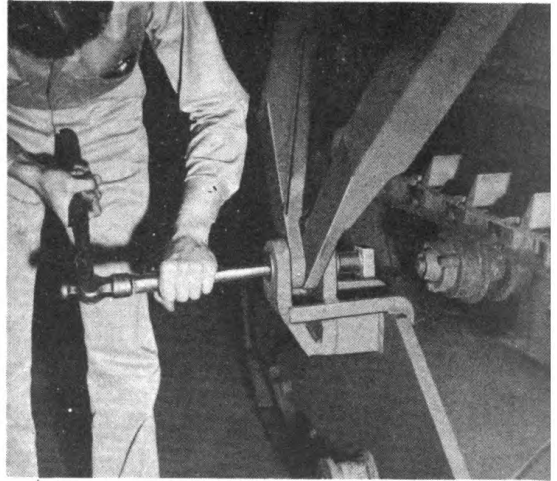
To remove the front and rear A-frames and ridgebeam, first attach a hoist chain to the front A-frame as illustrated.



Remove the ridgebeam by removing the capscrews which secure the ridgebeam to both the front and rear A-frames.

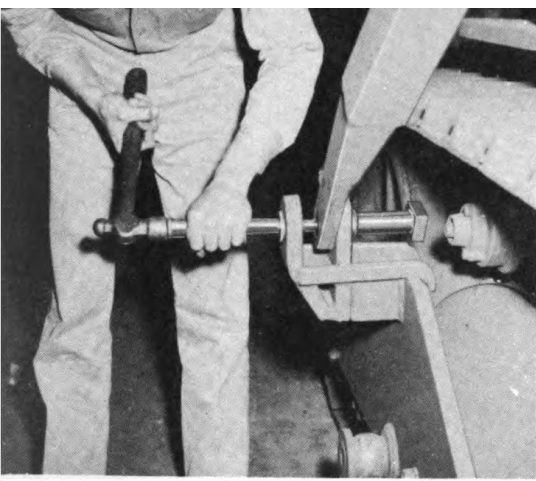


Remove the cotter pin and hex nut from the bolt that attaches the A-frames to the trunnion bracket and then drive the bolt half-way through the bracket, enough to free the front A-frame from the trunnion bracket. Then remove the front A-frame, using the hoist.

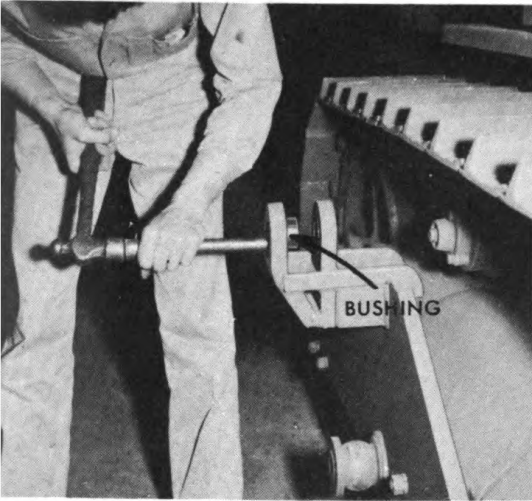


To remove the rear A-frame, attach the hoist to the A-frame at the top. Then remove the cotter pins from the link pins at both the top and bottom of the link bar which connects the A-frame with the Power Control Unit, and drive out the link pins.

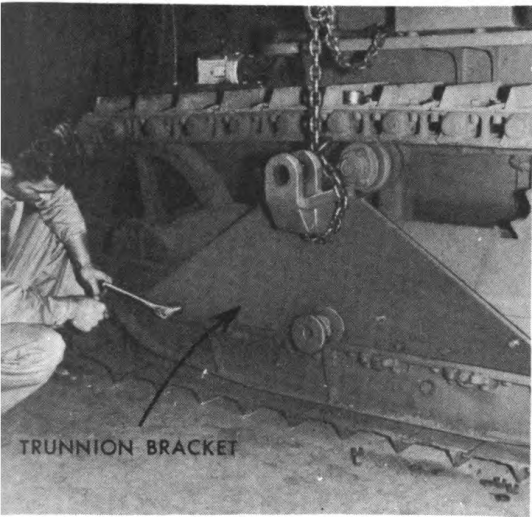




Then drive the bolt which secures the bottom of the A-frame with the trunnion bracket the rest of the way out of the trunnion bracket. The rear A-frame is now free to be removed by means of the hoist.



If the bushings are to be removed from the trunnion bracket, they can be driven out with a hammer and punch



Removing Trunnion Brackets

To remove the trunnion brackets, it is first necessary to remove the yoke and front and rear A-frames as previously outlined. Then remove the bolts which secure the trunnion brackets to the tractor track roller frames, thereby freeing the trunnion brackets from the tractor.

Removing Sheave Wheels, Bearings, Pins, and Dust Seals

To remove the sheave wheels, bearings, dust seals, and sheave pins from sheave housings, first remove cotter pin from sheave pin and then drive out pin. Then remove sheave wheel (or wheels) from housing and remove dust seals and bearings from hubs of sheave wheels.



OVERHAULING AND REPAIRING

Other than replacing worn cable, sheaves, bearings, or pins, practically the only type of repairs ever required on LeTourneau Tiltdozers are welding repairs.

WELDING REPAIRS—Since LeTourneau 'Dozers are welded together and made of high alloy steel, breakage of any of the main structures seldom occurs. However, it is impossible to build any type of machinery, even heavily constructed electrically arc welded alloy steel equipment such as 'Dozers, that will withstand all types of abuse continually without occasional breakage.

If any welded member of a LeTourneau 'Dozer starts to crack or break through severe abuse, the 'Dozer should be stopped immediately and the crack welded up and reinforced before the damage becomes serious.

Only alloy steel should be used in reinforcing LeTourneau 'Dozers and coated arc electrodes used in welding.

ASSEMBLING

To assemble and install the 'Dozer on the tractor, simply reverse the instruction for disassembly.

Reinstall lockwashers in all positions where they were removed during disassembly.

When installing the trunnion brackets, tighten the bolts as tight as possible to prevent any chance of them shearing off when subjected to heavy shock loads.

When assembling the blade tilt adjusting screw mechanism, make sure that the dowel pins are re-installed to assure alignment.

Make sure sheave bearings are free of dirt, grit, or other foreign matter before installing.

Follow cable threading instructions on page 14 of Operation Section when threading the cable.

Grease all points of lubrication before placing 'Dozer in operation.

**TABLE OF CLEARANCES AND TOLERANCES OF
ALL BEARINGS AND ADJUSTABLE PARTS**

POINT OF ADJUSTMENT	CORRECT ADJUSTMENT	ALLOWABLE TOLERANCE
Sheave Bearings— (straight roller)	Non-adjustable	.....

PARTS CATALOG

WARNING

SPARE PARTS can be supplied promptly and accurately only if positively identified by correct part number and correct part name.

FURNISH THIS INFORMATION ON ALL REQUISITIONS. WITHOUT FAIL, on all requisitions, give name of machine, name of manufacturer, model or size, manufacturer's serial number of each machine and subassemblies attached to machine, and components and accessories for which spare parts are required.

List spare parts for only one make or kind of machine on each requisition.

Requisitions must be double spaced to provide room for office notations when necessary.



SEC

PREPARATION OF REQUISITIONS

Sample Copy for Use in the Preparation of Requisitions

Revisions in QMC Form 400 for requisitioning spare parts are confined to new column headings. Until new forms are available all organizations are to continue using the present form and either type or write in corrections indicated in column headings.

Under revised heading "Nomenclature and Unit" list the article and the unit (ea for each, lb for pound, etc.). Under heading "Authorized or Maximum Level" list the authorized depot stock levels or organizational allowances given in Part III of the Corps of Engineers Supply Catalog. The total number on hand for each item is listed under "On Hand". In column

headed "Due In" enter the total quantity previously requisitioned but not delivered. For "Initial" and "Replenishment" requisitions, the sum of "Required", "Due In", and "On Hand" should equal the "Authorized or Maximum Level".

On this page is shown a sample requisition on QMC Form No. 400 which conforms to the latest revisions. The marginal notes give instructions for preparing a requisition for spare parts for Engineer equipment. Additional information on this subject is contained in section AA-1 of Part III Engineer Supply Catalog, available from the Engineer Field Maintenance Office, P. O. Box 1679, Columbus, Ohio.

State PERIOD designation by use of one of the following terms:

- (1) "INITIAL"—first requisition of authorized allowances
- (2) "REPLENISHMENT"—subsequent requisitions to maintain authorized allowances.
- (3) "SPECIAL"—requisitions for necessary repairs not covered by allowances.

Type "SPARE PARTS" in upper right hand corner of requisition.

Give complete shipping instructions. Special instructions for packing, marking, routing, etc., should be given at the end of the requisition.

State proper nomenclature of machine, and make, model, serial number and registration number.

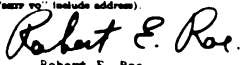
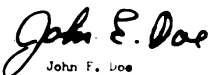
Prepare a separate requisition for each different machine.

State basis or authority and date delivery is required, immediately below description of machine.

Double space between items.

Group parts required under group headings as shown in manufacturers' parts catalogs (Technical Manuals).

State manufacturers' parts numbers and nomenclature descriptions accurately and completely. Do not use abbreviations.

WAR DEPARTMENT Q. M. C. Form No. 400		(SAMPLE) REQUISITION			SPARE PARTS	
To: Engineer Supply Officer, Columbus Army Service Forces Depot, COLUMBUS, OHIO.	No. of Sheets	Sheet No. 1		Replenishment		
Requisition No. E-521-3-44	Date July 5, 1943	Period				
SHIP TO: Engineer Property Officer, Pine Camp, New York.						
MARKET PER: Supply Officer, 802nd Engineer Battalion, Pine Camp, N. Y.						
Requisitioned By (show Signature, Rank, Organization, Destination. If different from "ship to" include address):				Approved By:		
 Robert E. Roe, Major, C. E., Engineer Property Officer.				 John E. Doe Col., C. E., Executive Officer.		
QUANTITY REQ'D.	NOMENCLATURE AND UNIT	AUTHORIZED OR ON HAND LEVEL	ON HAND	DUPLICATE DUE IN	REQUIRED	APPROVED
	PARTS FOR DILLINGER, LeTOURNEAU MODEL A4					
	SERIAL NO. B-5007-A4 AND UP					
	Basis: To complete second echelon Delivery requested by August 15, 1943					
	BOWL GROUP					
R-1451	WIST BAR	ea	0	0	1	
R-2927	PUSHEAM, Right	ea	0	0	1	
R-2928	PUSHEAM, Left	ea	0	0	2	
	A-FRAME GROUP					
R-3526	HOUSING, Bolt On	ea	0	0	2	
C-1962	SHEAVE WHEEL	ea	0	0	1	
	TRUINION BRACKET GROUP					
R-2935	BRACKET, Right	ea	0	0	1	

*Nonexpendable items such as tools must be accounted for, when requisitioned, by a statement that they have been placed on REPORT OF SURVEY or STATEMENT OF CHARGES.

Emergency requisitions sent by telephone, telegraph or radio must always be confirmed immediately with requisition marked: "Confirming (state identifying data)."

547-6

PREPARATION OF REQUISITIONS

A Sample requisition in the correct form for submission by the Engineer Property Officer is shown on the opposite page.

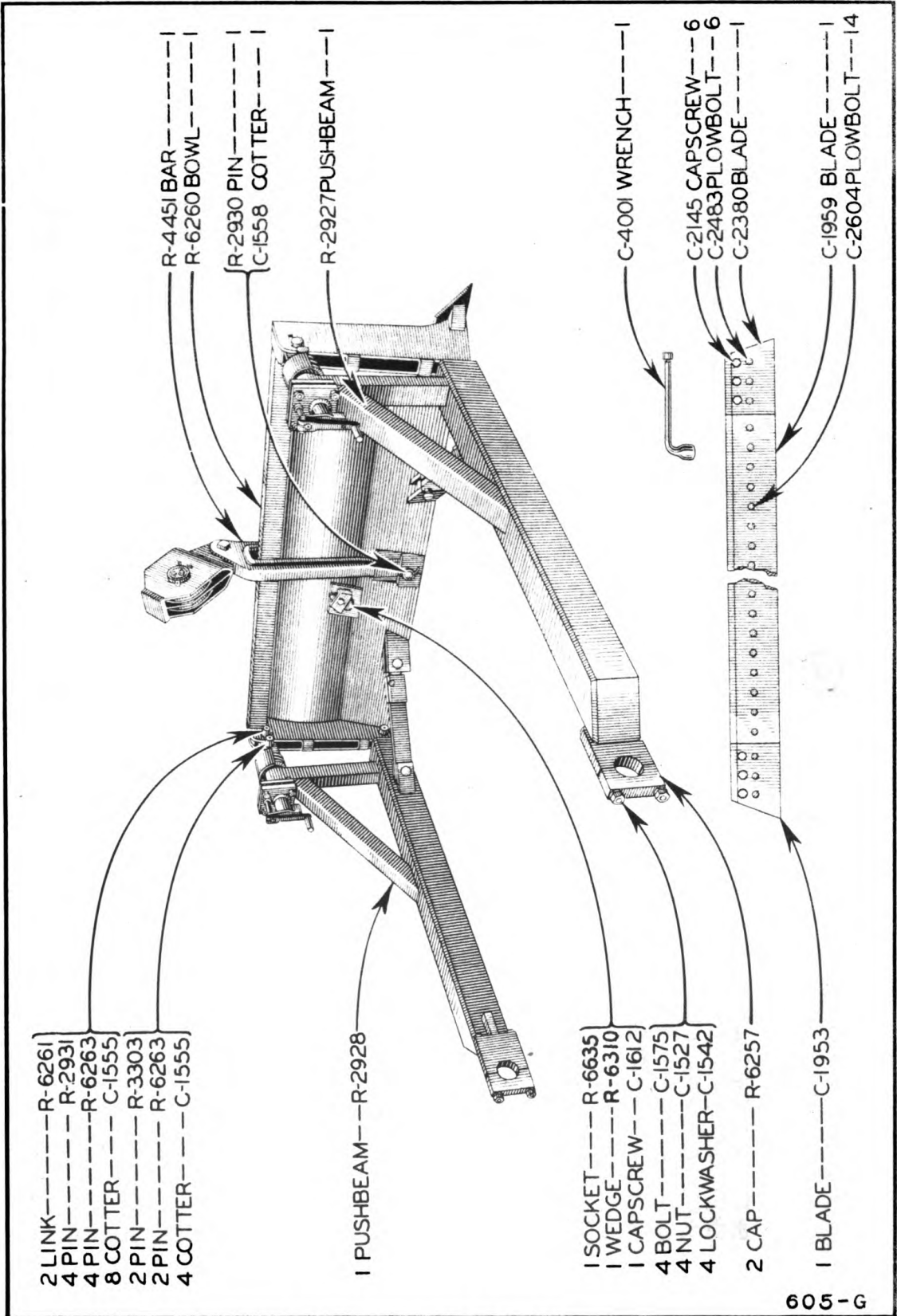
THIS SHALL BE FOLLOWED IN MAKING OUT REQUISITIONS.

In order to eliminate duplication of work, Property Officers may authorize organizations to prepare requisitions in final form, leaving requisition number space blank for completion by Property Officer.

THE FOLLOWING RULES WILL BE OBSERVED CAREFULLY IN PREPARING REQUISITIONS FOR SPARE PARTS:

- a. Prepare a separate requisition for each different machine.
- b. Type "SPARE PARTS" in upper right hand corner of requisition form.
- c. State PERIOD designation by use of one of the following terms:
 - (1) "INITIAL"—first requisition of authorized allowances.
 - (2) "REPLENISHMENT"—subsequent requisitions to maintain authorized allowances.
 - (3) "SPECIAL"—requisitions for necessary repairs not covered by allowances.
- d. Give complete shipping instructions.
- e. State proper nomenclature of machine, and make, model, serial number and registration number.
- f. State basis or authority, and date delivery is required, immediately below description of machine.
- g. Group parts required under group headings as shown in manufacturers' parts catalogs.
- h. State manufacturers' parts numbers and nomenclature descriptions accurately and completely. Do not use abbreviations.
- i. Double space between items.
- j. Emergency requisitions sent by telephone, telegraph, or radio must always be confirmed immediately with requisition marked: "Confirming (state identifying data)".
- k. Nonexpendable items must be accounted for.

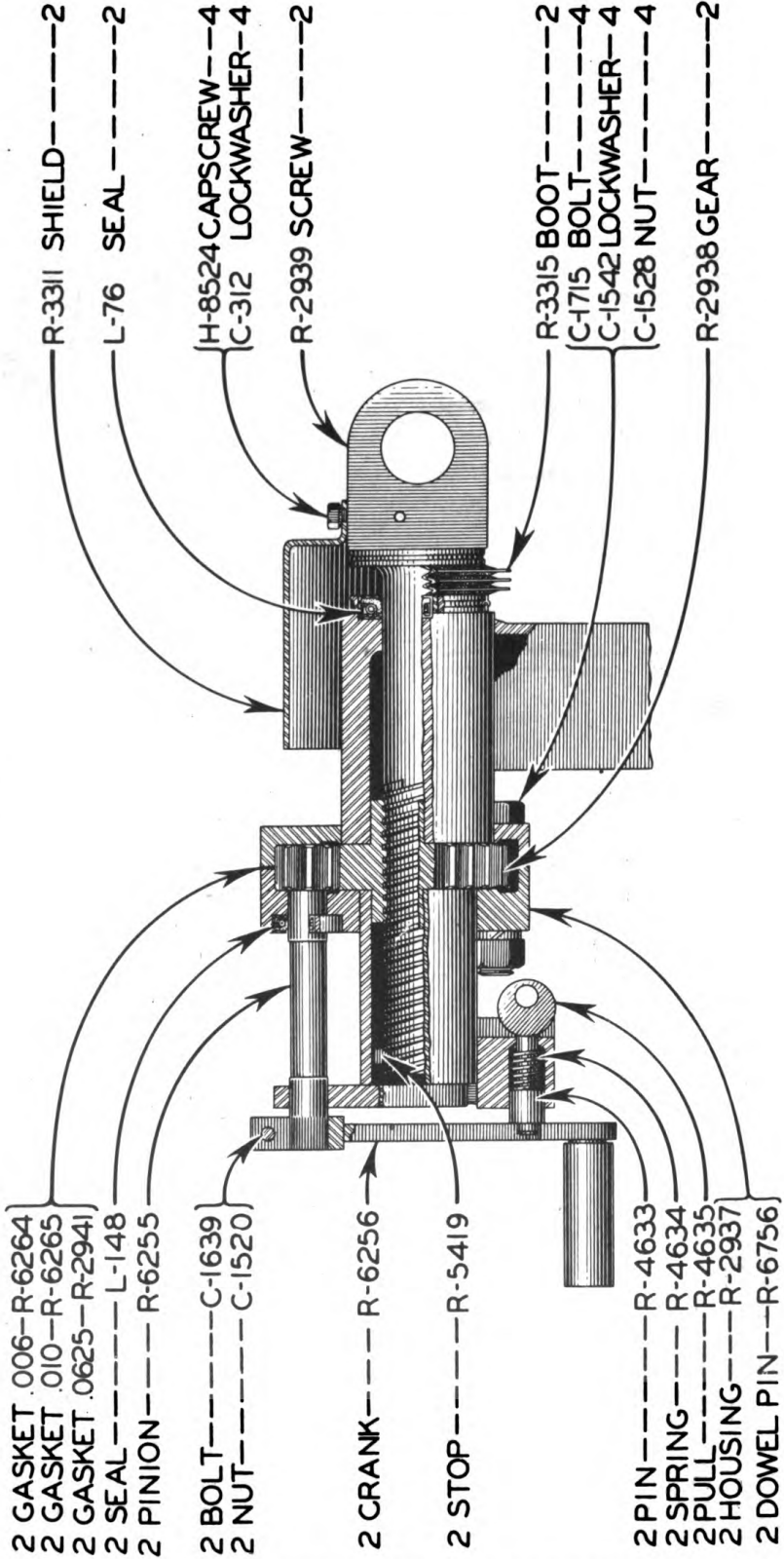
MODEL A4 TILTDZER



605 - G

BOWL ASSEMBLY

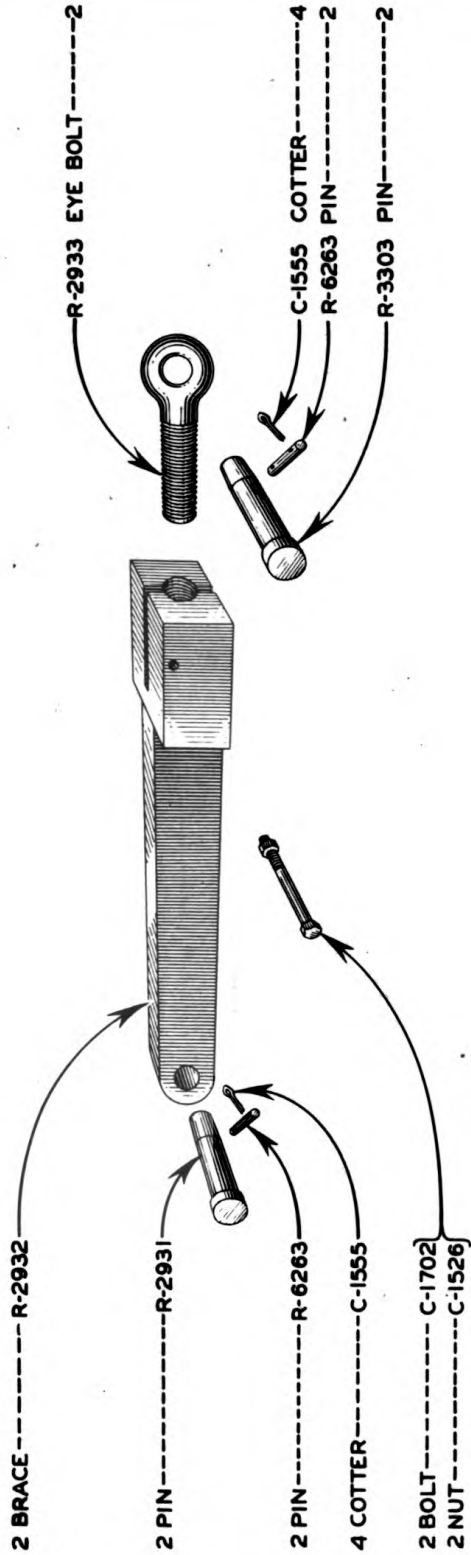
(A)



549-G

TILT MECHANISM ASSEMBLY

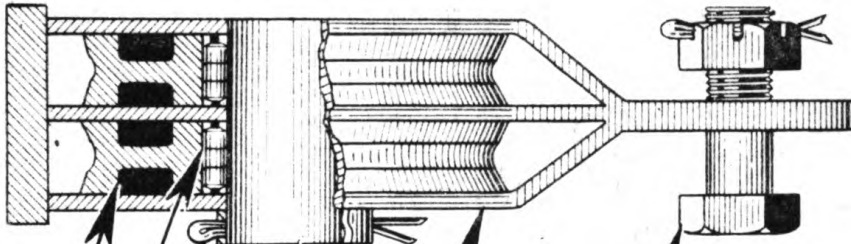
(B)



550-G

BODY SUB ASSEMBLY

©



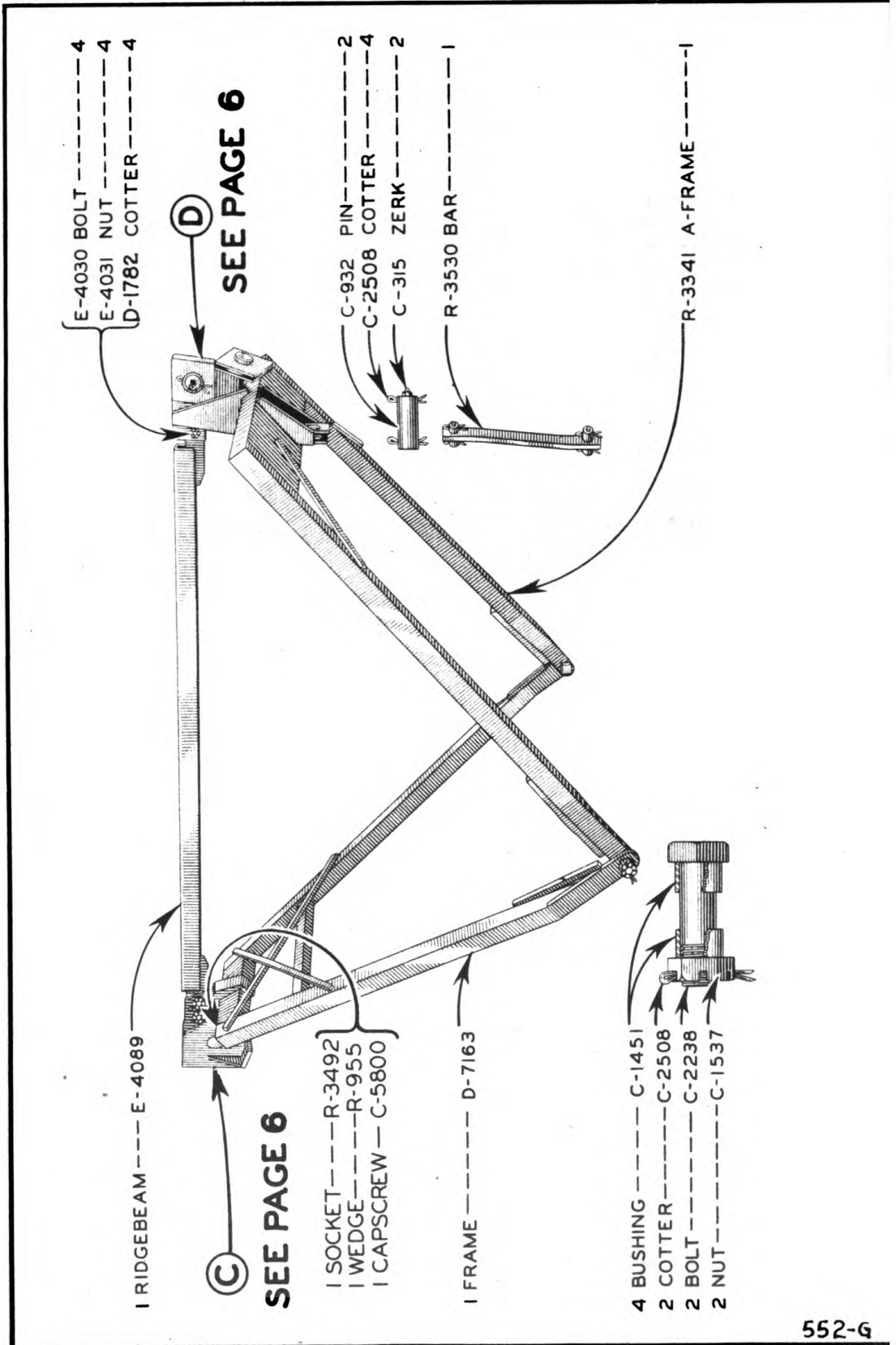
- 2 SHEAVE -----C-172
- 2 BEARING-----C-175
- 1 COTTER -----C-1051
- 2 ZERK-----C-315
- 1 PIN-----D-2210

- 1 HOUSING-----D-2451

- 1 BOLT-----D-2238
- 1 NUT-----D-3931
- 1 COTTER -----C-1949

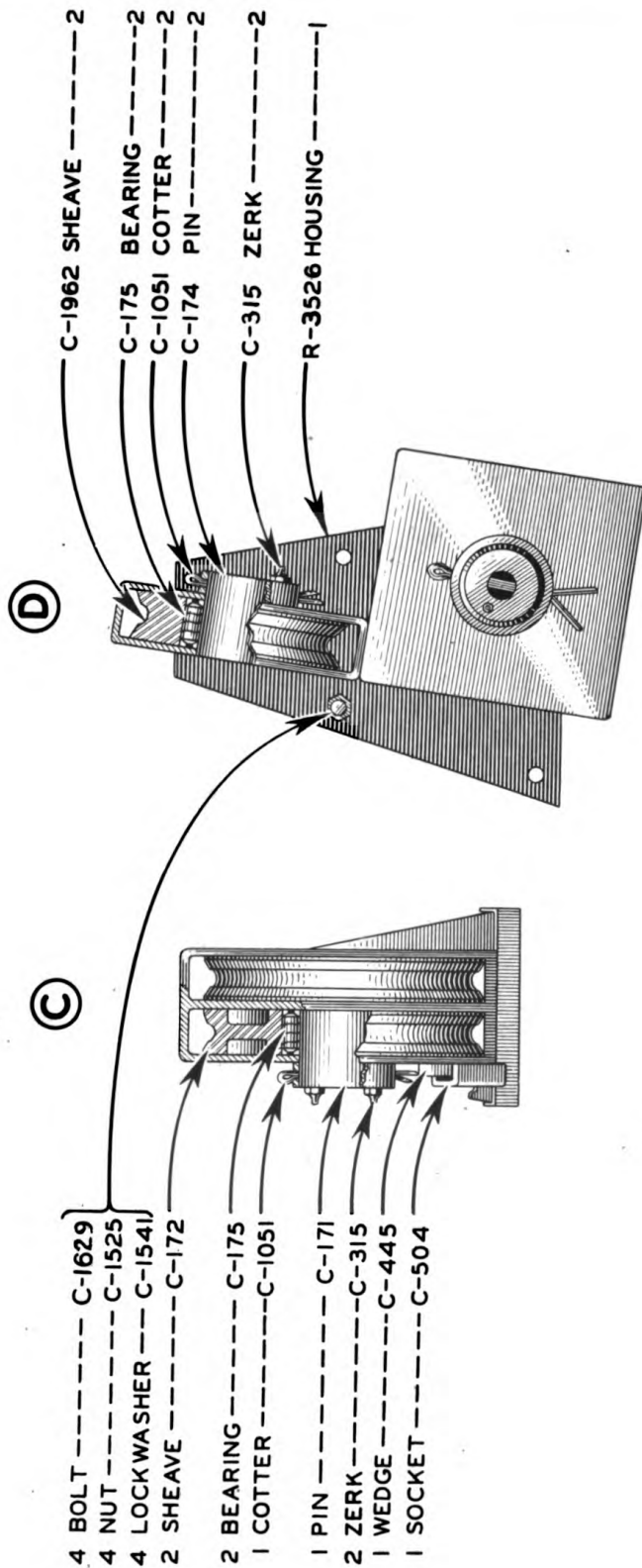
551-G

HOIST SHEAVE GROUP



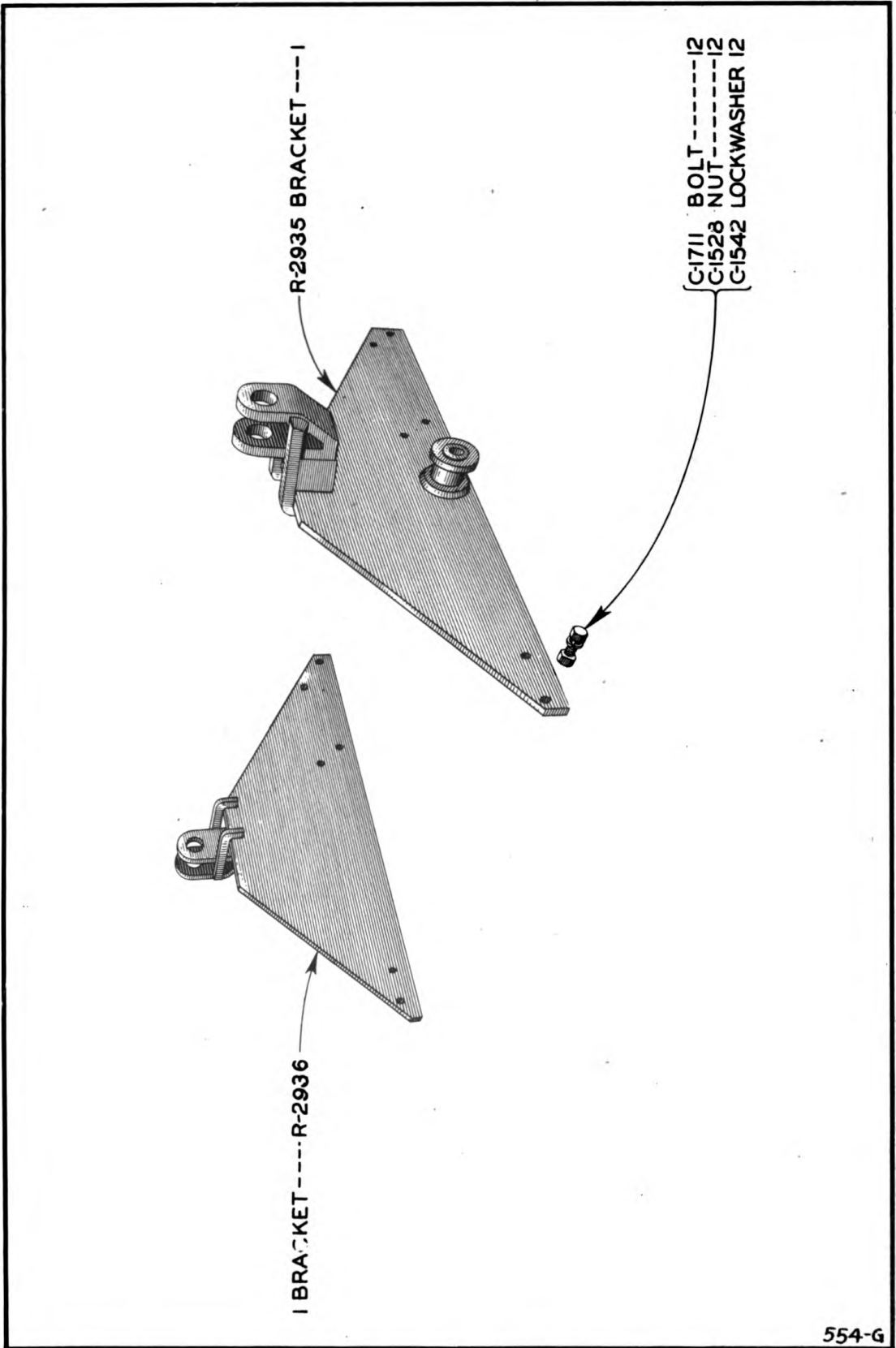
552-G

A-FRAME GROUP



553-G

A-FRAME SUB ASSEMBLIES



TRUNNION BRACKET GROUP

(FOR USE WITH CATERPILLAR D4 & R4 TRACTOR, SERIAL No. 7J1 AND UP,
AND LeTOURNEAU "HN" REAR POWER UNIT)

PART No.	DESCRIPTION	PAGE	QTY.	WEIGHT		PRICE EACH
				Lbs.	Oz.	
C-171	PIN—DOUBLE NARROW.....	6	1	8	4	\$ 3.70
C-172	SHEAVE WHEEL—LARGE.....	4, 6	4	12	..	5.20
C-174	PIN—SINGLE NARROW.....	6	2	5	..	2.38
C-175	BEARING—HYATT #RA212.....	4, 6	6	1	8	2.38
C-312	LOCKWASHER— $\frac{3}{8}$ ".....	4	4	..	..	.01
C-315	ZERK— $\frac{1}{8}$ " STRAIGHT (Lincoln #5000).....	4, 5, 6	8	..	..	.06
C-445	WEDGE—SMALL.....	6	1	..	8	.38
C-504	SOCKET—SMALL.....	6	1	1	4	.68
C-932	PIN.....	5	5	3	..	1.33
C-1051	COTTER— $\frac{3}{8}$ " x 5".....	4, 6	3	..	4	.06
C-1451	BUSHING.....	5	4	..	8	1.53
C-1520	NUT— $\frac{5}{16}$ " NC HEX.....	2	2	..	..	.01
C-1525	NUT— $\frac{5}{8}$ " NC HEX.....	6	4	..	..	.04
C-1526	NUT— $\frac{5}{8}$ " NF HEX.....	3	2	..	..	.04
C-1527	NUT— $\frac{3}{4}$ " NC HEX.....	1, 2	8	..	..	.05
C-1528	NUT— $\frac{3}{4}$ " NC HEX.....	2, 7	16	..	..	.05
C-1537	NUT— $\frac{1}{2}$ " NC HEX—Castellated.....	5	2	1	2	.63
C-1541	LOCKWASHER— $\frac{5}{8}$ ".....	6	4	..	..	.02
C-1542	LOCKWASHER— $\frac{3}{4}$ ".....	1, 2, 7	20	..	..	.03
C-1555	COTTER— $\frac{5}{32}$ " x 1".....	1, 3	20	..	..	.01
C-1558	COTTER— $\frac{3}{8}$ " x 3 $\frac{1}{2}$ ".....	1	1	..	..	.05
C-1575	BOLT— $\frac{3}{4}$ " x 10".....	1	4	1	8	.30
C-1612	CAPSCREW— $\frac{1}{2}$ " x 1" NC.....	1	1	..	..	.05
C-1629	CAPSCREW— $\frac{5}{8}$ " x 1 $\frac{3}{4}$ " NC.....	6	4	..	4	.11
C-1639	CAPSCREW— $\frac{5}{16}$ " x 2" NC.....	2	2	..	..	.03
C-1702	CAPSCREW— $\frac{5}{8}$ " x 3 $\frac{3}{4}$ " NF.....	3	2	..	4	.17
C-1711	CAPSCREW— $\frac{3}{4}$ " x 2 $\frac{1}{2}$ " NF.....	7	12	..	8	.20
C-1715	BOLT— $\frac{3}{4}$ " x 3 $\frac{1}{2}$ " NF.....	2	4	..	8	.24
C-1949	COTTER— $\frac{1}{4}$ " x 3".....	4	1	..	..	.01
C-1953	BLADE—RIGHT.....	1	1	21	8	5.79
C-1959	BLADE—CENTER.....	1	1	68	..	11.70
C-1962	SHEAVE WHEEL.....	6	2	5	8	3.99
C-2145	CAPSCREW—(Blade Tip).....	1	6	..	8	.36
C-2238	BOLT—1 $\frac{1}{2}$ " x 6" (Special).....	5	2	6	..	1.50
C-2380	BLADE—LEFT.....	1	1	21	8	5.79
C-2483	PLOWBOLT— $\frac{5}{8}$ " x 1 $\frac{3}{4}$ " #1 Head.....	1	6	..	4	.08
C-2508	COTTER— $\frac{5}{16}$ " x 3".....	5	6	..	..	.01
C-2604	PLOWBOLT— $\frac{5}{8}$ " x 1 $\frac{3}{4}$ " #3 Head.....	1	14	..	4	.08
C-4001	WRENCH—1" SOCKET.....	1	1	1	..	2.53
C-5800	CAPSCREW— $\frac{3}{8}$ " x 1" NF.....	5	1	..	..	.03
D-1782	COTTER— $\frac{3}{16}$ " x 2".....	5	4	..	..	.01
D-2210	PIN.....	4	1	9	..	3.98
D-2238	BOLT—1 $\frac{1}{2}$ " x 3 $\frac{3}{8}$ " SPECIAL.....	4	1	2	8	1.01
D-2451	HOUSING—HOIST SHEAVE.....	4	1	49	..	16.23
D-3931	NUT—CASTELLATED.....	4	1	..	8	.61
D-7163	A-FRAME STRUCTURE—FRONT.....	5	1	300	..	102.50
E-4030	BOLT—1" x 3 $\frac{1}{4}$ " NC.....	5	4	1	..	.43
E-4031	NUT—1" HEX. CASTELLATED.....	5	4	..	6	.28
E-4089	RIDGEBEAM STRUCTURE.....	5	1	79	..	26.98
H-8524	CAPSCREW— $\frac{3}{8}$ " x $\frac{5}{8}$ " NC.....	2	404

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SPARE PARTS & PRICE LIST

MODEL A4 TILTDOZER

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PART No.	DESCRIPTION	PAGE	QTY.	WEIGHT		PRICE EACH
				Lbs.	Oz.	
R-955	WEDGE	5	1	..	8	.52
R-2927	PUSHBEAM STRUCTURE—RIGHT.....	1	1	350	..	116.75
R-2928	PUSHBEAM STRUCTURE—LEFT.....	1	1	350	..	116.75
R-2930	PIN	1	1	2	4	1.65
R-2931	PIN	1, 3	6	2	8	1.65
R-2932	CORNER BRACE	3	2	23	..	10.80
R-2933	EYEBOLT	3	2	4	..	3.70
R-2935	TRUNNION BRACKET—RIGHT.....	7	1	170	..	44.10
R-2936	TRUNNION BRACKET—LEFT.....	7	1	170	..	44.10
R-2937	SCREW HOUSING	2	2	15	..	12.60
R-2938	NUT & GEAR	2	2	6	..	14.55
R-2939	ADJUSTING SCREW.....	2	2	10	..	9.85
R-2941	GASKET .0625.....	2	2	..	..	.16
R-3303	PIN	1, 3	4	2	12	1.65
R-3311	SHIELD—FOR BOOT	2	2	2	..	1.25
R-3315	BOOT—FOR ADJUSTING SCREW.....	2	2	..	3	1.68
R-3341	A-FRAME STRUCTURE—REAR.....	5	1	300	..	95.50
R-3492	SOCKET	5	1	1	4	.85
R-3526	BOLTED HOUSING (for Rear A-Frame).....	6	1	30	..	10.35
R-3530	LINK BAR	5	1	12	..	4.95
R-4451	HOIST BAR	1	1	44	..	26.10
R-4633	PIN (Locking)	2	2	..	3	1.20
R-4634	SPRING	2	2	..	..	.20
R-4635	PIN PULL.....	2	2	..	2	.80
R-5419	STOP	2	2	..	..	..
R-6255	DRIVE PINION	2	2	2	..	6.85
R-6256	CRANK	2	2	2	..	2.90
R-6257	CAP (For Trunnion Blocks).....	1	2	5	..	2.95
R-6260	BOWL STRUCTURE	1	1	562	..	194.00
R-6261	CONNECTING LINK.....	1	2	5	12	2.35
R-6263	PIN	1, 3	10	..	3	.28
R-6264	GASKET .006.....	2	2	..	..	.16
R-6265	GASKET .010.....	2	2	..	..	.16
R-6310	WEDGE	1	1	3	..	1.33
R-6635	SOCKET	1	1
R-6756	DOWEL PIN.....	2	215
L-76	SEAL	2	2	..	3	.70
L-148	SEAL	2	2	..	2	.45

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SPARE PARTS & PRICE LIST

