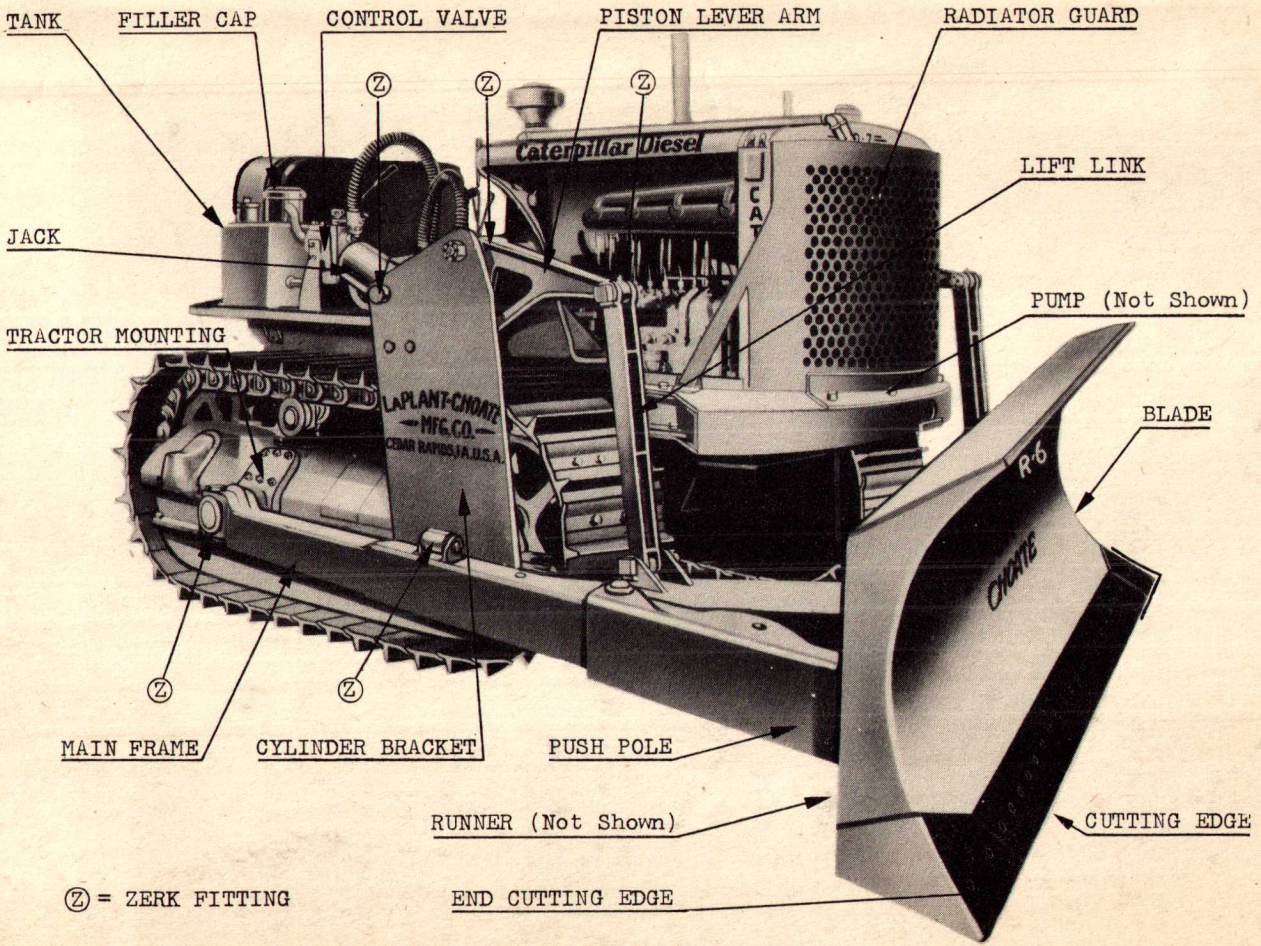


Ⓩ = ZERK FITTING

MODEL R6 - GENERAL ARRANGEMENT

R6 TRAILBUILDER
PARTS CATALOG

INDEX

LaPLANT-CHOATE MANUFACTURING COMPANY
CEDAR RAPIDS, IOWA

THE HYDRAULIC SYSTEM

Hydraulic oil power, properly applied, is recognized as one of the simplest methods of actuating power or leverage to operate a machine such as a Scraper or Bulldozer and make it perform its various functions.

Most hydraulic oil systems which operate Scrapers, Bulldozers or similar machines have four principal parts, i.e.:

1. A tank, or oil reservoir which contains the reserve supply of oil for the system.

2. A pump, which takes the oil supplied by the tank and forces it under pressure on through the system.

3. A control valve, which diverts the flow of oil to either end of the jacks, or locks them in any position and returns the oil to the tank at the discretion of the operator.

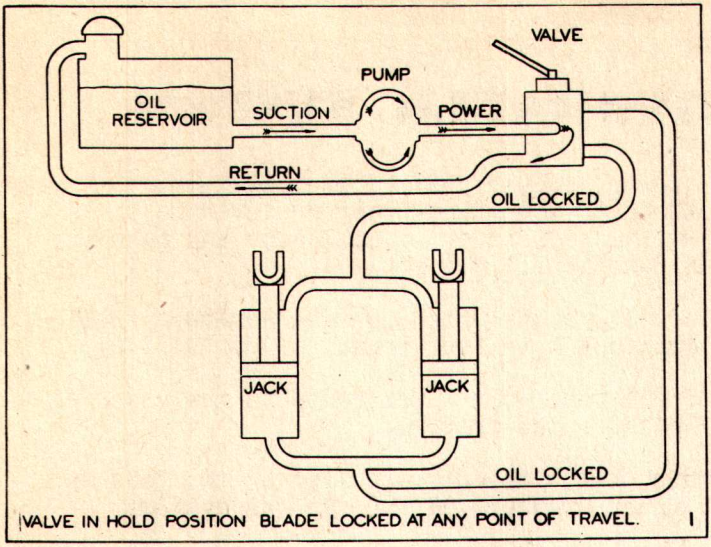
4. A jack, or jacks, which receives the oil diverted from the high pressure line by the control valve and actuates the various functions of the machine such as raising, lowering or holding a Bulldozer blade or loading or dumping a Scraper.

In addition to these four principal parts of the hydraulic system there are several accessories necessary on all systems, such as:

A. The pipes and hose that carry the flow of oil from the tank, through the system and return it to the tank.

B. The breather located on the tank which allows air, which may have been introduced into the system by a leak in the line, or any other way, to escape, making it unnecessary to bleed the system. Also to prevent dirt or any foreign matter from entering the system.

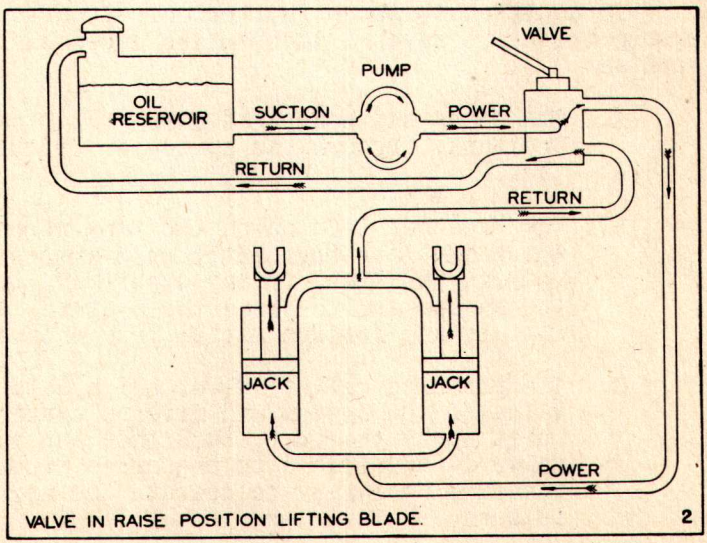
C. The pressure relief valve, which acts as a safety valve to the system and diverts excessive pressure built up by the pump, back into the tank. This relief valve is adjustable to pressures from 0 to whatever pressure necessary to operate the machine on which it is used.



VALVE IN HOLD POSITION BLADE LOCKED AT ANY POINT OF TRAVEL. 1

1. Valve Hold Position. We find by consulting this simple diagram that the oil (follow the arrows in the line) leaves the tank and flows by gravity and suction through the low pressure hose called "suction line" to the intake port on the pump where it is picked up by the teeth of the gears and transported around the outside of the gears to the power port of the pump and enters the "power line".

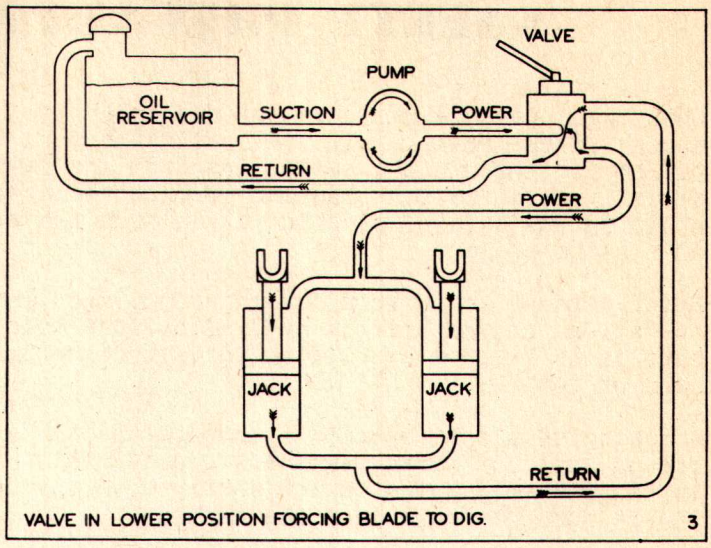
The oil is now being forced under power through the power line. Since the valve is in hold position the oil performs no function but proceeds to the control valve, passes directly on through and returns to the tank. With the control valve in hold position the lines to both ends of the jack are shut off locking the piston in place.



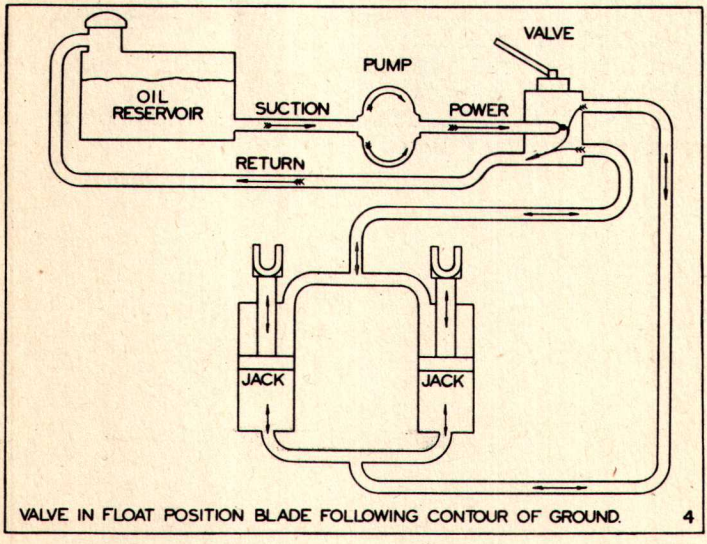
VALVE IN RAISE POSITION LIFTING BLADE. 2

2. Valve - Raise Position. By following the course of the arrows we find in this illustration that oil from the power line is being diverted by the control valve from entering the tank, and is proceeding instead, to the base or bottom end of the jack cylinder while oil from the top end of the jack cylinder is being forced, by the advancing piston, through the line to the control valve and back into the tank.

3. Valve - Lower Position. Here we see the control valve on the lower position. The only difference being that oil is now being diverted by the control valve to the top end of the jack cylinder while the oil in the bottom or base end is being forced by the advancing piston through the line and back to the tank.



VALVE IN LOWER POSITION FORCING BLADE TO DIG. 3



VALVE IN FLOAT POSITION BLADE FOLLOWING CONTOUR OF GROUND. 4

4. Valve Float Position - In this position the ports of the control valve are open allowing oil to flow freely from one end of the jacks to the other end, cross between the two jacks, or enter the return line to the tank, thus enabling the blade to raise or lower freely according to the ground conditions.

RELIEF VALVE

If the control lever is allowed to remain in raise or lower position after the piston has reached the end of its travel in either direction pressure immediately begins to build up because of the oil being forced into the system by the pump. This is the reason for having the pressure relief valve, and the reason it must be placed in the high pressure line between the pump and the control valve or built into the control valve itself.

SAFETY PRECAUTION

When this pressure has built up sufficiently to compress the spring in the relief valve, allowing the port to open, the oil coming through the power line from the pump escapes back directly into the tank instead of into the atmosphere as it would in the case of escaping steam from the pressure valve of a steam boiler.

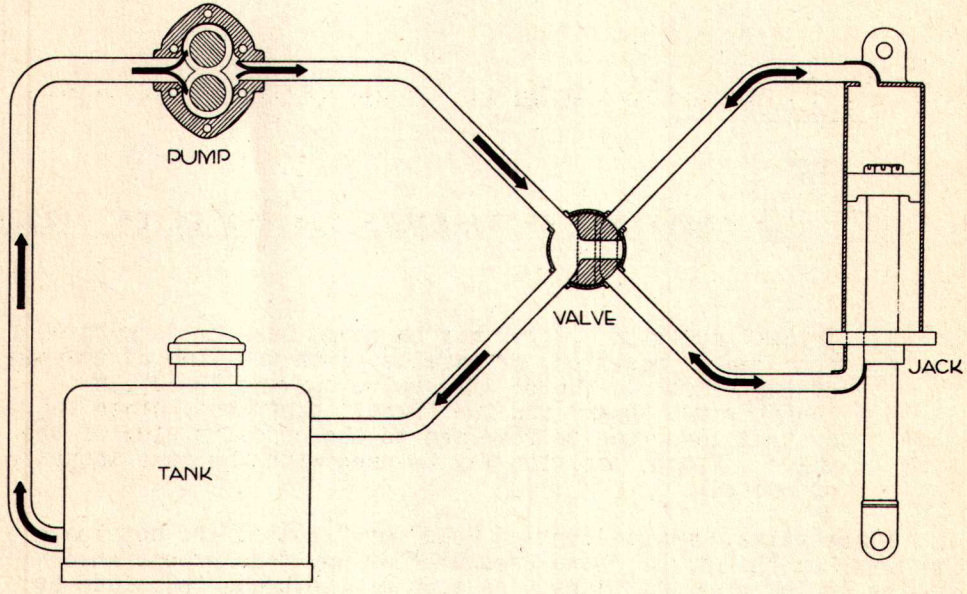
Never attempt to perform any greasing, maintenance or repairing operations on the tractor or trailbuilder without first making sure it is in such a position that it cannot move and trap a hand or foot.

Greasing should be accomplished with the blade resting on the ground and the tractor engine stopped. This will make it impossible for anyone to accidently move the control lever and injure someone working on the machine.

Changing the cutting edge must be accomplished with the blade in the air but under no circumstances should anyone be permitted to lie under the blade. The safe way is to raise the blade to the desired height, then to shut the engine off and lock the blade in position. A further safety precaution is to block under the side frames of the Trailbuilder so it can not settle to the ground. Instead of lying under the blade, take a position to the front so it will be unnecessary to have more than the hands or arms under the blade.

THE HYDRAULIC CONTROL SYSTEM

In order to control the adjustment of heavy machinery, such as tractor-mounted Trailbuilders, the method which is better adapted than any other is the use of hydraulic power. LaPlant-Choate hydraulic control comes from a pump, mounted on the front of the tractor, driven directly by the crankshaft. Thus any time the engine of the tractor is running, power is available. This pump subjects the oil in the system to pressure, a valve controls the flow of the oil to jacks which apply the power to the tool. This is the most simple and efficient method of applying power to a blade, for only a negligible effort is required to move the valve control lever in order to raise or lower the blade. Response is instantaneous due to the continuous flow of oil which is delivered to the jacks.



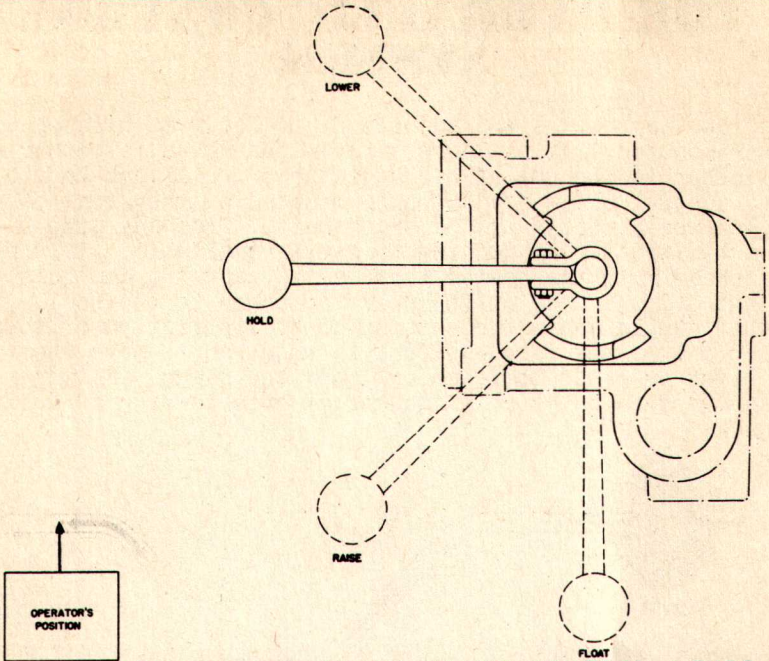
In preparing the machine for operation, first check the oil level in the oil supply tank. The tank should be filled within 5 inches of the top with engine lubricating oil, S. A. E. 20 in winter and S. A. E. 40 in summer. (Note: a lighter oil may be used in extremely cold climates and a heavier oil may be used in the tropics). Caution: Always use engine lubricating oil.

The valve is designed with four control positions.

1. "Hold" position - lever should be parallel to the tractor seat or crosswise with regard to the tractor.

2. "Hoist" position - lever should be pulled back 45° from "Hold" position.

3. "Down" position - lever should be pushed forward 45° from "Hold" position.



POSITIONS OF CV VALVE CONTROL LEVER 1292

4. "Float" position - lever may be moved back or forward 90° from "Hold" position, or parallel with the line of travel of the tractor. (Note: the valve has two "Hold", two "Hoist", two "Down" and two "Float" positions, since the control lever can be reversed to the opposite side of the valve. Either position may be used with the same accuracy of control.

Place valve control lever on "Hold" or "Float". Do not leave the lever on "Hoist" or "Down Pressure" at any time except when raising or lowering the blade. As soon as the blade is raised or lowered the desired amount, place lever back on "Hold" position. Lever is parallel with the seat or crosswise with the tractor when in "Hold" position. When the lever is parallel with the tractor, it is in "Float" position.

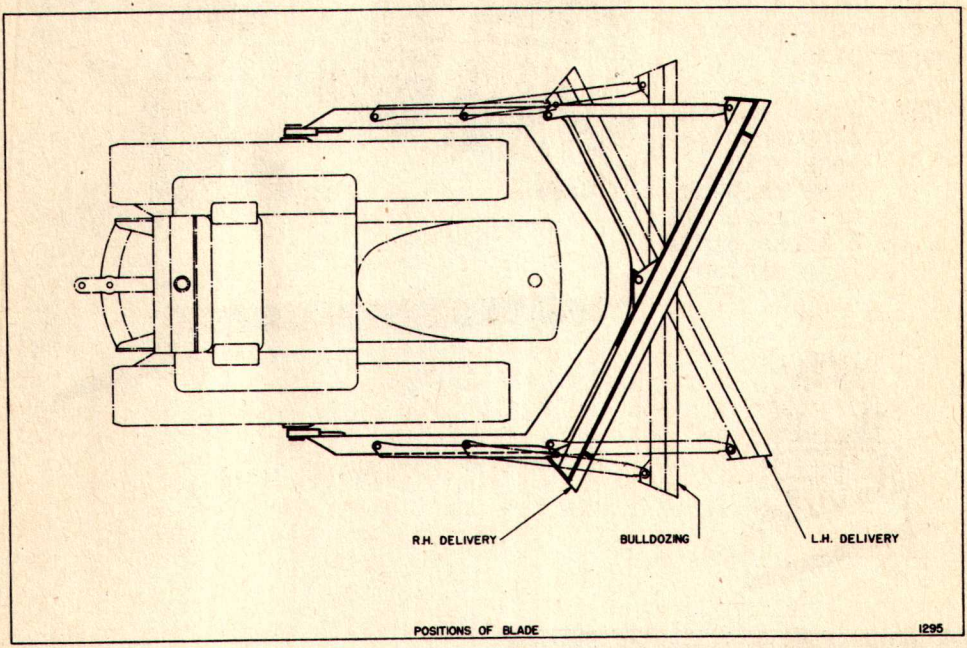
When lever is in either "Hold" or "Float" position, the oil is free to circulate through the hydraulic system. (Note: when on "Hold", the oil is shut off from the jacks, but circulates throughout the rest of the system).

Do not leave valve control lever on "Hoist" or "Down Pressure" after the piston has traveled to the head or base of the jack. If this is done the oil will be forced through the relief valve and will become heated, which may cause damage to the pump, valve, jacks and hose assemblies. (Caution) The oil is forced through the pressure relief valve, when attempting to lift loads heavier than the maximum loads the valve is set for, as is the case when

moving trees, stumps, rocks and other heavy objects. Therefore, when the lever is placed on "Hoist" and the blade doesn't raise immediately, the lever should be moved to "Hold" until the load has been loosened up, or, in some cases, take only part of the load.

In cold weather the blade should be raised and lowered several times to mix the oil in the jacks with the oil in the supply tank, so all the oil will warm up and flow freely.

ADJUSTING THE BLADE TO FIT THE JOB



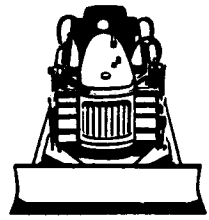
Different trailbuilder jobs require different adjustments of the blade. For example, it may be desirable to deliver the material to one side or the other. It may be necessary to dig deeper with the point of the blade one time than it is another. There are a number of adjustments, all of which can be made without any tools whatever, so that either end of the blade can be tilted up or down, and either end of the blade can be angled. And, of course, any number of combinations of these adjustments are available.

POSITIONS OF TRAILBUILDER BLADE

BLADE IN BULLDOZING POSITION

To adjust blade for bulldozing. Remove pin 1 from rear end of pushpoles on right and left hand side of tractor. Swing blade until right angle with frame and tractor; insert pins.

NOTE: Jaw 2 on end of pushpoles mesh with jaws on back of blade, pin 3 locks blade in position.



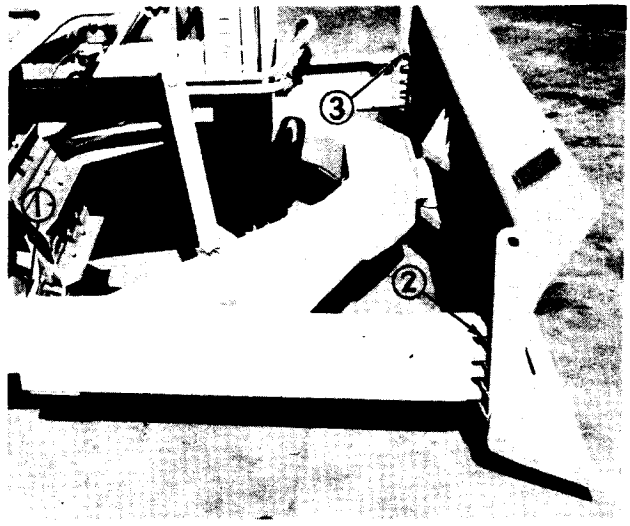
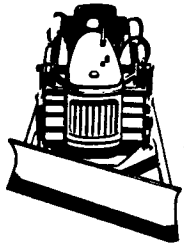


PLATE NO. 23-A



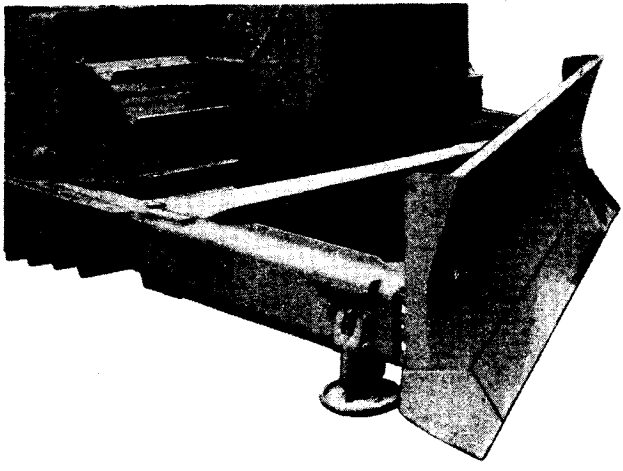


PLATE NO.24-B

BLADE ANGLED

Receiving end of blade angled for left hand delivery. To angle blade remove pin 1 from rear end of pushpole and corner of main frame on R.H. and L.H. side of tractor, push end of blade forward for R.H. or L.H. delivery as desired and replace pins.

BLADE ANGLED

Receiving end of blade for right hand casting.

NOTE: Position of blade pushpole and main frame 1 and pin 2 in contrast to the same parts shown in plate No. 24-B on opposite page.

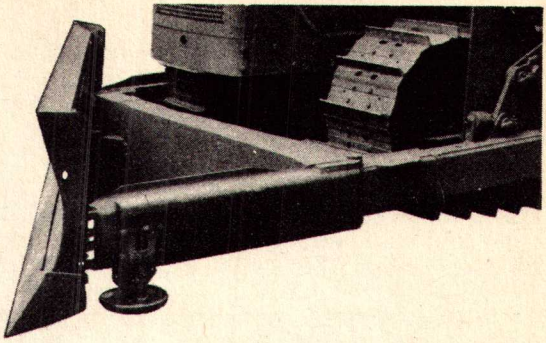
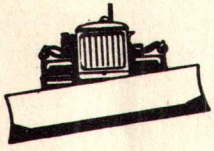


PLATE NO. 25-B



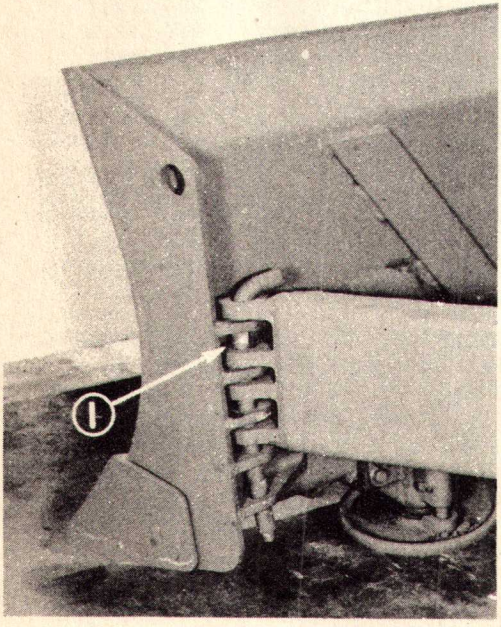


PLATE NO. 26-A

BLADE TILT

L. H. end of blade, showing blade tilted down.

NOTE: Interlocking Jaws 1 on end of pushpole and back of blade.

To tilt the blade remove pins from Jaws 1 at back of blade and end of pushpoles on R. H. and L.H. end of blade.

Disengage the jaws at back of blade and pushpole, tilt blade up or down as desired, engage the jaws with the pushpoles and replace pins.

OPERATING INSTRUCTIONS

Check the oil in the Hydraulic System.
The tank should be filled to "level" mark on the gauge after the system has been filled by lifting the blade and lowering it several times.

When the operator first gets on the tractor, with the engine running, he should practice lifting and lowering the blade, to get the feel of the controls and to find out which movement of the lever lifts the blade and which lowers it.

One of the most important things in operating a trail-builder is to be able to lift the blade slowly each time and to lower it the same way. This will prevent digging holes and will make a smooth even cut.

It is much easier to make a smooth cut if the blade is kept full so the material can be seen above the blade.

When this amount of material is being moved, it will fill all the uneven spots ahead of the blade and leave level ground over which the tractor can travel.

When cutting hard material and the engine becomes overloaded, the blade should be lifted slightly. The most satisfactory way to prevent the Engine stalling is to release one steering clutch, which cuts the load on the engine in half. The control lever should be placed on hoist or lift simultaneously lifting the blade slightly and as the engine picks up, the steering clutch should be released, placing the full load on the engine. Note: by releasing the steering clutch, the tractor does not stop traveling forward but will swing slightly to the side, on which the steering clutch is released, thereby losing part of the load off the opposite end of the blade, which eliminates lifting the blade enough to be noticeable in the cut.

If the master clutch, (or flywheel clutch) is disengaged when lifting the blade to prevent the engine stalling, the tractor will stop and the blade will be lifted leaving an uneven cut, then when the tractor travels forward over this abrupt lift in the cut, the tractor will rise at the front, making it necessary to lower the blade, and as the tractor passes over the obstruction the blade will have to be lifted, and it may be necessary to lower and lift the blade several times before the correct cut is attained.

If an uneven cut has been made as above stated, the easiest way to level the cut again, is to lift the blade and drive forward, drop the blade and reverse the tractor and drag the material back into the low spots, thus leveling up the grade or cut. In some instances it is necessary to lift the blade slightly to allow the material to pass under the blade at the desired places.

ABNORMAL OPERATING CONDITIONS

It may be necessary, if operating in extremely cold climates, to thin the oil in the hydraulic system with diesel fuel or kerosene. Never use gasoline. One gallon of diesel fuel added to the oil in the hydraulic system will usually be found to be sufficient, even in extremely cold conditions.

The SAE 30 engine oil specified in the lubricating chart will usually be found to be satisfactory in any hot climate, but if necessary in extremely hot climate, SAE 50 may be used.

When operating on steep inclines, keep the tractor in gear at all times as the machine cannot roll faster than the gear in which it is being operated, whereas, if the master clutch is disengaged or the tractor shifted to neutral, serious consequences may result because of the tractor rolling too fast without the compression of the engine to hold it back.

On the extremely steep inclines it will be necessary to use the opposite steering clutch from that used in normal operation to steer the tractor if the weight of the tractor is pushing the engine while traveling down grade.

Do not wear the cutting edge down until it starts wearing on the bottom of the blade proper as the front and back sheets of the blade are welded together and if this weld is worn off, material will immediately lodge between the front and back sheets of the blade and damage it.

LUBRICATION CHART

EQUIPMENT	GREASE GUN FITTINGS	WHEEL BEARINGS	HYDRAULIC SYSTEM
Bulldozers Trailbuilders Treedozers Root Cutters	High Grade Heavy Grease Gun Lubricant	None	Summer SAE 30-40 Winter SAE 10-20 *Hydraulic Quality Oil

*Hydraulic quality oil for use in LaPlant-Choate equipment is defined as a straight mineral oil refined and dewaxed, minimum acidity, minimum foaming tendencies, and high resistance to oxidation. In general a good quality of motor oil of indicated SAE grade made from either asphaltic or paraffin base crude will be satisfactory.

PREPARING THE TRAILBUILDER FOR OPERATION

Check the oil in the Hydraulic System. The tank should be filled to Level mark on the gauge, with clean lubricating oil. (See Lubrication Chart above) SAE-10 in winter and SAE-30 in summer.

CAUTION: Always use engine lubricating oil.

The Oil Supply Tank and Hydraulic System, requires approximately twelve gallons of oil for satisfactory operation.

When filling the system the Blade should be raised and lowered so all the pipes, hose, and jacks will be filled with oil before the final check of the oil level gauge.

TROUBLE CHART

TROUBLE	POSSIBLE CAUSE	REMEDY
Failure of Blade to lift.	Insufficient oil in oil tank.	Fill to level mark.
	Obstruction in hydraulic lines. Valve or jack connections.	Check flow of oil from starting point (at tank) through the system and remove obstruction.
	Insufficient relief valve pressure.	**Reset to 450 lbs. using test gauge to check.**
	Pump worn or damaged.	Inspect and repair or replace.
	Metal or rubber particles lodged in control valve.	Inspect and remove foreign matter. If core or bowl scored replace.
	Foreign matter lodged under seat of relief valve.	Inspect and remove.
	Broken piston.	Replace. Inspect jack cylinder. Renew if scored.
	Broken hydraulic line.	Check for leak and repair or replace.
Failure of Blade to hold up.	Leaking or broken lines leading from control valve to jacks.	Check for leak. Tighten or replace if broken.
	Oil leaking by control valve.	Check valve core and body for wear. Check valve core and body for scoring. Replace if scored or worn.

TROUBLE	POSSIBLE CAUSE	REMEDY
	Oil leaking by jack pistons.	Check for broken piston or scoring on piston or interior of jack cylinder. Replace if scored or broken.
Blade takes too long to raise.	Badly worn pump.	Repair or replace.
	Insufficient engine speed.	Work Bulldozer with at least 1/3 to 1/2 throttle.
	Badly worn piston or rings.	Replace.
	Badly worn valve core or bowl.	Replace.
Oil Heating.	Holding control on hoist or lower after jack pistons have reached end of travel causing oil to bi-pass through relief valve too often.	Let control return to neutral position when not in use. Use correct operational methods.
	Using very light oil in very hot climates.	Use oil specified in lubrication charts.
	Dirty oil.	Re-fill with new oil.
	Insufficient oil in oil tank.	Keep full to level mark on gauge.
Oil Foaming.	Air leaking into suction line from tank to pump.	Tighten or replace suction line.
	Wrong kind of oil used.	Use only oil specified in lubrication chart.
	Too much passage of oil through the relief valve.	Correct operational methods.

TROUBLE	POSSIBLE CAUSE	REMEDY
Oil leaks by packing gland on jacks.	Worn or loose packing.	Replace packing or tighten packing gland.
Blade wearing out at bottom.	Failure to replace cutting edge in time.	Replace cutting edge before wear starts to occur on blade bottom.
Blade lifts when control handle is placed in lowering position.	Lines leading from valve to jacks have been crossed.	Reverse lines.
	Right and left hand jacks have been installed on wrong sides of the tractor.	Re-install jacks correctly.
Relief valve fails to hold pressure of 450 lbs. after being set.	Locking Key has been left out of relief valve adjusting nut.	Install key.
Failure to hold level grade.	Operating in too high a gear.	Operate in 1st gear with not over half throttle while finish grading.
	Leaving control on lift or lower position too long when changing position of blade.	Move control in a series of quick moves which lifts blade slightly.
	Starting grade level in very uneven ground.	Always level area to start grading from.
Having continual trouble keeping steering clutches and master clutch adjusted.	Failure to fully engage clutches after disengaging.	Never engage master clutch only part way in. Return steering clutches to full engaged position immediately after using.

TROUBLE	POSSIBLE CAUSE	REMEDY
Unable to steer tractor when pushing load.	Blade too full of material to permit traction when one steering clutch is released.	Lift blade slightly before trying to turn.
Unable to keep blade loaded when moving material considerable distance.	Failure to provide channel for blade to operate in.	Follow same pathway each time so material will windrow on each end of blade and hold blade full.
Unable to control tractor on steep inclines.	Failure to keep tractor in first or second gear and master clutch engaged.	Use compression of tractor engine to hold down speed and use opposite steering clutch from that used in normal operation if tractor is pushing engine.

THE JOB FOR TRAILBUILDER

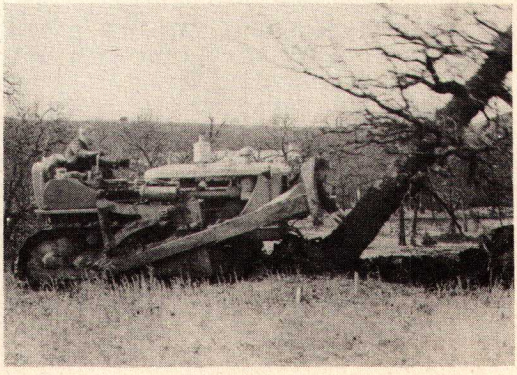
Trailbuilders are primarily designed for pioneering trails through hilly or mountainous country, for clearing right-of-way for roads, airports, camp-sites, reservoirs, training bases and similar projects. They are especially useful in the construction of ramps and in the building of trails through dense jungle. Handling rocks, logs, stumps and debris is easy and practical with these efficient units.

Another useful field for the Trailbuilder is in trenching and backfilling work, such as oil field pipeline, tiling, sewer and other similar work. Open pit mines find them invaluable in stripping and haul road construction. Road builders fill in around culverts, bridge abutments and use them for traffice by-passes during road construction. Most contractors on industrial plant expansion jobs do much of their excavation work with Trailbuilders and backfilling around basement walls is economically and efficiently done with the same tool.

CLEARING

In removing large trees and stumps, it is necessary to push some of the earth and roots away from the base of the tree or stump. With the blade angled and tilted, cutting close to the tree is easy, thus loosening it so that removal is simple. When pushing the tree or stump, the center of the blade should be placed against it as high as possible for maximum leverage. To get the greatest lifting power, use the heel or end of the blade nearest the tractor. This will eliminate lifting the rear of the tractor from the ground. The "Hoist" should be applied when pushing, but it should not be left on continually. Apply it and if the load is too great, place the lever on "Hold" until the tree or stump is loosened more by pushing or by digging around it. Push the tree until it starts to lean or fall - then back away immediately and drop the blade below the roots and push the tree out. Never drive over the stump while the tree is falling as it is possible for roots to come up under and behind the blade.

In clearing, if trees are to be removed, the tractor should start at the lowest point to be cleared, unless it is possible to push all the material in o one pass with the machine With the blade angled, drive up to the tree in low gear and make contact easy. Do not strike the tree at high speed as the top of the tree may break out, damaging the machine or injuring the operator. Nothing is gained by this type of work. Place the blade high on the tree in



making contact and try to have the tractor on good footing, so the thrust will fall the tree out of the right-of-way and not on trees to be cleared later. The trees when felled will push into the nearby forest easier lengthwise than crosswise.

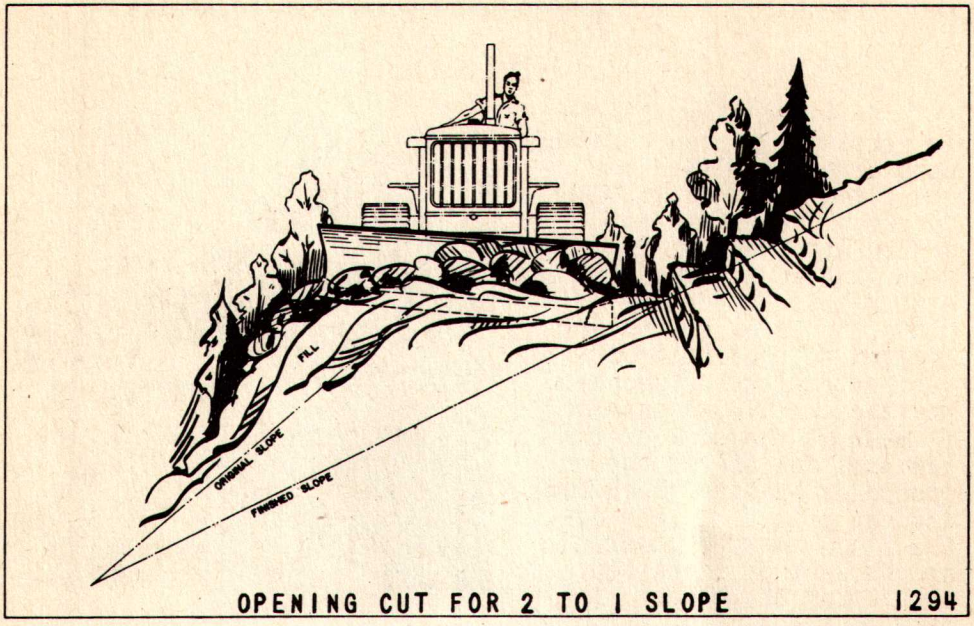
HILLSIDE

To clear sidehills it is necessary to bench in and move some earth with the trees and stumps. To bench in the blade should be angled with the leading or receiving end on the uphill side. This end of the blade should be tilted or lowered to the first adjustment below horizontal position. This adjustment is made at the back of the blade at the end of the pushpoles by first removing the two pins. One end of the blade must be lowered when the other is raised in tilting the blade. The jaws on the back of the blade are engaged with similar jaws on the end of the pushpoles, and the pins are replaced to lock the blade in place. The machine is then ready to operate.

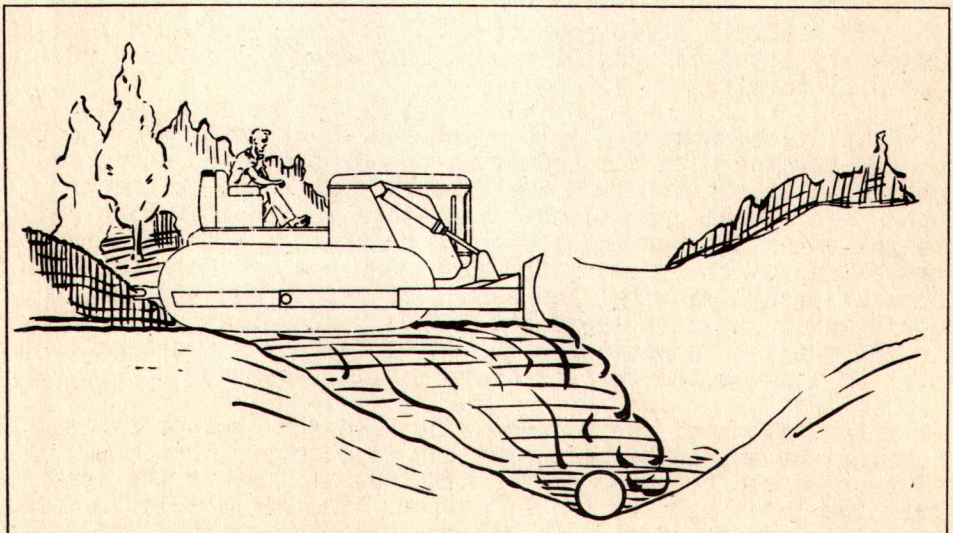
To get full efficiency from the tractor it should be kept as nearly level as possible and worked downhill as much as the job will permit.

To start, make a couple of passes about twice the length of the tractor with the receiving end of the blade doing the cutting. This provides a small bench from which the machine can start actual operations. The track on the high side will be following the cut and the track on the low side will be travelling on the loose material thrown out by the blade. As soon as enough material has been cast out to support the track and to hold it about six inches higher than the track in the cut, it is advisable to travel farther forward on each pass as long as the tractor doesn't tilt too much.

If a slope of two to one is desired for the upper bank, a first cut should be made only one foot deep. Then the tractor should be moved so the next cut will start two feet from the ledge left by the first cut. The slope will be cut thus in a series of steps. The steps can be trimmed off later by running the tractor along the slope, with the blade lowered just enough to cut off the steps. This will provide a two to one slope for the bank and the material removed is available for the fill for the road itself which should be kept slightly higher on the outside.



OPENING CUT FOR 2 TO 1 SLOPE 1294



MAKING FILL OVER CULVERT 1293

FILLING

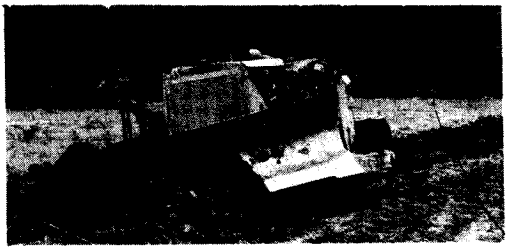
The blade must now be adjusted to bulldozing position. This is done where a deep cut is to be made and where it is necessary to move material some distance. In making the fill, the blade should be picked up slowly as the edge of the fill is reached, leaving it a little higher. This is done because there is apt to be more settling at the edge of the fill than in toward the cut.

When making a fill over a culvert, it would be possible to push the culvert out of line or crush it with the weight of the tractor if the material used to fill in over the culvert were not properly placed. To do this job correctly, the fill should be kept up to grade, and the tractor should be kept as near level as possible, pushing and spilling the material over the edge of the fill. In this way, by the time the tractor reaches the culvert it will have two or three feet of fill between it and the culvert.

If an uneven cut is made or a hole is gouged out at the beginning of a grade, the blade should be raised, the load dumped and the tractor driven far enough ahead to let the blade drop on the far side of the load. Then the tractor is reversed and down pressure is applied lightly, moving control lever from down pressure to "Hold" and alternating while backing up. The control lever should be placed on "Float" while passing over the low spot. In some cases where the hole is paricularly deep, it may be necessary to raise the blade a little, then placing the control lever on "Hold" so the load will spill under the blade.

DITCHING

For cleaning existing ditches or for constructing drainage ditches along new roads, the same general principles of operation are applied. Of course, certain blade adjustments must be made and there are a few suggested operations which will make ditching easier. The blade must be set at an angle and should be tilted down one adjustment on the leading or receiving end. With the blade set thus it is possible to clean old ditches that have filled up with weeds and debris, or to build new ditches always casting the material up onto the roadway itself.



To start ditching, one track is placed in the ditch line. The other track will be on the shoulder of the road with the blade angled to cast the material on the road, not in the ditch. It may be necessary to make several passes to cut the ditch to the desired depth. If too much material is cast up on the roadway before the ditch is finished, it may be necessary to make a pass or two on the road to pull the earth back away from the ditch. To do this the blade should be levelled up but kept angled.

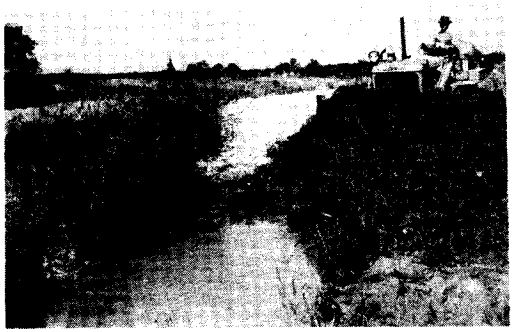
If it is desired to backslope the bank, the blade is used in angling position but not tilted and the material is cast into the ditch, where it is later removed as indicated in the operation described above.

OIL FIELD SLUSH PITS AND TRENCHES

To open a slush pit or ensilage trench the blade is best used in bulldozing position, straight across the front of the tractor. This is done to push the material out of the trench, which usually has vertical banks on the sides and the ends of which slope upward from the center. A number of passes will be required to bring the trench to the proper depth.

At the end of each pass the tractor is reversed and backed through the trench rather than turned around unless it is desirable to push material from each end of the trench.

When the slush pit has served its purpose and is to be filled the material which was pushed out originally is used. Naturally it is impossible to drive out into the soft slush. Therefore, when the material is pushed ahead of the blade and as it approaches the pit, the blade should be raised and the material is spilled under the blade so that there is always dry earth under the tractor. Repeated passes until the pit is filled with dry material will eliminate the danger of the tractor bogging down in the slush.



After an ensilage pit has been filled with feed, in most cases it is desired to cover this feed with the original earth. The same procedure is followed for this as is used with slush pit filling except that even more care must be exercised in keeping the fill material to the proper depth, and in avoiding damage to the trench walls.

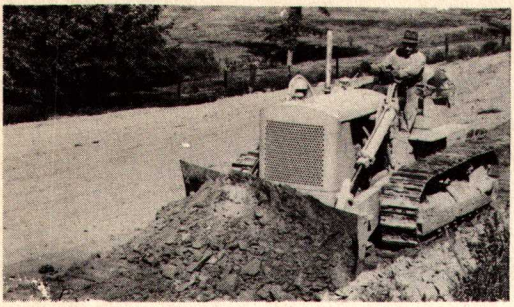
BACKFILLING SEWERS AND PIPE LINE TRENCHES

One of the most economical and efficient methods of backfilling sewers, pipe line and tile trenches is by the use of the Trailbuilder. This is done with the blade angled but not tilted. The tractor is driven alongside and parallel with the ditch or trench, casting the material into the trench. Where material has been cast on both sides of a ditch, it will usually be possible to backfill it by making a pass on one side, returning down the other side for one pass and completing the filling with a final pass on the first side. This avoids changing the blade angle. Any length ditch may be filled in this manner.

FINISHING

For finishing grade and bringing it to correct specifications, certain adjustments of the blade are necessary. The blade should be levelled up horizontally, but may be angled to cast the material to the right or left, or placed straight across the front of the tractor in bulldozing position, for drifting the material forward.

The shoes also should be adjusted about 1/2 inch above the ground line with the cutting edge on the ground. This will prevent gouging out and uneven cutting or spreading.



If the ground is very uneven, it will be necessary for the operator to first level a small place from which to start operations. Always start cutting when the tractor is level or from this initial starting point. Do not start cutting when the tractor is tilted to either side because the farther the tractor travels ahead the more it will tilt and the more it will dig in on the lower end of the blade. After part of the work is levelled it is advisable to let the blade overlap the finished work far enough so that one track will always travel on the finished work. By watching this end of the blade now and then, the cutting edge can be kept at the ground line but not cutting on the finished side. The rest of the job will be easy.

Some material can be levelled off by dragging the blade while backing up. It is much easier for the beginner to finish in this manner. Anything which speeds up any operation makes it just that much easier and more efficient.

Where material has been cast out by shovel or other means and it is desired to remove it from the edge of the cut, as in the case of industrial building basements, quarries or other projects where it is impossible to get in back of the material to push, the blade may be lifted up and over the material, dropped on the opposite side, locked in the "Down" position, the tractor reversed and the material dragged away. The material may then be spread in the usual manner.

REMOVING SNOW FROM TRAILS, ROADS, HIGHWAYS AND DRIVE WAYS

Light snows and even heavy drifts can be moved with the Trailbuilder.

If the snow is to be cast off the road, angle the blade so the snow will be cast to the side desired. The snow will cast better when the tractor is traveling in the higher speeds.

After making a pass or two and trying the different speeds, it can be determined which speed will be the most efficient. In most cases the higher speeds can be used; and with the higher speed several miles of road may be kept open.

Sometimes it is necessary to push the snow out of a cut on the road or out of a drive way where it can't be cast to the side. The blade should be adjusted to Bulldozing position for this job. First, open up a channel near the center of the road by pushing through.

In most cases it is advisable to return in reverse gear unless the distance is too great. Always eliminate turning when possible as the snow will pack in the tracks, sprockets and other parts of the machine and may cause damage--gather up the snow and push through the channel made at the beginning. The channel will keep the snow in front of the blade making it possible to push much more snow each trip. Keep the channel intact as long as possible for maximum loads.

PUSHING SCRAPERS, TRUCKS, ETC. AND LOADING OR UNLOADING THE TRACTOR

Often the Trailbuilder is used to push scrapers, enabling the operator to pick up capacity loads in shorter distances.

In making contact with the blade to the push block on the rear of the scraper, when possible the lead tractor and scraper should be in line with the pusher before contact. Make contact easy and when lead tractor on scraper has stopped for shifting gears, if possible.

If tractors are of the same make and size, they should be worked in the same gears and at the same engine speeds to prevent track slippage on either tractor. The operator on the scraper tractor should control the cut of the scraper to prevent the stalling or slipping of the tracks, and keep in as straight a line as possible, moving steadily ahead and making a smooth level cut. The higher the forward speed the easier the material will be to pick up.

When pushing trucks, contact should be made more carefully to prevent damage to the truck. Shift to low gear and idle the engine down as low as possible and still have just enough power to move the tractor in making contact.

After contact is made the throttle may be opened gradually as the clutch is engaged to push the truck.

When working the tractor in close quarters, or in loading or unloading it, shift to low gear and idle the engine down as stated above, so the tractor can be moved more slowly and without slipping the clutch. Do not hold the clutch part way in or out, either engage the clutch or place it in neutral.

Always idle the engine if it is desired to move the tractor more slowly than low gear provides at normal throttle speed.

MOUNTING INSTRUCTIONS

For Standard Roadbuilder for use with 35-40 Diesel and Gas Tractors and RD-6 Tractors

MOUNTING INSTRUCTIONS

FOREWORD: Mount all parts which are bolted to the tractor including the main frame bearing assembly, the cylinder bracket plate assemblies, and the hydraulic arrangement including the tank, valve, pump, and piping. Fill tank with fresh motor lubricating oil using S.A.E. 40, or medium in summer; and S.A.E. 20, or light in winter. Tank is to be filled to 4" from top. Lifting links can now be operated in order to connect up to links when tractor is driven into main frame. Rear end of main frame must be blocked up to the same height as the main frame bearing in order to drive tractor into place. Roadbuilder can then be hooked or pinned into place with pin.

The following is the procedure to use in mounting the above assemblies on the tractor.

1. To Mount Main Frame Axle Bearing: Remove plugs from tapped holes in side of recoil spring housing in tractor and four capscrews directly below the recoil spring housing pad on the lower flange of the main frame channel. Main frame bearings are held in place at the top by four 3/4" x 3-1/4" studs. For hooking the lower angle of the main frame bearings to the tractor track channel use three 5/8" x 3-1/4" S.A.E. bolts and one 5/8" x 2-1/4" S.A.E. bolt. Bolts and studs are found in the packing box.

2. To Mount Cylinder Bracket Side Plates: Mount cylinder bracket side plates at the front of the track frame channels.

IMPORTANT: On tractors which do not have holes provided for cylinder bracket plates, it will be necessary to drill three additional holes in each track frame channel using a 21/32 drill. Holes are to be located as follows: First, remove four front truck roller bearing bolts. Also the four guard bolts on each side of the front truck roller bearing. Next, bolt cylinder bracket plates into place against the web of the track frame channel resting casting against lower flange of channels. Line the two center vertical holes with those of the front truck roller bearing. Use eight bolts 5/8" x 3-1/4" and eight bolts 5/8" x 4-1/2" found in packing box. Cylinder brackets are now properly located. Use horizontal holes in casting for location and pilot for drilling the 21/32 holes. Use twelve 3/4 x 5 bolts found in the packing box.

Assemble the cylinder pivot trunnion, jack, and piston lever arm, in place before bolting cylinder bracket side plates securely.

3. To Mount Rear Pump: Remove bevel gear inspection cover from rear of transmission case, disengage master clutch, and shift gears to neutral allowing free movement of the upper transmission shaft. Insert the extension shaft into coupling and place on end of extension shaft. Lift pump into place inserting pump drive shaft into extension shaft coupling and bolt securely.

3A. To Mount Front Pump: It is necessary to remove the radiator assembly in order to engage the inside extension shaft internal gear onto the spur gear at the end of the crank shaft. On 40 Diesel and RD-6 tractors it is necessary to bolt packing ring assembly No. 19214 in place, after inside extension shaft has been assembled. Assemble radiator back into place and bolt front pump on radiator bottom tank using four studs. Install first a vellumoid gasket, between the pump and the radiator tank. Tractors equipped with holes in the radiator bottom tank for front pumps begin on Diesel 40 tractors with No. 3G717 Gas 40 tractors with No. 5G119, and R-5 tractors with No. 5E3090. On tractors below the above numbers it will be necessary to order radiator bottom tank No. 2B7652 for the Diesel 40, tank No. 2B7238 on the Gas 40, and tank No. 2B7238 on the R-5 tractors from the Caterpillar Tractor Company.

4. To Mount Oil Tank and Valve: Oil tank and valve are assembled at the factory on a base plate and are to be mounted on the right hand fender through fender holes in the tractor, which can be readily located. Refer to plate for piping arrangement.

Tank strap assembly will be found in packing box. Place strap around tank fastening one end to seat capscrew at side and clamp other end of strap to rear of seat at nearest seat cushion capscrew. Place filler block between tank and seat side and draw strap tight.

Tractor is now ready to be driven into main frame assembly. Connect link into place on top of frame. Lean same against top of blade. Jack rear end of main frame so that main frame bearing jaw is the same height as the main frame bearing or stub axle. Drive tractor into place connecting the rear jaw by means of pin and using hydraulic pressure to raise or lower the lifting arms to correct height to insert link bolt.

OPERATING INSTRUCTIONS

CAUTION: Never use crank case drainings in oil tank.

Do not leave valve lever on hoist or down pressure at any time after blade has been raised to its full height or forced down to its full drop. This causes oil to be forced through relief valve at a high pressure and will overheat pump which will cause damage to hydraulic system.

OPERATING OF VALVE

To raise blade, pull valve lever back or toward operator 45°.
To apply down pressure on blade, push lever forward 45°.
For holding, push lever straight or parallel to tractor seat.
For floating, push lever parallel to fender.

CONTROL VALVE AND ADJUSTMENTS

Valve core is adjusted by means of a set screw located at the bottom of the valve bowl. Valve lever should operate freely at all times. However, valve core must be seated into valve body and in cases where valve core is worn, same can be seated by reversing set screw, the core is then seated automatically by a pressure spring.

BLADE OPERATION

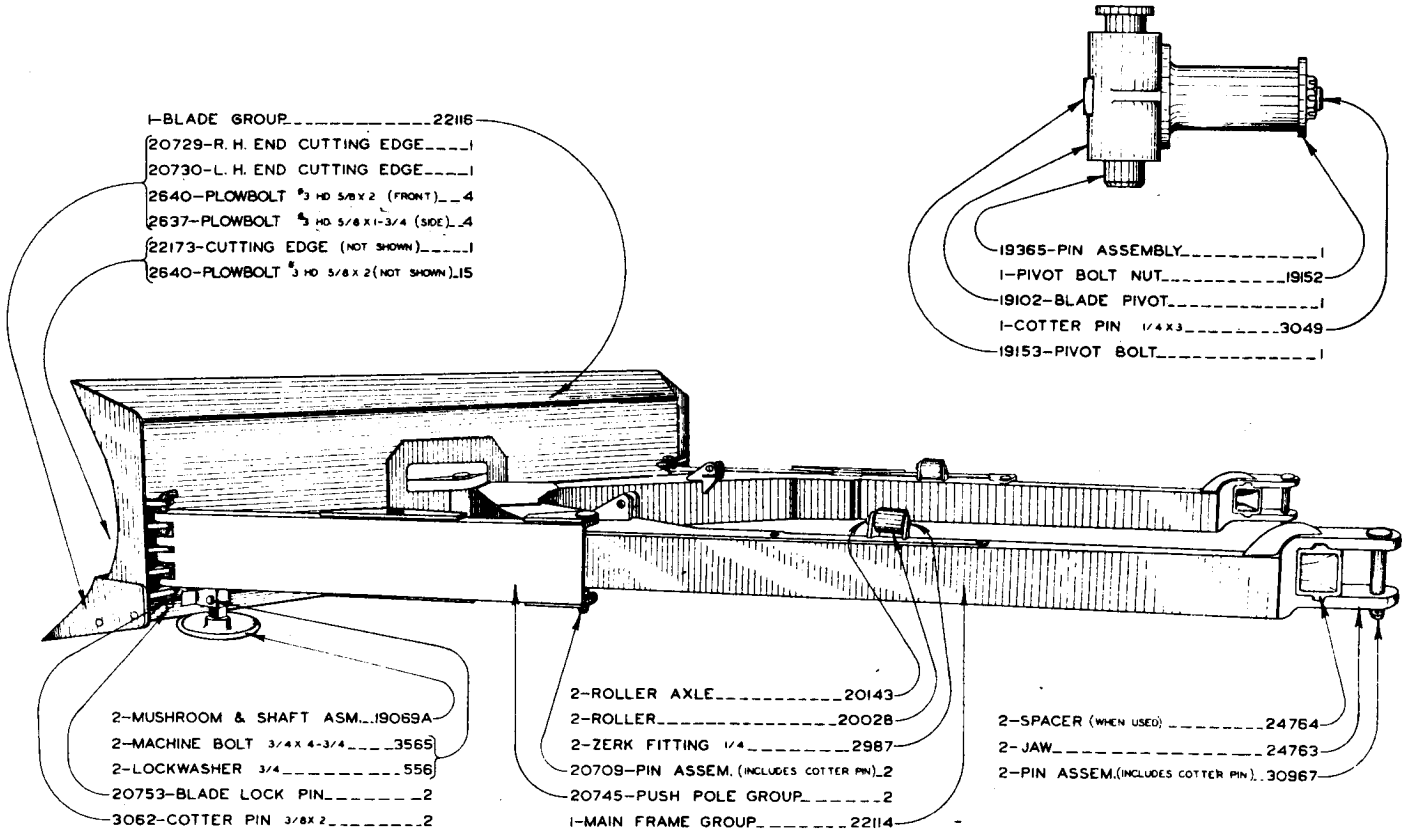
To make an even cut, raise the blade but very little and only when absolutely necessary. Carry blade in hold position of valve to prevent blade from dropping in low places. When carried in hold position dirt will spill under blade, filling low spots, and high spots will be cut off.

When blade is raised enough to be noticeable while making cut, the surface will also show where blade was raised. This starts tractor to rise and fall when passing over place blade was raised and in turn a series of rough places will be left. All uneven spots will be eliminated if blade is not raised enough to be noticeable but just enough to come out of the ground in several feet.

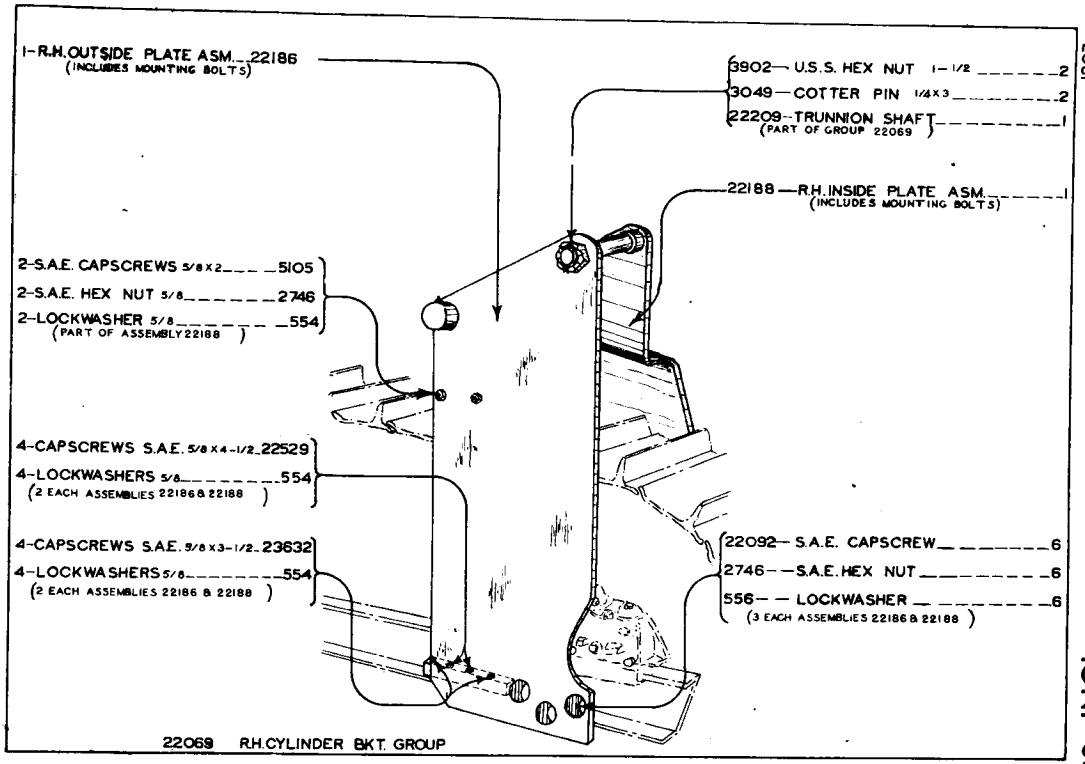
Center or float position of valve may be used for bulldozing dirt that has been dumped on a hard foundation, or when the soil is firm enough for shoes to support the blade.

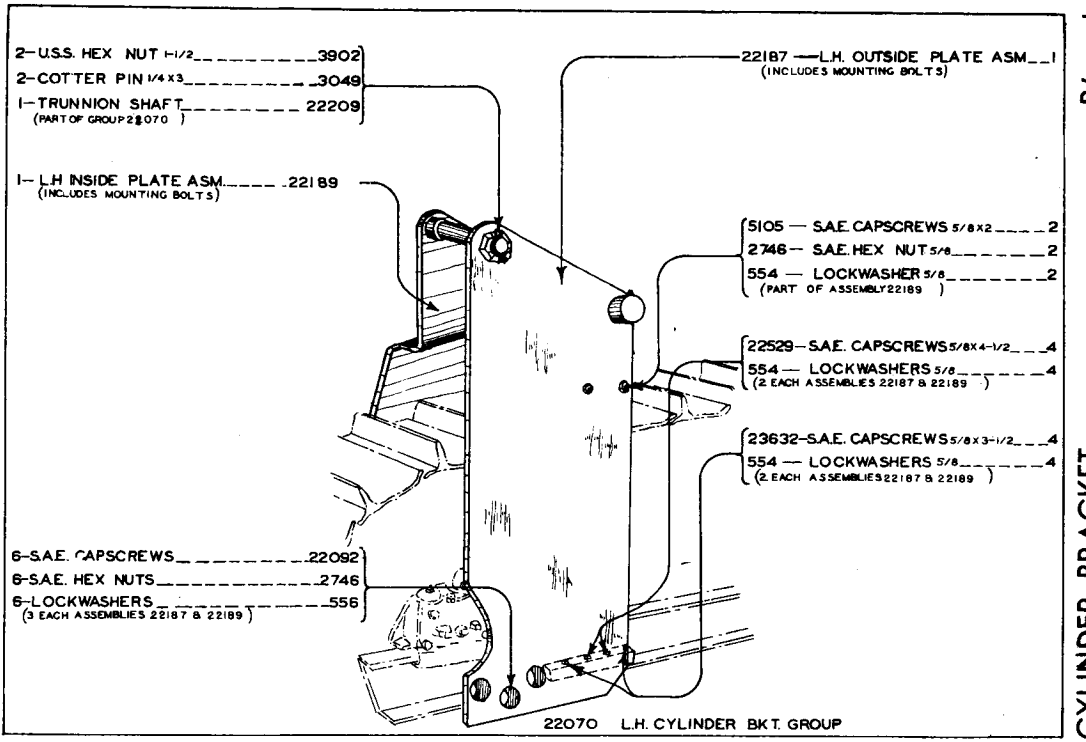
It will be observed that on the LaPlant-Choate Roadbuilders arrangements are provided for tilting the blade. That is, one side may be higher than the other in either of the side casting positions or the bulldozing position. The pins connecting the push poles with the blade are removable and the push poles may be arranged to accommodate the desired tilt of the blade.

If instructions are followed, good operating results will be had. Adjustment of shoes to allow blade to be lowered for hard cutting and raised for soft leveling is important.



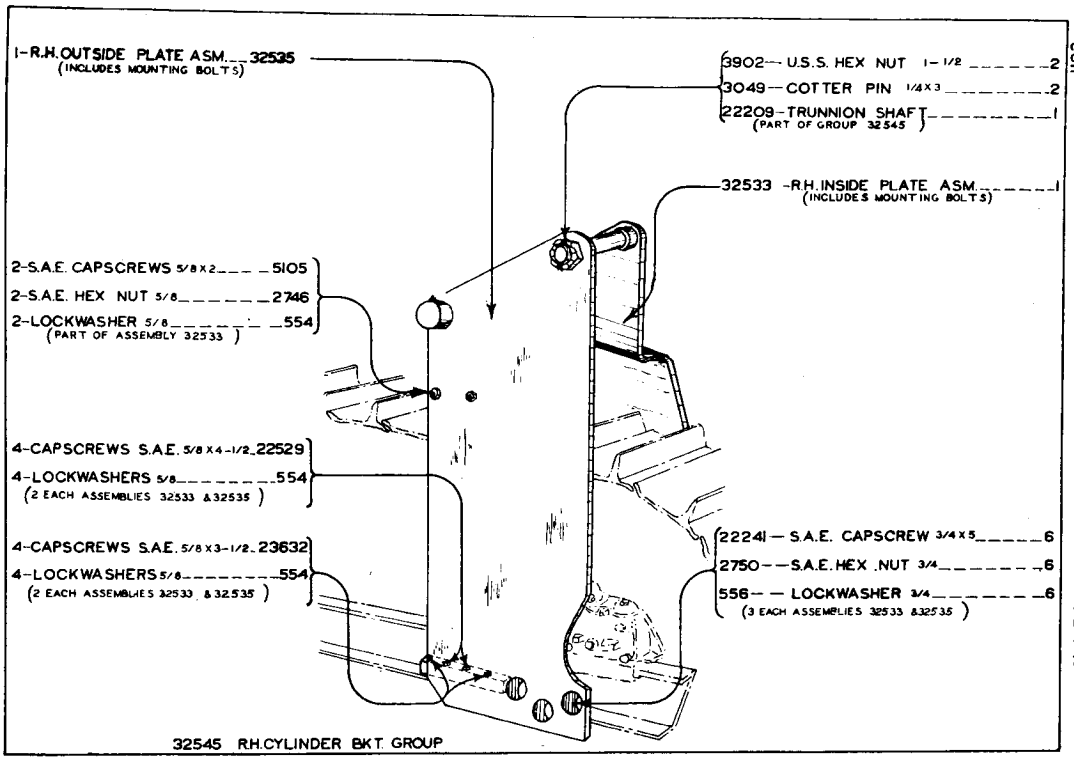
MAIN FRAME, BLADE AND PUSH POLES R6 — 1 TO , INCL.

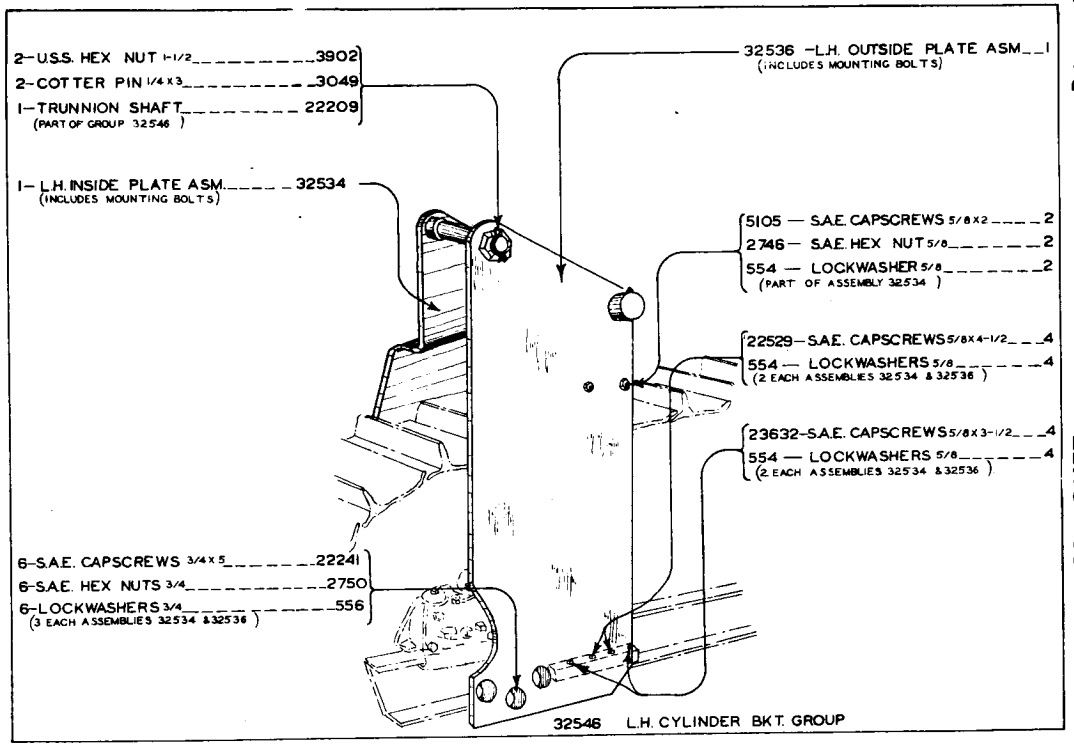




R6 — 1 TO 409, INCL.

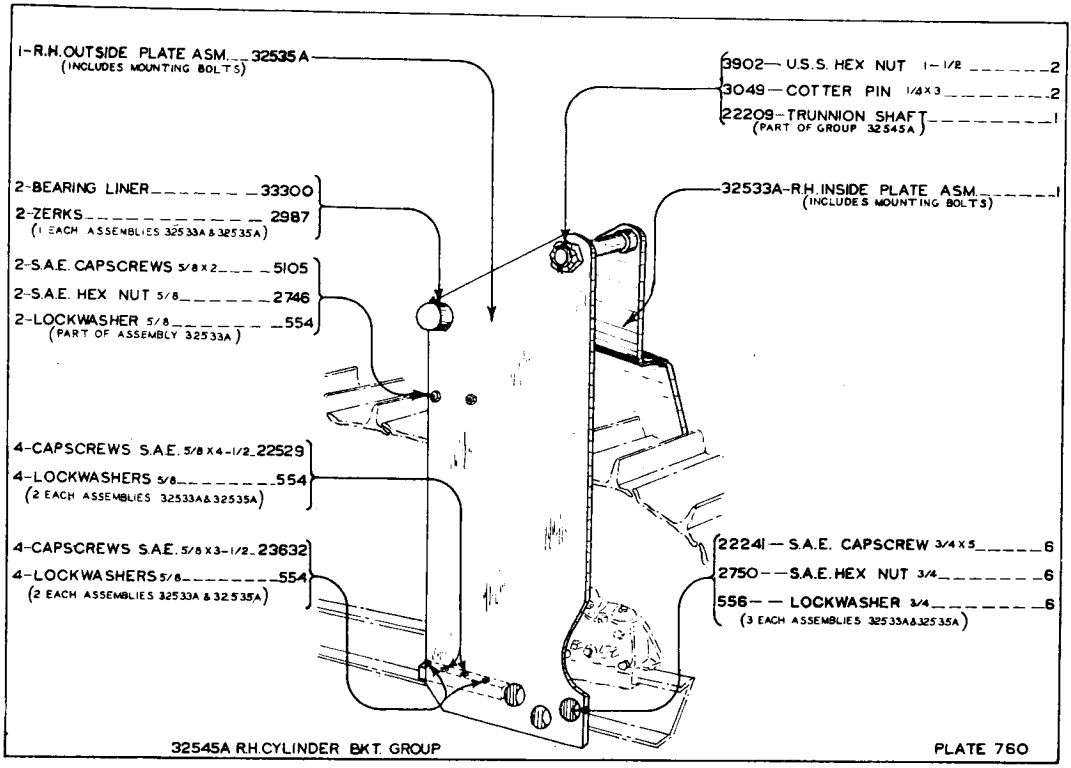
CYLINDER BRACKET

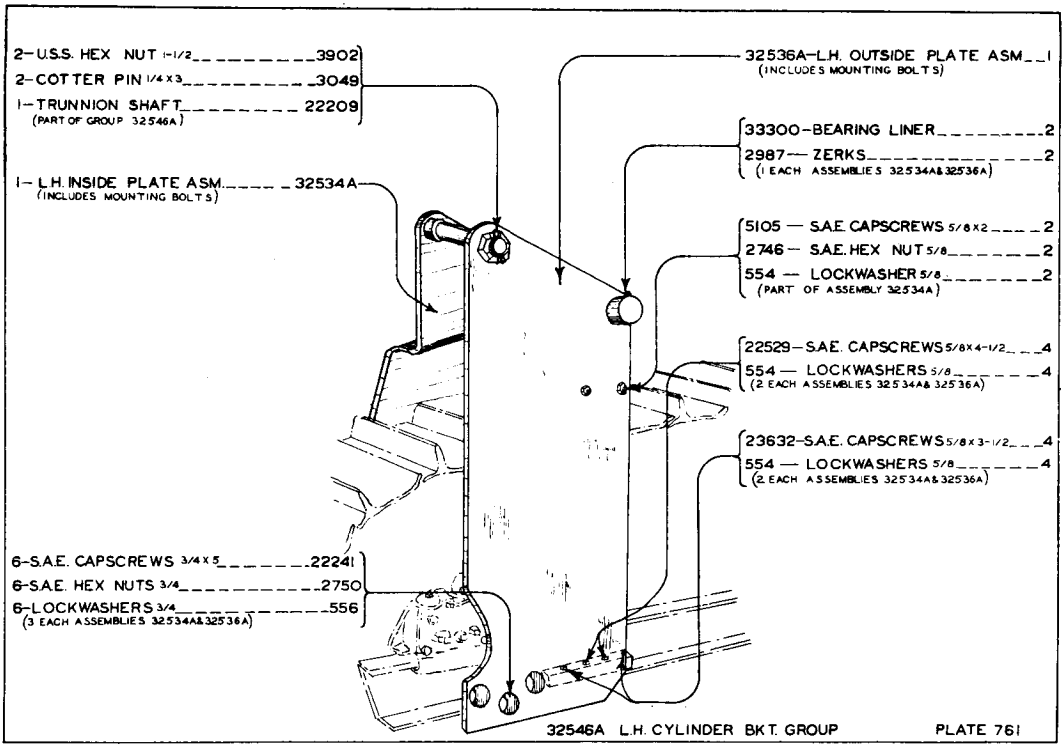


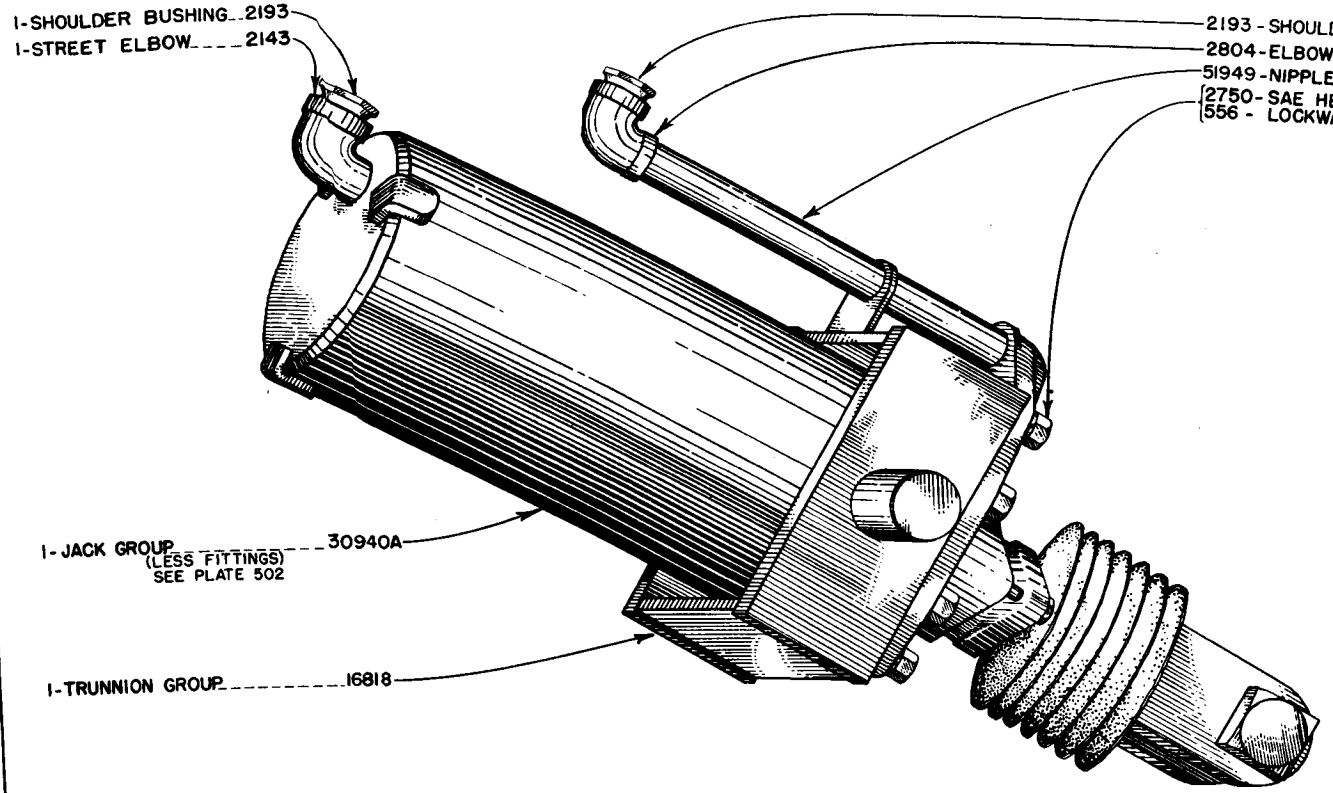


R6 — 410 TO 525, INCL.

CYLINDER BRACKET

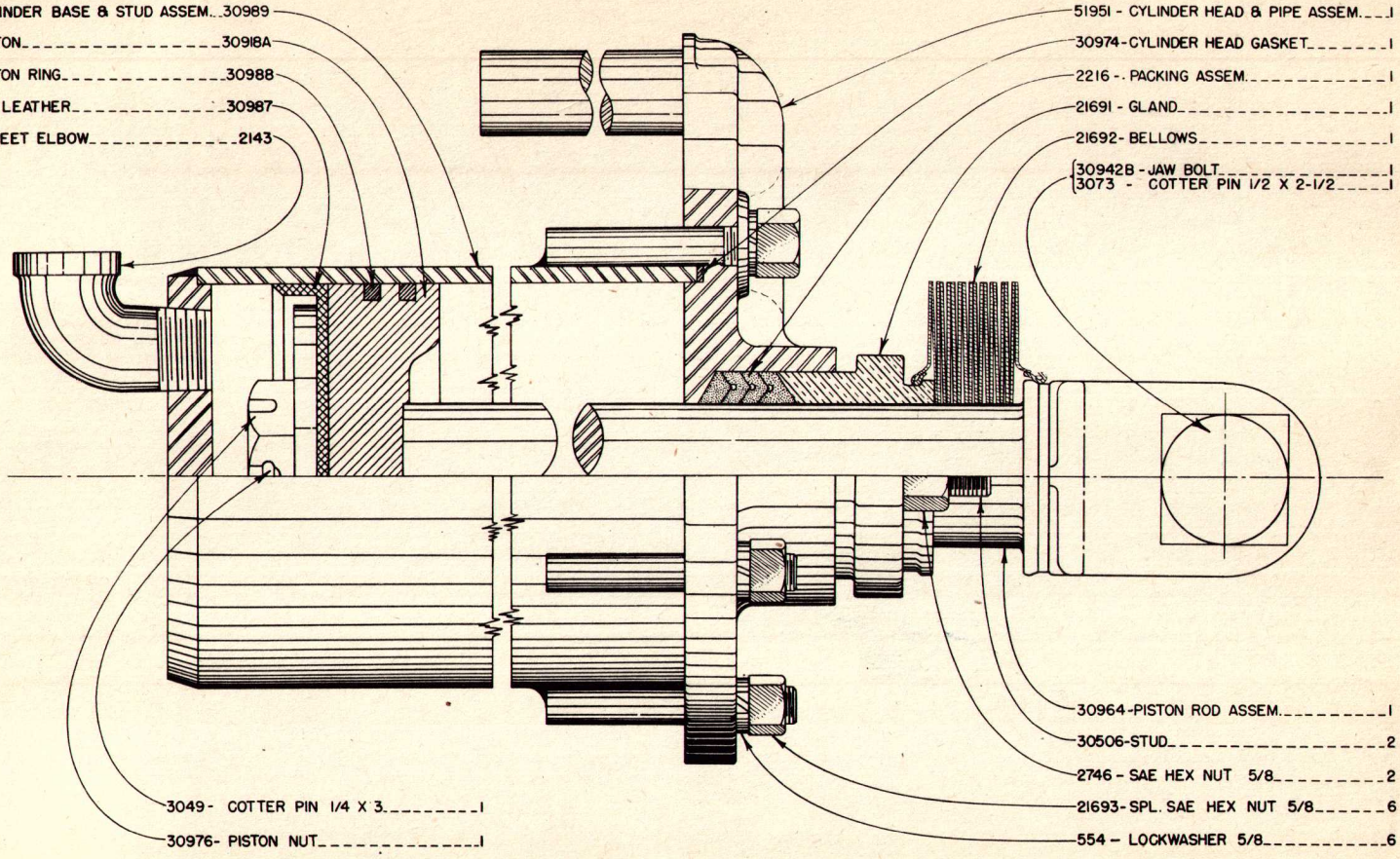

1-R.H.OUTSIDE PLATE ASM. 32535A
(INCLUDES MOUNTING BOLTS)
2-BEARING LINER 33300
2-ZERKS 2987
(1 EACH ASSEMBLIES 32533A & 32535A)
2-S.A.E. CAPSCREWS 5/8 X 2 5105
2-S.A.E. HEX NUT 5/8 2746
2-LOCKWASHER 5/8 554
(PART OF ASSEMBLY 32533A)
4-CAPSCREWS S.A.E. 5/8 X 4-1/2 22529
4-LOCKWASHERS 5/8 554
(2 EACH ASSEMBLIES 32533A & 32535A)
4-CAPSCREWS S.A.E. 5/8 X 3-1/2 23632
4-LOCKWASHERS 5/8 554
(2 EACH ASSEMBLIES 32533A & 32535A)
3902 — U.S.S. HEX NUT 1-1/8 2
3049 — COTTER PIN 1/8 X 3 2
22209 — TRUNNION SHAFT 1
(PART OF GROUP 32545A)
32533A-R.H. INSIDE PLATE ASM. 1
(INCLUDES MOUNTING BOLTS)
22241 — S.A.E. CAPSCREW 3/4 X 5 6
2750 — S.A.E. HEX NUT 3/4 6
556 — LOCKWASHER 3/4 6
(3 EACH ASSEMBLIES 32533A & 32535A)
32545A R.H. CYLINDER BKT. GROUP
PLATE 760


2-U.S.S. HEX NUT 1-1/2 3902
2-COTTER PIN 1/4 X 3 3049
1-TRUNNION SHAFT 22209
(PART OF GROUP 32546A)
1-L.H. INSIDE PLATE ASM. 32534A
(INCLUDES MOUNTING BOLTS)
6-S.A.E. CAPSCREWS 3/4 X 5 22241
6-S.A.E. HEX NUTS 3/4 2750
6-LOCKWASHERS 3/4 556
(3 EACH ASSEMBLIES 32534A & 32536A)
32536A-L.H. OUTSIDE PLATE ASM. 1
(INCLUDES MOUNTING BOLTS)
33300-BEARING LINER 2
2987 — ZERKS 2
(1 EACH ASSEMBLIES 32534A & 32536A)
5105 — S.A.E. CAPSCREWS 5/8 X 2 2
2746 — S.A.E. HEX NUT 5/8 2
554 — LOCKWASHER 5/8 2
(PART OF ASSEMBLY 32534A)
22529 — S.A.E. CAPSCREWS 5/8 X 4-1/2 4
554 — LOCKWASHERS 5/8 4
(2 EACH ASSEMBLIES 32534A & 32536A)
23632 — S.A.E. CAPSCREWS 5/8 X 3-1/2 4
554 — LOCKWASHERS 5/8 4
(2 EACH ASSEMBLIES 32534A & 32536A)
32546A L.H. CYLINDER BKT. GROUP
PLATE 761

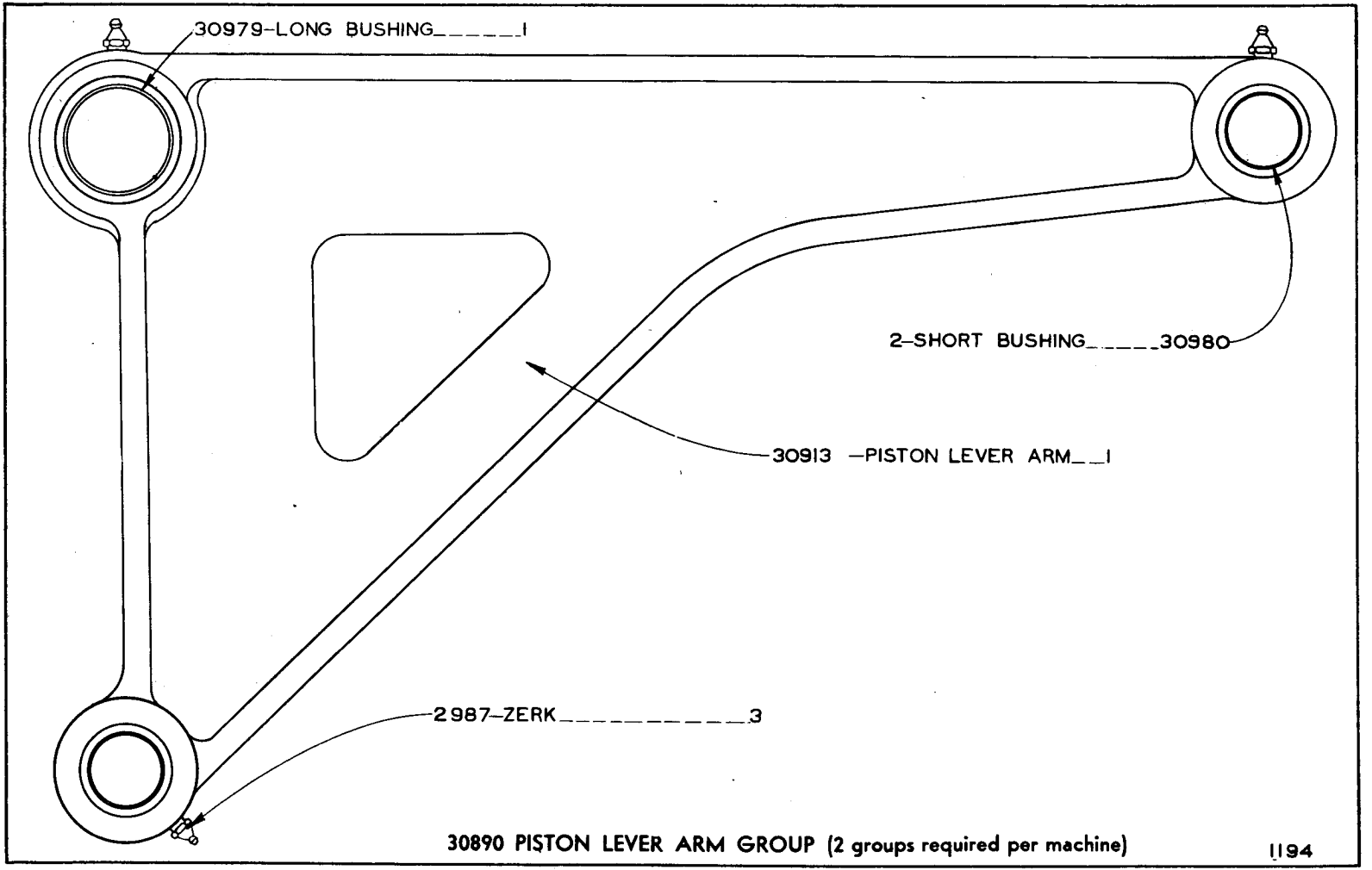


25659A JACK & TRUNNION GROUP *(TWO GROUPS REQUIRED PER MACHINE)*

805

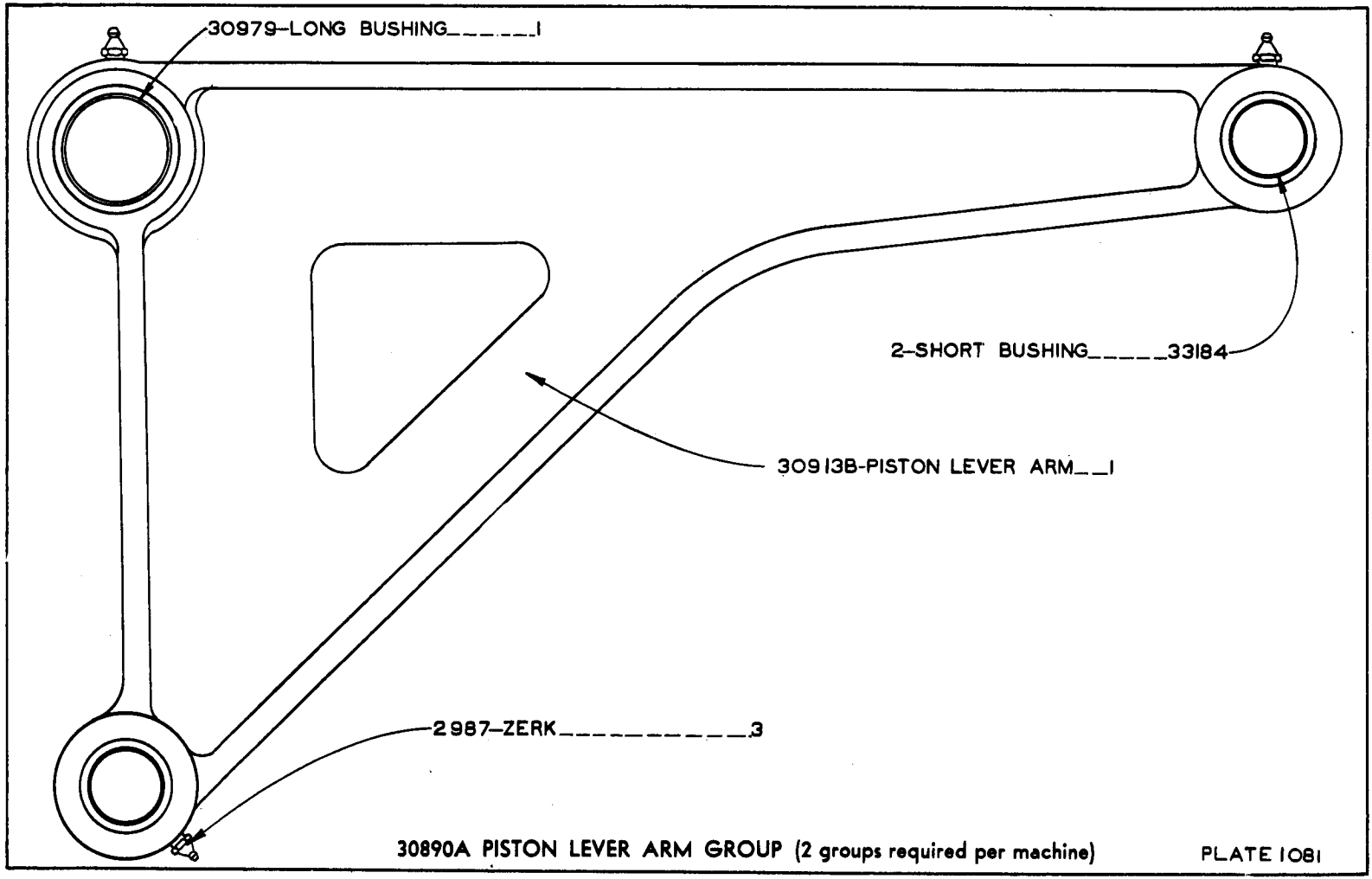


30940A - JACK GROUP COMPLETE *(TWO GROUPS REQUIRED PER MACHINE)* 502



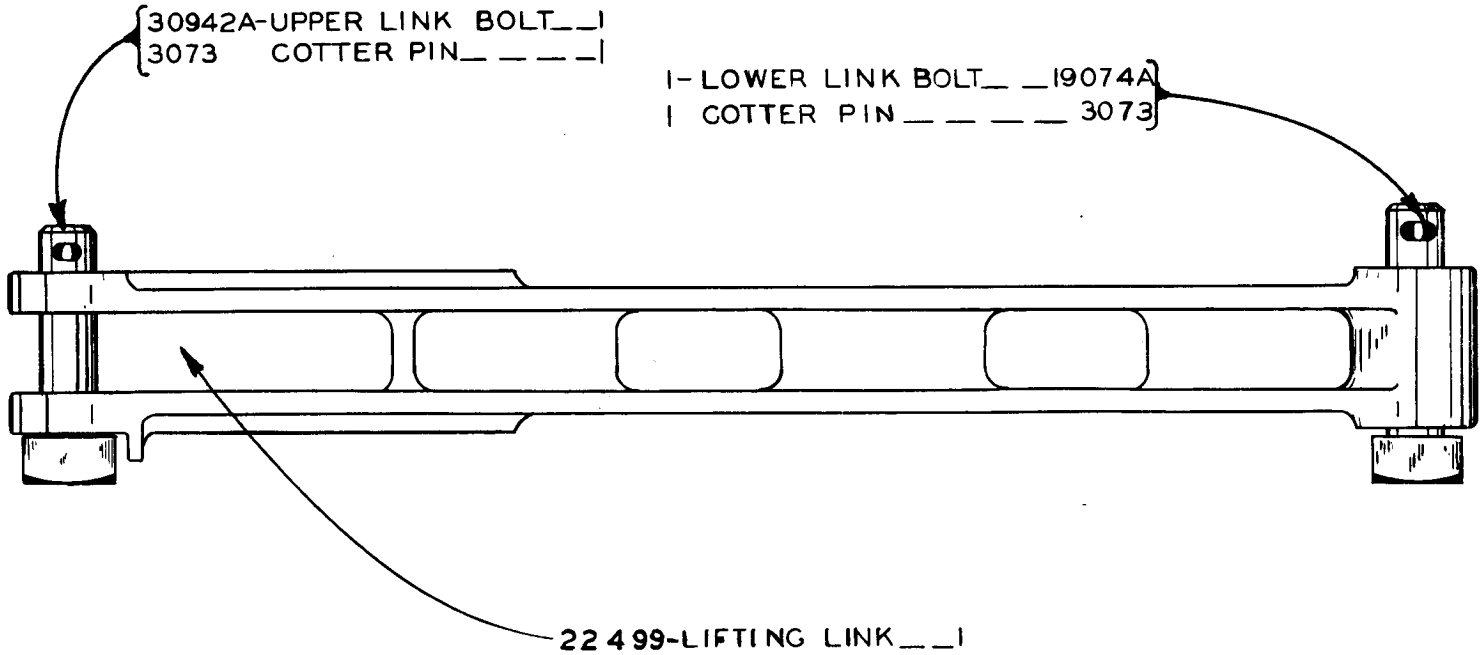
PISTON LEVER ARM

R6 — 1 TO 525, INCL



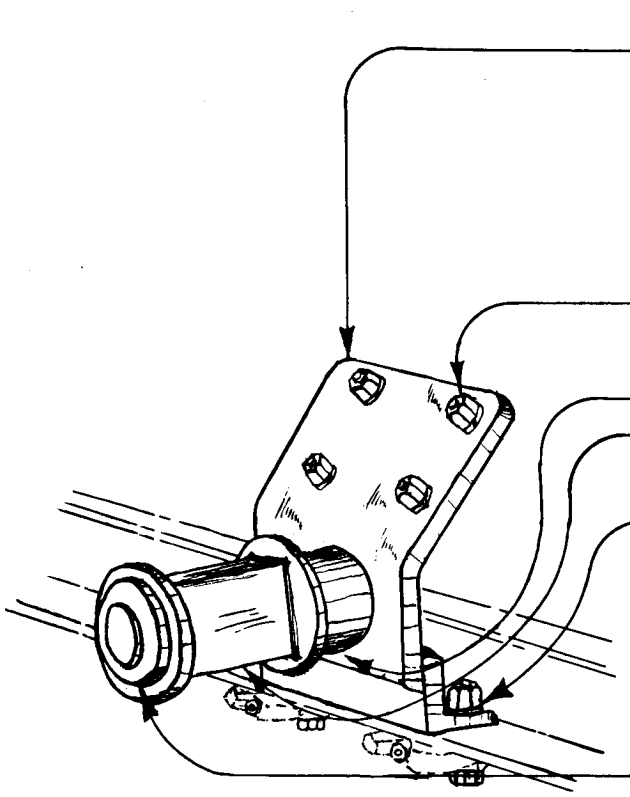
30890A PISTON LEVER ARM GROUP (2 groups required per machine) PLATE 1081

PISTON LEVER ARM R6 — 526 TO INCL.



22118 LINK GROUP (2 groups required per machine) 1116

LIFTING LINK R6 — 1 TO , INCL.

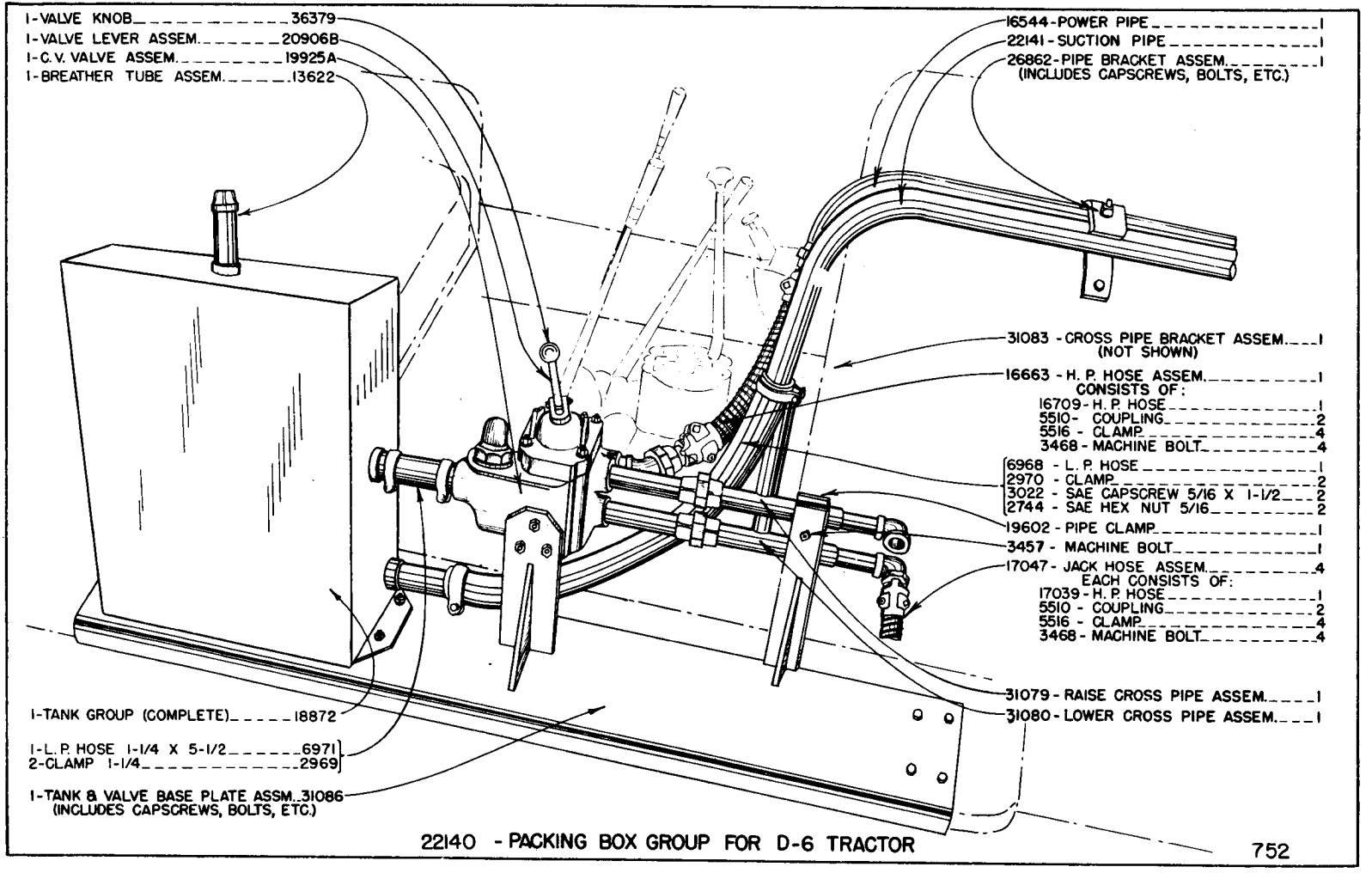


22145-R.H. STUB AXLE ASM. (INCLUDES ONE SET OF MTG BOLTS) ------ 1
22146-L.H. STUB AXLE ASM. (INCLUDES ONE SET OF MTG. BOLTS) ------ 1

FOLLOWING INCLUDES TOTAL IN ASM. 22145 & 22146

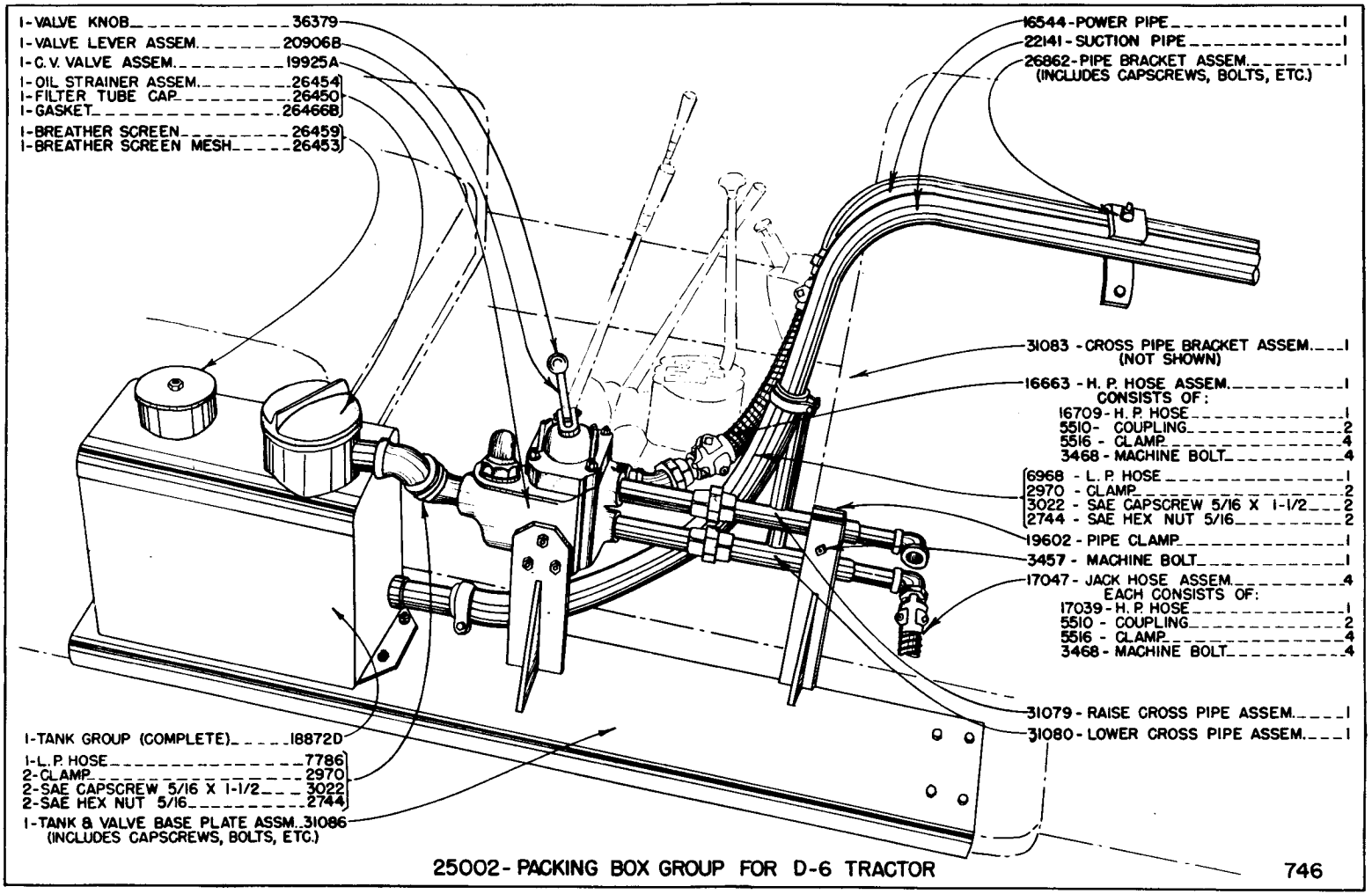
13635-STUD 3/4 X 3-1/4 ---------- 8
2750-SAE HEX NUT 3/4 ---------- 8
556 - LOCKWASHER 3/4 ---------- 8
2987-ZERK 1/4 ---------- 2
20734-JAW ---------- 2
22091-SAE CAPSCREWS 5/8X 3-1/4 ---------- 6
22093-SAE CAPSCREWS 5/8X2-1/4 ---------- 2
2746-SAE HEX NUT 5/8 ---------- 8
554 - LOCKWASHER 5/8 ---------- 8
30973-STUB AXLE WASHER ---------- 2

22196-TRACTOR MOUNTING GROUP PLATE 771

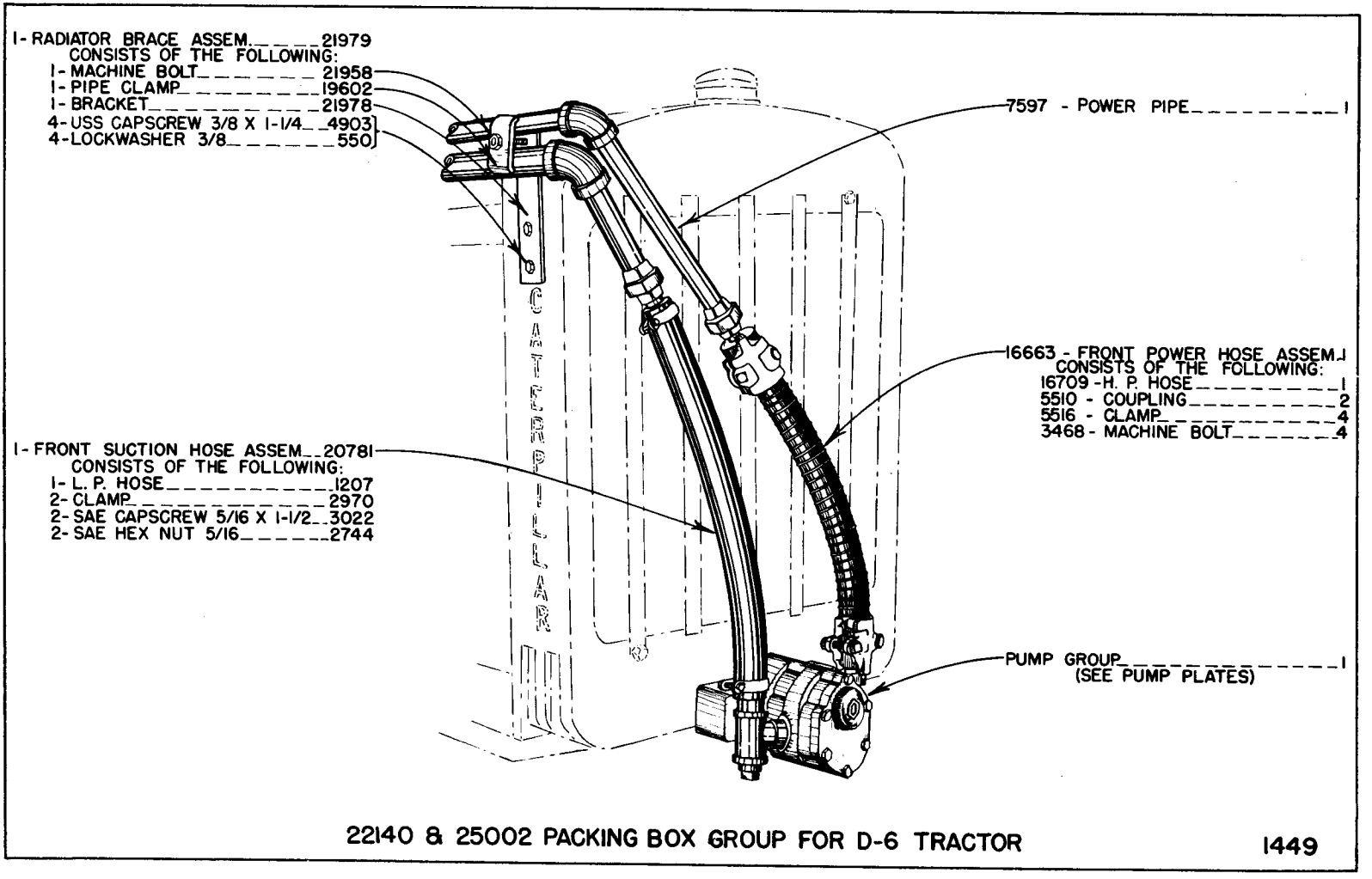


22140 - PACKING BOX GROUP FOR D-6 TRACTOR

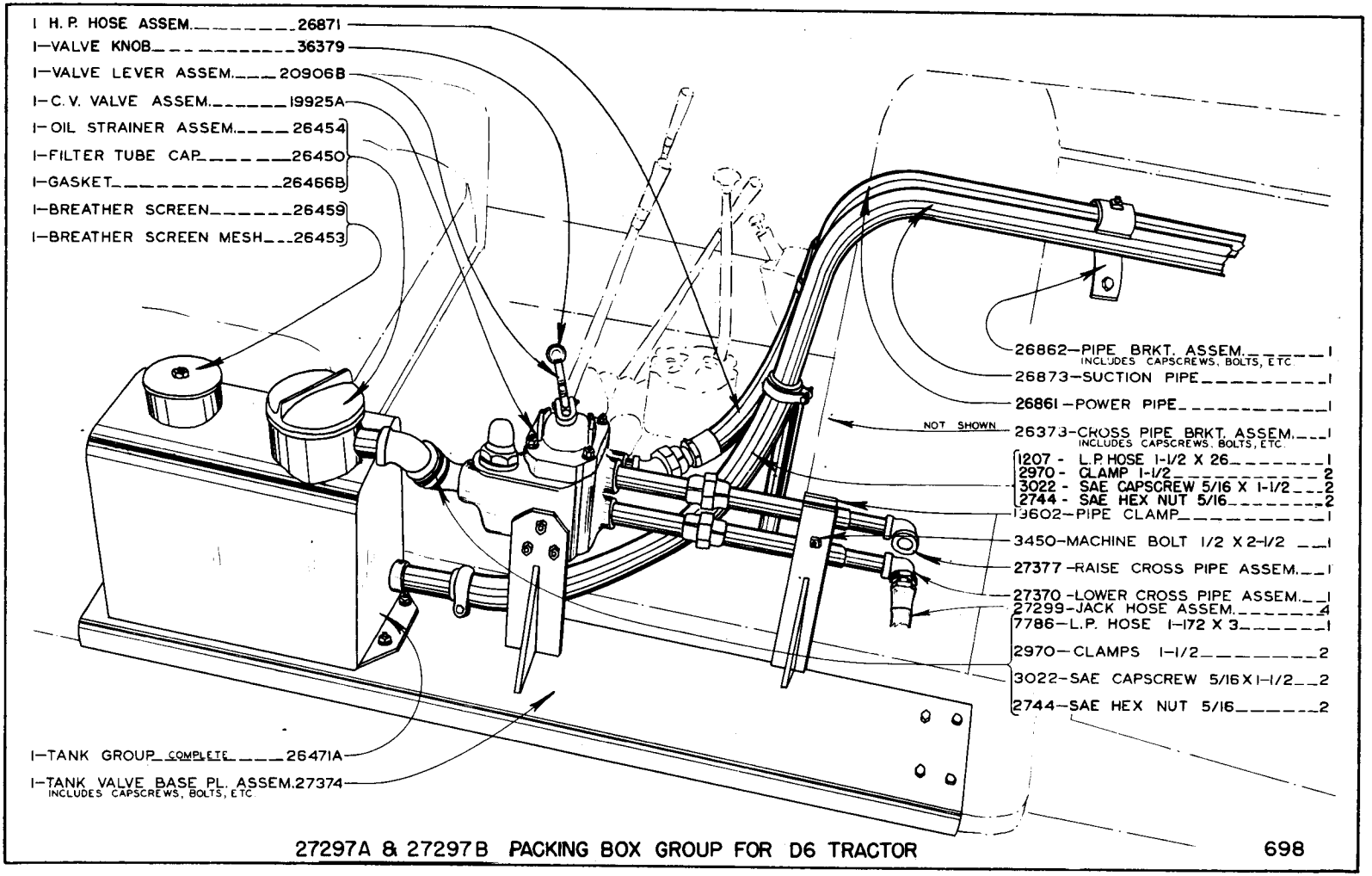
752



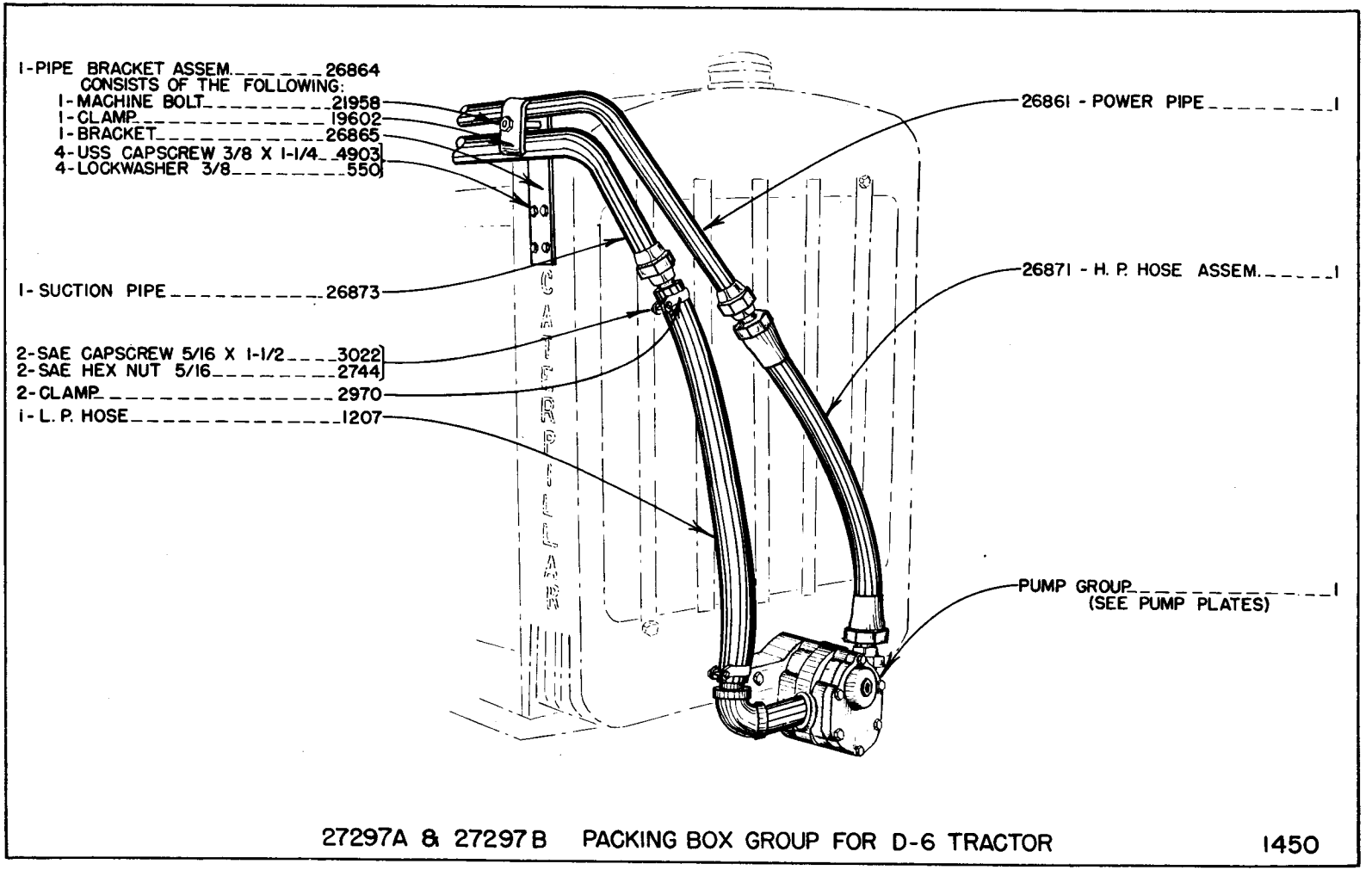
25002- PACKING BOX GROUP FOR D-6 TRACTOR 746



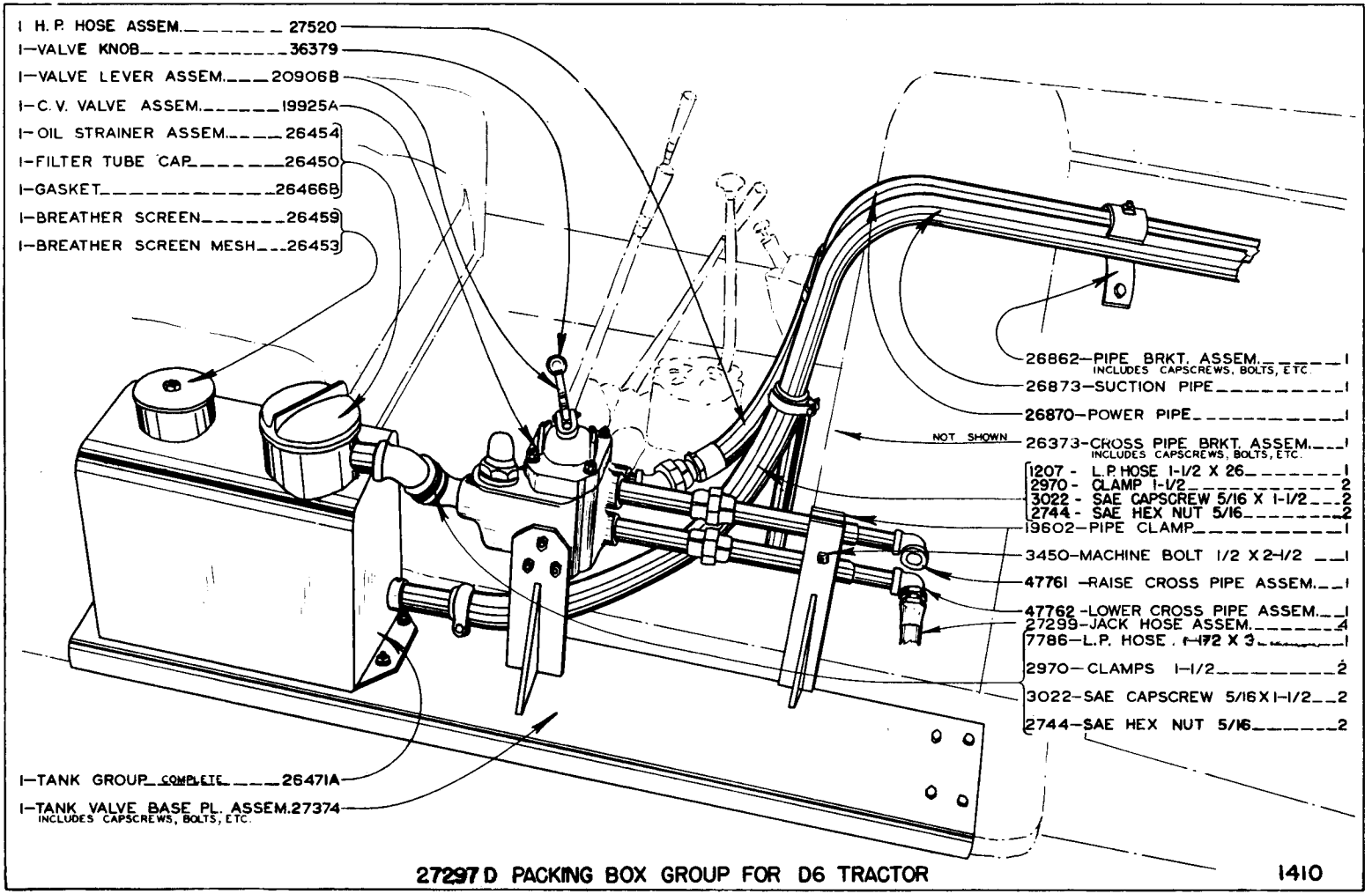
22140 & 25002 PACKING BOX GROUP FOR D-6 TRACTOR 1449



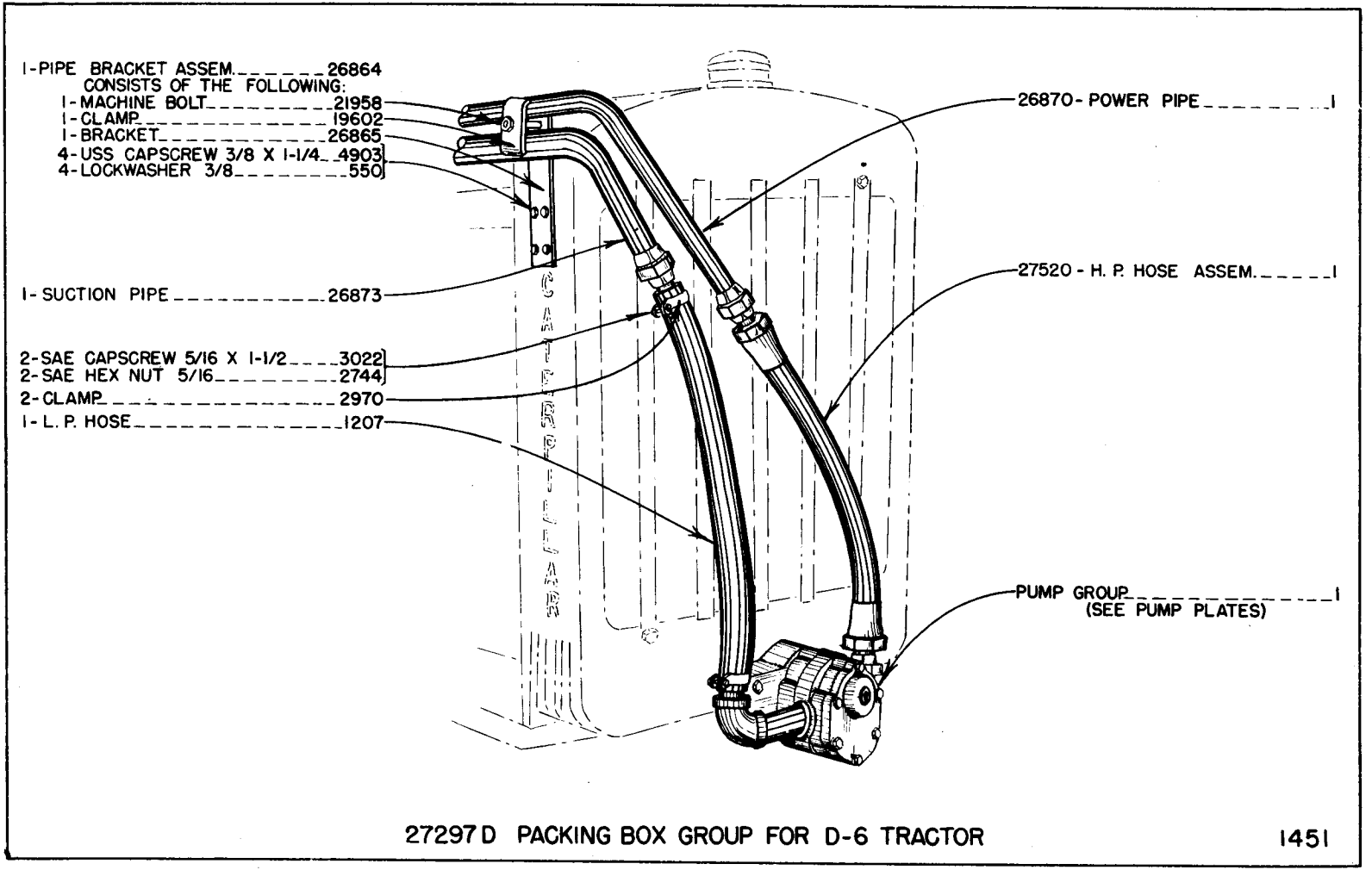
27297A & 27297B PACKING BOX GROUP FOR D6 TRACTOR 698



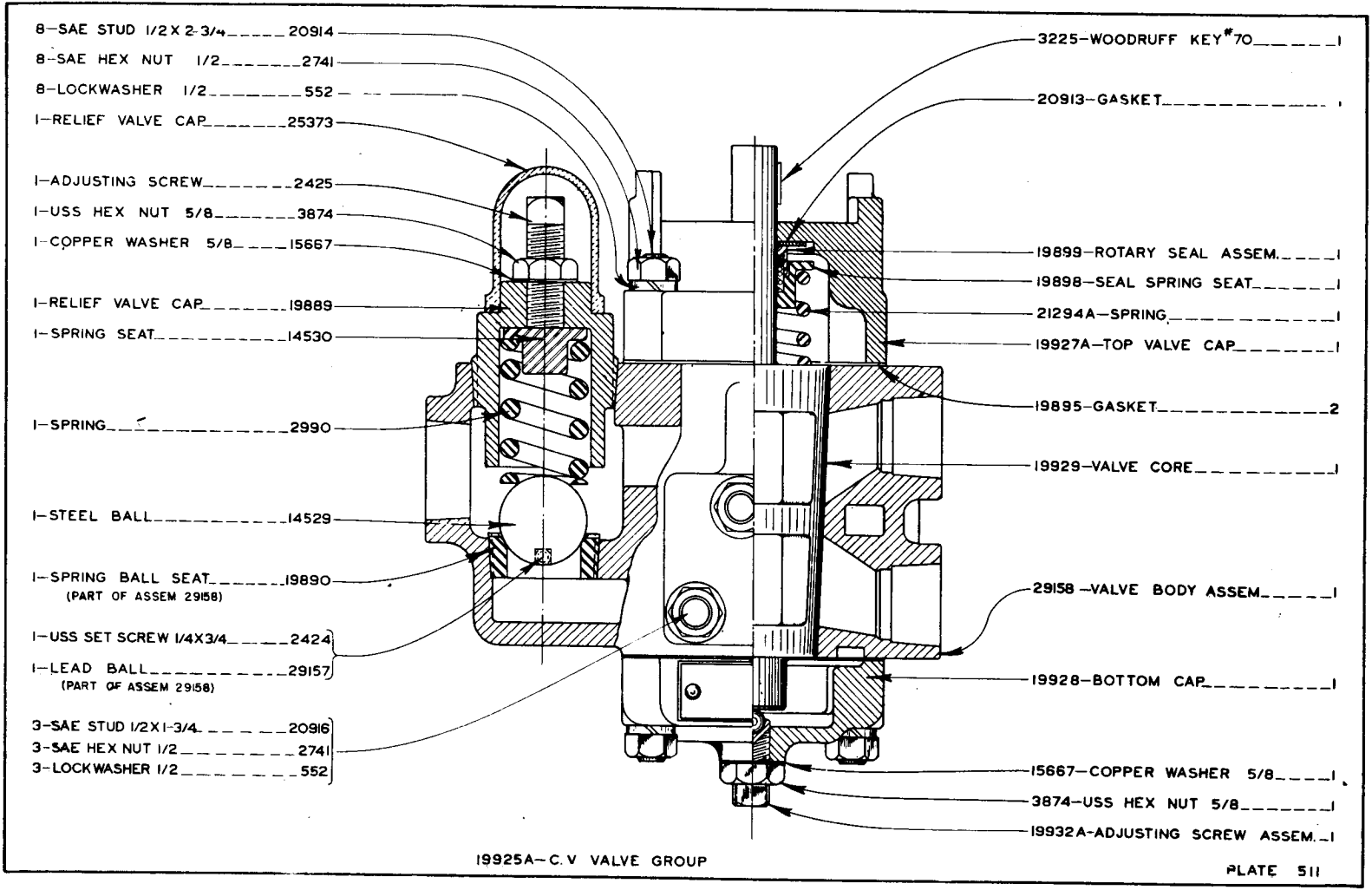
27297A & 27297B PACKING BOX GROUP FOR D-6 TRACTOR 1450



27297 D PACKING BOX GROUP FOR D6 TRACTOR 1410



27297 D PACKING BOX GROUP FOR D-6 TRACTOR 1451



19925A—C.V VALVE GROUP

PLATE 511

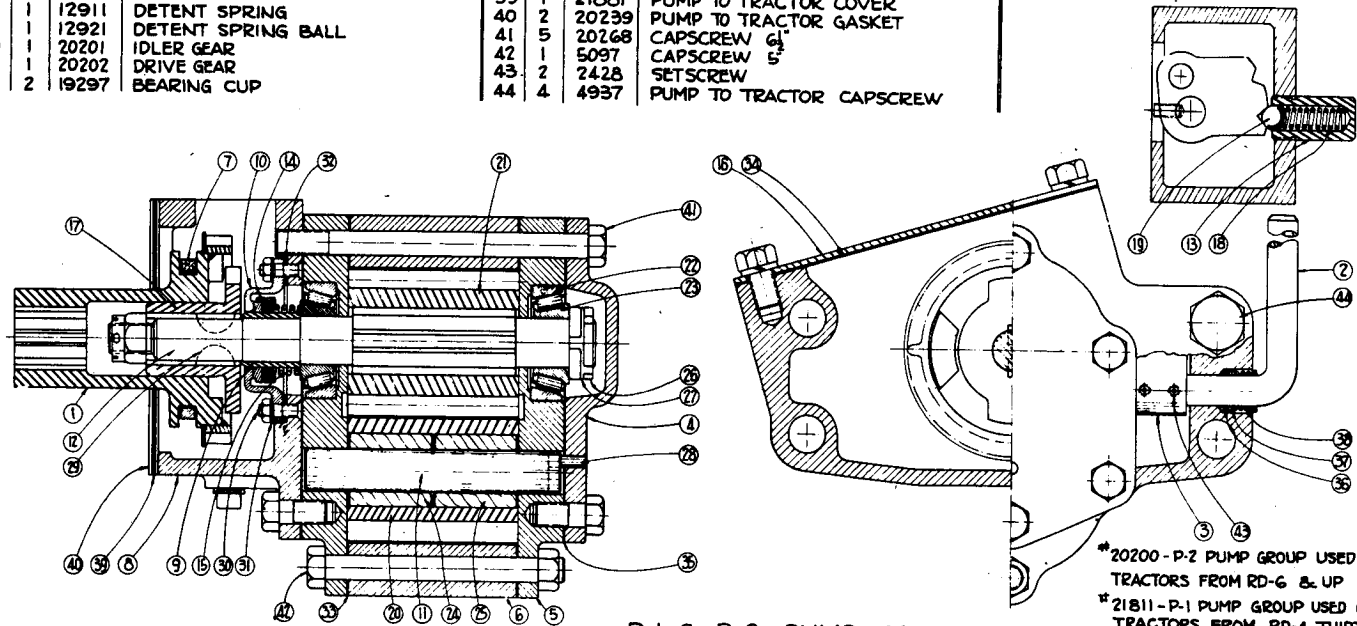
PUMP PLATES

NOTE: Repair Parts are sold by LaPlant-Choate Manufacturing Company for servicing all pump models shown on the following pages. When you wish to purchase a complete pump, however, order the current model (P7AR Pump Group No. 42323A), regardless of the model now being used on your equipment.

SYM.	REQ'D.	NUMBER	DESCRIPTION
1	1	20223	CLUTCH GEAR ASSEMBLY
2	1	20221	CLUTCH HANDLE ASSEMBLY
3	1	20206	DETENT RACK
4	1	19251	OUTER BEARING CAP
5	2	19252	BEARING HOUSING
6	1	20212	INNER GEAR HOUSING
7	1	20215	CLUTCH FORK
8	1	20217	CLUTCH HOUSING
9	1	19179	GEAR SPACER
10	1	19196	SEAL RETAINER
11	1	20203	IDLER SHAFT
12	1	20204	MAIN DRIVE SHAFT
13	1	20205	DETENT SPRING CAGE
14	1	19176	ROTARY SEAL ASSEMBLY
15	1	19183	SEAL-SPRING
16	1	20225	CLUTCH HOUSING COVER
17	1	20207	CLUTCH HUB
18	1	12911	DETENT SPRING
19	1	12921	DETENT SPRING BALL
20	1	20201	IDLER GEAR
21	1	20202	DRIVE GEAR
22	2	19297	BEARING CUP

SYM.	REQ'D.	NUMBER	DESCRIPTION
23	2	19298	BEARING CONE
24	1	21859	IDLER SHAFT BEARING
25	1	21859	IDLER SHAFT BEARING
26	2	19177	LOCK NUT
27	1	19301	LOCKWASHER
28	1	19294	IDLER SHAFT LOCK
29	2	3219	WOODRUFF KEY
30	6	19277	SEAL PLATE STUD
31	6	19208	LOCKWASHER
32	1	19236	DIAPHRAGM SEAL GASKET
33	2	19270	GEAR HOUSING GASKET
34	1	20224	CRANK GEAR HOUSING GASKET
35	2	19271	BEARING HOUSING GASKET
36	1	19175	CLUTCH SHAFT PACKING
37	1	19939	PACKING SPRING WASHER
38	1	19940	CAM HANDLE PACKING SPRING
39	1	21881	PUMP TO TRACTOR COVER
40	2	20239	PUMP TO TRACTOR GASKET
41	5	20268	CAPSCREW 6½"
42	1	5097	CAPSCREW 5"
43	2	2428	SETSCREW
44	4	4937	PUMP TO TRACTOR CAPSCREW

SYM.	REQ'D	NUMBER	DESCRIPTION
			NOTE: WHEN PARTS FOR A P-1 PUMP ARE BEING ORDERED ALL PARTS ARE AS THEY ARE LISTED AT THE LEFT FOR THE P-2 PUMP WITH THE EXCEPTION OF THE FOLLOWING PARTS WHICH REPLACE SAME
1	1	21858	CLUTCH GEAR ASSEMBLY
4	1	21813	OUTER BEARING CAP
6	1	19168	INNER GEAR HOUSING
11	1	19167	IDLER SHAFT
12	1	21810	MAIN DRIVE SHAFT
20	1	19171	IDLER GEAR
21	1	19170	DRIVE GEAR
24	1	19172	IDLER SHAFT BEARING
25			NOT USED
41	5	21815	CAPSCREW
42	1	5094	CAPSCREW



P-1 & P-2 PUMP GROUP

*20200 - P-2 PUMP GROUP USED ON ALL TRACTORS FROM RD-6 & UP

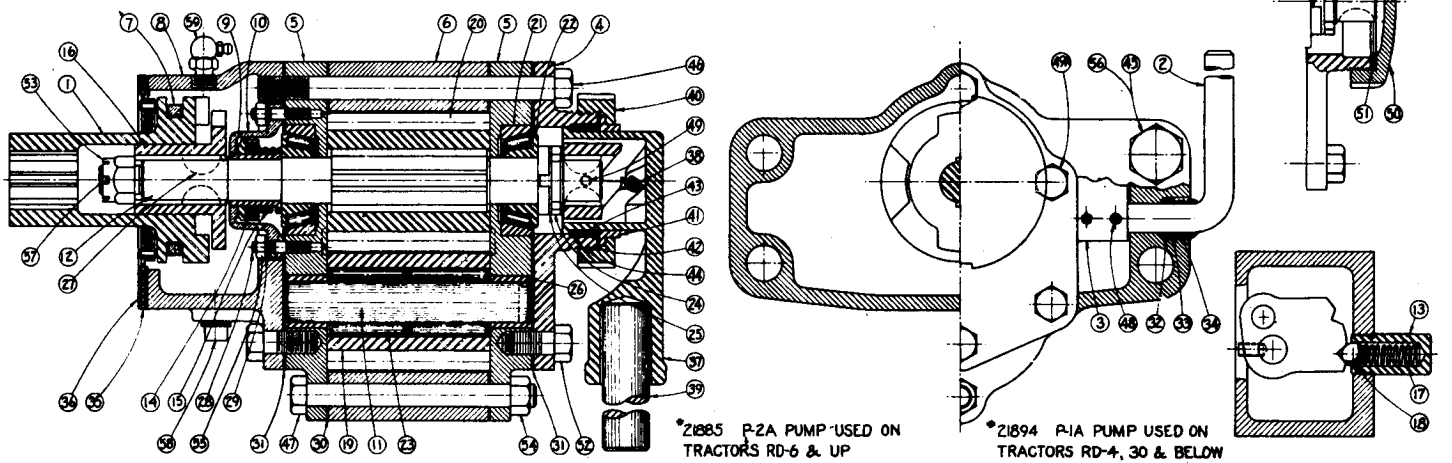
*21811 - P-1 PUMP GROUP USED ON ALL TRACTORS FROM RD-4, THIRTY & BELOW

SYM.	REQ'D	NUMBER	DESCRIPTION (P-2A)
1	1	20208	CLUTCH GEAR COUPLING
2	1	20221	CLUTCH HANDLE ASSEMBLY
3	1	20206	DETENT RACK
4	1	21874	OUTER BEARING CAP
5	2	19252A	BEARING HOUSING ASSEMBLY
6	1	20212	INNER GEAR HOUSING
7	1	20215	CLUTCH FORK
8	1	21862	CLUTCH HOUSING
9	1	19179	GEAR SPACER
10	1	21884	SEAL RETAINER
11	1	20203	IDLER SHAFT
12	1	21866	MAIN DRIVE SHAFT
13	1	20205	DETENT SPRING CAGE
14	1	19176	ROTARY SEAL ASSEMBLY
15	1	19183	SEAL SPRING
16	1	20207	CLUTCH HUB
17	1	12911	DETENT SPRING
18	1	12921	DETENT SPRING BALL
19	1	20201	IDLER GEAR
20	1	20202	DRIVE GEAR
21	2	19297	BEARING CUP
22	2	19298	BEARING CONE
23	2	21859	IDLER SHAFT BEARING
24	2	19177	LOCK NUT
25	1	19301	LOCK WASHER
26	2	23966	IDLER SHAFT BUSHING

SYM.	REQ'D	NUMBER	DESCRIPTION (P-2A)
27	4	3219	WOODRUFF KEY
28	6	21890	SEAL RETAINER STUD
29	6	19208	LOCK WASHER
30	2	19270	GEAR HOUSING GASKET
31	2	19271A	BEARING HOUSING GASKET
32	1	19175	CLUTCH SHAFT PACKING
33	1	19939	PACKING SPRING WASHER
34	1	19940	CAM HANDLE PACKING SPRING
35	1	21893	GASKET & COUPLING SEAL ASSEMBLY
36	2	21887	PUMP TO TRACTOR GASKET
37	1	21865	CRANK HANDLE SOCKET
38	1	21867	DRIVE SHAFT CRANK JAW
39	1	21879	CRANK HANDLE
40	1	21869	OUTER BEARING CAP NUT
41	2	21868	CAP SEAL COLLAR
42	1	25375	CAP NUT GASKET
43	1	21878	CRANK JAW SEAL
44	1	21888	SEAL RETAINING RING
45	4	4937	PUMP TO TRACTOR CAP SCREW
46	1	20268	CAP SCREW 6½"
47	1	20269	CAP SCREW 5"
48	2	2428	SET SCREW
49	1	2427	SET SCREW
49A	4	4931	CAP SCREW 6½
50	1	21864	REAR PUMP BEARING CAP COVER
51	2	21889	REAR PUMP CAP COVER GASKET

SYM.	REQ'D	NUMBER	DESCRIPTION (P-1A)
			NOTE: WHEN PARTS FOR A P-1A ARE BEING ORDERED ALL PARTS ARE AS THEY ARE LISTED AT THE LEFT FOR THE P-2A PUMP WITH THE EXCEPTION OF THE FOLLOWING WHICH REPLACE SAME.
4	1	21891	OUTER BEARING CAP
6	1	19168	INNER GEAR HOUSING
11	1	19167	IDLER SHAFT
12	1	21892	MAIN DRIVE SHAFT
19	1	19171	IDLER GEAR
20	1	19170	DRIVE GEAR
23	1	19172	IDLER SHAFT BEARING
46	1	21815	CAP SCREW 5½"
47	1	23967	CAP SCREW 4"
49A	4	4926	CAP SCREW 5½"

SYM.	REQ'D	NUMBER	DESCRIPTION (P-2A)
52	2	4908	CAP SCREW
53	1	2747	MAIN DRIVE SHAFT NUT
54	1	2741	NUT
55	6	2737	SEAL RETAINER STUD NUT
56	4	556	LOCK WASHER
57	1	3029	COTTER PIN
58	1	2102	PIPE PLUG
59	1	3228	ZERK FITTING



*21885 P-2A PUMP USED ON TRACTORS RD-6 & UP

*21894 P-1A PUMP USED ON TRACTORS RD-4, 30 & BELOW

P-1A & P-2A PUMP GROUP

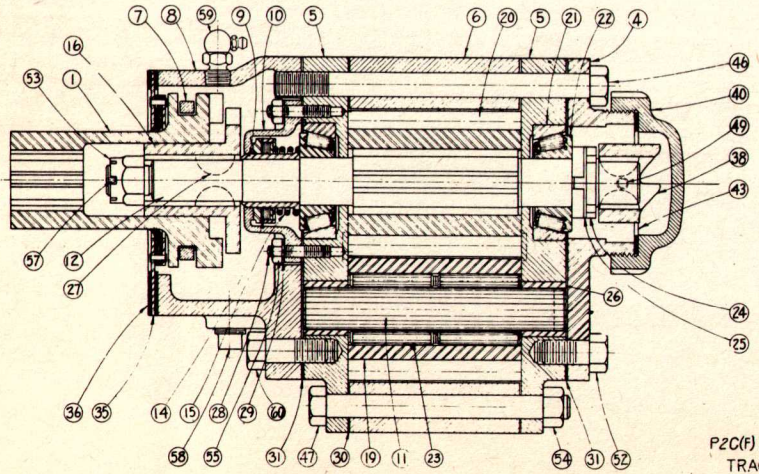
552

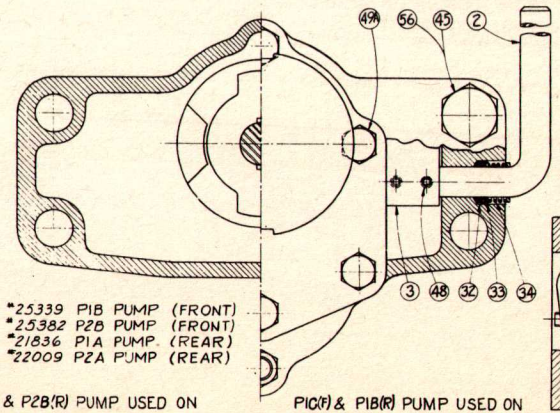
SYM.	REQ'D	NUMBER	DESCRIPTION (P-2B)
1	1	20208	CLUTCH GEAR COUPLING
2	1	20221	CLUTCH HANDLE ASSEMBLY
3	1	20206	DETENT RACK
4	1	21874	OUTER BEARING CAP
5	2	19252A	BEARING HOUSING ASSEMBLY
6	1	20212	INNER GEAR HOUSING
7	1	20215	CLUTCH FORK
8	1	21862	CLUTCH HOUSING
9	1	19179	GEAR SPACER
10	1	21884	SEAL RETAINER
11	1	20203	IDLER SHAFT
12	1	21866	MAIN DRIVE SHAFT
13	1	25365	DETENT SPRING CAGE
14	1	19176	ROTARY SEAL ASSEMBLY
15	1	19183	SEAL SPRING
16	1	20207	CLUTCH HUB
17	1	25361	DETENT SPRING
18	1	12921	DETENT SPRING BALL
19	1	20201	IDLER GEAR
20	1	20202	DRIVE GEAR
21	2	19297	BEARING CUP
22	2	19298	BEARING CONE
23	2	21859	IDLER SHAFT BEARING
24	2	19177	LOCK NUT
25	1	19301	LOCK WASHER
26	1	23966	IDLER SHAFT BUSHING

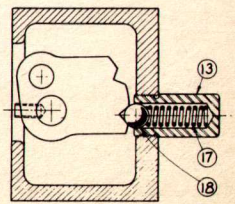
SYM.	REQ'D	NUMBER	DESCRIPTION (P-2B)
27	4	3219	WOODRUFF KEY
28	6	21890	SEAL RETAINER STUD
29	6	19208	LOCK WASHER
30	2	19270	GEAR HOUSING GASKET
31	2	19271A	BEARING HOUSING GASKET
32	1	19175	CLUTCH SHAFT PACKING
33	1	19939	PACKING SPRING WASHER
34	1	19940	CAM HANDLE PACKING SPRING
35	1	21893	GASKET & COUPLING SEAL ASSEMBLY
36	2	21887	PUMP TO TRACTOR GASKET
37			
38	1	21867	DRIVE SHAFT CRANK JAW
39	1	25379	AUXILIARY FRONT PUMP CRANK ASSEMBLY
40	1	21864A	OUTER BEARING CAP
41			
42			
43	1	25375	FRONT CAP GASKET
44			
45	4	4937	PUMP TO TRACTOR CAP SCREW
46	1	20268	CAP SCREW $6\frac{1}{2}$"
47	1	20269	CAP SCREW 5"
48	2	2428	SET SCREW
49	1	2427	SET SCREW
49A	4	4931	CAP SCREW $6\frac{1}{2}$"
50			
51			

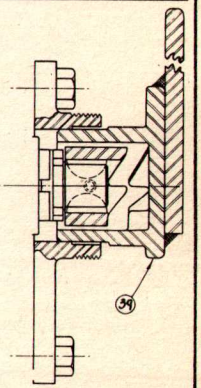
SYM.	REQ'D	NUMBER	DESCRIPTION (P-1B)
			NOTE: WHEN PARTS FOR A-P1C ARE BEING ORDERED ALL PARTS ARE AS THEY ARE LISTED AT THE LEFT FOR THE P-2C PUMP WITH THE EXCEPTION OF THE FOLLOWING WHICH REPLACE SAME.
4	1	21891	OUTER BEARING CAP
6	1	19168	INNER GEAR HOUSING
11	1	19167	IDLER SHAFT
12	1	21892	MAIN DRIVE SHAFT
19	1	19171	IDLER GEAR
20	1	19170	DRIVE GEAR
23	1	19172	IDLER SHAFT BEARING
46	1	21815	CAP SCREW $5\frac{1}{2}$"
47	1	23967	CAP SCREW 4"
49A	4	4926	CAP SCREW $5\frac{1}{2}$"

SYM.	REQ'D	NUMBER	DESCRIPTION (P-2')
52	1	4908	CAP SCREW
53	1	2747	MAIN DRIVE SHAFT NUT
54	1	2741	NUT
55	6	2737	SEAL RETAINER STUD NUT
56	4	556	LOCK WASHER
57	1	3029	COTTER PIN
Ⓑ 58	1	21972	PIPE PLUG ASSEMBLY
59	1	3228	ZERK FITTING
Ⓐ 60	1	4909	CAP SCREW









*25339 P1B PUMP (FRONT)
*25382 P2B PUMP (FRONT)
*21836 P1A PUMP (REAR)
*22009 P2A PUMP (REAR)

P2C(F) & P2B(R) PUMP USED ON TRACTORS RD-6 & UP

P1C(F) & P1B(R) PUMP USED ON TRACTORS RD-4, 30 & BELOW

P-1B & P-2B PUMP GROUP

553

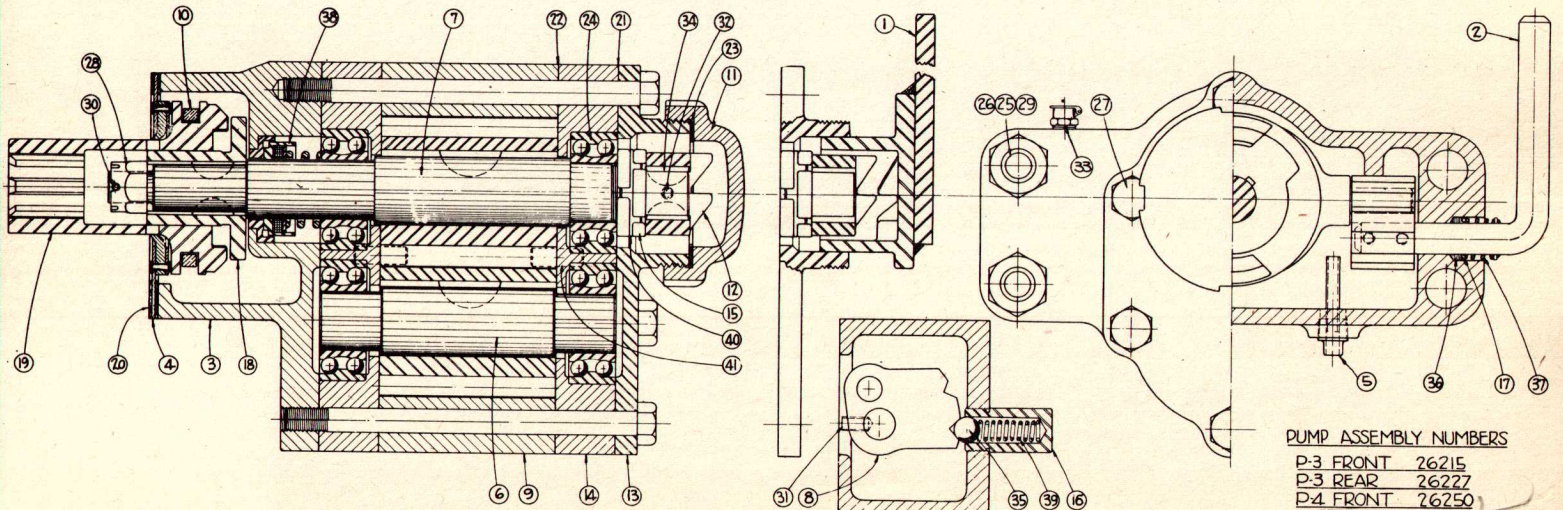
SYMBOL	REQD	NUMBER	DESCRIPTION P-4
1	1	25379	AUXILIARY FRONT PUMP CRANK ASSEMBLY
2	1	20221	CLUTCH HANDLE ASSEMBLY
3	1	26235	CLUTCH HOUSING ASSEMBLY-REPLACEABLE PARTS:
	1	26236	ROTARY SEAL SEAT
4	1	21893	GASKET & COUPLING SEAL ASSEMBLY
5	1	21972	DRAIN PLUG ASSEMBLY
6	1	26244	IDLER SHAFT & GEAR ASSEMBLY-
7	1	26241	DRIVE SHAFT & GEAR ASSEMBLY-
8	1	20206	DETENT RACK
9	1	20212	INNER GEAR HOUSING
10	1	20215	CLUTCH FORK
11	1	21864A	OUTER BEARING CAP COVER
12	1	21867	DRIVE SHAFT CRANK JAW
13	1	26256	OUTER BEARING CAP
14	2	26257	BEARING HOUSING
15	2	26240	DRIVE SHAFT LOCK NUT
16	1	25365	DETENT SPRING CAGE
17	1	19939	PACKING SPRING WASHER
18	1	26243	CLUTCH HUB

SYMBOL	REQD	NUMBER	DESCRIPTION P-4
19	1	20208	CLUTCH GEAR COUPLING
20	2	21887	PUMP TO TRACTOR GASKET
21	2	26253	BEARING HOUSING GASKET
22	2	19270	GEAR HOUSING GASKET
23	1	25375	FRONT CAP GASKET
24	4	26239	PUMP BEARING
25	4	33510	PUMP TO TRACTOR STUD
26	4	2750	SAE HEX NUT
27	6	4920	OUTER BEARING CAP CAPSCREW
28	1	26231	DRIVE SHAFT NUT
29	4	556	PUMP TO TRACTOR LOCKWASHER
30	1	3029	COTTER PIN
31	2	2428	SET SCREW
32	1	2427	SET SCREW
⊕33	1	2416	OIL FITTING
34	4	3219	WOODRUFF KEY
35	1	12921	DETENT SPRING BALL
36	1	19175	CLUTCH SHAFT PACKING
37	1	19940	PACKING SPRING
38	1	26238	ROTARY SEAL ASSEM. (INCLUDES SPRING)
39	1	25361	DETENT SPRING
40	1	26237	LOCKWASHER
41	4	26230	DOWEL PIN
			WHEN REAR PUMP USE
*29	4	556	PUMP TO TRACTOR LOCKWASHER

SYMBOL	REQD	NUMBER	DESCRIPTION P-3
			NOTE: WHEN PARTS FOR A P-3 ARE BEING ORDERED ALL PARTS ARE AS THEY ARE LISTED AT THE LEFT FOR THE P-4 WITH THE EXCEPTION OF THE FOLLOWING:
2	1	26197	CLUTCH HANDLE ASSEMBLY.
6	1	26222	IDLER SHAFT & GEAR ASSEMBLY-
7	1	26225	DRIVE SHAFT & GEAR ASSEMBLY-
9	1	19168	INNER GEAR HOUSING
27	6	4934	OUTER BEARING CAP CAPSCREW

PUMP FOR "D-2" TRACTOR ALL PARTS FOR 30353 P-4 REAR PUMP SAME AS STANDARD WITH EXCEPTION OF FOLLOWING:

SYM.	REQD.	PART No.	DISCRIPTION
2	1	26197	CLUTCH HANDLE ASSEM

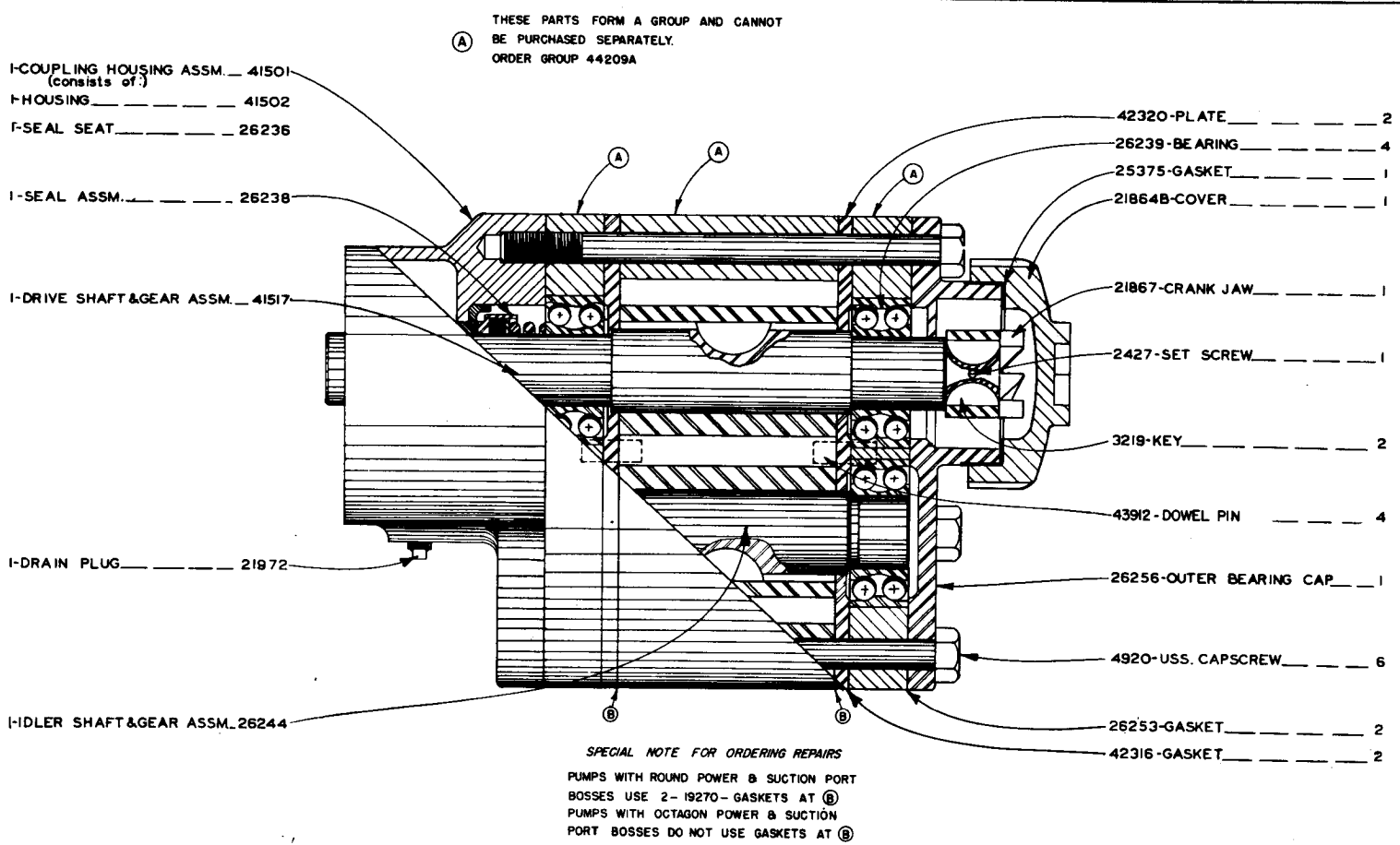


PUMP ASSEMBLY NUMBERS

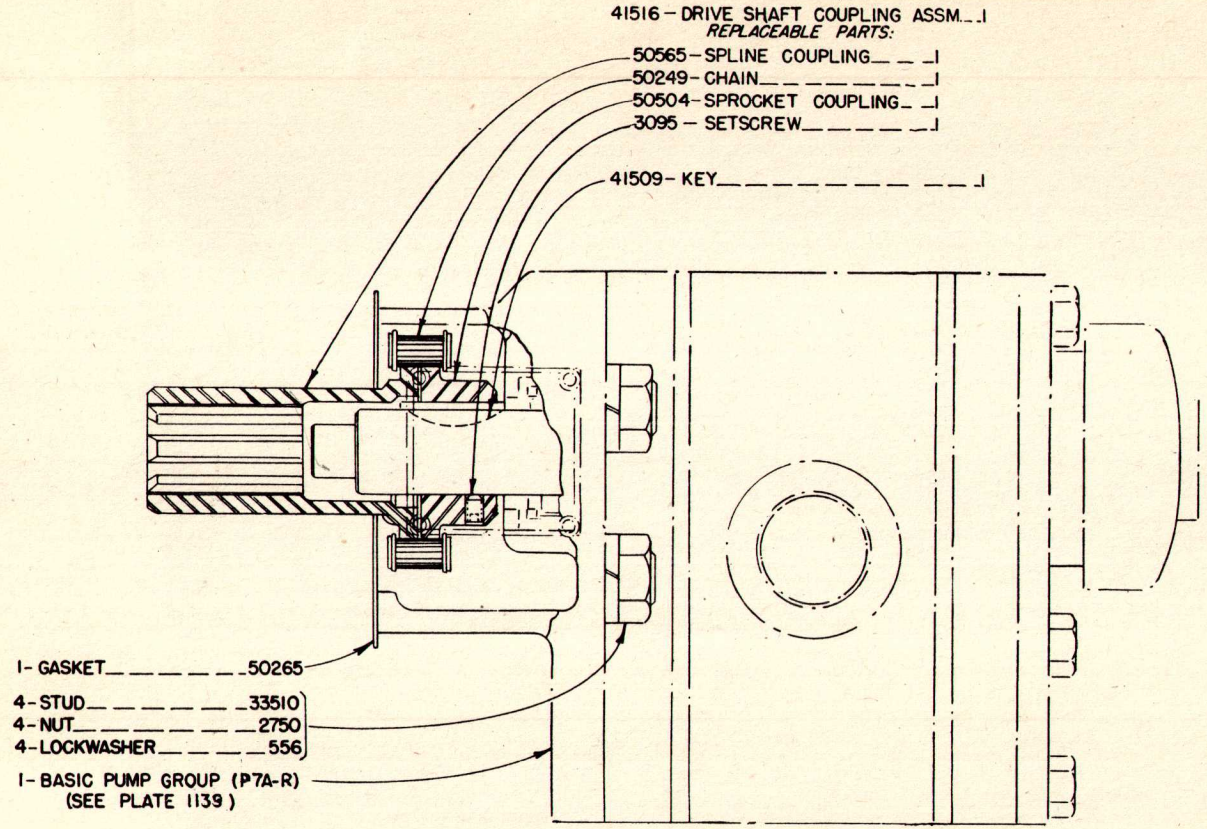
P-3 FRONT	26215
P-3 REAR	26227
P-4 FRONT	26250
P-4 REAR	26234
P-4 REAR	30353

P-3 & P-4 PUMP GROUP

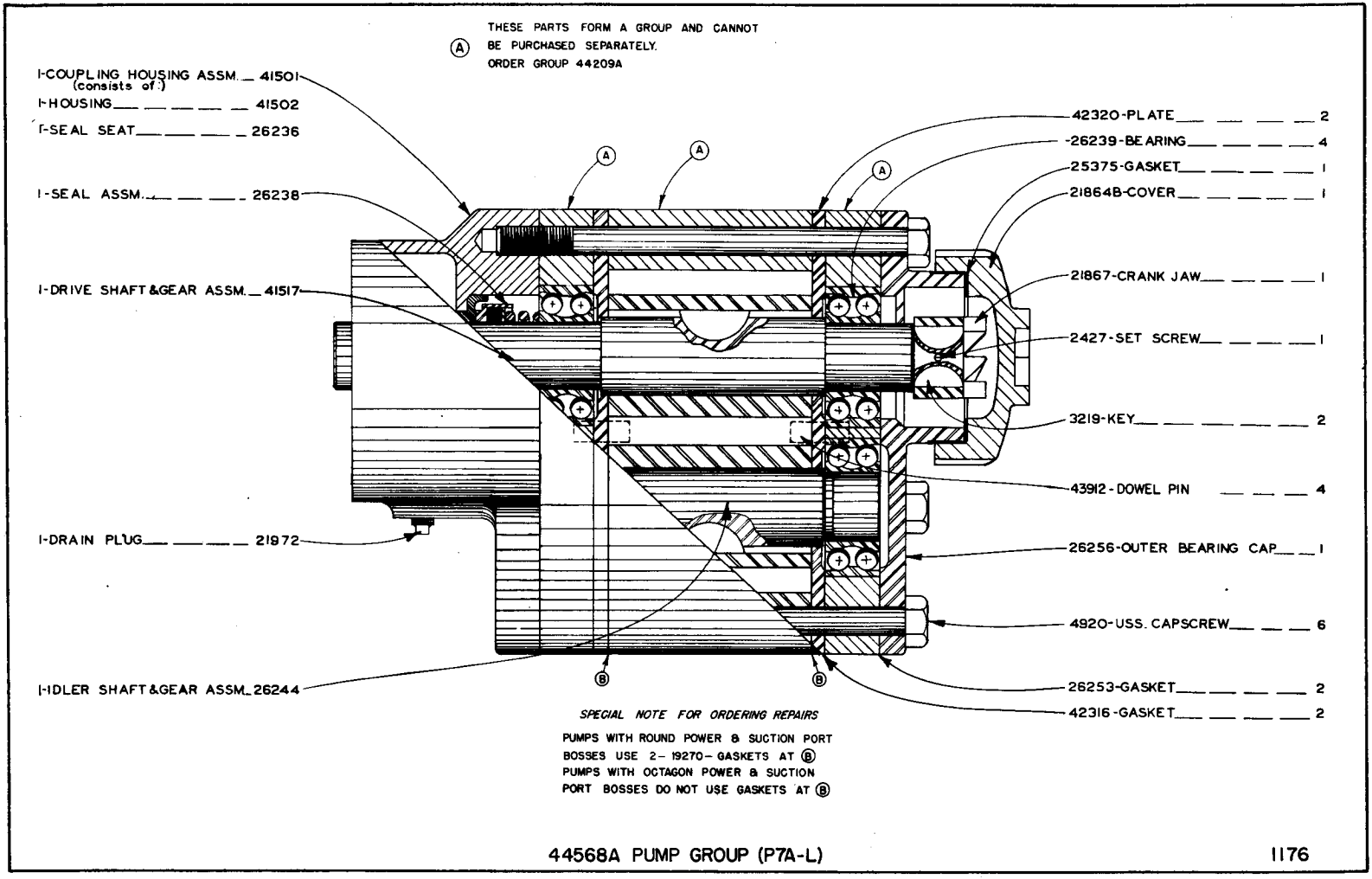
PLATE 572



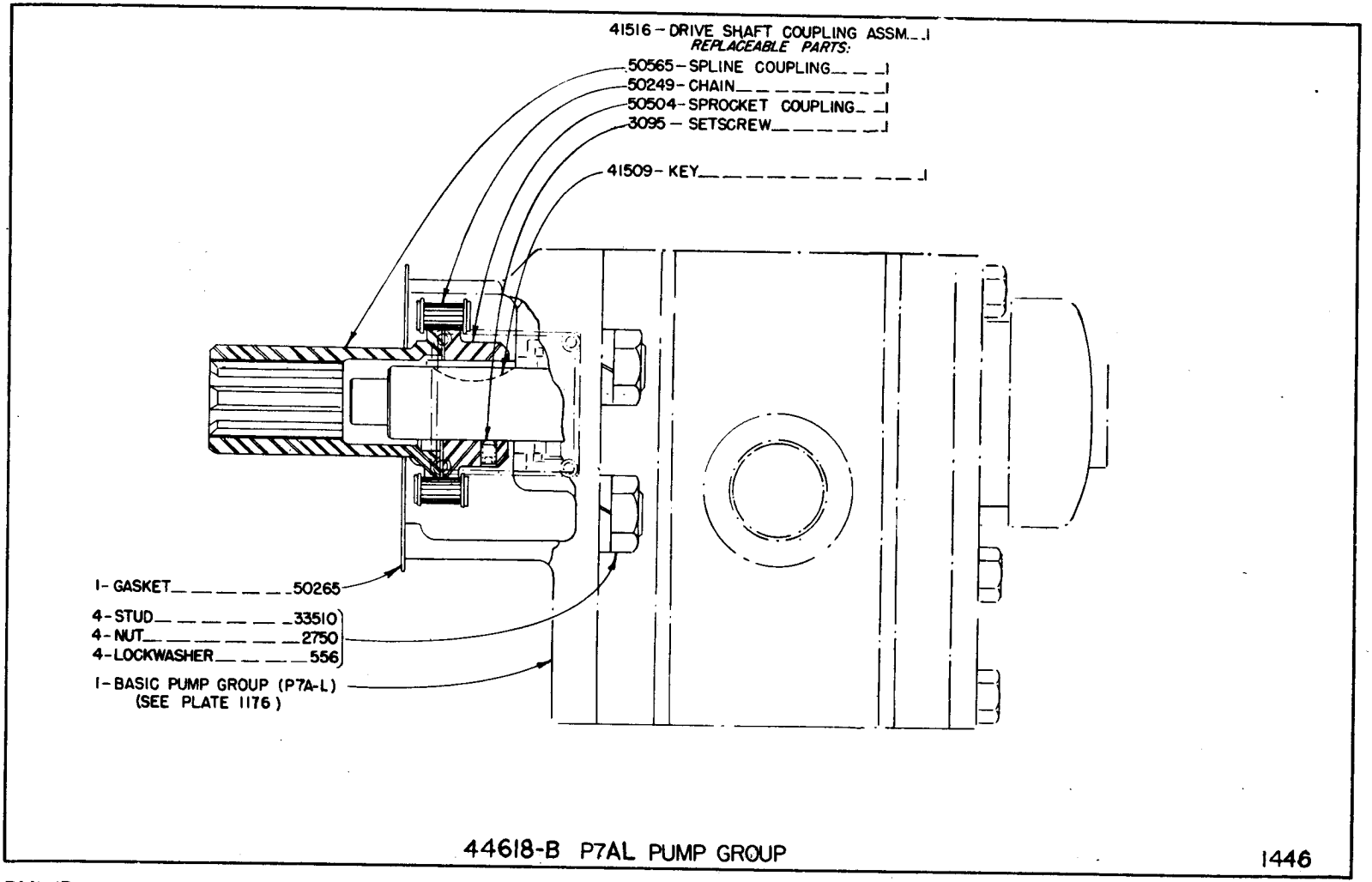
42323A PUMP GROUP (P7AR) 1139



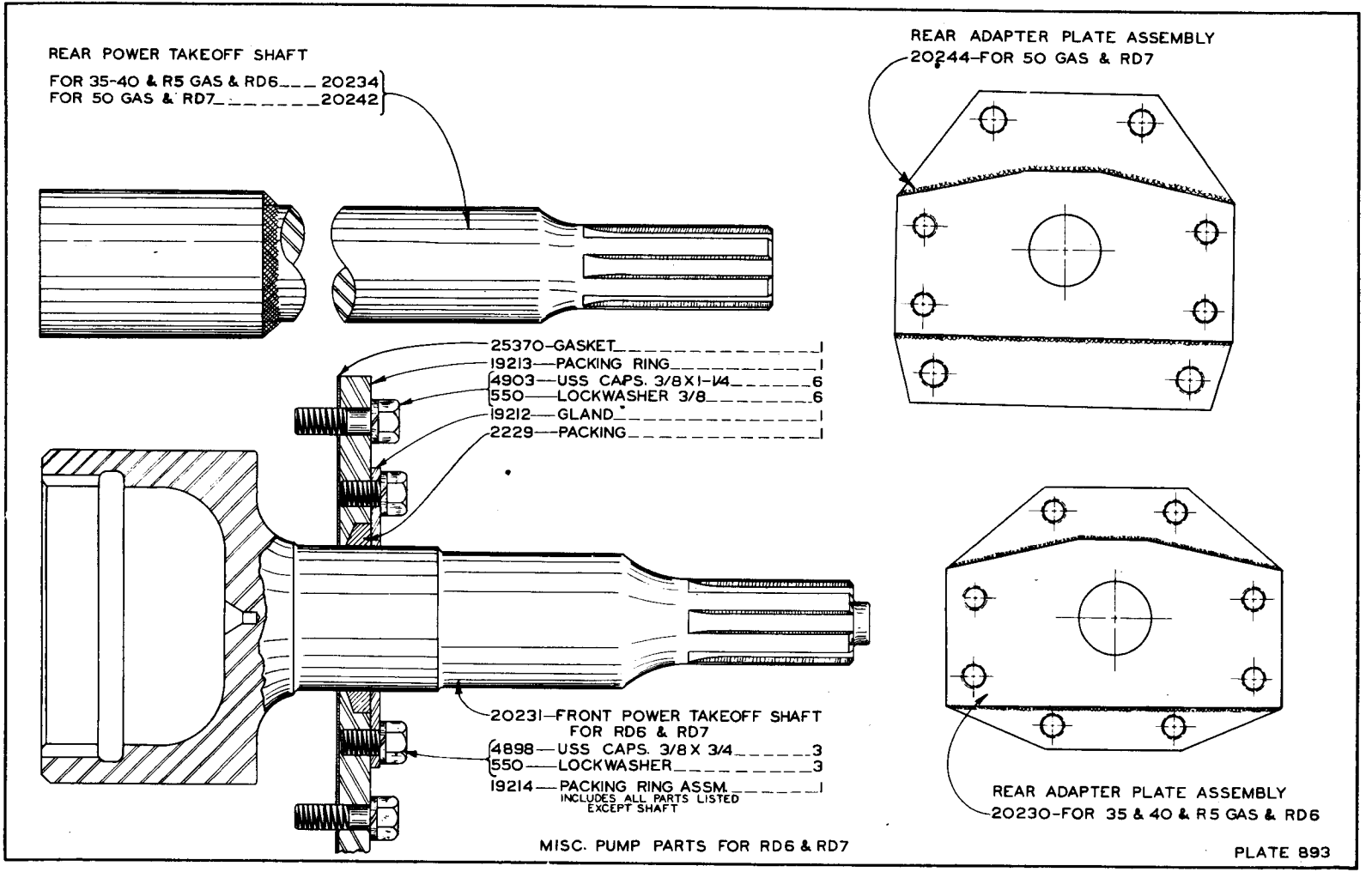
42960-B P7A-R PUMP GROUP 1419

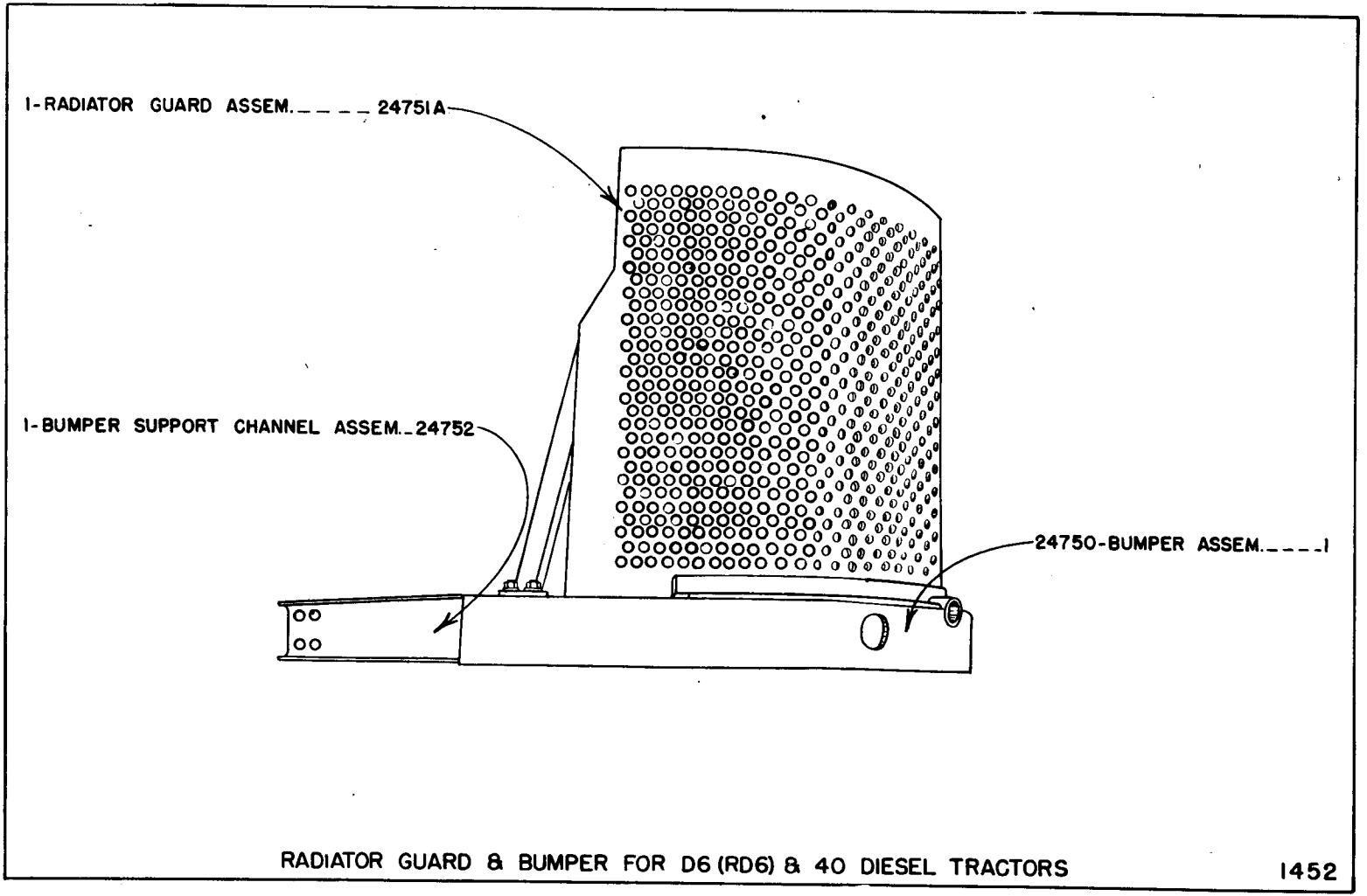


44568A PUMP GROUP (P7A-L) 1176

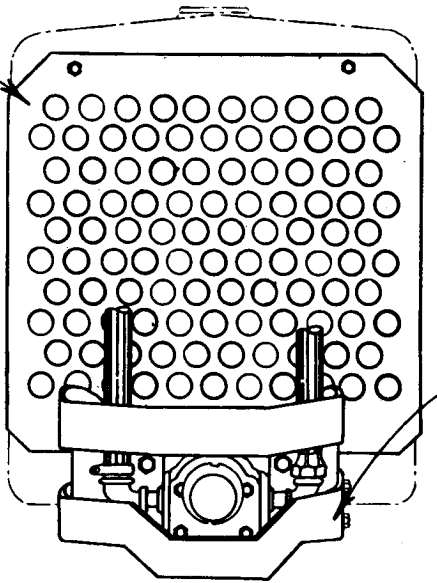


44618-B P7AL PUMP GROUP 1446


REAR POWER TAKEOFF SHAFT
FOR 35-40 & R5 GAS & RD6___ 20234
FOR 50 GAS & RD7_____ 20242
REAR ADAPTER PLATE ASSEMBLY
20244-FOR 50 GAS & RD7
25370-GASKET_____1
19213-PACKING RING_____1
4903-USS CAPS. 3/8X1-1/4_____6
550-LOCKWASHER 3/8_____6
19212-GLAND_____1
2229-PACKING_____1
20231-FRONT POWER TAKEOFF SHAFT FOR RD6 & RD7
4898-USS CAPS. 3/8 X 3/4_____3
550-LOCKWASHER_____3
19214-PACKING RING ASSM._____1
INCLUDES ALL PARTS LISTED EXCEPT SHAFT
REAR ADAPTER PLATE ASSEMBLY
20230-FOR 35 & 40 & R5 GAS & RD6
MISC. PUMP PARTS FOR RD6 & RD7
PLATE 893



RADIATOR GUARD & BUMPER FOR D6 (RD6) & 40 DIESEL TRACTORS 1452



RADIATOR GUARD & PUMP GUARD FOR D6 (RD6) & 40 DIESEL TRACTORS 1453

DRILLED HOLES IN "CATERPILLAR" TRACK FRAMES FOR ATTACHING LAPLANT-CHOATE EQUIPMENT ON D6 and R5 TRACTORS.

Diagram "A" shows the former hole spacing and drilling used on former Tractors when Tractors were ordered drilled for LaPlant-Choate equipment on special request.

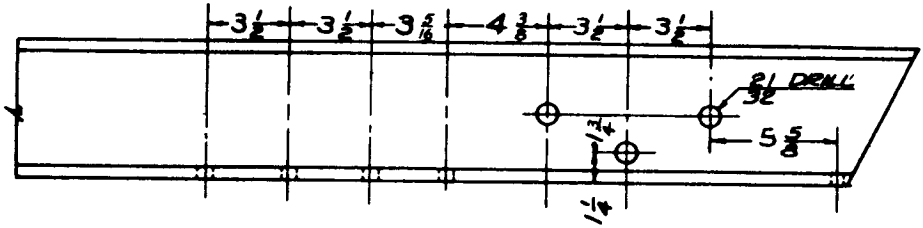


Diagram A

Diagram "B" shows the revised hole spacing and drilling which will be standard on all new Tractors effective with D6 Tractors 2H6146 and up R5 Tractors 4H1137 and up.

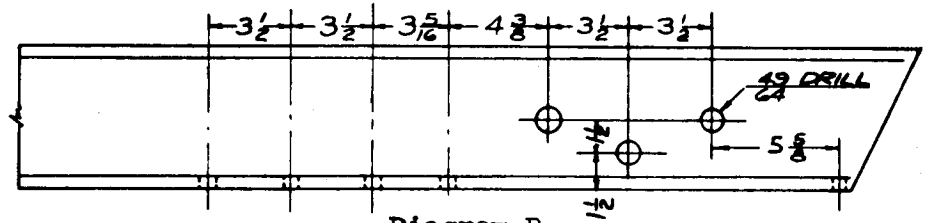


Diagram B

If you receive new equipment drilled in accordance with diagram "B" and attempt to put it on a Tractor which has the former drilling, it will be necessary to ream out the two upper horizontal holes in track channels with 49/64" drill using 3/4" bolts and leaving the lower horizontal bolt hole blank.

Track Frame Hole Drilling Plate #629