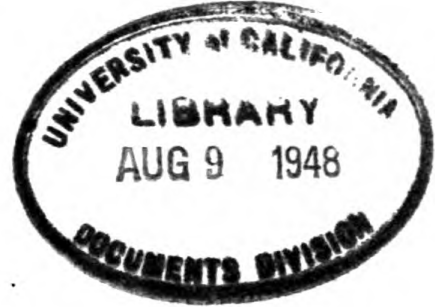


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# TM 5-9082

US WAR DEPARTMENT TECHNICAL MANUAL



## SWEEPER, ROTARY TRACTOR-MOUNTED

POWER TAKE-OFF DRIVE

MODEL K

NOTE.—This is a reprint for stock only of TM 5-9082, 13 February 1943.  
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WAR DEPARTMENT

FEBRUARY 1943

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**SWEEPER, ROTARY  
TRACTOR-MOUNTED**

**POWER TAKE-OFF DRIVE**

**MODEL K**



**WAR DEPARTMENT • FEBRUARY 1943**

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*United States Government Printing Office*

*Washington : 1943*

**WAR DEPARTMENT**

**WASHINGTON 25, D. C., 13 February 1943**

**TM 5-9082, Sweeper, Rotary, Tractor-Mounted, Power Take-Off Drive—Model K, is published for the information and guidance of all concerned.**

**[AG 062.11 (28 Apr 41)]**

**BY ORDER OF THE SECRETARY OF WAR:**

**OFFICIAL:**

**J. A. ULIO**  
*Major General*  
*The Adjutant General*

**G. C. MARSHALL**  
*Chief of Staff*

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**OPERATION**

**SECTION I**  
**OPERATION**



## DESCRIPTION

This sweeper is designed to fit on either a Model "DI" Case or an I-6 International tractor. It has a rotary brush, driven off the front end of the tractor crankshaft and sweeps to the right hand side of the tractor.

The sweeper being narrow and being mounted on tractors having good maneuverability, it is possible to sweep sidewalks, platforms, streets, runways and aprons with a minimum of effort and time.

The brush fibre used permits sweeping snow, sand or other material with equal thoroughness. Provision is made to adjust the brush to insure uniform wear and maximum fibre life.

Control of the brush height is accomplished by means of a hydraulic lift mechanism operated by the driver of the tractor from the seat.

To avoid injury to the brush drive mechanism that might be caused by engaging the clutch at high tractor speeds or with a heavy load on the brush, the design requires that the clutch be engaged or disengaged with the motor stopped.

The sweeper being mounted entirely on the front of the tractor permits using a mower or similar device at the rear. Likewise, the tractor is available for drawbar work at all times without disturbing the sweeper.

When shipment is made, the frame arrangement is such as to fit on the Case "DI" tractor. To mount on an I-6 International tractor a few minor changes are necessary. Parts are furnished and marked to show which are used for each tractor.

## INSTALLATION ON CASE "DI" TRACTOR

The sweeper as shipped is assembled for mounting on the Case "DI" tractor. The general assembly is shown on page 6.

To mount the sweeper on the Case "DI" tractor, proceed as follows:

1. Remove the tractor starting crank from the tractor. To do so, remove the two capscrews which hold the crank bearing to the front casting.

2. Remove the tractor radiator as is explained in the Case Tractor Manual - Section 17, Page 57, which reads as follows:

a) Disconnect spark plug wires to avoid any possibility of starting.

b) Drain water and remove outlet drain pipe.

c) Remove radiator cap, air intake pipe and fuel tank caps.

d) Remove hood (4 rear hood tie bolts) and (2 front filler head capscrews) from over engine.

e) Disconnect shutter control rod on upper right front side and remove heat indicator from radiator inlet elbow.

f) Remove 2 capscrews connecting inlet elbow to cylinder head and take out gasket to prevent damaging.

g) Remove 2 front 1/2 x 5" capscrews to unfasten radiator from bracket.

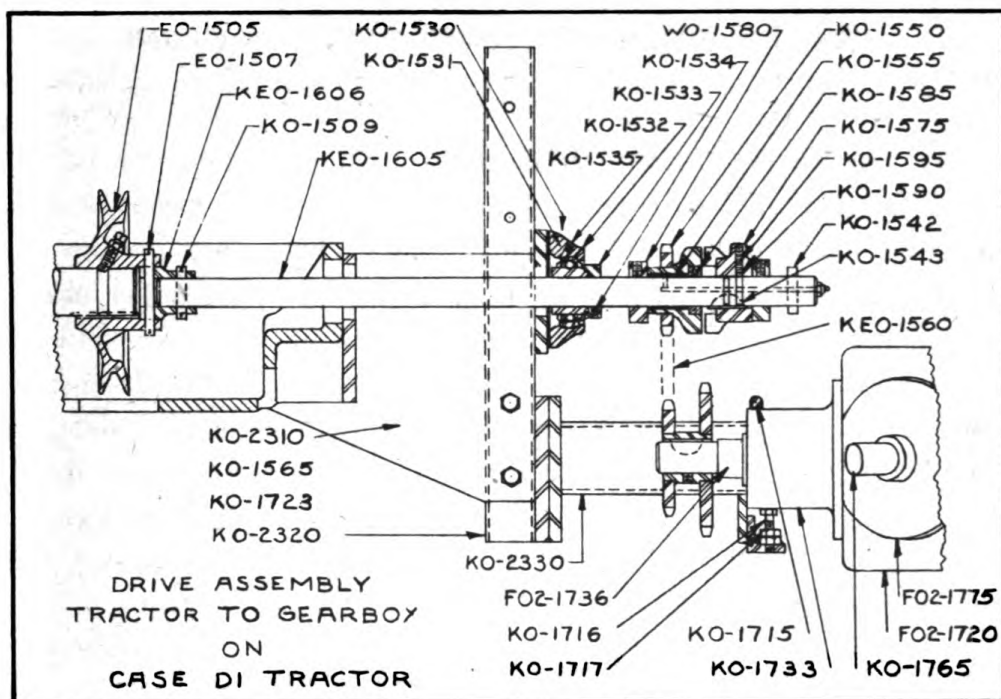
h) Loosen both radiator hose clamps; rock radiator to loosen connection, and slide hose downward from upper outlet.

i) Tilt radiator toward left side of tractor and turn fan blades to clear shroud.

j) Raise and remove radiator.

3. Remove the setscrew and locknut from hub of tractor fan drive pulley and pull drive pulley from crankshaft.

4. Remove drivehead KEO-1606, by taking out pin EO-1507 from special fan drive pulley EO-1505. Reverse Step 3 to mount special fan drive pulley EO-1505 onto crankshaft. Use setscrew and locknut removed from original pulley.



5. Reinstall the power take-off drive head KEO-1606 in the fan pulley EO-1505. Making sure that the pin EO-1507 fits freely in the pulley and head and that the cotter pins are properly spread.

6. The adapter frame arrangement being assembled for the Case "DI" tractor at the time of shipment, merely requires the removal of the mounting capscrews and bolts from the frame KO-2310 before mounting on the tractor. This frame KO-2310 is attached by means of four capscrews and lockwashers against the front face of the tractor. Insert the right hand rear side bolt through the rear upper hole of frame KO-2310 side bar, through spacer KEO-2306 and into the side of the tractor radiator support casting. Before inserting the rear side bolt on the left hand side, slip hose clamp KO-2075 over bolt with hose in clamp and so that the hose runs in a horizontal plane above bolt. Tighten capscrews and bolts.

7. The power take-off shaft KEO-1605, which is assembled with the adapter frame KO-2310 when shipped, must engage with the power take-off head KEO-1606 installed under Step 5. Remove pin KO-1509 from shaft before inserting shaft in head and then replace, making sure to spread cotters.

8. The radiator is now reinstalled by reversing the removal sequence.

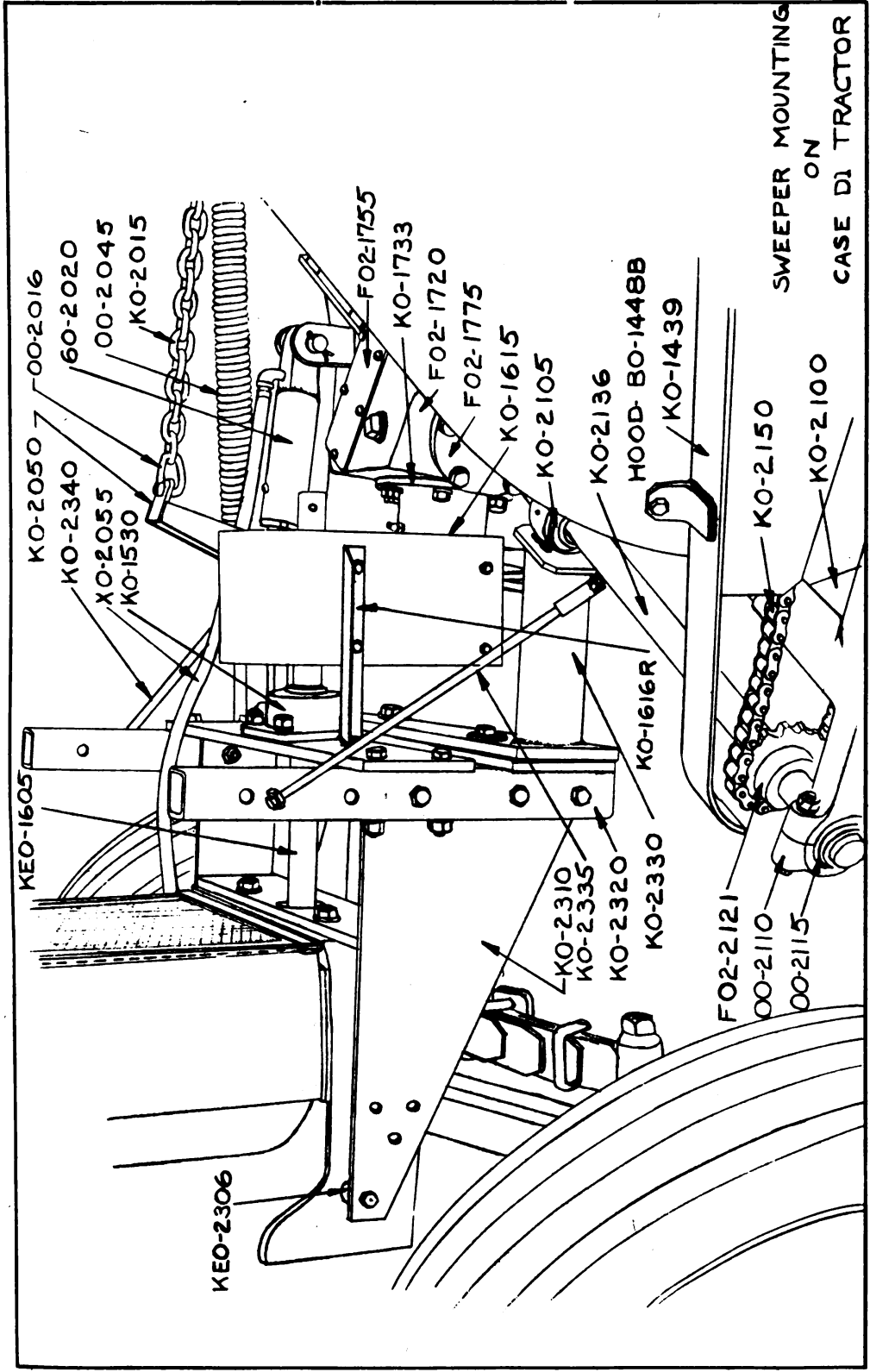
9. Bring the brush, brush support frame and brush pivot frame KO-2330 against the hanger frame KO-2320 and bolt it in place loosely.

10. Install the transfer drive chain KEO-1560 over the upper clutch sprocket KO-1550 and around the 18 tooth sprocket of the lower combination sprocket KO-1565. Adjust chain slack by moving frame KO-2330 up or down as necessary. When the proper chain adjustment has been obtained, make sure that the brush is level and then tighten all four bolts holding KO-2330 to KO-2320. Then install the short diagonal tie bolt KO-2335 on the right hand side and the long bolt KO-2340 on the left hand side of the frame. Insert them through the upper lug on frame KO-2320 and then through the sleeves on frame KO-2330. Tighten bolts, with the two nuts provided for each, at the lower end.

11. Hook the brush counterbalance spring OO-2045 into the eye of the lift arm casting on frame KO-2100. Insert the spring eyebolt KO-2040 into the angle bracket on the left hand side of frame KO-2320. Adjust spring tension so that the brush almost floats on the ground.

12. Remove the bolt in the lift arm casting on frame KO-2100. It is directly above the eye into which the brush tension spring OO-2045 was hooked in the preceding step. With brush floating on ground and ram 60-2020 in released position, pull chain KO-2015 towards lift arm casting. Allow from one and one-half to two links slack and place chain in the vertical slot at the top of the lift arm casting. Re-insert bolt and tighten. The chain serves a two-fold purpose: first, to raise the brush; second, to act as a stop to prevent brush from sucking under.

13. Now install the transfer drive chain guard KEO-1615. When shipped, chain guard extension KRO-1615, chain guard KEO-1615 and brackets KO-1616 are bolted together as required for mounting on the Case "DI" tractor. Simply remove the machine bolt from the pad in the end of each bracket KO-1616 and bolt to front face of frame KO-2310.

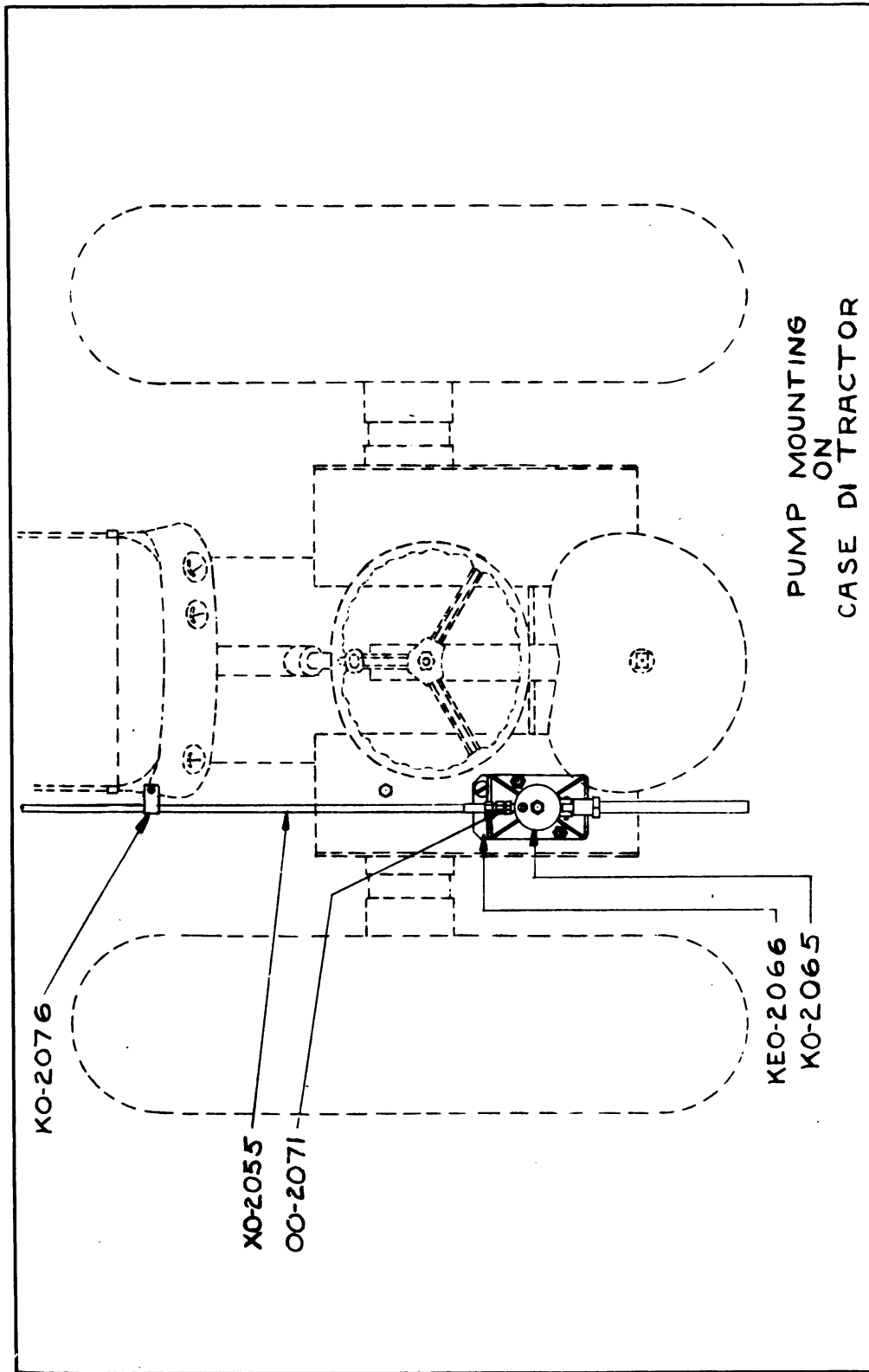


14. Mount the hand oil pump base KEO-2066 on the left hand rear axle housing top platform plate. There are three capscrews in this platform which are in line and approximately in the center of the platform. Remove the two rear-most capscrews and bolt the base KEO-2066 at these two holes using the flat head capscrews furnished with the base. When mounting, be sure the wide side of the base is to the outside. Remove the nuts and lockwasher from the two flat head capscrews welded in base KEO-2066 and mount pump KO-2065 over them with handle to the rear. Replace lockwashers, nuts and tighten. Then attach hose XO-2055 between the union 00-2071 which is in the pump near the base and pointed forward, and the street elbow in the ram 60-2020. Hose clip KO-2076 is inserted under the slotted head capscrew at the left hand corner of the dashboard. The other hose clip KO-2075, was already mounted under Step 6.

15. Remove the bleeder screw in the lift ram 60-2020 taking care not to loose the gasket under the screw head. Fill the pump by removing breather and filler plug KO-2065-10 with SAE #10 oil and pump the air out of the system. The air is out when oil comes out of the ram bleeder screw hole. When it does, replace screw and gasket, refill pump and replace filler plug KO-2065-10 in pump.

16. Go over the entire installation making sure that all bolts are tight. Lubricate the entire sweeper, see Lubrication Chart in Maintenance Section. Remove the plug in the top of the gearbox housing and the one in the take-off end of the housing about 1-1/2" below the shaft centerline. Fill to this level through the top plug opening with #GO-90, lubricant, gear, universal, SAE #90.

17. Turn to operating instructions before starting tractor and then make any necessary adjustments before starting to sweep.



## INSTALLATION ON INTERNATIONAL I-6 TRACTOR

The sweeper as shipped being assembled for immediate mounting on a case "DI" tractor necessitates a few minor changes before mounting on an International I-6 tractor.

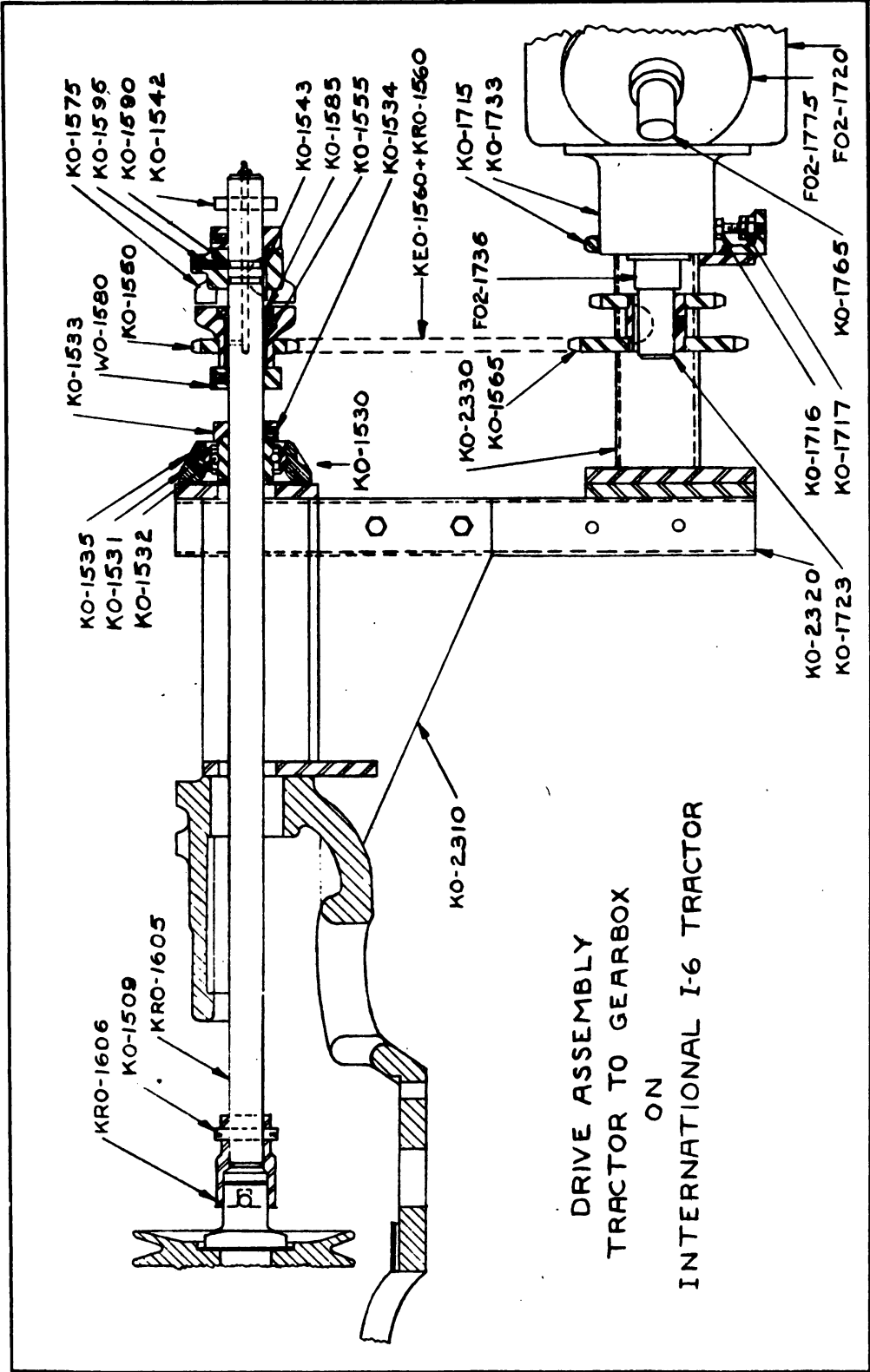
1. Remove the spacer KEO-2306 and the bolts holding them in place from the inside of the legs of frame KO-2310. Remove the capscrews which are held in the mounting face of frame KO-2310 by a wire.

2. Now remove the ten bolts which hold frame KO-2310 to the vertical legs of hanger frame KO-2320. Move the entire assembly, adapter frame KO-2310 with power take-off shaft and clutch assembly intact to the uppermost set of holes in the hanger frame (KO-2320) legs. Tighten all bolts securely.

3. Loosen the two setscrews in the combination sprocket KO-1565, remove the sprocket from shaft, turn it around, and again mount it on the gearbox input shaft with the small sprocket towards the gearbox. Be sure to keep key in shaft and tighten loosely both setscrews.

4. Remove pin KO-1509 from tractor end of power take-off shaft KEO-1605. Loosen setscrew in eccentric bearing lock collar KO-1533, turn collar slightly and remove from bearing. withdraw entire power take-off shaft KEO-1605, from bearing KO-1530.

5. Transfer entire clutch, parts WO-1580, KO-1550, KO-1575, KO-1585 and included parts, to shaft KRO-1605. Before removing jaw hub KO-1575, remove the setscrew in the lug, put hand over hole, turn jaw and catch spring KO-1595 and ball KO-1590 as they fall out. To reassemble clutch on shaft KRO-1605, slip on one collar WO-1580, then jaw clutch KO-1575, collar KO-1585 sprocket and jaw KO-1550 and the other collar WO-1580. Replace ball KO-1590 and spring KO-1595 with setscrew in lug of jaw hub KO-1575. Slide hub KO-1575 so that ball engages in the groove nearest cranking pin KO-1542. With hub KO-1575 in this position bring collar WO-1580 up to it and tighten setscrews. Slide collar KO-1585 and sprocket hub KO-1550 up to hub KO-1575 so that there is a clearance of from 1/16" to 1/8" between jaw faces. Tighten setscrews in collar KO-1585. With sprocket hub KO-1550 against collar KO-1585, bring collar WO-1580 against KO-1550 and tighten setscrews.



DRIVE ASSEMBLY  
 TRACTOR TO GEARBOX  
 ON  
 INTERNATIONAL I-6 TRACTOR

6. With collar KO-1533 held loosely against bearing KO-1530, slide shaft KRO-1605 through collar KO-1533 and bearing KO-1530.

7. Slip power take-off head KRO-1606, marked I-6, over end of shaft KRO-1605 and reinsert pin KO-1509 which was removed from shaft KRO-1605 in Step 6. Remove grease fitting from end of shaft KRO-1605 and put it in the end of shaft KRO-1605.

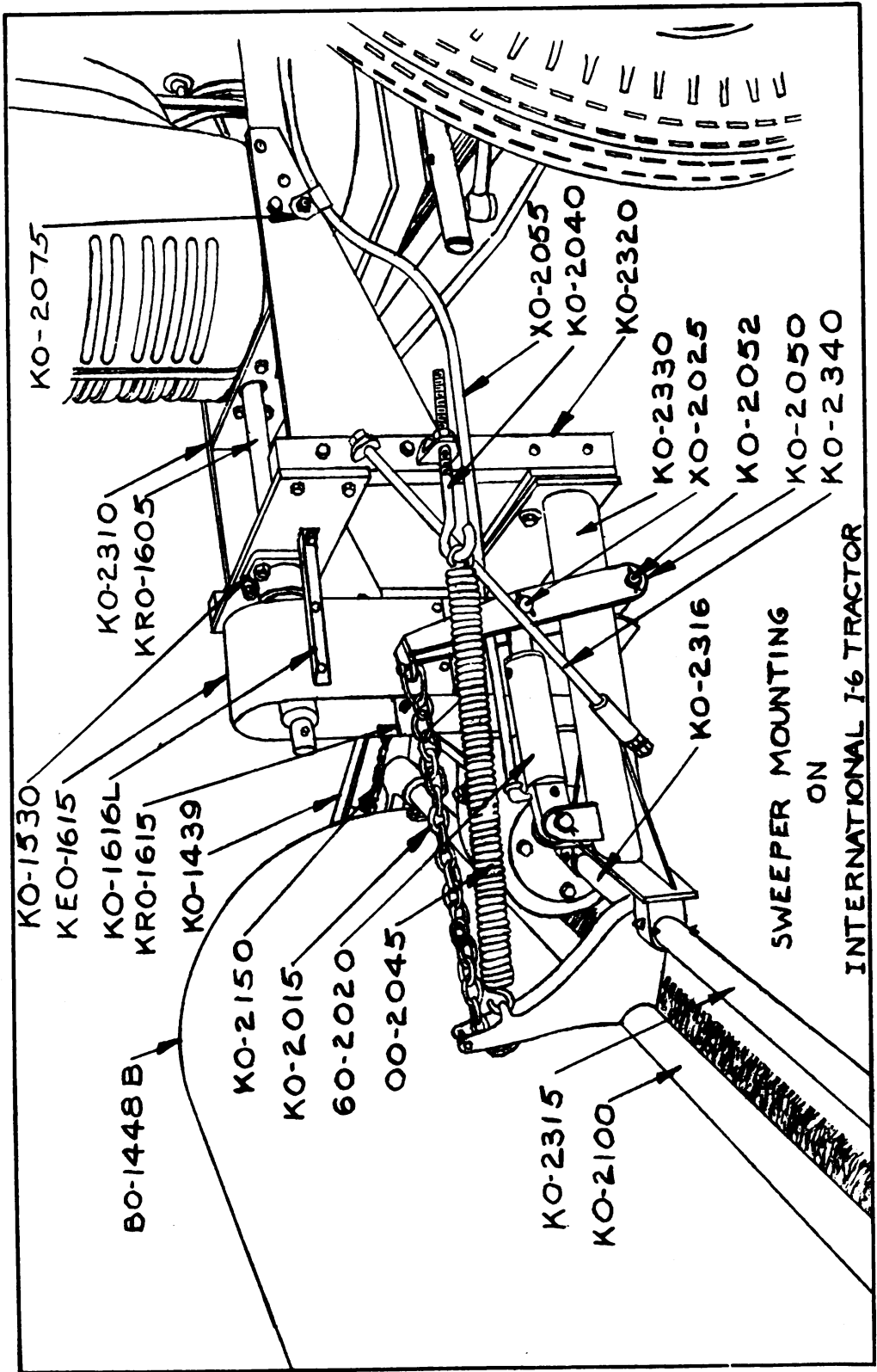
8. Remove the tractor starting crank assembly from the tractor. If the tractor is equipped with headlights which are mounted in the holes on the side of the radiator support casting, they must be removed. Withdraw light wires into outlet hole before mounting adapter frame KO-2310.

9. Mount the tractor adapter frame KO-2310, with assembled parts, to the tractor, exercising care that the slotted end of the power take-off head KRO-1606 slips freely over the cranking pin in the tractor crankshaft. Attach frame KO-2310 to tractor by means of four 5/8 x 1-1/2" NC hex capscrew into the front face of the tractor. Four additional capscrews, 5/8 x 2" lg., are furnished of which two go into each side of the frame casting. The capscrews are 2" long to permit mounting headlights brackets if tractor is equipped with lights. Before inserting the lower capscrew in the left hand frame bracket, slip hose clip KO-2075 over capscrew with hose in clip so that hose runs in a horizontal plane below capscrew.

When shipped, two of the capscrews were wired to the face of frame KO-2310 and removed under Step 1. The rest of the necessary capscrews are shipped in a bag marked "I-6 Mounting Bolts."

10. With the slotted end of the power take-off head KRO-1605 engaged with the pin in the tractor crankshaft, push shaft KRO-1605 towards tractor as far as it will go, withdraw shaft KRO-1605 approximately 1/16". Lock shaft in this position with the eccentric collar KO-1533 on bearing KO-1530. Tighten setscrews in collar.

11. Bring the brush, brush support frame and brush pivot frame KO-2330 against the hanger frame KO-2320 and bolt it in place loosely.



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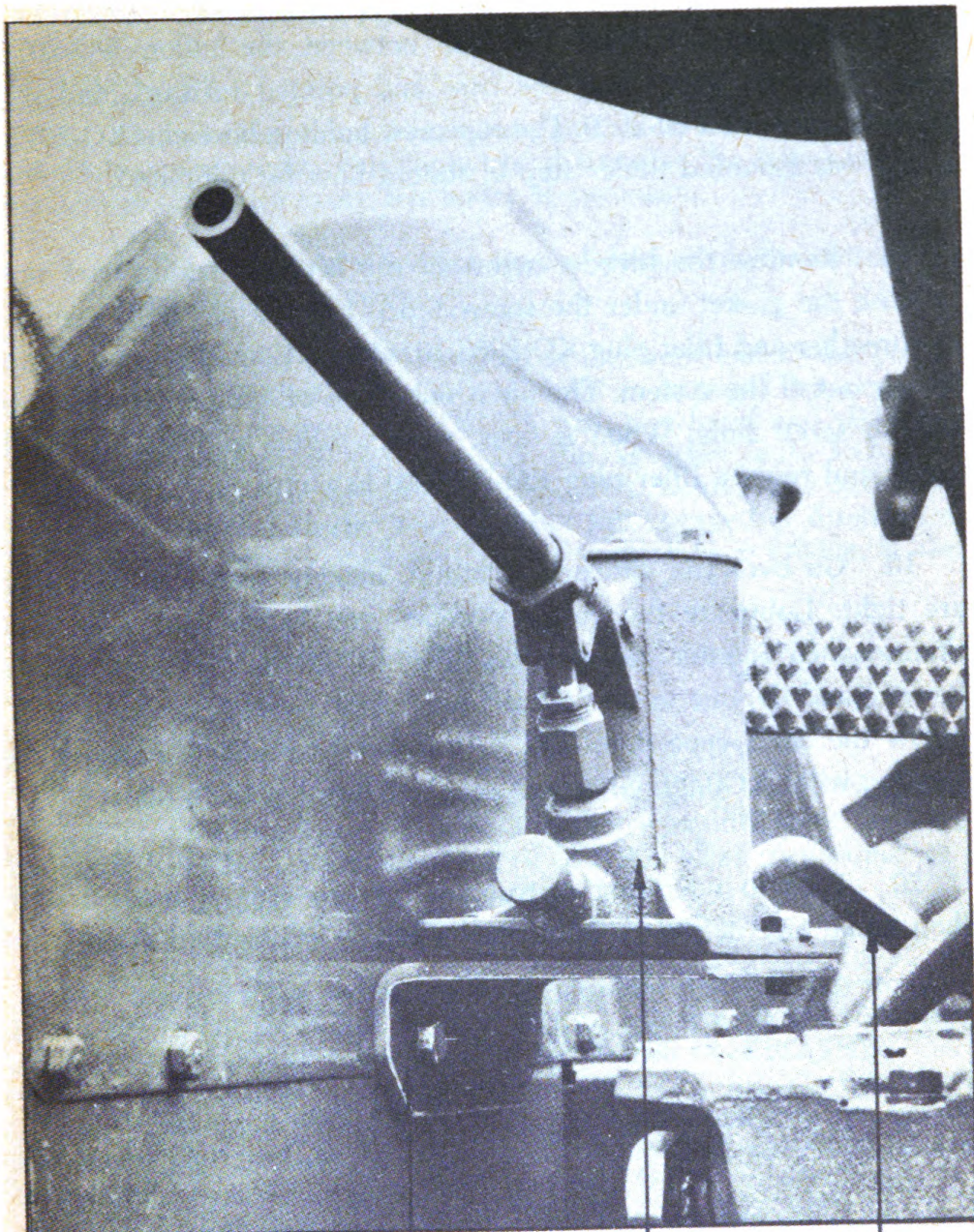
12. Remove the offset or half link from chain KEO-1560. Now connect the remaining chain and the extra length of chain KRO-1560, shipped with sweeper, together. Install this transfer drive chain over the upper/clutch sprocket KO-1550 and around the 24 tooth sprocket of the lower combination sprocket KO-1565. Line up chain by moving sprocket KO-1565 on shaft KO-1723. Tighten set screws in KO-1565 sprocket hub. Adjust chain slack by moving frame KO-2330 up or down as necessary. When the proper chain adjustment has been obtained, make sure that the brush is level and then tighten all four bolts holding KO-2330 to KO-2320. Then install the short diagonal tie bolt KO-2335 on the right hand side and the long bolt KO-2340 on the left hand side of the frame. Insert them through the upper lug on frame KO-2320 and then through the sleeves on frame KO-2330. Tighten bolts with the two nuts provided for each at the lower end.

13. Hook the brush counterbalance spring OO-2045 into the eye of the lift arm casting on frame KO-2100. Insert the spring eye-bolt KO-2040 into the angle bracket on the left hand side of frame KO-2320. Adjust spring tension so that the brush almost floats on the ground.

14. Remove the bolt in the lift arm casting on frame KO-2100. It is directly above the eye into which the brush tension spring OO-2045 was hooked in the preceding step. With brush floating on ground and ram 60-2020 in released position, pull chain KO-2015 towards lift arm casting. Allow from one and one-half to two links slack and place chain in the vertical slot at the top of the lift arm casting. Reinsert bolt and tighten. The chain serves a two fold purpose: first, to raise the brush; second, to act as a stop to prevent brush from sucking under.

15. Remove the bolts which hold the lower telescoping section KRO-1615 to the upper chain guard KEO-1615. Reinstall the upper curved section KEO-1615 to the angle brackets KO-1616. Bolt the lower section KRO-1615 to the lower edge of the upper guard KEO-1615. Using the machine bolt in the pad in the end of each bracket KO-1616 bolt assembled chain guard to front face of frame KO-2310.

16. Remove the two bolts from the left hand fender which are located on the inside near the bottom and near the center of the fender arc. Bolt the oil pump base bracket KRO-2066, with the short vertical leg of the bracket against the inside of the fender and using bolts furnished with bracket into these two bolt holes. Mount the hand oil pump KO-2065 on top of bracket KRO-2066 with handle to the rear.



KRO-2066

KO-2065

XO-2055

PUMP MOUNTING  
ON  
INTERNATIONAL I-6 TRACTOR

17. Connect the hose XO-2055 between the union OO-2071 which is in the pump near the base and pointed forward, and the street elbow in ram 60-2020. The capscrew holding hose clip KO-2075, which was mounted under step 9, should now be tightened.

18. Remove the bleeder screw in the lift ram taking care not to loose the gasket under the screw head. Fill the pump by removing breather and filler plug KO-2065-10 with SAE #10 oil and pump the air out of the system. The air is out when oil comes out the ram bleeder screw hole. When it does, replace screw and gasket, refill pump and replace filler plug KO-2065-10 in pump.

19. Go over the entire installation, making sure that all bolts are tight. Lubricate the entire sweeper, see Lubrication Chart in Maintenance Section. Remove the plug in the top of the gearbox housing and the one in the take-off end of the housing, about 1-1/2" below the shaft centerline. Fill to this level through the top plug opening with #G0-90, lubricant, gear, universal, SAE #90.

20. Turn to operating instructions before starting tractor and then make any necessary adjustments before starting to sweep.

## OPERATING INSTRUCTIONS

### PRELIMINARY

1. Go over the entire installation and make sure that all bolts and setscrews are tight. This should be done after the initial installation and periodically every ten hours of operation.

2. If the brush has stood for several days, soak the fibre with water before starting to sweep.

3. The sweeper clutch is located at the front end of the power take-off shaft KEO-1605 or KRO-1605. It is engaged by grasping the front jaw clutch member KO-1575 with one hand and sliding it into engagement with the jaws of the sprocket hub KO-1550. **CLUTCH MUST BE ENGAGED BEFORE STARTING MOTOR.** The clutch is automatically held in either the engaged or disengaged position by a spring loaded ball which snaps into a groove in the shaft.

4. For snow sweeping the dust hood may be removed if desired.

### STARTING AND SWEEPING

1. To raise the brush off the ground, close valve in pump KO-2065 by turning knob KO-2065-3 to the right until tight. Actuate handle KO-2065-1 up and down until brush is clear of ground.

2. Engage clutch as explained in Step 3 above.

3. Start tractor motor, following tractor manual instructions. If tractor is not equipped with a starter, use crank KO-1610 and crank through power take-off shaft KEO-1605 or KRO-1605.

4. Check machine for smooth operation. Make any necessary adjustments before starting to sweep. The following procedure should be followed.

5. Drive to area to be swept, lower brush by turning knob KO-2065-3 on the hydraulic pump to the left and proceed. Use no more brush pressure than is necessary to get clean sweeping. This practice will prolong brush life and give desired sweeping results.

6. To disengage the clutch, stop the motor and pull out the sliding member KO-1575 as far as it will go. A spring KO-1595 loaded ball KO-1590 snaps into place both when the clutch is in the engaged and disengaged positions.

## SECTION II

### MAINTENANCE

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## BRUSH

It is always advisable to soak the brush with water before using. This toughens the fibres and gives greatly prolonged brush life.

As the brush wears, it will be necessary to readjust the lift chain on the ram raising arm. The chain must be lengthened to compensate for brush wear and must be again shortened when a new brush is installed.

If the brush should wear unevenly and become tapered from end to end, the brush suspension frame can be adjusted to compensate for such wear. To do this the four bolts holding the brush suspension frame to the tractor adapter hanger frame are loosened sufficiently to permit rocking the brush frame slightly to offset the uneven wear. Care must be exercised that the chain adjustment is maintained when making this adjustment. For proper method of adjusting chain slack, turn to "Chain Adjustment - Transfer Drive" on page 22.

In case the brush becomes noticeably tapered, additional brush life can be obtained by reversing the brush end for end. To do this the brush must be removed from the sweeper as follows:

1. Remove the connecting link in the final drive chain KO-2150, thus releasing the chain.
2. Remove the bolts holding cap OO-1445 to socket OO-1444 at both ends of the brush core shaft. The brush will now drop out of the sweeper brush support frame.
3. Slide the bearing balls TT-1446 and the spacer TT-1443 off the end of the brush core shaft. Remove the cap screws holding sprocket AT-1438 to the end of the brush core.
4. Remount sprocket on opposite end of brush, following with spacer and ball.
5. Reverse removal procedure to again install brush on sweeper brush support frame.

At all times use only a minimum of brush pressure to insure satisfactory sweeping. Excessive pressure will cause undue wear and shorten brush life.

When the bristles of the brush have been worn down to within a few inches of the brush core (3 to 6 inches, depending on the quality of work to be done) the brush must be refilled. For refilling instructions turn to "Filling the Brush" in Section IV of this manual.

## PUMP

The oil level in pump KO-2065 should be checked periodically. With release valve KO-2065-3 open fill with SAE #10 oil through breather plug KO-2065-10.

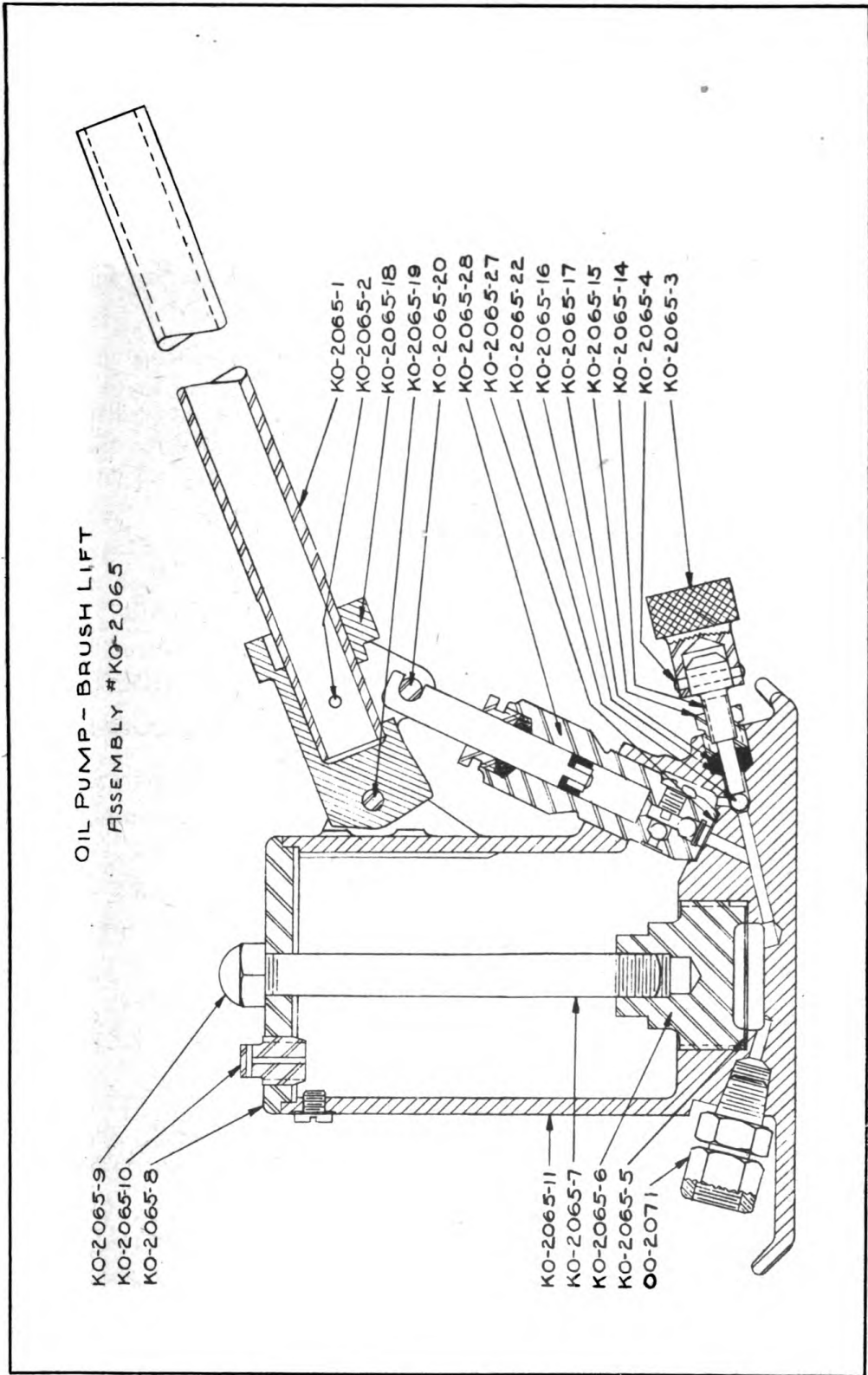
If the pump does not work properly, or react quickly, it is probably due to air in the oil line. This air can be bled from the system by loosening the bleeder screw in ram 60-2020 and actuating the pump until oil comes out of the ram bleeder screw hole. When it does, replace screw and refill pump.

When the pump does not hold pressure, there is either a leak in the line or the release valve ball KO-2065-22 is not seating properly. Check all connections for leaks. If this does not remedy the situation, remove release screw KO-2065-14 and with a soft punch or rod, hit ball KO-2065-22 two or three solid taps. This will seat the ball.

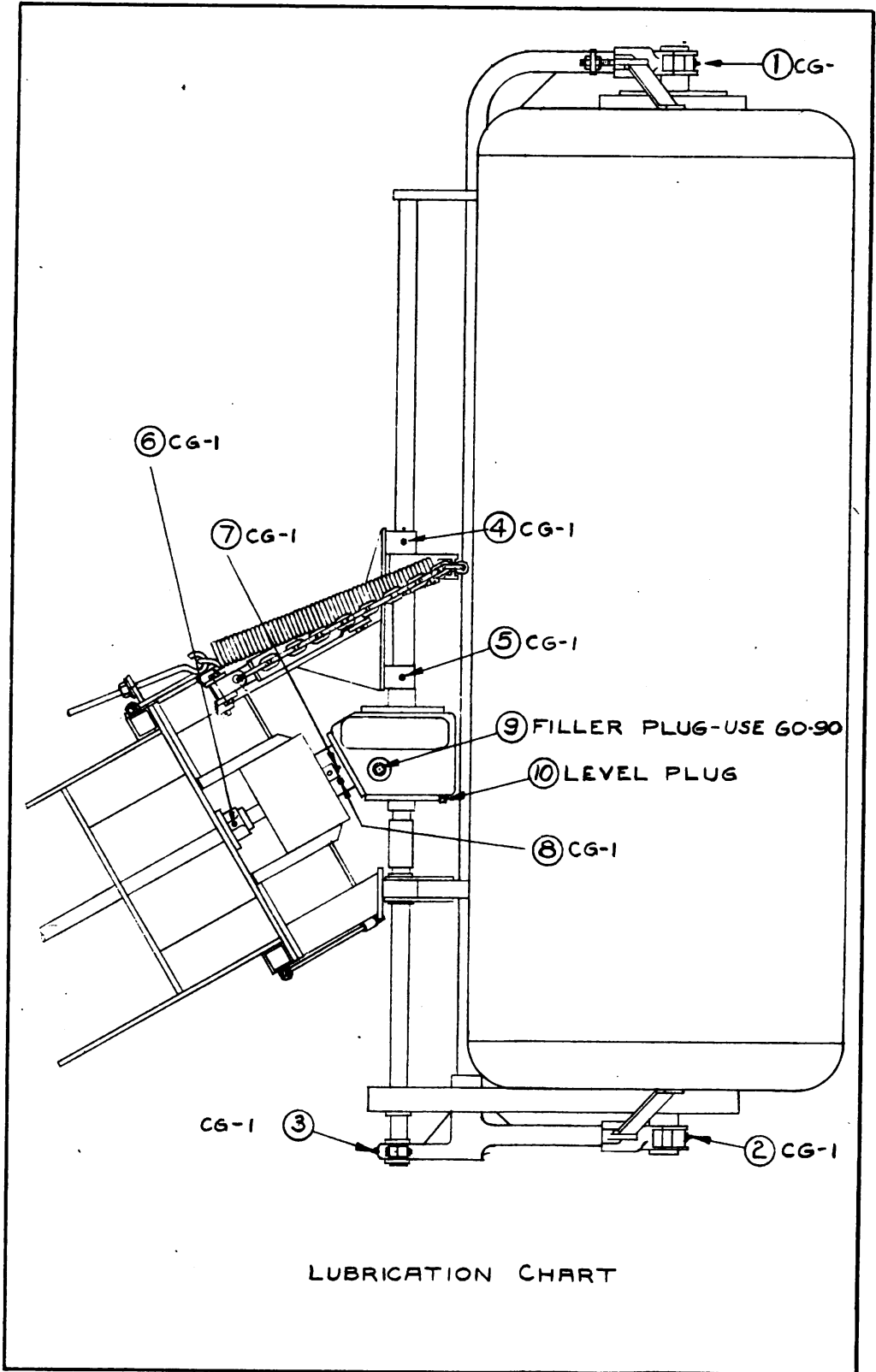
Replace release screw KO-2065-14.

Oil leakage can be stopped by tightening the packing gland on the piston rod and the packing gland KO-2065-15 on the release screw.

In case the pump still does not function properly, replace piston and housing assembly KO-2065-28, exercising care to keep gasket washer KO-2065-27 in place.



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## LUBRICATION

The sweeper should be greased daily or after each eight hours of operation. Follow the tractor manufacturer's instructions for lubricating the tractor.

Location of grease fittings on the sweeper are shown on the Lubrication Chart by numbers 1; 2, 3, 4, 5, 6, 7, and 8. In all these locations, CG-1, general purpose grease No. 1, is to be used.

The gear case should be regularly checked to maintain the grease level to the height of the level plug 10 located about  $1\frac{1}{2}$ " below the gear case shaft centerline, at least every eight hours of operation. Fill through plug opening 9 with GO-90, universal gear lubricant SAE 90.

It is best to run the chains without lubrication and none is recommended.

## CHAIN ADJUSTMENT

### TRANSFER DRIVE

The transfer drive chain KEO-1560 or KRO-1560 running from the power take-off shaft sprocket to the gearcase input shaft sprocket must be checked to insure proper tension from time to time. To adjust, proceed as follows:

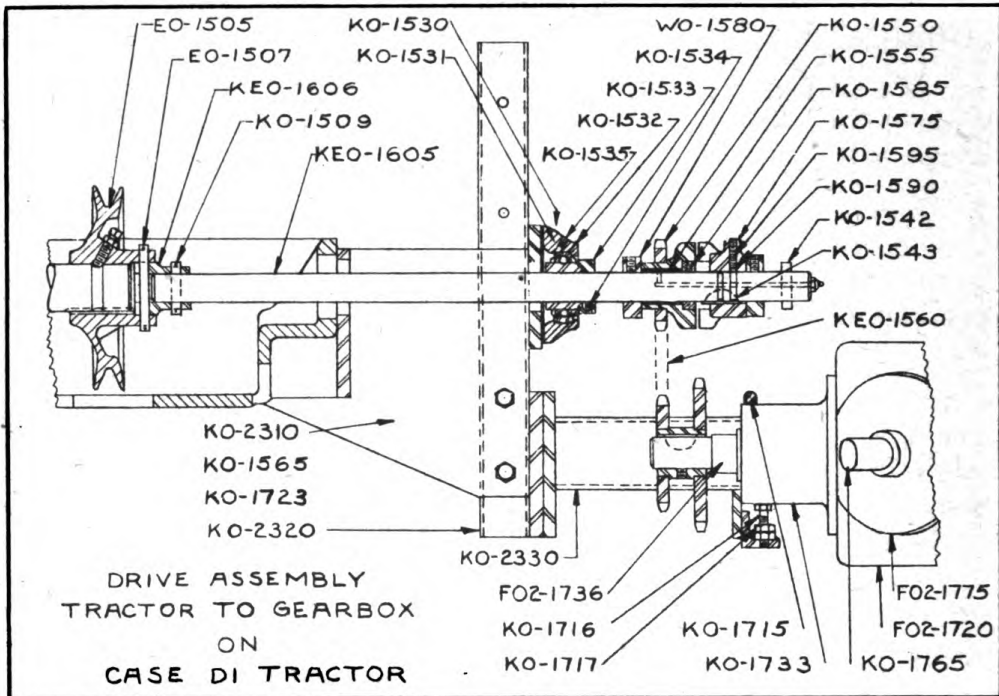
1. Loosen the bolts that hold frame KO-2330 to the tractor frame KO-2320.

2. Adjust the tension rods KO-2335 and KO-2340 to raise or lower frame KO-2330 as required for proper chain slack.

3. Tighten the bolts loosened in step one above and recheck the chain slack. If it is correct, draw the upper nuts up snug on the tension rods and lock with the lower jam nuts.

### BRUSH DRIVE

If the brush drive chain requires adjustment, it is done by loosening and tightening the adjusting nuts on studs TT-1447. By doing this the proper chain adjustment can be obtained. Always tighten all nuts to lock adjustment.



### POWER TAKE-OFF SHAFT ASSEMBLY

The power take-off shaft transmits power from the tractor crankshaft to the sweeper clutch, which is located at the outer end of the P.T.O. shaft.

The clutch is of the square jaw type. It is held in both the engaged and disengaged positions by a spring KO-1595 loaded ball KO-1590 which snaps into a groove in the shaft. If the sliding jaw KO-1575 becomes loose or tends to work itself out of mesh with jam hub KO-1550, either the jaws are worn tapered or the ball is loose. If the jaws are worn slanting, file them square, or replace. In case the ball is loose, tighten the setscrew over the spring.

As the P.T.O. shaft rotates whenever the tractor motor runs, it is very important to keep the bushing KO-1555 in the jam hub KO-1550 well greased. Grease bushing thru fitting located in end of P.T.O. shaft.

The set screws in collars, KO-1533, WO-1580 and KO-1585, must be kept tight at all times. Check daily.

## SERVICING THE GEARCASE ASSEMBLY

To inspect or repair the gearcase, it should be removed from the sweeper by the following procedure:

1. Disconnect the transfer drive chain KEO-1560 or KRO-1560 by removing the connecting link keeper and link.
2. Remove the U-bolt KO-1715 which clamps the input housing KO-1733 to the cross member of the brush arm pivot frame KO-2330.
3. Loosen the lock nuts on the brush bearing socket studs TT-1447 on the sprocket end of the brush and telescope the socket OO-1444 on the arm to give slack in the final drive chain KO-2150.
4. Loosen all the setscrews in coupling KO-2140 and slide the coupling toward the gearcase as far as it will go. Then remove the woodruff key that is exposed and pull the countershaft KO-2136 outward sufficiently to free the coupling.
5. Remove the two cotter pins in pivot shaft KO-2315 and while supporting the gearcase, pull out the shaft enough to free the gearcase. Then lift out the gearcase assembly.
6. Drain the grease from the case through the drain plug in the bottom of the housing.
7. Remove the six capscrews in the input housing KO-1733 and pull out the housing, shaft and pinion assembly.
8. Rotate the shaft by hand and feel if the bearings run smoothly and freely. If the shaft does not turn freely, clean or replace the bearings.
9. Inspect the pinion FO2-1725 for wear or failure and replace if necessary. Make sure that lock nut FO2-1732 is tight and that the cotter key is in place whether or not a new pinion is installed.
10. Now rotate the output shaft KO-1765 in the same manner and inspect the driven bevel gear KO-1770 for excessive wear or damage. If replacement is deemed necessary, remove the driven end cover FO2-1775 and loosen the Allen head setscrew in the bevel gear

hub after which the shaft and cover assembly is pulled out. The gear is removed through the oblong top cover opening.

11. If the dead end bearing FO2-1760 requires replacement, it may be driven out by removing the KO-1780 dead end cover thus exposing the bearing. In replacing the bearing, make sure that the felt seal end is toward the outside of the housing.

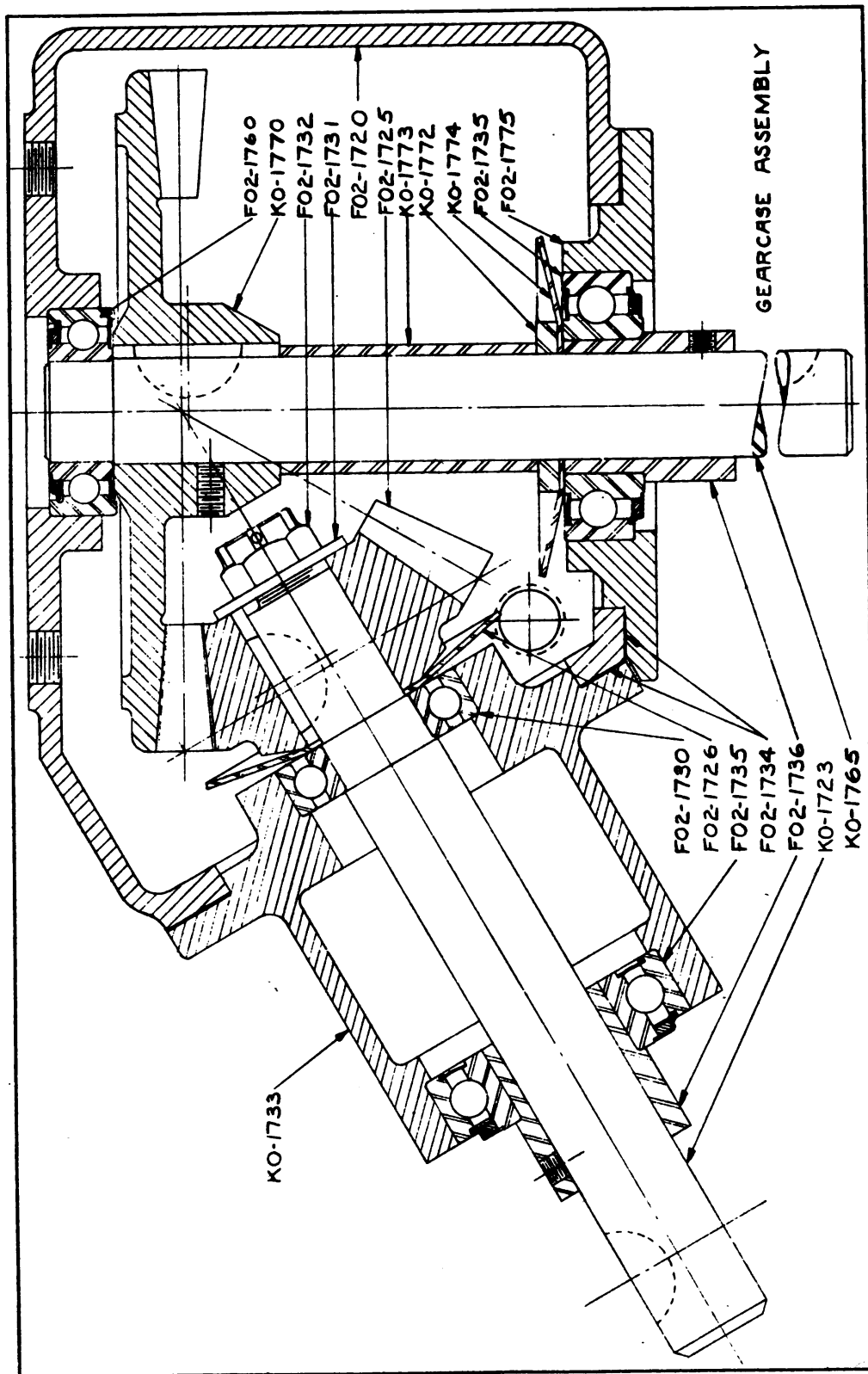
12. If the drive end bearing should require replacement, loosen the setscrew in adapter sleeve FO2-1736 which permits slipping the shaft out of the sleeve and pressing the bearing off the sleeve. Here too, the felt seal end of the bearing must be toward the outside of the housing when it is reassembled.

13. When reassembling the shaft and gear unit in the housing, make sure that the slinger KO-1774 then the washer KO-1772 and finally the spacer sleeve KO-1773 are assembled in that order before the gear is slipped over the shaft and on the woodruff key. The Allen setscrew is tightened after the spacer sleeve tolerance is found to be correct. This is checked by observing the freedom of the shaft movement when tightening down the capscrews in the cover. Gasket FO2-1734 is used as a shim and should be added if the shaft does not rotate freely as the screws are tightened. If there is too much end play as determined by looseness of the spacer sleeve after the screws are tight, a gasket must be removed. Then the Allen setscrews in the gear hub and in the bearing adapter sleeve should be tightened securely.

14. The input housing and shaft assembly is then replaced and the gear mesh checked. A little fitting of the gears may be required. The high spots can be felt when turning either shaft by hand, located and worked down with a file. About  $1/32''$  backlash at the teeth is the correct clearance. This is regulated by adding or removing gaskets at the input housing flange.

15. Fill the gearcase to the plug level in the housing located about  $1-1/2''$  below the shaft centerline. Check the gaskets to make sure that none leak and go over all capscrews to see that they are tight.

16. Install the gearcase assembly by reversing the procedure of removing it, steps 5 to 1 above. It should be noted that the input housing KO-1733 rests on an adjustable screw jack which is employed to align the lower sprocket KO-1565 with the upper sprocket KO-1550. The alignment should be checked with a straight edge and adjustment made if necessary before U-bolt KO-1715 is tightened down.





## SECTION III

## PARTS LIST

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# PREPARATION OF REQUISITIONS

## SAMPLE COPY FOR USE IN THE PREPARATION OF REQUISITIONS

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.

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

Prepare a separate Type **"SPARE PARTS"** requisition for each different machine. in upper right hand corner of requisition form.

(SAMPLE)

SPARE PARTS

**REQUISITION**

WAR DEPARTMENT  
G. M. C. Form No. 400  
Revised Apr. 4, 1932

To: Engineer Supply Officer, No. of Sheets 1 Sheet No. 1  
Columbus Quartermaster Depot, COLUMBUS, OHIO.

Requisition No. E-531-3-43 Date August 14, 1942 Period Special

SHIP TO Engineer Property Officer, Pine Camp, New York

MARKED FOR: Engineer Supply Officer, 802nd Engr. Battalion, Pine Camp, N. Y.

REQUISITIONED BY (show Signature, Rank, Organization, Destination. If different from "ship to" include address):

*Robert E. Roe*  
Robert E. Roe,  
Major, C. E.,  
Engineer Property Officer.

APPROVED FOR THE COMMANDING OFFICER:

*John E. Doe*  
John E. Doe,  
Col., C. E.,  
Executive Officer

REQUISITION Mfg. No.	ARTICLES	UNIT	ON HAND AND DUE	CONSUMED	REQUIRED	APPROVED
	PARTS FOR SWEEPER, ROTARY, TRACTOR MOUNTED, SERIAL NO. 1030 U. S. A. REG. NO. E-6752	POWER TAKE-OFF DRIVEN MODEL "K"				
	Basis: Repair of Disabled Equipment.					
	Delivery is requested by March 20, 1943					
	TRACTOR TO GEAR CASE DRIVE GROUP					
EO-1505	Pulley, Case	ea.	0	1	1	
KO-1531	Housing-Bearing	ea.	0	2	2	
KO-1565	Sprocket Combination	ea.	0	4	4	
	GEAR CASE ASSEMBLY GROUP					
FO2-1720	Housing-Gear case	ea.	0	5	5	
FO2-1725	Pinion-Driver	ea.	0	3	3	
	BRUSH RAISING CONTROL GROUP					
60-2020	Ram-Hydraulic Lift	ea.	0	1	1	
XO-2055	Hose-Oil Line	ea.	0	1	1	
	NONEXPENDABLE ARTICLES SHOWN HAVE BEEN PLACED ON I & I REPORT (REPORT OF SURVEY, ETC.)					

Give complete shipping 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.

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

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

Group parts required under group headings as shown in manufacturers' parts catalogs.

Double space between items.

Nonexpendable items must be accounted for

# 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.

SPROCKET GUARD & BRUSH BRG'S.

PART NO.	NO. REQ.	PART NAME	DESCRIPTION
AT-1438	1	Sprocket-Brush	3/4" P x 45T Sprocket
	6	Cap screw	3/8" x 1" N.C. Hex. Hd.
	6	Lockwasher	3/8" S.A.E.
KO-1439	1	Guard-Brush Chain	Welded Unit
	3	Bolt-Guard Anchor	3/8" x 1" N.C. Hex. Hd.
TT-1443	1	Spacer-Sprocket to bearing	2 1/2" O.D. x 1 1/4" B. x 1/2" Lg.
OO-1444R	1	Socket-R. H. Brush brg.	C.I. #00-1444
OO-1444L	1	Socket-L. H. Brush brg.	C.I. #00-1444
	2	Set screw	1/2" x 3/4" Sq Hd.
OO-1445	2	Cap-Brush Ball socket	C.I. #00-1445
	4	Bolt-Cap to socket	3/8" x 2-1/4" N.C. Hex. Hd.
TT-1446	2	Ball-Brush bearing	C.I. UD-3046
	2	Grease Fitting	1/8" Straight Hydraulic
TT-1446A2	2	Bushing-Brush shaft	1-1/2" O.D. x 1-1/4" x 3" lg.
TT-1447	4	Stud-Socket Adjusting	1/2" x 4-1/4" N.C.
	8	Nut-Stud lock	1/2" N.C. Hex.

BRUSH-HOOD & SUPPORTS

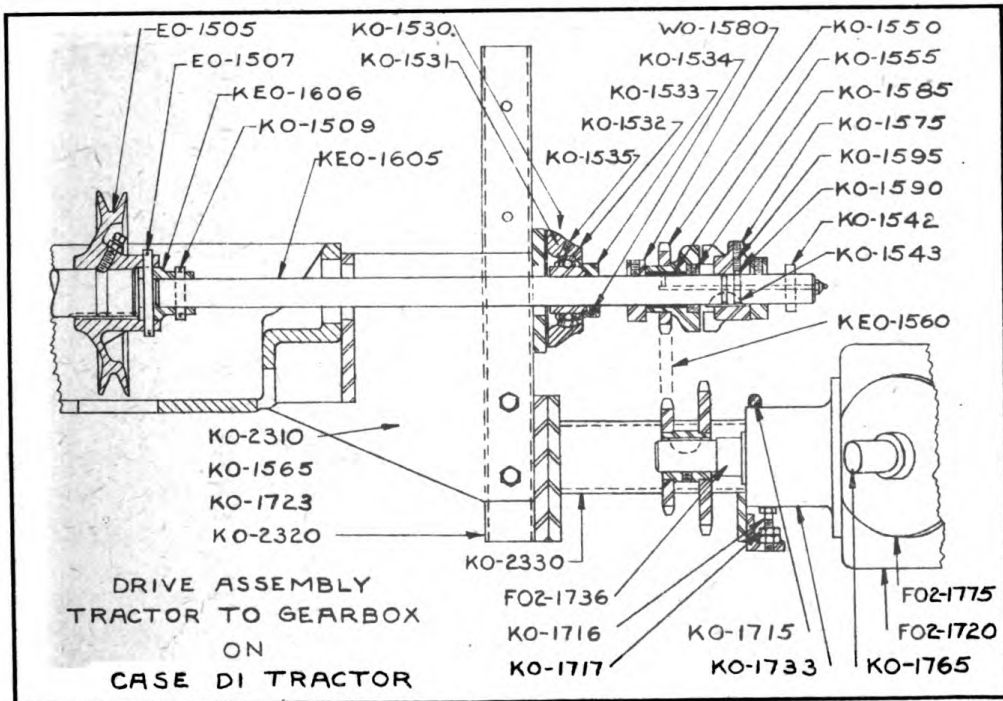
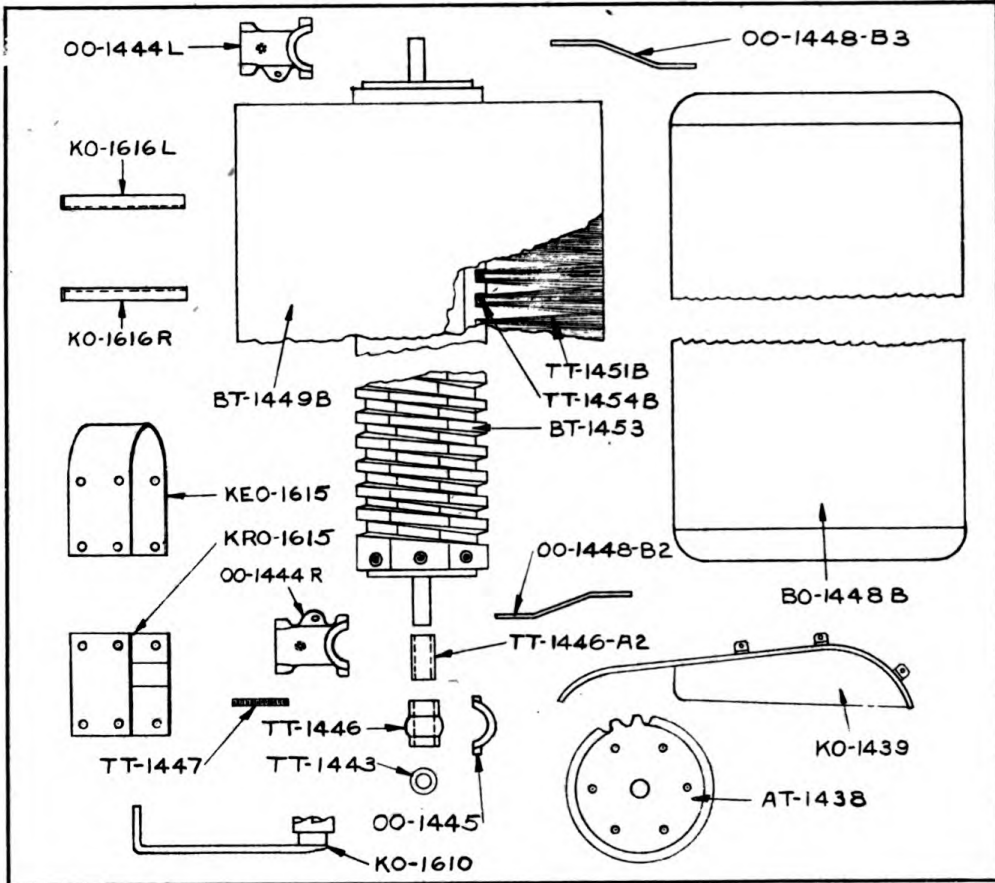
BO-1448B	1	Hood-84" Brush	Curved ends
	3	Bolt-Hood Anchor	3/8" x 1-1/4" N.C. Hex. Hd.
OO-1448B2	1	Bracket-Hood Drive end	3/8" x 1-1/2" x 13-1/2"
OO-1448B3	1	Bracket-Hood Dead end	3/8" x 1-1/2" x 12-1/2"
	4	Bolt-Bracket Anchor	1/2" x 1-1/2" N.C. Hex. Hd.

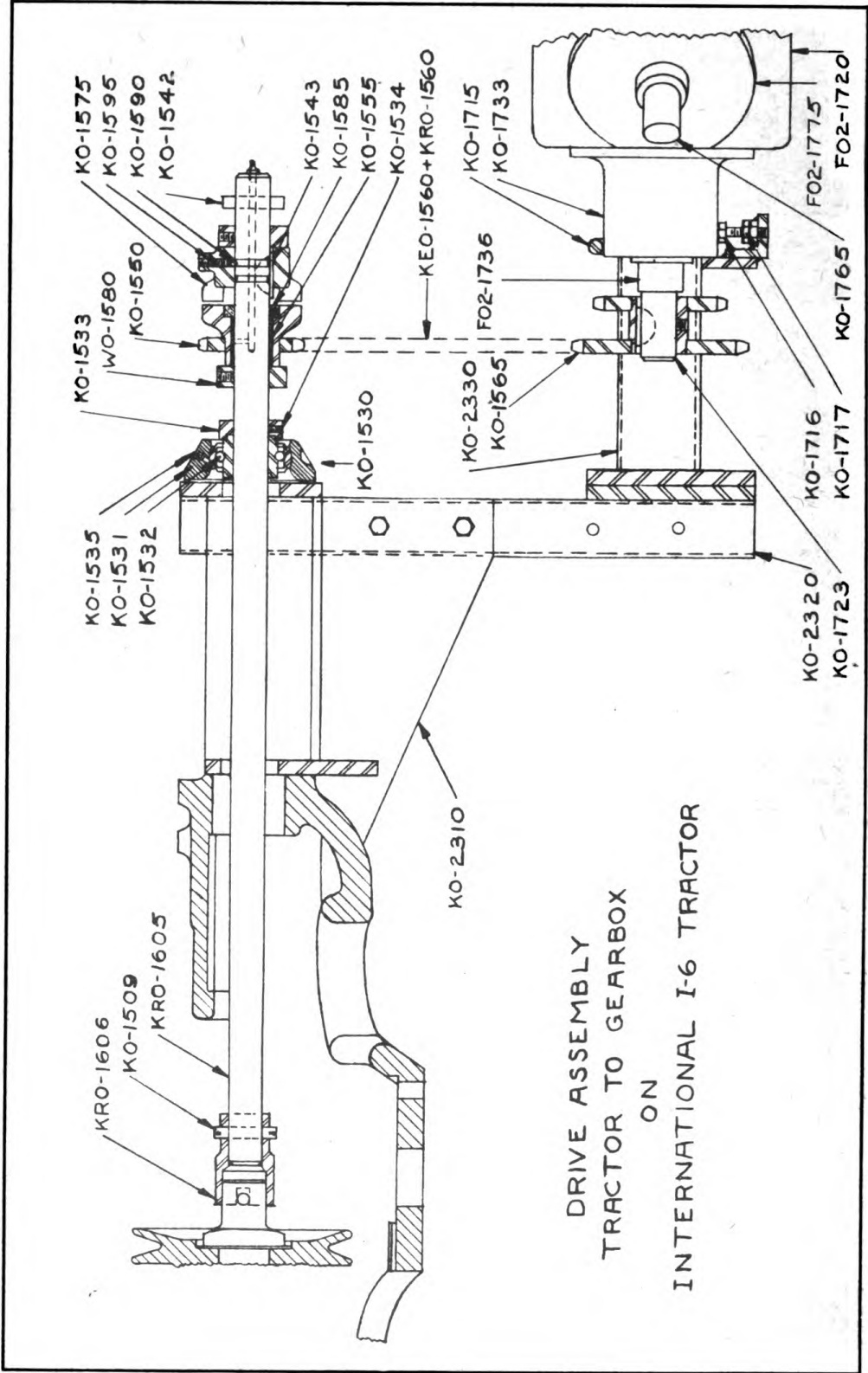
PALMYRA FIBRE BRUSH

BT-1449B	1	Brush assembly	84" Palmyra Fibre
TT-1451B		Fibre	120#-22" Split Palmyra
BT-1453	1	Core-Brush	For 84" Brush
	1.2#	Staples-Rope ret.	2" x 1/2" Wire
BT-1454B	1	Wire/rope-Fibre ret.	3/8" x 6 x 7 x 100' Galv.

TRACTOR TO GEAR CASE DRIVE

EO-1505	1	Pulley-Case crankshaft	Modified Case #5559A
EO-1507	1	Pin-Case-Shaft Drive	3/8" x 3-1/2" And Cotters
KO-1509	1	Pin-Head to shaft	3/8" x 2-1/4" And Cotters
KO-1530	1	Brg.-P. T. O. Outboard	Fafnir 1-1/4" L.C.J.
KO-1531	1	Housing-Bearing	Fafnir 1-1/4" Flanged
KO-1532	1	Bearing	Fafnir 1-1/4" Style "B"
KO-1533	1	Collar-Bearing	Fafnir 1-1/4" Lock collar
KO-1534	1	Set Screw	Lock Collar
KO-1535	1	Grease Fitting	Bearing Housing
	4	Bolt-Brg. to plate	1/2" x 1-3/4" N.C. Hex. Hd.
KO-1542	1	Pin-Tractor crank	3/8" x 2-1/4" Drill rod
KO-1543	2	Key-Clutch to shaft	Hy-Pro #HP-1010

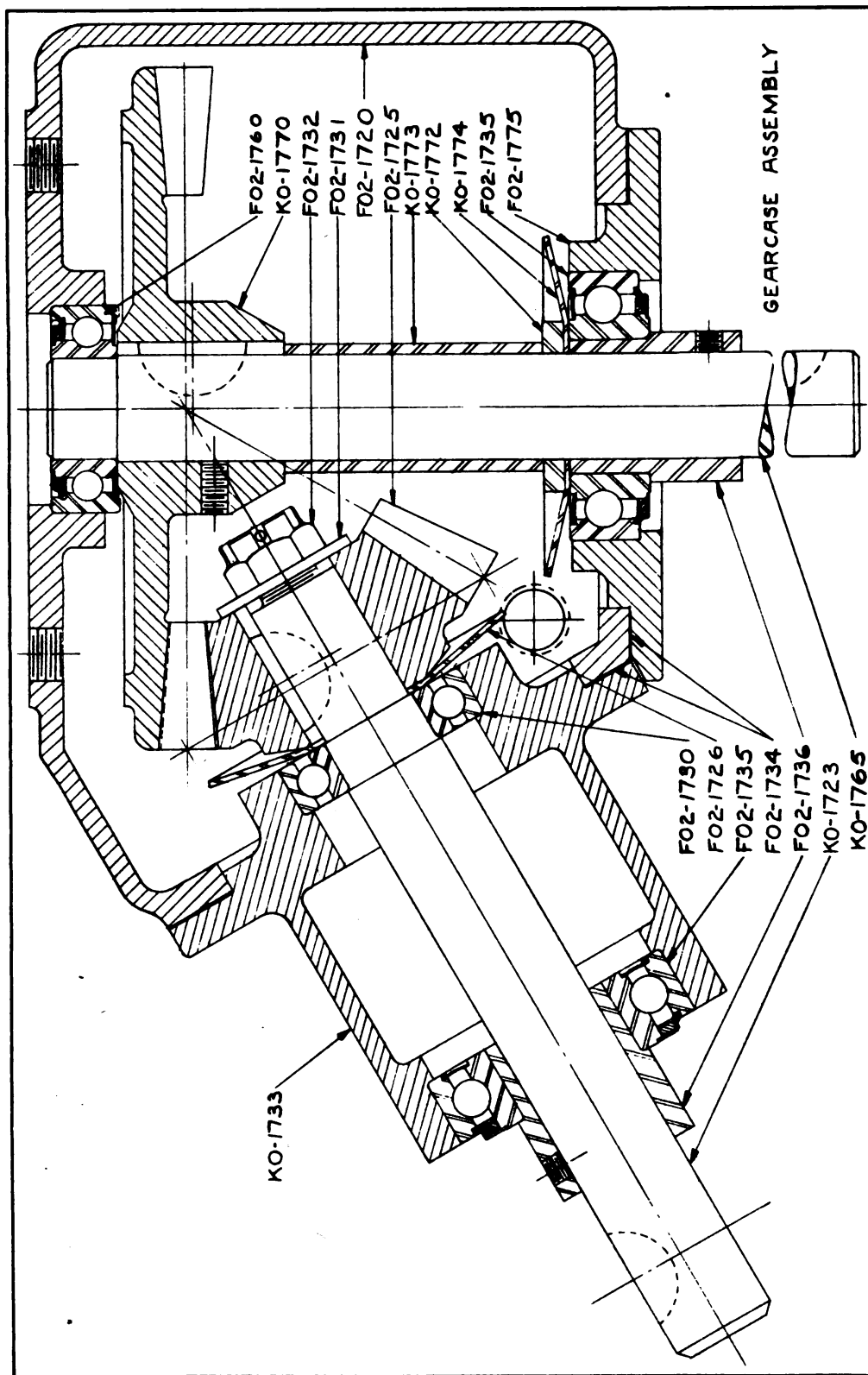


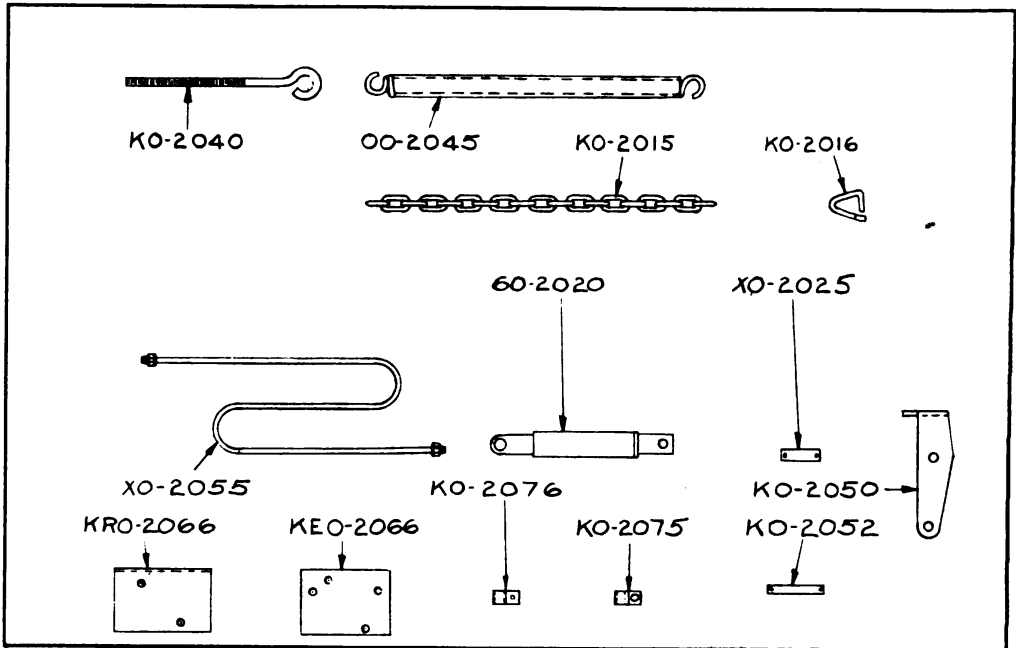


DRIVE ASSEMBLY  
TRACTOR TO GEARBOX  
ON  
INTERNATIONAL I-6 TRACTOR

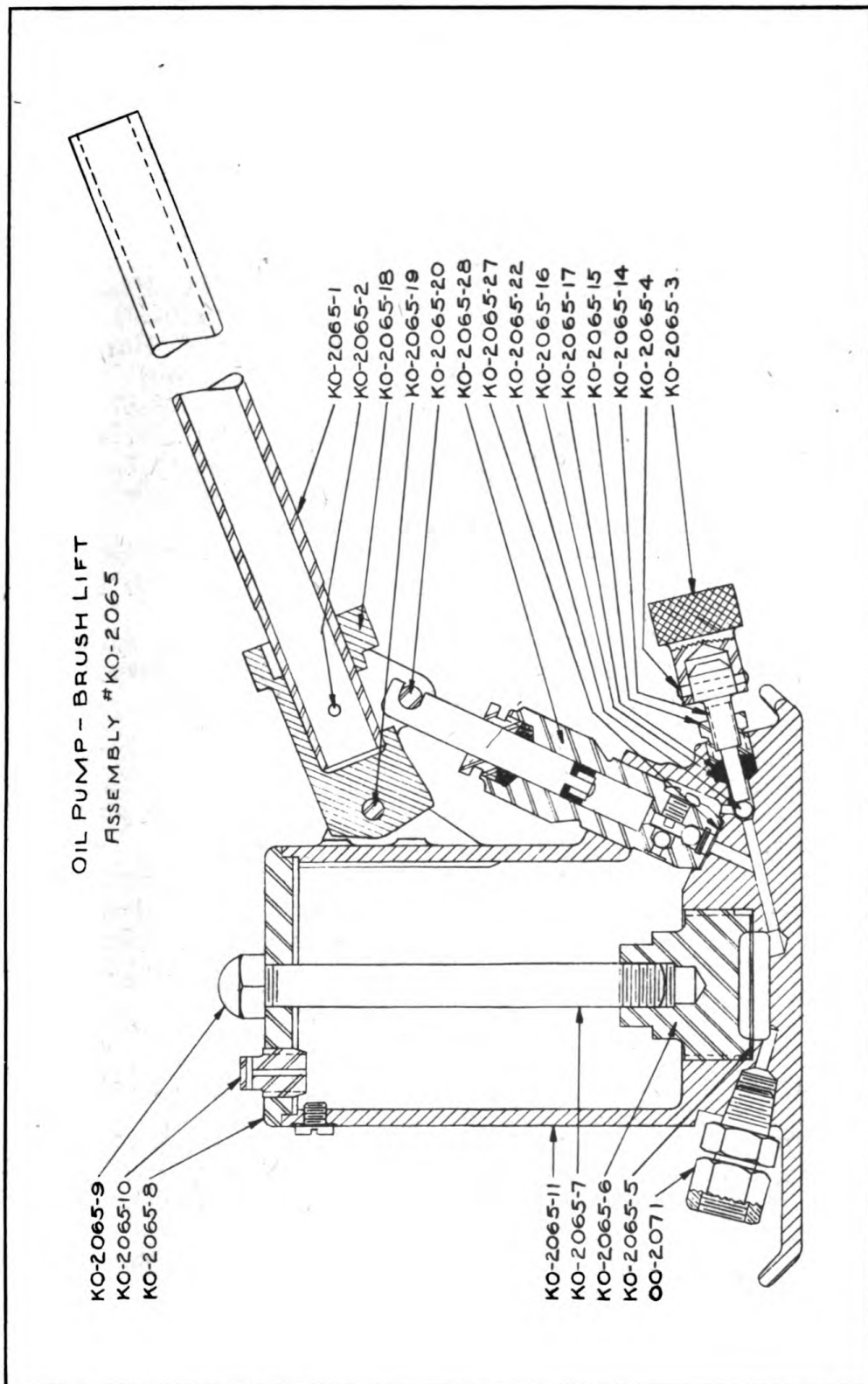
PART NO.	NO. REQ.	PART NAME	DESCRIPTION
KO-1550	1	Sprocket & Clutch Unit	14T., 3/4" P.W./Jaw clutch
	1	Grease Fitting	1/8" Straight Hydraulic
KO-1555	1	Bushing-clutch	1 1/2" O.D. x 1 1/4" B. x 1 1/2" Lg.
KEO-1560	1	Chain-Intrmt. Dr. Case	3/4" P. x 31 links
KRO-1560	1	Chain-Intrmt. Dr.-I-6	3/4" P x 55 links
KEO-1561	2	Link-plain	3/4" P. straight
KRO-1561	1	Link-offset	3/4" P. offset
KO-1565	1	Sprocket-combination	18 and 24T.-3/4" P.
	2	Set screw	5/16" x 5/16" Allen
KO-1575	1	Clutch-shifter member	C.S. #00-2125D1
WO-1580	2	Collar-sprocket end	2 1/2" O.D. x 1 1/4" B. x 3/4" Lg.
	4	Set screw	5/16" x 1/2" Allen
KO-1585	1	Collar-clutch end	1 3/4" O.D. x 1 1/4" B. x 1/2" Lg.
	2	Set screw	1/4" x 1/4" Allen
KO-1590	1	Ball-clutch shift lock	5/16" Dia.
KO-1595	1	Spring-ball	5/16" O.D.x.040 Wx1-1/4"
	1	Set screw	3/8" x 3/8" Allen
KEO-1605	1	Shaft-case D.I. P.T.O.	1-1/4" x 28-19/32" Lg.
KRO-1605	1	Shaft-Inter. I-6 P.T.O.	1-1/4" x 34-3/4" Lg.
KEO-1606	1	Sleeve-case Pulley to shaft	2-5/32" O.D. x 1-1/4" B. x 2-7/32" Lg.
KRO-1606	1	Sleeve-I-6 Motor to shaft	2" O.D. x 1-1/4" B. x 3-1/4" Lg.
KO-1610	1	Crank-Tractor starting	For P.T.O. Shaft
KEO-1615	1	Guard-Upper Chain	Case D.I.-"U" Shape
KRO-1615	1	Guard-Extension	I-6-"H" Shape
	4	Bolts-Upper	5/16" x 3/4" N.C. Hex. Hd.
	4	Bolts-Lower	5/16" x 5/8" N.C. Hex. Hd.
KO-1616R	1	Bracket-R.H.	Chain guard support
KO-1616L	1	Bracket-L.H.	Chain guard support
<b>GEAR CASE ASSEMBLY</b>			
KO-1715	1	U bolt	Gear case to frame
	2	Lockwasher	1/2" S.A.E.
	2	Nut	1/2" N.C. Hex. Hd.
	2	Cotter key	1/8" x 1" Lg.
FO2-1720	1	Housing-Gear case	C.I. FO-104A
	1	Plug-Filling	1" Sq. Hd. pipe
	1	Plug-Level Test	1/4" Sq. Hd. pipe
	1	Plug-Drain	1/2" Sq. Hd. pipe
KO-1723	1	Shaft-Input	1-1/4" x 11" Lg.
	2	Key-Woodruff	Style "D"
FO2-1725	1	Pinion-Driver	C.I. FO-101A
FO2-1726	1	Slinger-Grease shield	16 Ga. x 4" O.D. x 1-9/64B
KO-1727	1	Shim Washer	1-1/2 Od.x1-1/8 B.x1/16 Thk.
FO2-1730	1	Bearing-Input shaft	N.D. #7506

PART NO.	NO. REQ.	PART NAME	DESCRIPTION
FO2-1731	1	Washer-Pinion	3/4" Special
FO2-1732	1	Nut-Pinion retainer	3/4" Cast. special
	1	Cotter	1/8" x 1-1/2" Long
KO-1733	1	Housing-Input	C.I. #FO-109
	6	Capscrew	1/2" x 1" N.C. Hex. Hd.
	6	Lockwashers	1/2" S.A.E.
KO-1716	1	Screw-Hsg. Adj.	3/8" x 1-1/2" N.C. Hex. Hd.
KO-1717	1	Nut-Screw lock	3/8" N.C. Hex. Jam Nut
FO2-1734	2	Gasket-Input Hsg.	1/32"x6-1/2" O.D.x4-3/4" B
FO2-1735	2	Bearing-Shaft outer	N.D. #87508
FO2-1736	2	Sleeve-Bearing adapter	1-3/4" O.D. x 2" Lg.
	4	Set screw	5/16" x 1/2" Allen
FO2-1755	1	Cover-top	12 Ga. x 2-3/4" x 9-1/4"
	6	Screw	1/4" x 3/4" Rd. Hd. Mach.
	6	Lockwasher	1/4" S.A.E.
FO2-1756	1	Gasket-Top cover	1/32" x 2-3/4" x 9-1/4"
FO2-1760	1	Bearing-Output shaft- Inner	N.D. #WC-77506
KO-1765	1	Shaft-Output	1-1/4" x 10-15/16" Lg.
	1	Key-Woodruff	Style D
KO-1770	1	Gear-Bevel driven	C.I. #FO-103A
	2	Set screw	5/16" x 5/16" Allen
KO-1771	1	Washer	Spring type
KO-1772	1	Washer	2" OD x 1/4" Th'K x 1- 17/64" B
KO-1773	1	Spacer sleeve	1-1/2" OD x 11 Ga. x 3-3/16" Lg.
KO-1774	1	Slinger-Grease shield	#16 Ga.x4" ODx1-17/64 B
FO2-1775	1	Cover-Driven End	C.I. #FO-110A
	6	Cap screw	1/2" x 1" N.C. Hex. Hd.
	6	Lockwasher	1/2" S.A.E.
KO-1780	1	Cover-Dead End	Welded Unit
	4	Cap screw	5/8" x 1" N.C. Hex. Hd.
	4	Lockwashers	5/8" S.A.E.
<b><u>BRUSH RAISING CONTROL</u></b>			
KO-2015	1	Chain-Brush raising	5/16" Strt. Link x 24" Lg.
OO-2016	1	Cold Shut-Chain Conn.	5/16" Std.
	1	Bolt	1/4" x 2-1/2" Machine bolt
60-2020	1	Ram-Hydraulic Lift	HYDRECO #154
XO-2025	2	Pin-Ram End	1" x 3-1/4" and cotter
KO-2040	1	Eyebolt-Spring	5/8" x 9" Threaded
	1	Nut	5/8" N.C. Hex.
	1	Washer	5/8" Plain
OO-2045	1	Spring-Brush balance	1-3/4" OD x 11/32" wire x 22" Lg.
KO-2050	1	Lever-Ram thrust	Welded Unit
KO-2052	1	Pin-Lever Pivot	3/4" x 4-1/2" and cotters
XO-2055	1	Hose-Oil Line	1/4"x10' Lg.-1/4" male th'd.





KO-2065	1 Street Elbow	1/4" Pipe
KO-2065-1	1 Pump-Brush lift-oil	With Reservoir-Complete
KO-2065-2	1 Handle-Oil pump	1/2" x 12" Lg.
KO-2065-3	1 Cotter	1/8" x 1-1/4" Lg.
KO-2065-4	1 Knob-valve	1" x 1-1/4" Lg.
KO-2065-5	1 Pin-Valve knob	1/8" x 13/16" Lg.
KO-2065-6	1 Gasket-plug	1-5/8" OD x 1-1/4" Bx 1/32"
KO-2065-7	1 Plug-Pump Base	1-3/4" x 1-1/2" Lg.
KO-2065-8	1 Stud-Pump cover	1/2" x 4-7/8" Lg.
KO-2065-9	1 Cover-Reservoir	5/16" x 3-1/4" Dia.
KO-2065-10	1 Nut-Cover	1/2" N.C. cap nut
KO-2065-11	1 Plug-Breather	1/4" Pipe-Special
KO-2065-12	1 Base-Pump	AM. Hyd. JX508.5 #1
KO-2065-13	1 Release screw	" " " #15
KO-2065-14	1 Release packing nut	" " " #16
KO-2065-15	2 Release stem washer	" " " #18
KO-2065-16	1 Release valve pack.	" " " #19
KO-2065-17	1 Handle socket	" " " #20
KO-2065-18	1 Pin-Socket W/Cotter	" " " #21
KO-2065-19	1 Pin-socket piston	" " " #22
KO-2065-20	1 Ball-valve	" " " #25
KO-2065-21	1 Unit gasket washer	" " " #34
KO-2065-22	1 Unit-Piston & Hsg.	" " " #J-151
KEO-2066	1 Bracket-Case pump	Welded unit
	2 Lockwasher	3/8" S.A.E.
	2 Nut	3/8" N.C. Hex.
	2 Bolt	3/8" x 1-1/2" N.C. Flat Hd.



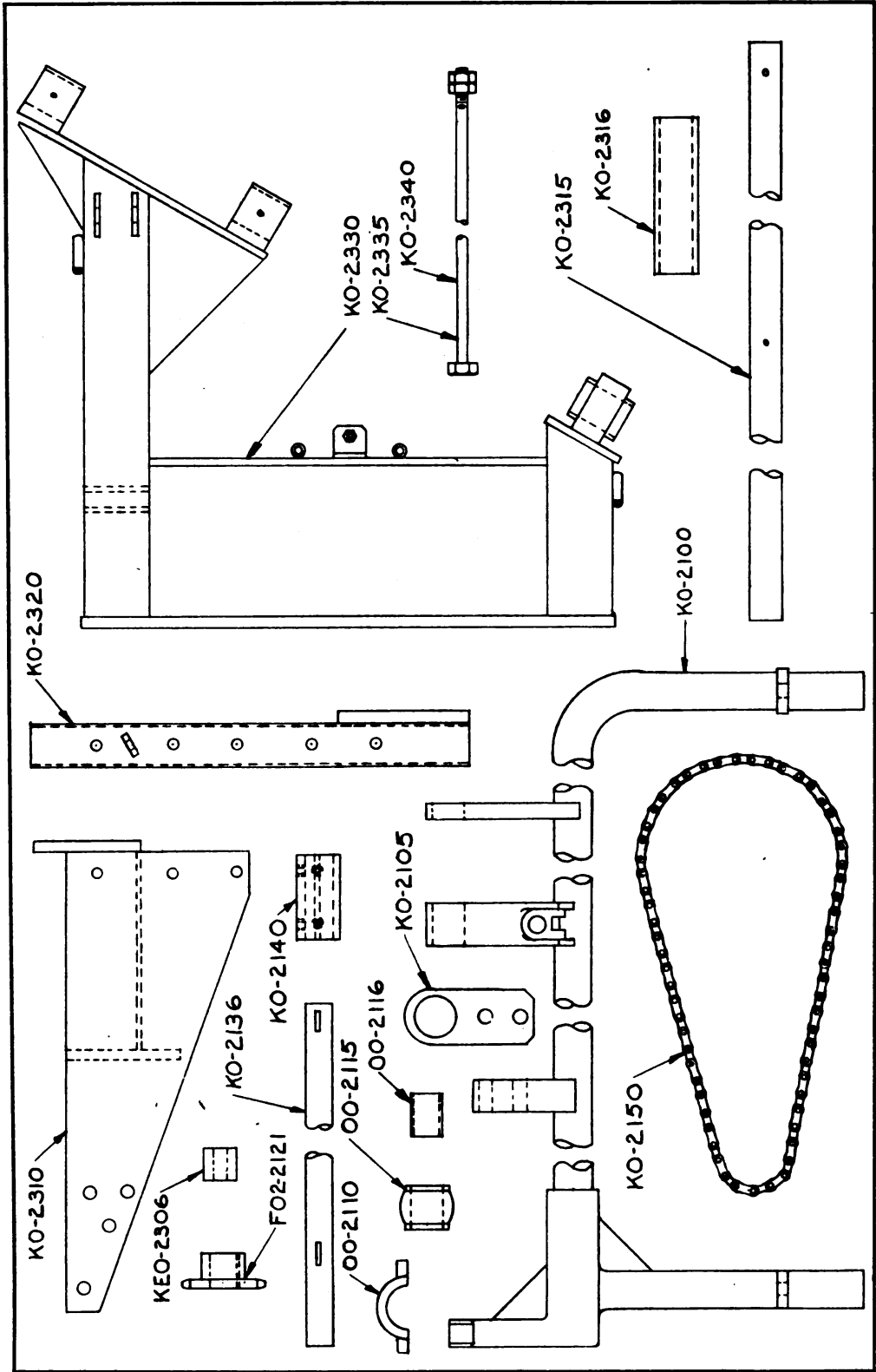
KRO-2066	1 Bracket-I-6 Pump	Formed
	2 Bolt-pump to bracket	3/8" x 1" N.C. Hex. Hd.
	2 Bolt-Brk't to tractor	3/8" x 1-1/8" N.C. Hex. Hd.
OO-2071	1 Union-Hose Adapter	1/4" Male & 1/4" Female
KO-2075	1 Clip-Hose anchor	11/16" Hole
KO-2076	1 Clip-Hose anchor	1/4" Hole

**BRUSH FRAME**

KO-2100	1 Frame-Brush support	Welded Unit
KO-2105	2 Link-Connecting	3/8" x 2-1/2" x 6"
	2 Bolt-Linkclamp	1/2" x 3" N.C. Hex. Hd.
OO-2110	1 Cap-Countershaft ball	C.S. #00-2110-A-1
	2 Bolt	3/8" x 3" N.C. Hex. Hd.
OO-2115	1 Ball-Countershaft Br'g.	C.I. #00-2115-A1
	1 Grease fitting	1/8" x 1-1/4" x 67-1/2"
OO-2116	1 Bushing Brg. ball	1-1/2" OD x 1-1/4" B. x 2" Lg.
FO2-2121	1 Sprocket-Countershaft	3/4" P., 14T., 1-1/4" B.
	1 Set screw	5/16" x 5/16" Allen
	1 Key-Woodruff	Style "D"
KO-2136	1 Countershaft	1-1/4" x 27-1/4" Lg.
KO-2140	1 Coupling-shaft	2" OD x 1-1/4" B. x 4" Lg.
	2 Key-Woodruff	Style "D"
	4 Set screw	1/2" x 3/8" Lg. Allen
KO-2150	1 Chain-Brush drive	3/4" P. x 89 Links
KEO-1561	1 Link-Plain	3/4" P. Straight
KRO-1561	1 Link-Offset	3/4" P. Offset

**TRACTOR FRAME**

KEO-2306	2 Spacer-Case Adapter	
	Frame	1-1/2" Rd. x 1-1/4" Lg.
KO-2310	1 Tractor Adapter Frame	Welded Unit
	4 Cap screw	5/8" x 1-1/2" N.C. Hex. Hd.
	4 Cap screw	5/8" x 2" N.C. Hex. Hd.
	2 Cap screw	5/8" x 3" N.C. Hex. Hd.
	2 Cap screw	3/4" x 1-1/2" N.C. Hex. Hd.
	10 Lockwasher	5/8" S.A.E.
	2 Lockwasher	3/4" S.A.E.
	2 Nut	5/8" N.C. Hex.
KO-2315	1 Shaft-Brush arm pivot	1-1/2" x 46" Lg.
	2 Cotter	3/16" x 2" Lg.
KO-2316	1 Spacer-Pivot shaft	1-1/2" P. x 7-3/8" Lg.
KO-2320	1 Frame-Legs & Plate	Welded Unit
	10 Bolts	1/2" x 3-1/4" NC. Hex. Hd.
KO-2330	1 Frame-Brush arm Pivot	Welded Unit
	4 Bolts	5/8" x 2" NC. Hex. Hd.
	4 Washer	5/8" Plain
	2 Grease fitting	1/8" Straight Hydraulic
KO-2335	1 Tie Bolt-R.H.	1/2" x 18" Threaded
KO-2340	1 Tie Bolt-L.H.	1/2" x 23-1/4" Threaded
	4 Nut-Tie Bolt	1/2" N.C. Hex.



## LIST OF PARTS MANUFACTURERS

Component	Manufacturer and Part Number
Bearings - Gearbox	New Departure, Bristol, Conn. Part No. 7506, 87508, WC-87506
Ram - Brush Lift	Hydraulic Equipment Co., Cleveland, Ohio Part No. 154
Hose - Hydraulic Swivel Union	Eastman Manufacturing Co., Manitowoc, Wisconsin Part No. 9400, B-1200, 961
Pump Valve and Piston Assembly	American Hydraulic, Inc., Sheboygan, Wisconsin Part No., JX-5085, J-151
Springs	Advance Spring Company, Chicago, Illinois
Sprockets	Cullman Wheel Co., Chicago, Illinois
Roller Chain	Diamond Chain Company Indianapolis, Indiana Part No. 433
Bearing - P.T.O. Shaft	The Fafnir Bearing Co., New Britain, Conn. Part No. 1-1/4" L. C. J.
Grease Gun	Stewart-Warner Co., Chicago, Illinois Part No. 55852

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**SECTION IV**  
**BRUSH FILLING MACHINE**

**BRUSH FILLING MACHINE**

## BRUSH FILLING MACHINE ASSEMBLY

1. Support the two end stands BF-1005 and BF-1010 to hold them vertical. The gusset plates at the junction of the floor and vertical members should be toward the front.

2. Bolt the lower tie channel BF-1025 against the back of the vertical stand legs and the upper tie channel BF-1030 against the back of the upper end of the vertical legs.

3. Bolt the tie angle BF-1020 across the rear of the horizontal members of the stands.

4. Mount the drum shaft BF-1105 against the front of the vertical legs with one BF-1120 bearing and one shim BF-1115 at each end of the shaft with the keyway end toward the left.

5. Install the brake band wheel BF-1125 on the keyed end of the shaft. Tighten the setscrew.

6. Slip the brake band BF-1150 over the projecting end of the pin in the left hand stand BF-1010 with the free end toward the right facing the end of the machine. Remove the nut and spring BF-1165 from the threaded bolt and slip the bolt through the twisted lug on the stand. Then slip the spring over the eyebolt and replace the nut. Finally, place the washer and cotter key which retain the band in place on the anchor pin.

7. On the inner projecting end of this pin remove the end cotter pin and one washer, then slip on the short pawl BF-1225 and the long pawl BF-1230 after which the washer and cotter pin are replaced.

8. Determine the location of the adjustable vertical member BF-1040 by the length of the brush to be filled. This member is clamped to the upper and lower tie channels by means of straps BF-1045 having two bolts through each.

9. Grease the drum shaft bearings before starting to operate the machine.

## FILLING THE BRUSH

### PREPARATION OF THE BRUSH

1. When the bristles of the brush have been worn down to within a few inches of the brush core (3 to 6 inches, depending on the quality of the work to be done) the brush must be refilled.

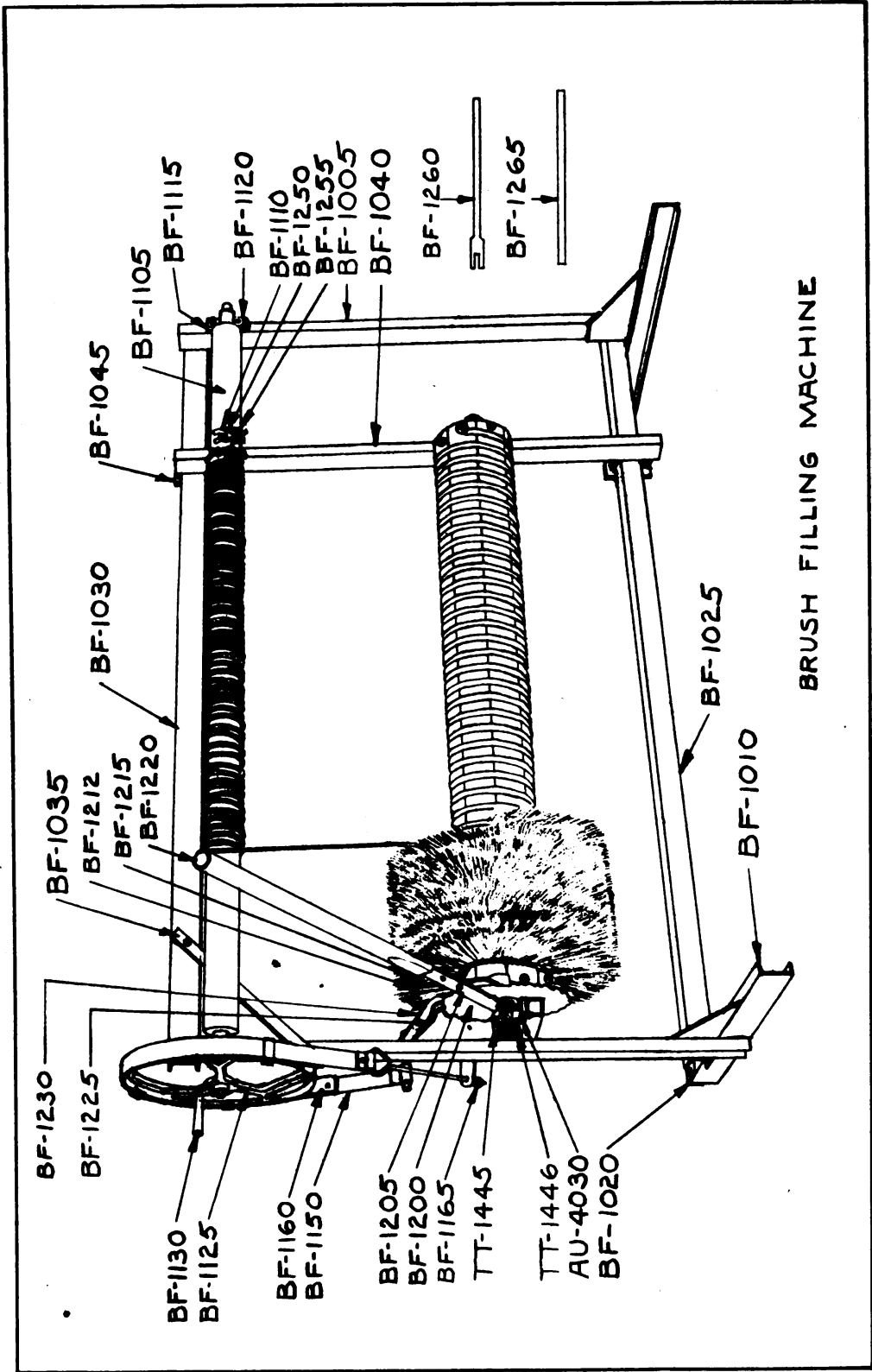
2. To remove the brush from the sweeper, remove the capscrews holding cap OO-1445 to socket OO-1444 and remove the connecting link in the final drive chain KO-2150 thus releasing the chain and permitting the brush to be dropped out of the socket. If the driven sprocket AT-1438 is to be used on another brush it must be removed but may stay in place on the core without interfering with the refilling.

3. The old filler material must now be removed from the brush. To do so, the wire rope is loosened at the end next the sprocket, if the sprocket is not removed, and several feet of rope pulled loose. By giving the rope short sharp pulls while restraining the brush shaft ends the filler and rope will be loosened from the core. This is continued until all the rope except the last turn at the outside of the groove is loosened.

4. Now inspect the wire rope for weak spots and if replacing is required the old rope is completely removed, the new wire rope stapled to the core with one turn alongside the first groove as in the case of the old rope. Be sure that the grooves are clean before proceeding.

5. Bolt the ratchet disc BF-1200 to the end of the core to which the wire rope is attached with the open end of the notches in the disc facing counter-clockwise.

6. Slip the lever arm and dog assembly BF-1205 over the end of the shaft next the disc and slip one bearing ball TT-1446 over each end of the shaft. Then lay the assembly into the pillow block bases AU-4030 and attach caps AU-4035 with the bolts provided.



BRUSH FILLING MACHINE

7. The core is now rotated by hand pulling the top of the core toward the operator until the groove is filled from end to end with the wire rope. If a new wire rope is used, it should be cut off at the floor level with the groove completely filled. This gives about three feet surplus to permit stapling one turn alongside the last ring of fibre.

8. Hook BF-1110 is hooked in the hole nearest the end of the core and using the wire rope leader to extend the end of the brush rope, the latter is attached to the leader and thus to the hook with wire rope clips.

9. The wire rope is now rewound on the drum using the crank handle in the brake wheel BF-1125 until all but the attached end of the rope is unwound from the core.

10. The brake band is then tightened by turning the nut on the end of band BF-1150 eyebolt until the brake band wheel can no longer be turned by hand when grasping the spokes with both hands and attempting to turn it clockwise.

11. The last step before starting to refill the core is to place about 140 pounds of brush fibre in a tank of boiling water for a minimum of ten minutes. (One bale of fibre weighs about 112 pounds.)

#### FILLING THE BRUSH

12. Have a man grasp the extension handle BF-1120 and place about an armful of steamed fibre on a stand or table slightly to the right of the wire rope running from core to the drum.

13. Take a bunch of fibre as large as can conveniently be held in both hands and hook it behind the wire rope then pulling it down against the brush core while pulling the ends toward you forming a "U" shape. Signal the assistant to pull down on the handle while

spreading the fibre along the new point of contact between the wire rope and the core until all the material has been disposed of. With a little practice and teamwork, it will be easily possible to distribute the fibre evenly, leaving a minimum number of gaps or overfilled spots. This procedure is continued until the entire brush is filled to the last full depth groove.

14. The core is then given one complete revolution more while stapling the surplus length of wire rope against the fibre in the last groove to hold it compact and upright.

15. The wire rope clip holding the end to the leader is then removed and the remaining end of the rope stapled to the core. As in the case of the beginning, about ten to fifteen staples should be used to retain the wire rope at the end.

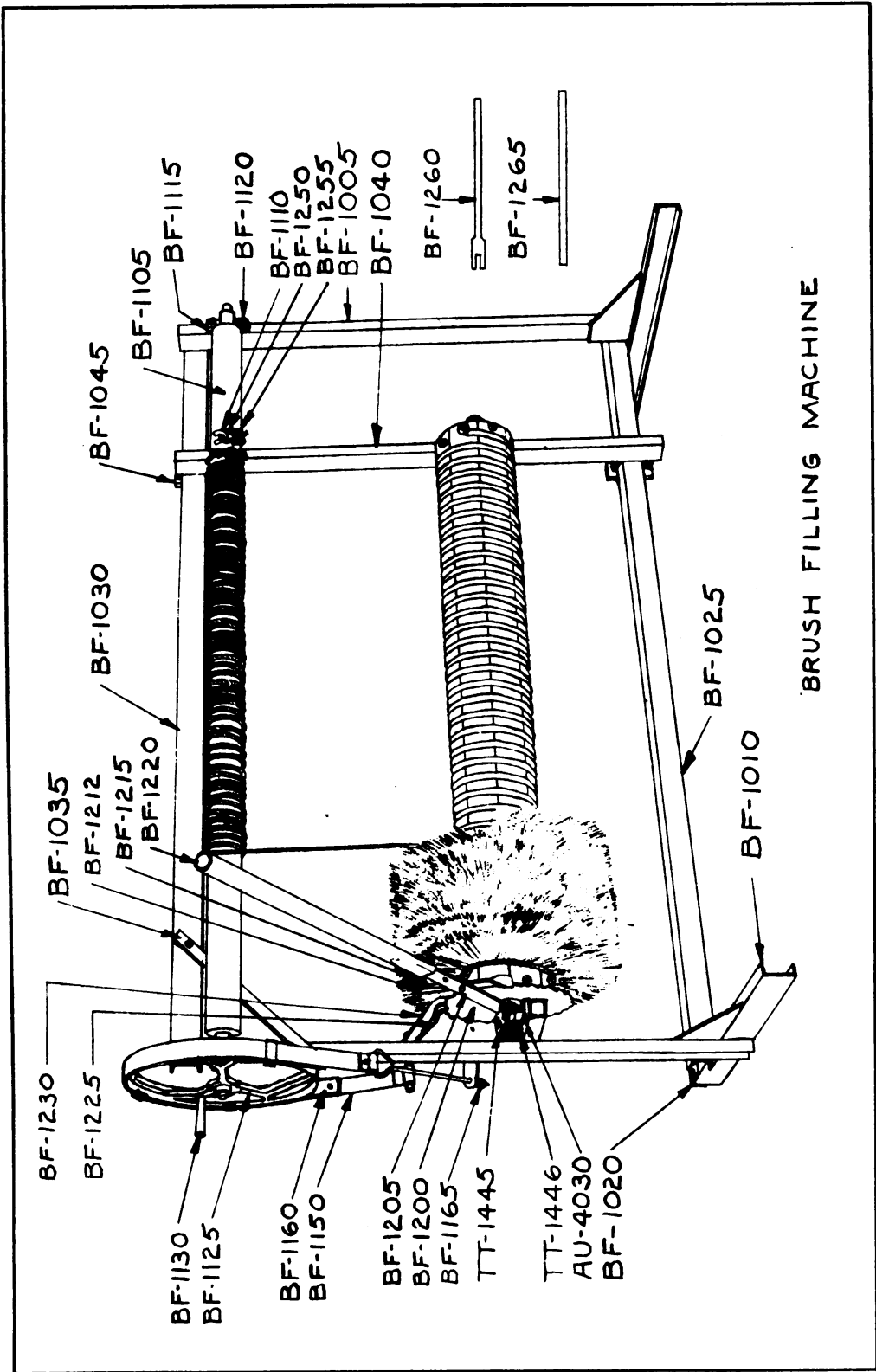
16. To insure holding the fibre in place after drying and during use, it is necessary to drive about twenty to thirty additional staples along the entire length of the brush. Two tools are furnished for this purpose. BF-1260 is used to start the staple by inserting a staple into its forked end, locating a thin spot in the brush to permit spotting the staple over the rope and starting the staple into the core by striking the end with a hammer. Tool BF-1265 is used for setting the staple after it is started. Staples should be spaced as uniformly as possible across the brush but are more conveniently located at points along the brush where the filling is not as thick as at other points.

17. When stapling is completed, the brush is removed from the machine by reversing the sequence of operations 5 and 6.

**NOTE:** Remember to soak the brush before using and while in use to prolong the length of useful life of the fibre.

## BRUSH FILLER PARTS LIST

PART NO.	NO. REQ.	PART NAME	DESCRIPTION
BF-1005	1	Stand-R.H. Leg	4" Chan. 6' High
BF-1010	1	Stand-L.H. Leg	4" Chan. 6' High
	3	Cotter	3/16" x 1-1/2"
	3	Washer	1" Wrought
BF-1020	1	Tie Angle-Std. Leg	2-1/2"x2-1/2"x5/16"x118
BF-1025	1	Tie Channel-Lower	4" x 5.4# x 121-1/2"
BF-1030	1	Tie Channel-Upper	4" x 5.4# x 121-1/2"
BF-1035	1	Brace-Upper Frame	1/2" x 2" x 35-1/4"
	10	Bolt-Frame	1/2" x 1-1/4" Mach. Bolt
BF-1040	1	Vert. Adj. Member	Welded Unit
BF-1045	2	Strap-Ver. Mem. Clamp	1/2" x 1-1/2" x 6-1/2"
	4	Bolt	1/2" x 3" Mach. Bolt
AU-4030	2	Base-Pillow Block	C.I. Patt. UD-2044B
	4	Bolt	1/2" x 3-1/2" Mach. Bolt
TT-1446	2	Ball-Pillow Block	C.I. Patt. UD-3046
	2	Grease Fitting	1/8" Str. Hydraulic
TT-1446A2	2	Bushing-Ball	1-1/2" x 1-1/4" x 3" lg. Brz.
TT-1445	2	Cap-Bearing Ball	C.I. Patt. E-3045
	4	Bolt	3/8" x 3" Mach. Bolt
BF-1105	1	Drum-Wire Rope	4" Pipe x 116" & Shafts
BF-1110	1	Hook-Rope Anchor	1/2" x 8-1/4" Formed
BF-1115	2	Shim-Bearing Spacer	1" x 1-3/4" x 6" Flat
BF-1120	2	Bearing-Drum Shaft	C.I. Patt. GL-22
	2	Grease Fittings	1/8" Str. Hydraulic
	4	Bolt	1/2" x 2-1/2" Mach. Bolt
BF-1125	1	Wheel-Brake	C.I. Patt. PEP
	1	Setscrew	5/16" x 3/4" Sq. Head
	1	Key-Wheel to Shaft	Style D Woodruff
BF-1130	1	Handle-Crank	C.I. Patt. SH-4
BF-1131	1	Bolt-Handle Retainer	1/2" x 5" Sp. Head
BF-1150	1	Brake-Band Assem.	Band & Lining W/ Bolt
BF-1155	1	Brake Band Unit	Band & Bolt less lining
	1	Wingnut-Bolt Adj.	1/2"-13 Wingnut
	1	Washer	1/2" Wrought
BF-1160	1	Lining Only	1/8" x 1-1/2" x 58"
	16	Rivets	#9 Split
BF-1165	1	Spring-Band Tension	1" OD x 1/8" W x 7 Turns
BF-1200	1	Ratchet Disc.	3/16" x 16" Notched
BF-1205	1	Lever Arm-Handle	Welded Unit
BF-1210	1	Retainer-Lever	3/8"x1-1/4"x8-1/2" Offset
BF-1211	1	Bolt	1/2" x 1-1/2" Special
BF-1212	1	Dog-Ratchet Lever	Welded Unit
BF-1213	1	Bushing-Dog	11/16" OD x 1/2 B. x 7/16"



<b>PART NO.</b>	<b>NO. REQ.</b>	<b>PART NAME</b>	<b>DESCRIPTION</b>
	1	Bolt	1/2 x 2 Machine Bolt
BF-1215	1	Spring-Ratchet Dog	1/2" OD x 1/16" W x 3"
BF-1220	1	Handle	1-1/2" Pipe x 44"
BF-1225	1	Pawl-Disc Short	Welded Unit
BF-1230	1	Pawl-Disc-Lg.	Welded Unit
BF-1250	1	Leader-Wire Rope	3/8" x 42" W/clips
BF-1255	1	Clip-Wire Rope	3/8" M.I.
BF-1260	1	Tool-Staple Start.	Fork end 5/8" x 18"
BF-1265	1	Tool-Staple Set.	Cup end 5/8" x 18"

