

OPERATION AND MAINTENANCE

MODEL W CHIP-SPREADER

**THIS MANUAL PREPARED FOR MACHINE
SERIAL.....**



<http://www.geffs.com>

Geffs Manufacturing, Inc.

P.O. Box 4885

Pocatello, Idaho 83205-4885

208-232-1100

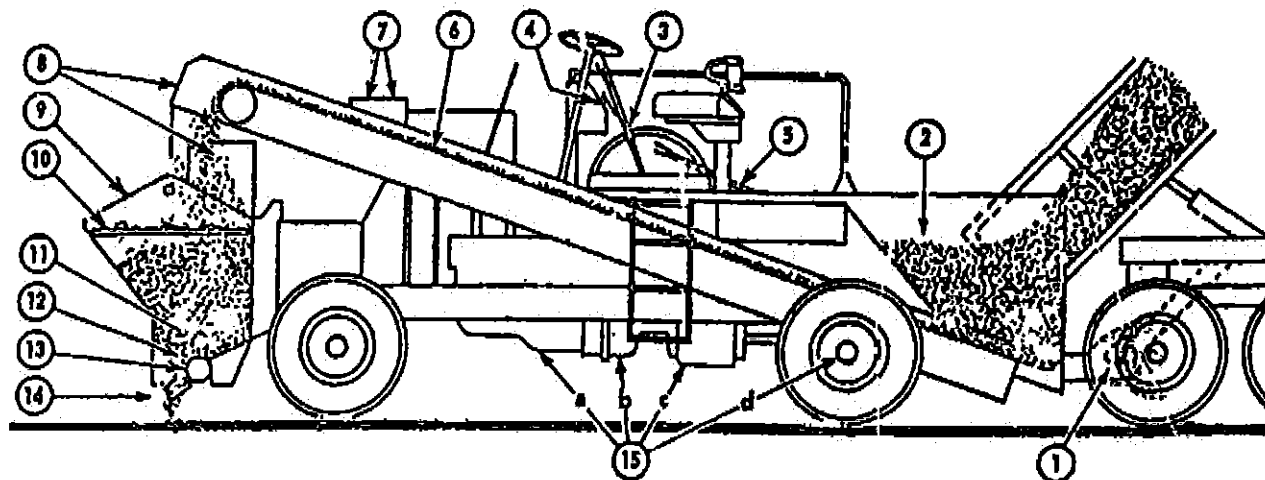
TABLE OF CONTENTS

ADJUSTMENT - ENGINE CLUTCH	Page K
ADJUSTMENT - GATES	Page L
AIR CLUTCH	Page W34
AIR COMPRESSOR	Page W28
AIR SYSTEM & COMPONENTS	Page W26
AIR SYSTEM WIRING (one man control)	Page W52
AIR SYSTEM WIRING (two man control)	Page W50
AXLE - FRONT	Page W14
AXLE - REAR	Page W12
BRAKE - FRONT SERVICE	Page W22
BRAKE - REAR SERVICE	Page W24
BRAKE - TRANSMISSION	Page W8
CLUTCH - ENGINE	Page W2
CLUTCH - AIR	Page W34
COMPRESSOR	Page W28
CONVEYOR	Page W42
DIFFERENTIAL	PAGE W10
DRIVESHAFT - MAIN	Page W8
DRIVESHAFT - PTO	Page W30B
GEAR BOX - PTO, RIGHT ANGLE	Page W32
GEAR BOX - PTO, SPEED REDUCER	Page W36
HITCH - TRUCK	Page W44
HOPPER - FRONT	Page W38
HOPPER - FRONT, DRIVES & ROLL	Page W40
HOPPER - REAR	Page W44
INSTRUMENTS - DIESEL MODELS	Page W46
INSTRUMENTS - GASOLINE MODELS	Page W48
LUBRICATION GUIDE	Page A
ORBITROL STEERING	Page W18
POWER TAKE OFF	Page W30
STEERING - AXLE	Page W14
STEERING - CONTROL	Page W18
STEERING - CYLINDER	Page W16
STEERING - PUMP	Page W20
TRANSMISSION - MAIN	Page W6
TRANSMISSION - REVERSING	Page W4
TRUCK HITCH	Page W44
VALVE - BRAKE CONTROL	Page W26
VALVE - SOLENOID (air control)	Page W50
VALVE - STEERING CONTROL	Page W18
WIRING DIAGRAM - AIR CLUTCHES (one man)	Page W52
WIRING DIAGRAM - AIR CLUTCHES (two man)	Page W50
WIRING DIAGRAM - DIESEL MODELS	Page W46
WIRING DIAGRAM - GASOLINE MODELS	Page W48

This parts book prepared for W. H. Manufacturing Co.,
by TECHNICAL ART SERVICES, 1371 Zener, Pocatello, Id.
83201.

LUBRICATION AND GREASE CHART

Minimum Time To Service	Description and Location	
DAILY	Front Hopper - 4 Bearings - Spread Roll & Agitator	Grease
DAILY	Front Hopper - 2 Bearings - Jack Shaft	Grease
DAILY	Power Take-off - Rt. Angle Box - Level Check	M.P. 90 Gear Oil
DAILY	Engine Oil Level	Mfg's Specs.
WEEKLY	Conveyor System - Head Pulley Bearings (4)	Grease
WEEKLY	Conveyor System - Tail Pulley Bearings (4)	Grease
WEEKLY	Conveyor System - Reduction Boxes - Level Check	M.P. 90 Gear Oil
WEEKLY	PTO System - Pillow Block Bearings - (4)	Grease
WEEKLY	PTO System - Drive Shaft - (3) Fittings	Grease
WEEKLY	Front Hopper - Reduction Box - Level Check	M.P. 90 Gear Oil
WEEKLY	Steering Pump - Level Check	Type A Fluid
WEEKLY	Engine Clutch - Pedal - One Fitting	Grease
WEEKLY	Engine Clutch - Release Bearing - One Fitting	Grease
WEEKLY	Reverse Box - Level Check	M.P. 90 Gear Oil
WEEKLY	Main Transmission - Level Check	M.P. 90 Gear Oil
WEEKLY	Drive Shaft - 3 Fittings	Grease
WEEKLY	Differential - Level Check	M.P. 90 Gear Oil
WEEKLY	Planetaries - Level Check	M.P. 90 Gear Oil
BI-WEEKLY	Front Axle - King Pins - 2 Fittings	Grease
BI-WEEKLY	Front Axle - Cross Tube & Cylinder Ends - 4 Fittings	Grease
BI-WEEKLY	Front Axle - Oscillating Shaft One Fitting	Grease
MONTHLY	Engine Clutch - Master Cylinder - Level Check	Brake Fluid Only



1. Spring-loaded truck hitch.
2. Receiving hopper.
3. Hand actuated master-spread gate control lever.
4. Automatic limit switch spread roll and agitator control.
5. Hand brake, mechanical.
6. Two independently operated belt conveyors.
7. Fingertip conveyor controls.
8. Baffle plates.
9. Spread hopper.
10. Full width reject screen.
11. Agitator.
12. Individually operated radial cut-off gates.
13. Spread roll.
14. Adjustable material placement screen.
15. DIRECT IN-LINE, POSITIVE POWER FLOW.
 - a. Power unit.
 - b. Reversing Unit
 - c. 5-speed synchro-mesh transmission.
 - d. Planetary heavy duty rear axle.

THE STANDARD W-H MANUFACTURING CO.

W A R R A N T Y

All new machines and parts are guaranteed against defective workmanship and material for a period of six(6) months, except that the Manufacturer assumes no responsibility and makes no warranty with respect to engines, engine accessories, tires or other purchased components beyond the warranty of the supplier of same.

This warranty will not apply to a machine which shall have been repaired by other than an authorized W-H Manufacturing Co. Distributor using genuine W-H Manufacturing Co. parts. The Manufacturer's obligation under this warranty is found to be defective within six (6) months from date of delivery to original user. The Manufacturer's warranty does not obligate the Manufacturer to bear any other costs excepting only the furnishing of a replacement for the defective part; all other damages, including but not limited to any loss or damage resulting from the use of loss of use of any of said products, being hereby expressly waived. No representative of the Manufacturer is authorized to change this warranty in any way, and no attempt to repair the products of the Manufacturer by any representative of the Manufacturer shall change or extend this warranty in any way.

Parts to be substituted for parts found defective are to be furnished free to the Customer by the Manufacturer, f. o. b. factory. Installation of such parts is to be made by and at the expense of the Customer UNLESS HE IS AUTHORIZED IN WRITING BY THE MANUFACTURER TO MAKE SUCH INSTALLATION AT THE MANUFACTURER'S EXPENSE. Parts claimed to be defective and for which free replacement is desired are to be returned to the Manufacturer, f. o. b. Pocatello, Idaho or to such other place as the Manufacturer may designate, for inspection, if requested by the Manufacturer.

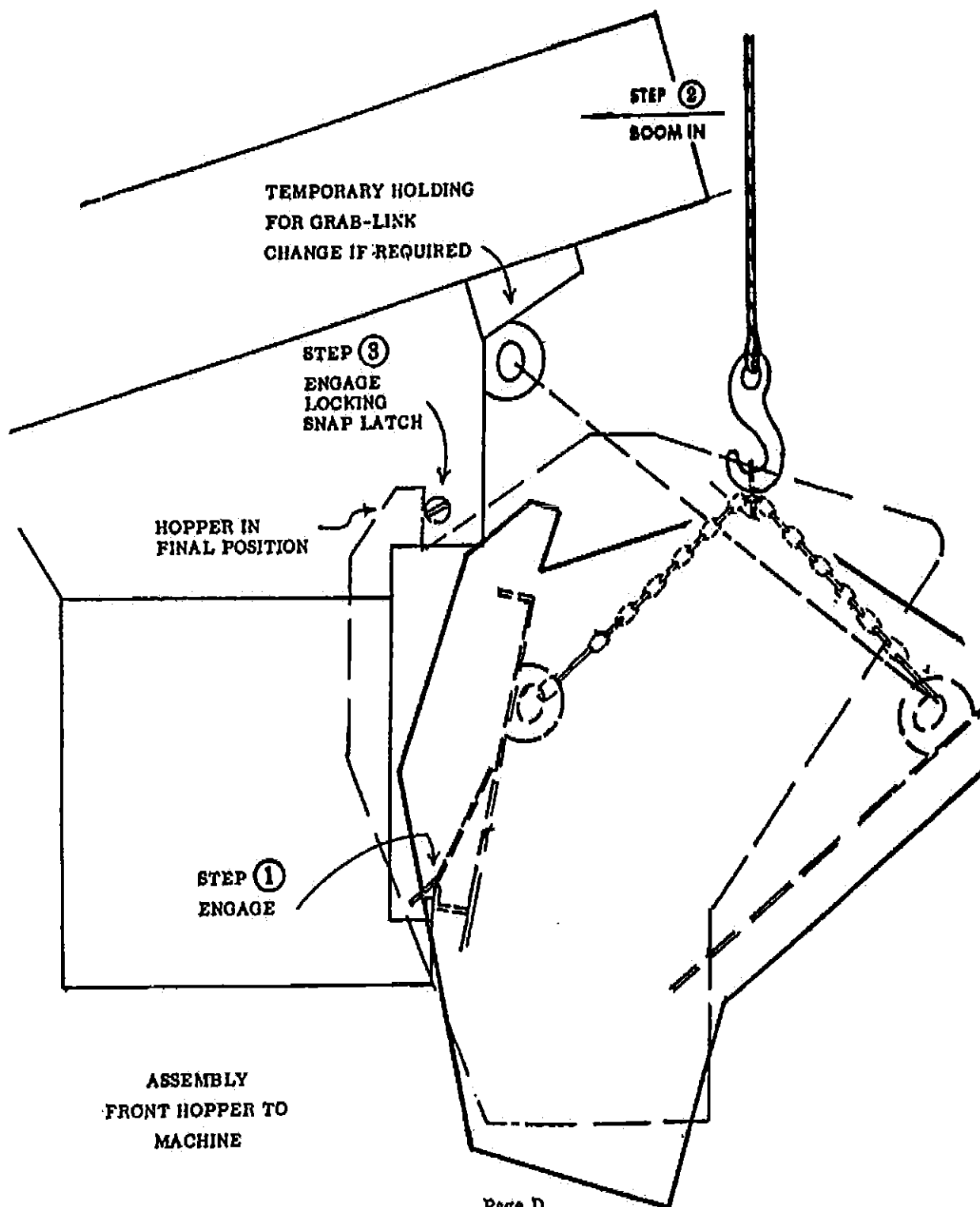
W-H MANUFACTURING CO.

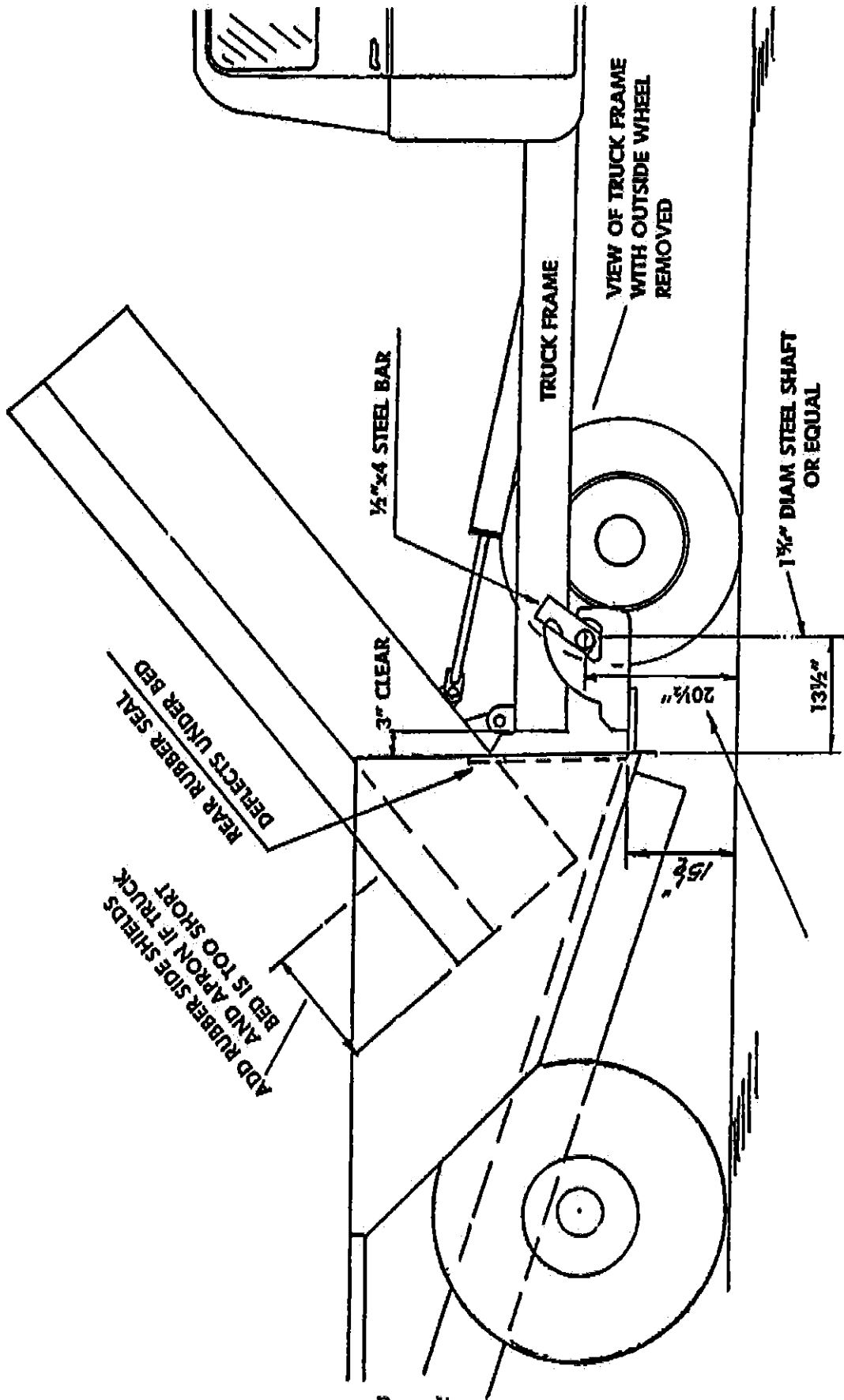
West of City

P. O. Box 4845

Pocatello, Idaho 83201

W-H Manufacturing Co. reserves the right to change its designs at any time without incurring obligation to make such design changes on machines previously sold.





TRUCK HOOK & PULL BAR ATTACHMENT

W.H. Manufacturing Co.

The following is a brief outline of operational and repair procedures, suggested by W. H. Manufacturing Co., to be used with their Model W. Chip-Spreader. These procedures are a compilation of our experiences, and are given to the operators of the Chip-Spreader as an aid to better understanding of the problems arising from the adoption of a proven type of machine to the standard construction routines.

If the operator will follow, very closely, these suggestions, he will be pleased with the efficiency of this unit and the extra profits made possible with its use.

POWER TRAIN — REPAIRS

For engine, clutch and reversing unit, transmission and rear axle refer to appropriate manufacturers manuals.

FRONT HOPPER

This is a storage and spreading mechanism for cover materials. Its spreading width ranges from 6 inches to full hopper width. It consists of a drive housing that transmits power to its spread-roll agitating shaft. These rotating parts are automatically stopped by a limit switch when the operator closes the master front gate control lever.

ROD SCREENS

When the Chip-Spreader comes from the factory the front hopper is equipped with rod screens that function to stop over-sized materials, mud, sticks, etc., from entering the spread opening. These screens should be in place whenever it is possible to use them. If streaks or light areas appear behind the spread roll on the deposited material, it is caused by over-size foreign materials too large to pass the control gate. In most cases when this condition occurs, the foreign material can be discharged by suddenly opening the control gate to full position then immediately closing back to the proper control position. If this fails, the foreign matter is very large and can be dislodged only by manual means. If plugging is not too severe, it is recommended that the hopper be allowed to run low then the piece or pieces removed.

ROD SCREEN SIZES

The Chip-Spreader is equipped and shipped with one size screen. The screen is 3/4" mesh, and is the size required in most applications. However, if large materials are handled, such as 1" and up, we make a 1 1/8" mesh screen, which can be obtained in place of the 3/4" screen.

SPREAD SCREEN — ADJUSTMENT

The front of spread screen is held in place by two 3/8" bolts in each end of the special bracket. Loosen each of the bolts when making adjustments and retighten when adjustment is finished. This screen must be set at a steep angle to allow the materials to flow freely over the surface. Too flat an adjustment will cause the cover material to pile up and an uneven spread will result.

Extreme care must be exercised to prevent this screen from being pushed into the ground when turning the Chip-Spreader around or driving it off the roadway. We recommend the adjustment of the screen up as far as possible when the above conditions arise as no cover material is being used at such time and this precaution will prevent damage to the screen.

SPREAD ROLL

The spread roll forms the bottom of the hopper and, when rotating, is the means of distributing the materials. The speed of this roll is fixed at the factory and need not be changed. The amount of flow of materials is changeable by opening or closing the control gate, the proper amount to get the desired cover. Accuracy to within a few oz. per sq. yd. is obtainable.

CONTROL GATE ROD

The control gate is moved by means of adjustable linkage to the control lever at the driver's seat. It at any time the deposited materials are heavier on one side than on the other, check the opening on each end of the hopper — with the gate approximately 1/2" open. If this measurement indicates more than 1/32" variation, pull the clevis pin on the reach rod and adjust to the desired distance.

MATERIAL CONTROL SYSTEM

Because of the necessary accuracy needed to do an effective spreading job, the control lever for the control gate is so built that one notch change in the metering quadrant allows only 1/16" change of opening on the control gate and to assure the return of the control lever to the exact spot with a minimum loss of time, a stop lever is installed beside the control lever, on the metering quadrant. This stop lever is set at the desired opening and the control lever is brought into line with it when gate is opened, each time the machine is started. To change stop-lever move to desired position.

CARE OF CHAIN DRIVE

There is an idler in the chain that drives the auger and spread roll. To adjust the tension on the chain, open the chain guard, loosen the idler mounting bolts, and move the idler assembly.

AGITATOR

The function of the agitator is to offset any tendency of material to bridge or arch as in the case of set sand and etc., assuring an even feed to the spread roll. On each end of the sections there is a ductile steel wear plate facing against a fixed wear plate. Bolted to the hopper end, with the bearing bolts; these plates must be replaced periodically as wear occurs. Neglect of the wear plates will cause shafts and bearings to fail prematurely.

TO FREEWHEEL AGITATOR: Disconnect the two H. D. Allen screws from the freewheel sprocket. The agitator will then stand still with its sprocket acting as an idler. Replacing these screws will reactivate the agitator.

GATE CONTROL

The gate control lever is connected in such a way that minimum effort is required of the operator to control the radial gates. This lever also controls the limit switch allowing the roll clutches to be engaged and disengaged.

REMOVAL AND ATTACHMENT OF FRONT HOPPER

REFER TO DIAGRAM: PAGE D, The front hopper is held to the Chip-Spreader on a steel seat which interlocks with a steel lip on the rear edge of the hopper. Also holding the hopper in place are two snap pins, one on each side of the conveyor frame. These pins are spring loaded and with a half-turn will snap out to secure the hopper.

CONTROL GATES IN REAR HOPPER

These gates slide in a guide and are operated by a handle protruding from the upper edge of the hopper head plates. These gates are adjustable and held in position by means of a pin fastened to a chain pinned to the head plate. These gates enable the operator to control the amount of material entering the conveyors; eliminating the need of continual stopping and starting of the conveyor belts.

HEAD PULLEY & FRONT HOPPER DRIVE CLUTCH

Head Pulley & Front Hopper Drive Clutches are not adjustable. They are air engaged by electric solenoids. Clutches are maintenance free. Consult Lubrication Guide; Page A; for maintenance requirements on Bearings & Boxes in Clutch/PTO System.

CONVEYORS

The function of the two conveyors is to transport the materials from the rear hopper into the front hopper for distribution by the spread roll.

To help eliminate spillage of materials these conveyors have a bolted on chute lining, which is adjustable and replaceable when worn.

CHUTE LINING WEAR

The chute linings on the conveyor sides are held in place by a special channel, bolted to the conveyor side angles. To adjust or replace this chute lining, loosen the bolts and lower the lining strip or remove as desired. To replace, simply insert new lining under this channel and tighten the hold down bolts.

Care should be taken in installing or adjusting the chute lining to assure an even bearing on the conveyor belt. Be very sure the opening remaining on the conveyor belt surface is parallel to the belt or excess spillage and war is certain to occur.

CONVEYOR BELT ADJUSTMENT

The conveyor belts are adjusted at the factory, when the Chip-Spreader is test operated; but frequently due to stretching, load variation, skirting drag, etc., final adjustment must be made in the field.

To move the belt to the right, take up on the nut at the top right hand edge of the conveyor frame raising the belt idler. To move the belt to the left, tighten the left hand nut. Care should be used in this adjustment as the belt will respond slowly, and over adjustment is likely to occur. This adjustment should be made with conveyor belts running and loaded.

To tighten belts further, and align the tail pulleys; two screw type adjusters are provided at the four tail pulley bearings. Make your adjustment on the OPPOSITE side you wish to move the belt. Extreme care should be taken to assure the belts are running accurately and evenly on the head and tail pulleys.

When INSTALLING NEW BELTS, loosen both the tail pulleys and the front adjustable idler roll. This will give enough slack to allow the belt ends to come together without the use of a belt stretcher. PROPER BELT TENSION is achieved when very little sag occurs between the troughing rollers when loaded.

BELT SPLICES

We suggest the splice be made with No. 1 plate grip fasteners. Any good fastener may be used which will work on a 10" radius without pulling, this is important, because too large a fastener will tear out the belt after a short time of operation.

CONVEYOR BELT LENGTH

Conveyor belts are 4 ply 20" standard rubber covered conveyor belting and should be cut 37' 8" long. See CONVEYOR BELT ADJUSTMENT above, for installation and adjustment.

CONVEYOR BELT WIPER

Immediately under the front of each head pulley is a rubber wiper set to touch the conveyor belt. The function of this wiper is to aid in cleaning adhesive particles from the conveyor, and to prevent excessive gravel from following under the head pulleys when overloading of the hopper occurs. This strip should be adjusted or replaced whenever wear causes clearance between it and the conveyor belt. The same is true of the sealing wiper in the rear hopper.

BAFFLE PLATES

The gravel baffle plates are located directly below the head pulleys of each conveyor and are needed to aid in placing cover materials into the extreme ends and center of the front hopper. These baffle plates also minimize segregation of heavier materials.

REMOVAL OF BAFFLE PLATES

On the machine frame the Baffle Plates are welded to the front of the machine and are thereby fixed into position except a small portable extension on each outer end. These sections are held on by means of two pegs which set into two mating bushings welded to the machine. Removal of these extension pieces is necessary when installing or removing the front of Spread Hopper.

GRAVEL DEFLECTORS

The gravel deflector frame is anchored to the upper end of each conveyor and is held in place by four 1/2" cap screws bolted through slots in the conveyor. The function of this deflector is to aid in the control of the conveyed material. This deflector should be so spaced to control the material in an even fan shaped cascade along the entire face of the baffle plates. This will eliminate segregation of material.

Mounted vertically at the apex of the baffle plates is another deflector plate. The function of this plate is control of the materials stream from side to side as desired. On narrower than full width spread, this vertical deflector must be moved to control the flow of material to compensate for the reduction in width of spread. These vertical deflector plates are adjusted with a reach rod and are held in place with a spring loaded ratchet.

TRUCK HITCH

The function of the truck hitch on the Spreader is to provide a means whereby the truck can be held in a close relationship with the rear hopper. The success of the entire spreading function is directly related to this hook-up, and extreme care should be taken to assure the accuracy of this hook-up with every truck working with the Chip-Spreader.

With the delivery of each unit we send a sketch of the truck hook and the required mating hook-up for the rear end of the trucks to be used. As all trucks are somewhat different, it is impossible for W. H. to manufacture these hook-ups here as a stock item.

In general, all tail gates of the truck beds must set inside of the retaining rubber-skirt 8" when the bed is raised. Frame lengths vary; over-hang of dump bed on the frames vary, relationship of the rear wheels to the frame vary. Therefore, the check of each bed in relation to the rear hopper of the Chip-Spreader, and the bed extension determined from this point on clearance to differential cover.

SEALING TRUCK BEDS TO HOPPER

If trouble is encountered with spillage while dumping into the rear hopper, check these items:

Does tail gate set inside of rubber skirt on rear hopper?

On large trucks, do you have restraining chains on tail gates?

(Where restraining chains are used, allow approximately 18" of slack in the chains.)

SCREEN SIZES

The Chip-Spreader is equipped with one size screen. This screen is 3/4" mesh, and is the size required in most applications. However, if large materials are handled, such as 1" and up, we make a 1 1/8" mesh screen, which can be obtained in place of the 3/4" screen.

POWER TAKE-OFF AND VEE BELT ADJUSTMENT

The Model "W" Chip-Spreader has a front of engine power take off and is connected to the drive through an automotive type slip spline shaft and universal joint. This drives the conveyor and front hopper clutches through a right angle gear box.

Adjustments on clutch driven V belts must be made by changing position of reduction gear boxes at head pulley shaft and at hopper drive shaft.

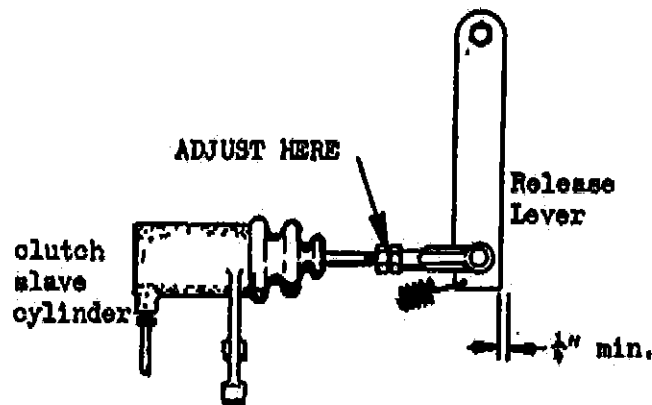
Adjustments on power steering pump belt and hopper gate power assist pump belt can be made by changing position of pumps on mounts.

We recommend these belts be adjusted tight enough to drive the assembly under normal load.

Caution: Do not run these belts extremely tight: They are built into the machine to provide a safety link in case of trouble in the spread roll, or agitator assembly and will slip if this trouble occurs unless they are run extremely tight. In case trouble occurs and the belts do not slip, damage may be caused in the power train.

VEE BELT REPLACEMENT (Refer to Page W30)

To replace V-Belts No. 13 and belts that run on pulleys No. 15 the bolts must first be removed from bearing No. 3. After removing bolts the blocks under the bearings can be removed. Then the belts can be replaced over the end of the shaft and reassembled.



SERVICE NOTE: Engine Clutch Adjustment

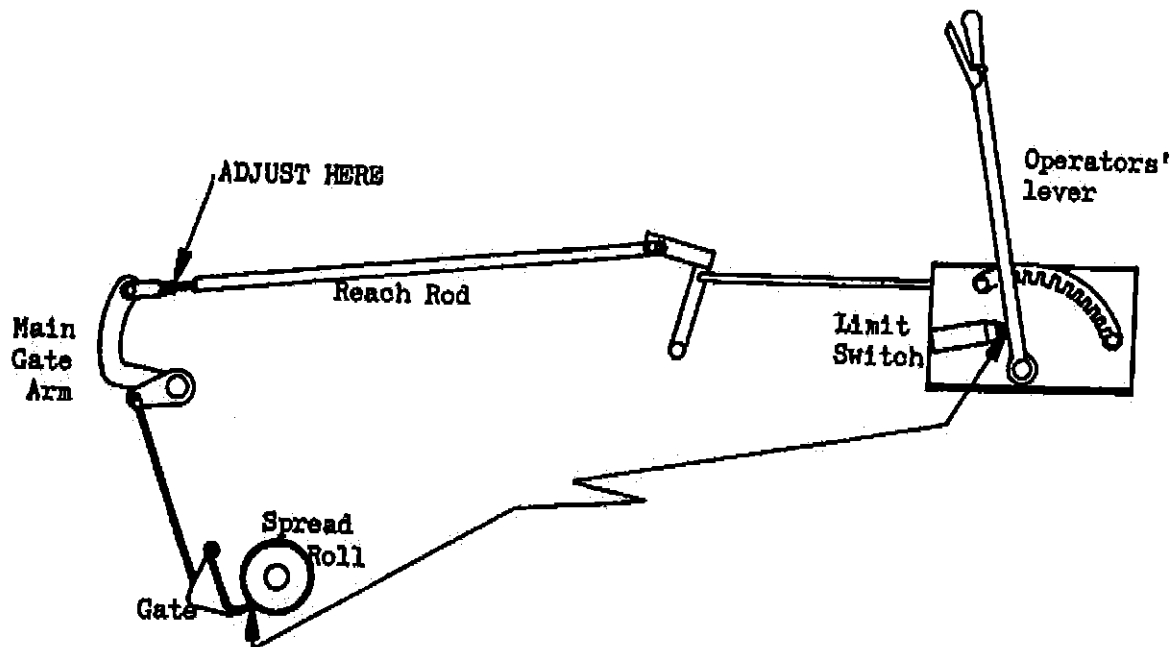
It is advisable to check the engine clutch freeplay at least once a week. The freeplay should be a minimum of $\frac{1}{8}$ " as indicated in the drawing.

ADJUSTMENT OF THIS FREEPLAY IS IMPORTANT! Failure to do so will cause improper clutch performance and early failure of the disc, release bearing, and possibly the pressure plate.

To Adjust: Loosen slave cylinder push rod lock nut & rotate the push rod (or clevis).

It is suggested that the clutch return spring be disconnected during adjustment to obtain a better 'feel' of the freeplay. After adjustment is complete, be sure to tighten locknut & reconnect the return spring.

CAUTION: Excessive freeplay will cause the clutch to not release completely resulting in gear clash and/or damage to the transmission.



SERVICE NOTE: Adjustment of Hopper Gates and Aggregate Feed.

It is important that the aggregate spread gates, the hopper spread roll, and aggregate feed all shut off at the same time. The limit switch on the operators quadrant controls the feed and the spread roll; while the lever on the quadrant controls gate position. THERE IS NO ADJUSTMENT PROVIDED FOR IN THE SWITCH OR LEVER. This adjustment can be properly and easily made only at the point indicated in the figure.

To Adjust: Disconnect the clevis at the main gate control arm on the hopper. Move the lever on the quadrant all the way forward. When locked into the full forward position the limit switch is depressed. At the hopper, make sure there are no obstructions which are restricting the operating gates from closing against the spread roll. Pull the main gate control arm all the way forward to close the gates. While holding the gates closed, adjust the main gate control reach rod as necessary until clevis pin maintains a snug fit, in the forward ~~position~~ direction, in the main gate control arm. When adjustment is completed, tighten the lock nut on the reach rod.

NOTE: This adjustment is designed to eliminate aggregate leakage, thus preventing poor coverage performance. The adjustment should be made on the initial hopper installation, and checked periodically thereafter.

MECHANICAL TRANSMISSION WITH REVERSE BOX

The mechanical transmission gives five speeds. The reverse box, installed between the oil clutch and the mechanical transmission, gives a forward or reverse direction. The mechanical transmission with reverse box gives five speeds in the forward or reverse direction.

The input shaft (13) and gear (3) are free to turn in relation to shaft (4).

The reverse box has a clutch (2) that can be moved with a fork toward the clutch housing (1) to connect the input shaft (13) directly to shaft (4). This sends power to the mechanical transmission with forward rotation.

The clutch (2) can also be moved with a fork in the opposite direction to connect gear (3) to shaft (4). Now power comes from the input shaft (13), through the countershaft (14) through a reverse idler (not shown) to gear (3) which is connected to shaft (4) by clutch (2). This sends power to the mechanical transmission with reverse rotation.

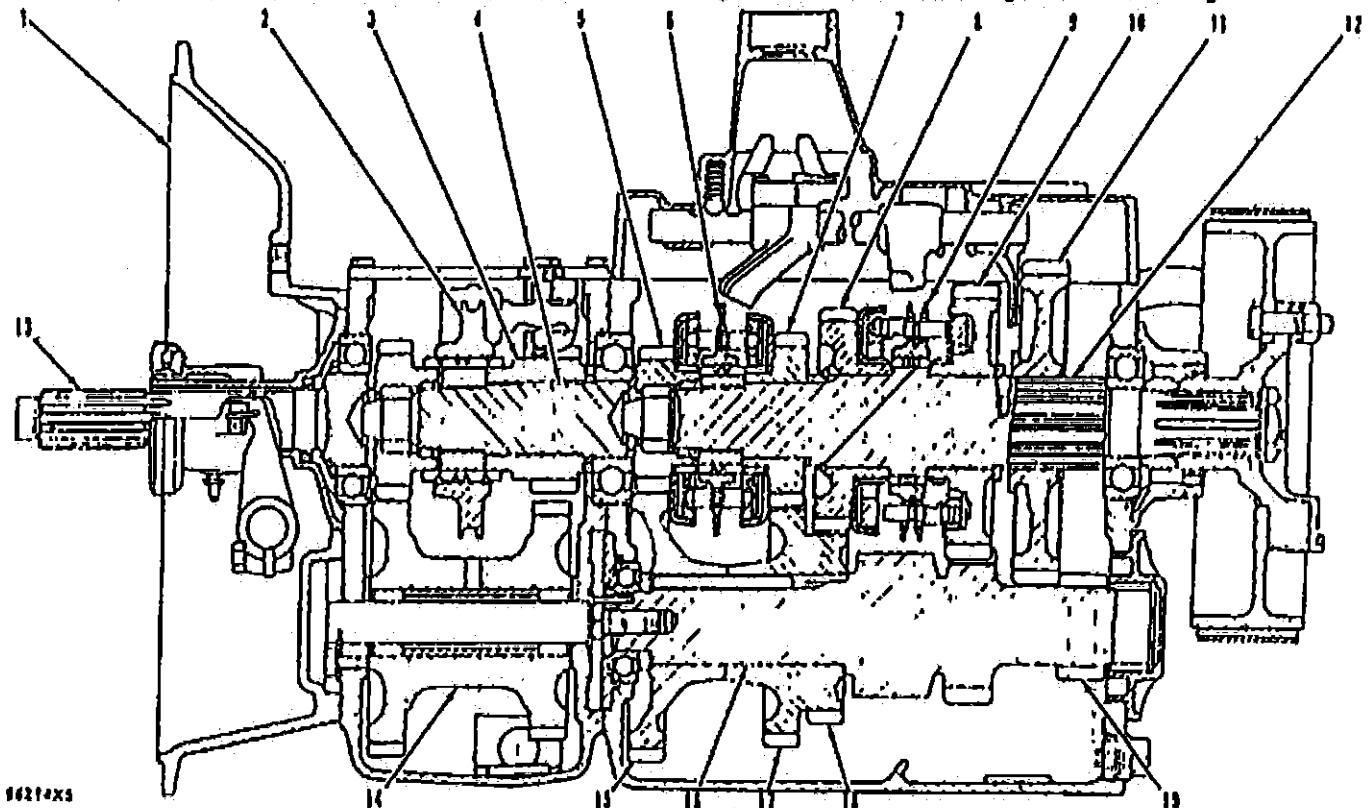
Gear (5) on shaft (4) and gear (7) are free to turn in relation to the output shaft (12). Synchronizer (6) can be moved with a fork toward the clutch housing to connect gear (5) on the input shaft directly to the output shaft (12) or in a direction away from the clutch housing to connect gear (7) to the output shaft (12).

Gears (8) and (10) are free to turn in relation to the output shaft (12). Synchronizer (9) can be moved with a fork toward the clutch housing to connect gear (8) to the output shaft (12) or in a direction away from the clutch housing to connect gear (10) to the output shaft (12).

A sliding gear (11), connected to the output shaft (12) with a spline, can be moved with a fork to engage it with a gear (19) on the countershaft (16).

The synchronizers are used for second through fifth speed and the sliding gear is used for first speed.

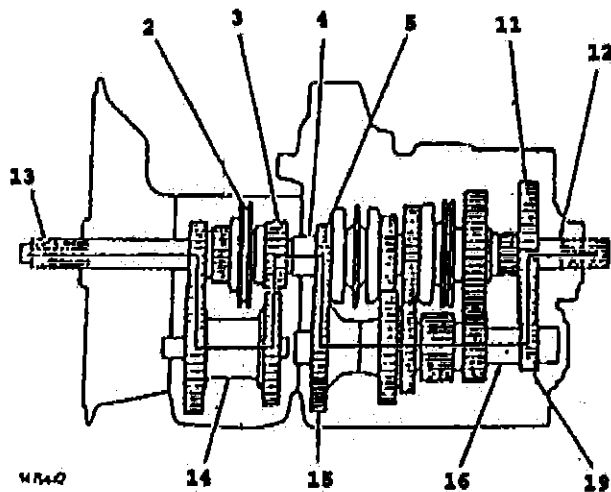
Some of the gears in the transmission and reverse box turn through oil. This oil is thrown about inside the transmission and reverse box to give lubrication to the gears and bearings.



MECHANICAL TRANSMISSION WITH REVERSE BOX

1. Clutch housing. 2. Clutch. 3. Gear. 4. Shaft. 5. Gear. 6. Synchronizer. 7. Gear. 8. Gear. 9. Synchronizer. 10. Gear. 11. Sliding gear. 12. Output shaft. 13. Input shaft. 14. Countershaft. 15. Gear. 16. Countershaft. 17. Gear. 18. Gear. 19. Gear.

Power Flow In First Speed Reverse



POWER FLOW IN FIRST SPEED REVERSE.

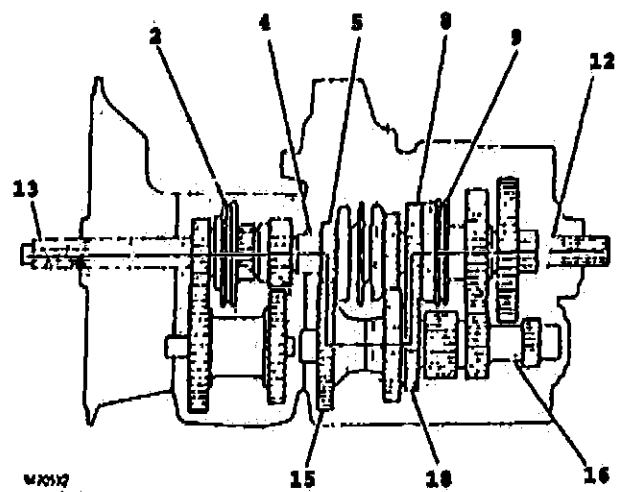
2. Clutch. 3. Gear. 4. Shaft. 5. Gear. 11. Sliding gear. 12. Output shaft. 13. Input shaft. 14. Countershaft. 15. Gear. 16. Countershaft. 19. Gear

The clutch (2) in the reverse box is moved toward the mechanical transmission. The sliding gear (11) in the mechanical transmission is moved to engage it with gear (19) on the countershaft (16).

Power from the engine comes through the input shaft (13), through the countershaft (14), through the reverse idler gear (not shown), to gear (3) which is connected to shaft (4) by clutch (2). This sends power to the mechanical transmission with reverse rotation.

The gear (5) on shaft (4) turns gear (15) which is connected to the countershaft (16) with a key. This sends power through the countershaft. Gear (19) on the countershaft is engaged with the sliding gear (11) which is connected to the output shaft (12) with a spline and power is sent to the differential.

Power Flow In Third Speed Forward



POWER FLOW IN THIRD SPEED FORWARD

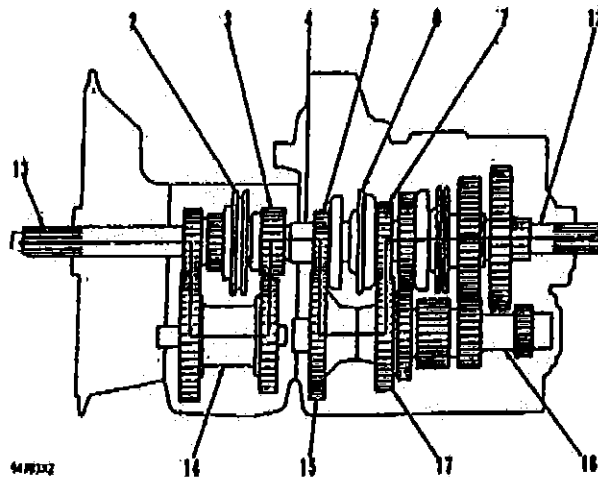
2. Clutch. 4. Shaft. 5. Gear. 8. Gear. 9. Synchronizer. 12. Output shaft. 13. Input shaft. 15. Gear. 16. Counter shaft. 18. Gear.

The clutch (2) in the reverse box is moved toward the clutch housing. Synchronizer (9) is moved toward the clutch housing.

Power from the engine comes through the input shaft (13). Clutch (2) connects the input shaft directly to shaft (4) and power is sent to the mechanical transmission with a forward rotation.

The gear (5) on shaft (4) turns gear (15) which is connected to the countershaft (16) with a key. This sends power through the countershaft. Gear (18) on the countershaft turns gear (8). Synchronizer (9) connects gear (8) to the output shaft (12) and power is sent to the differential.

Power Flow In Fourth Speed Reverse



POWER FLOW IN FOURTH SPEED REVERSE

2. Clutch, 3. Gear, 4. Shaft, 5. Gear, 6. Synchronizer, 7. Gear, 12. Output shaft, 13. Input shaft, 14. Countershaft, 16. Gear, 16. Countershaft, 17. Gear.

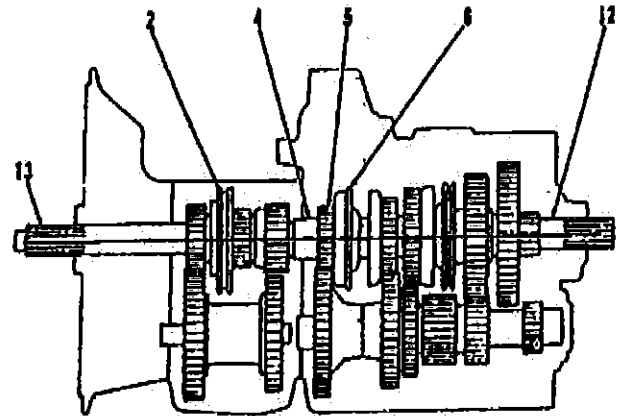
The clutch (2) in the reverse box is moved toward the mechanical transmission. Synchronizer (6) is moved in a direction away from the clutch housing.

Power from the engine comes through the input shaft (13), through the countershaft (14), through a reverse idler gear (not shown), to gear (3) which is connected to shaft (4) by clutch (2). This sends power to the mechanical transmission with reverse rotation.

The gear (5) on shaft (4) turns gear (15) which is connected to the countershaft (16) with a key. This sends power through the countershaft. Gear (17) on the countershaft turns gear (7). Synchro-

nizer (6) connects gear (7) to the output shaft (12) and power is sent to the differential.

Power Flow In Fifth Speed Forward



447012

POWER FLOW IN FIFTH SPEED FORWARD

2. Clutch, 4. Shaft, 5. Gear, 6. Synchronizer, 12. Output shaft, 13. Input shaft.

The clutch (2) in the reverse box is moved toward the clutch housing. Synchronizer (6) is moved toward the clutch housing.

Power from the engine comes through the input shaft (13). Clutch (2) connects the input shaft directly to shaft (4) and power is sent to the mechanical transmission with a forward rotation.

Synchronizer (6) connects gear (5) on shaft (4) directly to the output shaft (12) and power is sent to the differential.

Transmission Oil

Use SAE 90 Multipurpose Oil and fill to top filler plug on main transmission case.

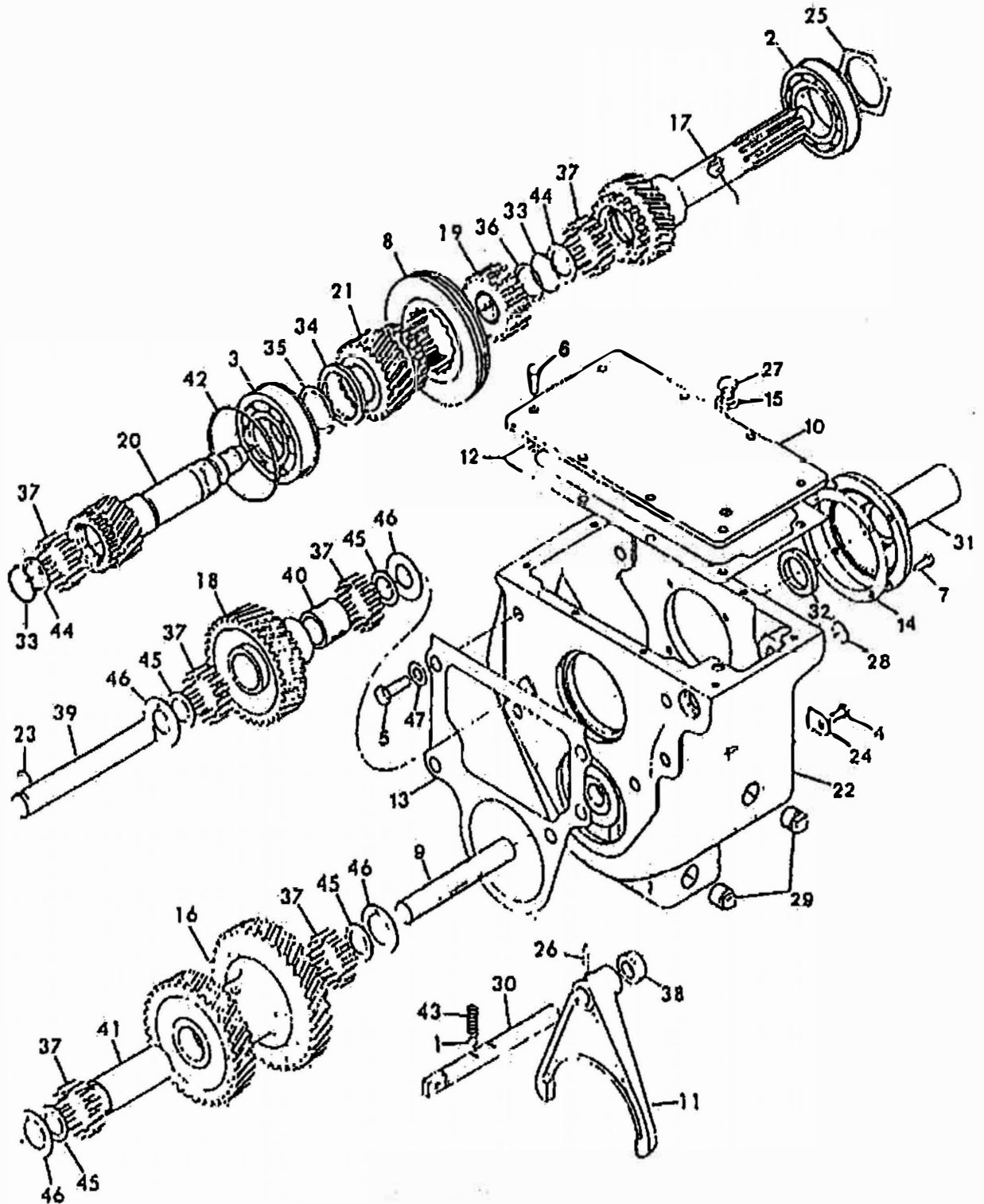
Due to the long working time in 2ND & 3RD gears you must keep the oil to the top shaft.

TRANSMISSION

MODEL "W" CHIP SPREADER

Ref No	Part Number	DESCRIPTION	Qty	Ref No	Part Number	DESCRIPTION	Qty
1	WA-4-1	BALL -----	1	26	WA-4-26	PIN -----	1
2	WA-4-2	BEARING ASSEMBLY ----	1	27	WA-4-27	PLUG -----	1
	"	RING -----	1	28	WA-4-28	PLUG -----	1
3	WA-4-3	BEARING ASSEMBLY ----	1	29	WA-4-29	PLUG -----	2
	"	RING -----	1	30	WA-4-30	RAIL -----	1
4	WA-4-4	BOLT -----	1	31	WA-4-31	RETAINER ASSEMBLY ---	1
5	WA-4-5	BOLT -----	4	32	WA-4-32	SEAL -----	1
6	WA-4-6	SCREW & LOCKWASHER --	8	33	WA-4-33	RING -----	2
7	WA-4-7	BOLT -----	4	34	WA-4-34	RING -----	1
8	WA-4-8	CLUTCH -----	1	35	WA-4-35	RING (.087 - .089) --	1
9	WA-4-9	COUNTERSHAFT -----	1	35	WA-4-35	RING (.090 - .092) --	1
10	WA-4-10	COVER -----	1	35	WA-4-35	RING (.093 - .094) --	1
11	WA-4-11	FORK -----	1	35	WA-4-35	RING (.095 - .096) --	1
12	WA-4-12	GASKET -----	1	36	WA-4-36	RING (.087) -----	1
13	WA-4-13	GASKET -----	1	36	WA-4-36	RING (.090) -----	1
14	WA-4-14	GASKET -----	1	36	WA-4-36	RING (.093) -----	1
15	WA-4-15	GASKET -----	1	36	WA-4-36	RING (.096) -----	1
16	WA-4-16	GEAR -----	1	37	WA-4-37	ROLLER -----	84
17	WA-4-17	GEAR -----	1	38	WA-4-38	SEAL -----	1
18	WA-4-18	GEAR -----	1	39	WA-4-39	SHAFT -----	1
19	WA-4-19	GEAR -----	1	40	WA-4-40	SPACER -----	1
20	WA-4-20	GEAR -----	1	41	WA-4-41	SPACER -----	1
21	WA-4-21	GEAR ASSEMBLY -----	1	42	WA-4-42	SPACER -----	1
		BUSHING -----	1	43	WA-4-43	SPRING -----	1
22	WA-4-22	HOUSING ASSEMBLY ----	1	44	WA-4-44	WASHER -----	2
23	WA-4-23	KEY -----	1	45	WA-4-45	WASHER -----	4
24	WA-4-24	PLATE -----	1	46	WA-4-46	WASHER -----	4
25	WA-4-25	NUT -----	1	47	WA-4-47	WASHER -----	4

TRANSMISSION

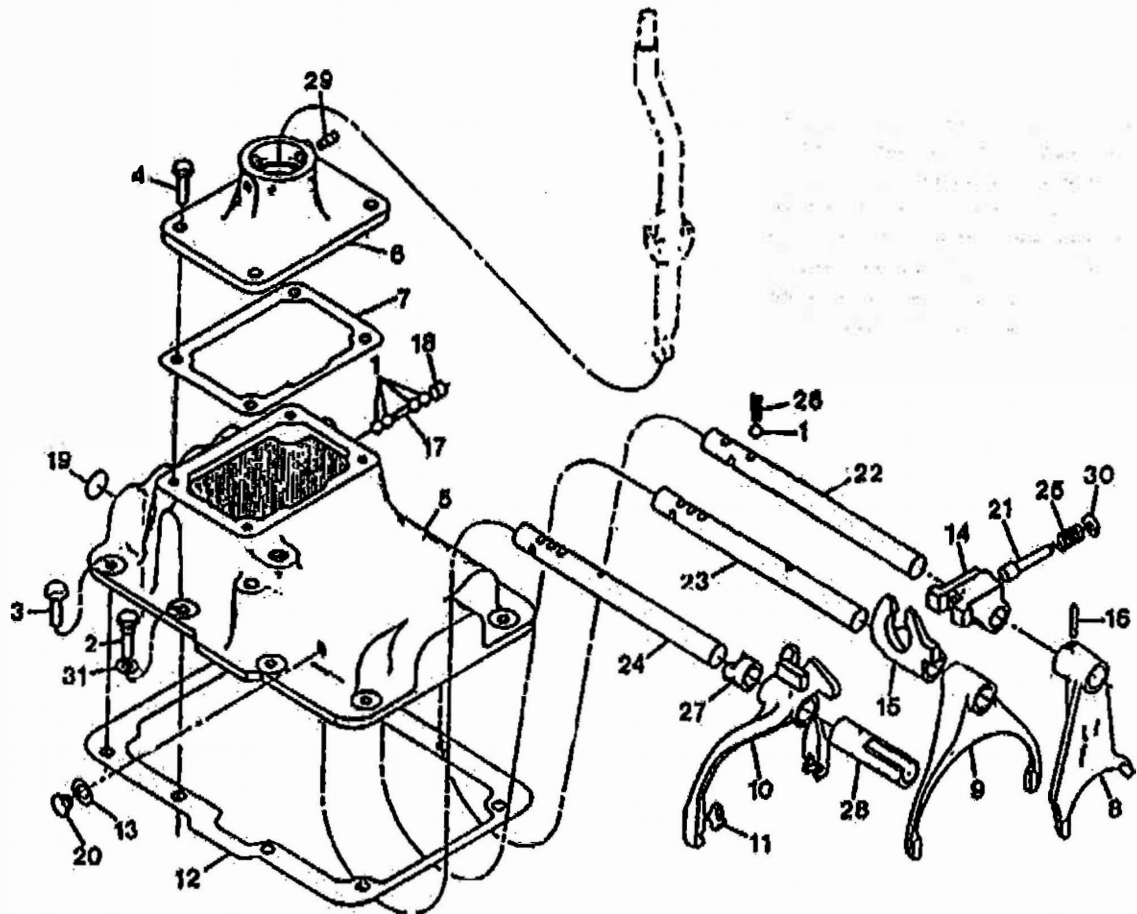


TRANSMISSION

MODEL "W" CHIP SPREADER
SERIAL NUMBER 204 and UP
HAVE NEW PROCESS GEAR
TRANSMISSIONS MODEL 542-R
RATIO 724 SERIAL NUMBER
10-11-79 and UP
ASSEMBLE NUMBER 10977 RTML

Ref No	Part Number	DESCRIPTION	Qty	Ref No	Part Number	DESCRIPTION	Qty
1	WA-6-1	BEARING -----	1	30	WA-6-30	PLUG -----	1
2	WA-6-2	BEARING ASSEMBLY ---	1	31	WA-6-31	PLUG -----	1
		RING -----	1	32	WA-6-32	PLUG -----	1
3	WA-6-3	BEARING -----	1	33	WA-6-33	PLUG -----	3
4	WA-6-4	BOLT -----	4	34	WA-6-34	RETAINER -----	1
5	WA-6-5	BOLT -----	4	35	WA-6-35	RETAINER -----	1
6	WA-6-6	BOLT -----	1	36	WA-6-36	RETAINER ASSEMBLY ---	1
7	WA-6-7	BOLT ASSEMBLY -----	12	37	WA-6-37	RING -----	1
8	WA-6-8	BOLT ASSEMBLY -----	4	38	WA-6-38	RING (.087) -----	1
9	WA-6-9	CASE ASSEMBLY -----	1	38	WA-6-38	RING (.090) -----	1
		MAGNET -----	1	38	WA-6-38	RING (.093) -----	1
		COUNTERSHAFT GROUP --	1	38	WA-6-38	RING (.096) -----	1
10	WA-6-10	COUNTERSHAFT -----	1	39	WA-6-39	SEAL -----	1
11	WA-6-11	PIN -----	1	40	WA-6-40	SHIM (.010) -----	1
12	WA-6-12	PIN -----	1	40	WA-6-40	SHIM (.015) -----	1
13	WA-6-13	SCREW -----	1	41	WA-6-41	SPACER -----	1
14	WA-6-14	WASHER -----	1	42	WA-6-42	SPRING -----	1
15	WA-6-15	COVER -----	2			SYNCHRONIZER AS. ---	1
16	WA-6-16	GASKET -----	16	43	WA-6-43	CLUTCH ASSEMBLY ---	1
17	WA-6-17	GASKET -----	1	44	WA-6-44	PIN -----	2
18	WA-6-18	GASKET -----	1	45	WA-6-45	SPRING -----	2
19	WA-6-19	GASKET -----	2	46	WA-6-46	PIN -----	1
20	WA-6-20	GEAR -----	1	47	WA-6-47	RING ASSEMBLY -----	2
21	WA-6-21	GEAR -----	1			SYNCHRONIZER AS. ---	1
22	WA-6-22	GEAR -----	1	48	WA-6-48	GEAR -----	1
23	WA-6-23	GEAR -----	1	49	WA-6-49	RING -----	2
24	WA-6-24	GEAR -----	1	50	WA-6-50	SYNCHRONIZER AS ---	1
25	WA-6-25	GEAR -----	1	51	WA-6-51	WASHER -----	1
26	WA-6-26	KEY -----	1	52	WA-6-52	WASHER -----	1
27	WA-6-27	SHAFT -----	1	53	WA-6-53	WASHER -----	1
28	WA-6-28	NUT -----	1	54	WA-6-54	WASHER -----	1
29	WA-6-29	PIN -----	1	55	WA-6-55	WASHER -----	3

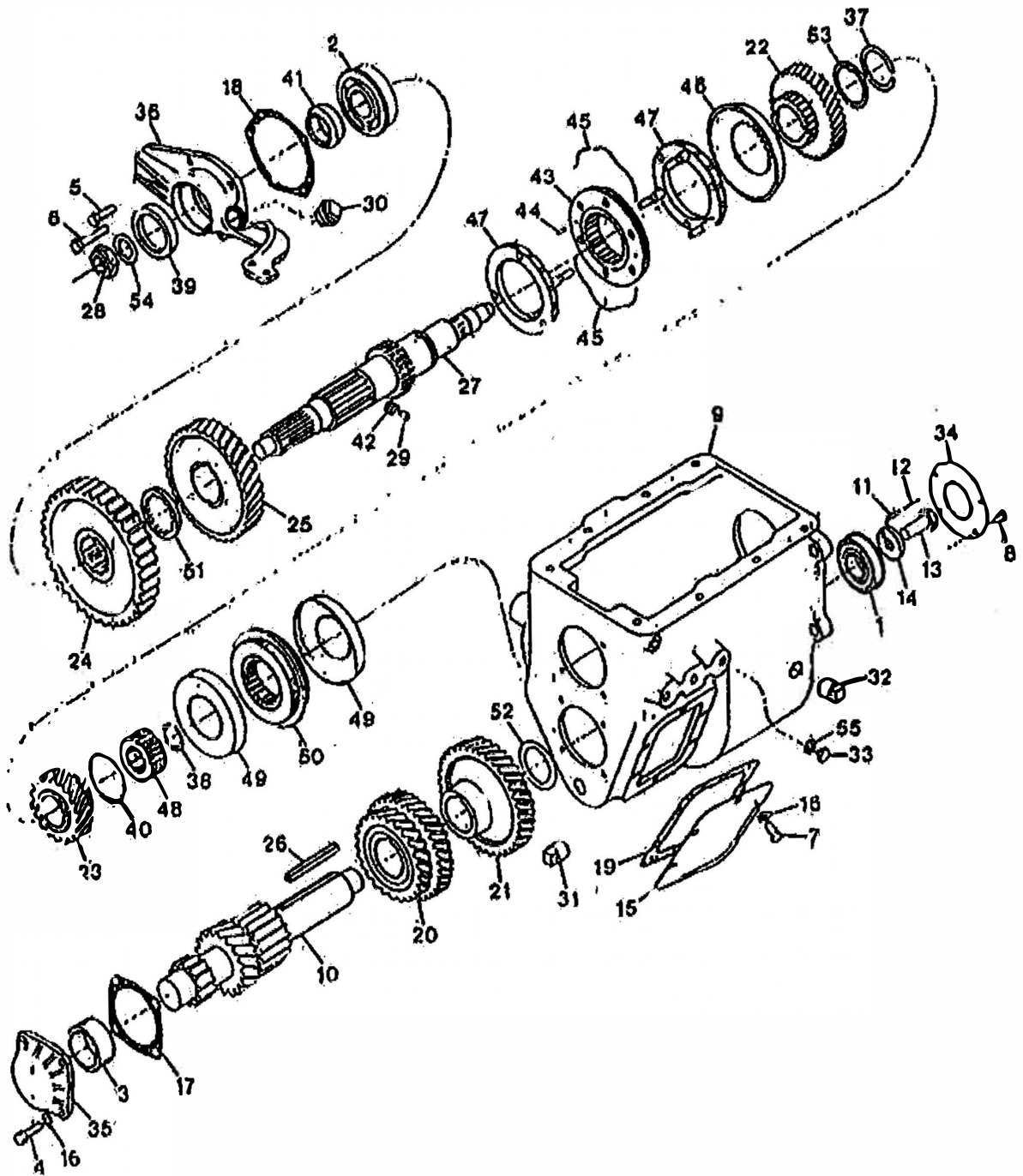
TRANSMISSION



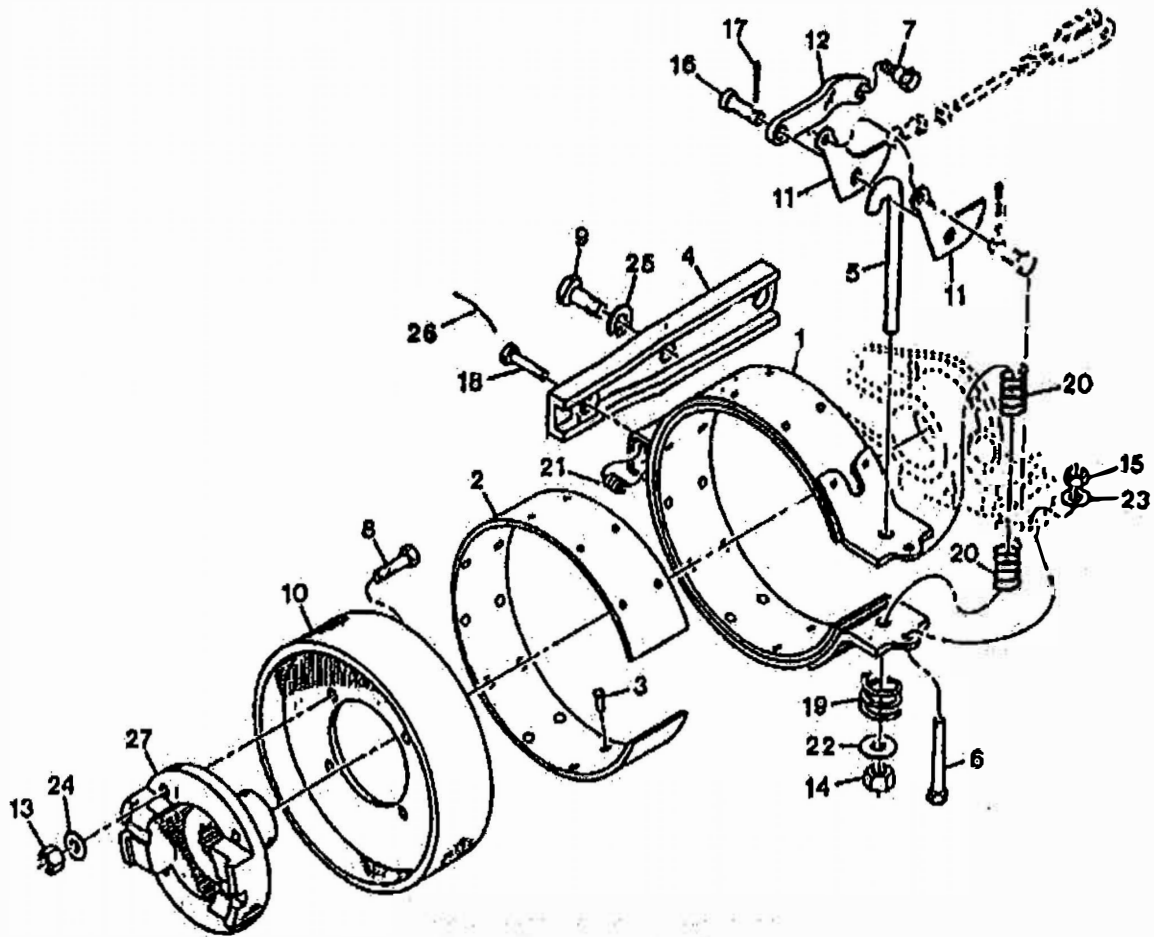
TRANSMISSION GROUP
COVER AND SHIFT CONTROLS

Ref No	Part Number	DESCRIPTION	Qty	Ref No	Part Number	DESCRIPTION	Qty
1	WA-5A-1	BALL -----	8	16	WA-5A-16	PIN -----	5
2	WA-5A-2	BOLT -----	2	17	WA-5A-17	PIN -----	1
3	WA-5A-3	BOLT ASSEMBLY -----	6	18	WA-5A-18	PLUG -----	1
		COVER GROUP -----	1	19	WA-5A-19	PLUG -----	4
4	WA-5A-4	BOLT ASSEMBLY -----	4	20	WA-5A-20	PLUG -----	1
5	WA-5A-5	COVER -----	1	21	WA-5A-21	PLUNGER -----	1
6	WA-5A-6	COVER ASSEMBLY -----	1	22	WA-5A-22	RAIL -----	1
7	WA-5A-7	GASKET -----	1	23	WA-5A-23	RAIL -----	1
8	WA-5A-8	FORK -----	1	24	WA-5A-24	RAIL -----	1
9	WA-5A-9	FORK -----	1	25	WA-5A-25	SPRING -----	1
10	WA-5A-10	FORK & INSERT AS. ---	1	26	WA-5A-26	SPRING -----	3
11	WA-5A-11	INSERT -----	2	27	WA-5A-27	SPACER (Marina) -----	1
12	WA-5A-12	GASKET -----	1	28	WA-5A-28	SPACER (Marina) -----	1
13	WA-5A-13	GASKET -----	1	29	WA-5A-29	TRUNNION -----	2
14	WA-5A-14	LUG -----	1	30	WA-5A-30	WASHER -----	1
15	WA-5A-15	LUG -----	1	31	WA-5A-31	WASHER -----	2

TRANSMISSION

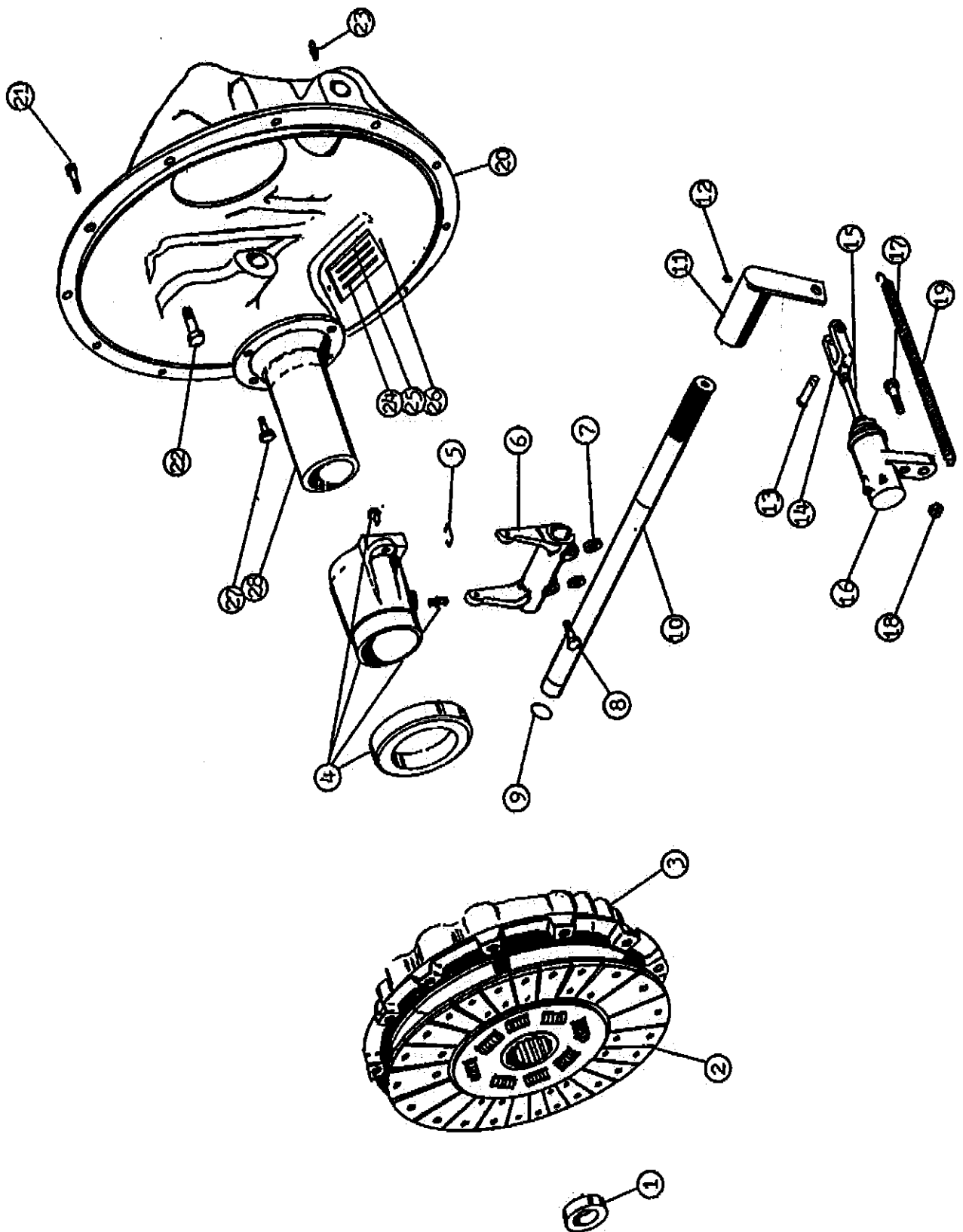


TRANSMISSION



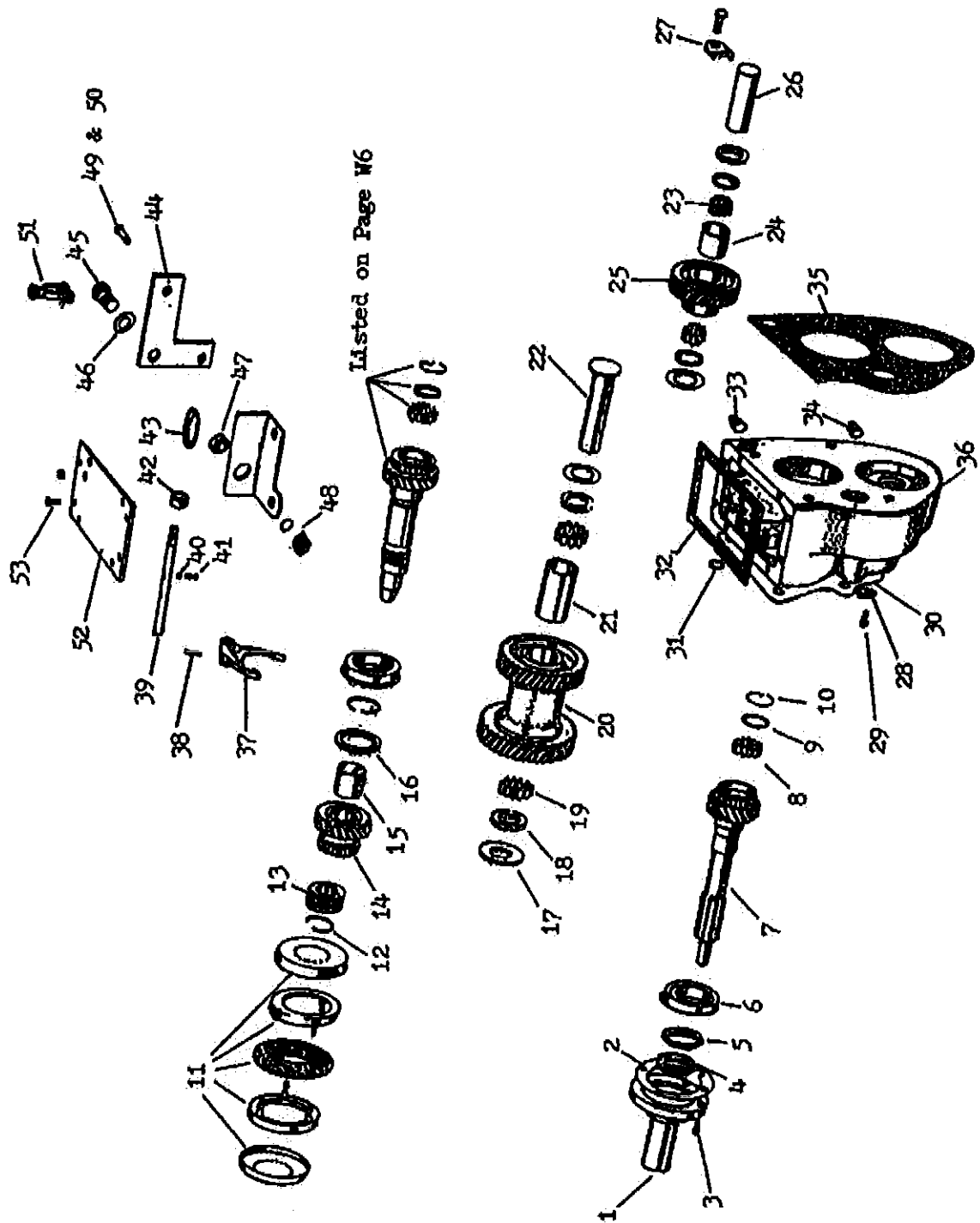
Ref No	Part Number	DESCRIPTION	Qty	Ref No	Part Number	DESCRIPTION	Qty
1	WA-8-1	BAND & LINING AS. ---	1	14	WA-8-14	NUT -----	1
2	WA-8-2	LINING & RIVETS ---	1	15	WA-8-15	NUT -----	1
3	WA-8-3	LINING -----	1	16	WA-8-16	PIN -----	1
4	WA-8-4	RIVETS -----	24	17	WA-8-17	PIN -----	1
5	WA-8-5	BAR -----	1	18	WA-8-18	SCREW -----	1
6	WA-8-6	BOLT -----	1	19	WA-8-19	SPRING -----	1
7	WA-8-7	BOLT -----	1	20	WA-8-20	SPRING -----	2
8	WA-8-8	BOLT -----	4	21	WA-8-21	SPRING -----	1
9	WA-8-9	BOLT -----	2	22	WA-8-22	WASHER -----	1
10	WA-8-10	DRUM -----	1	23	WA-8-23	WASHER -----	1
11	WA-8-11	LEVER -----	2	24	WA-8-24	WASHER -----	4
12	WA-8-12	LINK -----	1	25	WA-8-25	WASHER -----	2
13	WA-8-13	NUT -----	4	26	WA-8-26	WIRE -----	AR
				27	WA-8-27	YOKE -----	1

Part No.	DESCRIPTION	No. Reqd.	Remarks
W2-1	Bearing - Clutch Pilot	1	Cummins Equipped
W2-1F	Bearing - Clutch Pilot	1	Ford Equipped
W2-2	Disc - Driven 14" Lips-Rollway	1	Cummins Equipped
W2-2F	Disc - Driven 13" Borg & Beck	1	Ford Equipped
W2-3	Plate - Clutch Pressure, Lips Rollway	1	Cummins Equipped
W2-3F	Plate - Clutch Pressure, Borg & Beck	1	Ford Equipped
W2-4	Bearing Assembly - Clutch Release	1	Cummins Equipped
W2-4a	Bearing Only - Clutch Release	1	" "
W2-4b	Sleeve Only - Release Bearing	1	" "
W2-4c	Pad - Clutch Yoke	2	" "
W2-4d	Fitting - Bearing Lubrication	1	" "
W2-4F	Bearing - Release	1	Ford Equipped
W2-5	Spring - Pull Back	2	Cummins Equipped
W2-6	Yoke - Release	1	" "
W2-6F	Fork - Release	1	Ford Equipped
W2-7	Washer - Key	2	Cummins Equipped
W2-8	Bolt & L.W. - Yoke Retaining	2	" "
W2-9	"O" Ring - Clutch Release Shaft	2	" "
W2-10	Shaft - Clutch Release	1	" "
W2-10F	Ball Stud - Release Fork Pivot	1	Ford Equipped
W2-11	Lever - Clutch Release Shaft	1	Cummins Equipped
W2-12	Screw - Lever Retaining	1	" "
W2-13	Pin - Clevis	1	" "
W2-14	Clevis - Release Rod	1	" "
W2-14F	Ball Nut - Release Rod	1	Ford Equipped
W2-15	Rod - Clutch Cylinder	1	All
W2-16	Cylinder - Clutch Release	1	All (Unit Only)
W2-17	Bolt - Release Cylinder Mounting	2	All
W2-18	Nut & L.W. - Cylinder Mounting	2	All
W2-19	Spring - Lever Return	1	All
W2-20	Bellhousing	1	Cummins Equipped
W2-20F	Bellhousing	1	Ford Equipped
W2-21	Screw & L.W. - Bellhousing/Engine	12	All
W2-22	Screw - Bellhousing / Reverse Box	4	All
W2-23	Fitting - Release Shaft Lubrication	2	Cummins Equipped
W2-24	Cover - Access Opening	1	Cummins Equipped
W2-24F	Cover - Lower Bellhousing	1	Ford Equipped
W2-25	Gasket - Access Cover	1	Cummins Equipped
W2-26	Screw & L.W. - Access Cover	4	" "
W2-26F	Screw & L.W. - Lower Bellhousing Cover	6	Ford Equipped
Item 27	See Reverse Box Group, Page W4		
Item 28	See Reverse Box Group, Page W4		
NOTE: Always specify Engine used when ordering from this page.			



ENGINE CLUTCH ASSEMBLY
(Std. Equipment)

Part No.	DESCRIPTION	No. Reqd.	Remarks
W4-1	Retainer - D.G. Bearing	1	
W4-2	Gasket - D.G. Bearing Retainer	1	
W4-3	Screw - D.G. Brg. Retainer	4	
W4-4	Seal, Oil - Rev. Box D.G. Retainer	1	
W4-5	Nut - Drive Gear Bearing	1	
W4-6	Bearing Assy. - Drive Gear	1	
W4-6A	Bearing - Drive Gear	1	
W4-6B	Snap Ring - Drive Gear Bearing	1	
W4-7	Gear - Main Drive - Reverse Box	1	
W4-8	Needle Bearing - Drive Gear	14	
W4-9	Washer - Needle Retainer	1	
W4-10	Snap Ring - Needle Retainer Washer	1	
W4-11	Gear - Sliding Clutch	1	
W4-12	Snap Ring - Clutch Gear Retaining	1	
W4-13	Gear - Clutch	1	
W4-14	Gear - Reverse Output	1	
W4-15	Bushing - Reverse Output Gear	1	
W4-16	Spacer - Reverse Gear Thrust	1	
W4-17	Thrust Washer - Clutch Gear & Rev. Id.	4	
W4-18	Washer - Roller Retaining, O/shaft Gear, & Rev. Idler	4	
W4-19	Roller - O/Shaft (Rev. Box)	28	
W4-20	Gear - Reverse Box Clutch	1	
W4-21	Spacer - O/Shaft Needles	1	
W4-22	Countershaft - Reverse Box	1	
W4-23	Roller - Reverse Idler	28	
W4-24	Spacer - Reverse Idler	1	
W4-25	Gear - Reverse Idler	1	
W4-26	Shaft - Reverse Idler	1	
W4-27	Key - Reverse Idler Shaft Lock	1	
W4-28	Lock - Countershaft	1	
W4-29	Screw & L.W. - Countershaft	1	
W4-30	Gasket - Rev. Box/Bellhousing	1	
W4-31	Plug - Shift Rail Hole	1	
W4-32	Gasket - Reverse Box Cover	1	
W4-33	Plug - Filler	1	
W4-34	Plug - Drain	1	
W4-35	Gasket - Rev. Box/ Main Transmission	1	
W4-36	Housing - Reverse Box	1	
W4-37	Fork - Forward & Reverse Shift	1	
W4-38	Rollpin - Shift Fork	1	
W4-39	Shiftrail - Forward & Reverse	1	
W4-40	Ball - Poppet	1	
W4-41	Spring - Poppet	1	
W4-42	Oil Seal - Shift Rail	1	
W4-43	Link - Shift Lever	1	
W4-44	Lever - Reverse Shifting	1	
W4-45	Bolt - Lever Hinging	1	
W4-46	Washer - Hinging Bolt	1	
W4-47	Bushing - Hinging Bolt	1	
W4-48	Nut & L.W. - Hinging Bolt	1	
W4-49	Pin - Clevis	1	
W4-50	Pin - Cotter	1	
W4-51	Clevis - Reverse Box Linkage	1	
W4-52	Cover - Reverse Box	1	
W4-53	Screw & L.W. - Cover	8	

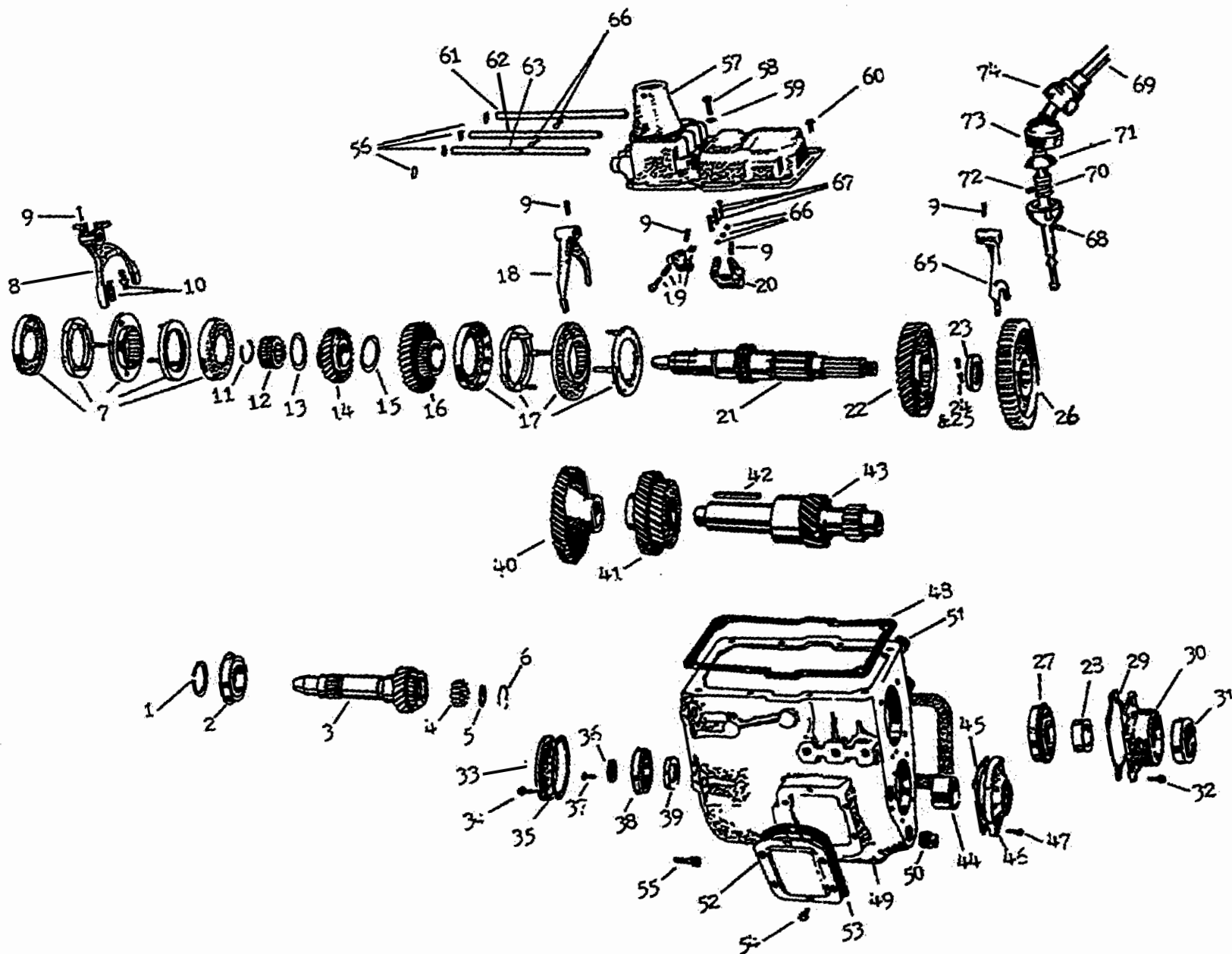


REVERSING BOX ASSEMBLY
Page W4

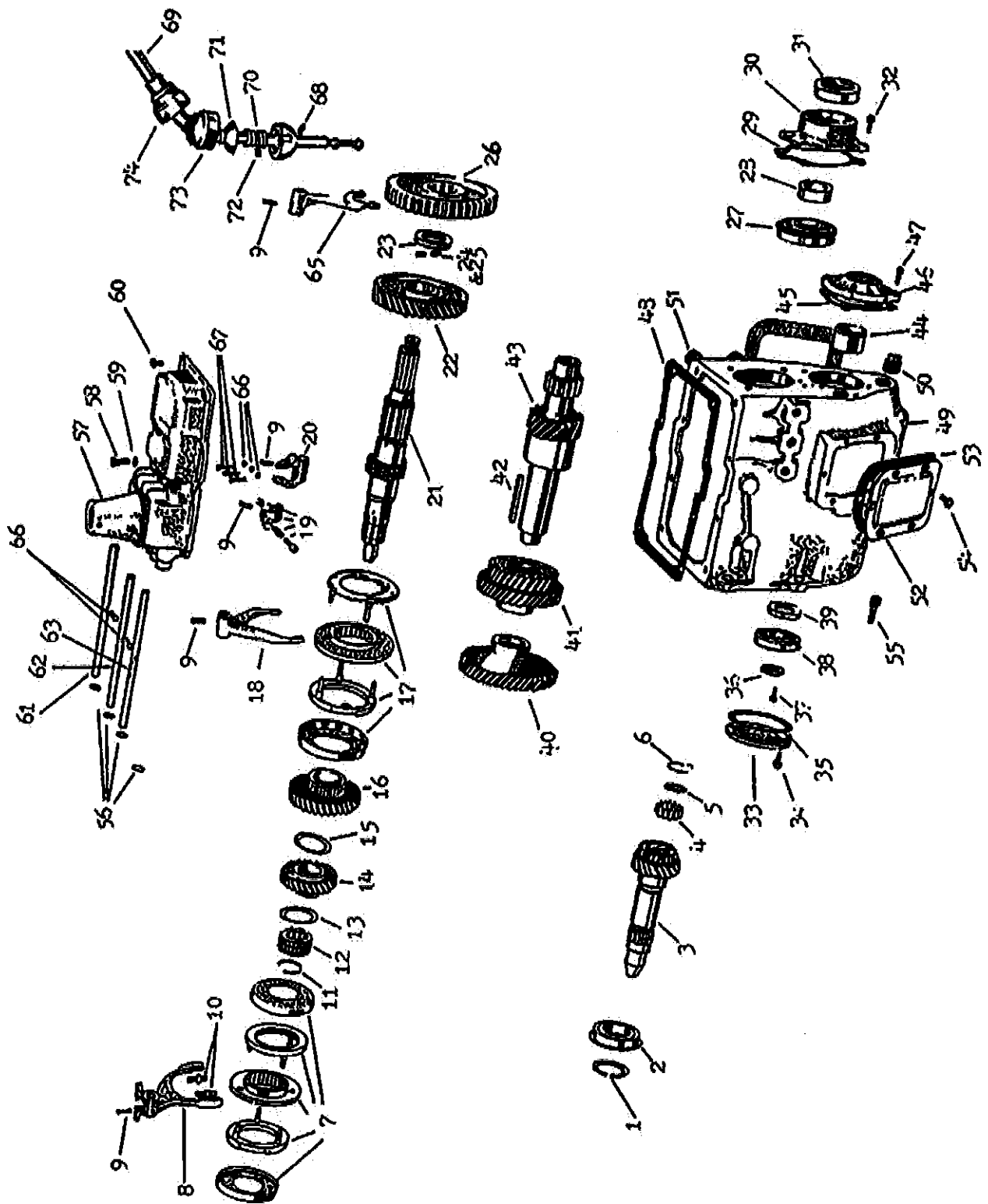
Part No.	DESCRIPTION	No. Reqd.	Remarks
W6-1	Snap Ring - Drive Gear Bearing	1	
W6-2	Bearing Assy. - Drive Gear	1	2A - Bearing
W6-3	Gear - Main Drive	1	2B - Snap Ring
W6-4	Needles - Drive Gear	14	
W6-5	Washer - Needle Retainer	1	
W6-6	Snap Ring - Washer	1	
W6-7	Synchronizer Assembly - 4th & 5th Spd.	1	Assembly Only
W6-8	Fork - Shifting, 4th & 5th	1	
W6-9	Lock Pin - Fork to Rail	5	
W6-10	Insert - 4th & 5th Shift Fork	2	
W6-11	Snap Ring - Clutch Gear	1	
W6-12	Gear - Clutch	1	
W6-13	Shim - Synchro. Adjusting	VAR.	Specify Thickness
W6-14	Gear - O/D (5th Spd.)	1	
W6-15	Snap Ring & Thrust Washer - 3rd Spd Gr.	1	
W6-16	Gear - 3rd Speed	1	
W6-17	Synchronizer Assembly - 2nd & 3rd Spd	1	Assembly Only
W6-18	Fork - Shifting, 2nd & 3rd	1	
W6-19	Lug Assy.	1	19A - Plunger
W6-20	Lug - 2nd & 3rd Spd.	1	19B - Spring
W6-21	Mainshaft	1	19C - Snap Ring
W6-22	Gear - 2nd Speed	1	
W6-23	Washer - 2nd Spd Gear	1	
W6-24	Lock Pin - 2nd. Spd Gear	1	
W6-25	Spring - Lock Pin	1	
W6-26	Gear - Low Speed	1	
W6-27	Bearing Assy. - Mainshaft	1	27A - Bearing
W6-28	Spacer - Speedometer Gear	1	27B - Snap Ring
W6-29	Gasket - Rear M/S Brg. Retainer	VAR.	
W6-30	Retainer - Mainshaft Rear Brg.	1	
W6-31	Seal - Oil, Mainshaft	1	
W6-32	Screw & L.W. - Rear Retainer	4	
W6-33	Retainer - Countershaft Front	1	
W6-34	Screw & L.W. - O/Shaft Front Retainer	4	
W6-35	Gasket - O/Shaft Front Retainer	1	
W6-36	Washer - O/Shaft Retainer	1	36A - Lock Pin
W6-37	Screw - O/Shaft Washer	1	37A - Bolt Looking Pin
W6-38	Bearing Assy. - O/Shaft Front	1	
W6-39	Washer - Countershaft Thrust	1	38A - Bearing
W6-40	Gear - Countershaft Drive	1	38B - Snap Ring
W6-41	Gear - O/Shaft 3rd & Overdrive (5th)	1	
W6-42	Key - Countershaft	1	
W6-43	Countershaft	1	
W6-44	Bearing - Countershaft Rear	1	
W6-45	Gasket - O/Shaft Rear Retainer	1	
W6-46	Retainer - Countershaft Rear	1	
W6-47	Screw & L.W. - O/Shaft Rear Retainer	4	
W6-48	Gasket - Cover	1	
W6-49	Case - Main Transmission	1	
W6-50	Plug - Drain	1	
W6-51	Plug - Filler	1	
W6-52	Cover - PTO	2	
W6-53	Gasket - PTO Cover	2	
W6-54	Screw & L.W. - PTO Cover	12	
W6-55	Bolt & L.W. - Case to Reverse Box	4	
W6-56	Plug - Shift Rail Hole	4	
W6-57	Cover - Case	1	

MAIN TRANSMISSION ASSEMBLY

Page V6



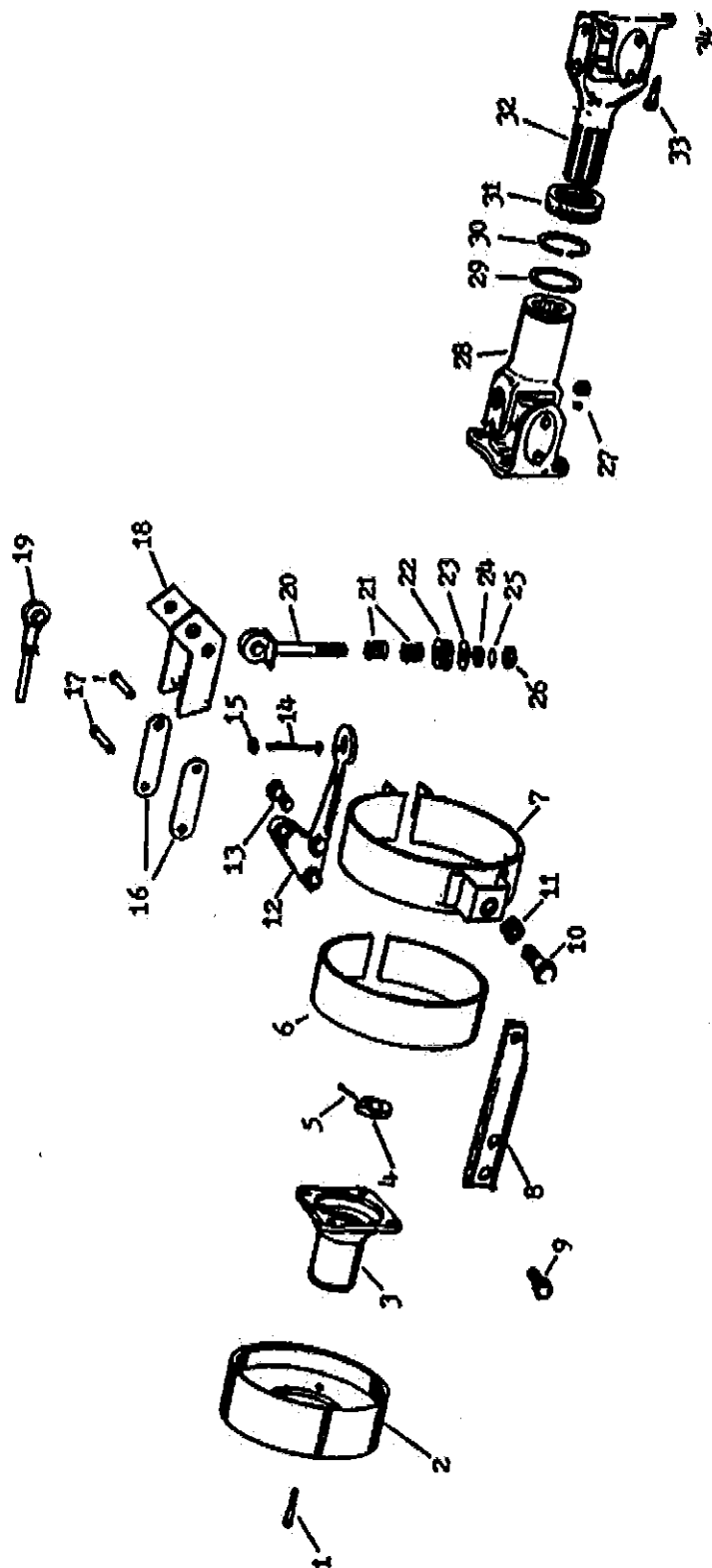
Part No.	DESCRIPTION	No. Reqd.	Remarks
	MAIN TRANSMISSION PARTS - CONTINUED		
W6-58	Screw - Case Cover Body Fit	2	
W6-59	Coned Washer - Body Fit Screw	2	
W6-60	Screw & L.W. - Case Cover	6	
W6-61	Shift Rail - Low	1	
W6-62	Shift Rail - 2nd & 3rd	1	
W6-63	Shift Rail - 4th & 5th	1	
W6-64	Stop - 4th & 5th Fork	1	Not Illustrated
W6-65	Fork - Shifting, Low	1	
W6-66	Ball - Poppet	7	
W6-67	Spring - Poppet	3	
W6-68	Pin - Interlock	1	68A - Hole Plug
W6-69	Lever - Gearshift	1	
W6-70	Spring - Gearshift Lever	1	
W6-71	Cap - Lever Spring	1	
W6-72	Pin - Spring Retaining	1	
W6-73	Cap - Cover	1	
W6-74	Boot - Gearshift Lever	1	



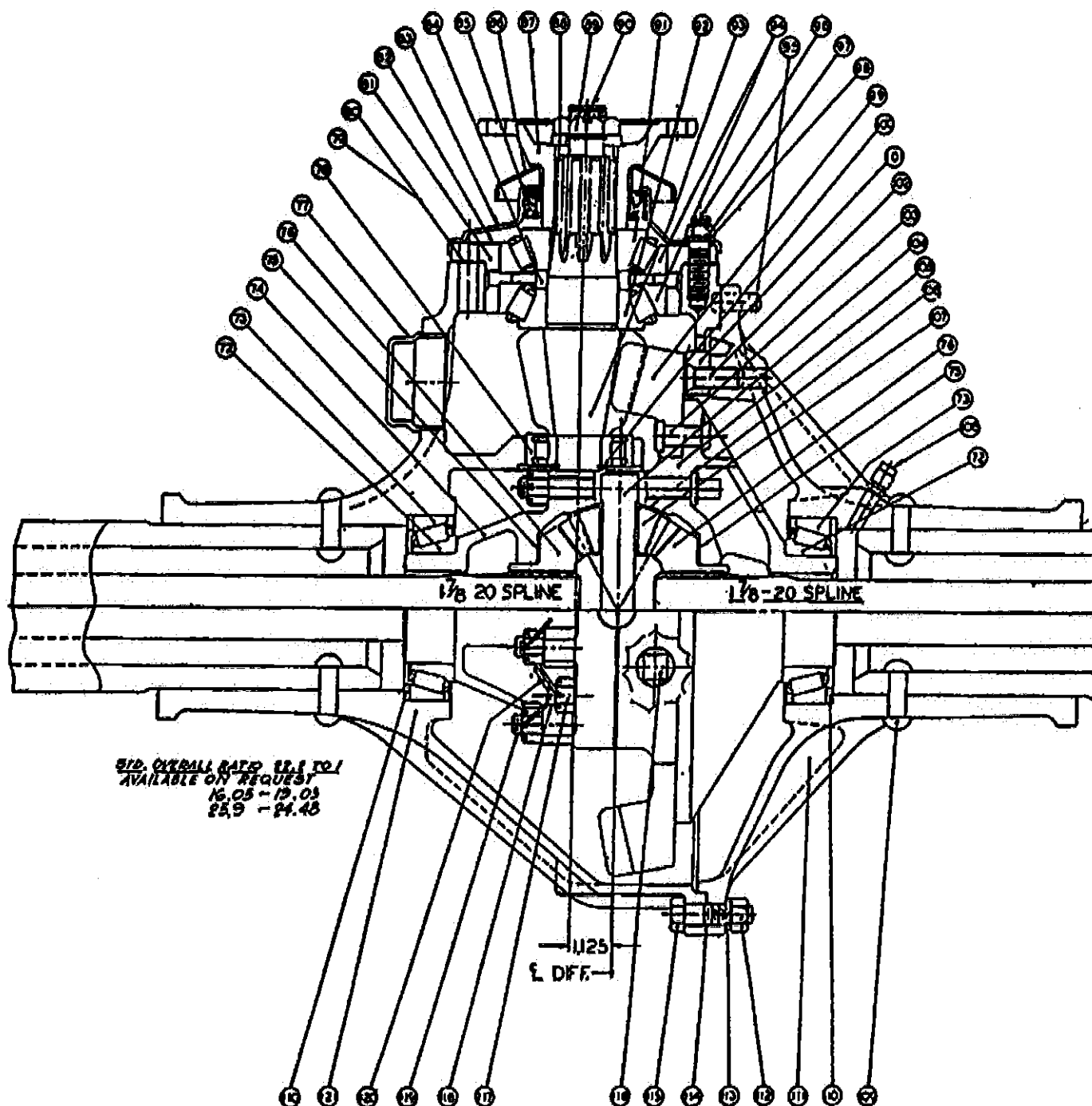
MAIN TRANSMISSION ASSEMBLY

Part No.	DESCRIPTION	No. Reqd.	Remarks
W8-1	Bolt - Brake Drum	4	
W8-2	Drum - Brake	1	
W8-3	Flange - Brake Drum	1	
W8-4	Nut - Flange Retaining	1	
W8-5	Cotter Pin - Flange Retaining Nut	1	
W8-6	Lining - Brake Band	1	
W8-7	Brake Band Assembly	1	
W8-7A	Rivet - Brake Band Lining	26	
W8-7B	Clip - Anchor	1	
W8-7C	Rivet - Anchor Clip	8	
W8-7D	Bracket - Brake Band	2	
W8-7E	Rivet - Brake Band Bracket	12	
W8-8	Bar - Brake Anchor	1	
W8-9	Stud, Nut, & L.W. - Brake Anchor Bar	2	
W8-10	Screw - Anchor Clip	1	
W8-10A	Lockwire - Anchor Clip Screw	1	
W8-11	Spring - Anchor Clip	1	
W8-12	Bracket - Brake Locating	1	
W8-13	Screw & L.W. - Brake Locating Bracket	2	
W8-14	Screw - Brake Adjusting	1	
W8-15	Nut - Brake Adjusting	1	
W8-16	Link - Brake Spacer	2	
W8-17	Olevis Pin	2	
W8-17A	Cotter Pins	2	
W8-18	Lever Brake Cam	2	
W8-19	Rod & End Assy. - Brake Actuating	1	
W8-20	Bolt - Brake Adjusting	1	
W8-20A	Shoe - Brake Cam	1	
W8-21	Spring - Brake Bolt	2	
W8-22	Spring - Tension	1	
W8-23	Plain Washer	1	
W8-24	Nut - Adjusting	1	
W8-25	Lockwasher - Adjusting Nut	1	
W8-26	Nut - Locking	1	
W8-27	Nut & L.W. - Drum Mounting Bolt	4	
W8-28	Slip Joint & Flange Yoke Assy.	1	
W8-28a	Journal & Bearing Kit	1	
W8-28b	Yoke - Front Flange	1	
W8-28c	Sleeve Yoke Assy.	1	
W8-29	Washer - Cork	1	
W8-30	Washer - Steel	1	
W8-31	Dust Cap	1	
W8-32	Slip Stub Yoke & Flange Assy.	1	
W8-32a	Yoke - Slip Stub	1	
W8-32b	Journal & bearing Kit	1	
W8-32c	Slip Stub Flange	1	
W8-33	Bolt - Slip Stub Flange	4	
W8-34	Nut & L.W. - Slip Stub Flange	4	

EMERGENCY BRAKE AND DRIVESHAFT ASSEMBLIES



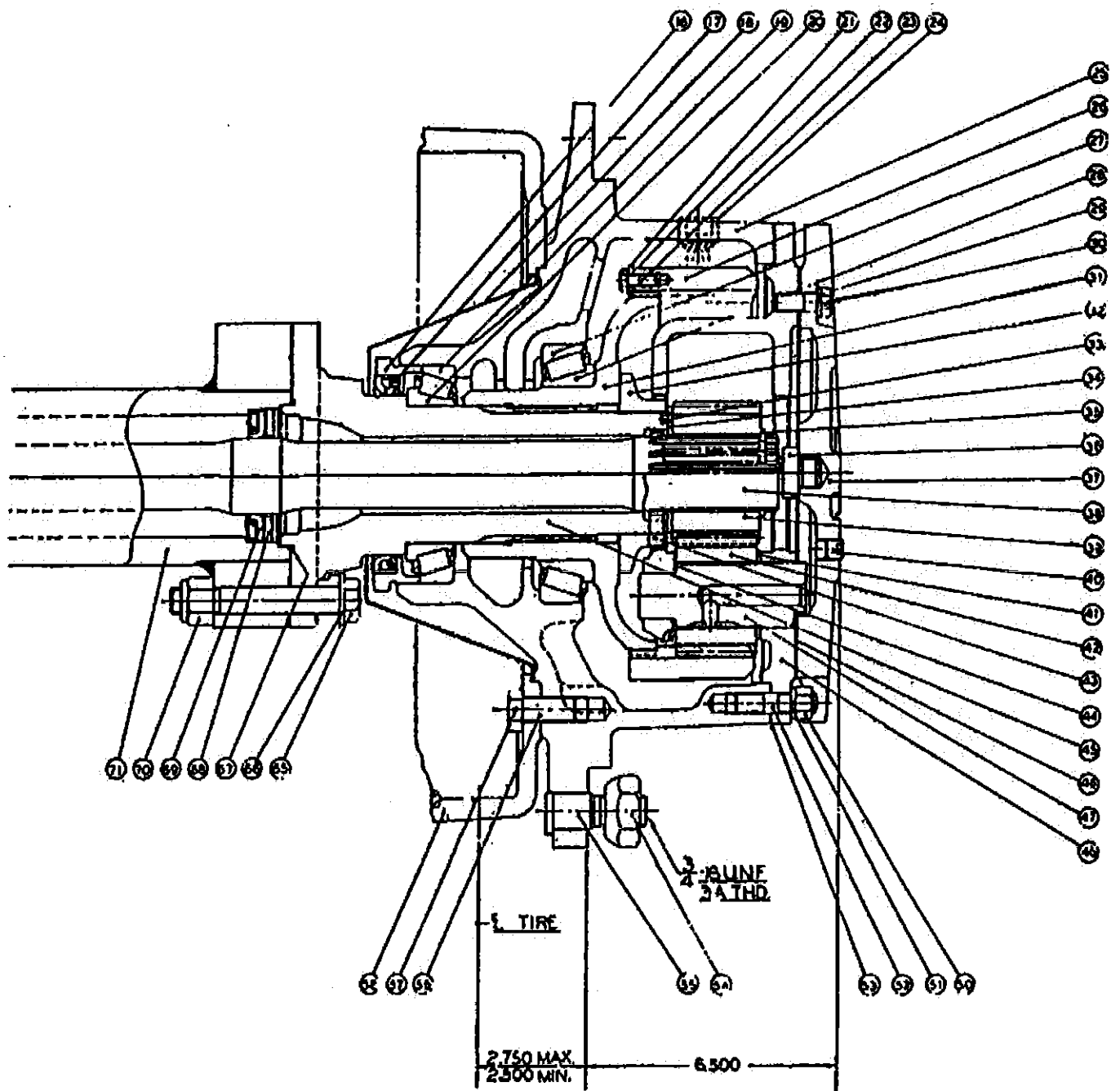
Part No.	DESCRIPTION	No. Reqd.	Remarks
W10-72	Cone - Diff. Bearing	2	
W10-73	Cup - Diff. Bearing	2	
W10-74	Diff. Case - Plain Half	1	
W10-75	Washer - Diff. Side Gear - Thrust	2	
W10-76	Gear - Diff. Side	2	
W10-77	Plug - Diff. Carrier Inspection	1	
W10-78	Bearing - Bevel Pinion - Rear	1	
W10-79	Shim - Bevel Pinion Cage	VAR.	
W10-80	Gasket - Pinion Brg. Cage	1	
W10-81	Cage - Pinion Brg.	1	
W10-82	Gasket - Pinion Brg. Cage	1	
W10-83	Cover - Bevel Pinion Brg. Cage	1	
W10-84	Shim - Bevel Pinion Bearing	VAR.	
W10-85	Oil Seal - Bevel Pinion	1	
W10-86	Slinger - Companion Flange	1	
W10-87	Flange - Companion	1	
W10-88	Washer - Bevel Pinion Nut	1	
W10-89	Nut - Bevel Pinion	1	
W10-90	Cotter - Bevel Pinion Nut	1	
W10-91	Cone - Bev. Pinion Nut - Front Brg.	1	
W10-92	Cone - Bev. Pinion - Front Brg.	1	
W10-93	Pinion - Bevel Drive	1	
W10-94	Cup - Bevel Pinion - Front Bearing	2	
W10-95	Stud - Diff. Carrier Flange	2	
W10-96	Stud - Pinion Bearing Cage	8	
W10-97	Nut - Pinion Bearing Cage	8	
W10-98	Lockwasher - Pinion Bearing Cage	8	
W10-99	Gear - Bev. Drive	1	
W10-100	Lock Ring - Bev. Pinion - Rear Brg.	1	
W10-101	Thrust Block - Bev. Gear	1	
W10-102	Pin - Bev. Gear Thrust Block	1	
W10-103	Rivet - Diff. Case to Bev. Gear	12	
W10-104	Spider - Differential	1	
W10-105	Differential Case - Flange Half	1	
W10-106	Washer - Diff. Pinion Thrust	4	
W10-107	Pinion Differential	4	
W10-108	Oil Breather - Diff. Carrier Cover	1	
W10-109	Rivet - Housing Tube	16	
W10-110	Spacer - Diff. Bearing Cup	VAR.	
W10-111	Differential Carrier Cover	1	
W10-112	Nut - Diff. Carrier Flange	12	
W10-113	Lockwasher - Diff. Carrier Flange	12	
W10-114	Gasket - Diff. Carrier Flange	1	
W10-115	Bolt - Diff. Carrier Flange	10	
W10-116	Plug - Diff. Carrier Oil Drain	1	
W10-117	Nut - Diff. Case Bolt	12	
W10-118	Bolt - Diff. Case Short	4	
W10-119	Bolt - Diff. Case Long	8	
W10-120	Lockwire - Diff. Case Bolt	1	
W10-121	Carrier - Differential	1	



DIFFERENTIAL ASSEMBLY

Part No.	DESCRIPTION	No. Reqd.	Remarks
W12-16	Retainer, Hub Brg. Oil Seal	2	
W12-17	Oil Seal, Hub Brg.	2	
W12-18	Oil Slinger	2	
W12-19	Cup, Hub Brg. Inner	2	
W12-20	Cone, Hub Brg. Inner	2	
W12-21	Cap Screw - Planet Ring Gear	16	
W12-22	Lockwire - Ring Gear Cap Screw	8	
W12-23	Lock - Planetary Ring Gear	8	
W12-24	Plug - Planetary Drive Oil Drain	2	
W12-25	Hub	2	
W12-26	Gear - Planet Ring (52T)	2	
W12-27	Cup - Hub Brg. Outer	2	
W12-28	Cone - Hub Brg. Outer	2	
W12-29	Lockwasher - Planetary Spider Cover	16	
W12-30	Capscrew - Planetary Spider Cover	16	
W12-31	Hub - Planetary Ring Gear	2	
W12-32	Nut- Hub Brg.	2	
W12-33	Pin - Planetary Sun Gear Washer	4	
W12-34	Washer - Planetary Sun Gear	2	
W12-35	Snap Ring - Sun Gear Retainer	2	
W12-36	Thrust Button - Drive Joint	2	
W12-37	Cover - Planetary Gear Spider	2	
W12-38	Shaft - Axle	2	
W12-39	Gear - Planetary Sun (20T)	2	
W12-40	Plug - Planetary Drive Oil Level	2	
W12-41	Washer - Planetary Pinion Thrust -Outer	6	
W12-42	Pinion - Planetary (16T)	6	
W12-43	Lock - Hub Bearing Nut	4	
W12-44	Washer - Planetary Pinion Thrust- Inner	6	
W12-45	Spindle - Wheel Brg.	2	
W12-46	Gasket - Planetary Gear Spider Cover	2	
W12-47	Shaft - Planetary Pinion	6	
W12-48	Spider - Planetary Gear	2	
W12-50	Nut -Planetary Spider to Hub Stud	24	
W12-51	Lockwasher - Spider to Hub Stud	24	
W12-52	Stud - Planetary Spider to Hub	24	
W12-53	Gasket - Planetary Gear Spider to Hub	2	
W12-54	Nut - Wheel	24	
W12-55	Stud - Wheel	24	
W12-56	Capscrew - Brake Drum to Hub	20	
W12-57	Lockwire - Brake Drum Capscrew	2	
W12-58	Brake Drum	2	
W12-65	Bolt - Spindle to Housing	24	
W12-66	Washer - Spindle to Housing Bolt	24	
W12-67	Seal - Spindle to Housing	2	
W12-68	Retainer - Axle Shaft Oil Seal	2	
W12-69	Oil Seal - Axle Shaft	2	
W12-70	Nut - Spindle to Housing Bolt	24	
W12-71	Tube - Axle	2	
W12-72	WHEEL ASSEMBLY		

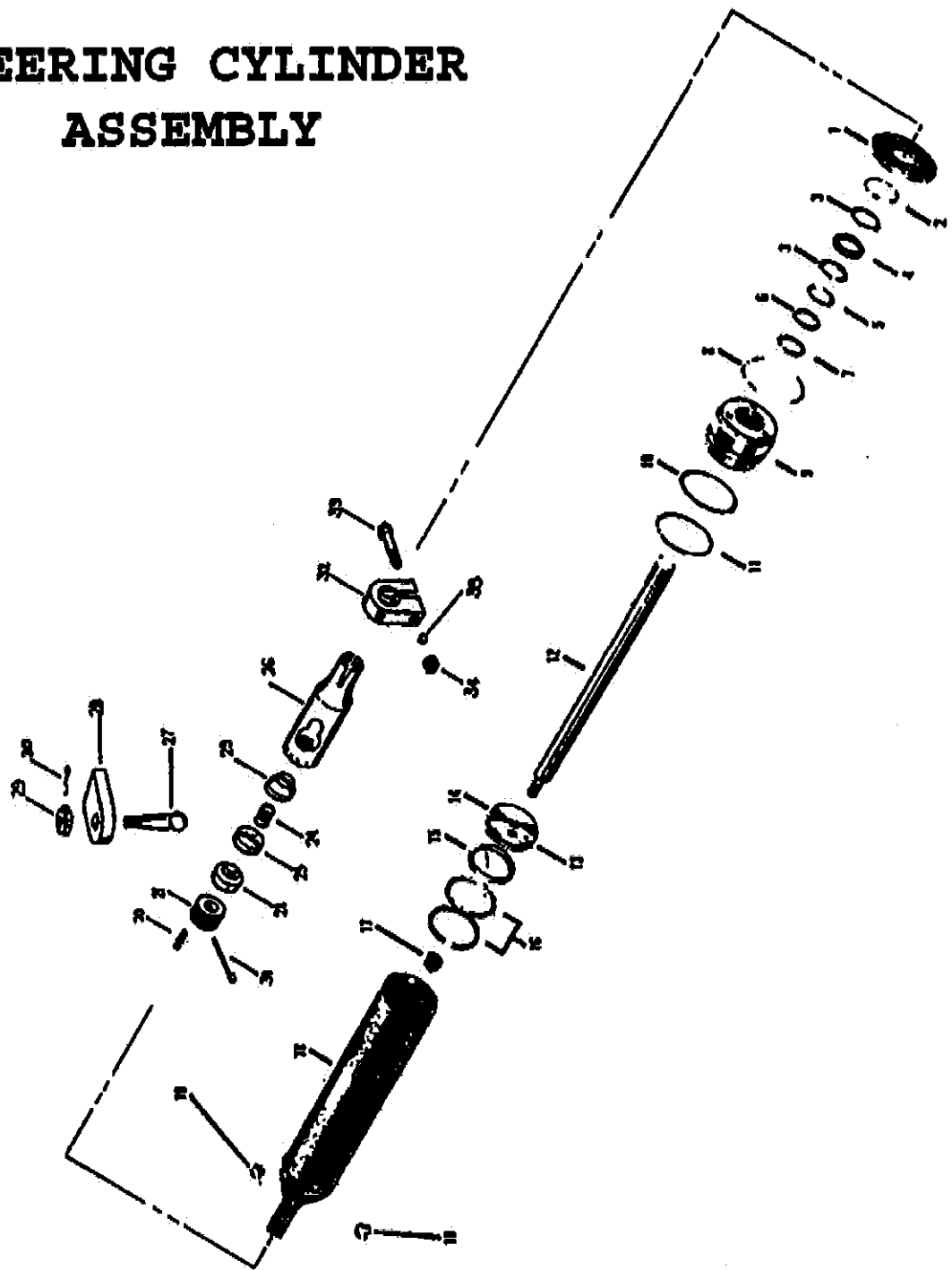
PLANETARY AXLE ASSEMBLY



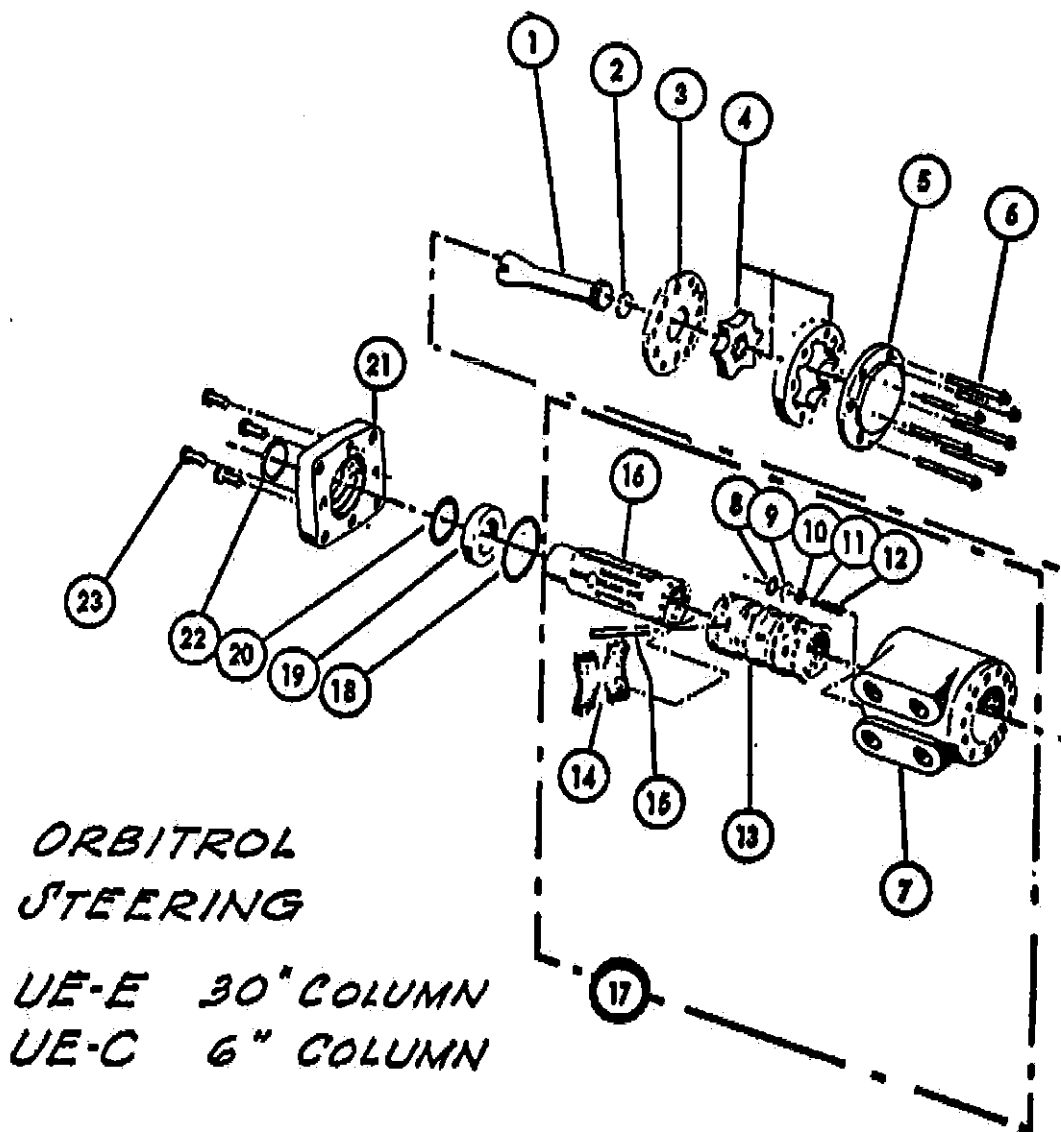
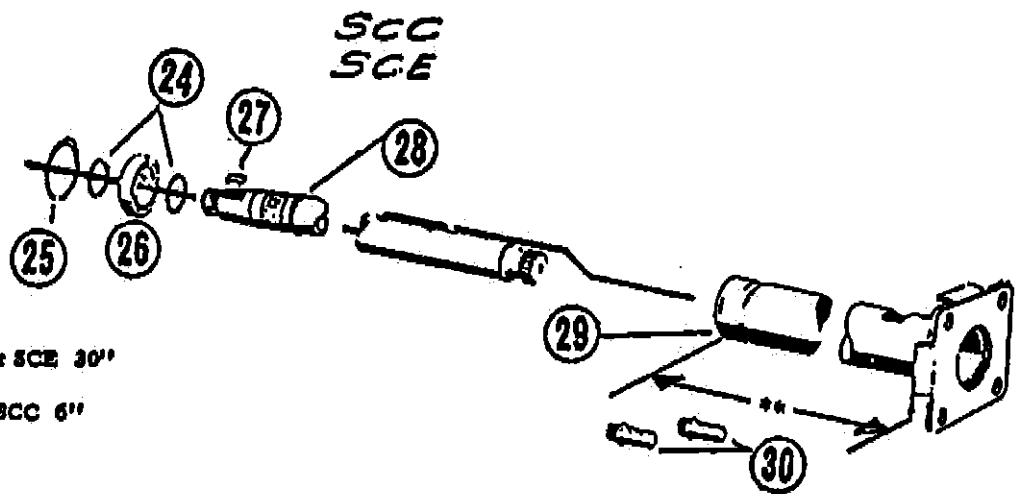
Part No.	DESCRIPTION	No. Reqd.	Remarks
W14-1	Axle - Center	1	
W14-2	Cross Tube	1	
W14-3	Clamp & Bolt Assy - Cross Tube	2	**W14-4 parts
W14-4	End - Cross Tube (Assemblies)**	2	4A - Stud
W14-5	Arm - Cross Tube	2	4B - Bearing
W14-6	Nut - Cross Tube Stud	2	4C - Felt
W14-7	Cotter Key - Cross Tube Stud Nut	2	4D - Seat
W14-8	Key - Cross Tube Arm	2	4E - Spring
W14-9	Fitting - Lubrication	2	4F - Plug
W14-10	Steering Knuckle (Specify R.H. or L.H.)	2	4G - Lock Ring
W14-11	Nut - Cross Tube Arm	2	4H - Boot
W14-12	Cotter Key - Cross Tube Arm Nut	2	
W14-13	Retainer - Knuckle Pin	2	
W14-14	Retainer - Knuckle Pin	2	
W14-15	Bearing - Knuckle Thrust	2	
W14-16	Shim - Steering Knuckle	VAR.	
W14-17	Ball - Steering Arm	1	
W14-18	Arm - Steering	1	
W14-19	Nut - Steering Arm Ball	1	
W14-20	Cotter Key - Steering Arm Ball Nut	1	
W14-21	Key - Steering Arm	1	
W14-22	Nut - Steering Arm	1	
W14-23	Cotter Key - Steering Arm Nut	1	
W14-24	Nut & L.W. - Backing Plate	16	
W14-25	Bolt - Backing Plate	16	
W14-26	Steering Knuckle Stop Screw Assy.	2	
W14-27	Pin - Steering Knuckle	2	
W14-28	Bushing - Steering Knuckle Pin	4	Specify upper or lower
W14-29	Gasket - Steering Knuckle Dust Cover	2	
W14-30	Dust Cover - Knuckle Pin	2	
W14-31	Screw - Dust Cover	4	
W14-32	Plug - Steering Knuckle Pin	2	
W14-33	Ring - Locking, Steering Knuckle Pin	2	
W14-34	Seal - Hub Inner	2	
W14-35	Cone - Hub Inner	2	
W14-36	Cup - Hub Inner	2	
W14-37	Hub	2	
W14-38	Cup - Hub Outer	2	
W14-39	Cone - Hub Outer	2	
W14-40	Washer - Hub	2	
W14-41	Nut - Hub Bearing Retainer	2	
W14-42	Cotter Key - Hub Brg. Nut	2	
W14-43	Dust Cover - Hub	2	
W14-44	Screw - Hub Dust Cover	12	
W14-45	Stud & Nut - Wheel & brake drum	20	
W14-46	Bolt - Oscillating Pad to Axle	8	
W14-47	Nut & L.W. - Pad to Axle Bolt	8	
W14-48	Pad - Oscillating	1	
W14-49	Fitting - Lubrication	1	
W14-50	Bushing - Oscillating Shaft	2	
W14-51	Shaft - Oscillating	1	
W14-52	Keeper - Oscillating Shaft	1	
W14-53	Bolt & L.W. - Oscillating Shaft Keeper	2	
W14-54	Oscillating Mount	1	
W14-55	Bolt - Oscillating Mount	4	
W14-56	Nut & L.W. - Oscillating Mount Bolt	4	

Part No.	DESCRIPTION	No. Reqd.	Remarks
W16-1	End Plate	1	
W16-2	Retaining Ring	1	
W16-3	Back-Up Ring	2	
W16-4	Seal	1	
W16-5	Retaining Ring	1	
W16-6	Back-Up Ring	1	
W16-7	"O" Ring	1	
W16-8	Retaining Ring	1	
W16-9	Gland	1	
W16-10	Back-Up Ring	1	
W16-11	"O" Ring	1	
W16-12	Piston Rod	1	
W16-13	Poppet, When Specified	1	
W16-14	Piston	1	
W16-15	Seal	1	
W16-16	Piston Rings	2	
W16-17	Gland Nut	1	
W16-18	Cylinder Shell Assembly	1	
W16-19	Seat - when specified	2	
W16-20	Fitting, Lubrication	2	
W16-21	Plug - Drag Link End	2	
W16-22	Bearing - Drag Link	2	
W16-23	Bearing - Drag Link	2	
W16-24	Spring - Compression, Drag Link	2	
W16-25	Seat - Drag Link End	2	
W16-26	Housing - Drag Link	2	
W16-27	Ball Stud - Drag Link	1	
W16-28	Bracket - Frame	1	Welded To Frame
W16-29	Nut - Ball Stud	1	
W16-30	Cotter Key - Ball Stud Nut	1	
W16-31	Cotter Key - Drag Link Plug	2	
W16-32	Clamp - Drag Link	2	
W16-33	Bolt - Drag Link Clamp	2	
W16-34	Nut - Drag Link Clamp	2	
W16-35	Lockwasher	2	

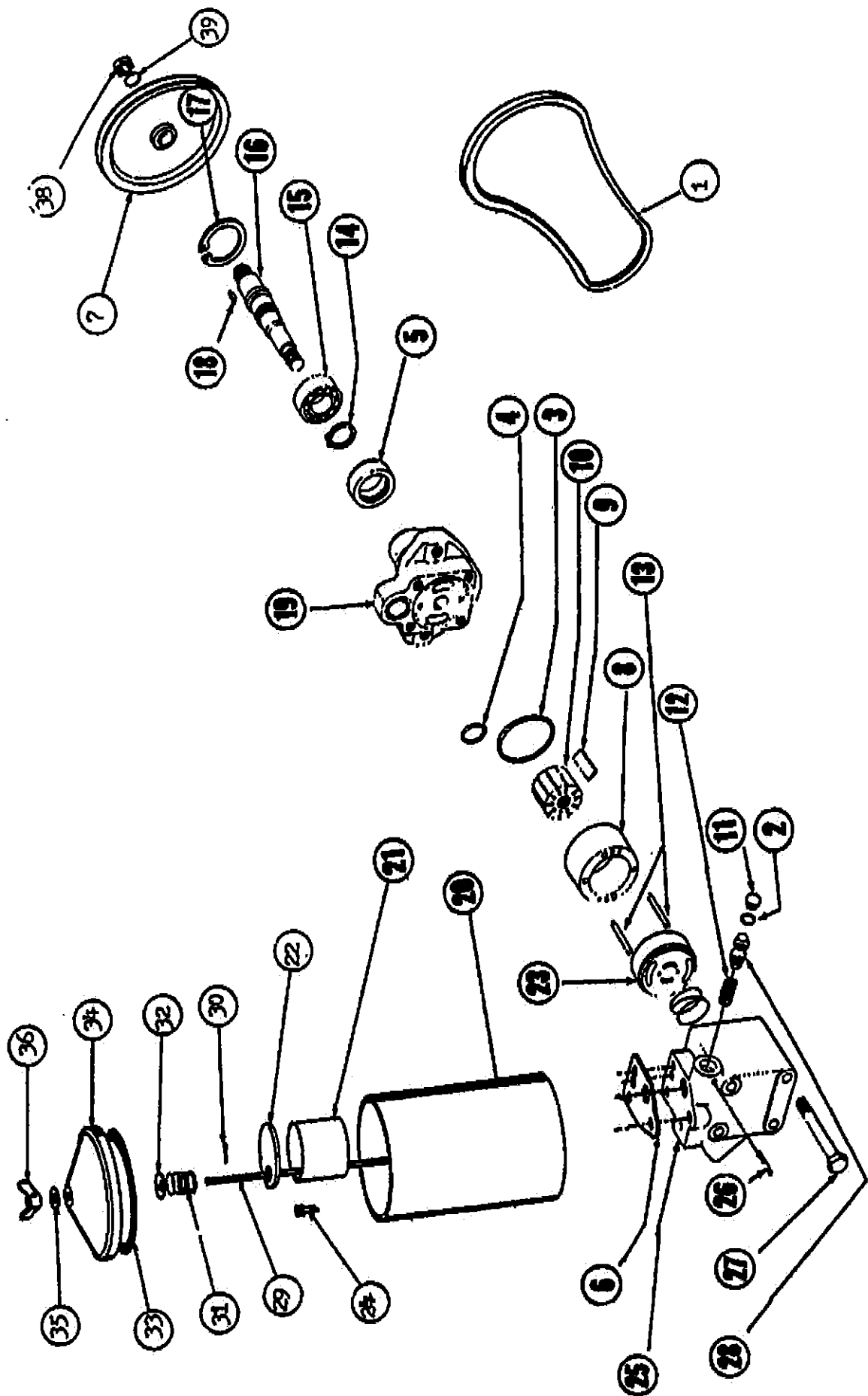
STEERING CYLINDER ASSEMBLY



Part No.	DESCRIPTION	No. Reqd.	Remarks
W18-1	Drive	1	
W18-2	Spacer	1	
W18-3	Plate	1	
W18-4	Gerotor Set (.86 Th.)	1	
W18-5	Cap - End	1	
W18-6	Screw - Cap Retaining	7	
W18-7	Housing - Valve (Not Sold Separately)	1	
W18-8	Seal - "O" Ring 7/16" OD x 1/16" SEC	1	
W18-9	Plug - Seal	1	
W18-10	Seat - Check	1	
W18-11	Ball - 1/4" Dia.	1	
W18-12	Spring - Compression	1	
W18-13	Sleeve - Control (Not Sold Separately)	1	
W18-14	Spring - Centering	6	
W18-15	Pin - Centering	1	
W18-16	Spool - Control	1	
W18-17	Control Parts Assembly	1	
W18-18	Seal - "O" Ring 1-15/16"OD x 3/32" SEC	1	
W18-19	Bushing - Cap Locator	1	
W18-20	Seal - Quad Ring 1-5/16"OD x 1/8" Th.	1	
W18-21	Plate Mounting	1	
W18-22	Seal - Oil 1 1/4"OD x 1"ID x 1/8" Th.	1	
W18-23	Screw - Cap	4	
W18-24	Snap Ring	2	
W18-25	Retaining Ring	1	
W18-26	Bearing Assembly	1	
W18-27	Key - Woodruff 7/8" Dia. x 3/16".	1	
W18-28	*Steering Shaft Assy. - Keyed	1	Specify SCG or SCE
W18-29	*Tube & Flange Assembly	1	Specify SCG or SCE
W18-30	Screw	2	
	*For SCG - 6" Long For SCE - 30" Long		
Page W17			



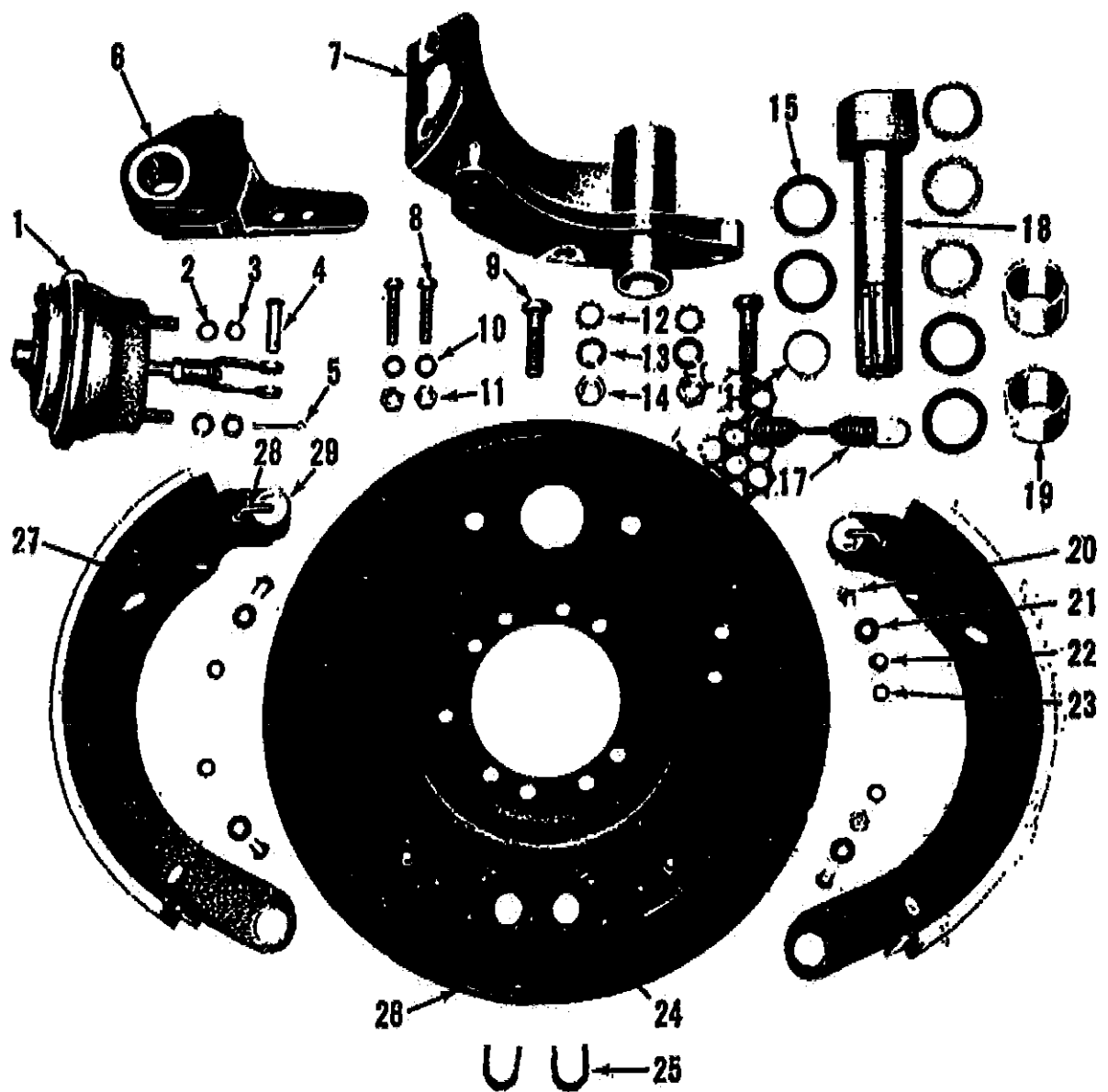
Part No.	DESCRIPTION	No. Reqd.	Remarks
W20-1	V-Belt - Pump Drive	1	
W20-2	Washer - Pressure Relief Valve	1	
W20-3	"O" Ring Seal	1	
W20-4	"O" Ring Seal	1	
W20-5	Seal - Drive Shaft	1	
W20-6	Gasket - Reservoir to Body	1	
W20-7	Pulley - Drive	1	
W20-8	Ring	1	
W20-9	Vane	10	
W20-10	Rotor	1	
W20-11	Plug - Pressure Relief Valve	1	
W20-12	Spring - Pressure Relief Valve	1	
W20-13	Pin	2	
W20-14	Snap Ring - Brg. To Shaft	1	
W20-15	Bearing	1	
W20-16	Shaft - Drive	1	
W20-17	Snap Ring - Bearing to Body	1	
W20-18	Key - Woodruff	1	
W20-19	Body	1	
W20-20	Reservoir	1	
W20-21	Filter	1	
W20-22	Cover - Filter	1	
W20-23	Pressure Plate	1	
W20-24	Screw - Reservoir to Pump Cover	1	
W20-25	Pump Cover	1	
W20-26	Pin - Pressure Relief Valve	1	
W20-27	Screw - Body to Cover	4	
W20-28	Valve - Pressure Relief	1	
W20-29	Stud - Reservoir Cover	1	
W20-30	Cotter Key - Filter Cap Retaining	1	
W20-31	Spring - Filter Retaining	1	
W20-32	Washer - Filter Retaining Spring	1	
W20-33	Gasket - Reservoir Cover	1	
W20-34	Cover - Reservoir	1	
W20-35	Washer - Wing Nut	1	
W20-36	Wing Nut	1	
W20-37	Spring	1	
W20-38	Nut - Pulley Retaining	1	
W20-39	Lock Washer - Pulley Nut	1	



HYDRAULIC PUMP

Part No.	DESCRIPTION	No, Reqd.	Remarks
W22-1	Chamber - Brake Assy.	1	
W22-2	Washer - Brake Chamber Stud Nut	2	
W22-3	Nut - Brake Chamber Stud	2	
W22-4	Pin - Brake Chamber Yoke	1	
W22-5	Key - Chamber Yoke Pin, Cotter	1	
W22-6	Lever - Enclosed Adjustable T.D.A.	1	
W22-7	Bracket - Camshaft & Chamber	1	
W22-8	Bolt - Camshaft Bracket - Small	2	
W22-9	Bolt - Camshaft Bracket - Large	2	
W22-10	Washer - Camshaft Bracket Bolt - Small	2	
W22-11	Nut - Camshaft Bracket Bolt - Small	2	
W22-12	Washer - Camshaft Bracket Bolt Shake-proof	2	
W22-13	Washer - Camshaft Bracket Bolt - Large	2	
W22-14	Nut - Camshaft Bracket Bolt - Large	2	
W22-15	Washer - Camshaft Spacing	VAR.	
W22-16	Ring - Camshaft & Lever Lock	1	
W22-17	Spring - Brake Shoe Return	1	
W22-18	Shaft - Cam	1	
W22-19	Bushing - Camshaft	2	
W22-20	Washer - Guide Pin "O"	4	
W22-21	Washer - Guide Pin Thick	4	
W22-22	Washer - Guide Pin Thin	4	
W22-23	Washer - Guide Pin Spring	4	
W22-24	Pin - Brake Anchor	2	
W22-25	Washer - Anchor Pin "O"	2	
W22-26	Plate - Brake Backing	1	
W22-27	Shoe - Brake & Lining Assy. (Kit includes lining & Rivets only)	1	
W22-28	Retainer - Brake Shoe Roller	2	
W22-29	Roller - Brake Shoe	2	
W22-30	Brake Drum	1	

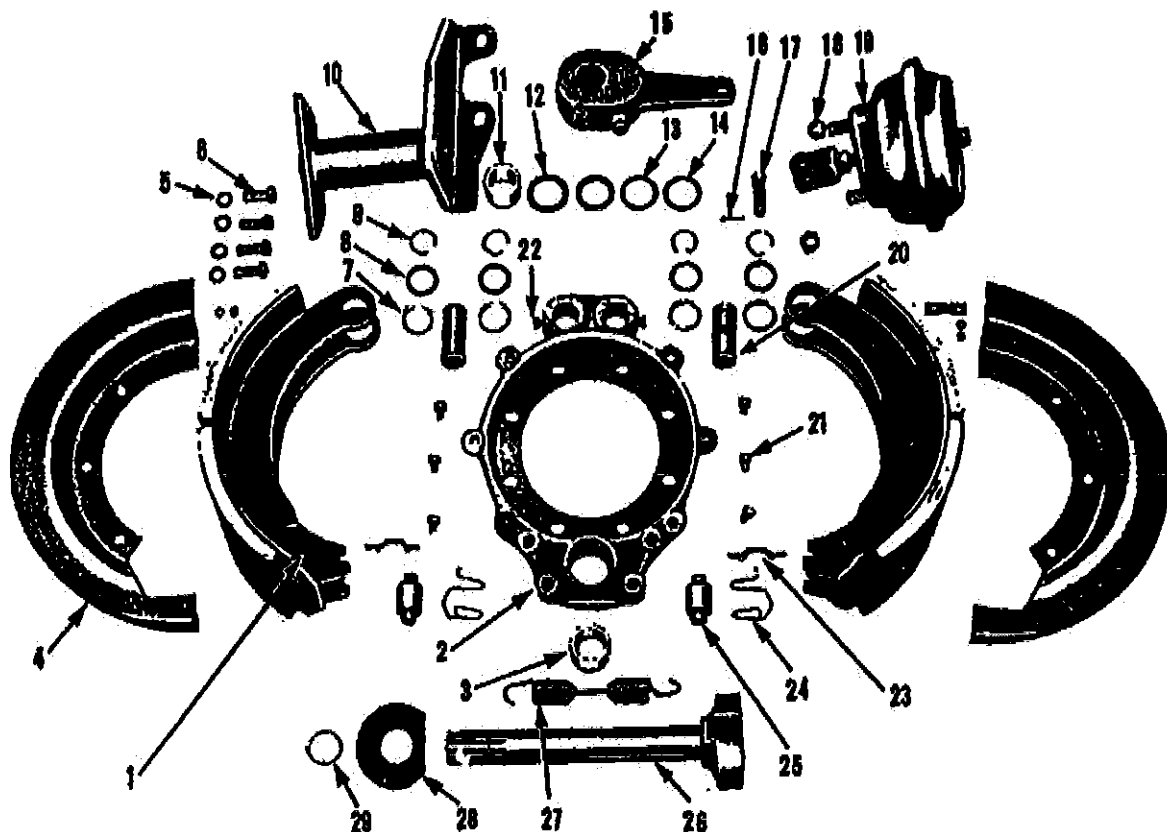
FRONT BRAKE ASSEMBLY



30 NOT SHOWN

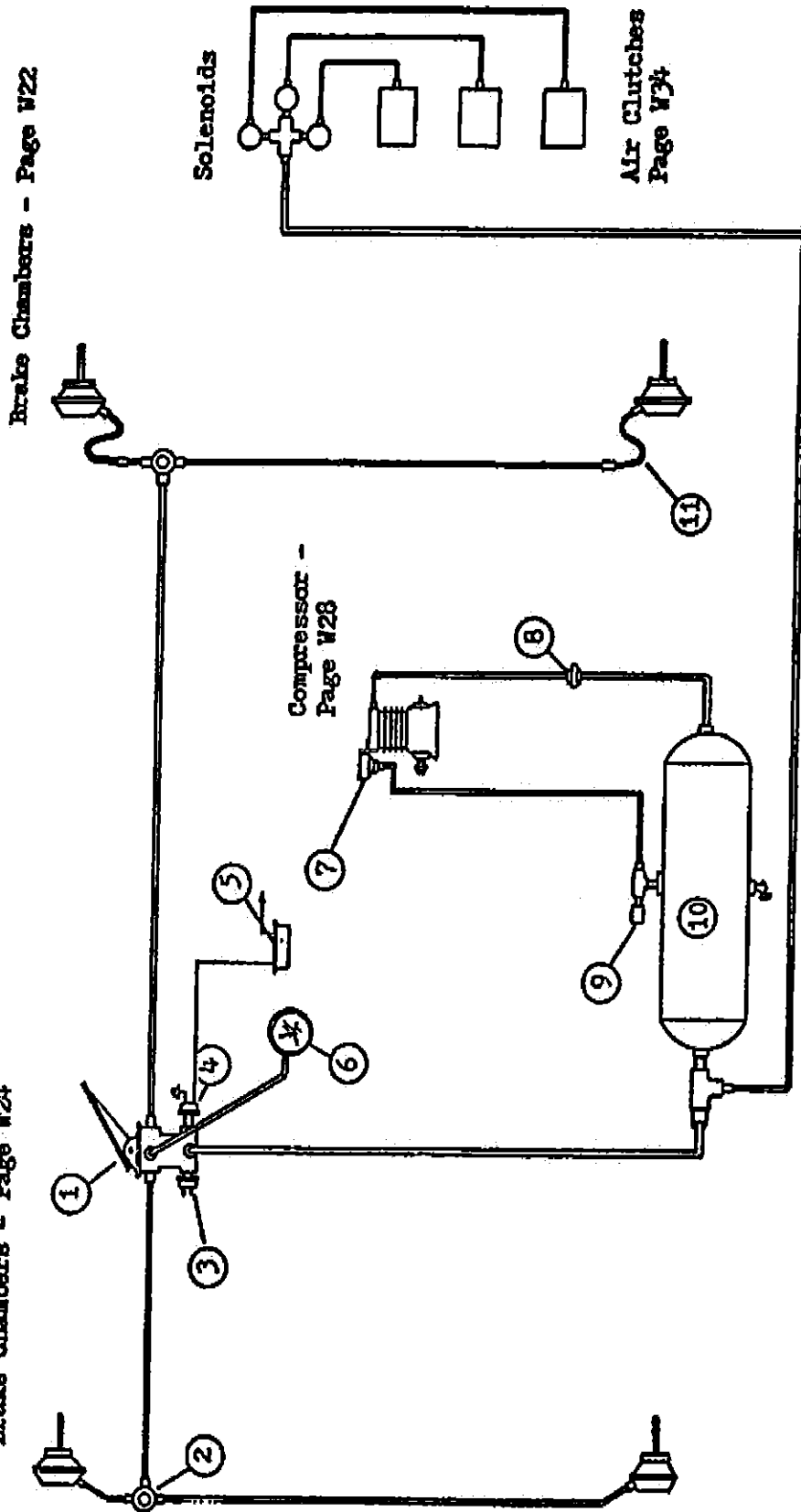


Part No.	DESCRIPTION	No. Reqd.	Remarks
W24-1	Brake Shoe & Lining	2	
W24-2	Brake Spider Assy.	1	
W24-3	Brake Spider Bushing	1	
W24-4	Dust Shield	2	
W24-5	Cam Bracket & Spider Screw Washer	4	
W24-6	Cam Bracket & Spider Screw	4	
W24-7	Anchor Pin Felt Retainer	4	
W24-8	Anchor Pin Felt	4	
W24-9	Anchor Pin Lock Ring	4	
W24-10	Camshaft & Chamber Bracket Assy.	1	
W24-11	Camshaft Bracket Bushing	1	
W24-12	Camshaft Oil Seal Felt	1	
W24-13	Camshaft Felt Washer	1	
W24-14	Camshaft Spacing Washer	1	
W24-15	Slack Adjuster Lever Assy.	1	
W24-16	Br. Chamber Yoke Pin Cotter Key	1	
W24-17	Br. Chamber Yoke Pin	1	
W24-18	Br. Chamber Stud Nut	2	
W24-19	Br. Chamber Assy.	1	
W24-20	Br. Anchor Pin	2	
W24-21	Dust Shield & Spider Screw	6	
W24-22	Br. Anchor Pin Lock Screw	2	
W24-23	Br. Shoe Return Spring Pin	2	
W24-24	Br. Shoe Roller Retainer	2	
W24-25	Br. Shoe Roller	2	
W24-26	Camshaft	1	
W24-27	Br. Shoe Return Spring	1	
W24-28	Br. Camshaft Washer	1	
W24-29	Br. Camshaft Lock Ring	1	



Part No.	DESCRIPTION	No. Reqd.	Remarks
W26-1	Treadle Valve Assembly - Air Control	1	
W26-1A	Treadle - Air Control Valve	1	
W26-1B	Valve - Air Control	1	
W26-2	Valve - Quick Release	2	
W26-3	Switch - Stop Light	1	
W26-4	Switch - Low Air Pressure	1	
W26-5	Buzzer - Low Air Pressure Warning	1	
W26-6	Gauge - Air Pressure	1	
W26-7	Governor	1	
W26-8	Valve - One-Way Check	1	
W26-9	Valve - Safety Relief	1	
W26-10	Reservoir - Air Storage	1	
W26-11	Hoses - Flexible	2	

Brake Chambers - Page W24



Brake Chambers - Page W22

Solenoids

Air Clutches
Page W34

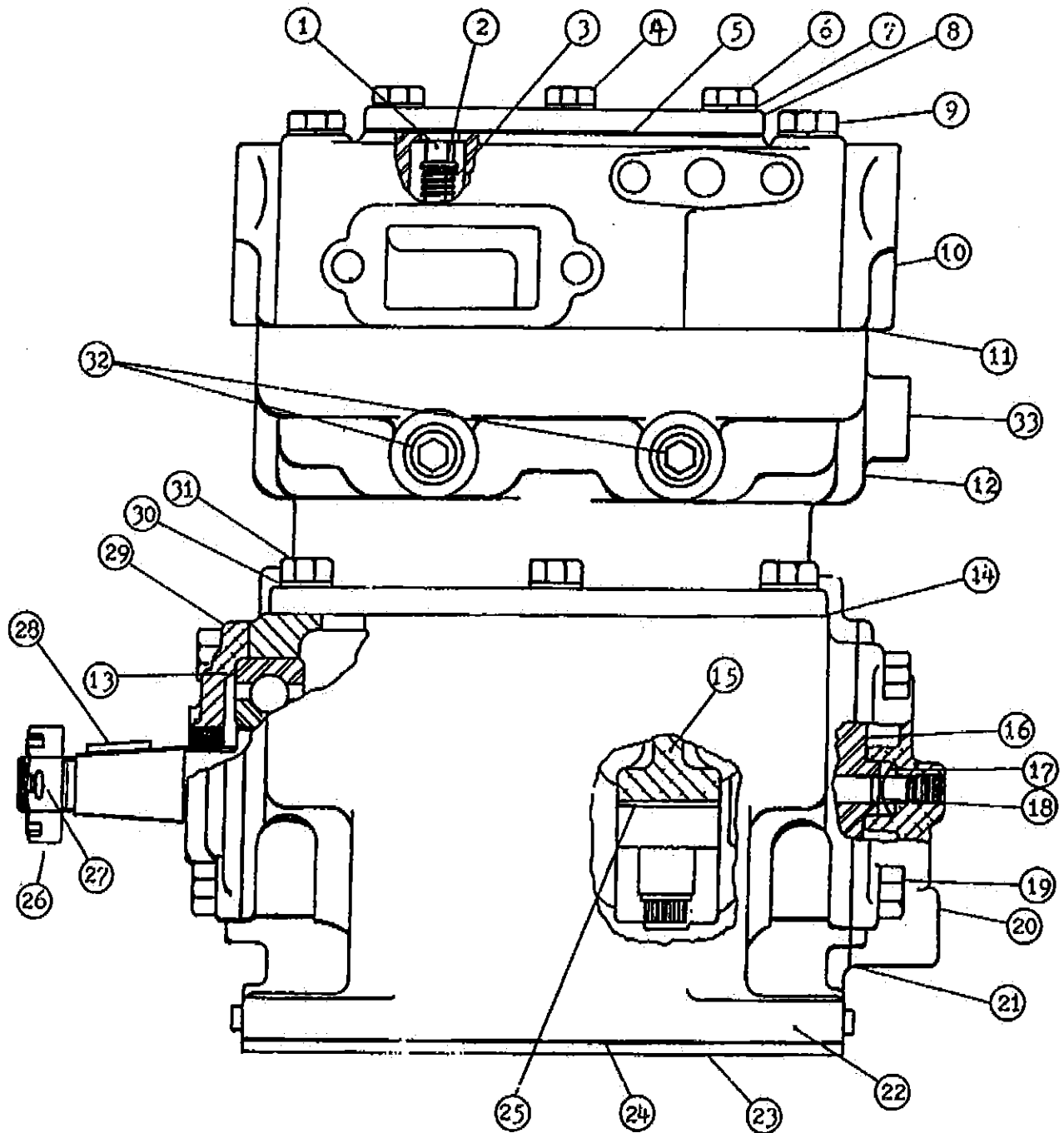
Compressor -
Page W28

AIR SYSTEM - SCHEMATIC

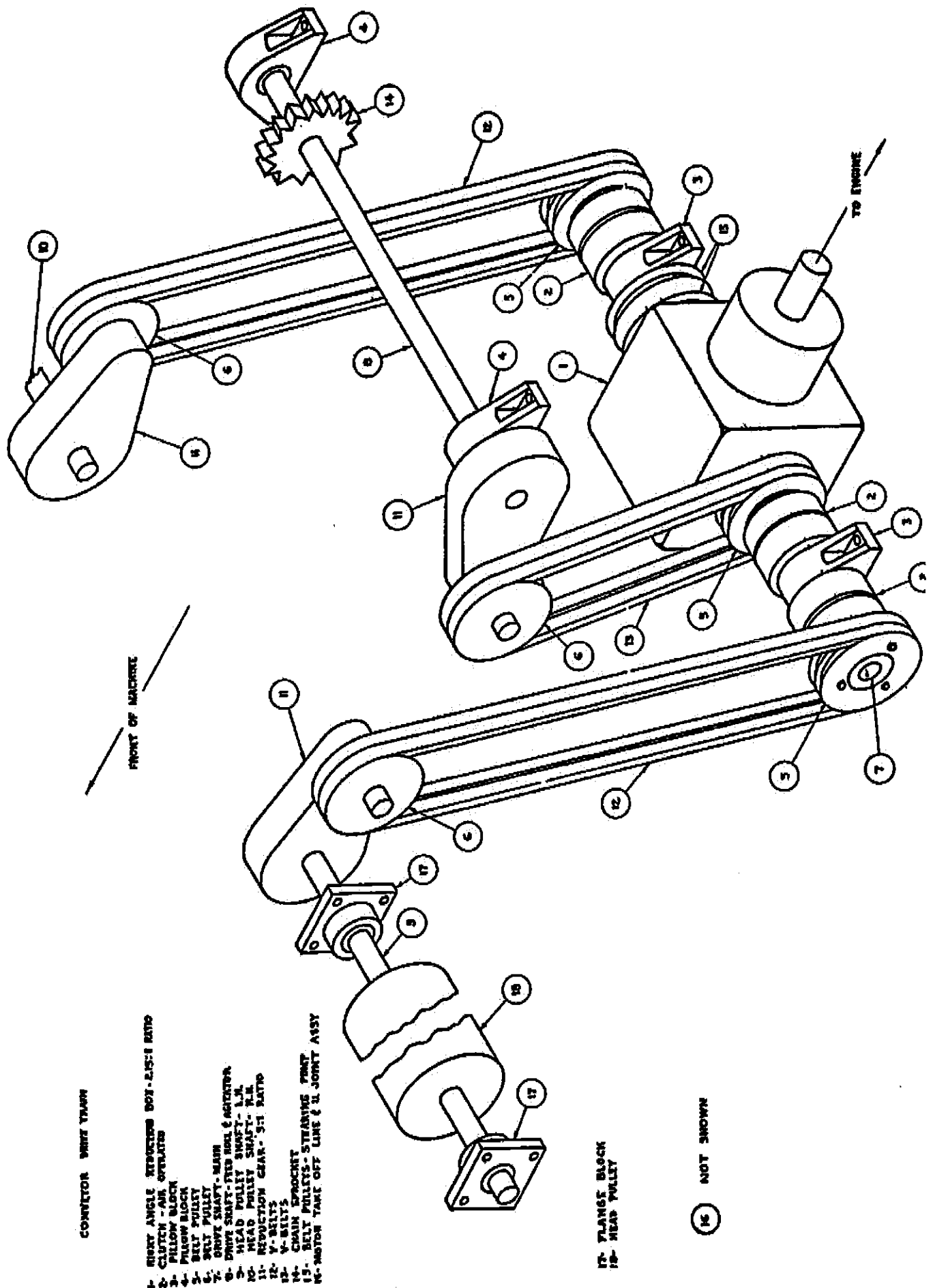
Page W26

Part No.	DESCRIPTION	No. Reqd.	Remarks
W28-1	Pin - Unloader	2	
W28-2	Seal Vee	2	
W28-3	Spring	2	
W28-4	Bolt	1	
W28-5	Gasket - Unloader	1	
W28-6	Bolt	2	
W28-7	Lockwasher	2	
W28-8	Cover - Unloader	1	
W28-9	Hex Head Bolt	5	
W28-10	Cylinder Head Assy.	1	
W28-11	Gasket - Head	1	
W28-12	Cylinder Block	1	
W28-13	Bearing	2	
W28-14	Gasket - Cylinder Block	1	
W28-15	Piston & Rod Assy.	2	
W28-16	Crankshaft	1	
W28-17	Bowed Washer	1	
W28-18	Seal Ring	1	
W28-19	Lock Screw	1	
W28-20	Bearing Cap - Rear	1	
W28-21	Gasket - Bearing Cap	2	
W28-22	Crankcase	1	
W28-23	Cover Plate	1	
W28-24	Gasket	1	
W28-25	Bearing - Rod	4	
W28-26	Nut	1	
W28-27	Cotter Pin	1	
W28-28	Woodruff Key	1	
W28-29	Bearing Cap Assy.	1	
W28-30	Lockwasher	6	
W28-31	Hex Head Bolt	6	
W28-32	Pipe Plug	2	
W28-33	Pipe Plug	1	
W28-34	Pulley - Drive	1	Not Shown
W28-35	Vee-Belt - Compressor Drive	1	Not Shown

AIR COMPRESSOR ASSEMBLY (EXCEPT CUMMINS EQUIPPED)

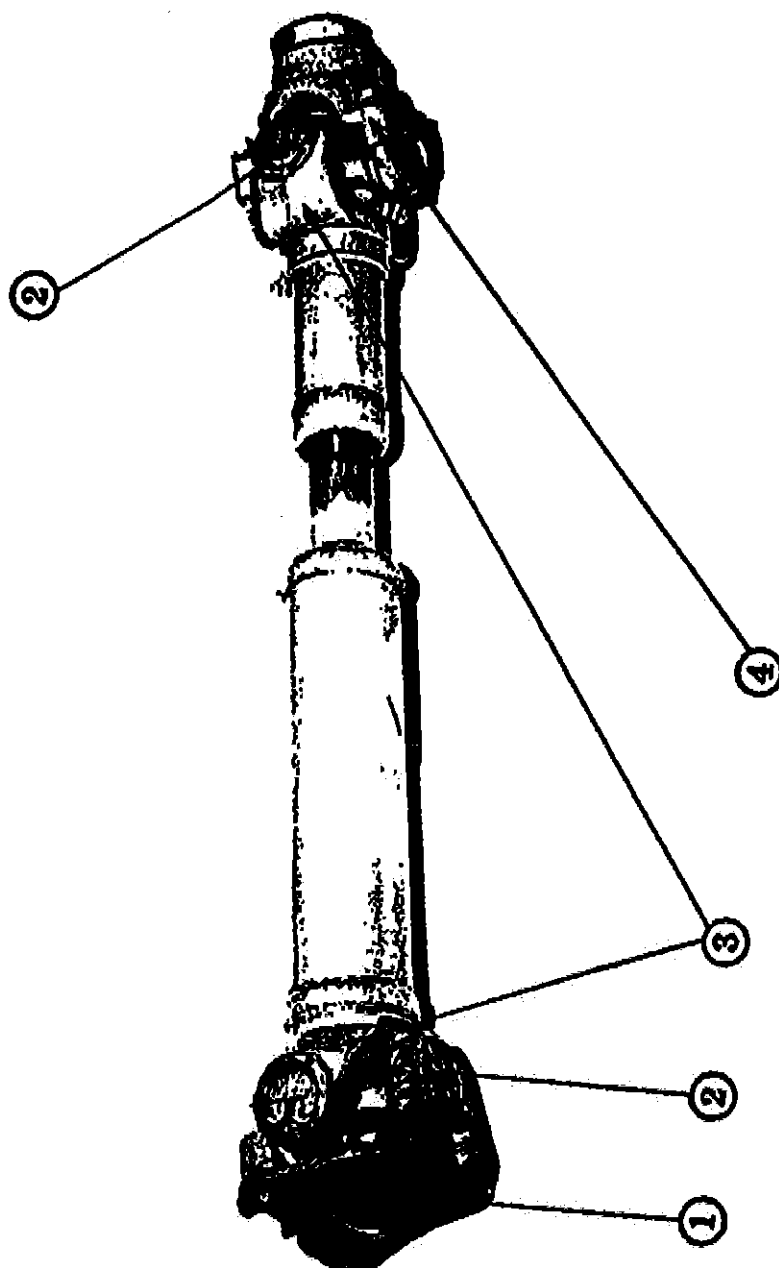


Part No.	DESCRIPTION	No. Reqd.	Remarks
Item 1	Right Angle Gear Box - Page W32	1	
Item 2	Air Clutches - Page W34	3	
W30-3	Bearing - Pillow Block	2	
W30-4	Bearing - Pillow Block	2	
Item 5	Pulley - Air Clutch Driven - Page W34	3	
Item 6	Pulley - Reduction Box Drive - Page W36	3	
W30-7	Drive Shaft - Main	1	
W30-8	Drive Shaft - Hopper Drive	1	
Item 9	Shaft - Head Pulley - Page W42	1	
Item 10	Shaft - Head Pulley - Page W42	1	
Item 11	Reduction Gear - Page W36	3	
W30-12	V-Belts - Conveyor Box Drives	4	
W30-13	V-Belts - Hopper Box Drives	2	
W30-14	Sprocket - Hopper Drive Chain	1	
W30-15	Pulley - Steering Belt Drive	1	
Item 16	Drive Shaft Assy. - Page W30A	1	
Item 17	Flange Blocks - Page W42	4	
Item 18	Head Pulley - Page W42	2	



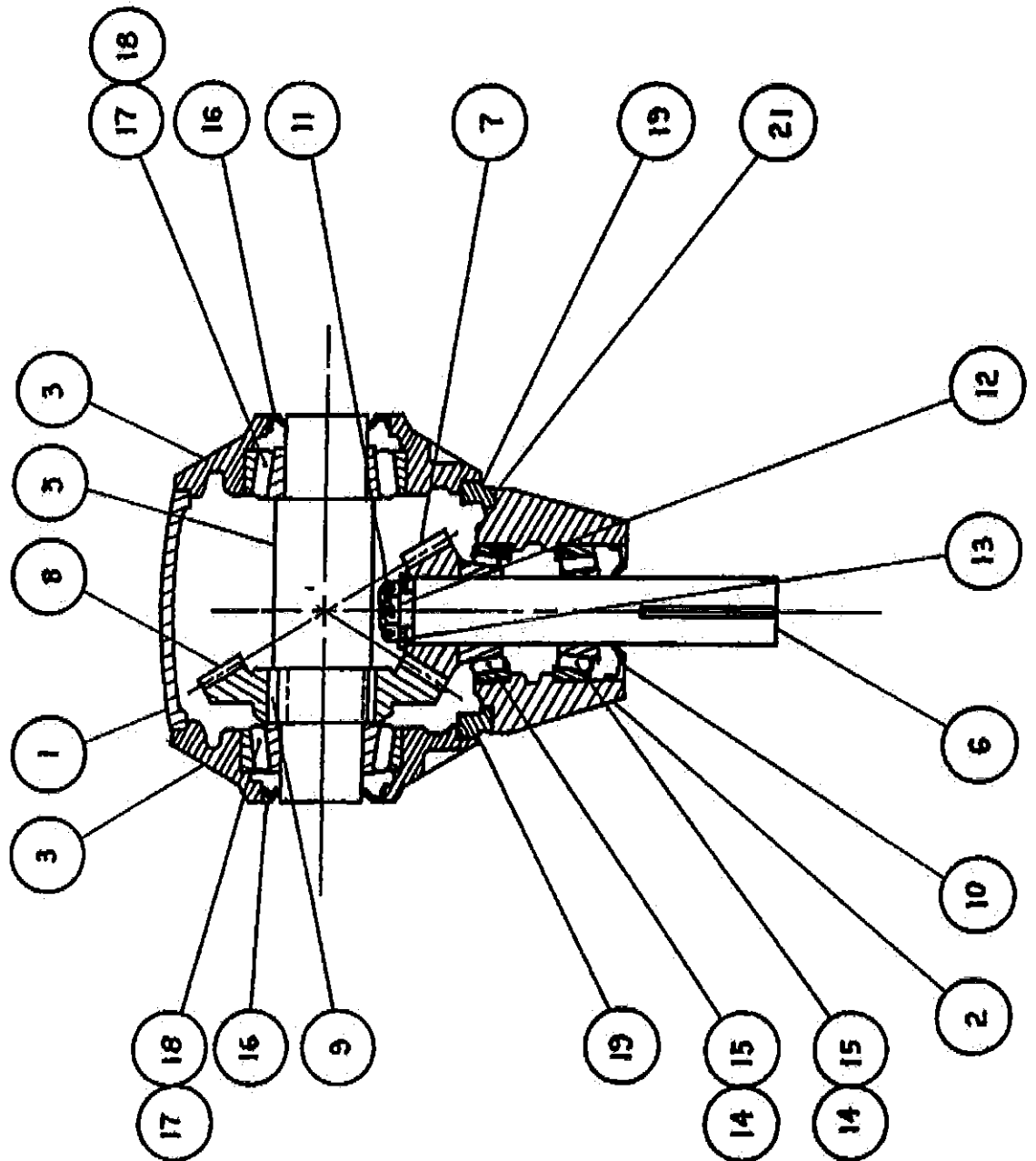
Part No.	DESCRIPTION	No. Reqd.	Remarks
W30B-1	Yoke - Flanged	1	
W30B-2	Snap Ring & Cross Kit	2	
W30B-3	Slip Spline Assembly	1	
W30B-4	Yoke & U Bolts	1	
W30B-5	Shaft, stub & Engine Drive Adaptor	1	Not Shown
W30B-6	Bolt & L.W. - Engine Adaptor	4	Not Shown

PTO DRIVE SHAFT ASSEMBLY



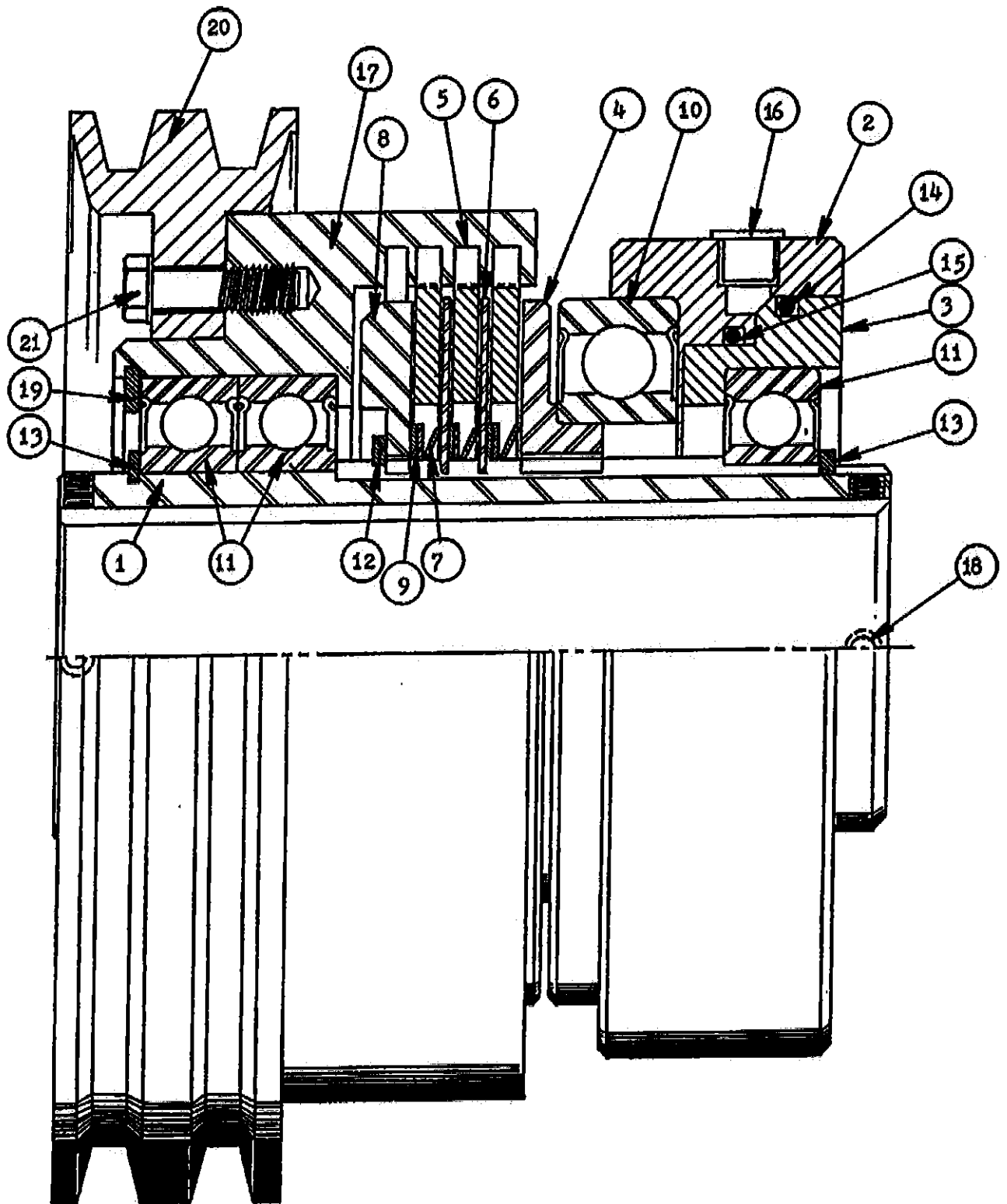
Part No.	DESCRIPTION	No. Reqd.	Remarks
W32-1	Housing - Main	1	
W32-2	Housing - Input	1	
W32-3	Cover - Output	1	
W32-5	Shaft - Output	1	
W32-6	Shaft - Input	1	
W32-7	Pinion	1	
W32-8	Gear	1	
W32-9	Key	2	
W32-10	Seal	1	
W32-11	Cotter Pin 1/8 X 2	1	
W32-12	Nut - Slotted 1" X 20	1	
W32-13	Washer	1	
W32-14	Bearing Cup	2	
W32-15	Bearing Cone	2	
W32-16	Seal	2	
W32-17	Bearing Cup	2	
W32-18	Bearing Cone	2	
W32-19	Shim - .003	1	
	Shim - .005	2	
	Shim - .007	3	
W32-21	Shim - .005	2	
	Shim - .007	2	
	Shim - .020	1	

RIGHT ANGLE GEAR BOX ASSEMBLY



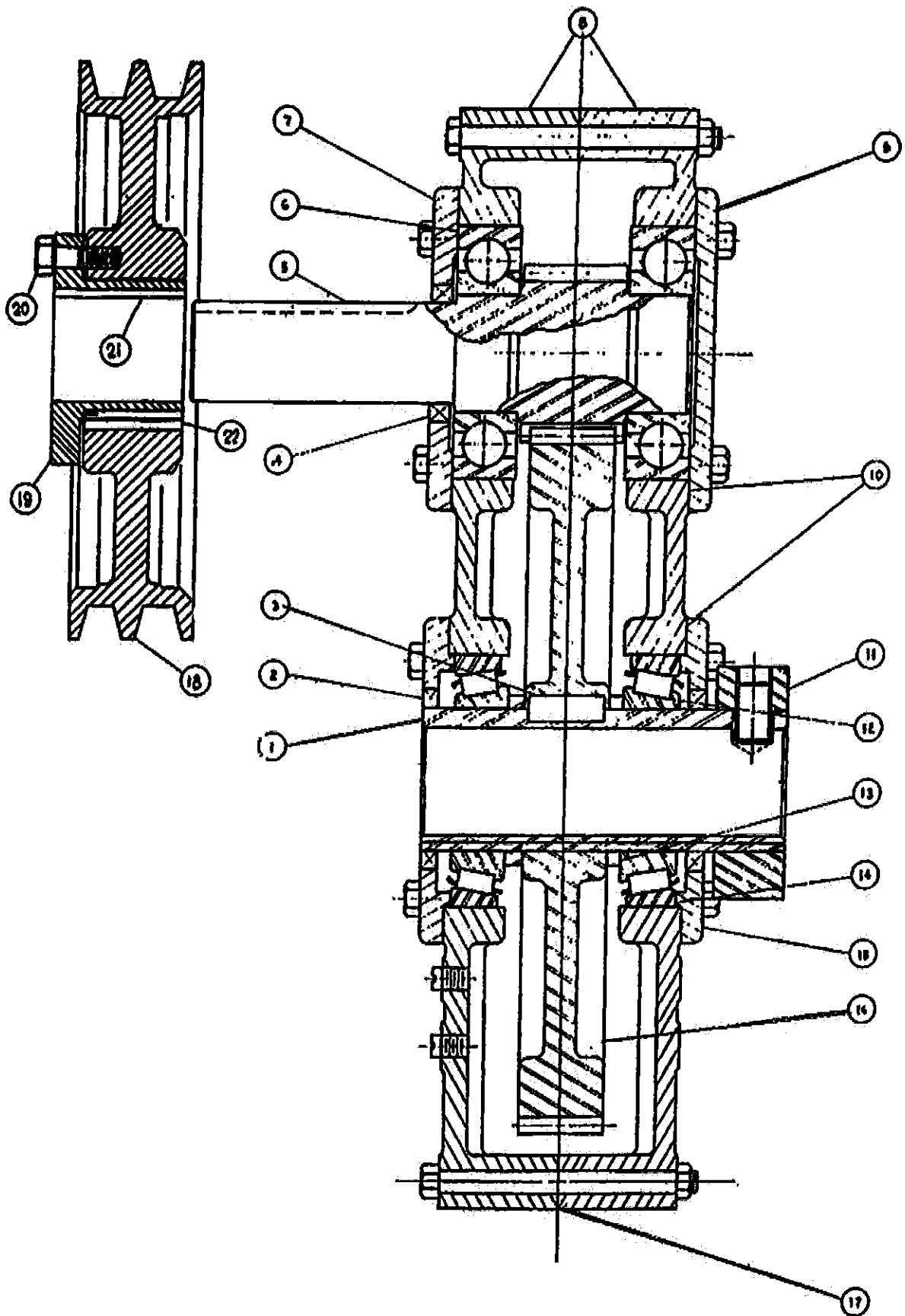
Part No.	DESCRIPTION	No. Reqd.	Remarks
W34-0	Assembly- Air Cylinder	3	Per Machine
W34-1	Hub	1	Per Clutch
W34-2	Cylinder	1	" "
W34-3	Piston	1	" "
W34-4	Thrust Plate	1	" "
W34-5	Outer Plate	3	" "
W34-6	Inner Plate	2	" "
W34-7	Waved Spring	3	" "
W34-8	Flange - End	1	" "
W34-9	Washer, Spring Back-up	6	" "
W34-10	Bearing	1	" "
W34-11	Bearing	3	" "
W34-12	Ring - Retaining	1	" "
W34-13	Ring - Retaining	2	" "
W34-14	O-Ring (large)	1	" "
W34-15	O-Ring (small)	1	" "
W34-16	Hose Assembly	1	" "
W34-17	Shell - Driving	1	" "
W34-18	Screw - Set	4	" "
W34-19	Ring - Retaining	1	" "
W34-20	Sheave	1	" "
W34-21	Bolt & L.W.	4	" "
W34-22	Repair Kit - Includes: Outer Plates Bearings (All) Waved Springs Seals	1	" "
<p>**NOTE: All machine production beginning August, 1976 uses this improved clutch. It is directly interchangeable and/or convertible with previous production. The changes are:</p> <p>W34-5 Outer Plate; previously required 4, now three.</p> <p>W34-6 Inner Plate; previously required 3, now Two.</p> <p>W34-7 Waved Spring; previously required 4, now Three.</p> <p>W34-9 Spring back-up washers; previously required 4, now Six.</p>			

AIR CYLINDER ASSEMBLY



Part No.	DESCRIPTION	No. Reqd.	Remarks
W36-1	Sleeve - 1 $\frac{1}{2}$ " Bore	1	
W36-2	Seal - National 4771138	2	
W36-3	Key	1	
W36-4	Seal	1	
W36-5	Pinion - 14T Drive	1	
W36-6	Bearing	2	
W36-7	Cap - Bearing	1	
W36-8	Housing - R.H. & L.H.	2	
W36-9	Cap - Bearing	1	
W36-10	Gasket - Bearing Cap	4	
W36-11	Collar	1	
W36-12	Cone	2	
W36-13	Spacer	1	
W36-14	Cup	2	
W36-15	Cap - Bearing	2	
W36-16	Gear - 68T Final Drive	1	
W36-17	Gasket- Housing	1	
W36-18	Pulley - Reduction Box Drive	3	
W36-19	Taper Lock - Reduction Box Pulley	3	
W36-20	Bolt & L.W. - Taper Lock	9	
W36-21	Key - Taper Lock to Shaft	3	
W36-22	Key - Taper Lock to Pulley	3	

SPEED REDUCER ASSEMBLY

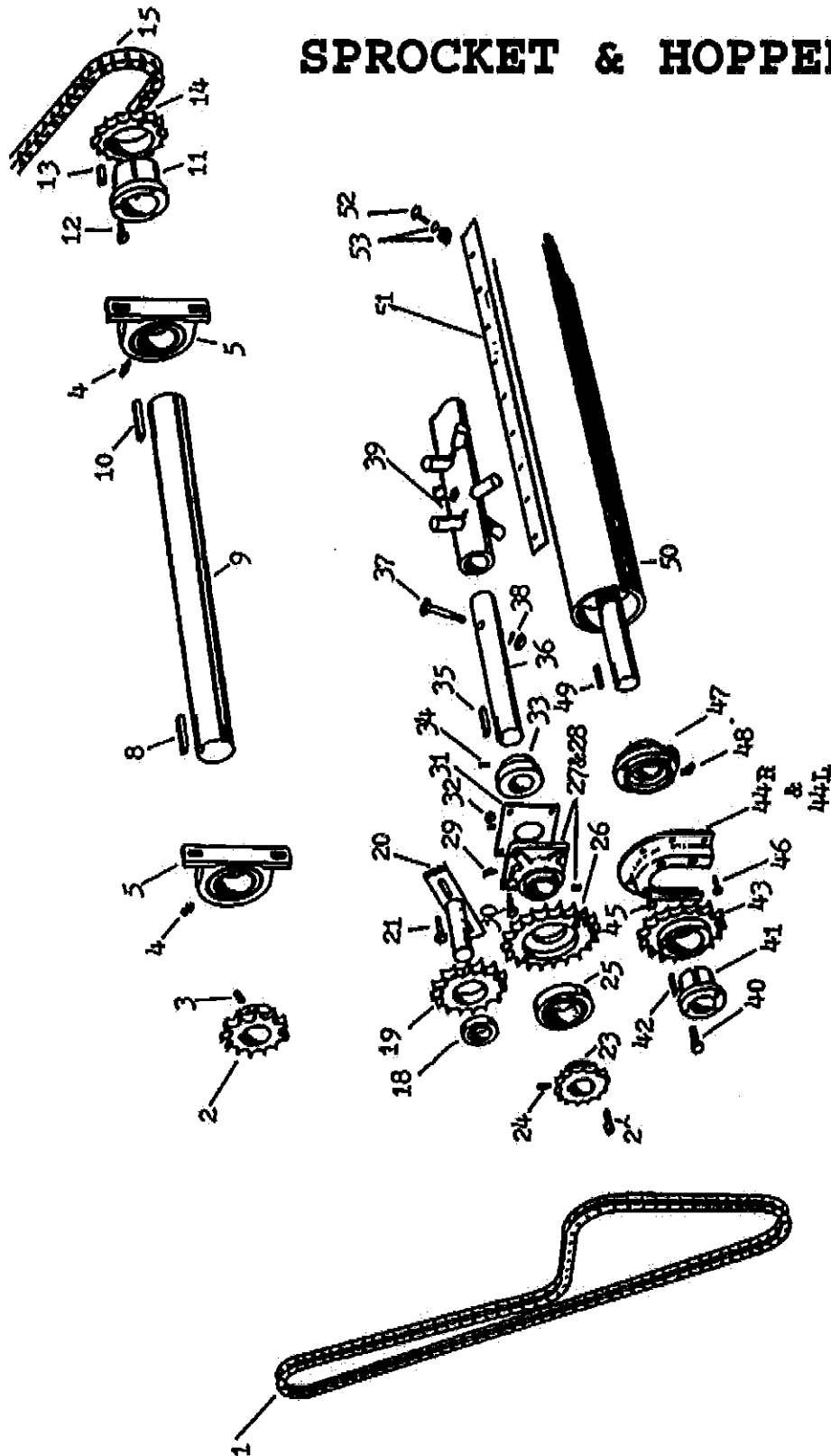


PART NO.	DESCRIPTION	REQ.	REMARKS
W38-1	Hopper	1	Specify Size
W38-2	Guard - Chain	1	
W38-3	Pin - Chain Guard	1	
W38-4	Hinge Pin - Chain Guard	2	Welded in place
W38-5	Baffle	2	
W38-6	Shaft - Main Gate Control	1	Specify Size
W38-7	Lever - Gate Control Shaft	1	Welded to shaft
W38-8	Olevis - Reach Rod	1	
W38-9	Pin - Reach Rod Olevis	1	
W38-10	Cotter Pin - Reach Rod Olevis	1	
W38-11	Rod - Adjusting W/Jam Nut	1	
W38-12	Reach Rod - Gate Control Lever	1	
W38-13	Hinge Pin - Radial Gates	2	Specify Hopper
W38-20	Pins - Radial Gate Hinge Retaining	2	
W38-21	Frame - Spread Screen	1	Specify Hopper
W38-22	Bolt - Spread Screen Frame Mounting	2	
W38-23	Nut & L.W. - Frame Mounting Bolt	2	
W38-24	Bolt - Spread Screen Adjusting	2	
W38-25	Nut & L.W. - Spread Screen Adj. Bolt	2	
W38-26	Screen - Lower Spread	1	Specify Hopper
W38-45	Pin- Clevis, Gate Adjusting Rod	*VAR.	*See W38-44
W38-46	Cotter Pin - Clevis	*VAR.	*See W38-44
NOTE: All parts on this page, the left and right hands are determined from the front of the machine.			

The following parts vary in their requirements according to hoppers		HOPPER SIZE & PARTS REQD.						
		10' 6"	11' 6"	12' 6"	13' 6"	14' 6"	15' 6"	16'
W38-27	Bearing - Gate Control	3	3	4	4	4	4	4
W38-28	Fitting - Brg. Lubrication	3	3	4	4	4	4	4
W38-29	Bolt - Brg. Mounting	6	6	8	8	8	8	8
W38-30	Nut & L.W. - Brg. Bolt	6	6	8	8	8	8	8
W38-31	Set Screw - Bearing	3	3	4	4	4	4	4
W38-32	Spring - Gate Latch Assy.	13	15	17	19	19	20	20
W38-33	Screen - Grizzly 12x30	2		2	2	2	2	2
W38-33A	Screen - Grizzly 18x30		2	2	2	2		2
W38-33B	Screen - Grizzly 45x30			2				
W38-33C	Screen - Grizzly 50x30	2	2		2			
W38-33D	Screen - Grizzly 56x30					2		
W38-33E	Screen - Grizzly 62x30						2	
W38-33F	Screen - Grizzly 64x30							2
W38-34R	Gate - Radial, 6" R.H.	2	3	4	5	4	5	4
W38-34L	Gate - Radial, 6" L.H.	3	4	5	6	5	6	4
W38-35R	Gate - Radial, 12" R.H.	3	3	3	3	4	4	5
W38-35L	Gate - Radial, 12" L.H.	3	3	3	3	4	4	5
W38-36	Gate - Radial, 12" Center	2	2	2	2	2	2	2
W38-37	Gate Latch Assembly	13	15	17	19	19	20	20
W38-38	Knob - Gate Latch Assembly	13	15	17	19	19	20	20
W38-39	Lock - Gate Open	13	15	17	19	19	20	20
W38-40	Set Screw - Gate Open Lock	13	15	17	19	19	20	20
W38-41	Lock - Gate Closed (welded)	13	15	17	19	19	20	20
W38-42	Rod - Gate Adjusting	13	15	17	19	19	20	20
W38-43	Rod - Clevis W/Jam Nut	13	15	17	19	19	20	20
W38-44	Clevis - Adjusting Rod	13	15	17	19	19	20	20

Part No.	DESCRIPTION	No. Reqd.	Remarks
	NOTE: Hopper Parts Are Left & Right from the front of the machine.		
W40-1	Chain - Roll & auger Drive	1	
W40-2	Sprocket - Hopper Drive	1	
W40-3	Set Screw - Hopper Drive Sprocket	1	
W40-4	Fitting - Lubrication - Shaft Brgs.	2	
W40-5	Bearing - Hopper Drive Shaft	2	
W40-8	Key - Hopper Shaft to Sprocket	1	
W40-9	Shaft - Hopper Drive	1	
W40-10	Key - Shaft to Taper Lock	1	
W40-11	Taper Lock	1	
W40-12	Screw & L.W. - Taper Lock to Sprocket	3	
W40-13	Key - Taper Lock to Sprocket	1	
W40-14	Sprocket - Hopper Driven	1	
W40-15	Chain - Hopper Drive	1	
W40-18	Bearing - Idler Sprocket	1	
W40-19	Idler Sprocket	1	
W40-20	Shaft - Idler Sprocket	1	
W40-21	Screw & L.W. - Idler Sprocket Shaft	2	
W40-22	Screw - Freewheel Sprocket Locking	2	
W40-23	Sprocket - Auger Drive	1	
W40-24	Set Screw - Auger Drive Sprocket	1	
W40-25	Bearing - Freewheel Sprocket	1	
W40-26	Sprocket - Freewheel	1	
W40-27	Bearing - Auger Stub Shafts	2	
W40-28	Set Screw - Auger Shaft Bearings	2	
W40-29	Fitting - Bearing Lubrication	2	
W40-30	Bolt - Bearing Mounting	8	
W40-31	Wear Plate - Fixed	2	
W40-32	Nut & L.W. - Bearing & Plate Mount	8	
W40-33	Wear Collar - Auger	2	
W40-34	Set Screw - Auger Wear Collar	2	
W40-35	Key - Rt. Hand Stub Shaft	1	
W40-36R	Shaft - Auger Stub - Rt. Hand (Keyed)	1	See Note Above
W40-36L	Shaft - Auger Stub - Lt. Hand (Plain)	1	" " "
W40-37	Bolt - Auger	2	
W40-38	Nut & L.W. - Auger Bolt	2	
W40-39	Auger	1	Specify Hopper
W40-40	Bolt - Taper Lock to Roll Sprocket	3	
W40-41	Taper Lock - Spread Roll to Sprocket	1	
W40-42	Key - Taper Lock to Roll Sprocket	1	
W40-43	Sprocket - Spread Roll	1	
W40-44R	Shield - Spread Roll - Right Hand	1	See Note Above
W40-44L	Shield - Spread Roll - Left Hand	1	" " "
W40-45	Screw - Bearing Mount	8	
W40-46	Bolt & L.W. - Shield Mounting	12	
W40-47	Bearing - Spread Roll	2	
W40-48	Fitting - Bearing Lubrication	2	
W40-49	Key - Roll to Taper Lock	1	
W40-50	Spread Roll (Integral Shaft)	1	Specify Hopper
W40-51	Seal-Spread Roll	1	Specify Hopper
W40-52	Bolt-Seal Retaining	Var.	
W40-53	Nut & L.W.- Seal Retaining	Var.	

SPROCKET & HOPPER DRIVES



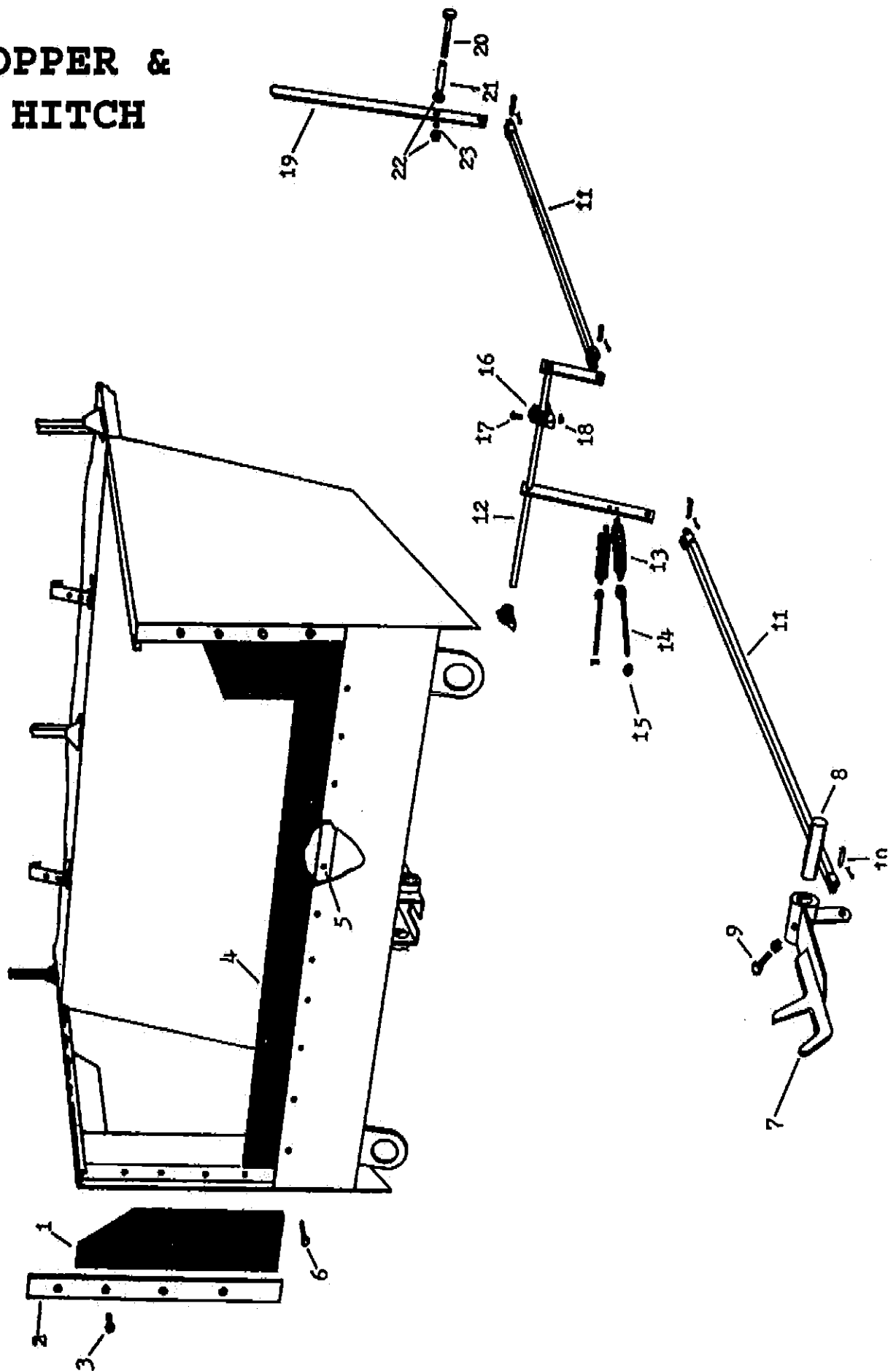
REV. 11/76

Part No.	DESCRIPTION	No. Reqd.	Remarks
W42-1	Control Gate - Rear Hopper	2	
W42-2	Pin Assy. - Control Gate Positioning	2	
W42-3	Tail Pulley - Self- Cleaning	2	
W42-4	Bearing - Tail Pulley Adjustable	4	
W42-5	Fitting - Tail Pulley Brg. Lub.	4	
W42-6	Screw - Tail Pulley Adjusting	4	
W42-7	Pin - Tail Pulley Adj. Screw	4	
W42-10	Frame - Troughing Idler	14	
W42-11	Roll - End, Troughing Idler	28	
W42-12	Roll - Middle, Troughing Idler	14	
W42-13	Shaft - Center	28	
W42-14	Screw & Jam Nut Assy. - Shaft Retaining	68	
W42-15	Bearing - Idler Roll	108	
W42-16	End Shaft - Troughing Idler	23	
W42-17	Head Pulley	2	
W42-18	Shaft - Head Pulley	2	Specify R.H./L.H.
W42-19	Key - Head Pulley Shaft	2	
W42-20	Taper Lock - Head Pulley Shaft	4	
W42-21	Key - Taper Lock to Head Pulley Shaft	4	
W42-22	Bolt & L.W. - Lock to Head Pulley	12	
W42-23	Bearing - Head Pulley Shaft	4	
W42-24	Set Screw - Head Pulley Bearing	4	
W42-25	Fitting - Head Pulley Bearing Lub.	4	
W42-26	Bolt - Head Pulley Mounting	16	
W42-27	Nut & L.W. - Head Pulley Bolt	16	
W42-28	Lagging - Head Pulley Cleaning	2	
W42-29	Bracket - Head Pulley Lagging	2	
W42-30	Bolt & L.W. - Head Pulley Lagging	8	
W42-31	Roll - Idler	6	
W42-32	End Shaft - Tightener Idler	4	
W42-33	Bolt Assy. - Tightener Idler Adjusting	4	
W42-34	Mount - Tightener Idler	4	
W42-35	Bolt - Hinging, Tightener Idler Mount	4	
W42-36	Nut - Tightener Idler Mount	4	
W42-37	End Shaft - Idler Roll	8	
W42-38	Mount - Idler Rolls	8	
W42-39	Bolt - Roll Mounting	72	
W42-40	Nut & L.W. - Roll Mounting	72	
W42-41	Lagging - Conveyor Side	4	
W42-42	Strip - Lagging Holdown	4	
W42-43	Bolt & L.W. - Lagging Strip	68	
W42-44	Lagging - Conveyor End	2	Bolts to Rear Hopper
W42-45	Bolt - Conveyor End Lagging	6	
W42-46	Nut - Tail Pulley Adj. Bolt	4	Welded To Frame
W42-47	Frame Conveyor	2	
W42-48	Belt Assembly - Conveyor	2	Includes Clips
W42-49	Shaft - Tail Pulley	2	
W42-50	Set Screw - Tail Pulley Shaft	4	

[illegible]

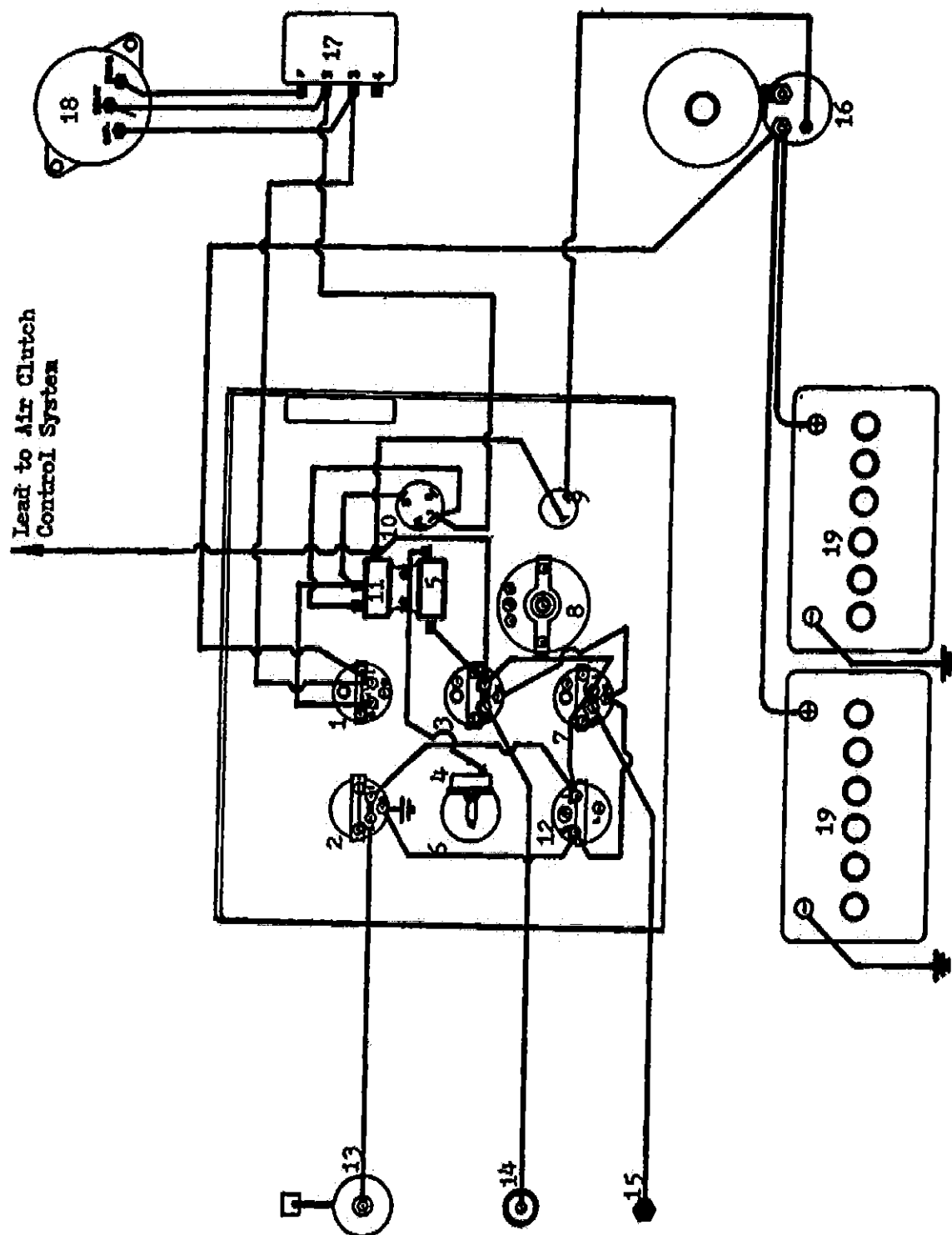
Part No.	DESCRIPTION	No. Reqd.	Remarks
W44-1	Seal, Rubber - Vertical	2	
W44-2	Attachment Strip - Vertical Seal	2	
W44-3	Capscrew & L.W. - Vertical Strip	8	
W44-4	Seal, Rubber - Horizontal	1	
W44-5	Attachment Strip - Horizontal Seal	1	
W44-6	Bolt, Nut & L.W. - Horizontal Strip	11	
W44-7	Truck Hitch	1	
W44-8	Hinge Pin - Truck Hitch	1	
W44-9	Bolt & Lock Nut - Hitch Hinge Pin	1	
W44-10	Clevis Pin & Key - Reach Rod	4	
W44-11	Reach Rod - Truck Hitch Control	2	
W44-12	Gross Shaft Assembly - Truck Hitch Cont.	1	
W44-13	Spring - Return, Truck Hitch	2	
W44-14	Adjuster - Return Spring	2	
W44-15	Nut - Adjusting	2	
W44-16	Bearing - Gross Shaft	2	
W44-17	Bolt - Bearing Mounting	4	
W44-18	Nut & L.W. - Bearing Mounting	4	
W44-19	Lever - Truck Hitch Control	1	
W44-20	Bolt - Lever Hinging	1	
W44-21	Tube - Lever Hinging	1	Welded in Place
W44-22	Nut - Hinging Bolt	2	
W44-23	Lockwasher - Hinging Bolt	1	

REAR HOPPER & TRUCK HITCH



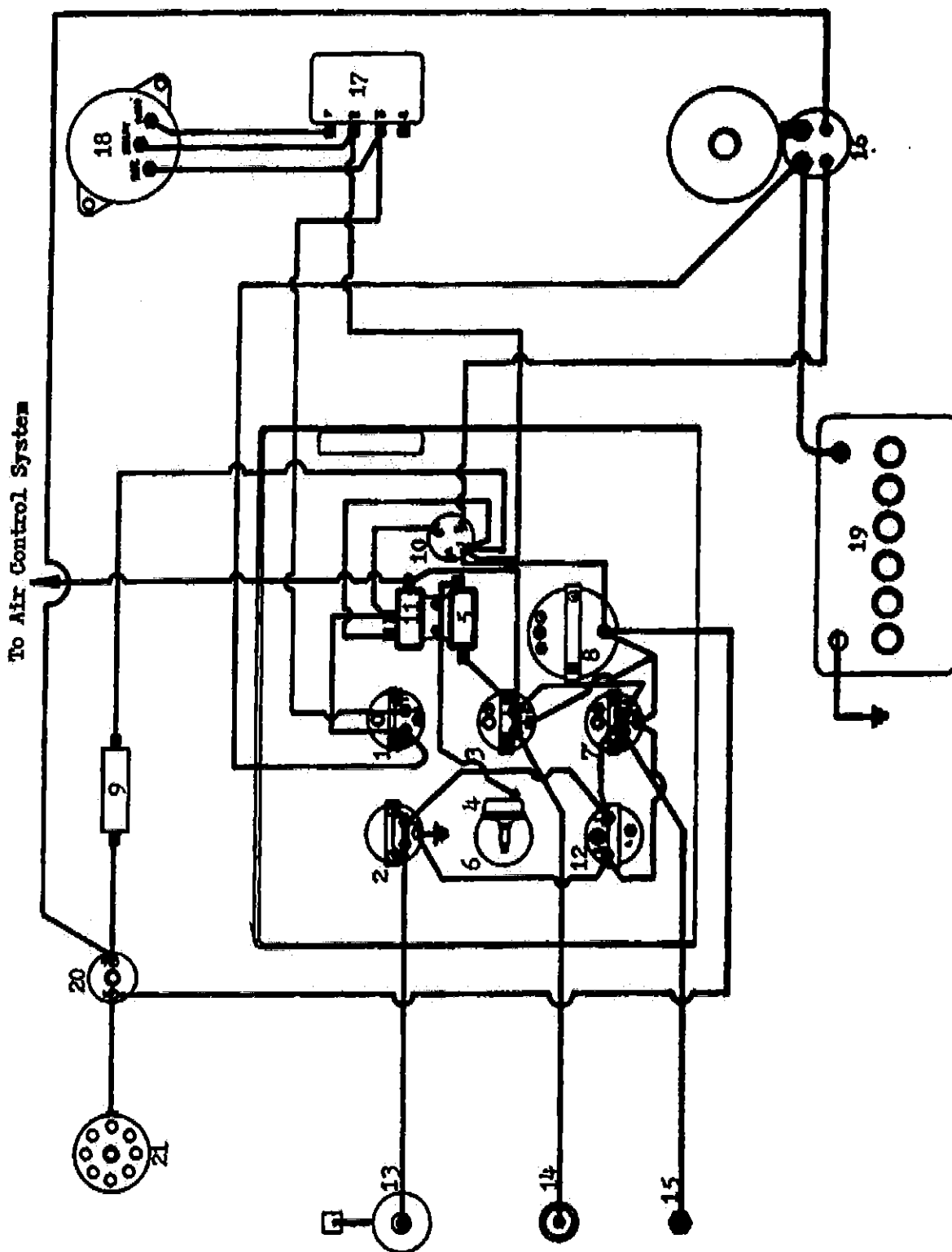
Part No.	DESCRIPTION	No. Reqd.	Remarks
For Page W-46	Wiring Diagram & Instruments (Diesel)		
W46-1	Gage - Ammeter	1	
W46-2	Gage - Fuel	1	
W46-3	Gage - Oil Pressure	1	
W26-4	Switch - Low Air	1	
W26-5	Buzzer - Low Air Warning	1	
W26-6	Gage - Air Pressure	1	
W46-7	Gage - Water Temperature	1	
W46-8	Gage - Tachometer (Mechanical)	1	
W46-9	Switch - Starter	1	
W46-10	Switch - Ignition	1	
W46-11	Relay	1	
W46-12	Gage - Hourmeter	1	
W46-13	Sender & Float - Fuel	1	
# 14	Sender - Oil Pressure	1	See engine manuf.
# 15	Sender - Water Temperature	1	See engine manuf.
# 16	Solenoid - Starter	1	See engine manuf.
# 17	Regulator - Voltage	1	See engine manuf.
# 18	Alternator	1	See engine manuf.
W46-19	Battery - 12V	2	
W46-20	Cable - Tachometer	1	

WIRING DIAGRAM & INSTRUMENTS DIESEL MODELS



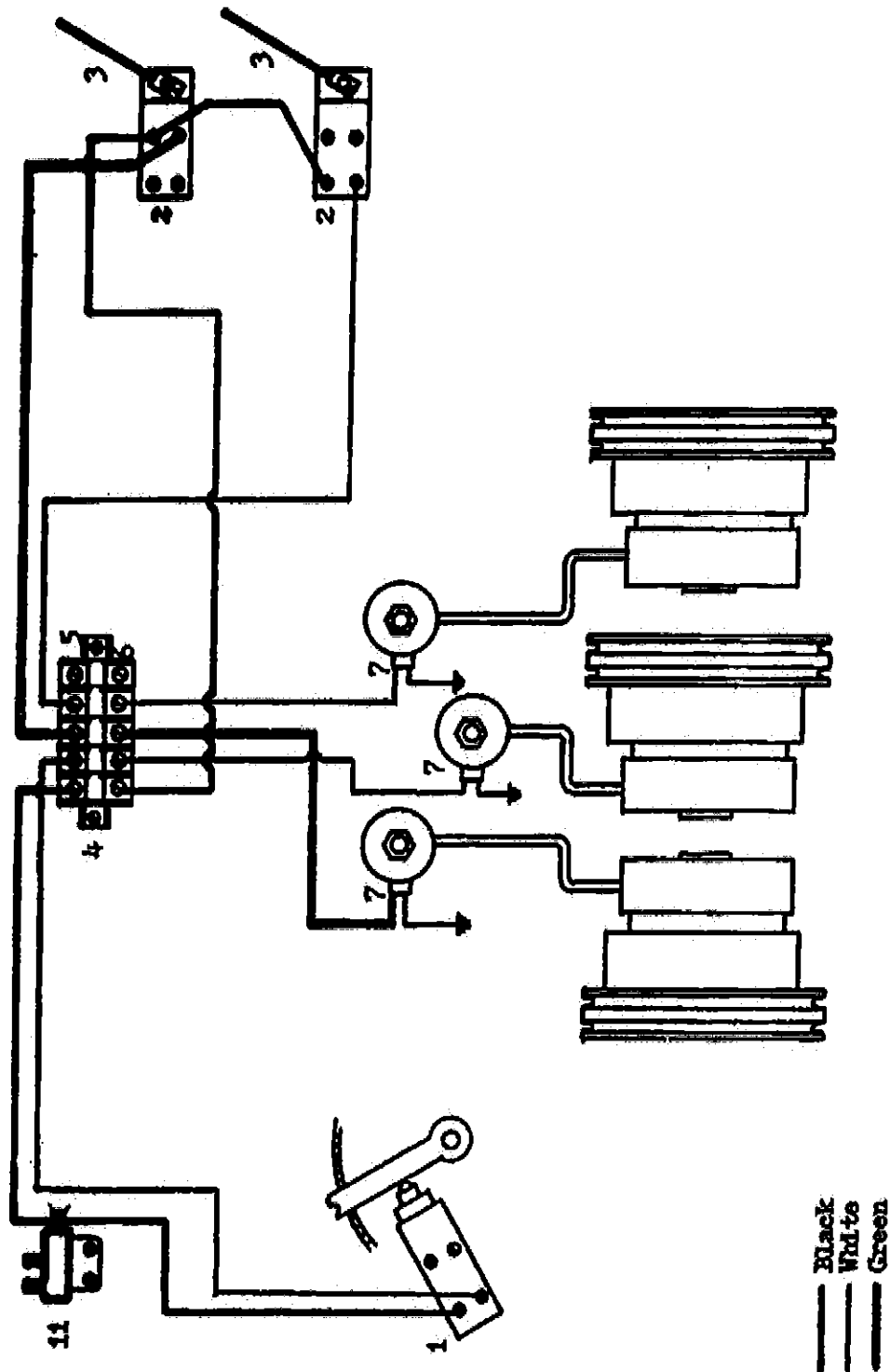
Part No.	DESCRIPTION	No. Reqd.	Remarks
For Page W-48 Wiring Diagram & Instruments (Gas)			
W46-1	Gage - Ammeter	1	
W46-2	Gage - Fuel	1	
W46-3	Gage - Oil Pressure	1	
W26-4	Switch - Low Air Pressure	1	
W26-5	Buzzer - Low Air Warning	1	
W26-6	Gage - Air Pressure	1	
W46-7	Gage - Water Temperature	1	
W48-8	Gage - Tachometer (electric)	1	
W48-9	Resistor - Ignition	1	
W46-10	Switch - ignition	1	
W46-11	Relay	1	
W46-12	Gage - Hourmeter	1	
W46-13	Sender & Float - Fuel	1	
# 14	Sender - Oil Pressure	1	See engine Manuf.
# 15	Sender - Water Temperature	1	See engine Manuf.
# 16	Solenoid - Starter	1	See engine Manuf.
# 17	Regulator - Voltage	1	See engine Manuf.
# 18	Alternator	1	See engine Manuf.
W46-19	Battery - 12V	1	
# 20	Coil - Ignition	1	See engine Manuf.
# 21	Distributor	1	See engine Manuf.

WIRING DIAGRAM & INSTRUMENTS GASOLINE MODELS



Part No.	DESCRIPTION	No. Reqd.	Remarks
For Page W-50	WIRING - AIR CLUTCHES (Two Man Control)		
W50-1	Switch - Limit	1	
W50-2	Switch - Limit	2	
W50-3	Arm - Switch Actuating	2	
W50-4	Strip - Bus Bar Mounting	1	
W50-5	Segment - Bus Bar	5	
W50-6	End - Bus Bar	1	
W50-7	Solenoid - Air Control	3	
W46-11	Relay	1	

**WIRING DIAGRAM, AIR CLUTCHES, TWO MAN
CONTROL**



Part No.	DESCRIPTION	No. Reqd.	Remarks
For Page W-52	WIRING-AIR CLUTCHES (One Man Control)		
W50-1	Switch - Limit	1	
W50-2	Switch - Limit	4	
W50-3	Arm - Switch Actuating	2	
W50-4	Strip - Bus Bar Mounting	1	
W50-5	Segment - Bus Bar	5	
W50-6	End - Bus Bar	1	
W50-7	Solenoid - Air Control	3	
W52-8	Arm - Switch Actuating	2	
W52-9	Switch - Selector	1	
W46-11	Relay	1	

