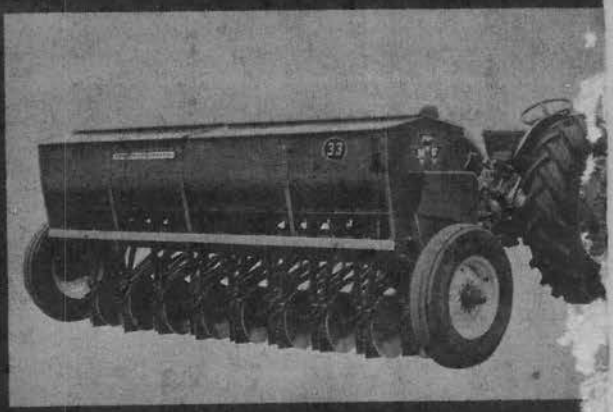
# Operator's Manual

# MF 33 GRAIN DRILL
# MF 33 GRAIN AND FERTILIZER DRILL



MF Massey Ferguson

TO OUR CUSTOMER:

Congratulations on your selection of a Massey-Ferguson Product. We believe you have exercised excellent judgment in the purchase of your Massey-Ferguson machine. We are most appreciative of your patronage.

Your Dealer has performed every pre-delivery service on your new machine.

He will be happy to acquaint you with the operating and maintenance instructions given in this manual, and to instruct you in the proper and varied applications of this machine. Call on him at any time when you have a question, or need equipment related to the use of your machine.

We recommend that you CAREFULLY READ THIS ENTIRE MANUAL before operating the unit. Also, time spent in becoming fully acquainted with its performance features, adjustments and maintenance schedules will be repaid in a long and satisfactory life of the product.

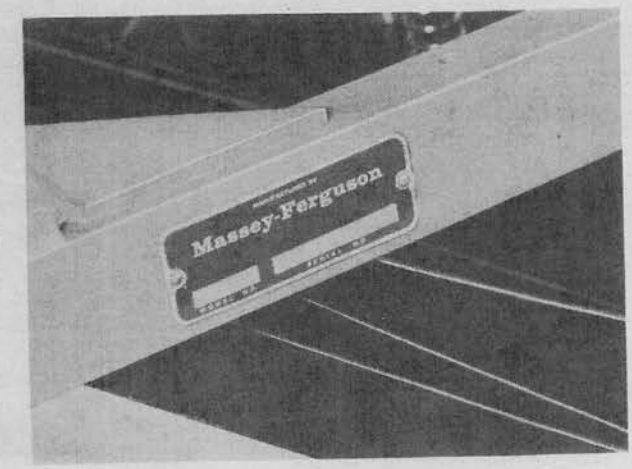
THIS PIECE OF EQUIPMENT IS COVERED BY WARRANTY. THE WARRANTY AGREEMENT IS PRINTED ON THE INSIDE BACK COVER.



**Look for this symbol to point out important safety precautions. It means — ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED.**

# INDEX






## GRAIN DRILL IDENTIFICATION

It is of the utmost importance that you refer to the model number and serial number of your MF drill when ordering parts, service or grain drill accessories. With proper identification of your unit, your Massey-Ferguson Dealer can assure you faster service and prompt delivery of the correct parts.

The model and serial number plate is located on the left front side of the main frame.

Enter the serial number here for your personal record.

Model Number: MF 33 Grain Drill

Serial Number:

# OPERATION

By observing a few basic rules and operating principles, you can insure that your MF 33 Drill will give outstanding service throughout the life of the machine. Periodic maintenance, proper adjustment and storage are important factors in determining the amount of trouble-free service you can expect to obtain. As you become familiar with the normal adjustments under varying conditions, you will secure a most satisfactory and economical performance with a minimum of down-time. The suggestions in this section of the manual will guide you in your operation of the MF 33 Drill.

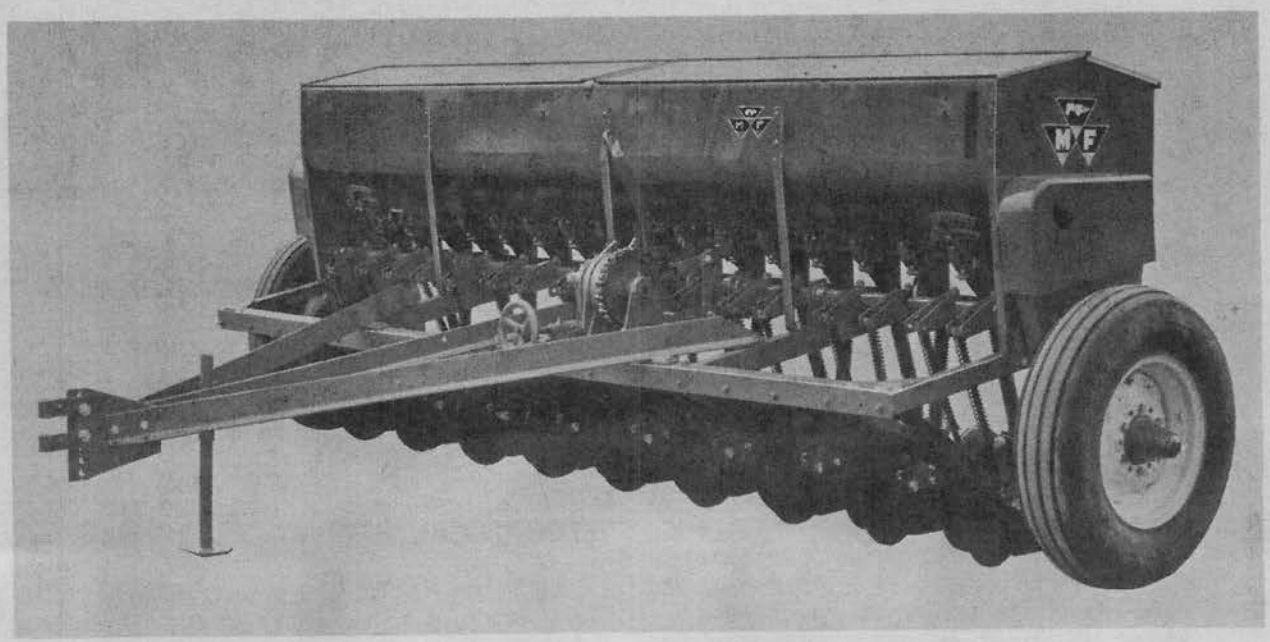


Fig. 1 – MF 33 Combination Grain and Fertilizer Drill

## DESCRIPTION

The MF 33 Grain Drill is a highly maneuverable implement of rugged and compact construction and is available as either a plain grain drill or as a combination grain and fertilizer drill. It is equipped as a plain grain drill for those operations that basically require only the drilling of seed, while the combination drill is equipped for the dual operation of seeding and fertilizing. Either version of the drill is available in several sizes, depending upon the owner's choice. Both versions have similar design features that adapt the MF 33 Grain Drill to a wide variety of conditions and operations.

The plain grain drill comes in either 15 or 17 run sizes, and the combination drill is available in 13, 15 and 17 run sizes. The two versions are quite similar, with the basic difference being a choice of either a grain box or grain and fertilizer box. Also, there is a slight difference in the design of the conductors. Because of the similarities, both versions will herein be referred to as the MF 33 Grain Drill unless otherwise noted.

The large capacity, galvanized steel rainproof combination grain and fertilizer box is easy to reach for filling. Lids are spring loaded in both the closed and open positions. The fertilizer section of the box has a drop-away bottom to facilitate quick and easy cleaning.

The grain box is equipped with fluted feeds, deep reservoir feed cups, and adjustable gates that ensure a positive and continuous flow of undamaged seed. The seeding of all varieties of grain at desired quantities is regulated by the fluted feed and the adjustable feed gate to measure out identical amounts to each feed run.

The fertilizer box has a unique feed mechanism that combines simplicity with accuracy of metering. A desired quantity of fertilizer feed-out is controlled by the rotation of a feed shaft, thus, when the implement stops, so does the

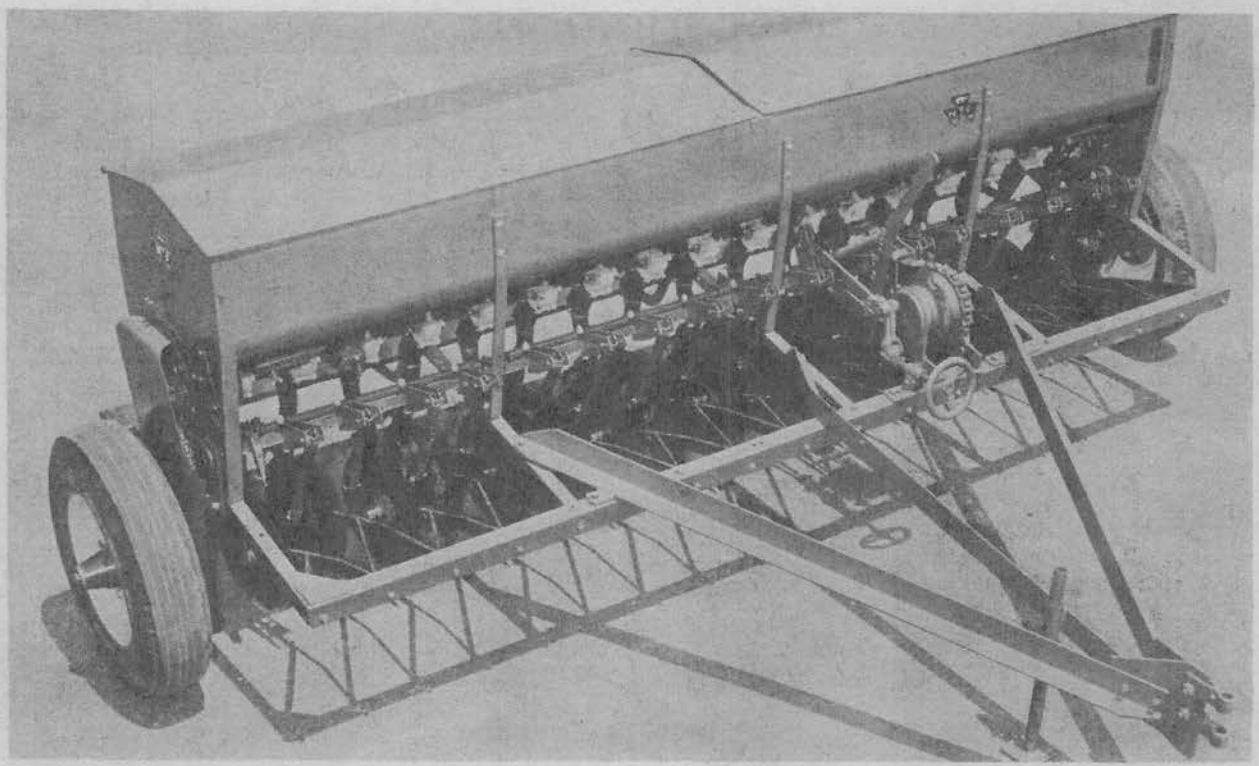


Fig. 1A - No. 33 Plain Grain Drill

flow of fertilizer. The flow of material is adjustable from 60 to 500 lbs. per acre by changing the pairs of spur gears within three ranges. This fertilizer unit is designed for using grandular and or pelletized fertilizer. It is recommended that powdered fertilizer should not be used as it cannot be accurately metered.

Half of the machine may be disengaged from dropping seed or fertilizer, while at the same time, the other half continues to operate. Bellows type, neopreme conductor tubes deliver the grain and fertilizer to a cast iron boot and to the seed trench. The sowing depth is adjustable from merely scratching the surface to penetrating to a depth of four inches with single disc openers. An easy-to-read acreage tally registers the number of acres very accurately.

## OPTIONAL EQUIPMENT

The No. 33 Drill is designed to be used with several optional choices of equipment, which will further adapt the implement to various operations. One or more of the following items of optional equipment are necessary to complete the drill for operation.

## MECHANICAL LIFT

The single mechanical power lift is of sufficient capacity to easily raise the dragbars. It has a hand-wheel screw for intermediate regulation of the depth of seeding without varying the lift height of the discs from ground to transport position, see Fig. 1.

## HYDRAULIC LIFT

The hydraulic lift attachment kit is assembled in place of the center angle of the hitch, as shown in Fig. 2, and its features include a hold-

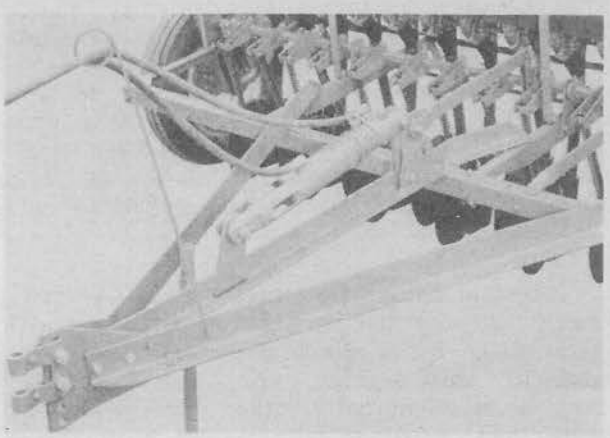


Fig. 2 - Hydraulic Lift

up and floating arm device that permits easy removal of a hydraulic cylinder. This arrangement requires the use of an ASAE standard 8-inch stroke, remote controlled cylinder.

## IN-LINE DRAGBARS AND DISC ASSEMBLIES

In-line dragbars are generally used for operating in those areas where there is a minimum amount of trash to interfere with drilling. These dragbars are equipped with either single or double disc openers.

## STAGGERED DRAGBAR AND DISC ASSEMBLIES

For those areas where a considerable amount of trash presents a problem in drilling, a staggering arrangement of the disc openers may be necessary. To facilitate this, staggered dragbar and disc assemblies are available for the MF 33 Grain Drill. Openers may be either single or double disc openers.

## WHEELS

Wheels (less tires) are available in either 14 or 15-inch sizes. Choose the correct wheel size for your drill from the list as follows:

| | DRILL SIZE | | |
|---|---|---|---|
| | 13 Run | 15 Run | 17 Run |
| Tire Size | 6.70 x 15<br>8.00 x 14 | 6.70 x 15<br>8.00 x 14 | 7.60 x 15<br>8.00 x 14 |

## PREPARING THE TRACTOR

Thoughtful preparation prior to field operation will save time and energy and promote satisfactory field performance. The following suggestions should be helpful.

1. Service tractor thoroughly as outlined in your tractor owner's manual.

2. Make sure an extended type drawbar is installed on the tractor to permit sharp turns and prevent damage to hitch on the machine.

3. If tractor used is equipped with a three-point hitch, then remove the upper link and raise the lower links to their extreme height to prevent interference with hitch on the machine while turning.

The successful operation of your MF 33 Drill, which is designed to give you many years of satisfactory service, depends upon the care given it and how it is operated.

Read and study this manual carefully before attempting any field operation.

## ATTACHING

The hitch on the drill is provided with a convenient stand for easy hitching. Back the tractor to the hitch and secure clevis to drawbar. The hitch member is provided with a series of holes for leveling the drill. Remove bolts No. 2, Fig. 3, securing clevis to front hitch member and adjust height of hitch so that the vertical sides of grain and fertilizer box are at right angles to the ground. This is important!

Remove pin No. 1, Fig. 3, and position hitch stand as shown.

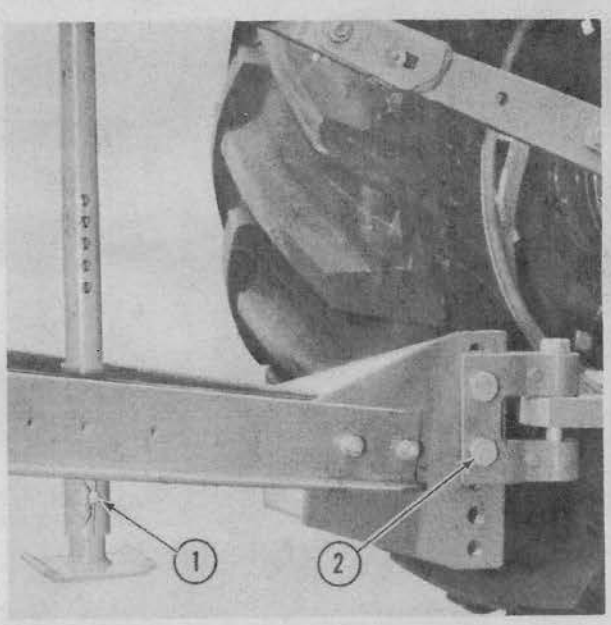



Fig. 3 - Hitch

1. Pin 2. Bolts

If the drill is equipped with a hydraulic lift then the quick release couplings should be connected to the hoses.

## PREPARING THE DRILL

Before entering the field to sow, the drill should be properly prepared. This includes basic preoperative settings, lubrication and adjustments.

Check the tire inflation to save unnecessary wear on the tires and to improve the field performance of your drill. Inflate tires to cor-

rect pressure to ensure the required feed shaft revolutions (accuracy in drilling) and a correct reading of the acreage indicator.

*NOTE: If regular tires are not purchased with the drill then be sure the tires used are of the size and height to obtain correct readings from the acreage indicator.*

Before putting seed in grain box, and while drive clutches are disengaged, turn feed shafts with a wrench several times in the direction the feed shafts normally turn. If feeds stick, check for foreign objects in feeds. If feeds turn hard, loosen moving parts of feed shaft with kerosene. During the sowing season the feeds should be loosened before each day's operation by turning the feed shafts with a wrench. When using treated seed, turn feed

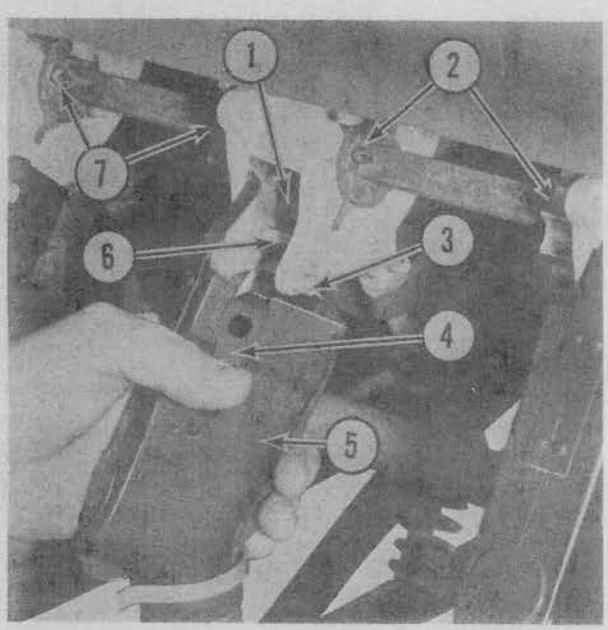



Fig. 4 - Upper Conductors (Plain Grain Drill)

1. Cut-Off
2. Cotter
3. Pin
4. Clip
5. Conductor
6. Seed Gate
7. Cotter

shaft with wrench after the machine has been standing an hour or more.

Seeds should be tested and the weight compared with U.S. Standard Weights before drilling to determine what position to set and adjust the grain gates for desired quantity per acre. The quantity of seed depends upon the variety, size, shape, quality, condition and weight of seed per bushel. The many varieties of each kind of seed results in different size kernels and different shapes, such as long slender, long plump, short slender, short plump, round, wrinkled, shriveled, etc. Dampness, inoculation, treatment, unclean seed, uneven size, smoothness of kernels,

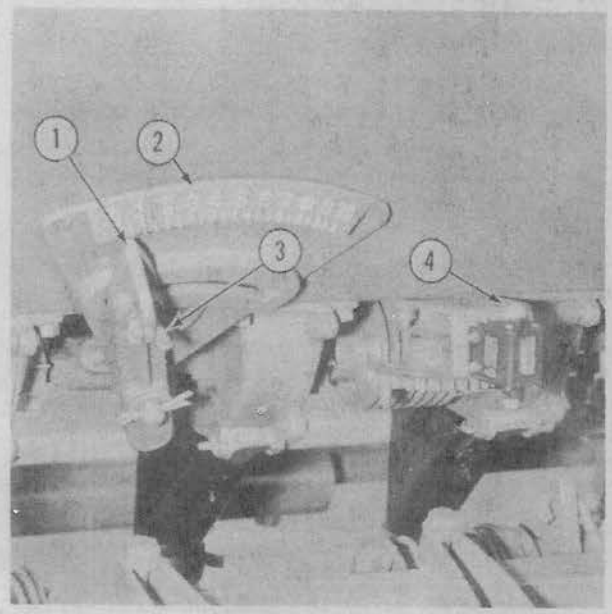



Fig. 5 - Quantity Control and Acreage Indicator

1. Quantity Control Lever
2. Grain Indicator
3. Wing Nut
4. Acreage Indicator

improper field operation and adjustments by the operator are factors that cause a variation of quantity actually drilled from those shown on the seed charts.

## ADJUSTMENTS

Before operating the No. 33 Drill, certain adjustments should be properly made. Refer to the following instructions and adjust the drill to suit your operating conditions.

### GRAIN RUN

Remove the upper conductors No. 5, Fig. 4, drop the seed gates No. 6, Fig. 4, and move the quantity control lever No. 1, Fig. 5, to full open.

*NOTE: Make sure all runs are free from an accumulation of trash.*

Move the quantity control lever to zero and make sure the right face of the grain cylinder No. 1, Fig. 6, is flush with plate No. 2, (if not, loosen the four bolts in holes No. 3, and relocate the grain run as required).

*NOTE: If cylinder settings vary, uneven seeding will result.*

## SETTING THE ACREAGE INDICATOR

The acreage indicator shown in Fig. 5, registers the number of acres and tenths of acres that have been drilled, and it automatically becomes disengaged when the drill is in transport position. Before commencing operations set the indicator to register 000.0 by turning the reset knob No. 4 in a clockwise direction until 000.0 appears on the dial.

## DEPTH OF DRILLING

The No. 33 Drill may be adjusted for depth of drilling from barely scratching the ground to a depth of approximately four inches. This adjustment may be accomplished by either a mechanical means or a hydraulic remote cylinder, depending upon how the drill is equipped.

## QUANTITY CONTROL SETTING

Refer to the seeding chart located on the box, and shown also in this manual, select the proper seeding rate for your operation and set the R.H. and L.H. Quantity Control Levers.

Loosen the wing nut, No. 3, Fig. 5, and set the quantity control pointer, No. 1, to register on the grain indicator, No. 2, for the quantity of seed to be sown per acre.

Move the pointer past the desired setting and then slowly move it back to the desired setting.

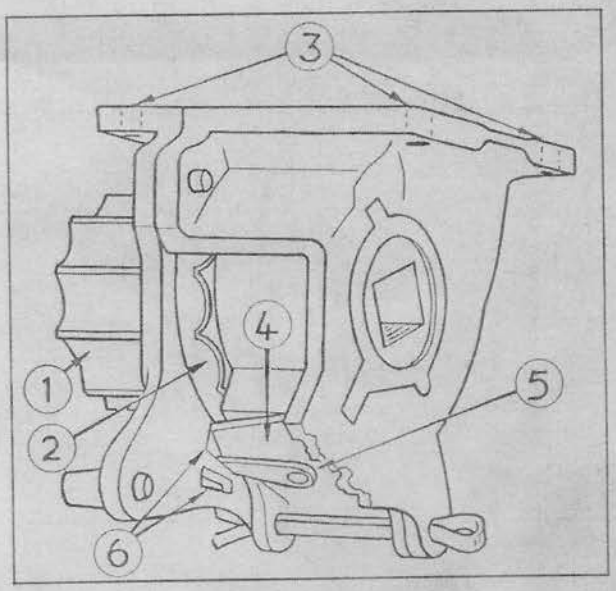



**Fig. 6 - Seed Run**

1. Grain Cylinder
2. Plate
3. Holes
4. Feed Gate
5. Latch
6. Slots

Make sure both the R.H. and L.H. pointers are set to deliver the same quantity, then tighten the wing nut.

*NOTE: When seeding light or long tailed oats, poor or dirty seed, reasonable allowance must be made for quantity, as the index plate is graduated for standard seed.*

# GRAIN BOX SOWING CHART

## CHART FOR SEEDING GRAIN IN POUNDS PER ACRE

***NOTE: This Chart is Based on Clean Seed of Average Quality and U.S. Standard Weight per Bu. When Drilling Seed not Listed in the Grain Charts, Compare Weight and Size of Seeds With Those Shown and Use Same Setting.***

| GRAIN | INDEX SETTING | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ½ | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 | 5½ | 6 | 6½ | 7 | 7½ | 8 | 8½ | 9 | 9½ | 10 |
| WHEAT | 14 | 28 | 42 | 56 | 71 | 86 | 101 | 116 | 132 | 148 | 164 | 180 | | | | | | | | |
| OATS | — | 12 | 20 | 28 | 36 | 44 | 52 | 60 | 68 | 76 | 84 | 92 | 100 | 108 | 116 | 124 | 132 | 140 | 148 | 156 |
| RYE | 15 | 30 | 45 | 60 | 75 | 90 | 106 | 122 | 138 | 154 | 170 | 186 | 204 | 222 | 240 | | | | | |
| BARLEY | 10 | 23 | 36 | 49 | 62 | 74 | 85 | 98 | 111 | 124 | 136 | 148 | 160 | 172 | 184 | 196 | 209 | 222 | | |
| PEAS | — | 25 | 40 | 55 | 78 | 102 | 126 | 151 | 176 | 201 | 231 | 261 | 290 | 325 | | | | | | |
| CORN | — | — | — | — | 48 | 70 | 94 | 118 | 140 | 160 | 180 | 200 | 222 | 244 | | | | | | |
| FLAX | 11 | 22 | 33 | 45 | 56 | 67 | 78 | 90 | 101 | 111 | 120 | | | | | | | | | |
| SOY BEAN | — | 28 | 38 | 56 | 72 | 92 | 112 | 133 | 155 | 170 | 187 | 199 | 225 | 252 | | | | | | |
| *BROME GRASS | — | — | 4 | 6½ | 8½ | 10½ | 13 | 16 | 20½ | 25 | 30 | | | | | | | | | |
| *ALFALFA | 16 | 29 | 39 | 48 | 66 | | | | | | | | | | | | | | | |
| *MEADOW FESCUE | — | — | — | — | — | 13 | 20 | 27 | 34 | 41 | 47 | 51 | 55 | | | | | | | |
| *ORCHARD GRASS | — | — | — | — | — | — | 12 | 15 | 19 | 24 | 29 | 33 | 36 | 39 | 42 | 45 | 48 | 52 | | |

*To Be Used With Agitator

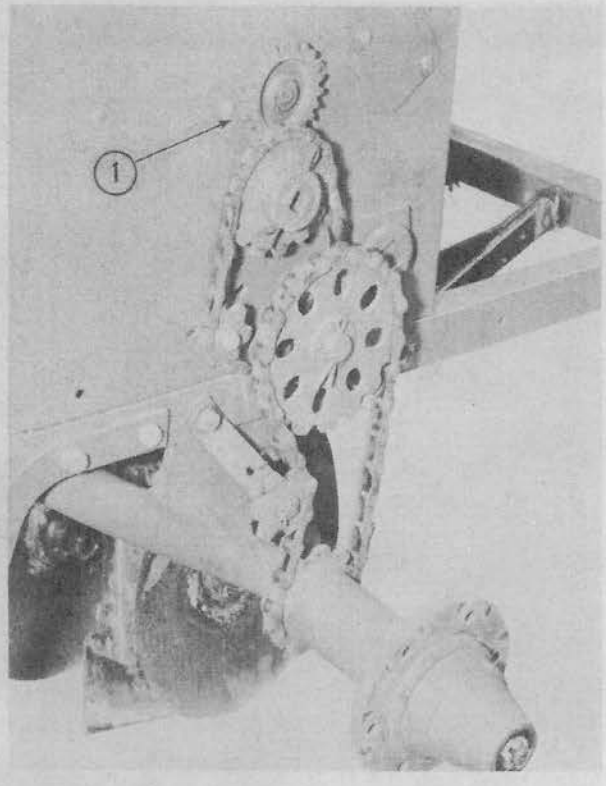



Fig. 7 - Plain Grain Drill Drive
1. Seed Agitator Drive

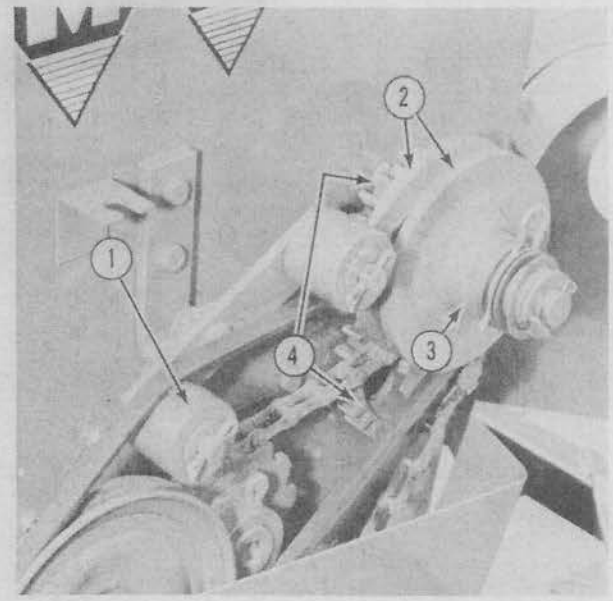



Fig. 8 - Variable Speed Drive Pulley (Combination Drill)
1. Belt Tightener
2. Pulley Halves
3. Washers
4. Drive Gears

## FEED GATES

It is very important that the feed gates be set alike and that the proper setting is used for the particular seed being drilled.

Improper setting of gates will result in uneven drilling, wrong quantities being drilled and crushing of the seed.

Place the feed gate No. 4, Fig. 6, in any one of three positions by means of latch No. 5, and slots No. 6. (One slot, on R.H. side, is not shown.) These slots provide a variation in the size of the opening, the smallest opening being for small grain and the largest for extra large seed.

If the drill is to be used for row crop seeding, coverers are available to cover the feed runs not required.

*NOTE: Right and left hand sides referred to in this manual are determined from the rear of the machine facing forward.*

## SETTING THE FERTILIZER DISTRIBUTION

The fertilizer dispenser has 3 drive-speed ranges which are determined by the arrangement of the drive gears, No. 4 as shown in Fig. 8, in respect to their ratio. There are 15 adjustments within each of the 3 drive-gear ranges which are determined by the number of washers, No. 3, Fig. 8, that are installed in the variable speed V-belt pulley, No. 2, Fig. 8.

Refer to the fertilizer chart located on the fertilizer box lid, as shown in Fig. 9 and select the desired quantity of fertilizer that is to be distributed. The 3 drive-gear ranges are indicated on the chart to correspond with the quantity desired. Arrange the gears as shown at the top of the chart.

*NOTE: Fertilizer setting does not apply to the plain grain drill.*

The chart indicates the number of washers required to be placed between the halves of the V-belt, variable speed pulley for the corresponding quantity of fertilizer to be applied.

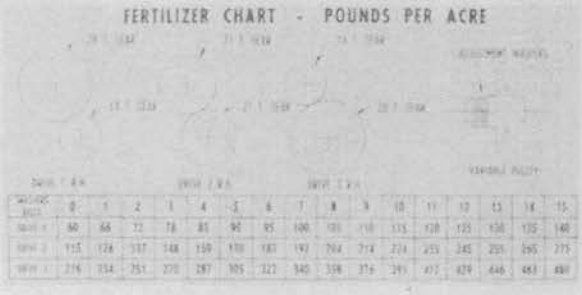



Fig. 9 - Fertilizer Chart

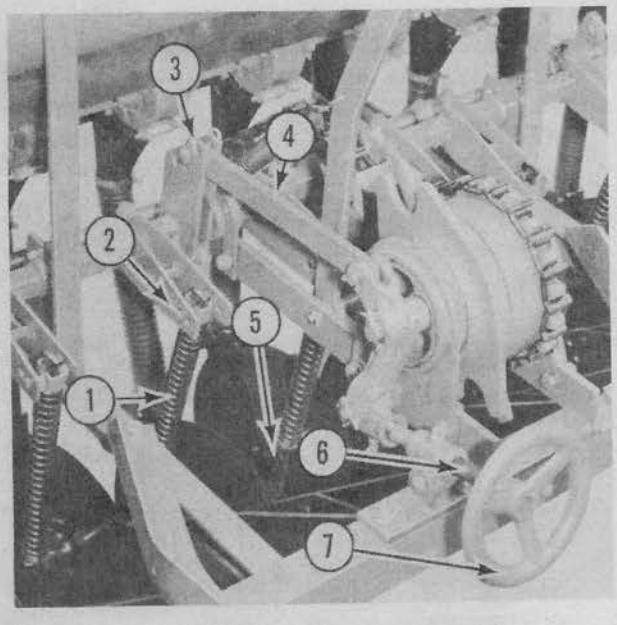



**Fig. 10 - Adjusting the Mechanical Lift**

1. Pressure Spring
2. Adjusting Holes
3. Adjusting Holes
4. Connecting Link
5. Pressure Rod
6. Screw
7. Depth Control Wheel

Refer to Fig. 8, showing the variable speed pulley, No. 2, and install the correct number of washers, No. 3. Then tighten the V-belt tension by means of the belt tightener, No. 1.

## MECHANICAL LIFT

Refer to Fig. 10, and turn the depth control wheel, No. 7, until the screw, No. 6, is in a half-way position.

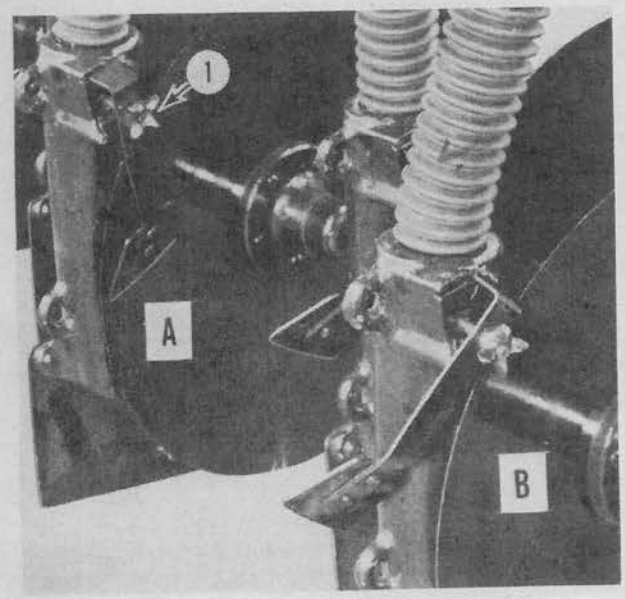



**Fig. 11 - Disc Scrapers**

1. Adjusting Nut

Place the connecting link, No. 4, in any one of 3 holes in the pressure shaft lift arm, No. 3. The top hole is for shallow seeding, the center is intermediate and the lower is for deep planting.

In addition, there are two holes for adjustment in the pressure link, No. 2, where the pressure rod, No. 5, attaches to the dragbar. These holes are used in connection with the single, constant-height power lift or hydraulic cylinder.

Adjust the spring for pressure by setting the cotter pins, in the pressure rod to conform to the prevailing soil and drilling conditions. This may be performed more effectively in the field.

*NOTE: When adjusting the depth and pressure, be sure to make allowances for the discs that run in the tractor wheel tracks.*

## HYDRAULIC LIFT

If the depth is controlled by hydraulic equipment, set the stop controlling the distance that the cylinder retracts, so as to return to original position when the discs have been lifted.

## DISC SCRAPERS

The scrapers should be used only when necessary for cleaning the discs. Refer to "A", Fig. 11, showing the scraper in use and "B" showing the scraper in out of use position.

**Fig. 12 - Clutch Hair Pin**

Loosen nut, No. 1, to facilitate positioning the scraper and retighten with care to not cause an over amount of tension against the discs.

## OPERATING INFORMATION

The operation of the No. 33 Drill is very simple after the operator has familiarized himself with the detailed features of the machine. Make sure preceeding instructions have been followed, and raise the parking stand to transport position before commencing operation.

The ground speed should be governed according to the prevailing ground conditions combined with the operator's own good judgment of safety. Normally 4 to 4-1/2 MPH is a practical ground speed. Never attempt to back up or make a sharp turn without first raising the discs from the ground.

The mechanical power lift may be actuated by a rope attached to the lift arm and to the tractor. The clutches may be disengaged on either, or both, the R.H. and L.H. sides by removing the hair pin, see Fig. 12. This is advantageous when completing a field where it is necessary to sow a strip that is only half width. The dispensing mechanisms are automatically disengaged when the discs are raised to transport position.

*NOTE: Certain finer adjustments for depth and pressure may be necessary after entering the field. This may be facilitated by the hand wheel or the hydraulic cylinder depending upon how the implement is equipped. The pressure springs may also need further adjustment.*

*Should difficulties occur, consult the information listed as follows:*

### PLANTING DIFFICULTIES

| POSSIBLE CAUSE | CORRECTIONS |
|---|---|
| ***GENERAL DIFFICULTIES*** | |
| Drill improperly hitched. | Hitch drill properly. |
| Loose or swinging drawbar on the tractor. | Lock tractor drawbar to prevent swinging. |
| Discs not turning. | Adjust scrapers and clean discs. |
| *Varying quantities planted by individual feeds* | |
| Seed bridging in box due to unclean seed, inoculation treatment or dampness. | Use agitators. |
| Grain gate out of adjustment. | Adjust. |
| *Quantities planted not agreeing with seed chart* | |
| Grain gates not properly adjusted. | Adjust gates according to instructions on box lid. Use standard grade or certified seed. |
| Heavier or lighter than standard weight seed. | Refer to seed chart and adjust quantity pointer accordingly. |
| ***IRREGULAR PLANTING*** | |
| Jerky driving or jolting over rough ground. | Drive steadily. Slow down if necessary. Normal planting speed 4-4-1/2 MPH. |
| Not driving straight - overlapping or leaving too wide a space between seeded strips across fields. | Exercise care in driving to have space between seeded strips the same width as furrow openers on the drill. Use markers if necessary. |

| POSSIBLE CAUSE | CORRECTIONS |
|---|---|
| **CLOGGING OF CONDUCTORS** | |
| Conductors clogged with dirt. ---------- | Do not lower furrow openers until in full forward motion. Never allow machine to back-roll with furrow openers in ground. |

## SOWING FERTILIZER

| POSSIBLE CAUSE | CORRECTIONS |
|---|---|
| **IRREGULAR SOWING** | |
| Hardened fertilizer in boots and fertilizer -------- box causing an obstruction. | Clean fertilizer box thoroughly after each day's operation. |
| *Varying quantities sown by individual feeds* | |
| Fertilizer flowing faster than average because ---- of free-flowing fertilizer used. | Reduce fertilizer shaft RPM by removing 1 or more washers on adjustable pulley. |
| Furrow openers building up too much trash. ------ | Clean the discs thoroughly after each day's operation. Adjust scrapers closer to the discs for better cleaning. Also check hitch height. |
| *Quantities sown not agreeing with sowing chart* | |
| Fertilizer drive not properly adjusted. ---------- | Check drive range and adjustable pulley setting. |

## DISTRIBUTING GRASS SEED

| POSSIBLE CAUSE | CORRECTIONS |
|---|---|
| **IRREGULAR DISTRIBUTION** | |
| Seed tubes or runs clogged. ---------- | Remove tubes and clean. Inoculated seed may be too damp, also clean seed box thoroughly after each day's operation. |
| *Varying quantities between individual feeds* | |
| Distributing light chaffy seed. ---------- | Mix seed with heavier seed or other material such as crushed corn to give it weight. |
| *Quantities do not agree with sowing chart* | |
| Run 1/2 to 1 acre trail and reset. | |

# PERIODIC MAINTENANCE

Proper maintenance, including periodic inspection and regular lubrication is essential to long life and trouble free operation of your new No. 33 Drill. This section of your manual is devoted to maintenance and should be referred to when minor servicing is performed.

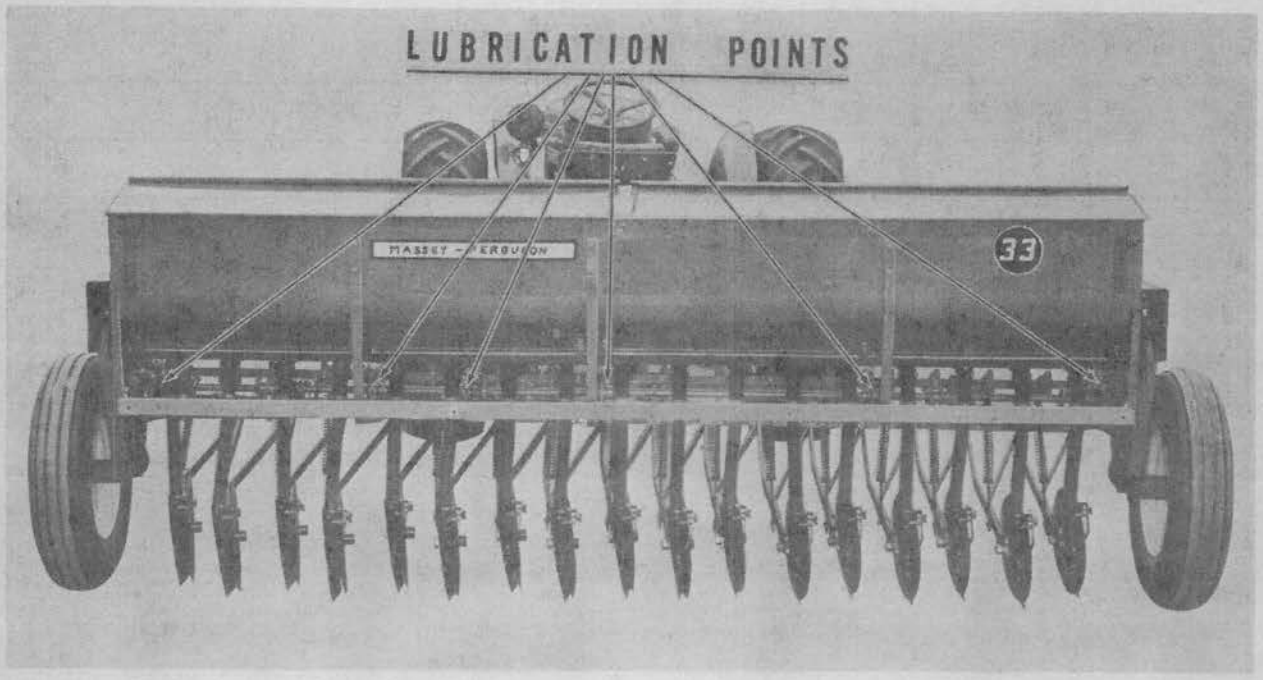



Fig. 13 - Lubricating the Countershaft

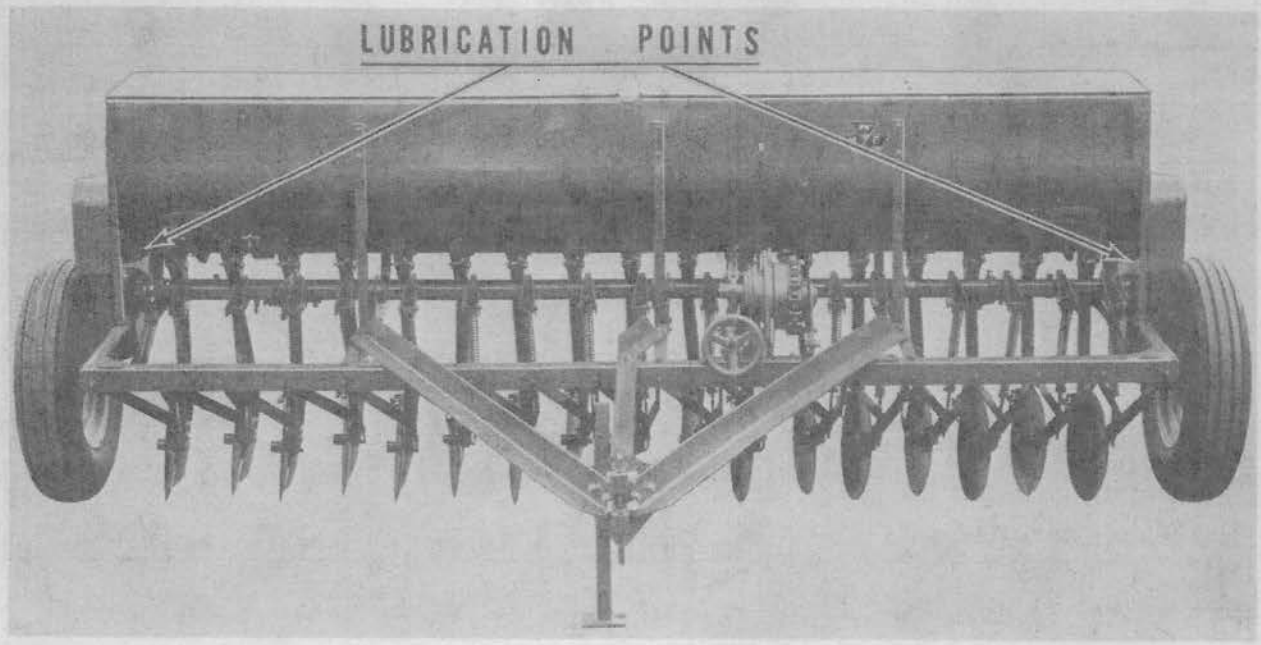



Fig. 14 - Lubricating the Seed Shaft

## LUBRICATION

Consult the following lubrication instructions for a quick and easy guide to lubrication.

*NOTE: Keep all lubricants and lubrication points clean. Use a good grade of No. 1 or No. 2 chassis grease.*

*The discs* require no lubrication, while other points require greasing at 8-hour intervals.

*Countershaft* - Six grease fittings. See Fig. 13.

*Seed Run Shaft* - Two grease fittings. See Fig. 14.

*Power Lifts* - Six grease fittings. See Fig. 15.

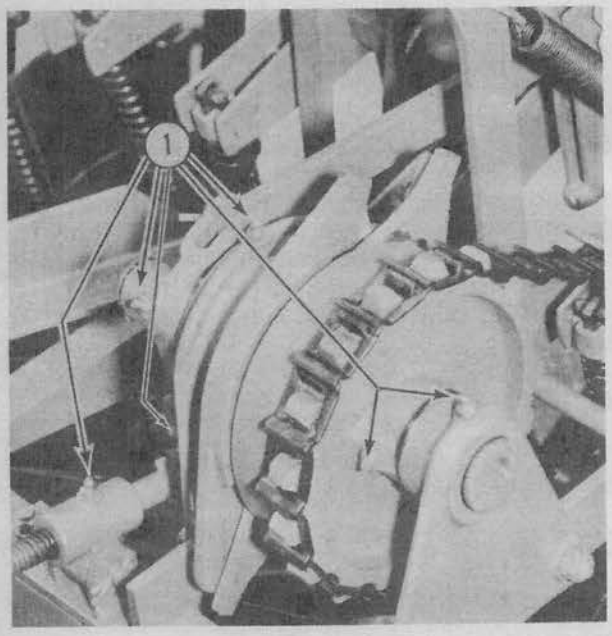



Fig. 15 - Lubricating the Power Lift
1. Lubrication Points

The location and number of grease fittings used for the No. 33 Drill accessories will be found under the accessory section of this manual.

*CAUTION: Do not put any oil on surveyor or grain and grass feed runs. Oil at these points will collect dirt and grit causing rapid wear.*

The wheels are equipped with roller bearings and a neoprene seal. Once each season the wheels should be removed and old grease removed and seal replaced. To disassemble proceed as follows:

1. Remove bolts securing hub to sprocket.
2. Remove hub cap.
3. Remove cotter pin, nut and washer securing hub to sprocket.
4. Remove wheel hub and bearings.
5. Remove seal, No. 7, Fig. 16.
6. Thoroughly clean bearings and wheel hub.
7. Install new seal No. 7, Fig. 16, if necessary.
8. Install inner bearing and lubricate with a good grade of wheel bearing grease.
9. Install wheel hub.
10. Lubricate and install outer bearing.
11. Install washer No. 3 and nut No. 2, Fig. 16.
12. Adjust bearings with nut No. 2, to preload the bearings. Loosen the nut to the point where some drag is evident while turning the wheel.
13. Install cotter pin, No. 1 and hub cap.

## MAINTENANCE

Your No. 33 Drill is a rugged and durable machine, specifically designed to give good ser-

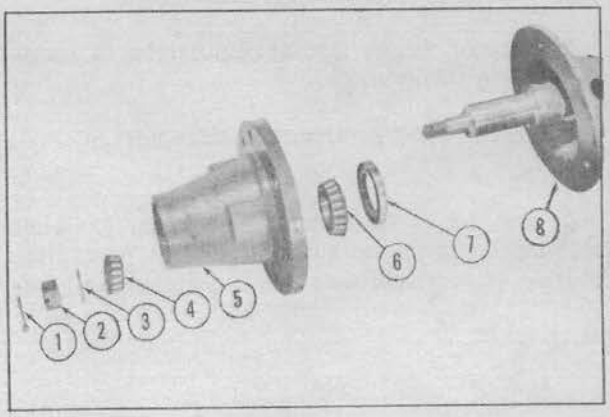



Fig. 16 - Wheel Bearings

1. Cotter
2. Nut
3. Washer
4. Bearing
5. Hub
6. Bearing
7. Seal
8. Hub

vice under the rough wear and tear of average farming conditions. However, to get the utmost in satisfactory service it is obvious that it should receive the same care and attention needed by any modern machine.

Experience has shown that periodic checks of certain parts are the best way to keep your drill in "top notch" condition. In order to aid you in your daily checks the following list is provided.

## DAILY MAINTENANCE (8 HOURS)

### LUBRICATION

See 4 hour and 8 hour.

### NUTS, BOLTS AND SCREWS

Check and tighten if necessary.

### GRAIN AND FERTILIZER FEEDS

Clean thoroughly and check grain feeds for free turning. Clean fertilizer box. Do not park with fertilizer in box.

### FERTILIZER BOX

Because of the corrosive action of fertilizer, it is recommended that time and care be taken to completely clean the fertilizer box daily.

To thoroughly clean proceed as follows:

1. Remove the upper conductors.
2. Release the 6 spring catches.
3. Remove bottom of fertilizer box.
4. Tap or brush any accumulation of fertilizer from the springs.

*NOTE: This information does not apply to the plain grain drill.*

At the end of each day's operation or when storing the drill, be sure to apply a protective coating of rust inhibitor to all polished soil engaging parts such as disc openers and marker discs.

## WEEKLY MAINTENANCE (50 HOURS)

### TIRES

Inspect physical condition and check pressure. The tires should be properly inflated according to size.

## ANNUAL

### WHEEL BEARINGS

Annually, the wheels should be removed and the bearings cleaned and repacked with a good grade of wheel bearing grease.

## STORAGE

At the end of each season the drill should be thoroughly cleaned, lubricated and an inspection made for worn or broken parts.

### GRASS BOXES AND FEEDS

Thoroughly clean out the grass boxes and feeds. Turn the grass feed shafts with a wrench. Use kerosene on the feeds to remove dirt and prevent rusting of the parts. Operate grass feed control to assure penetration of the kerosene.

### DISCS

Clean thoroughly and apply a protective coating of lubricant or rust inhibitor.

### CHAINS

Clean thoroughly and apply a protective coating of lubricant or rust inhibitor.

### RUBBER TIRES

If tires are to be left on the drill, jack up the drill so that tires do not touch the ground. If it is necessary to store the drill outside, cover the tires with canvas. Keep tires properly inflated.

# SERVICING

While we recommend that major servicing be done by your local Massey-Ferguson Dealer whenever possible, emergencies may be encountered whereby it may be necessary to make some replacements. For this reason, the following material has been compiled to assist you in carrying out servicing of the No. 33 Drill.

## GRAIN AND FERTILIZER CONDUCTORS

The conductors are easily attached and detached from their attaching points beneath the grain and fertilizer boxes. Simply move the spring clip No. 4, Fig. 4, outward from the pin, No. 3, and remove as shown.

## GRAIN FEEDS

Disconnect upper conductors and thoroughly clean the grain feeds by opening the seed gates. Use kerosene on the feeds to remove dirt and prevent corrosion of the parts. Also, operate the left and right grain feed controls to assure penetration of kerosene.

## GRAIN RUN

*To disassemble the grain run proceed as follows:*

1. Jack and block up the end of drill.

2. Remove the wheel and shield.

3. Remove chain driving grain and fertilizer drives.

4. Loosen set screw securing grain feed shifter for indicator lever.

5. Remove cotter pin locating drive worm for acreage indicator.

6. Remove the cotter pins, Nos. 2 and 7, Fig. 4, securing cut-off and pull the shaft slowly out of grain runs, catching feed parts as they slip off the shaft.

*To install the grain run:*

1. Slide feed shaft through end of grain box and slip feed parts on shaft in order.

2. Push feed shaft through the end of the grain box and place spring and washer on the shaft. Push shaft through first grain run cylinder and cut off.

*NOTE: If feed shafts are disassembled, be sure feed shifter fork and drive worm for acreage indicator are installed at proper location when shaft is reassembled into the seed runs. Be sure the set screws are securely tightened in shifter fork, and in proper position to allow full travel of finger on grain indicator.*

3. Be sure all parts are installed on the feed shaft and secured, with cotter pins on each side of the grain runs.

4. Reassemble sprocket on the end of the shaft and secure with cotter pin.

5. Turn the feed shaft with a wrench to be sure it is free to turn.

6. If grain run casting was replaced, turn feed shaft to be sure shaft is free to turn.

7. Reassemble drive chain, shield, and wheel.

*CAUTION: Do not tighten the nuts on the bolts until feed shaft is reassembled.*

## COUNTERSHAFT (RIGHT SIDE)

In the event that the countershaft must be removed for replacement of any parts, proceed as follows:

1. Block up end of machine and remove wheel and chain shield.

2. Remove chain driving countershaft sprocket.

3. Remove cotter pin, sprocket, and woodruff key.

4. Remove nuts on "U" bolt securing bearing.

5. Remove bolts securing bearing.

6. Disconnect power lift drive chain if power lift is being used.

7. Disconnect grass feed drive chain if grass box is used.

8. Slide countershaft out of center bearing and remove shaft.

9. Reverse the above procedure for reassembly making sure all parts are reassembled on the shaft in the same order as removed. Be sure all bolts are securely tightened.

# ACCESSORIES

The accessory items listed and illustrated in this section of the manual were designed and developed to assist in making your work easier, more profitable and more enjoyable. These accessories will help you adapt your No. 33 Drill to a wide range of specialized operations. The authorized Massey-Ferguson Dealer in your community carries a complete stock of these accessories and will be pleased to serve you. Do not hesitate to call on him whenever any need or question arises regarding your equipment.

## FOOT BOARD

This is available to aid the operator in filling and cleaning the grain and fertilizer boxes. This foot board attaches to 5 braces which are secured to the main frame.

Install foot board supports to drill frame as shown.

Note that outer supports No. 1, are secured to outside of drill frame and the three inner supports No. 2, Fig. 17, are secured to left side of drill frame cross angles.

Install the metal straps No. 3, Fig. 17, on top of foot board and secure with bolts to angles on supports.

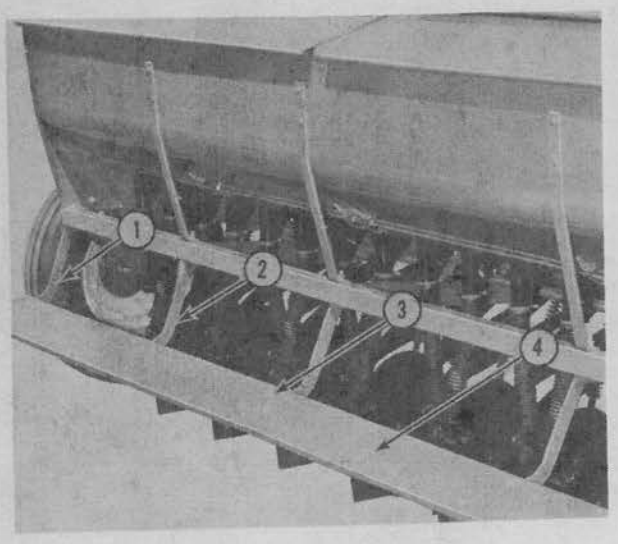



Fig. 17 - Foot Board

1. Outer Supports
2. Inner Supports
3. Straps
4. Foot Board

## COVERING CHAINS

Welded type covering chains are available for use with this drill. These chains as shown attached to the boots in Fig. 18, are advantageous to use when a very complete job of seed covering is desired.

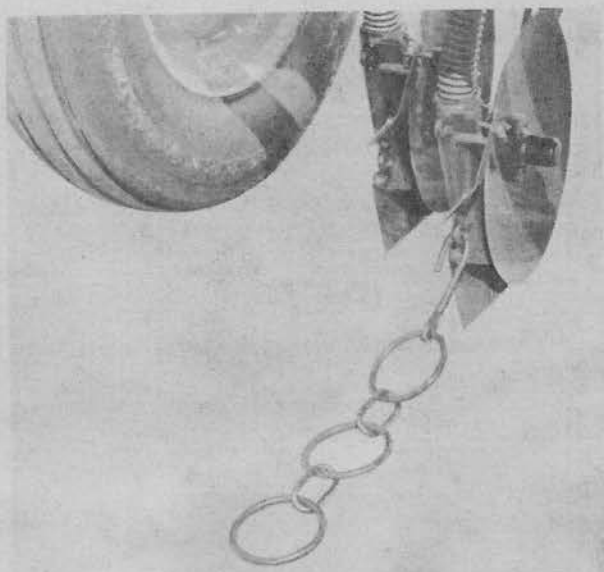


Fig. 18 - Covering Chains

## DISC MARKERS

Disc markers provide a means of preventing overlapping or leaving too wide a space between the seeded strips during drilling operations.

A single marker assembly may be attached to either the R. H. or L. H. side of the No. 33 Drill.

Two markers may be ordered to attach to both the R. H. and L. H. sides, therefore, enabling one to turn in either direction when the headland is reached. When two markers are attached to the drill, the control ropes may be arranged to counter-balance the markers.

To install the markers, refer to Fig. 19, and proceed as follows:

1. Install the angular bracket No. 1, Fig. 19, to the drill frame.

2. Attach the marker support No. 2, to the bracket and the drill frame as shown in Fig. 19.

3. Bolt the upright support No. 3, Fig. 19, to the drill frame and the grain box.

### *ADJUSTMENT*

Adjust angle of disc with bolt No. 5, Fig. 19, so that the disc is angled outward sufficiently to cut a furrow in the soil.

Adjust length of markers by loosening clamp No. 4, Fig. 19, for size of drill as follows:

13 run drill - 41 inches - center of tire to bottom of disc.
15 run drill - 48 inches - center of tire to bottom of disc.
17 run drill - 55 inches - center of tire to bottom of disc.

### *LUBRICATION*

Lubricate fitting No. 6, Fig. 19, once every four or five hours with a good grade of gun grease.

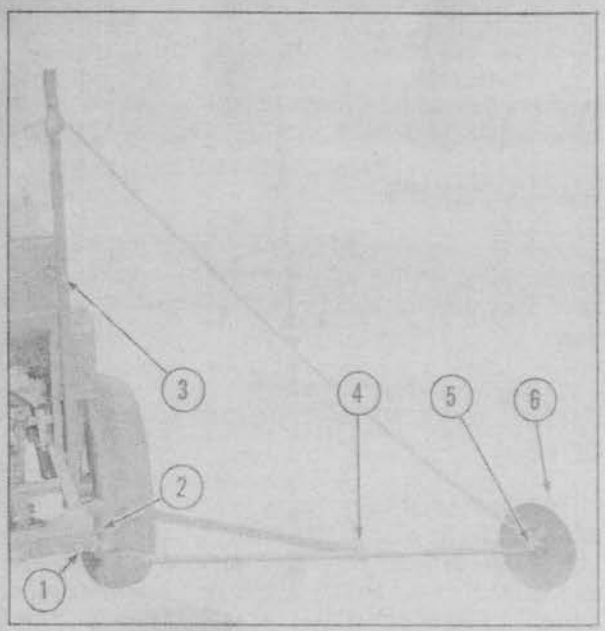



Fig. 19 - Disc Markers

1. Bracket
2. Marker Support
3. Upright Support
4. Clamp
5. Bolt
6. Grease Fitting

### *CONTROL ROPE*

Tie the rope to the hook as shown in Fig. 19, and put the rope through upper left and right side pulleys.

Raise the opposite marker to approximately one foot away from the upright support. The raised marker will then lean outward permitting it to lower when opposite marker is raised.

Attach operator's control rope to marker and put the rope through pulley. Attach rope to tractor handy to the operator allowing enough slack in the rope for turning.

### *OPERATION*

The center of the tractor should be lined up with the furrow left by the disc marker.

## GRASS SEED BOX

This box is mounted on the rear angle of the main frame, and is low enough so that it is out of the way when filling grain and fertilizer hopper. The seed is broadcast on the ground through short rubber tubes. The grass seed attachment permits the sowing of various weight seeds at the same time.

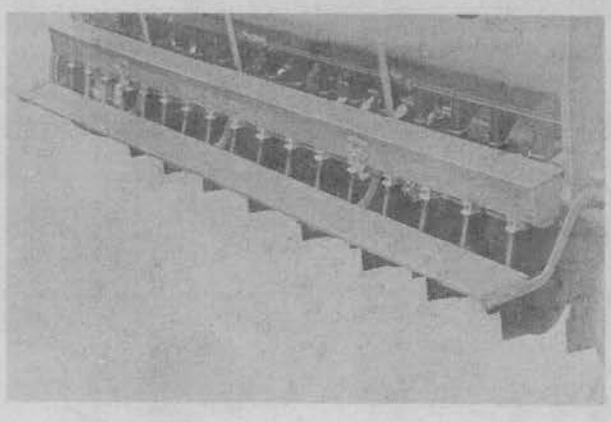


Fig. 20 - Grass Seed Box

The grass seed box is driven from the right side of double sprocket on countershaft. For installation of drive and clutch, follow as outlined by Fig. 21.

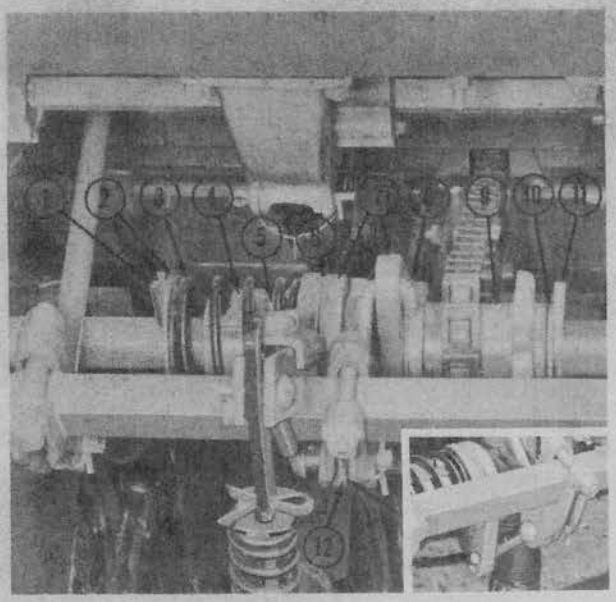


Fig. 21 - Grass Seed Drive with Inset Throw-Out Links

1. Hair Pin
2. Retainer
3. Spring
4. Clutch
5. Pin
6. Washer
7. Cams
8. Washer
9. Sprocket
10. Washer
11. Cotter Pin
12. Throw-Out Links

*NOTE: The 17 run box has 2 drives, one for both R.H. and L.H. sides.*

Bolt the grass seed box to drill frame as shown in Fig. 22. There are four bolts used and there must be a spacer as shown in inset, Fig. 22, placed on each bolt between the box and frame. Install drive chain tightener assembly and drive chain. Be sure chain is installed with open side of links outward. Attach conductor tubes to grass seed runs as shown. Be sure grass seed tubes are positioned 3/4 to 1 inch up on the feed run extensions.

## GRASS BOX SOWING CHART

### GRASS SOWING CHART—7" SPACING

*This Table is in Pounds Per Acre*

| Grass Seed | INDEX SETTING | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ½ | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 | 5½ | 6 |
| Orchard Grass | — | 1¼ | 1½ | 2¼ | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10½ |
| Meadow Fescue | 1½ | 2 | 2½ | 3 | 3½ | 4½ | 5½ | 6½ | 7½ | 8½ | 9½ | 11 |
| Timothy | 4 | 5½ | 7½ | 10½ | 13½ | 17 | 20½ | 24 | 27½ | 30½ | 33½ | 36 |
| Alfalfa | 5 | 8 | 10 | 12½ | 16 | 20½ | 25½ | 29½ | 33 | 37 | 41 | 44 |
| White Millet | — | 8 | 10 | 12½ | 14 | 17 | 21 | 24½ | 28 | 31½ | 34 | 37 |
| Red Clover | 4 | 6 | 9½ | 13 | 16½ | 20½ | 23½ | 27 | 31 | 34 | 37 | 40 |

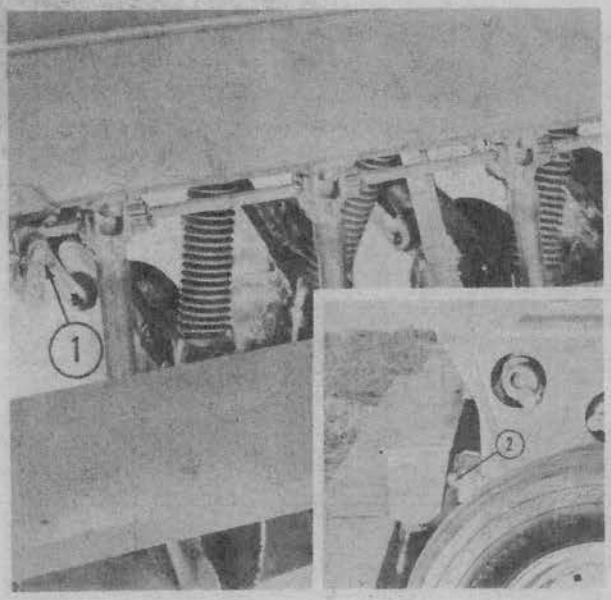


Fig. 22 - Grass Seed Box Installation

1. Grease Fitting
2. Spacers

## LUBRICATION

The grass seed box is equipped with one grease fitting located at the drive. This should be lubricated every eight hours with a good grade of No. 1 or 2 chassis grease.

## OPERATION

Refer to the sowing chart and set the pointer to the required number on the index plate for the quantity to be sown per acre.

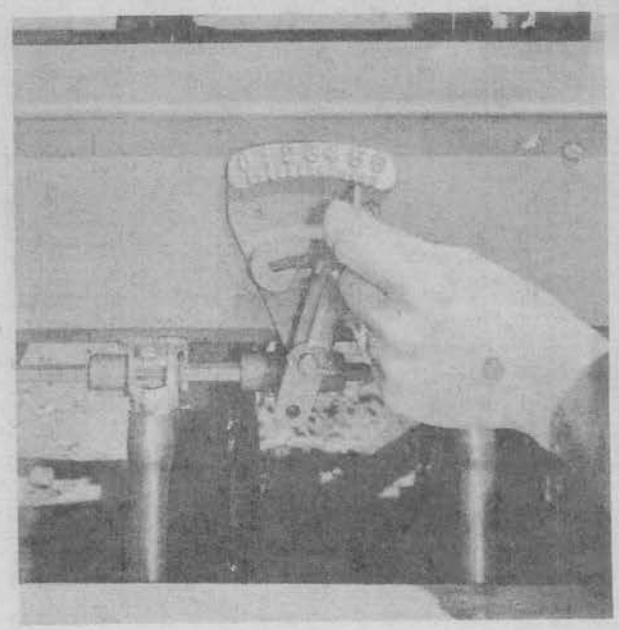


Fig. 23 - Setting Grass Feed

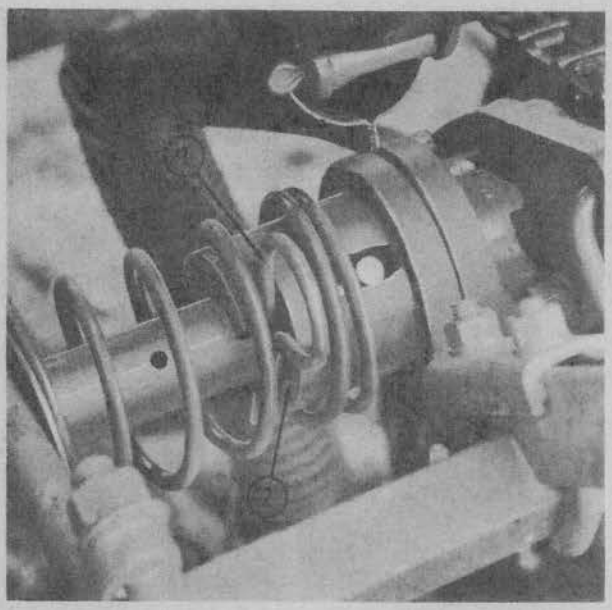


Fig. 24 - Grass Seed Drive Disengaged
1. Hair Pin 2. Slot in Clutch

It is advisable to move the index finger past the desired setting on the index plate, then move back slowly to the desired setting.

*NOTE: If grass seed is not being sowed, then the drive may also be disengaged as shown in Fig. 24.*

Before putting seed in the grass box, disengage the drive and turn the feed shaft with a wrench in the direction it normally turns, to check for foreign objects in the feeds. If feeds turn hard or stick, loosen moving parts with kerosene. Feed shaft should be turned with a wrench before each day's operation.

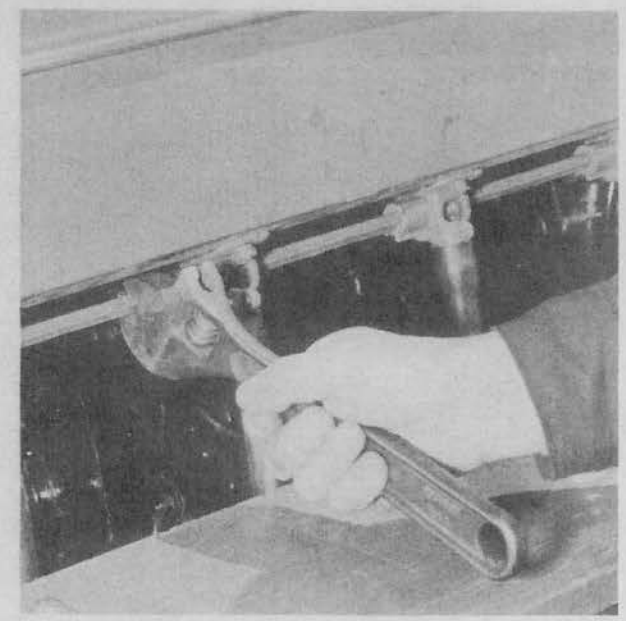


Fig. 25 - Turning the Feed Shaft

## BAND SEEDER ATTACHMENT

This attachment is used on the grass box. It consists of 16-inch long rubber tubes which extend down to within two inches of the ground. These in turn are individually supported by 3/16 inch spring steel rods mounted on the grass box, thus enabling the placing of seed in bands accurately over the sown grain and fertilizer.

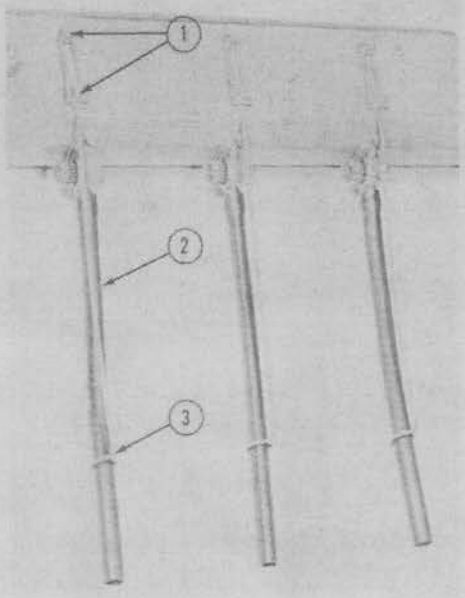



Fig. 26 - Band Seeder Attachment
1. Bolts 2. Support
3. Loop

### *INSTALLATION*

The two holes at No. 1, Fig. , are partially pre-punched in the front side of grass seed box. Using a suitable punch, the metal must be punched out.

Install the conductor tube support, No. 2, with two bolts and clamp on lower bolt to front of grass seed box as shown.

Slide the conductor tubes through the loop, No. 3, Fig. , and slide tube on grass feed extension.

For uniform placement of grass seed, it may be necessary to bend the support rods.

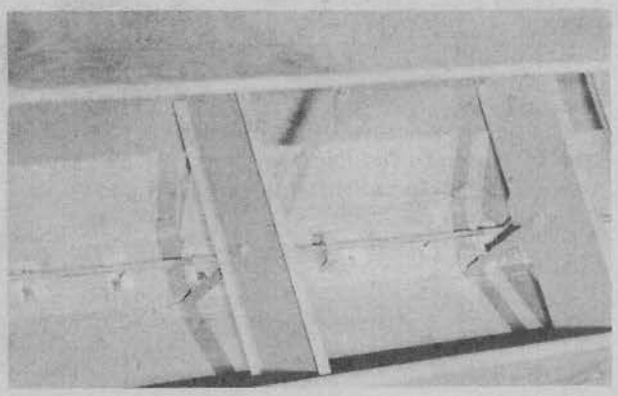


Fig. 27 - Grain Agitator

## GRAIN AGITATOR

The grain agitator is a one-piece shaft supported by bearings and driven by means of a set of gears through the main shaft drive. The agitator fingers sweep down into the grain runs to prevent seed bridging in the box due to unclean seed, inoculation treatment or dampness.

### *INSTALLATION*

1. Remove the plates which are located on each end of the grain box just above grain run shaft.

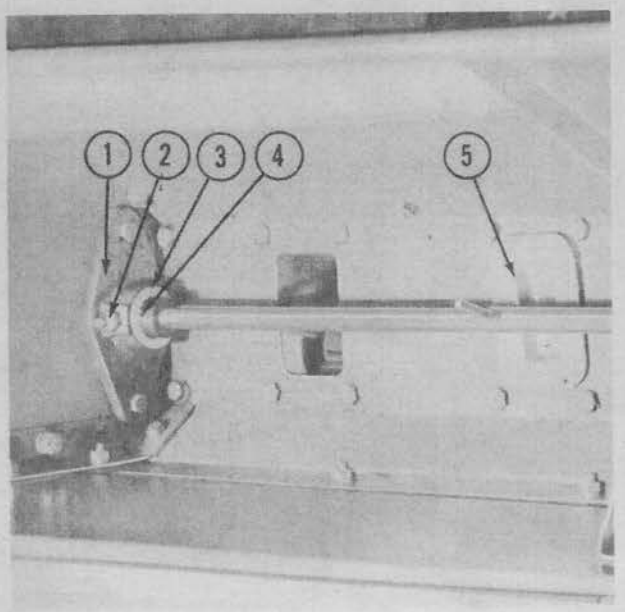



Fig. 28 - Grain Agitator Installation

1. Bearing
2. Grease Fitting
3. Washer
4. Cotter Pin
5. Grain Run Stop

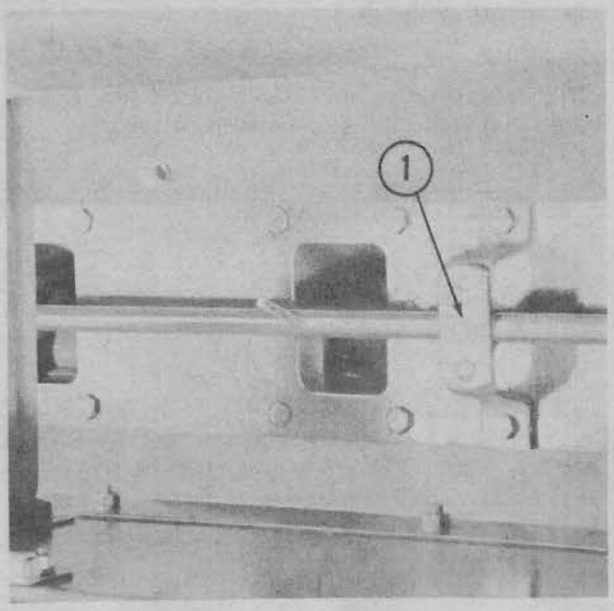



Fig. 29 - Grain Agitator Support

2. Remove cotter pin out of sprocket on left end of machine and remove.

3. Install the two supports in the grain box, one of which is shown at No. 1, Fig. 29.

4. Before inserting agitator in the grain box, install bearings on shaft. Left-hand bearing which has the larger hole is shown at No. 1, Fig. 28, and which has a pin hole drilled in it. Be sure washer, No. 3, Fig. 28, is placed on left end of shaft before bearing.

5. Place shaft in grain box and bolt bearings to ends of box.

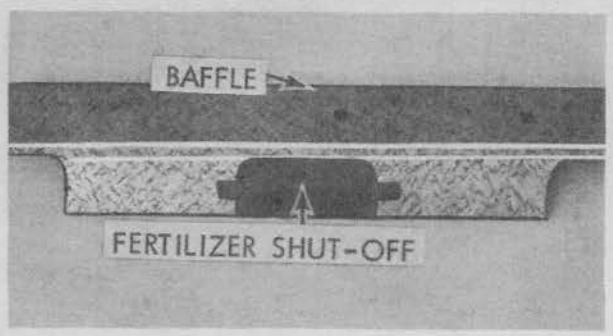



Fig. 30 – Fertilizer Shut-Offs

6. Install gear on left end of agitator shaft and secure with pin.

7. Install drive sprocket gear on left end of grain run shaft and secure with cotter pin.

8. Install drive chains.

## GRAIN RUN STOPS

If the drill is to be used for row crop seeding, stops are available to cover the feed runs not required. The stops are made of polyethylene plastic material and snap firmly into place in the top of the grain run, see No. 5, Fig. 28.

## FERTILIZER RUN STOPS

Fertilizer stops, No. 1, Fig. 30, are available for use in conjunction with grain stops when seeding and fertilizing row crops. Install in the fertilizer runs by snapping the stops firmly in place.

## EXTENSION CRANK FOR DEPTH CONTROL

The screw depth regulator enables the operator to regulate the depth of seeding quickly to meet changing conditions in the field and to ensure uniform penetration.

### *INSTALLATION*

1. Attach the universal joint, No. 4, Fig. 31, to the depth adjusting screw on power lift as shown.

2. Install support, No. 1, Fig. 31, for cranks.

3. Insert crank, No. 3, through support and into pipe assembly.

4. Adjust to proper length with pin, No. 2, Fig. 31, and lubricate universal joint and hand crank in support with motor oil.

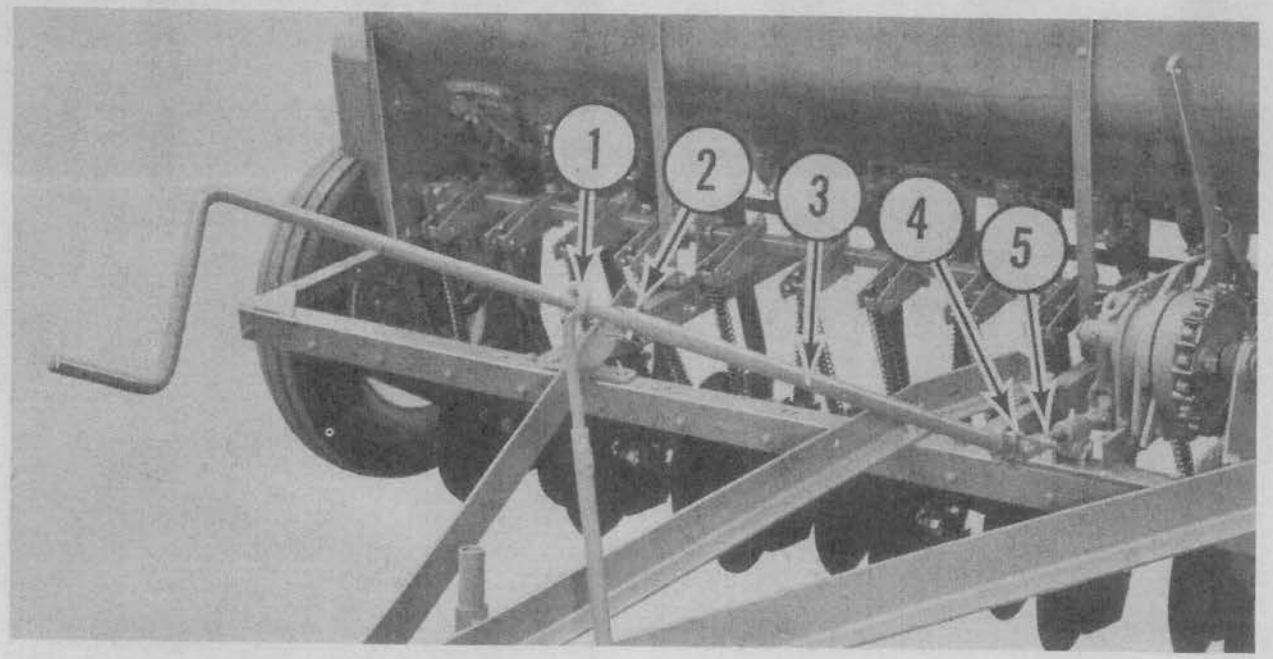



Fig. 31 - Depth Control Extension Crank

1. Support
2. Connecting Pin
3. Crank
4. Universal Joint
5. Depth Adjusting Screw

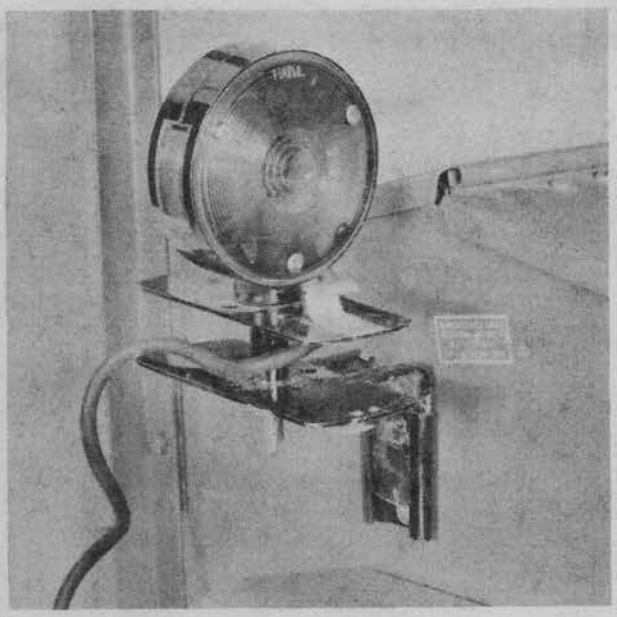


Fig. 32 - Safety Light

## SAFETY LIGHT

In the event the machine is transported on the highway after sundown, a safety light is available. This light is amber in front and red in the rear and must be used in accordance with the state regulations in which the equipment is operated.

The long cord plugs into a socket located on the tractor tail light.

Install safety light mounting bracket to left side of drill grain box as shown in Fig. 32.

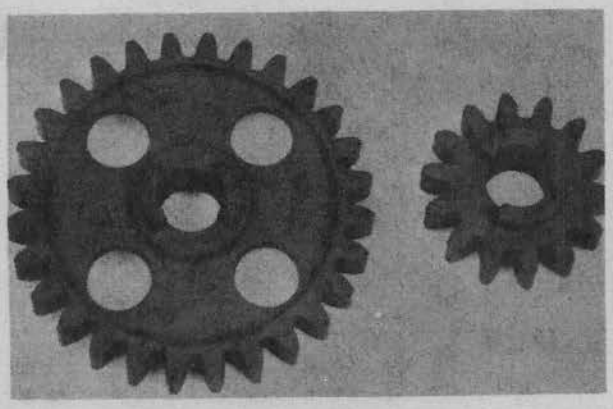


Fig. 33 – Fertilizer Drive Conversion Kit

## FERTILIZER DRIVE CONVERSION KIT

(For MF 33 Grain and Fertilizer Drills prior to serial number 051 1716.)

Combination drills prior to serial number 051 1716 were supplied with two 21-tooth gears only. Rates could only be varied by adjusting the variable pulley. For higher and lower application rates, order two conversion kits (each kit includes one 14-tooth gear and one 28-tooth gear).

Install the gears onto the drill as shown at No. 4, Fig. 8. Follow instructions given in Fig. 9.

The gears included in the conversion kit are shown in Fig. 33.

# SPECIFICATIONS

| | NUMBER OF SEED RUNS (Size) | | |
|---|---|---|---|
| | 13 | 15 | 17 |
| Disc Opener Spacings | 7" | 7" | 7" |
| Dimensions: | | | |
| Over-All Length | 8'10-1/2" | 8'10-1/2" | 8'10-1/2" |
| Over-All Width | 10' | 11'2" | 12'4" |
| Over-All Height (approximate) | 4'2" | 4'2" | 4'2" |
| Ground Clearance (approximate) | 4-1/2" | 4-1/2" | 4-1/2" |
| Filling Height (approximate) | 4' | 4' | 4' |
| Wheel Rim Sizes | 14" or 15" | 14" or 15" | 14" or 15" |
| MF Tire Sizes Available | 6.70-15* | 6.70-15* | 7.60-15* |
| Tire Pressures — Full or Empty | 22 lbs. | 22 lbs. | 22 lbs. |
| Power Requirements | 2-Plow and Up | 2-Plow and Up | 2-Plow and Up |

## MF 33 GRAIN AND FERTILIZER DRILL

| | | | |
|---|---|---|---|
| Approximate Weight — With power lift and in-line single disc openers | 1120 | 1380 | 1500 |
| Grain Box Capacity: Bushels | 7.58 bu. | 8.75 bu. | 10.0 bu. |
| (60 lbs./bu.) Pounds | 455 lbs. | 525 lbs. | 600 lbs. |
| Fertilizer Box Capacity (64 lbs./cu. ft.) | 600 | 710 | 830 |
| Grass Seed Box Capacity (Accessory) | 52 | 60 | 70 |

## MF 33 GRAIN DRILL

| | | | |
|---|---|---|---|
| Approximate Weight — With power lift and in-line single disc openers | -- | 1230 | 1330 |
| Grain Box Capacity: Bushels | -- | 17.50 bu. | 20.0 bu. |
| (60 lbs./bu.) Pounds | -- | 1050 lbs. | 1200 lbs. |
| Grass Seed Box Capacity (Accessory) | -- | 60 | 70 |

** Recommended tire sizes for drills. Use 8.00 x 14 automotive (used) for 14" rims.*

# WARRANTY AND AGREEMENT

All NEW Massey-Ferguson agricultural machines and equipment (hereafter called products) are sold by the dealer upon the following warranty and agreement given by the dealer, WHICH IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES AND CONDITIONS EXPRESSED OR IMPLIED, INCLUDING THE WARRANTIES AND CONDITIONS OF MERCHANTABILITY AND FITNESS FOR PURPOSE, and any other obligation on the part of the dealer or Massey-Ferguson. The dealer neither assumes nor authorizes any person to assume for it any other liability in connection with the sale of such products. The obligation of the dealer or Massey-Ferguson, under this warranty, is limited to replacing parts, at no charge to the Buyer, which prove defective with normal and proper use of the product for the purpose intended.

This warranty applies only to a new, unused Massey-Ferguson product, there being no warranty of any nature in respect to used products or new products that have been modified or altered, repaired, neglected, or used in any way which, in the opinion of the dealer or Massey-Ferguson, adversely affects its performance.

All such new, unused Massey-Ferguson products are warranted to be free from defects in material or workmanship, which may cause failure, for a period of twelve months from date of delivery to Buyer or 1500 hours of use, whichever occurs first.

It is the responsibility of the Buyer, at his expense, to transport the machine or equipment to the dealer's service shop or, alternatively, to reimburse the dealer for any travel or transportation expense involved in fulfilling this warranty. When requested by the dealer, part or parts shall be returned for inspection, transportation prepaid, to a place designated by the dealer. IN NO EVENT SHALL THE BUYER BE ENTITLED TO RECOVER FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING, BUT NOT LIMITED TO, LOSS OF CROPS, INCONVENIENCE, RENTAL OF REPLACEMENT EQUIPMENT, LOSS OF PROFITS, OR OTHER COMMERCIAL LOSS.

## DEALER REPLACEMENT PARTS WARRANTY

Massey-Ferguson repair or replacement parts, supplied by the dealer, will be warranted for ninety days from date of replacement or the balance of the unexpired warranty period of the base machine, whichever period shall be longer. The exchange of a new part for the defective part shall constitute compliance with this warranty.

## MASSEY-FERGUSON ORIGINAL EQUIPMENT BATTERY WARRANTY

Notwithstanding any other provisions hereof the original equipment batteries are warranted for full replacement for the first three months and on a pro-rated replacement cost for the remaining 21 months.

## RUBBER TIRE WARRANTY

Rubber tires are warranted directly by the respective tire manufacturer only and not by the dealer or Massey-Ferguson.

MF

Massey Ferguson

When it comes to service . . . see your Massey Ferguson dealer for all your service needs. He has the facilities and the training to provide the kind of service that will keep your MF equipment on the job.

Form No. 690 505 M3 Price $.50

1.5M—8/72 NOR.
Litho in U.S.A.