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MANUAL PREVIEW

Massey Harris

Massey Ferguson

Operator's Manual

MF 405

Pull Type

Combine

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INTRODUCTION

The information in this Manual describes the operation, maintenance and servicing of your MF 405 Pull-type Combine. It has been specially prepared with you, the operator, in mind to help you get the best out of the Combine.

To help you locate the information, an alphabetical index is included at the rear of the Manual. Also, at the rear is a section describing the Accessories, Attachments and Special Parts which Massey-Ferguson has made available to help you obtain even more benefit from your MF 405 Pull-Type Combine.

The money you have invested in your Combine will be better spent if you take the time to read this Manual and get to know it. Every piece of machinery feels better, works better and becomes more efficient when you are familiar with it.

Be sure to maintain your Combine in good working condition. A machine which is properly maintained pays a bigger dividend than one which is neglected. The maintenance and servicing described in this Manual can all be done with tools ordinarily available.

This Manual deals only with the Combine, commencing at the forward end of the PTO-shaft and drawpole. For details relevant to the tractor, such as the various hitch point and drawbar details, refer to the Operator's Manual supplied with the tractor.

NOTE: The references to left-hand and right-hand used throughout this Manual refers to the position looking from the rear toward the front of the Combine.

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MANUAL PREVIEW

SECTION INDEX

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OPERATING SUGGESTIONS

To get the most out of your Combine, certain basic requirements must be met when harvesting a crop. These should be observed and understood by all operators.

Pull the Combine at a reasonable speed to suit the crop. Excessive ground speed, particularly in heavy crops, can create over-feeding and threshing problems, resulting in loss of grain over the back of the Combine.

Slow the tractor down when travelling over rough ground. High speed in these conditions can cause damage and unnecessary wear on various parts.

Be sure the crop is ripe and ready to be harvested. Green and damp crops can create problems which are not easily rectified in the Combine.

Don't cut the crop too low. This applies to tall crops where an excessive amount of straw fed into the machine can result in threshing and separating problems. Aim to harvest all the grain, but not all the straw.

Adjust the Combine to the crop conditions. No Combine can be adjusted at one common setting to do a good job in all conditions. Be prepared to make minor adjustments as you move from one part of the field to another; also, from field to field.

In conditions where there are excessive weeds, adjust the height of the table to reduce the number of weeds fed into the machine. Weeds have a tendency to choke the cleaning sieves, especially if the weeds have a high moisture content.

In fields which are stony, raise the height of the table to reduce the possibility of stones being picked up by the Combine. Clear the stone trap frequently.

Always run the tractor at the rated PTO speed in order to maintain correct beater shaft speed. If ground speed is too high, shift to a lower gear, but do not close off the throttle on the tractor engine.

To ensure the threshing mechanism is operating at the correct speed, check the speed of the beater shaft occasionally with an accurate tachometer. Adjust the tractor PTO speed if this is necessary.

When coming to a stop during harvesting, allow the threshing mechanism to clear the material inside the Combine before disengaging the PTO shaft drive.

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OPERATING

Good harvesting with any modern combine depends upon the machine being correctly set and adjusted to suit crop conditions. These conditions can vary from one part of a field to another, and from one field to another. They also vary with the changes in the weather and many other factors.

No combine can be adjusted to *one* common group of settings to suit all conditions. Some components must be adjusted frequently for the maximum benefit to be obtained from the combine.

This section details the adjustments and settings that can be made on the Combine and how to make them.

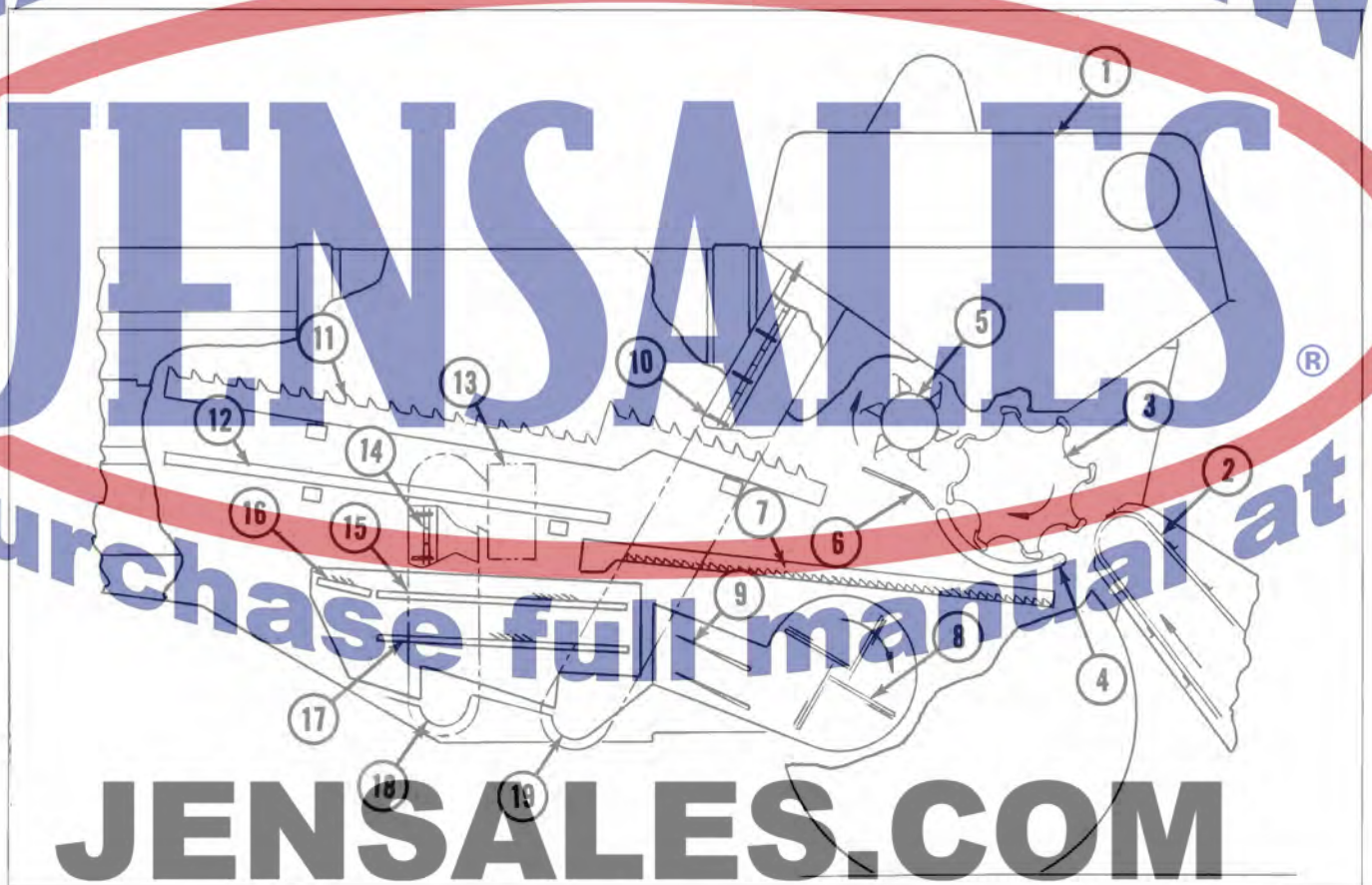


Fig. 1 - Section Through MF 405 P.T. Combine

- | | | | | |
|-----------------------|-------------------|--------------------------|-----------------------|---------------------------|
| 1. Grain Tank | 5. Beater | 9. Air Deflectors | 12. Pan-Under-Walkers | 16. Upper Sieve Extension |
| 2. Table Elevators | 6. Finger Grate | 10. Clean Grain Elevator | 13. Refresher | 17. Lower Sieve |
| 3. Rasp Bar Cylinder | 7. Main Grain Pan | 11. Straw Walkers | 14. Return Elevator | 18. Return Auger |
| 4. Open Grate Contave | 8. Fanning Mill | | 15. Upper Sieve | 19. Clean Grain Auger |

HOW A COMBINE WORKS

Four distinct functions are required in the overall operation of a combine when harvesting any crop. These are:

1. Cutting and Feeding

2. Threshing
3. Separating
4. Cleaning

1. CUTTING AND FEEDING

The uncut plants are fed into the Combine by

Reel Speed Depending upon
size of table auger sprocket
and diameter of reel drive
pulley used 19 to 47 rpm

CORRECT BEATER SPEED—Checking

All drives for the complete threshing mechanism originate from the beater shaft, and the speed of this shaft must be correct for the Combine to operate efficiently.

The correct speed of the beater shaft is between 705 and 710 rpm.

Before beginning harvesting operations, set the rpm at the tractor PTO shaft to the specified ASAE requirements, and with the drive to the Combine operating, measure the speed of the beater shaft with an accurate tachometer.

This check should be made when there is no load on the threshing mechanism and the tachometer applied at the right-hand end of the beater shaft, No. 1, Fig. 2.

DRAW POLE AND PTO ARRANGEMENTS

The pull-type Combine is equipped with a draw pole, No. 6, Fig. 3, and a power take-off shaft, No. 8, Fig. 3, which are connected to a tractor for field operations and transporting. Both units are designed to meet ASAE requirements.

DRAW POLE

The draw pole, No. 6, Fig. 3, is connected to the tractor drawbar by an adjustable hitch, No. 9, Fig. 3, and is hinged toward the rear and locked by clevis pin to provide adjustment for changing the line of draft for towing. The draw pole also mounts the grain tank unloading lever, No. 1, Fig. 3, which is connected directly to the unloading drive clutch and pulley, No. 5, Fig. 3. Also attached to the draw pole are the electrical connection, the quick attach coupling for the single hydraulic hose to the two hydraulic table lift cylinders, and the front support stand.

POWER TAKE-OFF (PTO) SHAFT

The PTO shaft of the Combine is connected



Fig. 4 — Draw Pole and PTO Shaft Details

- | | |
|---|--|
| 1. Telescopic Section of PTO Shaft | 6. Support Bracket (Horizontal Adjustment) |
| 2. Universal Joint | 7. Bolts |
| 3. Bearing Support Brackets (Vertical Adjustment) | 8. Tractor Hitch |
| 4. Bolts | 9. Connecting Pin |
| 5. Bolts | 10. Universal Joint and Coupling |

to the tractor PTO shaft by coupling, No. 10, Fig. 3, which conforms to ASAE requirements. The shaft has three universal joints, the rear one being connected to gearbox, No. 3, Fig. 3, which provides the drive for the main drive shaft, No. 4, Fig. 3. This shaft provides the drive to the beater shaft and the tank unloading drive shaft. The PTO shaft is adjustable in both the vertical and horizontal planes so it can operate in a straight line from the tractor shaft to the gearbox shaft.

CONNECTING COMBINE TO TRACTOR

Referring to Fig. 4, the following points must be observed when connecting the Combine to the tractor.

1. The draw pole must be parallel to the ground line when connected to the tractor drawbar as indicated in Fig. 4.

To obtain this position, the Combine hitch, No. 8, Fig. 4, may be repositioned by means of bolts, No. 7, Fig. 4.