

# 100K Synchronous Thinner



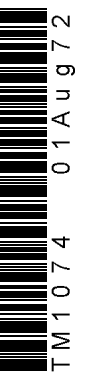
JOHN DEERE

## TECHNICAL MANUAL 100K Synchronous Thinner

TM1074 (01Aug72) English

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# 100K SYNCHRONOUS THINNER

## TECHNICAL MANUAL

TM-1074 (Aug-72)

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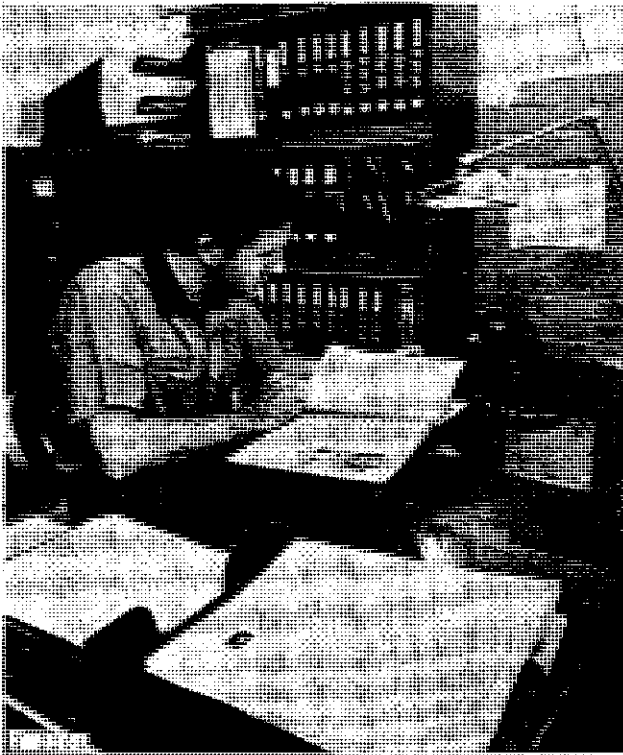
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## INTRODUCTION



Use FOS Manuals for Reference



Use Technical Manuals for Actual Service

This technical manual is part of a twin concept of service:

- **FOS Manuals**—for reference
- **Technical Manuals**—for actual service

The two kinds of manuals work as a team to give you both the general background and technical details of shop service.

*Fundamentals of Service (FOS) Manuals* cover basic theory of operation, *fundamentals* of trouble shooting, *general* maintenance, and *basic* types of failures and their causes. FOS Manuals are for training new men and for reference by experienced men.

*Technical Manuals* are concise service guides for a *specific* machine. Technical Manuals are on-the-job guides containing only the vital information needed by a journeyman mechanic.



When a serviceman should refer to a FOS Manual for more information, a FOS symbol like the one at the left is used in the TM to identify the reference.

Some features of this technical manual:

- *Table of contents at front of manual*
- *Exploded views showing parts relationship*
- *Photos showing service techniques*
- *Specifications grouped for easy reference*

This technical manual was planned and written for you—a journeyman mechanic. Keep it in a permanent binder in the shop where it is handy. Refer to it whenever in doubt about correct service procedures or specifications.

Using the technical manual as a guide will reduce error and costly delay. It will also assure you the best in finished service work.



This safety alert symbol identifies important safety messages in this manual. When you see this symbol, be alert to the possibility of personal injury and carefully read the message that follows.

# Section 10 GENERAL

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## Group 5 DESCRIPTION

John Deere 100K Synchronous Thinners are available in seven different models to thin various crops planted under various conditions. The operating principle of all models is the same. The distinctions concern the type of row units and the number of rows or seedlines each is designed to thin.

Row units are of two types, single-row units and double-row units. The single-row unit thinners are for crops, such as cotton, sugarbeets, etc., planted one seedline per bed. The single-row unit actuators are spaced from 22 to 40 inches apart. The double-row units are for crops, such as lettuce, broccoli, cabbage, etc., planted two seedlines per bed. The double-row unit actuators are spaced from 12 to 15 inches apart.

### How It Works

The thinner approaches the plant. The operation begins when the plastic shield on the probe touches the outer edge of the leaf. The shield folds the leaves forward until the probe is over the center of the plant. This is to prevent the leaves from contacting the electronic probe, which would activate the knife too soon.

As the unit continues to move along the row, and the shield folds the leaves forward, the electronic probe touches the plant near the plant's center. Contacting the plant completes an electric circuit, and

generates a signal to a solenoid valve. The solenoid moves the spool in the valve directing hydraulic oil to activate a piston in the actuator which, in turn, moves the knife across the row.

When activated by the signal from the probe, the knife swings across the row at an extremely high speed (From the time the probe touches the plant until the knife completes its swing, time lapse is only 28/1,000 second). This speed assures that the knife will pass close enough to the plant sensed to leave single plants and provides enough force to cut out excess plants, for a distance equal to the length of the knife.

At the end of the swing across the row in one direction, the knife and knife arm are stopped hydraulically. When the shield and probe contact the next plant, causing a break in the electrical signal, the return spring moves the valve spool directing hydraulic oil to the other piston. This moves the knife back across the plant line, again clearing out excess plants. As the process is repeated down the row, a stand of young plants properly spaced for maximum growth is left to mature.



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