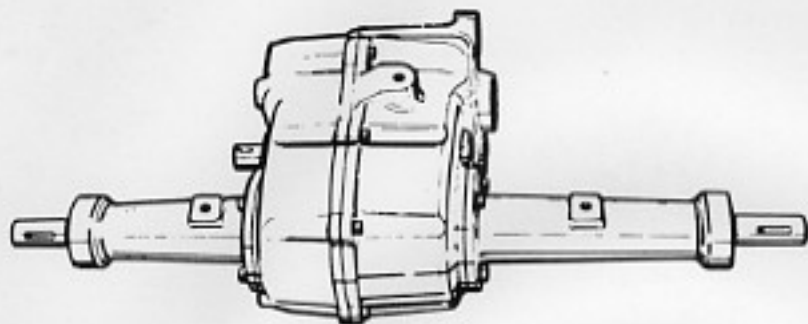



# PEERLESS MECHANIC'S HANDBOOK FOR



 ***Elec-Trak***<sup>®</sup>

## GARDEN TRACTOR

GENERAL  ELECTRIC

 TRADEMARK OF GENERAL ELECTRIC COMPANY

Form No. 692911

Printed in U.S.A.

GENERAL  
INFORMATION

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1200, 1400,  
1700, 2000  
THREE - SPEED  
TRANSA XLES

4

FOUR - SPEED  
TRANSA XLES

5

DIFFERENTIALS

8

SHIFTING  
ASSEMBLY

10

BEARING AND  
BUSHING SERVICE

11

## SECTION 1 GENERAL INFORMATION

## A. HOW TO USE THIS MANUAL

1. **GENERAL.** The purpose of this handbook is to give up-to-date care, service, and repair instructions for Tecumseh's Peerless Division products.

By following this handbook, a better, faster, more profitable method of servicing Peerless products can be attained.

2. **USE.** Use this handbook with the pertinent Divisions of the Master Parts Manual.

The Parts List will show the exact parts for any Peerless unit.

This handbook points out procedures and methods for the proper repair or adjustment of parts according to factory recommendations.

3. **TABLE OF CONTENTS.** Use the Table of Contents whenever you are in doubt as to where to look for servicing information.

4. **BEFORE REPAIR.** Read the section pertaining to the unit being repaired (usually 4-6 pages or less). Complete understanding of what you will do will eliminate time consuming errors and rework.

5. **REPAIR.** Disassemble the unit in an orderly fashion. Lay disassembled parts out so that a clear pattern of reassembly is apparent. Use scribe marks on axle housing, shift lever housings, etc. Be aware of bevels on gears and how they are positioned. Give the unit definite area relationships, such as down, up, left, right, etc.

By working carefully with units until experience takes over, good working practices will become habit.

6. **REASSEMBLY.** Every part has a purpose. Try to explain the purpose to yourself as you put the parts together. The value of the orderly lay out of parts will be made clear at this time. Use the Master Parts Manual, if in doubt as to proper sequence of parts. It can save valuable time later on by not having to tear the unit down to find a "built-in" mistake.

## Shift Lever Housing

1. Is there a mark on the housing?

2. How does the shift lever conform to the unit?  
Make scribe marks if in doubt as to how the unit will be re-assembled.

## Case and Cover

1. Do I remove the case from the cover?  
On all units except the 2300 and 2400, remove the cover from the case.
2. How do I distinguish the case from the cover?  
The cover has the brake shaft extension, while the case has the inputshaft and shift tower as applicable. (Does not apply to 600 series, in which the case is apparent.)

## Thrust Washers and Shafts

1. Do I know to which shaft and to which side each thrust washer will assemble?
2. Do I know which end of each shaft goes into the case or cover?

## Gears

1. Are bevels identified and do I know which way they face?  
The purpose of the bevel on the tooth is to allow easier meshing of shifting gears. Therefore, the bevel must fall in the direction the gear meshes.

The outside gears on a three gear cluster are near the edges of the case and cover, therefore meshing must come from away from the case and cover.

## B. PEERLESS UNITS

## 1. GENERAL

Peerless makes power transmission accessories for use in all types of lawn and garden equipment.

## 2. TRANSAXLES

A combination of familiar parts of a drive train, the transmission and differential-axle, in one compact unit. Peerless transaxles are of various speeds forward units with one speed in reverse.

- (a) 600 Series. The 600 series units are considerable different from all other

Peerless transaxle series, both in design and appearance. The 600 series is a lightweight unit usually used in riding mower or similar application. The 600 series has a vertical input shaft at the top of the case. The case is aluminum, contributing to a considerable weight saving.

Variations in the series (which determines the specific model number such as 603, 603A, 609, etc.) includes:

- (1) Shift lever shape.
- (2) Axle lengths.
- (3) Axle machining for wheel hub attachment.
- (4) Axle housing variations.
- (5) Size of the brake shaft.

There may be other slight differences, however, these are present as a result of product improvement which are not options to an O. E. M. (Original Equipment Manufacturer).

NOTE: The transaxles described in paragraph (b), (c), (d), and (e), below are fairly similar in appearance, but do have specific recognizable characteristics. All these units have cast iron bodies for rugged application, although the 2300 series only can be used in ground engaging equipment applications.

- (b) 1200 Series. The distinguishing feature of the 1200 series transaxles is that the axle support housings are pressed from the inside of the case and cover, therefore, are not readily removable until the unit is completely disassembled. The casing is cast iron for rugged, long-time wear. The input shaft extends horizontally through the case while the larger brake shaft extends through the cover on the opposite side. The shift lever housing attaches to the case.

A basic difference within the 1200 series itself is that the input can be either right or left depending upon equipment application, therefore, the case can be either the left hand or right hand "half" of the casing, depending upon the application. This, along with the variations listed for the 600 series ( (a) above) determines the model number within the 1200 series basic type.

- (c) 1700 Series. The 1700 design closely

follows the 1200 series except that the axle support housings bolt to the case and cover and are removed prior to disassembly of the case and cover.

- (d) 2000 Series. These units are similar to the 1700 series except that the axle support housing contains sealed ball bearings rather than bushings. Other differences are apparent internally which will be described in the tear-down procedure of these units.
- (e) 2300 Series. Generally similar to the 2000 series transaxle. The distinguishing features are a more massive casing, and a shift opening machined area that is larger. The obvious difference from the standpoint of application is that these units are four speed forward and will be found on equipment that can be used for ground engagement operations.

### 3. REDUCTION GEAR AND DIFFERENTIAL UNITS

#### GENERAL

These units do not have a transmission function characteristic of transaxles, but rather, are units to reduce input speed and torque to a suitable axle speed and torque. The hydrostatic units which match to these units perform the transmission function by the use of one control lever to the operator.

- (a) 1300 Series. This unit is the hydrostatic counterpart of the three-speed forward units (1200, 1700, and 2000). It has an aluminum casing and pressed through axle support housings, characteristic of the 1200 series.

The hydrostatic unit is of Eaton, Yale, Towne manufacture and is not serviced by Tecumseh Service Dealers.

- (b) 2400 Series. This series of hydrostatically driven reduction gear and differential unit can be used in ground engaging operations such as plowing. The hydrostatic unit is manufactured by Sundstrand Corp. in LaSalle, Ill.

### 4. TRANSMISSIONS

These units as manufactured by Peerless consist of the shifting mechanism to take a constant input shaft speed and reduce it to the desired output speed. The differential or axle unit is connected through a chain drive.

- (a) 350 Series. This 3-speed forward, 1-speed reverse transmission has a cast aluminum casing. It uses the same shift lever housing forward on the 600, 1200, 1700, and 2000 series transaxles. Bronze sintered bushings are porous, allowing for a lubricant flow through them.
- (b) 400 Series. This unit is like the 350 unit except the caged needle bearings replace bushings at the input and output shafts.

drive except that the input shaft is extended out through the other side of the case to transmit power in the same line to additional right angle drives or other equipment.

- (c) Shafts, Couplings, Pulleys, etc. These items are part of the total transmission unit and are used to connect angle drives, and other attachments. The serrated couplings match serrations on shafts of the angle drives or on connecting shafts.

## 5. DIFFERENTIALS

The only self contained differential/axle unit built by Peerless is the 100 series. It features hardened axle shafts of various length and machined for various methods of hub attachment. The case is cast aluminum and the differential gears are sintered metal. The differential pin is held securely in place by the four retaining capscrews. Oilite bushings reduce friction during differential operation.

The drive sprocket is part of the unit. Depending upon application, it can be in any of several diameters in size, thus having a different number of gear teeth.

## 6. ANGLE DRIVES

These units are used primarily to change the direction of power transmission at the point where the working equipment attaches.

They can be assembled for right or left hand rotation so that they can be used in various combinations for synchronous operation.

- (a) Right Angle Drive. These units consist of input shafts, output shafts, and the beveled gearing necessary to change the direction of power transmission at right angles. By positioning the drive bevel gear on the input shaft nearest the input end the opposite rotation will be attained from that of switching the beveled gear around to the side away from the input end of the shaft.

Casing and bearings are identical. A cover identifies each unit as being either a left hand (LH) or a right hand (RH) right angle drive.

- (b) "T" Drives. The "T" drive is essentially the same as the right angle

## C. IDENTIFICATION OF MODELS

Since acquisition by Tecumseh Products Co. in 1964, all Peerless assemblies have a model number identification tag, or stamping.

On units containing axles (transaxles, or reduction gear and differential units) the identification should be visible by viewing the case/cover unit from below and behind as it is mounted in the driven equipment.

If the area is dirt or oil covered, however, some cleaning may be necessary. Write down any numbers found in locations pointed out in

Figure 1-1, then compare with the Master Parts Manual Div. 8 index.

For right angle and "T" drives, the identification number is stamped into the housing under the input shaft boss opposite the cover.

On transmissions the identification number is stamped on the cover back of the output drive sprocket.

On the 100 series differential, the number is stamped either on cast housing diameter or on the housing end near the axle bushing.

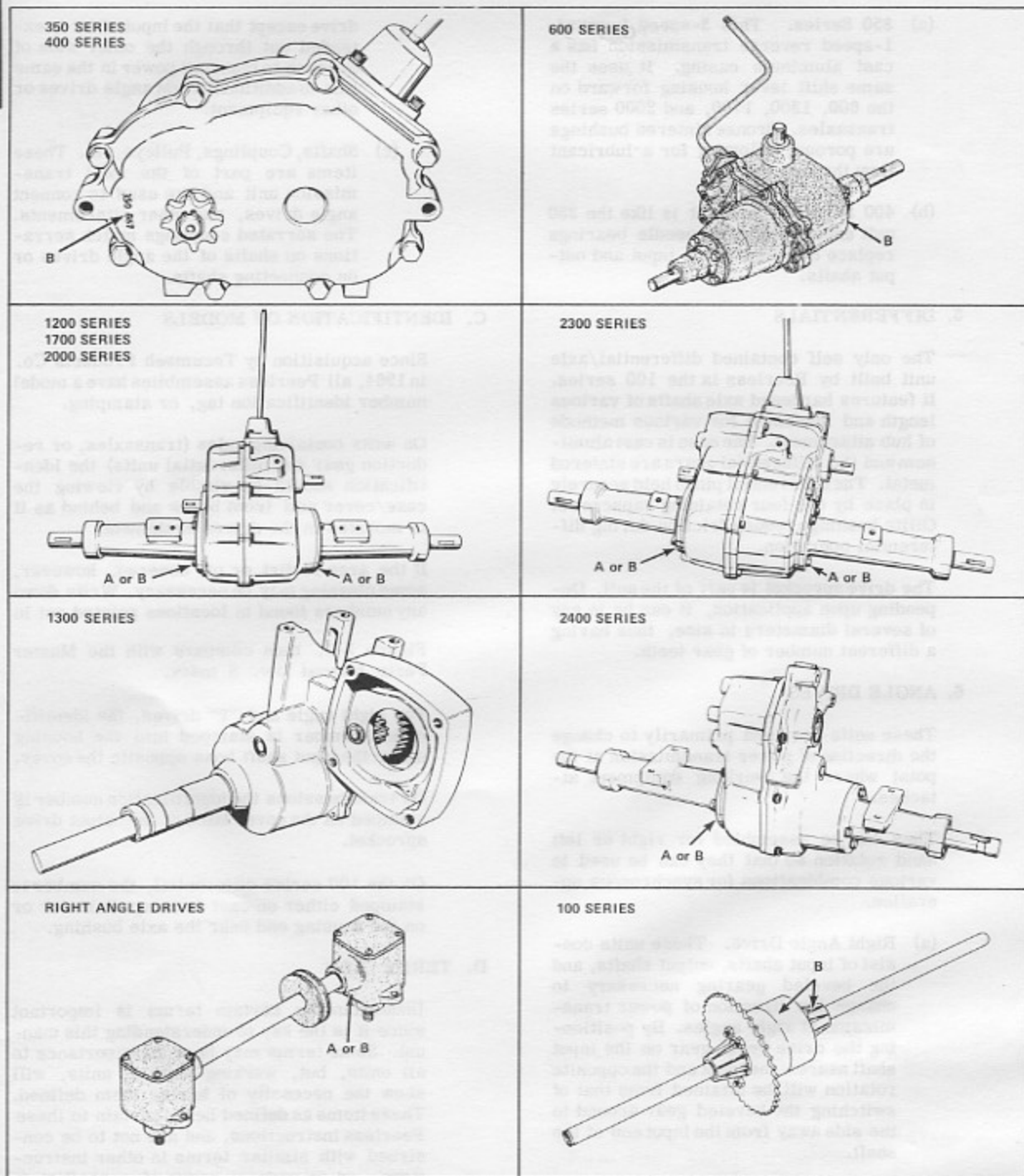
## D. TERMS USED

Understanding certain terms is important since it is the key to understanding this manual. Some terms may be of no importance to all units, but, working with all units, will show the necessity of having them defined. These items as defined here, pertain to these Peerless instructions, and are not to be construed with similar terms in other instructions, or in general usage if a conflict in definition arises.

**AXLE** - The shaft which connects the wheel or hub to the differential unit and transmits force back to the wheels. Sometimes axle refers to the differential and axle combination as in the term TRANSAXLE.



1



Early models were not identified with a model number on the unit.

THE MODEL NUMBER WILL BE FOUND ON:

- A. Metal tag attached to unit as illustrated.
- B. Stamped on unit as illustrated.

Figure 1-1. Identification Number Locations

