



International Harvester

Service Manual
70 & 100

**Cub Cadet
Chassis Only**

Service Manual

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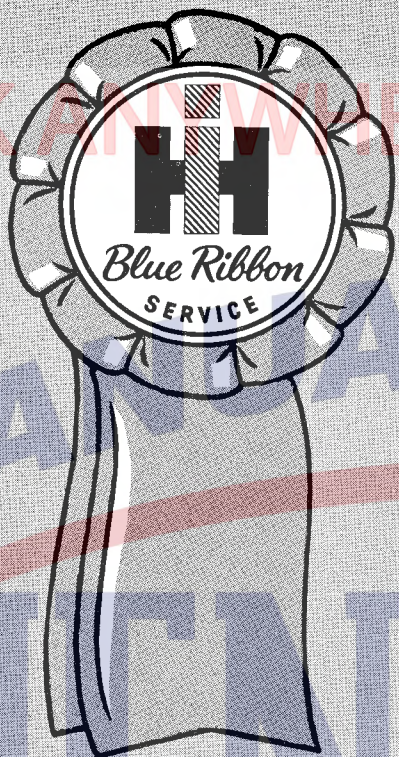
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IH-S-CC 70,100



Blue Ribbon Service

GSS-1349

International[®]
Cub[®] Cadet Tractor

CHASSIS
Model 70 and 100

Price 75¢

INTERNATIONAL HARVESTER COMPANY

180 NORTH MICHIGAN AVE.

CHICAGO 1, ILLINOIS

FOREWORD

The instructions and special tools shown in this Blue Ribbon Service Manual are for use by International Harvester Dealers and their factory trained servicemen.

The specifications as listed in this manual are current as of the printing date. Due to changes and improvements in our products, dealers are periodically issued service bulletins to keep this manual up-to-date. We suggest you refer to the most recent information when performing service work on this equipment.

International Harvester Factory Trained servicemen are best qualified to service I.H. equipment.

INTRODUCTION

This manual covers the servicing procedures of the chassis components of the Models 70[®] and 100 International Cub Cadet tractors. The engine, fuel system and ignition system are covered in Blue Ribbon Service Manual GSS-1350 (also the electrical system when so equipped).

LIBRARY FILING INFORMATION

1. File this Manual in Book 12 after Divider Tab GSS-1349.
2. Enter the following information in the Service Manual Index.

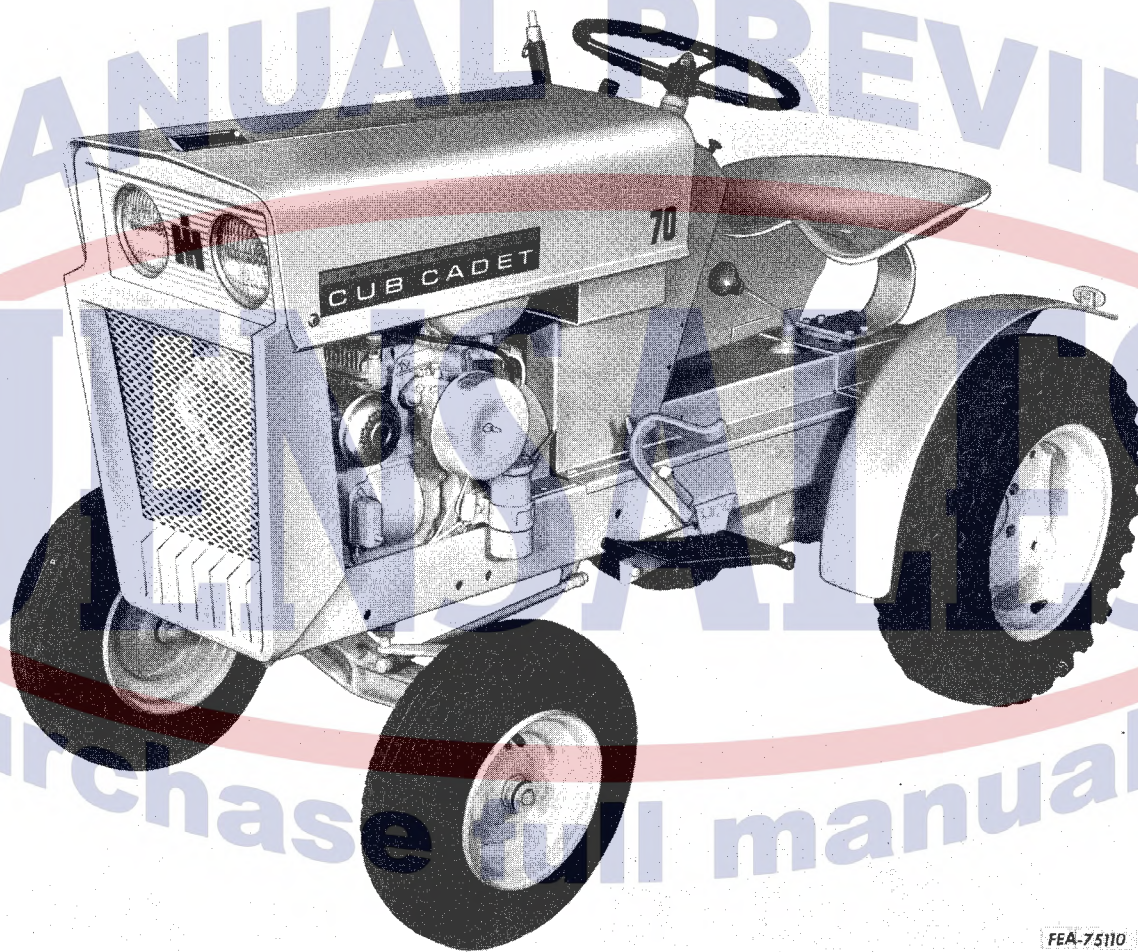
Print, or preferably type in, the Manual Description, Form Number, and the Book Filed in, on the following pages:

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GENERAL INFORMATION



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Illustr. 1. Left front view of model 70 cadet.

The International Cub Cadet is available in two models. The model 70 is powered by a 7 horsepower, four cycle, air cooled, gasoline engine and is available with retractable hand starting or electric starting. The model 100 is powered by a 10 horsepower, four cycle, air cooled, gasoline engine and is available with electric starting only.

The chassis is the same for both models.

Tractors equipped with electric starting have a combination generator and cranking motor. Both models use the same generator-motor unit, however, the model 100 is equipped with a larger capacity battery.

Reduction Drive

The reduction drive housing is located ahead of and is secured to the transmission housing. The reduction input shaft with gear is driven by the clutch shaft (or creeper attachment if so equipped), and drives the reduction gear located on the front end of the transmission input shaft. The ratio of reduction is seven to one. The input shaft with gear is supported by a ball bearing at the front and a needle roller bearing at the rear.

Transmission

Sliding spur gears are located on the transmission input shaft and mesh with spur gears on the countershaft. Shafts are mounted in ball, roller, and needle bearings. Gears have crowned induction hardened teeth with rounded edges for ease of shifting and long life. The reverse idler gear is mounted on a separate shaft.

Differential

Two pinions, a pinion shaft and two side gears are positioned in the one piece cast iron carrier case. The gears are carburized, hardened alloy steel.

The bevel gear is riveted to the carrier case. The carrier assembly is mounted in tapered roller bearings. Bearings are preloaded to control deflection of the assembly when loaded.

Rear Axles

The rear axles are splined on their inner end where they are supported and driven by the differential side gears. Snap rings secure the axle shafts in the side gears. A bronze bushing in each axle carrier supports the rear axle outer end. A

flange is welded to the axle outer end to receive the rear wheels.

Front Axle

The cast iron front axle has "I" beam construction with raised arch center section. The axle is supported by a pivot shaft in the main frame cross channel bracket.

Front Wheels

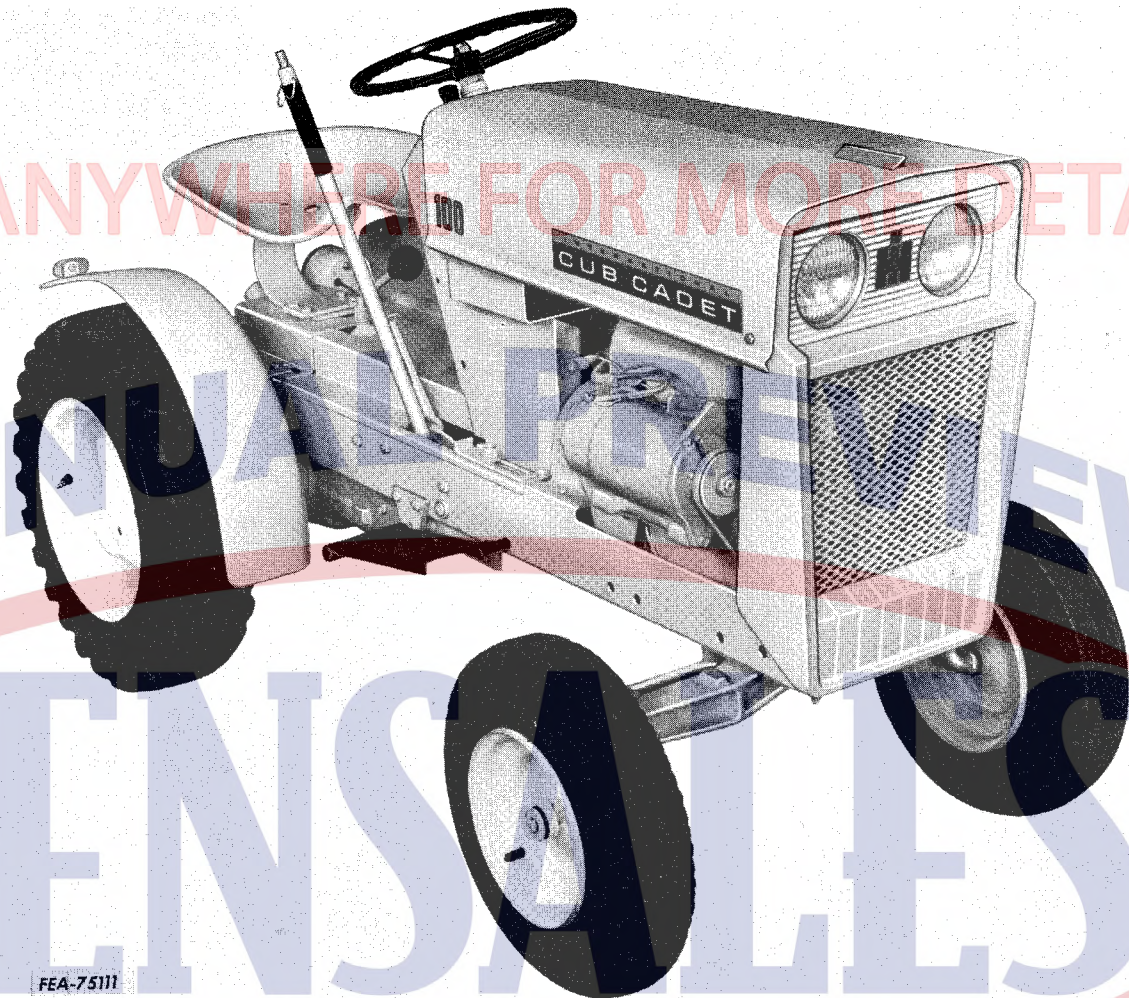
The wheels are formed from sheet steel and welded to steel tubing. A pre-lubricated sealed ball bearing is pressed into each side. These wheels can be used for service on older model cadets by removing the ball bearings and pressing in service bushings.

Steering

A spiral worm cam and lever with single follower and control arm actuates the ball socket drag link to the left front steering knuckle. The ball socket tie rod connects the right and left steering knuckles. The worm (cam) shaft is supported by ball bearings. Design features provide caster, camber, and toe-in for easy steering and trouble free operation.

Creeper Attachment (Underdrive)

A four to one ratio unit is available for field application. This planetary gear reduction unit is mounted ahead of and is secured to the front of the reduction drive. A speed selection lever provides standard or "creeper" speed shifting as desired.



Illust. 2. Right front view of model 100 cadet.

The electrical systems of these tractors are automatically polarized when the starter button is pressed.

The clutch and brake are operated by a single foot pedal located on the left side of the tractor. Separate adjustments are provided for each unit.

All cadets are equipped with an implement control lever, conveniently located on the right side of the tractor.

Power is transferred directly to the clutch by a driving plate attached to the engine flywheel pulley.

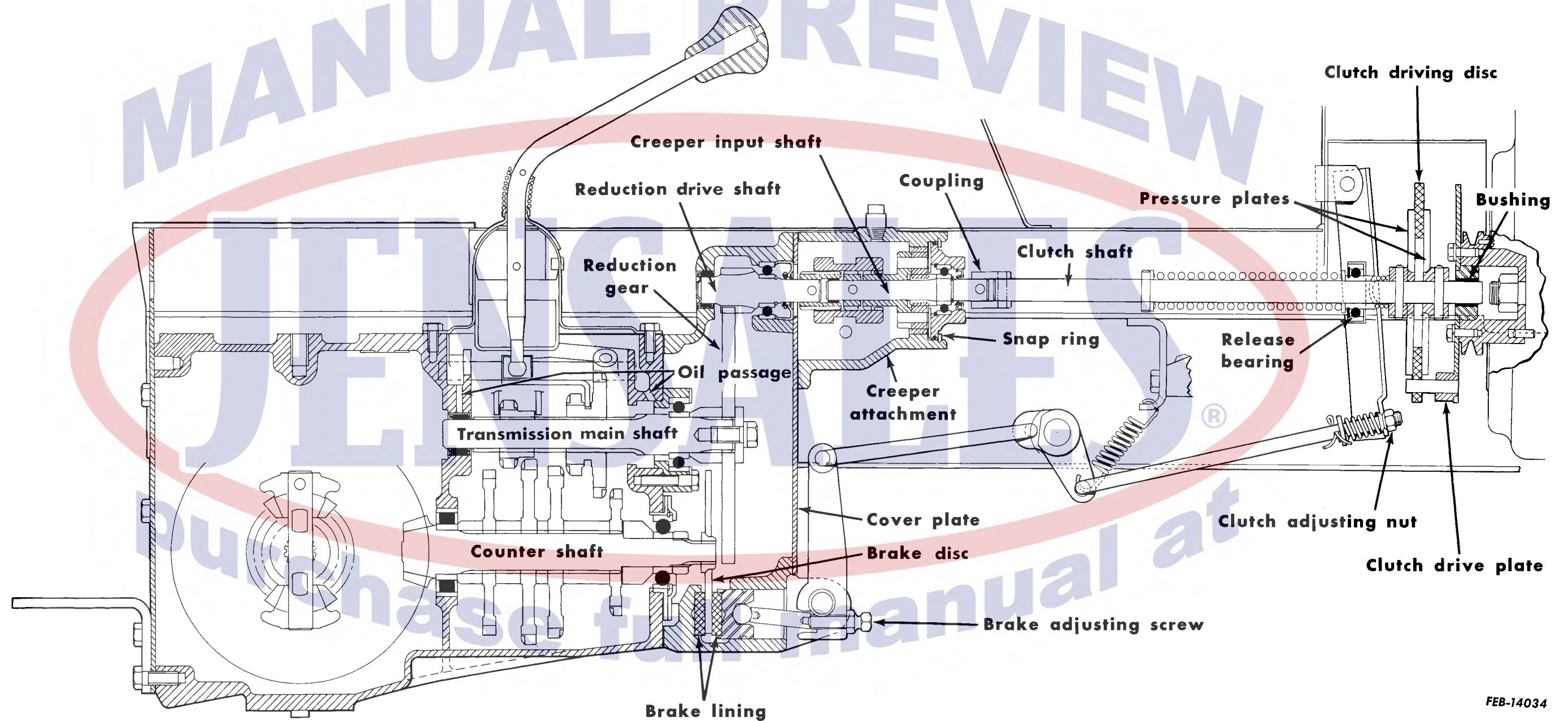
Clutch

A friction disk, held between two spring loaded plates on the clutch shaft, transfers power through the clutch shaft to the gear reduction unit on standard tractors, and to the underdrive (creeper) unit on tractors so equipped.

Brake

Two friction material inserts apply "Caliper Type" holding to a round flat plate located on the splined front end of the transmission countershaft; thus, braking is applied through the differential to both rear wheels.

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Illust. 3. Cross section — power train.

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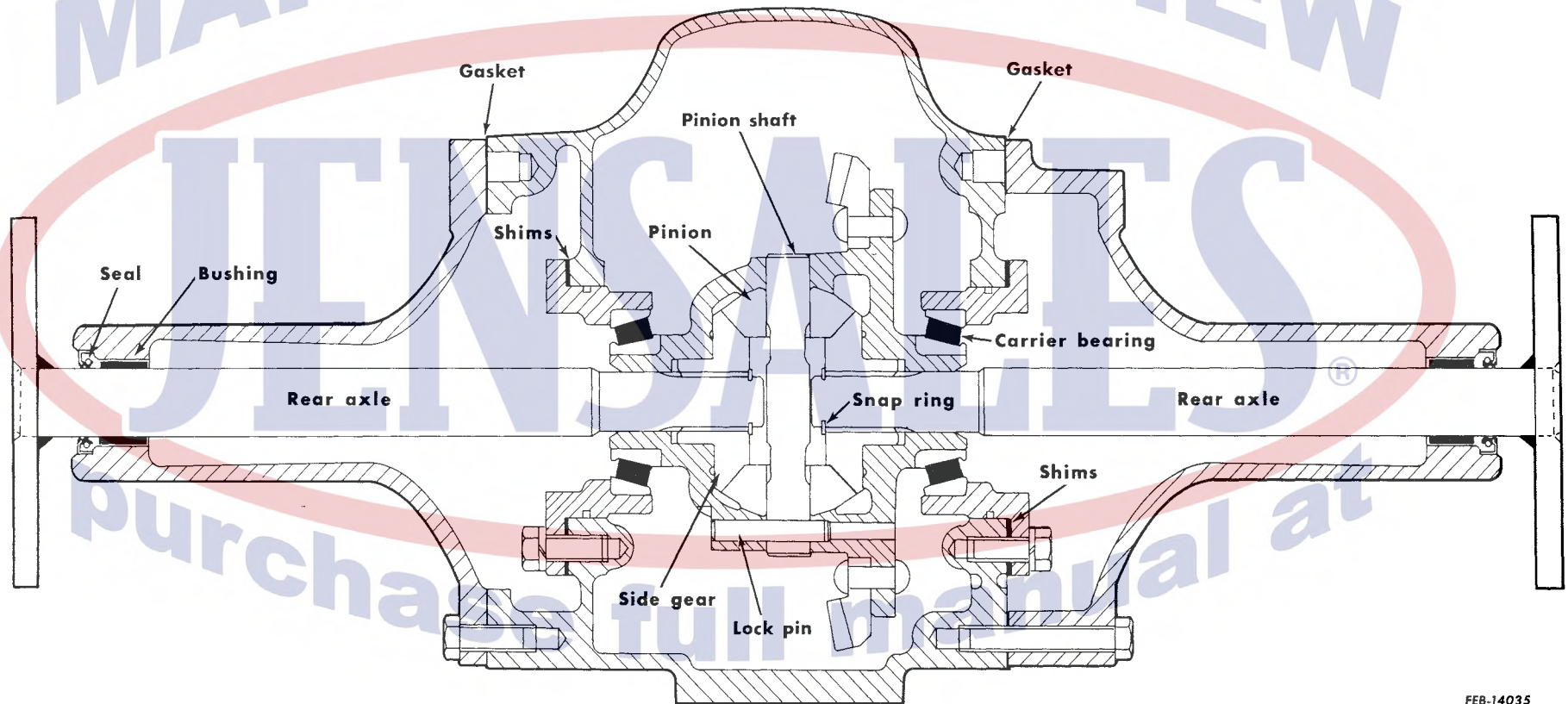


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MANUAL PREVIEW



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Illust. 4. Cross section - rear axle assembly.

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SPECIFICATIONS

Steering

Type	Cam and lever
Bearings	Ball

Front Wheels

Bearings	Sealed pre-lubricated ball
Hub I.D.	1.375 to 1.380 in.
Toe-in	1/32 to 1/8 in.
Camber angle	2-1/2 degrees
Caster angle	0 degrees
Turning radius	6 ft. 9 in.

Front Axle

Construction	I-Beam
Support	Center pivot shaft
Steering knuckle diameter	.747 to .750 in.

Tire Size

Front	4.80/4.00 x 8
Rear	6.00 x 12

Wheelbase	43 in.
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Tread	27 in.
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Length, Over-all	63 in.
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Width, Over-all	33-1/4 in.
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Ground Clearance	6 in.
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Clutch

Type	Double-plate, dry disc, spring loaded
Size	4-1/2 in.
Clutch release bearing	Sealed, pre-lubricated ball

Clutch loading spring

Free length	6.70 in.
Test length	5.18 in.
Test load	235 to 240 lbs.

Clutch teasing spring

Free length	.442 in.
Test length	.370 in.
Test load	50 lbs.

Brake

Type	Internal caliper
Location	On transmission countershaft

Reduction Drive

Input shaft with integral gear	12 teeth
Driven gear	84 teeth
Backlash	.004 to .011 in.
Bearings	Ball - front Needle - rear

Transmission

Type	Selective sliding spur gears
Gears forward	3
Gears reverse	1

Bearings

Countershaft	Ball - front Roller - rear
Main shaft	Ball - front Needle - rear

Countershaft and bearing spacer lengths:

1. Between front bearing and 3rd speed driven gear 848 to .852 in.
2. Between 3rd speed driven gear and 2nd speed
driven gear 1.310 to 1.314 in.
3. Between 2nd speed driven gear and 1st speed
driven gear 310 to .314 in.
4. Between 1st speed driven gear and reverse
driven gear 686 to .690 in.
5. Between reverse driven gear and rear bearing 690 to .694 in.

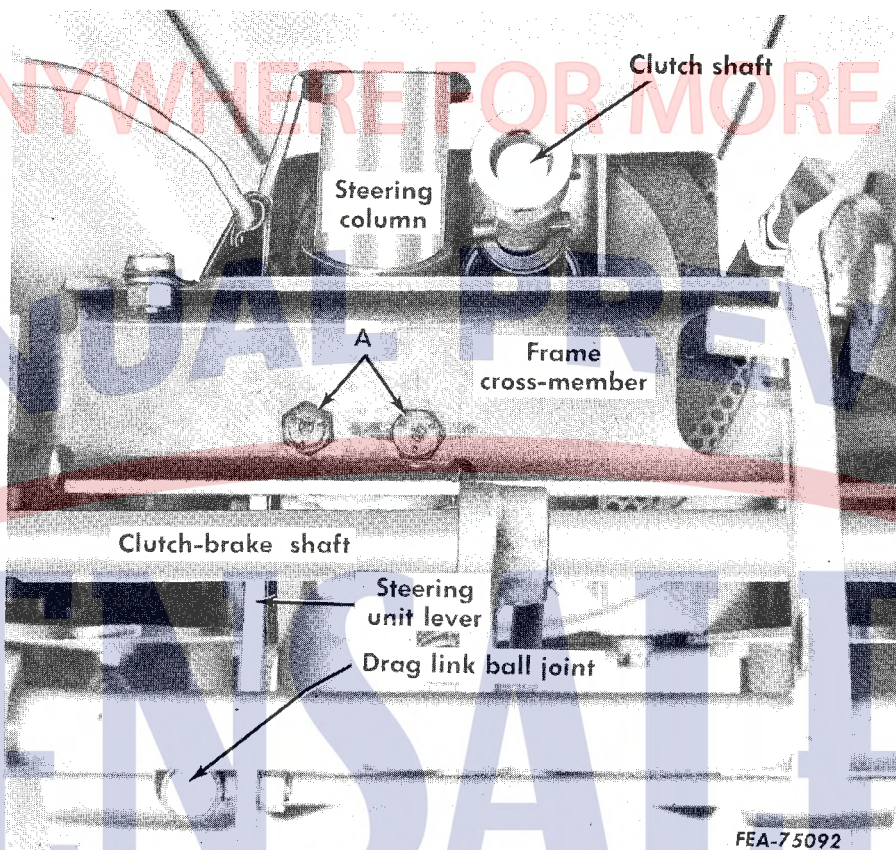
Differential

Type	Bevel gears and pinions
Number of pinions	2 (10 teeth)
Number of side gears	2 (16 teeth)
Bearings (two)	Tapered roller
Pre-load	1.5 to 8.0 in. lbs.
Adjusting shims	.004, .007, .015, .030 in.
Bevel gear and pinion backlash	.003 to .005 in.
Bevel gear location	On differential case
Pinion location	Integral part of countershaft
Ratio (bevel gear and pinion)	13 to 46

Creeper Drive

Type	Planetary gears
Sun gear	Integral part of case
Planet gears	3 - spur type
Bearings	Ball - front Bushing - rear
Reduction ratio	4 to 1

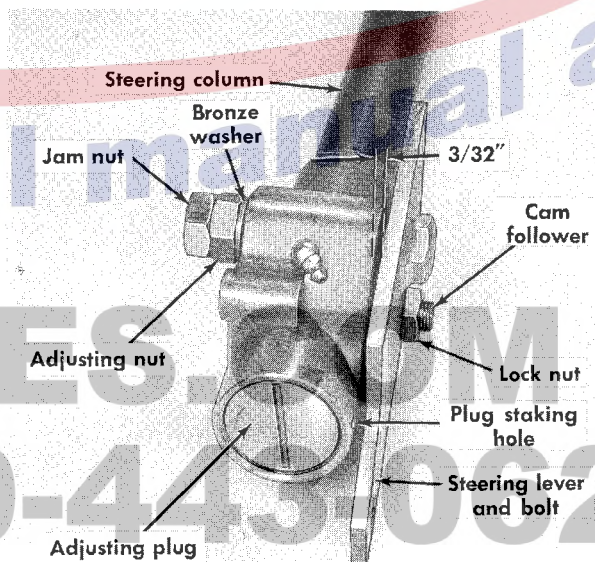
STEERING ASSEMBLY



FEA-75092
Illustr. 5. Underside view of steering support and frame cross member.

Removal

1. Remove the steering wheel.
2. Remove the felt seal, retainer, bearing and bearing retainer from the upper end of the steering column.
3. Remove the drag link rear ball joint from the steering unit lever.
4. Remove capscrews "A" (Illustr. 5) from the frame cross member and steering unit.
5. Lower the steering column assembly through the instrument panel pedestal and grommet.



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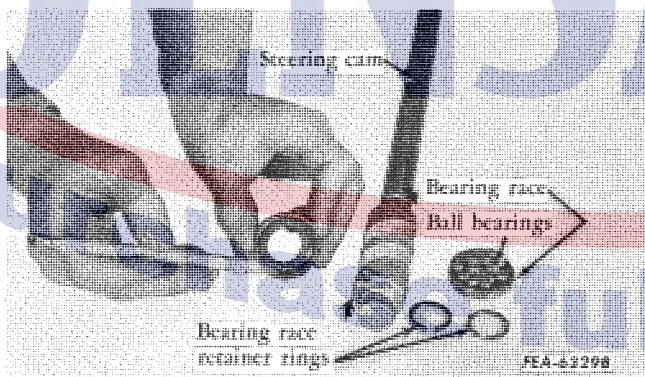
Illustr. 6. Steering assembly.

Disassembly

1. Secure the steering lever and bolt in a vise.
2. Remove the adjusting plug.
3. Remove the lever bolt jam nut, adjusting nut, and bronze washer.
4. Slide the column and housing assembly away from the lever, bolt and cam follower.
5. Remove the steering cam and bearings from the housing.
6. Remove the bearing race retainer snap rings.

Inspection and Repair

1. Wash all parts in cleaning solvent, then dry thoroughly.



Illust. 7. Inspection of steering cam, bearings and races. Arrows and pencil indicate areas for inspection.

2. Inspect the cam follower for wear (flat spots).
3. Inspect the cam ends, bearings and races for wear, roughness and pitting.
4. Inspect the cam grooves for wear, roughness and galling.

5. Inspect the housing for cracks and stripped threads.

6. Inspect the upper bearing (nylon bushing) for wear or damage.

Reassembly and Adjustment

1. Thoroughly coat the cam ends, balls and races with chassis lubricant.
2. Install the balls and races on the cam ends and secure with their retaining snap rings.
3. Thoroughly coat the cam and bearings with chassis lubricant then install them into the housing and column assembly.

NOTE: Be sure the races enter the housing squarely and are not "cocked."

4. Install the adjusting plug. Screw the plug inward until end play (of the cam) is removed and the cam turns free.

5. Stake the plug by inserting a small center punch through the housing holes and spread the plug threads to keep the plug from loosening.

6. Fill the housing with chassis lubricant.

7. Loosen the cam follower locknut, then "back out" the cam follower one turn.

8. Install the seal, retainer and lever-bolt assembly to the housing.

9. Install the bronze washer and adjusting nut. Tighten the adjusting nut sufficient to provide good seal compression. Refer to Illust. 6 for adjustment dimensions. Secure with the jam nut. Tighten jam nut to 40 ft. lbs. Lubricate the lever-bolt at the fitting.

10. "Center" the steering cam by rotating the steering shaft half way between full right and full left turn.

11. Adjust the cam follower inward to eliminate backlash, then tighten locknut to 60 ft. lbs. Turn steering shaft full right and left to check for binding.

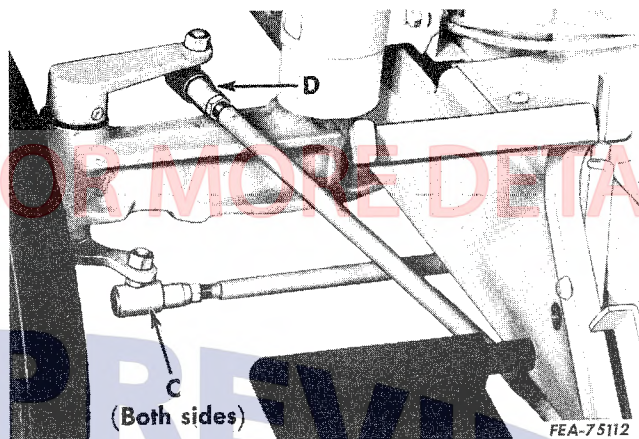
12. Replace the steering assembly in the tractor chassis. Secure with two cap-screws through the frame cross member.

13. Connect the drag link.

14. Install the upper column bearing, retainer, felt seal and retainer.

15. Replace the steering wheel and secure with nut.

16. Adjust the drag link "D" (Illust. 8) to proper length to place front wheels in the straight ahead position when the steering assembly is "centered."



Illust. 8. Steering tie rod and drag link ball joints.

17. Adjust tie rods "C" (Illust. 8) to provide 1/32" to 1/8" toe-in.

FRONT WHEELS AND BEARINGS

Removal

1. Lock the brake and block the rear wheels. Jack up the front axle.

2. Remove the capscrew and flat washer from the outer end of the front spindle.

3. Slide the wheel and bearings from the spindle.

NOTE: The bearings are a press fit in the wheel and a slip fit on the spindle.

Disassembly

1. Wheel bearings can be driven from the wheel hub with a hammer and long drift punch. Drive from the inside toward the outside.

Inspection and Repair

1. Inspect the entire wheel and hub for weld separation, split hub tube and rim bending.

2. Bearings should be inspected for wear, seizure and seal condition.

Reassembly

1. If the bearings were removed, press in new ones. Be sure force is directed to the outer race only when being pressed in.

NOTE: These wheels may be used on older model cub cadet tractors by pressing in service bushings instead of ball bearings.

Installation

1. Slide the wheel and bearing assembly over the spindle and secure with capscrew and flat washer.

2. If excessive end play exists, place a sufficient thickness of shim washers (3/4" ID) over the outer end of the spindle and between the retaining washer and wheel bearing.