



Blue
Ribbon
Service

Service

Manual

INTERNATIONAL®
Cadet® Lawn Tractors
Models 76, 80, 81, 111,
182, 282 and 382

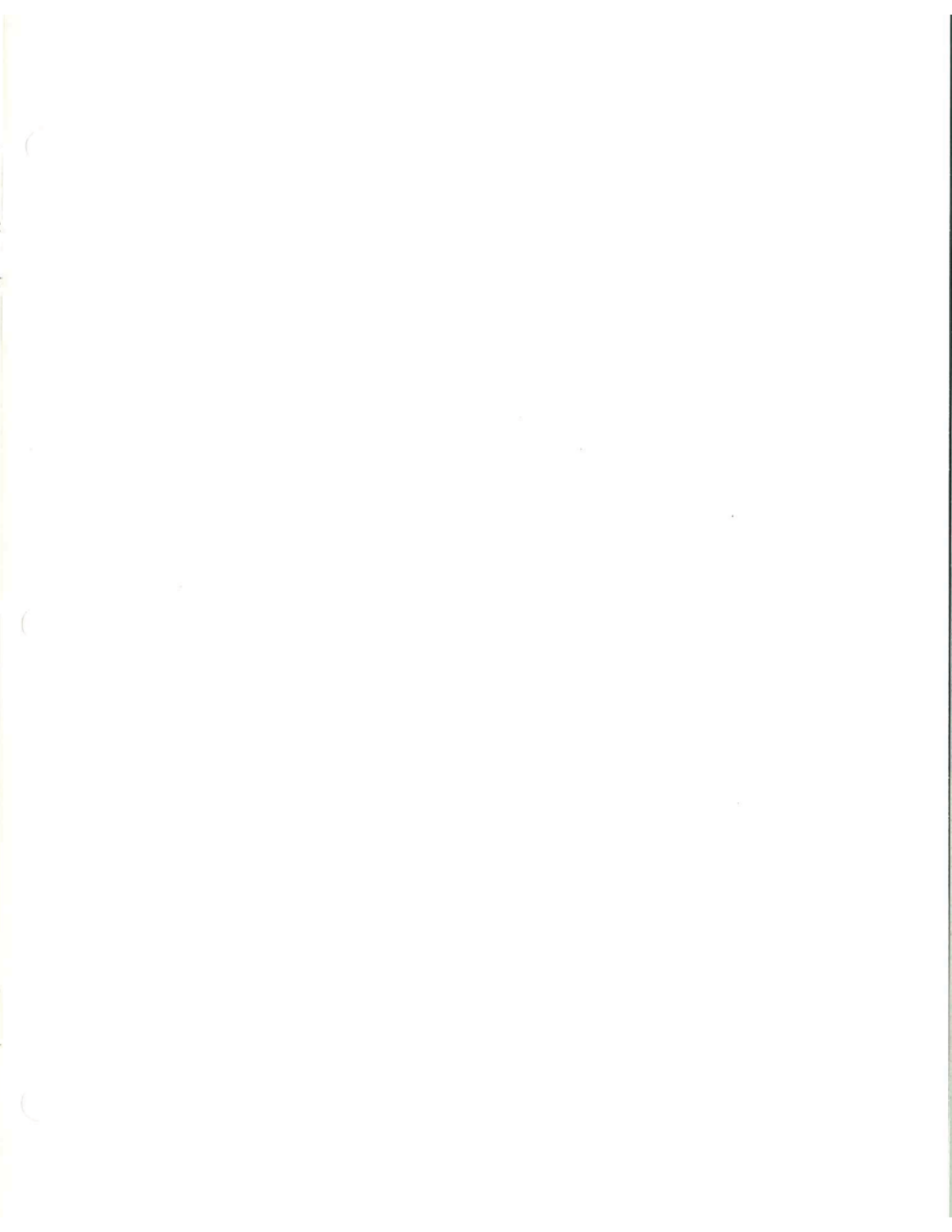
GSS-1436-A
March, 1984

INTERNATIONAL HARVESTER

NORTH AMERICA OPERATIONS

AGRICULTURAL EQUIPMENT GROUP

401 NORTH MICHIGAN AVENUE • CHICAGO, ILLINOIS, 60611, U.S.A.



Due to a continuous program of research and development, some procedures, specifications and parts may be altered in a constant effort to improve our products.

When changes and improvements are made in our products, periodic revisions may be made to this manual to keep it up-to-date. It is suggested that customers contact their dealer for information on the latest revision.

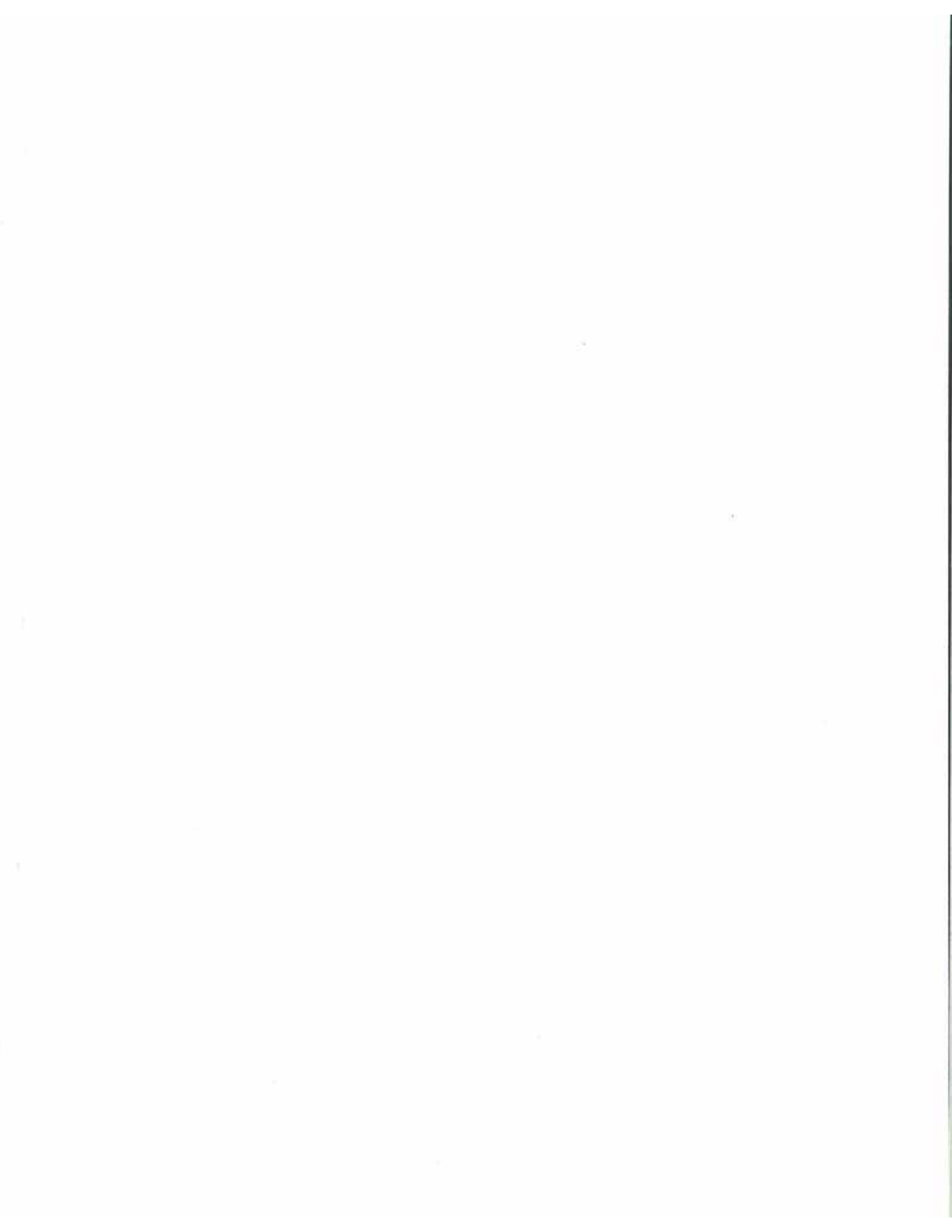
NOTE: Some illustrations in this manual show equipment not currently available. The illustrations are used primarily to cover serviceability and may not always represent production equipment.

**INTERNATIONAL®
Cadet® Lawn Tractors
Models 76, 80, 81, 111,
182, 282 and 382**

**GSS-1436-A
March, 1984**

NOTE: Refer to the following service manual for service information not contained in this manual:

GSS-1441-2 w/Rev. 1 Engine, Fuel and Electrical System
(Briggs and Stratton)



Complete Revision GSS-1436-A

**GSS-1436-A
Cadet® Lawn Tractors
Models 76, 80, 81, 111,
182, 282 and 382**



GSS-1436-A replaces entire GSS-1436 w/Revision 4



This Manual Covers Models 76, 80, 81, 111,
182, 282 and 382

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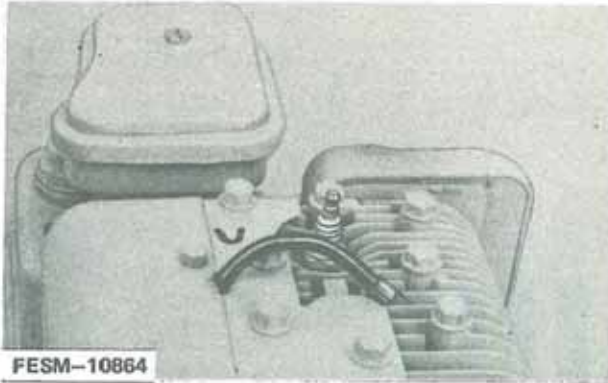
Section
3

MOWER

WORK SAFELY – FOLLOW THESE RULES



This symbol is used to call your attention to instructions concerning your personal safety. Be sure to observe and follow these instructions.



1. To prevent accidental starting, always pull the high tension wire(s) off of the spark plug(s) before servicing and/or adjusting the machine.

2. To prevent injury, do not allow children or by-standers around the machine while it is being adjusted and/or serviced.

3. Do not wear rings, wrist watches or loose fitting clothing when working on machinery, they could catch on moving parts causing serious injury. Wear sturdy, rough-soled work shoes. Never adjust and/or service a machine in bare feet, sandals or sneakers.



4. Always wear safety glasses when using a hammer, chisel or other tools that may cause chips to fly.

5. Be sure to reinstall safety devices, guards or shields after adjusting and/or servicing the machine.

6. When operating a power washer to clean a machine before servicing, be careful at all times to avoid injury. Maintain proper footing and balance at all times. Never direct the spray at people or animals, as high pressure spray can cause serious injury.

7. If a portable heater is used to heat the service area the following precautions must be observed:

- (a) Do not use portable heaters in presence of volatile materials such as gasoline or paint, as fire or explosion may result.
- (b) To avoid being burned, do not touch the heater during operation.
- (c) Portable heaters consume oxygen and combustion fumes can be hazardous. Heater should be used only in a well ventilated area. Keep a window or door partially open to provide ventilation.
- (d) Keep the heater at least four (4) feet from combustible materials.
- (e) Never use gasoline as fuel.



8. Handle gasoline with care - it is highly flammable:

- (a) Use approved gasoline container.
- (b) Never remove the fuel tank cap or fill the fuel tank when the engine is running, is hot, or indoors. Also, do not smoke when working around flammable fuel.

(c) Avoid fires — be sure container or funnel does not touch the battery. Do not overfill the fuel tank. Wipe up spilled gasoline.

(d) Replace fuel tank cap securely.

9. Never use trouble lights or electric powered tools that have cut and/or damaged cords or plugs. Be sure all electric tools are properly grounded.

10. Never run an engine in a confined area such as a garage or storage building any longer than is necessary for immediate moving of the machine out of or into the area. **EXHAUST GASES ARE TOXIC. OPENING DOORS AND WINDOWS MAY NOT PROVIDE ADEQUATE VENTILATION.**

11. After servicing, be sure all tools, parts, or servicing equipment are removed from the machine.

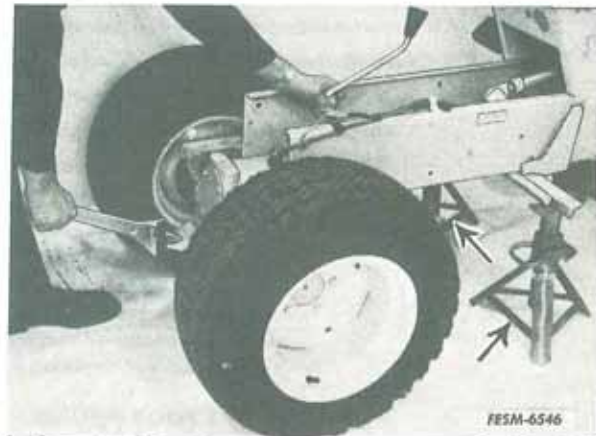
12. Electrical storage batteries give off highly inflammable hydrogen gas when charging and continue to do so for some time after receiving a steady charge. Do not under any circumstances allow an electric spark or an open flame near the battery. Always disconnect a battery cable before working on the electrical system.

13. Hydraulic fluid escaping under pressure can have enough force to penetrate the skin. Hydraulic fluid may also infect a minor cut or opening in the skin. If injured by escaping fluid, see a doctor at once. Serious infection or reaction can result if medical treatment is not given immediately.

Do not attempt to repair or tighten hoses that are under pressure, when the boom is raised, or with the tractor engine running. Cycle all hydraulic control valves to relieve all pressure before disconnecting the lines or performing other work on the hydraulic system. Make sure all connections are tight and hoses and lines are in good condition before applying pressure to the system. To locate a leak under pressure, use a small piece of cardboard or wood. Never use hands.

14. When using an acetylene torch always wear welding goggles and gloves. Keep a "charged" fire extinguisher within reach. Do not weld or heat areas near fuel tanks or fuel lines and utilize proper shielding around hydraulic lines.

15. Always use safety stands in conjunction with hydraulic jacks or hoists. Do not rely on the jack or hoist to carry the load, they could fail. Always use a safety bar to block hydraulic cylinders.



16. When splitting tractors, or disassembling machines, be sure to use safety stands and adequate supports to prevent tipping or roll-over.



17. Use a safety catch on all hoist hooks. Do not take a chance, the load could slip off of the hook.

18. Use pullers to remove bearings, bushings, gears, cylinder sleeves, etc. when applicable. Use hammers, punches and chisels only when absolutely necessary. Then, be sure to wear safety glasses.

19. Be careful when using compressed air to dry parts. Use approved air blow guns, do not exceed 30 psi, wear safety glasses or goggles and use proper shielding to protect everyone in the work area.

IMPORTANT: The above is only a partial list of safe work rules. In addition, always refer to the Operator's Manual for the specific machine for additional safe work rules regarding the machine operation.

STANDARD TORQUE DATA FOR INCH NUTS AND BOLTS — FOOT POUNDS

Recommended torque for all Standard Unplated Nuts and Bolts, provided:

- A. Surface finish is oxide coated, oil quenched or bright.
- B. All thread surfaces are clean and lubricated with SAE-30 engine oil or equivalent (See NOTE.)
- C. Joints are rigid, that is, no gaskets or compressible materials are used.
- D. When reusing nuts or bolts use minimum torque values.







NOTE: Multiply the standard torque by:
 .65 when finished jam nuts are used.
 .70 when Molykote, white lead or similar mixtures are used as lubricants.
 .75 when phosphate coated and oiled bolts or nuts are used.
 .85 when cadmium or zinc dichromate bolts or nuts are used.
 .90 when hardened surfaces are used under the nut or bolt head (this applies to standard unplated hardware only).

1 FOOT POUND = 1.355 NEWTON METERS

Bolt or Stud Diameter	Type 1 Studs Only		Type 1 Bolts 6" length or less		Type 1 Bolts longer than 6"		Type 5 (all lengths)		Type 8 (all lengths)			
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Only when used † in cast (gray) iron		All other applications	
Inches									Min.	Max.	Min.	Max.
1/4	5	6	6	7	4	4	9	10	11	13	13	14
5/16	12	13	11	13	7	8	18	20	22	25	25	28
3/8	21	24	21	24	13	14	33	37	41	46	45	50
7/16	35	38	35	38	20	23	53	60	65	74	75	85
1/2	52	58	52	59	31	35	80	90	100	112	115	130
9/16	70	80	75	85	45	51	115	130	145	160	165	185
5/8	98	110	104	117	62	70	160	180	200	225	225	255
3/4	174	195	185	205	110	125	285	320	355	400	400	450
7/8	280	315	180	200	180	200	460	575	570	640	645	725
1	420	470	265	300	265	300	685	720	855	960	970	1090
1-1/8	595	670	380	425	380	425	850	950	1210	1360	1375	1545
1-1/4	840	945	535	600	535	600	1200	1350	1705	1920	1940	2180
1-3/8	1100	1240	700	785	700	785	1570	1760	2235	2515	2540	2860
1-1/2	1470	1640	925	1045	925	1045	2080	2340	2970	3340	3375	3795

†When bolt penetration is 1-1/2 times the diameter of the bolt.

BOLT TYPE IDENTIFICATION CHART

IH TYPE	S.A.E. GRADE	DESCRIPTION	BOLT HEAD MARKING*
1	1 or 2 <small>EQUIVALENT</small>	WILL HAVE A  STANDARD MONOGRAM IN THE CENTER OF THE HEAD Low or Medium Carbon Steel Not Heat Treated	
5	5	WILL HAVE A  AND 3 RADIAL LINES Quenched and Tempered Medium Carbon Steel	
8	8	WILL HAVE A  AND 6 RADIAL LINES Quenched and Tempered Special Carbon or Alloy Steel	

*The center marking identifies the bolt manufacturer.

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- C. Joints are rigid, that is, no gaskets or compressible materials are used.
- D. When reusing nuts or bolts use minimum torque values.







NOTE: Multiply the standard torque by:
 .65 when finished jam nuts are used.
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 .75 when phosphate coated or oiled bolts or nuts are used.
 .85 when cadmium or zinc dichromate bolts or nuts are used.
 .90 when hardened surfaces are used under the nut or bolt head (this applies to standard unplated hardware only).

1 NEWTON METER = 0.738 FOOT POUND

Bolt or Stud Diameter	Type 1 Studs Only		Type 1 Bolts 6" length or less		Type 1 Bolts longer than 6"		Type 5 (all lengths)		Type 8 (all lengths)			
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Only when used † in cast (gray) iron		All other applications	
Inches									Min.	Max.	Min.	Max.
1/4	7	8	8	9	5	5	12	14	15	18	18	19
5/16	16	18	15	18	9	11	24	27	30	34	34	38
3/8	28	33	28	33	18	19	45	50	56	62	61	68
7/16	47	52	47	52	27	31	72	81	88	100	102	115
1/2	71	79	71	80	42	47	109	122	136	152	156	176
9/16	95	109	102	115	61	69	156	176	197	217	224	251
5/8	133	149	141	159	84	95	217	244	271	305	305	346
3/4	236	265	251	278	149	170	387	434	482	543	543	611
7/8	380	427	244	271	244	271	624	780	773	868	875	984
1	570	638	360	407	360	407	929	977	1160	1303	1316	1479
1-1/8	807	909	516	577	516	577	1153	1289	1642	1845	1866	2096
1-1/4	1140	1282	726	814	726	814	1628	1832	2313	2605	2632	2958
1-3/8	1492	1682	950	1065	950	1065	2130	2388	3033	3412	3446	3881
1-1/2	1995	2225	1255	1418	1255	1418	2822	3175	4030	4532	4579	5149

†When bolt penetration is 1-1/2 times the diameter of the bolt.

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*The center marking identifies the bolt manufacturer.

Revised March 1984

Section 1

ENGINE

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SPECIAL TORQUES

Engine isomounts

Horizontal (1/4 inch)	5-6 ft. lb.
Vertical (5/16 inch)	12-13 ft. lb.

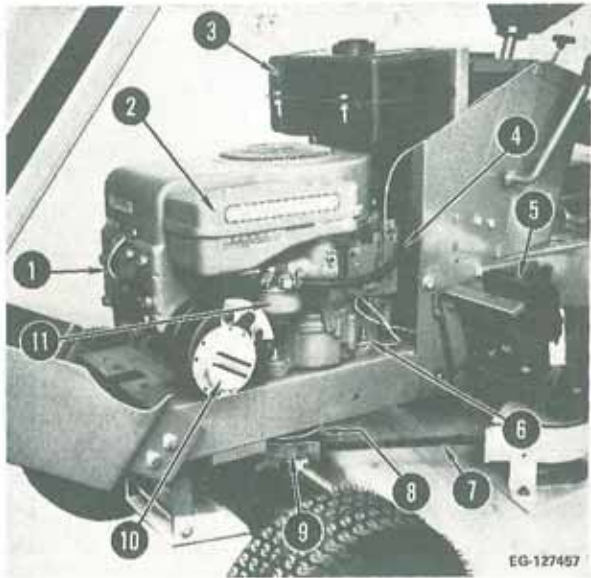
ENGINE RPM, MOWER DRIVE PULLEY AND BELT COMBINATION CHART

Model	S/N Range	Engine High Idle RPM No Load	Drive Belt Length	Drive Pulley Diameter
76	7501 to 14927	3800 ± 100		
Spt. 76, 76 & 80	14928 to 32114	3600 ± 100	1740 mm (68½ in.)	131 mm (5¼ in.)
80 & 81	32115 to 41200	3200 ± 100	1727 mm (68 in.)	117 mm (4-5/8 in.)
80, 81 & 111	41201 & up	3400 ± 100	1740 mm (68½ in.)	131 mm (5¼ in.)
182, 282 & 382	All	3400 ± 100	1740 mm (68½ in.)	131 mm (5¼ in.)

NOTE: Refer to Service Bulletin S-3880 dated July 31, 1979 for belt pulley, belt and belt guide part numbers.

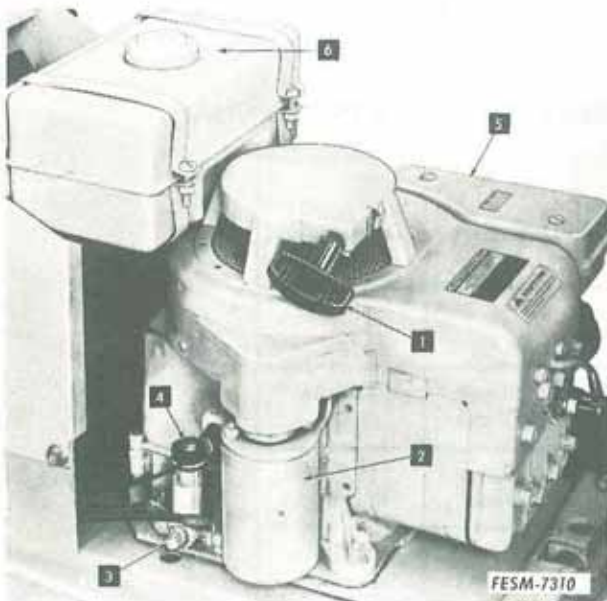
ENGINE

Removal



1. Disconnect the battery ground wire from the battery.
2. Disconnect the spark plug wire.
3. Shut off the fuel and disconnect the fuel line from the carburetor.

1. High tension wire
2. Air cleaner
3. Fuel tank
4. Fuel line
5. Clutch and brake pedal
6. Engine mounting hardware
7. Mower drive belt
8. Pulley
9. Belt guide
10. Muffler
11. Carburetor



4. Remove the fuel tank.
5. Disconnect the electric starter, charging ignition and control module leads from the engine.

1. Recoil starter
2. Electric starter
3. Oil drain plug
4. Oil gauge and filler tube
5. Air cleaner
6. Fuel tank

6. Disconnect the throttle cable.
7. Raise the spring loaded belt guide and remove the mower drive belt from the engine pulley.

8. Work the main drive belt free of the engine pulley and out of the idler pulley.

9. Remove the engine mounting bolts. Work the engine out of the chassis and main drive belt.

NOTE: Tractors serial no. 32115 and above will have either an 8 HP or 11 HP Briggs and Stratton syncro balanced engine which will be mounted directly to the frame, eliminating the isomounts.

NOTE: For specifications and overhaul procedures, refer to Service Manual GSS-1441-2 w/Rev. 1.

Installation

1. Install the engine by reversing the removal procedure.
2. Adjust the following as necessary:
 - Governor linkage
 - Carburetor

ELECTRICAL SYSTEM

Safety Starting Circuit

General Information

This safety starting circuit consists of a neutral starting switch, control module (Model 76 Recoil Start and Model 76 Recoil and Electric Start only) and an ignition switch. To start the engine the clutch must be disengaged, the mower drive control in the disengaged position and the ignition switch in the on position.

No Mower-In-Reverse Switch

Beginning with serial no. 76667, all models, an additional switch is incorporated in the safety starting circuit which grounds the ignition circuit if the unit is shifted into reverse with the mower engaged.

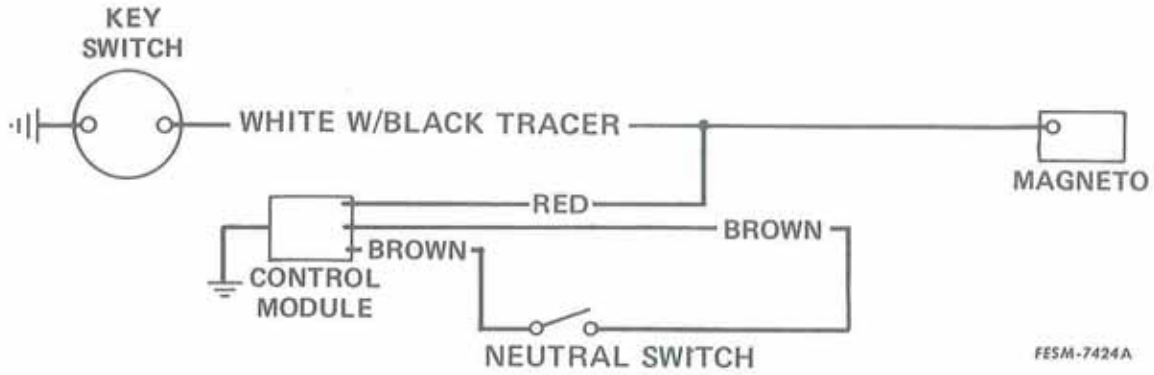
Seat Safety Switch

Beginning with serial no. 73929, all models, an additional switch is incorporated in the safety starting circuit which grounds the ignition circuit if the operator is not in the seat.

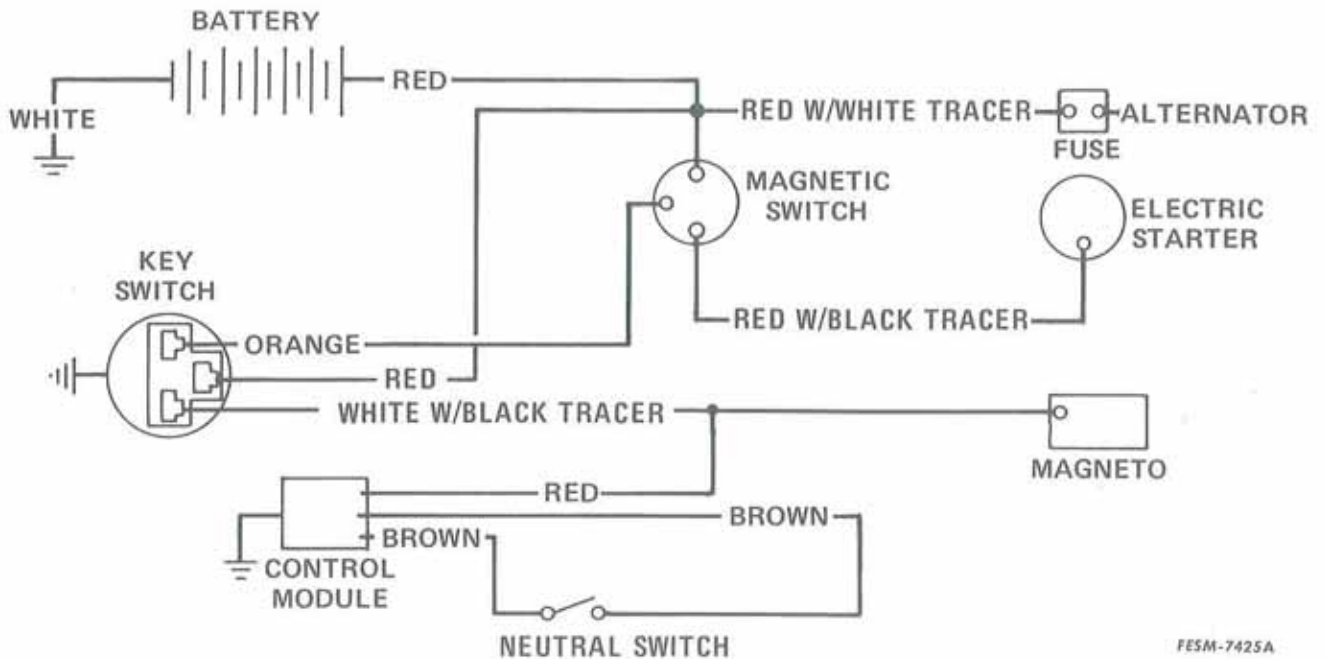
Solenoid and Switches

If a solenoid, key start switch or safety starting switches malfunctions, replacement will be necessary.

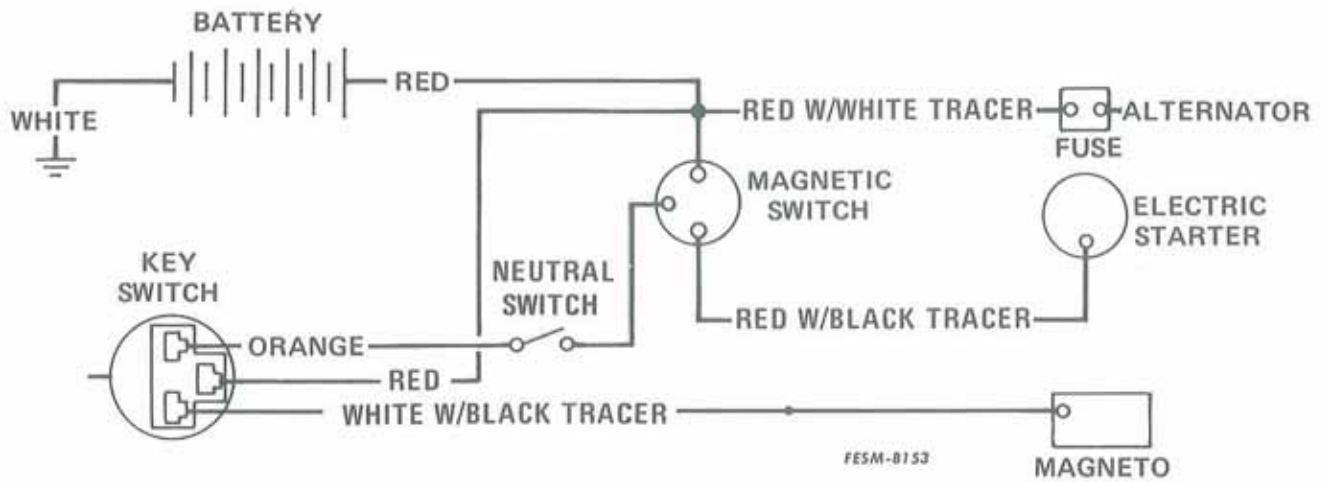
Electrical Wiring Diagrams



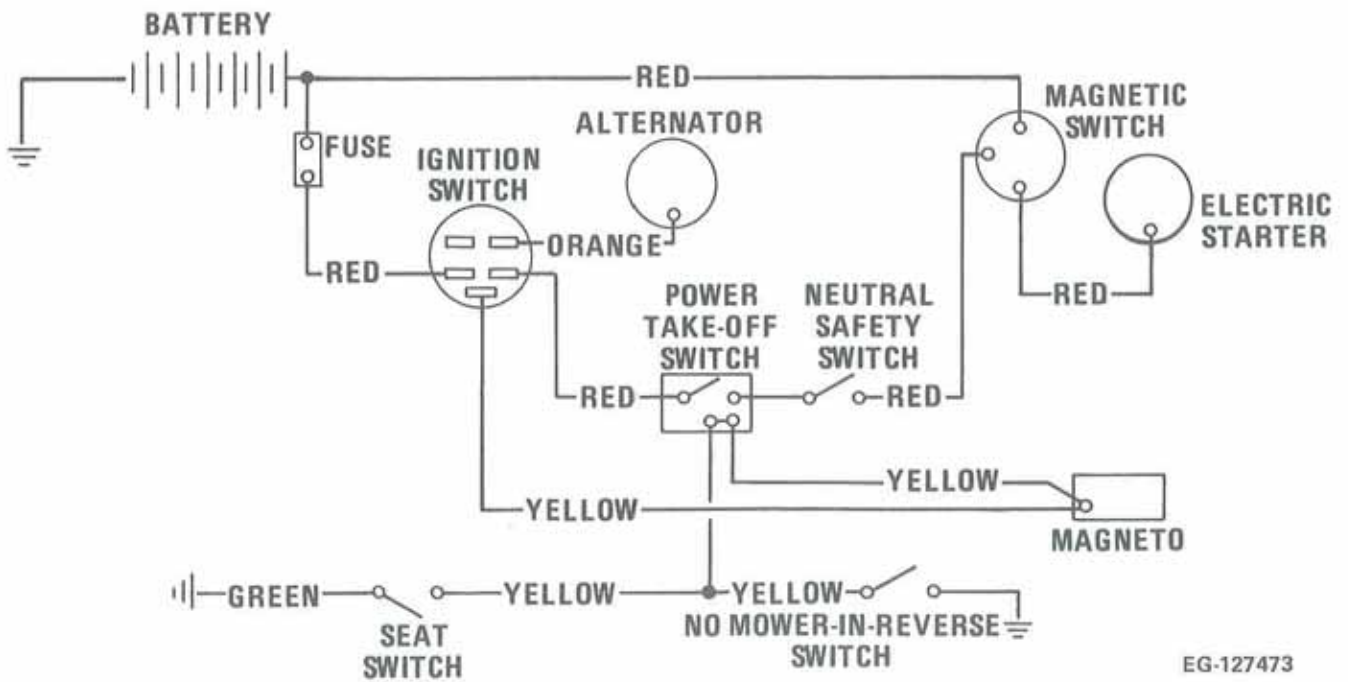
Model 76 with recoil start only.



Model 76 (equipped with both recoil and electric start).



Models 76, 80, 81, 111, 182, 282 and 382 with electric start only.

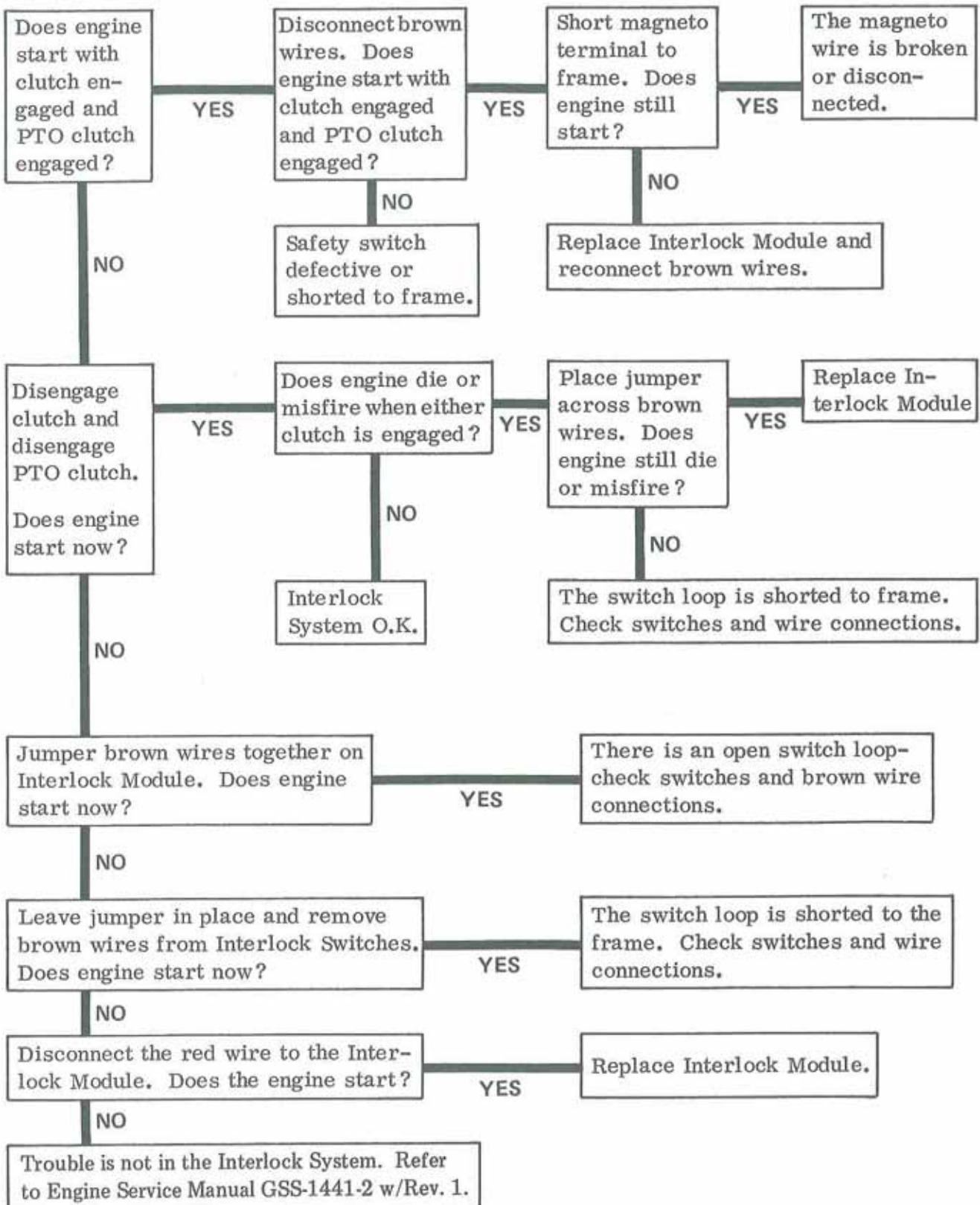


Models 182, 282 and 382 with seat switch (Serial #73929 and up, all models) and "No Mower-In-Reverse" switch (Serial #76667 and up, all models).

Testing the Circuit (Model 76 Recoil Start and Model 76 Recoil and Electric Start Only)



CAUTION: The following tests should be performed with care. At times the Interlock System may be by-passed. Be sure that the vehicle transmission is in neutral.



Section 2

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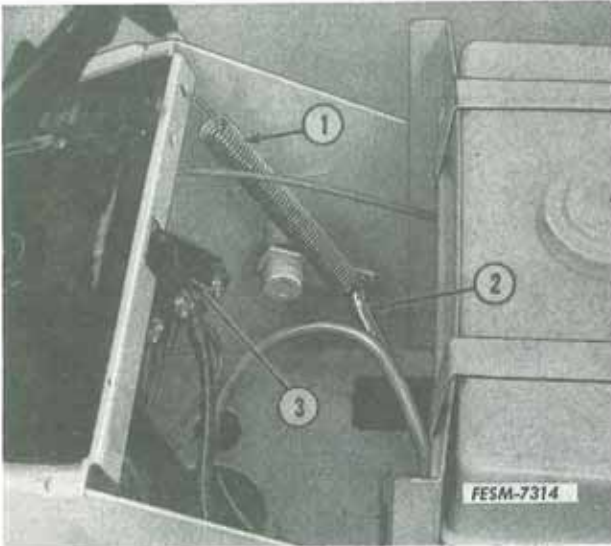
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STEERING ASSEMBLY

Removal and Disassembly

1. Remove the mower. Refer to Section 3.
2. Disconnect and remove the battery.
3. Disconnect the PTO rod and spring.
4. Disconnect the ignition switch.
5. Remove the solenoid mounting bolts. Lay the solenoid down on the frame.



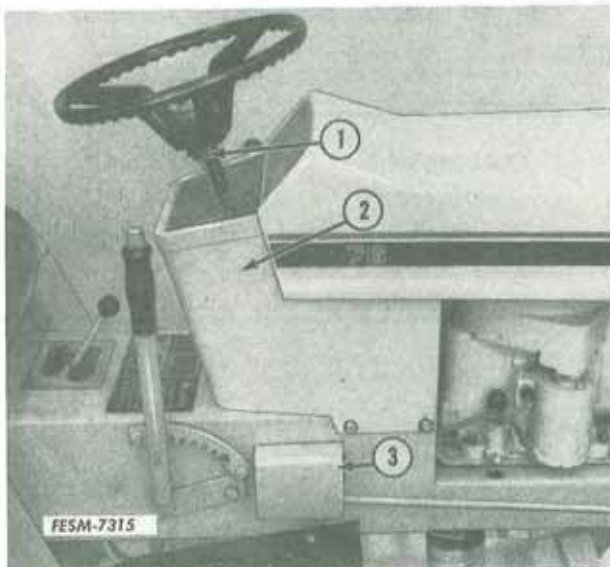
1. PTO spring
2. PTO rod
3. Solenoid

6. Disconnect the throttle cable from the carburetor.
7. Shut off the fuel and disconnect the line at the carburetor.

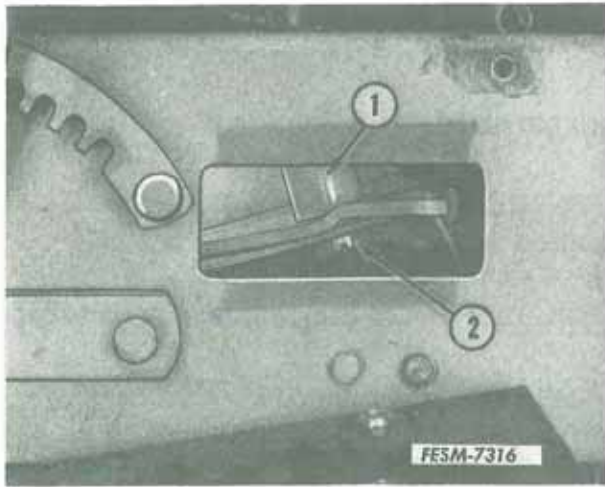
8. Remove the steering arm cover. Disconnect the drag link.

9. Drive out the roll pin and lift off the steering wheel.

10. Remove the steering column tower.



1. Roll pin
2. Steering column tower
3. Steering arm cover

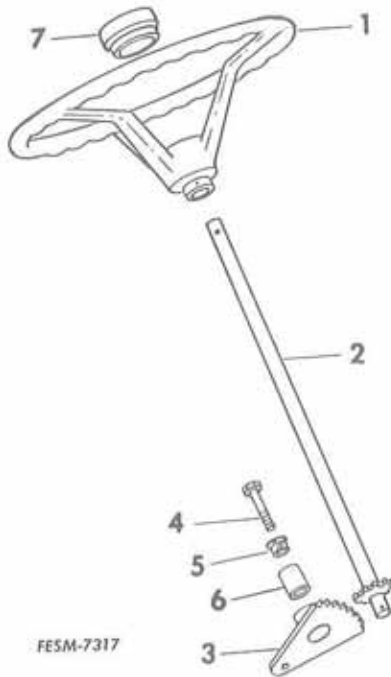


11. Remove the cotter key and washer from the steering shaft. Lift out the shaft.

12. Remove the pivot bolt from the steering gear assembly. Slide the steering gear rearward and out of the frame.

- | |
|------------------|
| 1. Steering gear |
| 2. Pivot bolt |

Inspection and Repair



1. Wash all parts in clean solvent and dry thoroughly.

2. Inspect the nylon bearing and bushings for wear or damage. Replace as necessary.

NOTE: See page 2-5 for steering shaft bushing replacement procedure.

3. Check for broken teeth, bent shafts and stripped threads. Replace the damaged parts.

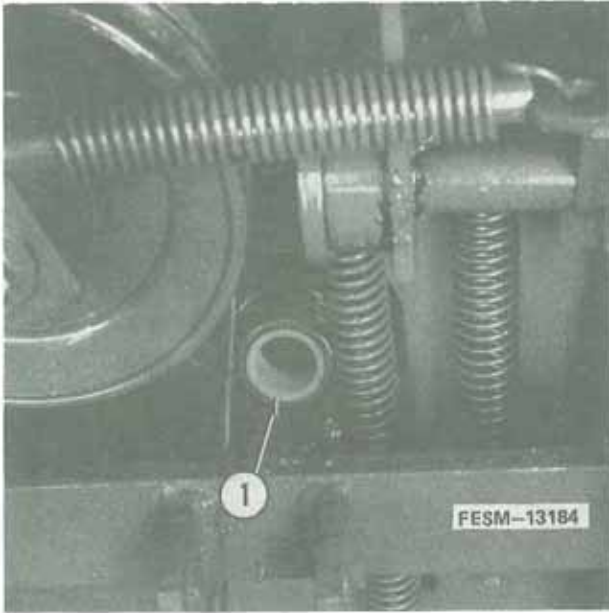
- | | |
|-------------------|---------------------------|
| 1. Steering wheel | 5. Bearing, steering gear |
| 2. Steering shaft | 6. Bushing, drag link |
| 3. Steering gear | 7. Cap |
| 4. Bolt | |

Reassembly and Installation

1. Reassemble and install by reversing the removal and disassembly procedure. Apply

IH 251 HEP grease or equivalent liberally to the gear assembly, bearings and shaft.

Steering Shaft Bushing Replacement



1. Steering shaft bushing (viewed from under tractor)

1. Remove the cotter pin and washer at the end of the steering shaft and pull the steering shaft out of the bushing.

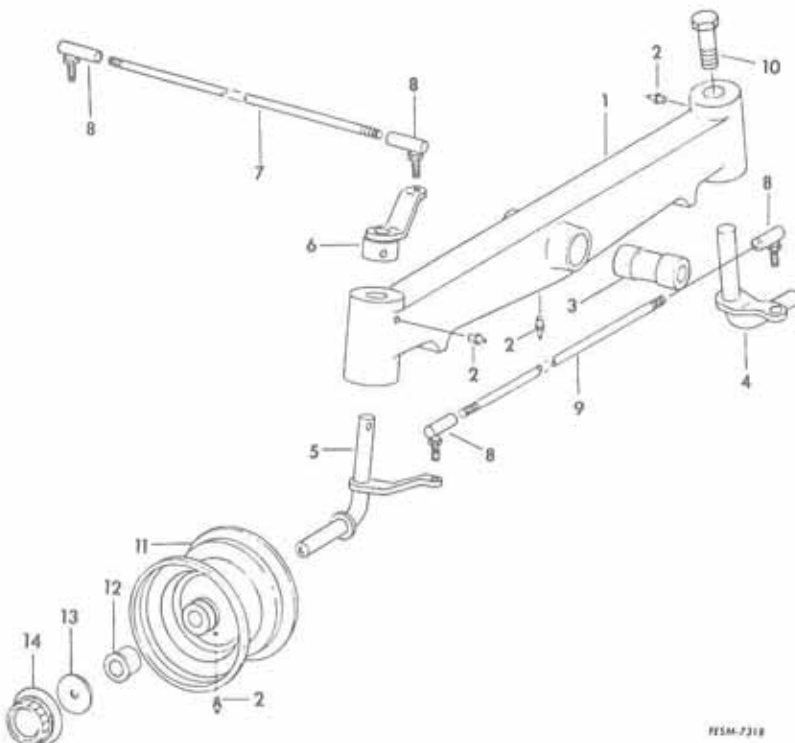
2. Working under the tractor, turn the bushing 90° to the bushing socket. Break the bushing with a chisel.

3. Heat the service bushing in boiling water for five (5) minutes to make it flexible.

4. Position the heated bushing 90° to the hole in the socket and drive it into the socket with a wooden or rubber mallet.

5. With the front wheels straight ahead, install the steering shaft. Be sure the gear on the steering shaft is in the center of the steering gear. Install the washer and cotter pin.

FRONT AXLE



1. Axle
2. Lubrication fitting
3. Bushing
4. Left steering knuckle
5. Right steering knuckle
6. Steering arm
7. Drag link
8. Ball joint end
9. Tie rod
10. Bolt
11. Wheel
12. Bushing
13. Washer
14. Hub cap

FESM-7318

Disassembly

1. Lock the brake. Raise the front of the tractor and support with stands under the frame.
2. Pry off the hub caps and remove the wheels.
3. Remove the tie rod.
4. Remove the retaining bolt and left steering knuckle.
5. Disconnect the drag link from the steering arm. Drive out the roll pin and remove the steering arm and right steering knuckle.
6. Remove the pivot bolt and slide the axle out of the frame.

Inspection and Repair

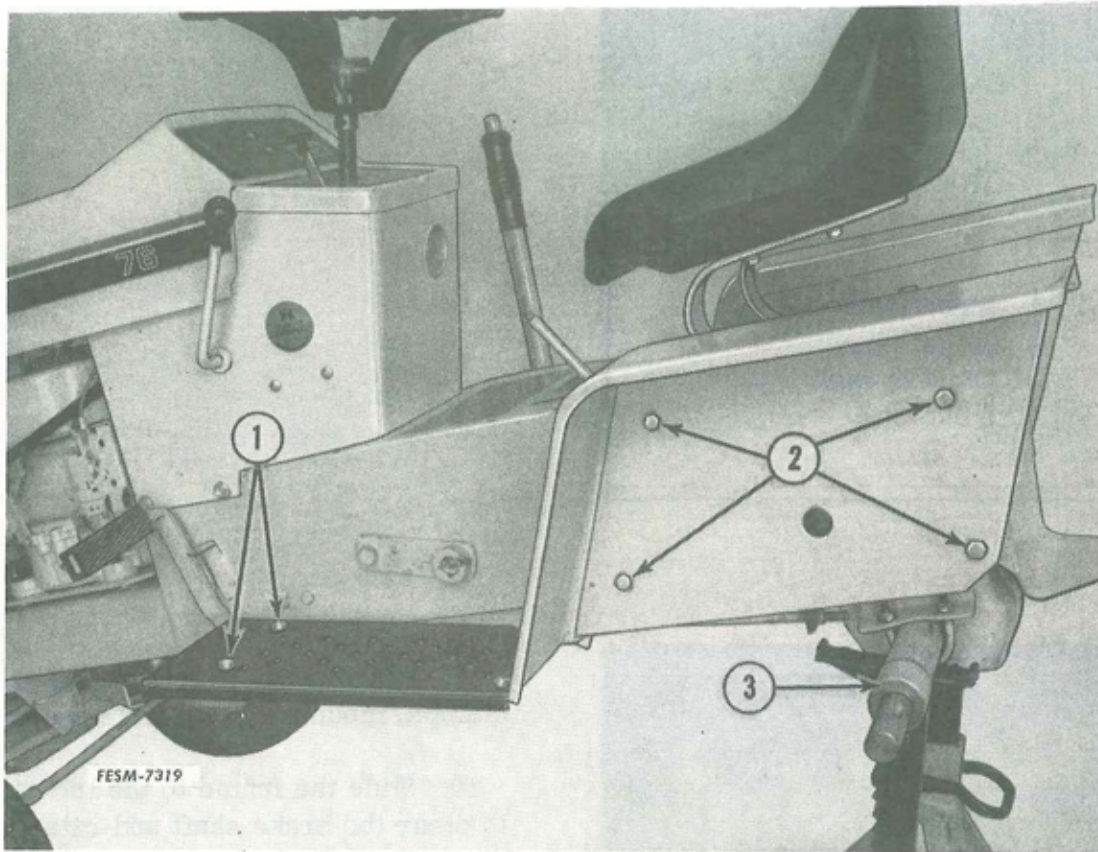
1. Clean all parts thoroughly in clean solvent.
2. Inspect all parts for wear, bending or cracking.
3. The front wheel bushings may be removed with a punch and hammer, if worn excessively. Install the new bushings with a press.

Reassembly

1. Reassemble the axle by reversing the disassembly procedure.
2. Lubricate the axle bushing, spindles and wheels thoroughly with IH 251 HEP or equivalent.
3. Adjust the tie rod so that the front wheels are parallel to each other.

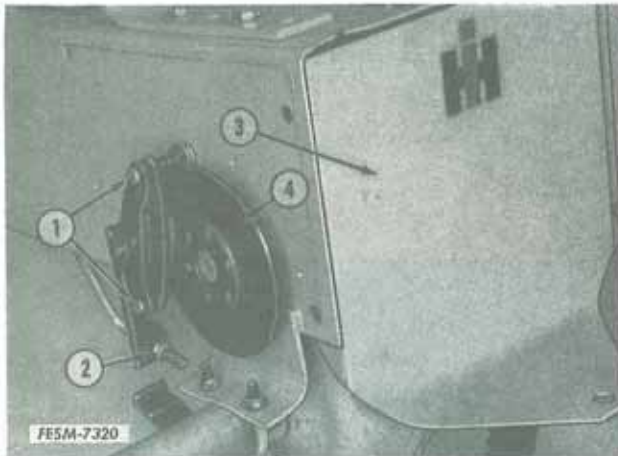
3-SPEED TRANSAXLE

Removal



1. Foot support mounts
2. Fender mounts
3. Spacer

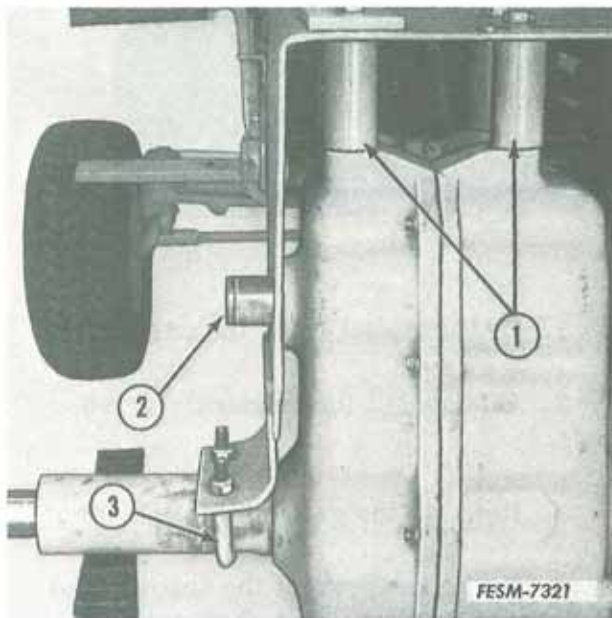
1. Drain the oil from the case.
2. Disconnect the transaxle drive belt.
3. Remove the gear shift knob.
4. Raise the rear of the tractor and support it under the axle housings.
5. Remove the rear wheels, drive keys and spacers.
6. Remove the left fender and foot support.



1. Mounting bolts
2. Adjusting nut
3. Drawbar assembly
4. Brake disc

7. Remove the brake mounting bolts and lay the brake assembly down out of the way. Keep the assembly intact with two nuts on the bolts. Remove the brake disc and key.

8. Remove the drawbar assembly.



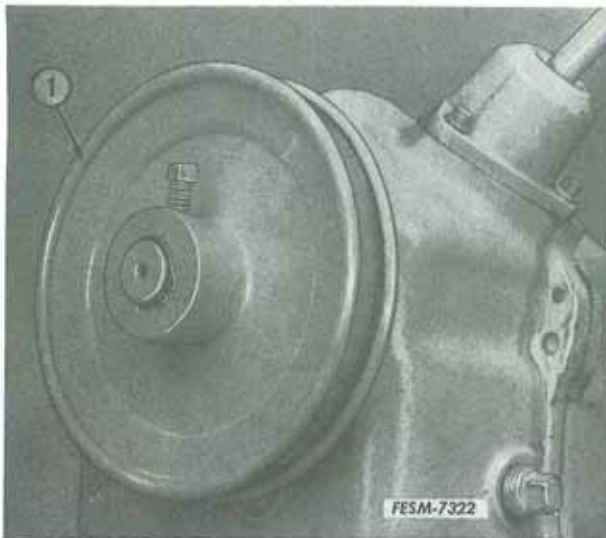
1. Mounting bolts and spacers
2. Brake shaft
3. U-bolt clamps

9. Remove the U-bolt mounting clamps, mounting bolts and spacers.

10. Slide the frame to the left slightly to clear the brake shaft and raise it off the transaxle.

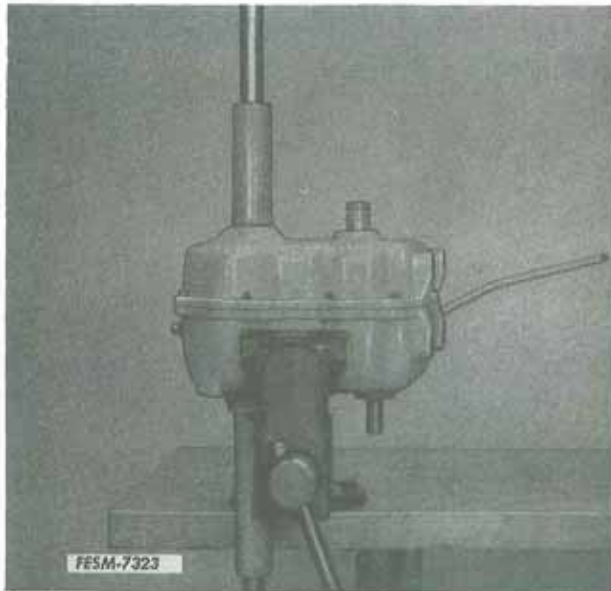
NOTE: The housing will fall forward as the frame is raised.

Disassembly

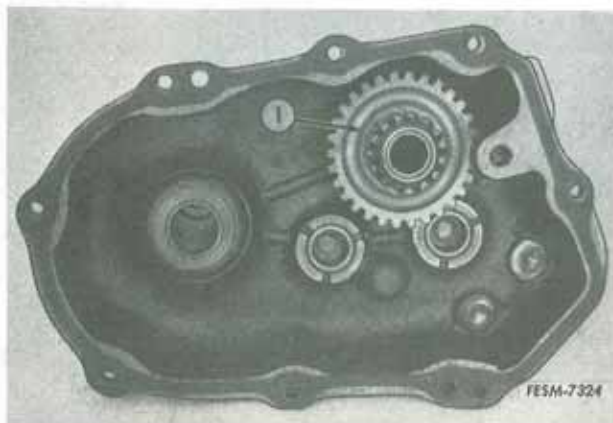


1. Remove the input pulley and key. Place the transmission in neutral.

1. Input pulley

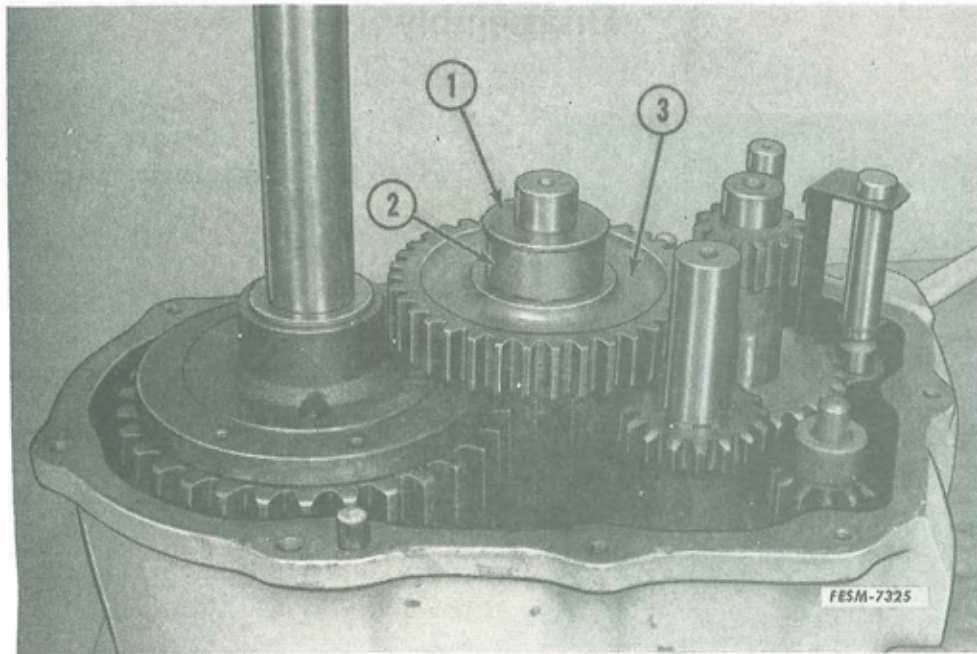


2. Clamp the transaxle (input shaft down) in a vise equipped with brass jaws. Remove the mounting screws.



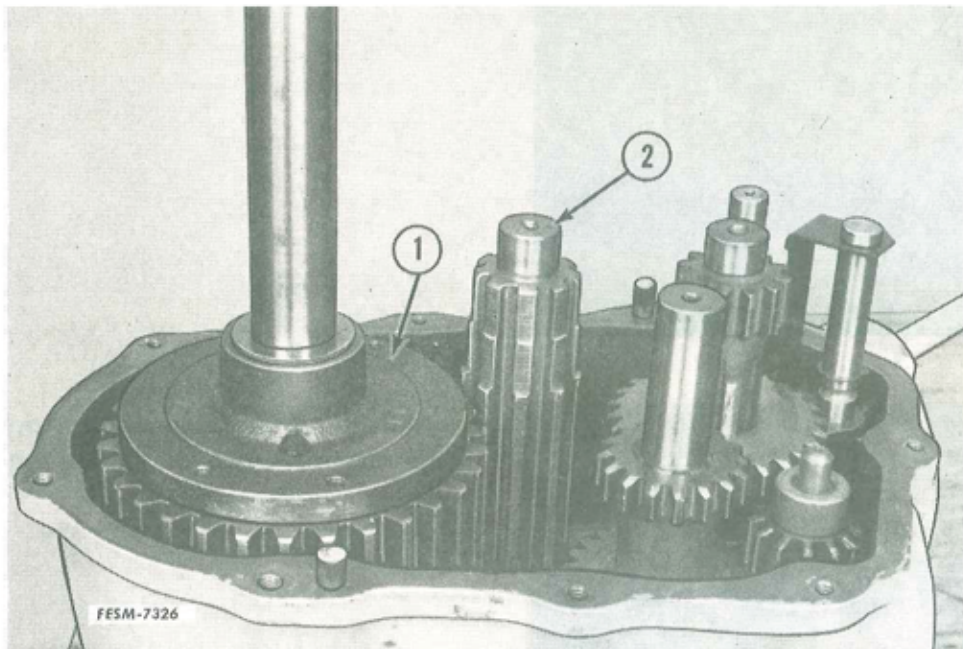
3. Tap the case lightly to free it from the dowels. Lift off the cover and brake shaft together.

1. Brake shaft



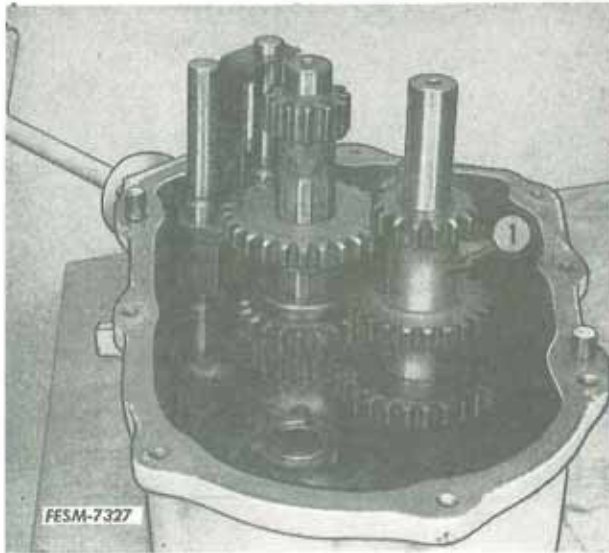
- 1. Thrust washer
- 2. Spacer
- 3. Output gear

4. Remove the output gear, spacer and thrust washer.



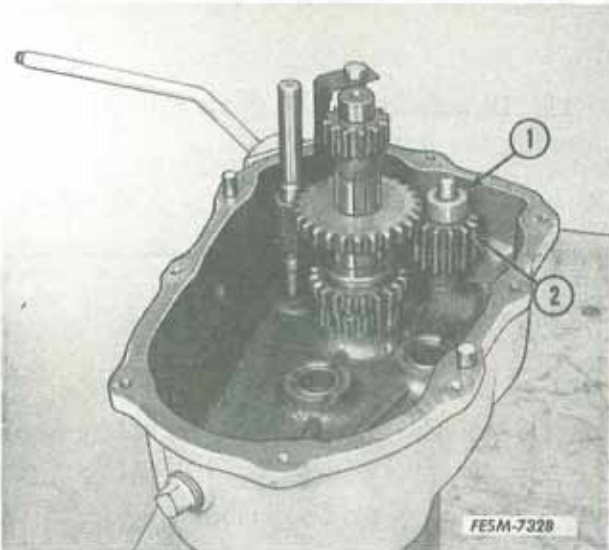
- 1. Differential assembly
- 2. Output shaft

5. Remove the differential assembly and output shaft.



6. Raise the idler shaft slightly to clear the bearing in the housing. Slide the idler shaft assembly to the side and out.

1. Idler shaft assembly



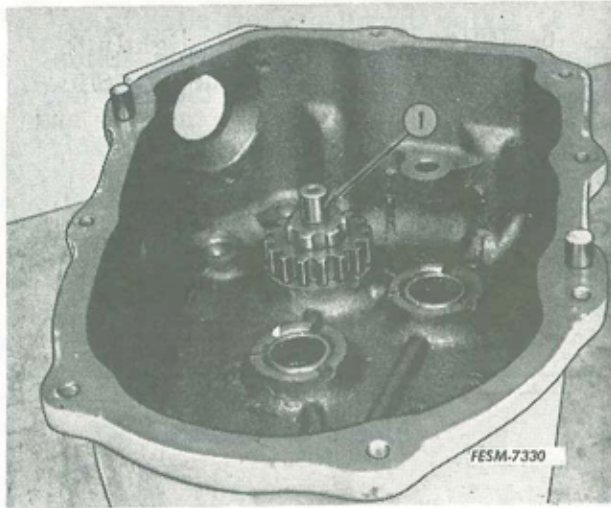
7. Remove the reverse idler, shaft and spacer.

1. Spacer
2. Reverse idler



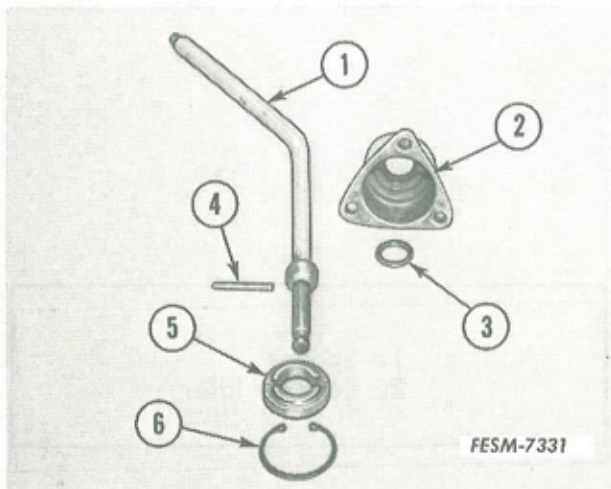
8. Remove the gear shift handle.

9. Squeeze the shift rails together at the top. This causes a binding of the parts allowing easy removal or installation of the shifting assembly.



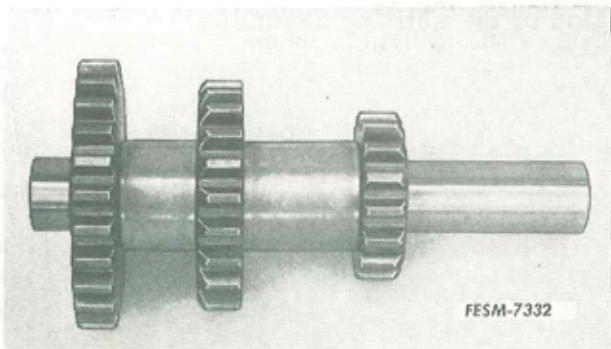
10. Remove the input shaft.

1. Input shaft

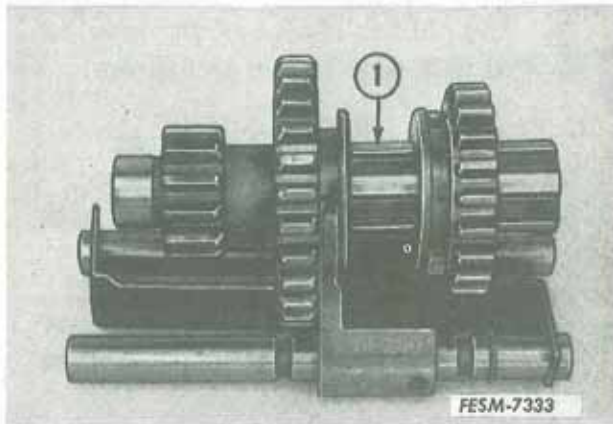


11. Disassemble the gear shift by removing the snap ring.

- 1. Shift lever
- 2. Housing
- 3. Quad ring
- 4. Pin
- 5. Keeper
- 6. Snap ring

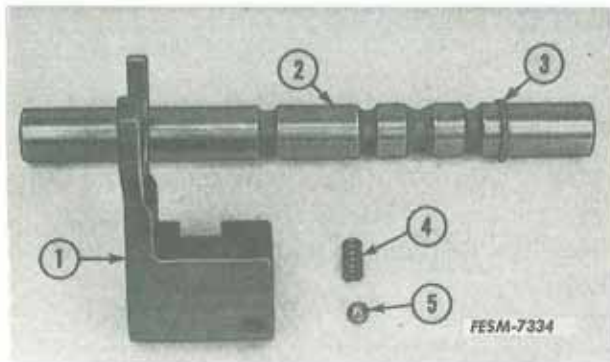


12. Slide the gears and spacers off the idler shaft.



13. Remove the shifter shaft and slide off the gears.

1. Shifter shaft



14. Slide the forks off the rails. Be careful to catch the poppet ball as the fork comes off the rail.

1. Fork
2. Rail
3. Snap ring
4. Spring
5. Ball

Inspection and Repair

1. Clean all parts in clean solvent and dry thoroughly.

2. Examine the teeth and splines of the shifter gears and shaft. The gears should slide freely on the shaft. Excessive wear of the splines will cause cocking of the gears.

3. Examine all the gears for broken teeth, wear or burrs.

4. Examine all the shafts for wear.

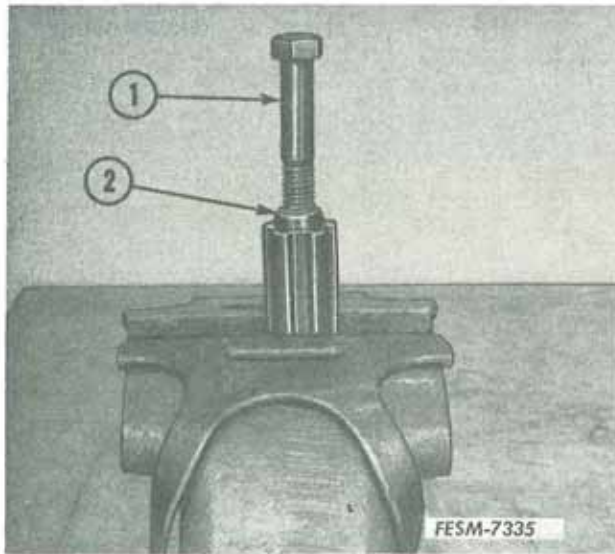
5. Examine the case and axle housings for cracks.

6. Examine the axle housing bushings for scuffing or wear.

7. The axle housings are a press fit in the case. Use a press to remove and install the housing.

8. Examine the bearings for wear, roughness or scoring.

9. The bearings in the case may be removed in a press. Press the new bearings in .015-.020 inch below the inside surface of the case.



- | |
|---------------------------------|
| <p>1. Driver
2. Bearing</p> |
|---------------------------------|

10. The shifter shaft bearing may be removed with a puller or as follows:

a. Clamp the shaft in a vise equipped with brass jaws so that the lower end rests on a block of wood with the bearing up.

b. Prepare some pieces of paper toweling, newspaper, etc. by soaking in water.

c. Tear the paper into pieces and stuff the bearing full.

d. Insert a 7/16 inch metal rod into the bearing and strike it sharply with a hammer. This will compress the wet paper. Continue to add wet paper until the bearing is hydraulically lifted out.

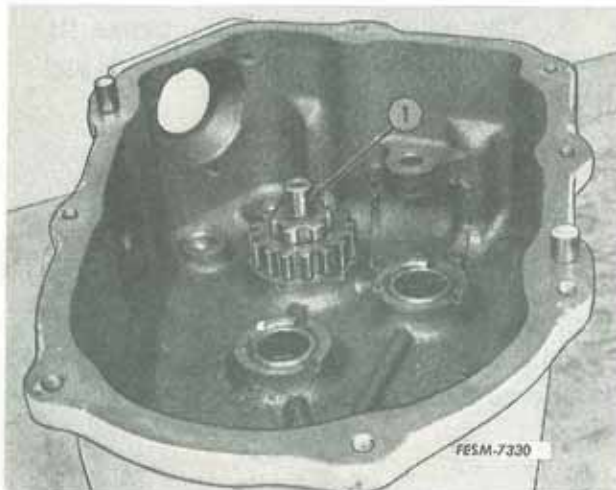
Install the new bearing with a suitable tool .010 inch below the face of the shaft.

11. Examine all the remaining components for serviceability. Replace parts as necessary.

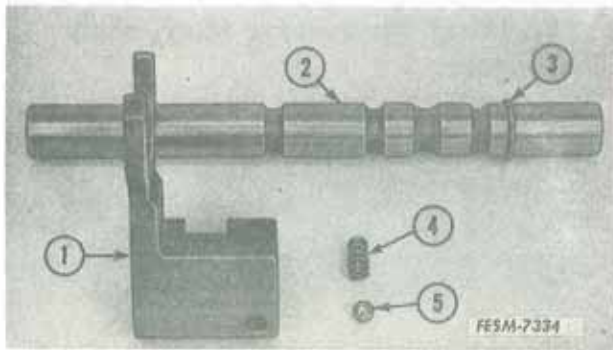
Reassembly

1. Lubricate all components during reassembly to ease installation.

2. Install the input shaft into the case.

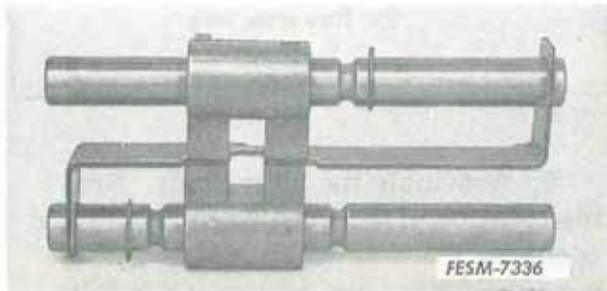


- | |
|-----------------------|
| <p>1. Input shaft</p> |
|-----------------------|

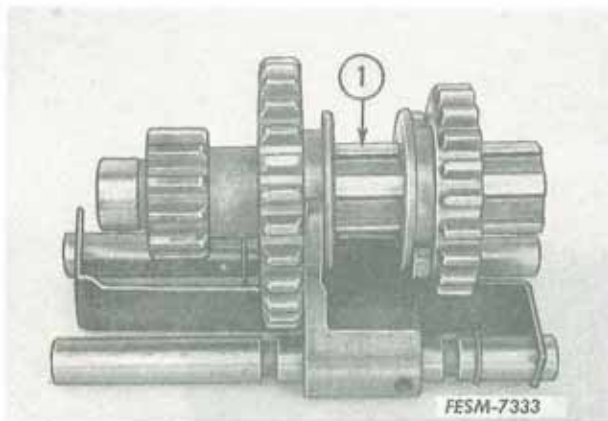


3. Assemble the forks to the shift rails.

1. Fork
2. Rail
3. Snap ring
4. Spring
5. Ball



4. Assemble the shift rails and stop as shown in the illustration. This will position the forks in neutral.

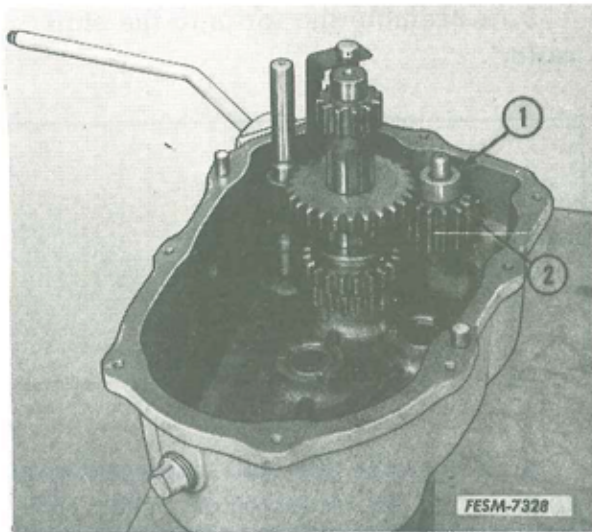


5. Set the shifter shaft and gears in place on the forks.

1. Shifter shaft

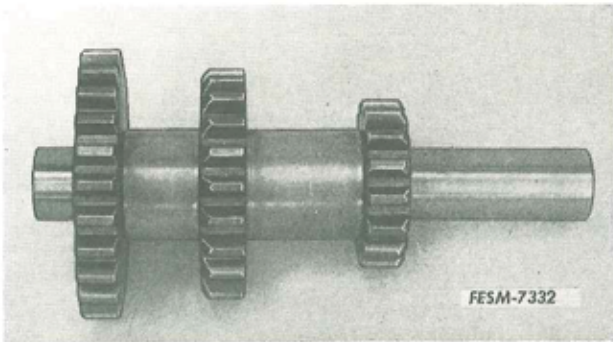


6. Squeeze the shift rails together to bind the parts and install the assembly into the case. Check that the shifter shaft fits properly over the input shaft and the rails are seated in the case. The square formed by the shift forks should be aligned with the gear shift opening.

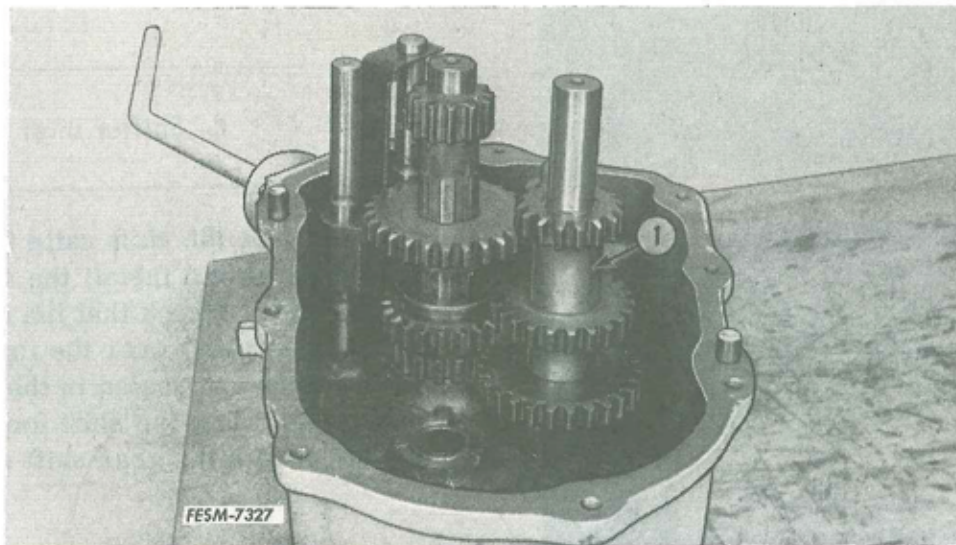


7. Install the reverse idler, shaft and spacer.

- 1. Spacer
- 2. Reverse idler

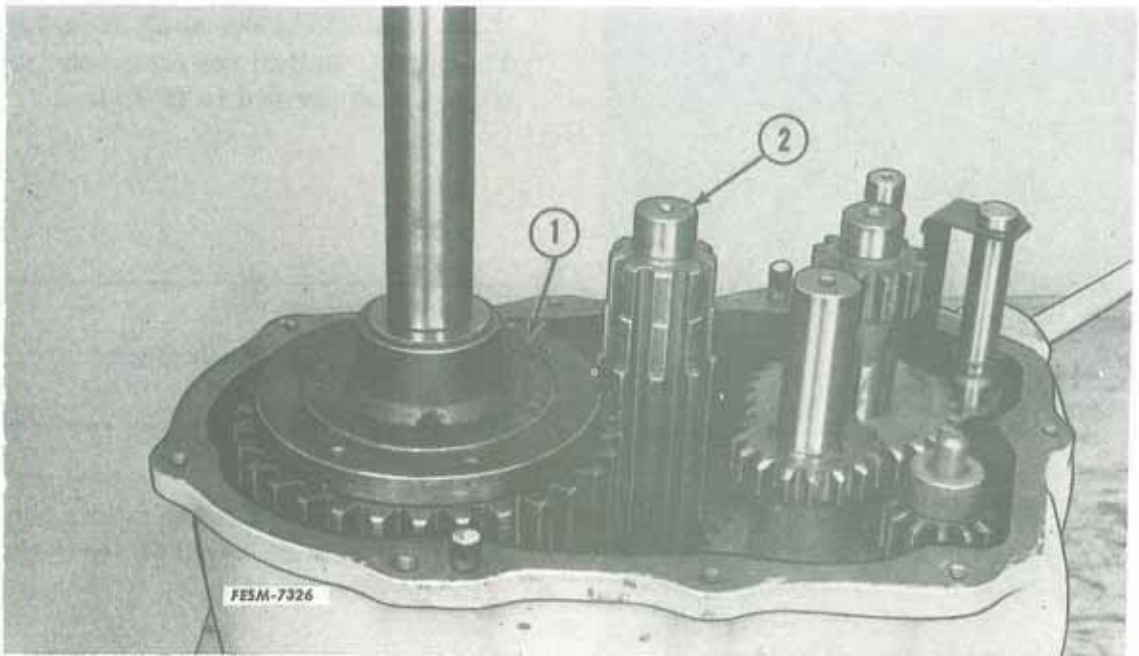


8. Assemble the idler shaft. Note the location of the gear teeth bevels and spacers.



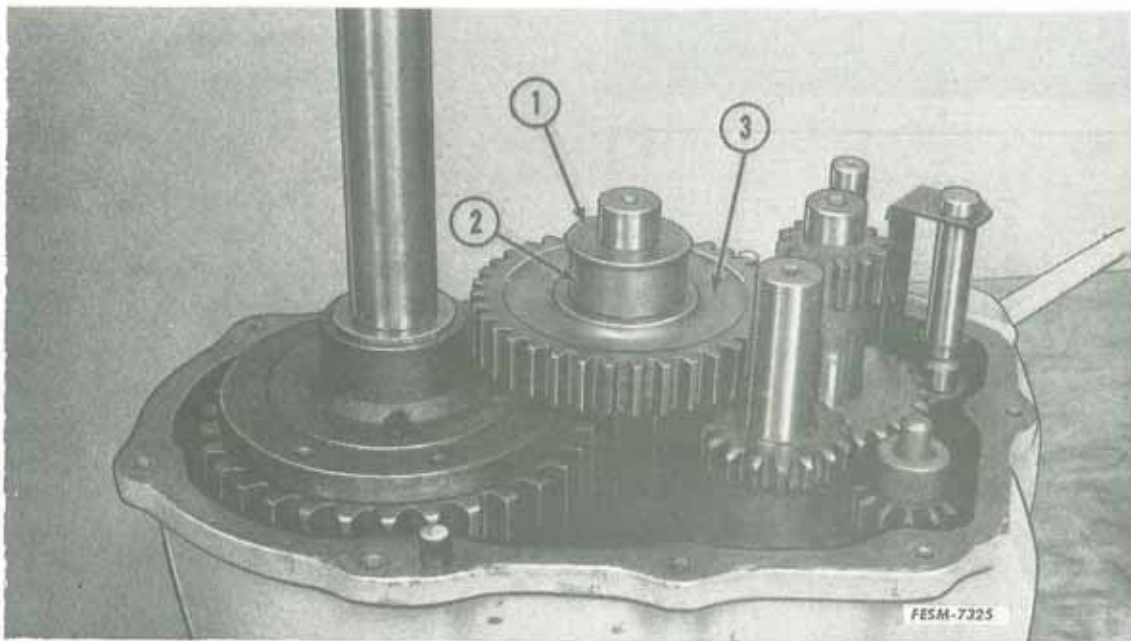
- 1. Idler shaft

9. Install the idler shaft.



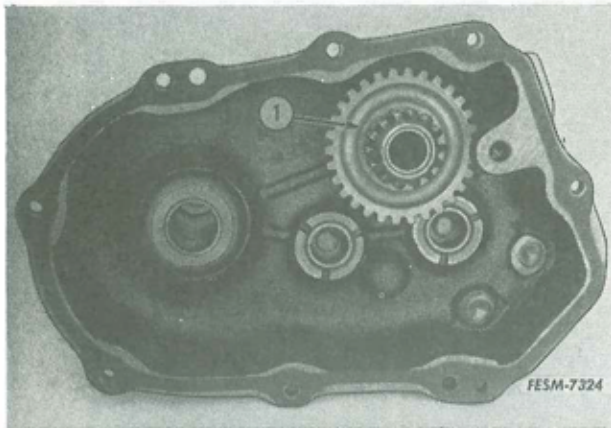
- 1. Differential assembly
- 2. Output shaft

10. Install the output shaft and differential assembly.



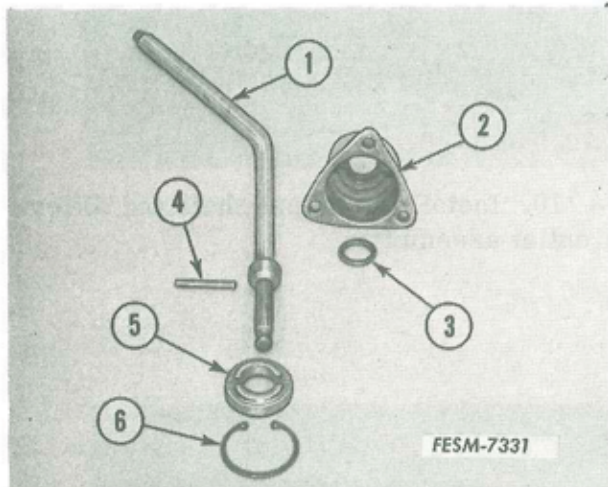
- 1. Thrust washer
- 2. Spacer
- 3. Output gear

11. Install the output gear, spacer and washer.



12. Install the brake shaft and gear in the cover. Install the cover on the case. Torque the screws to 10 ft. lbs.

1. Brake shaft



13. Assemble the gear shift and install it on the transmission. Torque the screws to 10 ft. lbs.

14. Set the unit in the operating position and fill the housing to the proper level with lubricant specified in the Operator's Manual.

- 1. Shift lever
- 2. Housing
- 3. Quad ring
- 4. Pin
- 5. Keeper
- 6. Snap ring

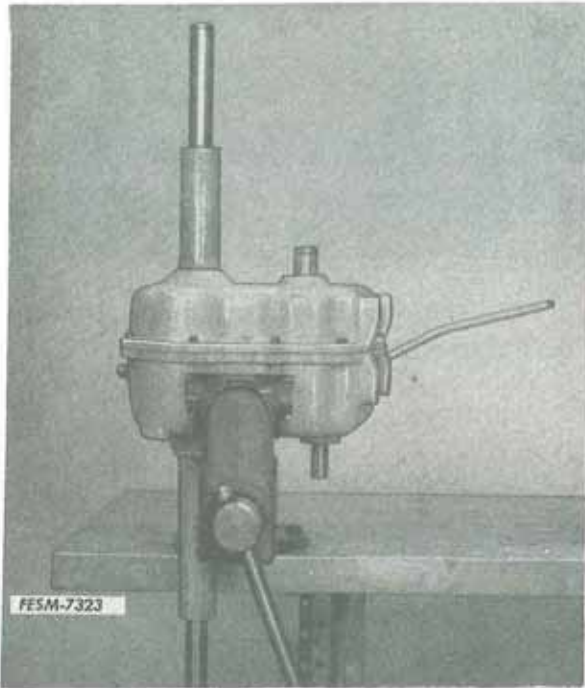
Installation

Reverse the removal procedure.

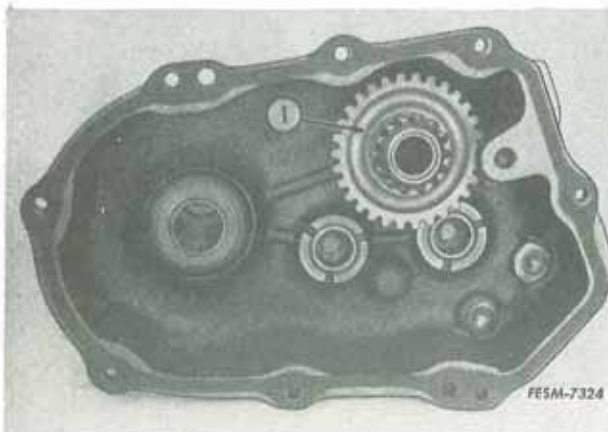
3-SPEED DIFFERENTIAL

Removal and Disassembly

1. Remove the transaxle.

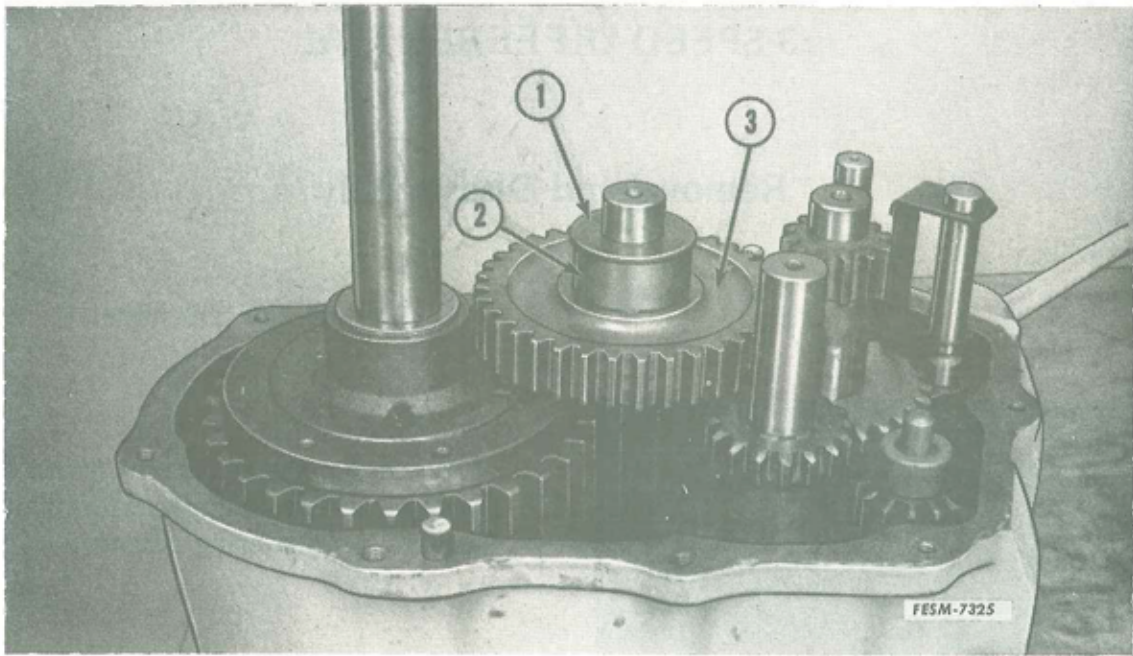


2. Clamp the transaxle (input shaft down) in a vise equipped with brass jaws. Remove the mounting screws.



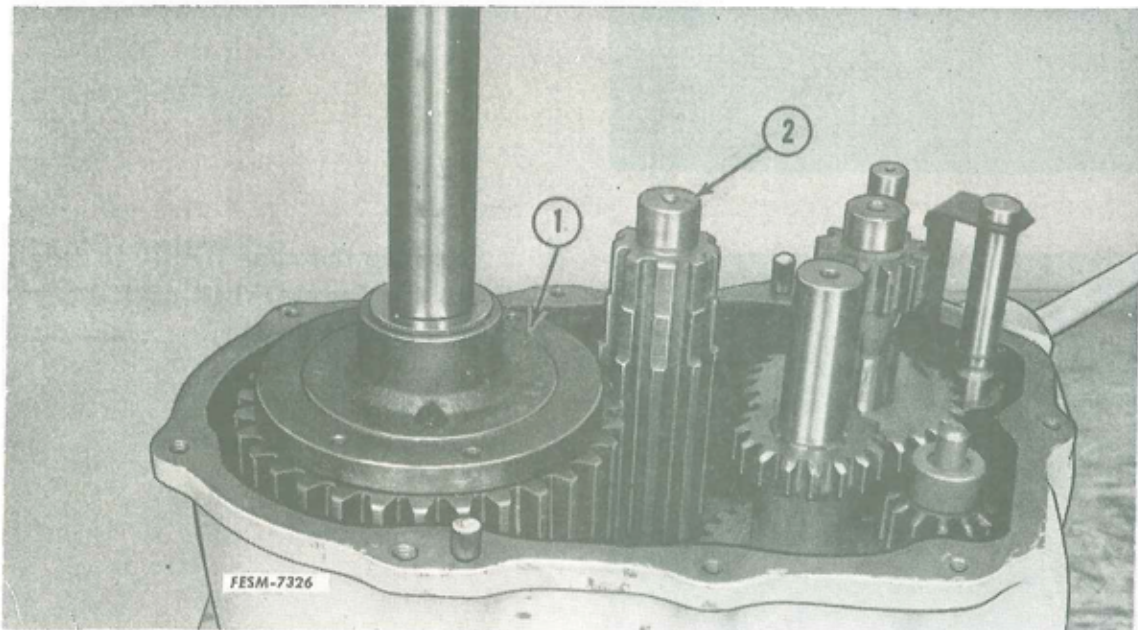
3. Tap the case lightly to free it from the dowels. Lift off the cover and brake shaft together.

1. Brake shaft



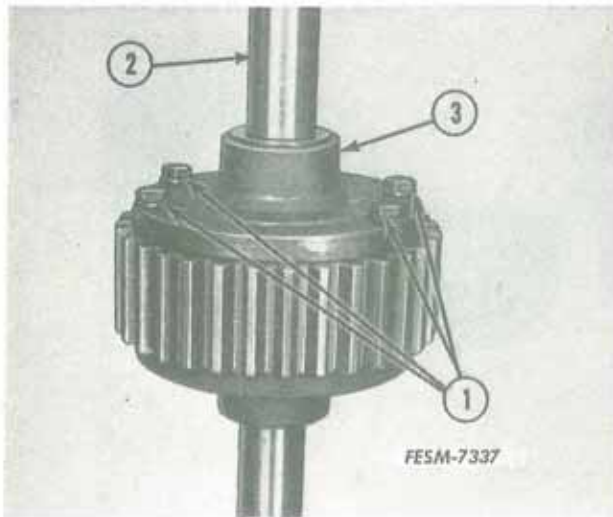
- 1. Thrust washer
- 2. Spacer
- 3. Output gear

4. Remove the output gear, spacer and thrust washer.



- 1. Differential assembly
- 2. Output shaft

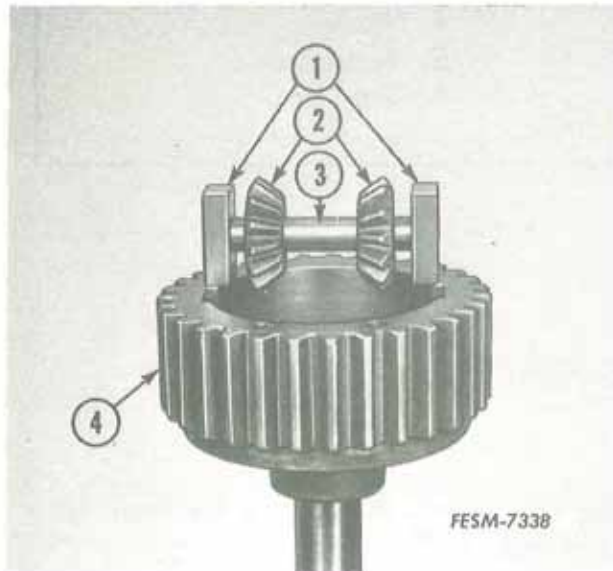
5. Remove the differential assembly.



6. Clamp the left axle (short axle) in a vise equipped with brass jaws.

7. Remove the thru bolts. Lift off the right axle and carrier.

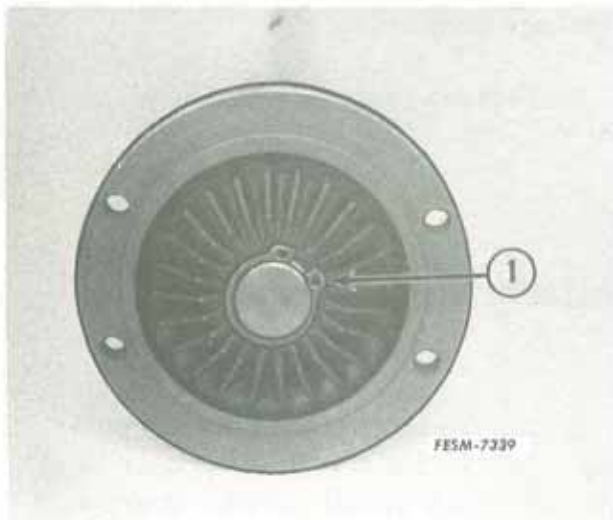
- 1. Thru bolts
- 2. Axle
- 3. Carrier



8. Lift out the bevel pinion shaft and drive blocks.

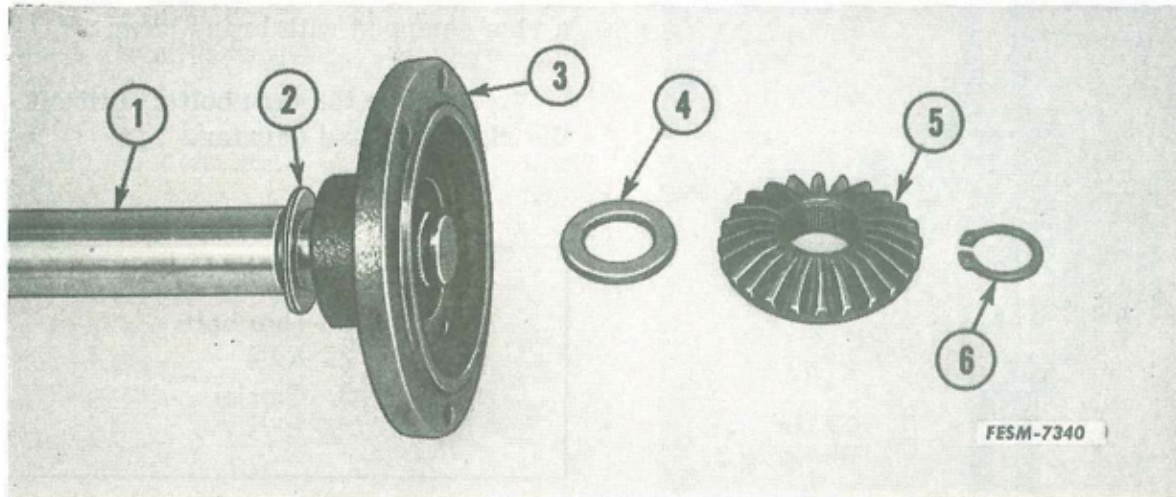
9. Remove the ring gear from the left axle carrier.

- 1. Drive blocks
- 2. Bevel pinions
- 3. Shaft
- 4. Ring gear



10. Remove the axle from the carrier by removing the snap ring.

- 1. Snap ring



1. Axle
2. Thrust washers
3. Carrier

4. Washer
5. Bevel gear
6. Snap ring

Inspection and Repair

1. Clean all parts in clean solvent and dry thoroughly.
2. Examine the gears for broken or worn teeth, breakage or burrs.
3. Examine the shafts for bending or

wear. Examine the splines for wear or breakage.

4. Check all components for wear, breakage or warping.

5. Replace parts as necessary.

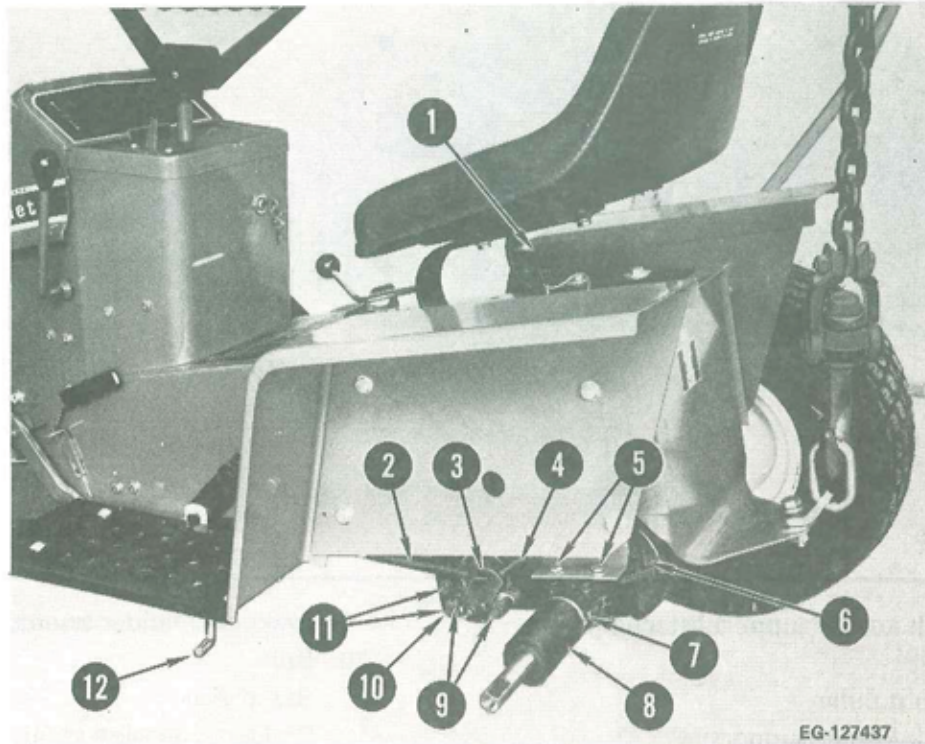
Reassembly and Installation

1. Reassemble and install the differential by reversing the removal and disassembly procedure.

2. Set the unit in the operating position. Fill the housing to the proper level with lubricant specified in the Operator's Manual before installing it in the tractor.

5-SPEED TRANSAXLE (Model 182 – Serial No. 72880 and Up) (Model 382 – Serial No. 70001 and Up)

Removal



- | | |
|---------------------------------|-------------------------------|
| 1. Seat safety switch connector | 7. Brake assembly |
| 2. Brake rod tension spring | 8. Spacer |
| 3. Brake lever | 9. Brake attaching bolts |
| 4. Pull back spring | 10. Transaxle front brace |
| 5. Transaxle attaching bolts | 11. Transaxle attaching bolts |
| 6. Transaxle | 12. Mower lift link rod |

1. Set tractor on level work area. Position the shift lever in neutral position as indicated by the shift pattern plate on the tractor floor.

2. Disconnect negative battery cable.

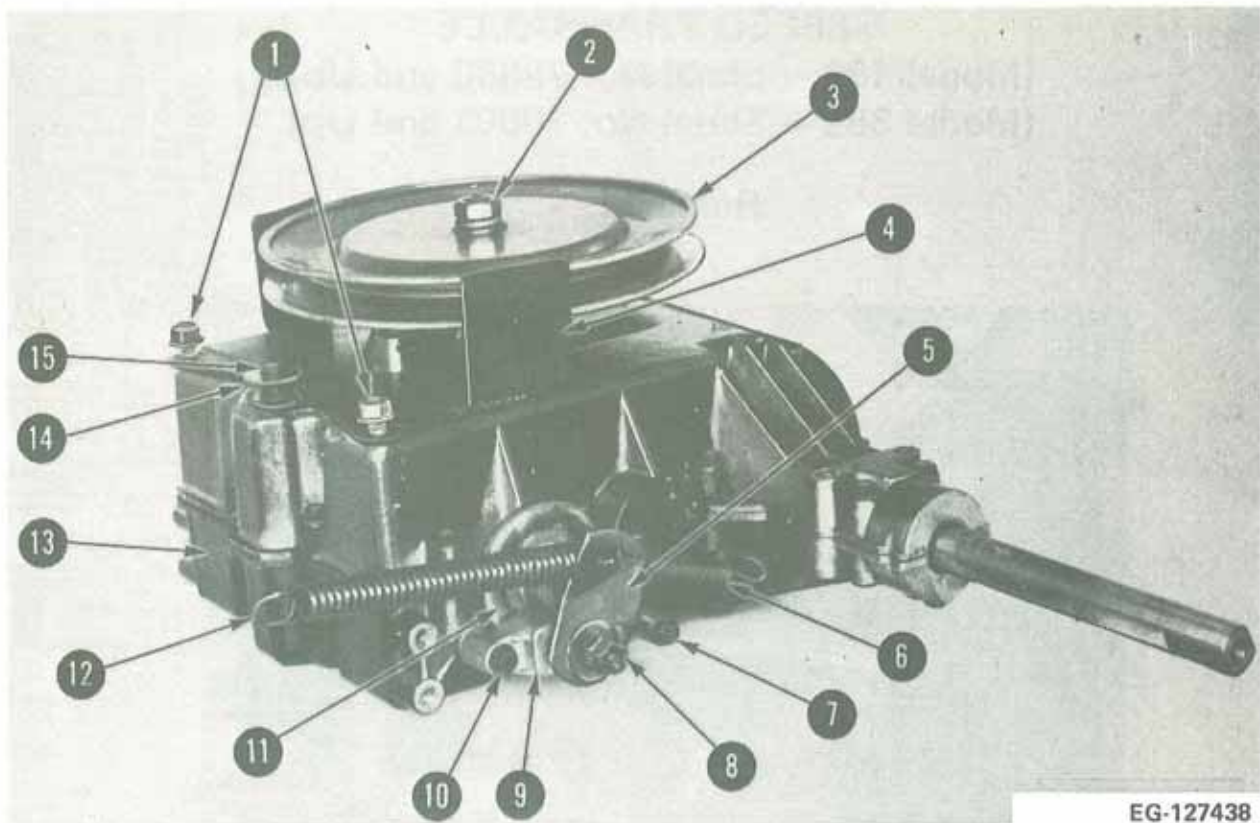
3. Remove mower attachment.

4. Wedge front axle between top of axle and frame on both sides. Use blocks of wood.

5. Using a suitable lifting fixture, raise the rear of the tractor.

6. Pry off hub cap from each rear wheel. Remove bolt and flat washers. Slide wheel off of axle shaft.

7. Remove spacer and flat washer from axle shaft.



EG-127438

- | | |
|--|------------------------------|
| 1. Belt keeper support attaching bolts | 9. Brake pad holder assembly |
| 2. Nut | 10. Bolt |
| 3. Input pulley | 11. Brake disc |
| 4. Belt keeper support | 12. Brake rod tension spring |
| 5. Brake lever | 13. Transaxle assembly |
| 6. Pull back spring | 14. Shifter washer |
| 7. Bolt and spacer | 15. Shift rod |
| 8. Adjusting nuts | |

8. From underneath tractor, remove two bolts and washers securing belt keeper support to top front of transaxle housing. Slip belt off of input pulley.

9. Remove the shift lever to transaxle shift rod attaching bolt and washer. Disconnect the wire spade from the terminal on the shift lever base and lift the shift lever off the transaxle shift rod.

10. Remove the shifter washer from the shift rod.

11. Position a moving dolly or roller jack centrally under the transaxle. Lower the tractor until the transaxle is supported on the dolly or jack.

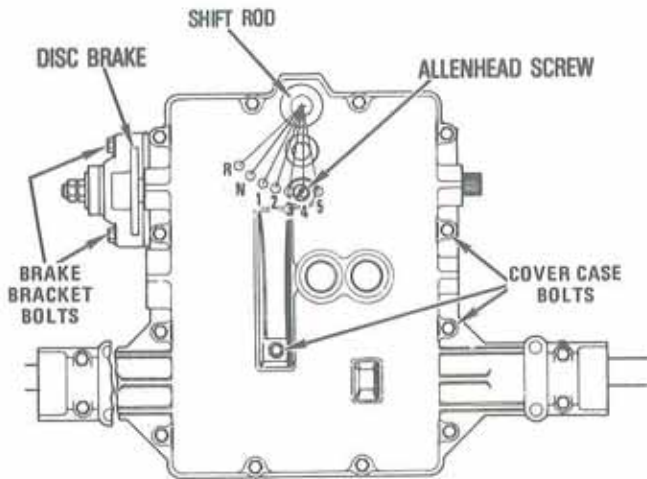
12. Unhook brake rod tension spring from brake rod.

13. Unhook pull back spring from brake lever to frame, at the frame hole.

14. Remove transaxle rear mounting bolts, washers and nuts.

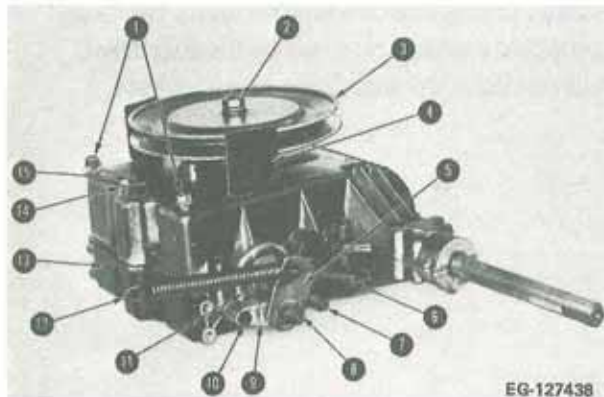
15. Loosen, but do not remove, front brace mounting bolts. Check that transaxle is balanced properly on dolly or jack. Remove mounting bolts. Raise tractor and roll transaxle from underneath the tractor.

Disassembly



EG-127439

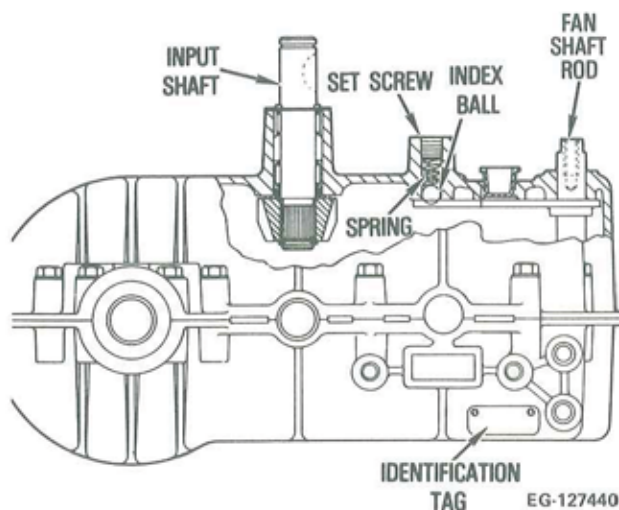
1. Clean exterior of transaxle.
2. Position shift rod in neutral position as indicated by the shift pattern.



EG-127438

3. Remove the nut and lockwasher securing the input pulley to the transaxle input shaft. Remove the pulley and key.

1. Belt keeper support attaching bolts
2. Nut
3. Input pulley
4. Belt keeper support
5. Brake lever
6. Pull back spring
7. Bolt and spacer
8. Adjusting nuts
9. Brake pad holder assembly
10. Bolt
11. Brake disc
12. Brake rod tension spring
13. Transaxle assembly
14. Shifter washer
15. Shift rod



4. Remove set screw, spring and index ball.

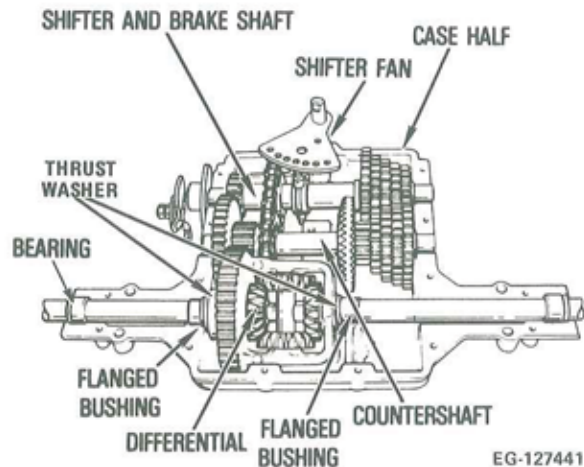
5. Remove bolts that hold cover to case.

6. Push shift lever rod in while pulling cover off of case. Shifting assembly may temporarily remain in case. Remove cover.

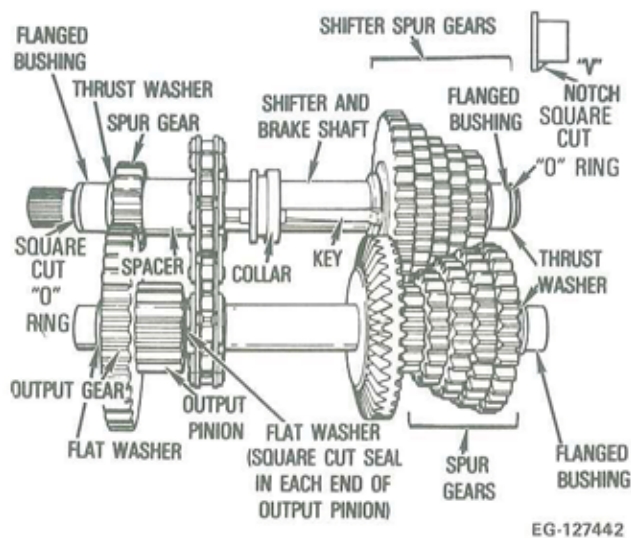
NOTE: Remove grease from the unit as parts are removed.

7. Remove two brake bracket bolts, and remove brake bracket, brake pad, and brake pad plate. Slide brake disc from transaxle spline shaft and remove second brake pad.

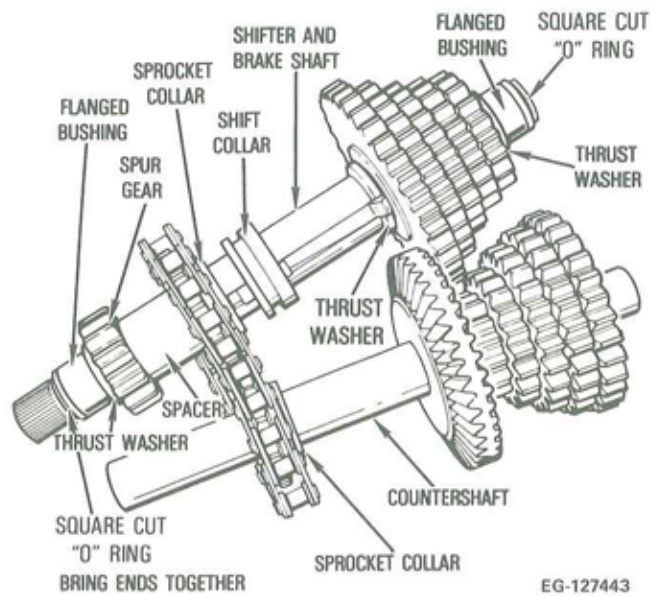
NOTE: Prior to removal of gear shaft assemblies from the case, the shifter fan may be removed. It will be difficult to keep parts from falling off the assemblies. Note position of parts before removal.



8. Remove gear and shaft assemblies from the case, lifting the two shafts out of the bearing supports taking care not to disturb drive chain relationship with hubs on sprockets.



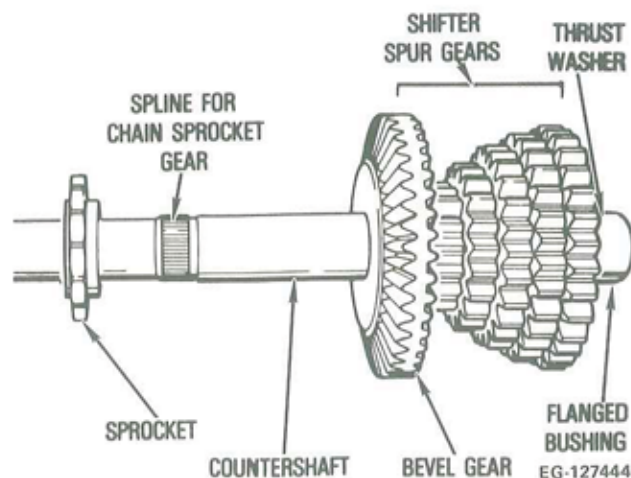
NOTE: Before disassembly, observe how "V" notches on the flanged bushings fit into recess "V" of case.



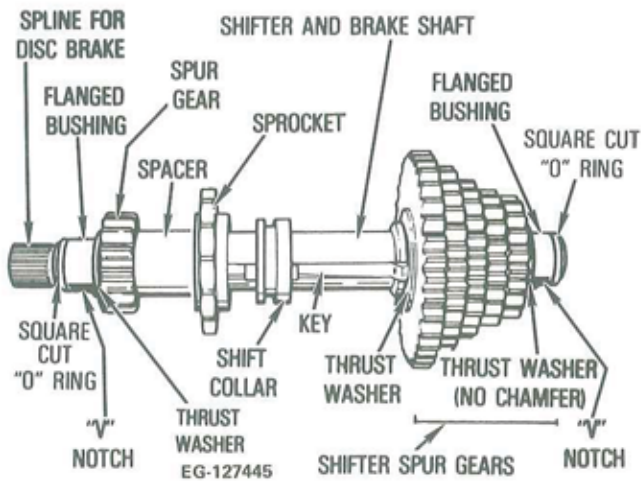
NOTE: The square cut black rubber "O" ring acts as a lubrication seal.

9. Remove the needle bearing (closed end), flat washers (2), output gear and output pinion, and 3 square cut seals from the countershaft. (2 seals in output pinion - 1 in needle bearing cap.) "O" rings in countershaft are larger than those on brake shaft ends. Always replace with new seals whenever removed.

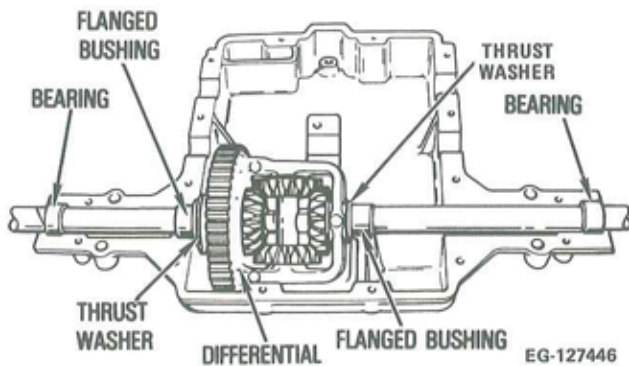
10. Angle the shifter and brake shaft and countershaft chain sprocket ends toward each other. Note the collar on the sprockets face the bevel gear. Remove chain.



11. Remove the sprocket, bevel gear, spur gears, thrust washer, and flanged bushing. The spur gears are splined to the countershaft.

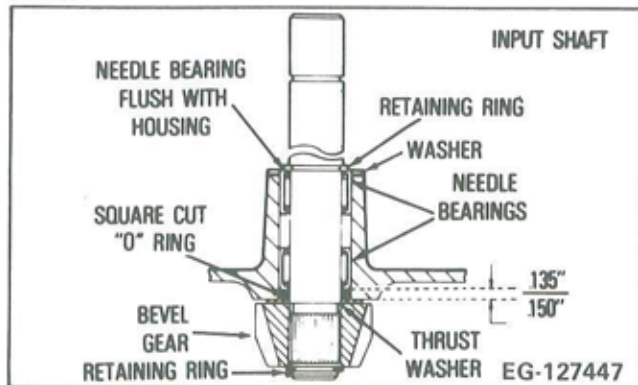


12. Remove the square cut seals (2) and flanged bushings (2), thrust washers (2) on shaft ends, spur gear, spacer, sprocket, shift collar with keys, thrust washers and shifter spur gears.



13. Remove differential from case. Remove ball bearings (2), flanged bushings (2) and thrust washers (2).

NOTE: Refer to "Differential", "5-Speed Transaxle" section for teardown and reassembly procedures.



14. Remove retaining ring on bevel gear end from input shaft. Remove bevel gear and pull shaft through case. The square cut "O" ring must be replaced, if removed.

Tool Part No. 670251 (available from the transaxle manufacturer) is used for removal and installation of needle bearings for the input shaft. The needle bearing on inboard side is installed .135/.150" below flush. All needle bearings must be repacked with grease.

Inspection and Repair

1. Clean all parts in clean solvent and dry thoroughly.

2. Examine the teeth and splines of gears, sprockets and shafts. The gears should slide freely on the shaft. Excessive wear of the splines will cause cocking of the gears.

3. Examine all the gears and sprockets for broken teeth, wear or burrs.

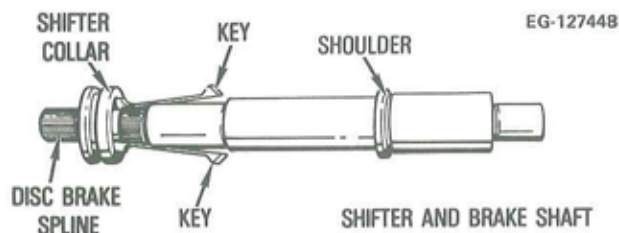
4. Inspect the chain and slide keys for wear.

5. Discard all gaskets and seals. Replace with new gaskets and seals.

6. Bearings, bushings and bearing surfaces should be thoroughly cleaned prior to inspection. Examine closely for scuffing, wear, pitting and abnormal conditions. Never clean the lubricant from new bearings. This lubricant prevents damage before the transaxle lubricant enters the bearing.

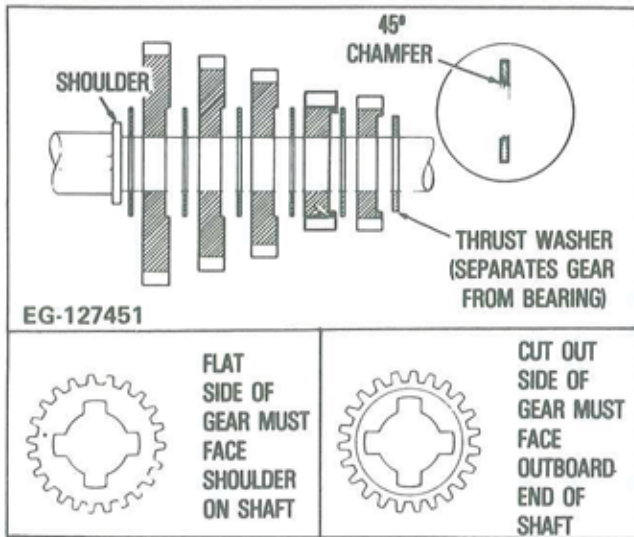
7. Inspect the transaxle case and cover for cracks or damage.

Reassembly

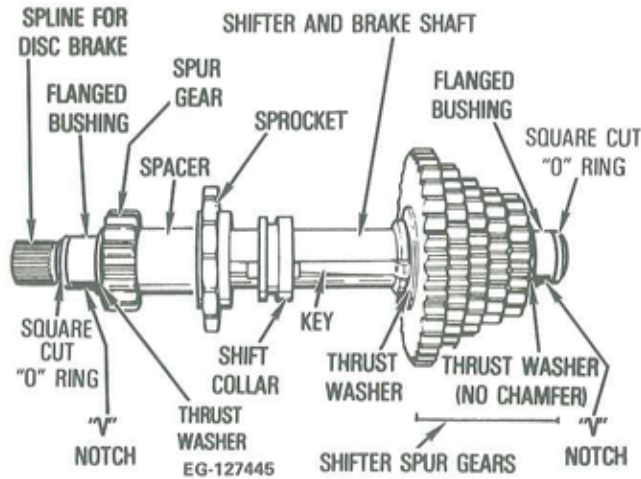


1. Apply grease between bearings and install and secure the input shaft and bevel gear in the cover. See paragraph 14 under "Disassembly" and reverse the order.

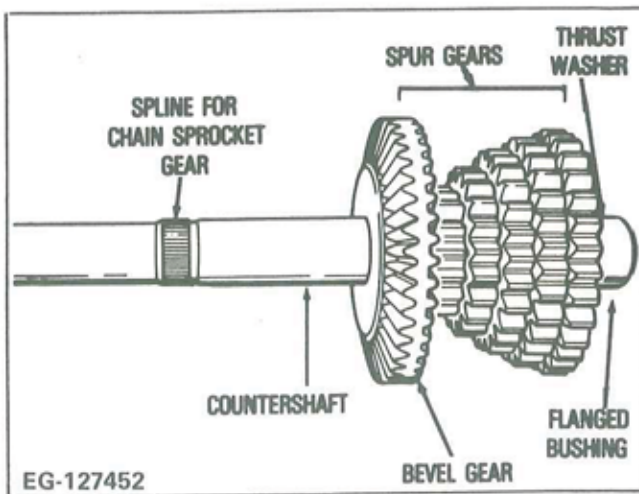
2. Grease both keyways and slide keys and collar on shifter and brake shaft. Thick side of collar **MUST** face shoulder on shaft.



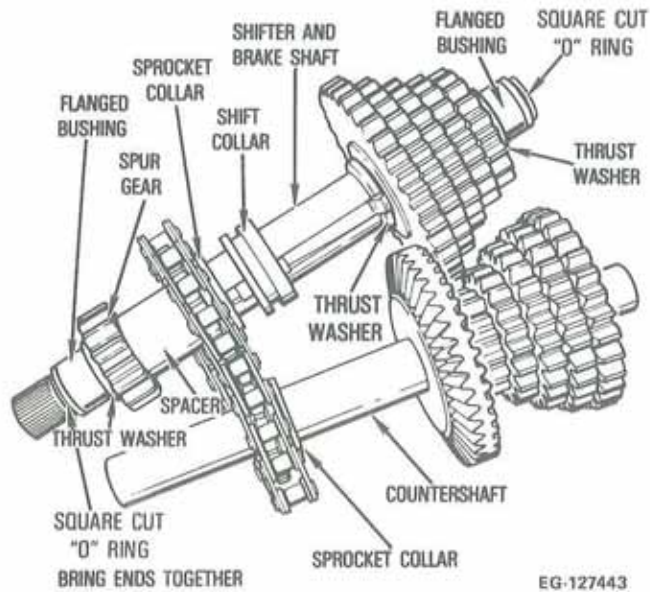
3. When ready to install thrust washers and shifting gears on shifter and brake shaft, the 45° chamfer in the inside diameter of the thrust washers **MUST** face the shoulder on the output shaft. The flat side of the shifting gears **ALWAYS** face the shoulder on the shifter and brake shaft.



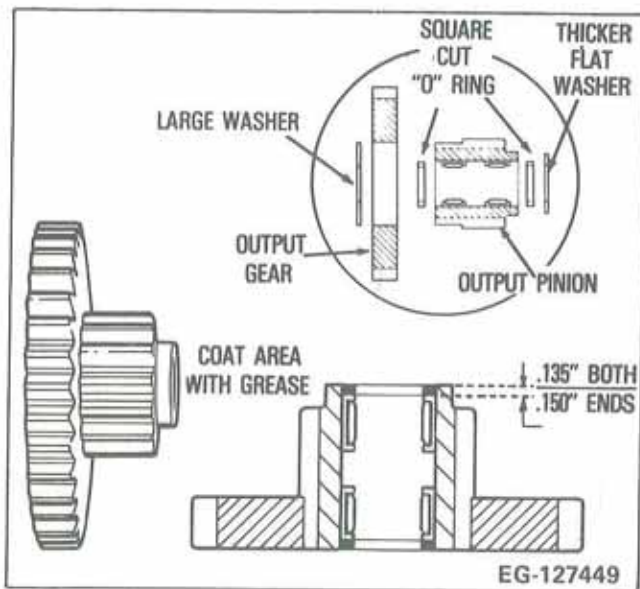
NOTE: The thrust washer on the shift gear end, of the shifter and brake shaft, does not have a chamfer on the inside diameter. Install sprocket, spacer, spur gear, and thrust washer on output shaft. Be sure collar on sprocket faces the shift collar. Install bushings on both ends of shifter and brake shaft. Install square cut "O" rings on end of flanged bushings.



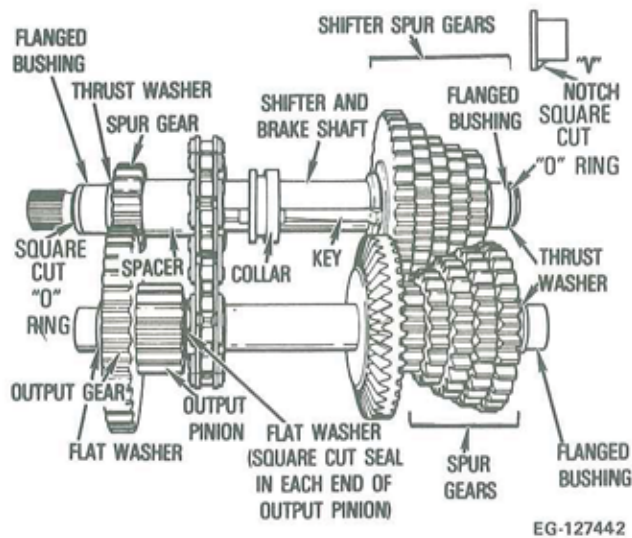
4. Install bevel gear and smallest to largest spur gears, thrust washer and bushing to the countershaft. Install the sprocket.



5. With the shifter and brake shaft and countershaft ends angled together, install the chain on the sprockets.

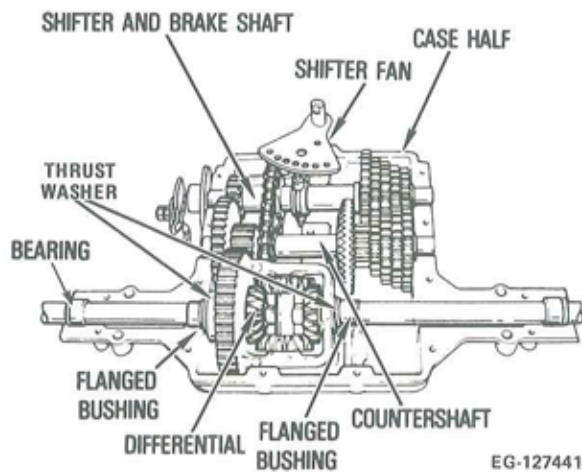


6. For correct positioning of the needle bearings, use removal and installation Tool Part No. 670252 (available from the transaxle manufacturer). Fill the area between the needle bearings with grease before installing on the countershaft.



7. Install the output and pinion gears, the flat washer, square cut rings, needle bearing (closed end), and spacer on one end and thrust washer and flanged bushing on the other end. Note that the "V" notch on the bushing fits into recess "V" in case.

NOTE: A square cut seal fits in each recessed end of output pinion. Also one square cut ring fits into recessed end of needle bearings (closed end).



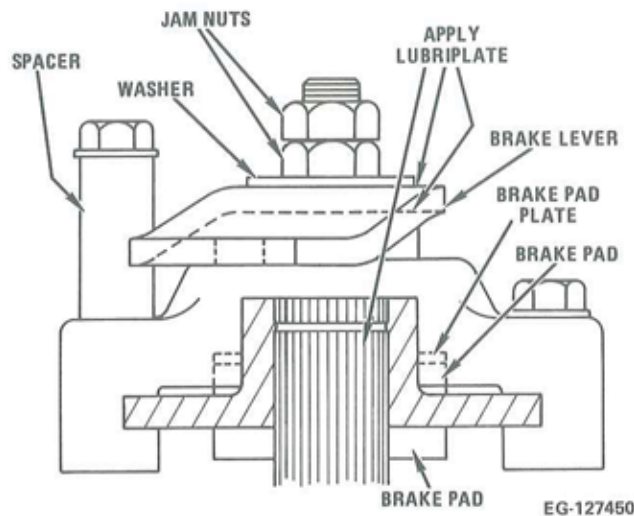
8. Install the flanged bushings (2), thrust washer and ball bearings (2).

9. Install the differential in the case.

10. Install shifter assembly (shaft, pins and fans). Pack 36 oz. E.P. Lithium grease around bearings and gearing, and reinstall cover on case. Torque bolts 90-100 in. lbs.

11. Install index ball, spring and set screw in that order into cover, and slowly tighten the screw 1 turn below flush.

12. Prior to installing the brake assembly, apply a light film of lubriplate to the inside of lever portion which contacts pins; also to outside of lever which contacts flat washer and between shaft O.D. and bore of brake disc. Brake pads and brake disc must be free of grease and oil. Install brake and linkage and adjust to disengage when clutch is engaged.



13. Check for binding by turning input shaft. Install transaxle on equipment.

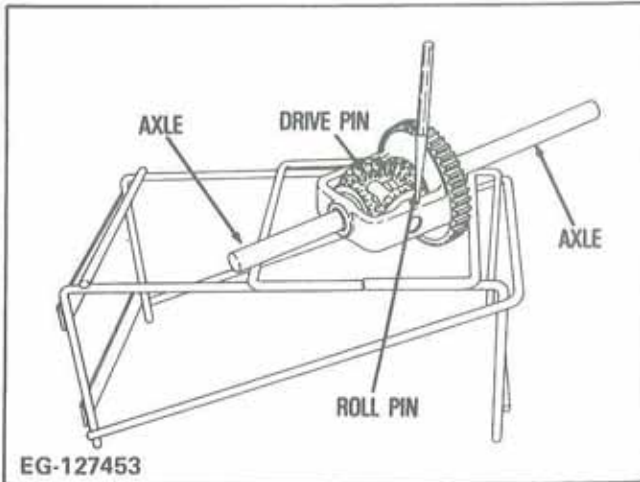
NOTE: To secure brake lever, hold bottom nut and torque top nut to 100 in. lbs.

Installation

Reverse the removal procedure.

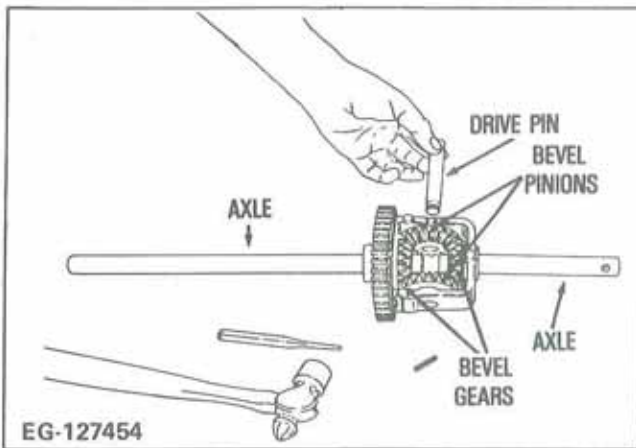
5-SPEED DIFFERENTIAL

Removal and Disassembly

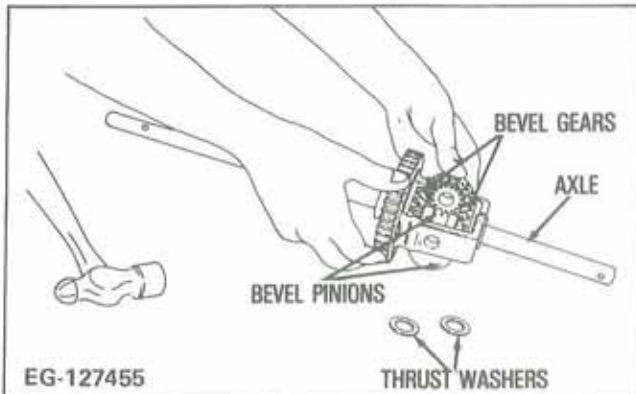


1. Remove the differential. Refer to "Disassembly", "5-Speed Transaxle" section, paragraph 13.

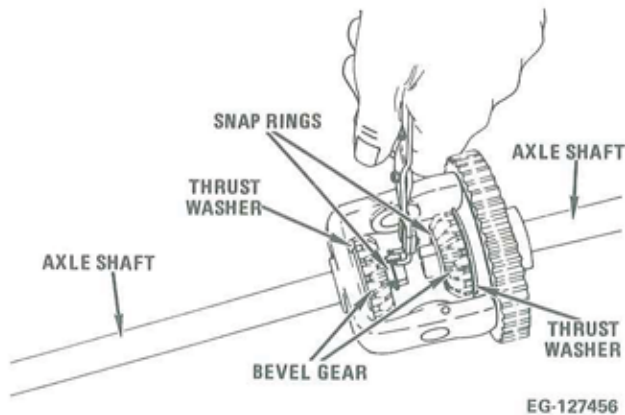
2. Remove the roll pin securing the drive pin in the differential gear assembly. Remove the drive pin.



NOTE: Thrust washers must be removed before attempting to remove the bevel pinions.



3. Remove the bevel pinions simultaneously by rotating the gears in opposite directions. Gears will move out of position.



4. Remove the external retaining ring from each axle retaining the bevel gear to the axle. Remove the bevel gears and thrust washers. Slide the axles out of the differential gear assembly.

NOTE: Mark axles for correct reassembly. The right side axle is longer than the left side axle when viewed from the transaxle installed position.

Inspection and Repair

1. Clean all parts in clean solvent and dry thoroughly.
2. Inspect the gears for broken teeth, wear or burrs. Replace as required.

3. Inspect bearings, bushings and shafts for wear. Inspect drive pins, roll pin and differential gear assembly. Replace as required.

Reassembly and Installation

1. Place axles (left and right, as marked) into differential gear assembly. Install thrust washers.

NOTE: The axles differ in length. See "NOTE" after paragraph 4, "Removal and Disassembly".

2. Place a bevel gear on each axle shaft. Install the external retaining ring in the groove on each axle shaft.

3. Install the bevel pinions simultaneously from opposite sides by rotating the pinions in opposite directions while sliding into position in the differential gear assembly.

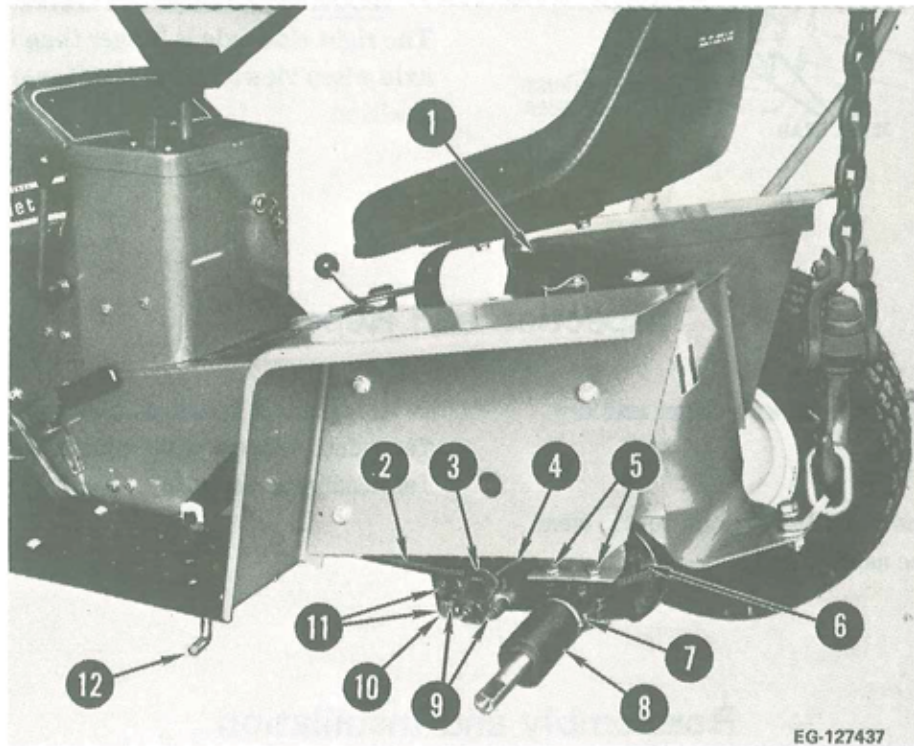
NOTE: Check alignment of bevel pinions by inserting finger into drive pin bores. If not aligned, drive pin cannot be inserted. Remove and realign bevel pinions as only one tooth out of position will cause misalignment.

4. After aligning bevel pinions, insert a thrust washer behind each pinion. Insert drive pin and secure with roll pin.

5. Install the assembled differential as outlined under "Reassembly", "5-Speed Transaxle" section, paragraph 9.

BRAKE
(Model 182 – Serial No. 72880 and Up)
(Model 382 Gear Drive – Serial No. 70001 and Up)

Removal and Disassembly



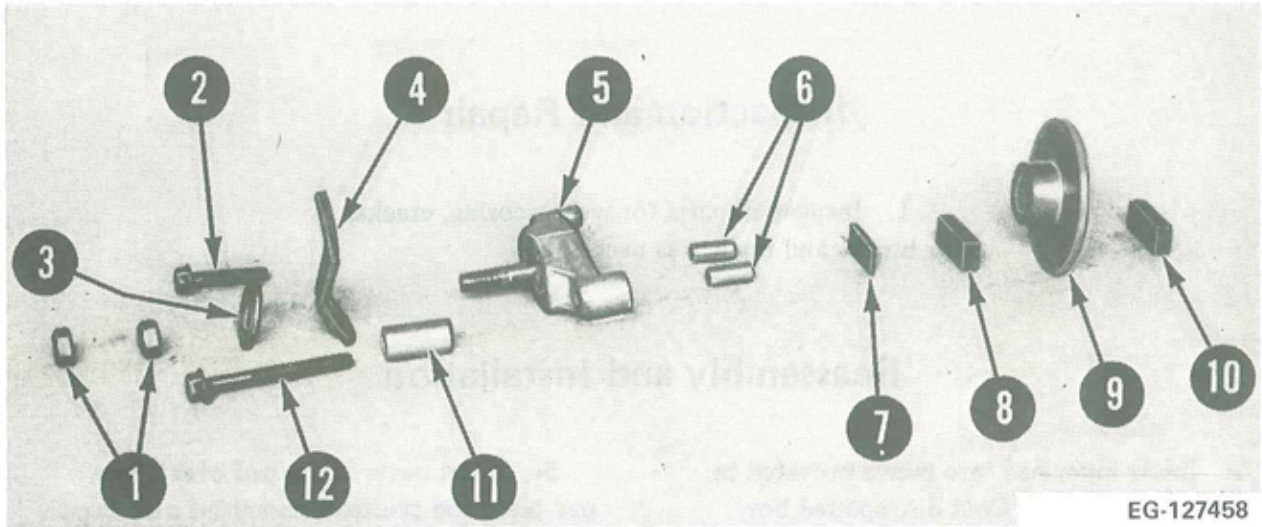
- | | |
|---------------------------------|-------------------------------|
| 1. Seat safety switch connector | 7. Brake assembly |
| 2. Brake rod tension spring | 8. Spacer |
| 3. Brake lever | 9. Brake attaching bolts |
| 4. Pull back spring | 10. Transaxle front brace |
| 5. Transaxle attaching bolts | 11. Transaxle attaching bolts |
| 6. Transaxle | 12. Mower lift link rod |

1. Set tractor on level work area. Position the shift lever in neutral position as indicated by the shift pattern plate on the tractor floor.

2. Raise the left rear of the tractor with a floor jack.

3. Pry off the hub cap from the left rear wheel. Remove the bolt and flat washers. Slide the wheel off of axle shaft.

4. Disconnect brake lever pull back spring from hole in tractor frame.



- | | |
|------------------------|------------------------|
| 1. Adjusting nuts | 7. Brake pad plate |
| 2. Short mounting bolt | 8. Brake pad |
| 3. Washer | 9. Brake disc |
| 4. Brake lever | 10. Brake pad |
| 5. Brake pad holder | 11. Spacer |
| 6. Dowel pins | 12. Long mounting bolt |

5. With brake pedal in off position, remove two bolts attaching brake assembly to transaxle. Support brake assembly and unhook brake rod tension spring from brake lever. Outer brake pad, brake pad plate and dowels may fall out of brake assembly. Account for all parts.

6. Disconnect pull back spring from brake lever.

7. Remove two nuts securing brake lever to brake pad holder stud. Separate lever from holder.

8. Slide brake disc from transaxle splined brake shaft. Remove inner brake pad.

Inspection and Repair

1. Inspect all parts for wear, scoring, cracks, or breaks and replace as necessary.

Reassembly and Installation

1. Insert inner pad into recess provided in the transaxle casting. Coat disc splined bore with lubriplate and slip onto transaxle splined brake shaft to hold inner pad in position.

NOTE: Hub on brake disc faces outside of transaxle.

2. Lightly lubriplate parts and assemble brake lever to brake pad holder stud. Install washer and nut, but do not tighten adjusting nut.

3. Insert two dowel pins into brake pad holder bores. Position brake pad plate against dowel pins.

4. Supporting brake pad holder in one hand, hook brake rod tension spring into brake lever. Insert short bolt into front pad holder mounting hole and long bolt with spacer into rear pad holder mounting hole.

5. Insert outer brake pad over brake pad plate and position assembled unit in position on the transaxle. Align mounting bolts with holes in transaxle and tighten mounting bolts.

6. Hook pull back spring in hole of brake lever and attach to hole in tractor frame.

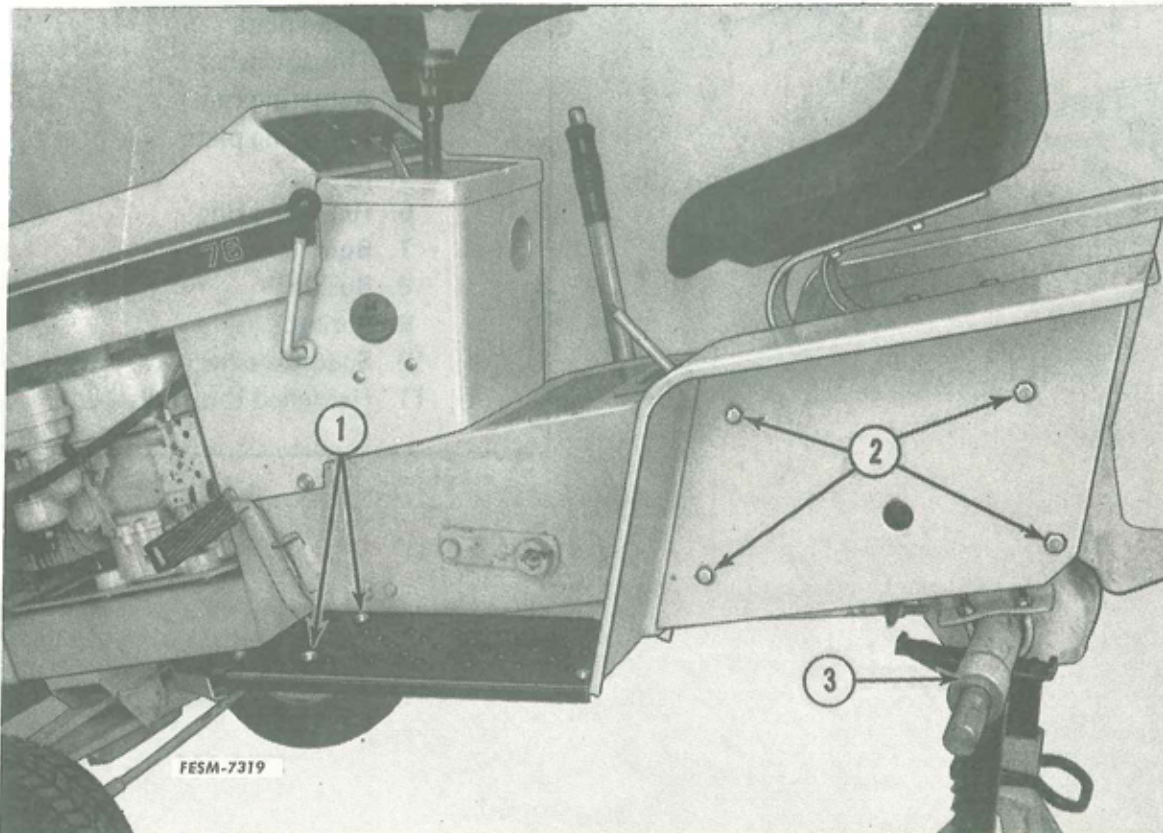
7. Adjust brakes to disengage when clutch is engaged.

8. Check for binding by turning axle shaft.

NOTE: To secure brake lever, hold bottom nut and torque top nut to 100 in. lbs.

9. Install rear wheel then lower tractor.

BRAKE
(Model 182 – Serial No. 72879 and Below)
(Model 282, Model 382 Gear Drive – Serial No. 70000
and Below, and Model 382H)
Removal and Disassembly



- 1. Foot rest supports
- 2. Fender supports
- 3. Spacer

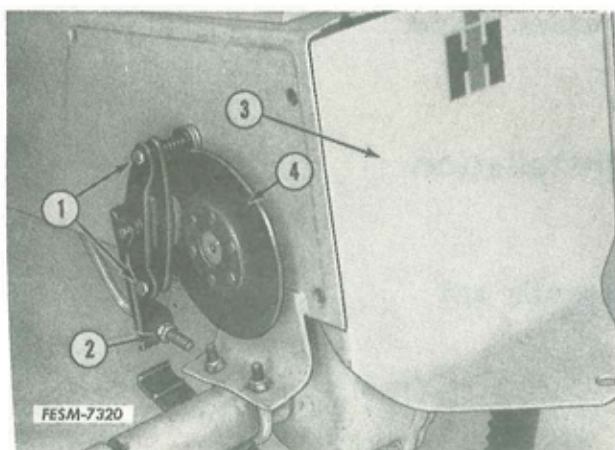
1. Raise the rear of the tractor and support it under the axle housing.

2. Remove the left rear wheel.

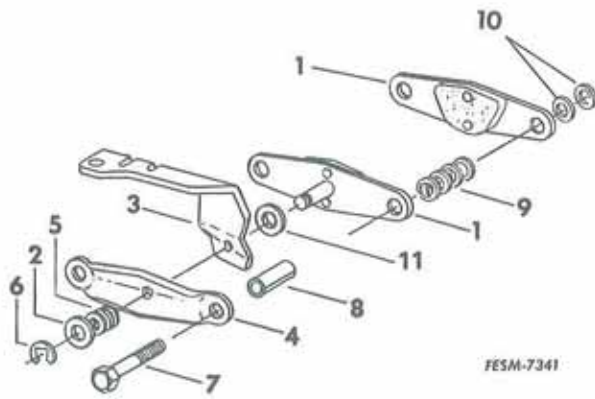
3. Remove the left fender and foot support.

4. Remove the adjusting nut from the brake rod.

5. Unbolt the brake assembly from the frame.



- 1. Mounting bolts
- 2. Adjusting nut
- 3. Drawbar assembly
- 4. Brake disc



6. Remove the retaining ring from the brake plate and disassemble the brake.

- | |
|----------------------------|
| 1. Brake plate |
| 2. Thrust washer |
| 3. Actuating cam |
| 4. Actuating plate |
| 5. Spring |
| 6. Retaining ring |
| 7. Bolt |
| 8. Bushing |
| 9. Spring |
| 10. Spacer washer |
| 11. Hardened thrust washer |

Inspection and Repair

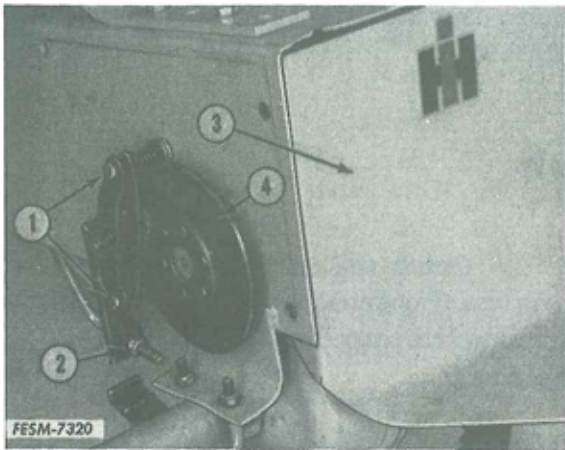
1. Inspect all parts for wear, scoring, breaking and replace as necessary.

NOTE: When replacing brake linings with new ones, remove and discard old linings, spacers and hardened thrust washer. Do not mix old and new parts.

Reassembly and Installation

1. Reverse the disassembly and removal procedure.
2. Adjust the brake.

Adjustment



1. Mounting bolts
2. Adjusting nut
3. Drawbar assembly
4. Brake disc

1. The clutch-brake pedal should be in the raised (clutch engaged) position.

2. Move the actuating cam forward until the brake pads contact the disc.

3. Adjust the nut to obtain 1/4" clearance between the nut and arm.

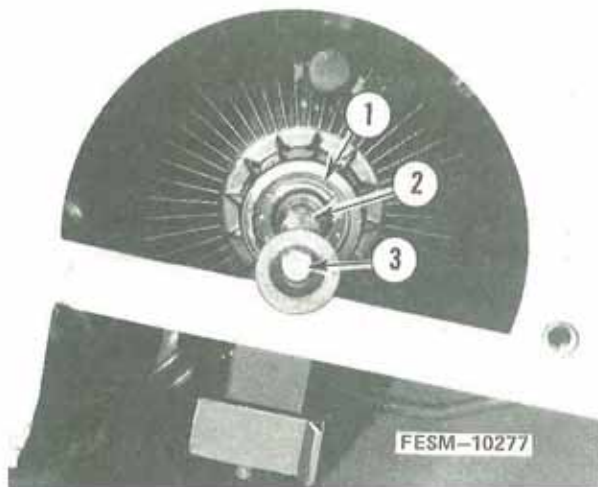
4. Put the tractor in gear and push it while slowly depressing the clutch-brake pedal. The brake should start to apply as the clutch disengages. There should be no neutral or free zone between the braking and clutch action. Adjust the brake as necessary.

HYDROSTATIC TRANSMISSION

Servicing

The input shaft, bearing and oil seal can be serviced without removing the transmission from the machine.

Disassembly



1. Input shaft bearing
2. Input shaft
3. Bolt and washer

1. Check the oil level in the transmission and if necessary fill it to the proper level as indicated in the operator's manual.

2. Place the rear axle up on jackstands.

3. Remove the right rear tire and fender.

4. Thread a bolt and washer of an appropriate length into the end of the input shaft.

5. Attach a slide hammer to the bolt and washer and remove the input shaft and bearing.

NOTE: Once the shaft has been removed do not rotate the left rear wheel or axle. This will force too much oil from the transmission. During reassembly it is desirable to have as much oil in the transmission as possible.

6. Press the shaft from the bearing.

Reassembly

1. Press the shaft into the bearing.

2. Place a metal sleeve or cylinder, of appropriate diameter, against the bearing and gently tap the bearing and shaft assembly into place.

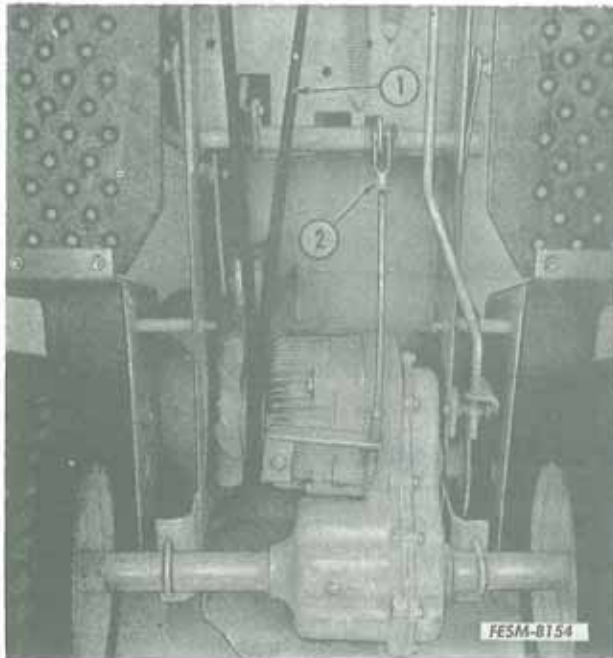
NOTE: The bearing and shaft assembly will go a quarter to half of the way into the transmission case before the shaft will be able to engage the hub inside the transmission.

3. Once the shaft is in far enough to start engaging the hub, rotate the left wheel slightly. If enough oil has remained in the unit, this will rotate the hub enough so the shaft will engage. If engagement is not accomplished by rotating the hub, tap the bearing and shaft assembly and turn the shaft. Repeat this action until the shaft meshes with the hub and the bearing and shaft assembly slide into place.

4. To remove the air allowed into the system fill the transmission with fluid and operate the machine. If operating the machine does not release all of the air, rock the machine to free the air pockets in the transmission.

HYDROSTATIC DRIVE

Removal



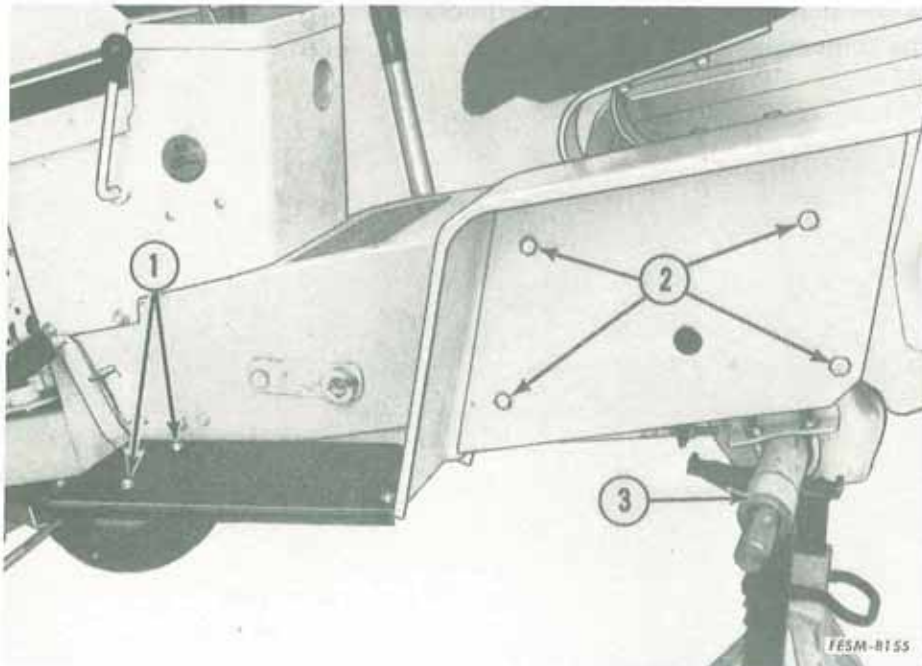
- 1. Drive belt
- 2. Control linkage

1. Drain the oil from the case.
2. Disconnect the hydrostatic drive belt.
3. Disconnect the hydrostatic control linkage.

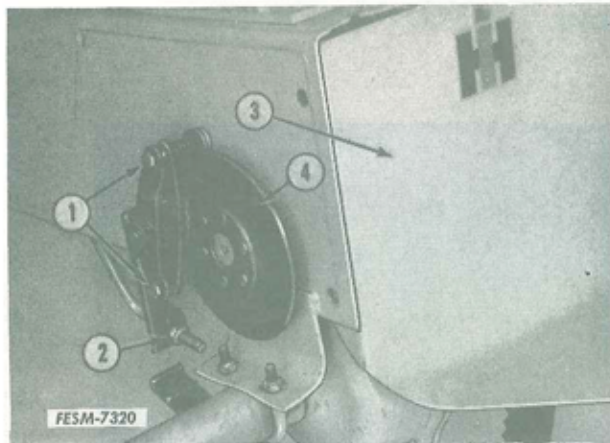
4. Raise the rear of the tractor and support it under the axle housings.

5. Remove the rear wheels, drive keys and spacers.

6. Remove the left fender and foot support,



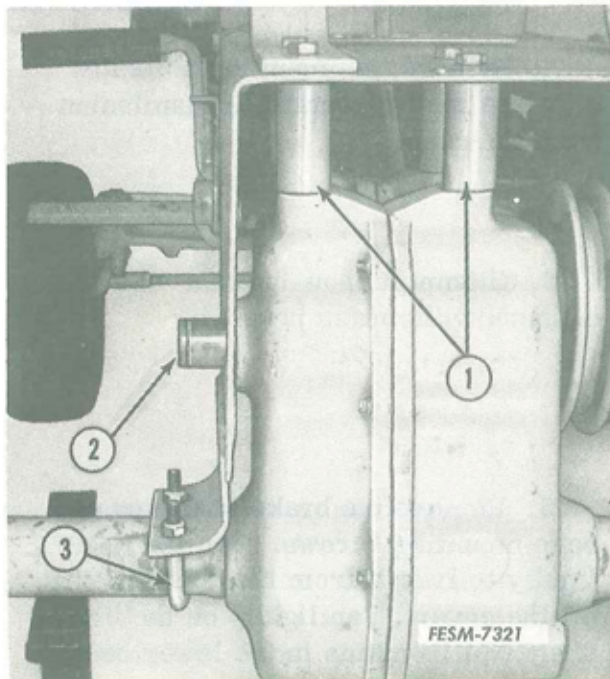
- 1. Foot support mounts
- 2. Fender mounts
- 3. Spacer



1. Mounting bolts
2. Adjusting nut
3. Drawbar assembly
4. Brake disc

7. Remove the brake mounting bolts and lay the brake assembly down out of the way. Obtain two nuts and thread them on the bolts to keep the brake assembly intact. Remove the brake disc and key.

8. Remove the drawbar assembly.



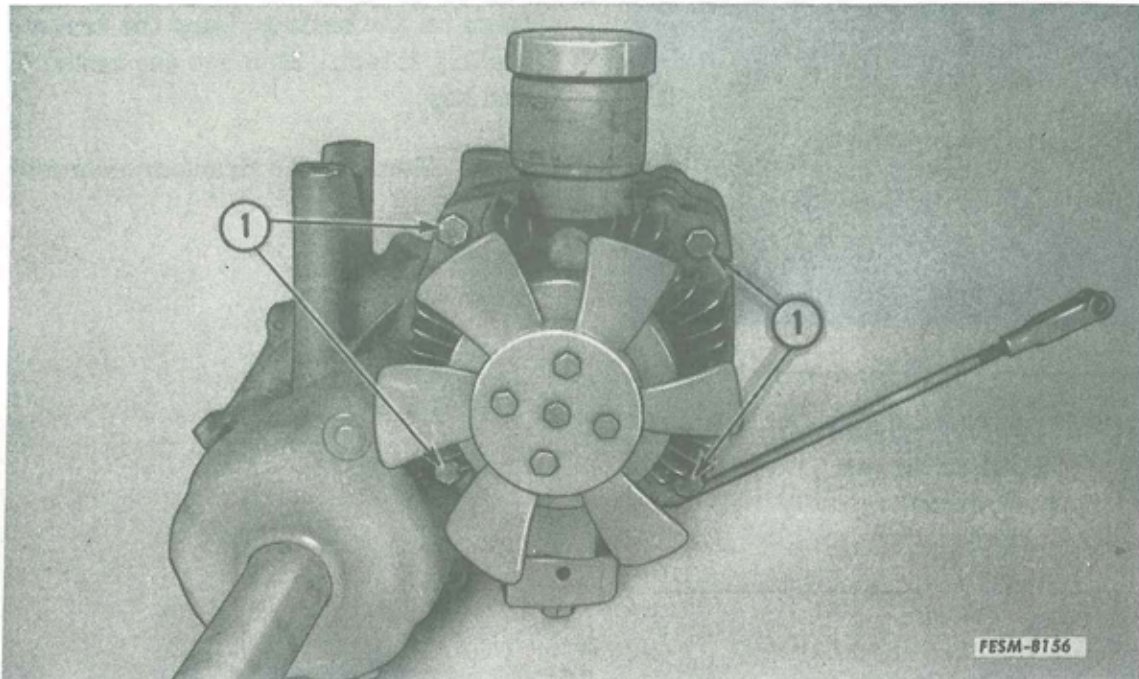
1. Mounting bolts and spacers
2. Brake shaft
3. U-bolt clamps

9. Remove the U-bolt mounting clamps, mounting bolts and spacers.

10. Slide the frame to the left slightly to clear the brake shaft and raise it off the hydrostatic drive.

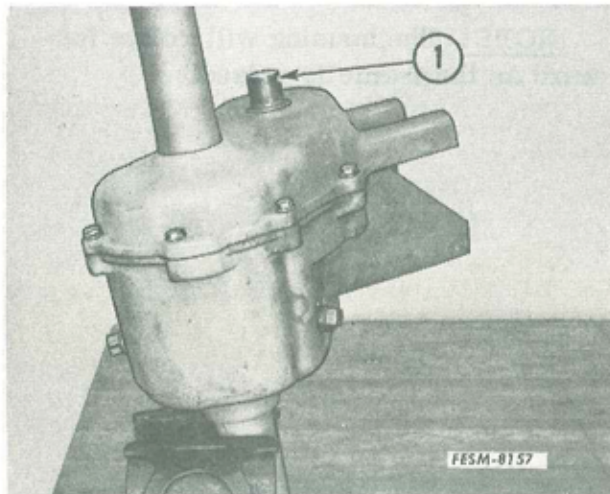
NOTE: The housing will rotate forward as the frame is raised.

Disassembly



1. Mounting bolts

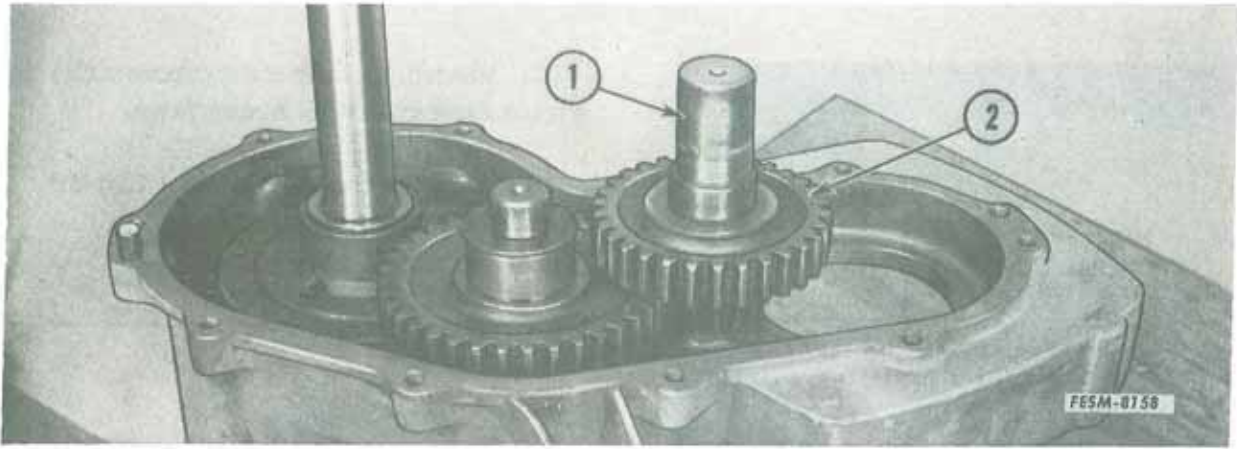
1. Remove the mounting bolts and separate the hydrostatic transmission from the case.



1. Brake shaft

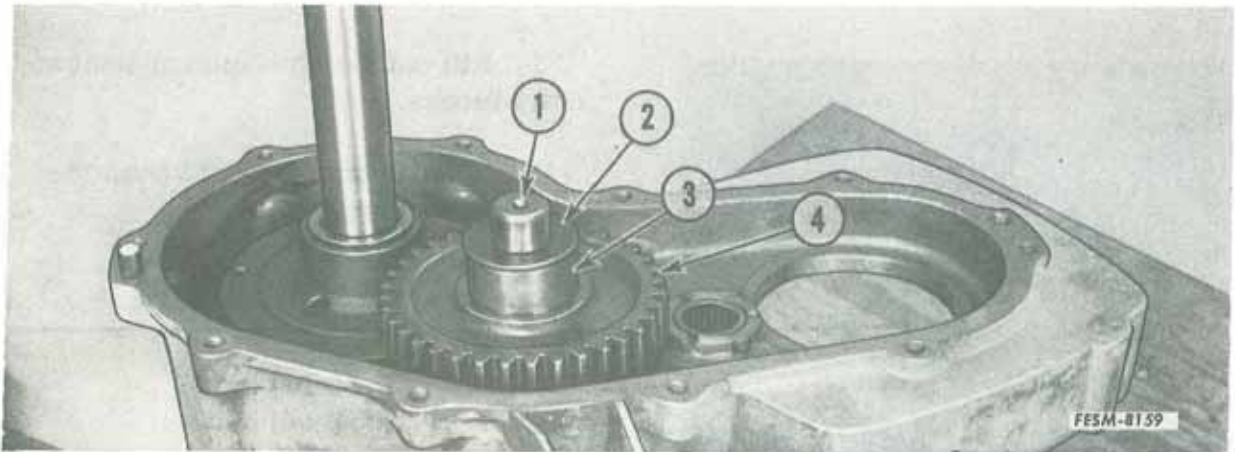
2. Clamp the housing in a vise equipped with brass jaws.

3. Remove the brake shaft key and case mounting screws. Tap the case lightly to free it from the dowels. Lift off the cover. Tap lightly on the brake shaft so it remains in the lower case.



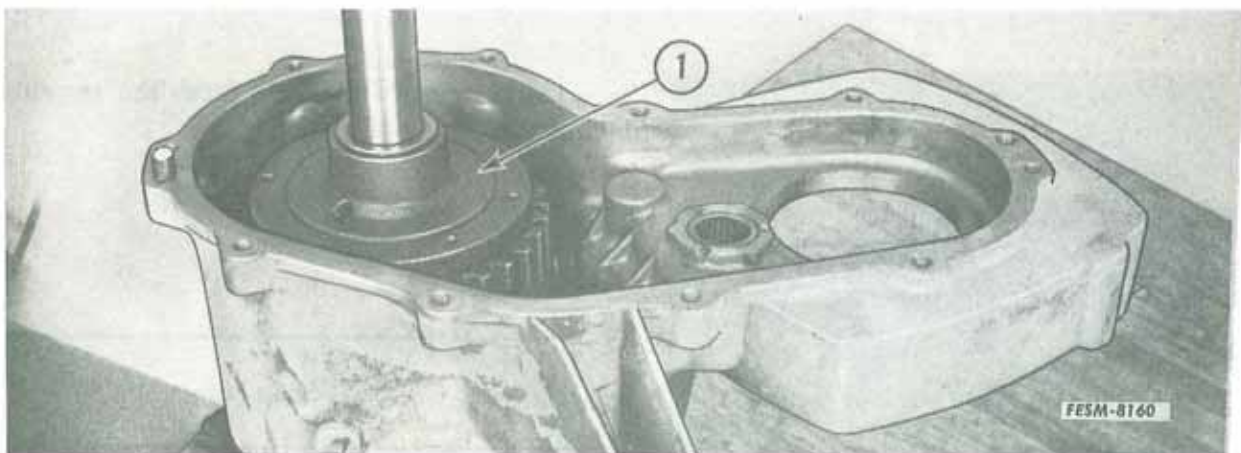
1. Brake shaft	2. Gear
----------------	---------

4. Remove the brake shaft, gear and thrust washer.



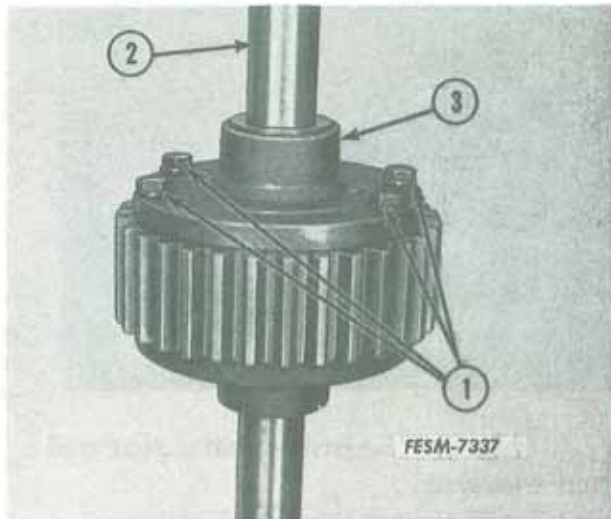
1. Shaft	3. Spacer
2. Thrust washer	4. Gear

5. Remove the idler gear, spacer, thrust washers and shaft.



1. Differential

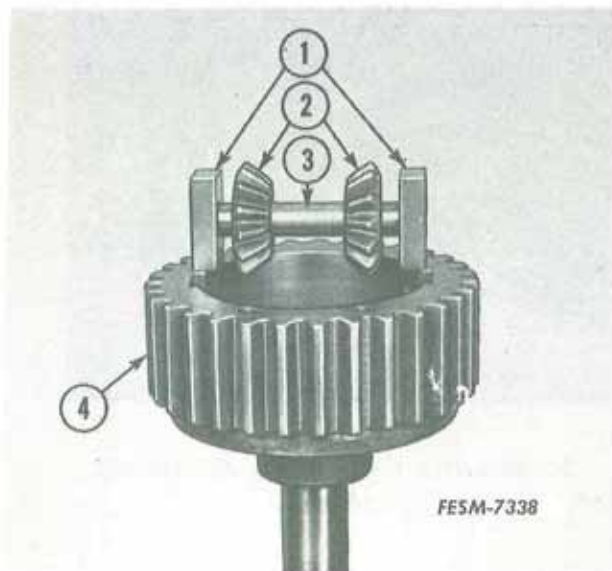
6. Remove the differential.



7. Clamp the left axle (short axle) in a vise equipped with brass jaws.

8. Remove the thru bolts. Lift off the right axle and carrier.

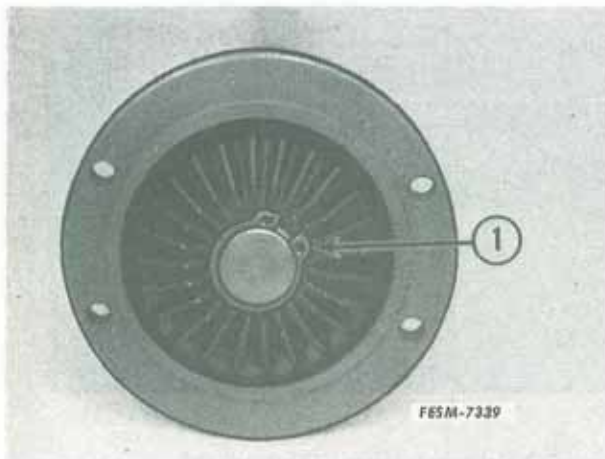
- 1. Thru bolts
- 2. Axle
- 3. Carrier



9. Lift out the bevel pinion shaft and drive blocks.

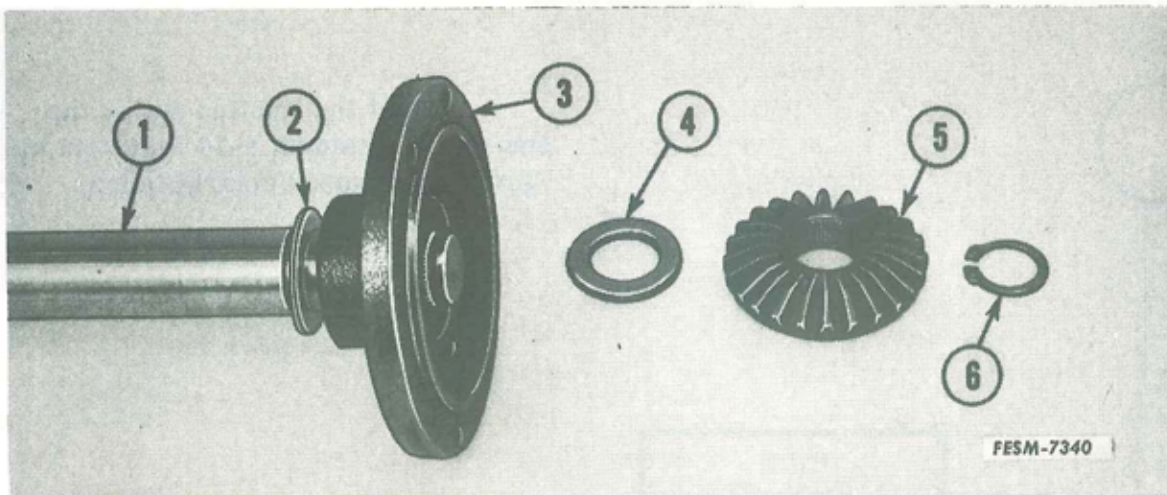
10. Remove the ring gear from the left axle carrier.

- 1. Drive blocks
- 2. Bevel pinions
- 3. Shaft
- 4. Ring gear



11. Remove the axle from the carrier by removing the snap ring.

- 1. Snap ring



1. Axle	3. Carrier	5. Bevel gear
2. Thrust washers	4. Washer	6. Snap ring

Inspection and Repair

1. Clean all parts in clean solvent and dry thoroughly.
2. Examine the gears for broken or worn teeth, breakage or burrs.
3. Examine the shafts for bending or wear. Examine the splines for wear or breakage.

4. Check all components for wear, breakage or warping.

5. Replace parts as necessary.

6. Service of the hydrostatic transmission is limited to the outer seals and reservoir.

NOTE: The reservoir threads in the case are left hand.

Reassembly and Installation

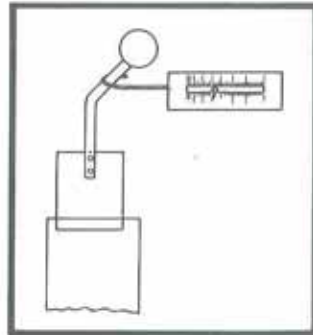
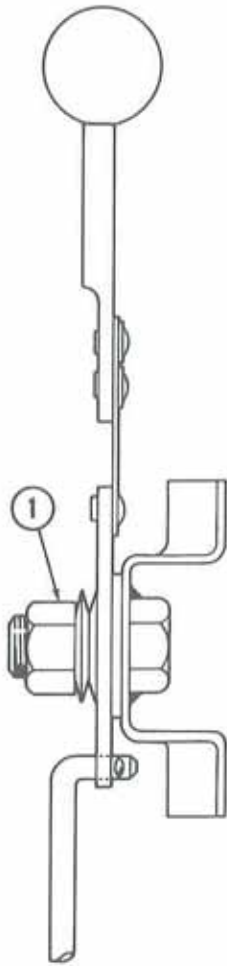
1. Reassemble and install the hydrostatic drive by reversing the removal and disassembly procedures.

2. Set the unit in the operating position.

tion. Fill the housing to the proper level with lubricant specified in the Operator's Manual before installing it in the tractor.

3. Adjust the linkage as needed.

Linkage Adjustment



1. Friction adjusting nut

1. Adjust the friction nut on the linkage to obtain an 8-10 lb. effort measured at the speed control lever.

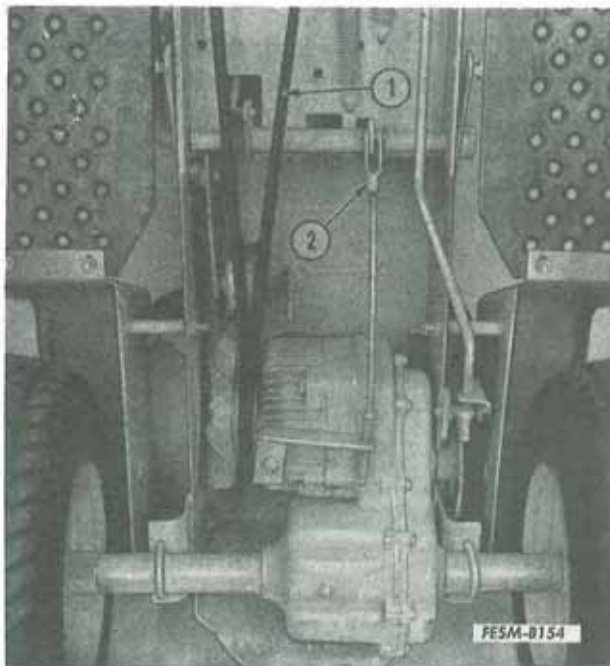
2. Raise the rear wheels of the tractor off the ground and support the rear frame securely.

3. Position the speed control lever in neutral.

4. Start and run the engine at full throttle. The wheels should not turn. Adjust the turnbuckle on the control linkage if creeping occurs.



CAUTION: Stop engine before making any adjustment to the linkage.



1. Drive belt
2. Control linkage

Section 3

MOWER CONTENTS

	Page
SPECIFICATIONS	3-1
SPECIAL TORQUES	3-1
MOWER	
Removal	3-2
Disassembly	3-4
Inspection and Repair	3-6
Blade Sharpening	3-6
Reassembly	3-7
Installation	3-8
Leveling the Mower	3-9

NOTE: Correct engine RPM, mower drive pulley and belt combinations are shown in a chart on page 1-1.

SPECIFICATIONS

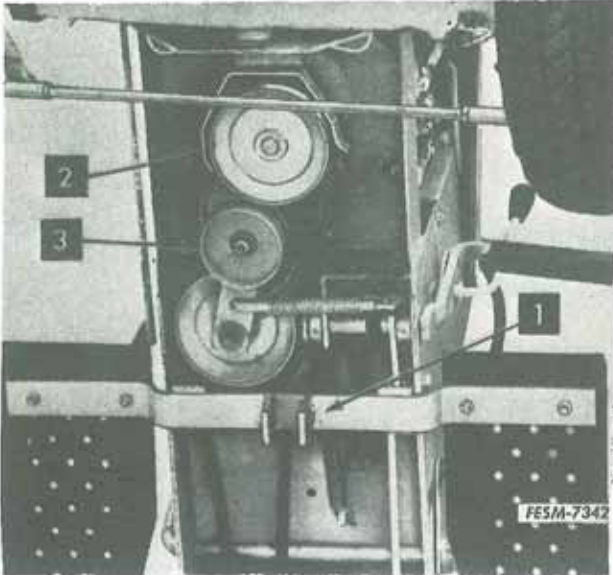
Type cutter bar	Suction lift
Width of cut - inches	36
Adjustable cutting height - inches	1-1/2 to 4-1/4

SPECIAL TORQUES

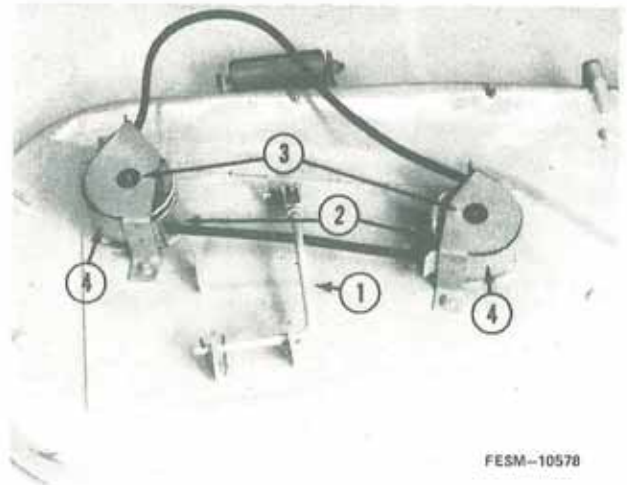
Pulley retaining nut	120 ft. lbs.
Blade spindle bolts	35 ft. lbs.

MOWER

Removal

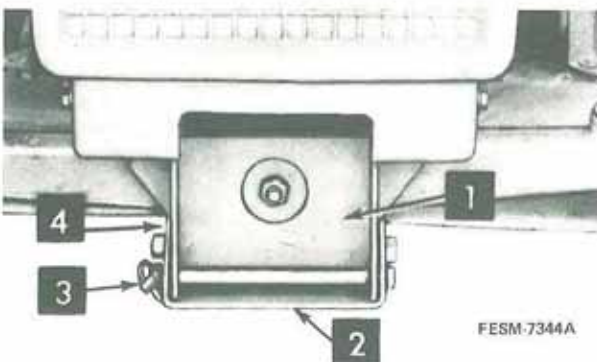


1. Foot rest support bracket
2. Main drive pulley and belt guide
3. Mower drive belt idler

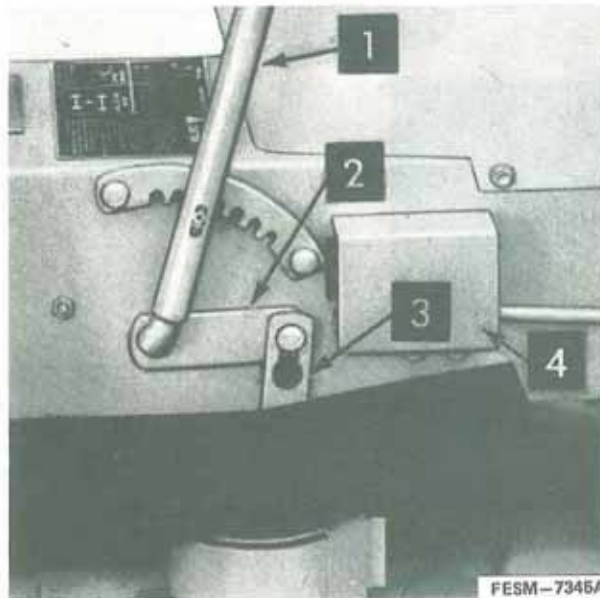


1. Mower linkage rod and clevis
2. Lubrication fitting (not shown)
3. Lubrication fitting (tractor serial no. 32115 and above)
4. Belt guide

1. Disconnect the spark plug wire.
2. Lower the mower all the way down.
3. Raise the spring loaded mower belt guide. Remove the drive belt from the engine drive pulley and idler pulley.
4. Disconnect the mower linkage rod from the foot rest support bracket.
5. Disconnect the mower from the front mower leveling link by removing the rear leveling link pin.



1. Front mower hanger bracket
2. Front mower leveling link
3. Pin (front)
4. Pin (rear, not shown)



1. Lift handle
2. Lift arm
3. Lift link (one on each side)
4. Steering arm cover

6. Raise one side of the mower at a time and disconnect the lift link from the lift arm.

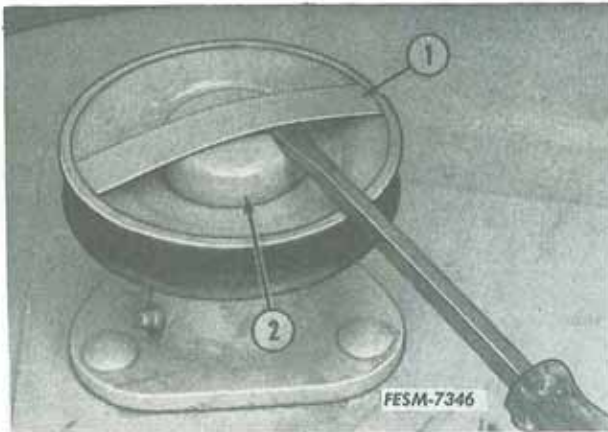
NOTE: On tractors serial no. 32115 and above, the lift links must be disconnected from the mower, not the lift arm.

To service the lift links remove the steering arm cover, lower the lift handle as far as it will go and remove the links.

The steering arm cover is replaced with the long side down.

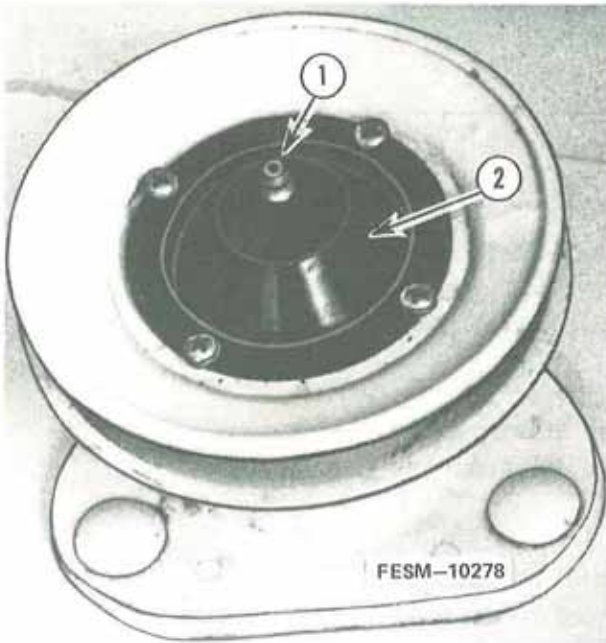
7. Slide the mower out from under the tractor.

Disassembly



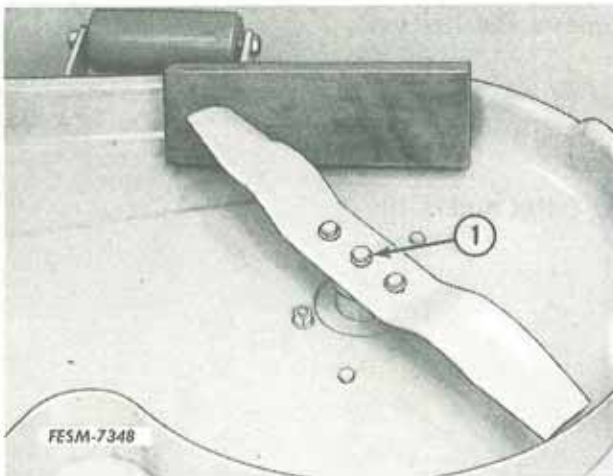
1. Remove the belt guide and belt.
2. Pry off the retainer clip. Remove the cap.

1. Retainer clip
2. Cap



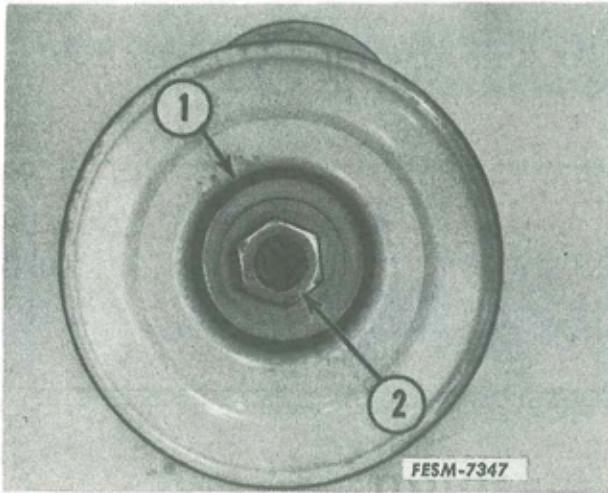
NOTE: On tractors serial no. 32115 and above, a plastic cap and lubrication fitting assembly fastened by screws has replaced the retainer clip and cap in step 2.

1. Lubrication fitting
2. Plastic cap



3. Block the blade from turning. Loosen the pulley retaining bolt. Remove the blade, adapter and key.

1. Blade mounting bolt



1. O-ring
2. Pulley nut

4. Remove the spindle assembly from the mower housing. Clamp the lower end of the shaft in a vise equipped with brass jaws.

5. Remove the O-ring, pulley retaining nut and washer.

NOTE: On tractors serial no. 32115 and above, the O-ring in step 5 will not be present and there will be shims located under the washer.

6. Unscrew the pulley from the shaft.

7. Remove the brake insert, wave washers and washer.

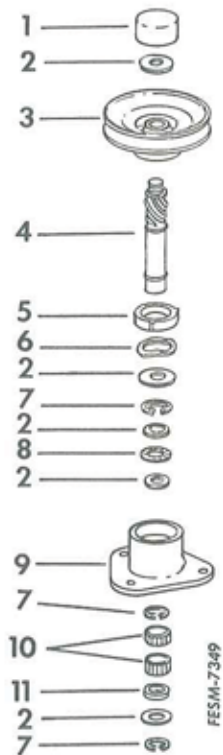
8. Remove the upper shaft retaining ring.

9. Turn the assembly over and remove the lower retaining ring and washer.

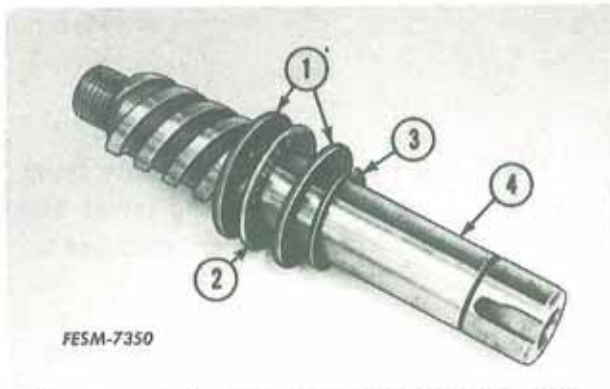
10. Push the shaft out of the housing.

11. Press the bearings and seal out of the housing if they are to be replaced.

12. Remove the retaining ring, thrust bearing and washers from the shaft.



- | | |
|-----------------|-------------------|
| 1. Cap | 7. Retaining ring |
| 2. Washer | 8. Thrust bearing |
| 3. Pulley | 9. Housing |
| 4. Shaft | 10. Bearing |
| 5. Brake insert | 11. Seal |
| 6. Wave washer | |



13. Remove the retaining ring, thrust bearing and washers from the shaft.

- 1. Thrust washer
- 2. Thrust bearing
- 3. Retaining ring
- 4. Shaft

Inspection and Repair

1. Clean all parts thoroughly before inspecting.

2. Inspect the bearings for wear or roughness of operation. Replace as necessary.

3. Inspect the belt for wear and replace if necessary.

4. Inspect the pulleys for wear and replace if necessary.

5. Inspect the blades for excessive wear and nicks. Refer to "BLADE SHARPENING".

6. Inspect the blade drive shafts for wear, pitting or roughness and replace if necessary.

7. Inspect the shaft housings for cracks etc. and replace if necessary.

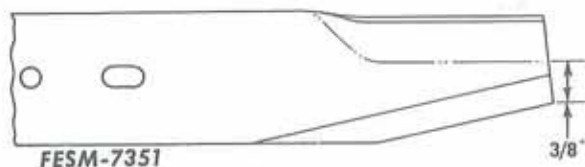
8. Inspect the shroud assembly for dents etc. and repair or replace if necessary.

9. Inspect the belt idler pulley for freeness of rotation and replace if necessary.

Blade Sharpening

1. The cutting blades must be kept sharp at all times. The blades can be sharpened on the mower (mower re-

moved from tractor) with a few strokes of a file, or they can be removed and sharpened on a grinding wheel.

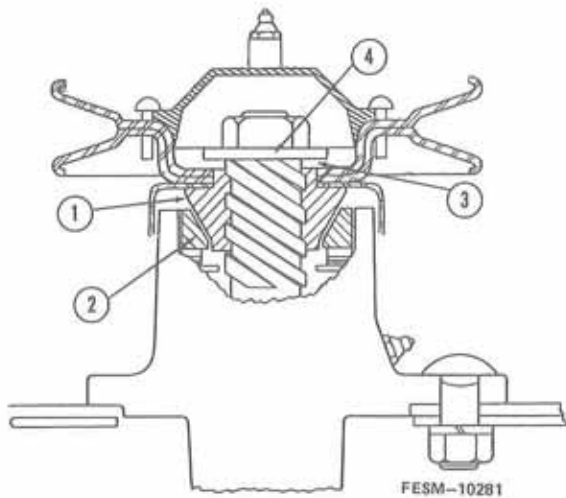


2. Sharpen blade ends evenly so the blade remains balanced. If the cutting edge of the blade is within 3/8 inch of the blade wind wing, it is recommended that a new blade be installed.

Reassembly



1. Mower pulley hub
2. Spindle shaft shoulder



1. Pulley hub
2. Brake insert
3. Shim area
4. Flat washer

1. Reassembly is the reverse of disassembly.

2. On tractors serial #32115 and above the gap between the pulley hub and spindle shaft shoulder must be no more than .762 mm (.030 in.). With the lower end of the shaft in a vise with brass jaws, thread the pulley onto the shaft until a slight resistance is felt. Add shims of .762mm (.030 in.) thickness until flush with the spindle shaft shoulder. Remove one shim and this will allow a proper gap between pulley hub and spindle shaft shoulder.

3. On 80 Series Tractors, serial #U044128, 81 Series, serial #U045199, and 111 Series, serial #U043444 and above, the addition of a fourth wave spring revises the spindle shaft shoulder gap. The shoulder gap is to be shimmed to a range of 1.14 to 1.90 mm (.045 to .075 in.).

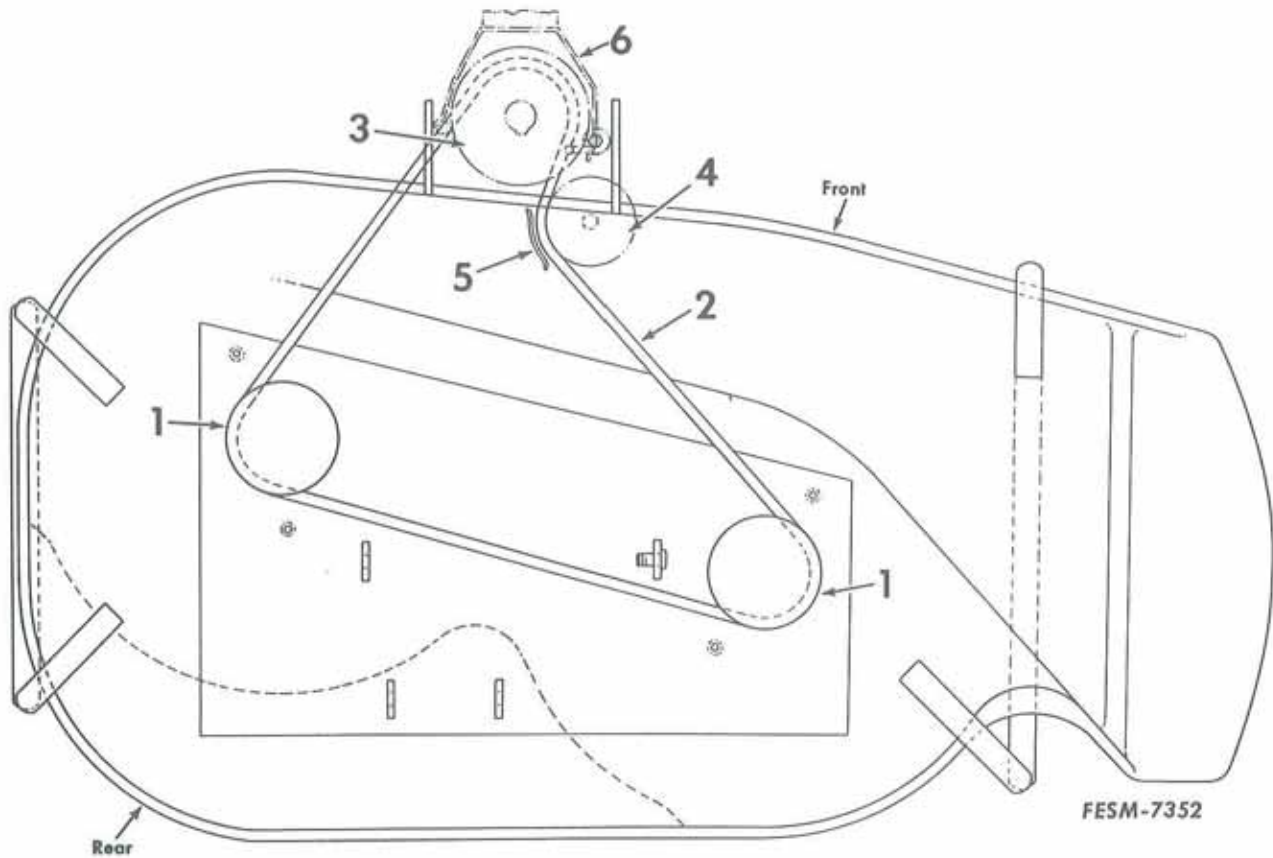
NOTE: Servicing of all subject mower spindles should include this additional wave spring and new adjustment.

4. If the drive belt guide has been removed it must be installed level with the bottom of the main drive pulley.

5. Lubricate all components with IH 251 HEP or equivalent. The braking mechanism in the spindle must be thoroughly lubricated to work properly. Lack of lubricant on the hub braking surface and brake insert will cause the brake to be too aggressive damaging the components.

6. Torque the blade to 35 ft. lbs. Torque the pulley retaining nut to 120 ft. lbs.

Installation



FESM-7352

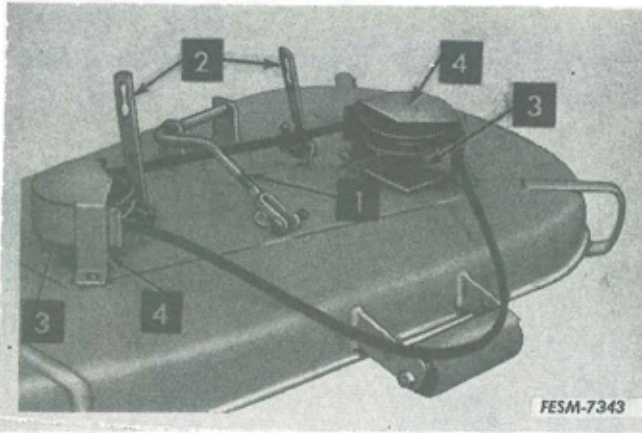
1. Blade spindles
2. Drive belt
3. Drive pulley
4. Idler
5. Belt guide
6. Belt guide

1. Install the mower by reversing the removal procedure.

2. Correctly position drive belt between pulleys and guides.

3. Level mower as necessary.

Leveling the Mower



1. Mower linkage rod and clevis
2. Lift links
3. Lubrication fittings
4. Belt guides

1. Drive the lawn tractor onto a hard flat surface.

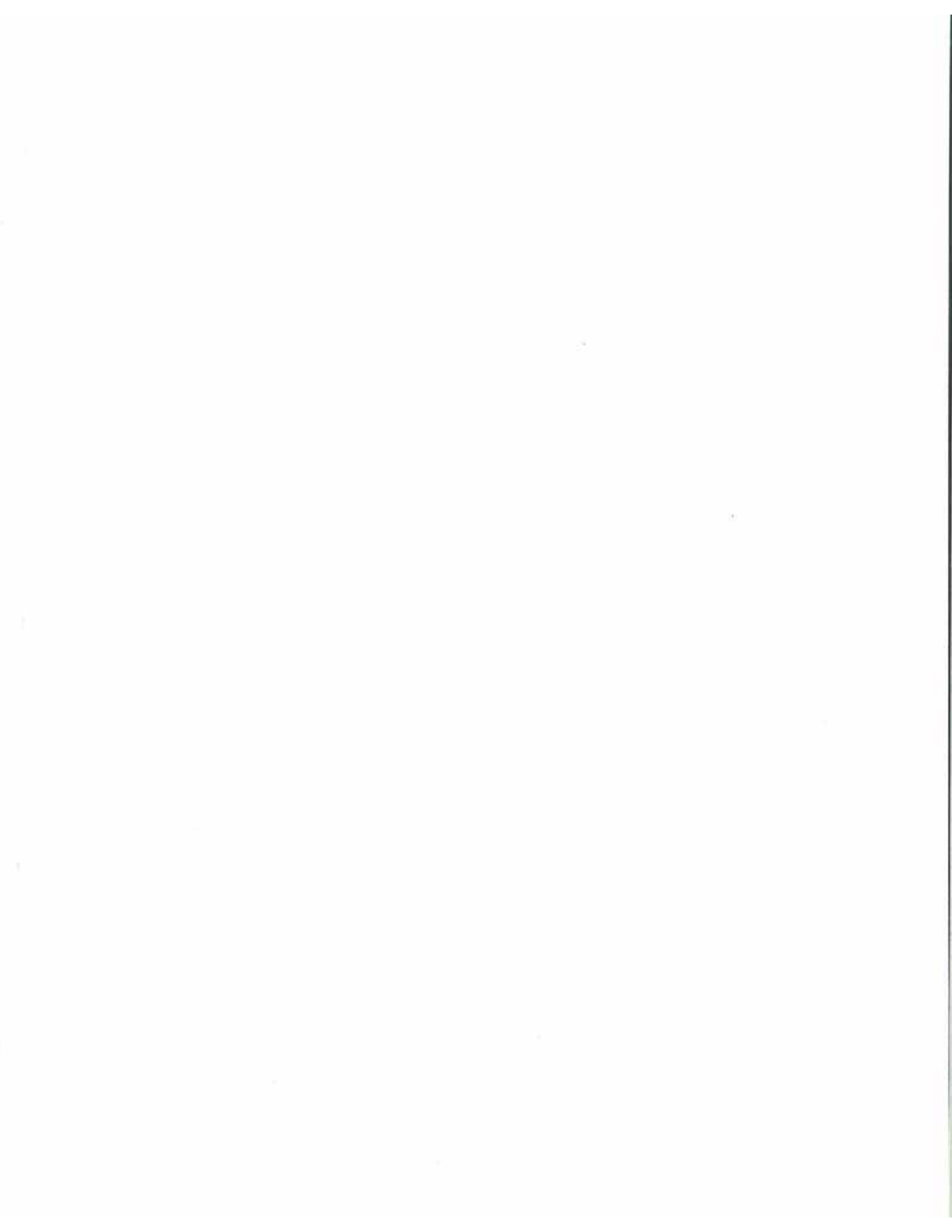
2. Turn the ignition off and disconnect the high tension wire to the spark plug. Lock the tractor brake.

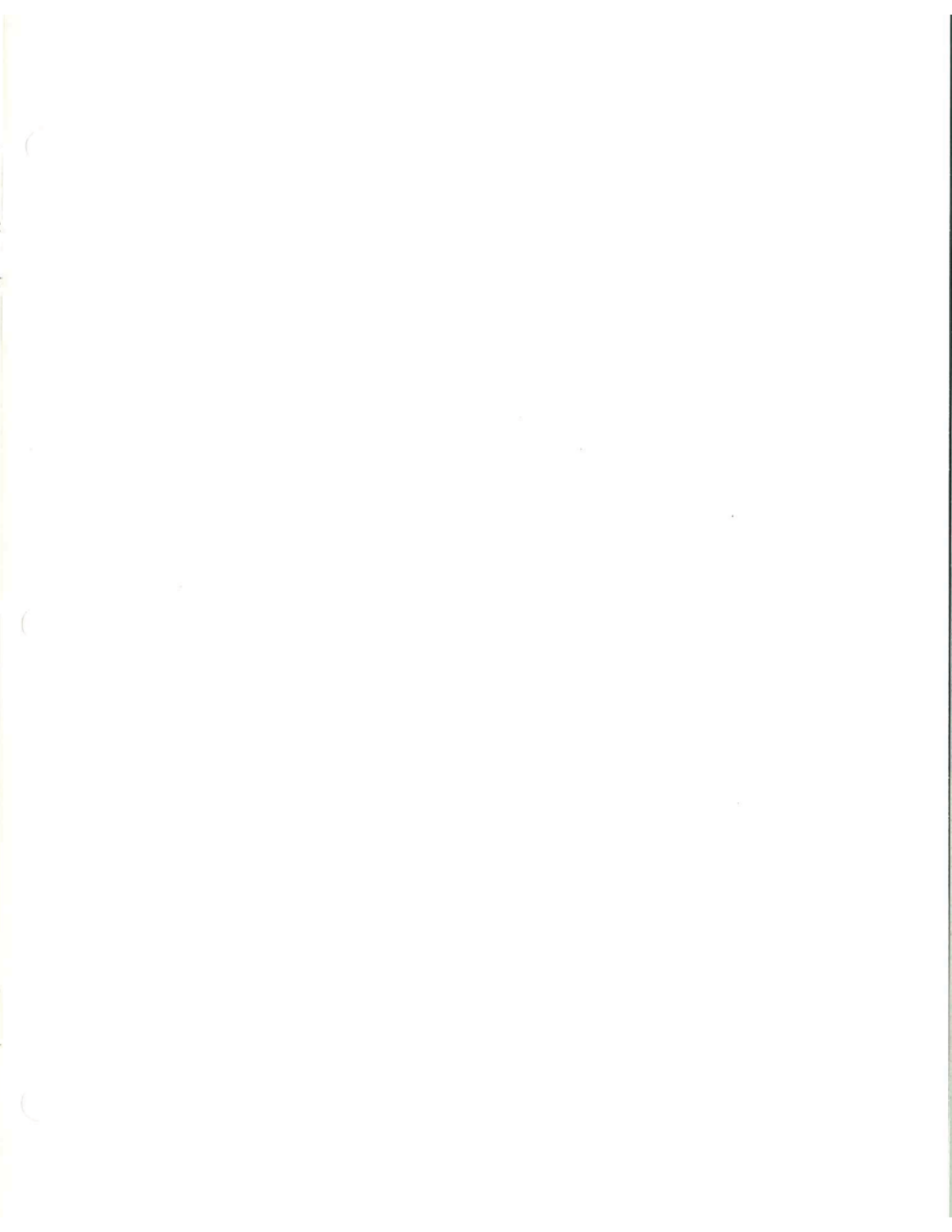
3. Check the mower level as follows:

a. Front to rear - Measure the distance from the ground to the blades (blades parallel to centerline of tractor) front and rear in typical cutting height. Adjust the clevis on the end of the mower linkage rod either up or down, depending on which measures high.

b. Side to side - The left lift link is adjustable should the mower require side to side adjustment. Turn the adjusting bolt up or down depending on which side measures too high.









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