



**WHEEL BRAKE KIT
FOR
PROFESSIONAL 4-WHEEL
TRACTORS (G SERIES)**

84286

FORM NO. 45841(10-88)

PART NO. 45840

PRINTED IN USA
\$3.00

NOTE

Read this manual carefully and learn to operate and service your brake kit before using it.

To keep the warranty, the brake kit must be maintained and operated as directed in this manual.

All references to "left-side", "right-side", "front", and "back" are given from the operator's position.

SERIAL NUMBER _____



Look for this symbol to point out important safety precautions. It means — ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED.

NOTE

Read the manual carefully and keep it handy for reference and service your home before using.

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Look for this symbol to point out important safety precautions.
It means—ATTENTION! BECOME ALERT! YOUR SAFETY
IS INVOLVED.



SECTION 1

INSTRUCTIONS FOR SAFE OPERATION

Improper use of this equipment can injure people and damage the equipment. People using or servicing this equipment must read and follow the instructions in this manual.

It is important to understand that this manual and any other Gravelly instruction manuals do not cover every possible danger. It is impossible for Gravelly to know all possible dangers in operating and servicing the equipment.

The purchaser must give these instructions to the people operating and maintaining this equipment. These people must use eye and foot protection.

1.1 Preparation:

1. Read this manual and the tractor manual carefully.
2. Learn the location and function of all controls.
3. Learn how to use the controls to stop the wheels and attachment quickly.
4. Use caution with gasoline. Gasoline is very flammable. Keep it in a clean and tight container away from flames or hot items. Never put gasoline in the fuel tank while the engine is running or hot. Clean up spilled gasoline before starting engine.
5. Be certain that all shield, guards, and interlock switches are in the correct positions.
6. Never permit children to operate the equipment.
7. Before starting the engine, put the PTO control lever in the "OFF" position and the gear shift lever in the neutral "N" position.
8. When hauling the equipment, connect the chassis to the transporting vehicle. Never connect from control levers, rods, or like items that could be damaged.
9. Replace all parts that become damaged or lost.
10. Be certain the operator presence controls work correctly before operating the equipment.

1.2 Operation:

1. Wear foot and eye protection. Do not wear loose clothing.
2. Do not use the equipment in the dark without adequate lighting.

3. Keep the equipment in good condition. Maintain it as directed in this manual.
4. USE ONLY GRAVELY ACCESSORIES AND ATTACHMENTS.
5. Do not overspeed the engine. Do not override the governor.
6. Keep away from moving parts.
7. Keep people and animals away from the operating area.
8. Do not let people other than the operator near the operating equipment.
9. Use a slow speed and engage the direction control slowly when operating on slopes.
10. Look for and keep away from hazards.
11. After hitting an object, stop the equipment and engine. Check for damage. Repair any damage before operating.
12. Look behind when operating in reverse. Look for people and hazards.
13. Operate only from the operator's position, on the seat.
14. Travel up and down, not across slopes.
15. Use caution when pulling heavy loads. Go slow and keep away from slopes. Do not tow free rolling loads of over 1,000 pounds.
16. If there is a sudden change in the sound or vibration of the equipment, stop the engine and check for damage. Repair any damage or failure before continuing operation.
17. Never run the engine indoors except to move it outside. Exhaust fumes are dangerous.
18. Go slowly and use caution applying steering brakes on slick surfaces.
19. Follow traffic laws when operating on or near a road.
20. Before making adjustments or servicing, move the PTO to "OFF" , turn the ignition switch to "OFF" and wait until all moving parts completely stop.
21. Before leaving the operator's position, move the PTO control to the "OFF" position, lower the attachment, lock the brake and remove the ignition key. Move the direction control to the forward position. Wait until all moving parts have stopped.
22. Use steering brakes only in lower gears and lower engine speed.

SECTION 2
OPERATING INSTRUCTIONS

After each use of the tractor, wash the oil from the brakes with water. Each day before operating, check all nuts, bolts, and other fasteners. Replace fasteners that are missing or damaged. Tighten all nuts and bolts to the torque shown in Chart 1 unless shown differently.

NOTE: Do not use hand or abrasive cleaners on any painted surface. Do not allow gasoline or oil to remain on any air-exposed surface.

BOLT TORQUE SPECIFICATIONS		
HEWTON METERS (N.m)	SECTION 2	BOLT SIZE
1.5	<u>OPERATING INSTRUCTIONS</u>	1/4"
2.5		3/16"
5.0		1/2"
10.0		3/4"
15.0		1"
20.0		1 1/8"
25.0		1 1/4"
30.0		1 3/8"
35.0		1 1/2"
40.0		1 3/4"
45.0		2"
50.0		2 1/4"
60.0		2 1/2"
70.0		2 3/4"
80.0		3"
90.0		3 1/4"
100.0		3 1/2"

- 2.1 Read this manual and the operator's manuals for the tractor and attachments.

The wheel brakes are used to assist the tractor steering and to reduce the turning radius of the tractor.

⚠ WARNING: Both brakes must be used to slow or stop the tractor. To prevent loss of control, the individual wheel brake must be used only to assist in steering the tractor.

- 2.2 To steer the tractor to the right, rotate the steering wheel to the right and depress the right brake pedal.
- 2.3 To steer the tractor to the left, rotate the steering wheel to the left and depress the left brake pedal.

SECTION 3

SERVICE INSTRUCTIONS

After each use of the tractor, wash the dirt from the brakes with water. Each day before operating, check all nuts, bolts, and other fasteners. Replace fasteners that are missing or damaged. Tighten all nuts and bolts to the torque shown in Chart 1 unless shown differently.

NOTE: Do not use harsh or abrasive cleaners on any painted surface. Do not allow gasoline or oil to remain on any silk screened surface.

BOLT TORQUE SPECIFICATIONS		
BOLT SIZE	FOOT POUNDS (ft.lbs.)	NEWTON METERS (N.m)
1/4"	7	9.5
5/16"	14	19
3/8"	25	34
7/16"	40	54
1/2"	60	82
9/16"	83	113
5/8"	120	163
3/4"	200	217

CHART 1

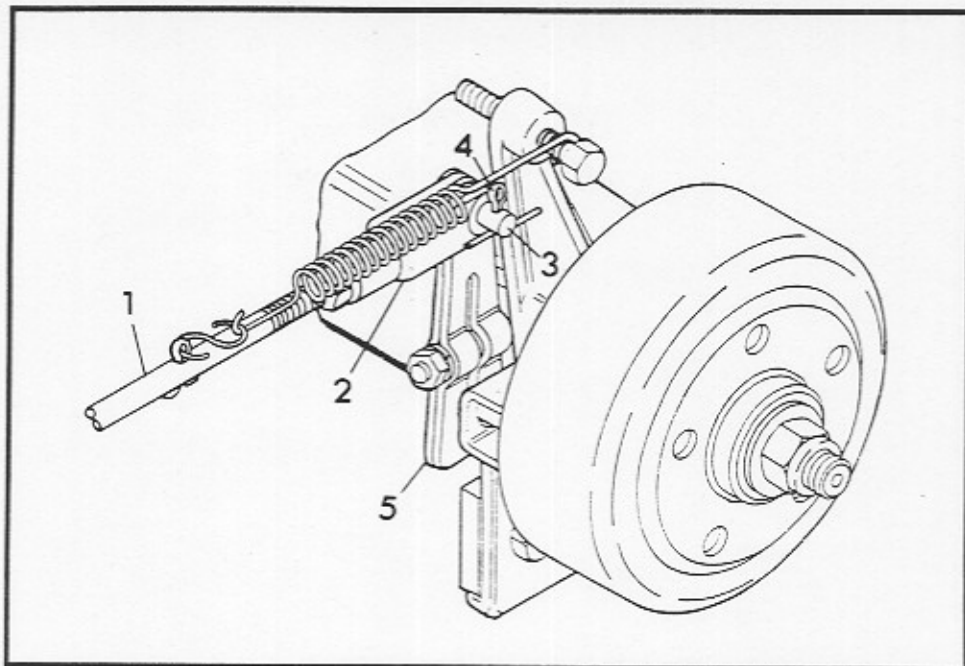
3.1 Lubrication

Add multi-purpose grease to the lubrication fittings every 8 hours of operation.

3.2 Brake Adjustment

Brake service is required if the brakes do not stop and hold the tractor effectively. The brakes should be effective enough to cause the rear wheels to slide if applied suddenly on a concrete or asphalt surface.

1. Stop the tractor on a level surface.
2. Stop the engine and block the wheels so the tractor cannot roll.
3. Remove the cotter pin and clevis pin holding the brake control rod clevis to the cam lever arm on the left individual wheel brake. See Figure 1.
4. With the left brake pedal all the way up, turn the clevis on the brake control rod until the hole in the clevis is aligned with the hole in the cam lever arm.



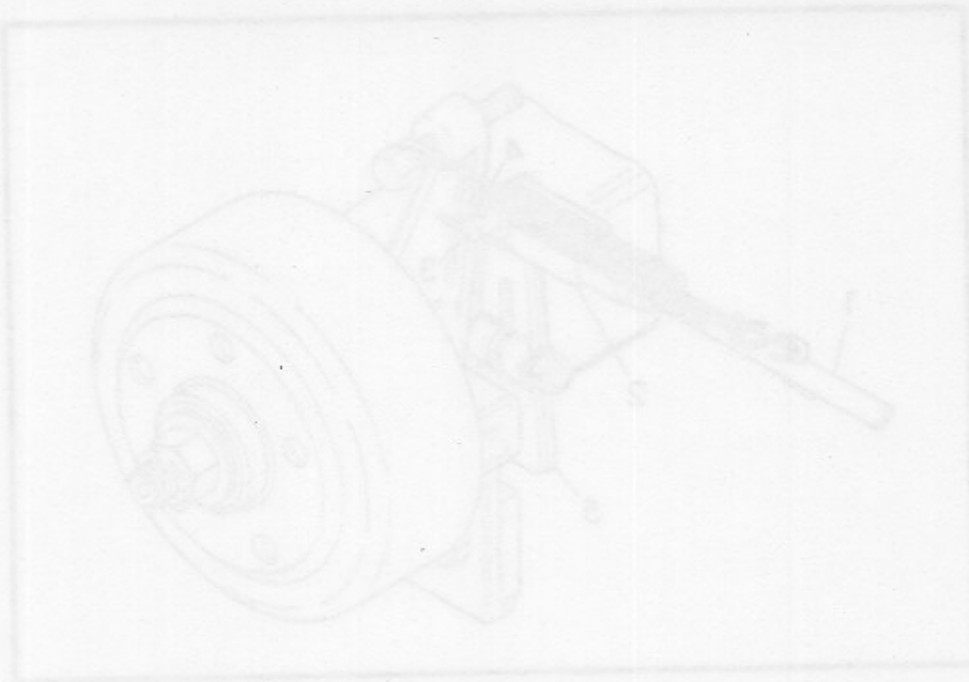
- | | |
|-----------------------|-------------------|
| 1 - Brake Rod | 4 - Cotter Pin |
| 2 - Adjustable Clevis | 5 - Cam Lever Arm |
| 3 - Clevis Pin | |

FIGURE 1

5. Fasten the brake control rod clevis to the cam lever arm with the clevis pin and cotter pin.
6. Carefully test the operation of the left individual wheel brake. If necessary, repeat the above procedures to get the correct braking action.
7. Follow the above procedures for the right individual wheel brake.
8. Make sure that the pedal travel is equal for both brakes.

⚠ WARNING: Replace the brake shoes before the lining is worn to the rivet heads.

9. If the correct braking action cannot be achieved after performing the above procedures, do the following:
 - A. Loosen the 5/16-24 nut and bolt which fastens the cam lever arm to the brake cam.
 - B. Remove the cam lever arm from the brake cam. Rotate the cam lever arm one spline to the rear and put it back on the brake cam.
 - C. Move the cam lever arm all the way to the front. Then rotate the tip of the cam lever arm 3/4 inches toward the rear.
 - D. Repeat Steps 1 through 6.

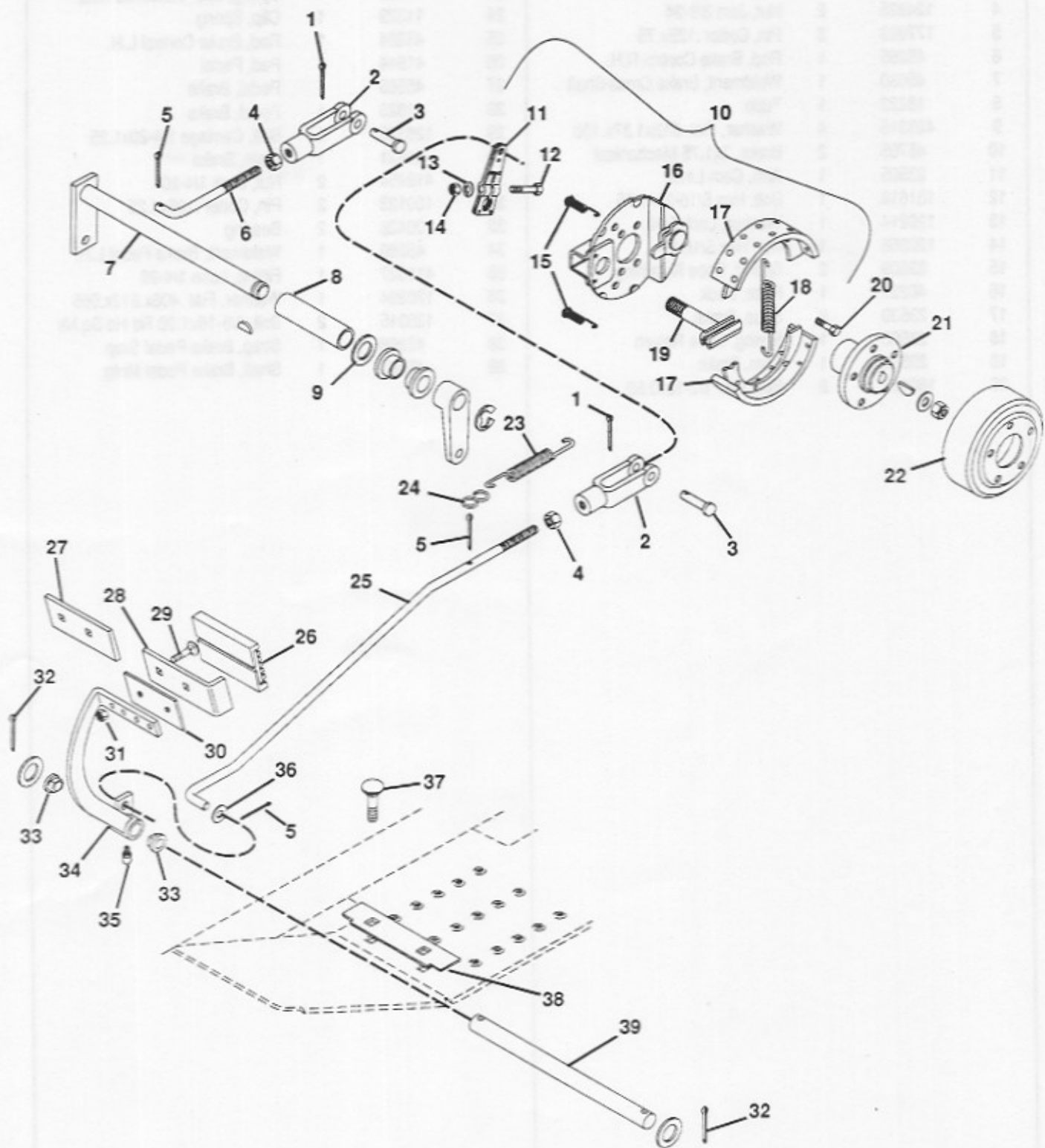


3.3 Brake Inspection and Repair

1. Raise and block the rear of the tractor.
2. Remove the rear wheels and brake drums.
3. Inspect the brake parts and linkage. Replace any parts worn or damaged.
4. Reverse the disassembly procedure. See Section 3.2 for adjustment.

SECTION 4

ILLUSTRATED PARTS AND PARTS LIST

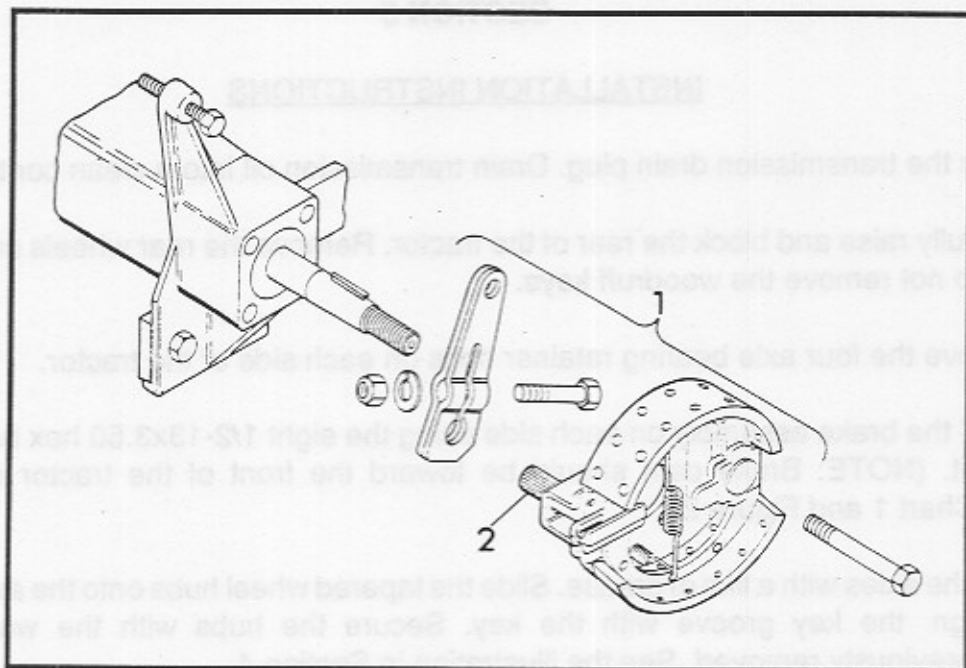


ITEM NO.	PART NO.	QTY.	DESCRIPTION	ITEM NO.	PART NO.	QTY.	DESCRIPTION
1	121222	2	Pin, Cotter .09x.75	21	45611	2	Hub, Wheel Tapered(Brake)
2	18380	2	Clevis, 3/8-24 Adjustable	22	44488	2	Drum, Brake
3	138078	2	Pin, Clevis .375x.948	23	11263	1	Spring, Ext. 5.5x.5x20 Rate
4	124925	2	Nut, Jam 3/8-24	24	11329	1	Clip, Spring
5	177923	3	Pin, Cotter .125x.75	25	45264	1	Rod, Brake Control L.H.
6	45265	1	Rod, Brake Control R.H.	26	41944	1	Pad, Pedal
7	45630	1	Weldment, Brake Cross Shaft	27	45565	1	Pedal, Brake
8	18223	1	Tube	28	41923	1	Pedal, Brake
9	423315	4	Washer, Flat .813x1.37x.100	29	126325	2	Bolt, Carriage 1/4-20x1.25
10	45705	2	Brake, 7x1.75 Mechanical	30	41921	1	Plate, Brake
11	23505	1	Arm, Cam Lever	31	419454	2	Nut, Lock 1/4-20
12	181618	1	Bolt, Hex 5/16-24x1.75	32	120123	2	Pin, Cotter .125x1.25
13	120214	1	Washer, Lock 5/16	33	26428	2	Bearing
14	120368	1	Nut, Hex 5/16-24	34	45260	1	Weldment, Brake Pedal L.H.
15	23509	2	Spring, Shoe Retaining	35	411027	1	Fitting, Lube 1/4-28
16	46231	1	Plate, Back	36	120394	1	Washer, Flat .406x.812x.065
17	23539	2	Shoe, Brake	37	120915	2	Bolt, 3/8-16x1.00 Rd Hd Sq Nk
18	23508	1	Spring, Shoe Return	38	45266	1	Strap, Brake Pedal Stop
19	23506	1	Cam, Brake	39	45263	1	Shaft, Brake Pedal Mntg
20	180192	8	Bolt, Hex 1/2-13x3.50				

SECTION 5

INSTALLATION INSTRUCTIONS

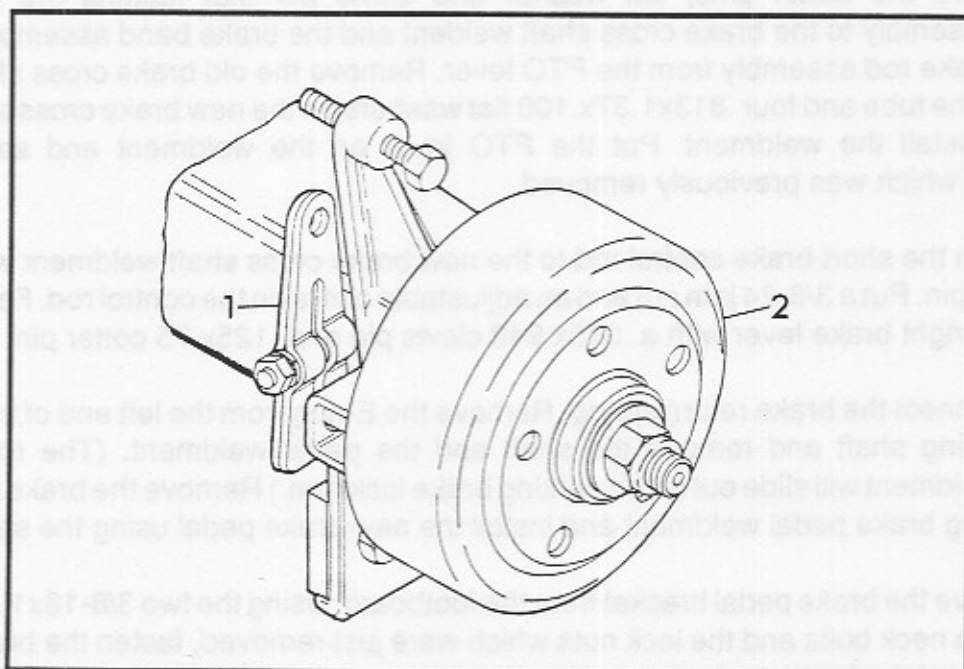
- 5.1 Clean the transmission drain plug. Drain transmission oil into a clean container.
- 5.2 Carefully raise and block the rear of the tractor. Remove the rear wheels and wheel hubs, but do not remove the woodruff keys.
- 5.3 Remove the four axle bearing retainer bolts on each side of the tractor.
- 5.4 Install the brake assembly on each side using the eight 1/2-13x3.50 hex bolts supplied in the kit. (NOTE: Brake cam should be toward the front of the tractor on each side.) See Chart 1 and Figure 2.
- 5.5 Coat the axles with a film of grease. Slide the tapered wheel hubs onto the axles taking care to align the key groove with the key. Secure the hubs with the washer and lock nuts previously removed. See the illustration in Section 4.
- 5.6 Slide the brake drums over the brake linings and onto the wheel hubs. Install the brake levers in a vertical position on the brake cams and secure by tightening the nut and bolt. See Figure 3.
- 5.7 Remove the cotter pins, flat washer and clevis pin that fastens the parking brake rod assembly to the brake cross shaft weldment and the brake band assembly. Disconnect the brake rod assembly from the PTO lever. Remove the old brake cross shaft weldment. Slide the tube and four .813x1.37x.100 flat washers on the new brake cross shaft weldment and install the weldment. Put the PTO lever on the weldment and secure with the E-ring which was previously removed.
- 5.8 Fasten the short brake control rod to the new brake cross shaft weldment with a .125x.75 cotter pin. Put a 3/8-24 jam nut and an adjustable clevis on the control rod. Fasten the clevis to the right brake lever with a .375x.948 clevis pin and .125x.75 cotter pin.
- 5.9 Disconnect the brake return spring. Remove the E-ring from the left end of the brake pedal mounting shaft and remove the shaft and the pedal weldment. (The rod fastened to the weldment will slide out of the parking brake lock arm.) Remove the brake pedal from the existing brake pedal weldment and install the new brake pedal using the same hardware.
- 5.10 Remove the brake pedal bracket from the footboard. Using the two 3/8-16x1.00 round head square neck bolts and the lock nuts which were just removed, fasten the brake pedal stop strap and the brake pedal bracket to the footboard.
- 5.11 Put a bearing in each end of the tube of the new brake pedal weldment and fasten the long brake rod to the weldment using a .406x.812x.065 flat washer and a .125x.75 cotter pin.



1 - Brake Assembly

2 - Brake Cam

FIGURE 2



1 - Brake Lever

2 - Brake Drum

FIGURE 3

SECTION 5
LIMITED FIVE YEAR WARRANTY

- 5.12 Position the existing brake pedal weldment near the brake pedal bracket, making sure that the rod slides back through the hole in the parking brake lock arm. Put the new brake pedal mounting shaft through the existing brake pedal weldment, the nylon bushings in the brake pedal bracket and the new brake pedal weldment. Retain with the flat washers which were previously removed and the two .125x1.25 cotter pins.
- 5.13 Reconnect the brake return spring for the existing brake pedal weldment. Reconnect the brake rod assembly to the PTO lever with the clevis pin and cotter pin previously removed.
- 5.14 Install the brake pedal, brake plate and brake pad on the new brake pedal weldment using the 1/4-20x1.25 carriage bolts and 1/4-20 lock nuts.
- 5.15 Put a 3/8-24 jam nut and an adjustable clevis on the long brake rod. Fasten the clevis to the left brake lever with a .375x.948 clevis pin and .09x.75 cotter pin. Put a .125x.75 cotter pin in the hole in the long brake rod. Hook one end of the extension spring in the end of the cotter pin. Put the spring clip in the hole in the footboard and hook the remaining end of the spring in the clip.
- 5.16 Apply grease to the grease fittings on the brake pedal weldments. Replace the rear wheel assemblies, lower the tractor, install the drain plug and refill the transmission with clean oil.
- 5.17 Adjust the brakes as directed in Section 3.2.

SECTION 6

LIMITED FIVE-YEAR WARRANTY

1. This Limited Five-Year Warranty is issued by Gravely International, Inc., only to the original purchaser. If Gravely equipment is leased by Gravely, this Warranty shall extend also to the original lessee as if such lessee were the original purchaser.
2. Gravely warrants that all new equipment manufactured by Gravely ("Gravely Products") shall be free of defects in material and workmanship for the term described in paragraph 4, below. Except as hereinafter provided, this Warranty does not cover any engine, tires or battery forming a part of the Gravely Product. Engine and tires are covered by and subject to separate warranties of the manufacturers thereof.
3. In the event that any Gravely Product warranted hereunder shall be defective or fail to conform with this Warranty, Gravely shall, subject to the provisions hereof, pay for, or provide labor and materials for, the repair or replacement of such defective Gravely Product.
4. This Warranty is for five years (60 months) from purchase date for Gravely Products used exclusively for personal, family or household purposes, and two years (24 months) for products used for other purposes (commercial use), excluding rental firms. Gravely products used for rental purposes will be warranted for 90 days. Repair of Gravely Products after the second year (24 months from date of purchase) shall be subject to a \$50.00 deductible for each repair. (After two years, Gravely agrees to repair or replace defective Gravely Products used exclusively for personal, family or household purposes only to the extent that the cost of such warranty covered repair or replacement exceeds \$50.00.)

Batteries are warranted by Gravely for a period of twelve (12) months only. If a battery shall fail within twelve (12) months of purchase, the replacement cost thereof shall be prorated over a twelve-month term based upon the number of months since purchase.
5. To obtain Warranty Service on a Gravely Product (including any battery or other component not manufactured by Gravely), use this procedure:
 - a. Notify the Gravely dealer from whom you purchased the equipment.
 - b. If you have moved and it is not convenient to notify the selling dealer, notify the nearest Gravely dealer. You should supply this dealer with a copy of the bill of sale as proof of the date of purchase.
 - c. Make arrangements to have the equipment delivered to the dealer (refer to paragraph 6 a., below).
 - d. If you have any questions concerning the Gravely Limited Warranty, they should be referred to:

Gravely International, Inc.
One Gravely Lane
Clemmons, NC 27012
Attn: Customer Service Department
 - e. Warranty Service on Gravely Products must be performed by an authorized Gravely dealer.
6. This Warranty does not cover the following:
 - a. Transportation to the Gravely dealership. (If the Gravely dealer provides transportation, he will charge for such service.)
 - b. Normal maintenance services and normal replacement of items such as spark plugs, belts, oil, oil filters, air filters, and mower, plow or cultivator blades, gauge wheels, skids and other wear items.
 - c. Any Gravely Product which has been altered or modified in any way.
 - d. Any repair or replacement occasioned by customer neglect or lack of proper maintenance. (The purchaser is responsible for making sure that Gravely Products are operated and serviced as directed in the applicable manual or service instruction. Incorrect use or maintenance will void this Warranty.
 - e. Any repair occasioned by the use of any attachment not approved by Gravely. (The use of any such unapproved attachment will void this Warranty.)
7. GRAVELY MAKES NO OTHER EXPRESSED OR IMPLIED WARRANTIES, OR WARRANTIES AS TO THE MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ALL WARRANTIES ARE LIMITED IN DURATION TO THE TERMS SET OUT IN PARAGRAPH 4, ABOVE. GRAVELY SHALL HAVE NO LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE BREACH OF ANY WARRANTY, INCLUDING, BUT NOT LIMITED TO, LIABILITY FOR INCONVENIENCE, RENTAL OR PURCHASE OF REPLACEMENT EQUIPMENT, OR FOR LOSS OF PROFITS OR OTHER COMMERCIAL LOSS.
8. Some states do not allow limitations on how long an implied warranty lasts, so the above statement may not apply to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.
9. This Warranty gives you specific legal rights, and you may have other rights which vary from state to state.
10. A Gravely product registration card is supplied with each Gravely Product. Please complete the card and return it to Gravely at the address listed on the card. The equipment registration card will be used by Gravely for:
 - a. Recording date of purchase.
 - b. Notification of owners in compliance with the Consumer Product Safety Act, should any notification be necessary.The return of such card is necessary for your warranty to be effective.
11. This Warranty is not subject to change or modification by anyone, including Gravely dealers and no Gravely dealer is authorized to make any representations or promises on Gravely's behalf.

GRAVELY

One Gravely Lane, Clemmons, NC 27012