

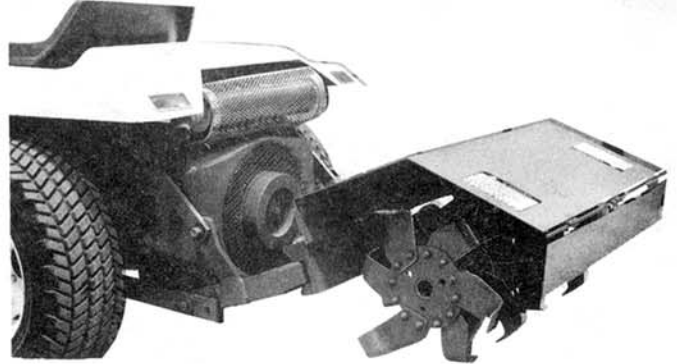


CLARKE-GRAVELY CORPORATION
A Studebaker-Worthington Company

OPERATOR'S MANUAL

NAME: REAR TILLER

PART NUMBER(S): 18886



816 GRAVELY WITH REAR TILLER

GENERAL

1. Read this manual carefully and understand how to operate and maintain the tiller before attempting to use it. The Rear Tiller has been designed and built to the traditionally high standards for which Gravely is famous. With proper operation and maintenance the tiller will perform for many uses to come. Knowing how to use The Gravely and Rear Tiller is the largest part of getting the job done.
2. The Rear Tiller is a drawn-behind, ground-turning garden implement powered by the engine of The Gravely tractor. Power to the tiller is controlled by the PTO (power take-off) of The Gravely through the rear PTO accessory. The tiller is "quick-connected" to the liftable rear hitch of The Gravely with drop-in hitch pins; the drive shaft connects with a hand-operated locking collar. The primary function of the tiller is to "break-up" ground for a seedbed and cultivate the garden throughout the growing season.
3. The Owners Manual includes parts list, set up, safety, operator and maintenance instructions. Item numbers used in this manual are in reference to fig 1, Illustrated Parts List. All references to right-side, left-side are made from the operator's position on the seat of The Gravely. Contact The Gravely Dealer for further information.
4. To continue its program of quality and design improvement the manufacturer reserves the right to change specifications, design or prices without notice and without incurring obligation.

5. SPECIFICATIONS

Purpose: seedbed preparation and cultivation
Maintenance Intervals: 4 use hours or after each use

Drive Gear Lubricant
Grade: API GL-6
Viscosity: SAE 90W

Drive Shaft Lubricant
general purpose grease
light oil on locking collar

Recommended Tractors
All Riding Gravelys (except 408 & 450)

Required Accessories
Rear PTO
Liftable Rear Hitch

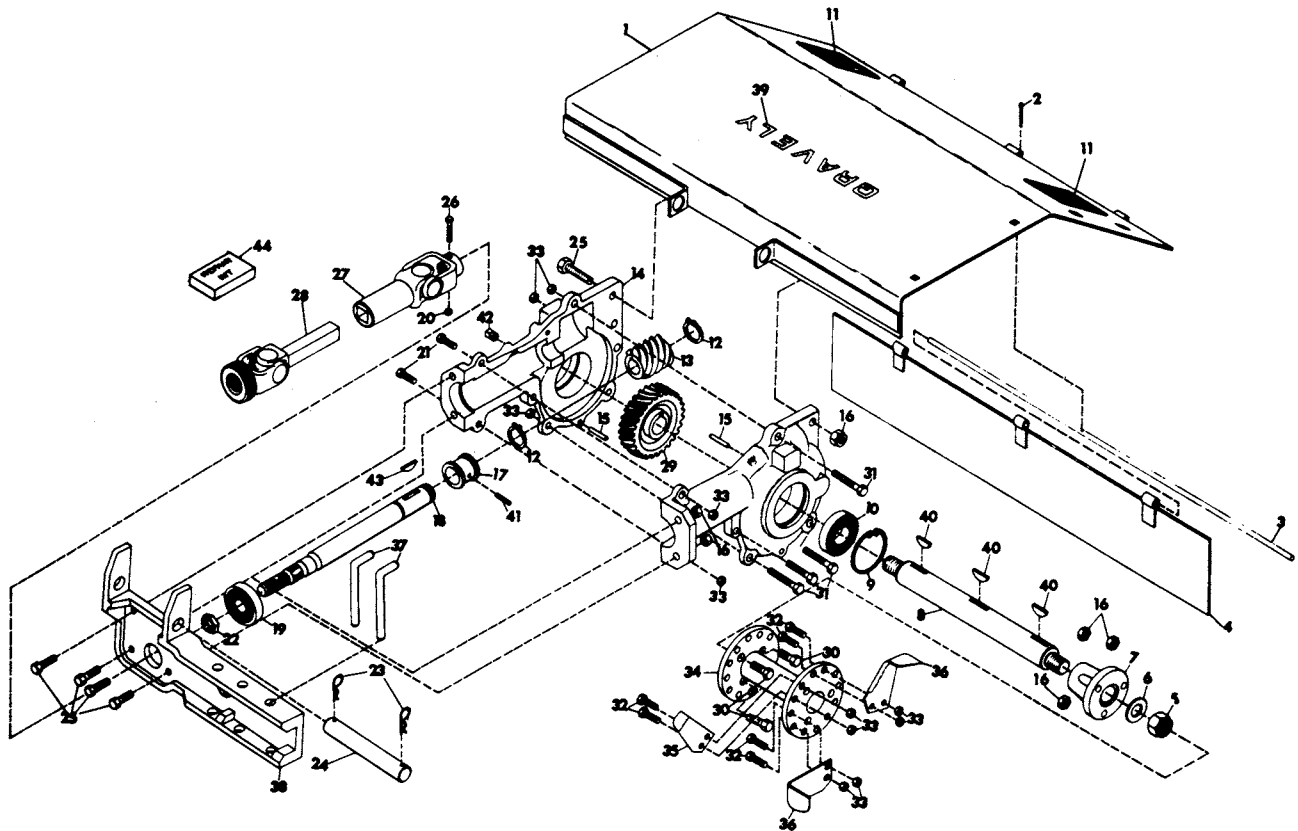
Recommended Accessories
Front Wheel Weights
Weight Rack (with weights front mounted)
Lift Assist and Lift Assist Auxiliary Kits (for manual lift, must be used together)

Special Use Accessories
Rear Wheel Weights
Wheel Brakes
Tire Chains

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Form No. 20936 (1-75)

Printed in U.S.A.



ITEM NO.	PART NO.	DESCRIPTION	ITEM NO.	PART NO.	DESCRIPTION
1	18902A1	Hood, Weldment	23	10405P1	Cotter, Hair Pin
2	137946	Pin, Cotter 1/8 x 1/2	24	18908P1	Rod
3	18911P1	Rod	25	180181	Bolt, Hex 1/2-13 x 2
4	18909A1	Plate, Weldment	26	180044	Bolt, 1/4-20 x 2 Hex Hd
5	456007	Nut, Lock 3/4-10	27	13518P1	Joint, U Female End
6	18885P1	Washer	28	19074P1	Shaft, Prop Sq. Bar
7	18884P1	Hub	29	18882P1	Gear
8	18881P1	Axle	30	180179	Bolt, Hex 1/2-13 x 1-3/4
9	18872P1	Ring, Retaining	31	187070	Bolt, Hex 3/8-16 x 2-5/8
10	18873P1	Bearing	32	180123	bolt, Hex 3/8-16 x 1-1/8
11	19479P1	Decal, Caution	33	456004	Nut, Lock 3/8-16
12	17966P1	Ring, Retaining	34	18913A1	Plate Weldment
13	18877P1	Worm	35	18939P1	Tines, R.H.
14	19372A1	Housing Assembly	36	18940P1	Tines, L.H.
15	3184P1	Pin, Dowel 3/8 x 3/4	37	18864P1	Pin, Hitch
16	435507	Nut, Lock 1/2-13 Washer Insert	38	18889P1	Bracket
17	18878P1	Bearing, Sleeve	39	19365P1	Decal
18	18875P1	Shaft	40	117986	Key, Woodruff 1.50 x 3/8
19	18879P1	Bearing	41	455160	Pin, Roll 3/16 x 1/2
20	9419454	Nut, Lock 1/4-20 Washer Insert	42	444867	Plug, 3/8-18
21	180128	Bolt, Hex 3/8-16 x 1-3/4	43	117977	Key, Woodruff 1 x 5/16
22	18880P1	Nut, Lock 1-1/8-12 Hex	44	12134P1	Kit, Repair Universal Joint Rockwell St
				20573P1	Kit, Repair Universal Joint Neapco 1605X

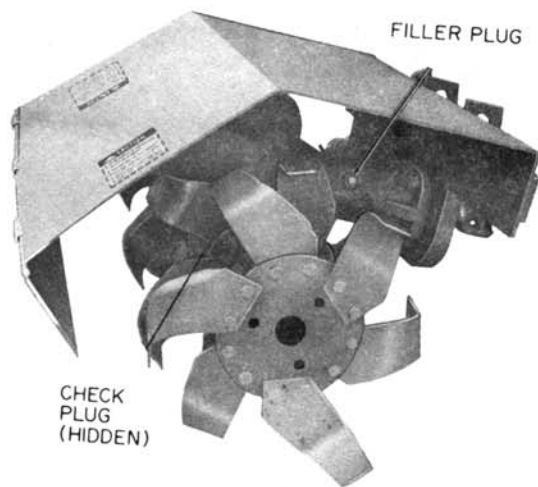


fig 2

ASSEMBLY

1. Check oil level in geardrive. Remove check plug. Add oil (if necessary) to bring oil level up to plug with unit level, fig 2. Use API GL-6 SAE 90W gear lubricant.
2. Bolt female end of drive shaft to splined tiller shaft, Items 18, 20, 26 and 27.
3. Apply a heavy coat of general purpose grease to the portion of rectangular male shaft that enters female shaft. Put male shaft in female shaft and remove excess grease.
4. Lightly oil locking collar.

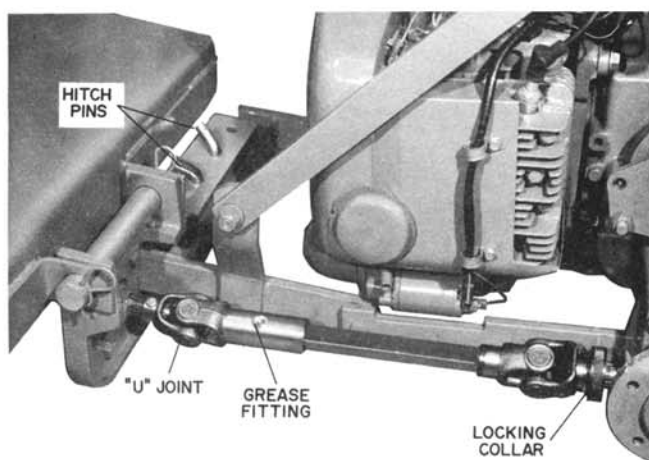


fig 3

CONNECTING TO THE GRAVELY, fig 3

1. Assemble liftable rear hitch and rear PTO to The Gravelly before mounting tiller. The rear hitch weldment, pad and stabilizing hitch bolts are not used in this application.

2. Put liftable rear hitch in float position, allowing hitch to be raised or lowered by hand from behind The Gravelly.
3. Join tiller to hitch by matching up 2 holes closest to drive shaft with holes in hitch. Secure in place with 2 drop-in hitch pins.
4. Connect locking collar of drive shaft to PTO of rear axle. Be sure collar "clicks" into position on PTO shaft.
 - A. Twist Type Collar: Rotate collar ring in direction of arrow on ring and hold. Slide collar half way on shaft. Release ring and continue sliding on shaft until collar "clicks" and locks in position.
 - B. Slide Type Collar: Slide collar ring towards "U" joint and hold. Slide collar half way on shaft. Release ring and continue sliding on shaft until collar "clicks" and locks in position.

SAFETY PRECAUTIONS

1. Read The Gravelly Owners Manual. Be familiar with all controls and follow the safety precautions outlined in the manual. Know how to STOP the tractor and tiller quickly in an emergency.
2. Inspect and clear the work area (prior to tilling) of rocks, glass, metal, bones, and any other foreign objects that might be picked up and thrown or tangled in the tiller. Stay alert for holes and other hidden hazards.
3. Do not wear loose fitting clothing or accessories that might get caught in moving parts or on the controls. Keep hands, feet, hair, clothing, etc., away from moving parts.
4. Keep bystanders and pets removed from the work area, and a safe distance away.
5. Do not allow children to operate the equipment, nor allow adults to operate it without their having knowledge of safe operating practices.
6. Operate the tiller from the proper operator's position on the seat of The Gravelly.
7. Keep safety devices, interlocks and shields in place at all times.

8. Put the PTO in the OUT position when the tiller is not in use or is being transported.
9. Disengage power to the tiller and STOP the engine before clearing the unit.
10. After striking a foreign object, STOP the engine and put the PTO in the OUT position before inspecting for damage. Any damage must be repaired before restarting the equipment.
11. Never leave the equipment running when unattended - always STOP engine and put the PTO in the OUT position when leaving the machine.
12. Never operate the tiller in darkness. Use good artificial light when operating at night.
13. Maintain the tiller in safe operating condition. Keep the machine in good maintenance and all fasteners secured.

OPERATION

1. Read The Gravely Owners Manual for safety and operating instructions to engage and disengage PTO (power take-off). Know how to STOP quickly in an emergency.
2. Use caution when transporting tiller. Be careful when crossing dips in terrain to avoid dragging tiller. Keep PTO in OUT position. Use suggested weight accessories to increase steering control.
3. Observe ground to be cultivated. Plan a route (for seedbed preparation) as suggested in fig 4.
4. To begin, keep tiller raised in transport position and engage PTO. Run engine at full throttle.
5. Select The Gravelys lowest ground speed and engage forward motion.
6. Lower tiller to ground. Note: Hydraulic Lift Models. To prevent tiller from pushing The Gravely, move lift control to float position immediately after the tiller touches ground.
7. When tilling loose ground (well established loamy garden soil) increase ground speed to cover more ground in less time and still do a good job or developing a deep, mellow seedbed.

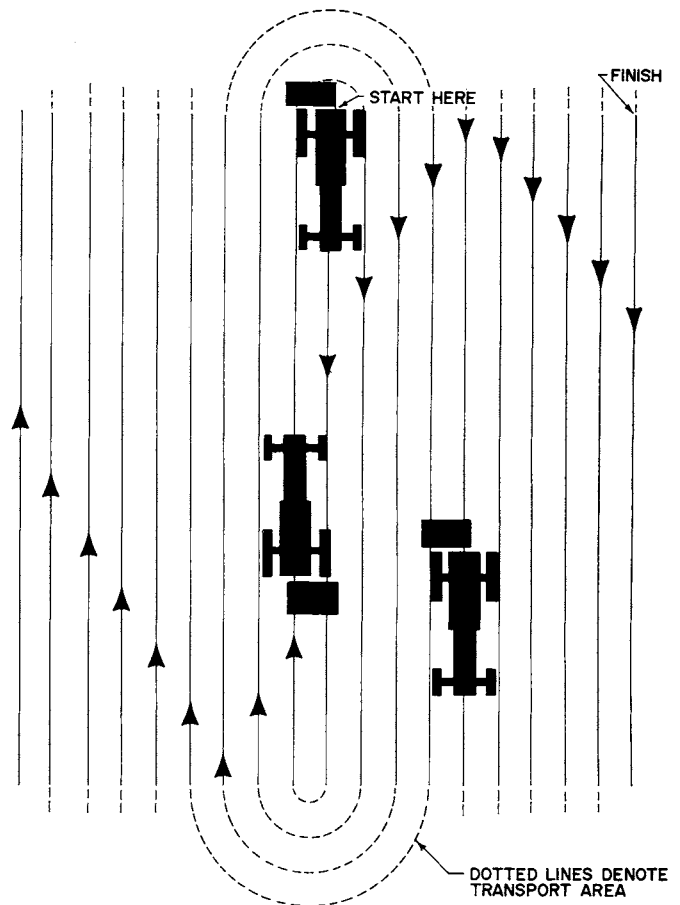


fig 4

8. When tilling heavily compacted soil (virgin ground not previously cultivated) it may be necessary to make more than one pass to achieve deep, mellow cultivation of the garden.
9. When turning around at end of garden, raise tiller out of ground. Once turned around, proceed as in step 6. Repeat for each row always turning to right. Overlap rows slightly to insure thorough cultivation.
10. Do not backup with tiller in ground.

OPERATING TIPS

1. Run engine at full throttle; adjust ground speed with gears. Have equipment lift in "float" position when working tiller.
2. Do not drop tiller onto ground; lower it gently to engage it with ground. With hydraulic lift models, nudge lightly on control to slowly lower tiller; and once on ground move control to "float" position.
3. Forcing the tiller into the ground with the equipment lift (in an attempt to cultivate deeper than in the float position) may raise the rear of The Gravely causing a loss of traction and possible increase of tractor ground speed due to the tiller pushing The Gravely.

If the first pass is not deep enough or particles not small enough, repeat the run. This is especially true in soil not previously cultivated. Note: When making a first pass over hard, dry compacted soil, the tiller may push The Gravely even when in the "float" position. If this occurs, limit the depth on the first pass (use the equipment lift); then go over again in the "float" position allowing the tiller to go as deep as soil conditions permit.

4. Once the garden soil is "worked-up", depth of tilling is most easily controlled by ground speed. The slower the ground speed the deeper the tiller will work. Also, small soil particles result from slow ground speed. Keep the engine at full throttle.
5. Slow ground speed will result in deep tilling and fine soil particles. When cultivating between rows of crops (for soil aeration and to discourage weed growth) use a high enough ground speed to keep the tiller from going down deep and disturbing plant roots.
6. Use Recommended Accessories, especially front weight to help with steering control when transporting and when in loose garden soil.

ROUTINE MAINTENANCE

1. Check oil level in gearbox before first use and then once a season. Check more often if signs of leakage are present. Visually inspect for leaks before each use. A repair should be made if leakage is substantial. Oil level must be up to check plug, fig 2; use SAE 90W API GL-6 gear lubricant.

Procedure for checking oil level

- A. Have tiller mounted on hitch and lower to ground.
 - B. Unscrew check plug.
 - C. Add gear oil (as necessary to bring level up to hole).
 - D. Replace plug.
2. After each use, clean locking collar in solvent, dry and then lightly oil to prevent rust and lubricate moving parts. Lubricate drive shaft through grease fitting with general purpose grease; remove excess grease.
 3. After each use; inspect tines for wear or damage, Items 35 and 36. Repair or replace as necessary.
 4. Check all fasteners for tightness. Maintain tiller in safe operating condition.

STORAGE

1. Perform all steps in ROUTINE MAINTENANCE section and remove tiller from The Gravely.
2. Return liftable rear hitch to stationary (locked) position; see Liftable Rear Hitch Owners Manual.
3. Store in dry, protected area.

REMOVAL FROM THE GRAVELY

1. STOP engine, put PTO in OUT position and lower tiller to ground.
2. Disconnect locking collar from PTO shaft at axle.

TWIST TYPE: Rotate collar ring in direction of arrow and pull collar off PTO shaft.

SLIDE TYPE: Pull on collar ring until collar comes off PTO shaft.

3. Pull hitch pins from tiller and rear hitch. Move The Gravely away from tiller.
4. Return liftable rear hitch to stationary (locked) position; see Liftable Rear Hitch Owners Manual.

GRAVELLY

ATTACHMENT LIMITED WARRANTY

This Limited Warranty is issued by Clarke-Gravelly Corporation, Gravelly Division, and consists of the following terms:

1. Only the original purchaser of new Gravelly manufactured attachments is covered by this Warranty.
2. This Warranty covers repair or replacement of parts manufactured by Gravelly which are defective in material or workmanship. Gravelly will pay for parts and labor only.
3. The Warranty starts the date of purchase and lasts for NINETY (90) DAYS for attachments used in Roofer applications, and TWELVE (12) MONTHS for products used in all other applications.
4. Some components of Gravelly attachments are not covered by the Gravelly Warranty. These components are covered by the original manufacturer's warranty. They are:
 - (a) Tires - Goodyear, Goodrich, Armstrong, General and Firestone
5. To obtain warranty service on Gravelly attachments including components not manufactured by Gravelly, use this procedure:
 - (a) Notify the Gravelly dealer from whom you purchased the attachment.
 - (b) If you have moved and it is not convenient to notify the selling dealer, notify the nearest Gravelly 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 attachment delivered to the dealer (refer to paragraph 6(a) below).
 - (d) If you have any questions concerning the Gravelly Warranty, they should be referred to:

Gravelly
Clarke-Gravelly Corporation
A Studebaker-Worthington Company
One Gravelly Lane
Clemmons, N. C. 27012
Attn: Manager of Customer Services
 - (e) Warranty service on Gravelly attachments must be performed by an authorized Gravelly dealer or Gravelly factory branch.

6. This Warranty does not cover the following:
 - (a) Transportation between owner's home or place of business and the dealership. If the dealer provides the transportation of the attachment, he will charge the owner his usual rate for such service.
 - (b) Normal maintenance services and normal replacement of items such as belts lubricants, mower, plow or cultivator blades.
7. GRAVELLY MAKES NO OTHER EXPRESS WARRANTIES. ANY IMPLIED WARRANTIES, INCLUDING WARRANTIES AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO THE PERIOD SET OUT IN PARAGRAPH 3 ABOVE. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE STATEMENT MAY NOT APPLY TO YOU.
8. GRAVELLY SHALL HAVE NO RESPONSIBILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE BREACH OF ANY WARRANTY, INCLUDING, BUT NOT LIMITED TO, INCONVENIENCE, RENTAL OR PURCHASE OF REPLACEMENT EQUIPMENT, LOSS OF PROFITS OR COMMERCIAL LOSS. 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 Gravelly registration card is supplied with each Gravelly attachment. Please complete the card and return it to Gravelly at the address listed on the card. The registration card will be used by Gravelly 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 registration card is not required in order to take advantage of this Warranty.
11. This Warranty is not subject to change or modification by anyone, including Gravelly dealers and no Gravelly dealer is authorized to make any representations or promises on Gravelly's behalf.