



PRO POWER UNITS OPERATOR'S MANUAL

FORM NO: 44454 (9-87)

PART NO: 42980, 43330, 43331, 43332
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\$5.00

NOTE

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

To keep the warranty, the Pro 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.

Use the serial numbers to ensure prompt and correct service when ordering parts, requesting service or making inquiries.

PRO SERIAL NUMBER: Power Unit _____

ENGINE SERIAL NUMBER: _____

ENGINE SPEC NUMBER: _____



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

This product has been tested in accordance with ANSI B71.4.

CONTENTS

1. INSTRUCTIONS FOR SAFE OPERATION
2. THE CONTROLS
3. OPERATING INSTRUCTIONS
4. SERVICE INSTRUCTIONS
5. STORING THE PRO
6. SOLVING PRO PROBLEMS
7. SPECIFICATIONS AND WIRING
8. SET-UP INSTRUCTIONS
9. WARRANTY

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 Gravely instruction manuals do not cover every possible danger. It is impossible for Gravely 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 mower manual carefully.
2. Learn the location and function of all controls.
3. Learn how to use the controls to stop the wheels and mower 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 shields, guards, and interlock switches are in the correct position.
6. Never permit children to operate the Pro.
7. Inspect area to be mowed and remove all material which could be thrown by the mower.
8. Before starting the engine, put the PTO lever in the "OFF" position and the gear shift lever in the neutral "N" position.
9. When hauling the equipment, connect the chassis to the transporting vehicle. Never connect from control levers, rods, or like items that could be damaged.
10. Replace all parts that become damaged or lost.
11. Check the operation of the operator presence controls before operating the mower.

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 shift lever 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, just behind the handlebars.
14. Travel across slopes, not up and down.
15. 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.
16. Never run the engine indoors except to move it outside. Exhaust fumes are dangerous.
17. Go slowly on slick surfaces.
18. Follow traffic laws when operating on or near a road.
19. Before making adjustments or servicing, move the PTO to "OFF," turn the ignition switch to "OFF," and wait until all moving parts completely stop.
20. Before leaving the operator's position, put the PTO lever in the "OFF" position, turn the ignition key to the "OFF" position. Move the shift control to first gear position.

SECTION 2

The Controls

2.1 The Steering Levers


The steering levers are used to steer the Pro. Pull up on the left hand lever to turn to the left. Pull up on the right lever to turn to the right. Holding both levers up stops the Pro. See Figure 1.

 **WARNING:** When the engine is running and the transmission is in gear, holding only one steering lever up will cause the Pro to circle around one drive wheel.

2.2 The Steering Lever Latches

The steering lever latches are used to hold the steering levers in the Up position. Engaging a steering lever latch will free one of the operator's hands for a throttle adjustment, etc. See Figure 1.

2.3 One of the operator presence control levers has to be depressed so that the power take off (PTO) or traction drive can be operated.

 **CAUTION:** The operator presence control is to protect the operator from the moving blades of the mower and the powered moving of the Pro. Operate the equipment only when the operator presence control is in working condition.

2.4 The Ignition Switch

1. 12 HP and 12.5 HP Units: The ignition switch is operated with a removable key. The switch has two positions, "OFF" and "ON." See Figure 1.

To start the engine, the key must be in the "ON" position. To stop the engine, turn the key to the "OFF" position.

2. 16 HP, 17 HP and 18 HP Units: The ignition switch is operated with a removable key. The switch has three positions, "OFF," "ON," and "START."

To start the engine, the key must be in the "START" position. To stop the engine, turn the key to the "OFF" position.

2.5 The Throttle - Choke Lever

1. 12 HP, 12.5 HP and 17 HP Units: The throttle lever is used to change the speed of the engine. Moving the throttle to the "FAST" position increases the engine speed. Moving the lever to the "SLOW" position decreases the engine speed. See Figure 1.

The throttle lever also serves as the choke control. Move the throttle lever to the "CHOKE" position to start a cold engine.

2. 16 HP and 18 HP Units: The throttle lever is used to change the speed of the engine. Moving the throttle to the "FAST" position increases the engine speed. Moving the lever to the "SLOW" position decreases the engine speed.

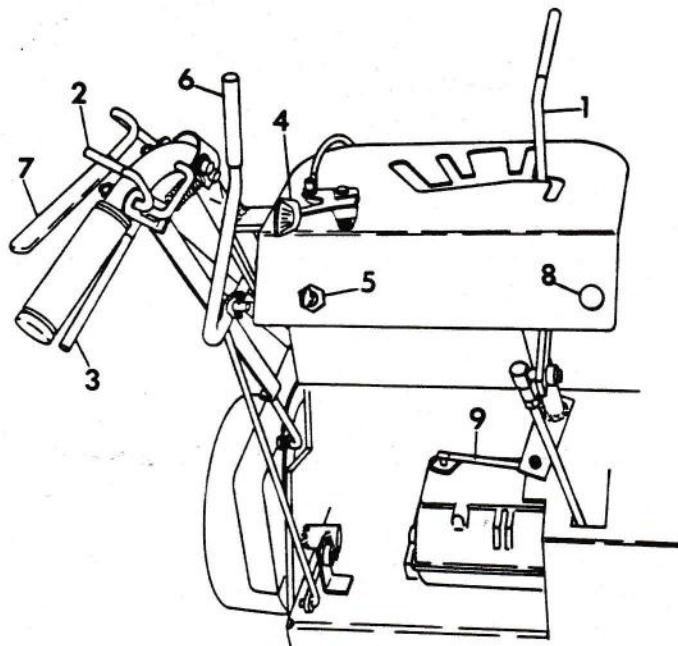
The choke control is used to start a cold engine. Pull the control to choke the engine. Push the control when the engine gets warm.

2.6 The Shift Lever

The shift lever is used to select the direction and speed of the Pro. "R" is for reverse, "N" for neutral, "1" indicates the slowest forward speed, and the other numbers from "2" to "5" indicate increasingly faster forward speeds. See Figure 1.

2.7 The Power Take Off (PTO) Lever

The power take off (PTO) lever is used to engage and disengage the mower. When the PTO lever is in the "ON" position, the mower is engaged; when the PTO lever is in the "OFF" position, the mower is disengaged. See Figure 1.



- 1 - Shift Lever
- 2 - Steering Lever Latch
- 3 - Steering Lever
- 4 - Throttle-Choke Lever
- 5 - Ignition Switch

- 6 - PTO Lever
- 7 - Operator Presence Control Lever
- 8 - Choke Control (16 HP and 18 HP Units)
- 9 - Transmission Shifter Rod

FIGURE 1

SECTION 3

Operating Instructions


Read this Operator's Manual carefully before operating the Pro.

NOTE: The engine will not start unless the shift lever is in the neutral "N" position and the PTO lever is in the "OFF" position. In addition, on the electric start Pro's, one of the operator presence control levers must be held down.

3.1 Starting and Stopping the Engine

To start the engine:

1. Unlock the steering lever latch. See Diagram 1.

 **WARNING:** When the engine is running and the transmission is in gear, releasing only one steering lever will cause the Pro to circle around one drive wheel.

2. Put the shift lever in the neutral "N" position. See Diagram 1.
3. Put the PTO Lever in the "OFF" position. See Diagram 2.
4. If the engine is cold, move the choke control to the "CHOKE" position. If the engine is warm or hot, move the throttle to the "FAST" position. See Figure 1.
5. 12 HP and 12.5 HP Units: Turn ignition switch to the "ON" position and pull recoil starter handle.

NOTE: Hold the starter handle and let the rope rewind slowly.
6. 16 HP, 17 HP and 18 HP Units: Hold down one of the operator presence control levers. Put the ignition key in the switch and turn it to the "START" Position. See Figure 1.
7. As soon as the engine starts, move the choke control to the "OFF" position from the "CHOKE" position. Wait until the engine is running smoothly before operating the Pro.

To stop the engine, move the throttle lever to the "SLOW" position and turn the ignition key to the "OFF" position.

3.2 Operating

Operate the Pro only when in the operator's position directly behind the handlebars.

NOTE: One of the operator presence control levers must be held down at all times whenever the transmission is in gear and/or the PTO lever is in the "ON" position.

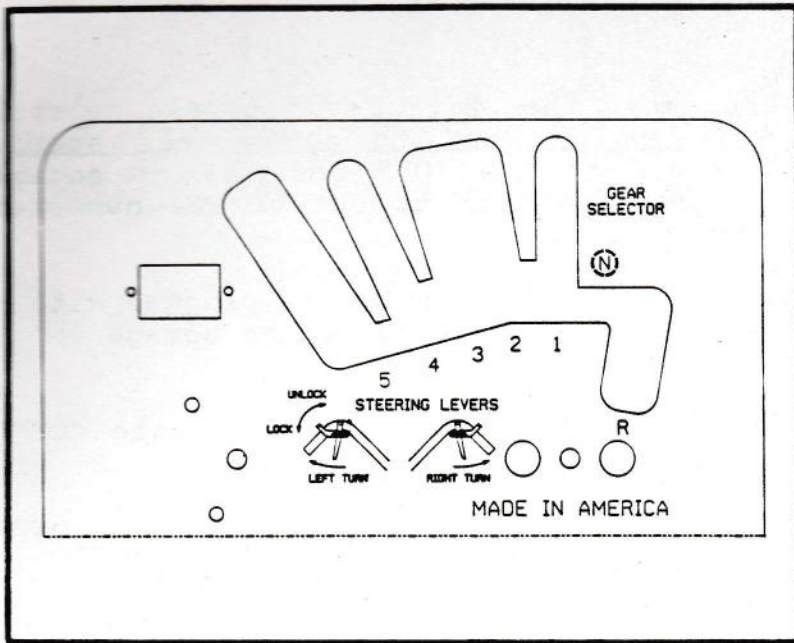


DIAGRAM 1

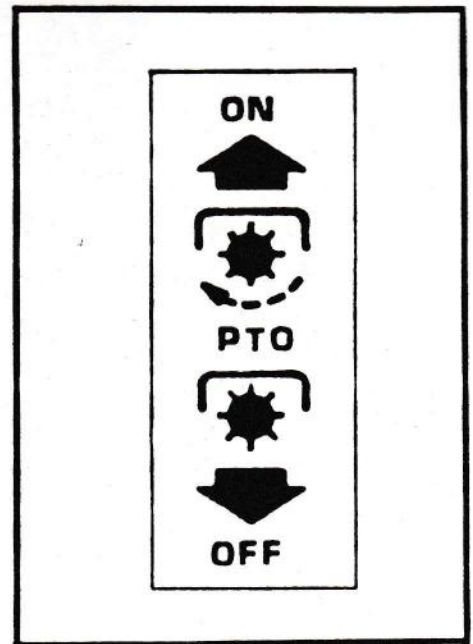


DIAGRAM 2

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To operate the Pro:

1. Unlock the steering lever latch. See Diagram 1.

! WARNING: When the engine is running and the transmission is in gear, releasing only one steering lever will cause the Pro to circle around one drive wheel.

2. Start the engine. Wait until the engine is running smoothly.
3. Move the throttle lever to the "FAST" position. See Figure 1.
4. To move the Pro forward, move the shift lever to one of the numbered slots. To move to the rear, move the shift lever to the reverse "R" position and hold it there. See Diagram 1.

! WARNING: Use a low gear until you learn how to operate the Pro.

5. Use the steering levers to steer the unit. Pulling up the left hand lever will cause the Pro to turn to the left. Pulling up the right hand lever will cause the Pro to turn to the right. See Diagram 1.

! WARNING: When the engine is running and the transmission is in gear, releasing only one steering lever will cause the Pro to circle around one drive wheel.

6. To mow with the Pro, move the shift lever to the neutral "N" position. Slow engine down to about half speed. Then move the PTO lever to the "ON" position to engage the mower. Move the shift lever to one of the numbered slots. See Diagrams 1 and 2.

NOTE: Never engage the PTO if the mower is plugged with grass or other material. It may cause damage to the PTO belt.

7. To disengage the mower, move the PTO lever to the "OFF" position. See Diagram 2.
8. When you know how to operate the Pro, select a gear appropriate to your mowing conditions. See Diagram 1.


To stop the Pro:

Move the shift lever to the neutral "N" position. Move the throttle lever to the "SLOW" position and turn the ignition key to the "OFF" position. See Diagram 1 and Figure 1.

Or stop the Pro as follows:

Pull up both steering levers. Next, hold up both steering levers while you lock the right hand steering lever latch. Then continue to hold up the left hand steering lever while you use your right hand to move the gear selector lever to the neutral "N" position.

Move the throttle lever to the "SLOW" position and turn the ignition key to the "OFF" position. Finally, unlock the right hand steering lever latch. See Diagram 1 and Figure 1.

 **WARNING:** When the engine is running and the transmission is in gear, holding only one steering lever up will cause the Pro to circle around one drive wheel.

3.3 Parking

To park the Pro:

1. Move the gear selector lever to the neutral "N" position. See Diagram 1.
2. Move the throttle lever to the "SLOW" position. See Figure 1.
3. Turn the ignition key to the "OFF" position and remove the key.
4. When the engine has stopped, put the gear selector lever in first gear.

SECTION 4

Service Instructions

Correct maintenance can increase the life of the Pro. It is important that the items shown in Chart 1 be done at the correct time intervals.

MAINTENANCE SCHEDULE

MAINTENANCE ITEMS	See Section	TIME INTERVALS FOR MAINT.		
		Before Every Use	After Every 8 Hours Use	After Every 25 Hours Use
Check the Oil in the Engine	4.1	X		
Check the Air Cleaner	4.1	X		
Check the Cooling System	4.1	X		
Check the Tires	4.3	X		
Lubricate the Pro	4.4		X	
Check the Fasteners	4.5		X	
Check the PTO Clutch Belt	4.8			X
Check the Traction Belts	4.10			X
Check the Transmission Drive Belt	4.11			X

Chart 1


4.1 The Engine

Correct maintenance can increase the life of the engine. See your engine manual for information on the operation and maintenance of your engine.

1. Each day before operating, check the level of the oil in the engine. Never operate the engine when the oil level is below the add mark. See your engine manual.
2. Each day before operating, check the air cleaner element. Dirt can decrease the flow of air to the engine. Your engine manual tells how to clean the air cleaner element.

3. Each day before operating, check the air cooling system on the engine. Debris can decrease the flow of air cooling the engine. Your engine manual tells how to clean the cooling system.
4. Follow the maintenance instructions in your engine manual concerning oil changes.

4.2 Filling the Fuel Tank

 **WARNING:** Use caution with fuel. Fuel is very flammable. Keep fuel in a clean and tight container. Keep fuel away from fire or heat. Never put fuel in the fuel tank while the engine is running or hot. Clean up any spilled fuel before starting the engine.

Add fuel to the fuel tank as needed. See your engine manual for the correct type and grade of fuel. To add fuel to the fuel tank:

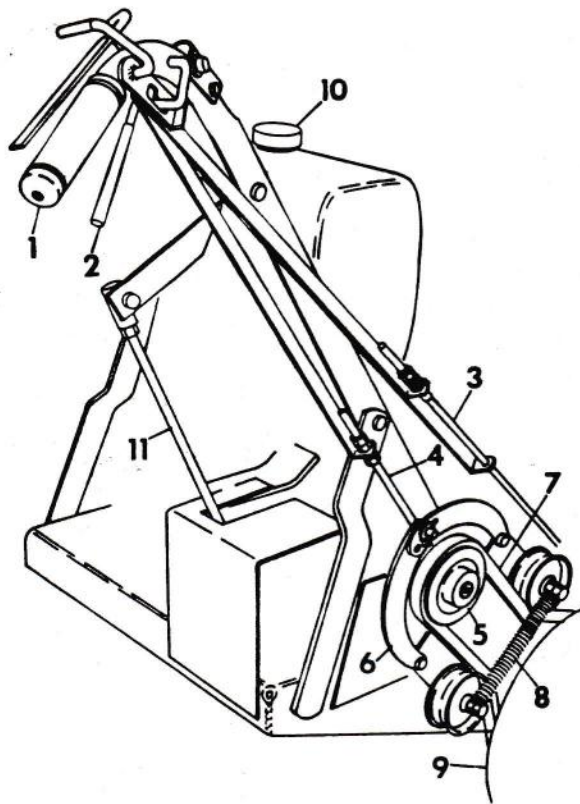
1. Put the Pro in an open area.
2. Stop the engine.
3. Clean the fuel cap and the area around the fuel cap to prevent dirt from entering the fuel tank. See Figure 2. Remove the cap from the fuel tank.
4. Fill the fuel tank. Be careful not to spill the fuel.
5. Install the cap on the fuel tank and tighten.
6. Clean up any spilled fuel before starting the engine.

4.3 Checking the Tires

Before each use, make a visual check of the tires. The correct air pressure is 12 psi (83 kN/m) to 15 psi (103 kN/m).

4.4 Lubricating the Pro

1. There are lube fittings on each drive wheel. After every 8 hours of operation clean the fittings and add multi-purpose grease. See Figure 2.
2. After every 8 hours of operation, apply a small amount of oil to the drive chain and to the pivot points on the sides and underneath the Pro.



- | | |
|----------------------------|--------------------------------|
| 1 - Handlebar | 7 - Traction Belt |
| 2 - Steering Lever | 8 - Clutch Idler Pulley Spring |
| 3 - Brake Rod | 9 - Drive Wheel |
| 4 - Clutch Rod | 10 - Fuel Cap |
| 5 - Jack-Shaft Pulley | 11 - Clutch Actuating Rod |
| 6 - Clutch Actuating Strap | |

FIGURE 2

4.5 Checking the Fasteners

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 2 unless shown differently.

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 2

4.6 Adjusting the Steering Levers

4.6.1 Initial Adjustment

1. Stop the engine.
2. Shift the transmission into neutral and operate the steering levers a couple of times. Do not roll the machine.
3. With the steering levers in the disengaged position, adjust the clutch rods until the gap between the end of each steering lever and handlebar grip is 2-1/2 to 3 inches. Obtain this measurement by adjusting the strap on the clutch rod with the four jam nuts.
4. Adjust the brakes by turning the lock nut above the compression spring on each lower brake rod until the desired amount of brake engagement is achieved when each steering lever is fully engaged. The brake adjustment is correct when the compression springs on the lower brake rods measure from 7/8 to 1 inch with the steering levers engaged into the steering lever latches.

NOTE: The traction belt must be disengaged as the brake starts to engage.

5. Start the engine and try in low gear to check for proper adjustment. With new unit, new brakes or new belts, you will be required to make two or three readjustments in the first hour of operation.

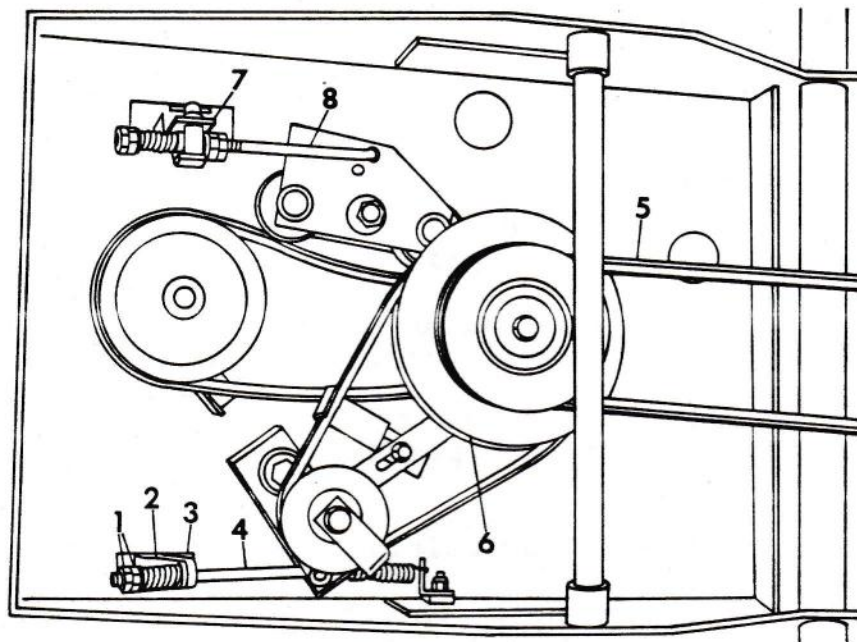
4.6.2 Readjusting Steering Levers

1. Repeat Steps 3 and 4 above.
2. Check to see if gap between steering lever and handlebar is 2-1/2 inches. If not, readjust per Step 5 above.

⚠ WARNING: Improper adjustment of the steering levers can cause a loss of steering control.

4.7 Adjusting the PTO Clutch

1. Stop the engine.
2. Move the PTO lever to the "ON" position.
3. Loosen the two jam nuts on the rear end of the PTO clutch actuating rod.
4. With the PTO lever in the "ON" position, turn the two jam nuts forward until the gap in the coils of the spring is approximately .005 inches (.13mm). See Figure 3.
5. Lock the two jam nuts on the rear end of the PTO clutch actuating rod.



- | | |
|------------------------------|-------------------------|
| 1 - Jam Nuts | 5 - Mower Belt |
| 2 - Spring | 6 - Mower Clutch Sheave |
| 3 - PTO Clutch Actuating Arm | 7 - Fwd-Rev Cam Lever |
| 4 - PTO Clutch Actuating Rod | 8 - Clutch Rod |

FIGURE 3

4.8 Replacing the PTO Clutch Belt

1. Stop the engine. Remove the ignition key. Put the PTO lever in the "OFF" position.
2. Remove the mower belt from the mower clutch sheave. See Section 3 of the Pro Mower operator's manual.
3. Loosen the two jam nuts on the rear end of the PTO clutch actuating rod and back nuts off to end of rod. (See Figure 3.) Remove the old PTO clutch belt. It is not necessary to move the long PTO clutch belt guide.
4. Put the new PTO clutch belt on the clutch hub and on the PTO idler pulley. See Diagram 4.
5. Readjust the PTO clutch. See Section 4.7.
6. Put the mower belt back on the mower clutch sheave and tighten the mower belt. See Section 3 of the Pro Mower operator's manual.

4.9 Adjusting the Shift Lever Linkage

To adjust the shift lever linkage, it may be necessary to adjust three different rods: (1) the transmission shifter rod (see Figure 1), (2) the clutch actuating rod (see Figure 2), and/or (3) the clutch rod (see Figure 3).

4.9.1 Adjusting the Transmission Shifter Rod

1. Stop the engine.
2. Move the shift lever to the neutral position. See Diagram 1.
3. Disconnect the ball socket from the ball stud on the transmission shift arm on the transmission. (Pry apart with a wrench or screwdriver.)
4. Make sure the transmission is shifted into neutral. (Move transmission arm until the unit will roll freely.)
5. Move the shift lever to the first gear position and push forward to the engaged position. See Diagram 1.
6. Rotate the transmission shift arm on the transmission counterclockwise one position. (This will be first gear.)
7. Loosen the jam nuts on the ends of the transmission shifter rod and adjust the ball socket until it lines up with the ball stud.
8. Snap the ball joint back together and tighten the jam nuts.

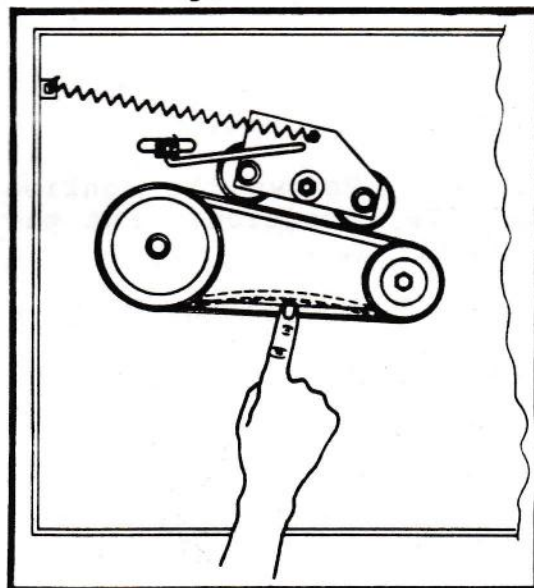
4.9.2 Adjusting the Clutch Actuating Rod

1. Stop the engine.
2. Put the gear shift lever in the neutral position. See Diagram 1.
3. Loosen the jam nut at the ball joint on the gear shift lever.
4. Rotate the clutch actuating rod until the fwd-rev cam lever (see Figure 3), which is sticking down through the frame, is at a right angle with the underside of the frame.
5. Tighten the lock nut at the ball joint.

4.9.3 Adjusting the Clutch Rod

It is adjusted correctly when both idlers are parallel with the transmission belt with tension (thumb pressure) on back side of transmission belt. See Diagram 3.

1. Stop the engine.
2. Place the shift lever in the neutral position. See Diagram 1.
3. Loosen the two front hex nuts (nuts opposite the spring) and adjust these two nuts until both idlers are parallel with the transmission belt with tension (thumb pressure) on back side of transmission belt. See Diagram 3. Lock the two nuts back together.
4. Loosen the two back hex nuts (by the spring).
5. Adjust the two nuts until they are against the spacer. Lock the two nuts together.



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DIAGRAM 3

4.10 Replacing the Traction Belts

To replace either traction belt:

1. Stop the engine. Remove the ignition key.
2. Release the steering levers.
3. Remove the traction belt guard.
4. Remove the clutch idler pulley spring.
5. Raise the rear of the Pro so that the drive wheel is off the ground.
6. Remove the cotter pin holding the clutch rod to the clutch actuating straps. See Figure 2.
7. While slowly turning the drive wheel, work the traction belt off the jackshaft pulley. See Figure 2.
8. Remove the traction belt over the drive wheel.
9. Put a new traction belt on over the drive wheel. Be sure the belt is seated correctly in the belt groove.
10. While turning the drive wheel slowly, work the traction belt onto the jackshaft pulley.
11. Connect the clutch rod to the clutch actuating straps with the cotter pin.
12. Put the clutch idler pulley spring back on.
13. Put the traction belt cover back on.
14. Lower the Pro.
15. Check the adjustment of the steering levers. See Section 4.6.

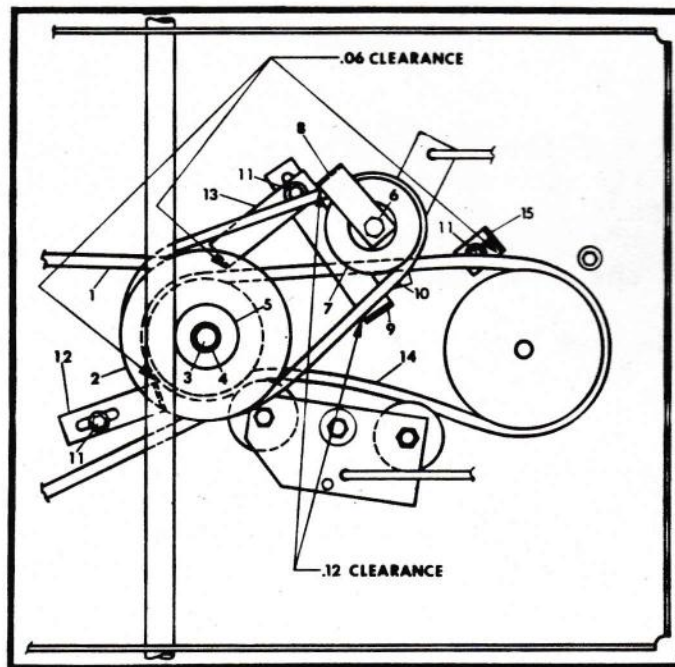
4.11 Replacing the Transmission Belt

1. Stop the engine. Remove the ignition key. Put the PTO lever in the "OFF" position. Put the shift lever in the neutral "N" position.
2. Remove the mower belt from the mower clutch sheave.
3. Remove the PTO clutch belt from clutch hub.
4. Mark outline of belt guides.
5. Loosen the 5/16-18 bolt holding the small belt guide at the left of the transmission sheave.

6. Loosen the two bolts (two engine mounting bolts) holding the belt guides beside the clutch hub on the engine crankshaft.
7. Remove the old transmission drive belt.
8. Put the new transmission belt in the top groove of the clutch hub and on the transmission sheave. Move the shift lever into the number one slot.
9. Hold the transmission belt guide at the correct angle and approximately .06 inches--the thickness of the ignition key--from the belt's surface and tighten the bolt holding the belt guide. See Diagram 4 for the correct position of the belt guide.
10. With the front clutch hub belt guide in the correct position, tighten the bolt holding the guide. See Diagram 4 for the correct position of the belt guide. The belt guide should be approximately .06 inches--the thickness of the ignition key--from the transmission belt's surface when the belt is tight; that is when the Pro is in gear.
11. Put the PTO clutch belt back on the clutch hub. (see Section 4.8).
12. Tighten the bolt holding both the rear clutch hub belt guide and the PTO clutch belt guide. See Diagram 4 for the correct positions of the two guides. The rear clutch hub belt guide should be approximately .06 inches--the thickness of the ignition key--from the transmission belt's surface. The PTO clutch belt guide should be approximately .12 inches from the PTO clutch belt's surface. The clearance must be measured when the transmission and the PTO clutch belts are tight, that is when the Pro is in gear and the PTO lever is in the "ON" position.
13. Put the mower belt back on the mower clutch sheave. Tighten the belt.
14. Move the shift lever to the neutral "N" position and the PTO lever to the "OFF" position.
15. Check the adjustment of the shift linkage. See Section 4.9.

4.12 Adjusting the Operator Presence Control Levers on the Handlebars

Move the lock nut until the lever weldment just clears the body of the interlock switch.



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- | | |
|-----------------------------|----------------------------------|
| 1 - Mower Belt | 9 - PTO Clutch Belt Guide |
| 2 - Mower Clutch Sheave | 10 - PTO Clutch Belt |
| 3 - Bolt (7/16") | 11 - Bolt (Engine Mounting) |
| 4 - Lock Washer | 12 - Front Clutch Hub Belt Guide |
| 5 - Flat Washer | 13 - Rear Clutch Hub Belt Guide |
| 6 - Bolt (3/8") | 14 - Transmission Belt |
| 7 - PTO Clutch Idler Pulley | 15 - Transmission Belt Guide |
| 8 - PTO Idler Belt Guide | |

DIAGRAM 4

4.13 Adjusting the Roller Chain (Between the transmission and the jack-shaft).

1. Loosen the two bolts on each side that fasten the bearing support weldments to the frame. (Do not loosen anymore than necessary).
2. Loosen the locking jam nut on both sides that locks the adjusting bolt into the chain adjusting bracket.
3. Turn the adjusting bolts to adjust the chain. The slack side of the chain should be 1/2" to 5/8" below a straight edge layed across the chain from sprocket to sprocket. See Diagram 5.
4. Both sides should be adjusted even. This can be judged by the slot in the bearing support weldment under the flat washer. The slot should stick out from under the washer the same amount on both sides.
5. Tighten the locking jam nut on each of the two adjusting bolts.
6. Tighten the two bolts on each side that fasten the bearing support weldment to the frame.
7. Measure the chain slack again as described in step 3 above. If necessary, repeat the above procedures until the adjustment is correct.

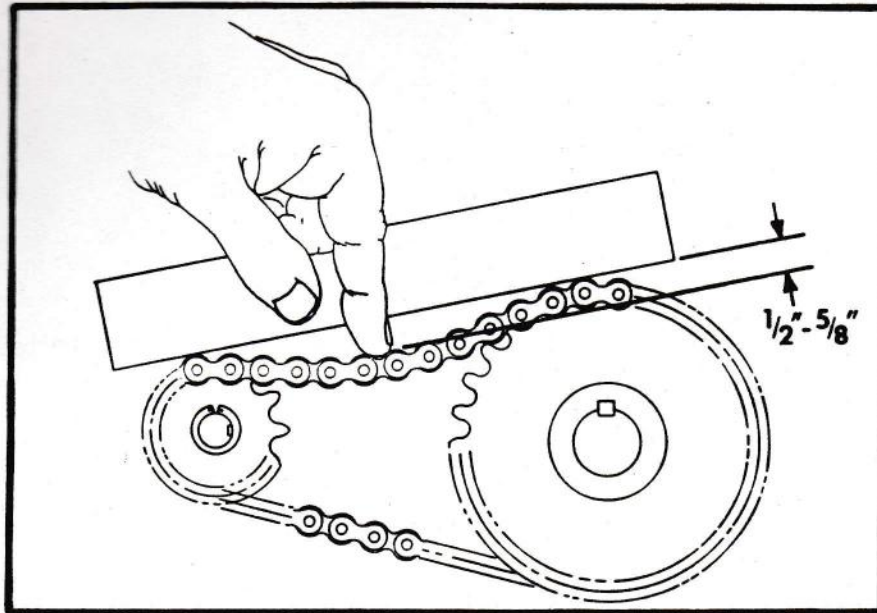


DIAGRAM 5

SECTION 5

Storing the Pro

To store the Pro:

1. Do the maintenance described in Section 4.
2. Clean the unit thoroughly.

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

3. Put paint or lubricant wherever paint has been removed.
4. See your engine manual for engine storage instructions.

⚠ WARNING: Fuel is very flammable. Make sure the muffler and other engine parts are cool before removing the fuel from the fuel tank. Clean up spills immediately.

To take the Pro out of storage, do the following:

1. Put fresh, clean fuel in the fuel tank.

⚠ WARNING: Fuel is very flammable. Clean any spilled fuel before starting the engine.

2. Begin the maintenance schedule specified in Section 4.

SECTION 6

Solving Pro Problems

6.1 If the engine will not start:

NOTE: The engine will not start unless the shift lever is in the neutral "N" position and the PTO lever is in the "OFF" position.

1. Turn the ignition key to the "OFF" position. Move the shift lever to the neutral "N" position. Push the PTO lever to the "OFF" position.

NOTE: One operator presence control lever must be held down on the electric start models.

2. Adjust, if necessary, the PTO interlock switch so that the switch is closed when the PTO lever is in the "OFF" position.
3. Check the adjustment of the shift linkage. See Section 4.9.
4. Check the adjustment of the operator presence control levers on the handlebar. See Section 4.12.
5. Check and clean the spark plugs. If necessary, replace the spark plug(s). Adjust the spark plug gap. See your engine manual.
6. Check the fuel tank for fuel. Add fuel if necessary. Check the fuel for water or dirt. If necessary, replace the fuel with clean, fresh fuel.
7. Check the air cleaner. Clean or replace the filter elements if necessary. See your engine manual.
8. Check fuel shut-off valve.

6.2 If the Pro will not move or mow when the engine is running, do the following:

1. Stop the engine. Remove the ignition key.
2. See if the drive chain is broken or off the sprockets. If necessary, install or replace the drive chain.
3. See if the transmission belt is broken or out of place. If necessary, install, replace or adjust the transmission belt. See Section 4.11.

4. See if the PTO clutch belt is broken or off the pulleys. If necessary, install or replace the PTO clutch belt. See Section 4.8.
 5. See if the mower belt is broken or off the pulleys. If necessary, install, replace or adjust the mower belt. See Section 3 of the Pro Mower operator's manual.
- 6.3 If there are changes in the sound or vibrations of the Pro, do the following:
1. Stop the engine. Remove the ignition key. Remove the ignition wire from the spark plug.
 2. Check the mower blades. If either is damaged, replace that blade.
 3. See that the fasteners holding the blades are tightened to a torque of 120 ft. lbs. (163 Nm).
 4. Check all the fasteners on the Pro. See Section 4.5.

SECTION 7

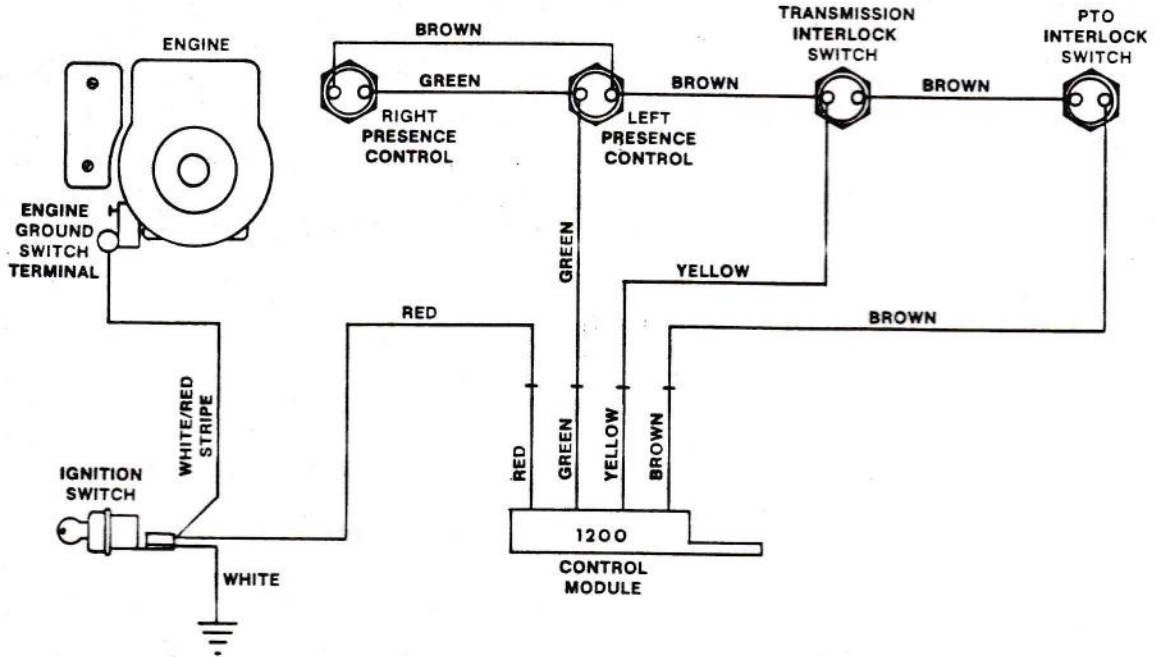
General Specifications

ENGINES

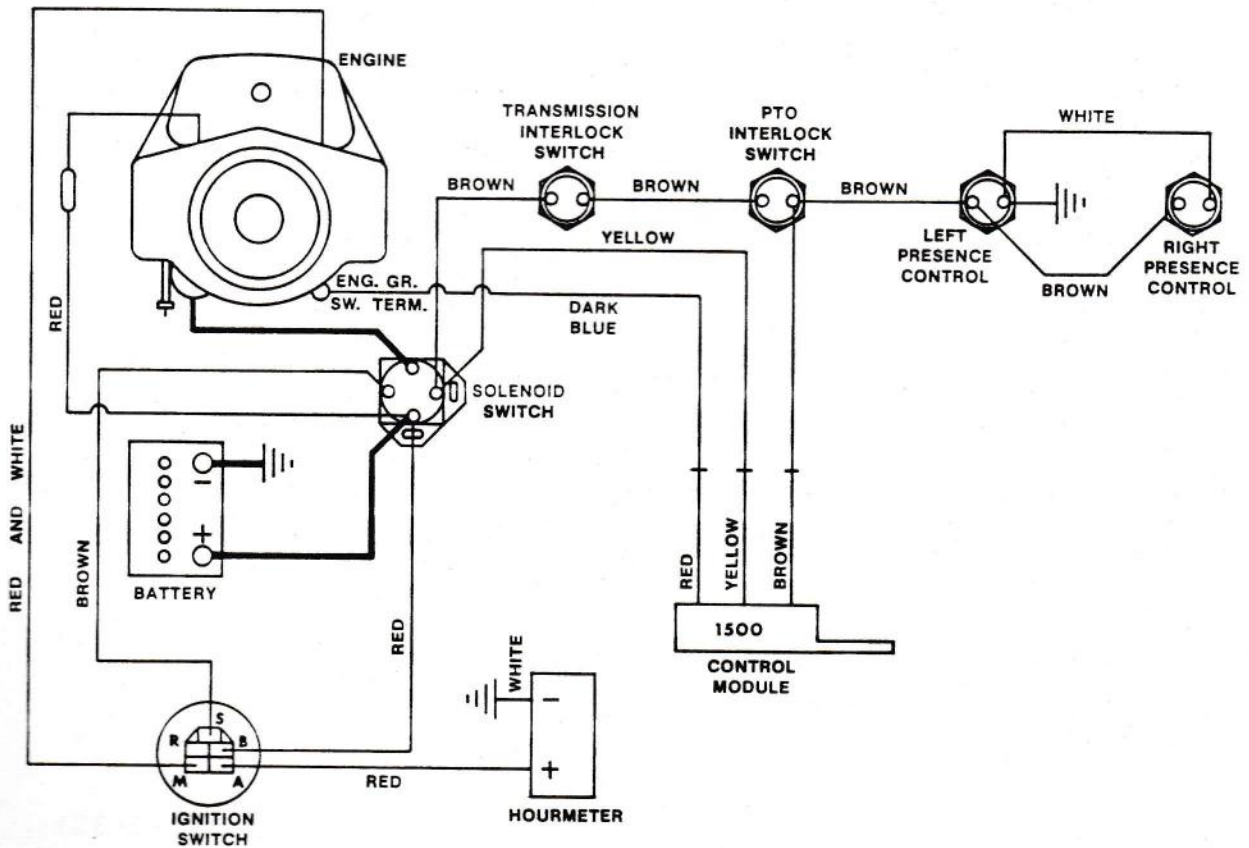
Manufacturer:	Briggs & Stratton	Kawasaki
Model Number:	281702	FC 540 V
Type:	902512	AS03
Horsepower (at 3600 rpm)	12 H.P.	17 H.P.
Speed (High Idle)	3450 - 3600 rpm	3600 rpm
Fuel Tank Capacity	3 gals. US (11.4L)	3 gals. US (11.4L)
Crankcase Capacity	3 pts. (1.4L)	3.4 pts. (1.6L)
Manufacturer:	Kawasaki	Briggs & Stratton
Model Number:	FB460V	402707
Type:	(Code) FB 460V FS01	0171
Horsepower (at 3600 rpm)	12.5 H.P.	16 H.P.
Speed (High Idle)	3450 - 3600 rpm	3450 - 3600 rpm
Fuel Tank Capacity	3 gals. US (11.4L)	3 gals. US (11.4L)
Crankcase Capacity	3 pts. (1.4L)	3 pts. (1.4L)
Manufacturer:	Kohler	
Model Number:	MV18S	
Type:	58516	
Horsepower (at 3600 rpm)	18 H.P.	
Speed (High Idle)	3450 - 3600 rpm	
Fuel Tank Capacity	3 gals. US (11.4L)	
Crankcase Capacity	4 pts. (1.9L)	

<u>FUEL:</u>	See engine manual.
<u>ENGINE LUBRICANT:</u>	See engine manual.
<u>TIRE SIZE:</u>	13 x 6.50-6 4 ply rating 13 x 5.00-6 4 ply rating (Pro-32)
<u>TIRE PRESSURE:</u>	12 psi (83 kN/m) to 15 psi (103 kN/m)
<u>DIMENSIONS:</u>	
Height	39.0 inches (99.1cm)
Width	35.5 inches (90.2cm) 31.5 inches (80.0cm) (Pro-32)
Length	39.0 inches (99.1cm)
<u>WEIGHTS:</u>	
Briggs & Stratton 12-HP	252 lbs. (114 kg) 250 lbs. (113 kg) (Pro-32)
Kawasaki 12.5-HP	277 lbs. (126 kg) 275 lbs. (125 kg) (Pro-32)
Briggs & Stratton 16-HP	315 lbs. (143 kg)
Kawasaki 17-HP	325 lbs. (147 kg)
Kohler 18-HP	350 lbs. (159 kg)
<u>TRANSMISSION:</u>	24 oz. (680.5 g.) Molybdenum Disulfide E.P. Lithium Grease
<u>SPEEDS:</u>	(Engine Speed at 3600 rpm)
1st Gear	1.6 mph (2.7 km/hr) 1.5 mph (2.4 km/hr) (Pro-32)
2nd Gear	2.7 mph (4.2 km/hr) 2.4 mph (3.9 km/hr) (Pro-32)
3rd Gear	4.0 mph (6.4 km/hr) 3.6 mph (5.8 km/hr) (Pro-32)
4th Gear	5.1 mph (8.1 km/hr) 4.6 mph (7.4 km/hr) (Pro-32)
5th Gear	6.0 mph (9.6 km/hr) 5.4 mph (8.7 km/hr) (Pro-32)
Reverse	2.0 mph (3.6 km/hr) 1.8 mph (2.9 km/hr) (Pro-32)

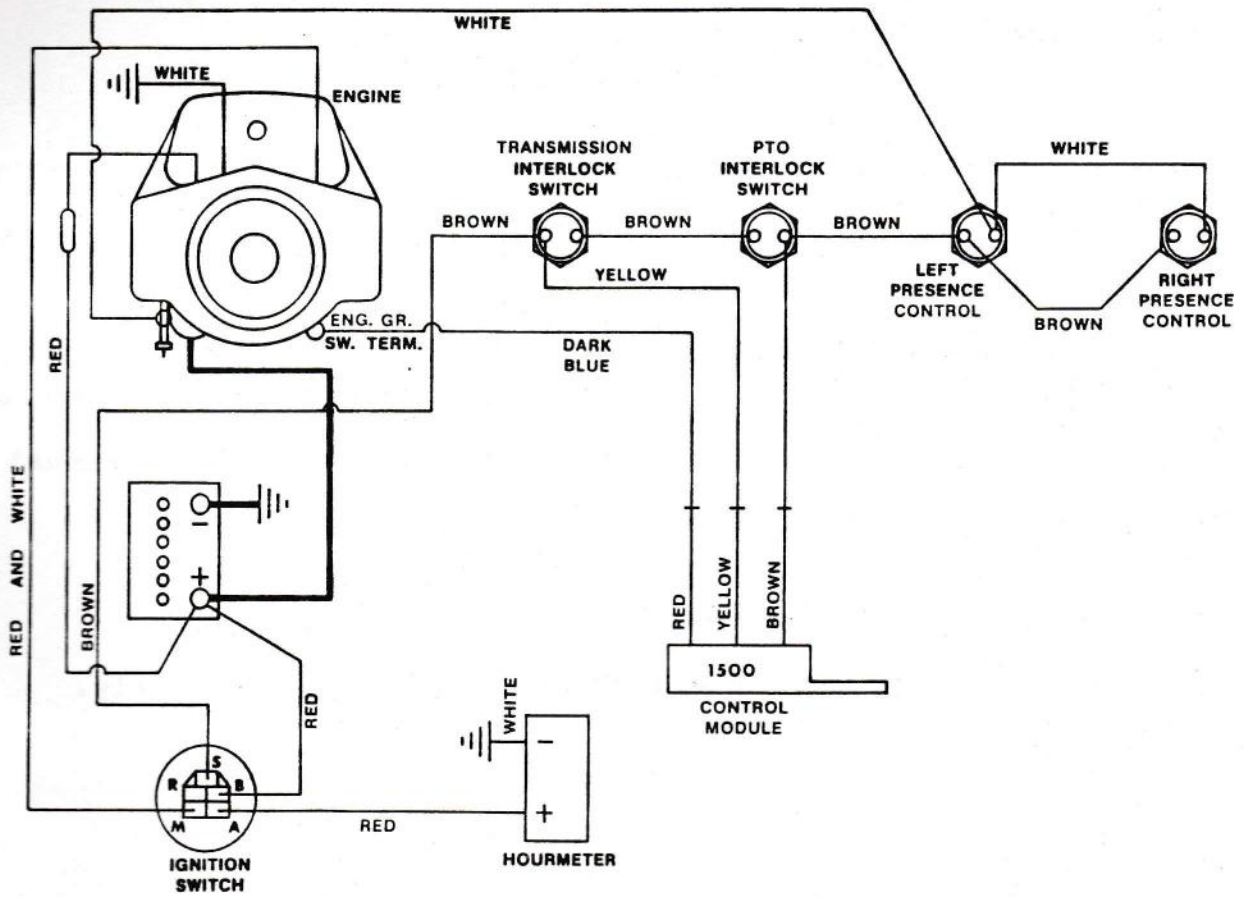
WIRING DIAGRAMS:



12 H.P. and 12.5 H.P. Units



16 H.P. AND 18 H.P. Units



17 H.P. Units

SECTION 8

Set-Up Instructions

- 8.1 Remove the Power Unit from shipping container.
- 8.2 Adjust tire pressure to between 12 psi (83 kN/m) to 15 psi (103 kN/m).
- 8.3 Add engine oil. See engine manual for specifications.
- 8.4 Check the adjustments outlined in Sections 4.6, 4.7, and 4.9.
- 8.5 Add clean fuel to the fuel tank. See engine manual for grade.
- 8.6 Mount to mower.
- 8.7 Check for loose hardware.
- 8.8 Check to see that interlock systems operate correctly.

SECTION 9

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 EXPRESS 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