



# Wheel Horse® OWNERS MANUAL

1972



## BRONCO 14 CHARGER 12 CHARGER 10 AUTOMATIC'S

### PIONEERS IN TRACTORING

#### OWNERS MANUAL

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A separate parts manual is available on request. To obtain a parts manual for your tractor, mail a post card to the address below. Be sure to state the tractor model number and your return address.

#### WHEEL-HORSE PRODUCTS, INC.

515 W. Ireland Road, South Bend, Indiana 46614

#### SERIAL NUMBERS

Serial and model numbers are necessary to correctly identify your tractor and engine whenever you need repair parts.

The tractor model and serial numbers are on a plate attached to the hood stand just below the control panel.

The engine model and serial numbers are on a plate attached to the engine shroud.

For your convenience and ready reference, enter these numbers in the spaces below.

	Model Number	Serial Number
Tractor	_____	_____
Engine	_____	_____

#### SAFETY SUGGESTIONS

Recommended by Outdoor Power Equipment Institute  
PLEASE READ AND FOLLOW THE SAFETY SUGGESTIONS LISTED BELOW

1. Know the controls and how to stop quickly — read the owners manual.
2. Do not allow children to operate machine; nor adults to operate it without proper instruction.
3. Clear work area of objects which might be picked up and thrown.
4. Disengage all clutches and shift into neutral before starting motor. Keep hands, feet, and clothing away from power driven parts.
5. Do not carry passengers. Keep children and pets a safe distance away.
6. Never direct discharge of any material toward bystanders, nor allow anyone near machine while in operation.
7. Disengage power to attachment(s) and stop motor before leaving operator position.
8. Take precautions when leaving machine unattended (to avoid accidental starting, rolling away, accidental dropping of any attachments, etc.)
9. Disengage power to any attachment whenever it is not in use, or when traveling from one work area to another.
10. Stay alert for holes and other hidden hazards. Know what is behind you, before backing up.
11. Beware of steep slopes; reduce speed on all side slopes and sharp turns, to prevent tipping or losing control.
12. Don't stop or start suddenly when going uphill or downhill.
13. Use care when pulling loads or using heavy equipment.
  - a. Use only approved drawbar hitch points.
  - b. Limit loads to those you can safely control.
  - c. Don't turn too sharp and use care when backing.
  - d. Use counterweight(s) when suggested in owner's manual.
14. Watch out for traffic when near roadways.
15. Handle gasoline with care — it is highly flammable.
  - a. Use approved gasoline container.
  - b. Never add gasoline to a running motor — fill tank out of doors — wipe up spilled gasoline.
  - c. Replace gasoline cap securely.
  - d. Open doors if motor is run in garage — exhaust gases are dangerous.
17. Keep machine in good operating condition and keep safety devices in place. Use guards as instructed in owner's manual.

# OPERATING INSTRUCTIONS

## OPERATOR CONTROLS

The controls are clearly identified on the control panels. A few minutes spent getting acquainted with them will repay you with safer, more comfortable and satisfactory operation from the start. Refer to the accompanying illustrations for location of the controls described below.

### 1. THROTTLE CONTROL

Raise throttle lever to increase engine speed; lower to decrease speed.

### 2. CHOKE CONTROL

Raise choke lever to choke when starting the engine. Lower slowly after the engine starts. If the engine is warm and has been running, choking may not be necessary to restart it.

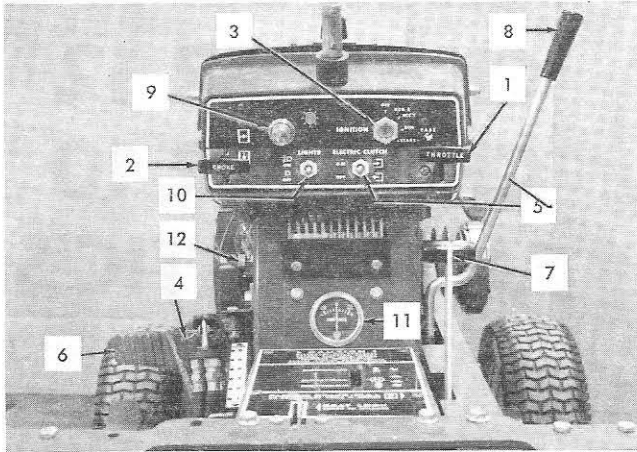


FIG. 1 — OPERATOR CONTROLS

### 3. IGNITION SWITCH

The ignition switch has four positions from left to right: (1) off, (2) run and accessories, (3) run, (4) start. To start the engine, turn the key all the way to the right. Release the key when the engine starts and it will automatically return to "run" position. The key must be turned back manually to "run and accessories" position before the electro-magnetic clutch or electrical accessories will function. When the switch is turned off, the engine stops and all electrical accessories are turned off as well.

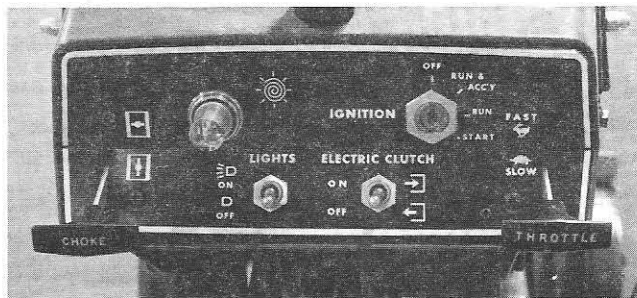


FIG. 2 — 4 POSITION IGNITION SWITCH

### 4. HYDRAULIC LIFT LEVER (Bronco Models)

Move the lever up to lift an attachment. Release lever to hold attachment in position. Push lever down to lower attachment. The neutral position will hold an attachment at any position from full up to full down. Always lower attachments before leaving the tractor unattended.

### 4A. LIFT LEVER (Charger Models)

Depress the release button and move the lever forward or backward to lower or raise attachments used with the tractor. When it is desired to hold an attachment at a certain height above the ground, the forward (down) travel of the lever can be limited by the Dial-A-Hite selector. Turn the hand knob right or left until the stop reaches the desired position. Always lower attachments before leaving the tractor unattended.

### 5. ELECTRO-MAGNETIC P.T.O. CLUTCH SWITCH (Optional on Charger 10)

Raise the toggle to engage the clutch and drive power driven attachments such as a mower or snow thrower. Lower toggle to disengage the clutch. The ignition switch must be in "run and accessories" position before the clutch will function. Always disengage the clutch before stopping the engine.

5A. P.T.O. CLUTCH ROD (Standard on Charger 10) (not illustrated) Attaching tools are started and stopped by operating the engine mounted P.T.O. By moving the clutch rod from the outside notch in the bracket, to the inside notch, (toward the tractor), the friction clutch is engaged. Always disengage the clutch before stopping the engine.

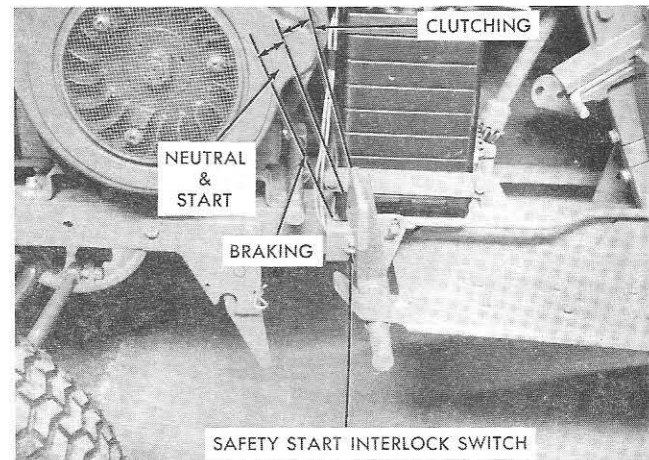


FIG. 3 — CLUTCH/BRAKE PEDAL

### 6. CLUTCH/BRAKE PEDAL

The pedal provides "dynamic braking" to both rear wheels through the automatic transmission. As the pedal is depressed, the transmission is shifted to neutral. Always depress the pedal when starting or stopping the engine. The pedal must be depressed when starting the engine as the pedal operates the starter safety switch completing the starter circuit.

### 7. PARKING BRAKE LEVER

Pull handle to engage brake, push down to disengage. Brake should always be set when dismounting or when starting engine. When the brake is set, the drive belt is automatically released. **Caution:** Do not set parking brake while tractor is in motion as this may result in damage to the transmission. Always depress brake pedal before releasing parking brake.

### 8. SPEED CONTROL LEVER

Push the lever ahead to drive the tractor forward. Pull the lever back to reverse. Move the lever to neutral (center) position to stop. The brake pedal also moves the lever to neutral position for dynamic braking. The control lever also varies ground speed and pulling power of the tractor independent of engine speed. To increase speed, move handle away from neutral. Increase pulling power by moving handle toward neutral.

### 9. CIGAR LIGHTER (Optional on Charger 10)

Push knob until lighter clicks into heating position. Lighter pops up when ready for use. Ignition switch must be in "run and accessories" position.

### 10. LIGHT SWITCH

Raise toggle switch to turn on head and tail lights. Lower toggle switch to turn lights off. Lights work only when ignition switch is in "run and accessories" position.

### 11. AMMETER

Direct reading gauge indicates rate at which battery is being charged (+) or discharged (-).

### 12. FUEL VALVE

To shut off fuel turn valve clockwise. To open turn valve counter-clockwise.

### SAFETY START INTERLOCK SYSTEM

The safety interlock switch is attached to a bracket on the frame (Fig. 3) adjacent to clutch/brake pedal. If starter should fail to operate check the position of the switch in relation to the pedal to make sure the switch plunger is pushed in when the pedal is depressed. With the switch plunger pushed in the starting circuit from the ignition switch to the starter solenoid is completed. With the switch plunger released the starter circuit is interrupted and the starter will not operate.

### STARTING THE ENGINE

Before starting the engine, fill the fuel tank with a good grade of regular gasoline (do not add oil to the gasoline). Open the fuel shutoff valve (12, Fig. 1) at the left side of the hood stand. Check the engine oil level and add oil if necessary. Do not overfill the crankcase.

Lower attachments and disengage the P.T.O. clutch. Depress the clutch pedal and set the parking brake. Raise the throttle lever about half way. Raise the choke lever as far as it will go. With the



clutch/brake pedal fully depressed turn the ignition key to the right to operate the starter. When the engine starts, release the key and lower the choke lever. Regulate engine speed with the throttle.

### OPERATING THE HYDROSTATIC TRANSMISSION

Tractor speed, direction and braking are controlled by the speed control lever.

- To go forward, push the lever forward.
- To go backward, pull the lever back.
- To stop, put the lever in neutral position.  
(Pressing the brake pedal does this automatically.)

For safest operation, never move the lever too rapidly, especially on grades.

Most power driven attachments such as rotary mowers are designed to operate at full engine speed. The automatic transmission permits the operator to adjust tractor ground speed to suit operating conditions while continuing to drive power driven attachments at full engine speed for maximum efficiency.

For heavy pulling, moving the control lever toward neutral reduces tractor ground speed and increases pulling power much the same as shifting to a lower gear with a mechanical transmission.

### TOWING INSTRUCTIONS:

This tractor should never be towed or pushed without first opening the towing valve. The towing valve is located under the seat on the top surface of the pump. To push or tow, follow directions on towing decal. **CAUTION:** Do not tow for long distances or over a speed of seven (7) miles per hour.

### STOPPING THE ENGINE

Disengage the P.T.O. clutch and lower attachments. Lower the throttle lever to idle position. If the tractor has been working hard, allow the engine to idle a short time to normalize temperatures before shutting it off. Depress the clutch/brake pedal and set the parking brake. Turn the ignition key to the left to shut off the engine. Remove the ignition key from the switch.

## REGULAR MAINTENANCE

### ENGINE OIL CHANGES

The engine manufacturer recommends that the initial change of oil should be made after the first two (2) hours of operation. Thereafter, the oil should be changed after every twenty-five (25) operating hours or sooner if the tractor is operated in extremely dusty or dirty conditions.

When changing the oil, drain the crankcase after the engine has reached normal operating temperature to insure complete removal of used oil.

**CAUTION:** Disconnect the high tension wire at the spark plug to prevent accidental starting of the engine. Unscrew the oil drain plug located on the side of the engine. Be sure oil drains completely.

### ENGINE OIL QUALITY

For maximum engine protection under all operating conditions encountered during the oil change intervals shown above, use only "MS" certified sequence-tested oils. Engine oils designated only as "ML" or "MM" are not recommended and should not be used. These classifications are clearly marked on containers of oil refined and sold by reputable marketers.

### ENGINE OIL VISCOSITY

Oil viscosity number used should be determined by the lowest anticipated temperature before the next oil change period.

Air Temperature	Recommended Viscosity
Above 30°F	SAE 30
30°F - 0°F	SAE 10W-30
Below 0°F	SAE 5W-20

### ENGINE OIL LEVEL

Form the habit of checking the oil level regularly. Check oil level every five (5) operating hours or each time the tractor is used. To check the oil, position the tractor so that the engine is level, remove the dip stick at the right rear of the engine and add oil if necessary to bring the level up to the mark indicated on the dip stick. When measuring oil level, be sure dip stick is inserted into the filler opening as far as it will go. **Note:** Do not overfill crankcase.

### LUBRICATION

The steering mechanism, front wheel bearings, and front axle pivot are equipped with fittings to facilitate lubrication with a pressure grease gun. Lubricate these points after every 8 to 10 hours of operation. Lubricate more frequently under severe dust conditions. All other pivoting arms and levers should be lubricated at the same intervals with either general purpose grease or machine oil applied directly to wear surfaces.

## LUBRICATION RECOMMENDATIONS

ENGINE CRANKCASE . . . . . MS Certified Sequence-Tested Engine Oil	{ Dexron or Type F Hydrostatic Oil (Wheel Horse Part Number 8827)
TRANSMISSION . . . . .	
FRONT AXLE PIVOT, STEERING GEAR,	Chassis Grease
FRONT WHEEL BEARINGS . . . . .	

### TRANSMISSION OIL CHANGES

Drain and refill transmission once each year or after every 100 hours operation whichever occurs first. Drain by removing the plug at the bottom of the transaxle.

Use care to prevent dirt, clippings or other foreign material from entering the transmission when changing oil or replacing the oil filter.

### TRANSMISSION OIL FILTER

Replace the oil filter after the first 10 hours operation. Thereafter, replace it after every 100 hours operation or once per year whichever occurs first.

### TRANSMISSION OIL LEVEL

The lubricant level should be checked after every 8 to 10 hours of operation. Maintain level to mark indicated on dip stick attached to vent plug (located under seat).

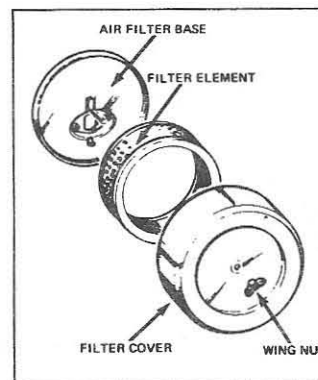
## CAPACITIES

Engine Crankcase	Transmission	Fuel Tank
2 Quarts	5 Quarts	2 Gallons

### AIR CLEANER

Clean element every ten (10) hours or oftener if engine is operated in dusty or dirty conditions. Remove element from housing and tap lightly to dislodge dirt. Wipe inside of cover and base to remove all dirt, replace element.

**CAUTION:** Do not wash or oil this element.



### TIRES

The Turf Saver tires front and rear are designed and thoroughly tested to meet all normal operating requirements within the tractor's capacity when inflated to the pressures listed below:

Tire Sizes	Pressures
Front 16 x 5.50-8	12 p.s.i.
Rear 23 x 8.50-12	6 to 8 p.s.i.
Rear 23 x 7.50-12 (Charger 10 only)	6 to 8 p.s.i.

Optional front and rear wheel weights and dual rear wheels are available to provide improved floatation and control for operating ground engaging attachments. See accessories list at back of this manual for part numbers for these accessories.

### BATTERY

Maintain the electrolyte level above the plates in each cell by adding distilled water as necessary. The best time to add water is just prior to operating the tractor so the water will mix with the solution. Do not overfill the battery. The electrolyte solution is corrosive, and overfilling can cause it to overflow the case and damage surrounding metal parts. The battery should be maintained at 1.260 specific gravity charge. When the battery has been out of the tractor for servicing, take care to connect the wires to the battery exactly as they were before removal.

### CHARGING SYSTEM

A 15 Amp Alternator system is used to supply electrical energy to charge the battery which in turn furnishes energy for ignition, cranking and electrical accessories. Regulation is provided by solid state (no moving parts) electronic devices which "sense" the condition of the battery and control or limit the charging rate. Since heat is generated in the operation of these electronic devices, cooling fins are provided on the rectifier-regulator (under the hood stand) to help dissipate the heat. The rectifier-regulator should be kept uncovered to allow proper ventilation when the tractor is in operation.

No service or adjustments are required on this system, but observe the following precautions to protect it from accidental damage:

1. Do not reverse the battery connections. The negative terminal should be connected to ground.
2. Disconnect the rectifier-regulator plug when charging the battery in the tractor or when using a booster battery to start the engine.

### ELECTRO-MAGNETIC CLUTCH (Optional on Charger 10)

This is a sealed unit and does not require lubricating. Prolonged exposure to water and freezing temperature could cause the clutch to become frozen. Do not attempt to use the clutch if this condition exists.

## SERVICE AND ADJUSTMENTS

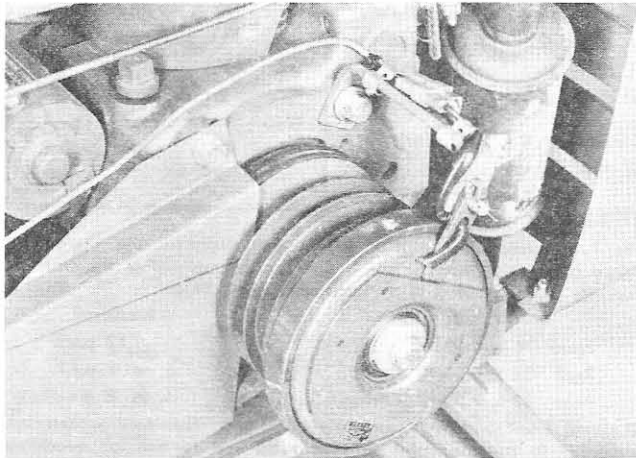
### ENGINE

Instructions for engine service and maintenance are contained in the engine owner's manual which is provided by the engine manufacturer and furnished with your tractor.

For engine services and adjustments of a technical nature beyond the scope of the owner's manual, see your Wheel Horse dealer.

### DRIVE BELT REPLACEMENT

1. Remove the belt guard from the tractor.
2. Remove the wire, hairpin cotter and clevis pin from the electro-magnetic clutch bracket (see illustration). On Charger 10 models remove hairpin cotter on clutch rod.
3. Engage the parking brake to release the tension on the drive belt.
4. Remove old belt and install new belt in its place.
5. Release parking brake to apply tension to the new belt.
6. Reinstall belt guard making certain the upper and lower belt guides run along the under edge of the belt.
7. Swing the clutch arm into position and insert the clevis pin through holes in the bracket and clutch arm. Install hairpin cotter and the wire to the clutch. **NOTE: The clutch arm must not bind on the clutch bracket. Do not substitute a bolt and nut for the clevis pin at this location. On Charger 10, reinstall clutch rod and hairpin cotter.**



ELECTRO-MAGNETIC CLUTCH

### ATTACHMENT BELTS

Install attachment belts on the electro-magnetic P.T.O. clutch by following steps (2) and (7) above. The same steps are used with a manual P.T.O.

When replacing belts, it is advisable to purchase them from your Wheel Horse dealer. These belts are specifically designed for each tractor and attachment.

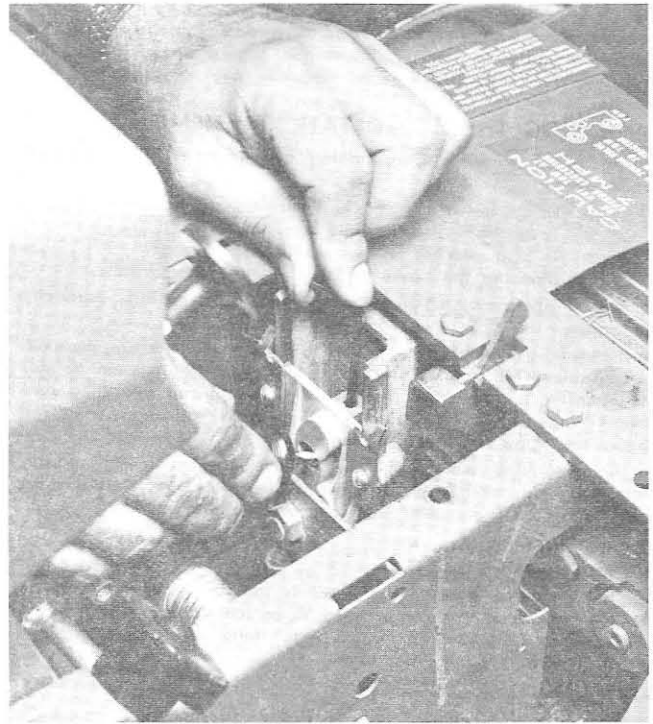
### SPEED CONTROL LEVER

#### NEUTRAL ADJUSTMENT

The tractor should not creep and the rear wheels should be effectively locked when the speed control lever is in neutral position with the engine running. To check for creep, place tractor on level surface with engine running, and depress brake pedal. Creep on slopes is normal and cannot be entirely eliminated.

If tractor should creep while in neutral position, adjust as follows:

1. Block rear wheels off ground.
2. Remove instruction plate, (located in front of the seat) by removing the screws which hold it.
3. Loosen set screw in arm with allen wrench (see illustration).
4. Depress brake pedal.

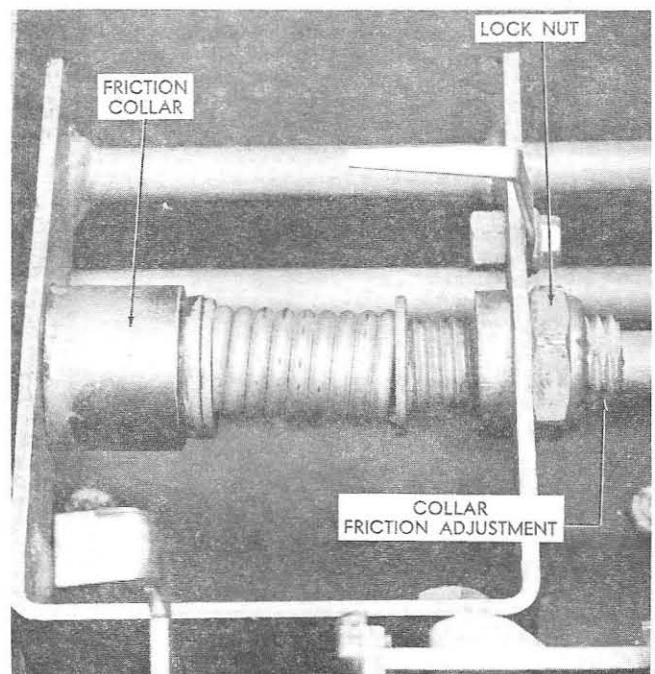


#### NEUTRAL ADJUSTMENT

5. With tractor engine running and parking brake disengaged, insert short screwdriver through hole in nylon cam and rotate the eccentric cam pin until rear wheels stop. Now retighten set screw in arm and replace plate.
6. **Note:** The lobe on the eccentric pin must be upward for proper operation.

#### FRICITION ADJUSTMENT

The speed control lever is friction loaded to hold any selected speed in either direction. The tension has been adjusted at the factory and should need little or no attention. If the lever does not stay where it is set during operation, the friction may be increased by releasing the locknut and tightening the collar-friction adjustment (located in front of the seat). The proper amount of friction is obtained when approximately six pounds of force at the handle grip moves the control lever. Be sure to tighten the locknut after proper tension has been reached. The friction collar is self lubricating and does not require lubrication.

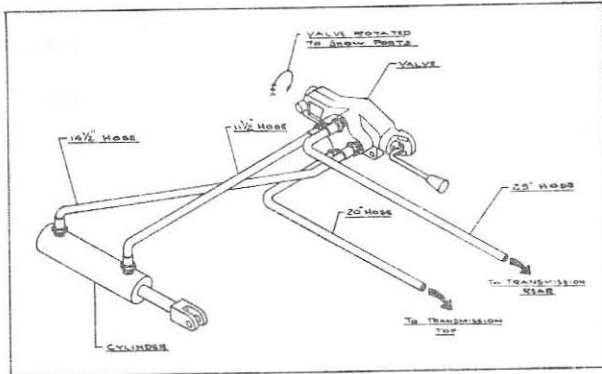


CONTROL LEVER FRICTION ADJUSTMENT

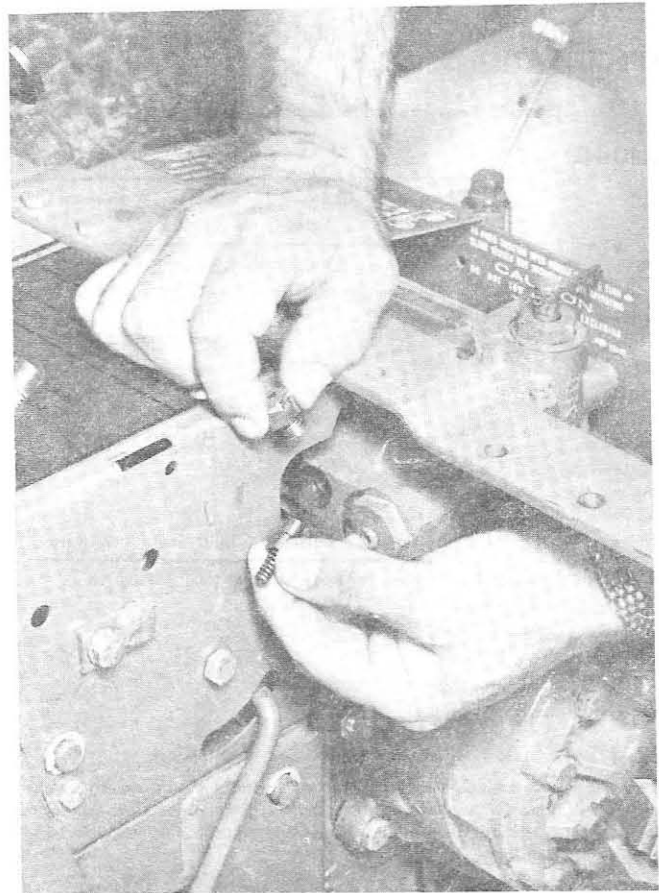
## SERVICE AND ADJUSTMENTS

### HYDRAULIC LIFT (Standard on Bronco 14 only)

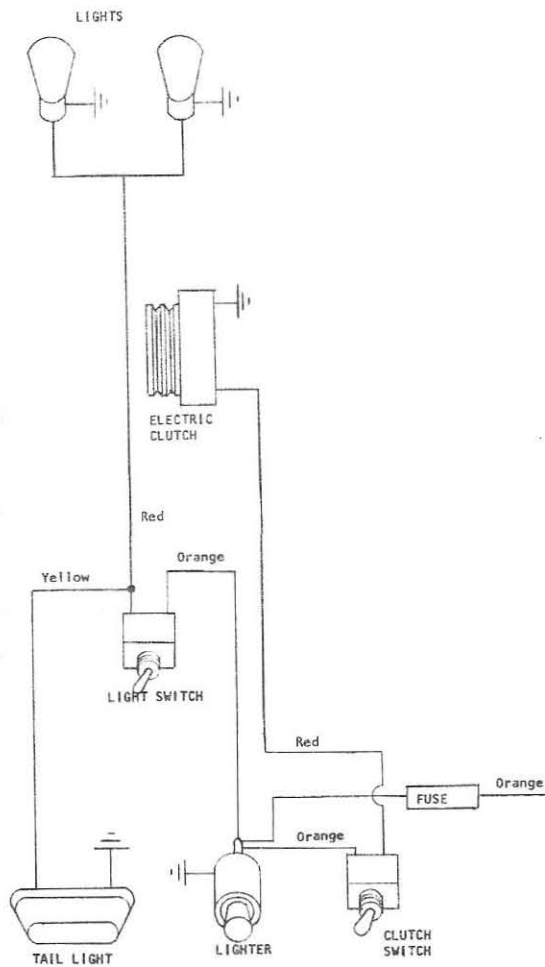
If the hydraulic lift accessory is ever disconnected, the cone and spring must be removed from the transmission to prevent excess pressure build-up in the system. (See illustration). If a new transmission is purchased, the spring and cone are not provided, they must be ordered or retained from the original transmission.



HOSE DIAGRAM



CONE AND SPRING LOCATION



ACCESSORIES WIRING DIAGRAM



## SPECIFICATIONS

(Specifications subject to change without notice)

### ENGINE

	Charger 10 1-0410	Charger 12 1-0401	Charger 12 1-0402	Bronco 14 1-0502
Make	Kohler	Kohler	Kohler	Kohler
Model/Spec.	K341S	K301S	K301S	K321S
Type: 4 cycle, single cylinder, air cooled				
Bore	3 $\frac{1}{4}$ "	3 $\frac{3}{8}$ "	3 $\frac{3}{8}$ "	3 $\frac{1}{2}$ "
Stroke	2 $\frac{7}{8}$ "	3 $\frac{1}{4}$ "	3 $\frac{1}{4}$ "	3 $\frac{1}{4}$ "
Displacement (cu. in.):	23.9	29.07	29.07	31.27
Horsepower: Engine Mfrs. Rating @ 3600 R.P.M.	10	12	12	14
Ignition	Battery	Battery	Solid State	Battery

Automatic Compression Release for easy starting

Air Cleaner: Dry Type

### DRIVE

V-Belt "B" Section — Engine to Transmission

Ratio — Engine to Transmission 1.22:1

### TRANSMISSION — Automatic

Hydrostatic transmission incorporates a variable displacement pump and a gear motor coupled to a reduction gear train. Direction and speed controlled by a single lever which controls the variable displacement pump.

Speeds: 0 to 7 Forward } infinite  
0 to 3 Reverse }

Cast iron reduction gear case

Automatic Transpower Differential (limited slip type)  
— Bronco 14 & Charger 12

Conventional Differential — Charger 10

Oil Filter — 10 Micron

### DIMENSIONS

Length-Overall	65"
Wheel Base	45 $\frac{1}{2}$ "
Width-Overall (Bronco 14 & Charger 12)	37"
(Charger 10)	36"
Width at Front Wheels	33 $\frac{1}{2}$ "
Height-Overall	39"
Height to Top of Hood	35"
Crop Clearance (Bronco 14 & Charger 12)	7 $\frac{1}{4}$ "
(Charger 10)	6 $\frac{3}{4}$ "
Frame Clearance (Bronco 14 & Charger 12)	13 $\frac{1}{2}$ "
(Charger 10)	13"
Transmission Clearance (Bronco 14 & Charger 12)	7 $\frac{1}{4}$ "
(Charger 10)	6 $\frac{3}{4}$ "
Turning Radius	6' 9"

Shipping Weight	Charger 10: 625 lbs.
	Charger 12: 675 lbs.
	Bronco 14: 690 lbs.

### TIRES

Turf Saver — Front and Rear

Size/Pressure: Front: 16 x 5.50-8 ..... 12 p.s.i.

Size/Pressure: Rear: 23 x 8.50-12 ..... 6 to 8 p.s.i.

Size/Pressure: Rear: 23 x 7.50-12 (Charger 10) ..... 6 to 8 p.s.i.

### ELECTRICAL

Battery: 12 volt — 42 Amp. Hr.

Charging System: 15 Amp. Alternator w/Solid State Regulator

Starter: Bendix Type

Switch: Key start, 4 position, w/Accessory Terminal

Electro-Magnetic P.T.O. Clutch (Optional on Charger 10)

Fused Lighting and Accessories Circuit

## ACCESSORIES AND ATTACHMENTS

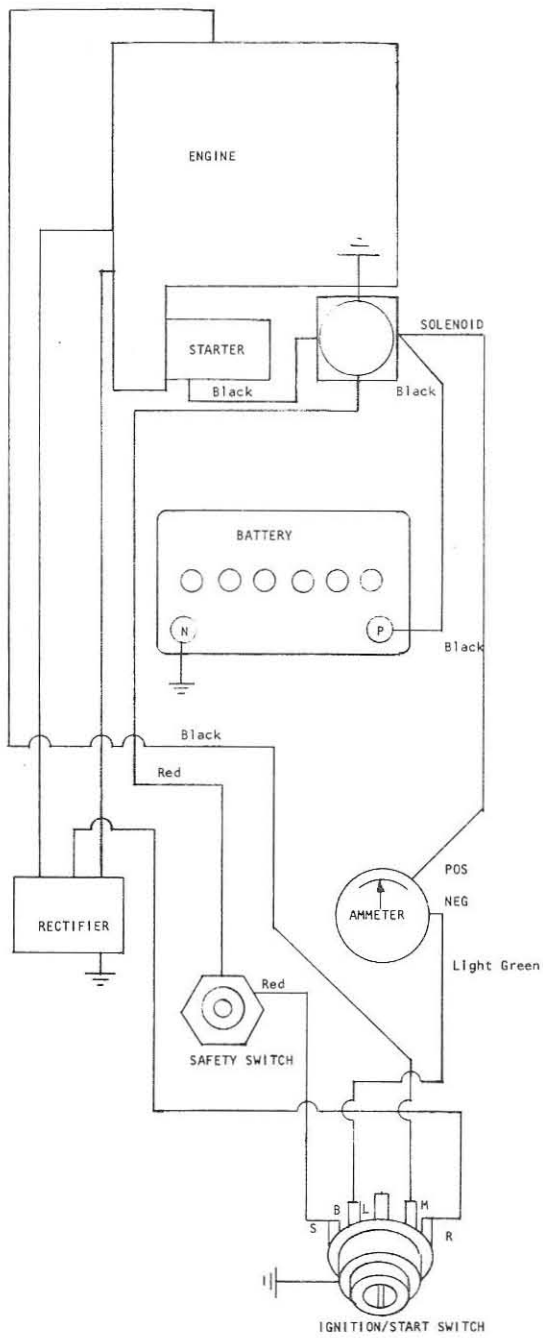
### ACCESSORIES

	Part Number
CHROME WHEEL DISCS (Standard on Bronco 14) .....	8-0512
DUAL WHEEL KIT .....	8-0731
IMPLEMENT HITCH (Clevis Type) .....	8-5511
(Slot Type) .....	8-5521
LIFT FOR SNOW THROWER (Spring Assist without Power Lift)	8-4311
TIRE CHAINS (for 12 & 14 H.P.) .....	8-2511
(for Charger 10) .....	8-2521
WHEEL WEIGHTS (Rear) .....	8-1111
(Front) .....	8-1211

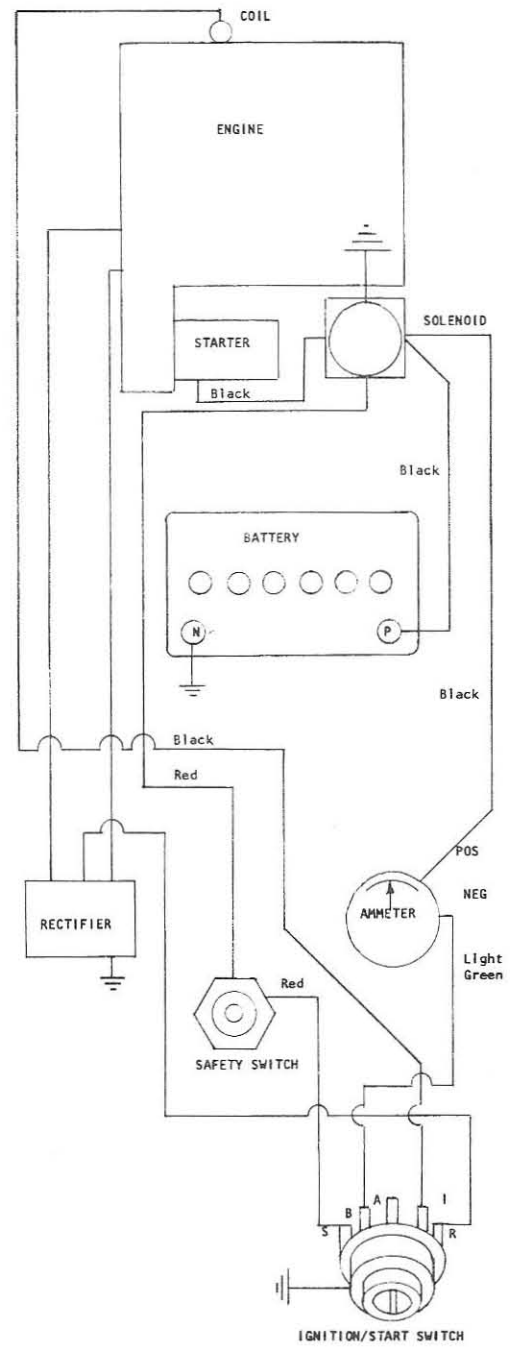
### ATTACHMENTS

	Part Number
CULTIVATOR (Mid & Rear) .....	7-1722
DISC .....	7-1512
42" DOZER BLADE .....	6-4113 w/6-9622
DUMP TRAILER .....	7-2211
GRADER BLADE .....	7-1112
LAWN SWEEPER — 31" .....	7-2511
38" .....	7-2521
LAWN ROLLER .....	7-2311
LAWN VACUUM .....	7-2611
48" ROTARY MOWER (Side Discharge)* .....	5-1201
42" ROTARY MOWER (Side Discharge) .....	5-1001
36" ROTARY MOWER (Rear Discharge) .....	5-0601
(Side Discharge) .....	5-0711
37" SNOW THROWER .....	6-6212 w/6-9112
SPIKE DISC AERATOR .....	7-2411
SPIKE TOOTH HARROW .....	7-1611
36" TILLER (Requires 8-5521 Slot Hitch) .....	7-1211
UTILITY WAGON .....	7-2111
HYDRAULIC LIFT (Standard on Bronco 14) .....	8-4111
RADIO .....	8-6911
HEADSET .....	8-6921
PLUS OVER 40 ALLIED ATTACHMENTS	

\* Not recommended for Charger 10



**CHARGER 12 — MODEL 1-0402**

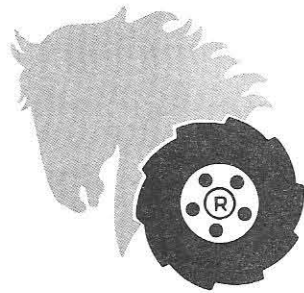


**CHARGER 10  
1-0410**

**CHARGER 12  
1-0401**

**BRONCO 14  
1-0502**

**WIRING DIAGRAMS — MAIN HARNESS**



**WHEEL-HORSE PRODUCTS, INC.**  
**SOUTH BEND, INDIANA 46614**