

# **OPERATOR'S MANUAL & PARTS LIST**



## **RIDING MOWER MODEL 718 AND 718K**

**THE GRASSHOPPER COMPANY**  
Moundridge, Kansas 67107 U.S.A.

**PHONE (316) 345-8621**

**FAX (316) 345-2301**

**PRICE \$7.00**

**Form 0590-172185  
Printed in U.S.A.**

# INTRODUCTION

Congratulations on your selection of Grasshopper equipment. We believe you have exercised excellent judgment in the purchase of your Grasshopper. We are most appreciative of your patronage.

We recommend that you carefully read this entire manual before operating the unit. Time spent in becoming fully acquainted with its performance features, adjustments and maintenance will add a longer and more satisfactory life to your Grasshopper.

The Grasshopper equipment you have purchased has been carefully engineered and manufactured to provide dependable and satisfactory use. Like all mechanical products, it will require cleaning and upkeep. Lubricate as specified in the manual. Observe all safety information in this manual and safety decals on the tractor and attachments.

The illustrations and data used in this manual were current at the time of printing, but due to possible in-line production changes, your machine may vary slightly in detail. The manufacturer reserves the right to make changes or add improvements to its products at any time without incurring any obligation to make such changes to products manufactured previously.

As with all lawn and grounds equipment, if handled carelessly, it is a dangerous piece of equipment. **If incorrectly used, this machine can cause severe injury.** You, the operator, are responsible when operating it. Therefore, safety is of the utmost importance.

## ATTENTION:

- **Read the instructions and warnings carefully before using this machine.**
- **Read your Grasshopper warranty, enclosed with tractor manual. To validate warranty, fill in the required information and return the warranty form to THE GRASSHOPPER CO., P.O. BOX 637, MOUNDRIDGE, KS 67107, within 10 days of purchase.**

Use only genuine Grasshopper service parts. Substitute parts will void the warranty and may not meet standards required for safe and satisfactory operation. Record the model and serial number of your mower.

**MODEL:** \_\_\_\_\_

**SERIAL NUMBER:** \_\_\_\_\_

**(Serial tag is located under seat on tractor frame by throttle.)**

Provide this information to your dealer to obtain correct repair parts.

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# SPECIFICATIONS

**718K  
Kohler**

**718  
Briggs & Stratton**

**Engine - 2 Cylinder 4 Cycle Air Cooled**

Model No.	M18	422447
H.P. - SAE Gross Intermittent H.P.	18 h.p.	18 h.p.
Cu. In.	42.18 cu. in. (691 cc)	42.3 cu. in. (694 cc)
No-load rpm	3600	3600
Charging system	12VDC 15 Amp	12VDC 5 Amp
Electric starter		
Electrical - safety interlocked		
Electric clutch		

**PTO rpm (max) - 3000**

**Transmission - Gemini/Eaton Dual Path Hydrostatic Direct Drive**

**Steering** - Dual levers independently control speed and direction of travel  
 - Zero turning radius (center of machine is pivot point)

**Speed**

MPH Foward (variable)	0 to 7 MPH (11.2 KM/H)
MPH Reverse (variable)	0 to 6 MPH (9.6 KM/H)

**Tire Sizes**

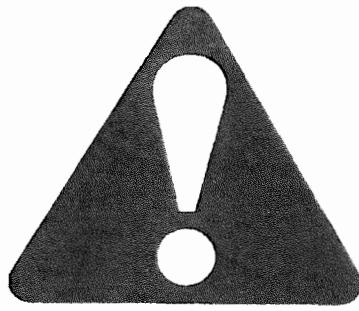
Front Drive Wheels	20 x 10 x 8 - 4 Ply Rated
Tail Wheel	13 x 5.0 x 6 Rib - 4 ply Rated

**Dimensions of Tractor**

Seat Back Height	46.5" (1.18M)
Seat Cushion Height	30.5" (.78M)
Tractor Width	47" (1.19M)
Tractor Length	73" (1.85M)
Wheel Base	49.5" (1.23M)
Weight - Uncrated	700 lbs. (317.5 Kg)
Weight - Crated	862 lbs. (391 Kg)

**Fuel Tank Capacity** 4.3 gals (16.3 liters)

**Hour Meter** Standard



This Safety Alert Symbol means **ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!**

Throughout this manual, the term **IMPORTANT** is used to indicate that failure to observe can cause damage to equipment. The terms **CAUTION**, **WARNING**, and **DANGER** are used in conjunction with the Safety Alert Symbol, (a triangle with an exclamation mark), to indicate the degree of hazard for items of personal safety.

**CAUTION** Is used for general reminders of good safety practices or to direct attention to unsafe practices.

**WARNING** Denotes a specific potential hazard.

**DANGER** Denotes the most serious specific potential hazard.

## SAFETY DECALS

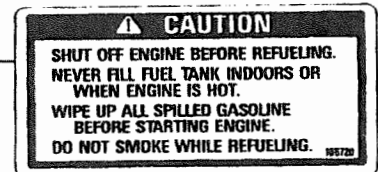
Replace Immediately If Damaged



Part No. 165021



Part No. 165631



Part No. 165720



Part No. 165345



Part No. 165340

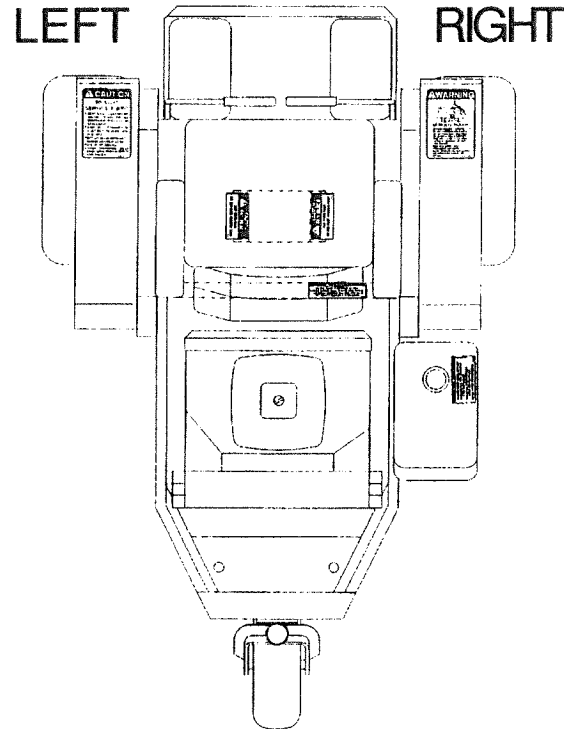
# GENERAL INFORMATION

The purpose of this manual is to assist the operator in maintaining and operating **GRASSHOPPER** tractors. Read it carefully. It furnishes information and instructions that will help you achieve years of dependable performance.

These operating and maintenance instructions have been compiled from extensive field experience and engineering data. Some information may be general in nature due to unknown and varying conditions. However, through experience and these instructions, you should be able to develop operating procedures suitable to your particular situation.

The illustrations and data used in this manual were current at the time of printing, but due to possible in-line production changes, your machine may vary slightly in detail. **GRASSHOPPER** reserves the right to re-design and change the machine as may be necessary without notification.

**⚠ WARNING** Some illustrations in this manual show the tractor with safety shields removed to provide a better view. The mower should never be operated with any safety shielding removed.



Throughout this manual, references are made to right and left directions. These are determined by standing at the rear of the equipment and facing the direction of forward travel. Mower blade rotation is clockwise as viewed from the top of mower.

# WORK SAFELY - FOLLOW THESE RULES

**⚠ CAUTION** The designed and tested safety of this equipment depends on it being operated within the limitations as explained in this manual. Read manual before operating.

## TRAINING

- Safety instructions are important! **READ THIS MANUAL AND ALL SAFETY RULES.**
- Know your controls and how to stop tractor, engine, and attachments quickly in an emergency.
- To avoid accident or injury, do not allow anyone to operate this equipment without proper instructions. Any person who operates this equipment **MUST** be instructed in and be capable of the safe operation of the unit, its attachments, and all controls.
- Do not allow children or unqualified persons to operate equipment.

## PREPARATION

- Always wear relatively tight and belted clothing to avoid entanglement in moving parts. Wear sturdy, rough soled work shoes. Never operate tractor or implements in bare feet, sandals or sneakers.
- Ensure attachments are properly mounted, adjusted and in good operating condition.
- Make sure driveline spring-activated locking collar slides freely and is seated firmly in tractor PTO groove.
- Remove accumulated debris from attachment and tractor to avoid fire hazard.
- Ensure all safety shielding is in good condition and properly installed.
- Ensure either the discharge shield or complete vacuum attachment is installed.

- Ensure all safety decals are installed and in good condition.
- Use correct counterweights when certain attachments are installed. (see specific accessory installation instructions)
- Inspect area to be cut and remove stones, branches or other debris that might be thrown, causing injury or damage.
- Never permit any person other than the operator to ride or board the tractor or implements at any time.
- Operate only in daylight or good artificial light.

## OPERATIONAL SAFETY

- Read operation section of this manual before attempting to operate this unit.
- Fenders serve as shields, do not operate without them.
- Keep bystanders away from equipment while it is in operation.
- Keep children and pets a safe distance away. Never direct discharge toward anyone.
- Start engine from operator's seat after disengaging tractor power takeoff and placing steering levers into the neutral swing-out position.
- Keep hand and feet away from under mower while engine is running. Stay clear of all moving parts on tractor and on all attachments.
- If your tractor is equipped with a ROPS (Roll Over Protection Structure), you must wear your seat belt.
- Protect against noise. Wear suitable hearing protection devices to protect against objectionable noise.
- Never allow anyone behind tractor or in front of implements when operating.
- Do not operate in reverse unless absolutely necessary and then only after careful observation of the entire area behind you.

- If operator must dismount to make adjustments, engine must not be running.
- Do not move steering levers from forward to reverse or reverse to forward position rapidly. The sudden change could cause loss of control and/or damage to equipment.
- Do not operate on steep slopes.
- Do not stop, start or change directions suddenly on slopes.
- Use extreme care and maintain minimum ground speed when traveling or operating on a hillside, or over rough ground and when operating close to ditches or fences.
- Reduce speed on slopes and sharp turns to minimize tipping or loss of control. Be careful when changing directions on slopes.
- Stay alert for holes, rocks and roots in the terrain and other hidden hazards. Keep away from drop-offs.
- Stop mower or other attachment and tractor immediately upon striking an obstruction. Turn engine off, inspect attachment and tractor, and repair damage before resuming operation.
- Disengage power to attachment and stop engine, remove key and wait for all movement to stop before dismounting, making adjustments, removing grass catcher or unclogging any attachments.
- Never transport attachments with PTO running.
- Watch for traffic when operating near or crossing roadways.
- This unit is not equipped for highway use, especially when safety lighting and marking is required. It is not a recreational vehicle.
- This unit is not equipped with a drawbar. Do not pull loads.
- Handle fuel carefully, it is highly flammable. Always use an approved container. Never remove fuel cap or add fuel while engine is running. Allow engine to cool two minutes before refueling. Do not spill fuel on hot engine parts.
- Take all possible precautions when leaving tractor unattended: disengage PTO, lower attachment, place controls in neutral, set parking brake, stop engine and remove key from ignition.
- Move very slowly when attachment is removed. Never carry passengers.

## **MAINTENANCE SAFETY**

- Disconnect battery ground cable (-) before performing maintenance or service if starting engine could cause injury.
- Never work under equipment without safety blocks.
- Keep engine free of grass, leaves or excess grease to reduce fire hazard and minimize engine overheating.
- Do not change engine governor settings or overspeed engine.
- Keep tractor and attachments in good operating conditions and all safety devices in place.
- Periodically tighten all bolts, nuts and screws and check that all cotter pins are properly installed to ensure equipment is in a safe condition.

## **STORING SAFELY**

- Never store equipment with gasoline in the tank inside a building where fumes may reach an open flame or spark. Allow engine to cool before storing in an enclosure.
- Always provide adequate ventilation when running engine indoors - exhaust gases contain carbon monoxide, an odorless and deadly poison.
- Remove attachments from tractor. Remove all accumulated debris from tractor and attachments.
- Sand areas where paint is chipped and repaint to prevent rust. Lubricate all locations to prevent moisture damage during storage.

# LUBRICATION AND SERVICE

**⚠ CAUTION** Always wear safety glasses and ear protection when performing any service or maintenance function that could cause injury to eyes or ears.

Be familiar with all safety practices on pages 4 & 5.

**⚠ WARNING** Lower attachment to ground, shut off tractor engine, remove key and wires to spark plug before servicing.

Do not let excess grease collect on or around parts, particularly when operating in sandy areas.

The chart gives the frequency of lubrication in operating hours based on normal operation conditions. Severe or unusual conditions may require more frequent lubrication.

Use an SAE multi-purpose type grease for all locations shown. Be sure to clean fitting thoroughly before using grease gun.

For Gemini transmissions use Mobil DTE26 (Grasshopper Part No. 345280 for 1 gallon container.) For severe duty, use Grasshopper Fluid Part No. 345050 (1 qt).

Part	Lubricate Every 8 Hours of Usage	Lubricate Every 80 Hours of Usage
Rear wheel bearings	Two fittings	Two fittings
Clutch power shaft	Three fittings	
Drive shaft		

## CAPACITIES

Fuel Tank ..... 4.3 U.S. Gallons  
 Gemini Transmission Oil Reservoir ..... 2 U.S. Gallons

## TIRE AIR PRESSURE

Drive Tires ..... 8 - 10 lbs  
 Rear Tires ..... 12 - 15 lbs

## GEMINI TRANSMISSION

Gemini Transmission Fluid Change ..... 1000 hours  
 Gemini Transmission Filter Change ..... 300 to 500 hours

## Crankcase and Air Filter

Refer to the Engine Owner's Manual for the time table for changing or service.

# OPERATION

The safe operation of this machine is the responsibility of the operator. The operator should be familiar with the tractor and all attachments that will be used before starting operation. Refer to and read safety information on pages 4 & 5.

## CONTROLS AND SWITCHES

Know your controls and how to stop tractor, engine and attachments quickly in an emergency.

Stop tractor by moving steering control to neutral. Stop engine by turning key to "OFF" position. Disengage power to attachments by moving PTO switch to "OFF" (down) position.

Operating this unit is not difficult once you master the use of the controls. We recommend you equip the tractor with the attachment you will be using and practice in a flat open area at a medium throttle setting until you are comfortable with the controls.

Several safety switches are incorporated in the unit's design to prevent it from being started out of neutral or with the PTO engaged. All controls must be in the "OFF" or neutral position before the unit can be started. There is a safety switch under the operator's seat that will cause the engine to stop, should the operator leave the seat with any control engaged.

## PRESTART CHECK LIST

- Place tractor on level surface.
- Check crankcase oil level (refer to Engine Operator's Manual for proper level and type of oil used).
- Remove and clean air intake screen.

**IMPORTANT:** When mowing dry, dusty and long grass, it may be necessary to remove and clean air intake frequently to prevent engine overheating.

- Check for grass wrap on PTO shaft. When mowing long grass, turn off key and check for grass wrap around PTO shaft every 30 minutes of operation.

**⚠ WARNING** Remove spark plug wire to prevent accidental engine starting before attempting to remove grass wrap from PTO.

- Check air cleaner (refer to Engine Operator's Manual). When mowing dry, dusty and long grass, it may be necessary to remove and clean the air intake on the air cleaner.
- Check to be sure engine is free of dirt and debris.
- Check fuel level. Refer to Engine Manual for correct fuel for your requirements.

**⚠ DANGER** Do not fill fuel tank while engine is running. Allow engine to cool two minutes before refueling. If fuel is spilled, do not start engine and avoid creating any source of ignition until the fuel has evaporated.

- Check tire pressure. Improper pressure will adversely affect traction, steering and level cutting height (see page 6).
- Check that cooling fins on the Gemini transmissions are clean.

## CHECKING GEMINI TRANSMISSION OIL LEVEL

Check oil level with the engine turned off. Pull dipstick on left side of machine next to air inlet screen. This is the oil reservoir for both Gemini transmissions. If oil is required, add until level is between the two marks on the dipstick. Use Mobil DTE26 (Grasshopper Part No. 345280 for 1 gallon container). For severe duty, use Grasshopper Fluid Part No. 345050 (1 qt).

## CHANGING GEMINI TRANSMISSION OIL AND FILTERS

Change Gemini filters, one on each transmission, every 300-500 hours depending on severity of use; 500 hours under normal mowing conditions and 300 hours if using a grasscatcher or if temperatures are above 100 degrees F.

To change oil, remove drain plug from bottom of oil reservoir and allow reservoir to drain completely. Replace plug and tighten. The Gemini transmissions cannot be individually drained. Refill the reservoir with 2.5 gallons of oil of the type and viscosity as prescribed in the above section. Run engine and check for leaks. Stop engine and check that oil level is between the two marks on the dipstick.

**Note: No air bleeding is necessary, the system is self bleeding.**

## STARTING THE ENGINE

### **DANGER**

- Never start the engine in confined rooms. Exhaust gases contain carbon monoxide, an odorless and deadly poison.

- Do not allow children to approach the machine while the engine is running.
- Do not operate the machine around open flames, i.e. trash fires.
- Do not operate the engine when an odor of gasoline is present or other explosive conditions exist.

- To start tractor, position yourself on the tractor seat.
- Place both steering controls in swing-out neutral position.
- Place electric clutch switch in "OFF" (down) position.
- Set the throttle at 1/3 open.
- Insert the key into the starter switch.
- Turn the key to "START". Choke as necessary to start. When engine starts, release key immediately. Push choke in gradually until choke is in and engine is running smoothly.
- Warm the engine up at medium speed for several minutes.

You will enhance the starter life by using short starting cycles of several seconds. Engaging starter motor more than 15 seconds per minute can result in damage to starter.

## COLD WEATHER STARTING TIPS

Use proper oil grade for temperature expected. (See Engine Manual).

Set throttle half open.

A warm battery has better starting capacity than a cold one.

Use fresh winter grade fuel, it is better for winter starting than left over summer grade gasoline.

## UNEVEN TERRAIN

**▲ WARNING** Be careful when operating tractor and mower on uneven ground.

Pass diagonally through sharp dips and avoid sharp drops. Practice will improve your skills in maneuvering rough terrain.

Avoid sudden starts and stops when traveling up or down hill. Never mow down, or back up, steep hills.

Slow down on sharp turns and slopes to prevent tipping or loss of control.

**▲ WARNING** Do not operate on steep slopes. Operation on a steep slope could cause loss of control, tractor overturn and personal injury or death.

## CLUTCH/BRAKE BURNISHING

**IMPORTANT:** A new clutch, or one that has not been used for three months, will require burnishing to dress drive surfaces. The clutch could fail if you do not accomplish the following procedure.

Place tractor in neutral, start engine and run at fast idle. Turn clutch switch on 30 seconds and off 30 seconds, five times at half-throttle and repeat five times at full throttle. The time interval allows the clutch surface to cool.

## STOPPING THE ENGINE

- Set the throttle at an idle. Allow engine to idle for several minutes.
- Move starter switch to "OFF" and remove key.
- Never choke carburetor to stop engine.

**▲ CAUTION** Always remove key from switch when leaving unit unattended or when not in use.

## STEERING LEVER OPERATION

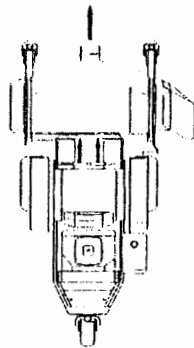
- ⚠ WARNING**
- Do not move steering levers from forward to reverse or reverse to forward position rapidly. The sudden change could cause loss of control or damage to equipment.
  - The Grasshopper is very unstable without an attachment. Move very slowly when attachment is removed. Never carry passengers.

Speed and direction are controlled with steering levers. Pushing the levers forward will move the tractor forward. Pulling levers to the rear will move tractor in reverse. The further forward or rearward the steering levers are moved, the faster the machine will move.

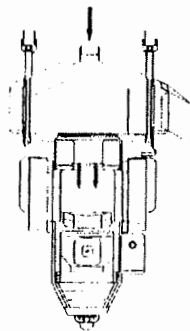
At half throttle, move both steering levers from swing-out neutral inward. Move both steering levers forward. To turn right, advance left lever further forward than right lever. To turn left, advance right lever further forward than left lever. If you leave one steering lever in neutral and advance the other lever, the tractor will turn a complete circle. Move the levers to the rear and practice turning and maneuvering in reverse. Once you learn how the controls operate, practice until you become proficient and are comfortable with the unit before you commence operation of an attachment.

**IMPORTANT:** If you become confused during operation, release both steering levers; they will automatically return to the centered neutral position and the tractor will stop.

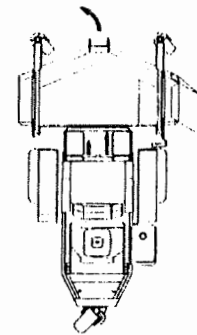
## STEERING LEVER OPERATION



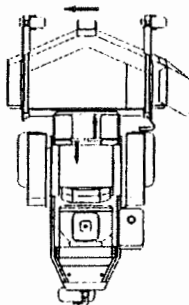
FOWARD



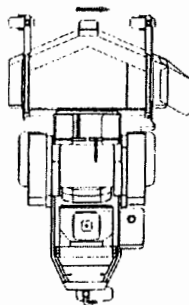
REVERSE



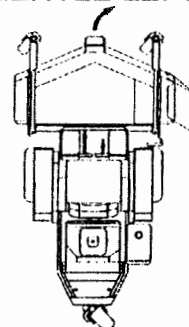
GENTLE LEFT



SHARP LEFT



SHARP RIGHT



GENTLE RIGHT

# ADJUSTMENTS AND TROUBLESHOOTING

## GEMINI TRANSMISSION TROUBLESHOOTING

### Loss of Power in the Gemini Transmission

Check the fluid level and make sure the proper amount of fluid is in the reservoir. The cooling fins and fan blades should be clean and free of foreign matter.

## CHECKING GEMINI TRANSMISSION OIL LEVEL

Check oil level with the engine turned off. Pull dipstick on left side of machine next to air inlet screen. This is the oil reservoir for both transmissions. If oil is required, add until level is between the two marks on the dipstick. Use Mobil DTE26 (Grasshopper Part No. 345280 for 1 gallon container). For severe duty, use Grasshopper Fluid Part No. 345050 for 1 quart container.

## CHANGING GEMINI TRANSMISSION OIL AND FILTERS

Change filters, one on each transmission, every 300-500 hours depending on severity of use; 500 hours under normal mowing conditions and 300 hours if using a grasscatcher or if temperatures are above 100 degrees F. To change oil, remove drain plug from bottom of oil reservoir and allow reservoir to drain completely. Replace plug and tighten. The transmissions cannot be individually drained. Refill the reservoir with 2.5 gallons of oil of the type and viscosity as prescribed in the above section. Run engine and check for leaks. Stop engine and check that oil level is between the two marks on the dipstick.

**Note: No air bleeding is necessary, the system is self bleeding.**

## NO POSITIVE NEUTRAL POSITION

If drive wheels travel forward or reverse when the steering lever is in swing-out position (neutral), adjustment is required.

## NEUTRAL ADJUSTMENT

(Refer to Ill. on page 22)

1. Block up under tractor frame so both drive wheels are off the ground.
2. Make sure parking brake is released.
3. Remove linkage rod (item 34) from transmission control arm (item 23).
4. Place steering levers in the neutral swing-out position and start engine.
5. If either of the drive wheels turn, proceed with the following adjustment.
6. Loosen locking nut (item 26) and rotate pivot bolt (item 25) until neutral is achieved. Tighten locking nut.

**NOTE: Pivot bolt roller is mounted off center and works as an eccentric when the bolt is turned. Use special wrench enclosed with operators manual to adjust.**

7. Repeat procedure for other side transmission.
8. Reinstall linkage rod in control arm. If ball stud does not reinstall into control arm without moving the control arm, adjust length of linkage rod until it does to assure neutral adjustment will be maintained when linkage is reconnected.
9. Test drive machine for straight line travel with both levers full forward. If travel is not in a straight line, raise the steering lever stop on the side that is the fastest i.e.: if machine goes to the left, raise the right steering stop to slow down the right transmission until travel is straight ahead.

## GEMINI TRANSMISSION REMOVAL

**NOTE:** Transmission removal procedure is the same for both transmissions.

1. Place tractor on stands and remove fender and drive wheel.
2. Remove belt shield (item 17, page 20.)
3. Push in on belt idler and remove drive belt.
4. Disconnect steering linkage from control arm on transmission (item 23, page 22.)
5. Remove parking brake assembly and mounting bracket (item 40 or 41).
6. Drain oil reservoir or use plastic plugs to cap off oil hoses. Remove oil filter and two oil hoses from transmission.
7. Remove eight bolts that mount transmission to Gemini center mount. Support transmission and remove two bolts from transmission final drive to frame and lower the Gemini unit out of the frame.

To remove wheel hub assembly (item 5, page 20), use a puller bar and two 3/8 x 2 1/4" grade 8 bolts and flat washers to pull hub from axle. When reinstalling hub, torque axle nut (item 7) to 150 ft/lbs and install a new cotter pin. If hole does not line up, tighten nut until it does.

Reverse procedure to reinstall Gemini transmission. Apply Locktite 242 to the threads of the seven 1/4" center mount bolts and torque to 125 inch/lbs.

Should warranty service be required, take the machine to your authorized Grasshopper dealer.

**Important:** Disassembly of any part of the transmission will void the warranty.

## ENGINE TROUBLESHOOTING

### Engine will not crank:

- Steering levers must be in swing-out neutral.
- PTO switch must be in "OFF" position.
- Check starter fuse on fuse panel underneath seat.
- Check for voltage at the center post with the black wire on the PTO switch. If no voltage is present, the battery is defective or the connection at the battery is not making contact.
- If voltage is present, then check for voltage at the terminal with the blue wire. (PTO switch must be in "OFF" position). If no voltage is present, the PTO switch is defective.
- If voltage is present at the blue wire on the PTO switch, check for voltage at the B terminal on the key switch. If no voltage is present, check for broken wire between the two switches. If voltage is present, proceed to the next series of tests.

With the key switch held in the "START" position, perform the following test:

- Check for voltage at the S terminal of the key switch. If voltage is not present, key switch is defective.
- If voltage is present at S terminal, check for voltage on either side of starter fuse on fuse panel. If voltage is not present, check for broken wire from the starter switch to the fuse, or check for defective fuse.
- If voltage is present at fuse, check for voltage at NO post of left steering switch with the blue wire. If voltage is not present, check for broken wire between the left steering switch and fuse.

- If voltage is present at NO post of the left steering switch, check for voltage at the C post with the blue wire. (Be sure left steering lever is in swing-out neutral position). If no voltage is present, the left steering switch is defective.
- If voltage is present at the C post of the left steering switch, check for voltage at the NO post of the right steering switch with the blue wire. If no voltage is present, check for broken wire between the two switches.
- If voltage is present at the NO post of the right steering switch, check for voltage at the C post with the blue wire. (Be sure right & left steering levers are in swing-out neutral position). If no voltage is present, the right steering switch is defective.
- If voltage is present at the C post of the right steering switch, check for voltage at the starter solenoid post with the blue wire. If no voltage is present, check for broken wire between solenoid and switch. If voltage is present, the starter solenoid is defective.

#### **Engine cranks, but will not start:**

**NOTE: All switch wiring related to the magneto grounding is yellow.**

- Disconnect double wire coupling from magneto terminal on top of the engine.
- Attempt to start engine. If the engine starts and continues to run, check the safety circuit of the tractor. If the engine still will not start, contact your nearest authorized engine service dealer for engine repair.
- Check ignition switch ground terminal to determine that switch is grounded in "OFF" position only. If switch is grounded in "ON" position, switch is defective.

- Check switches, seat, clutch and each steering arm respectively for continuity. If you find a switch that has continuity in its neutral, or "OFF" position, a faulty or mis-adjusted switch is suspected.
- If all switches check out and show no continuity, then re-trace all yellow wires for a possible pinch point between the wire and tractor frame.

#### **ENGINE REMOVAL**

To remove engine, disconnect: battery, fuel line, electrical wires from engine, throttle, choke and flex coupling to gearbox. Remove the four engine to frame mount bolts and drive belts from engine sheave. The engine can now be lifted out. Consult your local authorized engine dealer for repairs or repair parts.

#### **BATTERY SERVICE**

Follow the procedure below for battery maintenance and service.

- Clean battery.
- Inspect cables for loose connection.
- Clean terminals.
- Inspect battery tray and hold-down.
- Inspect battery case for cracks, or leaks.
- Take hydrometer test.
- Add water if necessary.
- Recharge battery if less than 75% charged.

#### **GEMINI BELT REMOVAL**

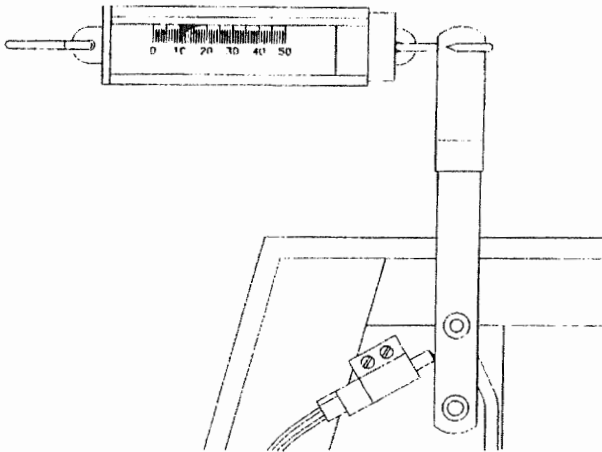
**(Refer to page 20)**

- Remove key from key switch.
- Remove belt shield (item 17).
- Push down on belt idler and derail belt off of top pulley.
- Remove two bolts between flex coupler (item 41) and coupling hub (item 40).

- Loosen two set screws in coupling hub and slide forward to allow gap for belt removal.
- Replace belt and reverse procedure to install belt.
- Replace belt shield before starting engine.

## PARKING BRAKE ADJUSTMENT

Refer to illustration on pg. 22. Remove clevis pin (item 39) to disconnect the left hand brake and linkage rod (item 3). Adjust clevis yoke attached to adjustable brake rod (item 5) until it takes 10 lbs of pull at the top of the hand lever to apply the parking brake. Disconnect the right hand brake rod (item 4). Reconnect the left brake and adjust the clevis yoke, which is attached to the lower linkage rod (item 3), until it takes 10 lbs of pull at the top of the hand lever to apply the parking brake. Reconnect the right brake rod.

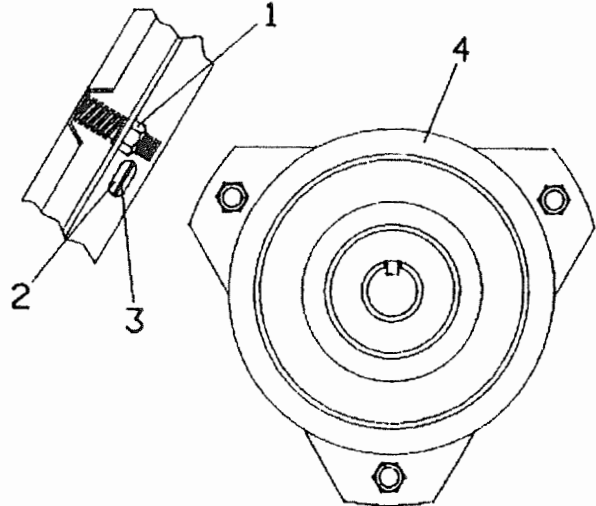


## CLUTCH/BRAKE ADJUSTMENT

**⚠ WARNING** If the mower deck or any other PTO driven device will not stop within 5 seconds after the PTO switch is placed in the "OFF" position and with the engine at full throttle, the clutch/brake requires adjustment.

To adjust the electric clutch/brake, use the following procedure:

- Stop engine and remove key.
- Using a feeler gauge, check the air gap. Insert the feeler gauge into access slots around the outside of the adjustment nuts. The air gap should be .008" to .010".
- Adjust the adjustment bolts until the proper clearance is obtained in all three access slots.
- Replace shields.



1. Adjustment Nuts
2. Access Slots
3. Air Gap
4. Brake Plate

## REPLACEMENT OF CLUTCH

1. Remove exhaust housing (item 10, pg. 18).
2. Remove two carriage bolts (item 38). Lift out weight cover and rear weights.
3. Loosen spring tension (item 26, pg. 24) on drive belt idler pulley.
4. Remove clutch bracket (item 28).
5. Unplug wires from clutch and remove center bolt (item 19). Slide clutch off of engine crankshaft.
6. Reverse order to install new clutch.
7. Check clutch air gap after installation.

# NOTES



# PARTS LISTS AND ILLUSTRATIONS

When Ordering parts, use the description and part number as stated in this manual. Also include the serial number of the tractor or attachment the parts are to be used on.

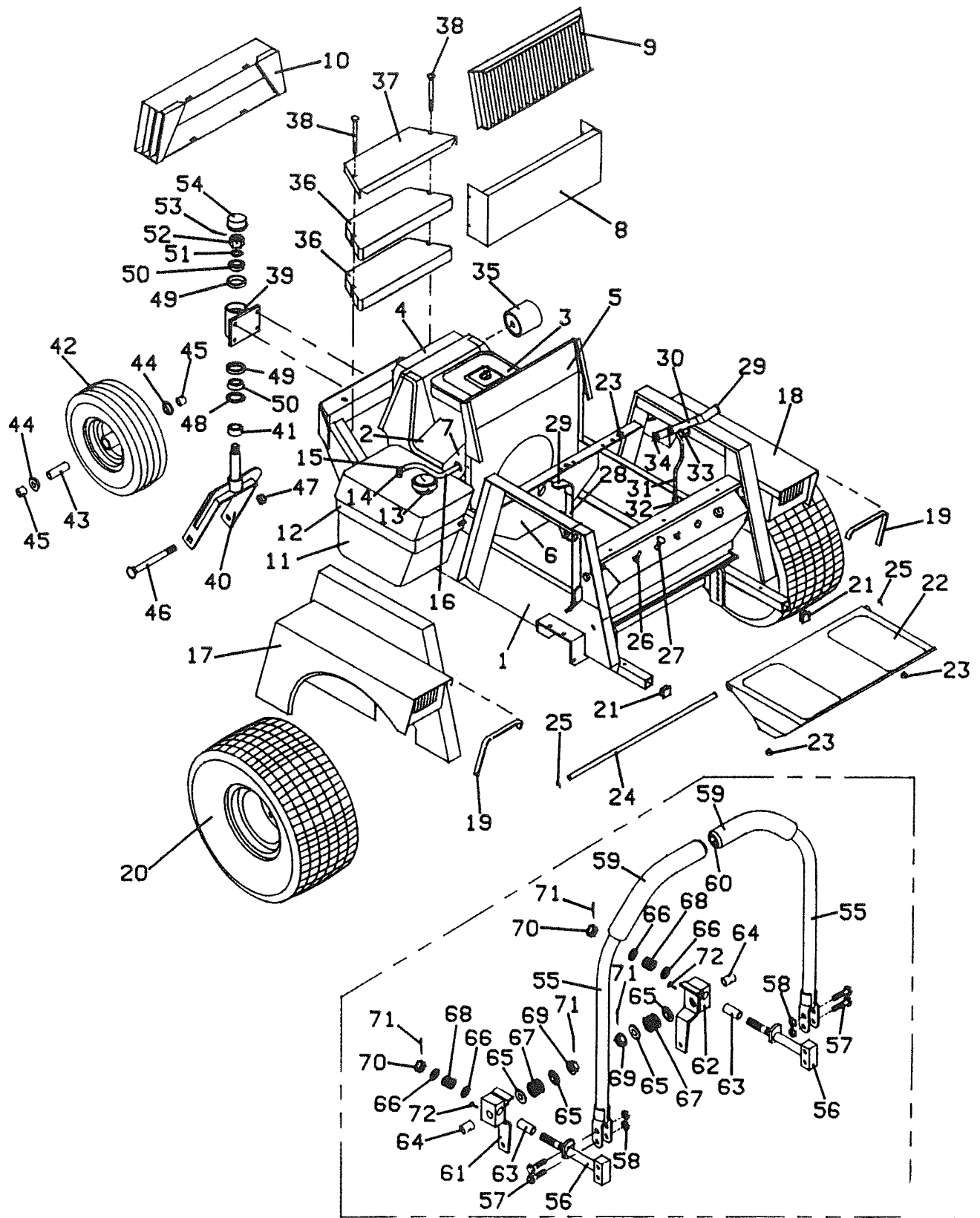
# TRACTOR ASSEMBLY - MODEL 718/718K

Item No.	Order No.	Description	Item No.	Order No.	Description
1	643398	Tractor Frame - 718/718K	29	422150	Handle Grip
2	100141	Engine - 18 HP (Kohler)	30	643499	Brake Lever
	100139	Engine - 18 HP (Briggs)	31	730356	Brake Linkage Rod
3	100930	Air Filter (Kohler)	32	265537	Clevis Yoke
	100931	Air Filter Precleaner (Kohler)	33	259741	Shoulder Bolt .5x.75x.375-16
	100920	Air Filter (Briggs)	34	260648	Cotter Pin .125 x .5
	100921	Air Filter Precleaner (Briggs)	35	100802	Oil Filter (Kohler)
4	101218	Muffler (Kohler)		100803	Oil Filter (Briggs)
	101210	Muffler (Briggs)	36	323925	Counter Weight - 25#
5	643290	Duct Mount (Kohler)	37	729429	Weight Cover Plate
	643317	Duct Mount (Briggs)	38	247305	Bolt .375 x 4 Carriage
6	771027	Lower Intake Duct Panel	39	824532	Pivot Housing - Rear Fork
7	722083	Duct Support Brkt. (Kohler)	40	643366	Rear Fork
	722124	Intake Duct Brace-Rt. (Briggs)	41	282615	Spacer .375 x 1
	722125	Intake Duct Brace-Lt. (Briggs)	42	483861	Wheel & Tire 13 x 5 x 6
8	721222	Duct Panel		482350	Tire 13 x 5 x 6
9	643402	Air Intake Grille		483301	Wheel 6 x 4 W/Brgs. & Spacer
10	643413	Exhaust Housing (Kohler)	43	902475	Bearing Spacer
	643429	Exhaust Housing (Briggs)	44	120050	Wheel Bearing
11	603813	Fuel Tank Ass'y	45	902425	Axle Spacer
12	643144	Fuel Tank Mounting Bracket	46	247725	Bolt .625 x 7 Carriage
13	141125	Cap W/Fuel Gauge	47	253970	Lock Nut .625-11
14	101819	Fuel Draw Tube	48	125855	Seal
15	280260	Hose Clamp .25	49	123522	Bearing Cup
16	821725	Fuel Line Hose	50	122522	Tapered Bearing
	101002	Fuel Filter (Kohler)	51	257091	Washer 14 GA. Bushing
	366560	Fuel Filter (Briggs)	52	254502	Nut .75-16 Slotted
17	643352	Fender Rt.	53	260670	Cotter Pin .156 x 1.25
18	643353	Fender Lt.	54	481432	Dust Cap
19	822635	Trim - Fender Edge	55	643497	Steering Lever
20	483921	Wheel & Tire 20x10x8 Turf Mate	56	643650	Steering Lever Mount
	483410	Wheel Without Tire 8 x 6.00	57	253195	Hex Whiz Bolt .312-18 x 1.5
	482471	Tire 20x10x8 Turf Mate	58	253035	Hex Whiz Nut .312-18
	603952	Wheel & Tire 22x11x8 Chevron Rt. (Opt.)	59	422178	Handle Grip - Foam
	603953	Wheel & Tire 22x11x8 Chevron Lt. (Opt.)	60	422095	Vinyl Cap
	643909	Wheel 8.00 x 9 Wide (Opt.)	61	643660	Steering Pivot Rt.
	482480	Tire 22x11x8 Chevron (Opt.)	62	643661	Steering Pivot Lt.
21	422065	Square Plug 1"	63	422580	Nylon Bearing 1.5"
22	603345	Foot Rest	64	422561	Nylon Bearing W/Slot 1"
23	424015	Rubber Bumper	65	257067	Step Washer
24	780658	Foot Rest Pivot Rod	66	257063	Nylon Washer
25	263500	External Retainer	67	283381	Compression Spring
26	184082	Clutch Switch	68	283324	Compression Spring
27	142250	Mechanical Choke Cable	69	830355	Nut .5-13 Slotted Flange
28	603821	Throttle Cable Assembly (Kohler)	70	254473	Nut .5-13 Slotted
	603819	Throttle Cable Assembly (Briggs)	71	260652	Cotter Pin .125 x 1
	722009	Throttle Lever Stop	72	422055	Plastic Plug .125

**Items not pictured:**

603268 Decal Set - 718 Tractor  
603269 Decal Set - 718K Tractor

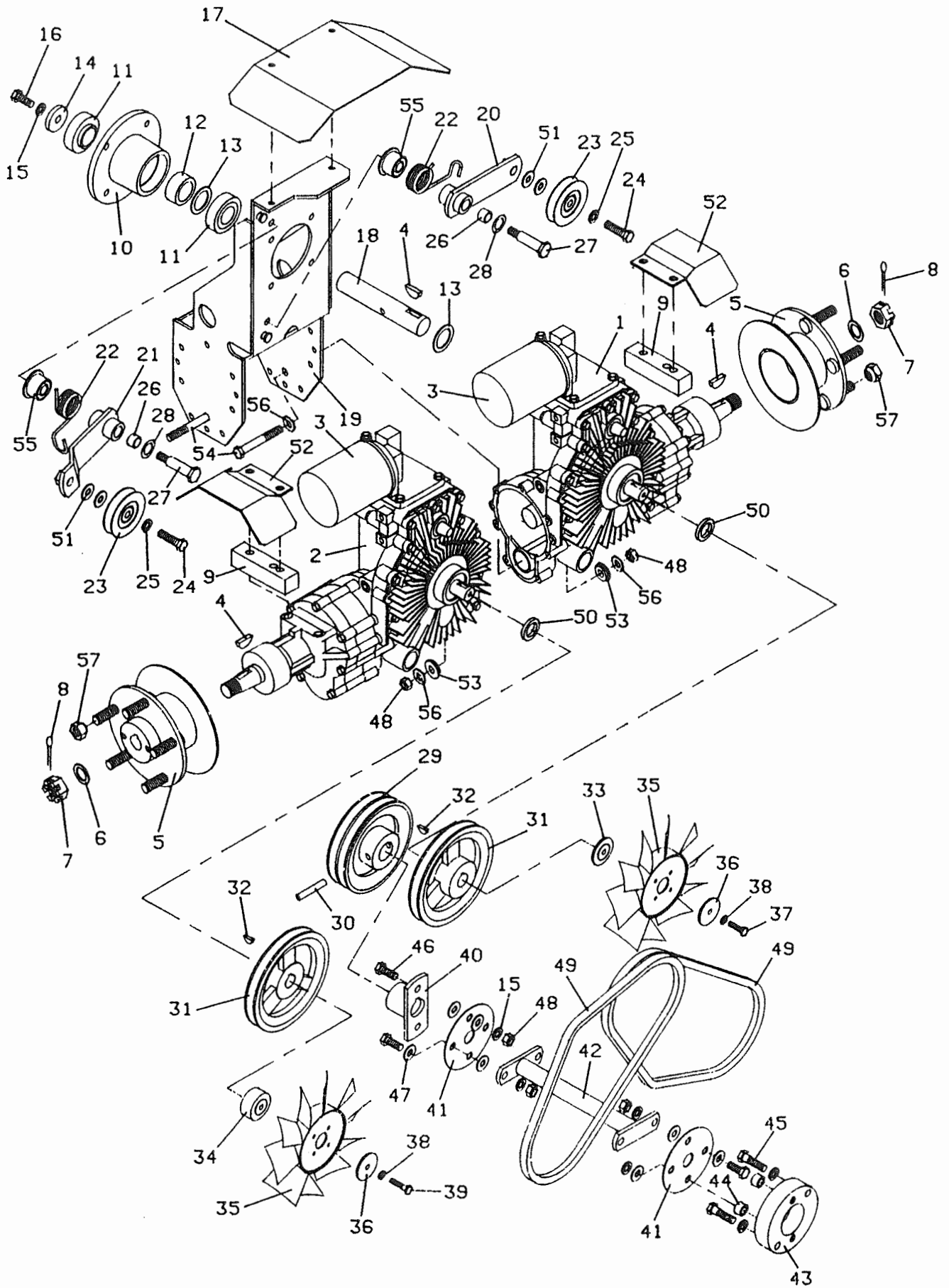
# TRACTOR ASSEMBLY - MODEL 718/718K



# DRIVE ASSEMBLY - MODEL 718/718K

Item No.	Order No.	Description	Item No.	Order No.	Description
1	391203	Gemini Transmission Rt.	29	415630	Sheave
2	391202	Gemini Transmission Lt.	30	261060	Spiral Roll Pin .312 x 2
3	100850	Oil Filter	31	415560	Sheave
4	281845	Woodruff Key .25 x 1	32	281829	Woodruff Key .187 x .625
5	603419	Drive Hub W/Rotor Assembly	33	423725	Spacer - Rt. Fan
6	257091	Washer 14 Ga. Bushing	34	423726	Spacer - Lt. Fan
7	254504	Nut .75-20 Slotted	35	320856	Nylon Fan CCW
8	260670	Cotter Pin .156 x 1.25	36	774023	Flat Washer .281 x 1.5
9	901760	Mount Spacer	37	243030	Bolt .25-20 x 1.25
10	320522	Spindle Housing	38	257392	Lock Washer .25
11	120080	Ball Bearing	39	243038	Bolt .25-20 x 1.75
12	282630	Spacer	40	824547	Coupling Hub
13	257106	Washer 18 Ga. Bushing	41	821530	Disc - Flex Coupling
14	883801	Retaining Washer	42	643216	Coupling Connector (Briggs)
15	257412	Lock Washer .375		643215	Coupling Connector (Kohler)
16	243331	Bolt .375-24 x 1	43	941350	Coupling Adapter (Kohler)
17	722203	Drive Shield	44	902280	Coupling Spacer
18	882840	Drive Shaft	45	243340	Bolt .375-16 x 1.5
19	643615	Center Mount	46	243330	Bolt .375-16 x 1
20	603066	Idler Arm W/Spring - Lower (Includes Items 22, 26 & 55)	47	257040	Flat Washer .375
21	603065	Idler Arm W/Spring - Upper (Includes Items 22, 26 & 55)	48	254450	Nut .375-16
22	284425	Torsion Spring	49	381904	Belt
23	393312	Idler Pulley .375 I.D.	50	775003	Spacer .781 x 1.125
24	243340	Bolt .375-16 x 1.5	51	257030	Washer .312 (As Req'd)
25	257412	Lock Washer .375	52	724212	Disc Brake Shield
26	422558	Nylon Bearing .5	53	882003	Step Washer
27	259745	Shoulder Bolt .5 x 1.75 x .375	54	243365	Bolt .375-16 x 3
28	282350	Shim .010 x .520 ID	55	422750	Double Bearing
			56	257410	Star Washer External
			57	254472	Lug Nut .5-20

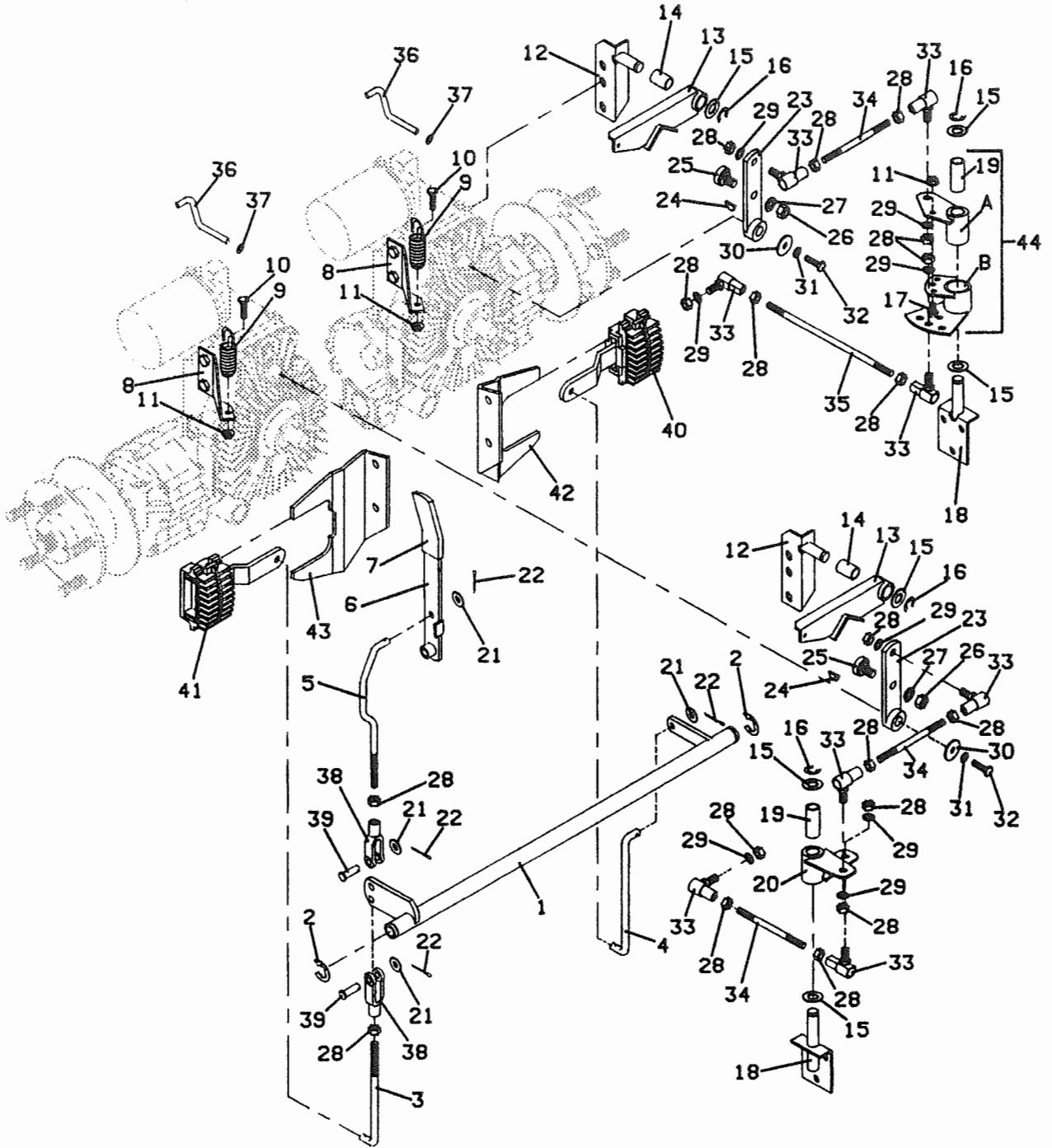
# DRIVE ASSEMBLY - MODEL 718/718K



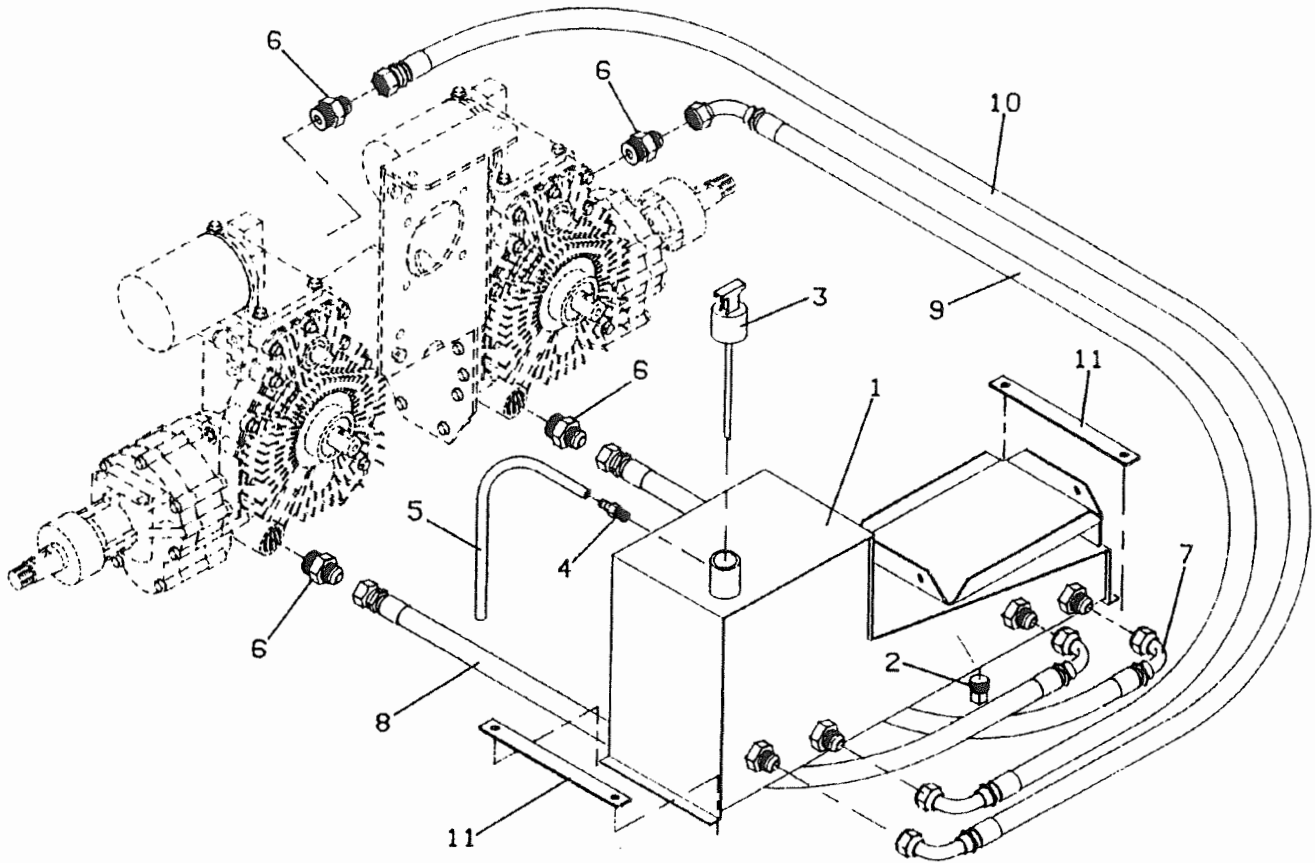
# DRIVE LINKAGE

Item No.	Order	Description No.	Item No.	Order	Description No.
1	643280	Disc Brake Pivot Tube	25	603726	Roller Assembly - Eccentric
2	263529	External Retainer	26	254450	Nut .375-16
3	730289	Linkage Rod	27	257412	Lock Washer .375
4	730355	Disc Brake Rod	28	254441	Nut .312-24
5	730356	Disc Brake Rod - Adjustable	29	257402	Lock Washer .312
6	643499	Disc Brake Lever	30	774012	Flat Washer .281 x 1
7	422150	Handle Grip	31	257392	Lock Washer .25
8	729072	Neutral Return Spring Bracket	32	243025	Bolt .25-20 x 1
9	283823	Extension Spring	33	265615	Ball Joint .312-24
10	243030	Bolt .25-20 x 1.25	34	780160	Ball Joint Rod - 4.5
11	253025	Whiz Nut .25-20	35	780165	Ball Joint Rod - 8.0
12	643603	Neutral Return Pivot Mount	36	730088	Dump Valve Lever
13	603084	Neutral Return Arm W/Bearing	37	262934	Push on Retainer
14	422560	Nylon Bearing 1"	38	265537	Clevis Yoke
15	257063	Nylon Washer	39	261284	Clevis Pin .312 x 1
16	263500	External Retainer	40	481120	Disc Brake - Rt.
17	253173	Hex Whiz Bolt .25-20 x .5	41	481121	Disc Brake - Lt.
18	643627	Control Linkage Pivot	42	725205	Disc Brake Mount - Rt.
19	422585	Nylon Bearing 1.68	43	725206	Disc Brake Mount - Lt.
20	603567	Steering Linkage Pivot Lt. with Nylon Bearing	44	603014	Adjustable Pivot Ass'y (Items A,B,11,17 & 19)
21	257030	Flat Washer .312			
22	260624	Cotter Pin .093 x .5			
23	643057	Control Arm			
24	281823	Woodruff Key #3 Alloy			

# DRIVE LINKAGE

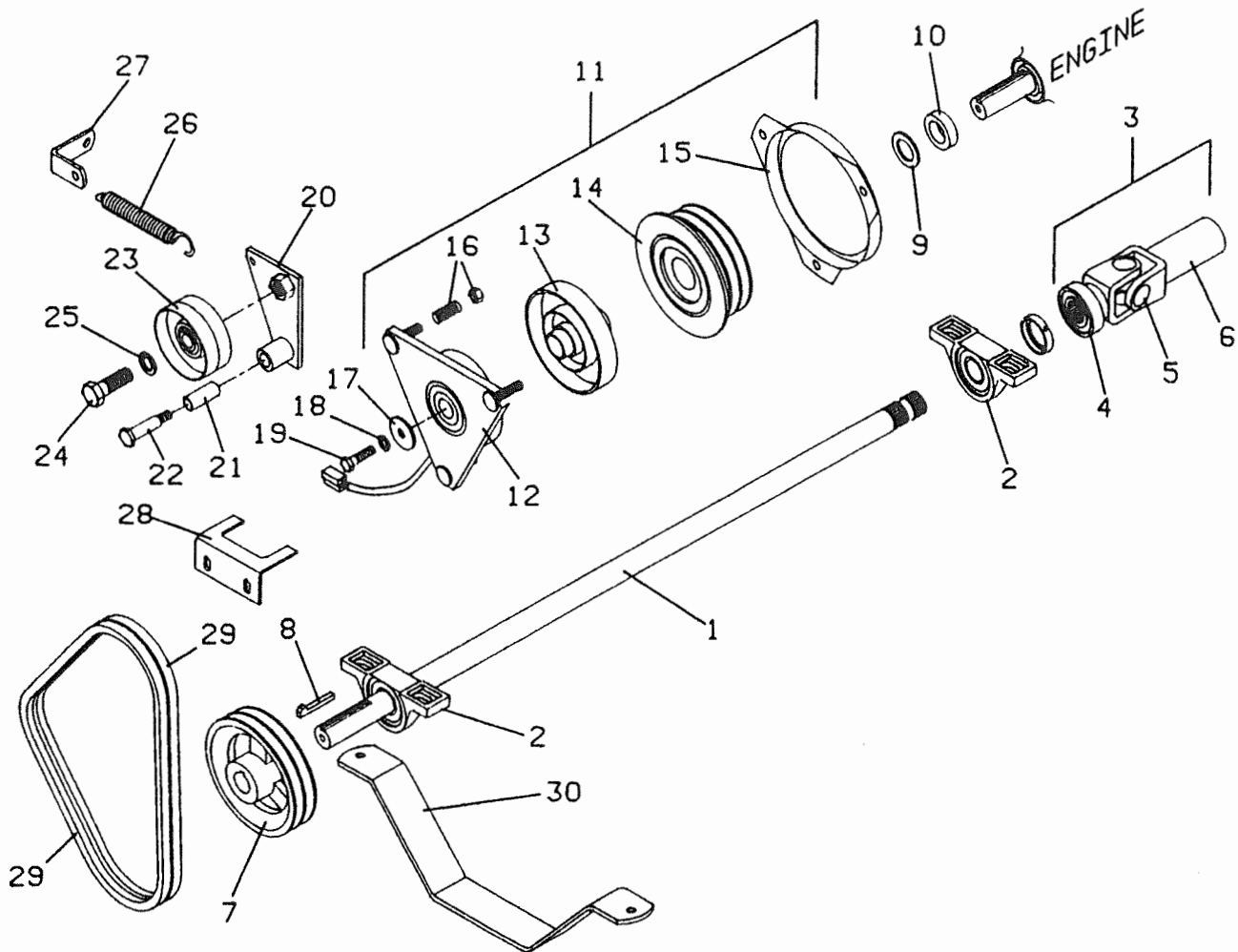


# RESERVOIR & HOSES - MODEL 718/718K



Item No.	Order No.	Description	Item No.	Order No.	Description
1	603707	Reservoir W/Batt Box Ass'y Includes Dipstick	6	363834	Flare Fitting W/"O" Ring
2	365515	Pipe Plug .375	7	424335	Hose Assembly .5 x 18
3	100729	Dip Stick - Plastic Blade	8	424342	Hose Assembly .5 x 29
4	363840	Barb Fitting .25	9	424348	Hose Assembly .5 x 34
5	821724	Vent Hose Clear 15" Long	10	424360	Hose Assembly .5 x 52
			11	774084	Reservoir Hold-Down Brkt.

# PTO SHAFT & CLUTCH ASSEMBLY - MODEL 718/718K

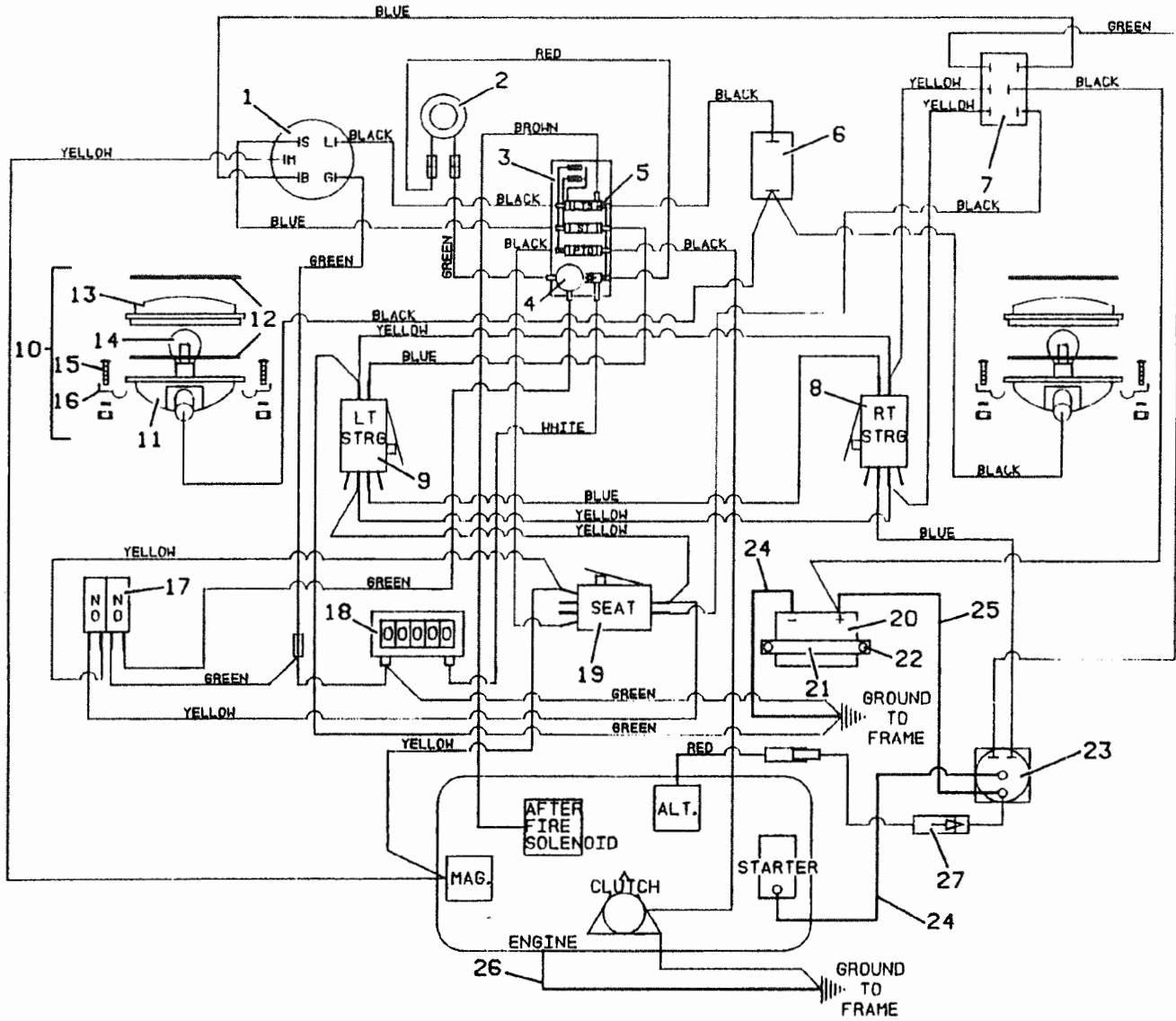


Item No.	Order No.	Description	Item No.	Order No.	Description
1	393759	Splined Power Shaft	16	388791	Spring & Nut Kit
2	122043	Pillowblock Bearing W/Collar	17	883801	Retaining Washer
3	398914	Sleeve Sect. Q.D. Drive Shaft	18	257412	Lock Washer .375
4	401019	Yoke-Splined Quick Disconnect	19	243346	Bolt .375-24 x 1.75
5	121010	Cross & Bearing	20	603080	Idler Arm W/Bearing
6	401015	Yoke With Sleeve	21	422585	Nylon Bearing
7	415650	Sheave	22	259745	Shoulder Bolt .5 x 1.75 x .375
8	281588	Gib Key .25 x 1.5	23	393175	Idler Pulley
9	257106	Washer 1" x 18 GA - 718	24	243810	Bolt .625-11 x 2
	257107	Washer 1" x 10 GA - 718K	25	257452	Lock Washer .625
10	282622	Spacer .500 x 1"	26	283820	Spring Extension W/Swivel
11	388762	Electric Clutch	27	732539	Idler Spring Bracket
12	388796	Field Assembly	28	729118	Clutch Bracket
13	388797	Rotor Assembly	29	381914	Drive Belt
14	388792	Armature W/Pulley	30	733148	Sheave Guard
15	388793	Brake Plate			

# WIRING DIAGRAM - MODEL 718

Item No.	Order No.	Description	Item No.	Order No.	Description
1	183806	Ignition Switch	17	183892	Brake Switch
2	182310	Signal Light	18	141550	Hour Meter
3	603130	Fuse Block		722060	Hour Meter Mount
4	182440	Flasher	19	183865	Safety Switch - Seat
5	181540	Fuse - 6 amp		603790	Seat Switch & Mount Ass'y
6	183950	Light Switch		724100	Seat Switch Mount
7	184082	Clutch Switch		283322	Spring Compression
8	183865	Safety Switch Rt. Steering		261328	Clevis Pin .312 x 3
	720160	Rt. Steering Switch Mount		250318	Machine Screw 6-32 x 1
9	183865	Safety Switch Lt. Steering	20	180125	Battery - 12V
	720161	Lt. Steering Switch Mount	21	822410	Battery Hold Down
10	182265	Light Ass'y (Items 11-16)	22	240110	Hook Bolt .25 x 4
11	182350	Lamp Housing	23	184251	Solenoid Switch 4 Post
12	420550	Lens Gasket	24	180310	Battery Cable 10"
13	182400	Lens	25	180322	Battery Cable 23"
14	182000	Bulb		425219	Battery Terminal Boot
15	250258	Machine Screw 10-24 x .75	26	180355	Engine Ground Cable 12"
16	180635	Clip 1 x .5 x .187	27	192100	Diode Wire (Briggs)

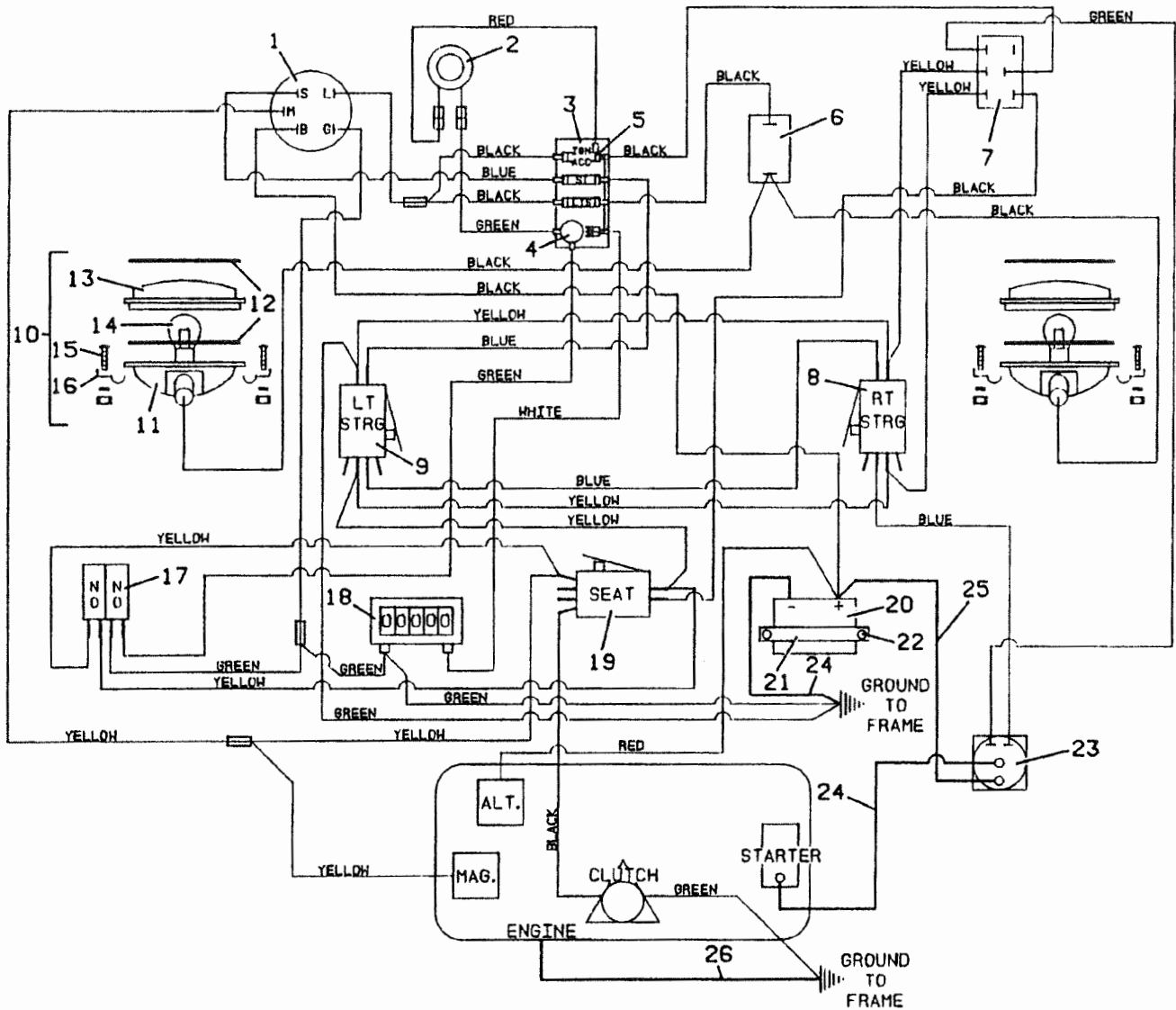
# WIRING DIAGRAM - MODEL 718



# WIRING DIAGRAM - MODEL 718K

Item No.	Order No.	Description	Item No.	Order No.	Description
1	183806	Ignition Switch	17	183892	Brake Switch
2	182310	Signal Light	18	141550	Hour Meter
3	603138	Fuse Block		722060	Hour Meter Mount
4	182440	Flasher	19	183865	Safety Switch - Seat
5	181540	Fuse - 6 amp		603790	Seat Switch & Mount Ass'y
6	183950	Light Switch		724100	Seat Switch Mount
7	184082	Clutch Switch		283322	Spring Compression
8	183865	Safety Switch Rt. Steering		261328	Clevis Pin .312 x 3
	720160	Rt. Steering Switch Mount		250318	Machine Screw 6-32 x 1
9	183865	Safety Switch Lt. Steering	20	180125	Battery - 12V
	720161	Lt. Steering Switch Mount	21	822410	Battery Hold Down
10	182265	Light Ass'y (Items 11-16)	22	240110	Hook Bolt .25 x 4
11	182350	Lamp Housing	23	184251	Solenoid Switch 4 Post
12	420550	Lens Gasket	24	180310	Battery Cable 10"
13	182400	Lens	25	180322	Battery Cable 23"
14	182000	Bulb		425219	Battery Terminal Boot
15	250258	Machine Screw 10-24 x .75	26	180355	Engine Ground Cable 12"
16	180635	Clip 1 x .5 x .187			

# WIRING DIAGRAM - MODEL 718K

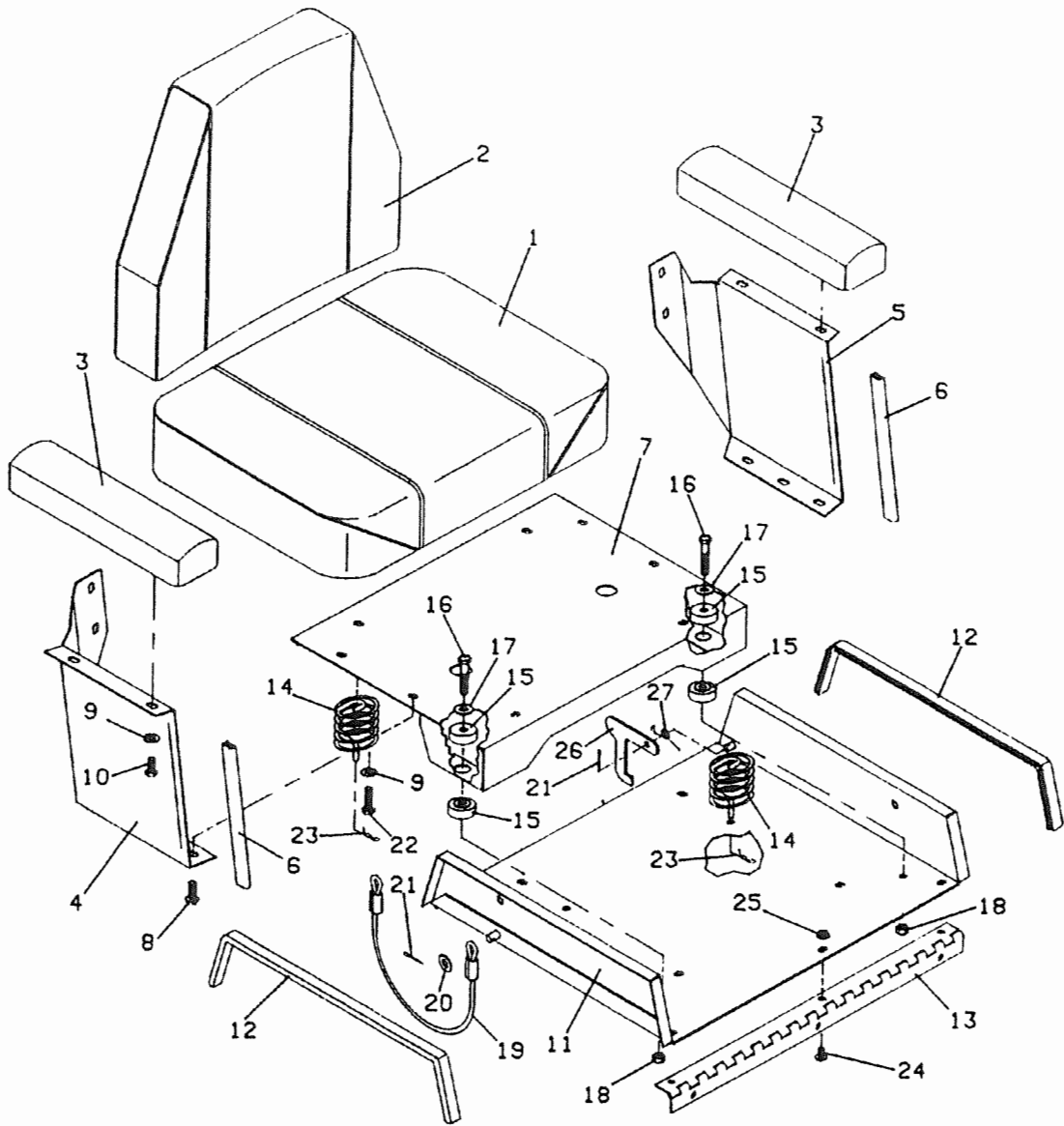


## TAIL WHEEL OPTIONS

Item No.	Order No.	Description	Item No.	Order No.	Description
1	643356	Dual Fork	18	243330	Bolt .375-16 x 1
2	247740	Bolt .625-11 x 13 Carriage	19	254450	Nut .375-16
3	253970	Lock Nut .625-11	20	830420	Spacer .375 x 1.156
4	902425	Axle Spacer	21	483861	Wheel & Tire Ass'y 13 x 5 x 6 W/Bearing & Spacer
5	824534	Pivot Housing - Rear Dual Fork	22	902475	Bearing Spacer
6	125855	Seal	23	120050	Wheel Bearing
7	122522	Tapered Bearing	24	247725	Bolt .625 x 7 Carriage
8	123522	Bearing Cup	25	643366	Rear Fork
9	122523	Bearing Taper	26	282615	Spacer .375 x 1
10	123521	Bearing Cup	27	125855	Seal
11	257091	Washer 14 GA. Bushing	28	643631	Rear Axle Pivot
12	254502	Nut .75-16 Slotted	29	824510	Axle Beam W/Bushing
13	260670	Cotter Pin .156 x 1.25	30	833275	Oilite Bearing Reamed
14	481432	Dust Cap	31	257061	Washer .5 x 2.25
15	643015	Pivot Mount Adapter	32	257432	Lock Washer .5
16	243375	Bolt .375-16 x 3.5	33	243560	Bolt .5-13 x 1
17	257412	Lock Washer .375	34	824508	Axle Beam W/Bushing - Dual



# SEAT ASSEMBLY



Item No.	Order No.	Description	Item No.	Order No.	Description
	603755	Seat Ass'y (Items 1 thru 10)	14	822569	Spring Seat
1	321510	Seat Cushion - Formed 14 x 18	15	257037	Step Bushing - Rubber
2	321511	Back Cushion 14 x 16	16	243215	Bolt .312-18 x 1.5
3	321501	Arm Rest	17	257030	Flat Washer .312
4	724310	Side Member - Rt.	18	253450	Nut .312-18 Nylon Insert
5	724311	Side Member - Lt.	19	603212	Cable Assembly
6	822630	Seat Edge Trim	20	257040	Flat Washer .375
7	643620	Seat Bottom Panel	21	260648	Cotter Pin .125 x .5
8	253193	Hex Whiz Bolt .312-18 x 1	22	243210	Bolt .312-18 x 1.25
9	257410	Star Washer External	23	260520	Hair Pin .080 x 1.187
10	243195	Arm Rest Bolt .312-18 x .75	24	253176	Truss Whiz Bolt .25-20 x .5
11	643622	Seat Support Panel	25	253025	Whiz Nut .25-20
12	822645	Seat Mount Trim	26	774248	Seat Latch
13	820166	Seat Hinge	27	284407	Spring - Torsion