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THE ZERO TURN SERVICE MANUAL

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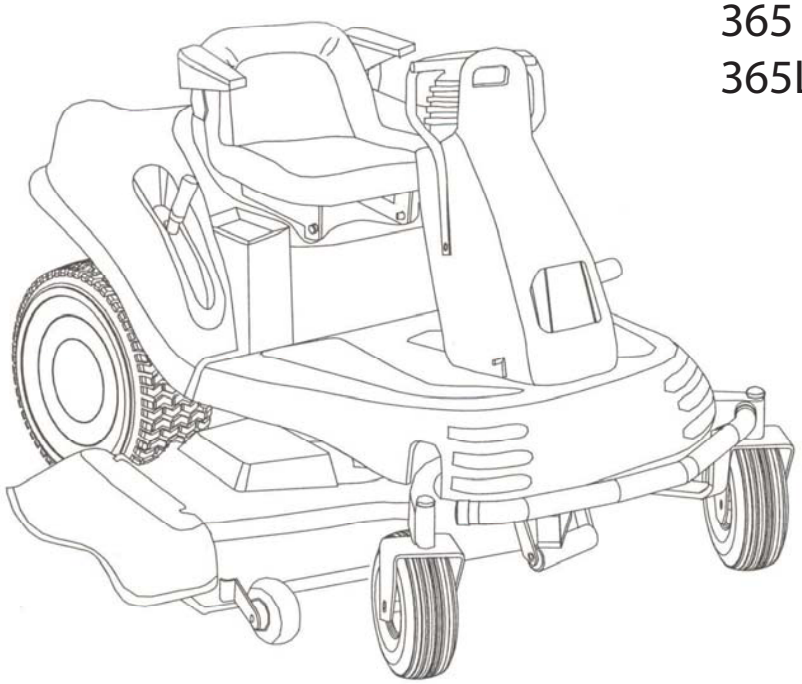

364
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NOTE: This Material was prepared for use by trained technicians who are experienced in the service and repair of equipment of the kind described in this publication, and are not intended for use by untrained or inexperienced individuals. Such individuals should seek the assistance of an authorized service technician or dealer.

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SECTION 10: ELECTRICAL WIRING DIAGRAMS

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SECTION 1: ADJUSTMENTS

ADJUSTING THE MOWER DECK HEIGHT

1. Push or pull on the Lift Lever and depress and hold the button.
2. Move the handle up/down to the desired position.
3. Release button at the desired position.

ADJUSTING THE SEAT POSITION

1. Lift the Seat Adjustment Lever. (See Figure 10)
2. Slide the seat either forward or back to the desired location.
3. Lock the seat in position by releasing the Seat Adjustment Lever.

CHECKING THE BRAKE ADJUSTMENT

1. Position the Z-series on a level surface.
2. Move the throttle lever to the slowest position (turtle).
3. Stop the engine and remove the key from the ignition.
4. Engage the Parking Brake.
5. Release both Hydraulic Relief Levers.
6. From the rear, push on the frame and try to move the Z-series.

If you:	Then:
Can move it	The brake force must be increased. Go to "ADJUSTING BRAKE FORCE" on page 18.
Can NOT move it	Go to Step 7.

7. Release the Parking Brake. Try again to move the Z-series by pushing.

If you:	Then:
Can NOT move it	The brake force must be decreased. Go to "ADJUSTING BRAKE FORCE" on page 18.
Can move it	You are done (no adjustment necessary).

ADJUSTING BRAKE FORCE

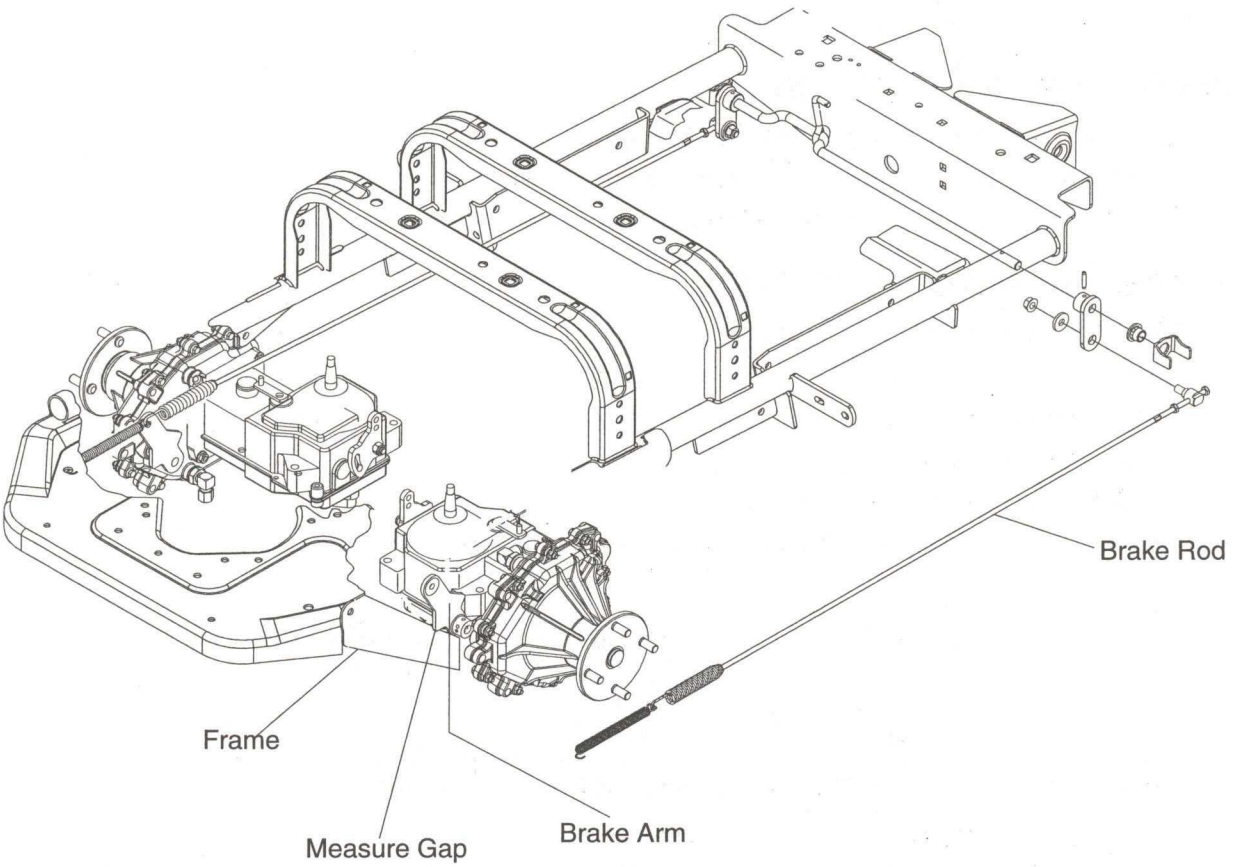


Figure 12

1. Place the Z-series on level surface without the brake engaged and place blocks behind the wheels.
2. Turn the engine OFF and remove the key from the ignition.
3. From underneath the Z-series directly behind the caster wheel pivot bar, locate the brake rods. There are two, one on the right and one on the left. (See Figure 12)

If:	Then:
Increased force is needed	Rotate brake rods clockwise.
Decreased force is needed	Rotate brake rods counterclockwise.

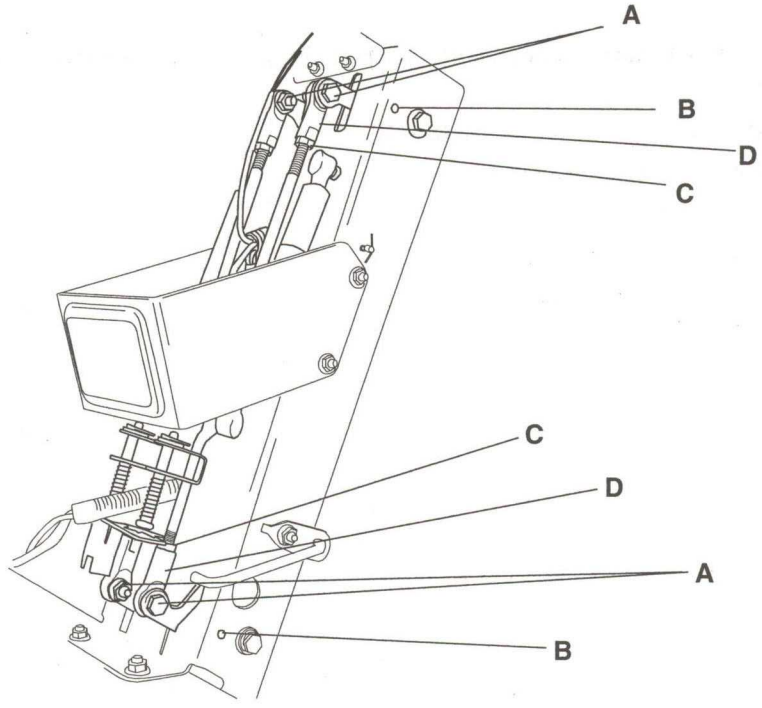
4. The factory sets a 1/16" gap minimum between the brake arm and frame of the Z-Series. More adjustment may be necessary. (See Figure 12)

NOTE: If after adjusting the brake, the proper force has not been obtained more adjustment may be required.

5. Repeat process on the other brake rod.
6. Check the operation of the brakes before operating. If the adjustment does not help, see your dealer.

STEERING ADJUSTMENT

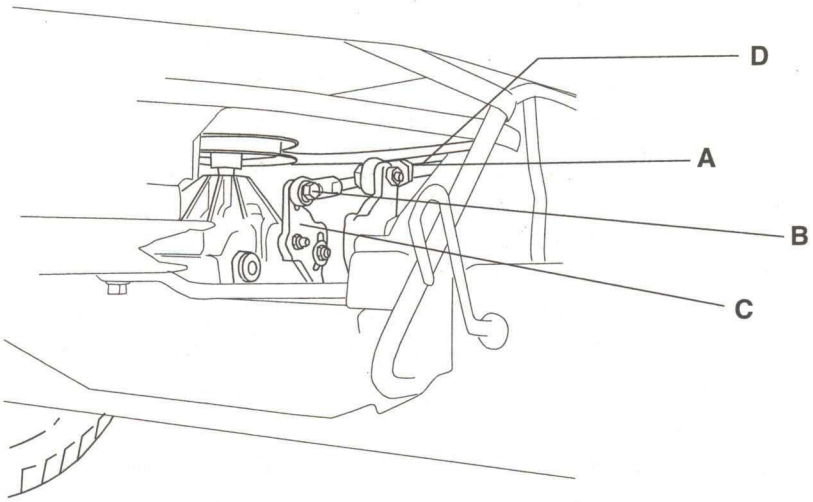
1. Remove the ignition key from ignition switch.
2. Detach the bottom of the rubber boot cover on the drive handles.
3. Slide the boot cover all the way up (toward the drive handles) to access the drive handle bolts.
4. Remove both bolts securing the drive handles.
5. Remove the drive handles and the rubber boot.
6. Remove the four bolts securing the retaining plate to the Control Tower cover.
7. Pull up on the Control Tower cover and slide up and over the Control Tower.
8. Remove both safety switches from their respective holders by squeezing together on the retaining clips while gently pushing upward until the switches clear the brackets.
9. Remove bolts (**A**) that secure linkage to upper control handles and lower control arms. The shock absorbers should remain connected to linkage.
10. Insert quarter inch by seven inch pin or equivalent through the top and bottom alignment holes (**B**) of the control arms to secure arms at positive neutral. (Remove floor for access to lower holes.)
11. With the shock absorber still bolted to linkage, loosen the jam nuts (**C**) at both ends of the linkage so the alignaball adjustment can be made.
12. Adjust the alignaball (**D**) until retaining bolt slips through alignaball, and hole in arm, with little effort.
13. Re-install bolts, washers and nuts in all four ends of linkage. Tighten jam nuts against alignaball ends to keep ends from turning.



14. Lift rear wheels off of ground using floor jack or other suitable lifting device.

Note: Whenever lifting any piece of equipment, using a floor jack or hoist, always secure in place by using jackstands.

15. With quarter inch by seven inch pins still installed in the top and bottom linkage arms loosen the jam nuts at both the front and rear (**A**) ends of linkage that runs from bottom linkage arms to hydrostatic pumps.
16. Remove quarter inch by seven inch pins from top and bottom holes.
17. Set parking brake, and start the engine (set throttle at full speed). Make sure that the PTO is off.
18. Rotate rods (lengthen or shorten) to bring each hydrostat to neutral.



Note: The control linkage going to the hydrostatic pump has left-hand threads at the pump and right-hand threads at the tower.

19. Tighten the jam nuts earlier loosened.
20. Reassemble safety switches.
21. Reassemble body panels.
22. Reassemble drive handle assembly.
23. Make sure that all hardware is tightened.

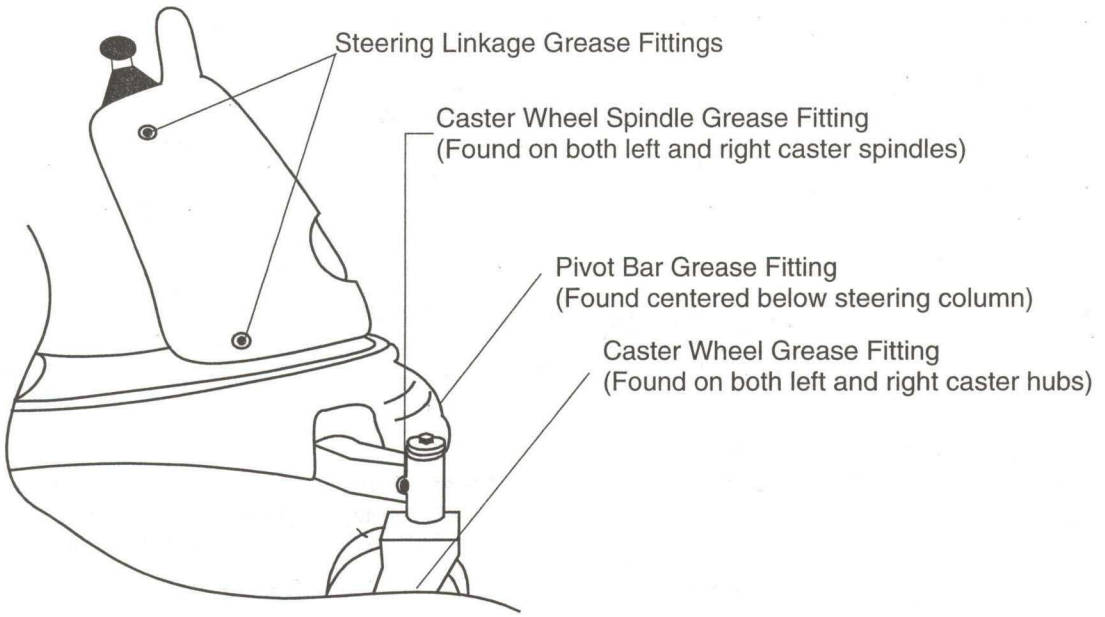
SECTION 2: LUBRICATION

Use the two tables that follow for lubrication details. The first table is for Oil details and the second table is for grease point information.

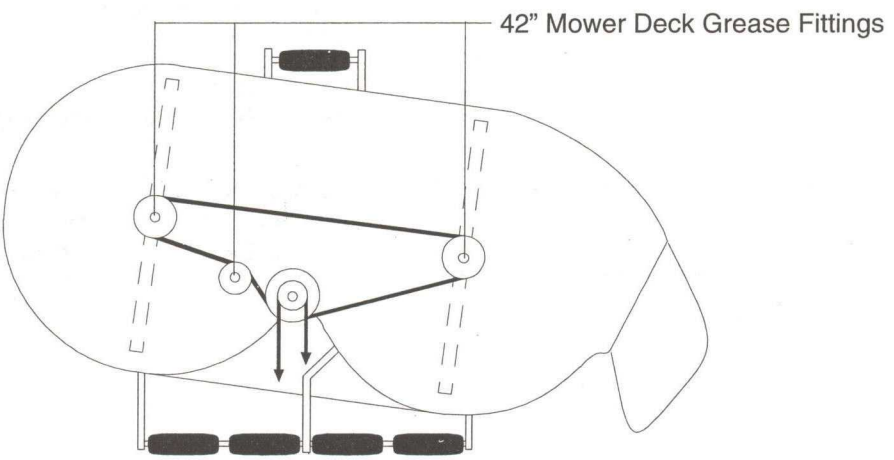
Oil	Check	Change	Capacity	Type
Engine crankcase	See Section 7: Page 33. & Section 12:			
Hydraulic units	50 Hours	500 Hours	11 Quarts	Part Number 737-0305 (10W40 motor oil)

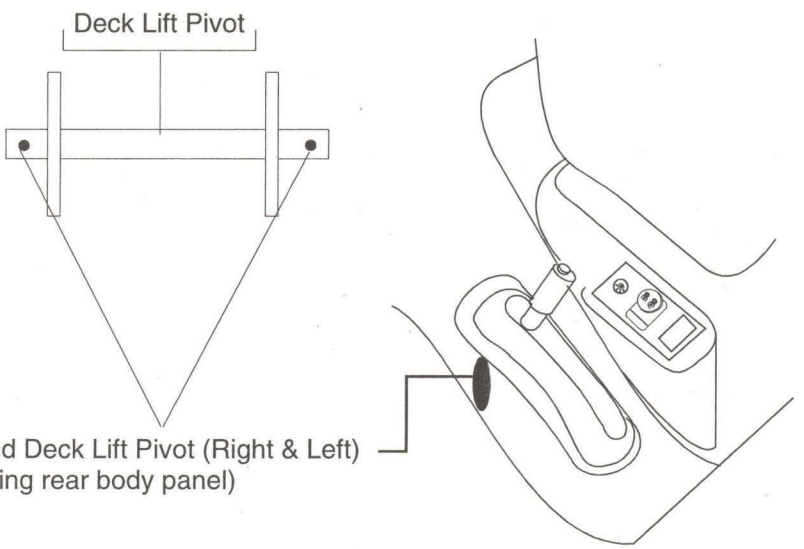
Grease Point	When to Grease	Type of Grease
Caster wheels - 3 fittings (1 on each wheel and one on middle of caster assembly)	50 Hours	Two strokes (minimum) of lubricator using 251 H EP grease or equivalent No. 2 multi-purpose lithium grease (refer to "GREASE POINT LOCATIONS" on page 22 for locations)
Control Tower - 2 fittings (Right side of tower)	50 Hours	Two strokes (minimum) of lubricator using 251 H EP grease or equivalent No. 2 multi-purpose lithium grease (refer to "GREASE POINT LOCATIONS" on page 22 for locations)
Lift Arms	50 Hours	Two strokes (minimum) of lubricator using 251 H EP grease or equivalent No. 2 multi-purpose lithium grease (refer to "GREASE POINT LOCATIONS" on page 22 for locations)
Lift Handle	50 Hours	Two strokes (minimum) of lubricator using 251 H EP grease or equivalent No. 2 multi-purpose lithium grease (refer to "GREASE POINT LOCATIONS" on page 22 for locations)
Idler arms	50 Hours	Two strokes (minimum) of lubricator using 251 H EP grease or equivalent No. 2 multi-purpose lithium grease (refer to "GREASE POINT LOCATIONS" on page 22 for locations)
Mower Deck, Spindles, Wheels	50 Hours	Two strokes (minimum) of lubricator using 251 H EP grease or equivalent No. 2 multi-purpose lithium grease (refer to "GREASE POINT LOCATIONS" on page 22 for locations)

GREASE POINT LOCATIONS

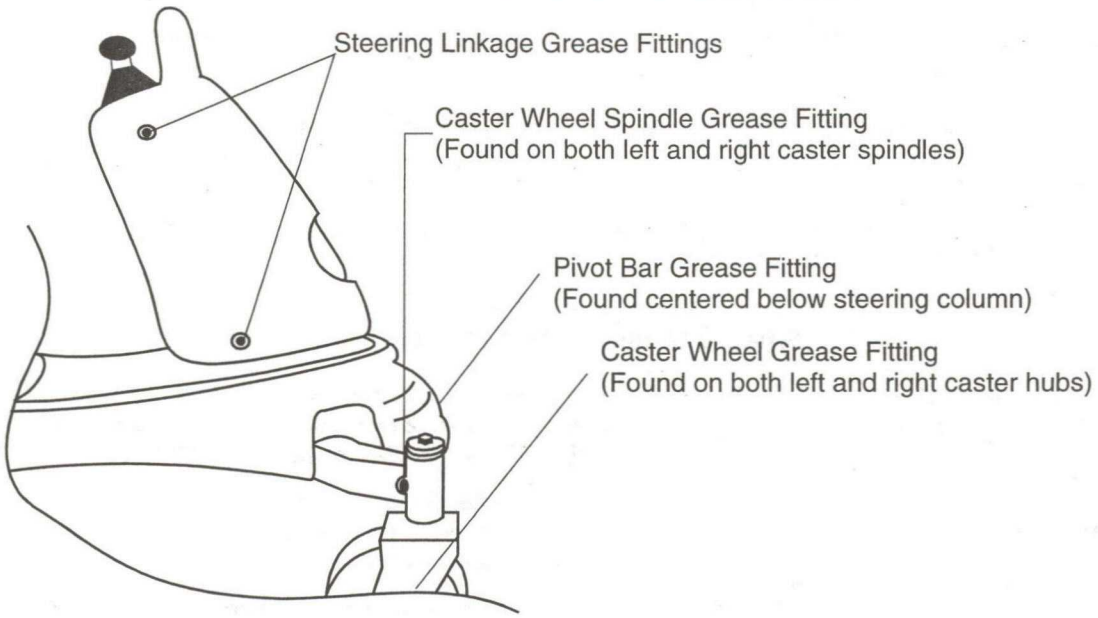


NOTE: Grease fitting not shown. Located under engine on idler arm.

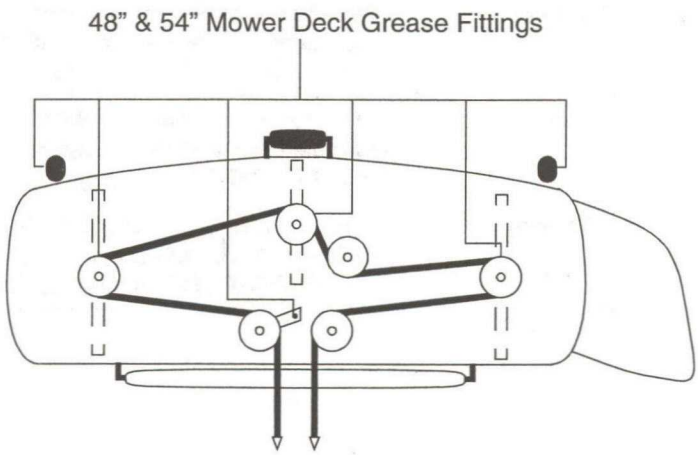


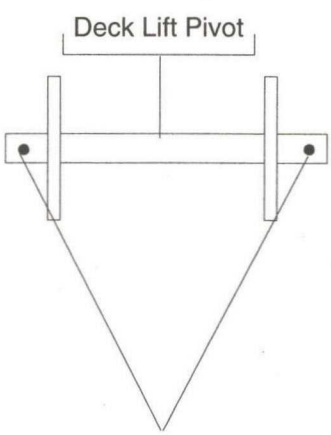


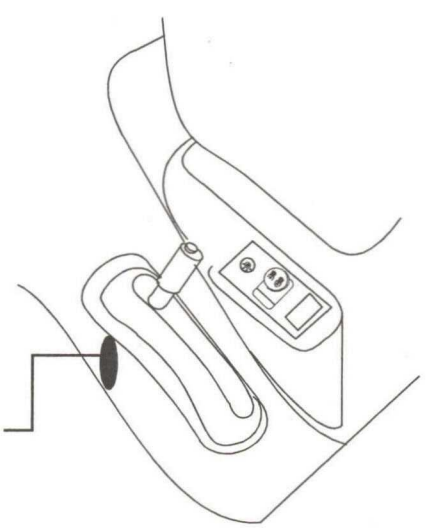
GREASE POINT LOCATIONS



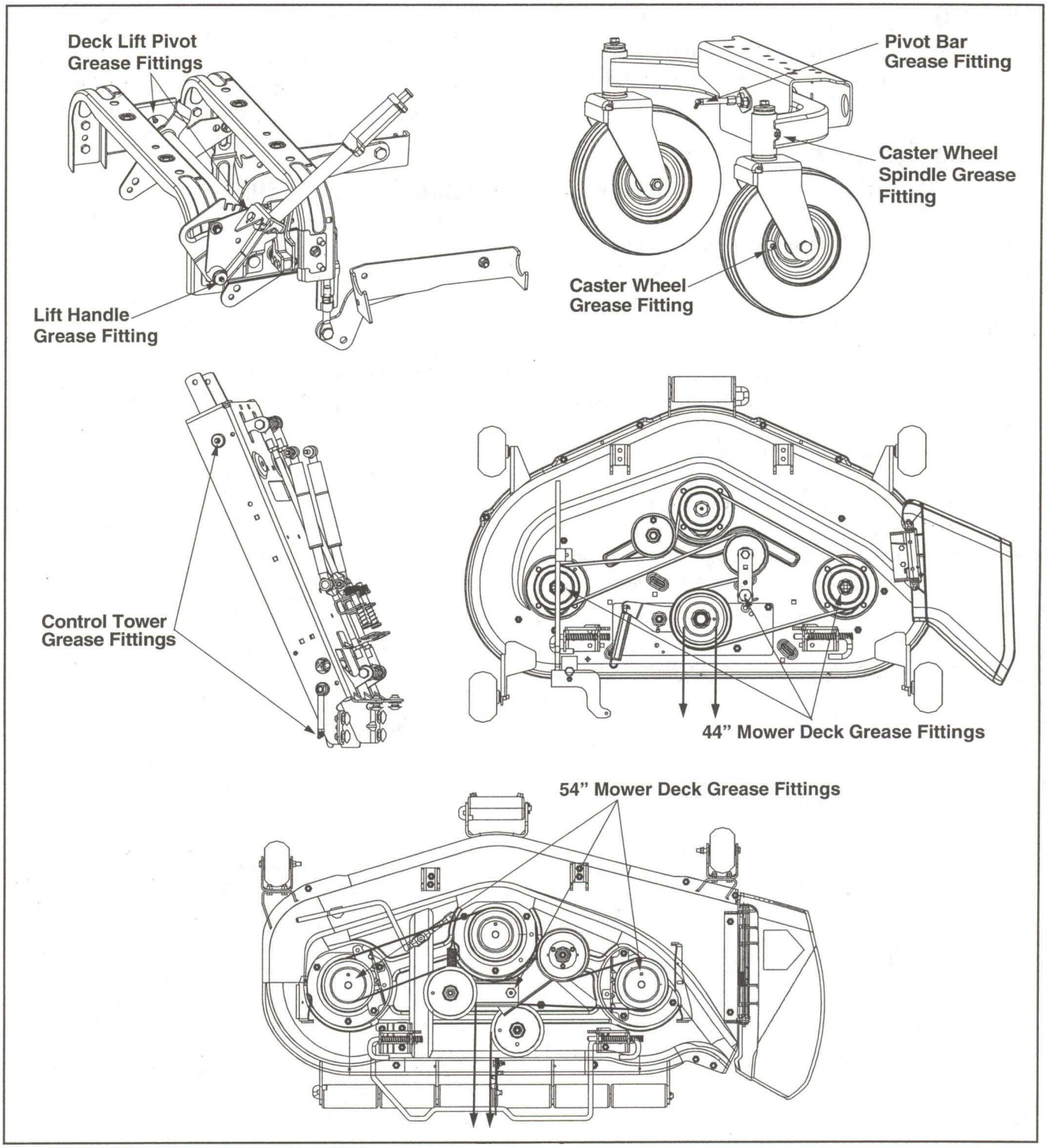
NOTE: Grease fitting not shown. Located under engine on idler arm.







Lift Handle And Deck Lift Pivot (Right & Left)
(Access by lifting rear body panel)



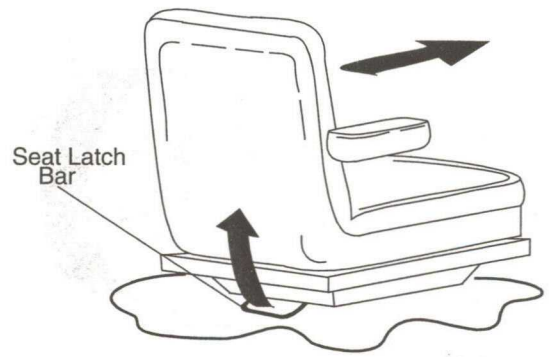
SECTION 3: MAINTENANCE

ENGINE COMPARTMENT

The engine is located behind the operator seat.

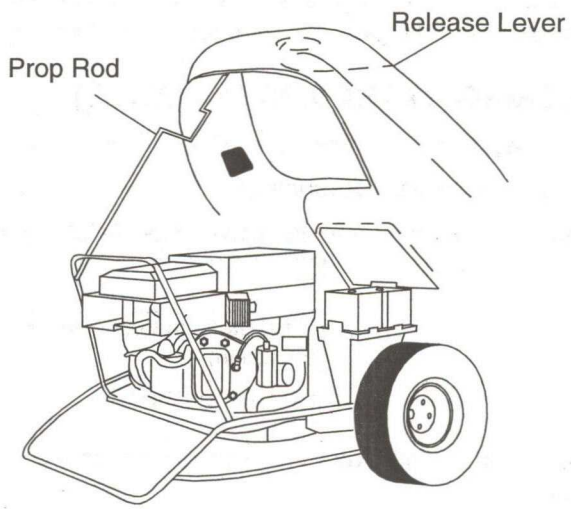
ACCESSING THE ENGINE

1. Slide the seat completely forward.
2. Move the deck lift lever to position 3.
3. Tilt the seat forward.
4. Lift the bar under the rear of the seat and slide the entire seat assembly forward.



5. Grasp the release lever that is located under the right rear body panel.
6. Pull back on the release handle, hold and then lift the body panel.
7. Use the prop rod to hold the panel open. Place prop rod in clip on left hand side of latch.

Caution: If the body panel does not release, do not force the body panel up. Try pulling the Release Handle again.



FUEL TANK

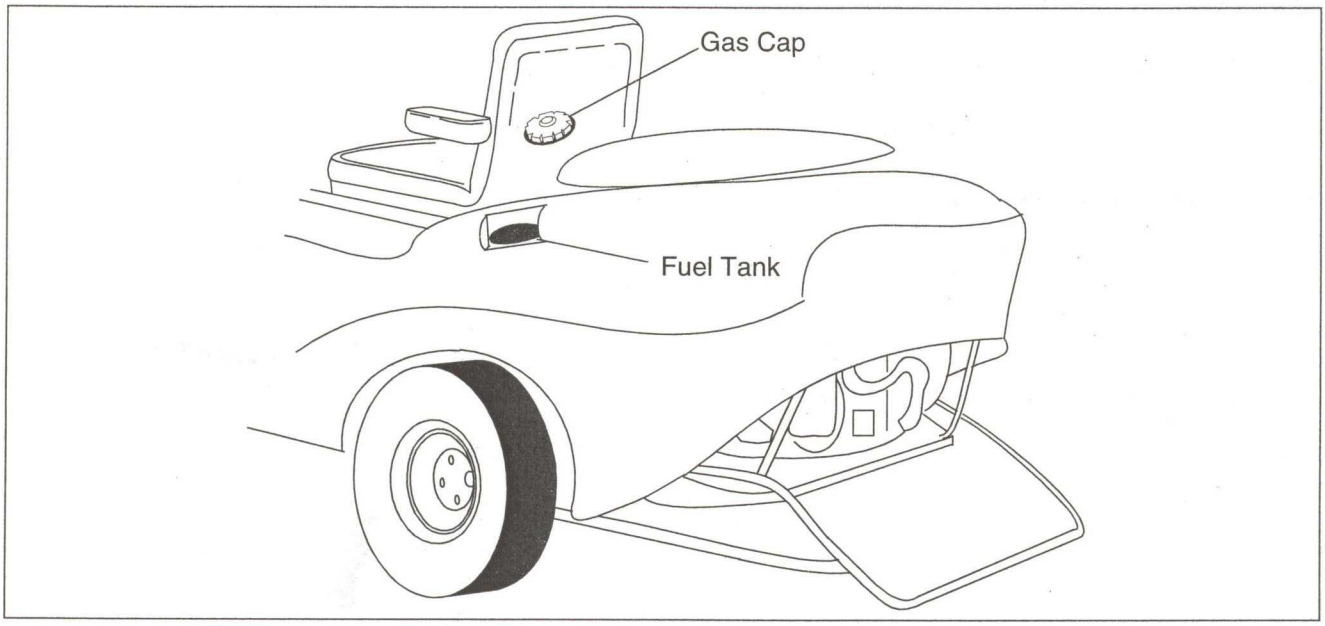


Figure 13

The fuel tank filler cap is located on the left-rear fender panel. (See Figure 13). Take the fuel cap off by unscrewing. Fill the gas tank from this point. The fuel tank has approximately a 5.5 gallon capacity.

CHECKING HYDRAULIC OIL LEVEL

Check the oil level of hydraulic units only when the:

- Engine is **off** (not running).

Practice the following maintenance schedule when checking hydraulic oil:

If:	Check oil:
Initial break-in (first 5 hours of operation)	Before each use and after every hour of operation
Normal operation	50 hours

Note: Close monitoring of the hydraulic oil is always important, but is especially critical during the first 5 hours of operation.

CHECKING THE HYDRAULIC OIL

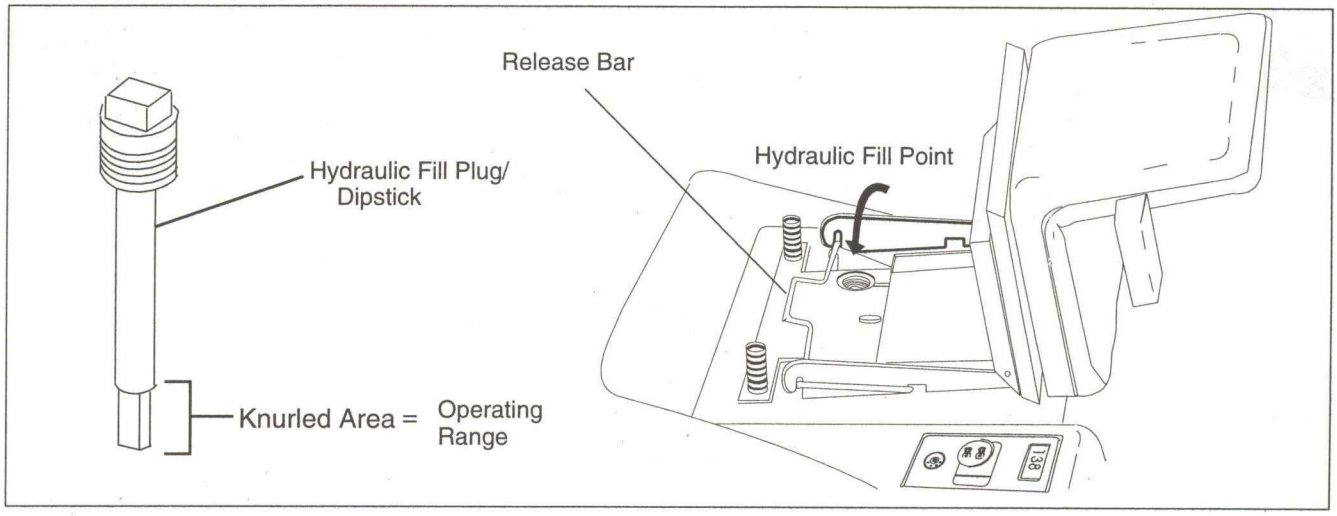


Figure 14

1. Flip seat up. (See Figure 14)
2. Clean the area around the Hydraulic Oil Dipstick to prevent debris from entering the crankcase.
3. Wipe clean and fully insert the fill plug/dipstick (screw in).
4. Remove the hydraulic fill plug/dipstick and read the level:

If hydraulic oil level is:	Then:
Inside operating range	Do nothing.
Below operating range	Add hydraulic oil before operating. Check for leaks.
Above operating range	Drain excess oil before operating.

5. Reinstall the dipstick completely into the fill tube.

WARNING: Never check for hydraulic leaks with your bare hand. Always use a rag.

ADDING HYDRAULIC OIL

WARNING: Never overfill the hydraulic units. Damage can result if the oil level is not within the operating range.

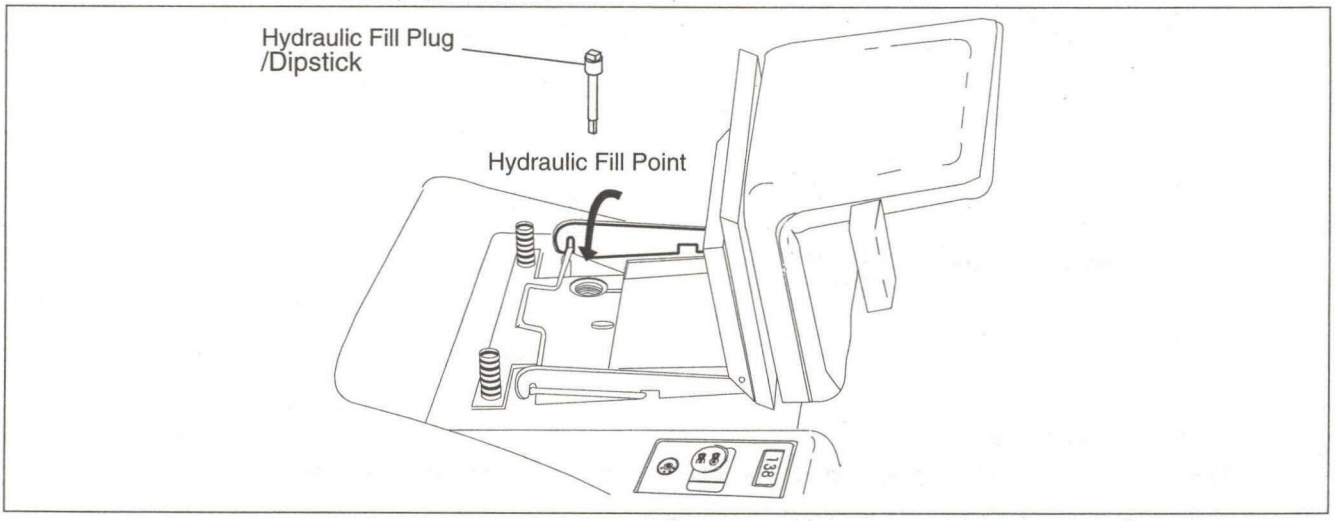


Figure 15

Note: When adding hydraulic oil, do so in small quantities and recheck the oil level before adding more. It is important that you do not over fill the reservoir.

1. Place the Z-series on a level surface and engage the parking brake.
2. Stop the engine and remove the key from the ignition switch.
3. Clean the area around the Hydraulic Oil Dipstick.
4. Remove the hydraulic fill plug and insert a clean funnel into the hydraulic fill point.
5. Pour proper amount of hydraulic oil into reservoir.
6. Insert the dipstick and check the hydraulic oil level.

DRAINING HYDRAULIC OIL

Used hydraulic oil must be disposed of properly. Do not pour it down a drain or sewer, or dump it on open land, this creates an environmental hazard. Please be aware of the environment when disposing of used oil.

1. Place the Z-series on a level surface and engage the parking brake.
2. Stop the engine and remove the key from the ignition switch.
3. Remove the mower deck. See “REMOVING THE MOWER DECK” on page 32.
4. Move seat forward to expose hydraulic oil fill point.
5. Clean the area around the hydraulic fill plug/dipstick.
6. Remove hydraulic fill plug/dipstick.
7. Place a suitable (at least 2 gallon) container under the hydraulic oil filter.
8. Remove the hydraulic filter to allow hydraulic oil to drain. (See Figure 16)
9. Place a small pan under the skid plate and drain oil from both left and right axles. (See Figure 16)
10. Replace both axle drain plugs and hydraulic oil tank plug.
11. Install new hydraulic oil filter.
12. Add proper amount of hydraulic oil to reservoir.
13. Run and check oil level.

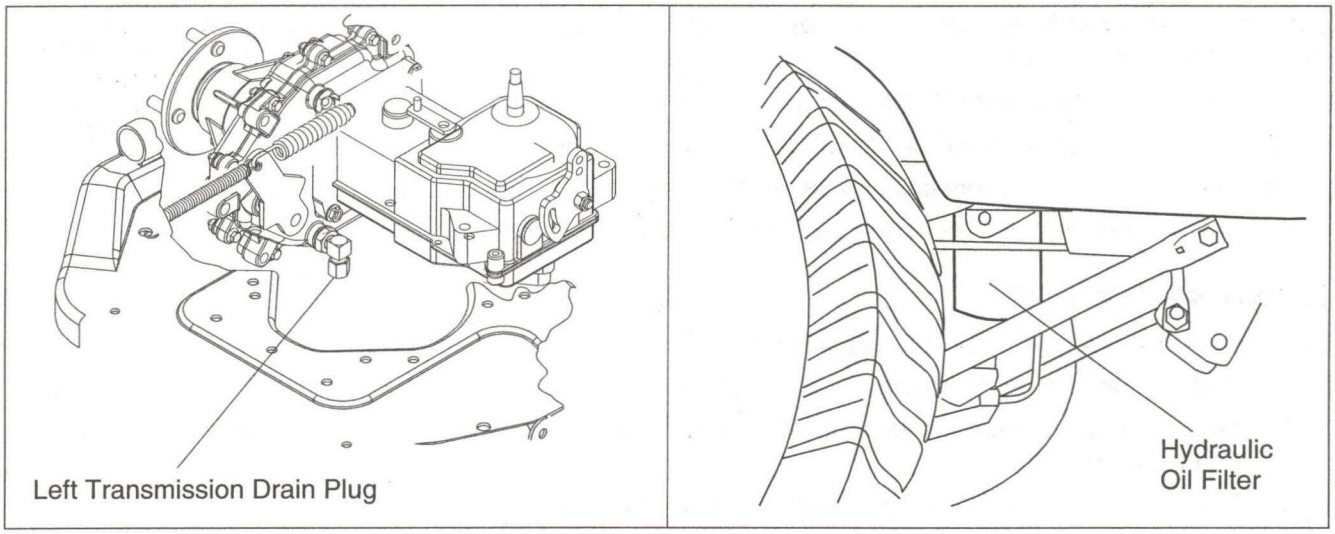


Figure 16

REPLACING THE HEAD LAMP BULB

1. Remove the ignition key from ignition switch.
2. Detach the bottom of the rubber boot cover on the drive handles.
3. Slide the boot cover all the way up (toward the drive handles) to access the drive handle bolts.
4. Remove both bolts securing the drive handles.
5. Remove the drive handles and the rubber boot.
6. Remove the four bolts securing the retaining plate to the Control Tower cover.
7. Pull up on the Control Tower cover and slide up and over the Control Tower.
8. Locate the rear of the light fixture where the wire attaches. (See Figure 17)

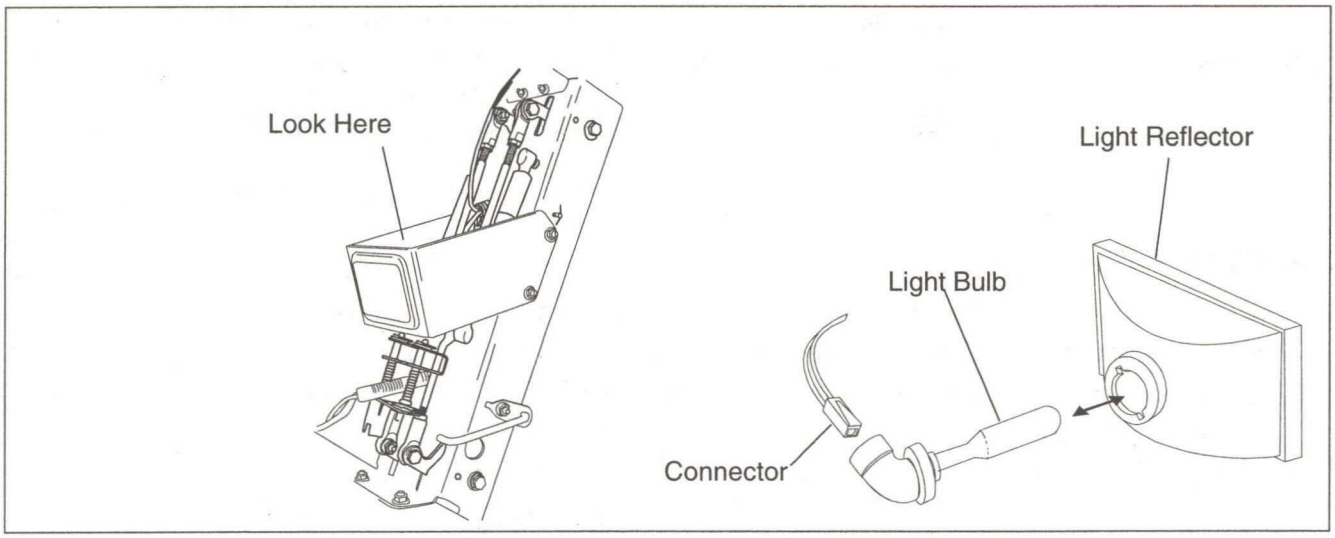


Figure 17

9. Remove the wire from the light bulb assembly. (See Figure 17)
10. Squeeze the tab on the connector that attaches the wire to the light bulb assembly.
11. Pull the wire from the light bulb assembly.
12. Turn the light bulb assembly counterclockwise to release it from the light fixture.

13. Carefully pull the light bulb out of the light fixture.

Caution: Do not touch the light bulb. It contains pressurized gas and may explode due to natural body oils that cause the light bulb to overheat.

14. Insert the replacement light bulb into the light fixture.
15. Turn the light bulb assembly clockwise until it locks into place.
16. Carefully insert the connector into the light bulb assembly.
17. Replace the Control Tower cover and Drive Handle assemblies.

CHANGING THE FUSE

Always use the same rated fuse when replacing.

1. Open the engine compartment.
2. Locate the fuse. It can be found on the wiring harness located in a protective cover between the engine and the battery.
3. Remove the old fuse and replace with the same rated fuse.

BATTERY INFORMATION

Use the following safety guidelines when servicing the battery:

- Do not pour battery acid into a sink or drain. Dispose of battery and battery acid at a hazardous materials disposal center.

Maintenance: The table below outlines maintenance tasks for the battery.

Note: Avoid tipping the battery. Even sealed batteries can leak battery acid when tipped.

Period	Task	Steps
Every 2 weeks	Check the electrolyte level	Keep level to the split rings. Add only distilled water or clean drinking water. Never add acid or chemicals after initial activation.
Every 25 hours of operation	Check the specific gravity with hydrometer	The gravity value should be at least 1.225. Recharge at maximum of 5 A if below 1.225.
As needed	Coat exposed wires and terminals	Use a thin coat of petroleum jelly on exposed wires and terminals for increased service.
As needed	Cleaning	Neutralize deposits with baking soda and water solution. Do not allow solution to enter cells.

BATTERY STORAGE

Use the following guidelines when storing the Z-series for an extended period (e.g. winter).

- Disconnect the battery cables from the terminals and remove the battery.
- Clean the battery before storing. Refer to the battery maintenance table for cleaning details. A dirty battery will lose it's charge over time.
- Store the battery with a full charge. A discharged battery will freeze (refer to the table below).

Specific Gravity	Freezing Temp (°F)
1.265	-71
1.250	-62
1.200	-16
1.150	5
1.100	16

- Recharge battery when ever the specific gravity value is less than 1.225.

WHY BATTERIES FAIL

- Overcharging
- Undercharging
- Lack of water
- Loose hold downs
- Corroded connections
- Excessive loads
- Battery electrolyte substitute
- Freezing of electrolyte

REMOVING THE BATTERY

Warning: When removing the cables from the battery follow order of the steps to avoid a short between the wrench and the frame.

1. Remove the Negative (black) cable.
2. Remove the Positive (red) cable.
3. Release the hold down straps.
4. Remove the battery without tipping.

INSTALLING THE BATTERY

NOTE: The battery is delivered from the factory dry. It must be activated and charged before use.

1. Attach the Positive (red) cable.
2. Attach the Negative (black) cable.
3. Attach the hold down straps.

JUMP STARTING

Warning: Failure to use this starting procedure can cause sparking, and the gases in the battery to explode.

1. Attach one end of the red jumper cable to the Positive terminal (+) of the good battery.
2. Attach the other end of the red jumper cable to the Positive terminal (+) of the bad battery.
3. Attach one end of the black jumper cable to the Negative terminal of the good battery.
4. Attach the other end of the black jumper cable to the frame of the unit with the bad battery.

TIRES

The two front wheels are caster wheels that are free to swivel to accommodate the direction of the Z-series. The tires on the caster wheels are made of solid polyurethane that do not require air.

The two rear wheels are used to propel the Z-series in the direction of input from the drive handles. Inflation pressure of the rear tires is important for stability while the Z-series is in operation. If the tire diameter is not equal between the two tires, the Z-series will pull to one side.

Use the following guidelines for maintaining the tires:

- Balance inflation pressure between the rear tires to help maintain straight travel (see tire side wall for proper inflation pressure).
- Keep the valve caps in place and tightened to prevent air pressure loss.

SECTION 4: MOWER DECKS

The mower deck must be level horizontally (side-to-side and front-to-back) for even cutting.

CHECKING THE LEVEL OF THE MOWER DECK - SIDE TO SIDE

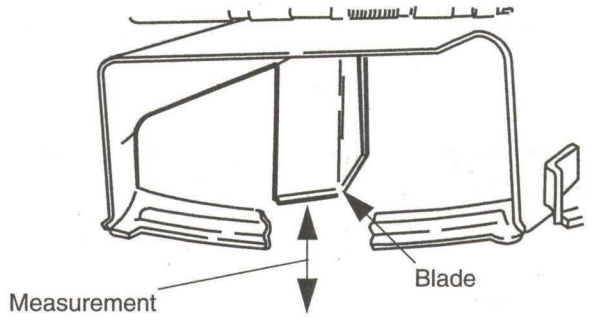


Figure 18

1. Check the rear tires pressure for proper inflation and tracking.
2. Position the Z-series on a hard and level surface.
3. Place the PTO switch in the OFF position.
4. Engage the parking brake.
5. Turn the ignition switch to the OFF position and remove the key.
6. Remove spark plug wire(s) from the spark plug(s). Access spark plug from the engine compartment.
7. Raise the lift handle to the highest setting (7).
8. Position the mower blades so that they run perpendicular to the tractor.
9. Measure and record the distance from the hard, level surface to the outermost edge of the right and left blade. (See Figure 18)

If measurements are:	Then:
Within 1/8-inch or less	No adjustment needed.
Greater than 1/8-inch	Level the mower deck.

LEVELING THE MOWER DECK

1. Remove the left belt cover.
2. Release the belt tension spring by releasing the belt tension bar.
3. Locate the left and right mower deck hanger links. (See Figure 19)
4. Lower the mower deck to the **L** (lock) position.
5. Remove the nut and bolt (**A**) that holds the right hanger link to the hanger bracket.
6. Adjust the length of the links up or down by turning the deck hanger link. Adjust the link down to lower the associated side of the mower deck, or higher to raise the associated side of the mower deck.
7. Reconnect deck hanger links to hanger brackets with the nuts and bolts previously removed. Tighten.

8. Check the mower deck again for level. Repeat process if still out of level.

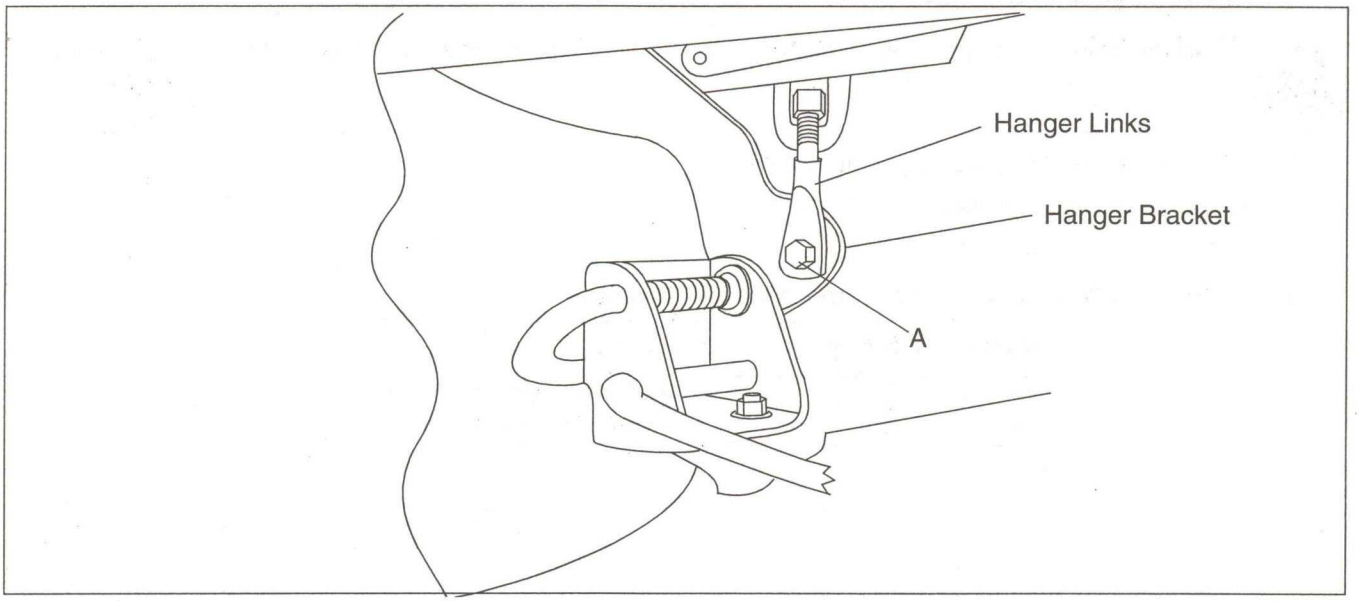


Figure 19

Note: Adjust the retaining arm to their original lengths of 11.125 inches. (See Figure 20)

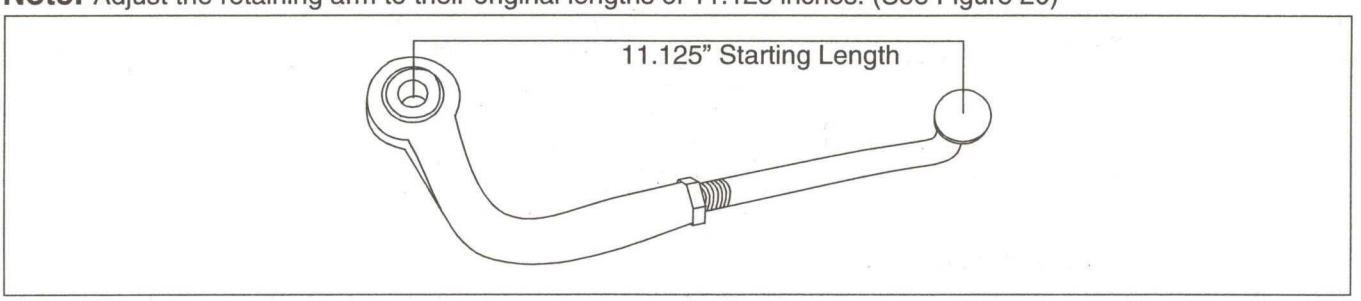


Figure 20

ADJUSTING THE PITCH OF THE MOWER DECK

1. Raise the mower deck to the highest position.
2. Make sure the tractor is on a hard level surface.
3. Position the mower blades so the ends of each blade point to the front and to the rear of the tractor.
4. Measure the distance to the ground from the front edge of the blades and the rear edge of the blades. The difference between the front and back measurements should be between 1/8"-1/4". (See Figure 20)

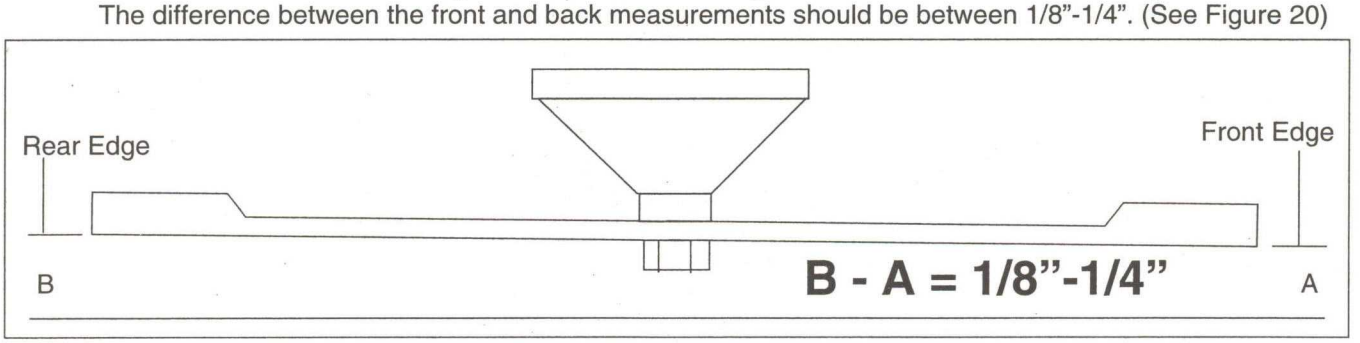


Figure 21

5. If the measurement is less than 1/8", you will need to adjust the length of the retaining arm to its starting length (11.125"). (See Figure 20)

REMOVING THE MOWER DECK (42" Deck Models 1997-1999)

WARNING: The cutting blades of the mower deck are sharp and can cause injury.

1. Position the Z-series on a hard, flat surface.
2. Engage the Parking Brake.
3. Move the lift handle to the **L** position.
4. Remove the belt covers.

If Mower Deck is:	Then:
42"	Remove the hex nuts holding each cover. (See Figure 22)

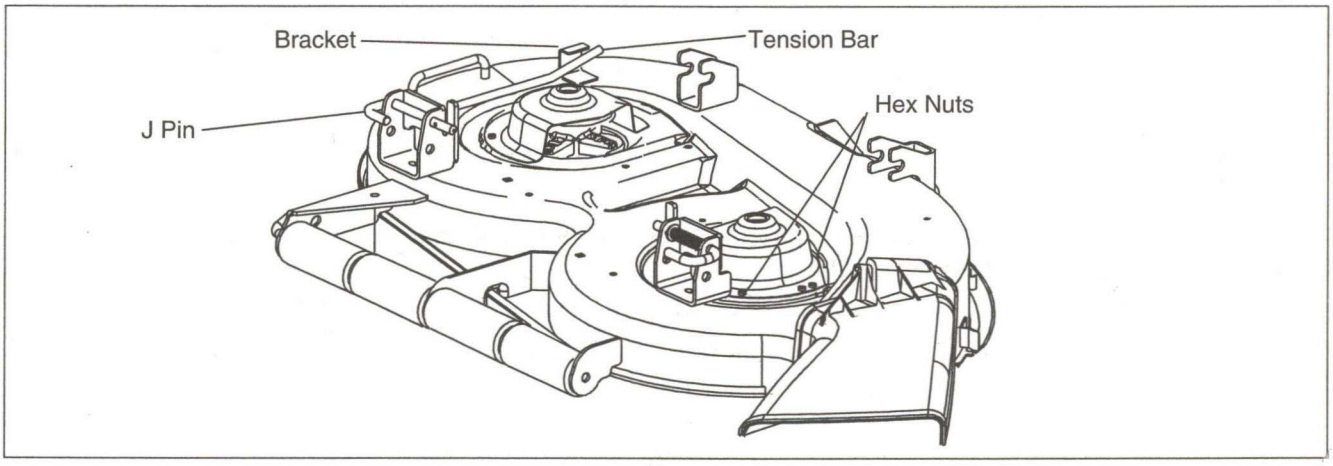


Figure 22

5. Release the Tension Bar.
6. Push the Tension Bar out of the bracket.
7. Lift the bar over the bracket and allow the bar to rest on the mower deck.
8. Pull the J pin out until the end of the pin is past the bracket. (See Figure 23)

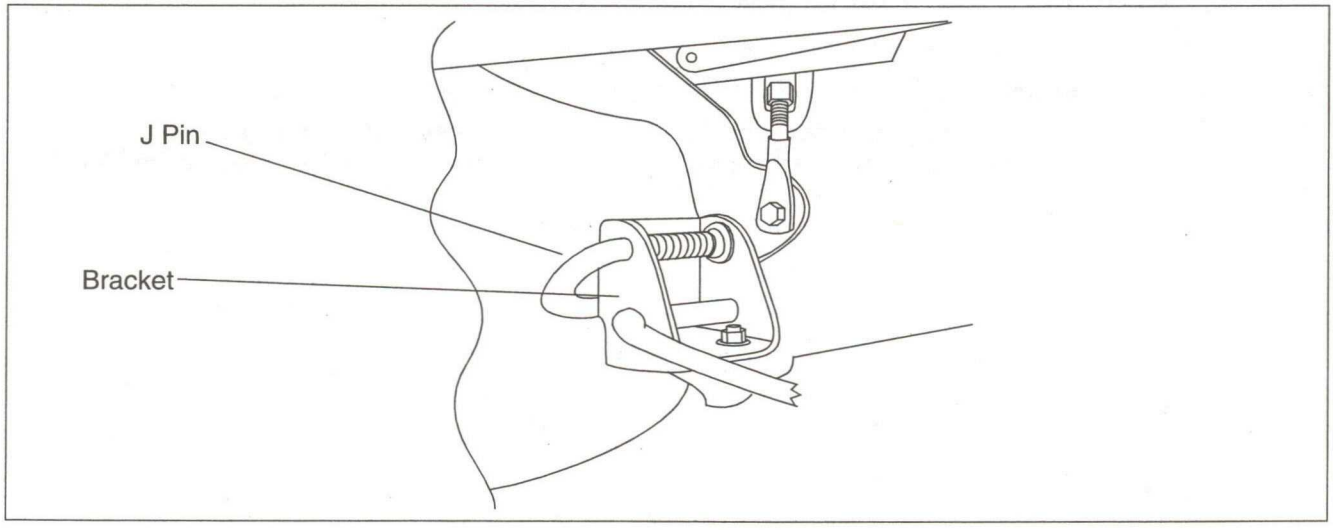


Figure 23

9. Turn the J pin so that the end rests against the bracket, keeping the pin out.

10. Move the Lift handle to position **7** (all the way up).
11. Remove the Belt from the outside pulley of the mower deck by pulling and holding the belt so part of it is outside the pulley.
12. Turn the pulley counterclockwise until the belt is completely off of the pulley.

WARNING: Exhaust and surrounding engine parts are very hot and can cause severe burns when touched.

13. Locate the Clutch Pulley. It is located in the rear of the tractor, below the muffler. (See Figure 24)

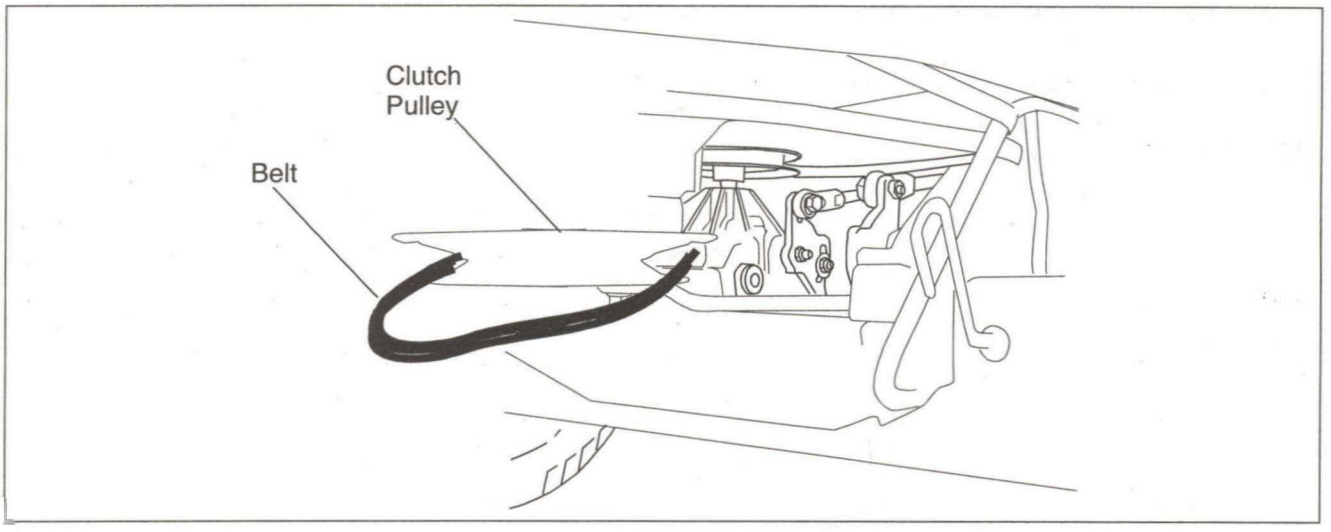


Figure 24

14. Remove the belt from the Clutch pulley.(See Figure 24)
15. From the front of the Z-series, pull the mower deck towards you. This will release the retaining arms from the mower deck. There are two retaining arms one for each side of the deck. (See Figure 25)

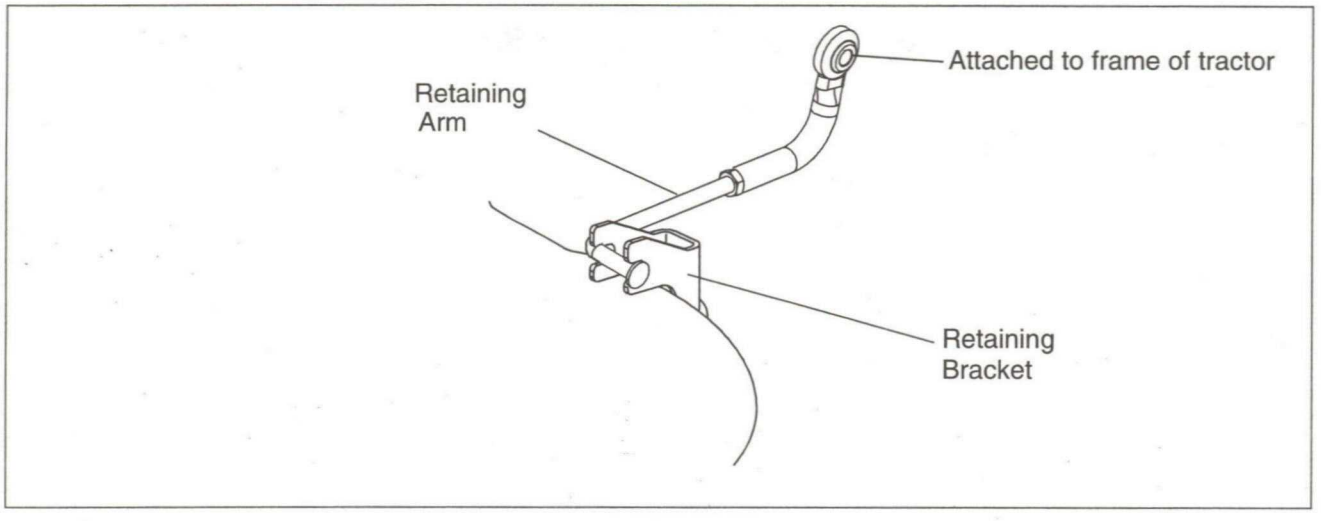


Figure 25

16. Lift and hold the retaining arms up.
17. Move the mower deck toward the rear of the Tractor until the retaining arms clear the mower deck.
18. From the right side, pull the mower deck out from under the Tractor.
19. To service the blades or the underside of the mower deck, there is a mower deck stand that folds out from the top of the mower deck.

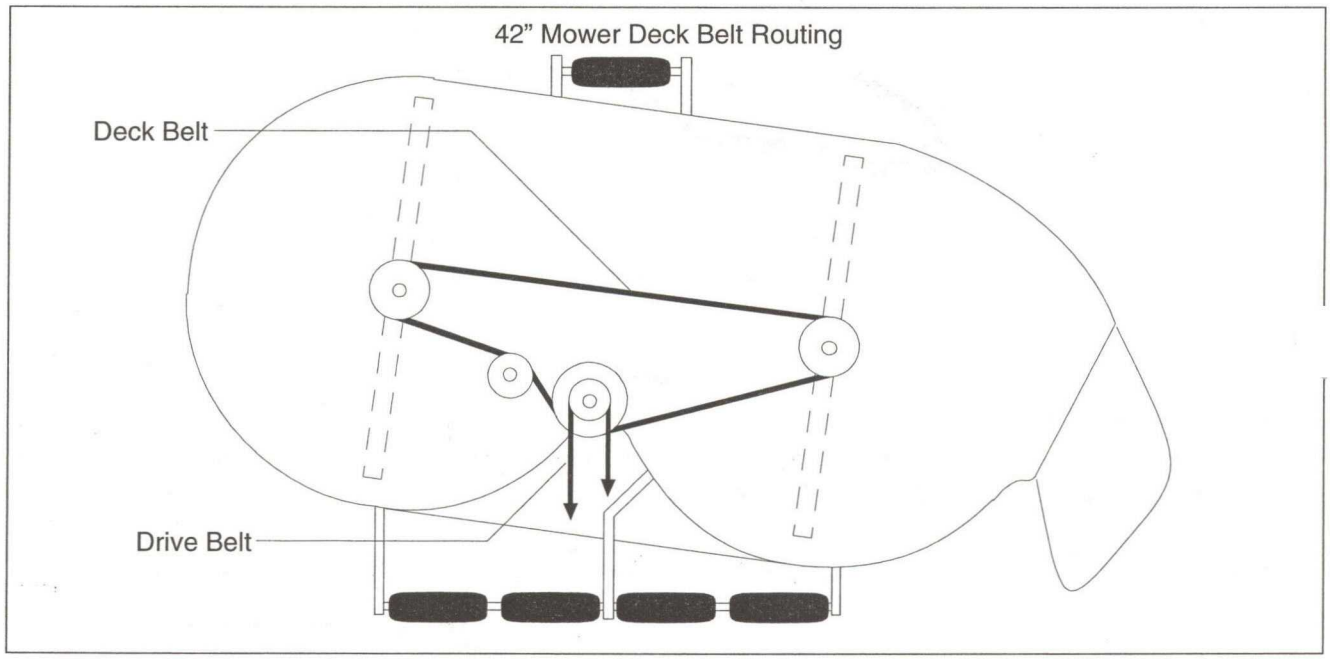
INSTALLING A NEW MOWER DECK DRIVE BELT

1. Remove the mower deck. See REMOVING THE MOWER DECKfor details.
2. Remove the old mower deck drive belt from the mower deck.
3. Install and route the new mower deck drive belt according to the routing diagram shown in MOWER DECK BELT ROUTING.
4. Install the mower deck. Refer to INSTALLING THE MOWER DECK.

INSTALLING A NEW MOWER DECK BELT

1. Remove the mower deck. See REMOVING THE MOWER DECKfor details.
2. Remove the old mower deck drive belt from the mower deck.
3. Install and route the new mower deck belt according to the routing diagram shown in MOWER DECK BELT ROUTING.
4. Install the mower deck. Refer to INSTALLING THE MOWER DECK.

MOWER DECK BELT ROUTING



INSTALLING THE MOWER DECK

Before installing the mower deck on the tractor, route the mower deck belt as shown in MOWER DECK BELT ROUTING.

1. Slide the mower deck under the Z-series.

WARNING: Do not touch the muffler cover. The muffler and cover are extremely hot and can cause severe burns if contacted by the skin.

2. Remove belt covers.
3. From the rear, reach under the muffler cover and grasp the belt from the mower deck and bring it between the hydraulic units.
4. Bring the belt between the pulley and the clutch. Do not put the belt into the pulley grove yet.
5. From the front of the Z-series, hold both retaining arms up and slide the mower deck forward until the retaining arms go into the bracket.

6. Slide the mower deck backwards to insert the retaining arms into the brackets. (See Figure 25)
7. Align the mower deck so the Lift Lever Bracket aligns with the bracket on the mower deck. (See Figure 26)
8. Pull the J-pin out to allow the bracket from Z-series to attach to the mower deck.
9. Release the J-pin so that it goes through both holes of the bracket. (See Figure 26)

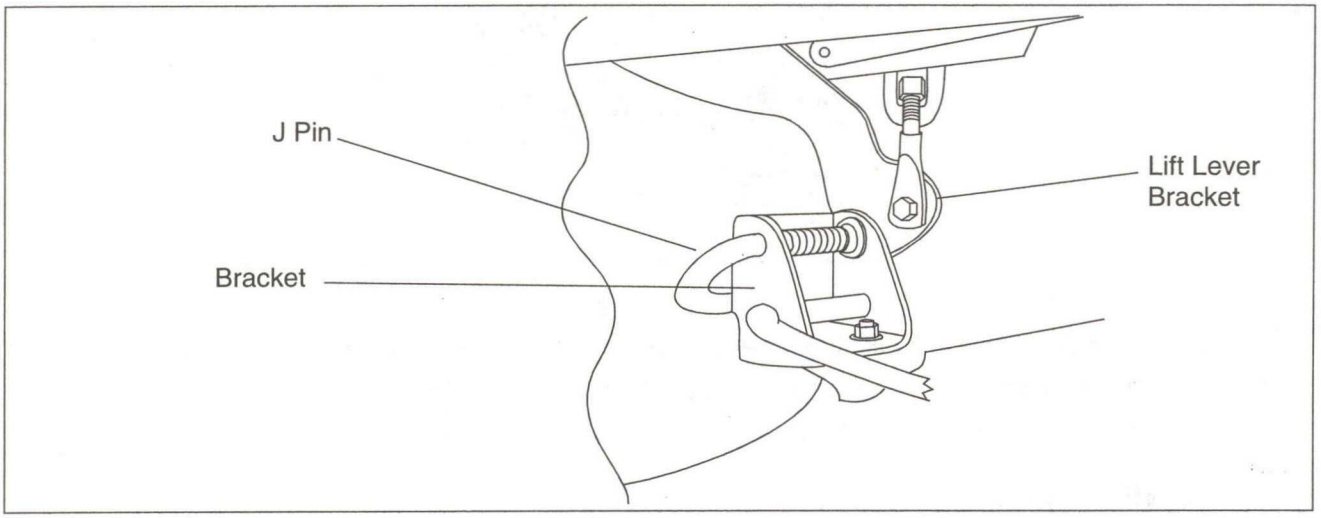


Figure 26

10. Repeat Step 7 and Step 8 for the other side of the mower deck.
11. From the rear, attach the belt around the Clutch Pulley.
12. Engage tension arm by moving it into the bracket to maintain belt tension.
13. Replace Belt Covers.

REMOVING THE MOWER DECK (48" & 54" Deck Models 1997-1999)

WARNING: The cutting blades of the mower deck are sharp and can cause injury.

1. Position the Z-series on a hard, flat surface.
2. Engage the Parking Brake.
3. Move the lift handle to the **L** position.
4. Remove the wing nuts and then remove the belt covers.

If Mower Deck is:	Then:
48" or 54"	Remove one wing nut for each cover. (See Figure 22)

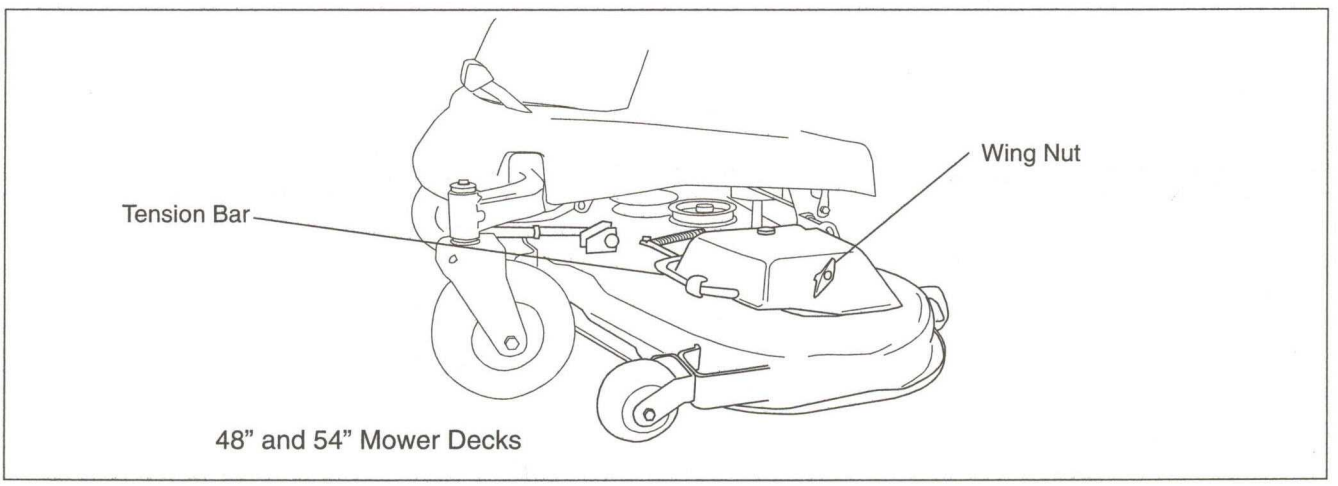


Figure 22

5. Release the Tension Bar.
6. Push the Tension Bar out of the bracket.
7. Lift the bar over the bracket and allow the bar to rest on the mower deck.
8. Pull the J pin out until the end of the pin is past the bracket. (See Figure 23)

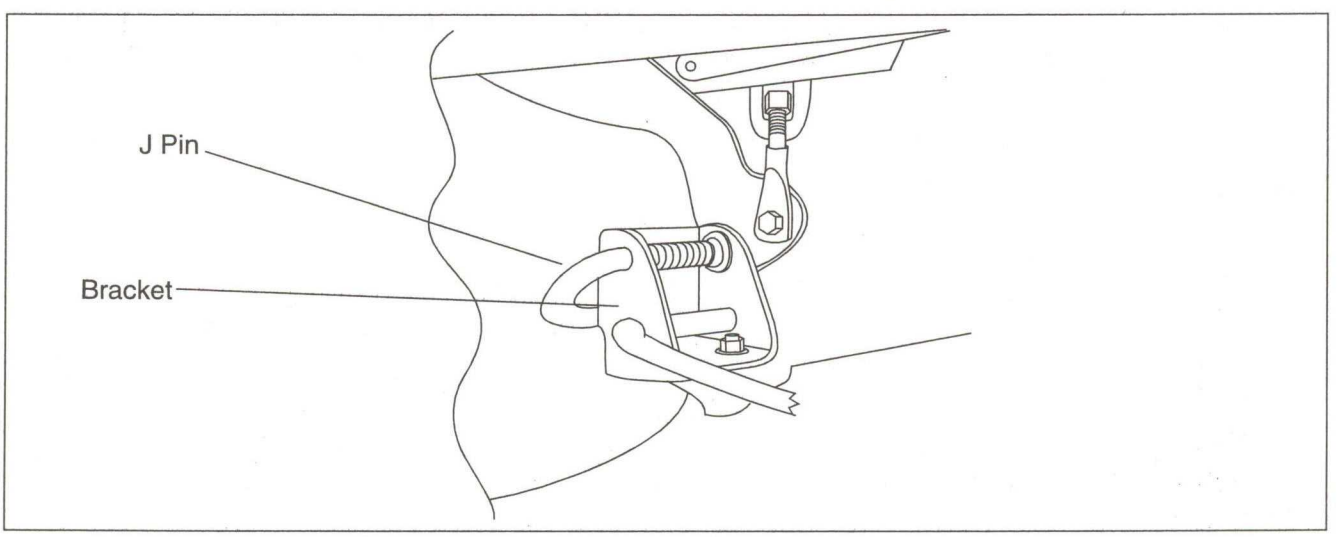


Figure 23

9. Turn the J pin so that the end rests against the bracket, keeping the pin out.
10. Move the Lift handle to position **7** (all the way up).
11. Remove the Belt from the outside pulley of the mower deck by pulling and holding the belt so part of it is outside the pulley.
12. Turn the pulley counterclockwise until the belt is completely off of the pulley.

WARNING: Exhaust and surrounding engine parts are very hot and can cause severe burns when touched.

13. Locate the Clutch Pulley. It is located in the rear of the tractor, below the muffler. (See Figure 24)

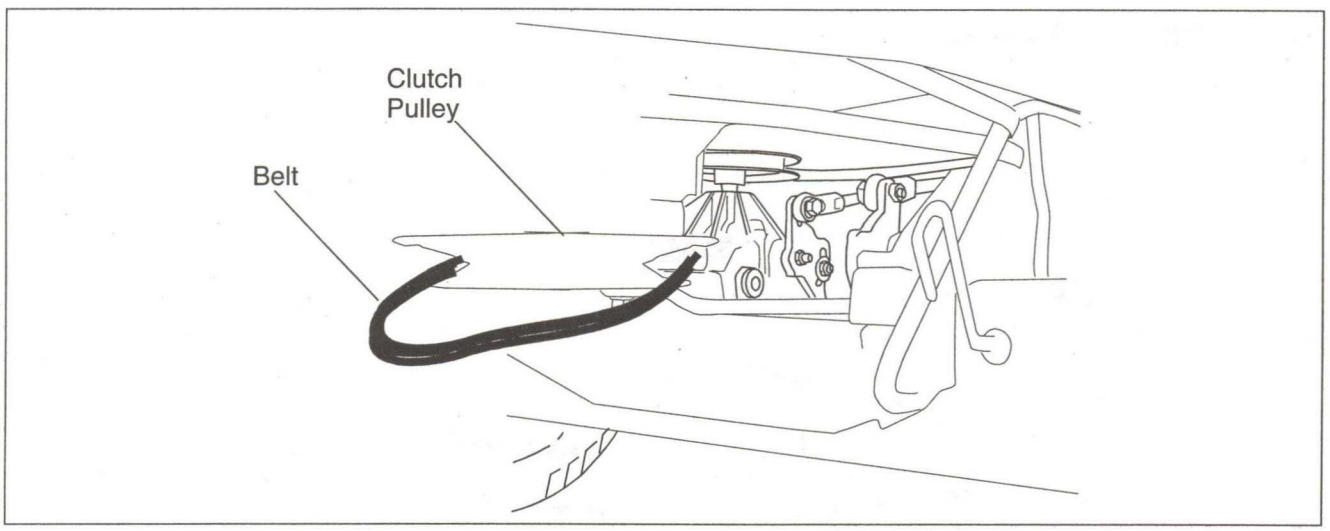


Figure 24

14. Remove the belt from the Clutch pulley.(See Figure 24)
15. From the front of the Z-series, pull the mower deck towards you. This will release the retaining arms from the mower deck. (See Figure 25)

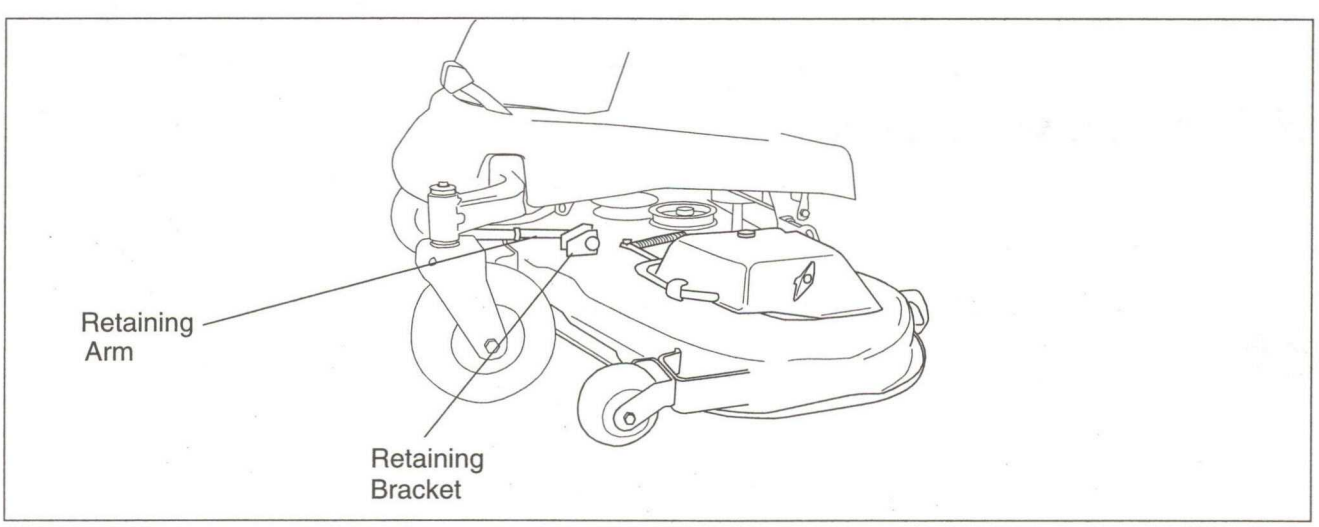


Figure 25

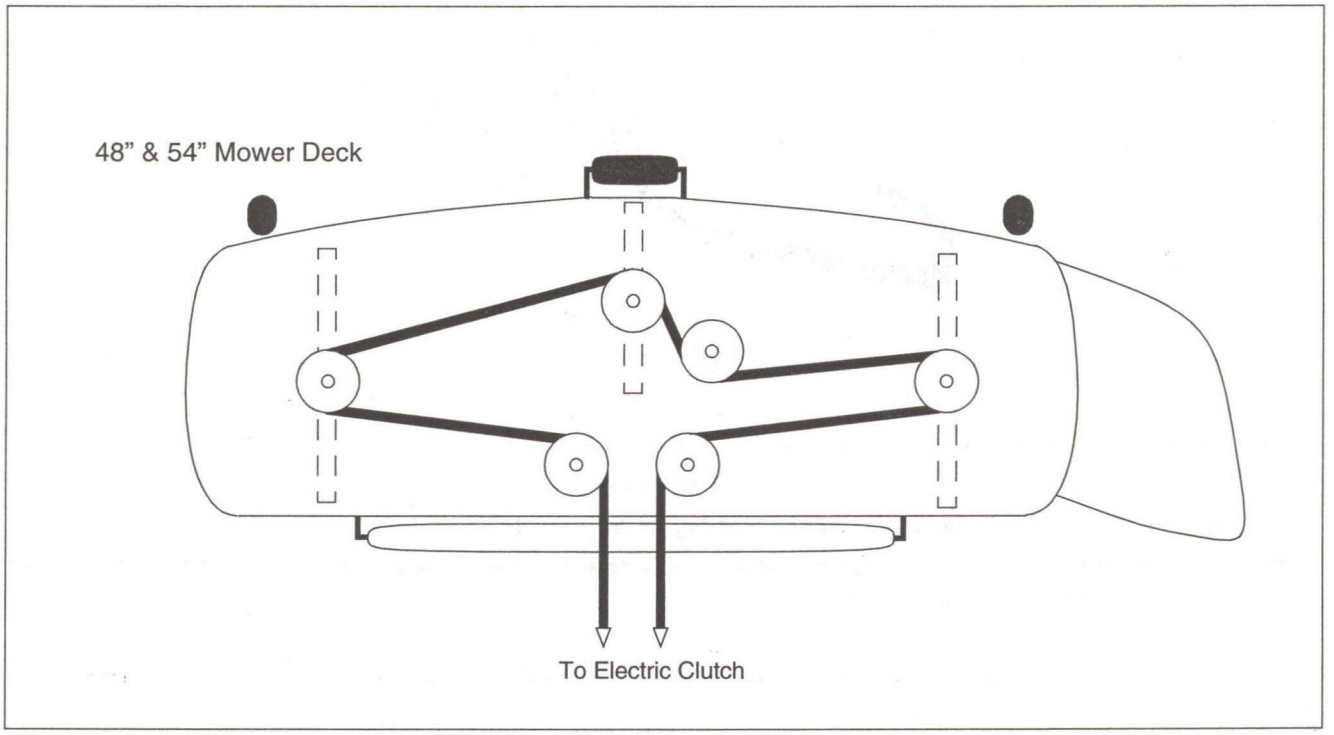
16. Lift and hold the retaining arms up.
17. Move the mower deck toward the rear of the Tractor until the retaining arms clear the mower deck.

18. From the right side, pull the mower deck out from under the Tractor.
19. To service the blades or the under-side of the mower deck, there is a mower deck stand that folds out from the top of the mower deck.

INSTALLING A NEW MOWER DECK BELT

1. Remove the mower deck. See “REMOVING THE MOWER DECK” for details.
2. Remove the old belt from the mower deck.
3. Install and route the new belt according to the routing diagram shown in “MOWER DECK BELT ROUTING” .
4. Install the mower deck. Refer to “INSTALLING THE MOWER DECK” .

MOWER DECK BELT ROUTING



INSTALLING THE MOWER DECK

Before installing the mower deck on the tractor, route the mower deck belt as shown in “MOWER DECK BELT ROUTING” .

1. Slide the mower deck under the Z-series.

WARNING: Do not touch the muffler cover. The muffler and cover are extremely hot and can cause severe burns if contacted by the skin.

2. Remove belt covers.
3. From the rear, reach under the muffler cover and grasp the belt from the mower deck and bring it between the hydraulic units.
4. Bring the belt between the pulley and the clutch. Do not put the belt into the pulley grove yet.
5. From the front of the Z-series, hold both retaining arms up and slide the mower deck forward until the retaining arms go into the bracket.

6. Slide the mower deck backwards to insert the retaining arms into the brackets. (See Figure 25)
7. Align the mower deck so the Lift Lever Bracket aligns with the bracket on the mower deck. (See Figure 26)
8. Pull the J-pin out to allow the bracket from Z-series to attach to the mower deck.
9. Release the J-pin so that it goes through both holes of the bracket. (See Figure 26)

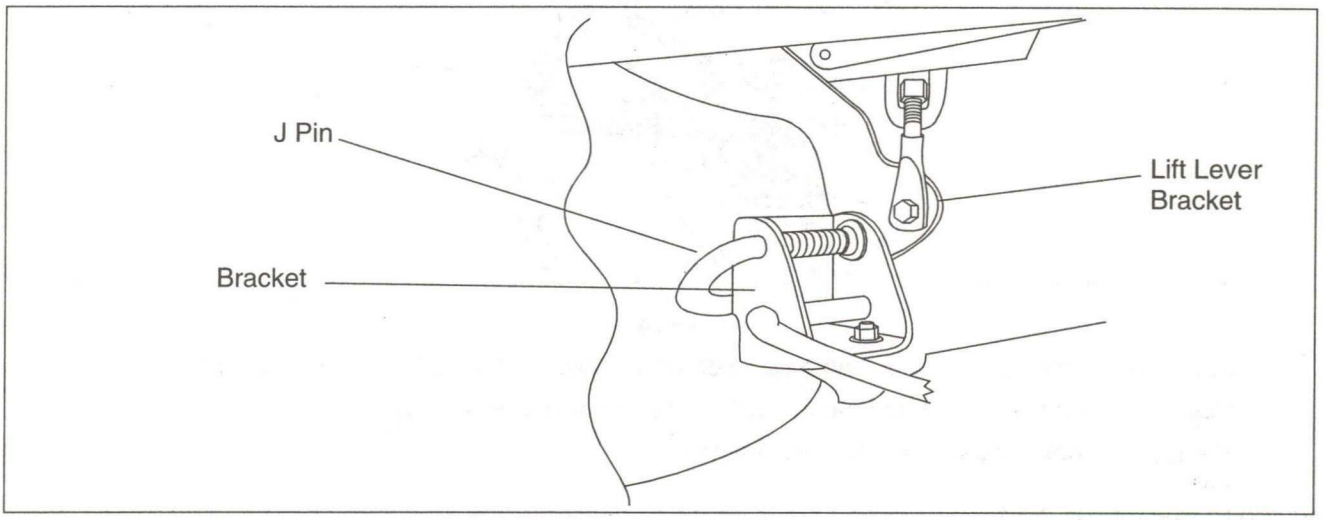


Figure 26

10. Repeat Step 7 and Step 8 for the other side of the mower deck.
11. From the rear, attach the belt around the Clutch Pulley.
12. Engage tension arm by moving it into the bracket to maintain belt tension.
13. Replace Belt Covers.

(44" & 54" Deck Models 2000 & Above)

Removing The Mower Deck

WARNING: Do not remove deck immediately after operating the tractor. Allow the engine and other moving parts ample time to cool down.

- Position the Z-Series on a hard flat surface and engage the parking brake.
- Move the lift handle to the L position.
- Remove belt covers by removing the hex nuts or wing nuts that hold on the covers. See Figure 22.

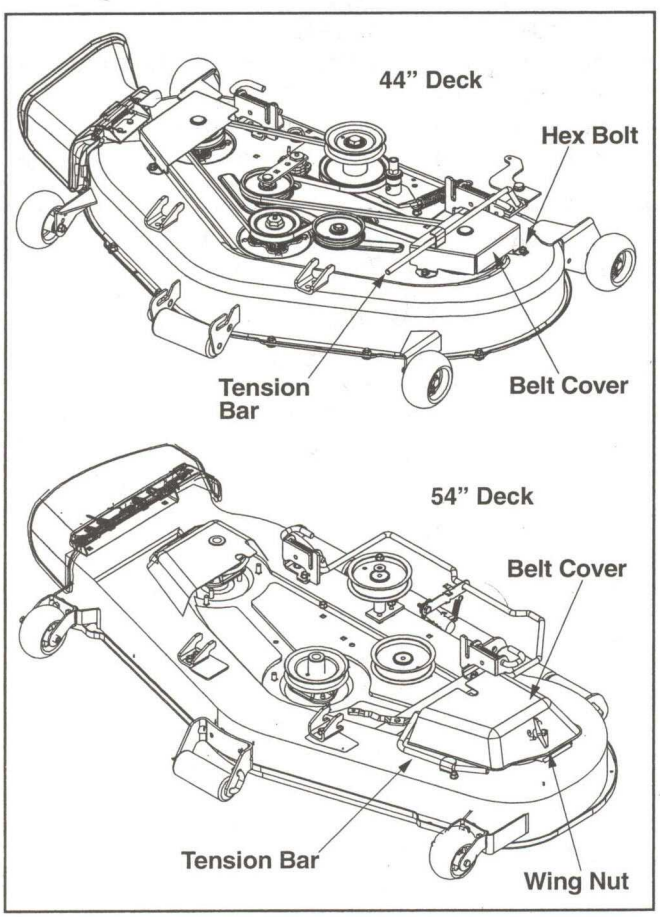


Figure 22

- Release the tension bar by pushing bar out of the bracket.
- Lift the tension bar over the bracket and allow the bar to rest on the mower deck.
- Pull support pin out to release hanger bracket from lift link and turn support pin until it is against outside of hanger bracket. See Figure 23.

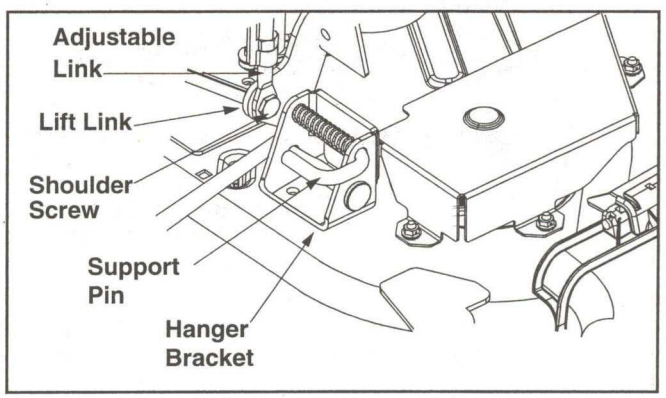


Figure 23

- Move the lift handle to position 7 (all the way up).
- Remove the belt from the outside pulley of the mower deck by pulling and holding the belt so part of it is outside the pulley.
- Turn the pulley counterclockwise until the belt is completely off the pulley.
- Locate the clutch pulley in the rear of the tractor below the muffler to remove the belt from the pulley. See Figure 24.

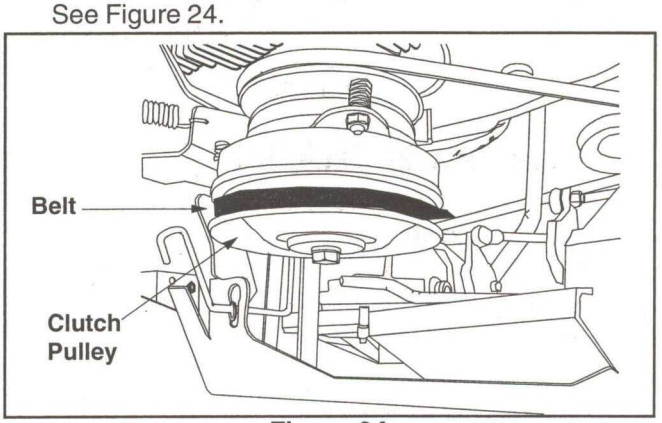


Figure 24

- From the front of the Z-Series, pull the mower deck towards you to release the retaining arms from the mower deck.
- Lift and hold up the retaining arms.
- Move the mower deck toward the rear of the tractor until the front lift rods clear the mower deck.
- From the right side, pull the mower deck out from under the tractor. See Figure 25.
- To service the blades or the underside of the 54" mower deck, there is a mower deck stand that folds out from the top of the mower deck.

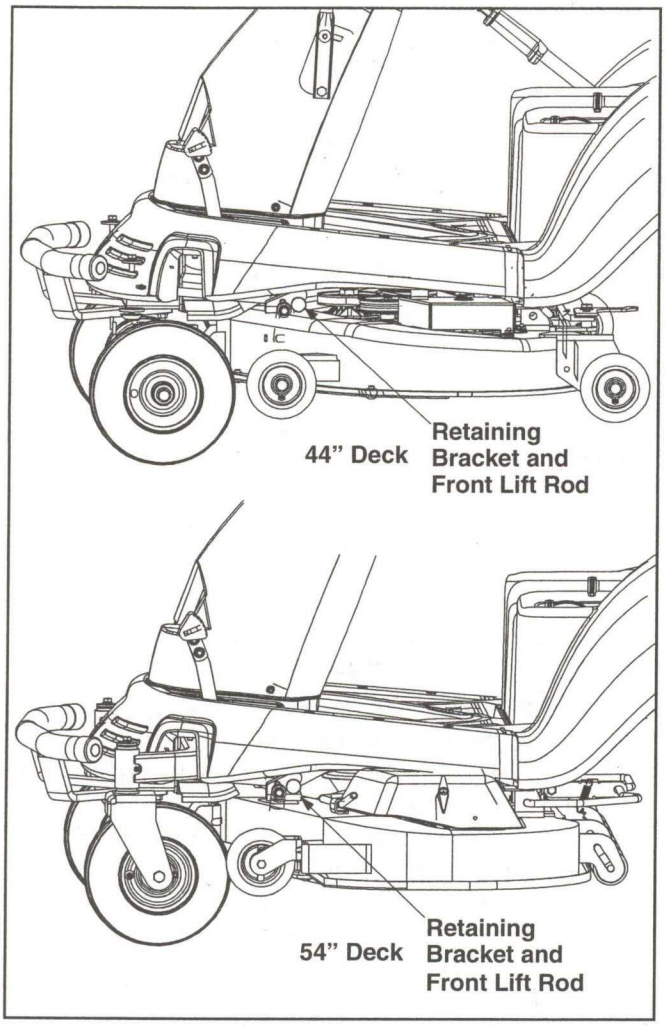


Figure 25

Installing Mower Deck Belt

- Remove the mower deck and the old mower deck drive belt from the mower deck.
- Install and route the new belt according to the routing diagram. See Figure 26 or Figure 27.
- Install the mower deck. Refer to Installing The Mower Deck.

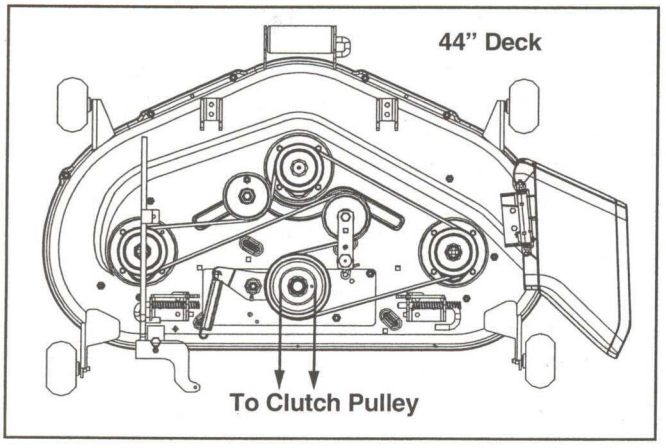


Figure 26

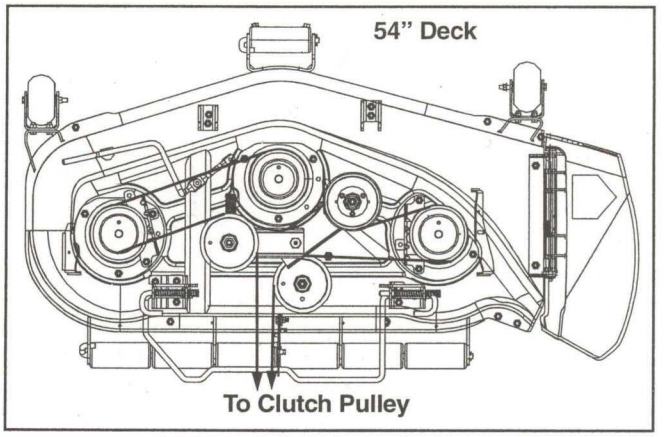


Figure 27

Installing The Mower Deck

- Slide the mower deck under the Z-Series, making sure belt covers are removed.
- From the rear, reach under the muffler cover and grasp the belt from the mower deck and bring it between the hydraulic units.
- Bring the belt between the pulley and the clutch. Do not put the belt into the pulley grove yet.
- From the front of the Z-Series, hold both front lift rods up and slide the mower deck forward until the lift rods go into the bracket.
- Slide the mower deck backwards to insert the front lift rods into the brackets. See Figure 25.
- Align the mower deck so the lift link aligns with the hanger bracket on the mower deck. See Figure 28.

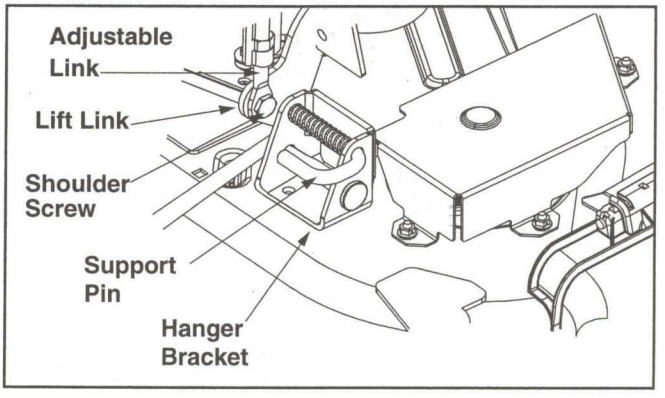


Figure 28

- Pull the support pin out and align with holes in hanger bracket and lift link.
- Release the support pin so that it goes through both holes to secure deck. Repeat these steps for other side of the deck.
- From the rear, attach the belt around the clutch pulley.
- Engage tension bar by moving it into the bracket to maintain belt tension and replace belt covers.

CUTTING BLADE CARE (All Models)

WARNING: The cutting blades are sharp and can cause severe injury. Wrap the cutting surface of the blade with a rag to avoid injury.

Keep the cutting blade sharp and free of build up at all times:

- Sharpen ends of the blades evenly by keeping the same cutting angle to maintain balanced cutting blades.
- Remove debris build up from the underside of the mower deck housing using a putty knife.

REMOVING A BLADE

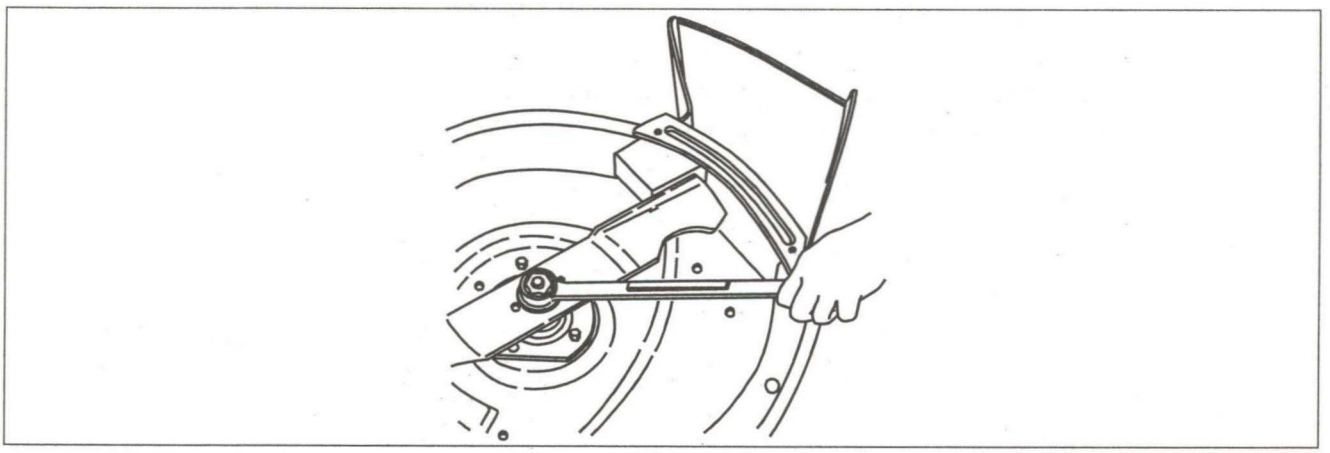


Figure 27

1. Secure the cutting blade by putting a piece of wood between the blade and the housing. (See Figure 27)
2. Use a 1-1/8 inch socket wrench on the pulley side of the spindle to secure.
3. Remove the hex nut using a 1-1/8 inch wrench.

INSTALLING A BLADE

1. Install the blade so the cutting edges face the direction of rotation and the wind wings are facing up.
2. Use a 1-1/8 inch socket wrench on the pulley side of the spindle to secure.
3. Tighten the nut to 100 ± 10 ft-lbs (136 ± 13.6 Nm).

LUBRICATION OF MOWER DECK

Lubricate the mower deck and its parts as required.

- Each spindle has a grease fitting and all pivot points should be lubricated with motor oil.

REMOVING THE DRIVE BELT

Visually inspect the drive belt for wear and cracking. If the drive belt shows signs of glazing, fraying, cracking or excess wear it needs to be replaced. Follow these steps to replace the drive belt.

1. Set the parking brake.
2. Remove the mower deck belt from the engine pulley.
3. Raise the engine cover.
4. Locate the drive belt.
5. Roll the drive belt down off of the left drive pulley. Now, role the drive belt down off of the right drive pulley.
6. Remove the drive belt from the engine pulley.
7. Now that the belt is slack, carefully pull the belt up and over the right hydrostatic cooling fan. Now carefully pull the belt up and over the left hydrostatic cooling fan.
8. Pull the drive belt out of the unit.

INSTALLING A NEW DRIVE BELT

Follow these instructions to reinstall the drive belt if it has been removed for replacement or if it breaks.

1. Set the parking brake.
2. Raise the engine cover.
3. Remove the mower deck belt from the engine pulley.

4. Thread the drive belt up and over the left and right hydrostatic cooling fans. Do not place the belt into the drive pulley groves at this time.
5. Place the drive belt into the top groove of the engine pulley.
6. Route the belt to the inside of the idler pulley.
7. Roll the belt up into the groove of the left drive pulley.
8. Roll the belt up into the groove of the right drive pulley.
9. Make sure that the belt is seated in all pulley grooves.
10. Release the parking brake. The drive belt should be tightened by the idler pulley if the belt was installed correctly.
11. Check the belt for correct routing.
12. Reinstall the mower deck.

SECTION 5: STORAGE

When storing the Z-series for longer than 30 days, use the following steps:

WARNING: Never store the engine with fuel in the tank if it is stored where fuel fumes can reach an open flame, spark or pilot light (e.g., furnace, water heater, or clothes dryer).

1. Remove all gasoline from the fuel tank. Gum deposits can form on engine parts causing the engine to malfunction.
2. Run the engine until it begins to falter.
3. Use the choke to continue operation until all fuel is gone from the carburetor and fuel tank.
4. Drain any remaining fuel from the fuel line at the carburetor or gas tank.

WARNING: Drain fuel into an approved container, in open air, and away from open flames.

Note: Fuel quality deteriorates when fuel is left in engine during warm weather. Poor fuel quality can cause engine starting difficulties.

5. Crank the engine several times to distribute the oil.
6. Clean the engine and the entire Z-series thoroughly.
7. Lubricate all lubrication points.
8. Follow the battery storage guidelines (refer to “Battery STORAGE” on page 28 for details).
9. Inflate tires at regular intervals.

SECTION 6: MOWING

For best results, consider the following recommendations:

- Mow the first two laps with the discharge pointing toward the center.
- Mow the next two laps with the discharge pointing outside (away from center) for a balanced cut and improved appearance.
- Do not cut grass too short. The mower tends to "scalp" the grass. Shorter grass invites weeds and will yellow quickly in dry conditions.

During some conditions, the mower may leave streaks of uncut material. Streaking can happen when cutting heavy weeds and tall grass. In these conditions it may be necessary to cut the area a second time for a clean cut.

AVOIDING STREAKING

1. Mow the area often; cutting grass of shorter lengths helps to avoid streaks.
2. Operate the Z-series at full throttle and at a slower forward speed.
3. Maintain sharp blades and replace when worn.
4. Follow the mowing path shown below. (See Figure 28).

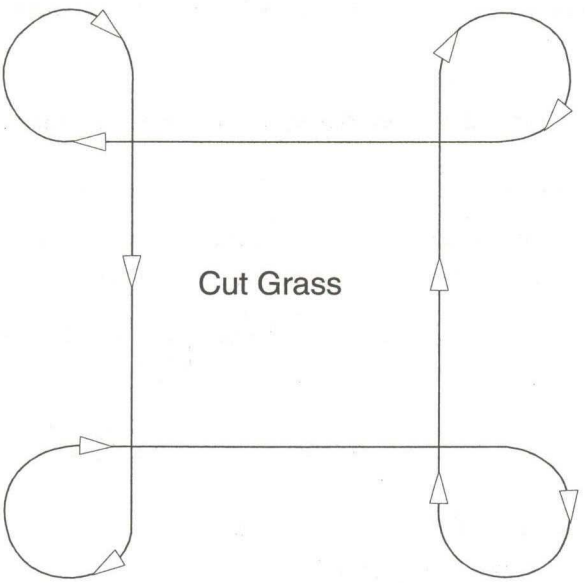


Figure 28

SECTION 7: ENGINE MAINTENANCE (All Models)

Oil Recommendations

Using the proper type and weight of oil in the crankcase is extremely important. So is checking oil daily and changing oil regularly. Failure to use the correct oil, or using dirty oil, causes premature engine wear and failure.

Oil Type

Use high quality detergent oil of **API (American Petroleum Institute) Service class SF, SG, or SH.** Select the viscosity based an the air temperature at the time of operation as shown in the following table.
Recommend SAE Viscosity Grades

+32° F and above- ..... SAE 10W-30
Below +32° F- ..... SAE 5W-20 or 5W-30
Use of synthetic oil having SW-20 or 5W-30 rating is acceptable.

NOTE: Using other than service class SF, SG, or SH oil or extending oil change intervals longer than recommended can cause engine damage.

Fuel Recommendations

WARNING: Explosive Fuel

Gasoline is extremely flammable and its vapors can explode if ignited. Store gasoline only in approved containers, in well ventilated, unoccupied buildings, away from sparks or flames. Do not fill the fuel tank while the engine is hot or running, since spilled fuel could ignite if it comes in contact with hot parts or sparks from ignition. Do not start the engine near spilled fuel. Never use gasoline as a cleaning agent.

General Recommendations

Purchase gasoline in small quantities and store in clean, approved containers. A container with a capacity of 2 gallons or less with a pouring spout is recommended. Such a container is easier to handle and helps eliminate spillage during refueling.
Do not use gasoline left over from the previous season, to minimize gum deposits in your fuel system and to insure easy starting.
Do not add oil to the gasoline.
Do not overfill the fuel tank, leave room for the fuel to expand.

Fuel Type

For best results use only clean, fresh, unleaded gasoline with a pump sticker octane rating of 87 or higher. In countries using the Research method, it should be 90 octane minimum.
Unleaded gasoline is recommended as it leaves less combustion chamber deposits. Leaded gasoline may be used in areas where unleaded is not available and exhaust emissions are not regulated. Be aware however, that the cylinder heads may require more frequent service.

Gasoline/Alcohol blends

Gasohol (up to 10% ethyl alcohol, 90% unleaded gasoline by volume) is approved as a fuel for Kohler engines. Other gasoline/alcohol blends are not approved.

Gasoline/Ether blends

Methyl Tertiary Butyl Ether (MTBE) and unleaded gasoline blends (up to a maximum of 15% MTBE by volume) are approved as a fuel for Kohler engine. Other gasoline/ether blends are not approved.

Engine Identification Numbers

When ordering parts, or in any communication involving an engine, always give the **Model**, **Specification**, and **Serial Numbers** of the engine.
The engine identification numbers appear on a decal (or decals) affixed to the engine shrouding. Include letter suffixes, if there are any.

Maintenance Instructions

WARNING: Accidental Starts!
Before servicing the engine or equipment, always disconnect the spark plug lead to prevent the engine from starting accidentally. Ground the lead to prevent sparks that could cause fires. Make sure the equipment is in neutral.

Maintenance Schedule

These required maintenance procedures should be performed at the frequency stated in the table. They should also be included as part of any seasonal tune-up.

Frequency	Maintenance Required
Daily or Before Starting Engine	• Fill fuel tank. • Check oil level. • Check air cleaner for dirty†, loose, or damaged parts. • Check air Intake and cooling areas, clean as necessary.†
Every 25 Hours	• Service precleaner element.† (If equipped.) • Service air cleaner element.† (If not equipped with precleaner.)
Every 100 Hours	• Service air cleaner element,† (if equipped with precleaner.) • Change oil. • Remove cooling shrouds and clean cooling areas.
Every 200 Hours	• Check spark plug condition and gap. • Change oil filter.
Annually or Every 500 Hours	• Have Bendix Starter Drive Serviced.‡ • Have solenoid shift starter disassembled and cleaned‡. • Change Engine Coolant (Liquid Cooled Units Only)

† Perform these maintenance procedures more frequently under extremely dusty, dirty conditions.
‡ Have a Authorized Engine Service Dealer perform this service.

Check Oil Level

The importance of checking and maintaining the proper oil level in the crankcase cannot be overemphasized. Check oil **BEFORE EACH USE** as follows:

5. Make sure the engine is stopped, level, and is cool so the oil has had time to drain into the sump.
6. To keep dirt, grass clippings, etc., out of the engine, clean the area around the oil fill cap/dipstick before removing it.
7. Unthread and remove the oil fill cap/dipstick; wipe oil off, Reinsert the dipstick into the tube and rest the oil fill cap on the tube. Do not thread the cap onto the tube.
8. Remove the dipstick and check the oil level.
9. The oil level should be up to, but not over, the "F" mark on the dipstick.
10. If the level is low, add oil of the proper type, up to the "F" mark on the dipstick. Always check the level with the dipstick before, adding more oil.

NOTE: To prevent extensive engine wear or damage, always maintain the proper oil level in the crankcase. Never operate the engine with the oil level below the "L" mark or over the "F" mark on the dipstick.

Change Oil and Oil Filter

Change Oil

- For a new engine, change oil after the first 5 hours of operation. Thereafter, change oil after every 100 hours of operation.
- For an overhauled engine or those rebuilt with a new short block, use 10W-30 - weight service class SF, SG, or SH oil for the first 5 hours of operation. Change the oil after this initial run-in period. Refill with service class SF, SG, or SH oil.
- Change the oil while the engine is still warm. The oil will flow freely and carry away more impurities. Make sure the engine is level when filling, checking, or changing the oil.

Change the oil as follows:

1. To keep dirt, grass clippings, etc., out of the engine, clean the area around the oil fill cap/dipstick before removing it.
2. Remove the oil drain plug and oil fill cap/dipstick. Be sure to allow ample time for complete drainage.
3. Reinstall the drain plug. Make sure it is tightened to 13.6 N-m (10 ft. lb.) torque.
4. Fill the crankcase with new oil of the proper type, to the “F” mark on the dipstick. Always check the level with the dipstick before adding more oil.
5. Reinstall the oil fill cap or plug and tighten securely.

NOTE: To prevent extensive engine wear or damage, always maintain the proper oil level in the crankcase. Never operate the engine with the oil level below the “L" mark or over the “F" mark on the dipstick.

Change Oil Filter

Replace the oil filter every other oil change (every 200 hours of operation).
Replace the oil filter as follows.

1. Drain the oil from the engine crankcase.
2. Remove the oil filter drain plug located at the base of the oil filter adapter (if so equipped). Allow the oil filter to drain.
3. Remove the old filter and wipe off the filter adapter. Reinstall the oil filter drain plug (if so equipped),
4. Apply a thin coat of new oil to the rubber gasket on the replacement oil filter.
5. Install the replacement oil filter to the filter adapter. Turn the oil filter clockwise until the rubber gasket contacts the filter adapter, then tighten the filter an additional 1/2 turn.
6. Fill the crankcase with new oil of the proper type, to the "F' mark on the dipstick. Add 0.24 L (1/2 pint) of oil for the filter capacity.
7. Start the engine and check for oil leaks. Correct any leaks before placing the engine into service. Check oil level to be sure it is up to but not over the "F" mark.

Service Precleaner and Air Cleaner Element

- This engine is equipped with a replaceable, high density paper air cleaner element. Some engines are also equipped with an oiled, foam precleaner which surrounds the paper element. Check the air cleaner daily or before starting the engine. Check for a buildup of dirt and debris around the air cleaner system. Keep this area clean. Also check for loose or damaged components. Replace all bent or damaged air cleaner components.

NOTE: Operating the engine with loose or damaged air cleaner components could allow unfiltered air into the engine causing premature wear and failure.

Service Precleaner

Wash and re-oil the precleaner every 25 hours of operation if equipped, (more often under extremely dusty or dirty conditions).

1. Remove the air cleaner cover retaining knob, air cleaner cover, and paper element with precleaner.
2. Remove the precleaner from the paper element.
3. Wash the precleaner in warm water with detergent. Rinse the precleaner thoroughly until all traces of detergent are eliminated. Squeeze out excess water (do not wring). Allow the precleaner to air dry.
4. Saturate the precleaner with new engine oil. Squeeze out all excess oil.
5. Reinstall the precleaner over the paper element.
6. Reinstall the paper element with precleaner, air cleaner cover, and air cleaner cover retaining knob. Make sure the knob Is tightened securely.

Service Paper Element

- Every 100 hours of operation check the paper element if equipped with a precleaner. Check every 25 hours of operation if not equipped with a precleaner. (More often under extremely dusty or dirty conditions.) Replace the element as necessary.

1. Remove the precleaner (if so equipped) from the Paper element.
2. Do not wash the paper element or use pressurized air, as this will damage the element. Replace a dirty, bent, or damaged element with a new element. Handle new elements carefully; do not use if the sealing surfaces are bent or damaged.
3. When servicing the air cleaner, check the air cleaner base. Make sure it is secured and not bent or damaged. Also check the air cleaner cover for damage or improper fit. Replace all damaged air clearer components.
4. Reinstall the paper element, precleaner, air cleaner cover and cover retaining knob. Make sure the knob is tightened securely.

Clean Air Intake/Cooling Areas

- To ensure proper cooling, make sure the grass screen, cooling fins, and other external surfaces of the engine are kept clean at all times.
- Every 100 hours of operation (more often under extremely dusty, dirty conditions), remove the blower housing and other cooling shrouds. Clean the cooling fins and external surfaces as necessary. Make sure the cooling shrouds are reinstalled.

NOTE: Operating the engine with a blocked grass screen, dirty or plugged cooling fins, and/or cooling shrouds removed, will cause engine damage due to overheating.

Ignition System

This engine Is equipped with a dependable electronic magneto ignition system. Other than periodically checking/ replacing the spark plugs, no maintenance, timing, or adjustments are necessary or possible with this system. In the event starting problems should occur which are not corrected by replacing the spark plugs, see your service dealer for trouble analysis.

Check Spark Plug

Every 200 hours of operation, remove the spark plug, check condition, and reset the gap or replace with a new plug as necessary.

1. Before removing the spark plug, clean the area around the base of the plug to keep dirt and debris out of the engine.
2. Remove the plug and check its condition. Replace the plug if worn or reuse Is questionable.

NOTE: Do not clean the spark plug in a machine using abrasive grit. Some grit could remain in the spark plug and enter the engine causing extensive wear and damage.

3. Check the gap using a wire feeler gauge. Adjust the gap to 1.02 mm (0.040 in.) by carefully bending the ground electrode.
4. Reinstall the spark plug into the cylinder head. Torque the spark plug to 38.0/43.4 N-m (28/32 ft. lb.).

Engine Coolant (Liquid Cooled Models Only)

Inspect radiator hoses every 200 hours of operation. Replace coolant every 400 hours with permanent type antifreeze. Mix 50/50 with water. If cooling system is blocked or not functioning properly see you Cub Cadet Service Dealer.

SECTION 8: TROUBLE SHOOTING GUIDE

Trouble	Possible Cause(s)	Corrective Action
Engine fails to start	PTO switch engaged. Spark plug wire disconnected. Throttle control lever not in correct starting position. Fuel tank empty, or stale fuel. Blocked fuel line. Faulty spark plug. Engine flooded.	Disengage PTO switch. Connect wire to spark plug. Move throttle lever to FAST or START position. Fill tank with clean, fresh gasoline. Clean fuel line. Clean, adjust gap or replace. Crank engine with throttle in FAST position.
Engine runs erratic	Unit running in START position. Spark plug wire loose. Blocked fuel line or stale fuel. Vent in gas cap plugged. Water or dirt in fuel system. Dirty air cleaner.	Move throttle lever to FAST position. Connect and tighten spark plug wire. Clean fuel line; fill tank with clean, fresh gasoline. Clear vent. Drain fuel tank. Refill with fresh fuel. Clean air cleaner.
Engine overheats	Engine oil level low. Air flow restricted. *Lack of coolant. *Clogged cooling system.	Fill crankcase with proper oil. Remove blower housing and clean. *Add coolant to the correct level. *See your authorized engine service dealer.
Occasional skip (hesitates) at high speed	Spark plug gap too close.	Adjust gap to .030".
Idles poorly	Spark plug fouled, faulty or gap too wide. Dirty air cleaner.	Reset gap to .030" or replace spark plug. Clean air cleaner.
Excessive vibration	Cutting blade loose or unbalanced. Bent cutting blade.	Tighten blade and adapter. Balance blade. Replace blade.
Mower will not mulch grass	Engine speed too low. Wet grass. Excessively high grass. Dull blade.	Set throttle between 3/4 and full throttle. Do not mow when grass is wet; wait until later to cut. Mow once at a high cutting height, then mow again at desired height or make a narrower cutting swath (1/2 width). Sharpen or replace blade.
Uneven cut	Wheels not positioned correctly. Dull blade.	Place all four wheels in same height position. Sharpen or replace blade.

* Liquid cooled models only.

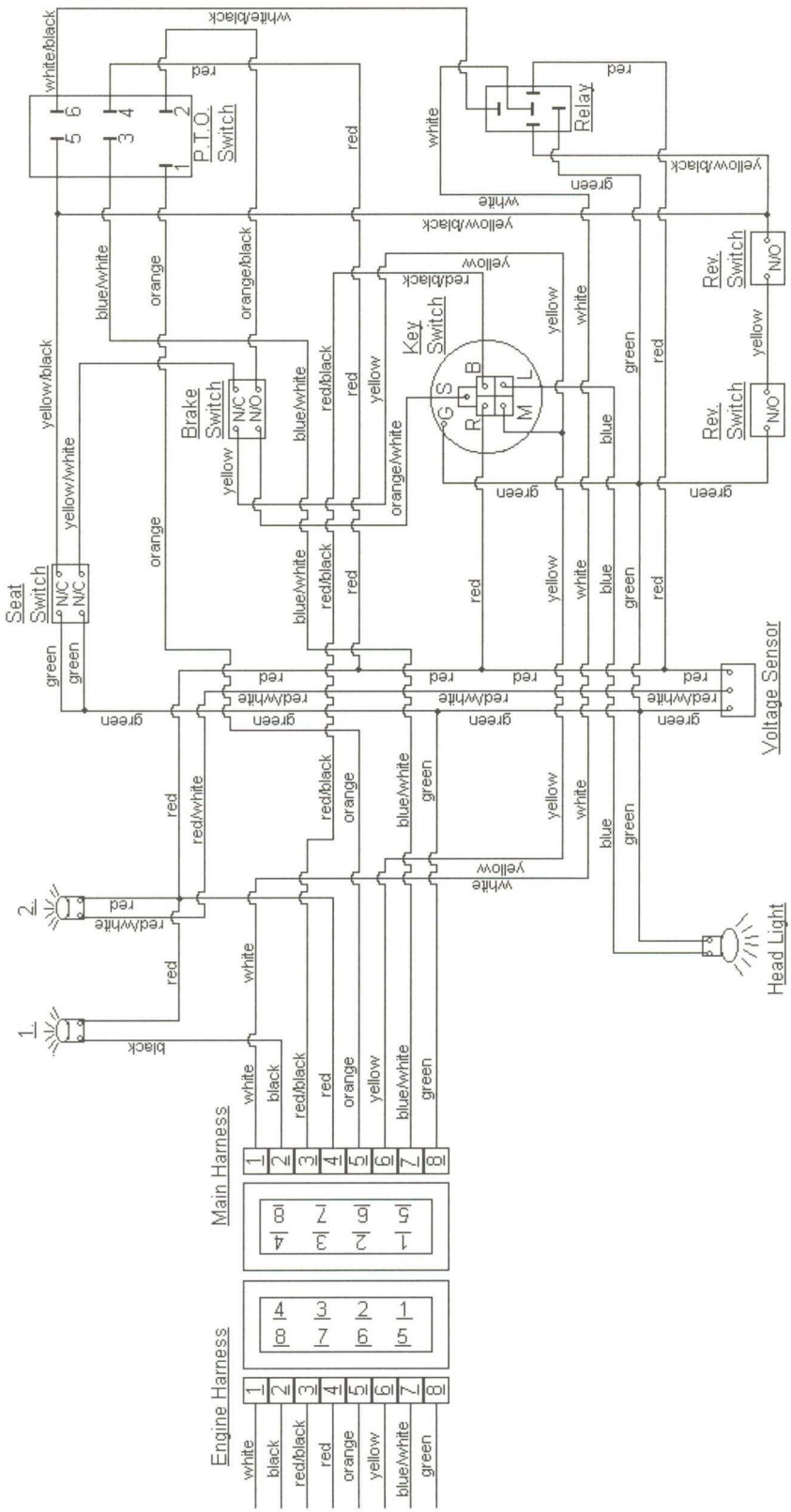
SECTION 9: CRITICAL TORQUE SPECS. FOR ALL MODELS

Item	Qty.	Torque Requirement	
Engine P.T.O. Bolt	1	50-60 ft. lbs.	600-700 in. lbs.
Engine Mounting Bolt (3/8-16)	4	17-37 ft. lbs.	204-444 in. lbs.
Engine Mounting Bolt (M8-1.25)	4	17-37 ft. lbs.	204-444 in. lbs.
Spindle Mounting Bolt / Nut (5/16-18) (4 Places Per Spindle) (42" Deck)	8	17-25 ft. lbs.	204-300 in. lbs.
Spindle Mounting Bolt / Nut (3/8-16) (3 Places Per Spindle) (48" & 54" Deck)	9	35-40 ft. lbs.	420-480 in. lbs.
Blade Bolt / Nut (3/4-16) (42" Deck)	2	90-115 ft. lbs	
Blade Bolt / Nut (3/4-16) (48" & 54" Deck)	3	90-115 ft. lbs	
Transmission To Pump Mtg. Nuts (5/16-18) (4 Per Side)	8		
Shorter Stud		11-13 ft. lbs.	132-156 in. lbs.
Longer Stud		18-22 ft. lbs.	216-264 in. lbs.
Fuel Tank Mounting Bolts (3/8-16)	4	8-10 ft. lbs.	96-120 in. lbs.
Oil Drain On Engine Block	1	10-12 ft. lbs.	120-144 in. lbs.
Lug Nuts (5/16-18) (4 Per Side)	8	50-60 ft. lbs.	600-700 in. lbs.
Fitting Into Hydro (9/16-18) (1 Per Hydro)	2	16-22 ft. lbs	192-264 in. lbs
Control Tower (3/8-16)	2	17-25 ft. lbs.	204-300 in. lbs.

SECTION 10:

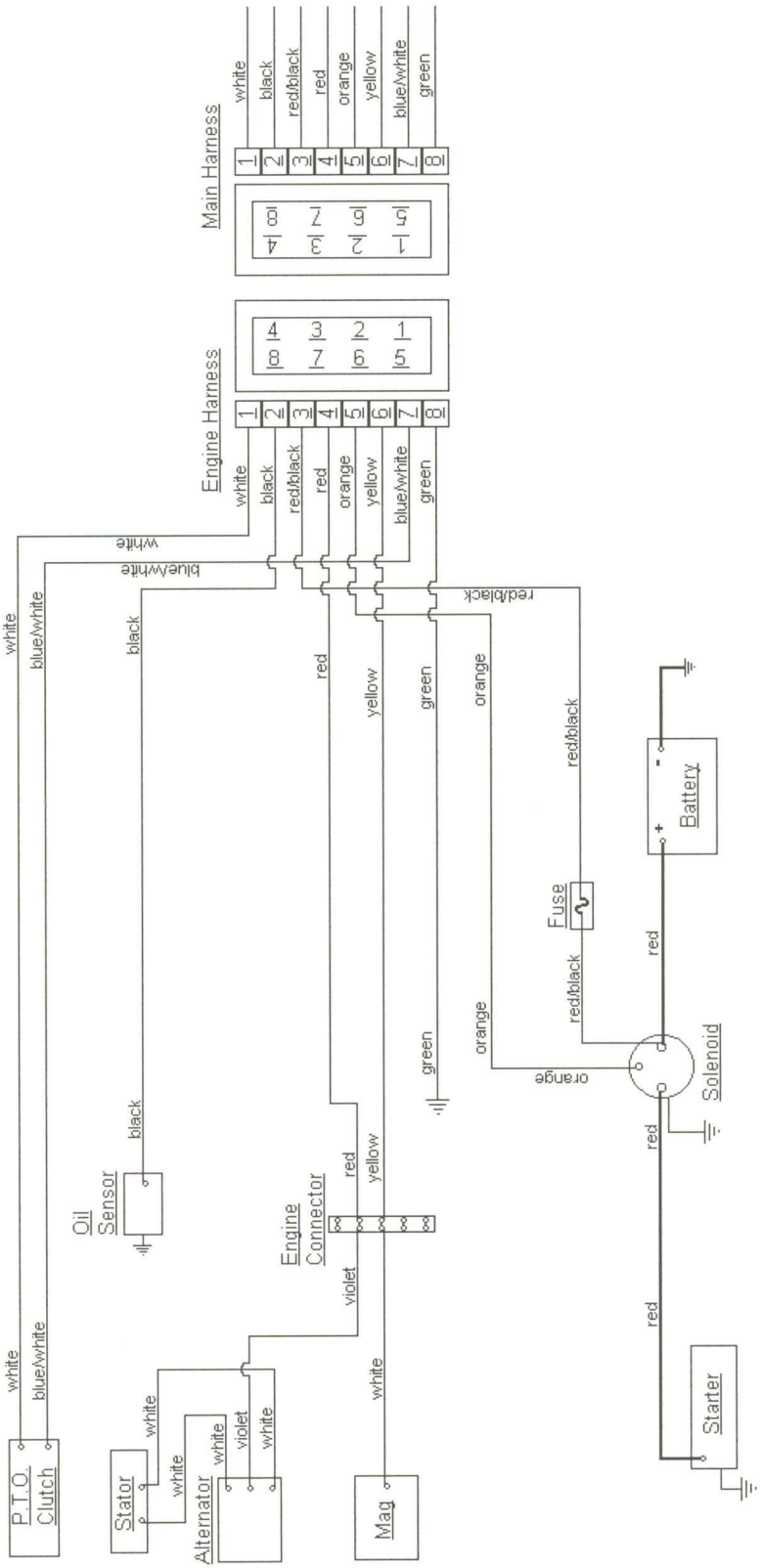
Z SERIES ZERO TURN CUB CADET TRACTORS WIRE SCHEMATICS

MODEL Z - 42
MAIN HARNESS



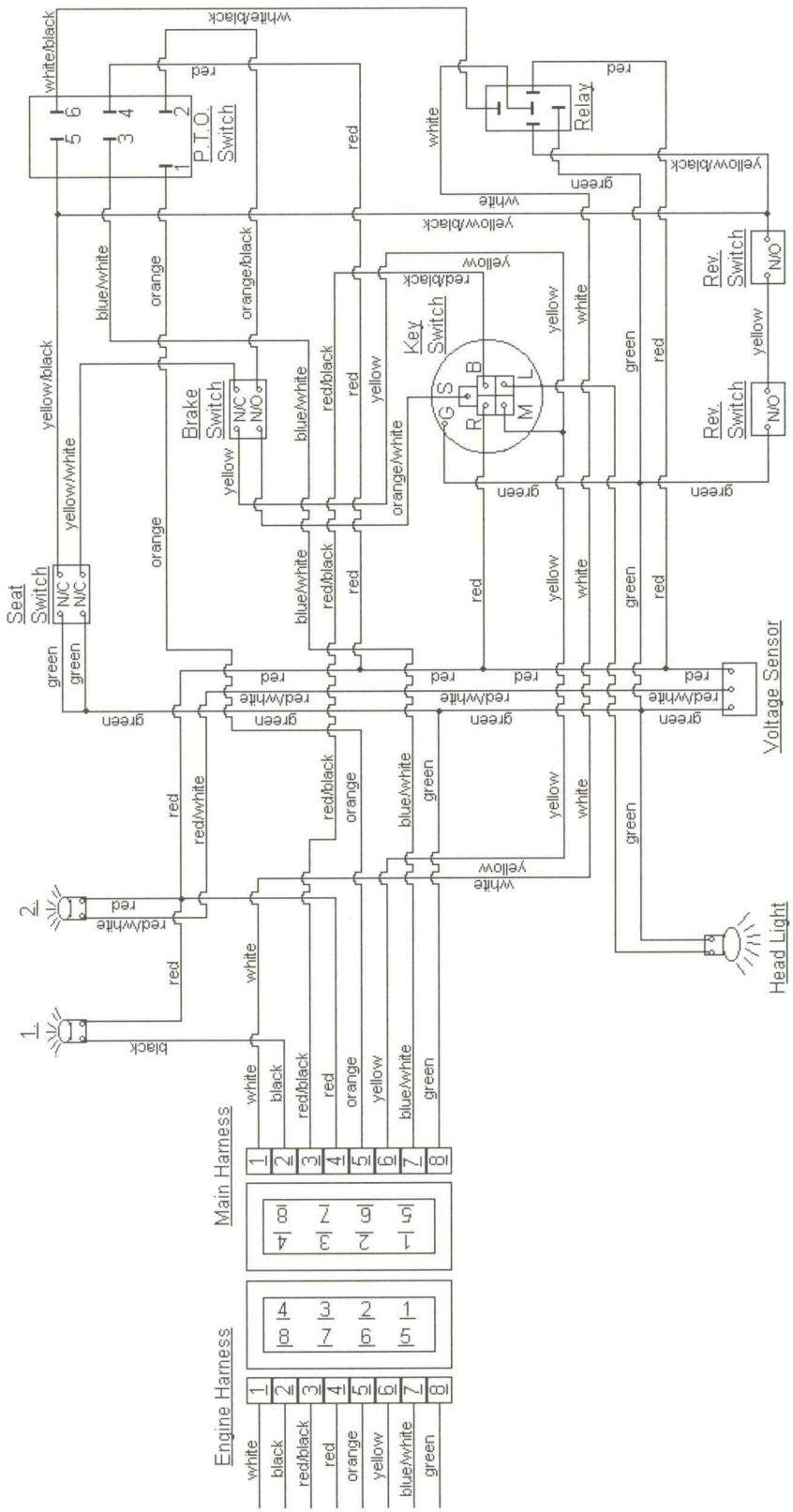
P.T.O. SWITCH	
OFF	1&2 CLOSED / 3&4, 5&6 OPEN
ON	1&2 OPEN / 3&4, 5&6 CLOSED

KEY SWITCH	
OFF	M+G
RUN w/LIGHTS	B+R+L
RUN	B+R
START	B+S



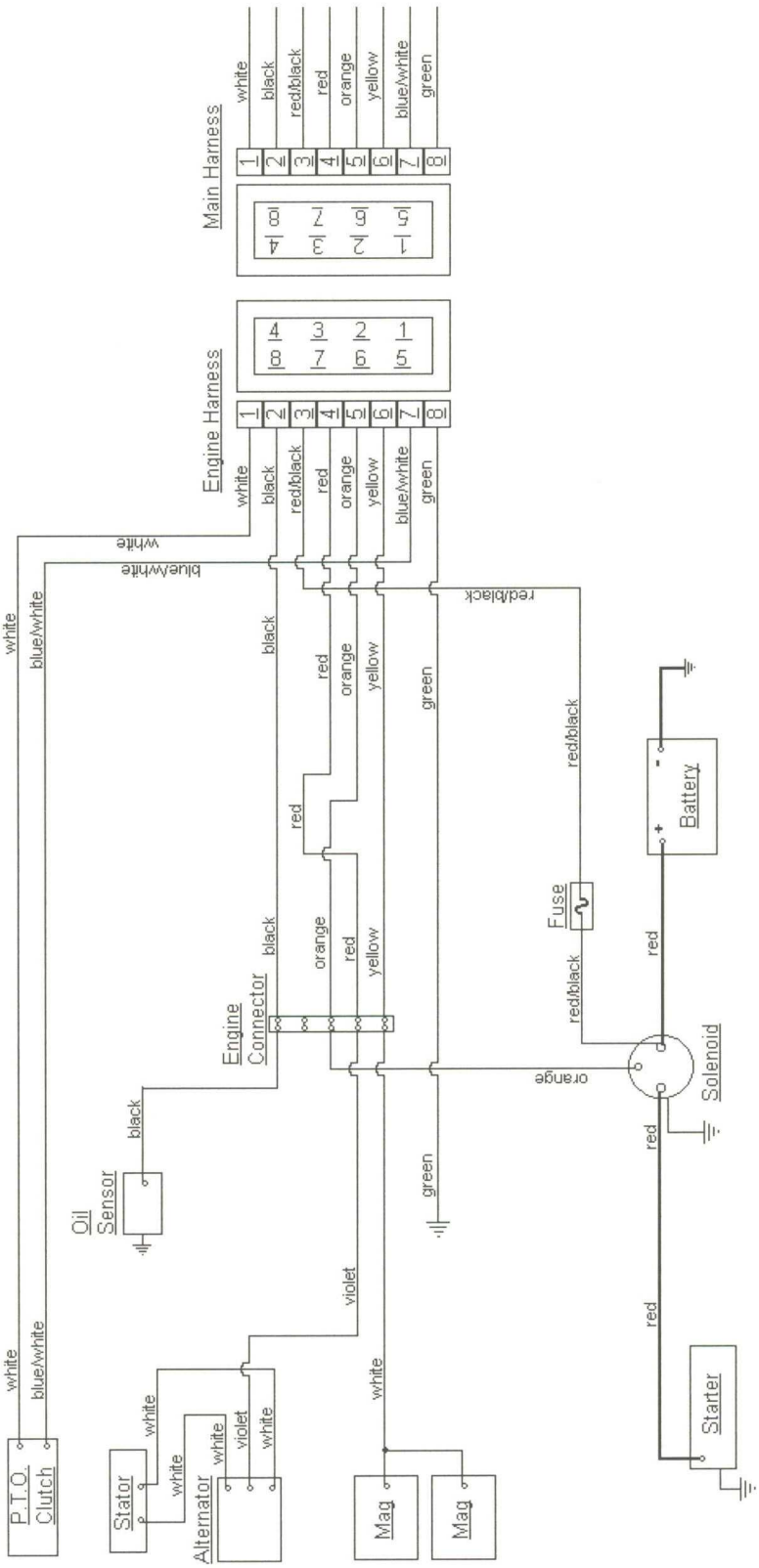
MODEL Z - 42
ENGINE HARNESS

MODEL Z - 48
MAIN HARNESS



KEY SWITCH	
OFF	M+G
RUN w/LIGHTS	B+R+L
RUN	B+R
START	B+S

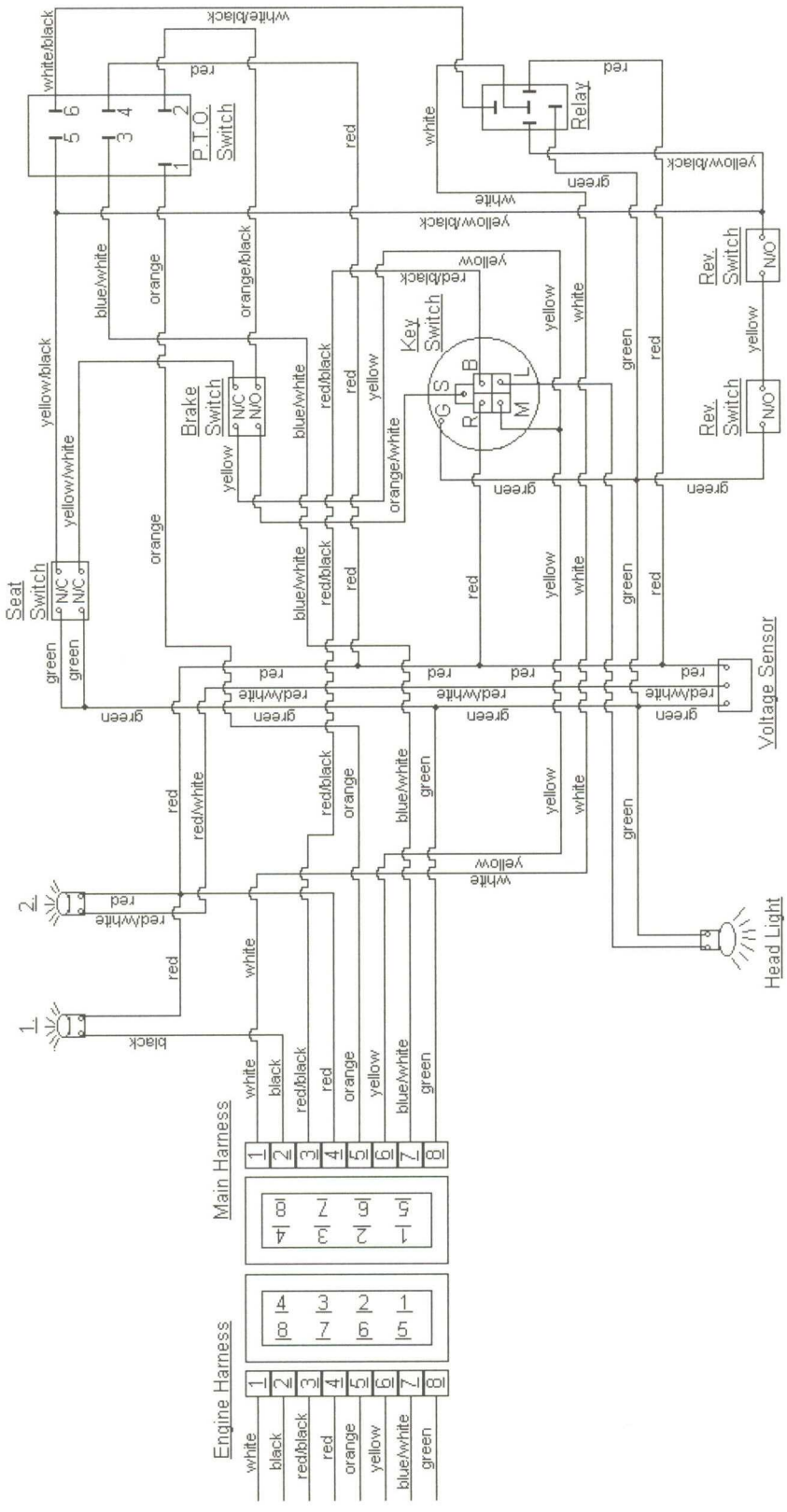
P.T.O. SWITCH	
OFF	1&2 CLOSED / 3&4, 5&6 OPEN
ON	1&2 OPEN / 3&4, 5&6 CLOSED



MODEL Z - 48
ENGINE HARNESS

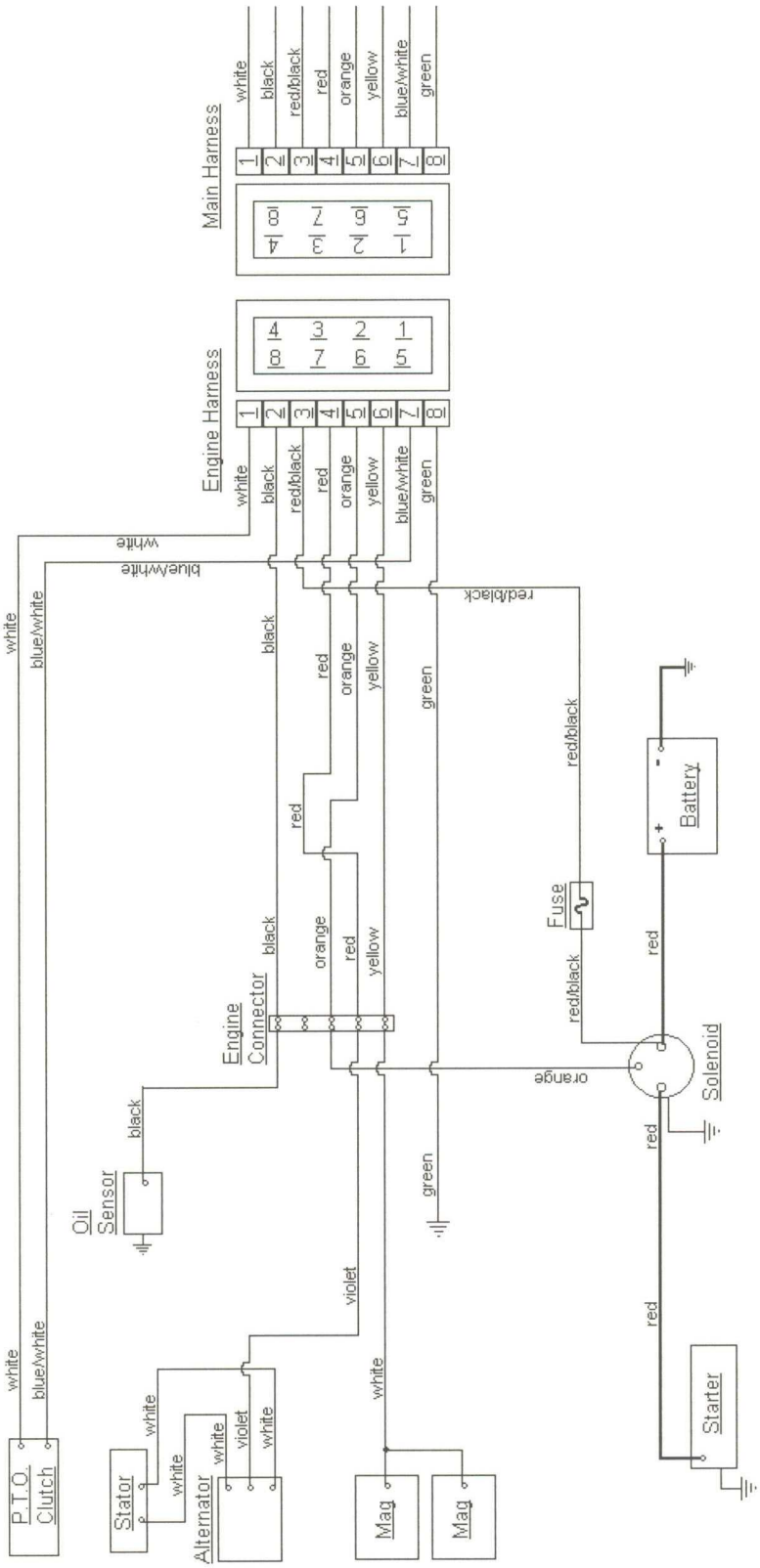
INDEX

MODEL Z - 54
MAIN HARNESS



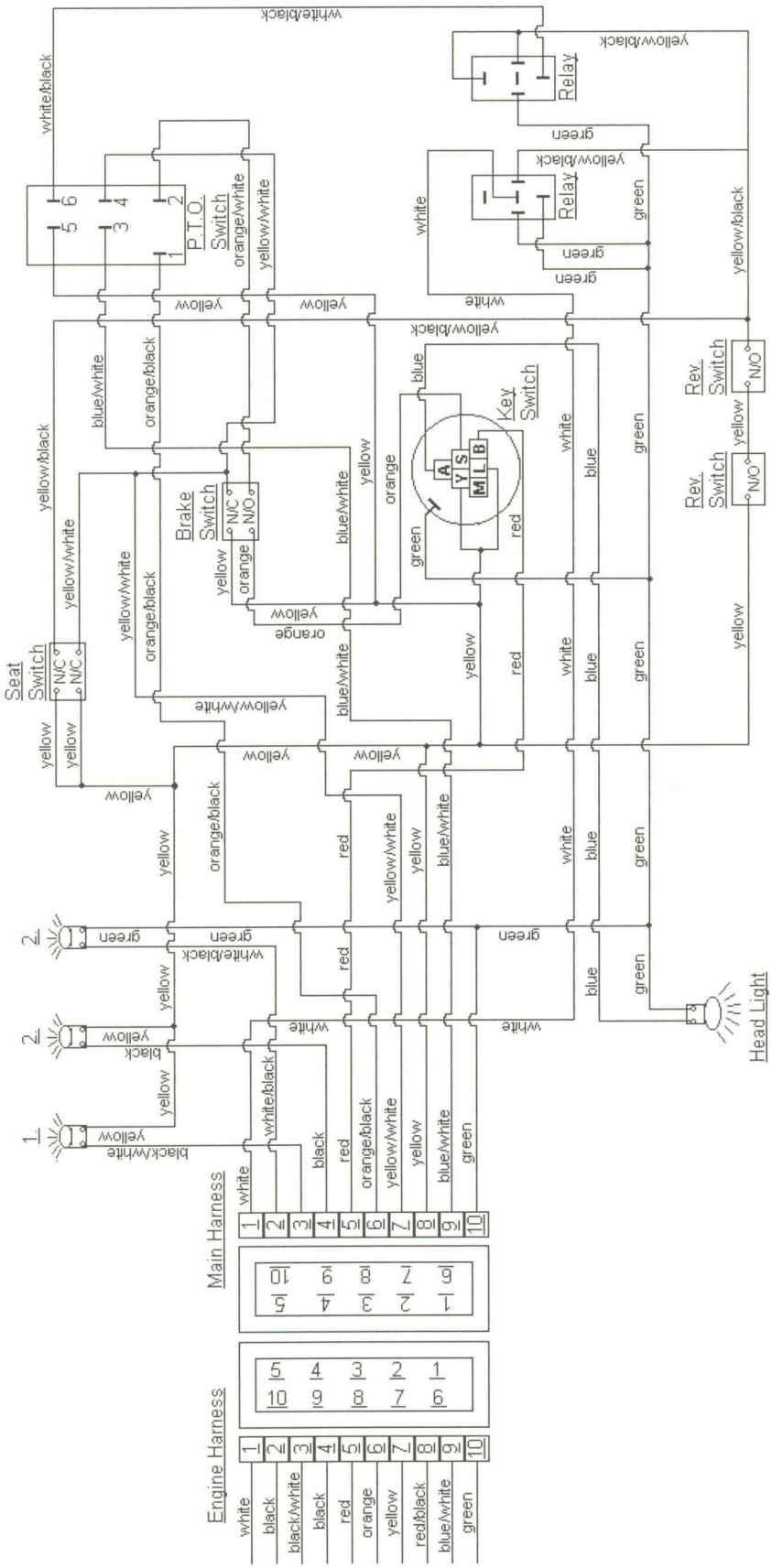
P.T.O. SWITCH	
OFF	1&2 CLOSED / 3&4, 5&6 OPEN
ON	1&2 OPEN / 3&4, 5&6 CLOSED

KEY SWITCH	
OFF	M+G
RUN w/LIGHTS	B+R+L
RUN	B+R
START	B+S



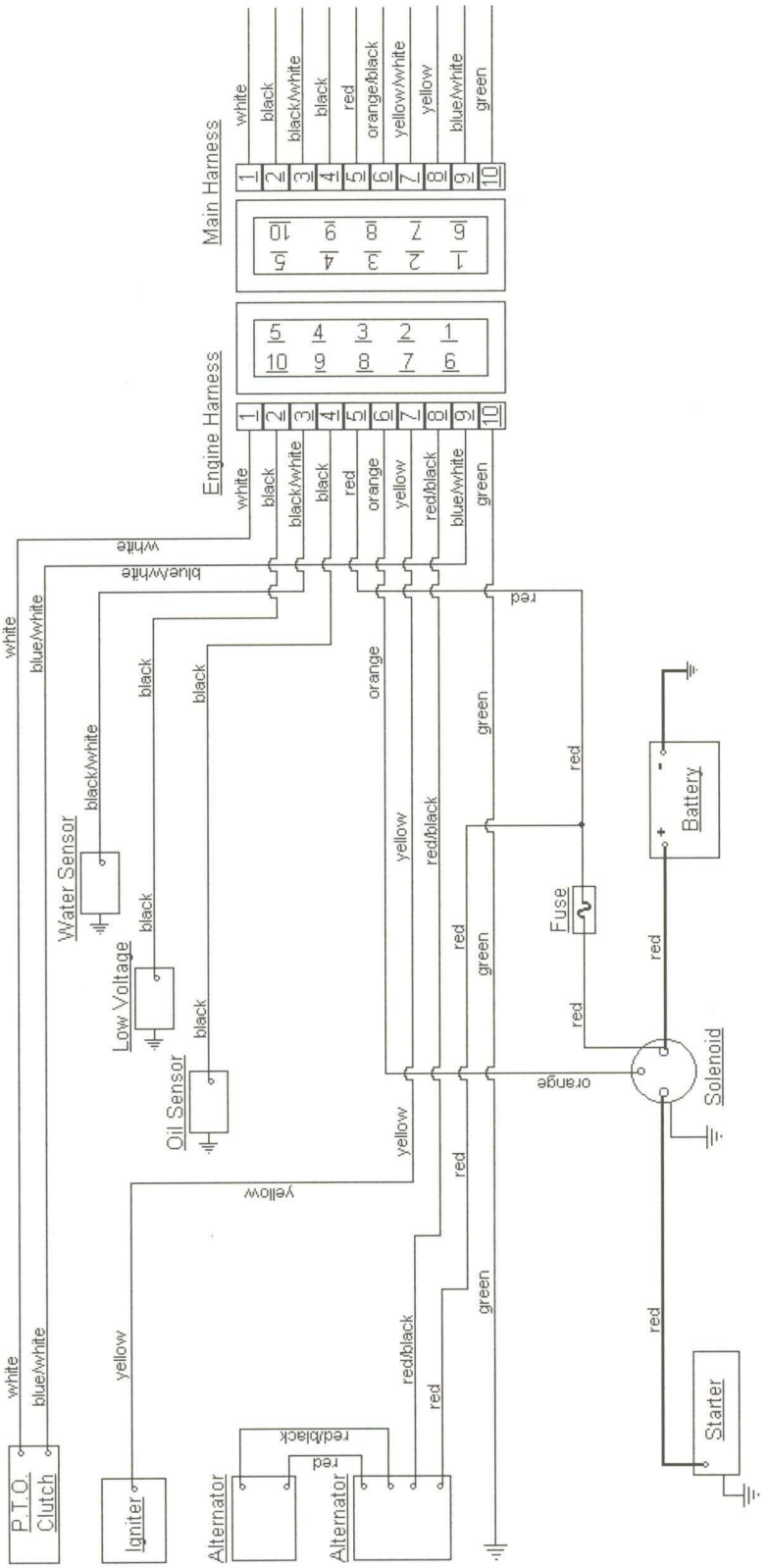
MODEL Z - 54
ENGINE HARNESS

MODEL Z - 48L
MAIN HARNESS



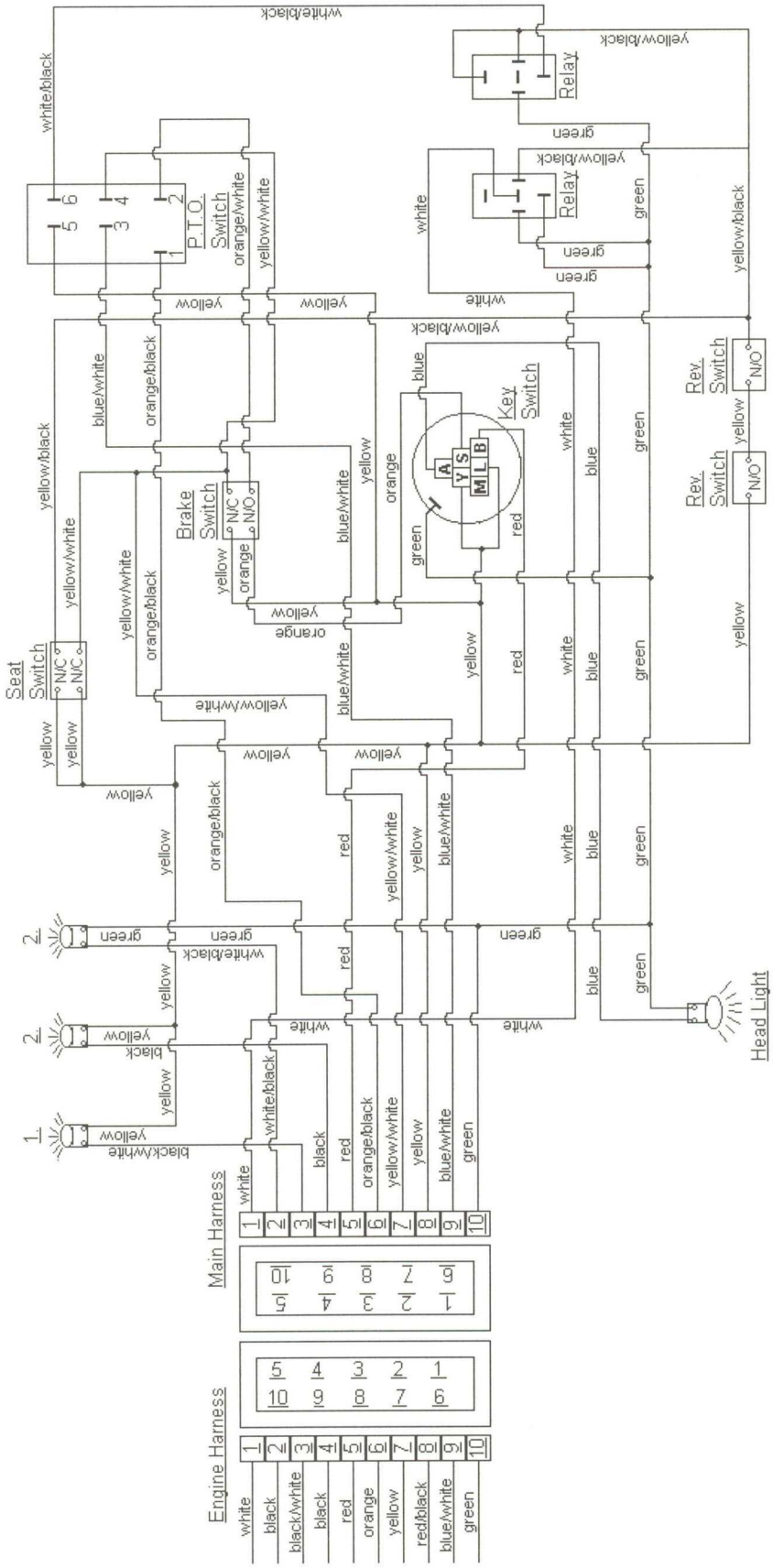
P.T.O. SWITCH	
OFF	1&2 CLOSED / 3&4, 5&6 OPEN
ON	1&2 OPEN / 3&4, 5&6 CLOSED

KEY SWITCH	
OFF	M+G
RUN w/LIGHTS	B+A+L+Y
RUN	B+L
START	B+L+S



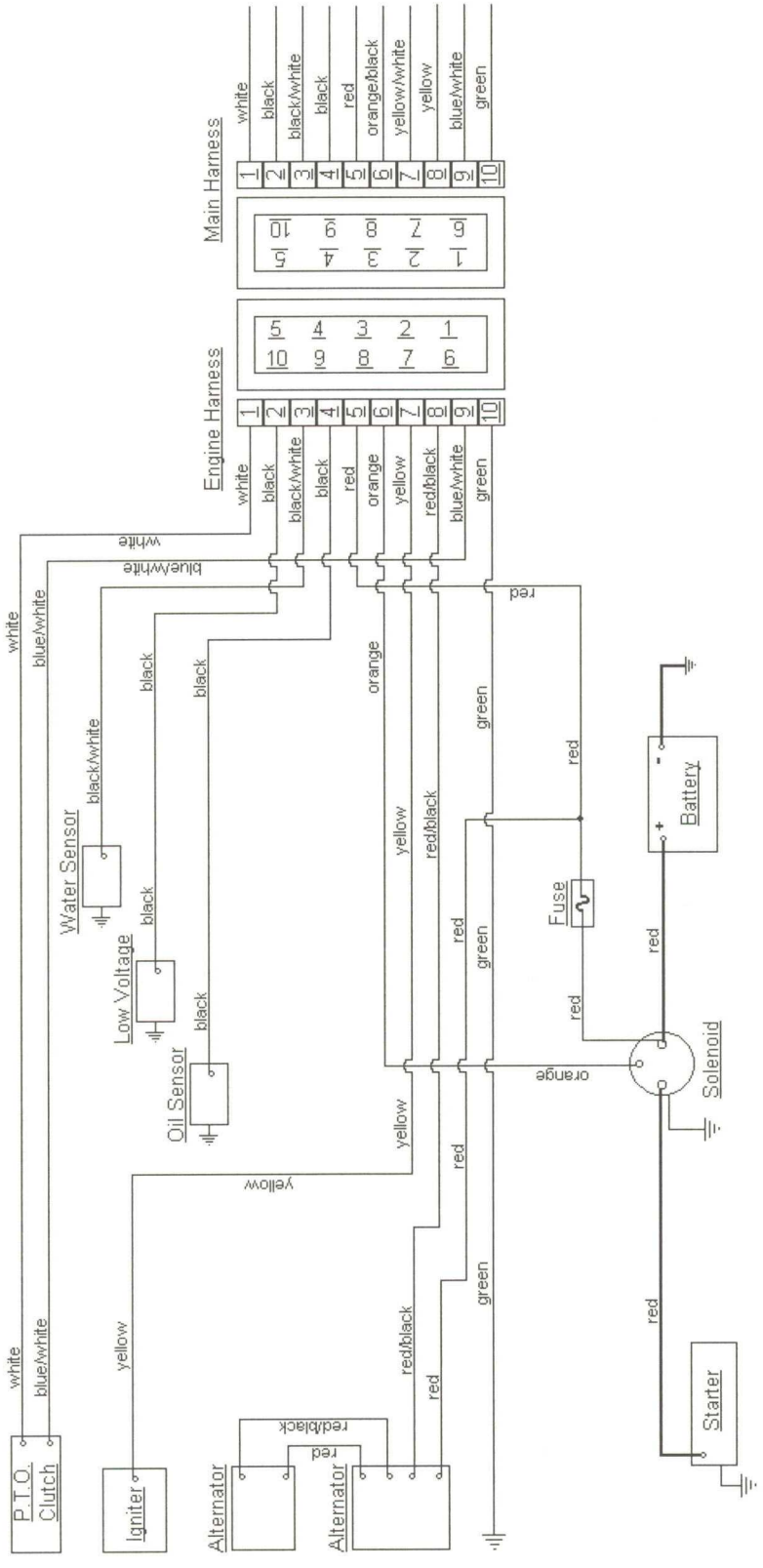
MODEL Z - 48L
ENGINE HARNESS

MODEL Z - 54L
MAIN HARNESS



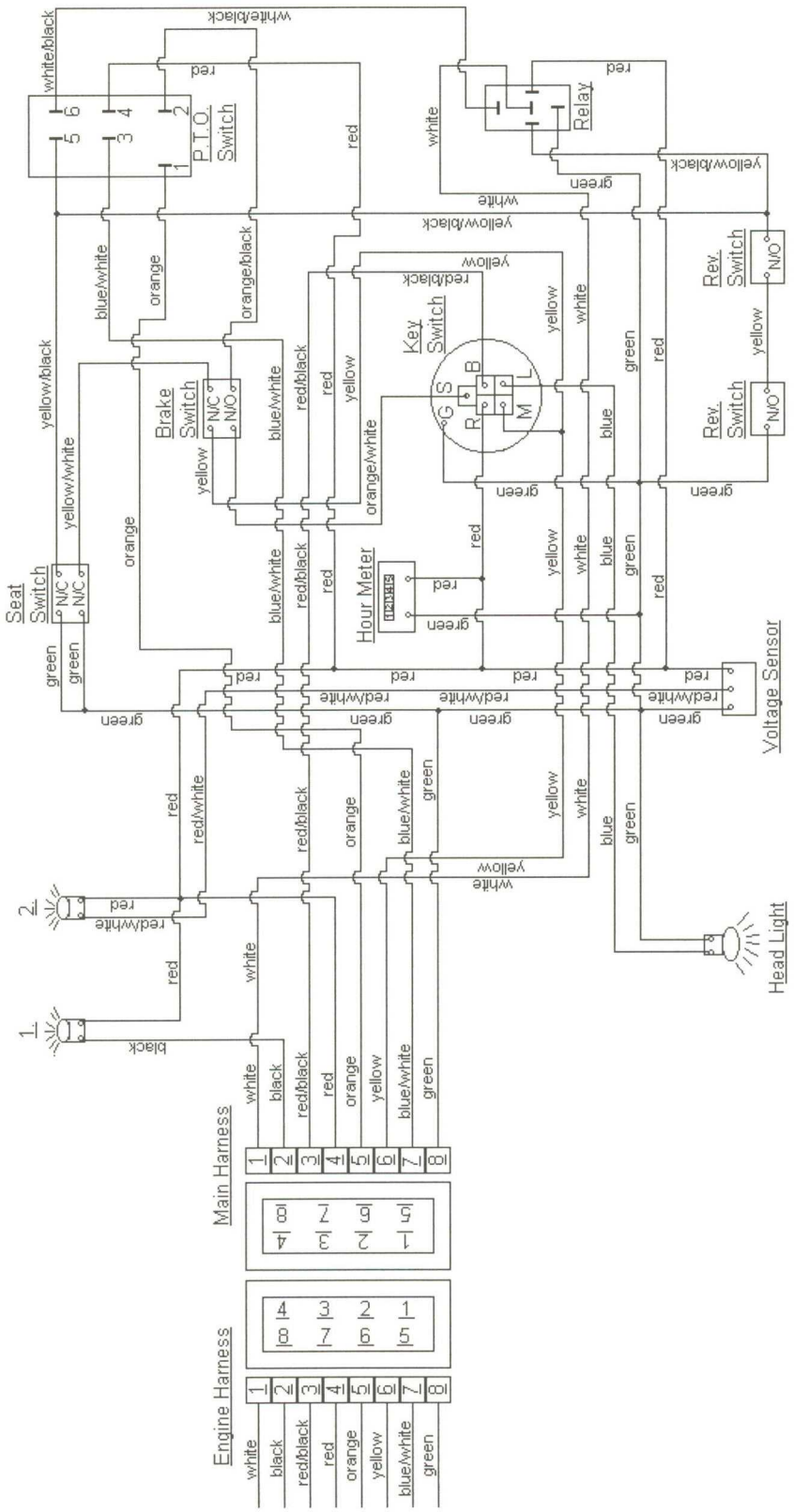
P.T.O. SWITCH	
OFF	1&2 CLOSED / 3&4, 5&6 OPEN
ON	1&2 OPEN / 3&4, 5&6 CLOSED

KEY SWITCH	
OFF	M+G
RUN w/LIGHTS	B+A+L+Y
RUN	B+L
START	B+L+S



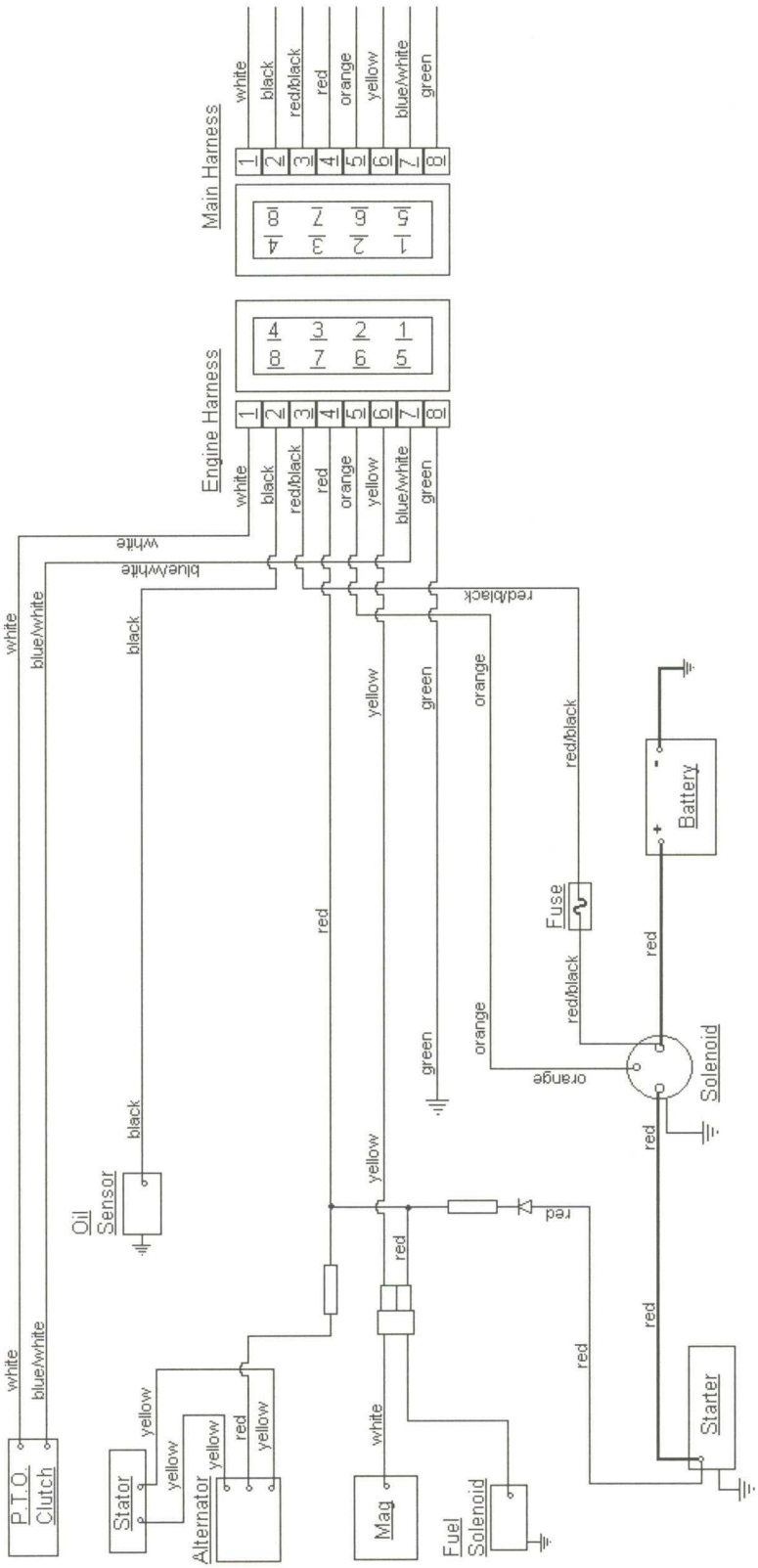
MODEL Z - 54L
ENGINE HARNESS

MODEL 364
MAIN HARNESS



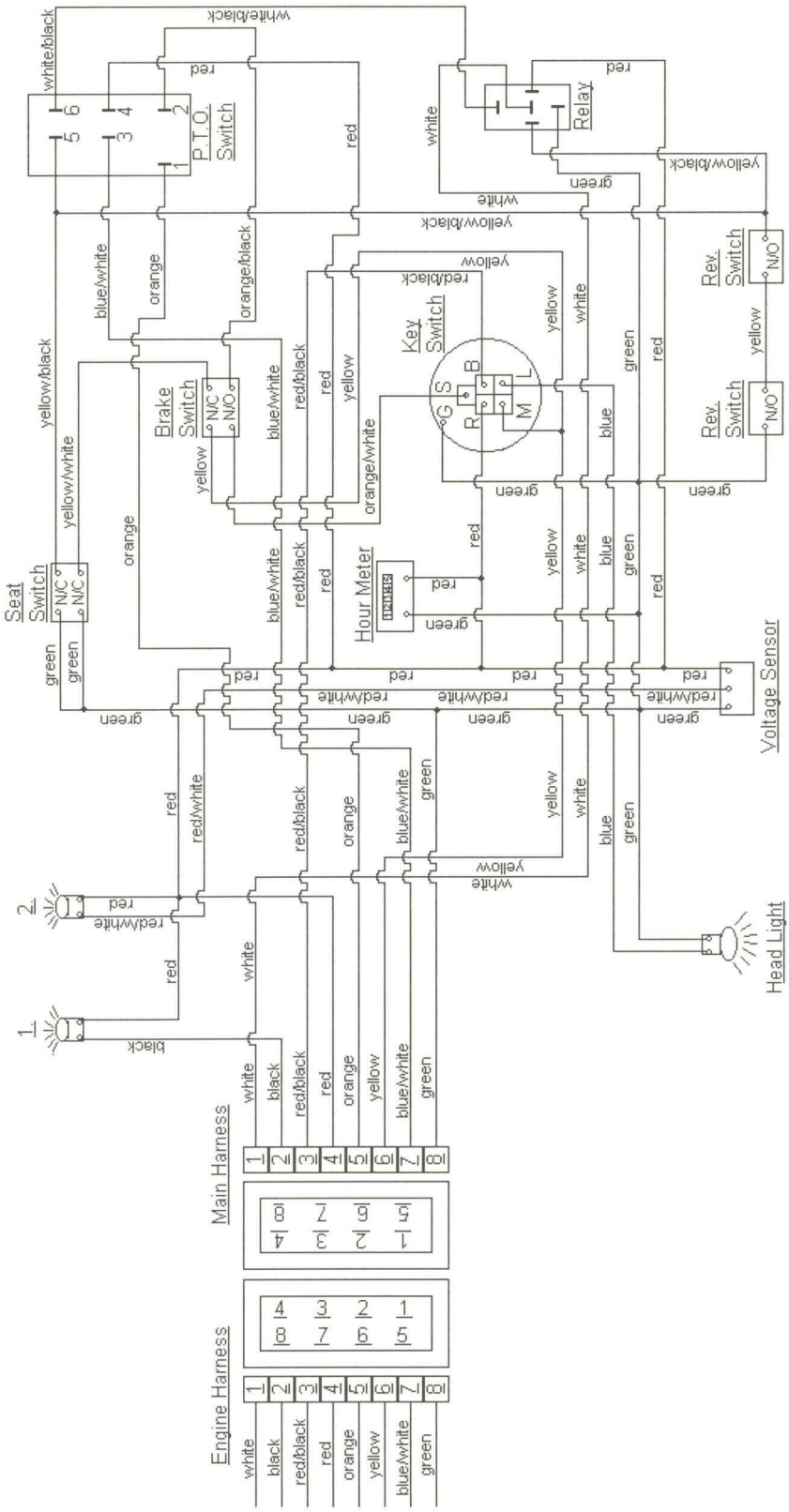
P.T.O. SWITCH	
OFF	1&2 CLOSED / 3&4, 5&6 OPEN
ON	1&2 OPEN / 3&4, 5&6 CLOSED

KEY SWITCH	
OFF	M+G
RUN w/LIGHTS	B+R+L
RUN	B+R
START	B+S



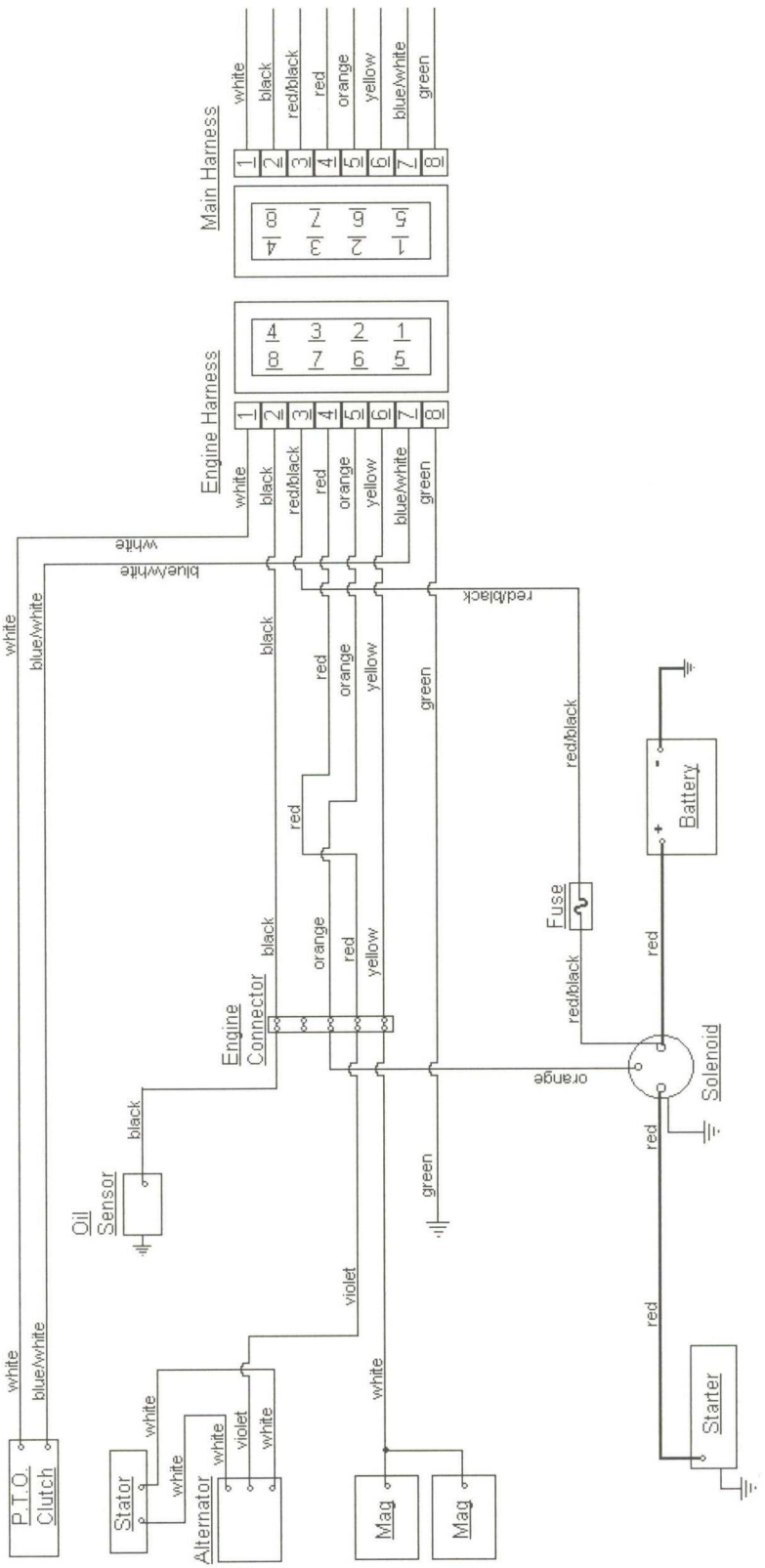
MODEL 364
ENGINE HARNESS

MODEL 365
MAIN HARNESS



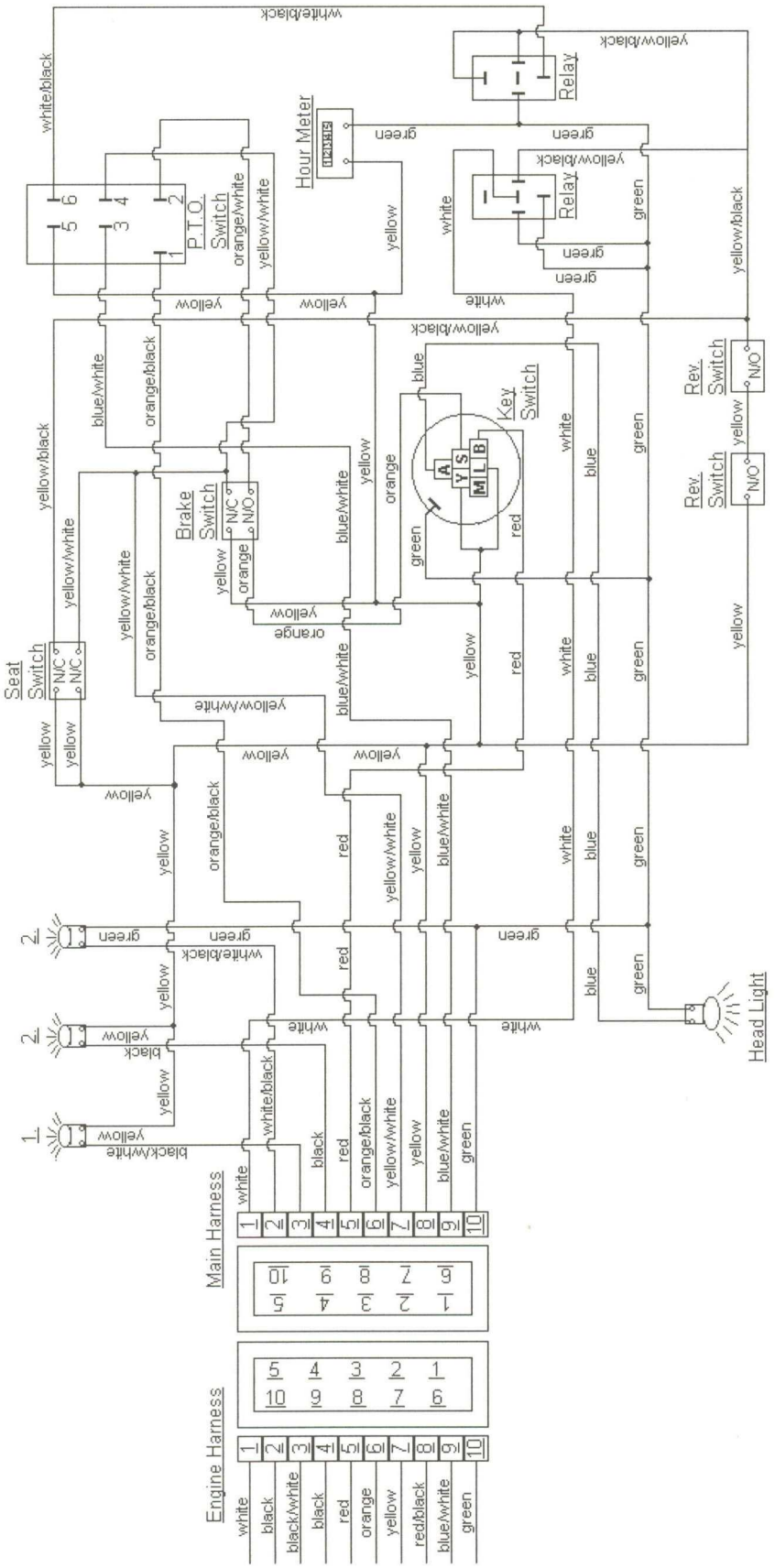
P.T.O. SWITCH	
OFF	1&2 CLOSED / 3&4, 5&6 OPEN
ON	1&2 OPEN / 3&4, 5&6 CLOSED

KEY SWITCH	
OFF	M+G
RUN w/LIGHTS	B+R+L
RUN	B+R
START	B+S



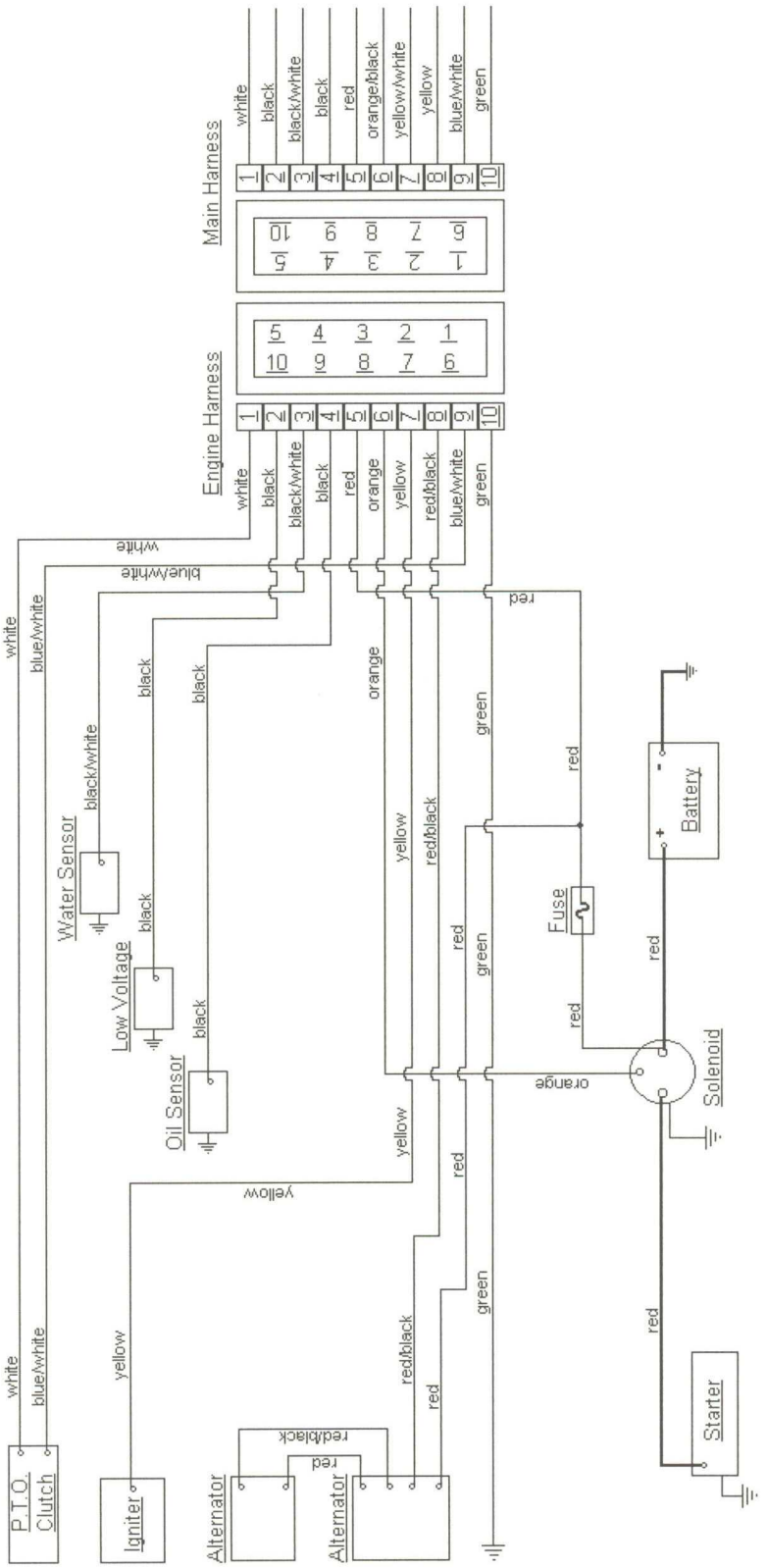
MODEL 365
ENGINE HARNESS

MODEL 365L
MAIN HARNESS



KEY SWITCH	
OFF	M+G
RUN w/LIGHTS	B+A+L+Y
RUN	B+L
START	B+L+S

P.T.O. SWITCH	
OFF	1&2 CLOSED / 3&4, 5&6 OPEN
ON	1&2 OPEN / 3&4, 5&6 CLOSED



MODEL 365L
ENGINE HARNESS

P.T.O. CLUTCH SPECS.

Model	Clutch Part Number	Voltage	Current Draw	Ohms Resistance	Crankshaft Diameter	Pulley Diameter	Comments
Z-42*	717-3389	12 Volt D.C.	4.84 amps	2.48 ohms +/- 5%	1.002"	5.893"	Use Deck Pulley 756-3100
Z-42**	717-3460	12 Volt D.C.	4.84 amps	2.48 ohms +/- 5%	1.002"	4.60"	Use Deck Pulley 756-3103
Z-42***	717-3467	12 Volt D.C.	4.89 amps	2.45 ohms +/- 5%	1.003"	4.624"	Use Deck Pulley 756-3103
Z-48	717-3389	12 Volt D.C.	4.84 amps	2.48 ohms +/- 5%	1.002"	5.893"	----------
Z-48L	717-3390	12 Volt D.C.	4.84 amps	2.48 ohms +/- 5%	1.125"	5.867"	----------
Z-54	717-3389	12 Volt D.C.	4.84 amps	2.48 ohms +/- 5%	1.002"	5.893"	----------
Z-54L	717-3390	12 Volt D.C.	4.84 amps	2.48 ohms +/- 5%	1.125"	5.867"	----------
364	717-3467	12 Volt D.C.	4.89 amps	2.45 ohms +/- 5%	1.003"	4.624"	----------
365	717-3389	12 Volt D.C.	4.84 amps	2.48 ohms +/- 5%	1.002"	5.893"	----------
365L	717-3390	12 Volt D.C.	4.84 amps	2.48 ohms +/- 5%	1.125"	5.867"	----------

Notes:

* First Production Built Units.
** 4/20/98 & Before.
*** 4/20/98 & After.

SECTION 11: Z SERIES TRACTOR

Z Series Neutral / Steering Adjustment

1. Park the unit on flat, level ground.
2. Remove the ignition key.
3. Pull outward and detach the base of the control bellow from the bellow retaining bracket.
4. Slide the control bellow upward (towards the drive control handles. See figure 1.

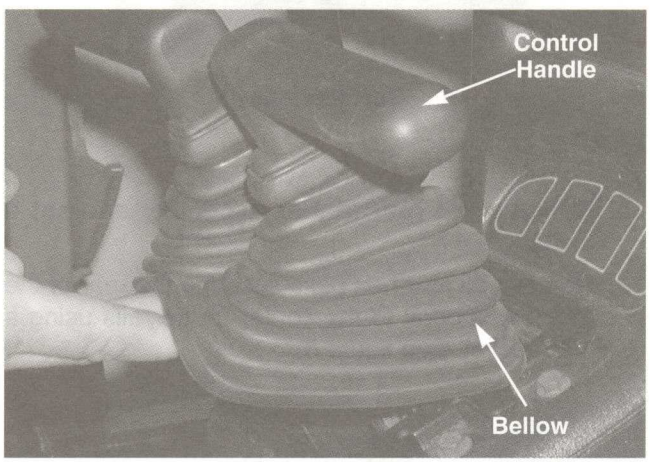


FIGURE 1.

5. Remove the carriage bolt and flange lock nut securing each drive control handle to the upper left and right bellcrank assemblies using a 1/2" socket. See figure 2.

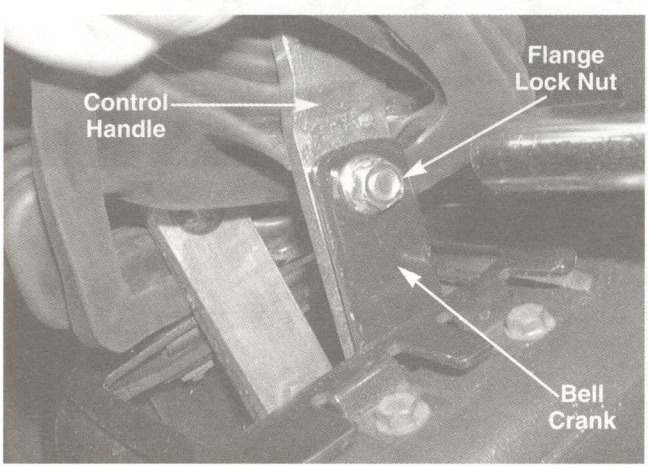


FIGURE 2.

6. Remove both of the drive control handles and the control bellow, and set them aside.
7. Remove all four hex washer head screws securing the bellow retainer bracket to the top of the support tower using a 3/8 socket. See figure 3.

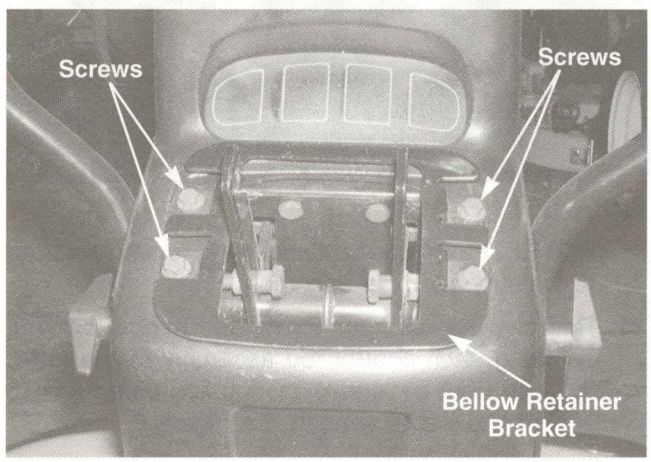


FIGURE 3.

8. Pull straight up on the console assembly and remove it from the rider.
9. Remove both safety switches from their respective holders by squeezing the retaining clips in and pushing upward until they are clear of the securing brackets. See figure 4.

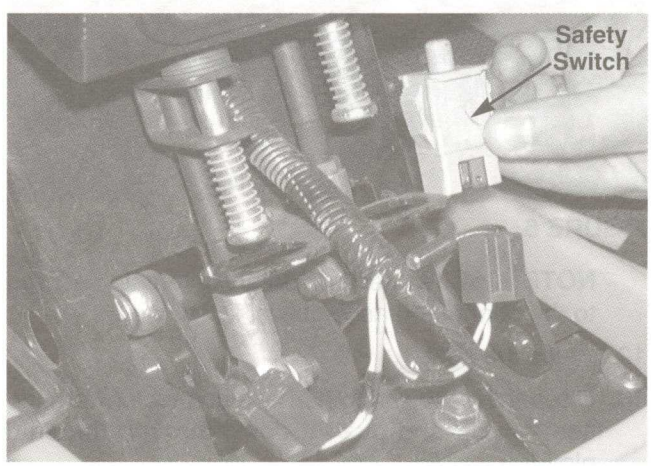


FIGURE 4.

NOTE: Pivot both upper bellcrank assemblies rearward to allow full clearance between the safety switches and the push pins.

10. Remove the hex cap screw and flange lock nut securing each control rod assembly to the upper left and right bellcrank assemblies using a 9/16 socket and 9/16 wrench. See figure 5.

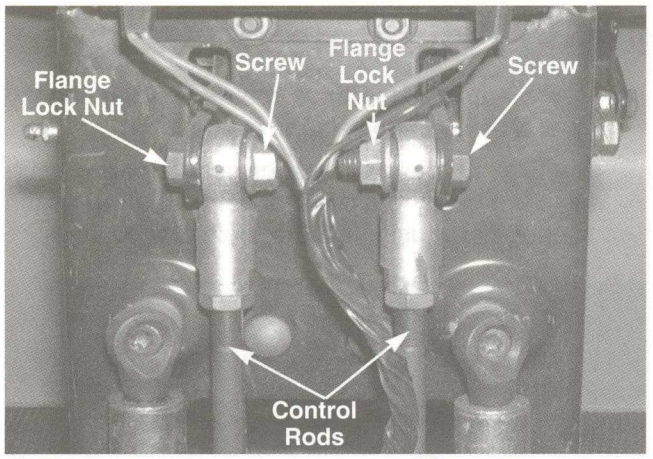


FIGURE 5.

NOTE: The damper cylinders will remain secured to the support tower assembly.

11. Remove the hex cap screw and flange lock nut securing each control rod assembly to the lower left and right bellcrank assemblies using a 9/16 socket and a 9/16 wrench. See figure 6.

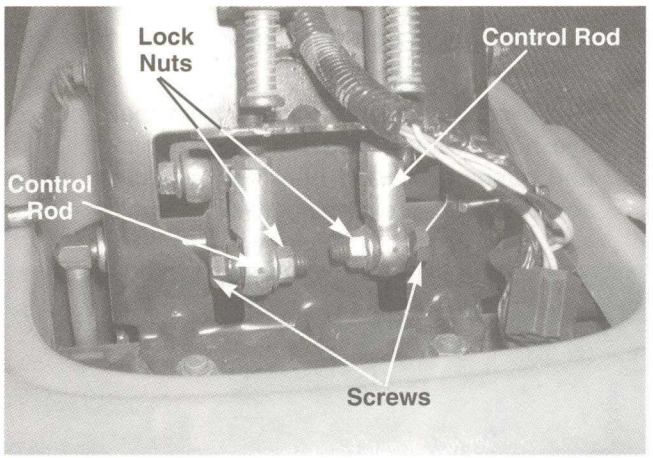


FIGURE 6.

NOTE: The damper cylinders will remain secured to the control rod assemblies.

12. Raise the seat.
13. Disconnect the wiring harness connector from the seat switch and push it down through the seat platform.
14. Remove all four hex bolts securing the seat platform to the upper frame rails using a 9/16 socket. See figure 7.

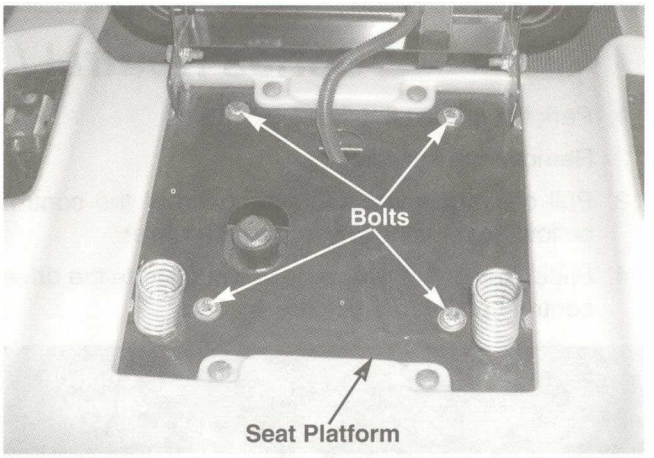


FIGURE 7.

15. Remove the rear fender assembly and set it aside.
16. Remove all four hex bolts securing the rear of the foot board body to the center frame rails using a 1/2" socket. See figure 8.

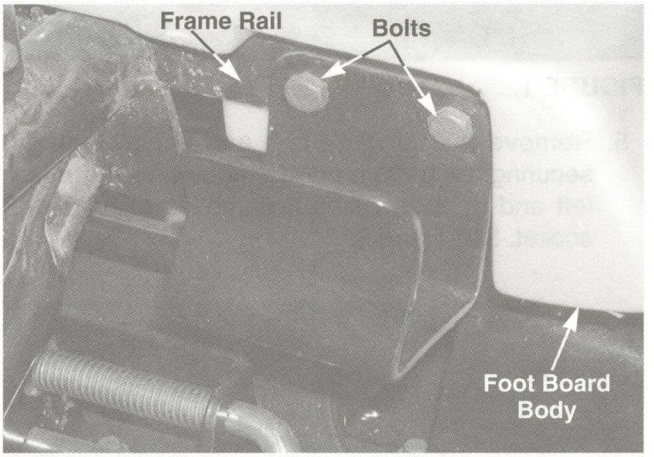


FIGURE 8.

17. Remove both front shoulder bolts securing the front of the foot board body to the front frame assembly using a 15/16 socket. See figure 9.

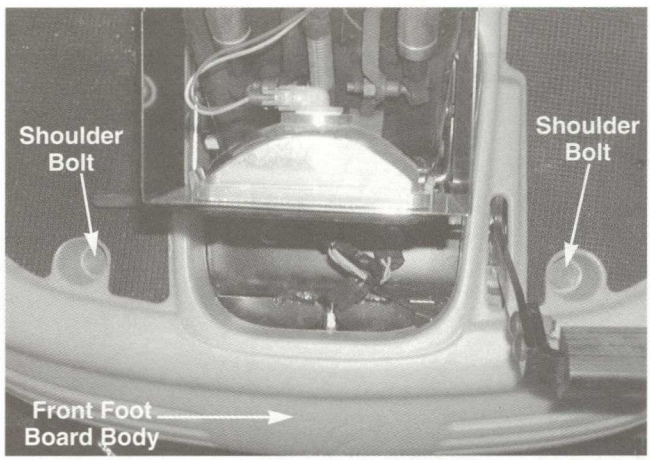


FIGURE 9.

18. Remove the hex flange lock nut and carriage bolt securing the parking brake retaining rod bracket to the support tower assembly using a 7/16 socket. See figure 10.

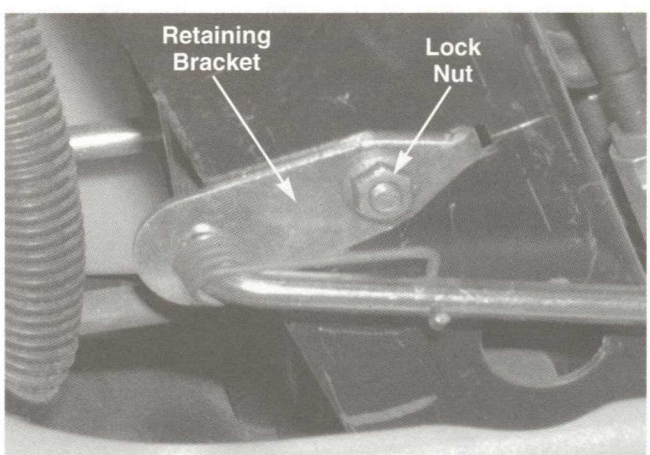


FIGURE 10.

19. Remove both hex flange lock nuts and carriage bolts securing the brake pedal to the brake arm assembly using a 9/16 socket. See figure 11.

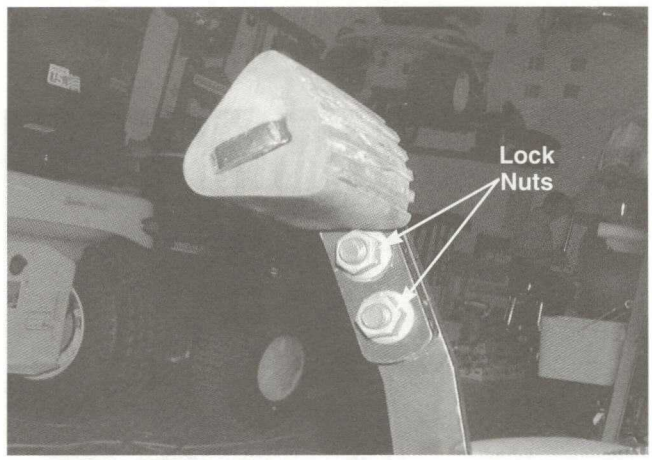


FIGURE 11.

20. Insert a 1/4" by 7" dowel pin or equivalent through the upper alignment hole of the support tower, through the upper left and right bellcrank assemblies, and out the opposite side of the support tower. See figure 12.

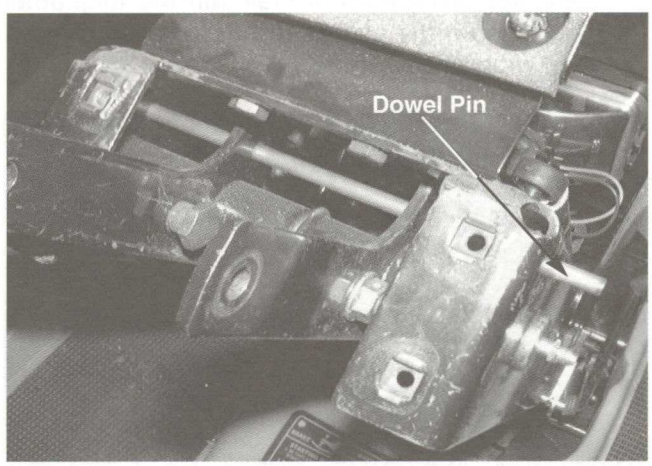


FIGURE 12.

NOTE: This is the set position for neutral.

21. Raise the front of the foot board body high enough to insert a 1/4" by 7" dowel pin or equivalent through the lower alignment hole of the support tower, through the lower left and right bellcrank assemblies, and out the opposite side of the support tower. See figure 13.

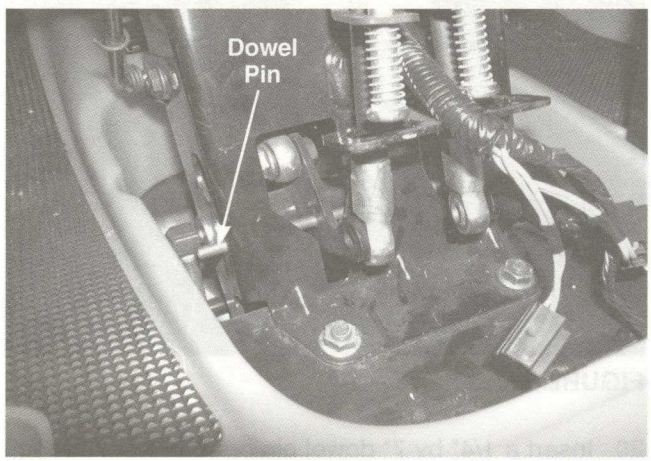


FIGURE 13.

NOTE: This is the set position for neutral.

22. With the damper cylinders secured, loosen all four hex jam nuts that maintain the alignaball positions on the control rod assemblies using a 9/16 wrench. See figure 14.

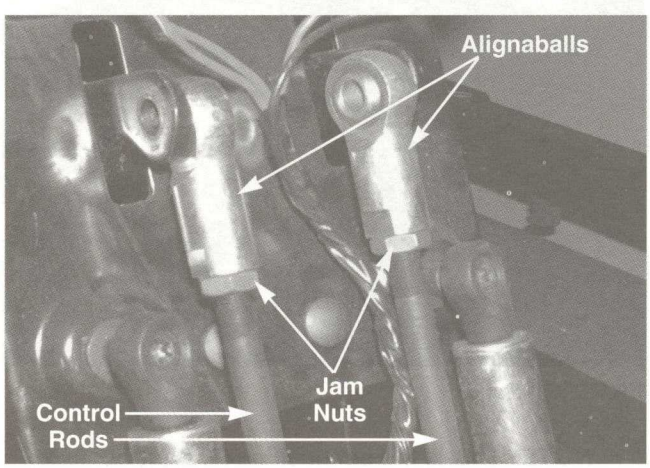


FIGURE 14.

23. With the damper cylinders secured, adjust all four alignaballs until the hex cap screws (removed earlier) slip into the upper and lower bellcrank assemblies with little effort.

24. Secure the alignaballs and hex cap screws to the bellcrank assemblies with the flange lock nuts removed earlier using a 9/16 socket and a 9/16 wrench. See figure 15.

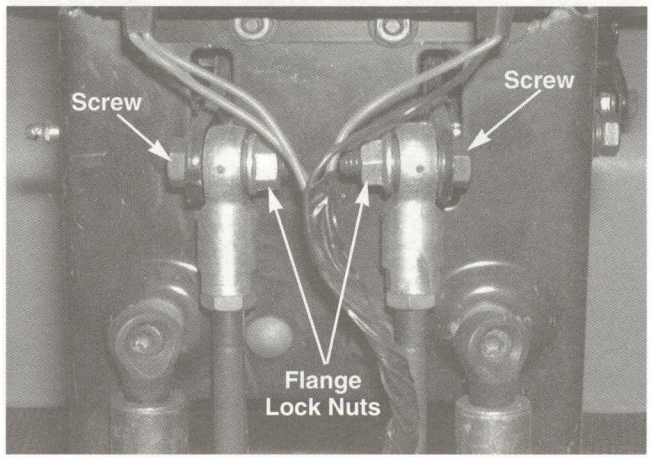


FIGURE 15.

25. Tighten all four hex jam nuts that maintain all the alignaball positions on the control rod assemblies using two 9/16 wrenches.

26. Raise the rear of the rider until the rear wheel assemblies are off the ground, and secure it with jack stands. See figure 16.

FIGURE 16.

27. Locate the hydrostatic control rods that run from the lower bellcrank assemblies to the hydrostatics. See figure 17.

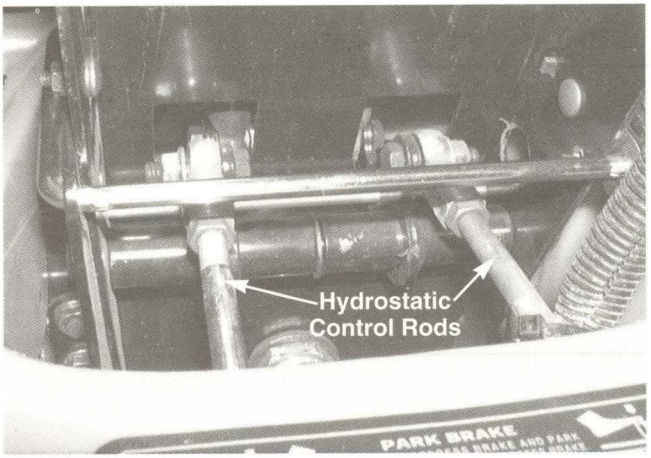


FIGURE 17.

28. Loosen all four hex jam nuts that maintain the alignaball positions on the hydrostatic control rods using two 9/16 wrenches. See figure 18.

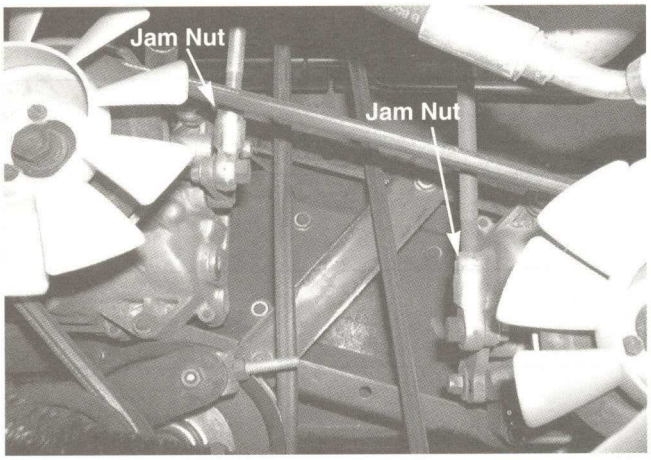


FIGURE 18.

29. Make certain the PTO is in the OFF position.
30. Depress the brake pedal, start the rider, and adjust the throttle to full.
31. Release the brake.
32. Rotate the hydrostatic control rods clockwise or counter-clockwise until the rear wheel assemblies come to a complete stop. See figure 19.

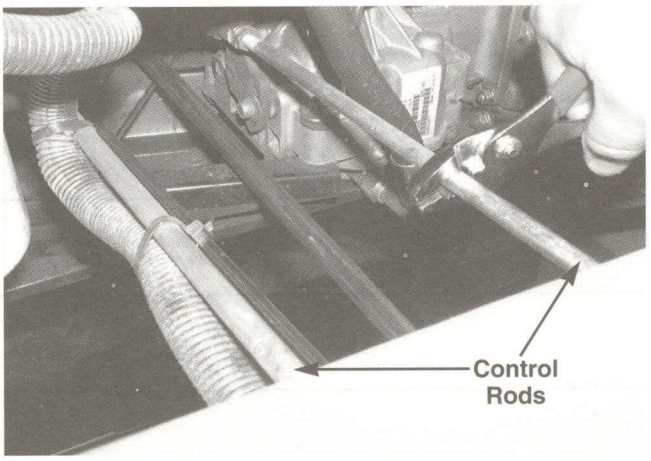


FIGURE 19.

NOTE: The rotation of the hydrostatic control rod will increase or decrease the length between the alignaballs on each hydrostatic control rod. The pump end is left handed, and the tower end is right handed.

33. Tighten all four hex jam nuts that maintain all the alignaball positions on the hydrostatic control rods using a 9/16 wrench. See figures 17 and 18.

NOTE: Make certain the hydrostatic control rods do not rotate while securing the jam nuts.

34. Shut the rider off and remove the 1/4" by 7" dowel pins from the upper and lower alignment holes in the support tower.
35. Depress the brake pedal, start the rider, and adjust the throttle to full.
36. Release the brake pedal and check the rear wheel assemblies for motion.

NOTE: If there is motion, insert the 1/4" by 7" dowel pin and repeat steps 27 through 35.

37. If a state of no motion has been achieved, shut the rider off.
38. Raise the rear of the rider and remove the jack stands.
39. Lower the rear of the rider to the ground.

REASSEMBLE THE RIDER IN THE REVERSE ORDER ABOVE.

NOTES

Removal of the ZTT Transmission From the Tractor

This section will show you how to remove the two hydrostatic transaxles from the ZTT tractor. We will also show you how to disassemble, inspect, and reassemble the gearbox. Finally we will show you how to adjust the neutral position for each transaxle to assure proper steering.

Although you may be working on only one of the transaxles, the easiest method of repair is to remove both transaxles at the same time, leaving them attached to the lower side pan.

Before beginning, disconnect the negative cable from the negative terminal on the battery. See figure 1. This will assure that no current can flow through the electrical system.

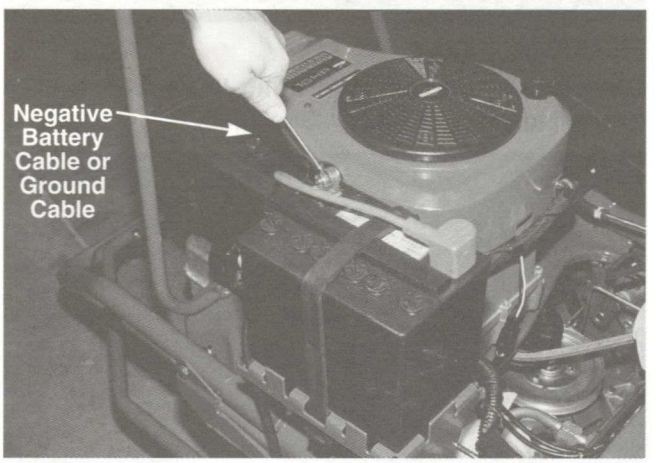


FIGURE 1.

Using a jack and blocks of wood, jack the unit up using the rear bumper for jack placement. See figure 2.

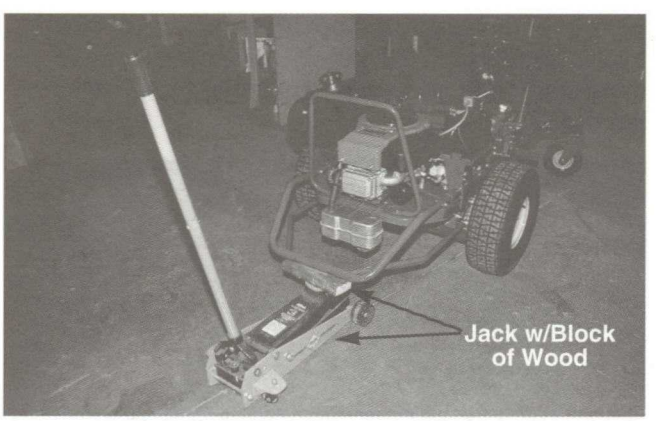


FIGURE 2.

Remove both wheels to allow easy access to the remainder of the components. See figure 3.

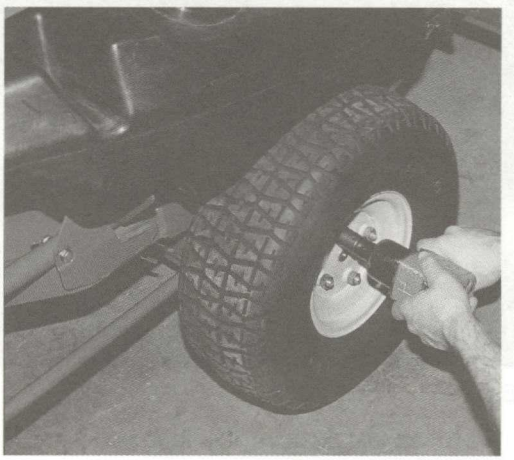


FIGURE 3.

Place wooden blocks under the skid pan and lower the unit onto the blocks while at the same time keeping some of the weight on the bumper jack. See figure 4.

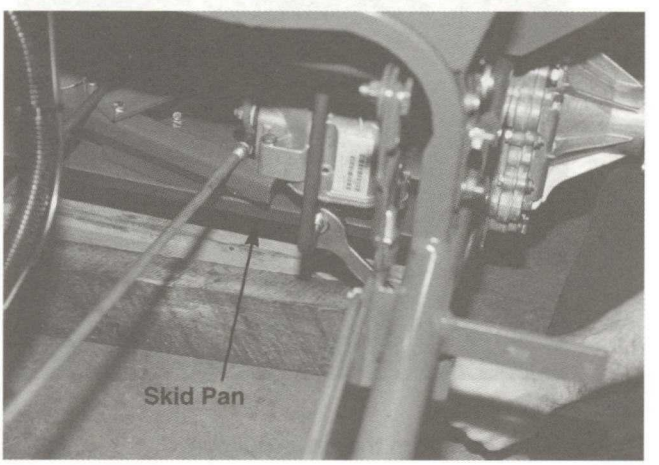


FIGURE 4.

Turn the fuel valve to the off position. It is located below the fuel tank. See figure 5.

Place a rag below the fuel line to catch any spilled fuel and disconnect the fuel line.

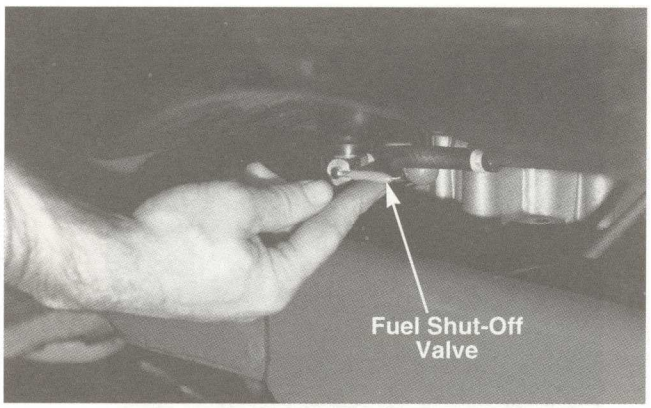


FIGURE 5.

Using a 9/16 socket, remove the four bolts attaching the fuel tank to the mounting brackets.

Remove the fuel tank from the tractor and set it aside. See figure 6.

Set the parking brake to relieve tension on the idler pulley to ease removal of the drive belt.

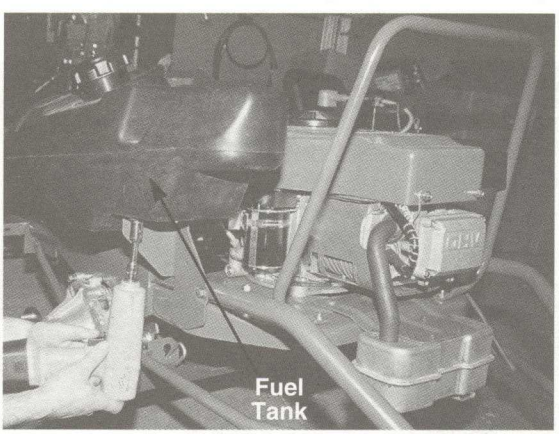


FIGURE 6.

Remove the belt from the drive pulleys.

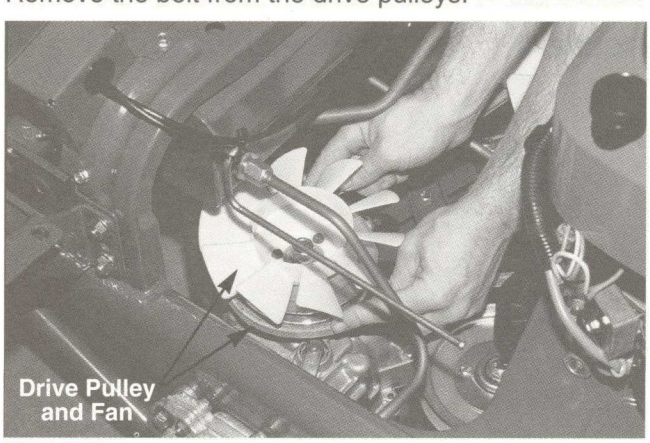


FIGURE 7.

Place a catch pan under the transmission, remove the drain plug, and drain all of the oil from transmission. See figure 8. Do this for both transmissions. This procedure will also drain the oil from the oil reservoir. Total oil loss approximately three gallons.

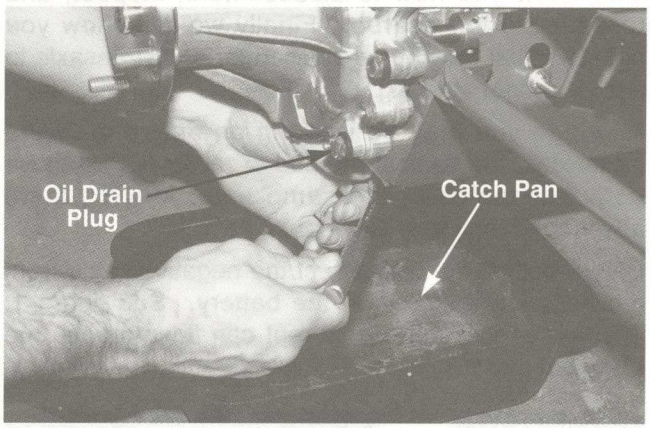


FIGURE 8.

Disconnect the four hydraulic lines where they connect to the oil reservoir. See figure 9.

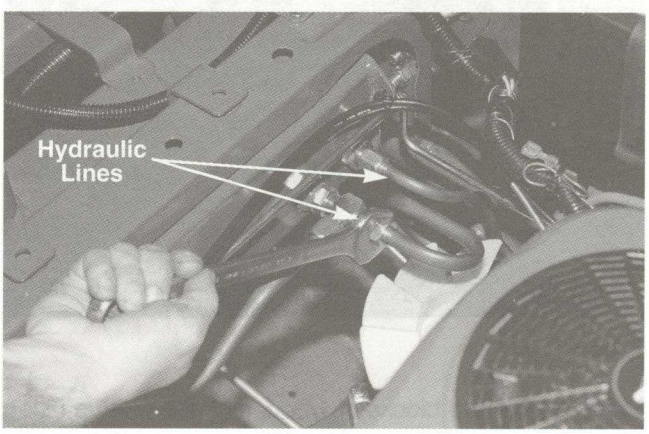


FIGURE 9.

Remove the cooling fan and pulley from each hydraulic pump. This will allow easy access to the remaining parts and ease removal of the pumps from the tractor. See figure 10.

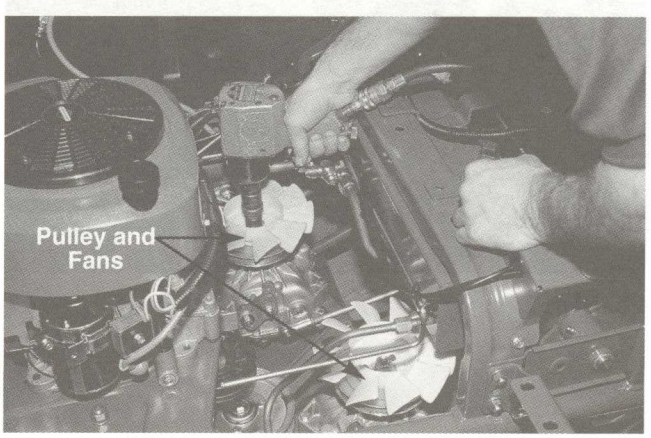


FIGURE 10.

Remove the control arm bolts where they connect to the hydrostatic pumps and lower each arm out of the way. See figure 11.

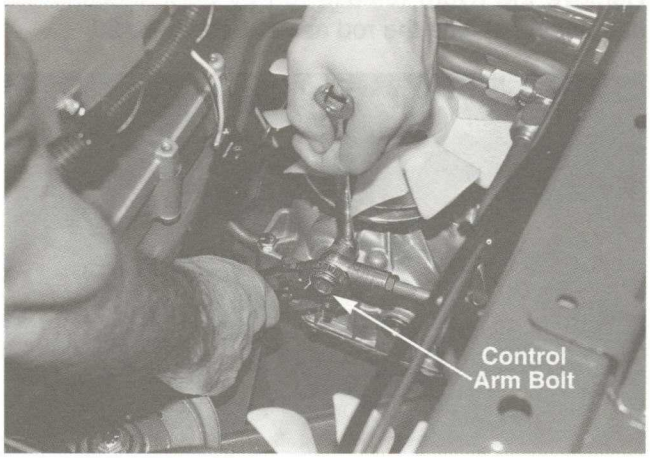


FIGURE 11.

Remove both parking brake rods from near the front of the tractor by unbolting them and separating them from the bracket. See figure 12.

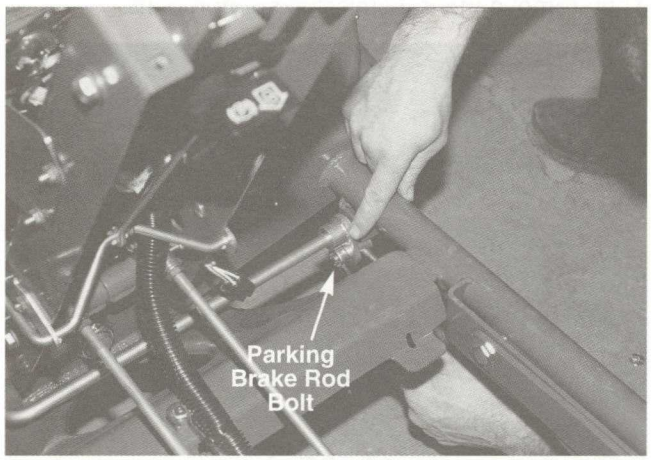


FIGURE 12.

Remove the threaded adjustment ferrules from each rod and slide the rods to the rear of the tractor, removing them from the back of the unit. See figure 13.

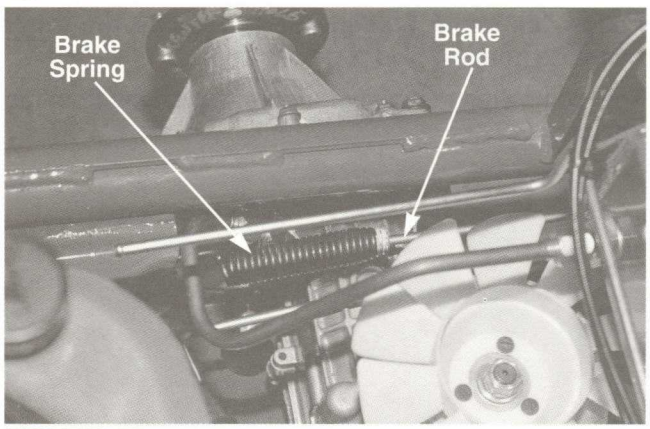


FIGURE 13.

Remove both torsion bars supporting the front of the transmission to the frame.

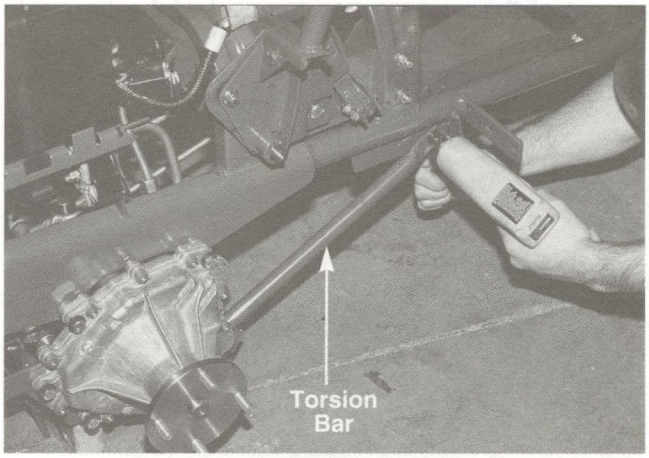


FIGURE 14.

Remove the bolts attaching the transmission to the frame. See figure 15. Do this for both transmissions. The blocks of wood under the pan should support the pan and keep it from dropping as you remove the bolts.

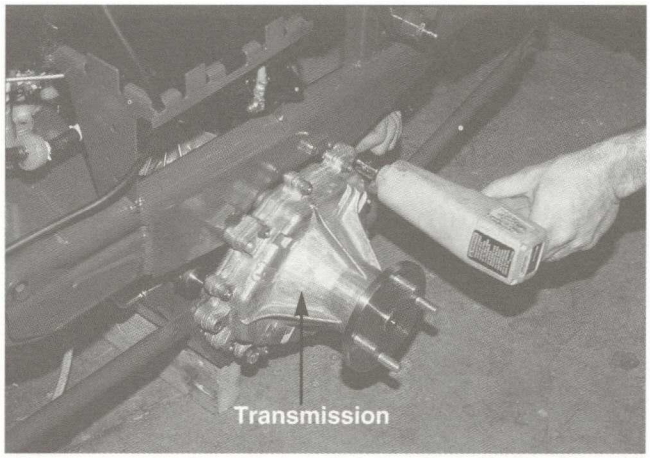


FIGURE 15.

Jack the unit up to raise the frame above the transmissions.

FIGURE 16.

Loosen the lower bumper, see figure 17 and strap it up out of the way to ease removal of the transaxle skid pan.

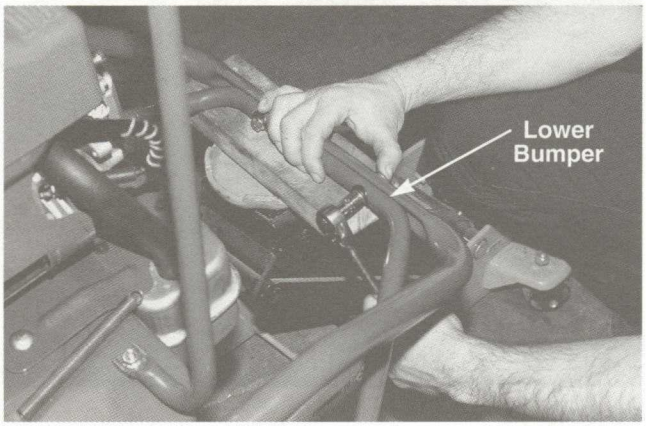


FIGURE 17.

Slide the transaxle assembly from under the tractor.

If you are only repairing one transmission, follow the remaining steps to remove only the transmission you will be working on.

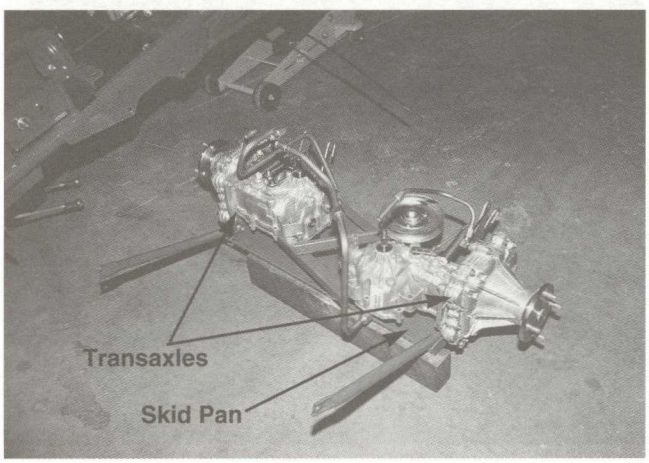


FIGURE 18.

Remove the hydraulic lines from the transaxle.

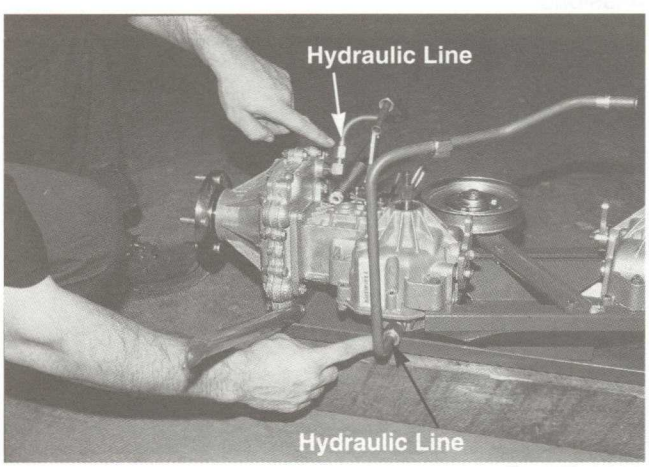


FIGURE 19.

Remove the brake spring. See figure 20.

Remove the hydro release rod by disconnecting the hairpin and setting the rod aside. See figure 20

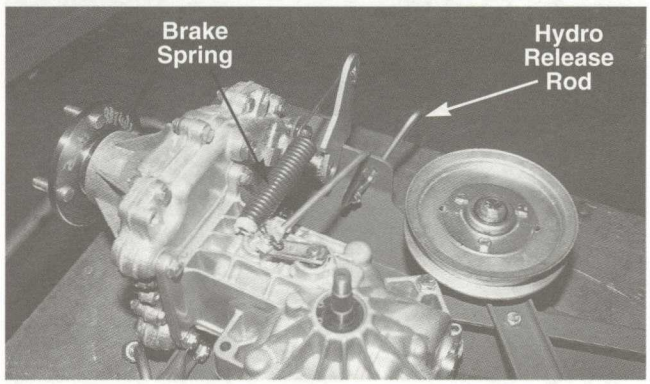


FIGURE 20.

Remove the two hydrostatic transmission support bolts.

Then remove the transmission support bolts.

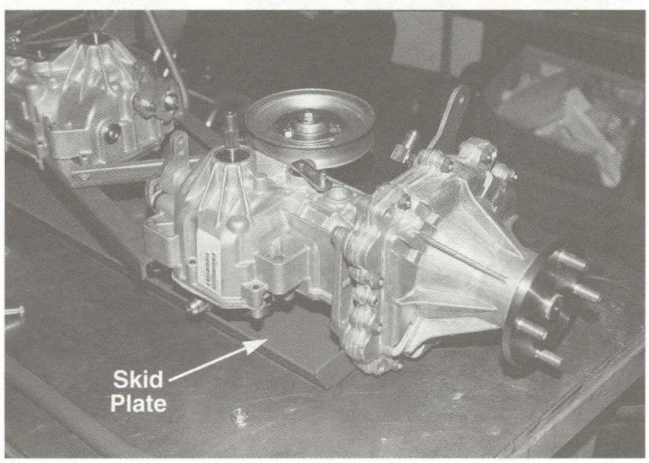


FIGURE 21.

Remove the transaxle from the skid pan and place it on your work bench.

Follow the same procedures to remove the other transaxle from the skid plate.

This completes removal of the transmissions from the tractor.

REINSTALLING THE TRANSAXLES

To ease reassembly, place the skid pan on a work-bench.

We will start by installing the right side transaxle first by placing the transaxle onto the skid pan.

Next install the 5/16 inch hydro pump bolts. Do not tighten until after you have installed the 3/8 inch trans-mission bolts.

Attach the front support strut to the skid plate and transmission with a 3/8 inch bolt.

Use the remaining two bolts to attach the transaxle to the frame.

Tighten all bolts holding the transaxle to the skid pan.

Attach the hydro release rod to the transaxle with the hairpin.

Install the top hydraulic fluid line first, followed by the lower line. Graphic “REVERSE ANGLE”

Finally, attach the parking brake tension spring.

Install the left side transmission in a similar fashion.

Attach the hydro bolts.

Attaching the front support strut and remaining trans-mission bolts.

Tighten all bolts.

Attach the hydro release rod.

Followed by the parking brake spring.

Then attach both hydraulic lines.

Using a helper, place the assembled transmissions and skid on wooden support blocks and slide the assembly into place under the tractor. ALign the pan with the tractor frame and place the control rods onto the pan for later assembly.

Lower the frame onto the transmission assembly and align the mounting bolt holes.

Maker sure that the hydro lines are clear and install the mounting bolts.

Attach the front support bars on both sides of the unit.

Remove the rear mounting bolt, and attach the lower bumper tube.

Repeat this procedure for the other side.

Tighten all bolts attaching the transaxle and skid plate to the tractor frame. Torque all bolts to proper specifications.

Install the right hand hydraulic line. Hand tighten each pair of fittings.

Before installing the remaining lines, install both hydraulic pulleys. Then torque to spec.

Once you have finished installing the pulleys you can finish installing the hydraulic lines. Torque all fittings to spec. The lower fitting on the right hydro pump is hard to get to. We are showing this being done with a crows foot wrench.

Next we will install the parking brake rods. Slide the rod through the tension spring, through the holes in the frame brackets and forward to the parking brake bracket.

Install the ferrules on each brake rod, shorten or lengthen to line up with the brake lever. Bolt the ferrule to the brake lever.

Before connecting the control rods, check that the hydro control lever is straight up in a vertical position. This is a rough estimate for the neutral position.

You can then proceed to connect the two control rods. Attach the control rod by loosening the jam nut and adjusting the ferrule until it lines up with the hydro control lever. Insert the retaining bolt and secure with the self locking flange nut. Finally, tighten the jam nut. Do this for each transaxle.

Install the drive belt by placing it over the engine pulley, slipping it over the hydro cooling fans and around the pulleys. When you release the parking brake the idler pulley should engage the drive belt.

Place the fuel tank over the two mounting brackets. Fasten with the four mounting bolts. Make sure you are using the proper bolts. Using bolts that are longer than the originals can strip the threads or puncture the fuel tank.

Connect the fuel tank hose to the fuel line and secure with a hose clamp.

Install both wheels and torque to specifications.

Lower the unit to the ground and remove the jack. Tighten the lower rear bumper support where it connects to the main bumper.

Attach the negative battery cable to the negative terminal, tighten, protect the terminal with the rubber cover.

Perform a neutral test to make sure the unit remains in neutral when stopped and does not creep or turn in either direction.

Transmission Disassembly

1. REMOVE TRANSMISSION FROM TRACTOR. See figure 1.

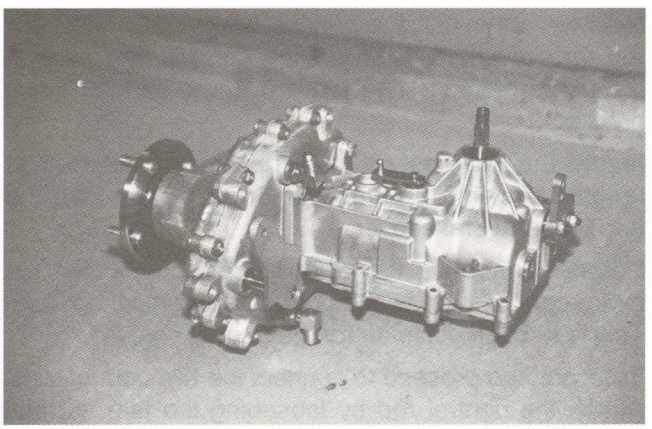


FIGURE 1.

2. Using an 11/16 wrench, remove the hydraulic fittings. This will allow easy removal of the nuts attaching the hydrostatic pump. See figure 2.

   NOTE: The fittings have "O" ring seals up against the washer. It is important not to damage it during removal. Also notice that the housing has a machined surface to accommodate the "O" ring that should not be scratched or damaged during disassembly. This assures a good mating surfaced between the "O" ring and housing.

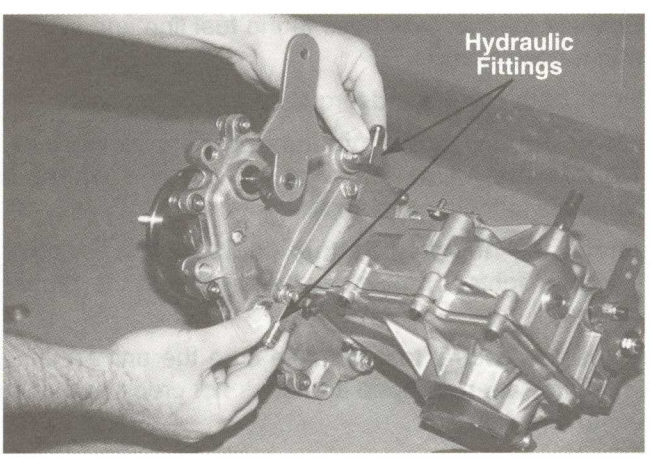


FIGURE 2.

3. Separate the hydrostatic pump from the housing by using a 9/16 wrench and removing the four nuts securing the pump. See figure 3.

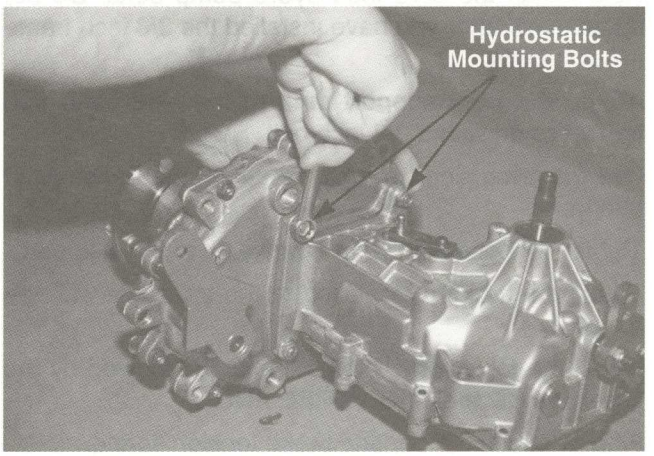


FIGURE 3.

4. While separating the pump from the housing notice that the input pinion gear slides easily on and off the shaft. Make sure that the gear does not fall into the transmission housing during removal. Also notice that the four studs that stick out of the housing are pressed into the housing. When you remove the pump, do not jar these studs or allow them to fall into the housing. See figure 4.

   NOTE: There is an "O" ring on the pump housing that should be inspected and replaced if necessary.

   Also make sure that the sealing surface is clean and not scratched or damaged in any way.

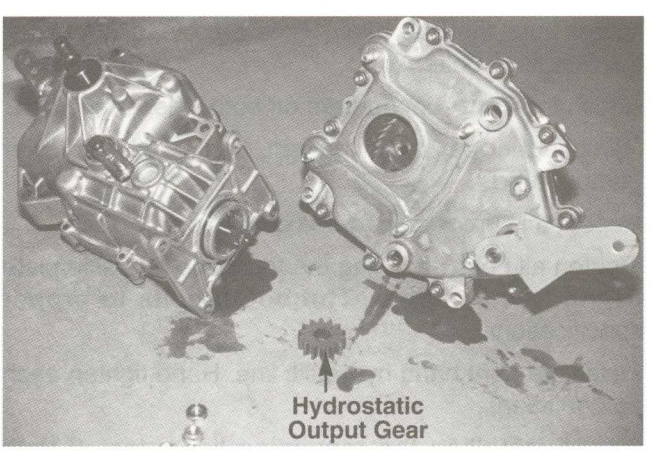


FIGURE 4.

5. Remove the brake actuating arm from the shaft by supporting the shaft and housing with some blocks of wood so that you do not damage the shaft and components during disassembly. See figure 5.

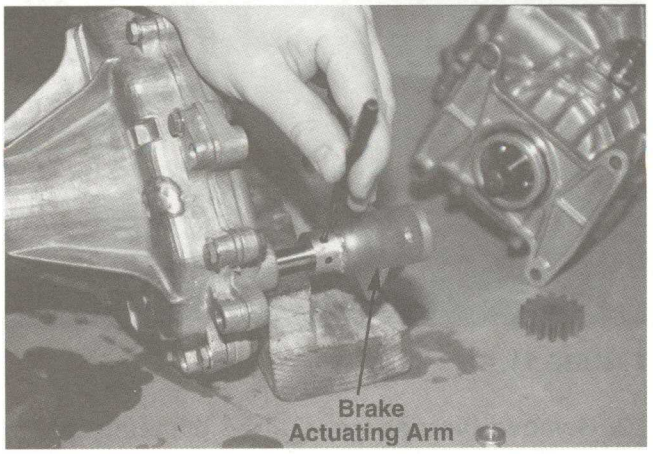


FIGURE 5.

NOTE: Using a punch, tap out the roll pin to allow removal of the arm from the shaft.

6. To disassemble the housing halves remove the housing bolts with a 7/16 inch wrench and socket. See figure 6.

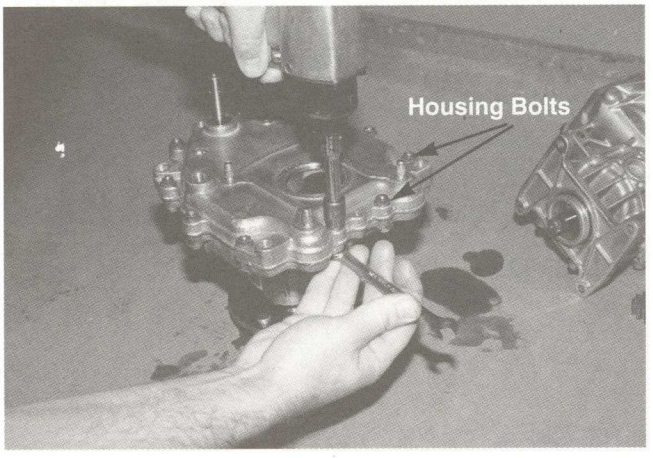


FIGURE 6.

NOTE: On production models of this transmission we will not be using washers on these bolts. During reassembly, it is important to remember not to overtighten these bolts and stretch them.

7. To separate the housing halves, use a paint scraper or similar tool to pry the halves apart. Work around the housing to evenly release the housing halves. See figure 7.

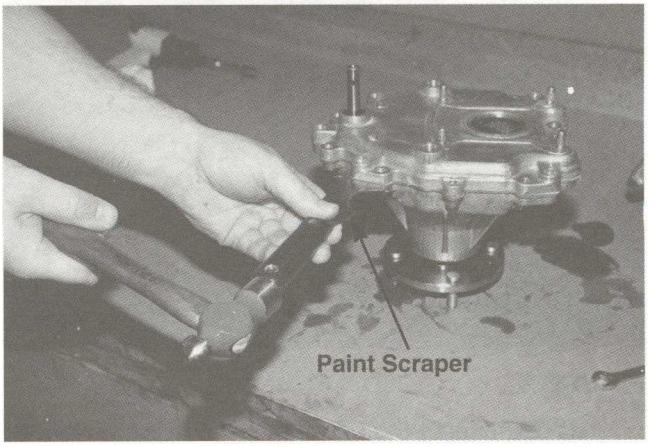


FIGURE 7.

NOTE: The needle bearing inside the housing half. Protect this bearing during repairs to keep dirt or foreign matter from damaging it. This is a press fit bearing. If it is damaged, it will have to be removed by prying or cutting it out without damaging the housing and pressing in a new bearing. Be sure that the face of the bearing seats below the surface of the housing.

8. Visually inspect the parts in the housing. Check that the shim is in place and inspect the gear teeth for any obvious damage. Remove the shin and make sure it is not waved like a potato chip, an indication of heat or excessive wear. See figure 8.

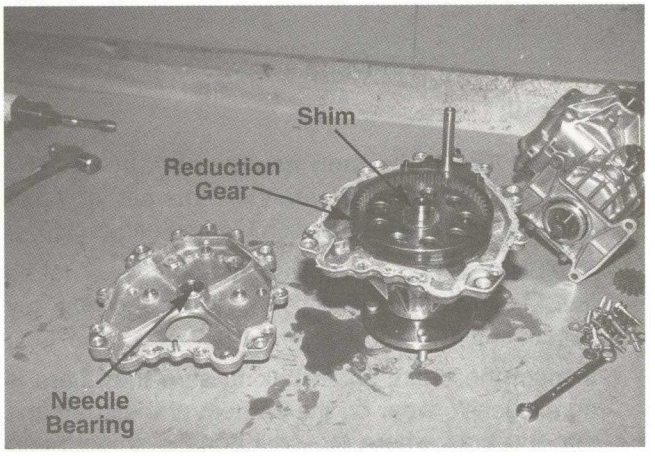


FIGURE 8.

9. Remove the reduction gear and inspect for missing teeth or irregular wear patterns. See figure 9.

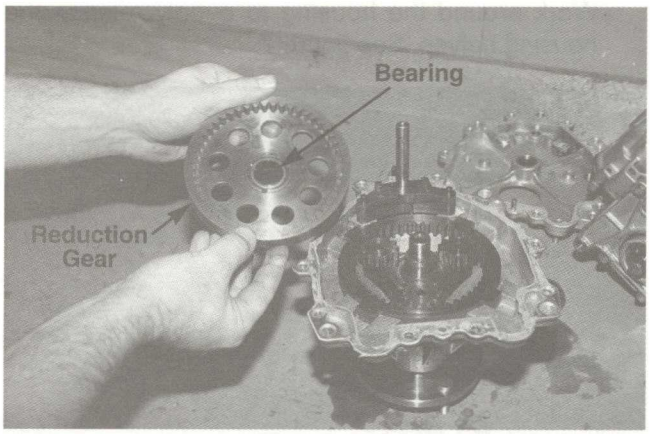


FIGURE 9.

NOTE: Inspect the bearing for any visible wear or damage and make sure that the bearing face is below the surface of the gear and centered within the gear.

Flip the gear over and inspect the teeth on the reduction gear for damage.

Production gears will not have the pins and screws and will be a one piece assembly.

10. Remove the brake assembly by first removing the brake spring, then remove the brake shoes, shaft and two pins. See figure 10.

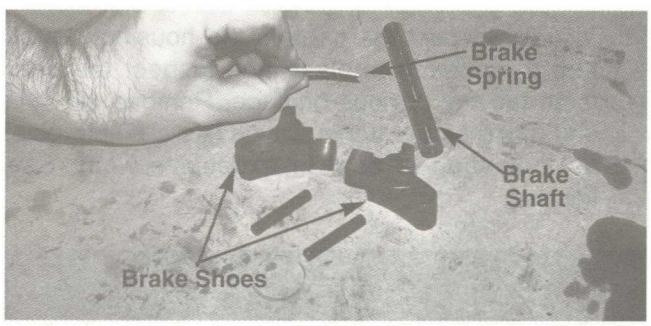


FIGURE 10.

NOTE: The parts then easily come apart. The shoes are symmetrical, are the same part and part number, and can be reassembled on either side.

The brake spring is slightly bent and should not be flat. Make sure it is not deformed or showing any signs of fatigue.

Inspect the brake shaft making sure that there is no excessive wear on the corners of the shaft and that the area where the seal rides is smooth and clean and not worn by the seal. This shaft has two holes. There will only be one hole in production units.

11. Remove the internals from the housing and inspect them for damage. See figures 11 and 12.

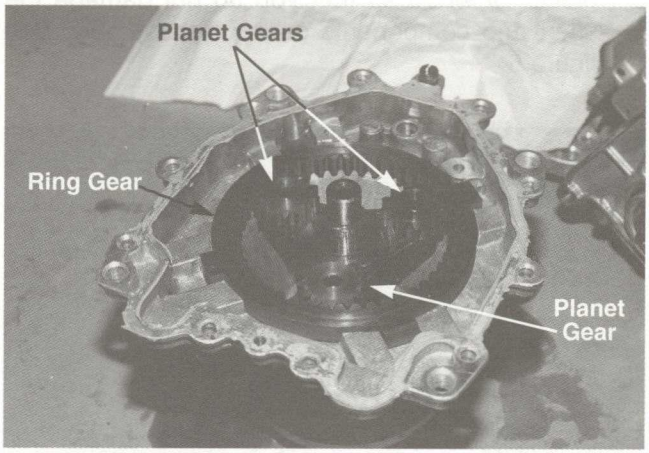


FIGURE 11.

12. Remove the ring gear, three planetary gears which come off the carrier, and the carrier which is splined to the shaft. All of these parts should be a slip fit and come off easily. See figures 11 and 12.

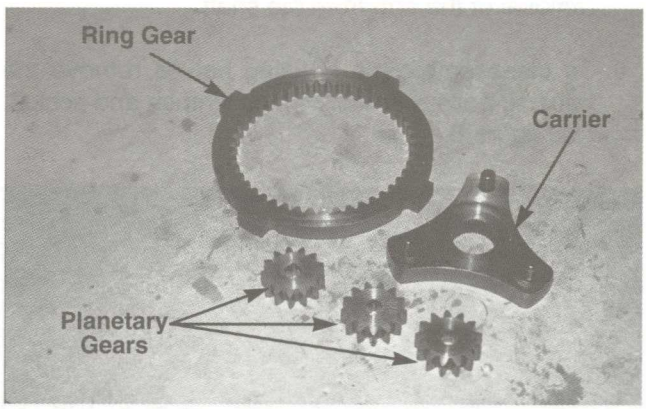


FIGURE 12.

13. The axle bearing is placed into the housing and is held by a snap ring that is used to keep the bearing in place under load. The axle is pressed through the bearing and is held in place by a smaller snap ring. See figure 13.

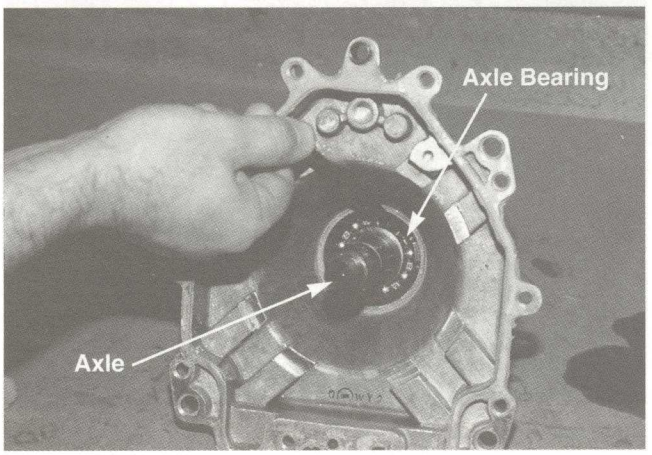


FIGURE 13.

14. Remove the axle from the housing, first remove the snap ring from the axle. See figure 14.

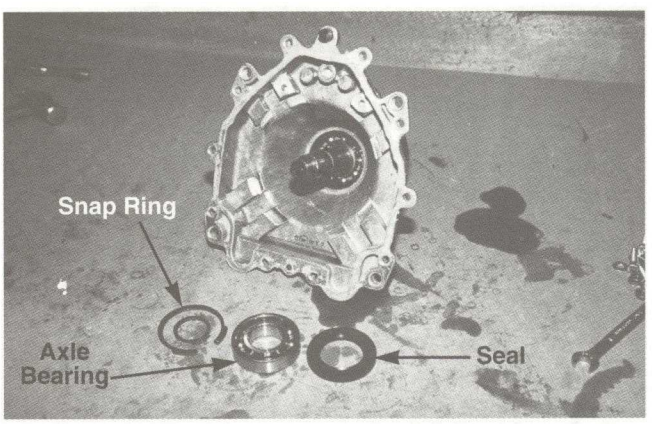


FIGURE 14.

NOTE: Support the housing using pieces of tubing. You want to support the housing on its body and not the ears which may break off. Leave enough travel for the axle to fall out and press on the end of the axle to remove it.

15. When you press the axle out of the bearing, you will need to replace the bearing because it will be damaged during removal. See figure 15.

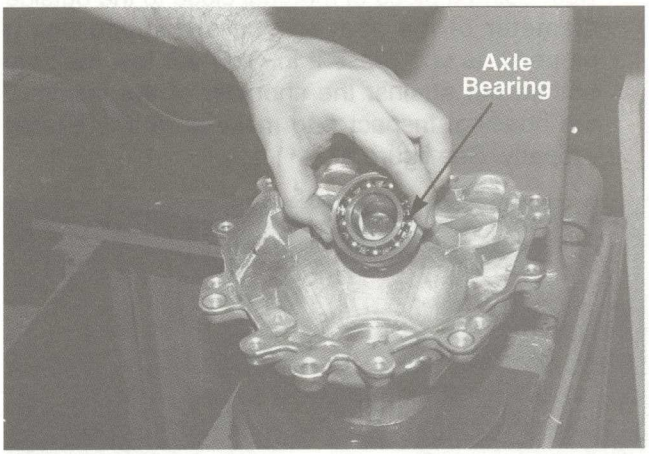


FIGURE 15.

16. To remove the bearing from the housing you must first remove the snap ring. See figure 16.

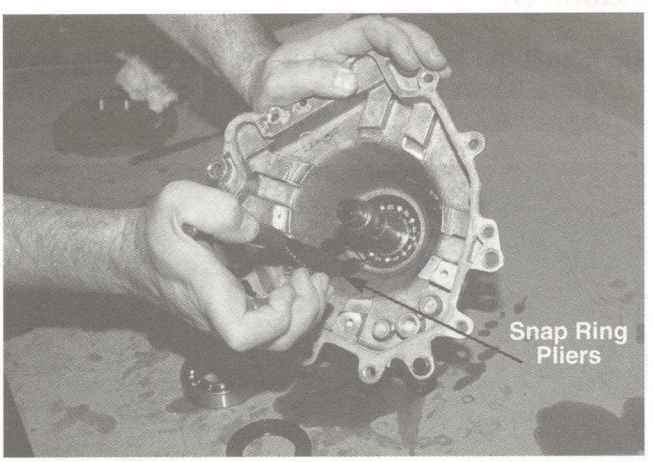


FIGURE 16.

NOTE: Remove the bearing and discard. Remember, you must replace the bearing once the axle shaft has been pressed out.

17. Reassemble the axle, inspect the seal area of the housing for burrs or damage. The housing is chamfered so the seal starts easy and locates well. Using a piece of material close to the outside diameter of the seal so you are supporting it properly as you press it in. You will feel the seal bottom out against the shoulder of the inside of the housing. Inspect it to make sure it is seated properly. See figure 17.

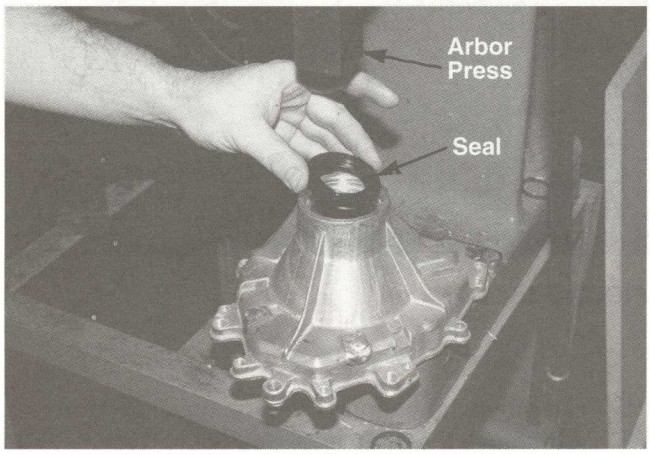


FIGURE 17.

18. Install the bearing. Set it into the housing so it goes down below the snap ring groove. See figure 18.

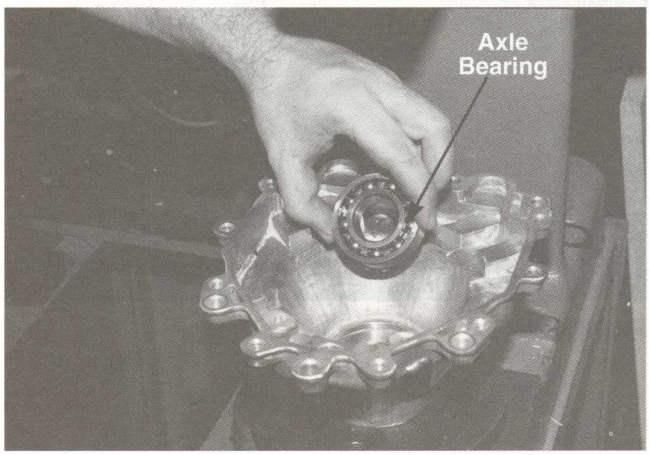


FIGURE 18.

NOTE: Install the large snap ring and seat it into the groove in the housing to retain the bearing.

NOTE: To install the axle shaft and press it into the bearing, first support the shaft with a block so that pressure is not applied to the studs. Place the housing over the axle, and using a sleeve or some tubing that is close in size to the inner race of the bearing, press the bearing and housing down over the axle.

19. Install the snap ring on the axle shaft to retain the bearing on the shaft, making sure that the snap ring is in the groove on the axle. See figure 19.

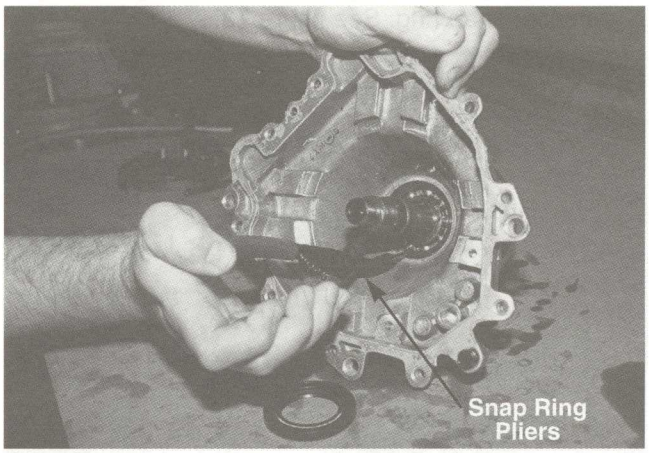


FIGURE 19.

20. If a stud becomes loose or broken and needs to be replaced, it is important to properly support the axle during this procedure in order not to put undue stress on the bearing. See figure 20.

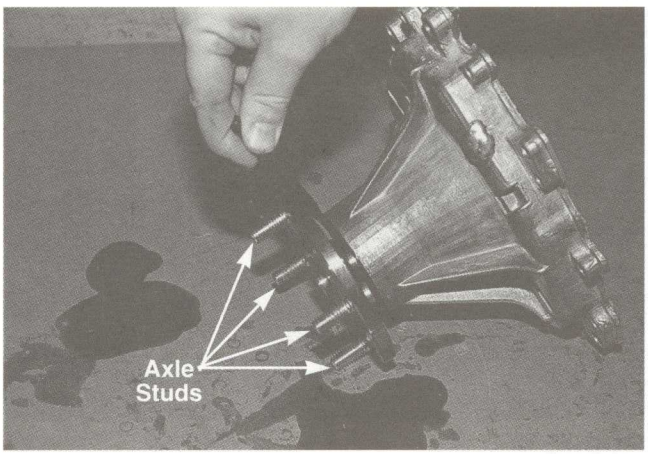


FIGURE 20.

NOTE: To make replacing a stud easier, line up the serration's of the stud with the axle plate and press the stud through the plate. Using a spacer and the nut, or the tire rim itself, tighten the nut to draw the bolt through the plate, seating it completely.

21. Before reassembly, clean the housing and remove old gasket material. Use a rag to protect the bearing before cleaning to avoid damage. Take a paint scraper or other tool and remove all gasket material. Do this to both housing halves and then wipe down the mating surfaces to remove any grease or oil from them. See figure 21.

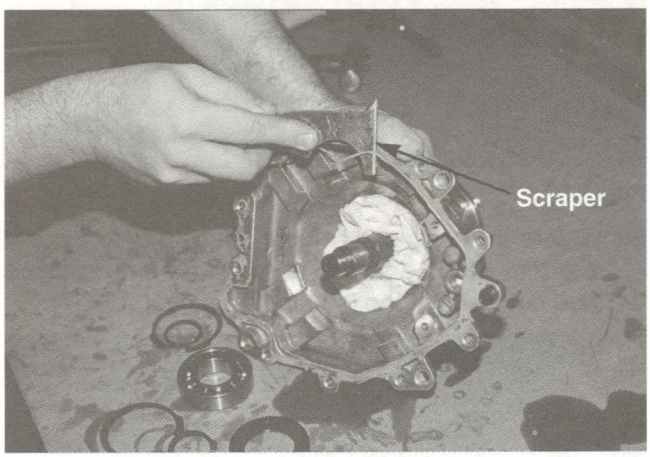


FIGURE 21.

22. Install the brake components by installing the brake actuating shaft into the housing, then installing the brake shoes next, one inverted next to the other. Insert the two dowel pins through the brake shoes into the housing, then insert the brake spring with the bend around the shaft. See figure 22.

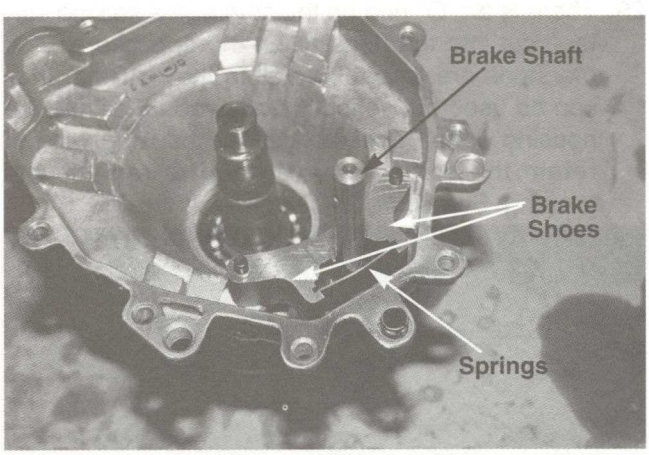


FIGURE 22.

23. Install the ring gear into the housing. It has four tabs and should rest in the housing and be loose. See figure 23.

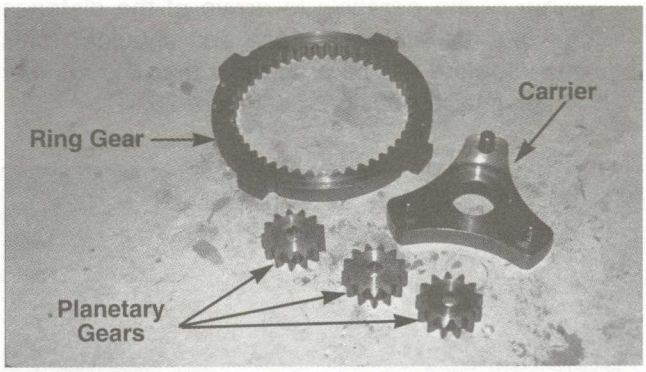


FIGURE 23.

NOTE: Install the carrier onto the splines by lining up the splines and sliding it down onto the shaft.

Install the three planetary gears. They have lubrication grooves on one slide and should be installed with these grooves down.

Make sure everything turns smoothly.

Then install the reduction gear with the small gear down, inserting it through the planetary gears and sliding it down the shaft, making sure that the whole assembly turns smoothly as well.

24. Prior to assembling the two housings together, make sure that there is proper clearance between the gear and inner housing by measuring the distance from the mating surface of the housing to the boss on the center of the housing. See figure 24.

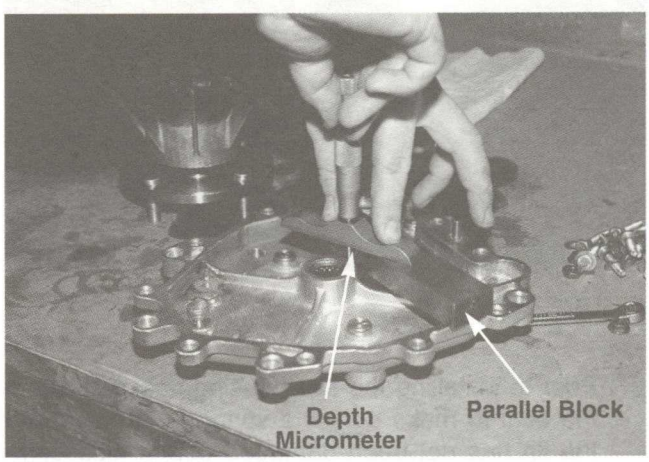


FIGURE 24.

NOTE: Using a parallel and a depth micrometer, measure the distance to the boss and subtract the height of the parallel to arrive at the distance from the housing mating surface to the center boss. Write that number down for reference.

25. Using parallels, measure the distance from the mating surface of the large housing down to the first shoulder on the axle shaft. Subtract the height of the parallels to arrive at the distance between the mating surface and shoulder. This measurement should be greater than the number for the smaller housing. See figure 25.

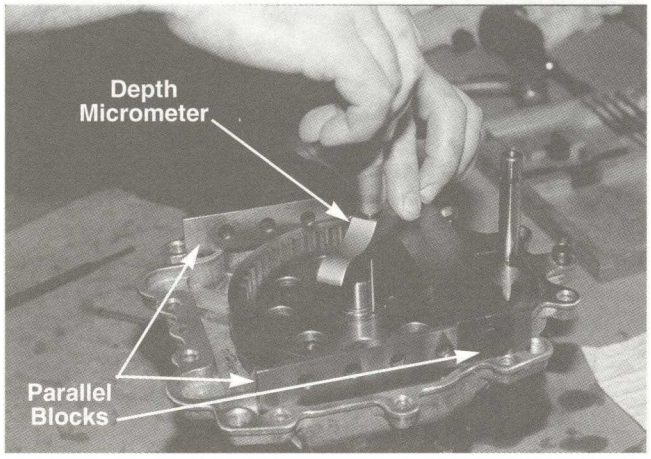


FIGURE 25.

26. Shim the axle with hardened washers to achieve five to 20 thousandths clearance. This provides play without binding. See figure 26.

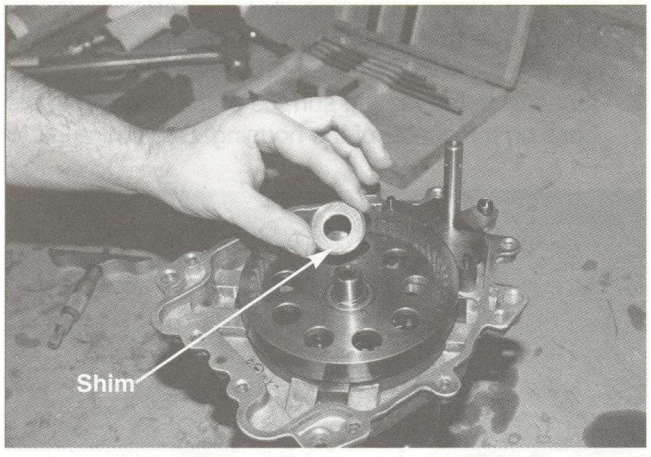


FIGURE 26.

27. Prior to installing the two housing halves, inspect the seal to make sure the spring is in place and the lip has not been damaged during disassembly. If it needs to be replaced, pry the seal from the housing, making sure not to mar the surface the seal gets pressed in to. Press a new seal into place making sure that the top surface of the seal is below the housing surface. See figure 27.

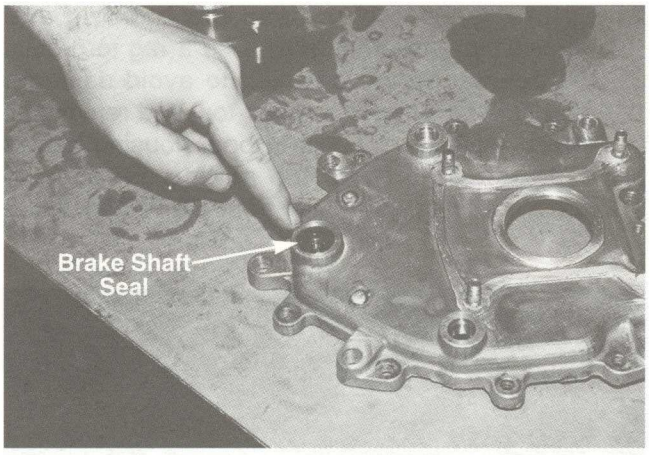


FIGURE 27.

28. Before installing the smaller housing is to inspect the four studs and make sure they are in place and not loose in the housing. See figure 28.

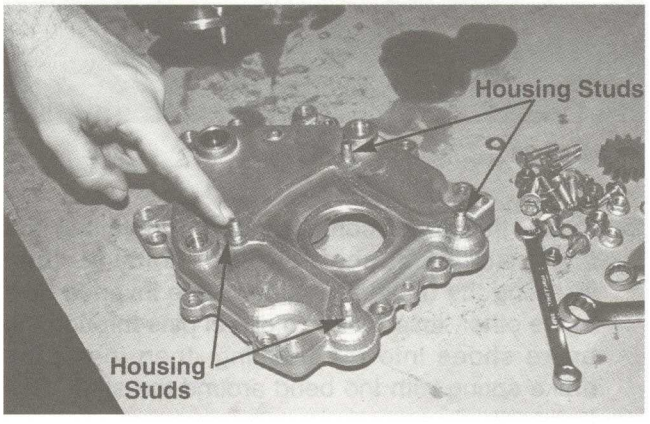


FIGURE 28.

29. There is an "O" ring on the stud and a sealing surface cut into the housing on the opposite side. If the studs are loose, but still in the housing, they can be used but cannot be allowed to fall into the housing during assembly. If the housing will not retain the studs you will need to replace the housing. See figure 29.

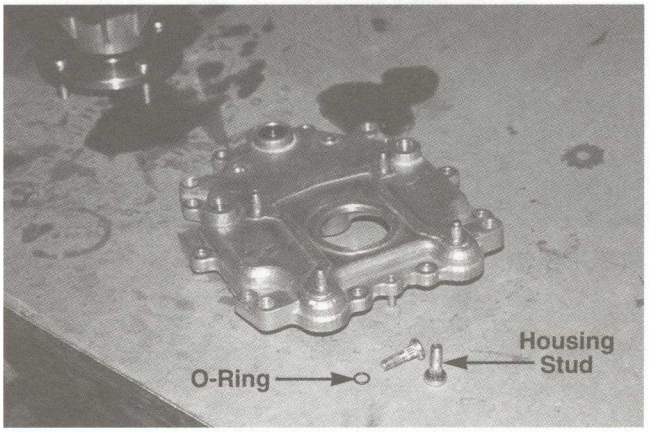


FIGURE 29.

30. Prior to applying Loctite sealer, make sure the mating surfaces are clean and free from dirt and oil. Apply a 1/16 inch bead of sealer around the inner surface of the housing. Applying too much sealer and allowing it to get inside the transmission can hinder the performance of the transmission. See figure 30.

FIGURE 30.

31. Before installing the smaller housing place a light coating of oil on the brake shaft and check to be sure the needle bearing is lubricated. See figure 31.

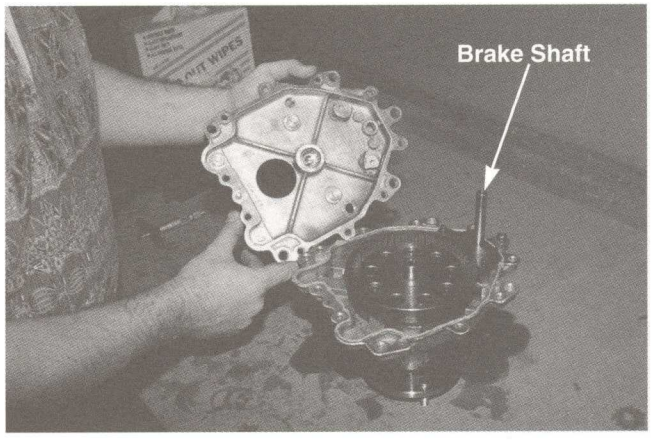


FIGURE 31.

32. Install the housing over the brake shaft, being careful with the seal, align the axle shaft with the bearing and press the two halves together. See figure 32.

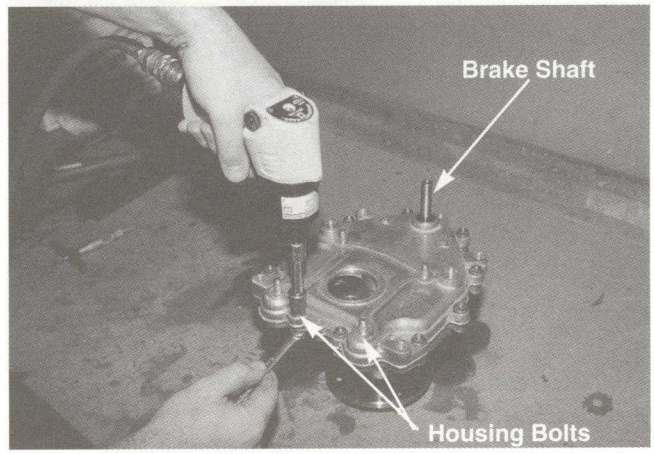


FIGURE 32.

NOTE: Install the ten perimeter bolts with the head of the bolt on the underside and the lock nut on top. These bolts have washers, the production models will not.

If using an air tool, use caution not to overtighten the bolts. Torque between 60 and 85 inch pounds.

33. Prior to installing the pump onto the housing be sure that the "O" ring is in place on the pump. Set the pump up on its end and install the input pinion gear on the pump shaft. See figure 33.

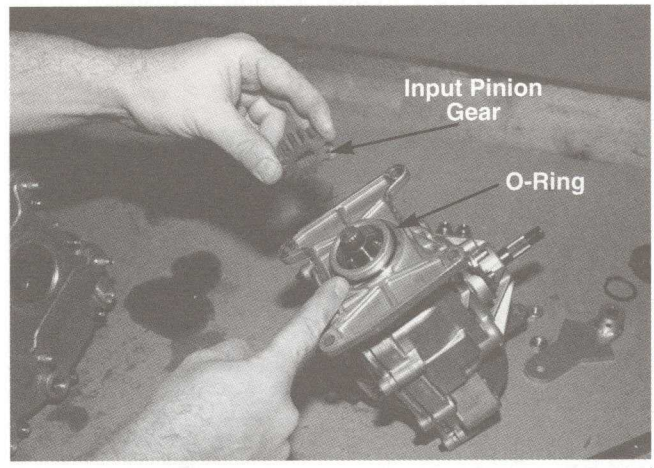


FIGURE 33.

34. Align the studs with the transmission, and be careful not to push the studs into the transmission, mate the two halves together. See figure 34.

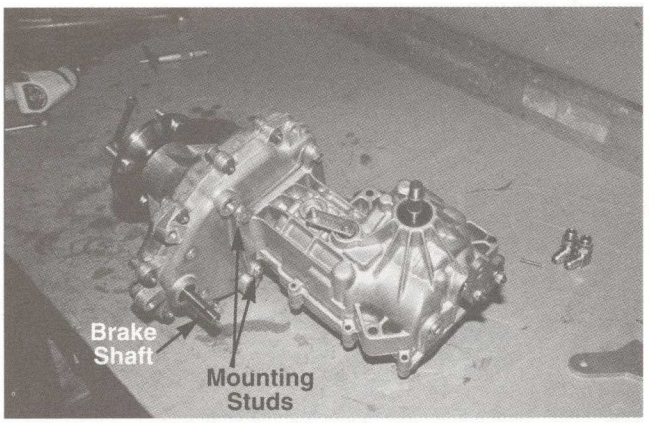


FIGURE 34.

NOTE: The ZT tractor transmissions and pumps are the same for each wheel but the pump is reversed on one side. Make sure you orient the pump properly.

Install the four nuts retaining the pump to the transmission using a 1/2 inch wrench. Make sure the "O" ring is compressed and the four ears of the pump are flush with the housing.

Torque to specifications.

35. Install the hydro fitting by backing off the nut so the washer is loose. Screw the fitting into the housing part way, leaving it loose so that you can align the fitting with the frame and other parts installed on the tractor. During installation make sure the seats are clean and the "O" rings are in good condition. See figure 35.

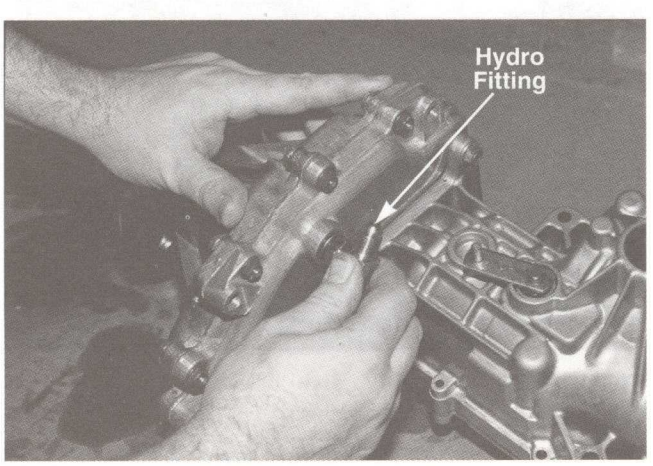


FIGURE 35.

36. Reinstall the brake actuating arm by properly bracing the shaft and driving the pin into the hole and through the shaft. See figure 36.

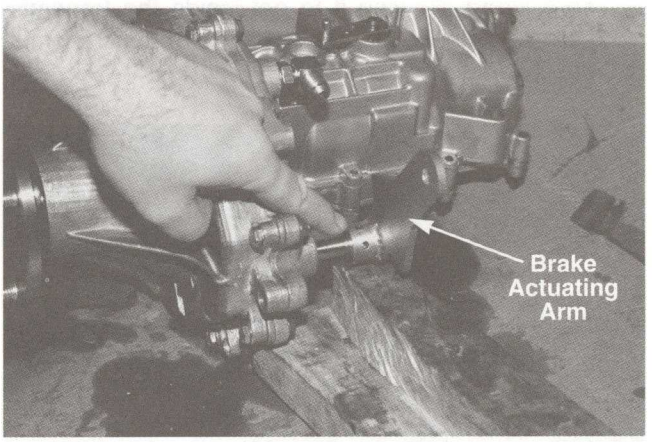


FIGURE 36.

SECTION: 12

CUB CADET

Z-SERIES

GENERAL

SPECIFICATIONS

Z-42 SPECIFICATIONS

ENGINE:

Engine Horse Power:---------- 15
Engine Make:---------- Kohler Command
Engine Model:---------- CV15S
Engine Spec:---------- 41535
Engine Displacement:---------- 26.0
Bore in Inches:---------- 3.60
Stroke in Inches:---------- 2.64
Idle Speed:---------- 1250 R.P.M.
Max Speed (No Load):---------- 3600 R.P.M.
Valve Lash:
(Intake)---------- Hyd.
(Exhaust)---------- Hyd.
Spark Plug Air Gap:---------- .030"
Mag Air Gap:---------- .008-012"
Cylinder Head Torque:---------- 30 ft. lbs.
Flywheel Nut / Bolt Torque:---------- 49 ft. lbs.

ELECTRICAL SYSTEM:

System Voltage:---------- 12v Negative Ground

CAPACITIES:

Fuel Tank:---------- 5.5 Gallons
Crankcase With Filter (approximately):---------- 1-3/4 Quarts
Transmission:---------- 11 Quarts

HYDROSTATIC DRIVE:

Speed:
(Forward)---------- 0-7 MPH
(Reverse)---------- 0-7 MPH

TIRE SIZE:

Front:---------- 9" x 3.5"
Rear:---------- 20" x 7"-8"

DIMENSIONS:

Wheelbase:---------- 44"
Length:---------- 84.5"
Width:---------- 55.25"
Height:---------- 41"
Ground Clearance:---------- 4.5"
Turning Radius:---------- Zero
Weight (approximately):---------- 700 lbs.

Z-48 SPECIFICATIONS

ENGINE:

Engine Horse Power:---------- 18
Engine Make:---------- Kohler Command
Engine Model:---------- CV18S
Engine Spec:---------- 61542
Engine Displacement:---------- 38.1
Bore in Inches:---------- 3.03
Stroke in Inches:---------- 2.64
Idle Speed:---------- 1250 R.P.M.
Max Speed (No Load):---------- 3600 R.P.M.
Valve Lash:
(Intake)---------- Hyd.
(Exhaust)---------- Hyd.
Spark Plug Air Gap:---------- .030"
Mag Air Gap:---------- .008-012"
Cylinder Head Torque:---------- 30 ft. lbs.
Flywheel Nut / Bolt Torque:---------- 49 ft. lbs.

ELECTRICAL SYSTEM:

System Voltage:---------- 12v Negative Ground

CAPACITIES:

Fuel Tank:---------- 5.5 Gallons
Crankcase With Filter (approximately):---------- 2 Quarts
Transmission:---------- 11 Quarts

HYDROSTATIC DRIVE:

Speed:
(Forward)---------- 0-7 MPH
(Reverse)---------- 0-7 MPH

TIRE SIZE:

Front:---------- 9" x 3.5"
Rear:---------- 20" x 7"-8"

DIMENSIONS:

Wheelbase:---------- 44"
Length:---------- 84.5"
Width:---------- 55.25"
Height:---------- 41"
Ground Clearance:---------- 4.5"
Turning Radius:---------- Zero
Weight (approximately):---------- 740 lbs.

Z-54 SPECIFICATIONS

ENGINE:

Engine Horse Power:---------- 20
Engine Make:---------- Kohler Command
Engine Model:---------- CV20S
Engine Spec:---------- 65540
Engine Displacement:---------- 38.1
Bore in Inches:---------- 3.03
Stroke in Inches:---------- 2.64
Idle Speed:---------- 1250 R.P.M.
Max Speed (No Load):---------- 3600 R.P.M.
Valve Lash:
(Intake)---------- Hyd.
(Exhaust)---------- Hyd.
Spark Plug Air Gap:---------- .030"
Mag Air Gap:---------- .008-012"
Cylinder Head Torque:---------- 30 ft. lbs.
Flywheel Nut / Bolt Torque:---------- 49 ft. lbs.

ELECTRICAL SYSTEM:

System Voltage:---------- 12v Negative Ground

CAPACITIES:

Fuel Tank:---------- 5.5 Gallons
Crankcase With Filter (approximately):---------- 2 Quarts
Transmission:---------- 11 Quarts

HYDROSTATIC DRIVE:

Speed:
(Forward)---------- 0-7 MPH
(Reverse)---------- 0-7 MPH

TIRE SIZE:

Front:---------- 9" x 3.5"
Rear:---------- 20" x 7"-8"

DIMENSIONS:

Wheelbase:---------- 44"
Length:---------- 84.5"
Width:---------- 55.25"
Height:---------- 41"
Ground Clearance:---------- 4.5"
Turning Radius:---------- Zero
Weight (approximately):---------- 740 lbs.

Z-48L SPECIFICATIONS

ENGINE:

Engine Horse Power:---------- 18
Engine Make:---------- Kawasaki
Engine Model:---------- FD50V
Engine Spec:---------- AS06
Engine Displacement:---------- 35.7
Bore in Inches:---------- 2.90
Stroke in Inches:---------- 2.66
Idle Speed:---------- 1550 R.P.M.
Max Speed (No Load):---------- 3500 R.P.M.
Valve Lash:
(Intake)---------- .010"
(Exhaust)---------- .010"
Spark Plug Air Gap:---------- .028"
Mag Air Gap:---------- .013"-.047"
Cylinder Head Torque:---------- 15 ft. lbs.
Flywheel Nut / Bolt Torque:---------- 87 ft. lbs.

ELECTRICAL SYSTEM:

System Voltage:---------- 12v Negative Ground

CAPACITIES:

Fuel Tank:---------- 5.5 Gallons
Crankcase With Filter (approximately):---------- 2.5 Quarts
Transmission:---------- 11 Quarts
Cooling System:---------- 3.6 Quarts

HYDROSTATIC DRIVE:

Speed:
(Forward)---------- 0-7 MPH
(Reverse)---------- 0-7 MPH

TIRE SIZE:

Front:---------- 9" x 3.5"
Rear:---------- 20" x 7"-8"

DIMENSIONS:

Wheelbase:---------- 44"
Length:---------- 84.5"
Width:---------- 55.25"
Height:---------- 41"
Ground Clearance:---------- 4.5"
Turning Radius:---------- Zero
Weight (approximately):---------- 750 lbs.

Z-54L SPECIFICATIONS

ENGINE:

Engine Horse Power:---------- 18
Engine Make:---------- Kawasaki
Engine Model:---------- FD50V
Engine Spec:---------- AS06
Engine Displacement:---------- 35.7
Bore in Inches:---------- 2.90
Stroke in Inches:---------- 2.66
Idle Speed:---------- 1550 R.P.M.
Max Speed (No Load):---------- 3500 R.P.M.
Valve Lash:
(Intake)---------- .010"
(Exhaust)---------- .010"
Spark Plug Air Gap:---------- .028"
Mag Air Gap:---------- .013"-.047"
Cylinder Head Torque:---------- 15 ft. lbs.
Flywheel Nut / Bolt Torque:---------- 87 ft. lbs.

ELECTRICAL SYSTEM:

System Voltage:---------- 12v Negative Ground

CAPACITIES:

Fuel Tank:---------- 5.5 Gallons
Crankcase With Filter (approximately):---------- 2.5 Quarts
Transmission:---------- 11 Quarts
Cooling System:---------- 3.6 Quarts

HYDROSTATIC DRIVE:

Speed:
(Forward)---------- 0-7 MPH
(Reverse)---------- 0-7 MPH

TIRE SIZE:

Front:---------- 9" x 3.5"
Rear:---------- 20" x 7"-8"

DIMENSIONS:

Wheelbase:---------- 44"
Length:---------- 84.5"
Width:---------- 55.25"
Height:---------- 41"
Ground Clearance:---------- 4.5"
Turning Radius:---------- Zero
Weight (approximately):---------- 750 lbs.

364 SPECIFICATIONS

ENGINE:

Engine Horse Power:---------- 18
Engine Make:---------- Briggs & Stratton
Engine Model:---------- 407777
Engine Spec:---------- 128
Engine Displacement:---------- 40.0
Bore in Inches:---------- 2.970
Stroke in Inches:---------- 2.890
Idle Speed:---------- 1550 R.P.M.
Max Speed (No Load):---------- 3600 R.P.M.
Valve Lash:
(Intake)---------- .005"
(Exhaust)---------- .005"
Spark Plug Air Gap:---------- .030"
Mag Air Gap:---------- .008-012"
Cylinder Head Torque:---------- 220 in. lbs.
Flywheel Nut / Bolt Torque:---------- 150 ft. lbs.

ELECTRICAL SYSTEM:

System Voltage:---------- 12v Negative Ground

CAPACITIES:

Fuel Tank:---------- 5.5 Gallons
Crankcase With Filter (approximately):---------- 64 oz.
Transmission:---------- 11 Quarts

HYDROSTATIC DRIVE:

Speed:
(Forward)---------- 0-7 MPH
(Reverse)---------- 0-7 MPH

TIRE SIZE:

Front:---------- 11" x 4"
Rear:---------- 20" x 7"-8"

DIMENSIONS:

Wheelbase:---------- 44"
Length:---------- 84.5"
Width:---------- 55.25"
Height:---------- 41"
Ground Clearance:---------- 4.5"
Turning Radius:---------- Zero
Weight (approximately):---------- 700 lbs.

365 SPECIFICATIONS

ENGINE:

Engine Horse Power:	20
Engine Make:	Kohler Command
Engine Model:	CV20S
Engine Spec:	65558
Engine Displacement:	38.1
Bore in Inches:	3.03
Stroke in Inches:	2.64
Idle Speed:	1250 R.P.M.
Max Speed (No Load):	3600 R.P.M.
Valve Lash:	
(Intake)	Hyd.
(Exhaust)	Hyd.
Spark Plug Air Gap:	.030"
Mag Air Gap:	.008-012"
Cylinder Head Torque:	30 ft. lbs.
Flywheel Nut / Bolt Torque:	49 ft. lbs.

ELECTRICAL SYSTEM:

System Voltage:	12v Negative Ground

CAPACITIES:

Fuel Tank:	5.5 Gallons
Crankcase With Filter (approximately):	2 Quarts
Transmission:	11 Quarts

HYDROSTATIC DRIVE:

Speed:	
(Forward)	0-7 MPH
(Reverse)	0-7 MPH

TIRE SIZE:

Front:	11" x 4"
Rear:	20" x 7"-8"

DIMENSIONS:

Wheelbase:	44"
Length:	84.5"
Width:	55.25"
Height:	41"
Ground Clearance:	4.5"
Turning Radius:	Zero
Weight (approximately):	740 lbs.

365L SPECIFICATIONS

ENGINE:

Engine Horse Power:---------- 18
Engine Make:---------- Kawasaki
Engine Model:---------- FD50V
Engine Spec:---------- AS06
Engine Displacement:---------- 35.7
Bore in Inches:---------- 2.90
Stroke in Inches:---------- 2.66
Idle Speed:---------- 1550 R.P.M.
Max Speed (No Load):---------- 3500 R.P.M.
Valve Lash:
(Intake)---------- .010"
(Exhaust)---------- .010"
Spark Plug Air Gap:---------- .028"
Mag Air Gap:---------- .013"-.047"
Cylinder Head Torque:---------- 15 ft. lbs.
Flywheel Nut / Bolt Torque:---------- 87 ft. lbs.

ELECTRICAL SYSTEM:

System Voltage:---------- 12v Negative Ground

CAPACITIES:

Fuel Tank:---------- 5.5 Gallons
Crankcase With Filter (approximately):---------- 2.5 Quarts
Transmission:---------- 11 Quarts
Cooling System:---------- 3.6 Quarts

HYDROSTATIC DRIVE:

Speed:
(Forward)---------- 0-7 MPH
(Reverse)---------- 0-7 MPH

TIRE SIZE:

Front:---------- 11" x 4"
Rear:---------- 20" x 7"-8"

DIMENSIONS:

Wheelbase:---------- 44"
Length:---------- 84.5"
Width:---------- 55.25"
Height:---------- 41"
Ground Clearance:---------- 4.5"
Turning Radius:---------- Zero
Weight (approximately):---------- 750 lbs.

SECTION: 12
WHITE OUTDOOR
Z-SERIES
GENERAL
SPECIFICATIONS

Z-16 SPECIFICATIONS

ENGINE:

Engine Horse Power:---------- 16
Engine Make:---------- Briggs & Stratton
Engine Model:---------- 311777
Engine Spec:---------- 0139
Engine Displacement:---------- 30.59
Bore in Inches:---------- 3.56
Stroke in Inches:---------- 3.06
Idle Speed:---------- 1550 R.P.M.
Max Speed (No Load):---------- 3600 R.P.M.
Valve Lash:
(Intake)---------- .005"
(Exhaust)---------- .005"
Spark Plug Air Gap:---------- .030"
Mag Air Gap:---------- .008-012"
Cylinder Head Torque:---------- 220 in. lbs.
Flywheel Nut / Bolt Torque:---------- 100 ft. lbs.

ELECTRICAL SYSTEM:

System Voltage:---------- 12v Negative Ground

CAPACITIES:

Fuel Tank:---------- 5.5 Gallons
Crankcase With Filter (approximately):---------- 1-3/4 Quarts
Transmission:---------- 11 Quarts

HYDROSTATIC DRIVE:

Speed:
(Forward)---------- 0-7 MPH
(Reverse)---------- 0-7 MPH

TIRE SIZE:

Front:---------- 9" x 3.5"
Rear:---------- 20" x 7"-8"

DIMENSIONS:

Wheelbase:---------- 44"
Length:---------- 84.5"
Width:---------- 55.25"
Height:---------- 41"
Ground Clearance:---------- 4.5"
Turning Radius:---------- Zero
Weight (approximately):---------- 700 lbs.

Z-180 SPECIFICATIONS

ENGINE:

Engine Horse Power:---------- 18
Engine Make:---------- Briggs & Stratton
Engine Model:---------- 350777
Engine Spec:---------- 1135
Engine Displacement:---------- 34.7
Bore in Inches:---------- 2.83
Stroke in Inches:---------- 2.76
Idle Speed:---------- 1550 R.P.M.
Max Speed (No Load):---------- 3600 R.P.M.
Valve Lash:
(Intake)---------- .005"
(Exhaust)---------- .005"
Spark Plug Air Gap:---------- .030"
Mag Air Gap:---------- .008-012"
Cylinder Head Torque:---------- 165 in. lbs.
Flywheel Nut / Bolt Torque:---------- 125 ft. lbs.

ELECTRICAL SYSTEM:

System Voltage:---------- 12v Negative Ground

CAPACITIES:

Fuel Tank:---------- 5.5 Gallons
Crankcase With Filter (approximately):---------- 1-3/4 Quarts
Transmission:---------- 11 Quarts

HYDROSTATIC DRIVE:

Speed:
(Forward)---------- 0-7 MPH
(Reverse)---------- 0-7 MPH

TIRE SIZE:

Front:---------- 9" x 3.5"
Rear:---------- 20" x 7"-8"

DIMENSIONS:

Wheelbase:---------- 44"
Length:---------- 84.5"
Width:---------- 55.25"
Height:---------- 41"
Ground Clearance:---------- 4.5"
Turning Radius:---------- Zero
Weight (approximately):---------- 740 lbs.

Z-200 SPECIFICATIONS (1997-1998)

ENGINE:

Engine Horse Power:---------- 20
Engine Make:---------- Briggs & Stratton
Engine Model:---------- 351777
Engine Spec:---------- 1124
Engine Displacement:---------- 34.7
Bore in Inches:---------- 2.83
Stroke in Inches:---------- 2.76
Idle Speed:---------- 1550 R.P.M.
Max Speed (No Load):---------- 3600 R.P.M.
Valve Lash:
(Intake)---------- .005"
(Exhaust)---------- .005"
Spark Plug Air Gap:---------- .030"
Mag Air Gap:---------- .008-012"
Cylinder Head Torque:---------- 165 in. lbs.
Flywheel Nut / Bolt Torque:---------- 125 ft. lbs.

ELECTRICAL SYSTEM:

System Voltage:---------- 12v Negative Ground

CAPACITIES:

Fuel Tank:---------- 5.5 Gallons
Crankcase With Filter (approximately):---------- 1-1/2 Quarts
Transmission:---------- 11 Quarts

HYDROSTATIC DRIVE:

Speed:
(Forward)---------- 0-7 MPH
(Reverse)---------- 0-7 MPH

TIRE SIZE:

Front:---------- 9" x 3.5"
Rear:---------- 20" x 7"-8"

DIMENSIONS:

Wheelbase:---------- 44"
Length:---------- 84.5"
Width:---------- 55.25"
Height:---------- 41"
Ground Clearance:---------- 4.5"
Turning Radius:---------- Zero
Weight (approximately):---------- 740 lbs.

Z-200 SPECIFICATIONS
(1999)

ENGINE:

Engine Horse Power:---------- 20
Engine Make:---------- Briggs & Stratton
Engine Model:---------- 407777
Engine Spec:---------- 0128
Engine Displacement:---------- 40.0
Bore in Inches:---------- 2.970
Stroke in Inches:---------- 2.890
Idle Speed:---------- 1550 R.P.M.
Max Speed (No Load):---------- 3600 R.P.M.
Valve Lash:
(Intake)---------- .005"
(Exhaust)---------- .005"
Spark Plug Air Gap:---------- .030"
Mag Air Gap:---------- .008-012"
Cylinder Head Torque:---------- 220 in. lbs.
Flywheel Nut / Bolt Torque:---------- 150 ft. lbs.

ELECTRICAL SYSTEM:

System Voltage:---------- 12v Negative Ground

CAPACITIES:

Fuel Tank:---------- 5.5 Gallons
Crankcase With Filter (approximately):---------- 64 oz.
Transmission:---------- 11 Quarts

HYDROSTATIC DRIVE:

Speed:
(Forward)---------- 0-7 MPH
(Reverse)---------- 0-7 MPH

TIRE SIZE:

Front:---------- 9" x 3.5"
Rear:---------- 20" x 7"-8"

DIMENSIONS:

Wheelbase:---------- 44"
Length:---------- 84.5"
Width:---------- 55.25"
Height:---------- 41"
Ground Clearance:---------- 4.5"
Turning Radius:---------- Zero
Weight (approximately):---------- 740 lbs.

Z-220 SPECIFICATIONS

ENGINE:

Engine Horse Power:---------- 22
Engine Make:---------- Briggs & Stratton
Engine Model:---------- 407777
Engine Spec:---------- 0128
Engine Displacement:---------- 40.0
Bore in Inches:---------- 2.970
Stroke in Inches:---------- 2.890
Idle Speed:---------- 1550 R.P.M.
Max Speed (No Load):---------- 3600 R.P.M.
Valve Lash:
(Intake)---------- .005"
(Exhaust)---------- .005"
Spark Plug Air Gap:---------- .030"
Mag Air Gap:---------- .008-012"
Cylinder Head Torque:---------- 220 in lbs.
Flywheel Nut / Bolt Torque:---------- 150 ft. lbs.

ELECTRICAL SYSTEM:

System Voltage:---------- 12v Negative Ground

CAPACITIES:

Fuel Tank:---------- 5.5 Gallons
Crankcase With Filter (approximately):---------- 64 oz.
Transmission:---------- 11 Quarts

HYDROSTATIC DRIVE:

Speed:
(Forward)---------- 0-7 MPH
(Reverse)---------- 0-7 MPH

TIRE SIZE:

Front:---------- 9" x 3.5"
Rear:---------- 20" x 7"-8"

DIMENSIONS:

Wheelbase:---------- 44"
Length:---------- 84.5"
Width:---------- 55.25"
Height:---------- 41"
Ground Clearance:---------- 4.5"
Turning Radius:---------- Zero
Weight (approximately):---------- 740 lbs.

Z-180L SPECIFICATIONS

ENGINE:

Engine Horse Power:---------- 18
Engine Make:---------- Kawasaki
Engine Model:---------- FD50V
Engine Spec:---------- AS06
Engine Displacement:---------- 35.7
Bore in Inches:---------- 2.90
Stroke in Inches:---------- 2.66
Idle Speed:---------- 1550 R.P.M.
Max Speed (No Load):---------- 3500 R.P.M.
Valve Lash:
(Intake)---------- .010"
(Exhaust)---------- .010"
Spark Plug Air Gap:---------- .028"
Mag Air Gap:---------- .013"-.047"
Cylinder Head Torque:---------- 15 ft. lbs.
Flywheel Nut / Bolt Torque:---------- 87 ft. lbs.

ELECTRICAL SYSTEM:

System Voltage:---------- 12v Negative Ground

CAPACITIES:

Fuel Tank:---------- 5.5 Gallons
Crankcase With Filter (approximately):---------- 2.5 Quarts
Transmission:---------- 11 Quarts
Cooling System:---------- 3.6 Quarts

HYDROSTATIC DRIVE:

Speed:
(Forward)---------- 0-7 MPH
(Reverse)---------- 0-7 MPH

TIRE SIZE:

Front:---------- 9" x 3.5"
Rear:---------- 20" x 7"-8"

DIMENSIONS:

Wheelbase:---------- 44"
Length:---------- 84.5"
Width:---------- 55.25"
Height:---------- 41"
Ground Clearance:---------- 4.5"
Turning Radius:---------- Zero
Weight (approximately):---------- 750 lbs.

ZT-1850 SPECIFICATIONS

ENGINE:

Engine Horse Power:---------- 18
Engine Make:---------- Briggs & Stratton
Engine Model:---------- 407777
Engine Spec:---------- 0128
Engine Displacement:---------- 40.0
Bore in Inches:---------- 2.970
Stroke in Inches:---------- 2.890
Idle Speed:---------- 1550 R.P.M.
Max Speed (No Load):---------- 3600 R.P.M.
Valve Lash:
(Intake)---------- .005"
(Exhaust)---------- .005"
Spark Plug Air Gap:---------- .030"
Mag Air Gap:---------- .008-012"
Cylinder Head Torque:---------- 220 in. lbs.
Flywheel Nut / Bolt Torque:---------- 150 ft. lbs.

ELECTRICAL SYSTEM:

System Voltage:---------- 12v Negative Ground

CAPACITIES:

Fuel Tank:---------- 5.5 Gallons
Crankcase With Filter (approximately):---------- 64 oz.
Transmission:---------- 11 Quarts

HYDROSTATIC DRIVE:

Speed:
(Forward)---------- 0-7 MPH
(Reverse)---------- 0-7 MPH

TIRE SIZE:

Front:---------- 11" x 4"
Rear:---------- 20" x 7"-8"

DIMENSIONS:

Wheelbase:---------- 44"
Length:---------- 84.5"
Width:---------- 55.25"
Height:---------- 41"
Ground Clearance:---------- 4.5"
Turning Radius:---------- Zero
Weight (approximately):---------- 700 lbs.

ZT-2150 SPECIFICATIONS

ENGINE:

Engine Horse Power:---------- 21
Engine Make:---------- Briggs & Stratton
Engine Model:---------- 407777
Engine Spec:---------- 0128
Engine Displacement:---------- 40.0
Bore in Inches:---------- 2.970
Stroke in Inches:---------- 2.890
Idle Speed:---------- 1550 R.P.M.
Max Speed (No Load):---------- 3600 R.P.M.
Valve Lash:
(Intake)---------- .005"
(Exhaust)---------- .005"
Spark Plug Air Gap:---------- .030"
Mag Air Gap:---------- .008-012"
Cylinder Head Torque:---------- 220 in. lbs.
Flywheel Nut / Bolt Torque:---------- 150 ft. lbs.

ELECTRICAL SYSTEM:

System Voltage:---------- 12v Negative Ground

CAPACITIES:

Fuel Tank:---------- 5.5 Gallons
Crankcase With Filter (approximately):---------- 64 oz.
Transmission:---------- 11 Quarts

HYDROSTATIC DRIVE:

Speed:
(Forward)---------- 0-7 MPH
(Reverse)---------- 0-7 MPH

TIRE SIZE:

Front:---------- 11" x 4"
Rear:---------- 20" x 7"-8"

DIMENSIONS:

Wheelbase:---------- 44"
Length:---------- 84.5"
Width:---------- 55.25"
Height:---------- 41"
Ground Clearance:---------- 4.5"
Turning Radius:---------- Zero
Weight (approximately):---------- 740 lbs.

ZT-2250 SPECIFICATIONS

ENGINE:

Engine Horse Power:---------- 22
Engine Make:---------- Briggs & Stratton
Engine Model:---------- 407777
Engine Spec:---------- 0128
Engine Displacement:---------- 40.0
Bore in Inches:---------- 2.970
Stroke in Inches:---------- 2.890
Idle Speed:---------- 1550 R.P.M.
Max Speed (No Load):---------- 3600 R.P.M.
Valve Lash:
(Intake)---------- .005"
(Exhaust)---------- .005"
Spark Plug Air Gap:---------- .030"
Mag Air Gap:---------- .008-012"
Cylinder Head Torque:---------- 220 in. lbs
Flywheel Nut / Bolt Torque:---------- 150 ft. lbs.

ELECTRICAL SYSTEM:

System Voltage:---------- 12v Negative Ground

CAPACITIES:

Fuel Tank:---------- 5.5 Gallons
Crankcase With Filter (approximately):---------- 64 oz.
Transmission:---------- 11 Quarts

HYDROSTATIC DRIVE:

Speed:
(Forward)---------- 0-7 MPH
(Reverse)---------- 0-7 MPH

TIRE SIZE:

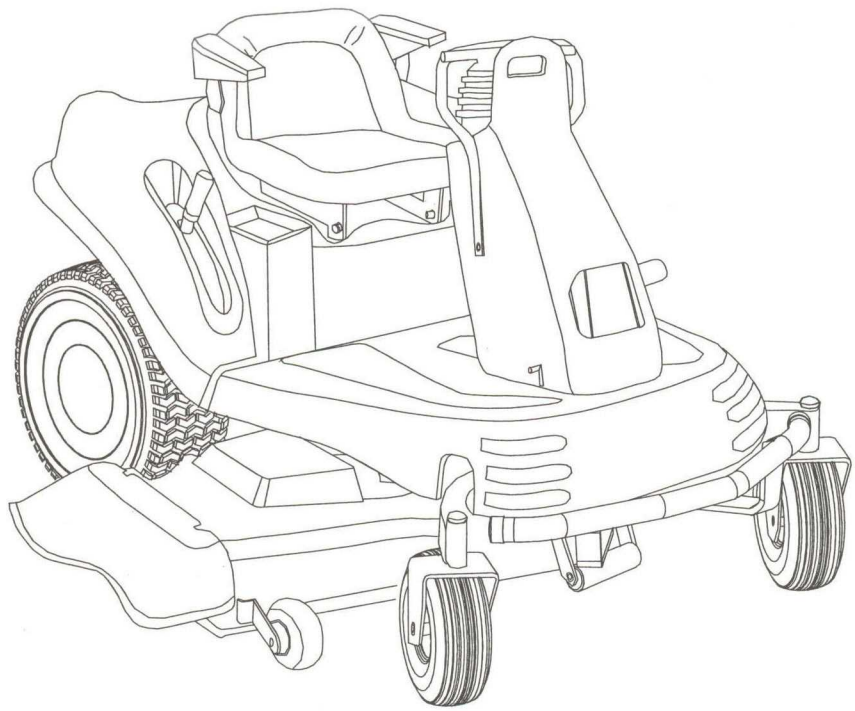
Front:---------- 11" x 4"
Rear:---------- 20" x 7"-8"

DIMENSIONS:

Wheelbase:---------- 44"
Length:---------- 84.5"
Width:---------- 55.25"
Height:---------- 41"
Ground Clearance:---------- 4.5"
Turning Radius:---------- Zero
Weight (approximately):---------- 740 lbs.

SECTION: 13

MISCELLANEOUS



CUB CADET Z-SERIES MANUAL LIST

MODEL NO.	FACTORY NO.	YEAR	SERIAL NO	OPERATOR MANUAL	$ PRICE	PARTS MANUAL	$ PRICE	ENG. PART MANUAL	$ PRICE	SERVICE MANUAL	$ PRICE	ENG. SVC. MANUAL	$ PRICE
Z-42	53AC305G100	1997	I017G9-H318G9	770-0534M	$4.95	772-9086	$3.50	****	~	N/A	~	KH-TP-2339C	$6.50
Z-48	53AC355M100	1997	I017G9-H318G9	770-1046A	$3.95	772-9088	$3.50	****	~	N/A	~	KH-TP-2450	$3.50
Z-54	53AC365M100	1997	I017G9-H318G9	770-1046A	$3.95	772-9088	$3.50	****	~	N/A	~	KH-TP-2450	$3.50
Z-48L	53AC385K100	1997	I017G9-H318G9	770-1046A	$3.95	770-1047A	$3.95	****	~	N/A	~	99924-2041-01	$6.50
Z-54L	53AC365K100	1997	I017G9-H318G9	770-1046A	$3.95	770-1047A	$3.95	****	~	N/A	~	99924-2041-01	$6.50
Z-42	53BA1B2G100	1998	I017G9-H318G9	770-0534M	$4.95	772-9086B	$4.95	****	~	N/A	~	KH-TP-2339C	$6.50
Z-48	53AC355M100	1998	I017G9-H318G9	770-1046A	$3.95	770-1047B	$4.95	****	~	N/A	~	KH-TP-2450	$3.50
Z-54	53AC385K100	1998	I017G9-H318G9	770-1046A	$3.95	770-1047B	$4.95	****	~	N/A	~	KH-TP-2450	$3.50
Z-48L	53BA1D5M100	1998	I017G9-H318G9	770-1046A	$3.95	770-1047B	$4.95	****	~	N/A	~	99924-2041-01	$6.50
Z-54L	53BA1D5K100	1998	I017G9-H318G9	770-1046A	$3.95	770-1047B	$4.95	****	~	N/A	~	99924-2041-01	$6.50
Z-42	53BA1B2G100	1999	K018G9-F309G9	770-10097	$4.95	770-10098	$4.95	****	~	N/A	~	KH-TP-2339C	$6.50
Z-48	53BA1B5M100	1999	K018G9-F309G9	770-10099	$4.95	770-10100	*****	****	~	N/A	~	KH-TP-2450	$3.50
Z-54	53BA1B6K100	1999	K018G9-F309G9	770-10099	$4.95	770-10100	*****	****	~	N/A	~	KH-TP-2450	$3.50
Z-54L	53BA1D5K100	1999	K018G9-F309G9	770-10099	$4.95	770-10100	*****	****	~	N/A	~	99924-2041-01	$6.50
364	53AA1A5L100	2000	N/A	770-10099C**	$4.95	770-2000C	$8.50	770-1232C	$8.50	N/A	~	BS-273521	$11.95
365	53CA1B6K100	2000	N/A	770-10099C**	$4.95	770-2000C	$8.50	770-1232C	$8.50	N/A	~	KH-TP-2450	$3.50
365L	53CA1D5K100	2000	N/A	770-10099C**	$4.95	770-2000C	$8.50	770-1232C	$8.50	N/A	~	99924-2041-01	$6.50
364	53AA1A5L100	2001	N/A	770-10099E**	$4.95	(A)	~	(A)	~	N/A	~	BS-273521	$11.95
365	53CA1B6K100	2001	N/A	770-10099E**	$4.95	(A)	~	(A)	~	N/A	~	KH-TP-2450	$3.50
365L	53CA1D5K100	2001	N/A	770-10099E**	$4.95	(A)	~	(A)	~	N/A	~	99924-2041-01	$6.50
364	53AA1A5L100	2002	N/A	770-10099E**	$4.95	****	~	****	~	N/A	~	BS-273521	$11.95
365	53CA1B6K100	2002	N/A	770-10099E**	$4.95	****	~	****	~	N/A	~	KH-TP-2450	$3.50
365L	53CA1D5K100	2002	N/A	770-10099E**	$4.95	****	~	****	~	N/A	~	99924-2041-01	$6.50

NOTES:

**	Parts Breakdowns Listed In Operators Manual.
****	Engine Parts Breakdowns Listed In Parts Manual.
*****	Not Available At The Time Of Printing.
N/A	Not Available.

REV. 4/05/02

WHITE OUTDOOR Z-SERIES MANUAL LIST

MODEL NO.	FACTORY NO.	YEAR	SERIAL NO	OPERATOR MANUAL	$ PRICE	PARTS MANUAL	$ PRICE	ENG. PART MANUAL	$ PRICE	SERVICE MANUAL	$ PRICE	ENG. SVC. MANUAL	$ PRICE
Z-16	53AC225G190	1997	N/A	770-0548M	$4.95	770-0820M	$3.95	N/A	~	N/A	~	BS-272147	$9.00
Z-180	53AC235M190	1997	N/A	770-1048A	$3.95	770-0821M	$3.95	N/A	~	N/A	~	BS-272144	$6.50
Z-200	53AC275K190	1997	N/A	770-1048A	$3.95	770-0821M	$3.95	N/A	~	N/A	~	BS-272144	$6.50
Z-16	53AC225G190	1998	N/A	770-0548M	$4.95	770-0820M	$3.95	N/A	~	N/A	~	BS-272147	$9.00
Z-180	53AC235M190	1998	N/A	770-1048A	$3.95	770-1049B	$4.95	N/A	~	N/A	~	BS-272144	$6.50
Z-200	53AC275K190	1998	N/A	770-1048A	$3.95	770-1049B	$4.95	N/A	~	N/A	~	BS-272144	$6.50
Z-180L	53AC265K190	1998	N/A	770-1048A	$3.95	770-1049B	$4.95	N/A	~	N/A	~	99924-2041-01	$6.50
Z-16	53BA1A3G190	1999	N/A	770-10102	N/A	770-10103	$3.95	N/A	~	N/A	~	BS-272147	$9.00
Z-200	53BA1A6M190	1999	N/A	770-10104	$4.95	770-10105A	$3.95	N/A	~	N/A	~	BS-272144	$6.50
Z-220	53BA1A7K190	1999	N/A	770-10104	$4.95	770-10105A	$3.95	N/A	~	N/A	~	BS-272144	$6.50
ZT-1850	53AA1A5L190	2000	N/A	770-10104E	$4.95	770-10105B	$4.95	N/A	~	N/A	~	BS-273521	$11.95
ZT-2150	53CA1A6M190	2000	N/A	770-10104E	$4.95	770-10105B	$4.95	N/A	~	N/A	~	BS-273521	$11.95
ZT-2250	53CA1A7K190	2000	N/A	770-10104E	$4.95	770-10105B	$4.95	N/A	~	N/A	~	BS-273521	$11.95
ZT-1850	53AA1A5L190	2001	N/A	770-10104E	$4.95	770-10105B	$4.95	N/A	~	N/A	~	BS-273521	$11.95
ZT-2150	53CA1A6M190	2001	N/A	770-10104E	$4.95	770-10105B	$4.95	N/A	~	N/A	~	BS-273521	$11.95
ZT-2250	53CA1A7K190	2001	N/A	770-10104E	$4.95	770-10105B	$4.95	N/A	~	N/A	~	BS-273521	$11.95
ZT-1850	53AA1A5L190	2002	N/A	770-10104E	$4.95	770-10105B	$4.95	N/A	~	N/A	~	BS-273521	$11.95
ZT-2150	53CA1A6M190	2002	N/A	770-10104E	$4.95	770-10105B	$4.95	N/A	~	N/A	~	BS-273521	$11.95
ZT-2250	53CA1A7K190	2002	N/A	770-10104E	$4.95	770-10105B	$4.95	N/A	~	N/A	~	BS-273521	$11.95

NOTES:

**	Parts Breakdowns Listed In Operators Manual.
****	Engine Parts Breakdowns Listed In Parts Manual.
*****	Not Available At The Time Of Printing.
N/A	Not Available.

REV. 4/05/02

NOTES:

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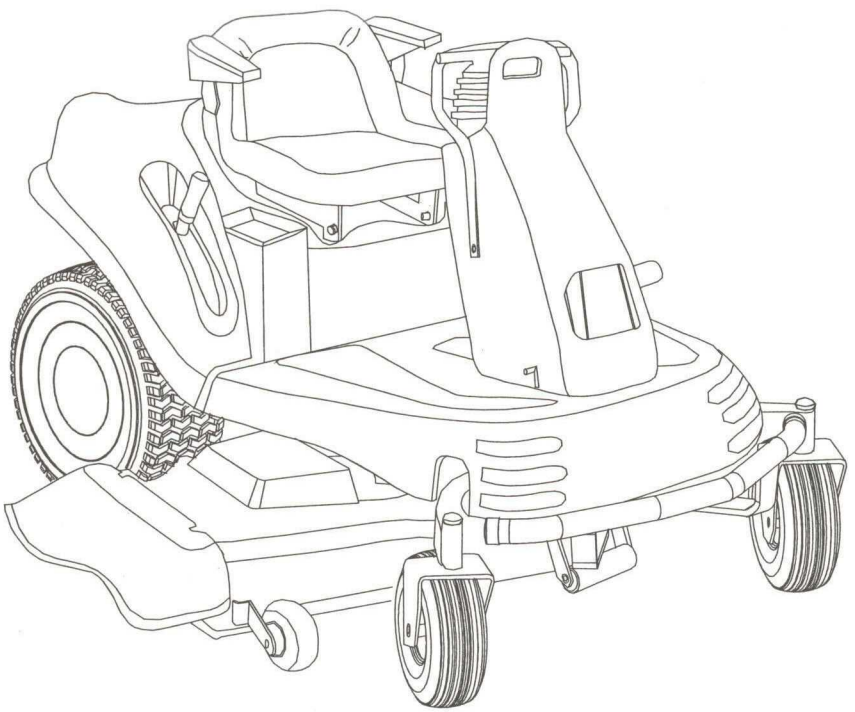

Form No. 769-00436 (81602)