JOHN DEERE
WORLDWIDE COMMERCIAL & CONSUMER EQUIPMENT DIVISION

Sabre Lawn Tractor
14.542GS, 1642HS and 17.542HS

TM1948 JAN02

TECHNICAL MANUAL

JOHN DEERE

North American Version
Litho in U.S.A.

Specifications

Engine

14.542GS

Make	**Briggs & Stratton**
Model	**Intek / 284H07**
Horsepower	**10.8 kW (14.5 hp)**
Displacement	**465 cm3 (28.42 cu in.)**
Cylinders	**1**
Stroke/Cycle	**4**
Valves	**Overhead**
Lubrication	**Pressurized**
Oil Filter	**None**
Crankcase Capacity (Without Filter)	**1.4 L (1.5 qt)**
Cooling System	**Air Cooled**
Air Cleaner	**Paper with outer foam element**
Muffler	**Horizontal discharge below frame**
Spark Plug Gap	**1 mm (0.040 in.)**
Spark Plug Torque	**26 N•m (240 lb-in.)**

1642HS

Make	**Briggs & Stratton**
Model	**Intek / 31F707**
Horsepower	**11.9 kW (16.0 hp)**
Displacement	**500 cm3 (30.52 cu in.)**
Cylinders	**1**
Stroke/Cycle	**4**
Valves	**Overhead**
Lubrication	**Pressurized**
Oil Filter	**None**
Crankcase Capacity (Without Filter)	**1.4 L (1.5 qt)**
Cooling System	**Air Cooled**
Air Cleaner	**Paper with outer foam element**
Muffler	**Horizontal discharge below frame**
Spark Plug Gap	**1 mm (0.040 in.)**
Spark Plug Torque	**26 N•m (240 lb-in.)**

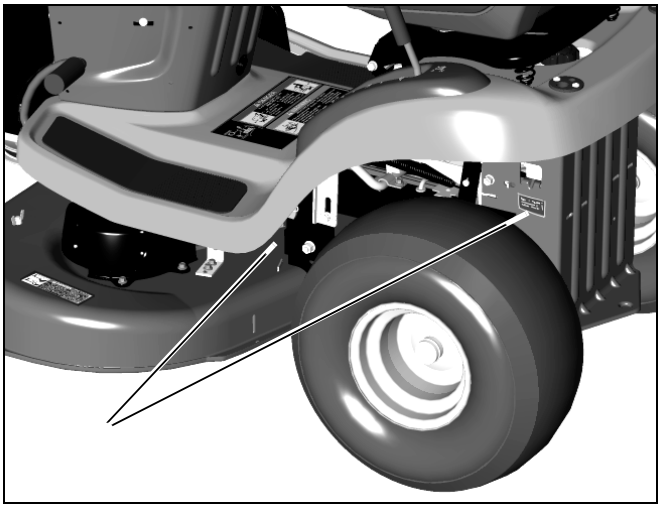
17.542HS

Make	**Kohler**
Model	**Command / CV490S**
Horsepower	**13.1 kW (17.5 hp)**
Displacement	**490 cm3 (29.9 cu in.)**
Cylinders	**1**

Serial Number Locations

Machine Product Identification Number

When ordering parts or submitting a warranty claim, it is IMPORTANT that the machine product identification number (PIN) and component serial numbers are included. The location of the PIN and component serial numbers are shown.



MX7694

Machine: Located on LH side of frame.

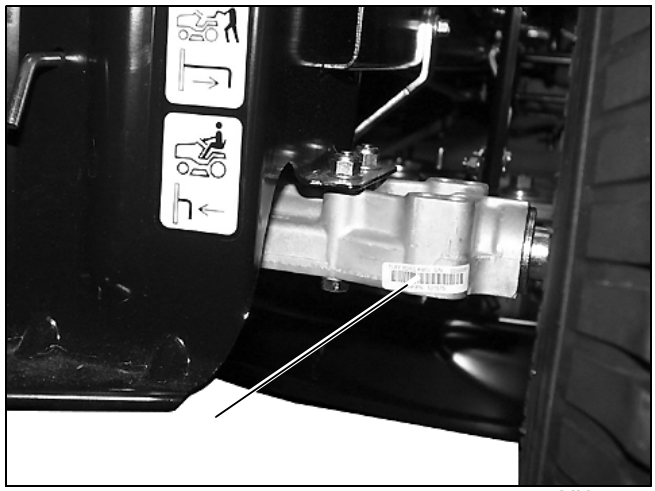
Mower Deck: Located on rear left side of deck.

Engine Serial Number

MX9662

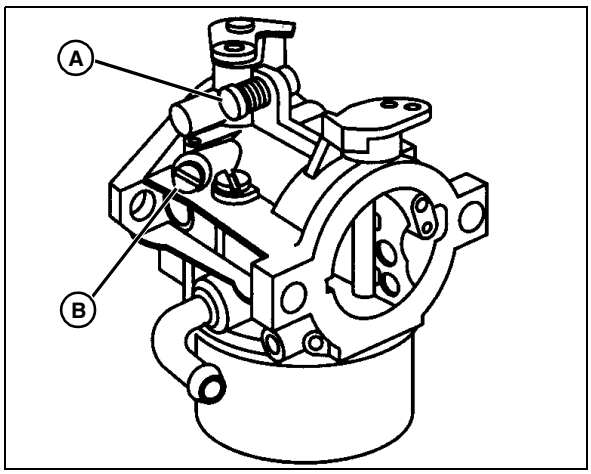
Located on RH side of engine.

Transaxle Serial Number



MX9663

Located on back-right side of transaxle.



M95222

3. Move throttle to idle position.

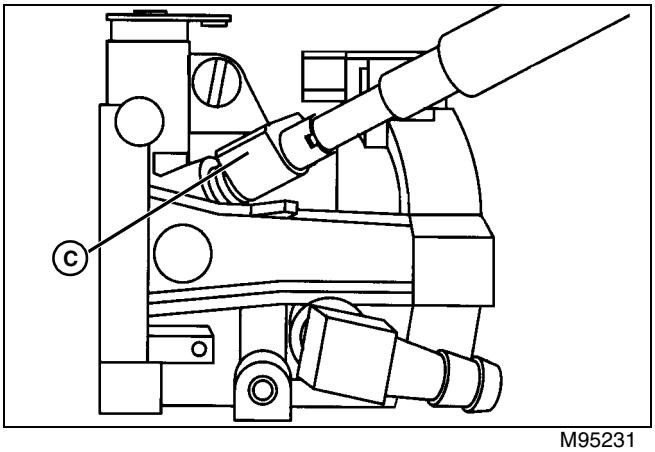
4. Turn idle speed screw (A) to obtain 1750 rpm minimum.

5. Remove the limiter cap from the idle mixture screw (B).

6. Then turn idle mixture screw (B) slowly clockwise until engine just begins to slow. Note position of slot on screw.

7. Now turn idle mixture screw (B) in counterclockwise direction until engine just begins to slow. Note position of slot on screw.

8. Turn screw to midpoint between speed changes.



M95231

9. Install limiter cap (C) with flat facing up.

10.Move throttle control from idle to high speed position. Engine should accelerate smoothly. If it does not, open idle mixture needle screw 1/8 turn. There should be no afterfire.

Specification:

Carburetor Slow Idle Speed. . . . . .1750 rpm

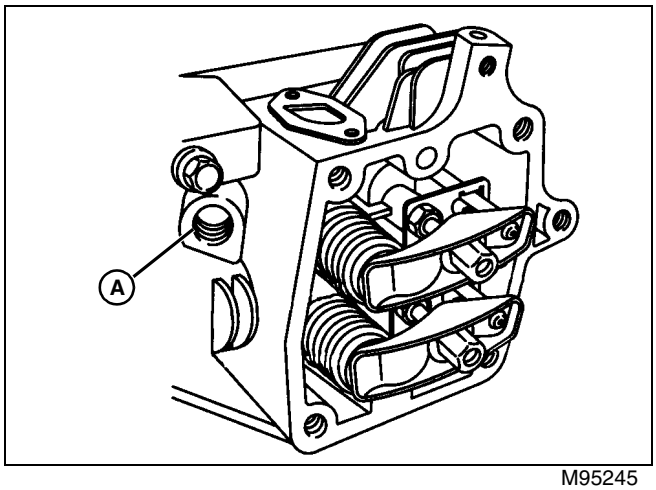
Valve Clearance Adjustment

NOTE: Correct position of crankshaft is necessary to eliminate interference by the compression release mechanism on the cam gear when adjusting valve clearance.

Procedure:

1. Starting with a cold engine, remove valve cover.

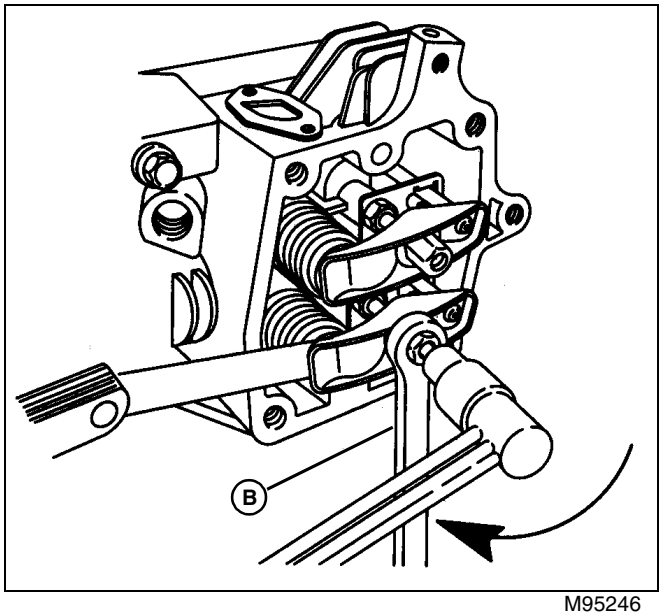
2. Turn crankshaft until piston is at Top Dead Center, (TDC) on the compression stroke (both valves closed).



M95245

3. Insert a screwdriver through the spark plug opening (A) until it touches the top of the piston.

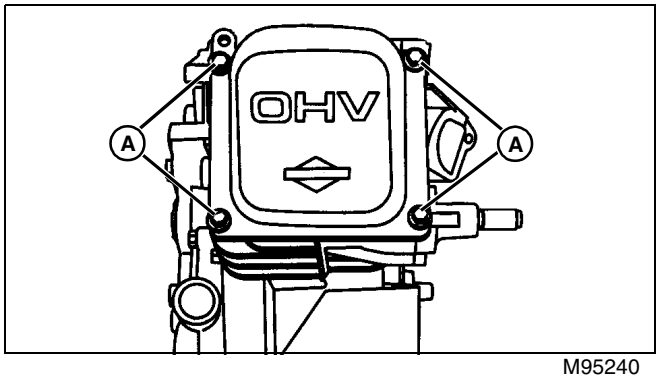
4. Continue to turn the crankshaft clockwise until the piston has moved down 6.35 mm (0.25 in.).



M95246

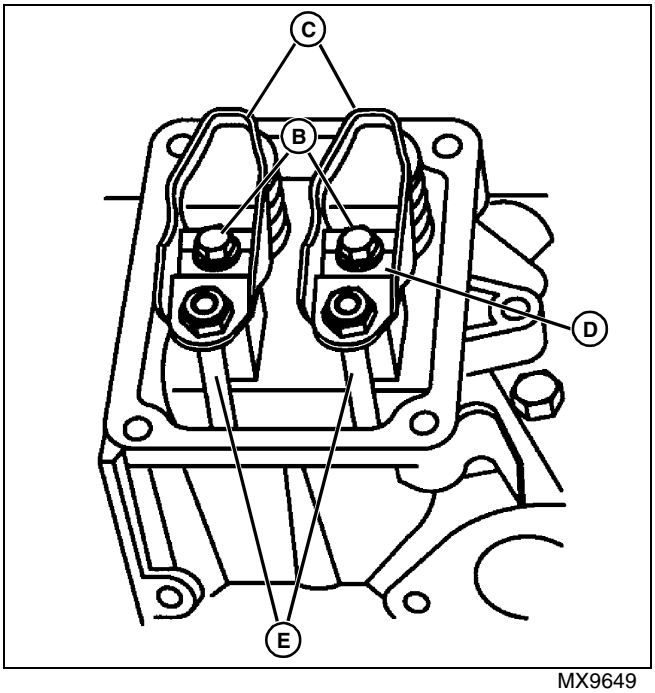
5. Check valve clearance with a feeler gauge between valve stem and rocker arm. Valve clearance should be **0.08 – 0.13 mm (0.003 – 0.005 in.)** for the intake valve, and **0.13 – 0.18 mm (0.005 – 0.007 in.)** for the exhaust valve.

6. If not, adjust as necessary using a 13 mm open end wrench and a 5 mm hex wrench. Tighten lock nut to **6.8 N•m (60 lb-in.)**.



M95240

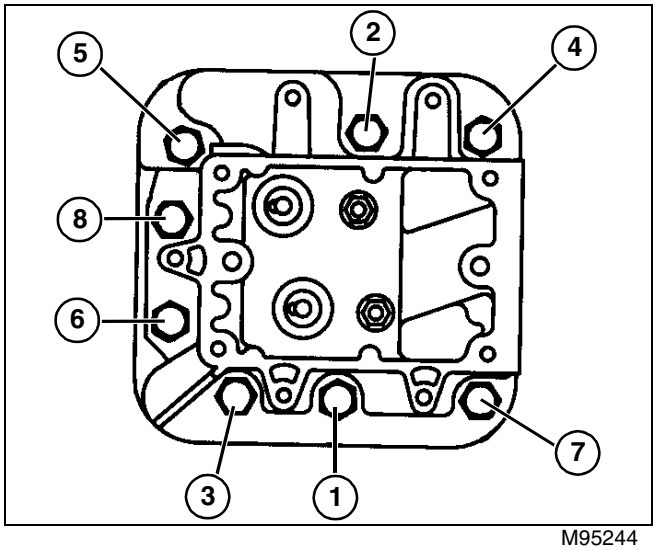
4. Remove four cap screws (A) securing valve cover.



MX9649

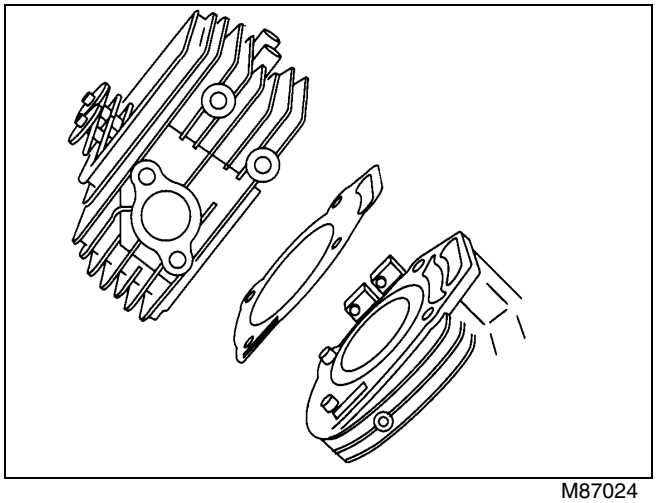
NOTE: Mark the push rods for reassembly in their original position. The exhaust valve push rod is identified with a red stripe.

5. Remove rocker arm support screws (B), rocker arms (C), rocker arm pivots (D), and push rods (E).



M95244

6. Remove eight cylinder head bolts.



M87024

7. Remove cylinder head, cylinder head gasket and push rods.

Installation:

IMPORTANT: Avoid damage! Do not use sealer of any kind on gaskets.

IMPORTANT: Avoid damage! If a boring bar is used, a hone must be used after the boring operation to produce the proper cylinder cross hatch. (See "Cylinder Bore Honing".)

3. If a hone is used to resize the cylinder bore, place hone (A) in middle of cylinder bore (C). Tighten adjusting knob with finger until stones fit snugly against cylinder wall. DO NOT FORCE.

4. Connect drive shaft to hone. Be sure that cylinder and hone are centered and aligned with drive shaft and drill spindle. Lubricate hone as recommended by hone manufacturer.

5. The recommended drill speed is 300 to 700 rpm maximum and 40 – 60 strokes per minute.

6. Because cylinder bores normally wear (H) only in the area of ring travel (B), the cylinder bore will be round above and below ring travel (G).

7. Start drill and, as hone spins, move it up and down at the bottom of the cylinder bore (D).

8. Gradually increase the length of the strokes until hone travels full length of cylinder bore (F). Do not travel more than **19.05 mm (0.750 in.) to 25.4 mm (1.0 in.)** above cylinder bore (E).

9. Lubricate hone frequently to prevent build up on stones.

10.As cutting tension decreases, stop hone and tighten adjusting knob following hone manufacturer's recommendations.

11.Check cylinder bore size frequently.

12.Check cylinder bores at top and bottom for burrs. Remove burrs. Cylinder head and crankcase cover surfaces must be free of burrs and gasket material.

13.After cylinder bore has been brought to proper resizing dimension, a cross hatch must be applied to bore.

Specifications:

Standard Bore Size:

14.5 hp . . . . . 87.30 mm (3.437 in.)

16 hp . . . . . 90.47 mm (3.562 in.)

Oversize Bore:

14.5 hp . . . . . 87.81 mm (3.457 in.)

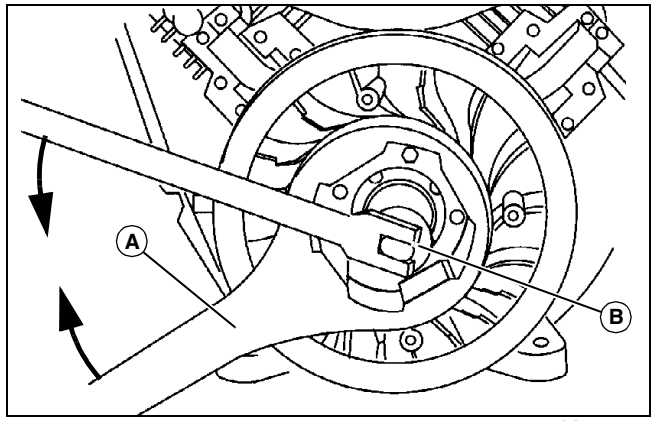
16 hp . . . . . 90.98 mm (3.582 in.)

Flywheel Removal and Installation

Procedure:

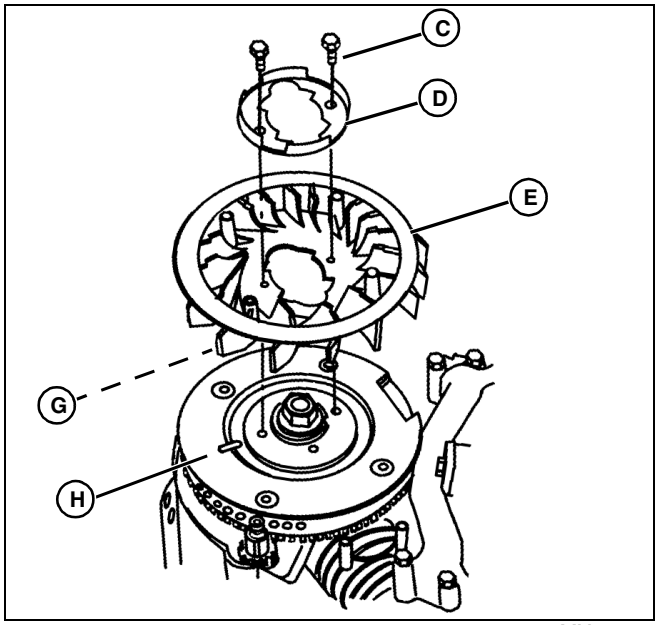
1. Remove rotating screen.

2. Remove blower housing.



M89926

3. Place flywheel holder (A) on fan retainer with lugs of flywheel holder engaging slots on fan retainer. While flywheel holder, loosen flywheel nut using 30 mm socket (B) and wrench.



MX9624

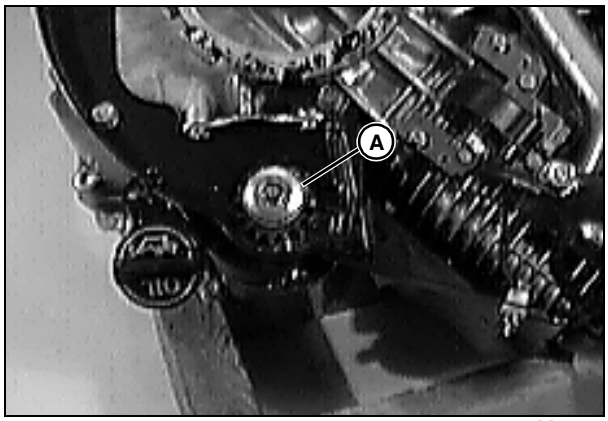
4. Remove two screws (C), fan retainer (D) and fan (E).

IMPORTANT: Avoid damage! Protect crankshaft threads during flywheel removal.

Starting Motor Pinion Gear Replacement

Required Tools:

- JDG1087 C-Ring Remover
- JDG1086 C-Ring Installer

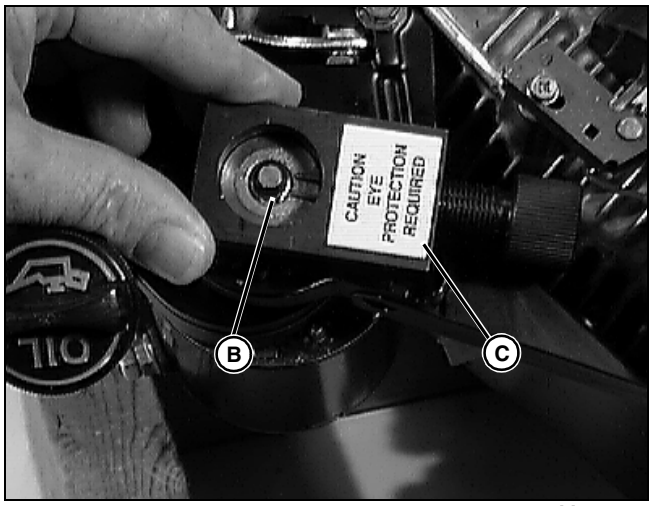


M88982

NOTE: If only the pinion gear (A) is to be replaced, the starting motor does not have to be removed from the engine.

Procedure:

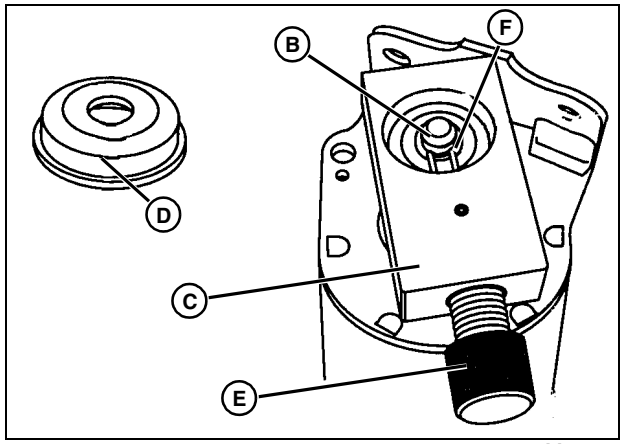
1. Disconnect negative (–) battery cable.
2. Remove upper blower housing and flywheel.



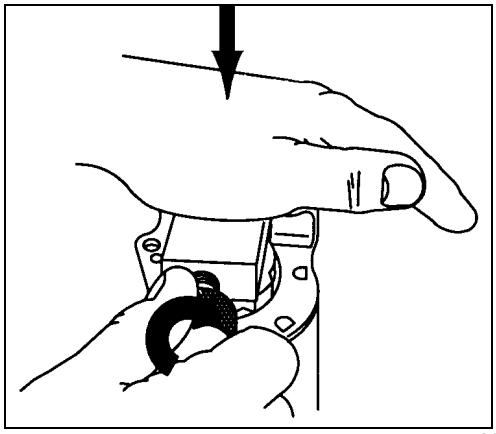
M88981

CAUTION: Avoid injury! To prevent eye injury, always wear eye protection when removing C-ring.

3. Position C-ring (B) using screw driver tip so C-ring removal tool (C) can be aligned properly.



M88955

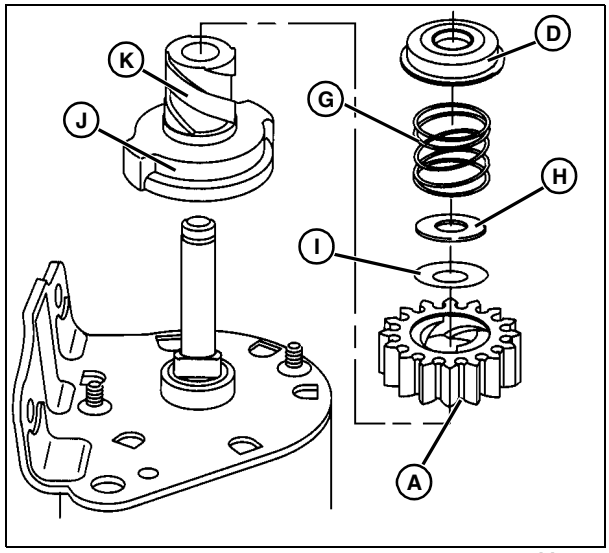


M88956

IMPORTANT: Avoid damage! The C-ring (B) is not reusable once removed.

4. Install C-ring removal tool, JDG1087 (C) over retainer (D) and compress spring.

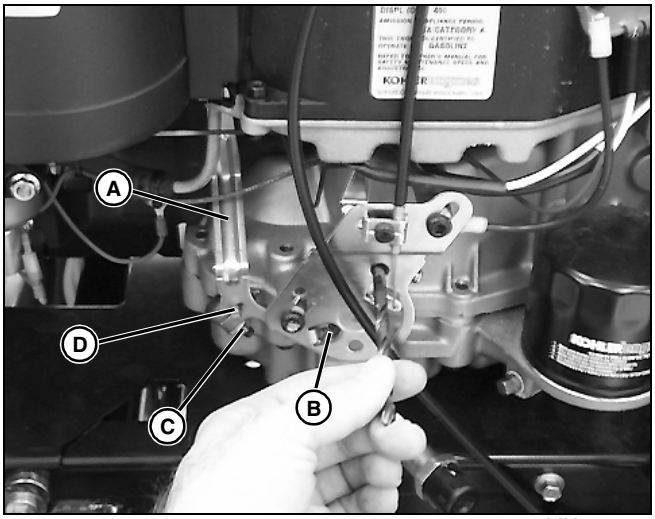
5. Screw in handle (E) until drive pins (F) on tool forces off the C-ring from starting motor shaft.



M86969

Procedure:

1. Move throttle lever to FAST idle position.



MX11570

2. Loosen nut (C).

3. Hold top of governor arm (A) toward carburetor. Turn governor shaft (D) counter-clockwise until it stops. Hold governor shaft and tighten nut.

4. Move throttle lever through full range to be sure linkage is not binding.

5. Governor spring (B) should be installed in the hole closest to governor shaft. If governor is not responding properly, replace spring and readjust fast idle speed. If spring did not correct the problem, repair governor.

Fast Idle Speed Adjustment

Reason:

To set engine fast idle rpm.

Equipment:

- JTO5719 Photo Tachometer
- 6.4 mm (0.25 in.) Drill Bit

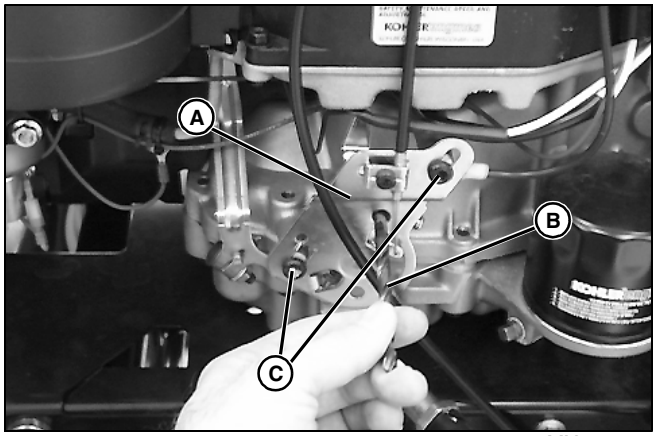
Procedure:

1. Move transaxle shift lever to NEUTRAL position. Engage park brake.

IMPORTANT: Avoid damage! When servicing engine (when the engine is running), it is important to remove hood to avoid damage from muffler exhaust heat source.

2. Remove hood assembly. (See “Hood Removal and Installation” on page 247 in the Miscellaneous section.)

3. Put reflective tape on blower housing screen.



MX11570

4. Start and run engine at MEDIUM idle for five minutes.

CAUTION: Avoid Injury! Engine will be HOT. Be careful not to burn skin.

5. Move throttle lever to FAST idle position.

6. Align holes of throttle lever and throttle control plate with 6.4 mm (0.25 in.) drill bit (B). This keeps the throttle control lever from moving during adjustment. Be sure drill bit is perpendicular to the throttle control plate.

NOTE: A second person must hold drill bit (B) in place in order for the next step to be performed.

7. Use a photo tachometer to check engine rpm at the blower housing screen.

Specifications:

Fast idle speed setting . . . . . .3350 ± 50 rpm

Control panel screw torque. . . . . 10 N•m (89 lb-in.)

Results:

- If fast idle speed does not meet the specifications, loosen cap screws (C)
- Move throttle control plate (A) upward to increase rpm or downward to decrease rpm
- Hold the throttle control plate and tighten cap screws

Slow Idle Speed Adjustment

Reason:

To set engine slow idle mixture and rpm.

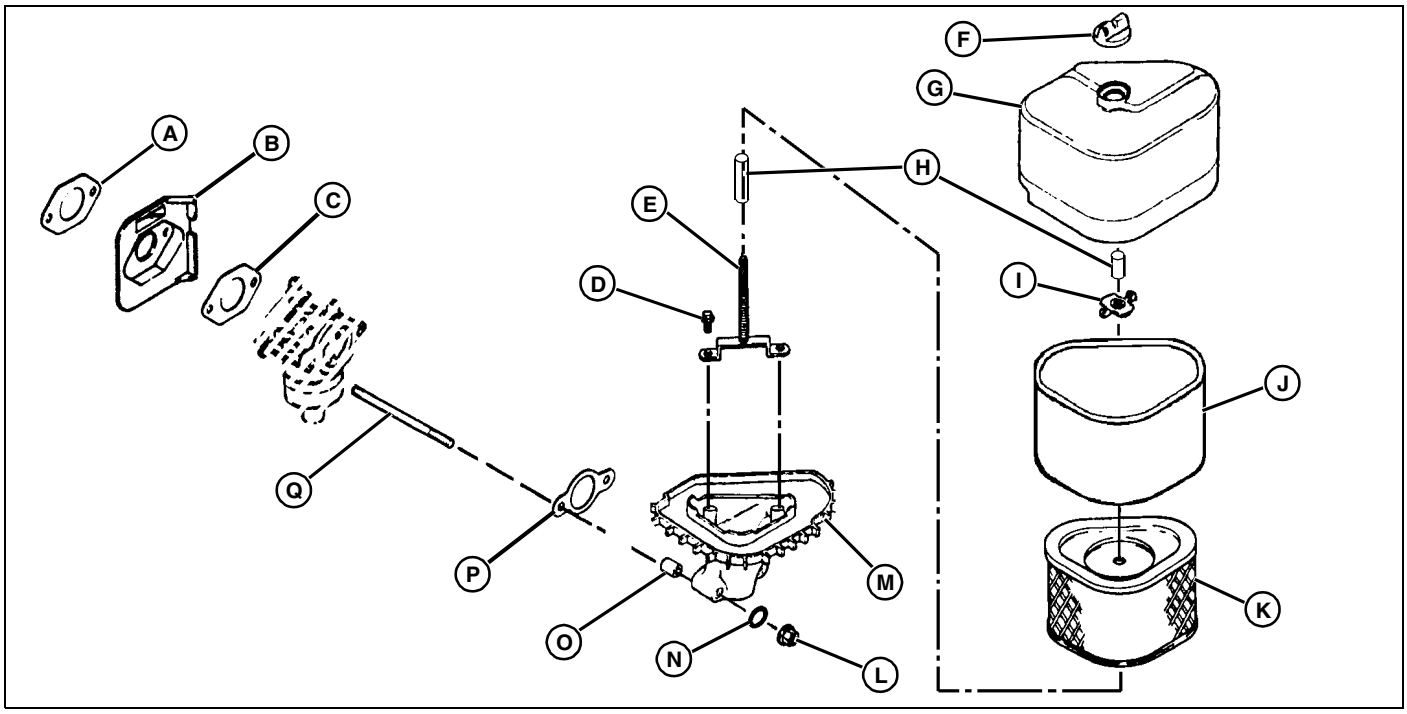
Equipment:

- TO7270 Pulse Tachometer;

or,

- JTO5719 Photo Tachometer

Air Intake System Components



MX9541

A. Gasket

B. Shield

C. Gasket

D. Stud Retaining Screw (Use Thread Lock and Sealer)

E. Stud (Remove Studs to Remove Carburetor)

F. Knob

G. Cover

H. Rubber Seal

I. Wing Nut

J. Foam Element

K. Paper Element

L. Nut

M. Air Cleaner Housing

N. Washer (Used on stud without electrical eyelet of grounding lead.)

O. Sleeve

P. Gasket

Q. Stud

Carburetor Removal and Installation

Removal:

CAUTION: Avoid Injury! Gasoline is explosive. Do not expose to flame or spark. Serious injury can result.

1. Turn ignition switch OFF and disconnect battery negative (–) ground cable.
2. Remove air filter assembly.

Specification:

Cylinder Head Warpage (max.)
. . . . . 0.076 mm (0.003 in.)

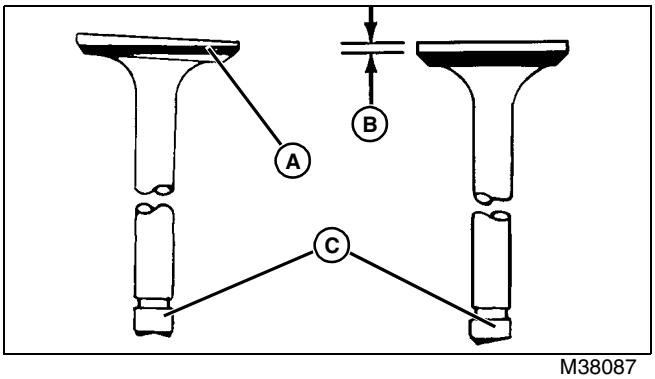
Valves Inspection

Special or Required Tools:

- Dial Indicator

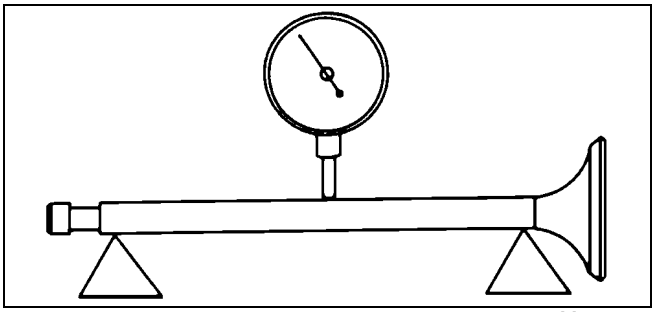
Procedure:

1. Remove carbon from valve head, face, and stem.
2. Check valve for cracks or damage.



M38087

3. Replace warped valves (A) or valves with less than serviceable margin (B). Valve stem ends (C) should be square, not worn uneven as shown.


M51753

4. Inspect valve stems for bends using V-blocks and dial indicator. Turn valve slowly and read variation. Replace if variation is greater than specification.

Specification:

Valve Stem Bend (maximum) . . . . 0.076 mm (0.003 in.)

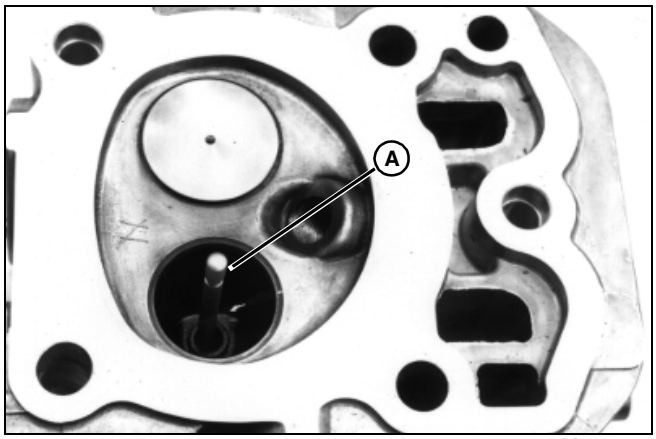
Valve Guides Inspection

Special or Required Tools:

- JDG705 Reaming Tool

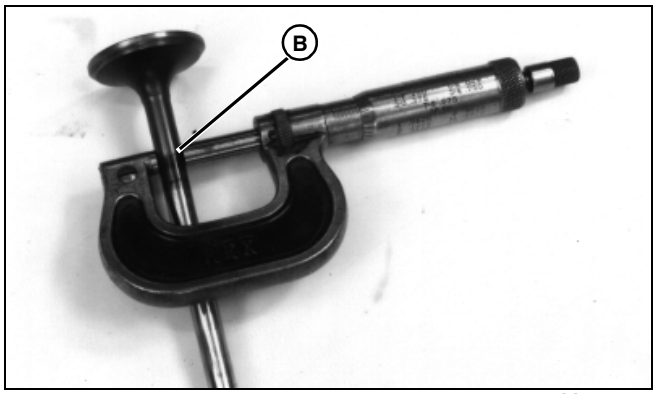
Procedure:

1. Clean inside of valve guide. Standard valve guide reamer can be used.



M52081

2. Measure inside diameter of guide with gauge (A).



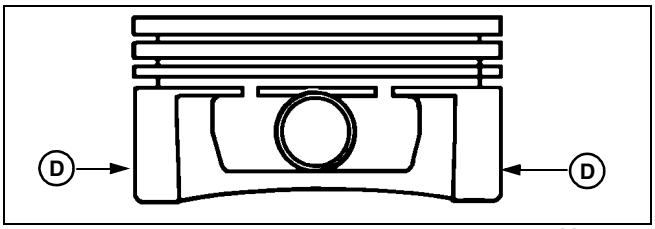
M52082

3. Measure outside diameter of valve stem (B).
4. An oversize valve is available. Replace valve if stem-to-guide clearance is too great.

IMPORTANT: Avoid damage! If guide is reamed oversized, an oversize valve must be installed.

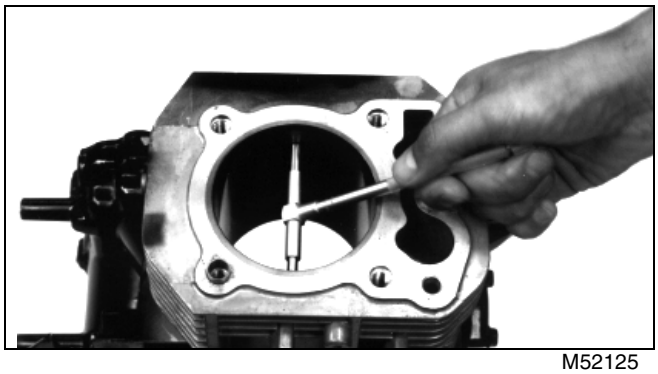
5. Use oversize reaming tool (JDG705) to ream guide, if necessary.
6. Replace cylinder head if inside diameter of guide is greater than oversize specification.

Piston Measurement



M52148

1. Measure diameter of piston at a point (D), 6.4 mm (0.25 in.) from skirt bottom and perpendicular to piston pin. See specifications below.


M52125

2. Measure cylinder bore.

3. Replace piston and/or rebore cylinder block if not within specifications.

Piston Specifications:

Piston Thrust Face OD:
New:. . . . . 86.941 – 86.959 mm (3.4229 – 3.4236 in.)

Minimum:. . . . . 86.814 mm (3.4179 in.)

Thrust Face to Cylinder Bore Clearance:
New:. . . . . 0.055 – 0.063 mm (0.0022 – 0.0025 in.)

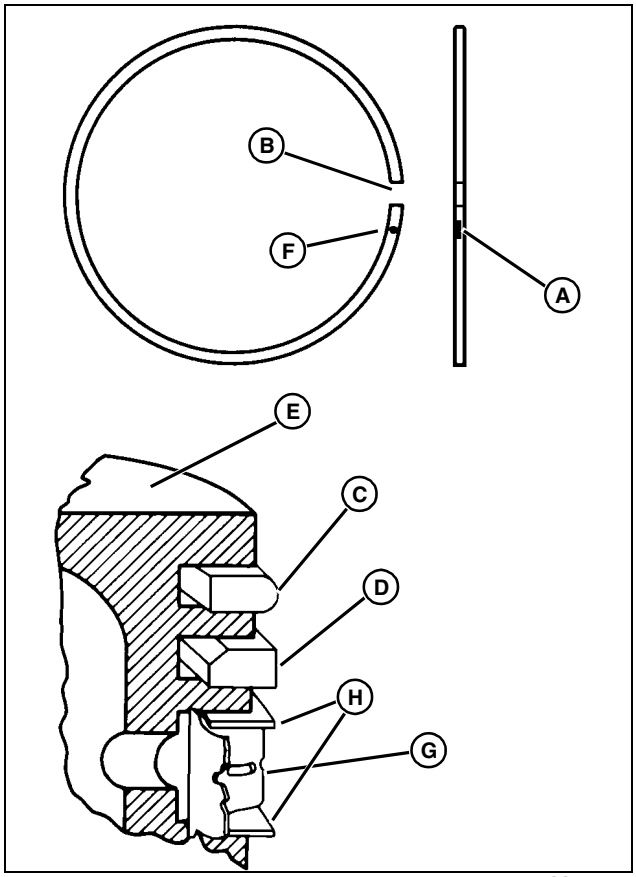
Piston Pin Bore ID:
New . . . . . 19.006 – 19.012 mm (0.7483 – 0.7485 in.)

Maximum. . . . . 19.025 mm (0.7490 in.)

Piston Assembly

Procedure:

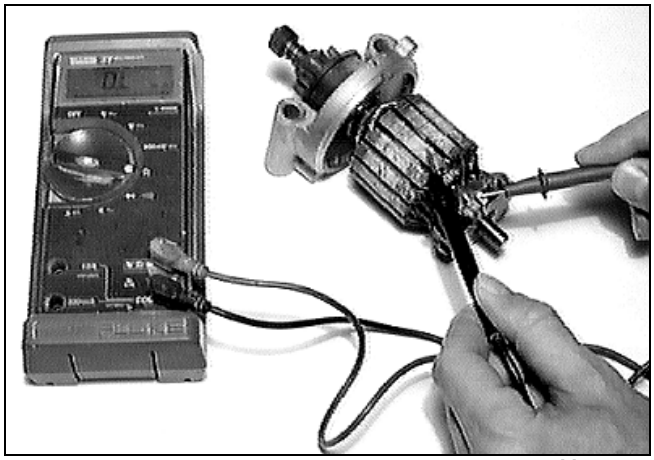
IMPORTANT: Avoid damage! Side of ring marked TOP faces top of piston with Dykem stripe (A) to left of end gap (B). Top compression ring (C) has a blue Dykem stripe. Bottom compression (D) ring has a pink Dykem stripe.



M55898

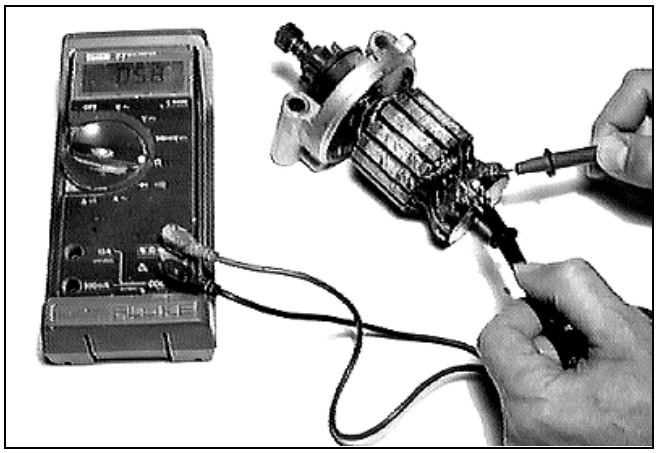
1. Install rings as shown on piston (E) using ring expander.
   - Compression ring gaps (B) should be staggered 120°
   - Note shape of compression rings and install as shown
   - Compression rings should be installed with “Pip” mark (F) up and Dykem strip (A) to left of ring gap
   - Install oil ring spacer (G) first. Make sure that its ends do not overlap
   - Stagger end gaps of oil rails (H) 180° apart
   - Rings should turn freely in grooves

NOTE: Install piston pin before retaining ring to prevent possible scoring of bore.


M55923

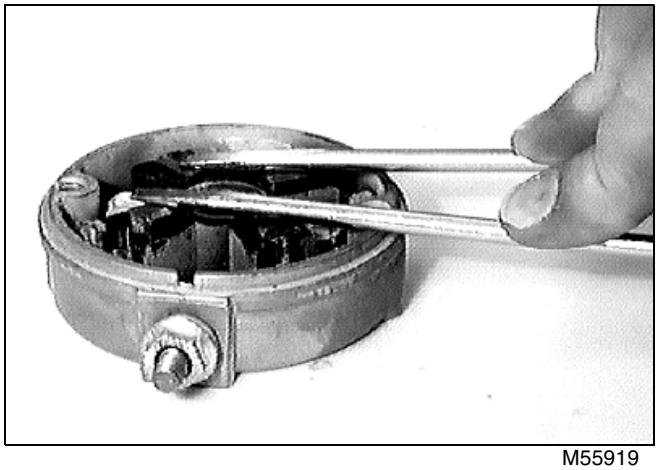
9. Check for grounded windings using an ohmmeter. If any continuity is indicated the winding is grounded and must be replaced.

NOTE: Armature windings are connected in parallel, each bar must be tested.

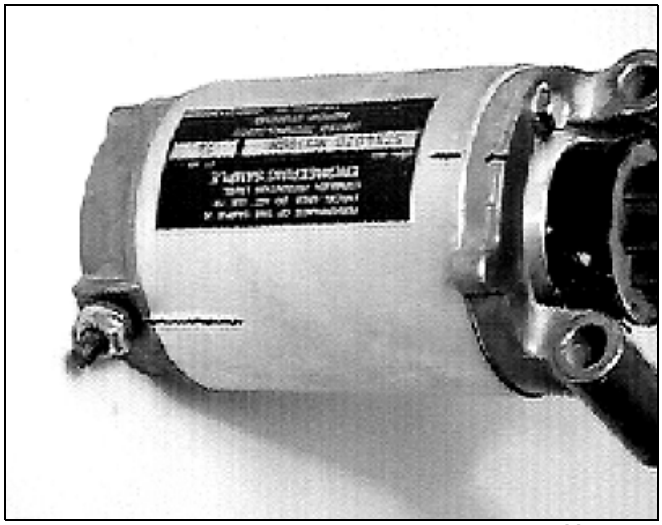

M55924

10.Check for open windings with an ohmmeter. If no continuity is indicated, there is an open circuit and armature must be replaced.

11.Match upper case marks and carefully assemble top end cap and armature in frame.


M55919

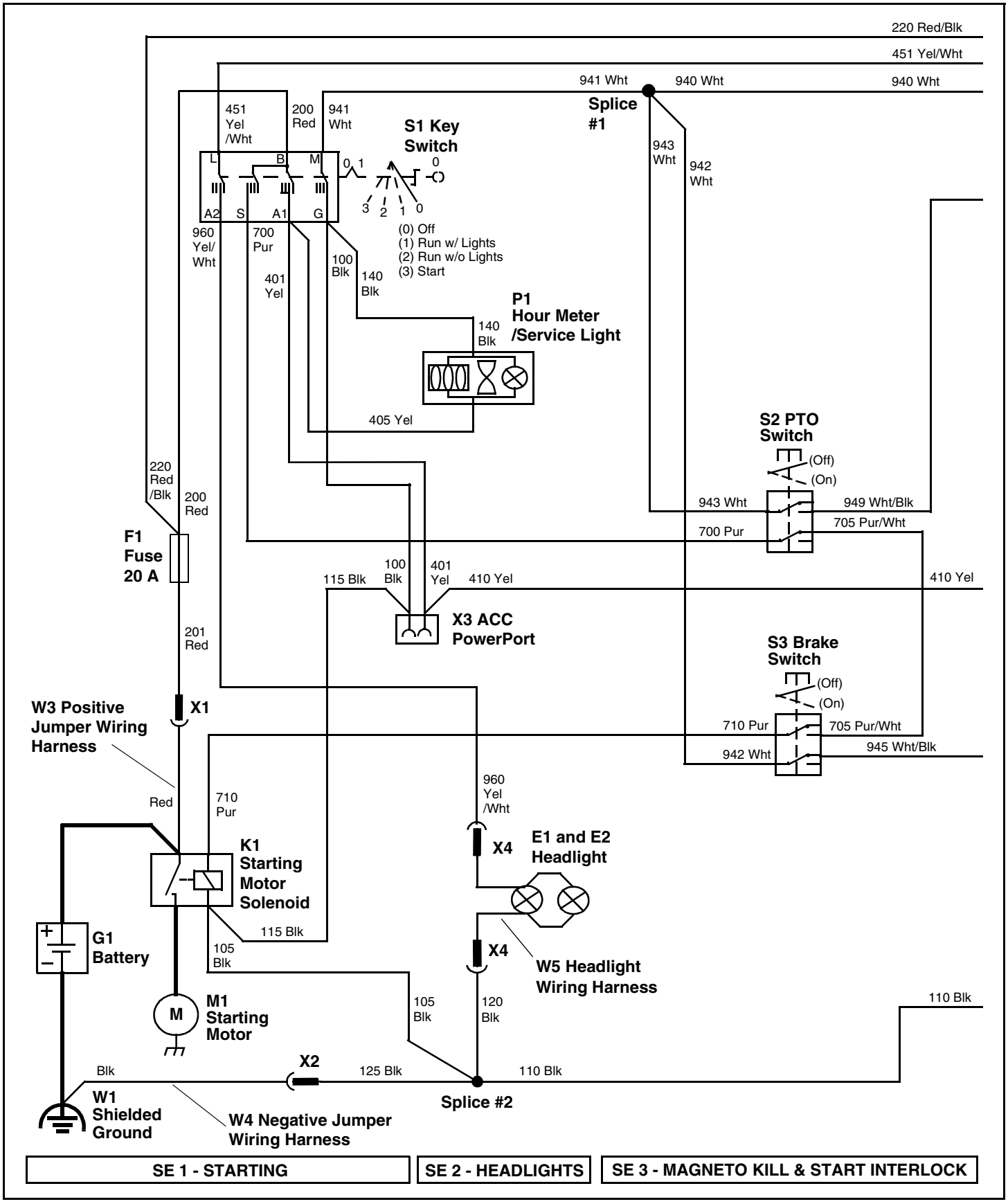
12.Compress brushes into brush holders of bottom end cap using two thin screwdrivers.

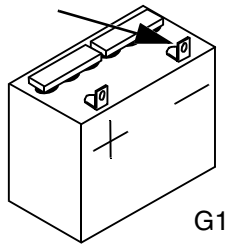

M55921

13.Match lower case marks and carefully assemble starting motor so brushes rest on commutator. Remove screwdrivers carefully.

14.Install long cap screws and tighten evenly.

Main Electrical Schematic

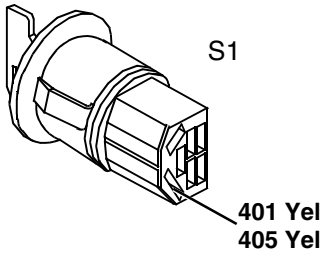
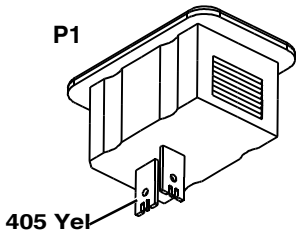
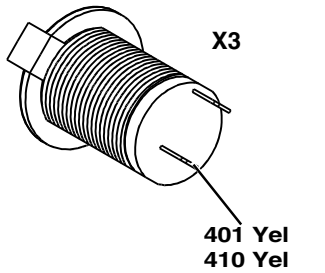


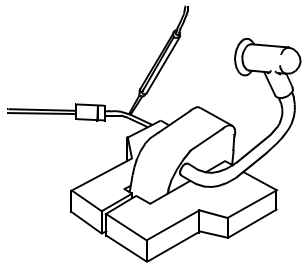
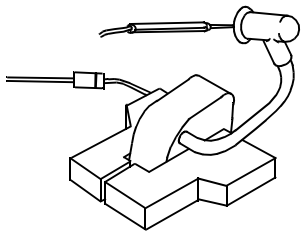
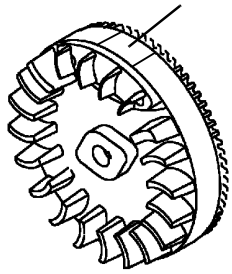
Test Point/Procedure	Results	
Step (5) (G1) battery negative post to ground cable frame connection, test resistance.	**Less than 0.1 ohm resistance. Go To Step (1) of Test Procedure B.** • Check and clean negative battery terminal and retest. Less than 0.1 ohm resistance. **Go To Step (1)** of next Procedure. • More than 0.1 ohm resistance, check and clean harness wires and connections to frame and retest. Less than 0.1 ohm resistance. **Go To Step (1)** of next Procedure.	 MIF

Test Procedure B

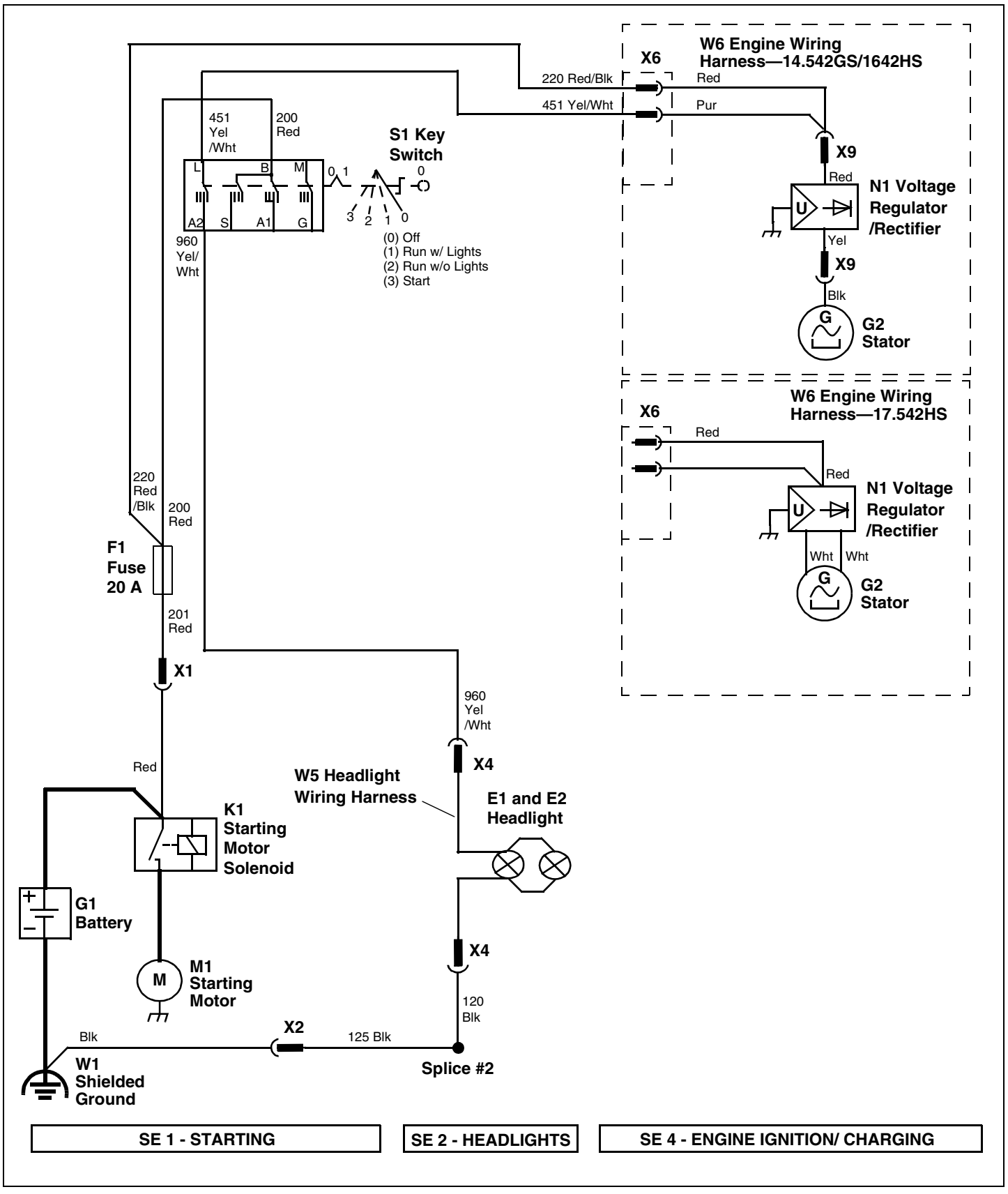
Test Conditions:

- Key switch in RUN position.
- Engine OFF
- PTO in OFF position.
- Park brake engaged.

Test Point/Procedure	Results	
Step (1) (S1) Key switch at 401, 405 Yel wires, test voltage.	**Battery voltage. Go To Step (2)** • Less than battery voltage, replace key switch. **Go To Step (2)**	 MIF
Step (2) (P1) Hourmeter at 405 Yel wire, test voltage.	**Battery voltage. Go To Step (3)** • Less than battery voltage, check 405 Yel wire and connections and retest. Battery voltage. **Go To Step (3)**	 MIF
Step (3) (X3) ACC power port at 401 and 410 Yel wires, test voltage.	**Battery voltage. Go To Step (4)** • Less than battery voltage, check 401 Yel wire and connections and retest. Battery voltage. **Go To Step (4)**	 MIF

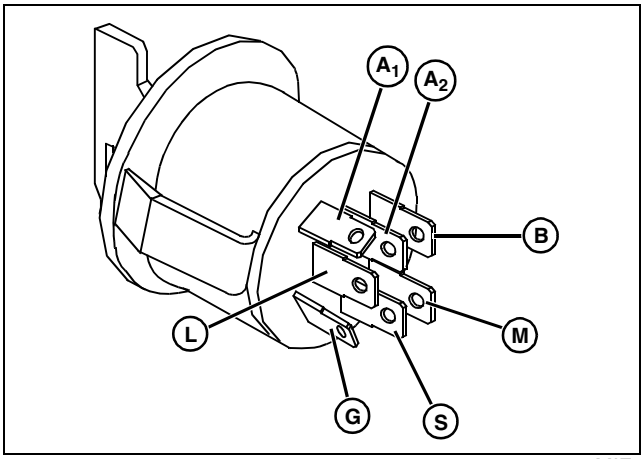
Test Point/Procedure	Results	
Step (2) Coil primary between diode and coil. Measure resistance to ground.	**0.6 ohms. Go To Step (3).** • If resistance high or open circuit replace coil.	 MIF
Step (3) Disconnect spark plug wire. Measure resistance between plug wire and ground.	**4.5 K ohms** • If resistance high, low or open circuit replace coil.	 MIF
Step (4) Flywheel magnets. Measure for magnetism. See “Flywheel Magnet Test” in Tests and Adjustments Section.	**Small screwdriver attracted to flywheel magnet.** • If no or little magnetism, replace flywheel.	**Flywheel Magnet**  MIF

Headlight Circuit Electrical Schematic



- Remove connector from back of key switch

Procedure:



MIF

1. Connect meter leads to pairs of switch posts and compare to specifications.

2. For ignition circuit, turn key switch from OFF to RUN position.

3. For starting circuit, turn key switch from RUN to START position.

Results:

- If key switch does not pass all tests, replace switch

Specifications:

Switch in OFF (Stop)

. . . . . continuity between M, G and A1

Switch in RUN 1 (With Lights)

. . . . . continuity between B and A1

. . . . . continuity between L and A2

Switch in RUN 2 (Without Lights)

. . . . . continuity between B and A1

Switch in START

. . . . . continuity between B, S and A1

PTO/Brake Switch Test

Reason:

To determine proper operation of the switch used in either the PTO or Brake position.

Equipment:

- Ohmmeter

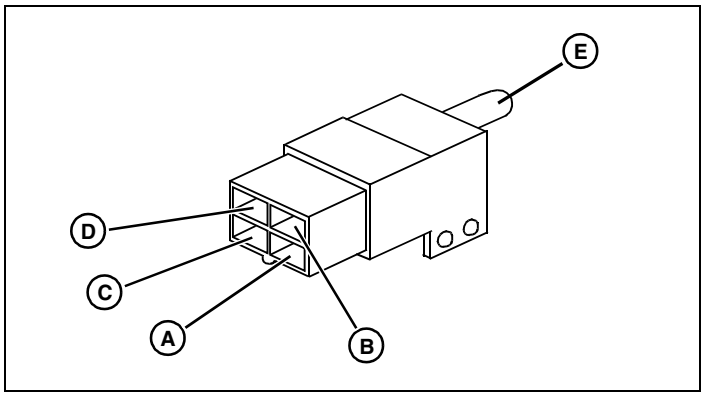
Test Connections:

- Set ohmmeter for 1X scale

NOTE: On analog (swing needle) Ohmmeters, set zero point before each test.

Procedure:

1. Remove connector from PTO or Brake switch. Remove switch if needed to access terminals properly.



MIF

2. Connect meter leads to pairs of switch posts and compare to specifications.

3. Press and release plunger (E) of switch.

Results:

- If PTO or Brake switch does not pass all tests, replace switch.

Specifications:

Switch plunger not pressed)

. . . . . continuity between A and B

. . . . . no continuity between C and D

Switch plunger pressed)

. . . . . no continuity between A and B

. . . . . continuity between C and D

RIO Switch Test

Reason:

To determine proper operation of the RIO switch.

Equipment:

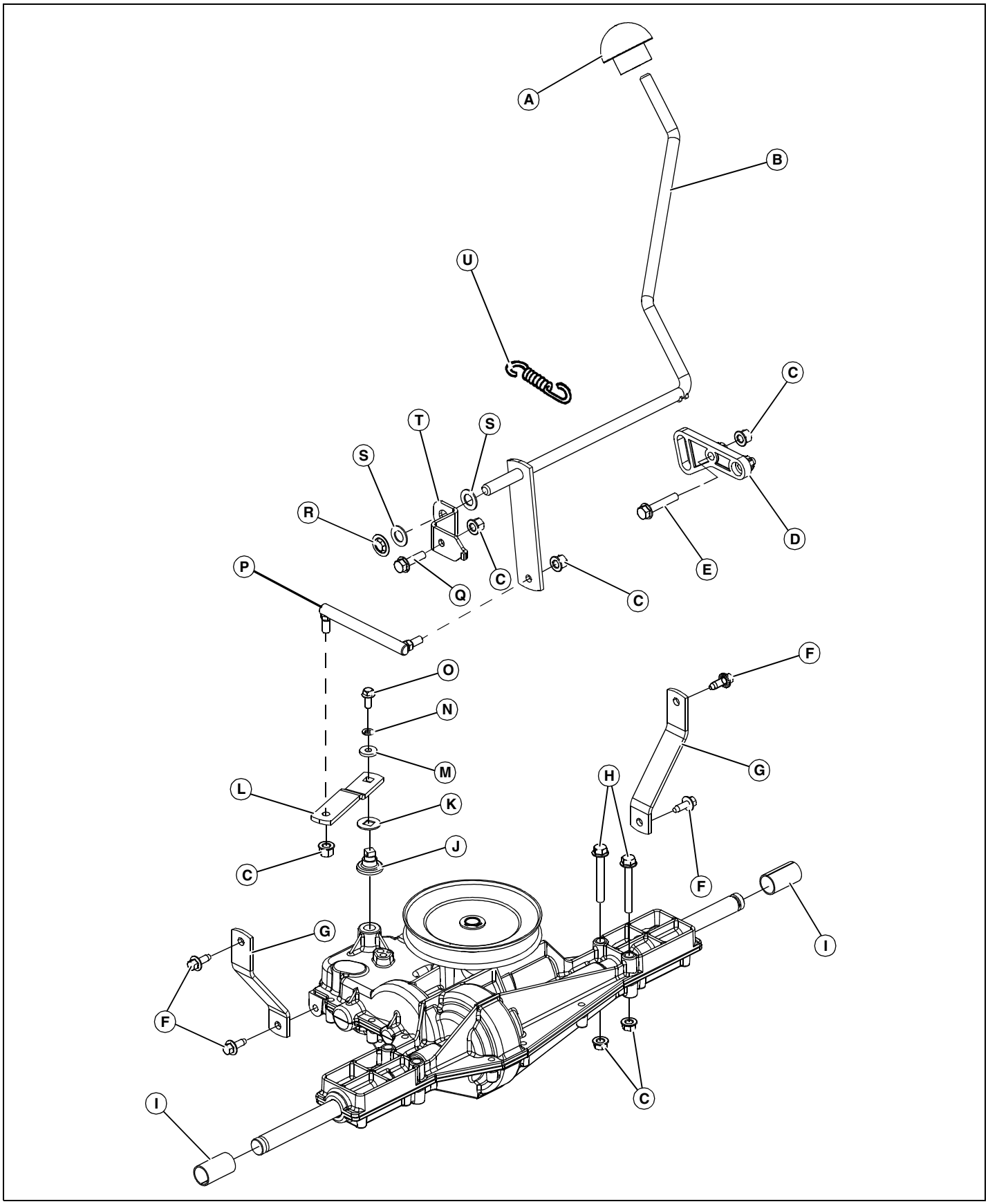
- Ohmmeter

Test Connections:

- Set ohmmeter for 1X scale

NOTE: On analog (swing needle) Ohmmeters, set zero

Forward and Reverse Drive and Linkage



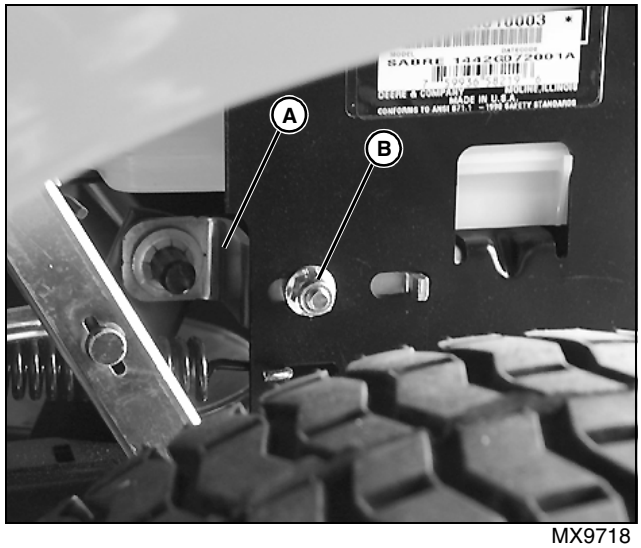
MIF

Tests and Adjustments

Shift Linkage Adjustment

Procedure:

1. Jack and support machine to remove left rear wheel.
2. Place shifter in NEUTRAL position.



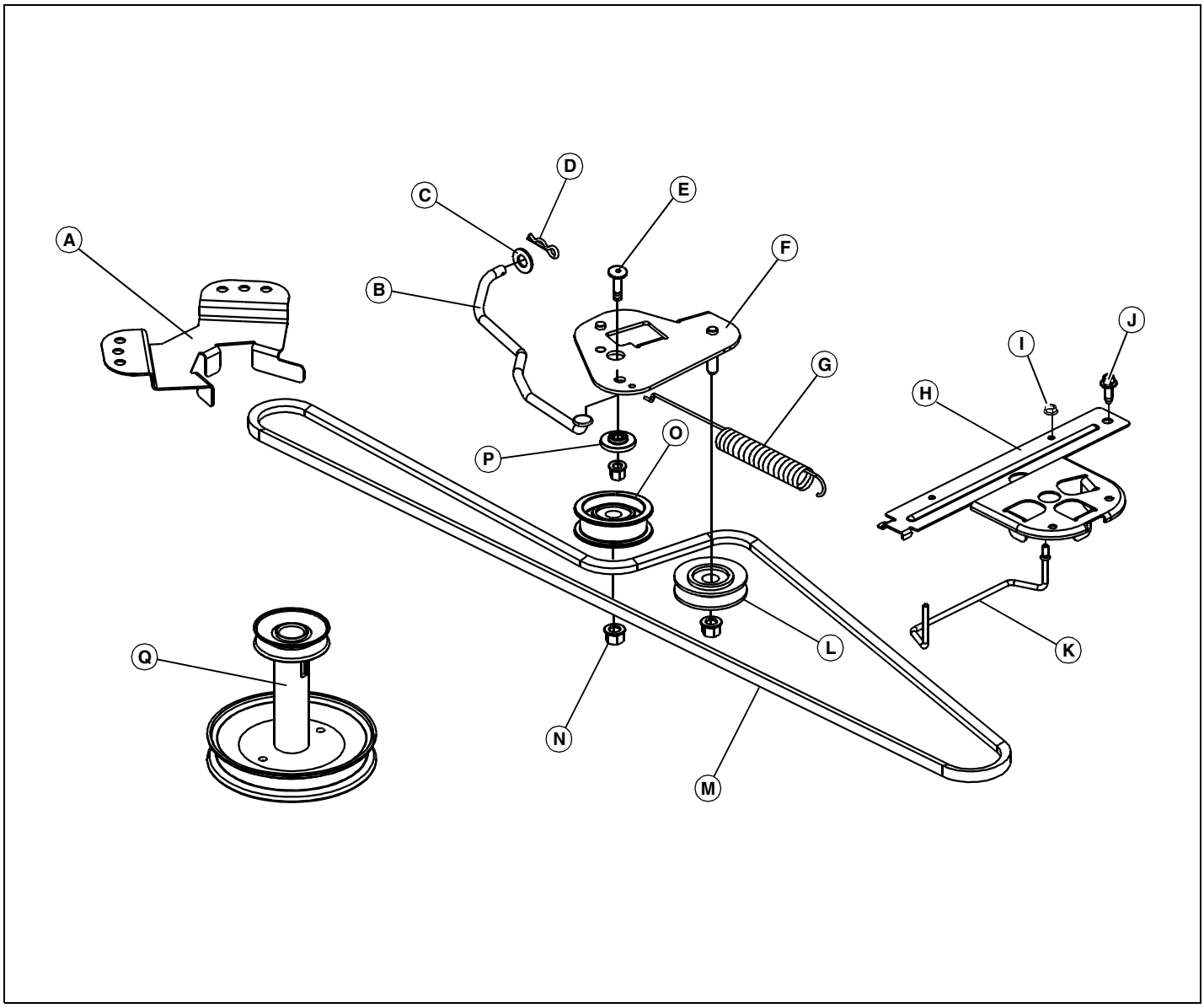
MX9718

3. Loosen nut (B) on shaft mount (A).

MX9719

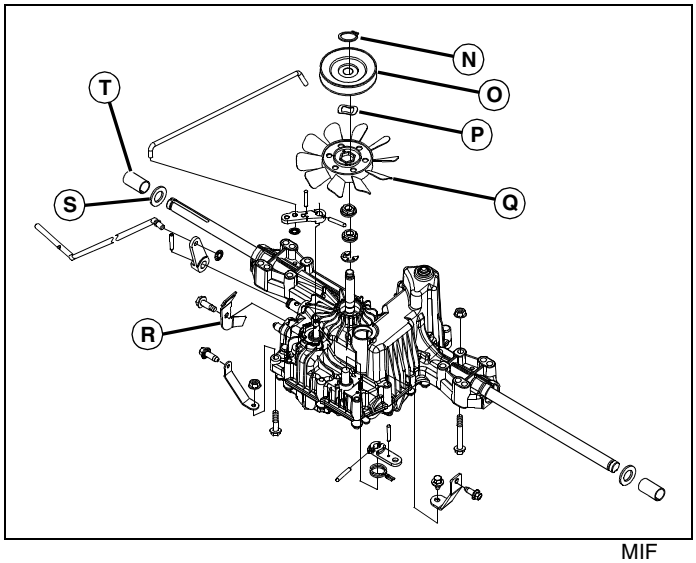
4. Slide shaft mount forward or backward to center shifter in the NEUTRAL slot (C).
5. Tighten nut (B) on shaft bracket.

Drive Components



MIF

A - Belt Guide
B - Clutch Rod
C - Washer
D - Spring Pin
E - Carriage Bolt
F - Idler Arm
G - Extension Spring
H - Belt Guide
I - Nut
J - Screw, Self Tapping
K - Belt Guide (wire form)
L - V-Idler
M - Traction Drive Belt
N - Lock Nut
O - Idler
P - Bushing
Q - Sheave, Engine Drive



MIF

13.Inspect transaxle control arms and transaxle sheave and fan, and replace as necessary.

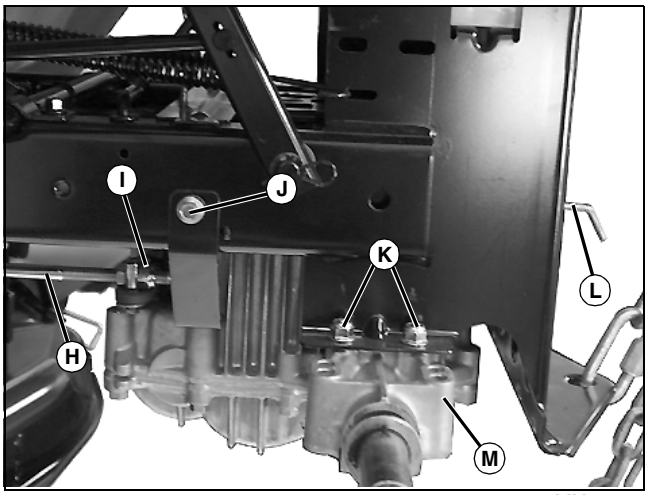
14.Remove transaxle fan (Q), by removing snap ring (N), sheave (O), and wave washer (P). Replace parts, as necessary.

15.Remove washers (S) and bushing (T) from end of each shaft, and inspect for wear or damage.

NOTE: Recall location and orientation of RIO switch bracket (R) when removing and installing, noting that tip of bracket contacts the parting surface of upper housing.

Installation:

IMPORTANT: Avoid damage! When installing transaxle, be careful to move transaxle appropriately to install freewheel rod (L) through back of tractor frame.



MX9688

1. Raise transaxle (M) up to frame using caution to place transaxle sheave through slots in belt guide (attached to frame).

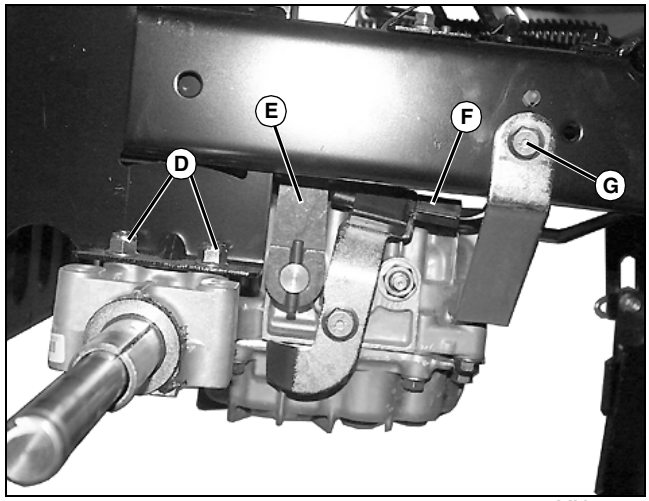
2. Install forward/reverse control rod to control arm (E) on transaxle, and secure with retainer.

3. Install bolts (K) and nuts. **Do not** tighten nuts at this time.

4. Install bolt (J) through bracket and frame.

NOTE: When putting brake rod (H) back onto transaxle control arm, it will be necessary to adjust brake rod. (See "Brake Adjustment – Hydro" on page 217 in the Brakes section.)

5. Pull brake rod (H) forward and place into control rod end on transaxle. Secure with nut (I).

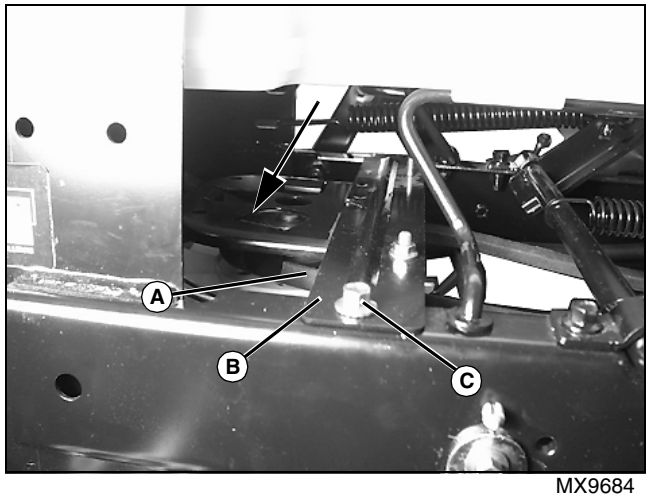


MX9687

6. Install bolt (G) to transaxle brace on right side of tractor frame.

7. Install bolts (D) and nuts securing transaxle to frame. Tighten nuts on both sides of tractor to **40 N•m (30 lb-ft)**.

8. Connect RIO switch wiring harness at connection (F).



MX9684

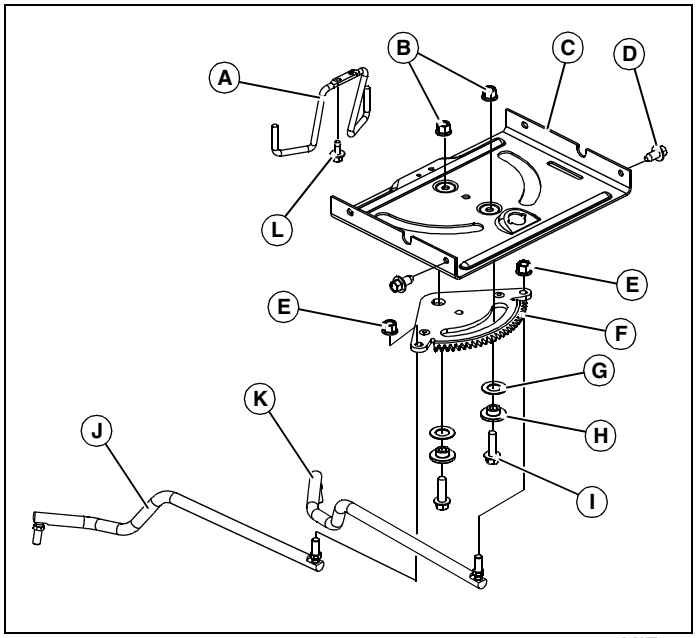
Steering Sector Gear Removal and Installation

Removing:

1. Disconnect battery and remove.

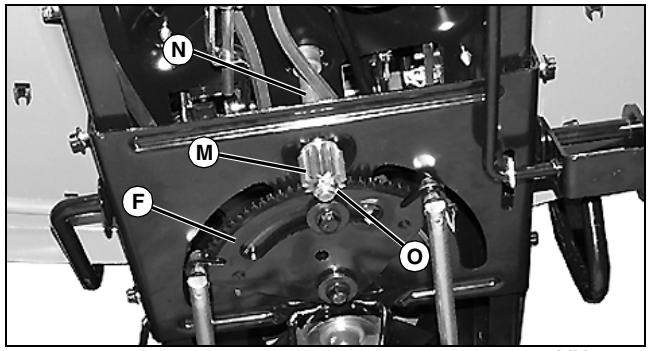
2. Remove mower deck (See “Mower Deck Removal and Installation” on page 239 of the Attachments section.

3. Safely raise front and back wheels to a working height.



MIF

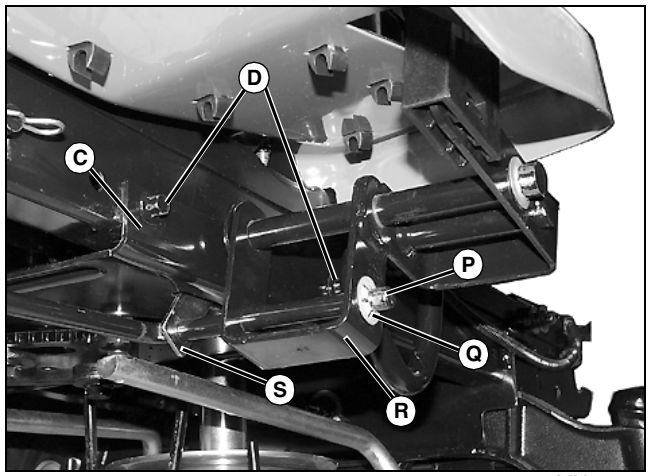
A - Belt Guide
B - Lock Nut
C - Plate
D - Screw (self-tapping)
E - Lock Nut
F - Steering Sector Gear
G - Washer
H - Bushing
I - Screw
J - Left Hand Drag Link
K - Right Hand Drag Link
L - Screw



MX9680

4. Remove nut (O) and pinion gear (M).

5. Raise steering control rod (N) just enough to clear sector gear (F).



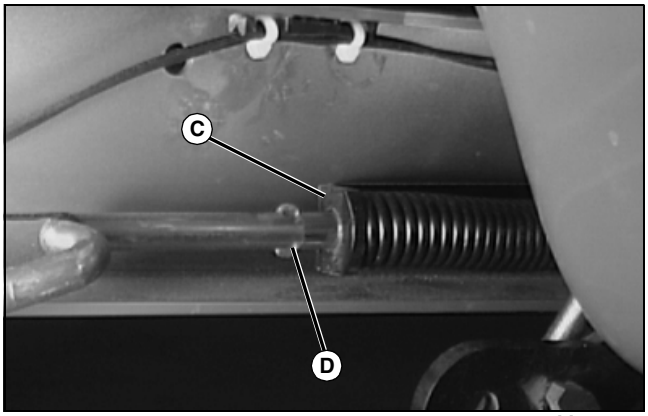
MX9680

6. Hydro models: Remove retainer (Q) from forward/reverse rod (P), and remove rod from pedal assembly (R) and cruise control bracket (S).

IMPORTANT: Avoid damage! Remove nut from draglinks (J and K) at wheel end before lowering plate (C). This prevents breakage of ball joints.

7. Remove screws (D) from bracket (C) on both sides of tractor.

NOTE: Be careful when lowering plate (C). Note location for hardware and linkage for forward/reverse pedal assembly during this procedure.



M89121

2. Push clutch/brake pedal and lock lever into PARK position from the operator's station.

3. Measure distance between end of compression spring bracket (C) and front edge of brake rod stop tabs (D).

Specifications:

Distance between Compression Spring Bracket & Brake Rod Stop Tabs . . . . . 7 – 9 mm (0.28 – 0.35 in.)

4. If not to specifications, release brake and adjust brake lever tension nut.

5. Repeat steps 3 and 4 until specified measurement is obtained when brake is applied.

6. Check to be sure the brake does not drag when released. If brake drags, replace friction pucks and disc and readjust.

NOTE: These adjustment procedures can be performed with tractor on the floor; however, you may want to safely raise the tractor for easier access. If you do, remove the battery to avoid spilling any electrolyte solution.

Brake Adjustment – Hydro

Procedure:

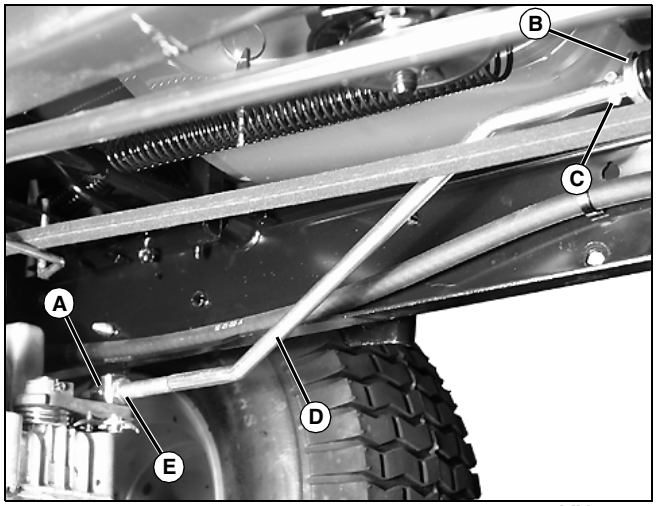
1. Park machine on level surface.

2. Turn key switch off.

3. Place transaxle in NEUTRAL position.

4. Block wheels to prevent machine from moving.

5. Remove mower deck. (See "Mower Deck Removal and Installation" on page 239 in the Attachments section.)



MX9682

6. Push clutch/brake pedal and lock lever into PARK position from the operator's station.

7. Measure distance between end of compression spring bracket (B) and front edge of brake rod (D) stop tabs (C).

Specifications:

Distance between Compression Spring Bracket & Brake Rod Stop Tabs . . . . . 7 – 9 mm (0.28 – 0.35 in.)

8. If not to specifications, release brake and adjust brake lever tension nuts (A) and (E).

9. Repeat steps 3 and 4 until specified measurement is obtained when brake is applied.

10. Release parking brake and check for a dragging brake; adjust as necessary.

NOTE: These adjustment procedures can be performed with tractor on the floor; however, you may want to safely raise the tractor for easier access. If you do, remove the battery to avoid spilling any electrolyte solution.

Specifications

Repair Specifications

42-Inch Mower Deck:

Type	**Rotary - Mulch, Bag or Side Discharge**
Cutting Blade	**Two—63.5 x 4 x 545 mm (2.5 x 0.16 x 21.5 in.)**
Blade Cutting Edge	**30 ± 5° Angle**
Overall Cutting Width	**106.7 cm (42 in.)**
Cutting Height (approximate)	**25 – 102 mm (1 – 4 in.)**
Blade Cap Screw	**62 N•m (46 lb-ft)**
Gage Wheels-To-Deck	**34 N•m (25 lb-ft)**
Spindle Mounting Screws	**27 N•m (20 lb-ft)**
Spindle Lubrication	**Do Not Grease**

Repair

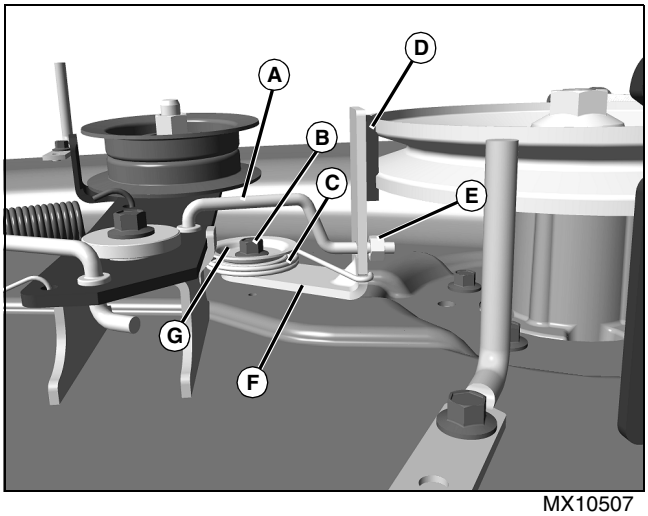
Blade Brake Removal and Installation

Removal:

1. Park machine safely. Stop engine and set parking brake.

2. Disengage PTO lever.

3. Remove mower deck. (See “Mower Deck Removal and Installation” on page 239.)



MX10507

4. Inspect spindle brake pads (D) for wear. Minimum thickness of each brake pad is **5 mm (0.197 in.) including backing plate.**

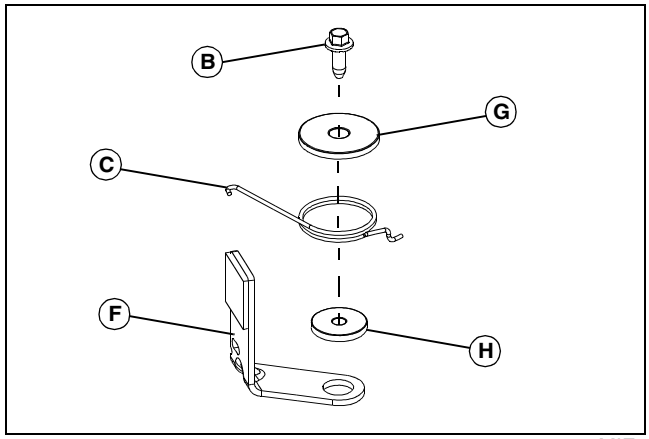
5. If brake(s) must be replaced, remove nut (E) on brake rod (A).

CAUTION: Avoid injury! Remove spring (C) loaded sheave brake assembly with care. Spring is loaded and under tension.

6. Remove bolt (B), washer (G), and spring (C) holding sheave brake arm (F) to deck.

7. Inspect sheave brake assembly for brake pad thickness and other wear or damage.

Installation:



MIF

NOTE: Clean sheave with brake cleaner to ensure surface is free of dirt or grease.

1. Install spring (C) in position on deck.

2. Put bushing (H), spring (C), washer (G), and bolt (B) onto brake arm (F).

3. Rotate arm and spring assembly, while tightening bolt (B) to **27 N•m (20 lb-ft)**.

4. Install brake rod (A) through brake arm (F) and install nut (E) on end of brake rod.

5. Adjust brake. (See “Blade Brake Adjustment” on page 235.)

Mower Blade Removal and Installation

Removal:

CAUTION: Avoid injury! Mower blades are sharp. Always wear gloves when handling mower blades or working near blades.

1. Raise mower deck to gain access to mower blades. If necessary, remove mower deck. (See “Mower Deck Removal and Installation” on page 239.)

2. Block mower blade with a piece of wood to prevent it from spinning.

Installation:

1. Grease spindles with specified grease.
2. Install new shim washers, wheel, and washer (C) on axle.
3. Install snap ring (B).
4. Install plastic cap.

Front Wheel Bushing Removal

Procedure:

1. Remove wheel.

M89738

2. Measure ID of bushing (A). If not within specifications, replace bushing.

IMPORTANT: Avoid damage! If bushings are loose in wheel hub replace wheel.

3. Use a finger puller on a slide hammer to remove bushing from wheel hub.
4. Install new bushings using suitable driver on outside race of bushing.

Specifications:

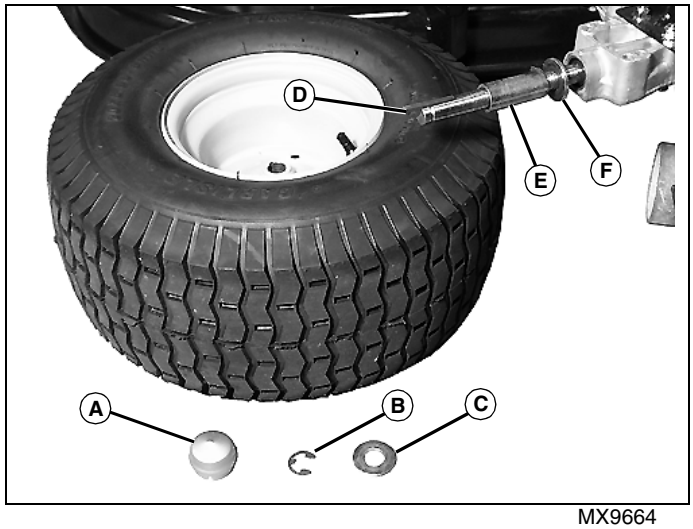
Wheel Bushing

OD . . . . . 35 mm (1.378 in.)
ID . . . . . 19.15 (0.754 in.)
Axle Diameter . . . . . 18.97 mm (0.747 in.)

Rear Wheel Removal and Installation

Removal:

1. Safely lift and support tractor.



MX9664

2. Remove plastic cap (A), snap ring (B), and washer (C).
3. Remove wheel.
4. Remove key (D) (shown on end of transaxle shaft), spacer (E) and back washer (F).

Installation:

NOTE: Rear wheels are installed with valves to the outside.

1. Install back washer (F), spacer (E), and key (D).
2. Install rear wheel, washer (C), snap ring (B) and plastic cap (A).

Hood Removal and Installation

Removal:

CAUTION: Avoid injury! Touching hot surfaces can burn skin. The engine and components will be hot if the engine has been running. Allow the engine to cool before removing hood.

1. Let engine cool.
2. Pivot hood to open position.