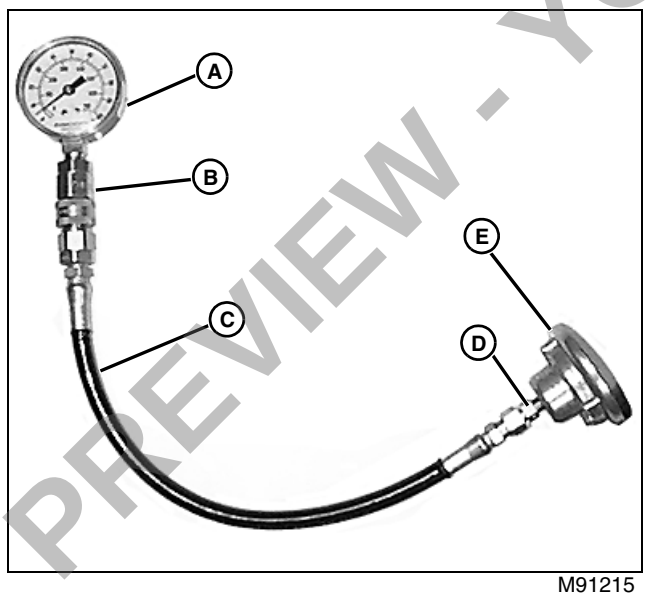
Procedure:



M89105

1. Perform test procedure with engine level.
2. Stop engine.
3. Disconnect spark plug wire and allow engine to cool.
4. Drain engine oil from oil filter.
5. Remove oil filter and wipe filter base clean.
6. Install pre-assembled adapter (A), connector, hose assembly, coupler, and gauge (B) on to oil filter base. ONLY hand-tighten adapter to oil filter base.
7. Check crankcase oil level and adjust to full mark.



M91215

A - JT07034 Gauge
B - JT03262 Coupler
C - JT03017 Hose Assembly
D - JT05487 Connector
E - JT07262 Oil Pressure Adapter w/ O-Ring

8. Monitor oil pressure during cranking, if oil pressure is below **28 kPa (4 psi)** - STOP engine immediately and correct cause before continuing.
9. Connect spark plug wire.
10. Warm-up engine by running at MEDIUM idle for five minutes.

CAUTION: Avoid injury! Engine components are HOT. DO NOT touch with bare skin. Wear protective eye glasses and clothing.

11. Record oil pressure readings at SLOW and FAST idle.
12. Stop engine and allow to cool.
13. Remove adapter, connector, hose assembly, coupler, and gauge.
14. Install new oil filter.
15. Run engine for 30 seconds and stop engine.
16. Check crankcase oil level and adjust to full mark.

Results:

- If oil pressure readings are not within **69 - 517 kPa (10.0 - 75.0 psi)** at FAST idle, inspect and/or replace the following:

-Oil pump assembly. See “Oil Pump Relief Valve Inspection” on page 48.

-Oil suction screen

-Oil passages

-Bearing wear

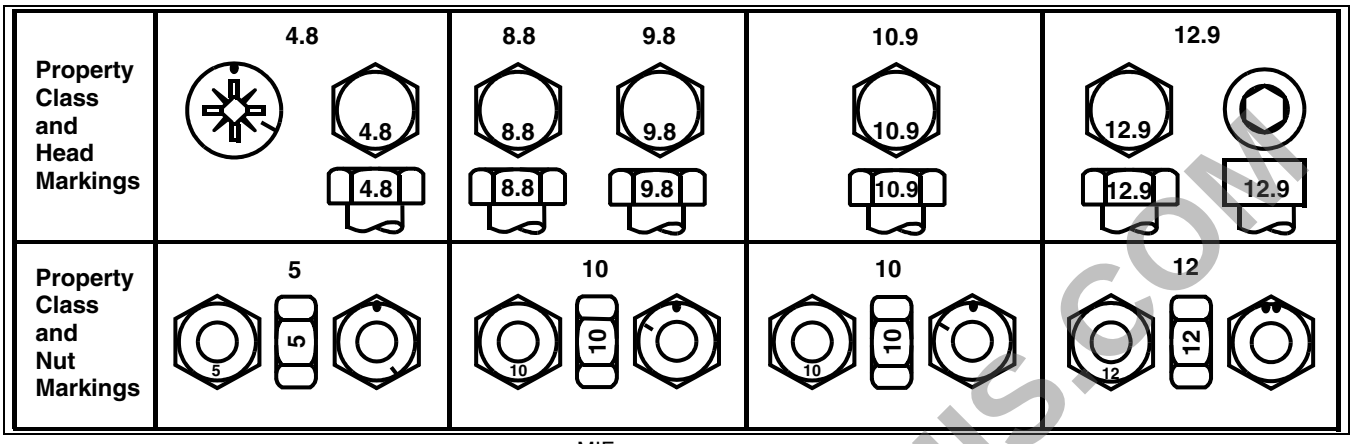
-Oil Seals

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Fastener Torques

Metric Fastener Torque Values



MIF

	Class 4.8				Class 8.8 or 9.8				Class 10.9				Class 12.9			
	Lubricated a		Dry a		Lubricated a		Dry a		Lubricated a		Dry a		Lubricated a		Dry a	
SIZE	N•m	lb-ft	N•m	lb-ft	N•m	lb-ft	N•m	lb-ft	N•m	lb-ft	N•m	lb-ft	N•m	lb-ft	N•m	lb-ft
M6	4.8	3.5	6	4.5	9	6.5	11	8.5	13	9.5	17	12	15	11.5	19	14.5
M8	12	8.5	15	11	22	16	28	20	32	24	40	30	37	28	47	35
M10	23	17	29	21	43	32	55	40	63	47	80	60	75	55	95	70
M12	40	29	50	37	75	55	95	70	110	80	140	105	130	95	165	120
M14	63	47	80	60	120	88	150	110	175	130	225	165	205	150	260	109
M16	100	73	125	92	190	140	240	175	275	200	350	225	320	240	400	300
M18	135	100	175	125	260	195	330	250	375	275	475	350	440	325	560	410
M20	190	140	240	180	375	275	475	350	530	400	675	500	625	460	800	580
M22	260	190	330	250	510	375	650	475	725	540	925	675	850	625	1075	800
M24	330	250	425	310	650	475	825	600	925	675	1150	850	1075	800	1350	1000
M27	490	360	625	450	950	700	1200	875	1350	1000	1700	1250	1600	1150	2000	1500
M30	675	490	850	625	1300	950	1650	1200	1850	1350	2300	1700	2150	1600	2700	2000
M33	900	675	1150	850	1750	1300	2200	1650	2500	1850	3150	2350	2900	2150	3700	2750
M36	1150	850	1450	1075	2250	1650	2850	2100	3200	2350	4050	3000	3750	2750	4750	3500

DO NOT use these hand torque values if a different torque value or tightening procedure is given for a specific application. Torque values listed are for general use only and include a ±10% variance factor. Check tightness of fasteners periodically. DO NOT use air powered wrenches.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade.

Fasteners should be replaced with the same grade. Make sure fastener threads are clean and that you properly start thread engagement. This will prevent them from failing when tightening.

When bolt and nut combination fasteners are used, torque values should be applied to the NUT instead of the bolt head.

Tighten toothed or serrated-type locknuts to the full torque value.

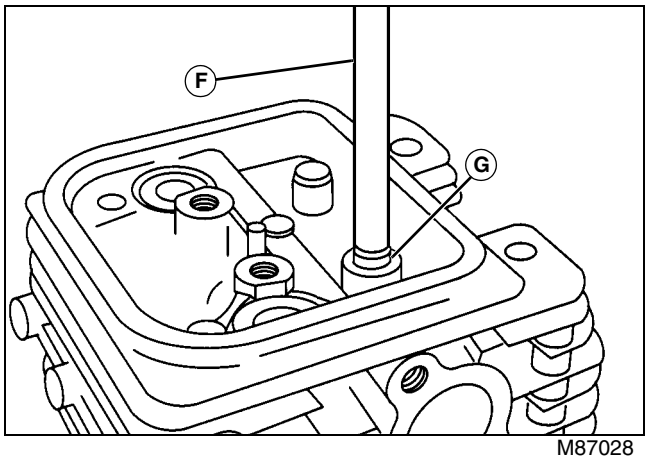
a *"Lubricated" means coated with a lubricant such as engine oil, or fasteners with phosphate and oil coatings. "Dry" means plain or zinc plated (yellow dichromate - Specification JDS117) without any lubrication*.

Reference: JDS - G200.

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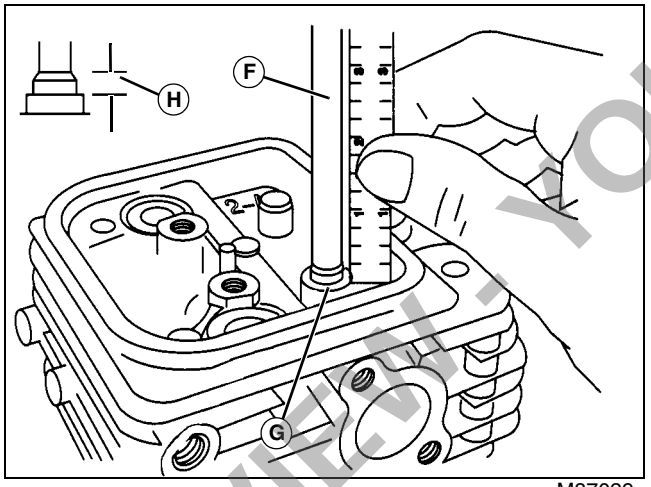
6. Inspect valve springs and replace if broken or worn.

7. Inspect valve guides by inserting plug gauge into valve guide. If plug gauge inserts **6.4 mm (0.25 in.) or more**, the guide must be replaced. If plug gauge is not available, the reject dimension for both valve guides is **6.05 mm (0.238 in.)**.



M87028

8. To remove valve guides (G), use bushing driver (F). Support cylinder head and press out valve guide.

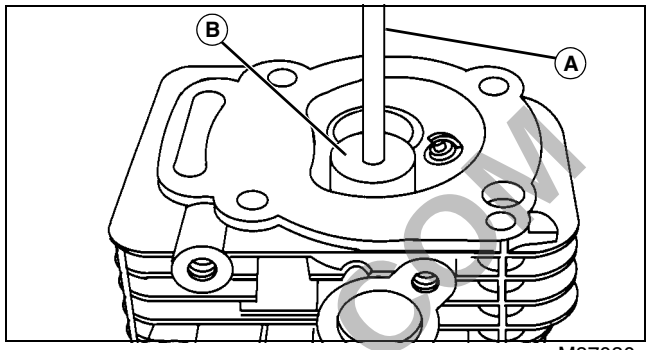


M87029

9. To install new valve guides (G), place new valve guide on bushing driver (F). Valve guide can be installed either way. Press in valve guide to dimension (H) **7.0 mm (0.276 in.)**.

Valve Guide Ream

Procedure:



M87030

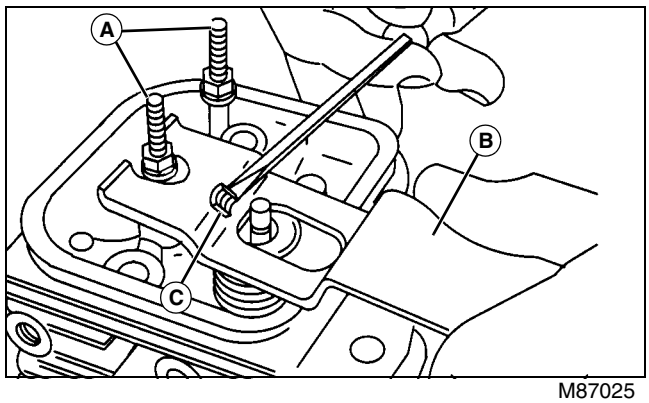
1. To ream valve guides, use finish reamer (A) and reamer pilot guide (B) to finish ream valve guide. Use oil, Stanisol or kerosene to lubricate reamer. Ream through entire guide. Keep turning reamer clockwise when removing reamer. Flush out all chips.

IMPORTANT: Avoid damage! Insure valve guide lubricant is not on valve face, seat or end of valve stem.

2. Install new seals over valve guides. Press down on seal until it bottoms. Valve stems must be free of foreign material and burrs or sticking will occur and valve stem seals will be damaged. Be sure valve guides are free of foreign materials and burrs. Lightly coat valve stems with valve guide lubricant and insert valves into valve guides.

Valve Installation

Procedure:



M87025

1. Install springs and valve spring retainers over valve stems. Temporarily install rocker studs (A) in cylinder head.

2. With valve spring compressor (B), compress spring and install split retainers (C). Repeat procedure for other valves.

3. Remove rocker studs.

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Diagnostics

Engine Will Start

CAUTION: Avoid Injury! BE AWARE! The engine may start to rotate at any time. Keep hands away from all moving parts when testing.

NOTE: To test specific electrical components, see Electrical section and refer to either Diagnostics or Tests and Adjustments for further guidance.

Symptom: Engine Will Not Crank

(1) Is battery voltage 12.4 volts or higher?

Yes - Go to next step.

No - Charge battery and perform no-load test. Go to next step.

(2) Is battery voltage 12.4 volts or higher?

Yes - Go to next step.

No - Replace battery.

(3) Does starter solenoid click when ignition switch is turned to START position?

Yes - Check starter motor.

No - Check electrical system.

CAUTION: Avoid Injury! DO NOT rotate engine with starter if the spark plugs are removed. Gasoline spray from the open cylinders may be ignited by ignition spark and cause an explosion or fire.

NOTE: Perform a visual inspection first to determine if battery cables are tight and not corroded and if battery is of sufficient size to turn the engine over at minimum cranking speed of 350 rpm.

Symptom: Engine Cranks But Will Not Start

(1) Is battery voltage 12.4 volts or higher?

Yes - Go to next step.

No - Charge battery and perform no-load test. Go to next step.

(2) Is battery voltage 12.4 volts or higher?

Yes - Go to next step.

No - Replace battery.

Symptom: Engine Cranks But Will Not Start

(3) Does fuel shutoff solenoid click when ignition switch is turned to START/RUN?

Yes - Go to next step.

No - Defective fuel shutoff solenoid, switch or wiring. See Electrical section.

(4) Does engine crank slow?

Yes - Remove spark plugs and turn the engine over by hand. Go to next step.

No - Go to step 6.

(5) Is the engine hard to turn over by hand?

Yes - Pistons or other internal components binding.

No - Starter motor defective. Repair or replace as needed.

(6) Is the choke operating properly?

Yes - Go to next step.

No - Adjust choke cable. See “Choke Cable Adjustment” on page 26.

(7) Do spark plugs have strong blue spark?

Yes - Go to next step.

No - Possible defective spark plugs, magneto shorted to ground, flywheel magnet weak, or ignition coil air gap not adjusted. See Electrical section.

(8) Are tappets adjusted properly.

Yes - Go to next step.

No - Adjust. See “Cylinder Leak Test” on page 28.

(9) Is engine getting fuel?

Yes - Check air leaner, fuel mixture, contaminated fuel, or possible stuck float needle.

No - Check fuel shutoff valve, fuel lines, fuel pump, and engine vacuum. See “Fuel Flow Tests” on page 32, or “Crankcase Vacuum Test” on page 31.

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Manual Description

This technical manual is written for an experienced technician and contains sections that are specifically for this product. It is a part of a total product support program.

The manual is organized so that all the information on a particular system is kept together. The order of grouping is as follows:

- Table of Contents
- Specifications and Information
- Identification Numbers
- Tools and Materials
- Component Location
- Schematics and Harnesses
- Theory of Operation
- Operation and Diagnostics
- Diagnostics
- Tests and Adjustments
- Repair
- Other

NOTE: Depending on the particular section or system being covered, not all of the above groups may be used.

The bleed tabs for the pages of each section will align with the sections listed on this page. Page numbering is consecutive from the beginning of the Safety section through the last section.

We appreciate your input on this manual. If you find any errors or want to comment on the layout of the manual please contact us.

Safety
Specifications and Information
Engine - Kohler
Engine - Briggs & Stratton
Engine - Kawasaki (FH580V)
Engine - Kawasaki (FH601V)
Electrical
Power Train - Hydrostatic
Steering
Attachments
Miscellaneous

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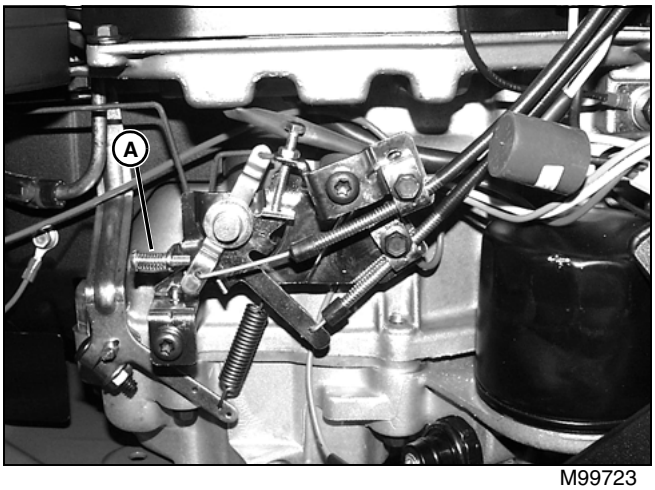
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3. No preliminary adjustment is required for carburetor limiter slow idle mixture screw, this is pre-set by manufacturer.

4. Start and run engine at MEDIUM idle for 5 minutes.

5. Move throttle lever to SLOW idle position.

6. Use a photo tachometer to check engine rpm at the blower housing screen; or,
use a digital pulse tachometer to check engine rpm at spark plug wire.



M99723

7. Turn slow idle stop screw (A) in either direction until specified slow idle speed is reached.

8. Move throttle between slow idle and fast idle several times. Check slow idle rpm. It may be necessary to adjust slow idle stop screw again.

Specification:

Slow Idle Stop Screw Setting . . . . . 1550 ± 100 rpm

Cylinder Leak Test

Reason:

To check pressure capacity of piston rings and cylinder bore for efficient engine operation.

Equipment:

- JT035029 Cylinder Leak Tester

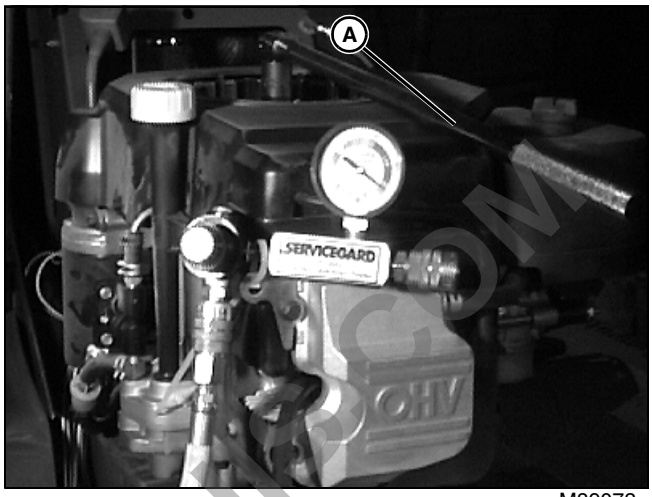
Procedure:

1. Remove hood.

2. Warm engine to operating temperature.

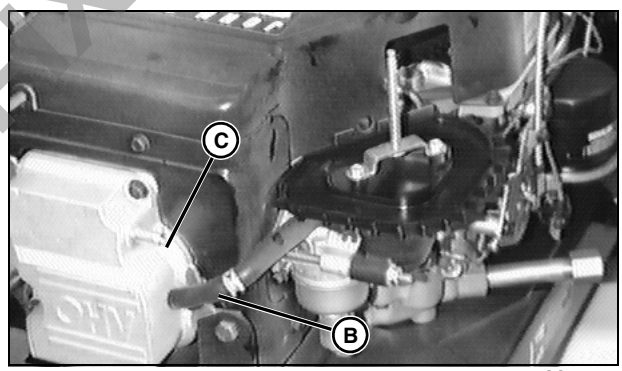
CAUTION: Avoid Injury! Engine will be HOT. Do not touch with bare skin, especially the exhaust pipe or muffler while performing test.

3. Move transaxle shift lever to NEUTRAL. Lock park brake.



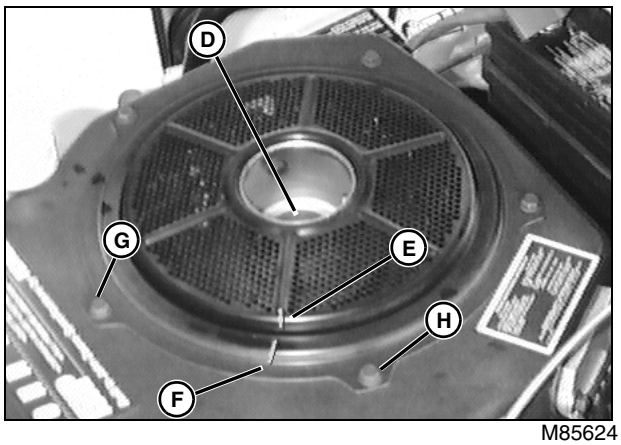
M89073

4. Pry off the flywheel screen, and use a breaker bar (A) on the flywheel nut to hold the flywheel in position when performing the test.



M85621

5. Disconnect crankcase breather hose (B) from valve cover breather port (C) and remove air cleaner element from engine so you can listen for air leaks.



M85624

6. Use flywheel mounting cap screw (D) to turn flywheel and find approximate top dead center (TDC) of the compression stroke.

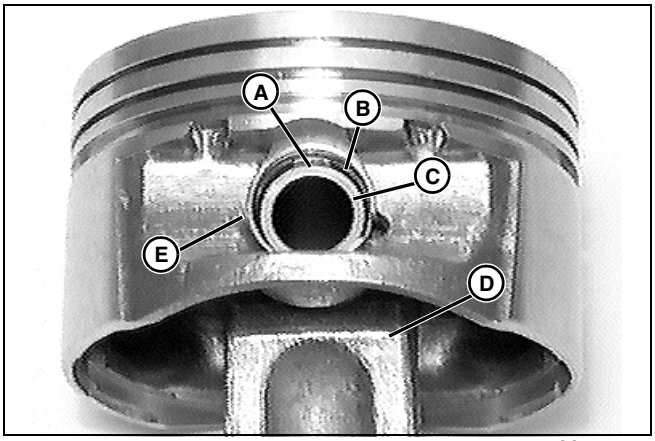
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- Install oil ring spacer first. Make sure that its ends do not overlap
- Stagger end gaps of oil rails 180° apart
- Rings should turn freely in grooves

IMPORTANT: Avoid damage! Retaining rings (B) should be installed with end gap (A) pointing up.

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



M55879

2. Install one piston pin retaining ring (B) in groove of piston bore (E).

3. Install pin (C) through piston bore (E) and connecting rod (D). Pin should install easily with thumb pressure.

4. Install remaining retaining ring (B) in opposite side.

Piston Installation

Special or Required Tools:

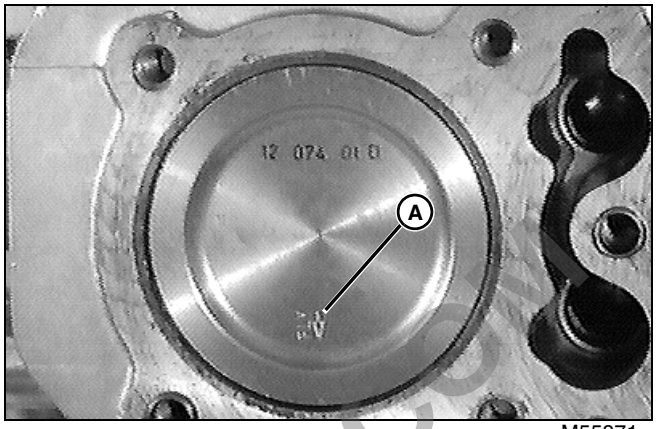
- Piston Ring Compressing Tool

Procedure:

1. Install piston rings so piston ring end gaps are staggered 120° apart.

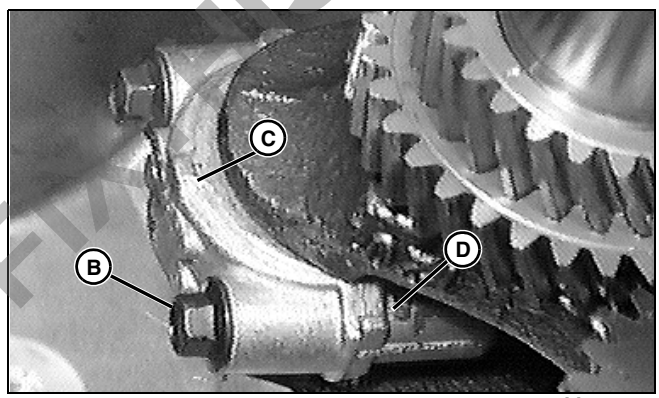
2. Coat cylinder, piston skirt, rod, and cap bearing surfaces with oil.

3. Compress rings with ring compressor tool.



M55871

4. Install piston with FLY mark (A) toward flywheel side of crankcase. Use wooden dowel to push piston into bore.



M55875

5. Fasten connecting rod (D) and cap (C) to crankshaft.

6. Tighten cap screws (B) to specification.

7. Check connecting rod to crankshaft side clearance. Replace if not within specification.

8. Install balance shaft, camshaft, oil pan, and cylinder head. See appropriate procedures in this section.

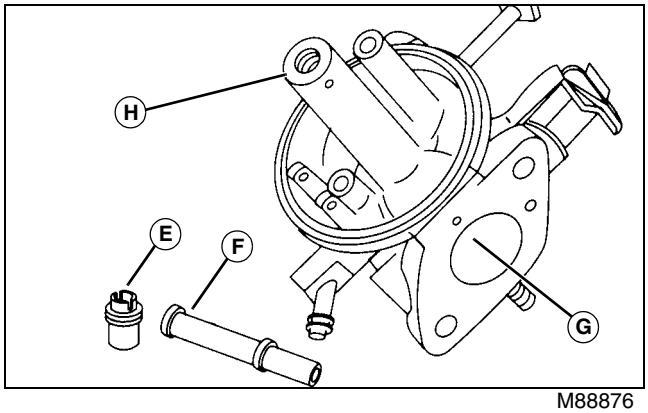
Connecting Rod Specifications:

Cap Screw Torque:

8 mm Straight Shank . . . . . 22.7 N•m (200 lb-in.)
Step Down Shank. . . . . 14.7 N•m (130 lb-in.)
6 mm Straight Shank . . . . . 11.3 N•m (100 lb-in.)
Side Clearance . . . . . 0.18 - 0.41 mm (0.007 - 0.016 in.)

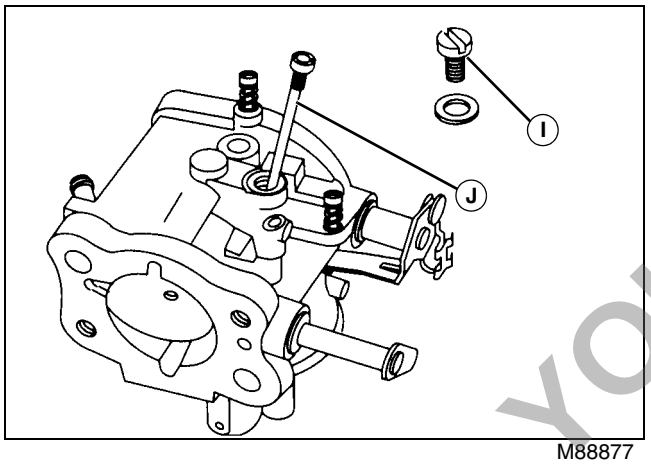
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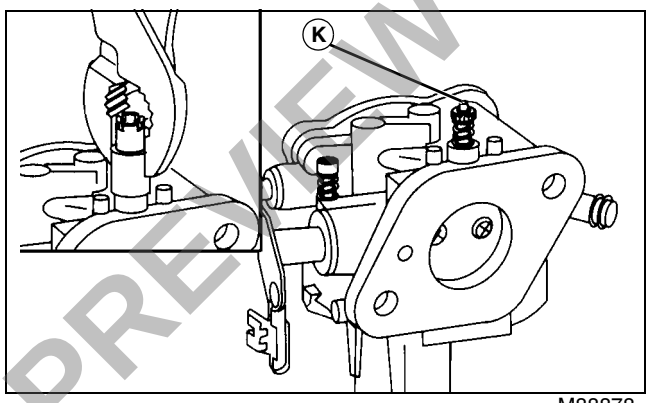
M88876

6. With the fixed main jet removed, the high speed nozzle (F) can be removed. Reach into carburetor throat (G) with a flat blade screw driver and push the high speed nozzle up through fixed main jet tube (H).



M88877

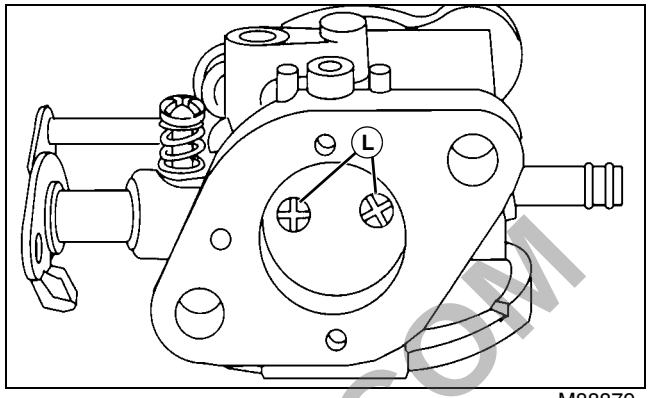
7. Remove idle jet plug (I) and idle jet (J).



M88878

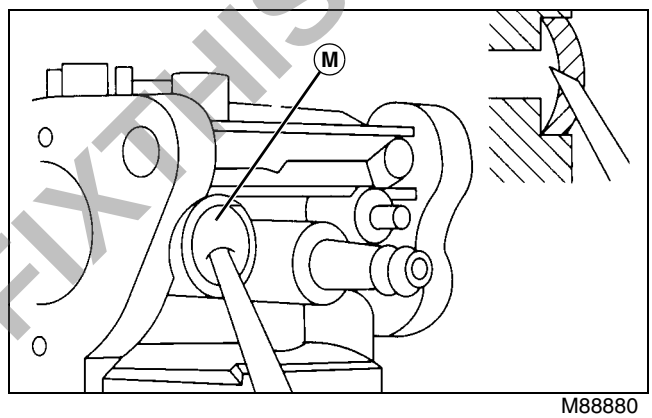
8. The idle mixture valve (K) is equipped with a adjustment limiter cap. Use pliers to remove the cap.

9. Remove the idle mixture valve.



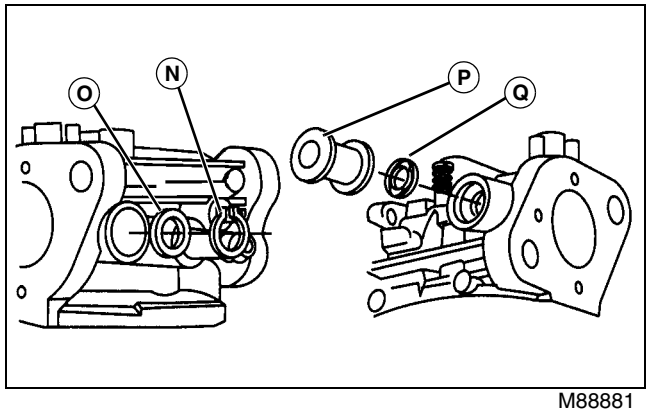
M88879

10.Remove two screws (L) holding throttle valve to throttle shaft and remove throttle valve



M88880

11.To remove throttle shaft it is necessary to first remove welch plug (M) from side of carburetor. Use a punch to pry plug out.



M88881

12.Remove external snap ring (N) and throttle shaft washer (O).

13.Remove throttle shaft, throttle shaft collar (P) and throttle shaft seal (Q) (lip out).

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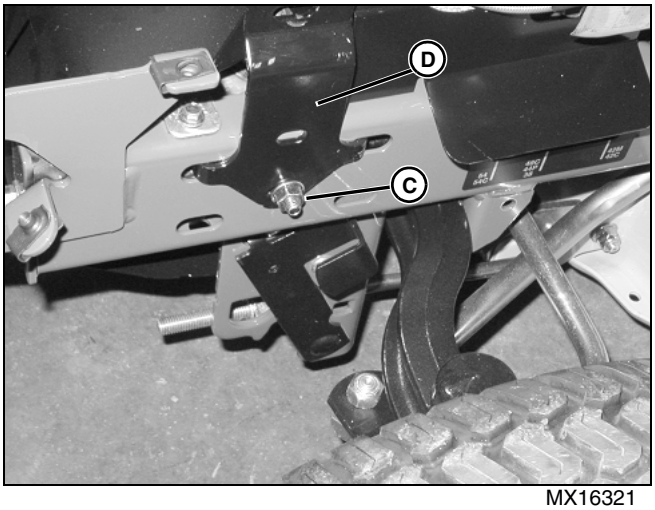
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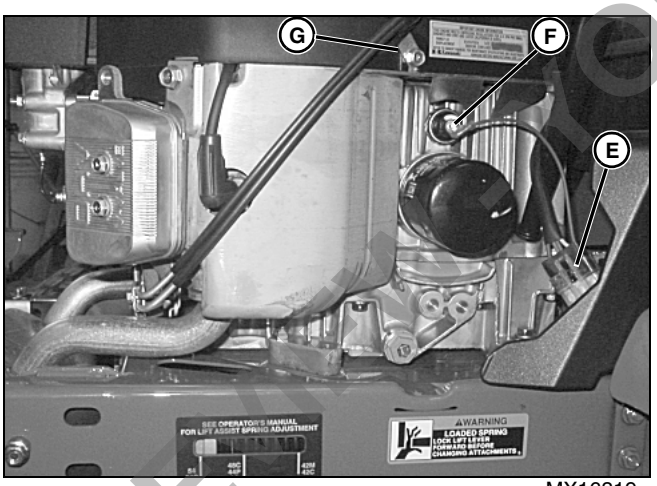


MX16321

6. Remove nut (C) on each hood support bracket (D) and remove hood brackets.

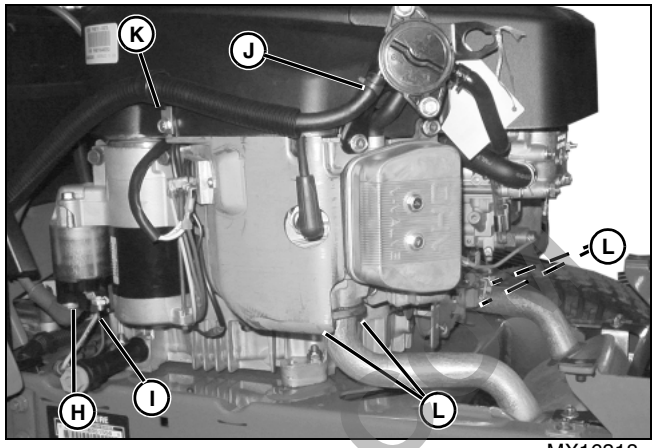
7. Remove heat shield.

CAUTION: Avoid Injury! Gasoline is extremely flammable. DO NOT SMOKE. Always work in a well ventilated area away from open flame or spark producing equipment; this includes equipment that utilizes pilot lights.



MX16319

8. Disconnect the engine wire harness (E), and oil pressure switch wire (F). Remove cap screw from cable clamp (G).

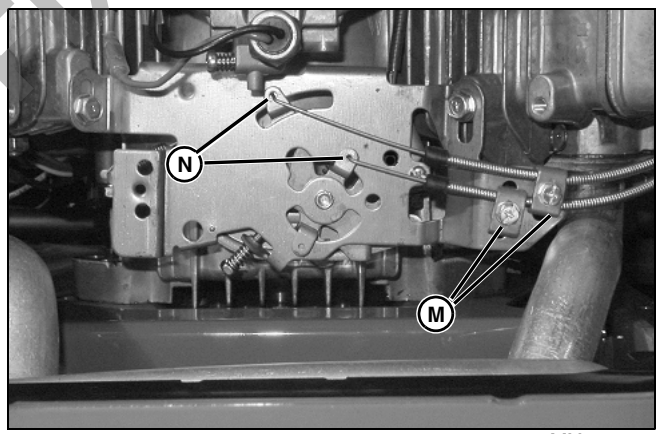


MX16318

9. Disconnect positive (+) battery cable and orange wire from large terminal of starter solenoid (H). Disconnect purple wire (I) from solenoid.

10. Disconnect fuel line at fuel pump (J). Remove cap screw from clamp (K).

11. Remove four nuts (L) securing exhaust pipe flanges to cylinder heads.



MX16322

12. Remove throttle and choke cable clamps (M) and disconnect cables from lever ends (N).

NOTE: Be sure to remove fuel hose and wiring from any clips or tie wraps securing them to engine prior to removing engine.

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Other Materials

Other Material

Part No.	Part Name	Part Use
M79292	MPG-2® Multipurpose Grease	Apply to engine crankshaft
	SCOTCH-BRITE® Abrasive Sheets/Pads	Clean cylinder head
	Valve Guide Cleaner	Clean valve guides
	Prussian Blue Compound	Check valve seat contact
	Lithium Base Grease	Pack oil seals
	Zinc Oxide/Wood Alcohol	Check block for cracks
	Mineral Spirits	Clean armature
	Valve Lap Compound	Lap valves
T43512 / TY9473 / LOCTITE,242	Thread Lock and Sealer (Medium Strength)	Apply to threads of throttle and choke plate screws
TY15130 / LOCTITE,595	Form-in-Place Gasket	Rocker arm cover mating surfaces
TY9375/TY9480/ LOCTITE,592	Thread Sealant (General Purpose) with TEFLON,	Apply to threads of oil pressure switch

MPG-2, is a registered trademark of DuBois USA.

LOCTITE, is a registered trademark of the Loctite Corp.

SCOTCH-BRITE, is a registered trademark of the 3M Co.

TEFLON® is a registered trademark of DuPont

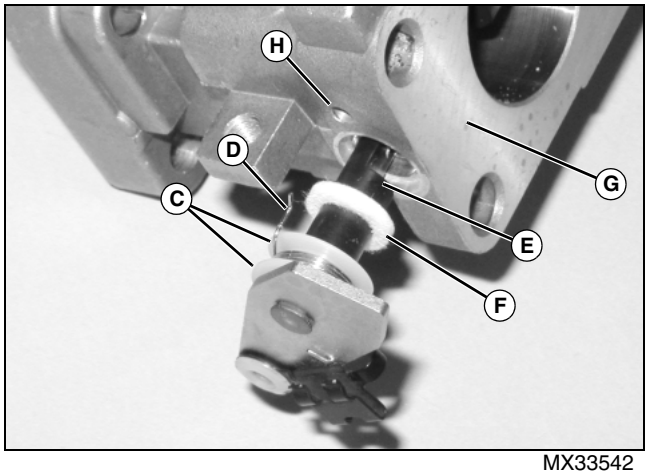
Service Parts Kits

The following kits are available through your parts catalog:

- Carburetor
- Gasket Kit
- High Altitude Carburetor Kit

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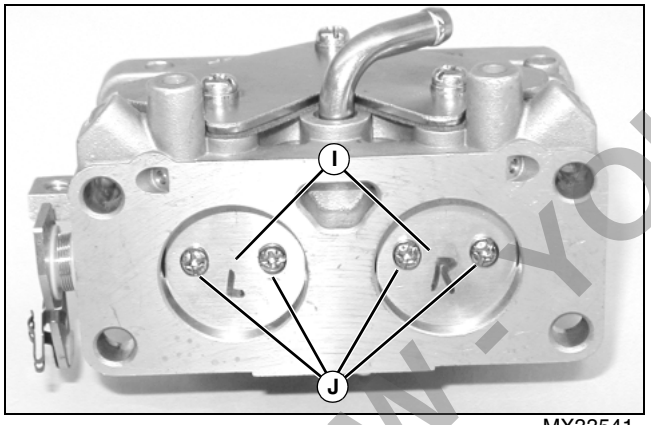


MX33542

2. Slide the spring collar (C) with the return spring (D) positioned between the halves onto the throttle shaft (E).

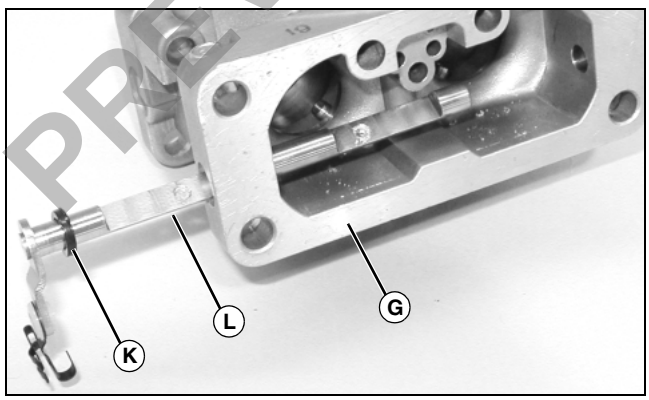
3. Slide the shaft seal (F) onto the shaft with the lip of the shaft seal facing the inside of the carburetor.

4. Slide the throttle shaft assembly into the carburetor body (G) and engage the return spring into the retaining hole (H).



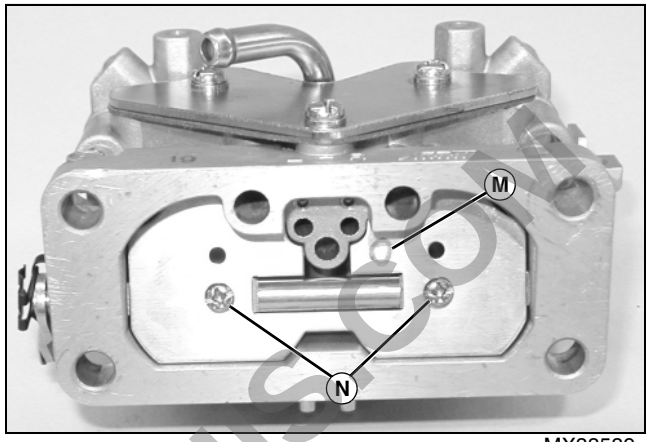
MX33541

5. Install the throttle valve plates in their original locations. Insert the throttle valve plates (I) into the carburetor bore over the flats of the throttle shaft. Install four screws (J). Tighten to **1 N•m (9 lb-in.)**.



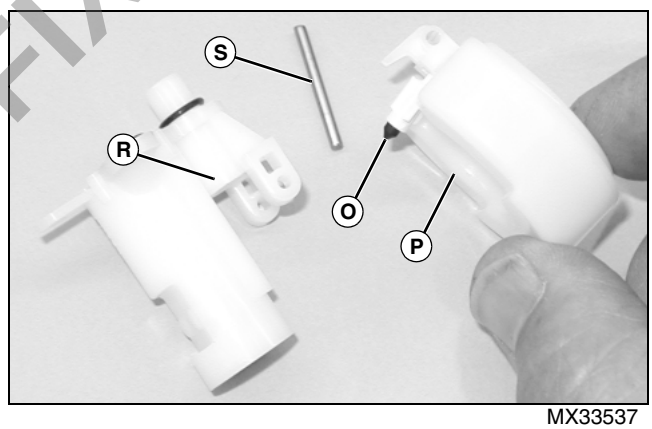
MX33540

6. Slide the choke shaft seal (K) onto the choke shaft (L). The lip of the shaft seal should face the inside of the carburetor. Slide the choke shaft assembly into the carburetor body (G).



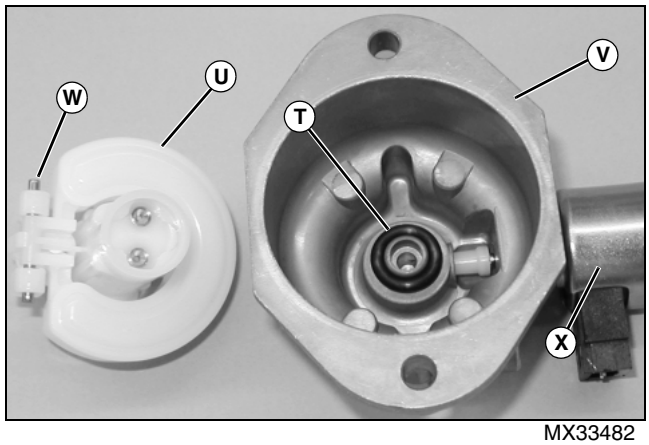
MX33539

7. Install the choke plate in its original location. Place the choke plate (M) into the carburetor throat over the flat surface of the choke shaft. Install two screws (N). Tighten to **1 N•m (9 lb-in.)**.



MX33537

8. Hook the float valve (O) into the float (P). Place the float and float valve onto the pickup body (Q) so the valve is seated into the inlet jet (R) and the float pin (S) is aligned. Install the float pin.



MX33482

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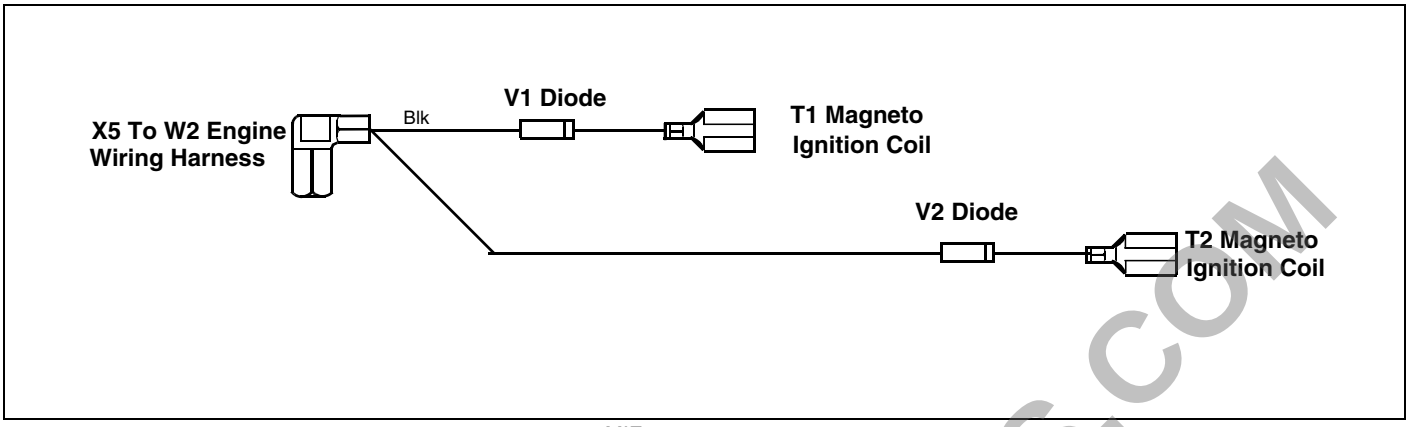
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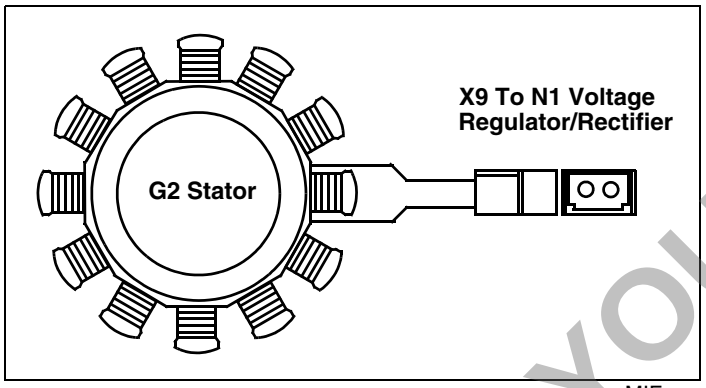
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W3 Engine Wiring Harness - GT235 (SN -090000) and 235E



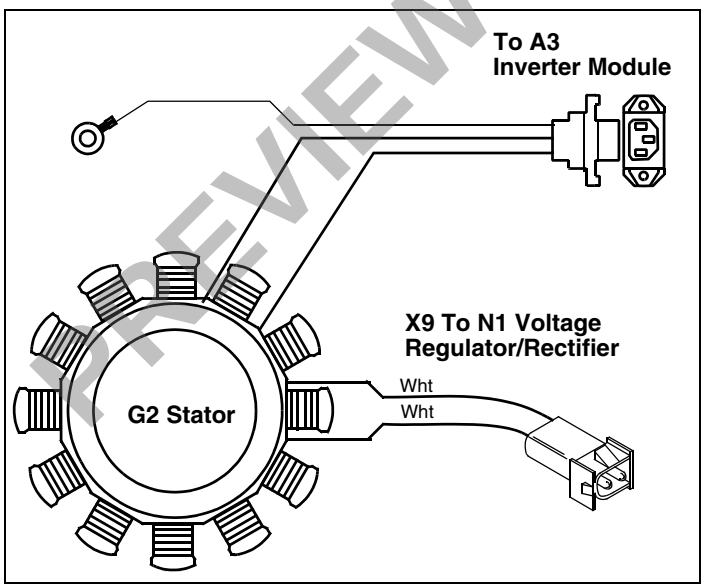
MIF

W7 Stator Wiring Harness - GT235 (SN -090000)



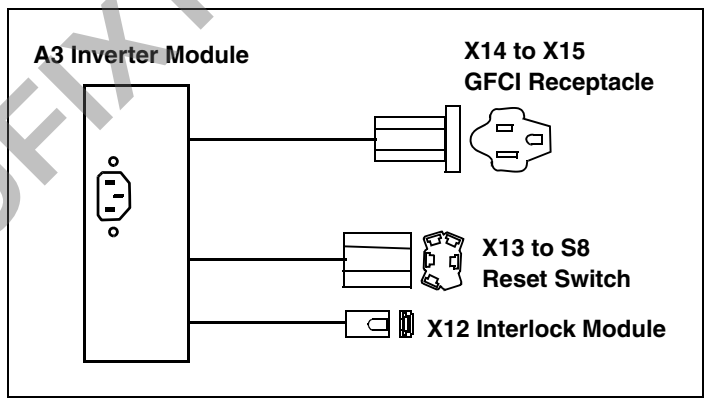
MIF

W8 Stator Wiring Harness - GT235E



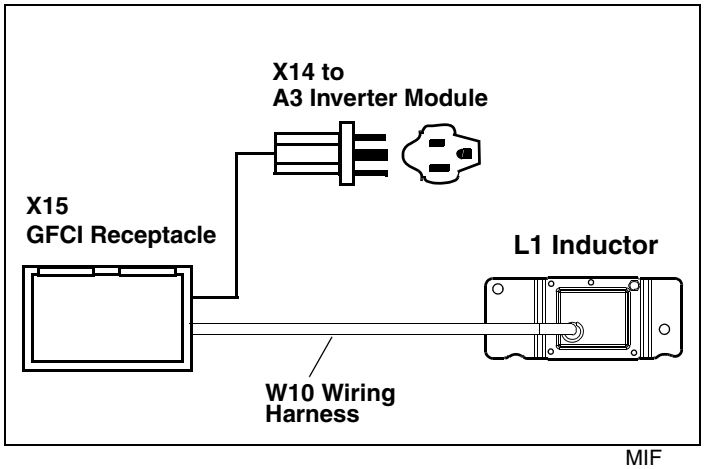
MIF

W9 Inverter Wiring Harness - GT235E



MIF

W10 Inductor/GFCI Wiring Harness - GT235E

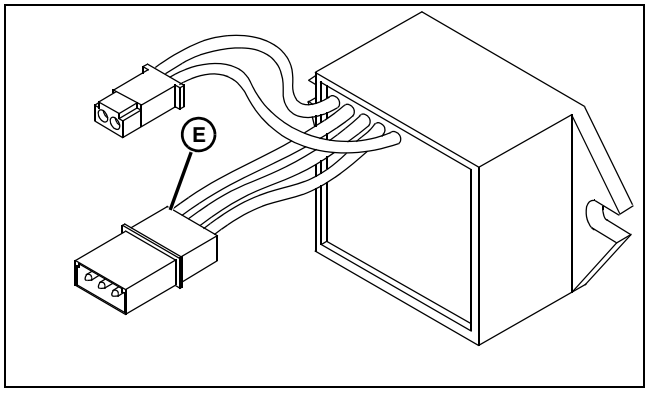


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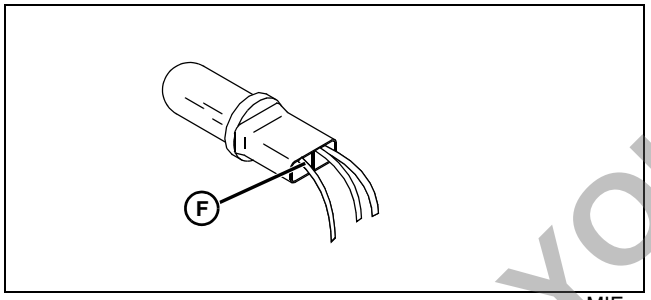
System: Charging Circuit



(5) Is battery voltage present at voltage regulator/ rectifier (E)?

Yes - Go to next step.

No - Check 805 and 800 Pnk wire, X4 and X10 wires and connections.



MIF

(6) Is voltage present at the discharge light (F)?

Yes - See “Procedure C” on page 283.

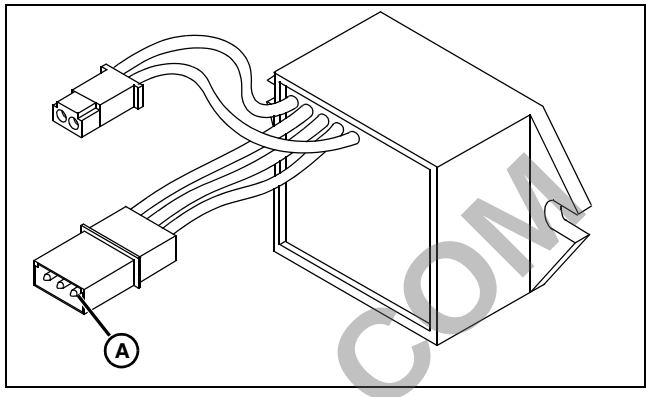
No - Check 600 Brn wire and connections. If OK, replace voltage regulator/rectifier.

Procedure C

Test Conditions:

- Key switch in RUN position - Engine RUNNING.

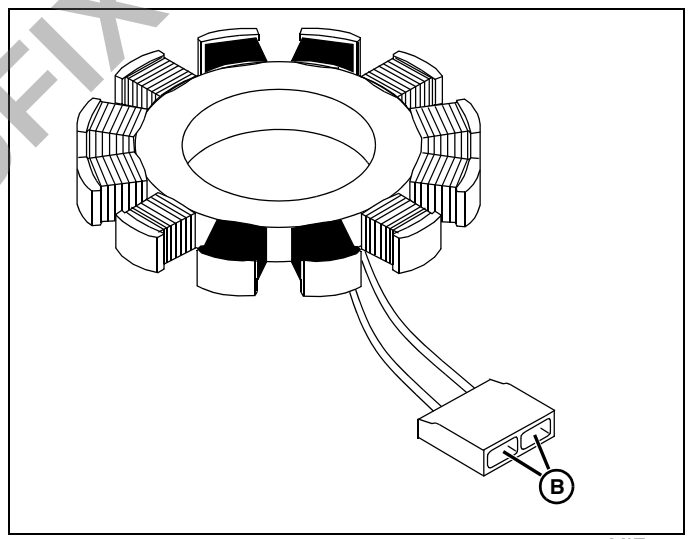
System: Charging Circuit



(1) Is the regulated amperage to specification, measured at 205 Red wire (A)?

Yes - Go to next step.

No - Check stator. See “Stator Output Test (B&S Engine)” on page 333.



MIF

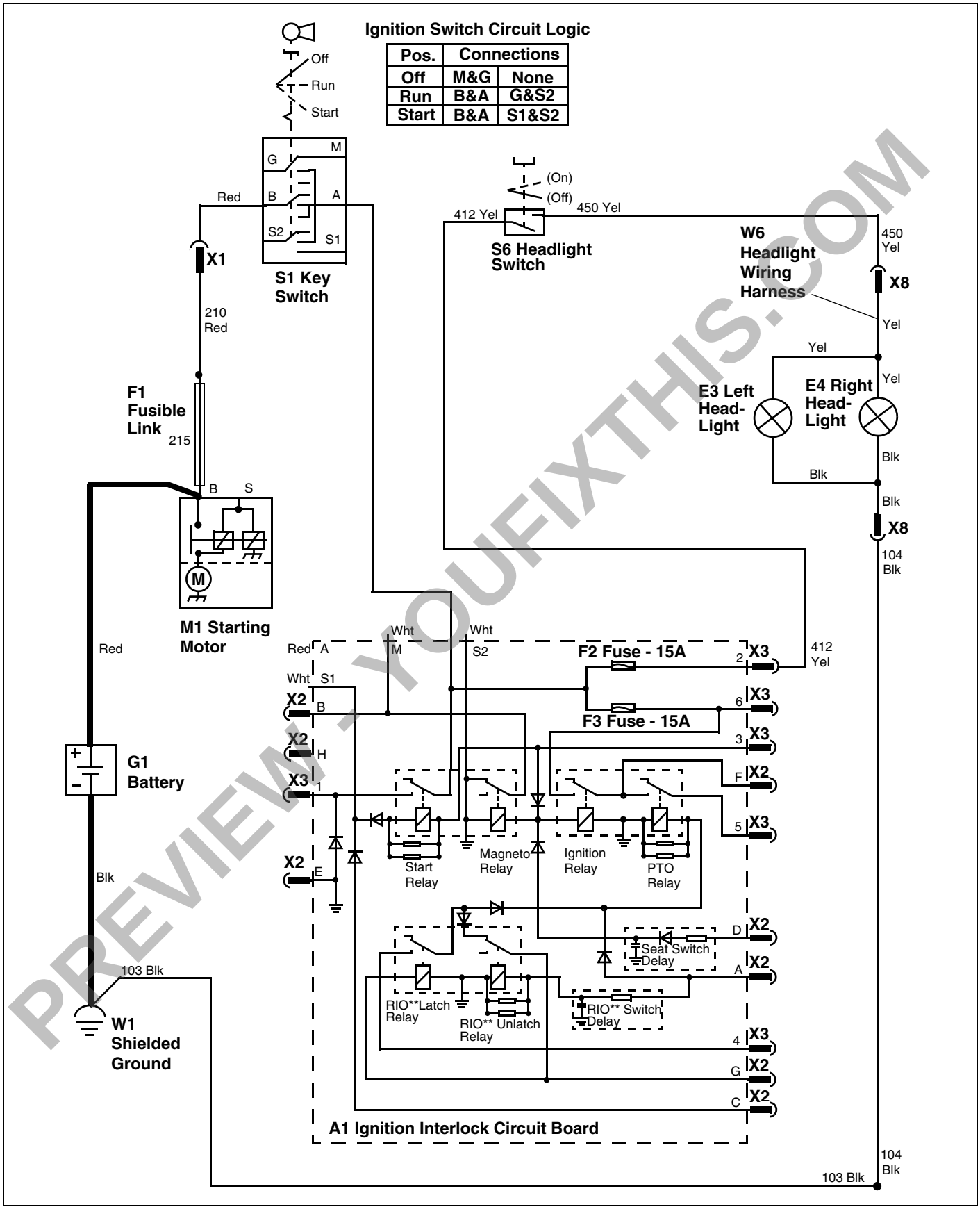
(2) Is the voltage measured at stator connector to specification (B)?

No - Test flywheel magnets. See “Flywheel Magnet Test” on page 335. If OK, replace stator.

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Headlight Circuit Electrical Schematic



MIF

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4. Measure the continuity across the switch in the on (A) and off (B) positions.

Results:

- With switch in on position meter should make a continuous tone, (continuity).
- With switch in off position meter should display OL, (no continuity).

120 Volt Stator AC Output Test

Reason:

To verify AC output of stator to the inverter.

NOTE: It may be necessary to remove the inverter from the equipment.

Test Equipment:

- Digital multimeter
- JDG1639 Test Box
- Torx® Driver, Tool with #10 bit
- Tachometer

Procedure:

NOTE: Make all connections before starting engine.

1. Remove tamper proof screws from harness plug at inverter using Torx® Driver and remove plug.



MX16025

2. Insert alternator harness plug (A) into socket in JDG1639 test box.
3. Set digital multimeter to read AC volts.
4. Insert meter test leads into either receptacle in test box.

NOTE: Do not exceed 1800 rpm.

5. Start engine and set speed to 1800 rpm.
6. Press button (B) on test box and note AC voltage.

Results:

Alternator output should be no less than: 100 volts AC.

- If output is 100 volts or higher, replace the inverter.
- If output is less than 100 volts, replace the stator.

Inductor Test

Reason:

To verify operation of inverter.

Test Equipment:

- Digital multimeter

Procedure:

NOTE: To test the inductor, it must be disconnected from the circuit. Unplug the GFCI outlet cord from the inverter output cord.

1. To check the continuity of inductor circuit:

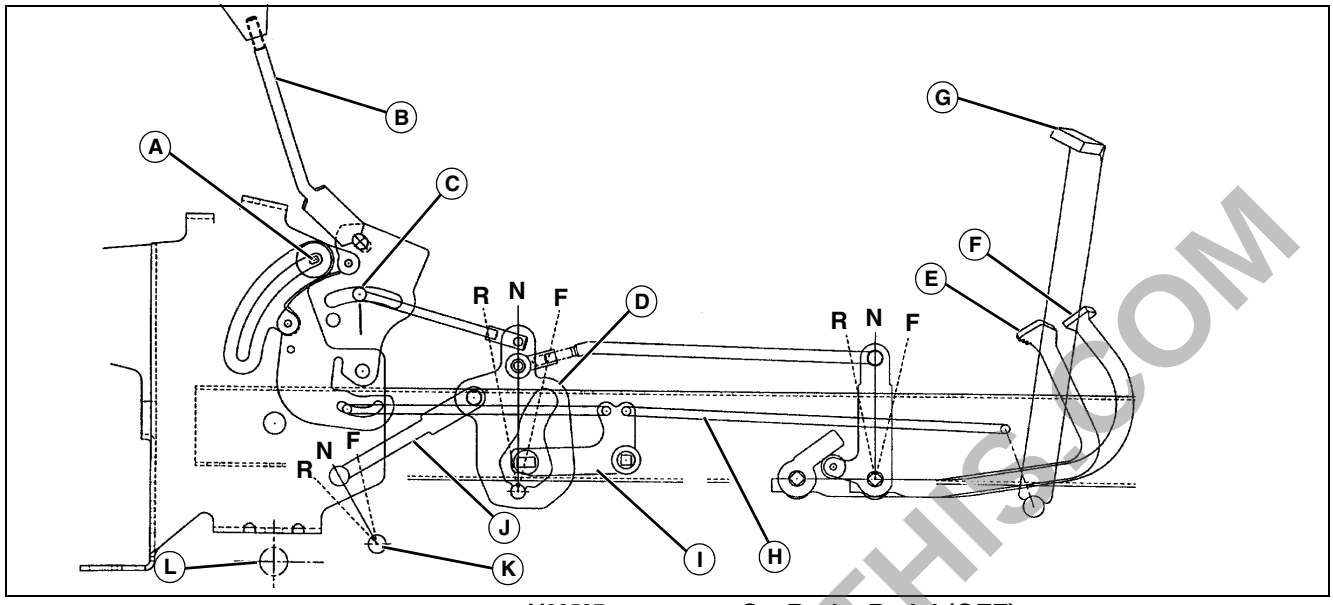


MX16406

- Connect the multi-meter between the small blade of the GFCI outlet cord plug (positioned as shown) and the small blade socket of the GFCI outlet. There should be continuity.

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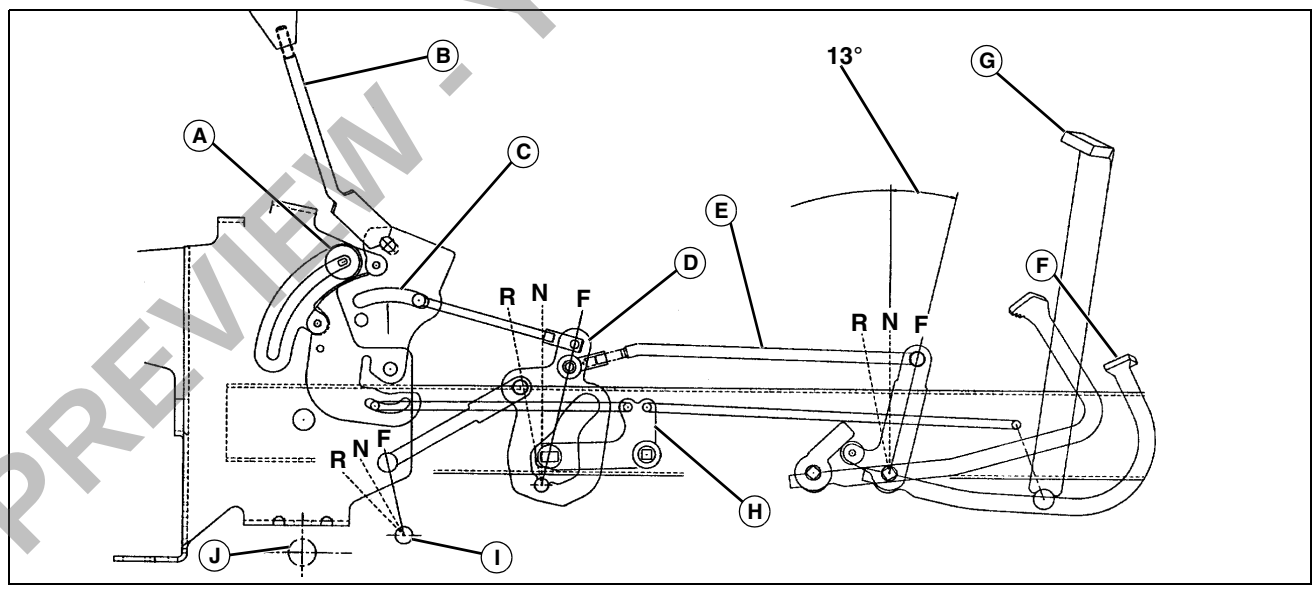
Foot Control - Neutral



M99597

- **A - Friction Device**
- **B - Cruise Control Lever (OFF)**
- **C - Neutral Position**
- **D - Intermediate Shaft Plate**
- **E - Reverse pedal**
- **F - Forward Pedal**
- **G - Brake Pedal (OFF)**
- **H - Neutral Return Rod**
- **I - Neutral Return Arm**
- **J - Transaxle Control Rod**
- **K - Transaxle Control Shaft**
- **L - Rear Axle**

Foot Control - Forward (Maximum)

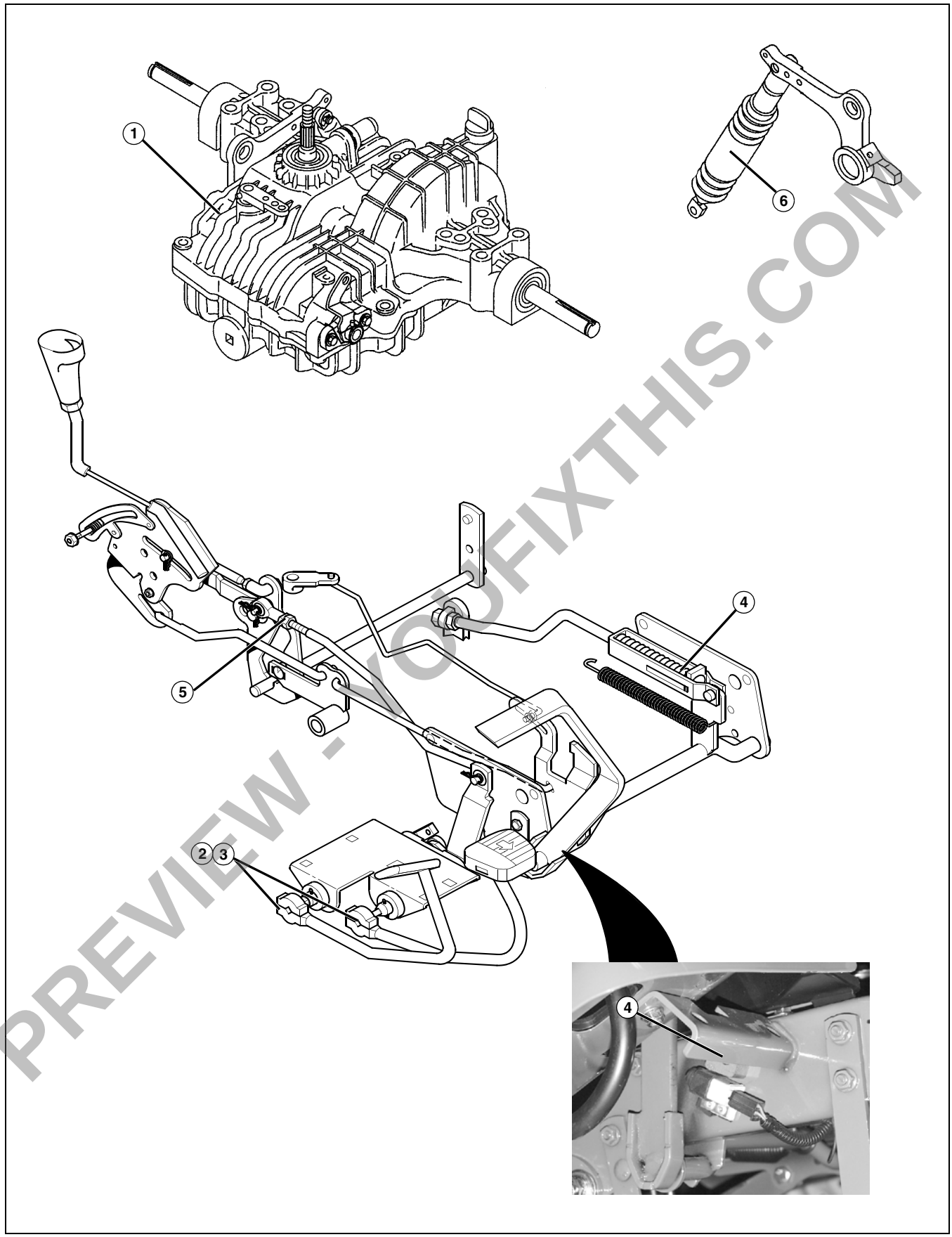


M99598

- **A - Friction Device**
- **B - Cruise Control Lever (OFF)**
- **C - Independent Movement From Cruise Control Lever**
- **D - Intermediate Shaft Plate**
- **E - Forward Pedal Control Arm**
- **F - Forward Pedal**
- **G - Brake Pedal (OFF)**
- **H - Neutral Return Arm**
- **I - Transaxle Control Arm**
- **J - Transaxle Control Shaft**

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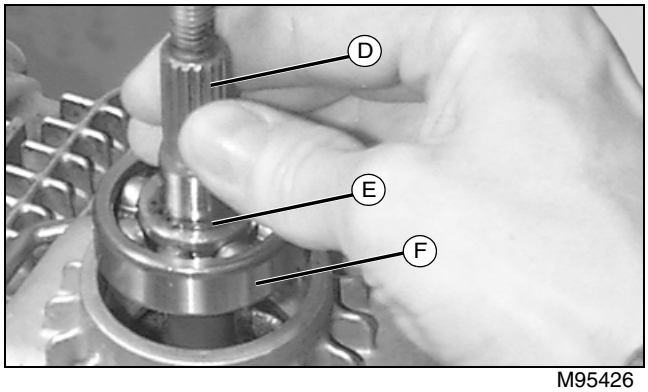
M95586, M99578, M99582, MIF

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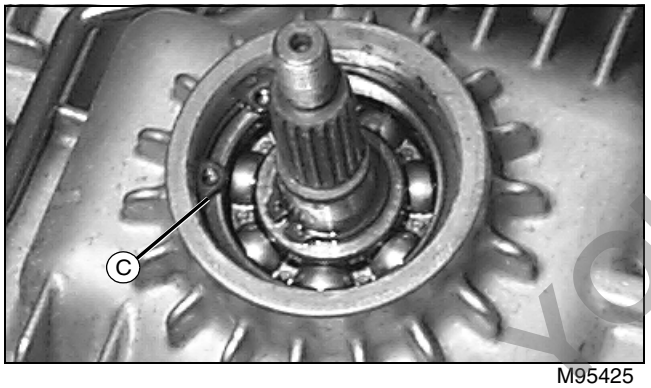
Pump Shaft Installation

Procedure:



M95426

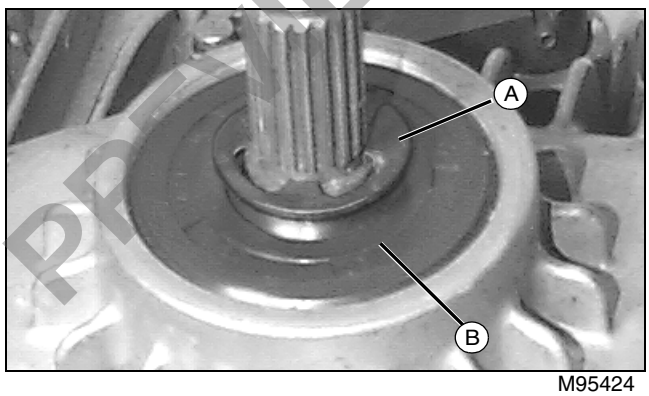
1. If removed, install bearing (F) to pump shaft (D) and retain with snap ring (E). Apply a thin film of grease to outside of bearing, and install pump shaft and bearing into case.



M95425

2. Install internal snap ring (C) into case to retain bearing and pump shaft.

IMPORTANT: Avoid damage! Replace all O-rings and seals. Used or damaged O-rings and seals will leak.



M95424

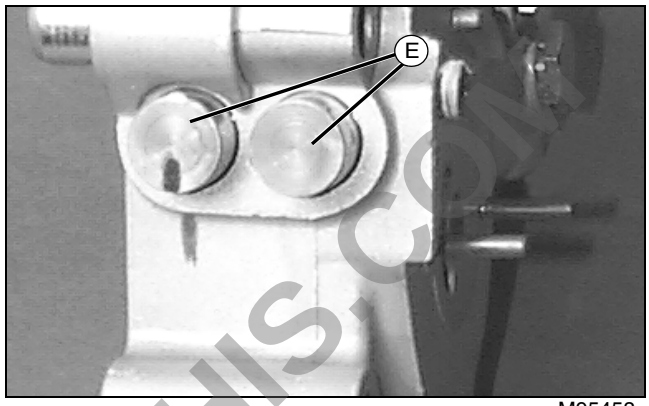
3. Apply a thin film of oil to lip and outside edges of a new seal, and install seal (B) into case and over pump shaft.

4. Install E-clip (A) onto pump shaft.

Center Case Assembly

Procedure:

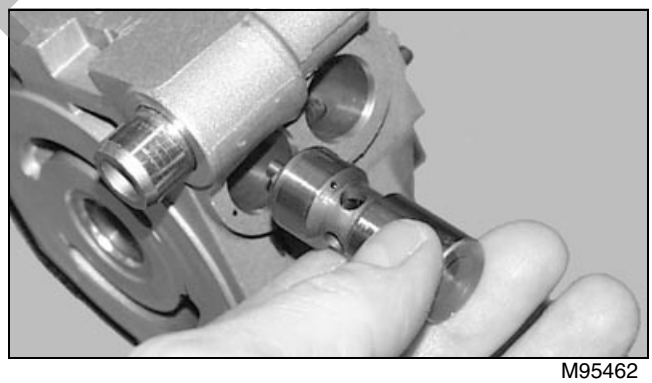
NOTE: During assembly, coat all parts with clean fresh oil.



M95453

IMPORTANT: Avoid damage! Be sure valves are installed into holes as marked during disassembly.

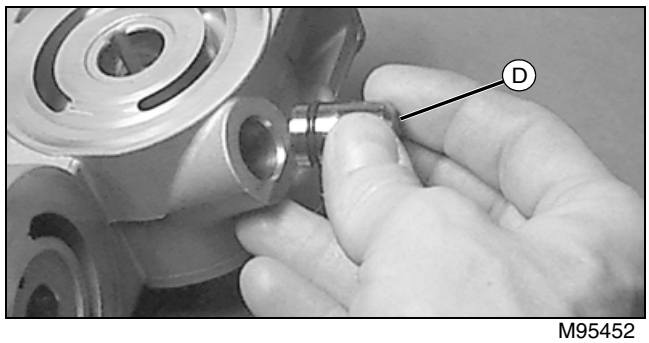
NOTE: Valve with small hole goes toward pump side of center case.



M95462

1. If removed, install valve assemblies into center case.

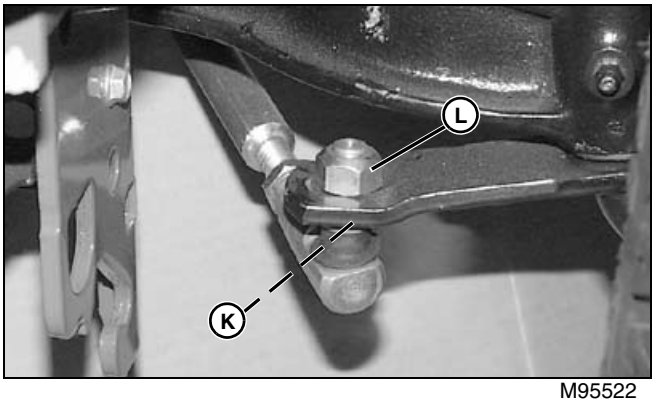
IMPORTANT: Avoid damage! Replace all O-rings and seals. Used or damaged O-rings and seals will leak.



M95452

2. Install a new O-ring onto plug, and install plug (D) into center case.

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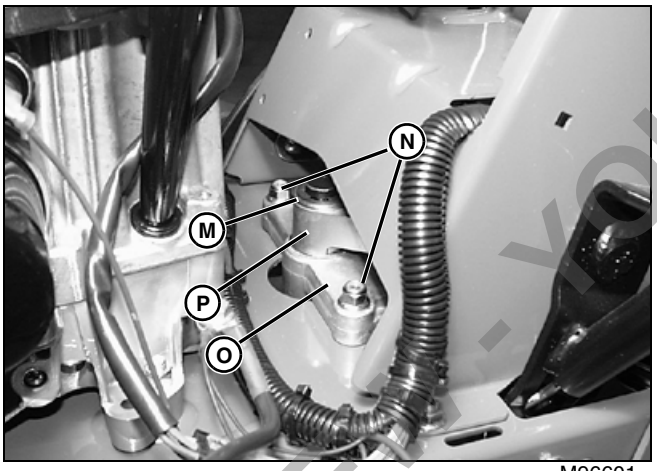


M95522

14.While holding the ball joint stud (K) to prevent it from rotating, remove the locknut (L) securing the front end of the drag link to the spindle arm.

15.Remove drag link from spindle arm.

NOTE: Write down location and number of washers on pinion and sector gear shafts. If a new shaft is installed, number and placement of washers may need adjustment.



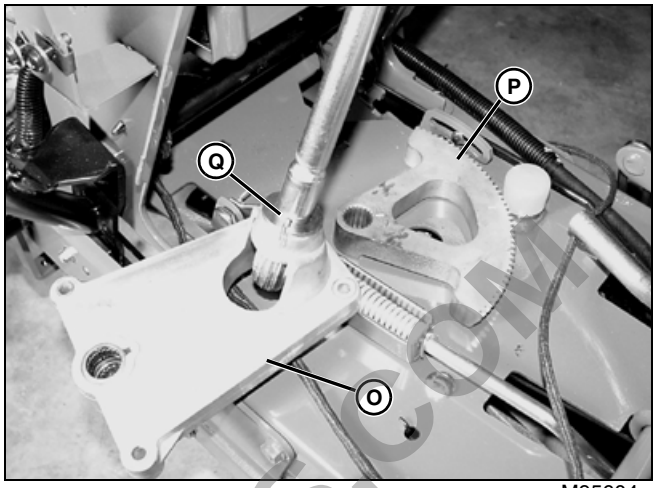
M96601

16.Remove the E-clip (M), shim(s) and washer from the steering cam shaft. Lower steering arm/sector shaft through steering support and frame. Remove steering arm/sector shaft and drag link from machine.

17.Remove drag link from steering arm. Inspect drag link ball joint ends for wear or damage. Replace as necessary.

18.Remove the four nuts (N) and carriage bolts securing the steering support (O) to the frame.

19.While raising the steering support, remove the sector gear (P).



M95604

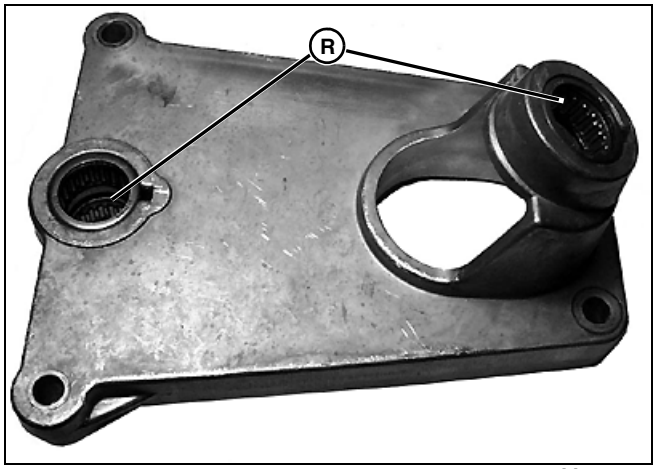
20.Rotate steering shaft and steering support and remove from machine.

21.Remove the cotter pin (Q), washer, shim(s) and packing from the steering shaft.

22.Remove steering shaft from steering support.

23.Inspect shaft and steering gear assembly, replace as necessary.

NOTE: Steering pinion gear cannot be removed from the steering shaft. There may be 0 - 3 washers installed above steering gear. These washers are not interchangeable with other washers on the shaft. They are needed to ensure proper pinion gear to sector gear engagement for proper steering response.



M95603

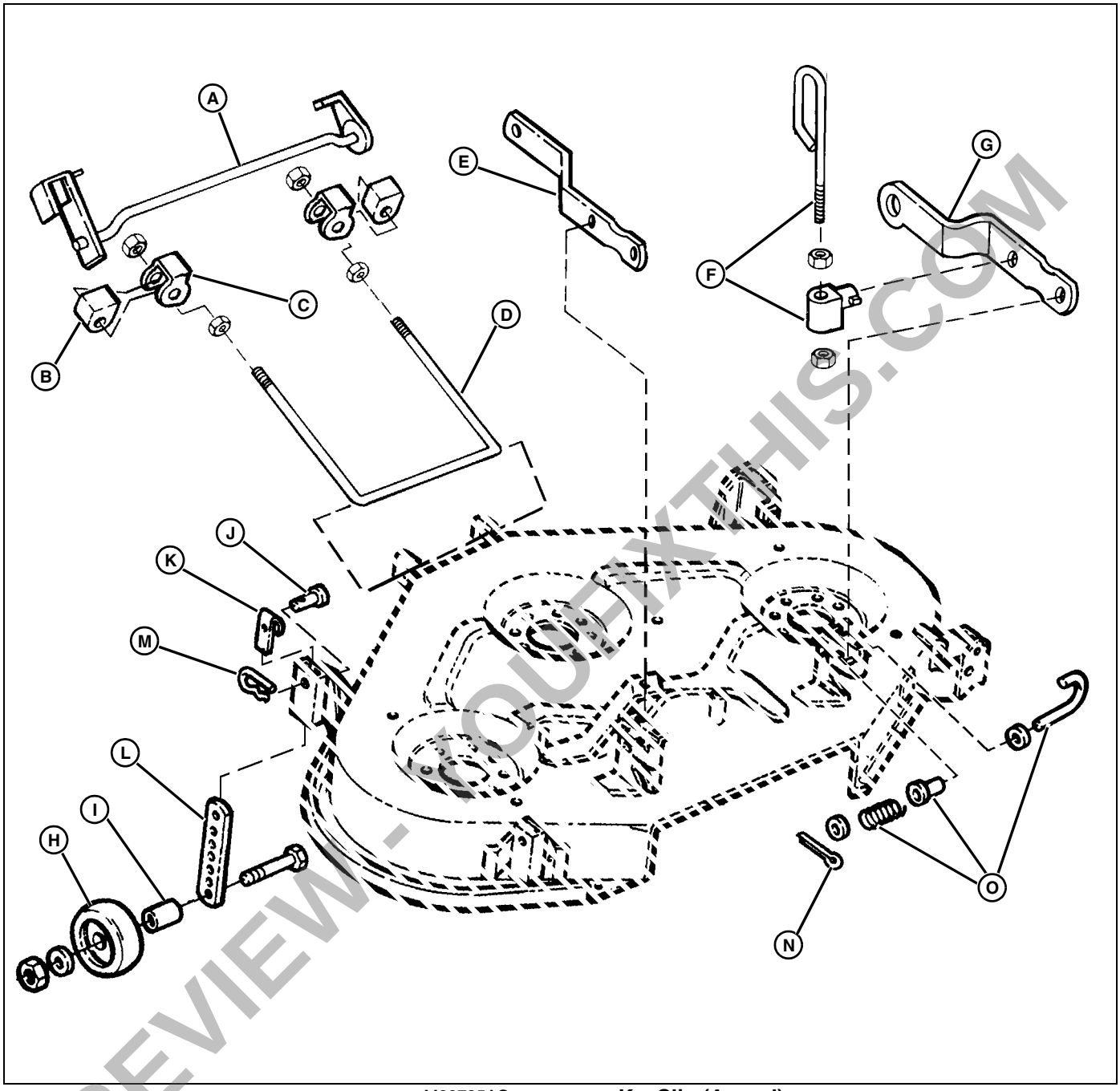
24.Inspect steering support bearings (R) for damage. Replace as necessary.

NOTE: If any bearings are replaced, press bearings in until flush with surface. Ensure bearing side with lettering is toward outside.

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Draft Arms and Gauge Wheels

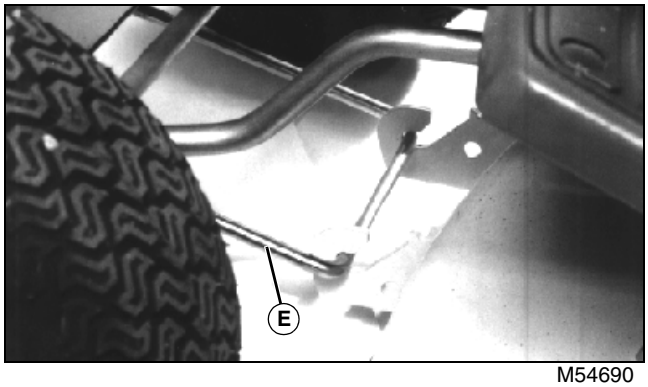


M82735AO

A - Pivot
B - Rear Draft Arm (Left Hand)
C - Bushing (4 used)
D - Spring Pin (4 used)
E - Spacer (2 used)
F - Lift Link Assembly (2 used)
G - Pin (4 used)
H - Cotter Pin (2 used)
I - Clevis (2 used)
J - Rear Draft Arm (Right Hand)
K - Clip (4 used)
L - J-Pin Assembly (2 used)
M - Front Draft Rod
N - Gauge Wheel (4 used)
O - Strap (4 used)

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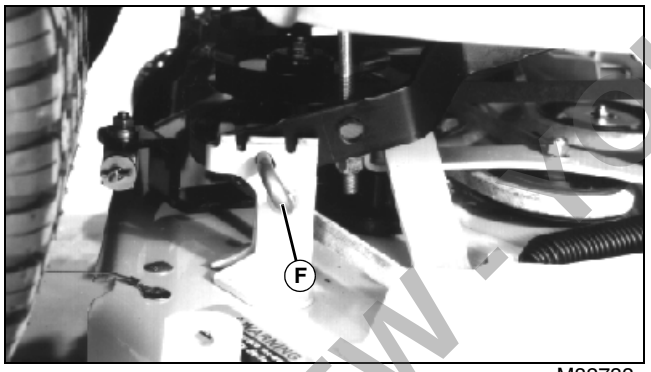


M54690

8. Remove draft rod assembly (E) from machine.

CAUTION: Avoid injury! SUDDEN LIFT ARM MOVEMENT. Draft arms will raise suddenly if mower deck is disconnected without locking lift mechanism in the DOWN position. Do not remove mower deck J-pins unless lift lever is moved all the way forward and locked.

NOTE: It may be necessary to lift up on rear of mower deck to pull out J-pins.



M82733

9. Pull out J-pin (F) on each side of mower deck and turn pin to unlock position.

CAUTION: Avoid injury! SUDDEN LIFT LEVER MOVEMENT. With no weight on draft arms, spring will pull lift lever rearward when lock button is pressed. Use caution when releasing lift spring tension to minimize the risk of personal injury.

10.Push lift lever forward against spring tension, and press in release button. Move lift lever rearward, and lock in the RAISE position.

11.Slide mower deck out the right side of the machine.

Installation:

Installation is the reverse of removal.

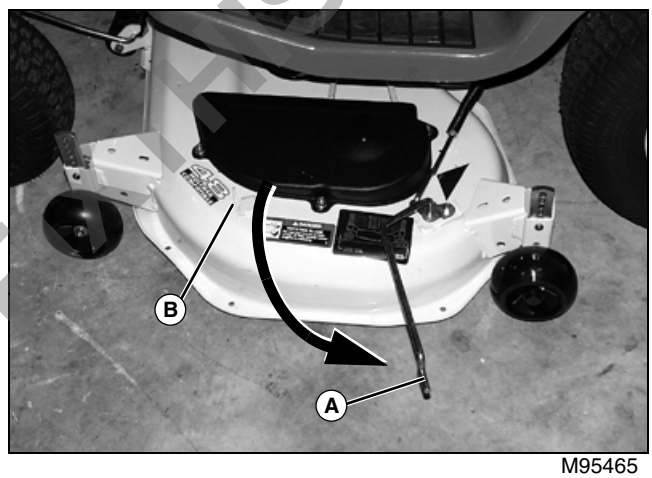
48-Inch Convertible Mower Deck Removal and Installation

CAUTION: Avoid injury! ROTATING BLADES/ MOVING PARTS. STOP engine. Remove ignition key. Wait for all moving parts to STOP.

1. Pull lift lever rearward and lock mower deck in the RAISE position.

2. Turn mower depth control knob to blank mark. Put wood blocks under each side of mower deck.

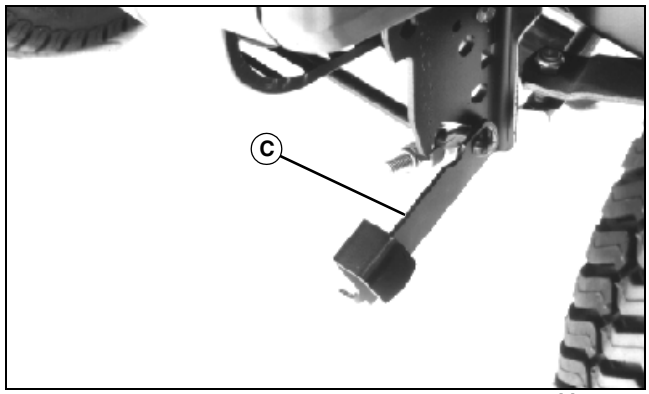
3. Move lift lever all the way forward and lock in the full LOWER position. Deck should be in contact with the blocks.



M95465

4. Disconnect tensioner handle (A) from bracket (B). Pull handle out to relieve belt tension.

5. Remove drive belt from PTO and mower jack sheave.

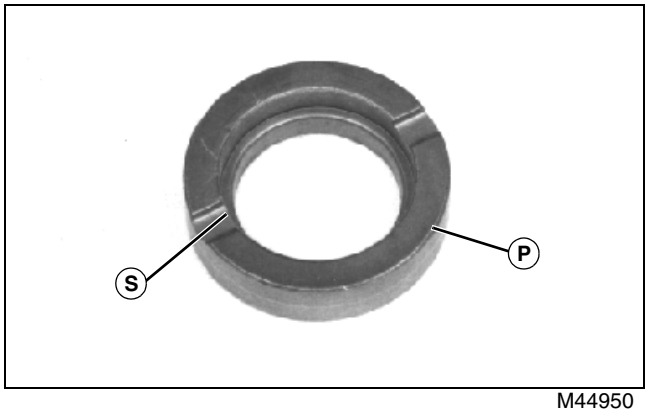


M82728

6. Pull out and push down on lock lever (C) to disconnect front draft rod assembly.

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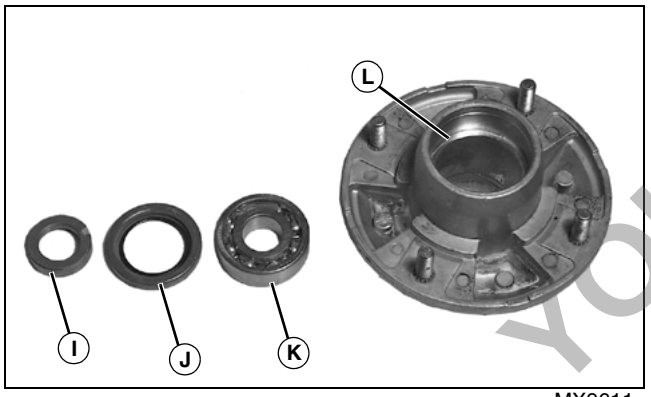
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M44950

6. Install lower seal ring (P), with grease notch (S) away from bearing, inside seal lip. Be careful not to turn lip of seal inside out when installing seal ring.

7. Install upper seal (J) with lip toward bearing, tight against bearing using a 1-13/16 disk and press. Press until the seal is tight against the bearing.

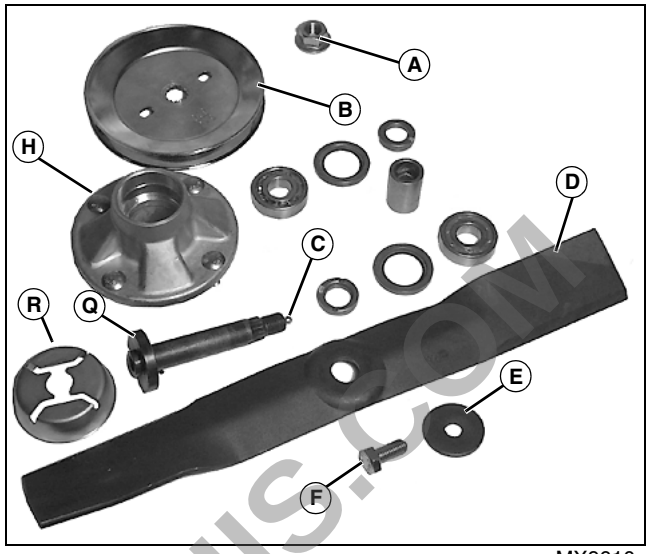


MX9611

8. Install upper seal ring (I), with grease notch toward bearing, inside seal lip. Be careful not to turn lip of seal inside out when installing seal ring.

IMPORTANT: Avoid damage! Do NOT install hexagon end of spindle shaft in a vice to install spindle sheave flange nut. Tighten nut after the spindle is installed in the mower deck. If this is not possible, place blade in a vice and attach spindle assembly. Tighten blade cap screw to 156 N•m (115 lb-ft) first, then tighten spindle sheave flange nut. Remove blade to install assembly in mower deck.

NOTE: The spindle housing must be attached to the deck shell BEFORE installing spindle sheave.



MX9610

9. Install spindle assembly in mower deck.

10. Install spindle shaft (Q) with deflector (R) in housing (H).

11. Install sheave, flange nut, and lubrication fitting, being sure to index components to spindle shaft. Tighten flange nut securely, but do not torque at this time.

12. Install blade (D) with blade wing toward top of mower deck.

13. Install washer (E), and blade cap screw (F). Use a piece of wood to prevent the blade from turning, and tighten blade cap screw to **156 N•m (115 lb-ft)**.

14. Tighten spindle sheave flange nut to **163 N•m (120 lb-ft)**.

15. Loosen blade cap screw and then tighten to **73 N•m (54 lb-ft)**.

16. Lubricate spindle with multipurpose grease at lubrication fitting.

Specifications:

Spindle Retaining Nuts . . . . . 26 N•m (230 lb-in.)

Blade Cap Screw . . . . . 73 N•m (54 lb-ft)

Spindle Sheave Flange Nut . . . . . 156 N•m (115 lb-ft)

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