3430 and 3830 Self Propelled Windrower

John Deere Ottumwa Works
TM1314 (08APR02)
LITHO IN U.S.A.
ENGLISH

Introductory Information

FOREWORD

This manual is written for an experienced technician. Essential tools required in performing certain service work are identified in this manual and are recommended for use.

Live with safety: Read the safety messages in the introduction of this manual and the cautions presented throughout the text of the manual.

This is the safety-alert symbol. When you see this symbol on the machine or in this manual, be alert to the potential for personal injury.

Technical manuals are divided in two parts: repair and diagnostics. Repair sections tell how to repair the components. Diagnostic sections help you identify the majority of routine failures quickly.

Information is organized in groups for the various components requiring service instruction. At the beginning of each group are summary listings of all applicable essential tools, service equipment and tools, other materials needed to do the job, service parts kits, specifications, wear tolerances, and torque values.

Binders, binder labels, and tab sets can be ordered by John Deere dealers direct from the John Deere Distribution Service Center.

This manual is part of a total product support program.

FOS MANUALS—REFERENCE

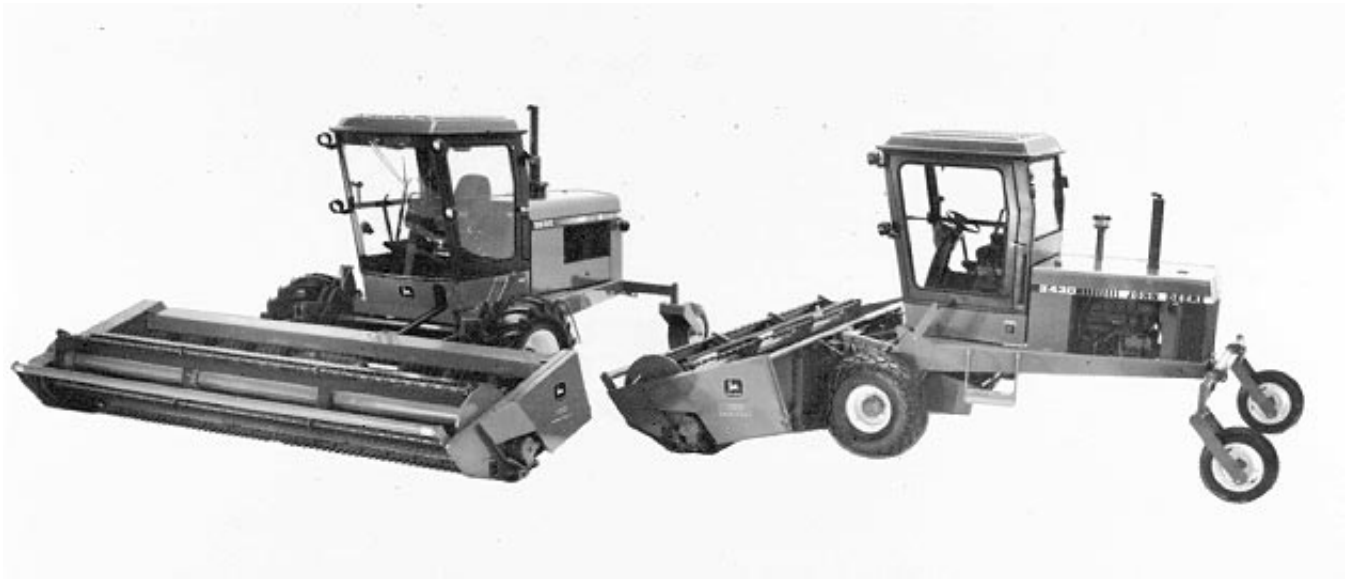
TECHNICAL MANUALS—MACHINE SERVICE

COMPONENT MANUALS—COMPONENT SERVICE

Fundamentals of Service (FOS) Manuals cover basic theory of operation, fundamentals of troubleshooting, general maintenance, and basic type of failures and their causes. FOS Manuals are for training new personnel and for reference by experienced technicians.

Technical Manuals are concise guides for specific machines. Technical manuals are on-the-job guides containing only the vital information needed for diagnosis, analysis, testing, and repair.

Component Technical Manuals are concise service guides for specific components. Component technical manuals are written as stand-alone manuals covering multiple machine applications.



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E24893

EX,TM1314,IFC -19-07JUL93

Dealer Presentation Letter

JOHN DEERE DEALERS

IMPORTANT: Please remove this page and route through your service department.

NOTE: If you have a loose leaf binder, replace these sections.

If you have a hard bound manual, place these pages with your manual and note outdated pages bound in the manual.

This is a partial revision of TM1314, 3430 / 3830 Self Propelled Windrower.

Listed below is a breif explanation of what was changed.

Sections 40 / 240 Electrical

New starter and alternator used on 3430 and 3830.

Corrected diagnostics, wiring diagrams, and repair procedures.

All serial number breaks are noted.

Sections 50 / 250 Power Train

New power wheel used on 3830.

Corrected diagnostics, and repair procedures.

All serial number breaks are noted.

Sections 70 / 270 Hydraulics

Corrected diagnostics, JIC diagrams, and repair procedures.

All the hydraulic valves are discussed and demonstrated.

Internal pressure and flow changes have been corrected.

Changes in the hydraulic line routings are shown.

All serial number breaks are noted..

EX,TM1314,DLR -19-07JUL93

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Continued on next page

All information, illustrations and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

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BATTERY AND CIRCUIT BREAKERS

BATTERY

Battery ground	Negative
John Deere part no.	TY21751
Battery volts (engine shut off)	11.7 to 12.8
Cold cranking amps at -18˚C (0˚F)	700
Reserve capacity (minutes at 25 amps)	110
Group	31

MAIN CIRCUIT BREAKERS

Lights	30 amp
Ignition switch	30 amp
Cab radio, wiper, and blower	20 amp
Instrument cluster	10 amp
Rotary screen	10 amp
Breaker trip time for 30 amp current	Within 60 seconds

E05,4000,AN -19-23JUN93

LIGHTING CIRCUITS

BULBS (12-16 Volts)	TRADE NUMBER
Single-beam head lamp (halogen, sealed beam)	H7607
Work lamp (halogen, sealed beam)	H7607
Tail lamp (clear, double contact)	1003
Warning lamp (clear, single contact)	
Tachometer, fuel and water lamp (clear, miniature bayonet base)	
Console lamp (overhead) (clear)	168
Dome lamp (clear)	105
Turn signal (green)	1895G

FLASHER RATE PER MINUTE

Warning Light	60 to 85
Turn signal	maximum 105
	Opposite side - 60 to 85

E05,4000,AO -19-23JUN93

INSTRUMENT CIRCUITS

WATER TEMPERATURE GUAGE SENDER (9 volts, minimum resistance applied between ground and sender terminals):

40˚C (104˚F)	287 ohms
107˚C (224˚F)	32.1 ohms
120˚C (248˚F)	22.7 ohms

Fuel guage sender resistance:

Empty	6.5-9.2 ohms
1/2 Full	88-92 ohms
Full	177-188 ohms

Air filter restriction switch . . . . . closes 5 to 7.5 kPa (0.05 to 0.75 bar) (0.73 to 1.09 psi)

Engine high temperature switch . . . . . closes at 105˚C (220˚F)

Engine oil pressure switch . . . . . opens 48-72 kPa (0.04 to 0.7 bar) (5.5—10.5 psi)

Hydrostatic transmission oil pressure switch:

Opens	379 kPa (4 bar) (55 psi)
Closes	241 kPa (2 bar) (35 psi)

Hydrostatic transmission oil filter switch . . . . . closes 138-179 kPa (1.2-1.8 bar) (20-26 psi)

E05,4000,AP -19-23JUN93

ACCESSORY CIRCUITS

Radio and tape player fuses . . . . . 5 amps

Tape player relay:

Current draw at 12.0 volts	0.07 amps
Winding resistance	180 ohms

Wiper motor current draw:

Low speed	2 to 3 amps
High speed	3 to 4 amps

E05,4000,AB -19-23JUN93

CHARGING CIRCUIT—MOTOROLA (—880000)

ALTERNATOR

Item	Measurement	Specification
RA Series Alternator	Nominal Rating	12 volt, 55 amp
Stator	Winding connection	Delta
Brush	Minimum exposed length	6.4 mm (1/4-in.)
Field	Resistance	5.5 ohms
Field	Current draw 23.9˚C (75˚F)	1.95 to 2.25 amps at 10 volts
Speed Ratio	Alternator to Engine	1.7:1

WIRING VOLTAGE DROP TEST

Grounded battery post to alternator ground terminal	0.3 volt
Positive battery post to alternator output terminal	0.3 volt
Positive battery post to alternator regulator terminal	1.3 volt

ALTERNATOR AND REGULATOR TEST WITH VOLTMETER

(1) Switch off	Less than 0.1 volt
(2) Switch on, engine stopped	1.5 to 3 volts
(3) Engine at approx. 1400 rpm	Regulator terminal - more than 15 volts Output terminal - 1 volt less

ALTERNATOR TEST ON ENGINE

Alternator field test	1.9 to 2.6 amps at 12.4 volts
Alternator test with voltmeter	15 volts at 800 engine rpm
Alternator with regulator test on engine (23.8˚C [75˚F]):	
Output at 1212 rpm (2100 alternator rpm)	*30 amps at 13 to 15 volts
Output at 1731 rpm (3000 alternator rpm)	*40 amps at 13 to 15 volts

*With JDST-23 Ammeter or with battery post adapter, allow for current used when running the engine.

REGULATOR VOLTAGE TEST (After 15 minutes operation and at 1500 rpm):

Temperature*		Voltage
4.4˚C	40˚F	14.4 - 14.9 volts
15.6˚C	60˚F	14.3 - 14.7 volts
26.7˚C	80˚F	14.2 - 14.6 volts
37.8˚C	100˚F	14.0 - 14.4 volts
48.9˚C	120˚F	13.8 - 14.3 volts
60.0˚C	140˚F	13.6 - 14.1 volts

*Measured 25.4 mm (1-in.) from regulator

TORQUE VALUES

Sheave nut	54 to 68 N·m (40 to 50 lb-ft)
Thru bolts	5.7 to 6.8 N·m (50 to 60 lb-in.)
Brush mounting screws	1.81 to 2.26 N·m (16 to 20 lb-in.)
Diode assembly nuts	3.73 to 4.52 N·m (33 to 40 lb-in.)
Isolation diode nuts	2.26 to 3.39 N·m (20 to 30 lb-in.)

E05,4000,AC -19-23JUN93

CHARGING CIRCUIT—BOSCH (880001—)

ALTERNATOR

Item	Measurement	Specification
RA Series Alternator	Nominal Rating	12 volt, 95 amp
Stator	Winding connection	Delta
Brush	Minimum exposed length	6 mm (15/64-in.)
Field	Resistance	5.5 ohms
Field	Current draw 23.9˚C (75˚F)	1.95 to 2.25 amps at 10 volts
Speed Ratio	Alternator to Engine	2.3:1

WIRING VOLTAGE DROP TEST

Grounded battery post to alternator ground terminal	0.3 volt
Positive battery post to alternator output terminal	0.3 volt

ALTERNATOR TEST ON ENGINE

Alternator field test	1.9 to 2.6 amps at 12.4 volts
Alternator test with voltmeter	15 volts at 800 engine rpm
Alternator with regulator test on engine (23.8˚C [75˚F]):	
Output at 652 rpm (1500 alternator rpm)	20 amps at 13 to 15 volts
Output at 1304 rpm (3000 alternator rpm)	45 amps at 13 to 15 volts
Output at 2608 rpm (6000 alternator rpm)	95 amps at 13 to 15 volts

TORQUE VALUES

Sheave nut	54 to 68 N·m (40 to 50 lb-ft)

E05,4000,AD -19-23JUN93

STARTING CIRCUIT (—915000) DELCO REMY 27MT MODEL 1198367

Solenoid pull-in winding current draw at 8.0 volts	52 to 60 amps
Solenoid hold-in winding current draw at 8.0 volts	10 to 13 amps
Starting motor no-load test:	
Current draw at 9.0 volts	20 to 120 amps
Armature speed	9000 to 14000 rpms
Solenoid “R” terminal contact height	0.792 to 2.383 mm (1/16 to 3/32-in.)
Brush minimum length beyond holder	7.9 mm (5/16-in.)
Brush spring minimum tension	990 g (35 oz)
Drive housing bushing I.D.	11.709 to 11.811 mm (0.4610 to 0.4650-in.)
Maximum I.D.	12.065 mm (0.4750-in.)
Oil clearance	0.050 to 0.127 mm (0.0020 to 0.0050-in.)
Maximum clearance	0.431 mm (0.0170-in.)
Motor Drive I.D.	14.274 to 14.300 mm (0.5620 to 0.5630-in.)
Maximum I.D.	14.579 mm (0.5740-in.)
Center bearing plate bushing I.D.	19.304 to 19.354 mm (0.7600 to 0.7620-in.)
Maximum I.D.	9.608 mm (0.7720-in.)
Oil clearance	0.254 to 0.381 mm (0.0100 to 0.0150-in.)
Maximum clearance	0.635 mm (0.0250-in.)
Commutator end frame bushing I.D.	14.413 to 14.338 mm (0.5635 to 0.5645-in.)
Maximum I.D.	14.554 mm (0.5730-in.)
Oil clearance	0.050 to 0.127 mm (0.0020 to 0.0050-in.)
Maximum clearance	0.406 mm (0.0160-in.)
Pinion clearance	0.25 to 3.56 mm (0.010 to 0.140-in.)

E05,4000,AE -19-23JUN93

STARTING CIRCUIT (915001—) DELCO REMY 28MT MODEL 1113271

Gear reduction ratio	3.875 to 1
Solenoid pull-in winding current draw at 10 volts	52 to 59 amps
Solenoid hold-in winding current draw at 10 volts	12 to 14 amps
Starting motor no-load test:	
Current draw at 10 volts	125 to 190 amps
Pinion speed	3000 to 5600 rpms
Armature speed	11625 to 21700 rpms
Commutator minimum OD	35 mm (1.378-in.)
Brush minimum length	12 mm (0.472-in.)
Brush spring minimum tension	990 g (35 oz)
Pinion clearance	1.85 to 2.05 mm (0.073 to 0.079-in.)

E,1314,4000,AF -19-23JUN93

SPECIAL OR ESSENTIAL TOOLS

NOTE: Order tools according to information given in the U.S. SERVICE-GARD™ Catalog or in the European Microfiche Tool Catalog (MTC).

DX,TOOLS -19-05JUN91

Voltage Detector D05136ST

Check wiring circuits

D05136ST -19-27SEP91

Analog/Digital Multimeter . . . JT05682

Check electrical components/circuits for voltage, resistance and current flow.

RW11274 -UN-12DEC88

JT05682 -19-27AUG90

Battery Tester JT28001

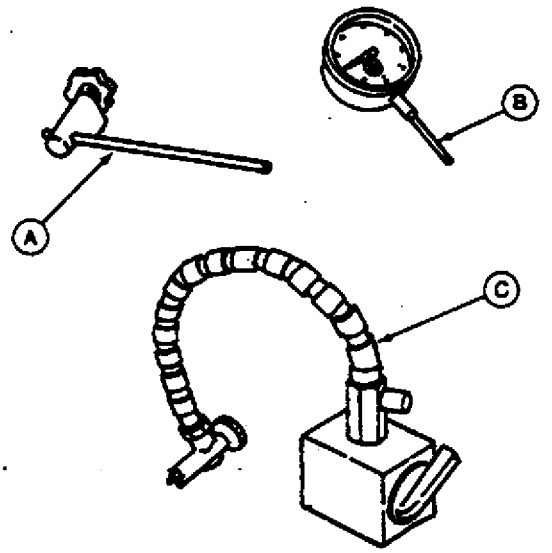
Check battery condition.

RW10165 -UN-09DEC88

JT28001 -19-27AUG90

To check armature for bent shaft.

A—D-17525 CI - Adjustable Arm
B—D-17526 CI - Dial Indicator
C—D-17517 CI - Magnetic Base With Flexible Arm



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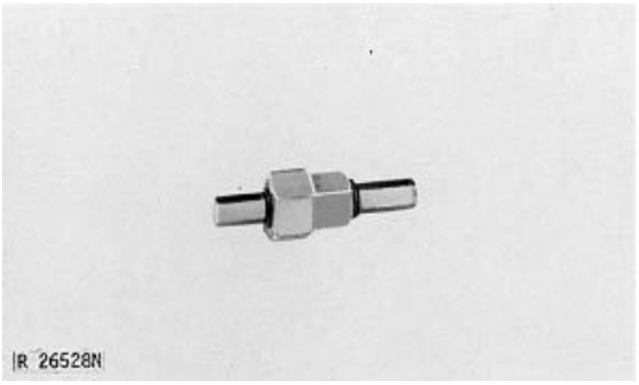
E05,4000,AQ -19-23JUN93

The JD-306A Alternator Pulley Nut Remover is used to remove and install the alternator retaining nut.



-UN-09FEB90
R26528N

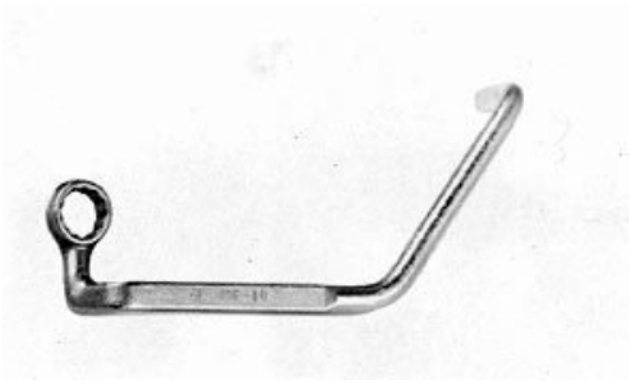
E05,4000,AL -19-23JUN93

The JDST-27 Inch-Pound Torque Wrench is used to torque the alternator nuts.

-UN-23JAN89
R37313

E05,4000,AM -19-23JUN93

Number	Use
JDE-80 Starter Wrench	Remove and install mounting bolt behind starting motor.



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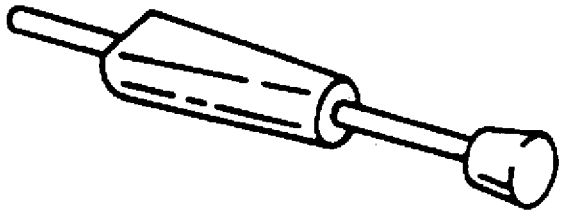
R26547

E03,4000,N -19-23JUN93

Number	Use
JDG-440 Extractor Tool	To remove wire from connector.



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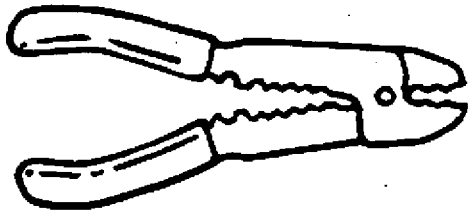
E03,4000,T -19-23JUN93

Number	Use
R32011 Wire Strippers	To strip insulation from wiring.



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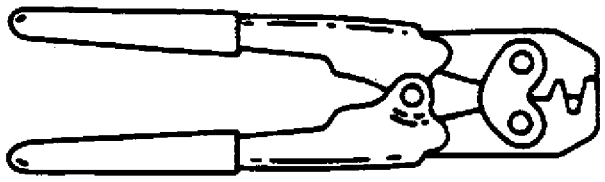
E22429

E03,4000,U -19-23JUN93

Number	Use
R65594 Crimping Tool	To “B” crimp terminals to wires.



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E22430

E03,4000,V -19-23JUN93

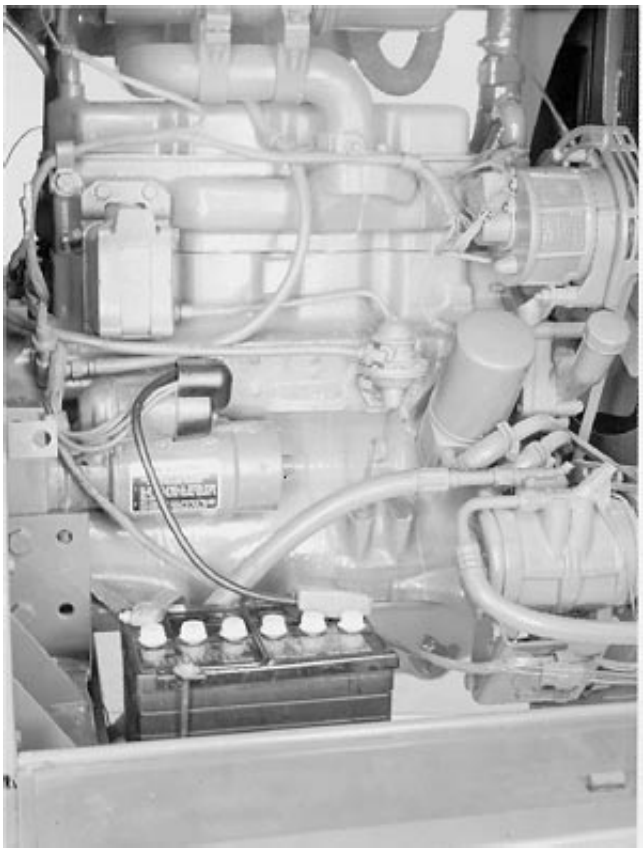
GENERAL INFORMATION

When replacing a battery, use the John Deere battery or its equivalent shown in “Specifications, Torques and Special Tools”.

There are two important things that must be done periodically in order to obtain long life from a battery.

1. The electrolyte must at all times be kept above the plates and separators. The electrolyte level should be checked once a week, or after fifty hours of operation. See “Checking Electrolyte Level”, Section 240, Group 05.

2. Be sure the battery is kept nearly charged at all times. The state of charge should be checked at frequent intervals by making specific gravity readings with a battery hydrometer. See Check Specific Gravity, Section 240, Group 05.



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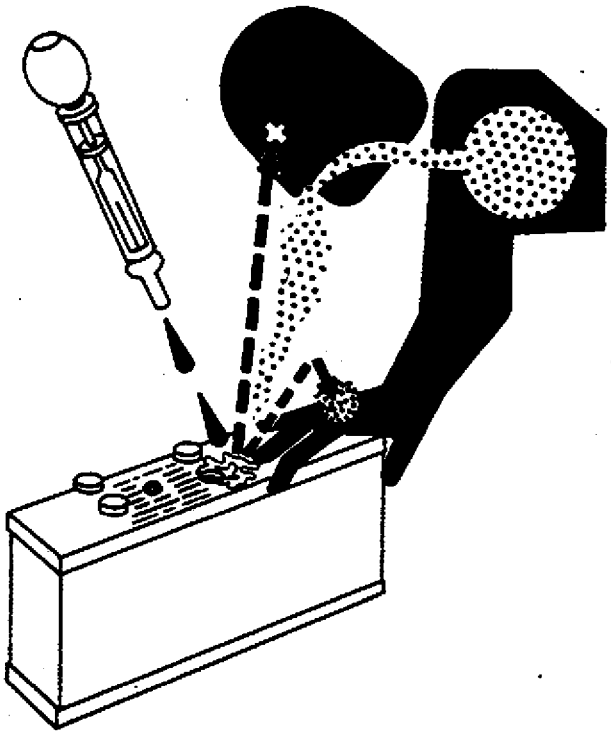
E05,4005,I -19-23JUN93

CAUTION: Sulfuric acid in battery electrolyte is poisonous. It is strong enough to burn skin, eat holes in clothing, and cause blindness if splashed into eyes.

Avoid the hazard by:
1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.
5. Use proper jump start procedure.

If you spill acid on yourself:
1. Flush your skin with water.
2. Apply baking soda or lime to help neutralize the acid.
3. Flush your eyes with water for 10—15 minutes. Get medical attention immediately.

If acid is swallowed:
1. Drink large amounts of water or milk.
2. Then drink milk of magnesia, beaten eggs, or vegetable oil.
3. Get medical attention immediately.



TS203 -UN-23AUG88

E05,4005,J -19-23JUN93

COLD WEATHER BATTERY SERVICE

During cold weather, it is particularly important to keep the electrolyte in the battery at the proper level, and to keep the battery fully charged.

E05,4005,K -19-23JUN93

REMOVE BATTERY

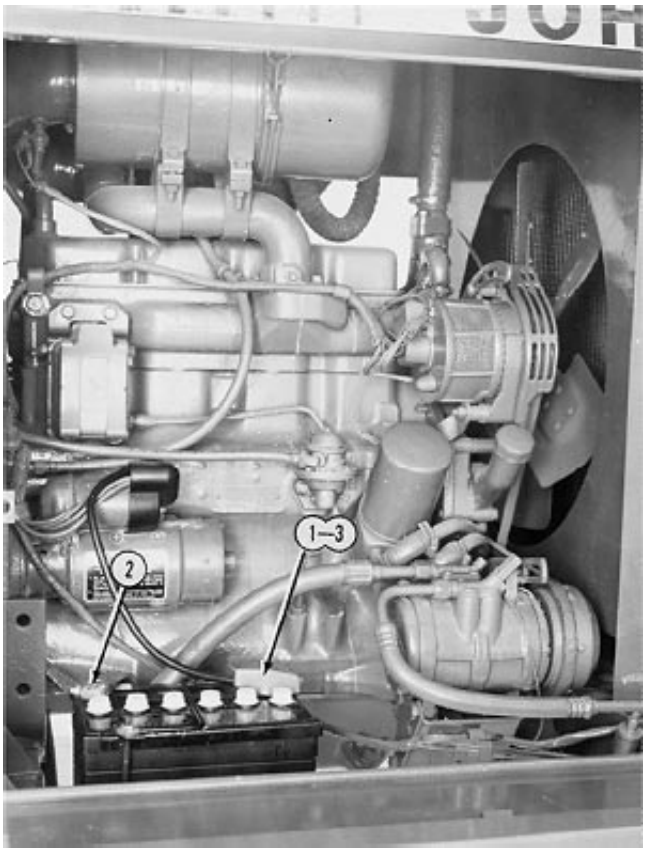
1. Note carefully the location of the positive (+) terminal so the battery is installed in the same way.

2. Disconnect the ground cable(-) first. Use only a box end wrench to loosen the clamp on the terminal. Remove clamp using a screw-type puller. DO NOT HAMMER on the battery post.

3. Remove the positive cable.

4. Remove the battery clamps and battery.

5. Check cable for worn or frayed insulation. Replace cable clamps on bolts, if corroded.



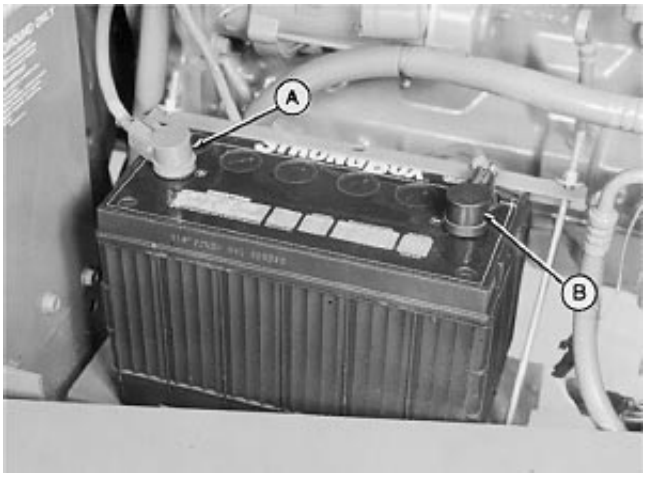
E05,4005,L -19-23JUN93

CLEAN THE BATTERY

Wipe the battery with a damp cloth. If terminals are corroded, use a stiff brush and wash with an ammonia solution or a solution of baking soda, 0.11 kg (1/4 lb) added to 0.95 L (1 qt) of water. Keep vent plugs tight while washing. After washing, flush battery and compartment with clear water. Then coat terminals with petroleum jelly to protect against corrosion. Be sure vent holes in vent plugs are open.

E05,4005,M -19-23JUN93

INSTALL BATTERY



E37371 -UN-29JUN93

1. Be sure battery is fully charged.

2. Set battery in tray making sure battery is resting level.

3. Clean the battery terminals and cable clamps with a wire brush before attaching the clamps. This will assure a good contact.

4. Tighten the battery clamp nuts evenly until battery is secure. Do not overtighten as this will distort or crack the battery case.

IMPORTANT: Reversed polarity can damage the electric circuit and components.
• Always connect positive cable (A) to positive post (+) and negative (ground) cable (B) to negative post (-) on battery.
• Always connect negative (ground) cable (B) to negative (-) post on battery last.

5. Check for correct polarity of the battery. Connect the positive cable (A) first. Before connecting the ground cable (B), momentarily touch it against the battery post. With all switches and accessories off, no spark should occur. If spark does occur, do not connect the ground cable. Check for reversed battery polarity, improper alternator connection, defective electrical wire connection, or defective electrical equipment.

6. Tighten the clamps on the battery terminals. Use a box-end wrench carefully to avoid twisting the battery terminal posts.

7. Coat the terminals with petroleum jelly to prevent corrosion. Never paint the terminal posts.

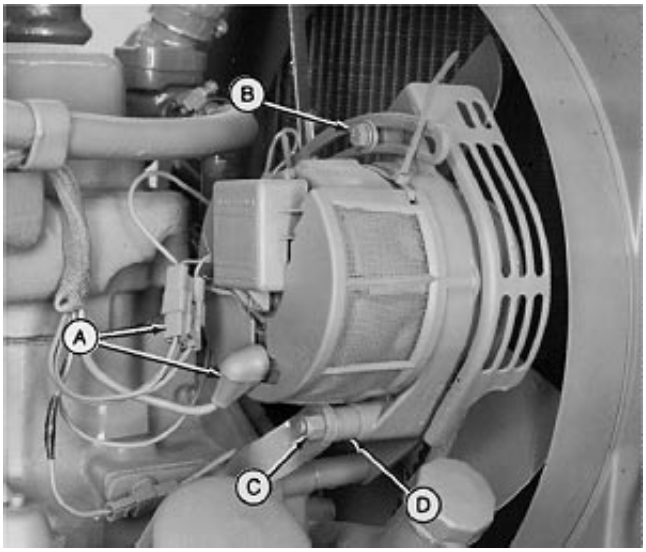
E05,4005,N -19-23JUN93

REMOVE ALTERNATOR MOTOROLA (—880000)

NOTE: It is not necessary to disassemble the alternator to replace brushes or voltage regulator. Such operations are usually accomplished with the alternator left intact on the engine.

IMPORTANT: Disconnect battery ground first to prevent damage to alternator and electrical circuit.

1. Disconnect wires (A) at alternator.
2. Remove cap screw (B), washers and V-belt.
3. Remove nut (C), cap screw, and spacer (D).



A—Wires
B—Cap Screw
C—Nut
D—Spacer

E05,4010,R -19-23JUN93

DISASSEMBLE ALTERNATOR

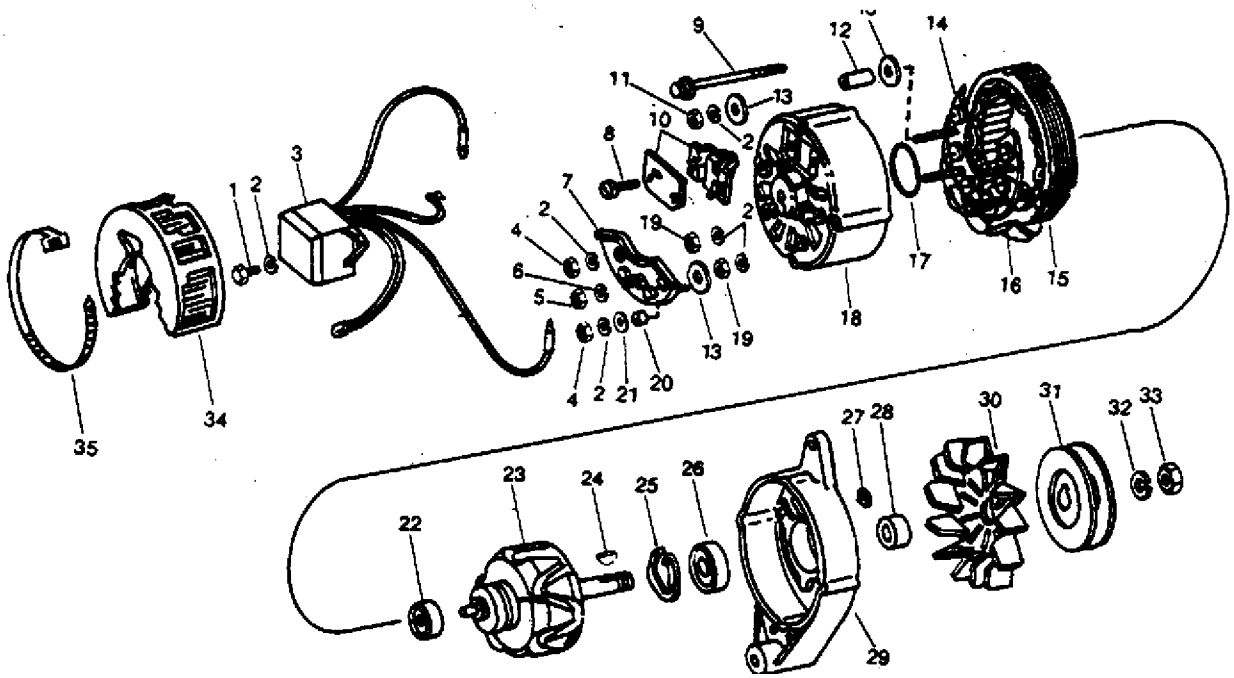
Never immerse stator, rotor, brushes, or bearings in cleaning solution.

Hammering or jarring may ruin the diodes.

Remove isolation diode, regulator and brushes. Remove thru bolts. Pry stator and slip ring end frame assembly from the rotor and drive end frame assembly. Inserting screwdriver deeper than 1.6 mm (1/16-in.) may damage windings.

Refer to following illustrations to complete disassembly of alternator.

E05,4010,S -19-23JUN93



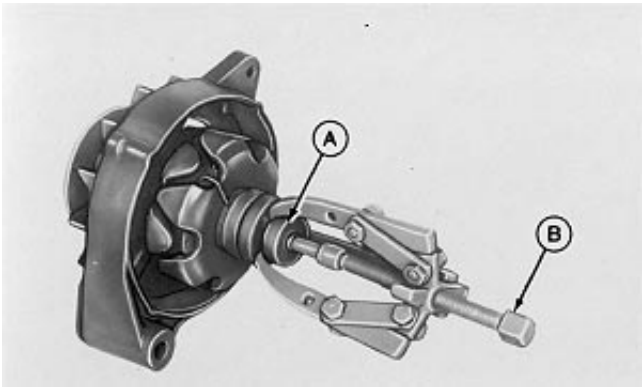
1—Self-Tapping Screw (3 used)
2—No. 10 Lock Washer (7 used)
3—Regulator (Motorola No. 8RF2014C)
4—No. 10 Nut (2 used)
5—Nut, 1/4-in.
6—Lock Washer, 1/4-in.
7—Dual Insulator Diode
8—No. 8 x 1/2-in. Drive Screw (2 used)
9—Thru Bolt (4 used)
10—Brush and Cover
11—No. 10 Nut (2 used)
12—Insulator Sleeve (2 used)
13—Insulator Washer (5 used)
14—Positive Rectifying Diode
15—Stator
16—Negative Rectifying Diode
17—Rear Bearing Retainer
18—Rear Housing
19—No. 10 Nut (2 used)
20—Insulator Sleeve
21—Insulator Washer
22—Rear Bearing
23—Rotor
24—Woodruff Key
25—Front Bearing Retainer
26—Front Ball Bearing
27—Square Nut (4 used)
28—Fan and Pulley Spacer
29—Front Housing
30—Fan
31—Pulley
32—Lock Washer
33—Jam Nut
34—Dust Cover
35—Tie Strap

Exploded View of Alternator

E05,4010,T -19-23JUN93

REPLACE SLIP RING END BEARING

1. Remove slip ring end bearing (A) using A-216 puller (B).



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