

# 5730 and 5830 Self Propelled Forage Harvesters



## TECHNICAL MANUAL 5730 and 5830 Self Propelled Forage Harvesters

TM1352 (03DEC93) English

**John Deere Ottumwa Works**  
**TM1352 (03DEC93)**

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.

EX,TM1352,IFC -19-04NOV93

# Dealer Presentation Sheet

## JOHN DEERE DEALERS

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

This is a partial revision of TM1352, 5730 / 5830 Self Propelled Forage Harvester.

Listed below is a brief explanation of what was changed.

### **Section 80 Machine Functions**

#### **Group 60 Main Gear Case Repair**

Corrected the assembly procedure and specifications on the main gear case assembly.

TM1352,EX,DLR -19-11NOV93

*Dealer Presentation Sheet*

**Thanks very much for your reading,  
Want to get more information,  
Please click here, Then get the complete  
manual**

**JustClickHere** 

**NOTE:**

**If there is no response to click on the link above,  
please download the PDF document first, and then  
click on it.**

**Have any questions please write to me:  
[admin@servicemanualperfect.com](mailto:admin@servicemanualperfect.com)**

# Contents

## SECTION 10—GENERAL

- Group 05—Safety
- Group 10—Specifications, Torques, and Special Tools
- Group 15—Tune-Up
- Group 20—Engine Removal

## SECTION 20—ENGINE REPAIR (6466A)

### SECTION 25—ENGINE REPAIR (6619A)

- Group 00—Specifications and Special Tools
- Group 05—Cylinder Head, Valves and Camshaft
- Group 10—Cylinder Block, Liners Pistons, and Rod
- Group 15—Crankshaft, Main Bearings, and Flywheel
- Group 20—Lubrication System
- Group 25—Cooling System

### SECTION 30—FUEL AND AIR REPAIR

- Group 05—Air Intake System
- Group 10—Diesel Fuel System

### SECTION 40—ELECTRICAL REPAIR

- Group 05—Battery Repair
- Group 10—Charging Circuit Repair
- Group 15—Starting Circuit Repair
- Group 20—Electrical Component Repair
- Group 25—Harness Repair
- Group 30—Metal Detector Repair
- Group 35—Rotary Screen Motor Repair
- Group 40—SPOUT-TRAK™ Repair

### SECTION 50—POWER TRAIN

- Group 05—Hydrostatic Fitting Torques
- Group 10—Flushing Hydrostatic System
- Group 15—Hydrostatic Drive Repair
- Group 20—Transmission Repair
- Group 25—Differential Repair
- Group 30—Final Drive Repair
- Group 35—Cam Lobe Motor Repair
- Group 40—Power Rear Wheel Control Valve

## SECTION 60—STEERING AND BRAKES REPAIR

- Group 05—Steering Unit Repair
- Group 10—Steering Cylinder and Tie Rod Repair
- Group 15—Brake Repair
- Group 20—Master Cylinder Repair
- Group 25—Slave Cylinder Repair

## SECTION 70—HYDRAULIC REPAIR

- Group 05—Torque Hydraulic Fittings
- Group 10—Flushing the Hydraulic System
- Group 15—Hydraulic Reservoir
- Group 20—Knife Sharpener Motor Repair
- Group 25—Knife Sharpener Selector Valve Repair
- Group 30—Gear Case Cooling Pump Repair
- Group 35—Main Hydraulic Pump Repair
- Group 40—Priority and Relief Valves
- Group 45—Hydraulic Outlet
- Group 50—Harvesting Unit Lift Cylinder
- Group 55—Belt Tightener Cylinder
- Group 60—Spout Control Motor Repair
- Group 65—Electrohydraulic Valves

## SECTION 80—MACHINE FUNCTIONS

- Group 05—Diagnosing malfunctions
- Group 10—Feed Roll Repair
- Group 15—Stationary Knife Adjuster Repair
- Group 20—Remove Roll Arm Repair
- Group 25—Cutterhead Knife Bracket
- Group 30—Cutterhead Repair
- Group 35—Knife Sharpener Repair
- Group 40—Feed Roll Gear Case Repair
- Group 45—Auger Repair
- Group 50—Fan and Spout Repair
- Group 55—Main Clutch Repair
- Group 60—Main Gear Case Repair

## SECTION 90—OPERATOR'S STATION REPAIR

- Group 05—Pressurizer System
- Group 10—Air Conditioning System
- Group 15—Cab Removal
- Group 20—Heating System
- Group 25—Personal Posture™ Seat

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.*

TM1352-19-03DEC93

COPYRIGHT® 1993  
DEERE & COMPANY  
Moline, Illinois  
All rights reserved  
A John Deere ILLUSTRATION® Manual  
Previous Editions  
Copyright® 1986 Deere & Company

10

Group 30—Miscellaneous Component

**SECTION 100—KERNEL PROCESSOR REPAIR**

Group 05—Kernel Processor

20

**SECTION 220—ENGINE OPERATION AND TESTS  
(6466A)**

Group 05—System Operation

Group 10—System Operation and Tests

25

**SECTION 225—ENGINE OPERATION AND TESTS  
(6619A)**

Group 05—System Operation

Group 10—System Tests And Diagnosis

30

**SECTION 230—FUEL/AIR OPERATION AND TESTS**

Group 05—Air Intake System

Group 10—Diesel Fuel System

40

**SECTION 240—ELECTRICAL OPERATION AND TESTS**

Group 05—Battery Testing

Group 10—Charging Circuit Diagnosis

50

Group 15—Starting Circuit Diagnosis

Group 20—Electrical Testing

Group 25—General Wiring Diagrams

Group 30—Iron Gard™ Metal Detector Diagnosis

Group 35—Rotary Air Screen Diagnosis

60

Group 40—Spout-Trak™ Diagnosis

Group 45—Electric Clutch Diagnosis

**SECTION 250—POWER TRAIN OPERATION AND TESTS**

70

Group 05—Diagnosing Power Train Malfunctions

Group 10—Power Train Operation and Tests

Group 15—Power Rear Wheel Drive Operation and Tests

80

**SECTION 260—STEERING/BRAKES OPERATION**

Group 05—Steering

Group 10—Brakes

90

**SECTION 270—HYDRAULIC OPERATION AND TESTS**

Group 05—Diagnosing Malfunctions

Group 10—Hydraulic System Operation

Group 15—Electrohydraulic Valve Operation

Group 20—Hydraulic Diagrams

Group 25—Hydraulic System Tests

**SECTION 290—OPERATOR'S STATION OPERATION AND TESTS**

Group 05—Diagnosing Malfunctions

Group 10—Pressurizer System

Group 15—Air Conditioning System Operation

Group 20—Air Conditioning System Tests and Diagnosis

*Contents*

100

220

225

230

240

250

260

270

290

*Contents*

100

220

225

230

240

250

260

270

290

# Section 10 GENERAL

## CONTENTS

	Page		Page
<b>GROUP 05—SAFETY</b>		<b>GROUP 15—TUNE-UP</b>	
<b>GROUP 10—SPECIFICATIONS, TORQUES, AND SPECIAL TOOLS</b>		Special Tools . . . . .	10-15-1
Engine . . . . .	10-10-1	Other Materials . . . . .	10-15-1
Hydrostatic System		General . . . . .	10-15-2
(Ground Drive) . . . . .	10-10-2	Preliminary Engine Testing . . . . .	10-15-2
Lubrication System . . . . .	10-10-2	Remove and Inspect Air Cleaner Elements . . . . .	10-15-2
Fuel System . . . . .	10-10-2	Cleaning Primary Element . . . . .	10-15-3
Cooling System . . . . .	10-10-2	Washing Primary Element . . . . .	10-15-3
Electrical System . . . . .	10-10-2	Inspecting Primary Element . . . . .	10-15-4
Main Clutch		Tighten Air Intake Connection . . . . .	10-15-4
(Blower Fan and Cutterhead Drive) . . . . .	10-10-3	Check Air Intake Restriction . . . . .	10-15-5
Transmission . . . . .	10-10-3	Clean Crankcase Vent Tube (5830) . . . . .	10-15-5
Final Drive . . . . .	10-10-3	Cleaning the Radiator Condenser, Oil Cooler, and Vacuum Ducts . . . . .	10-15-6
Weight		Clean Rotary Screen . . . . .	10-15-6
(Less Harvesting Unit) . . . . .	10-10-3	Yearly Cooling System Flush . . . . .	10-15-7
Cutterhead . . . . .	10-10-4	Engine Coolant-Conditioner Filter . . . . .	10-15-9
Cutterhead Reverse Grinder . . . . .	10-10-4	Test Radiator and Cap . . . . .	10-15-9
Blower . . . . .	10-10-4	Adjust Alternator Belt . . . . .	10-15-11
Augers		Adjust Compressor Belt . . . . .	10-15-12
(All Countries Except Europe) . . . . .	10-10-4	Check Fuel Filters . . . . .	10-15-12
(Augers (Europe) . . . . .	10-10-4	Bleed Fuel System . . . . .	10-15-12
Power Rear Wheel Drive		Check and Adjust Injection Pump Timing . . . . .	10-15-13
(Optional) . . . . .	10-10-4	Check and Adjust Slow and Fast Idle Speeds . . . . .	10-15-14
Hydraulic System		Service Battery . . . . .	10-15-14
(Machine Functions) . . . . .	10-10-5	Make Final Engine Test . . . . .	10-15-15
Brakes . . . . .	10-10-5	Miscellaneous Checks . . . . .	10-15-16
Operator's Cab . . . . .	10-10-5	<b>GROUP 20—ENGINE REMOVAL</b>	
Tire Options . . . . .	10-10-5	Fabricated Tools . . . . .	10-20-1
Maximum Ground Speed . . . . .	10-10-6	Remove Engine . . . . .	10-20-1
Capacities . . . . .	10-10-7	Repair Engine . . . . .	10-20-7
Dimensions . . . . .	10-10-8	Install Engine . . . . .	10-20-7
English Torque Specifications . . . . .	10-10-9	Remove Rotary Air Screen . . . . .	10-20-8
Metric Torque Specifications . . . . .	10-10-9		

E03;CON Z 041186

*Contents*

**SAFETY AND YOU**

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 .



AB6;T81389 053;TMSAFE 071085

**IMPORTANT**

The **IMPORTANT** message identifies potential problems which may cause consequential damage to machine. Following recommended procedure will instruct technician how to avoid problem.

E03;1005 V 190686

**NOTES**

The word *NOTE* is followed by a statement that identifies a qualification or exception to a previous statement. A "NOTE" may also identify nice-to-know information pertinent to, but not directly related to previous statement.

U10;0101NT E 101281

**KEEP RIDERS OFF MACHINE**


Only allow the operator on the machine. Keep riders off.

Riders on machine are subject to injury such as being struck by foreign objects and being thrown off of the machine. Riders also obstruct the operator's view resulting in the machine being operated in an unsafe manner.



AB6;TS173 053;RIDER 261184

## OBSERVE SAFETY RULES

 This safety alert symbol identifies important safety messages in this manual and on the machine. When you see this symbol, be alert to the possibility of personal injury and carefully read the message that follows.



T273930

Avoid loose clothing that can catch in moving parts and put you out of work.

Wear your safety glasses while on the job.

Avoid working on equipment with the engine running. If it is necessary to make checks with the engine running, ALWAYS USE TWO PEOPLE—with the operator, at the controls, able to see the person doing the checking. Also, place the transmission in neutral and set the brake. KEEP HANDS AWAY FROM MOVING PARTS.

Keep transmission and brake control units properly adjusted at all times. Before making adjustments, stop engine.

Before removing any housing covers, stop engine. Take all objects from your pockets which could fall into the opened housings. Don't let adjusting wrenches fall into opened housings.

Don't attempt to check belt tension while the engine is running.

Don't adjust the fuel system while the machine is in motion.

Before repairing the electrical system, or performing a major overhaul, make sure the batteries are disconnected.

0A9;T27999 E03;0000 J 210383

## WEAR PROTECTIVE CLOTHING

Wear fairly tight clothing. . . . . and safety equipment.



AB6;TS184 053;WEAR2 080785

## AVOID ACID BURNS

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:

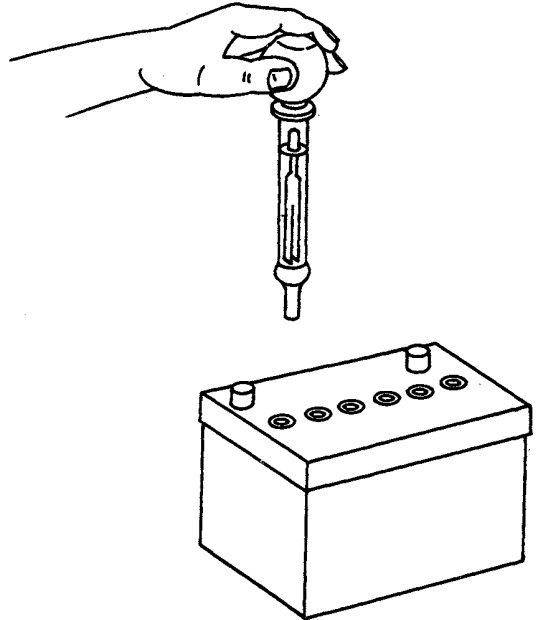
1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.

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.



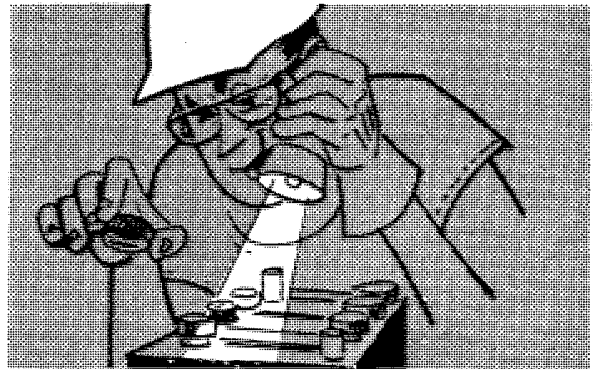
AB6;TS182 053;ACID 180485

## PREVENT BATTERY EXPLOSIONS

Battery gas can explode. Keep sparks and flames away from batteries. Use a flashlight to check battery electrolyte level.

Never check battery charge by placing a metal object across the posts. Use a voltmeter or hydrometer.

Always remove grounded (-) battery clamp first and replace it last.



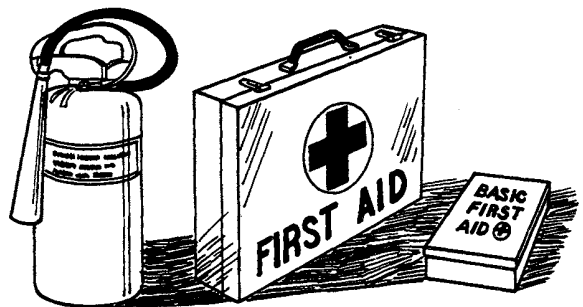
AB6;TS181 053;EXPL0 180485

## PREPARE FOR EMERGENCIES

Be prepared if a fire starts.

Keep a first aid kit and fire extinguishers handy.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.



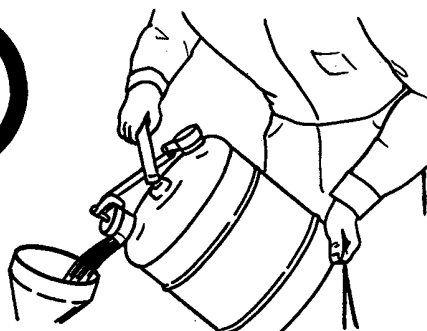
AB6;TS186 053;FIRE2 080785

## HANDLE FUEL SAFELY—AVOID FIRES

Handle fuel with care: it is highly flammable. Do not refuel the machine while smoking or when near open flame or sparks.

Always stop engine before refueling machine. Fill fuel tank outdoors.

Prevent fires by keeping machine clean of accumulated trash, grease, and debris. Always clean up spilled fuel.



AB6;TS185 053;FIRE1 240785

## AVOID FIRE HAZARDS

Be prepared if an accident or fire should occur. Know where the first aid kit and the fire extinguishers are located—know how to use them.

Do not smoke while refueling or handling highly flammable material.

Shut off the engine when refueling.

Use care in refueling if the engine is hot.

Do not use open pans of gasoline or diesel fuel for cleaning parts. Use good commercial, nonflammable solvents.

Provide adequate ventilation when charging batteries.

Do not check battery charge by placing metal objects across the posts.

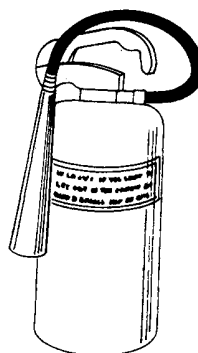
Do not allow sparks or open flame near batteries.

Do not smoke near battery.

Never check fuel or coolant level with an open flame.

Never use an open flame to look for leaks anywhere on the equipment.

When preparing engine for storage, remember that inhibitor is volatile and therefore dangerous. Seal and tape opening after adding the inhibitor. Keep container tightly closed when not in use.



N35540

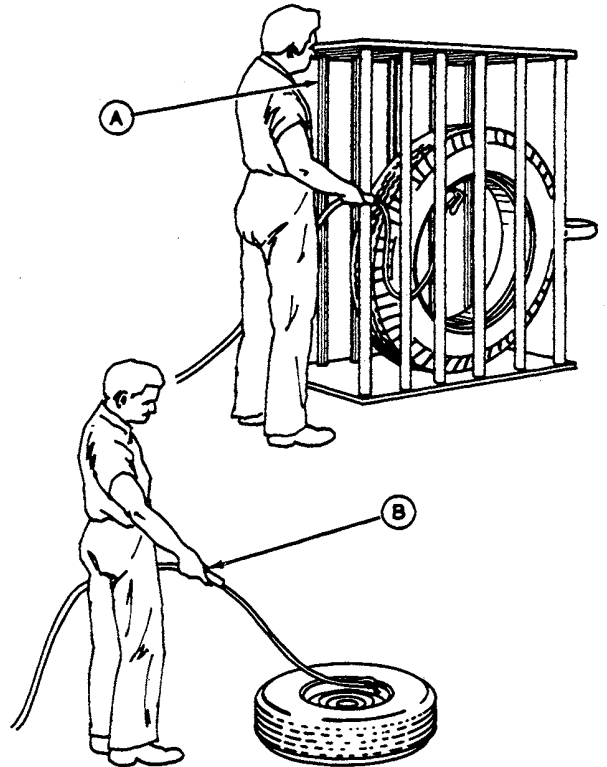
0A9;N35540 E03;;0000 Q 150986

### SERVICE TIRES SAFELY

Failure to follow proper procedures when mounting a tire on a wheel or rim can produce an explosion which may result in serious injury or death. Do not attempt to mount a tire unless you have the proper equipment and experience to perform the job.

When sealing tire beads on rims, never exceed 240 kPa (2.4 bar) (35 psi) or maximum inflation pressures specified by tire manufacturers for mounting tires. Inflation beyond this maximum pressure may break the bead, or even the rim, with dangerous explosive force. If both beads are not seated when the maximum recommended pressure is reached, deflate, reposition tire, relubricate bead, and reinflate.

Detailed agricultural tire mounting instructions, including necessary safety precautions, are contained in John Deere Fundamentals of Service (FOS) Manual 55. Such information is also available from the Rubber Manufacturers Association and from tire manufacturers.

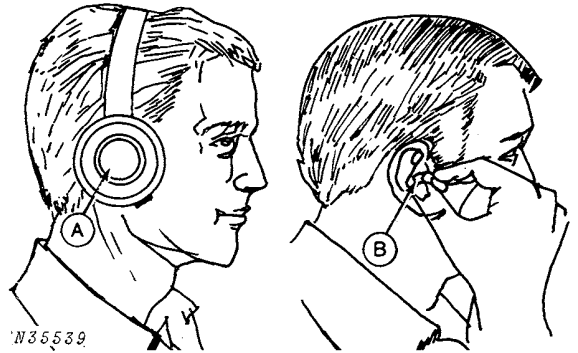


AC3;TS0123 U10;010INT L 030484

### PROTECT AGAINST NOISE

Prolonged exposure to loud noise can cause impairment or loss of hearing.

Wear a suitable hearing protective device such as earmuffs (A) or earplugs (B) to protect against objectionable or uncomfortable loud noises.



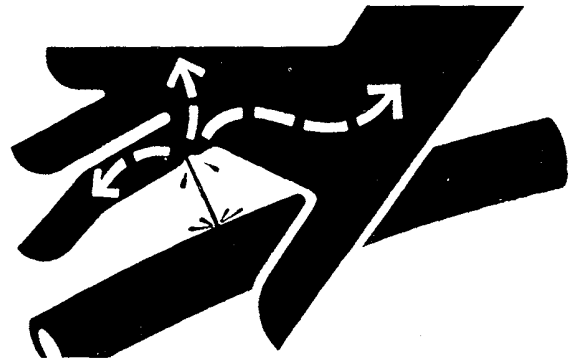
N35539

0A9;N35539 E03;1005 W 190686

### AVOID HIGH-PRESSURE FLUIDS

Escaping fluid under pressure can penetrate the skin causing serious injury. Relieve pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Keep hands and body away from pinholes and nozzles which eject fluids under high pressure. Use a piece of cardboard to search for leaks.

If ANY fluid is injected into the skin, it must be surgically removed within a few hours by a doctor familiar with this type injury or gangrene may result.



AB6;X9811 053;FLUID 010586

### **USE BLOCKS WHEN NEEDED**

Block the wheels to keep the machine from moving while it is being serviced.

Whenever the engine is to be removed for service, block the machine securely, so it will not move.

Whenever working under the harvesting units, lower jack-stands (if equipped) and block the units so they will not fall.

A68; E03;0000 XXX 210383

### **USE ADEQUATE SERVICE FACILITIES**

Keep the service area clean and dry. Wet or oily floors are slippery. Wet spots can be dangerous when working with electrical equipment.

Make sure the service area is adequately vented.

Periodically check the shop exhaust system for leakage. Engine exhaust gas is dangerous.

Be sure electrical outlets and tools are properly grounded.

Service the machine on a level, hard-surfaced area.

Use lifting equipment and safety stands which have adequate strength for the job being performed.

E03;1005 X 190686

### **AVOID EXPLOSIONS OR FIRE**

Batteries produce explosive gas. Before using booster batteries, read instructions in operator's manual.

Before connecting or disconnecting battery charger, turn the charger off to avoid sparks. See instructions in operator's manual.

Be careful with starting fluid or any type of fuel.

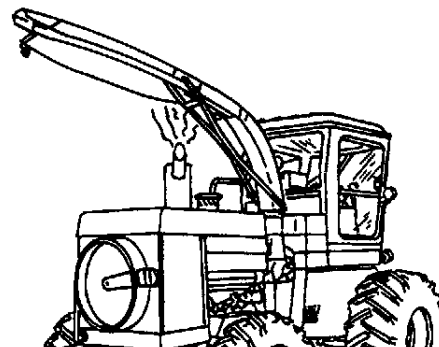
Never smoke while handling fuel.



AC3;RW5895 U01;FIRE 091184

### AVOID EXHAUST FUMES

Never run engine in a closed building. Make sure service area is adequately ventilated.



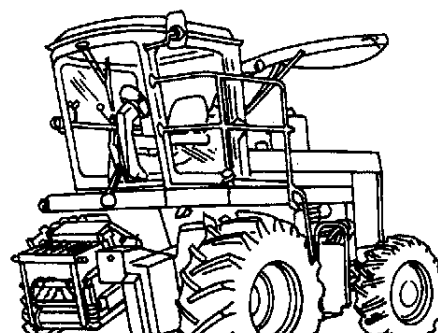
0A9;E28005 E03;;1005 Y 190686

### PREVENT MACHINE RUNAWAY

Avoid possible injury or death from machinery runaway.

Do not start engine by shorting across starter terminals. Machine will start in gear if normal circuitry is bypassed.

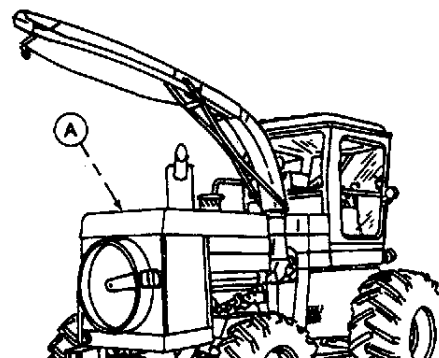
NEVER start engine while standing on ground. Start engine only from operator's seat, with transmission in neutral or park.



0A9;E28006 E03;;1005 Z 190686

### SERVICE COOLING SYSTEM SAFELY

Do not remove radiator cap (A) when engine is hot. Shut the engine off and wait until it cools. Then turn the cap slowly to the first stop to relieve pressure before removing it completely.



0A9;E28007 E03;;1005 AA 190686

*Safety*

# Group 10 Specifications, Torques, and Special Tools

## ENGINE

### Horsepower:

5730. . . . . 168 kW (225)\*  
5830. . . . . 216 kW (290)\*

Type . . . . . 6-cylinder, in-line valve-in-head, diesel,  
turbo-charged and intercooled

### Bore and Stroke:

5730. . . . . 116 x 120 mm (4.56 x 4.75-in.)  
5830. . . . . 130 x 127 mm (5.12 x 5-in.)

### Displacement:

5730. . . . . 7636 cm<sup>3</sup> (466 cu in)  
5830. . . . . 10144 cm<sup>3</sup> (619 cu in)

### Compression Ratio:

5730. . . . . 15.5 to 1  
5830. . . . . 15.2 to 1

Firing Order . . . . . 1-5-3-6-2-4

### Valve Clearance:

5730. . . . . Intake - 0.46 mm (0.018-in.)  
Exhaust - 0.71 mm (0.028-in.)  
5830. . . . . Intake - 0.38 mm (0.015-in.)  
Exhaust - 0.64 mm (0.025-in.)

Injection Pump Timing . . . . . TDC

### Engine Speeds:

Working speed. . . . . 2100 rpm  
Slow Idle . . . . . 800 rpm  
Fast Idle (Full Load) . . . . . 2100 rpm  
Fast Idle (No Load) . . . . . 2300 rpm

\* Factory observed net horsepower at flywheel less fan measured at 30°C (85°F), 29.3 in. Hg. operating at 2100 rpm.

See Sections 220 and 225 for dynamometer tests and kW (hp) ratings.

E03;1010 BD 190686