240, 245, 260, 265, 285, and 320 Lawn and Garden Tractors

TECHNICAL MANUAL

John Deere Worldwide Commercial and Consumer Equipment Division

TM1426 (01SEP96) Replaces TM1426 (01SEP92) 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
- Component Location
- System Schematic
- Theory of Operation
- Troubleshooting Chart
- Diagnostics
- · Tests & Adjustments
- Repair

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

Each section will be identified with a symbol rather than a number. The groups and pages within a section will be consecutively numbered.

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.

We appreciate your input on this manual. To help, there are postage paid post cards included at the back. If you find any errors or want to comment on the layout of the manual please fill out one of the cards and mail it back to us.

Safety **General Information** Engine—240/245 (FC420V) Engine—260/265 (FC540V) Engine—285/320 (FD590V) **Fuel Injection System-**285/320 (FD590V) **Electrical Systems** Gear Power Train— 240/260 **Hydrostatic Power Train-**245/265/285/320 **Steering Hydraulics** Miscellaneous Repair Index

COPYRIGHT[©] 1995 JOHN DEERE HORICON WORKS Horicon, Wisconsin All rights reserved

9/26/96

ii 9/26/96

CONTENTS



	Page
SAFETY	.1-2
RECOGNIZE SAFETY INFORMATION	
UNDERSTAND SIGNAL WORDS	. 1-2
FOLLOW SAFETY INSTRUCTIONS	. 1-2
HANDLE FLUIDS SAFELY - AVOID FIRES	. 1-2
PREVENT BATTERY EXPLOSIONS	. 1-3
PREPARE FOR EMERGENCIES	. 1-3
PREVENT ACID BURNS	. 1-3
SERVICE COOLING SYSTEM SAFELY	. 1-4
AVOID HIGH-PRESSURE FLUIDS	. 1-4
PARK MACHINE SAFELY	. 1-4
SUPPORT MACHINE PROPERLY	. 1-4
WEAR PROTECTIVE CLOTHING	. 1-5
WORK IN CLEAN AREA	. 1-5
SERVICE MACHINES SAFELY	. 1-5
WORK IN VENTILATED AREA	. 1-5
ILLUMINATE WORK AREA SAFELY	. 1-6
REPLACE SAFETY SIGNS	. 1-6
USE PROPER LIFTING EQUIPMENT	. 1-6
SERVICE TIRES SAFELY	. 1-6
AVOID HEATING NEAR PRESSURIZED FLUID LINES	. 1-7
REMOVE PAINT BEFORE WELDING OR HEATING	. 1-7
USE PROPER TOOLS	. 1-7
DISPOSE OF WASTE PROPERLY	. 1-7
LIVE WITH SAFETY	. 1-8

7/26/96



SAFETY

RECOGNIZE SAFETY INFORMATION



T81389

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

Follow recommended precautions and safe operating practices.

UNDERSTAND SIGNAL WORDS



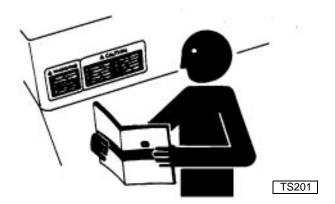
▲ CAUTION

TS187

A signal word - DANGER, WARNING, or CAUTION - is used with the safety-alert symbol. DANGER identifies the most serious hazards.

DANGER or WARNING safety signs are located near specific hazards. General precautions are listed on CAUTION safety signs. CAUTION also call attention to safety messages in this manual.

FOLLOW SAFETY INSTRUCTIONS



Carefully read all safety messages in this manual and on your machine safety signs. Keep safety signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from your John Deere dealer.

Learn how to operate the machine and how to use controls properly. DO NOT let anyone operate without instruction.

Keep your machine in proper working condition. Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.

If you DO NOT understand any part of this manual and need assistance, contact your John Deere dealer.

HANDLE FLUIDS SAFELY - AVOID FIRES



TS227

When you work around fuel, DO NOT smoke or work near heaters or other fire hazards.

Store flammable fluids away from fire hazards. DO NOT incinerate or puncture pressurized containers.

Make sure machine is clean of trash, grease, and debris.

DO NOT store oily rages; they can ignite and burn spontaneously.

1 - 2

PREVENT BATTERY EXPLOSIONS

PREVENT ACID BURNS



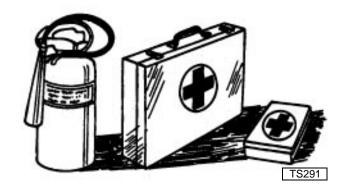


Keep sparks, lighted matches, and open flame away from the top of battery. Battery gas can explode.

Never check battery charges by placing a metal object across the posts. Use a volt-meter or hydrometer.

DO NOT charge a frozen battery; it may explode. Warm battery to **16°C** (**60°F**).

PREPARE FOR EMERGENCIES



Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

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



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.
- 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.
- Apply baking soda or lime to help neutralize the acid.
- 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.

9/26/96 1 - 3



SERVICE COOLING SYSTEM SAFELY



TS281

Explosive release of fluids from pressurized cooling system can cause serious burns.

Shut off engine. Only remove filler cap when cool enough to touch with bare hands. Slowly loosen cap to first stop to relieve pressure before removing completely.

AVOID HIGH-PRESSURE FLUIDS



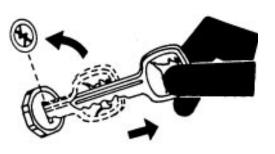
Escaping fluid under pressure can penetrate the skin causing serious injury.

Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.

Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source. Such information is available from Deere & Company Medical Department in Moline, Illinois, U.S.A.

PARK MACHINE SAFELY

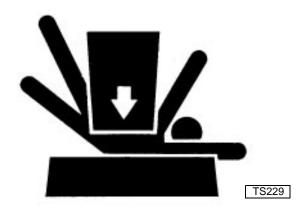


TS230

Before working on the machine:

- Lower all equipment to the ground.
- Stop the engine and remove the key.
- Disconnect the battery ground strap.
- Hang a "DO NOT OPERATE" tag in operator station.

SUPPORT MACHINE PROPERLY

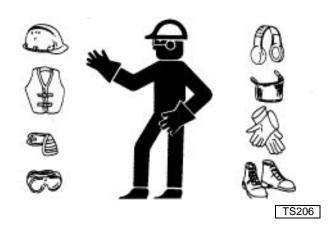


Always lower the attachment or implement to the ground before you work on the machine. If you must work on a lifted machine or attachment, securely support the machine or attachment.

DO NOT support the machine on cinder blocks. hollow tiles, or props that may crumble under continuous load. DO NOT work under the machine that is supported solely by a jack. Follow recommended procedures in this manual.

1 - 4 9/26/96

WEAR PROTECTIVE CLOTHING



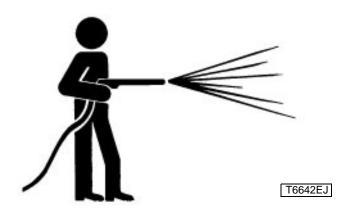
Wear close fitting clothing and safety equipment appropriate to the job.

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

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

Operating equipment safely requires the full attention of the operator. DO NOT wear radio or music headphones while operating machine.

WORK IN CLEAN AREA



Before starting a job:

- · Clean work area and machine.
- Make sure you have all necessary tools to do your job.
- · Have the right parts on hand.
- Read all instructions thoroughly; DO NOT attempt shortcuts.

SERVICE MACHINES SAFELY

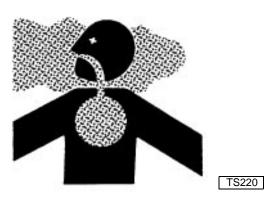




Tie long hair behind your head. DO NOT wear a necktie, scarf, loose clothing, or necklace when you work near machine tools or moving parts. If these items were to get caught, severe injury could result.

Remove rings and other jewelry to prevent electrical shorts and entanglement in moving parts.

WORK IN VENTILATED AREA



WARNING: California Proposition 65 Warning

Gasoline engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

Engine exhaust fumes can cause sickness or death. If it is necessary to run an engine in an enclosed area, remove the exhaust fumes from the area with an exhaust pipe extension.

If you DO NOT have an exhaust pipe extension, open the doors and get outside air into the area.

9/26/96 1 - 5

ILLUMINATE WORK AREA SAFELY

USE PROPER LIFTING EQUIPMENT





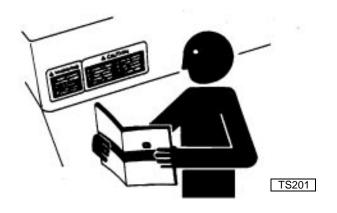
TS226

Illuminate your work area adequately but safely. Use a portable safety light for working inside or under the machine. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.

Lifting heavy components incorrectly can cause severe injury or machine damage.

Follow recommended procedure for removal and installation of components in the manual.

REPLACE SAFETY SIGNS



Replace missing or damaged safety signs. See the machine operator's manual for correct safety sign placement.

SERVICE TIRES SAFELY



TS952

Explosive separation of a tire and rim parts can cause serious injury or death.

DO NOT attempt to mount a tire unless you have the proper equipment and experience to perform the job.

Always maintain the correct tire pressure. DO NOT inflate the tires above the recommended pressure. Never weld or heat a wheel and tire assembly. The heat can cause an increase in air pressure resulting in a tire explosion. Welding can structurally weaken or deform the wheel.

When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side and NOT in front of or over the tire assembly. Use a safety cage if available.

Check wheels for low pressure, cuts, bubbles, damaged rims or missing lug bolts and nuts.

1 - 6 9/26/96

AVOID HEATING NEAR PRESSURIZED FLUID LINES



Flammable spray can be generated by heating near pressurized fluid lines, resulting in severe burns to yourself and bystanders. DO NOT heat by welding, soldering, or using a torch near pressurized fluid lines or other flammable materials. Pressurized lines can be accidentally cut when heat goes beyond the immediate flame area.

REMOVE PAINT BEFORE WELDING OR HEATING



TS220

Avoid potentially toxic fumes and dust.

Hazardous fumes can be generated when paint is heated by welding, soldering, or using a torch.

Do all work outside or in a well ventilated area. Dispose of paint and solvent properly.

Remove paint before welding or heating.

If you sand or grind paint, avoid breathing the dust.
 Wear an approved respirator.

 If you use solvent or paint stripper, remove stripped with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.



USE PROPER TOOLS



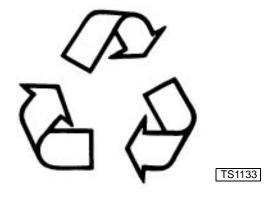
Use tools appropriate to the work. Makeshift tools and procedures can create safety hazards.

Use power tools only to loosen threaded parts and fasteners.

For loosening and tightening hardware, use the correct size tools. DO NOT use U.S. measurement tools on metric fasteners. Avoid bodily injury caused by slipping wrenches.

Use only service parts meeting John Deere specifications.

DISPOSE OF WASTE PROPERLY



Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with John Deere equipment include such items as oil, fuel, coolant, brake fluid, filters, and batteries.

9/26/96 1 - 7



Use leakproof containers when draining fluids. DO NOT use food or beverage containers that may mislead someone into drinking from them.

DO NOT pour waste onto the ground, down a drain, or into any water source.

Air conditioning refrigerants escaping into the air can damage the Earth's atmosphere. Government regulations may require a certified air conditioning service center to recover and recycle used air conditioning refrigerants.

Inquire on the proper way to recycle or dispose of waste from your local environmental or recycling center, or from your John Deere dealer.

LIVE WITH SAFETY



Before returning machine to customer, make sure machine is functioning properly, especially the safety systems. Install all guards and shields.

1 - 8 9/26/96

CONTENTS

	Page
GENERAL SPECIFICATIONS	2-3 2-7
SERVICE RECOMMENDATIONS	_
METRIC FASTENER TORQUE VALUES	2-11
INCH FASTENER TORQUE VALUES	2-12
GASOLINE SPECIFICATIONS	2-13
GASOLINE STORAGE	
4-CYCLE ENGINES - EUROPE	
GASOLINE STORAGE	
4-CYCLE GASOLINE ENGINE OIL - NORTH AMERICA	
4-CYCLE GASOLINE ENGINE OIL - EUROPE	
4-CYCLE GASOLINE ENGINE OIL - EUROPE	
BREAK-IN 4-CYCLE GASOLINE ENGINE OIL - EUROPE	
GEAR CASE OIL - NORTH AMERICA	_
GEAR CASE OIL - EUROPE	
GEAR TRANSMISSION GREASE - NORTH AMERICA	
GEAR TRANSMISSION GREASE - EUROPE	
GREASE SPECIFICATIONS	2-23
GREASE - NORTH AMERICA	2-23
GREASE - EUROPE	2-24
ALTERNATIVE LUBRICANTS	2-25
SYNTHETIC LUBRICANTS	2-25
LUBRICANT STORAGE	
MIXING OF LUBRICANTS	
OIL FILTERS	
ALTERNATIVE LUBRICANTS	
SYNTHETIC LUBRICANTS	
LUBRICANT STORAGE	
MIXING OF LUBRICANTS	
OIL FILTERS	2-26
COOLANT SPECIFICATIONS	2-27
DIESEL AND GASOLINE ENGINE COOLANT - NORTH AMERICA	2-27
DIESEL AND GASOLINE ENGINE COOLANT DRAIN INTERVAL -	
NORTH AMERICA	
GASOLINE ENGINE COOLANT - EUROPE	
GASOLINE ENGINE COOLANT DRAIN INTERVAL. ELIDODE	2 20



9/26/96 2 - 1



	Page
SERIAL NUMBER LOCATIONS	2-29
SERIAL NUMBERS	2-29
LOCATIONS	2-29
PRODUCT IDENTIFICATION NUMBER LOCATION	2-29
ENGINE SERIAL NUMBER LOCATION	2-29
HYDROSTATIC TRANSMISSION SERIAL NUMBER LOCATION -	
245/265/285/320	2-29
HYDRAULIC LIFT VALVE SERIAL NUMBER LOCATION - 320	2-29
OPERATIONAL CHECKOUT PROCEDURE	2-30
BEFORE YOU START	2-30
BRAKE PEDAL LOCK CHECK	2-30
INDICATOR LAMP CHECK - ENGINE OFF	2-31
TRANSMISSION NEUTRAL START CHECK	2-31
PTO/SAFETY START CHECK	2-32
STARTING CIRCUIT CHECK - HYDROSTATIC TRACTORS	2-32
STARTING CIRCUIT CHECK - GEAR TRACTORS	2-32
INDICATOR LAMP CHECK - ENGINE RUNNING	2-33
THROTTLE AND CHOKE LEVER CHECK - ENGINE RUNNING	2-33
PTO CLUTCH CHECK	2-34
SEAT SWITCH CHECK - PTO AND IGNITION	2-34
TRANSMISSION FORWARD AND REVERSE CHECK	2-34
TRANSMISSION NEUTRAL CREEP CHECK - HYDROSTATIC TRA	CTORS 2-35
BRAKE NEUTRAL RETURN CHECK - HYDROSTATIC TRACTORS	3 2-35
HEADLIGHT CHECK	2-36
HYDRAULIC LIFT SYSTEM CHECK	2-36

2 - 2 9/26/96

GENERAL SPECIFICATIONS

MACHINE SPECIFICATIONS

Model:	240	245	260
ENGINE			
Manufacturer	Kawasaki	Kawasaki	Kawasaki
Model number	FC420V	FC420V	FC540V
Horsepower	14 (10.4 kW)	14 (10.4 kW)	17 (12.6kW)
Type of Valves	Overhead	Overhead	Overhead
Type of Cooling	Air	Air	Air
Number of Cylinders	One	One	One
Crankshaft Alignment	Vertical	Vertical	Vertical
Stroke/Cycle	Four	Four	Four
Bore	89 mm (3.5 in.)	89 mm (3.5 in)	89 mm (3.5 in.)
Stroke	68 mm (2.7 in.)	68 mm (2.7 in.)	86 mm (3.38 in.)
Displacement	423 cm ³	423 cm ³	535 cm ³
	(25.8 cu. in.)	(25.8 cu. in.)	(32.6 cu. in.)
Compression Ratio	8.4:1	8.4:1	8.3:1
Fast Idle (no load)	$3350 \pm 100 \text{ rpm}$	$3350 \pm 100 \text{ rpm}$	$3350 \pm 100 \text{ rpm}$
Slow Idle (no load)	$1450 \pm 75 \text{ rpm}$	$1450 \pm 75 \text{ rpm}$	$1450 \pm 75 \text{ rpm}$
Air Filter	Dry, Replaceable	Dry, Replaceable	Dry, Replaceable
	Foam Pre-Cleaner	Foam Pre-Cleaner	Foam Pre-Cleaner
Crankcase Capacity			
with Filter	1.5 L	1.5 L	1.9 L
	(3.17 U.S. pt)	(3.17 U.S. pt)	(4.0 U.S. pt)
Replaceable Oil Filter	Optional	Optional	Standard
ELECTRICAL SYSTEM			
Charging System	Stator	Stator	Stator
Capacity	14 Amp. Reg.	14 Amp. Reg.	16 Amp. Reg.
Battery Type	BCI Group, U1	BCI Group, U1	BCI Group, U1
Battery Voltage	12 Volts	12 Volts	12 Volts
Battery Reserve			
Capacity at 25 Amp.	41 Min.	60 Min.	41 Min.
Battery Cold Cranking			
Amp. at 0°F	340 Amp.	335 Amp.	340 Amp.
FUEL SYSTEM			
Fuel Tank Capacity	11.4 L (3.0 gal)	11.4 L (3.0 gal)	11.4 L (3.0 gal)
Fuel Type	Unleaded Gasoline	Unleaded Gasoline	Unleaded Gasoline
Fuel Filter	Replaceable In Line	Replaceable In Line	Replaceable In Line

9/26/96 2 - 3

MACHINE SPECIFICATIONS (CONTINUED)

Model:		240	245	260
POWER TRAIN				
Transmission		Gear Transaxle	Hydrostatic	Gear Transaxal
Manufacturer		Kanzaki	Sundstrand	Kanzaki
Lubricant*		J20D	J20D	J20D
S/N(130001-)	Low Viscosity	Low Viscosity	Low Viscosity
		HY-GARD	HY-GARD	HY-GARD
Capacity		3.8 L (1 U.S. gal)	2.5 L (2.6 U.S. qt)	3.8 L (1 U.S. gal)

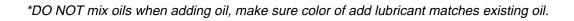
*DO NOT mix oils when adding oil, make sure color of add lubricant matches existing oil.

Model:	265	285/320	
ENGINE			
Manufacturer	Kawasaki	Kawasaki	
Model Number	FC540V	FD590V	
Horsepower	17 (12.6kW)	18 (13.4kW)	
Type of Valves	Overhead	Overhead	
Type of Cooling	Air	Liquid	
Number of Cylinders	One	Two	
Crankshaft Alignment	Vertical	Vertical	
Stroke/Cycle	Four	Four	
Bore	89 mm (3.5 in.)	74 mm (2.9 in.)	
Stroke	86 mm (3.36 in.)	68 mm (2.7 in.)	
Displacement	535 cm ³	585 cm ³	
	(32.6 cu. in.)	(35.7 cu. in.)	
Compression Ratio	8.3:1	8.7:1	
Fast Idle (no load)	$3350 \pm 100 \text{ rpm}$	$3350 \pm 100 \text{ rpm}$	
Slow Idle (no load)	$1550 \pm 75 \text{ rpm}$	$1550\pm75~\mathrm{rpm}$	
Air Filter	Dry, Replaceable	Dry, Replaceable	
	Foam Pre-Cleaner	Foam Pre-Cleaner	
Crankcase Capacity with Filter	1.8 L	1.9 L	
	(3.8 pt.)	(4.0 pt.)	
Replaceable Oil Filter	Standard	Standard	
Coolant Capacity	N/A	3.1 L (3.3 U.S. Qt.)	
ELECTRICAL SYSTEM			
Charging System	Stator	Stator	
Capacity	16 Amp. Reg.	16 Amp. Reg.	
Battery Type	BCI Group, 22F	BCI Group, 22F	
Battery Voltage	12 Volts	12 Volts	
Batter Reserve			
Capacity at 25 Amp.	60 Min.	60 Min.	
Battery Cold Cranking			
Amp. at 0°F	335 Amp.	335 Amp.	

2 - 4 9/26/96

MACHINE SPECIFICATIONS (CONTINUED)

Model: FUEL SYSTEM		265	285/320
Fuel Tank Capacity		11.4 L (3.0 Gal.) (Regular Leaded or Unleaded Gasoline)	11.4 L (3.0 Gal.) (Regular Leaded or Unleaded Gasoline)
Fuel Filter		Replaceable In Line	Replaceable In Line
POWER TRAIN			
Transmission		Hydrostatic	Hydrostatic
Manufacturer		Sundstrand	Sundstrand
Lubricant*		Low Viscosity	Low Viscosity
S/N(130001-)	HY-GARD®	HY-GARD®
Specification		J20D	J20D
Capacity		2.5 L (2.6 U.S. qt.)	2.5 L (2.6 U.S. qt.)



CHASSIS DIMENSIONS

Wheelbase	122 cm (47.9 in.)
Overall Length	182 cm (71.5 in.)
With Read Bagger	2.37 m (93.5 in.)
With Front Quick-Thatch Wts.	2.02 m (79.5 in.)
With Rear Quick-Thatch Wts.	1.93 m (76 in.)
Overall Height	111 cm (43.6 in.)
Overall Width	
Min. (Tractor Only)	1.0 m (39 in.)
Max. (Tractor Only)	1.1 m (41.5 in.)
With 38 in. Mower:	
Deflector Up	104 cm (41 in.)
Deflector Down	136 cm (53.5 in.)
With Read Bagger	126 cm (49.5 in.)
With 46 in. Mower:	
Deflector Up	136 cm (53.5 in.)
Deflector Down	145 cm (57 in.)
With 48 in. Mower:	
Deflector Up	138 cm (54.5 in.)
Deflector Down	157 cm (62.0 in.)
With 50 in. Mower:	
Deflector Up	144 cm (56.5 in.)
Deflector Down	155 cm (61 in.)

CHASSIS DIMENSIONS (CONTINUED)

(Specification and design subject to change without notice.)

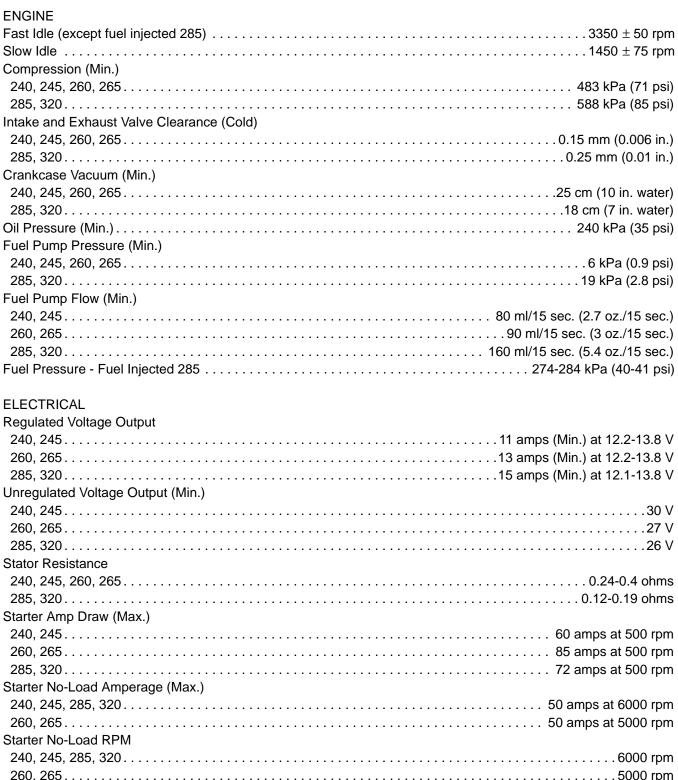
OVERALL WIDTH (CONTINUED)

Turning Radius	
Inside Read Wheel	
Outside Read Wheel	
Wheel Tread	
Front	
Rear (320)	
TIRES	
Туре	
Front	Turf
Rear	Turf or Bar
Size	
Front	
Rear	
1.0.0	
Inflation Pressure	
Front Front	All (except 32070) - 110 kPa (10-16 psi)
Front	All (except 32070) - 110 kPa (10-16 psi)32070 - 97 kPa (10-14 psi)
Front	
Front	32070 - 97 kPa (10-14 psi)
Front Front Rear BRAKES	32070 - 97 kPa (10-14 psi)
Front Front Rear BRAKES (S.N 130000)	
Front Front Rear BRAKES (S.N 130000)	
Front Front Rear	
Front Front Rear	
Front	

2 - 6 9/26/96

TEST AND ADJUSTMENT SPECIFICATIONS

ITEM	SPECIFICATION
	0. =0071011





Please click here and go back to our website.

BUY NOW

Then Instant Download the Complete Manual.

Thank you very much!