

**2440 AND 2640  
TRACTORS  
(S/N -340999)**

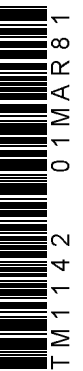


**TECHNICAL MANUAL  
2440 AND 2640 TRACTORS  
(S/N -340999)**

TM1142 (01MAR81) English

**JOHN DEERE TRACTOR WORKS  
TM1142 (01MAR81)**

LITHO IN THE U.S.A.  
ENGLISH



**2440 AND 2640  
TRACTORS**  
(Serial No. -340999)  
**TECHNICAL MANUAL**  
**TM-1142 (Sep-75)**

*All information, illustrations and specifications contained in this technical 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.*

**GENERAL 10**

**ENGINE 20**

**FUEL SYSTEM 30**

**ELECTRICAL SYSTEM 40**

**POWER TRAIN 50**

**STEERING AND BRAKES 60**

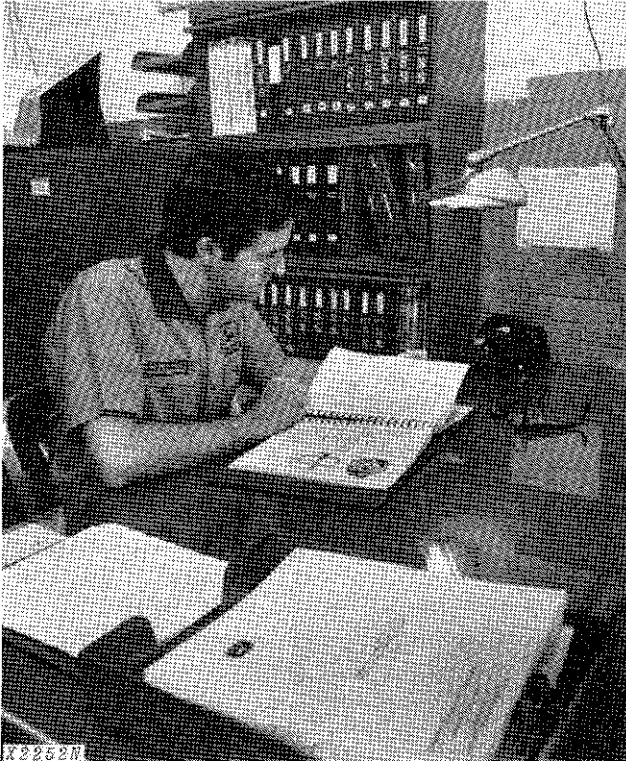
**HYDRAULIC SYSTEM 70**

**MISCELLANEOUS 80**

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## INTRODUCTION



Use FOS Manuals for Reference

This technical manual is part of a twin concept of service:

- **FOS Manuals—for reference**
- **Technical Manuals—for actual service**

The two kinds of manuals work as a team to give you both the general background and technical details of shop service.

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

*Technical Manuals* are concise service guides for a specific machine. Technical Manuals are on-the-job guides containing only the vital information needed by an experienced technician.



When a service person should refer to a FOS Manual for more information, a FOS symbol like the one at the left is used in the TM to identify the reference.




Use Technical Manuals for Actual Service

Some features of this technical manual:

- *Table of contents at front of manual*
- *Exploded views showing parts relationship*
- *Photos showing service techniques*
- *Specifications grouped for easy reference*

This technical manual was planned and written for you—an experienced technician. Keep it in a permanent binder in the shop where it is handy. Refer to it whenever in doubt about correct service procedures or specifications.

Using the technical manual as a guide will reduce error and costly delay. It will also assure you the best in finished service work.

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

# Section 10 GENERAL

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## Group 5 GENERAL TRACTOR SPECIFICATIONS (2440)

### ENGINE

Maximum PTO horsepower* ..	60.65 (45.23 kW)
Number of cylinders .....	4
Bore and stroke .....	4.02 in. (102 mm) x 4.33 in. (110 mm)
Displacement .....	219 in. <sup>3</sup> (3590 cm <sup>3</sup> )
Compression ratio .....	16.8 to 1
Firing Order .....	1-3-4-2
Intake valve clearance .....	0.014-in. (0.35 mm)
Exhaust valve clearance .....	0.018-in. (0.46 mm)
Slow idle .....	800 rpm
Fast idle .....	2650 rpm

\*Official test at 2500 engine rpm (650 or 1210 PTO rpm)

### ELECTRICAL SYSTEM

Battery dry voltage .....	12 volts
Battery specific gravity at full charge (corrected to 80°F [27°C]) .....	1.260
Battery terminal grounded .....	negative

### CAPACITIES

Fuel tank .....	19-1/2 gals. (73.8 L)
Cooling system .....	12 qts. (11.4 L)
Crankcase (including filter) .....	6 qts. (5.7 L)
Transmission-hydraulic system .....	10 gals. (38 L)
Belt pulley .....	2-1/2 pts. (0.3 L)

CLUTCH .....

Single or dual stage,  
spring-loaded, dry  
disk, foot-operated.

**TRANSMISSION**

Type ..... Collar shift  
Gear selections ..... 8 forward and 4 reverse  
Shifting ..... 4 speeds each in high, low, and reverse ranges. Park lock included.

**HI-LO SHIFT**

Hydraulic wet clutches, no clutching required. Shifting from high to low decreases ground speed 21.4 percent and increases pull power up to 27 percent in any of the transmission speeds.

**REVERSER**

Hydraulic wet clutches, no clutching required. Provides reverse speeds for gear selections 1 through 4 which are 16% faster than corresponding forward speeds.

**BRAKES** ..... Hydraulically actuated, wet-disk type.

**DIFFERENTIAL AND FINAL DRIVES**

Type ..... Planetary reduction final drives with spiral bevel gear drive differential.  
Differential lock .... Hand or foot-operated mechanical lock, spring-loaded out of engagement.

**POWER TAKE-OFF**

Type ..... Continuous-running or independent types available in 540 and/or 1000 rpm options.

**HYDRAULIC SYSTEM**

Type ..... Closed center, constant pressure. Actuates power steering and implement control. Standby oil pressure ..... 2250 psi (15.5 mPa)

**STEERING**

TYPE ..... Hydraulically actuated, with manual provision in case of hydraulic failure.

**FRONT TIRES (Standard Equipment)\*** ..... 6.00-16

**REAR TIRES (Standard Equipment)\*** ..... 16.9-28

**DIMENSIONS**

Over-all height to top of muffler . 81.2 in. (206 cm)  
Over-all height to top of hood ... 55.7 in. (141 cm)  
Over-all width, min. .... 69.5 in. (177 cm)  
Over-all length  
(with 3-point hitch) ..... 139.5 in. (354 cm)  
Wheelbase (straight axle) ..... 87.8 (218 cm)  
Shipping weight (approx.) .. 4800 lbs. (2 182 kg)

*\*Additional tire sizes available.*

**GROUND SPEEDS**  
**Given in MPH (km/h) with 16.9-28**  
**Rear Tires and 2500 Engine RPM**

Gear	Collar Shift Transmission	Hi-Lo Shift Transmission		Ground Speed at Rated PTO SPEED (2100 RPM)			
				"Lo"		"Hi"	
		"Lo"	"Hi"	"Lo"	"Hi"	"Lo"	"Hi"
1st	1.53 (2.46)	1.20 (1.93)	1.53 (2.46)	1.01 (1.62)	1.28 (2.06)	1.83 (2.95)	2.72 (4.38)
2nd	2.18 (3.51)	1.72 (2.77)	2.18 (3.51)	1.44 (2.32)	1.83 (2.95)	2.72 (4.38)	3.80 (6.12)
3rd	3.24 (5.21)	2.55 (4.10)	3.24 (5.21)	2.14 (3.44)	2.72 (4.38)	3.80 (6.12)	5.04 (8.10)
4th	4.53 (7.28)	3.56 (5.72)	4.53 (7.28)	2.99 (4.81)	3.80 (6.12)	5.04 (8.10)	7.20 (11.57)
5th	6.00 (9.65)	4.71 (7.57)	6.00 (9.65)	3.96 (6.37)	5.04 (8.10)	7.20 (11.57)	10.68 (17.17)
6th	8.57 (13.78)	6.73 (10.82)	8.57 (13.78)	5.66 (9.09)	7.20 (11.57)	10.68 (17.17)	14.93 (24.01)
7th	12.71 (20.44)	9.99 (16.06)	12.71 (20.44)	8.39 (13.50)	10.68 (17.17)	14.93 (24.01)	1.49 (2.40)
8th	17.78 (28.59)	13.97 (22.46)	17.78 (28.59)	11.73 (18.86)	14.93 (24.01)	1.49 (2.40)	2.13 (3.43)
R1	1.78 (2.86)	1.40 (2.25)	1.78 (2.86)	1.17 (1.88)	1.49 (2.40)	2.13 (3.43)	3.16 (5.09)
R2	2.54 (4.08)	1.99 (3.20)	2.54 (4.08)	1.67 (2.69)	2.13 (3.43)	3.16 (5.09)	4.42 (7.11)
R3	3.77 (6.06)	2.96 (4.76)	3.77 (6.06)	2.48 (4.00)	3.16 (5.09)	4.42 (7.11)	
R4	5.26 (8.46)	4.14 (6.66)	5.26 (8.46)	3.47 (5.59)	4.42 (7.11)		

## Group 7

# GENERAL TRACTOR SPECIFICATIONS (2640)

### ENGINE

Maximum PTO HORSEPOWER\* 70.0 (52.2 kW)  
Nuner of cylinders ..... 4  
Bore and stroke, inches (cm) ..... 4.19 x 5.00  
(10.65 x 12.70)  
Displacement - cubic inches  
(cubic centimeters) ..... 276 (4416)  
Compression ratio ..... 16.2 to 1  
Firing order ..... 1-3-4-2  
Intake valve clearance ..... 0.014-in. (0.36 mm)  
Exhaust valve clearance .... 0.018-in. (0.46 mm)  
Slow idle ..... 800 rpm  
Fast idle ..... 2650 rpm  
Transport speed (foot throttle) ..... 2800 rpm

### ELECTRICAL SYSTEM

Battery dry voltage ..... 12 volts  
Battery specific gravity at full charge  
(corrected to 80°F [27°C]) ..... 1.260  
Battery terminal grounded ..... negative

### CAPACITIES (U.S. Standard Measures)

Fuel tank ..... 19-1/2 gals. (73.8 L)  
Cooling system ..... 12 qts. (11.4 L)  
Crankcase (including filter) ..... 9 qts. (8.5 L)  
Transmission-hydraulic system .... 10 gals. (38 L)  
Belt pulley ..... 2-1/2 pts. (0.3 L)

CLUTCH ..... Single or dual stage,  
spring-loaded, dry  
disk, foot-operated.

### TRANSMISSION

Type ..... Collar Shift  
Gear selections ..... 8 forward and 4 reverse  
Shifting ..... 4 speeds each in high, low,  
and reverse ranges. Park  
lock included.

### HI-LO SHIFT

Hydraulic wet clutches, no clutching required.  
Shifting from high to low decreases ground speed  
21.4 percent and increases pull power up to 27 per-  
cent in any of the transmission speeds.

\*Factory observed at 2500 engine rpm (650 or 1210  
PTO rpm).

### REVERSER

Hydraulic wet clutches, no clutching required.  
Provides reverse speeds for gear selections 1  
through 4 which are 16% faster than corresponding  
forward speeds.

BRAKES ..... Hydraulically actuated, wet-  
disk type.

### DIFFERENTIAL AND FINAL DRIVES

Type ..... Planetary reduction final  
drives with spiral bevel gear  
drive differential.  
Differential lock .... Hand or foot-operated me-  
chanical lock, spring-loaded  
out of engagement.

### POWER TAKE-OFF

Type ..... Continuous-running or inde-  
pendent types available in  
540 or 540/1000 rpm op-  
tions.

### HYDRAULIC SYSTEM

Type ..... Closed center, constant pressure.  
Actuates power steering and implement control.  
Standby oil pressure ..... 2250 psi (15.5 mPa)

### STEERING

TYPE ..... Hydraulically actuated, with  
manual provision in case of  
hydraulic failure.

FRONT TIRES (Standard Equipment)\* ..... 6.00-16

REAR TIRES (Standard Equipment)\* ..... 16.9-28

### DIMENSIONS

Over-all height to top of muffler . 81.2 in. (206 cm)  
Over-all height to top of hood . 55.7 in. (141.5 cm)  
Over-all width, min. .... 69.5 in. (176.5 cm)  
Over-all length  
(with 3-point hitch) ..... 139.5 in. (354 cm)  
Wheelbase (straight axle) ..... 87.8 in. (21.8 m)  
Shipping weight (approx.) ... 5100 lbs. (2313 kg)

\*Additional tire sizes available.

**GROUND SPEEDS**  
 Given in MPH (Km/h) With 16.9-28  
 Rear Tires and 2500 Engine RPM

Gear	Collar Shift Transmission		Hi-Lo Shift Transmission		Ground Speed at Rated PTO SPEED (2100 RPM)					
					"Lo"		"Hi"			
1st .....	1.56	(2.50)	1.23	(1.98)	1.56	(2.50)	1.03	(1.66)	1.31	(2.10)
2nd .....	2.23	(3.58)	1.75	(2.81)	2.23	(3.58)	1.47	(2.36)	1.87	(3.00)
3rd .....	3.30	(5.30)	2.60	(4.17)	3.30	(5.30)	2.18	(3.50)	2.78	(4.45)
4th .....	4.62	(7.41)	3.63	(5.83)	4.62	(7.41)	3.05	(4.89)	3.88	(6.23)
5th .....	5.49	(8.82)	4.32	(6.93)	5.49	(8.82)	3.63	(5.82)	4.61	(7.41)
6th .....	7.85	(12.61)	6.17	(9.91)	7.85	(12.61)	5.18	(8.32)	6.60	(10.59)
7th .....	11.64	(18.67)	9.16	(14.70)	11.64	(18.67)	7.69	(12.35)	9.77	(15.69)
8th .....	16.28	(26.14)	12.79	(20.52)	16.28	(26.14)	10.74	(17.24)	13.68	(21.96)
R1 .....	1.81	(2.91)	1.42	(2.28)	1.81	(2.91)				
R2 .....	2.59	(4.15)	2.03	(3.26)	2.59	(4.15)				
R3 .....	3.84	(6.16)	3.02	(4.84)	3.84	(6.16)				
R4 .....	5.37	(8.62)	4.22	(6.77)	5.37	(8.62)				

# Group 10

## PREDELIVERY, DELIVERY, AND AFTER-SALE SERVICES

### PREDELIVERY SERVICE

Because of the shipping factors involved, plus extra finishing touches that are necessary to promote customer satisfaction, proper predelivery service is of prime importance to the dealer.

A tag pointing out the factory-recommended procedure for predelivery service is attached to each new tractor before it leaves the factory.

After completing the factory-recommended dealer checks and services listed on the predelivery tag, remove the tag from the tractor and file it with the shop order for the job. The tag will certify that the tractor has received the proper predelivery service when that portion of the customer's John Deere Delivery Receipt is completed.

### Temporary Tractor Storage

Service	Specification	Reference
Check radiator for coolant loss and antifreeze protection .....	Midway between core and filler neck .....	
Remove and store batteries .....	Store at room temperature .....	
Reduce shipping pressure of tires .....		Operator's manual
Cover tractor and tires for protection and cleanliness .....		

### Before Delivering Tractor

#### Electrical System

Remove resistor and connect wiring lead (red) to alternator output terminal. Do not attempt to polarize alternator .....		Section 40, Group 10
Charge batteries. Check electrolyte level and specific gravity .....		FOS-20 Manual
Check battery terminal connections .....		Section 40, Group 5
Check alternator belt tension .....	3/4-inch (1.9 cm) deflection, 20 lb. (104 N) force .....	Operator's manual
Check light operation and adjustment. Remove flasher if required by local government regulations .....		Operator's manual



Service	Specification	Reference
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**Before Delivering Tractor—Continued**

**Cooling System**

Inspect radiator for coolant loss .....	Midway between core and filler neck .....	
Check antifreeze protection .....		

**Tires and Wheels**

Adjust pressure of tires .....		Operator's manual
Check front wheel hub bolts, rear wheel rim clamp nuts, and rear wheel cap screws for tightness .....	Front hub bolts-100 ft-lbs (135 Nm) torque Rear hub bolts-300 ft-lbs (407 Nm) torque Rim clamp nuts-170 ft-lbs (230 Nm) torque Rear wheel-to-flanged axle— 130 ft-lbs (176 Nm) torque .....	Operator's manual

**Lubrication**

Check crankcase oil level .....	To upper marks on dipstick .....	Operator's manual
Check transmission-hydraulic system oil level .....	To top of "SAFE" range on dip- stick. Hy-GARD Oil .....	Operator's manual
Lubricate grease fittings .....	John Deere Multi-purpose Lubricant .....	Operator's manual
Check belt pulley oil level (if so equipped) .....		Operator's manual

**Engine**

Check air intake system—air cleaner and hose connections .....		Operator's manual
Drain sediment from fuel filter .....		Operator's manual
Fill fuel tank and start engine .....	19-1/2 U.S. gallons (73.8 liters) .....	Operator's manual
Check operation of starter, alternator, flashers, gauges, and indicator lights .....		Operator's manual
Check engine timing .....	TDC .....	Operator's manual
Check speed control and fuel shut-off linkages for free operation and adjustment .....		Section 30, Group 20

Service	Specification	Reference
<b>Before Delivering Tractor—Continued</b>		
Check engine speeds .....	Slow idle, 800 rpm High idle, 2650 rpm Foot throttle, 2800 rpm .....	Section 30, Group 20
<b>Operation</b>		
Check transmission clutch free travel (tractors without reverser) .....	Approximately 1-inch (2.54 cm) free pedal travel .....	Operator's manual
Check clutch wear adjustment (tractors with reverser) .....	5-1/4 in. (13.34 cm) from engine flange .....	Operator's manual
Shift transmission through all speeds .....		Operator's manual
Check power takeoff operation .....		Operator's manual
Check differential lock operation .....		Operator's manual
Check steering operation .....		Operator's manual
Check brakes .....	Bleed brakes if spongy, check for excessive pedal travel, and even position .....	Operator's manual
Check hydraulic system operation: Rockshaft, and remote cylinder .....		Operator's manual
Check 3-point hitch operation .....		Operator's manual
Check negative stop screw adjustment		
Tractors without independent PTO .....	1/4 turn .....	Section 70, Group 30
Tractors with Independent PTO .....	1/3 turn .....	Section 70, Group 30
Check operation of reverser, or Hi-Lo Shift .....		Operator's manual
Check seat operation .....		Operator's manual
<b>General</b>		
Check Roll-Gard Mounting bolts for correct torque .....	300 ft-lbs (407 Nm) .....	Section 10, Group 30
Check front axle-to-knee bolts for correct torque .....	300 ft-lbs (407 Nm) .....	Section 80, Group 5

**10 Before Delivering Tractor—Continued**

Service	Specifications	Source
Tighten accessible nuts and cap screws .....		
Clean tractor and touch up paint .....		
Remove covering from SCV emblem .....		

**DELIVERY SERVICE**

A thorough discussion of the operation and service of a new tractor at the time of delivery helps to assure complete customer satisfaction. Proper delivery should be an important phase of a dealer's program. A portion of the John Deere Delivery Receipt emphasizes the importance of proper delivery service.

It is a well-known fact that many complaints have arisen simply because the owner was not shown how to operate and service the new tractor properly. Enough time should be devoted, at the customer's convenience, to introducing the new tractor to the owner and explaining how to operate and service it.

The following procedure is recommended before the service technician and owner complete the delivery acknowledgments portion of the delivery receipt.

Using the tractor operator's manual as a guide, be sure that the owner understands these points thoroughly:

1. Controls and Instruments.
2. How to start and stop the engine.
3. The importance of the break-in period.
4. How to use liquid or cast-iron ballast.
5. all functions of the hydraulic system.
6. Using the power takeoff and belt pulley.
7. The importance of safety.
8. The importance of lubrication and periodic services

After explaining and demonstrating the above features, have the owner sign the delivery receipt and give the operator's manual to the owner.

**AFTER-SALE INSPECTION**

The purchaser of a new John Deere tractor is entitled to a free inspection within the warranty period after the equipment has been "run in." The terms of this after-sale inspection are outlined on the back of the John Deere Delivery Receipt.

The purpose of this inspection is to make sure that the customer is receiving satisfactory performance from the tractor. At the same time, the inspection should reveal whether or not the tractor is being operated, lubricated, and serviced properly.

If the recommended after-sale service inspection is followed, the dealer can eliminate a needless volume of service work by preventing minor irregularities from developing into serious problems later on. This will promote strong dealer-customer relations and present the dealer an opportunity to answer questions that may have arisen during the first few days of operation. During the inspection service, the dealer has the further opportunity of promoting the possible sale of other new equipment.

The following inspection program is recommended within the first 100 hours of tractor operation.

**Inspection Procedure**

Service	Specification	Reference
<b>Cooling System</b>		
Check radiator coolant level .....	Midway between core and filler neck .....	

**Inspection Procedure—Continued**

Service	Specification	Reference
Clean external surface of radiator core .....		
Check hoses and connections for leaks .....		
<b>Fuel System</b>		
Remove water and foreign matter from filter sediment bowl .....		Operator's manual
Bleed fuel system .....		Operator's manual
Tighten loose connections and check entire system for leaks. Correct if necessary .....		
Check air cleaner element and unloading valve. Clean element if necessary .....		Operator's manual
<b>Electrical System</b>		
Check specific gravity of battery(s) .....	Full charge - 1.260 at 80°F (27°C)	Operator's manual
Check level of battery electrolyte .....	To bottom of filler neck in each cell .....	Operator's manual
Check belt tension .....	3/4-inch (19.1 mm) deflection with a 20 lb. (104 N) force .....	Operator's manual
Start engine and check operation of starter, lights, and indicator lamps .....		Operator's manual
<b>Lubrication</b>		
Check crankcase oil level .....	To upper marks on dipstick .....	Operator's manual
Check transmission-hydraulic system oil level .....	In "SAFE" range on dipstick. Use John Deere Hy-GARD .....	Operator's manual
<b>Engine</b>		
Check valve clearance (static) .....	Intake: 0.014 in. (0.35 mm) Exhaust: 0.018 in. (0.46 mm) .....	Operator's manual

**10 Inspection Procedure—Continued**

Service	Specification	Reference
Check engine speed (under load), and horsepower .....	Specification .....	Group 15 of this Section.

**Operation**

Check transmission clutch free travel (tractors without reverser) .....	Approximately 1-inch (2.54 cm) free pedal travel .....	Operator's manual
Check clutch wear adjustment (tractors with reverser) .....	5-1/4 in. (13.34 cm) from pedal to rear of engine flange .....	Operator's manual
Shift transmission through all speeds .....		Operator's manual
Check Reverser, Hi-Lo operation .....		Operator's manual
Check Power Take-Off operation .....		Section 50, Groups 35, 40 and 42
Check differential lock operation .....		Operator's manual
Check rockshaft and remote cylinder operation .....		Section 70, Group 30
Check negative stop screw adjustment		
Tractors without Independent PTO .....	1/4 turn .....	Section 70, Group 30
Tractors with Independent PTO .....	1/3 turn .....	Section 70, Group 30
Check steering system operation .....	Smooth, without excessive freeplay .....	Section 70, Group 20
Check brakes .....	Bleed brakes if spongy, check for excessive pedal travel, and even position .....	Section 70, Group 25

**Nuts and Cap Screws**

Tighten accessible nuts and cap screws that require adjustment .....		
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# Group 15 TUNE-UP

## GENERAL INFORMATION

Before tuning up a tractor, determine whether a tune-up will restore operating efficiency. When there is doubt, the following preliminary tests will help to determine if the engine can be tuned-up.

If the condition is satisfactory, proceed with the tune-up. Choose from the following procedures only those necessary to restore the unit.

### Preliminary Engine Testing

Operation	Specification	Section-Group Reference
Dynamometer Test (at 2500 engine rpm, full load—650 or 1210 PTO rpm)	Compare with previous recorded output; compare with output after tune-up	FOS 30 Manual, Chapter 12
Compression Test	300 psi (2067 kPa) at full cranking speed	FOS 30 Manual
Engine Coolant Check Test	No air bubbles or oil film in radiator	FOS 30 Manual, Chapter 12

### Engine Tune-Up

Operation	Specification	Section-Group Reference
<b>Air Intake System</b>		
Service air cleaner and check system for leaks		FOS 30 Manual, Chapter 12
Check system for restrictions using water manometer		
Normal reading with clean filter element (inches of water)	3-12 inches (8.89 cm)	FOS 30 Manual, Chapter 12
Maximum permitted reading	25 in. (63.5 cm) at 2500 rpm (full load)	FOS 30 Manual, Chapter 12
<b>Exhaust System</b>		
Check system for leaks		FOS 30 Manual, Chapter 12
Check muffler and exhaust pipe for restrictions		FOS 30 Manual, Chapter 12

10 Engine Tune-Up—Continued

Operation	Specification	Section-Group Reference	
		(2440)	(2640)
<b>Crankcase Ventilating System</b>			
Check system for restrictions .....		FOS 30 Manual, Chapter 12	
<b>Cooling System</b>			
Clean grille screen, radiator core, and oil cooler core .....		20-35	20-35
Clean and flush system; check thermostat opening temperature, if necessary .....		20-35	20-35
Check pressure cap .....	6.25 to 7.50 psi (43 to 52 kPa)		
	release pressure .....	20-35	20-35
<b>Cylinder Head and Valves</b>			
Torque cylinder head cap screws .....	110 ft-lbs (149 Nm) in sequence .....	20-10	20-12
Set valve clearance .....	Intake-0.014 inch (0.36 mm)		
	Exhaust-0.018 inch (0.46 mm) .....	20-10	20-12
<b>Fuel System</b>			
Check fuel tank for water or other foreign material .....			
Check fuel pump pressure .....	3-1/2 to 4-1/2 psi (24 to 31 kPa) ..	30-15	30-15
Change filter .....		30-15	30-15
Injection Pump:			
Service and check timing .....	TDC .....	30-15	30-15
	4° advance at 1100 rpm (2440) and 1200 rpm (2640) (no load) .....	30-15	30-15
Adjust speed control linkage .....	Foot throttle - 2800 rpm		
	Hand throttle		
	High idle - 2650 rpm		
	Slow idle - 800 rpm .....	30-20	30-20
<b>Lubrication System</b>			
Check engine oil pressure .....	45 to 65 psi (317 to 448 kPa)		
	at high idle .....	20-30	20-32
<b>Charging System</b>			
Check battery specific gravity .....	1.240 to 1.260 .....	40-10	40-10
Check battery water consumption and electrolyte level .....		40-10	40-10
Clean battery, cables, and box .....		40-10	40-10
Check alternator belt tension .....	20 lb. (104 N) with 3/4 in. (19.1 mm) belt deflection .....	40-10	40-10
Check alternator output .....	25 amps at 13 to 15 volts (2052 engine rpm, 3000 alternator rpm) ..	40-10	40-10
Check alternator regulated voltage .....	13.8 to 14.3 volts (operating) .....	40-10	40-10
<b>Starting System</b>			
Check neutral start switch operation .....			
Check battery voltage when starting .....	Min. 9 volts (cranking) .....	40-15	40-15
Check starter current draw .....	Approx. 400 amps .....	40-15	40-15
Check operation of alternator and oil pressure indicator lights .....		40-25	40-25