

# Walk-Behind Tillers and 5B Sprayer



JOHN DEERE

## TECHNICAL MANUAL

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### Walk-Behind Tillers and 5B Sprayer

TM1233 (01JAN80) English

John Deere  
Lawn & Grounds Care Division  
TM1233 (01JAN80)

LITHO IN U.S.A.  
ENGLISH



# WALK-BEHIND TILLERS AND 5B SPRAYER

## Technical Manual

### TM-1233 (Jan-80)

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*(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.)*

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## INTRODUCTION

This technical manual contains service and maintenance information for the 216, 324, 524, and 624 Walk-Behind Tillers and 5B Sprayer.


The manual is divided into sections. Each section pertains to certain components or operational systems. The information is divided into groups within each section.

All sections of this technical manual should be carefully studied. Much basic information, such as the principles of 4-cycle engine operation, carburetion, and ignition can be found in any good library and is recommended reading for the new service technician before consulting this manual for service procedures.

Emphasis is placed on diagnosing malfunctions, analysis, and testing. Diagnosing malfunctions includes possible problems, their causes, and how to

correct them. Under specific components, these problems are analyzed to help you understand what is causing the problem. In this way, you can eliminate the cause rather than just replace parts and have the same problem keep recurring.

Whenever new or revised pages are provided, insert them into your manual as soon as you receive them. Your technical manual will always be up-to-date and be a valuable asset in your service department.

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

*NOTE: Metric equivalents have been included, where applicable, throughout this technical manual.*

# Section 10 GENERAL

## Group 5 MACHINE IDENTIFICATION

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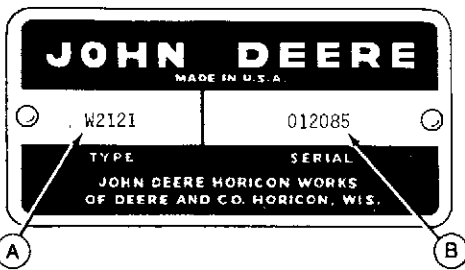
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**MACHINES COVERED IN THIS MANUAL**

Model Number	Description
5B	Sprayer
216	Walk-Behind Tiller
324	Walk-Behind Tiller
524	Walk-Behind Tiller
624	Walk-Behind Tiller

**MACHINE SERIAL NUMBERS**

Each machine is assigned an individual serial number. The serial number plate is found near the engine base.



M25937

**A—Identification Code**                      **B—Serial Number**

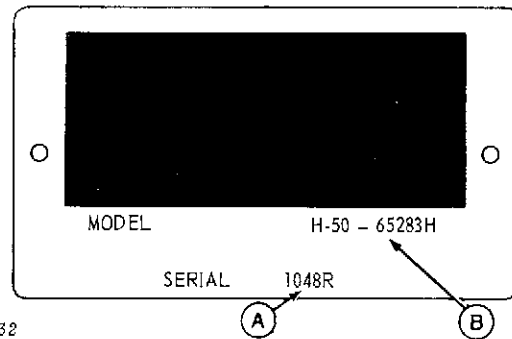
Fig. 1—Machine Serial Number Plate

Fig. 1 shows a typical serial number plate for machines manufactured before 1974.

On machines built after 1973, this number consists of 13 characters (Example: R324D 030001M). The first letter indicates the family of machine; the next three characters indicate the model or machine designation; the letter in the fifth position indicates the model year. This is followed by a space, a six-digit serial number, and an "M" denoting Horicon as the factory of manufacture.

When ordering parts, use only the six-digit serial number. Use all 13 characters when writing about or filling out warranty claims.

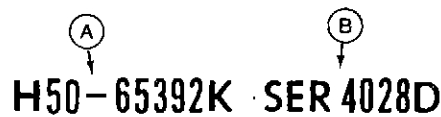
**ENGINE SERIAL NUMBERS**



M25932

**A—Engine Serial Number**                      **B—Engine Model Number**

Fig. 2—Tecumseh Engine Serial Number Plate



M25933

**A—Engine Model Number**                      **B—Engine Serial Number**

Fig. 3—Tecumseh Engine Serial Number Stamping

The Tecumseh engine serial number is on a serial number plate, Fig. 2, on the blower housing or crankcase, or on a serial number stamping, Fig. 3, on the blower housing. Use the model and serial number on all warranty claims.

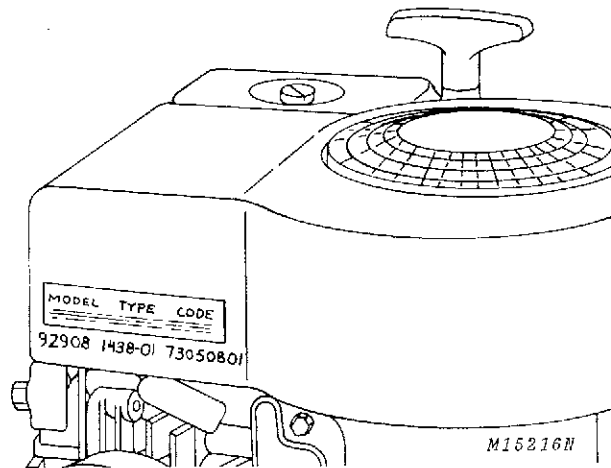


Fig. 4—Briggs & Stratton Engine Identification Number

The Briggs & Stratton engine identification number is stamped below the decal on the blower housing. The stamping gives the model, type, and code numbers. Use the type and code numbers on all warranty claims.

## Group 10 SPECIFICATIONS

### MACHINE ENGINE MODEL NUMBERS

Machine	Horsepower	Engine Model No.	Engine Manufacturer
216 Walk-Behind Tiller	2 (1.5 kW)	60102	Briggs & Stratton
324 Walk-Behind Tiller	3.5 (2.6 kW)	H35	Tecumseh
524 Walk-Behind Tiller	5 (3.7 kW)	H50	Tecumseh
624 Walk-Behind Tiller	6 (4.5 kW)	H60	Tecumseh
5B Sprayer			
(Serial No. 5001-80,000)	2.5 (1.9 kW)	80102	Briggs & Stratton
(Serial No. 80,000- )	2 (1.5 kW)	60102	Briggs & Stratton

### ENGINE SPECIFICATIONS

	H35	H50	H60	60102	80102
Manufacturer	Tecumseh	Tecumseh	Tecumseh	Briggs & Stratton	Briggs & Stratton
Cylinders	1	1	1	1	1
Strokes/Cycle	4	4	4	4	4
Bore	2-1/2 in. (63.500 mm)	2-5/8 in. (66.675 mm)	2-5/8 in. (66.675 mm)	2-3/8 in. (60.325 mm)	2-3/8 in. (60.325 mm)
Stroke	1-27/32 in. (46.831 mm)	2-1/4 in. (57.150 mm)	2-1/2 in. (63.500 mm)	1-1/2 in. (38.100 mm)	1-3/4 in. (44.450 mm)
Displacement	9.06 cu. in. (149 cm <sup>3</sup> )	12.20 cu. in. (200 cm <sup>3</sup> )	13.50 cu. in. (221 cm <sup>3</sup> )	6.65 cu. in. (109 cm <sup>3</sup> )	7.75 cu. in. (127 cm <sup>3</sup> )
Compression Release	No	Yes	Yes	----	----

## MACHINE SPECIFICATIONS




### Walk-Behind Tillers

Item	324	524 and 624	216
STARTING	Recoil	Recoil	Recoil
TILLER DRIVE	V-belt-to-gear case	V-belt-to-gear case	V-belt-to-chain case
TILLING WIDTHS	13 in. (33.0 cm), 18 in. (45.7 cm) 21 in. (53.3 cm), 24 in. (61.0 cm)	13 in. (33.0 cm), 18 in. (45.7 cm) 21 in. (53.3 cm), 24 in. (61.0 cm)	16 in. (40.6 cm)
With Right-Hand Extension	---	29 in. (73.7 cm)	---
With Left-Hand Extension	---	29 in. (73.7 cm)	---
With Both Extensions	---	34 in. (86.4 cm)	26 in. (66.0 cm)
DIMENSIONS			
Tread Width	11 in. (27.9 cm)	11 in. (27.9 cm)	11 in. (27.9 cm)
Height Overall	39 in. (99.1 cm)	39 in. (99.1 cm)	Adjustable
Width Overall	24 in. (61.0 cm)	24 in. (61.0 cm)	16 in. (40.6 cm)
CAPACITIES			
Fuel Tank	2 qts. (1.892 L)	1 gal. (3.785 L)	1 qt. (0.946 L)
Crankcase	21 oz. (approx. 1-1/3 pts.) (0.621 L)	19 oz. (approx. 1-1/4 pts.) (0.562 L)	20 oz. (1-1/4 pts.) (0.591 L)
Gear Case	8 oz. (0.236 L)	8 oz. (0.236 L)	---
Chain Case	---	---	6 oz. (0.177 L)
WEIGHT	101 lbs. (45.8 kg)	115 lbs. (52.16 kg)	76 lbs. (34.5 kg)

### 5B Sprayer

Item	Specification
STARTING	Recoil
PUMP	(Regular) Gear-type (Extra) Twin piston-type
SPRAYING EQUIPMENT	(Regular) Hand gun, 25 ft. (7.6 m) hose and 4 nozzle tips (Extra) Boom, 7 nozzles and various size nozzles
CAPACITIES	
Spray Tank	20 gallons (75.70 L)
Fuel Tank	1 qt. (0.95 L)
Crankcase	20 oz. (1-1/4 pts.) (0.591 L)

**BOLT TORQUE CHART**

Grade of Bolt		SAE-2	SAE-5	SAE-8	Socket or Wrench Size	
Min. Tensile Strength		64,000 PSI	105,000 PSI	150,000 PSI		
Grade Marking on Bolt						
U.S. Standard					U.S. Regular	
Bolt Dia.	U.S. Dec. Equiv.	TORQUE IN FOOT POUNDS			Bolt Head	Nut
1/4	0.250	6 (8.14 N·m)	10 (13.56 N·m)	14 (18.98 N·m)	7/16	7/16
5/16	0.3125	13 (17.63 N·m)	20 (27.12 N·m)	30 (40.68 N·m)	1/2	1/2
3/8	0.375	23 (31.19 N·m)	35 (47.46 N·m)	50 (67.80 N·m)	9/16	9/16
7/16	0.4375	35 (47.46 N·m)	55 (74.58 N·m)	80 (108.48 N·m)	5/8	11/16
1/2	0.500	55 (74.58 N·m)	85 (115.26 N·m)	120 (162.72 N·m)	3/4	3/4
9/16	0.5625	75 (101.70 N·m)	130 (176.28 N·m)	175 (237.30 N·m)	13/16	7/8
5/8	0.625	105 (142.38 N·m)	170 (230.52 N·m)	240 (325.44 N·m)	15/16	15/16
3/4	0.750	185 (250.86 N·m)	300 (406.80 N·m)	425 (576.30 N·m)	1-1/8	1-1/8
7/8	0.875	*160 (216.96 N·m)	445 (616.98 N·m)	685 (928.86 N·m)	1-5/16	1-5/16
1	1.000	250 (339.00 N·m)	670 (908.52 N·m)	1030 (1396.68 N·m)	1-1/2	1-1/2

Multiply readings by 12 for inch-pound values.

\* "B" Grade bolts larger than 3/4-inch (19.1 mm) are sometimes formed hot rather than cold, which accounts for the lower recommended torque.

NOTE: Allow a tolerance of plus or minus 10 per cent on all torques given in this chart.

**SET SCREW SEATING TORQUE CHART**

Screw Size	Cup Point	Square Head
Torque in Inch Pounds		
#5	9 (1.02 N·m)	—
#6	9 (1.02 N·m)	—
#8	20 (2.26 N·m)	—
#10	33 (3.73 N·m)	—
1/4	87 (9.83 N·m)	212 (23.96 N·m)
5/16	165 (18.65 N·m)	420 (47.46 N·m)
3/8	290 (32.77 N·m)	830 (93.79 N·m)
7/16	430 (48.59 N·m)	—
1/2	620 (70.06 N·m)	2100 (237.30 N·m)
9/16	620 (70.06 N·m)	—
5/8	1225 (138.43 N·m)	4250 (480.25 N·m)
3/4	2125 (240.13 N·m)	7700 (870.10 N·m)

Divide readings by 12 for foot-pound values

NOTE: Allow a tolerance of plus or minus 10 per cent on all torques given in this chart.




# Group 15 FUEL AND LUBRICANTS

## FUEL AND LUBRICANTS

Machine	Component	Capacity	Fill With John Deere	Fill With Equivalent	Service Interval
216 Walk-Behind Tiller	Fuel Tank	1 qt. (0.946 L)	.....	See below	.....
	Engine Crankcase	20 oz. (1-1/4 pts.) (0.591 L)	TORQ-GARD SUPREME® SAE 30	SAE 30, Service MS or SC (Detergent-Type)	25 Hours
	Chain Case	6 oz. (0.177 L)	.....	SAE 30	25 Hours
324, 524, and 624 Walk-Behind Tillers	Fuel Tank 324 524 and 624	2 qts. (1.892 L) 1 gal. (3.785 L)	.....	See below	.....
	Engine Crankcase 324 524 and 624	21 oz. (approx. 1-1/3 pts.) (0.621 L) 19 oz. (approx. 1-1/4 pts.) (0.562 L)	TORQ-GARD SUPREME SAE 30	SAE 30, Service MS or SC (Detergent-Type)	25 Hours
	Gear Case	8 oz. (0.236 L)	SAE 90 Gear Lubricant (AM30200)	SAE 90 Gear Lube	Check level seasonally
5B Sprayer	Fuel Tank	1 qt. (0.946 L)	.....	See below	.....
	Engine Crankcase	20 oz. (0.591 L)	TORQ-GARD SUPREME SAE 30	SAE 30 Service MS or SC (Detergent-Type)	25 Hours
	Grease Fittings	.....	Multi-Purpose Lubricant (AT30408)	SAE Multipurpose-Type Grease	10 Hours

### Fuel Recommendations

All engines included in this technical manual perform at peak efficiency when the fuel recommendations listed below are followed:

 **CAUTION: Do not fill fuel tank when engine is running or hot. Do not smoke when filling fuel tank.**

Wipe dust and dirt from around filler cap before removing it. Place cap in a clean area.

**IMPORTANT: Do not permit dirt or other foreign matter to enter the fuel system because it may cause hard starting, poor performance, and engine damage. Always use clean gasoline storage cans and funnels.**

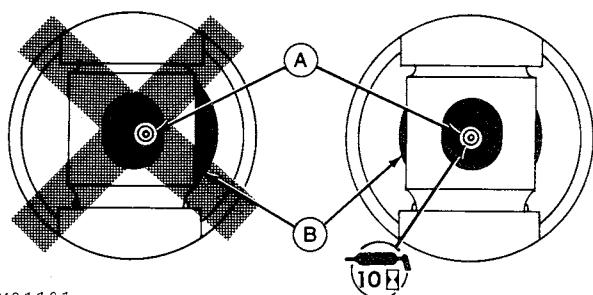
Fill the fuel tank with fresh, clean "regular" grade gasoline having an anti-knock index of 88 or higher. We recommend non-leaded gasoline because it reduces cylinder head deposits. Low-lead or leaded "regular" grades are acceptable if the anti-knock index is 88 or higher.

DO NOT use premium, ethyl, or white gasoline or regular gasoline having an anti-knock index below 88. Never use special additives, such as carburetor cleaners, de-icers, or moisture-removing liquids in your gasoline.

**IMPORTANT: Do not mix oil with gasoline.**

## GREASE FITTING LOCATIONS

## 5B Sprayer



M21101

A—Grease Fitting

B—Bearing

Fig. 1-Piston Pump Crankshaft Grease Fitting Location

**IMPORTANT:** The bearings are lubricated at the factory and require no further lubrication. **DO NOT** allow oil to get on the bearings because it may wash out the grease.

**NOTE:** The crankshaft bearing (B, Fig. 1) must be centered and must not project out on just one side of the connecting rod. Rotate the pump shaft to center the grease fitting (A) for lubrication.

Every 10 hours, inject just enough John Deere Multi-Purpose Lubricant or an equivalent SAE multi-purpose-type grease so it oozes out from the end of the crankshaft bearing (B).

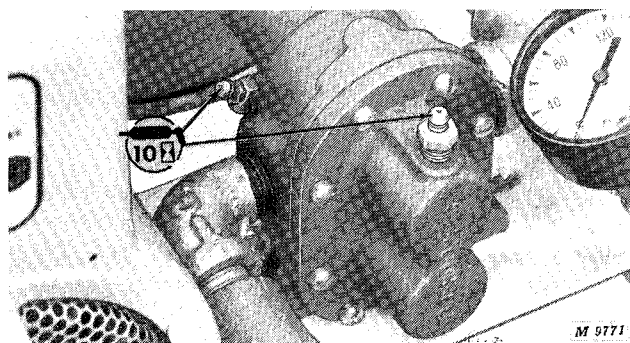
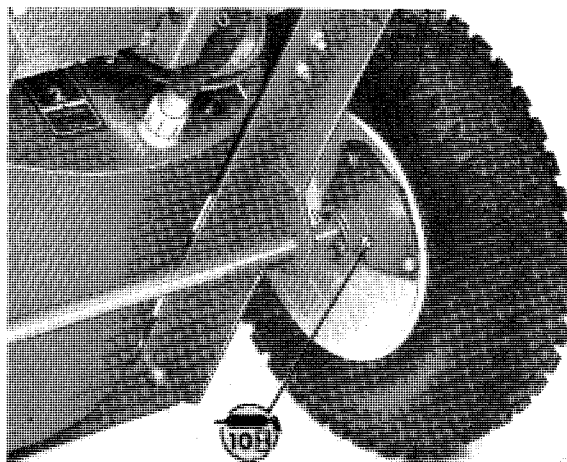
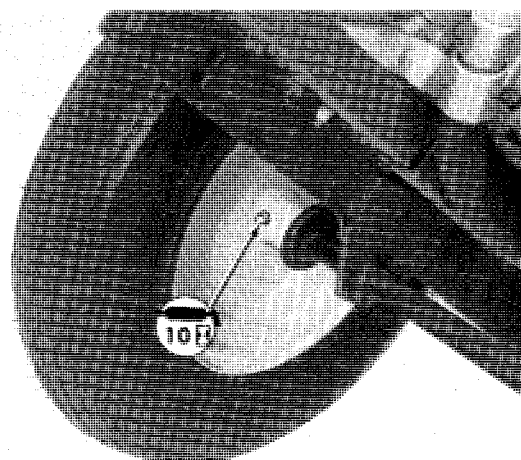


Fig. 2-Gear Pump Grease Fitting Location

Lubricate the gear pump with one shot of John Deere Multi-Purpose Lubricant or an equivalent SAE multipurpose-type grease in each grease fitting every 10 hours or once a day when the sprayer is used.



M 9772

Fig. 3-Wheel Grease Fitting Location  
(Serial No. 5000-120,070)

M26033Y

Fig. 4-Wheel Grease Fitting Location  
(Serial No. 120,071- )

Lubricate the wheels every 10 hours of operation with John Deere Multi-Purpose Lubricant or an equivalent SAE multipurpose-type grease.

# Section 20 TECUMSEH ENGINES

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