5220, 5320, 5420, and 5520 Tractor Operation and Test

TECHNICAL MANUAL
5220, 5320, 5420, and 5520 Tractor Operation and Test

TM2049 18MAR02 (ENGLISH)

For complete service information also see:

John Deere Augusta Works
LITHO IN U.S.A.

Introduction

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 operation and tests. Repair sections tell how to repair the components. Operation and tests 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.

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

Fundamental service information is available from other sources covering basic theory of operation, fundamentals of troubleshooting, general maintenance, and basic type of failures and their causes.

DX,TMIFC –19–29SEP98–1/1

Contents

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.

Section 210
Operational Checkout Procedures

Contents

Specifications

Item	Measurement	Specification
Engine Slow Idle Speed	Rotation	825 ± 25
Engine Fast Idle Speed	Rotation	2625 ± 25

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Operational Checkout Procedure Information

The procedures covered in this group are used to give a quick checkout of all the systems and components on the unit. These checkouts should be run to ensure proper operation after any extended storage, when the unit comes in for service, and after repairs have been made on the unit. They can also be helpful in determining the value of the unit at trade-in time. The unit should be placed on a level surface to run the checkouts. All the checkouts should be done and all of the steps of each checkout should be followed.

Each checkout lists:

- Conditions—How the unit should be set up for the checkout.
- Procedure—The specific action to be done.
- Normal—What should happen or be heard or be seen.
- If Not Normal—Where to go if other tests or adjustments are needed.

When performing the checkout, be sure to set your machine up to the test conditions listed and follow the sequence carefully. The “Normal” paragraph gives the result that should happen when performing the checkout. If the results are not normal, go to the Section and Group listed in the “If Not Normal” paragraph to determine the cause and repair the malfunction.

The photograph that accompanies each checkout procedure is included to help conduct the checkout.

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Engine Oil Level and Condition Check


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CONDITIONS:

- Machine parked on flat, level surface.
- Key switch in OFF position.
- Transmission in park position.
- Engine not run for at least five minutes.

PROCEDURE:

- Clean dirt from area around dipstick opening.
- Remove and wipe off dipstick.
- Install dipstick until seated in tube.
- Remove dipstick and check level and condition of oil.

NORMAL:

- Oil level between full and add marks of dipstick.
- Oil not excessively thick or thin.
- No fuel odor in oil.
- No visible foreign material in oil.

IF NOT NORMAL:

- Add proper oil to full mark on dipstick. (See Transmission and Hydraulic Oil in TM2048 Section 10, Group 20.)
- Replace contaminated oil and filter.
- See Section 220, Group 15 for Diagnosis, Tests, and Adjustments

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Coolant Level and Condition Check

CONDITIONS:

- Machine parked on flat, level surface.
- Key switch in OFF position.
- Transmission in park position.

PROCEDURE:

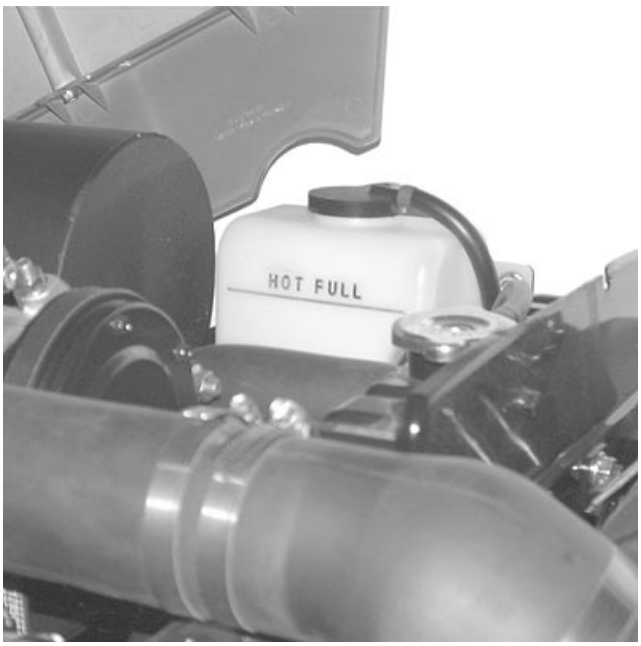
- Observe level of coolant in recovery tank.
- Check condition of recovery tank and tank-to-radiator hose.

NORMAL:

- Recovery tank and hose in good condition, no holes or cracks.
- Coolant at full mark if engine at operating temperature.
- Coolant clean; no oil, rust-like discoloration or foreign material in fluid.

IF NOT NORMAL:

- Replace recovery tank or hose, add coolant, and recheck level after operation.
- Add coolant to proper mark on tank.
- Check radiator-to-tank hose and recovery tank for holes or cracks.
- Change coolant and flush cooling system.
- See Section 220, Group 15 for Diagnosis, Tests, and Adjustments.



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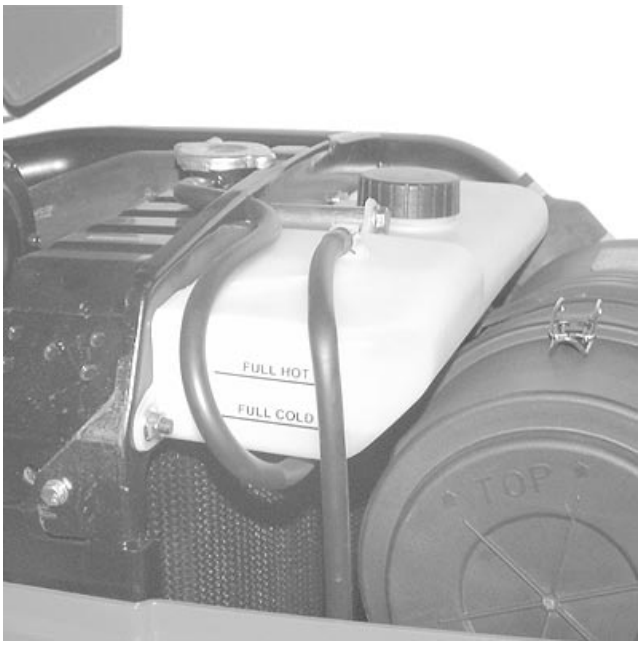
3-Cylinder Engine



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4-Cylinder Engine

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Transmission and Hydraulic Oil Check

CONDITIONS:

- Machine parked on flat, level surface.
- Key switch in OFF position.
- Transmission in park position.

PROCEDURE:

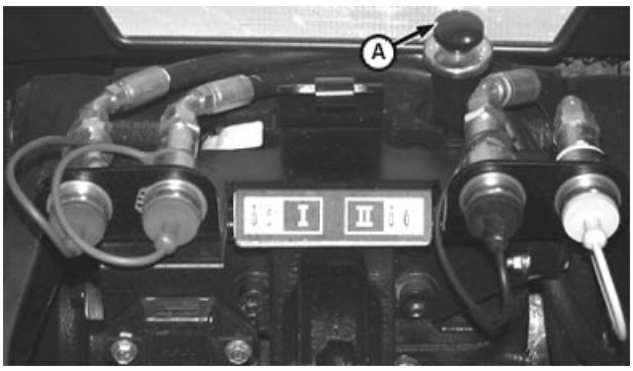
- Straddle mount tractors: Clean dirt from area around dipstick opening (A).
- Isolated open operator platform and cab tractors: Clean dirt from area around dipstick opening (B).
- Remove and wipe off dipstick.
- Install dipstick until seated in tube.
- Remove dipstick and check level and condition of oil.

NORMAL:

- Oil level between full and add marks of dipstick.
- Oil not excessively thick or thin.
- No visible foreign material in oil.

IF NOT NORMAL:

- Add proper oil to full mark on dipstick.
- Replace contaminated oil and filter.
- See Diagnosis, Tests, and Adjustments—CS/SS Transmission (Section 250, Group 15), Diagnosis, Tests and Adjustments (Section 260, Group 15), or Diagnosis (Section 270, Group 15) for transmission and hydraulic system diagnosis, tests and adjustments.



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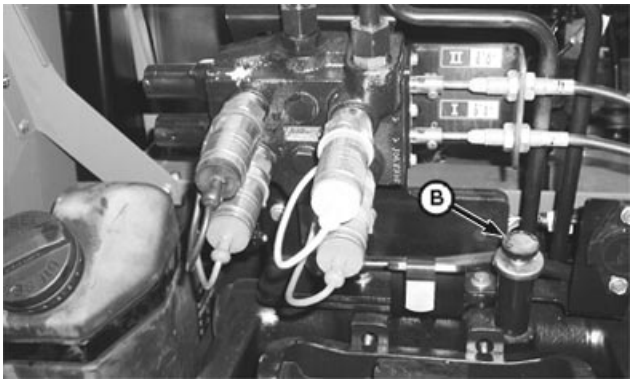

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A—Dipstick (Straddle Mount Tractor)
B—Dipstick (Isolated Open Operator Station or Cab Tractors)

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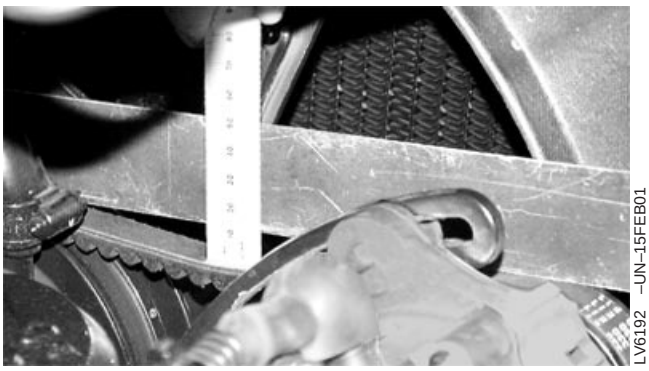
3-Cylinder Fan and V-Belt Check



CONDITIONS:

- Key switch in OFF position.
- Engine not run for at least 15 minutes.
- Transmission in park position.

PROCEDURE:

- Inspect fan and V-belt for damage.
- Check belt tension. (See Fan/Alternator V-Belt Adjustment—5220 and 5320 Tractors in Section 220, Group 15.)

NORMAL:

- Fan undamaged; no cracks or bent blades.
- Belt not cracked, frayed or glazed.
- Belt does not “squeal” during operation.

IF NOT NORMAL:

- Replace damaged fan or belt.
- Adjust belt tension. (See Fan/Alternator V-Belt Adjustment—5220 and 5320 Tractors in Section 220, Group 15.)

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4-Cylinder Fan and Serpentine Belt Check

CONDITIONS:

- Key switch in OFF position.
- Engine not run for at least 15 minutes.
- Transmission in park position.

PROCEDURE:

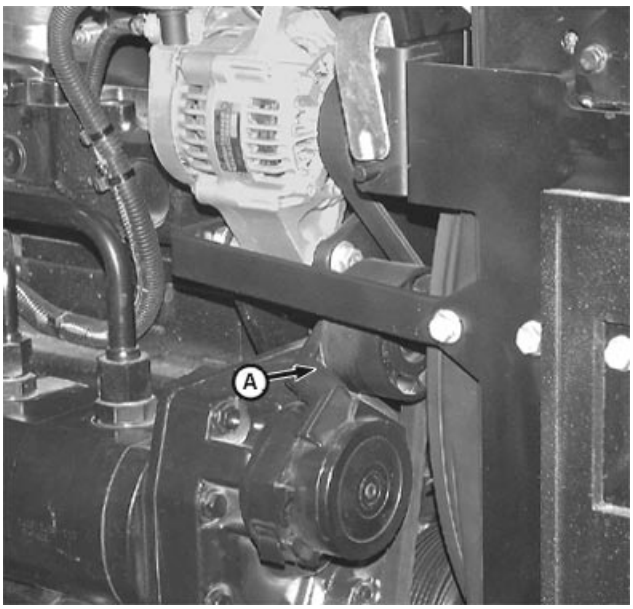
- Inspect fan and serpentine belt for damage.
- Check belt tensioner (A) spring tension. (See Inspect and Replace Belt Tensioner—Models 5420 and 5520 in TM2048 Section 20, Group 10.)

NORMAL:

- Fan undamaged; no cracks or bent blades.
- Belt not cracked, frayed or glazed.
- Belt does not “squeal” during operation.

IF NOT NORMAL:

- Replace damaged fan or serpentine belt.
- Replace belt tensioner. (See Inspect and Replace Belt Tensioner—Models 5420 and 5520 in TM2048 Section 20, Group 10.)



A—Belt Tensioner

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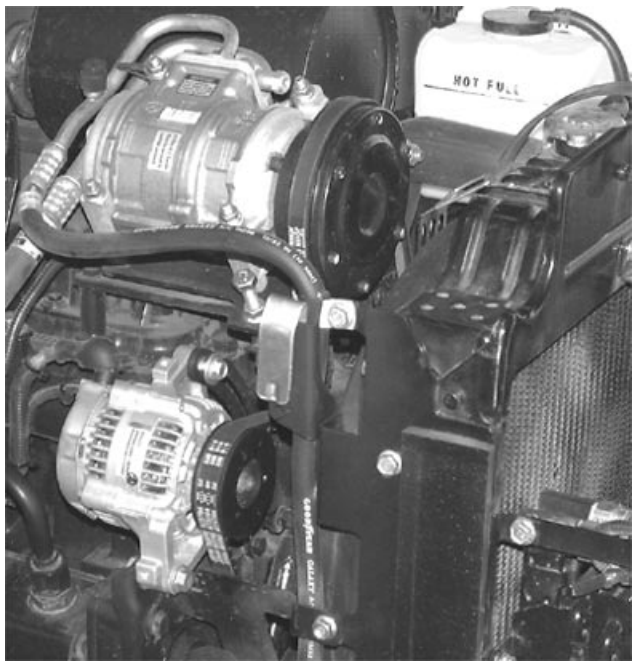
Compressor Belt Check

NOTE: Three-cylinder engine shown. Some procedures for the four-cylinder engine are slightly different. See specifics below.

NOTE: Air intake tube removed for clarity of photo.



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CONDITIONS:

- Key switch in OFF position.
- Engine not run for at least 15 minutes.
- Transmission in park position.

PROCEDURE:

- Inspect belt for damage.
- 3-cylinder engines: Check belt tension. (See Fan/Alternator V-Belt Adjustment—5220 and 5320 Tractors and Compressor Drive Belt Adjustment—3-Cylinder in Section 220, Group 15.)
- 4-cylinder engines: Inspect belt tensioner and spring tension. (See Inspect and Replace Belt Tensioner—Models 5420 and 5520 in TM2048 Section 20, Group 10.)

NORMAL:

- Belt not cracked, frayed or glazed.
- Belt does not “squeal” during operation.

IF NOT NORMAL:

- Replace damaged compressor belt.
- 3-cylinder engines: Adjust belt tension. (See Fan/Alternator V-Belt Adjustment—5220 and 5320 Tractors and Compressor Drive Belt Adjustment—3-Cylinder in Section 220, Group 15.)
- 4-cylinder engines: Replace belt tensioner. (See Inspect and Replace Belt Tensioner—Models 5420 and 5520 in TM2048 Section 20, Group 10.)

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Fuel System Check

CONDITIONS:

- Machine parked on flat, level surface.
- Key switch in OFF position.
- Transmission in park position.
- Straddle mount tractors: Fuel drain valve (A) closed.
- Isolated open operator station or cab tractors: Fuel drain valve (B) closed.
- Fuel shut-off valve (C) open.

PROCEDURE:

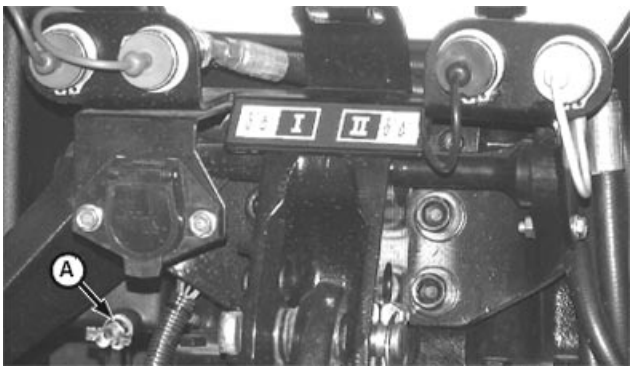
- Observe fuel level and condition.
- Check fuel tank cap and seal condition.
- Check fuel filter (D) condition.
- Check fuel tank, lines, and hoses for kinks, leaks, or damage.

NORMAL:

- Fuel level OK.
- Correct type and grade of clean fuel.
- Fuel tank overflow hose and vent valve in good condition. (No pressure or vacuum observed in fuel tank when cap is removed.)
- No leaks in system.
- No water or sediment in fuel filter bowl.

IF NOT NORMAL:

- Add correct type and grade of clean fuel. (See Section 10, Group 20 in TM2048.)
- Clean contaminated fuel tank, filter, or lines.
- Repair or replace damaged fuel tank, cap, drain valve, filter, or lines. (See Section 30, Group 05 in TM2048.)



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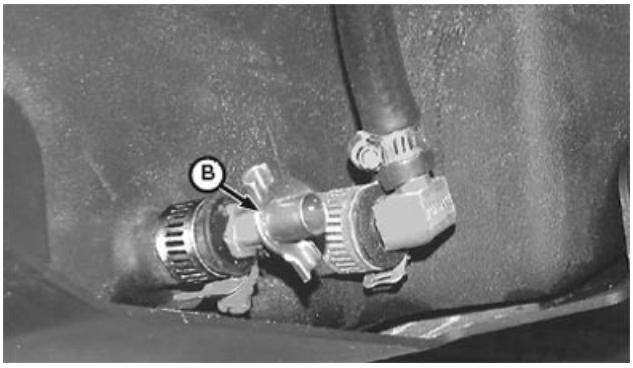

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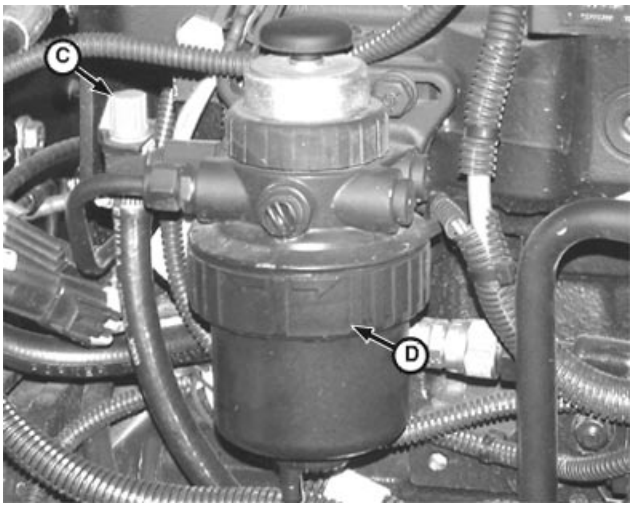

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A—Fuel Drain Valve (Straddle Mount)
B—Fuel Drain Valve (Isolated Open Operator Station or Cab Tractors)
C—Fuel Shut-Off Valve
D—Fuel Filter

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Air Intake System Check

CONDITIONS:

- Key switch in OFF position.
- Transmission in park position.

PROCEDURE:

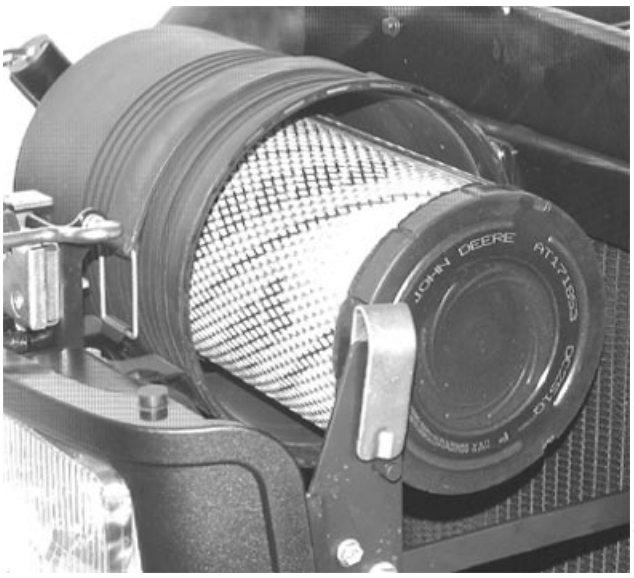
- Observe condition of primary and secondary air filter elements.
- Check condition of air intake hose, tube, and turbocharger (if equipped).
- Observe air cleaner restriction indicator on dash (engine running).

NORMAL:

- Air intake and elements free of debris.
- Air intake hoses and tube in good condition. Hose clamps tight. Intake tube gasket intact.
- Air cleaner unloader valve not plugged.
- Air cleaner housing sealed.
- Air cleaner restriction indicator light off.
- Turbocharger (if equipped) operates with no grinding or bearing noise.

IF NOT NORMAL:

- Clean, repair or replace as required.
- 5320 and 5520 tractors: Repair damaged turbocharger, (if equipped).
- See Section 220, Group 15 for diagnosis, tests, and adjustments.
- See Section 30, Group 10 for inspection and repair.



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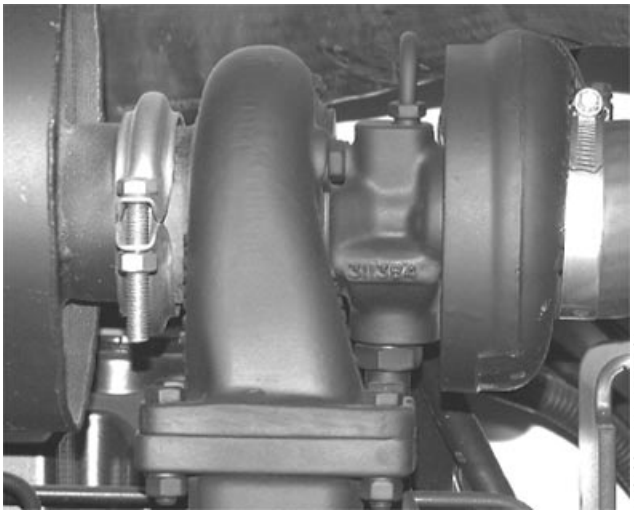
Air Filter (5320 Shown)



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Turbocharger (5320 Shown)

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