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1350R NXT2
1350R NXT2 (EU)
1350R NXT2 X-Series
(SN 188602 and Up)

1500R NXT2
1500R NXT2 (EU)
1500R NXT2 X-Series
(SN 190802 and Up)



Skid-Steer Loader

Operator's Manual

50950504 Rev. F 04/22

Original Instructions

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Mustang 1350R NXT2 and 1500R NXT2 Skid Steer Loader Operator Manual (50950504F)

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Main contents

- Introduction
- Safety
- SAFETY EQUIPMENT
- Indicators and Controls
- Operation
- Maintenance
- Troubleshooting
- Specifications
- Index

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Sample pages follow. Full manual: machinecatalogic.com

Proper Machine Use

WARNING

Improper use of the machine can result in property damage, injury or death.

The machine is designed only for moving earth, coarse gravel or ballast and rubble. Use with approved attachments is also allowed – See “Fields of Application” on page 4. Use in any other way is considered as contrary to the intended use. Compliance with, and strict adherence to, the conditions of operation, service and repair as specified by the manufacturer, also constitute essential elements of the intended use.

The machine was designed and built according to the best available technology and approved safety regulations in the countries where it is sold. It is impossible, however, to completely safeguard against abusive, improper use. The operator must always consider potential safety risks and hazards during operation. Accident prevention regulations, all other generally recognized regulations on safety and occupational medicine, and all road traffic regulations must be observed at all times.

The machine must be maintained in proper operating condition. Any damaged or malfunctioning parts must be repaired or replaced immediately.

Do not make any unauthorized modifications to the machine. Unauthorized modifications made to the machine may relieve the manufacture of liability for any resulting damage or injury.

Service and Registration

When ordering service parts, provide complete information about the part and the quantity required. Also, provide the model and serial numbers of the machine. For your safety and continued proper operation, use only genuine service parts. Record the model and serial numbers in the spaces on page 3 for quick reference.

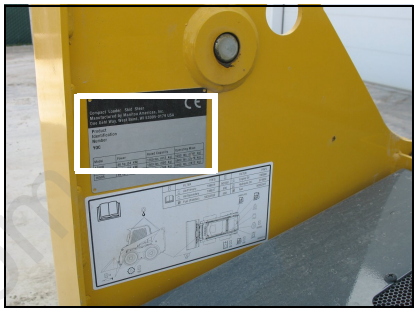
Model and Serial Numbers

Loader Model Number

_____

Loader Serial Number

_____



Engine Model Number

_____

Engine Serial Number

_____



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cated on the hydraulic hoses. See “Hydraulic Hose Maintenance” on page 94.

- Do not modify the ROPS/FOPS unless instructed to do so in installation instructions. Modifications such as welding, drilling, cutting or relocating fasteners, can weaken the structure and reduce the protection it provides. A damaged ROPS/FOPS cannot be repaired – it must be replaced.
- Unauthorized modifications to the machine can cause injury or death. Never make unauthorized modifications to any part of the machine. Any modification made without authorization from Manitou Group could create a safety hazard, for which the machine owner would be responsible.
- Keep mounting brackets and hose and cable routing straps tight. Hose routings should have gradual bends.
- After cleaning the machine, examine all fuel, lubricant and hydraulic oil lines for leaks, chafe marks and damage. Tighten any loose connections and repair or replace parts as necessary.
- Always use the proper tools while working on the machine. Inappropriate tools could break or slip, causing injury, or they may not adequately perform intended functions.
- Hydraulic line and hoses must be routed and fitted properly. Make sure no connections are interchanged.
- Do not use the machine when maintenance is scheduled to be performed. Postponing maintenance can result in a serious reduction of the service life of the machine, more serious and costly equipment failures, and contribute to unsafe operating conditions.
- When handling oil, grease and other chemical substances, follow the product-related safety requirements Material Safety Data Sheet (MSDS) carefully to prevent burning or scalding.
- If the Information Center Electronic Display is broken, avoid contact with any leaking LCD fluid. Wipe any LCD fluid off of skin with a cloth and wash the area with mild soap and water. Thoroughly rinse LCD fluid from eyes with clean water for several minutes and seek medical assistance. If LCD fluid is swallowed, rinse mouth thoroughly with clean water, then drink a substantial volume of water and induce vomiting and seek medical assistance.
- Keep fuel and other fluid reservoir caps tight. Do not start the engine until caps have been secured.

Battery Hazards

- Sparks and open flames can set off explosive battery gas from incidental contact or static discharge. Turn off the engine and all switches when working on batteries. Keep battery terminals tight. Contact between a loose cable clamp and a terminal post can create an explosive spark.
- Before performing electrical service or electrical welding on the machine, disconnect the negative battery cable from the negative battery terminal.
- When disconnecting cables from the battery terminals, remove the cable connected to the negative terminal first. When installing a battery, connect the positive terminal cable first.
- When using jumper cables, connect the positive cable first. The final negative cable connection, at the metal frame of the machine being charged or jump-started, should be as far away from the battery as possible. When removing the jumper cables, disconnect the negative cable from the metal frame first.
- When jump-starting from another machine, do not allow the machines to touch. Wear safety glasses or goggles while battery connections are made.
- Do not jump-start the machine if it has a frozen battery because battery could explode. Thaw a frozen battery before charging it or attaching jumper cables.
- Flush eyes with water for 10-15 minutes if battery acid is splashed in the face. Anyone swallowing battery acid must have immediate medical aid.
- On machines equipped with the battery disconnect switch, always turn the switch to the “OFF” position when parking the machine inside an enclosure.

Fire Hazards

- The machine has several components that operate at high temperature under normal operating conditions, primarily the engine and exhaust systems. Also, the electrical system, if not properly maintained or if damaged, can arc or produce sparks. These conditions make it extremely important to avoid circumstances where explosive dust or gases can be ignited by arcs, sparks or heat.
- It is recommended that a 2.27 kg (5 lb.) or larger, multi-purpose “A/B/C” fire extinguisher be mounted in the operator’s compartment. Check the fire extinguisher periodically and be sure that work crew members are trained in its use.
- Add fuel, oil, antifreeze and hydraulic fluid to the machine only in a well ventilated area. The machine must be parked with controls, lights and switches turned off. The engine must be turned off before refueling or performing service checks.
- Do not smoke while filling the fuel tank, while working on the fuel or hydraulic systems, or while working around the battery.
- Static electricity can produce dangerous sparks at the fuel-filling nozzle. Do not wear polyester, or polyester-blend clothing while fueling. Before fueling, touch the metal surface of the machine away from the fuel fill to dissipate any built-up static electricity. Do not re-enter the machine but stay near the fuel filling point during refueling to minimize the build-up of static electricity. Do not use cell phones while fueling. Make sure the static line is connected from the machine to the fuel truck before fueling begins.
- Ultra-Low Sulfur Diesel (ULSD) poses a greater static ignition hazard than earlier diesel formulations. Avoid death or serious injury from fire or explosion; consult with your fuel or fuel system supplier to ensure the entire fuel delivery system is in compliance with fueling standards for proper grounding and bonding practices.
- Always immediately replace the fuel filler cap after refueling.

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Restraint Bar Test

With the engine running, raise the restraint bar. Test each of the controls. The lift arm, hitch and drive should move only slightly. If there is any significant movement, troubleshoot and correct the problem immediately. Contact your dealer if necessary.

Parking Brake

The machine is equipped with a spring-applied, hydraulically-released parking brake. The parking brake is automatically applied when the restraint bar is lifted, the operator's seat is not occupied, or the engine is shut off. The brake can also be applied manually by pressing button (K, Figure 9) on the control keypad on the right door pillar.

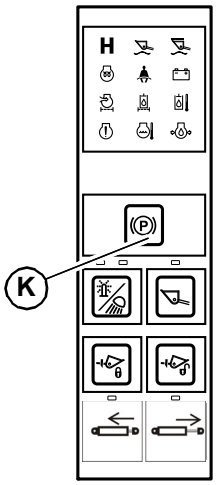


Figure 9 – Parking Brake Button

Button (K) illuminates when the ignition keyswitch is in the ON/RUN position and the parking brake is applied.

ROPS/FOPS

The ROPS/FOPS (Roll-Over/Falling Object Protective Structure) is designed to protect the operator from falling objects and during a tip-over accident, if the operator is secured inside the operator's compartment by the seat belt and restraint bar.

WARNING

Never operate the machine with the ROPS/FOPS raised or removed.

Rear Window Emergency Exit

To use the emergency exit function, pull on yellow warning tag (M, Figure 10) at the top of the window and remove the seal. Push or kick out the window to allow exit from the machine.



Figure 10 – Rear Window Emergency Exit

to reinstall the window, see your local automotive glass specialist.

Lift Arm Support

The lift arm support prevents the raised lift arm from lowering unexpectedly. The lift arm support must be applied whenever the lift arm is left in the raised position.

WARNING

A falling lift arm could result in severe injury or death. Never allow anyone under a raised lift arm without the lift arm support applied.

If the lift arm must be left in the raised position, BE SURE to properly apply the lift arm support.

The operator must not leave the operator's position if the lift arm is in the raised position unless the lift arm support is properly applied.

Applying and disengaging the lift arm support requires two people – one person inside the machine and another person outside the machine to apply and/or disengage the support device.

The lift arm support must be kept in proper operating condition at all times.

Important: *A second person on the outside of the machine is required to assist with applying the lift arm support.*

Engage Lift Arm Support

1. Empty and remove the attachment (See "Connecting Attachments" on page 64).
2. Bring the machine to a complete stop on a level surface.
3. Lower the lift arm fully.
4. Stop the engine.
5. Have an assistant remove the lift arm support from its storage location on the left side of the machine. Remove lynchpin (S, Figure 11) holding lift arm support (T) up against the lift arm. Allow lift arm support (T) device to pivot down into contact with the lift cylinder.



Figure 11 – Lift Arm Support Storage Lynchpin Removal

6. Restart the engine.

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Lift Arm Float

WARNING

Make sure the attachment is lowered to the ground before activating the lift arm float. Activating float with the lift arm raised will cause the lift arm and attachment to fall to the ground, which can cause severe injury or death.

WARNING

The float mode can be used where the engine has stopped, is unable to be started, and lowering the lift arm is necessary to allow the operator to exit the machine.

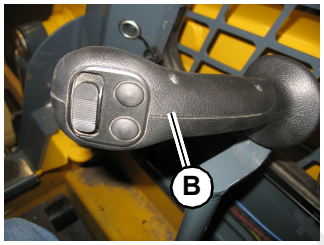
Float allows the lowered lift arm to follow the ground contour while traveling over changing ground conditions..

To activate lift arm float:

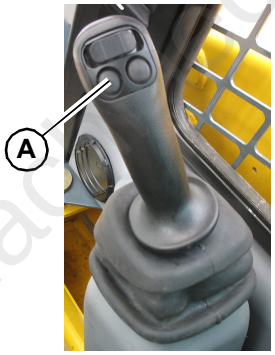
On T-Bar Controls

1. Lower the attachment to the ground.
2. Push Right T-Bar (B) all the way forward (Figure 27) into the detent ("float") position. This position allows the lowered lift arm to "float" while traveling over changing ground conditions.
3. To remove lift arm from the detent ("float") position, pull the Right T-Bar (B) out of the detent position. This returns the lift arm to normal operation.

Right T-Bar



Right Joystick



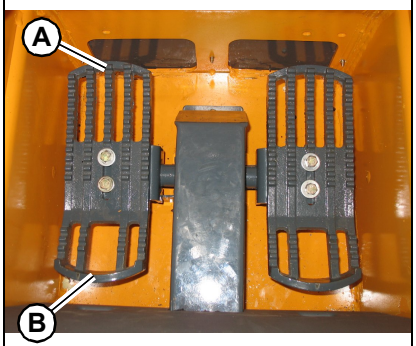


Figure 34 – Lift Arm Float Control

On Joystick Controls

1. Lower the attachment to the ground.
2. Press button (A, Figure 34) to activate float:

- Press button (A) momentarily to apply float momentarily.
- Press and hold button (A) for 5 seconds to activate continuous float. Press button (A) again to deactivate continuous float.

The float indicator ( ) on the control pad is lit when float is activated on Joystick Control types.

On Hand and Foot Controls

1. Lower the attachment to the ground
2. To place the lift arm in the detent ("float") position, use your toes to push the left pedal all the way down (A) into the detent. This position allows the lowered lift arm to "float" while traveling over changing ground conditions.
3. To remove lift arm from the detent ("float") position, use your heel to push the left pedal down (B) out of the detent position. This returns the lift arm to normal operation.

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To proceed with stationary regeneration (Figure 82):

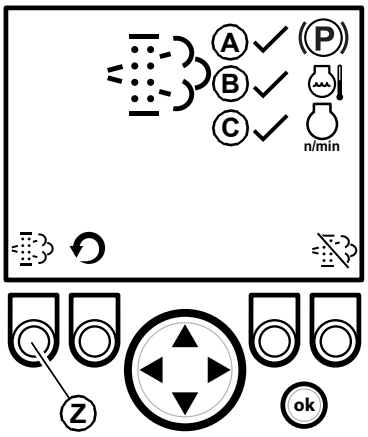


Figure 82 – Stationary Regeneration

1. Park the machine in a safe, well-ventilated location away from flammable materials.
2. The following conditions need to be met before stationary regeneration continues:
   A. Press the (P) button on the control keypad (page 34) or lift the operator restraint bar to apply the parking brake. A checkmark is displayed next to the parking brake symbol (A).
   B. When engine coolant has reached operating temperature (above 140° F / 60° C, a checkmark is displayed next to the coolant temperature symbol (B).
   C. Place throttle controls to the lowest speed setting. A checkmark is displayed next to the engine RPM symbol when the engine is running at low idle.
3. When all three checkmarks (A, B & C) are displayed on the Stationary Regeneration screen, press and hold the button (Z) until the Stationary Regeneration In-Progress screen displays (Figure 83).

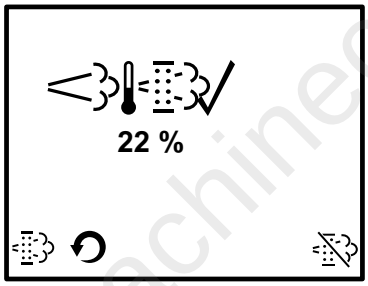


Figure 83 – Stationary Regeneration In-Progress Screen

Note: *Stationary regeneration can be interrupted at any time by releasing the parking brake, advancing the throttle, or stopping the engine. Stationary regeneration must start again from the beginning if it is interrupted.*

Stationary regeneration completion percentage is displayed as during the stationary regeneration progresses. Progress percentage disappears when stationary regeneration completes.

Note: *Stationary regeneration takes approximately 25-30 minutes.*

CAUTION

It is not necessary to stay in the machine during stationary regeneration. Keep the machine under observation while regeneration is in progress in case of malfunction. Keep bystanders away from the machine while regeneration is in progress.

Forcing Stationary Regeneration

Stationary regeneration can be performed at any time after 50 operating hours following the previous stationary regeneration.

To perform stationary regeneration on-demand:

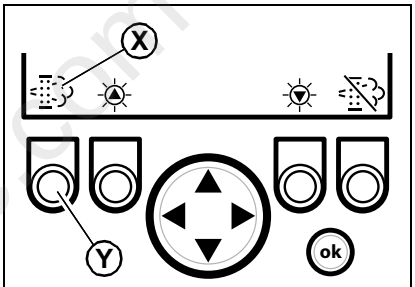
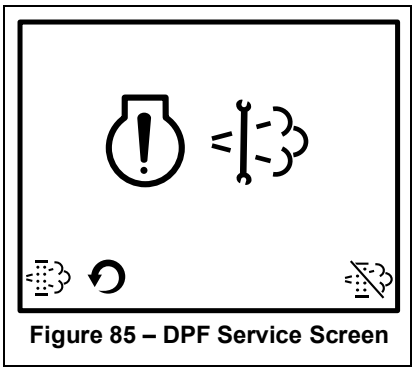


Figure 84 – Forcing Stationary Regeneration

Press button (Y, Figure 84) associated with the DPF regeneration symbol (X), until the regeneration screen displays. Refer to "Stationary Regeneration" on page 75 to proceed with stationary regeneration.

DPF Maintenance

DPF soot filter replacement is required when the DPF (Diesel Particulate Filter) Service Screen (Figure 85) displays.


Figure 85 – DPF Service Screen

Note: *Contact your dealer when the DPF Service screen displays.*

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Maintenance Log

Log maintenance when it is performed in the following table.

Table 17: Maintenance Log

Date	Hours	Maintenance Procedure

Table 27: Hydrostatic Drive System Troubleshooting

Problem	Possible Cause	Corrective Action
Left side drive doesn't operate in one direction.	Front hydrostatic pump relief valve malfunction.	Contact dealer.
	Front hydrostatic pump malfunction.	

Electrical Troubleshooting

Table 28: Electrical Troubleshooting

Problem	Possible Cause	Corrective Action
Electrical system does not function	Battery disconnect switch is in OFF position.	Turn battery disconnect switch to the ON position. See "Battery Disconnect Switch" on page 52.
	Battery terminals or cables loose or corroded.	Clean battery terminals and cables and retighten.
	Battery malfunction.	Test battery. Recharge/ replace as necessary.
	Blown main fuse.	Correct over-current problem and replace main fuse. See "Fuses, Relays and Diodes" on page 97.
	Main wiring harness connectors at rear of ROPS/FOPS not properly plugged in.	Check main harness connectors. Reconnect/repair as needed.
Control pad and information center display do not activate with ignition keyswitch in the ON/RUN position	Blown fuse.	Check circuit and replace fuse. See "Fuses, Relays and Diodes" on page 97.
	Battery terminals/cables loose/corroded.	Clean battery terminals and cables and tighten.
	Main wiring harness connectors at rear of ROPS/FOPS not properly plugged in.	Check main harness connectors. Reconnect/repair as needed.
Starter does not engage when ignition keyswitch turned to the START position	Poor electrical connections in start circuit.	Check connections repair as necessary.
	Battery terminals/cables loose/corroded.	Clean battery terminals and cables and tighten.
	Starter relay malfunction.	Test relay; replace if necessary. Contact dealer.
	Battery discharged/malfunctioning.	Test battery. Recharge/ replace if necessary.
	Starter solenoid malfunction.	Contact dealer.
	Starter or pinion malfunctioning.	Repair/replace as needed.
	Ignition wiring, seat switch, restraint bar switch, etc. loose or disconnected.	Check wiring for poor connections, broken leads; repair wiring or connection.
	Restraint bar raised.	Lower restraint bar.
	Engine fault code(s).	Contact dealer.
Fuel gauge inoperative	Fuel level sender malfunction.	Replace fuel level sender.
	Loose wiring/terminal connections.	Check wiring connections.
	Blown fuse.	Check circuit and replace fuse. See "Fuses, Relays and Diodes" on page 97.
	Fuel gage malfunction.	Replace gauge.
Coolant temperature gauge inoperative	Temperature sender malfunction.	Replace temperature sender.
	Loose wiring/terminal connections.	Check wiring connections.
	Blown fuse.	Check circuit and replace fuse. See "Fuses, Relays and Diodes" on page 97.
	Coolant temperature gage malfunction.	Replace gauge.
Hour meter inoperative	Loose wiring/terminal connections.	Check wiring/connections.
	Alternator malfunction.	Repair/replace alternator.
	Hour meter malfunction.	Replace information center electronic display.
Work/road lights inoperative	Single light not working— light bulb burned out, faulty wiring.	Check and replace light bulb as needed, check wiring connections.
	No lights—blown fuse.	Check circuit and replace fuse. See "Fuses, Relays and Diodes" on page 97.
	Light switch malfunction, poor ground or other wiring connection.	Check ground/wire connections, replace light switch.

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Table 29: Yanmar Engine Diagnostic Trouble Codes (DTC)

DTC			Error Item	
SPN	FMI	P-Code	Part	State
522747	12	P1439	Exhaust Throttle	Motor fault
522748	12	P1440	Exhaust Throttle	Sensor system fault
522749	12	P1441	Exhaust Throttle	MPU fault
522750	12	P1442	Exhaust Throttle	PCB fault
522751	19	P1443	Exhaust Throttle	CAN fault
522994	4	P1633	ECU Internal Malfunction	Actuator drive circuit 2 GND short-circuit
	12	P1607	ECU Internal Malfunction	WDA/ABE communication error
	12	P1615	ECU Internal Malfunction	CY320 SPI communication error
	12	P1616	ECU Internal Malfunction	MSC communication error of R2S2
523249	5	P0008	Cam Sensor	No signal from both sensors
523460	7	P1670	Rail Pressure Control/Sensor	Rail pressure fault (operation time error during RPS limp mode)
523462	13	P1648	Injector (Correction Value)	IQA corrected injection amount for injector 1
523463	13	P1649	Injector (Correction Value)	IQA corrected injection amount for injector 2
523464	13	P1650	Injector (Correction Value)	IQA corrected injection amount for injector 3
523465	13	P1651	Injector (Correction Value)	IQA corrected injection amount for injector 4
523468	9	P1665	PLV (Common Rail Pressure Limit Value); Rail Pressure Sensor	Rail pressure fault (controlled rail pressure error after PLV valve opening)
523469	0	P1666	Rail Pressure Sensor	Rail pressure fault (PLV opening timing error)
523470	0	P1667	Rail Pressure Sensor	Rail pressure fault (PLV opening timing error)
523471	6	P1467	ECU Internal Malfunction	Actuator drive circuit 3 GND short-circuit
523473	12	P1469	ECU Internal Malfunction	AD converter fault 1
523474	12	P1470	ECU Internal Malfunction	AD converter fault 2
523475	12	P1471	ECU Internal Malfunction	External monitoring IC and CPU fault 1
523476	12	P1472	ECU Internal Malfunction	External monitoring IC and CPU fault 2
523477	12	P1473	ECU Internal Malfunction	ROM fault
523478	12	P1474	ECU Internal Malfunction	Shutoff path fault 1
523479	12	P1475	ECU Internal Malfunction	Shutoff path fault 2
523480	12	P1476	ECU Internal Malfunction	Shutoff path fault 3
523481	12	P1477	ECU Internal Malfunction	Shutoff path fault 4
523482	12	P1478	ECU Internal Malfunction	Shutoff path fault 5
523483	12	P1479	ECU Internal Malfunction	Shutoff path fault 6
523484	12	P1480	ECU Internal Malfunction	Shutoff path fault 7
523485	12	P1481	ECU Internal Malfunction	Shutoff path fault 8
523486	12	P1482	ECU Internal Malfunction	Shutoff path fault 9
523487	12	P1483	ECU Internal Malfunction	Shutoff path fault 10
523488	0	P1484	ECU Internal Malfunction	Recognition error of engine speed
523489	0	P1668	PLV (Common Rail Pressure Limit Value); Rail Pressure Sensor	Rail pressure fault (the actual rail pressure is too high during PRV limp mode)
543491	0	P1669	Rail Pressure Control/Sensor	Rail pressure fault (injector B/F temp error during PLV4 limp home)
102	10	P1673	EGR Low Pres. Sensor Malfunction	Aftertreatment Error
105	10	P1676	Intake Air Temp. Sensor Malfunction	Aftertreatment Error
110	10	P1674	Coolant Temp. Sensor Malfunction	Aftertreatment Error
173	10	P1677	Exhaust Temp. Sensor Malfunction	Aftertreatment Error
412	10	P1675	EGR Gas Temp Sensor Malfunction	Aftertreatment Error
1209	10	P1679	EGR High Pres. Sensor Malfunction	Aftertreatment Error
3242	10	P167E	DPF Inlet Temp. Sensor Malfunction	Aftertreatment Error
3250	10	P167A	DPF Intermediate Temp Sensor Malfunction	Aftertreatment Error
3609	10	P167C	DPF High Pres. Sensor Malfunction	Aftertreatment Error
4795	31	P226D	DPF Substrate Removed	Aftertreatment Error

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