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Coding Information

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Title: Medium Duty (I6) Low Pressure Turbo Center Section Replacement Procedure

Applies To: EPA 10 MaxxForce DT/9/10

CHANGE LOG

2015/07/24 - Added a note to the parts information table and before step 4 of installation section, turbocharger oil supply tube should be replaced any time it is disconnected/removed.
 2015/07/13 - Fixed part number suffix (oil supply tube) per feedback
 2015/04/08 - Added note to end of Removal Instructions for warranty parts return
 2014/09/02 - Layouts Fixed

QUICK LINKS

Description	Symptoms	Tools	Parts	Procedure Overview
Diagnostics	Repair-Removal	Repair-Installation	Warranty	Resources

DESCRIPTION

For most repairs it is unnecessary and time consuming to replace an entire turbocharger assembly. Therefore, a procedure—outlined in this document—was developed to replace the center section of the Low-Pressure (LP) Turbocharger, in chassis. The procedure applies to all 2010 and newer Medium Duty I6 engines (MaxxForce® DT, 9, 10) including the 2013 OBD, and outlines the tools, parts, and important notes necessary for successful repair.

[Return to top](#)

SPECIAL TOOLS

Tool Description	Tool Number	Comments	Instructions
ISC Outlet Seal Removal Tool	ZTSE4937	Kit	In Procedure Below
CAC Cleaning Adapter Kit	09-925-01	ONLY if necessary	Link

[Return to top](#)

SERVICE PARTS INFORMATION

Note: the turbocharger oil supply tube is a one-time use part, if removing/disconnecting oil supply tube for any repair replace with new oil supply tube.

HIGH TORQUE (ISC EQUIPPED)			
<u>Kit Description</u>	<u>Part Number</u>	<u>Quantity</u>	<u>Notes</u>
Kit, Low-Pressure Turbocharger	1889489C94	1	High Torque Applications only
Seal, Lip Crossover Tube	1858048C2	1	Only if necessary, High Torque
HP Turbine V-Band Clamp	7095497C1	1	Required, Never re-use V-band Clamps
Turbine V-Band Nut	1891063C1	1	Required, Never re-use V-band Nuts
Tube Assembly, Turbo Oil Supply	1885590C93	1	Required, Never re-use oil supply tubes

STANDARD TORQUE (ISC NOT EQUIPPED)			
<u>Kit Description</u>	<u>Part Number</u>	<u>Quantity</u>	<u>Notes</u>
Kit, Low-Pressure Turbocharger	1889487C93	1	Standard Torque Applications only
Seal, LP Turbo	1881990C1	1	Only if necessary, Standard Torque
HP Turbine V-Band Clamp	7095497C1	1	Required, Never re-use V-band Clamps
Turbine V-Band Nut	1891063C1	1	Required, Never re-use V-band Nuts
Tube Assembly, Turbo Oil Supply	1885590C93	1	Required, Never re-use oil supply tubes

[Return to top](#)

DIAGNOSTIC STEPS

All diagnostics should be completed through the diagnostics manual or performance diagnostic sheet.

[Return to top](#)

PROCEDURE OVERVIEW



GOVERNMENT REGULATION: Engine fluids (oil, fuel, and coolant) may be a hazard to human health and the environment. Handle all fluids and other contaminated materials (e.g. filters, rags) in accordance with applicable regulations. Recycle or dispose of engine fluids, filters, and other contaminated materials according to applicable regulations.



WARNING:

To prevent personal injury or death, do not let engine fluids stay on your skin. Clean skin and nails using hand cleaner and wash with soap and water. Wash or discard clothing and rags contaminated with engine fluids.



WARNING:

To prevent personal injury or death, make sure the engine has cooled before removing components.



WARNING:

To prevent personal injury or death, shift transmission into park or neutral, set parking brake, and block wheels before doing diagnostic or service procedures.



Item 1: Interstage Cooler (ISC)

[Return to top](#)

REPAIR-REMOVAL PROCEDURE

The Removal Steps from [IK1200938](#) Must be completed before continuing.

If vehicle is equipped with an ISC perform steps 1 through 3. If vehicle is not equipped with an ISC continue to step 4.

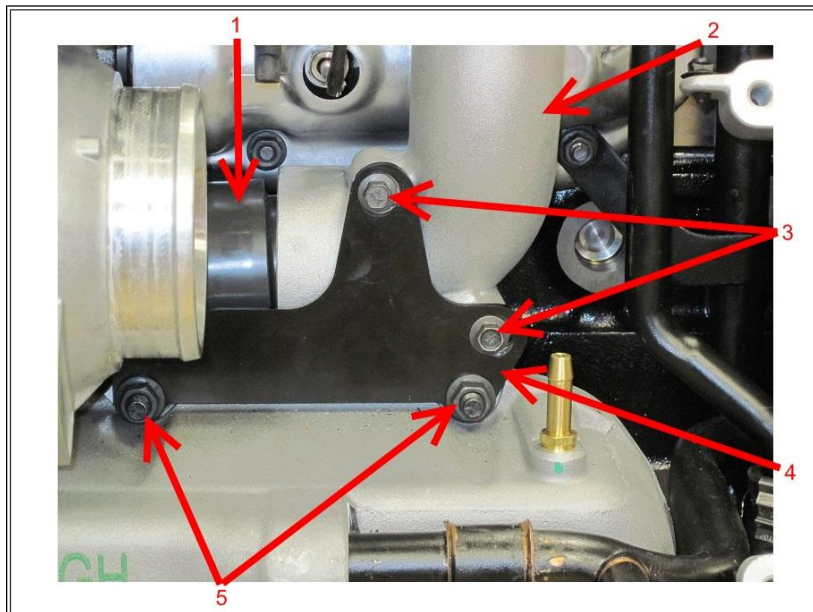


Figure 1: Oil Supply Tube at Oil Cooler Housing

Item 1: Interstage Tube Seal (Replace as needed)
Item 2: Interstage Tube
Item 3: Bolt (s)
Item 4: Interstage Tube Support Bracket
Item 5: Nut (s)

1. Remove 2 bolts (**Figure 1**, Item 3) and 2 nuts (**Figure 1**, Item 5) and interstage tube support bracket (**Figure 1**, Item 4).

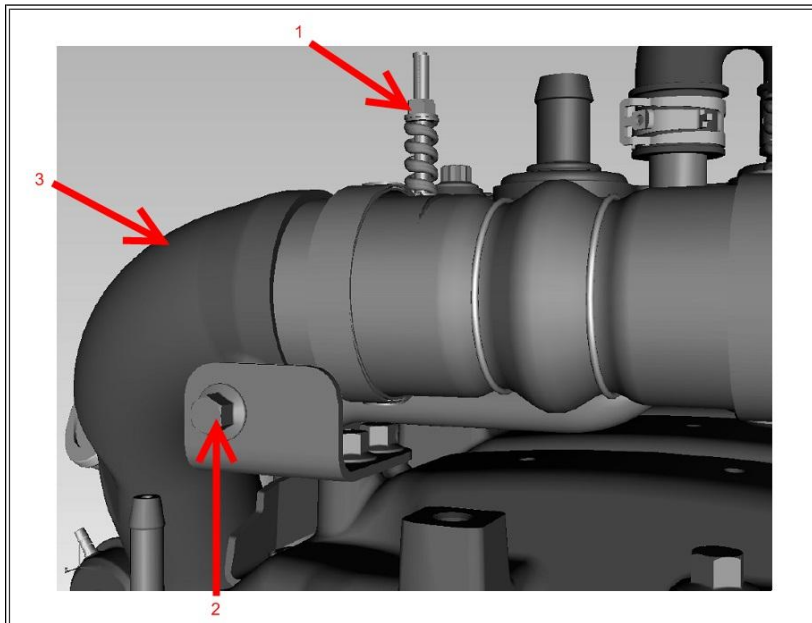


Figure 2: Interstage Tube Removal

Item 1: Spring Clamp
 Item 2: Bolt
 Item 3: Interstage Tube

2. Remove bolt (**Figure 2**, Item 2) from interstage tube (**Figure 2**, Item 3).
3. Loosen clamp (**Figure 2**, Item 1) and remove interstage tube from vehicle.

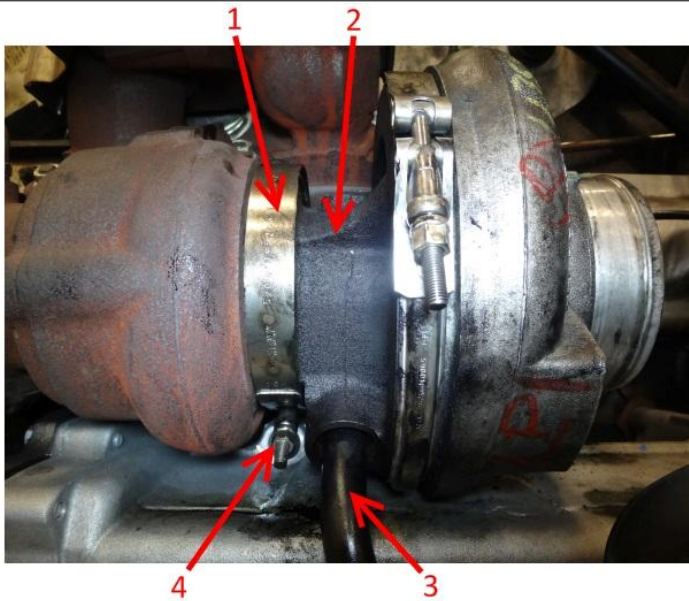


Figure 3: Oil Supply Tube at Oil Cooler Housing

Item 1: LP Turbocharger Turbine V-Band Clamp
 Item 2: LP Turbocharger Center Section
 Item 3: LP Turbocharger Drain Tube
 Item 4: LP Turbocharger Turbine V-Band Clamp Orientation

4. Loosen LP Turbocharger V-Band Clamp (**Figure 3**, Item 1).
5. Using a rubber mallet, tap LP turbocharger center section (**Figure 3**, Item 2) until loose and remove from turbine housing and oil drain tube (**Figure 3**, Item 3).
6. Using a clean emery cloth, clean turbine housing mating surfaces.



Figure 4: Oil Supply Tube at Oil Cooler Housing

Item 1: LP Turbocharger Oil Drain Tube O-Ring (Yellow)
Item 2: LP Turbocharger Oil Drain Tube

7. Remove LP Turbocharger Oil Drain Tube O-Ring (**Figure 4**, Item 1) from Oil drain tube (**Figure 4**, Item 2) and discard.

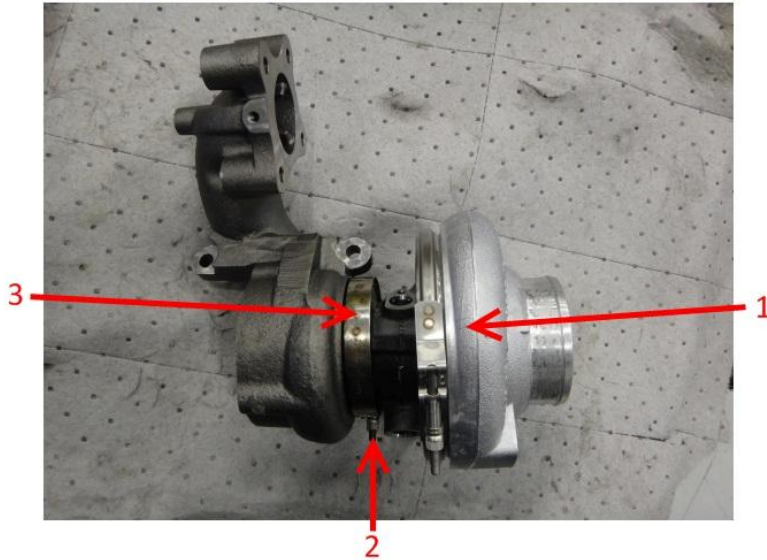


Figure 5: New Low-Pressure Turbocharger

Item 1: Complete LP Turbocharger
Item 2: LP Turbocharger V-Band Clamp Orientation
Item 3: LP Turbocharger V-Band Clamp

NOTE

Before removing the LP turbocharger center section note the position of the turbine clamp (Figure 3, Item 2) for installation on vehicle. If the clamp is not in the same orientation it may contact or interfere with turbocharger oil supply tube installation.

8. Loosen LP Turbocharger V-Band Clamp (Figure 5, Item 3) and remove LP Turbocharger Center Section (Figure 5, Item 1) from turbine housing.

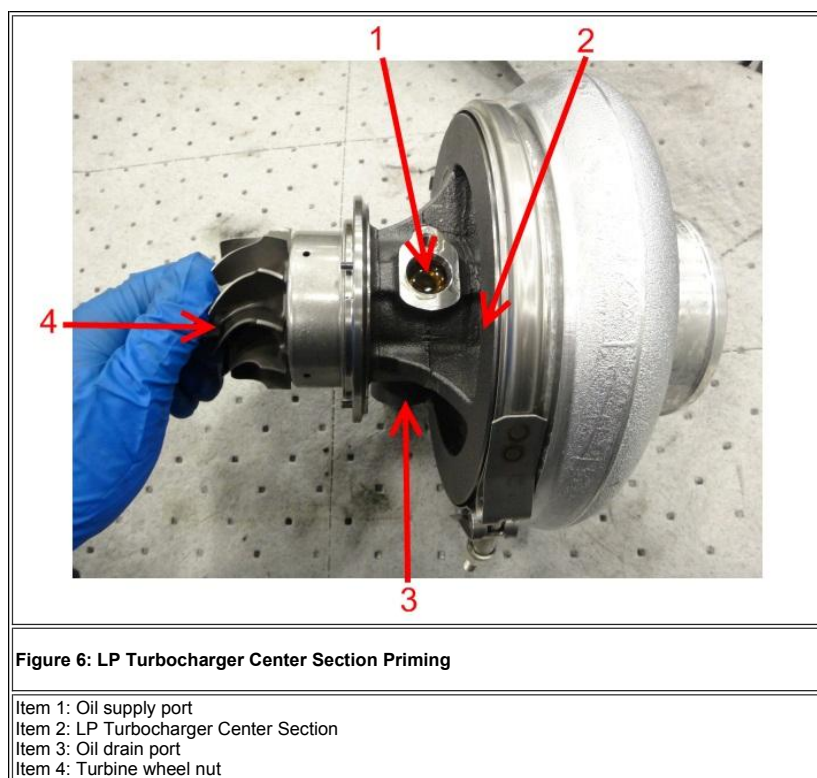
NOTE

Once the old center section is removed place it in a box with new exhaust housing and send to the warranty center.

[Return to top](#)

REPAIR-INSTALLATION PROCEDURE

1. If HPCAC is internally contaminated with oil, refer to [IK1201175](#) for the cleaning procedure.



NOTE

Do Not Remove Compressor housing. Install LP Turbocharger Center Section with compressor housing it came with.

2. Using 15W-40 engine oil, prime the new LP turbo center section (**Figure 6**, Item 2) oil supply port (**Figure 6**, Item 1) while spinning the turbine wheel nut (**Figure 6**, Item 4) until oil begins exiting the oil drain port (**Figure 6**, Item 3).
3. Install new o-ring (Yellow) (**Figure 4**, Item 1) onto the LP turbocharger oil drain tube (**Figure 4**, Item 2) and lubricate with P-80.

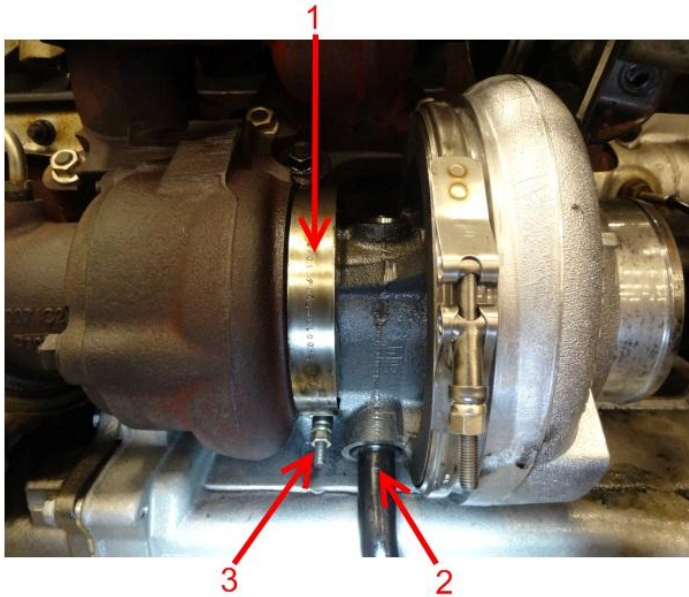


Figure 7: LP Turbocharger Center Section Installation

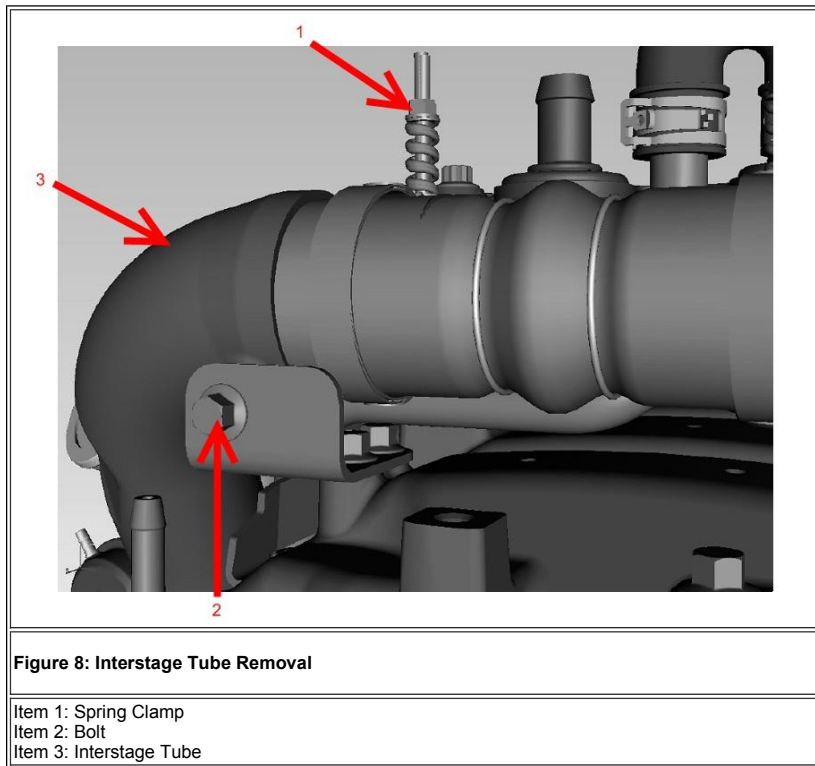
Item 1: Turbine V-Band Clamp

Item 2: LP Turbocharger Oil Drain Tube

Item 3: Turbine V-Band Clamp Orientation

Note: the turbocharger oil supply tube is a one-time use part, if removing/disconnecting oil supply tube for any repair replace with new oil supply tube.

4. Install the new LP center section onto the LP oil drain tube while installing into the turbine housing and secure with v-band clamp from new LP turbo assembly.
5. Using torque wrench, torque turbine V-band clamp (**Figure 7**, Item 1) to 13 lb-ft (17 N·m).



6. Install interstage tube (**Figure 8**, Item 1) into hose and secure with spring clamp (**Figure 8**, Item 1).
7. Torque clamp to 70 in lbs.
8. Install bolt (**Figure 8**, Item 2) and torque to 23 ft lbs.

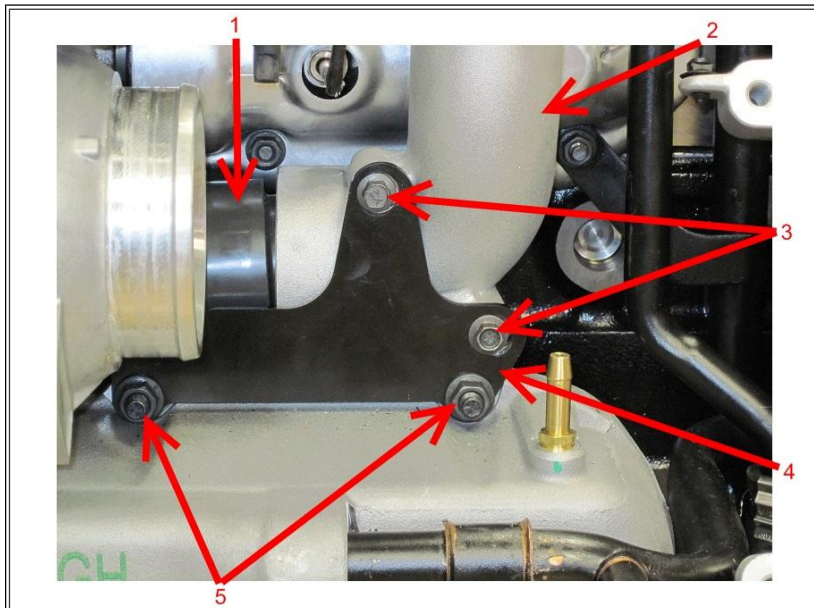


Figure 9: Oil Supply Tube at Oil Cooler Housing

- Item 1: Interstage Tube Seal (Replace as needed)
- Item 2: Interstage Tube
- Item 3: Bolt (s)
- Item 4: Interstage Tube Support Bracket
- Item 5: Nut (s)

9. Install interstage tube support bracket (**Figure 9**, Item 4) and secure with 2 bolts (**Figure 9**, Item 3) and 2 nuts (**Figure 9**, Item 5).
10. Torque bolts to 23 ft lbs and nuts to 45 ft lbs.

Once LP turbocharger Center Section has been installed proceed to installation section of [IK1200938](#), Step 1.

[Return to top](#)

WARRANTY INFORMATION

Warranty Claim Coding:

Group:	12000 - Engine
Noun:	135 - Turbo, High Pressure or Single

Standard Repair Times:

Low-Pressure Turbo Center Section Replacement Only					
Step	Repair	Model	Engine	SRT	Hours
All	L.P. Turbo Center Section Replacement	CE / BE	Engines below 245hp	T-Time	2.1
All	L.P. Turbo Center Section Replacement	CE / BE	Engines with 245hp and up	T-Time	2.3
All	L.P. Turbo Center Section Replacement	4300 / 4400	Engines below 245hp	T-Time	2.1
All	L.P. Turbo Center Section Replacement	4300 / 4400	Engines with 245hp and up	T-Time	2.3
All	L.P. Turbo Center Section Replacement	7300 / 7400 / 7500	Engines below 245hp	T-Time	2.1
All	L.P. Turbo Center Section Replacement	7300 / 7400 / 7500	Engines with 245hp and up	T-Time	2.3
	CAC Cleaning	All	All	A09-3925A	1.1

High & Low-Pressure Turbo Center Section Replacement					
Step	Repair	Model	Engine	SRT	Hours
IK1200938 - All	H.P. Turbo Center Section Replacement	CE / BE	Engines below 245hp	GY12-6135T-23	1.8
All	L.P. Turbo Center Section Replacement	CE / BE	Engines below 245hp	T-Time	0.3
IK1200938 - All	H.P. Turbo Center Section Replacement	CE / BE	Engines with 245hp and up	GY12-6135T-24	1.9
All	L.P. Turbo Center Section Replacement	CE / BE	Engines with 245hp and up	T-Time	0.4
IK1200938 - All	H.P. Turbo Center Section Replacement	4300 / 4400	Engines below 245hp	KL12-6135T-23	1.8
All	L.P. Turbo Center Section Replacement	4300 / 4400	Engines below 245hp	T-Time	0.3
IK1200938 - All	H.P. Turbo Center Section Replacement	4300 / 4400	Engines with 245hp and up	KL12-6135T-24	1.9
All	L.P. Turbo Center Section Replacement	4300 / 4400	Engines with 245hp and up	T-Time	0.4
IK1200938 - All	H.P. Turbo Center Section Replacement	7300 / 7400 / 7500	Engines below 245hp	M12-6135T-25	1.8
All	L.P. Turbo Center Section Replacement	7300 / 7400 / 7500	Engines below 245hp	T-Time	0.3
IK1200938 - All	H.P. Turbo Center Section Replacement	7300 / 7400 / 7500	Engines with 245hp and up	M12-6135T-24	1.9
All	L.P. Turbo Center Section Replacement	7300 / 7400 / 7500	Engines with 245hp and up	T-Time	0.4
	CAC Cleaning	All	All	A09-3925A	1.1

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OTHER RESOURCES

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[Return to top](#)

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