



87-18-08 - Air Conditioning, Cleaning of the R1234yf Refrigerant Circuit (U.S. Only)

Release date: 8/6/2020

Condition

Applicable Vehicles					
Model(s)	Year	Eng. Code	Trans. Code	VIN Range From	VIN Range To
All Models	2018-2021	All	All	All	All

Revision Table			
Instance Number	Published Date	Version Number	Reason For Update
2049039/7	8/6/20	87-18-08	Update to vehicle metadata selection. Add information to figure 15 for adaptor VAS6338/60.
2049039/6	2/5/20	87-18-08	Update to vehicle metadata selection.
2049039/5	11/4/19	87-18-08	Update to vehicle metadata selection.
2049039/4	6/14/19	87-18-08	Update to vehicle metadata selection.
2049039/3	5/28/19	87-18-08	To update special tool part number in step 26 to 6338/48.
2049039/2	8/1/18	V871808	To include new model year and to add tool adaptor 6338/18.
2049039/1	11/9/17	V871713	Original publication.

Debris can be dispersed throughout the refrigerant circuit after A/C component damage. In order to maintain A/C operating efficiency, it is important to flush the refrigerant circuit after A/C component repairs.

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**Note:**

This bulletin must be read in its entirety before beginning repair.

Technical Background

In cases where an air conditioning system component (such as a compressor or other system component) has failed and debris from the compressor or component is circulated throughout the refrigerant circuit, the refrigerant circuit must be cleaned of any and all debris or damage to the replacement components will result.

**Note:**

Any replacement of A/C compressors-regardless of the reason for failure must complete the AC flush procedure to ensure the proper amount of oil is reintroduced into the refrigerant system.

Production Solution

No production change required.

Service

Tools



Use the MAHLE R1234yf A/C Service Unit VAS581005 and the R1234yf Flush Kit RTI360831040 (Figure 1).

Used for effective refrigerant handling and air conditioning circuit flushing after air conditioning component failure.

Figure 1. The VAS581005 Air Conditioning Service System with Flushing Device.

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The VAS 6338/1 Adapter Set for Refrigerant Circuits along with an additional adapter VAS 6338/38 for the expansion valve bypass this kit, contains the adapters necessary to complete a thorough flush operation of a contaminated circuit.

Elsa contains the technical information for each model regarding the necessary adapter applications and connections of the servicing station for the flush operation. See *Heating, Ventilation & Air Conditioning >> Refrigerant R1234yf-Servicing >> 00 General Technical Data>> Refrigerant Circuit removing contaminates>> Refrigerant Circuit, Flushing with Refrigerant R1234yf* in Elsa.

All other refrigerant recovery, evacuation and recharge operations are performed using the usual procedure specified in Elsa. An operations manual will accompany each servicing station that will describe operation of the unit.

Procedure**Front A/C:**

1. If an air conditioning component has been diagnosed as the root cause of the failure, and this particular component has been verified to have released debris through the circuit, continue with the flush procedure.
2. Switch the power to the servicing station ON and begin by recovering the refrigerant from the system through the normal service fittings.

**Note:**

For all compressor replacements it is mandatory to flush the system of all oil in the system. The replacement compressor comes with a full charge of oil for a complete A/C system.

**Tip:**

During the entire process avoid interrupting the power to the station. The station's internal memory will keep a log of all operations and can conveniently be recalled and printed. If the power is interrupted, the station will lose the memory of the process, and the oil volume recovered, oil volume added, refrigerant volume recovered, etc. will have to be manually determined.

3. Disconnect the service hoses from the AC service ports of the refrigerant circuit.

The VAS 6338/1 adapters will be used to bypass the following:

- Compressor.
- Expansion Valve.
- Rear AC lines to rear AC unit (If Equipped)
- Rear AC unit Expansion Valve (If Equipped)

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**Note:**

For models with receiver drier desiccant cartridge the desiccant cartridge must be removed for the flushing process.

For vehicles where the receiver drier is located on the condenser and DOES NOT have a remove-able desiccant cartridge, the receiver drier must be left in the system and flushed through.

After the flush procedure is complete replace the receiver drier or drier cartridge.

4. Installing the R1234yf Flush Kit RTI360831040 flush tank to the Mahle A/C Service Unit VAS581005
5. Remove Receiver Drier. Refer to Elsa Repair Manual.

**Note:**

For Atlas, the front bumper does not need to be removed as stated in the Elsa repair manual.

When removing front grille ensure ignition is switched OFF and negative battery cable is disconnected before disconnecting the front distance regulation module.

**Figure 2. Location of the Receiver Drier**

6. Remove receiver drier cartridge.
Reinstall cartridge cap with O-ring. (Figure 2)

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Figure 3. Installation of front expansion valve bypass adaptor VAS 6338/38.

7. Remove expansion valve and install flush plate VAS 6338/38. (Figure 3)



Figure 4a. Installation of high side rear A/C Line connection block adaptor VAS 6338/63

**Note:**

(Atlas Only) The rear A/C unit refrigerant lines must be disconnected and replaced with block off adaptors VAS 6338/5 and VAS 6338/63 before performing the front A/C unit flush procedure.

8. (Atlas Only) Disconnect rear refrigerant lines and install adaptors VAS 6338/5 and VAS 6338/63 as shown. (Figure 4a, 4b)



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Figure 4b. Installation of Low side rear A/C Line
connection block adaptor VAS 6338/5

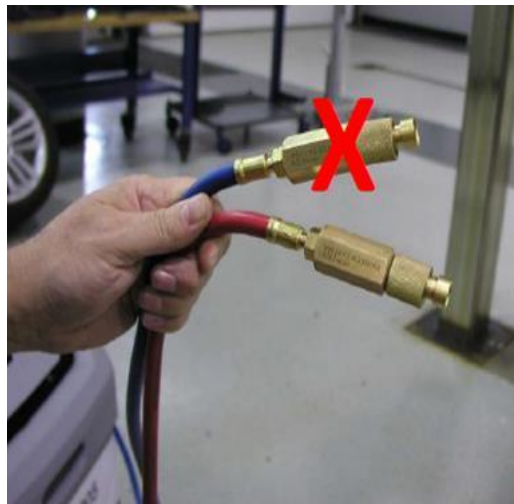


Figure 5. A.C hose adaptor 6338/44

9. Remove A/C Recovery machine high side
coupler from hose.

Install flush adaptor VAS 6338/48 to high side A/C
recovery machine hose. (Figure 5)



Note:

You do not have to remove low side A/C hose
coupler. The low side coupler will be connected to
the flush tank filter adaptor.

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Figure 6. Installation of VAS 6338/3 and 6338/12.

10. Disconnect AC compressor hoses from the compressor.

Install flush adaptor VAS 6338/3 on the high side compressor hose.

Install flush adaptor VAS 6338/12 on low side compressor hose. (Figure 6)



Figure 7.

11. Attach high side A/C Recovery machine hose with VAS 6338/48 fitting to low side compressor hose adaptor VAS 6338/12. (Figure 7)

**Note:**

This connection strategy allows for a system flush **in the opposite** direction of the normal refrigerant flow.

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Figure 8.

12. Connect the low side A/C machine coupler to the flush tank filter adaptor. (Figure 8)

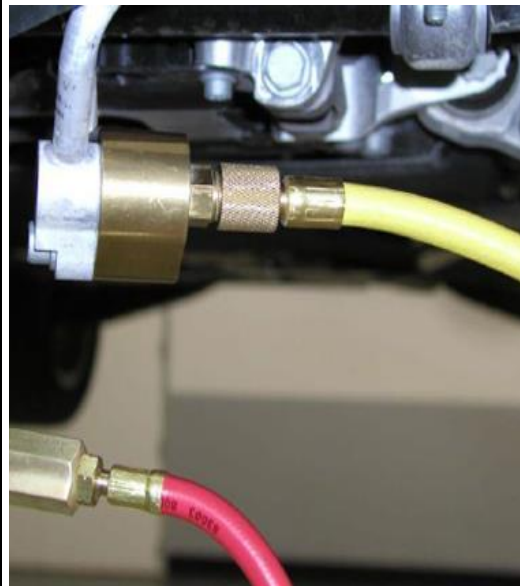


Figure 9.

13. Connect flush tank hose (Yellow) to the high side compressor hose adaptor VAS 6338/3. (Figure 9)

14 Perform an extended 3 cycle flush.

15. After the flush process completes remove any adapters that were installed from the VAS 6338/1.

16. (Atlas Only) Proceed to section for cleaning the rear A/C unit. All others models continue to step 17.

17. Install a new Expansion Valve and Receiver Drier Cartridge. Reassemble all refrigerant lines.

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18. Print the extended flush log of the job and attach to the repair order.

19. Connect the station in the usual manner through the service fittings and perform the normal evacuation and refrigerant recharge operations.

**Note:**

For Atlas a rear A/C unit flush must be performed before vacuum testing and recharging.

Atlas Rear A/C Unit

The flush process will be repeated for the additional rear air conditioning unit according to the repair information in Elsa.



Figure 10.

20. Lower the exhaust buy removing the rear exhaust clamp and single rubber hanger. (Figure 10)



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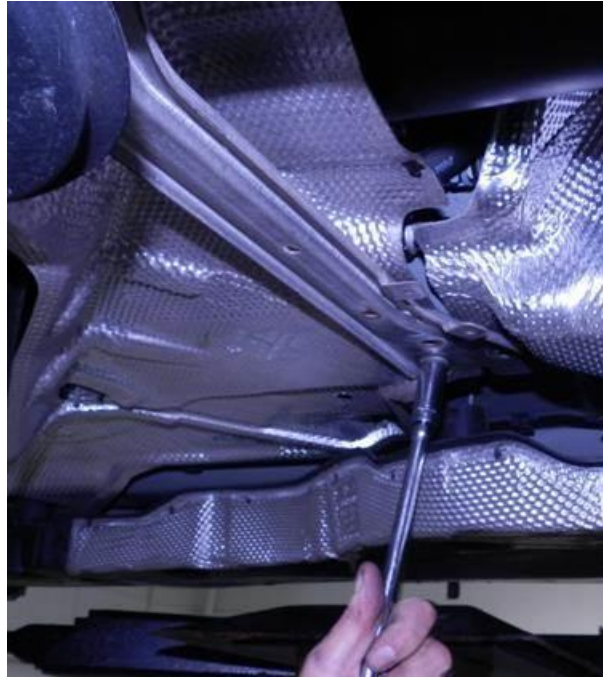


Figure 11.

21. Remove the cross bar located in the center under carriage area. (Figure 11)



Figure 12.

22. Remove middle heat shield from under previously removed cross bar to access rear expansion valve. (Figure 12)



Note:

Replace the clamping washer before reinstalling the heat shield.



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Figure 13. Location of rear air conditioning unit expansion valve.

23. Remove rear expansion valve and install VAS6338/38 as shown. (Figure 13)



24. Connect the VAS 6338/3 and VAS 6338/60 to the rear refrigerant A/C lines (Figure 14)



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Figure 14. Location and connection of the adaptors for the rear unit A/C lines



Figure 15. Removal of dowel pin.



Note:

Later models may have a dowel pin in the high pressure refrigerant line that does not allow the VAS 6338/60 to be installed. The pin must be temporarily removed to install the VAS 6338/60. DO NOT cut the pin flush with the refrigerant line. Side cutters can be used to remove the pin and pliers to reinstall the pin (Figure 15 and 16).



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Figure 16. Installation of rear refrigerant line dowel pin.



- 25. Connect the VAS 6338/48 to adaptor VAS 6338/60
- 26. Connect flush tank hose (Yellow) to the high side compressor hose adaptor VAS 6338/3. (Figure 17)



Note:

Reverse flushing not required for rear A/C unit cleaning.

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Figure 17. Attaching service station and flush hoses to rear A/C lines.

27. Perform an extended 3 cycle flush on the rear A/C unit.
28. When complete, remove any adapters that were installed from the VAS 6338/1.
29. Install a new rear Expansion Valve and reinstall all the refrigerant lines.
30. Connect the station in the usual manner through the service fittings and perform the normal evacuation and refrigerant recharge operations.
31. Print the extended flush log of the job and attach to the repair order.
32. Connect the station in the usual manner through the service fittings and perform the normal evacuation and refrigerant recharge operations

A/C Components Replacement

The following components must be replaced:

- Expansion Valve
- Rear Expansion Valve (If equipped)
- Receiver-drier/cartridge



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Warranty



Note:

The procedure outlined in this Technical Bulletin must be included with the warranty repair(s) and not claimed independently.

You may claim \$8.50 per A/C System flush for the A/C System Flush filter 0268056100 (which represents 1/5 the cost of a replacement filter)

A print out from the Mahle A/C Service Station of the flush procedure must be attached to the warranty claim.

To determine if this procedure is covered under Warranty, always refer to the Warranty Policies and Procedures Manual ¹⁾					
Model(s)	Year(s)	Eng. Code(s)	Trans. Code(s)	VIN Range From	VIN Range To
All Models	2018-2020	All	All	All	All
SAGA Coding					
Claim Type:	Use applicable Claim Type ¹⁾				
Service Number:	Damage Code	HST	Damage Location (Depends on Service No.)	Parts Manufacturer (removed part)	
Use Service Number of Defective Component	Use damage code appropriate for root cause of failure	--	Use applicable when indicated in Elsa (L/R)	Use Vendor code from failed component -- -- ²⁾	
Labor Operation ³⁾: Refrigerant drain and fill (Except Atlas)			8703XXXX = Claim appropriate SRT for vehicle and engine in Elsa		
Labor Operation ³⁾: Air Conditioner Check, All Vehicles. (Except Atlas)			87010150 = See Elsa for the latest time units		
Labor Operation ³⁾: Air Conditioner Clean, All Vehicles, Front A/C only (except Atlas)			87012999 = 110 TU		
Labor Operation ³⁾: Replace Receiver-Drier (Except Atlas)			8755XXXX = Claim appropriate SRT for vehicle and engine in Elsa		



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Labor Operation ³⁾ : Replace Expansion Valve, if equipped. (Except Atlas)		8770XXXX = Claim appropriate SRT for vehicle and engine in Elsa
Atlas with Rear A/C unit.		
Labor Operation ³⁾ : Refrigerant drain and fill		87031700 = See Elsa for the latest time units
Labor Operation ³⁾ : Air Conditioner Check		87010150 = See Elsa for the latest time units
Labor Operation ³⁾ : Air Conditioner Clean		87013099 = 300 TU
Labor Operation ³⁾ : Replace Receiver-Drier		87555550 = See Elsa for the latest time units
Labor Operation ³⁾ : Front grille remove and reinstall.		66051999 = 20 TU
Labor Operation ³⁾ : Replace Expansion Valve		87701950 = See Elsa for the latest time units
Labor Operation ³⁾ : Replace Rear Expansion Valve		88701900 = See Elsa for the latest time units
All Vehicles		
Outside Material: A/C Flush Machine MAHLE filter, Item No. 0268056100		8.50 total per A/C System Flush which accompanies a repair (this amount equals 1/5 of the cost of the A/C flush machine filter)
Diagnostic Time ⁴⁾		
GFF Time expenditure	01500000 = 00 TU max.	NO
Road Test	01210002 = 00 TU	NO
	01210004 = 00 TU	
Technical Diagnosis	01320000 = 00 TU max.	NO
Claim Comment: Input "As per Technical Bulletin 2049039" in comment section of Warranty Claim.		
<p>¹⁾ Vehicle may be outside any Warranty in which case this Technical Bulletin is informational only.</p> <p>²⁾ Code per warranty vendor code policy.</p> <p>³⁾ Labor Time Units (TUs) are subject to change with ELSA updates.</p> <p>⁴⁾ Documentation required per Warranty Policies and Procedures Manual.</p>		





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Required Parts and Tools

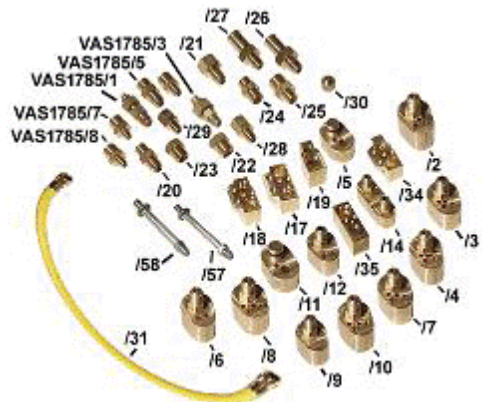


Part Description	Part No:	Quantity
Receiver-Drier	Vehicle Specific	1
Expansion Valve	Vehicle Specific	1
Rear Expansion Valve (Atlas only)	3QF820712A	1
Clamping Washer	N90335004 with WHT003386	1

Tool Description	Tool No:
<p>Air Conditioning Service System</p> 	<p>MAHLE R1234yf A/C Service Unit VAS581005</p> <p>R1234yf Flush Kit RTI360831040</p>
<p>Air Conditioning System Flushing Device Filter</p> 	<p>R1234yf Air Conditioning Unit - Filter - External Flush Item: 0268056100</p>



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<p>Adapter set for refrigerant circuits</p> 	<p>VAS 6338/1</p>
<p>Refrigerant circuit adapter for MAHLE A/C Service Unit and R1234yf Flush Kit</p> 	<p>VAS6338/48</p>
<p>Refrigerant circuit adapter for expansion valve bypass</p> 	<p>VAS6338/38</p>



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<p>Refrigerant circuit adapter for expansion valve bypass</p> 	<p>VAS 6338/18</p>
<p>Adapter bypass for A/C compressor line</p> 	<p>VAS 6338/3</p>
<p>Adapter bypass for A/C compressor line</p> 	<p>VAS 6338/12</p>
<p>Additional adapter bypass for Atlas rear A/C unit high side rear line.</p> 	<p>VAS 6338/60</p>



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<p>Additional adapter for Atlas rear A/C line block off.</p> 	<p>VAS6338/63</p>
<p>Additional adapter bypass for Atlas rear A/C unit low side rear line.</p> 	<p>VAS 6338/3</p>
<p>Additional adapter for Atlas rear A.C line block off.</p> 	<p>VAS6338/5</p>

Additional Information

All part and service references provided in this Technical Bulletin are subject to change and/or removal. Always check with your Parts Dept. and Repair Manuals for the latest information.