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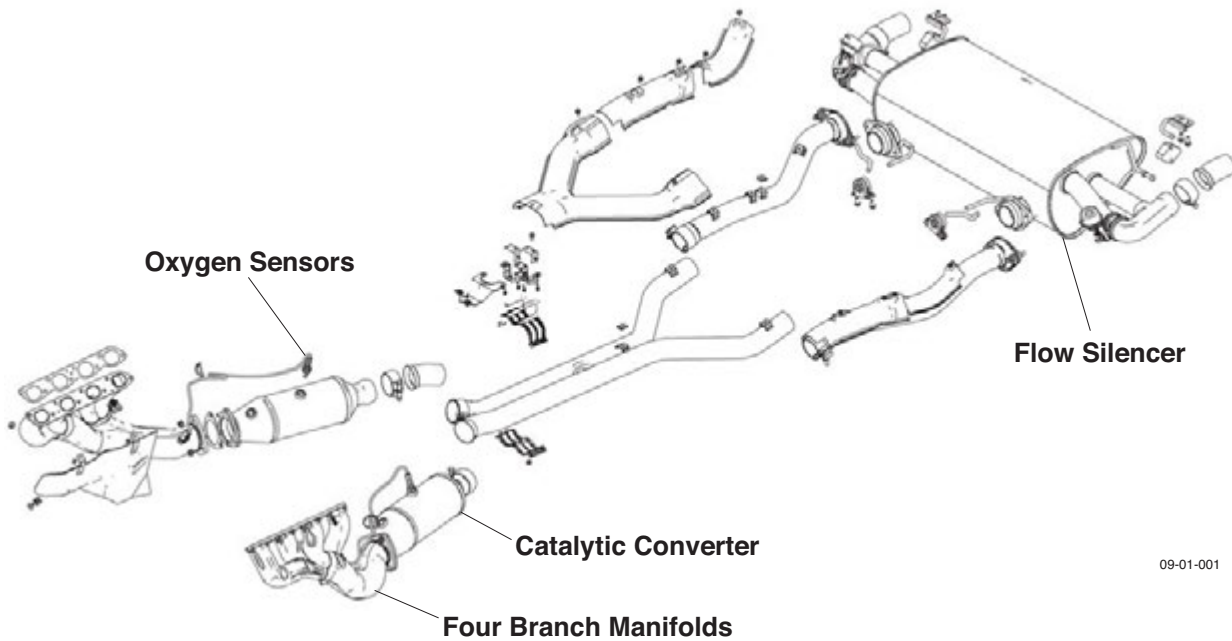
Exhaust System (09.00)

Exhaust Overview

The exhaust system consists of two four-branch manifolds, two catalytic converters, four oxygen sensors and a single variable flow silencer assembly.

Exhaust gasses flow from the exhaust manifolds, through the catalysts and on to the rear silencer assembly.

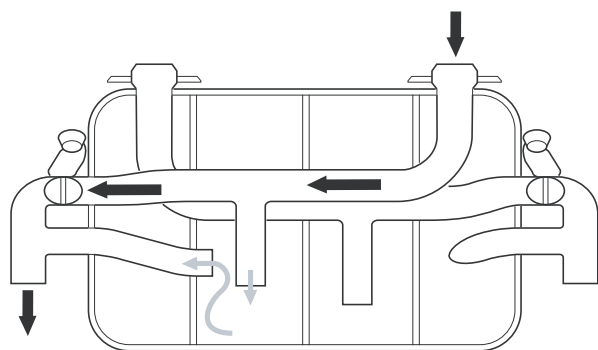
- Two engine management oxygen sensors are mounted before the catalysts.
- Two catalyst monitor oxygen sensors are mounted in the catalysts between the primary and secondary catalyst brick.



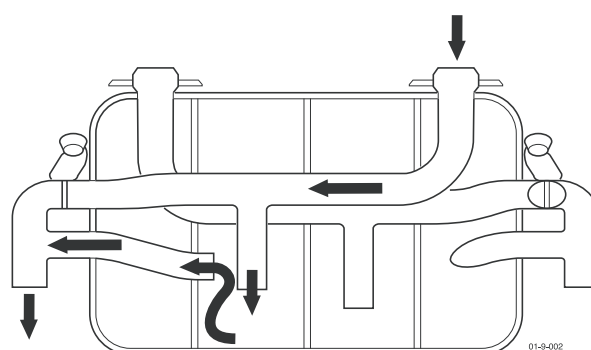
09-01-001

Exhaust (09.00)

Silencer Assembly (09.01)



Valves Open



Valves Closed

Variable Flow Silencer Assembly

The rear silencer assembly has a variable flow path controlled by two bypass valves.

The system is intended to enhance top end performance in motor sport applications and will not operate in most normal driving conditions.

By directing exhaust gasses through a modified path at high vehicle speeds, exhaust back pressure is reduced and top end performance is enhanced.

As engine speed increase from idle, the bypass valve is open until the engine speed is 1500 rpm.

From 1500 rpm to 3000 rpm, the valve is closed

Above 3000 rpm the bypass valves state is load dependent (fully open at higher loads).

Maintenance

LH Catalyst & Pipe Assembly-Renew

Repair Operation Time (ROT)	
Item	Code
LH Catalyst & Pipe Assembly-Renew	09.00.AB

Removal

1. Raise vehicle on ramp.
2. Remove rear exhaust silencer (refer to Workshop Manual procedure 09.00.KA Muffler & Bypass Valve Assembly - Remove for Access & Refit).
3. Disconnect multiplugs (x2), HEGO sensors.
4. Release sensor lead from clip on heatshield.
5. Secure sufficient lengths of string to HEGO sensor multiplugs for assembly purposes.
6. Loosen LH and RH clamp nuts, catalysts to centre pipe.
7. Remove nuts (x3), catalyst to exhaust manifold.
8. With assistance, manoeuvre exhaust centre pipe assembly rearwards to release from catalysts.
9. With assistance, release and support weight of LH catalyst from exhaust manifold.
10. Manoeuvre HEGO sensor leads and remove cable tie. Release HEGO sensor leads from behind heat shield. Secure cable tie. Remove string from HEGO multiplugs.
11. Remove catalyst assembly.
12. Remove and discard gasket.

13. Remove HEGO sensors (x2) from catalyst.

Installation

1. Clean catalyst, mating joint faces and HEGO sensors..
2. Install and tighten HEGO sensors (x2) to catalyst.
3. Apply proprietary exhaust sealant around pipe joints.
4. Install new gasket to exhaust manifold flange.
5. With assistance, position catalyst, secure string (x2) to HEGO multiplugs, feed sensor leads behind heat shield. Install catalyst to exhaust manifold.
6. Install and torque tighten nuts (x3), catalyst to exhaust manifold.
7. Align centre pipe assembly to catalyst, torque tighten clamp nuts.
8. Remove string (x2), connect multiplugs (x2), HEGO sensors.
9. Secure sensor lead in clip on heatshield.
10. Install rear exhaust silencer (refer to Workshop Manual procedure 09.00.KA Muffler & Bypass Valve Assembly - Remove for Access & Refit).
11. Lower vehicle on ramp.

RH Catalyst & Pipe Assembly-Renew

Repair Operation Time (ROT)	
Item	Code
RH Catalyst & Pipe Assembly-Renew	09.00.BB



Removal

1. Raise vehicle on ramp.
2. Remove rear exhaust silencer (refer to Workshop Manual procedure 09.00.KA Muffler & Bypass Valve Assembly - Remove for Access & Refit).
3. Disconnect multiplugs (x2), HEGO sensors.
4. Release sensor lead from clip on heatshield.
5. Secure sufficient lengths of string to HEGO sensor multiplugs for assembly purposes.
6. Loosen LH and RH clamp nuts, catalysts to centre pipe.
7. With assistance, manoeuvre exhaust centre pipe assembly rearwards to release from catalysts.
8. Remove nuts (x3), catalyst to exhaust manifold.
9. With assistance, release and support weight of RH catalyst from exhaust manifold.
10. Manoeuvre HEGO sensor leads and remove cable tie. Release HEGO sensor leads from behind heat shield. Remove string from HEGO multiplugs.
11. Remove catalyst assembly.
12. Remove and discard gasket.
13. Remove HEGO sensors (x2) from catalyst.

Installation

1. Clean catalyst, mating joint faces and HEGO sensors..
2. Install and tighten HEGO sensors (x2) to catalyst.
3. Apply proprietary exhaust sealant around pipe joints.
4. Install new gasket to exhaust manifold flange.
5. With assistance, position catalyst, secure string (x2) to HEGO multiplugs, feed sensor leads behind heat shield. Secure cable tie. Install catalyst to exhaust manifold.
6. Install and torque tighten nuts (x3), catalyst to exhaust manifold.
7. Align centre pipe assembly to catalyst, torque tighten clamp nuts.
8. Remove string (x2), connect multiplugs (x2), HEGO sensors.
9. Secure sensor lead in clip on heatshield.
10. Install rear exhaust silencer (refer to Workshop Manual procedure 09.00.KA Muffler & Bypass Valve Assembly - Remove for Access & Refit).
11. Lower vehicle on ramp.

LH Exhaust Manifold-Renew-Roadster Only

Repair Operation Time (ROT)	
Item	Code
LH Exhaust Manifold-Renew	09.00.CB

Removal

1. Disconnect vehicle battery.
2. Raise vehicle on ramp.

3. Remove heatshield deflector, front floor (refer to Workshop Manual procedure 09.04.AA Heatshield - Front Floor - Renew).
4. Remove LH front wheel arch liner (refer to Workshop Manual procedure 01.02.FB Wheel Arch Liner - Front - LH - Renew).
5. Remove nuts (x8), securing manifold to cylinder head.
6. Remove exhaust manifold, remove and discard gasket.

Installation

1. Clean manifold and mating face on engine. Install new gasket to engine.
2. Install manifold to engine.
3. Install nuts (x8) securing manifold to cylinder head (torque).
4. Install LH front wheel arch liner (refer to Workshop Manual procedure 01.02.FB Wheel Arch Liner - Front - LH - Renew).
5. Install heatshield deflector, front floor (refer to Workshop Manual procedure 09.04.AA Heatshield - Front Floor - Renew).
6. Lower vehicle on ramp.
7. Connect vehicle battery.

Heated Exhaust Gas Oxygen (HEGO) Sensor - Remove and Install

Repair Operation Time (ROT)	
Item	Code
Heated Exhaust Gas Oxygen (HEGO) Sensor - Remove and Install	09.00.DB

Removal

1. Raise the vehicle and make it safe.

WARNING
THE EXHAUST SYSTEM WILL BE VERY HOT AFTER OPERATION. LET THE EXHAUST COOL BEFORE YOU DO WORK. IF YOU DO NOT, PERSONAL INJURY CAN OCCUR.

2. Release the two electrical connectors for the Heated Exhaust Gas Oxygen (HEGO) sensor from the bracket.
3. Disconnect the two electrical connectors from the HEGO sensor.
4. Move the two wiring harnesses for the HEGO sensor away.
5. Remove the two bolts that attach the bracket to the engine.
6. Remove the bracket.
7. Remove the two bolts that attach the heat shield to the torque tube.
8. Move the heat shield away.

9. Release the two wiring harnesses for the HEGO sensor from the clip on the heat shield.

CAUTION

Turn the electrical harness for the HEGO sensor when you remove the sensor in the step that follows. If you do not, the harness can be damaged.

10. Release the HEGO sensor from the catalytic converter.
11. Install an applicable length of string to the wiring harness and the electrical connector for the HEGO sensor.
12. Use the string to put the wiring harness for the HEGO sensor behind the heat shield.
13. Release the string from the electrical connector for the HEGO sensor.
14. Remove the HEGO sensor.
15. Clean the component mating faces.

Install

1. Put the HEGO sensor into position.
2. Attach an applicable length of string to the wiring harness for the HEGO sensor.
3. Use the string to put the wiring harness for the HEGO sensor behind the heat shield.
4. Remove and discard the string.

CAUTION

Turn the electrical harness for the HEGO sensor when you remove the sensor in the step that follows. If you do not, the harness can be damaged.

5. Install the HEGO sensor into the catalytic converter.
6. Tighten the HEGO sensor.
7. Put the heat shield into position.
8. Install and tighten the two bolts that attach the heat shield to the torque tube.
9. Install the two wiring harnesses for the HEGO sensor into the clip on the heat shield.
10. Put the bracket into position.
11. Install and tighten the two bolts that attach the bracket to the engine.
12. Connect the two electrical connectors to the HEGO sensor.
13. Install the two electrical connectors for the HEGO sensor into the bracket.

Silencer and Bypass Valve Assembly- Remove for Access/Refit-Coupe Only

Repair Operation Time (ROT)	
Item	Code
Silencer and Bypass Valve Assembly- Remove for Access/Refit	09.00.KA

Removal

1. Raise vehicle on ramp.
2. Remove rear undertray (refer to Workshop Manual procedure 01.02.PB Undertray - Rear - Renew).

3. Remove Allen bolts (x4), bumper diffuser to mounting brackets. Remove diffuser, collect securing brackets.
4. Disconnect both by-pass valve vacuum lines.

WARNING

THE EXHAUST SYSTEM WILL BE VERY HOT AFTER OPERATION. LET THE EXHAUST COOL BEFORE YOU DO WORK. IF YOU DO NOT, PERSONAL INJURY CAN OCCUR.

5. Remove bolts (x4), rear exhaust pipes to silencer. Collect springs from bolts.
6. Remove bolts (x4), securing LH and RH silencer rear hanger brackets to body.
7. Remove bolts (x4), silencer front mountings to subframe.

WARNING

GET THE AID OF ONE MORE PERSON WHEN YOU REMOVE THE REAR EXHAUST SILENCER. THE SILENCER IS HEAVY.

8. Position suitable lifter to support weight of silencer. With assistance, remove silencer.
9. Remove both rear rubber mountings and hanger brackets from silencer.

Installation

1. Clean muffler and mating faces on rear pipes.

WARNING

GET THE AID OF ONE MORE PERSON WHEN YOU INSTALL THE REAR EXHAUST SILENCER. THE SILENCER IS HEAVY.

2. Position silencer on lifter. Install silencer, position rear hangers, install and torque tighten bolts (x4).
3. Position front mountings to subframe, install and torque tighten bolts (x4).
4. Align silencer to rear pipes, install springs (x4), install and torque tighten bolts (x4).

Ensure correct alignment of exhaust pipes and silencer before tightening of fixing clamps.

5. Check silencer to rear pipes for correct alignment and clearances.
6. Connect lines to both by-pass vacuum valves.
7. Position mounting brackets, install rear bumper diffuser. Install and tighten Allen bolts.
8. Install rear undertray (refer to Workshop Manual procedure 01.02.PB Undertray - Rear - Renew).
9. Lower vehicle on ramp.

Silencer and Bypass Valve Assembly- Remove for Access/Refit-Roadster Only

Repair Operation Time (ROT)	
Item	Code
Silencer and Bypass Valve Assembly- Remove for Access/Refit	09.00.KA

Removal

1. Raise vehicle on ramp.



2. Clean silencer and mating faces on rear pipes.
3. Remove Rear RH wheel arch liner (refer to Workshop Manual procedure 01.02.HB Wheel Arch Liner - Rear - RH - Renew).
4. Remove rear undertray (refer to Workshop Manual procedure 01.02.PB Undertray - Rear - Renew).
5. Apply a proprietary exhaust sealant around all clamp joints
6. Remove Allen bolts (x2), loosen Allen bolts (x2), bumper diffuser to mounting brackets and remove diffuser.
7. Position silencer on lifter.
8. Install silencer, position rear hangers to body, install and torque tighten bolts (x4).
9. Remove Rear LH wheel arch liner.
10. Disconnect both by-pass valve vacuum lines.
11. Remove Allen bolts (x2), loosen Allen bolts (x2), bumper diffuser to mounting brackets and Remove diffuser.
12. Position front mountings to subframe, install and torque tighten bolts (x4).
13. Loosen clamp nuts (x2), remove stub pipes (x2).
14. Disconnect both by-pass valve vacuum lines.
15. Align silencer to rear pipes, install springs onto bolts (x4), install and torque tighten bolts (x4).
16. Remove bolts (x4), rear exhaust pipes to silencer. Collect springs from bolts.
17. Loosen clamp nuts (x2), remove stub pipes (x2).
18. Install stub pipes (x2), centralise stub pipes to exhaust trim finisher. Torque tighten clamp nuts (x2).
19. Remove bolts (x4), securing LH and RH silencer rear hanger brackets to body.
20. Remove bolts (x4), rear exhaust pipes to silencer and collect springs from bolts.
21. Check silencer to rear pipes for correct alignment and clearances.
22. Remove bolts (x4), silencer front mountings to subframe.
23. Remove bolts (x4), securing LH and RH silencer rear hanger brackets to body.
24. Connect lines to both by-pass vacuum valves.
25. Position suitable lifter to support weight of silencer. With assistance, remove silencer.
26. Remove bolts (x4), silencer front mountings to subframe.
27. Install rear bumper diffuser and install and tighten Allen bolts (x4).
28. Install Rear RH wheel arch liner (refer to Workshop Manual procedure 01.02.HB Wheel Arch Liner - Rear - RH - Renew).

Installation

1. Position suitable lifter to support weight of silencer. With assistance, remove silencer.
2. Clean silencer and mating faces on rear pipes.
3. Install Rear LH wheel arch liner.
4. Apply a proprietary exhaust sealant around all clamp joints

5. Lower vehicle on ramp.
6. Position silencer on lifter. Install silencer, position rear hangers to body, install and torque tighten bolts (x4).
7. Position front mountings to subframe, install and torque tighten bolts (x4).
8. Align silencer to rear pipes, install springs onto bolts (x4), install and torque tighten bolts (x4).
9. Install stub pipes (x2), centralise stub pipes to exhaust trim finisher and torque tighten clamp nuts (x2).
10. Check silencer to rear pipes for correct alignment and clearances.
11. Connect lines to both by-pass vacuum valves.
12. Install rear bumper diffuser and install and tighten Allen bolts (x4).
13. Install rear undertray (refer to Workshop Manual procedure 01.02.PB Undertray - Rear - Renew).
14. Lower vehicle on ramp.

Silencer and Bypass Valve Assembly-Renew

Repair Operation Time (ROT)	
Item	Code
Silencer and Bypass Valve Assembly-Renew	09.00.KB

Removal

1. Raise vehicle on ramp.
2. **Coupe Only** - Remove rear undertray (refer to Workshop Manual procedure 01.02.PB Undertray - Rear - Renew).
3. **Roadster Only** - Remove RH rear wheel arch liner (refer to Workshop Manual procedure 01.02.HB Wheel Arch Liner - Rear - RH - Renew).
4. **Roadster Only** - Remove LH rear wheel arch liner.
5. Remove Allen bolts (x2), loosen Allen bolts (x2), securing bumper diffuser to mounting brackets. Remove diffuser.
6. Disconnect both by-pass valve vacuum lines.

WARNING
THE EXHAUST SYSTEM WILL BE VERY HOT AFTER OPERATION. LET THE EXHAUST COOL BEFORE YOU DO WORK. IF YOU DO NOT, PERSONAL INJURY CAN OCCUR.

7. Loosen clamp nuts (x2), remove stub pipes (x2).
8. Remove bolts (x4), rear exhaust pipes to silencer. Collect springs from bolts.
9. Remove bolts (x4), securing LH and RH silencer rear hanger brackets to body.
10. Remove bolts (x4), muffler front mountings to subframe. Remove mountings from silencer.

WARNING
GET THE AID OF ONE MORE PERSON WHEN YOU REMOVE THE REAR EXHAUST SILENCER. THE SILENCER IS HEAVY.

11. Position suitable lifter to support weight of silencer. With assistance, remove silencer.
12. Remove both rear rubber mountings and hanger brackets from silencer.

Installation

1. Clean silencer and mating faces on rear pipes and stub pipes.
2. Install both rear rubber mountings and hanger brackets to silencer.

WARNING
GET THE AID OF ONE MORE PERSON WHEN YOU
INSTALL THE REAR EXHAUST SILENCER.
THE SILENCER IS HEAVY.

3. Position silencer on lifter. Install silencer, position hangers, install and tighten bolts (x4).
4. Install front mountings to silencer, install and tighten bolts (x4).
5. Align silencer to rear pipes. Install springs (x4), and torque tighten bolts (x4).
6. Install and align stub pipes (x2) to silencer and trims in bumper. Align and tighten clamp bolts.
7. Check silencer to rear pipes for correct alignment and clearances.
8. Install stub pipes (x2), install clamps (x2), centralise stub pipes to exhaust trim finisher, torque tighten clamp nuts (x2).

Ensure correct alignment of exhaust pipes and silencer before tightening of fixing clamps.

9. Check silencer to rear pipes for correct alignment and clearances.
10. Connect lines to both by-pass vacuum valves.
11. Install rear bumper diffuser. Install and tighten Allen bolts (x4).
12. **Roadster Only** - Install RH rear wheel arch liner (refer to Workshop Manual procedure 01.02.HB Wheel Arch Liner - Rear - RH - Renew).
13. **Roadster Only** - Install LH rear wheel arch liner.
14. **Coupe Only** - Install rear undertray (refer to Workshop Manual procedure 01.02.PB Undertray - Rear - Renew).
15. Lower vehicle on ramp.

Exhaust Rear Silencer Mounting Rubber-Renew

Repair Operation Time (ROT)	
Item	Code
Exhaust Rear Silencer Mounting Rubber-Renew	09.00.LB

Removal

1. Raise vehicle on ramp.

2. Remove Allen bolts (x4), bumper diffuser to mounting brackets. Remove diffuser, collect mounting brackets.

WARNING
THE EXHAUST SYSTEM WILL BE VERY HOT AFTER
OPERATION. LET THE EXHAUST COOL BEFORE YOU
DO WORK. IF YOU DO NOT, PERSONAL INJURY CAN
OCCUR.

3. Remove bolts (x2), securing silencer rear hanger brackets to body.
4. Release/remove rubber mounting and hanger bracket from silencer bracket.
5. Remove rubber mounting from hanger bracket.

Installation

1. To aid assembly, apply liquid soap to rubber mounting.
2. Install rubber mounting on hanger bracket.
3. Install rubber mounting on muffler bracket.
4. Align hanger bracket to body, install and torque tighten bolts (x2).
5. Position mounting brackets, install bumper diffuser, install and torque tighten Allen bolts (x4).
6. Lower vehicle on ramp.

Exhaust System-Renew

Repair Operation Time (ROT)	
Item	Code
Exhaust System-Renew	09.00.MB

1. Disconnect vehicle battery.
2. Raise vehicle on ramp.

WARNING
THE EXHAUST SYSTEM WILL BE VERY HOT AFTER
OPERATION. LET THE EXHAUST COOL BEFORE YOU
DO WORK. IF YOU DO NOT, PERSONAL INJURY CAN
OCCUR.

3. Remove RH exhaust manifold.
4. Remove RH front wheel arch liner (refer to Workshop Manual procedure 01.02.GB Wheel Arch Liner - Front - RH - Renew).
5. Remove LH front wheel arch liner (refer to Workshop Manual procedure 01.02.FB Wheel Arch Liner - Front - LH - Renew).
6. Remove heatshield deflector, front floor (refer to Workshop Manual procedure 09.04.AA Heatshield - Front Floor - Renew).
7. Loosen EGR pipe in valve.
8. Remove (nuts x2) EGR pipe from manifold, discard gasket and tie aside.

9. Remove nut (x8) securing RH exhaust manifold to cylinder head (refer to Fig. 1).



Figure 1

10. Remove nut (x2) on RH engine mounting.
11. Raise engine by approximately 25mm.
12. Remove RH exhaust manifold from vehicle and discard gasket.
13. Remove heatshield from manifold (bolts x4)
14. Remove nuts (x8) securing LH exhaust manifold to cylinder head.
15. Remove exhaust manifold, remove and discard gasket.

Installation

1. Clean LH exhaust manifold and mating face on cylinder head. Install new manifold gasket.
2. Install LH exhaust manifold to cylinder head.
3. Install and torque tighten nuts (x8) securing exhaust manifold to cylinder head.
4. Clean exhaust manifold and mating face on engine. Install new gasket to engine.
5. Install heatshield to manifold (bolts x4)
6. Install RH exhaust manifold to cylinder head.
7. Install nut (x8) securing manifold to cylinder head (torque).
8. Lower engine.
9. Install nuts (x2) on engine mounts (torque).
10. Install (nuts x2) EGR pipe from manifold, clean mating face and fit new gasket (torque).
11. Install heatshield deflector, front floor (refer to Workshop Manual procedure 09.04.AA Heatshield - Front Floor - Renew).
12. Tighten EGR pipe in valve (torque).
13. Install RH front wheel arch liner (refer to Workshop Manual procedure 01.02.GB Wheel Arch Liner - Front - RH - Renew)
14. Install LH wheel arch liner (refer to Workshop Manual procedure 01.02.FB Wheel Arch Liner - Front - LH - Renew).
15. Lower vehicle on ramp.

16. Connect vehicle battery.

Exhaust System (Excluding Manifold/Downpipes)-Renew

Repair Operation Time (ROT)	
Item	Code
Exhaust System (Excluding Manifold/Downpipes)-Renew	09.00.NB

Removal

1. Raise vehicle on ramp.
2. Remove undertrays - vehicle set (refer to Workshop Manual procedure 01.02.PD Undertrays - Vehicle Set - Renew).
3. Remove Allen bolts(x4), bumper diffuser to mounting brackets. Remove diffuser
4. Disconnect both by-pass valve vacuum lines.

WARNING
TO AVOID PERSONAL INJURY, I.E. SEVERE BURNS TO THE SKIN, ALLOW EXHAUST SYSTEM TO COOL DOWN BEFORE REMOVING EXHAUST SYSTEM COMPONENTS.

5. Remove bolts (x4), securing LH and RH silencer rear hanger brackets to body. Remove hanger brackets.
6. Remove bolts (x4), rear exhaust pipes to silencer. Collect springs from bolts
7. Remove bolts (x4), silencer front mountings to subframe. Remove mountings from silencer.

WARNING
GET THE AID OF ONE MORE PERSON WHEN YOU REMOVE THE REAR EXHAUST SILENCER. THE SILENCER IS HEAVY.

8. Position suitable lifter to support weight of silencer. with assistance, remove silencer.
9. Mark rear stub pipes to silencer for assembly purposes.
10. Loosen clamps (x2), rear stub pipes to silencer. Remove stub pipes and clamps.
11. Remove bolts (x4), remove rear subframe cross brace.
12. Loosen clamps (x2), release RH and LH rear pipes from centre pipe.
13. Remove rear pipes through subframe.
14. Loosen clamps (x2), centre pipe to LH and RH catalysts.
15. **Coupe Only** - Release centre pipe from mountings, LH and RH catalysts, remove centre pipe.
16. **Roadster Only** - Remove centre exhaust mounting bolts (x4).
17. Release LH and RH catalysts, remove centre pipe.
18. Disconnect multiplugs (x4), from each catalyst.

Attach lengths of string to the HEGO sensor multiplugs. This enables routing the HEGO sensor harness behind the exhaust heat shield on assembly.

19. **Coupe Only** - Secure sufficient lengths of string to HEGO sensor multiplugs for assembly purposes.

20. **Coupe Only** - Remove cable ties (x2) from LH and RH HEGO sensor harnesses.
21. Remove nuts (x6), securing each catalyst to exhaust manifolds.
22. With assistance, remove catalysts (x2), release HEGO sensor harnesses from behind heat shield.
23. **Coupe Only** - Remove string from multiplugs.
24. Discard gaskets (x2) from exhaust manifolds.
25. **Coupe Only** - Remove bolts (x11), heatshields to centre, LH and RH rear pipes. Remove heatshields.
20. Working from front to rear, set all exhaust to body clearances.
21. Tighten all exhaust fixings to the correct torque.
22. Install subframe cross brace, install and torque tighten bolts (x4).
23. Position mounting brackets, install rear bumper diffuser. Install and tighten Allen bolts.
24. Install undertrays - vehicle set (refer to Workshop Manual procedure 01.02.PD Undertrays - Vehicle Set - Renew).
25. Lower vehicle on ramp.

Installation

1. Clean heatshields.
2. **Coupe Only** - Position heatshields to centre, LH and RH rear pipes. Install and tighten bolts.
3. Install new flange gaskets to exhaust manifolds.

Attach lengths of string to the HEGO sensor multiplugs. This enables routing the HEGO sensor harness behind the exhaust heat shield on assembly.

4. With assistance, install both catalysts, install and torque tighten nuts (x6).
5. **Roadster Only** - Install bolts (x4) and nuts (x2) to catalyst heatshield.
6. **Coupe Only** - Feed HEGO sensor harnesses behind heat shield, secure harnesses with cable ties.
7. Apply exhaust sealant to centre pipe, install centre pipe to catalysts and centre mounting. Do not torque clamp nuts at this stage.
8. **Roadster Only** - Install centre exhaust mounting bolts (x4).
9. Apply exhaust sealant to LH and RH rear pipes.
10. Install LH and RH rear pipes to centre pipe. Do not torque clamp nuts at this stage.
11. Install both rear rubber mountings and hanger brackets to silencer.

WARNING
GET THE AID OF ONE MORE PERSON WHEN YOU
INSTALL THE REAR EXHAUST SILENCER.
THE SILENCER IS HEAVY.

12. Position silencer on lifter. Install silencer, position hangers, install and tighten bolts (x4).
13. Install front mountings to silencer, install and tighten bolts (x4).
14. Align silencer to rear pipes, install springs (x4) and bolts (x4). Do not torque bolts at this stage.
15. Install and align stub pipes (x2) to silencer and to trims in bumper.
16. Align clamps, do not torque tighten.
17. Connect lines to both by-pass vacuum valves.
18. **Coupe Only** - Remove string from multiplugs.
19. Connect multiplugs to HEGO sensors.

Ensure correct alignment of exhaust pipes and silencer before tightening of fixing clamps.



ASTON MARTIN

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Exhaust System (09.00)

Pipes and Supports (09.03)

Specifications

Torque Figures

Description	Nm	lb. / ft.
Catalyst (nuts / bolts)	25.5-34.5	19-25.5
Catalyst (clamps)	19-22	14.5-16.5
Centre pipe to rear pipe (clamp)	39-51	29-38
Rear Pipe to Silencer (bolt)	28-33	21-24.5

Maintenance

RH/LH Catalyst and Pipe Assembly-Renew

Repair Operation Time (ROT)		
Item		Code
Catalyst and Pipe Assembly-Renew	RH	09.00.BB
Catalyst and Pipe Assembly-Renew	LH	09.00.AB

Removal

1. Raise vehicle on ramp.

WARNING
TO AVOID PERSONAL INJURY, I.E. SEVERE BURNS TO THE SKIN, ALLOW EXHAUST SYSTEM TO COOL DOWN BEFORE REMOVING EXHAUST SYSTEM COMPONENTS.

2. Remove rear exhaust silencer (refer to Workshop Manual procedure 09.00.KA Silencer and Bypass Valve Assembly - Remove for Access and Refit).
3. Disconnect multiplugs (x2), HEGO sensors.
4. Release sensor lead from clip on heatshield.

Attach lengths of string to the HEGO sensor multiplugs. This enables routing the HEGO sensor harness behind the exhaust heat shield on assembly.

5. Secure sufficient lengths of string to HEGO sensor multiplugs for assembly purposes.
6. Loosen LH and RH clamp nuts, catalysts to centre pipe.
7. Remove nuts (x3), catalyst to exhaust manifold.
8. With assistance, manoeuvre exhaust centre pipe assembly rearwards to release from catalysts.
9. With assistance, release and support weight of LH/RH catalyst from exhaust manifold.
10. Manoeuvre HEGO sensor leads and remove cable tie. Release HEGO sensor leads from behind heat shield. Remove string from HEGO multiplugs.
11. Remove catalyst assembly.
12. Remove and discard gasket.
13. Remove HEGO sensors (x2) from catalyst.

Installation

1. Clean catalyst, mating joint faces and HEGO sensors.
2. Install and tighten HEGO sensors (x2) to catalyst.

3. Install new gasket to exhaust manifold flange.

Attach lengths of string to the HEGO sensor multiplugs. This enables routing the HEGO sensor harness behind the exhaust heat shield on assembly.

4. With assistance, position catalyst, secure string (x2) to HEGO multiplugs, feed sensor leads behind heat shield. Install catalyst to exhaust manifold.
5. Install and torque tighten nuts (x3), catalyst to exhaust manifold.
6. Align centre pipe assembly to catalyst, torque tighten clamp nuts.
7. Remove string (x2), connect multiplugs (x2), HEGO sensors.
8. Secure sensor lead in clip on heatshield.
9. Install rear exhaust silencer (refer to Workshop Manual procedure 09.00.KA Silencer and Bypass Valve Assembly - Remove for Access and Refit).
10. Lower vehicle on ramp.

Exhaust Centre Pipe-Renew

Repair Operation Time (ROT)	
Item	Code
Exhaust Centre Pipe-Renew	09.00.BC

Removal

1. Raise vehicle on ramp.

WARNING
TO AVOID PERSONAL INJURY, I.E. SEVERE BURNS TO THE SKIN, ALLOW EXHAUST SYSTEM TO COOL DOWN BEFORE REMOVING EXHAUST SYSTEM COMPONENTS.

2. Remove pipe assembly exhaust rear - RH (refer to Workshop Manual procedure 09.00. Pipe Assembly - Exhaust - Rear - RH - Renew).
3. Remove pipe assembly exhaust rear - LH (refer to Workshop Manual procedure 09.00.JB Pipe Assembly - Exhaust - Rear - LH - Renew).
4. Loosen clamp nuts (x2), centre pipe to LH and RH catalysts.
5. Release centre pipe from mountings, LH and RH catalysts, remove centre pipe.
6. Remove bolts (x3), heatshield to centre pipe, remove heatshield.
7. Remove Torx screws (x4), mounting bracket to centre pipe, remove bracket.

Installation

1. Use a proprietary exhaust sealant around all pipe joints prior to installation of exhaust system.
2. Install mounting bracket to centre pipe, install and tighten Torx screws (x4).
3. Install heatshield to centre pipe, install and tighten bolts (x3).
4. Apply exhaust sealant to centre pipe joints.

5. Install centre pipe to both catalysts and centre mountings. Do not torque clamp nuts at this stage.
6. Install pipe assembly exhaust rear - LH (refer to Workshop Manual procedure 09.00.JB Pipe Assembly - Exhaust - Rear - LH - Renew).
7. Install pipe assembly exhaust rear - RH (refer to Workshop Manual procedure 09.00.HB Pipe Assembly - Exhaust - Rear - RH - Renew).
8. Align and torque tighten exhaust system nuts/bolts.
9. Lower vehicle on ramp.

RH Exhaust Manifold-Renew

Repair Operation Time (ROT)		
Item	Code	
Exhaust Manifold-Renew	RH	09.00.CA

Removal

1. Disconnect vehicle battery.
2. Raise vehicle on ramp.
3. Remove RH front wheel arch liner (refer to Workshop Manual procedure 01.02.GB Wheel Arch Liner - Front - RH - Renew).

WARNING
TO AVOID PERSONAL INJURY, I.E. SEVERE BURNS TO THE SKIN, ALLOW EXHAUST SYSTEM TO COOL DOWN BEFORE REMOVING EXHAUST SYSTEM COMPONENTS.

4. Loosen EGR pipe in valve.
5. Remove heatshield deflector, front floor (refer to Workshop Manual procedure 09.04.AA Heatshield - Front Floor - Renew).
6. Remove (nuts x2) EGR pipe from manifold, discard gasket and tie aside.
7. Remove nut (x8) securing manifold to cylinder head (refer to Fig. 1).



Fig. 1

8. Remove nut (x2) on engine mountings.
9. Raise engine by approximately 25mm.

10. Remove exhaust manifold from vehicle and discard gasket.
11. Remove heatshield from manifold (bolts x4)

Installation

1. Clean exhaust manifold and mating face on engine. Install new gasket to engine.
2. Install heatshield to manifold (bolts x4)
3. Install manifold to engine.
4. Install nut (x8) securing manifold to cylinder head.
5. Lower engine.
6. Install nuts (x2) on engine mounts.
7. Install (nuts x2) EGR pipe from manifold, clean mating face and fit new gasket (torque).
8. Install heatshield deflector, front floor (refer to Workshop Manual procedure 09.04.AA Heatshield - Front Floor - Renew).
9. Tighten EGR pipe in valve (torque).
10. Install RH front wheel arch liner (refer to Workshop Manual procedure 01.02.GB Wheel Arch Liner - Front - RH - Renew).
11. Lower vehicle on ramp.
12. Connect vehicle battery.

LH Exhaust Manifold-Renew

Repair Operation Time (ROT)		
Item	Code	
Exhaust Manifold-Renew	LH	09.00.CB

Removal

1. Disconnect vehicle battery.
2. Raise vehicle on ramp.

WARNING
TO AVOID PERSONAL INJURY, I.E. SEVERE BURNS TO THE SKIN, ALLOW EXHAUST SYSTEM TO COOL DOWN BEFORE REMOVING EXHAUST SYSTEM COMPONENTS.

3. Remove heatshield deflector, front floor (refer to Workshop Manual procedure 09.04.AA Heatshield - Front Floor - Renew).
4. Remove LH front wheel arch liner (refer to Workshop Manual procedure 01.02.FB Wheel Arch Liner - Front - LH - Renew).

- Remove nuts (x8), securing manifold to cinder head (refer to Fig. 1).



Fig. 1

- Remove exhaust manifold, remove and discard gasket.

Installation

- Clean manifold and mating face on engine and install new gasket to engine.
- Install manifold to engine.
- Install nuts (x8) securing manifold to cylinder head.
- Install LH front wheel arch liner (refer to Workshop Manual procedure 01.02.FB Wheel Arch Liner - Front - LH - Renew).
- Install heatshield deflector, front floor (refer to Workshop Manual procedure 09.04.AA Heatshield - Front Floor - Renew).
- Lower vehicle on ramp.
- Connect vehicle battery.

RH Exhaust Manifold Gasket-Renew

Repair Operation Time (ROT)		
Item	Code	
Exhaust Manifold Gasket-Renew	RH	09.00.CC

Removal

- Remove wheel arch liner (refer to Workshop Manual procedure 01.02.GB Wheel Arch Liner - Front - RH - Renew).

WARNING
TO AVOID PERSONAL INJURY, I.E. SEVERE BURNS TO THE SKIN, ALLOW EXHAUST SYSTEM TO COOL DOWN BEFORE REMOVING EXHAUST SYSTEM COMPONENTS.

- Loosen EGR pipe in valve.
- Remove heatshield deflector, front floor (refer to Workshop Manual procedure 09.04.AA Heatshield - Front Floor - Renew).
- Remove nuts (x2), EGR pipe to manifold, discard gasket and tie EGR pipe aside.

- Remove nut (x8) securing exhaust manifold to cylinder head.
- Remove nuts (x2) on engine mountings.
- Raise engine by approximately 25mm. (care to be taken as inlet manifold can foul).
- Remove exhaust manifold from vehicle and discard gasket.

Installation

- Install new gasket to engine, clean mating face on engine.
- Install manifold to engine.
- Install nut (x8) securing manifold to cylinder head (torque).
- Lower engine.
- Install nuts (x2) on engine mounts (torque).
- Install (nuts x2) EGR pipe from manifold, clean mating face and fit new gasket (torque).
- Install heatshield deflector, front floor (refer to Workshop Manual procedure 09.04.AA Heatshield - Front Floor - Renew).
- Tighten EGR pipe in valve (torque).
- Install wheel arch liner (refer to Workshop Manual procedure 01.02.GB Wheel Arch Liner - Front - RH - Renew).

LH Exhaust Manifold Gasket-Renew

Repair Operation Time (ROT)		
Item	Code	
Exhaust Manifold Gasket-Renew	RH	09.00.CD

Removal

WARNING
TO AVOID PERSONAL INJURY, I.E. SEVERE BURNS TO THE SKIN, ALLOW EXHAUST SYSTEM TO COOL DOWN BEFORE REMOVING EXHAUST SYSTEM COMPONENTS.

- Remove heatshield deflector, front floor (refer to Workshop Manual procedure 09.04.AA Heatshield - Front Floor - Renew).
- Remove LH wheel arch liner (refer to Workshop Manual procedure 01.02.FB Wheel Arch Liner - Front - LH - Renew).
- Remove nut (x8) securing manifold to cylinder head.
- Remove manifold from vehicle and discard gasket.

Installation

- Install new gasket to engine, clean mating face on engine.
- Install manifold to engine.
- Install nut (x8) securing manifold to cylinder head (torque).
- Install LH wheel arch liner (refer to Workshop Manual procedure 01.02.FB Wheel Arch Liner - Front - LH - Renew).

5. Install heatshield deflector, front floor (refer to Workshop Manual procedure 09.04.AA Heatshield - Front Floor - Renew).

Exhaust Gas Temperature Sensor-Renew

Repair Operation Time (ROT)	
Item	Code
Exhaust Gas Temperature Sensor-Renew	09.00.DA

Removal

1. Raise vehicle on ramp.

WARNING
TO AVOID PERSONAL INJURY, I.E. SEVERE BURNS TO THE SKIN, ALLOW EXHAUST SYSTEM TO COOL DOWN BEFORE REMOVING EXHAUST SYSTEM COMPONENTS.

2. Remove rear exhaust silencer (refer to Workshop Manual procedure 09.00.KA Silencer and Bypass Valve Assembly - Remove for Access and Refit).
3. Disconnect sensor multiplugs (x2).
4. Release sensor leads from clips (x2) on heatshield.

Attach lengths of string to the HEGO sensor multiplugs. This enables routing the HEGO sensor harness behind the exhaust heat shield on assembly.

5. Secure sufficient lengths of string to sensor multiplugs for assembly purposes.
6. Loosen rear LH and RH clamp nuts, catalysts to centre pipe.
7. Remove nuts (x3), catalyst to exhaust manifold.
8. With assistance, manoeuvre exhaust centre pipe assembly rearwards to release from catalysts.
9. With assistance, release and support weight of LH catalyst from exhaust manifold.
10. Manoeuvre sensor leads and remove cable tie. Release sensor leads from behind heat shield. Secure cable tie. Remove string from multiplugs.
11. Remove catalyst assembly.
12. Remove and discard gasket.
13. Remove sensor from catalyst.

Installation

1. Clean catalyst mating joint faces.
2. Install and tighten sensor (x2) (torque).
3. Apply proprietary exhaust sealant around pipe joints.
4. Install new gasket to exhaust manifold flange.

Attach lengths of string to the HEGO sensor multiplugs. This enables routing the HEGO sensor harness behind the exhaust heat shield on assembly.

5. With assistance, position catalyst, secure string (x2) to multiplugs, feed sensor leads behind heat shield. Install catalyst to exhaust manifold.
6. Install and torque tighten nuts (x3), catalyst to exhaust manifold.

7. Align centre pipe assembly to catalyst, torque tighten clamp nuts.
8. Remove string (x2), connect multiplugs (x2), sensors.
9. Secure sensor leads in clips on heatshield.
10. Install rear exhaust silencer (refer to Workshop Manual procedure 09.00.KA Silencer and Bypass Valve Assembly - Remove for Access and Refit).
11. Lower vehicle on ramp.

RH/LH Rear Exhaust Pipe Assembly-Renew

Repair Operation Time (ROT)	
Item	Code
Rear Exhaust Pipe Assembly-Renew	RH 09.00.HB
Rear Exhaust Pipe Assembly-Renew	LH 09.00.JB

Removal

1. Raise vehicle on ramp.
2. Remove rear undertray.

WARNING
TO AVOID PERSONAL INJURY, I.E. SEVERE BURNS TO THE SKIN, ALLOW EXHAUST SYSTEM TO COOL DOWN BEFORE REMOVING EXHAUST SYSTEM COMPONENTS.

3. Remove rear silencer assembly (refer to Workshop Manual procedure 09.00.KA Silencer and Bypass Valve Assembly - Remove for Access and Refit).
4. Remove bolts (x4), cross brace.
5. Loosen clamp nut, release/remove rear intermediate pipe from centre pipe.
6. Remove rear intermediate pipe through subframe.
7. Remove bolts (x4), heat shields (x2).
8. Remove clamp nut, bolt and washers (x2) from rear intermediate pipe.

Installation

1. Clean rear intermediate pipe and mating faces on centre pipe.
2. Install clamp bolt, washers and nut.
3. Position heat shields (x2), install and torque bolts (x4).
4. Apply a proprietary exhaust sealant to clamp joint.
5. Install rear intermediate pipe to centre pipe.
6. Align rear intermediate pipe to silencer.
7. Install rear silencer assembly (refer to Workshop Manual procedure 09.00.KA Silencer and Bypass Valve Assembly - Remove for Access and Refit).
8. Torque tighten clamp nut.
9. Install cross brace, install and torque tighten bolts (x4).
10. Install rear undertray.
11. Lower vehicle on ramp.



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