

CHAPTER FOUR

ENGINE TOP END

This chapter provides information for removal, inspection and installation of the engine top end components. These include the exhaust system, cylinder head, valves, cylinder, piston, piston rings and camshaft.

Tables 1-5 are located at the end of this chapter.

EXHAUST SYSTEM

Removal/Installation

Refer to **Figure 1** or **Figure 2**.

WARNING

Do not remove the exhaust pipe(s) or muffler while they are hot.

1. Remove the heat shield (**Figure 3**).
2. Loosen the muffler clamp bolt (**Figure 4**).
3. While supporting the muffler, remove the muffler mounting bolts (A, **Figure 5**). Then remove the muffler (B, **Figure 5**).
- 4A. On 2006-2014 models, perform the following:
 - a. Loosen the left exhaust pipe clamp bolt (A, **Figure 6**).
 - b. Remove the left exhaust pipe retaining nuts (B, **Figure 6**). Then remove the left exhaust pipe (C, **Figure 6**).
 - c. Remove the right exhaust pipe retaining nuts (D, **Figure 6**). Then remove the right exhaust pipe (E, **Figure 6**).
- 4B. On 2015-on models, remove the exhaust pipe retaining nuts. Then remove the exhaust pipe.
5. Reverse the removal steps to install the exhaust system while noting the following:
 - a. Apply threadlock to the heat shield mounting bolts and tighten to 8 N•m (71 in.-lb.).
 - b. Install a new gasket (**Figure 7**) to the exhaust port(s).
 - c. Install all of the exhaust pipe nuts and finger-tighten them to hold the pipe(s) in place against the cylinder head. Then tighten the nuts to 20 N•m (14 ft.-lb.).
 - d. Install a new gasket (**Figure 8**) into the muffler pipe, and on 2006-2014 models, the right exhaust pipe, so the chamfered end faces out. Push the gasket so it is recessed 1.0-1.5 mm (0.04-0.06 in.) in from the end of the pipe.
 - e. Tighten the exhaust pipe clamp bolt (A, **Figure 6**) 16 N•m (12 ft.-lb.).
 - f. Tighten the muffler mounting bolt to 38 N•m (28 ft.-lb.).
 - g. Make sure the tab on the clamp (**Figure 4**) engages the slot in the muffler pipe.
 - h. Tighten the muffler clamp bolt (**Figure 4**) 18 N•m (13 ft.-lb.).

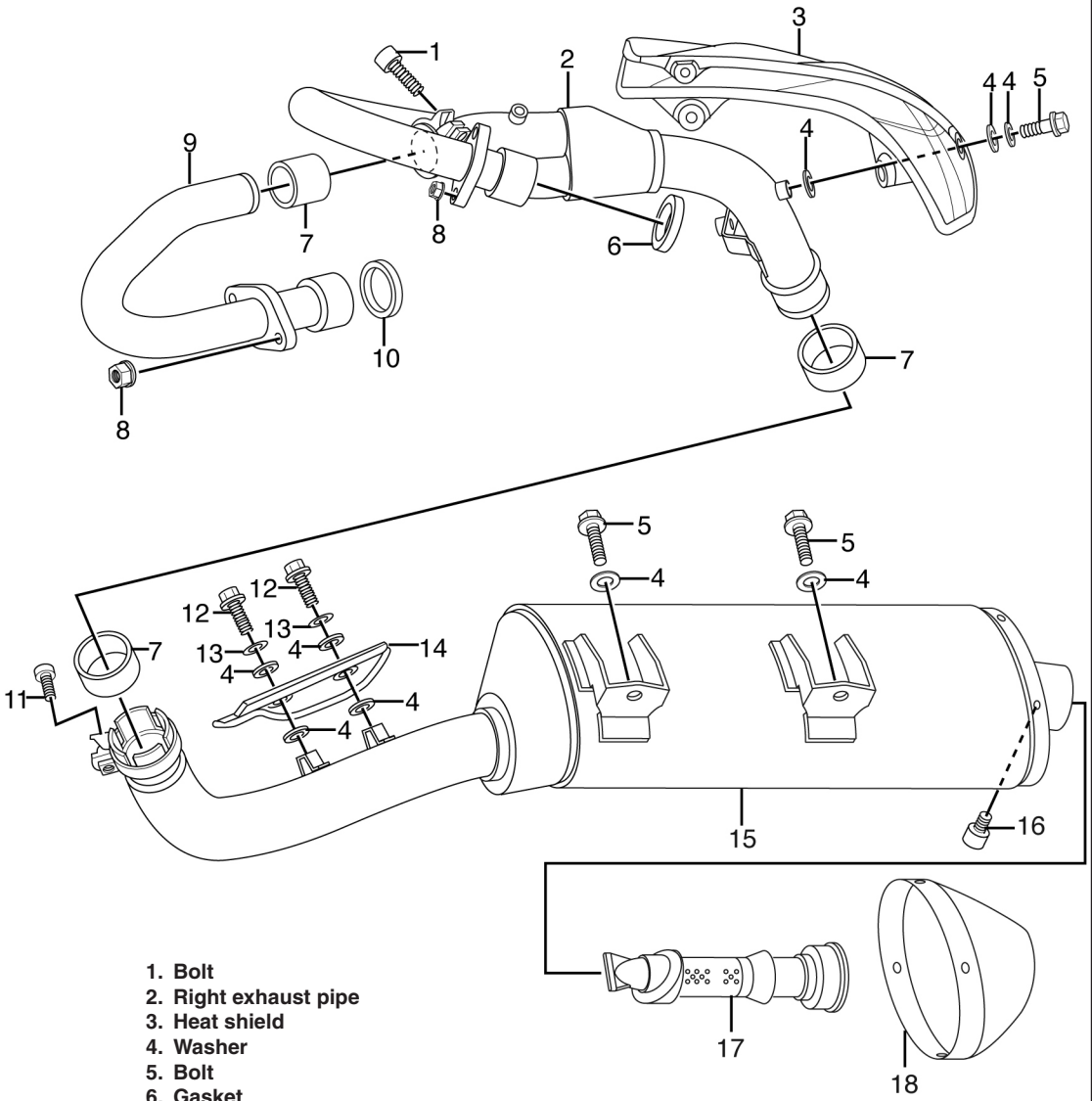
AIR INDUCTION SYSTEM (2015-ON MODELS)

Air Injection

The air induction system burns the unburned exhaust gases by injecting fresh secondary air, from the air filter case, through the air cut-off valve, through the cylinder head reed valve and into the exhaust port, thus reducing the hydrocarbon emissions (**Figure 9**).

1

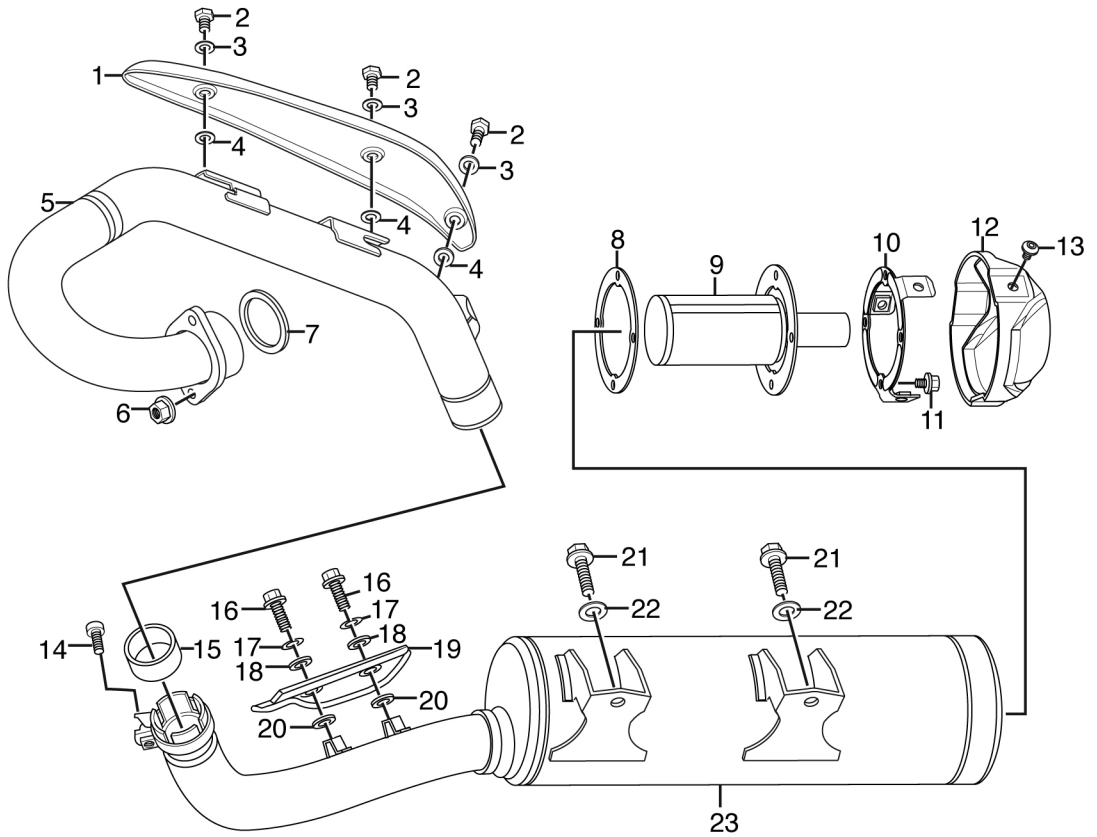
EXHAUST SYSTEM (2006-2014 MODELS)



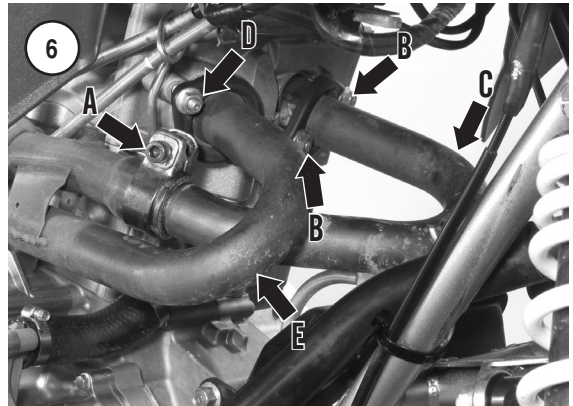
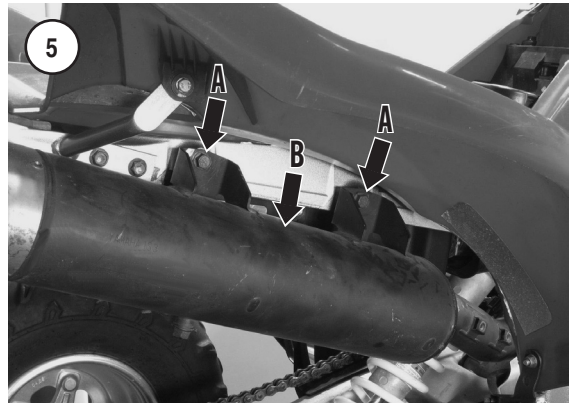
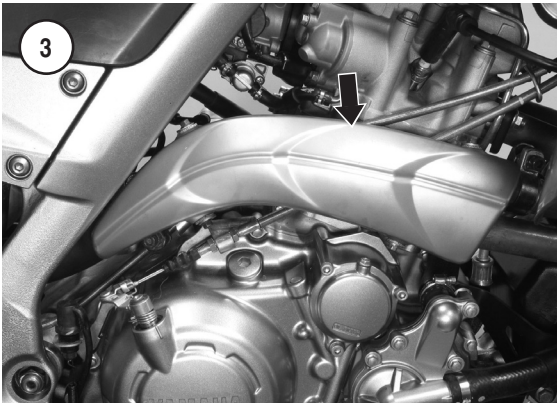
- 1. Bolt
- 2. Right exhaust pipe
- 3. Heat shield
- 4. Washer
- 5. Bolt
- 6. Gasket
- 7. Gasket
- 8. Nut
- 9. Left exhaust pipe
- 10. Gasket
- 11. Bolt
- 12. Bolt
- 13. Washer
- 14. Heat shield
- 15. Muffler
- 16. Bolt
- 17. Outlet pipe
- 18. Trim cap

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EXHAUST SYSTEM (2015-ON MODELS)



- 1. Heat shield
- 2. Bolt
- 3. Washer
- 4. Washer
- 5. Exhaust pipe
- 6. Nut
- 7. Gasket
- 8. Gasket
- 9. Spark arrester
- 10. Plate
- 11. Screw
- 12. Trim cap
- 13. Screw
- 14. Bolt
- 15. Gasket
- 16. Bolt
- 17. Washer
- 18. Washer
- 19. Heat shield
- 20. Washer
- 21. Flange bolt
- 22. Muffler

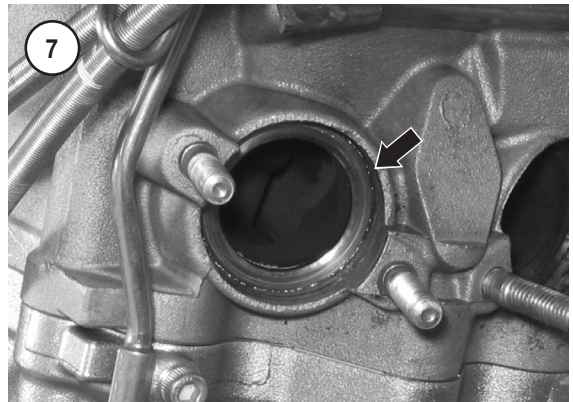


When there is a negative pressure at the exhaust port, the reed valve opens, allowing the secondary air to flow into the exhaust port.

Air Cut-off Valve

The air cut-off valve (**Figure 10**) is controlled by the ECU relating to exhaust combustion conditions. The air cut-off valve usually remains open to allow air to flow during idle and then closes off the air flow when the ATV is being driven.

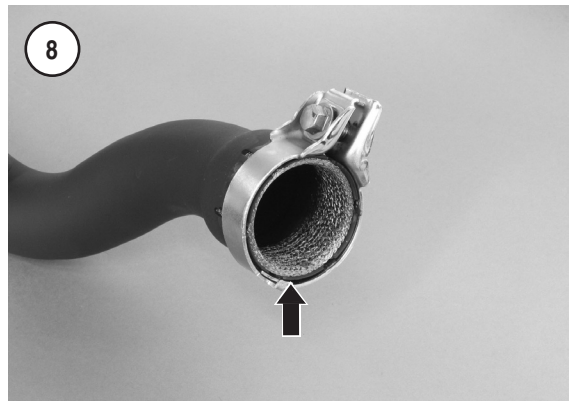
If the coolant temperature is below the specified degree, the air cut-of valve will remain open and allow air to flow into the exhaust pipe until the coolant temperature reaches a higher degree.



Testing

Intake air temperature sensor

1. Remove the seat as described in Chapter Fifteen.
2. Remove the fuel tank as described in Chapter Eight.



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