



INSTRUCTION BULLETIN

No. 9014163
Machine: M20 / M30
/ T20 / S30
Published: 10-2015
Rev. 00

NOTE: DO NOT DISCARD the Parts List from the Instruction Bulletin. Place the Parts List in the appropriate place in the machine manual for future reference. Retaining the Parts List will make it easier to reorder individual parts and will save the cost of ordering an entire kit.

NOTE: Numbers in parenthesis () are reference numbers for parts listed in Bill of Materials.

Installation instructions for **kit number 9014162**

SYNOPSIS:

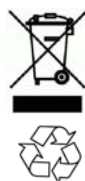
This kit contains the parts needed to replace the cylinder head cover on M20 / M30 / T20 / S30 machines equipped with Mitsubishi LP / Gas engines.
Please follow step-by-step instructions.

SPECIAL TOOLS / CONSIDERATIONS: NONE

(Estimated time to complete: 10 hours - M20 / M30 / T20 and 8 hours - S30)

*NOTE: Order / install spark plugs (4) when replacing the spark plugs on machines updated with this cylinder head kit. **Do Not** use spark plugs previously used before the machine was updated with this kit.*

NOTE: Refer to the Mitsubishi 2.0L & 2.4L Service Manual for additional more detailed information pertaining to replacing the cylinder head assembly and adjusting the timing belt.



PROTECT THE ENVIRONMENT

Please dispose of packaging materials, used machine components such as batteries and fluids in an environmentally safe way according to local waste disposal regulations.

Always remember to recycle.

PREPARATION:

FOR SAFETY: When servicing machine, all repairs must be performed by a trained service mechanic.

FOR SAFETY: Before leaving or servicing machine, stop on level surface, turn off machine, set parking brake, and remove key.

1. Disconnect the battery cables from the battery.



WARNING: Always disconnect battery cables from machine before working on electrical components.

2. **All Machines:** Empty the antifreeze from the coolant system. Discard the emptied antifreeze.
3. **All Machines:** Disconnect the spark plug cables from the spark plugs and remove spark plugs from the engine. Discard the removed spark plugs.

4. **M20 / M30 / T20:** Remove the engine access panel from the operator compartment. Set the access panel and hardware aside. (Fig. 1)

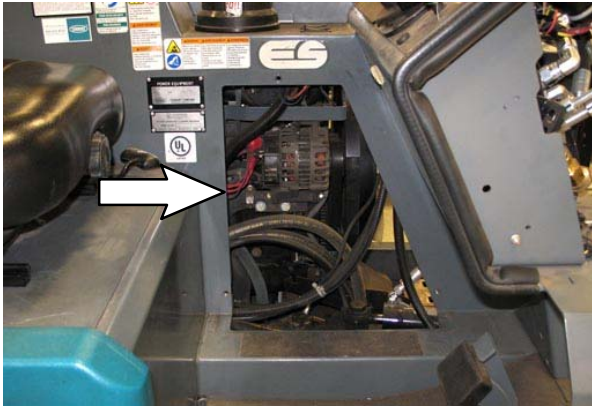


FIG. 1

5. **M20 / M30 / T20:** Remove all radiator group parts and hoses necessary to access / remove the cylinder head cover / head from the engine. Set all removed parts and hardware aside. (Fig. 2 / Fig. 3)

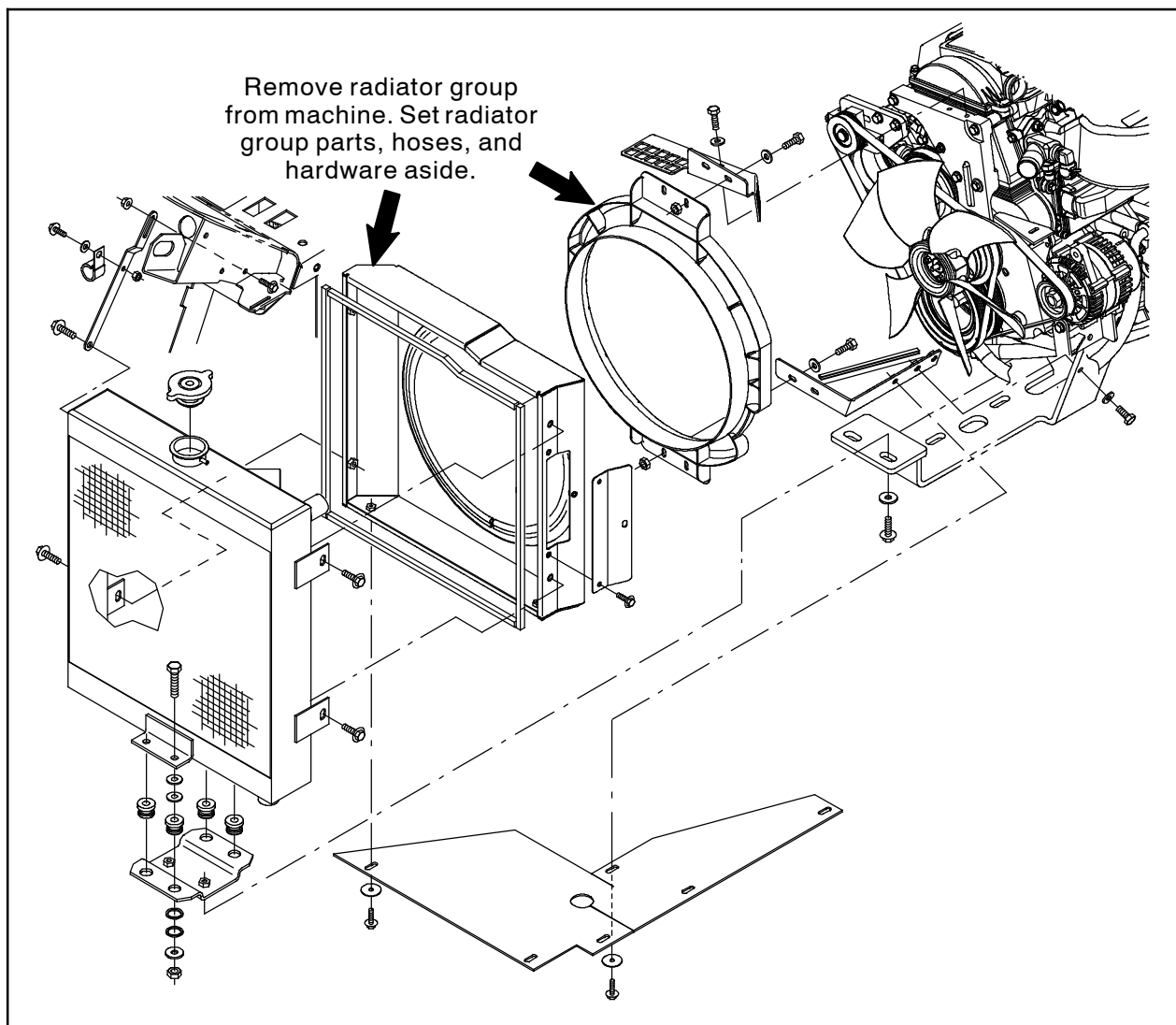


FIG. 2 - M20 / M30 / T20

Disconnect remove hoses from radiator and engine. Set removed hoses and clamps aside.

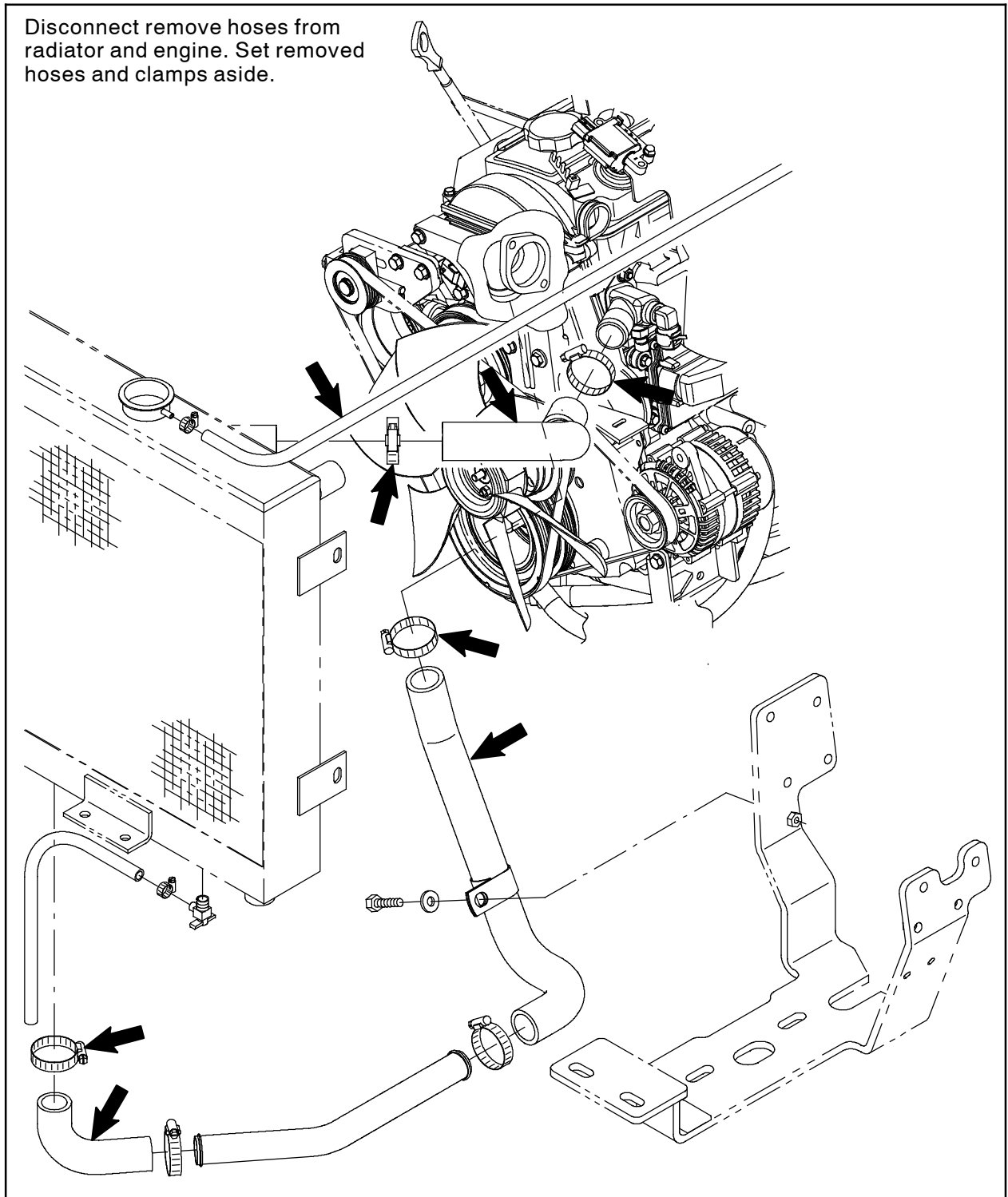


FIG. 3 - M20 / M30 / T20

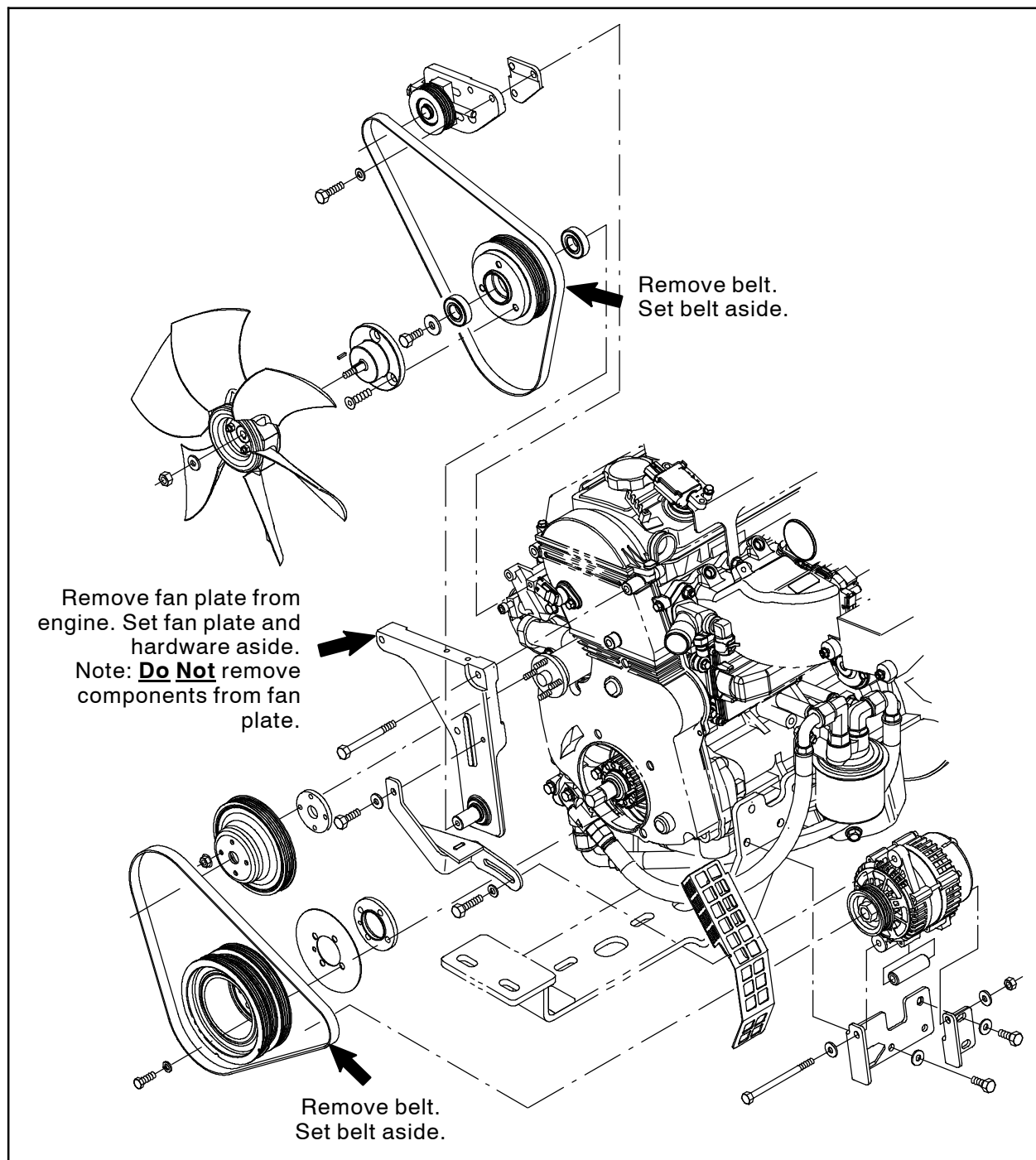


FIG. 4 - M20 / M30 / T20

6. **M20 / M30 / T20:** Remove all cooling fan group parts necessary to access / remove the cylinder head cover from the engine. Set all removed parts aside. (Fig. 4)
7. **M20 / M30 / T20:** Remove any remaining parts and components necessary to remove the cylinder head cover from the engine. Set all removed parts aside.

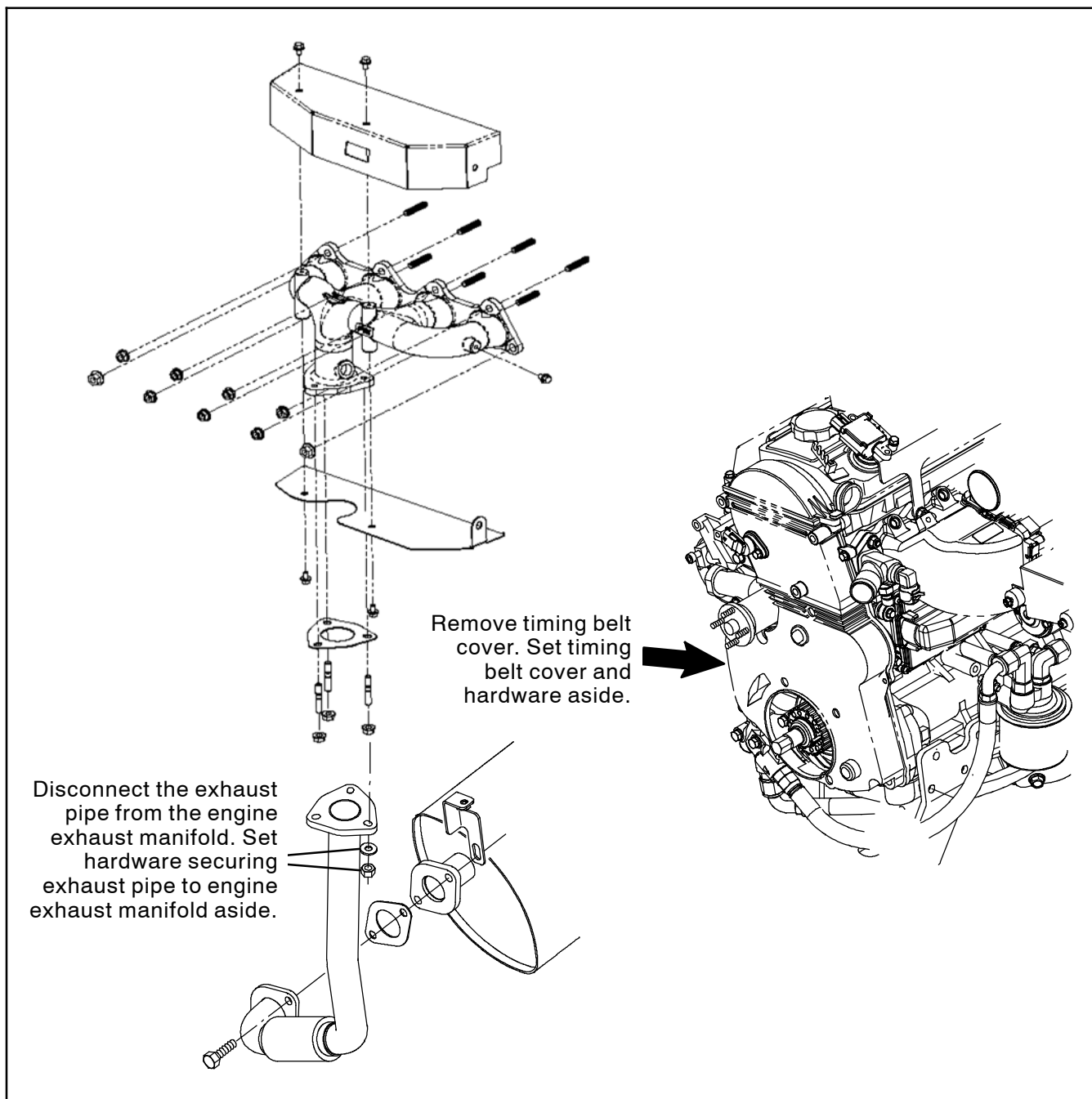


FIG. 5 - All Machines

8. **All Machines:** Disconnect the exhaust pipe from the exhaust manifold. Set hardware aside. (Fig. 5)
9. **All Machines:** Remove the timing belt cover from the engine. Set the timing belt cover and hardware aside. (Fig. 5)
10. Loosen the timing belt. (Fig. 7)
11. **S30:** Remove all parts and hoses necessary to access and remove the cylinder head cover from the engine. Set removed parts, hoses, clamps, and hardware aside.

INSTALLATION (ALL MACHINES):

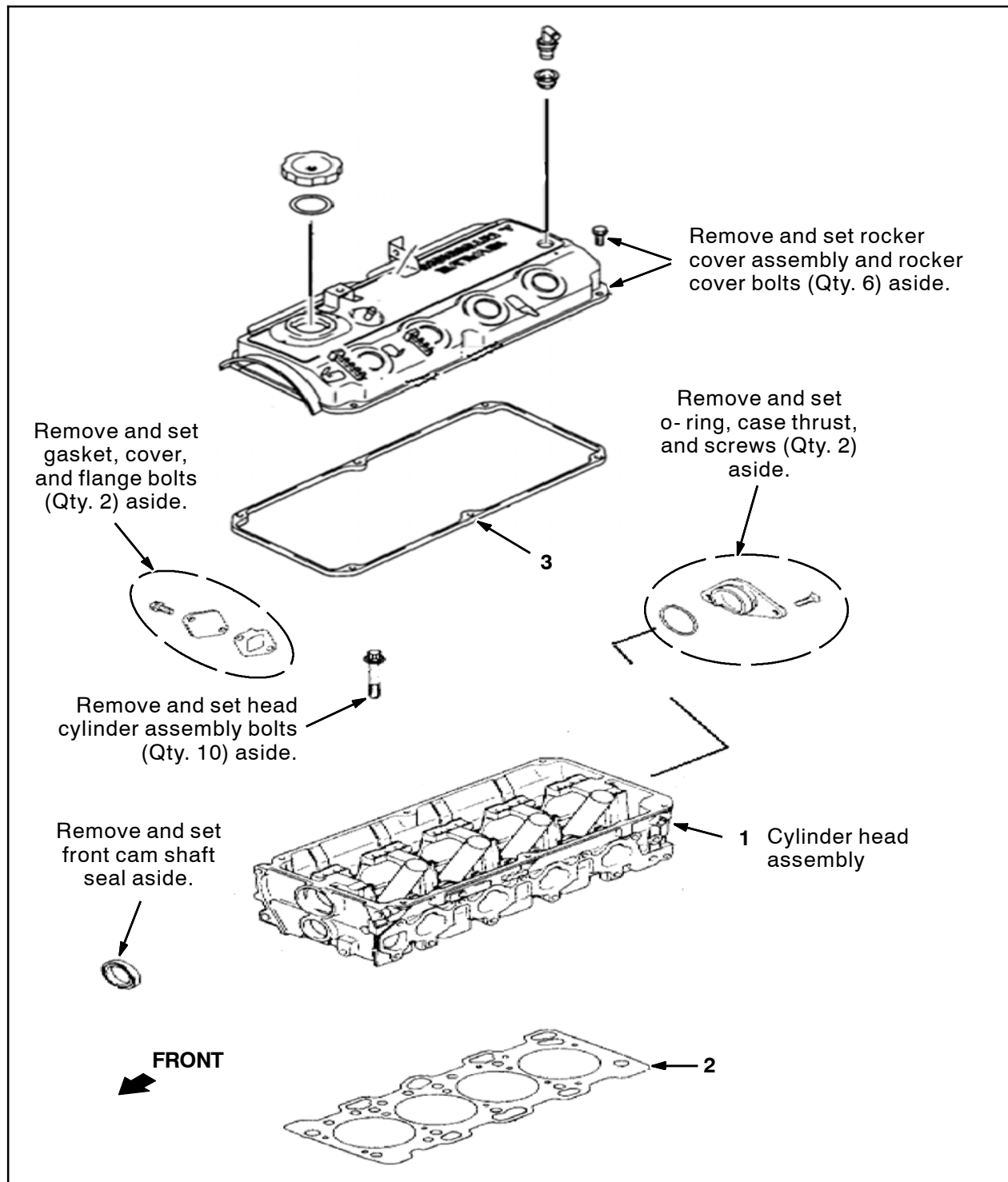


FIG. 6

NOTE: Refer to the Mitsubishi 2.0L & 2.4L Service Manual for additional more detailed information pertaining to replacing the cylinder head assembly and adjusting the timing belt.

1. Remove the rocker cover assembly from the engine. Set the rocker cover assembly and six rocker cover bolts aside. (Fig. 6)
2. Remove the cylinder head assembly from the engine. Set the ten cylinder assembly bolts aside. (Fig. 6)

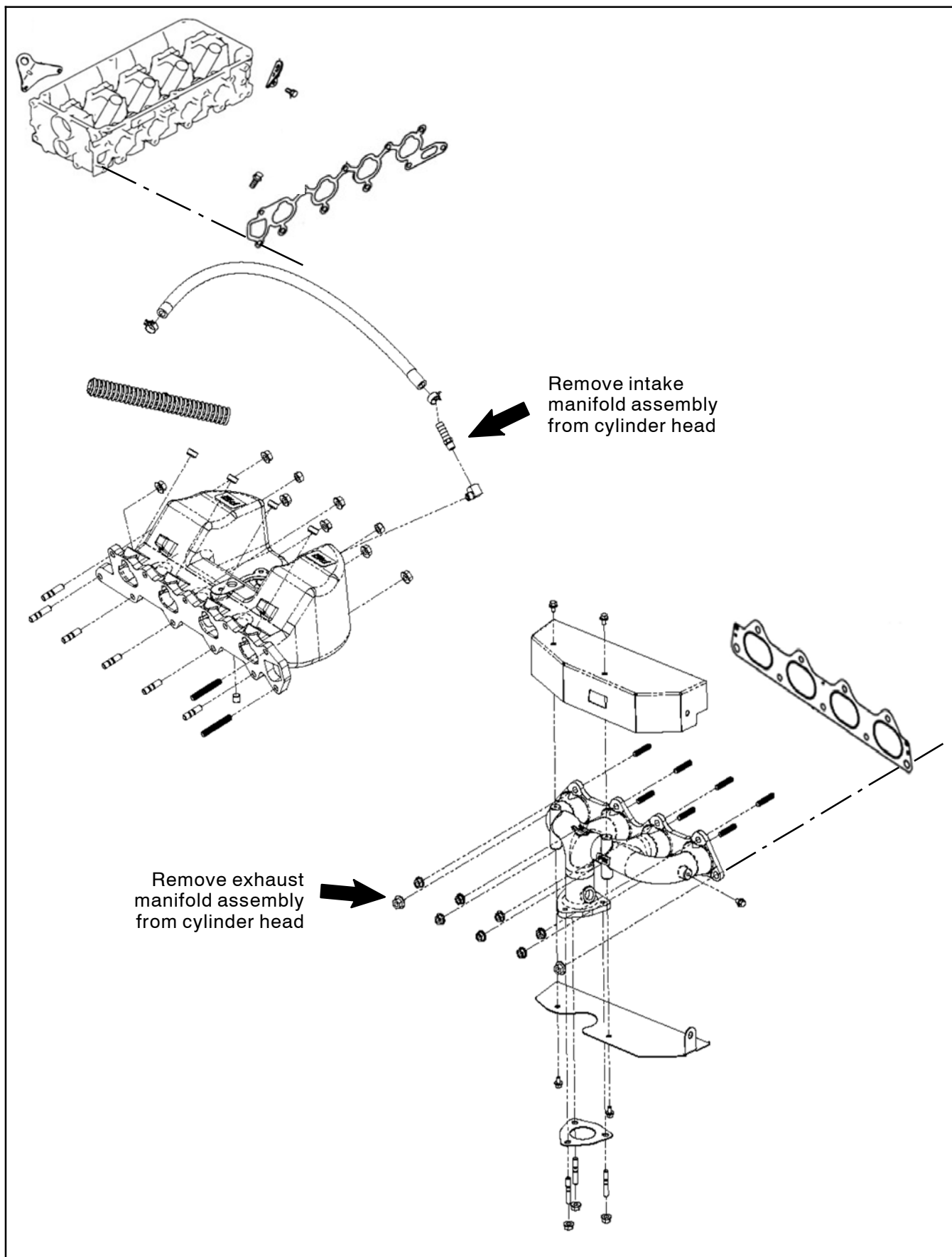


FIG. 7

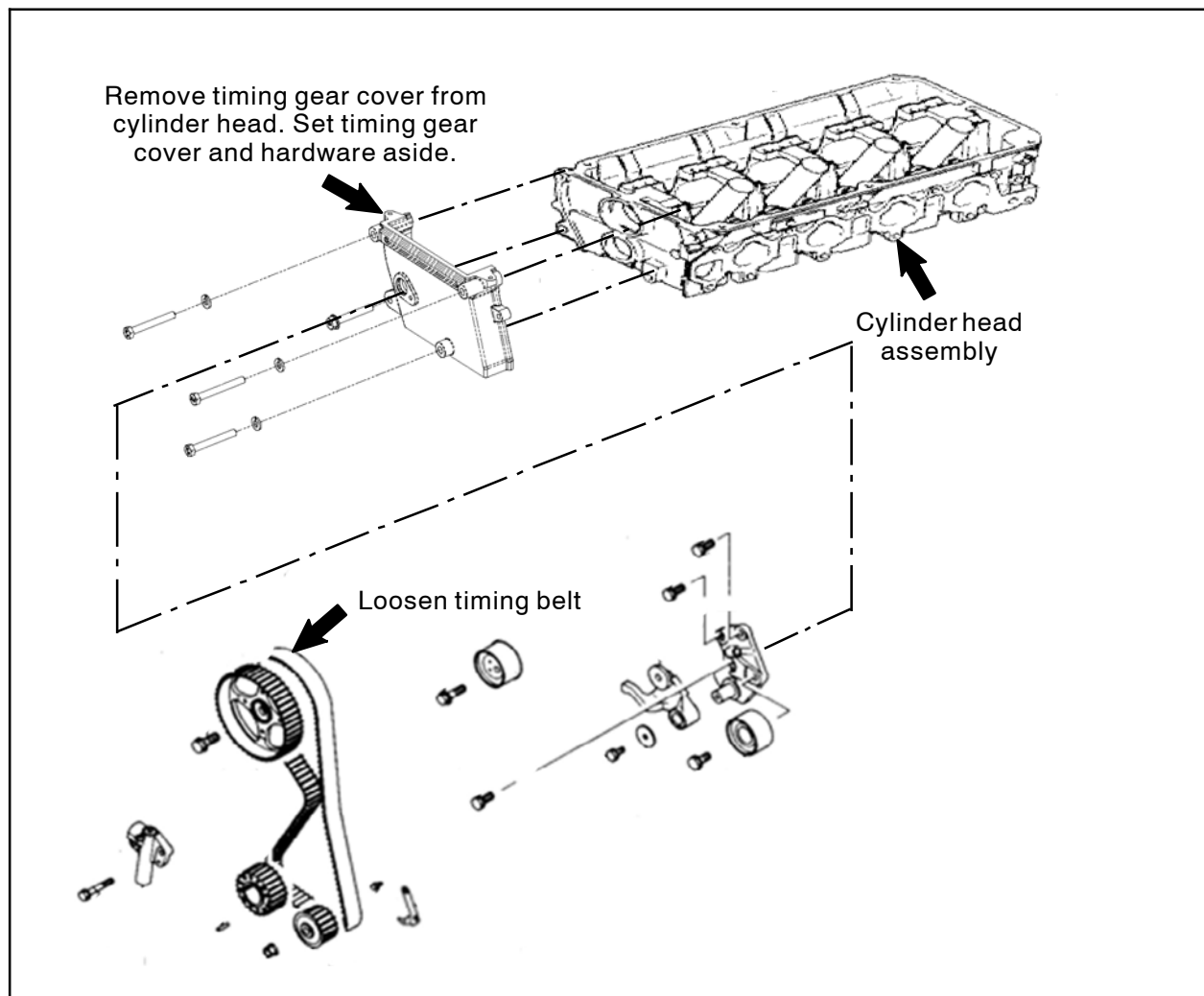


FIG. 8

3. Remove the intake manifold from the cylinder head assembly. Set the intake manifold and hardware aside. (Fig. 7)
4. Remove the exhaust manifold from the cylinder head assembly. Set the exhaust manifold and hardware aside. (Fig. 7)
5. Remove the exhaust manifold from the cylinder head assembly. Set the exhaust manifold and hardware aside. (Fig. 7)
6. Remove the timing gear cover from the cylinder head assembly. Set the timing gear cover and hardware aside. (Fig. 8)
7. Remove the gasket, cover, and flange bolts from the removed cylinder head assembly. Set the removed items aside. (Fig. 6)
8. Remove the o-ring, case thrust, and screws from the removed cylinder head assembly. Set the removed items aside. (Fig. 6)
9. Remove the front cam shaft seal from the removed cylinder head assembly. Set the front cam shaft seal aside. Discard the cylinder head assembly. (Fig. 6)
10. Clean any remains of the old gasket from the rocker cover assembly. (Fig. 6)
11. Carefully clean any remains of the old gasket from the engine. **Do Not** allow any of the old gasket to fall into the engine. (Fig. 6)
12. Install all saved items removed from the old cylinder head assembly onto the new cylinder head assembly (1). (Fig. 6)
13. Install the intake manifold and exhaust manifold onto the cylinder head assembly (1). (Fig. 6)
14. Install the cylinder head gasket (2) onto the cylinder head assembly (1). (Fig. 6)

15. Install the cylinder head assembly (1) onto the engine. (Fig. 6)
 16. Install the rocker cover gasket (3) onto the rocker cover assembly. (Fig. 6)
 17. Install the rocker cover assembly onto the cylinder head assembly (1). (Fig. 6)
 18. Adjust the timing belt. Refer to the Timing Belt section in the Mitsubishi 2.0L & 2.4L Service Manual for detailed instructions how to adjust the timing belt.
 19. Assemble remaining parts onto the cylinder head assembly (1). (Fig. 6)
 20. Install the spark plugs (4) into the engine. (Fig. 6)
 21. Install the spark plugs (4) into the engine. (Fig. 6)
 22. Reinstall all parts removed to install the cylinder head kit.
 23. Connect the spark plug cables to the spark plugs (4).
 24. Reconnect the battery cables to the battery.
 25. Replenish the coolant system with fresh antifreeze.
 26. Start the engine and allow it to run for approximately 1 minute. Observe around the cylinder head assembly (1) and rocker cover assembly for leaks. Observe around the radiator and coolant system hoses for leaks.
 27. Turn off the engine. Check the antifreeze level in the reservoir. Add antifreeze as necessary.
- NOTE: Order / use spark plugs (4) when replacing the spark plugs on machines updated with this cylinder head kit. **Do Not** use the same spark plugs previously used before the machine was updated with this kit.*

Bill Of Materials For Head Kit, Cyl [Mitsubishi 2015 12mm] - 9014162

Tennant			
Ref.	Part No.	Description	Qty.
1	9014161	VR, Head Assy, Cylinder [Mits 2015 12mm]	1
2	9010468	VR, Gasket, Cylinder, Head	1
3	9010465	VR, Gasket, Cover, Rocker	1
4	9014160	VR, Plug, Spark [Mitsubishi 2015 12mm]	4

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