

SECTION 6B

POWER STEERING PUMP

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SPECIFICATIONS

GENERAL SPECIFICATIONS

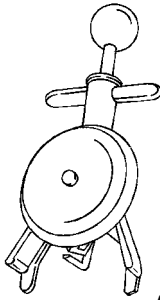
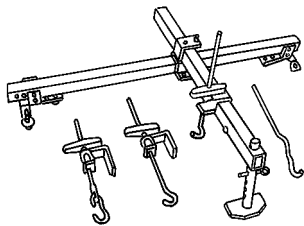
Application	Description
Lubricant	Power steering fluid DEXRON®-III
Capacity	1.0 Liter (1.05 qt)

FASTENER TIGHTENING SPECIFICATIONS

Application	N•m	Lb-Ft	Lb-In
Air Cleaner Housing Bolts	12	-	106
Alternator Adjusting Bolt	20	15	-
Crankshaft Pulley Bolt	95 + 30° + 15°	70 + 30° + 15°	-
Engine Bracket-to-Mount Bolts	60	44	-
Power Steering Pump Pulley Bolts	25	18	-
Power Steering Pump Retaining Bolts	25	18	-
Tension Pulley Securing Bolt	25	18	-
Timing Belt Cover Bolts	10	-	89

SPECIAL TOOLS

SPECIAL TOOLS TABLE

 <p>A105B001</p>	<p>J-23600-B Belt Tension Gauge</p>	 <p>A102B152</p>	<p>J-28467-B Engine Support Fixture</p>
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DIAGNOSIS

POWER STEERING PUMP DIAGNOSIS

Foaming, Milky Power Steering Fluid, Low Fluid Level, and Possible Low Pressure

Checks	Action
Check the power steering fluid level.	Fill the power steering fluid reservoir.
Check for air contamination in the power steering fluid.	Bleed the power steering system.
Check the power steering pump for internal leaks and overflow.	Replace the power steering pump.
Check the power steering pump housing and the soft plug for leaks.	Replace the power steering pump.

Low Pressure Due to Steering Pump

Checks	Action
Check the power steering pump flow control valve for sticking and improper operation.	Replace the power steering pump.
Check the power steering pump seals for wear.	Replace the power steering pump.
Check the pressure plate, the pump ring, the thrust plate, and the rotor for scores, cracks, or breaks.	Replace the power steering pump.
Check the vanes for sticking in the rotor slots.	Replace the power steering pump.
Check the power steering pump for internal leaks and overflow.	Replace the power steering pump.

Growling Noise in Steering Pump

Checks	Action
Check the pump hoses and the steering gear pipes for restricted flow.	Clean out the pipes and the hoses. Replace the pipes and the hoses as needed.
Check the pressure plate, the pump ring, the thrust plate, and the rotor for scores, cracks, or breaks.	Replace the power steering pump.
Check the power steering hose for contact with the body.	Secure the pump hose in a clamp away from the body.
Check the power steering fluid level.	Fill the power steering pump reservoir.

Rattling Noise in the Steering Pump

Checks	Action
Check for air contamination in the power steering fluid.	Bleed the power steering system.
Check the power steering hose for contact with the body.	Secure the pump hose in a clamp away from the body.
Check the power steering fluid level.	Fill the power steering pump reservoir.
Check the pump mounting for improper installation.	Tighten the power steering pump attachment bolts.

Swishing Noise in the Steering Pump

Checks	Action
Check the power steering pump flow control valve for damage.	Replace the power steering pump.

Whining Noise in the Steering Pump

Checks	Action
Check the pressure plate and the vanes for scores.	Replace the power steering pump.
Check the pump shaft bearing for scores.	Replace the power steering pump.

MAINTENANCE AND REPAIR

ON-VEHICLE SERVICE

PUMP DRIVE BELT

Tools Required

J-23600-B Belt Tension Gauge

Checking Belt Tension

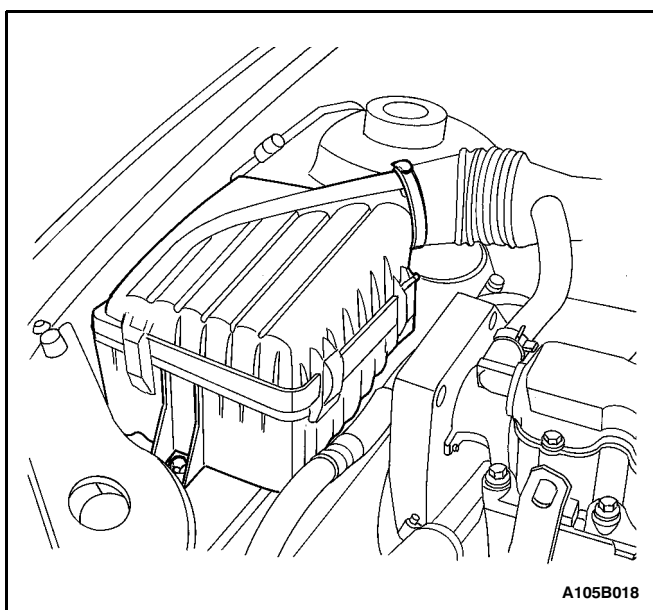
1. Using belt tension gauge J-23600-B, check the tension on the pump drive belt.
2. If belt tension gauge J-23600-B does not indicate the proper tension, adjust the belt.

Adjusting Belt Tension

1. With belt tension gauge J-23600-B on the pump drive belt, loosen the alternator adjusting bolt and move the alternator until the gauge indicates the proper tension.
2. Tighten the alternator adjusting bolt.

Tighten

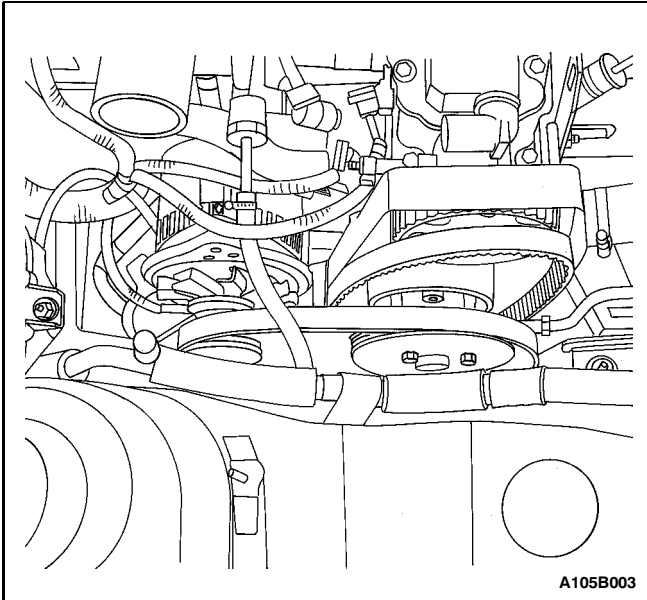
Tighten the alternator adjusting bolt to 20 N•m (15 lb-ft).



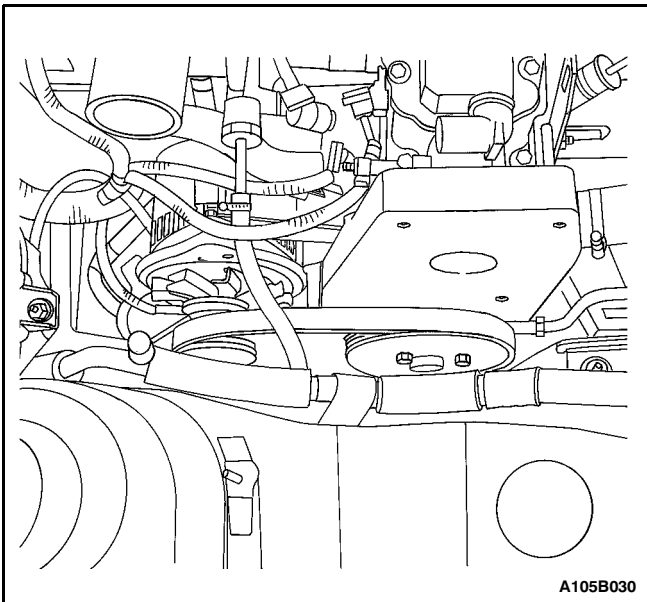
SOHC PUMP DRIVE PULLEY

Removal Procedure

1. Remove the air cleaner housing by removing the housing bolts and loosening the clamp.



2. Loosen the steering pump pulley bolts.
3. Remove the pump drive belt from the pulley by loosening the alternator adjusting bolt and pulling it forward.
4. Remove the steering pump pulley bolts that connect the pulley to the pump.
5. Remove the pulley from the pump.



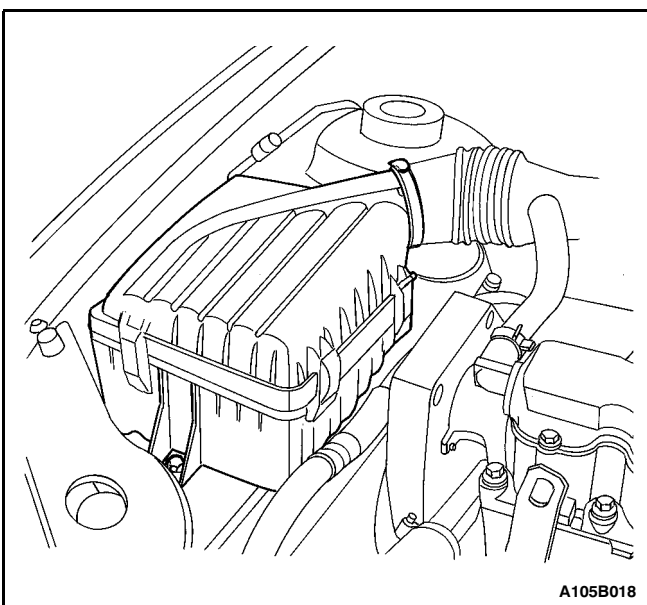
Installation Procedure

1. Replace the pump on the engine if the pump was previously removed. Refer to "Pump Assembly" in this section.
2. Install the pulley on the pump. Install the steering pump pulley bolts.
3. Install the pump drive belt.
4. Tighten the steering pump pulley bolts to fasten the pulley to the pump.

Tighten

Tighten the steering pump pulley bolts to 25 N•m (18 lb-ft).

5. Adjust the belt tension. Refer to "Pump Drive Belt" in this section.



6. Install the air cleaner housing with the housing bolts and the clamp.

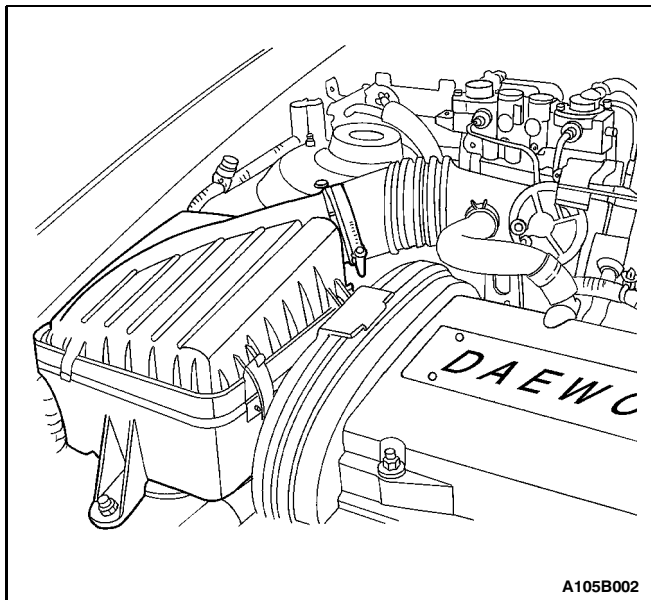
Tighten

Tighten the air cleaner housing bolts to 12 N•m (106 lb-in).

7. If the pump was removed from the engine, bleed the power steering system. Refer to Section 6A, Power Steering System.

Notice: When adding fluid or making a complete fluid change, always use DEXRON®-III power steering fluid. Failure to use the proper fluid will cause hose and seal damage and fluid leaks.

8. Inspect for leaks. If leaks are found, correct the cause of the leak and bleed the system.



DOHC PUMP DRIVE PULLEY

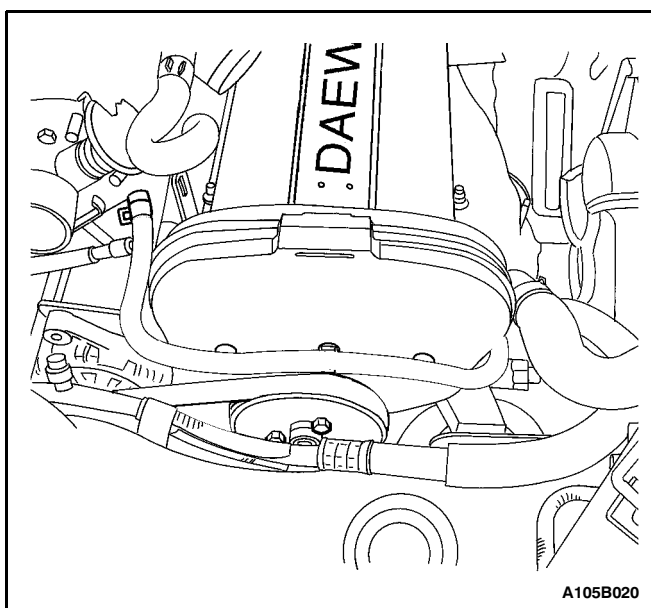
(Left-Hand Drive Shown, Right-Hand Drive Similar)

Tools Required

J-28467-B Engine Support Fixture

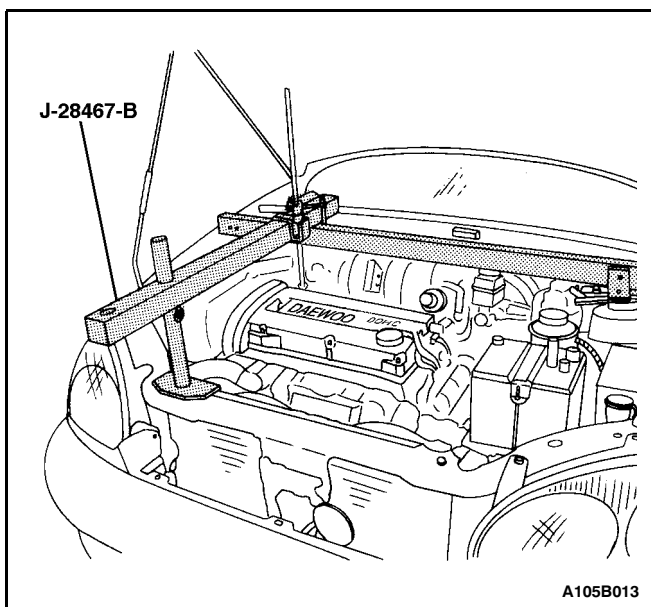
Removal Procedure

1. Remove the air cleaner housing by removing the housing bolts and loosening the clamp.

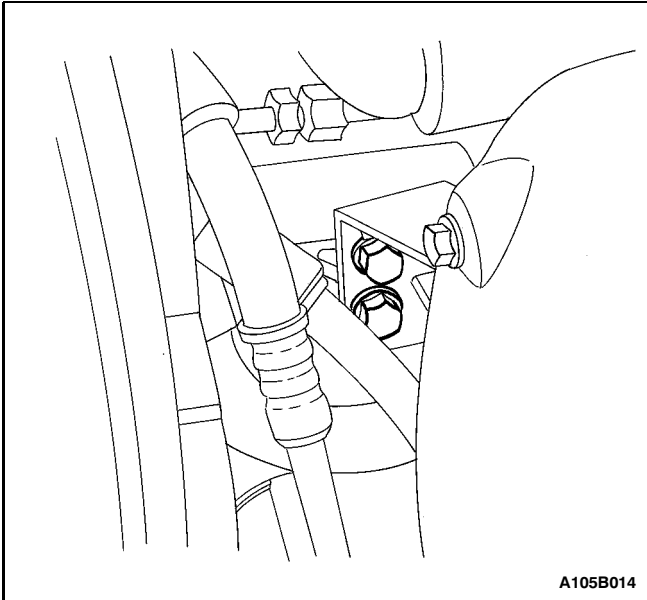


2. Loosen the steering pump pulley bolts.

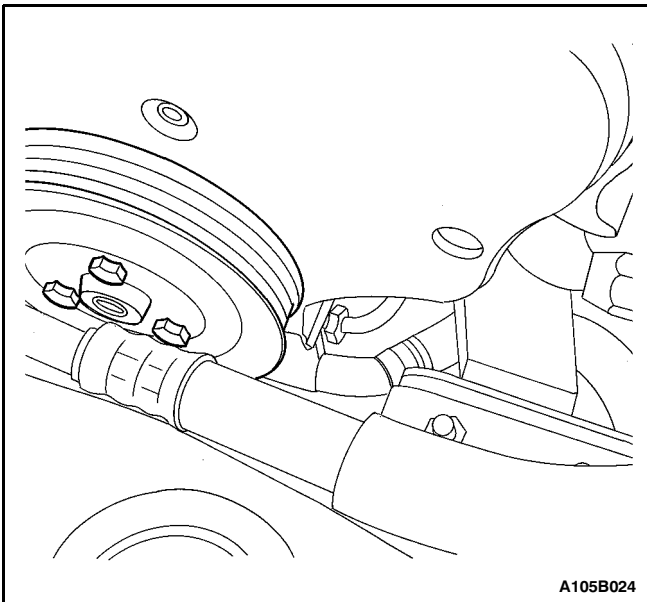
3. Remove the pump drive belt from the pulley by loosening the alternator adjusting bolt and pulling it forward.



4. Install the engine support fixture J-28467-B. Support the engine.



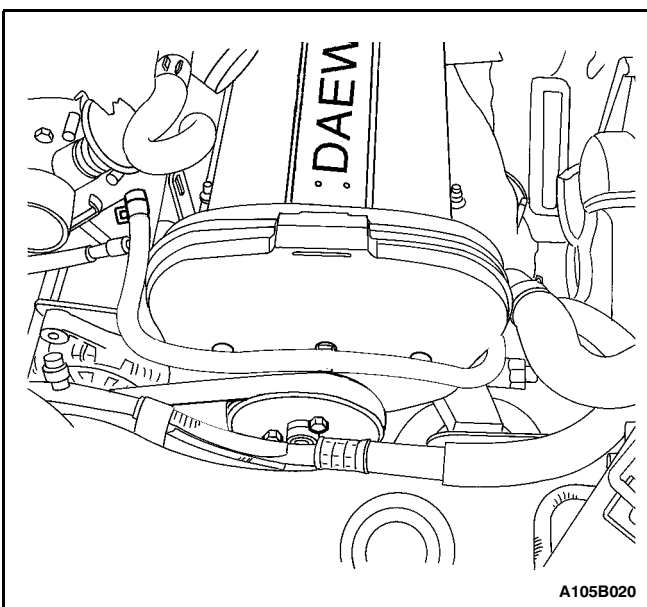
5. Remove the engine bracket-to-mount bolts.



6. Raise the engine using the engine support fixture J-28467-B.

7. Remove the steering pump pulley bolts that connect the pulley to the pump.

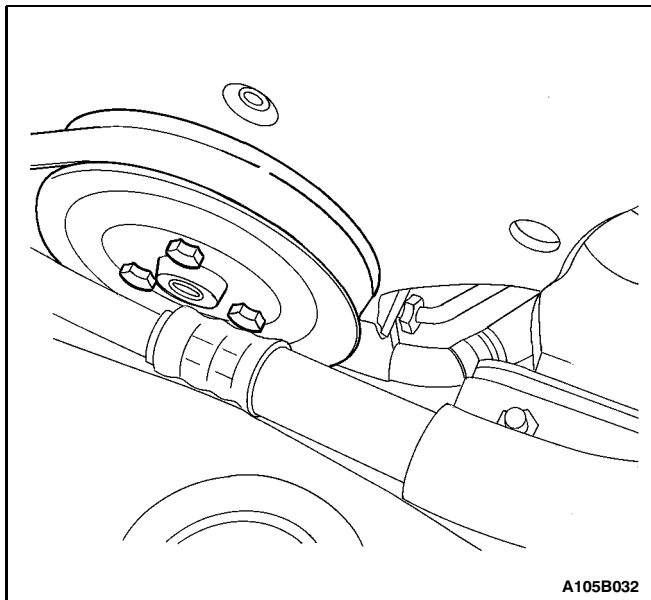
8. Remove the pulley from the pump.



Installation Procedure

1. Replace the pump on the engine if the pump was previously removed. Refer to "Pump Assembly" in this section.
2. Install the pulley onto the pump. Install the steering pump pulley bolts.
3. Install the pump drive belt.

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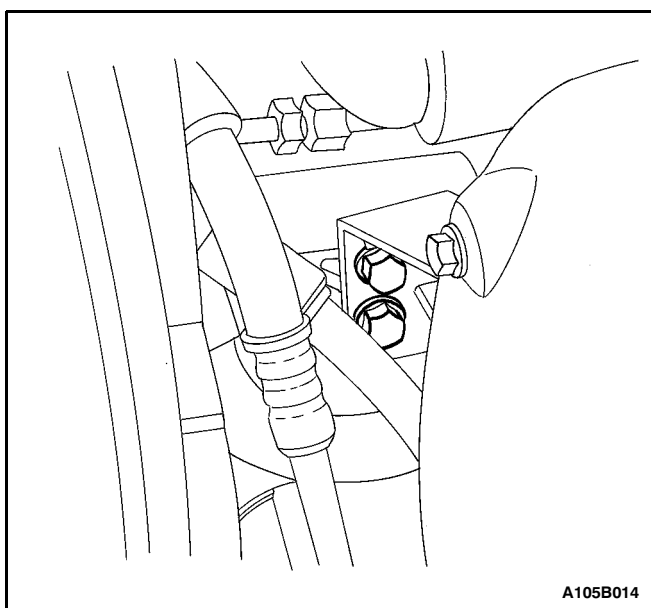


4. Tighten the steering pump pulley bolts to fasten the pulley to the pump.

Tighten

Tighten the steering pump pulley bolts to 25 N•m (18 lb-ft).

5. Adjust the belt tension. Refer to "Pump Drive Belt" in this section.

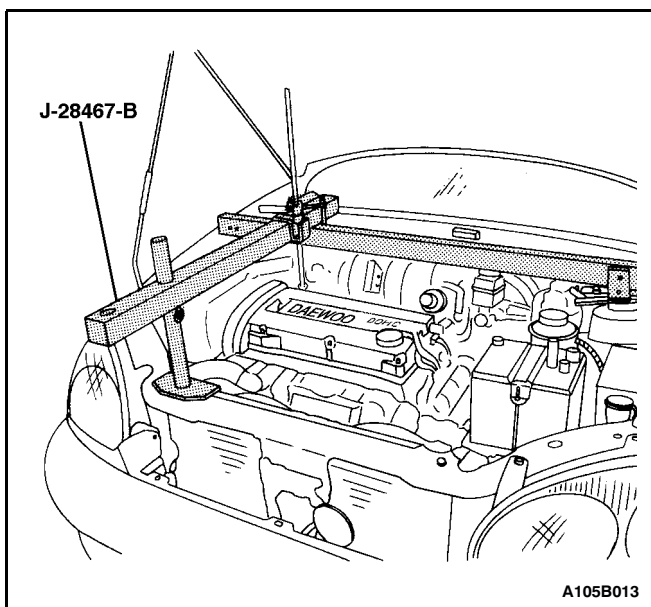


6. Lower the engine using the engine support fixture J-28467-B.

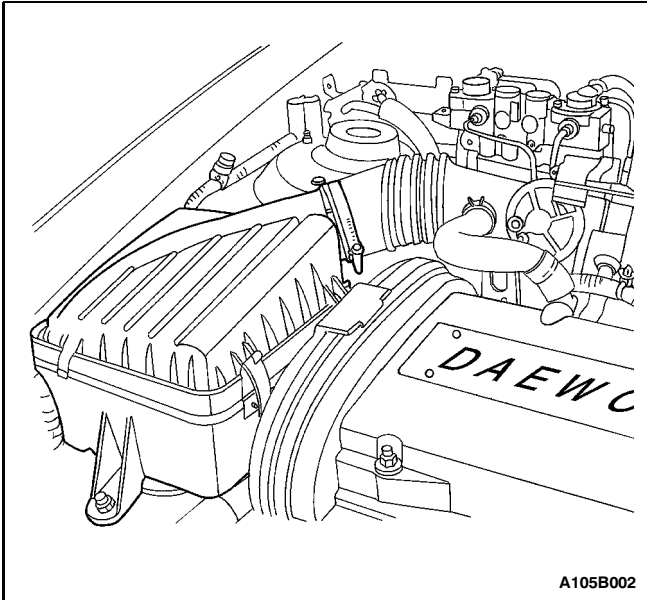
7. Install the engine bracket-to-mount bolts.

Tighten

Tighten the engine bracket-to-mount bolts to 60 N•m (44 lb-ft).



8. Remove the engine support fixture J-28467-B.



9. Install the air cleaner housing with the housing bolts and the clamp.

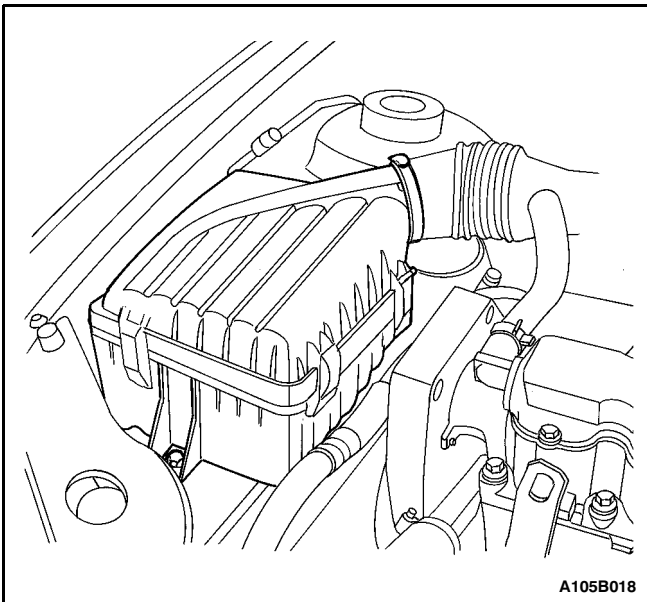
Tighten

Tighten the air cleaner housing bolts to 12 N•m (106 lb-in).

10. If the pump was removed from the engine, bleed the power steering system. Refer to Section 6A, Power Steering System.

Notice: When adding fluid or making a complete fluid change, always use DEXRON®-III power steering fluid. Failure to use the proper fluid will cause hose and seal damage and fluid leaks.

11. Inspect for leaks. If leaks are found, correct the cause of the leak and bleed the system.



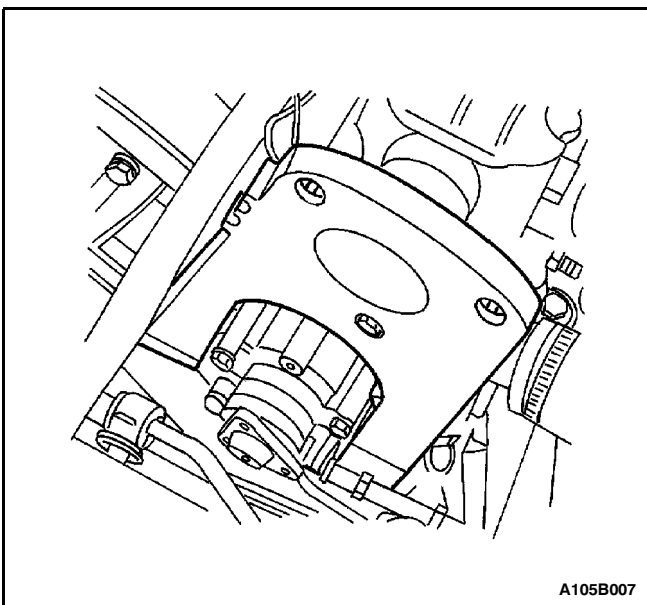
SOHC PUMP ASSEMBLY

Tools Required

J-28467-B Engine Support Fixture

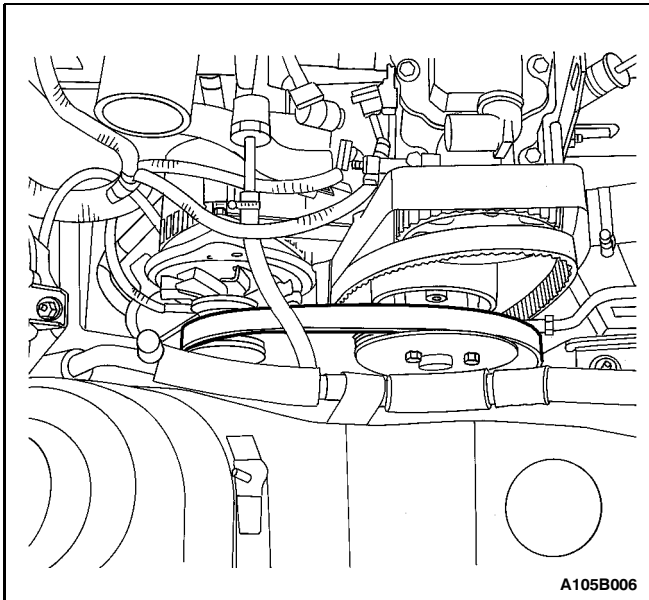
Removal Procedure

1. Remove the air cleaner housing by removing the housing bolts and loosening the clamp.

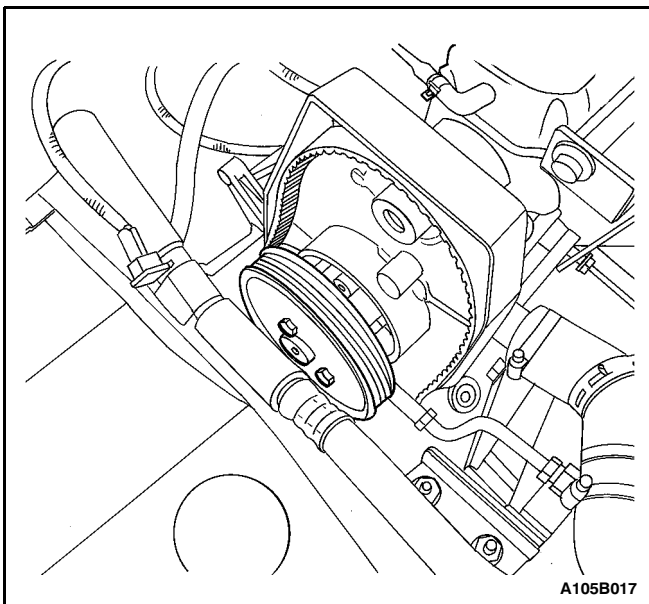


2. Remove the the upper timing belt cover bolts and the upper timing belt cover.

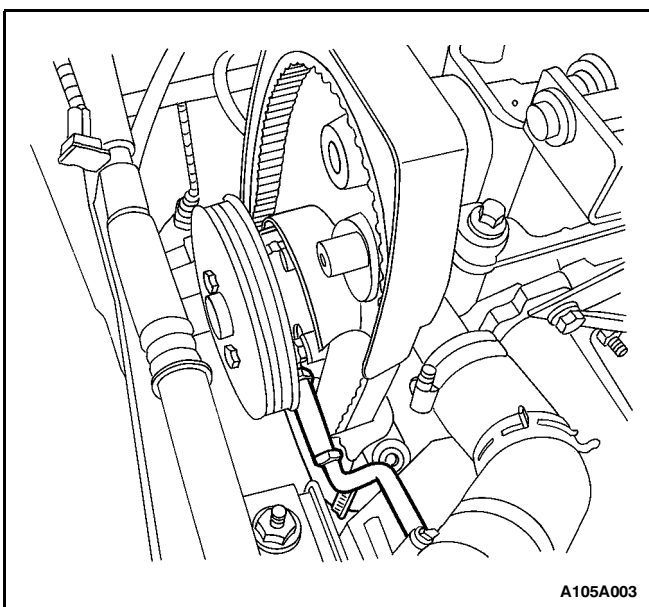
6B - 10 POWER STEERING PUMP



3. Remove the pump drive belt from the pulley by loosening the alternator adjusting bolt and pulling the alternator forward.

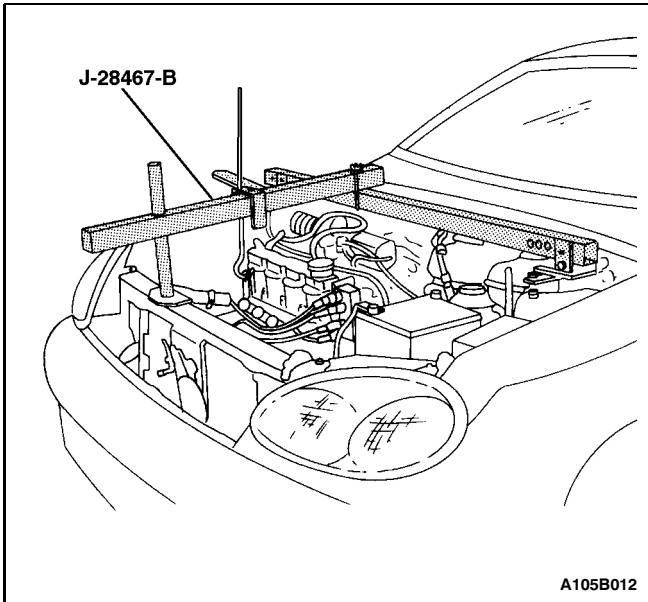


4. Remove the power steering pump pulley bolts and the power steering pump pulley.

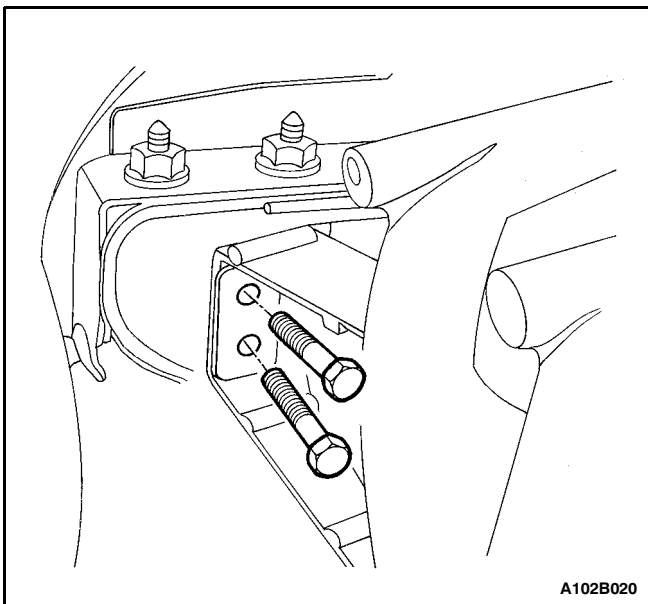


5. Drain the power steering fluid by disconnecting the pressure and supply lines from the pump.

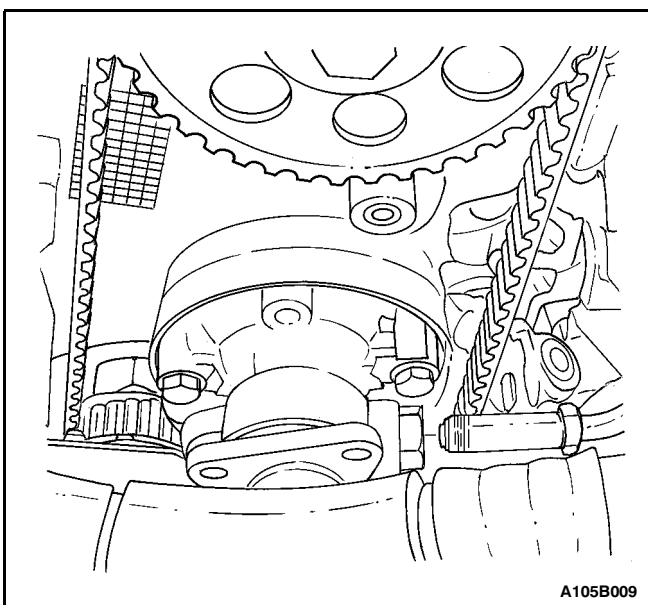
6. Install the engine support fixture J-28467-B.

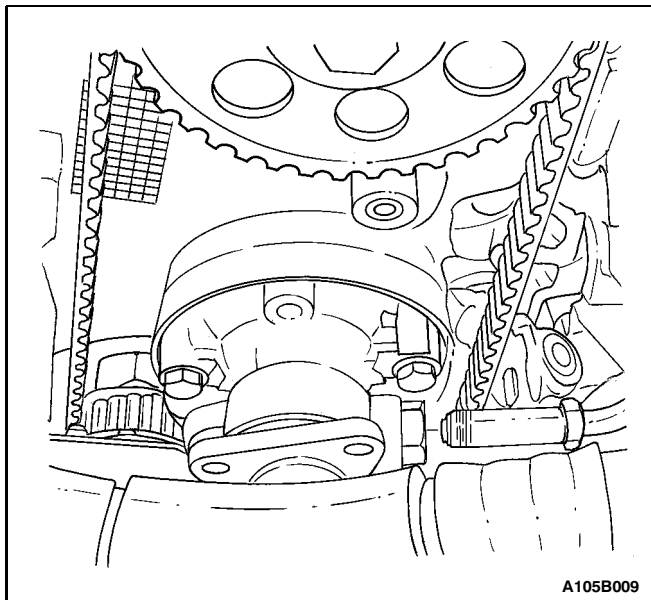


7. Remove the engine bracket-to-mount bolts.
8. Raise and suitably support the vehicle.
9. Remove the right wheel. Refer to Section 2E, Tires and Wheels.
10. Remove the right engine undercover. Refer to Section 9N, Frame and Underbody.



11. Lower the engine using the engine support fixture J-28467-B.
12. Remove the pump assembly by removing the steering pump retaining bolts.



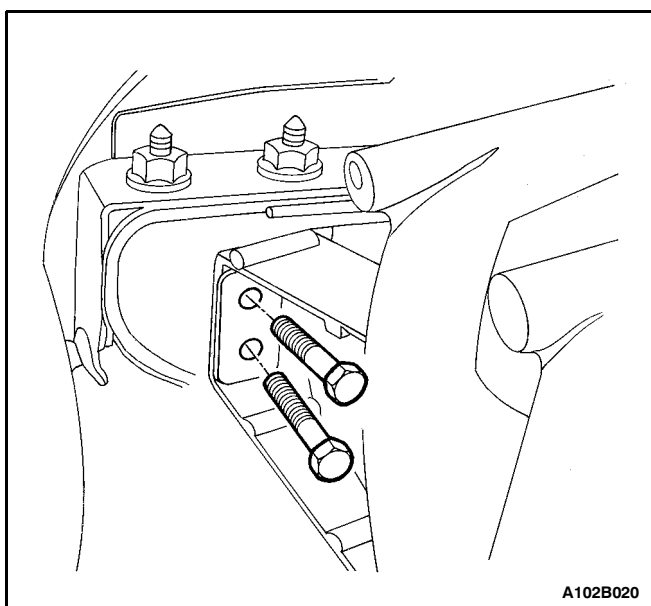


Installation Procedure

1. Install the pump and the steering pump retaining bolts.

Tighten

Tighten the steering pump retaining bolts to 25 N•m (18 lb-ft).



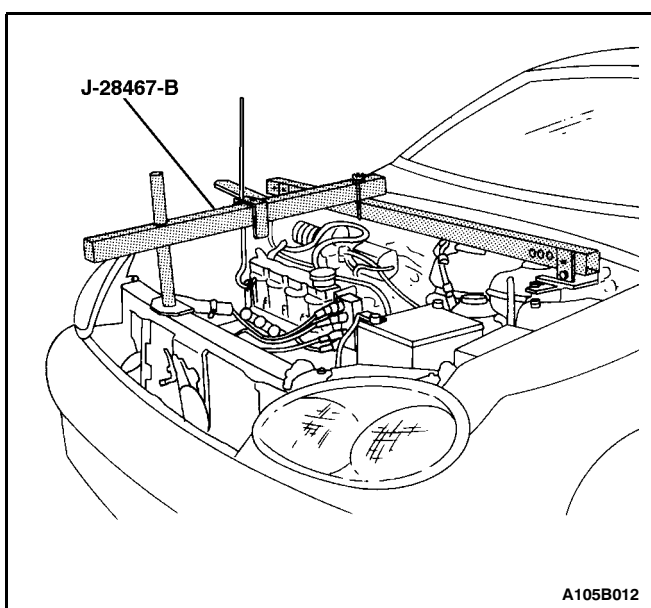
2. Raise the engine using the engine support fixture J-28467-B.

3. Install the engine bracket-to-mount bolts.

Tighten

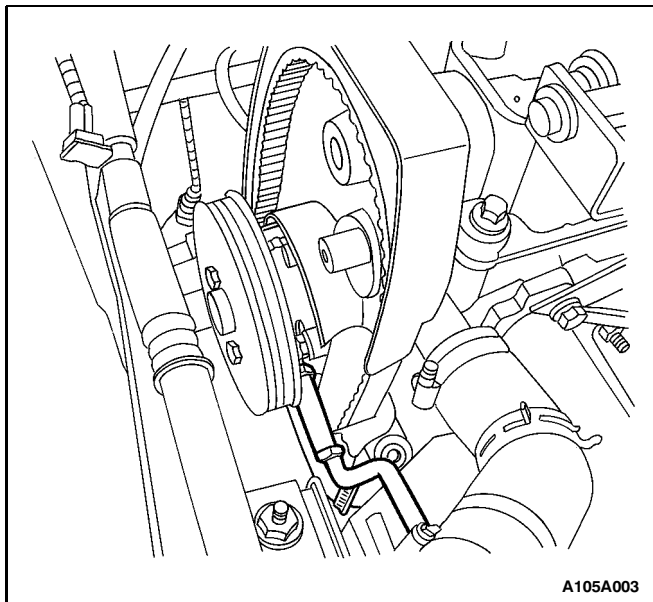
Tighten the engine bracket-to-mount bolts to 60 N•m (44 lb-ft).

4. Install the right engine under cover. Refer to Section 9N, Frame and Underbody.
5. Install the right wheel. Refer to Section 2E, Tires and Wheels.

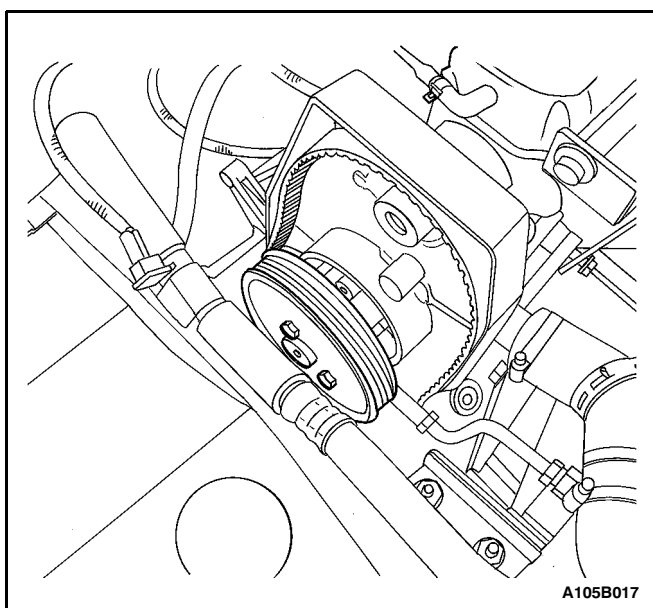


6. Lower the vehicle.

7. Remove the engine support fixture J-28467-B.



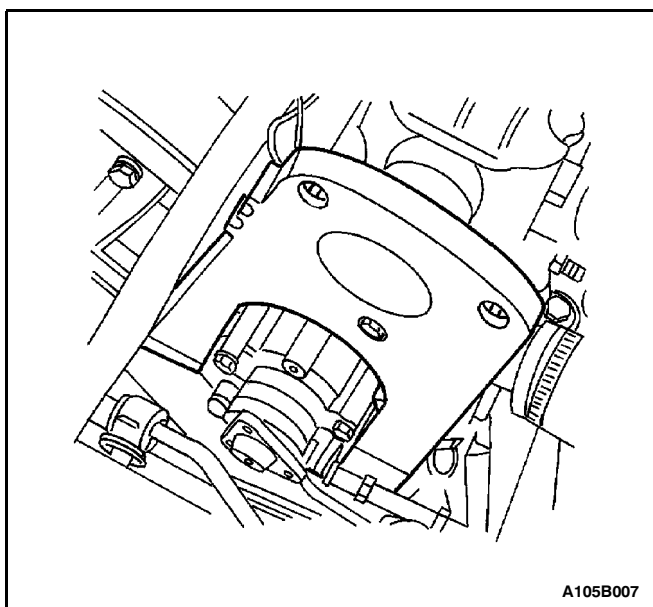
8. Connect the pressure and supply lines to the power steering pump.



9. Install the power steering pump pulley and the pulley bolts.

Tighten

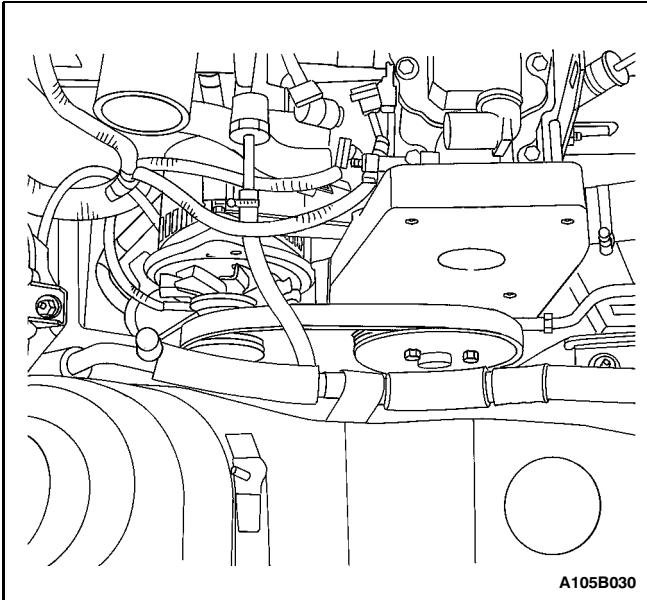
Tighten the power steering pump pulley bolts to 25 N•m (18 lb-ft).



10. Install the upper timing belt cover and the cover bolts.

Tighten

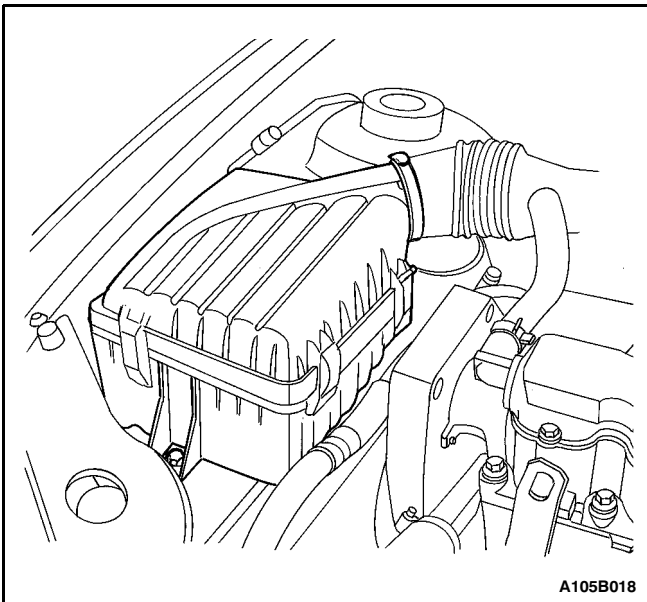
Tighten the timing belt cover bolts to 10 N•m (89 lb-in).



11. Install the pump drive belt onto the pulley. Push the alternator rearward and tighten the alternator adjusting bolt.

Tighten

Tighten the alternator adjusting bolt to 20 N•m (15 lb-ft).



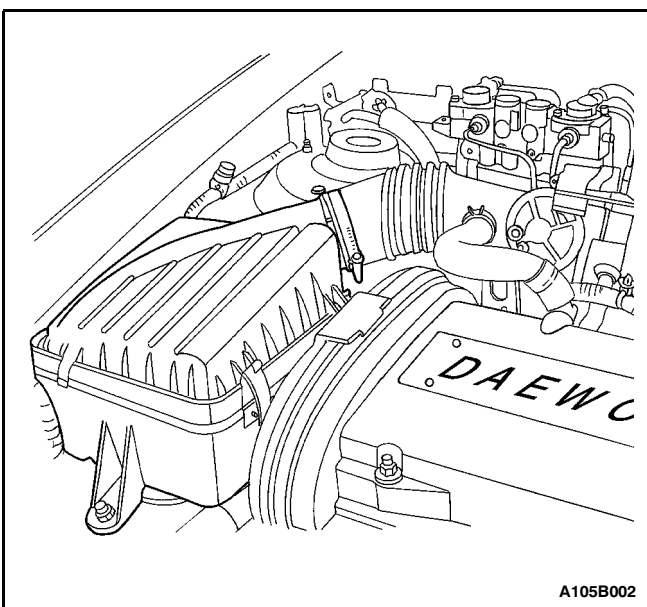
12. Install the air cleaner housing with the housing bolts and the clamp.

Tighten

Tighten the air cleaner housing bolts to 12 N•m (106 lb-in).

Notice: When adding fluid or making a complete fluid change, always use DEXRON®-III power steering fluid. Failure to use the proper fluid will cause hose and seal damage and fluid leaks.

13. Refill the pump with new fluid and bleed the air from the system. Refer to Section 6A, Bleeding the Power Steering System.
14. Inspect for leaks. If leaks are found, correct the cause of the leak and bleed the system.



DOHC PUMP ASSEMBLY

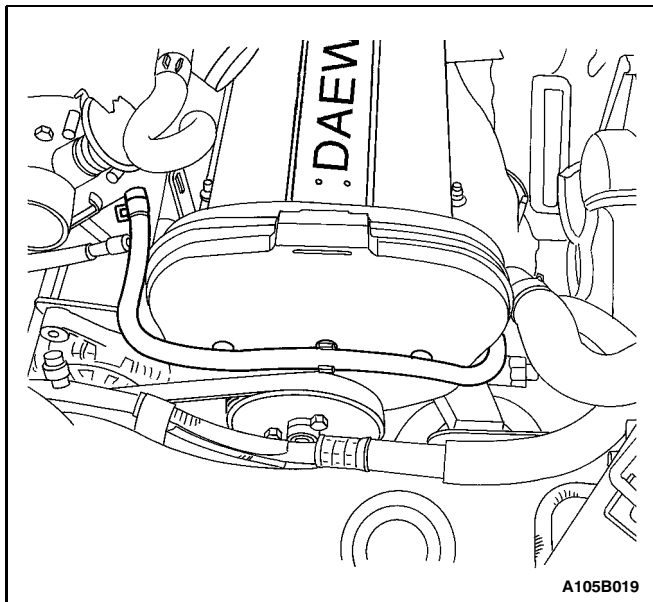
(Left-Hand Drive Shown, Right-Hand Drive Similar)

Tools Required

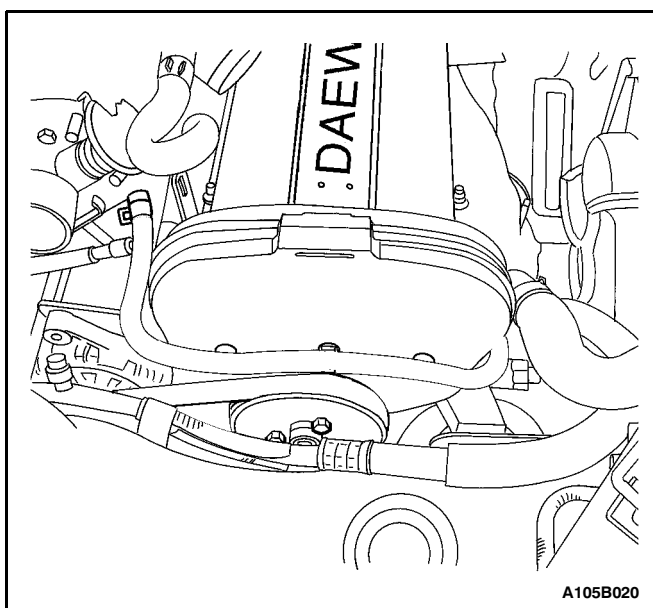
J-28467-B Engine Support Fixture

Removal Procedure

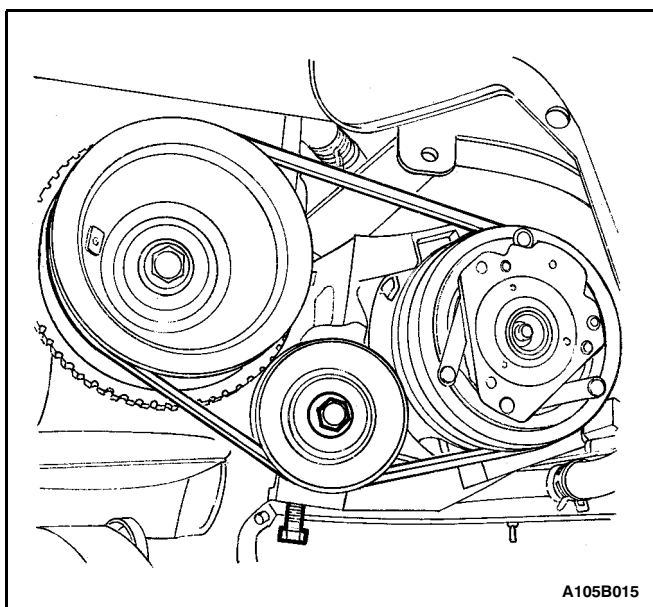
1. Remove the air cleaner housing by removing the housing bolts and loosening the clamp.



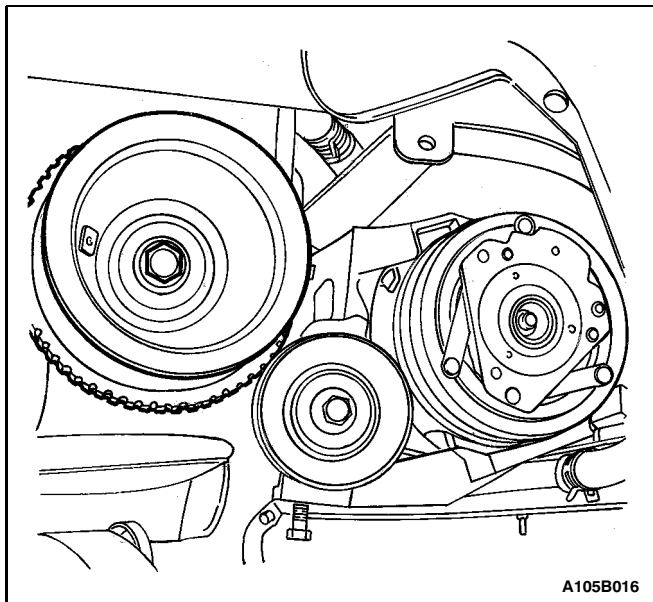
2. Disconnect the throttle body inlet coolant hose from the throttle body and the timing belt cover and move it aside.



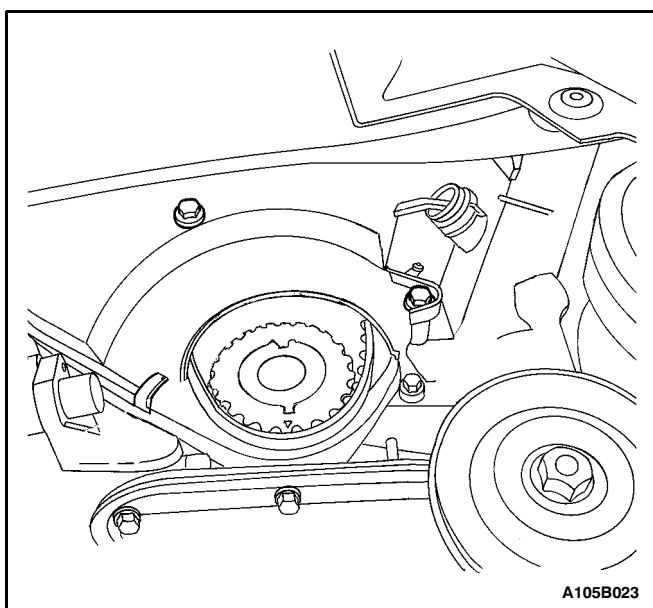
3. Loosen the power steering pump pulley bolts.
4. Remove the pump drive belt from the pulley by loosening the alternator adjusting bolt and pulling the alternator forward.
5. Raise and suitably support the vehicle.
6. Remove the right wheel. Refer to Section 2E, Tires and Wheels.
7. Remove the right engine under cover. Refer to Section 9N, Frame and Underbody.



8. Loosen the securing bolt on the tension pulley and release the tension on the A/C compressor belt by turning the tightening bolt.
9. Remove the A/C compressor belt.

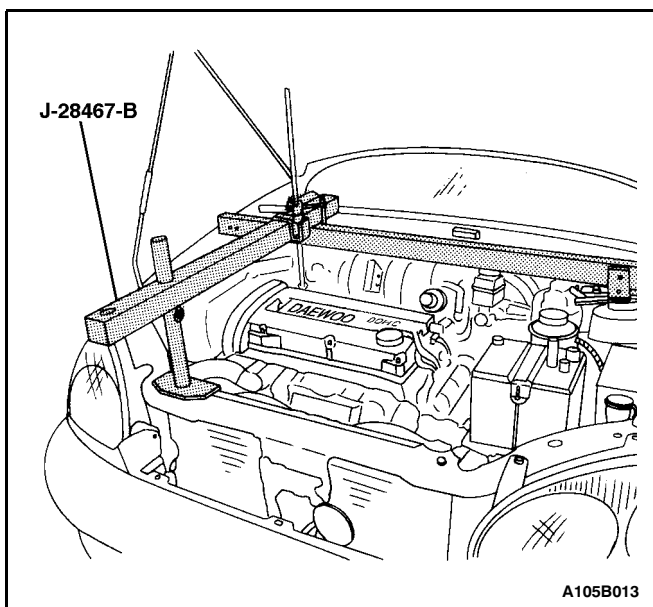


10. Remove the crankshaft pulley and the bolt.

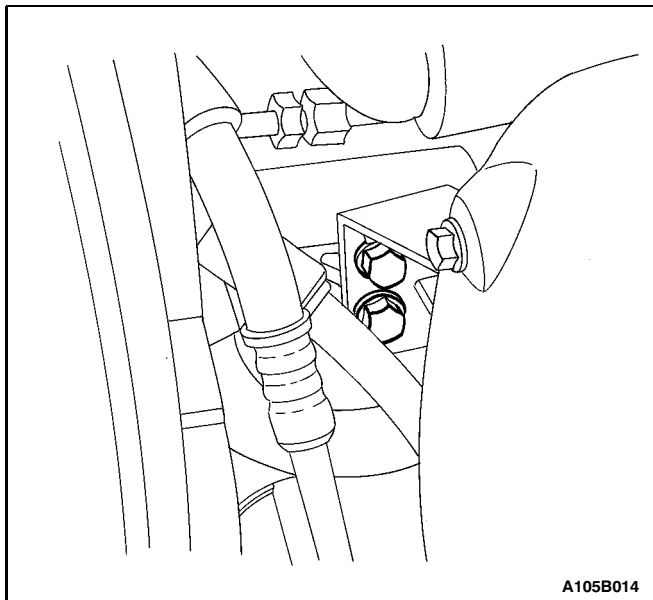


11. Remove the timing belt cover lower bolts and the clip.

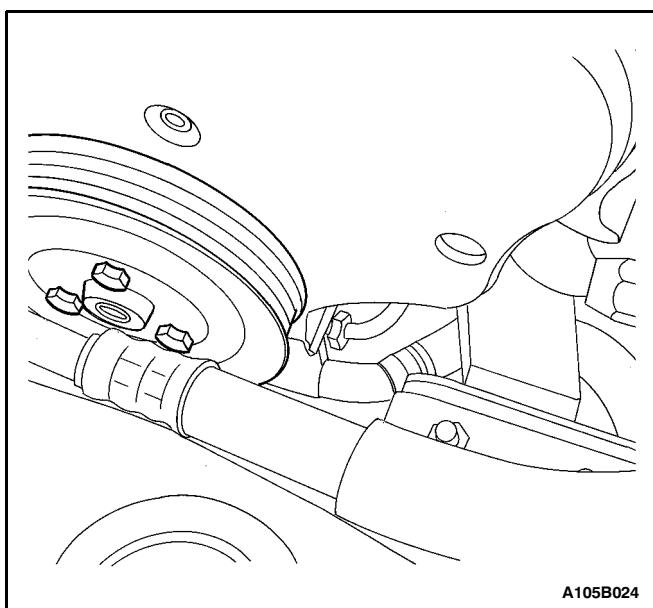
12. Lower the vehicle.



13. Install the engine support fixture J-28467-B. Support the engine.

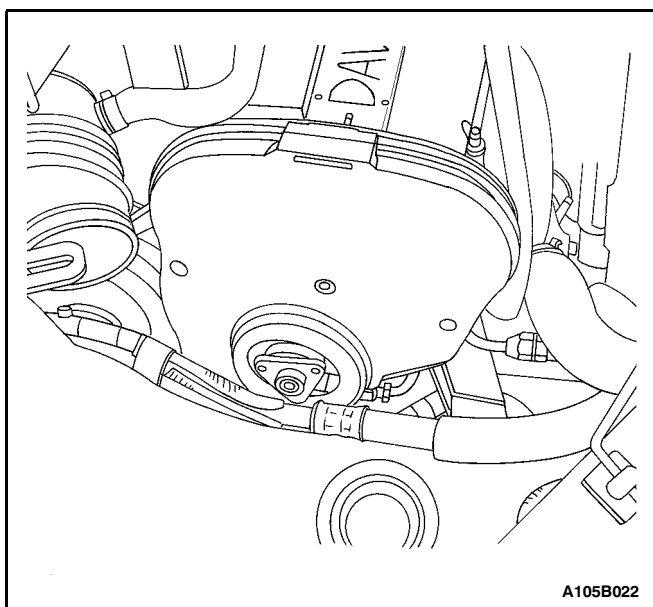


14. Remove the engine bracket-to-mount bolts.

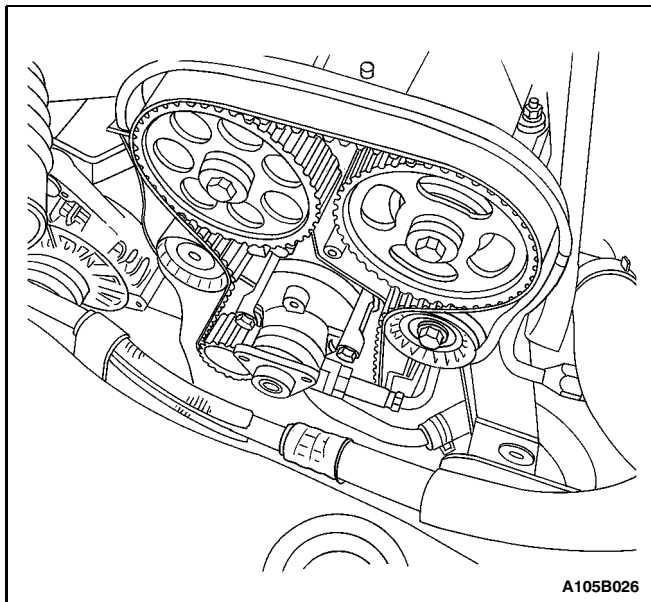


15. Raise the engine using the engine support fixture J-28467-B.

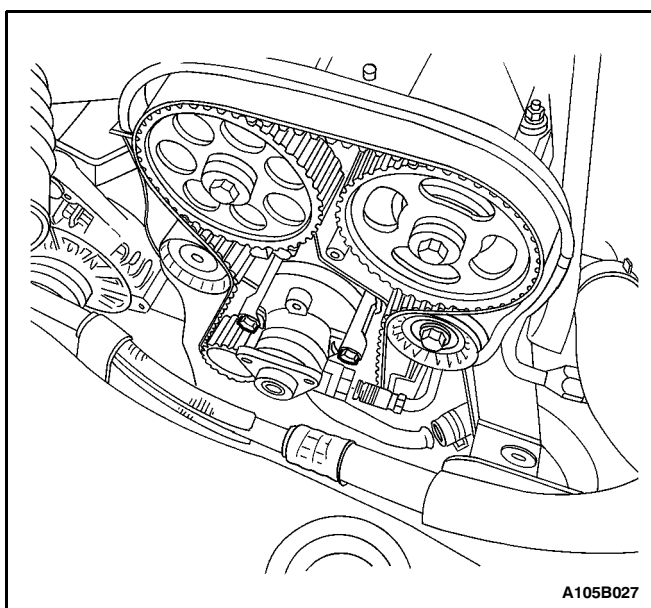
16. Remove the power steering pump pulley bolts. Remove the power steering pump pulley.



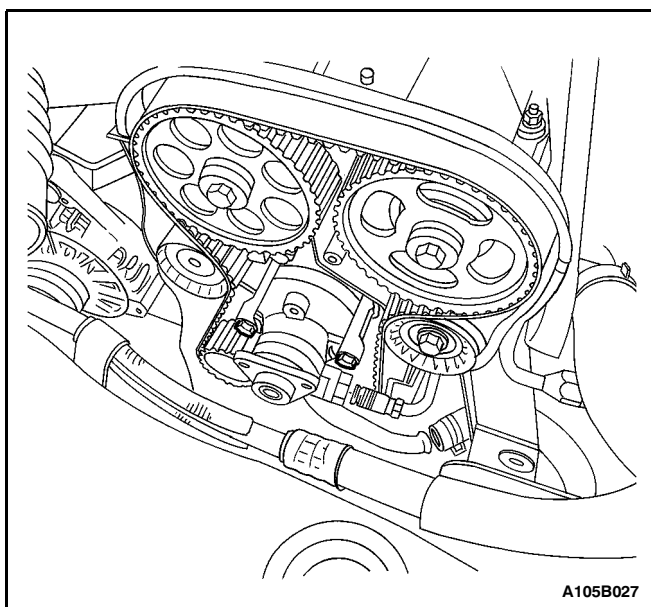
17. Remove the the timing belt cover upper bolts and the timing belt cover.



18. Drain the power steering fluid by disconnecting the pressure and supply lines from the pump.



19. Remove the pump assembly by removing the steering pump retaining bolts.

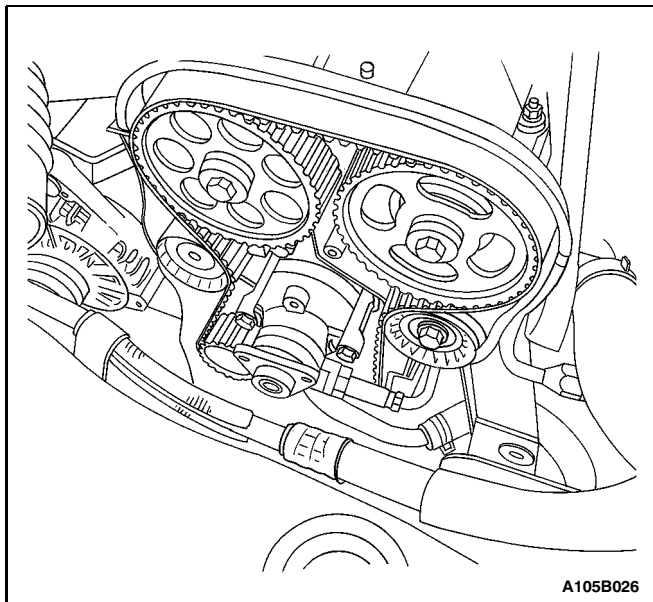


Installation Procedure

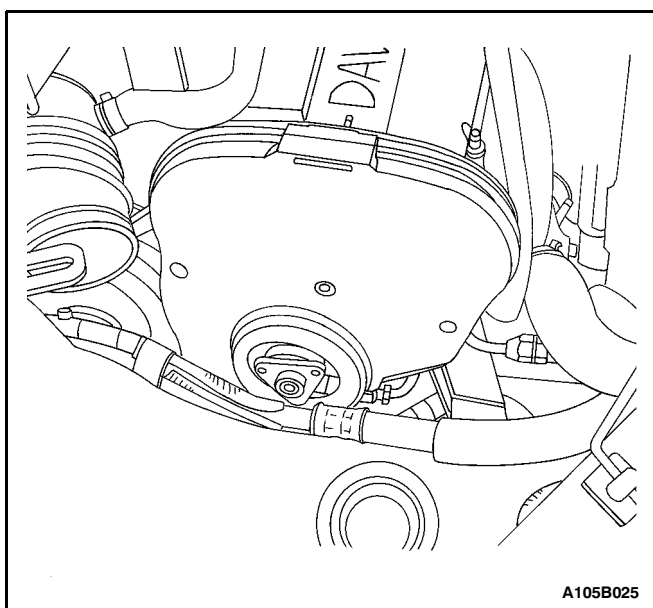
1. Install the power steering pump and the power steering pump retaining bolts.

Tighten

Tighten the power steering pump retaining bolts to 25 N•m (18 lb-ft).



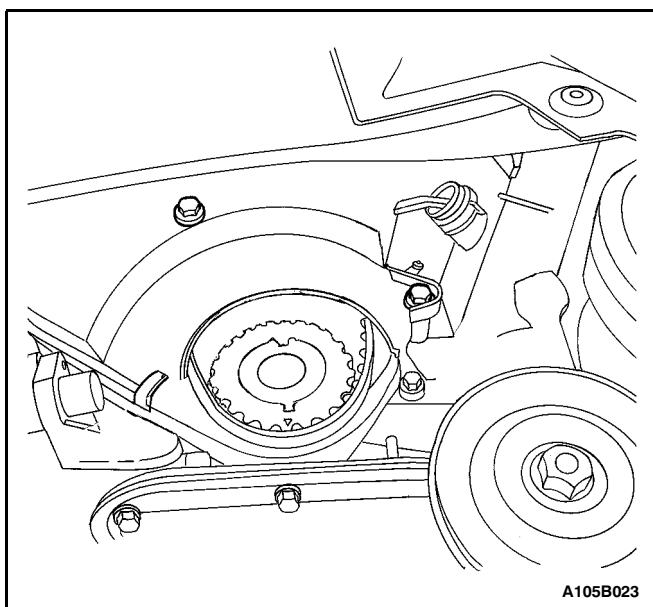
2. Connect the pressure and the supply lines to the power steering pump.



3. Install the timing belt cover and timing belt cover upper bolts.

Tighten

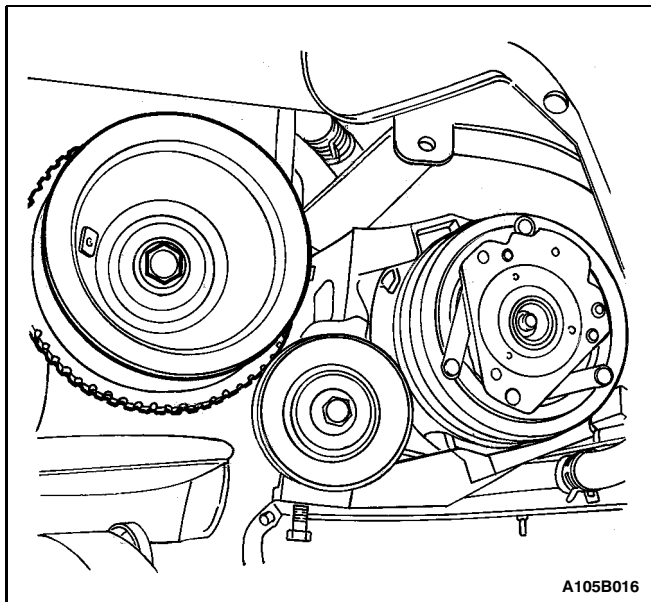
Tighten the timing belt cover bolts to 10 N•m (89 lb-in).



4. Raise and suitably support the vehicle.
5. Install the timing belt cover lower bolts and the clip.

Tighten

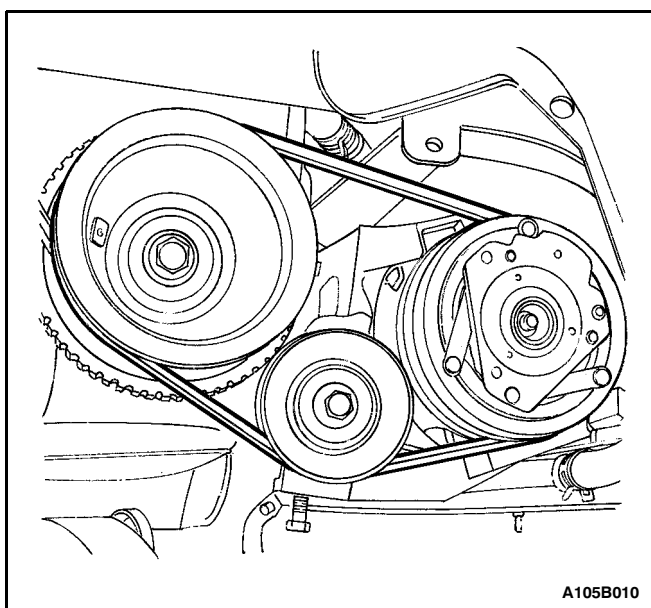
Tighten the timing belt cover bolts to 10 N•m (89 lb-in).



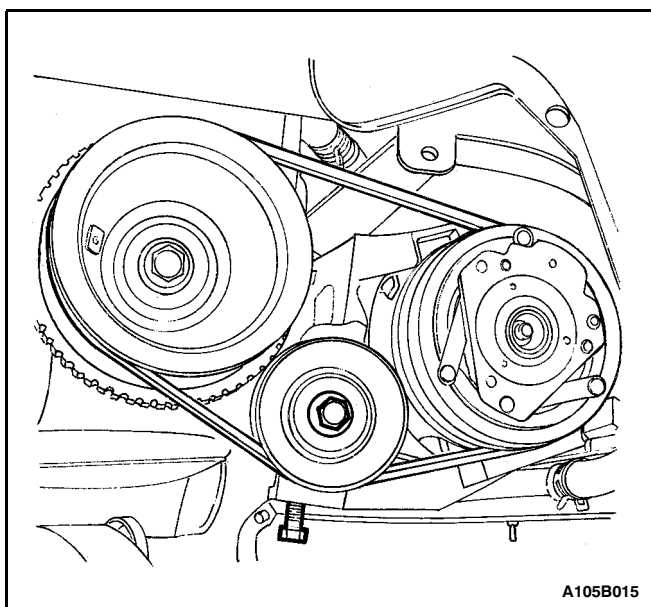
6. Install the crankshaft pulley and the bolt.

Tighten

Tighten the crankshaft pulley bolt to 95 N•m (70 lb-ft), then tighten the bolt another 30 degrees plus 15 degrees.



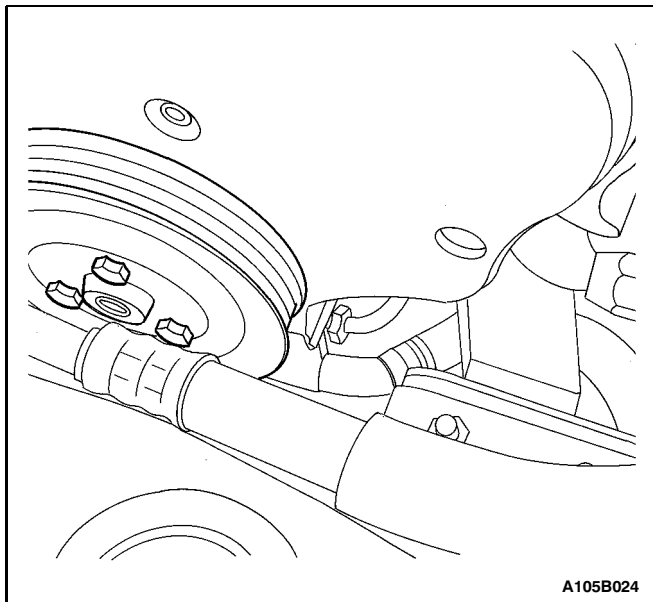
7. Install the A/C compressor belt.



8. Turn the tightening bolt on the tension pulley to tighten the A/C compressor belt. Tighten the securing bolt on the tension pulley.

Tighten

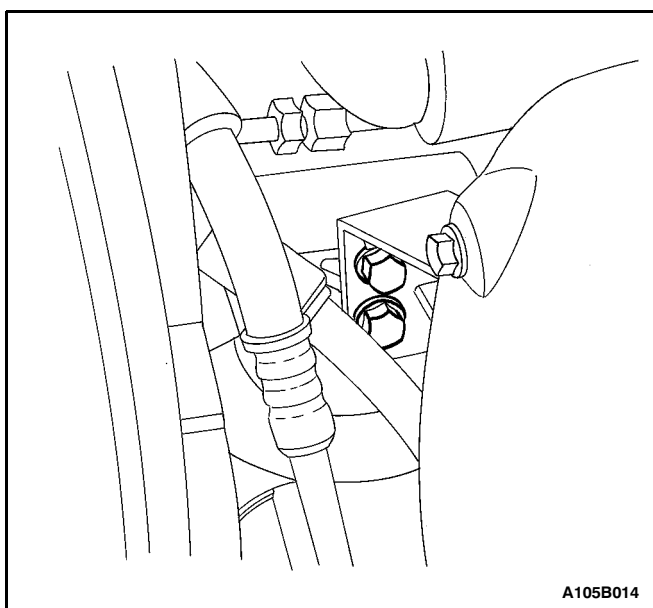
Tighten the tension pulley securing bolt to 25 N•m (18 lb-ft).



9. Install the right engine under cover. Refer to Section 9N, Frame and Underbody.
10. Install the right wheel. Refer to Section 2E, Tires and Wheels.
11. Lower the vehicle.
12. Install the power steering pump pulley and the pulley bolts.

Tighten

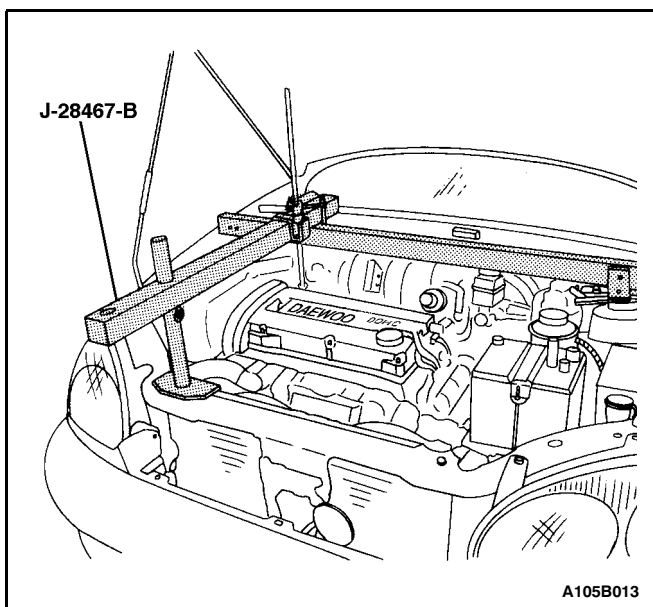
Tighten the steering pump pulley bolts to 25 N•m (18 lb-ft).



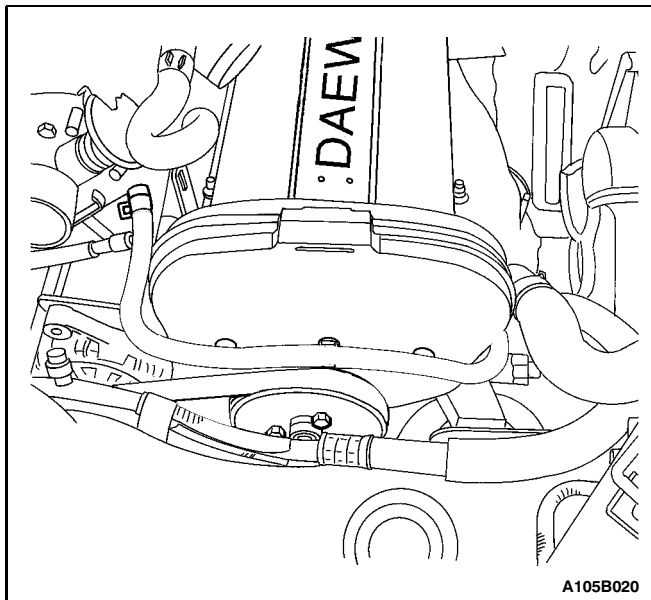
13. Lower the engine using the engine support fixture J-28467-B.
14. Install the engine bracket-to-mount bolts.

Tighten

Tighten the engine bracket-to-mount bolts to 60 N•m (44 lb-ft).



15. Remove the engine support fixture J-28467-B.

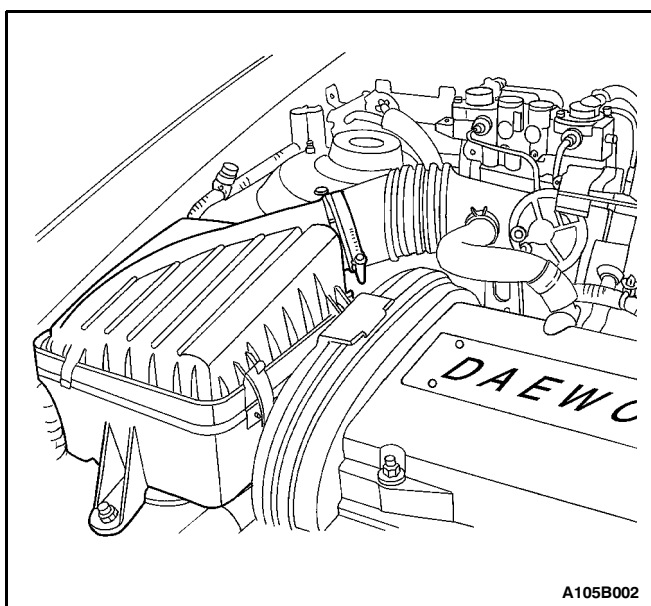


16. Install the pump drive belt onto the pulley. Push the alternator rearward and tighten the alternator adjusting bolt.

Tighten

Tighten the alternator adjusting bolt to 20 N•m (15 lb-ft).

17. Connect the throttle body inlet coolant hose to the throttle body and the timing belt cover.



18. Install the air cleaner housing with the housing bolts and the clamp.

Tighten

Tighten the air cleaner housing bolts to 12 N•m (106 lb-in).

Notice: When adding fluid or making a complete fluid change, always use DEXRON®-III power steering fluid. Failure to use the proper fluid will cause hose and seal damage and fluid leaks.

19. Refill the pump with new fluid and bleed the air from the system. Refer to Section 6A Bleeding the Power Steering System.
20. Inspect for leaks. If leaks are found, correct the cause of the leak and bleed the system.

UNIT REPAIR

PUMP

The power steering pump in this vehicle is not serviceable. A faulty pump must be replaced.

GENERAL DESCRIPTION AND SYSTEM OPERATION

POWER STEERING PUMP

General Description

The pump has a remote fluid reservoir. A pressure-relief valve inside the flow control valve limits pump pressure.

SEALS

Seal Replacement

Lip seals, which seal the rotating shafts, are used on the driveshaft of the pump. This type of seal requires special treatment. When leakage occurs in this area, always replace the seal after inspecting and thoroughly cleaning the sealing surfaces. If the corrosion in the lip seal contact zone is slight, clean the surface of the shaft with a crocus cloth. Replace the shaft only if the leakage cannot be stopped by first smoothing the shaft with the crocus cloth.