

ENGINE REMOVAL & INSTALLATION

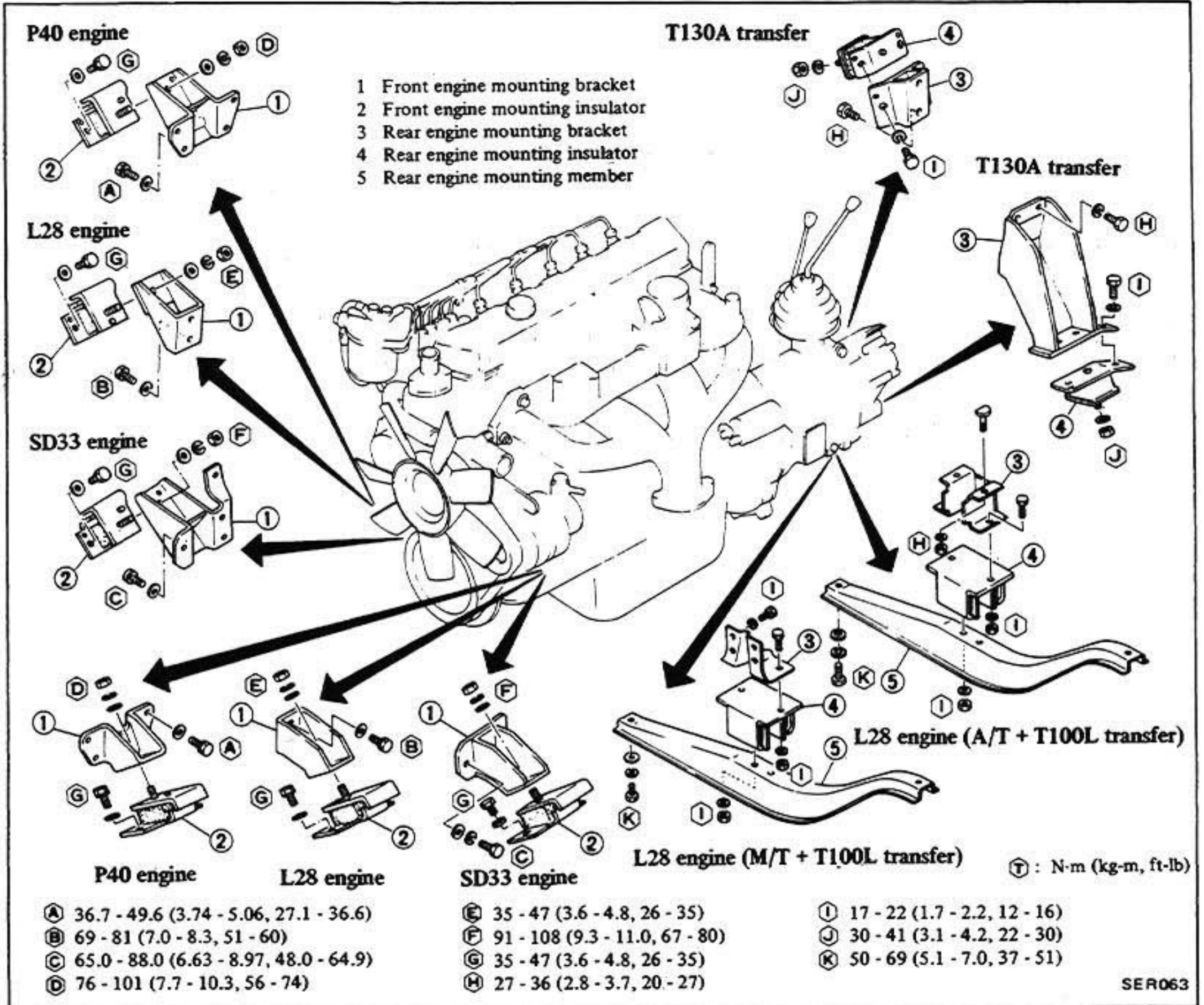
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ER

ENGINE REMOVAL AND INSTALLATION (Except Canvas Top)

CONSTRUCTION



REMOVAL

With T130A transfer

It is much easier to remove engine with clutch housing, transmission and transfer as a single unit than to remove them separately. After removal, separate engine and transmission.

With T100L transfer

It is much easier to remove engine with transmission and clutch housing or converter housing as a single unit.

WARNING:

- Place wheel chocks in front of front wheels and in rear of rear wheels.
- Be sure to hoist engine and jack up transmission in a safe manner.
- You should not remove the engine until the exhaust system has completely cooled off. Otherwise, you may burn yourself and/or fire may break out in fuel line.

Fender cover should be used to protect vehicle body.

- Disconnect battery around cable.
- Drain engine coolant and then disconnect radiator hoses.
- Remove hood.

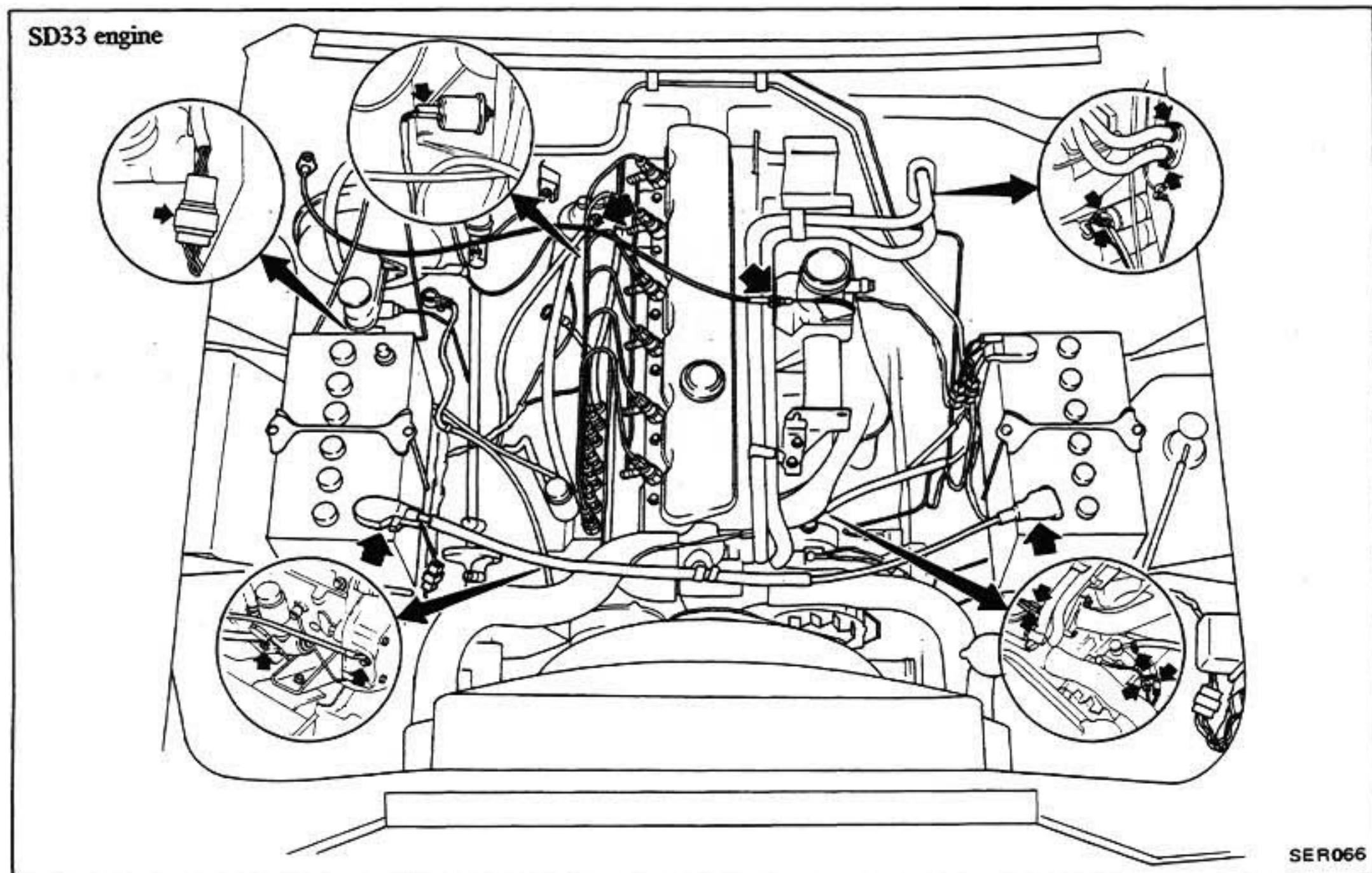
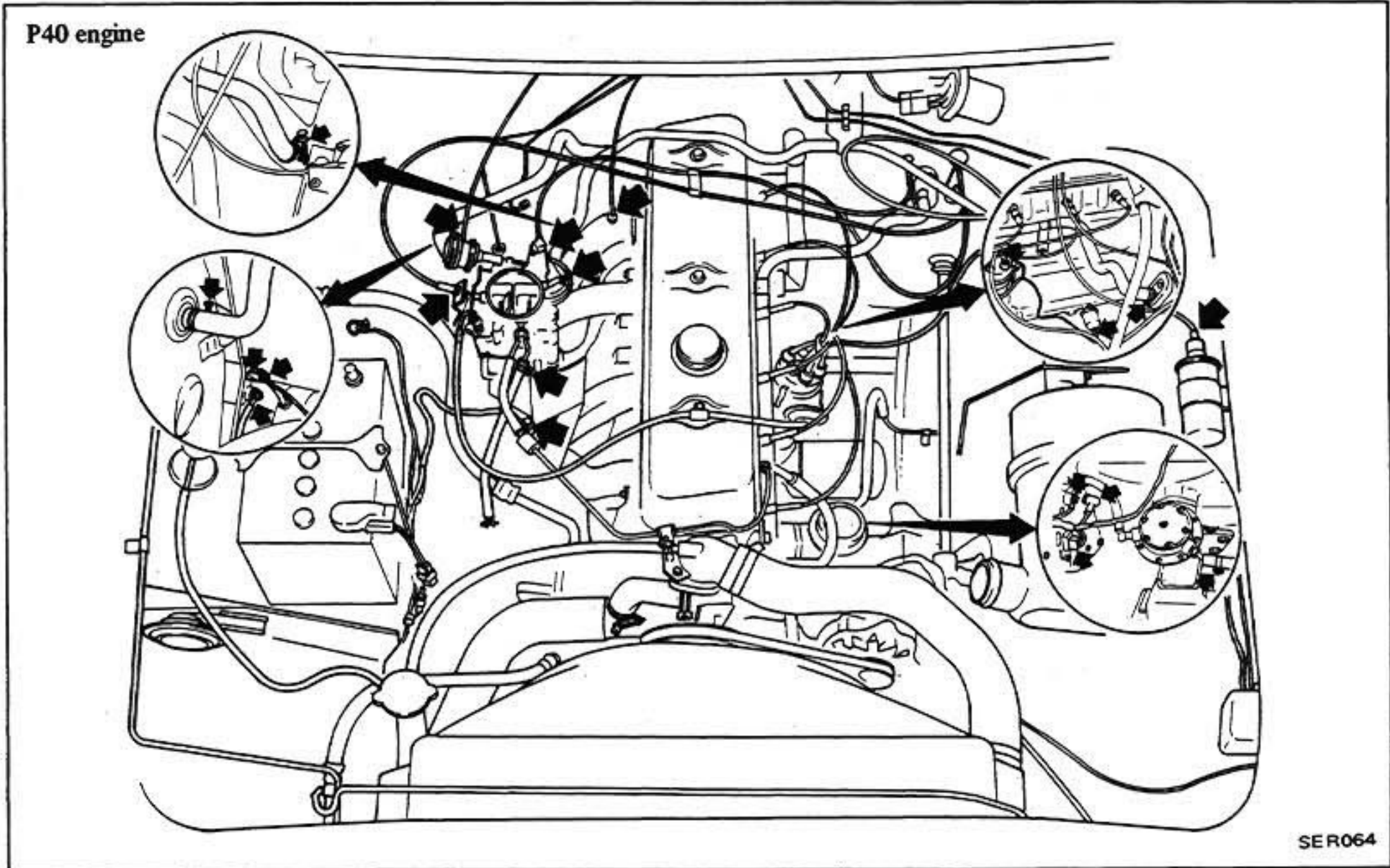
Mark the location of hood hinges on hood to facilitate correct reinstallation.

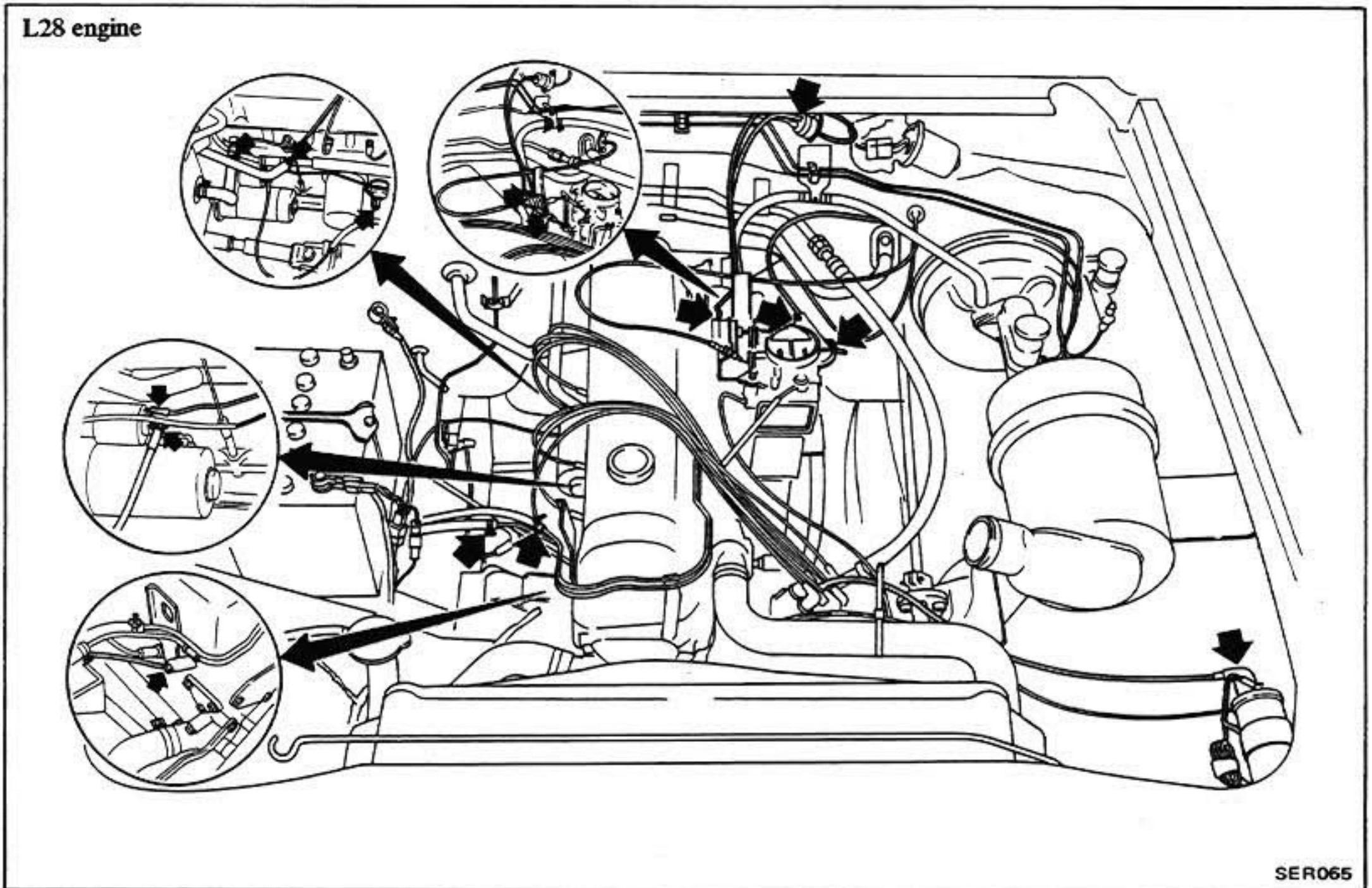
CAUTION:

Have an assistant help you so as to prevent damage to body.

ENGINE REMOVAL & INSTALLATION – *Engine Removal and Installation (Except Canvas Top)*

4. Remove air cleaner.
5. Remove all wires and hoses indicated by arrows in the following figures.





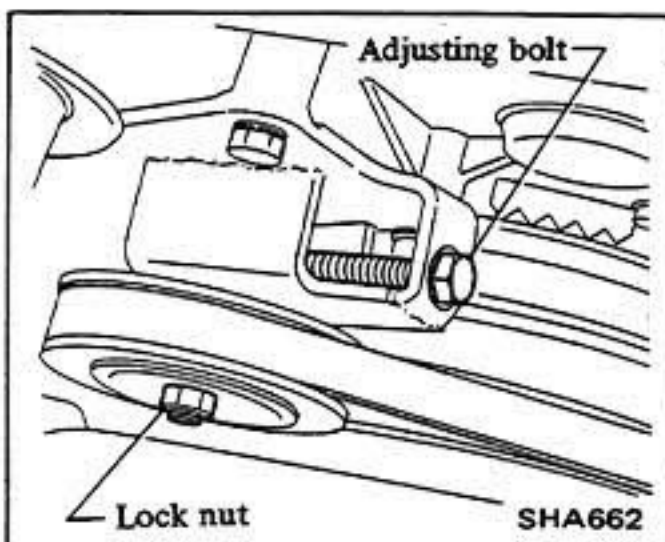
6. Models equipped with air conditioner:

Remove compressor, following the procedures below.

(1) Remove battery or cyclone pre-air cleaner at compressor side.

(2) Remove compressor drive belt.

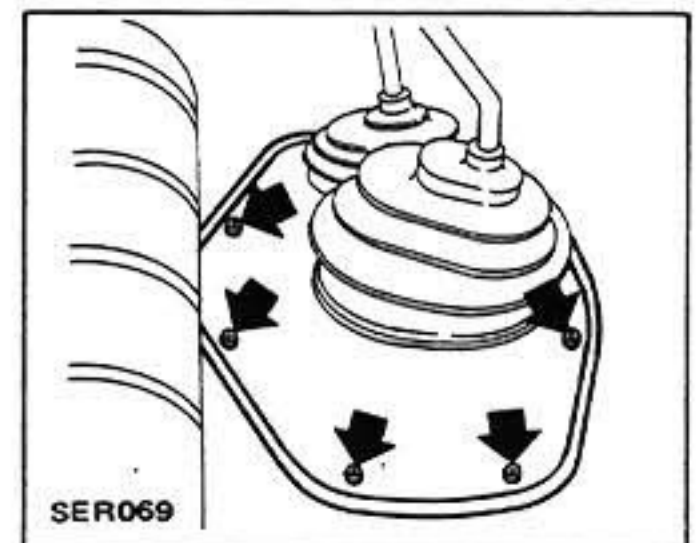
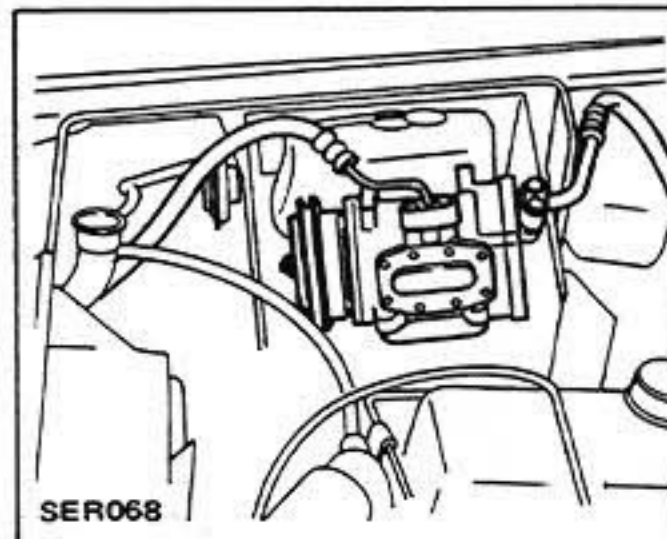
To remove this belt, loosen both idler pulley nut and adjusting bolt.



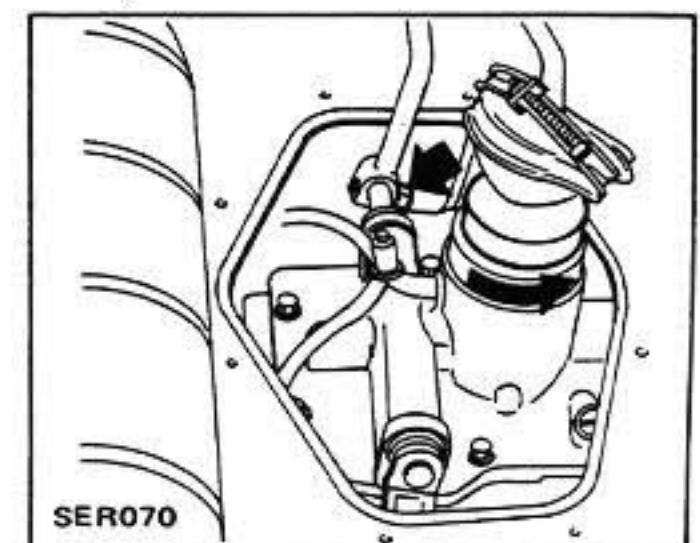
(3) Disconnect harness connector and remove compressor.

Place the removed compressor as shown below.

Never discharge gas from compressor while service/repair work is being performed.



(2) Remove transmission (and transfer) control levers.



Refer to Section MT or AT.

7. Remove power steering oil pump. Refer to Section ST.

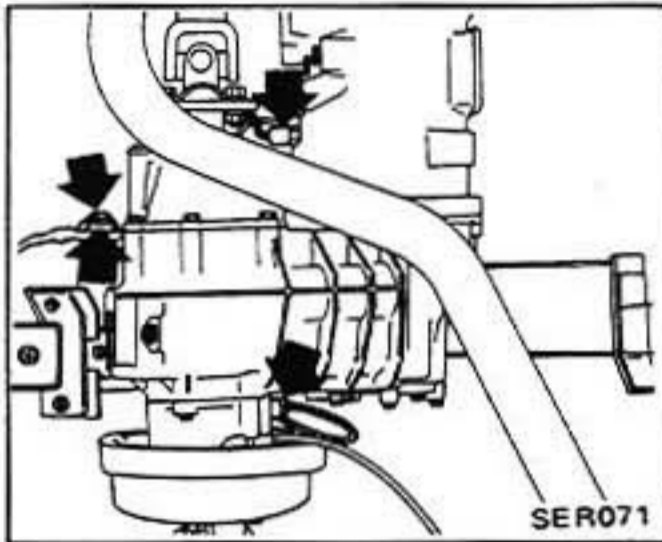
8. Remove transmission and transfer control levers as follows:

(1) Remove floor mat and floor hole cover.

ENGINE REMOVAL & INSTALLATION – Engine Removal and Installation (Except Canvas Top)

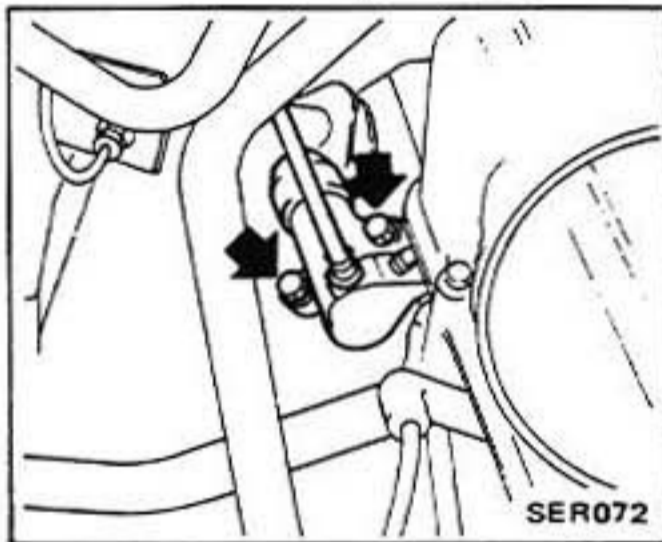
9. Remove radiator upper and lower hoses, then remove radiator and radiator shroud.

10. Disconnect speedometer cable, reverse lamp switch harness connector on transmission case (and 4WD switch harness connector on transfer case).



11. Remove hand brake cable.

12. Remove clutch operating cylinder.



13.

T130A transfer models

Remove front exhaust tube and front and rear propeller shafts.

T100L transfer models

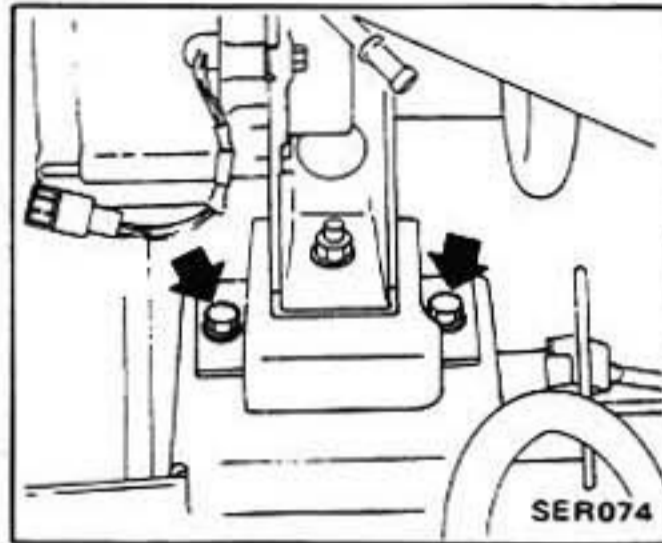
Remove front exhaust tube and pre-propeller shaft. Refer to Section TF.

Place marks on propeller shaft before removal to facilitate reinstallation.

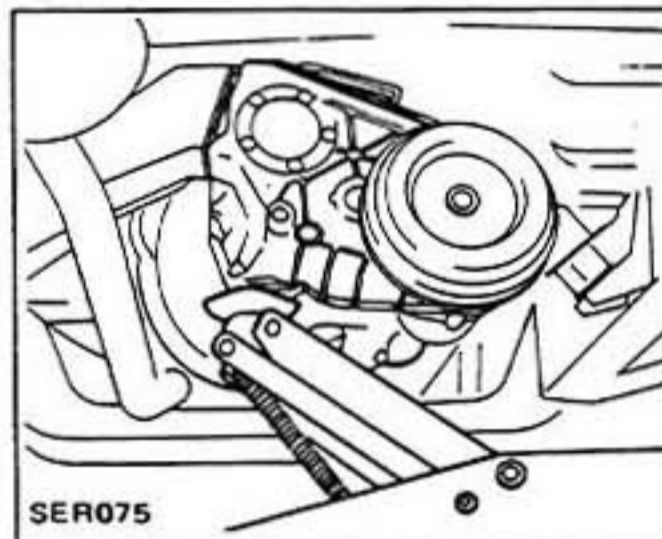


14. Disconnect winch drive shaft from P.T.O. (Models equipped with winch).

15. Remove front engine mounting bracket bolts.



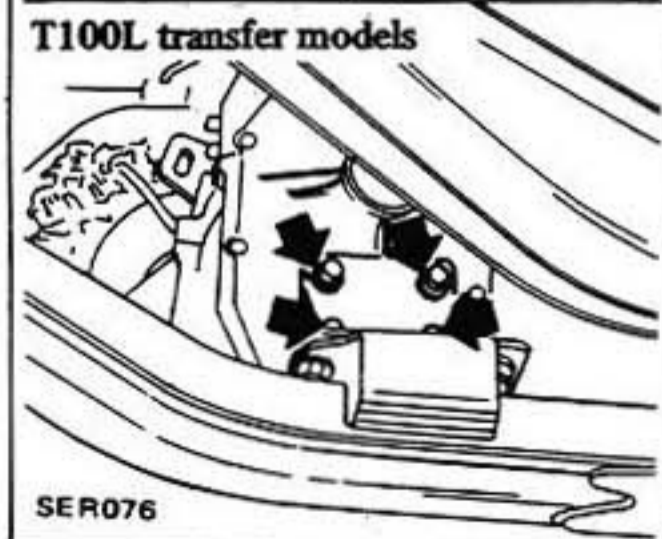
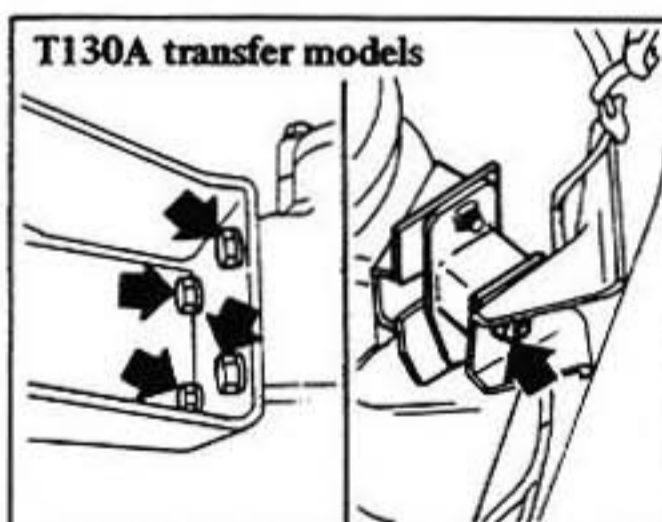
16. Support transmission with garage jack.



17. Attach suitable chains to engine slingers and support engine using a hoist.

Do not put tension on the chains.

18. Remove rear engine mounting bracket bolts.

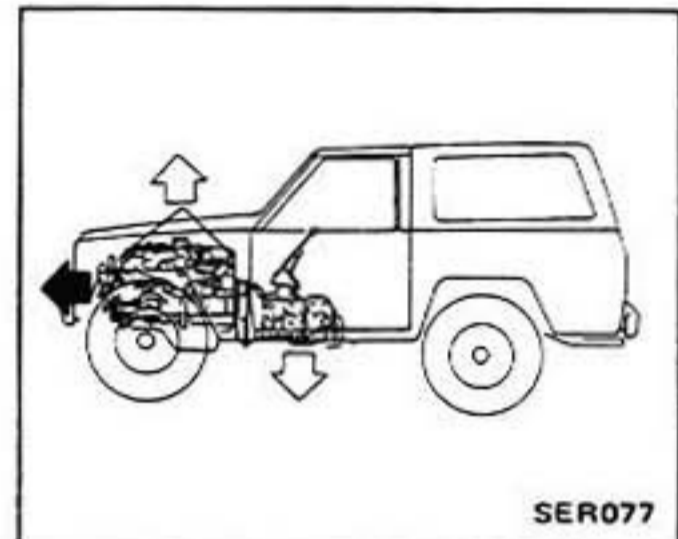


19. While lowering the transmission support, raise engine slightly with a hoist.

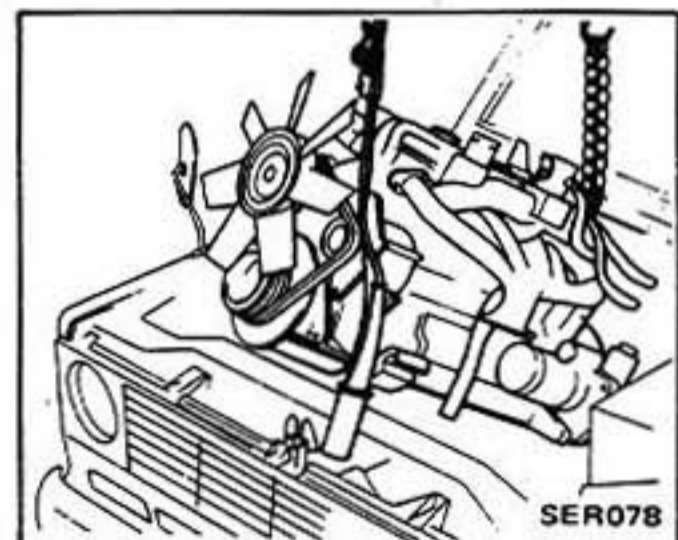
WARNING:

Before raising engine, make sure it is safe to do so.

20. Move engine with transmission (and transfer) toward front of vehicle.



21. Raise engine with transmission (and transfer), and remove it from vehicle as a single unit.



WARNING:

When raising engine, be especially careful not to bump it against adjacent parts.

22. Set engine with transmission (and transfer) on an engine stand.

INSTALLATION

Installation is in reverse order of removal, observing the following:

When installing, be sure to check that electrical harnesses are correctly connected.

1. Adjust hand brake control lever stroke. Refer to Section BR for adjustment.

2. Adjust accelerator control system. Refer to Engine Control System (Section FE) for adjustment.

3. Install air conditioner compressor and adjust belt.

Refer to Engine Maintenance (Section MA) for checking and adjusting drive belts.

4. Adjust power steering pump belt.

Refer to Engine Maintenance (Section MA) for checking and adjusting

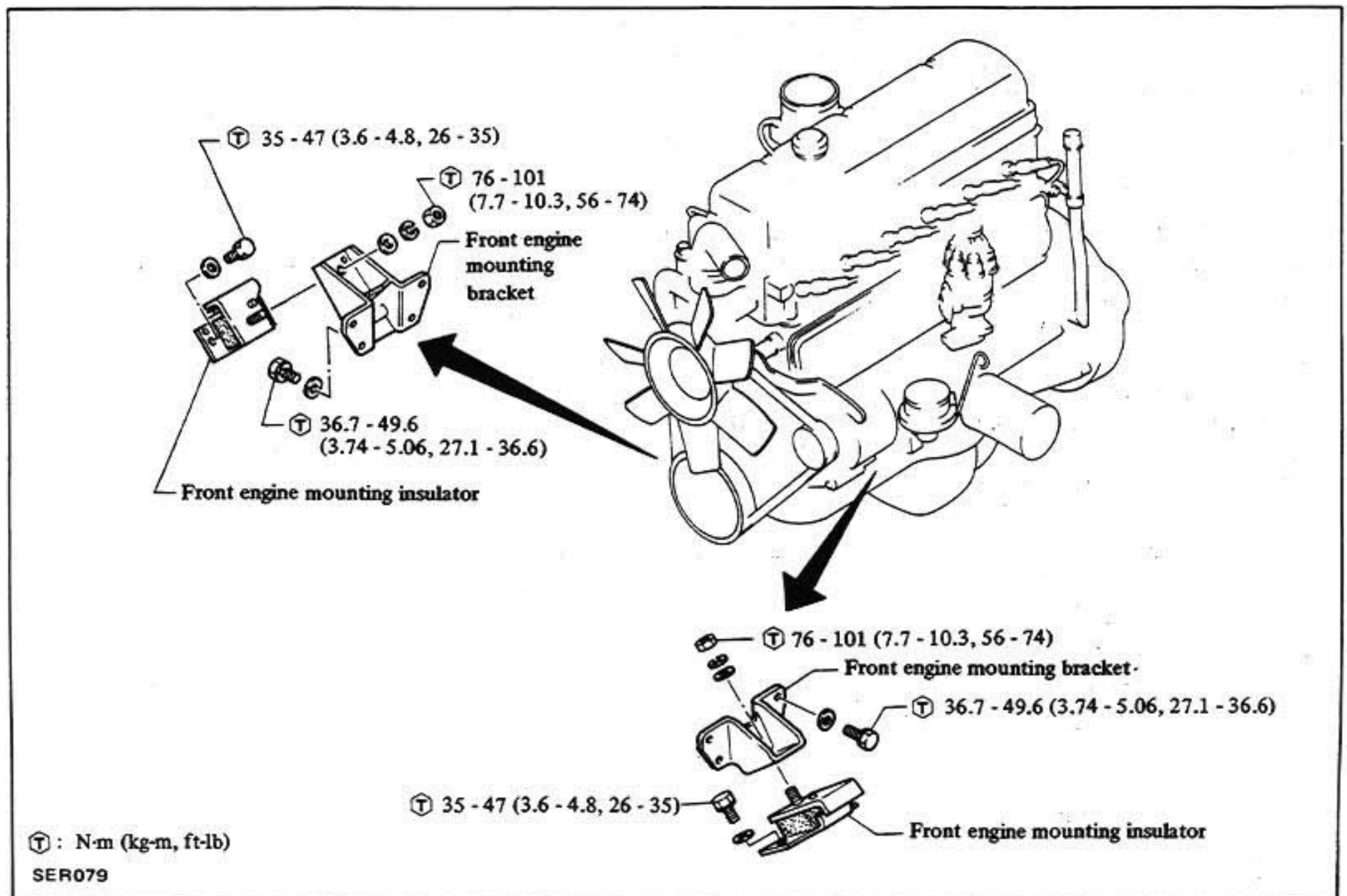
drive belts.

5. When reinstalling the hood following engine installation, be sure that it is properly centered and that hood lock operates securely. Refer to Hood (Section BF) for adjustment.

6. Fill the cooling system with the correct amount of engine coolant.

ENGINE REMOVAL AND INSTALLATION (Canvas Top)

CONSTRUCTION



REMOVAL

WARNING:

- a. Place wheel chocks in front of front wheels and in rear of rear wheels.
- b. Be sure to hoist engine and jack up transmission in a safe manner.
- c. You should not remove the engine until the exhaust system has completely cooled off. Otherwise, you may burn yourself and/or fire may break out in fuel line.

Fender cover should be used to protect vehicle body.

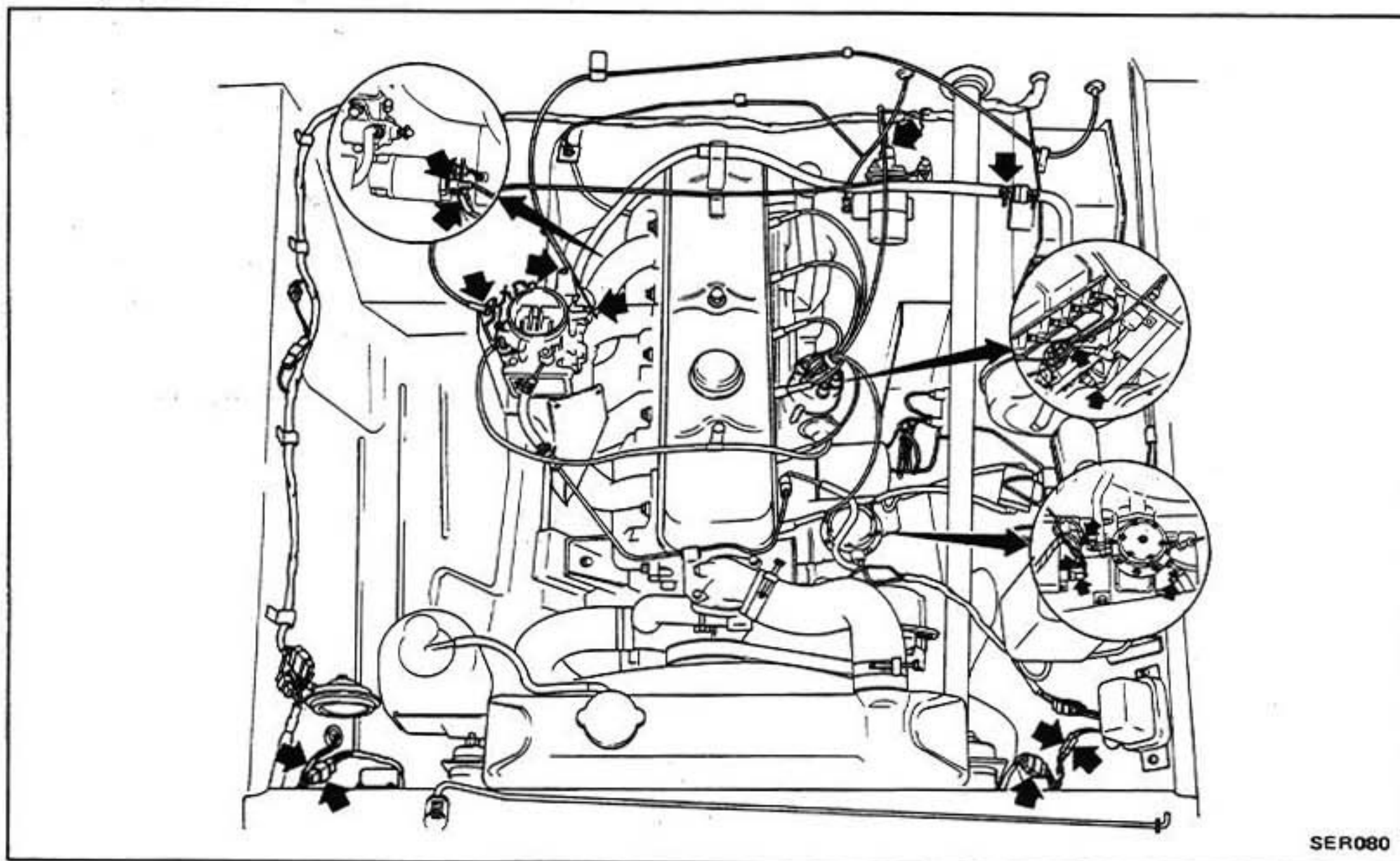
1. Disconnect battery ground cable.
2. Drain engine coolant.
3. Remove hood.

Mark the location of hood hinges on hood to facilitate correct reinstallation.

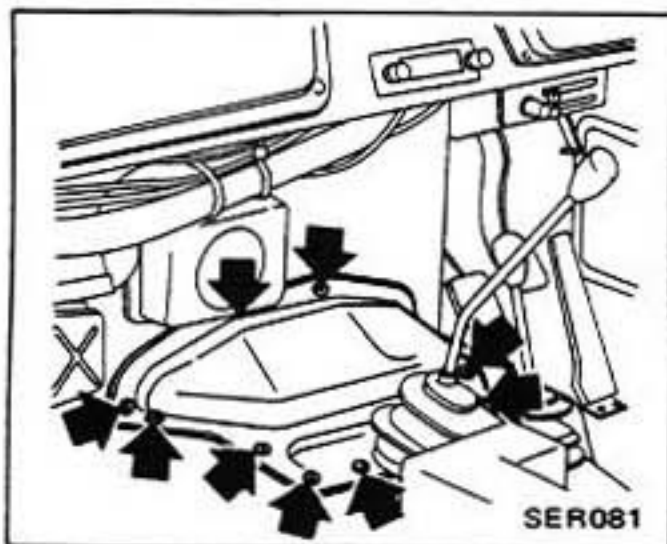
CAUTION:

Have an assistant help you so as to prevent damage to body.

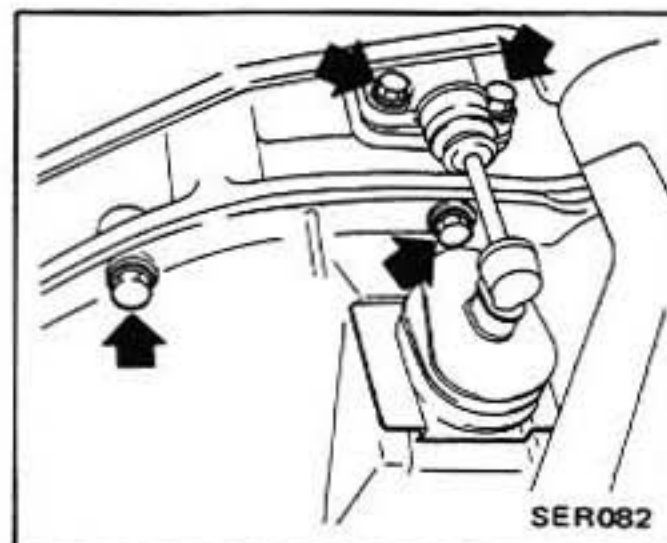
4. Remove air cleaner.
5. Remove all wires and hoses indicated by arrows in the figure below.



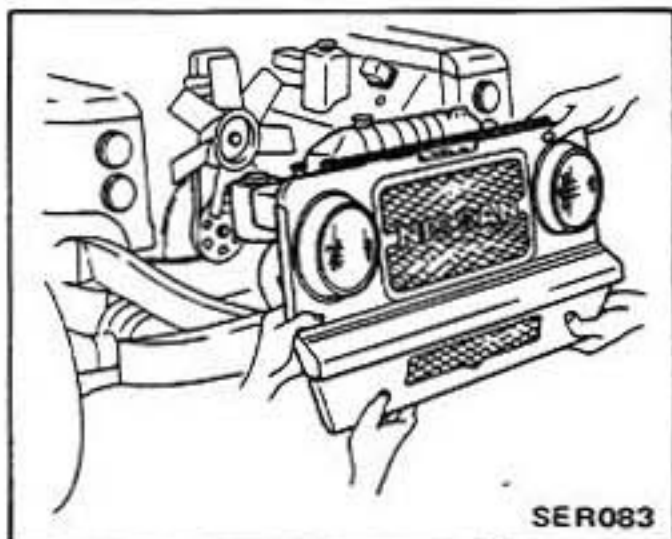
6. Remove floor hole cover.



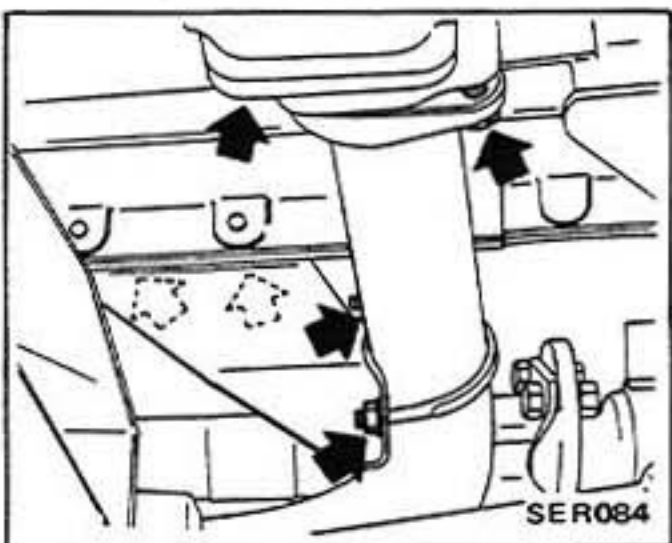
7. Remove clutch operating cylinder. Then remove bolts which hold the clutch housing to upper side of engine.



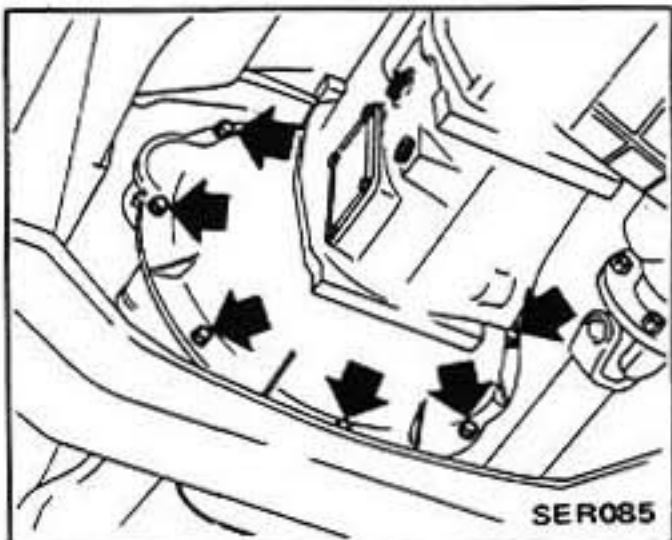
8. Remove radiator upper and lower hoses, and then remove radiator core support together with radiator.



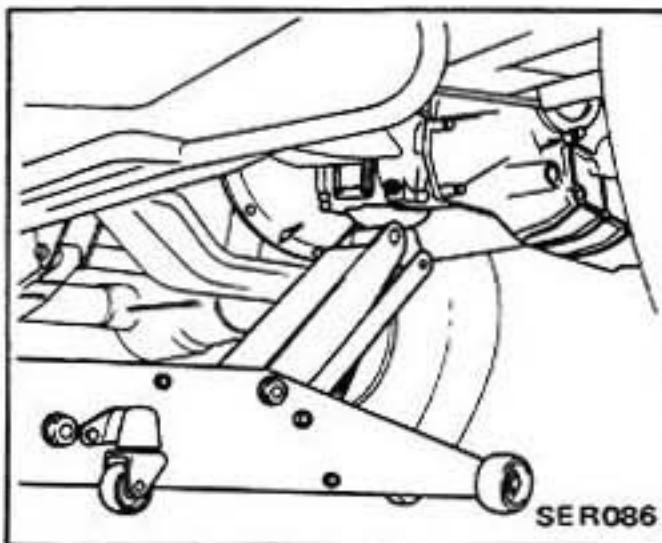
9. Remove front exhaust tube from exhaust manifold.



10. Remove bolts which hold clutch housing to lower side of engine.



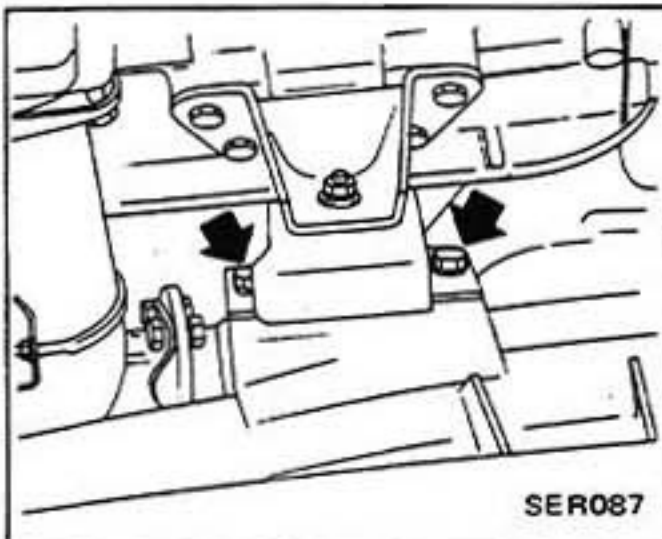
11. Support transmission with garage jack.



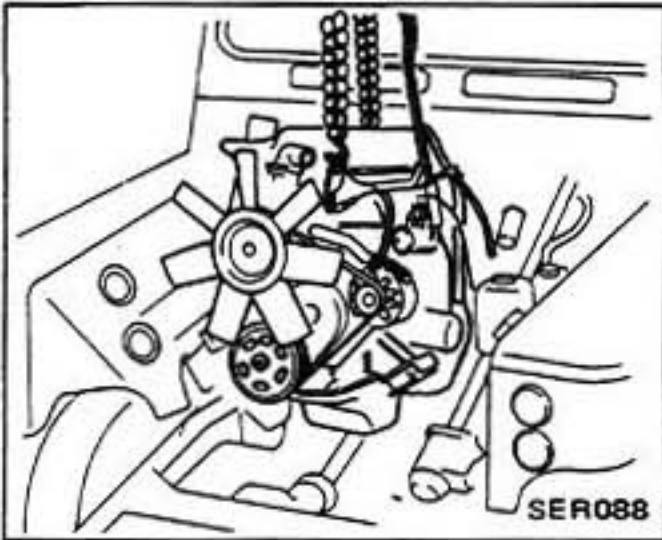
12. Attach suitable chains to engine slingers and support engine using a hoist.

Do not put tension on the chains.

13. Remove front engine mounting bolts.



14. Slide out engine and remove it from vehicle.



WARNING:

When raising engine, be especially careful not to bump it against adjacent parts.

15. Set engine on an engine stand.

INSTALLATION

Installation is in reverse order of removal, observing the following:

When installing, be sure to check that electrical harnesses are correctly connected.

1. Adjust accelerator control system. Refer to Engine Control System (Section FE) for adjustment.
2. When reinstalling the hood following engine installation, be sure that it is properly centered and that hood lock operates properly. Refer to Hood (Section BF) for adjustment.
3. Fill the cooling system with the correct amount of engine coolant.

SERVICE DATA AND SPECIFICATIONS

TIGHTENING TORQUE

Unit		N-m	kg-m	ft-lb
Front engine mounting bracket to cylinder block	P40	36.7 - 49.6	3.74 - 5.06	27.1 - 36.6
	L28	69 - 81	7.0 - 8.3	51 - 60
	SD33	65.0 - 88.0	6.63 - 8.97	48.0 - 64.9
Front engine mounting insulator to bracket	P40	76 - 101	7.7 - 10.3	56 - 74
	L28	35 - 47	3.6 - 4.8	26 - 35
	SD33	91 - 108	9.3 - 11.0	67 - 80
Front engine mounting insulator to frame		35 - 47	3.6 - 4.8	26 - 35
Rear engine mounting bracket to transfer (or transmission)	P40, SD33, L28 A/T	27 - 36	2.8 - 3.7	20 - 27
	L28 M/T	17 - 22	1.7 - 2.2	12 - 16
Rear engine mounting insulator to bracket		17 - 22	1.7 - 2.2	12 - 16
Rear engine mounting insulator to frame (or member)	P40, SD33	30 - 41	3.1 - 4.2	22 - 30
	L28	17 - 22	1.7 - 2.2	12 - 16
Rear engine mounting member to frame (L28 engine)		50 - 69	5.1 - 7.0	37 - 51
Clutch operating cylinder to engine		30 - 40	3.1 - 4.1	22 - 30
Front exhaust tube to exhaust manifold		26 - 36	2.7 - 3.7	20 - 27
Front exhaust tube to bracket		20 - 22	2.0 - 2.2	14 - 16
Front exhaust tube bracket to oil pan (Canvas Top)		8 - 14	0.8 - 1.4	5.8 - 10.1
Propeller shaft to companion flange		78 - 88	8.0 - 9.0	58 - 65
Compressor to bracket		44 - 54	4.5 - 5.5	33 - 40
Oil pump to bracket		26 - 36	2.7 - 3.7	20 - 27
Clutch housing to engine	P40, SD33	38 - 49	3.9 - 5.0	28 - 36
	L28 "A" Bolt	43 - 58	4.4 - 5.9	32 - 43
	"B" Bolt	25 - 35	2.6 - 3.6	19 - 26