

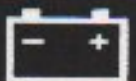
ELECTRICAL

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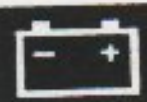
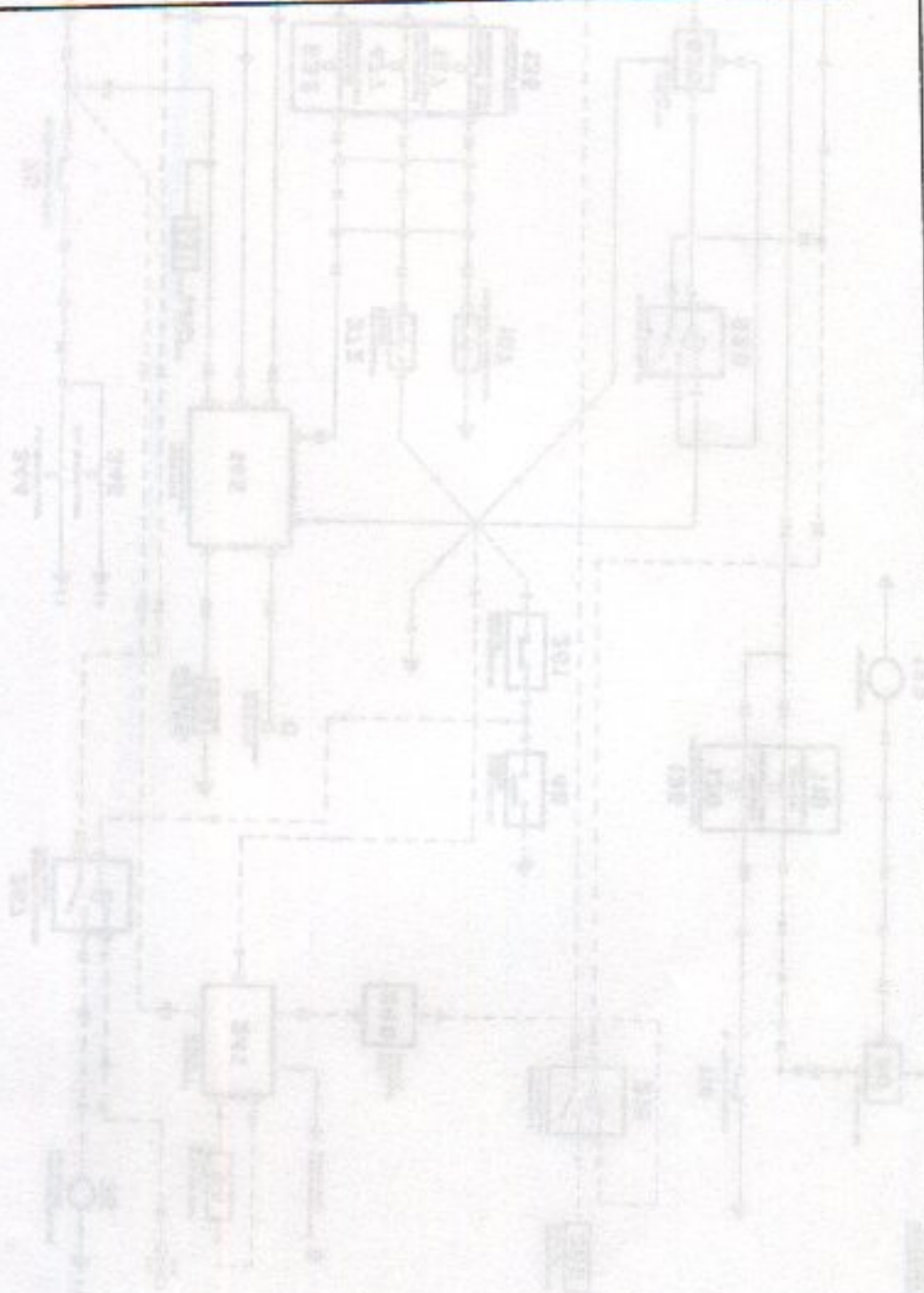


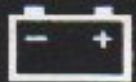
WIRING DIAGRAMS - UP TO 1991 MODELS

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2.1900M 1987





CIRCUIT KEY

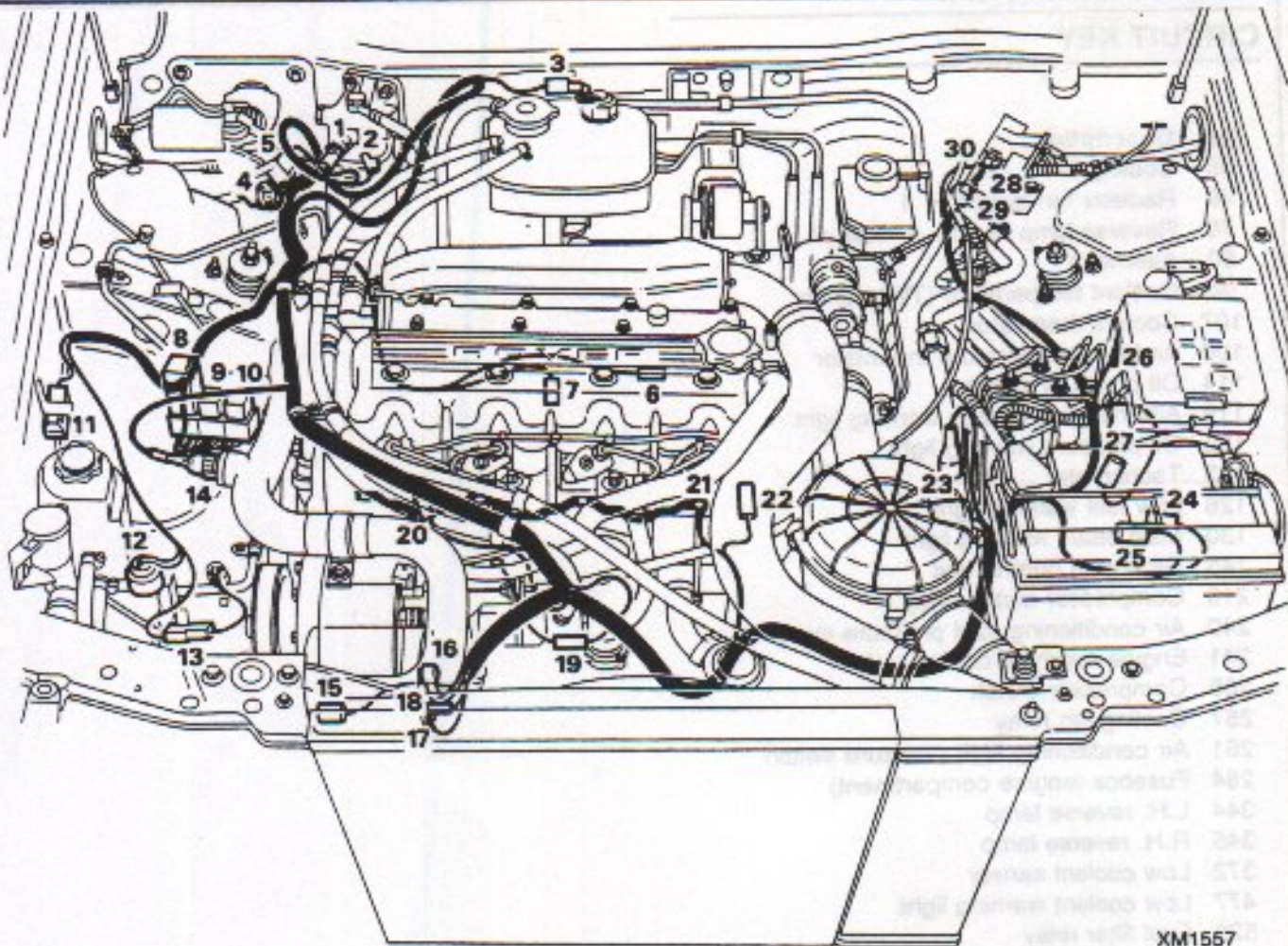
- | No. | Description |
|-----|---------------------------------------|
| 35 | Cooling fan |
| 48 | Radiator fan switch - 1 |
| 75 | Reverse lamp switch - manual |
| 80 | Alternator |
| 94 | Coolant temperature (TW) sensor |
| 107 | Coolant thermistor |
| 108 | Ambient temperature thermistor |
| 114 | Oil pressure switch |
| 119 | Alternator/no charge warning light |
| 120 | Oil pressure warning light |
| 123 | Tachometer |
| 126 | Low fuel warning light |
| 130 | Main beam warning light |
| 145 | Glow plug control unit |
| 218 | Compressor clutch relay |
| 240 | Air conditioning dual pressure switch |
| 241 | Engine overheat control unit |
| 255 | Compressor clutch |
| 257 | Cooling fan relay |
| 261 | Air conditioning high pressure switch |
| 284 | Fusebox (engine compartment) |
| 344 | L.H. reverse lamp |
| 345 | R.H. reverse lamp |
| 372 | Low coolant sensor |
| 477 | Low coolant warning light |
| 529 | Fuel filter relay |
| 530 | Fuel filter heater |
| 531 | Fuel cut - off switch |
| 532 | Glow plug warning light |
| 533 | Post heat off switch |

Letter Circuit

- | | |
|---|------------------------------|
| A | Air conditioning |
| B | Air conditioning switch pack |
| C | Glow plug bus bar connection |
| D | Starting |

ENGINE HARNESS LAYOUT

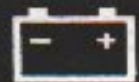
- | | |
|----|---------------------------------------|
| 1 | Fuel filter 1 |
| 2 | Fuel filter 2 |
| 3 | Low coolant sensor |
| 4 | Main harness connector 1 |
| 5 | Main harness connector 2 |
| 6 | Starter motor solenoid |
| 7 | Oil pressure switch |
| 8 | Engine over heat control unit |
| 9 | Compressor clutch relay |
| 10 | Fuel filter relay |
| 11 | Radiator fan switch |
| 12 | Air conditioning dual pressure switch |
| 13 | Air conditioning high pressure switch |
| 14 | Coolant temperature sensor |
| 15 | Compressor clutch |
| 16 | Alternator |
| 17 | Alternator no charge warning light |
| 18 | Tachometer |
| 19 | Fuel cut - off switch |
| 20 | Post heat off switch |
| 21 | Glow plug |
| 22 | Coolant temperature sensor |
| 23 | Reverse lamp switch |
| 24 | Engine harness |
| 25 | Main harness connector 3 |



XM1557

ENGINE HARNESS LAYOUT

- | | |
|---|----------------------------|
| 1. Fuel filter 1 | 26. Relay box |
| 2. Fuel filter 2 | 27. Bus bar connection |
| 3. Low coolant switch | 28. Battery connections |
| 4. Main harness connector 1 | 29. Glow plug control unit |
| 5. Main harness connector 2 | |
| 6. Starter motor solenoid | |
| 7. Oil pressure switch | |
| 8. Engine over heat control unit | |
| 9. Compressor clutch relay | |
| 10. Fuel filter relay | |
| 11. Radiator fan switch | |
| 12. Air conditioning dual pressure switch | |
| 13. Air conditioning high pressure switch | |
| 14. Coolant temperature sensor | |
| 15. Compressor clutch | |
| 16. Alternator | |
| 17. Alternator/no charge warning light | |
| 18. Tachometer | |
| 19. Fuel cut - off solenoid | |
| 20. Postheat off switch | |
| 21. Glow plugs | |
| 22. Coolant temperature switch | |
| 23. Reverse lamp switch | |
| 24. Engine harness | |
| 25. Main harness connector 3 | |



STARTER MOTOR

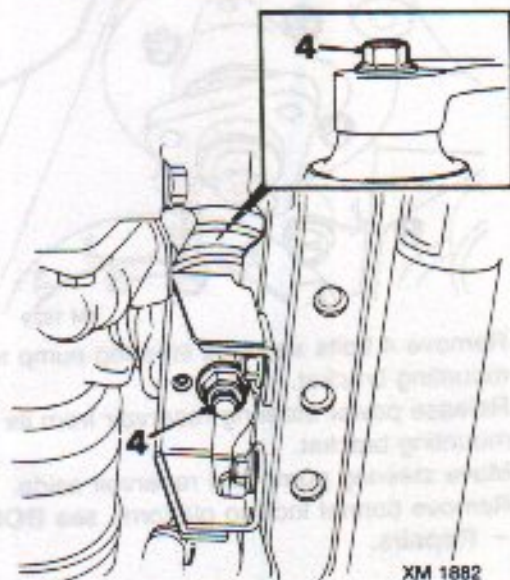
Service Repair No. 86.60.01

Remove

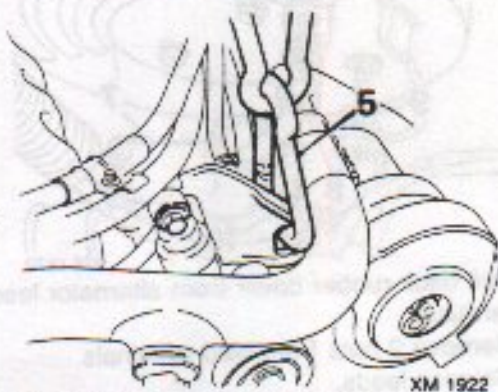
1. Raise front of vehicle.

WARNING: Support on safety stands.

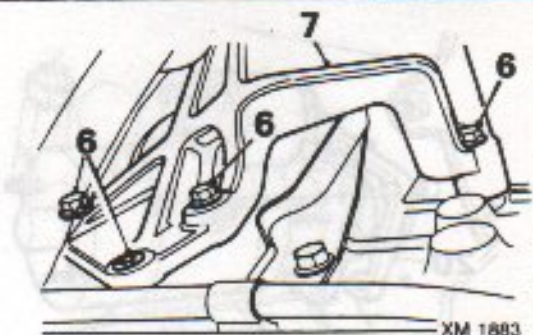
2. Remove R.H. drive shaft, see **DRIVE SHAFTS - Repairs.**
3. Remove exhaust down pipe, see **MANIFOLD AND EXHAUST - Repairs.**



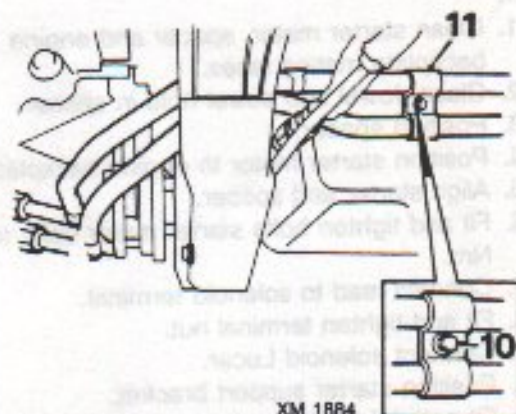
4. Remove 2 nuts securing rear engine mounting to mounting brackets on crossmember and engine.



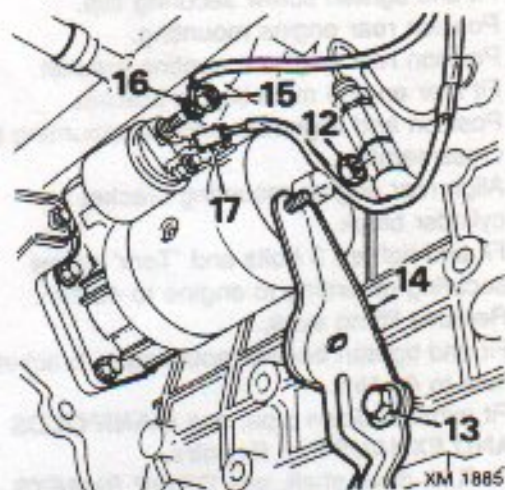
5. Fit two lifting eyes to P.A.S. pump bracket and support weight of engine.



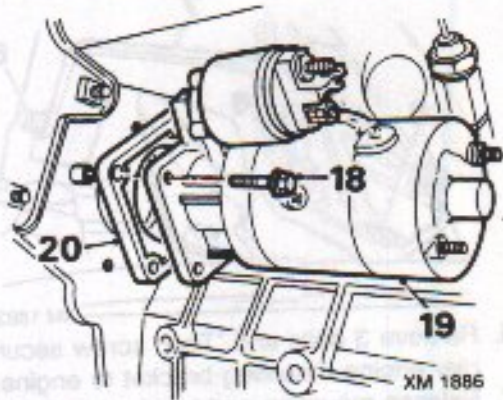
6. Remove 3 bolts and 'Torx' screw securing rear engine mounting bracket to engine.
7. Release mounting and bracket assembly.
8. Remove mounting from bracket.
9. Remove mounting bracket.



10. Remove screw securing oil cooler pipe clip to starter motor support bracket.
11. Remove clip.



12. Remove nut securing starter motor support bracket to starter motor.
13. Remove bolt securing support bracket to cylinder block.
14. Remove bracket.
15. Remove starter solenoid terminal nut.
16. Release lead.
17. Disconnect starter solenoid Lucar.



18. Remove 3 bolts securing starter motor to engine backplate.
19. Remove starter motor.
20. Remove spacer.

Refit

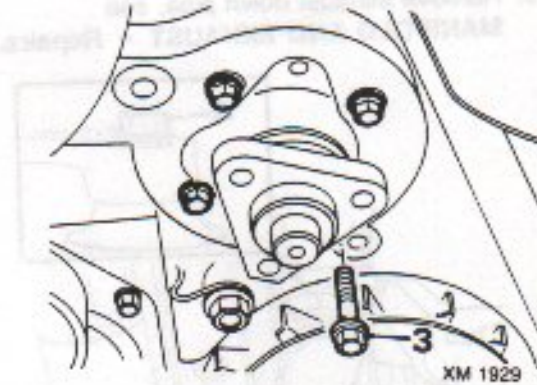
1. Clean starter motor, spacer and engine backplate mating faces.
2. Clean dowel and dowel hole in spacer.
3. Position spacer.
4. Position starter motor to engine backplate.
5. Align starter and spacer.
6. Fit and tighten bolts starter motor bolts to 68 Nm.
7. Connect lead to solenoid terminal.
8. Fit and tighten terminal nut.
9. Connect solenoid Lucar.
10. Position starter support bracket.
11. Fit and tighten bolt, starter support bracket.
12. Fit and tighten nut securing support bracket to starter.
13. Position oil cooler pipe clip.
14. Fit and tighten screw securing clip.
15. Position rear engine mounting.
16. Position rear engine mounting bracket.
17. Fit rear engine mounting to bracket.
18. Position and align rear engine, mounting to crossmember.
19. Align rear engine mounting bracket to cylinder block.
20. Fit and tighten 3 bolts and 'Torx' screw securing mounting to engine to 45 Nm.
21. Remove lifting eyes.
22. Fit and tighten engine mounting to bracket nuts to 85 Nm.
23. Fit exhaust down pipe, see **MANIFOLDS AND EXHAUST - Repairs.**
24. Fit R.H. drive shaft, see **DRIVE SHAFTS - Repairs.**
25. Remove stand(s) and lower vehicle.
26. Check and top up gearbox oil, see **GEARBOX - Adjustments.**

ALTERNATOR

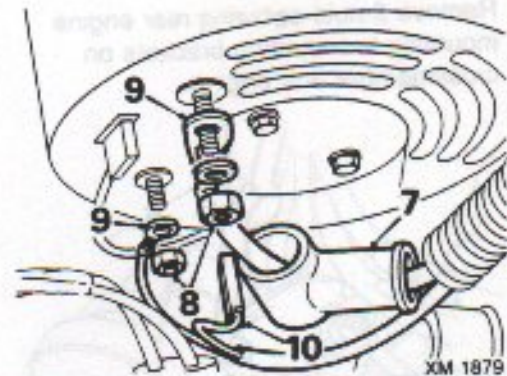
Service Repair No. 86.10.02

Remove

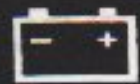
1. Remove radiator grille, see **REPAIR MANUAL - BODY - Repairs.**
2. Remove power steering pump, see **STEERING - Repairs**



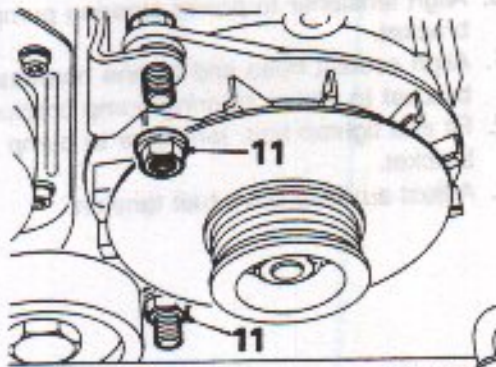
3. Remove 4 bolts securing steering pump to mounting bracket.
4. Release power steering reservoir from its mounting bracket.
5. Move steering pump and reservoir aside.
6. Remove bonnet locking platform, see **BODY - Repairs.**



7. Pull back rubber cover from alternator lead terminal.
8. Remove 2 nuts from lead terminals.
9. Release leads.
10. Release Lucar from alternator.

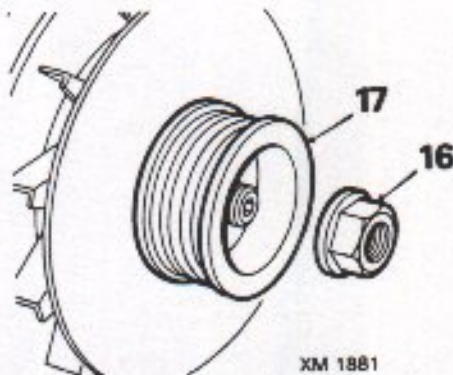


AUXILIARY DRIVE BELT



XM 1880

11. Remove 2 alternator upper and lower mounting nuts and bolts.
12. Release alternator from its lower mounting.
13. Pull radiator forward for access.
14. Manoeuvre alternator from engine compartment.
15. Remove alternator.



XM 1881

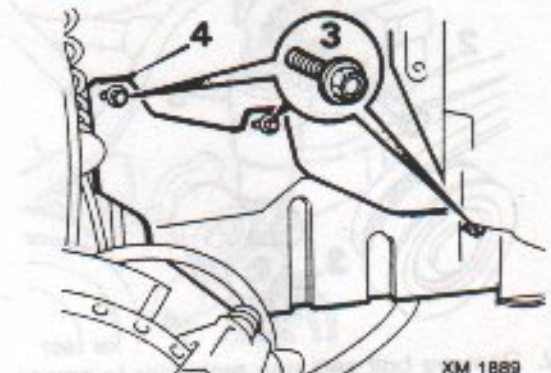
16. Remove nut from alternator pulley.
17. Remove pulley from alternator.
18. Fit pulley to new alternator.
19. Fit and tighten pulley nut to 47 Nm.

Refit

1. Position alternator to engine. Pull radiator forward to allow better access.
2. Position alternator to lower mounting.
3. Fit and tighten 2 upper and lower mounting bolts to 25 Nm.
4. Position leads to terminals.
5. Fit and tighten 2 terminal nuts.
6. Secure rubber cover to terminal.
7. Connect Lucar to alternator.
8. Refit bonnet locking platform, see **BODY - Repairs**.
9. Reposition steering pump and reservoir.
10. Secure reservoir to its mounting bracket.
11. Align steering pump to mounting bracket.
12. Fit and tighten 4 bolts, steering pump to mounting bracket to 8 Nm.
13. Refit radiator grille, see **REPAIR MANUAL - BODY - Repairs**.

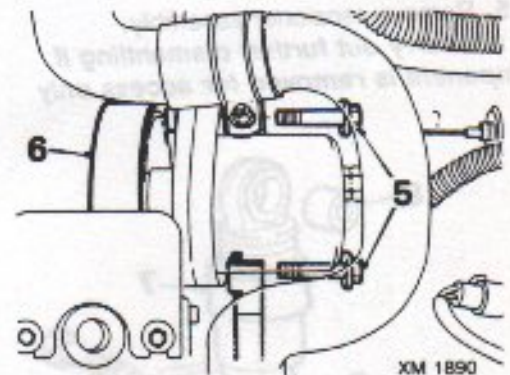
Remove

1. Release auxiliary drive belt tension.
2. Turn steering onto R.H. lock.



XM 1889

3. Remove 3 screws securing R.H. splash shield.
4. Remove splash shield.



XM 1890

5. Remove 2 bolts securing power steering pump to pulley cover.
6. Remove pulley cover.
7. Release auxiliary drive belt from pulleys.
8. Release auxiliary drive belt from between crankshaft pulley and longitudinal member.
9. Remove auxiliary drive belt.

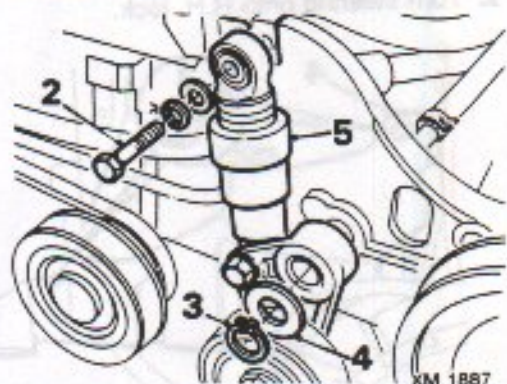
Refit

1. Wipe clean drive belt and pulleys.
2. Fit belt between crankshaft pulley and longitudinal member.
3. Position belt to pulleys.
4. Adjust auxiliary drive belt tension.
5. Position power steering pump belt cover.
6. Align hose retaining clips.
7. Fit and tighten steering pump belt cover bolts to 15 Nm.
8. Position splash shield.
9. Fit and tighten 3 splash shield screws.

AUXILIARY DRIVE BELT TENSIONER

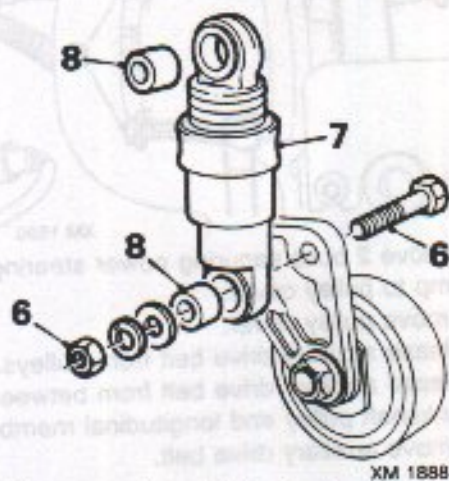
Remove

1. Release auxiliary drive belt tension.



2. Remove bolt securing tensioner to power steering pump bracket.
3. Remove circlip, tensioner bracket to power steering pump bracket.
4. Remove the flat washer.
5. Remove tensioner assembly.

Do not carry out further dismantling if component is removed for access only



6. Remove nut and bolt, tensioner to bracket.
7. Remove tensioner from bracket.
8. Collect steel bushes from tensioner.

Refit

1. Clean steel bushes.
2. Fit bushes to tensioner.
3. Fit tensioner to bracket.
4. Fit and tighten tensioner nut and bolt to power steering pump bracket.
5. Clean tensioner shaft on power steering pump bracket.
6. Lubricate tensioner shaft.
7. Fit tensioner assembly to power steering pump bracket.
8. Fit flat washer.
9. Fit circlip, tensioner bracket to power steering pump bracket.

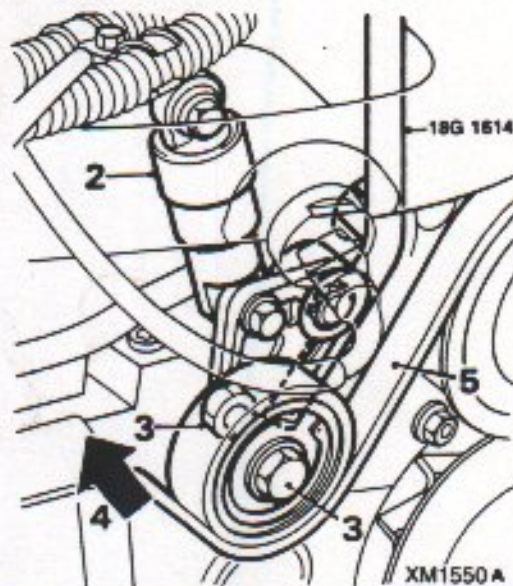
10. Align tensioner to power steering pump bracket.
11. Align coolant hose and engine harness bracket to power steering pump bracket.
12. Fit and tighten bolt, tensioner to pump bracket.
13. Adjust auxiliary drive belt tension.



AUXILIARY DRIVE BELT

Service Repair No. 86.10.03.

Release tension

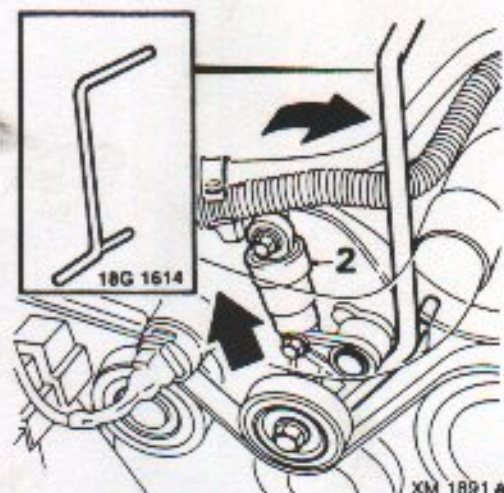


1. Fit auxiliary belt tensioning tool **18G 1614** to power steering pump bracket.
2. Raise tensioner.
3. Slacken nut on tensioner pulley.

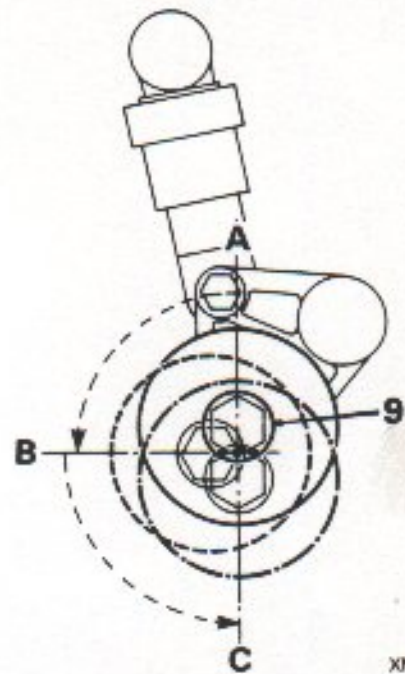
Note: Note position of tensioner pulley if original drive belt is to be refitted.

4. Rotate tensioner pulley to its uppermost position.
5. Release belt from tensioner pulley.
6. Release tensioner.
7. Remove belt tensioning tool.

Adjust tension

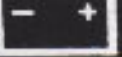


1. Fit auxiliary belt tensioning tool **18G 1614** to power steering pump bracket.
2. Raise tensioner.



XM 1892

3. Ensure pulley is in its uppermost position (A).
4. Fit drive belt under tensioner pulley.
5. Release tensioner and remove belt tensioning tool.
6. **Original belt:** Using a spanner on the tensioner pulley securing bolt rotate pulley to its original position.
7. **New belt:** Using a spanner on the tensioner pulley securing bolt rotate pulley anti-clockwise to position (B).
8. **Service tensioning:** Using a spanner on the tensioner pulley securing bolt rotate pulley anti-clockwise to position (C).
9. Tighten tensioning pulley securing nut and bolt.

**TORQUE SETTINGS**

Starter motor bolts	68 Nm
Engine mounting bolts and 'Torx' screw	45 Nm
Engine mounting bracket nuts	85 Nm
Alternator pulley nut	47 Nm
Alternator mounting bolts	25 Nm
Steering pump mounting bracket bolts	8 Nm
Steering pump belt cover bolts	15 Nm

TOOL NUMBERS

18G 1614 Auxiliary belt tensioning tool