

Opel Astra Opel Kadett

Workshop Manual

Section L

Fuel System

Issued by: Service Division
Delta Motor Corporation
July, 1993

Index

	Page
ELECTRIC FUEL PUMP, REPLACE	L- 5
FUEL FILLER PIPE WITH ANTI-LEAK SEAL, REMOVE AND INSTALL	L- 7
FUEL FINE FILTER, REPLACE (INJECTION ENGINES)	L- 8
FUEL TANK SENDER UNIT, REPLACE	L- 9
FUEL TANK, REMOVE AND INSTALL	L-10
FUNCTION CHECK OF “ANTI-LEAK-MECHANISM” VALVE	L- 6
INSTRUCTIONS FOR WORKING ON FUEL TANK	L- 2
WARNINGS AND CONDITIONS	L- 2
SPECIAL SERVICE TOOLS	L-14
TECHNICAL DATA	L-15
RECOMMENDED TORQUE VALUES	L-16

FUEL SYSTEM

Warnings and Cautions

- 1 Observe the relevant environmental, health and work safety regulations regarding explosive and flammable materials.
- 2 Whenever working on the fuel system, observe extreme cleanliness
- 3 Check all parts for signs of wear and replace if necessary.
- 4 Check fuel lines for routing, abrasion and tight connection.
- 5 Fuel hoses must not be twisted or constricted when installed.
- 6 Fuel lines must not touch moving parts or sharp edges.
- 7 Cables may not be fastened to the fuel lines.
- 8 Check fuel system for leaks.

Instructions for Working on Fuel Tank

1. Display appropriate signs, warn of the danger.
2. Avoid any fire or exposed light source.
3. Only work on lifting platforms in sufficiently ventilated areas.
4. Never empty fuel tanks over an installation pit, as fuel vapours will sink into the pit and remain there
- 5 Empty fuel tank with suitable pump.
6. Store drained fuel in a suitable, closable container.
7. Remove spilt fuel immediately.

FUEL TANK

- 1 Fuel tank
- 2 Fuel pump
- 3 Fuel filler pipe
- 4 Fuel tank sender unit
- 5 Fuel filter

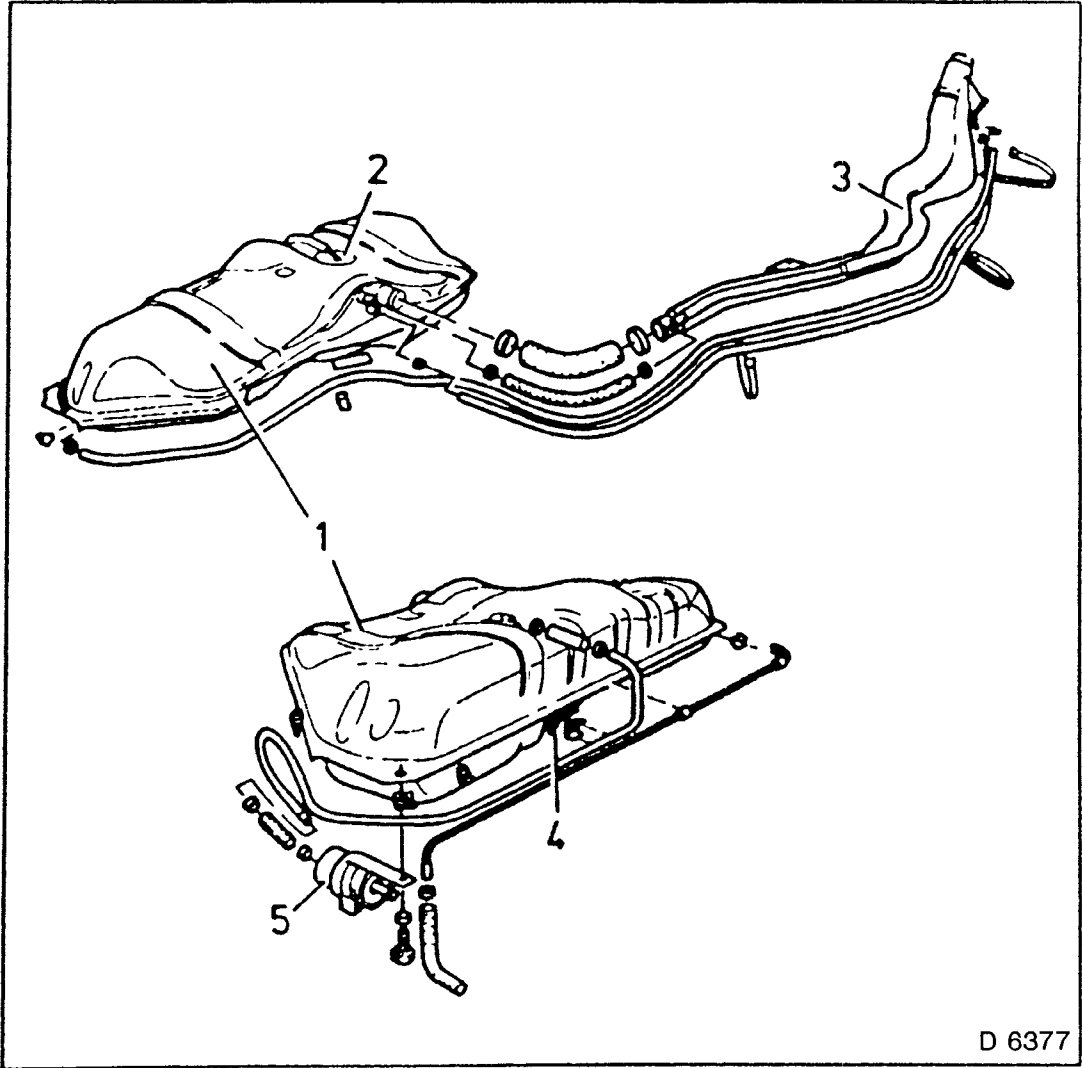


Fig 1

Electric Fuel Pump — Replace

WARNING:

Check when filling tank — if necessary drain fuel.

See operation “Fuel Tank, Remove and Install” Page No. 10.

Observe safety regulations.

REMOVE, DISCONNECT

1. Fold rear seat.
2. Pull back carpet at cut.
3. Plastic covering from floor panel — installation opening.
4. Wiring harness plug.
5. Fuel line from connection.
6. Fastening screws.
7. Fuel pump assembly.

DISASSEMBLE

1. Fuel pump assembly.
2. Fuel screen.
3. Hose clip.
4. Fuel hose.
5. Solder off cable (mark).
6. Fuel pump from rubber sleeve.

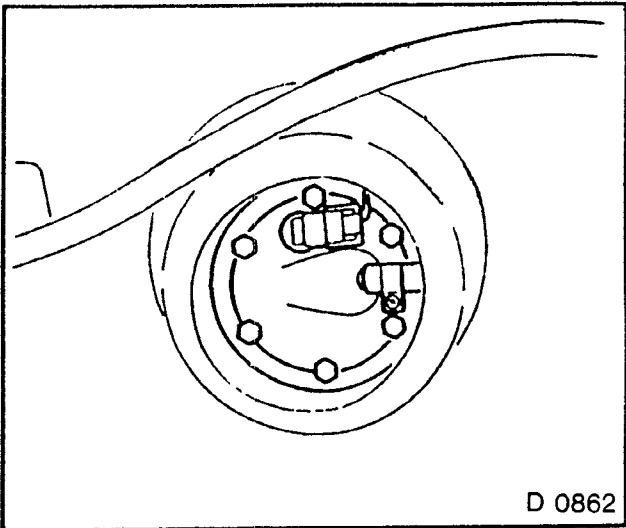


Fig. 3

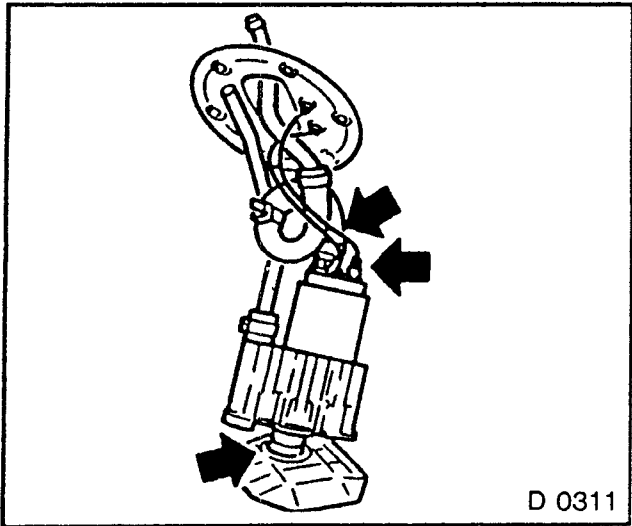


Fig. 4

ASSEMBLE

- 1 Fuel pump.
- 2 Rubber sleeve.
- 3 Fuel hose.
- 4 Fuel screen
5. Solder cable

NOTE:

1. **USE NEW GASKET AND SHIMS.**
2. **INSERT BOLTS WITH SEALING COMPOUND.**

INSTALL, CONNECT

1. Fuel pump in fuel tank.
2. Wiring harness plug.
3. Fuel hose.
4. Plastic covering — installation opening.
5. Carpet.
6. Rear seat bank.

Function Check of “Anti-leak-Mechanism” Valve

REMOVE, DISCONNECT

1. Fuel filler pipe with escape safety device.

INSPECT

- 1 Tilt fuel filler pipe and fill connection A with fuel.

In this position, no fuel should flow from connection B.

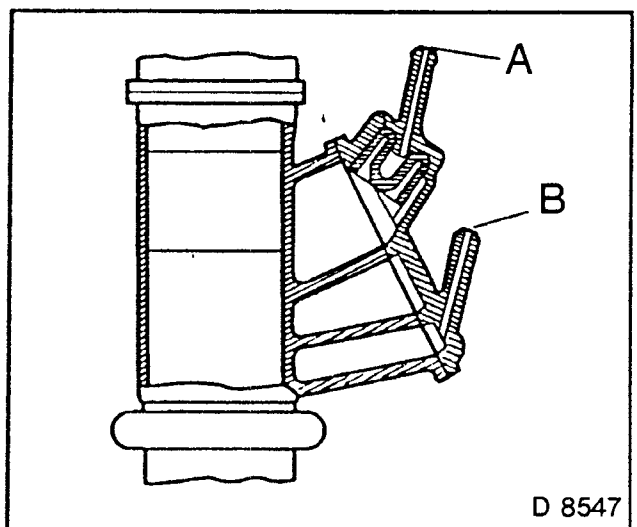


Fig. 5

Fuel Filler Pipe with Anti-leak Seal — Remove and Install

- 1. Drain fuel tank — see “Fuel Tank, Remove and Install” page 10.
- Observe safety regulations.

REMOVE, DISCONNECT

- 1 Tank lid.
- 2 Fuel filler pipe fastening screws.

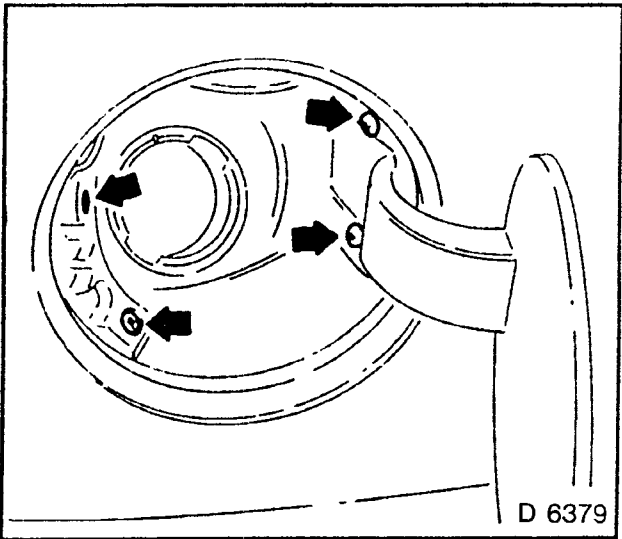


Fig. 6

- 3. Fastening screw.
- 4 Vent hose.

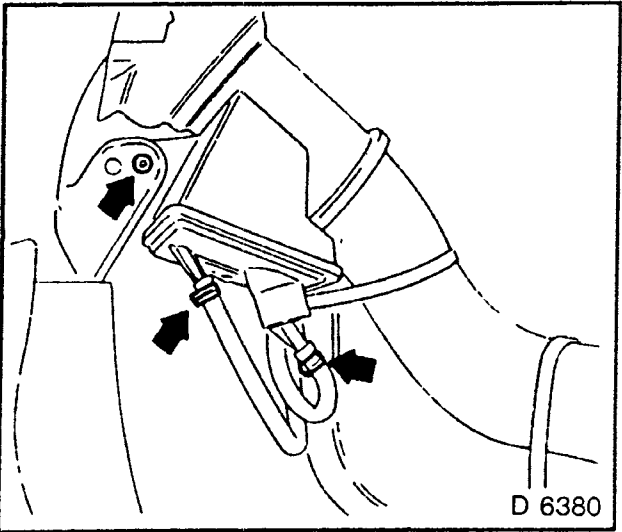


Fig. 7

REMOVE, DISCONNECT

- 1 Fuel filler pipe
- 2 Hoses
- 3 Fastening screw (on underbody).

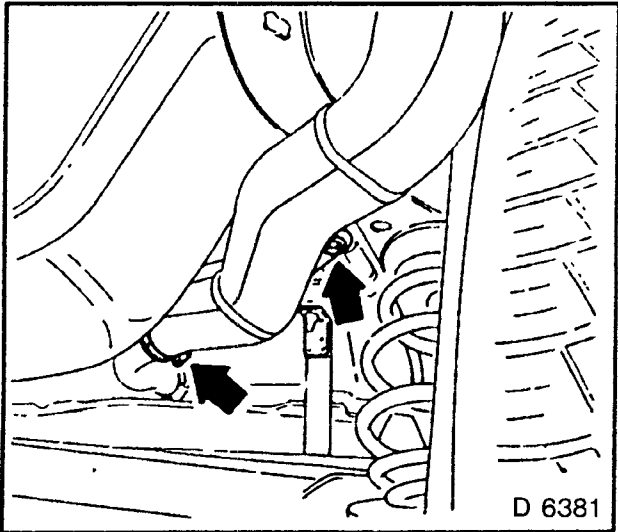


Fig. 8

INSTALL, CONNECT

- 1 Fuel filler pipe.
- 2 Hoses.
- 3 Clips
4. Fastening screws.
- 5 Tank lid.

NOTE:

CONNECTION 1 — LINE TO TANK

**CONNECTION 2 — LINE TO OUTSIDE AIR
OR ACTIVE CARBON CANISTER**

USE NEW HOSE CLIPS.

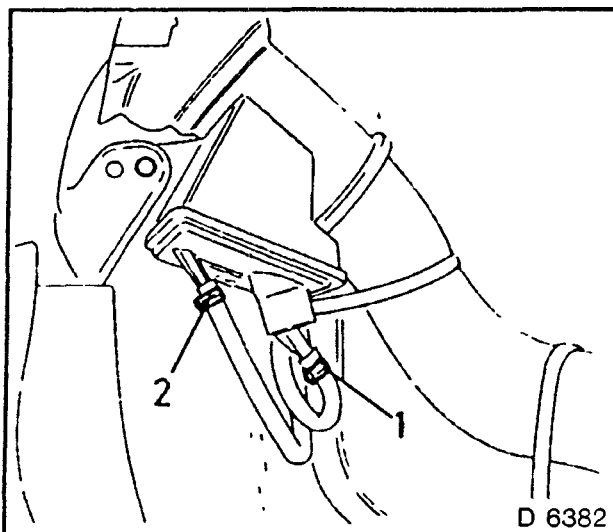


Fig. 9

Fuel Fine Filter, (Injection Engines) — Replace

REMOVE, DISCONNECT

1. Fuel fine filter.
- 2 Close fuel hoses with clips.
3. Fuel hoses from fuel fine filter
4. Fastening screw from retaining strap, fuel fine filter.

WARNING:

**REMAINING FUEL ESCAPES — OBSERVE
SAFETY REGULATIONS.**

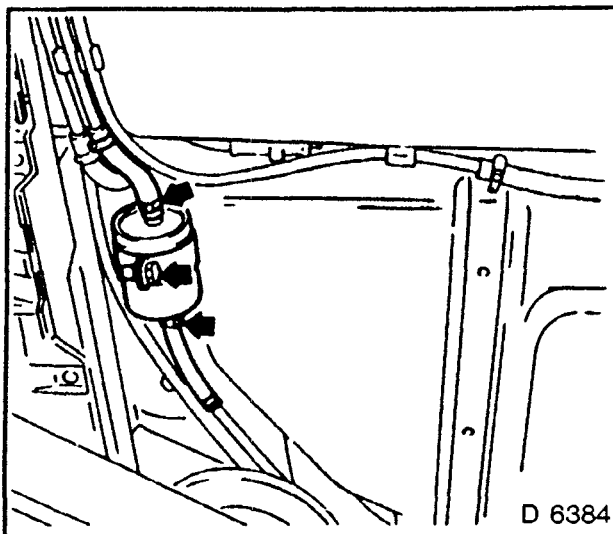


Fig. 10

INSTALL, CONNECT

- 1 Fuel fine filter in retainer strap.
- 2 Fuel hoses — use new hose clips.
3. Remove spring clips.

NOTE:

**OBSERVE DIRECTION OF FLOW OF
FILTER (ARROW ON FILTER HOUSING).**

Fuel Tank Sender Unit — Replace

Drain fuel tank — see operation “Fuel Tank, Remove and Install” page 10.

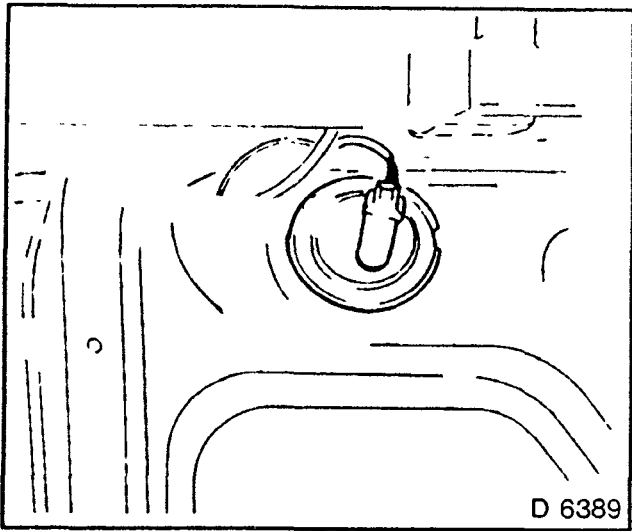


Fig. 11

For plastic fuel tank sensor with protective cover:

REMOVE, DISCONNECT

- 1. Protective cover (1) together with wiring plug (2).

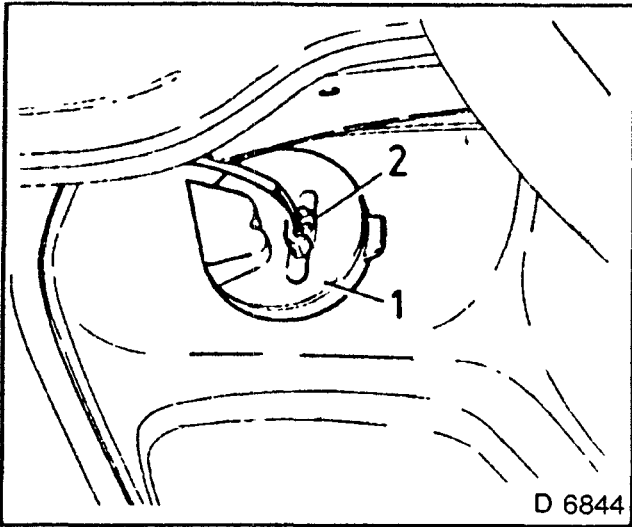


Fig. 12

NOTE:

MARK FUEL TANK SENDER UNIT INSTALLATION POSITION.

REMOVE, DISCONNECT

- 1. Fuel tank sender unit with KM-332-B.
- 2. On vehicles with petrol injection engine remove sender unit carefully (float arm routed around pump reservoir).

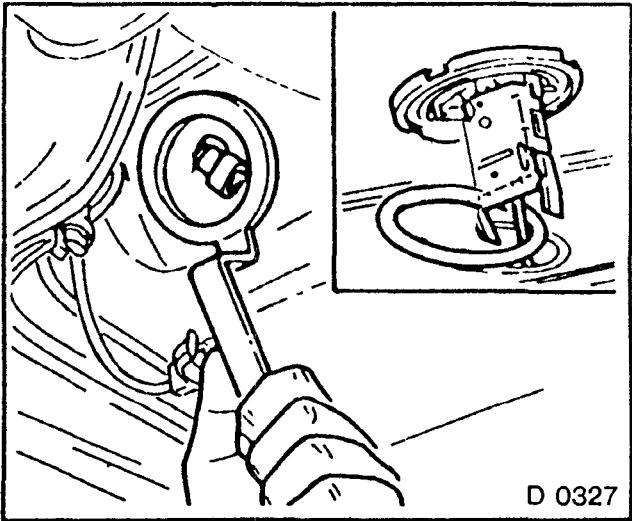


Fig. 13

INSTALL, CONNECT

- 1 Protective cover (1) together with wiring plug (2).

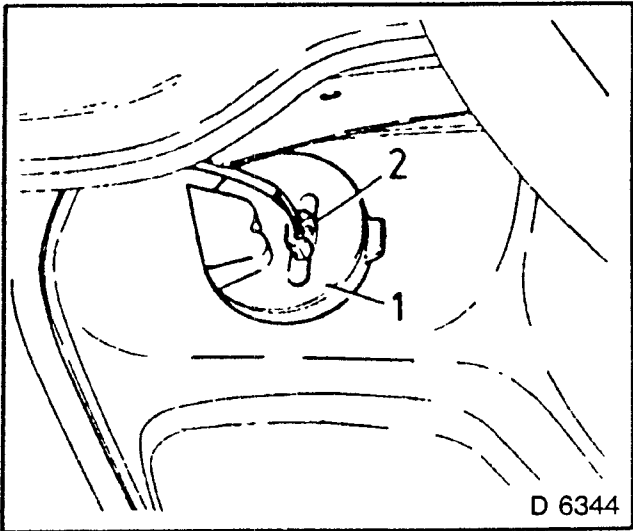


Fig. 14

**Fuel Tank —
Remove and Install**

- 1. Drain fuel tank.
- 2. Guide hose through fuel filler pipe into fuel tank.
- 3. Pump off fuel with vehicles own fuel pump or external fuel pump and collect in suitable, clean container.

WARNING:

**OBSERVE SAFETY REGULATIONS AND
LOCAL REGULATIONS.**

REMOVE, DISCONNECT

- 1. Fuel filler pipe.
- 2. Fuel tank sender unit wiring harness plug.
- 3. Electric fuel pump wiring harness plug (fuel injection models).

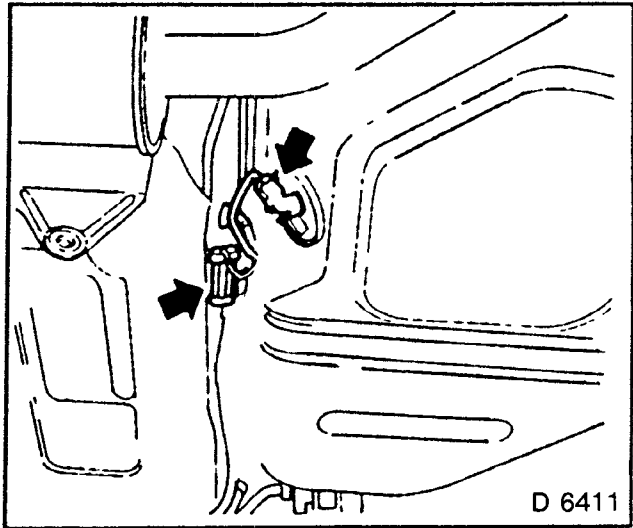


Fig. 15

REMOVE, DISCONNECT

- 1. Close fuel hoses with spring clips
- 2. Fuel feed and fuel return lines.
- 3. Fuel filter

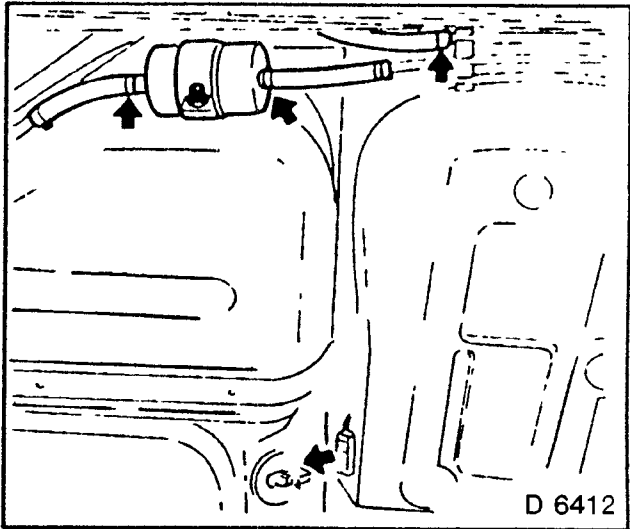


Fig. 16

- 4. Parking brake cables.

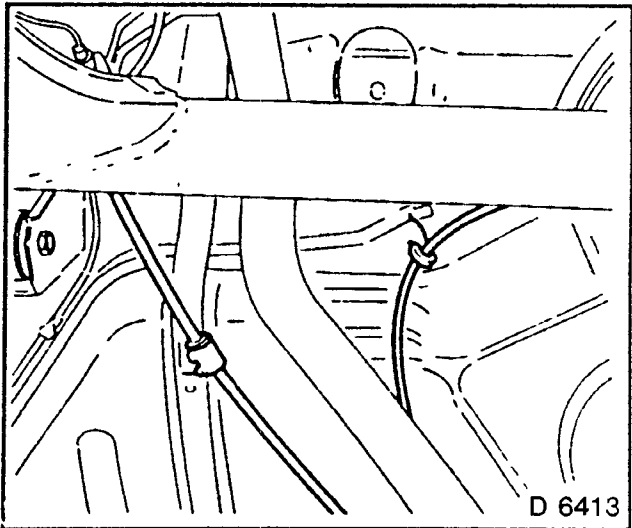


Fig. 17

- 5. Centre muffler
- 6. Rear muffler.

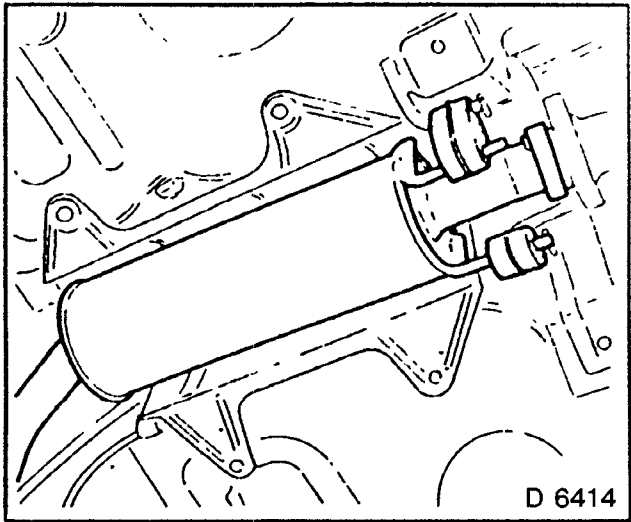


Fig. 18

- 7 Support fuel tank with hydraulic jack and suitable buffer piece.
- 8. Both straps from underbody
- 9. Lower fuel tank slightly.
- 10 Fuel hoses.
- 11. Vent hoses from fuel tank.
- 12 Lower fuel tank carefully and remove.

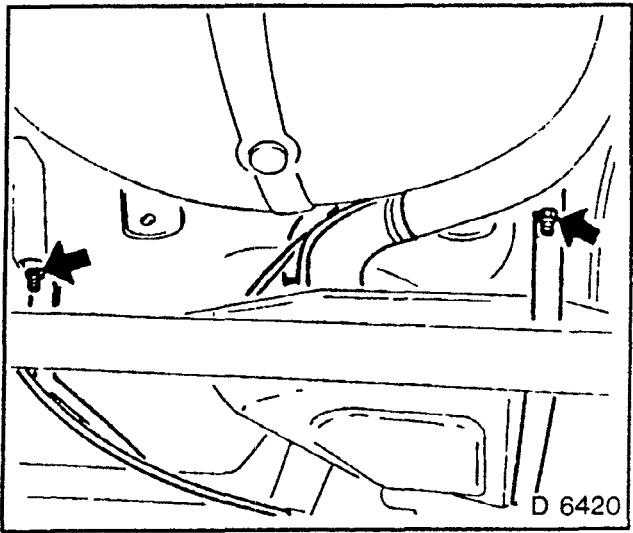


Fig. 19

INSTALL, CONNECT

- 1 Fuel tank.
- 2. Fuel hoses.
- 3. Vent hoses to fuel tank.
- 4. Straps — tightening torque 20 Nm.

Note rubber damper, perfect layout of hoses and wiring.

Use new hose clips.

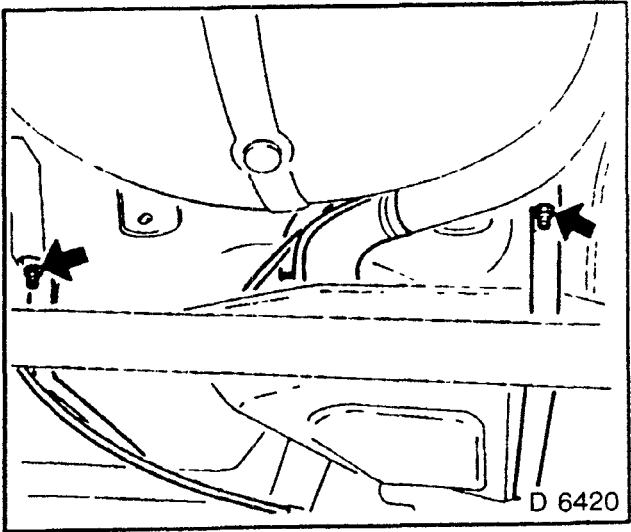


Fig. 20

- 5 Centre muffler.
- 6. Rear muffler.
- 7 Front section of exhaust system.

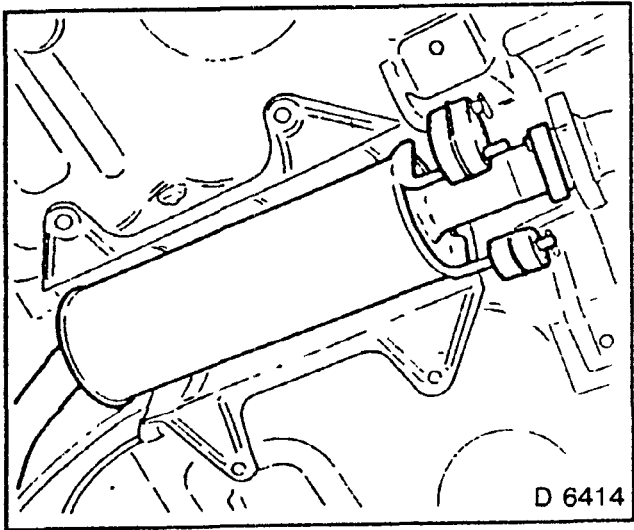


Fig. 21

8 Attach parking brake cables.

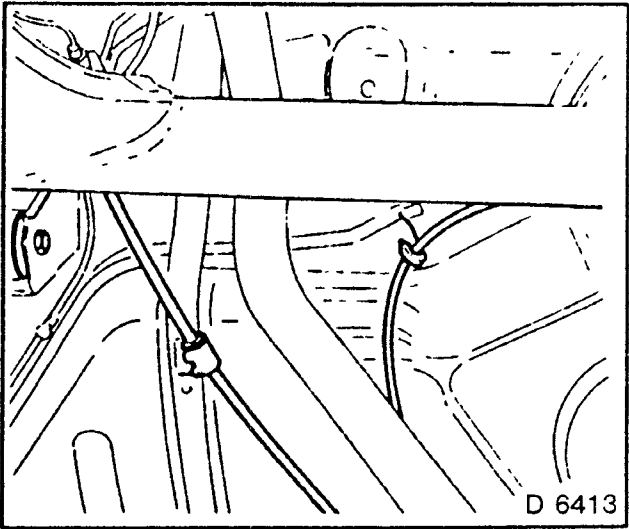


Fig. 22

- 9. Fuel filter.
- 10. Fuel feed and return lines.
- 11. Remove spring clips.
- 12. Use new hose clips.

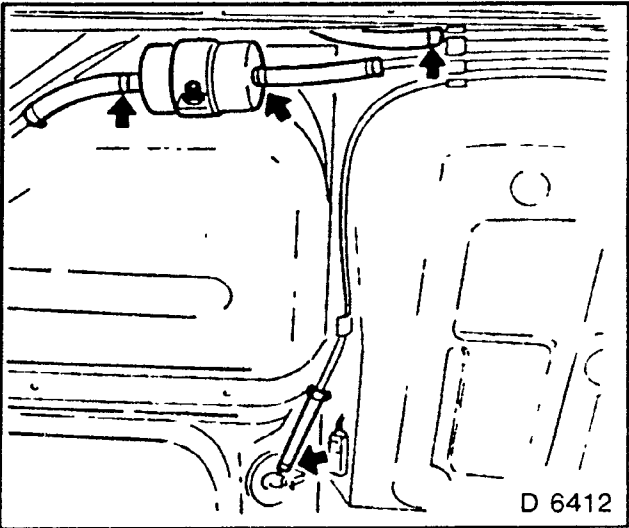


Fig. 23

- 13 Electric fuel pump wiring harness plug (if present).
- 14. Fuel tank sender unit wiring harness plug.
- 15. Fuel filler pipe.
- 16. Top up drained fuel again.
- 17 Tank lid (under rear seat).

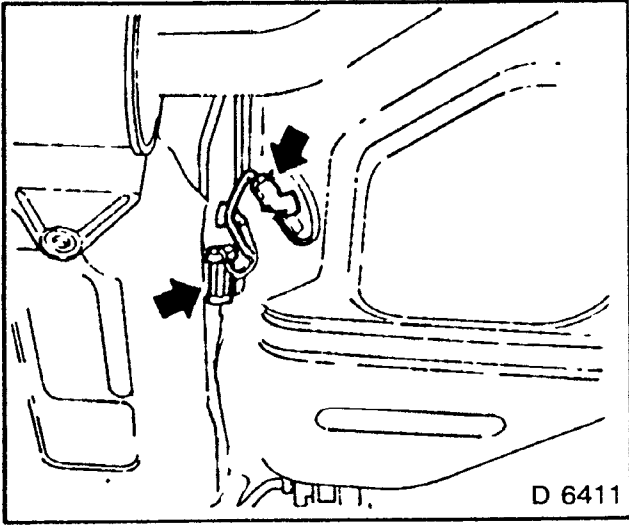
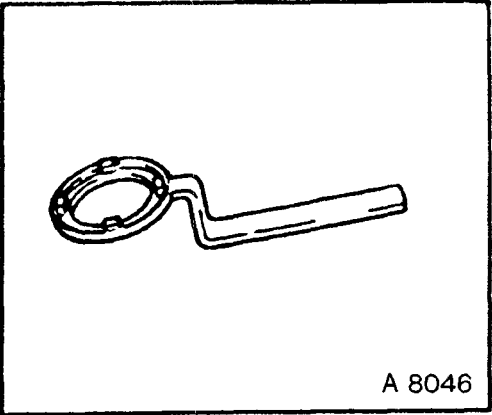


Fig. 24

Special Service Tools

KM — 332 B REMOVER/INSTALLER.

To remove and install fuel tank sender unit.



Technical Data Fuel System

Engine version	14 NV	C 16 SE	C 16 NZ	C 18 SE	C 20 SEH	C 20 XELN	20 LET
Fuel tank. Position	Underneath rear seat pan						
Filler opening	Right rear quarter panel						
Filling quantity in litres	55ℓ						
Ventilation	Open						
Fuel pump: Design	Diaphragm pump, mechanical	Inner gear pump, electrical	Turbine pump, electrical		Inner gear pump, electrical		
Position	1)	In fuel tank					
Feed pressure kPa/rpm	25-36/1950	—					
System pressure kPa	—	300	100	300			
Fuel filter: Design	Screen	Screen and pollen filter					
Position	2)	Screen in fuel tank, pollen filter in pressure line					

- 1) Engine right, camshaft housing
- 2) Fuel tank, fuel pump, carburettor

Recommended Torque Values — Fuel System

	Nm
Fuel filler pipe to rear frame	12.5
Fuel filler pipe to rear quarter panel	2.5
Fuel filter to fuel tank	10
Fuel pump to camshaft housing (14 NV).....	18
Fuel pump to fuel tank.....	2.5
Fuel tank sender unit to fuel tank.....	2.5
Fuel tank strap to underbody.. . . .	20
Bracket to front exhaust pipe support	20 ²⁾
Fantail manifold heat shield to cylinder head (C 20 XELN)	9
Fantail manifold to cylinder head (C 20 XELN)	22
Front exhaust pipe support to engine.....	35
Front exhaust pipe support to front exhaust pipe	35
Heat shield to underbody	2 ¹⁾

1) Use new nuts
2) In connection with automatic transmission