

The members of Dseries-L offer

The Anatomy Of D-Series Gas Tanks

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On more than one occasion we have had call to wonder about the inner workings or non-workings of the fuel tanks in our cars. As so many of you have had to resurrect cars that have done some sitting, one of the first things to need attention is the fuel supply.

Several list members have sent pictures of the insides of old scrap tanks. At last we can see how the fuel line makes its way down to the filter and where the baffles are.

Note the difference between fuel injected tanks and non-fuel injected. Cars that have fuel injection have an extra line that constantly returns fuel to the tank.

These tanks can be lined with excellent results, but these precautions must be taken. Special care must be taken during tank restoration so that the fuel pickup tube does not get urethane (or whatever product you are planning to use) inside. If this happens, you will not be able to get the nylon fuel line that comes all the way from the fuel pump fed back down to the filter. All you need to do is ensure that both ends are plugged securely.

Also make sure the tube does not get bent inside the tank so it does not come straight down to the filter. Sometimes the plate that holds the tube in position becomes damaged by careless use of cleaning tools. It may even be rusted away, not really a fatal problem unless the now weakened tube is moved away from its correct position.

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Images provided by Joanne and Lance Hellman, Nick Verdin, Michael R (the one in Sydney), Tony Jackson and others.

3	ACCESSOIRES D'ALIMENTATION (suite)	KRAFTSTOFFZUFUHR (Forts.)	FUEL SUPPLY (continued)	ACCESORIOS DE ALIMENTACION (continuación)	ACCESSORI DEL L'ALIMENTAZIONE (seguito)
A	Aspiration essence	Kraftstoff - Ansaugrohr	Fuel Outlet Pipe	Aspiración de gasolina	Aspirazione benzina
Ta	Tube de mise à l'air libre	Entlüftungrohr	Air Vent Tube	Tubo de toma a la atmósfera	Tubo di rimessa aria libera
Bg	Bouchon gauche de vidange	Linker Ablassstopfen	L.H. Drain Plug	Tapón izquierdo de vaciado	Tappo di scarico sinistro
Bd	Bouchon droit de vidange	Rechter Ablassstopfen	R.H. Drain Plug	Tapón derecho de vaciado	Tappo di scarico destro
F	Filtre essence	Kraftstofffilter	Fuel Filter	Filtro de gasolina	Filtro benzina
L	Logement de jauge	Lagerung für Kraftstoffanzeiger	Housing for fuel gauge	Alojamiento de la cala	Allarggiamento indicatore livello
Td	Tôle défectrice	Ableitblech	Baffle	Chapa deflectora	Lamiera - deflettore
J	Joint d'étanchéité	Dichtung	Seal	Junta de estanqueidad	Guarnizione di tenuta
R	Réserve essence	Kraftstoffreserve	Fuel Reserve	Reserva de gasolina	Serbatoio carburante
P	Plongeur	Tauchrohr	Fuel Outlet Pickup	Espadin	Tubo pescante
					D. 17-1
					D. 17-2
					17

Let's start out with these pages from factory manuals. This page shows a cross section of a tank from a carbureted engine.

3 ie		MANUEL DE REPARATIONS REPARATURHANDBUCH REPAIR MANUAL MANUAL DE REPARACIONES MANUALE DI RIPARAZIONE		N° 564/1	OPERATIONS ARBEITSVORGÄNGE OPERATIONS OPERACIONES OPERAZIONI		DX. IE - 175 - 1	DS 21 (DX - DJ) 9 - 1969		Injection electronique Elektronische Benzineinspritzung Electronic fuel injection Inyección electrónica Iniezione elettronica
ACCESSOIRES D'ALIMENTATION (suite)	ZUBEHÖRTEILE FÜR DIE KRAFTSTOFFZUFUHR (Forts.)	FUEL SUPPLY ACCESSORIES (continued)	ACCESORIOS DE ALIMENTACION (continuación)	ACCESSORI DEL- L'ALIMENTAZIONE (seguito)						
RESERVOIR contenance RHEOSTAT DE JAUGE Type Serrage des vis de fixation	KRAFTSTOFF TANK Fassungsvermögen MESSRHEOSTAT Typ Anzugsmoment der Befestigungsschrauben	FUEL TANK capacity FUEL-GAUGE RHEOSTAT Type Tighten fixing screws to:	DEPOSITO capacidad REOSTATO DE AFORADOR Tipo Apriete de los tornillos de fijación	SERBATOIO capacità REOSTATO INDICATORE LIVELLO Tipo Serraggio delle viti di fissaggio	65 L (14 $\frac{3}{4}$ gall. imp)					JAEGER 12 volts 1 mkg (7 ft lbs)

Next we have the interior of a fuel injected car's tank. Fuel injection requires a constant supply of cool fuel with no air mixed in, so an extra line is installed which returns unused fuel from the fuel pump. Also, there is an inverted pan shaped reservoir installed at the pickup end to retain fuel at the pickup.



This shot of the interior of an inverted tank from a carbureted car shows the layout of the tubes as shown from the bottom looking up. The pickup tube is pointing upward and is held in place by a spot welded piece of sheet metal near its end. To its right is the filler air return tube. Just to its right is the opening for the fuel sending unit. The filler neck points off to the upper left.



Now we can see the bottom of the tank. At the top is the smaller drain hole, with a captured retaining nut welded to center of the round depression. At the center is the squarish fuel sending unit sash retention box, which helps to keep the sending unit float more or less at a constant level as the overall level changes. Lower yet we see the ramp-like sash plate that keeps a mass of fuel at the pickup end when the fuel level falls. At lower center is the larger captured nut that holds the fuel filter. When draining the tank in preparation for service, it is best to place the car at a tilt towards the smaller hole and use it to empty the tank. The filter can then be removed without getting a dangerous bath.



Shown here is a tank from a carburetor car. There is one fuel outlet and one air return to the filler neck at the upper right. To the lower right is the filler neck. Note the fuel sender laying across the top near its opening. You can also see the inside, where a sloped baffle keeps a supply of fuel at the filter/pickup area under most conditions.



A side long view shows how the metal tube that carries the nylon fuel line straight down to the filter. Just above the filter is a flat piece of metal that is spot welded to the top of the tank and the tube. To the left is a partial view of the fuel sending unit baffle. Going straight across the bottom is the fuel retaining baffle. This is in effect a reserve.



The filter has been partially dismantled. The round, whitish bottom plug lays to the right. At the end pointing away is the opening that the nylon line goes into. It is really just a stack of embossed metal rings that allow fuel to strain through. When they become stuck together and crud accumulates, you have fuel starvation. Many owners remove the stack of rings and reinstall the filter body. They then install a more easily serviced filter elsewhere. Also visible is the square captured nut. It is not uncommon for this nut to be tightly seized. Overworking the plug to get it out causes it to spin, a frustrating and difficult to repair problem. Probably the best way to remove a stuck plug is to drill it out then remove the pieces. Replacements are available.



This long view shows the opening at the far end where fuel from the filler neck enters. In the foreground is the filter and tube in their correct positions. At the top is the tube that allows displaced air to return to the filler neck as the tank as fuel level rises during fillups. When this line is plugged, you will have difficulty filling rapidly.



This is a tank from a fuel injected car. The ramp-like baffle that we saw in the carbureted car tank is there, but it also has a partially enclosed retention area that is constantly filled by returning fuel and slosh that is guided across the baffle by the rectangular plate tacked in place. Carbureted cars can tolerate moments of no fuel supply when the tank gets low, but not fuel injected ones. The upper tube is the filler air return. The lower tube to the right is the pickup and the one to the left is the fuel return from the electric pump, which constantly circulates fuel back to the tank. The fuel sender baffle is partially visible to the lower right.