

SUPPLEMENT No. 8

ADDITIONAL FUEL TANK

This Supplement must be included in the Z 143 L – Z 143 LSi Airplane Maintenance Manual (Doc. No. 005.022.2), Section 95, if the appropriate aircraft is provided with the Additional fuel tank Drwg. No. L 143.7291.

The information contained herein supplements or supersedes the Z 143 L – Z 143 LSi Airplane Maintenance Manual (Doc. No. 005.022.2).

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FUEL TANKS

DESCRIPTION AND OPERATION

CAUTION:

WHEN FUELLING THE FUEL SYSTEM WITH THE ADDITIONAL TANK, FOLLOW THESE RULES:

- FIRST REFUEL THE MAIN AND AUXILIARY TANKS.
- PRIOR TO REFUELING OF THE ADDITIONAL TANK VENT THE ADDITIONAL TANK FUEL INSTALLATION (MAIN FUEL VALVE IN "L+R" POSITION, ADDITIONAL TANK FUEL VALVE IN "ON" POSITION) IN THE COURSE OF 1 MINUTE.
- REFUEL THE ADDITIONAL TANK AT THE ADDITIONAL TANK FUEL VALVE IN "OFF" POSITION.
- FILL UP MAX. 44.9 US GAL. (170 LITRES).

To increase the flight range, the aircraft is equipped with the Additional fuel tank (Drwg. No. L 143.7291), which can raise the usable fuel quantity by 43.8 US gal. (166 litres)

The additional fuel tank (Fig.3, Item 22) is installed in the cockpit instead of the rear seats. With the use of fastening belts, that have the resilient mounting (i.e. rubber parts around the tank), the additional fuel tank is fixed to beds (L+R) and these beds are attached to the rear seats attachments (Fig.1, Details A, B). The tank is electrically joined to the airframe.

FUEL TANK CAPACITY:

Name	L & R		Total capacity	
	[litres]	[US gal]	[litres]	[US gal]
Capacity of main (inboard) tank	61 + 61	16.1 + 16.1	394	103.9
Capacity of auxiliary (outboard) tank	51 + 51	13.4 + 13.4		
Capacity of additional tank	170	44.9		
Unusable fuel remainder in inboard tanks	3 + 3	0.8 + 0.8	12	3.1
Unusable fuel remainder in outboard tanks	1 + 1	0.2 + 0.2		
Unusable fuel remainder in additional tank	4	1.1		
Usable fuel quantity in inboard (main) tanks	58 + 58	15.3 + 15.3	382	100.8
Usable fuel quantity in outboard (auxiliary) tanks	50 + 50	13.2 + 13.2		
Usable fuel quantity in additional tank	166	43.8		

EFFECTIVITY: All

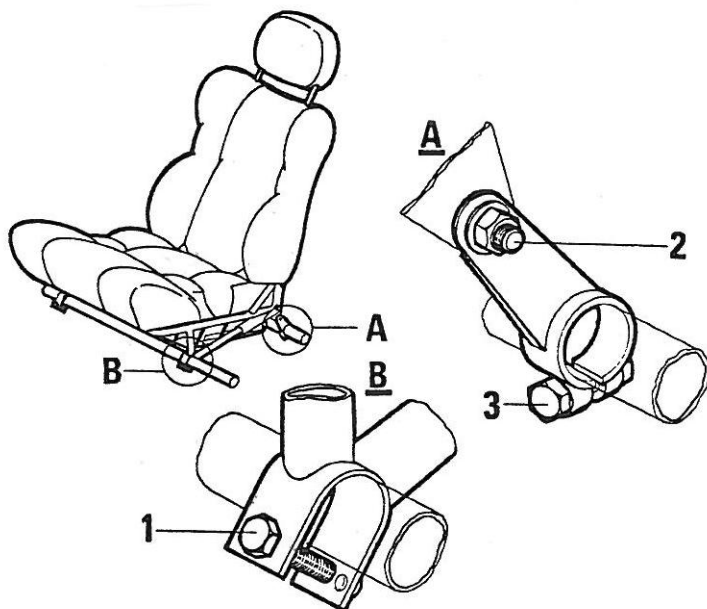
MAINTENANCE

REMOVAL AND INSTALLATION

REMOVAL OF ADDITIONAL FUEL TANK

- 1) Remove the first-aid kit.
- 2) Remove the tarpaulin partition between the crew and the additional fuel tank:
 - the shield (Fig.2, Item 6), the bottom tarpaulin (3) and the rear tarpaulin (4),
 - the angle L.H. + R.H. (5), the coupling (2) and the holder (1).
- 3) Drain off the fuel from the additional tank:
 - close the additional tank fuel valve ("OFF")
 - open the additional tank drain valve and drain off the fuel through the draining hose (Fig. 3, Item 23) into the vessel determined for drained fuel.
- 4) Remove the additional fuel tank:
 - disconnect the fuel low level warning indication from the float device (28)
 - pull out the vent hose (26) from hole in the bottom fuselage cover and release it from the tank
 - pull out the draining and mud-discharging hose (23) from the bottom fuselage cover hole
 - disconnect the fuel hose from the additional tank flange
 - unlock and release the side belts from attachments on the fuselage
 - unlock and remove the tightening bolts of the fastening belts
 - release the bonding strap between the tube (30) and the additional tank flange
 - remove the connecting hoses (31) and the tube (30) determined for fuelling
 - release the bonding strap between the tank bed and the airframe
 - remove the tank from the aircraft and blind the tank threaded flanges to protect them against the impurities penetration.
- 5) Disconnect the fuel hose from the T-connection piece (32). Remove the box (Fig.2, Item 7) and the additional tank fuel valve (Fig. 3, Item 24).

Fig.1 REAR SEATS ATTACHMENTS



A - Rear seat attachment
B - Front seat attachment

- 1 - bolt (M 6x35)
- 2 - bolt (M 8x19)
- 3 - bolt (M 5x24)

EFFECTIVITY: All

- 6) Remove the additional tank beds (L.H. + R.H.) from the seat attachments (Fig.1):
 - screw off 2+2 pcs of bolts (1) and 2+2 pcs of bolts (2) including washers and nuts - they will be utilized for attaching the rear seats (L.H. + R.H.)
 - remove the beds (L.H. + R.H.) from the aircraft.
- 7) Blind the T-connection piece and the released hoses. Store appropriately the disassembled parts.
- 8) Using the tape, fix the electric wire of fuel low level warning indication to the airframe.
- 9) Install rear seats (Fig.1):
 - loosen 2+2 pcs of bolts (3)
 - set the seat (L.H. + R.H.) by means of clips of the front attachments on the fuselage bulkhead (Detail B)
 - adjust the rear seat attachments (Detail A) to the pitch of seats (L.H. + R.H.)
 - tilt up the R.H. seat to the rear attachments and while swinging the seat slightly, insert bolts (2)
 - put washers on bolts and mount nuts (the L.H. seat is to be installed identically)
 - screw bolts (1) in the front attachments- retighten bolts (3) of the rear attachments.
- 10) Fasten the rear tarpaulin.
- 11) Attach the first-aid kit.
- 12) Close the sliding canopy.

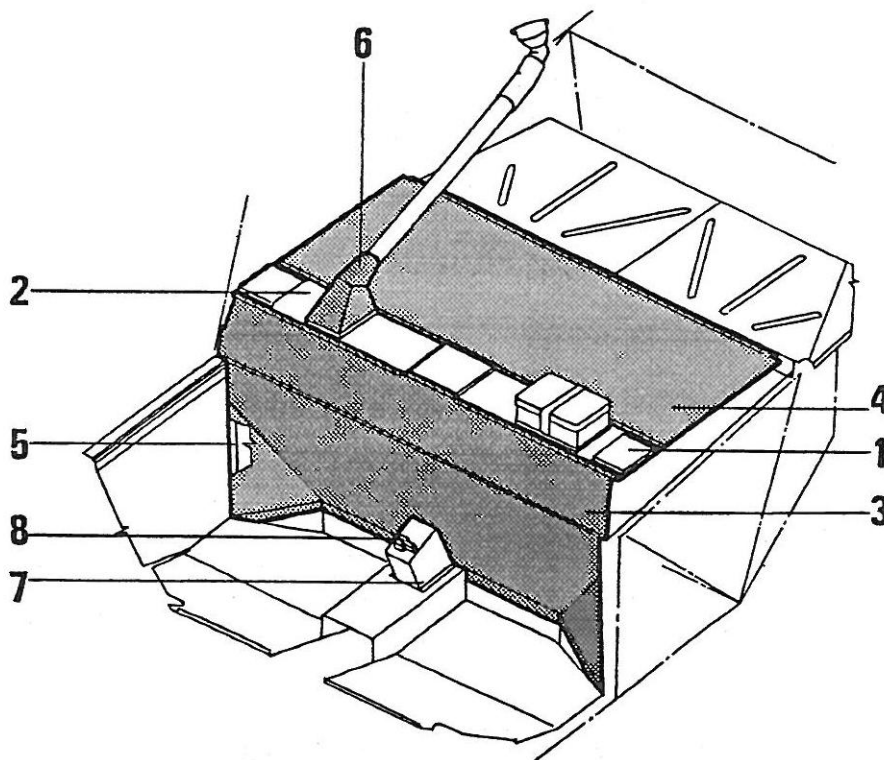
INSTALLATION OF ADDITIONAL FUEL TANK

- 1) Shift the sliding canopy forwards and lock it.
- 2) Fold the back rest forward and reset the front seat (L.H. + R.H.) according to AIRPLANE MAINTENANCE MANUAL, Chapter 25, page 25-4, point 1.
- 3) Remove the rear seats (Fig.1):
 - screw off 2+2 pcs of bolts (1) and 2+2 pcs of bolts (2) including washers and nuts-they will be used for attaching the additional tank beds (L.H. + R.H.)
 - move round slightly the seat (L.H. + R.H.) in the forward direction, take it out from attachments upwards and remove the seat from the cockpit (protect it with the suitable sheet against being polluted).
- 4) Remove the rear tarpaulin.
- 5) Remove the first-aid kit.
- 6) Set the additional tank beds (L.H. + R.H.) on the seats attachments (Fig.1):
 - loosen 2+2 pcs of bolts (3)
 - adjust rear seats attachments (Detail A) to the pitch of the additional tank beds (L.H. + R.H.)
 - mount bolts (1) and bolts (2) including washers and nuts
 - retighten bolts (3) of the rear attachments.
- 7) Set the tank on the bed and fix it to with the use of fastening belts with tightening screws - tighten and secure with the locking wire. Fasten the side belts to attachments on the fuselage-secure them with the locking wire.
- 8) Install the additional tank fuel valve (Fig.3, Item 24) with the box (Fig.2, Item 7) on the rear shield behind the front seats.
- 9) Connect the fuel hoses:
 - to the additional tank flange,
 - to the T-connection piece (Fig.3, Item 32).Tighten and secure the hoses.
- 10) Draw the end of draining and mud-discharging hose (23) through the hole in the bottom fuselage cover.
Using the tape, fix the hoses to the fuselage frame and to the additional tank beds.

EFFECTIVITY: All

- 11) Connect the vent hose (26) to the tank (tighten, lock) and then pull the hose end through hole in the bottom fuselage cover.
- 12) Install the bonding strap between the tank bed and the airframe
- coat the joint with the protective varnish.
- 13) Install the connecting hoses (31) and the tube (30) for fuelling on the filler neck (27) and on the tank
- protect joints with tapes. Attach the bonding strap between the tube (30) and the flange of additional tank - coat joint with the protective varnish.
- 14) Connect the fuel low level warning indication - i.e. connect the electric wire to the terminal connector 4 - "black" (Fig.4, Item M101) of the float device (Fig.3, Item 28).
- 15) Check the drain valve to be closed and the bolted joints of hoses for proper tightening.
- 16) Fill up the tank with fuel (5.3 US gal.; 20 litres)
- check for leakage.
- 17) Install the tarpaulin partition between the crew and the additional fuel tank:
- the holder (Fig.2, Item 1) and the coupling (2)
- the angle L.H. + R.H. (5)
- the rear tarpaulin (4), the bottom tarpaulin (3) and the shield (6).
- 18) Attach the first-aid kit to the holder (1).

Fig.2 INSTALLATION OF TARPAULIN PARTITION



1 - holder
2 - coupling
3 - tarpaulin, bottom
4 - tarpaulin, rear

5 - angle L.H. + R.H.
6 - shield
7 - box
8 - control lever of additional tank fuel valve

EFFECTIVITY: All

APPROVED REPAIRS

REPAIR AND EMBEDDING OF FUELS TANK

1) REPAIR OF ADDITIONAL FUEL TANK

Fault	Remedy
1) Untaught couplings.	Let the repair carried out in manufacturer or authorized repair shop.
2) Faulty or corrosive fixing screws.	Replace faulty screws.
3) Hoses and pipes. a) Mechanical defects b) Out of date of expiry of rubber hoses (section 05-10-00).	Replace faulty hoses and pipes. Replace expires hoses (life time of AEROQUIP hoses is unlimited).

EFFECTIVITY: All

FUEL DISTRIBUTION

DESCRIPTION AND OPERATION

NOTE:

NUMBERS POSITION IN PARENTHESES READS TO FIG 3 (IF ISN'T PRESENTATION OTHERWISE).

The fuel flows from the tank through the hose to the additional tank fuel valve (Fig.3, Item 24) that is located under the box (Fig.2, Item 7) on the rear shield behind the front seats. From here the fuel is supplied through the hose connected to the fuel system line of the R.H. wing.

The non-return flap valves (Fig.3, Item 13) prevent the fuel overflow from the additional tank (22) into the main fuel tanks (2).

The control lever (Fig.2, Item 8) of the additional tank fuel valve may be changed over into two positions:

"ON" - the fuel valve is open,

"OFF" - the fuel valve is closed.

The fuel level in the additional tank is indicated with the mechanical fuel gauge (Fig.3, Item 25) that is located in the middle of the tank top part.

The float device (28) for indicating the minimum fuel low level is positioned in the tank upper part. When the fuel in the tank drops to 3.7 US gal.; 14 litres (the unusable fuel inclusive), the yellow "**ADD. TANK LOW LEVEL**" warning light (29) above the instrument R.H. panel is ON. The additional fuel tank is tanked through the filler neck (27) that is positioned in the fuselage skin on the top right side behind the cockpit. The filler neck is connected to the tank with the connecting tube (30) and with the connecting hoses (31). The drain valve is located in the lowest place of the additional tank. Connected to this drain valve is the draining and mud-discharging hose (23) which is led out through the bottom fuselage cover under the aircraft.

The vent hose (26) is led out through the bottom fuselage cover under the aircraft.

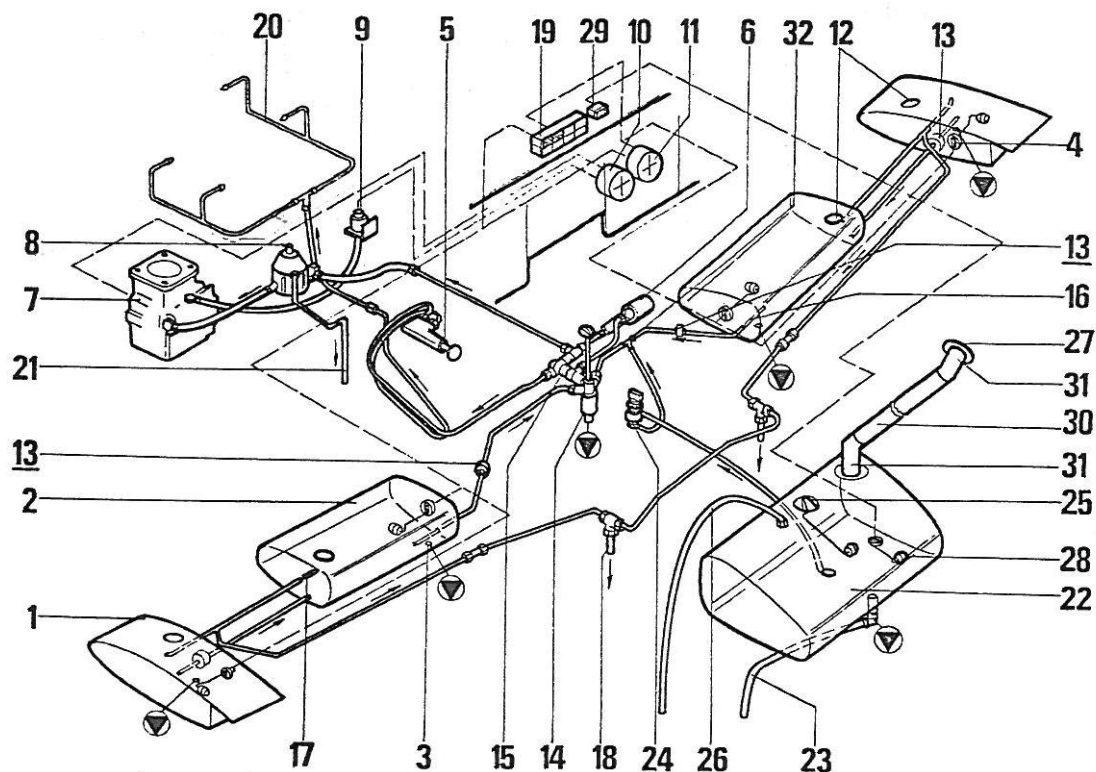
The additional tank is separated from the pilot's space with the tarpaulin partition (Fig.2). The tarpaulin partition consists of the aluminium alloy holder and of the sheets with tarpaulins attached to the holder and to the surrounding structure with the use of the "dry" zip-fasteners.

Two drain ports are located in the bottom fuselage cover under the additional fuel tank.

EFFECTIVITY: All

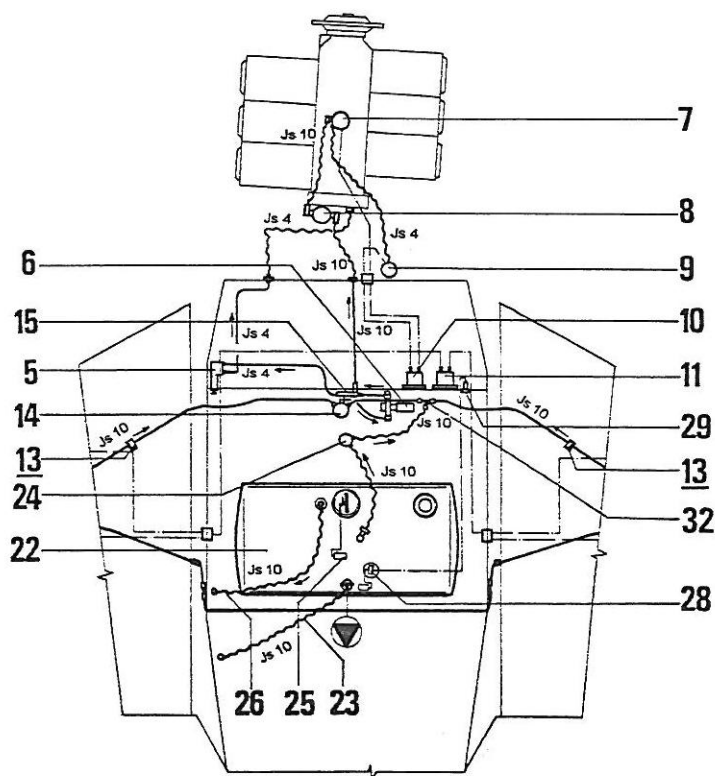
Fig. 3 FUEL SYSTEM WITH ADDITIONAL TANK

Assembly diagram



Function diagram

(drawn without the fuel system located in L.H. and R.H. wing)







EFFECTIVITY: All

Fig. 3 FUEL SYSTEM WITH ADDITIONAL TANK

- 1 - Auxiliary fuel tank
- 2 - Main fuel tank
- 3 - Drain-valve
- 4 - Fuel level gauge transmitter
- 5 - Hand priming pump
- 6 - Electric fuel pump (booster pump)
- 7 - Carburetor
- 8 - Engine fuel pump
- 9 - Fuel pressure gauge (pick-up)
- 10 - Quadruple indicator (oil pressure, fuel pressure, oil temperature, carburetor air temperature)
- 11 - Fuel quantity quadruple indicator
- 12 - Tank stopper
- 13 - Non-return flap valve
- 14 - Fuel selector valve with filter and drain-valve
- 15 - By-pass valve (one-way valve)
- 16 - Fuel supply from main tank with non return flap valve
- 17 - Venting ball-valve
- 18 - Venting outlet
- 19 - Light annunciator panel
- 20 - Fuel injection into engine manifold (part of the engine)
- 21 - Fuel pump (8) drainage
- 13 - non-return flap valve
- 22 - additional fuel tank
- 23 - draining and mud-discharging hose
- 24 - additional tank fuel valve
- 25 - mechanical fuel gauge
- 26 - vent hose
- 27 - filler neck with stopper
- 28 - float device for indicating the min. fuel low level
- 29 - min. fuel low level warning light
- 30 - connecting tube
- 31 - connecting hose
- 32 - T-connection piece

Marking used in the function diagram:

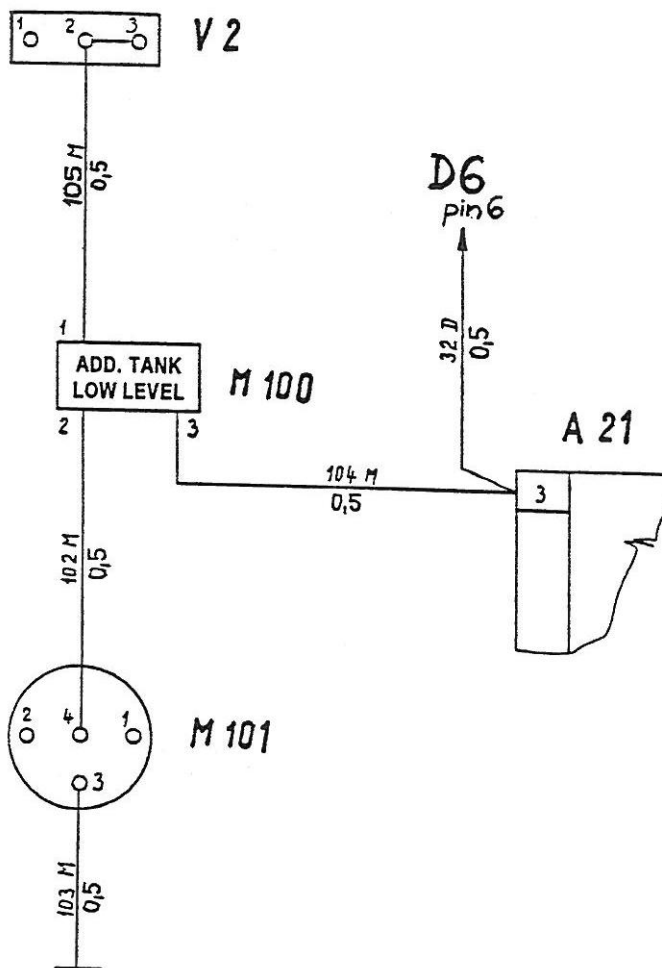
	Pipeline
	Hose
	el. Wires
	drain valve

NOTES:

- 1) The function diagram of the fuel system located in L.H. and R.H. wings is drawn in Fig. 28-2.
- 2) The hand priming pump (5) is from S/N 0015 installed only as optional equipment.

EFFECTIVITY: All

Fig. 4 DIAGRAM OF MIN. FUEL LOW LEVEL IN THE ADDITIONAL TANK WARNING INDICATION



NOTE:

Terminal connectors on the float device M 101 are marked as follows: "1" - blue, "2" - yellow, "4" - black; "3" is the attachment screw.

A 21	Checking block	L 143.8521-00.00
D 6	Relay	RP-2 or TKE 52 PDT
M 100	Socket	01 LUN 2697.01-8
M 101	Float device	L 143.7291-17.00
V 2	Terminal board	74 K

EFFECTIVITY: All

INSPECTION AND CHECK

ADDITIONAL FUEL TANK ASSEMBLY

Scheduled
Maintenance Checks

- joints in whole system: leakage, locking
- drain valve: leakage, cleanness
- hoses: damage, service life
- additional fuel tank:
 - damage
 - fastening belts (corrosion, damage, cracks)
 - locking of belts tightening screws
 - float device (Fig.3, Item 28): replace, if necessary

f 50	100 (AN)
o	o
o	o
	o
	o
	o

NOTE:

When replacing the float device (Fig.3, Item 28), verify whether the yellow "**ADD. TANK LOW LEVEL**" warning light (29) in case of the additional tank fuel quantity 3.7 US gal.; 14 litres or less (usable fuel quantity is 2.6 US gal.; 10 litres).