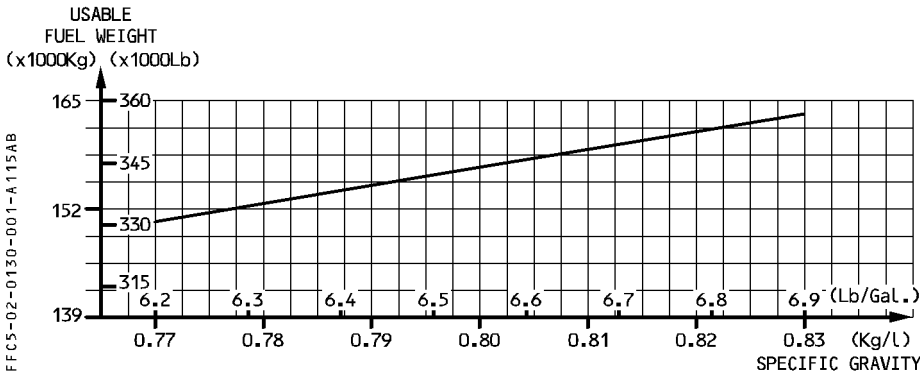


GENERAL INFORMATION

USABLE FUEL VOLUME

	OUTER TANKS (each)	INNER TANKS 1 and 4	INNER TANKS 2 and 3	CENTER TANK	TRIM TANK	TOTAL
LITERS	6 360	25 840	33 280	55 980	8 238	195 178
US GAL	1 769	6 822	8 785	14 779	2 175	51 526

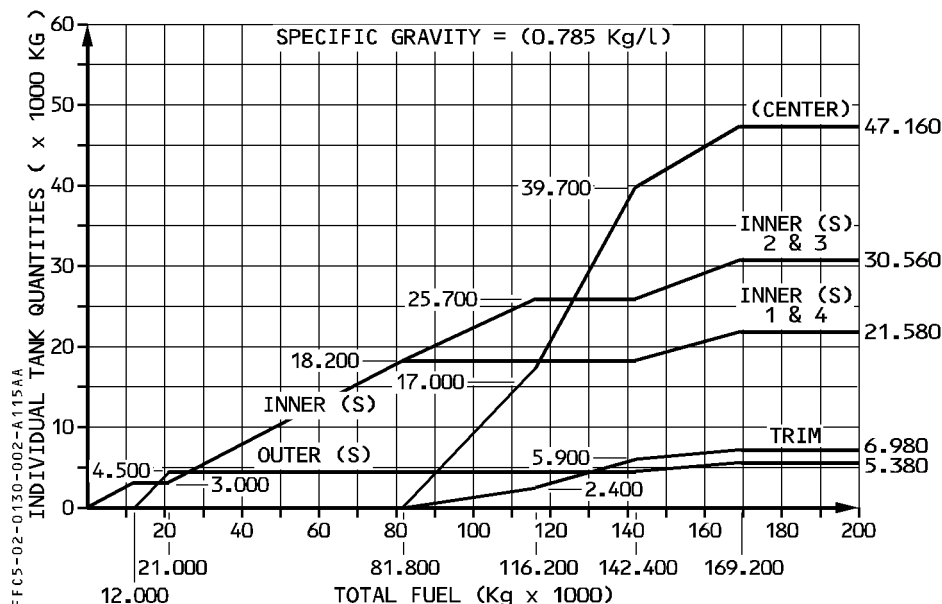
USABLE FUEL WEIGHT



REFUELING

- During automatic refueling, the trim tank is filled when the preselected fuel quantity is greater than 81800 kg, whatever the density.
- With the tanks filled to the maximum capacity, there is enough space in each tank to allow for a 2 % thermal expansion of the fuel, without its spilling through the vent system.

REFUEL DISTRIBUTION



For any FOB (horizontal axis), the graph shows quantities in each individual tank at the end of refueling. (Vertical axis).

Example : Required FOB 142400 kg
Post refuel distribution : OUTERS (each) 4500 kg CENTER 39700 kg
INNERS 1 / 4 (each) 18200 kg
INNERS 2 / 3 (each) 25700 kg
TRIM 5900 kg

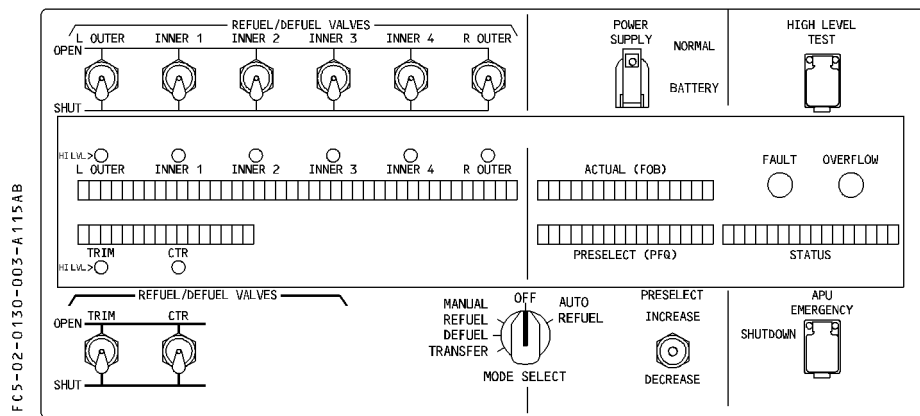
Note : Before refueling, the center or trim tanks may contain fuel, whilst none is required in those tanks for the next flight. This fuel does not have to be transferred, as long as the required FOB is achieved, and the center or trim tanks do not contain more than the following quantities :

CTR TK : 1000 kg TRIM TK : 200 kg

During automatic refueling, the tanks are filled simultaneously in order to achieve the following distribution at the end of the refueling :

1. Inner tanks fueled to 3000 kg each.
2. Outer tanks fueled to 4500 kg each.
3. Inner tanks 1 + 4 fueled, until FOB reaches 81800 kg.
4. Inner tanks 2 + 3 fueled, until FOB reaches 116200 kg.
5. When the FOB reaches 81800 kg, center and trim tanks are simultaneously fueled to full.
6. When the FOB reaches 142400 kg, all tanks are simultaneously fueled to full.

REFUELING CONTROL PANEL



In flight, the correct panel configuration is :

- Set the MODE SELECT switch to OFF.
- All REFUEL/DEFUEL VALVES switches to SHUT.
- Set the PWR SUPPLY switch to NORMAL (and guarded).
- Close the refuel control panel access door.

If the above conditions are not fulfilled, the following message is displayed on the ECAM:

- "REFUEL/PANEL", if the refuel panel door is open.

REFUELING

PREPARATION

- ACCESS PLATFORM.....

IN POSITION
- SAFETY PRECAUTIONS

APPLY

Make certain that no HF transmission (including HF transmission via the HF DATA LINK pb) is performed during refueling and that the tanker and the aircraft are properly grounded. Connect a tanker grounding cable to the aircraft grounding point on the main landing gear.

Do not start or stop the APU during refueling.

 A340-600 Flight Crew Operating Manual	LOADING		2.01.30	P 5
	FUEL		SEQ 100	REV 20

HI LEVEL TEST :

From refueling control panel :

- HIGH LEVEL TEST **PRESS**

During test, the high level lights and the over flow light come on if their circuits are serviceable. The STATUS section of the panel shows a test status message. The fuel quantities, PRESELECTED and ACTUAL are displayed.

● If HI LEVEL TEST is negative :

A negative HI LEVEL TEST prevents refueling. This situation is latched until FCMC RESET.

- FCMC 1+ 2 RESET button (cockpit) **PULL then PUSH**

Note : After FCMC reset re-enter ZFW/ZFCG in the MCDU INIT B page.

- **MANUAL REFUELING PROCEDURE** **APPLY**

Apply manual procedure with continual monitoring of refueling.

FOR DISPATCH REFER TO MEL

AUTOMATIC REFUELING

From the refueling control panel :

- PRESELECTOR.....SET
- MODE SELECT..... AUTO REFUEL

Upon completion of the refueling :

"END" is displayed on the STATUS display.

- ACTUAL QUANTITYCHECK
- MODE SELECT OFF

	LOADING		2.01.30	P 7
	FUEL		SEQ 100	REV 21

Upon completion of the refueling :

"END" is displayed on the STATUS display.

- FUEL ON BOARD QUANTITY**CHECK**
- FUEL REFUEL pushbutton **OFF**

The ON and END lights go out. At the refuel couplings, the light goes out to indicate to the ground personnel that hoses can be disconnected.

MANUAL REFUELING

- DETERMINE FUEL QUANTITY IN EACH TANK

Respect distribution, in accordance with the applicable REFUEL DISTRIBUTION graph.

Note : To refuel the trim tank, one of these conditions must be fulfilled :

- The inner tank inlet valves are open, or
- Inner tanks 2 and 3 quantities are each greater than 12250 kg, or
- The inlet valve for the center tank is open, or
- Center tank quantity is greater than 20400 kg.

- MODE SELECT**MANUAL REFUEL**
- REFUEL VALVES (tank(s) to be filled) **OPEN**
- FUEL QTY**MONITOR**

● When the tank contents reach the required level :

- Corresponding REFUEL VALVES**SHUT**
- MODE SELECT **OFF**

Note : Refueling stops and the STATUS display shows the fault, if one of these conditions occurs :

- An overflow is sensed in a surge tank, or
- The center tank inlet and restrictor valves fail in the open position with the center tank fuel quantity at hi-level, or
- A jettison valve is open, or the FCMS has no data from a jettison valve, or
- The switches on the cockpit overhead fuel panel are incorrectly set.

virgin atlantic A340-600 <i>Flight Crew Operating Manual</i>	LOADING FUEL	2.01.30	P 8
		SEQ 100	REV 18

GROUND FUEL TRANSFER

A ground transfer is possible from tank to tank, except to the trim tank.

On cockpit overhead FUEL panel :

- PUMPS (of the tanks not to be defueled) OFF
- PUMPS (of the tanks to be defueled) ON
- X-FEEDS (of the tank to be defueled) ON

On refueling control panel :

- REFUEL VALVES (of tanks to be filled) OPEN
- MODE SELECT MANUAL TRANSFER
- FUEL QTY MONITOR

● When the tank contents reach the required level :

On refueling control panel :

- Corresponding REFUEL VALVES SHUT
- MODE SELECT OFF

● On completion of ground fuel transfer :

- Cockpit FUEL panel SET NORMAL CONFIGURATION

	LOADING FUEL	2.01.30	P 9
		SEQ 200	REV 20

DEFUELING

- ACCESS PLATFORM IN POSITION
- SAFETY PRECAUTIONS APPLY

Make certain that no HF transmission (including HF transmission via the HF DATALINK pb) is performed during a defueling and that the tanker and the aircraft are properly grounded. Connect a tanker grounding cable to the aircraft grounding point on the main landing gear.

Do not start or stop the APU during defueling.

Note : *If only one hose is used for defueling, it must be connected to the coupling marked “USE THIS ADAPTOR TO DEFUEL”.*

- Before defueling is started :

On cockpit overhead FUEL panel :

- PUMPS (all) OFF

DEFUELING BY SUCTION

Note : • Defueling all the tanks by suction is possible.

- If the trim tank contains fuel, then the fuel system interlocks prevent a suction defuel of the inner tanks.

On refueling control panel :

- MODE SELECT MANUAL DEFUEL
- REFUEL VALVES (of the tanks to be defueled) OPEN
- FUEL QTY MONITOR

- When the tank contents reach the required level :

- REFUEL VALVES SHUT
- MODE SELECT OFF
- Cockpit FUEL panel SET NORMAL CONFIGURATION

	LOADING FUEL	2.01.30	P 10
		SEQ 200	REV 18

DEFUELING WITH FUEL PUMPS

Note : Fuel can only be removed from the inner and center tanks. To defuel only the other tanks, first transfer fuel to the center or inner tank.

INNER TANKS

On refueling control panel :

- MODE SELECT..... DEFUEL
- PUMPS 2 and 3 (and 1 and 4, if greater flow needed) ON
- X-FEED 2 and 3 (and 1 and 4, if greater flow needed)..... ON
- FUEL QTY.....MONITOR

●When the tank contents reach the required level :

- Corresponding PUMPS OFF
- Corresponding X FEED AUTO

On refueling control panel :

- MODE SELECT..... OFF
- Cockpit FUEL panel.....SET NORMAL CONFIGURATION

Note : When the fuel quantity in an inner tank decreases to 5000 kg (11020 lb) the outertank transfer valves automatically open. The fuel in the outer tanks moves to the inner tanks which can be subsequently defueled.

LOADING FUEL	2.01.30 P 11	
	SEQ 200	REV 20

CENTER TANK

- On refueling control panel :

– MODE SELECT.....

MANUAL DEFUEL
- On cockpit overhead fuel panel :

– PUMPS L and R.....

ON

●If trim tank has to be defueled :

– T TANK MODE.....

FWD

– FUEL QTY.....

MONITOR

●When the tank contents reach the required level :

– Corresponding PUMPS.....

OFF

On refueling control panel :

– MODE SELECT.....

OFF

– Cockpit FUEL panel.....

SET NORMAL CONFIGURATION

OVERWING GRAVITY REFUELING

Overwing gravity refueling is done at the refuel point in the top of each wing.

– SAFETY PRECAUTIONS

APPLY

Make certain that no HF transmission (including HF transmission via the HF data link pb) is performed during refueling and that the tanker and the aircraft are grounded.

Make certain that the slats are retracted, and the flight control safety locks with their warning notices are in position.

Connect a tanker grounding cable to the aircraft grounding point on the main landing gear.

Do not start or stop the APU during refueling.

VI6 ALL

	LOADING		2.01.30	P 12
	FUEL		SEQ 001	REV 11

INNER TANK REFUELING PROCEDURE

- OVERWING REFUEL CAP REMOVE
- REFUELING START

The approximate flowrate per refueling fill is 200 liters/minute.

● **If other tank to be refueled :**

- GROUND FUEL TRANSFER PROCEDURE APPLY

Note : *This procedure is not applicable for trim tank refueling.*

REFUELING WITH ONE ENGINE RUNNING

- Refuel with one engine running only at airports where no external ground pneumatic power is available and only when APU is unserviceable.
- Only the RH fuel couplings can be used.
- Overwing gravity filling is not permitted.
- Disembark all passengers.
- Obtain airport authorization.
The Airport Fire Department should standby at the aircraft during the entire refueling procedure.
- Point the aircraft into the wind at a location where the slope is negligible.
Set the parking brake and check its pressure.
Run engine n° 2 at ground idle with its generator connected.
- Do not start engine n° 1, 3, 4, shut down engine n° 2 or attempt to start the APU before all fueling operations have been completed.
- Position the fuel truck under the extremity of the right wing. Its pressure should not exceed 50 psi.
- Follow automatic or manual refueling procedure.

Note : *The refuel system must be fully operational.*

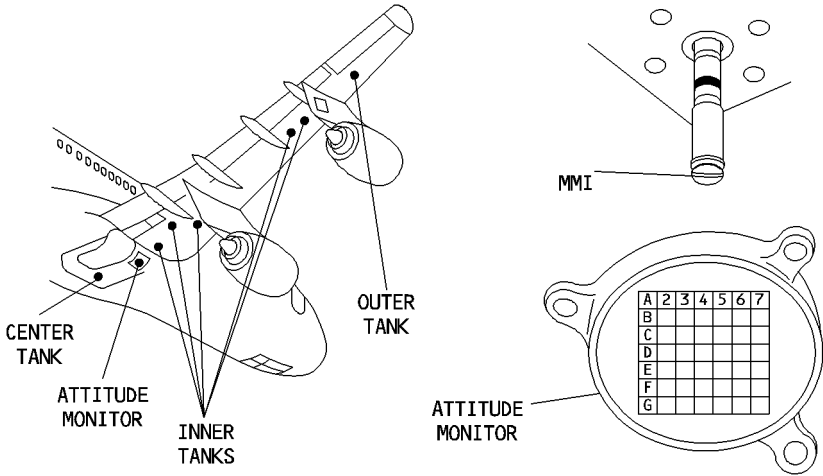
OPERATION MONITORING

During the entire refueling procedure :

- Monitor the fuel truck shut off valve.
- Be sure that the fueling company is keeping permanent control of the emergency fuel shut off device.
- Have a flight crew member in the cockpit monitoring all systems and the running engine.
- Have a qualified ground crew member at the fueling station to operate the refuel valve switches.

USE OF MANUAL MAGNETIC INDICATORS (MMI)

Indicators are installed in each wing tank and in the center tank.



– AIRCRAFT ATTITUDENOTE

Note the grid square letter and number, indicated by the bubble on the attitude monitor.

– ACCESS PLATFORM.....IN POSITION

– MMI.....UNLOCK and WITHDRAW

The crew member must slowly withdraw the MMI until he feels the magnetic attraction between the rod and float magnets.

Do not use force when withdrawing MMI as this will disengage float magnet from the rod magnet and bring the rod down on to mechanical stop.

– ROD GRADUATION (which aligns with wing bottom surface) READ

– MMI..... IN PLACE and LOCKED

– Use the table for the applicable aircraft attitude with the grid square letter and number and the applicable MMI stick number to find the volume of fuel in each tank (refer to AMM 12.11.28). Multiply the result by the specific gravity to find the fuel weight.

Note : *The manual magnetic indication accuracy is around 5 %.*