

# Fuel Policy - Preflight

**Overview:**

In the ATPL exam, you may be asked to find the minimum weight of ‘usable fuel’ which must be on board at the departure ramp (ramp fuel), or at brake release (BR) on the runway, or at some point enroute whilst in flight. We will deal with the ‘pre-flight’ situation first, as ‘in-flight’ fuel sometimes attracts less fuel reserves.

It will always be the minimum fuel required, as per the company fuel policy on page 1-17 in the B727 manual. Remember that in minimising the fuel carried, we can maximise the payload (ie: carrying more fuel than required means a trade-off in the number of passengers that can be carried).

**Fuel definitions:**

**Flight fuel:** Is the fuel from brake release (BR), to touch down. It is total fuel for takeoff/climb, cruise, descent, and approach/manoeuvre (ie: circuit) fuel.

**Reserve fuel:** Is that fuel carried over and above the amount required for flight. It varies according to the type of operation you are considering. This could be normal ops fuel, consideration of the fuel required if the aircraft loses cabin pressure, or an engine enroute (ie: abnormal ops). Before flight we must calculate whichever one of these three scenarios requires the most fuel. Whichever one does, that is the fuel we will load prior to departure. We will discuss abnormal ops fuel requirements later.

Normal Ops pre-flight reserve fuel may include any, or all of those listed - (refer to pre-flight reserve fuel policy below).

- Start-up/initial taxi fuel. The standard allowance is 150 kg.
- Variable reserve (10% of flight fuel).
- Fixed reserve. 45 min at pre-flight planning stage (3, 300 kg), and 30 min if re-calculating when in flight (2, 250 kg).
- Weather holding fuel - either ‘INTER’(30 min = 2, 000 kg), or ‘TEMPO’ (60 min = 4, 000 kg).
- Traffic holding at destination, or alternate airports. Standard allowance is 4, 000 kg/hr.
- Work in progress fuel (WIP). If work being carried out on runways/taxiways (eg: extensions/re-sealing). Standard allowance is 4, 000 kg/hr.

***Normal Ops Pre-flight reserve fuel policy.***

<i>Operation</i>	<i>Initial taxi</i>	<i>V/R</i>	<i>F/R</i>	<i>Hold Wx</i>	<i>Traffic/WIP</i>	<i>Final taxi</i>
<b>Dep-Dest</b>	150 kg	10%	3300 kg	@ 4000 kg/hr at dest	@ 4000 kg/hr at dest	100 kg
<b>Dep-Dest-Alternate</b>	150 kg	10%	2250 kg	@ 4000 kg/hr at alternate	@ 4000kg/hr at dest & alt	100 kg
<b>Dep-Enroute Alternate</b>	150 kg	10%	3300 kg	@ 4000 kg/hr at enroute alt	@ 4000 kg/hr at enroute alt	100 kg

Not understanding the company fuel policy is a near certain way to fail an ATPL Flight Planning exam !



**Airport weather definitions:**

SUITABLE ... The airport weather conditions during the period of possible use are forecast to be above the alternate minima. (ie: good weather).

ACCEPTABLE ... The airport weather conditions during the period of possible use are forecast to be below alternate minima, but above landing minima. You must carry fuel to fly an approach, and if unable to break cloud, enough fuel to then continue to a SUITABLE airport (ie: one who's forecast indicates the weather will be above alternate minima).



***You can not nominate an airport as an alternate, if it also requires an alternate !***

It could be that the destination airport has variable weather conditions, such that it is forecast to experience weather conditions that are below the alternate conditions for periods of up to 30 minutes (INTER), or 60 minutes (TEMPO), but that weather there will generally be above alternate minima. In this case you could describe the airport as 'ACCEPTABLE', becoming 'SUITABLE' provided sufficient weather holding fuel is carried to allow the weather to come good. In this case, simply carry the appropriate amount of holding fuel rather than fuel for a diversion to an alternate airport.



***If weather holding fuel is specified at your destination, load that fuel, do NOT allow any diversion fuel to an alternate airport !***

If the airport is forecast to remain below 'landing minima' during the period of possible use, you may consider that airport as 'CLOSED', and unable to be used.

**Normal Operations Departure to Destination**

This is when your destination weather is above alternate minima for the period of possible use.

**Example No.1:**

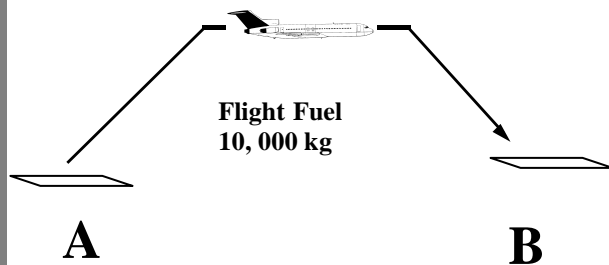
Departure airport "A" is 'SUITABLE'. Destination airport "B" is 'SUITABLE'.

Flight fuel "A" to "B" is 10, 000 kg.

How much fuel must be on board at the ramp (start-up) "A" to cover normal operations ?

**Fuel summary**

Item	Kg
Flight Fuel	10, 000
V/R 10%	1, 000
Fixed Reserve	3, 300
Wx Hold	Nil
Traffic Hold	Nil
WIP Hold	Nil
Final Taxi	100
Initial Taxi	150
<b>Min FOB @ ramp</b>	<b>14, 550</b>



**Example No.2:**

Departure Airport “**A**” is ‘SUITABLE’.

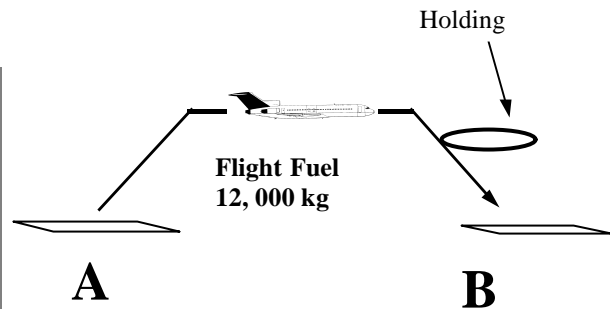
Destination airport “**B**” is ‘ACCEPTABLE’, becoming suitable if holding fuel to cover INTER weather deteriorations is carried. Additionally, 15 min WIP fuel is needed, and 30 min traffic holding fuel.

Flight fuel “**A**” to “**B**” is 12, 000 kg.

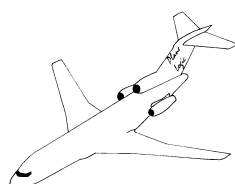
How much fuel must be on board at the ramp “**A**” to cover normal operations ?

**Fuel summary**

Item	Kg
Flight Fuel	12, 000
V/R 10%	1, 200
Fixed Reserve	3, 300
Wx Hold (30’)	2, 000
Traffic Hold (30’)	2, 000
WIP Hold (15’)	1, 000
Final Taxi	100
Initial Taxi	150
<b>Min FOB @ ramp</b>	<b>21, 750</b>



We did NOT have to plan fuel to fly to an alternate, as the destination airport weather was forecast to improve to above alternate minima if we could hold for 30 minutes.



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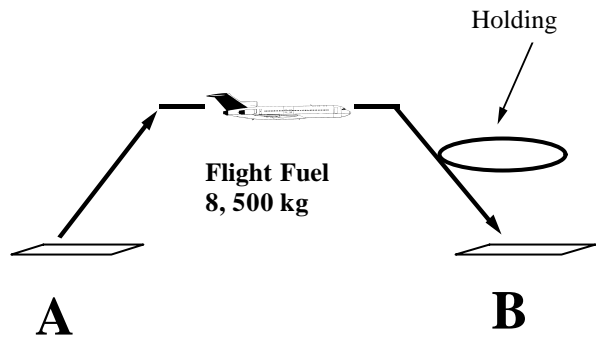
**Example No.3:**

Departure airport “**A**” is forecast to be ‘ACCEPTABLE’, becoming ‘SUITABLE’ if holding fuel to cover INTER weather deteriorations is carried.

Destination airport “**B**” is forecast to be ‘ACCEPTABLE’, becoming ‘SUITABLE’ if holding fuel to cover TEMPO weather deteriorations is carried. Further, 15 minutes traffic holding fuel applies.

Flight fuel “**A**” to “**B**” is 8, 500 kg.

How much fuel must be on board at the departure airport ramp to allow for normal operations ?



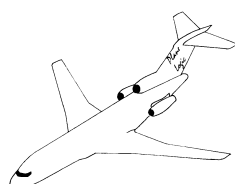
**Fuel summary**

Item	Kg
Flight Fuel	8, 500
V/R 10%	850
Fixed Reserve	3, 300
Wx Hold (60')	4, 000
Traffic Hold (15')	1, 000
WIP Hold	Nil
Final Taxi	100
Initial Taxi	150
<b>Min FOB @ ramp</b>	<b>17, 900</b>

**Note:**

- There are times when the reserve fuel exceeds the flight fuel. Example No.3 shows this.
- For normal operations we do NOT have to consider the holding fuel required at the departure airport as we will not under normal conditions be returning there. We might have to consider a return to the departure airport if an engine or cabin pressure was lost, But these are ‘abnormal operations’. We will consider the fuel required for them shortly.

**Now try Fuel policy assignments 1a to 1c.**



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**Example 6.**

Departure airport “**A**” ACCEPTABLE, becoming SUITABLE if fuel for TEMPO deteriorations is carried.

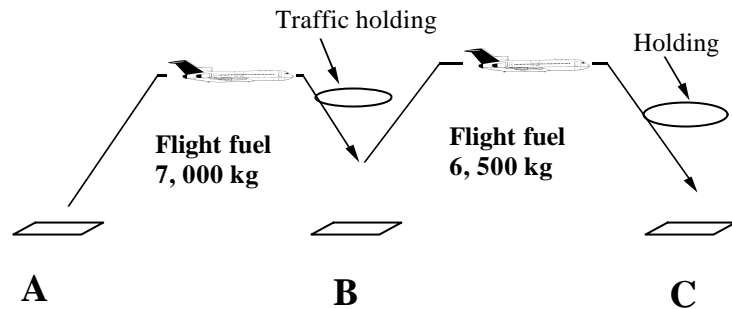
Additionally, airport “**A**” has a 15 minute traffic holding requirement.

Destination airport “**B**” is “ACCEPTABLE”. 30 min traffic holding applies.

Alternate airport “**C**” is ACCEPTABLE, becoming SUITABLE if INTER Wx holding is carried.

Flight fuel **A** to **B** is 7, 000 kg.  
 Flight fuel **B** to **C** is 6, 500 kg.

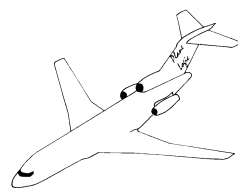
What is the minimum amount of fuel that is required to be on board at the departure airport ramp to cover normal operations ?



**Fuel Summary**

Item	Kg
Flight Fuel	13, 500
V/R 10%	1, 350
Fixed Reserve	2, 250
Wx Hold (at alternate)	2, 000
Traffic Hold at destination (30')	2, 000
WIP Hold	Nil
Final Taxi	100
Initial Taxi	150
<b>Min FOB @ ramp</b>	<b>21, 350 kg</b>

Now try Fuel policy assignments 2a, 2b, and 2c.



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