FUEL JETTISON
Fuel Jettisoning is an important safety function for some airplanes.

The majority of airliners do not have the ability to jettison fuel.

In 2019 at SEA, only about 4% of the departures had fuel jettisoning capability.

Jettisoning is always used to meet an emergency or non-normal situation. A normal flight never plans on jettisoning fuel.

Most pilots will go through their entire career without ever using the procedure – while it is not unheard of, it is a pretty rare occurrence.
JETTISON PANEL AND DIAGRAM

FUEL JETTISON

ON – Jettison nozzle selected open

VALVE – Valve and switch disagree

NOTE: Do Not jettison fuel while TE flap are in transit between 1 & 5 position
NO JETTISON CAPABILITY

Q 400
Airbus A320
Boeing 757
Boeing 737
EMB-170/190
CRJ 700
Boeing 767
AIRBUS A330-200 & A330-300
JETTISON CAPABLE

Boeing 747

Boeing 777
Most departures from sea do not have the ability to jettison fuel.

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WHY IS THERE A JETTISON SYSTEM IN THE FIRST PLACE?

The regulations for certification stipulate that transport category airplanes must meet certain climb performance or have a fuel jettisoning system installed CFR 25.1001:

- Some airplanes (MD-11 & 747) need a jettisoning system in order to meet these requirements.
- Other airplanes (777 & some 767s) meet the requirements but have a jettisoning system installed anyway.
- Still other airplanes (737, A320, 757) meet these requirements and do not have a jettison system installed.

As far as the pilot is concerned, what is important is the increase in the margin of safety that the ability to jettison fuel affords.
• Landing overweight and fuel jettisoning are both considered safe procedures (Boeing)

• However, landing overweight reduces the normal safety margins depending on the degree of the overweight condition and the particular conditions that day

• In addition, delaying the landing, in order to burn fuel, with a malfunctioning system or engine failure may expose the airplane to additional system deterioration that may make the situation worse.
GUIDANCE PROVIDED TO THE PILOT

- Company guidance is provided to the pilot by the airlines Operations Manual (Handbook) and Operation Specifications (OpsSpecs)

- FAR 121.557 Emergency authority

  “In an emergency situation that requires immediate decision and action the pilot in command may take any action that he considers necessary under the circumstances. In such a case he may deviate from prescribed operations procedures and methods, weather minimums, and this chapter to the extent required in the interest of safety.”
RANGE OF NON-NORMAL AND EMERGENCY SITUATIONS

Some emergency situations can be very fast moving, ambiguous and time compressed

Or we could have a less dramatic slower paced situation where the decision is made collaboratively with company dispatch and coordinated with ATC

Most importantly, from the pilot’s perspective, the perceived time available is likely one of, if not the most critical factor for how the fuel jettisoning procedure will be handled
POSSIBLE SCENARIO

SYSTEM FAILURE

• If a large airplane departing on a long flight must return to the airport of departure it may be smart to jettison fuel to maintain normal safety margins

• The pilots will consider many factors including the landing distance required and weather conditions
Normal landing typical day 5000’ of runway required 
(15 degrees C, Wet Runway)

Non-normal configuration at or near Maximum Takeoff weight 
8000’ to 13,500’ of runway required depending on the severity 
of the problem
POSSIBLE SCENARIO

MEDICAL EMERGENCY

• In a medical emergency, procedures are provided in the flight attendant and pilot operating manuals

• Most companies maintain a system where there is the capability to establish direct communication with a physician on the ground and the airplane in flight

• The best course of action may include jettisoning fuel
RECAP

- Fuel Jettisoning is an important safety function for some airplanes
- The majority of airliners do not have the ability to jettison fuel
- In 2019 at SEA, only about 4% of the departures had fuel jettisoning capability
- Jettisoning is always used to meet an emergency or non-normal situation, and a normal flight is never predicated on its use
- Most pilots will go through their entire career without ever jettisoning