

Docket No. SA-539

Exhibit No. 2-M

NATIONAL TRANSPORTATION SAFETY BOARD

Washington, D.C.

Attachment 12 – Kubicek Checklists

(6 Pages)

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1.0 Pre-takeoff Checks¹

4.5 TAKEOFF

Pre takeoff checks

Parachute	Parachute velcro tabs separated by pulling on the red line. Red line attached to the burner frame and within the pilots reach.
Fabric	No fabric damage above the first horizontal tape.
Flying cables	Undamaged and not twisted.
Carabiners	Closed and locked.
Burners	All burners working correctly.
Fuel system	Hoses connected, cylinder turned on as required. No leaks.
Radios and instruments	Altimeter set correctly. Instruments turned on. Thermometer working. Radio checked.
Maps	Available.
Ignition sources	Within easy reach.
People	Passengers briefed and in the basket. Ground crew have the chase vehicle keys. Ground crew telephone number established. Non-briefed people are a safe distance away from the basket.
Balance	The balloon is in equilibrium and steady on the ground.
Ground crew	Clear of the basket.
Basket area	Area around the basket clear of equipment and people.
Airspace	Area around and above the balloon clear of other balloons and aircraft.
Heat	Heat the balloon until the basket lifts clear of the ground.
Quick release	Release.
Basket check	No person or object attached to the outside of the basket.
Climb	Climb to avoid downwind obstructions and to establish the balloon in free flight.
Time	Record the takeoff time.

¹ Source: Kubicek Flight Manual, page 4-8.

WARNING:

FLIGHT IS PROHIBITED if there is a leak in the fuel system or a pilot flame is malfunctioning!

CAUTION:

During take off the pilot must remember to climb at a rate appropriate to the prevailing wind speed and direction to ensure safe over-flight of downwind obstructions.

NOTE:

If, in windy conditions, you chose to inflate the balloon in the shelter of trees upwind then make sure that the shelter will protect the whole height of the inflated balloon.

- *In windy conditions it is particularly important to make sure that the balloon is securely restrained.*
- *If inflating in shelter, in windy conditions, be aware that as the balloon flies clear of the shelter the envelope may distort and lose lift that will have to be replaced by burning at once.*
- *If inflating in shelter, in even light winds, be aware that the balloon may, on lift off, suffer from 'false lift' that will be lost as the balloon accelerates to the prevailing wind speed. As 'false lift' decreases so it will have to be replaced by extra burning. 'False lift' is the lift generated by the wind blowing over the top of the balloon while it is stationary.*
- *Never use crew leaning on the basket to built up excess lift before leaving the ground.*

2.0 Inflight Checks²

4.6 IN-FLIGHT CHECKS

After Takeoff Checks

Quick release	Remove it and stow in the basket.
Fuel	Manage the fuel so that there are always cylinders with gas connected to each burner. When using the last two cylinders use them at the same rate so that there is always fuel available to each burner. Land with a minimum of 20 % fuel in each of the last two cylinders.
Envelope	Mouth open, Parachute closed, no envelope deformation. Temperature streamer in place.
Location	Mark your position on the map every 15 minutes.

The buoyancy of the balloon is controlled by use of the burner. In the hands of a skilled pilot a balloon can be flown very accurately and its height controlled precisely. At all times there should be fuel available to each of the balloon's burners.

When flying near livestock the pilot can consider using the whisper burner which provides a quieter and less powerful flame. The whisper burner should not be run continuously with the valve partially open as this may result to droplets of propane being produced at the nozzle. This liquid fuel may then collect in the burner can and present a fire risk. A long heating with whisper burner should also be avoided since it creates a risk of envelope mouth overheating.

Changing Fuel Cylinders in Flight

Altitude	Make sure that the balloon is clear of obstructions and establish a gentle climb before changing cylinders.
Preparation	Maintain a climb using a burner connected to a second fuel supply. Close the liquid valve on the empty cylinder. Open the burner blast valve to burn off the fuel from the liquid hose. Close the burner blast valve when the hose is empty.
Change cylinders	Disconnect the liquid hose from the spent cylinder and transfer it to a full cylinder. Open the liquid valve on the new cylinder and read the fuel pressure. Check that there are no leaks.
Test	Test the reconnected burner. Make a note of the time that you changed cylinders.

Regular Checks While Flying

It is essential that the pilot is at all times aware of where he is, the condition of the balloon and its passengers and the balloon's location.

Every 15 minutes the pilot should make the following checks:

Location	Mark the position of the balloon on a local area map and make sure that you can continue in flight for the required amount of time. Confirm that it is safe to continue flying at this height.
Fuel	Check the contents of the fuel cylinders connected to the burners and confirm how long the balloon can fly for.
Instruments	Check that the instruments are all functioning correctly.
Passengers	Confirm that your passengers are comfortable with the flight.
Ground crew	Consider calling your ground crew to confirm your plans for the next period of the flight.

² Source: Kubicek Flight Manual, page 4-11.

Use of Fuel Cylinder Manifolds

Cylinder manifolds may be used to connect two or more fuel cylinders to a burner. However manifolds must not be used to connect two or more burners together. If a manifold is used then every fuel cylinder connection on the manifold must be connected to a cylinder.

When manifolded together only one fuel cylinder may be opened and in use at any one time. When changing from one cylinder on the manifold to another the connection of the open cylinder must be fully closed before another is opened.

WARNING:

Only manifolds supplied by Kubicek Balloons or another FAA approved balloon manufacturer may be used.

3.0 Landing Checks³

4.7 LANDING

The landing is the most critical part of every flight and it is important that the balloon is landed safely in an area where access is as easy as possible. It is particularly important that the approach is made in such a way as to reduce any possible disturbance to people or animals in the approach path.

Approach Checks:

Information	Inform the ground crew that you may be landing or that you are only making a practice approach.
Brief passengers	Rebrief the passengers for landing.
Basket	Use the Rotation vent (if fitted) to turn the balloon so that the basket will land on one of its longer sides with the scoop down.
Burners	Check that all burners function correctly and that they are connected to cylinders with fuel available.
Landing field	Select a field that is downwind and large enough for the prevailing wind conditions. The field should not have power lines in it nor any downwind obstructions.
Red line	Check that the red line and the Rotation vent lines (if fitted) are in hand.
Descent	Establish a descent into the selected landing field.

Landing checks:

Descend	Descend until 1 m (3 ft) above the ground.
Fuel	If practical turn off the pilot lights and cylinder valves.
Passengers	Make sure that the passengers have assumed the correct landing position.
Vent	Open the Parachute and hold it open until the balloon has come to rest.
Burners and pilot lights	Turn off burners and cylinders, pilot lights are extinguished and fuel hoses vented.
Passengers	Instruct the passengers to leave the basket.

³ Source: Kubicek Flight Manual, page 4-12.

Action After Landing:

Cylinders	All cylinder valves turned off.
Burner	Pilot lights extinguished. Fuel hoses vented. Burner valves all off.
Envelope	Deflated. Empty the envelope by folding it into a long "sausage" and then expel the remaining air by squeezing the envelope progressively from the mouth to the crown ring. Fold it into the bag, crown first.
Ground crew	Inform them of your position.
Paperwork	Enter the flight into both the aircraft log book and the pilots personal log book.