*BY ORDER OF THE SECRETARY OF THE AIR FORCE*

*AFMAN 11-2C-130HV3 ADD B CL-1*
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*Flying Operations*

# *C-130H MAFFS OPERATIONS PILOT CHECKLIST*

***COMPLIANCE WITH THIS PUBLICATION IS MANDATORY***

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This checklist establishes procedures for employing the Modular Airborne Fire Fighting System (MAFFS) on C-130H aircraft employed by Mobility Air Forces (MAF) to accomplish their worldwide mission. This checklist complements AFMAN 11- 2C-130HV3, *Operations Procedures*, and is printed on standard 8 ½" x 11" bond paper, and trimmed to fit the standard plastic aircrew checklist binders. This checklist is intended to provide MAFFS certified crewmembers quick reference to procedures required for the safe execution of MAFFS ground and flight operations. All MAFFS certified C-130H pilots will carry this annex. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF FORM 847, *Recommendation for Change of Publication*; route AF FORM 847 from the field through the appropriate chain of command.

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**NOTE**

**MAFFS CHECKLIST PROCEDURES:** Items on the loadmaster's MAFFS BEFORE TAKEOFF, AFTER TAKEOFF, and BEFORE LANDING, and AFTER LANDING CHECKLISTS will be accomplished following completion of the normal checklist items from T.O. 1C-130(K)H-1CL-4. The loadmaster's CL-4 checklists will not be called complete for MAFFS missions until items of the MAFFS checklist are accomplished. The loadmaster will verbalize the setting of the Compressor Enable Switch when calling the CL-4 checklist complete. As always, these checklists and instructions are not substitutes for sound judgment and special circumstances may require modifications of these procedures.

**WARNING**

Ensure the Drop Control Pendant is not dropped or impacted, is readily available during critical phases of flight, and properly secured to minimize the likelihood of being dropped.

## PART ONE – AIRCREW BRIEFING GUIDES

**AIRCRAFT COMMANDER**

- SITUATIONAL AWARENESS/AIRCRAFT CONTROL
- Power Management
- Primary for communication with Lead/ASM pilot during orbit, run-in, drop, & escape
- Position aircraft on Show-Me run so CP can observe start point and line
- Maintain altitudes assigned by Lead/ASM
- Coordinate, verify and de-conflict exit route
- Direct emergency drop: "Emergency Drop – Cleared to Drop"

**COPILOT**

- Backup FE during engine start on taxi out (primary on Condition Levers)
- EMERGENCY DROP ON TAKEOFF (secondary to LM)
- Constantly back up pilot on checklists, airspeed, altitude, position on Lead/ASM plane
- Confirm FTA coordinates in SCNS. Verify with Navigator
- Use VFR sectional to maintain situational awareness (airspace, terrain, TFR's)
- Clear for other aircraft/maintain situational awareness
- Primary for all other communications; make initial check-in with Air-Tac or Lead/ASM
- Back up pilot on ground track and exit
- IDENTIFY TARGET AREA (query Lead/ASM if needed)
- PRIMARY FOR RETARDANT RELEASE

**NAVIGATOR**

- Clear for other aircraft
- TERRAIN AWARENESS / ESCAPE ROUTE FACTORS
- Primary for communication with Dispatch on USFS FM, Tanker Base and MAFFS EAS-P
- Navigation to assigned area
- PRIMARY TO CONFIRM & DECONFLICT EXIT/ESCAPE ROUTE
- Back up CP on identifying target area release point
- Spot Lead/ASM aircraft and any other traffic in the FTA
- Watch for target fixation by pilot(s)
- Notify MAFFS AC of drift on run-in
- Monitor weather/wind-shear conditions

**FLIGHT ENGINEER**

- READ MAFFS DROP CHECKLISTS
- Start outboard engines (sequenced) when cleared by pilot and out of pit area (primary on start switches)
- Advise LM when cleared to enable compressors
- Back up pilot on altitude, airspeed and terrain awareness
- Confirm flap settings during run-in and escape
- MONITOR ENGINE INSTRUMENTS DURING RUN-IN AND ESCAPE
- CALL OUT ALTITUDE (AGL) TREND INFO DURING RUN-IN
- CALL OUT TORQUE (5K, 10K, ETC) ON ESCAPE
- Select TA/RA ASAP after separated from Lead/ASM
- Call for compressor enable when appropriate on escape

**LOADMASTER**

- PRIMARY FOR EMERGENCY DROP ON TAKEOFF
- Coordinate with FE regarding compressor operations Checklist Timing
- Back up CP on retardant release when briefed to do so
- CALL LOAD CLEAR UPON CONFIRMING RETARDANT RELEASE IS COMPLETE AND PINTLE IS CLOSED
- Do not de-arm after drop until coordinated with AC Ground servicing supervision
- Ensure system de-armed and normal hydraulic accumulator is depleted in pits

## COMMON FREQ AND SQUAWKS

- Firefighting aircraft squawk Mode 3 Code 1255 when not assigned other VFR or IFR squawk
- VHF Air-Air Common: 122.925
- Air tanker base Standard: 123.975
- Air Guard: 168.625
- National Flight Following: 168.650

## TANKER BASE PILOT ORIENTATION BRIEFING GUIDE

The Tanker Base Pilot Orientation Briefing should be conducted between the MAFFS pilot and Air Tanker Base Manager (ATBM) or representative prior to conducting recurring operations at a particular air tanker base facility. This does not preclude servicing in pits on initial stop, if required.

Most ATBMs publish a local Pilot Orientation Package. As a minimum review the following with the appropriate tanker base representative:

### Air Tanker Base Manager

Conduct a thorough review of local operating procedures, as required, to include the following:

### Base Operations

- Local Fire Situation
- Mission planning facilities / capabilities
- Type Retardant in use
- Loading / Pumping Equipment Capability / Limitations
- Aircraft Parking Locations / Procedures
- Local Hazards: ramps, runway, approach, departure

### Airspace coordination plan

- Class B, C, D airspace
- Noise Abatement Procedures
- MTRs
- Transit altitudes to / from fires)
- Standard VFR departure / arrival procedures
- Prominent Local Landmarks
- Flight Hazards / TFRs
- Jettison Areas
- **Pilot Duty Day and Flight Time limitations**

## Tanker Base Pilot Orientation Briefing Guide (Cont)

- Engine-run up location / procedures
- Weather, time of day limitations, or collocated military activity
- Flight Plans
- ARFF requirements (minimum 3000 gallons retardant for continuous C-130 ops)

**Air-Tac / Lead plane procedures and other operations**

- **Pit Operations** (e.g. unidirectional pits, preferred pits, etc.)
  - Fuel / Ground Power requirements
  - Aircraft Washing
  - Marshaling requirements (e.g. 10' obstruction clearance with wing walker)
- **Dispatch Procedures**
  - Standard Interagency Dispatch Form
  - GACC and Local Dispatch procedures frequency, etc.)
  - C2 – ensure TB personnel pass On (Stopped) and Off (Rolling) times to AEG in Boise, ID
    - Phone – (208) 422-3422
    - Fax – (208) 422-3419
- **RON requirements**
  - Billeting
  - Transportation
  - Morning Brief Time

## Tanker Base Pilot Orientation Briefing Guide (Cont)

### Ramp Manager / Parking Tender

- Engine Start coordination (Hand Signals preferred during heavy tanker operations)
- Identify any obstruction hazards and coordinate wing walkers as required (10’ clearance)

### Load Attendant

- Discharge Nozzle (Pintle) safety issues
- Retardant loading / metering procedures
- Emergency Shutoff procedures / signals

# PART TWO – NORMAL PROCEDURES

**CAUTION**

Do not operate the MAFFS compressors if use of propeller de-icing is expected. Operation of the MAFFS compressors in icing conditions may exceed maximum generator loads. If icing conditions are anticipated, ensure Compressor Enable switch is in the OFF position. The loadmaster will obtain a verbal confirmation from the pilot prior to enabling compressors

**CAUTION**

Do not operate galley equipment when MAFFS equipment is in use. Operation of galley equipment during MAFFS compressor operations may exceed maximum generator loads.

## PRE-SLOWDOWN CHECKLIST

| | | |
|---|---|---|
| 1. | **"CREW, PRE-SLOWDOWN CHECKLIST"** | (P) |
| 2. | **"ACKNOWLEDGED"** | (LM) |
| 3. | Pressurization- As Required | (E) |
| 4. | Stall Speeds – **"REVIEWED"** | (P, CP, E) |
| 5. | Altimeters – **"SET"** (State setting) | (P, CP, N) |
| 6. | Radar Altimeters - **"SET"** (State setting) | (P, N) |
| 7. | Landing Gear Warning Light Circuit Breaker – PULLED | (E) |
| 8. | ADS Circuit Breaker – PULLED (TCTO 1C-130-1365J) | (E) |
| 9. | Prop & Engine Inlet Anti-Icing Switches – As Required | (E) |
| 10. | Pre-Slowdown Checks – **"COMPLETE"** | (LM, E) |

## SLOWDOWN CHECKLIST

1. **"CREW, SLOWDOWN CHECKLIST"** (P)
2. **"ACKNOWLEDGED"** (LM)
3. Flaps – **"SET"** (State setting) (CP)
4. Landing Lights – **"SET"** (Extended/ON) (CP)
5. Compressor Enable Switch – **"OFF"** (LM)
6. Air Conditioning Panel – NO PRESS/AUTO (As Required) (E)
7. IFF/TCAS – **"SET"** (PM/E)
8. Pilot's Radar – Windshear (WS) Mode "As required" (P, CP)
9. Drop Selection Switch – **"SET"** (State setting) (LM)
10. Foam Mix (If required) – **"SET"** (State setting) (LM)
11. System Status – **"ARMED"** (LM)

**NOTE**

The Armed light on the drop control assembly will flash when the arming cycle is initiated. The light will be on and steady when the system is fully armed. The system takes approximately 30 seconds to complete the arming cycle.

12. Slowdown Checks – **"COMPLETE"** (LM, E)

## ONE MINUTE ADVISORY

1. **"CREW, ONE MINUTE ADVISORY,** "State coverage level & quantity" (P)
2. **"ACKNOWLEDGED",** "State coverage setting/quantity & arming status" (LM)
3. Release Point and Escape – **"REVIEWED"** (P, CP, N)
4. **"Engine BL AIR switches"** – (State desired setting) (P)

   **"SET"** (State setting) (E)

## RELEASE POINT CHECKLIST

1. **"READY, READY, DROP"** (CP)
2. Drop Release Trigger Switch – Depress and hold (CP)

**NOTE**

The Drop Release Trigger Switch should be depressed and held for the duration of the desired drop, or until "LOAD CLEAR"

3. Status of Load – **"LOAD CLEAR"** (Or condition) (LM)
4. Flaps - **"50 PERCENT"** (CP)

**NOTE**

If multiple drops are planned in the immediate area, crews may re-accomplish checklists starting with the ONE MINUTE ADVISORY. If multiple drops are accomplished outside the immediate area but the system remains armed, re-accomplish checklists starting with the SLOWDOWN CHECKLIST. If the system is de-armed, re-accomplish checklists beginning with the AFTER TAKOFF (LM), and PRE-SLOWDOWN, (Cockpit Crew) checklists. Ensure stall speeds are updated/reviewed when aircraft gross weight changes.

## COMPLETION OF DROP CHECKLIST

**NOTE**

If multiple drops are not planned, the Copilot's "Flaps – 50%" call on the Release Point Checklist initiates the Completion of Drop checklist.

1. IFF/TCAS – **"SET"** (State Setting) (PM/E)
2. Flaps – **"UP"** (CP)
3. Engine BL AIR switches – **"SET, state setting"** (E)
4. Air Conditioning Panel – As Required (E)
5. Pressurization – As Required (E)
6. ADS Circuit Breaker – Reset (TCTO 1C-130-1365J) (E)
7. Landing Gear Warning Circuit Breaker – **"RESET"** (E)
8. Prop & Engine Anti-Icing Switches – OFF (As Required) (E)
9. Compressor Enable Switch – **"SET"** (As required) (LM)
10. Landing Lights – **"SET"** (As required) (CP)
11. Drop Checks – **"COMPLETE"** (LM, E)

## MAFFS WEIGHT TABLES

| MAFFS Weight Chart (thousands of pounds) | | | | |
|---|---|---|---|---|
| **Quantity** | **Retardant** | **Retardant** (Foam Tank Removed) | **Water and Foam** | **Water Only** |
| **Empty** | **15.1** | **14.8** | **15.1** | **15.1** |
| **1/6** | **19.6** | **19.3** | **19.5** | **19.3** |
| **1/3** | **24.1** | **23.8** | **23.9** | **23.4** |
| **1/2** | **28.6** | **28.3** | **28.2** | **27.6** |
| **2/3** | **33.1** | **32.8** | **32.6** | **31.7** |
| **5/6** | **37.6** | **37.3** | **37.0** | **35.9** |
| **FULL** | **42.1** | **41.8** | **41.4** | **40.0** |
| **NO WATER, FULL FOAM TANK** | | | **16.5** | |

| Fluid Weights (pounds per gallon) | | |
|---|---|---|
| **Retardant (typical)** | **Water** | **Foam** |
| **9.0** | **8.3** | **8.5** |

| System Capacity (gallons) | |
|---|---|
| **Main Tank** | **Foam Tank** |
| **3000** | **160** |

**NOTE**

Weights provided above are rounded estimates for planning purposes and actual weights must be verified. Actual weight of a MAFFS II unit can be found in the weight and balance section of the maintenance documentation specific to each unit.

# PART THREE – EMERGENCY PROCEDURES

## EMERGENCY DROP

1. Emergency Drop – **"CLEARED TO DROP"** (P)
2. Emergency Drop Switch – Lift Guard and Toggle (LM, CP)
3. Status of Load – **"LOAD CLEAR"** (Or condition) (LM)
4. Emergency Drop Checks – **"COMPLETE"** (LM, CP)

## EMERGENCY SHUTDOWN

To stop both compressors and all hydraulic pumps from the MAFFS loadmaster station:

1. Power Switch – GROUND MODE (LM)
2. EMER STOP (FWD Pallet) – IN (E/LM)
3. 28 VDC Power Switch (FWD Pallet) – DISABLE (E/LM)

If conditions dictate complete removal of power to the MAFFS unit:

4. Generators 1, 3, and 4 – "**OFF"** (E)
5. 6 MAIN TR circuit breakers – **"PULLED"** (E)
6. DC MAIN BUS GND CONT circuit breaker - **"PULLED"** (E)

When Conditions Permit:

7. MAFFS Power Cables – **"REMOVED"** (E/LM)
8. MAFFS Battery Breaker – **"PULLED"** (E/LM)

**WARNING**

Once the MAFFS unit power cables are disconnected from the aircraft, pulling the MAFFS battery circuit breaker will remove all power from the MAFFS unit including power required for an emergency dump. Pulling this circuit breaker is only recommended if you have already dropped and the MAFFS DC system is suspected of causing smoke or fire.

9. MAIN TR Circuit Breakers – "**RESET"** (E)
10. DC MAIN BUS GND CONT circuit breaker – **"RESET"** (E)
11. Generators 1, 3, and 4 – **"ON"** (E)
12. Emergency Shutdown Checks –**"COMPLETE"** (E, LM)