FLIGHT TEST RESULTS:
TWA800 EMULATION FLIGHT

(37 Pages)
Flight Parameters
TWA800 Emulation Test Flight
Ascent Portion
CWT Forward Bay Between Spanwise Beams 2 and 3
Ullage Temperatures
TWA800 Emulation Flight

Elapsed Time (minutes)

Temperature (Deg F)

- Center Temperature
- Upper Temperature
- Lower Temperature
- Start of Flight Test Taxi
- Flight Test Liftoff
- Level off at 19,000 feet-msl
- Start of descent from 19,000 feet-msl
- TWA800 Event Altitude
CWT Forward Bay Between Spanwise Beam 2 and Mid Spar
Ullage Temperatures
TWA800 Emulation Flight
CWT Forward Bay Between Spanwise Beam 2 and 3
Ullage Temperatures near Left Side of Tank
TWA800 Emulation Flight

Elapsed Time (minutes)

Temperature (Deg F)

Center Thermocouple

Lower Thermocouple

Upper Thermocouple

Level off at 19,000 feet-msl

Start of descent from 19,000 feet-msl

Flight Test Liftoff

Start of Flight Test Taxi

TWA800 Event Altitude
CWT Forward Bay Between Spanwise Beam 2 and 3
Ullage Temperatures near Right Side of Tank
TWA800 Emulation Flight

Elapsed Time (minutes)

Temperature (Deg F)

- Lower Thermocouple
- Center Thermocouple
- Upper Thermocouple
- Flight Test Liftoff
- Start of Flight Test Taxi
- TWA800 Event Altitude
- Level off at 19,000 feet-msl
- Start of descent from 19,000 feet-msl
CWT Forward Bay Between Spanwise Beam 2 and Mid Spar
Ullage Temperatures near Left Side of Tank
TWA800 Emulation Flight

Elapsed Time (minutes)

Temperature (Deg F)

- Center Thermocouple
- Lower Thermocouple
- Upper Thermocouple

Level off at 19,000 feet-msl
Start of descent from 19,000 feet-msl
Start of Flight Test Taxi
TWA800 Event Altitude

Flight Test Liftoff
CWT Forward Bay Between Spanwise Beam 2 and Mid Spar
Ullage Temperatures near Right Side of Tank
TWA800 Emulation Flight

Elapsed Time (minutes)

Temperature (Deg F)

- Center Thermocouple
- Lower Thermocouple
- Upper Thermocouple
- Level off at 19,000 feet-msl
- Start of descent from 19,000 feet-msl
- Flight Test Liftoff
- Start of Flight Test Taxi
- TWA800 Event Altitude
CWT Left Mid Bay
Ullage Temperatures
TWA800 Emulation Flight

Elapsed Time (minutes)

Temperature (Deg F)

- Left Mid Lower
- Left Mid Center
- Left Mid Upper
- Level off at 19,000 feet-msl
- Start of descent from 19,000 feet-msl
- Start of Flight Test Taxi
- Flight Test Liftoff
- TWA800 Event Altitude
CWT Left Aft Bay
Ullage Temperatures
TWA800 Emulation Flight

Elapsed Time (minutes)

Temperature (Deg F)

- Left Aft Center
- Left Aft Upper
- Left Aft Lower

Start of Flight Test Taxi
Flight Test Liftoff
TWA800 Event Altitude
Level off at 19,000 feet-msl
Start of descent from 19,000 feet-msl
CWT Right Mid Bay
Ullage Temperatures
TWA800 Emulation Flight

Elapsed Time (minutes)

Temperature (Deg F)

Right Mid Center
Right Mid Lower
Right Mid Upper
Level off at 19,000 feet-msl
Start of descent from 19,000 feet-msl
TWA800 Event Altitude
Flight Test Liftoff
Start of Flight Test Taxi

0 60 120 180 240 300 360

50 60 70 80 90 100 110 120 130
CWT Right Aft Bay
Ullage Temperatures
TWA800 Emulation Flight

Elapsed Time (minutes)

Temperature (Deg F)

- Right Aft Center
- Right Aft Upper
- Right Aft Lower
- Start of Flight Test Taxi
- Flight Test Liftoff
- Level off at 19,000 feet-msl
- Start of descent from 19,000 feet-msl
- TWA800 Event
- TWA800 Event

0 60 120 180 240 300 360

70 80 90 100 110 120 130
TWA800 Emulation Flight
CWT Ullage Temperatures
Prior to taxi

TIME, = 182

Color Key

- 70
- 90
- 110
- 130
- 150
TWA800 Emulation Flight
CWT Ullage Temperatures
at Takeoff

TIME, = 209.25
VCAS, = 159.391
ALTITUDE, = 9.39913

Color Key

- 70
- 90
- 110
- 130
- 150
TWA800 Emulation Flight
CWT Ullage Temperatures
at Event Altitude

TIME, = 220.9
VCAS, = 290.829
ALTITUDE, = 13799.4

Color Key

- 60
- 80
- 100
- 120
- 140
Fuel Temperatures
Measured in CWT Forward Bay
TWA800 Emulation Flight

Elapsed Time (minutes)

Temperature (Deg F)

Left Side of Forward Bay
Level off at 19,000 feet-msl
Start of descent from 19,000 feet-msl
Right Side of Forward Bay
Start of Flight Test Taxi
TWA800 Event Attitude
Flight Test Liftoff
Pushback
Fuel Temperatures
Measured at CWT Rear Spar
TWA800 Emulation Flight
CWT Mid Bay Temperatures
TWA800 Emulation
Ascent Portion
CWT Aft Bay Temperatures
TWA800 Emulation
Ascent Portion
CWT External Bottom Surface Temperatures
BL 22 on Left side of Keel Beam
TWA800 Emulation Flight

Elapsed Time (minutes)

Temperature (Deg F)

- Bay Between SWB2 and Mid Spar
- Left Mid Bay
- Left Aft Bay
- Bay Between SWB2 and Mid Spar
- Pushback
- Start of Flight Test Taxi
- Dry Bay
- Flight Test Liftoff
- Start of descent from 19,000 feet-msl
- Level off at 19,000 feet-msl
- TWA800 Event Altitude
CWT External Bottom Surface Temperatures
BL 22 on Right side of Keel Beam
TWA800 Emulation Flight

Elapsed Time (minutes)

Temperature (Deg F)

- Dry Bay
- Bay Between SWB2 and Mid Spar
- Right Aft Bay
- Level off at 19,000 feet-msl
- Start of descent from 19,000 feet-msl
- TWA800 Event Altitude
- Right Mid Bay
- Pushback
- Bay Between SWB2 and SWB3
- Flight Test Liftoff
- Start of Flight Test Taxi

Altitude
- Start of Flight Test Taxi
- Flight Test Liftoff
- Pushback
CWT External Bottom Surface Temperatures
BL 58 on Left side of Keel Beam
TWA800 Emulation Flight

Elapsed Time (minutes)
Temperature (Deg F)

Start of Flight Test Taxi
Flight Test Liftoff
Pushback
Level off at 19,000 feet-msl
Start of descent from 19,000 feet-msl
TWA800 Event Altitude
CWT External Bottom Surface Temperatures
BL 58 on Left side of Keel Beam
TWA800 Emulation Flight

Elapsed Time (minutes)

Temperature (Deg F)

6
10
9
8
7

Start of Flight Test Taxi
Flight Test Liftoff
TWA800 Event Altitude
Start of descent from 19,000 feet-msl
Level off at 19,000 feet-msl
Pushback
CWT External Bottom Surface Temperatures
BL 58 on Right side of Keel Beam
TWA800 Emulation Flight

Elapsed Time (minutes)

Temperature (Deg F)

Start of Flight Test Taxi
Flight Test Liftoff
Pushback
Level off at 19,000 feet-msl
TWA800 Event Altitude
Start of descent from 19,000 feet-msl
CWT External Bottom Surface Temperatures
BL 58 on Right side of Keel Beam
TWA800 Emulation Flight

Elapsed Time (minutes)

CWT External Bottom Surface Temperatures
BL 58 on Right side of Keel Beam
TWA800 Emulation Flight

Temperature (Deg F)

Pushback
Start of Flight Test Taxi
Level off at 19,000 feet-msl
Start of descent from 19,000 feet-msl
Flight Test Liftoff
TWA800 Event Altitude
ECS Pack Bay Air Temperatures
BL 22 on Left side of Keel Beam
TWA800 Emulation Flight

Temperature (Deg F)

Elapsed Time (minutes)

- Left Mid Bay
- Left Aft Bay
- Bay Between SWB2 and Mid Spar
- Dry Bay
- Bay Between SWB1 and SWB2
- Pushback
- Flight Test Liftoff
- TWA800 Event Altitude
- Start of descent from 19,000 feet-msl
- Level off at 19,000 feet-msl
- Start of Flight Test Taxi
ECS Pack Bay Air Temperatures
BL 22 on Right side of Keel Beam
TWA800 Emulation Flight

Elapsed Time (minutes)
Temperature (Deg F)

Dry Bay
Right Mid Bay
Bay Between SWB2 and Mid Spar
Bay Between SWB2 and SWB3
Right Aft Bay
Pushback
Start of Flight Test Taxi
Flight Test Liftoff
Start of descent from 19,000 feet-msl
Level off at 19,000 feet-msl
TWA800 Event Altitude
ECS Pack Bay Air Temperatures
BL 58 on Left side of Keel Beam
TWA800 Emulation Flight

Start of Flight Test Taxi
Flight Test Lift-off
Level off at 19,000 feet-msl
Start of descent from 19,000 feet-msl
TWA800 Event
Altitude
Pushback
ECS Pack Bay Air Temperatures
BL 58 on Right side of Keel Beam
TWA800 Emulation Flight

Start of Flight Test Taxi
Flight Test Liftoff
Start of descent from 19,000 feet-msl
Level off at 19,000 feet-msl
TWA800 Event Altitude
Pushback

Temperature (Deg F)

Elapsed Time (minutes)
ECS Pack Component Surface Temperatures
Pneumatic Bleed Flow Control Valve
TWA800 Emulation Flight

- Pack 1 control valve
- Pack 2 control valve
- Pack 3 control valve

Events:
- Start of Flight Test Taxi
- TWA800 Event
- Altitude
- Level off at 19,000 feet-msl
- Start of descent from 19,000 feet-msl
- Pushback
- Flight Test Liftoff
ECS Pack Component Surface Temperatures
Exhaust Louvers
TWA800 Emulation Flight

Elapsed Time (minutes)

Temperature (Deg F)

Pack 1
Pack 2
Pack 3

Start of Flight Test Taxi
Level off at 19,000 feet-msl
Start of descent from 19,000 feet-msl
Flight Test Liftoff
Pushback

TWA800 Event
Altitude
ECS Pack Component Surface Temperatures
Water Separator
TWA800 Emulation Flight

Elapse Time (minutes)

Temperature (Deg F)

Pack 1
Pack 2
Pack 3

Start of Flight Test Taxi
TWA800 Event Altitude
Level off at 19,000 feet-msl
Start of descent from 19,000 feet-msl

Flight Test Liftoff
Pushback

Start of Flight Test Taxi
Right Wing CWT Vent Temperatures
TWA800 Emulation Flight

- Elapsed Time (minutes)
- Temperature (Deg F)

- CWT Vent at entry into wing tip collector can
- Start of Flight Test Taxi
- Center of collector can
- Flight Test Liftoff
- TWA800 Event Altitude
- Start of descent from 19,000 feet-msl
- Level off at 19,000 feet-msl
Right Wing CWT Vent Temperatures
TWA800 Emulation
Ascent Portion

Elapsed Time (Min.)

Temperature (Deg F)

Altitude (feet)

CWT Vent at entry into wing tip surge tank
Collector Can
Altitude
Right Wing Tank Vent Temperatures
TWA800 Emulation Flight

- Start of Flight Test Taxi
- Flight Test Liftoff
- TWA800 Event Altitude
- Main Tank #3 Vent at entry into wing tip surge tank
- Main Tank #4 Vent at entry into wing tip surge tank
- Start of descent from 19,000 feet-msl
- Level off at 19,000 feet-msl
Main Wing Tank #3 Ullage Temperatures
TWA800 Emulation Flight

- Main Tank #3 Vent, Inboard opening
- Near high point of fuel pump power conduit
- Start of Flight Test Taxi
- Flight Test Liftoff
- Main Tank #3 Vent, Outboard opening
- Near high point of fuel pump power conduit
- Level off at 19,000 feet-msl
- Start of descent from 19,000 feet-msl
- TWA800 Event
  - Altitude

Temperature (Deg F) vs. Elapsed Time (minutes)
Main Wing Tank #3 Ullage Temperatures
TWA800 Emulation
Ascent Portion

Elapsed Time (Min.)

Temperature (Deg F)

Altitude (feet)

Main Tank #3 Vent tubes, Tank #3 entry end
Main Tank #3, near fuel pump power conduit
Altitude