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E.5 Doppler Radar Scientist (On-Board)

The on-board Doppler radar scientist (DRS) is responsible for data collection from all radar systems on his/her assigned aircraft. Detailed operational procedures and check lists are contained in the operator's manual supplied to each operator. General supplementary procedures follow. (Check off and initial.)

E.5.1 Preflight

- _____ 1. Determine the status of equipment and report results to the on-board lead project scientist (LPS).
- _____ 2. Confirm mission and pattern selection from the on-board LPS.
- _____ 3. Select the operational mode for radar system(s) after consultation with the HRD/DRS and the on-board LPS.
- _____ 4. Complete the appropriate preflight calibrations and check lists as specified in the radar operator's manual.

E.5.2 In-Flight

- _____ 1. Operate the system(s) as specified in the operator's manual and as directed by the HRD/DRS, unless superseded by directions from the on-board LPS or as required for aircraft safety as determined by the OAO flight director or aircraft commander.

E.5.3 Postflight

- _____ 1. Complete the summary check lists and all other appropriate check lists and forms.
- _____ 2. Brief the on-board LPS on equipment status and turn in completed forms to the LPS.
- _____ 3. Hand-carry all radar tapes and arrange delivery as follows:
 - a. Outside of Miami - to the HRD operations center (FGOC).
 - b. In Miami - to MGOC or to AOML/HRD. [Note: all data removed from the aircraft by HRD personnel should be cleared with the OAO flight director.]
- _____ 4. Debrief at the appropriate operations center (FGOC or MGOC).
- _____ 5. Determine the status of future missions and notify the appropriate operations center (FGOC or MGOC) as to where you can be contacted.

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Form E-5
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Doppler Radar Scientist Check List

Rec LF Tilt
2 - 2.5°

Flight ID 94092HH1
Aircraft # 42
Operators Dodge y Burpee
Radar Tech. Jim Roles, Jim Barr

Number of digital magnetic tapes on board enough

Number of tape labels on board sufficient

Component systems up and checked: INE #1

MARS _____

Computer _____

DMTR1 _____

DMTR2 _____

LF _____

R/T# 102 122

(spare 102)

TA _____

R/T# 201 / 102
R

Time correction between radar time and digital time _____

Radar Postflight Summary

Number of digital tapes used: DMTR1 _____

DMTR2 _____

Significant recorder down time:

DMTR 1 _____

Radar LF _____

DMTR 2 _____

Radar TA _____

Other problems:

Both Problems
were computer
not R/T.

[2032-2036 system locked up ... ROLES reset
2205 LF out, but only for 1 sweep, or less.

NOTE: Jim BARR copied RADAR DAT for
us, for redundancy.

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INE #

Flight 940924H1 Aircraft 42 Operator Dodge Sheet of

[illegible]

940924H1

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HRD Radar Down-Time Log

Operator Dodge *See Page 1,*
Sheet ____ of ____

Item	Time Down	Time Up	Problem

Item List: DMTR1, DMTR2, COMP, RDSC, LF, TA, DSC1, DSC2.

940911H1- Ferry flight home
from BARRADOS to KMIA

LPS - P. Black, CPS - P. Willis, RADAR -
N. Dorst, FM - P. Bogert, RADAR TECH - J. Barr
CSCATT - J. STEFANJA

1/0 BARRADOS 1836Z LAND KMIA 2333Z

Running radar on ferry flight
to record islands, convection, dry
fringes of DEBBIE (HA, HA).

1853Z - Start recording radar
data, pointing islands TILT 0°

1930Z - Raise TILT LF to 3° . No
fringes on long range.

2030Z - Lowered TILT LF to 2° to
pick up convection S&W of Hispanola.

223830Z - Stopped recording radar
data. WAY out of range for DEBBIE.

2252Z - Flying under cirrus shield
where Tstorm has dissipated, going
thru rain shaft w/ turbulence. Both
radar & cloud physics turned OFF.
Good move!

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94092H1 © OLIVIA

LPS: GAMACHE RADAR: DODGE

ODW (listen): Bob Burpee Scatt: P. Black
ISOTOPE STUFF Jim Lawrence (U. of Houston)

FM: P. Bogert $\frac{1}{2}$ Tech: J. Roles

Cloud Physics: somebody

PVta: $20^\circ 41'$ $105^\circ 14'$

16:48 T 31.6° T_D 23.7° on ground

Getting ready to fly dual plane
inner core experiment

1652: 43 in the air

165245: We're rolling too

1734 radar systems up. will start
recording some sea-surface FAST
1739 - started recording

1746 FAST on tilt $\pm 21.4^\circ$ to
get sea-surface FAST off 175820

1848 maybe first hint of G at
200 nm out at 242° . Bob said
sat. est. now has OLIVIA at 955 mb

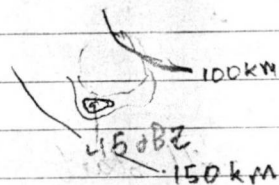
1859: eye at ~ 180 nmi. We're
still at 5.8 km.

1904 because eye small and est
MSLP lower, we will fly at 19,000' and

(2)

9 940924H1 / 43 will be at 14000'. RADAR shows it only about 10 nm diameter!
NAV 15°52' 117°57' W fix from 1/2
1917 starting descent, 1000' per minute
1918 starting cloud play
1926 We're at "cruising" alt now. 43 will drop ODW (= reach their IP in ~6 min)

1929: 1932: starting to turn and depressurizing for AXBT. 16°36' 117°52'



1930 1931: ~~15~~ dBZ max S. side
1939:30 AXBT drop 16°12' 117°53'
first rainband. 1942 AXBT good
1943 100 KTS: 1944 109 KTS
1945 955 mb 15°44' 117°56'
S eyewall 118 KTS, WET, not bumpy

940924H1 (3)

1953 AXBT drop 1954 in S RBand
1956 (43 turning)
195 A FAST EN
1957 47 ~14°55' ~117°49'
we are taking 65 → 62
TAIL looks good so far

200513 FAST OFF,
2010 tracking 310°

201153 15°32' 117°38' 70 KTS
2013 really nice structure.
we're going to penetrate the hottest core ~40-45 dBZ
MAY ~117°35' 120 KTS

2017 951 mb

2020 only 100 KTS NE eyewall
Bob pointed out polygonal shape in eyewall
2022 in outer RB - pretty stratiform
203014 FAST on

2032 Radar system locked up
2036 ~~on~~ back on. JR not sure what happened.

43's radar had trouble too -
SAME TIME! 940924HI (4)

2038 - we're turning 35-40 JBT

9 ~ 203910 F/AST OFF

2040 we're tracking 90°

2041 in convective RB to W

first good bumps of flight

2047 back into eye

~25 KM



2050 ~100 KTS west eyewall

2048

2051 951 15°54' 118° 06'

2052 E eyewall 120 KTS, gust to 130?

205840 AXBT drop.

25 KM



2102 ~~down~~ BT probably
no good, see PB

210414 F/AST ON tracking 336

1 think crotches in eyewall

we are rotating around as they
did in OUTER eyewall of Gilbert on
the 14th

211029 F/AST off we're tracking
225°

2115 68 KTS 50 km from c/n

211523 AXBT drop 16°12'8", 117°4'7"

940924HI (5)

211856 BT drop just inside RB

16°2', 117°57' No Good

114 KTS in NE eyewall

2121 949 mb

2123 some maneuvering in eye

2124 SW eyewall 100 KTS



2126 last AXBT
no good - pulling
tube in...

2125 parallel bands

2131 updrafts in SW outer rainband

2134 turn for first leg to
trk 114

213539 F/AST ON

2141 - we'll do an outside turn
so I will leave in F/AST until
turn complete

214430 F/AST off

We're inbound trk 002° for Pass 5

~~2148~~ 2150 in Rainband ~60 km from
center, 40 KTS

2151 949 OPW SFC P from 43

2153 LF dropped a couple rays



940924H1

(6)

2157

2200 118 KTS N eyewall

2205 LF GOING, BUT back.

only lost $\frac{1}{2}$ a sweep.(BARR & ROLES watching $\frac{1}{2}$ ~~the~~)

FELLOW RADAR OPERATORS TAKE NOTE:

$\sim \frac{1}{2}$ hr ago F Marks (43) advised us
that Hugh Willoughby had now surpassed
50% of the radar operators... which
50% does he speak of and where do
you fit in?

2213: we're ~~doing~~ ^{did} 90-270 to line
up for N $\rightarrow$ S pass (#6) are headed
back. NO more FAST (except on
the way back)

2220 eye maybe getting some convection
in N eyewall

2222 122 KTS N eye wall

2223 948.2 mb

2225 good downdraft as we
flew thru another crotch.223517 begin last
turn 15011' 118°17'


bumpy as we fly back
through STRATIFORM RB.

940924H1 (7) LAST PAGE /
I PROMISE

2246 pass #7 approaching S eyewall

224648 GRAUPEL

25 m/s bump in S eyewall

 ~ 110 KTS max224900 ctr ~ 949 mb

2251 118 KTS N eyewall

Next  SHAPE

25km

2259 16°49' 118°18' end pass

7 - and we just heard UW UP on
UM 28-20 with 2 minutes left

2302 turn to climb out

0147 LANDED