

ZNR UUUUU ZUI RUCOMCA5355 1940129
P R 121948Z JUL 02
FM NAVAIRDEPOT CHERRY PT NC
TO RUCCNOQ/CG FOURTH MAW
RUCKFCA/CG SECOND MAW
RUCBTFA/COMNAVSURFLANT NORFOLK VA
RUCOSSA/COMNAVAIRLANT NORFOLK VA
RUCTPPV/DIRJOAP TSC PENSACOLA FL
RUSTRSA/DIRLOGSA REDSTONE ARSENAL AL
RHRVJFK/HELANTISUBRON FIVE
RULSMCO/HMX ONE QUANTICO VA
RUEAHQA/HQ USAF WASHINGTON DC
RUCOHAD/MIDLANTREGCALCEN NORFOLK VA
RUCTPRF/NAS MERIDIAN MS
RUCOMAS/NAS OCEANA VA
RUCOMAL/NATEC DET OCEANA VA
RUCTPPW/NAVOAPROGMGR PENSACOLA FL
RULSBMS/NAVSURFWARCEN SHIPSYSENGSTA PHILADELPHIA PA
RUVOARA/OC ALC TINKER AFB OK
RUCOGAQ/PRECOMUNIT RONALD REAGAN
RHBOHHI/USS BATAAN
PAGE 02 RUEOMFC9527 UNCLAS //05600//
RHOVHHL/USS BONHOMME RICHARD
RHOVBXR/USS BOXER
RHOVNUL/USS CONSTELLATION
RHBPIKE/USS DWIGHT D EISENHOWER
RHBVIQM/USS ENTERPRISE
RHOSSEX/USS ESSEX
RHBOOUE/USS IWO JIMA
RHBONKP/USS KEARSARGE
RHRVJFK/USS JOHN F KENNEDY
RHBOOUE/USS IWO JIMA
RHBVJPX/USS NASSAU
RHVSMTZ/USS NIMITZ
RHBUNTR/USS THEODORE ROOSEVELT
RHBPHOV/USS SAIPAN
RHOYLHA/USS TARAWA
RHBVHQB/USS HARRY S TRUMAN
RHRVNGW/USS GEORGE WASHINGTON
RHPJEPB/USS WASP
AIG 165
ZEN/CG FIRST MAW
PAGE 03 RUEOMFC9527 UNCLAS //05600//
ZEN/CG THIRD MAW
ZEN/COMFAIRMED NAPLES IT
ZEN/COMFAIRWESTPAC ATSUGI JA
ZEN/COMNAVSURFPAC SAN DIEGO CA
ZEN/COMMARFORPAC
ZEN/COMNAVAIRESFOR NEW ORLEANS LA
ZEN/COMNAVAIRSYSCOM PATUXENT RIVER MD
ZEN/COMNAVAIRPAC SAN DIEGO CA
ZEN/CNATRA CORPUS CHRISTI TX
ZEN/AIMD TRUAX FIELD CORPUS CHRISTI TX
ZEN/EODMU FIVE
ZEN/HELANTISUBRON SEVEN FIVE
ZEN/HMM ONE SIX SIX

ZEN/MCAS YUMA AZ
ZEN/MCAS IWAKUNI JA
ZEN/=NAVY/OU=MAIL LISTS/CN=ML ALL COMMANDS NAF ATSUGI JA(N)
ZEN/NAS FALLON NV
ZEN/VY/OU=MAIL LISTS/CN=ML ALL ACTIVITIES NAS LEMOORE CA(N)
ZEN/CARAEWRON ONE TWO ZERO DET NAS KEY WEST FL
ZEN/NAS SIGONELLA IT

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ZEN/NAS WHIDBEY ISLAND WA
ZEN/NATEC SAN DIEGO CA
ZEN/NATEC DET MIRAMAR CA
ZEN/NATEC DET ATSUGI JA
ZEN/NAVAIRDEPOT JACKSONVILLE FL
ZEN/NAVAVNMAINTOFF CKA ORANGE PARK FL
ZEN/NAVSHIPYD AND IMF PEARL HARBOR HI
ZEN/NAVTESTWINGLANT PATUXENT RIVER MD
ZEN/SIMA MAYPORT FL
ZEN/SIMA SAN DIEGO CA
ZEN/USNS NIAGARA FALLS
ZEN/USS BELLEAU WOOD
ZEN/USS CARL VINSON
ZEN/USS CROMMELIN
ZEN/USS KITTY HAWK
ZEN/USS ABRAHAM LINCOLN
ZEN/USS PELELIU
ZEN/USS JOHN C STENNIS

INFO RUCOWCZ/COGARD AR SC ELIZABETH CITY NC

RUCOWCZ/COGARD ENGLOGCEN BALTIMORE MD

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ZEN/NAVAIRDEPOT CHERRY PT NC

BT

UNCLAS //05600//

MSGID/GENADMIN/NAVAIRDEPOT CHERRY PT NC/3.3.1//

SUBJ/INTERIM RAPID ACTION CHANGE (IRAC) 29 TO NA 17-15-50.3, T.O.

/33-1-37-3, TM 38-301-3 DATED 15MAR99 WITH CHG 1 DATED 1DEC01 AND

/IRAC 28 DATED 19APR02//

POC/LUCY DANIELS/DATA MANAGER/3.3.1/LOC:NAVAIRDEPOT CHPT

/EMAIL:DANIELSLA@NAVAIR.NAVY.MIL/TEL:DSN 451-5585/TEL:(252) 464-5585

RMKS/1. THIS INTERIM RAPID ACTION CHANGE IS AN OFFICIAL CHANGE TO

ALL HOLDERS OF NA 17-15-50.3, T.O. 33-1-37-3, TM 38-301-3. U.S. ARMY

AND U.S. AIR FORCE ADDRESSEES ARE RESPONSIBLE FOR PROMULGATION OF

THIS CHANGE TO APPLICABLE SERVICE ACTIVITIES.

RESPONSIBLE CODE: DIRJOAP TSC PENSACOLA FL, MR. MICHAEL CASSADY, DSN

922-5627 EXT 121, COMM (850) 452-5627 EXT 121.

2. PURPOSE OF CHANGE: TO ADD EVALUATION AND MAINTENANCE GUIDANCE
FOR THE F-22 AIRCRAFT WITH THE F119-PW-100A ENGINE.

3. DETAILED INFORMATION:

A. PEN AND INK CHANGES TO THE TECHNICAL CONTENT OF A MANUAL ARE
NOT AUTHORIZED. THE FOLLOWING TECHNICAL CONTENT CHANGE INFORMATION
APPLIES TO THE FOLLOWING REFERENCED PAGES AND PARAGRAPHS OF THE
SUBJECT MANUAL UNTIL A FORMAL CHANGE IS RELEASED.

B. THE FOLLOWING INFORMATION WILL BE INCLUDED AS NEW PAGES
FOLLOWING PAGE A-97.

ENGINE: F119-PW-100A

AIRCRAFT: (F-22)

COLUMN HEADING FE AG AL CR CU MG NI TI SI

ABNORMAL TREND 3 2 3 2 3 2 2 3 N/A
(PPM / 10 EOH)

NORMAL RANGE 0-5 0-2 0-5 0-4 0-4 0-4 0-4 0-5 0-10

MARGINAL RANGE 6-7 N/A 6-7 5 5-7 5 5 6-7 N/A

HIGH RANGE 8-9 3 8-9 6 8-9 6 6 8-9 N/A

ABNORMAL RANGE 10+ 4+ 10+ 7+ 10+ 7+ 7+ 10+ 10+

AVERAGE CONCENTRATION OTHER ELEMENTS: PB=5 SN=9 MO=1 ZN=2 NA=2
(A CONTAMINATION RUN IS RECOMMENDED IF THESE VALUES ARE EXCEEDED)

F119 DECISION MAKING GUIDELINES

1. TEARDOWN MAINTENANCE FOR THE F119 IS DIRECTED WITHIN THE F-22 INTEGRATED MAINTENANCE INFORMATION SYSTEM (IMIS) BY ADVANCED ENGINE FAILURE RESOLUTION (AEFR). ENGINE JOAP DATA SHOULD BE LOADED INTO THE IMIS DATABASE VIA THE JOAP HISTORY WINDOW ACCESSED FROM THE IMIS DESKTOP. THE AEFR TRENDING FUNCTION WILL ANALYZE THE JOAP DATA AND SET A FAILURE REPORT CODE (FRC) FOR ANY ABNORMAL TREND OR LIMIT EXCEEDANCES. JOAP FRCS ARE THEN UTILIZED TO CREATE A JCN DIRECTING THE APPROPRIATE ENGINE TEARDOWN MAINTENANCE.

2. ANY SAMPLE VALUE WHICH REQUIRES THE ENGINE TO BE PLACED UNDER SURVEILLANCE OR REQUIRES TEARDOWN SHALL BE CONFIRMED BY A REBURN. ONLY THE REBURN SAMPLE VALUES SHALL BE LOADED INTO THE IMIS DATABASE. PROPER ENGINE PERSONNEL SHALL BE NOTIFIED IMMEDIATELY. WHEN AN ENGINE IS PUT ON SURVEILLANCE, REQUEST FOR OIL FILTER AND CHIP DETECTOR INSPECTION WILL BE MADE. WHEN AN ENGINE IS ON SURVEILLANCE, ALL CHIP DETECTORS ARE TO BE CHECKED EACH TIME AN OIL SAMPLE IS TAKEN.

3. WHEN A F119 ENGINE IS ON SURVEILLANCE, OIL SAMPLES MUST BE DRAWN AFTER EACH FLIGHT AND ANALYSIS RESULTS MUST BE KNOWN BEFORE THE NEXT FLIGHT. ALL CHIP DETECTORS MUST BE CHECKED EACH TIME A SAMPLE IS DRAWN. DURING GROUND OR TEST CELL OPERATION OF AN ENGINE ON SURVEILLANCE, OIL SAMPLES MUST BE DRAWN AT INTERVALS NO LONGER THAN ONE HOUR TOTAL OPERATING TIME. AFTER AN OIL SAMPLE IS DRAWN, THE ENGINE MAY NOT BE RUN FOR MORE THAN ONE HOUR BEFORE OIL ANALYSIS RESULTS ARE AVAILABLE.

4. THE MAIN ENGINE BEARING MAY FAIL WITHOUT INDICATION REFLECTED IN THE JOAP ANALYSIS. SPALLING OF THESE BEARINGS IS DETECTED BY CHIP DETECTORS.

5. ENGINE TEARDOWN OR SURVEILLANCE IS REQUIRED FOR ANY OF THE FOLLOWING:

A. ANY WEARMETAL EXCEEDS THE ABNORMAL LIMIT. TEARDOWN IS REQUIRED.

B. WEARMETAL INCREASE BY THE VALUE OF THEIR ABNORMAL TREND WITHIN A 10 HOUR ENGINE OPERATING PERIOD (TOTAL OPERATING TIME). SURVEILLANCE IS REQUIRED FOR A 10 HOUR TOTAL OPERATING TIME PERIOD.

C. WHILE ON SURVEILLANCE FOR FE, FE INCREASES ABOVE THE VALUE THAT CAUSED SURVEILLANCE BY ANY AMOUNT. TEARDOWN IS REQUIRED.

D. WHILE ON SURVEILLANCE FOR TI, TI INCREASES ABOVE ANY OTHER SAMPLE TAKEN DURING SURVEILLANCE BY THE ABNORMAL TREND VALUE. TEARDOWN IS REQUIRED.

E. FE INCREASES BY THE SINGLE SAMPLE JUMP LIMIT (3 PPM OR MORE) BETWEEN ANY TWO CONSECUTIVE SAMPLES, TEARDOWN IS REQUIRED.

F. ALL ENGINES WHICH HAVE BEEN DISASSEMBLED FOR INSPECTION DUE TO FE LIMITS BEING EXCEEDED ARE TO BE PLACED ON SURVEILLANCE FOR 10 HOURS TOTAL OPERATING TIME FOLLOWING REPAIR.

6. WHEN SILICON (SI) REACHES OR EXCEEDS 10 PPM IN ANY TWO CONSECUTIVE SAMPLES, PERFORM F-22 IMIS TASK "TEST ENGINE - PERFORM

OIL CONTAMINATION CHECK RUN" (LCN A720000) OR SUITABLE DRAIN AND FLUSH PROCEDURE.

WEARMETAL SOURCES - FE AND TI ARE SIGNIFICANT WEARMETALS IN THIS ENGINE

FE

- NO. 1, 2, 3, 4, AND 5 MAINSHAFT BALLS/ROLLER BEARINGS (INCLUDING RACES AND ROLLING ELEMENTS)
- FRONT, MID, AND REAR COMPARTMENTS
- UPPER TOWERSHAFT PINION GEAR / BULL GEAR - MID COMPARTMENT
- UPPER TOWERSHAFT BALL / ROLLER BEARINGS - MID COMPARTMENT
- ACCESSORY BALL / ROLLER BEARINGS - GEARBOX
- NO. 3 BEARING INNER RING SPINNING ON THE BULL GEAR - MID COMPARTMENT
- CARBON SEAL RUNNERS - FRONT, MID, AND REAR COMPARTMENTS
- GEAROTOR WEAR - MAIN OIL PUMP

AG

- MAINSHAFT, UPPER TOWERSHAFT, AND ACCESSORY BEARING CAGES (SILVER PLATED) - GEARBOX, FRONT, MID, AND REAR COMPONENTS
 - NO. 4 AND 5 BEARING NUTS (SILVER PLATED) - REAR COMPARTMENT
 - UPPER TOWERSHAFT PINION GEAR AND GEARBOX SPIRAL BEVEL GEAR (SILVER FLASH) - MID COMPARTMENT
 - BUSHINGS IN OIL PUMP (SILVER IMPREGNATED) - MAIN OIL PUMP
- NOTE: ABNORMAL LEVELS OF SILVER CAN BE ATTRIBUTED TO MOTOR OIL CONTAMINATION, CHECK FOR HIGH LEVELS OF ZINC (I.E. >6 PPM)

FE & NI

- NO. 4 BEARING INNER RING AND NO. 5 BEARING INNER RING SPINNING ON SHAFT - REAR COMPARTMENT
- NO. 5.5 CARBON SEAL HOUSING RUBBING AGAINST OIL SLINGER - REAR COMPARTMENT
- OD KE'S SPINNING ON HPT SHAFT - REAR COMPARTMENT

FE & TI

- NO. 1 BEARING INNER RING SPINNING ON THE FAN HUB - FRONT COMPARTMENT
- NO. 2 BEARING INNER RING SPINNING ON THE STUB SHAFT - MID COMPARTMENT
- NO. 1, 3, AND 5 BEARING OUTER RACE BOTTOMING ON HOUSING - FRONT, MID, AND REAR COMPARTMENTS
- ALL CARBON SEAL RUNNERS AGAINST SEAL HOUSINGS (EXCEPT 5.5 CARBON SEAL RUNNER) - FRONT, MID, AND REAR COMPARTMENTS

NI

- NO. 4 BEARING INNER RING AND NO. 5 BEARING INNER RING SPINNING ON SHAFT - REAR COMPARTMENT
- NO. 5.5 CARBON SEAL HOUSING RUBBING AGAINST OIL SLINGER - REAR COMPARTMENT
- OD KE'S SPINNING ON HPT SHAFT - REAR COMPARTMENT

TI

- NO. 1 BEARING INNER RING SPINNING ON THE FAN HUB - FRONT COMPARTMENT
- NO. 2 BEARING INNER RING SPINNING ON THE STUB SHAFT - MID COMPARTMENT
- ALL SEAL HOUSINGS - FRONT, MID, AND REAR COMPARTMENTS
- PTO SHAFT - GEARBOX

FE, NI, & CR

- NO. 4 OR NO. 5 BEARING INNER RING SPINNING ON ITS SHAFT - REAR COMPARTMENT

FE & CR

- NO. 4 OR NO. 5 BEARING INNER RING SPINNING ON ITS SHAFT - REAR
COMPARTMENT

MG

- GEARBOX HOUSING

- LUBE SCAVENGE PUMP HOUSING (MAIN OIL PUMP)

AL

- OIL PUMP PORT PLATES AND SLEEVE

CU & NI

- REAR COMPARTMENT ABRADABLE SEAL MATERIAL

SI

-EXTERNAL CONTAMINANT (I.E SAND, DIRT)

SN

- EXTERNAL CONTAMINANT (SERVICING CART DETERIORATION)

OIL CAPACITY AND CONSUMPTION INFORMATION

1. THE F119 OIL CAPACITY IS 5-5.5 GALLONS.

2. ALLOWABLE OIL CONSUMPTION RATE IS 0.15 GALLON/HOUR.

3. OIL LEVEL IS DOWNLOADED FROM THE ENGINE CEDU AFTER EVERY
FLIGHT AND CONSUMPTION RATE CALCULATED AT THAT TIME.

4. MAINTENANCE ACTION IS REQUIRED IF CONSUMPTION RATE IS
EXCEEDED, PER TROUBLESHOOTING TECHNICAL ORDER.

4. ADDITIONAL INFORMATION, EXAMPLES OF INCREASES IN FE IN TEN
HOURS, REQUIRED REBURNS, AND REQUIRED RECOMMENDATIONS WILL BE
INCLUDED IN THE FINAL MANUAL RELEASE. IF COPIES OF THESE EXAMPLES
ARE DESIRED, CONTACT MR. CASSADY AT THE JOAP-TSC, DSN 922-5627 EXT
121.

5. VALIDATION: THESE CHANGES WERE VALIDATED BY MR. MICHAEL J.
CASSADY, JOAP-TSC PENSACOLA FL.

6. RELATED INSTRUCTIONS:

A. FOR PAPER COPY - MAINTAIN THIS IRAC WITH THE APPLICABLE
MANUAL BY PLACING OR ATTACHING IT DIRECTLY BEHIND THE TITLE PAGE.
MARK THE SPECIFIC CHANGE AREA IN THE MARGIN OF EACH PAGE AFFECTED
WITH A VERTICAL LINE, AND INCLUDE THE IRAC NUMBER AND DATE TIME
GROUP (DTG) OF THE MESSAGE. THIS IRAC SHALL NOT BE REMOVED UNTIL
RECEIPT OF THE FORMAL CHANGE PAGES.

B. SUBJECT IRAC SHALL BE INCORPORATED INTO THE APPLICABLE MANUAL
NO LATER THAN 12 MONTHS AFTER ISSUE DATE BY NAVAVNDEPOT CHERRY PT NC,
CODE 3.3.1//

BT

#9527