



DEPARTMENT OF THE NAVY
CHIEF OF NAVAL AIR TRAINING
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CNATRAINST 4790.4
N42
16 May 18

CNATRA INSTRUCTION 4790.4

Subj: CNATRA AIRCRAFT ORGANIZATIONAL MAINTENANCE DEPARTMENT
MATERIAL CONDITION INSPECTION (MCI) GUIDELINES

Ref: (a) COMNAVAIRFORINST 4790.2 Series
(b) NAVAIR 01-1A-509
(c) CNATRAINST 4355.4B

Encl: (1) T-45 Aircraft MCI Preparation and Panel Removal
(2) T-6 Aircraft MCI Preparation and Panel Removal
(3) T-44 Aircraft MCI Preparation and Panel Removal
(4) TH-57 Aircraft MCI Preparation and Panel Removal
(5) Aircraft MCI Discrepancy/Grading Criteria Sheet
(6) MCI Corrective Action Letter (Sample)
(7) MCI Results Reporting (Sample)

1. Purpose. To promulgate Organizational level Material Condition Inspection (MCI) guidelines per references (a) through (c). The inspection and contents of this instruction are tied to all training aircraft under Chief of Naval Air Training (CNATRA) reporting.

2. Background. The overall readiness posture of CNATRA is directly related to and dependent upon efficient, effective and sustainable maintenance practices as well as the material condition of all aircraft and support equipment. Reference (a) establishes "O"-level maintenance program policy and provides guidelines for acceptable practices including responsibilities for providing training and periodic evaluations necessary to verify compliance. It is highly encouraged that Quality Assurance Representatives and Collateral Duty Inspectors train with Depot Artisans and Fleet Support Engineering representatives during Planned Maintenance Interval events to gain corrosion identification effectiveness as evidenced in reference (b). Reference (c) applies to CNATRA and its Detachments in conducting surveillance of contractor provided services, Quality Assurance (QA), Government Property (GP) and maintenance processes and procedures. The primary objective of this instruction is to

ensure acceptance of products and services that meet contract requirements. CNATRA Detachment Contract Surveillance personnel are the most knowledgeable concerning the contractor's programs, processes and procedures. The MCI conducted by CNATRA Detachment Contract Surveillance personnel will serve to validate the CLS commitment to the prevention and treatment of corrosion in all areas of the CNATRA aviation training environment.

3. Discussion.

a. At a minimum, an MCI shall be conducted on two aircraft (each platform) at each site, along with Aviation Life Support Systems (ALSS) maintenance processes and assigned mission equipment. If any area inspected is deemed unsatisfactory, the scope of this inspection is expandable per reference (a). CNATRA CLS activities will receive an MCI every 18-24 months per reference (a). The Det sites will be notified by CNATRA N414 two weeks prior to the inspection timeframe and inform the CLS. Once notified, the CLS will project aircraft special corrosion inspections (56/140/728/etc) coming due. From these, two BUNOs shall be selected for MCI. Aircraft should include one with the longest time since completion of the last scheduled depot level rework and one with the shortest time since completion of the last phase or major corrosion inspection. Upon bringing MCI aircraft into the special corrosion inspection on the regular scheduled date, CLS will prep IAW applicable enclosures (1) through (4) while performing the scheduled inspection and then notify CNATRA DET when ready for MCI. Following completion of the MCI and upon release by the Maintenance Assessment Team (MAT) Lead, CLS may replace panels and complete the scheduled corrosion inspection. Noted MCI discrepancies will be assessed at that time for corrective actions, not to exceed 28 days. Any aircraft in preservation will be inspected for compliance with directed preservation requirements. As determined by the MAT lead, CLS ALSS maintenance procedures will be observed to verify proper processes and condition of 25 sets of gear per site. The MAT lead will also assess assigned mission equipment and selectively inspect in order to ensure satisfactory condition.

b. Each aircraft discrepancy will be documented using enclosure (5) with associated grading data. This form can also be used to document ALSS and mission equipment inspection discrepancies.

(1) Material Discrepancies:

(a) Non-Flight Critical (NC) (1 Point). Any discrepancy that is not directly related to safety of flight and there is no visible sign of corrosion or corrosive attack; for example, working rivets, delamination and loose hardware.

(b) Foreign Objects (2 points). Two points will be assessed for soft foreign objects such as plastic wire bundle straps accumulated dirt and liquids. Hard foreign objects near flight control components or engine control components will be graded as Flight Critical (FC) and assessed 5 points.

(c) Flight Critical (FC) (5 points). Any discrepancy directly related to safety of flight or aircrew.

NOTE: Any flight critical discrepancy is a grade of "Fail" for the discrepant aircraft. The aircraft must be restricted from flight until the discrepancy is corrected.

(2) Corrosion Discrepancies:

(a) Category 1: Light Corrosion (1 point). Protective coating is scoured, or etched and the condition of the metal is characterized by discoloration. White/red/black corrosion products are present. This type of corrosion can normally be removed by light sanding.

(b) Category 2: Moderate Corrosion (2 points). Appearance is similar to light corrosion with the addition of blistering, or evidence of scaling and flaking of the coating or paint system. Mild white/red/black corrosion products are present on the component surface. This type of corrosion normally requires extensive hand sanding or light mechanical sanding to remove.

(c) Category 3: Severe Corrosion (3 points). The general appearance is similar to moderate corrosion with the addition of severe inter-granular corrosion, blistering, scaling, flaking, or exfoliation. Corrosion attack has resulted in significant base metal loss. Voluminous white/red/black corrosion products are present on the component surface. The structural integrity of the component may or may not be

compromised. Extensive mechanical sanding or grinding is required to remove this type of corrosion.

(d) Category 4: Flight Critical Corrosion (5 points). Perforation of the base metal has occurred. No metal remains at the point of severest corrosion attack. The component has lost structural integrity.

NOTE: Any Category 4 corrosion discrepancy is a grade of "Fail" for the discrepant aircraft. The aircraft must be restricted from flight until the discrepancy has been corrected.

c. Immediate action must be taken to correct critical safety of flight and safety of personnel discrepancies.

d. Non-fail corrosion discrepancies must be corrected within 28 days of Work Order (WO) initiation date.

e. Within 30 days of completion of the inspection, the CLS will provide the CNATRA DET OIC with a Corrective Action Report using enclosure (6) for any "Fail" discrepancies noted during MCIs.

f. The CLS will document MCIs on a MCI Conditional WO and record the MCI point scores in the Corrective Action block of the 020 WO. Procedures for this are:

(1) Corrective Action will either read: "PASS (total point score)// MATERIAL (point score)// CORROSION (point score)" or "FAIL (total point score)// MATERIAL (point score)// CORROSION (point score)//".

g. An MCI out-brief will be conducted upon completion of the inspection with the applicable TRAWING Commodore or CSO, CNATRA Det OIC/AOIC, CLS Site Manager, CLS Maintenance Manager, CLS Quality Assurance Manager.

4. Site Inspection Team Composition.

a. Maintenance Assessment Teams (MAT) will be comprised of the Site CNATRA Det AOIC (Team Lead), and at a minimum, two Quality Assurance Specialists, and an Admin Recorder as available. MAT Team members must have formal Aircraft Corrosion course documentation in their training jacket. If formal

training (Navy or other service equivalent) is documented, team members shall complete Navy E-learning Avionics Corrosion course (CNATT-000-ACC-025-001-CO) and Basic Corrosion course (CNATT-000-BCC-225-002-CO) as a refresher annually prior to conducting the MCI. If formal training is not documented, team members must attend Aircraft Corrosion Control course (CIN N-701-0013) or Aircraft Corrosion course (CIN C-600-3183) prior to team assignment.

b. MAT Leads will be responsible for out brief of applicable WING leadership and provide detailed inspection findings to CNATRA N4/N4A within specified timeframe.

5. Action. MATs will perform MCIs per the above discussion and in accordance with the following guidelines utilizing enclosures (1) through (7).

a. MCIs are formal inspections conducted by the CNATRA N4 Detachments, reference (c), to assess the material condition of aircraft/equipment and adherence to corrosion prevention and treatment procedures. O-level MCIs are conducted by Corrosion Inspectors IAW this instruction.

b. A detailed inspection of all aircraft and all assigned mission equipment/ALSS in a site's custody is not necessary during an individual MCI evolution. However, the number of these shall be sufficient to assess the overall material condition of the site aircraft and equipment inventory. Poor results within the initial two aircraft sample and or selected mission equipment/ALSS serve as the basis for inspecting additional aircraft/equipment, associated logs and records, and other items as necessary to determine the extent of critical discrepancies discovered. Consult reference (c) for any Corrective Action Reporting that may be required of the CLS team.

c. The MAT Lead is authorized to expand the scope and depth of inspections as necessary to ensure all site aircraft and equipment are satisfactory. Focus Area List (FAL) areas with O-level MRC correlation must be inspected during MCI events. These are available on the applicable <https://flighthub.navair.navy.mil> web page. They are updated biannually by NAVAIR ISSC and FST.

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d. Upon completion of the MCI, but NLT seven (7) days, MAT leads will prepare and submit a detailed trip report including synopsis of findings using enclosure (7) to CNATRA N4/N4A/QAPM/N421/N422/N423/N424/N414 for review. CNATRA N4 QAPM will coordinate and distribute findings to all CNATRA Detachments for group discussion NLT two (2) weeks following receipt of report. The appropriate Class Desk will file formal reports by detachment site for record purposes.

e. The CNATRA DET OIC for each site will provide written feedback via email to the CLS team and the Training Wing on the local MCI processes and the methodology of the MAT.

S. B. STARKEY
Chief of Staff

Distribution:
CNATRA Website

T-45 MCI PANEL REMOVAL

Inspect the following areas, and the components contained within once aircraft is opened up and made safe for maintenance by CLS IAW the applicable T-45 MIMs. Consult applicable T-45 MIMs/MRCs for panel location, aircraft preparation, areas for inspection, and aircraft closure following the inspection.

Panel removal and aircraft inspection areas:

1. 119ABC, 212AR, 213AL, 215FZ, 215GZ, 219DZ, 219JZ, 310CR, 310DR, 311ABC, 312CT, 314CT, 510CBC, 701BZ, 811BL, 811BR, 821A.
2. OBOGS concentrator compartment/interior of nose cone.
3. Aircraft interior and components.
4. Aircraft exterior and components.
5. Avionics components and associated hardware.
6. Radar Altimeter electrical connectors.
7. Fuel quality bridge amp, junction boxes, GJ9 and GJ10 and wire harnesses.
8. Engine change unit.
9. Nose landing gear.
10. Left and right main landing gear.
11. Remove MLG hubcaps and inspect wheel speed sensor connectors for moisture entrapment, corrosion or damage.
12. Wheel and brakes.
13. Arresting hook.
14. Launch bar.
15. Pylons.
16. Ejection seats and surrounding areas.

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17. Crewstation, floors, rudder pedals, canopy structure, lock strut, torque shaft, hinges, mirrors, attaching hardware.
18. Canopy seal channel and seals.
19. OBOGS quick release disconnects.
20. Harness reel locking pawl mechanism area.
21. Throttle quadrant.
22. Instrument control box face plates, indicator fasteners, securing hardware and lights.

Enclosure (1)

T-6 MCI PANEL REMOVAL

Inspect the following areas, and the components contained within once aircraft is opened up and made safe for maintenance by CLS IAW the applicable T-6 MIMs. Consult applicable T-6 MIMs/MRCs for panel location, aircraft preparation, areas for inspection and aircraft closure following the inspection.

1. Lower flaps and speed brake.
2. Lower inboard main landing gear doors.
3. Remove aircraft battery.
4. Remove Upper and Lower Forward Cowlings.
5. Open Left and Right Avionics Access Doors.
6. Open Left and Right Cowling Doors.
7. Open Baggage Door.
8. Open Left and Right Forward Access Doors.
9. Open Hydraulic Service Door.
10. Remove Left and Right Egress Doors (267AR, 268).
11. Remove Elevator Rig Panel (180AB). Remove Rudder Pin Access Panel (311AS).
12. Remove Dorsal Door (320).
13. Remove Rudder Cover (340AL).
14. Remove Left and Right Horizontal Stabilizer Leading Edge Doors (351AB, 352AB).
15. Remove Horizontal Stabilizer Door (351AC).
16. Remove Left Elevator Lower Surface Access Covers (361AB, 361BB, 361CB, 361DB, 361EB).

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17. Remove Right Elevator Lower Surface Access Covers (362AB, 362AF, 362BB, 362CB, 362DB, 362EB, 362FB).
18. Remove Left and Right Plenum Panels (821, 822).
19. Remove Oil Cooler Fairing (820).
20. Remove Pressure Valve Panel (861).
21. Remove Air Conditioning Service Panel (862).
22. Remove Left Wing Lower Surface Door (511AB).
23. Remove Left Wing Lower Surface Door (511BB).
24. Remove Left Wing Lower Surface Door (511CB).
25. Remove Left Wing Lower Surface Door (512AB).
26. Remove Left Wing Lower Surface Door (521KB).
27. Remove Left Wing Lower Surface Door (522AB).
28. Remove Left Wing Lower Surface Door (522MB).
29. Remove Left Wing Lower Surface Door (522DB).
30. Remove Left Wing Lower Surface Door (522BB).
31. Remove Left Wing Lower Surface Door (522CB).
32. Remove Left Wing Lower Surface Door (522IB).
33. Remove Left Wing Lower Surface Door (522KB).
34. Remove Left Wing Lower Surface Door (522LB).
35. Remove Left Wing Lower Surface Door (522NB).
36. Remove Left Wing Lower Surface Door (523ABA).
37. Remove Left Wing Lower Surface Door (523AAA).
38. Remove Right Wing Lower Surface Door (611AB).

Enclosure (2)

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39. Remove Right Wing Lower Surface Door (611BB).
40. Remove Right Wing Lower Surface Door (611CB).
41. Remove Right Wing Lower Surface Door (612AB).
42. Remove Right Wing Lower Surface Door (621KB).
43. Remove Right Wing Lower Surface Door (622AB).
44. Remove Right Wing Lower Surface Door (622BB).
45. Remove Right Wing Lower Surface Door (622CB).
46. Remove Right Wing Lower Surface Door (622DB).
47. Remove Right Wing Lower Surface Door (622IB).
48. Remove Right Wing Lower Surface Door (622JB).
49. Remove Right Wing Lower Surface Door (622KB).
50. Remove Right Wing Lower Surface Door (621LB).
51. Remove Right Wing Lower Surface Door (622MB).
52. Remove Right Wing Lower Surface Door (622NB).
53. Remove Right Wing Lower Surface Door (623AAA).
54. Remove Right Wing Lower Surface Door (623ABA).

Enclosure (2)

T-44 MCI PANEL REMOVAL

Inspect the following areas, and the components contained within once aircraft is opened up and made safe for maintenance by CLS IAW the applicable T-44 MIMs. Consult applicable T-44 MIMs/MRCs for panel location, aircraft preparation, areas for inspection and aircraft closure following the inspection.

1. Aircraft exterior, including landing gear and wheel wells.
2. Relief tube outlet.
3. Battery compartment. **NOTE: Removal of the battery is required.**
4. Antenna mountings.
5. Wing, vertical and horizontal stabilizer leading edges.
6. Exhaust track areas on nacelles.
7. Aircraft interior. (See note below)

NOTE: Sub-floor areas inside of the cabin/pressure vessel shall be removed for this inspection requirement.

8. Inside of fuselage/tail section behind the aft pressure bulkhead for fungus.
9. Ensure that the 0.19-inch-diameter drain holes in the four stringers just aft of the rear pressure bulkhead are clear of debris. One stringer is located to the right of the centerline and the other three stringers are to the left of the centerline.
10. At the airplane lower centerline, locate the channel that parallels the access door. Visually inspect the drain hole at the lower forward end of the channel. Ensure that it is 0.50 inch in diameter and is clear of debris. Ensure the "KEEP DRAIN HOLE OPEN" decal is located on the channel.
11. Visually ensure that all drain holes in the ventral fin are clear of debris.

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12. Control surface hinge point and hinge pins.
13. Areas adjacent to windows.
14. Low point drains.
15. Air inlet and outlets.
16. Avionics bay.
17. Engine compartment including, engine, engine mounts, mount bolts and accessories.
18. Wing Spar Caps, including sealant, in accordance with Beechcraft Service Instruction Number 0514-035 Revision II.
19. The surface of the lower spar cap beneath the wing tie down for both wings.
20. Aft bulkhead behind the urinal.

Enclosure (3)

TH-57 MCI PANEL REMOVAL

Inspect the following areas, and the components contained within, once aircraft is opened up and made safe for maintenance by CLS IAW the applicable TH-57 MIMs. Consult applicable TH-57 MIMs/MRCs for panel location, aircraft preparation, areas for inspection and aircraft closure following the inspection.

AIRFRAME:

1. Disconnect GPS antenna lead (TH-57C).
2. Remove the following items:
 - a. Forward cowling.
 - b. Tail boom access panel.
 - c. Tail rotor gearbox fairing.
 - d. Aft baggage compartment access panel and overhead access panel.
 - e. Pilot, copilot, and passenger doors by removing the hinge bolt.
 - f. Seat cushions.
 - g. Seat pans.
 - h. Tail rotor control friction access panel.
 - i. Flight control access panel (tunnel).
 - j. Landing light access panel (TH-57B).
 - k. Forward battery.
 - l. Engine oil tank cowling.
 - m. Fuel shutoff valve access panel.
 - n. Tail rotor driveshaft cover.

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INSPECTION AREAS:

1. Transmission and pylon area.
2. Nose, cabin, and aft fuselage areas.
3. Tail boom area.
4. Nose compartment and cabin areas.
5. Engine and aft fuselage area.
6. Engine area.
7. Engine oil cooler and tank area.
8. Tail rotor and tail rotor drive area.

Enclosure (4)

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	Date		Discrepancy		Point value	Point value	
	ACFT BUNO		Material (M)	Corrosion (C)	FLT- Critical	Non-critical	
1							
2							
3							
4							
5							
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**MATERIAL CONDITION INSPECTION (MCI) CORRECTIVE ACTION LETTER
(Sample)**

From: Contractor
To: CNATRA Det XXX

Subj: MATERIAL CONDITION INSPECTION (MCI) CORRECTIVE ACTION

Ref: (a) MCI results ltr Ser N42 / N4 / N4 of DD/MM/YY
(b) CNATRAINST 4790.4
(c) COMNAVAIRFORINST 4790.2 (Series)

1. Per references (a), (b), and (c), the following actions were taken to correct discrepancies for specific areas graded as "Fail" during the MCI conducted DD/MM/YY by the CNATRA Det Inspection Team.

Example:

a. BUNO/MODEX: 160001/099 Egress/Environmental graded as "Fail".
Down Discrepancy: JCN 24Y021169, L/H Lower Leg Restraint Garter installed is the wrong part number. (Garter installed is for SJU-5/6 Ejection Seat, not NACES Ejection Seat). Corrective Action:

(1) Removed ejection seat bucket and replaced L/H Lower Leg Restraint Garter with correct part number for NACES Ejection Seat.

(2) Verified proper operation of leg restraint line snubbers per MIMs.

b. BUNO/MODEX: 160002/098 Engines graded as "Fail". Down Discrepancy: JCN 24Y021081, Hard FOD discovered in vicinity of port engine fuel control. Corrective Action:

(1) Removed FOD from engine and cleaned entire port engine cavity.

(2) QA completed inspection of port engine cavity to certify FOD free.

2. POC: (Name, rank, e-mail address, and phone numbers).

J. M. STOCK

Enclosure (6)

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MATERIAL CONDITION INSPECTION (MCI) RESULTS LETTER (SAMPLE)

From: CNATRA Det XXX
To: CNATRA N4 ACOS

Subj: MATERIAL CONDITION INSPECTION (MCI) RESULTS

Ref: (a) COMNAVAIRFORINST 4790.2 (Series)
(b) CNATRAINST 4790.4

Encl: (1) MCI Discrepancy List

1. Per references (a) and (b), the CNATRA Det XXX Inspection Team conducted an MCI on the below listed squadron aircraft during (Month/day/YYYY) to verify continued satisfactory material condition of assigned aircraft, SE, and ALSS.

2. The MCI team inspected the following squadron (T/M/S) aircraft:

T/M/S	CLS	BUNO	GRADE	SCORE	DATE
T-45C	DI	123456	PASS	44	DD/MM/YY
T-45C	L-3	123456	PASS	32	DD/MM/YY

3. Per reference (a), (Name of Inspecting Det) Inspection Team has identified the following discrepancy trends and has taken (maintenance and/or engineering) actions to mitigate continued occurrence:

a. T-45C: Severe corrosion on the upper and lower attach sills of the vertical stabilizer wrap around panel and panels 89/91.

b. Corrective Action: Established periodic maintenance requirement (xxx-day inspection interval).

4. The MCI Discrepancy List, enclosure (1), lists all MCI discrepancies and actions taken to address MCIs graded as "Fail".

5. CNATRA assistance is (requested in the following areas/not required at this time).

6. POC: (Name, rank, e-mail address, and phone numbers).

I. M. WINGMO

Enclosure (7)