

AIR PUBLICATION

**101B-1300-5G**

Issued June 1971

*Superseding*

*AP 4347, F, G, J, K & R 1st Edition*

## **NON DESTRUCTIVE TEST SCHEDULE**

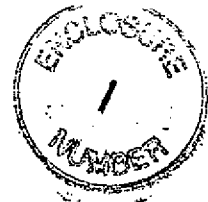
# **HUNTER ALL MARKS**

BY COMMAND OF THE DEFENCE COUNCIL

*L. T. Dunnett*

(Ministry of Defence)

FOR USE IN THE  
ROYAL AIR FORCE



TECHNICAL SERVICES DEPARTMENT - DTEO (BD)

Form TSD126

REQUEST FOR CONCESSION

1. DETAILS OF REQUEST

CONCESSION NUMBER- TSD/CONI. 244

AIRCRAFT.....HUNTER.....MARK ALL.....SERIAL No XLS61/601, XLS612

Specification/Drawing No & Issue AP101B-1300-56 Task No

Description of Materials/Component NDT AIR PUB. No Off ONE

Description of Non-conformance, Including proposals For Recovery:

REQUEST FOR CONCESSION TO HOLD ONE COPY OF AP101B-1300-56. THIS AP IS NO LONGER SERVICE SUPPORTED. THE NDT TECHNIQUES ARE WRITTEN FOR OBSOLETE NDT EQUIPMENT. AS THESE TECHNIQUES ARE REQUESTED BY THE CUSTOMER THEY ARE RE-WRITTEN AS LTP'S. CONSEQUENTLY, AS THE TECHNIQUES ARE REPLACED BY LTP'S THE AP WILL, WITHIN THE NEXT AIRCRAFT CYCLE (PRIMARY TO MAJOR) CEASE TO EXIST.

Reason For Application - Circle Letter As Appropriate

- a. To reduce production costs b. Material specification not available  
c. Manufacturing error d. Error in manufacturing data  
e. To accommodate local manufacturing methods ☒ Any other reason (specify): AS ABOVE.

If the application is granted are any of the following adversely affected? (State "Yes", "No" or "NK" (not known). Where any answer is "Yes" - particulars are to be attached:

- a. Safety.....NO..... b. Interchangeability.....NO..... c. Strength.....NO.....  
d. Maintenance.....NO..... e. Functioning or reliability.....NO..... f. Life of Item.....NO.....

Submitted by:

Signature..... Name BARTER Grade PTO Date 28-10-97

Engineering Mgr. Approval:

Signature..... Name R. CHEPPARD Grade SPTO Date 28/10/97

2. DESIGN RESPONSE

Signature..... Name..... Grade..... Date.....  
N/A

3. QUALITY ASSURANCE RESPONSE

Concern providing TSD locally supported Publication  
Annex B to SOP G24 in accordance  
Signature..... Name JAMES Grade SPTO Date 28.10.97

## INTRODUCTION

1. This Topic 5G has been introduced to support maintenance operations detailed in the relevant Hunter Master Maintenance Schedule. It contains information, orders, instructions and precautions to be observed during non-destructive testing operations on the Hunter aircraft.
2. Before commencing any X-radiographic technique the following precautions are to be read and complied with:
  - a. Instructions for Radiological Protection - JSP 392.
  - b. AP 119A-20002-1, Chap 3.
3. Before commencing any gamma radiographic technique the following precautions are to be read and complied with:
  - a. Instructions for Radiological Protection - JSP 392.
  - b. AP 119A-20002-1, Chap 3.
  - c. Safety Precautions and Maintenance Notes for Remote Handling Equipment GAM 80 contained in AP 119A-20415-1.
4. Before commencing any ultrasonic, magnetic partical or eddy current technique the relevant safety precautions and maintenance notes contained in AP 119A are to be read and complied with.
5. Aircraft Safety and Maintenance Notes contained in Topic 5A2 are to be complied with throughout all maintenance operations detailed.
6. Category 'A' techniques are to be carried out by Q-A-NDT qualified tradesmen. Category 'B' techniques may be carried out by tradesmen who have been trained by the regional NDT team and are in possession of a current RAF Form 7151 Certificate of Competence (AP 100A-01 Leaflet 318).
7. Glossary. The terms defined within this schedule are based on AP 100A-01 Leaflet 156, JSP 110 (1984) and British Standard (BS) 3811.

<u>Term</u>	<u>Definition</u>	<u>Amplifying Notes</u>
(1) <u>Look for...</u>	Undertake a visual check for signs of a specified unserviceability.	Any unserviceability is to be reported to the Supervisor; remedial action is not to be taken unless directed.
(2) <u>Look for damage</u>	Undertake a visual check for signs of unserviceability.	Any unserviceability found is to be reported to the supervisor; remedial action is not to be taken unless directed. This operation is the most detailed type of inspection to be specified in a flight servicing and is to be conducted from ground level unless otherwise specified.

<u>Term</u>	<u>Definition</u>	<u>Amplifying Notes</u>
(3) <u>Replenish</u>	Refill or restock a tank, bottle or other container to a predetermined level, pressure or quantity.	When appropriate, locking devices and caps or covers are to be removed, orifices and drains are to be cleared of obstructions. The container is then to be refilled or restocked as directed and, finally, ensuring that gaskets and caps or covers are free from damage, caps or covers and locking devices are to be refitted.
(4) <u>Examine</u>	Undertake a comprehensive scrutiny, supplemented by measurement and physical testing as necessary, to determine the condition of the item.	The item is to be cleaned as necessary prior to examination. Physical testing is a manual activity and is to be carried out without the use of test equipment. Any faults identified are to be reported to the supervisor; remedial action is not to be taken unless directed.
(5) <u>Examine as far as possible</u>	Within the physical constraints of the location of the item, carry out an examination to determine the condition of the item without removing or disconnecting equipment.	This term acknowledges that a detailed examination is not possible due to limited access. The item is to be cleaned as necessary prior to examination. Any faults identified are to be reported to the supervisor; remedial action is not to be taken unless directed.
(6) <u>Check zonally</u>	Within the physical constraints of the zone, check the condition of the zone for signs of unserviceability or deterioration.	The zone is to be as defined in the aircraft Topic 1 AMM. Every accessible item within the zone is to be cleaned as necessary, checked and any unserviceability found is to be reported to the supervisor; remedial action is not to be taken unless directed.
(7) <u>Inspect</u>	Measure, examine, test, gauge or otherwise compare the item with the applicable requirements.	This is a quality control activity and is normally to be undertaken by a supervisor who is to determine that any work has been performed properly in accordance with the relevant authorized procedures and that the assessed condition of the item is correct. Implicit in this term is that good trade practice must be seen to have been applied to the item.
(8) <u>Check</u>	Compare the item with the specified standard.	If the item does not meet the specified standard, the supervisor is to be informed. No remedial action is to be taken unless directed.

## INTRODUCTION (Cont)

<u>Term</u>	<u>Definition</u>	<u>Amplifying Notes</u>
(9) <u>Ensure</u>	Make certain that the specified conditions are correct.	If the item does not meet the specified conditions, remedial action is to be taken to restore the item to meet the specified conditions. However, such remedial action is only to be undertaken if it is within the capability of the individual concerned by virtue of his rank, trade training, physical ability and, where appropriate, certification. If it is not within his capability, his supervisor is to be informed.
(10) <u>Verify</u>	Check that the specified conditions are correct.	If the item does not meet the specified conditions, no remedial action is to be taken but the supervisor is to be informed. This term is only used for weapon schedules and schedule items concerning weapon systems.
(11) <u>Test</u>	Undertake, using the appropriate test equipment, a critical trial or examination of one or more properties or characteristics of the item or system to make certain that it is serviceable and operates correctly.	If the item or system is found to be unserviceable or to operate incorrectly, the supervisor is to be informed. No remedial action is to be taken unless directly.
(12) <u>Function</u>	Check, as far as can be determined without the use of test equipment or reference to measurements, that the item or system is serviceable and operates correctly.	If the item or system is found to be unserviceable or to operate incorrectly, the supervisor is to be informed. No remedial action is to be taken unless directed. The term 'Function' is the preferred term for this usage, but the term 'Operate' still appears in schedules and has the same definition. During amendment the term 'Operate' where it appears, will be replaced by 'Function'.
(13) <u>Fit</u>	Correctly attach the item to another.	This task is to be performed in accordance with authorized procedures and trade practices.

<u>Term</u>	<u>Definition</u>	<u>Amplifying Notes</u>
(14) <u>Refit</u>	Fit the item which has been previously removed.	This task is to be performed in accordance with authorized procedures and trade practices.
(15) <u>Replace</u>	Remove the item and fit a new and/or serviceable item.	This task is to be performed in accordance with authorized procedures and trade practices.
(16) <u>Remove</u>	Correctly disconnect and detach the item from its mounting or position.	This task is to be performed in accordance with authorized procedures and trade practices.
(17) <u>Disconnect</u>	Uncouple or detach cables, pipelines or controls from the item.	This task is to be performed in accordance with authorized procedures and trade practices.
(18) <u>Reconnect</u>	Recouple or reattach cables, pipelines or controls previously disconnected from the item.	This task is to be performed in accordance with authorized procedures and trade practices.
(19) <u>NB</u>	A mandatory instruction.	
(20) <u>Note:</u>	Advice.	

8. Amendment Triangles. New or amended matter will be indicated by the triangles (► ◄) to show the extent of the amendment. Amendment procedure is detailed in AP 100B-01 Order 0561.

# WARNINGS

## CONTROL OF SUBSTANCES HAZARDOUS TO HEALTH

- (1) ENSURE YOU ARE CONVERSANT WITH THE SAFETY PRECAUTIONS AND FIRST AID INSTRUCTIONS BEFORE YOU USE A HAZARDOUS SUBSTANCE
- (2) READ THE LABEL ON THE CONTAINER IN WHICH THE SUBSTANCE IS SUPPLIED
- (3) READ THE DATA SHEET APPLICABLE TO THE SUBSTANCE
- (4) OBEY THE LOCAL ORDERS AND REGULATIONS

## WARNINGS

- (1) RADIATION. RADIOACTIVE SOURCES AND X-RAY EQUIPMENT USED DURING RADIOGRAPHIC INSPECTIONS AS DETAILED IN SECTION 1 OF THIS PUBLICATION PRODUCE IONISING RADIATIONS WHICH HAVE AN ADVERSE EFFECT ON THE HUMAN BODY. EXPOSURE TO RADIATION IS TO BE KEPT AS LOW AS REASONABLY PRACTICABLE AND AT ALL TIMES WITHIN THE LIMITS LAID DOWN. REFER TO JSP 392.
- (2) SINTERED BERYLLIUM OXIDE. THE RADIATION WINDOW OF THE 4XX/4664804 X-RAY SET AS DETAILED IN SECTION 1 OF THIS PUBLICATION IS MADE OF SINTERED BERYLLIUM OXIDE. ALTHOUGH THIS IS UNLIKELY TO PRESENT A HAZARD IN NORMAL USAGE, THERE COULD BE A HEALTH RISK IF THE TUBE HEAD WAS SEVERLY DAMAGED. REFER TO AP 100B-10 DATA SHEET S 1802.
- (3) ULTRAVIOLET LIGHTS. ULTRAVIOLET LIGHTS ARE USED DURING MAGNETIC PARTICLE INSPECTIONS AS DETAILED IN SECTION 3 OF THIS PUBLICATION. ULTRAVIOLET LIGHT IN THE RANGE 4 nm TO 270 nm IS HARMFUL. IT CAN CAUSE SKIN BURNING, CANCER AND CAN INJURE THE EYES. IT PRODUCES OZONE WHICH IS POISONOUS IN LARGE QUANTITIES. REFER TO AP 119A-20003-1 CHAPTER 1 PARAGRAPH 38-45 AND TO JSP(F) 395.
- (4) MAGNETIC FLAW DETECTORS. PORTABLE MAGNETISING EQUIPMENTS AS DETAILED IN SECTION 3 OF THIS PUBLICATION PRODUCE STRONG MAGNETIC FIELDS, THESE FIELDS ARE CAPABLE OF INDUCING ELECTRICAL CURRENTS INTO ANY ELECTRO-EXPLOSIVE SYSTEM FITTED TO THE AIRCRAFT, SUCH AS WEAPON SYSTEMS, FUEL TANK EXPLOSION SUPPRESSION SYSTEMS, COBRA FIRE SUPPRESSION SYSTEMS. PRIOR TO COMMENCING ANY ON AIRCRAFT MAGNETIC PARTICLE INSPECTION, ENSURE ALL ELECTRO-EXPLOSIVE SYSTEMS ARE MADE SAFE. REFER TO CSDE REPORT 61/82.

CAUTIONS

1. Safety precautions covering the use of ultraviolet lights are contained in AP 119A-20004-1.
2. Safety precautions covering the use of mains powered electrical equipment in aircraft hangars are contained in AP 113A-0201-1 Chap 4. The potential difference between hangar power supplies and the power supplies in connecting offices, can be significant. To prevent possible damage or injury it is essential that the NDT equipment and the aircraft or equipment under test be earthed to the same circuit.
3. Erasable programmable read only memories (EPROMs) and electro-optical components fitted to some aircraft operate on the photoelectric principle and are therefore adversely affected by exposure to ionising radiation. The fibre optics used to connect these components and those used in remote viewing aids (RVA) are also affected by the use of ionising radiation. While radiographic inspections are being carried out, EPROMs, electro-optical devices and their associated fibre optics must not be operated and all RVA equipment must be removed from the inspection area.



MAINTENANCE NOTESNON-DESTRUCTIVE TEST EQUIPMENT

1. Before operating any non-destructive test equipment, reference must be made to the particular equipments operating instructions, these instructions are maintained in the AP 119A series of publications or in the event of using recently introduced equipments, the manufacturers handbook.

## LIST OF SECTIONS

- Section 1 - Radiography
- Section 2 - Ultrasonic Techniques
- Section 3 - Magnetic Particle Techniques
- Section 4 - Eddy Current Techniques

AMENDMENT RECORD CERTIFICATE

1. This certificate is for Ministry of Defence (Air) AL's only.
2. Amendments are to be inserted in numerical sequence except where Non-Availability slips for particular A.L.s are issued.

A.L. No	A.L. MONTH AND YEAR OF ISSUE	AMENDMENT INCORPORATED SIGNATURE	DATE OF INCORPORATION
1	Sept 71.	<i>[Signature]</i>	29.2.72.
2	Feb. 72.	<i>[Signature]</i>	11.7.72.
3	June 71	<i>[Signature]</i>	31.5.73.
4	April 74	<i>[Signature]</i>	16.4.74.
5	June 74	<i>[Signature]</i>	9.9.74.
6	November 74	<i>[Signature]</i>	17.2.75.
7	<del>June</del> MAY. 75.	<i>[Signature]</i>	23.7.75.
8	Dec. 75.	<i>[Signature]</i>	16.3.76.
9	May 76	<i>[Signature]</i>	3.7.76.
10	July 76	<i>[Signature]</i>	22.9.76.
11	March 77	<i>[Signature]</i>	19.7.77.
12	July 77	<i>[Signature]</i>	21.11.77.
13	Jan 78	<i>[Signature]</i>	4.4.78.
14	March 78	<i>[Signature]</i>	8.8.78.
15	August-78	<i>[Signature]</i>	30.10.78.
16	Jan 79	<i>[Signature]</i>	13.3.79.
17	Sept. 79	<i>[Signature]</i>	8.1.80.
18	Dec 79	<i>[Signature]</i>	11.3.80.
19	May 80	<i>[Signature]</i>	13.1.81.
20	Nov 84.	<i>[Signature]</i>	17.4.85.

RM 40410 (1)

AL21

HUNTER  
ALL MARKSAP101B-1300-5G  
(1st Issue)AMENDMENT RECORD CERTIFICATE (Contd)

1. This certificate is for Ministry of Defence(Air) AL's only.
2. Amendments are to be inserted in numerical sequence except where Non-Availability slips for particular A.L.s are issued

A.L. No.	A.L. MONTH AND YEAR OF ISSUE	AMENDMENT INCORPORATED SIGNATURE	DATE OF INCORPORATION
21	AUG 88	<i>[Signature]</i>	20-10-88
22	JAN 89	<i>[Signature]</i>	17-4-89
23	SEPT 93	<i>[Signature]</i>	11-11-93
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SM 88/340 (2)			Continued

A.L. No.	A.L. MONTH AND YEAR OF ISSUE	AMENDMENT INCORPORATED SIGNATURE	DATE OF INCORPORATION
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SM 88/340 (2A)			

# HUNTER INBOARD PYLON

AP 110G-0155-5F

## TYPE B

Item No	Item	Operation
5.1	Skin around jo-bolts adjacent to forward access panel inboard and outboard.	<ol style="list-style-type: none"> <li>1. Remove paint finish. (Ref Fig 1)</li> <li>2. Degrease thoroughly using Ardrex 9PR551 Remover.</li> </ol> <p>Sub-items 3 to 7 are applicable only to RAF.</p> <ol style="list-style-type: none"> <li>3. Apply Ardrex 996 Penetrant and leave for 40 min.</li> <li>4. Using clean cloth remove excess penetrant, to complete removal process cloth may be moistened with Ardrex Remover, do not apply direct to area.</li> <li>5. Apply Ardrex 9D6 Developer Powder and leave for 20 min, to allow fine cracking to show.</li> <li>6. Look for cracks under good white light conditions.</li> <li>7. Clean thoroughly using Ardrex Remover.</li> </ol> <p>Sub-item 8 is applicable only to RN.</p> <ol style="list-style-type: none"> <li>8. Check for cracks using Ardrex Thixotropic Penetrant Technique (AP 101B-1302-4, 5, 6 and 9 Issue 2 Topic 59 Section):</li> </ol>

### Notes ...

- (1) Pylons having cracks measuring less than 1.35 in when measured from the centre of the jo-bolt propagating aft, are to be repaired in accordance with Repair Scheme D45954, detailed in Topic 16.
- (2) Pylons with cracks in excess of 1.35 in are to be conditioned R/D.

		9. Restore surface finish.
5.2	Pylon forward upper leading edge access panel.	Refit.
6	Pylon.	1. Clean.
6.1	Sole plate.	2. Examine.
6.2	Access panels.	
6.3	Hinges, screws and fasteners.	
6.4	Brackets.	

Cracks may be expected  
within the dotted lines.  
Remove paint finish  
from this area

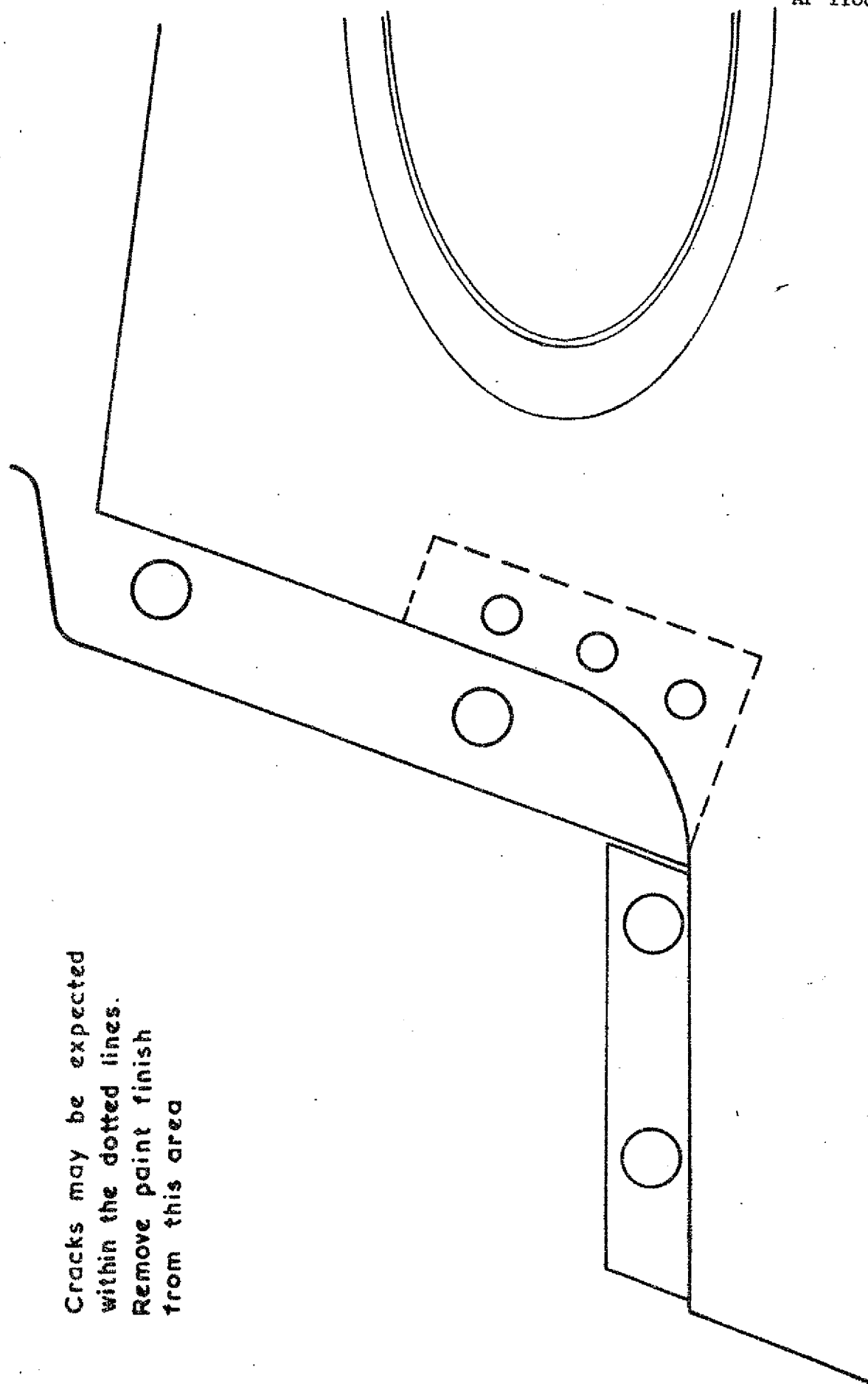


Fig.1 Scrap view of outboard skin, inboard skin similar

INTRODUCTION

1. This 5G has been introduced to support servicing operations detailed in B, C and D of AP101B-1300-Series. It contains information, orders and instructions on the precautions and procedure to be observed during Non-Destructive Testing operations on the HUNTER ALL MARKS aircraft.
2. Amendment procedure is detailed in AP3158, Volume 2, Leaflet D10.



## List of Sections

Section 1	...	...	...	...	...	...	Radiography
Section 2	...	...	...	...	...	...	Ultrasonics
Section 3	...	...	...	...	...	...	Magnetic Particle
Section 4	...	...	...	...	...	...	Eddy-Currents

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