

**CHAPTER**

**72**

**ENGINE**

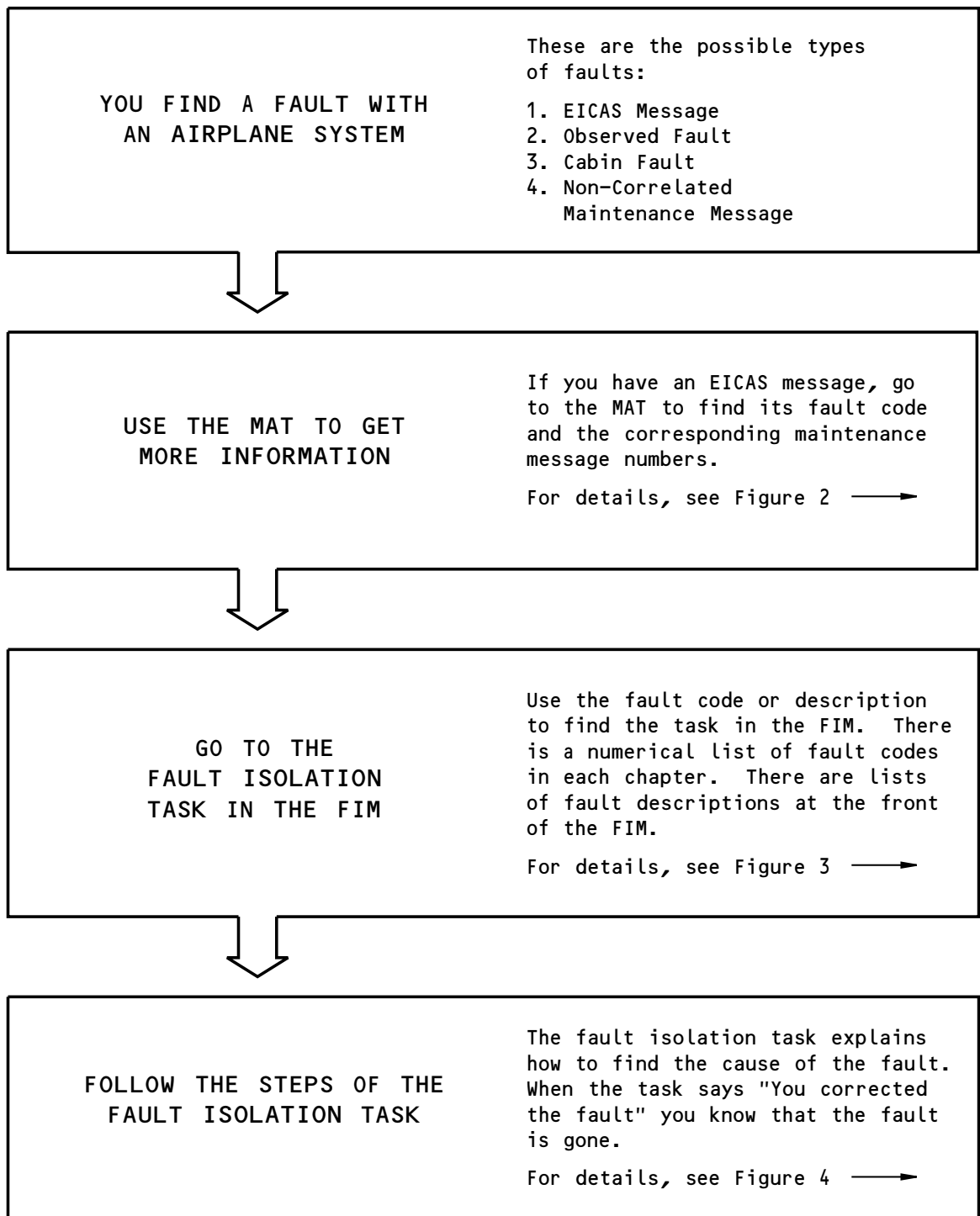
**(GE90-100 SERIES ENGINES)**

**777-200/300  
FAULT ISOLATION MANUAL****CHAPTER 72  
ENGINE**

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| 72-EFFECTIVE PAGES    |             |     |              |      |     |              |      |     |
| 1                     | SEP 05/2017 |     |              |      |     |              |      |     |
| 2                     | BLANK       |     |              |      |     |              |      |     |
| 72-HOW TO USE THE FIM |             |     |              |      |     |              |      |     |
| 1                     | Jan 05/2013 |     |              |      |     |              |      |     |
| 2                     | Jan 05/2013 |     |              |      |     |              |      |     |
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| 6                     | Jan 05/2013 |     |              |      |     |              |      |     |
| 72-MAINT MSG INDEX    |             |     |              |      |     |              |      |     |
| 101                   | Jan 05/2013 |     |              |      |     |              |      |     |
| 102                   | BLANK       |     |              |      |     |              |      |     |
| 72-21 TASKS           |             |     |              |      |     |              |      |     |
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| 202                   | Jan 05/2013 |     |              |      |     |              |      |     |

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

**72-EFFECTIVE PAGES**

**777-200/300  
FAULT ISOLATION MANUAL**

E84424 S0000132469\_V1

**Basic Fault Isolation Process  
Figure 1**

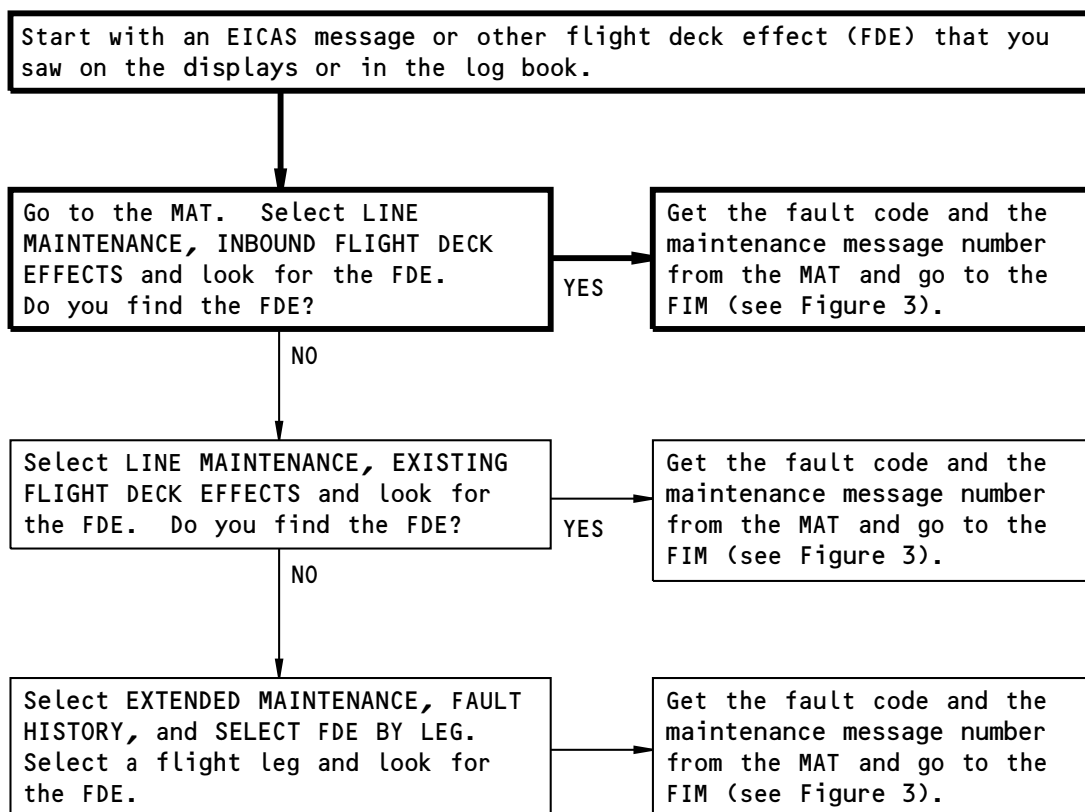
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## 72-HOW TO USE THE FIM

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## 777-200/300 FAULT ISOLATION MANUAL



**NOTE:** The bold lines show the most common path.

E84425 S0000132475\_V1

Getting Fault Information from the MAT  
Figure 2

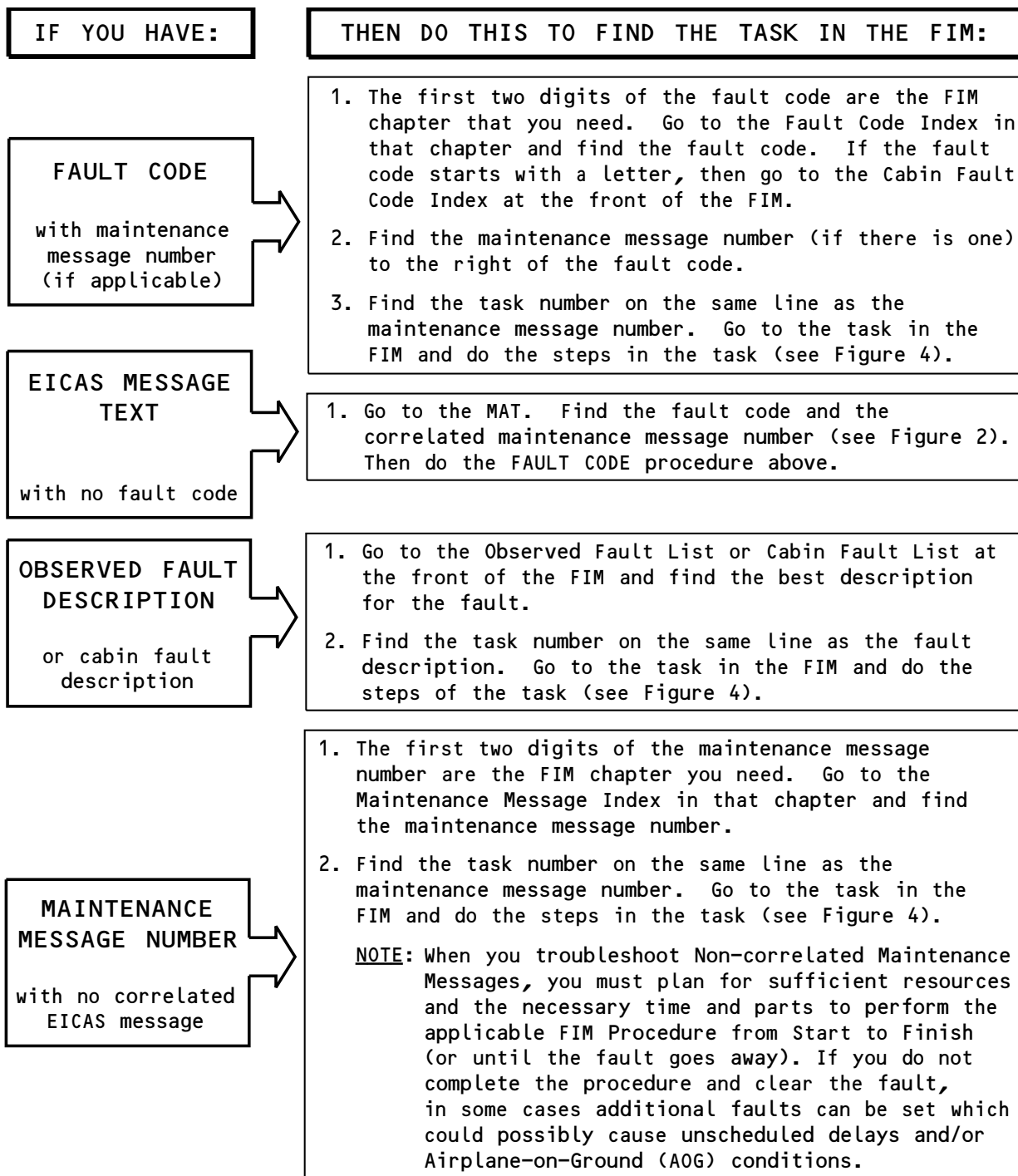
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Finding the Fault Isolation Task in the FIM  
Figure 3

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**777-200/300  
FAULT ISOLATION MANUAL****ASSUMED CONDITIONS AT START OF TASK**

- External electrical power is ON
- Hydraulic power and pneumatic power are OFF
- Engines are shut down
- No equipment in the system is deactivated

**INITIAL EVALUATION PARAGRAPH**

- The Initial Evaluation paragraph at the start of the task helps you determine whether you can detect the fault right now.
- If you cannot detect the fault right now, then the task cannot isolate the fault and the Initial Evaluation paragraph will say that there was an intermittent fault.
- If you have an intermittent fault, you must use your judgement (and follow your airline's policy) to decide which components to replace. Then monitor the airplane to see if the fault happens again on subsequent flights.

**FAULT ISOLATION STEPS**

- The FIM task steps are presented in a specified order. "The If... then" statements will guide you along a logical path. But if you do not plan to follow the FIM task exactly, make sure that you read it before you start to isolate the fault. Some FIM procedures start with important steps that have an effect on the other steps in the procedure.
- When you are at the endpoint of the path, the step says "You corrected the fault." Complete the step and exit the procedure.
- The Recommended Maintenance Action that shows on the MAT for the maintenance message gives a list of possible causes in order by probability of failure. In the FIM procedure, the possible causes can be in a different order from the MAT.

**WIRING CHECKS**

When a step says "Do a wiring check", do these three types of electrical checks for the specified contacts (pins):

- continuity from contact to contact
- shorts between the contacts
- shorts from each contact to ground

E84428 S0000132477\_V3

**Doing the Fault Isolation Task  
Figure 4**

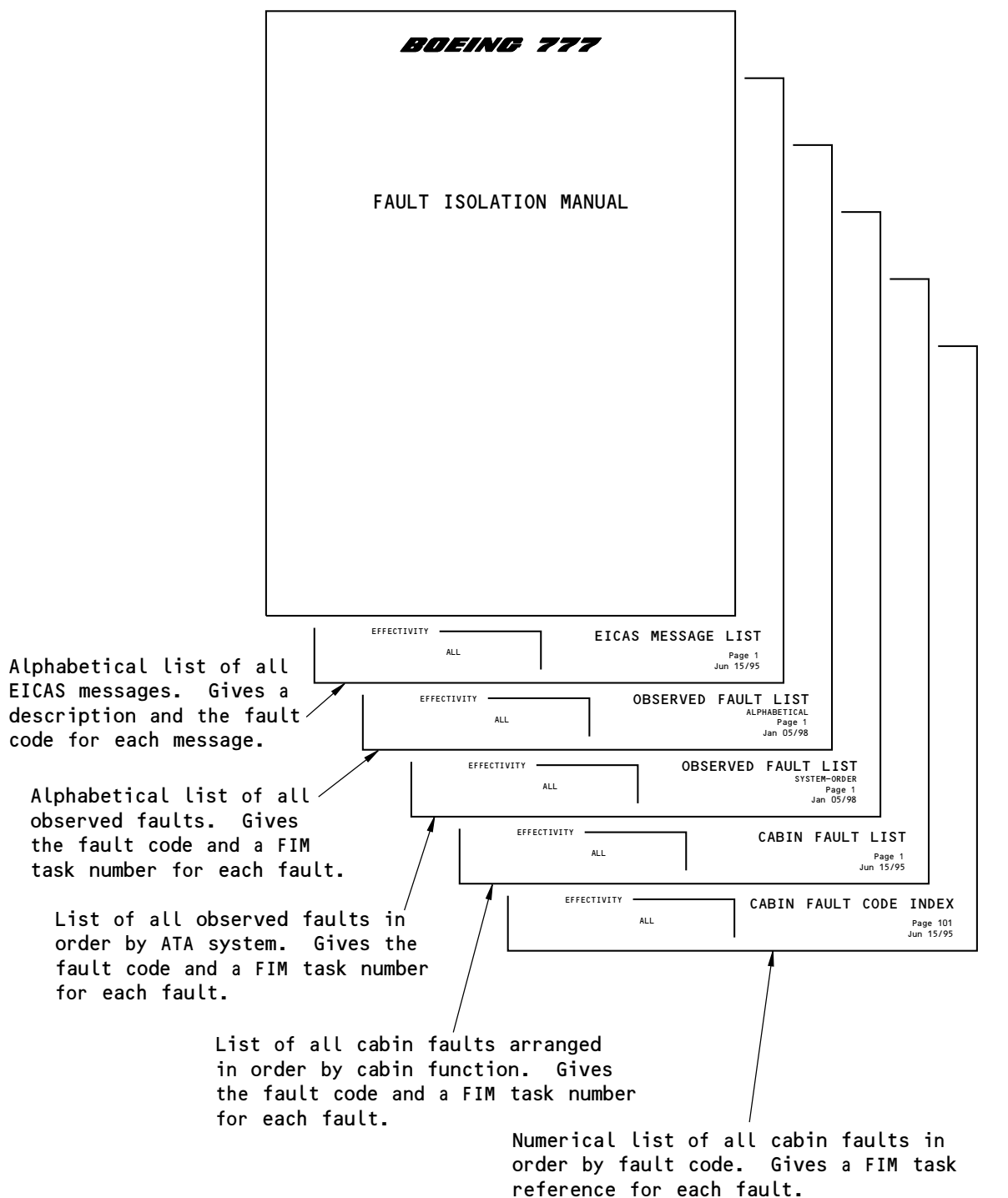
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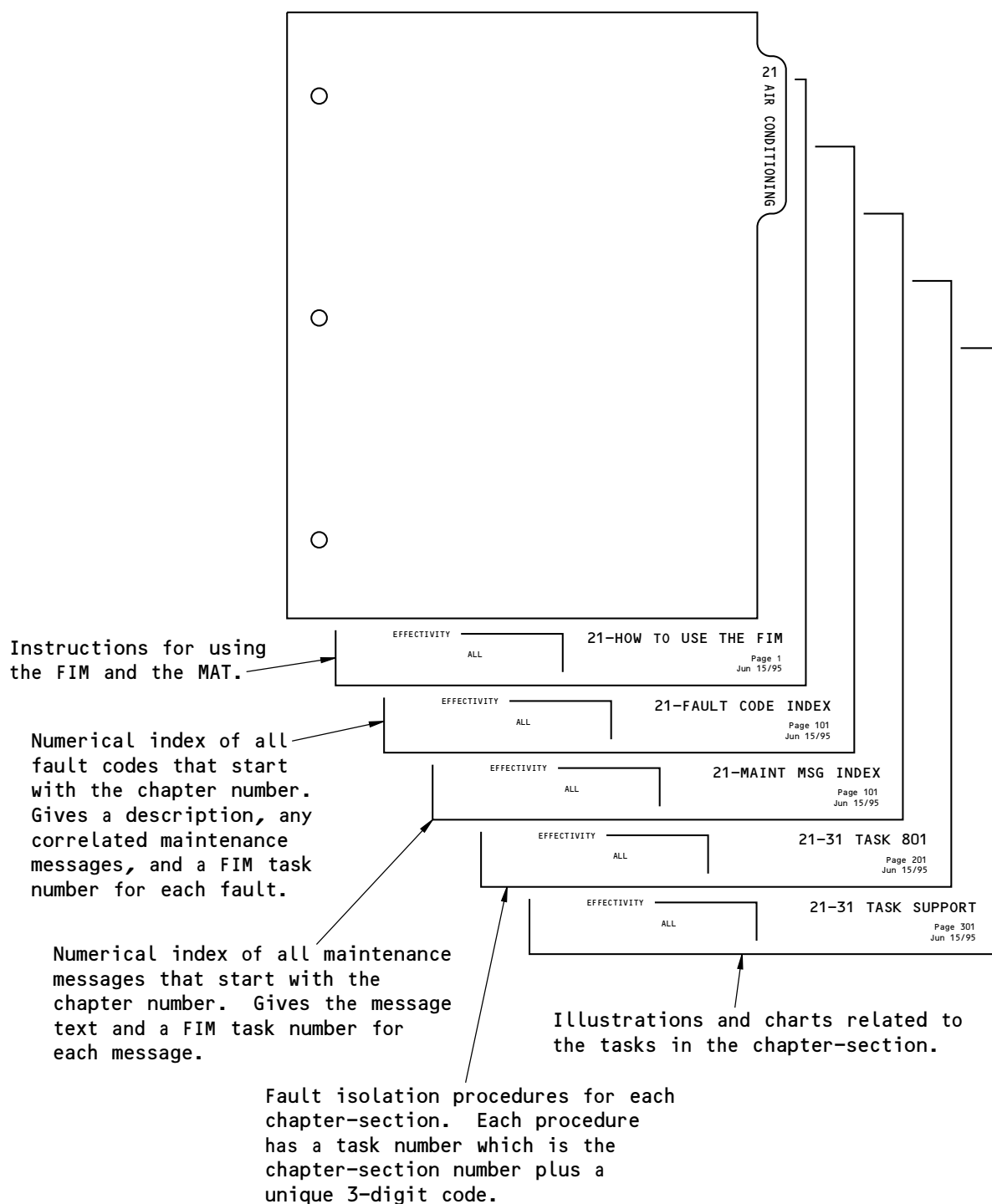
**Subjects at Front of FIM  
Figure 5**

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F39837 S0000132479\_V1

**Subjects in Each FIM Chapter**  
**Figure 6**

|             |  |
|-------------|--|
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| MAINT MESSAGE | MESSAGE TEXT                                    | GO TO FIM TASK |
|---------------|-------------------------------------------------|----------------|
| 72-33901      | Left Engine start failed due to low fan speed.  | 72-21 TASK 802 |
| 72-33902      | Right Engine start failed due to low fan speed. | 72-21 TASK 802 |

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**72-MAINT MSG INDEX**

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**777-200/300  
FAULT ISOLATION MANUAL****802. Locked Fan Rotor - Fault Isolation****A. Maintenance Messages**

- (1) This task is for maintenance messages: 72-33901, 72-33902.

**B. Description**

- (1) This message can be set for a failed autostart sequence when the N1 speed is less than 150 rpm when N2 is 5500 rpm.

**C. Fault Isolation Procedure**

- (1) Set the applicable EEC MAINT POWER switch, on the Overhead Maintenance Panel, P61, to the TEST position.
- (a) On the MAT, select FAULT HISTORY, ATA 71-80 and check for one or more of the maintenance messages below:
- 1) 77-14601
  - 2) 77-24601
  - 3) 77-14602
  - 4) 77-24602
- (b) If one or more of these maintenance messages shows in a previous flight leg, then do the fault isolation procedure for the message(s).
- (c) Continue with the fault isolation steps below.
- (2) Do a visual check for both unwanted material and damage on the engine:
- (a) Do this task: Inlet Cowl Inspection, AMM TASK 71-11-01-200-804-H00.
- (b) Do this task: Turbine Exhaust System Visual Inspection, AMM TASK 78-11-00-210-801-H01.
- (c) Do this task: Fan Rotor Spinner Inspection, AMM TASK 72-21-01-200-801-H01.
- (d) Do this task: Fan Blade Platform Inspection, AMM TASK 72-21-03-220-801-H01.
- (e) Do this task: Fan Booster Flowpath Spacer (Scheduled Maintenance Requirement) Inspection, AMM TASK 72-21-00-220-801-H01.
- (f) Do the inspection on the fan blade leading edge tips, metal strips and trailing edge tip caps for damage (AMM TASK 72-21-02-200-801-H01).
- (g) Do this task: Fan Stator Case Forward Outer Acoustic Liner Inspection, AMM TASK 72-24-01-200-801-H01.
- (h) Do this task: Fan Stator Case Aft Outer Acoustic Liner Inspection, AMM TASK 72-24-01-200-802-H01.
- (3) Repair the problems that you find, and continue with this fault isolation procedure.
- (4) Examine the engine oil system (AMM TASK 79-00-00-700-801-H01).

**D. Repair Confirmation**

- (1) Do this task: Engine Automatic Start, AMM TASK 71-00-00-800-805-H01.
- (a) If no fan rotation is observed during the engine start, do these steps:
- 1) Abort the start, and allow the engine to cool.

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FAULT ISOLATION MANUAL**

- 2) Turn the fan by hand to free the locked N1 rotor.

NOTE: If you are unable to turn the N1 rotor by hand, then wait for the engine to completely cool from the attempted start and try to turn the N1 rotor again. If you cannot turn the N1 rotor by hand after a total of 2 hours cooling time, continue with this repair confirmation.

- 3) If the N1 rotor can be turned freely by hand, attempt another start.

- a) If the engine has a successful start, continue the engine in operation.
- b) If the engine does not have a successful start, replace the engine.

These are the tasks:

Power Plant Removal, AMM TASK 71-00-02-000-811-H00

Power Plant Installation, AMM TASK 71-00-02-400-811-H00.

- 4) If the N1 rotor can not be turned freely by hand, replace the engine.

These are the tasks:

Power Plant Removal, AMM TASK 71-00-02-000-811-H00

Power Plant Installation, AMM TASK 71-00-02-400-811-H00.

———— **END OF TASK** ————

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**72-21 TASK 802**

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