NATIONAL TRANSPORTATION SAFETY BOARD

WASHINGTON, D.C.

Boeing Service Modification Process

March 31, 1995

Boeing Service Modification Process

The following describes the basic macro process used by Boeing Commercial Airplane Group to identify, track, report and eliminate concerns on Boeing aircraft which have safety and/or economic implications. The attached figure outlines the basic process flow.

Identification of concerns comes from many different sources. The majority come in via the sources shown in the attached process flow.

The primary source is from the airlines operating Boeing products. These generally come in via telexes to the Customer Support Division. Over 100,000 reports and requests are received annually (database: Boecom). Service problems and safety related items requiring investigation are identified and passed to the appropriate review process.

FAA and NTSB via telecons and mail.

The Reliability and Maintainability organization gathers data from Boecom, the FAA SDR system and direct computer link with a number of large airlines (database: SIRS, Significant Item Reporting System).

Boeing employee observations (Safety advocate system and SCRS: Safety Concerns Reporting System.)

Quality Assurance reports.

Defect Reports received from Material and vendors.

Senior Engineering personnel: Model Chief Project Engineers, Designated Engineering Representatives and Chief Design Engineers.

ASAM: Airplane Safety Awareness in Manufacturing reports.

These reports travel through one or more of four basic organizational reviewing processes:

ASAP, Airplane Safety Awareness Program safety review boards which are composed of senior representatives from Engineering (Directors of Engineering, Chief Project Engineers and appropriate Design Chief Engineers), Chief Pilots, Airplane Safety, Customer Training and Flight Operations Support, Service Engineering and Air Safety Investigation. This group evaluates the situation and circumstances and decides whether or not the issue is a safety item. If it is determined to be a safety item, it is passed on to Engineering, Certification and the Safety SRP process for action and correction.

Service Engineering Review (the engineering organization in Customer Support). This daily review process of incoming telexes results in notification of the appropriate organizations where action may be required and the data gathering necessary to substantiate what action must be taken. This data is presented to Engineering, Certification and the appropriate SRP (Service Related Problem correction process) acceptance process (Safety or Normal) for action and correction.

Airworthiness reviews through the Certification organization and with the Chief Project Engineers determine whether or not the issue is a 21.3 reportable item and take appropriate reporting action and initiating the Safety SRP Process (an accelerated SRP acceptance process for safety related problems) if necessary.

Accident Investigation Reviews where investigation shows that design or operation changes are required.

The process for change, either required for safety, design improvement or deficiency elimination, proceeds through the design solution process in Engineering, Materiel and Manufacturing until the new configuration is developed and introduced into airplane production and/or fleet retrofit as appropriate. Appropriate notification of the FAA, the NTSB and airlines occurs during the process and culminates in FAA certification and Service Bulletins or Service Letters to the airlines.

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Operator
Telexes ─────┐
             │
FAA          ├──────→ Service
NTSB         │        Engineering
             │        Reviews ────────┐
R&M          │                        │
SIRS ────────┘                        │
                                      │
Safety                                │
Advocate ────┐                        │
             ├──────→ Division ASAP    ├──→ 21.3        Yes
SCRS ────────┤        Safety Review    │   Required? ──────→ FAA Report
             │        Boards ──────────┤       │
QA ──────────┘                        │       No
                                      │       └──────→ File
Defect                                │
Reports ─────┐                        │
             ├──────→ Airworthiness   │
CPE/DER      │        Reviews ─────────┤
/CDE ────────┤                        │
             │                        │
ASAM ────────┘                        │
                                      │
             Accident                 │
             Investigation ───────────┘
                   │
                   └──→ Notify NTSB
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Safety Issue?
- Yes → Safety SRP Acceptance Process → Notify FAA & Airlines → Design Solution
- No → Normal SRP Acceptance Process → Notify Airlines → Design Solution

Design Solution → Fleet & Production Modification → Notify FAA & Airlines