9.7 COMMUNICATION

• Within and between teams

• Work logging and recording

• Keeping up to date, currency

• Dissemination of information

Communication Channels

Most common ways to communicate:

♣ speaking

♣ writing

♣ visual images

♣ body language

- Four communication ways in aircraft maintenance

♣ oral – speech

♣ written – documentation.

♣ non-verbal – wordless cues

♣ physical cues

- Why paper work, what is the problem with speech?

Speech:

♣ Most natural form of communication

♣ 3% error rate

♣ Often far from perfect

♣ In aviation, communication errors can be catastrophic.

Document:

♣ Maintenance is driven by paperwork.

♣ Communicating via documentation part of the job

♣ Many European Association of Aerospace Industries developed a form of simplified English to create brief and unambiguous text for aerospace manuals, and both Boeing and Airbus are now using the system.

Non- verbal communication:

♣ Non -verbal cues: gestures, facial expressions, tone of voice, and body language used when Where speech cannot be used, such as in noisy environments, or where people are wearing hearing protection

Physical cues:

♣ Maintenance also relies on physical cues to communicate information between maintenance personnel and to pilots

♣ Information also communicated by informal cues Open cowl, or the position of a work stand, might send a message that maintenance is underway.

♣ Sometimes the message does not get through, or do not realize that people rely on these informal cues for communication.

Within and between teams

♣ Individuals develop and coordinate activities to achieve goals by **communicating** with each other by exchanging information.

- Four steps in communication (transmit info, receive info, understand info, confirm info understood)

The four steps in communication process:

1, Someone transmits information

2, Someone else receives that information

3, Receiver understands the information

4, Confirms to the transmitter that information received, and understood

Numerous places where this communication can break down.

Sending information in an email may not be effective for all.

The choice of delivery method also depends on what must be communicated:

• Email or written briefing

• Personal, face to face delivery, using visual and verbal cues to understand and receive information

Within and between teams Communication

1, Adapt tone and language of communication to the audience

2, Daily news bulletin written in accessible, plain English, to reach a broad audience

3, Effective communication vital to form and maintain a shared mental model, and ensure understanding by everybody

4, Good communication necessary for maintaining a high level of situational awareness and help teams to be more effective.

- In aircraft maintenance, what info is communicated (task completed, in progress, to be carried out)

• Tasks that have been completed

• Tasks in progress

•Tasks to be carried out

- Shift handover, elements for effective, barriers for effective (reduce ambiguity with careful information and two-way communication)
- Communication between teams involves passing written reports of tasks from one shift supervisor to the other shift for continuity of work: two-way communication)

• Brief for incoming replacements

• Record of work completed and work remaining with appropriate traceability

Communication between teams usually occurs at shift handover.

♣ Effective shift handover depends on three basic elements:

1, Outgoing person's ability to understand and communicate the important elements of the job or task being passed over

2, Incoming person's ability to understand and assimilate the information being provided.

3, Formalized process for exchanging information between outgoing and incoming people and a place where such exchanges take place

Aids for **Effective** Communication at Shift Handover

• Use more than one way of communicating for redundancy: Written, verbal or non-verbal to reduces risk of erroneous transmission

• Misunderstandings most likely to occur when people do not have same 'mental picture' of the state of things

• Written communication helped by the design of documents, such as: the handover log, considering information needs of people who use it

Barriers to Effective Communication at Shift Handover To reduce **ambiguity** in communication. They two ways of exchanging information:

1, Carefully specify information communicated e.g. by specifying the actual component, tooling or document

2, Facilitate two way communication to permit clarification of any ambiguity For example: Do you mean the inboard or out board wing flap?

Shift Handover Meetings

Primary objective of shift handover to ensure accurate, reliable communication of task relevant information across the shifts.

The meeting conducted in an environment free from time pressure and distractions.

Shift Handover Meetings

After the meeting between shift managers, and assignment of tasks, need for supervisors and certifying staff to meet and exchange detailed information related to individual jobs and tasks.

Most effective way to communicate this information: is for the affected incoming and outgoing personnel to go over the task issues while examining the actual jobs on the hangar floor or at the workplace.

Mutual inspection and discussion of this nature is called a "Walkthrough"

Topics that covered in the supervisors/ certifying staff's walkthrough meeting:

• Jobs/Tasks in Progress

• Work Cards Being Used

• Last Step(s) Completed

• Problems Encountered

• Outstanding/In-Work/Status

• Problems Solved

• Unusual Occurrences

• Unusual Defects

Shift Handover Meetings

• Handing Over a Task Directly to Another Person

• Handing Over a Task for Somebody to Complete

5 Ways to Improve Shift Handover:

1, Handover opportunity to catch errors, not just communicate information

2, Critically check previous shift work

3, Improve shift handover documentation

4, Have direct verbal briefings between incoming and outgoing technicians (Face-to-face handovers standard operating procedure in many high risk industries such as nuclear power, offshore oil and air traffic control)

5, Communicate 'next steps,' not just 'work accomplished' A good handover not only covers the work accomplished, but also captures problems, possible solutions and future intentions

Shift handover the 4 types:

FOUR TYPES OF SHIFT HANDOVERS	
→|→	Ideal handover. This is the ideal shift handover, where the task is proceeding normally before the handover and proceeds normally afterwards.
⤴|⤵	Error recovery handover. Although not ideal, this is also and example of an effective handover. The task had gone off track during the first shift, but the handover provided an opportunity to identify the problem and correct it. An example is where an error made by the first shift is detected and corrected by the second shift.
→|⤵	Problem starts at handover. In this case, the task was performed correctly by the first shift, however, a problem began when the second shift took over. An example is a case when the first shift removed a faulty component for replacement. Instead of ordering an installing a serviceable component, the second shift then installed the faulty component.
⤴|→	Problem starts before handover. In this case, an error was made on the first shift, and personnel on the second shift continued the error.

Work logging and recording

One of the most critical aspects of communication within aviation maintenance Inadequate logging or recording of work contributor to many incidents

Scheduled Task Cards

1. Scheduled tasks are task cards issued at the beginning of the maintenance input

2, Written by the manufacturer, maintenance organization or the aircraft operator

3, Not designed to be used as handover document

Additional work card made to communicate that Task Card does not reflect the true state of the aircraft:

DEFECT	ACTION TAKEN	MECHANIC	INSPECTOR
Reference card 27-00-56. Card completed fully up to state D). Hydraulic system depressurized by the transmitter operating link is not reconnected. Operating link to be reconnected prior to performing stage F).			

Combination of both documents provides sufficient information to know stage of work and what is required to be completed.

Keeping up to date, currency

Aviation industry is dynamic:

• Operators change their aircraft

• New aircraft types and variants introduced

• New aircraft maintenance practices introduced

To maintain currency, AMT must keep abreast of pertinent information relating to:

• New aircraft types or variants

• New technologies and new aircraft systems

• New tools and maintenance practices

• Modifications to current aircraft and systems worked on

• Revised maintenance procedures and practices

AMTs can keep up to date by:

• Undertaking update courses

• Reading briefing material, memos and bulletins

• Studying maintenance manual amendments

Dissemination of information

Clear dissemination of all information within organization forms part of safety culture

Dissemination of information:

• Part of this process is checking that all information relating to the task gathered and understood

• Supervisors play an important role ensuring that their team have seen and understood any communicated information, new tools and maintenance practices

• Poor dissemination of information contributory factor to many accidents

• When you are sending information:

  – Provide information as required

  – Deliver information clearly and concisely

  – Verbalize plans–surprises belong at birthday parties, not in hangars

  – Use appropriate Non-verbal communication

  – Provide relevant information without being asked

  – Ask for confirmation that message is understood ("what did you hear me say")

• When you are the receiver:

  – Be an active listener

  – Acknowledge and repeat information as required

  – Paraphrase what you have heard ("repeat what I heard")

  – Pay attention to Non-verbal as well as verbal communication

  – Clarify uncertainties, ask questions as necessary

  – Provide useful feedback

Tips for improving communication and avoiding errors:

Both sender and receiver:

  – Never assume

  – Don't let the conversation end with unresolved ambiguities

  – If a disagreement exists, take the most conservative action until more information is available