

WELCOME TO NBAA BACE Las Vegas 2017

Why Do We ...
“Fail to Follow Procedures?”



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Bravo Golf Aviation

Question for You

- How many of you have NOT followed a prescribed procedure in a maintenance manual publication in your career?
- How many of you have NOT followed any prescribed procedure or rules such as putting together your kid's bicycle?
- And WHY NOT????

Top 10 Causes of Maintenance Mishaps

(Flight Safety Committee (UK), 2004)

1. Failure to follow published tech data or instructions

“Failure to follow proper procedures is the number one factor in maintenance related aviation accidents.” FAA

10. GSE improperly positioned for the task

Common FAA Rule Violations

(Patankar, 2002 “Root Cause Analysis of Rule Violations by AMTs, 1998-2000)

- **& 43.13(a)** – Each person performing maintenance ... **shall use the methods, techniques, and practices prescribed in the current manufacturer’s maintenance manual ...** He **shall use the tools, equipment, and test apparatus** to assure completion of the work IAW **acceptable industry practices.**
- **& 43.13(b)** –Each person maintaining or altering, or performing preventive maintenance, shall do that work in such a manner and use materials of such a quality, that the condition of the aircraft ... will be at least equal to its original or properly altered condition ...
- **& 43.13(c)** - ...the methods, techniques, and **practices contained in the maintenance manual** ... constitutes acceptable means of compliance...

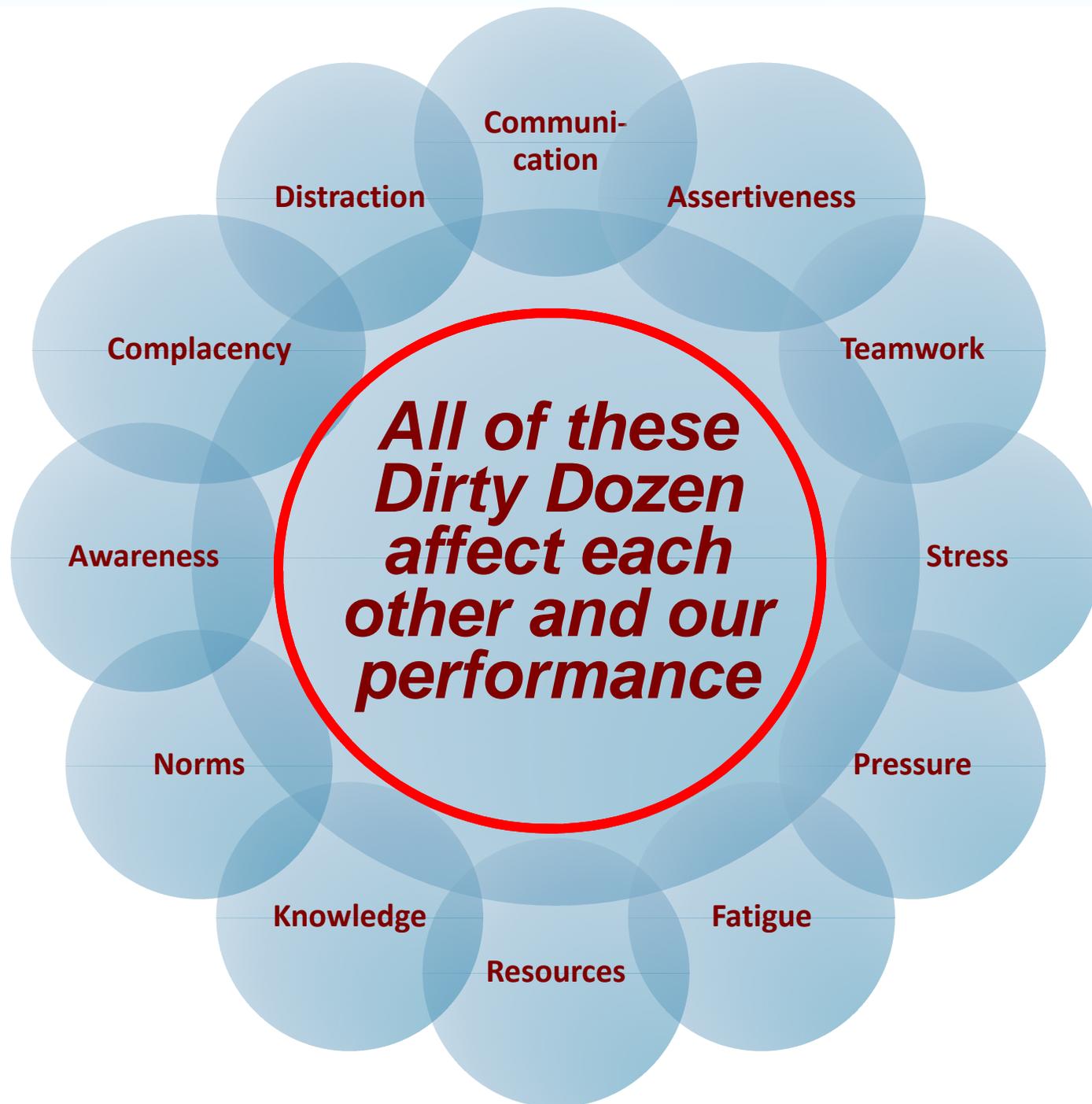
Common FAA Rule Violations

(Patankar, 2002 “Root Cause Analysis of Rule Violations by AMTs, 1998-2000)

- **&43.9** – (a) Maintenance record entries ... **each person ... shall make an entry** in the maintenance record of that equipment containing the following information:
 - (1) **A description ... of the work performed.**

How much are we violated?

“Failure to follow proper procedures is one of the most FAA issued violations.” FAA



Some Thoughts as to Why Procedures are Not Followed

Survey, Chaparro and Golf (2002)

- Maintenance Manuals are not followed because;
 - If they are followed “to the letter” the job couldn’t get done in time (62%) - **PRESSURE**
 - Its difficult to locate the right procedure (50%) – **LACK OF COMMUNICATION**
 - AMTs do not realize a procedure exists for the job they are performing (57%) – **LACK OF KNOWLEDGE**
 - AMTs prefer to rely on their own skills and experience or assume they know the procedure (72%) - **NORMS**

Why Do Good Employees Violate Procedures?

- ✓ **HOW MANY OF THESE LOOK FAMILIAR?**
- ✓ **Skipping steps**
- ✓ **Sign-offs without verification**
- ✓ **Using improper tooling, expired calibrated tools**
- ✓ **Not following proper procedures**
- ✓ **Not using latest maintenance manuals**

Why Do We Fail to Follow Procedures?

- Procedures are not referenced (used) by the AMT

“AMTs usually don’t find errors in the manual, and rate the manuals to be good; a majority of the AMTs think the manuals are **written in a way that does not describe the easiest way to do a task ...”**

What Happens When We Don't Follow Procedures?

- INDIVIDUAL – Bad habits develop.
- TEAMS – bad norms or “groupness” develop.
- Followed by acceptance of the group.
- “Normalization of Deviation” becomes accepted.
- Lack of awareness of “Behavior Creep”.
- Accidents and mishaps with immediate result – “*immediate feedback*”.



NORMS

(AND ITS NOT THE GUY IN "CHEERS" WITH THE BEER!)

Short cuts or non-compliant practices that detract from established standards or accepted safety practices.

Not following written procedures.

FAILURE TO FOLLOW PROCEDURES
(FAA emphasis).

Drifting from Effective System Performance - “Practical Drift”

When we violate a procedure and nothing bad happens, we perceive the action to be “acceptable”.

- Time saving
- Looks good to management
 - Looks efficient
 - Saves money

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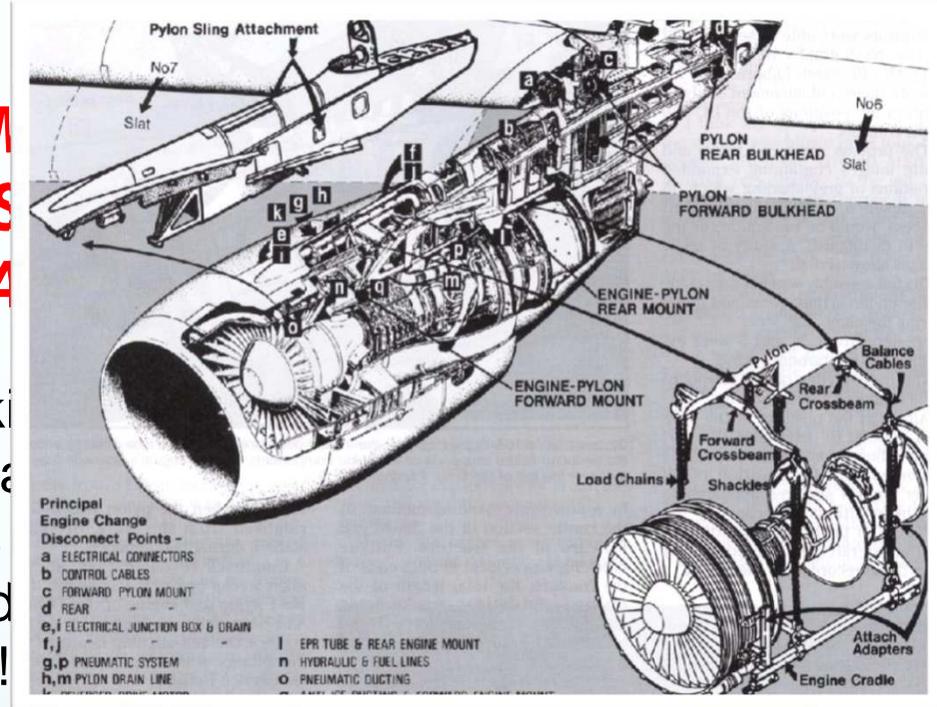
“Normalization Of Deviance”



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D, MAY 25, 1979



AA 191 #3

Negative Norms Versus “Integrity”

A Summary ...

First you find yourself overlooking small infractions that you would have corrected on the spot in the past.

Soon, you are a participant in these infractions. “After all,” you say, “everyone is doing it.”

All too soon you find yourself trapped. You no longer can stand on a favorite principle because you have strayed from it.

Finding no way out, you begin to rationalize, and then you are hooked.

The important fact is, the men who travel the path outlined above have misused the very basic quality and characteristic expected of a professional ... **They have compromised their integrity.**

Admiral Arleigh Burke

What Influences Our Behavior?

Taking Responsibility

Social Influence

In a team, we tend to feel less responsible.

“Someone else will do it.”

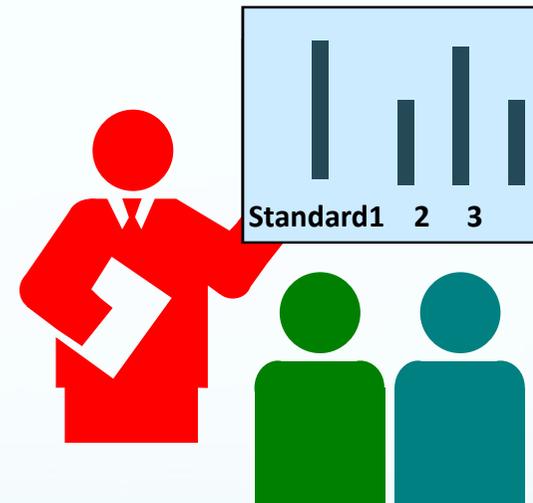
“The whole team agreed.”

“Nobody saw me do it—it could be anyone.”

Two Classic Studies in Taking Responsibility



Dr. Milgram - Obedience to Authority Experiments



Dr. Asch - Conformance to Group Experiments

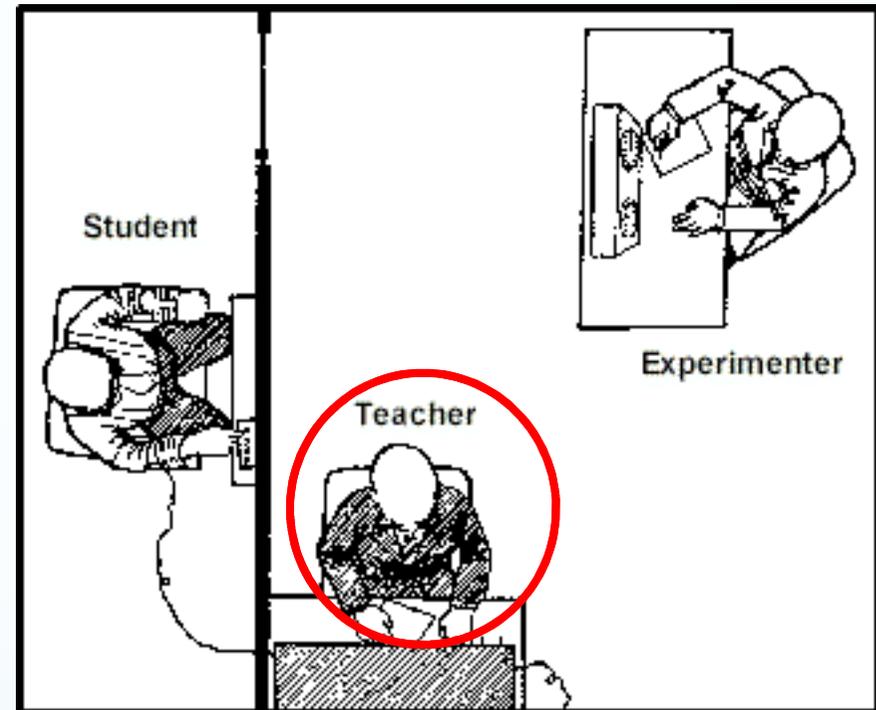
Milgram - Obedience to Authority

- **Obedience**
 - **Compliance of person is due to perceived authority of the requester.**
 - **A request from an authority is seen as a command.**
- Milgram did his first experiment in 1961.
- He was interested in unquestioning obedience to orders, because “I was just following orders” was the defense used by Nazi war criminals.
- Wanted to see if the average U. S. citizen would refuse to do something where they felt that they were hurting another person.
- Recruited 40 men for a “study of memory” through a newspaper advertisement. Each person was paid \$4.00 to participate.

Milgram Study

Basic study procedure:

- **Experimenter** (Dr. Milgram), **Student** (working with Dr. Milgram), and **Teacher**.
- **Teacher** helps **Experimenter** strap **Student** into chair and attach electrode to arm.
- **Student** expresses concern over his “heart condition.”
- **Experimenter** gives **Teacher** a 15 volt shock.
- Dr. Milgram had a colleague play the role of “**Student**”
- The **Student**, working with Dr. Milgram, acted like he was receiving the electrical shocks.



Intimidating shock generator

- ✓ 15-60 volts “Slight”
- ✓ 75-150 volts “Moderate”
- ✓ Up to
- ✓ 435-450 volts “XXX”

Milgram Study

- Student actually set up a tape recorder integrated with the electro-shock generator.
- Tape recorder plays pre-recorded sounds for each shock level in which the Student protests more and more as the shock level increases.
- At 150 volts, the Student starts banging on the wall as the tape recorder plays his protests.

120v “Ugh! Hey this really hurts.”

**150v “Ugh! Experimenter! That’s all. Get me out of here. I told you I had heart trouble. My heart’s starting to bother me now.”
(Banging on wall.)**

**300v (agonized scream) “I absolutely refuse to answer any more. Get me out of here. You can’t hold me here. Get me out.”
(Banging on wall.)**

315v No longer any noise coming from Student, as if he died from a heart attack.

Experimenter Asks for Obedience

- If at any time the Teacher wanted to stop, the Experimenter gave him verbal responses in this order:
 1. ***Please continue.***
 2. ***The experiment requires that you continue.***
 3. ***It is absolutely essential that you continue.***
 4. ***You have no other choice, you must go on.***
- If the Teacher then still wished to stop, the experiment was halted. Otherwise, the experiment continued until the Teacher had given the maximum 450-volt shock three times in succession.



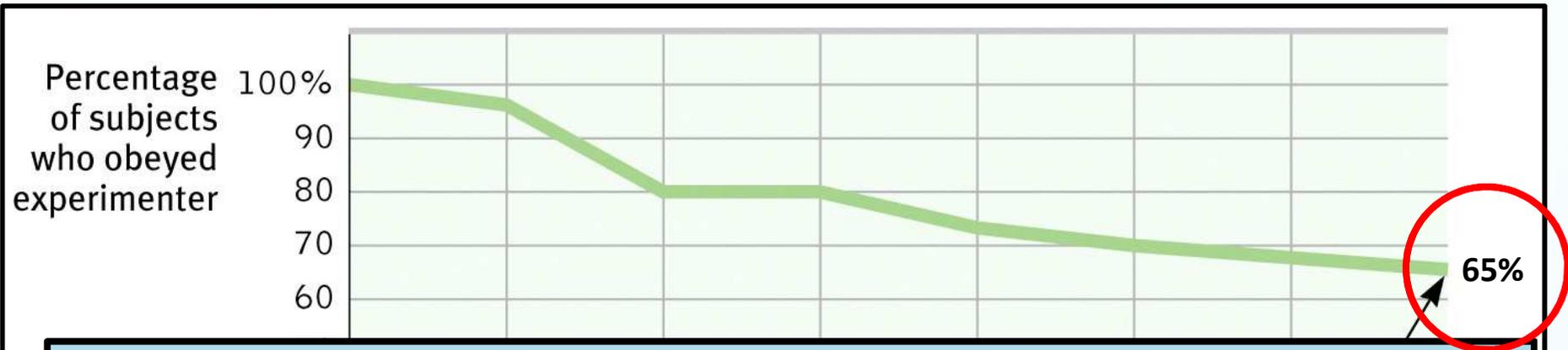
What Was the Predicted Behavior?

- Before the study, Milgram...
 - Asked 140 senior Psychology majors, who estimated **1.2%** on average would go to the highest shock level.
 - Informally polled his colleagues, who also **believed that very few subjects would go to the highest shock level.**
 - 40 Psychiatrists at the medical school believed that
 - By the tenth shock, when the Learner demands to be freed, **most Teachers would stop.**
 - By the 300 volt shock level, when the victim refuses to answer, **only 3.73% on average** would continue.
 - Only a little over **0.1% (1 in 1000)** would continue to 450 volts.

What Was Teacher's Actual Behavior?

- Most felt uncomfortable giving the shock.
- Every teacher paused and questioned the experiment.
- Some said they would refund the \$4.00.
- Throughout, every teacher displayed varying degrees of tension and stress.
 - They were sweating, trembling, stuttering, biting their lips, groaning, digging their fingernails into their skin, and some had nervous laughing fits.

Results of the Study



A majority of mechanics/engineers will do what their management tells them to do, even if they do not feel comfortable doing it.

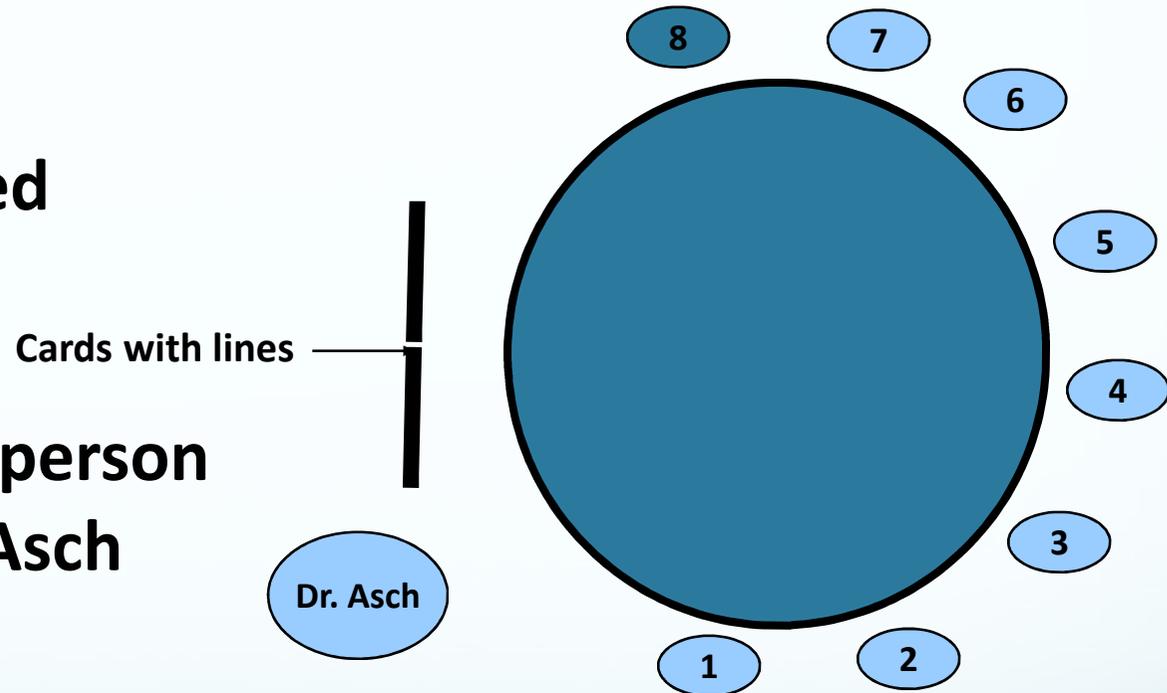
“You want a paycheck?”

Group Conformity

- Dr. Asch was interested in whether a person would **conform to the beliefs of the group / team.**
- Conformity = Adopting attitudes or behaviors of others because of group/team pressure to do so.
 - **The pressure can be real or imagined.**
- Main reason for conformity—to be **accepted** as part of the group/team.

Asch Study—Design

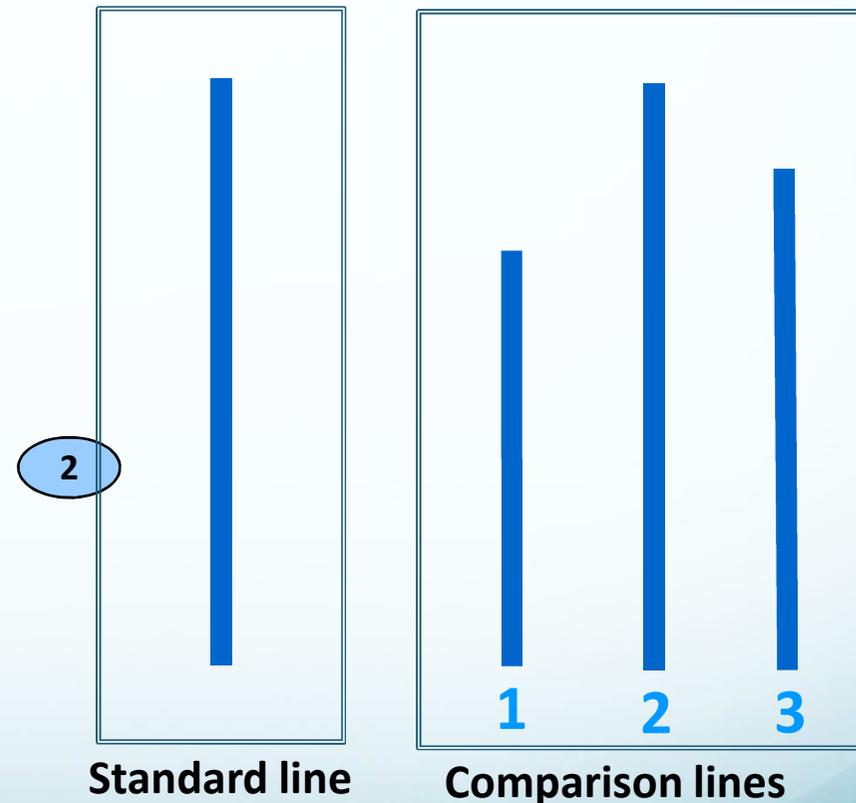
- Eight people seated around a table
- All but the eighth person worked with Dr. Asch



- ①-⑦ Working with Dr. Asch
- ⑧ Not working with Dr. Asch—the subject of the experiment

Asch Study—Task

- The task was to pick the line that matched the “standard line.”
- First person told to pick the wrong line 12 of 18 times (on the first two trials, he picked the correct answer, but on trial 3 he gave the wrong answer). Then people through repeated the answer given by .
- Question: What would the last person (subject) say?



Asch Study—Results

- Asch found that
 - **75% of subjects conformed** to give at least one wrong choice.
 - 25% always gave the correct answer.
- **Group/team pressure to conform also called “peer pressure.”**

Why Subjects Did Conform

- All subjects were interviewed after the study.
- The 75% of the subjects who did conform on at least one trial:
 - **Distortion of perception**—conformed on almost every trial and **believed that the others' incorrect answers were actually correct** (small number of non conformers).
 - **Distortion of judgment**—got to the point where they **believed that they must be wrong and the others must be right, so gave the same answer. They lacked confidence and were very doubtful** (majority of conformers).
 - **Distortion of action**—knew what the correct answer was, **but conformed with the majority group simply because they did not want to seem inferior.**

Why Subjects Did Not Conform

- The 25% of the subjects who did not conform on any trial:
 - **Confidence**—experienced conflict but stayed with the correct answer.
 - **Withdrawn**—no conflict felt, so stayed with the correct answer.
 - **Doubt**—experienced great doubt and tension but stayed with the correct answer.

Examples of Taking Responsibility

- Admitting and fixing errors
- **Saying something about a situation when you know there is something wrong**
- Addressing non-critical problems
 - Picking up debris from the ramp
 - Finding the safety wire you dropped
- **Maintaining professional responsibility**
- **Maintaining technical currency.**

What is the Message from the Asch Study?

Mechanic/engineer's friends and co-workers have a large influence over mechanic/engineer's attitudes and behavior.

“PEER PRESSURE IS VERY STRONG!”

So, Why Do We See “Unprofessional” Behavior?

Supervisor displays negative punishment for carrying out the professional behavior.

“What do you mean you don’t feel qualified to do the job? You’re trained. You’re certified. Go out there and do that work. You want to keep your job, don’t you?”

“Hey, you don’t have time to go get the maintenance manual. You want to get that airplane out on time, don’t you? Time is my money!”

Then How Do We Move Back to Professional Individual Behaviors?

- **What you should do...**

It's all about good LEADERSHIP and strong personal ethics!!!

teamwork and pressure lead you astray to develop “groupness”)

- ✓ 5. Recognize complacency – when “Normalization of Deviation” becomes a BAD habit (Pressure / Stress / fatigue)

Summary

• Always ask yourself when considering not to follow a proper procedures

“What might happen if.....?”

Then ask yourself what a jury might decide if something went wrong.

My Closing Statement to You the Professional AMT

Professionalism is –

DOING WHAT IS RIGHT...

CORRECTLY ...

***WHEN NO ONE IS WATCHING
YOU!!!***

Thank You