

Best Training Practices Using the “Dirty Dozen”

Lack of Communication

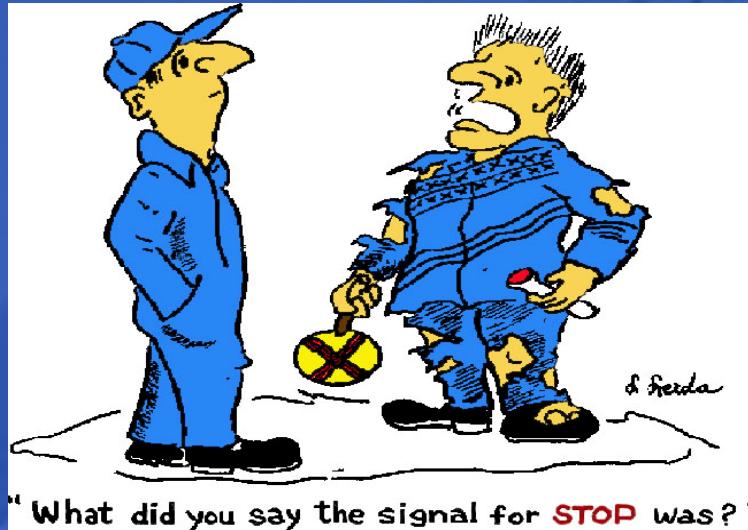
Complacency

Lack of Knowledge

Distraction

Lack of Teamwork

Fatigue



Lack of Resources

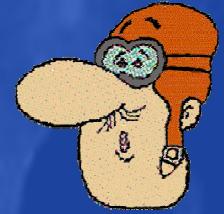
Pressure

Lack of Assertiveness

Stress

Lack of Awareness

Norms



Presented for

World Aviation Training Conference

Orlando, Florida

April 29, 2009

Presented by

Renée Dupont



First a Few Givens

- Over 80% of aviation accidents are due to Human Error
- Humans do not make these errors on purpose
- Training the person on how to avoid the error they don't intend to make will lower the number of errors
- The “Dirty Dozen” are the contributing factors or preconditions to that Human Error

Train the person to recognize and understand the “Dirty Dozen” and there will be less errors

The Dirty Dozen

1. Lack of Communication 7. Lack of Resources

Lets look at the contributing factors

that can cause any one of us to make

4. the error we don't intend to make

5. Lack of Teamwork 11. Lack of Awareness

6. Fatigue 12. Norms

*G. Dupont
1993*

WB 2



Safety Nets

- A Safety Net is a Regulation, Policy, Practice or Procedure which, if in place might break a link or prevent a link in the chain of events
- The regulatory body controls the regulations
- The company controls the policies
- The individual controls the practice or procedures

1

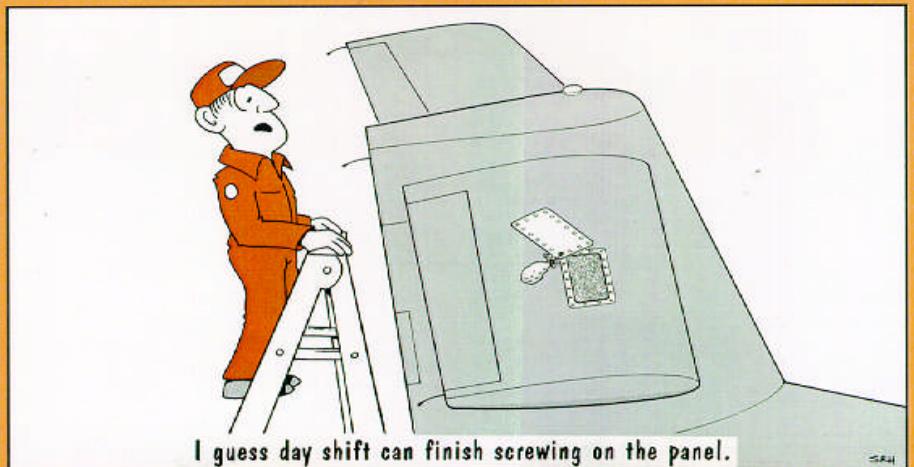
Lack of Communication

- The failure to exchange information
- Seek first to understand, then be understood
(Learn to listen)
- The “Mental Pictures” must match

The Dirty Dozen

“The Dirty Dozen”

- | | |
|--------------------------|--------------------------|
| 1. Lack of Communication | 7. Lack of Resources |
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Safety Nets

- ─ Use logbooks, worksheets etc. to communicate and remove Doubt.
- ─ Discuss work to be done or what has been completed.
- ─ Never assume anything.

In the interest of Aviation Safety, the following have generously provided funding to make these posters possible

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WB 3



The
failure to communicate
correctly
can have serious, painful
consequences

Not in WB



Ouch!!!

What we had there was

a

Failure To Communicate

For Communication To Occur

The Mental Pictures MUST Match

Not in WB

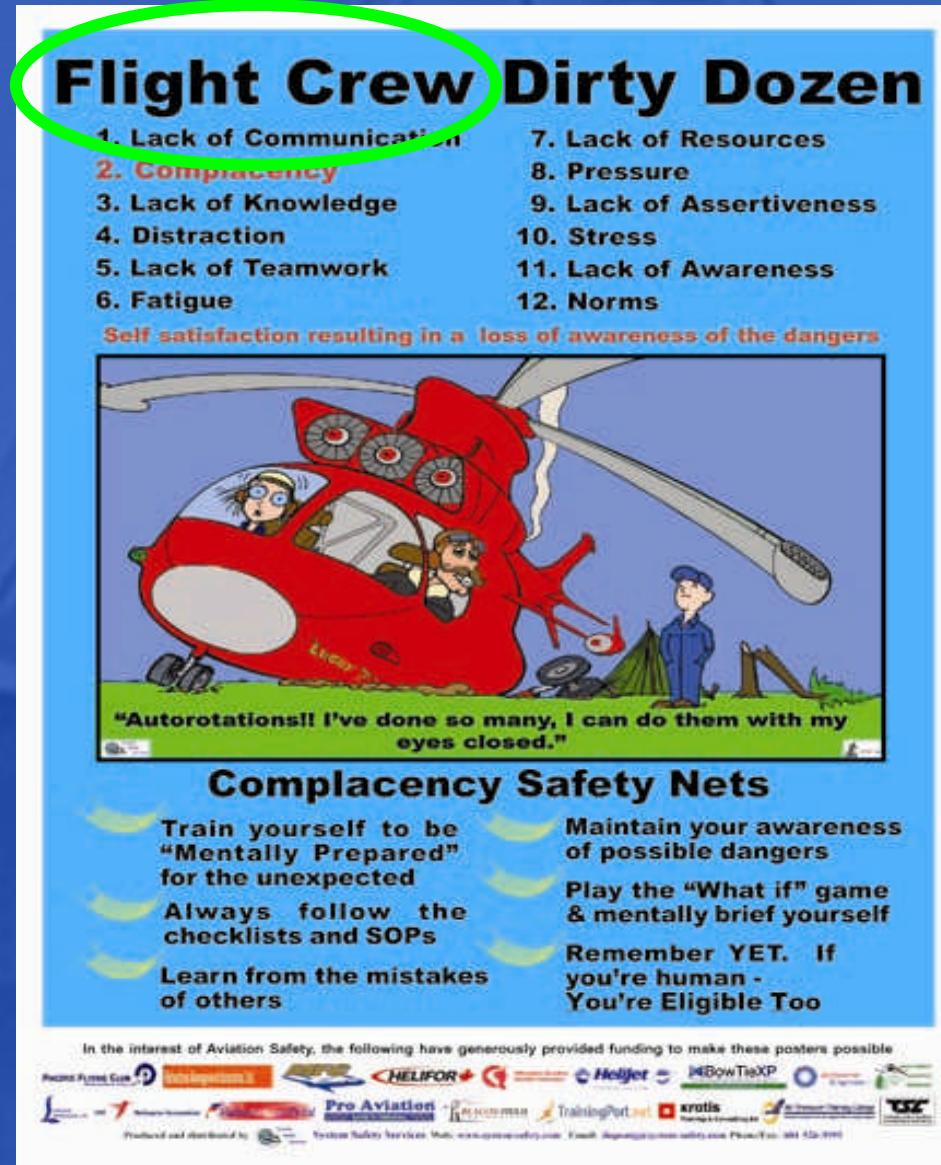


The Dirty Dozen

2

Complacency

- Self satisfaction resulting in a loss of awareness of the dangers
- The greater the competency of the person, the more common this contributing factor is
- The person will begin to see and hear what he/she expects to see and hear



WB 3

The Dirty Dozen

3

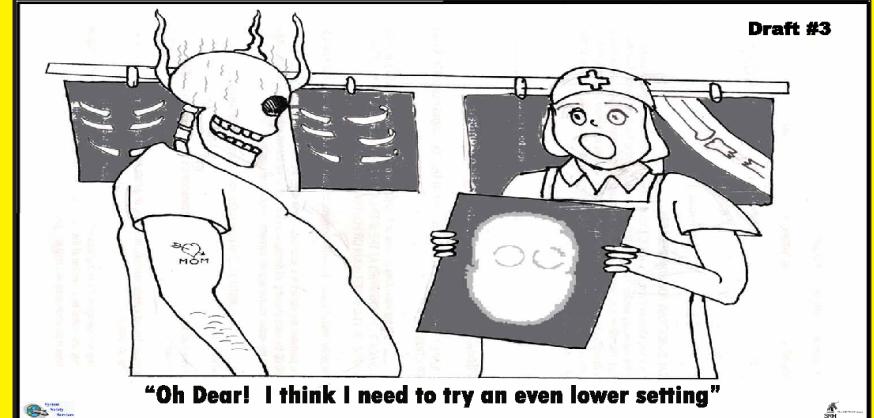
Lack of Knowledge

- A lack of understanding or experience for the task at hand
- Can occur at any stage of a work career with constant changes
- Training is always a Safety net and a good investment

Medical Dirty Dozen

- | | |
|-----------------------------|--------------------------|
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A lack of understanding or experience for the task at hand



Lack of Knowledge Safety Nets

- Go over the procedure before starting
- When in doubt - Find out
- Take any training opportunities available
- A professional becomes one by continuous study

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DRAFT #2

WB 4



Lack of Knowledge

The Airline said
that those were
Barney's last words



Don't let this be YOU

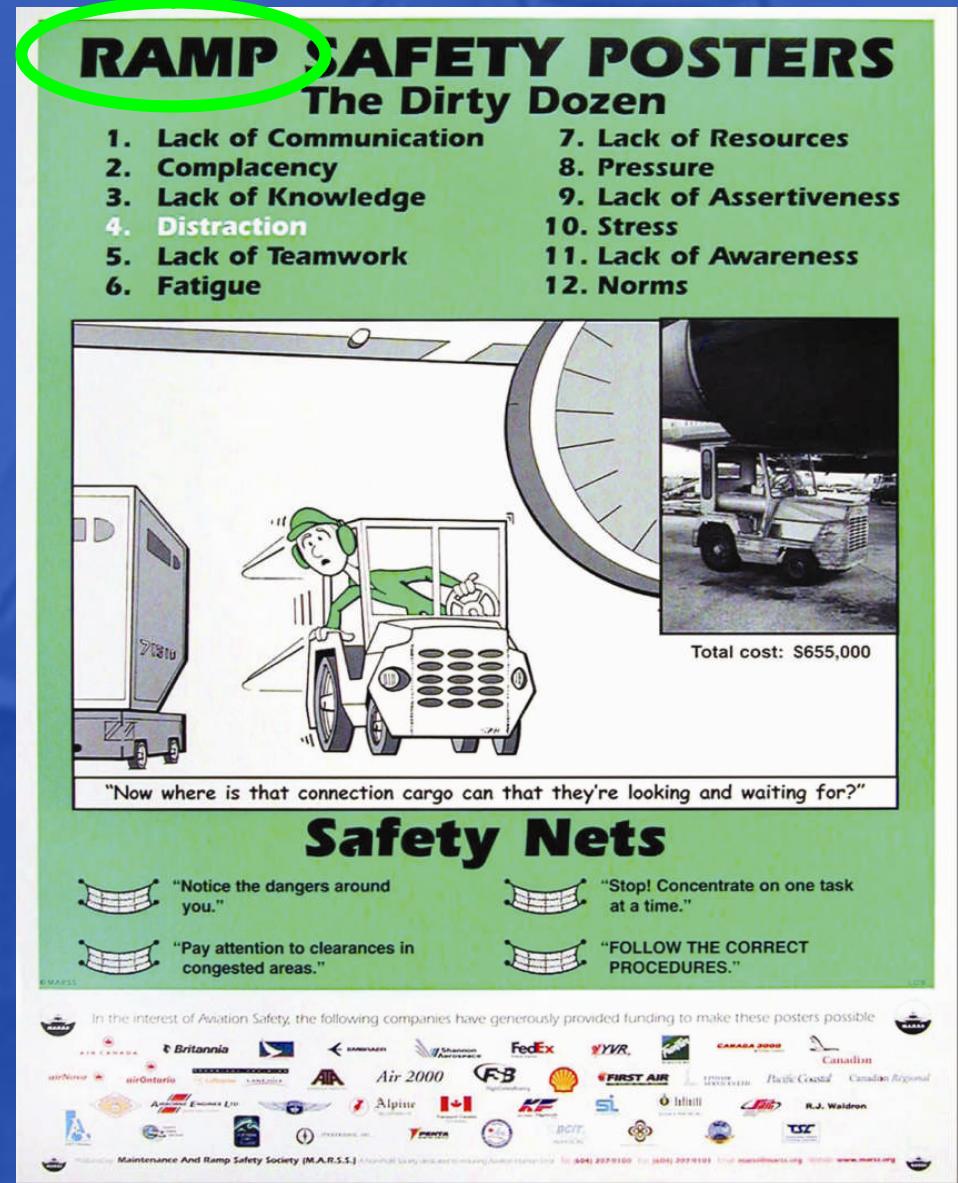
Not in WB

The Dirty Dozen

4

Distraction

- Anything that takes your mind off the job at hand
- Responsible for 15% of all human error
- Number one cause of forgetting
- Our mind can work faster than our hands



WB 4



5

Lack of Teamwork

- A failure to seek and consider the input of others
- Becomes more common as a company grows
- Calls for trust, a common goal and communication
- Is a must for any SMS to succeed

The Dirty Dozen

Maintenance Dirty Dozen

- | | |
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A failure to seek and consider the input of others

Among the many contributing factors was the lack of teamwork between the persons doing the work and the person signing for it who did not know that a tire was very low on pressure



Lack of Teamwork Safety Nets

Calls for Common Goal, Communication & Trust

Where there is trust there will be respect

Recognize a common goal and all work towards it

Ensure that everyone has the same "Mental Picture" by discussing the job to be done

TEAM -Together Everyone Accomplishes More

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Final Draft #5

WB 5



6

Fatigue

- A loss of alertness and a feeling of tiredness that eventually ends in sleep
- The #1 contributor to error
- We (*the industry*) tend to underestimate the problem
- We (*the individual*) tend to overestimate our ability to deal with it

The Dirty Dozen

Flight Crew Dirty Dozen

- | | |
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A loss of alertness and a feeling of tiredness that eventually ends in sleep



Carefully scanning the overhead panel while the co-pilot checks the windshield heat, the Captain is ever alert to any danger. At 0400 one can't be too careful!

Fatigue Safety Nets

- Develop a routine for enough sleep & exercise
- Know the symptoms & look for them in yourself & others
- Use coffee or tea 30 minutes before needed

- Conduct some type of check every 15 minutes or less
- Schedule a NASA Nap when not in control
- Drink lots of water

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WB 6

Fatigue?



"Only 12 more years and you'll be retiring!"

Not in WB



Fatigue?



"Sorry, but our new Mark Four "Fit For Work Indicator" indicates that you're not thinking **SAFETY** today."

Not in WB

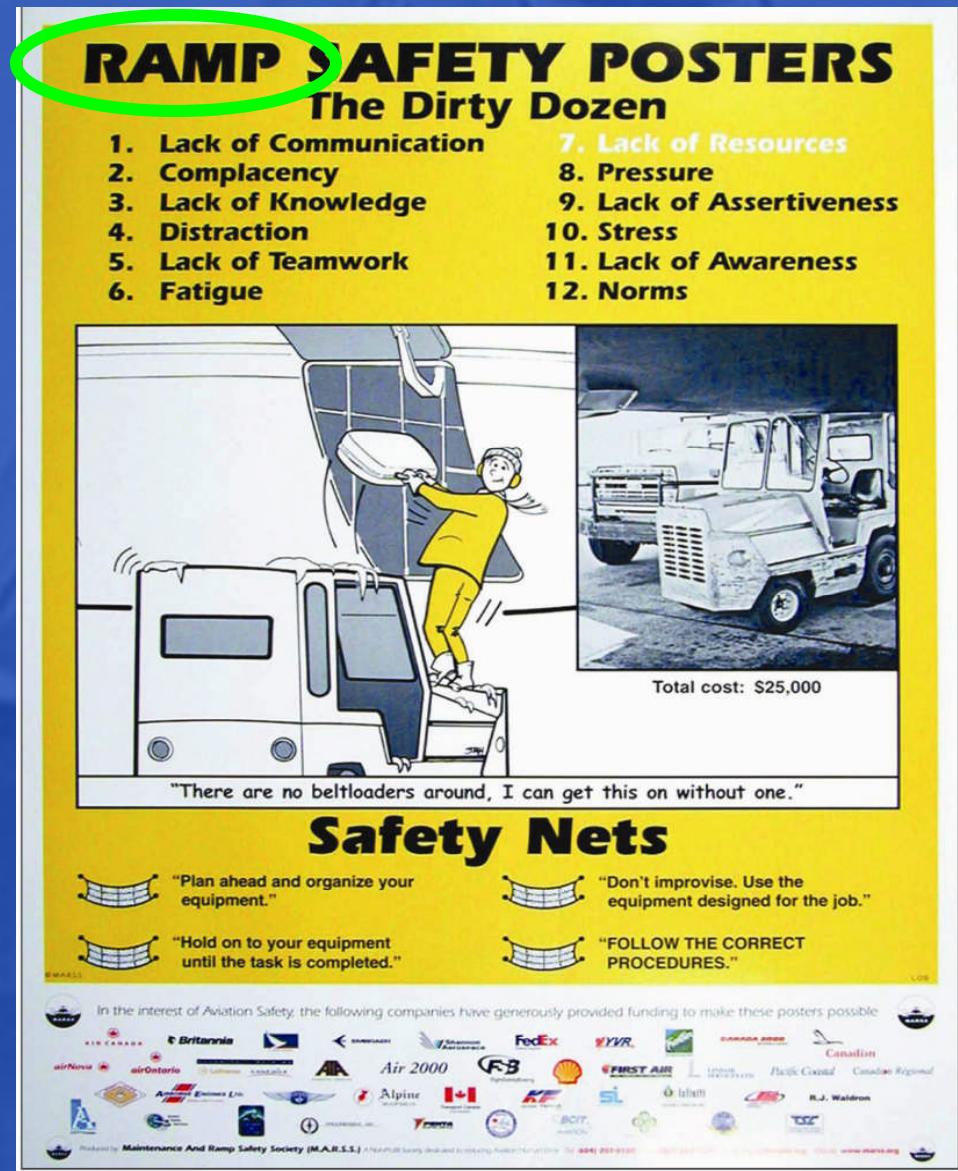


The Dirty Dozen

7

Lack of Resources

- A lack of material or support to Safely carry out the task at hand
 - It is not uncommon, when times get tough for persons to be expected to do more with less
 - One has to learn when to say NO if it affects Safety



WB 6

The Dirty Dozen

8

Pressure

- The urgency of matters requiring immediate attention
- Most pressure is self pressure but the person fails to realize it
- Training must provide a model to help them recognize the true source of pressure

Flight Crew Dirty Dozen

- | | |
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The urgency of matters requiring immediate attention



Pressure Safety Nets

- Know where the pressure is actually coming from & that its not self induced
- Clearly state your case until there is a Safe resolution
- Saying NO for Safety is always an option

Stop & look at the situation rationally before acting

Keep in mind who will be the "fall guy" if there is an accident

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Pacific Flying Club, Air Transport International, HELIFOR, Helijet, BowTieXP, System Safety Services, Pro Aviation, RACON HU, TrainingPort.net, Krobitz, Project Management, TAT

WB 6

**Now
THIS
is what real
Pressure
looks like**

Not in WB



9

Lack of Assertiveness

- Failing to act in a bold and confident manner on Safety concerns
- Has caused many accidents where one person had knowledge but failed to share it
- Can be difficult to achieve in some cultures

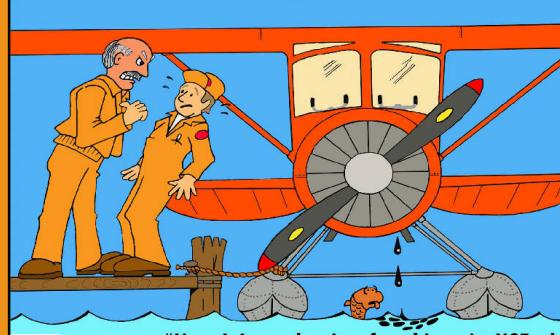
The Dirty Dozen

Maintenance Dirty Dozen

- | | |
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Failing to act in a bold and confident manner on Safety concerns

The left rudder cable, not replaced at the request of the aircraft owner, failed on take off



3 Fatal

"Listen! I own the aircraft and I say its NOT a bad leak!"

Lack of Assertiveness Safety Nets

Know the standard and refuse to let circumstances compromise it

Calmly state your firm position on matters of Safety

If it compromises Safety, you must say NO

It's YOUR duty, your decision and your future

Remember - No one will thank you if you are responsible for an accident

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Produced and distributed by

System Safety Services Web: www.system-safety.com Email: dupont@system-safety.com Phone/Tax: 604 526-3993

Distributed by

Maintenance And Ramp Safety Society (MARRS) Web: www.mars.org Email: mars@mars.org Phone/Fax: 604 207-9100

WB 7

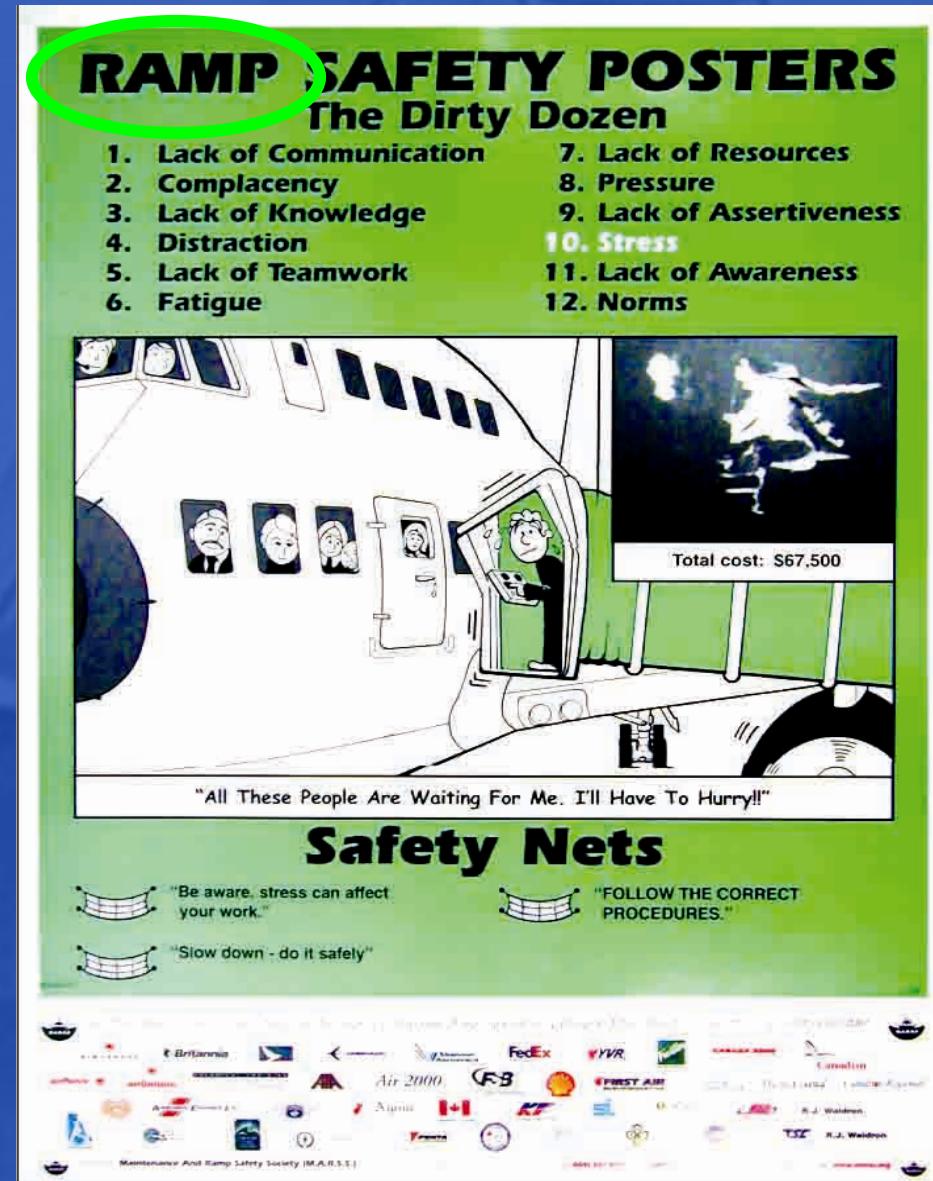


10

Stress

- The subconscious response to the demands placed on a person
- The person often brings the stressor to work with them
- Their mind is never fully on the job

The Dirty Dozen



WB 7

The Dirty Dozen

11

Lack of Awareness

- A lack of alertness and vigilance in observing
- Usually occurs to the very experienced
- Believe they are doing the right thing but have not thought it through
- Needs to ask more “What ifs”

MRO Dirty Dozen

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A lack of alertness and vigilance in observing



"This worked great on my leaking toilet line so it should be ok to use teflon tape on this hydraulic fitting to be sure it doesn't leak either"

Lack of Awareness Safety Nets

- Just because the manual does not specify that you can't do something does NOT mean that you can
- Ask yourself: What could go wrong with what I'm doing?
- Ask others if they see any problem with the work
- System knowledge promotes awareness

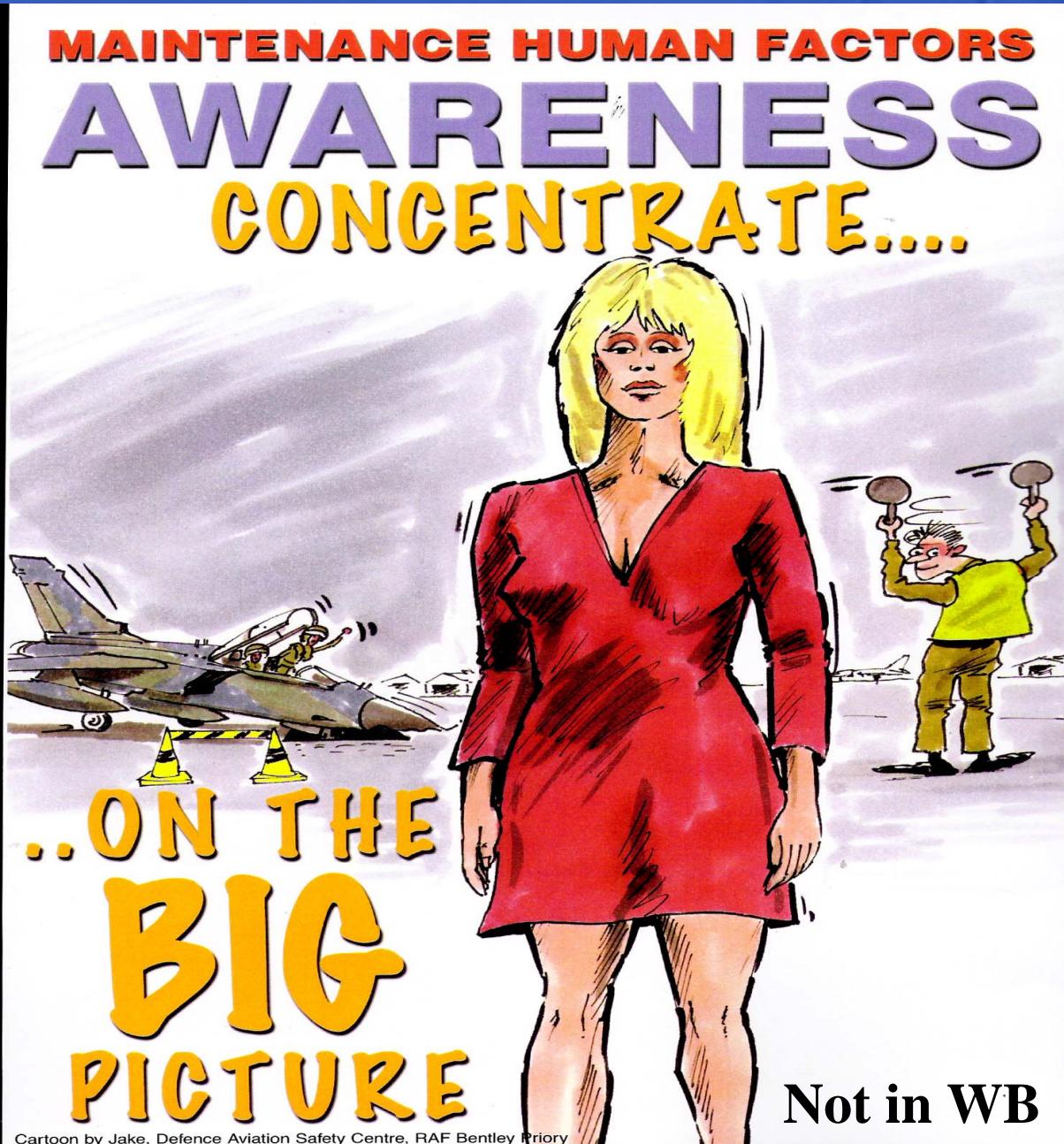
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Draft #4

WB 8

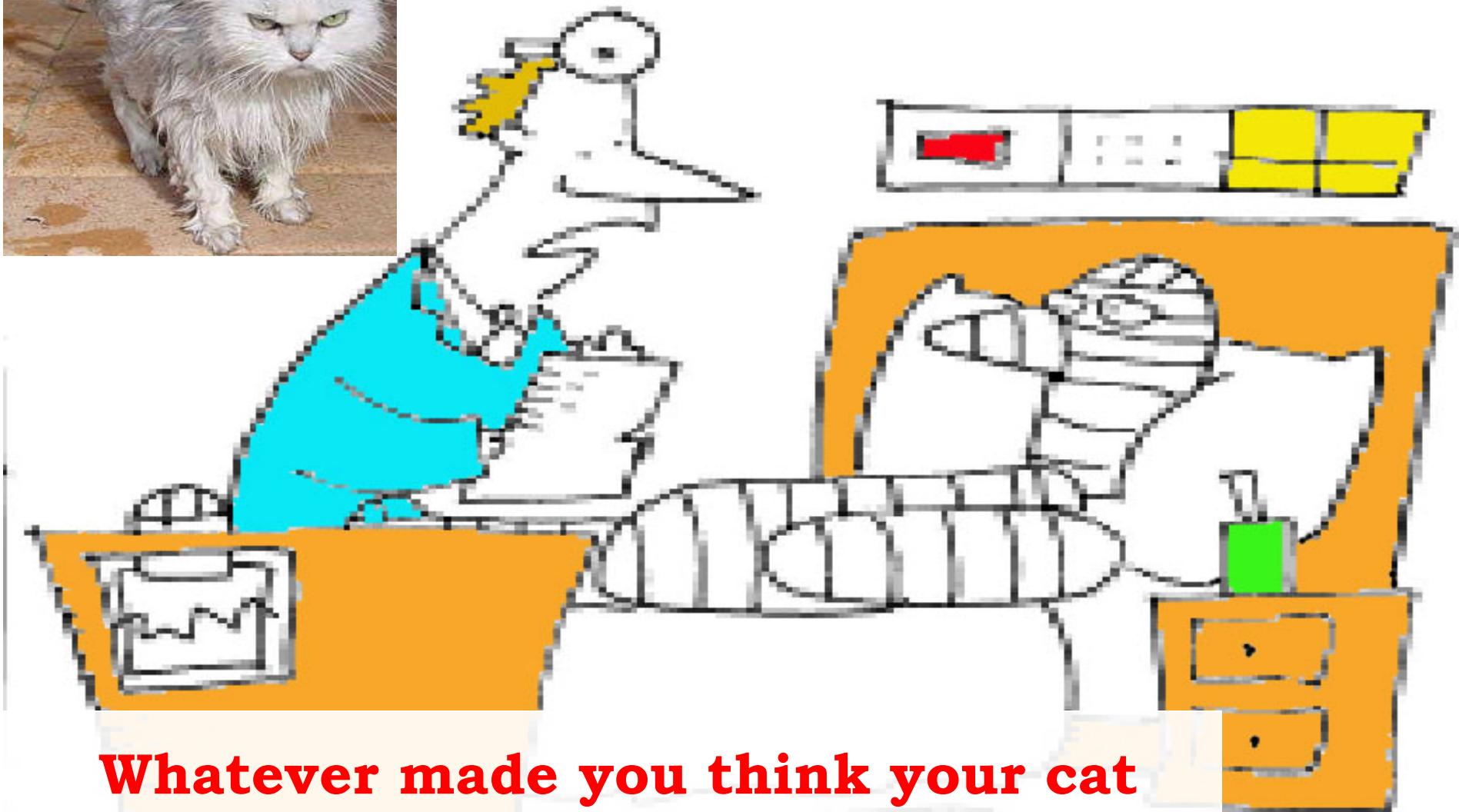


This is NOT Lack of Awareness





Lack of Awareness ???



**Whatever made you think your cat
would enjoy taking a shower with you?"**

Not in WB

12

Norms

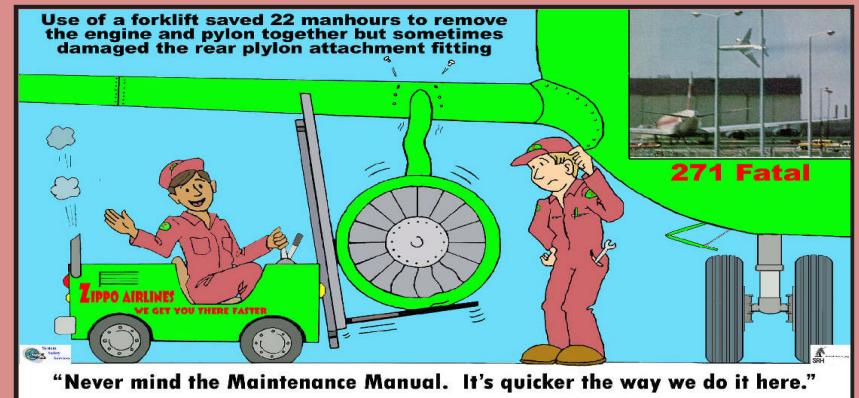
- Unwritten rules dictated and followed by the majority of the group
- Peer pressure and the desire to “fit in” are major influencers
- Not all norms are negative

The Dirty Dozen

Maintenance Dirty Dozen

- 1. Lack of Communication
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- 7. Lack of Resources
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- 12. Norms

Unwritten rules that are dictated and followed by the majority of a group



Norms Safety Nets

- Identify the negative norms (they detract from an established Safety Standard)
- Work to eliminate negative norms
- Refuse to participate in negative norms

- Always follow manufacturers procedures or have the procedures changed
- A professional doesn't take shortcuts
- Accentuate the positive norms

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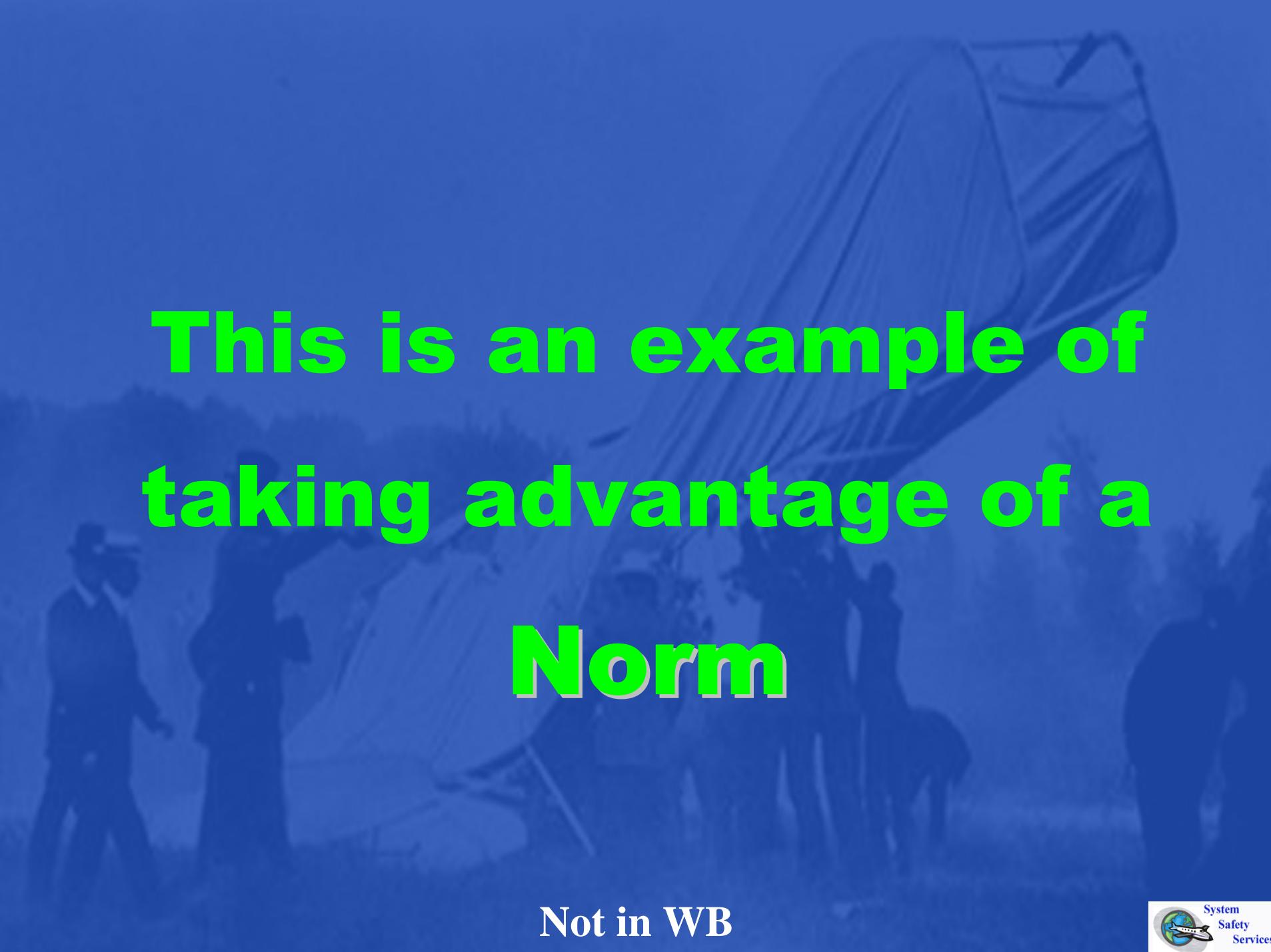


Draft #3 (2009-02-13)

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WB 8





**This is an example of
taking advantage of a
Norm**

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Lack of Communication



Complacency

Lack of Knowledge

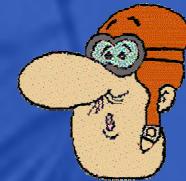
Distraction

Lack of Teamwork

Fatigue



Lack of Resources



Pressure

Lack of Assertiveness

Stress

Lack of Awareness

Norms

The Dirty Dozen are simple and easy to understand

The Dirty Dozen are practical

The Dirty Dozen can apply to any occupation or even our daily lives

The Dirty Dozen, if trained correctly, will reduce human error

WB 9

Thank you for the opportunity
to ask your questions

Any Questions?

If we can be of further assistance to you

Contact us at

System Safety Services

Email: dupontr@system-safety.com

Website: www.system-safety.com



First Fatal Airplane Crash

September 17, 1908

Lt. Thomas Selfridge killed

1st Fatality in Almost 5 Years

