

WEBVTT

1

00:00:00.975 --> 00:00:04.125

Which is participants are seated.

2

00:00:11.905 --> 00:00:16.835

Okay, great. Thank you. So we

3

00:00:16.835 --> 00:00:21.155

went through the first two steps in the

4

00:00:21.705 --> 00:00:22.835

operational concept.

5

00:00:23.695 --> 00:00:24.795

We have a checklist title.

6

00:00:24.975 --> 00:00:26.635

We have defined the beginning and the end.

7

00:00:26.855 --> 00:00:28.835

And I got some great comments back.

8

00:00:28.935 --> 00:00:32.675

And I think we need to modify the, uh,

9

00:00:33.715 --> 00:00:37.395

scenario a little bit where we say, stand by

10

00:00:43.165 --> 00:00:45.955

where we say in your flight test operation, it's common

11

00:00:46.055 --> 00:00:49.075

to land taxi clear of the runway and depart again.

12

00:00:49.535 --> 00:00:52.195

Of course, we may not taxi clear of the runway and,

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00:00:52.195 --> 00:00:53.755

and we still have the requirement to,

14

00:00:53.935 --> 00:00:55.555
to reconfigure the airplane,

15

00:00:56.255 --> 00:00:57.715
But these guys whined, right?

16

00:00:57.775 --> 00:00:58.835
Did they stop their checklist?

17

00:01:03.905 --> 00:01:08.435
They, um, uh, we may do a stop and go.

18

00:01:09.215 --> 00:01:12.115
We may back taxi or we may do a 180

19

00:01:12.135 --> 00:01:13.355
and depart opposite direction.

20

00:01:13.415 --> 00:01:16.715
So I think we strike the words taxi clear of the runway.

21

00:01:16.975 --> 00:01:21.155
We really have the more generic complete, uh,

22

00:01:21.165 --> 00:01:22.315
range of possibilities.

23

00:01:23.175 --> 00:01:24.675
So it's common to land

24

00:01:25.215 --> 00:01:27.515
and depart again without shutting down engines.

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00:01:28.585 --> 00:01:30.555
Okay, thanks for those inputs on that.

26

00:01:32.735 --> 00:01:37.235
So the next items to define, uh,

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00:01:37.405 --> 00:01:39.275

begin with, is it well practiced.

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00:01:40.575 --> 00:01:44.075

And here we're just asking the question, is it frequent

29

00:01:44.295 --> 00:01:46.795

or, uh, uh, frequently accomplished or infrequent?

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00:01:47.335 --> 00:01:51.675

Do your participants, uh, does your team, whoever it is,

31

00:01:52.905 --> 00:01:55.355

typically do the procedure from memory?

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00:01:56.215 --> 00:02:00.275

And one thing to take into account is that perhaps most

33

00:02:00.275 --> 00:02:01.355

of the time they do it from memory,

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00:02:01.455 --> 00:02:02.675

but whatever the activity is,

35

00:02:02.675 --> 00:02:04.595

it may not be two pilots in a flight deck,

36

00:02:04.895 --> 00:02:06.555

may be some other activity on the ground.

37

00:02:07.135 --> 00:02:09.035

Uh, there may be occasional team members

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00:02:09.055 --> 00:02:10.555

who aren't very familiar with it.

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00:02:10.615 --> 00:02:14.635

So think not only about who does this activity day in

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00:02:14.635 --> 00:02:17.755

and day out, but guest members, other people

41

00:02:17.775 --> 00:02:20.955

who may come in occasionally, are they going to have it

42

00:02:21.255 --> 00:02:22.795

as a well-practiced activity?

43

00:02:23.785 --> 00:02:27.475

Okay, the next question is the one we looked at already,

44

00:02:27.615 --> 00:02:28.915

is it normal or non normal?

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00:02:30.015 --> 00:02:34.035

Is it one of those procedures that we do, uh, typically

46

00:02:34.565 --> 00:02:37.515

daily, uh, day in and day out?

47

00:02:37.615 --> 00:02:40.355

Or is it something that's a contingency that's done rarely?

48

00:02:42.455 --> 00:02:45.915

And then are we going to use a read and do flow

49

00:02:46.775 --> 00:02:49.395

or a due then confirm flow.

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00:02:51.295 --> 00:02:54.995

And as a reminder, these are the typical relationships

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00:02:54.995 --> 00:02:57.155

between the normal and non-normal checklists

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00:02:57.385 --> 00:02:59.965

that do then confirm and read and do.

53

00:03:00.785 --> 00:03:03.485

Um, and this is reproduced in your handout,

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00:03:03.635 --> 00:03:05.045

this little diagram right here.

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00:03:06.665 --> 00:03:09.645

So these are the three questions that act

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00:03:09.945 --> 00:03:11.765

to work next in your groups.

57

00:03:12.745 --> 00:03:14.125

Any questions on these

58

00:03:14.305 --> 00:03:16.885

before we start with another group activity?

59

00:03:19.995 --> 00:03:21.845

Okay, these ones are pretty straightforward,

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00:03:21.985 --> 00:03:26.165

so I think in five minutes we should be able to answer these

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00:03:26.305 --> 00:03:27.845

and one of them at least is

62

00:03:28.085 --> 00:03:29.485

explicitly answered in the handout.

63

00:03:29.585 --> 00:03:31.365

So that was a gimme.

64

00:03:31.865 --> 00:03:36.565

Um, why don't you take five minutes and get into your groups

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00:03:36.905 --> 00:03:39.685

and develop the answers to these three items

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00:07:22.645 --> 00:07:23.345

one more minute.

67

00:08:49.615 --> 00:08:52.545

Okay. Let's see what you came up with here.

68

00:09:15.295 --> 00:09:18.545

Okay, so let's get some feedback on these three items.

69

00:09:20.925 --> 00:09:25.665

Was there anyone that said this was not a well

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00:09:25.665 --> 00:09:27.145

practiced procedure?

71

00:09:29.655 --> 00:09:31.875

You said it was not. Okay. Explain for us.

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00:09:32.385 --> 00:09:36.395

Well, we said, uh, the handout says that the crew members,

73

00:09:36.415 --> 00:09:38.115

the company crew members are well practiced,

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00:09:38.415 --> 00:09:40.595

but we also have customers who may

75

00:09:40.595 --> 00:09:41.595

or may not be familiar with

76

00:09:41.595 --> 00:09:42.595

This. Uh, okay,

77

00:09:42.595 --> 00:09:44.955

you want to comment on that? Well, true.

78

00:09:45.175 --> 00:09:50.035

So that's there one crew member in the flight crew may not

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00:09:50.035 --> 00:09:51.595

be well practiced in this procedure.

80

00:09:57.255 --> 00:10:01.955

The operational concept couldn't, can get down

81

00:10:01.955 --> 00:10:05.795

to some detail in this case as to who's going to,

82

00:10:06.255 --> 00:10:08.115

if there's one company pilot

83

00:10:08.255 --> 00:10:11.195

and one, uh, customer pilot

84

00:10:11.535 --> 00:10:13.835

who would be conducting the checklist.

85

00:10:14.735 --> 00:10:19.035

So yeah, you'd get into a detailed description of what the,

86

00:10:19.035 --> 00:10:20.915

uh, operational concept would, might be.

87

00:10:22.145 --> 00:10:24.195

Okay, good. Um,

88

00:10:25.935 --> 00:10:28.275

did anybody say this was a non-normal?

89

00:10:32.435 --> 00:10:33.435

Good?

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00:10:40.475 --> 00:10:41.765

It's an alternate normal.

91

00:10:44.025 --> 00:10:46.685

That's a's a good category. We do have.

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00:10:48.955 --> 00:10:52.605

Okay. The big question I heard, I heard several of you

93

00:10:53.595 --> 00:10:57.445

wrestling with, is this a do and confirm or a read and do,

94

00:10:58.265 --> 00:11:01.485

and I'm gonna ask Dan again to go into a little detail

95

00:11:01.485 --> 00:11:04.925

or explanation about the difference between the two.

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00:11:05.325 --> 00:11:06.725

'cause that is a distinction.

97

00:11:08.265 --> 00:11:11.325

So yeah, the, as far as what the terms are referring

98

00:11:11.325 --> 00:11:15.485

to the do then confirm is to go

99

00:11:15.485 --> 00:11:17.685

through your procedure from your training.

100

00:11:18.585 --> 00:11:21.885

Uh, in this case it might be the company pilot

101

00:11:22.745 --> 00:11:26.445

is taking the actions to reconfigure the airplane set up,

102

00:11:26.625 --> 00:11:28.765

flight management, auto flight, et cetera.

103

00:11:29.435 --> 00:11:31.605

Take the actions that are listed in the, uh,

104

00:11:32.355 --> 00:11:33.365

procedure there.

105

00:11:34.065 --> 00:11:37.445

And then before moving into the next critical phase,

106

00:11:37.795 --> 00:11:40.805

take off, uh, to run a checklist

107

00:11:41.705 --> 00:11:43.445

and accomplish the critical items.

108

00:11:43.635 --> 00:11:47.045

That would be do then confirm, read

109

00:11:47.045 --> 00:11:50.645

and do would be to work from the checklist

110

00:11:51.145 --> 00:11:54.685

and take each action in real time from the checklist.

111

00:11:55.955 --> 00:12:00.105

Does that clarify any questions on

112

00:12:00.105 --> 00:12:01.905

that? Yes. We

113

00:12:01.905 --> 00:12:03.945

Had a question in our group about, uh, that concept.

114

00:12:04.685 --> 00:12:07.785

Is there ever a time when you would combine both, uh, read

115

00:12:07.785 --> 00:12:09.905

and do and then do confirm the same checklist?

116

00:12:11.465 --> 00:12:14.705

I think a checklist could be designed

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00:12:14.735 --> 00:12:16.225

that has elements of each.

118

00:12:17.125 --> 00:12:21.995

For example, you may accomplish a procedure from memory, go

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00:12:21.995 --> 00:12:25.075

through a confirmed checklist.

120

00:12:26.055 --> 00:12:27.475

But then, and,

121

00:12:27.475 --> 00:12:30.315

and I gave an example earlier of a detailed briefing,

122

00:12:30.975 --> 00:12:33.475

you may have, let's say a six point briefing

123

00:12:33.705 --> 00:12:37.275

that you're always going to read from the checklist in order

124

00:12:37.335 --> 00:12:40.115

to, uh, be sure you accomplish the briefing.

125

00:12:40.135 --> 00:12:41.755

So then the training,

126

00:12:42.215 --> 00:12:45.555

the operational concept would be laid out from the beginning

127

00:12:45.735 --> 00:12:49.995

as a flow followed by a confirmed checklist

128

00:12:50.825 --> 00:12:53.035

with a, a short read

129

00:12:53.035 --> 00:12:56.435

and do section if that was appropriate to the condition

130

00:12:56.435 --> 00:12:58.755

and you all decided that that was the safest

131

00:12:58.755 --> 00:13:00.715

and most appropriate flow that was gonna work

132

00:13:00.715 --> 00:13:03.795

for all the users, that essentially would be a combination.

133

00:13:04.535 --> 00:13:05.675

Um, generally though,

134

00:13:07.055 --> 00:13:10.955

one checklist will be designed either for

135

00:13:11.785 --> 00:13:14.435

read and do or do then confirm.

136

00:13:14.635 --> 00:13:18.115

I mean, if a full checklist would typically not be

137

00:13:18.115 --> 00:13:21.195

appropriate for those two different types of flows,

138

00:13:21.465 --> 00:13:26.275

because the do then confirm flow is going to only

139

00:13:27.205 --> 00:13:28.675

check the critical items

140

00:13:29.135 --> 00:13:31.075

and some of the noncritical items would not

141

00:13:31.075 --> 00:13:32.235

be included on that checklist.

142

00:13:34.765 --> 00:13:37.425

Now, some of you were also discussing your organizational

143

00:13:37.475 --> 00:13:39.745

standpoint and that your organization

144

00:13:40.285 --> 00:13:41.945

has some determinations as far

145

00:13:41.945 --> 00:13:44.945

as which practices which activities are read and do.

146

00:13:45.565 --> 00:13:48.465

And so you have to sort of merge that into your thinking

147

00:13:49.325 --> 00:13:50.425

so that all comes.

148

00:13:50.965 --> 00:13:54.025

So how many, how many of you had do then confirm?

149

00:13:56.905 --> 00:13:58.355

Okay, how many had read

150

00:13:58.355 --> 00:14:02.385

and do Okay, how many just weren't sure what you were doing?

151

00:14:04.535 --> 00:14:07.145

Okay, about a third, a third and a third.

152

00:14:08.525 --> 00:14:09.985

Oh, there was a question over here, Dan.

153

00:14:10.765 --> 00:14:14.945

Is there a, is there any linkage between the well practice

154

00:14:15.865 --> 00:14:18.505

decision and the type of checklist decision?

155

00:14:18.605 --> 00:14:22.465

And for example, if it's well practice, does that mean it's,

156

00:14:22.765 --> 00:14:23.985

uh, do and confirm?

157

00:14:24.175 --> 00:14:26.705

Yeah, that's, that is the strongest linkage right there.

158

00:14:26.965 --> 00:14:29.505

If it's, if all your team members

159

00:14:30.285 --> 00:14:32.065

are well practiced in the procedure,

160

00:14:32.845 --> 00:14:34.425

that's when it's most efficient

161

00:14:35.085 --> 00:14:37.105

to have a due then confirm checklist.

162

00:14:37.365 --> 00:14:41.185

And, and you know, our, there are commercial airplane

163

00:14:42.105 --> 00:14:44.305

procedural flows are typically set up that way.

164

00:14:44.325 --> 00:14:46.105

And so there's the best example of that.

165

00:14:46.445 --> 00:14:47.585

We go through our flows

166

00:14:47.585 --> 00:14:49.745

and then we check just a few critical items.

167

00:14:50.875 --> 00:14:53.365

Okay. Can I segue on Bob Question? Yes, please. So

168

00:14:53.505 --> 00:14:55.205

You stay in the scenario, um,

169

00:14:55.435 --> 00:14:57.245

like Bruce know the procedures, but errors

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00:14:57.245 --> 00:14:58.325

and admissions have occurred.

171

00:14:58.675 --> 00:15:01.085

Does that start to point you towards a read and do

172

00:15:01.085 --> 00:15:02.085

Thing? Well, that

173

00:15:02.085 --> 00:15:03.845

actually, it, it was meant

174

00:15:03.985 --> 00:15:06.245

to be just without a checklist at all.

175

00:15:06.265 --> 00:15:08.365

So we're developing a checklist in response

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00:15:08.385 --> 00:15:09.845
to this scenario.

177

00:15:10.545 --> 00:15:12.925
So no, I wouldn't necessarily say it's pointing

178

00:15:12.925 --> 00:15:14.805
to either type just at the fact

179

00:15:14.805 --> 00:15:16.565
that we don't have a checklist at all at this point.

180

00:15:17.715 --> 00:15:19.765
Good question, Jerry. And

181

00:15:19.765 --> 00:15:23.045
Could you have the level detail such that you do it as,

182

00:15:23.345 --> 00:15:27.325
as they do that confirm, but you could also use it,

183

00:15:27.465 --> 00:15:30.845
but the detail is in the checklist where you could also

184

00:15:31.515 --> 00:15:35.605
read it with a non-familiar pilot would read it.

185

00:15:36.145 --> 00:15:38.405
So that's a great question that Jerry's asking.

186

00:15:39.665 --> 00:15:42.445
If you, if you normally would typically do it

187

00:15:42.465 --> 00:15:43.725
as a do then confirm,

188

00:15:44.245 --> 00:15:47.245
couldn't you also provide the full detail

189

00:15:47.785 --> 00:15:49.205

for a non-familiar pilot?

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00:15:50.705 --> 00:15:52.605

And the answer is yes,

191

00:15:52.745 --> 00:15:56.085

but it would not be in the same checklist.

192

00:15:56.345 --> 00:15:58.725

And I'll, I'll address that in more detail later.

193

00:15:59.145 --> 00:16:01.325

But you want a checklist to always be something

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00:16:01.325 --> 00:16:04.165

that the pilot is going to read every step of

195

00:16:05.385 --> 00:16:08.165

not be trained to leave items out.

196

00:16:08.545 --> 00:16:11.125

Uh, because once you start leading I leaving items out,

197

00:16:11.125 --> 00:16:12.605

it's really not a checklist anymore.

198

00:16:12.705 --> 00:16:14.645

And, and it's gonna cause errors.

199

00:16:15.025 --> 00:16:18.485

So you may have a confirmed checklist, uh,

200

00:16:18.545 --> 00:16:20.565

but then have on the other side

201

00:16:20.785 --> 00:16:23.285

or as an alternate reference available

202

00:16:24.025 --> 00:16:27.205

the full procedure if there's an occasional sort of, uh,

203

00:16:27.215 --> 00:16:28.925
unfamiliar, uh, crew member.

204

00:16:30.025 --> 00:16:31.445
Yes. Sorry, that's a good question too

205

00:16:31.445 --> 00:16:33.405
because I was working with a group that wanted

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00:16:33.405 --> 00:16:36.925
to develop a checklist similar to what Dan's talking about,

207

00:16:36.945 --> 00:16:39.325
but for training purposes now.

208

00:16:39.355 --> 00:16:42.365
Okay, so you're crossing what you're trying to do.

209

00:16:43.125 --> 00:16:46.045
'cause a checklist is not meant to be a training document,

210

00:16:46.625 --> 00:16:48.845
it can supplement training, but in

211

00:16:48.845 --> 00:16:51.085
and of itself, it's not meant to be training.

212

00:16:51.865 --> 00:16:55.805
So you can't, you can't have both. There

213

00:16:55.805 --> 00:16:57.205
Was another question in the back there.

214

00:16:58.125 --> 00:16:59.525
I I have follow up

215

00:16:59.525 --> 00:17:00.725
To that Question. Sorry.

216

00:17:01.185 --> 00:17:04.765

In my experience, I can see a read

217

00:17:04.865 --> 00:17:07.925

and do checklist being implemented in two

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00:17:07.925 --> 00:17:10.325

ways, an experience.

219

00:17:10.625 --> 00:17:15.045

And you could, could you not say, Hey, in the briefing

220

00:17:15.465 --> 00:17:17.325

for the flight, if your experience process,

221

00:17:17.825 --> 00:17:19.845

I'm gonna accomplish the A checklist.

222

00:17:19.995 --> 00:17:22.205

Then you read through and I'll confirm it's all done.

223

00:17:22.385 --> 00:17:26.485

You go through for the, the customer pilot, um,

224

00:17:26.785 --> 00:17:30.005

he simply has the read each step that him,

225

00:17:30.025 --> 00:17:33.565

he accomplishes it both in both cases the entire

226

00:17:34.135 --> 00:17:35.325

steps are accomplished.

227

00:17:35.625 --> 00:17:38.885

But to expedite it for the familiar

228

00:17:38.885 --> 00:17:41.565

with he simply he's getting done

229

00:17:41.705 --> 00:17:43.285

and then acknowledging all those things.

230

00:17:43.425 --> 00:17:44.845

Is there a problem with that?

231

00:17:45.705 --> 00:17:47.525

No, I think, I think that makes sense.

232

00:17:47.785 --> 00:17:50.525

Uh, you, you would have

233

00:17:52.065 --> 00:17:55.205

as when you're using it as a do then confirmed checklist,

234

00:17:56.065 --> 00:17:59.045

it would be, it might be experienced as a sort

235

00:17:59.045 --> 00:18:01.085

of a burdensome checklist to the users

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00:18:01.085 --> 00:18:03.845

because it's a longer checklist

237

00:18:03.985 --> 00:18:06.845

and it has noncritical items in it.

238

00:18:07.385 --> 00:18:11.485

But, uh, given that you still could use it that way.

239

00:18:12.515 --> 00:18:16.385

Yeah. Uh, yes. So

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00:18:16.385 --> 00:18:19.825

The one part I have a little problem with was sort of

241

00:18:19.825 --> 00:18:21.745

that attc kind of timing kind of one.

242

00:18:22.245 --> 00:18:23.865

So once you changed the scenario

243

00:18:23.965 --> 00:18:25.185

and you put it that as a stop

244

00:18:25.185 --> 00:18:28.545

and go as a valid use of this checklist, then

245

00:18:28.545 --> 00:18:31.225

to me it makes it really hard to do a read

246

00:18:31.245 --> 00:18:32.985

and do as a stop and go.

247

00:18:32.985 --> 00:18:34.705

Mm-hmm. You know, it's almost like, okay,

248

00:18:35.045 --> 00:18:36.425

you have the unfamiliar pilots.

249

00:18:36.425 --> 00:18:39.065

We're like, okay, we're gonna do the confer, you know,

250

00:18:39.125 --> 00:18:41.585

for the pilot company pilot runs for everything on there

251

00:18:42.135 --> 00:18:44.225

that the timing side made it really tough.

252

00:18:44.285 --> 00:18:46.665

And I, if it's just the, alright, you made

253

00:18:46.665 --> 00:18:50.065

that operational risk management decision that says, Hey,

254

00:18:50.065 --> 00:18:52.545

you're Ken, you're not familiar with this checklist

255

00:18:52.725 --> 00:18:53.745

and we're not gonna stop.

256

00:18:53.745 --> 00:18:55.465

It goes because, you know,

257

00:18:55.855 --> 00:18:56.855

Kind of thing. Yeah. And

258

00:18:56.855 --> 00:18:58.105

you're getting at what, what the,

259

00:18:58.105 --> 00:19:01.105

that was the intent of the scenario was the time pressure

260

00:19:01.125 --> 00:19:03.465

and, and the time pressure in the scenario was written

261

00:19:03.525 --> 00:19:05.025

as it could be a TC pressure.

262

00:19:05.045 --> 00:19:07.825

But the even greater time pressure is you've

263

00:19:07.825 --> 00:19:08.905

gotta stop and go on the runway.

264

00:19:08.925 --> 00:19:10.145

That's probably the worst case.

265

00:19:10.965 --> 00:19:13.225

And, uh, and that does start

266

00:19:13.225 --> 00:19:17.185

to point towards a do then confirm that the company pilot

267

00:19:17.365 --> 00:19:19.825

who is more familiar with the checklist

268

00:19:20.555 --> 00:19:22.505

would be able to do each time.

269

00:19:24.295 --> 00:19:26.425

Okay. We wanna be sure and get through the entire thing.

270

00:19:26.425 --> 00:19:27.505

So I would encourage you if,

271

00:19:27.525 --> 00:19:29.025

if there are additional questions,

272

00:19:29.025 --> 00:19:31.625

please jot them down so you can remember them.

273

00:19:31.645 --> 00:19:34.825

And we, when we get to the end, if we have additional time,

274

00:19:34.825 --> 00:19:36.105

we'll come back and revisit this.

275

00:19:36.105 --> 00:19:38.945

Again, this is probably one of the most difficult areas

276

00:19:39.405 --> 00:19:41.785

and understanding how to apply this,

277

00:19:42.245 --> 00:19:44.785

but some of this I think will be clarified when we go

278

00:19:44.785 --> 00:19:46.705

through some of the remaining steps to do it

279

00:19:47.155 --> 00:19:48.155

Right. And it, and it really

280

00:19:48.155 --> 00:19:49.505

does bring to what Bill was saying,

281

00:19:49.505 --> 00:19:50.905

there isn't necessarily a right answer,

282

00:19:50.925 --> 00:19:52.585

but what we're doing is we're hashing

283

00:19:52.585 --> 00:19:53.585

through the considerations

284
00:19:54.245 --> 00:19:58.185
and we're, even though we're not necessarily all coming

285
00:19:58.185 --> 00:19:59.865
to the exact same conclusion here,

286
00:19:59.865 --> 00:20:01.785
because we're using a slight d different set

287
00:20:01.785 --> 00:20:03.545
of assumptions in our own experience,

288
00:20:04.605 --> 00:20:07.585
we are talking about exactly the right considerations in

289
00:20:07.585 --> 00:20:08.585
making these decisions.

290
00:20:10.695 --> 00:20:13.465
Okay. Go back to the presentation, Claude.

291
00:20:22.585 --> 00:20:25.805
So the next question is the physical form of the checklist.

292
00:20:27.905 --> 00:20:32.045
And this chart here is a sort of a brief back,

293
00:20:32.285 --> 00:20:34.365
a brief, um, treatment

294
00:20:34.365 --> 00:20:36.765
of different options in their pros and cons.

295
00:20:36.865 --> 00:20:38.005
And it's really looking not

296
00:20:38.005 --> 00:20:41.005
so much at necessarily just the flight deck environment,

297
00:20:41.265 --> 00:20:44.125

but a wide range of possible environments

298

00:20:44.125 --> 00:20:45.685

that you might use checklists in.

299

00:20:46.225 --> 00:20:49.005

And so let's start with the idea of putting a checklist

300

00:20:49.105 --> 00:20:51.005

as a poster on the wall and,

301

00:20:51.065 --> 00:20:53.205

and for operating rooms, those,

302

00:20:53.235 --> 00:20:56.085

this has been a pretty good solution for a lot of, uh,

303

00:20:56.305 --> 00:20:57.445

in the medical environment.

304

00:20:57.875 --> 00:21:00.205

Good thing about that is it keeps your hands free.

305

00:21:00.545 --> 00:21:05.205

So if you're a surgeon scrubbed in, uh, that solves

306

00:21:05.205 --> 00:21:06.805

that problem, it allows all team

307

00:21:06.805 --> 00:21:07.885

members to see the checklist.

308

00:21:08.705 --> 00:21:13.285

The cons are that it's one poster or maybe just a few,

309

00:21:13.465 --> 00:21:15.485

but it's better when there's only one process

310

00:21:15.665 --> 00:21:17.125

that's being done in the room.

311

00:21:17.955 --> 00:21:19.365

Only can fit one page

312

00:21:20.105 --> 00:21:23.485

and it doesn't work if the checklist needs to be marked.

313

00:21:24.965 --> 00:21:27.565

A laminated card is what we're most familiar with.

314

00:21:28.265 --> 00:21:30.645

Uh, different checklist cards can be used

315

00:21:30.645 --> 00:21:31.765

for different processes.

316

00:21:32.565 --> 00:21:36.645

A checklist card can be marked with a non-permanent marker,

317

00:21:36.785 --> 00:21:38.405

and then you can erase it and reuse it.

318

00:21:39.185 --> 00:21:41.885

Uh, it's good for one or two page checklist.

319

00:21:43.185 --> 00:21:45.605

And it's also good for a one page checklist

320

00:21:45.715 --> 00:21:47.765

with expanded information on the other side,

321

00:21:47.815 --> 00:21:49.365

which was just brought up a minute ago.

322

00:21:49.665 --> 00:21:53.165

The idea of having a confirmed checklist on one side,

323

00:21:53.185 --> 00:21:55.525

but maybe the full procedure on the other side.

324

00:21:55.905 --> 00:22:00.045

For those occasions, when you have a non-familiar, uh,

325

00:22:00.515 --> 00:22:04.015
team member, a paper checklist

326

00:22:04.795 --> 00:22:08.575
can actually be marked and data can be entered in signatures

327

00:22:08.595 --> 00:22:11.135
and that kind of thing, if that's necessary.

328

00:22:11.755 --> 00:22:15.215
And it can be kept as a record, obviously can't be reused.

329

00:22:16.075 --> 00:22:18.495
Now we get into a flip book with tabs, so

330

00:22:18.495 --> 00:22:20.455
that's like our quick reference handbook

331

00:22:20.635 --> 00:22:24.575
or, uh, flight manual that's good for

332

00:22:25.615 --> 00:22:27.975
multiple checklists such as non-normal checklists.

333

00:22:28.365 --> 00:22:32.335
What you get into there with the book is now the need

334

00:22:32.395 --> 00:22:33.775
and the design of the checklist

335

00:22:34.195 --> 00:22:35.895
to consider access to the checklist.

336

00:22:36.155 --> 00:22:38.695
We have many checklists in one book.

337

00:22:39.195 --> 00:22:42.895
So the indexing system, the tabs, the titles

338

00:22:42.895 --> 00:22:45.895

of the checklist, condition statements so that the,

339

00:22:46.355 --> 00:22:49.095

the users can confirm that they're in the correct checklist.

340

00:22:49.515 --> 00:22:51.655

All the access issues need

341

00:22:51.655 --> 00:22:54.495

to be designed very well when you get into a book full

342

00:22:54.495 --> 00:22:58.095

of checklists and then the tablet computer.

343

00:22:58.235 --> 00:23:00.695

So that gets into the potential for the advantages

344

00:23:00.695 --> 00:23:02.175

of an electronically based checklist,

345

00:23:02.265 --> 00:23:04.895

which we may have some time to talk about at the end

346

00:23:04.895 --> 00:23:09.015

of this presentation that can have electronic check boxes

347

00:23:09.195 --> 00:23:10.455

to keep your place in the checklist.

348

00:23:10.685 --> 00:23:13.815

It's a huge advantage because skipping over line items

349

00:23:14.255 --> 00:23:15.655

accidentally in this advan, uh,

350

00:23:15.955 --> 00:23:19.495

was brought up here about the, the issue of having

351

00:23:19.515 --> 00:23:21.215

to juggle two different checklists

352

00:23:21.215 --> 00:23:23.215

and potentially losing your place in the checklist.

353

00:23:23.955 --> 00:23:26.255

Uh, if you've got electronically based checklists

354

00:23:26.255 --> 00:23:28.935

that are well implemented, they can do place keeping in

355

00:23:29.175 --> 00:23:31.175

multiple checklists and always drive you back in.

356

00:23:32.475 --> 00:23:35.415

Uh, and then the checklist itself can

357

00:23:35.995 --> 00:23:37.415

record completion data.

358

00:23:37.995 --> 00:23:40.255

Uh, it can be tied to a database

359

00:23:40.275 --> 00:23:42.535

and give you information about the use of the checklist.

360

00:23:43.915 --> 00:23:45.405

Now those are higher cost,

361

00:23:45.465 --> 00:23:47.205

and then there's also a reliability issue.

362

00:23:47.505 --> 00:23:48.925

If you're in a critical environment

363

00:23:48.945 --> 00:23:53.325

and you have only one tablet, computer, uh, airplane system,

364

00:23:53.725 --> 00:23:56.845

E, FB, whatever it is, you may have an issue, uh,

365
00:23:56.845 --> 00:23:58.885
with the reliability and availability of the checklist.

366
00:23:59.065 --> 00:24:00.565
So that becomes an issue with those.

367
00:24:01.585 --> 00:24:03.645
So these aren't all the possible solutions.

368
00:24:03.645 --> 00:24:05.405
There are probably others that you could come up with,

369
00:24:05.465 --> 00:24:09.165
but it's a, it's a, uh, an overview

370
00:24:09.305 --> 00:24:11.165
of the different forms checklists can take

371
00:24:11.165 --> 00:24:13.205
and what the advantages and disadvantages are.

372
00:24:14.765 --> 00:24:15.765
Question. Yes.

373
00:24:16.145 --> 00:24:19.205
So have you ever run across, uh, airplanes?

374
00:24:20.035 --> 00:24:21.845
Anybody run across where, uh,

375
00:24:21.965 --> 00:24:23.565
pilot flying the pilot not flying,

376
00:24:23.575 --> 00:24:25.245
might have separate checklists

377
00:24:25.345 --> 00:24:27.125
to expedite something like this?

378
00:24:27.585 --> 00:24:29.165

So on a quick turnaround kind of thing,

379

00:24:29.705 --> 00:24:31.405

you have two crews that are both familiar.

380

00:24:32.385 --> 00:24:34.165

Has anybody ever seen where you have two separate

381

00:24:34.165 --> 00:24:35.685

checklists to get it done quicker?

382

00:24:35.835 --> 00:24:36.845

Each does their own part.

383

00:24:37.075 --> 00:24:39.565

Yeah, certainly in the lab environment.

384

00:24:40.065 --> 00:24:45.045

Uh, but I, you know, if, if that becomes the,

385

00:24:45.345 --> 00:24:50.205

the way of accomplishing the task in, um, real time,

386

00:24:50.265 --> 00:24:53.525

and I think in the cre three crew flight decks, there were,

387

00:24:53.525 --> 00:24:55.085

we were sort of operating from one checklist,

388

00:24:55.225 --> 00:24:57.885

but you really broke out into everyone's separate area

389

00:24:57.885 --> 00:24:59.845

of responsibility with a flight engineer,

390

00:24:59.865 --> 00:25:01.005

you know, more distinctly.

391

00:25:01.745 --> 00:25:04.725

Um, so I think if that, if that is the way

392
00:25:04.725 --> 00:25:09.445
of getting the job done in the time, um, uh, then

393
00:25:09.585 --> 00:25:12.405
that's possibility. There's commercial

394
00:25:12.405 --> 00:25:13.405
Space Application. Yes.

395
00:25:13.405 --> 00:25:14.405
I was just thinking about that.

396
00:25:14.545 --> 00:25:19.045
Uh, also the shuttle, uh, they used a really complex system

397
00:25:19.045 --> 00:25:23.045
of checklists in the, uh, the US shuttle program. Keith,

398
00:25:23.375 --> 00:25:25.045
Again, we do that production.

399
00:25:26.165 --> 00:25:29.785
So the, so same checklist, but they're doing different jobs,

400
00:25:33.355 --> 00:25:34.355
Right? So, okay, so

401
00:25:34.355 --> 00:25:36.185
that example is in production flight test,

402
00:25:36.545 --> 00:25:40.105
a system operator with their set of procedures that's, uh,

403
00:25:40.685 --> 00:25:45.425
um, going in parallel with the, the pilots,

404
00:25:45.765 --> 00:25:47.385
uh, doing their set of procedures.

405
00:25:47.405 --> 00:25:49.625

So essentially you're merging different coordinated.

406

00:25:49.695 --> 00:25:52.985

It's coordinated, yeah. Very carefully orchestrated.

407

00:25:52.985 --> 00:25:55.225

Someone talked, referred to it as like a song

408

00:25:55.245 --> 00:25:57.825

or perhaps a dance, and that's what it feels like.

409

00:25:59.655 --> 00:26:04.185

Okay. So, um, why don't we do,

410

00:26:04.215 --> 00:26:06.665

this will be very brief, I think.

411

00:26:06.685 --> 00:26:08.385

So why don't we just take about three minutes,

412

00:26:09.365 --> 00:26:11.825

go into your groups, talk about the possibilities

413

00:26:12.045 --> 00:26:16.105

for checklist, physical form, and then we'll report out.

414

00:26:16.105 --> 00:26:16.985

This will be a quick one.

415

00:28:39.655 --> 00:28:43.545

Okay. Hopefully you have an answer. Let's wrap that up.

416

00:29:03.335 --> 00:29:03.685

Let's,

417

00:29:10.455 --> 00:29:15.235

all right, let's rejoin

418

00:29:15.255 --> 00:29:16.875

and see what you came up with there

419
00:29:17.015 --> 00:29:18.475
for the physical form of the checklist.

420
00:29:23.775 --> 00:29:28.195
Okay. Tell, shout out what physical form the

421
00:29:30.175 --> 00:29:34.915
Car engineer,

422
00:29:36.095 --> 00:29:39.075
All the human fleshing blood.

423
00:29:41.795 --> 00:29:44.125
Anybody have anything else other than laminated card?

424
00:29:44.265 --> 00:29:46.205
Tablet. Tablet. Okay.

425
00:29:47.005 --> 00:29:48.405
Whatever the rest of the checklists are.

426
00:29:49.075 --> 00:29:50.445
Okay. Don't make it

427
00:29:50.445 --> 00:29:51.685
different than the rest of the checklist

428
00:29:52.885 --> 00:29:53.965
Electronically displayed.

429
00:29:54.835 --> 00:29:56.045
Okay. Electronically based.

430
00:30:04.595 --> 00:30:06.085
Okay. So you can use a variety

431
00:30:06.385 --> 00:30:08.885
to accomplish the same end. Good, thanks.

432
00:30:09.295 --> 00:30:11.445

Great. Let's go back to the presentation.

433

00:30:16.945 --> 00:30:19.685

The next question is who these, these are the ones

434

00:30:19.685 --> 00:30:21.045

that, uh, Dr.

435

00:30:21.395 --> 00:30:24.205

Atul Gwane really had not figured out

436

00:30:24.205 --> 00:30:26.525

before, trying to create a surgical safety checklist.

437

00:30:27.305 --> 00:30:28.605

Who will call for the checklist?

438

00:30:29.785 --> 00:30:32.165

Uh, who will read and respond to the checklist?

439

00:30:32.785 --> 00:30:34.645

So who's gonna call for the checklist?

440

00:30:35.065 --> 00:30:37.845

For a normal checklist is simply the person who's gonna

441

00:30:37.845 --> 00:30:38.885

pause the procedure,

442

00:30:39.325 --> 00:30:41.045

whatever it is, and call for the checklist.

443

00:30:41.155 --> 00:30:43.285

They have to be able to recognize the pause point

444

00:30:43.985 --> 00:30:45.045

for a non-normal.

445

00:30:45.275 --> 00:30:48.365

It's recognizing the condition, whatever it may be,

446
00:30:48.425 --> 00:30:50.805
and calling for the checklist in the surgical environment,

447
00:30:51.035 --> 00:30:53.525
that was sometimes a big consideration.

448
00:30:53.785 --> 00:30:55.805
Who is it that's gonna see that the patient

449
00:30:56.345 --> 00:30:57.925
has gone into tachycardia

450
00:30:58.025 --> 00:30:59.205
or whatever the condition is

451
00:30:59.205 --> 00:31:00.405
that they have to call for the checklist?

452
00:31:01.185 --> 00:31:02.605
Um, they're,

453
00:31:02.835 --> 00:31:05.085
they varied depending on what the condition was.

454
00:31:06.065 --> 00:31:08.485
One thing to consider, especially for larger teams,

455
00:31:08.545 --> 00:31:11.925
is it should be the highest authority person in the room

456
00:31:12.385 --> 00:31:15.005
or in the flight deck or whatever it may be.

457
00:31:15.785 --> 00:31:18.405
Um, initially when Dr.

458
00:31:18.615 --> 00:31:19.765
Gwane was, or, or,

459
00:31:19.765 --> 00:31:21.685

or some other surgical teams that I've seen,

460

00:31:21.875 --> 00:31:24.165

they wanted the circulating nurse to be the person.

461

00:31:24.165 --> 00:31:27.405

They sort of relegated the checklist to the, to one

462

00:31:27.405 --> 00:31:28.885

of the nurses and not even the highest

463

00:31:28.885 --> 00:31:30.165

authority nurse in the room.

464

00:31:30.705 --> 00:31:33.645

And I watched as it was very difficult sometimes

465

00:31:33.705 --> 00:31:35.245

for this nurse to get the attention

466

00:31:35.305 --> 00:31:37.885

of everybody in the OR and start a checklist.

467

00:31:38.105 --> 00:31:41.125

In fact, most of the people were just ignoring that person.

468

00:31:42.225 --> 00:31:45.645

So, uh, it isn't as important who reads the checklist,

469

00:31:45.825 --> 00:31:46.925

but who calls for it?

470

00:31:46.945 --> 00:31:51.165

Who stops, pauses the procedure and says, let's do the

471

00:31:51.385 --> 00:31:53.005

before skin incision checklist.

472

00:31:53.305 --> 00:31:57.205

Now, whatever it may be, um, is somebody with the authority

473
00:31:57.205 --> 00:31:59.045
that everyone's gonna pay attention to in the room

474
00:32:01.335 --> 00:32:03.525
Who's going to read and respond to the checklist.

475
00:32:04.265 --> 00:32:07.005
So one person will typically read the checklist,

476
00:32:07.625 --> 00:32:11.565
but the responses could be the opposite person

477
00:32:11.985 --> 00:32:13.485
for a type of a crosscheck.

478
00:32:14.105 --> 00:32:16.725
Or it simply could be by area of responsibility.

479
00:32:17.365 --> 00:32:20.005
I think by area of responsibility is the starting point.

480
00:32:20.105 --> 00:32:21.565
And then you would have to have a reason

481
00:32:21.585 --> 00:32:24.205
to do it differently, since those are, that gets everybody

482
00:32:24.305 --> 00:32:28.405
who actually did the task making the response.

483
00:32:28.825 --> 00:32:31.005
In some cases, it's something you can check in real time.

484
00:32:31.185 --> 00:32:33.325
In other cases, it's something that you just have

485
00:32:33.325 --> 00:32:34.525
to say was done.

486
00:32:35.145 --> 00:32:37.805

Uh, sir, for an oxygen test, for example.

487

00:32:38.345 --> 00:32:42.045

Um, so by area of responsibility, uh, generally works well,

488

00:32:42.185 --> 00:32:45.085

but you may have other reasons to say who's going to respond

489

00:32:45.085 --> 00:32:49.645

to the checklist And then will

490

00:32:49.645 --> 00:32:50.765

the checklist be marked?

491

00:32:52.105 --> 00:32:55.045

And this is an area where, again, aviation is,

492

00:32:55.225 --> 00:32:56.565

in my view, way ahead.

493

00:32:57.225 --> 00:32:59.765

Uh, the simplest form of a checklist is

494

00:32:59.765 --> 00:33:01.005

that it's not marked.

495

00:33:02.035 --> 00:33:04.125

It's not retained as a record.

496

00:33:05.105 --> 00:33:08.925

Uh, it's simply a device, a tool that you as the user

497

00:33:09.435 --> 00:33:11.965

will use because it's gonna keep you from making mistakes.

498

00:33:12.185 --> 00:33:15.165

You bring it out, you run through, you check everything,

499

00:33:15.185 --> 00:33:19.085

you put it away, you're done In other areas, it tends

500
00:33:19.145 --> 00:33:22.965
to be gravitate towards, uh, we need to check every item.

501
00:33:23.145 --> 00:33:24.525
We need to sign it. When we're done,

502
00:33:24.545 --> 00:33:25.685
we need to put it in the records.

503
00:33:26.195 --> 00:33:28.165
Well, now it becomes something a little bit different.

504
00:33:28.675 --> 00:33:30.565
It's something that can put you in

505
00:33:30.685 --> 00:33:31.765
jeopardy if you didn't do it.

506
00:33:31.825 --> 00:33:35.325
It becomes a task that has to be done for its own sake.

507
00:33:35.865 --> 00:33:38.605
And then you start seeing the behaviors, like they go

508
00:33:38.605 --> 00:33:39.965
through the items in their flows.

509
00:33:39.965 --> 00:33:40.965
They don't really do the checklist,

510
00:33:41.105 --> 00:33:42.565
and at the end of the day they go, oh, hey,

511
00:33:42.565 --> 00:33:44.085
we didn't fill out that checklist thing

512
00:33:44.085 --> 00:33:45.565
and check, check, check, check, check, check,

513
00:33:45.595 --> 00:33:46.645

sign, sign, date, date.

514

00:33:47.025 --> 00:33:48.285

And the record gets retained.

515

00:33:48.555 --> 00:33:52.525

It's no longer the tool to keep you from making mistakes.

516

00:33:52.555 --> 00:33:55.485

It's just a burdensome documentation exercise.

517

00:33:56.025 --> 00:33:59.085

So in its purest form, a checklist is, uh,

518

00:33:59.465 --> 00:34:01.525

not mar is not retained in particular.

519

00:34:01.705 --> 00:34:03.765

And whether it's marked or not has to do with

520

00:34:03.765 --> 00:34:05.645

how long the per the process is.

521

00:34:06.305 --> 00:34:09.485

Um, uh, if you have a long extended process

522

00:34:09.705 --> 00:34:12.525

and it's difficult to, uh, keep your place

523

00:34:12.525 --> 00:34:14.485

or you have a read and do checklist, that's gonna take

524

00:34:15.005 --> 00:34:16.205

a longer period of time.

525

00:34:16.715 --> 00:34:18.645

Then marking it becomes very important.

526

00:34:18.745 --> 00:34:21.005

And of course, electronic checklists have the advantage

527

00:34:21.065 --> 00:34:24.325

of essentially being, uh, marked as you go through them.

528

00:34:26.465 --> 00:34:28.885

So these are the next three questions

529

00:34:29.945 --> 00:34:31.645

for the op operational concept.

530

00:34:32.745 --> 00:34:33.965

Who will call for the checklist?

531

00:34:34.225 --> 00:34:38.045

Who will read and respond, and will the checklist be marked?

532

00:34:39.025 --> 00:34:40.525

So any questions on those?

533

00:34:43.435 --> 00:34:45.285

Okay, let's take five minutes

534

00:34:46.945 --> 00:34:49.925

and answer those questions for this scenario.

535

00:34:52.385 --> 00:34:53.385

10 28.

536

00:39:23.655 --> 00:39:26.385

Okay, Just, uh, another half a minute. Let's wrap up.

537

00:39:48.345 --> 00:39:52.315

Okay. We can get some feedback on these three questions.

538

00:40:02.575 --> 00:40:06.475

So somebody tell me, who did you choose to be the person

539

00:40:06.475 --> 00:40:07.915

that will call for the checklist

540

00:40:11.865 --> 00:40:12.865

Command?

541

00:40:14.065 --> 00:40:17.635

Okay, so the pilot in command. Anybody else? Pilot

542

00:40:17.655 --> 00:40:18.655

Flying.

543

00:40:18.905 --> 00:40:22.195

Okay. Pilot flying. Left seat.

544

00:40:22.985 --> 00:40:24.955

What was that one? Left seat?

545

00:40:26.555 --> 00:40:29.155

I could get you left seat. Oh, left seat.

546

00:40:30.025 --> 00:40:34.515

Left seat. Okay. Okay.

547

00:40:34.515 --> 00:40:35.915

Again, there's no right and wrong,

548

00:40:37.135 --> 00:40:39.635

but it needs to be clarified to be sure

549

00:40:39.635 --> 00:40:41.275

that everybody understands whose respons,

550

00:40:41.605 --> 00:40:42.955

whose responsibility it is.

551

00:40:43.305 --> 00:40:45.915

Okay. How about read and respond? Who's gonna read

552

00:40:46.775 --> 00:40:47.775

The FP?

553

00:40:51.215 --> 00:40:52.595

You're gonna get him in here. Yeah.

554

00:40:55.045 --> 00:40:55.875
Rod's lazying,

555

00:40:59.285 --> 00:41:00.075
Who's going to read?

556

00:41:02.255 --> 00:41:03.255
Pm

557

00:41:06.465 --> 00:41:07.995
Whoever normally reads the checklist.

558

00:41:09.865 --> 00:41:10.955
Okay. So you make 'em

559

00:41:10.955 --> 00:41:12.955
Compatible with all the other normal checklists.

560

00:41:18.785 --> 00:41:21.435
Okay, then who's going to respond?

561

00:41:25.615 --> 00:41:26.755
The what? Sorry, I couldn't hear you.

562

00:41:27.375 --> 00:41:30.715
Fly flying, pilot flying. It's okay. See that

563

00:41:33.385 --> 00:41:34.525
Person Duty. Action.

564

00:41:35.155 --> 00:41:37.405
Okay, so by area of responsibility,

565

00:41:39.955 --> 00:41:40.955
Okay.

566

00:41:41.265 --> 00:41:45.205
Marked no. Did anybody say yes?

567

00:41:46.315 --> 00:41:47.365

Yeah. Okay.

568

00:41:47.425 --> 00:41:50.445

Why, what was your reasoning for having it marked tablet?

569

00:41:50.495 --> 00:41:51.805

Electronic. Okay.

570

00:41:51.995 --> 00:41:54.285

Okay. To show all go green.

571

00:42:03.155 --> 00:42:05.445

Okay, great. Again, Dan hit on this pretty well.

572

00:42:06.085 --> 00:42:08.365

I was working with a group where they said that all

573

00:42:08.365 --> 00:42:10.685

of their checklists, they marked for auditing purposes,

574

00:42:11.015 --> 00:42:13.045

which again, sort of compromises

575

00:42:13.625 --> 00:42:15.125

why you're doing it in the first place,

576

00:42:15.265 --> 00:42:16.445

but you could have reasons

577

00:42:16.545 --> 00:42:17.925

for doing it in your organization.

578

00:42:18.635 --> 00:42:20.445

Yeah, certainly in the electronic environment,

579

00:42:20.445 --> 00:42:22.325

the advantage of marking the checklist simply

580

00:42:22.425 --> 00:42:25.685

to keep your place is a hundred percent good.

581
00:42:26.995 --> 00:42:31.165
Okay, let's go on with the presentation, Claude.

582
00:42:33.155 --> 00:42:34.125
Nice work there.

583
00:42:38.425 --> 00:42:41.685
So now we have answered the questions

584
00:42:42.145 --> 00:42:43.485
for the operational concept.

585
00:42:44.145 --> 00:42:47.365
And, and then we create the operational concept statement,

586
00:42:47.695 --> 00:42:51.445
which is a, a weaving together of those items.

587
00:42:51.785 --> 00:42:55.085
And we will pick here from some of these,

588
00:42:57.975 --> 00:42:59.605
these are the blanks.

589
00:43:00.595 --> 00:43:01.595
Tell you what, um,

590
00:43:02.995 --> 00:43:03.995
Read them.

591
00:43:08.035 --> 00:43:12.485
Yeah. Well,

592
00:43:13.765 --> 00:43:16.685
I think we have, I can't see those very well,

593
00:43:17.385 --> 00:43:19.885
but the operational concept statement for the one

594
00:43:19.885 --> 00:43:21.165

of our choices was, uh,

595

00:43:21.395 --> 00:43:25.325

full stop taxi back checklist, let's call it that.

596

00:43:25.825 --> 00:43:29.045

So the full stop taxi back checklist will cover the process

597

00:43:29.155 --> 00:43:31.525

that begins after landing

598

00:43:33.225 --> 00:43:35.205

and ends before takeoff.

599

00:43:36.875 --> 00:43:38.325

This is a well practice process.

600

00:43:39.475 --> 00:43:41.045

This is a normal checklist

601

00:43:42.115 --> 00:43:45.765

that will be used in a do then confirm flow.

602

00:43:47.465 --> 00:43:51.045

The checklist will be in the form of a laminated card.

603

00:43:52.145 --> 00:43:54.045

The checklist will be called for

604

00:43:55.145 --> 00:43:57.365

by the PIC.

605

00:43:57.865 --> 00:44:01.325

I'm making this up. I'm choosing from your, your responses.

606

00:44:01.325 --> 00:44:02.405

There's no right answer,

607

00:44:02.625 --> 00:44:04.965

but this is an example of how this might come out.

608
00:44:05.585 --> 00:44:10.205
The checklist will be called for the PIC challenges read

609
00:44:10.305 --> 00:44:14.685
by the PIC responses will be by area of responsibility.

610
00:44:15.385 --> 00:44:17.405
The checklist will not have c check marks,

611
00:44:17.845 --> 00:44:19.605
a record will not be retained.

612
00:44:20.145 --> 00:44:24.605
So there is one version, uh, and I kind of picked

613
00:44:24.605 --> 00:44:25.885
and chose from some of those.

614
00:44:26.175 --> 00:44:28.605
Again, not necessarily the one right way to do it.

615
00:44:28.625 --> 00:44:31.565
It would vary on your operation and your concept of it,

616
00:44:31.825 --> 00:44:33.205
but you would put it all in words.

617
00:44:33.265 --> 00:44:34.685
And now you've got a statement

618
00:44:35.705 --> 00:44:37.405
for your team developing the checklist.

619
00:44:37.545 --> 00:44:40.445
But not only that, this is a nice stage if you have a larger

620
00:44:40.455 --> 00:44:41.925
group that you need to do a review

621
00:44:42.345 --> 00:44:44.525

and you're in the job, you're in the, the process

622

00:44:44.585 --> 00:44:46.805

of developing a checklist, you can take this operational

623

00:44:46.805 --> 00:44:48.565

concept statement as a first step

624

00:44:48.585 --> 00:44:50.325

and say, look, we don't have the checklist yet,

625

00:44:50.665 --> 00:44:52.765

but let's crosscheck this with a larger group

626

00:44:52.905 --> 00:44:54.845

or the chief pilot or whoever it is,

627

00:44:54.845 --> 00:44:56.085

and say, this is what we're thinking on

628

00:44:56.105 --> 00:44:57.365

how we're going to use the checklist.

629

00:44:57.505 --> 00:45:00.325

And it's a great way to get an initial review

630

00:45:00.705 --> 00:45:02.005

of the direction you're going

631

00:45:02.005 --> 00:45:03.285

with your checklist development.

632

00:45:04.435 --> 00:45:07.605

Okay. Any questions on the operational concept?

633

00:45:08.865 --> 00:45:11.525

On the value of it? How it can be used?

634

00:45:13.395 --> 00:45:15.845

Okay, great. We'll keep going.

635
00:45:19.125 --> 00:45:23.405
Critical items. So this is the step where you decide

636
00:45:23.635 --> 00:45:25.525
what are the potential items that are going

637
00:45:25.525 --> 00:45:26.885
to be on your checklist.

638
00:45:27.825 --> 00:45:31.085
And let's by the way, assume for moving forward

639
00:45:31.275 --> 00:45:34.405
that this is a do then confirmed checklist just

640
00:45:34.405 --> 00:45:36.045
for the purpose of this exercise.

641
00:45:36.045 --> 00:45:38.765
And then we'll sort of be on the same page operational

642
00:45:38.765 --> 00:45:40.525
concept wise as we move forward.

643
00:45:42.645 --> 00:45:45.285
Critical items are defined as actions,

644
00:45:45.385 --> 00:45:48.125
if omitted may have a significant negative impact on the

645
00:45:48.125 --> 00:45:50.965
outcome of the procedure, safety, destruction

646
00:45:50.965 --> 00:45:52.885
of facilities, et cetera.

647
00:45:56.795 --> 00:45:59.845
What we want to do when we're deciding on critical items is

648
00:45:59.905 --> 00:46:03.525

try to use, make it evidence-based,

649

00:46:04.585 --> 00:46:05.845

use available research.

650

00:46:06.505 --> 00:46:10.645

And in our, our domain aviation, there's a lot of research.

651

00:46:10.785 --> 00:46:13.725

We have safety research on things that have gone wrong,

652

00:46:13.875 --> 00:46:15.165

have led to accidents,

653

00:46:15.465 --> 00:46:17.405

and what the omissions were in some cases

654

00:46:17.475 --> 00:46:18.765

that led to those accidents.

655

00:46:19.305 --> 00:46:20.965

In medicine, it's the same thing.

656

00:46:21.945 --> 00:46:24.565

Uh, some of the checklists I worked on in, in medicine,

657

00:46:25.155 --> 00:46:28.485

there's a great amount of research that surprised a lot

658

00:46:28.485 --> 00:46:31.645

of the practitioners as to what the most critical items were

659

00:46:31.645 --> 00:46:33.805

that they could leave out in surgery.

660

00:46:34.385 --> 00:46:37.165

One of the most critical items was having blood on hand

661

00:46:37.905 --> 00:46:41.805

for transfusion, uh, for a high risk patient.

662
00:46:42.545 --> 00:46:46.965
So many cases of patient harm involved, uh, an emergency

663
00:46:46.965 --> 00:46:48.205
that could have been anticipated

664
00:46:48.265 --> 00:46:50.565
and not having enough, uh, blood on hand.

665
00:46:50.865 --> 00:46:53.725
And that was found to be in the research, a huge factor.

666
00:46:53.785 --> 00:46:55.405
And so it was emphasized in the checklist.

667
00:46:55.825 --> 00:46:59.045
So where you can use real data to decide

668
00:46:59.155 --> 00:47:00.925
what your actual critical items are,

669
00:47:02.025 --> 00:47:04.005
and try to find out what the history of,

670
00:47:04.225 --> 00:47:05.445
of omissions has been.

671
00:47:06.435 --> 00:47:08.645
Another factor is automatic safeguards.

672
00:47:09.305 --> 00:47:12.045
If there's some kind of an alerting or alarming

673
00:47:12.045 --> 00:47:15.405
or monitoring system that's very high integrity, that

674
00:47:16.355 --> 00:47:19.365
will essentially prevent you from making the mistake,

675
00:47:19.905 --> 00:47:23.725

asking the user to read it in a checklist is redundant.

676

00:47:24.305 --> 00:47:26.845

So a good rationale for leaving an item out

677

00:47:26.845 --> 00:47:31.005

of a checklist is a high integrity alerting system

678

00:47:31.355 --> 00:47:33.445

that will, uh, reliably catch

679

00:47:33.445 --> 00:47:36.965

that mistake in the checklist.

680

00:47:37.025 --> 00:47:39.725

You're not only checking for actions

681

00:47:39.755 --> 00:47:41.005

that you take every time,

682

00:47:41.465 --> 00:47:44.765

but you wanna make sure to cover potential contingencies.

683

00:47:44.825 --> 00:47:46.805

The, the example of having blood on hand

684

00:47:46.805 --> 00:47:48.165

and surgery is one of them.

685

00:47:48.915 --> 00:47:51.645

Another one for us is we check our oxygen masks.

686

00:47:52.065 --> 00:47:54.365

And at least on our, the Boeing airplanes

687

00:47:54.505 --> 00:47:56.605

that's in our pre-flight checklist.

688

00:47:57.345 --> 00:48:00.405

We don't, we may not on a given mission plan

689

00:48:00.405 --> 00:48:02.485
to use the oxygen masks, uh,

690

00:48:02.625 --> 00:48:05.685
but we want to know that that tank valve is open,

691

00:48:05.935 --> 00:48:07.125
those masks are working.

692

00:48:07.435 --> 00:48:10.525
It's not something you wanna find out about it. 40,000 feet.

693

00:48:11.225 --> 00:48:12.605
Uh, so, uh,

694

00:48:12.995 --> 00:48:15.925
contingencies may play a very important part in the

695

00:48:15.925 --> 00:48:18.805
checklist, even though they don't represent the actions

696

00:48:18.835 --> 00:48:20.085
that you're taking on the flight.

697

00:48:21.785 --> 00:48:24.365
And then checklists provide a really good

698

00:48:24.365 --> 00:48:26.165
opportunity for teamwork.

699

00:48:26.705 --> 00:48:28.605
Uh, you can, if it's a team

700

00:48:28.605 --> 00:48:31.685
that doesn't necessarily know each other, uh,

701

00:48:31.795 --> 00:48:33.165
they can have introductions.

702

00:48:33.625 --> 00:48:36.565

We know in aviation briefings are very important for safety

703

00:48:37.225 --> 00:48:39.165

and the opportunity for anyone in the room

704

00:48:39.165 --> 00:48:40.245

to bring up concerns.

705

00:48:40.705 --> 00:48:43.925

If there are risks on that particular day,

706

00:48:44.425 --> 00:48:47.645

anyone on the team should have the opportunity to voice, uh,

707

00:48:48.005 --> 00:48:50.205

concerns about particular risks.

708

00:48:50.535 --> 00:48:52.605

These are all things that to consider

709

00:48:52.945 --> 00:48:54.205

for working into your checklist.

710

00:48:55.005 --> 00:48:56.325

A couple questions here. Yeah,

711

00:48:56.325 --> 00:48:57.325

I got one question. You

712

00:48:57.325 --> 00:49:01.525

have I not safeguards? Yes. Have they take onboarding?

713

00:49:01.875 --> 00:49:03.725

It's too late. I mean, it's really late

714

00:49:05.005 --> 00:49:06.685

throttle out and have the warning come.

715

00:49:06.865 --> 00:49:09.005

So, so even though there is a, uh,

716

00:49:09.485 --> 00:49:11.005
safeguard, we still need to do.

717

00:49:11.905 --> 00:49:15.685
So. Great point. So there you're balancing safety

718

00:49:15.825 --> 00:49:18.325
and efficiency and, and, and,

719

00:49:18.905 --> 00:49:20.925
and it doesn't tell, it doesn't tell us

720

00:49:20.925 --> 00:49:23.005
what the right answer is, but it's just, it's good

721

00:49:23.005 --> 00:49:24.405
to keep those things clear in our minds.

722

00:49:24.585 --> 00:49:26.125
So from a safety standpoint,

723

00:49:26.525 --> 00:49:30.645
a takeoff warning system may prevent us from, uh, taking off

724

00:49:31.595 --> 00:49:33.085
with, for example, flaps up.

725

00:49:33.705 --> 00:49:36.805
But from an efficiency standpoint, we want to know that

726

00:49:36.805 --> 00:49:38.805
that's the case before we get on the runway.

727

00:49:39.385 --> 00:49:40.925
Uh, and there may be, you know,

728

00:49:40.945 --> 00:49:42.365
you could say there's some safety issues

729

00:49:42.395 --> 00:49:44.405

with being unexpectedly on the runway

730

00:49:44.625 --> 00:49:46.125
and not being able to take off.

731

00:49:46.785 --> 00:49:49.805
But, um, but that, so that's right.

732

00:49:50.025 --> 00:49:52.725
So there may be reasons to put something in a checklist even

733

00:49:52.725 --> 00:49:56.325
though there is a high integrity warning system, uh,

734

00:49:56.325 --> 00:49:58.085
because there's an efficiency issue.

735

00:49:59.045 --> 00:50:00.095
Okay. Yes.

736

00:50:00.605 --> 00:50:04.665
Just to echo that though, I, I, I think just because that,

737

00:50:04.725 --> 00:50:07.305
and maybe Rob, this is what you were getting at, is just

738

00:50:07.305 --> 00:50:11.275
because you have an automatic safeguard, uh, that's just

739

00:50:11.275 --> 00:50:12.475
to make sure that they verify,

740

00:50:12.655 --> 00:50:17.395
did the checklist essentially, it's not to be a mitigation

741

00:50:17.455 --> 00:50:20.595
for a checklist is what I got what you were saying.

742

00:50:21.185 --> 00:50:23.315
Well, I'm saying in general

743
00:50:24.345 --> 00:50:27.845
that if you're effectively prevented from making the

744
00:50:27.845 --> 00:50:30.805
mistake, from committing the error by some type

745
00:50:30.805 --> 00:50:33.965
of an alerting system, that that can be a reason

746
00:50:33.985 --> 00:50:35.565
to not include it in the checklist.

747
00:50:36.665 --> 00:50:39.885
Uh, now there may be cases where we, as a culture,

748
00:50:40.095 --> 00:50:41.525
we've decided to be redundant

749
00:50:41.525 --> 00:50:43.925
and include things in checklists even though there's a high,

750
00:50:44.705 --> 00:50:46.845
uh, integrity alerting system,

751
00:50:47.385 --> 00:50:49.405
or that our regulators require us

752
00:50:49.405 --> 00:50:51.725
to have things in checklists even though there's a high

753
00:50:51.725 --> 00:50:53.125
integrity alerting system.

754
00:50:53.825 --> 00:50:54.845
But when I go out

755
00:50:54.945 --> 00:50:58.965
and work with larger teams in different environments, uh,

756
00:51:00.765 --> 00:51:01.885

I would say

757

00:51:01.885 --> 00:51:04.405

that if you've got a very reliable alerting system,

758

00:51:04.405 --> 00:51:06.485

that's a reason to not include something on the checklist

759

00:51:06.485 --> 00:51:08.445

because the users know

760

00:51:08.905 --> 00:51:11.845

and they end up with a checklist that is full

761

00:51:11.845 --> 00:51:13.405

of items that they say, you know what?

762

00:51:13.565 --> 00:51:14.805

I can't make that mistake.

763

00:51:14.945 --> 00:51:17.205

You know, I'm always prevented from making that mistake.

764

00:51:17.205 --> 00:51:20.445

And it ends up being a negative on the, uh,

765

00:51:21.105 --> 00:51:23.485

the acceptability of the checklist to the users.

766

00:51:24.705 --> 00:51:27.645

So in this case, I just want to say generically

767

00:51:28.155 --> 00:51:29.565

look at those alerting systems

768

00:51:29.745 --> 00:51:30.805

and they can be a reason

769

00:51:30.865 --> 00:51:32.445

to not include an item on the

770
00:51:32.445 --> 00:51:34.805
checklist. Does that make sense?

771
00:51:35.345 --> 00:51:37.125
Are we, are we talking about physical barrier

772
00:51:37.595 --> 00:51:41.725
that prevents you from awaiting something critical?

773
00:51:41.825 --> 00:51:42.825
Or are we talking about

774
00:51:45.145 --> 00:51:46.145
Well, it could be either.

775
00:51:46.555 --> 00:51:49.755
I think if there, if it, if something else

776
00:51:49.905 --> 00:51:52.715
besides the checklist will, will

777
00:51:53.945 --> 00:51:56.275
very reliably catch your error,

778
00:51:57.595 --> 00:51:59.805
then it doesn't need to be on the checklist.

779
00:52:00.585 --> 00:52:02.925
You know, if, if, if you can't make that mistake

780
00:52:02.925 --> 00:52:06.165
because it's going to be prevented by an alerting system

781
00:52:06.345 --> 00:52:07.365
or a physical barrier

782
00:52:07.585 --> 00:52:12.085
or, you know, any other method, uh, that can be a reason

783
00:52:12.745 --> 00:52:13.925

to not include it on the checklist.

784

00:52:17.295 --> 00:52:20.875

You know, IIII, I know I'm getting a little, um,

785

00:52:21.995 --> 00:52:24.275

resistance because we all know of items that we want

786

00:52:24.275 --> 00:52:25.755

to see on the checklist, even though we

787

00:52:25.755 --> 00:52:26.875

know we have an alerting system.

788

00:52:27.415 --> 00:52:29.555

But, uh, this is more generically,

789

00:52:30.015 --> 00:52:31.315

you know, kind of out in the world.

790

00:52:31.935 --> 00:52:36.275

Um, if you end up having a number of items for mistakes

791

00:52:36.275 --> 00:52:39.155

that are effectively prevented in other ways,

792

00:52:39.935 --> 00:52:42.115

you have a checklist that's unnecessarily long

793

00:52:42.505 --> 00:52:44.075

Just to ate. You're, you're

794

00:52:44.755 --> 00:52:46.675

Speaking specifically to a do then

795

00:52:46.675 --> 00:52:47.875

confirm checklist, correct?

796

00:52:48.735 --> 00:52:49.955

Yes. Good point.

797

00:52:50.015 --> 00:52:52.635

The question was, are we talking about specifically a due

798

00:52:52.745 --> 00:52:54.315

then confirmed checklist and Yeah.

799

00:52:54.315 --> 00:52:56.195

From this point forward, we're going

800

00:52:56.195 --> 00:52:59.275

to assume a do then confirm checklist, right?

801

00:52:59.545 --> 00:53:01.235

Read. And do you, you need

802

00:53:01.235 --> 00:53:03.475

to include essentially every step on the

803

00:53:03.475 --> 00:53:04.835

checklist on in the procedure?

804

00:53:06.565 --> 00:53:07.835

Guess one more? Yeah.

805

00:53:07.835 --> 00:53:10.595

Quick question based upon what you're saying.

806

00:53:10.935 --> 00:53:12.355

I'm hearing for instance,

807

00:53:12.575 --> 00:53:13.675

before landing checklist,

808

00:53:14.535 --> 00:53:17.155

almost every checklist I've ever seen, uh,

809

00:53:17.255 --> 00:53:19.595

if you have a retractable gear, we say down,

810

00:53:20.215 --> 00:53:22.435

if I have gear warning system that, you know,

811

00:53:22.565 --> 00:53:25.885
fires off four, it tells you my

812

00:53:25.885 --> 00:53:27.125
gear's not down on the throat.

813

00:53:28.325 --> 00:53:30.985
Is your liking saying that it wouldn't be necessary

814

00:53:31.085 --> 00:53:32.545
to include a gear down step

815

00:53:32.685 --> 00:53:36.025
Before my, I think, um, there's two things.

816

00:53:36.245 --> 00:53:38.425
One is, you know,

817

00:53:39.185 --> 00:53:41.265
culturally we are always gonna have

818

00:53:41.535 --> 00:53:42.745
that step in our checklist.

819

00:53:43.425 --> 00:53:47.065
I think those are, that's, uh,

820

00:53:47.535 --> 00:53:49.145
something we've had for a long time

821

00:53:49.285 --> 00:53:50.985
and probably can't take it out.

822

00:53:51.165 --> 00:53:52.705
The other thing is the efficiency issue.

823

00:53:52.705 --> 00:53:56.345
It's too, it's a little late to be realizing, you know,

824

00:53:56.345 --> 00:53:57.665

you should be on a stabilized approach

825

00:53:57.685 --> 00:53:59.385

by then the airplane should be configured.

826

00:54:00.045 --> 00:54:03.585

And to be reconfiguring the airplane at

827

00:54:03.935 --> 00:54:07.505

400, 500, 400 feet, uh, is too late.

828

00:54:08.085 --> 00:54:11.185

Um, so there's an efficiency issue of, you know,

829

00:54:11.185 --> 00:54:13.785

having checked that configuration earlier

830

00:54:15.005 --> 00:54:16.985

before that alerting system's gonna fire off.

831

00:54:18.255 --> 00:54:19.625

Okay. Let's say one more question

832

00:54:19.625 --> 00:54:20.945

and then I'll have to keep going.

833

00:54:20.975 --> 00:54:22.065

Comment. I, I, bob,

834

00:54:22.165 --> 00:54:23.185

You know, there's efficiency,

835

00:54:23.185 --> 00:54:26.425

but there's also people sometimes ignore alerts.

836

00:54:26.565 --> 00:54:30.145

So, um, they might land gear up. Anyway, it's

837

00:54:30.265 --> 00:54:31.265

Happened. We have had that.

838

00:54:31.265 --> 00:54:31.665

Yeah.

839

00:54:31.685 --> 00:54:33.625

In fact, I an example later in,

840

00:54:34.285 --> 00:54:37.825

in the electronic checklist presentation, I think quick,

841

00:54:38.925 --> 00:54:41.905

The real foot stopper here is, for example, uh,

842

00:54:41.905 --> 00:54:43.425

takeout warning, uh,

843

00:54:43.605 --> 00:54:47.545

and later the current generation of airplanes, if you

844

00:54:48.355 --> 00:54:51.815

are misconfigured at all, you have so many red lights and,

845

00:54:51.875 --> 00:54:56.375

and alerts and noises going off, uh, push up that, uh,

846

00:54:56.795 --> 00:55:00.435

uh, you did miss that.

847

00:55:00.675 --> 00:55:03.435

I think you probably opened a middle impairment.

848

00:55:05.225 --> 00:55:07.715

It's more serious than the, uh, lack of warning.

849

00:55:10.065 --> 00:55:11.835

Okay, well, we'll, let's keep moving.

850

00:55:11.935 --> 00:55:13.515

And I'd be happy, you know, during the break

851

00:55:13.515 --> 00:55:15.155
to chat about this some more.

852

00:55:16.095 --> 00:55:20.955
Um, always it should be on your list of considerations as to

853

00:55:20.955 --> 00:55:21.995
what needs to be on the checklist

854

00:55:22.135 --> 00:55:23.875
and what doesn't, uh,

855

00:55:23.875 --> 00:55:25.875
whether it's whether there's alerting there.

856

00:55:26.695 --> 00:55:28.755
So in this critical items step,

857

00:55:28.945 --> 00:55:30.435
it's a brainstorming activity.

858

00:55:30.895 --> 00:55:33.475
You don't have to come up with the final list

859

00:55:33.475 --> 00:55:36.315
because later we're gonna go through a stage of reducing.

860

00:55:36.935 --> 00:55:39.355
So we're gonna bring in critical items in this particular

861

00:55:39.715 --> 00:55:41.755
exercise, you're probably gonna be able to make the,

862

00:55:42.215 --> 00:55:44.195
the correct cut as we go through here.

863

00:55:44.735 --> 00:55:47.795
Uh, but in a, in a much larger exercise, the brain,

864

00:55:47.825 --> 00:55:50.955

it's a brainstorming activity will be refined later.

865

00:55:52.535 --> 00:55:56.075

So, any questions, any, well, we kind of, I think, dealt

866

00:55:56.075 --> 00:55:57.315

with the questions pretty well.

867

00:55:57.935 --> 00:56:02.595

Uh, let's take, uh, this takes several minutes,

868

00:56:02.835 --> 00:56:05.475

I think, because this is really one of your key activities.

869

00:56:06.005 --> 00:56:07.595

Let's take about seven minutes.

870

00:56:08.115 --> 00:56:10.155

I think that should be enough. Go through.

871

00:56:10.215 --> 00:56:12.395

You've got your rationale sheet there.

872

00:56:12.695 --> 00:56:14.955

You've got information about each item.

873

00:56:15.855 --> 00:56:17.995

Uh, you have your before takeoff checklist.

874

00:56:18.825 --> 00:56:20.995

This is your step where you bring all that together

875

00:56:21.455 --> 00:56:24.685

and decide for a do then confirm checklist.

876

00:56:25.635 --> 00:56:28.485

What critical items do you want to see on that checklist?

877

00:56:29.545 --> 00:56:31.765

You don't have to phrase them correctly yet.

878
00:56:32.035 --> 00:56:36.125
Just identify in some words what those steps will be.

879
00:56:38.235 --> 00:56:40.005
Okay. Seven minutes. I'm ready.

880
01:02:43.455 --> 01:02:45.595
Uh, folks, let me clarify one thing.

881
01:02:46.095 --> 01:02:49.715
For the purpose of this exercise, use the items

882
01:02:49.825 --> 01:02:51.075
that are on the table

883
01:02:51.855 --> 01:02:54.155
as the potential items in the, in the procedure.

884
01:02:54.695 --> 01:02:56.875
You all are familiar with other steps

885
01:02:56.985 --> 01:03:00.555
that could possibly be effect or needed for a checklist,

886
01:03:00.815 --> 01:03:02.955
but let's just use the ones that are on the table

887
01:03:03.135 --> 01:03:04.555
to keep it contained.

888
01:03:05.345 --> 01:03:05.635
Okay?

889
01:03:55.625 --> 01:03:56.915
Okay. One more minute.

890
01:04:48.135 --> 01:04:49.345
Okay. Let's wrap up

891
01:04:49.405 --> 01:04:52.145

and see what you came up with for your critical items.

892

01:05:06.855 --> 01:05:09.235

So I know several of you could have very different things

893

01:05:09.235 --> 01:05:10.555

that it would take quite a while

894

01:05:10.555 --> 01:05:11.915

to try and capture them all.

895

01:05:12.055 --> 01:05:13.915

So what I'm gonna do is just have two

896

01:05:13.915 --> 01:05:15.235

or three of you report out.

897

01:05:15.335 --> 01:05:16.675

I'm not gonna try and write them all down,

898

01:05:16.775 --> 01:05:19.605

but listen to what the others have selected as far

899

01:05:19.605 --> 01:05:22.645

as their critical items and see if you can determine from

900

01:05:22.645 --> 01:05:24.445

what they are saying why they did that.

901

01:05:25.035 --> 01:05:27.885

Okay. Who would like to go first? Okay.

902

01:05:29.885 --> 01:05:32.205

Configuration. Wait a minute, you can use the

903

01:05:32.205 --> 01:05:33.245

mic so everybody can hear you.

904

01:05:33.245 --> 01:05:34.245

Well, thanks, Colin.

905
01:05:39.725 --> 01:05:41.205
I wasn't gonna give an exhaustive list,

906
01:05:41.265 --> 01:05:42.645
but all of the flight controls

907
01:05:42.645 --> 01:05:44.805
and configuration were, were critical items.

908
01:05:45.475 --> 01:05:46.685
Okay. How many of them were there?

909
01:05:50.625 --> 01:05:51.605
I'm letting my people count

910
01:05:56.995 --> 01:05:57.995
Five. Okay.

911
01:05:57.995 --> 01:06:01.245
So five of those items. Somebody else

912
01:06:06.475 --> 01:06:08.815
We talked about keeping the pilot brief in there.

913
01:06:09.925 --> 01:06:11.975
Okay. Keeping the pilot brief.

914
01:06:14.915 --> 01:06:17.095
Um, we also talk about, uh,

915
01:06:17.315 --> 01:06:19.055
all the speed breaks outta the checklist.

916
01:06:19.605 --> 01:06:21.415
Okay. Do The, uh, automatic warning.

917
01:06:21.925 --> 01:06:26.135
Okay, good. What else do you have? We

918
01:06:26.155 --> 01:06:28.335

Set direct cross on speeds.

919

01:06:29.035 --> 01:06:33.495

We also kept the briefing, the RTO

920

01:06:34.155 --> 01:06:37.015

speeds around group.

921

01:06:37.645 --> 01:06:38.575

Okay, good.

922

01:06:45.395 --> 01:06:47.215

Uh, we had the, the three critical ones

923

01:06:47.795 --> 01:06:51.215

or, uh, set the flaps, get the correct takeoff speeds

924

01:06:51.215 --> 01:06:52.295

and set the stab trim.

925

01:06:52.955 --> 01:06:57.255

Um, the, uh, the speed brake lever is also a critical item.

926

01:06:57.315 --> 01:07:00.015

And we noticed, at least I noticed in the briefing is that

927

01:07:00.015 --> 01:07:02.735

after landing you, um, you disarm it,

928

01:07:02.795 --> 01:07:04.575

but you have to re-arm it for takeoff.

929

01:07:04.875 --> 01:07:07.095

It does two things, make sure it's armed for takeoff,

930

01:07:07.095 --> 01:07:09.535

but it also resets the logic in the airplane

931

01:07:09.535 --> 01:07:11.535

that lets it know it's into the takeoff mode.

932

01:07:12.685 --> 01:07:14.575

Okay, good. The, uh, RRTO auto

933

01:07:14.575 --> 01:07:16.415

brakes, it's a test item.

934

01:07:16.515 --> 01:07:18.375

It may depend on what you want to do,

935

01:07:18.375 --> 01:07:20.495

whether you need the RTO auto brakes or not.

936

01:07:20.555 --> 01:07:22.055

If you're gonna take off with hot breaks,

937

01:07:22.515 --> 01:07:25.095

you may want not want to, to reject the takeoff

938

01:07:25.095 --> 01:07:26.455

with the RTO auto brakes

939

01:07:26.695 --> 01:07:28.215

'cause you'll have a problem at the end.

940

01:07:28.965 --> 01:07:32.375

Okay, good. So you can see very different selection of

941

01:07:32.375 --> 01:07:33.495

what the critical items are.

942

01:07:33.915 --> 01:07:35.695

So again, it's up, it's your perspective,

943

01:07:35.805 --> 01:07:37.615

it's your determination based on your

944

01:07:37.615 --> 01:07:38.695

group and your understanding.

945

01:07:39.565 --> 01:07:40.565

Okay, Dan?

946

01:07:41.725 --> 01:07:44.495

Okay, thanks. And we'll have a chance after

947

01:07:44.755 --> 01:07:46.975

We reduce, after we reduce

948

01:07:47.115 --> 01:07:50.175

and phrase these items, you'll, uh, have a chance

949

01:07:50.175 --> 01:07:52.735

to report out on the exact final checklist.

950

01:07:53.115 --> 01:07:56.495

So these list of critical items will be essentially, uh,

951

01:07:56.495 --> 01:07:57.735

shown again in a little bit.

952

01:07:59.595 --> 01:08:03.215

So the next, uh, activity

953

01:08:04.235 --> 01:08:07.615

in the checklist builder is to establish the pause points.

954

01:08:08.235 --> 01:08:09.535

And this is one that

955

01:08:09.555 --> 01:08:12.615

for this particular simple exercise really doesn't apply

956

01:08:12.615 --> 01:08:14.335

because we have a very short procedure.

957

01:08:14.635 --> 01:08:15.765

We have a single checklist.

958

01:08:16.265 --> 01:08:19.245

We already know that there's one pause point, uh,

959

01:08:19.425 --> 01:08:20.565
in this procedure.

960

01:08:20.625 --> 01:08:23.045
But I'll talk about the more general case.

961

01:08:23.225 --> 01:08:25.965
And this might be for other checklists and other activities

962

01:08:25.965 --> 01:08:28.205
and processes that you could apply checklist to.

963

01:08:29.025 --> 01:08:32.125
So in this case, the surgeons who I worked

964

01:08:32.125 --> 01:08:36.045
with had a long series of activities bringing

965

01:08:36.345 --> 01:08:37.405
or prepping the,

966

01:08:37.545 --> 01:08:39.965
or bringing the patient in, prepping the patient,

967

01:08:40.595 --> 01:08:45.405
getting a consent from the patient, inducing anesthesia, um,

968

01:08:46.085 --> 01:08:47.725
bringing all the teams together, making sure

969

01:08:47.725 --> 01:08:49.125
that all the safety equipment's there,

970

01:08:49.935 --> 01:08:53.445
doing a briefing if they do, uh, et cetera, uh,

971

01:08:53.445 --> 01:08:54.605
proceeding with the surgery.

972

01:08:55.585 --> 01:08:57.765

And so it was a long series of steps.

973

01:08:58.305 --> 01:09:01.445

And an early draft of this checklist had one pause point

974

01:09:01.545 --> 01:09:02.725

as preoperative.

975

01:09:03.235 --> 01:09:05.845

Well, different teams interpreted that term differently.

976

01:09:06.465 --> 01:09:08.845

In fact, they ended up with a situation of a checklist

977

01:09:09.015 --> 01:09:12.205

where they were trying to do, uh, an item of trying

978

01:09:12.205 --> 01:09:13.605

to get consent from the patient.

979

01:09:13.705 --> 01:09:14.925

The patient was already under

980

01:09:14.925 --> 01:09:16.285

anesthesia, so that didn't work.

981

01:09:22.985 --> 01:09:27.885

So the, uh, the pause points is the process.

982

01:09:28.545 --> 01:09:30.285

And, and well, I'll show you in this example,

983

01:09:30.315 --> 01:09:31.925

what they ended up with is

984

01:09:31.925 --> 01:09:35.125

before induction of anesthesia is the first one

985

01:09:35.125 --> 01:09:36.565

before skin incision and

986

01:09:36.565 --> 01:09:38.205

before patient leaves the operating room.

987

01:09:38.545 --> 01:09:41.525

And then all of the, the steps under each ones of those.

988

01:09:43.265 --> 01:09:45.045

The pause point process is

989

01:09:45.145 --> 01:09:49.725

to first organize the critical actions chronologically then

990

01:09:49.945 --> 01:09:52.485

and noting when each one needs to be complete.

991

01:09:52.745 --> 01:09:55.725

And then choosing the natural stopping points in the process

992

01:09:56.425 --> 01:09:58.765

before you go on to the next critical phase.

993

01:09:59.545 --> 01:10:01.565

One thing to keep in mind is it has to be in time

994

01:10:01.565 --> 01:10:03.285

to correct the missing critical actions.

995

01:10:03.305 --> 01:10:06.365

You have to look at each item before that pause point.

996

01:10:06.635 --> 01:10:08.565

Make sure that if you had omitted it,

997

01:10:08.565 --> 01:10:11.725

assumed you admitted it, is it too late to correct it?

998

01:10:15.495 --> 01:10:17.325

Other considerations are to make sure

999

01:10:17.325 --> 01:10:18.765

that the pause point is tied

1000

01:10:18.765 --> 01:10:20.685
to a very reliably occurring event.

1001

01:10:20.745 --> 01:10:21.925
It has to be something

1002

01:10:21.925 --> 01:10:23.725
that occurs every time in the process.

1003

01:10:24.945 --> 01:10:27.805
For example, we wouldn't want to have our final checklist

1004

01:10:27.945 --> 01:10:31.565
before landing as the flap set at full checklist,

1005

01:10:32.195 --> 01:10:35.245
because what if we omitted that item on that day?

1006

01:10:35.575 --> 01:10:38.085
There is not a natural cue then to do the checklist.

1007

01:10:38.705 --> 01:10:42.245
So we need to use cues that are reliably going to occur

1008

01:10:42.585 --> 01:10:44.165
to initiate the checklist.

1009

01:10:44.745 --> 01:10:47.725
And that event needs to be unambiguous again,

1010

01:10:47.765 --> 01:10:51.685
preoperative ended up being an ambiguous point in time,

1011

01:10:52.105 --> 01:10:54.405
but then they chose much more clear points.

1012

01:10:54.595 --> 01:10:58.245
Like before skin incision was very clear and

1013
01:10:58.265 --> 01:11:02.765
before is the best way to phrase the title for each phase

1014
01:11:02.865 --> 01:11:06.485
of the checklist, uh, that makes sure

1015
01:11:06.485 --> 01:11:09.685
that the users know they need to stop, do the checklist

1016
01:11:10.025 --> 01:11:13.565
before going onto that next activity, before engine start,

1017
01:11:13.585 --> 01:11:16.965
before takeoff, the words at

1018
01:11:16.985 --> 01:11:18.845
or when may sometimes be appropriate.

1019
01:11:21.865 --> 01:11:24.805
So on this step, because we only have a single pause point,

1020
01:11:24.805 --> 01:11:26.405
we're not gonna go into a group activity.

1021
01:11:26.545 --> 01:11:29.885
And because lunch is in 26 minutes, that's another reason.

1022
01:11:30.905 --> 01:11:35.685
Um, so any questions though about choosing pause

1023
01:11:35.685 --> 01:11:39.885
points for a long, uh, multi-phase process

1024
01:11:40.035 --> 01:11:41.325
that needs checklists?

1025
01:11:43.755 --> 01:11:47.085
Okay, I'll keep going.

1026
01:11:47.665 --> 01:11:51.405

The next step, also, very important step in the process.

1027

01:11:51.825 --> 01:11:55.685

Reduce and phrase checklists must be as short

1028

01:11:55.705 --> 01:11:57.205

and concise as possible.

1029

01:11:57.805 --> 01:12:00.845

I really can't overemphasize that fact.

1030

01:12:01.235 --> 01:12:04.365

I've seen a lot of checklists that don't get used,

1031

01:12:04.595 --> 01:12:07.765

that the users, if they're forced to use them, hate them.

1032

01:12:08.425 --> 01:12:09.925

And it's really generally

1033

01:12:09.925 --> 01:12:12.005

because they are too long and wordy.

1034

01:12:12.265 --> 01:12:13.285

People are smart.

1035

01:12:13.425 --> 01:12:17.485

The people using checklists know when they are being forced

1036

01:12:17.505 --> 01:12:20.005

to read a lot of words that aren't necessary.

1037

01:12:20.505 --> 01:12:22.685

And when they're being forced to check items

1038

01:12:22.685 --> 01:12:24.005

that are either noncritical

1039

01:12:24.585 --> 01:12:28.045

or that for some other reason are, for example,

1040
01:12:28.145 --> 01:12:31.045
for are reliably alerted, they have a sense for that.

1041
01:12:31.045 --> 01:12:33.925
And when you try to introduce a new checklist to users

1042
01:12:34.025 --> 01:12:35.445
who aren't used to checklists,

1043
01:12:35.675 --> 01:12:37.045
they've got a real sense for that.

1044
01:12:37.065 --> 01:12:38.925
And they will not like to stop

1045
01:12:38.945 --> 01:12:40.605
and read a checklist that's too long

1046
01:12:40.605 --> 01:12:41.845
or has unnecessary items.

1047
01:12:42.145 --> 01:12:45.285
So we're gonna work really hard to make the checklist

1048
01:12:45.585 --> 01:12:47.485
as short and concise as possible.

1049
01:12:48.565 --> 01:12:51.045
Remember that it's really meant in a do then confirm

1050
01:12:51.225 --> 01:12:52.765
as just a memory jogger.

1051
01:12:53.265 --> 01:12:55.805
You don't have to describe the activity in detail.

1052
01:12:56.145 --> 01:12:59.405
You just want to jog the user's memory as to

1053
01:12:59.405 --> 01:13:00.445

what the item is so

1054

01:13:00.445 --> 01:13:02.925

that they can recognize whether it's been completed or not.

1055

01:13:06.195 --> 01:13:08.485

When you're thinking about how short the checklist needs

1056

01:13:08.485 --> 01:13:09.685

to be, be sure to think about

1057

01:13:09.705 --> 01:13:12.045

how much time is actually available in the flow.

1058

01:13:13.005 --> 01:13:14.845

Airplanes keep moving forward.

1059

01:13:15.745 --> 01:13:18.005

You know, patients have activity,

1060

01:13:18.155 --> 01:13:19.885

they have processes that go forward.

1061

01:13:19.885 --> 01:13:23.285

There are time forcing functions that we have,

1062

01:13:23.345 --> 01:13:24.965

and sometimes we can identify just

1063

01:13:24.965 --> 01:13:26.485

how much time we have to do a checklist.

1064

01:13:27.795 --> 01:13:30.165

Also consider when things aren't going as expected.

1065

01:13:30.545 --> 01:13:32.325

And someone brought up earlier, I think, John,

1066

01:13:32.325 --> 01:13:36.565

you did about, uh, merging together the natops checklist

1067

01:13:36.915 --> 01:13:38.805
with the test procedures.

1068

01:13:38.985 --> 01:13:42.485
And sometimes we're juggling even three different activities

1069

01:13:42.485 --> 01:13:44.405
that are in the four form of checklist.

1070

01:13:45.625 --> 01:13:47.565
Um, so don't just assume

1071

01:13:47.565 --> 01:13:49.725
that the checklist you're designing

1072

01:13:49.745 --> 01:13:50.965
is gonna be used by itself.

1073

01:13:51.305 --> 01:13:53.365
Assume that it's happening on a really bad day.

1074

01:13:53.905 --> 01:13:55.765
And it may be a descent or an approach checklist,

1075

01:13:55.865 --> 01:13:58.085
but you may be also accomplishing, um,

1076

01:13:58.155 --> 01:13:59.645
some emergency procedures

1077

01:13:59.645 --> 01:14:02.565
or be under a high workload situation for other reasons.

1078

01:14:03.425 --> 01:14:06.485
Um, so the checklist may have to be done in conjunction

1079

01:14:06.555 --> 01:14:07.605
with other procedures

1080

01:14:07.605 --> 01:14:10.525

and checklists weigh the importance

1081

01:14:10.525 --> 01:14:12.885
of each item based on the evidence.

1082

01:14:13.145 --> 01:14:15.685
So in this case, for this exercise, it's the evidence

1083

01:14:15.685 --> 01:14:17.925
that's on that little sheet there that's kind

1084

01:14:17.925 --> 01:14:19.965
of giving you hints about whether the item

1085

01:14:20.015 --> 01:14:21.245
needs to be in there or not.

1086

01:14:22.505 --> 01:14:25.605
And then trim your list of critical items down

1087

01:14:25.625 --> 01:14:29.245
to the very minimum and record the rationale.

1088

01:14:29.745 --> 01:14:31.645
That's really important because you,

1089

01:14:31.715 --> 01:14:32.885
when you develop a checklist,

1090

01:14:32.905 --> 01:14:35.285
you're gonna know a lot about why you took,

1091

01:14:35.465 --> 01:14:38.685
why you included each item in and, and excluded other items.

1092

01:14:39.425 --> 01:14:40.645
But five years from now

1093

01:14:40.645 --> 01:14:42.725
or 10 years from now, when there's a reason to revise

1094
01:14:42.725 --> 01:14:44.245
that checklist, whoever comes along

1095
01:14:44.835 --> 01:14:46.845
doesn't know the reason you made those choices.

1096
01:14:47.465 --> 01:14:49.845
And checklists are very short little documents.

1097
01:14:49.845 --> 01:14:50.925
They don't contain much

1098
01:14:50.945 --> 01:14:52.965
of a clue about why they are the way they are.

1099
01:14:53.145 --> 01:14:55.045
Unlike the procedure, the full procedure

1100
01:14:55.045 --> 01:14:57.525
that may have a rationale in embedded in it.

1101
01:14:58.105 --> 01:15:01.405
So as you develop a checklist, record the rationale as

1102
01:15:01.405 --> 01:15:04.085
to the evidence that you used and why you included

1103
01:15:04.085 --> 01:15:06.725
or excluded items for future revisions

1104
01:15:06.845 --> 01:15:08.445
of the checklist and maintaining it.

1105
01:15:12.655 --> 01:15:16.075
You're going to, um, need to decide the sequence

1106
01:15:16.175 --> 01:15:17.315
of items in the checklist.

1107
01:15:17.455 --> 01:15:20.675

And again, we're thinking do then confirm if it's read

1108

01:15:20.675 --> 01:15:22.795

and do, obviously it's going to be the sequence

1109

01:15:22.795 --> 01:15:24.475

that you're actually gonna take the actions,

1110

01:15:25.055 --> 01:15:27.755

but if it's due, then confirm you have the option

1111

01:15:27.755 --> 01:15:29.195

of doing other sequences.

1112

01:15:31.015 --> 01:15:35.395

And, uh, chronological works well if the user has just done

1113

01:15:35.415 --> 01:15:37.715

the procedure and the very next thing they're gonna do

1114

01:15:37.775 --> 01:15:38.795

is run through the checklist.

1115

01:15:39.345 --> 01:15:42.195

It's easier to remember whether you've done things or not.

1116

01:15:42.295 --> 01:15:45.075

And the flow is natural if it follows the same flow

1117

01:15:45.305 --> 01:15:46.435

that you did the procedure.

1118

01:15:46.775 --> 01:15:49.235

But there are reasons to do other sequences.

1119

01:15:49.735 --> 01:15:52.115

For example, if you've got one item on the checklist

1120

01:15:52.255 --> 01:15:55.875

that's highly critical, there's a good rationale for putting

1121

01:15:55.875 --> 01:15:57.875
that as the first item simply

1122

01:15:57.875 --> 01:16:00.515
because the checklist itself might be interrupted.

1123

01:16:00.855 --> 01:16:03.235
You might get partway through it and not finish it.

1124

01:16:03.845 --> 01:16:06.915
There are a number of operators, uh, out in the airlines

1125

01:16:06.985 --> 01:16:10.035
that have before takeoff checklists that have several items.

1126

01:16:10.105 --> 01:16:11.675
They've embellished the items

1127

01:16:11.705 --> 01:16:13.795
that the manufacturer gives them with more.

1128

01:16:14.335 --> 01:16:16.235
And usually flaps set

1129

01:16:16.235 --> 01:16:17.915
for takeoff is the first item in the

1130

01:16:17.915 --> 01:16:19.355
checklist for that reason.

1131

01:16:19.935 --> 01:16:21.875
You might not get through the whole checklist,

1132

01:16:22.015 --> 01:16:24.075
but at least you've covered the most critical item.

1133

01:16:25.245 --> 01:16:29.075
Other times, times you may have done a long process, uh,

1134

01:16:29.175 --> 01:16:30.435

in a, in some sequence,

1135

01:16:30.535 --> 01:16:33.315

but then you have a set of control panels,

1136

01:16:33.485 --> 01:16:37.035

instrument panels, displays that you're going

1137

01:16:37.035 --> 01:16:39.195

to actually be looking at to verify the checklist.

1138

01:16:39.895 --> 01:16:41.115

And it might make more sense

1139

01:16:41.115 --> 01:16:44.475

to put the checklist in the physical flow of the panels.

1140

01:16:44.695 --> 01:16:47.515

So these are a few options for the sequence of the checklist

1141

01:16:47.735 --> 01:16:49.875

and some reasons you might consider them.

1142

01:16:53.015 --> 01:16:54.835

How do we actually phrase the items?

1143

01:16:55.345 --> 01:16:57.395

Well, you're familiar with challenge and response,

1144

01:16:57.775 --> 01:17:00.675

and that is a very efficient way to, to phrase checklist.

1145

01:17:01.755 --> 01:17:05.115

Specifically, we wanna make the challenge the item

1146

01:17:05.145 --> 01:17:07.035

that we're gonna act upon a noun.

1147

01:17:07.495 --> 01:17:10.765

And the response is going to be the action, the position

1148
01:17:10.785 --> 01:17:12.605
of it, the action that we took.

1149
01:17:13.305 --> 01:17:16.485
So item action form is the best for checklists.

1150
01:17:17.865 --> 01:17:20.365
Uh, and so it would look something like flight,

1151
01:17:20.525 --> 01:17:22.725
squawks checked, weather checked, et cetera.

1152
01:17:23.865 --> 01:17:27.445
If you have for some reason a need to create a,

1153
01:17:27.725 --> 01:17:32.365
a more detailed list under an item, then go ahead

1154
01:17:32.385 --> 01:17:35.325
and make it a list form rather than a paragraph.

1155
01:17:35.525 --> 01:17:37.125
A paragraph is a little higher, harder

1156
01:17:37.145 --> 01:17:38.445
for the users to pick out.

1157
01:17:38.825 --> 01:17:41.845
If it is effectively a list, make it a list.

1158
01:17:45.135 --> 01:17:48.355
Always assume, and this this came up earlier when we talked

1159
01:17:48.355 --> 01:17:52.395
about, uh, expanded information being available to users.

1160
01:17:52.615 --> 01:17:54.635
Always assume that the user is going

1161
01:17:54.635 --> 01:17:56.675

to read every single word in the checklist.

1162

01:17:58.575 --> 01:18:01.115

If you, if you create a checklist, that's going to have

1163

01:18:01.115 --> 01:18:03.675

to be by its nature some picking

1164

01:18:03.735 --> 01:18:05.515

and choosing of the of the users,

1165

01:18:05.825 --> 01:18:07.395

they're gonna omit certain words.

1166

01:18:07.785 --> 01:18:09.355

It's really not a checklist anymore.

1167

01:18:10.025 --> 01:18:12.995

It's going to be, it's gonna be, uh, there are things

1168

01:18:12.995 --> 01:18:14.115

that they're not gonna see.

1169

01:18:14.115 --> 01:18:15.835

They're gonna end up omitting things from the

1170

01:18:15.835 --> 01:18:16.955

checklist and missing things.

1171

01:18:17.335 --> 01:18:20.395

So assume that they'll always read every single word in the

1172

01:18:20.395 --> 01:18:23.595

checklist if more detail is needed, put

1173

01:18:23.595 --> 01:18:26.035

that detail in another location, put it on the backside

1174

01:18:26.035 --> 01:18:28.275

of the card, put it in a reference document,

1175
01:18:28.775 --> 01:18:30.475
but make the checklist something

1176
01:18:30.475 --> 01:18:32.675
that every single word will need to be read.

1177
01:18:33.865 --> 01:18:35.995
When you're all done and you think you've got it as short

1178
01:18:35.995 --> 01:18:38.155
as possible, do a single word check.

1179
01:18:38.155 --> 01:18:40.715
And that means look at each word in the checklist

1180
01:18:41.495 --> 01:18:43.395
and say, if I take that word out,

1181
01:18:43.945 --> 01:18:45.435
does the, is the meaning lost?

1182
01:18:45.735 --> 01:18:48.475
And you'll find, oh, hey, Kay, look, I thought it was short

1183
01:18:48.495 --> 01:18:49.875
as it could be, but look,

1184
01:18:49.875 --> 01:18:51.635
there are a few more words I can take out.

1185
01:18:52.705 --> 01:18:57.585
Okay. So I'm gonna give you a before and

1186
01:18:57.585 --> 01:19:01.625
after example, uh, for a fire engine operation checklist.

1187
01:19:02.045 --> 01:19:04.145
You, this is the before which I showed you

1188
01:19:04.145 --> 01:19:06.585

before the pre response en route and returning.

1189

01:19:07.615 --> 01:19:11.185

This was the after, after I worked with the fire chief.

1190

01:19:11.805 --> 01:19:13.505

Uh, we threw it back and forth a few times.

1191

01:19:13.645 --> 01:19:14.865

We looked at the real evidence

1192

01:19:14.865 --> 01:19:16.345

and the criticality of each item.

1193

01:19:17.045 --> 01:19:18.865

We looked at phrasing each item,

1194

01:19:18.925 --> 01:19:21.385

and we made sure that he did an operational concept

1195

01:19:21.605 --> 01:19:23.305

and that he understood, you know,

1196

01:19:23.365 --> 01:19:26.345

how the checklist was gonna be used as a do then confirm.

1197

01:19:26.885 --> 01:19:28.825

So we ended up with before response.

1198

01:19:29.245 --> 01:19:33.745

And these five critical items all as item action

1199

01:19:34.845 --> 01:19:39.145

before return these four item action items.

1200

01:19:40.165 --> 01:19:41.785

And before entering the station,

1201

01:19:42.315 --> 01:19:44.625

these were actually the three critical items.

1202
01:19:45.405 --> 01:19:48.025
So going through an operational concept, going

1203
01:19:48.025 --> 01:19:49.745
through a strict reduce

1204
01:19:49.885 --> 01:19:53.425
and phrase ended up with a much more concise

1205
01:19:53.485 --> 01:19:54.505
and usable checklist.

1206
01:19:59.895 --> 01:20:02.745
Okay, any questions on reduce and phrase?

1207
01:20:02.855 --> 01:20:03.865
This is be the process

1208
01:20:03.915 --> 01:20:07.365
where you actually create your checklist from your critical

1209
01:20:07.365 --> 01:20:08.925
items and phrase them

1210
01:20:08.985 --> 01:20:11.485
as a challenge response in an item action

1211
01:20:11.505 --> 01:20:15.605
format. Yes.

1212
01:20:16.465 --> 01:20:20.285
So on the initial assumptions it says that we will, uh,

1213
01:20:20.285 --> 01:20:22.205
before take off checklist will be accomplished

1214
01:20:22.205 --> 01:20:25.885
as a final action since we change the other assumption.

1215
01:20:25.885 --> 01:20:28.205

That said, no quick stops. Can we get rid of that?

1216

01:20:28.205 --> 01:20:30.925

Because, you know, there's two items on there

1217

01:20:30.925 --> 01:20:33.805

that are like plastic of trim, which a bunch

1218

01:20:33.805 --> 01:20:35.405

of people are like, everything in relates

1219

01:20:35.405 --> 01:20:37.725

to configuration are the five things they're gonna check.

1220

01:20:38.265 --> 01:20:39.405

Can we get rid of that one? Or

1221

01:20:39.585 --> 01:20:41.245

Let, let's, let's, good question.

1222

01:20:41.245 --> 01:20:43.045

What do we do with this before take off checklist.

1223

01:20:43.375 --> 01:20:46.965

Let's assume, let's continue to assume that

1224

01:20:46.965 --> 01:20:51.085

after our full stop taxi backed checklist is read that the

1225

01:20:51.085 --> 01:20:53.365

before takeoff checklist will always be read.

1226

01:20:54.185 --> 01:20:57.555

So the natural conclusion is you don't,

1227

01:20:57.555 --> 01:20:58.675

you don't need to repeat items.

1228

01:20:59.215 --> 01:21:00.675

So something that's in the

1229
01:21:00.675 --> 01:21:03.595
before takeoff checklist will not need to be in your

1230
01:21:03.595 --> 01:21:05.995
before tax your, your full stop taxi back checklist.

1231
01:21:06.675 --> 01:21:07.795
'cause it's going to be read in

1232
01:21:07.795 --> 01:21:08.835
the before takeoff checklist.

1233
01:21:10.265 --> 01:21:14.675
Good question. Okay, so

1234
01:21:15.965 --> 01:21:18.595
let's take, let's shoot for, let's try

1235
01:21:18.595 --> 01:21:20.155
to take about seven minutes to do this.

1236
01:21:20.615 --> 01:21:22.155
I'd like to give you a little more time,

1237
01:21:22.295 --> 01:21:24.755
but, um, we're, we're short on time

1238
01:21:25.735 --> 01:21:28.595
and so, uh, just get together

1239
01:21:29.055 --> 01:21:31.275
and it'll be about 21 after.

1240
01:21:33.535 --> 01:21:35.915
And Bill and I will walk around and answer any questions.

1241
01:22:43.055 --> 01:22:44.915
So have somebody in your group write

1242
01:22:44.915 --> 01:22:46.155

down what you come up with.

1243

01:22:46.475 --> 01:22:48.155

'cause this is sort of your finished checklist.

1244

01:26:12.745 --> 01:26:14.125

You have about one minute left.

1245

01:27:43.635 --> 01:27:46.445

Okay, let's wrap up.

1246

01:27:50.875 --> 01:27:53.205

Hopefully someone in your group has

1247

01:27:54.675 --> 01:27:56.605

written down your checklist items.

1248

01:27:59.835 --> 01:28:00.975

And then, yeah, go ahead.

1249

01:28:01.195 --> 01:28:03.735

Two or three people to actually read your checklist

1250

01:28:03.995 --> 01:28:05.215

as if you were doing it.

1251

01:28:05.835 --> 01:28:08.255

So you start by reading the title you selected

1252

01:28:08.875 --> 01:28:12.695

and have one person in your group read the challenge item

1253

01:28:13.075 --> 01:28:15.655

and somebody else in your group read the response item.

1254

01:28:16.595 --> 01:28:18.255

So who has one? You're ready to go?

1255

01:28:22.645 --> 01:28:23.645

Okay, good.

1256
01:28:34.125 --> 01:28:36.335
Okay. Quick turn. Checklist. Speed breaks.

1257
01:28:36.995 --> 01:28:39.775
Set auto brakes set.

1258
01:28:40.975 --> 01:28:43.295
FMC Set checklist complete.

1259
01:28:44.595 --> 01:28:49.335
All right, good. Short, concise item. Action.

1260
01:28:50.045 --> 01:28:52.255
Okay. Comments or questions on their checklist?

1261
01:29:00.555 --> 01:29:03.965
One of the things, one of the things to ask yourself

1262
01:29:04.545 --> 01:29:08.325
is can you use a term non repetitively

1263
01:29:09.035 --> 01:29:11.205
because the problem using the same term,

1264
01:29:11.265 --> 01:29:15.525
and you may have noticed in the, um, earlier one of

1265
01:29:15.525 --> 01:29:16.685
with the fire prevention

1266
01:29:16.825 --> 01:29:21.045
or the fire protection checklist they used Yes, over

1267
01:29:21.045 --> 01:29:22.125
and over and over again.

1268
01:29:22.545 --> 01:29:23.965
And the more time you do that,

1269
01:29:24.345 --> 01:29:25.725

the less it becomes a checklist.

1270

01:29:25.945 --> 01:29:27.485

You just automatically reply.

1271

01:29:28.105 --> 01:29:30.485

So if you can use some other term so

1272

01:29:30.485 --> 01:29:32.445

that you're not just repeating the same term

1273

01:29:32.445 --> 01:29:33.525

over and over, it's good.

1274

01:29:33.945 --> 01:29:34.945

But that's good. Thanks.

1275

01:29:42.085 --> 01:29:44.405

I just have one comment on the, uh, spoilers

1276

01:29:44.505 --> 01:29:48.205

and the, the speed break, because actually,

1277

01:29:48.265 --> 01:29:49.565

and it may seem nitpicky,

1278

01:29:49.565 --> 01:29:52.845

but if you look through the line, the trap is a spoiler

1279

01:29:53.035 --> 01:29:55.925

that is stuck up after the landing.

1280

01:29:56.875 --> 01:29:58.685

It's not the position of the speed brake lever.

1281

01:29:59.585 --> 01:30:01.365

Um, it's not the protections

1282

01:30:01.365 --> 01:30:03.125

of the speed brakes auto retracting

1283
01:30:03.595 --> 01:30:06.485
because they're captured by the systems.

1284
01:30:07.105 --> 01:30:08.125
But what is a trap

1285
01:30:08.355 --> 01:30:11.285
that is not normally there on a cold takeoff, if you like,

1286
01:30:11.625 --> 01:30:12.925
is the possibility that one

1287
01:30:12.925 --> 01:30:14.445
of the spoilers has not retracted

1288
01:30:14.985 --> 01:30:17.765
and it's actually that that's critical to the safety.

1289
01:30:18.135 --> 01:30:19.365
Great point. So it's a

1290
01:30:19.445 --> 01:30:21.165
Question of whether, so my, my response would be

1291
01:30:22.375 --> 01:30:24.765
speed brakes or spoilers down,

1292
01:30:25.895 --> 01:30:26.895
Right? So there's the issue

1293
01:30:26.895 --> 01:30:28.405
of is the control in the correct

1294
01:30:28.685 --> 01:30:32.365
position versus is the system actually in the correct state?

1295
01:30:33.065 --> 01:30:35.645
And that's a always an important consideration.

1296
01:30:37.105 --> 01:30:38.285

Did you wanna do another one, bill?

1297

01:30:38.675 --> 01:30:40.645

Yeah, let's do one more. Who else has one?

1298

01:30:46.145 --> 01:30:48.565

So without the approved list of critical items,

1299

01:30:48.585 --> 01:30:51.205

we just went through all of 'em except for, uh, the two

1300

01:30:51.205 --> 01:30:52.605

that were in the before takeoff checklist.

1301

01:30:53.105 --> 01:30:54.445

So a speed break down.

1302

01:31:00.335 --> 01:31:02.545

It's back a few pages, but it was many

1303

01:31:02.545 --> 01:31:03.585

more words than quick turn.

1304

01:31:07.215 --> 01:31:10.345

Okay, speed. Break down flight con fuel control.

1305

01:31:10.485 --> 01:31:15.385

Low idle auto brake. RTO take off. Thrust set. Take off.

1306

01:31:15.385 --> 01:31:18.705

Speed. Set. FMS set take off briefing.

1307

01:31:19.065 --> 01:31:21.185

Complete fuel control flight idle.

1308

01:31:22.005 --> 01:31:23.705

All right, great. Okay,

1309

01:31:23.985 --> 01:31:25.065

comments or questions on theirs?

1310
01:31:26.085 --> 01:31:28.385
Why would you do the fuel control twice if it,

1311
01:31:28.535 --> 01:31:30.905
it's a confirm that it, when you got

1312
01:31:30.925 --> 01:31:35.145
to confirm it's already my i Well, what

1313
01:31:35.765 --> 01:31:39.425
the, it depends on where you are running the checklist.

1314
01:31:40.045 --> 01:31:42.425
Uh, if you're, I imagine if you're taxing

1315
01:31:42.445 --> 01:31:43.505
for an extended period of time,

1316
01:31:44.165 --> 01:31:47.865
it talks about having low ILE four, uh, tax fees,

1317
01:31:47.935 --> 01:31:49.865
fuel consumption, uh,

1318
01:31:49.965 --> 01:31:51.305
and then just prior to take off,

1319
01:31:52.445 --> 01:31:53.585
that's gonna be the situation.

1320
01:31:54.885 --> 01:31:57.585
So that might even be a multi-phase checklist.

1321
01:31:57.935 --> 01:32:00.405
Essentially. Uh, you could have some items

1322
01:32:00.435 --> 01:32:03.485
that you would run a pause point to make sure

1323
01:32:03.485 --> 01:32:06.445

that the airplane, for example, other items

1324

01:32:06.445 --> 01:32:10.085

that we didn't have on here, lights set or transponder for

1325

01:32:10.085 --> 01:32:12.925

after, uh, if you're assuming you're going off the runway,

1326

01:32:13.385 --> 01:32:16.205

and then you could have another pause point

1327

01:32:16.345 --> 01:32:17.765

before you reenter the runway

1328

01:32:17.905 --> 01:32:19.685

and actually have a two phase checklist.

1329

01:32:20.545 --> 01:32:21.845

So there's another option

1330

01:32:21.865 --> 01:32:24.685

or another operational concept essentially for,

1331

01:32:24.945 --> 01:32:26.165

for this particular checklist.

1332

01:32:27.275 --> 01:32:28.445

What I'll show you now,

1333

01:32:28.545 --> 01:32:30.405

and again, there's no one right answer.

1334

01:32:30.475 --> 01:32:32.245

Each of you brings in different background

1335

01:32:32.245 --> 01:32:34.925

and different technical considerations, um,

1336

01:32:34.925 --> 01:32:37.685

that informs uh, your choices.

1337
01:32:38.275 --> 01:32:42.845
This is one sample checklist for the scenario. Uh, okay.

1338
01:32:42.855 --> 01:32:45.085
Would be called a landing taxi back checklist.

1339
01:32:46.355 --> 01:32:49.165
Auto brake, RTO takeoff, thrust

1340
01:32:49.165 --> 01:32:52.525
and speed set departure route set briefing complete.

1341
01:32:52.995 --> 01:32:54.485
Some of the things that aren't in there

1342
01:32:55.025 --> 01:32:57.445
are the speed brake lever based on the integrity

1343
01:32:57.505 --> 01:32:58.645
of the alerting system.

1344
01:32:59.305 --> 01:33:03.165
Uh, and then the, uh, uh, the, uh,

1345
01:33:03.965 --> 01:33:05.885
I idle, um,

1346
01:33:06.695 --> 01:33:09.085
adjustment based on non criticality.

1347
01:33:10.065 --> 01:33:13.005
And then the, the items that are in the

1348
01:33:13.005 --> 01:33:15.205
before takeoff checklist are not repeated in the

1349
01:33:15.205 --> 01:33:16.365
landing taxi backed checklist.

1350
01:33:16.465 --> 01:33:18.085

So that's one set of rationale.

1351

01:33:18.625 --> 01:33:22.125

And then again, all of the processes you work through.

1352

01:33:22.145 --> 01:33:23.685

The important thing here is the process,

1353

01:33:24.785 --> 01:33:26.245

how we look at these considerations,

1354

01:33:26.345 --> 01:33:27.925

how we weigh them, how we weigh the evidence.

1355

01:33:28.345 --> 01:33:29.885

So great work everybody.

1356

01:33:31.995 --> 01:33:33.615

Um, we've got two more things

1357

01:33:33.675 --> 01:33:35.535

to cover on the checklist builder,

1358

01:33:35.795 --> 01:33:38.255

and then just a few considerations

1359

01:33:38.275 --> 01:33:39.775

for non-normal checklists.

1360

01:33:40.275 --> 01:33:41.455

So Bill's gonna run through,

1361

01:33:41.455 --> 01:33:44.655

and we're kind of down to our last five minutes here,

1362

01:33:44.655 --> 01:33:46.735

so we're gonna run quickly through our last bits.

1363

01:33:48.965 --> 01:33:51.455

Okay. These next couple that we're going to talk about,

1364
01:33:51.545 --> 01:33:54.295
we're going to do, so you have a, a complete understanding

1365
01:33:54.315 --> 01:33:55.735
of what's in the checklist builder,

1366
01:33:55.755 --> 01:33:57.375
but we're not gonna actually do them here

1367
01:33:57.375 --> 01:34:01.255
because they use manipulating computer software to do it.

1368
01:34:01.595 --> 01:34:03.575
And the first one has to do with formatting.

1369
01:34:03.575 --> 01:34:05.175
How do you format your checklist? Checklist.

1370
01:34:05.805 --> 01:34:07.815
Some of the questions you'll be answering is

1371
01:34:07.815 --> 01:34:09.015
what font should you use?

1372
01:34:09.045 --> 01:34:11.335
What about spacing and icons and colors?

1373
01:34:12.595 --> 01:34:14.975
And the reason you want to consider all those things is

1374
01:34:14.975 --> 01:34:16.735
because of the conditions under which the

1375
01:34:16.735 --> 01:34:17.975
checklist is going to be used.

1376
01:34:18.635 --> 01:34:21.335
You know, sitting in a cockpit, there's all kinds of things

1377
01:34:21.335 --> 01:34:23.255

that impact your ability to do your job.

1378

01:34:23.655 --> 01:34:25.895

Lighting, for example, there may be glare

1379

01:34:25.965 --> 01:34:27.815

that makes it difficult to see.

1380

01:34:27.815 --> 01:34:30.135

At times. You may be flying in a low light

1381

01:34:30.155 --> 01:34:32.495

or at night, where again, it's difficult to see.

1382

01:34:32.985 --> 01:34:35.375

There could be vibration if you're doing stalls testing,

1383

01:34:35.515 --> 01:34:37.695

for example, you could have a lot of vibration,

1384

01:34:37.695 --> 01:34:39.695

which makes it difficult to read a checklist.

1385

01:34:40.275 --> 01:34:42.175

So the better formatted it is, the better.

1386

01:34:42.555 --> 01:34:44.015

And then of course there could be smoke,

1387

01:34:44.015 --> 01:34:46.855

which we hope never happens, but it, it could be.

1388

01:34:47.115 --> 01:34:49.215

And again, that would, that would compromise your

1389

01:34:49.215 --> 01:34:50.375

ability to read the checklist.

1390

01:34:51.795 --> 01:34:53.735

So see here are some points to consider.

1391
01:34:54.315 --> 01:34:56.015
The larger the font, the better.

1392
01:34:56.745 --> 01:34:58.885
Don't worry about making it too large

1393
01:34:59.195 --> 01:35:00.805
because it can't be too large,

1394
01:35:00.805 --> 01:35:02.245
except it won't fit on the page.

1395
01:35:02.895 --> 01:35:04.045
Ample line spacing.

1396
01:35:04.045 --> 01:35:05.725
So you want to be able to space it out

1397
01:35:05.785 --> 01:35:08.845
so you can see each line item as they occur.

1398
01:35:09.395 --> 01:35:12.685
High contrast, you don't want dark blue on light blue,

1399
01:35:12.705 --> 01:35:15.325
for example, I saw, in fact, we had at Boeing,

1400
01:35:15.575 --> 01:35:17.765
there was a checklist that was produced that way.

1401
01:35:18.105 --> 01:35:20.005
And if you have any kind of colorblindness

1402
01:35:20.065 --> 01:35:24.005
or any kind of possible impact, you're viewing it,

1403
01:35:24.115 --> 01:35:25.765
it's gonna be a challenge to read it.

1404
01:35:26.585 --> 01:35:28.765

You wanna separate the challenge in response.

1405

01:35:29.225 --> 01:35:31.685

The best way to do that, or the way that we've done here is

1406

01:35:31.685 --> 01:35:33.085

with dots all the way across.

1407

01:35:33.305 --> 01:35:36.445

So you, you see the linkage, you see what the challenges

1408

01:35:36.445 --> 01:35:38.405

or the item, you see what the response is,

1409

01:35:38.405 --> 01:35:42.405

and they automatically go together, avoid color and coding.

1410

01:35:42.865 --> 01:35:45.405

In the bottom of the screen there, where you see the,

1411

01:35:45.665 --> 01:35:49.565

the colored box, the blue colored box, there's, there's, um,

1412

01:35:50.195 --> 01:35:53.845

shadowing, there's icons, there's different colors, all

1413

01:35:53.845 --> 01:35:55.165

of which makes it difficult

1414

01:35:55.225 --> 01:35:57.365

to read the items on that part of the checklist.

1415

01:35:57.795 --> 01:36:00.165

Whereas you compare that to the ones up above

1416

01:36:00.545 --> 01:36:02.845

and the ones up above are so much easier to read.

1417

01:36:03.305 --> 01:36:04.765

And that's what you're aiming for.

1418
01:36:05.365 --> 01:36:07.725
A checklist that can't be read is not

1419
01:36:07.725 --> 01:36:08.805
going to be readily used.

1420
01:36:09.105 --> 01:36:10.525
So you want to keep that in mind.

1421
01:36:11.745 --> 01:36:14.285
It also has to be flow apparent to the eye.

1422
01:36:14.825 --> 01:36:17.605
Here's one where you have to wonder what the flow is.

1423
01:36:18.525 --> 01:36:20.525
I mean, you look at that, where do you start?

1424
01:36:22.215 --> 01:36:26.165
Where, where do you go? It's really, it's confusing.

1425
01:36:26.595 --> 01:36:28.525
It's no apparent flow.

1426
01:36:28.675 --> 01:36:30.685
Then there's some other things in there as well.

1427
01:36:31.235 --> 01:36:34.245
There's different colors of boxes are,

1428
01:36:34.345 --> 01:36:36.125
do those colors signify something?

1429
01:36:36.385 --> 01:36:39.445
Are there ones that are more important than others or what?

1430
01:36:39.705 --> 01:36:42.605
So there's a lot of things in this particular checklist

1431
01:36:42.875 --> 01:36:46.525

that are not, it's not constructed in a way

1432

01:36:46.525 --> 01:36:47.885

that's gonna be effectively used.

1433

01:36:47.945 --> 01:36:49.245

And that's what you don't want.

1434

01:36:49.965 --> 01:36:51.605

'cause if you have a checklist that's like that,

1435

01:36:51.605 --> 01:36:53.925

people are gonna set it aside, they're not going to use it.

1436

01:36:54.225 --> 01:36:56.005

And then you will have wasted all that time.

1437

01:36:57.705 --> 01:37:01.485

Are you gonna touch on numbering at all? We didn't.

1438

01:37:01.745 --> 01:37:03.765

You got a checklist that's could be interrupted.

1439

01:37:04.445 --> 01:37:06.565

I always try and switch, have a number

1440

01:37:06.865 --> 01:37:09.965

or something so the crew can say we're at step five.

1441

01:37:11.575 --> 01:37:14.405

Right? Yeah. Numbering can be a good method, especially

1442

01:37:14.485 --> 01:37:15.485

A test.

1443

01:37:15.515 --> 01:37:18.765

Yeah. The main issues with numbering that we found is

1444

01:37:18.795 --> 01:37:22.805

that it can sometimes be misinterpreted when the,

1445
01:37:23.235 --> 01:37:25.845
when the beginning of the step includes a number,

1446
01:37:25.875 --> 01:37:27.765
like an engine number, et cetera.

1447
01:37:27.765 --> 01:37:30.125
You just, it, that's the only issue with numbering

1448
01:37:30.125 --> 01:37:31.605
that we've run into is generally good.

1449
01:37:32.105 --> 01:37:34.605
But it can end up with some confusion.

1450
01:37:34.605 --> 01:37:38.325
You have to be careful about, uh, how it, uh, works

1451
01:37:38.395 --> 01:37:41.125
with the step itself and whether there can be confusion.

1452
01:37:41.225 --> 01:37:42.225
Yep.

1453
01:37:43.275 --> 01:37:45.525
Yeah, some of the same questions come up with marking.

1454
01:37:45.645 --> 01:37:49.405
I was working with a group that would do full scale testing

1455
01:37:49.745 --> 01:37:51.045
of commercial airplanes

1456
01:37:51.045 --> 01:37:54.085
and just the setup of the test took several days.

1457
01:37:54.745 --> 01:37:57.085
So there's multiple shifts involved.

1458
01:37:57.505 --> 01:38:00.685

And so there's multiple coordination of the checklist

1459

01:38:00.905 --> 01:38:02.085

and where they are in the checklist

1460

01:38:02.265 --> 01:38:03.525

and what has been accomplished,

1461

01:38:03.525 --> 01:38:04.645

what hasn't been accomplished.

1462

01:38:05.145 --> 01:38:07.605

So they marked it not for retention,

1463

01:38:07.865 --> 01:38:09.125

but just for communication

1464

01:38:09.125 --> 01:38:10.525

and coordination of what they were doing.

1465

01:38:11.025 --> 01:38:13.045

So all those things have to come into play.

1466

01:38:14.345 --> 01:38:16.965

As far as fonts, you want to use a mixed case font.

1467

01:38:17.215 --> 01:38:18.245

Again, if you look at this,

1468

01:38:18.305 --> 01:38:21.765

and in, in many of our operations, we use a lot of acronyms.

1469

01:38:22.145 --> 01:38:24.605

So you look at the top one FMS selector

1470

01:38:24.605 --> 01:38:25.685

and look at the bottom one.

1471

01:38:26.425 --> 01:38:27.805

Are both of the bottom ones,

1472
01:38:27.805 --> 01:38:30.845
would they be both considered some kind of an acronym

1473
01:38:31.195 --> 01:38:32.885
because they're all capitalized?

1474
01:38:32.885 --> 01:38:35.525
You're not sure. So it's just easier to make

1475
01:38:35.525 --> 01:38:38.005
that distinction by using mixed cases

1476
01:38:38.145 --> 01:38:40.405
and the same as the response left or right,

1477
01:38:40.825 --> 01:38:43.045
or I'm not sure what the bottom one signifies.

1478
01:38:45.445 --> 01:38:47.565
Likewise, as far as the type of font,

1479
01:38:47.885 --> 01:38:52.205
a San Serif font is better than a RIF font, San Serif

1480
01:38:52.945 --> 01:38:55.045
in the vernaculars without tails,

1481
01:38:55.105 --> 01:38:56.165
if you want to call it that.

1482
01:38:56.505 --> 01:38:59.085
So the top in this example is a San Serif,

1483
01:38:59.085 --> 01:39:00.285
the bottom is a serif.

1484
01:39:00.745 --> 01:39:03.165
And for this purpose, historically

1485
01:39:03.165 --> 01:39:04.565

and scientifically, it's been proven

1486

01:39:04.565 --> 01:39:06.765

that San Serif works better than Siff.

1487

01:39:06.825 --> 01:39:09.005

So when you're formatting, you want

1488

01:39:09.125 --> 01:39:10.765

to use Samsara whenever possible.

1489

01:39:12.125 --> 01:39:13.645

Questions, comments about formatting?

1490

01:39:17.355 --> 01:39:18.925

Okay, good. Whoops.

1491

01:39:19.345 --> 01:39:22.925

The, uh, the wording also when it comes to

1492

01:39:22.925 --> 01:39:27.005

how the label on the switch also matches,

1493

01:39:27.235 --> 01:39:28.565

matches the switch.

1494

01:39:28.665 --> 01:39:29.665

So

1495

01:39:30.555 --> 01:39:33.085

Yeah, definitely, uh, center Hydraulic.

1496

01:39:33.595 --> 01:39:38.045

Yeah, panel panel matching is definitely a positive,

1497

01:39:38.045 --> 01:39:42.525

especially if you get into, uh, the users not being

1498

01:39:42.525 --> 01:39:45.685

of the same native language as the flight deck is set up in,

1499
01:39:46.185 --> 01:39:49.325
um, that character matching between the checklist

1500
01:39:49.665 --> 01:39:51.205
and the panel is very important.

1501
01:39:51.545 --> 01:39:52.545
Yep.

1502
01:39:55.715 --> 01:39:57.205
Okay. The last step

1503
01:39:57.205 --> 01:39:59.765
that in the checklist builder is test and improve.

1504
01:40:00.385 --> 01:40:02.485
And you don't wanna make the mistake of trying

1505
01:40:02.485 --> 01:40:04.925
to put a checklist together, roll it out

1506
01:40:04.925 --> 01:40:07.205
to everyone without testing and approving.

1507
01:40:07.765 --> 01:40:09.725
'cause you've been involved in the development process,

1508
01:40:10.105 --> 01:40:12.005
you know what work went into it, you know

1509
01:40:12.005 --> 01:40:13.165
what your rationale was.

1510
01:40:13.545 --> 01:40:15.645
The users may not know that, and

1511
01:40:15.645 --> 01:40:17.645
because of that, they may interpret it differently.

1512
01:40:18.305 --> 01:40:20.565

So you want to test before distributing first.

1513

01:40:20.565 --> 01:40:21.845

You wanna test it yourself.

1514

01:40:22.305 --> 01:40:24.605

Use the group that developed the test,

1515

01:40:25.305 --> 01:40:26.685

run it to see how it goes.

1516

01:40:26.685 --> 01:40:29.325

Using the checklist, practice reading

1517

01:40:29.345 --> 01:40:30.965

and responding before using live.

1518

01:40:31.075 --> 01:40:32.645

Involve all the team members

1519

01:40:32.645 --> 01:40:34.525

that were involved in development in the test,

1520

01:40:34.865 --> 01:40:36.325

and then revise it as needed.

1521

01:40:36.825 --> 01:40:38.925

And then provide support in terms

1522

01:40:38.925 --> 01:40:40.525

of expected use of the checklist.

1523

01:40:41.105 --> 01:40:43.005

You may need to give a, um,

1524

01:40:43.325 --> 01:40:45.605

a briefing about why it was developed,

1525

01:40:45.755 --> 01:40:46.885

what the thinking was.

1526
01:40:46.905 --> 01:40:50.125
The rationale was you may need to provide some kind

1527
01:40:50.125 --> 01:40:51.325
of training before you try

1528
01:40:51.325 --> 01:40:53.405
and implement the checklist, whatever's

1529
01:40:53.405 --> 01:40:54.525
gonna make it better to use.

1530
01:40:55.265 --> 01:40:59.565
And then deploy to multiple teams, have several teams use it

1531
01:40:59.565 --> 01:41:00.645
and give you feedback

1532
01:41:01.105 --> 01:41:03.285
before trying to implement it with all teams.

1533
01:41:03.705 --> 01:41:06.085
And then once you all submit it to all teams,

1534
01:41:06.205 --> 01:41:07.725
continuously seek feedback.

1535
01:41:07.785 --> 01:41:09.725
And so you can continuously improve it.

1536
01:41:10.155 --> 01:41:11.845
It's sort of a living document.

1537
01:41:12.225 --> 01:41:14.645
You want to get it to a point where it makes sense

1538
01:41:14.785 --> 01:41:16.525
and is usable as is,

1539
01:41:16.945 --> 01:41:20.525

but you want to continuously seek feedback, questions,

1540

01:41:20.685 --> 01:41:21.925

comments on testing and improving.

1541

01:41:24.665 --> 01:41:26.565

But yeah. Bill, you mentioned the word training

1542

01:41:26.625 --> 01:41:30.165

and earlier, I think what Dan said, you have

1543

01:41:30.285 --> 01:41:32.605

to assume every word is gonna be read.

1544

01:41:32.635 --> 01:41:35.685

Correct. So I think you have to assume

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01:41:35.715 --> 01:41:37.525

that you're trained to read every

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01:41:37.525 --> 01:41:38.525

Word, correct?

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01:41:38.995 --> 01:41:40.565

Yeah, that's exactly right.

1548

01:41:40.745 --> 01:41:42.885

And that's when, that's the one thing, one

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01:41:42.885 --> 01:41:44.605

of the things you need to keep in the back of your mind,

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01:41:44.605 --> 01:41:47.165

and that's why you do a single word check so

1551

01:41:47.165 --> 01:41:49.365

that when you read through it, you want them

1552

01:41:49.465 --> 01:41:51.805

to read every single word that's on there.

1553

01:41:51.875 --> 01:41:55.005

Because once they start not reading every word,

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01:41:55.195 --> 01:41:58.205

then they're gonna start skipping portions of it, excuse me.

1555

01:41:58.425 --> 01:42:00.325

And then they're gonna eventually skip the whole checklist.

1556

01:42:00.505 --> 01:42:02.245

And so you've wasted your time in doing it,

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01:42:02.945 --> 01:42:04.485

but there may be other things you need

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01:42:04.485 --> 01:42:06.165

to bring up in training as far

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01:42:06.165 --> 01:42:09.285

as why this was developed in the first place, what you hope

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01:42:09.285 --> 01:42:10.725

to achieve through using the

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01:42:10.725 --> 01:42:12.125

checklist and those kinds of things.

1562

01:42:14.835 --> 01:42:16.405

Okay. What other questions?

1563

01:42:16.405 --> 01:42:18.005

Maybe you had questions at the beginning,

1564

01:42:18.065 --> 01:42:19.085

we didn't get to answer.

1565

01:42:19.225 --> 01:42:22.925

Are there other questions you have that you'd like

1566

01:42:22.925 --> 01:42:24.445

to get a response to at this time?

1567

01:42:27.555 --> 01:42:28.925

When, like, when's lunch?

1568

01:42:31.095 --> 01:42:34.565

We're gonna skip lunch? No. Oh, please.

1569

01:42:35.165 --> 01:42:37.725

I i, this is kind of an organizational question,

1570

01:42:38.665 --> 01:42:41.645

but how have you found it the best for organized so

1571

01:42:41.645 --> 01:42:45.725

that the people who do the checklists are incentivized

1572

01:42:46.665 --> 01:42:49.885

and rewarded for doing this instead of being additional duty

1573

01:42:50.425 --> 01:42:51.445

for the violence and flight

1574

01:42:51.445 --> 01:42:52.445

Officer? That's a great

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01:42:52.445 --> 01:42:52.925

question.

1576

01:42:53.185 --> 01:42:56.765

Um, and, and, and, and I've seen a lot of issues there.

1577

01:42:57.265 --> 01:43:01.605

Um, you know, obviously involving the team members from each

1578

01:43:01.625 --> 01:43:05.245

of the disciplines that is affected by it in the development

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01:43:05.245 --> 01:43:07.925

of the checklist, then they're bought into it, uh,

1580

01:43:08.115 --> 01:43:10.365

good training, including the rationale

1581

01:43:10.465 --> 01:43:14.045

for why the checklist is the way it is, the critical items,

1582

01:43:14.265 --> 01:43:17.645

the uh, uh, the error history on the checklist helps people,

1583

01:43:18.025 --> 01:43:19.125

uh, being more convinced.

1584

01:43:19.545 --> 01:43:22.445

The biggest thing though, is the bottom line is that

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01:43:22.445 --> 01:43:24.125

that checklist is short and easy to use.

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01:43:24.745 --> 01:43:28.405

And I've watched as surgeons who basically hated the idea

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01:43:28.405 --> 01:43:30.005

of a checklist, didn't want

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01:43:30.005 --> 01:43:33.205

to be interrupted in their perfect flow that they were in,

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01:43:33.705 --> 01:43:36.645

in their work, uh, were found

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01:43:36.645 --> 01:43:38.965

that they had caught, uh, errors.

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01:43:39.745 --> 01:43:42.805

And as soon as that happens, okay, there the thing starts

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01:43:42.825 --> 01:43:44.125

to become your friend a little bit

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01:43:44.125 --> 01:43:46.165

and then it happens again, and then it happens again.

1594

01:43:46.425 --> 01:43:48.125

And if it's short and easy to use

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01:43:48.505 --> 01:43:52.285

and you find that it's catching your mistakes, that's,

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01:43:52.395 --> 01:43:55.565

that is by far the biggest factor in the successful

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01:43:55.805 --> 01:43:56.845

adoption of checklists.

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01:43:59.135 --> 01:44:00.885

Great question. Any other questions?

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01:44:02.145 --> 01:44:04.045

So we are really out of time.

1600

01:44:04.145 --> 01:44:06.165

We had a few more things that we, uh,

1601

01:44:06.165 --> 01:44:08.125

might have covered about electronic

1602

01:44:08.175 --> 01:44:09.885

checklists, about non norm.

1603

01:44:09.985 --> 01:44:12.205

Uh, a few slides on non-normal checklists.

1604

01:44:12.625 --> 01:44:15.605

Um, bill and I are gonna be around for the next couple days.

1605

01:44:16.305 --> 01:44:19.605

Uh, I've got a, uh, on the electronic checklist,

1606

01:44:20.045 --> 01:44:22.205

I have a paper that essentially is the

1607

01:44:22.205 --> 01:44:23.485

same material that's in the checklist.

1608

01:44:24.065 --> 01:44:27.325

I'm gonna talk to Susan about getting a link to that.

1609

01:44:27.905 --> 01:44:29.125

So it'll be on the website

1610

01:44:29.125 --> 01:44:30.605

so you'll be able to see that material.

1611

01:44:31.225 --> 01:44:33.965

And I would be happy to chat with any of you, uh,

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01:44:34.035 --> 01:44:36.085

over the next couple days when we have some breaks.

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01:44:36.625 --> 01:44:39.605

Thanks so much for being a part of this workshop and,

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01:44:39.625 --> 01:44:42.205

and everybody was really diligently

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01:44:42.205 --> 01:44:43.765

and brilliantly working through these things.

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01:44:43.815 --> 01:44:47.285

Appreciate it very much. Alright, thank you.

1617

01:44:54.735 --> 01:44:58.065

Just a minute. Bill And Dan, on behalf of the committee,

1618

01:44:58.085 --> 01:45:00.065

I'd like to offer this small gift.

1619

01:45:00.165 --> 01:45:04.065

Oh, thank you very much. Thank you sir.

1620

01:45:04.955 --> 01:45:07.985

Thank you. Appreciate it. Appreciate your time.

1621

01:45:09.495 --> 01:45:11.265

Alright, as we move towards lunch.