UNITED STATES OF AMERICA
NATIONAL TRANSPORTATION SAFETY BOARD

In the Matter of: INTERVIEW OF DAVID HOFFSTETTER	 Docket No.	

THIS INTERVIEW WAS HELD IN NEW SMYRNA, TENNESSEE ON AUGUST 30, 2001.

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INTERVIEW OF DAVID HOFFSTETTLER

AUGUST 30, 2001

Dave, would you mind starting us out by giving us a little bit of background of your aviation experience?

MR. HOFFSTETTLER: Sure.

I have been in aviation for over thirty (30) years. Went through Miami Dade Junior College in Florida. Have an Associates Degree, and I worked for Eastern Airlines as an apprentice mechanic. Went through their apprentice mechanic program. Served four years in the Navy and was a crew chief on P2's. When I went back to Eastern I decided I could find my fame and fortune in general aviation and moved to Albuquerque, New Mexico for about a year and a half and start. I worked for a company also in New Mexico called Black Hills Aviation that flies B 17's and P 2's for the Forest Service. That was a real thrilling experience, but not something you want to do for a long time.

Then I went back to Miami. I worked for Airlift, a DC 8 operator. When I worked for Eastern they operated DC 8's also, back in the mid sixties. I worked for National Airlines when PanAm took over. Left National - or PanAm shortly after the takeover and worked for Batch Air while I looked for other employment. They had a real

nice program for three days on and three days off. And I ended up coming up here to Capital Air and was Director of Maintenance at Capital Air, and Vice President of Maintenance at Capital for a while. When they went out of business I've worked for several smaller carriers and leasing companies since then. Including International Air Leases, an aviation leasing group; Prestige Airways. And I think that pretty well covers the majority of the experience.

Everybody that I've worked for is out of business.

Not entirely true.

BY MR. McGILL:

Q And your duties and responsibilities here at PTS?

A I'm the president/general manager. I am responsible for the overall operations and insuring that the company has the tools, equipment, material they need to do the maintenance on aircraft. And also function as the marketing person. The buck stops here.

Q Let's talk just a little bit about the workforce since we wanted to better understand. From your perspective.

A There's a core workforce that's still here that is left over from the old

Capital Air. Some of the inspectors, our chief inspector, a few project managers, some of the mechanics, all worked at Capital Air and they've been the nucleus of the experience on DC 8's and aviation. We've recruited people both locally and from the southeast area to come up here. We've got some managers from Mobile. We've attracted a few people from Atlanta, a few people from the Kentucky area. We've drawn on Fort Campbell to recruit. We've got a structures group that - our Director of Maintenance who came out of the Structures Group came to us from Waco. And he's got real extensive experience with DC 8's.

We've drawn some from Aero Structures and other areas of the industry. We try to be opportunistic. If somebody is furloughing and we're hiring, we're there. Our basic philosophy is to have our own people, to work as best we can to train them. Again, we work through the - train the people or lose them, or don't train them and you keep them forever. So, we may have a little bit higher turnover than some. We've lost some to Emery. We've lost some to Northwest and to American. But we continue to recruit from schools. We've got a relationship with MTSU, and with a place called Tennessee Technology Center. It's the local A&P training program.

And we use those people part time, try to get them

into our routine as their learning the business. Most of the people don't come to us until they have at least one license, but we do have a few that are in school, that are not licensed.

Q Well, let's talk about, just real quickly, the non-licensed people. How you supervise them, how you select them, how long you normally keep them, how do you help them - whatever you can think about.

A We have - at different times, obviously, the percentages of non-licensed people vary. The largest group of non-licensed people are the Structures Group and other repair stations have found creative ways to circumvent the system by using repairmen certificates. I think there was a repair station in Georgia that had thirty (30) or forty (40) people that all had repairmen certificates to do structure repair work. We only require that of our - if we have a lead mechanic or one of the more senior people, we may apply for a Structures Repairman certificate.

Normally we watch them with licensed mechanics. Most of the leads, all of the supervisors are licensed.

We have another smaller group we call utility mechanics that do aircraft washing, parts runners. They're basically people that we consider to be in

training to become mechanics. We try to keep that ratio fairly low. I think we may have one of those type people on a five-man or six-man crew. So, they're there to assist. We draft from them instead of using cleaners to clean aircraft parts, to help with the moving equipment and generally provide support for the mechanics.

The theory being that we're a labor force and the more time you can keep the best mechanics on the job the better off we are. So, we don't - I don't like to see them run into the stockroom, I'd rather see them have a lesser skilled person going after parts to keep them busy.

Q Generally, I'm making these very general court type questions, but you seem to be doing very well. What is the role of a 145 facility and how would that compare with an operator doing his own maintenance? Why do you even have a 145? How does this work?

A If the 145 is organized properly, it becomes an efficient tool for the operator to use to produce the quality product with a reasonable amount of time without them having to be involved with the direct management of a workforce and all the associated problems. So, if you're a relatively small company, and you don't have the management skills and the right location, you don't the hanger that's large enough to house your aircraft, you

would look for a 145 who, in an ideal world, would have two or three key customers. And they would perform the maintenance services for those key customers, and maintain their aircraft to their standards.

I think it works fairly well. It allows the airline to focus on their primary business and it allows the Director of Maintenance to be more involved with his daily operation for the airline. And obtain his heavy maintenance requirements from an organization that may be a little bit larger than what he could deal - he could afford or could manage with his own group.

So, I think there's a good logical fit for repair stations in the industry.

Q You've been in quite a few different airlines, from your observation over the years, again, would be your observation, but do you see a significant difference in the quality of maintenance as performed, whether it's done inhouse or is outsourced? And do you see a difference in the amount of training, that was kind of another concern we've talked about, of mechanics? Whether they're better trained or better knowledgeable than an airline versus a 145 environment?

A I think that depends a lot on the individual companies. I went through Eastern Airlines's apprentice

mechanic training program and we had six hours of classroom every week. And that's a lot different than what we do here. But it's a lot different than what anybody else does that I've worked for. I worked for National, they didn't have any kind of program similar to that. And I've worked for repair stations that had very little, if any, training. We try to focus on training both technical and managerial.

We've had every manager in the building has been there a management training program. All of our leads have been through that program, and all of our mechanics have been through a three-day course, so they know what - how the managers are supposed to treat them. So, they can kind of critique each other sometimes.

We do technical training by using outside companies, Lloyd Edens - Lloyd Aviation, I think, is one of our primary people that we've used in the past. We feel like if we had an outside instructor in, based on the size of the company, if we get the right person, he's doing DC 8 training, or DC 10 training, at several other locations then he's got a better idea of what's going on out in the industry than we do from where we're looking. So, we count on these guys to bring in input from other customers and other mechanics where they're trained in both

facilities.

I think our DC 8 instructor is one that Emery has used in the past. I've kind of lost his name right now, but --

We have the FAA come out and do some training with us on SUPS. And whenever we buy new equipment we have the manufacturer of that equipment - CPCP spray application, we had people from Dianol come out and train us on applications of their products very early in our program.

We're real proud that we've received the FAA Diamond Award for training every year that we've been in existence. We think there's an awful lot of airlines that can't say that, whether it's they didn't take the time to fill out the application or they really can't do it. You know, I couldn't say, but I think that that's - that's something that we're real proud of.

Q Talking about the FAA and your relationship with the - with the principal here, --

A I like to think we have a good relationship with the FAA. We started with - in an area that has been known for problem companies. The predecessors in this building have all gone out of business and struggled long financial agony at the ends of their existence. And alienated most of the local FAA work - FAA inspectors and the local area

businesses. We had some vendors that wouldn't ship to us for a year and a half after we were in business because of our address. So, we had those kinds of obstacles to overcome. The FAA was - very closely scrutinized our startup operation. I think we - they wouldn't let us issue the repair station certificate until we had fifty (950) employees, I believe. And that's fairly - fairly stringent requirement. I know there's a lot of other repair stations that have started with a lot less than that.

I think we have tried very hard to do things to keep them informed, and do things that they would be proud of, or to manage the company in a manner that would give them very little room to criticize us.

So, I think we have a good relationship and I think that if you talk to our PMI or anybody in the local FAA office they would tell you that we do a good job.

Q I went through earlier with Jim about the last race that was done. It was actually started like two days before the accident and run through the accident - two days after the accident. We - I had already gone through it and we discussed some, but anything that comes out of this at all that you can remember? Or is there anything you can - well, what's your general --

A I don't think there was any significant changes to our processes or our procedures that were generated because of the race. We did make some changes with handling of customer material. And they're making a couple of revisions to the IPM, but I really couldn't tell you what they were.

Q Let's pick up the - just a general procedure of a customer coming to you saying, we can just use Emery. But what is the process of Emery selecting this facility and how do you start receiving airplanes and performing their maintenance?

A Most of our customers have started similar to Emery. Emery had a problem, at least they felt that they had a problem with their previous maintenance provider. They also had - were trying to get ready for the Christmas season rush and asked us, after we had requested several times for them to bring us an airplane, to do some B-checks for them. We did a series of B-checks that worked reasonably well, helped to improve - or would like to think it helped to improve their reliability through that season.

We did well enough with that that they put a C-check in after about four months of watching us do lesser levels of maintenance. And we had a - what I would consider a

good relationship with Emery. And we're working a similar program with Express One. They've been coming here for about four or five months with - to accomplish B-checks. We look forward to doing more work with them and some of our other customers.

Q What about unscheduled maintenance?

A We can and have provided field service teams to go out on the road to assist Emery. We try to make the hanger available to them, or other customers, and we've had - several other people have brought DC 8's in for unscheduled maintenance, chronic problems that we could - there's a couple of 727 operators that we send avionics people on the road for - a fairly regular basis.

If there are chronic problems, or problems with the aircraft and it would make more sense to ferry it than to send a crew out, if there's a structural problem, we've had Emery ferry airplanes in with temporary repairs for us to work on after they've gotten them ready and moved in here. So, we try to handle - we try to solve as many problems for our customers as we can within our capabilities. And to not - to at least be in a position where we can say that our extra, or drop-in work, didn't impact our primary business, which is C-checks.

Q Have you had any problem areas with Emery, where

you've had to go somewhere to work on a aircraft?

A We've had to - golly, we've been all over the country for Emery. We had a crew working in Atlanta for several works on some structure issues. We've had people at Dayton for a couple of months during one of their FAA inspections. We put together I think a twelve-man team that was up there, that they would work an aircraft a night at Emery's direction. And we've had people out in Texas and Indianapolis, out in Seattle. I think we've had people - we've made several trips to Memphis taking jacks and equipment over to Memphis to do gear swings on aircraft while they were down on the weekends.

I think we've done a reasonably good job. They call us when they have a problem and look to us for solutions. Sometimes it's been in a position where we have impacted their C-checks on the frontend. And I think there's advantage to using people, if you have aileron damage because a truck taxied into it it's obviously better to get somebody who's familiar with removing and replacing the ailerons and has the slings and equipment to do that, then to try to struggle through it with people who are more used to line service where you've got the airplane on the ground for two or three hours and it's gone. So, it's just been a good relationship from that standpoint.

Q You get also some that's flown in for - you know, that's not in for checks, but just general maintenance problems?

A Yes. Occasionally we do that. We have had aircraft come in here from - ramp checks or B-checks or - as a matter of fact the airplane right outside ferried in here from Atlanta was on a through flight and one of the mechanics noticed a bubble on Longeron 24. They moved the airplane up here and we've got the landing gear out, the longeron 24 replaced. The trap fitting was cracked and several other problems. And it looks like it's going to be another two or three weeks before that airplane is ready to get out of here because of parts issues.

Q Any flight control problems you've noticed with DC 8's - Emery DC 8's first, and then any DC 8's?

A On an outside basis? We have had - we have been called to go check rigging on flight controls and work on problems that either Emery hadn't - didn't have - didn't feel comfortable with their people doing, or - more often, that they had other problems that their people were working on. They have a couple of people that are pretty decent riggers that have come down here to help us when we get stumped on problems occasionally.

We had an aircraft going out to check that we had

crazy yaw deck problem on and we had two or three people down here that helped us resolve that issue. Sometimes you need somebody that's not in the middle of the forest to tell you where you are.

So, that's been a good - I feel like we've done a good job for them. And they continue right up to today to send some work to us. You know, whenever they have a problem. And I assume at this point that they try to go to D. Howard, who is their primary vendor. So, if they're backlogged, they probably come here. But that's their decision. That's their call.

Q What can you tell me about - we've had several people we've heard already talk about the overhaul components, lack of total components that are coming into the facility? You've heard some of the concern, what do you do about it as the general manager, and what has been done and --

A Generally we talk to Emery. Occasionally we have talked with - at least on one incident we talked to the FAA. Emery and us talked to the FAA. We had a balance problem on an elevator. We went through a pretty significant corrective action problem. I don't think - I don't know if that elevator ever went - it did go back on the airplane. We had to re-balance it, but it did fall

into parameters. But we had a significant issue with that.

We've had other chronic problems, elevator load field mechanism that's up underneath the cockpit floor that we were running through. I think we - at one time had five, a string of five of them, that were shipped in here before we got one that was serviceable. Seemed to be a chronic problem. We set up and overhauled those units with the hopes that we would become Emery's primary vendor on elevator load field units. That never happened.

I think their repair station - in that particular incident the repair station that was doing the overhauls came up and the Douglas overhaul manual gives you some steps to overhaul it, but there is no check at the end of the overhaul. There are some rivets that have very close clearance - close tolerance - and if they're not installed properly you feel a racheting motion as they bump against the springs and housing. It takes some special equipment to get the rivets installed correctly. We have all of that equipment. We repaired the units and put them back into service.

The manual reversion mechanisms was a chronic problem with Emery for probably a year and a half. I don't think we got a manual reversion mechanism in here that we could

put on an airplane without running it through the shop. And we tried to get them to send their manual reversion mechanisms here.

I would say that a manual reversion mechanisms, they ended up going to Fortner out in California and Fortner solved their problems. They're a good quality company. But I don't remember who was doing the reversion mechanisms. I think some of the people that were overhauling surfaces were doing that, and you need some special fixtures. And you need the lockout mechani- - cylinder has to be installed in order to get the right amount of torque on the mechanism before you drill it. You've got to - we have all the equipment to do that and bought shafts. I think they're about fifteen hundred bucks ($1,500.00) apiece and there's two of them. And clappers and the equipment, the parts, so that we could turn them fairly quickly because they were a real chronic problem for awhile. We actually - we've always had the capability of overhauling control surfaces here. When we did the first aircraft for Emery, because of the number of people and the amount of time that it was going to be working on the airplane we anticipated, I think, thirty-five (35,000), forty thousand (40,000) manhours of labor that it made more sense to ship the control surfaces

out for repair. While the airplane was down we'd focus on the structure. And when the surfaces came back in then we'd reinstall them. But there was a problem at turn times and Emery had bought a replacement, or a spare set of control surfaces and positioned them here. And the ones that came from Willis, I think, were in that package.

So, you know, it seemed like a good plan that we would send the surfaces out. After about three airplanes I - it became obvious that that didn't work. I don't think in our whole amount of time that we worked for Emery that we ever got a complete set of control surfaces in without problems on it. From any of their vendors.

And I'm not picking at Emery, but we did set up and we are set up to be able to handle the surfaces. One of the problems when we were trying to do that here is you could do an aileron, you could do an elevator, but if you have a complete set of surfaces off a DC 8 takes up a very large amount of floorspace. And we're obviously key on having the floorspace available for airplanes. So, we have a thirty thousand (30,000) square foot annex with some special fixtures that we built to handle and install surfaces and move them around. But we - the component repair and Emery classified the surfaces as part - in their rotable component inventory and part of their

component packages controlled by someone else.

I have direct involvement with a maintenance group. They have a different organization that manages their rotables and assets. And while they are responsibilities I'm sure to Maintenance it's not the people that I normally deal with or talk to, and I was never successful in attracting that group to bring their services here.

You know, I don't know whether my prices weren't right or they were concerned about getting into -- issues with the surfaces or what it was, but - and it put me in kind of an awkward position because I didn't have - you know, you don't want to raise too big a flag - you don't want to raise too big a flag because you - you know, then people think you're trying to make it worse than it is so you can get their business. You have to let them know where there are problems, and there is kind of a fine line there that - without throwing too many stones and alienating our customer completely of what you can do to try to direct them to where to have some of their work accomplished.

But we struggled through that.

Q Well, it's just the question then do you relate this information both to the - your customer and also to the FAA that's --

A They were involved with a couple of different situations. We didn't go to the FAA with every bearing that was frozen, or bushing that wasn't brought up to size. But there were a couple of issues that were significant because the weight and balance on the one elevator was significant because there was documentation that said it was correct. And we had a problem with the aircraft on the test flight. I took it off and the elevator was significantly - was right on the edge, or just barely on the limits. The paperwork that we had said it was dead center.

That's the way we like them. When we do something here we don't want to meet the minimum limits. This is an overhaul facility and we like it - if something calls for the rigging to be here, and that's neutral, that's where we want it. We try not to use the plus or minus quarter inch or half inch or whatever it is. Because somebody on the line a year from now is going to meet that and we had - Emery and us - had an understanding that if they had a job card that gave us a limit that was the limit for C-check. If we were looking at maintenance manual limits we tried to restrict them by at least fifty (50) percent, so that we were sure we had at least fifty (50) percent of the wear left available on a unit. You know, so it would

make it to the next C-check without it being - without any problem.

So, if you were looking at a bushing that you were allowed a five thousandth's (5000) wear by the maintenance manual and it was at four thousandth's (4000) we'd change it, we wouldn't sign it off. Aligning your door hinges, I think, are fairly critical, with the amount of slot that you're allowed to the hinge. We always tried to reduce the limit in the maintenance manual. If there was a maintenance manual limit, reduce it by about fifty (50) percent. And if it was an Emery job card limit, said this is our limit for C-check and we were in C-check, then we'd use the full - their full allowable tolerance.

Q Components though are definitely very bad I fall back to relating this to the FAA local. So, I take it you pass that information on to the - from oversight of another --

A We did on occasion and on occasion that kind of backfired on us, because we would relay it to Emery and to the local FAA. Then our FAA would call their FAA and if their FAA - if our FAA knew about it before their FAA did, then there was some political issues with protocols and who's supposed to get notified when. But I would honestly say that there was nothing that was uncovered here that

didn't get reported through one channel or the other, that I'm aware of. But - and occasionally it did backfire on us. And, you know, it's Emery saying, well, you know, are you trying to stir up a problem here with out other vendors or give us a chance to understand the problem before you feel like you need to call the FAA. And we tried to do that. There were occasions when it didn't happen, but generally - because at - Emery has the number of reps that they do here it was not difficult to keep them advised.

Q I would think it would really probably be Emery's position also to do that, since they would have a Safety Department or some - because you're benefiting from whatever you find wrong. You fix it, so you're --

A Right. Right.

Q -- doubling up.

A The more bad parts we get in the more we get to work.

Q On these flight controls on - ask of this federal assembly --

MR. McGILL: Again, I'm going to say, let's don't have anymore ice - I don't want to hear that again, or you can do it outside.

Q From your knowledge of what has transpired and

what the different views - things that we have learned since the investigation what can you tell me about the maintenance that was performed on this airplane at this facility, that you know, that might help us better understand this problem?

A The - first - when we first started, because we recognized there is a, obviously, potential problems with flight controls, and they are very time consuming to rig. The installation rig procedure can stretch out over a week or longer. On occasions we dedicated a crew and we tried to pick our best mechanics and inspectors to work on that crew and deal with flight controls. I think of the nineteen (19) people that we had that worked on the control surfaces on that airplane there was two that were unlicensed people. And they were probably there to help clean up and possibly with the lubrication or positioning I-bolts for doing some of the more strenuous manual labor.

When I first heard about the accident, you know, I said, pretty sickening feeling to be involved with the crash of an airplane or someone's death, and I was exceptionally concerned over what we had done and went back and looked at all the people that were involved. And the further I looked the more confident I became that we had the right people in the right place, and the right

people were assigned to this job. And that the group that was involved here is probably as good a group as you would find at - anywhere that's accomplishing this type of work.

I get a little frustrated with the paperwork and the way the paperwork was managed, and the way the paperwork is designed is not for removing the surface and sending it out to somebody else and bringing it back. There are some cards that were an aid as far as elevator overhaul in which, you know, involves the - which puts you right in the area with the overhaul manual in the area that we would have been in.

I don't know, you know, where - how you go to get to a failsafe position, but I do know that from the crew that was assigned, the lead mechanic and mechanics, are as good a mechanics as I have in this building. And they've been on flight controls from probably six months after we started into business.

I was tired of taking two or three weeks to rig flight controls and we set up a crew. We put them all together on an odd shift that worked from 10:00 in the morning until 8:00 at night so they would know each other, the people that work dayshift and second shift, to learn how each other functions. The two inspectors that I

consider primary inspectors that are involved with this were Mike Ellsworth and Kenny Hall, and they were part of that program. As was Tom F-- I believe. And they are conscientious inspectors, they are not people that are in a - take something for granted or look lightly on check safeties on bolts or checking torques.

There are people that I have seen have people pulls pans back off because they didn't get an okay to close. They're not going to take any unnecessary chances to save fifteen (15) minutes further work. So, I don't think that - I think there are other carriers that have similar job cards to what Emery uses. There are carriers that have a great amount of detail in their job cards and really use the maintenance manual for a reference. But the job card is adequate to get the job done without ever going to the maintenance manual.

And, you know, hindsight being 20/20, I would like to - you know, if I was doing this again there'd be a space for every time that you wanted an inspector to look at this job for him to stamp something. On this particular card you get through the whole package with mechanic signatures, which is typical to airlines. It's not real unusual. Then at the end you have inspector sign for proper installation and for rigging. If it was a document

that was being prepared by a repair station like our non-routines, on a non-routine card, we'd have three signatures. We'd have the mechanic that does the job, the supervisor, which could be a lead, or a supervisor and an inspector. And the supervisor is supposed to look at the work and make sure it's ready for an inspector to go look at it and do the final check. So, in our inhouse paperwork we have three sets if eyes looking at what - at areas in here that we only have a mechanic sign for.

You know, that may be a kneejerk reaction on my part trying to think of things that should be done, but I think for sure there are changes that I would want to see in some of these kind of work. And we do that with some operators and we've suggested changes to people. Emery has been in a very awkward situation because the DC 8 maintenance program is being converted to - from MSG2 to MSG3. And we had asked for several changes to the program.

The ones that we had requested the advice to us was, we're not going to change any job cards, we're not going to make revisions, we're doing a whole complete rewrite when MSG 3 is approved, and save your stuff. Because - you know, send it in, but we can't do it to this package, it'll be in the new one. So, that puts us at a

disadvantage from a repair - the other problem from a repair station standpoint is that what we like to do is break job down into manageable increments.

I don't want anything on a piece of paper that I'm going to - say Jim Bailey is the mechanic out here, I want to give him eight hours worth of work to do today that he can sign for at the end of the day so we know exactly what he got. If you've got a hundred (100) hour task card and we have a few open end inspection cards with Emery that we estimated a hundred (100), hundred and fifty (150) hours, and it's all on one piece of paper. You know, there's probably six spaces to sign for. Where we need to be, in order to control our labor force, is break it down into a manageable increment of time so that we know that we've got a hundred (100) people out here for eight hours, we have eight hundred (800) manhours worth of work scheduled for today. If you have a hundred (100) manhour job card out there, and we schedule it to happen over five days, it stays out there and somebody walks off with that stuck in their notebook we lose it for four days. It takes four days before the man upstairs, that's doing our control and are issuing the paperwork, is looking for that card to come back. So we potentially have lost three or four days on the check.

It's a nightmare for us. Where we need to be and what we like to see is manageable time increments and job broken down so that in an eight hour increment you can sign for what you've done, you know what you've accomplished, you know what to expect of your workers. They know what to expect of you. My people love to see a hundred (100) manhour card, because it gives them some place to charge their time.

You can usually tell when that's happening, and that's not the case here. But it is a potential problem, and it's something that the airline, because they're not directly - you know, we bid the routine part of this work at hundred and fifty thousand dollars ($150,000.00) and, you know, you knew what it was going in, deal with it. This is the paper that you have to sign off at the end of the check. So, it makes it much more difficult from a management standpoint to control the work that's going on in the hanger. Or efficiently schedule the work.

Q But obviously you do it someway. Apparently that's where I got the nineteen (19) hours - nineteen (19) --

A Yeah, we do it because this is what we're charged with doing. We operate our - what we're mandated to do is operate from the operator's program first. So,

if Emery gives us a document that says that this is the way they want it accomplished, if it's in conflict with the manufacturer's maintenance manual, or if it's in conflict with somebody else that we've worked on, we go by Emery's maintenance manual. If there's something in glaring conflict with the Douglas program, or even if we just feel like it's in conflict, we may question it, but our charge from a regulatory standpoint is to use the operator's procedures and the operator's manuals. And that's what we try to do.

Q You mentioned the hardware that was used to bolt the nut - cotter pin. Seems like I got one reply that there was a nut that was charged?

A Yes. We - and that's a little bit of a fluke, because it's, I think, the nut is a nickel component, but we have what we consider a free stock area and we charge Emery a percentage of labor for hardware that we use on their aircraft. So, we're not issuing - I don't have somebody standing at the window issuing fifty (50) nuts for every fuel tank panel that they're - bolts for every panel that gets closed.

We have a inventory of hardware that's out next to the airplane. The bolt that's used in this particular situation, the nut, are not what we have in our free

stock. We don't put everything out there, because there's some of it that you just don't use that often. This nut is in our - was in our stockroom and was signed out against this task. So, that gives me reason to believe that whoever did this at least it - well, they charged out the correct part number nut.

The bolt - I can't honestly say whether the bolt was new or reused. It is possible that the bolt that came in with the original elevator was put back in this location. And when we shipped the components out I believe that the tabs were shipped to one company, because they're honeycombed. They go to a composite vendor. And the elevators were shipped someplace else and the hardware, when it was disassembled, was kept in a bag and probably tied in the flapwell or put in the stockroom.

And it is possible that the bolt was looked at and deemed to be serviceable and put back in. It's also possible that the bolt was replaced as part of a kit provided by Emery, but I don't think so. We have a lot of confusion with Emery kits, because the people that do your kitting don't understand what a kit is. To everybody in this room I think a kit is a plastic box or a cardboard box with some hardware in it. To kitting at Emery it's a list of pieces. And it's nuts, washers, cotter keys,

bolts, and they would - we would get information from them that we're providing you with the kit. Well, a week later we call up looking for the kit and they call back and say, well, you got it. You know, it's - this is what's supposed to be in the kit and we shipped all these individual pieces, they're all in your stockroom somewhere. But it was never shipped - or seldom shipped - as a kit or if it was, it was partially assembled and then we'd get pieces thrown in after the fact.

I don't - I know that we had the correct part number involved in stock, we had ten (10) of them at the time that that airplane was worked. I know that we didn't charge one out of my inventory, put it back together. I know if we did charge a nut out, whether it was dropped or what, I don't know. I mean, it's not something that Emery would ever see, because it's under the four dollar ($4.00) cap and it's considered miscellaneous hardware that's just charged. But we did have somebody go through the stockroom and sign that nut out for that task card. So, I know that they - they had the right pieces in their hand, whether the bolt was changed I don't think anybody will ever know for sure.

Q What's the general view of cotter pins?

A When you pull them out you throw them away.

When they're pulled out - I have never - and will probably go like in a parts bag and make a liar of me, but I've never seen anybody ever remove a cotter pin and put it in a parts bag and tie it to a unit to be put back together. I just absolutely cannot believe that there is anybody in aviation that has - unless you were out in the middle of the desert somewhere and in an emergency landing and had to put something back together that would ever consider reusing a cotter pin. We have refocused a little bit on that, but I just - I've never seen - at Eastern Airlines, National, any of the repair stations I've ever worked for, seen anyone reuse a cotter pin.

MR. McGILL: It's 2:00, I'm going to take a little break here, if that's okay.

(OFF THE RECORD)

BY MR. McGILL:

Q Dave, I've asked several people about the results of the Emery fleet campaign directive, is there anything you can share of your knowledge of that, anything to learn from that, or whatever?

A I've asked for the results and never been provided them. I'm curious as to - I know there was two fleet campaigns - at least two fleet campaigns issued, I'm not sure about a third one - that involved that bolt. The

first one had no picture on it and very little information. It was about three pages. The second that came out was about seven pages, I believe. Had a good picture and drawing and part numbers and all of that stuff on it. I think - you know, I'd like to know what the findings from the first one, and the findings from the second fleet campaign were, but I have not been provided that information yet.

Just point of curiosity just to see if the first fleet campaign solved the problem, or if they found numerous orientation problems after they put out the second one. Because the second one has a picture, shows it going from inboard to outboard. I don't know what the results of either one were.

Q From what we've learned since the accident and areas of concern has come up about this inboard/outboard maintenance manual descriptions, IPC descriptions, then the overhaul manual, what is just your general view as a manager of a 145 on this whole take?

A Obviously we need a revision. But the - if I was a mechanic whether I would get that bolt installed in the correct orientation or not before this incident would probably be pretty questionable. There is a slight dihedral to the tail and that bolt appears to be going at

a slightly up hill if you install it in accordance with the manual. The general rule of thumb, like Kenny was saying, is that you would want it to go in the direction of the flow of water, or down to where gravity would pull it out, or aft where impact would - or acceleration would tend to keep it in place.

So, I guarantee you which it would go in with anybody in this facility from now on, but how it may have been done in the past, I can see a lot of room. If you've never opened the overhaul manual it's quite likely that it could be - you know, that it would be installed from the outboard to inboard, which is opposite orientation.

Q You mentioned earlier that you had performed initially some B-checks for Emery. For my curiosity, about how many manhours does a B-check take? How long does it take?

A When we were doing Emery's B-check program we bid the B-checks, I believe, at about a hundred and twenty-five (125) manhours. We overran that on all but one. Part of that is because in the beginning we were running a training program and people were charging time to the B-checks. I think we may have run double or triple in the beginning. We were down pretty close to a hundred and twenty-five (125) manhours at the end of the program.

And we would generate somewhere over a hundred (100) non-routines. A hundred and twenty-five (125) manhours is just for the job cards, the filters, the routine package.

Q So, you would keep the airplane here. Roughly how many people can you put on a B-check? I mean, what would you max out at, or what --

A Oh, we would probably --

Q How many days does it take to do B-checks?

A We were doing B-checks in three days. We were doing additional work also. I think at that time they wanted us - they wanted all the gear repacked and we were doing an EPR. They had a campaign to correct EPR problems on the JT 3's, and we were getting only the 63's. We weren't getting the re-engined aircraft at that time.

Q Is there anything that you can recall on a B-check that - in the lubrication of a B-check, that would allow someone up in that --

A I probably haven't personally done a B-check since I worked at Airlift, and --

Q That's all right.

Let's just generally pick up something in the - as a question of a 145, can you tell me - these are questions that I had made when we had a 145 special study here about

a year or so ago, but what would be the most challenging business requirements to the oversight of some sort of contract maintenance? What do you see in the industry about that, the challenge portion?

A Golly. Do we have a couple of days? There are lots of challenges. Maintaining the right skill level with the right people is a large challenge. The amount of paperwork and the responsibility that a mechanic should feel in a 145 environment is enormous. When I was first working as a mechanic I was working at Eastern Airlines and there was a significant number of people. You know, I was the kid, and the rest of the crew was very familiar with Eastern's paperwork and systems, and things went fairly easy. The amount of problems with bogus parts, with the change in the requirements for maintenance manuals, for the references and the documentation that goes with each job card has created volumes of paperwork. I would say that where maybe a mechanic used to spend seventy-five (75) of eighty (80) percent of his time working and less than twenty (20) doing paperwork, you're probably getting close to a fifty/fifty (50/50) mix. And re-emphasizing the importance of documentation and correct documentation and accurately recording everything that gets accomplished on an aircraft is just a huge

undertaking.

The penalties for doing it wrong are enormous. The 145, the aircraft that we just left is probably a classic example of the problems you can get into with records. We removed almost eighty (80) repairs from that airplane that - at Emery's request, that they could not find documentation on to know whether the repairs were legal. And we've been running through that typically on the lease return airplanes. We had several that were real significant problems. And apparently have - at this time they have no ability to find where those repairs were originally installed or what the status is. So, they're paying the penalty. You know, they come off, you inspect the damage, ensure that the damage - the repair meets the damage - corrects the defects and get all the appropriate engineering and get back into business. But the record keeping, traceability and tracking functions associated with aircraft repair are huge in comparison to what they were twenty-five (25), thirty (30) years ago.

Q You think that Emery just did not track those items, or they lost them somewhere in the paperwork?

A I don't have any idea.

Q But you really --

A I know that you wouldn't pay somebody to take

that repair off if you had a record of it and knew it was a good repair. So, we were told that we would document the - every repair that was on the outside of the aircraft. And I think they may have had fifteen (15) or twenty (20) that they had documentation on. And the balance of them had to either be x-ray inspected so you could clearly tell what the damage was or removed. And re-evaluate it by engineering. This particular situation they're using their own engineer again. You know, Cogney, I think, is the gentleman's name.

Q Would these - could these things lead to safety concerns? Or are they other safety concerns that - should we worry about doing -- a 145?

A We removed - we removed one repair from a cargo - a converted cargo door airplane that had about a foot and a half long doubler by probably a foot high. And the rivet pattern led us - would have led you to believe that the damage was in the center of the repair. The damage was actually right at the edge of the repair. They had - and I have no way of knowing whether Emery did this, or a previous operator did it, or whoever. Now, I don't know who installed the repair, or whether Emery ever had a record of the repair being done. But when we removed the doubler the damage was - we had hit the side of the

airplane with a forklift and the damage was right at the edge of the doubler. And they had butted the doubler up against the doorseal so it covered the damage, but didn't repair anything. It didn't transfer the stress in any direction. We ended up pulling about a twelve (12) foot piece of metal off the side of the airplane and incorporating the repair into the primary structure for the door conversion. That was all done through Cogney. But they're impossible to tell unless you had the records or knew where that had been installed.

Q But aren't those records all - those must be kept of major repairs like that, that someone could have evaluated that, they would conform to you accepting the aircraft or something shouldn't they?

A I would think.

Q Do you see any other type of safety things that would be more unique of 145 versus a carrier an operator use in their own maintenance? Is there a relationship that --

A I think - I think the - there are probably safety advantages to using a 145. I do not feel the pressure that an Emery employee may feel to make a schedule departure. I think their - well, I might feel it, the mechanic on the floor will never feel it. You

know, he's charged with fixing the airplane, making sure it's done correctly, and that's his job. He's - we're in the business of repairing airplanes, Emery is in the business of carrying freight. So, our priorities and their priorities aren't always the same. It's just like the flight controls, we want - we're not interested in saving Emery money, but we are interested in having as safe as possible an airplane. And with reducing the cost that we spend, or that Emery spends with us, or more efficiently utilizing the manhours that they're buying from me. So, of we can put the same control surfaces back on, first that we know came off of that airplane they've been flying fine for six years, and we're not questioning whether that's the surface that belongs - that has the right affectivity for that aircraft. You know, the whole process becomes easier.

We had an aileron that came in that someone - an outboard aileron, and on the DC 8 the outboard aileron is connected to the inboard aileron with a torque tube. There is a fixture on the torque tube that connects the two together, and we worked for two days trying to get the torque tubes hooked up. Fold the aileron back down, get the drawings from Douglas and - it's a bad drawing, by the way, you can pass that word back. There's a horn and

there's a hole that has to line up with the bolt. They pull against each other and twist these torque tubes as you're flying. The dimension on the hole is the only dimension on the whole drawing that's made from the outside surface. But nowhere does it tell you the overall length, and the hole was off by half a inch. So, you could never make the part line up. The repair station never replaced the fitting. They got it - I have no idea where the aileron came from.

I'm told it was in service on another airplane somewhere, but there is no - I'm here to tell you there's no way in the world that aileron was ever hooked up to the inboard aileron the way that was drilled. And, you know, it was crazy. When we got the drawings it became very apparent after about forty-five (45) minutes of studying this that the dimension for the center of that hole came off a - came from a point on that fitting that was never defined.

If you measured from the outboard end of that little fitting the hole was right where it needed to be, but the fitting was not positioned by the outboard end, it was controlled by where the inboard end was, and that dimension wasn't in the drawings.

So, whoever made the fitting probably did it right by

the drawing, but we have no idea who installed it or where it came from. The repair station that overhauled the surfaces came up, took it back, came back to us with a - you know, and worked fine. But it was - you know, it's pull your hair out time trying to figure out what's wrong here.

You know, is it - which aileron is it? Did we do something with the aileron inches? The inspection never stops, and you never stop questioning why it's taking more force than it should to make something work. And you continue to work at solving problems. So - and that's what we did with our shop that we put down there.

Even though we don't do surfaces for Emery it's probably been one of our best investments ever. We - it cleaned up the hanger tremendously. When we take an airplane apart now for a C-check or a D-check every panel and every component that comes off the airplane goes on a shelf. It's transported down to the annex.

We've got an EPA approved wash facility and B-blasters and everything that we need to really do a good job of cleaning. An inspector looks at it, we fix everything that you find on those removed panels and they come back down here. So, it's really - it's really worked out real well for us to have that facility offsite. It

keeps the hanger clean. It keeps people from damaging airplanes trying to maneuver around doors that are sitting on benches on the floor, and it's been a good program for us.

MR. McGILL: Well, Dave, I don't have anymore questions. I'm going to start it around the room and --

MR. THAYER: No questions.

MR. MCGILL: Do you have any questions, Jim?

MR. BAILEY: No.

MR. McGILL: Okay.

MR. ROBBINS: Bruce Robbins for Emery.

BY MR. ROBBINS:

Q The work that you did for Emery offsite --

A Yes.

Q -- where they called you up for a team of people to do whatever, is that - do you consider that routine maintenance or was that stuff that stuff that you were called up to do to boost your liability or to take care of a chronic problem or something of significance on aircraft?

A Normally it was something of significance on the aircraft. Either corrosion, a crack, some - we were called - I think they broke maybe an aileron bus cable somewhere, or a spoiler cable, and rather than have the

line guys struggle through that we sent the rig team from here out to deal with those kinds of problems. I would not consider - except for the trip that we made up to Dayton, none of them were to do - what I consider routine maintenance.

Q On 8079U you said the original quote was for how much? You bid the non-routines - er, excuse me, you bit the routine work.

A I don't - I could dig it back out, I don't know whether the total. I think I said forty thousand (40,000) manhours, but I'm - that's what we had planned when we were talking about whether or not the control surface issue be sent to an outside source.

Q Do you know how many manhours were exerted against that thing, non-routines and all?

A I don't know that forty thousand (40,000) was the number that we were bidding from. There was a grab it out of the air kind of number. I feel like it was probably closer to sixty (60) for a D-check, but I really - I'd have to go look to find out.

Q Okay. Based upon your experience on the work cards that Emery provided for C's and D's, are they adequate?

A They don't - are they adequate to get the job

done? Probably. Do they help me manage what I'm doing for Emery's aircraft? No, they don't, they don't at all. Obviously they are adequate or the FAA would never have approved them. Right?

Q You've got to answer the question.

(Laughter.

Q My friends tell me. How many nuts were taken from stock on this?

A Just one. Just one for that - one for that side of the elevator. I think there may have been six or eight issued total, but there was only one to that particular job card.

Q And on the B-checks that you guys initially started out with, these - were these just routine B-checks, or did - do you recall if they added in reliability issues to certain aircraft that there was a lot of body package sent with these aircraft? Specifically designed to boost your liability?

A There were a couple of areas that were designed to boost reliability. We did the EPR checks, and we did repack the gear, but that was not what I would consider part of the B-check. Those were tracked as a single non-routine task. And I - Emery has modi- - does a phased B-check, and these were not phased B-checks, okay, at that

time. I don't know if Emery was doing phased B-checks then or not, but we did filters on all four engines and a full lube package.

Q Would you describe a little bit of the process that Emery took to assign -- working on B-checks initially and then eventually you stared doing heavy maintenance, or substantial maintenance, for Emery?

A Sure.

Q What did Emery do to - what did Emery do with Tennessee Tech to bring about that cooperative effort there?

A I think that their approval process is not significantly different from other people. They had asked us to provide a quote to do this. We provided the quote. I think probably Tim Allman called and said we were - had a competitive estimate for what we - what they wanted to get done, and he'd like to send a team down to inspect the facility. If things went well, that they would send work here. And they did send - I don't remember whether it was one or two inspectors at that time, came down and did an audit. They had a few findings, maybe six or seven. I don't think there was any - don't remember anything significant.

They sent - they ended up with two reps here and a

parts person to manager their parts. That usually creates a nightmare for me, but most people want to do that. PanAm has some parts people here. Other carriers, it's not unusual for them to send a parts person. It's - the problem with parts people is that they don't understand that generally - whether they - they think they can go into my stockroom and receive parts for PanAm or receive parts for Emery and they can't. Everything that comes into this building goes through the repair station's receiving process and inspection process. They can have access to it, but they can't bring it in or send it out without it going through our process. And that's regulatory as far as the receiving inspection, and my regulations as far as shipping it out. Because as soon as one of your guys ships something out, and I don't have a record of it, somebody is going to call and want me to ship them their fuel control and if I don't have it, they send me a bill. So, nothing comes in the stockroom or goes out of the stockroom without going through our shipping and receiving so we have a record of everything that comes in and everything that goes out.

Q Initially you guys - Tennessee Tech did not have approval for doing heavy maintenance C-checks and above, correct, when Emery first --

A Oh, yes, we did. Not from Emery, but on the repair station certificate when we started we were approved for C-checks. We had done overhauls and C-checks for Aircraft Investment Corp, which is Dave Clark. He used to be the owner of ATI. We had done quite a bit of work for Aero Air. We had done some work for International Air Leases, and we have one of their abandoned airplanes out here on the ramp now.

We had done - we had been in the heavy check business for a while. Emery was not our first customary.

Q Okay.

MR. ROBBINS: That's all I've got.

BY MR. GUNTHER:

Q You were talking before about Emery considers flight controls to be rotables? Something similar to that?

A Yes.

Q Okay. You were saying that you were - when you had a problem in regards to flight controls that you weren't dealing with maintenance, you were dealing with a different department?

A Well, when we would get a component in for repair we would always deal with Tim Allman or Art Andergud, one of the people in Maintenance. But when we

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