



Aeronautical Engineers, Inc.

*Pinnacle 1
CRJ200 SF, MSN 7421, N859AS
Freighter Conversion Progress*

Conversion Progress, MSN 7421, N859AS

December 12, 2017



- The aircraft arrived at Commercial Jet Services in Dothan Alabama on Tuesday December 12, 2017.
- The official Start of the P to F Conversion is Monday January 8, 2018.
- The revised completion of the P to F Conversion and operational checks is now Friday July 20, 2018.



Conversion Progress, MSN 7421, N859AS January 12, 2018, Day 5



- The aircraft has been located in the hangar, jacked and shored.
- Main Deck Cargo Door surround skin paint removal is now complete.



Conversion Progress, MSN 7421, N859AS

January 12, 2018, Day 5



- Main Deck interior removal is now complete.
- Main Deck passenger wiring removal has commenced.
- Lower lobe component removal has commenced.
- Interior tooling has been installed.



Conversion Progress, MSN 7421, N859AS January 19, 2018, Day 12



- Main Deck Cargo Door skin replacement has commenced.



Conversion Progress, MSN 7421, N859AS

January 19, 2018, Day 12



- Main Deck vertical side restraint installation has commenced.



Conversion Progress, MSN 7421, N859AS

January 26, 2018, Day 19



- Main Deck Cargo Door skin replacement continues.



Conversion Progress, MSN 7421, N859AS January 26, 2018, Day 19



- Main Deck vertical side restraint installation continues.



Conversion Progress, MSN 7421, N859AS February 2, 2018, Day 26



- Main Deck Cargo Door skin replacement continues.



Conversion Progress, MSN 7421, N859AS February 2, 2018, Day 26



- Main Deck vertical side restraint installation continues.



Conversion Progress, MSN 7421, N859AS February 9, 2018, Day 33



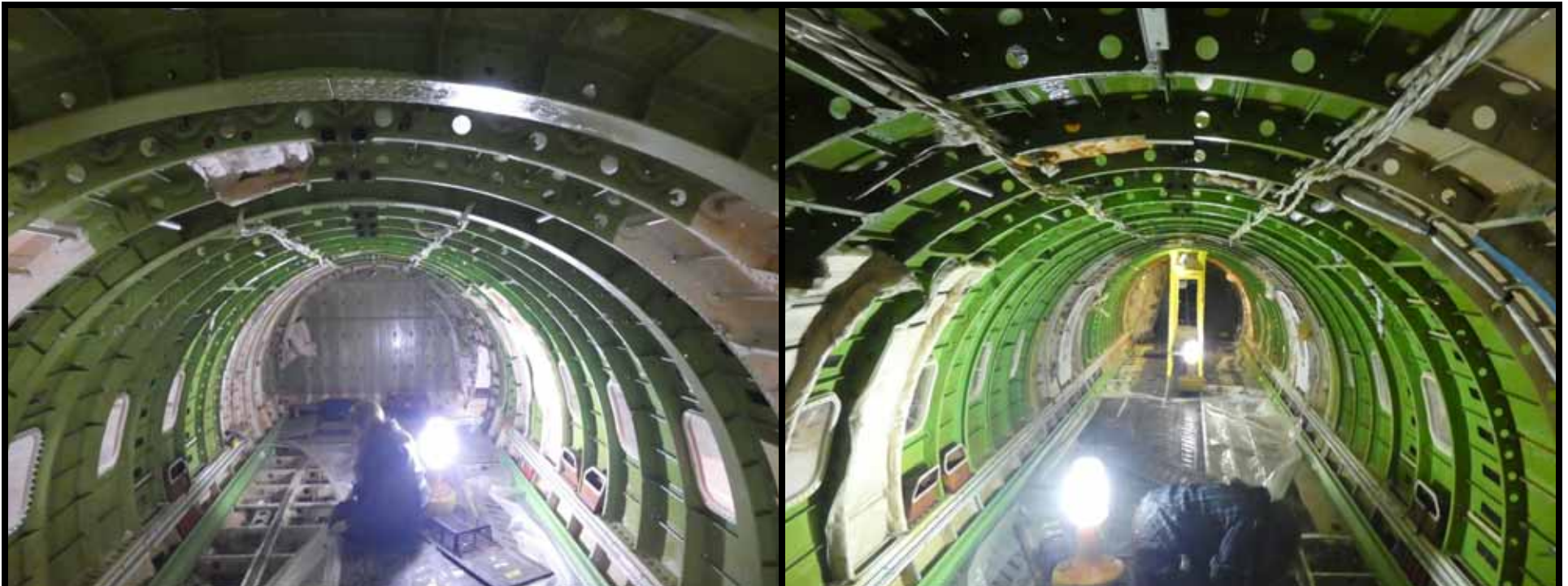
- Main Deck Cargo Door skin replacement continues.



Conversion Progress, MSN 7421, N859AS February 9, 2018, Day 33



- Main Deck vertical side restraint installation continues.



Conversion Progress, MSN 7421, N859AS

February 16, 2018, Day 40



- Main Deck Cargo Door skin replacement continues.
- Main Deck Cargo Door lower frame and skin replacement has commenced.
- Main Deck Cargo Door upper jamb installation has commenced.



Conversion Progress, MSN 7421, N859AS February 16, 2018, Day 40



- Main Deck vertical side restraint installation continues.



Conversion Progress, MSN 7421, N859AS

February 23, 2018, Day 47



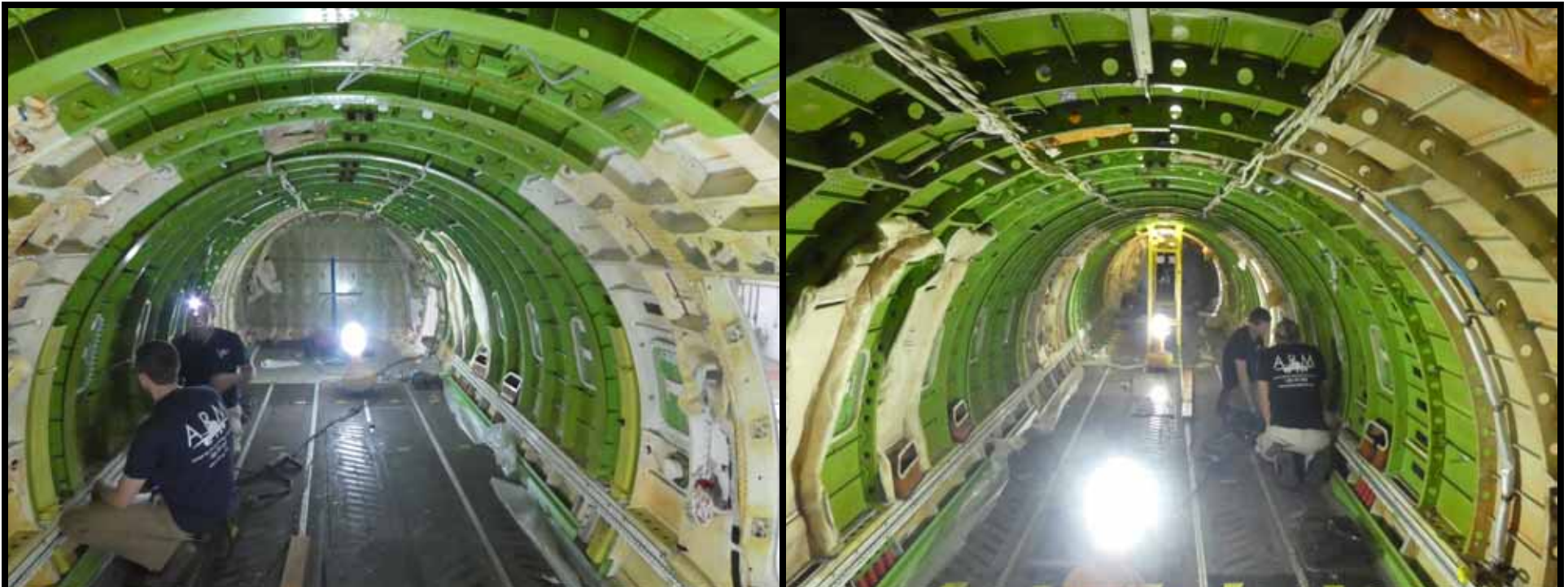
- Main Deck Cargo Door skin replacement continues.
- Main Deck Cargo Door lower frame and skin replacement continues.
- Main Deck Cargo Door upper jamb installation continues.



Conversion Progress, MSN 7421, N859AS February 23, 2018, Day 47



- Main Deck vertical side restraint installation continues.



Conversion Progress, MSN 7421, N859AS

March 2, 2018, Day 54



- Main Deck Cargo Door skin replacement continues.
- Main Deck Cargo Door lower frame and skin replacement continues.
- Main Deck Cargo Door upper jamb installation continues.

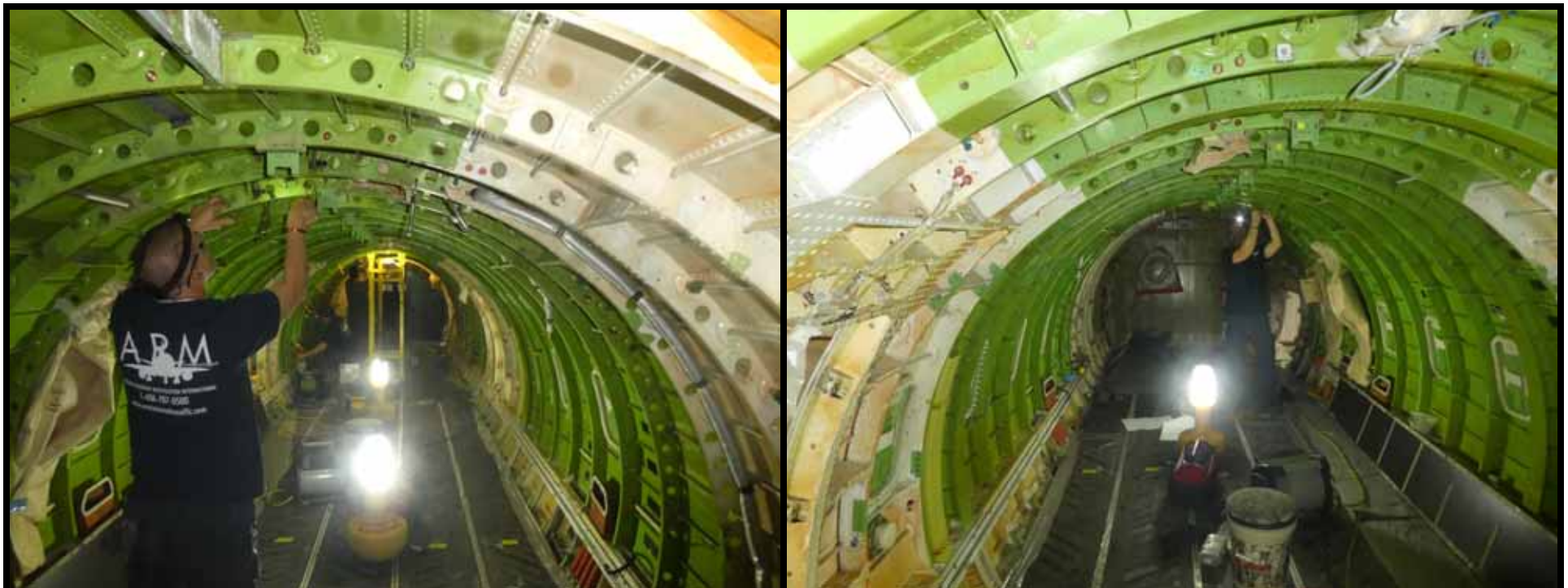


Conversion Progress, MSN 7421, N859AS

March 2, 2018, Day 54



- Main Deck vertical side restraint installation continues.
- Main Deck ECS modification continues.



Conversion Progress, MSN 7421, N859AS

March 9, 2018, Day 61



- Main Deck Cargo Door skin replacement continues.
- Main Deck Cargo Door lower frame and skin replacement continues.
- Main Deck Cargo Door upper jamb installation continues.
- Main Deck Cargo Door side jamb installation has commenced.

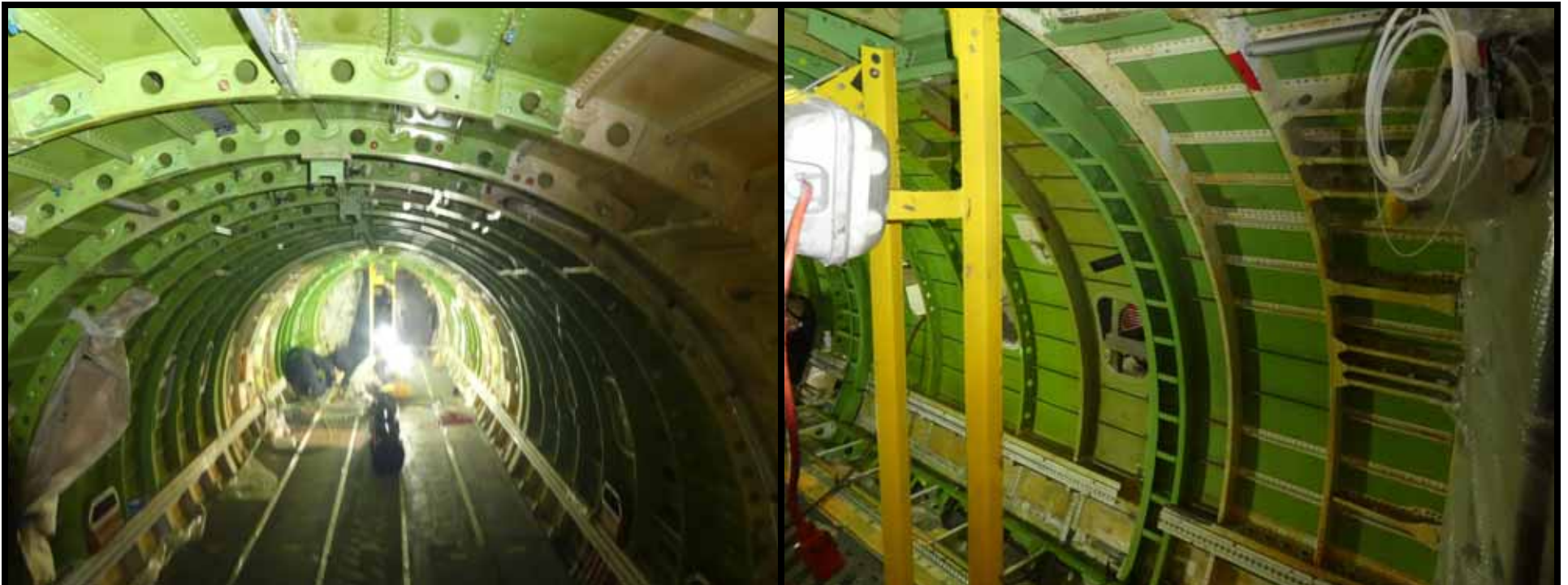


Conversion Progress, MSN 7421, N859AS

March 9, 2018, Day 61



- Main Deck vertical side restraint installation continues.
- Main Deck ECS modification continues.



Conversion Progress, MSN 7421, N859AS

March 16, 2018, Day 68



- Main Deck Cargo Door skin replacement is nearing completion.
- Main Deck Cargo Door lower frame and skin replacement continues.
- Main Deck Cargo Door upper jamb installation continues.
- Main Deck Cargo Door side jamb installation continues.

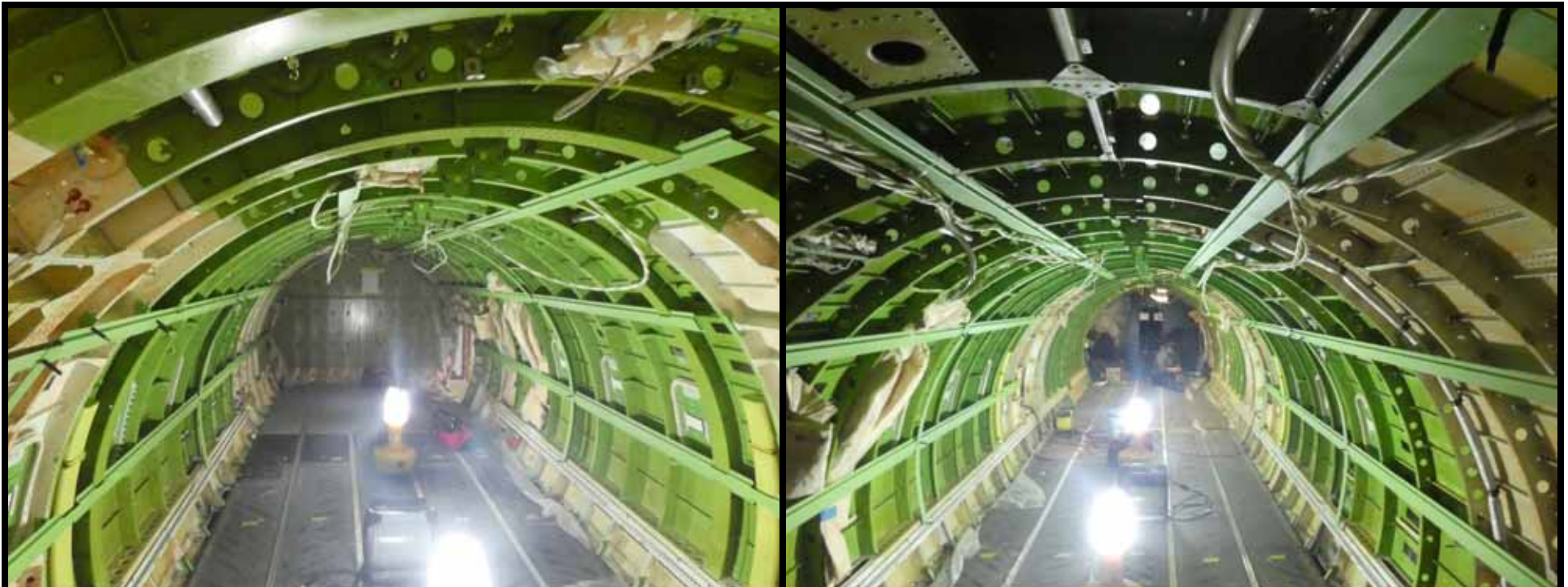


Conversion Progress, MSN 7421, N859AS

March 16, 2018, Day 68



- Main Deck vertical side restraint installation continues.
- Main Deck ECS modification continues.



Conversion Progress, MSN 7421, N859AS

March 23, 2018, Day 75



- Main Deck Cargo Door skin replacement is nearing completion.
- Main Deck Cargo Door lower frame and skin replacement continues.
- Main Deck Cargo Door upper jamb installation continues.
- Main Deck Cargo Door side jamb installation continues.

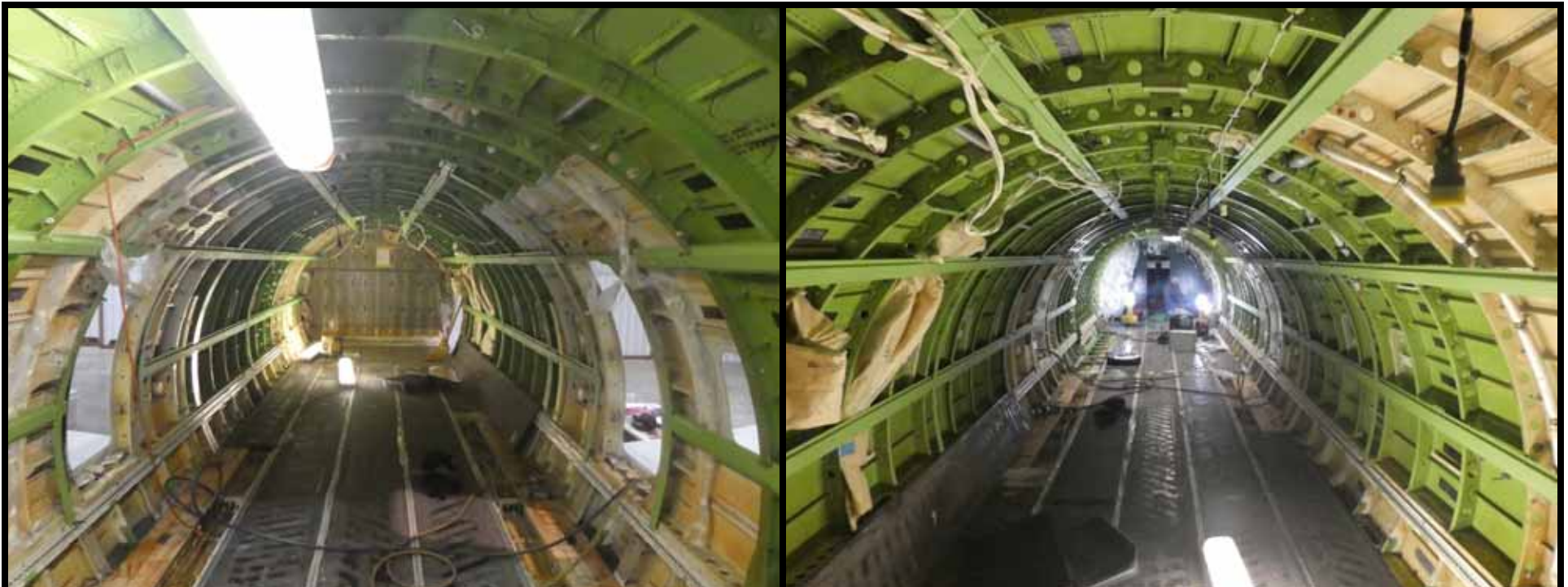


Conversion Progress, MSN 7421, N859AS

March 23, 2018, Day 75



- Main Deck vertical side restraint installation continues.
- Main Deck ECS modification continues.



Conversion Progress, MSN 7421, N859AS

March 30, 2018, Day 82



- Main Deck Cargo Door skin replacement is nearing completion.
- Main Deck Cargo Door lower frame and skin replacement is nearing completion.
- Main Deck Cargo Door upper jamb installation continues.
- Main Deck Cargo Door side jamb installation continues.

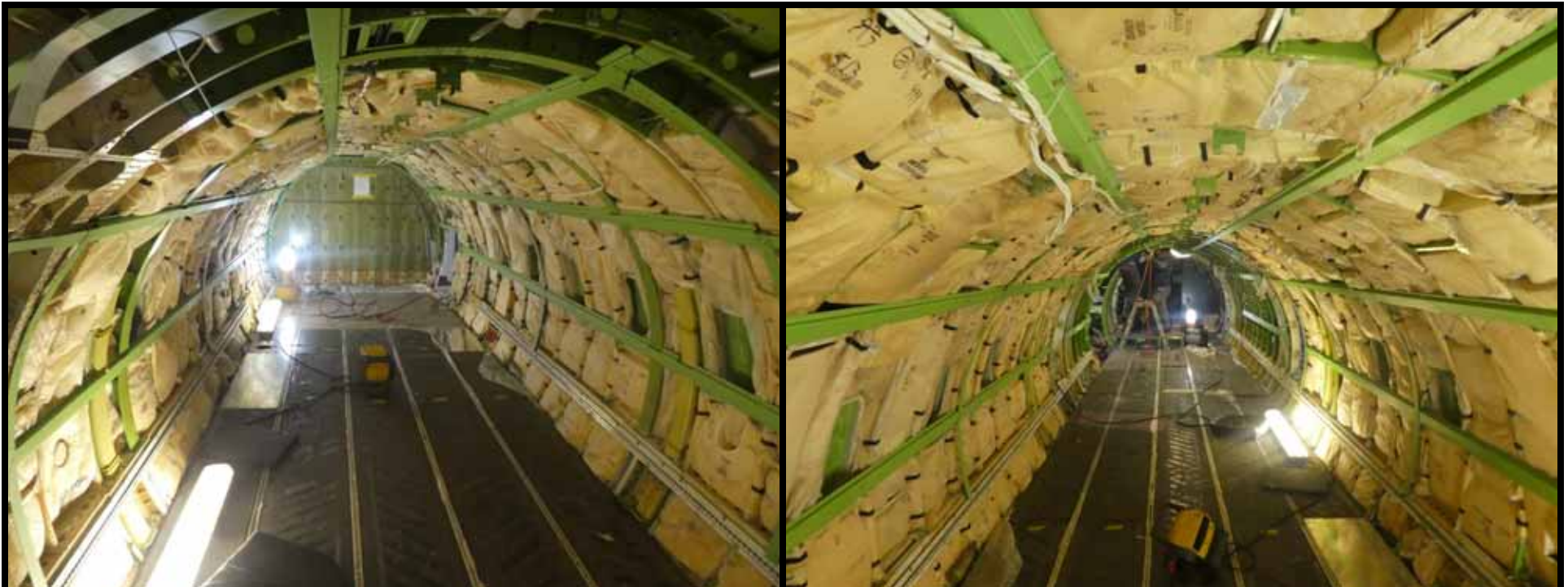


Conversion Progress, MSN 7421, N859AS

March 30, 2018, Day 82



- Main Deck vertical side restraint installation continues.
- Main Deck ECS modification continues.
- Main Deck liner structure installation has commenced.



Conversion Progress, MSN 7421, N859AS

April 6, 2018, Day 89



- Main Deck Cargo Door skin replacement is nearing completion.
- Main Deck Cargo Door lower frame and skin replacement is nearing completion.
- Main Deck Cargo Door upper jamb installation is nearing completion.
- Main Deck Cargo Door side jamb installation is nearing completion.



Conversion Progress, MSN 7421, N859AS

April 6, 2018, Day 89



- Main Deck vertical side restraint installation continues.
- Main Deck ECS modification continues.
- Main Deck liner structure installation continues.



Conversion Progress, MSN 7421, N859AS

April 13, 2018, Day 96



- Main Deck Cargo Door skin replacement is now complete.
- Main Deck Cargo Door lower frame and skin replacement is now complete.
- Main Deck Cargo Door upper jamb installation is nearing completion.
- Main Deck Cargo Door side jamb installation is nearing completion.

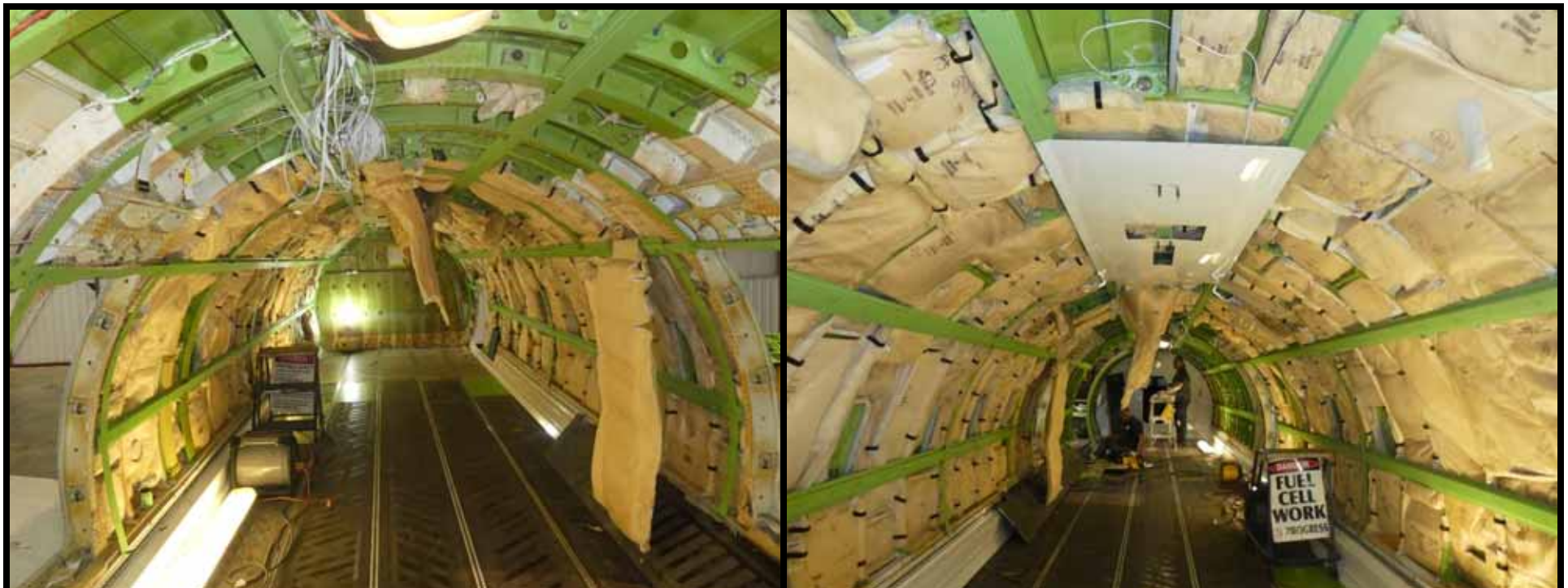


Conversion Progress, MSN 7421, N859AS

April 13, 2018, Day 96



- Main Deck vertical side restraint installation continues.
- Main Deck ECS modification continues.
- Main Deck liner structure installation continues.



Conversion Progress, MSN 7421, N859AS

April 20, 2018, Day 103



- Main Deck Cargo Door upper jamb installation is now complete.
- Main Deck Cargo Door side jamb installation is nearing completion.
- Main Deck Cargo Door frame and outer skin installation has commenced.



Conversion Progress, MSN 7421, N859AS

April 20, 2018, Day 103



- Main Deck vertical side restraint installation continues.
- Main Deck ECS modification continues.
- Main Deck liner structure installation continues.



Conversion Progress, MSN 7421, N859AS

April 27, 2018, Day 110



- Main Deck Cargo Door side jamb installation is now complete.
- Main Deck Cargo Door frame and outer skin installation is now complete.
- Main Deck Cargo Door hydraulic and electrical installation has commenced.

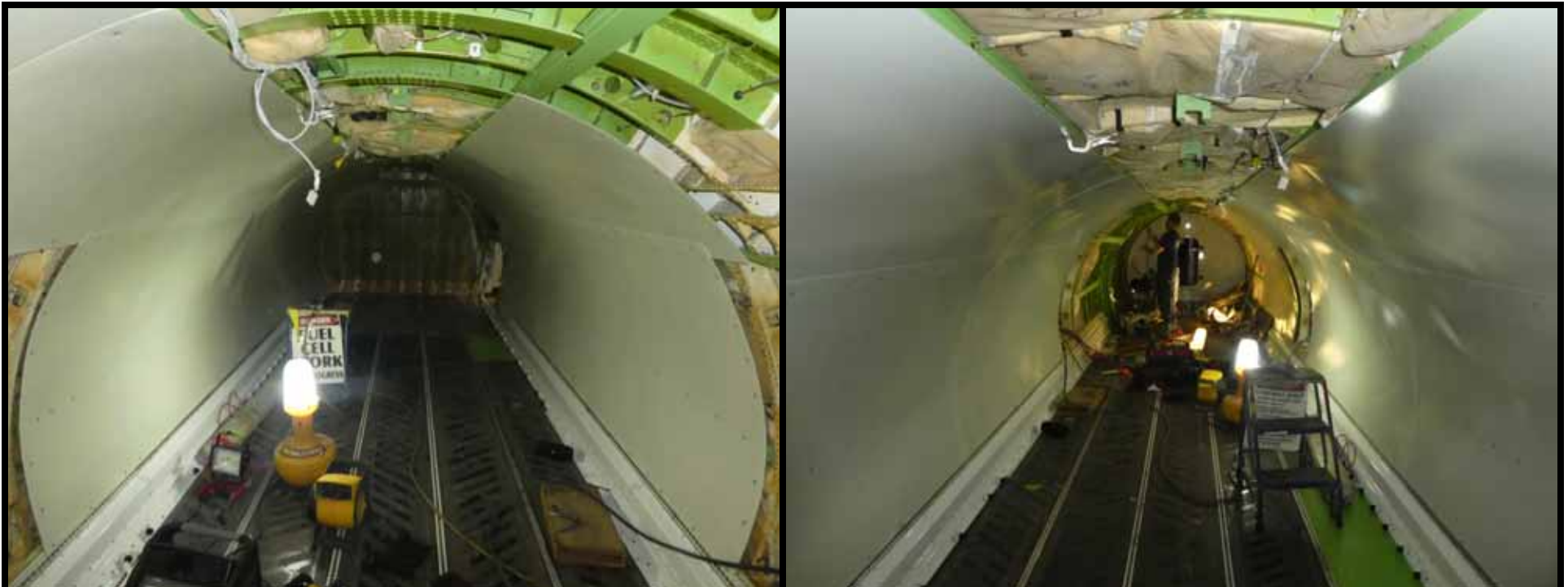


Conversion Progress, MSN 7421, N859AS

April 27, 2018, Day 110



- Main Deck vertical side restraint installation is now complete.
- Main Deck ECS modification is nearing completion.
- Main Deck liner structure installation is now complete.
- Main Deck liner installation has commenced.



Conversion Progress, MSN 7421, N859AS

May 4, 2018, Day 117



- Main Deck Cargo Door hydraulic and electrical installation continues.
- Main Deck Cargo Door latch installation has commenced.



Conversion Progress, MSN 7421, N859AS

May 4, 2018, Day 117



- Main Deck ECS modification is nearing completion.
- Main Deck liner installation continues.



Conversion Progress, MSN 7421, N859AS

May 11, 2018, Day 124



- Main Deck Cargo Door hydraulic and electrical installation is nearing completion.
- Main Deck Cargo Door latch installation is nearing completion.

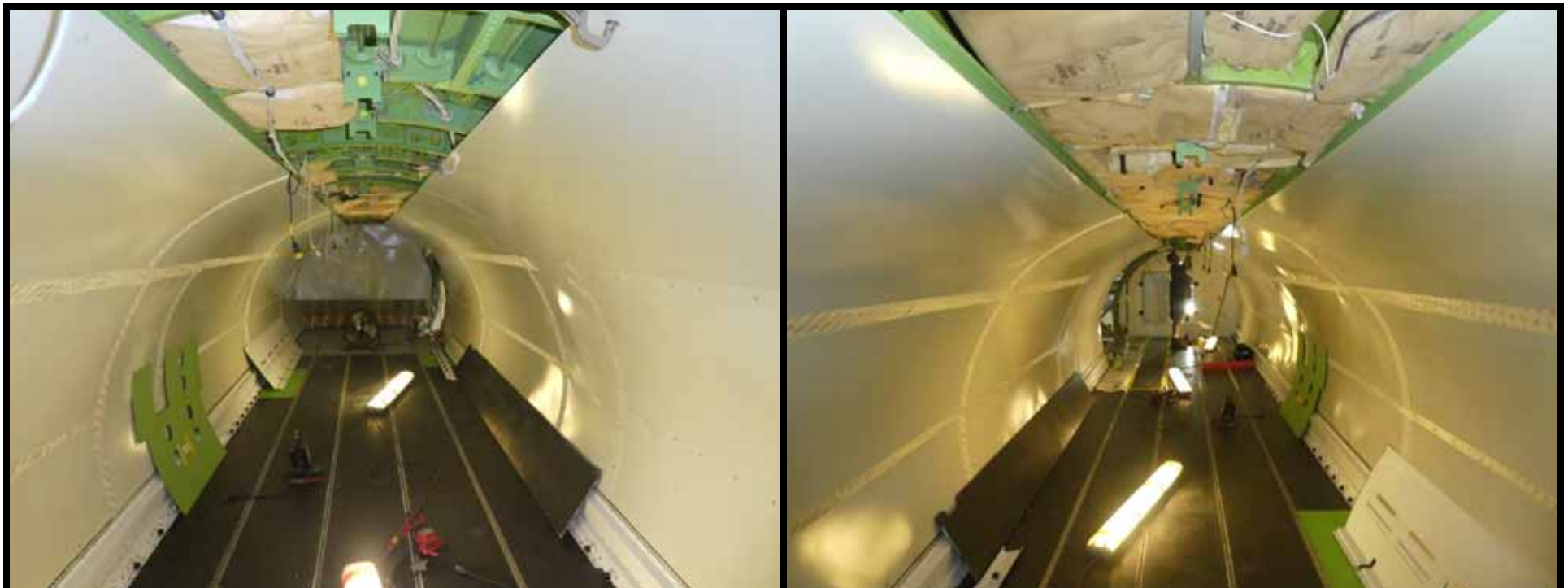


Conversion Progress, MSN 7421, N859AS

May 11, 2018, Day 124



- Main Deck ECS modification is now complete.
- Main Deck liner installation is now complete.



Conversion Progress, MSN 7421, N859AS

May 18, 2018, Day 131



- Main Deck Cargo Door hydraulic and electrical installation is nearing completion.
- Main Deck Cargo Door latch installation is nearing completion.



Conversion Progress, MSN 7421, N859AS

May 18, 2018, Day 131



- Main Deck ECS modification is now complete.
- Main Deck liner installation is now complete.
- Cargo Loading System has been installed.



Conversion Progress, MSN 7421, N859AS

May 25, 2018, Day 138



- Main Deck Cargo Door hydraulic and electrical installation is nearing completion.
- Main Deck Cargo Door latch installation is nearing completion.



Conversion Progress, MSN 7421, N859AS

May 25, 2018, Day 138



- Main Deck ECS modification is now complete.
- Main Deck liner installation is now complete.
- Cargo Loading System has been installed.



Conversion Progress, MSN 7421, N859AS

June 1, 2018, Day 145



- Main Deck Cargo Door hydraulic and electrical installation is nearing completion.
- Main Deck Cargo Door latch installation is nearing completion.



Conversion Progress, MSN 7421, N859AS

June 1, 2018, Day 145



- Main Deck ECS modification is now complete.
- Main Deck liner installation is now complete.
- Cargo Loading System has been installed.



Conversion Progress, MSN 7421, N859AS

June 8, 2018, Day 152



- Main Deck Cargo Door hydraulic and electrical installation is nearing completion.
- Main Deck Cargo Door latch installation is nearing completion.
- Main Deck Cargo Door final adjustments are being made.



Conversion Progress, MSN 7421, N859AS

June 8, 2018, Day 152



- Main Deck ECS modification is now complete.
- Main Deck liner installation is now complete.
- Cargo Loading System has been installed.
- Main Deck ULD wall markings are being installed.



Conversion Progress, MSN 7421, N859AS

June 15, 2018, Day 159



- Main Deck Cargo Door hydraulic and electrical installation is on hold pending repair of MCD structure.
- Main Deck Cargo Door latch installation is on hold pending repair of MCD structure.
- Main Deck Cargo Door repair has commenced.



Conversion Progress, MSN 7421, N859AS

June 15, 2018, Day 159



- Main Deck ECS modification is now complete.
- Main Deck liner installation is now complete.
- Cargo Loading System has been installed.
- Main Deck ULD wall markings are being installed.



Conversion Progress, MSN 7421, N859AS

June 22, 2018, Day 166



- Main Deck Cargo Door hydraulic and electrical installation is on hold pending repair of MCD structure.
- Main Deck Cargo Door latch installation is on hold pending repair of MCD structure.
- Main Deck Cargo Door repair continues.



Conversion Progress, MSN 7421, N859AS

June 22, 2018, Day 166



- Main Deck ECS modification is now complete.
- Main Deck liner installation is now complete.
- Cargo Loading System has been installed.
- Main Deck ULD wall markings are being installed.



Conversion Progress, MSN 7421, N859AS

June 29, 2018, Day 172



- Main Deck Cargo Door hydraulic and electrical installation is on hold pending repair of MCD structure.
- Main Deck Cargo Door latch installation is on hold pending repair of MCD structure.
- Main Deck Cargo Door repair is nearing completion.

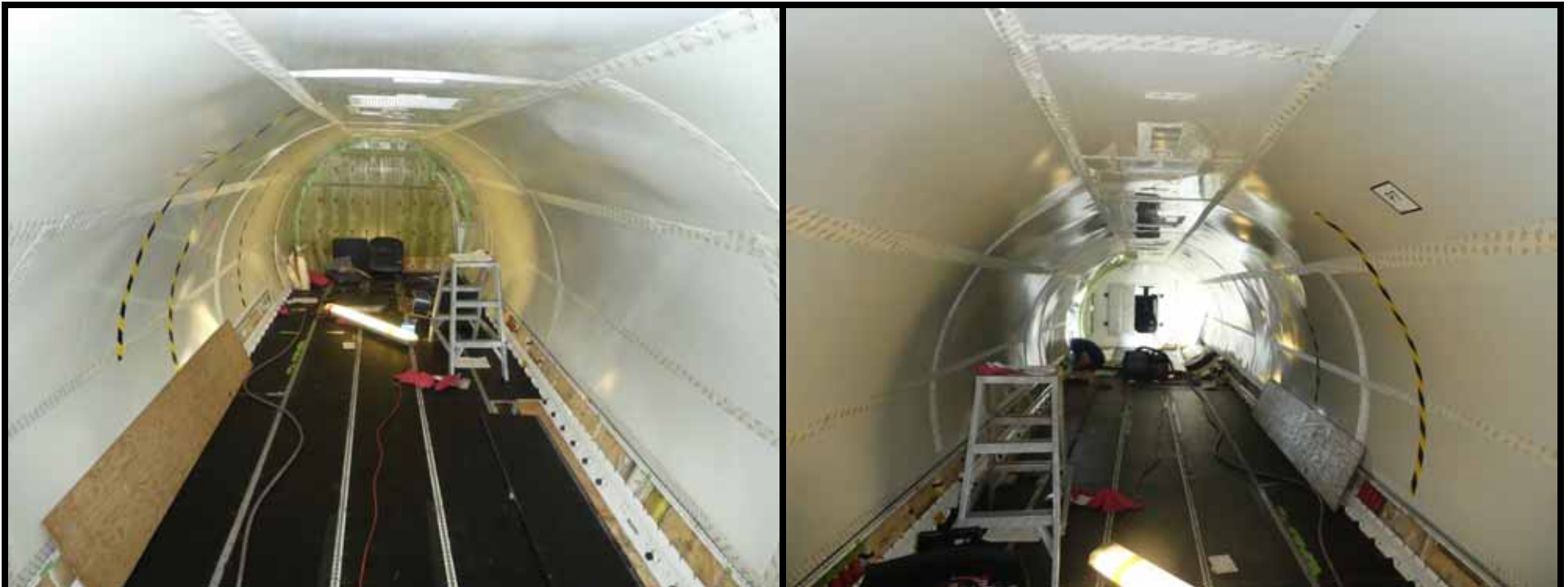


Conversion Progress, MSN 7421, N859AS

June 29, 2018, Day 172



- Main Deck ECS modification is now complete.
- Main Deck liner installation is now complete.
- Main Deck ULD wall markings are being installed.



Conversion Progress, MSN 7421, N859AS

July 6, 2018, Day 179



- Main Deck Cargo Door hydraulic and electrical installation is nearing completion.
- Main Deck Cargo Door latch installation is nearing completion.
- Main Deck Cargo Door repair is now complete.



Conversion Progress, MSN 7421, N859AS

July 6, 2018, Day 179



- Main Deck ECS modification is now complete.
- Main Deck liner installation is now complete.
- Main Deck ULD wall markings are being installed.
- Cargo Loading System is being installed.



Conversion Progress, MSN 7421, N859AS

July 13, 2018, Day 186



- Main Deck Cargo Door hydraulic and electrical installation is now complete.
- Main Deck Cargo Door latch installation is now complete.
- The aircraft is in the paint hangar being painted.



Conversion Progress, MSN 7421, N859AS

July 13, 2018, Day 186



- Main Deck ECS modification is now complete.
- Main Deck liner installation is now complete.
- Main Deck ULD wall markings have been installed.
- Cargo Loading System has been installed.



Conversion Progress, MSN 7421, N859AS

July 20, 2018, Day 193



- The passenger to freighter conversion is now complete.
- The aircraft paint is nearing completion.
- Final operational checks will be completed next week.
- This will be the last weekly conversion progress report.



Conversion Progress, MSN 7421, N859AS July 20, 2018, Day 193



- The passenger to freighter conversion is now complete.



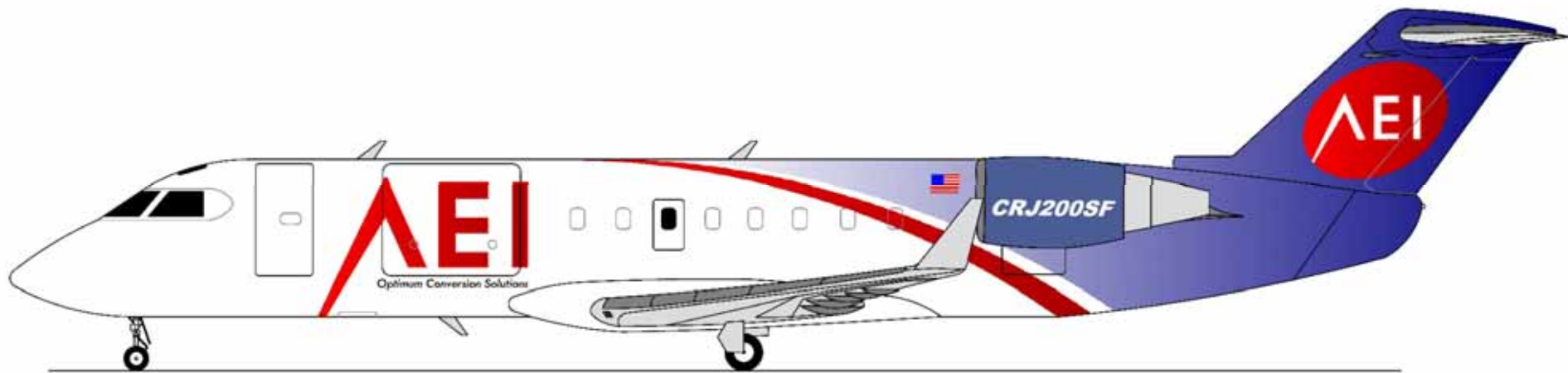


BOMBARDIER Licensed
3rd Party STC Provider

AEI CRJ200 SF

8 Pallet Configuration

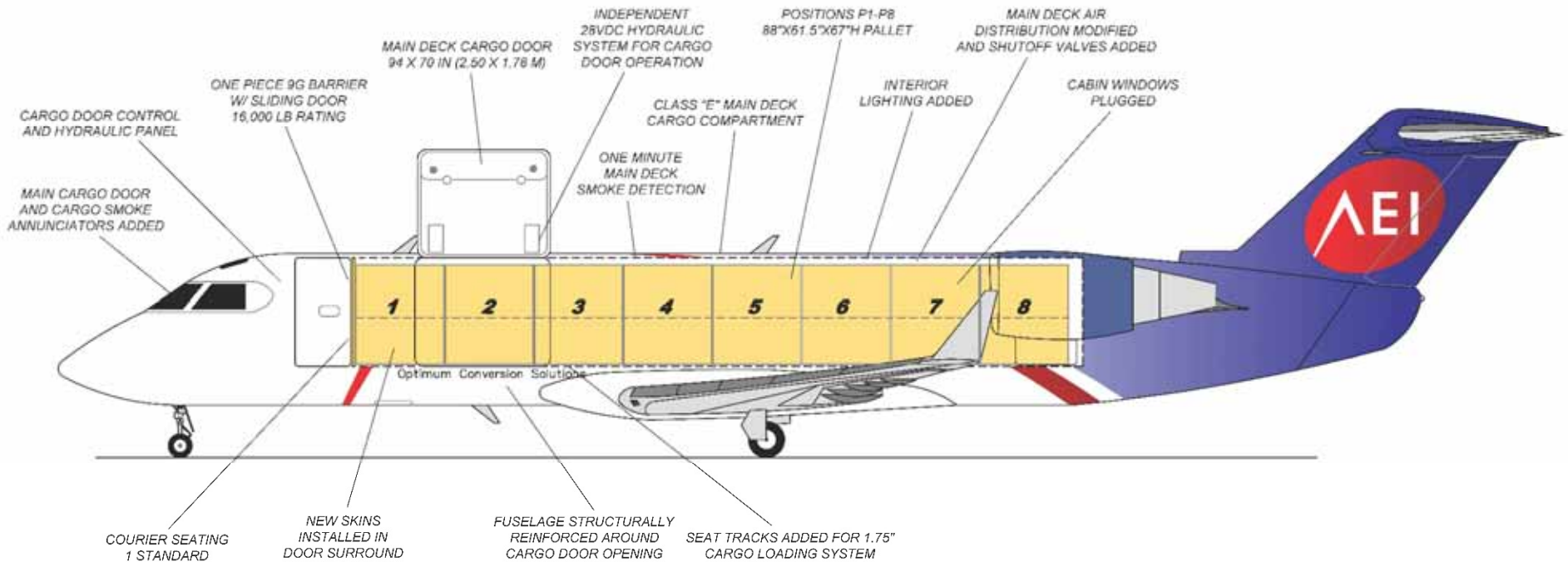
Freighter Conversion



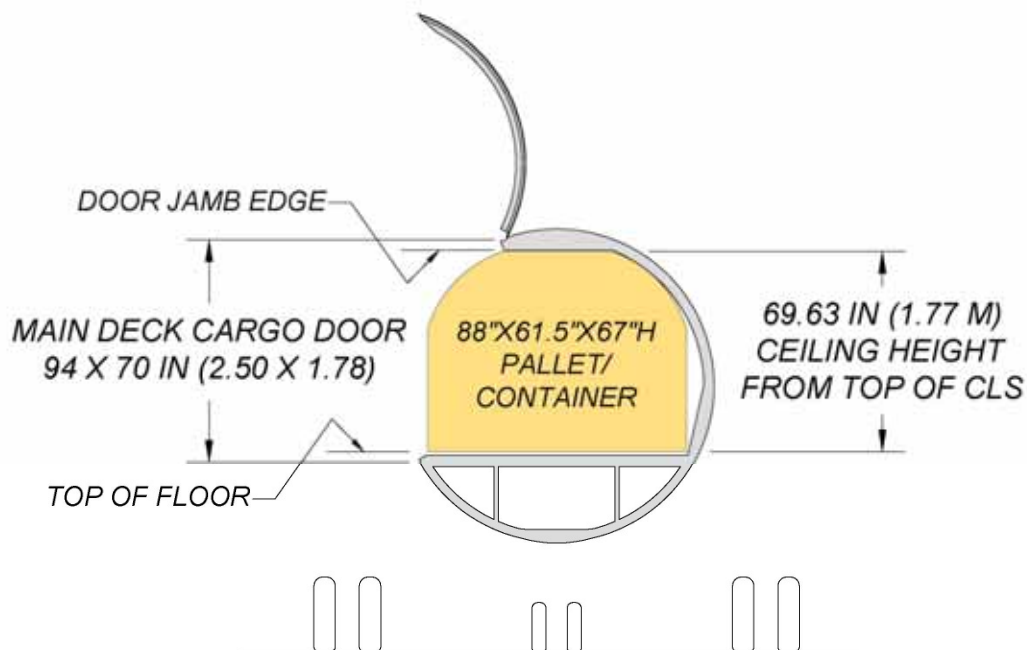
AEI CRJ200 SF 8 Pallet Configuration Freighter Conversion Images



AEI CRJ200 SF 8 Pallet Configuration Freighter Conversion Details



AEI CRJ200 SF 8 Pallet Configuration Freighter Conversion Details



POSITIONS 1 - 8

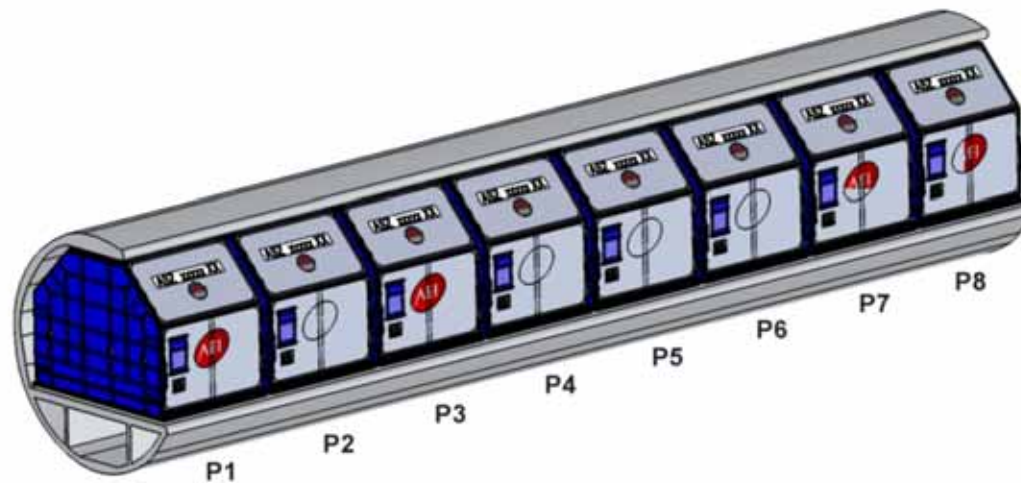
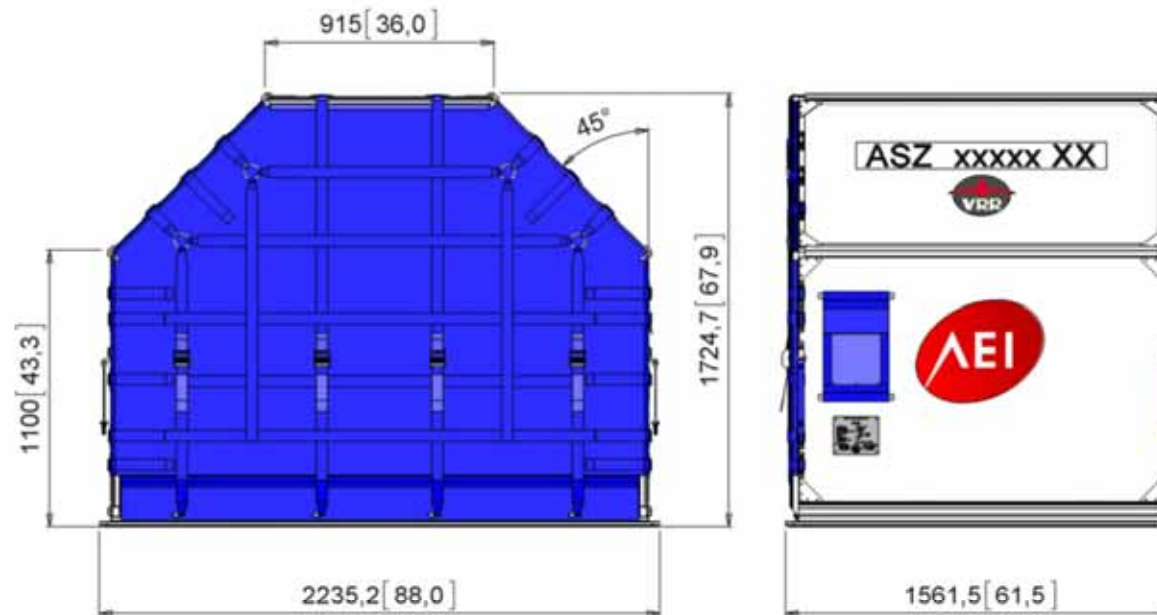
VIEW LOOKING FWD

INTERIOR VOLUME

1,452 FT³

(41.1 M³)

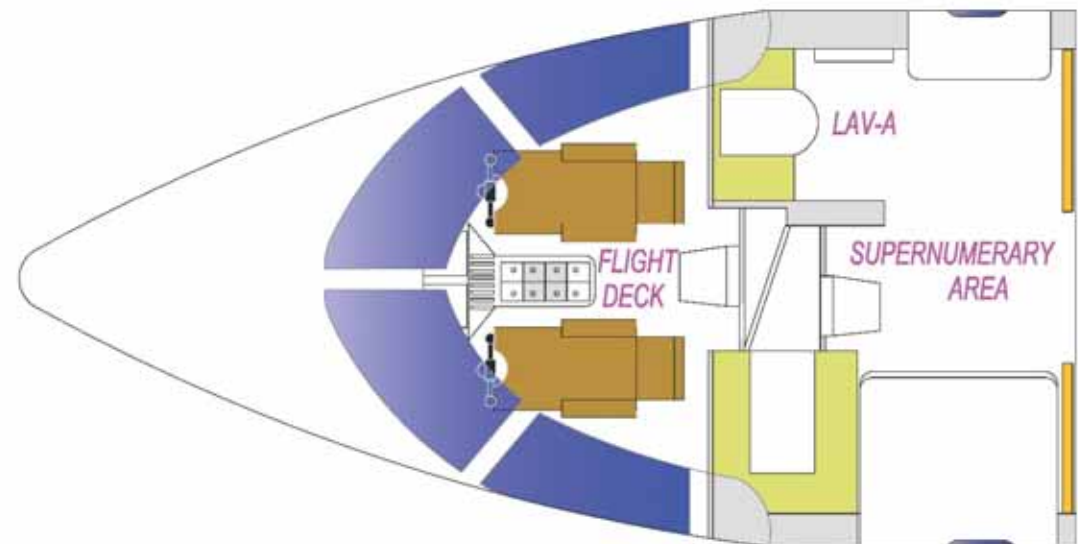
AEI CRJ200 SF 8 Pallet Configuration ULD Details



AEI CRJ200 SF 8 Pallet Configuration Supernumerary Area



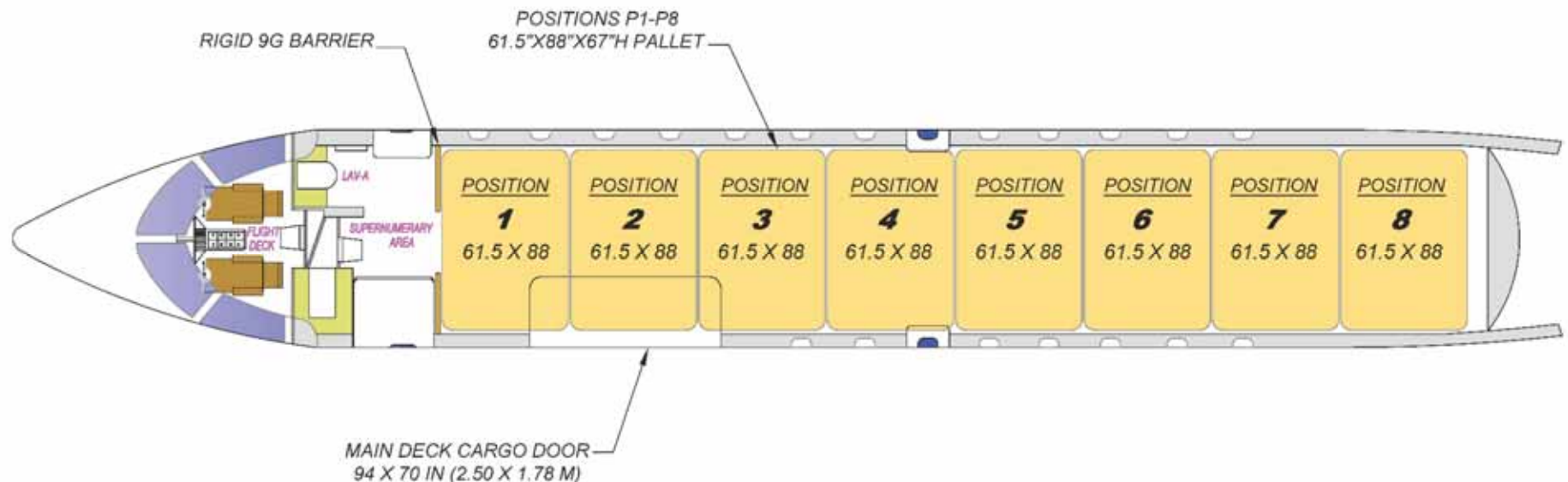
- Conversion price includes one flight attendant style supernumerary seat located near the cockpit door
- Privacy curtain is added
- Dry toilet to be provided by customer
- Fwd galley structure removed
- Potable water removed
- Cockpit Door retained



AEI CRJ200 SF 8 Pallet Configuration Cargo Loading System



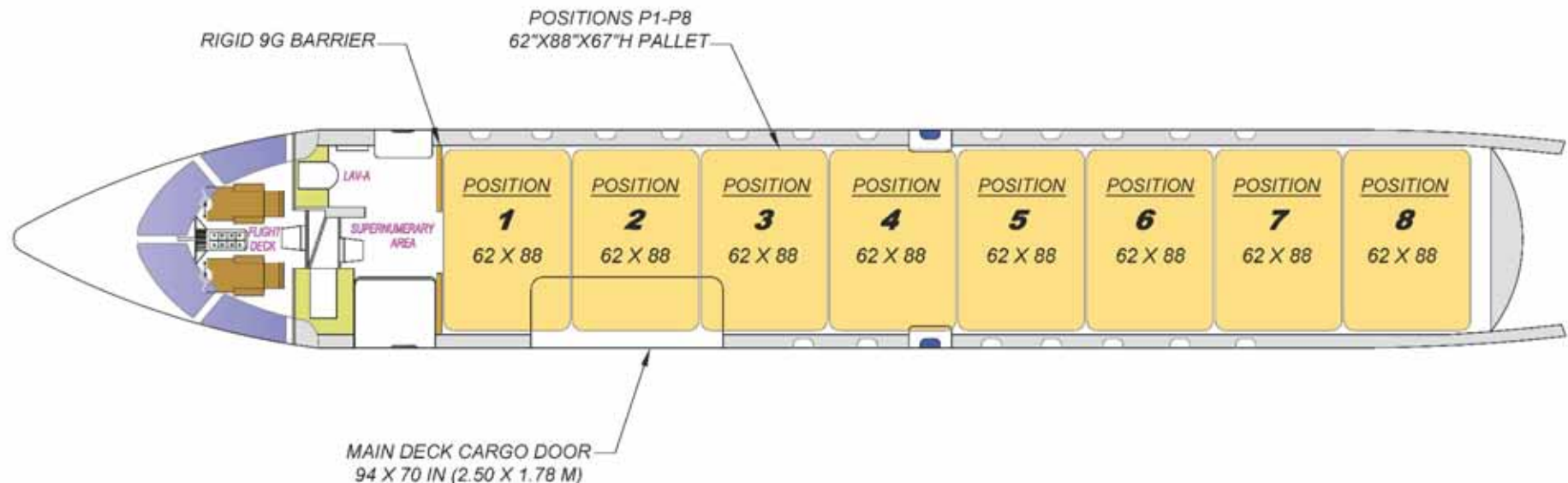
- Ancra International is the exclusive supplier of CRJ200 SF 8 Pallet Configuration Cargo Loading Systems (CLS) to AEI. The basic CLS, Ancra part number 85400-10 is included in the conversion price.
- PN 85400-10, (8) 61.5" X 88"



AEI CRJ200 SF 8 Pallet Configuration Cargo Loading System



- Ancra International is the exclusive supplier of CRJ200 SF 8 Pallet Configuration Cargo Loading Systems (CLS) to AEI. The basic CLS, Ancra part number 85400-10 is included in the conversion price.
- PN 85400-11, (8) 62" X 88"



AEI CRJ200 SF 8 Pallet Configuration Freighter Position Weights and Containers



	Standard 61.5X88" Main Deck Cargo Compartment Position Weights								
	P1	P2	P3	P4	P5	P6	P7	P8	
Netted Pallet Dimensions	61.5"X88" or 62"X88" 67"H	61.5"X88" or 62"X88" 67"H	61.5"X88" or 62"X88" 67"H	61.5"X88" or 62"X88" 67"H	61.5"X88" or 62"X88" 67"H	61.5"X88" or 62"X88" 67"H	61.5"X88" or 62"X88" 67"H	61.5"X88" or 62"X88" 67"H	61.5"X88" or 62"X88" 67"H
Container Dimensions	61.5"X88" or 62"X88" 67"H	61.5"X88" or 62"X88" 67"H	61.5"X88" or 62"X88" 67"H	61.5"X88" or 62"X88" 67"H	61.5"X88" or 62"X88" 67"H	61.5"X88" or 62"X88" 67"H	61.5"X88" or 62"X88" 67"H	61.5"X88" or 62"X88" 67"H	61.5"X88" or 62"X88" 67"H
Container Type	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Position Weight Limit	2,000 LB 907 KG	2,000 LB 907 KG	2,000 LB 907 KG	1,800 LB 816 KG	1,800 LB 816 KG	1,800 LB 816 KG	2,000 LB 907 KG	2,000 LB 907 KG	

IATA ULD type codes are provided for reference and are based upon standard contours and dimensions. Variations in contour or dimensions may exist between various ULD manufacturers. AEI does not guarantee that all described ULDs from all manufacturers will fit within the aircraft and the aircraft operator must confirm the ULDs it plans to use will fit within the internal contour of the aircraft. All position weights are estimated and subject to change.

CRJ200 SF Loading

- Aft tipping limit is 47%MAC, keeping this below 40% is highly recommended. Here are some scenarios:

- With no fuel on board, and with maximum 2000lb load in P8 and P7 aircraft will have 48%MAC, it will tip. Need to load P1 first if no fuel onboard.

- with 1000gal of fuel in wing tanks and maximum 2000lb load in P8 and P7 and P6 aircraft will have 42%MAC, aircraft should not tip but need to use caution.

- with 1000gal of fuel in wing tanks and 1500lb load in P8 and P7 and P6 aircraft will have 37%MAC. Safe, tipping is not likely.

Note, Critical loading is up to P6 since CG moves aft, as P5 is loaded CG will start to move fwd.

AEI CRJ200 SF 8 Pallet Configuration Freighter Weights and Volumes



<u>Weights</u>		
	CRJ200 SF ER	CRJ200 SF LR
MTW*	Up to 51,250 LB Max (23,247 kg)	Up to 53,250 LB Max (24,154 kg)
MTOW*	Up to 51,000 LB Max (23,133 kg)	Up to 53,000 LB Max (24,041 kg)
MZFW*	Up to 44,000 LB Max (19,958 kg)	Up to 44,000 LB Max (19,958 kg)
MLW*	Up to 47,000 LB Max (21,319 kg)	Up to 47,000 LB Max (21,319 kg)
BEW**	29,426 LB (13,347 kg)	29,426 LB (13,347 kg)
Total Aircraft Payload***	Up to 14,574 LB Max (6,611 kg)	Up to 14,574 LB Max (6,611 kg)
Fuel Capacity****	14,305 LB (6,489 KG)	14,305 LB (6,489 KG)

<u>Main Deck Usable Volume</u>	
8 ASZ Containers 61.5"x88"x67.9"H****	1,356 FT³ (38.4 M³)
8 Pallets (EST) 61.5"x88"x67.25"H****	1,452 FT³ (41.1 M³)

* Aircraft as-delivered weights

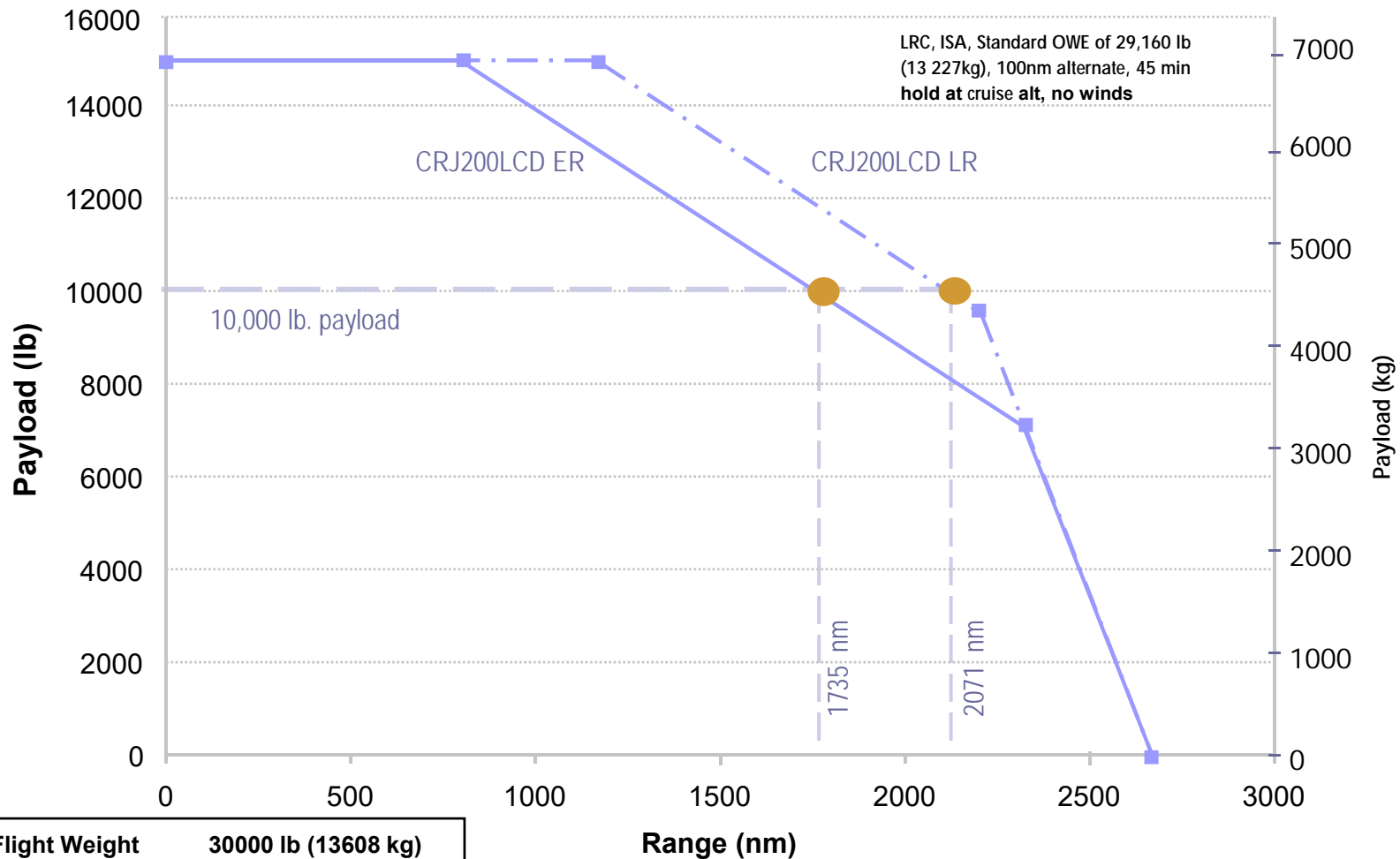
** Typical BEW after conversion for standard conversion configuration. Actual BEW depends on original aircraft configuration and options selected during conversion.

*** Max Aircraft Payload, depends on aircraft BEW plus operation items and MZFW, Total Main Deck Payload estimates only
Aircraft Requires ballast when flying empty, this might impact revenue payload

****Floor board to finished ceiling height is 71.38"

*****Top of CLS to finished ceiling height is 69.63"

AEI CRJ200 SF 8 Pallet Configuration Freighter Payload / Range Chart



Minimum Flight Weight	30000 lb (13608 kg)
Less OWE	- 29160 lb (13227 kg)
Residual Weight Required	840 lb (381 kg)

Payload-Range performance is estimated for illustration and is subject to individual aircraft performance, atmospheric conditions and other factors beyond AEI's control. AEI makes no guarantee of payload-range performance.

AEI CRJ200 SF 8 Pallet Configuration Freighter Certification



FAA STC ST02606LA

United States Of America
Department of Transportation - Federal Aviation Administration
Supplemental Type Certificate

Number ST02606LA

This certificate issued to Aeronautical Engineers, Inc.
7765 N.W. 54th Street
Miami, Florida 33166

certifies that the change in the type design for the following product with the limitations and conditions therefore as specified herein meets the airworthiness requirements of Part 25 of the Federal Aviation Regulations.

Original Standard Type Certificate Number A21EA

Make Bombardier, Inc.

Model CL-600-2B19

Description of Type Design Change Installation of a Main Deck Cargo Door and Class E cargo compartment in accordance with Master Data List, Report No. R-391, Rev. C, dated 10/07/2016, or later FAA approved revision.

Limitations and Conditions The additional installation of a rigid main deck cargo barrier per ST02607LA and a cargo handling system per STC ST02620LA which is compatible with this STC is required. The installation should not be incorporated into any aircraft unless it is determined that the interrelationship between this installation and any previously approved configuration will not introduce any adverse effect upon the airworthiness of the aircraft. The approval of this modification applies to the above noted airplane model series only. If the holder agrees to permit another person to use this certificate to alter the product, the holder shall give the other person written evidence of that permission.
(Limitations and conditions continued on page 3)

This certificate and the supporting data which is the basis for approval shall remain in effect until superseded, amended, revoked or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application April 11, 2013

Date received

Date of issuance October 27, 2016

Date amended

By direction of the Administrator




(Signature)
Manager, Airframe Branch
Los Angeles Aircraft Certification Office

17504
Any alteration of this certificate is punishable by a fine of not exceeding \$1,000 or imprisonment not exceeding 1 year, or both.
This certificate may be transferred in accordance with FAR 21.42.

AEI CRJ200 SF 8 Pallet Configuration Summary



- Bombardier Licensed 3rd Party STC Provider
- Two CLS options
 - Eight 61.5"X88" ULD Positions, included in the purchase price
 - Eight 62"X88" ULD Positions, optional
- Up to 14,574 LB (6,611 KG) Main Deck Payload (depending on Model & Aircraft Weight Limits)
- Large Cargo Door 94" X 70"
- Cargo Density Capability 120kg/m³
- 1.75" Ankra Cargo Loading System
- Single Vent Door System
- 28VDC, independent cargo door hydraulic system
- Cabin windows replaced with aluminum window plugs
- 9g rigid cargo / smoke barrier with sliding door
- 1 Supernumerary Seat
- Jet Speed Advantage for long, thin and niche routes
- Superior economics for mid to long haul cargo
- Proven robust commercial aircraft platform

Contact Information



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