A220

Master

Ramp servicing publication RSP

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

BD500-3AB48-11800-00
Issue No. 110

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Publication No.: BD500-3AB48-11800-00

Manufacturer:

AIRBUS

Airbus Canada Limited Partnership
Customer Services
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Canada J7N 3C6

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Highlights

Issue 110

The listed changes are introduced in Issue 110, dated 2023-10-19, of this publication.

Data module code	Reason for change
BD500-A-J00-00-00-09AAA-018A-A	Changed Data Module To update to the A220 Aircraft Characteristics
BD500-A-J00-00-00-00AAA-030A-A	Changed Data Module To update the para # 4.
BD500-A-J12-10-38-01AAA-226A-A	Changed Data Module To change applicability.

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Technical Publications Comment form

AIRBUS A220

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All fields marked with an asterisk* are required

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Publication information

*Aircraft type:		*Aircraft model:	*Publication Module Code (PMC):
*Publication title/Issue:	*Media Type: ☐ Paper ☐ Web	*Data Module Code (DMC):	*DMC issue date:
Data module title:		Originator's reference number:	
*Comments:			
Reason for change:			
Reference data provided: ☐ Yes ☐ No Description:			

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Change record

Make sure that the previous issues have been incorporated.

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Issue	Incorporated date	by (signature)	Issue	Incorporated date	by (signature)
001	Feb 10/2016	Initial issue	026	Feb 23/2017	Signature on file
002	Mar 08/2016	Signature on file	027	Mar 09/2017	Signature on file
003	Apr 20/2016	Signature on file	028	Mar 30/2017	Signature on file
004	May 20/2016	Signature on file	029	Apr 06/2017	Signature on file
005	Jun 20/2016	Signature on file	030	Apr 13/2017	Signature on file
006	Jul 20/2016	Signature on file	031	Apr 20/2017	Signature on file
007	Aug 19/2016	Signature on file	032	May 04/2017	Signature on file
008	Sep 08/2016	Not released	033	May 11/2017	Signature on file
009	Sep 15/2016	Not released	034	May 18/2017	Signature on file
010	Sep 22/2016	Signature on file	035	May 25/2017	Signature on file
011	Sep 29/2016	Not released	036	Jun 08/2017	Signature on file
012	Oct 13/2016	Not released	037	Jun 15/2017	Signature on file
013	Oct 20/2016	Signature on file	038	Jul 06/2017	Signature on file
014	Nov 10/2016	Not released	039	Aug 17/2017	Signature on file
015	Nov 17/2016	Not released	040	Aug 24/2017	Signature on file
016	Nov 24/2016	Signature on file	041	Aug 31/2017	Signature on file
017	Dec 01/2016	Not released	041-01	Sep 08/2017	Signature on file
018	Dec 15/2016	Signature on file	042	Sep 21/2017	Signature on file
019	Dec 22/2016	Signature on file	043	Sep 28/2017	Signature on file
020	Jan 06/2017	Signature on file	044	Oct 12/2017	Signature on file
021	Jan 12/2017	Not released	045	Oct 19/2017	Signature on file
022	Jan 19/2017	Not released	046	Oct 26/2017	Signature on file
023	Jan 26/2017	Signature on file	047	Nov 30/2017	Signature on file
024	Feb 02/2017	Not released	048	Dec 07/2017	Signature on file
025	Feb 16/2017	Not released	049	Dec 14/2017	Signature on file

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Issue	Incorporated date	by (signature)	Issue	Incorporated date	by (signature)
050	Dec 21/2017	Signature on file	062-02	Dec 06/2018	Signature on file
051	Jan 04/2018	Signature on file	063	Dec 22/2018	Signature on file
052	Jan 11/2018	Signature on file	064	Jan 17/2019	Signature on file
053	Jan 25/2018	Signature on file	064-01	Jan 31/2019	Signature on file
054	Feb 01/2018	Signature on file	065	Feb 14/2019	Signature on file
055	Feb 08/2018	Signature on file	065-01	Feb 21/2019	Signature on file
056	Feb 15/2018	Signature on file	065-02	Feb 28/2019	Signature on file
056-01	Mar 22/2018	Signature on file	066	Mar 14/2019	Signature on file
057	Apr 19/2018	Signature on file	066-01	May 02/2019	Signature on file
057-01	Apr 26/2018	Signature on file	066-02	May 09/2019	Signature on file
057-02	May 03/2018	Signature on file	067	May 16/2019	Signature on file
057-03	May 10/2018	Signature on file	067-01	May 23/2019	Signature on file
058	May 17/2018	Signature on file	067-02	May 30/2019	Signature on file
058-01	May 24/2018	Signature on file	067-03	Jun 06/2019	Signature on file
058-02	May 31/2018	Signature on file	67-04	Jun 13/2019	Signature on file
058-03	Jun 07/2018	Signature on file	068	Jun 20/2019	Signature on file
059	Jun 14/2018	Signature on file	68-01	Jun 27/2019	Signature on file
059-01	Jul 26/2018	Signature on file	069	Jul 18/2019	Signature on file
060	Aug 16/2018	Signature on file	069-01	Jul 25/2019	Signature on file
060-01	Oct 11/2018	Signature on file	69-02	Aug 01/2019	Signature on file
061	Oct 18/2018	Signature on file	070	Aug 15/2019	Signature on file
061-01	Nov 01/2018	Signature on file	70-01	Aug 22/2019	Signature on file
061-02	Nov 08/2018	Signature on file	70-02	Aug 29/2019	Signature on file
062	Nov 15/2018	Signature on file	071	Sep 19/2019	Signature on file
062-01	Nov 22/2018	Signature on file	71-01	Sep 26/2019	Signature on file

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Issue	Incorporated date	by (signature)	Issue	Incorporated date	by (signature)
072	Oct 17/2019	Signature on file	80-02	Jul 09/2020	Signature on file
72-01	Oct 31/2019	Signature on file	081	Jul 16/2020	Signature on file
073	Nov 14/2019	Signature on file	81-01	Jul 23/2020	Signature on file
73-01	Nov 21/2019	Signature on file	081-02	Jul 30/2020	Signature on file
073-02	Nov 28/2019	Signature on file	81-03	Aug 13/2020	Signature on file
73-03	Dec 12/2019	Signature on file	082	Aug 20/2020	Signature on file
074	Dec 19/2019	Signature on file	82-01	Aug 27/2020	Signature on file
74-01	Jan 09/2020	Signature on file	083	Sep 17/2020	Signature on file
075	Jan 16/2020	Signature on file	83-01	Oct 08/2020	Signature on file
75-01	Jan 23/2020	Signature on file	084	Oct 15/2020	Signature on file
075-02	Jan 30/2020	Signature on file	84-01	Oct 29/2020	Signature on file
75-03	Feb 06/2020	Signature on file	84-02	Nov 12/2020	Signature on file
076	Feb 20/2020	Signature on file	085	Nov 19/2020	Signature on file
76-01	Feb 27/2020	Signature on file	85-01	Nov 26/2020	Signature on file
077	Mar 19/2020	Signature on file	85-02	Dec 10/2020	Signature on file
77-01	Mar 26/2020	Signature on file	086	Dec 17/2020	Signature on file
077-02	Apr 02/2020	Signature on file	86-01	Dec 23/2020	Signature on file
77-03	Apr 09/2020	Signature on file	86-02	Jan 07/2021	Signature on file
078	Apr 16/2020	Signature on file	087	Jan 14/2021	Signature on file
78-01	Apr 30/2020	Signature on file	87-01	Jan 21/2021	Signature on file
079	May 14/2020	Signature on file	087-02	Jan 28/2021	Signature on file
79-01	May 28/2020	Signature on file	087-03	Feb 04/2021	Signature on file
079-02	Jun 11/2020	Signature on file	87-04	Feb 11/2021	Signature on file
080	Jun 18/2020	Signature on file	088	Feb 18/2021	Signature on file
080-01	Jun 25/2020	Signature on file	88-01	Mar 04/2021	Signature on file

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Issue	Incorporated date	by (signature)	Issue	Incorporated date	by (signature)
88-02	Mar 11/2021	Signature on file	100	Aug 18/2022	Signature on file
89-00	Mar 18/2021	Signature on file	100-01	Aug 25/2022	Signature on file
089-01	Mar 25/2021	Signature on file	101	Sep 15/2022	Signature on file
089-02	Apr 01/2021	Signature on file	101-01	Dec 01/2022	Signature on file
89-03	Apr 08/2021	Signature on file	102-00	Dec 15/2022	Signature on file
090	Apr 15/2021	Signature on file	103-00	Feb 16/2023	Signature on file
90-01	Apr 29/2021	Signature on file	103-01	Mar 09/2023	Signature on file
090-02	May 06/2021	Signature on file	104-00	Mar 16/2023	Signature on file
90-03	May 13/2021	Signature on file	104-01	Mar 23/2023	Signature on file
091	May 20/2021	Signature on file	104-02	Mar 30/2023	Signature on file
91-01	May 27/2021	Signature on file	105-00	Apr 20/2023	Signature on file
092	Jun 17/2021	Signature on file	106-00	May 18/2023	Signature on file
092-01	Jul 08/2021	Signature on file	106-01	Jul 13/2023	Signature on file
093	Jul 15/2021	Signature on file	107-00	Jul 20/2023	Signature on file
093-01	Aug 05/2021	Signature on file	107-01	Jul 27/2023	Signature on file
094	Aug 19/2021	Signature on file	108-00	Aug 17/2023	Signature on file
094-01	Aug 26/2021	Signature on file	108-01	Sep 07/2023	Signature on file
095	Sep 16/2021	Signature on file	109-00	Sep 14/2023	Signature on file
096	Dec 16/2021	Signature on file	109-01	Sep 21/2023	Signature on file
96-01	Mar 03/2022	Signature on file	109-02	Sep 28/2023	Signature on file
097	Mar 17/2022	Signature on file	110-00	Oct 19/2023	Signature on file
97-01	May 12/2022	Signature on file			
098	May 19/2022	Signature on file			
099	Jul 14/2022	Signature on file			
099-01	Aug 11/2022	Signature on file			

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List of effective data modules

The listed documents are included in Issue 110, dated 2023-10-19, of this publication.

C = Changed data module
N = New data module

Document title	Data module code		Issue date	No. of pages	Applicable to
A220 Aircraft Charact eristics - Introduction	BD500-A-J00-00-00-09AAA-018A-A	C	2023-09-15	2	50001-54999, 55001-59999
Aircraft charact eristics - Technical data	BD500-A-J00-00-00-00AAA-030A-A	C	2023-09-12	3	50001-54999, 55001-59999
Aircraft dimensions - Technical data	BD500-A-J06-10-00-00AAA-030A-A		2021-03-18	12	50001-54999, 55001-59999
Aircraft scaled down dimensions - Technical data	BD500-A-J06-10-00-01AAA-030A-A		2019-10-21	3	50001-54999, 55001-59999
Principal dimensions, landing gear footprint - Technical data	BD500-A-J06-10-32-00AAA-030A-A		2016-05-02	3	50001-54999, 55001-59999
Operating condition and noise data - Technical data	BD500-A-J71-00-00-00AAA-030A-A		2019-12-03	2	50001-54999, 55001-59999
Slinging and hoisting - Function, data for plans and description	BD500-A-J07-30-00-00AAA-000A-A		2019-10-21	1	50001-54999, 55001-59999
Towing of the aircraft with towbar - Towing	BD500-A-J09-11-00-01AAA-174A-A		2021-04-07	11	50001-54999, 55001-59999
Towing safety precau- tions - General mainte- nance safety procedure	BD500-A-J09-11-00-01AAA-913G-A		2021-07-01	10	50001-54999, 55001-59999
Towing of the aircraft without towbar - Towing	BD500-A-J09-11-00-02AAA-174A-A		2023-07-17	11	50001-54999, 55001-59999
Ground maneuvering, turning radii - Technical data	BD500-A-J09-20-01-00AAA-030A-A		2018-02-05	4	50001-54999, 55001-59999
Ground maneuvering, visibility from flight com- partment - Technical data	BD500-A-J09-20-01-01AAA-030A-A		2016-01-13	3	50001-54999, 55001-59999
Aircraft grounding - Gen- eral maintenance proce- dure	BD500-A-J10-10-02-01AAA-913A-A		2017-08-08	5	50001-54999, 55001-59999
Aircraft protection equip- ment - Remove support	BD500-A-J10-12-00-01AAA-522A-A		2022-05-05	13	50001-54999, 55001-59999

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Document title	Data module code	Issue date	No. of pages	Applicable to
equipment/Remove from support equipment				
Aircraft protection equipment - Install support equipment/Install on support equipment	BD500-A-J10-12-00-01AAA-722A-A	2022-05-05	14	50001-54999, 55001-59999
Forward cargo compartment volume, weight and maximum item dimensions - Technical data	BD500-A-J14-20-00-01AAA-030A-A	2023-03-23	12	50001-54999, 55001-59999
Aft cargo compartment volume, weight and maximum item dimensions - Technical data	BD500-A-J14-20-00-02AAA-030A-A	2023-03-23	12	50001-54999, 55001-59999
Cargo nets and tie-downs - Technical data	BD500-A-J14-20-00-03AAA-030A-A	2016-05-02	9	50001-54999
Aircraft touch and no-touch zones - Technical data	BD500-A-J15-30-00-00AAA-030A-A	2019-10-21	5	50001-54999, 55001-59999
Crew safety precautions - dangerous areas - Technical data	BD500-A-J15-30-10-00AAA-030A-A	2019-12-03	3	50001-54999
Emergency exits and evacuation - Technical data	BD500-A-J15-41-00-01AAA-030A-A	2019-11-05	4	50001-54999, 55001-59999
Fire-fighting - Fire-fighting and rescue	BD500-A-J15-41-00-02AAA-989A-A	2014-11-07	6	50001-54999, 55001-59999
Emergency equipment location - General data	BD500-A-J25-61-00-00AAA-010A-A	2019-09-11	30	50001-54999, 55001-59999
Aircraft painting - Paint and apply marking	BD500-A-J00-00-00-00AAA-257A-A	2019-08-12	3	50001-54999, 55001-59999
Terminal servicing - Technical data	BD500-A-J00-00-05-01AAA-030A-A	2019-11-06	13	50001-54999, 55001-59999
Wet wash - Clean and apply surface protection	BD500-A-J12-00-00-01AAA-250A-A	2022-08-18	6	50001-54999, 55001-59999
Dry wash - Clean and apply surface protection	BD500-A-J12-00-00-02AAA-250A-A	2017-02-03	8	50001-54999, 55001-59999
External air conditioning source - Disconnect procedure	BD500-A-J12-10-21-01AAA-510A-A	2023-02-08	6	50001-54999, 55001-59999
External air conditioning source - Connect procedure	BD500-A-J12-10-21-01AAA-730A-A	2021-04-29	8	50001-54999, 55001-59999

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Document title	Data module code		Issue date	No. of pages	Applicable to
Manual - Refuel	BD500-A-J12-10-28-01AAA-211A-A		2023-03-13	13	50001-54999, 55001-59999
Suction - Defuel and drain fuel	BD500-A-J12-10-28-01AAA-221A-A		2021-02-05	13	50001-54999, 55001-59999
Refueling - rate and time - Technical data	BD500-A-J12-10-28-01AAB-030A-A		2017-01-16	6	55001-59999
Automatic - Refuel	BD500-A-J12-10-28-02AAA-211A-A		2023-03-13	15	50001-54999, 55001-59999
Pressure - Defuel and drain fuel	BD500-A-J12-10-28-02AAA-221A-A		2021-03-01	12	50001-54999, 55001-59999
Potable Water System (PWS) - Fill with water	BD500-A-J12-10-38-01AAA-216A-A		2021-03-23	9	50001-54999, 55001-59999
Potable water system - Drain water	BD500-A-J12-10-38-01AAA-226A-A	C	2023-10-11	6	50001-54999, 55001-59999
Water Waste System (WWS) - Drain other liquid	BD500-A-J12-10-38-02AAA-228A-A		2022-07-04	6	50001-54999, 55001-59999
Deicing/Anti-icing - Remove ice	BD500-A-J12-31-00-00AAA-261A-A		2023-03-10	43	50001-54999, 55001-59999
External AC power source - De-Energize electrical network	BD500-A-J24-41-00-01AAA-561A-A		2023-08-30	9	50001-54999, 55001-59999
External AC power source - Energize electrical network	BD500-A-J24-41-00-01AAA-761A-A		2023-07-05	10	50001-54999, 55001-59999

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The listed documents are included in Issue 110, dated 2023-10-19, of this publication.

Document title	Data module code	Issue date	Applicable to
A220 Aircraft Characteristics - Introduction	BD500-A-J00-00-00-09AAA-018A-A	2023-09-15	50001-54999, 55001-59999
Aircraft characteristics			
Aircraft characteristics - Technical data	BD500-A-J00-00-00-00AAA-030A-A	2023-09-12	50001-54999, 55001-59999
Aircraft dimensions - Technical data	BD500-A-J06-10-00-00AAA-030A-A	2021-03-18	50001-54999, 55001-59999
Aircraft scaled down dimensions - Technical data	BD500-A-J06-10-00-01AAA-030A-A	2019-10-21	50001-54999, 55001-59999
Principal dimensions, landing gear footprint - Technical data	BD500-A-J06-10-32-00AAA-030A-A	2016-05-02	50001-54999, 55001-59999
Operating condition and noise data - Technical data	BD500-A-J71-00-00-00AAA-030A-A	2019-12-03	50001-54999, 55001-59999
Aircraft handling			
Slinging and hoisting - Function, data for plans and description	BD500-A-J07-30-00-00AAA-000A-A	2019-10-21	50001-54999, 55001-59999
Towing of the aircraft with towbar - Towing	BD500-A-J09-11-00-01AAA-174A-A	2021-04-07	50001-54999, 55001-59999
Towing safety precautions - General maintenance safety procedure	BD500-A-J09-11-00-01AAA-913G-A	2021-07-01	50001-54999, 55001-59999
Towing of the aircraft without towbar - Towing	BD500-A-J09-11-00-02AAA-174A-A	2023-07-17	50001-54999, 55001-59999
Ground maneuvering, turning radii - Technical data	BD500-A-J09-20-01-00AAA-030A-A	2018-02-05	50001-54999, 55001-59999
Ground maneuvering, visibility from flight compartment - Technical data	BD500-A-J09-20-01-01AAA-030A-A	2016-01-13	50001-54999, 55001-59999
Aircraft grounding - General maintenance procedure	BD500-A-J10-10-02-01AAA-913A-A	2017-08-08	50001-54999, 55001-59999
Aircraft protection equipment - Remove support equipment/Remove from support equipment	BD500-A-J10-12-00-01AAA-522A-A	2022-05-05	50001-54999, 55001-59999
Aircraft protection equipment - Install support equipment/Install on support equipment	BD500-A-J10-12-00-01AAA-722A-A	2022-05-05	50001-54999, 55001-59999
Forward cargo compartment volume, weight and maximum item dimensions - Technical data	BD500-A-J14-20-00-01AAA-030A-A	2023-03-23	50001-54999, 55001-59999

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Document title	Data module code	Issue date	Applicable to
Aft cargo compartment volume, weight and maximum item dimensions - Technical data	BD500-A-J14-20-00-02AAA-030A-A	2023-03-23	50001-54999, 55001-59999
Cargo nets and tie-downs - Technical data	BD500-A-J14-20-00-03AAA-030A-A	2016-05-02	50001-54999
Aircraft touch and no-touch zones - Technical data	BD500-A-J15-30-00-00AAA-030A-A	2019-10-21	50001-54999, 55001-59999
Crew safety precautions - dangerous areas - Technical data	BD500-A-J15-30-10-00AAA-030A-A	2019-12-03	50001-54999
Emergency exits and evacuation - Technical data	BD500-A-J15-41-00-01AAA-030A-A	2019-11-05	50001-54999, 55001-59999
Fire-fighting - Fire-fighting and rescue	BD500-A-J15-41-00-02AAA-989A-A	2014-11-07	50001-54999, 55001-59999
Emergency equipment location - General data	BD500-A-J25-61-00-00AAA-010A-A	2019-09-11	50001-54999, 55001-59999
Servicing points and procedures			
Aircraft painting - Paint and apply marking	BD500-A-J00-00-00-00AAA-257A-A	2019-08-12	50001-54999, 55001-59999
Terminal servicing - Technical data	BD500-A-J00-00-05-01AAA-030A-A	2019-11-06	50001-54999, 55001-59999
Wet wash - Clean and apply surface protection	BD500-A-J12-00-00-01AAA-250A-A	2022-08-18	50001-54999, 55001-59999
Dry wash - Clean and apply surface protection	BD500-A-J12-00-00-02AAA-250A-A	2017-02-03	50001-54999, 55001-59999
External air conditioning source - Disconnect procedure	BD500-A-J12-10-21-01AAA-510A-A	2023-02-08	50001-54999, 55001-59999
External air conditioning source - Connect procedure	BD500-A-J12-10-21-01AAA-730A-A	2021-04-29	50001-54999, 55001-59999
Manual - Refuel	BD500-A-J12-10-28-01AAA-211A-A	2023-03-13	50001-54999, 55001-59999
Suction - Defuel and drain fuel	BD500-A-J12-10-28-01AAA-221A-A	2021-02-05	50001-54999, 55001-59999
Refueling - rate and time - Technical data	BD500-A-J12-10-28-01AAB-030A-A	2017-01-16	55001-59999
Automatic - Refuel	BD500-A-J12-10-28-02AAA-211A-A	2023-03-13	50001-54999, 55001-59999
Pressure - Defuel and drain fuel	BD500-A-J12-10-28-02AAA-221A-A	2021-03-01	50001-54999, 55001-59999
Potable Water System (PWS) - Fill with water	BD500-A-J12-10-38-01AAA-216A-A	2021-03-23	50001-54999, 55001-59999

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Document title	Data module code	Issue date	Applicable to
Potable water system - Drain water	BD500-A-J12-10-38-01AAA-226A-A	2023-10-11	50001-54999, 55001-59999
Water Waste System (WWS) - Drain other liquid	BD500-A-J12-10-38-02AAA-228A-A	2022-07-04	50001-54999, 55001-59999
Deicing/Anti-icing - Remove ice	BD500-A-J12-31-00-00AAA-261A-A	2023-03-10	50001-54999, 55001-59999
External AC power source - De-Energize electrical network	BD500-A-J24-41-00-01AAA-561A-A	2023-08-30	50001-54999, 55001-59999
External AC power source - Energize electrical network	BD500-A-J24-41-00-01AAA-761A-A	2023-07-05	50001-54999, 55001-59999

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A220 Aircraft Characteristics - Introduction

Applicability: 50001-54999, 55001-59999

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Table 1 References

Data Module/Technical Publication	Title
None	

Description

1 General

The A220 Aircraft Characteristics, prepared by Airbus, contains information necessary to support the Airbus aircraft models BD-500-1A10 (A220-100) and BD-500-1A11 (A220-300) during ramp operations. The information provided here includes aircraft dimensions, servicing access, emergency access and equipments, routine fluid replenishment procedure and general servicing of the aircraft.

This publication agrees with the international specification for technical publications (S1000D) issue 4.0.1 dated 2009-05-12 and is written in simplified technical english.

The content of this publication will change as options and aircraft changes occur. Make sure that you refer to the latest release of this publication.

If there is a difference between the data contained in this publication and that given by the local regulatory authority, the data from the local regulatory authority must be obeyed.

All the procedures in the A220 Aircraft Characteristics can be performed by Aircraft Maintenance Engineers (AME). However, ramp personnel may be authorized to perform (RSP) procedures, if they are trained and certified by the operator.

2 Dimensions and weight

Linear dimensions given in this publication are in inches or feet with the metric equivalence in parentheses.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Weight measures is given in pounds with the metric equivalence in parentheses.

3 Correspondence

Send all correspondence about this publication to:

AIRBUS

CUSTOMER SUPPORT

13100 HENRI-FABRE BLVD, MIRABEL, QUEBEC

CANADA J7N 3C6

4 Translation of publication

If all or part of this publication is translated, the official version is the English language version produced by Airbus.

5 Acronyms

The first time an acronym is used it will be defined, and all subsequent uses will be in blue. When you mouse over the acronym, the definition will appear. Acronyms are not plural in this publication.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

A220

Aircraft characteristics

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Applicable to: All

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Aircraft characteristics - Technical data

Applicability: 50001-54999, 55001-59999

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

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Table 1 References

Data Module/Technical Publication	Title
None	

Description

1 Introduction

This data module contains general data about the BD-500-1A10 (A220-100) and BD-500-1A11 (A220-300) aircraft characteristics. The structural weight limits, such as maximum ramp weight, and zero fuel weight are dependent on configuration. Refer to each aircraft's specified Weight and Balance Manual (WBM BD500-A-J00-00-00-00AAA-030A-A) and weight and balance report for structural limits and other weight information.

Refer to Table 2 for the aircraft characteristics.

Refer to Table 3 for the system fluid capacities.

Refer to Table 4 for the service fluid capacities.

2 Aircraft characteristics

Table 2 Aircraft characteristics

Description	BD-500-1A10 (A220-100)	BD-500-1A11 (A220-300)
Engines	QTY: 2 Pure Power™ PW1519G	QTY: 2 Pure Power™ PW1521G
Mode	Passenger	Passenger

Description	BD-500-1A10 (A220-100)	BD-500-1A11 (A220-300)
Standard seating capacity	120	140
Maximum Ramp Weight (MRW)	135,000 lb (61 235 kg)	150,000 lb (68 039 kg)
Maximum Take-Off Weight (MTOW)	134,000 lb (60 781 kg)	149,000 lb (67 585 kg)
Maximum Landing Weight (MLW)	115,500 lb (52 390 kg)	129,500 lb (58 740 kg)
Operating Weight Empty (OWE)	77,650 lb (35 221 kg)	81,750 lb (37 081 kg)
Maximum Zero Fuel Weight (MZFW)	111,000 lb (50 349 kg)	123,000 lb (55 792 kg)
Maximum fuel tank capacity	5,790 USG (21 918 L)	5,790 USG (21 918 L)
Unusable fuel	240 lb (109 kg)	240 lb (109 kg)
Maximum wet cargo volume - Aft cargo compartment	474 cu. ft (13,4 cu. m)	627 cu. ft (17,75 cu. m)
Maximum wet cargo volume - Fwd cargo compartment	349 cu. ft (9,88 cu. m)	473 cu. ft (13,39 cu. m)
Maximum cargo volume - Over-head bins	280 cu. ft (7,93 cu. m)	332 cu. ft (9,40 cu. m)

3 System fluid capacities

Table 3 System fluid capacities

Description	Volume	Weight
Engine fluids calculated with 7.7 lb/US gal (0,920 kg/L)		
Engines oil tank at 60 °F	12.9 US gal (49,0 L)	99 lb (44,9 kg)
Lines and internal engine oil	3.3 US gal (12,6 L)	26 lb (11,8 kg)
Total	16.2 US gal (61,6 L)	125 lb (56,7 kg)
APU fluids calculated with 7.7 lb/US gal (0,920 kg/L)		
APU	3.3 US gal (12,3 L)	25 lb (11,3 kg)
Hydraulic fluids at 77°F (25 °C) low density 8.43 lb/US gal (1,01 kg/L)		
System 1 reservoir	4.98 US gal (18.85 L)	41.98 lb (19.04 kg)
System 2 reservoir	4.33 US gal (16.39 L)	36.50 lb (16.55 kg)
System 3 reservoir	3.46 US gal (13.10 L)	29.17 lb (13.23 kg)
Total	12.77 US gal (48.34 L)	107.65 lb (48.82 kg)

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Description	Volume	Weight
Hydraulic fluids at 77°F (25 °C) high density 8.86 lb/US gal (1,06 kg/L)		
System 1 reservoir	4.98 US gal (18.85 L)	44.12 lb (20.01 kg)
System 2 reservoir	4.33 US gal (16.39 L)	38.36 lb (17.40 kg)
System 3 reservoir	3.46 US gal (13.10 L)	30.65 lb (13.90 kg)
Total	12.77 US gal (48.34 L)	113.13 lb (51.31 kg)

4 Service fluid capacities

Table 4 Service fluid capacities

Description	Volume	Weight
Potable water at 60 °F (15,5 °C)		
Galley/Lavatory tank	42.0 US gal (159,0 L)	350.5 lb (159.0 kg)
Chemical toilet fluid at 60 °F (15,5 °C)		
Waste tank	42.0 US gal (159,1 L)	350 lb (158,8 kg)

This publication has been superseded by the Aircraft Characteristics Publication (ACP)

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Aircraft dimensions - Technical data

Applicability: 50001-54999, 55001-59999

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This publication has been superceded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
None	

Description

1 Introduction

This data module contains general data about the aircraft dimensions and clearances. The structural weight limits, such as maximum ramp weight, landing weight and zero fuel weight are dependent on configuration. Refer to Weight and Balance Manual (WBM) BD500-3AB48-22100-00 (A220-100), BD500-3AB48-22100-00 (A220-300) and weight and balance report for structural limits and other weight information.

2 General aircraft dimensions

Applicability: 50001-54999

Table 2 General aircraft dimensions (A220-100)

Locator (refer to Fig. 1)	Value in. (cm)
A	1377.0 (3497.58)
B	146.500 (372.11)
C	463.800 (117805)
D	482.800 (1226.31)
E	Baseline 1377.300 (3498.34)
	Fuel loaded 1381.300 (3508.50)
F	873.500 (2218.69)
G	773.200 (1963.93)
H	1341.000 (3406.14)
J	698.900 (1775.21)
K	395.000 (1003.30)
L	87.800 (223.01)
M	429.400 (1090.68)

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Locator (refer to Fig. 1)	Value in. (cm)
P	263.000 (668.02)
Q	96.500 (245.11)
R	103.800 (263.65)
S	134.900 (342.65)
T	267.900 (680.47)
U	98.300 (249.68)
V	193.500 (491.49)
W	135.200 (343.40)
X	27.200 (69.09)
Y	265.000 (673.10)
Z	515.700 (1309.87)
AA	0.38 Deg Nose down
BB	138.000 (350.52)

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Note

The values given change due to the variation of aircraft weight and gravity.

Applicability: 55001-59999

Table 3 General aircraft dimensions (A220-300)

Locator (refer to Fig. 1)	Value in. (cm)
A	1523.2 38689.28
B	146.500 (372.11)
C	461.9 (1173.23)
D	482.800 (1226.31)
E	Baseline 1377.300 (3498.34)
	Fuel loaded 1381.300 (3508.50)
F	961.4 (2441.96)
G	857.9 (2179.01)
H	1489.2 (3782.57)
J	783.2 (1989.33)
K	479.0 (1216.66)
L	172.4 (437.90)
M	513.3 (1303.78)
P	262.9 (667.77)

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

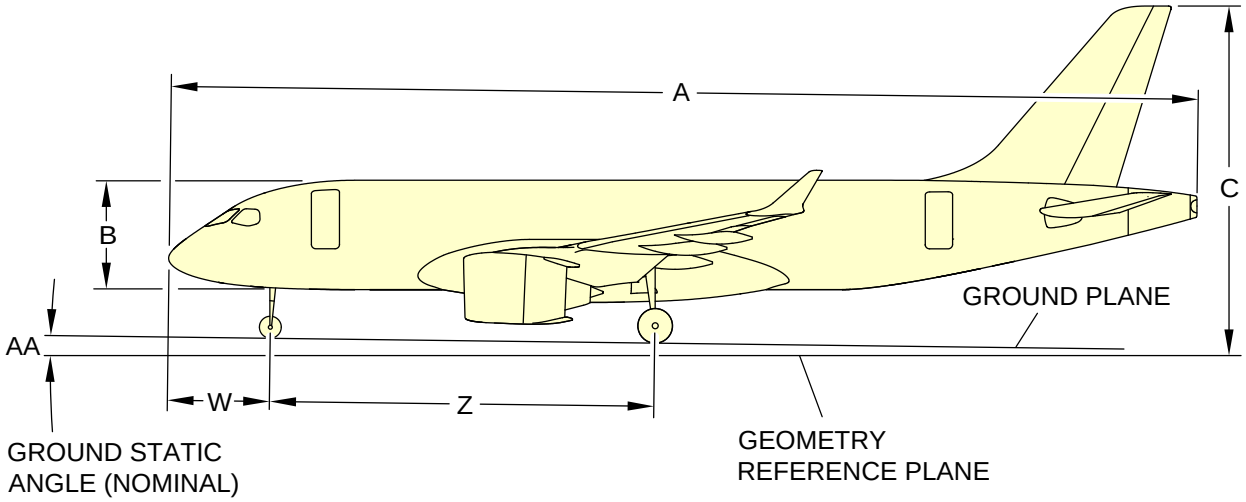
Locator (refer to Fig. 1)	Value in. (cm)
Q	96.500 (245.11)
R	162.2 (411.99)
S	198.5 (504.19)
T	268.0 (680.72)
U	97.7 (248.16)
V	194.6 (494.28)
W	133.4 (338.83)
X	27.200 (69.09)
Y	265.000 (673.10)
Z	602.6 (1530.60)
AA	0.477 Deg Nose down
BB	138.000 (350.52)

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

This data module contains data on the landing gear footprint.

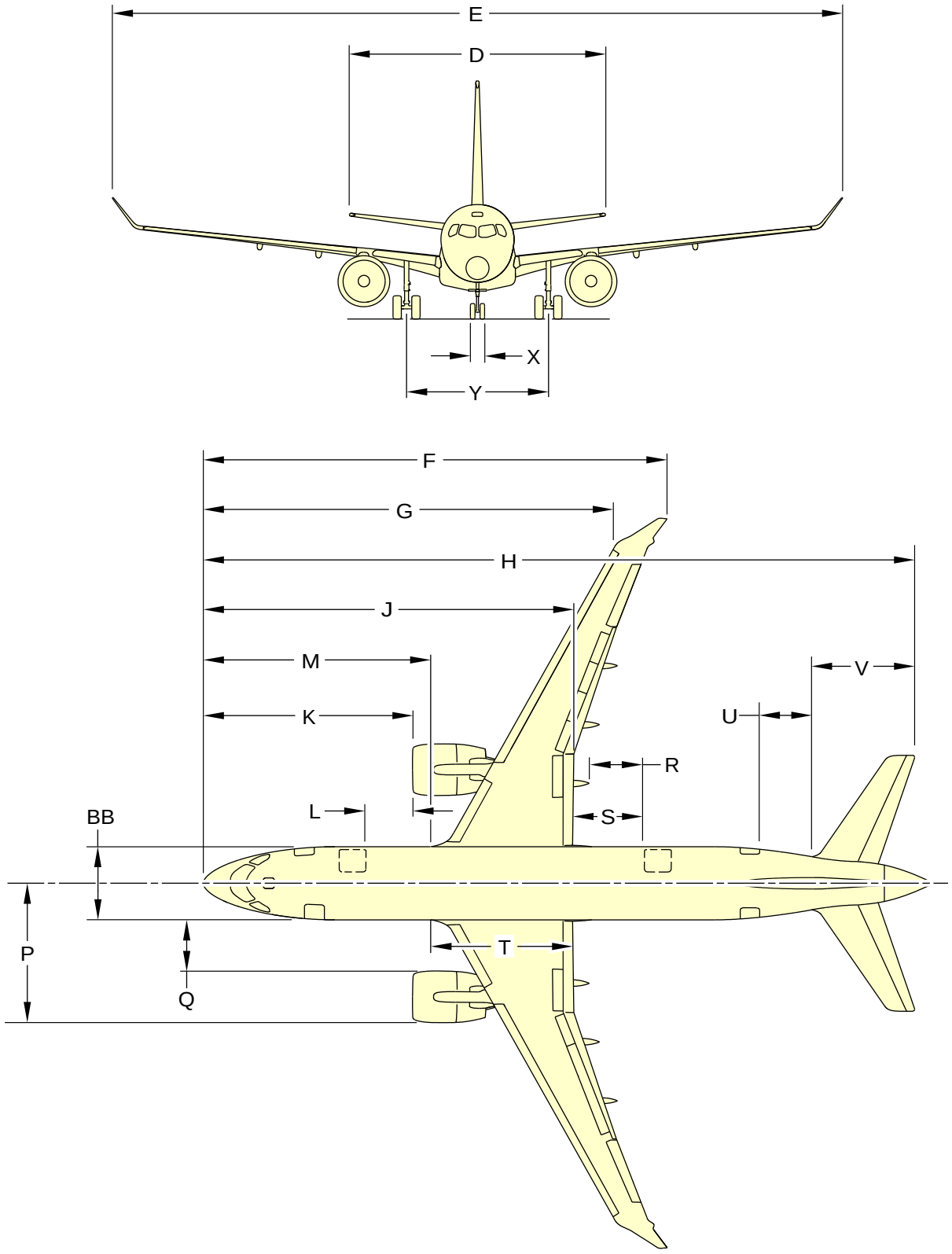
Note

The values given change due to the variation of aircraft weight and gravity.



ICN-BD500-A-J061000-A-3AB48-00005-A-001-01

Figure 1 General aircraft dimensions - (Sheet 1 of 2)



ICN-BD500-A-J061000-A-3AB48-00004-A-003-01

Figure 1 General aircraft dimensions - (Sheet 2 of 2)

3 Landing gear footprint dimensions

This data module contains data on the landing gear footprint.

Applicability: 50001-54999

Table 4 Landing gear footprint dimensions (A220-100)

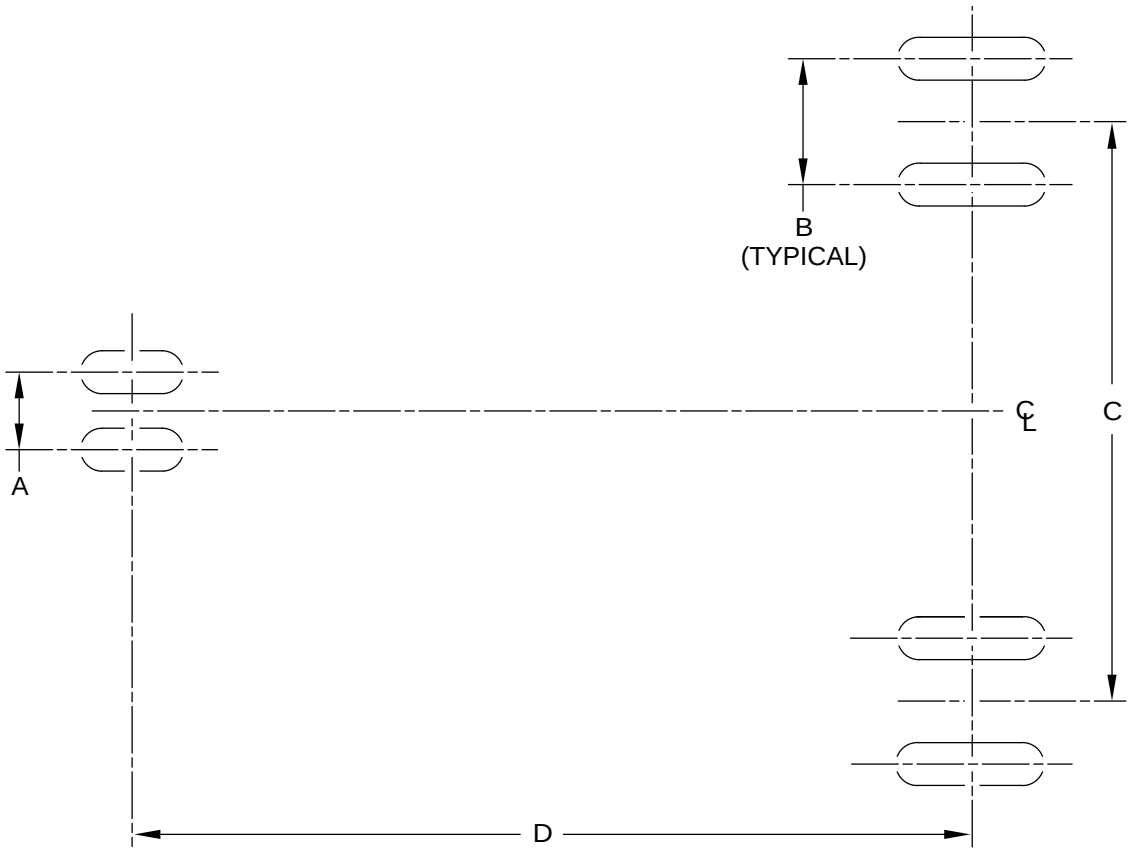
Locator	Value in. (cm)
A	18.571 (47.17)
B	35.000 (88.90)
C	265.000 (673.10)
D	515.7 (1309.87)

Applicability: 55001-59999

Table 5 Landing gear footprint dimensions (A220-300)

Locator	Value in. (cm)
A	18.571 (47.17)
B	35.000 (88.90)
C	265.000 (673.10)
D	602.6 (1530.60)

This publication has been superseded by the Aircraft Characteristics Publication (ACP).



NOTE

Not to scale.

ICN-BD500-A-J061032-A-3AB48-00118-A-001-01

Figure 2 Landing gear footprint dimensions

4 General aircraft area

Table 6 General aircraft area

Description	Value sq. ft. (sq. m)
ESDU wing area (including ailerons, flaps, spoilers and area within the fuselage)	1208.880 (112.31)
Total horizontal stabilizer area (horizontal tail area and elevator area)	313.500 (29.13)
Total vertical stabilizer area (vertical tail area and rudder area)	223.600 (20.77)

5 Pressure refueling and pilots eye position

Applicability: 50001-54999

Table 7 Pilots eye position (A220-100)

Locator (refer to Fig. 3)	Value in. (cm)
A	FS = 354 (899.16) BL ± 20.00 (50.80) WL = 196.00 (497.80)
D	29.60°
E	17.65°

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Applicability: 50001-54999

Table 8 Pressure refueling connection position (A220-100)

Locator (refer to Fig. 3)	Value in. (cm)
B	615.9

Locator (refer to Fig. 3)	Value in. (cm)
	(1564.39)
C	600.21 (1524.53)

Applicability: 55001-59999

Table 9 Pilots eye position (A220-300)

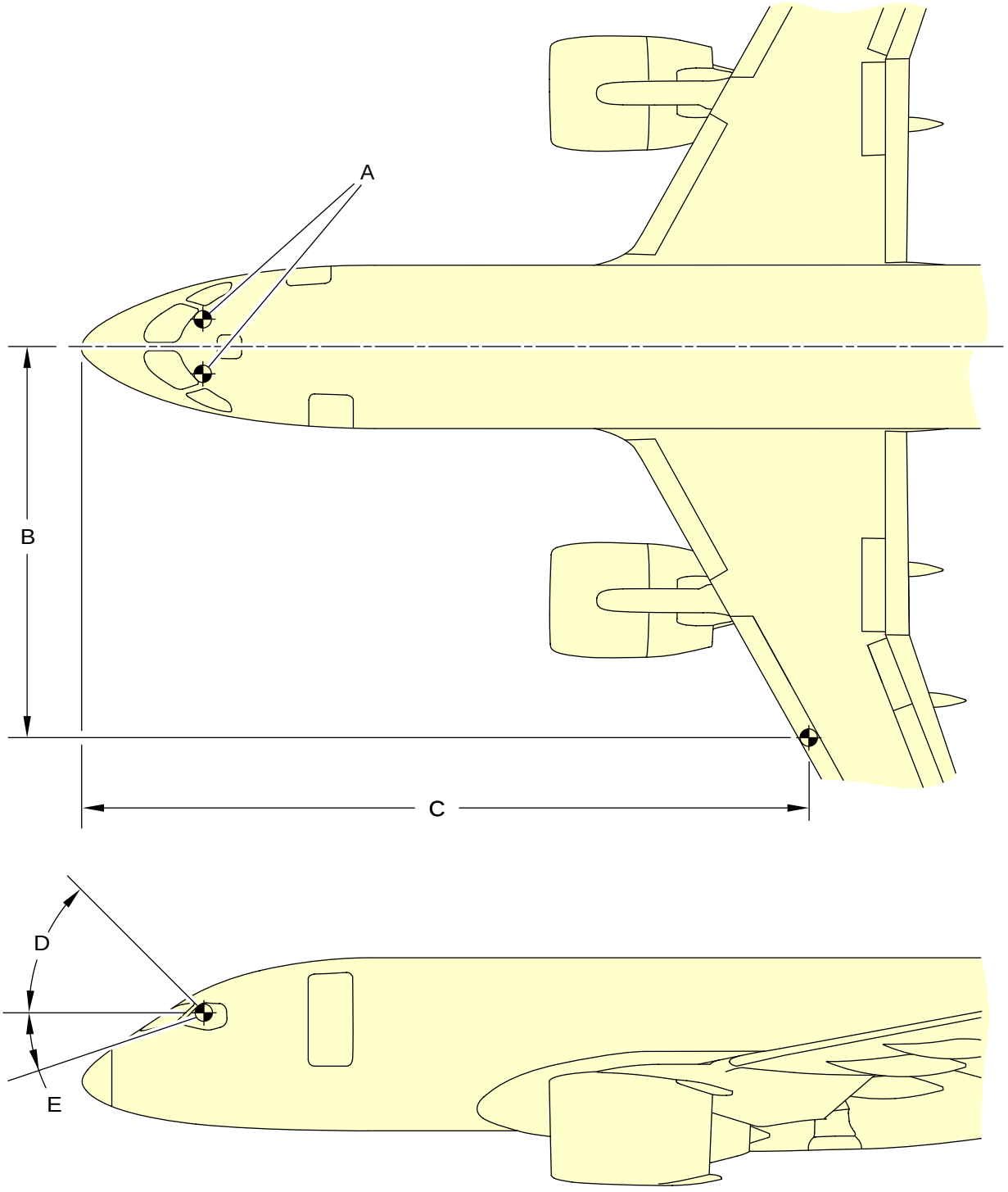
Locator (refer to Fig. 3)	Value in. (cm)
A	FS = 270 (685.80) BL ± 20.00 (50.80) WL = 196.00 (497.80)
D	29.60°
E	17.65°

Applicability: 55001-59999

Table 10 Pressure refueling connection position (A220-300)

Locator (refer to Fig. 3)	Value in. (cm)
B	615.9 (1564.39)
C	684.21 (1737.89)

This publication has been superseded by the Aircraft Characteristics Publication (ACP).



ICN-BD500-A-J061000-A-3AB48-10809-A-001-01

Figure 3 Pressure refueling and pilots eye position

Aircraft scaled down dimensions - Technical data

Applicability: 50001-54999, 55001-59999

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
None	

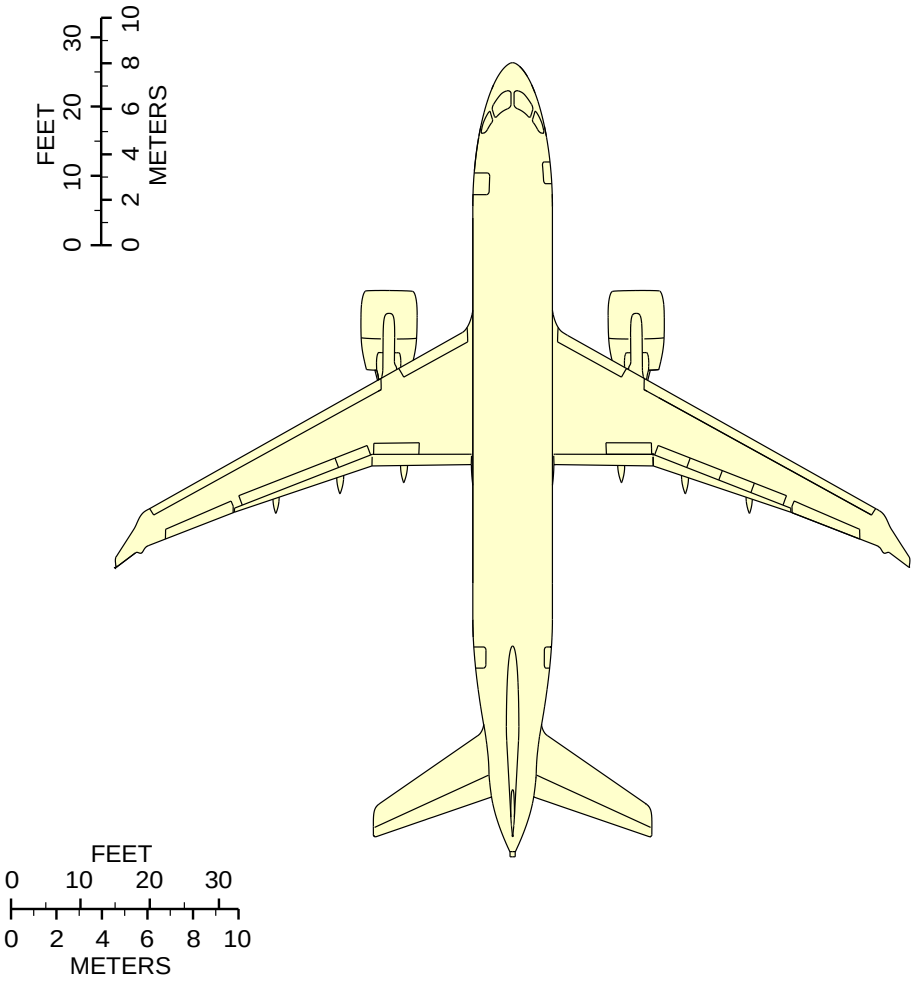
Description

1 Introduction

This data module contains the scaled drawing for the Airbus A220. It can be used to plan and to verify runway, ramp, and maintenance facility layouts.

Refer to Fig. 1.

(Sheet) Applicability: 50001-54999



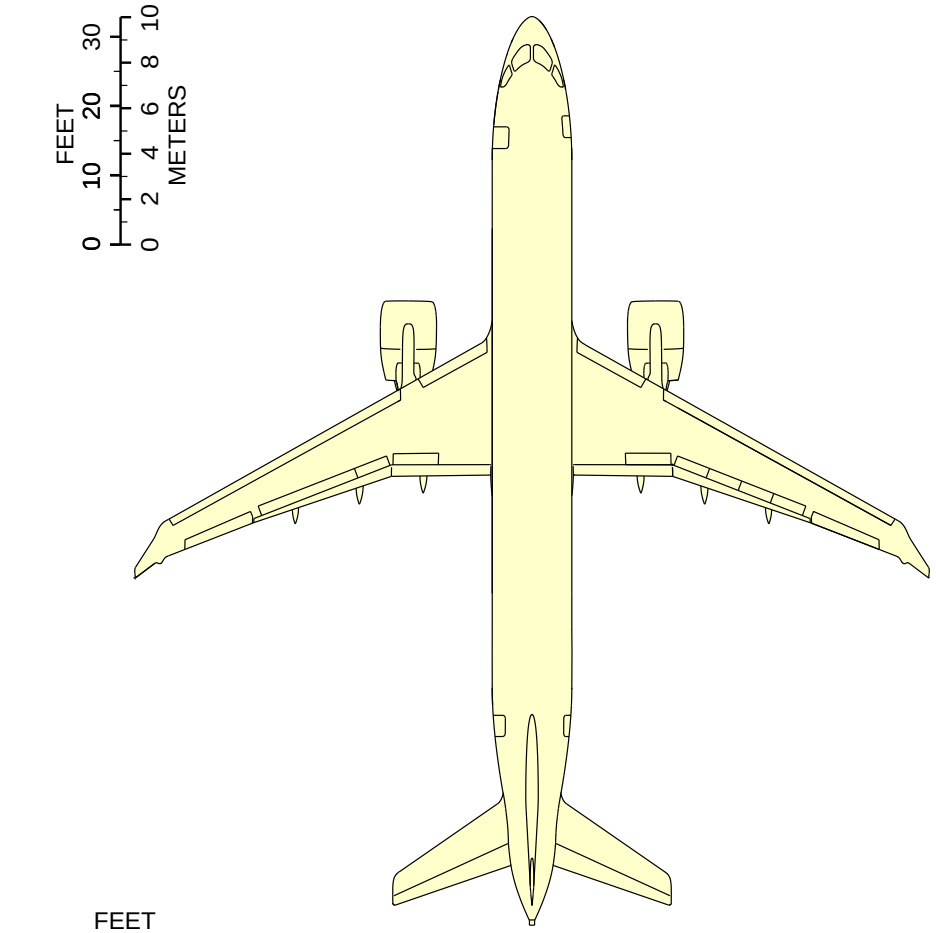
NOTES

1. Scale: 1 in. = 25 ft (1 cm = 3 m)
2. When printing this illustration, make sure to adjust for proper scaling.

ICN-BD500-A-J061000-A-3AB48-00006-A-001-01

Figure 1 Scaled drawing - (Sheet 1 of 2)

(Sheet) Applicability: 55001-59999



NOTES

1. Scale: 1 in. = 25 ft (1 cm = 3 m)
2. When printing this illustration, make sure to adjust for proper scaling.

ICN-BD500-A-J061000-A-3AB48-25078-A-001-01

Figure 1 Scaled drawing - (Sheet 2 of 2)

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

A220

Principal dimensions, landing gear footprint - Technical data

Applicability: 50001-54999, 55001-59999

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1 Landing gear footprint 3

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
None	

Description

1 Introduction

This data module contains data on the landing gear footprint.

Applicability: 50001-54999

Table 2 Landing gear footprint dimensions

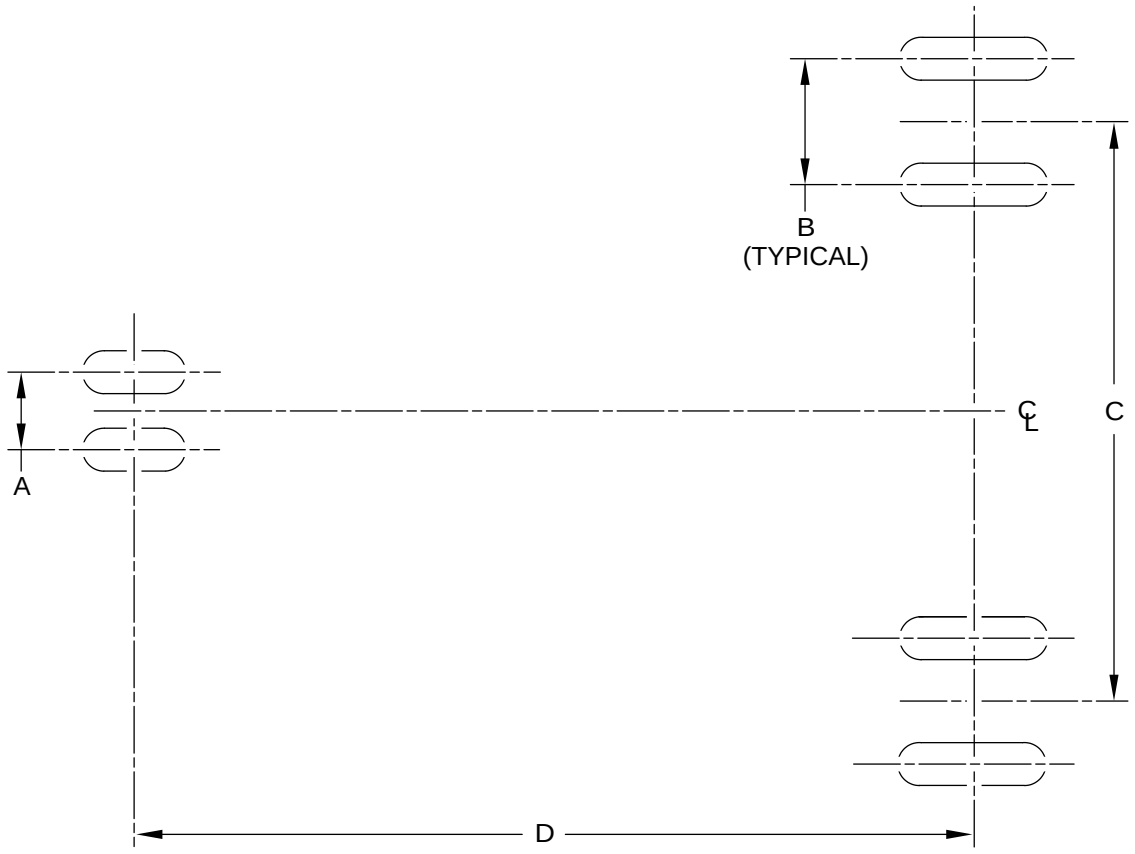
Locator	Value
A	18.57 in. (47.17 cm)
B	35.00 in (88.90 cm)
C	22.08 ft. (6.73 m)
D	42.98 ft (13.10 m)

Applicability: 55001-59999

Table 3 Landing gear footprint dimensions

Locator	Value
A	18.57 in. (47.17 cm)
B	35.00 in (88.90 cm)
C	22.08 ft. (6.73 m)
D	49.98 ft (15.23 m)

This publication has been superseded by the Aircraft Characteristics Publication (ACP).



NOTE

Not to scale.

ICN-BD500-A-J061032-A-3AB48-00118-A-001-01

Figure 1 Landing gear footprint

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

A220

Operating condition and noise data - Technical data

Applicability: 50001-54999, 55001-59999

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2 A220-100 Engine noise levels 2

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
BD500-A-J71-00-00-00AAA-012A-A	Power plant - General warnings and cautions and related safety data

Description

1 Introduction

This data module contains data on the engine noise levels and the intake and exhaust dangerous areas during normal operations. This section is divided into subsections that follow:

- Engine dangerous areas - engine intake and exhaust
- Airport and community noise data for power plants

2 General

Aircraft operating conditions and noise are important to airport and community planners. While an airport is a major element in a community transportation system and is vital to its growth, it must also be accountable to the best interests of the neighborhood in which it is located. This can only be accomplished with proper planning. Because aircraft noise extends beyond the boundaries of the airport, it is important to consider the impact on surrounding communities located near the airport.

The A220 aircraft is designed with high-bypass turbofan engines. Its noise impact is minimal compared to most commercial aircraft, larger and smaller, currently being operated in a typical airport.

3 Engine dangerous areas - engine intake and exhaust

This section contains data on the engine intake and exhaust dangerous area.

Refer to BD500-A-J71-00-00-00AAA-012A-A for the zones and distances that should be considered dangerous during engine operation.

4 Airport and community

The community noise levels must agree with FAR 36 Stage 3, ICAO Annex 16, Chapter 4, Chapter 516.

Refer to Table 2 for the demonstrated Effective Perceived Noise levels (EPNdB), limits, and the relative difference (margin of compliance) for the engines.

Table 2 A220-100 Engine noise levels

Engine <option code>	Weights		Measurement Points			Margins (EPNdB)	Margin Requirement (EPNdB)
	MTOW <option code>	MLW <option code>	Description	Noise Limit (EPNdB)	Measured Level (EPNdB)		
PW1524G <72210003>	134,000 lb (60,781 kg) <13000170>	115,500 lb (52,390 kg) <1300270>	Approach	99.9	91.9	8.0	0
			Lateral	96.0	87.9	8.1	0
			Flyover	90.4	79.0	11.4	0
			Sum of smallest two individual margins:			16.1	2
			Sum of all individual margins:			27.5	10

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

The ramp noise levels must agree with ICAO Annex 16, Chapter 9, Attachment C.

- The noise level at service points is not more than 80 dB(A)
- The noise level within a perimeter of 65 ft (20 m) around the aircraft is not more than 85 dB (A).

A220

Aircraft handling

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Applicable to: All

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

A220

Slinging and hoisting - Function, data for plans and description

Applicability: 50001-54999, 55001-59999

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References

Table 1 References

Data Module/Technical Publication	Title
None	

Description

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

1 General

This data module gives the information to sling and hoist the procedures to lift the BD-500-1A10 (A220-100) and BD-500-1A11 (A220-300).

1.1 Slinging and hoisting

For slinging and hoisting procedures please refer to the latest revision of the Aircraft Recovery Publication (ARP), BD500-3AB48-10400-00.

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Towing of the aircraft with towbar - Towing

Applicability: 50001-54999, 55001-59999

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2 Towing of the aircraft with towbar 8

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
BD500-A-J09-11-00-01AAA-913G-A	Towing safety precautions - General maintenance safety procedure
BD500-A-J09-11-00-02AAA-174A-A	Towing of the aircraft without towbar - Towing
BD500-A-J32-00-00-01AAA-913G-A	Landing gear safety precautions - General maintenance safety procedure

Common information

This data module gives the procedure to do the towing of the aircraft with towbar. The towbar attachment point is on the Nose Landing Gear (NLG) axle. Towing controls and indications are installed in the flight compartment and the NLG. A trained towing crew is required to perform this procedure.

Preliminary requirements

Production maintenance data

Zones	115		Lower nose fuselage above and outboard of nose wheel well, left side
	211		Flight compartment, left side
	212		Flight compartment, right side
	530		Wing tip, left side
	630		Wing tip, right side
	711		Nose landing gear
Access points	115DL	Door	

Required conditions

Table 2 Required conditions

Action/Condition	Data Module/Technical publication
Make sure that the aircraft is safe for maintenance.	
Obey all the towing safety precautions.	BD500-A-J09-11-00-01AAA-913G-A
Obey all the landing gear safety precautions.	BD500-A-J32-00-00-01AAA-913G-A
Make sure that the access door is open. Refer to the access points table above for details.	
Make sure that the minimum weight is 4000 lb (1814 kg) on the NLG or the shock strut extension must be at a maximum of 15 in. (38 cm).	

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Support equipment

Table 3 Support equipment

Name	Identification/Reference	Quantity	Remark
Headset extension cord	CIX213G/25-51	1	or equivalent equipment.
Headset, or equivalent	H10-30	AR	or equivalent equipment.

Name	Identification/Reference	Quantity	Remark
Tow bar assembly	TOWCS300S20SH1 TOWCS300S20RH1 TOWCS300S21SH1 01B1387-0100 J-TOWc100 APATB235 J-TOWbiz3 15F3381 1791.12 201A17X3000	AR	or equivalent equipment.
Tow bar assembly	TOWCS300-C-2	AR	Superseded by P/N:TOWCS300S20SH1
Wheel chocks	99-9028-6000	AR	or equivalent equipment.

Consumables, materials, and expendables

Table 4 Consumables, materials, and expendables

Name	Identification/Reference	Quantity	Remark
None			

Spares

Table 5 Spares

Name	Identification/Reference	Quantity	Remark
None			

Safety conditions

None

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Procedure

CAUTION

During maneuvers make sure that the Nose Wheel Steering (NWS) does not exceed the 130° from the centerline. When the NWS angle reaches the 135° or more, the over travel target will be shear and a fault message will indicate “32 NOSE STEER FAULT - OVERTRAVEL DET INOP“.

Note

1 During towing operations, a person must be in the aircraft cockpit to activate the aircraft park brake when necessary and to respond appropriately to unforeseen operating conditions.

2 Make sure that ground locking pins are installed on all landing gears.

1 Do the towing operation of the aircraft as follows:

Refer to Fig. 1 and Fig. 2 .

1.1 Make sure that the members of the towing crew are in position at the locations that follows:

- Flight compartment
- Towing vehicle
- Electrical/towing service panel
- Left wing tip
- Right wing tip.

Note

Light wands can be used to give signals in low visibility conditions.

2 If the aircraft is energized (attended cockpit) do as follows:

2.1 Before towing or pushing the aircraft, if the aircraft is energized, do as follows:

2.1.1 On the gear and brakes panel, push IN the NOSE STEER Push Button Annunciator (PBA) to the OFF position.

2.1.2 Make sure that the NOSE STEER PBA OFF light comes on.

2.1.3 On the PARK BRAKE control panel, pull and turn the parking brake switch to the ON position.

2.1.3.1 On the NLG towing control box, make sure that the NO TOWING (red) indicator light is ON.

2.1.4 On the electrical/towing service panel, open access panel, connect the headset (71483, Pt. No. H10-30) with the extension (04UP0, Pt. No. CIX213G/25-51) and establish communication ground to cockpit.

2.1.5 Connect the towbar assembly to the NLG towing fixture.

2.1.6 Move the towing vehicle into position to connect the towbar assembly.

Note

Refer to the applicable towbar user manual for details on the operations.

2.1.7 Remove all the wheel chocks (59603, Pt. No. 99-9028-6000) .

2.1.8 On the PARK BRAKE control panel, pull and turn the parking brake switch to the OFF position.

2.1.9 On the NLG towing control box, make sure that the NO TOWING (red) indicator light changes to the TOWING (green) indicator light.

2.1.10 In the cockpit, set the NAV light switch to ON.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Note

Local regulations are applicable when you use the external lighting. BEACON and LOGO lights maybe required to be ON.

2.2 Move the aircraft at a speed of not more than it is described in the general maintenance safety procedure. Refer to BD500-A-J09-11-00-01AAA-913G-A. Control the towing speed with the towbar towing vehicle only.

2.3 When the aircraft is in position, stop the aircraft with the towbar towing vehicle.

Note

If the aircraft is turned before it is parked, move the aircraft forward or rearward in a straight line for a short distance. This is to remove twisting forces from the landing gear before the aircraft comes to the stop position.

2.4 On the PARK BRAKE control panel, pull and turn the parking brake to the ON position.

2.5 On the NLG towing control box, make sure that the NO TOWING (red) indicator light is ON.

2.6 If necessary, install the wheel chocks (59603, Pt. No. 99-9028-6000) .

2.7 Disconnect the towbar assembly from the towing vehicle.

2.8 Disconnect the towbar assembly from the NLG towing fixture.

2.9 In the cockpit, set the NAV light switch to OFF.

2.10 On the electrical/towing service panel, disconnect the headset (71483, Pt. No. H10-30) with the extension (04UP0, Pt. No. CIX213G/25-51) .

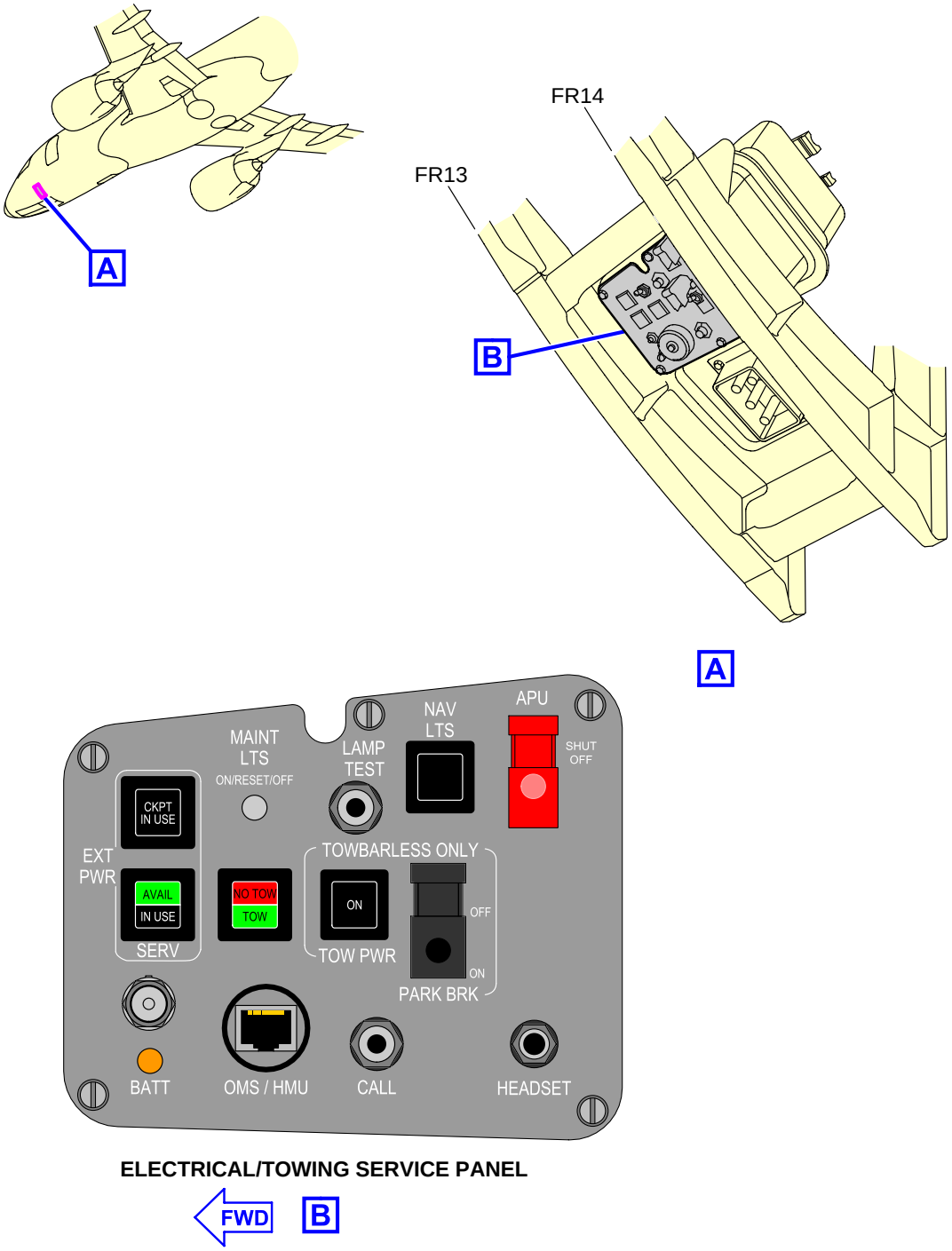
Note

Markings present on the NLG strut at 130 degrees from the center line are available to let the tug operator clearly see the NLG turn limits. If the steering angle exceeded the maximum acceptable steering range during a towing operation, INFO message 32 NOSE STEER FAULT – OVERTRAVEL DET INOP will appear on the Engine Indication and Crew Alerting System (EICAS) after aircraft power and superseded by NOSE STEER FAIL caution message EICAS after hydraulic system 2 is pressurized. This will require special irregular inspection prior aircraft dispatch.

3 If the aircraft is NOT energized (Unattended cockpit). Do towing of the aircraft without towbar - Towing, Refer to BD500-A-J09-11-00-02AAA-174A-A.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

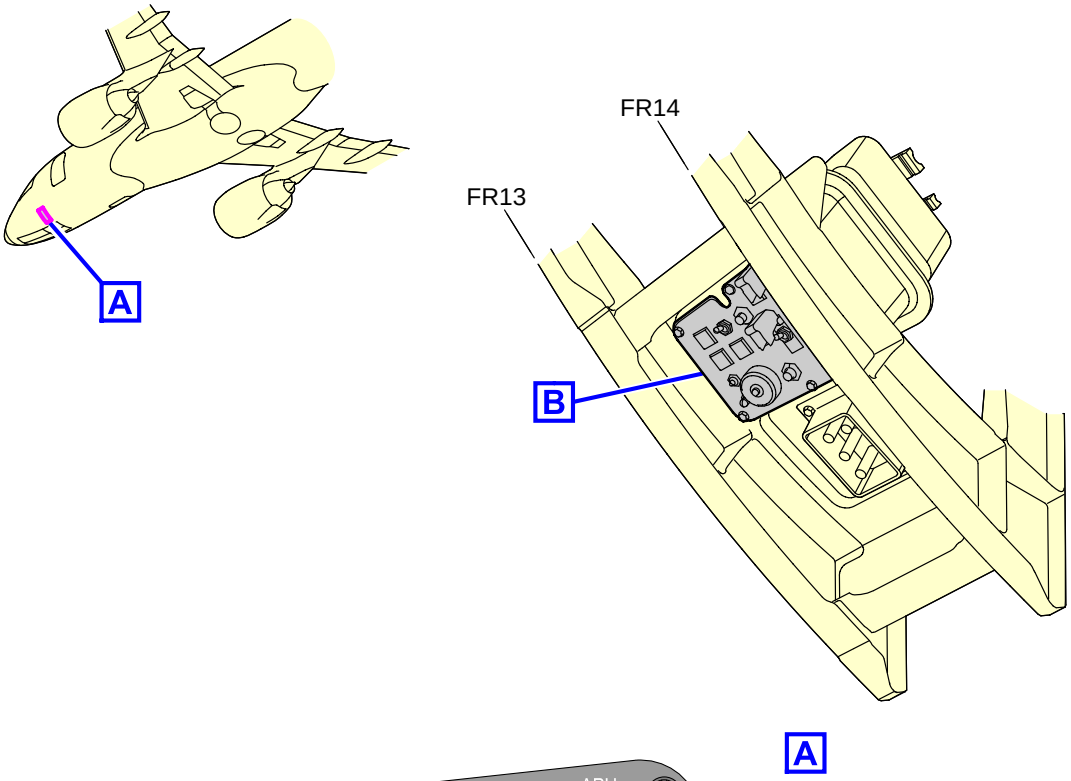
(Sheet) Applicability: not applicable

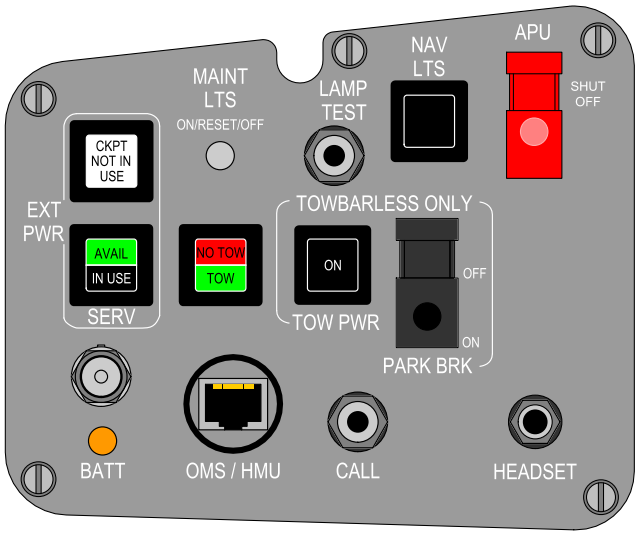


ICN-BD500-A-J242401-C-3AB48-41646-A-001-01

Figure 1 Towing of the aircraft with towbar - (Sheet 1 of 2)

(Sheet) Applicability: 50018-50019, 50030, 50032-54999, 55017, 55053-59999 and 50010-50017, 50020-50029, 50031, 55003-55016, 55018-55052 POST BD500-240006



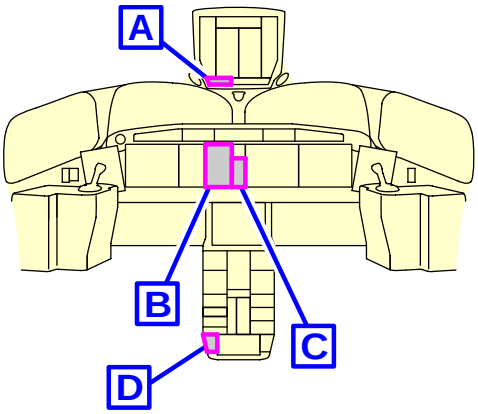


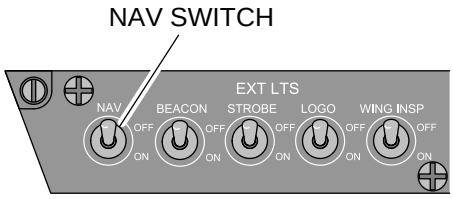
ELECTRICAL/TOWING SERVICE PANEL



ICN-BD500-A-J240209-C-3AB48-58774-A-001-01

Figure 1 Towing of the aircraft with towbar - (Sheet 2 of 2)





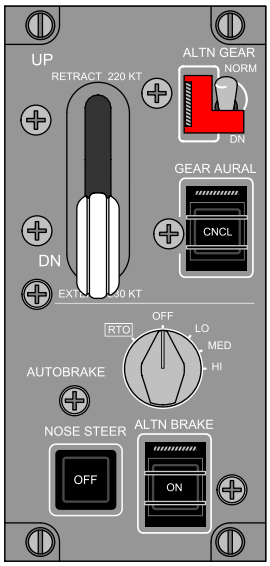
EXT LTS CONTROL PANEL

A



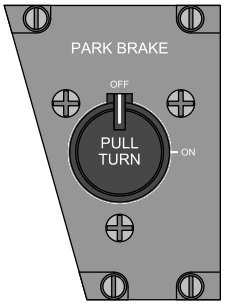
EICAS DISPLAY

B



LANDING GEAR CONTROL PANEL

C

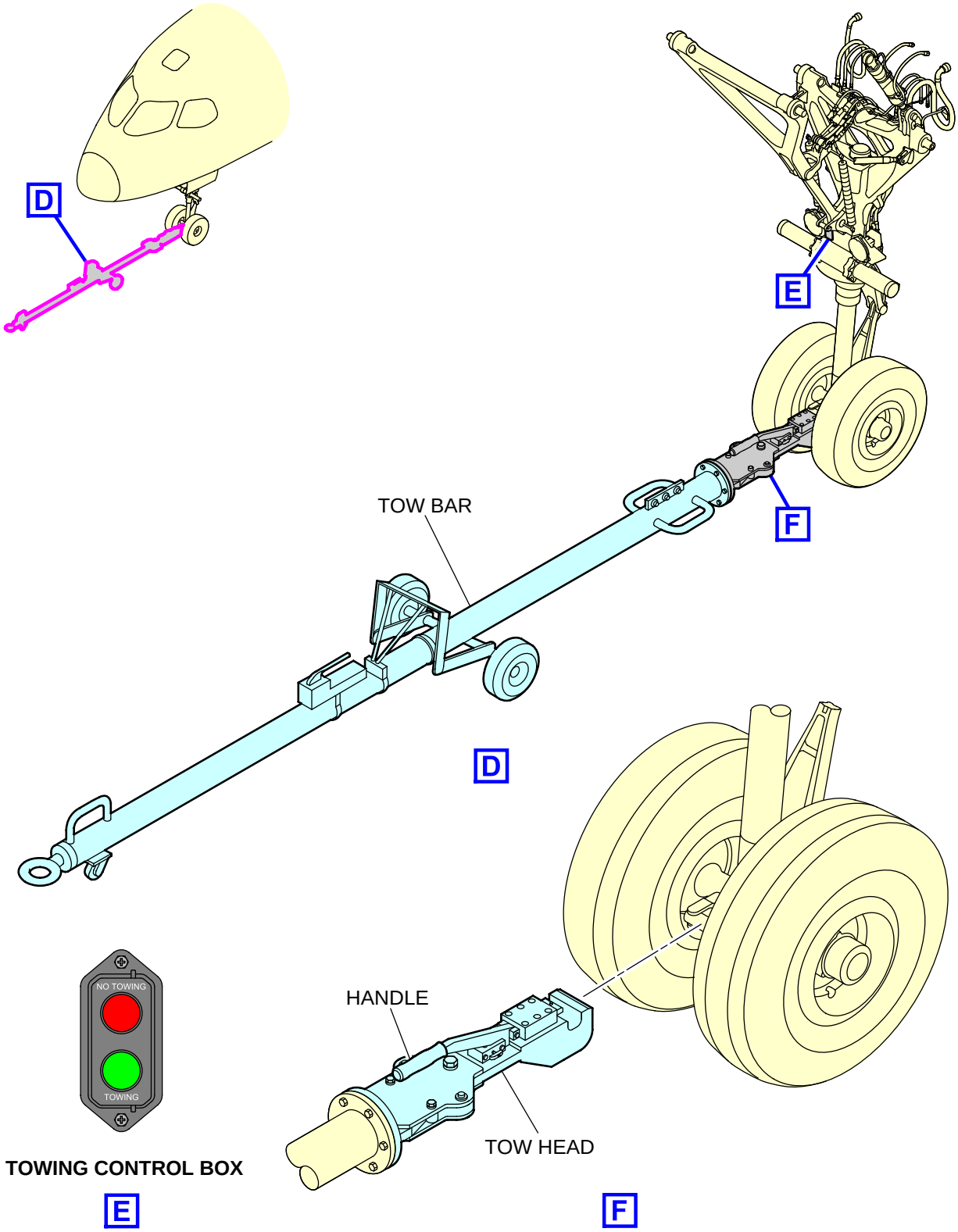


PARK BRAKE CONTROL PANEL

D

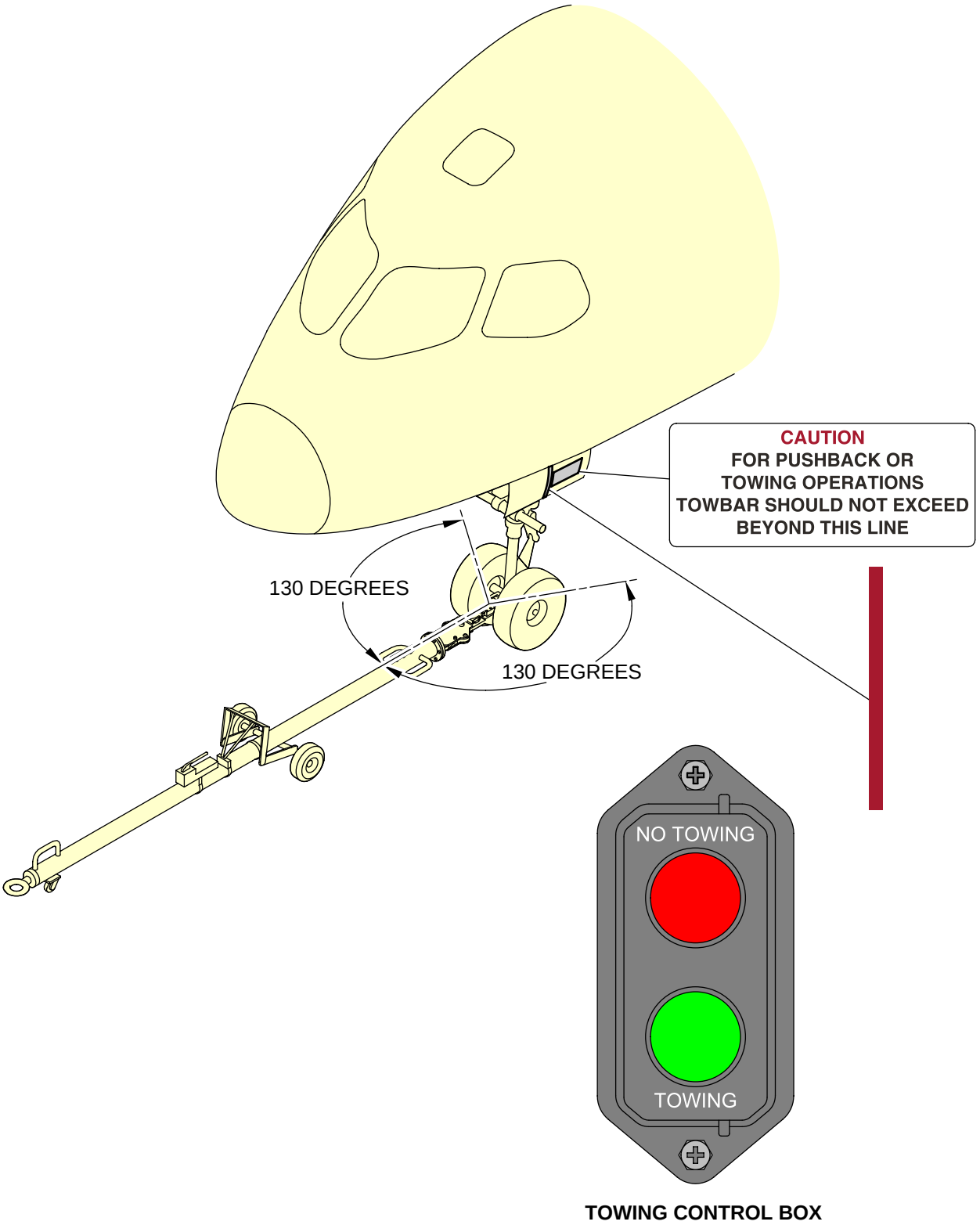
ICN-BD500-A-J091100-C-3AB48-19967-A-003-01

Figure 2 Towing of the aircraft with towbar - (Sheet 1 of 3)



ICN-BD500-A-J091100-C-3AB48-19968-A-002-01

Figure 2 Towing of the aircraft with towbar - (Sheet 2 of 3)



ICN-BD500-A-J091100-C-3AB48-19969-A-002-01

Figure 2 Towing of the aircraft with towbar - (Sheet 3 of 3)

Requirements after job completion

Required conditions

Table 6 Required conditions

Action/Condition	Data Module/Technical publication
Remove all tools, equipment, and unwanted materials from the work area.	
Make sure that the access door is closed. Refer to the access points table above for details.	

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

A220

Towing safety precautions - General maintenance safety procedure

Applicability: 50001-54999, 55001-59999

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
BD500-A-J52-11-00-01AAA-740A-A	Forward Passenger Door (FPD) - Close after access procedure
BD500-A-J52-12-00-01AAA-740A-A	Aft Passenger Door (APD) - Close after access procedure
BD500-A-J52-45-00-01AAA-740A-A	Forward Service Door (FSD) - Close after access procedure
BD500-A-J52-46-00-01AAA-740A-A	Aft Service Door (ASD) - Close after access procedure
BD500-A-J52-21-00-01AAA-740A-A	Overwing Emergency Exit Door (OWEED) - Close after access procedure
BD500-A-J52-30-00-01AAA-740A-A	Cargo compartment door - Close after access procedure
BD500-A-J05-51-17-01AAA-284A-A	Nose Landing Gear (NLG) towing angle exceeded - Special irregular inspection

Common information

This data module gives the technical precautions that you must follow when you do the towing operation of the aircraft.

To ensure clarity in the procedure, refer to towing definitions that follow:

Pushback towing — Moving a fully loaded aircraft (passengers, cargo and fuel) from the parking position to the taxiway. Movement includes; pushback with turn, a stop, and short tow forward to align aircraft nose wheels. Engines may, or may not, be operating.

Maintenance towing — The movement of an aircraft for maintenance/remote parking purposes. Maintenance towing consists typically of many starts, stops, turns, accelerations and braking. Aircraft is typically unloaded.

Dispatch towing — Towing a revenue aircraft, loaded with passengers, fuel and cargo up to Maximum Ramp Weight (MRW), from the terminal gate/remote parking area, to a location near the active runway, or conversely. The movement may cover several kilometers (miles) with speed up to 32 km/h (20 mph), with several starts, stops and turns. It replaces typical taxiing prior to take-off and landing.

Tow bar and towbarless towing are allowed for pushback and maintenance towing and not accepted for dispatch towing.

Hangar/ Parking towing — Hangar/Parking towing consists typically in small and accurate displacements aircraft for hangar storage and space saving purpose. Aircraft is typically unloaded and manipulated at low speed on short distances.

The steering ranges are the following:

- Active steering range is ±80 degrees
- Passive steering range is ±130 degrees.

A NOSE STEER MISALGN caution message will appear on the Engine Indication and Crew Alerting System (EICAS), if the steering angle exceeds the active steering range of ±80 degrees providing indication that steering is not in position to initiate taxi operation.

A NOSE STEER FAIL caution message will appear on the EICAS if the over steer target is broken while towing. This condition is the consequence of a steering angle that exceeds the passive steering range of ±130 degrees. The rupture of the proximity sensor target occurs when the steering angle exceeds approximately ±135 degrees.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Preliminary requirements

Required conditions

Table 2 Required conditions

Action/Condition	Data Module/Technical publication
Make sure that the aircraft is safe for maintenance.	
Make sure that the Forward Passenger Door (FPD) is closed	BD500-A-J52-11-00-01AAA-740A-A
Make sure that the Aft Passenger Door (APD) is closed	BD500-A-J52-12-00-01AAA-740A-A
Make sure that the Forward Service Door (FSD) is closed	BD500-A-J52-45-00-01AAA-740A-A
Make sure that the Aft Service Door (ASD) is closed	BD500-A-J52-46-00-01AAA-740A-A
Make sure that the Overwing Emergency Exit Door (OWEED) is closed	BD500-A-J52-21-00-01AAA-740A-A
Make sure that the cargo compartment doors are closed.	BD500-A-J52-30-00-01AAA-740A-A

Support equipment

Table 3 Support equipment

Name	Identification/Reference	Quantity	Remark
None			

Consumables, materials, and expendables

Table 4 Consumables, materials, and expendables

Name	Identification/Reference	Quantity	Remark
None			

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Spares

Table 5 Spares

Name	Identification/Reference	Quantity	Remark
None			

Safety conditions

None

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Procedure

1 Obey all the towing safety precautions that follow:

1.1 For a safer towing operation, five persons are recommended at positions that follow:

- One person in the flight compartment to operate the aircraft brakes when uncoupling of the towing vehicle or aircraft occurs.
- One person to operate the towing vehicle.
- One person on the left wing tip and one person on the right wing tip to monitor clearance at turns.
- One person behind the tail to monitor clearance at turns.

1.2 All doors (FPD, APD, FSD, ASD, OWEED, cargo and avionics compartment doors) to be closed.

- If the aircraft is towed, for maintenance with a door, that can not be closed due to malfunction, reduce the towing speed to minimum.

1.3 Obey the precautions that follow when towing without tow bar:

1.3.1 Towbarless towing is allowed for pushback and maintenance towing and not accepted for dispatch towing.

Note

Refer to the common information section above for the different towing type definitions.

1.3.2 The towbarless vehicles must be approved by the Airbus.

1.3.3 Towing on uneven pavement is not permitted (step must not exceed 1 inch).

1.3.4 The towing vehicle must be in good condition before towing operation.

1.3.5 Before towing, the Nose Landing Gear (NLG) shock strut must be confirmed to be in a serviceable condition (towing with a deflated shock strut might cause damage to the NLG).

1.3.6 Before towing, make sure that the tires are correctly inflated.

Note

- It is not permitted to tow an aircraft with a towbarless vehicle with any flat tire on the NLG.
- One flat tire per Main Landing Gear (MLG) is acceptable.

1.3.7 During towing operations, each person in the aircraft must be in a seat with seat belt fastened.

1.3.8 Be careful when you install the NLG into the towbarless vehicle clamping device.

1.3.9 The clamping device of the towing vehicle must be aligned with the NLG axis to avoid contact with the NLG torque links during aircraft capture.

1.3.10 Before installation of the strut-strap or installation of the NLG into the towbarless vehicle clamping device, make sure the aircraft is stable with aircraft park brake applied and/or main gear chocks.

1.3.11 During towing operation, keep turns as large as possible and make all changes to speed or direction slowly.

1.3.12 During towing operation, aircraft brakes or park brake must not be used to stop the aircraft unless there is an emergency. Aircraft braking can result in damage to the NLG and/or aircraft structure.

1.3.13 During towing operations, do not turn the NLG more than 130 degrees left or right of the center.

Note

Refer to the common information section above for the possible indications while towing and turning.

1.3.14 There are markings present on the NLG strut at 130 degrees from the center line to let the tug operator to clearly see the NLG turn limits.

1.3.15 If you turn the NLG 135 degrees and more, the over steering sensor will be activated and an EICAS message “NOSE STEER FAIL“ caution and an INFO message “32 NOSE STEER FAULT - OVERTRAVEL DET INOP“ will appear.

1.3.16 On the above condition, you must do a steering inspection/repair. Refer to BD500-A-J05-51-17-01AAA-284A-A.

1.3.17 The towbarless vehicle operator must obey all aural and visual warnings set by the vehicle in accordance with the manufacturer operating manual.

1.3.18 During towing, no abnormal vibration/instability should be induced on the NLG. If any occur, reduce towing speed as required.

1.3.19 Install ground lockpins for maintenance towing.

Note

Lockpins must be installed on the NLG and MLG.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

1.3.20 Maximum speed for towing on forward direction is described in appendix for each tug. This maximum speed has to be lower depending the runway condition and taxiway condition.

1.3.21 Maximum speed for towing on rearward direction is 5 km/h (3 mph). This maximum speed has to be lower depending the runway condition and taxiway condition.

1.4 Obey the precautions that follow during towing with tow bar:

1.4.1 The aircraft must be towed with a tow bar only from the NLG towing fixture, the tow bar lug dimensions is per the standard AS1614 category I.

1.4.2 Tow bar towing is allowed for pushback and maintenance or hangar parking towing and not accepted for dispatch towing.

Note

Refer to the common information section above for the different towing type definitions.

1.4.3 Towing on uneven pavement is not permitted (step must not exceed 1 inch).

1.4.4 During towing operations, each person in the aircraft must be in a seat and the seat belt must be fastened.

1.4.5 During towing operation, aircraft brakes or park brake must not be used to stop the aircraft unless there is an emergency. Aircraft braking can result in damage to the NLG and/or aircraft structure.

1.4.6 Make sure that the flight compartment crew and ground crew or the tractor personnel can speak to each other.

1.4.7 During towing operation, keep turns as large as possible and make all changes to speed or direction slowly.

1.4.8 There are markings present on the NLG strut at 130 degrees from the center line to let the tug operator to clearly see the NLG turn limits.

1.4.9 If you turn the NLG 135 degrees and more, the over steering sensor will be activated and an EICAS message “NOSE STEER FAIL“ caution and an INFO message “32 NOSE STEER FAULT - OVERTRAVEL DET INOP“ will appear.

1.4.10 On the above condition, you must do a steering inspection/repair. Refer to BD500-A-J05-51-17-01AAA-284A-A.

1.4.11 During towing, no abnormal vibration/instability should be induced on the NLG. If any occur, reduce towing speed as required.

1.4.12 Install ground lockpins for maintenance towing.

Note

Lockpins must be installed on the NLG and MLG.

1.4.13 Maximum speed for towing on forward direction is 24 km/h (15 mph). This maximum speed has to be lower depending the runway condition and taxiway condition.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

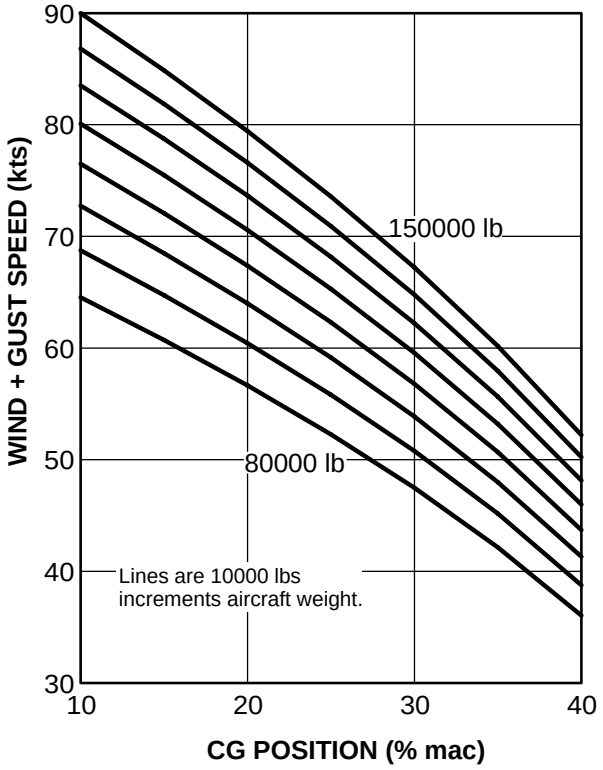
1.4.14 Maximum speed for towing on rearward direction is 5 km/h (3 mph). This maximum speed has to be lower depending the runway condition and taxiway condition.

1.4.15 Before towing, the NLG shock strut must be confirmed to be in a serviceable condition (towing with a deflated shock strut might cause damage to the NLG).

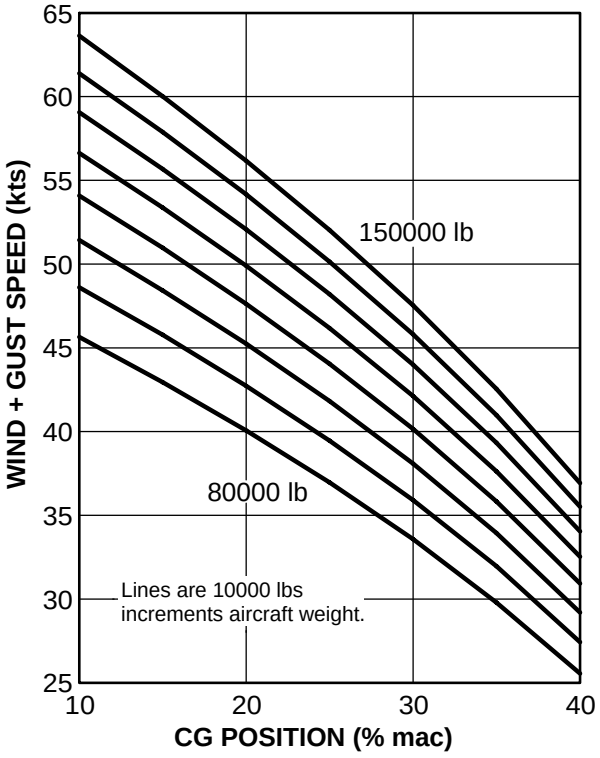
1.4.16 Tow bar towing is allowed with one flat tire per gear.

1.4.17 While towing the aircraft in wind conditions, obey the “Towing with tow bar - Wind speed limitations“ based on the ground quality. Refer to Fig. 1 .

This publication has been superseded by the Aircraft Characteristics Publication (ACP).



ON DRY CONCRETE OR ASPHALT

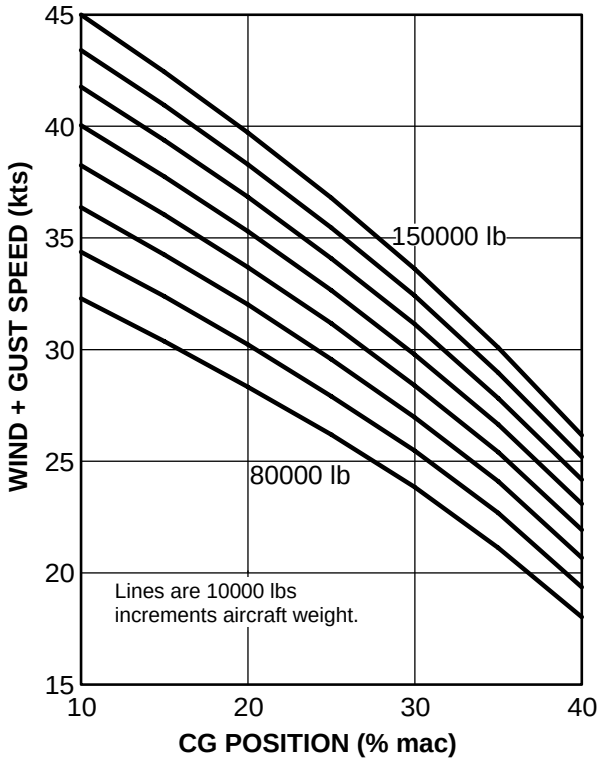


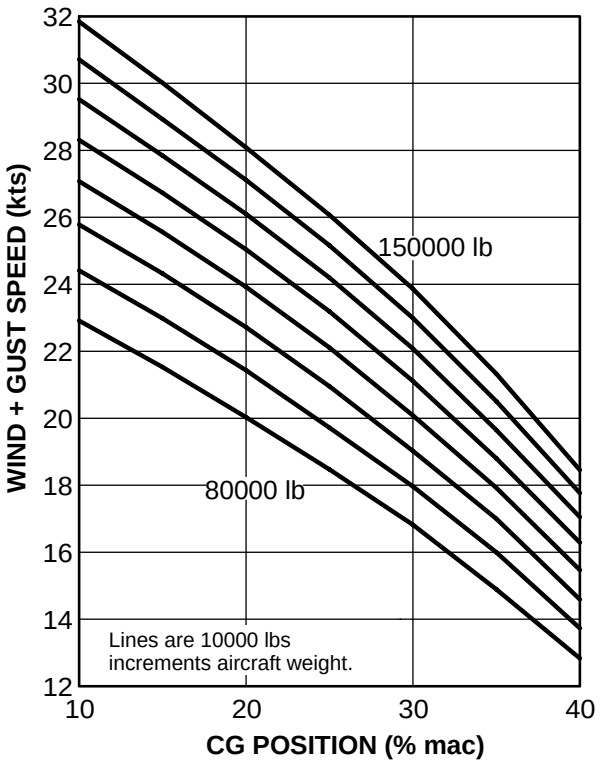
ON WET CONCRETE OR ASPHALT

MAXIMUM WIND + GUST FOR TOWING

ICN-BD500-A-J091100-C-3AB48-48150-A-001-01

Figure 1 Towing safety precautions - General maintenance safety procedure - (Sheet 1 of 2)





MAXIMUM WIND + GUST FOR TOWING

ICN-BD500-A-J091100-C-3AB48-48151-A-001-01

Figure 1 Towing safety precautions - General maintenance safety procedure - (Sheet 2 of 2)

Requirements after job completion

Required conditions

Table 6 Required conditions

Action/Condition	Data Module/Technical publication
Remove all tools, equipment, and unwanted materials from the work area.	

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Towing of the aircraft without towbar - Towing

Applicability: 50001-54999, 55001-59999

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
BD500-A-J09-11-00-01AAA-913G-A	Towing safety precautions - General maintenance safety procedure
BD500-A-J32-00-00-01AAA-913G-A	Landing gear safety precautions - General maintenance safety procedure

Common information

This data module gives the procedure for towing of the aircraft without the towbar vehicle. The approved vehicles for this procedure are the vehicles that have an automated tractive and braking load limiting device. The towing controls and indications are installed in the flight compartment and the Nose Landing Gear (NLG).

Preliminary requirements

Production maintenance data

Zones	115	Lower nose fuselage above and outboard of nose wheel well, left side

	211		Flight compartment, left side
	212		Flight compartment, right side
	711		Nose landing gear
Access points	115DL	Door	

Required conditions

Table 2 Required conditions

Action/Condition	Data Module/Technical publication
Make sure that the aircraft is safe for maintenance.	
Obey all of the towing safety precautions.	BD500-A-J09-11-00-01AAA-913G-A
Obey all the landing gear safety precautions.	BD500-A-J32-00-00-01AAA-913G-A
Make sure that the access door is open. Refer to the access points table above for details.	
Make sure that the minimum weight is 4000 lb (1814 kg) on the NLG or the shock strut extension must be at a maximum of 15 in. (38 cm).	

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Support equipment

Table 3 Support equipment

Name	Identification/Reference	Quantity	Remark
Headset, or equivalent	H10-30	AR	or equivalent equipment
Headset extension cord	CIX213G/25-51	1	or equivalent equipment
Wheel chocks	99-9028-6000	AR	or equivalent equipment

Consumables, materials, and expendables

Table 4 Consumables, materials, and expendables

Name	Identification/Reference	Quantity	Remark
None			

Spares

Table 5 Spares

Name	Identification/Reference	Quantity	Remark
None			

Safety conditions

None

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Procedure

CAUTION

During maneuvers make sure that the Nose Wheel Steering (NWS) does not exceed the 130° from the centerline. When the NWS angle reaches the 135° or more, the over travel target will be shear and a fault message will indicate "32 NOSE STEER FAULT - OVERTRAVEL DET INOP".

Note

- The towbarless vehicles must be approved by Airbus for dispatch towing.
- During (attended cockpit) towing operations, a person must be in the aircraft cockpit to activate the aircraft park brake when necessary and to respond appropriately to unforeseen operating conditions.
- Make sure that ground locking pins are installed on all landing gears.

1 Do the (attended cockpit) towing operation of the aircraft as follows:

Refer to Fig. 1 and Fig. 2 .

1.1 Make sure that the members of the towing crew are in position at the locations that follows:

- Flight compartment
- Towing vehicle
- Electrical/towing service panel
- Left wing tip
- Right wing tip.

Note

Light wands can be used to give signals in low visibility conditions.

2 If the aircraft is energized (attended cockpit) do as follows:

2.1 Before towing or pushing the aircraft, if the aircraft is energized, do as follows:

2.1.1 On the gear and brakes panel, push IN the NOSE STEER Push Button Annunciator (PBA) to the OFF position.

2.1.2 Make sure that the NOSE STEER PBA OFF light comes on.

2.1.3 On the PARK BRAKE control panel, pull and turn the parking brake switch to the ON position.

2.1.3.1 On the NLG towing control box, make sure that the NO TOWING (red) indicator light is ON.

2.1.4 On the electrical/towing service panel, open access panel, connect the headset (71483, Pt. No. H10-30) with the extension (04UP0, Pt. No. CIX213G/25-51) and establish communication ground to cockpit.

2.1.5 Move the towbarless towing vehicle into position to capture the NLG.

Note

Refer to the towbarless towing vehicle operating manual for details on the operations.

2.1.6 Clamp the nose wheels on the towbarless towing vehicle as per the operating manual.

2.1.7 Remove all the wheel chocks (59603, Pt. No. 99-9028-6000) .

2.1.8 On the PARK BRAKE control panel, pull and turn the parking brake switch to the OFF position.

2.1.9 On the NLG towing control box, make sure that the NO TOWING (red) indicator light changes to the TOWING (green) indicator light.

2.1.10 In the cockpit, set the NAV light switch to ON.

Note

Local regulations are applicable when you use the external lighting. BEACON and LOGO lights maybe required to be ON.

2.2 Move the aircraft at a speed of not more that it is described for the respective vehicle. Refer to BD500-A-J09-11-00-01AAA-913G-A. Control the towing speed with the towbarless towing vehicle only.

2.3 When the aircraft is in position, stop the aircraft with the towbarless towing vehicle.

Note

If the aircraft is turned before it is parked, move the aircraft forward or rearward in a straight line for a short distance. This is to remove twisting forces from the landing gear before the aircraft comes to the stop position.

2.4 On the PARK BRAKE control panel, pull and turn the parking brake to the ON position.

2.5 On the NLG towing control box, make sure that the NO TOWING (red) indicator light is ON.

2.6 If necessary, install the wheel chocks (59603, Pt. No. 99-9028-6000) .

2.7 Release the aircraft from the towbarless vehicle, refer to the vehicle operating manual.

This publication has been superseded by the Aircraft Characteristics Publication (ACP)

2.8 In the cockpit, set the NAV light switch to OFF.

2.9 On the electrical/towing service panel, disconnect the headset (71483, Pt. No. H10-30) with the extension (04UP0, Pt. No. CIX213G/25-51) .

Note

Markings present on the NLG strut at 130 degrees from the center line are available to let the tug operator clearly see the NLG turn limits. If the steering angle exceeded the maximum acceptable steering range during a towing operation, INFO message 32 NOSE STEER FAULT – OVERTRAVEL DET INOP will appear on the Engine Indication and Crew Alerting System (EICAS) after aircraft power and superseded by NOSE STEER FAIL caution message EICAS after hydraulic system 2 is pressurized. This will require special irregular inspection prior aircraft dispatch.

3 If the aircraft is NOT energized (Unattended cockpit) do as follows:

3.1 Before towing or pushing the aircraft, if the aircraft is NOT energized, do as follows:

3.1.1 On the electrical/towing service panel, open access panel, push IN the TOW PWR PBA to the ON position and confirm that the PARK BRK toggle switch is in the ON position.

3.1.2 Make sure that the TOW PWR PBA white light comes ON.

Note

The NLG steering is off when the aircraft is not energized.

Note

Applicability: 50010-50019, 55010-55015, 55020-55021, 55023, 55025, 55027, 55029-55030, 55032-55033, 55036, 55040, 55044-55046, 55089, 55110, 55253, 55269, 55288, 55298, 55312

The beacon lights will come on.

3.1.3 On the electrical/towing service panel, make sure that the NO TOW (red) indicator light is ON and, on the NLG towing control box, make sure that the NO TOWING (red) indicator light is ON.

3.1.4 Move the towbarless towing vehicle into position to capture the NLG.

Note

Refer to the towbarless towing vehicle operating manual for details on the operations.

3.1.5 Clamp the nose wheels on the towbarless towing vehicle as per the operating manual.

3.1.6 Remove all the wheel chocks (59603, Pt. No. 99-9028-6000) .

3.1.7 On the electrical/towing service panel, push IN the TOW PWR PBA if not already done, and select the PARK BRK toggle switch to the OFF position.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

3.1.8 On the electrical/towing service panel, make sure that the TOW (green) indicator light is ON.

3.1.9 On the NLG towing control box, make sure that the NO TOWING (red) indicator light changes to the TOWING (green) indicator light.

3.1.10 On the electrical/towing service panel, set the NAV LTS switch to ON.

Note

Local regulations are applicable when you use the external lighting. BEACON and LOGO lights maybe required to be ON.

3.2 Move the aircraft at a speed of not more that it is described for the respective vehicle. Refer to BD500-A-J09-11-00-01AAA-913G-A. Control the towing speed with the towbarless towing vehicle only.

3.3 When the aircraft is in position, stop the aircraft with the towbarless towing vehicle.

Note

If the aircraft is turned before it is parked, move the aircraft forward or rearward in a straight line for a short distance. This is to remove twisting forces from the landing gear before the aircraft comes to the stop position.

3.4 On the electrical/towing service panel, select the PARK BRK toggle switch to the ON position.

3.4.1 On the electrical/towing service panel, make sure that the NLG NO TOW (red) indicator light in ON and, on the towing control box in the NLG make sure that the NO TOWING (red) indicator light is ON.

3.4.2 On the electrical/towing service panel, set the NAV LTS switch to OFF.

3.4.3 On the electrical/towing service panel, push out the TOW PWR PBA.

3.5 If necessary, install the wheel chocks (59603, Pt. No. 99-9028-6000) .

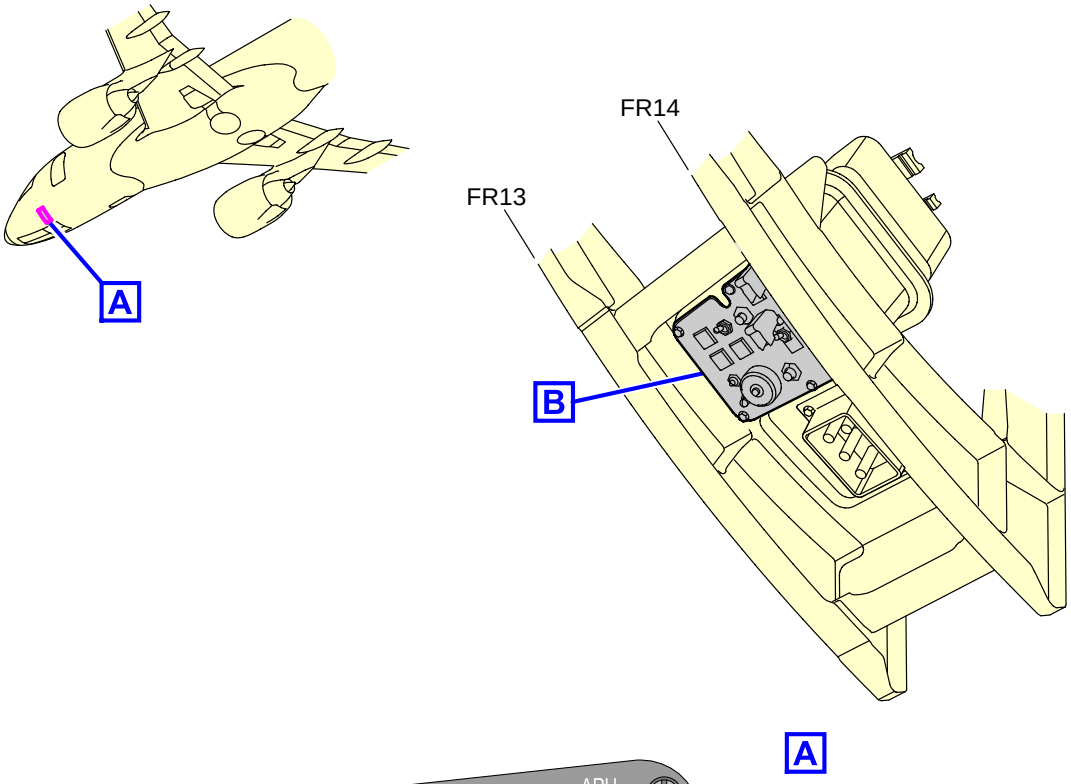
3.6 Release the aircraft from the towbarless vehicle, refer to the vehicle operating manual.

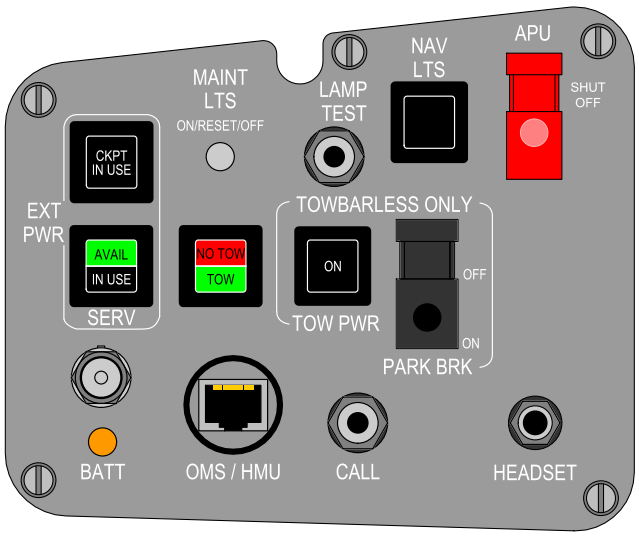
Note

Markings present on the NLG strut at 130 degrees from the center line are available to let the tug operator clearly see the NLG turn limits. If the steering angle exceeded the maximum acceptable steering range during a towing operation, INFO message 32 NOSE STEER FAULT – OVERTRAVEL DET INOP will appear on the EICAS after aircraft power and superseded by NOSE STEER FAIL caution message EICAS after hydraulic system 2 is pressurized. This will require special irregular inspection prior aircraft dispatch.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

(Sheet) Applicability: not applicable





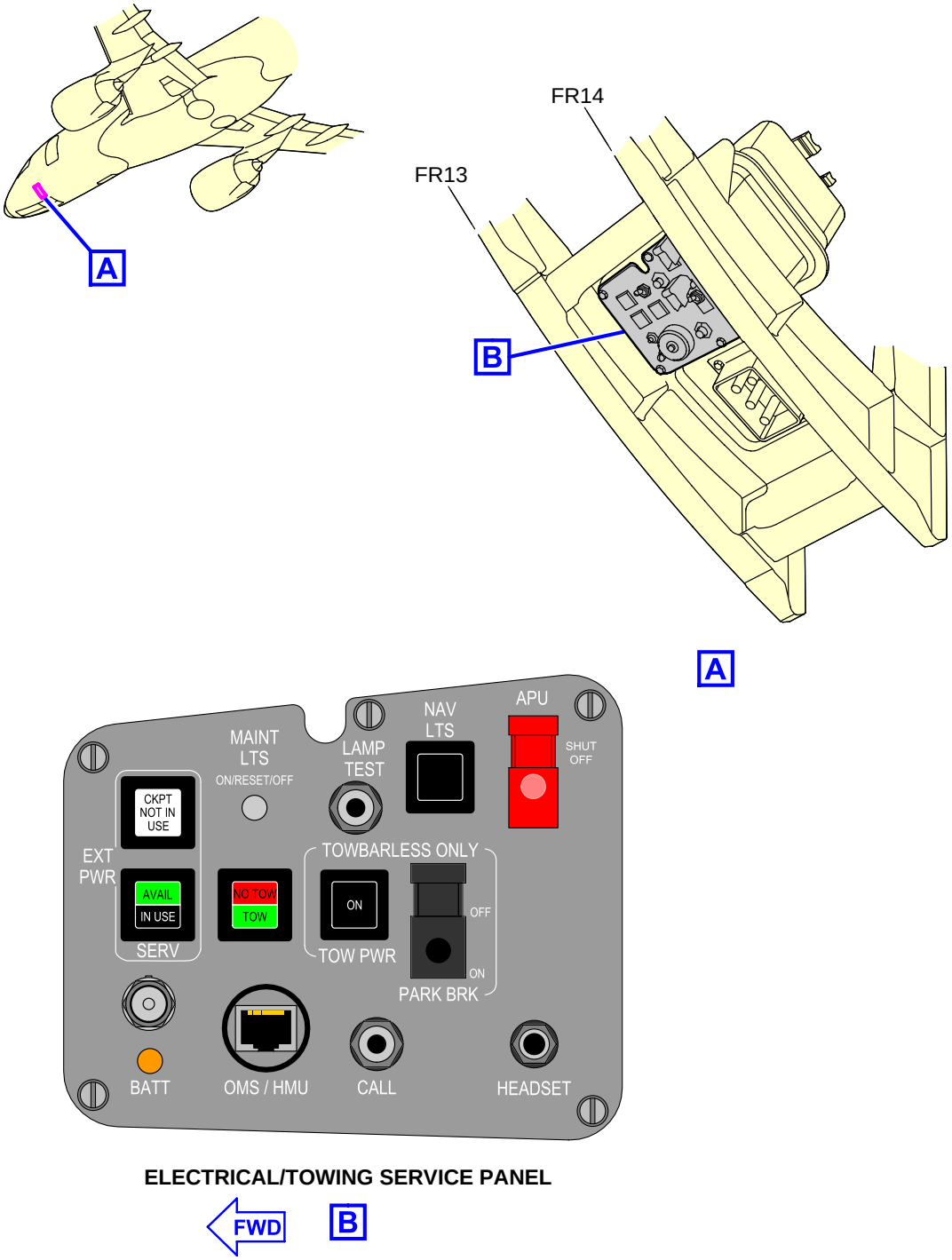
ELECTRICAL/TOWING SERVICE PANEL

FWD B

ICN-BD500-A-J242401-C-3AB48-41646-A-001-01

Figure 1 Towing of the aircraft without towbar - (Sheet 1 of 2)

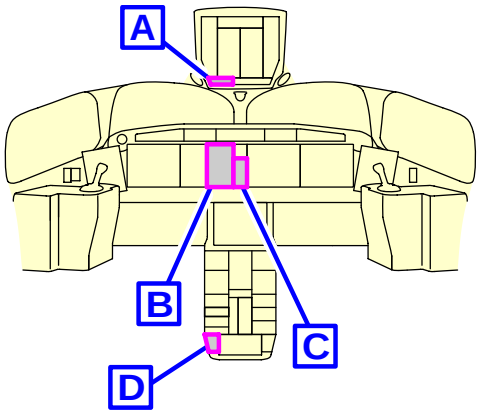
(Sheet) Applicability: 50018-50019, 50030, 50032-54999, 55017, 55053-59999 and 50010-50017, 50020-50029, 50031, 55003-55016, 55018-55052 POST BD500-240006

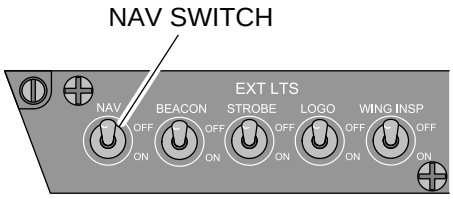


ELECTRICAL/TOWING SERVICE PANEL

ICN-BD500-A-J240209-C-3AB48-58774-A-001-01

Figure 1 Towing of the aircraft without towbar - (Sheet 2 of 2)





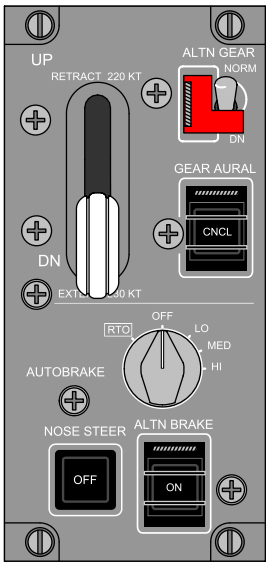
EXT LTS CONTROL PANEL

A



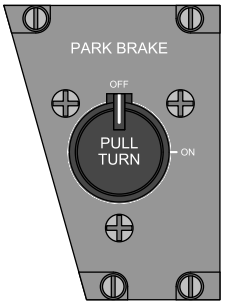
EICAS DISPLAY

B



LANDING GEAR CONTROL PANEL

C

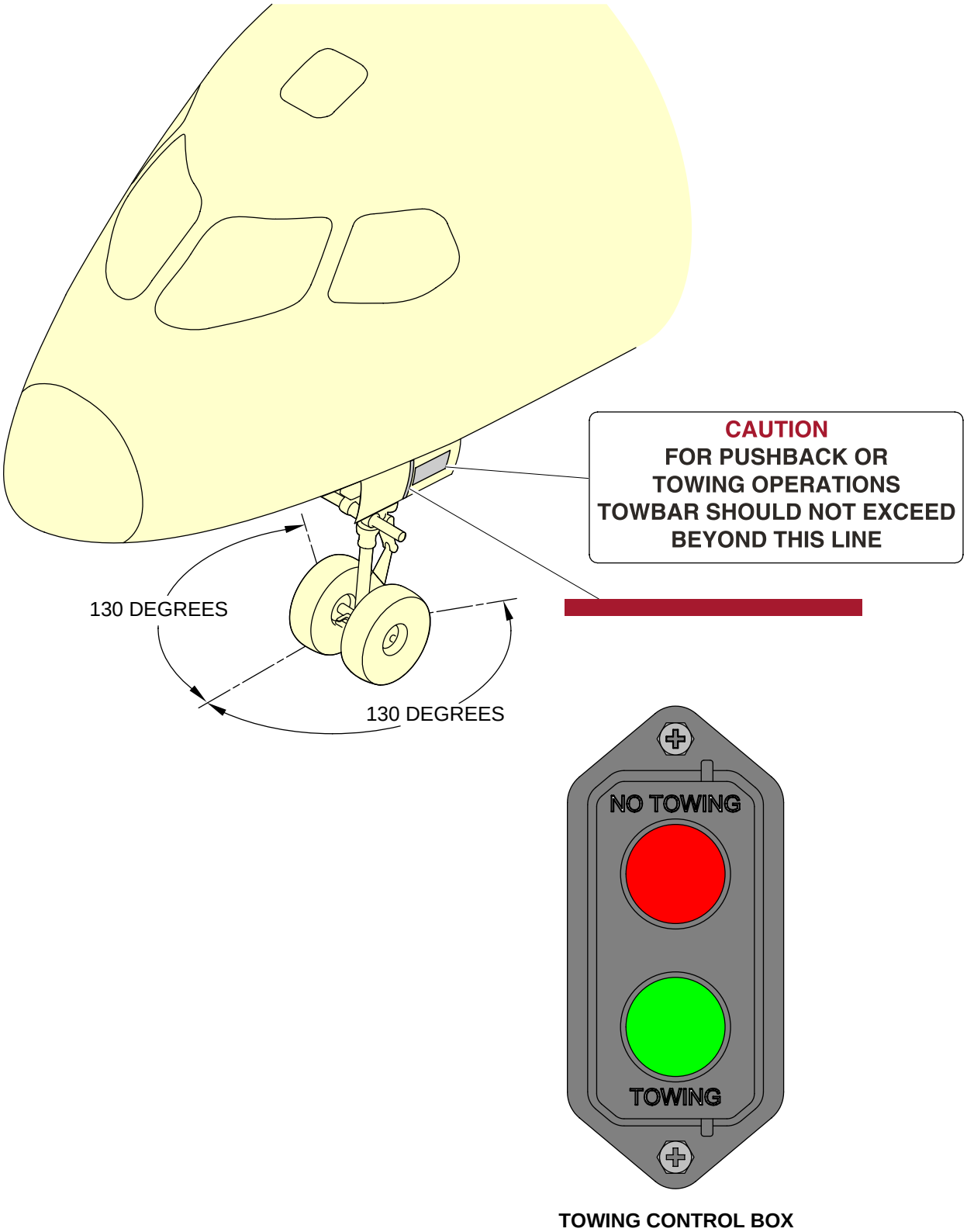


PARK BRAKE CONTROL PANEL

D

ICN-BD500-A-J091100-C-3AB48-19967-A-003-01

Figure 2 Towing of the aircraft without towbar - (Sheet 1 of 2)



TOWING CONTROL BOX

ICN-BD500-A-J091100-A-3AB48-33621-A-002-01

Figure 2 Towing of the aircraft without towbar - (Sheet 2 of 2)

Requirements after job completion

Required conditions

Table 6 Required conditions

Action/Condition	Data Module/Technical publication
Remove all tools, equipment, and unwanted materials from the work area.	
Make sure that the access door is closed. Refer to the access points table above for details.	

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Ground maneuvering, turning radii - Technical data

Applicability: 50001-54999, 55001-59999

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Description 1
1 Introduction 1
2 Landing gear turning radii, including minimum turning radii 2

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2 Turning radii for various nose wheel angles 2
3 Turning radii for various nose wheel angles 2

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1 Ground maneuvering, turning radii - Technical data 4

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
None	

Description

1 Introduction

This data module contains data about the aircraft turning capability and maneuvering characteristics on the ground. The data is based on aircraft performance in good conditions of operation. Thus, the values must be considered theoretical and used only as an aid. Refer to Table 2 and Table 3 for the values to use with Fig. 1 for the turn radii with 3 degree slip angle.

2 Landing gear turning radii, including minimum turning radii

Applicability: 50001-54999

Table 2 Turning radii for various nose wheel angles

Turning angle (in degrees) with 3 degree tire slip	Turning center to aircraft center line (D)	Nose tip (R1)	Nose gear outside face (R2)	Main gear outside face (R3)	Wing tip (R4)	Empennage tip (R5)	Minimum theoretical pavement width for 180 degrees turn (Tw= R2+ R3)
17	1686.8 in. (4284.47 cm)	1807.5 in. (4591.05 cm)	1776.3 in. (4511.80 cm)	1845.6 in. (4687.82 cm)	2385.4 in. (6058.91 cm)	2046.7 in. (5198.61 cm)	3621.9 in. (9199.62 cm)
27	1012.1 in. (2570.73 cm)	1202.7 in. (3054.85 cm)	1148.4 in. (2916.93 cm)	1171.0 in. (2974.34 cm)	1715.0 in. (4356.1 cm)	1430.1 in. (3632.45 cm)	2319.4 in. (5891.27 cm)
37	684.4 in. (1738.37 cm)	943.6 in. (2396.74 cm)	869.3 in. (2208.02 cm)	843.2 in. (2141.72 cm)	1390.8 in. (3532.63 cm)	1154.2 in. (2931.66 cm)	1712.6 in. (4350.00 cm)
47	480.9 in. (1221.48 cm)	808.3 in. (2053.08 cm)	717.6 in. (1822.70 cm)	639.8 in. (1625.09 cm)	1190.6 in. (3024.12 cm)	998.9 in. (2537.20 cm)	1357.3 in. (3447.54 cm)
57	334.9 in. (850.64 cm)	730.9 in. (1856.48 cm)	627.9 in. (1594.86 cm)	493.2 in. (1252.72 cm)	1047.6 in. (2660.90 cm)	899.3 in. (2284.22 cm)	1121.1 in. (2847.59 cm)
67	218.9 in. (556.00 cm)	685.5 in. (1741.17 cm)	572.7 in. (1454.65 cm)	377.8 in. (959.61 cm)	934.7 in. (2374.13 cm)	830.1 in. (2108.45 cm)	950.4 in. (2414.01 cm)
77	119.1 in. (302.51 cm)	660.04 in. (1667.41 cm)	541.7 in. (1375.91 cm)	277.9 in. (705.86 cm)	838.2 in. (2129.02 cm)	779.4 in. (1979.67 cm)	819.6 in. (2081.78 cm)

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

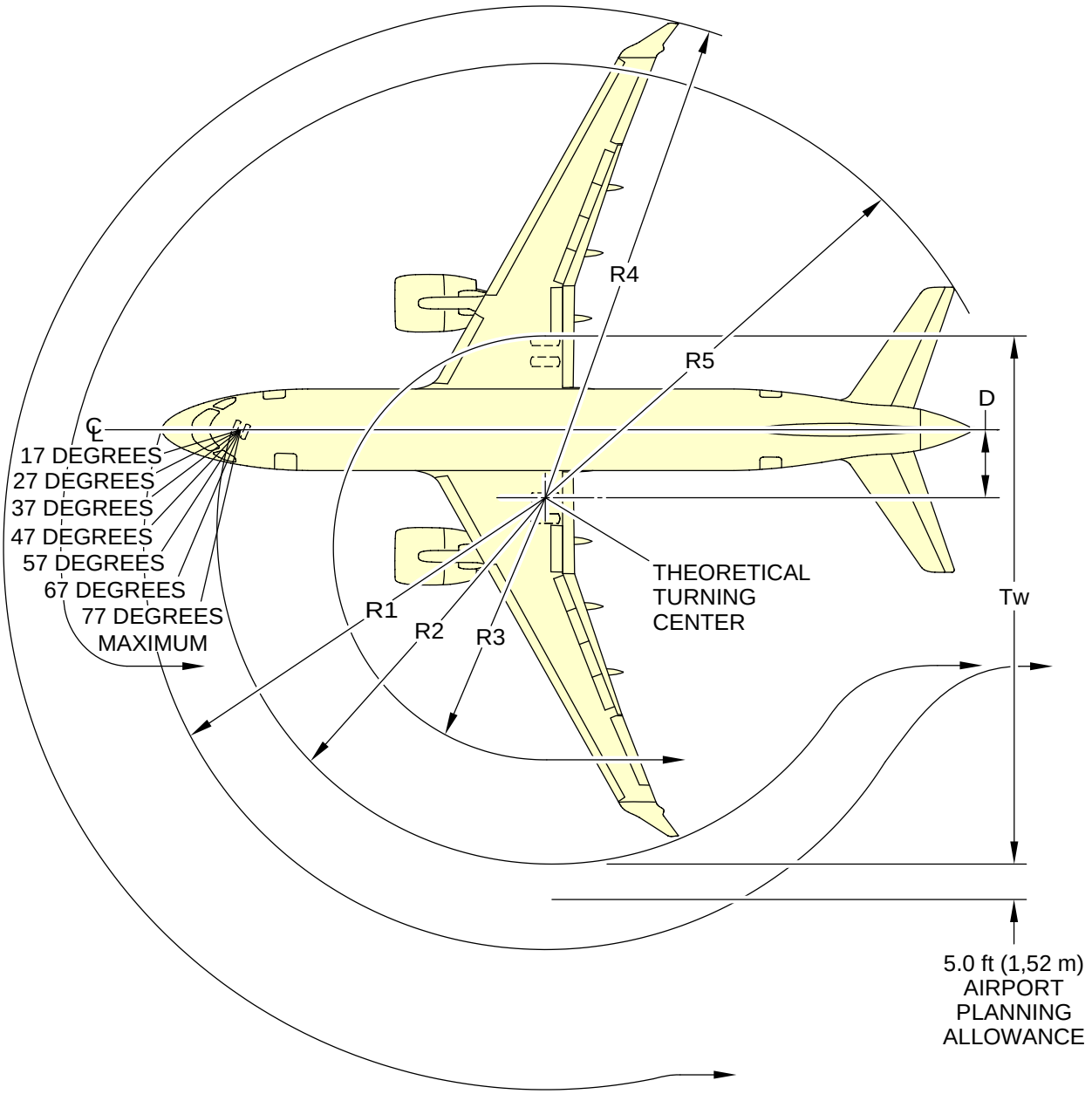
Applicability: 55001-59999

Table 3 Turning radii for various nose wheel angles

Turning angle (in degrees) with 3 degree tire slip	Turning center to aircraft center line (D)	Nose tip (R1)	Nose gear outside face (R2)	Main gear outside face (R3)	Wing tip (R4)	Empennage tip (R5)	Minimum theoretical pavement width for 180 degrees turn (Tw= R2+ R3)
17	1961.5 in. (4982.21 cm)	2094.2 in. (5319.26 cm)	2063.6 in. (5241.54 cm)	2120.4 in. (5385.81 cm)	2659.0 in. (6753.86 cm)	2307.1 in. (5860.03 cm)	4148.0 in. (10535.92 cm)

Turning angle (in degrees) with 3 degree tire slip	Turning center to aircraft center line (D)	Nose tip (R1)	Nose gear outside face (R2)	Main gear outside face (R3)	Wing tip (R4)	Empennage tip (R5)	Minimum theoretical pavement width for 180 degrees turn (Tw= R2+ R3)
27	1177.0 in. (2989.58 cm)	1386.9 in. (3522.72 cm)	1333.4 in. (3386.83 cm)	1335.8 in. (3392.93 cm)	1878.6 in. (4771.64 cm)	1576.4 in. (4004.05 cm)	2669.2 in. (6779.76 cm)
37	795.8 in. (2021.33 cm)	1082.4 in. (2749.29 cm)	1008.9 in. (2562.60 cm)	954.7 in. (2424.93 cm)	1500.9 in. (3812.28 cm)	1245.2 in. (3162.80 cm)	1963.6 in. (4987.54 cm)
47	559.2 in. (1420.36 cm)	922.5 in. (2343.15 cm)	832.4 in. (2114.29 cm)	718.1 in. (1823.97 cm)	1267.5 in. (3219.45 cm)	1056.8 in. (2684.27 cm)	1550.5 in. (3938.27 cm)
57	389.4 in. (989.07 cm)	830.6 in. (2109.72 cm)	727.5 in. (1847.85 cm)	548.3 in. (1392.68 cm)	1100.9 in. (2796.28 cm)	935.1 in. (2375.15 cm)	1275.8 in. (3240.53 cm)
67	254.6 in. (646.68 cm)	776.5 in. (1971.04 cm)	663.9 in. (1686.30 cm)	413.4 in. (1050.03 cm)	969.4 in. (2462.27 cm)	850.3 in. (2159.76 cm)	1077.4 in. (2736.59 cm)
77	138.5 in. (351.79 cm)	746.6 in. (1896.36 cm)	627.9 in. (1594.86 cm)	297.3 in. (755.14 cm)	856.9 in. (2176.52 cm)	788.5 in. (2002.79 cm)	925.2 in. (2350.00 cm)

This publication has been superseded by the Aircraft Characteristics Publication (ACP).



ICN-BD500-A-J092001-C-3AB48-45815-A-001-01

Figure 1 Ground maneuvering, turning radii - Technical data

A220

Ground maneuvering, visibility from flight compartment - Technical data

Applicability: 50001-54999, 55001-59999

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2 Clear areas of vision 1
3 Visibility from cockpit in static position 1

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2 Visibility from cockpit in static position 3

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
None	

Description

1 Introduction

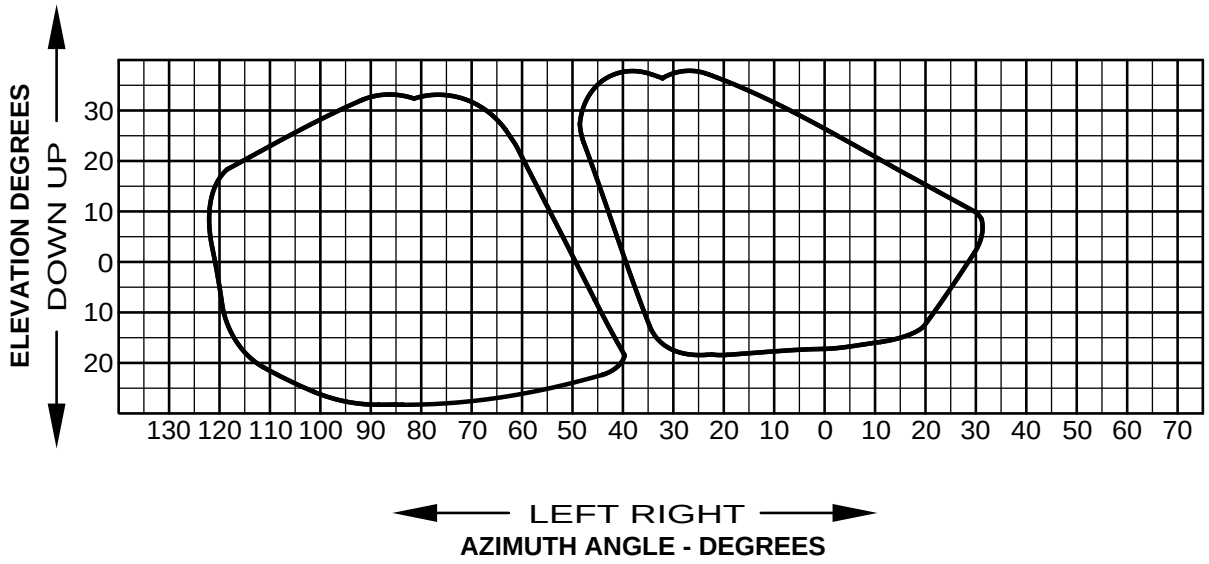
This data module contains data about the visibility from the flight compartment.

2 Clear areas of vision

To see the diagram, refer to Fig. 1

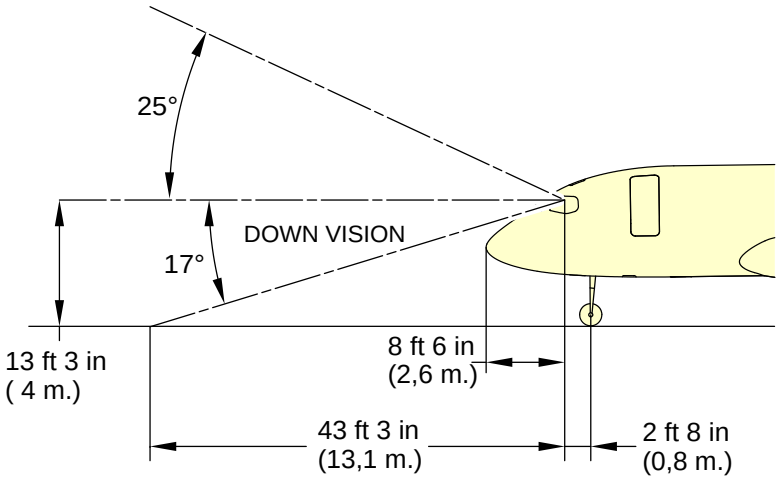
3 Visibility from cockpit in static position

This section contains data about the visibility from cockpit in static position. Refer toFig. 2

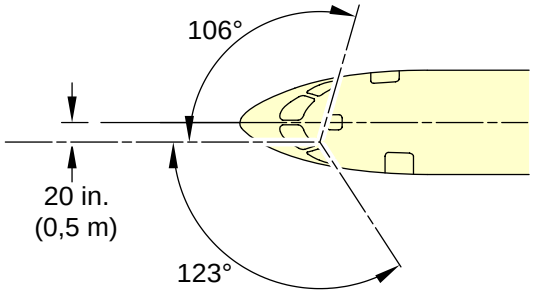


ICN-BD500-A-J092001-A-3AB48-00119-A-001-01

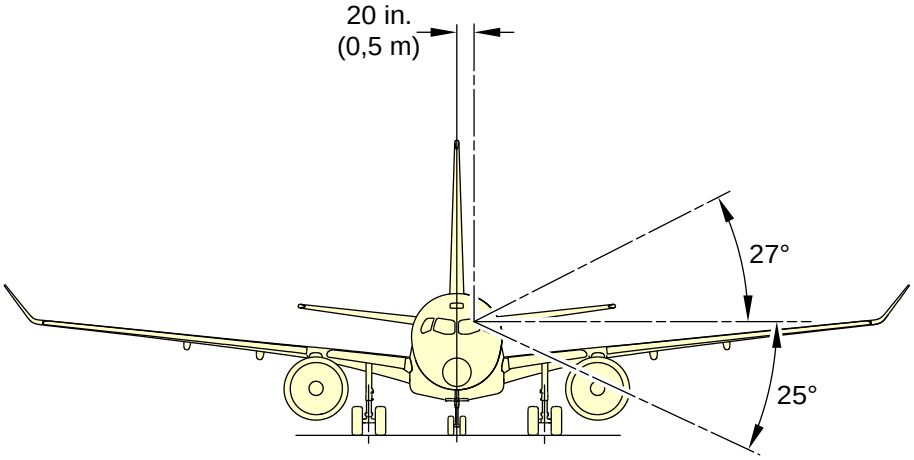
Figure 1 Clear areas of vision



VISUAL ANGLES IN VERTICAL PLANE THROUGH PILOT'S EYE POSITION



VISUAL ANGLES IN HORIZONTAL PLANE THROUGH PILOT'S EYE POSITION



VISUAL ANGLE IN A PLANE PERPEDNDICULAR TO LONGITUDINAL AXIS THROUGH PILOT'S EYE POSITION

NOTES

1. Not to be used for landing approach visibility.
2. Not scale.

ICN-BD500-A-J000000-A-3AB48-22579-A-001-01

Figure 2 Visibility from cockpit in static position

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Aircraft grounding - General maintenance procedure

Applicability: 50001-54999, 55001-59999

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4 Consumables, materials, and expendables 2
5 Spares 2
6 Required conditions 5

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1 Landing gears grounding points 4

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
BD500-A-J24-00-00-01AAA-913G-A	Electrical/Electronic safety precautions - General maintenance safety procedure
BD500-A-J24-00-00-02AAA-913G-A	Electrostatic discharge safety precautions - General maintenance safety procedure

Common information

This data module gives the procedure to ground the aircraft. The grounding points are located on the landing gears.

Preliminary requirements

Production maintenance data

Zones	711	Nose landing gear
	731	Main landing gear, left side
	741	Main landing gear, right side

Required conditions

Table 2 Required conditions

Action/Condition	Data Module/Technical publication
Obey all the electrical/electronic safety precautions.	BD500-A-J24-00-00-01AAA-913G-A
Obey all the electrostatic discharge safety precautions.	BD500-A-J24-00-00-02AAA-913G-A

Support equipment

Table 3 Support equipment

Name	Identification/Reference	Quantity	Remark
None			

Consumables, materials, and expendables

Table 4 Consumables, materials, and expendables

Name	Identification/Reference	Quantity	Remark
None			

Spares

Table 5 Spares

Name	Identification/Reference	Quantity	Remark
None			

Safety conditions

None

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Procedure

WARNINGS

- **When the aircraft is parked for maintenance or during bad weather, make sure that it is grounded. Static electrical charges in the aircraft can cause injury to persons and/or damage to equipment.**

  It is not mandatory to ground the aircraft if you do not do maintenance, there is no bad weather and the tires are in direct contact with the ground. Some airports can apply non-conductive coating on the ramp, which can prevent release of the static charges to the ground. In such conditions, you must ground the aircraft.

- **Ground the aircraft before you connect the external electrical power. If you do not do this, you can cause injuries to persons and/or damage the equipment.**

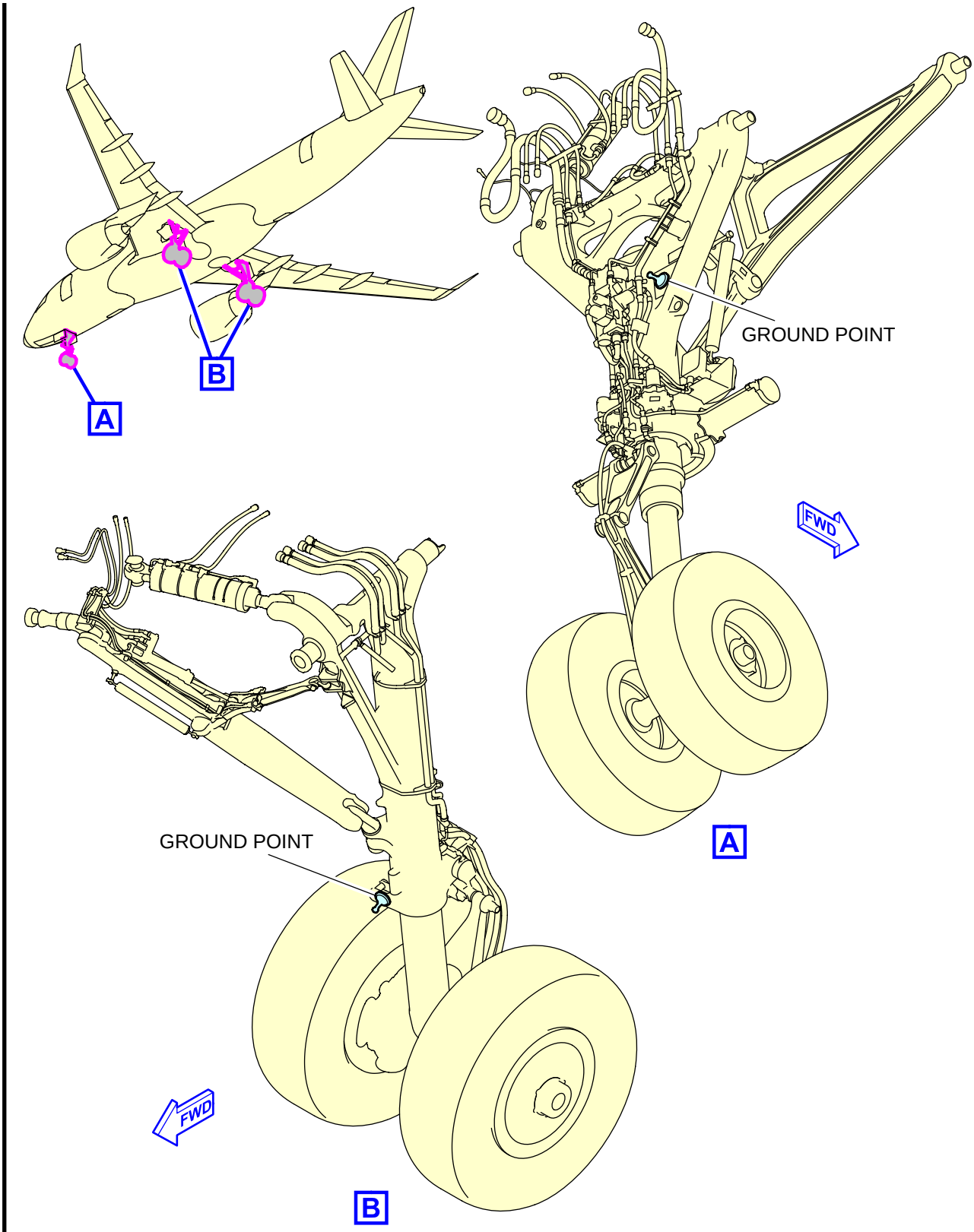
1 To ground the aircraft do as follows:

Refer to Fig. 1 .

1.1 Attach the alligator clamp to one of the grounding points located on the Nose Landing Gear (NLG) or the Main Landing Gear (MLG).

1.2 Attach the other end of the wire to a ground point off of the aircraft.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).



ICN-BD500-A-J000000-A-3AB48-22049-A-002-01

Figure 1 Landing gears grounding points

Requirements after job completion

Required conditions

Table 6 Required conditions

Action/Condition	Data Module/Technical publication
None	

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Aircraft protection equipment - Remove support equipment/Remove from support equipment

Applicability: 50001-54999, 55001-59999

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4 Consumables, materials, and expendables 2
5 Spares 2
6 Required conditions 13

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1 Aircraft protection equipment - Remove support equipment 4

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
None	

Common information

This data module gives the procedure to remove the protection equipment from the short term parked aircraft or an overnight stop.

Preliminary requirements

Required conditions

Table 2 Required conditions

Action/Condition	Data Module/Technical publication
Make sure that the aircraft is safe for maintenance.	

Support equipment

Table 3 Support equipment

Name	Identification/Reference	Quantity	Remark
Maintenance platform - 5 to 10 ft (1.5 to 3 m), or equivalent	STD-0323	AR	
Maintenance platform - 10 to 15 ft (3 to 4.6 m), or equivalent	STD-0324	AR	

Consumables, materials, and expendables

Table 4 Consumables, materials, and expendables

Name	Identification/Reference	Quantity	Remark
None			

Spares

Table 5 Spares

Name	Identification/Reference	Quantity	Remark
None			

Safety conditions

None

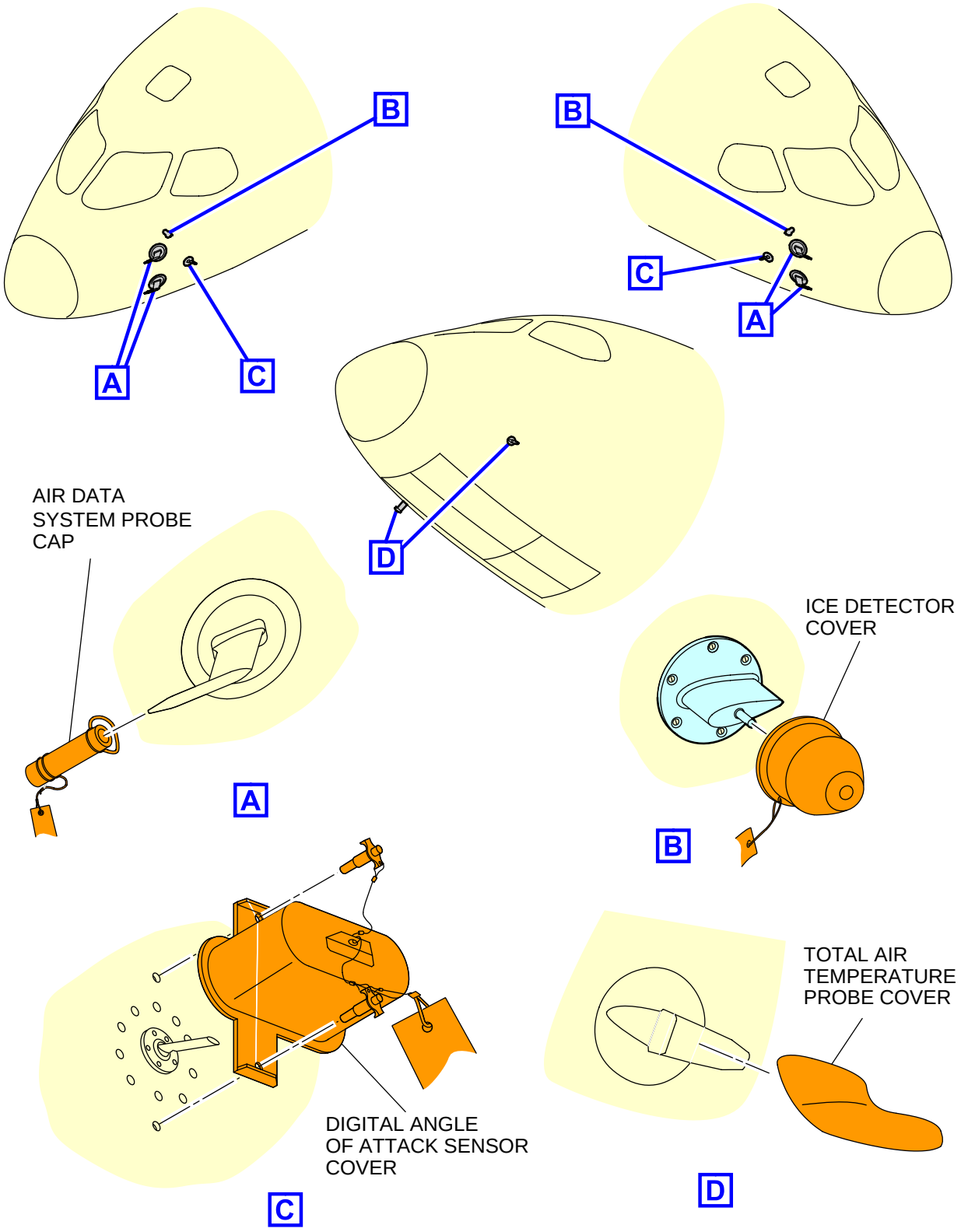
This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Procedure

1 Remove the following protective equipment from the aircraft:
Ref to Fig. 1 .

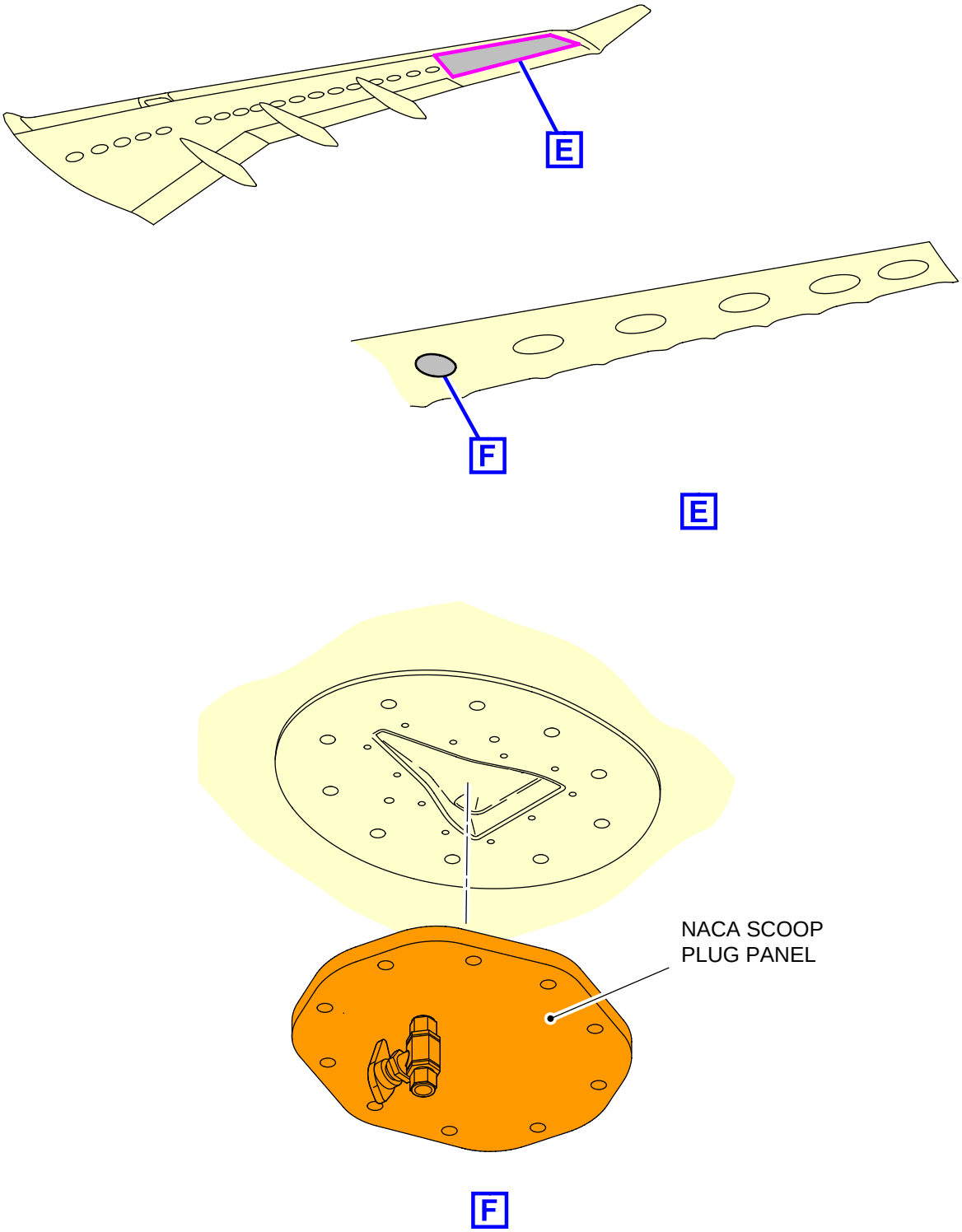
- Two Total Air Temperature (TAT) probe sensor covers
- Two fuel vent blanking plugs (National Advisory Committee for Aeronautics (NACA) Scoop)
- Two fuel drain mast covers
- Two Environmental Control System (ECS) intake plugs
- Two ECS exhaust plugs
- One Auxiliary Power Unit (APU) exhaust cover
- Two Angle of Attack (AOA) covers
- Four Air Data System Probe (ADSP) head covers
- Two engine inlet covers
- Two engine bypass covers
- Two engine exhaust covers
- Two water drain mast covers
- Two ice detection probe protectors
- One Fuel Tank Inerting System (FTIS) intake plug
- One FTIS exhaust plug
- One Nose Landing Gear (NLG) tire cover
- Two Main Landing Gear (MLG) tire covers

This publication has been superseded by the Aircraft Characteristics Publication (ACP).



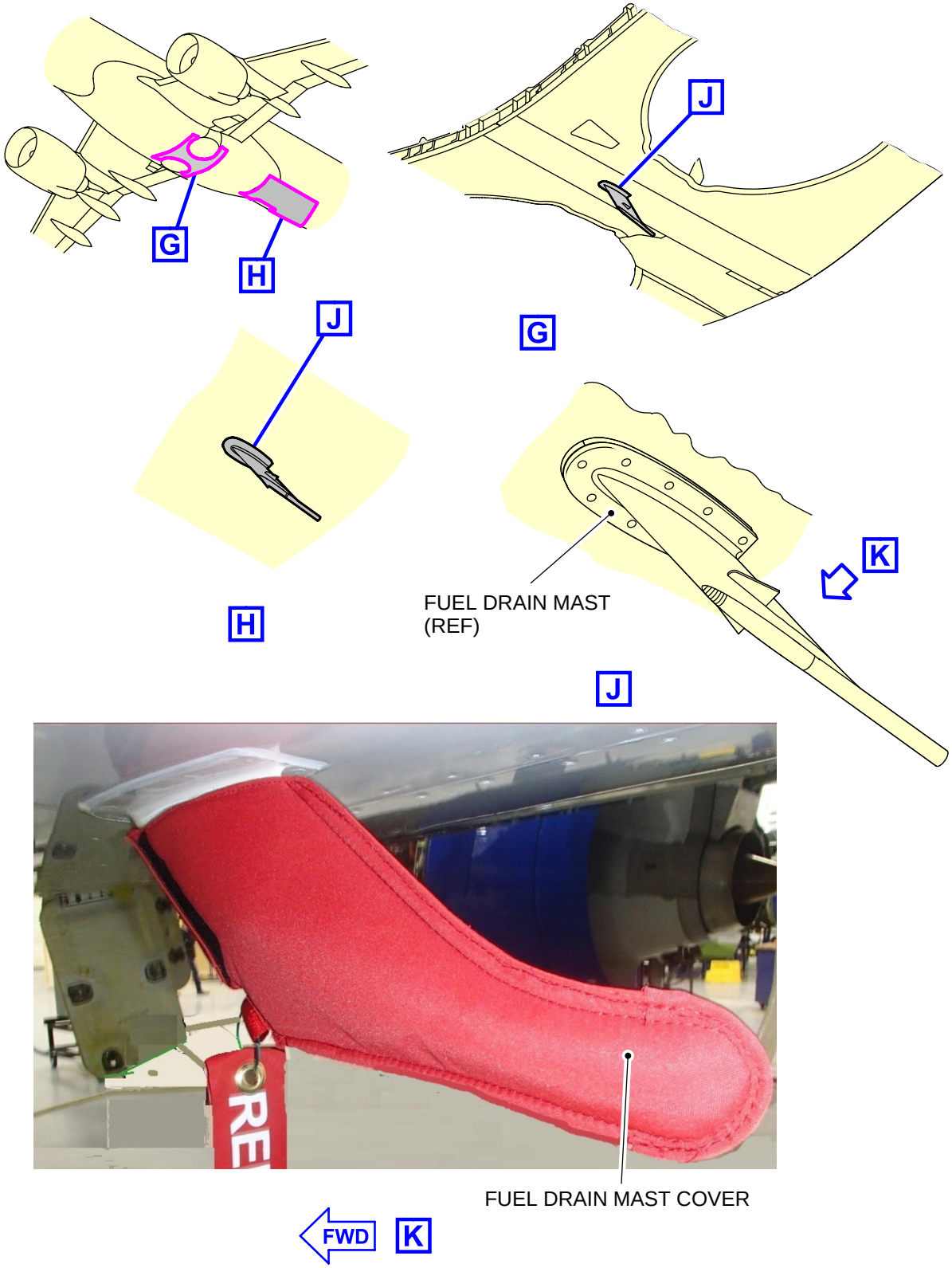
ICN-BD500-A-J101200-A-3AB48-34061-A-001-01

Figure 1 Aircraft protection equipment - Remove support equipment - (Sheet 1 of 9)



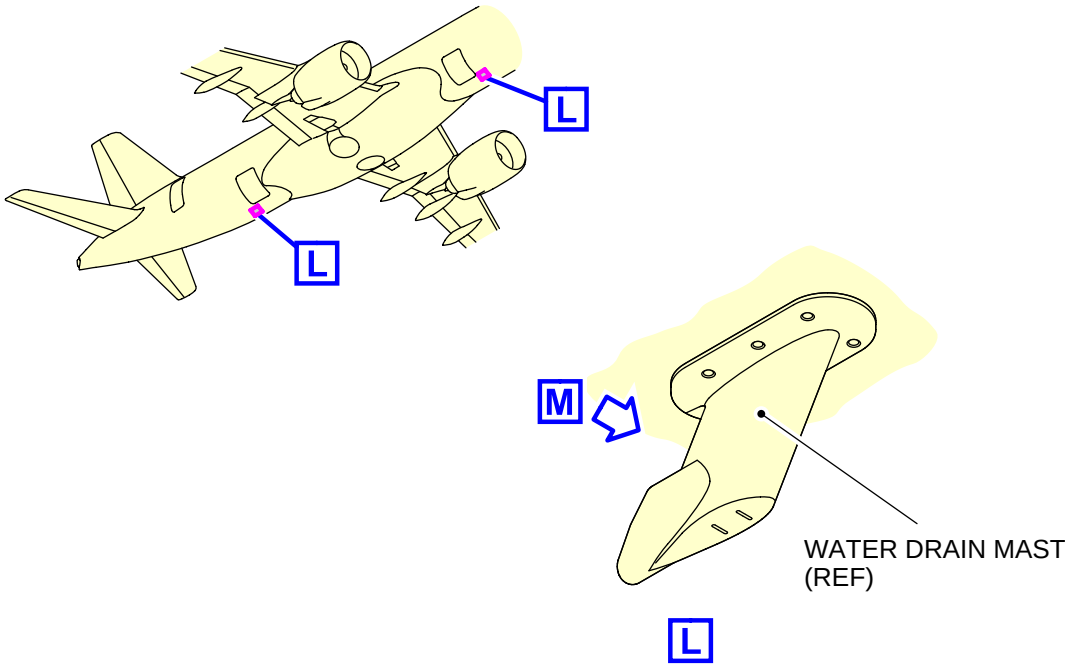
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Figure 1 Aircraft protection equipment - Remove support equipment - (Sheet 2 of 9)



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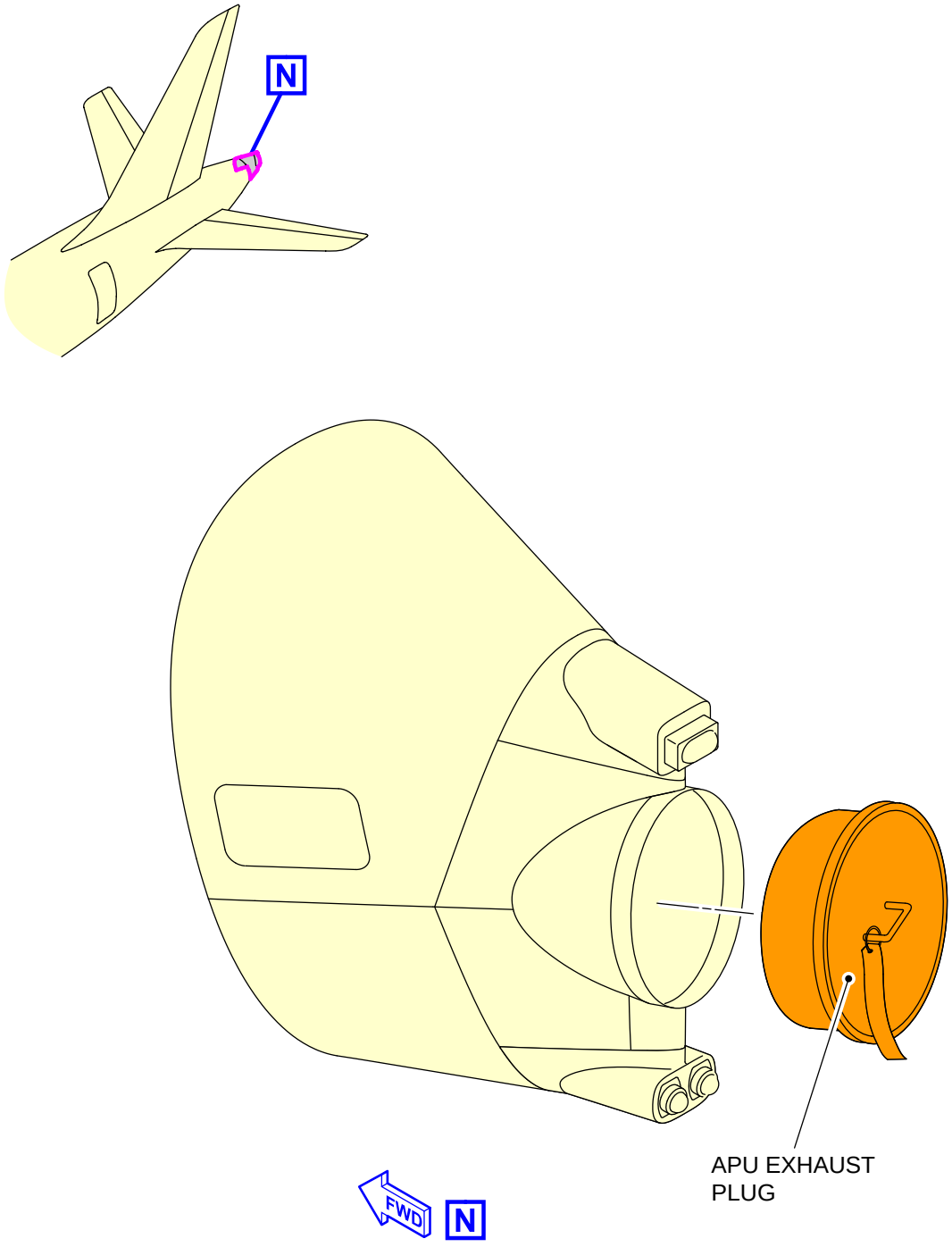
Figure 1 Aircraft protection equipment - Remove support equipment - (Sheet 3 of 9)





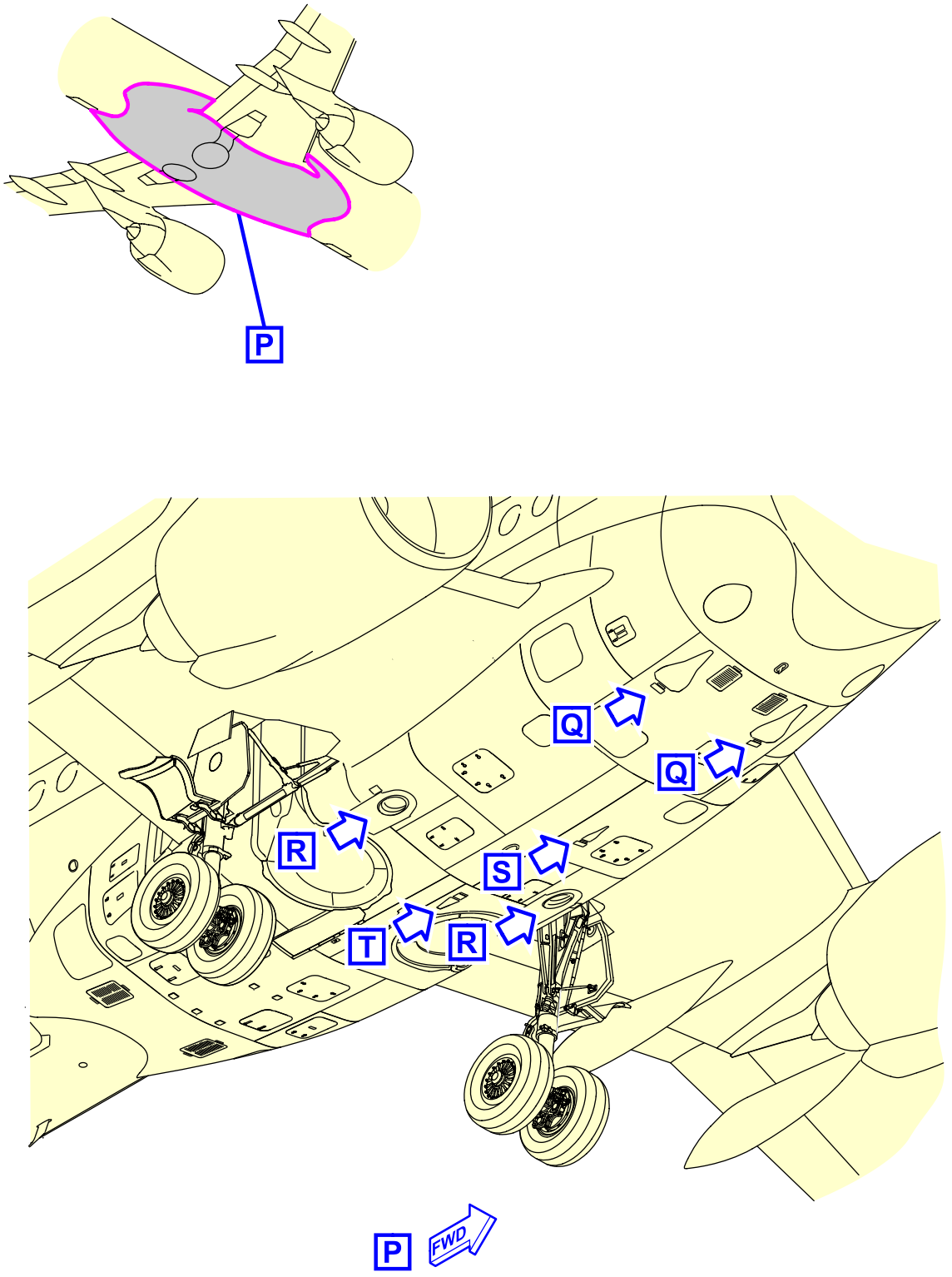
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Figure 1 Aircraft protection equipment - Remove support equipment - (Sheet 4 of 9)



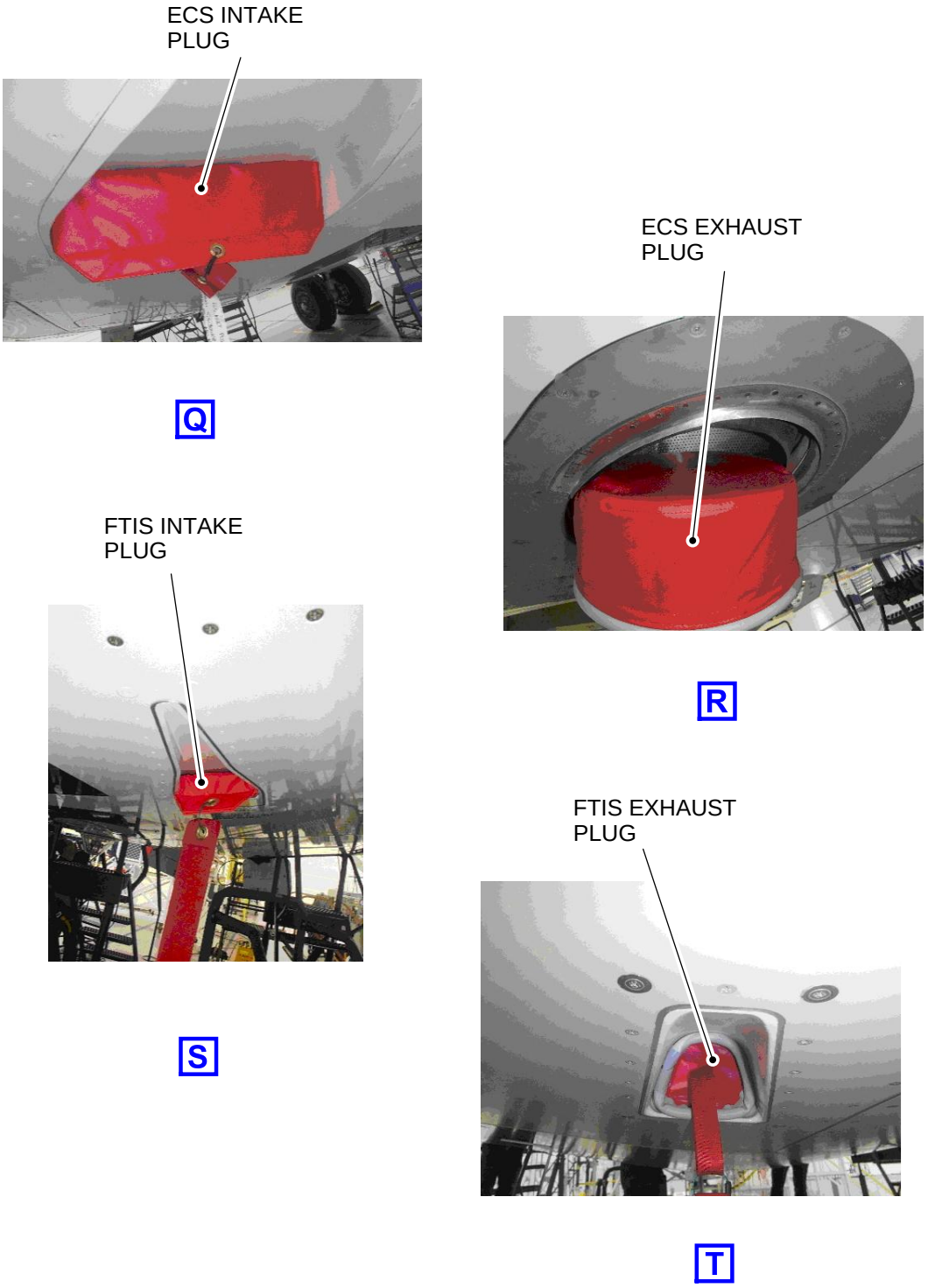
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Figure 1 Aircraft protection equipment - Remove support equipment - (Sheet 5 of 9)



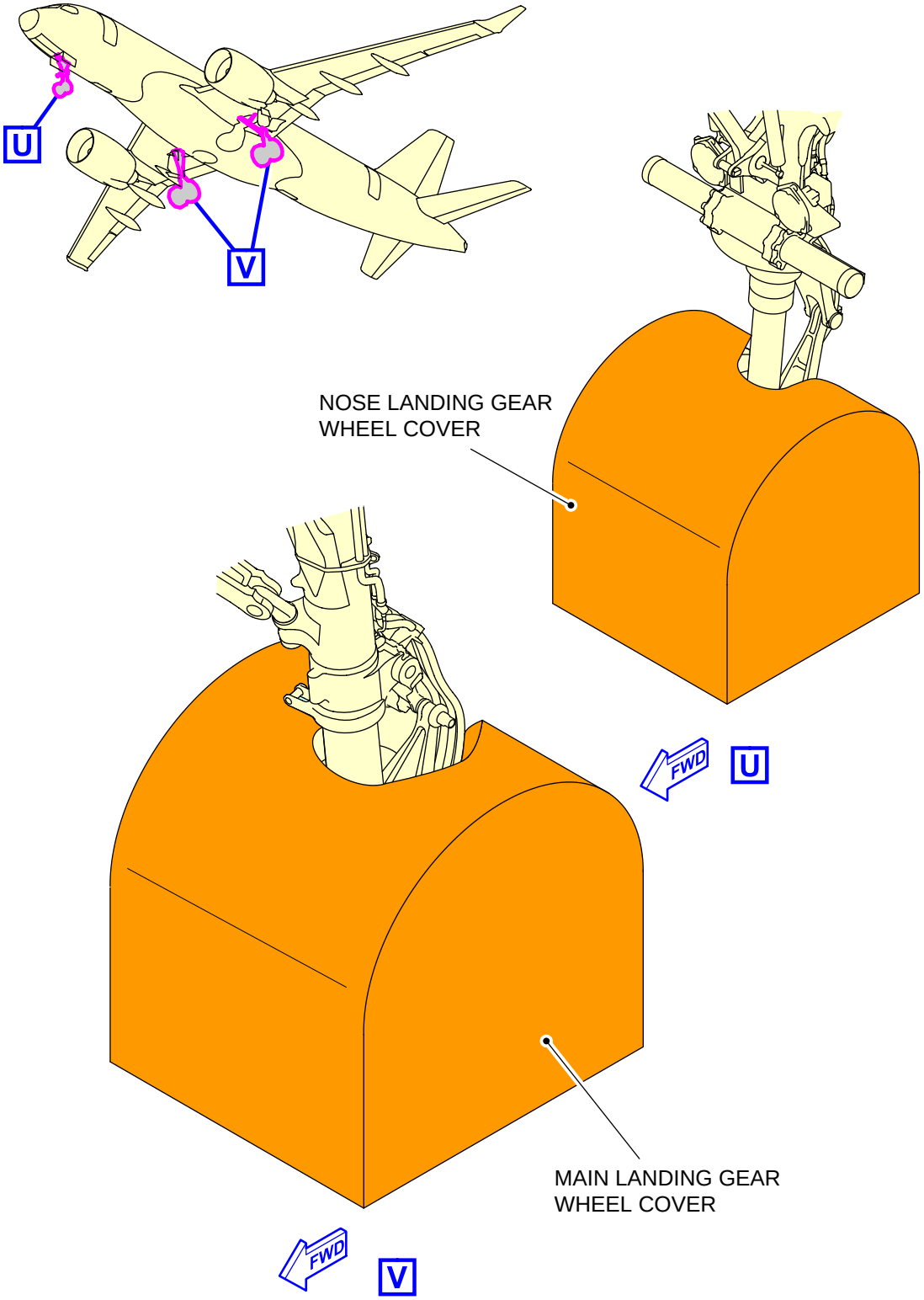
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Figure 1 Aircraft protection equipment - Remove support equipment - (Sheet 6 of 9)



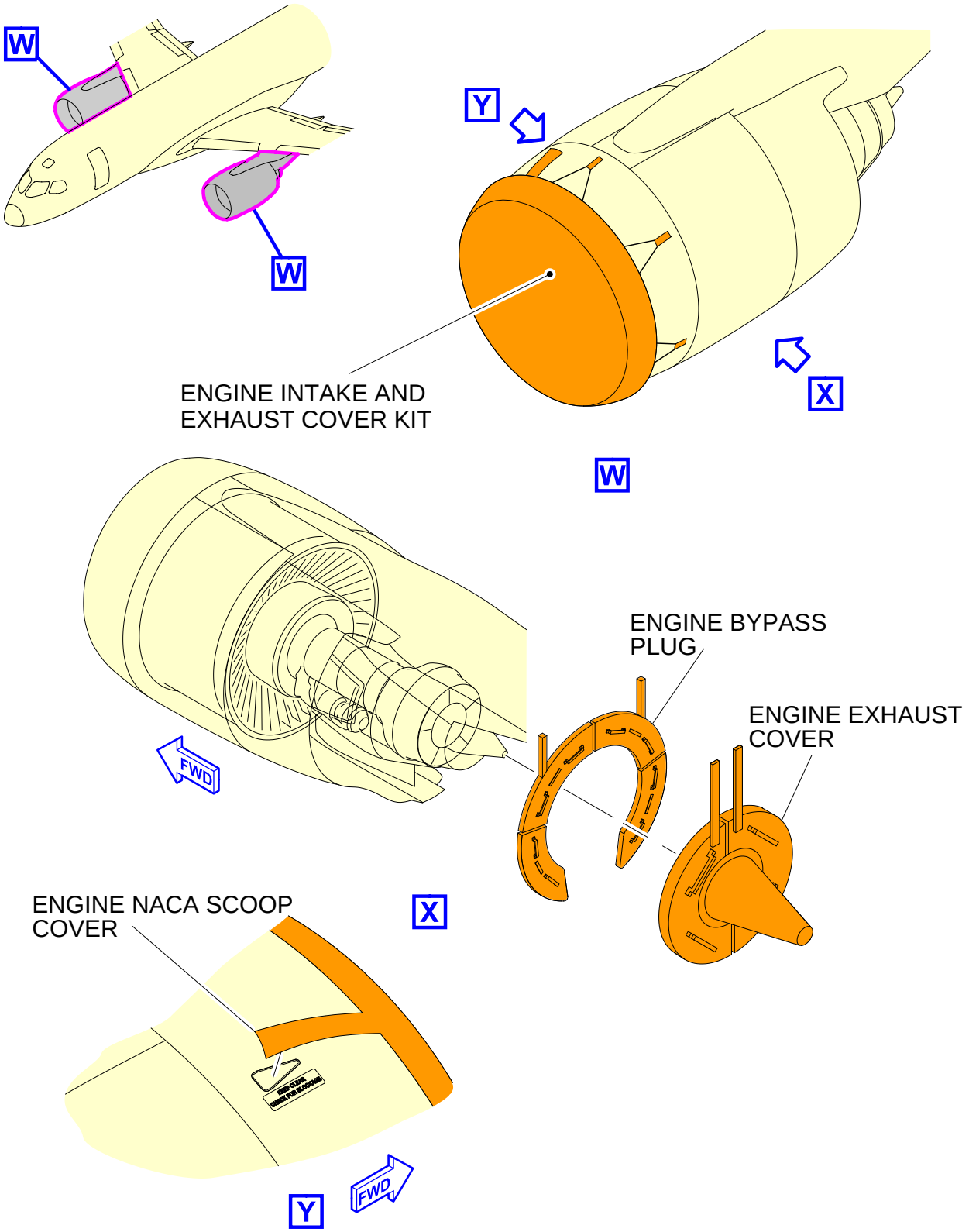
ICN-BD500-A-J101200-A-3AB48-34067-A-001-01

Figure 1 Aircraft protection equipment - Remove support equipment - (Sheet 7 of 9)



ICN-BD500-A-J101200-A-3AB48-34068-A-001-01

Figure 1 Aircraft protection equipment - Remove support equipment - (Sheet 8 of 9)



ICN-BD500-A-J101200-A-3AB48-34069-A-002-01

Figure 1 Aircraft protection equipment - Remove support equipment - (Sheet 9 of 9)

Requirements after job completion

Required conditions

Table 6 Required conditions

Action/Condition	Data Module/Technical publication
Remove all tools, equipment, and unwanted materials from the work area. In the flight compartment, remove the placard from the electrical panel.	

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Aircraft protection equipment - Install support equipment/Install on support equipment

Applicability: 50001-54999, 55001-59999

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6 Required conditions 14

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1 Aircraft protection equipment - Install procedure 5

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
None	

Common information

This data module gives the procedure to install the protection equipment on the aircraft for short time parking or overnight stop.

Preliminary requirements

Required conditions

Table 2 Required conditions

Action/Condition	Data Module/Technical publication
Make sure that the aircraft is safe for maintenance.	

Action/Condition	Data Module/Technical publication
Put a warning placard on the flight compartment electrical panel to give a warning not to energize the electrical network. If electrical power is required make sure the network is set in the ground service mode.	

Support equipment

Table 3 Support equipment

Name	Identification/Reference	Quantity	Remark
Probe, Total Air Temperature (TAT) cover	196KR	2	
NACA plugs	518KR	2	
Fuel drain mast cover	521KR	2	
NACA scoop plug (ECS intake)	515KR	2	
NACA scoop plug (ECS intake)	515KR-300	2	
ECS exhaust plug	523KR	2	
APU exhaust plug	525KR	1	
AOA cover	0061CJ1 AOA101P	2	
Protective cap, ADSP or equivalent	KPC4T-780-45 707KR	4	
Engine intake cover	999-1100-4GSE	2	
Engine bypass plug	999-3001-12GSE	2	
Engine exhaust cover	999-4100-5GSE	2	
Water drain mast cover	522KR	2	
Ice detector cover	384KR	2	
FTIS intake NACA plug	516KR	1	
NACA scoop cover (WTBF-Aft)	517KR	1	
NLG wheel cover	514KR	1	
Wheel cover, MLG	513KR	2	

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Name	Identification/Reference	Quantity	Remark
Heat gun	STD-0138	1	Heat gun requirements: Temperature at 1000 °F (540 °C) Flow up to 16 CFM (cubic feet per minute)
Maintenance platform - 5 to 10 ft (1.5 to 3 m), or equivalent	STD-0323	AR	
Maintenance platform - 10 to 15 ft (3 to 4.6 m), or equivalent	STD-0324	AR	

Consumables, materials, and expendables

Table 4 Consumables, materials, and expendables

Name	Identification/Reference	Quantity	Remark
Deicing/anti-icing fluid, aircraft	10-001	AR	

Spares

Table 5 Spares

Name	Identification/Reference	Quantity	Remark
None			

Safety conditions

WARNINGS

- **Be careful when you touch the probes. The probes may be hot and cause injury or burns to persons.**
- **Let the APU become cool before you do work on or near it. Hot oil, bleed air and exhaust system components can cause injury to persons.**
- **Be careful when you touch the drain mast. It can be very hot and can cause injury to persons.**

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

- **Make sure that the engine is cool to the touch before you apply the solvents or damage to the engine or injury to personnel can occur.**

Procedure

1 Install the following protective equipment on the aircraft:
Ref to Fig. 1 .

Note
Only use covers and plugs equipped with warning flags.

- Two Total Air Temperature (TAT) probe sensor covers (L9209, Pt. No. 196KR)
- Two fuel vent blanking plugs (National Advisory Committee for Aeronautics (NACA) Scoop) (L9209, Pt. No. 518KR)
- Two fuel drain mast covers (L9209, Pt. No. 521KR)
- Two Environmental Control System (ECS) intake plugs (L9209, Pt. No. 515KR) for A220-100 and two ECS intake plugs (L9209, Pt. No. 515KR-300) for A220-300
- Two ECS exhaust plugs (L9209, Pt. No. 523KR)
- One Auxiliary Power Unit (APU) exhaust cover (L9209, Pt. No. 525KR)
- Two Angle of Attack (AOA) covers (59885, Pt. No. 0061CJ1)
- Four Air Data System Probe (ADSP) head covers (0P9C7, Pt. No. KPC4T-780-45)
- Two engine inlet covers (51563, Pt. No. 999-1100-4GSE)
- Two engine bypass covers (51563, Pt. No. 999-3001-12GSE)
- Two engine exhaust covers (51563, Pt. No. 999-4100-5GSE)
- Two water drain mast covers (L9209, Pt. No. 522KR)
- Two ice detection probe protectors (L9209, Pt. No. 384KR)
- One Fuel Tank Inerting System (FTIS) intake plug (L9209, Pt. No. 516KR)
- One FTIS exhaust plug (L9209, Pt. No. 517KR)
- One Nose Landing Gear (NLG) tire cover (L9209, Pt. No. 514KR)
- Two Main Landing Gear (MLG) tire covers (L9209, Pt. No. 513KR) .

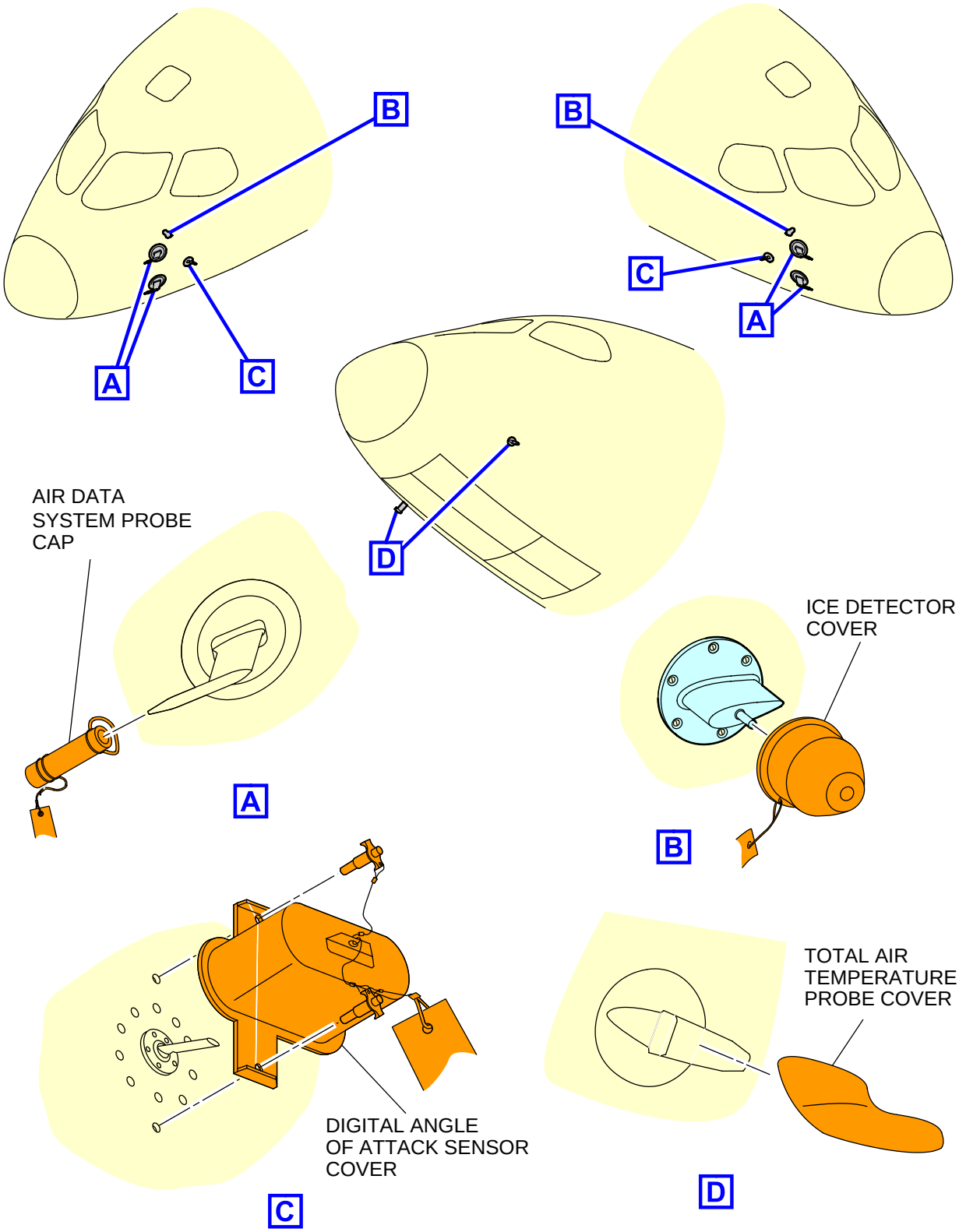
This publication has been superseded by the Aircraft Characteristics Publication (ACP)

2 For the aircraft engine cover in freezing or below freezing temperature, do the steps that follow:

2.1 When the temperature is at or below 32 °F (0 °C) apply a thin layer of de−icing fluid (10-001) to the engine inlet cowl cover (51563, Pt. No. 999-1100-4GSE) receptacles to prevent them from freezing.

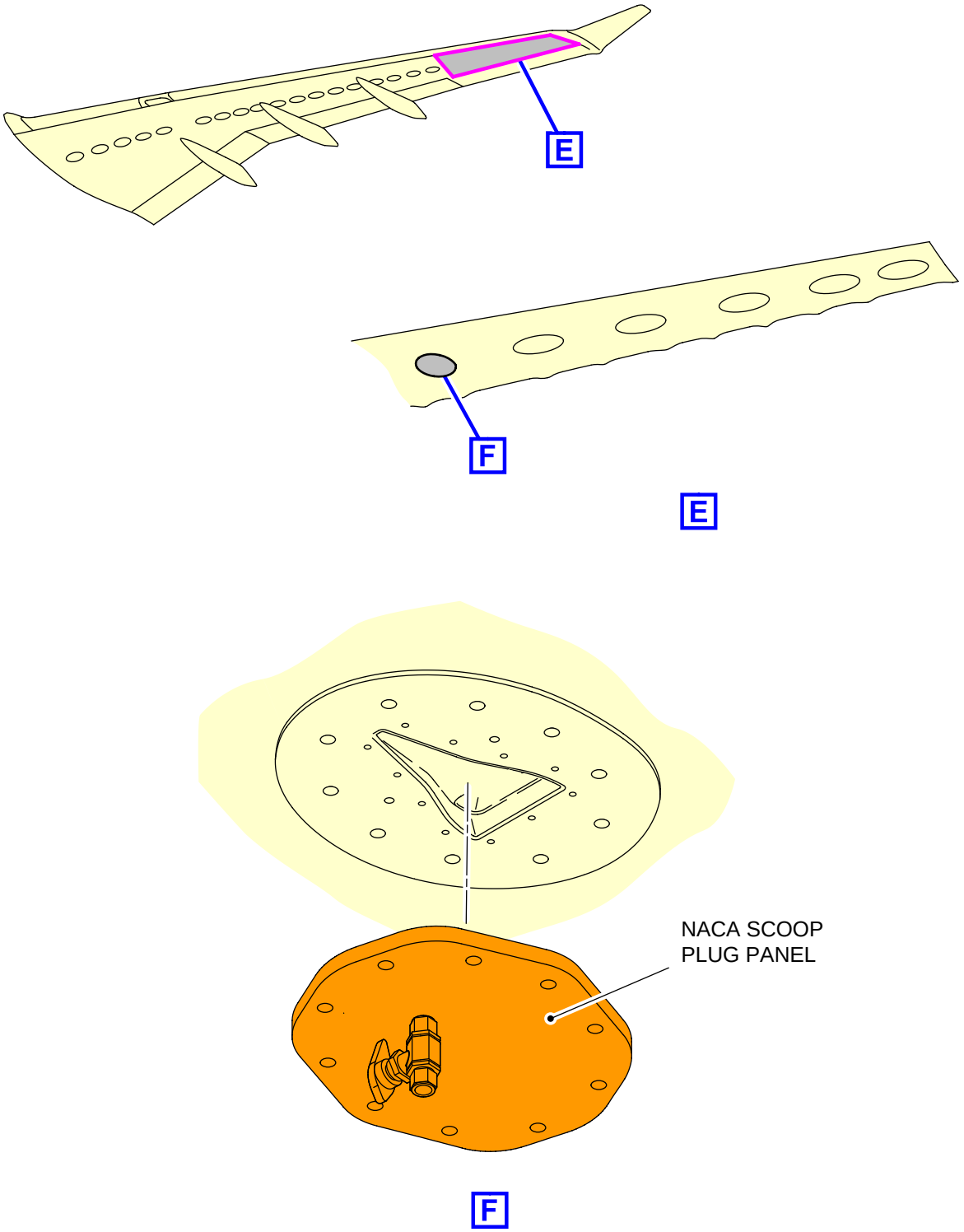
2.2 If necessary, apply gradually heat with heat gun (Commercially available, Pt. No. STD-0138) until it melts. Do not apply heat in a one area.

Note
Make sure when we use heat gun (Commercially available, Pt. No. STD-0138) keep the heat exposure below 200 °F (93 °C).



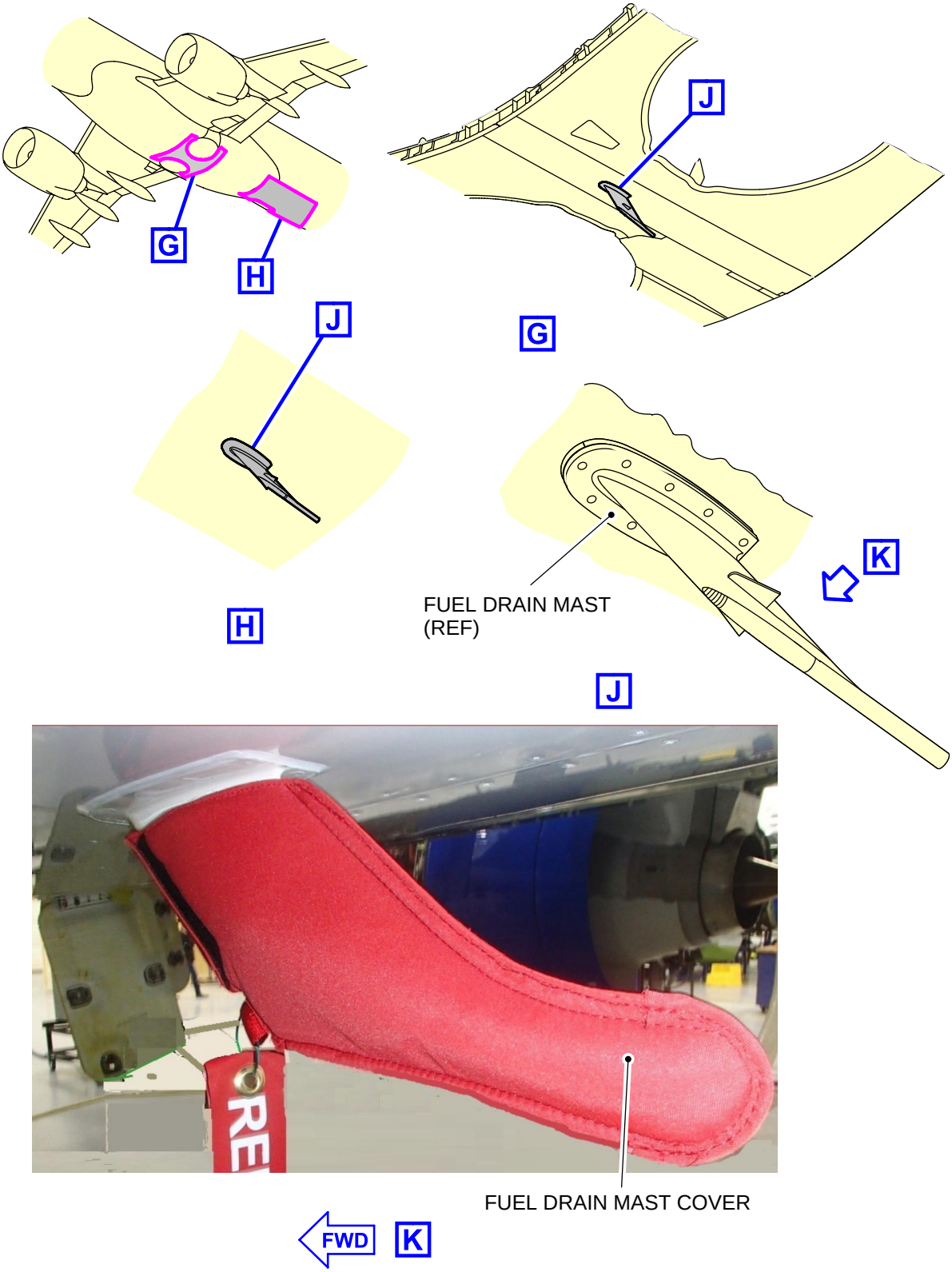
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Figure 1 Aircraft protection equipment - Install procedure - (Sheet 1 of 9)



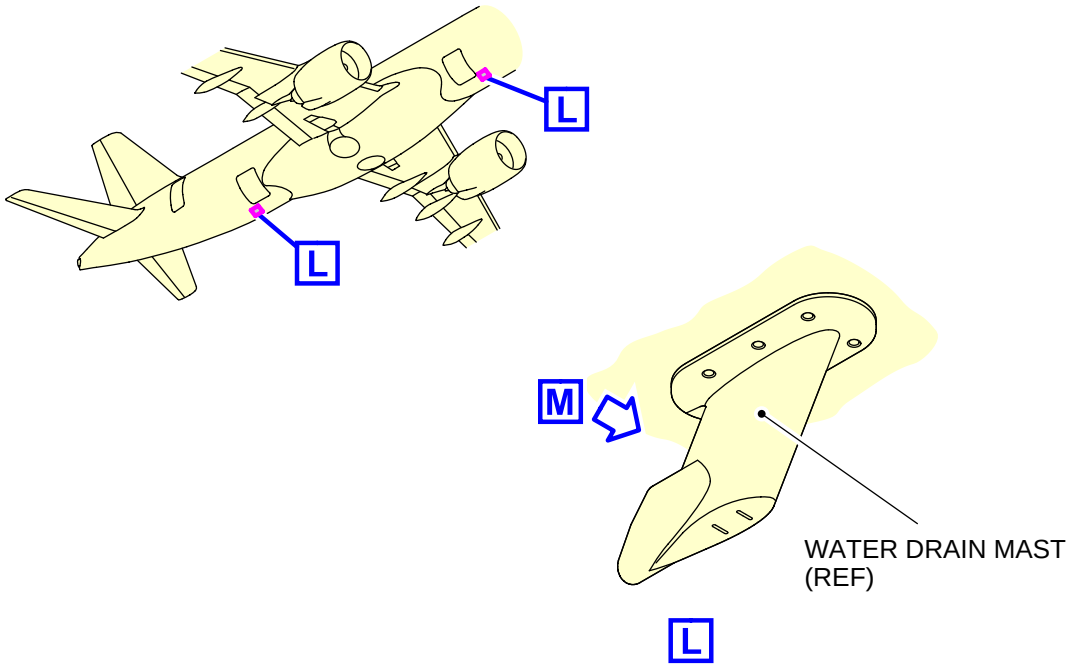
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Figure 1 Aircraft protection equipment - Install procedure - (Sheet 2 of 9)



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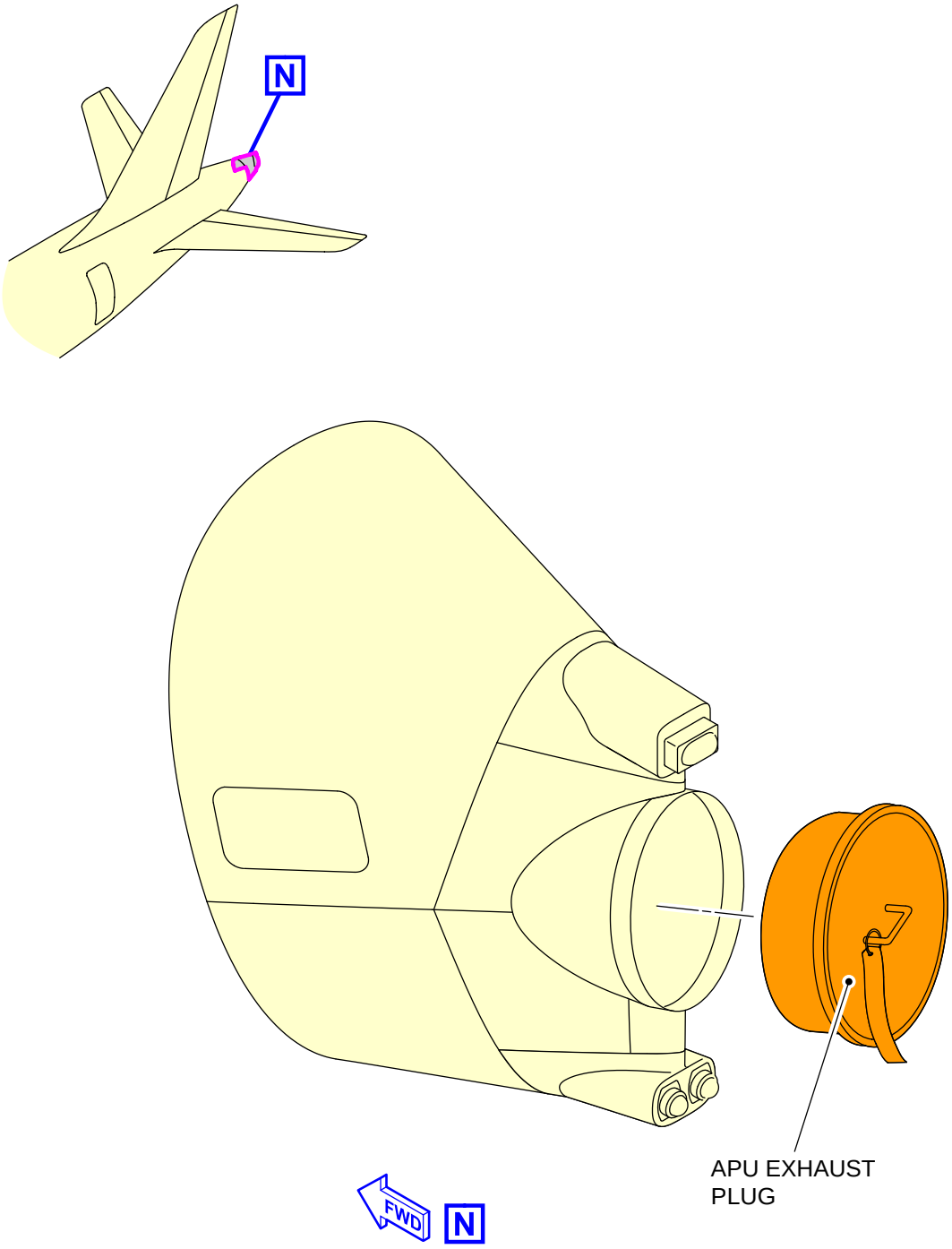
Figure 1 Aircraft protection equipment - Install procedure - (Sheet 3 of 9)





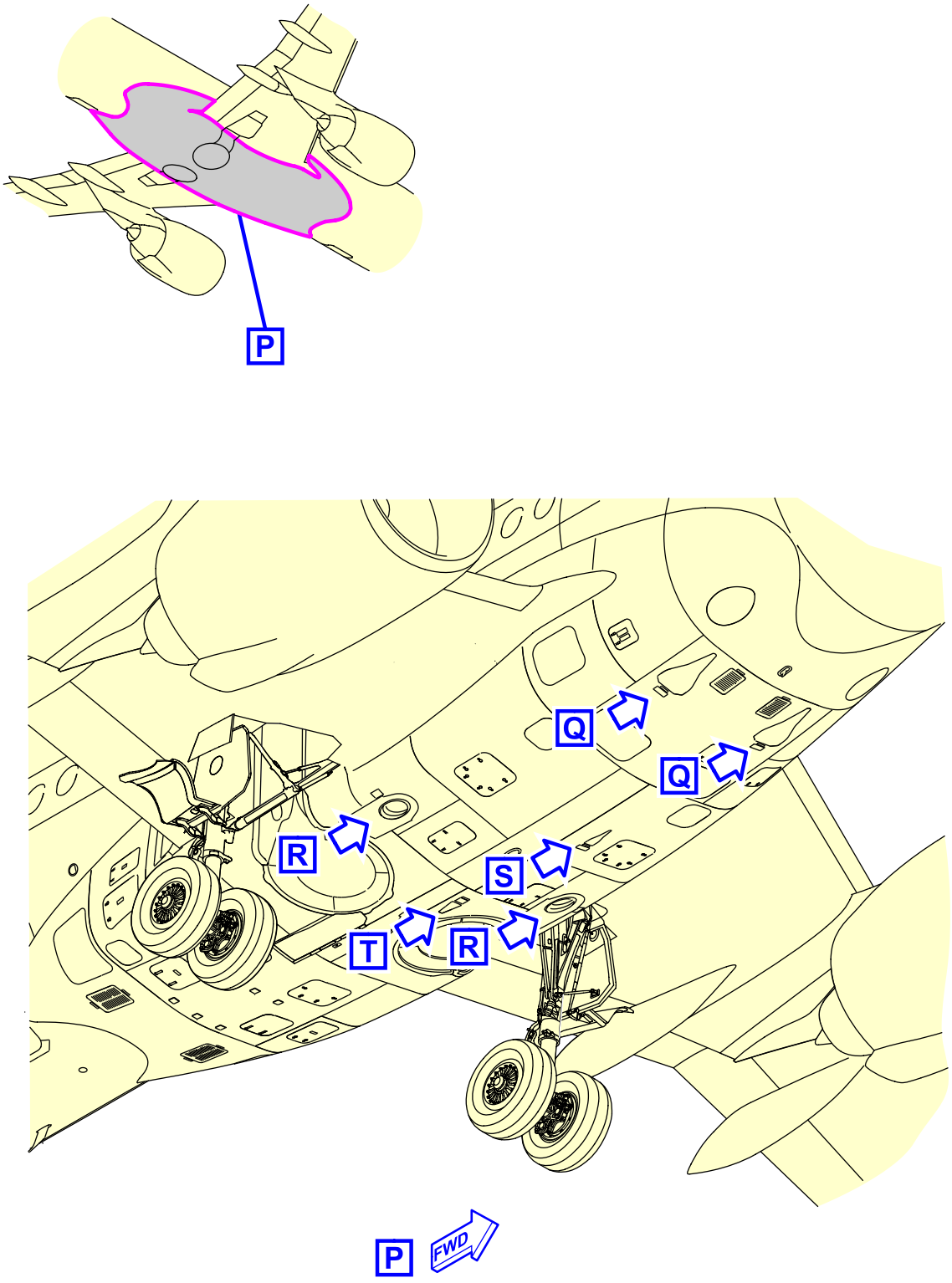
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Figure 1 Aircraft protection equipment - Install procedure - (Sheet 4 of 9)



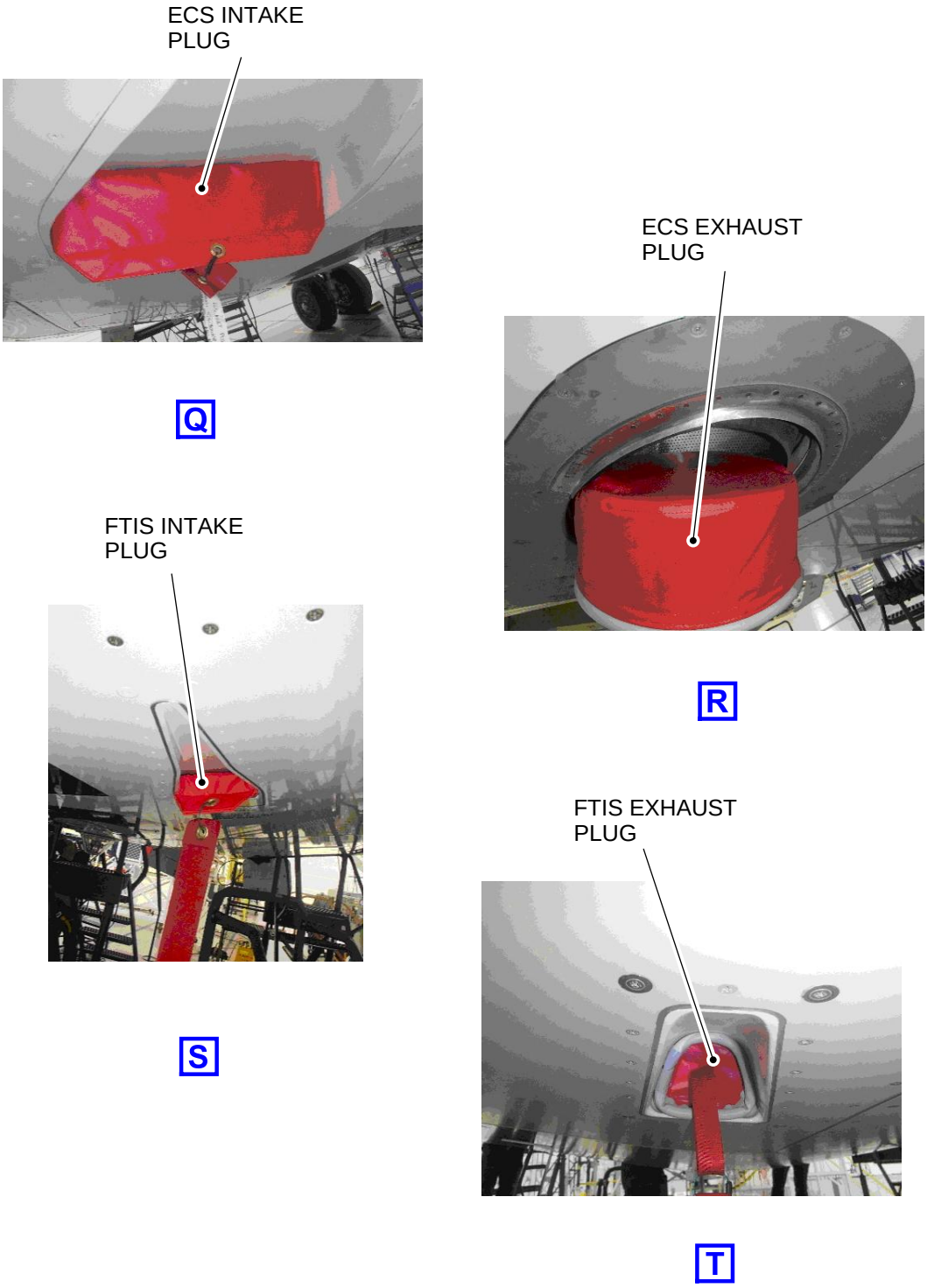
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Figure 1 Aircraft protection equipment - Install procedure - (Sheet 5 of 9)



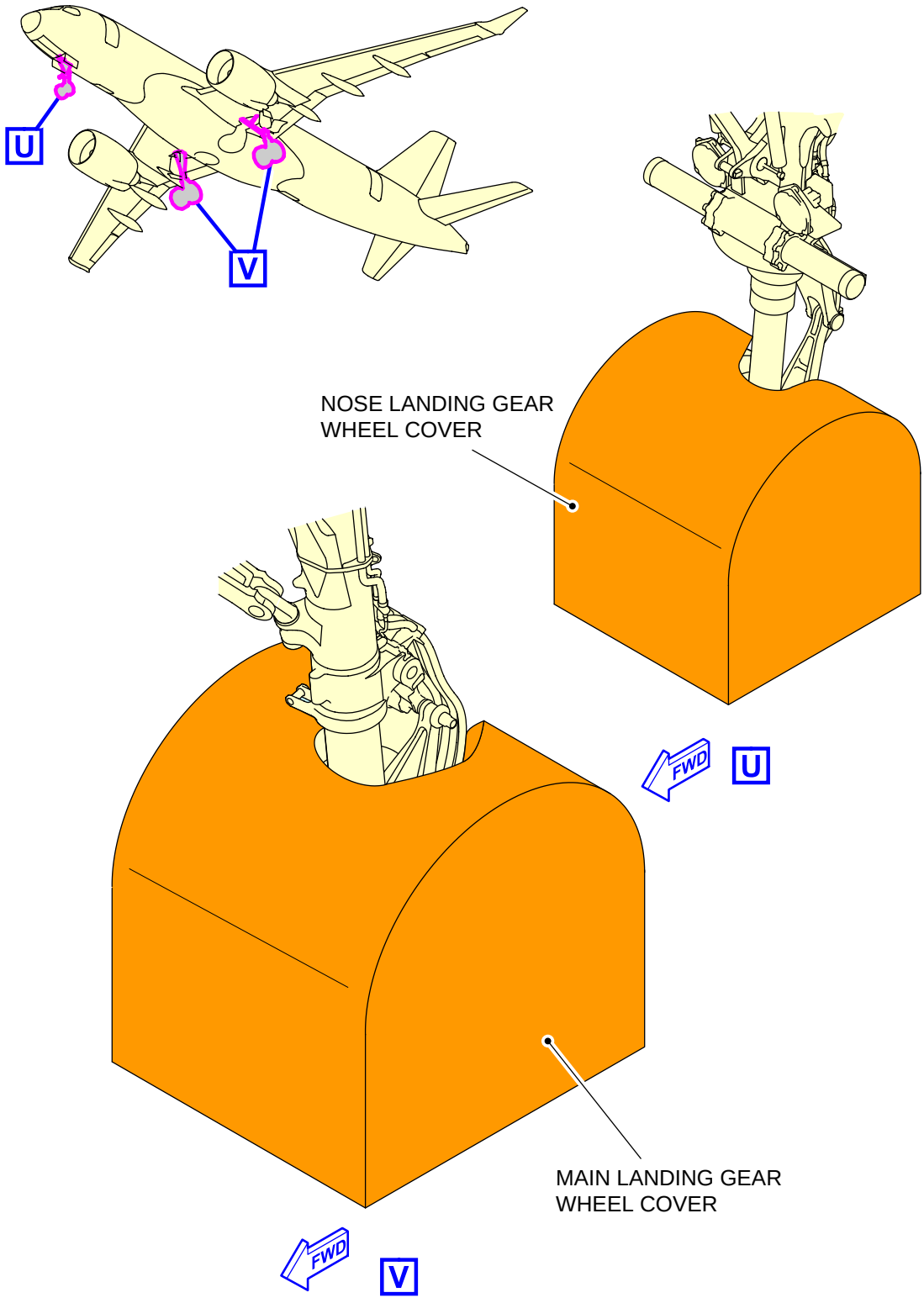
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Figure 1 Aircraft protection equipment - Install procedure - (Sheet 6 of 9)



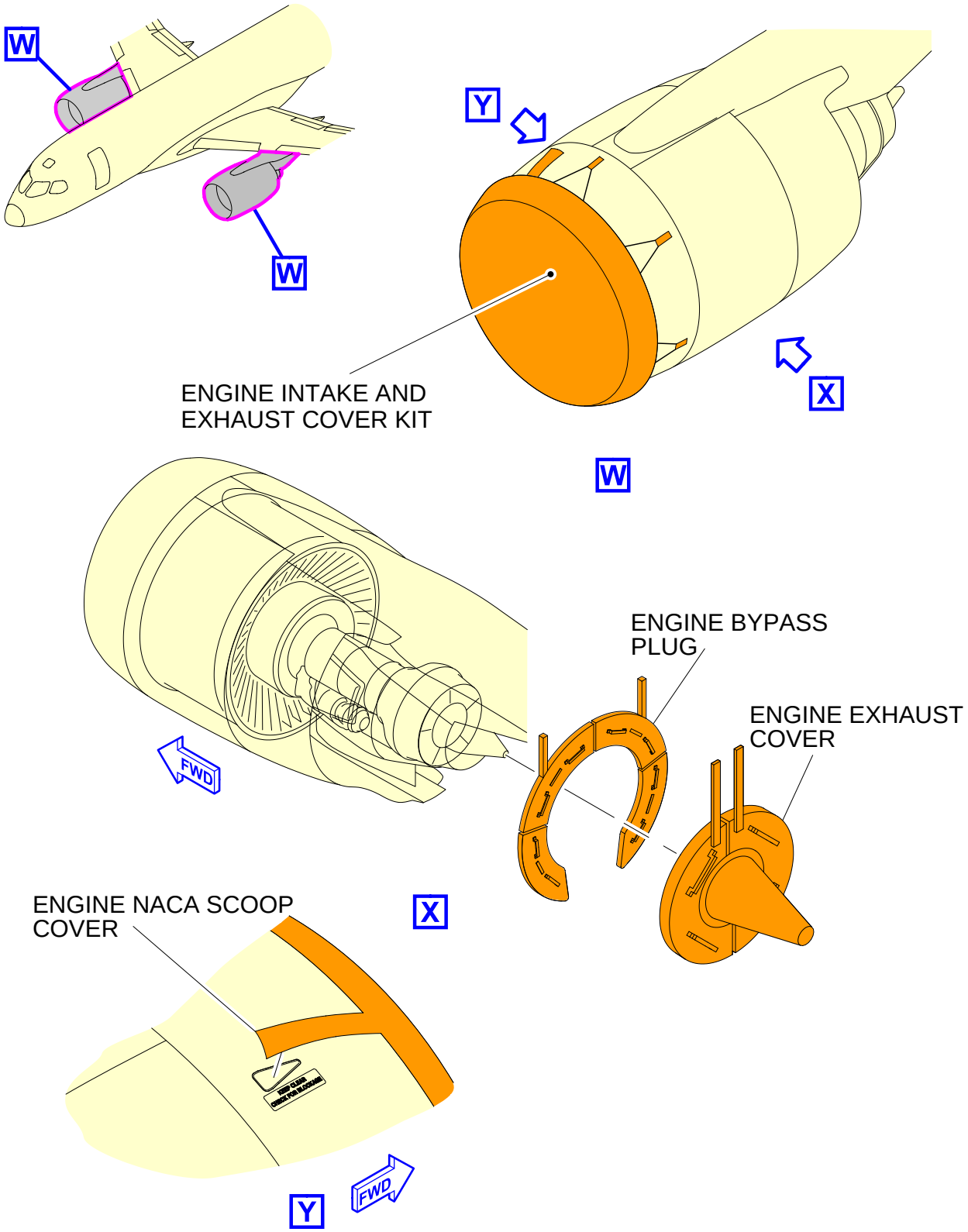
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Figure 1 Aircraft protection equipment - Install procedure - (Sheet 7 of 9)



ICN-BD500-A-J101200-A-3AB48-34068-A-001-01

Figure 1 Aircraft protection equipment - Install procedure - (Sheet 8 of 9)



ICN-BD500-A-J101200-A-3AB48-34069-A-002-01

Figure 1 Aircraft protection equipment - Install procedure - (Sheet 9 of 9)

Requirements after job completion

Required conditions

Table 6 Required conditions

Action/Condition	Data Module/Technical publication
Remove all tools, equipment, and unwanted materials from the work area.	

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Forward cargo compartment volume, weight and maximum item dimensions - Technical data

Applicability: 50001-54999, 55001-59999

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
BD500-A-J14-20-00-03AAA-030A-A	Cargo nets and tie-downs - Technical data
BD500-A-J52-30-00-01AAA-540A-A	Cargo compartment door - Open for access procedure
BD500-A-J52-30-00-01AAA-740A-A	Cargo compartment door - Close after access procedure

Description

1 Information

This data module gives the volume, the weight and the maximum item dimensions for the forward cargo compartment.

2 Cargo door operation

Refer to BD500-A-J52-30-00-01AAA-540A-A, BD500-A-J52-30-00-01AAA-740A-A to open and close the cargo door.

4 Cargo compartment volume and weight

The forward cargo floor structure has a maximum load of 235 lb/ft (350 kg/m).

Refer to Table 2 and Table 3 for the estimate wet volume and weight of the forward cargo compartment.

Applicability: 50001-54999

Table 2 Cargo compartment volumes

Description	Usable Volume		Maximum load	
	ft^3	m^3	lb	kg
Fwd cargo compartment	311	8.80	3742	1697

Applicability: 55001-59999

Table 3 Cargo compartment volumes

Description	Usable Volume		Maximum load	
	ft^3	m^3	lb	kg
Fwd cargo compartment	447	12.65	5393	2446

Applicability: 50001-54999

5 Maximum item dimensions

Refer to the Weight and balance manual for the maximum item dimensions. Refer to BD500-A-J08-60-02AAA-030A-A.

Note

There must be no item near the cargo compartment door.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Divide the floor load equally in the cargo compartment.

The cargo door net and the cargo restraint net hold the items in their area, refer to BD500-A-J14-20-00-03AAA-030A-A for both cargo nets.

Use other cargo items to hold the items which are wider than the flat floor.

There must be no item above the “NO LOADING ABOVE THIS LINE“ placard. Refer to Fig.3Sheet. 2 .

The cargo compartment door gives the clearances to load a human remains pallet in the forward cargo compartment.

Applicability: 55001-59999

6 Maximum item dimensions

Refer to the Weight and balance manual for the maximum item dimensions. Refer to BD500-A-J08-60-02AAB-030A-A.

Note

There must be no item near the cargo compartment door.

Divide the floor load equally in the cargo compartment.

The cargo door net and the cargo restraint net hold the items in their area, refer to BD500-A-J14-20-00-03AAA-030A-A for both cargo nets.

Use other cargo items to hold the items which are wider than the flat floor.

There must be no item above the “NO LOADING ABOVE THIS LINE“ placard. Refer to Fig.3Sheet. 2 .

The cargo compartment door gives the clearances to load a human remains pallet in the forward cargo compartment.

7 Maximum live animal and dry ice

7.1 Live animal

CAUTION

Animal cages/boxes have to be located near to an cargo air supply and the dry Ice container near to the cargo air exhaust in order to ensure animal receive enough air to breathe adequately.

This publication has been superseded by the Aircraft Characteristics Publication (ACP)

Table 4 Standard day (15 °C (59 °F) Outside Air Temperature (OAT) at sea level) operations

Aircraft	Maximum number of chicks	Maximum mass of chicks lbs (kg)	Maximum mass of dogs lbs (kg)
A220-100	3229	427 (194)	597 (271)
A220-300	5417	716 (325)	1349 (612)

Table 5 Standard day (40 °C (104 °F) Outside Air Temperature (OAT) at sea level) operations

Aircraft	Maximum number of chicks	Maximum mass of chicks lbs (kg)	Maximum mass of dogs lbs (kg)
A220-100	1208	158 (72)	299 (136)
A220-300	2291	302 (137)	328 (149)

The mass of chicks and dogs are exclusive, ie carry 302 lbs (137 kg) of chicks OR 328 lbs (149 kg) of dogs

It is allowed to carry mix baby chicks and dogs provided respecting the weight ration, e.g. 110 lbs (50 kg) of chicks plus 207 lbs (94 kg) of dogs.

7.2 Dry ice

For health and safety of ground handling personnel and all parties involved in dry ice handling, the access to any compartments which carry dry ice shall not be granted before sufficient venting has been performed by means of air supply equipment such as air conditioning packs, ground support equipment, opening the respective compartment door, etc. Alternatively, or in addition, the use of portable breathing equipment, oxygen masks and/or equivalent devices are recommended.

While occupants are on board, it is considered that all air conditioning packs or equivalent equipment are operating permanently (both air conditioning packs ON) during the transportation of dry ice. It is understood that aircraft ventilation may be reduced during aircraft de-icing. It is strongly recommended that this reduced ventilation period be minimized.

Avoid Pack-Off Take-Off (POTO). It is recommended to dispatch in dual bleed and dual pack configuration.

1000 lbs (453 kg) of dry ice can be carried in the forward cargo compartment, provided that no live animal carried in the forward cargo compartment.

700 lbs (317 kg) of dry ice can be carried in the forward cargo in addition to the live animal shown in Table 4 and Table 5.

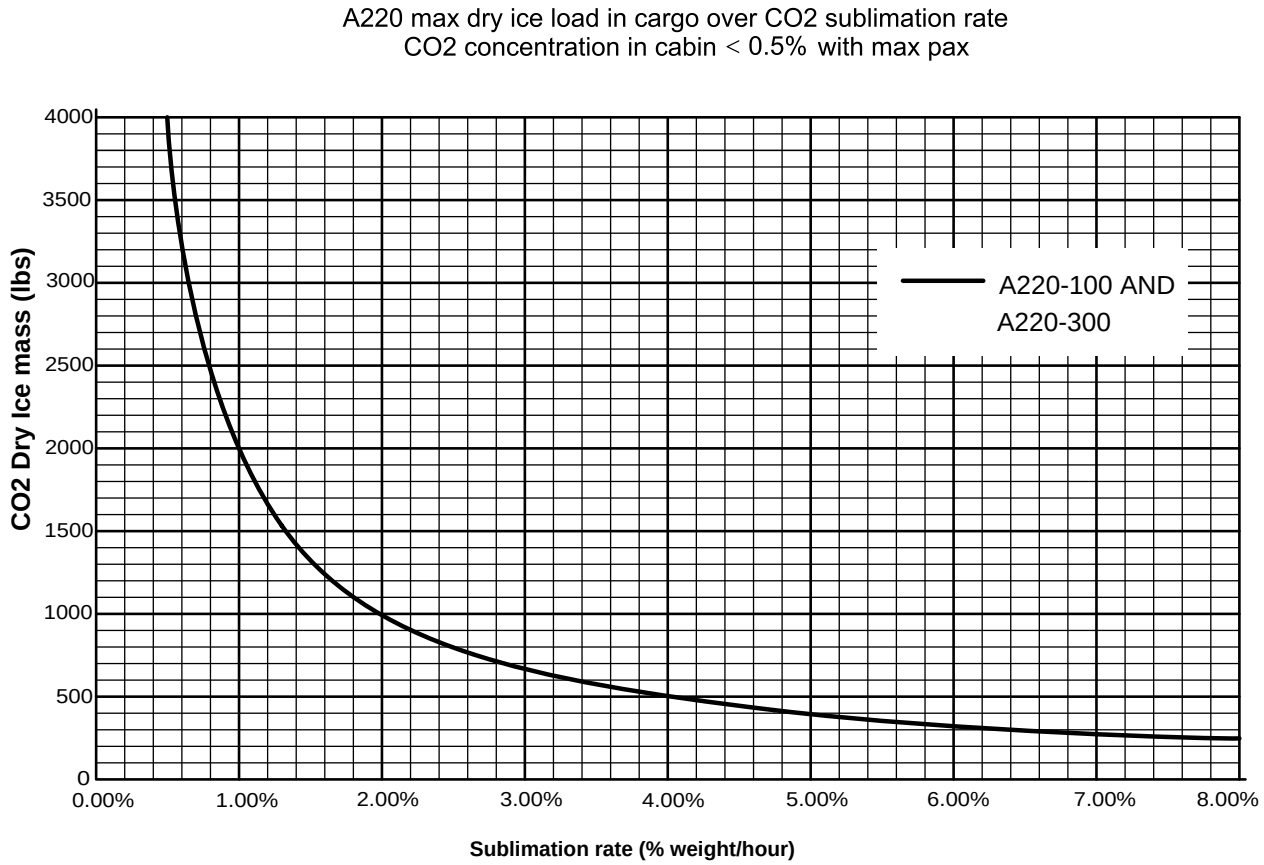
The FWD CARGO VENT switch must not be selected OFF when dry ice is carried in the forward cargo compartment. Refer to Fig.3Sheet. 4 .

7.3 Combined maximum dry ice load in cargo with maximum passengers

Refer to Fig. 1 for the maximum allowed amount of dry ice loaded in the aircraft cargo compartments assuming that the cabin is occupied with the maximum number of occupants and the cockpit with 3 flight crew.

The curve on the graph shows the maximum allowed concentration of CO2 in the cabin to be less than 0.5%. The calculation is based on single pack operation but the aircraft must be dispatched with two packs operating for this type of operation. In case of a loss of one pack in flight a diversion is not necessary.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).



Subl. Rate (% weight /hour)	Dry Ice Mass (lbs)
0.50%	4000
1.00%	2000
1.50%	1333
2.00%	1000
3.00%	667
4.00%	500
5.00%	400
6.00%	333
7.00%	286
8.00%	250

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Figure 1 Combined maximum dry ice load in cargo with maximum passengers

Note

The Fig. 1 represents the combined loading of both forward and aft cargo compartments. The individual limit of each cargo bay is 50% of this value.

If live animals are transported in the forward cargo, the forward cargo compartment limit becomes 35% of the value represented in Fig. 1 .

The FWD CARGO VENT switch must not be selected OFF when dry ice is carried in the forward cargo compartment. Refer to Fig.3Sheet. 4 .

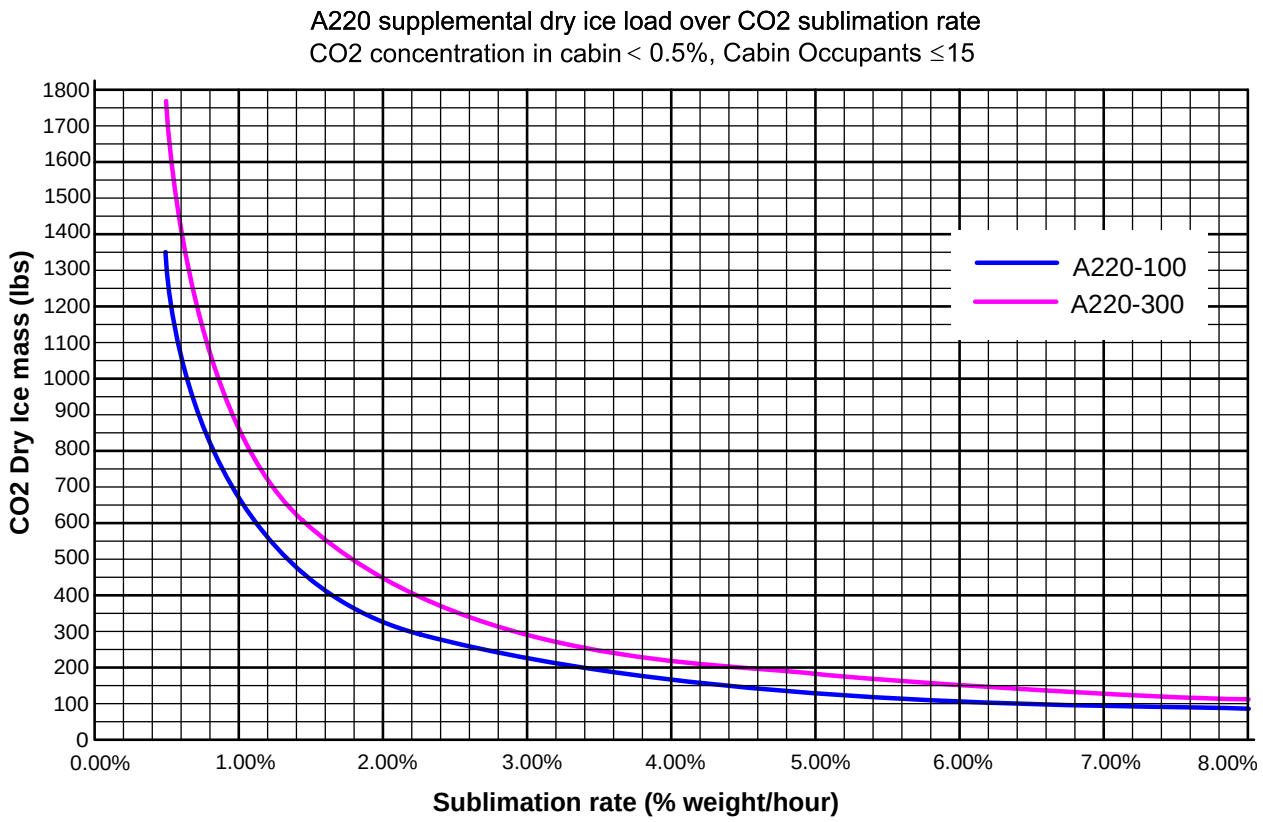
Even with ventilation ON, CO_2 concentration in cargo could raise above 0.5%. Precaution should be taken prior to cargo access.

7.4 Supplemental dry ice load with reduced occupants (less than 15 occupants)

In addition to the cargo capacity shown in Fig. 1 , dry ice transport allowance can be increased when operating with reduced number of occupants and maintaining less than 0.5% CO_2 concentration in the cabin.

Refer to Fig. 2 for the supplemental dry ice capacity that may be transported with equal or less than 15 occupants in the cabin and 3 flight crew in the cockpit. The curve on the graph shows the maximum allowed concentration of CO_2 in the cabin to be less than 0.5%. The calculation is based on single pack operation but the aircraft must be dispatched with two packs operating for this type of operation. In case of a loss of one pack in flight a diversion is not necessary.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).



Subl. Rate (% weight /hour)	Dry Ice Mass	
	A220-100 (lbs)	A220-300 (lbs)
0.50%	1336	1758
1.00%	668	879
1.50%	445	586
2.00%	334	439
3.00%	223	293
4.00%	167	220
5.00%	134	176
6.00%	111	146
7.00%	95	126
8.00%	84	110

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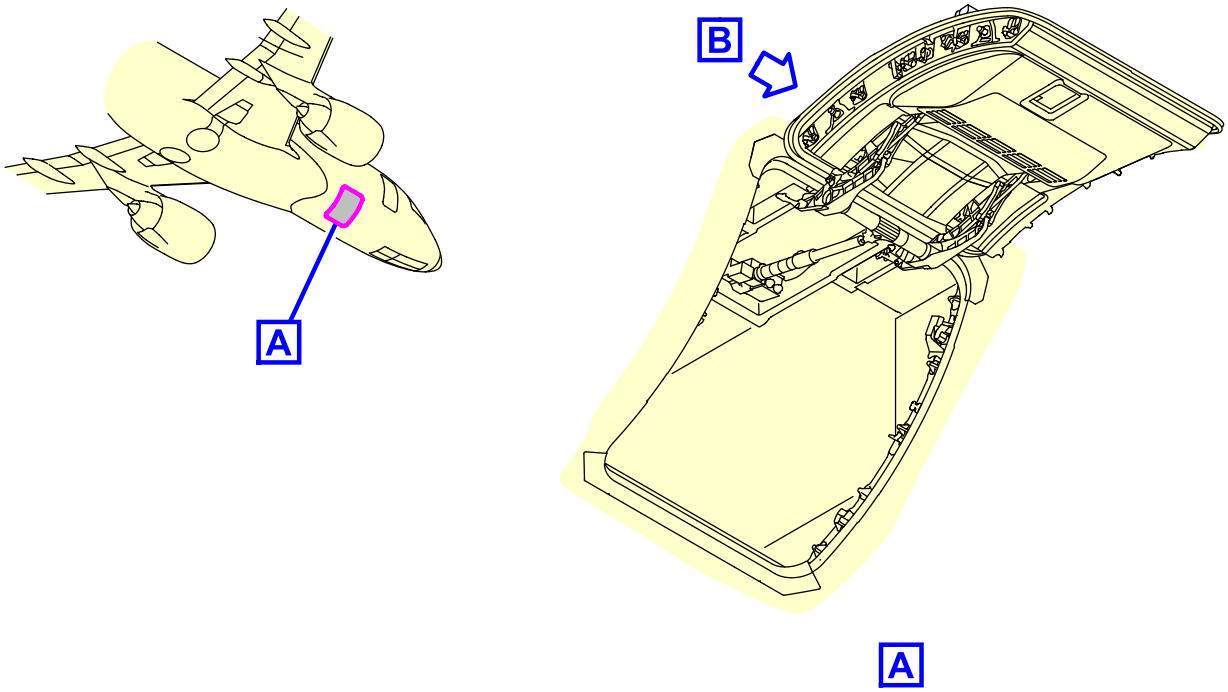
Figure 2 Supplemental dry ice load with reduced occupants (less than 15 occupants)

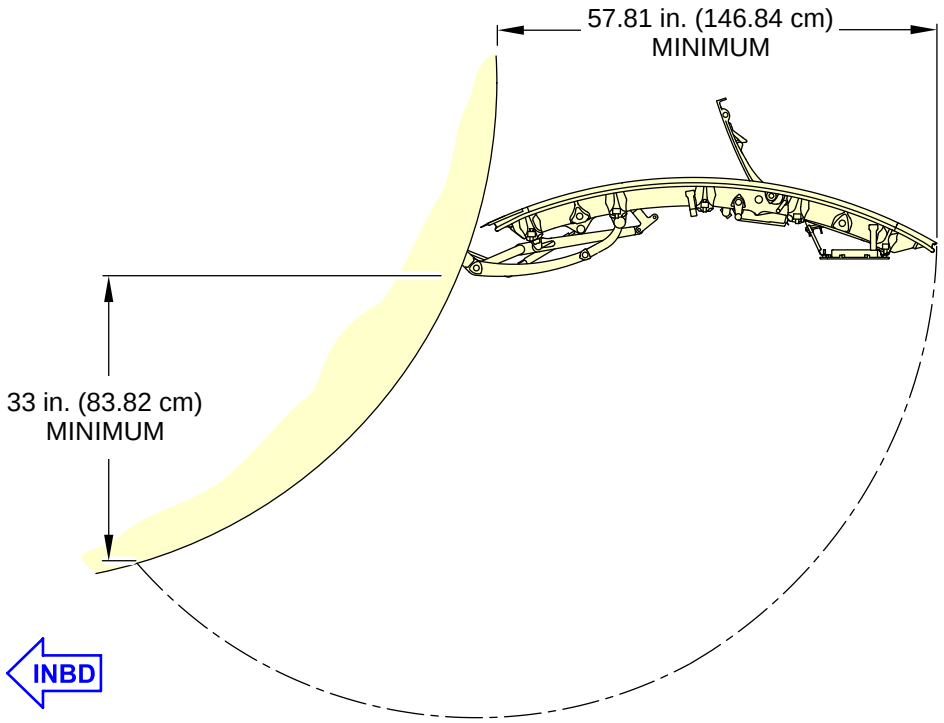
Note

The Fig. 2 represents the supplemental dry ice mass that can be transported in addition to the normal cargo loading (2) when operating with less than 15 occupants in the cabin.

The Fig. 2 represents the combined loading of the cabin, forward cargo and aft cargo compartments. No restriction applies regarding the distribution of this supplemental loading, except when transporting live animals. In this case, supplemental dry ice in the forward cargo compartment may be limited.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).



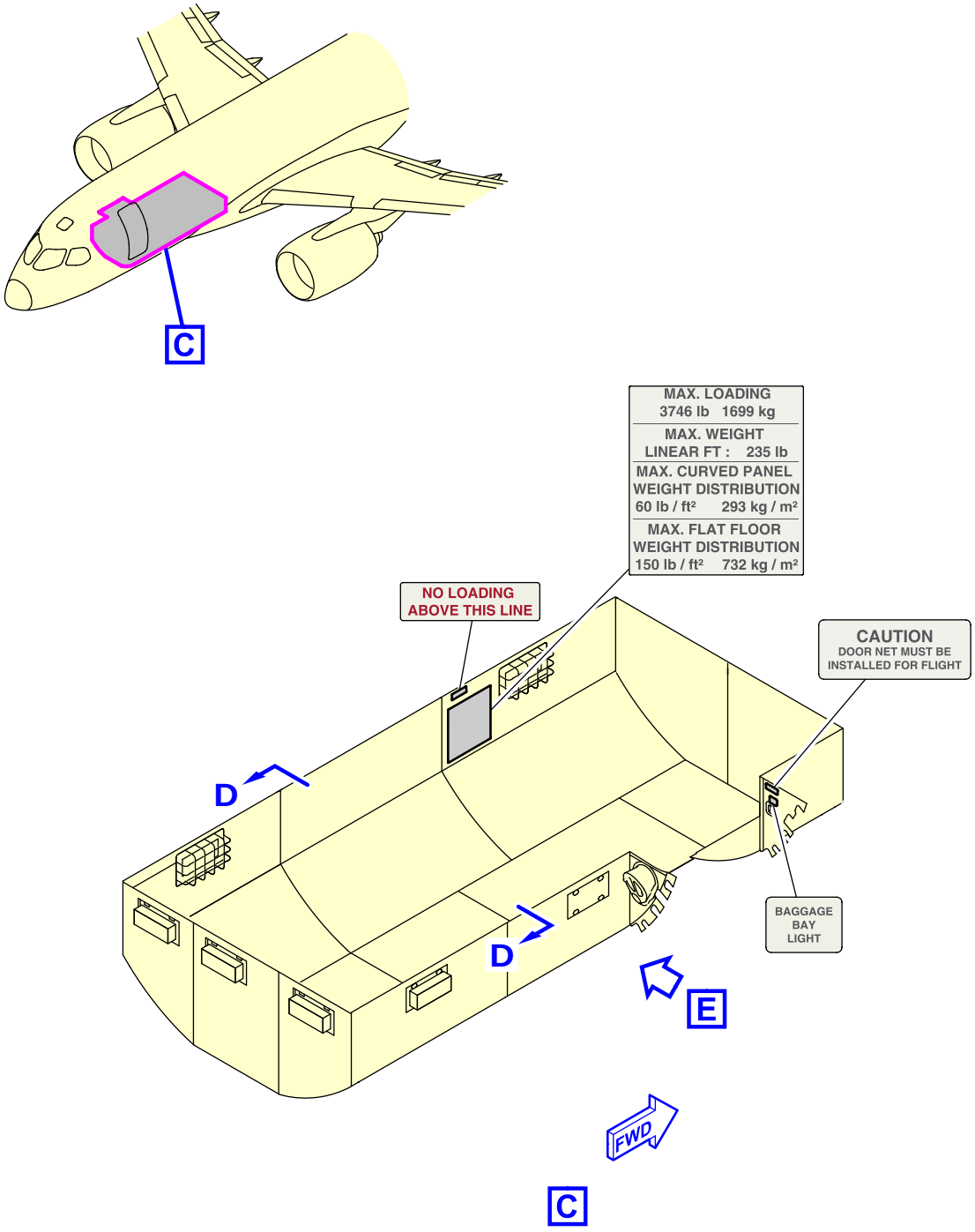


VIEW LOOKING FORWARD

B

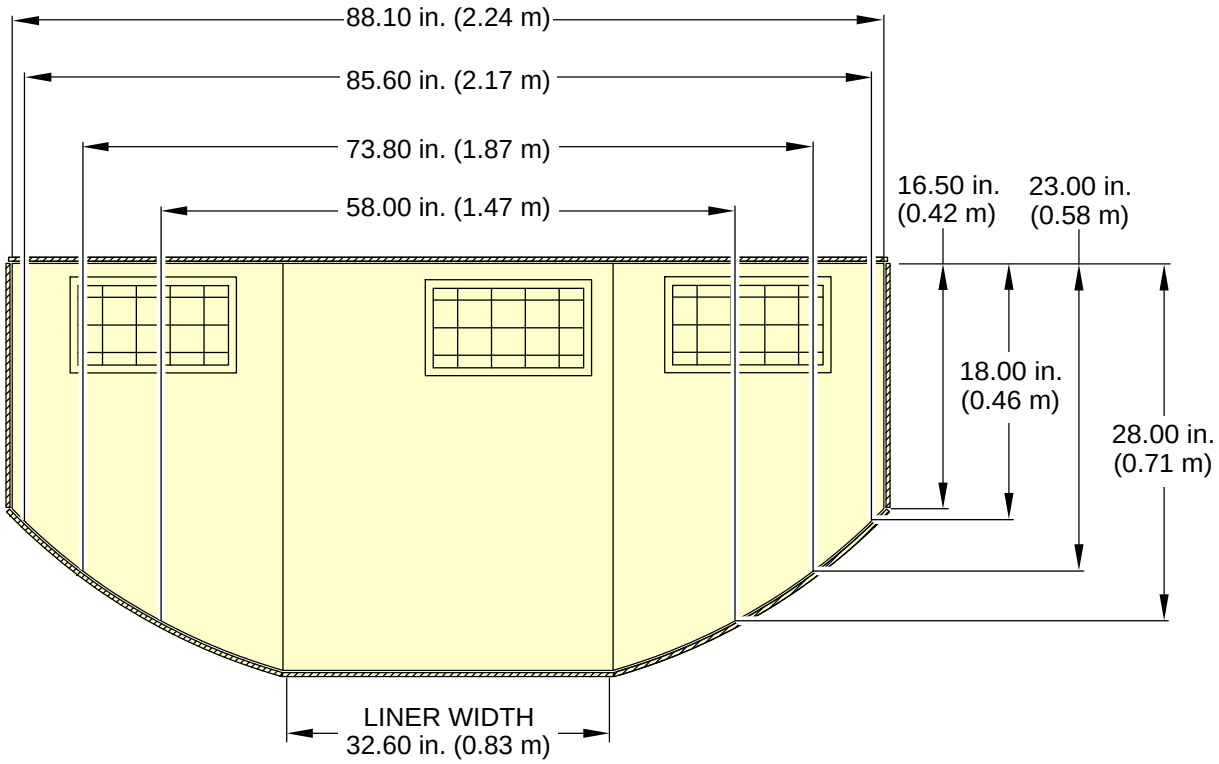
ICN-BD500-A-J142000-A-3AB48-31017-A-001-01

Figure 3 Forward cargo compartment - clearances - (Sheet 1 of 4)

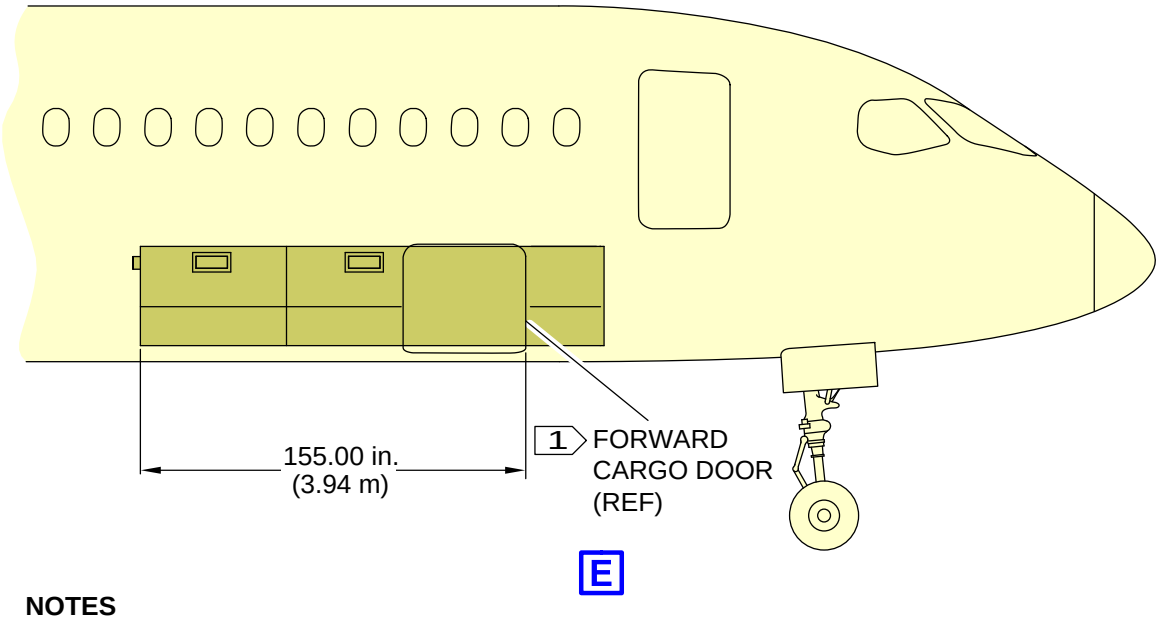


ICN-BD500-A-J142000-A-3AB48-31127-A-002-01

Figure 3 Forward cargo compartment - clearances - (Sheet 2 of 4)



D-D



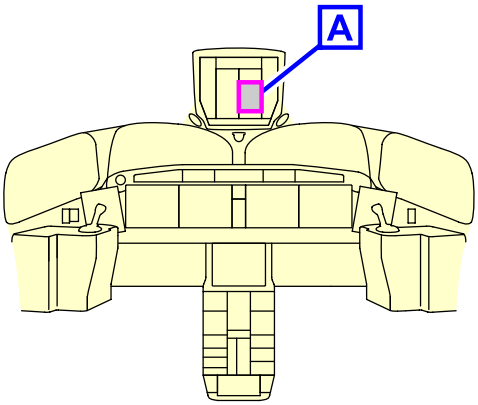
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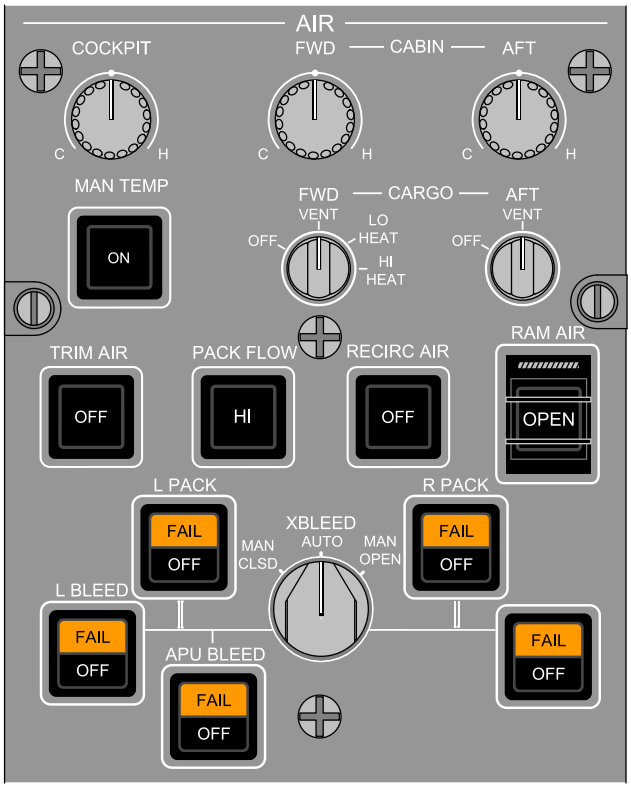
NOTES

1. Max Clear opening 46.4 in. x 32.6 in. (1.18 m x 0.83 m).
2. Max box length that can fit in cargo compartment: 155.00 in. (3.94 m).

ICN-BD500-A-J142000-A-3AB48-31128-A-001-01

Figure 3 Forward cargo compartment - clearances - (Sheet 3 of 4)





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ICN-BD500-A-J210000-C-3AB48-06682-A-003-01

Figure 3 Forward cargo compartment - clearances - (Sheet 4 of 4)

Aft cargo compartment volume, weight and maximum item dimensions - Technical data

Applicability: 50001-54999, 55001-59999

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
BD500-A-J14-20-00-03AAA-030A-A	Cargo nets and tie-downs - Technical data
BD500-A-J52-30-00-01AAA-540A-A	Cargo compartment door - Open for access procedure
BD500-A-J52-30-00-01AAA-740A-A	Cargo compartment door - Close after access procedure

Description

1 Information

This data module gives the volume, the weight and the maximum item dimensions for the aft cargo compartment.

2 Cargo door operation

Refer to BD500-A-J52-30-00-01AAA-540A-A, BD500-A-J52-30-00-01AAA-740A-A to open and close the cargo door.

4 Cargo compartment volume and weight

The aft cargo floor structure has a maximum load of 235lb/ft (350 kg/m).

Refer to Table 2 and Table 3 for the estimate wet volume and weight of the aft cargo compartment.

Applicability: 50001-54999

Table 2 Cargo compartment volumes

Description	Usable Volume		Maximum load	
	ft^3	m^3	lb	kg
Aft cargo compartment	422	11.95	4548	2063

Applicability: 55001-59999

Table 3 Cargo compartment volumes

Description	Usable Volume		Maximum load	
	ft^3	m^3	lb	kg
Aft cargo compartment	523	14.81	5746	2606

Applicability: 50001-54999

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

5 Maximum item dimensions

Refer to the Weight and balance manual for the maximum item dimensions. Refer to BD500-A-J08-60-02AAA-030A-A.

Note

There must be no item near the cargo compartment door.

Divide the floor load equally in the cargo compartment.

The cargo door net and the cargo restraint net hold the items in their area, refer to BD500-A-J14-20-00-03AAA-030A-A for both cargo nets.

Use other cargo items to hold the items which are wider than the flat floor.

There must be no item above the “NO LOADING ABOVE THIS LINE“ PLACARD. Refer to Fig.3Sheet. 2 .

The cargo compartment door gives the clearances to load a human remains pallet in the aft cargo compartment.

Applicability: 55001-59999

6 Maximum item dimensions

Refer to the Weight and balance manual for the maximum item dimensions. Refer to BD500-A-J08-60-02AAB-030A-A.

Note

There must be no item near the cargo compartment door.

Divide the floor load equally in the cargo compartment.

The cargo door net and the cargo restraint net hold the items in their area, refer to BD500-A-J14-20-00-03AAA-030A-A for both cargo nets.

Use other cargo items to hold the items which are wider than the flat floor.

There must be no item above the “NO LOADING ABOVE THIS LINE“ PLACARD. Refer to Fig.3Sheet. 2 .

The cargo compartment door gives the clearances to load a human remains pallet in the aft cargo compartment.

7 Maximum dry ice

For health and safety of ground handling personnel and all parties involved in dry ice handling, the access to any compartments which carry dry ice shall not be granted before sufficient venting has been performed by means of air supply equipment such as air conditioning packs, ground support equipment, opening the respective compartment door, etc. Alternatively, or in addition, the use of portable breathing equipment, oxygen masks and/or equivalent devices are recommended.

While occupants are on board, it is considered that all air conditioning packs or equivalent equipment are operating permanently (both air conditioning packs ON) during the transportation of dry ice. It is understood that aircraft ventilation may be reduced during aircraft de-icing. It is strongly recommended that this reduced ventilation period be minimized.

Avoid Pack-Off Take-Off (POTO). It is recommended to dispatch in dual bleed and dual pack configuration.

1000 lbs (453 kg) of dry ice can be carried in the aft cargo compartment.

AFT CARGO VENT switch must not be selected OFF when dry ice is carried in the aft cargo compartment. Refer to Fig.3Sheet. 4

8 Combined maximum dry ice load in cargo with maximum passengers

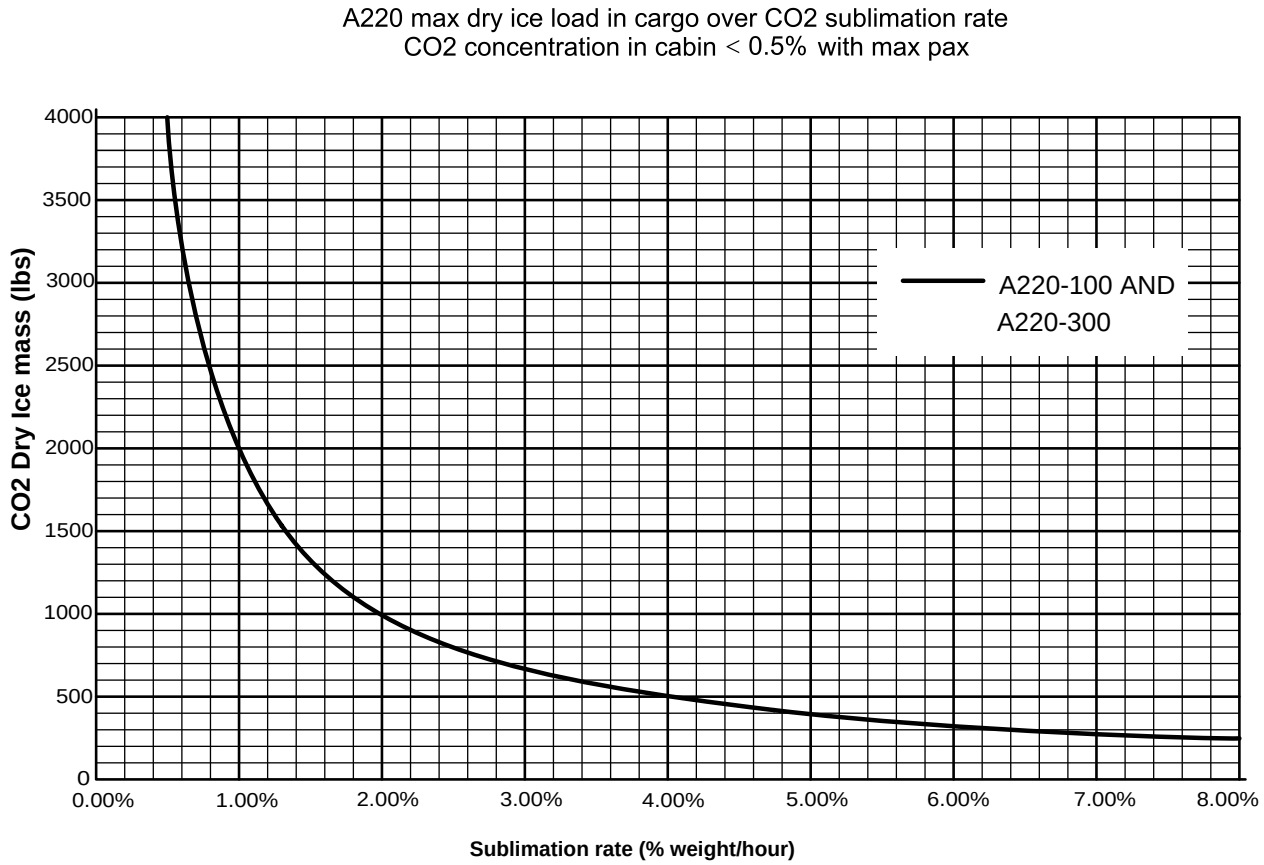
Refer to Fig. 1 for the maximum allowed amount of dry ice loaded in the aircraft cargo compartments assuming that the cabin is occupied with the maximum number of occupants and the cockpit with 3 flight crew.

The curve on the graph shows the maximum allowed concentration of CO_2 in the cabin to be less than 0.5%. The calculation is based on single pack operation but the aircraft must be dis-

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patched with two packs operating for this type of operation. In case of a loss of one pack in flight a diversion is not necessary.

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Subl. Rate (% weight /hour)	Dry Ice Mass (lbs)
0.50%	4000
1.00%	2000
1.50%	1333
2.00%	1000
3.00%	667
4.00%	500
5.00%	400
6.00%	333
7.00%	286
8.00%	250

ICN-BD500-A-J142000-A-3AB48-67632-A-001-01

Figure 1 Combined maximum dry ice load in cargo with maximum passengers

Note

The Fig. 1 represents the combined loading of both forward and aft cargo compartments. The individual limit of each cargo bay is 50% of this value.

If live animals are transported in the forward cargo, the forward cargo compartment limit becomes 35% of the value represented in Fig. 1 .

The FWD CARGO VENT switch must not be selected OFF when dry ice is carried in the forward cargo compartment. Refer to Fig.3Sheet. 4 .

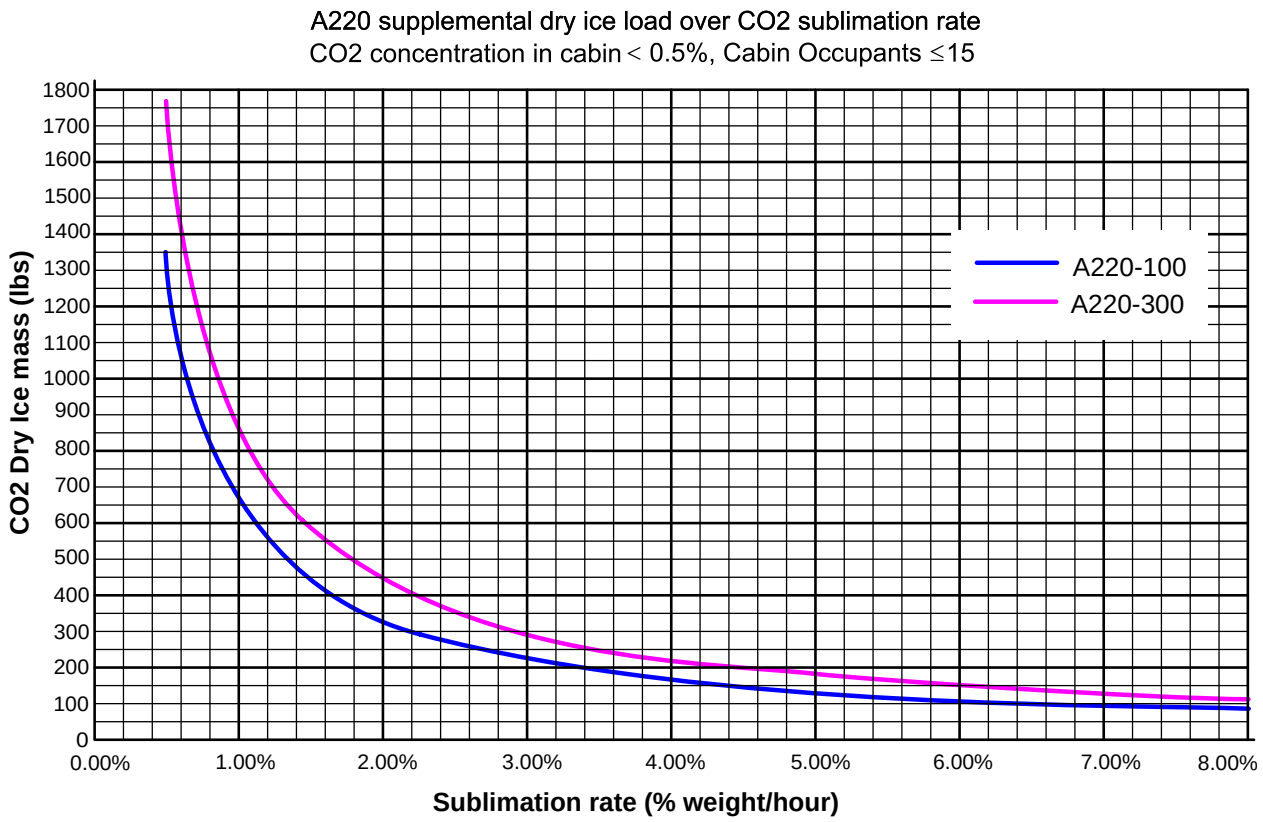
Even with ventilation ON, CO_2 concentration in cargo could raise above 0.5%. Precaution should be taken prior to cargo access.

9 Supplemental dry ice load with reduced occupants (less than 15 occupants)

In addition to the cargo capacity shown in Fig. 1 , dry ice transport allowance can be increased when operating with reduced number of occupants and maintaining less than 0.5% CO_2 concentration in the cabin.

Refer to Fig. 2 for the supplemental dry ice capacity that may be transported with equal or less than 15 occupants in the cabin and 3 flight crew in the cockpit. The curve on the graph shows the maximum allowed concentration of CO_2 in the cabin to be less than 0.5%. The calculation is based on single pack operation but the aircraft must be dispatched with two packs operating for this type of operation. In case of a loss of one pack in flight a diversion is not necessary.

This publication has been superseded by the Aircraft Characteristics Publication (ACP)



Subl. Rate (% weight /hour)	Dry Ice Mass	
	A220-100 (lbs)	A220-300 (lbs)
0.50%	1336	1758
1.00%	668	879
1.50%	445	586
2.00%	334	439
3.00%	223	293
4.00%	167	220
5.00%	134	176
6.00%	111	146
7.00%	95	126
8.00%	84	110

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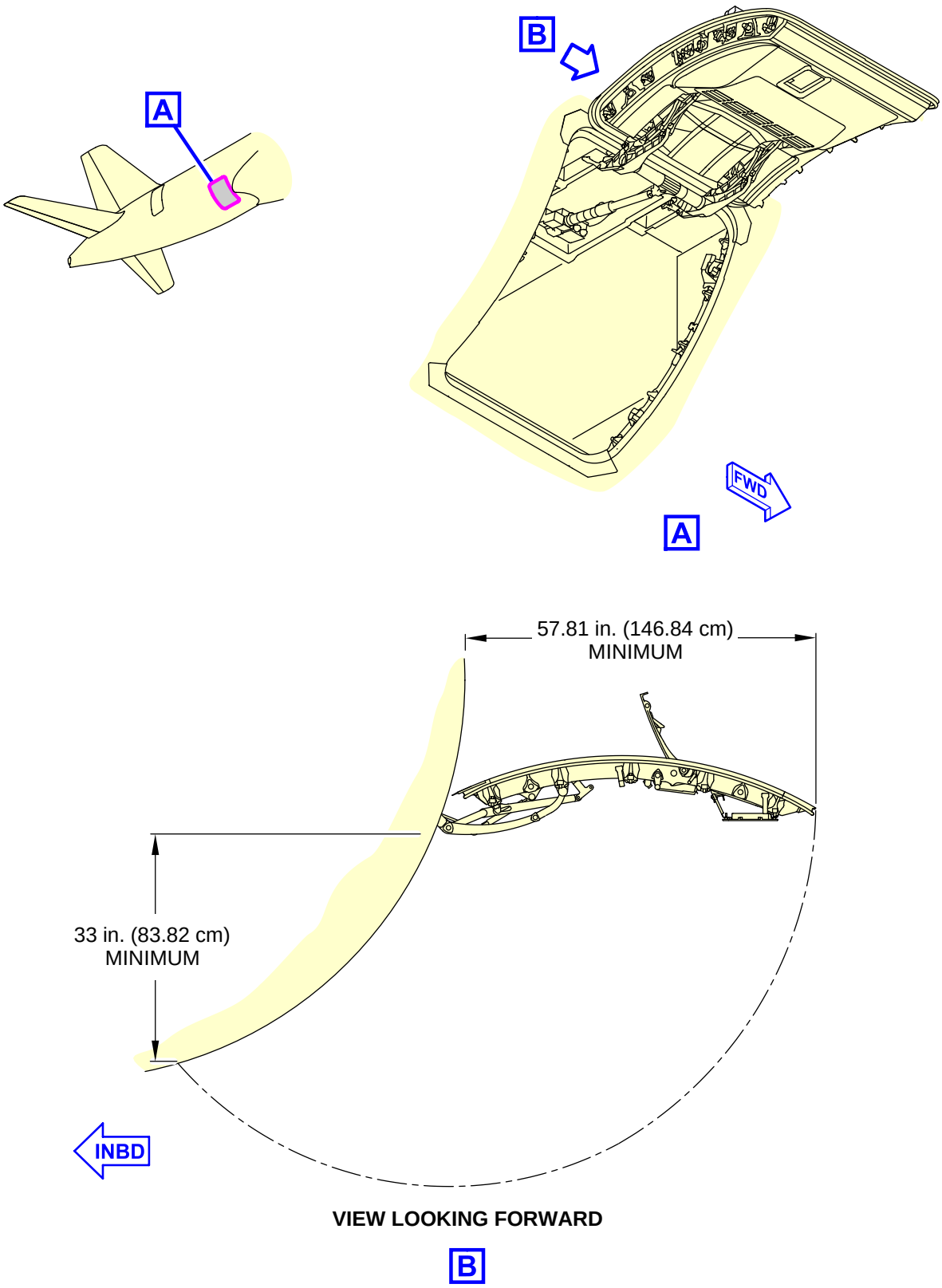
Figure 2 Supplemental dry ice load with reduced occupants (less than 15 occupants)

Note

The Fig. 2 represents the supplemental dry ice mass that can be transported in addition to the normal cargo loading (2) when operating with less than 15 occupants in the cabin.

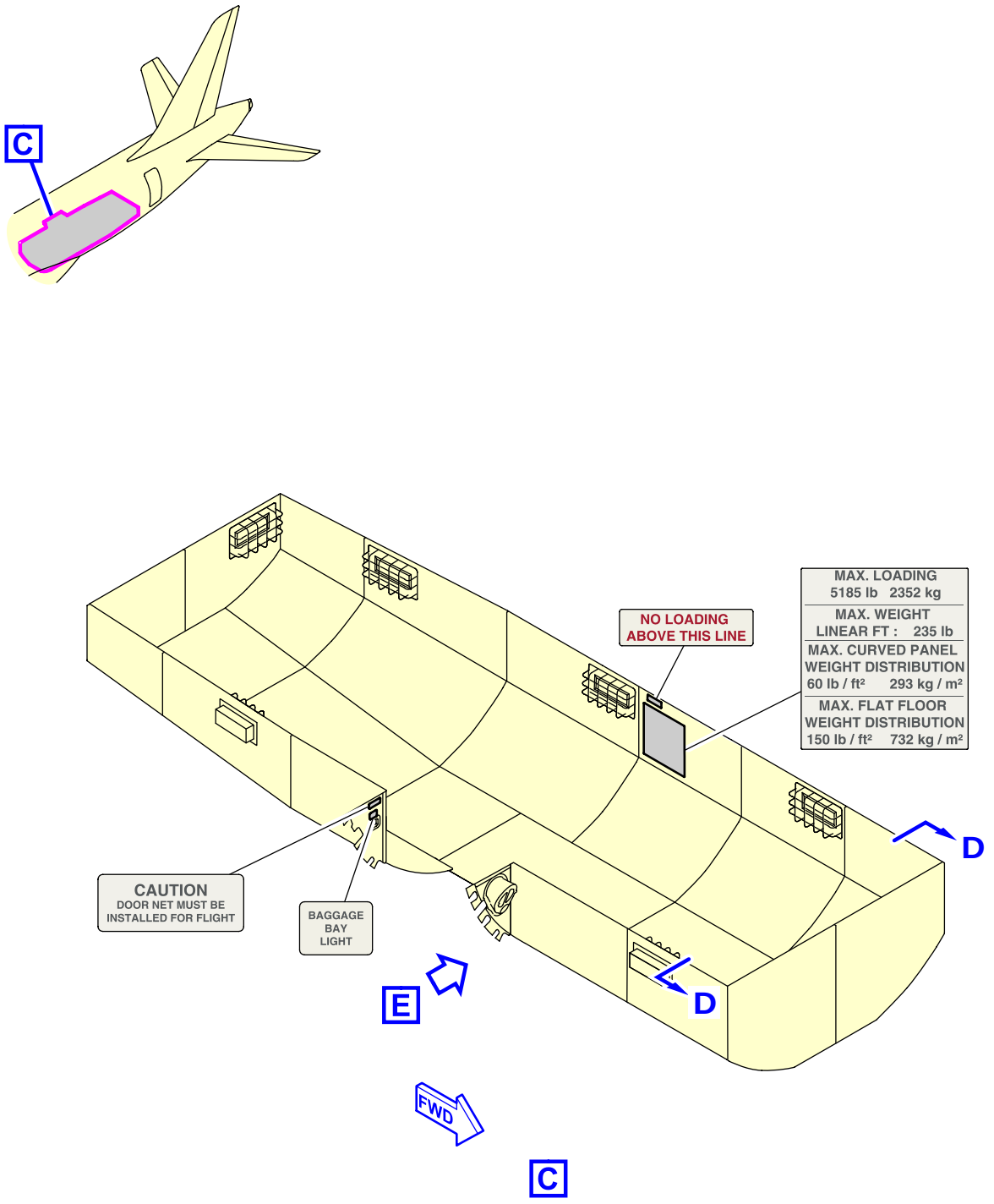
The Fig. 2 represents the combined loading of the cabin, forward cargo and aft cargo compartments. No restriction applies regarding the distribution of this supplemental loading, except when transporting live animals. In this case, supplemental dry ice in the forward cargo compartment may be limited.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).



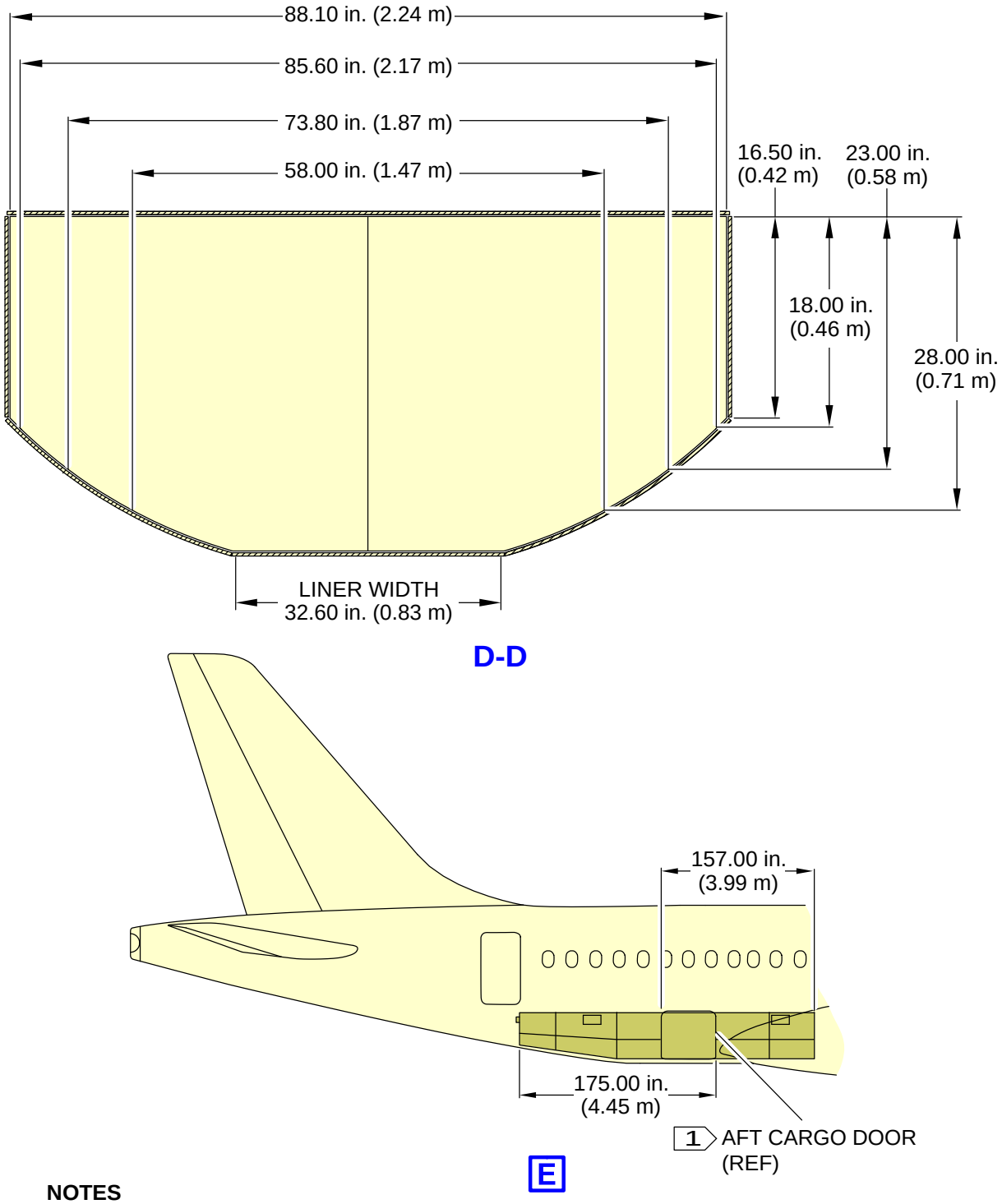
ICN-BD500-A-J142000-A-3AB48-31018-A-001-01

Figure 3 Aft cargo compartment – clearances - (Sheet 1 of 4)



ICN-BD500-A-J142000-A-3AB48-31129-A-002-01

Figure 3 Aft cargo compartment – clearances - (Sheet 2 of 4)

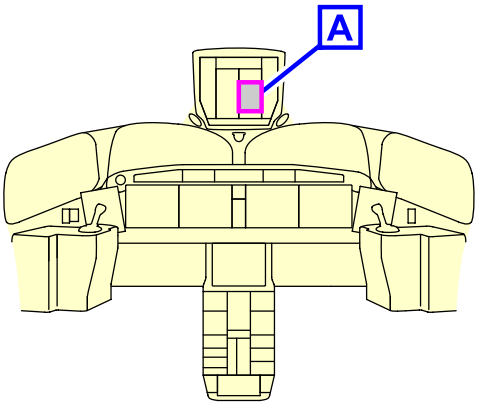


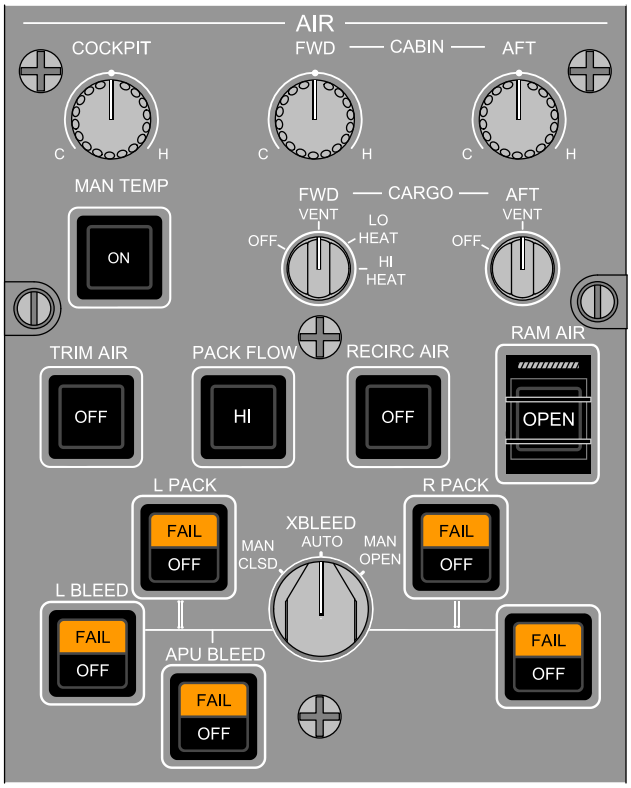
NOTES

1. Max Clear opening 46.4 in. x 32.6 in. (1.18 m x 0.83 m).
2. Max box length that can fit in cargo compartment FWD: 157.00 in. (3.99 m).
3. Max box length that can fit in cargo compartment AFT: 175.00 in. (4.45 m).

ICN-BD500-A-J142000-A-3AB48-31130-A-001-01

Figure 3 Aft cargo compartment – clearances - (Sheet 3 of 4)





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ICN-BD500-A-J210000-C-3AB48-06682-A-003-01

Figure 3 Aft cargo compartment – clearances - (Sheet 4 of 4)

Cargo nets and tie-downs - Technical data

Applicability: 50001-54999

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2 Cargo compartment nets 1
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2 Cargo divider net (shown installed in the aft section of the aft cargo compartment as reference) 6
3 Tie-down locations in the forward zones 7
4 Tie-down locations in the middle zones 8
5 Tie-down location in the aft zones 9

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
None	

Description

1 Information

This data module gives data for the cargo nets and the cargo tie-downs.

Note

Always attach heavy payloads.

2 Cargo compartment nets

The cargo compartment nets keep the baggage in their position and do not let the baggage hit the cargo compartment door. There are two types of cargo compartment nets: the compartment door net and the compartment restraint net. The forward and the aft cargo door net are attached to their related doorway surrounds. There is one of each of the compartment door net and the compartment restraint net for the forward and for the aft cargo compartment. Refer to Fig. 1 for the forward and aft cargo nets arrangement.

The cargo restraint nets and the cargo door nets are manufactured from polyester. Each net consist of adjustable and removable webbing. Quick disconnect attachment are attached to the ends of the cargo nets for fast and easy installation and removal.

Applicability: 50010-50018, 50062, 50066-50067, 50069, 50071, 50077-50078, 50081, 55010-55015, 55017-55033, 55035-55037, 55040, 55044-55049, 55056-55063, 55065-55068, 55072-55074, 55076-55079, 55081-55083, 55087-55088, 55090-55093, 55097-55100, 55102-55106, 55108-55113, 55115-55120, 55122-55125, 55128, 55130, 55132, 55134-55141, 55143-55152, 55155-55160, 55164, 55167, 55171-55174, 55178, 55181, 55184-55189, 55193-55194, 55196-55204, 55206, 55208-55211, 55213-55214, 55216-55218, 55221-55223, 55225-55227, 55229-55234, 55236, 55239, 55241-55243, 55246, 55249, 55251-55252, 55254, 55257-55258, 55260, 55262-55263, 55265, 55267-55268, 55271, 55273-55278, 55280-55285, 55287, 55289, 55291-55293, 55295-55296, 55299-55302, 55304-55305, 55310-55311, 55313-55315, 55318-55320, 55322, 55324-55327

The cargo divider net is manufactured from polyester. The divider net consists of adjustable and removable webbing. Quick disconnect attachment are attached to the ends of the cargo net for fast and easy installation and removal. Refer to Fig. 2 for the divider net installed, as reference, in the Aft (AFT) section of the aft cargo compartment.

Applicability: 50010-50018, 50062, 50066-50067, 50069, 50071, 50077-50078, 50081, 55010-55015, 55017-55033, 55035-55037, 55040, 55044-55049, 55056-55063, 55065-55068, 55072-55074, 55076-55079, 55081-55083, 55087-55088, 55090-55093, 55097-55100, 55102-55106, 55108-55113, 55115-55120, 55122-55125, 55128, 55130, 55132, 55134-55141, 55143-55152, 55155-55160, 55164, 55167, 55171-55174, 55178, 55181, 55184-55189, 55193-55194, 55196-55204, 55206, 55208-55211, 55213-55214, 55216-55218, 55221-55223, 55225-55227, 55229-55234, 55236, 55239, 55241-55243, 55246, 55249, 55251-55252, 55254, 55257-55258, 55260, 55262-55263, 55265, 55267-55268, 55271, 55273-55278, 55280-55285, 55287, 55289, 55291-55293, 55295-55296, 55299-55302, 55304-55305, 55310-55311, 55313-55315, 55318-55320, 55322, 55324-55327

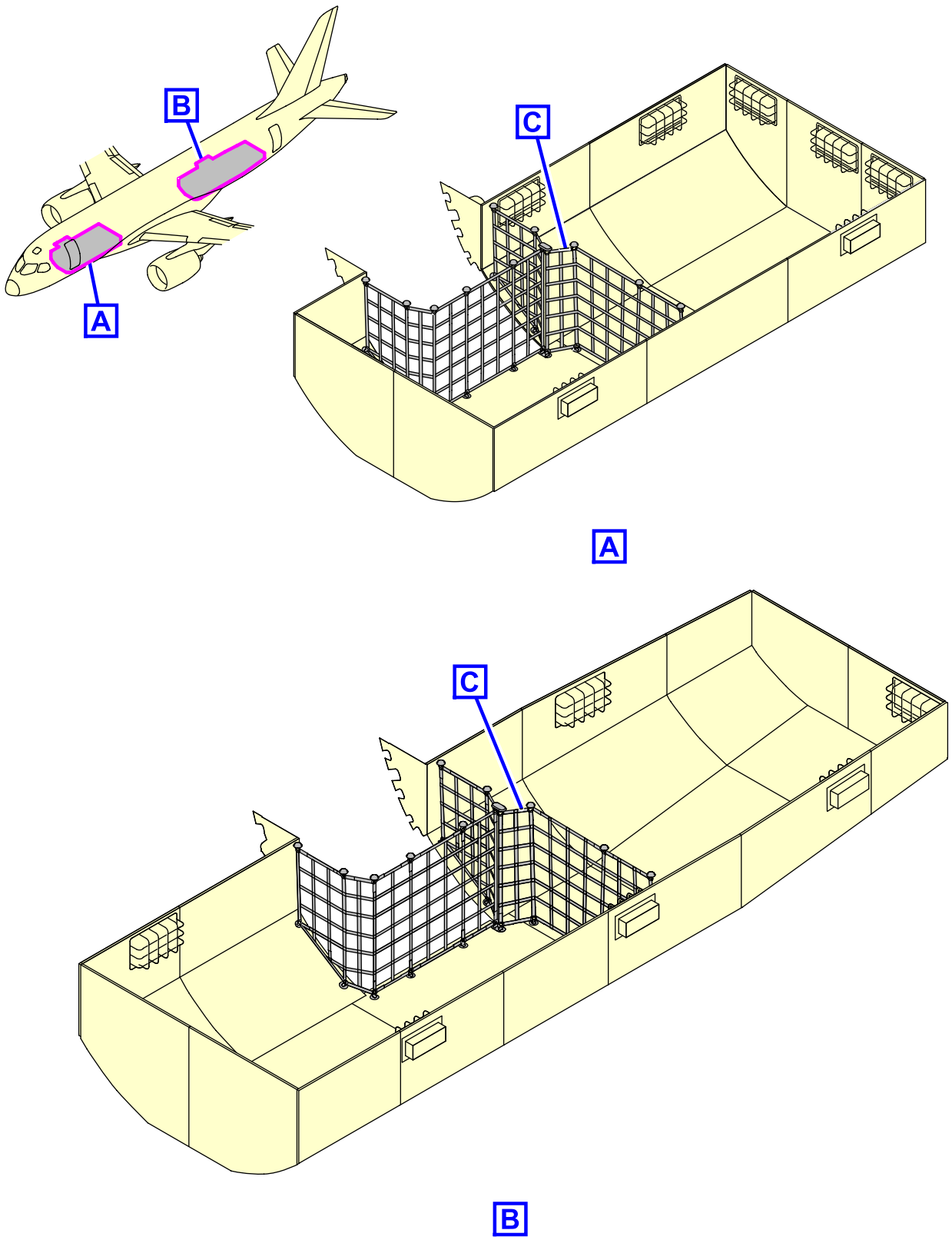
The divider net can be installed at any of the following location:

- Forward (FWD) of the FWD and of theAFT cargo compartment. Refer to Fig. 3 .
- AFT of the FWD and of the AFT cargo compartment. Refer to Fig. 4 .
- In the middle section of the FWD and of the AFT cargo compartment. Refer to Fig. 5 .

3 Cargo compartment tie-downs

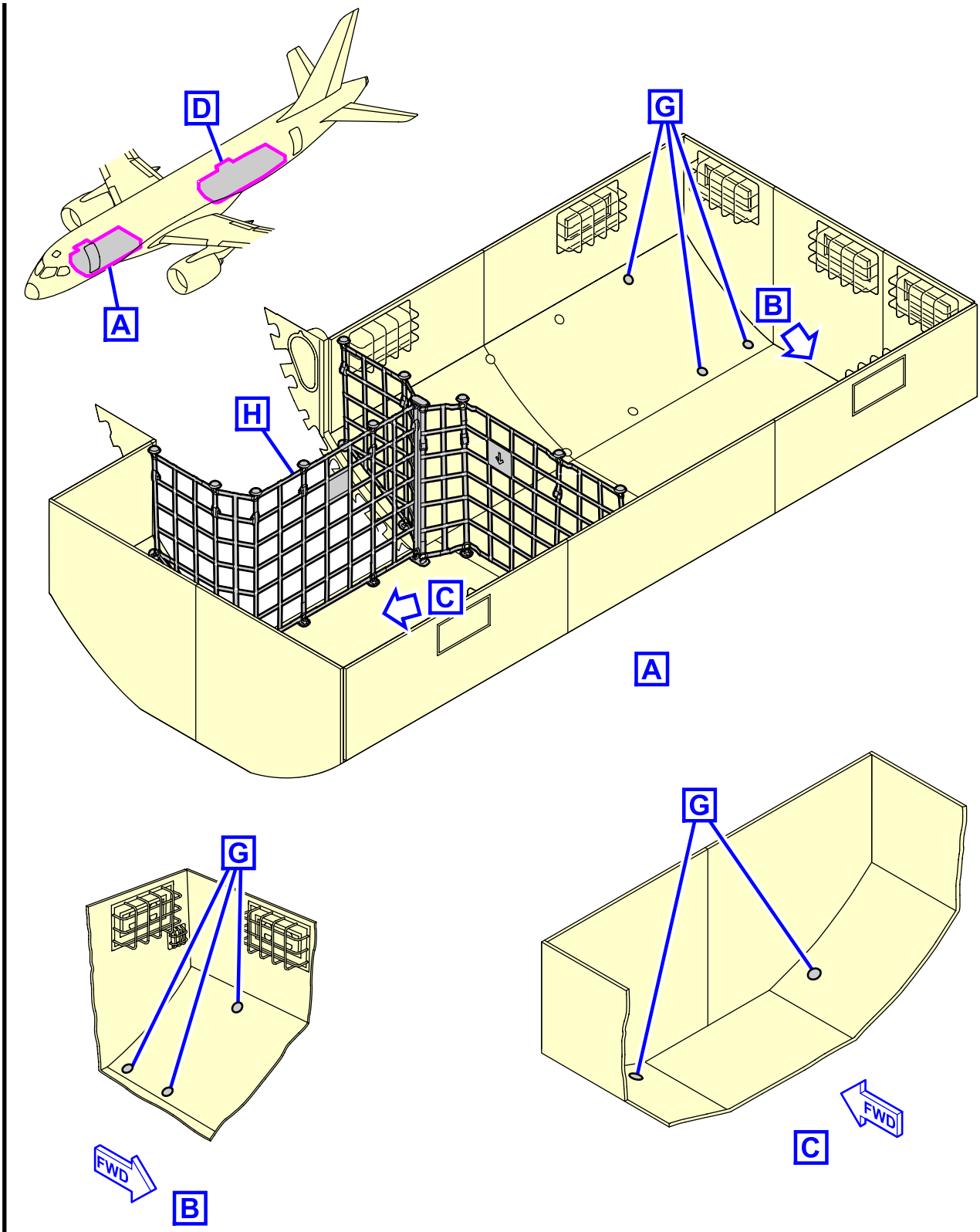
Aluminium alloy cup fittings are installed to the structure of the cargo compartments by screws and anchor nuts. The cup fittings are mainly situated at the cargo panels split joint locations. The anchor plates are installed in the cup fittings. The nets are connected to the anchor fittings with push and slide cargo net retainer fittings. To install the nets, assemble the fittings to the net support structure attached to the aircraft structure.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).



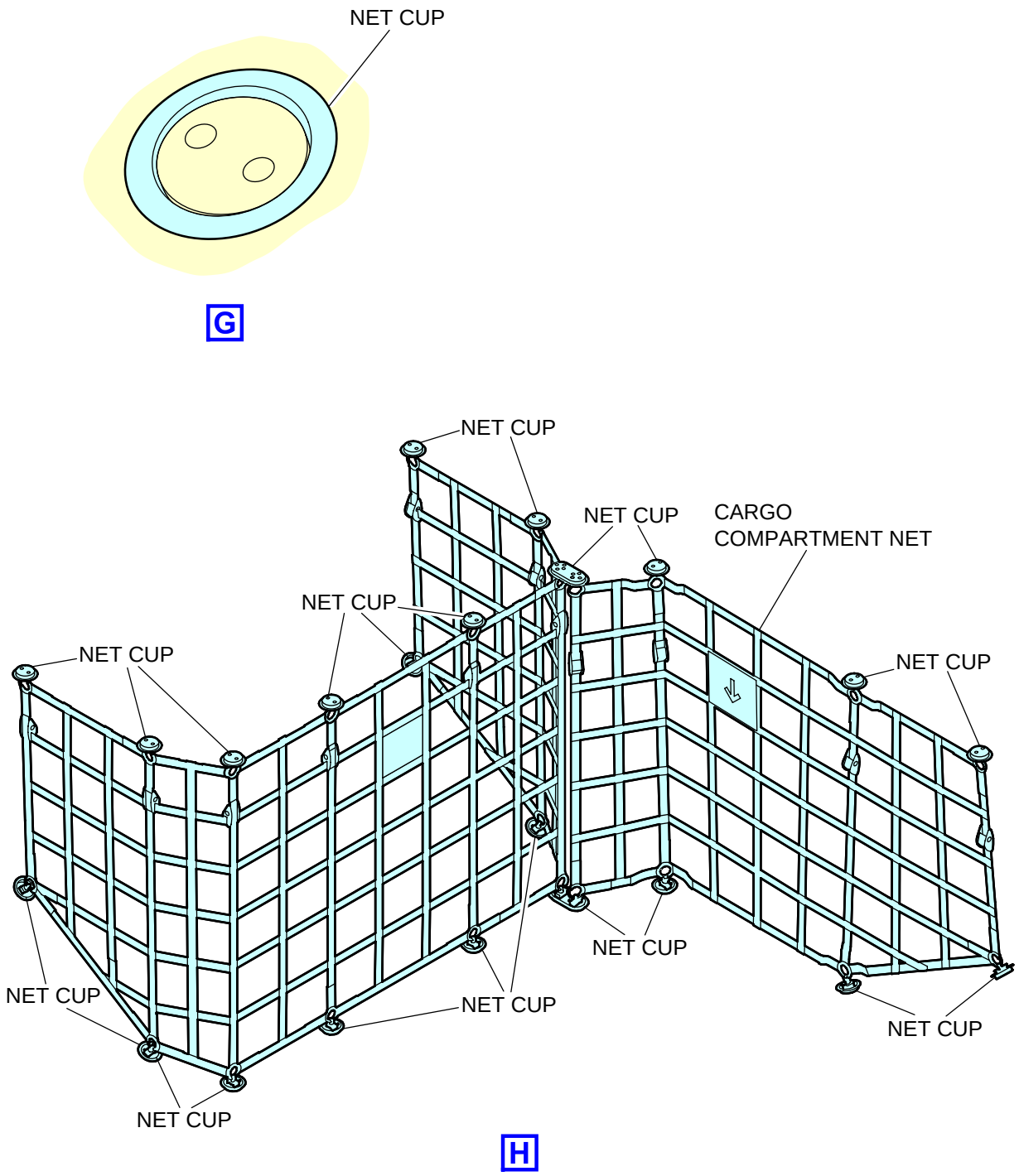
ICN-BD500-A-J502200-C-3AB48-17798-A-001-01

Figure 1 Cargo nets and cargo tie-downs - (Sheet 1 of 3)



ICN-BD500-A-J502200-C-3AB48-17798-A-002-01

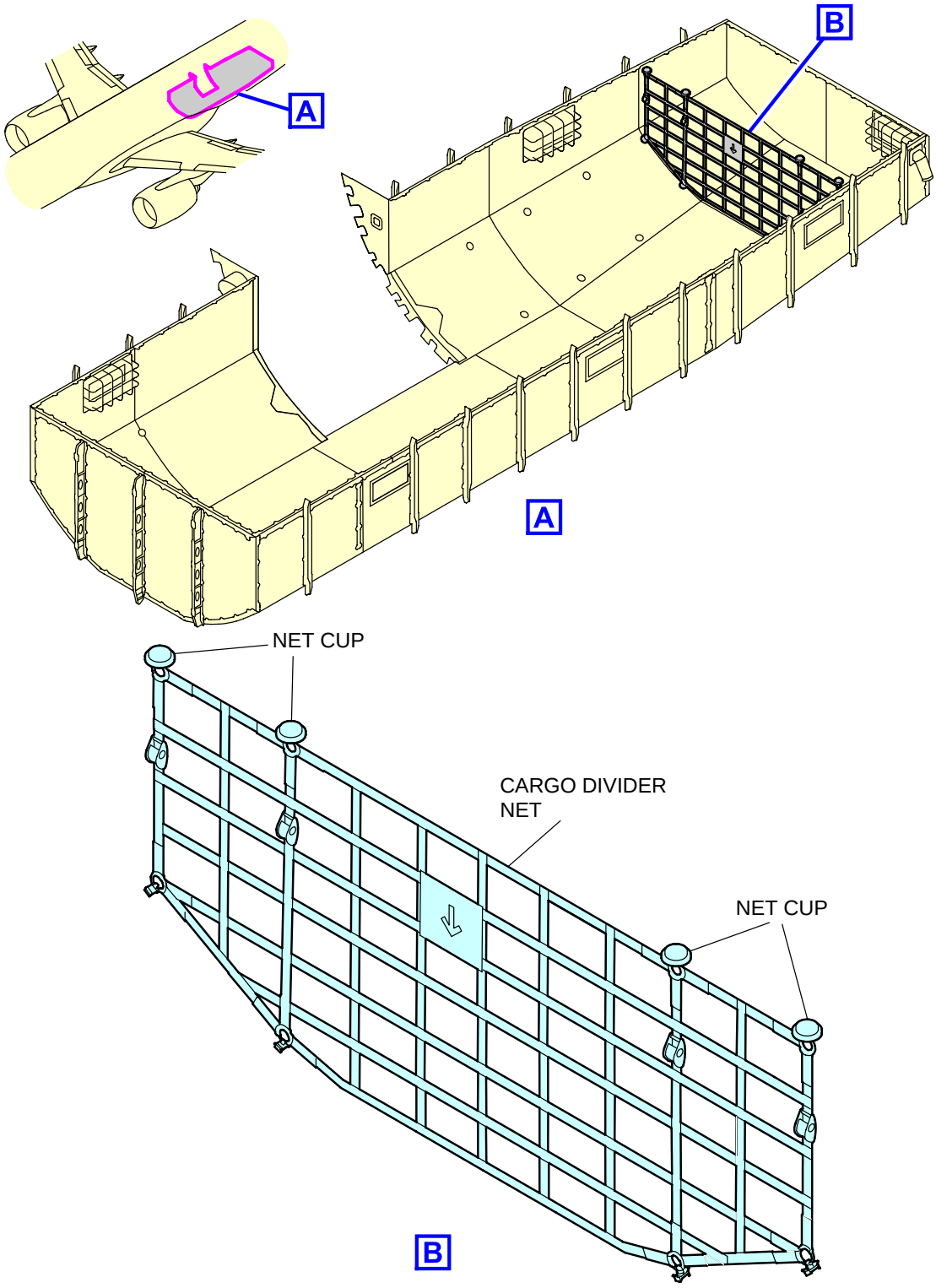
Figure 1 Cargo nets and cargo tie-downs - (Sheet 2 of 3)



ICN-BD500-A-J502200-C-3AB48-26690-A-001-01

Figure 1 Cargo nets and cargo tie-downs - (Sheet 3 of 3)

Applicability: 50010-50018, 50062, 50066-50067, 50069, 50071, 50077-50078, 50081, 55010-55015, 55017-55033, 55035-55037, 55040, 55044-55049, 55056-55063, 55065-55068, 55072-55074, 55076-55079, 55081-55083, 55087-55088, 55090-55093, 55097-55100, 55102-55106, 55108-55113, 55115-55120, 55122-55125, 55128, 55130, 55132, 55134-55141, 55143-55152, 55155-55160, 55164, 55167, 55171-55174, 55178, 55181, 55184-55189, 55193-55194, 55196-55204, 55206, 55208-55211, 55213-55214, 55216-55218, 55221-55223, 55225-55227, 55229-55234, 55236, 55239, 55241-55243, 55246, 55249, 55251-55252, 55254, 55257-55258, 55260, 55262-55263, 55265, 55267-55268, 55271, 55273-55278, 55280-55285, 55287, 55289, 55291-55293, 55295-55296, 55299-55302, 55304-55305, 55310-55311, 55313-55315, 55318-55320, 55322, 55324-55327



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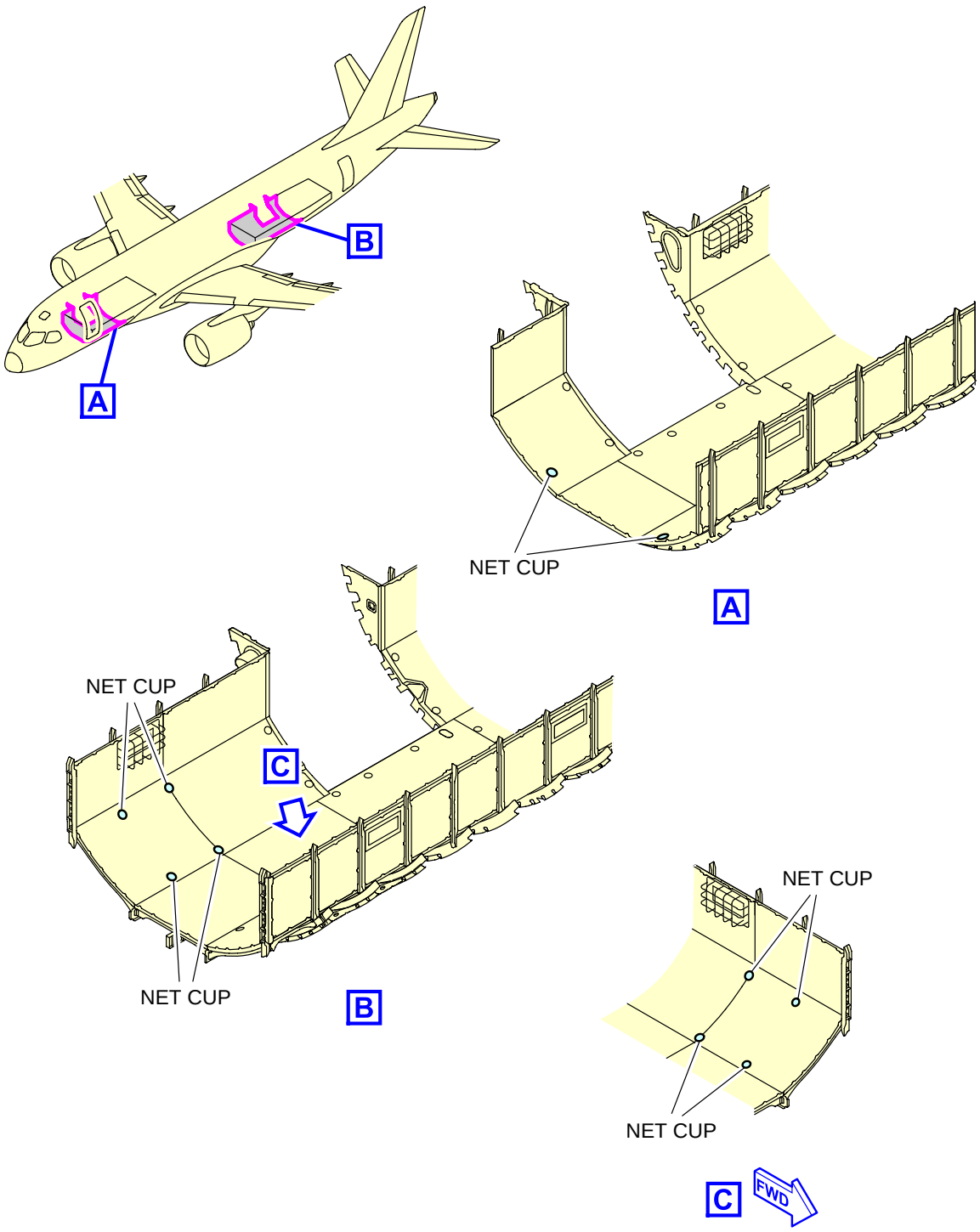
A-A

Page 6

ICN-BD500-A-J142000-A-3AB48-33068-A-001-01

Figure 2 Cargo divider net (shown installed in the aft section of the aft cargo compartment as reference)

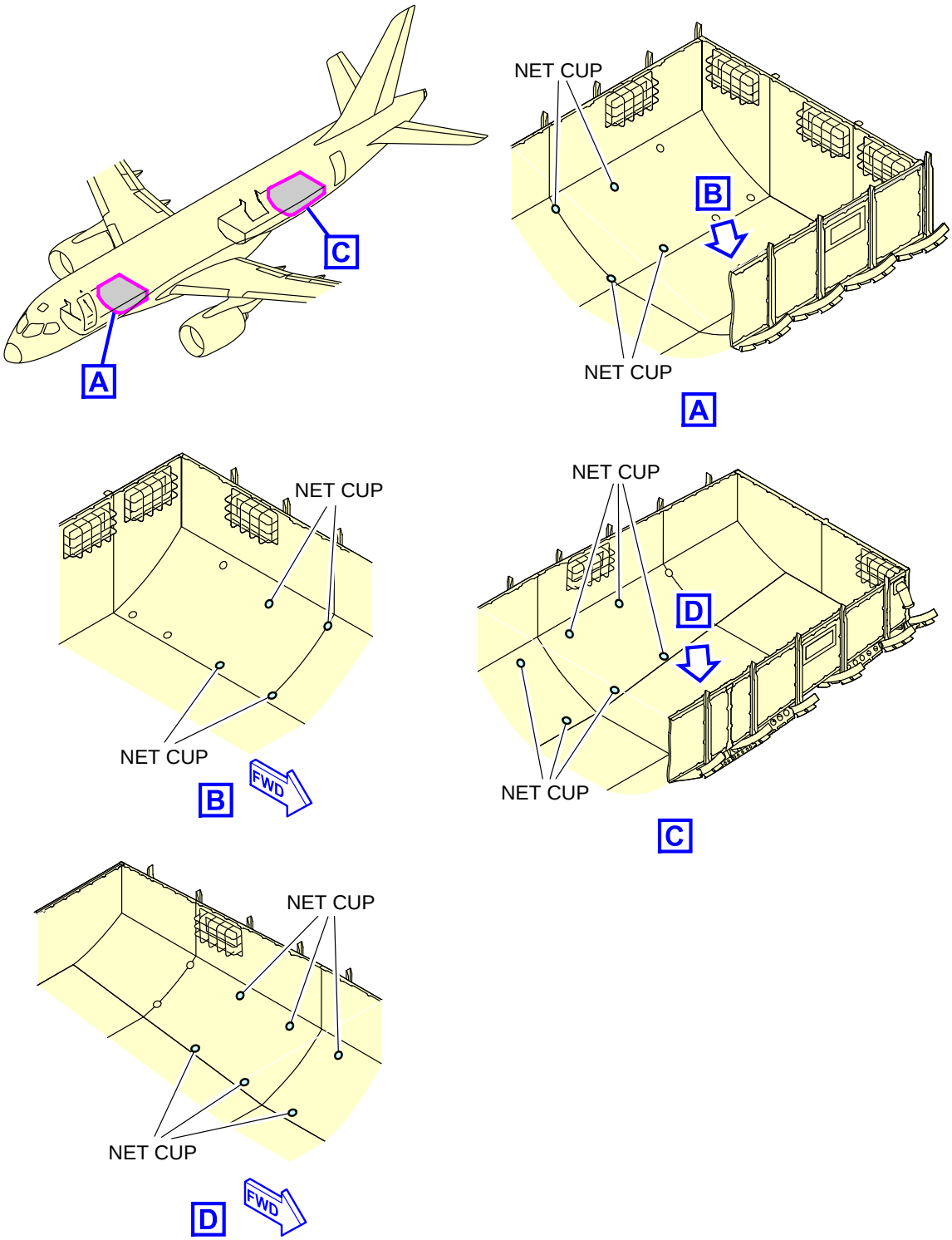
Applicability: 50010-50018, 50047-50082



ICN-BD500-A-J142000-A-3AB48-33069-A-001-01

Figure 3 Tie-down locations in the forward zones

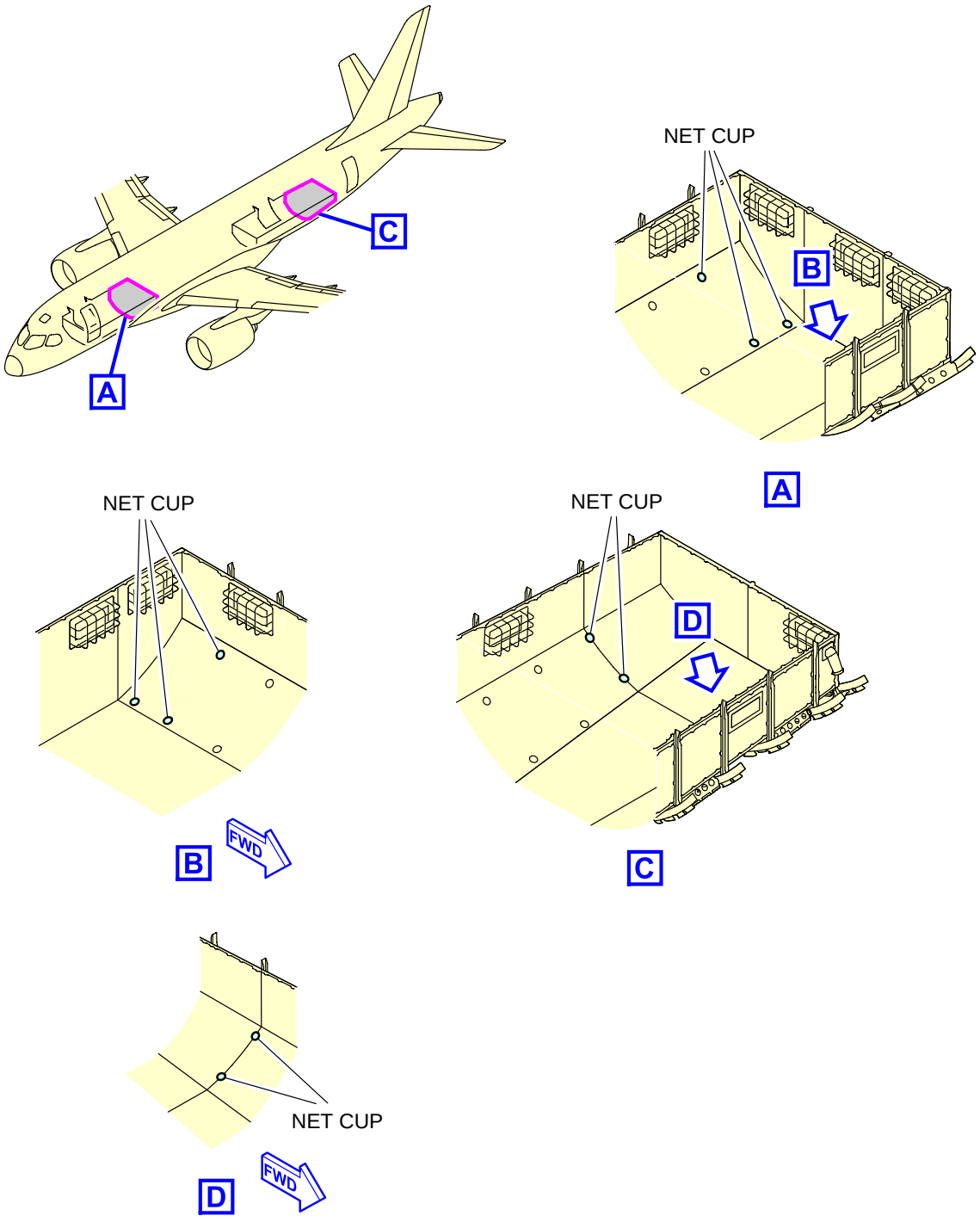
Applicability: 50010-50018, 50047-50067, 50069, 50071, 50077-50078, 50081



ICN-BD500-A-J142000-A-3AB48-33070-A-001-01

Figure 4 Tie-down locations in the middle zones

Applicability: 50010-50018, 50047-50082



ICN-BD500-A-J142000-A-3AB48-33071-A-001-01

Figure 5 Tie-down location in the aft zones

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Aircraft touch and no-touch zones - Technical data

Applicability: 50001-54999, 55001-59999

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3 Touch and no-touch zones 3

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3 A220-300 Doors ground clearances and distances from the aircraft nose 2

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2 Composite materials 5

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
None	

Description

1 Information

This data module gives, to the crew, the clear opening, the touch and the no-touch zones, the ground clearances and the distances from the aircraft nose for these aircraft doors:

Forward Passenger Door (FPD) and the Aft Passenger Door (APD).

Forward Service Door (FSD) and the Aft Service Door (ASD).

Forward Cargo Door (FCD) and the Aft Cargo Door (ACD).

For A220-100 refer to Table 2 and to Fig. 1 .

For A220-300 refer to Table 3 and to Fig. 1 .

2 Doors ground clearances and distances from the aircraft nose

Note

Vertical clearances shown are more than differences in attitude because of the difference of aircraft weight and the center of gravity.

Table 2 A220-100 Doors ground clearances and distances from the aircraft nose

Locator	Description	Minimum
A	From the nose to the end of pilot side window	126.25 in. (3,207 m)
B	From the nose to the forward fuselage frame of the forward passenger door	191 in. (4,851 m)
C	From the nose to the forward fuselage frame of the aft passenger door	1,013 in. 25,730 m
D	From the nose to the forward fuselage frame of the forward cargo compartment door	256 in. (6,502 m)
E	From the nose to the forward fuselage frame of the aft cargo compartment door	832 in. (21,132 m)
F	From the nose to the forward fuselage frame of the aft service door	1,013 in. 25,730 m
G	From the ground to the bottom of the forward passenger door	117 in. (2,971 m)
H	From the ground to the bottom of the aft passenger door	126 in. (3,200 m)
J	From the ground to the bottom of the forward service door	117 in. (2,971 m)
K	From the ground to the bottom of the forward cargo compartment door	66 in. (1,677 m)
L	From the ground to the bottom of the aft cargo compartment door	73 in. (1,854 m)
M	From the ground to the bottom of the aft service door	126 in. (3,200 m)

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Table 3 A220-300 Doors ground clearances and distances from the aircraft nose

Locator	Description	Minimum
A	From the nose to the end of pilot side window	126.25 in. (3,207 m)
B	From the nose to the forward fuselage frame of the forward passenger door	191 in. (4,851 m)

Locator	Description	Minimum
C	From the nose to the forward fuselage frame of the aft passenger door	1,160 in. (29,464 m)
D	From the nose to the forward fuselage frame of the forward cargo compartment door	256 in. (6,502 m)
E	From the nose to the forward fuselage frame of the aft cargo compartment door	979 in. (24,866 m)
F	From the nose to the forward fuselage frame of the aft service door	1,160 in. 25,730 m
G	From the ground to the bottom of the forward passenger door	117 in. (2,971 m)
H	From the ground to the bottom of the aft passenger door	126 in. (3,200 m)
J	From the ground to the bottom of the forward service door	117 in. (2,971 m)
K	From the ground to the bottom of the forward cargo compartment door	66 in. (1,677 m)
L	From the ground to the bottom of the aft cargo compartment door	73 in. (1,854 m)
M	From the ground to the bottom of the aft service door	126 in. (3,200 m)

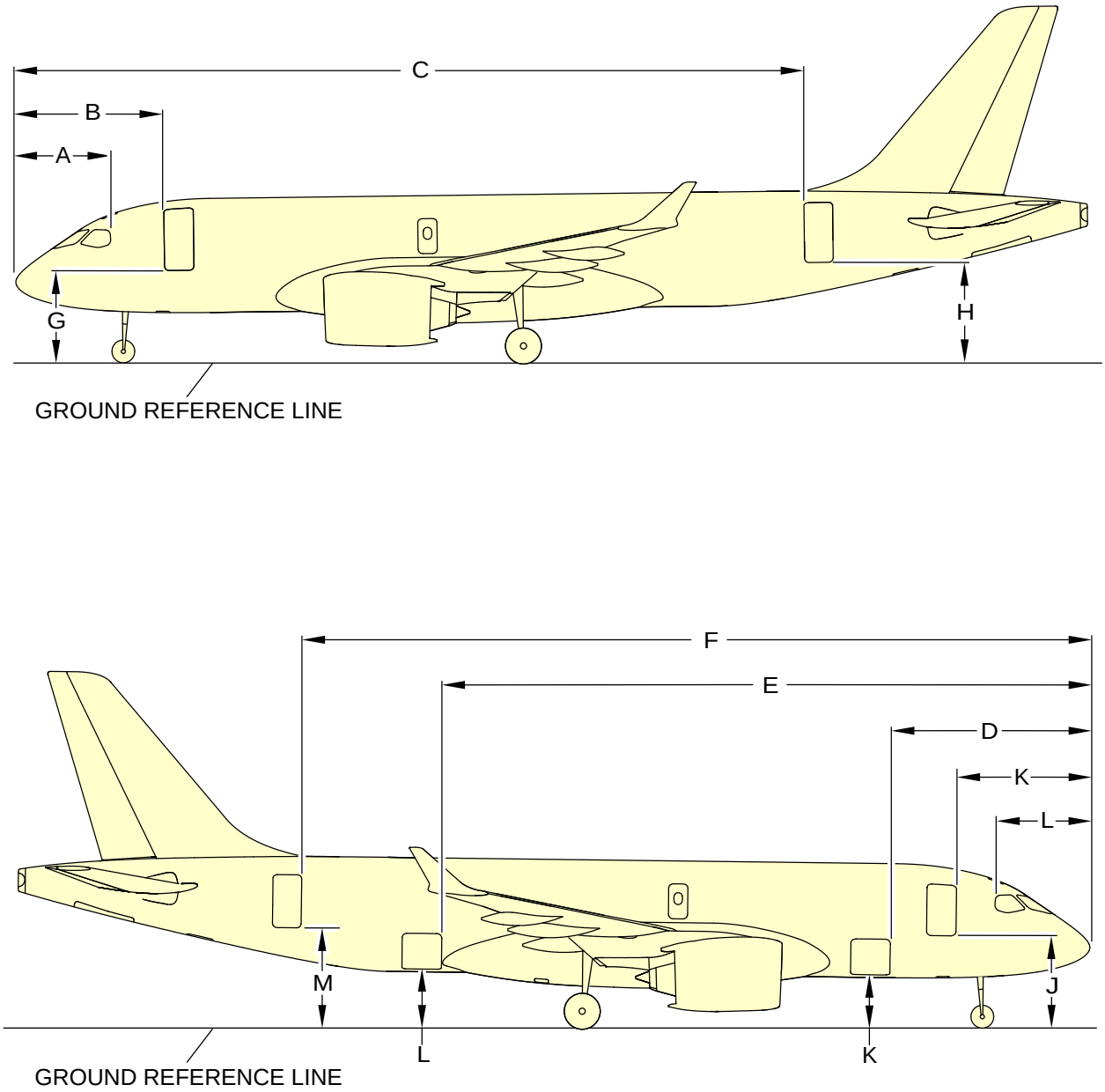
This publication has been superseded by the Aircraft Characteristics Publication (ACP).

3 Touch and no-touch zones

Composite structures are sensitive to damage caused by the hails, the bird strikes and the ground vehicles. There are small damages on the external aircraft surface which do not show all possible internal surface damages.

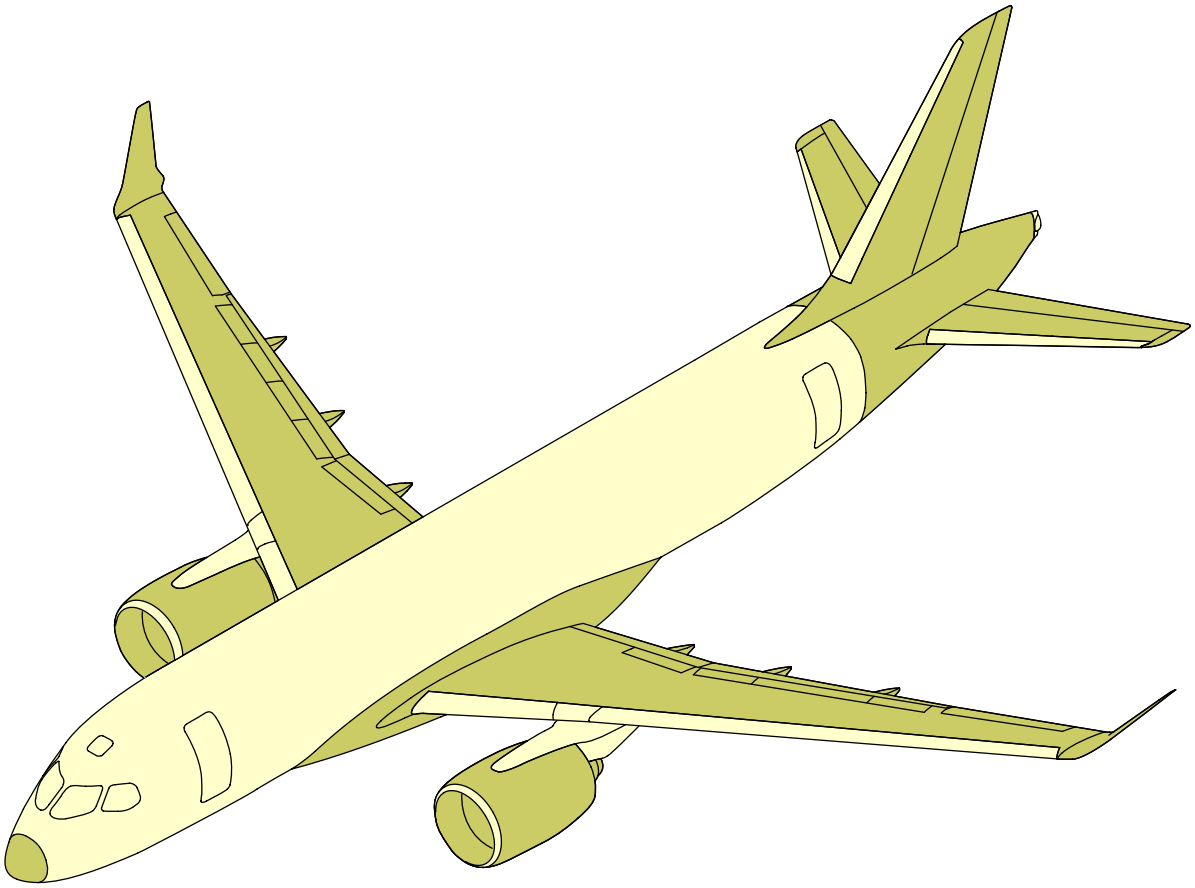
Note

The damage on the composite structures are not easily find as the damages on the metal structures. Record all the incident to the aircraft terminal. Refer to Fig. 2 for the location of composite material.



ICN-BD500-A-J153000-A-3AB48-31025-A-001-01

Figure 1 Door ground clearances and distances from the aircraft nose



LEGEND

Composite.

ICN-BD500-A-J079500-C-3AB48-24022-A-001-01

Figure 2 Composite materials

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

A220

Crew safety precautions - dangerous areas - Technical data

Applicability: 50001-54999

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2 Weather radar dangerous area 1
3 Engine intake and engine exhaust dangerous areas 2

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1 Weather radar area 3

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
BD500-A-J71-00-00-00AAA-012A-A	Power plant - General warnings and cautions and related safety data

Description

1 Information

This data module identifies, for the crew, the aircraft dangerous areas around the weather radar, the engine intake and the engine exhaust.

2 Weather radar dangerous area

WARNING

Make sure the Weather Radar is in STBY at all times when Ground mapping or WXMode is not required. Make sure non-personnel are within scan radius of antenna when the Weather Radar is ON and not in STBY or TEST. Transmission of microwave radiation can be harmful to personnel and potential fire hazards (for flammable materials) up to 3 ft. (1 m) from antenna array.

Refer to Fig. 1.

3 Engine intake and engine exhaust dangerous areas

WARNINGS

- **Stay away from the exhaust nozzle of the engine. When an engine operates, the engine exhaust is hot and of sufficiently high velocity to cause injury. Immediately after the engine is stopped, the engine exhaust parts are hot and can cause burns.**

- **Stay away from the engine exhaust area when the engine starts or operates. Do not breathe the exhaust gas or let the exhaust gas go into the eyes. The exhaust gas can injure the lungs and eyes in areas of high concentration.**

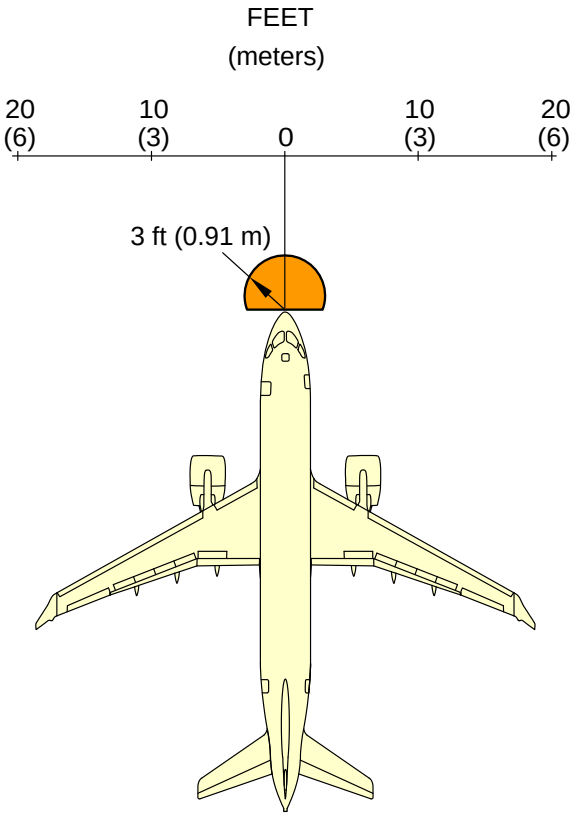
Do not operate engine with persons, vehicles, other aircraft or buildings in engine exhaust (jet wake) dangerous area. Refer to BD500-A-J71-00-00-00AAA-012A-A.

Do not go near an operating engine without ear protection. Be aware of engine noise dangerous areas.

1 Loud noise from a jet engine can cause temporary or permanent damage to a person's ability to hear. This damage can occur in a very short time, if ears are not protected, and results in hearing loss decreased sense of balance.

2 Risk of ear damage increases with nearness to engine when ears are not protected.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).



ICN-BD500-A-J153010-A-3AB48-31148-A-002-01

Figure 1 Weather radar area

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

A220

Emergency exits and evacuation - Technical data

Applicability: 50001-54999, 55001-59999

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1 Emergency exits and evacuation 4

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Table 1 References

Data Module/Technical Publication	Title
None	

Description

1 General

This section contains general data about the BD-500-1A10 (A220-100) and BD-500-1A11 (A220-300) aircraft emergency exits and evacuation procedures.

1.1 Emergency exits and evacuation

The emergency exits give the passengers and crew more exits which let them go out of the aircraft more quickly during an emergency. Seven exits are available if an emergency occurs, as follows

- Two passenger doors (front and aft, left side of the aircraft);
- Two service doors (front and aft, right side of the aircraft);
- Two Overwing Emergency Exit Door (OWEED) (one in each side of the aircraft);
- One Flight Crew Emergency Escape (FCEE) door (flight compartment).

Refer to Fig. 1 .

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

1.1.1 Passenger doors

Two semi-plug type doors on the left side of the aircraft give access to the passengers and the crew. Door 1L is the primary entrance while door 2L gives a secondary entrance available for passenger and ground servicing.

Each door is classified as a type C floor level exit. Because of the sill height, each door has an emergency evacuation slide system. The door moves out from the closed position, supported by a hinged arm to stay in the open position.

The door can be operated externally or internally and has an inspection window to let the crew examine the external condition. The external handle is connected to a vent flap system to equalize the pressure between the aircraft and the ambient air.

Door opening procedure (from the external side):

Note

Before you open the doors, make sure that you fully release the pressure from the aircraft. The CABIN PRESSURE warning light panel is installed in the door window.

1 Push the flap (Fig. 1) to hold the external handle (Fig. 1).

2 Pull the external handle (Fig. 1) up to lift the door.

3 Pull the door outwards in forward direction.

4 Make sure that the hold open mechanism locks the door in the open position.

1.1.2 Service doors

Two semi-plug type doors on the right side of the aircraft give access to the forward and aft galley servicing area.

Each door is classified as a type C floor level exit. Because of the sill height, each door has an emergency evacuation slide system. The door moves out from the closed position, supported by a hinged arm to stay in the open position.

The door can be operated externally or internally and has an inspection window to let the crew examine the external condition. The external handle is connected to a vent flap system to equalize the pressure between the aircraft and the ambient air.

Door opening procedure (from the external side):

Note

Before you open the doors, make sure that you fully release the pressure from the aircraft. The CABIN PRESSURE warning light panel is installed in the door window.

1 Push the flap (Fig. 1) to hold the external handle (Fig. 1).

2 Pull the external handle (Fig. 1) up to open the door.

3 Pull the door outwards in forward direction.

4 Make sure that the hold open mechanism locks the door in the open position.

1.1.3 Overwing Emergency Exit Door (OWEED)

The OWEED are type III semi-plug type doors.

This publication has been superseded by the Aircraft Characteristics Publication (ACP)

The exits are provided with an operating handle with removable cover and are fitted with a standard sized passenger compartment window. Each door is fully lined and insulated to meet thermal and noise performance requirements.

The door opens out and up from the closed position, supported by a hinged arm to stay in the open position. An actuator automatically helps the door opening sequence.

For emergency access to the passenger compartment, the doors can be opened from the external side. Escape ropes are available to help the evacuation.

Because of the height from the ground, an emergency evacuation slide system is given.

Note

The evacuation slide system is automatically operated when the OWEED is opened from the external side. Remove all equipment and personnel from the area where the emergency evacuation slide will be open.

OWEED opening procedure (from the external side):

1 Push the flap (Fig. 1) to hold the external handle (Fig. 1).

2 Pull the external handle (Fig. 1) up to open the door.

3 Pull the door outwards.

4 Make sure that the hold open mechanism locks the door in the open position.

1.1.4 Flight Crew Emergency Escape (FCEE) door

The FCEE door is on the fuselage centerline at the top of the fuselage, forward of the flight compartment bulkhead. It is a plug type door that has two hook type hinges on the aft edge.

The FCEE door opens in and can be removed from its hinges when it is fully open. The door can be operated externally or internally through its inner and outer handles.. A escape rope is available in the area to help the evacuation.

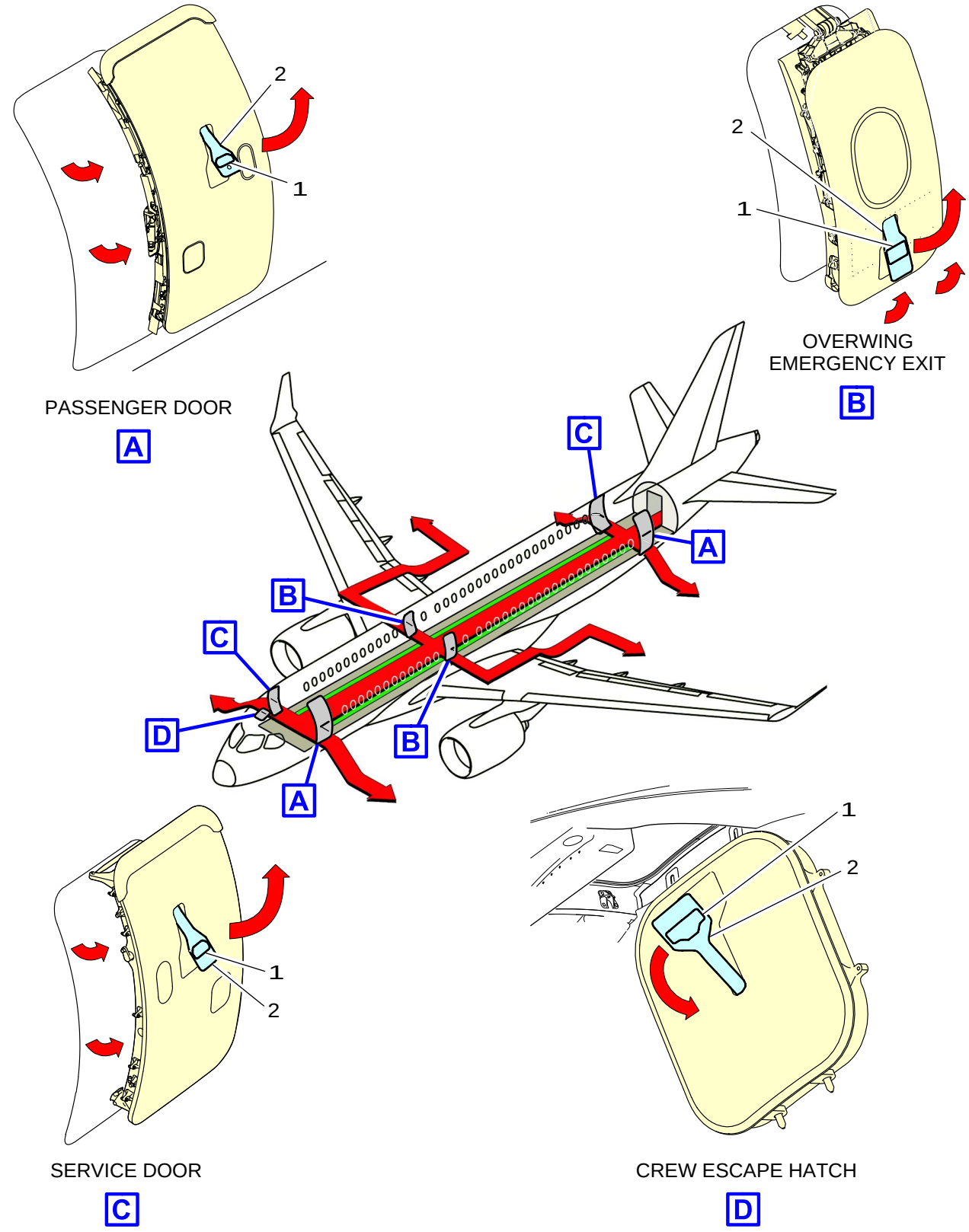
FCEE door opening procedure (from the external side):

1 Push the flap (Fig. 1) to hold the external handle (Fig. 1).

2 Pull the external handle (Fig. 1) up to open the door.

3 Push the door in.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).



ICN-BD500-A-J154100-A-3AB48-24914-A-001-01

Figure 1 Emergency exits and evacuation

Fire-fighting - Fire-fighting and rescue

Applicability: 50001-54999, 55001-59999

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
BD500-A-J25-61-00-00AAA-010A-A	Emergency equipment location - General data
BD500-A-J15-41-00-01AAA-030A-A	Emergency exits and evacuation - Technical data

Common information

This data module gives the procedure to follow if the aircraft is on fire.

Preliminary requirements

Required conditions

Table 2 Required conditions

Action/Condition	Data Module/Technical publication
None	

Support equipment

Table 3 Support equipment

Name	Identification/Reference	Quantity	Remark
None			

Consumables, materials, and expendables

Table 4 Consumables, materials, and expendables

Name	Identification/Reference	Quantity	Remark
None			

Spares

Table 5 Spares

Name	Identification/Reference	Quantity	Remark
None			

Safety conditions

None

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Procedure

1 If the aircraft is on fire do as follow:

WARNING

Only trained personnel must fight the fire. Fire-fighting is dangerous and can cause injury or death.

1.1 Refer to Fig. 1 for:

- Flammable material location.
- Battery location
- Control switch location

1.2 Evacuate the aircraft, if applicable. For emergency exits and evacuation refer to BD500-A-J15-41-00-01AAA-030A-A.

1.3 If possible, move the aircraft to a safe area.

1.4 Get access to the emergency equipment available in the aircraft, if applicable. For emergency equipment location refer to BD500-A-J25-61-00-00AAA-010A-A.

1.5 In the flight deck control, use the control panels to extinguish fire in:

- Left engine
- Right engine
- Auxiliary Power Unit (APU)
- Cargo compartment

Refer to Fig. 1 .

WARNING

The weakest area on a tire is the sides. Go near the tire by the front or rear to prevent injuries to personnel.

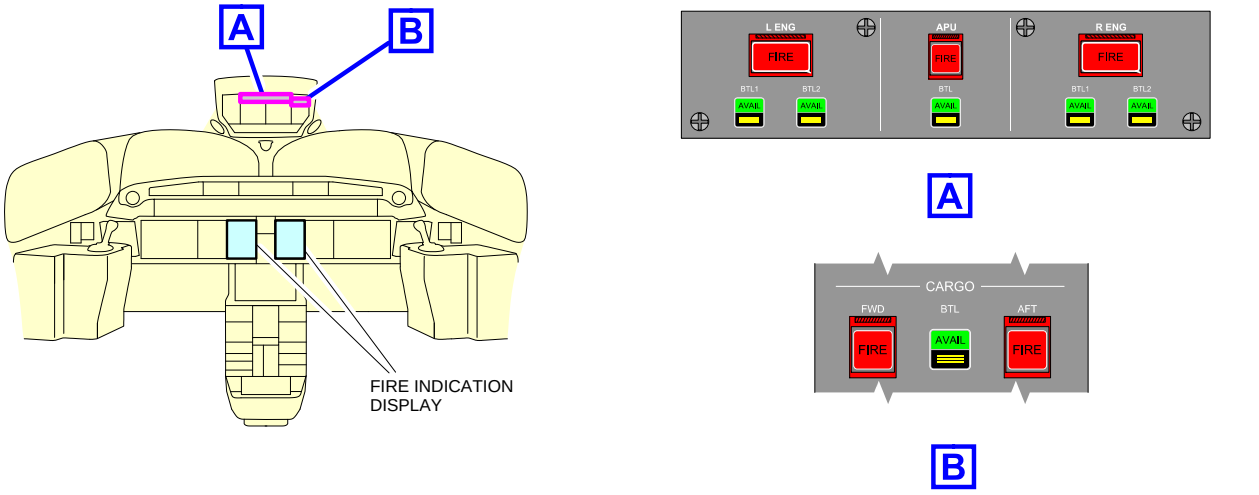
1.6 If the brakes are hot, apply a water mist to decrease the temperature of the brakes. Refer to Fig. 2 .

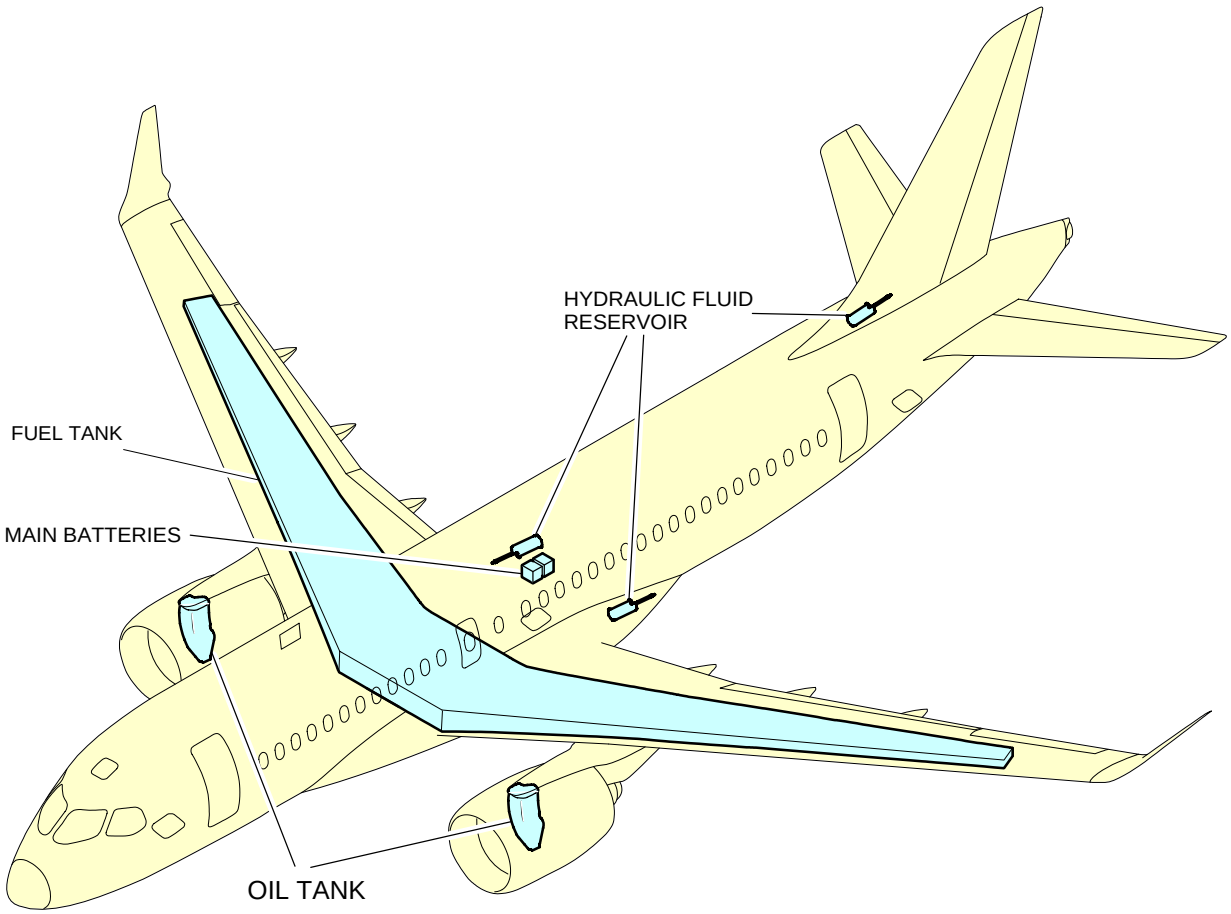
1.7 Refer to table below for the complete list of recommended fire fight agents.

Table 6 Recommended fire fighting agents

Engine fire	Clean agent or dry chemical
Exhaust nozzle fire	Clean agent or dry chemical
APU fire	Clean agent or dry chemical
Fuel fire	Dry chemical for leaking fuel and foam for ground spill area
Wheel and brake fire	Water or dry powder
Electrical fire	Clean agent or dry chemical
Flight compartment and cabin area fire	Clean agent 1211, or dry powder, or water extinguisher
Cargo compartment fire	Clean agent
Aft equipment compartment fire	Clean agent

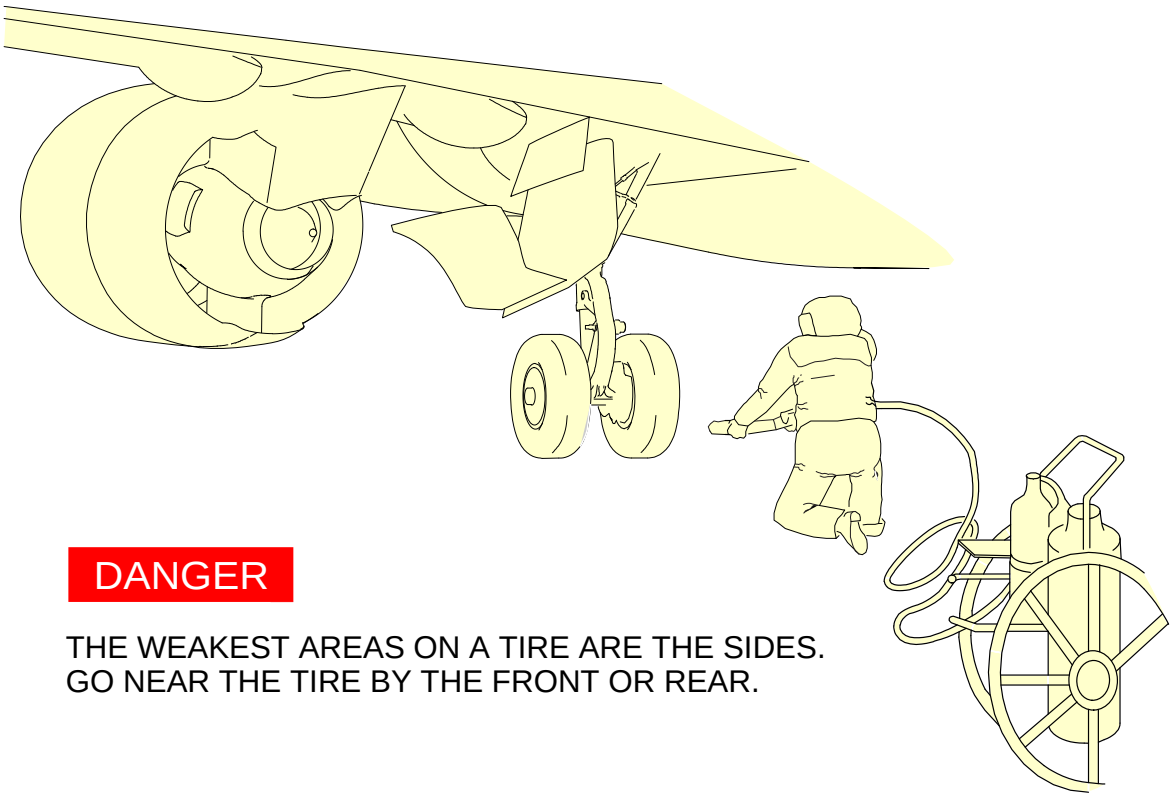
This publication has been superseded by the Aircraft Characteristics Publication (ACP).

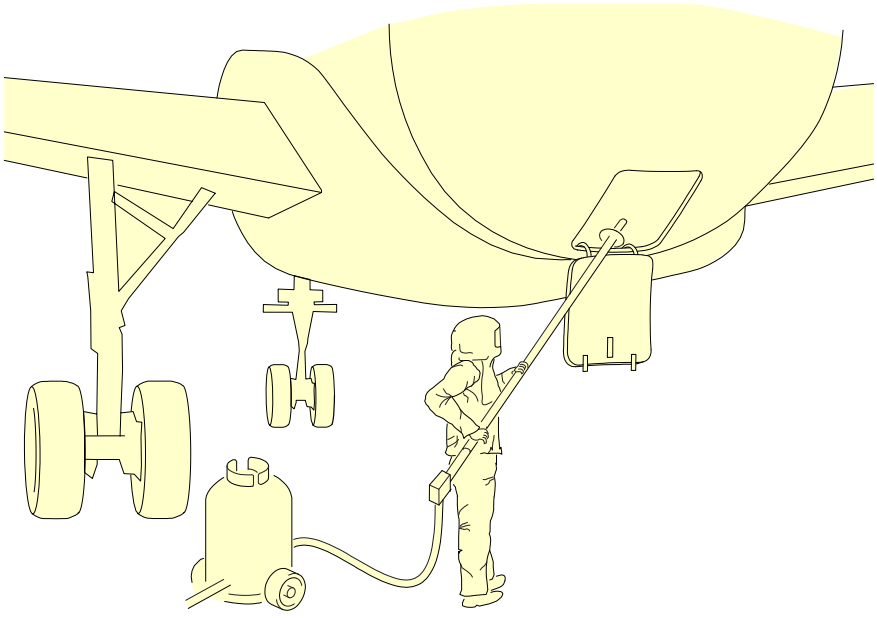




ICN-BD500-A-J154100-A-3AB48-25025-A-001-01

Figure 1 Fire indication and control / Flammable material location





ICN-BD500-A-J154100-A-3AB48-25142-A-001-01

Figure 2 Fire-fighting

Requirements after job completion

Required conditions

Table 7 Required conditions

Action/Condition	Data Module/Technical publication
None	

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

A220

Emergency equipment location - General data

Applicability: 50001-54999, 55001-59999

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
None	

Description

1 General

1.1 Emergency equipment

• The emergency equipment installed in the aircraft is for the safety of the passengers and the crew. The emergency equipment is made of components for use in emergencies such as crashes and fires.

• The components of the emergency equipment include as follows:

- Halon fire extinguishers (one in the flight compartment and four in the passenger compartment).

Applicability: 50020-50061, 50063-50065, 55067, 55076, 55078-55079, 55082-55083, 55088, 55090, 55092-55093, 55097-55098, 55100, 55102-55103, 55105, 55109, 55111-55112, 55117-55119, 55122-55123, 55138, 55147, 55152, 55161, 55166, 55169, 55179, 55190, 55205, 55306

- Protective Breathing Equipment (PBE) (one in the flight compartment and three in the passenger compartment).

Applicability: 50010-50018, 55003-55016, 55020-55021, 55023, 55025, 55027, 55029-55030, 55032-55034, 55036, 55038-55048, 55050-55066, 55068, 55071-55074, 55077, 55081, 55086-55087, 55091, 55094, 55110

- PBE (one in the flight compartment and four in the passenger compartment).

Applicability: 55017-55019, 55022, 55024, 55026, 55028, 55031, 55035, 55037, 55049

- PBE (one in the flight compartment and five in the passenger compartment).
- Crash axe (one in the flight compartment).

Applicability: 55067, 55076, 55078-55079, 55082-55083, 55088, 55090, 55092-55093, 55097-55098, 55100, 55102-55103, 55105, 55109, 55111-55112, 55117-55119, 55122-55123, 55138, 55147, 55152, 55161, 55166, 55169, 55179, 55190, 55205, 55306

- Life vests for the crew (three in the flight compartment and three in the passenger compartment).

Applicability: 50010-50018, 50020-50061, 50063-50065, 55003-55016, 55020-55021, 55023, 55025, 55027, 55029-55030, 55032-55034, 55036, 55038-55048, 55050-55066, 55068, 55071-55074, 55077, 55081, 55086-55087, 55091, 55094, 55110

- Life vests for the crew (three in the flight compartment and four in the passenger compartment).

Applicability: 55017-55019, 55022, 55024, 55026, 55028, 55031, 55035, 55037, 55049

- Life vests for the crew (three in the flight compartment and five in the passenger compartment).

Applicability: 55067, 55076, 55078-55079, 55082-55083, 55088, 55090, 55092-55093, 55097-55098, 55100, 55102-55103, 55105, 55109, 55111-55112, 55117-55119, 55122-55123, 55138, 55147, 55152, 55161, 55166, 55169, 55179, 55190, 55205, 55306

- Flashlights (two in the flight compartment and three in the passenger compartment).

Applicability: 50010-50018, 50020-50061, 50063-50065, 55003-55016, 55020-55021, 55023, 55025, 55027, 55029-55030, 55032-55034, 55036, 55038-55048, 55050-55066, 55068, 55071-55074, 55077, 55081, 55086-55087, 55091, 55094, 55110

- Flashlights (two in the flight compartment and four in the passenger compartment).

Applicability: 55017-55019, 55022, 55024, 55026, 55028, 55031, 55035, 55037, 55049

- Flashlights (two in the flight compartment and five in the passenger compartment).

Applicability: 55047-55048

- Crew/Therapeutic and portable oxygen cylinders for crew (three in the passenger compartment).

This publication has been superseded by the Aircraft Characteristics Publication (ACP)

Applicability: 50020-50061, 50063-50065, 55056-55063, 55065-55068, 55072-55074, 55076-55079, 55081-55083, 55087-55088, 55090-55093, 55097-55098, 55100, 55102-55103, 55105, 55109, 55111-55112, 55117-55119, 55122-55123, 55138, 55147, 55152, 55161, 55166, 55169, 55179, 55190, 55205, 55306

- Crew/Therapeutic and portable oxygen cylinders for crew (four in the passenger compartment).

Applicability: 55003-55009, 55016-55019, 55022, 55024, 55026, 55028, 55031, 55034-55035, 55037-55039, 55041-55043, 55049-55055, 55064, 55071, 55086, 55094

- Crew/Therapeutic and portable oxygen cylinders for crew (six in the passenger compartment).

Applicability: 50010-50018, 55010-55015, 55020-55021, 55023, 55025, 55027, 55029-55030, 55032-55033, 55036, 55040, 55044-55046, 55110

- Crew/Therapeutic and portable oxygen cylinders for crew (seven in the passenger compartment).
- Two oxygen masks per cylinder.

Applicability: 55017-55019, 55022, 55024, 55026, 55028, 55031, 55035, 55037, 55049

- First aid kit (three in the passenger compartment).

Applicability: 50010-50018, 50020-50061, 50063-50065, 55003-55016, 55020-55021, 55023, 55025, 55027, 55029-55030, 55032-55034, 55036, 55038-55048, 55050-55068, 55071-55074, 55076-55079, 55081-55083, 55086-55088, 55090-55094, 55097-55098, 55100, 55102-55103, 55105, 55109-55112, 55117-55119, 55122-55123, 55138, 55147, 55152, 55161, 55166, 55169, 55179, 55190, 55205, 55306

- First aid kit (two in the passenger compartment).
- Megaphones (two in the passenger compartment).
- Emergency Locator Transmitter (ELT).

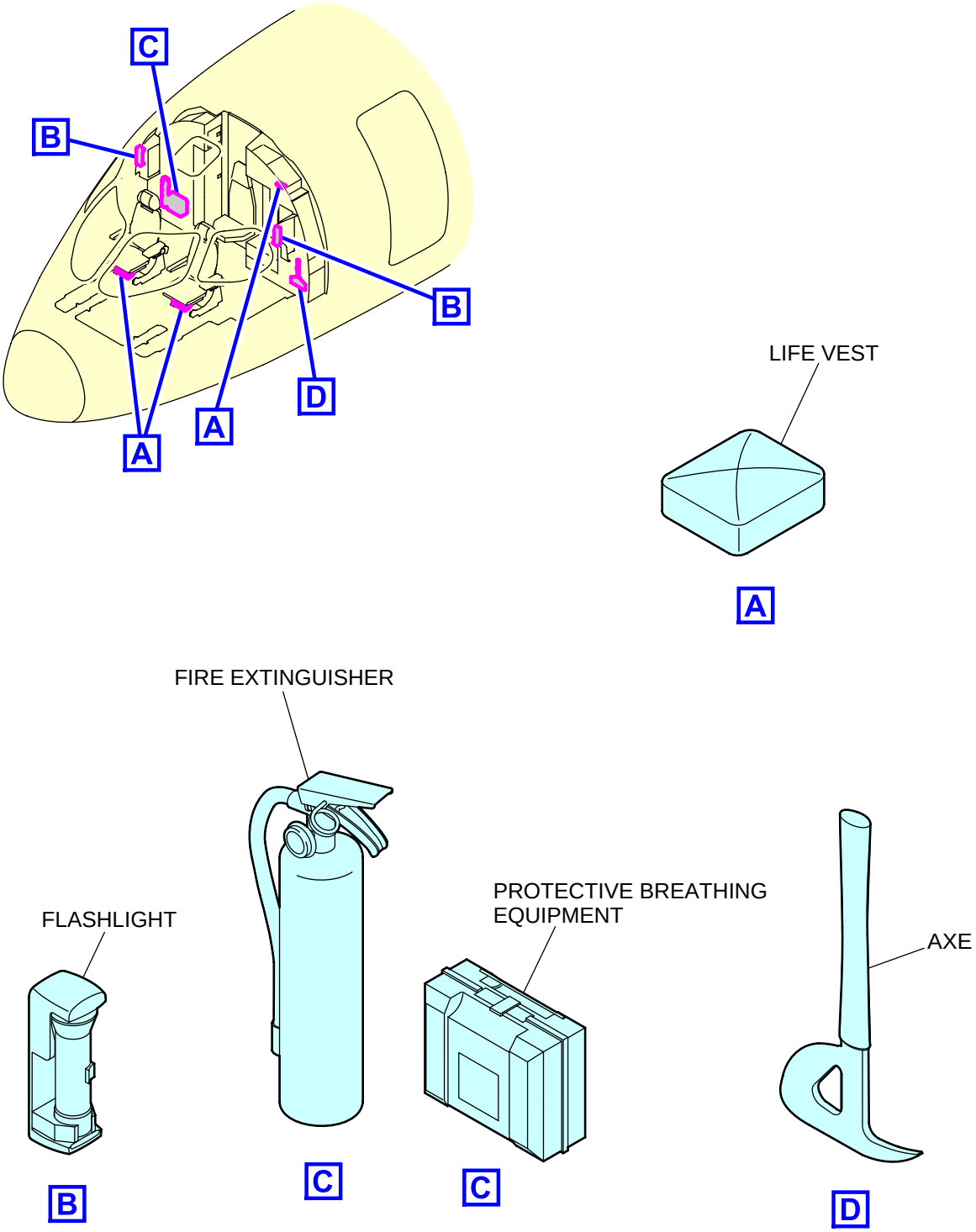
• The locations of the emergency equipments are inside flight deck, galley, lavatory, forward stowage, forward windscreens, aft windscreens, aft passenger compartment, and emergency doors, are respectively shown in the Fig. 1 and Fig. 2.

• The ELT, ELT antenna and aim 3 are installed in the rear barrel of the aircraft. Refer to Fig. 3.

Note

The function of the ELT is to give the aircraft location and make the aircraft search and rescue operations easier.

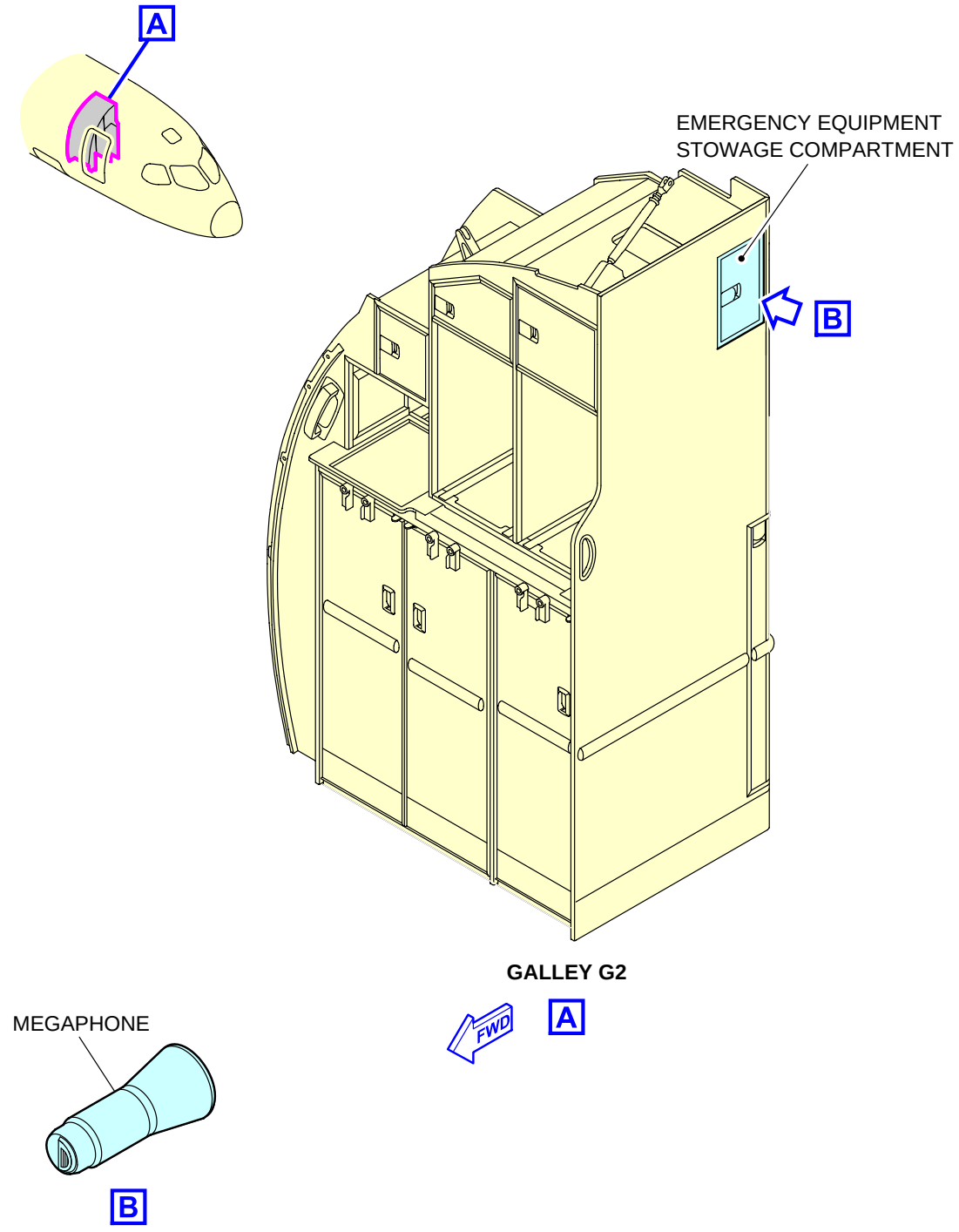
This publication has been superseded by the Aircraft Characteristics Publication (ACP).



ICN-BD500-A-J154100-A-3AB48-01118-A-002-01

Figure 1 Flight deck - Emergency equipment

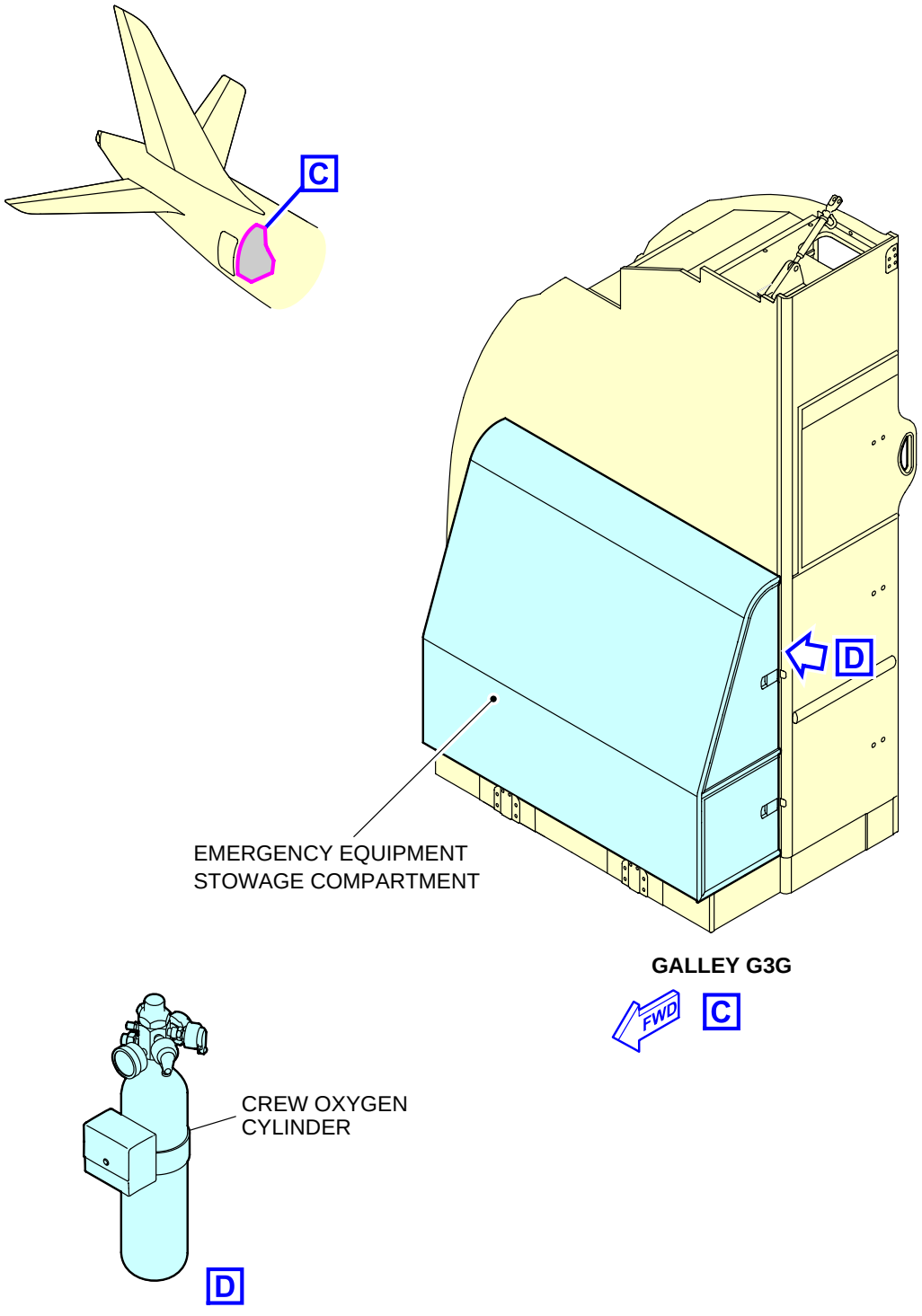
(Sheet) Applicability: 50010-50018, 55010-55015, 55017-55033, 55035-55037, 55040, 55044-55049, 55056-55063, 55065-55066, 55068, 55072-55074, 55077, 55081, 55087, 55091, 55110



ICN-BD500-A-J256100-C-3AB48-60702-A-001-01

Figure 2 Emergency equipment location - General data - (Sheet 1 of 25)

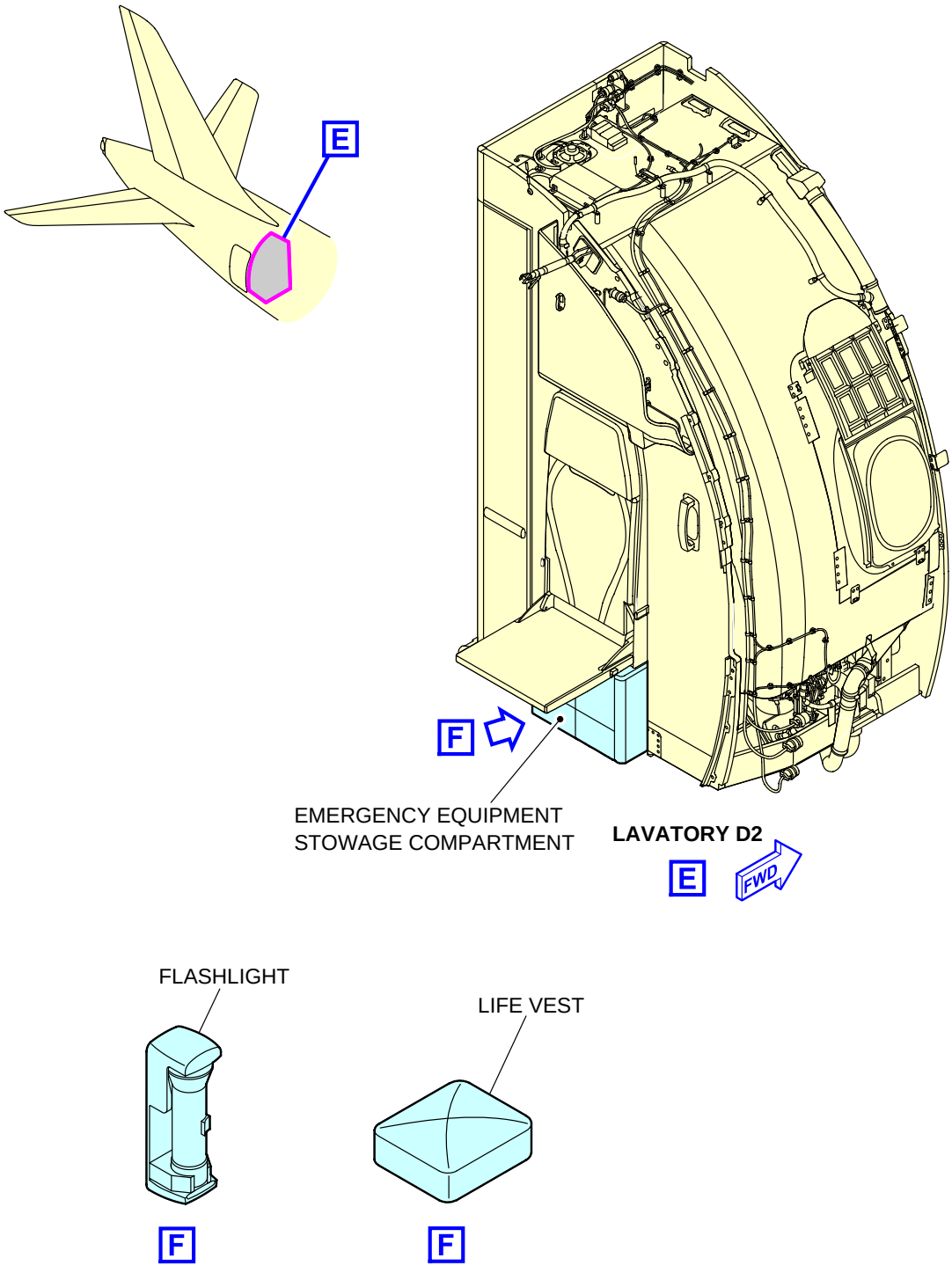
(Sheet) Applicability: 55010-55015, 55020-55021, 55023, 55025, 55027, 55029-55030, 55032-55033, 55036, 55040, 55044-55046, 55110



ICN-BD500-A-J256100-C-3AB48-60703-A-001-01

Figure 2 Emergency equipment location - General data - (Sheet 2 of 25)

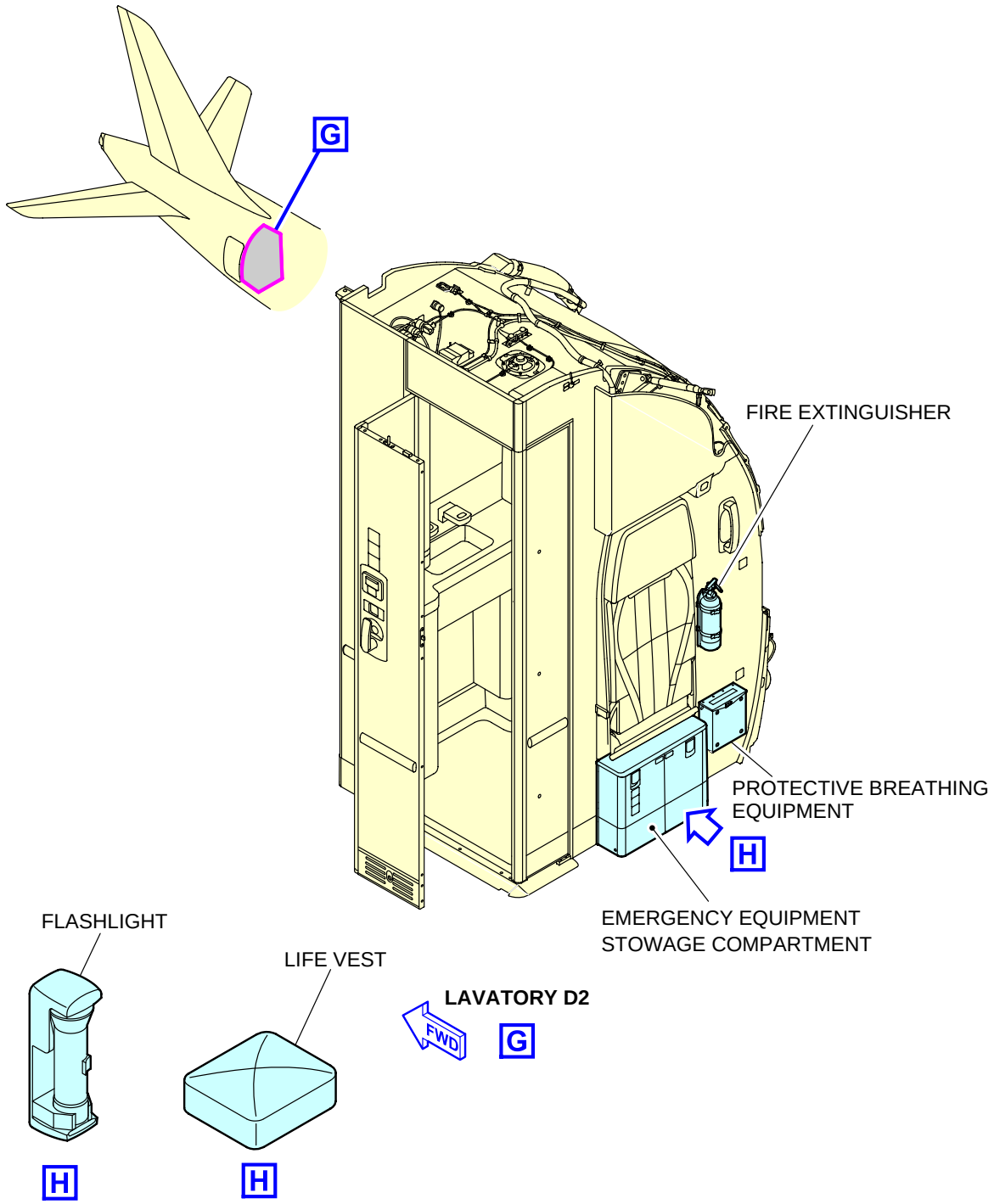
(Sheet) Applicability: 55047-55048



ICN-BD500-A-J256100-C-3AB48-60704-A-001-01

Figure 2 Emergency equipment location - General data - (Sheet 3 of 25)

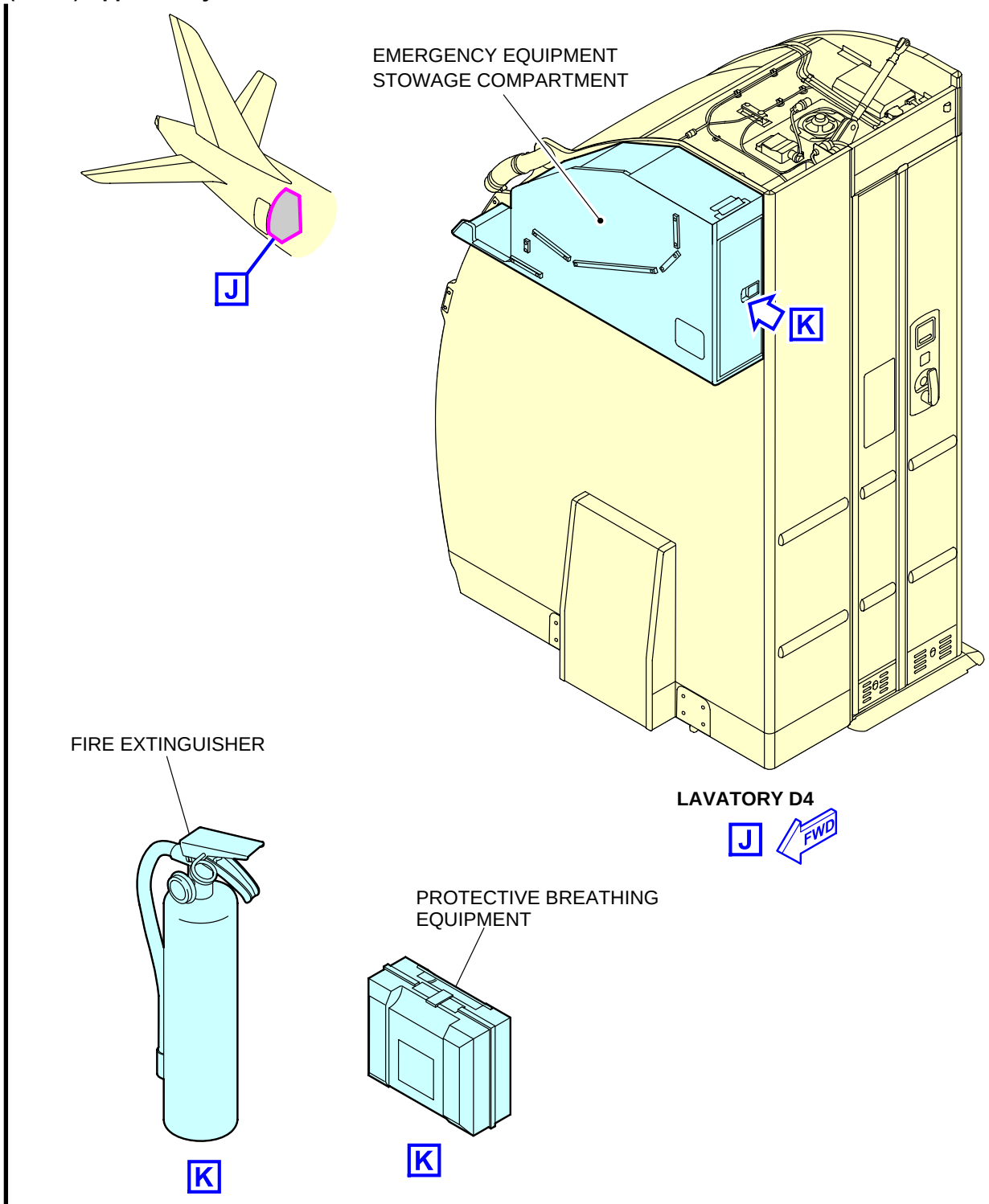
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ICN-BD500-A-J256100-C-3AB48-60705-A-001-01

Figure 2 Emergency equipment location - General data - (Sheet 4 of 25)

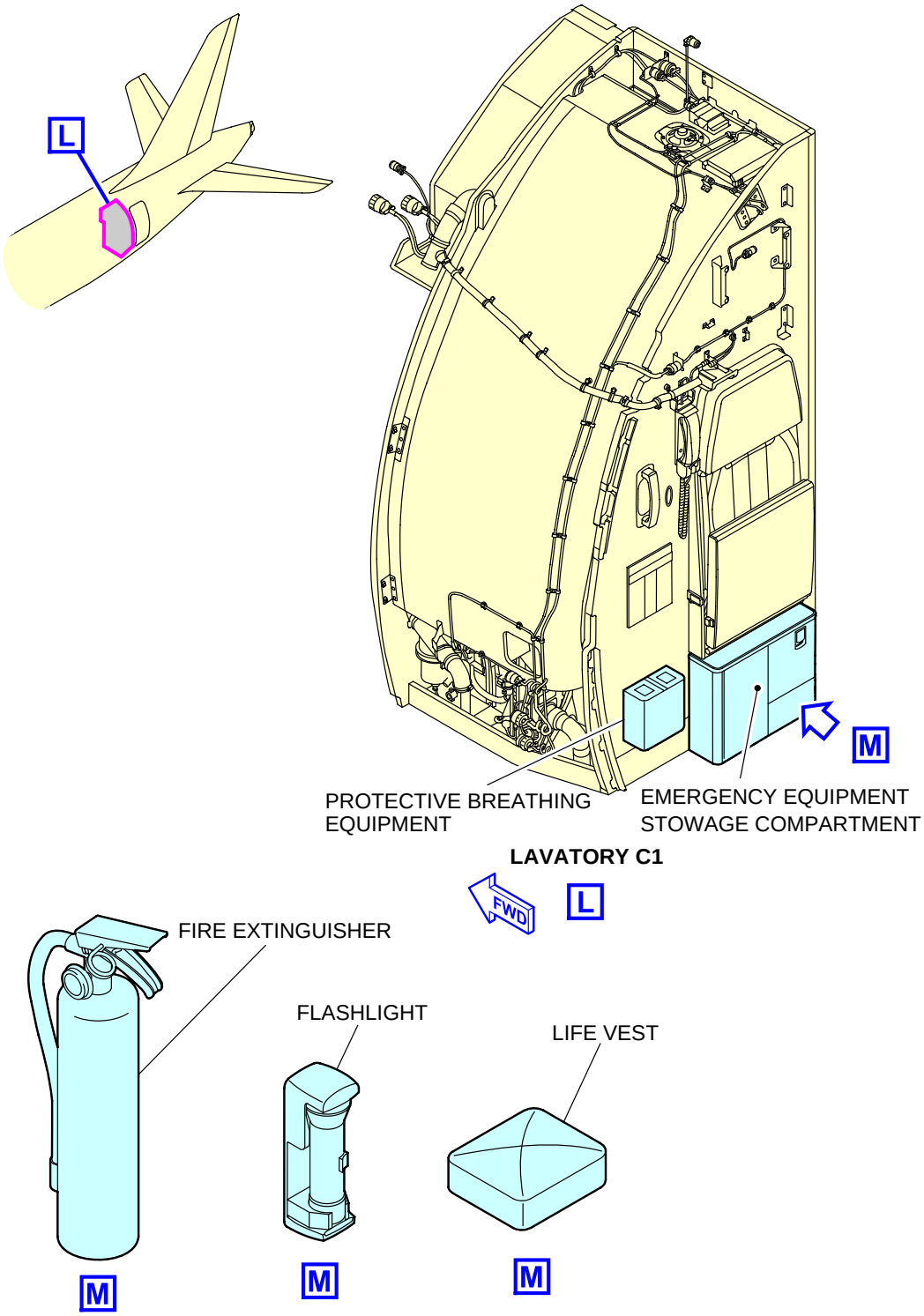
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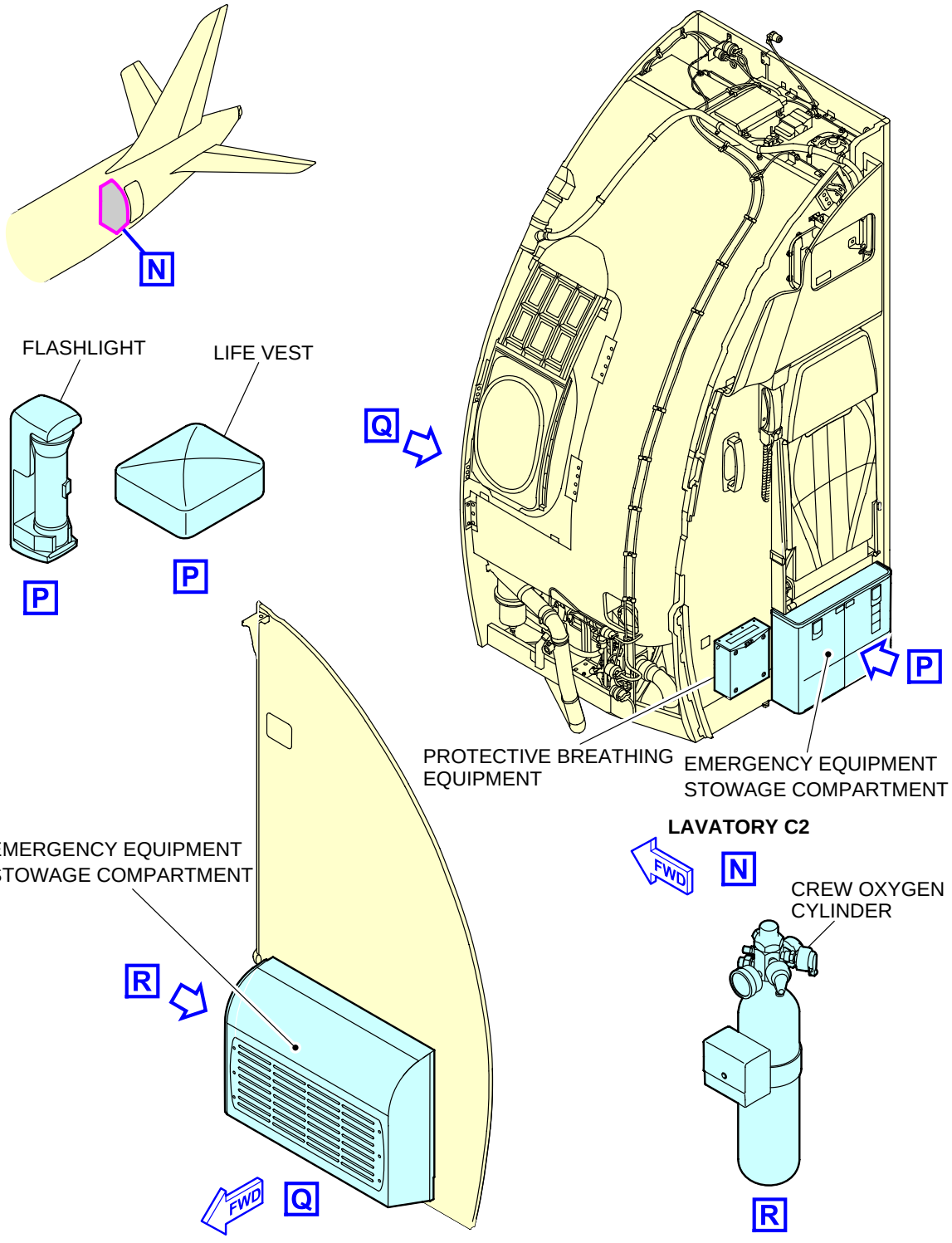
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Figure 2 Emergency equipment location - General data - (Sheet 6 of 25)

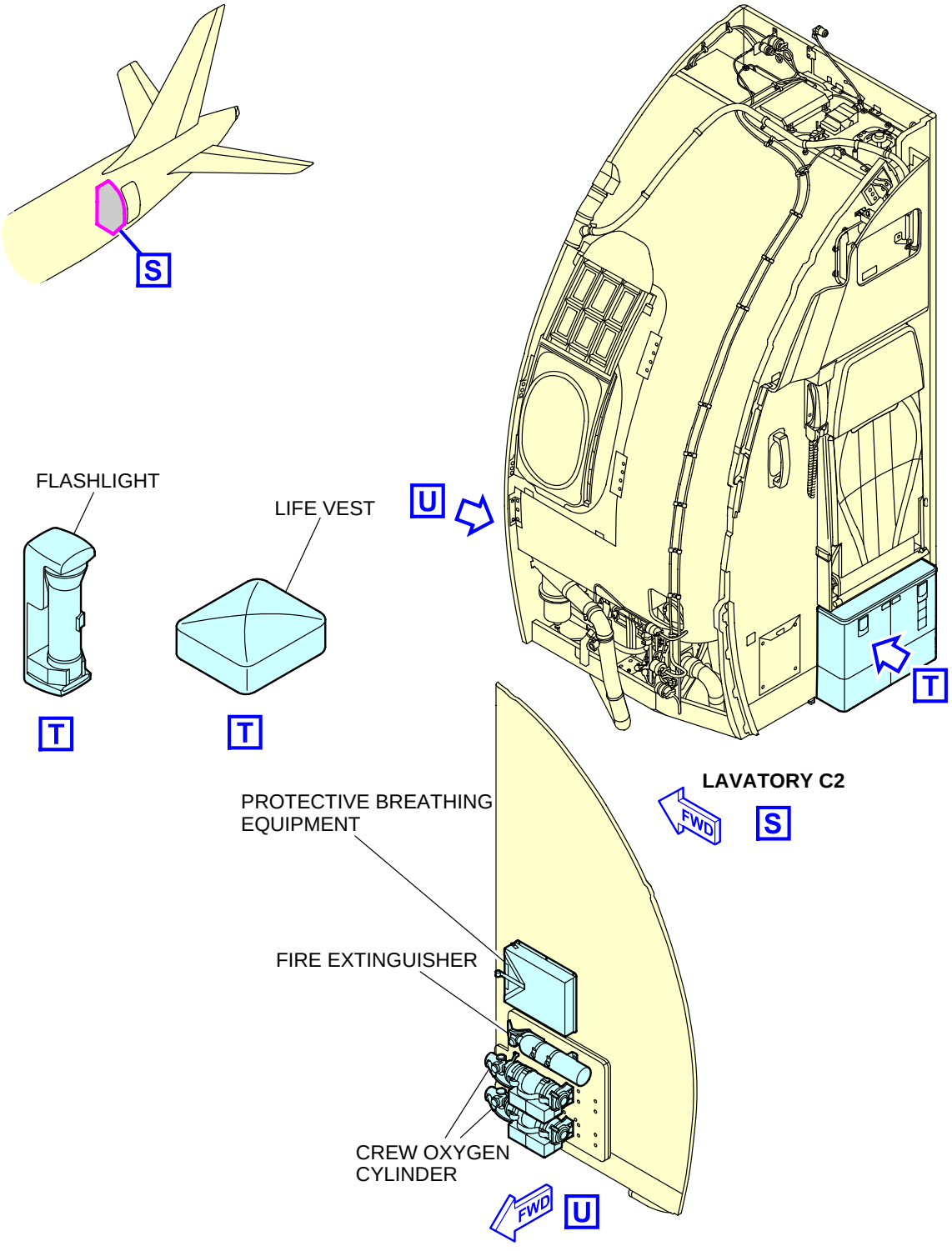
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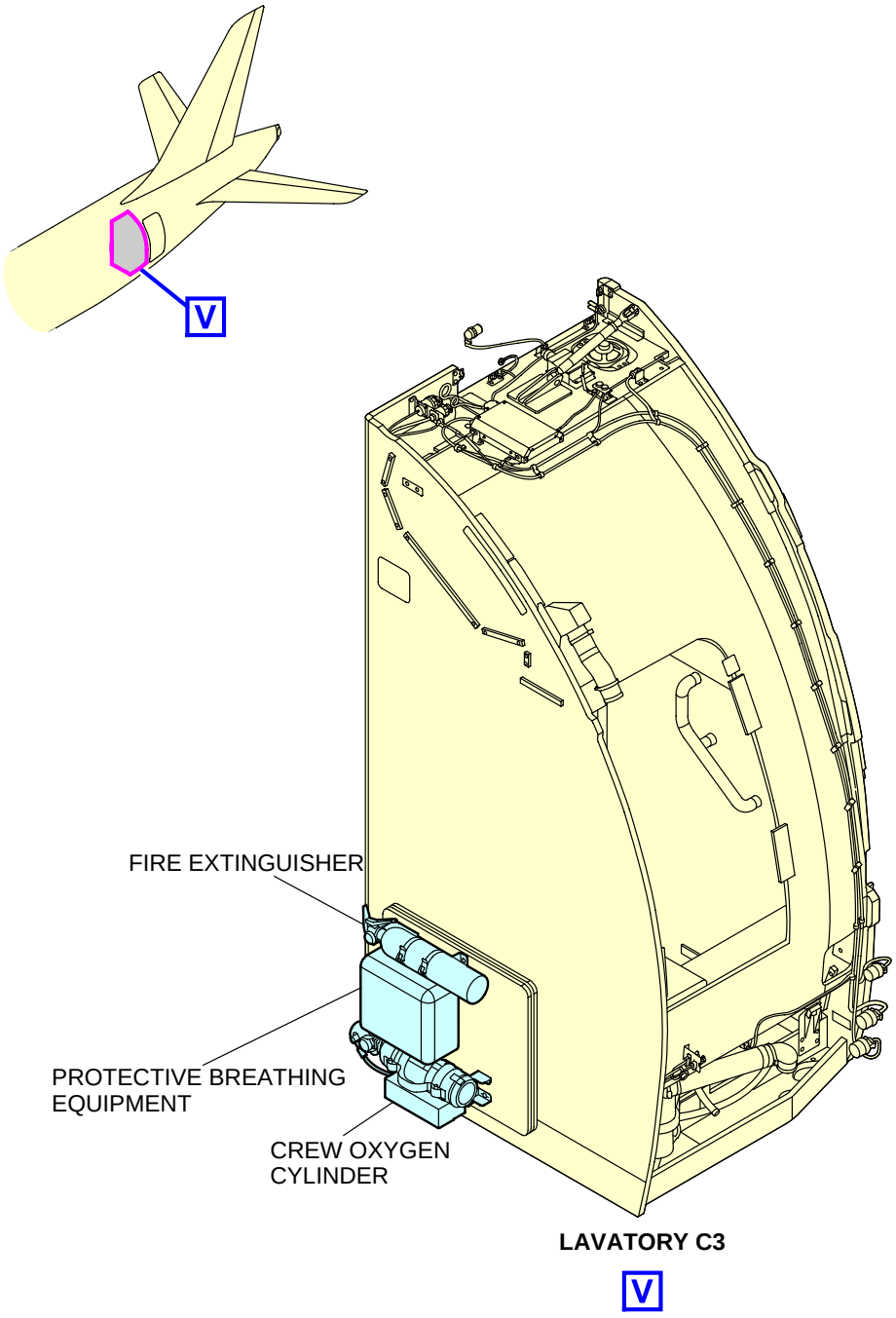
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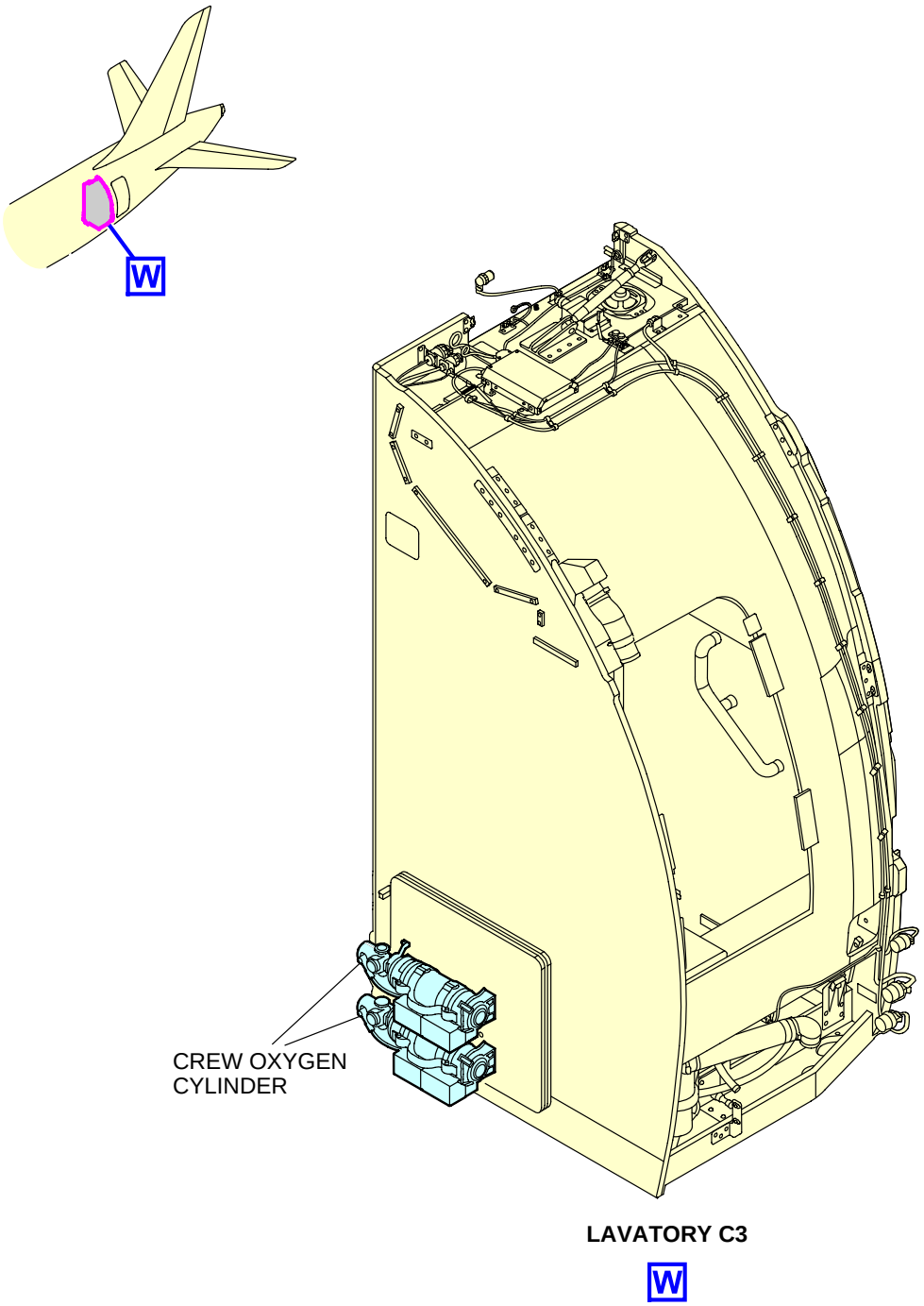
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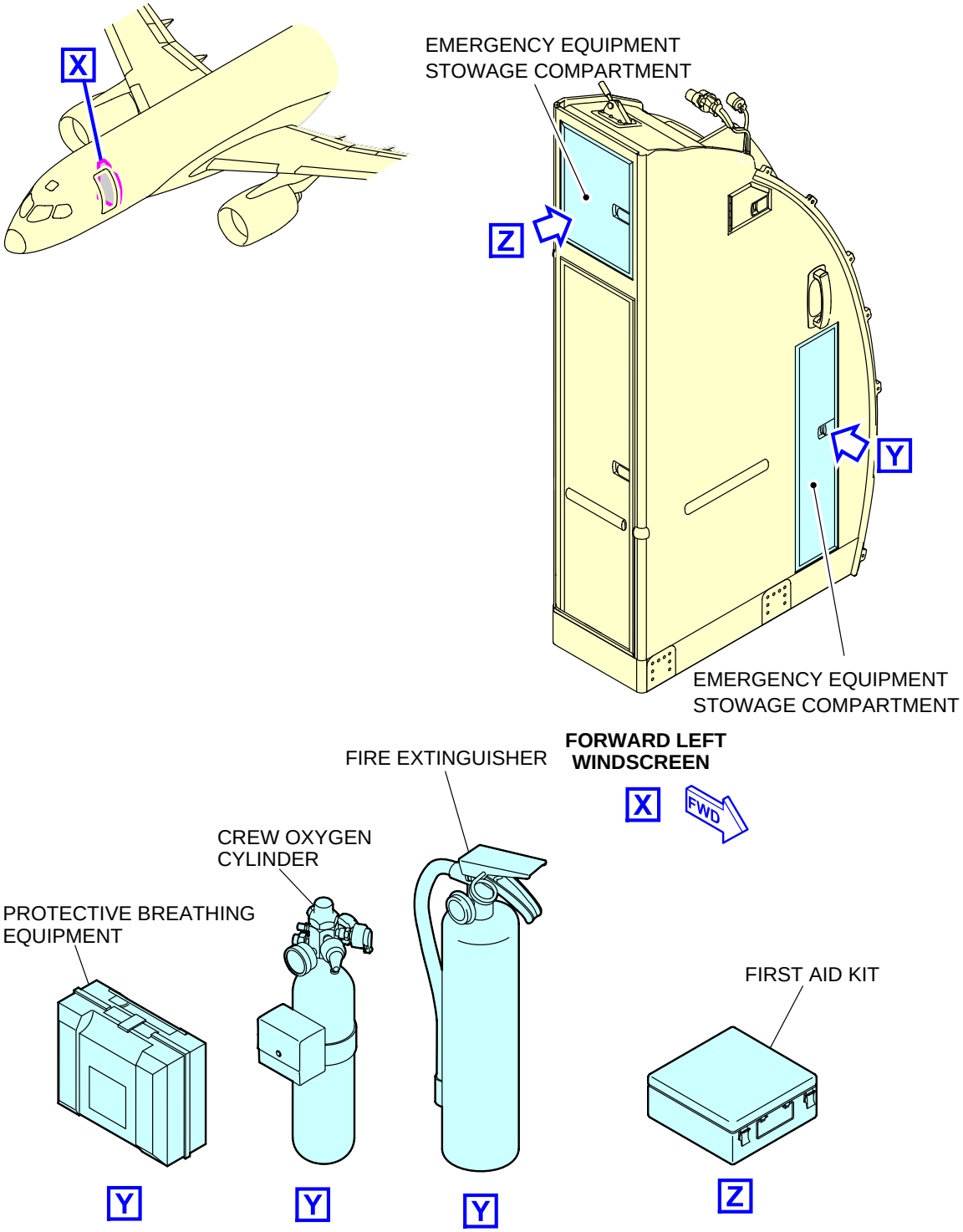
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ICN-BD500-A-J256100-C-3AB48-60711-A-001-01

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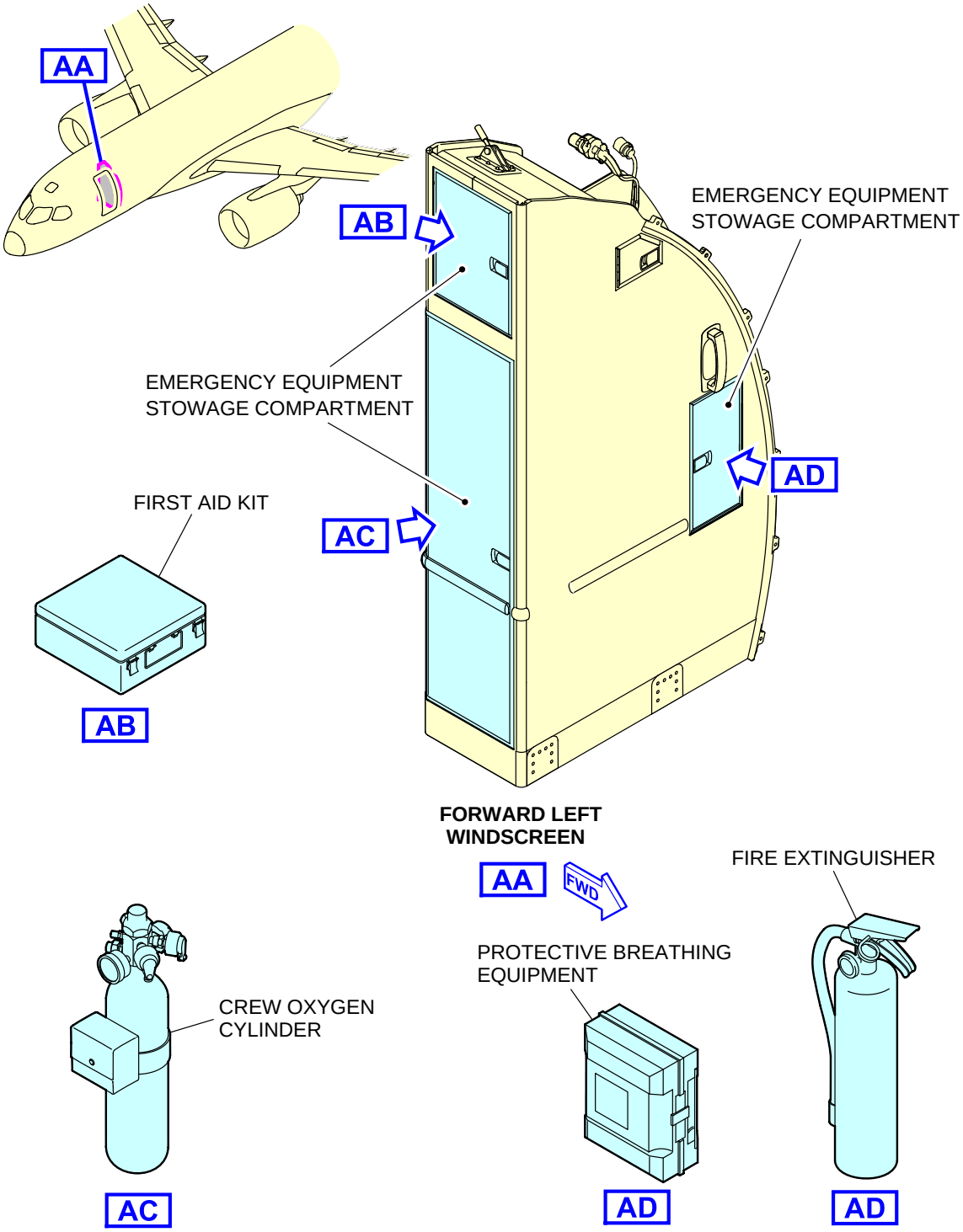
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ICN-BD500-A-J256100-C-3AB48-60712-A-001-01

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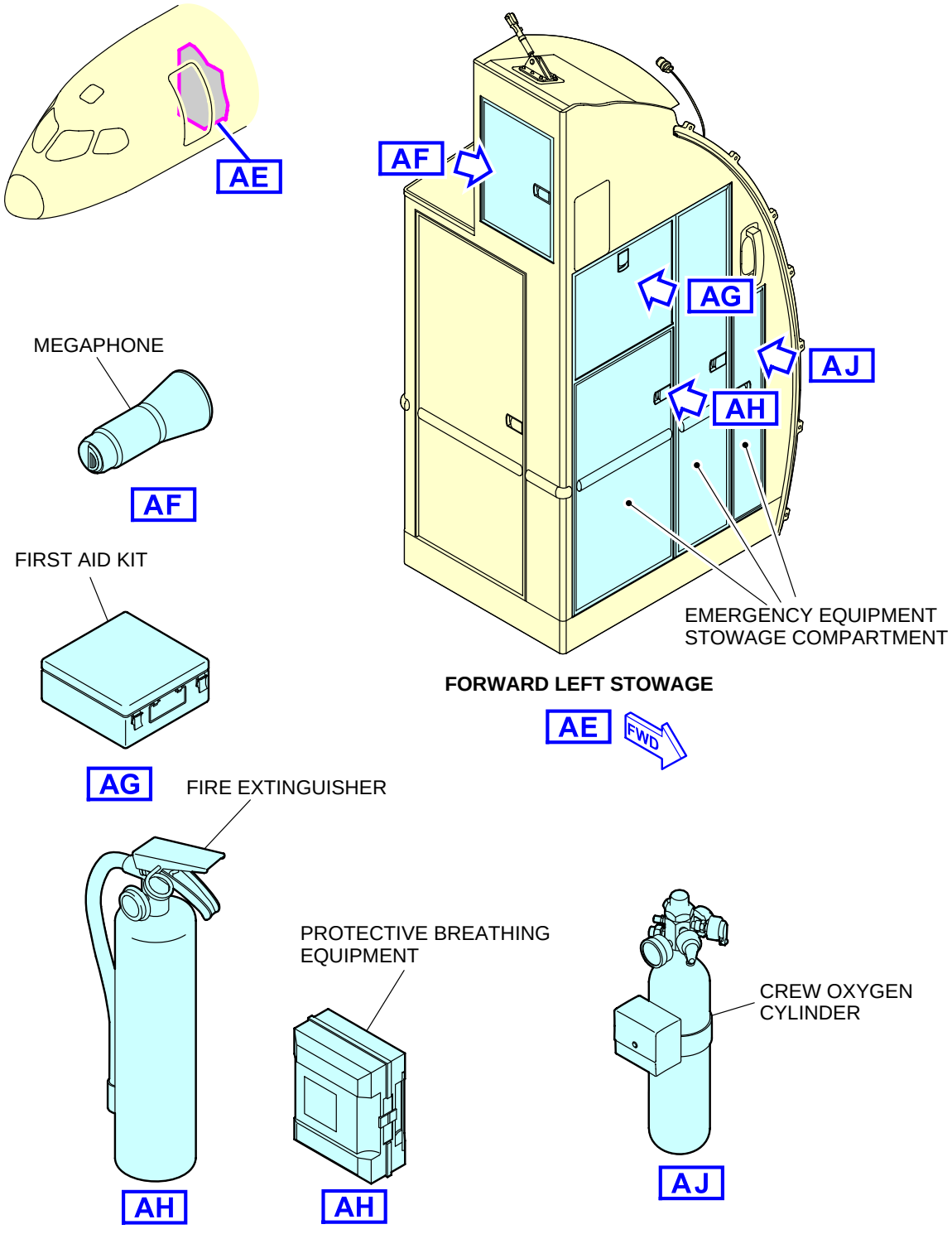
(Sheet) Applicability: 55017-55019, 55022, 55024, 55026, 55028, 55031, 55035, 55037, 55049



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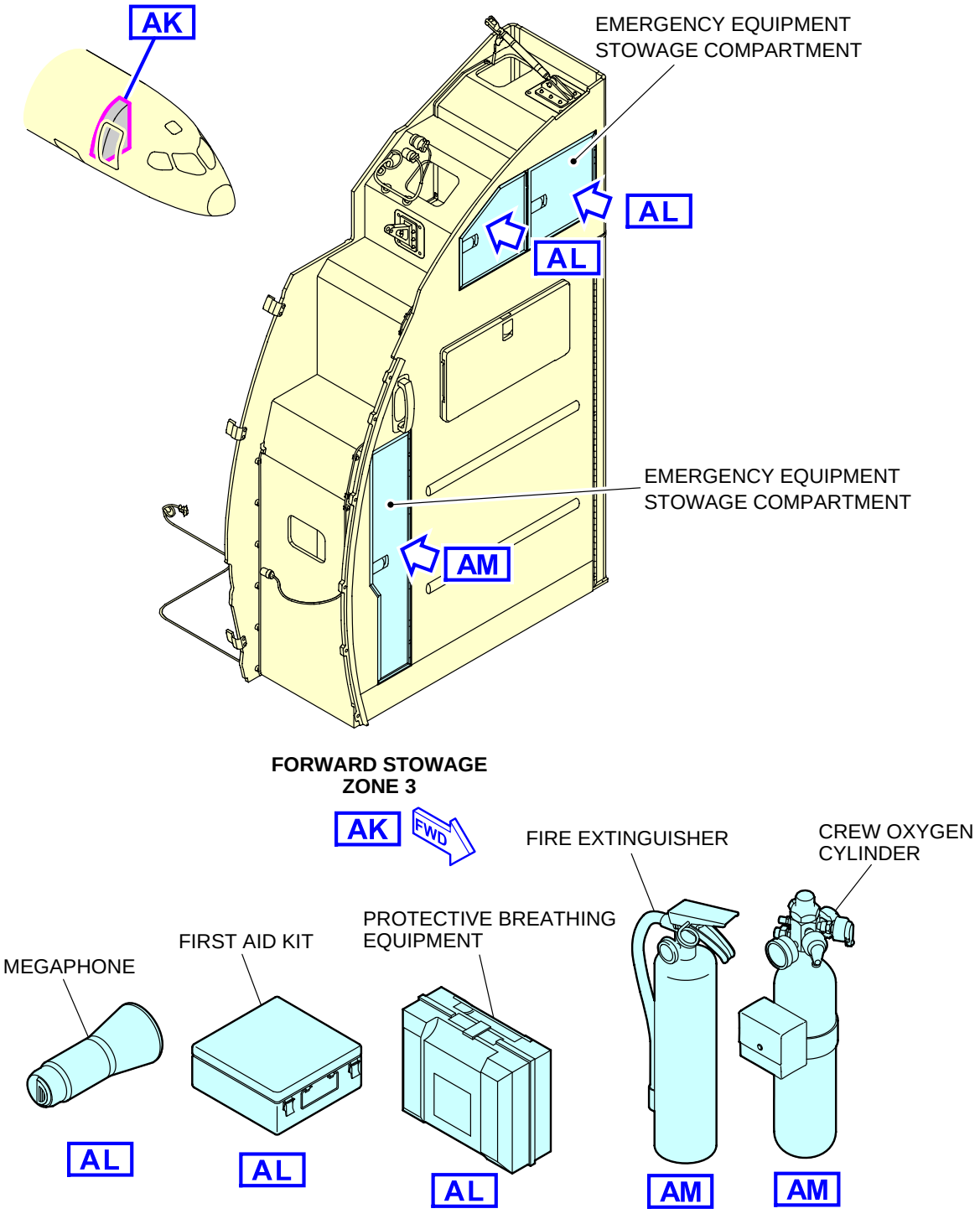
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Figure 2 Emergency equipment location - General data - (Sheet 13 of 25)

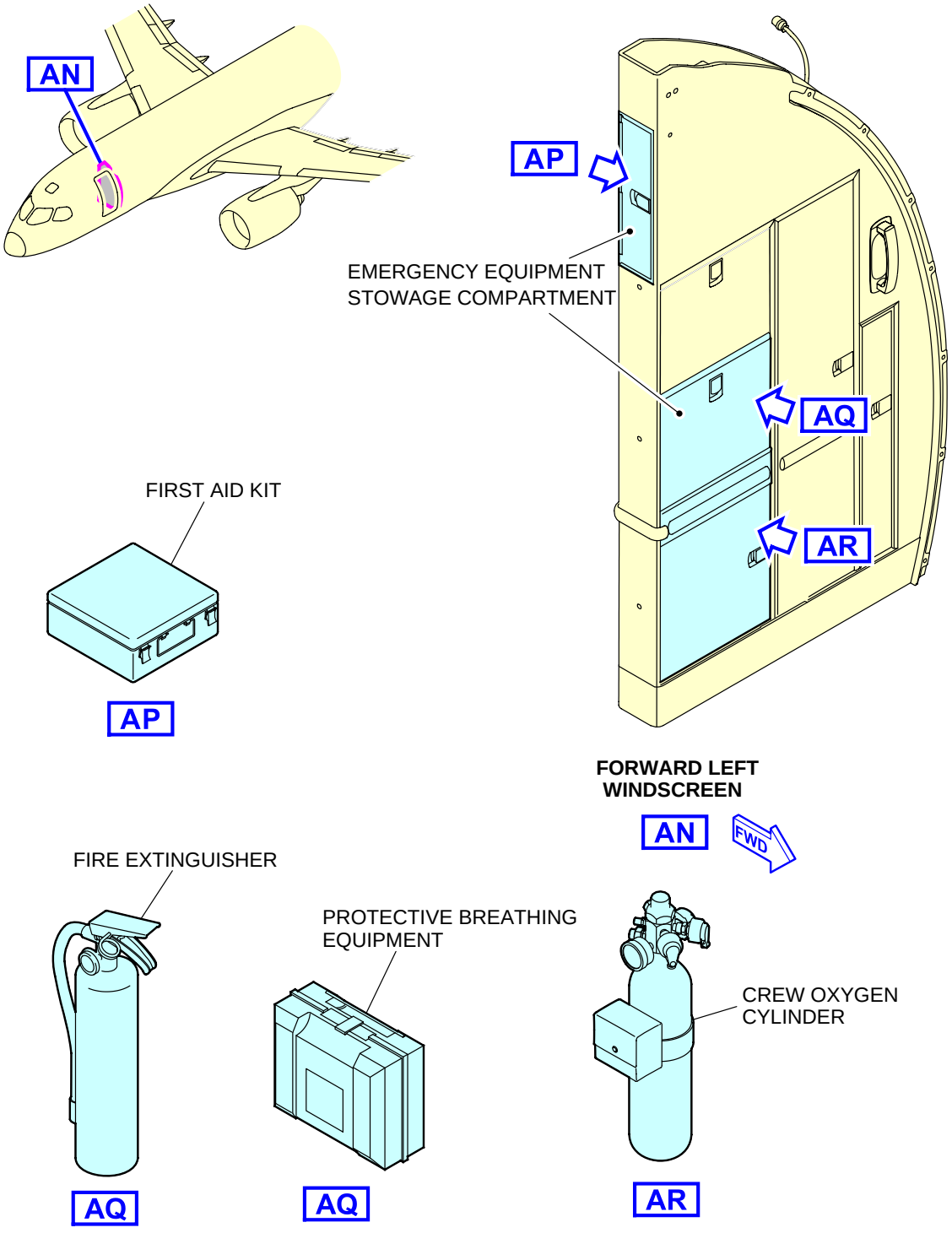
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ICN-BD500-A-J256100-C-3AB48-60714-A-001-01

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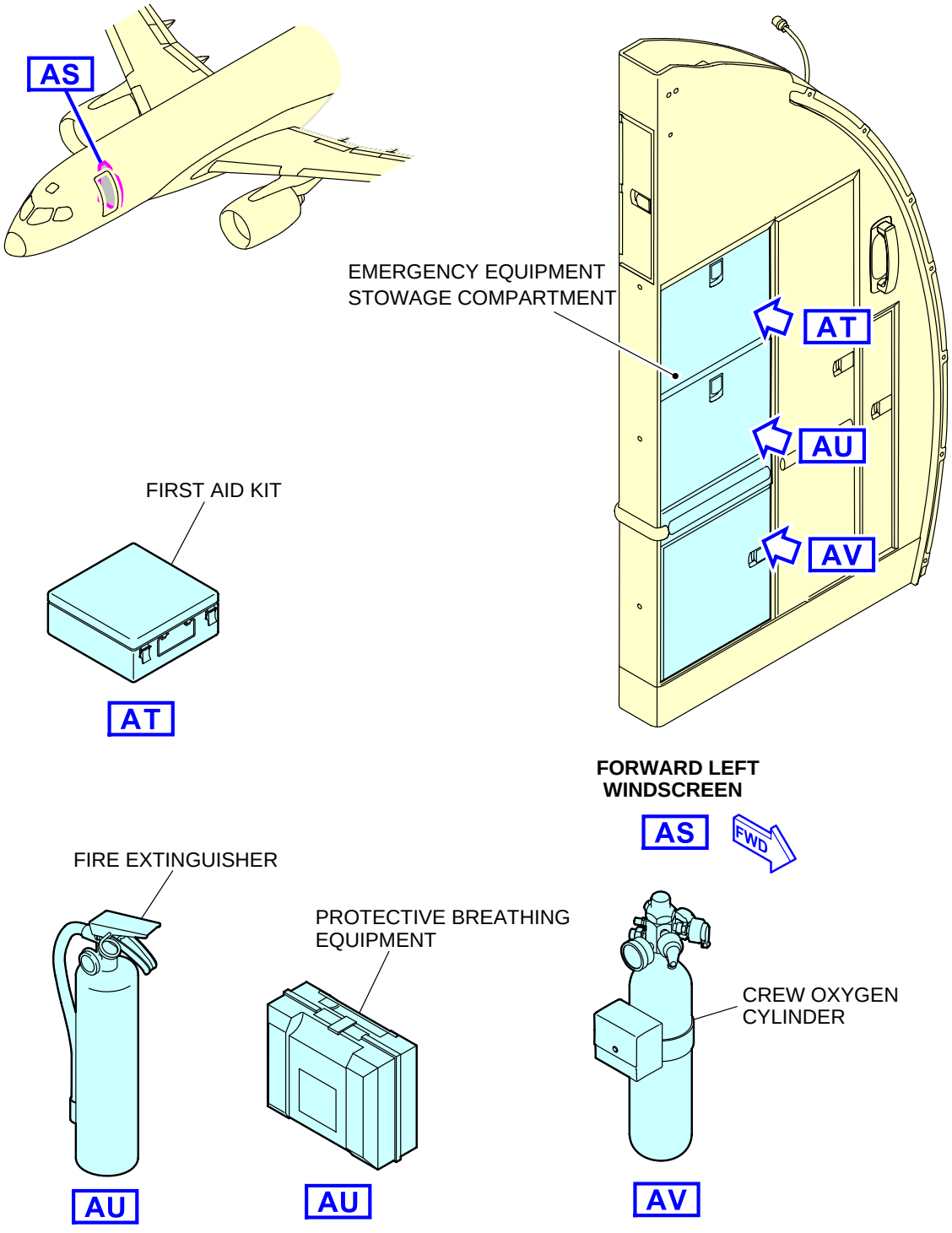
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ICN-BD500-A-J256100-C-3AB48-60715-A-001-01

Figure 2 Emergency equipment location - General data - (Sheet 15 of 25)

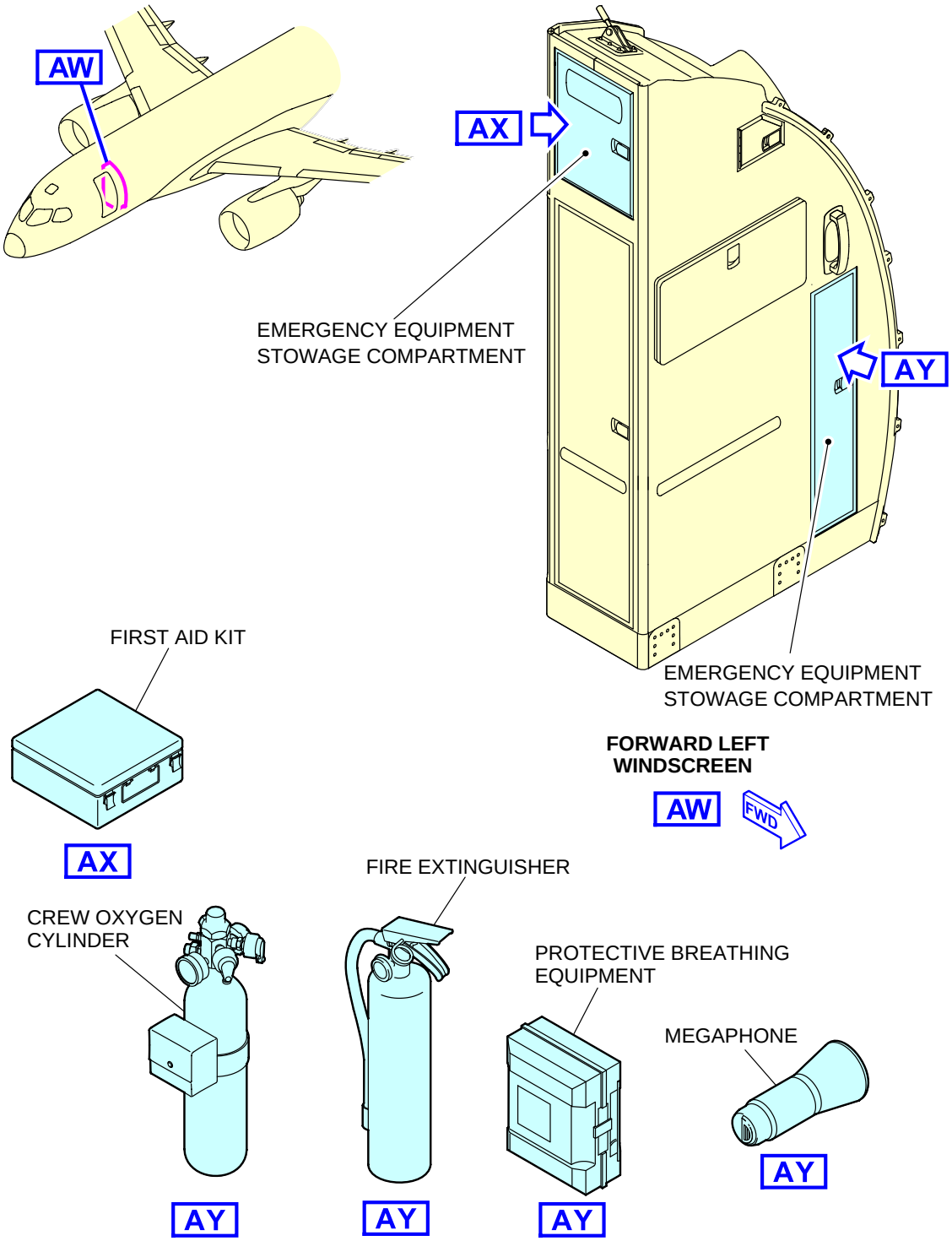
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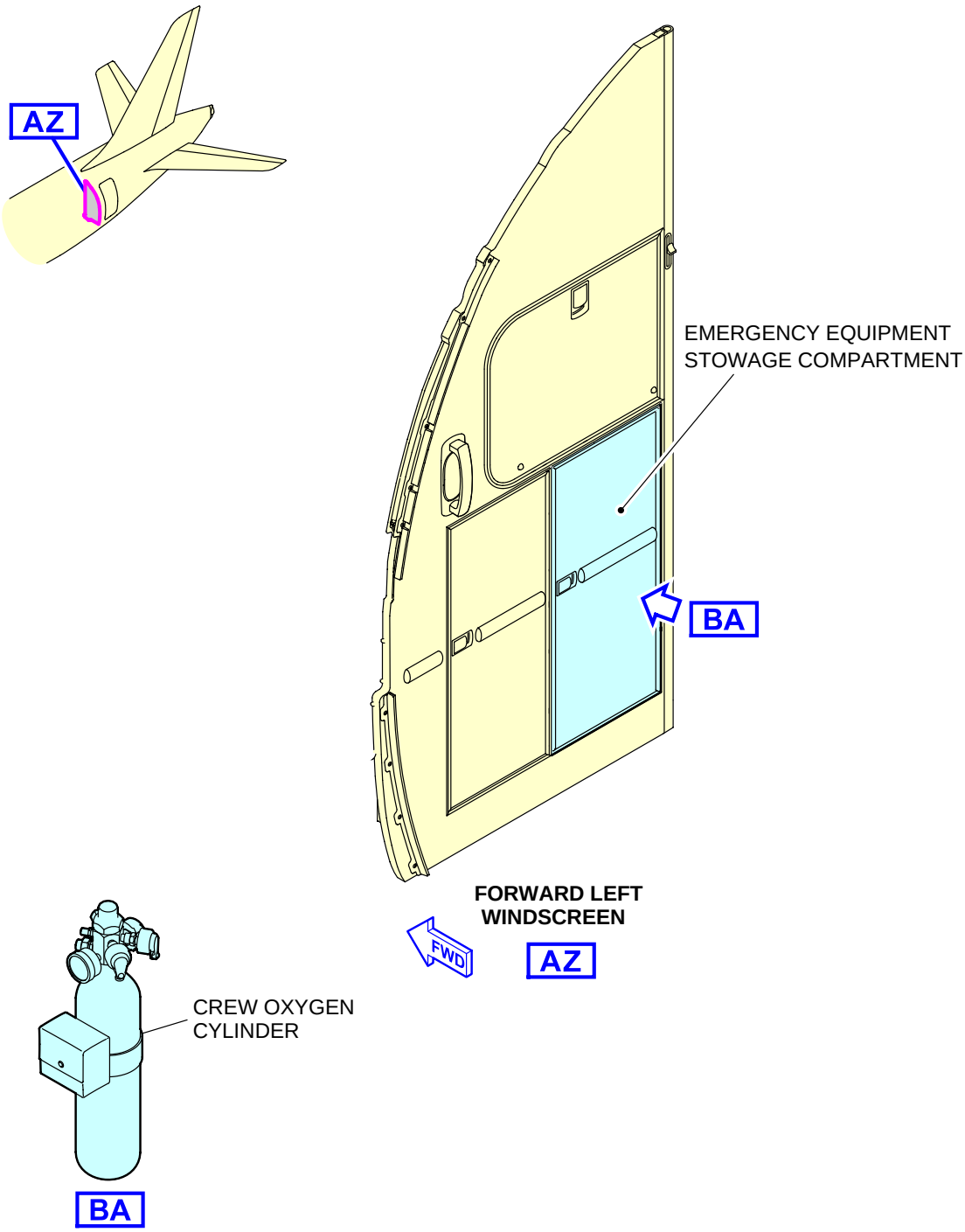
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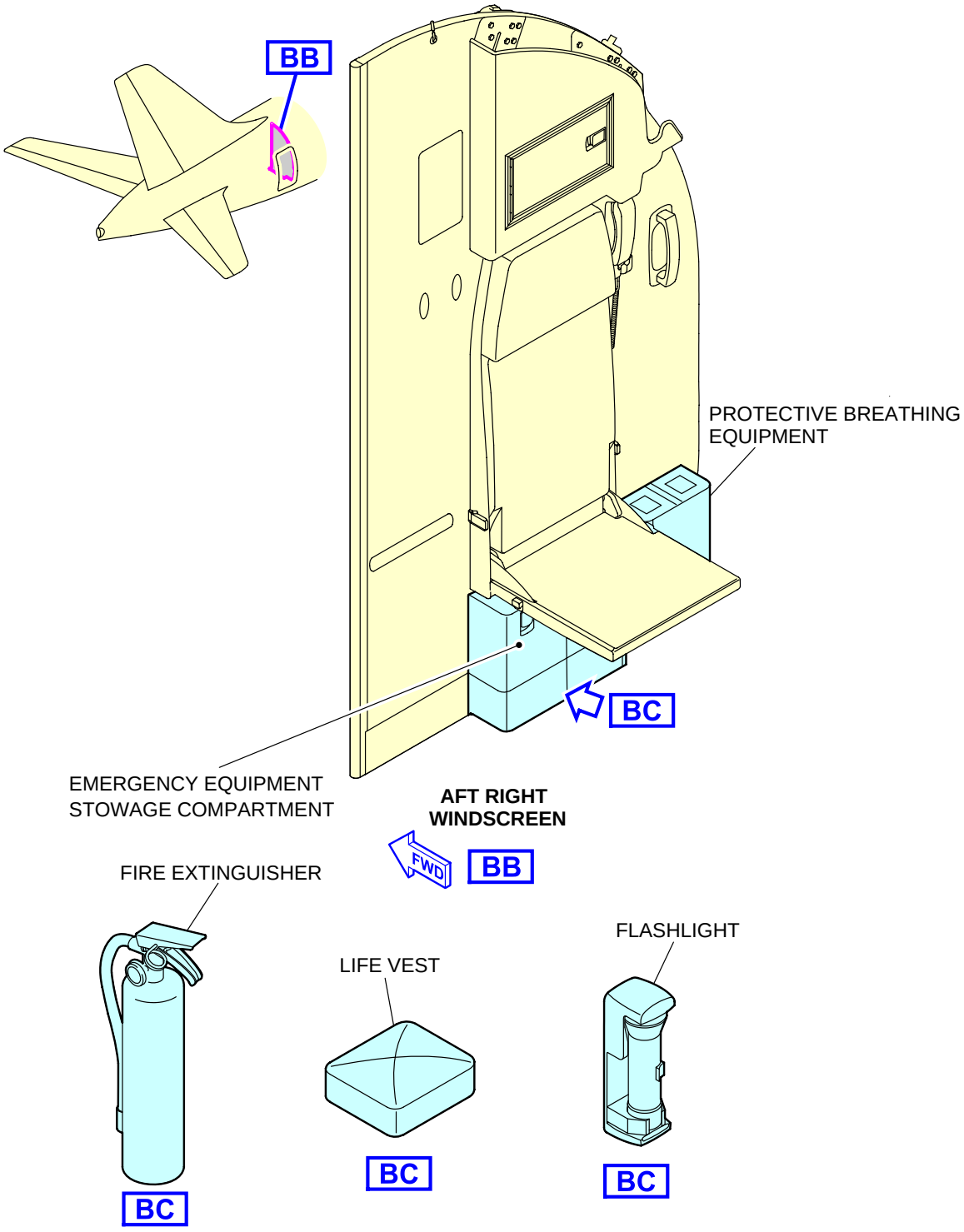
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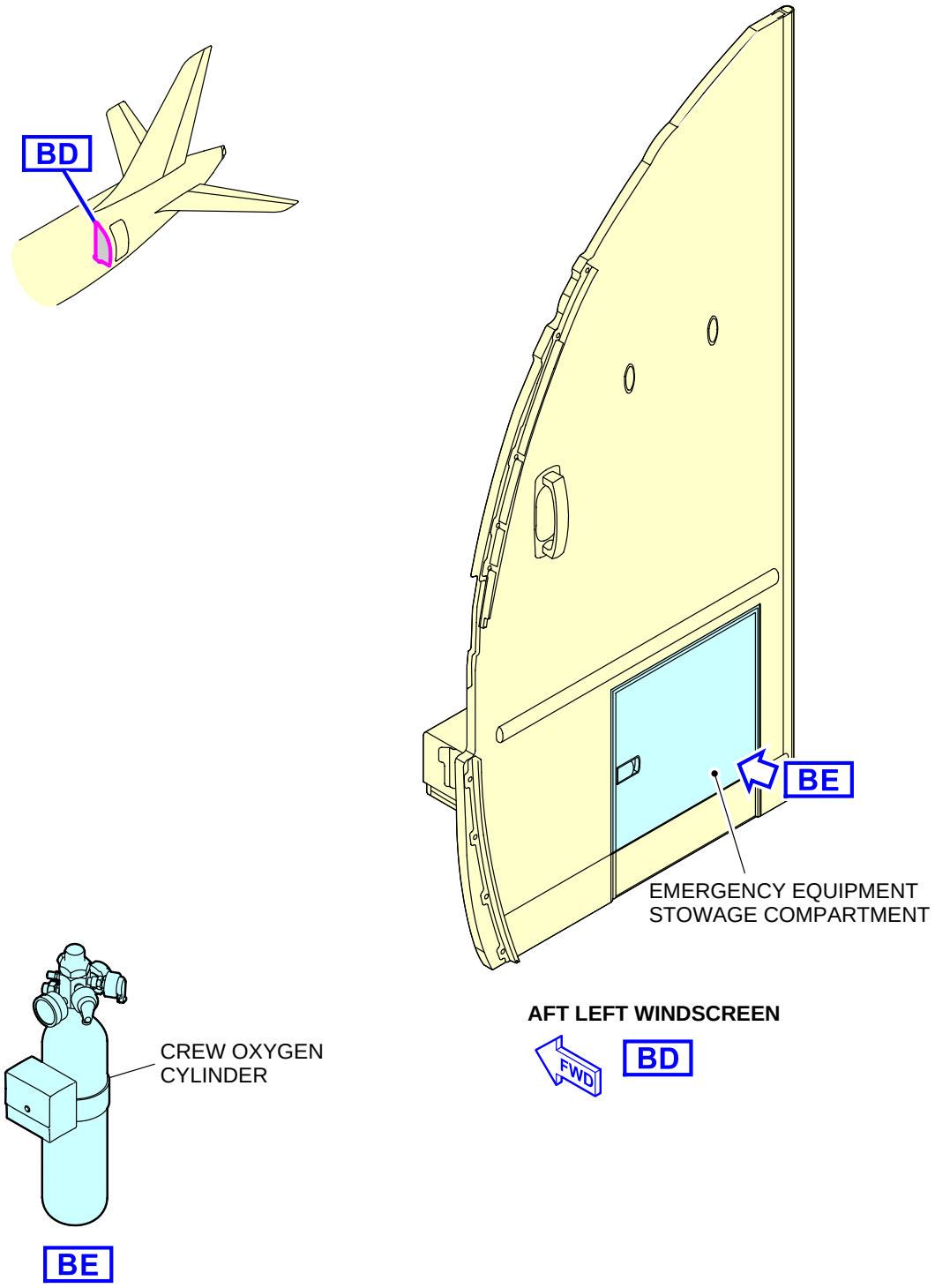
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ICN-BD500-A-J256100-C-3AB48-60718-A-001-01

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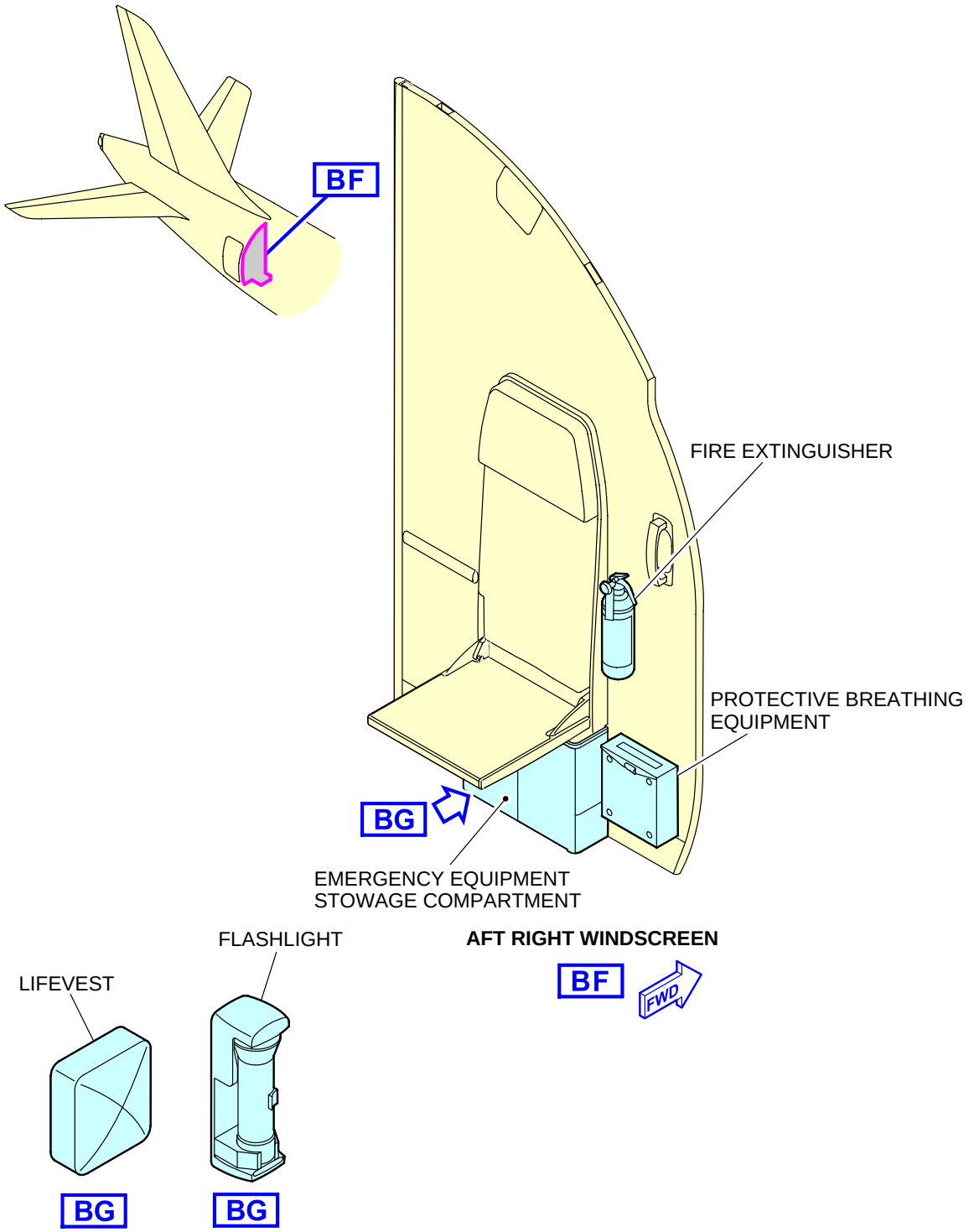
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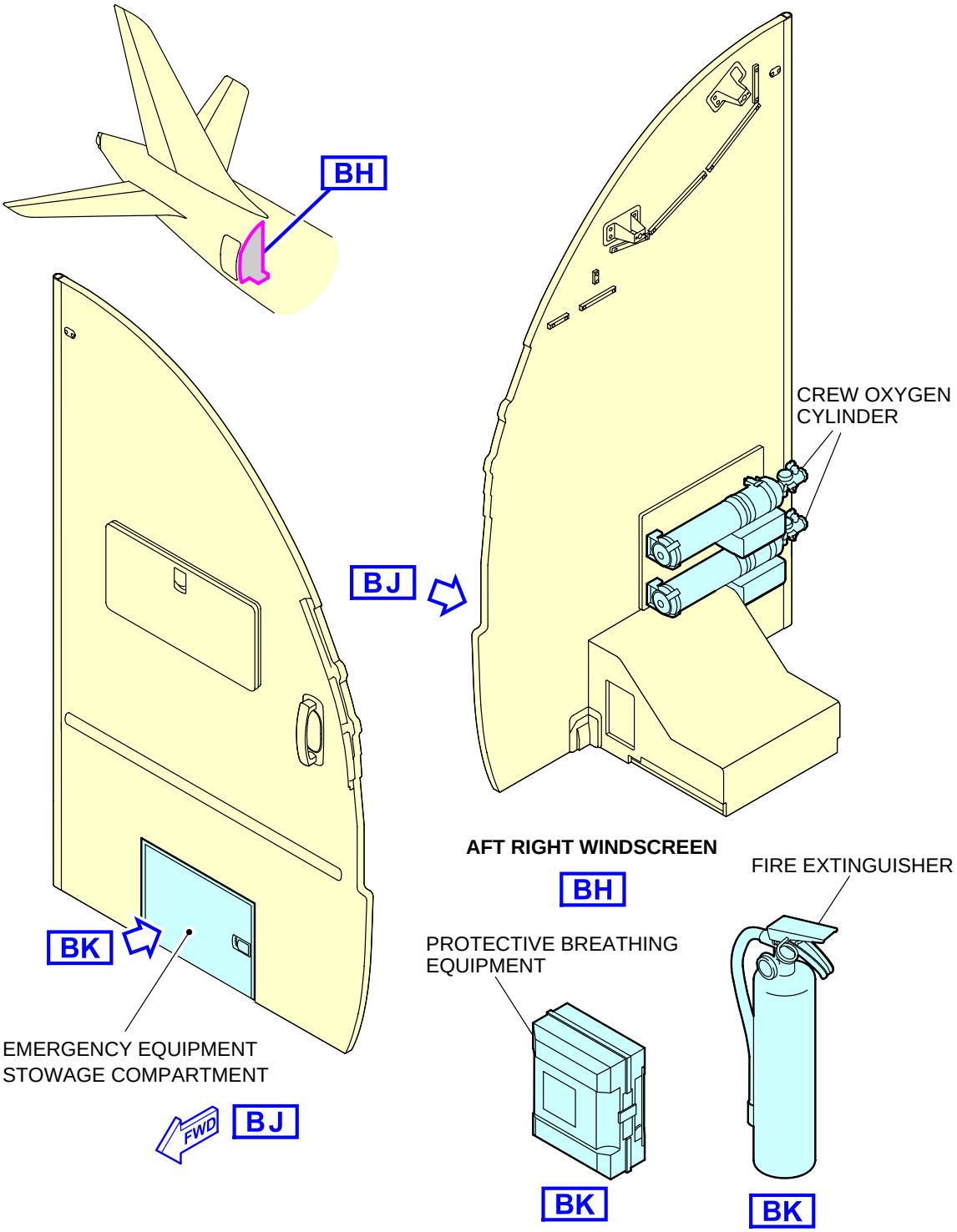
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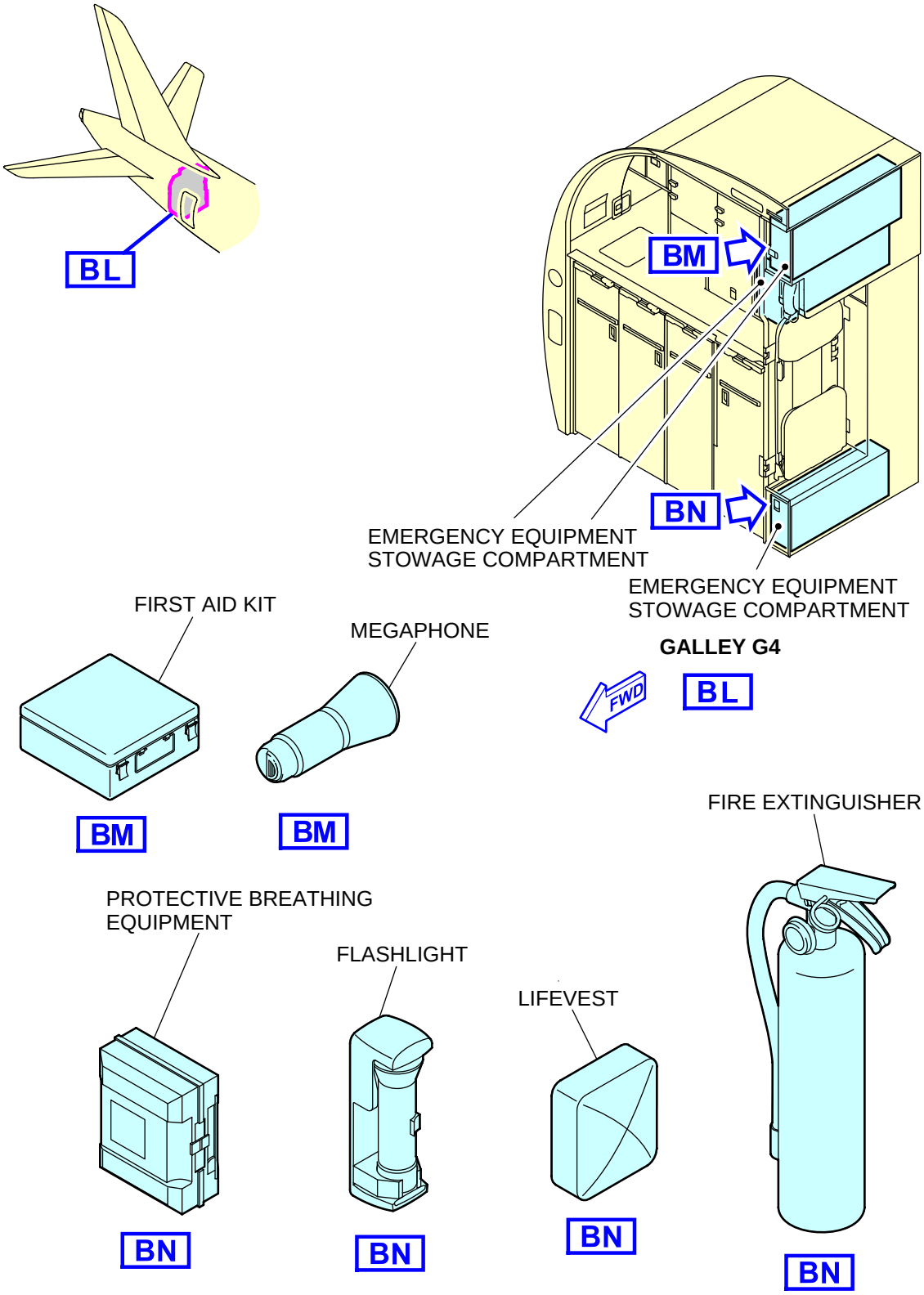
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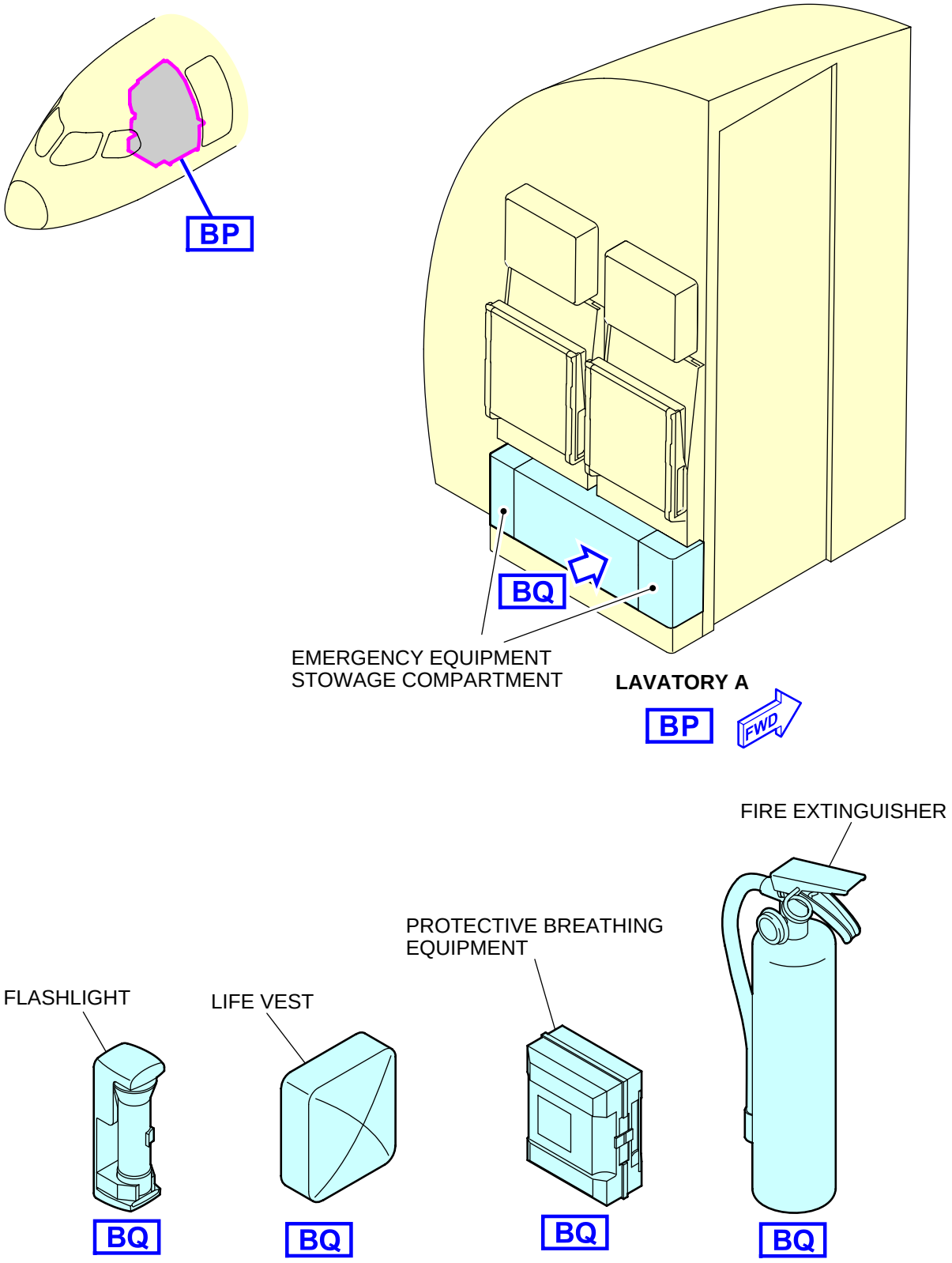
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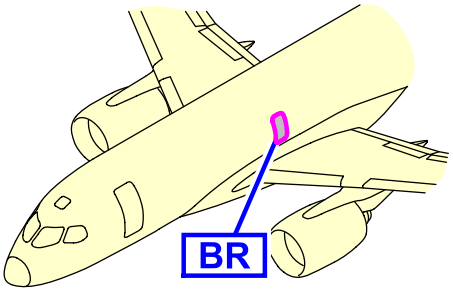
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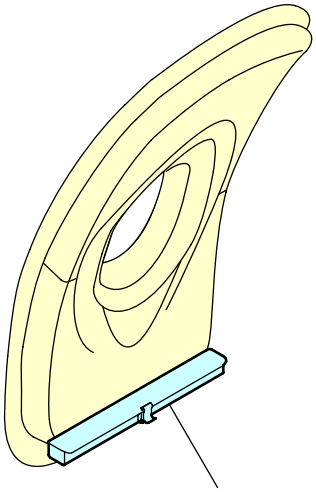
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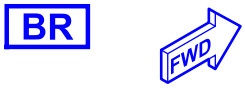
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Figure 2 Emergency equipment location - General data - (Sheet 24 of 25)



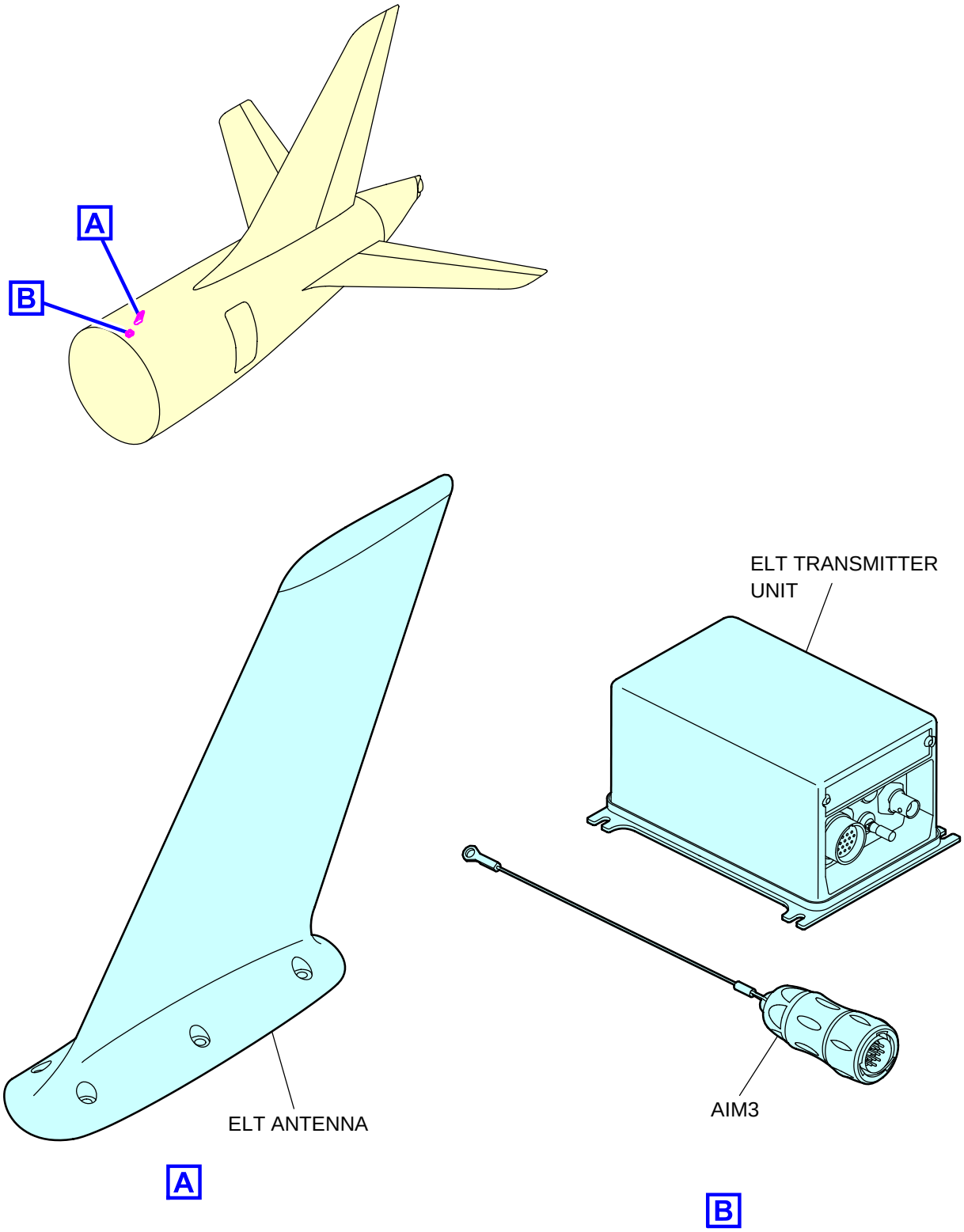


OVERWING EMERGENCY EXIT DOOR



ICN-BD500-A-J256100-C-3AB48-60824-A-001-01

Figure 2 Emergency equipment location - General data - (Sheet 25 of 25)



ICN-BD500-A-J154100-A-3AB48-01122-A-001-01

Figure 3 Emergency Locator Transmitter (ELT)

A220

Servicing points and procedures

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Applicable to: All

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Aircraft painting - Paint and apply marking

Applicability: 50001-54999, 55001-59999

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Table 1 References

Data Module/Technical Publication	Title
None	

Description

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

1 General

Some of the different methods that can be used to paint the aircraft are as follows:

Note

The most recommended painting method is listed last.

- Airless painting
- Airless electrostatic painting
- Air spray painting
- Air spray electrostatic painting.

1.1 Airless painting

Airless atomization is done with the movement of fluid at high pressure through a controlled orifice.

The airless painting method works best when it is necessary to quickly apply high volumes of coatings to large surface areas, and where the finish quality is not very important. Because of the decrease in finish quality, it is not recommended for the aviation industry. But, if airless paint-

ing is the only method available, you can decrease the amount of possible over−spray with the airless electrostatic painting method.

1.2 Airless electrostatic painting

Airless electrostatic painting will result in a finish of lower visual quality (than air spray), but because it does not need the same type of air filtration facilities as air spray painting it is usually less expensive than air spray. Airless electrostatic painting uses a pump to force the paint out of the spray gun, while at the same time it puts an electrostatic charge on the paint. An electrical connection between the surface to be painted and the spraying equipment causes the paint to be attracted to the surface and to be held there. This method results in an important decrease in the amount of over−spray when compared to the conventional air spray method.

The primary advantages of airless electrostatic painting are as follows:

- The aircraft can be painted in a standard hangar; but it still needs to be isolated from other aircraft. But, the ventilation facilities necessary are much less expensive than with air spray painting.
- The paint molecules that bond to the aircraft through its electrostatic charge results in much less over−spray; a decrease of 20% to 50% have been reported by some operators.
- The air quality and safety regulations and codes are easier to observe and thus are a deciding factor for many airline operators.

The disadvantages of airless electrostatic painting are as follows:

- If not applied correctly, the paint can run and snags can result. It is also possible for the paint to go on heavy and to “orange peel” if the viscosity of the paint is not adjusted correctly.
- The paints must be manufactured to not only hold the electrostatic charge, but at the same time prevent heavy buildup. Airless electrostatic and air sprayed paints also usually use different types of solvents.
- Regular masking paper cannot be used, as this type of paint will go through the paper and stain the areas below the paint. To prevent this problem, the use of special foil paper and aluminum tape is necessary.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

1.3 Air spray painting

Air spray is the most widely used finishing method in the aviation industry because it is very easy to use and can produce fine, smooth finishes.

Although a better quality finish can result with air spray painting, it is still necessary to control the release of dust and fumes through the use of higher-cost air filtration equipment and facilities. A major problem with air spray painting is the amount of over-spray that can occur. To decrease the amount of over−spray and still keep the same finish quality, it is recommended to use the air spray electrostatic painting method when possible.

1.4 Air spray electrostatic painting

Electrostatic technology applied to the air spray painting method will decrease the possibility of over-spray while at the same time giving a higher coating speed, and better film coverage than standard, non-electrostatic application methods.

2 Recommendations

WARNINGS

- **Because of the toxicity of paints, you must remember to have a good flow of clean air and wear approved body protection when you prepare and apply the primers and paints. Do not let them touch your skin or eyes and do not breath the fumes. Make sure that you have sufficient fire protection. Most primers, paints and solvents are poisonous and flammable.**

- **Many primers, paints and other materials used in the painting processes can also cause damage to the environment. When you discard these materials, you must follow the regulations that are locally applicable.**

For the highest level of finish quality and best possible result, with no relation to the type of painting method used, the steps that follow must be obeyed:

- All windows, glass, plastic, boots, antennas and delicate parts must be covered with approved over-spray protection materials (heavy grade foil tape, etc.) to make sure that protection is given during the complete painting processes.
- If chemical stripping is necessary during the preparation to remove existing paint, use only approved (aircraft-grade) chemicals which have been stabilized to prevent corrosion to aircraft aluminum.
- Hangar lighting must be of sufficient intensity and quantity to illuminate uniformly all of the aircraft surfaces to be painted.
- Temperature and humidity control is necessary, to make sure that the paint bonds correctly during all phases of the painting processes, including finish and curing.
- Work stands and scaffolding of different heights are necessary for easier access and to decrease the amount of time necessary to paint all surface areas of the aircraft. This will allow the painters to keep a wet edge on the coating that is being painted on the aircraft.
- Static discharge during painting can cause an explosion or a fire. To prevent the possibility of static discharge, the aircraft or assemblies to be painted must be correctly grounded before you start the painting.
- The painting facilities and equipment must be cleaned at regular intervals to prevent the contamination of painted surfaces from dirt and dust that can collect. For the same reason, lint rags and towels must not be left in the painting facilities.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Terminal servicing - Technical data

Applicability: 50001-54999, 55001-59999

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
None	

Description

1 Introduction

This data module contains the data related to the preparation of an aircraft for flight from a terminal. This data is provided to show the general types of tasks involved in terminal operations. Each airline has different operating conditions and practices, which can result in changes in the operating procedures and time intervals to do the tasks specified. Because of this, requirements for ground operations should be approved with the specified airline(s) before ramp planning is started. This section presents the following topics:

- Ground towing requirements
- Ground servicing connections
- Aircraft servicing arrangement
- Terminal operations
- Ground electrical power requirements
- Preconditioned airflow requirements – Air conditioning
- Ground pneumatic power requirements – Engine starting.

2 General

All applicable procedures and limitations are provided in the Aircraft Maintenance Publication (AMP) BD500-3AB48-10200-00.

3 Ground handling requirements

The Aircraft is designed for towing and pushing with a tractor and tow bar as well as with selected tow bar-less ground handling vehicles.

For towing and pushing operations, controls are provided to accommodate the following conditions:

- Aircraft not powered (see note below):
  A control panel is provided on the left side of the aircraft by the nose landing gear (NLG). A push-button on the control panel can be toggled to engage power to begin the towing sequence (Navigation lights are lit automatically). The parking brake can be deactivated by way of a switch located on this panel. Annunciation lights on the NLG indicate when the parking brake is deactivated and the aircraft is ready for towing.

  Note

  Availability of the controls to facilitate towing the aircraft with the flight deck vacant does not constitute an approval to conduct such operations.

- Aircraft powered, and flight deck occupied:
  Two separate controls, one to deactivate the nose wheel steering, and one to deactivate the parking brake, are located in both the flight deck and on the control panel located in the vicinity of the nose landing gear. Headset jacks are provided on this control panel to allow for communication between personnel on the flight deck and on the ground. Annunciation lights on the control panel indicate when the aircraft is ready for towing.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

With the torque links connected, towing up to ±130 degrees nose wheel angle is possible.

The ground towing requirements for the A220 aircraft are as follows:

- TBD lbs drawer pull
- TBD lbs weight.

For more information related to towing, refer to the Illustrated Tool and Equipment Publication (ITEP) BD500-3AB48-11600-00 and to the Aircraft Maintenance Publication (AMP) BD500-3AB48-10200-00.

3.1 Towing capabilities

Nose Landing Gear (NLG)/Main Landing Gear (MLG) pushing without a ground lock mechanism.

The system is compatible with an aircraft mounted MLG pushing device.

The NLG incorporates detection that provides Engine Indication and Crew Alerting System (EICAS) indication for over steer events occurring while the aircraft is powered or not powered.

It is possible to turn the nose wheel steering off from the vicinity of the NLG for towing.

Indication of the steering system's on/off status is displayed in the vicinity of the NLG in the same location as the "Brake On" status Indication.

Over-steering protection provided by a visual indicating witness pin located in the gear.

The NLG incorporates Nose Wheel Steering (NWS) and "Brake On" indication on the side of the fuselage and a towing indication unit located in the NLG (exact location under evaluation) that is visible from a tow truck driver position.

External panel shall have:

- One towing power switch
- One parking brake switch
- One navigation lights switch
- Jack for headphone connection.

The "Brake On" indication will be continuously available regardless of aircraft power.

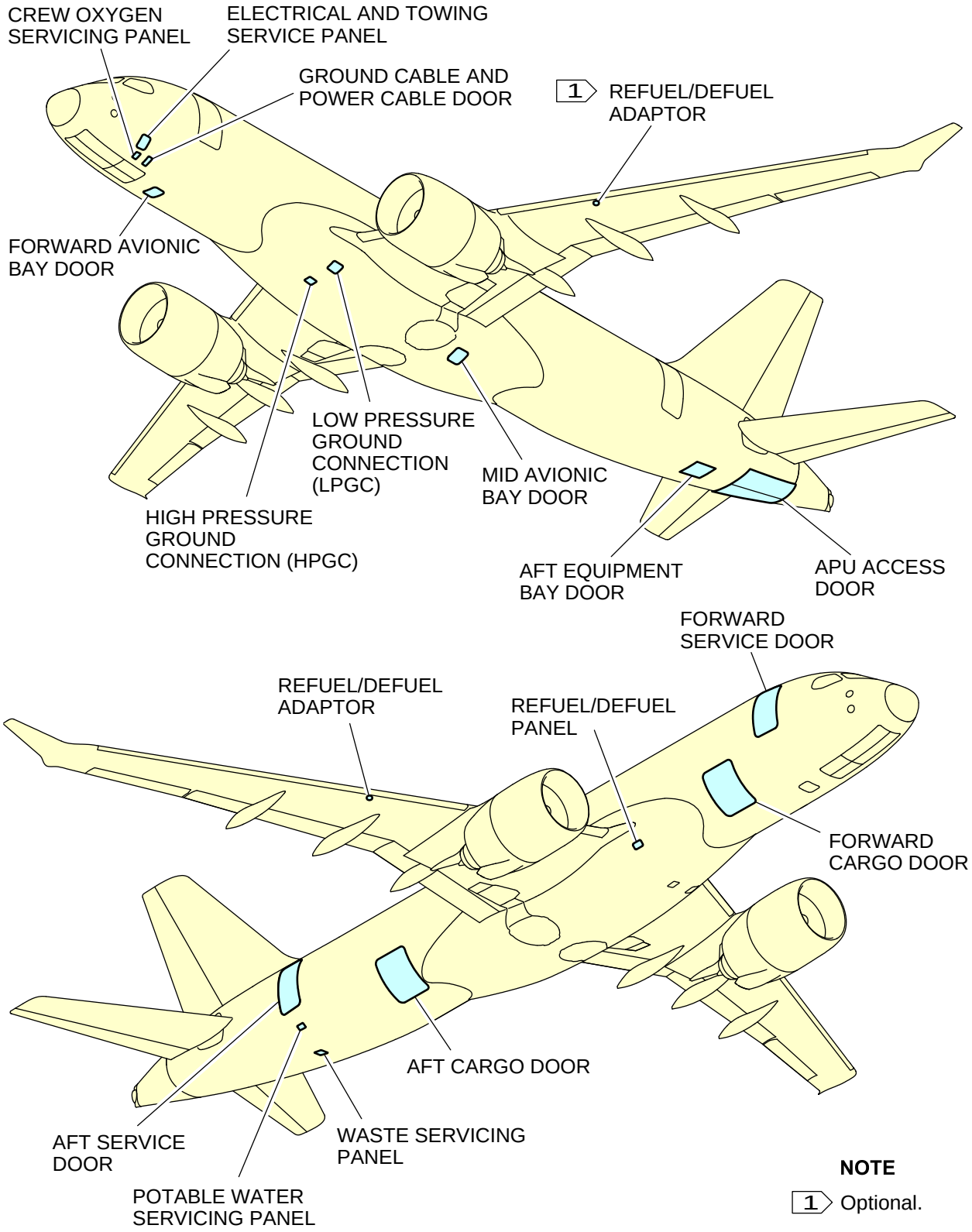
The NLG incorporates NWS and "Brake On" indication on the side of the fuselage and a towing indication unit located in the NLG that is visible from a tow truck driver position.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

4 Ground servicing connections

Refer to Fig. 1 for the ground servicing connection points. For servicing procedures, refer to the AMP.

All servicing points are designed and positioned to consider accessibility and compatibility with industry standard vehicles and other Ground Support Equipment (GSE). All applicable procedures and limitations are provided in the AMP.

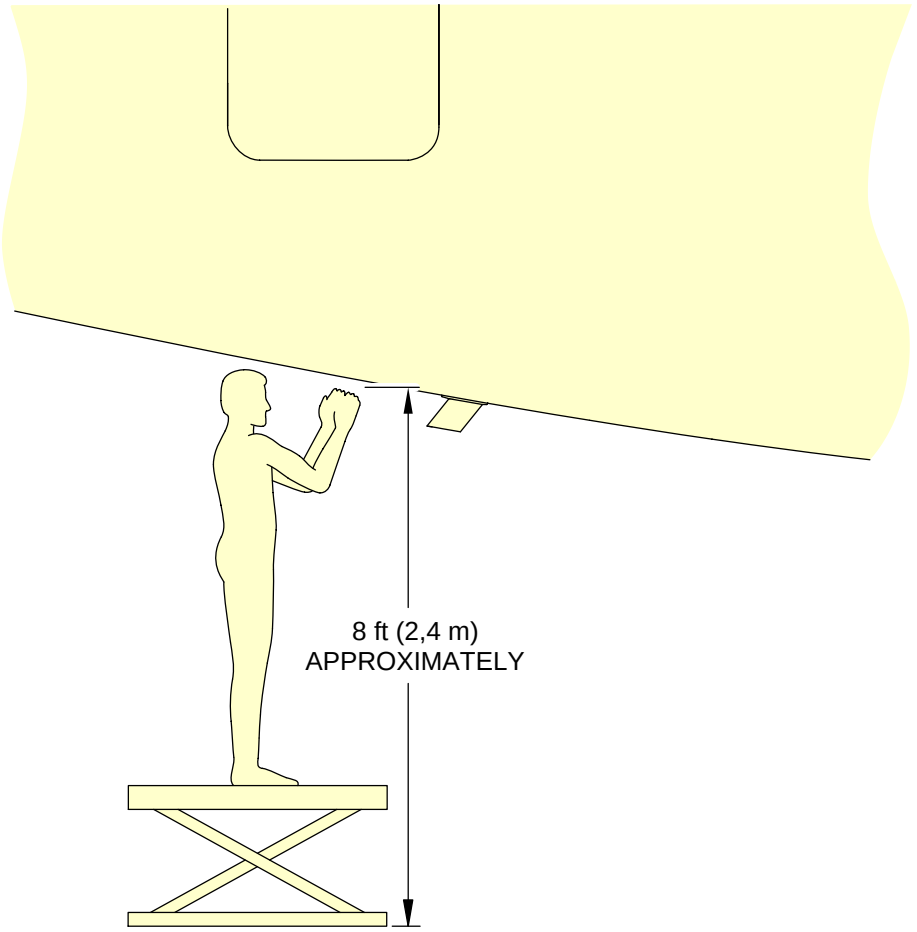


NOTE

1 Optional.

ICN-BD500-A-J000005-A-3AB48-00002-A-003-01

Figure 1 Ground servicing connections - (Sheet 1 of 2)



WATER AND WASTE SERVICING

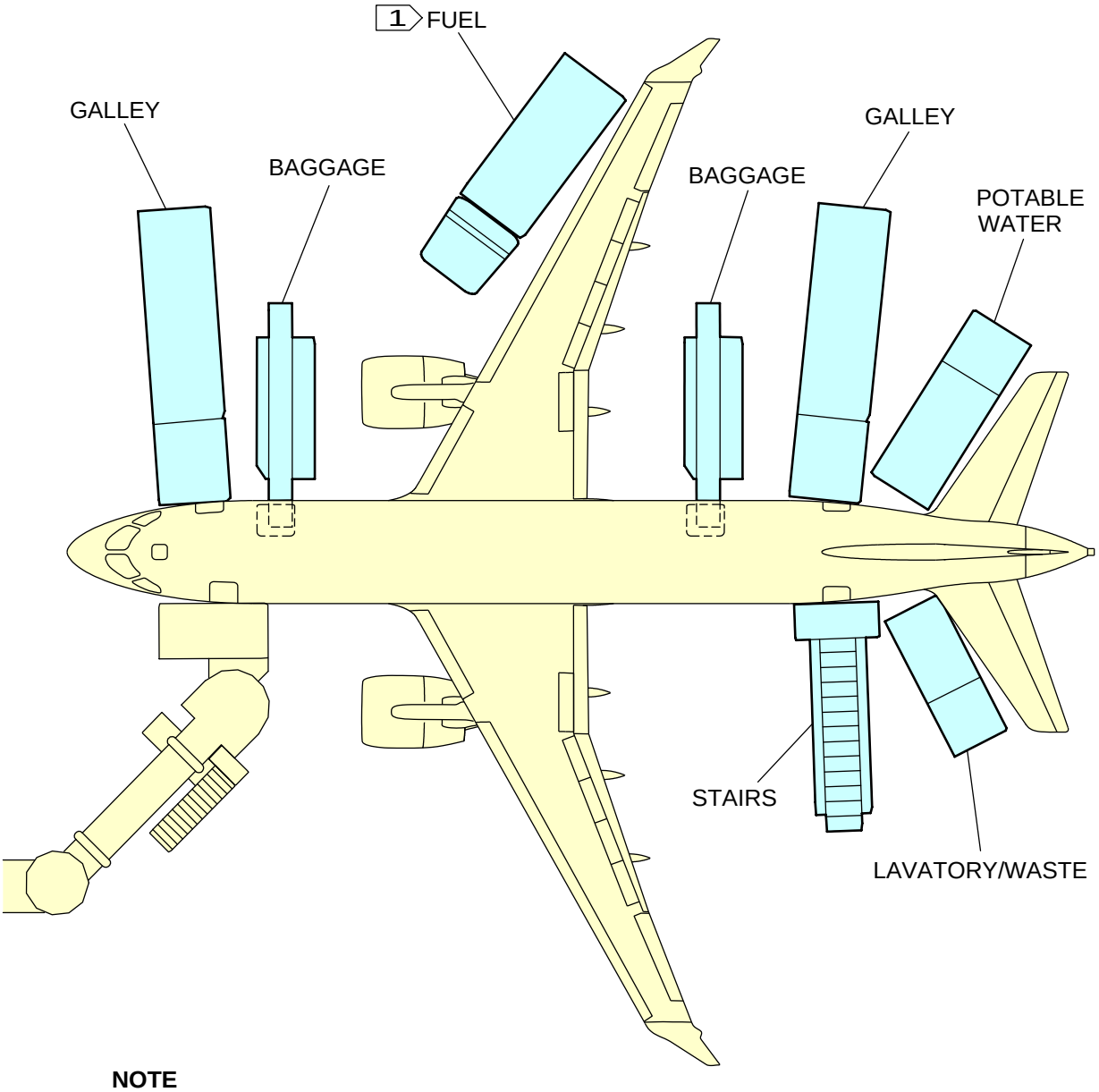
ICN-BD500-A-J000005-A-3AB48-00001-A-001-01

Figure 1 Ground servicing connections - (Sheet 2 of 2)

5 Aircraft servicing arrangement

Refer to Fig. 2 .

This publication has been superseded by the Aircraft Characteristics Publication (ACP).



NOTE

1 Left side optional.

ICN-BD500-A-J000005-A-3AB48-00003-A-002-01

Figure 2 Aircraft servicing arrangement

6 Terminal operations

Refer to for the turnaround station operations for the BD-500-1A10 (A220-100) and refer to Fig. 4 for the turnaround station operations for the BD-500-1A11 (A220-300).

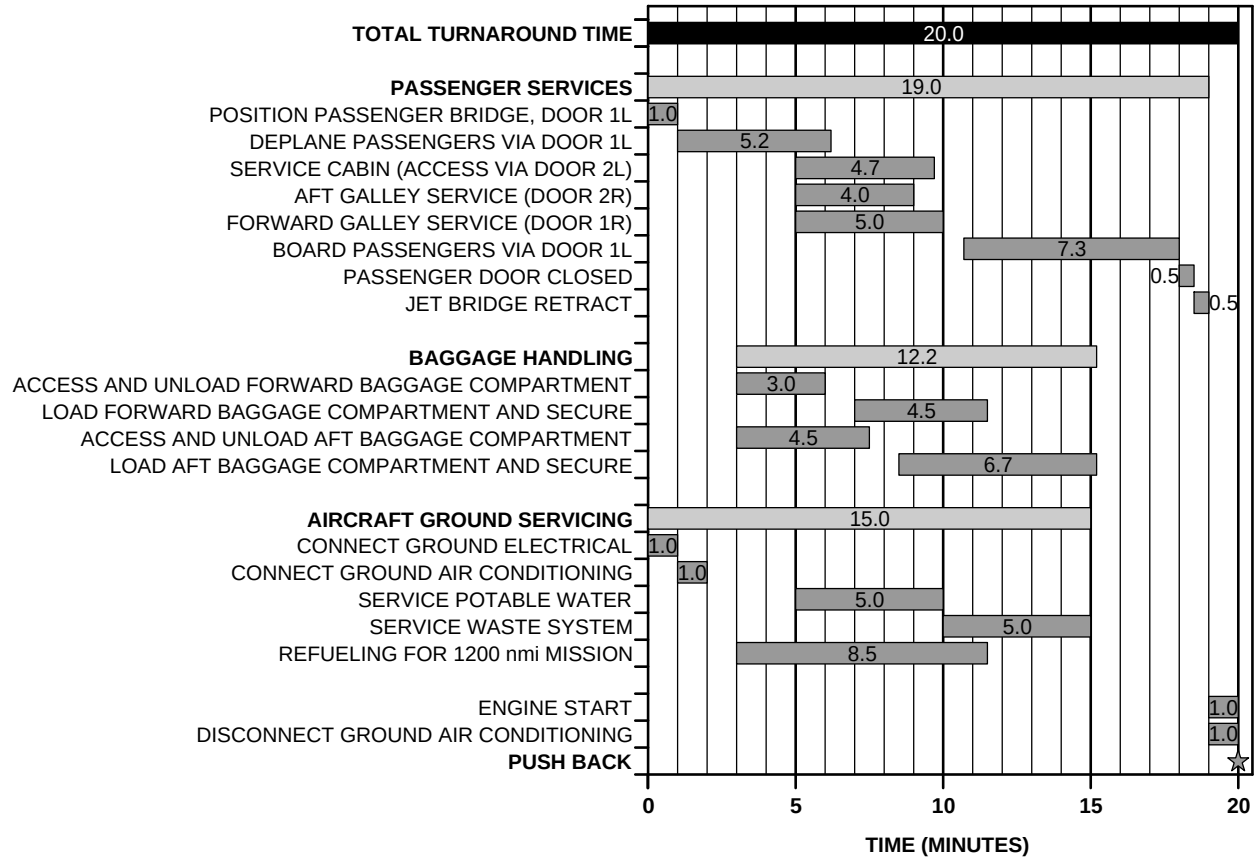
The turnaround time analysis is based on the following parameters (the values are for both models of aircraft except where indicated) :

- 100% Pax/baggage exchange
- 94 passengers (A220-100) / 115 passengers (A220-300) (85% load factor) / 1 class / 1 door
- 2 Galley service trucks
- Water/Waste servicing is sequential
- Cabin servicing during available time
- Passenger deplane rate is 18 per minute per door
- Passenger boarding rate is 12 per minute per door
- 2 bulk-loading belt-loaders
- 45 bags forward (A220-100) / 59 bags forward (A220-300), 67 bags aft (A220-100) / 79 bags aft (A220-300) (1.2 x 4 ft^3 (1.2 X 0.11 m^3) per passenger)
- Bag loading/unloading rates are 10 and 15 bags per minute
- Fuel loaded via one refuel/defuel adapter
- Refuel adapter rating id TBD USG/min (TBD L/min) at 50 psi (344.74 kPa)
- Mission range is 1200 NM (2222.4 km)
- Refueling performed while deplaning/boarding.

Note

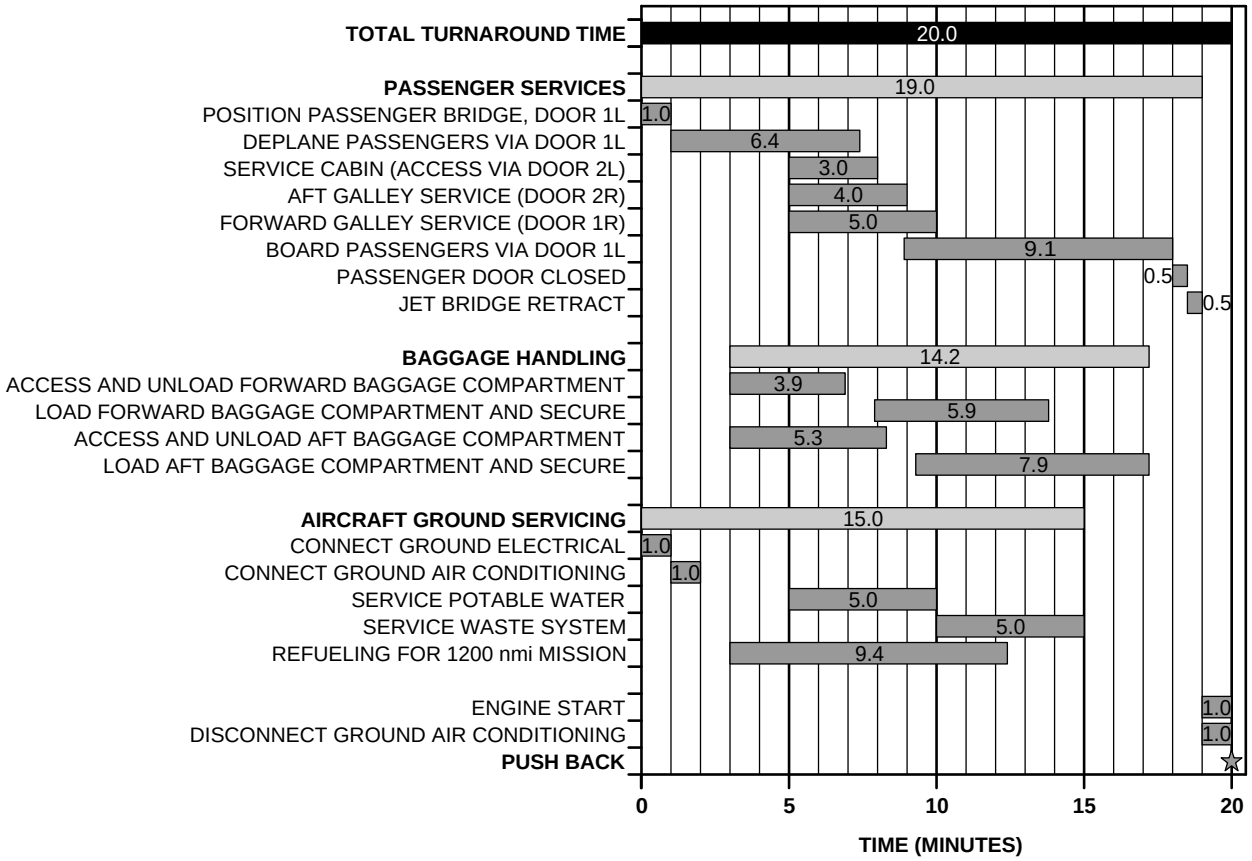
All equipment is assumed to function properly and weather condition to be normal. This data is provided to illustrate the general scope and type of operations involved in a terminal gate environment. Varying operating practices and circumstances may result in different task sequences and durations.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).



ICN-BD500-A-J000005-A-3AB48-00066-A-001-01

Figure 3 A220-100 Turnaround time analysis



ICN-BD500-A-J000005-A-3AB48-00067-A-001-01

Figure 4 A220-300 Turnaround time analysis

7 Ground electrical power requirements

The external power system is used to connect AC electrical power from a ground cart. There are no provisions to connect DC power from an external ground cart. External AC can be used to power the complete AC distribution system or only those buses that provide power to the passenger compartment.

Refer to Table 2 for the external AC power requirements data.

Refer to Table 3 for the external power quality limitations data.

Refer to Table 4 for the external AC power limitations data.

Refer to Table 5 for the voltage regulation data.

Refer to Table 6 for overcurrent protection ampere versus time delay.

Table 2 External AC power requirements

Voltage	Frequency
115 ± 5 V	400 ± 15 Hz

Table 3 External power quality limitations

Parameter	Setting limit	Response time
Overvoltage (high)	140 ±3 Vrms	TBD
Overvoltage (normal)	124 ±1 Vrms	TBD
Undervoltage	105.5 ±2.5 Vrms	TBD
Overfrequency	418 ±2 Hz	2 ±0.5 sec
Underfrequency	382 ±2 Hz	4 ±0.5 sec
Phase sequence	A-B-C	TBD

Table 4 External AC power limitations

Current	Limitation
Between 218 A and 326 A	300 ±1 sec
More than 326 A	4 ±1 sec

Table 5 Voltage regulation

Load	Limitation	Voltage
TBD	TBD	TBD
TBD	TBD	TBD
TBD	TBD	TBD

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Table 6 Overcurrent protection ampere versus time delay

Current	Time
TBD	TBD
TBD	TBD
TBD	TBD
TBD	TBD
TBD	TBD
TBD	TBD
TBD	TBD

8 Preconditioned airflow requirements – Air conditioning

The ground air supply requirements for air conditioning and airflow requirements are shown in Table 7 for the High Pressure Ground Cart (HPGC), in Table 8 for the A220-100 Low Pressure Ground Cart (LPGC) , and in Table 9 for the for the A220-300 LPGC.

Table 7 HPGC - Ground air supply requirements for cooling and heating

Requirements	Pressure	Airflow	Temperature
To cool cabin to 75.2 °F (24 °C)	40 psig (276 kPa)	140 lb/min (63.5 kg/min)	400 ºF (204 ºC)
To heat cabin to 75.2 °F (24 °C)	25 psig (173 kPa)	140 lb/min (63.5 kg/min)	400 ºF (204 ºC)

Table 8 LPGC – A220-100 Ground air supply requirements for cooling and heating

Requirements	Pressure	Airflow	Temperature
To cool cabin to 75.2 °F (24 °C) (recirculation fan on)	0.6 psig (4.1 kPa)	120 lb/min (54.4 kg/min)	41 ºF (5 ºC)
To heat cabin to 75.2 °F (24 °C) (recirculation fan on)	0.9 psig (6.2 kPa)	120 lb/min (54.4 kg/min)	104 ºF (40 ºC)

Table 9 LPGC – A220-300 Ground air supply requirements for cooling and heating

Requirements	Pressure	Airflow	Temperature
To cool cabin to 75.2 °F (24 °C) (recirculation fan on)	0.6 psig (4.1 kPa)	135 lb/min (61 kg/min)	41 ºF (5 ºC)
To heat cabin to 75.2 °F (24 °C) (recirculation fan on)	0.9 psig (6.2 kPa)	135 lb/min (61 kg/min)	104 ºF (40 ºC)

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

9 Ground pneumatic power requirements – Engine starting

The ground air supply requirements for engine starting are shown in Table 10 .

Conditions:

- Time allowed during start (to starter cutout) is 90 seconds
- Time-to-IDLE on ground is 45 seconds minimum
- No bleed air extraction is permitted during start sequence

Table 10 Ground pneumatic power requirements – Engine starting

Requirements	Pressure	Airflow	Temperature
To provide starter air pressure	TBD	TBD	TBD

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Wet wash - Clean and apply surface protection

Applicability: 50001-54999, 55001-59999

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
BD500-A-J10-12-00-01AAA-720A-A	Aircraft protection equipment - Install procedure
BD500-A-J24-00-00-01AAA-561A-A	Electrical power - General - De-Energize electrical network
BD500-A-J10-12-00-01AAA-520A-A	Aircraft protection equipment - Remove procedure

Common information

This data module gives the procedure to clean and remove the contamination on the external surfaces of the aircraft. This is required to prevent the deterioration of the paint and to decrease the risk of corrosion. It is recommended to clean the aircraft frequently.

Preliminary requirements

Required conditions

Table 2 Required conditions

Action/Condition	Data Module/Technical publication
Make sure the aircraft is safe for maintenance.	

Action/Condition	Data Module/Technical publication
Make sure the aircraft is de-energized.	BD500-A-J24-00-00-01AAA-561A-A
Install the aircraft protection equipment.	BD500-A-J10-12-00-01AAA-720A-A

Support equipment

Table 3 Support equipment

Name	Identification/Reference	Quantity	Remark
None			

Consumables, materials, and expendables

Table 4 Consumables, materials, and expendables

Name	Identification/Reference	Quantity	Remark
Lint free, cotton cloth, cleaning for aircraft primary and secondary structural surfaces	05-425	AR	
Sponge	05-042	AR	
Compound, hand dishwashing (synthetic detergent, liquid form)	11-001	AR	
Isopropyl alcohol (IPA)	11-004	AR	
Special Cleaning Concentrate	11-109	AR	
Cleaning agent	11-127	AR	
Cleaner	11-128	AR	
Water-based cleaning concentrate	11-129	AR	

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Spares

Table 5 Spares

Name	Identification/Reference	Quantity	Remark
None			

Safety conditions

None

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Procedure

WARNINGS

- **Obey the precautions that follow when you do work on or near the windshield or the windows:**
  - **Be careful because the window surfaces have high levels of static voltage for many hours after flight.**
  - **Make sure that you use only approved tools that cannot scratch the surfaces.**
  - **Make sure that you do not have jewelry or other sharp objects on you.**
  - **Use only approved cleaning agents. Other solvents can cause damage to acrylic surfaces. The liquid used in this procedure can cause injury to your skin and eyes.**
  - **Do not use too much force on the surface. The surface can become hot and have deformation.**

  You can cause injury to persons and damage to the equipment.

- **Obey the precautions that follow when you use cleaning agents:**
  - **Use approved eye, mouth, and body protection**
  - **Do the work in an area that has a good flow of clean air or use a breathing apparatus**
  - **Make sure that the area has no sparks, flames, or hot surfaces**
  - **Obey the manufacturer's instructions**
  - **Do not let the cleaning agent touch your skin, eyes, or mouth**
  - **If irritation occurs, get medical aid immediately.**

  Cleaning agents can be flammable, poisonous, and can cause corrosion.

- **Obey the precautions that follow when you use solvents:**
  - **Use approved eye, mouth, and body protection**
  - **Do the work in an area that has a good flow of clean air**
  - **Make sure that the area has no sparks, flames, or hot surfaces**
  - **Obey the manufacturer's instructions**
  - **Do not let the solvent touch your skin, eyes, or mouth**
  - **If irritation occurs, get medical aid immediately.**

  Solvents are poisonous and can cause injury.

- **Do not stand on aircraft surfaces that are wet. Wet surfaces can cause you to fall. This can cause injury to persons.**

CAUTIONS

- **Do not clean the aircraft when the temperature is less than 41 degree Fahrenheit (5 degree Celsius). Ice can form on the surfaces of the aircraft.**

- **Use appropriate cleaning materials to avoid damaging the window surface.**

- **When cleaning the view ports use correct cleaner to avoid damaging crystal view protection.**

- **Do not wash parts if water can go in them and you cannot dry them satisfactorily. Water that stays in parts can cause damage.**

1 Clean the external surface of radome, painted fuselage, wings, horizontal stabilizer, vertical stabilizer, Wing To Body Fairing (WTBF), cockpit windshield, or side window as follows:

Note

Before you clean, make sure that all repairs were done and that there is no damaged area that is not repaired.

1.1 Wash the external surface of radome, painted fuselage, wings, horizontal stabilizer, vertical stabilizer and WTBF as follows:

1.1.1 Prepare the cleaning solution (11-001) .

Note

Follow the manufacturer’s instructions written on the detergent container.

Note

Recommended water qualities are as follow:

- pH between 5 and 8.5
- Chlorine level less than 100 ppm

1.1.2 With a wet sponge (05-042) , rub the cleaning solution (11-001) over small area at a time.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Note

Do not let the cleaning solution dry on the external surface.

1.1.3 Flush the cleaning solution (11-001) from the external surface with a continuous flow of clear water.

1.2 If you can still see stains after the wash, remove all stains as follows:

1.2.1 Apply the cleaning solution (11-001) to the external surfaces with a wet sponge (05-042) .

1.2.2 Leave the cleaning solution (11-001) soak for five minutes.

1.2.3 Apply the cleaning solution (11-001) again if necessary to keep the surface wet.

1.2.4 With the wet sponge (05-042) , lightly rub the external surface to loosen the stains.

1.2.5 Rinse the external surface, keep a continuous flow of water until the cleaning solution (11-001) is flushed away.

Note

Hot water at 140 degree Fahrenheit (60 degree Celsius) maximum is recommended.

1.2.6 Lightly rub the external surface with a clean and dry low-lint cloth (05-425) .

1.2.7 Repeat the procedure until the external surface is completely dry.

1.3 Wash the windshield or side window of the cockpit as follows:

1.3.1 Use a clean water spray to clean the glass surface.

1.3.2 If clean water spray is not possible, clean the glass surface with the clean sponge (05-042) or clean cloth (05-425) .

Note

This will remove the dirt and other unwanted and abrasive materials.

1.3.3 Prepare the cleaning solution as follows:

1.3.3.1 Mix equal amounts of water and Isopropyl Alcohol (IPA) (11-004) and 2 to 5 % of detergent (11-001) .

1.3.4 Apply the cleaning solution on the glass surface with the wet sponge (05-042) .

Note

Do not let the cleaning solution dry on the external surface.

1.3.5 Rinse the glass surface with the continuous flow of water, until the cleaning solution is flushed away.

1.3.6 Dry the glass surface with the clean sponge (05-042) or dry cloth (05-425) .

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

2 Clean dirt, oil, grease or stubborn stains on the external surfaces (except windshield and windows) as follows:

2.1 Dilute the cleaning concentrate (11-109) with water as per manufacturer's instructions.

2.2 Apply the cleaning solution prepared in Step 2.1 to the applicable external surface and rub small areas at a time.

2.3 Rinse the surface with fresh water.

2.4 Dry the applicable surface with a clean and dry cloth (05-425) .

3 Clean the external surfaces (except windshield) as follows:

3.1 Dilute the cleaning concentrate (11-128) , (11-129) with water (refer to the instructions of the manufacturer). For the cleaning agent gel (11-127) , obey the instructions of the manufacturer for the cleaning gel preparation.

3.2 Apply the cleaning solution prepared in Step 3.1 to the applicable external surface and gently rub small areas at the time.

3.3 Rinse the external surfaces with fresh water. Make sure that all of the cleaning product was removed.

3.4 Dry the applicable surface with a clean and dry cloth.

Requirements after job completion

Required conditions

Table 6 Required conditions

Action/Condition	Data Module/Technical publication
Remove all tools, equipment, and unwanted materials from the work area.	
Remove the aircraft protection equipment.	BD500-A-J10-12-00-01AAA-520A-A
Return the aircraft to the operating configuration.	
If necessary, clean the applicable area by hand.	

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Dry wash - Clean and apply surface protection

Applicability: 50001-54999, 55001-59999

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
BD500-A-J24-00-00-01AAA-761A-A	Electrical power - General - Energize electrical network
BD500-A-J24-00-00-01AAA-561A-A	Electrical power - General - De-Energize electrical network

Common information

Introduction

This data module gives the procedure to clean the external surfaces of the aircraft to remove contamination that has collected. It is recommended that the aircraft be washed and polished frequently. This helps prevent deterioration of the paint and to keep the risk of corrosion to a minimum. A clean aircraft also uses less fuel and helps passengers feel safe.

Refer to Fig. 1 for the location of all aircraft surfaces in composite materials and to Fig. 2 for the location of the windows and canopies. Refer to the cleaning agent instructions prior to use on those surfaces.

Preliminary requirements

Required conditions

Table 2 Required conditions

Action/Condition	Data Module/Technical publication
Make sure the aircraft is safe for maintenance.	
Energize the aircraft.	BD500-A-J24-00-00-01AAA-761A-A
Make sure that the thermal circuit breakers that follow are opened:	

Name	CB Number/Location
ADS PROBE HEAT 3A	L-CBP-G2
L TAT HEAT	L-CBP-G1
ADS PROBE HEAT 4A	L-CBP-H2
R TAT HEAT	L-CBP-H1
CCP 1	L-CBP-D2
ADS PROBE 3	R-CBP-B1
ADS3 INVERTER IN	EPC3-A2
ADS4 INVERTER IN	EPC3-A3

Make sure that the electronic circuit breakers that follow are OUT on the synoptic page:

Name	CB Number/Location
APU INLET DOOR PWR	CDC1-8-2
ADS PROBE 1	CDC3-6-8
ADS PROBE 2	CDC4-4-16
ADS PROBE 4	CDC2-5-16
ADS PROBE HEAT 1A	CDC3-14-1
ADS PROBE HEAT 1B	CDC4-9-1
ADS PROBE HEAT 2A	CDC4-9-2

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Action/Condition	Data Module/Technical publication	
	Name	CB Number/Location
	ADS PROBE HEAT 2B	CDC3-14-2
	L AOA CASE HEAT	CDC3-5-2
	R AOA CASE HEAT	CDC4-4-2
	L AOA VANE HEAT	CDC3-6-4
	L AOA VANE CTRL	CDC1-8-14
	R AOA VANE CTRL	CDC4-4-9
	L ECS SNSR	CDC1-6-10
	R ECS SNSR	CDC2-6-8
	ACMP 2B	EPC1-AC-2B
	ACMP 3A	EPC2-AC-3A
	ACMP 3B	EPC2-AC-3B
Install the Angle of Attack (AOA) covers.		
Install the Air Data System Probe (ADSP) covers.		
Install the Total Air Temperature (TAT) covers.		
Examine the aircraft for heavy hydraulic fluid (Skydrol) particle. Refer to the aircraft cleaner procedure.		
Examine the aircraft for the black particles (carbon) on the fuselage (Auxiliary Power Unit (APU) and engine exhaust. Refer to the aircraft cleaner procedure.		

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Support equipment

Table 3 Support equipment

Name	Identification/Reference	Quantity	Remark
Maintenance platform - above 15 ft (4.6 m), or equivalent	STD-0325	1	

Consumables, materials, and expendables

Table 4 Consumables, materials, and expendables

Name	Identification/Reference	Quantity	Remark
Cloth, lint-free, flushing and cleaning	05-076	AR	
Cleaner, aircraft	11-075	AR	
Dry wash	11-099	AR	
Water-based dry wash/ polish	11-102	AR	

Spares

Table 5 Spares

Name	Identification/Reference	Quantity	Remark
None			

Safety conditions

None

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Procedure

Note

The aircraft could be energized as per BD500-A-J24-00-00-01AAA-761A-A with the thermal circuit breakers open and the electronic circuit breakers OUT as per the required conditions, Table 2.

The aircraft could be de-energized as per BD500-A-J24-00-00-01AAA-561A-A.

1 Clean the aircraft surfaces to remove contamination of dried hydraulic fluid (Skydrol) particle. Refer to the aircraft cleaner procedure.

1.1 Clean all of the bottom surface of the fuselage with the aircraft cleaner. Refer to the aircraft cleaner procedure.

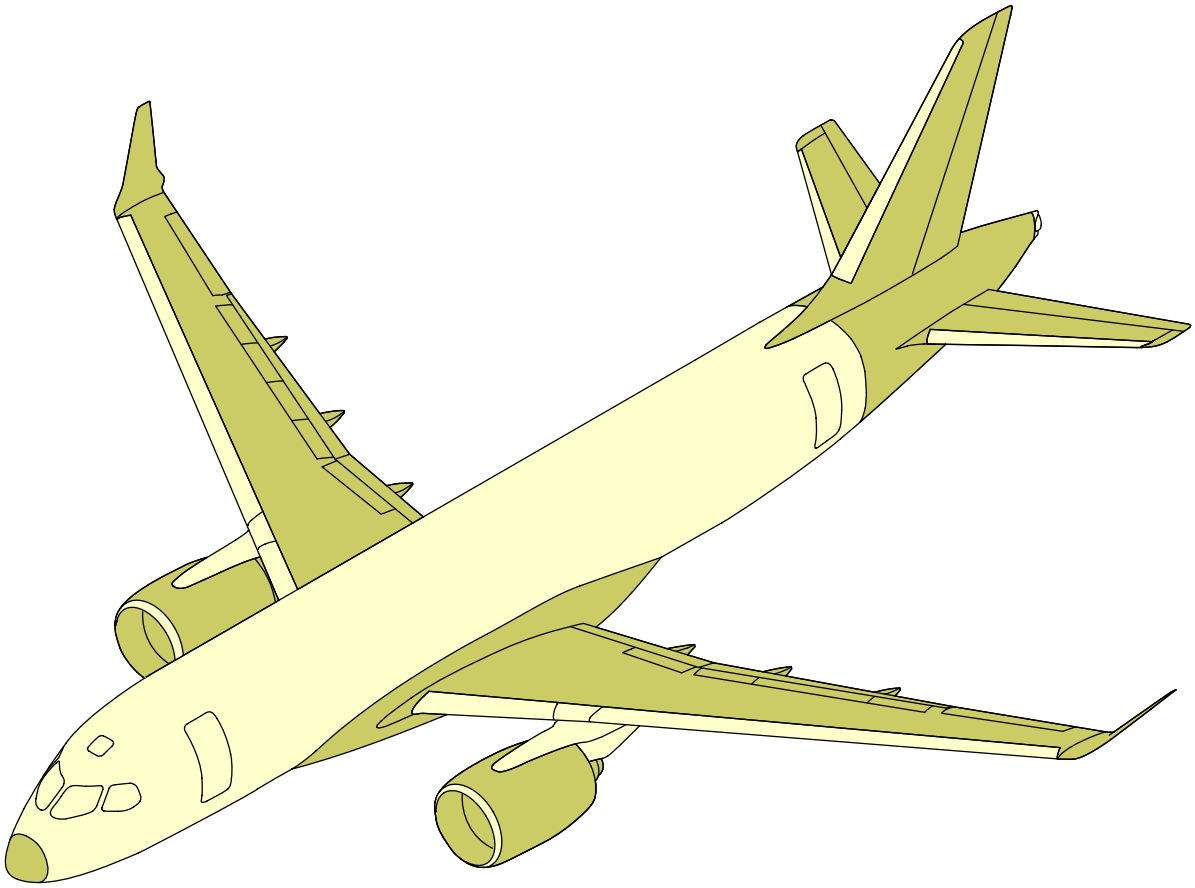
2 Clean the full aircraft from the bottom to the top.

3 Remove the items that follow:

- The AOA covers
- The ADSP covers
- The TAT covers

4 Clean the dust from the areas that were covered, with a lint free cloth.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

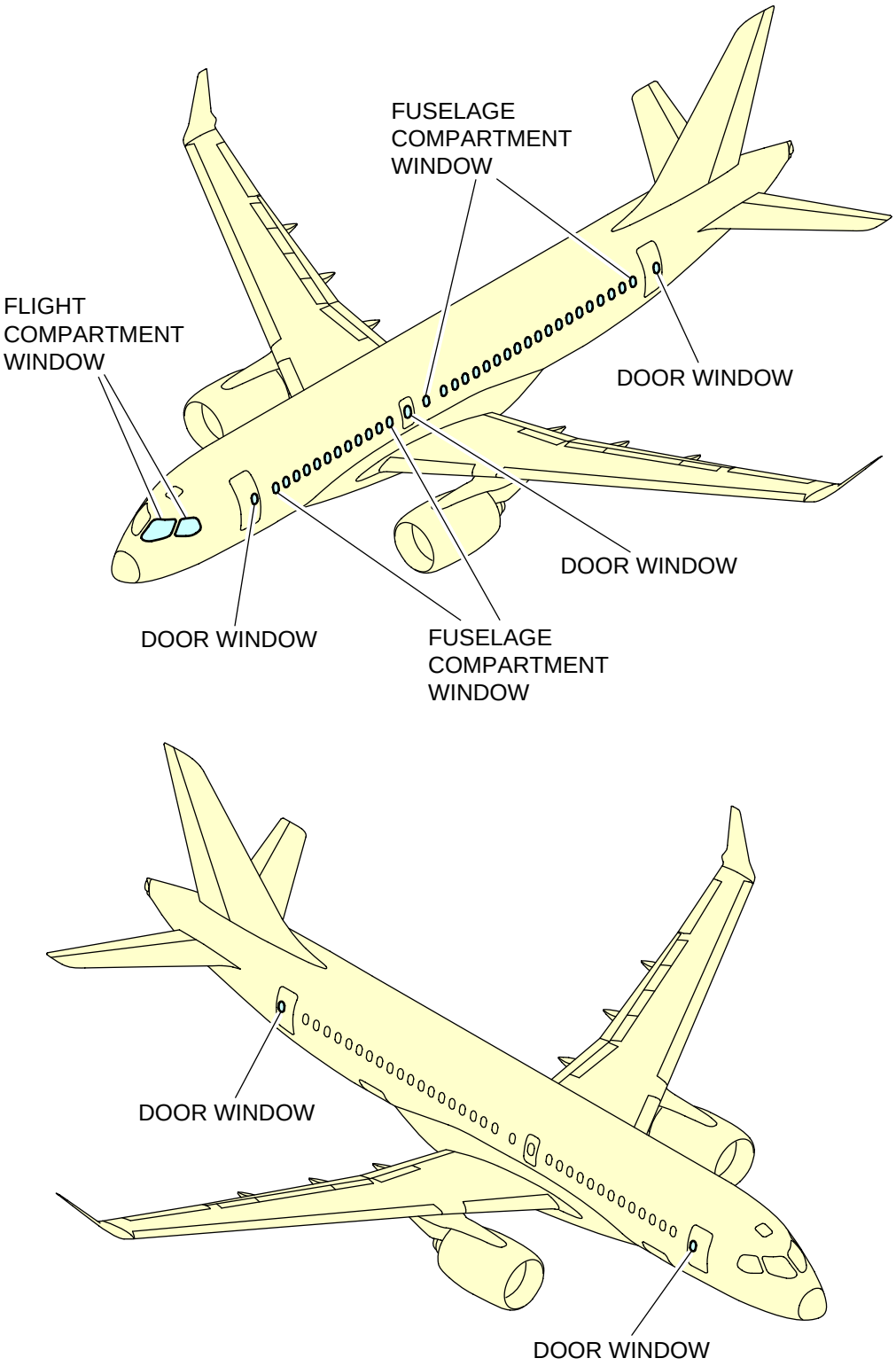


LEGEND

Composite.

ICN-BD500-A-J079500-C-3AB48-24022-A-001-01

Figure 1 Aircraft surfaces in composite materials



ICN-BD500-A-J560000-C-3AB48-18090-A-001-01

Figure 2 Windows and canopies

Requirements after job completion

Required conditions

Table 6 Required conditions

Action/Condition	Data Module/Technical publication
Remove all tools, equipment and unwanted materials from the work area.	
Close all thermal and electronic circuit breakers.	
Return the aircraft to the operating configuration.	

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

A220

External air conditioning source - Disconnect procedure

Applicability: 50001-54999, 55001-59999

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1 Low pressure ground system 5

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
BD500-A-J21-00-00-00AAA-913C-A	ECS safety precautions - General maintenance safety procedure
BD500-A-J52-11-00-01AAA-740A-A	Forward Passenger Door (FPD) - Close after access procedure
BD500-A-J52-12-00-01AAA-740A-A	Aft Passenger Door (APD) - Close after access procedure
BD500-A-J52-45-00-01AAA-740A-A	Forward Service Door (FSD) - Close after access procedure
BD500-A-J52-46-00-01AAA-740A-A	Aft Service Door (ASD) - Close after access procedure
BD500-A-J52-42-00-01AAA-740A-A	Forward avionics compartment door - Close after access procedure
BD500-A-J52-43-00-01AAA-740A-A	Mid avionics compartment door - Close after access procedure
BD500-A-J52-30-00-01AAA-740A-A	Cargo compartment door - Close after access procedure

Common information

This data module gives the procedure to remove the external source of air conditioning from the aircraft. The air conditioning is supplied to the aircraft through a Low Pressure Ground Connection (LPGC) installed in the Wing To Body Fairing (WTBF).

Preliminary requirements

Production maintenance data

Zones	191		Forward wing to fuselage fairing, left side
Access points	191BB	Door	

Required conditions

Table 2 Required conditions

Action/Condition	Data Module/Technical publication
Make sure that the aircraft is safe for maintenance.	
Obey all the Environmental Control System (ECS) safety precautions.	BD500-A-J21-00-00-00AAA-913G-A

Support equipment

Table 3 Support equipment

Name	Identification/Reference	Quantity	Remark
Heating or air conditioning cart	STD-0133	1	Used for environmental control of the aircraft when it is de-energized.

Consumables, materials, and expendables

Table 4 Consumables, materials, and expendables

Name	Identification/Reference	Quantity	Remark
None			

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Spares

Table 5 Spares

Name	Identification/Reference	Quantity	Remark
None			

Safety conditions

WARNING

Be careful when you remove or install the Low Pressure Ground Connection (LPGC) cover. The cover internal edges are sharp and can cause injuries to personnel.

This publication has been superceded by the Aircraft Characteristics Publication (ACP).

Procedure

1 Remove the air conditioning cart (Commercially available, Pt. No. STD-0133)(Commercially available, Pt. No. STD-0133) as follows:

1.1 Stop the air conditioning supply.

1.2 Disconnect the air conditioning cart (Commercially available, Pt. No. STD-0133)(Commercially available, Pt. No. STD-0133) from the LPGC.

1.3 Instal the cover of the LPGC.

Note

Make sure the pin of the lanyard is correctly installed and secured on the LPGC cover.

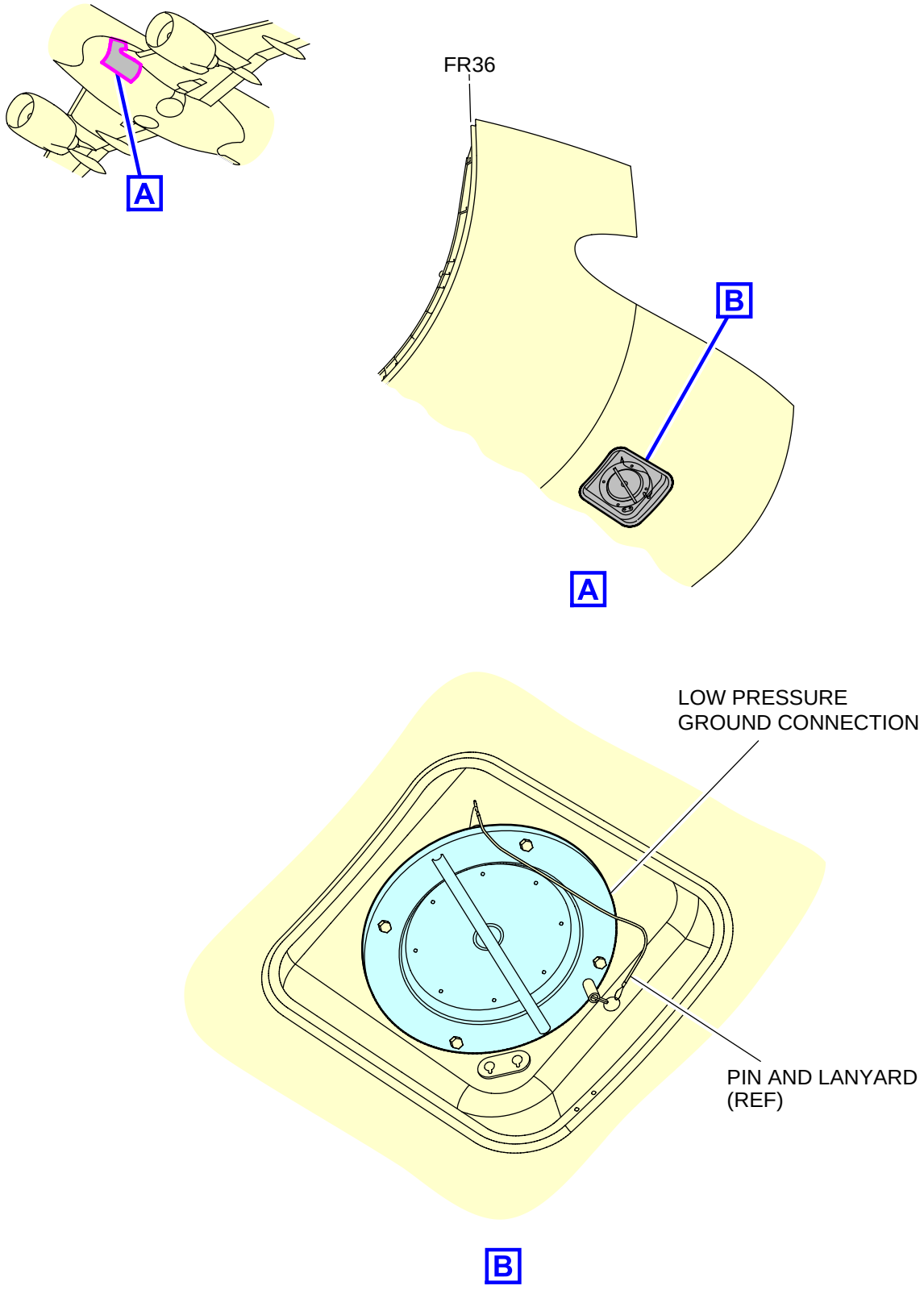
1.4 Close the applicable door that follows:

- Forward Passenger Door (FPD). Refer to BD500-A-J52-11-00-01AAA-740A-A.
- Aft Passenger Door (APD). Refer to BD500-A-J52-12-00-01AAA-740A-A.
- Forward Service Door (FSD). Refer to BD500-A-J52-45-00-01AAA-740A-A.
- Aft Service Door (ASD). Refer to BD500-A-J52-46-00-01AAA-740A-A.
- Forward avionics compartment door. Refer to BD500-A-J52-42-00-01AAA-740A-A.
- Mid avionics compartment door. Refer to BD500-A-J52-43-00-01AAA-740A-A.
- Cargo compartment door. Refer to BD500-A-J52-30-00-01AAA-740A-A.

1.5 Make sure the EMER DEPRESS Push Button Annunciator (PBA) is in the normal condition as follows:

- On the pressurization panel, push out the EMER DEPRESS PBA.
- Make sure that the PBA goes off.
- On the Engine Indication and Crew Alerting System (EICAS) display, make sure that the EMER DEPRESS ON amber caution message does not show.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).



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Figure 1 Low pressure ground system

Requirements after job completion

Required conditions

Table 6 Required conditions

Action/Condition	Data Module/Technical publication
Remove all tools, equipment, and unwanted materials from the work area.	
Make sure that the access door is closed. Refer to the access points table above for details.	

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

A220

External air conditioning source - Connect procedure

Applicability: 50001-54999, 55001-59999

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1 Low pressure ground system - Connect procedure 7

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
BD500-A-J21-00-00-00AAA-913G-A	ECS safety precautions - General maintenance safety procedure
BD500-A-J24-41-00-01AAA-761A-A	External AC power source - Energize electrical network
BD500-A-J52-11-00-01AAA-540A-A	Forward Passenger Door (FPD) - Open for access procedure
BD500-A-J52-12-00-01AAA-540A-A	Aft Passenger Door (APD) - Open for access procedure
BD500-A-J52-45-00-01AAA-540A-A	Forward Service Door (FSD) - Open for access procedure
BD500-A-J52-46-00-01AAA-540A-A	Aft Service Door (ASD) - Open for access procedure
BD500-A-J52-42-00-01AAA-540A-A	Forward avionics compartment door - Open for access procedure
BD500-A-J52-43-00-01AAA-540A-A	Mid avionics compartment door - Open for access procedure
BD500-A-J52-30-00-01AAA-540A-A	Cargo compartment door - Open for access procedure

Common information

This data module gives the procedure to connect an external source of air conditioning. The air conditioning is supplied to the aircraft through a Low Pressure Ground Connection (LPGC) installed in the Wing To Body Fairing (WTBF).

Preliminary requirements

Production maintenance data

Zones	191		Forward wing to fuselage fairing, left side
Access points	191BB	Door	

Required conditions

Table 2 Required conditions

Action/Condition	Data Module/Technical publication
Make sure that the aircraft is safe for maintenance.	
Obey all the Environmental Control System (ECS) safety precautions.	BD500-A-J21-00-00-00AAA-913G-A
Make sure that the access door is open. Refer to the access points table above for details.	
Connect and energize the external electrical system.	BD500-A-J24-41-00-01AAA-761A-A

Support equipment

Table 3 Support equipment

Name	Identification/Reference	Quantity	Remark
Heating or air conditioning cart	STD-0133	1	Used for environmental control of the aircraft when it is de-energized.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Consumables, materials, and expendables

Table 4 Consumables, materials, and expendables

Name	Identification/Reference	Quantity	Remark
None			

Spares

Table 5 Spares

Name	Identification/Reference	Quantity	Remark
None			

Safety conditions

WARNING

Be careful when you remove or install the Low Pressure Ground Connection (LPGC) cover. The cover internal edges are sharp and can cause injuries to personnel.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Procedure

1 Connect the air conditioning cart (Commercially available, Pt. No. STD-0133)(Commercially available, Pt. No. STD-0133) as follows:

1.1 Do one of these steps to make sure that there is an exit for the conditioned air:

1.1.1 Open one of the applicable doors that follows:

- Forward Passenger Door (FPD). Refer to BD500-A-J52-11-00-01AAA-540A-A.
- Aft Passenger Door (APD). Refer to BD500-A-J52-12-00-01AAA-540A-A.
- Forward Service Door (FSD). Refer to BD500-A-J52-45-00-01AAA-540A-A.
- Aft Service Door (ASD). Refer to BD500-A-J52-46-00-01AAA-540A-A.
- Forward avionics compartment door. Refer to BD500-A-J52-42-00-01AAA-540A-A.
- Mid avionics compartment door. Refer to BD500-A-J52-43-00-01AAA-540A-A.
- Cargo compartment door. Refer to BD500-A-J52-30-00-01AAA-540A-A.

Note

A minimum of one cabin door must be fully open to supply air ventilation and to prevent cabin pressurization.

Note

For freezing or below freezing temperatures, you must exclusively open the mid avionics compartment door. This will prevent the aircraft from pressurizing and limit the amount of cold air from entering the aircraft from outside.

Note

For freezing or below freezing temperatures, lavatory doors must be kept open while maintaining cabin temperature.

1.1.2 Open the cabin pressure outflow valve as follows:

1.1.2.1 Make sure that the thermal circuit breakers that follow are closed:

- IASC 1A (EPC1-H7)
- IASC 1B (EPC2-E6)
- IASC 2A (EPC2-E7)
- IASC 2B (R-CBP-D1)
- ICCP OVHD 3 (R-CBP-F2)

1.1.2.2 Make sure that the electronic circuit breakers that follow are IN on the circuit breaker synoptic page:

- OUTFLOW VLV AUTO 1 (CDC1-6-9)
- ICCP OVHD 1 (CDC1-7-13)
- OUTFLOW VLV AUTO 2 (CDC2-5-9)
- ICCP OVHD 2 (CDC4-5-8)

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

1.1.2.3 On the pressurization panel, lift the guard and push the EMER DEPRESS Push Button Annunciator (PBA).

1.1.2.4 Make sure that the PBA comes on.

1.1.2.5 On the Engine Indication and Crew Alerting System (EICAS) display, make sure that the EMER DEPRESS ON (amber) caution message shows.

1.1.2.6 On the EICAS display, make sure that the AUTO PRESS FAIL (amber) caution message does not show.

1.2 Remove the cover of the LPGC.

CAUTION

Make sure the air conditioning distribution system is not already pressurized by the air conditioning packs. Using the Low Pressure Ground Connection (LPGC) and Auxiliary Power Unit (APU) supplying air conditioning packs to the Environmental Control System (ECS) simultaneously can cause damage to the air conditioning system.

1.3 Connect the air conditioning cart (Commercially available, Pt. No. STD-0133)(Commercially available, Pt. No. STD-0133) to the LPGC.

1.4 Apply the air conditioning as required.

Note

To keep all the water and waste system components in the aircraft from freezing. Refer to Table 6.

Note

If the WATER SYSTEM INOPERATIVE message is shown on the Cabin Management System (CMS) after it is ready to operate, the CABIN COM FAULT advisory message is not shown and the Crew Terminal (CT) shows all services installed, then the WTR WASTE CTLR DC BUS 1 SSPC in ATA 38 on the circuit breaker synoptic page should be reset. The water and waste system then becomes available again.

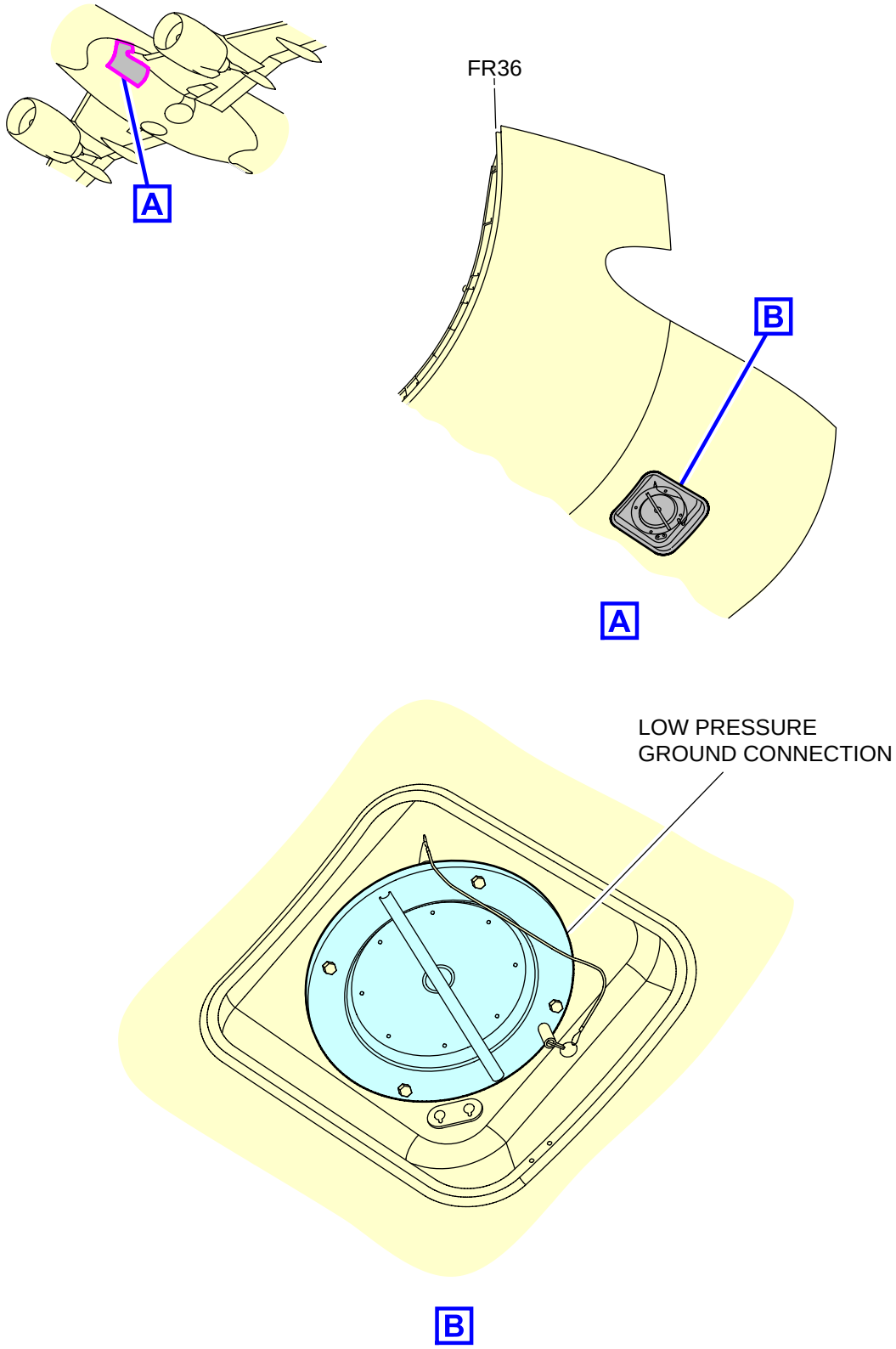
This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Table 6 Minimum temperature and mass flow to keep water from freezing

Minimum cabin temperature - Outside Air Temperature (OAT) and LPGC air mass flow.										
OAT (°C)	LPGC air mass flow (lb/min)									
	50	60	70	80	90	100	110	120	130	140[1]
0	2°C	2°C	2°C	2°C	2°C	2°C	2°C	2°C	2°C	2°C
-10	11°C	10°C	9°C	9°C	8°C	8°C	8°C	7°C	7°C	7°C
-20	20°C	18°C	17°C	16°C	15°C	14°C	13°C	13°C	12°C	12°C
-30	29°C	26°C	24°C	23°C	21°C	20°C	19°C	18°C	17°C	17°C
-40	N/A		32°C	30°C	28°C	26°C	25°C	24°C	22°C	21°C

Minimum cabin temperature - Outside Air Temperature (OAT) and LPGC air mass flow.						
-54	N/A	35°C	33°C	31°C	30°C	28°C
1	Alternative: The recommended minimum operating conditions calculated from LPGC data at 140 lb/min are considered to be conservatively applicable when operating from the Auxiliary Power Unit (APU) on the dual packs or on the single pack with RECIRC AIR selected AUTO.					

This publication has been superseded by the Aircraft Characteristics Publication (ACP).



ICN-BD500-A-J212100-C-3AB48-19016-A-001-01

Figure 1 Low pressure ground system - Connect procedure

Requirements after job completion

Required conditions

Table 7 Required conditions

Action/Condition	Data Module/Technical publication
None	

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Manual - Refuel

Applicability: 50001-54999, 55001-59999

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
BD500-A-J24-00-00-01AAA-913G-A	Electrical/Electronic safety precautions - General maintenance safety procedure
BD500-A-J28-00-00-00AAA-913G-A	Fuel safety precautions - General maintenance safety procedure

Common information

This data module gives the procedure to do the refuel of the aircraft manually. The manual refuel controls are installed on the Refuel/Defuel Control Panel (RDCP) on the forward, right side of the Wing To Body Fairing (WTBF).

Preliminary requirements

Production maintenance data

Zones	192		Forward wing to fuselage fairing, right side
	621		Slat 2, right side
Access points	192AB	Door	

	621FB	Door

Production maintenance data

Zones	521		Slat 2, left side
Access points	521FB	Door	

Required conditions

Table 2 Required conditions

Action/Condition	Data Module/Technical publication
Make sure that the aircraft is safe for maintenance.	
Obey all the electrical/electronic safety precautions.	BD500-A-J24-00-00-01AAA-913G-A
Obey all the fuel safety precautions.	BD500-A-J28-00-00-00AAA-913G-A
Make sure that the thermal circuit breakers that follow are closed:	

Name	CB Number/Location
REFUEL VLV-CTRL B	EPC1-A2
REFUEL VLV-CTRL A	EPC1-D2

Make sure that the electronic circuit breakers that follow are IN on the circuit breaker synoptic page:

Name	CB Number/Location
L FUEL QTY	CDC1-6-3
R FUEL QTY	CDC2-8-3

Make sure that the access doors are open. Refer to the access points table above for details.

Make sure that the fuel tender and the aircraft are correctly grounded.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Support equipment

Table 3 Support equipment

Name	Identification/Reference	Quantity	Remark
None			

Consumables, materials, and expendables

Table 4 Consumables, materials, and expendables

Name	Identification/Reference	Quantity	Remark
Aviation turbine fuel	01-001	AR	
Aviation turbine fuel	01-002	AR	
Turbine fuel, aviation, kerosene type, JP 8 (NATO F-34)	01-003	AR	
Turbine fuel, aviation, JP 5 (NATO F-44)	01-004	AR	
Turbine fuel, aviation, kerosene type, JP 8+100 (NATO F-37)	01-005	AR	

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Spares

Table 5 Spares

Name	Identification/Reference	Quantity	Remark
None			

Safety conditions

None

Procedure

1 Fuel tank capacity as follows:

Applicability: 50001-54999

1.1 Fuel tank capacity A220-100

Fuel Tank	Fuel quantity (lb)[1]	Fuel quantity (kg)[1]	Tank volume (US gal)	Tank volume (L)
Left Wing Tank	6775	3080	1004	3807
Center Tank	25300	11480	3748	14190
Right Wing Tank	6775	3080	1004	3807
Total	38850	17640	5756	21805

1 Based on a fuel density of 6.75 lb/US gal (0.809 kg/L), rounded to the nearest 25 lb or 10p;kg. Fuel quantity is given for reference only and is not limiting.

Applicability: 55001-59999

1.2 Fuel tank capacity A220-300

Fuel Tank	Fuel Quantity (lb)[1]	Fuel Quantity (kg)[1]	Tank volume (US gal)	Tank volume (L)
Left Wing Tank	6725	3050	996	3770
Center Tank	24900	11300	3689	13968
Right Wing Tank	6725	3050	996	3770
Total	38350	17400	5681	21508

1 Based on a fuel density of 6.75 lb/US gal (0.809 kg/L), rounded to the nearest 25 lb or 10 kg. Fuel quantity is given for reference only and is not limiting.

2 Fuel grades:

KEROSENE TYPE (01-001) , (01-002) , and (01-003)			
CANADIAN	AMERICAN	BRITISH	Other
CAN/CGSB −3.23-2012[2](01-001)	ASTM D1655 (JET A)[2](01-001)	Defence Standard 91-91[2](01-001)	GOST 10227 - TS-1[1] , RT (CSI)[1](01-001)
	ASTM D1655 (JET A1)[2](01-002)	Defence Standard 91-87(01-002)	GB6537-2018-No. 3 Jet Fuel [3, 4] (China)(01-002)
	MIL-DTL-83133D (JP −8),(01-003) (JP-8+100)(01-004)	Defence Standard 91-868),(01-003)(01-004)	STAS5639/888),(01-003)(01-004)
	MIL-T-5624 (JP5)(01-005)		

1, 2, 3, 4

1 Fuel quantity gauging inaccuracy when using TS-1 or RT fuel will be up to 0.8% higher (over indicating) than when using the other fuels listed in the table.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

2	ASTM D1655, Defence standards 91-91, and CAN/CGSB-3-23 jet fuels whose origin was as ASTM D7566 (aviation turbine fuel containing synthesized hydrocarbons) and that are reidentified as Jet A, Jet A1 fuels are considered equivalent to fossil-based fuels.
3	GB6537-2018 turbine fuels containing synthesized hydrocarbons whose origin is equivalent to ASTM D7566 and are re-identified as Jet A, Jet A1 fuels are considered equivalent to fossil-based fuels.
4	Additives T1502, T1602 and Ethylene Glycol Monomethyl Ether (EGME) are not approved.

2.1 Fuel additive:

Thermal Stability Improver Additive*	
Product	**Maximum Dosage**
AeroShell Performance Additive	256 mg/L
Spec Aid 8Q462	256 mg/L
Turboline FS100 533	559 mg/L
Turboline FS100Concentrate	256 mg/L
* The operator shall report to Pratt & Whitney prior to use any of the listed thermal stability additives.	

Fuel System Icing Inhibitor	
Product	**Maximum dosage**
Diethylene Glycol Monomethyl Ether (DiEGME) conforming to MIL-DTL-85470 or ASTM D4171 Type III	0.15% Vol Max
Russian Fluid I (Ethylene GlycolMonoethyl Ether) conforming to GOST 8313	0.20% Vol Max
Russian Fluid IM (50/50 blend of Fluid I with Methanol (a mixture of GOST 8313 and GOST 2222 in equal parts by weight) conforming to TU6101458)	0.20% Vol Max

Static Dissipator Additive		
Product	**Maximum Dosage on Initial Blending**	**Maximum Cumulative Concentration**
Innospec Stadis 450	3 mg/L	5 mg/L
Russian Additive "Sigbol"	-	0.0005% by weight

Biocide Additive	
Product	**Maximum dosage**
Biobor JF	0.199 ml/L[1]
Kathon FP - 1.5	0.100 ml/L[2]

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

1	0.199 ml of Biobor JF per liter of jet fuel is equal to 199 Parts Per Million (PPM) by volume (also equivalent to 270 PPM by weight based on a minimum density jet fuel).
2	0.100 ml of Kathon FP1.5 per liter of jet fuel is equal to 100 PPM by volume.

Leak Check Additive	
Product	**Maximum dosage**
Tracer A (LDTAA)	1 mg/kg max

Corrosion Inhibitors/Lubricity Improvers		
Product	**Minimum Dosage***	**Maximum dosage**
Innospec DCI-4A	9 mg/L	23 mg/L
Afton Hitec 580	15 mg/L	23 mg/L
* The minimum dosage is to ensure sufficient additive is available for lubricity aid.		

Antioxidants	
Product	**Maximum dosage**
2,6-ditertiary-butyl-4-methyl-phenol	24 mg/L

Metal Deactivator Additive		
Product	**Maximum dosage on initial blending**	Maximum cumulative concentration
N,N'-disalicylidene-1, 2-propanediamine	2 mg/L	5.7 mg/L

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

WARNINGS

- **Before you refuel the aircraft, make sure that there are no persons, materials, or equipment below the aircraft. The weight of the fuel will compress the landing gear and lower the aircraft. This can cause injury to persons and damage to the equipment.**

- **If the fuel quantities shown on the Refuel Defuel Control Panel (RDCP) continue(s) to increase more than the pre-selected value or if the fuel difference between both wing tanks is more than 800 pounds (362.87 kilograms), immediately stop the fuel truck pump (or equivalent pump). The refueling gallery has probably broken, this can cause injury to persons and/or damage to equipment.**

3 Do the manual refuel as follows:

Refer to Fig. 1 .

WARNING

Make sure that the fuel tender and the fuel nozzle are electrically bonded to the aircraft before you refuel/defuel the aircraft. A static electric spark during the refueling/defueling can cause an explosion or fire.

3.1 Remove the cap and connect the fuel tender nozzle to the right wing refuel adapter.

Note

The refuel adapter knob must be in FUEL position before you connect the fuel tender nozzle.

Applicability: 50010-50018, 55010-55015, 55020-55021, 55023, 55025, 55027, 55029-55030, 55032-55033, 55036, 55040, 55044-55046, 55056-55057, 55065-55067, 55072-55073, 55076, 55078-55079, 55082-55083, 55088, 55090, 55092-55093, 55097-55098, 55100, 55102-55103, 55105, 55109-55112, 55117-55119, 55122-55123, 55134, 55138-55141, 55146-55147, 55149, 55152, 55155, 55157, 55159, 55161, 55166, 55169, 55171, 55173-55174, 55179, 55185, 55187, 55190, 55193, 55196-55198, 55200, 55205, 55210, 55213, 55216, 55218, 55221, 55223, 55227, 55229-55230, 55232-55233, 55242-55243, 55253, 55269, 55275, 55278, 55281, 55283, 55288, 55291, 55298-55299, 55302, 55304-55306, 55311-55312, 55324, 55327

CAUTION

Do not operate the two refuel adapters at the same time when the left wing adapter is install. Damage to the fuel system can occur.

3.2 Make sure that the aircraft is not refuel from the left and right adapters at the same time.

Applicability: 50010-50018, 55010-55015, 55020-55021, 55023, 55025, 55027, 55029-55030, 55032-55033, 55036, 55040, 55044-55046, 55056-55057, 55065-55067, 55072-55073, 55076, 55078-55079, 55082-55083, 55088, 55090, 55092-55093, 55097-55098, 55100, 55102-55103, 55105, 55109-55112, 55117-55119, 55122-55123, 55134, 55138-55141, 55146-55147, 55149, 55152, 55155, 55157, 55159, 55161, 55166, 55169, 55171, 55173-55174, 55179, 55185, 55187, 55190, 55193, 55196-55198, 55200, 55205, 55210, 55213, 55216, 55218, 55221, 55223, 55227, 55229-55230, 55232-55233, 55242-55243, 55253, 55269, 55275, 55278, 55281, 55283, 55288, 55291, 55298-55299, 55302, 55304-55306, 55311-55312, 55324, 55327

3.3 If necessary, remove the cap and connect the fuel tender nozzle to the left wing refuel adapter. Refer to Fig. 2 .

Note

The refuel adapter knob must be in FUEL position before you connect the fuel tender nozzle.

3.4 On the RDCP do the steps that follow:

3.4.1 Set the ON/OFF switch to ON.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

3.4.2 Make sure that the MANUAL switches that follow are in the CLOSE position:

- LEFT
- CENTER
- RIGHT.

3.4.3 Set the DEFUEL/REFUEL switch to REFUEL.

3.4.4 Set the AUTO/MANUAL switch to MANUAL.

3.5 Start the fuel truck pump.

3.5.1 Make sure that the refuel pressure is between 30 to 55 psig (206.84 to 379.21 kPa).

3.5.2 Make sure that the fuel quantity does not increase in any tanks, before the MANUAL switches are set to OPEN.

Note

A small step increase in the fuel quantity is permitted while the pressure is applied.

3.5.2.1 If a steady fuel increase is monitored before the MANUAL switches are set to OPEN, stop the fuel truck pump immediately and contact the maintenance personnel.

3.5.3 On the RDCP, set the applicable MANUAL switch to OPEN.

3.5.4 On the RDCP display, make sure that the fuel quantities start to increase in the applicable tank.

3.5.5 On the RDCP, set the applicable MANUAL switch to OPEN.

3.5.6 On the RDCP display, make sure that the MANUAL status message is shown on the PRESEL portion of the display.

3.5.7 Make sure that the fuel tanks have the necessary fuel quantity.

Note

The refuel time at refuel pressure of 50 psig (344.74 kPa) must be approximately 30 minutes to refuel the center tank and 16 minutes to refuel the wing tanks, when all tanks are refueled at same time.

When you refuel the center tank between 500 to 1500 lb (226.79 to 680.39 kg), an error can occur because fuel takes long time to flow through the small opening at bottom of the rib 3. This can show as no fuel increase and then will show the correct fuel quantity.

3.6 On the RDCP, set the applicable MANUAL switch to CLOSE.

3.7 On the RDCP, set the ON/OFF switch to OFF.

3.8 Disconnect the fuel tender nozzle from the right wing refuel adapter.

3.9 Install the cap on the right wing refuel adapter.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

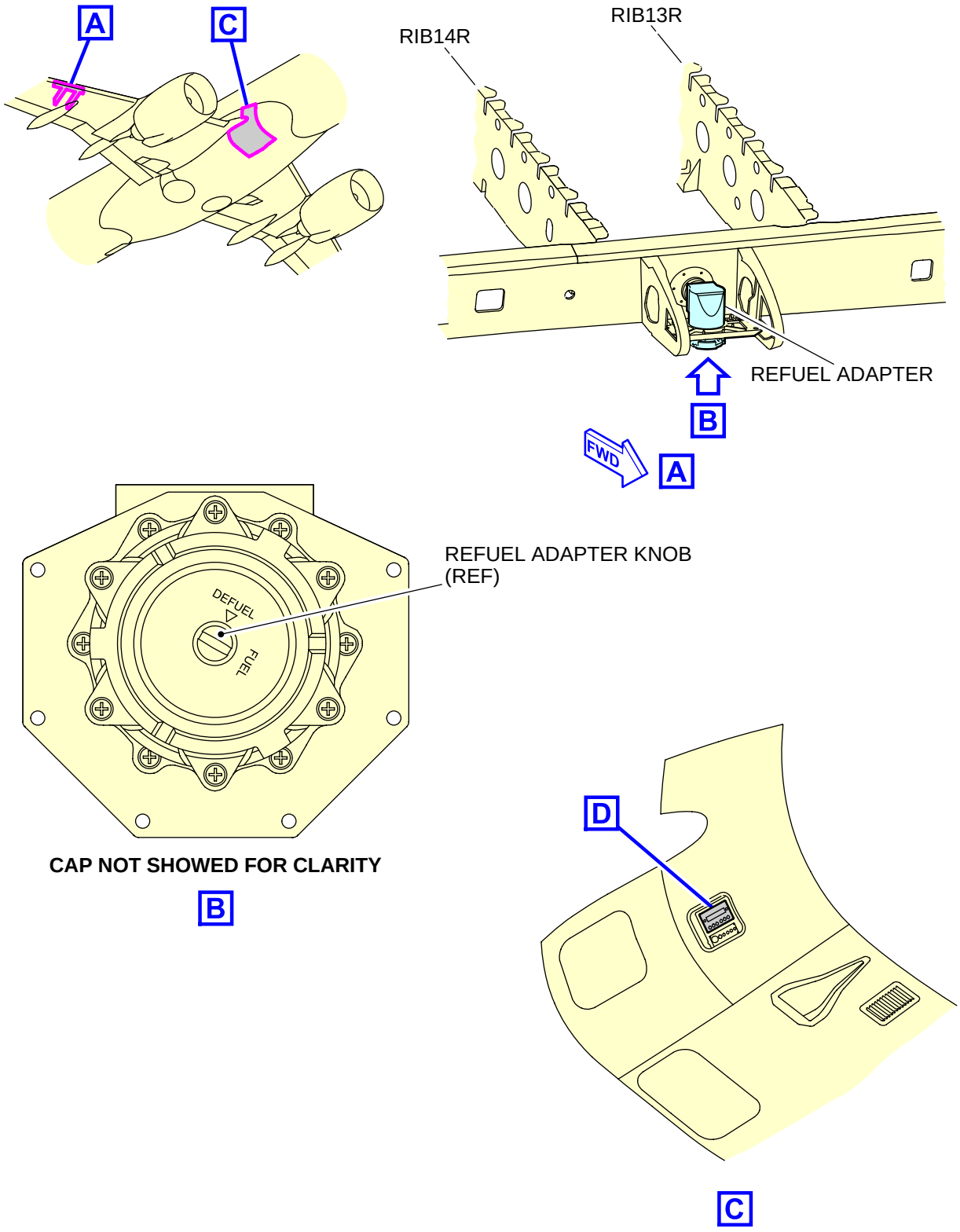
Applicability: 50010-50018, 55010-55015, 55020-55021, 55023, 55025, 55027, 55029-55030, 55032-55033, 55036, 55040, 55044-55046, 55056-55057, 55065-55067, 55072-55073, 55076, 55078-55079, 55082-55083, 55088, 55090, 55092-55093, 55097-55098, 55100, 55102-55103, 55105, 55109-55112, 55117-55119, 55122-55123, 55134, 55138-55141, 55146-55147, 55149, 55152, 55155, 55157, 55159, 55161, 55166, 55169, 55171, 55173-55174, 55179, 55185, 55187, 55190, 55193, 55196-55198, 55200, 55205, 55210, 55213, 55216, 55218, 55221, 55223, 55227, 55229-55230, 55232-55233, 55242-55243, 55253, 55269, 55275, 55278, 55281, 55283, 55288, 55291, 55298-55299, 55302, 55304-55306, 55311-55312, 55324, 55327

3.10 Disconnect the fuel tender nozzle from the left wing refuel adapter.

Applicability: 50010-50018, 55010-55015, 55020-55021, 55023, 55025, 55027, 55029-55030, 55032-55033, 55036, 55040, 55044-55046, 55056-55057, 55065-55067, 55072-55073, 55076, 55078-55079, 55082-55083, 55088, 55090, 55092-55093, 55097-55098, 55100, 55102-55103, 55105, 55109-55112, 55117-55119, 55122-55123, 55134, 55138-55141, 55146-55147, 55149, 55152, 55155, 55157, 55159, 55161, 55166, 55169, 55171, 55173-55174, 55179, 55185, 55187, 55190, 55193, 55196-55198, 55200, 55205, 55210, 55213, 55216, 55218, 55221, 55223, 55227, 55229-55230, 55232-55233, 55242-55243, 55253, 55269, 55275, 55278, 55281, 55283, 55288, 55291, 55298-55299, 55302, 55304-55306, 55311-55312, 55324, 55327

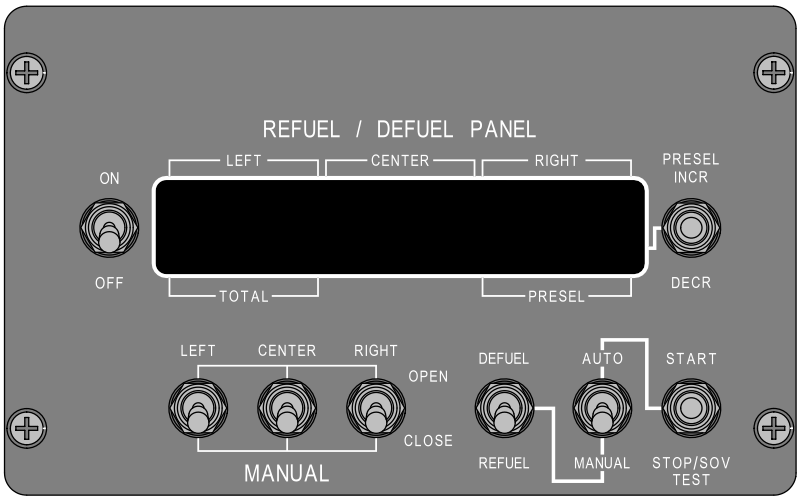
3.11 Install the cap on the left wing refuel adapter.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).



ICN-BD500-A-J121028-C-3AB48-43191-A-002-01

Figure 1 Manual - Refuel - (Sheet 1 of 2)



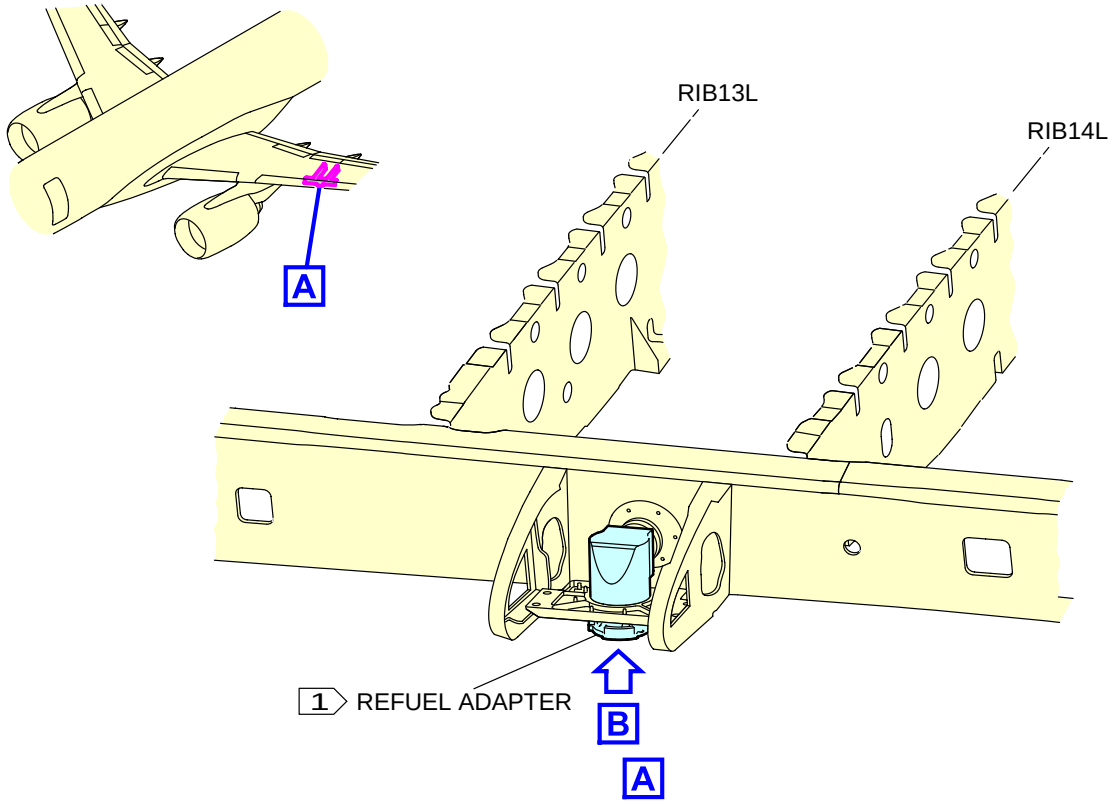
REFUEL/DEFUEL CONTROL PANEL

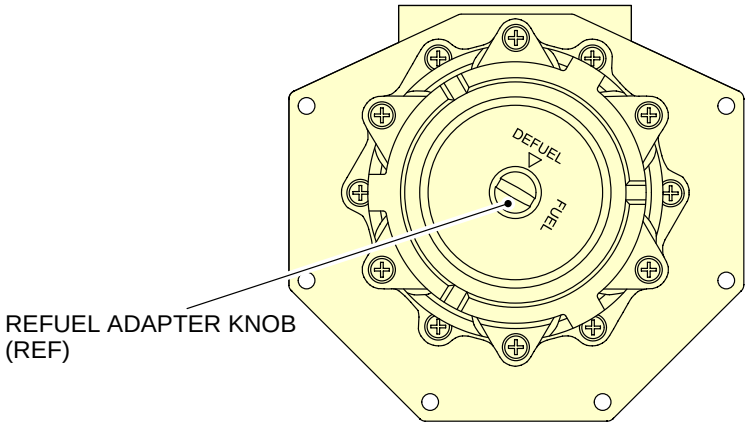
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ICN-BD500-A-J121028-C-3AB48-13445-A-004-01

Figure 1 Manual - Refuel - (Sheet 2 of 2)

Applicability: 50010-50018, 55010-55015, 55020-55021, 55023, 55025, 55027, 55029-55030, 55032-55033, 55036, 55040, 55044-55046, 55056-55057, 55065-55067, 55072-55073, 55076, 55078-55079, 55082-55083, 55088, 55090, 55092-55093, 55097-55098, 55100, 55102-55103, 55105, 55109-55112, 55117-55119, 55122-55123, 55134, 55138-55141, 55146-55147, 55149, 55152, 55155, 55157, 55159, 55161, 55166, 55169, 55171, 55173-55174, 55179, 55185, 55187, 55190, 55193, 55196-55198, 55200, 55205, 55210, 55213, 55216, 55218, 55221, 55223, 55227, 55229-55230, 55232-55233, 55242-55243, 55253, 55269, 55275, 55278, 55281, 55283, 55288, 55291, 55298-55299, 55302, 55304-55306, 55311-55312, 55324, 55327





CAP NOT SHOWED FOR CLARITY

B

NOTE

1 Optional.

See a
first page of the DM

BD500-A-J12-10-28-01AAA-211A-A

Figure 2 Manual - Refuel

Requirements after job completion

Required conditions

Table 6 Required conditions

Action/Condition	Data Module/Technical publication
Remove all the tools, equipment, and unwanted materials from the work area.	
Make sure that the fuel tender nozzle ground is disconnected from the aircraft grounding point.	
Make sure that the access doors are closed. Refer to the access points table above for details.	

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Suction - Defuel and drain fuel

Applicability: 50001-54999, 55001-59999

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5 Spares 3
6 Required conditions 13

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2 Suction - Defuel and drain fuel 11
3 Center to wing fuel transfer 12

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
BD500-A-J12-10-28-02AAA-221A-A	Pressure - Defuel and drain fuel
BD500-A-J24-00-00-01AAA-561A-A	Electrical power - General - De-Energize electrical network
BD500-A-J24-00-00-01AAA-761A-A	Electrical power - General - Energize electrical network
BD500-A-J24-00-00-01AAA-913G-A	Electrical/Electronic safety precautions - General maintenance safety procedure
BD500-A-J28-00-00-00AAA-913G-A	Fuel safety precautions - General maintenance safety procedure

Common information

This data module gives the procedure to do the suction defuel and drain fuel (written as "suction defuel" in this procedure). The suction defuel controls are installed on the REFUEL / DEFUEL PANEL on the forward, right side of the Wing To Body Fairing (WTBF).

Preliminary requirements

Production maintenance data

Zones	134		Center wing box, right side
	192		Forward wing to fuselage fairing, right side
	621		Slat 2, right side
Access points	135AL	Panel	
	136AR	Panel	
	192AB	Door	
	621FB	Door	

Production maintenance data

Zones	521		Slat 2, left side
Access points	521FB	Door	

Required conditions

Table 2 Required conditions

Action/Condition	Data Module/Technical publication
Make sure that the aircraft is safe for maintenance.	
Obey all the electrical/electronic safety precautions.	BD500-A-J24-00-00-01AAA-913G-A
Obey all the fuel safety precautions.	BD500-A-J28-00-00-00AAA-913G-A
Energize the electrical network.	BD500-A-J24-00-00-01AAA-761A-A
Make sure that the thermal circuit breakers that follow are closed:	

Name	CB Number/Location
REFUEL VLV-CTRL B	EPC1-A2
REFUEL VLV-CTRL A	EPC1-D2

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Action/Condition	Data Module/Technical publication
Make sure that the electronic circuit breakers that follow are IN on the circuit breaker synoptic page: Name: L FUEL QTY — CB Number/Location: CDC1-6-3 Name: R FUEL QTY — CB Number/Location: CDC2-8-3	
Make sure that the access doors are open. Refer to the access points table above for details. Make sure that the access panel is removed. Refer to the access points table above for details. Make sure that the fuel tender and the aircraft are correctly grounded.	

Support equipment

Table 3 Support equipment

Name	Identification/Reference	Quantity	Remark
Non-static container	STD-0081	1	

Consumables, materials, and expendables

Table 4 Consumables, materials, and expendables

Name	Identification/Reference	Quantity	Remark
None			

Spares

Table 5 Spares

Name	Identification/Reference	Quantity	Remark
None			

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Safety conditions

None

Procedure

WARNING

Remove the fuel system components carefully, when the aircraft is not defueled fully. This can cause unwanted fuel movement between the fuel tanks.

CAUTION

Do not operate the left (right) AC boost pump if the fuel quantity in the left (right) fuel tank is less than 900 pounds (408.24 kilograms). Turn off the AC boost pumps. If you do not do this, damage to the AC boost pumps can occur.

Note

It is structurally permitted to fully defuel a single fuel tank with the remaining available fuel in the other fuel tanks. Make sure that the aircraft conditions are as follow:

- There are no passengers, baggage, or payload on board
- Aircraft is not on jacks (when on jacks, follow aircraft jacking requirements)
- Aircraft is in a normal configuration.

You can use pressure defuel and suction defuel at the same time to defuel the wing tanks. Refer to BD500-A-J12-10-28-02AAA-221A-A for the pressure defuel.

The maximum permitted suction pressure is −8.0 psi (−55.15 kPa) at the adapter.

1 Do the suction defuel as follows:

Refer to Fig. 1.

1.1 On the REFUEL/DEFUEL PANEL, do the steps that follow:

1.1.1 Set the ON/OFF switch to OFF.

1.1.2 Set the MANUAL switches that follow to the CLOSE position:

- LEFT
- CENTER
- RIGHT.

1.2 To defuel the center fuel tank, do the steps that follow:

1.2.1 On the Center Wing Box (CWB) rear spar, manually set the DEFUEL Shut-Off Valve (SOV) lever to OPEN.

1.3 On the REFUEL/DEFUEL PANEL, do the steps that follow:

1.3.1 Set the DEFUEL/REFUEL switch to DEFUEL.

1.3.2 Set the AUTO/MANUAL switch to MANUAL.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

WARNING

Make sure that the fuel tender and the fuel nozzle are electrically bonded to the aircraft before you refuel/defuel the aircraft. A static electric spark during the refueling/defueling can cause an explosion or fire.

1.4 Remove the cap and turn the refuel adapter knob to DEFUEL position and connect the fuel tender nozzle to the right wing refuel adapter.

Applicability: 50010-50018, 55010-55015, 55020-55021, 55023, 55025, 55027, 55029-55030, 55032-55033, 55036, 55040, 55044-55046, 55056-55057, 55065-55067, 55072-55073, 55076, 55078-55079, 55082-55083, 55088, 55090, 55092-55093, 55097-55098, 55100, 55102-55103, 55105, 55109-55112, 55117-55119, 55122-55123, 55134, 55138-55141, 55146-55147, 55149, 55152, 55155, 55157, 55159, 55161, 55166, 55169, 55171, 55173-55174, 55179, 55185, 55187, 55190, 55193, 55196-55198, 55200, 55205, 55210, 55213, 55216, 55218, 55221, 55223, 55227, 55229-55230, 55232-55233, 55242-55243, 55253, 55269, 55275, 55278, 55281, 55283, 55288, 55291, 55298-55299, 55302, 55304-55306, 55311-55312, 55324, 55327

CAUTION

Do not operate the two refuel adapters at the same time when the left wing adapter is install. Damage to the fuel system can occur.

1.5 Make sure that the aircraft is not defuel from the left and right adapters at the same time.

Applicability: 50010-50018, 55010-55015, 55020-55021, 55023, 55025, 55027, 55029-55030, 55032-55033, 55036, 55040, 55044-55046, 55056-55057, 55065-55067, 55072-55073, 55076, 55078-55079, 55082-55083, 55088, 55090, 55092-55093, 55097-55098, 55100, 55102-55103, 55105, 55109-55112, 55117-55119, 55122-55123, 55134, 55138-55141, 55146-55147, 55149, 55152, 55155, 55157, 55159, 55161, 55166, 55169, 55171, 55173-55174, 55179, 55185, 55187, 55190, 55193, 55196-55198, 55200, 55205, 55210, 55213, 55216, 55218, 55221, 55223, 55227, 55229-55230, 55232-55233, 55242-55243, 55253, 55269, 55275, 55278, 55281, 55283, 55288, 55291, 55298-55299, 55302, 55304-55306, 55311-55312, 55324, 55327

1.6 If necessary, remove the cap and turn the refuel adapter knob to DEFUEL position and connect the fuel tender nozzle to the left wing refuel adapter. Refer to Fig. 2 .

CAUTION

Make sure that you keep the container below the work area at all times. Fuel can drain at random intervals when you do the maintenance.

1.7 Put the container (Commercially available, Pt. No. STD-0081) below the work area.

1.8 Activate the fuel truck pump in the suction mode.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Note

The maximum permitted suction pressure is −8.0 psi (−55.15 kPa) at the adapter.

1.9 On the REFUEL/DEFUEL PANEL, do the steps that follow:

1.9.1 Set the ON/OFF switch to the ON position.

1.9.2 On the REFUEL/DEFUEL PANEL display, make sure that the message DEFUEL is shown on the PRESEL portion

1.9.3 Set the MANUAL switches that follow to the OPEN position:

- LEFT
- CENTER
- RIGHT.

1.10 On the REFUEL/DEFUEL PANEL, monitor the LEFT/CENTER/RIGHT display window.

1.10.1 Stop the fuel truck pump when the fuel tank has the necessary quantity of fuel.

Note

When the fuel level in a tank is almost empty, air goes into the refuel/defuel manifold by suction force. It prevents defuel operation in the other tanks.

1.11 Drain the center tank to 400 lb (181.44 kg) as follows:

1.11.1 Drain the center tank by suction method as follows:

1.11.1.1 Open the center tank manual defuel valve.

CAUTION

Make sure that you keep the container below the work area at all times. Fuel can drain at random intervals when you do the maintenance.

1.11.1.2 Put the container (Commercially available, Pt. No. STD-0081) below the work area.

1.11.1.3 Activate the fuel truck pump in the suction mode.

Note

The maximum permitted suction pressure is −8.0 psi (−55.15 kPa) at the adapter.

1.11.1.4 On the REFUEL/DEFUEL PANEL, monitor the CENTER display window.

1.11.1.4.1 Stop the fuel truck pump when the quantity fuel is 400 lb (181.44 kg) or less.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Note

When the fuel level in a tank is almost empty, air goes into the refuel/defuel manifold by suction force. It prevents defuel operation in the other tanks.

1.11.1.5 Close the center tank manual defuel valve.

1.11.2 Drain the center tank by pressure method as follows:

1.11.2.1 Transfer the fuel from the center tank to wing tanks.

Refer to Fig. 3 .

1.11.2.1.1 Make sure that the wing tanks are not empty and not more than 5000 lb (2267.96 kg).

1.11.2.1.2 On the FUEL control panel, do as follows:

- Set the L BOOST PUMP switch to ON
- Set the R BOOST PUMP switch to ON.

Note

When the fuel transfer from the center wing box to the wing tank, the Transfer Float Valve (TFV) will stay open.

1.11.2.1.3 Get access to the FUEL synoptic page.

1.11.2.1.4 Make sure that the fuel quantity in the left wing tank and the right wing tank increases equally.

1.11.2.1.5 Make sure that the fuel quantity in the center tank decreases.

1.11.2.1.6 On the FUEL control panel, do as follows:

- Set the L BOOST PUMP switch to AUTO
- Set the R BOOST PUMP switch to AUTO.

1.11.3 Open the water drain valves and collect the remaining fuel in the container (Commercially available, Pt. No. STD-0081) .

1.11.4 Close the water drain valves.

1.12 Manually set the DEFUEL SOV lever to CLOSE position.

1.13 On the REFUEL/DEFUEL PANEL, do the steps that follow:

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

1.13.1 Set the MANUAL switches that follow to the CLOSE position:

- LEFT
- CENTER
- RIGHT.

1.13.2 Set the ON/OFF switch to OFF.

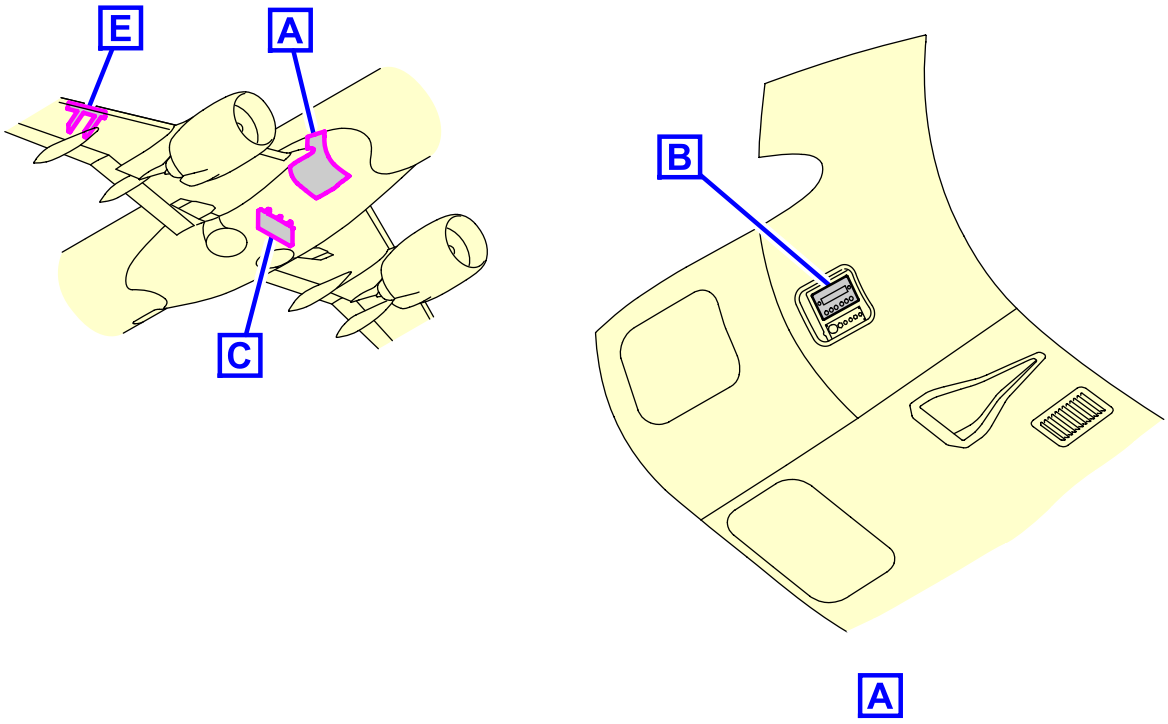
1.14 Disconnect the fuel tender nozzle from the refuel adapter on the right wing and turn the refuel adapter knob to FUEL position.

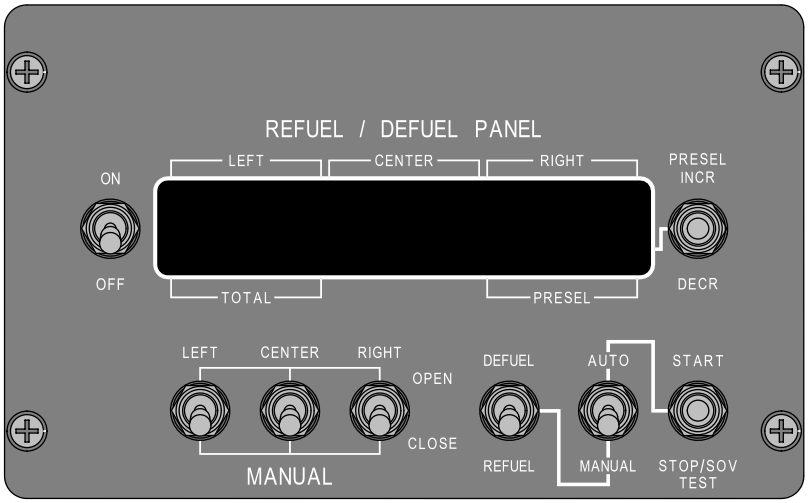
Applicability: 50010-50018, 55010-55015, 55020-55021, 55023, 55025, 55027, 55029-55030, 55032-55033, 55036, 55040, 55044-55046, 55056-55057, 55065-55067, 55072-55073, 55076, 55078-55079, 55082-55083, 55088, 55090, 55092-55093, 55097-55098, 55100, 55102-55103, 55105, 55109-55112, 55117-55119, 55122-55123, 55134, 55138-55141, 55146-55147, 55149, 55152, 55155, 55157, 55159, 55161, 55166, 55169, 55171, 55173-55174, 55179, 55185, 55187, 55190, 55193, 55196-55198, 55200, 55205, 55210, 55213, 55216, 55218, 55221, 55223, 55227, 55229-55230, 55232-55233, 55242-55243, 55253, 55269, 55275, 55278, 55281, 55283, 55288, 55291, 55298-55299, 55302, 55304-55306, 55311-55312, 55324, 55327

1.15 If necessary, disconnect the fuel tender nozzle from the refuel adapter on the left wing and turn the refuel adapter knob to FUEL position.

1.16 Install the cap on the refuel adapter.

This publication has been superseded by the Aircraft Characteristics Publication (ACP)



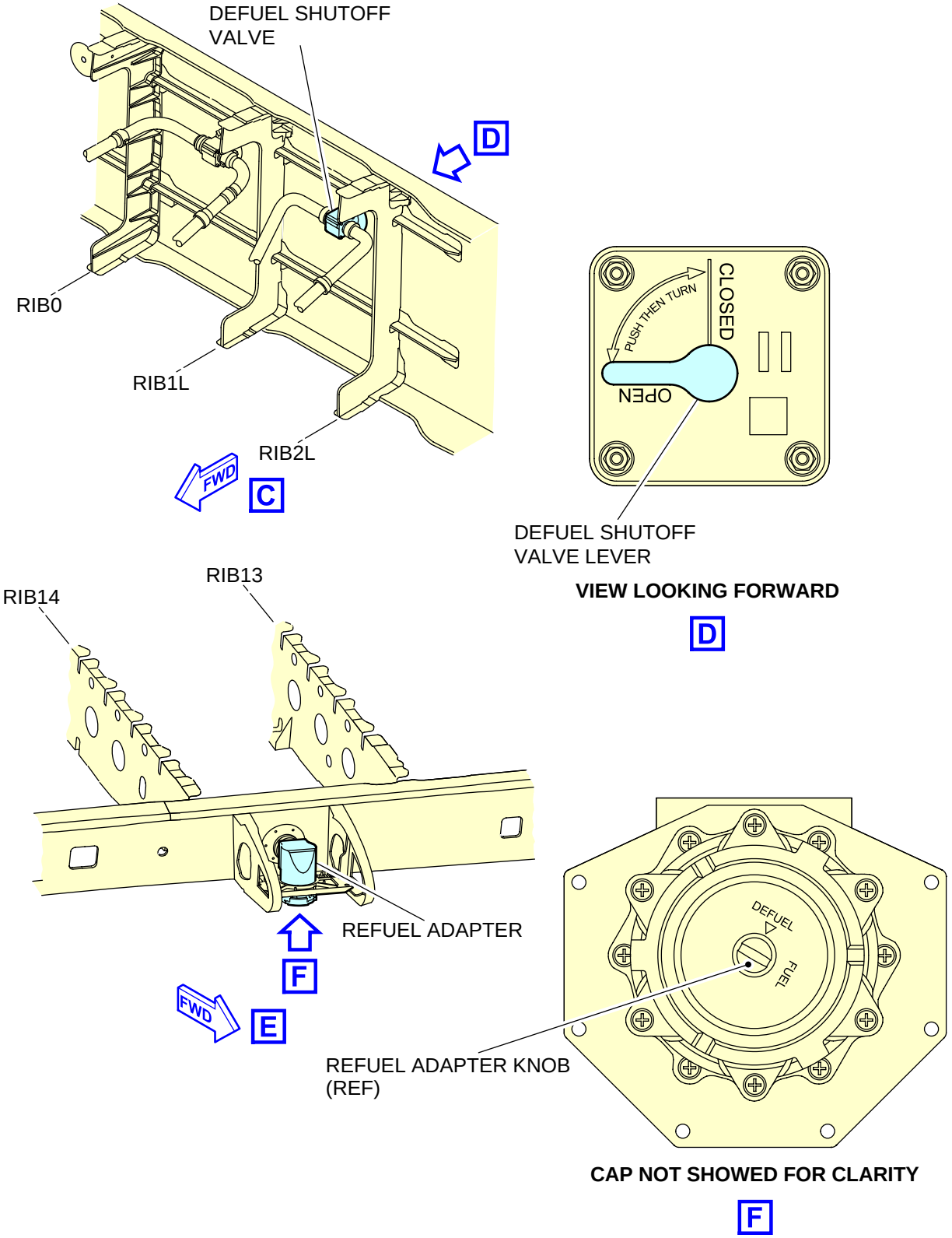


REFUEL/DEFUEL PANEL

B

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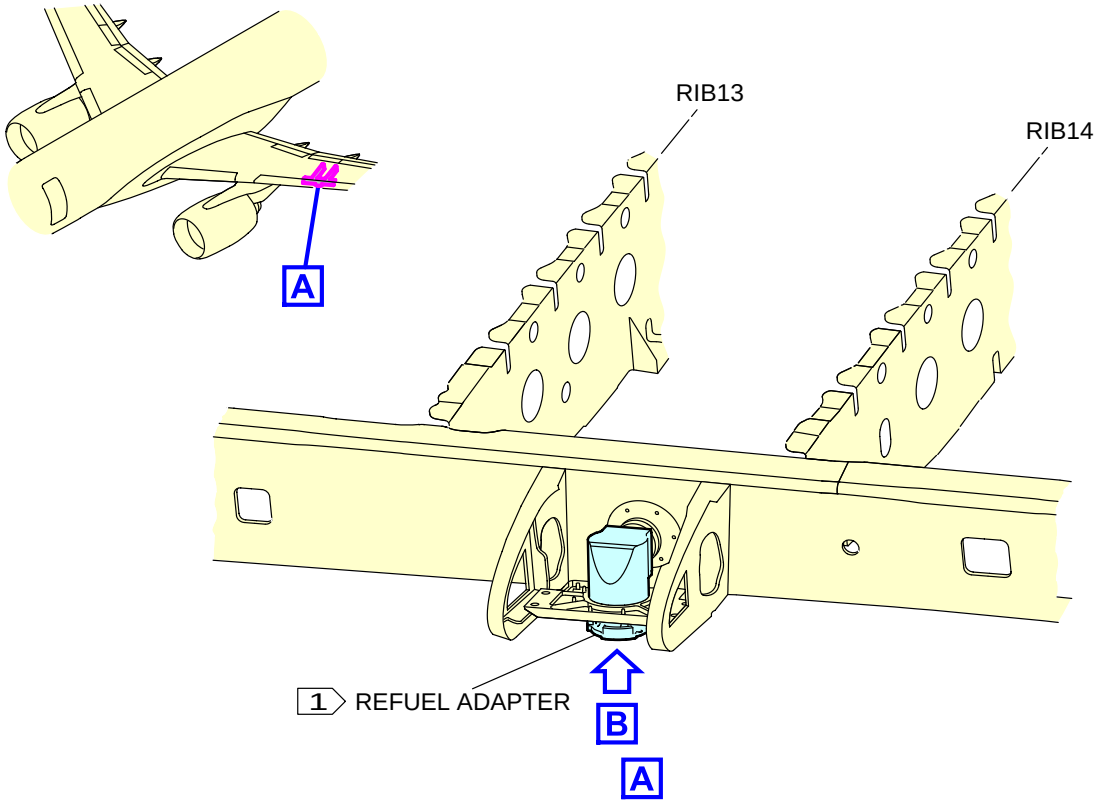
Figure 1 Suction - Defuel and drain fuel - (Sheet 1 of 2)

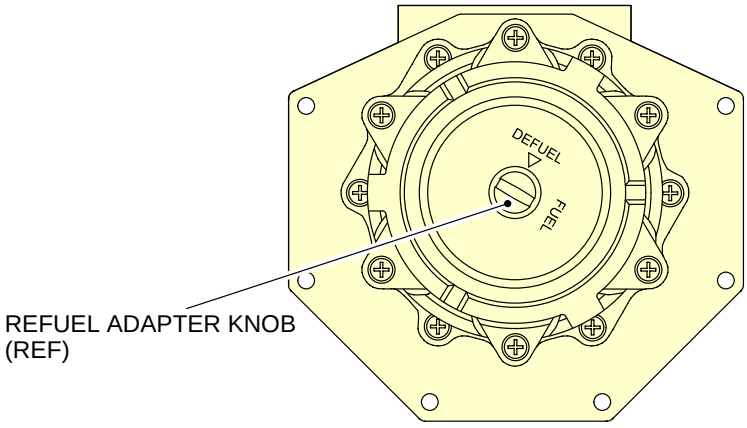


ICN-BD500-A-J121028-C-3AB48-13530-A-002-01

Figure 1 Suction - Defuel and drain fuel - (Sheet 2 of 2)

Applicability: 50010-50018, 55010-55015, 55020-55021, 55023, 55025, 55027, 55029-55030, 55032-55033, 55036, 55040, 55044-55046, 55056-55057, 55065-55067, 55072-55073, 55076, 55078-55079, 55082-55083, 55088, 55090, 55092-55093, 55097-55098, 55100, 55102-55103, 55105, 55109-55112, 55117-55119, 55122-55123, 55134, 55138-55141, 55146-55147, 55149, 55152, 55155, 55157, 55159, 55161, 55166, 55169, 55171, 55173-55174, 55179, 55185, 55187, 55190, 55193, 55196-55198, 55200, 55205, 55210, 55213, 55216, 55218, 55221, 55223, 55227, 55229-55230, 55232-55233, 55242-55243, 55253, 55269, 55275, 55278, 55281, 55283, 55288, 55291, 55298-55299, 55302, 55304-55306, 55311-55312, 55324, 55327





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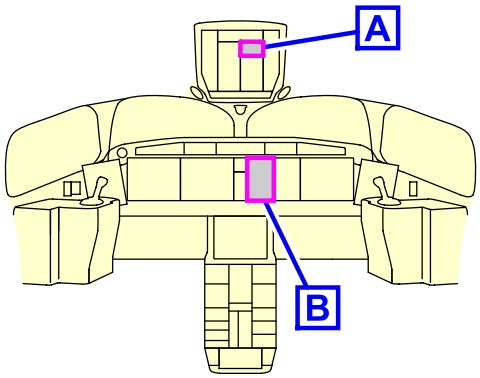
B

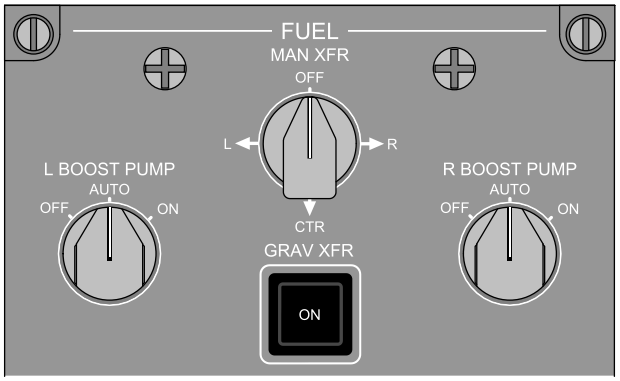
NOTE

1 Optional.

See a first page of the DM BD500-A-J12-10-28-01AAA-221A-A

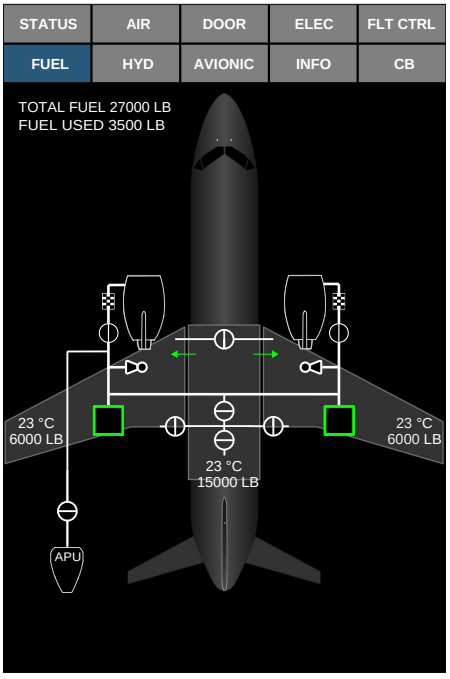
Figure 2 Suction - Defuel and drain fuel





FUEL CONTROL PANEL

A



FUEL SYNOPTIC PAGE

B

ICN-BD500-A-J282200-C-3AB48-53951-A-001-01

Figure 3 Center to wing fuel transfer

Requirements after job completion

Required conditions

Table 6 Required conditions

Action/Condition	Data Module/Technical publication
Remove all the tools, equipment, and unwanted materials from the work area.	
Make sure that the fuel tender nozzle ground is disconnected from the aircraft grounding point.	
De-energize the electrical network.	BD500-A-J24-00-00-01AAA-561A-A
Make sure that the access panel is installed. Refer to the access points table above for details.	
Make sure that the access doors are closed. Refer to the access points table above for details.	

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Refueling - rate and time - Technical data

Applicability: 55001-59999

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2 1,850 lbs per wing to full - Refueling time versus refueling nozzle pressure 4
3 0 lbs per wing to full - Refueling time versus quantity 5
4 0 lbs - Refueling time versus refueling nozzle pressure 6

References

Table 1 References

Data Module/Technical Publication	Title
BD500-A-J12-10-28-02AAA-211A-A	Automatic - Refuel
BD500-A-J12-10-28-01AAA-211A-A	Manual - Refuel

Description

This data module shows the estimated refuel rate and time in graphic information to support the automatic refueling procedure, refer to BD500-A-J12-10-28-02AAA-211A-A and manual refueling procedure, refer to BD500-A-J12-10-28-01AAA-211A-A.

This data module shows the estimated refueling time in specific conditions and the graphics take into account the assumptions that follow:

- 70 F° fuel temperature
- 50 psig available at the refuel adaptor
- A fuel density of 0.803 kg/l. (0.803 kg/l = 0.029010215 lbs/in3)
- No head pressure effect considered on the fuel
- The maximum fuel quantities are based on 17 646 Kg. (17 646 Kg x 2.2046 lb/kg = 38,902 lbs) Could be different than the current Airport Flight Manual.

Note

Data presented in these graphs are based on the test data collected with the mentioned conditions listed above. Varying conditions such as the hose length, the diameter, the pressure drop, the gauge location and the fuel density, not measuring the nozzle pressure

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

during the flowing conditions and atmospheric conditions can all impact the results. Use of these graphs are for REFERENCE ONLY as the actual results may vary.

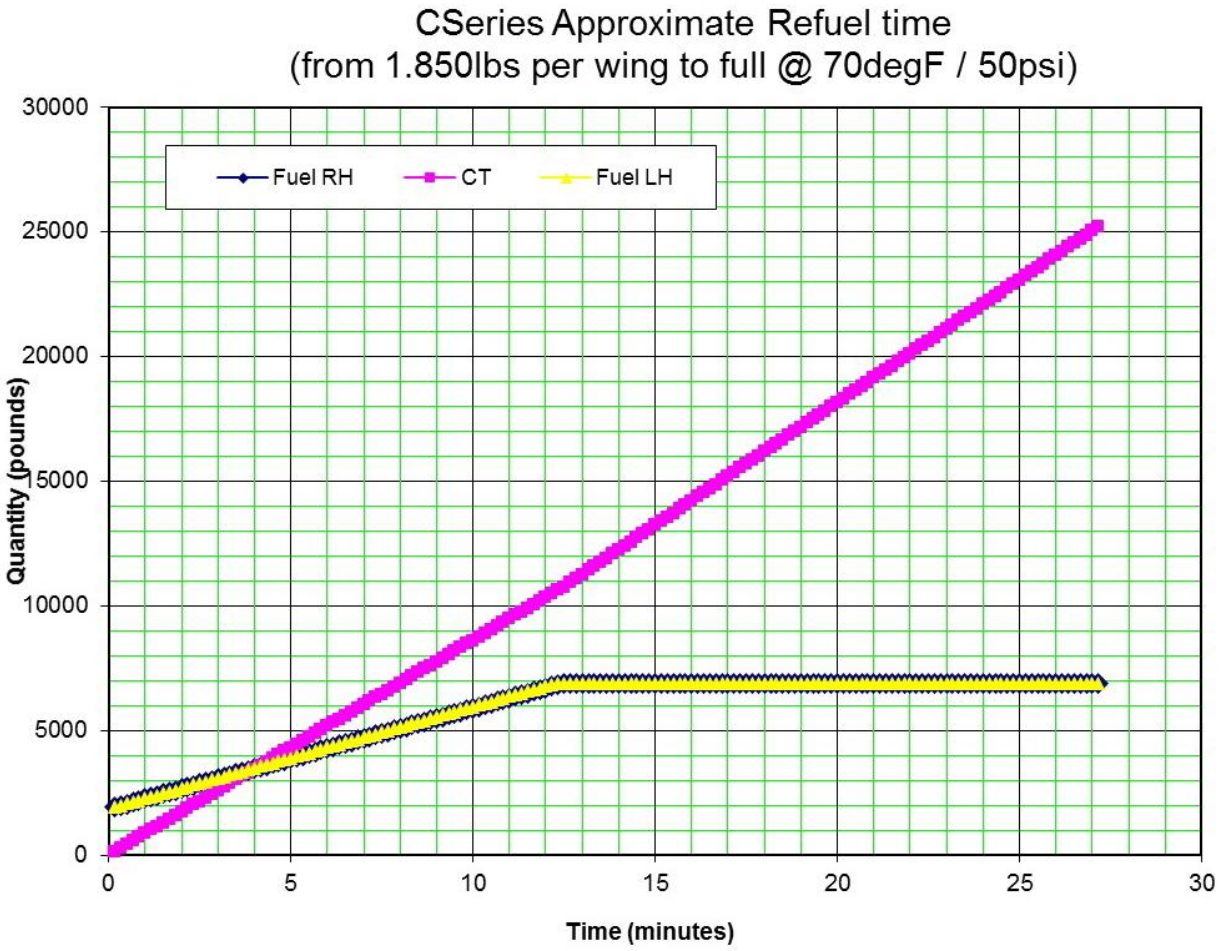
The first graphic shows the estimation of the refueling time and the evolution of the fuel quantity when the refuel starts with a fuel reserve of 1,850 lbs in each of the wing tank for a total fuel reserve of 3,700 lbs at the time of 0 second. Refer to Fig. 1

The second graphic shows the refueling time estimated from 1,850 lbs of fuel reserve in each of the wing tank to full fuel in all three tanks using various refuel pressures at the refuel adaptor. Refer to Fig. 2

The third graphic shows the estimation of the refueling time and the evolution of the fuel quantity when the refuel starts from empty in all three tanks. Refer to Fig. 3

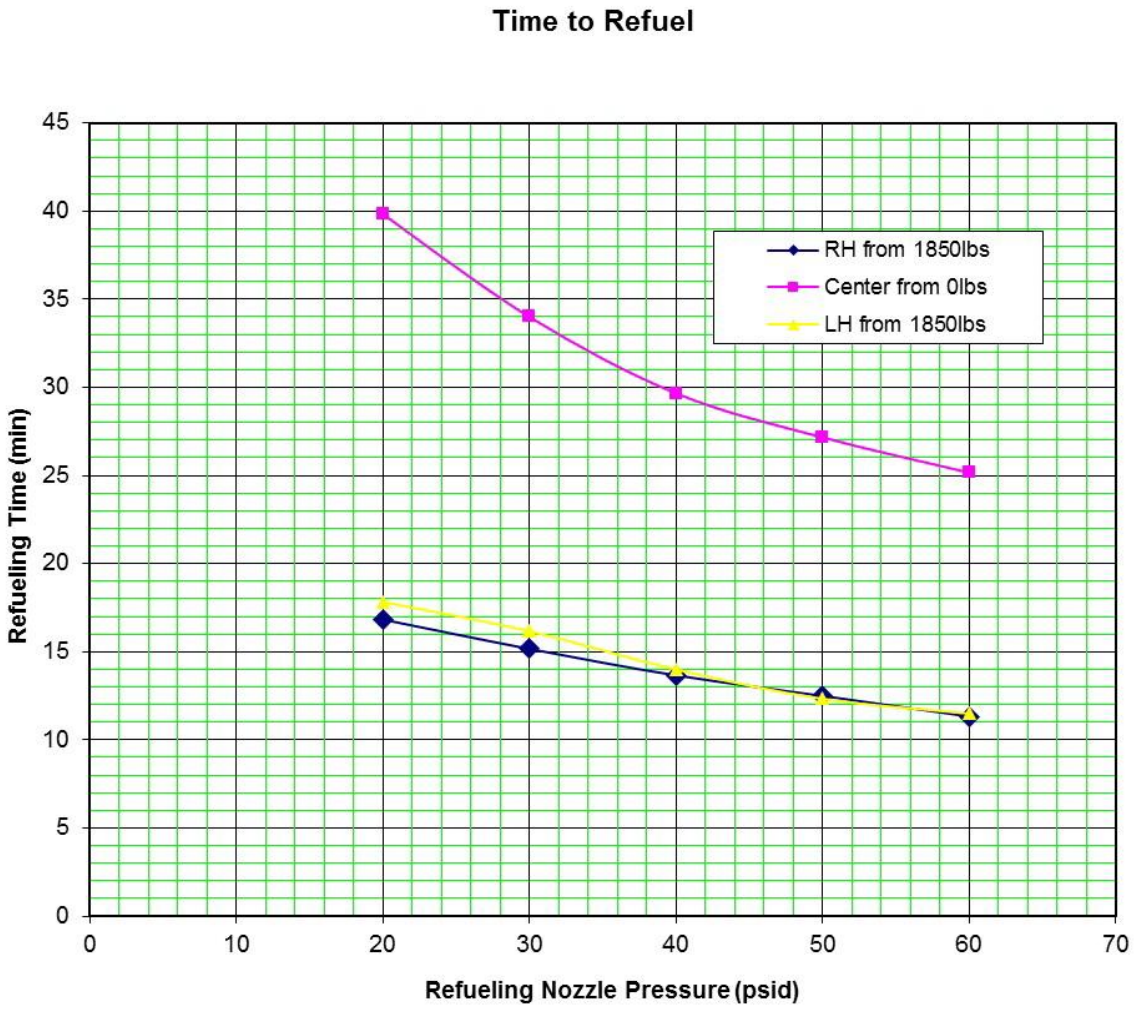
The fourth graphic shows the refueling time estimated from empty to full using various refueling pressures at the refuel adaptor. Refer to Fig. 4 .

This publication has been superseded by the Aircraft Characteristics Publication (ACP).



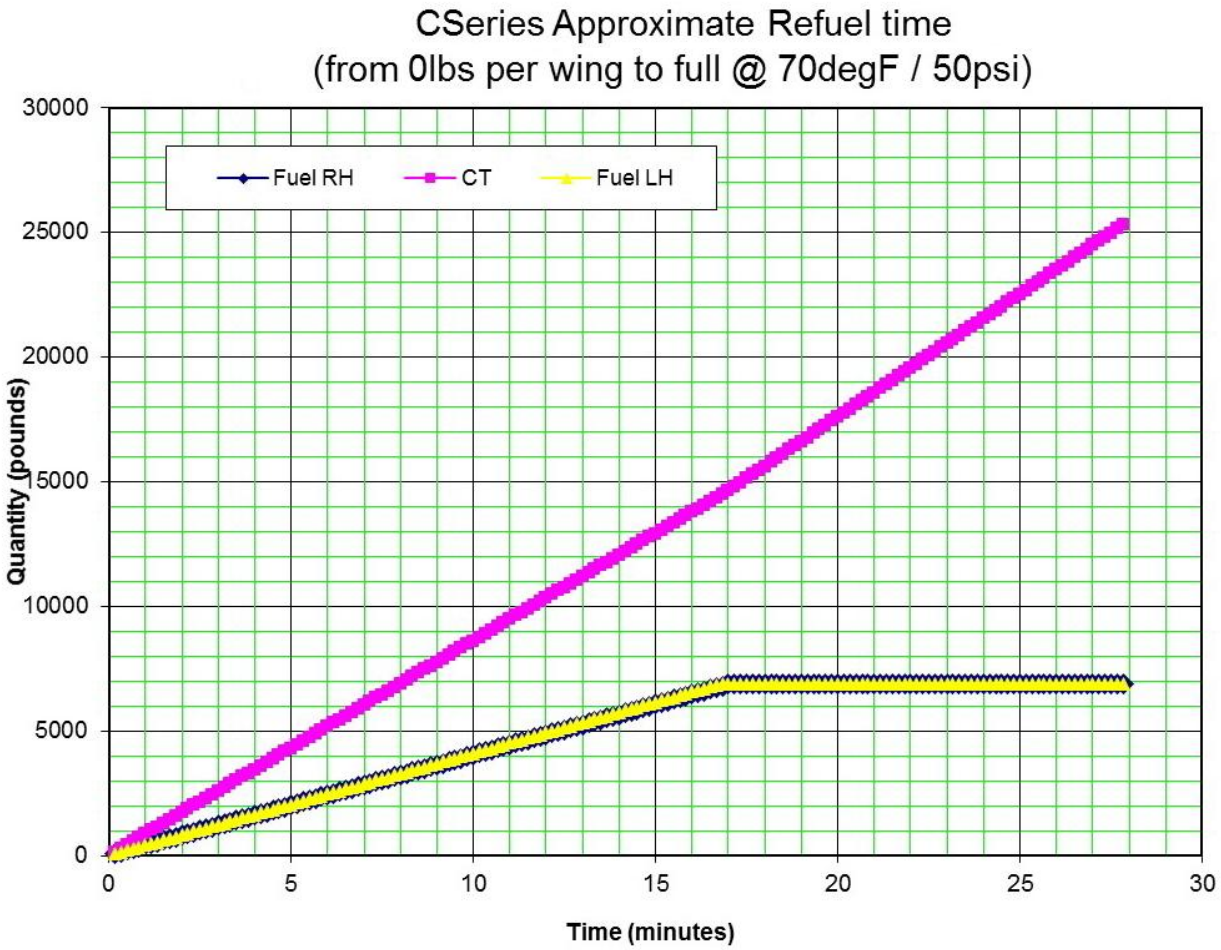
ICN-BD500-A-J121028-A-3AB48-40429-A-002-01

Figure 1 1,850 lbs per wing to full - Refueling time versus quantity



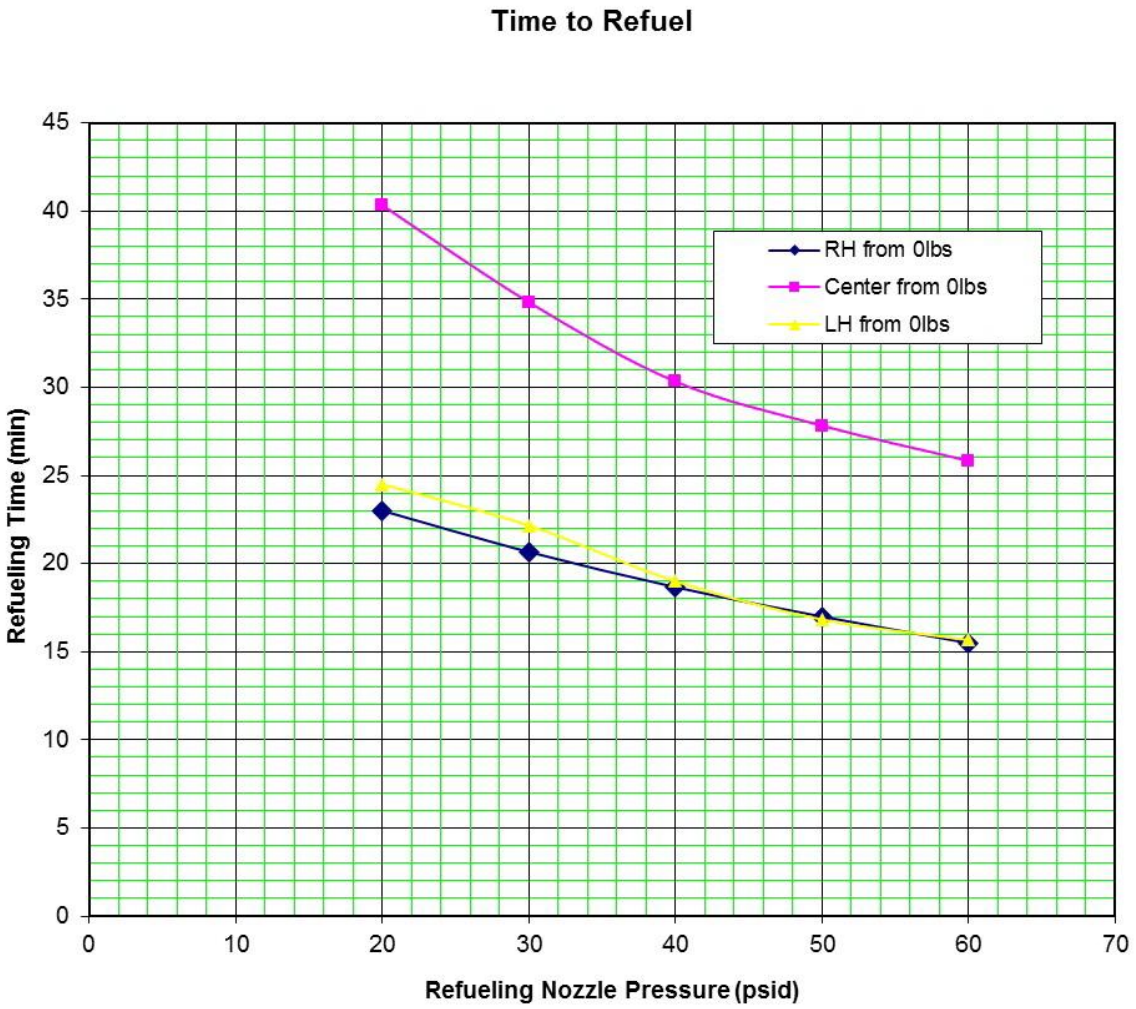
ICN-BD500-A-J121028-A-3AB48-40430-A-002-01

Figure 2 1,850 lbs per wing to full - Refueling time versus refueling nozzle pressure



ICN-BD500-A-J121028-A-3AB48-40431-A-003-01

Figure 3 0 lbs per wing to full - Refueling time versus quantity



ICN-BD500-A-J121028-A-3AB48-40773-A-001-01

Figure 4 0 lbs - Refueling time versus refueling nozzle pressure

Automatic - Refuel

Applicability: 50001-54999, 55001-59999

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3 Automatic - Refuel 14

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
BD500-A-J24-00-00-01AAA-913G-A	Electrical/Electronic safety precautions - General maintenance safety procedure
BD500-A-J28-00-00-00AAA-913G-A	Fuel safety precautions - General maintenance safety procedure
BD500-A-J24-00-00-01AAA-761A-A	Electrical power - General - Energize electrical network
BD500-A-J24-00-00-01AAA-561A-A	Electrical power - General - De-Energize electrical network

Common information

This data module gives the procedure to do the automatic refuel of the aircraft. The automatic refuel controls are installed on the Refuel/Defuel Control Panel (RDCP) on the forward right side of the Wing To Body Fairing (WTBF).

Preliminary requirements

Production maintenance data

Zones	192		Forward wing to fuselage fairing, right side
	621		Slat 2, right side
Access points	192AB	Door	
	621FB	Door	

Production maintenance data

Zones	521		Slat 2, left side
Access points	521FB	Door	

Required conditions

Table 2 Required conditions

Action/Condition	Data Module/Technical publication
Make sure that the aircraft is safe for maintenance.	
Obey all the electrical/electronic safety precautions.	BD500-A-J24-00-00-01AAA-913G-A
Obey all the fuel safety precautions.	BD500-A-J28-00-00-00AAA-913G-A
Make sure that the thermal circuit breakers that follow are closed:	

Name	CB Number/Location
REFUEL VLV-CTRL B	EPC1-A2
REFUEL VLV-CTRL A	EPC1-D2

Make sure that the electronic circuit breakers that follow are IN on the circuit breaker synoptic page:

Name	CB Number/Location
L FUEL QTY	CDC1-6-3
R FUEL QTY	CDC2-8-3

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Action/Condition	Data Module/Technical publication
Make sure that the access doors are open. Refer to the access points table above for details. Make sure that the fuel tender and the aircraft are correctly grounded.	

Support equipment

Table 3 Support equipment

Name	Identification/Reference	Quantity	Remark
None			

Consumables, materials, and expendables

Table 4 Consumables, materials, and expendables

Name	Identification/Reference	Quantity	Remark
Aviation turbine fuel	01-001	AR	
Aviation turbine fuel	01-002	AR	
Turbine fuel, aviation, kerosene type, JP 8 (NATO F-34)	01-003	AR	
Turbine fuel, aviation, JP 5 (NATO F-44)	01-004	AR	
Turbine fuel, aviation, kerosene type, JP 8+100 (NATO F-37)	01-005	AR	

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Spares

Table 5 Spares

Name	Identification/Reference	Quantity	Remark
None			

Safety conditions

None

Procedure

1 Fuel tank capacity as follows:

Applicability: 50001-54999

1.1 Fuel tank capacity A220-100

Fuel Tank	**Fuel quantity (lb)[1]**	**Fuel quantity (kg)[1]**	**Tank volume (US gal)**	**Tank volume (L)**
Left Wing Tank	6775	3080	1004	3807
Center Tank	25300	11480	3748	14190
Right Wing Tank	6775	3080	1004	3807
Total	38850	17640	5756	21805

1 Based on a fuel density of 6.75 lb/US gal (0.809 kg/L), rounded to the nearest 25 lb or 10 kg. Fuel quantity is given for reference only and is not limiting.

Applicability: 55001-59999

1.2 Fuel tank capacity A220-300

Fuel Tank	**Fuel quantity (lb)[1]**	**Fuel quantity (kg)[1]**	**Tank volume (US gal)**	**Tank volume (L)**
Left Wing Tank	6725	3050	996	3770
Center Tank	24900	11300	3689	13968
Right Wing Tank	6725	3050	996	3770
Total	38350	17400	5681	21508

1 Based on a fuel density of 6.75 lb/US gal (0.809 kg/L), rounded to the nearest 25 lb or 10 kg. Fuel quantity is given for reference only and is not limiting.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

2 Fuel grades:

KEROSENE TYPE (01-001) , (01-002) , and (01-003)			
CANADIAN	AMERICAN	BRITISH	Other
CAN/CGSB-3.23-2012 [2](01-001)	ASTM D1655 (JET A) [2](01-001)	Defence Standard 91-91 [2](01-001)	GOST 10227 - TS-1 [1] , RT [1] (CSI)(01-001)
	ASTM D1655 (JET A1) [2](01-002)	Defence Standard 91-87(01-002)	GB6537-2018-No. 3 Jet

KEROSENE TYPE (01-001) , (01-002) , and (01-003)			
			Fuel [3, 4] (China)(01-002)
	MIL-DTL-83133 (JP −8),(01-003) (JP8+100)(01-004)	Defence Standard 91-86(01-003)(01-004)	STAS5639/88(01-003)(01-
	MIL-T-5624 (JP5)(01-005)		

1, 2, 3, 4

1 Fuel quantity gauging inaccuracy when using TS-1 or RT fuel will be up to 0.8% higher (over indicating) than when using the other fuels listed in the table.

2 ASTM D1655, Defence standards 91-91, and CAN/CGSB-3-23 jet fuels whose origin was as ASTM D7566 (aviation turbine fuel containing synthesized hydrocarbons) and that are reidentified as Jet A, Jet A1 fuels are considered equivalent to fossil-based fuels.

3 GB6537-2018 turbine fuels containing synthesized hydrocarbons whose origin is equivalent to ASTM D7566 and are re-identified as Jet A, Jet A1 fuels are considered equivalent to fossil-based fuels.

4 Additives T1502, T1602 and Ethylene Glycol Monomethyl Ether (EGME) are not approved.

2.1 Fuel additive:

Thermal Stability Improver Additive*	
Product	**Maximum Dosage**
AeroShell Performance Additive	256 mg/L
Spec Aid 8Q462	256 mg/L
Turboline FS100 533	559 mg/L
Turboline FS100Concentrate	256 mg/L
* The operator shall report to Pratt & Whitney prior to use any of the listed thermal stability additives.	

Fuel System Icing Inhibitor	
Product	**Maximum dosage**
Diethylene Glycol Monomethyl Ether (DiEGME),conforming to MIL-DTL-85470 or ASTM D4171 Type III	0.15% Vol Max
Russian Fluid I (Ethylene GlycolMonoethyl Ether) conforming to GOST 8313	0.20% Vol Max
Russian Fluid IM (50/50 blend of Fluid I with Methanol (a mixture of GOST 8313 and GOST 2222 in equal parts by weight) conforming to TU6101458)	0.20% Vol Max

Static Dissipator Additive		
Product	**Maximum Dosage on Initial Blending**	**Maximum Cumulative Concentration**

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Static Dissipator Additive		
Innospec Stadis 450	3 mg/L	5 mg/L
Russian Additive "Sigbol"	-	0.0005% by weight

Biocide Additive	
Product	**Maximum dosage**
Biobor JF	0.199 ml/L[1]
Kathon FP – 1.5	0.100 ml/L[2]

1 0.199 ml of Biobor JF per liter of jet fuel is equal to 199 Parts Per Million (PPM) by volume (also equivalent to 270 PPM by weight based on a minimum density jet fuel).

2 0.100 ml of Kathon FP1.5 per liter of jet fuel is equal to 100 PPM by volume.

Leak Check Additive	
Product	**Maximum dosage**
Tracer A (LDTAA)	1 mg/kg max

Corrosion Inhibitors/Lubricity Improvers		
Product	**Minimum Dosage***	**Maximum dosage**
Innospec DCI-4A	9 mg/L	23 mg/L
Afton Hitec 580	15 mg/L	23 mg/L

* The minimum dosage is to ensure sufficient additive is available for lubricity aid.

Antioxidants	
Product	**Maximum dosage**
2,6-ditertiary-butyl-4-methyl-phenol	24 mg/L

Metal Deactivator Additive		
Product	**Maximum dosage on initial blending**	Maximum cumulative concentration
N,N'-disalicylidene-1, 2-propanediamine	2 mg/L	5.7 mg/L

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

WARNINGS

- **Before you refuel the aircraft, make sure that there are no persons, materials, or equipment below the aircraft. The weight of the fuel will compress the landing gear and lower the aircraft. This can cause injury to persons and damage to the equipment.**

- **If the fuel quantities shown on the Refuel Defuel Control Panel (RDCP) continue(s) to increase more than the pre-selected value or if the fuel difference between both wing tanks is more than 800 pounds (362.87 kilograms), immediately stop the fuel truck pump (or equivalent pump). The refueling gallery has probably broken, this can cause injury to persons and/or damage to equipment.**

3 Do the automatic refuel as follows:
Refer to Fig. 1 .

WARNING

Make sure that the fuel tender and the fuel nozzle are electrically bonded to the aircraft before you refuel/defuel the aircraft. A static electric spark during the refueling/defueling can cause an explosion or fire.

3.1 Remove the cap and connect the fuel tender nozzle to the right wing refuel adapter.

Note

The refuel adapter knob must be in FUEL position before you connect the fuel tender nozzle.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Applicability: 50010-50018, 55010-55015, 55020-55021, 55023, 55025, 55027, 55029-55030, 55032-55033, 55036, 55040, 55044-55046, 55056-55057, 55065-55067, 55072-55073, 55076, 55078-55079, 55082-55083, 55088, 55090, 55092-55093, 55097-55098, 55100, 55102-55103, 55105, 55109-55112, 55117-55119, 55122-55123, 55134, 55138-55141, 55146-55147, 55149, 55152, 55155, 55157, 55159, 55161, 55166, 55169, 55171, 55173-55174, 55179, 55185, 55187, 55190, 55193, 55196-55198, 55200, 55205, 55210, 55213, 55216, 55218, 55221, 55223, 55227, 55229-55230, 55232-55233, 55242-55243, 55253, 55269, 55275, 55278, 55281, 55283, 55288, 55291, 55298-55299, 55302, 55304-55306, 55311-55312, 55324, 55327

CAUTION

Do not operate the two refuel adapters at the same time when the left wing adapter is install. Damage to the fuel system can occur.

3.2 Make sure that the aircraft is not refuel from the left and right adapters at the same time.

3.3 If necessary, remove the cap and connect the fuel tender nozzle to the left wing refuel adapter. Refer to Fig. 2 .

Note

The refuel adapter knob must be in FUEL position before you connect the fuel tender nozzle.

3.4 To refuel the aircraft from the cockpit refuel panel, do the steps that follow:

3.4.1 Energize the electrical network. Refer to BD500-A-J24-00-00-01AAA-761A-A

3.4.2 Get access to the fuel synoptic page. Refer to Fig. 3

3.4.3 On the REFUEL PRESELECT panel, select CKPT.

3.4.4 With the use of Multifunction Keyboard Panel (MKP) or the Double Stacked Knob (DSK), enter the required fuel quantity in the REQUESTED field, then press ENTER.

Note

VALUE SET TO MIN message means the quantity entered is below the actual fuel load.

VALUE SET TO MAX message means the quantity entered is above the maximum allowed.

STANDBY message might be displayed until the following conditions are met:

- RDCP access door is opened.
- The ON/OFF power switch selected to ON.

If you go out of the FUEL synoptic page, the refueling will stop and the REQUESTED value will change to 0.

3.5 To refuel the aircraft from the RDCP, do the steps that follow:

3.5.1 Set the ON/OFF switch to ON.

3.5.2 Set the REFUEL/DEFUEL switch to REFUEL.

3.5.3 Set the AUTO/MANUAL switch to AUTO.

3.5.4 Hold the PRESEL INCR/DECR switch to the INCR position to increase the necessary fuel quantity.

3.6 Start the fuel truck pump.

3.6.1 Make sure that the refuel pressure is from 30 to 55 psig (206.84 to 379.21 kPa).

3.6.2 Make sure that the fuel quantity does not increase, in any tanks, before the START/STOP/SOV TEST switch is set to START.

Note

A small step increase in the fuel quantity is permitted while the pressure is applied.

Note

The Fuel Quantity Computer (FQC) controls the fuel balancing between the tanks.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

3.6.2.1 If a steady fuel increase is monitored before the START/STOP/SOV TEST switch is set to START, stop the fuel truck pump immediately and contact the maintenance personnel.

3.6.3 On the RDCP, set the START/STOP/SOV TEST switch to START.

3.6.4 On the RDCP display, make sure that the clock icon and the preselected fuel quantity is shown.

3.6.5 Make sure that the fuel quantities start to increase in the applicable tanks.

3.6.6 Make sure that the message COMPLETE is shown.

Note

The refuel to the aircraft stops automatically when the tanks get preselected fuel quantity (tolerance of ±100 lb or ±50 Kg).

3.6.7 Make sure that the preselected fuel quantity message is shown.

Note

The refuel time at refuel pressure of 50 psig (344.74 kPa) must be approximately 30 minutes to refuel the center tank and 16 minutes to refuel the wing tanks, when all tanks are refueled at same time.

When you refuel the center tank between 500 to 1500 lb (226.79 to 680.39 kg), an inaccuracy can occur because fuel takes long time to flow through the small opening at bottom of the rib 3. This can show as no fuel increase and then will show the correct fuel quantity.

3.7 On the RDCP, set the ON/OFF switch to OFF.

3.8 Disconnect the fuel tender nozzle from the right wing refuel adapter.

3.9 Install the cap on the right wing refuel adapter.

Applicability: 50010-50018, 55010-55015, 55020-55021, 55023, 55025, 55027, 55029-55030, 55032-55033, 55036, 55040, 55044-55046, 55056-55057, 55065-55067, 55072-55073, 55076, 55078-55079, 55082-55083, 55088, 55090, 55092-55093, 55097-55098, 55100, 55102-55103, 55105, 55109-55112, 55117-55119, 55122-55123, 55134, 55138-55141, 55146-55147, 55149, 55152, 55155, 55157, 55159, 55161, 55166, 55169, 55171, 55173-55174, 55179, 55185, 55187, 55190, 55193, 55196-55198, 55200, 55205, 55210, 55213, 55216, 55218, 55221, 55223, 55227, 55229-55230, 55232-55233, 55242-55243, 55253, 55269, 55275, 55278, 55281, 55283, 55288, 55291, 55298-55299, 55302, 55304-55306, 55311-55312, 55324, 55327

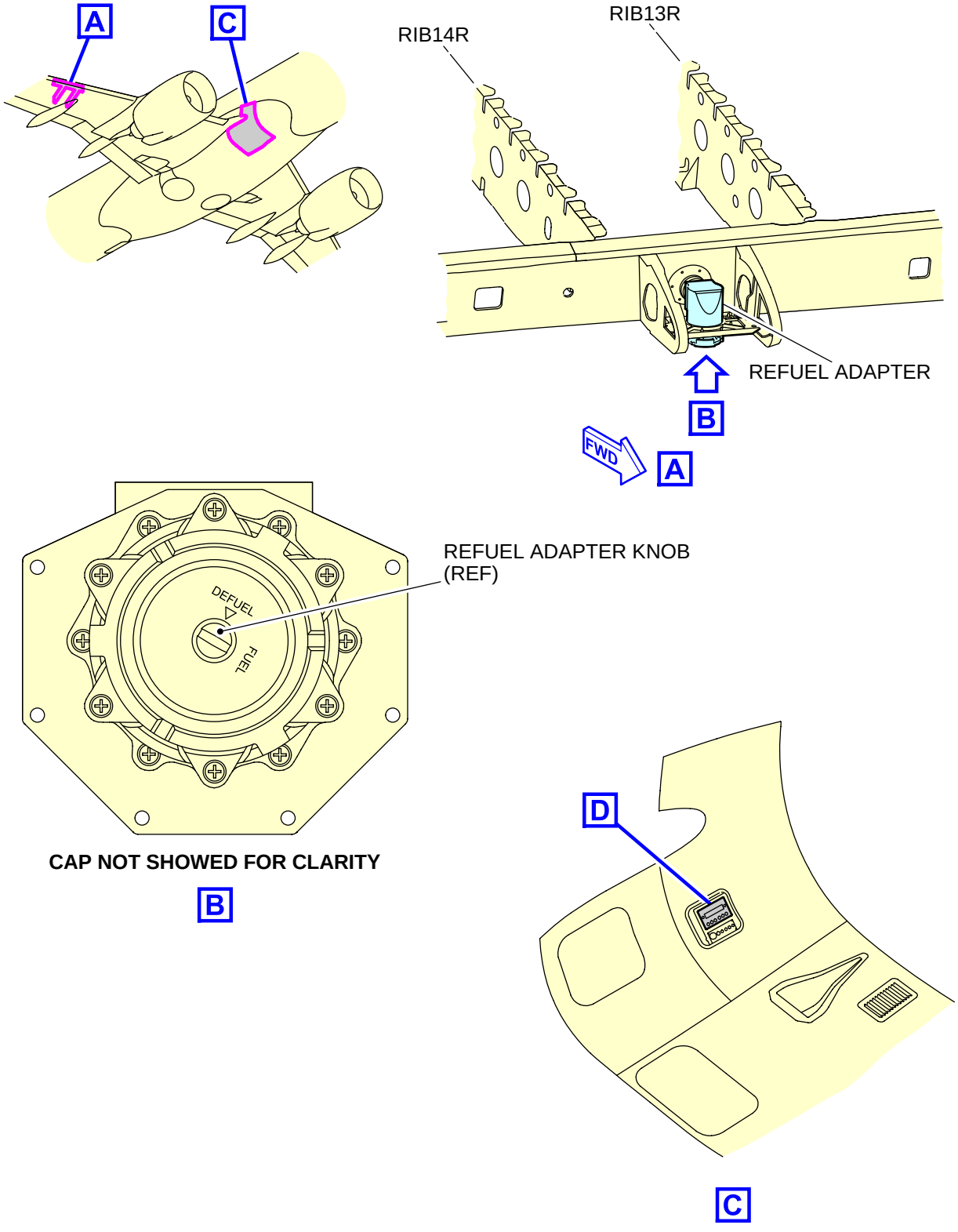
3.10 Disconnect the fuel tender nozzle from the left wing refuel adapter.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Applicability: 50010-50018, 55010-55015, 55020-55021, 55023, 55025, 55027, 55029-55030, 55032-55033, 55036, 55040, 55044-55046, 55056-55057, 55065-55067, 55072-55073, 55076, 55078-55079, 55082-55083, 55088, 55090, 55092-55093, 55097-55098, 55100, 55102-55103, 55105, 55109-55112, 55117-55119, 55122-55123, 55134, 55138-55141, 55146-55147, 55149, 55152, 55155, 55157, 55159, 55161, 55166, 55169, 55171, 55173-55174, 55179, 55185, 55187, 55190, 55193, 55196-55198, 55200, 55205, 55210, 55213, 55216, 55218, 55221, 55223, 55227, 55229-55230, 55232-55233, 55242-55243, 55253, 55269, 55275, 55278, 55281, 55283, 55288, 55291, 55298-55299, 55302, 55304-55306, 55311-55312, 55324, 55327

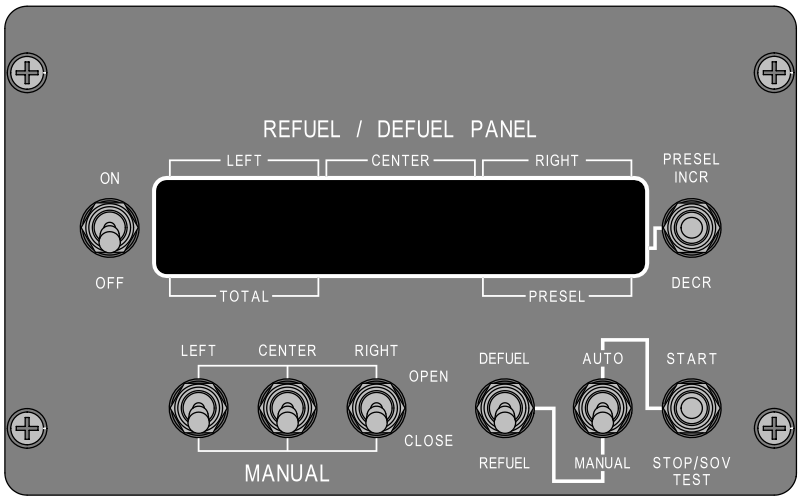
3.11 Install the cap on the left wing refuel adapter.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).



ICN-BD500-A-J121028-C-3AB48-43191-A-002-01

Figure 1 Automatic - Refuel - (Sheet 1 of 2)



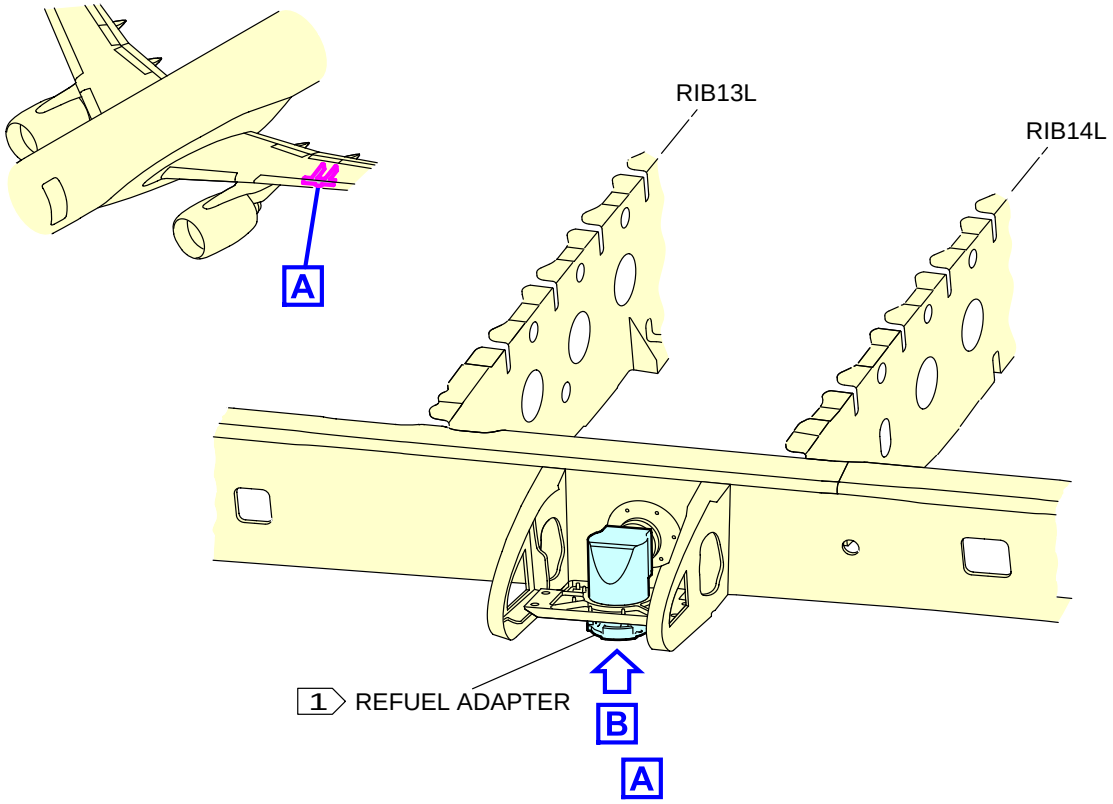
REFUEL/DEFUEL CONTROL PANEL

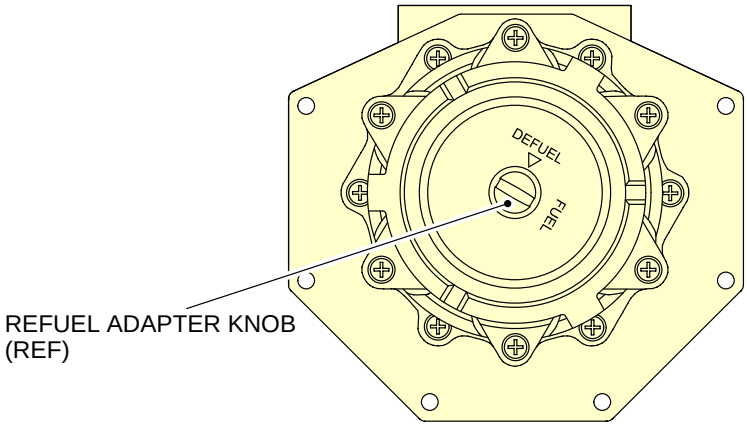
D

ICN-BD500-A-J121028-C-3AB48-13445-A-004-01

Figure 1 Automatic - Refuel - (Sheet 2 of 2)

Applicability: 50010-50018, 55010-55015, 55020-55021, 55023, 55025, 55027, 55029-55030, 55032-55033, 55036, 55040, 55044-55046, 55056-55057, 55065-55067, 55072-55073, 55076, 55078-55079, 55082-55083, 55088, 55090, 55092-55093, 55097-55098, 55100, 55102-55103, 55105, 55109-55112, 55117-55119, 55122-55123, 55134, 55138-55141, 55146-55147, 55149, 55152, 55155, 55157, 55159, 55161, 55166, 55169, 55171, 55173-55174, 55179, 55185, 55187, 55190, 55193, 55196-55198, 55200, 55205, 55210, 55213, 55216, 55218, 55221, 55223, 55227, 55229-55230, 55232-55233, 55242-55243, 55253, 55269, 55275, 55278, 55281, 55283, 55288, 55291, 55298-55299, 55302, 55304-55306, 55311-55312, 55324, 55327





CAP NOT SHOWED FOR CLARITY

B

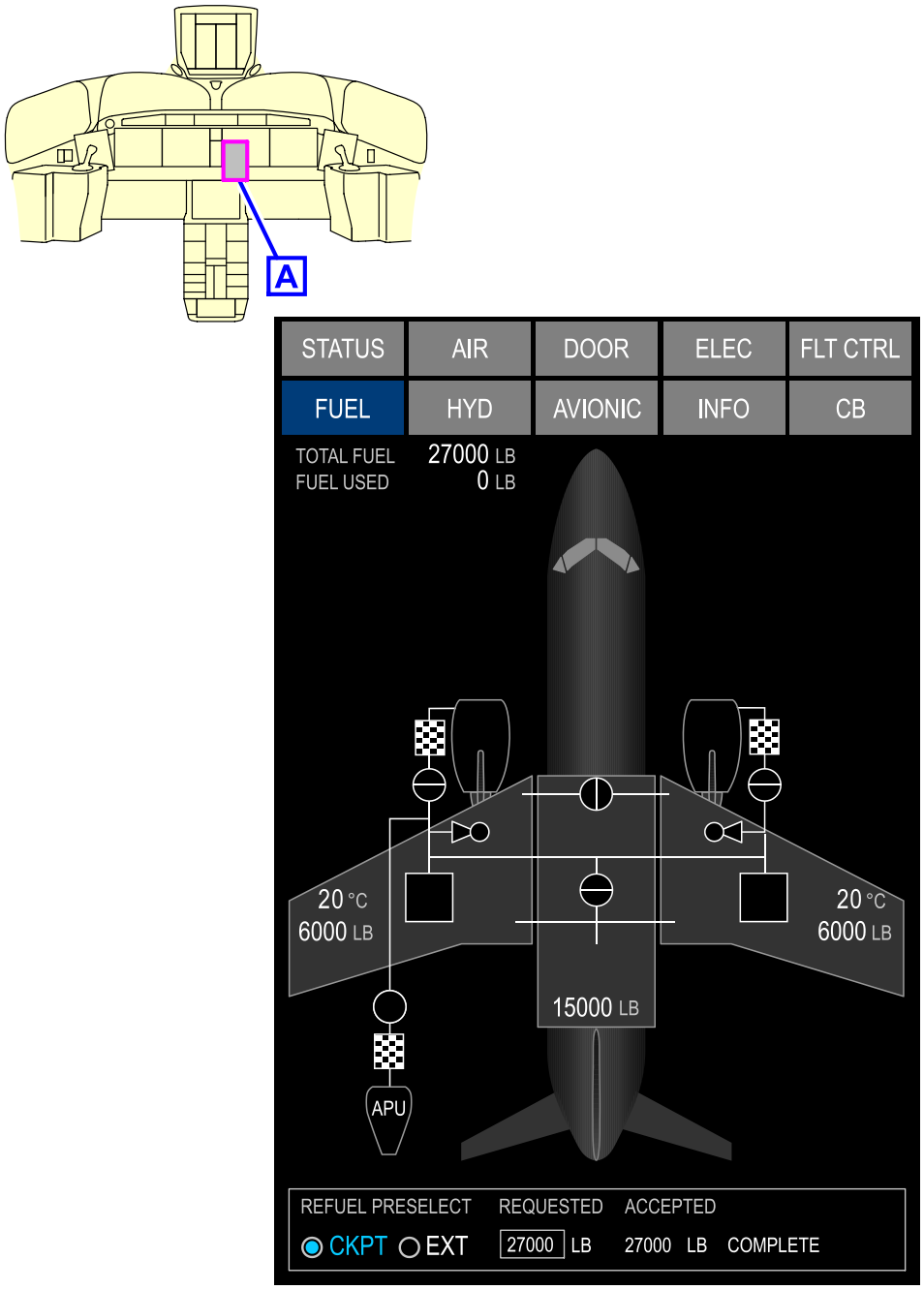
NOTE

1 Optional.

See a first page of the DM BD500-A-J12-10-28-02AAA-211A-A

Figure 2 Automatic - Refuel

Applicability: 50001, 50003, 50005, 50010-50019, 50062, 50066-50067, 50069, 50071, 50078, 55001-55002, 55010-55015, 55020-55021, 55023, 55025, 55027, 55029-55030, 55032-55033, 55036, 55040, 55044-55046, 55089, 55106, 55110, 55116, 55125, 55134, 55139-55141, 55146, 55149, 55155, 55157, 55159, 55171, 55173-55174, 55185, 55187, 55193, 55196-55198, 55200, 55210, 55213, 55216, 55218, 55221, 55223, 55227, 55229-55230, 55232-55233, 55242-55243, 55275, 55278, 55281, 55283, 55291, 55299, 55302, 55304-55305, 55311, 55324, 55327



FUEL SYNOPTIC PAGE
VIRTUAL REFUEL PANEL

A

Figure 3 Automatic - Refuel

Requirements after job completion

Required conditions

Table 6 Required conditions

Action/Condition	Data Module/Technical publication
Remove all tools, equipment, and unwanted materials from the work area.	
Make sure that the fuel tender nozzle ground is disconnected from the aircraft grounding point.	
If necessary, de-energize the electrical network.	BD500-A-J24-00-00-01AAA-561A-A
Make sure that the access doors are closed. Refer to the access points table above for details.	

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Pressure - Defuel and drain fuel

Applicability: 50001-54999, 55001-59999

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5 Spares 3
6 Required conditions 12

List of figures

Page

1 Pressure - Defuel and drain fuel 9
2 Pressure - Defuel and drain fuel 10
3 Pressure - Defuel and drain fuel 11

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
BD500-A-J12-10-28-01AAA-221A-A	Suction - Defuel and drain fuel
BD500-A-J24-00-00-01AAA-913G-A	Electrical/Electronic safety precautions - General maintenance safety procedure
BD500-A-J24-41-00-01AAA-561A-A	External AC power source - De-Energize electrical network
BD500-A-J24-41-00-01AAA-761A-A	External AC power source - Energize electrical network
BD500-A-J28-00-00-00AAA-913G-A	Fuel safety precautions - General maintenance safety procedure

Common information

This data module gives the procedure to do the pressure defuel and drain fuel (written as "pressure defuel" in this procedure). The pressure defuel controls are installed on the REFUEL / DEFUEL PANEL on the forward, right side of the Wing To Body Fairing (WTBF).

Preliminary requirements

Production maintenance data

Zones	192		Forward wing to fuselage fairing, right side
	212		Flight compartment, right side
	621		Slat 2, right side
Access points	192AB	Door	
	621FB	Door	

Production maintenance data

Zones	521		Slat 2, left side
Access points	521FB	Door	

Required conditions

Table 2 Required conditions

Action/Condition	Data Module/Technical publication
Make sure that the aircraft is safe for maintenance.	
Obey all the electrical/electronic safety precautions.	BD500-A-J24-00-00-01AAA-913G-A
Obey all the fuel safety precautions.	BD500-A-J28-00-00-00AAA-913G-A
Energize the electrical network with an external AC power source.	BD500-A-J24-41-00-01AAA-761A-A
Make sure that the thermal circuit breakers that follow are closed:	

Name	CB Number/Location
REFUEL VLV-CTRL B	EPC1-A2
REFUEL VLV-CTRL A	EPC1-D2

Make sure that the electronic circuit breakers that follow are IN on the circuit breaker synoptic page:

Name	CB Number/Location
L FUEL QTY	CDC1-6-3

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Action/Condition	Data Module/Technical publication	
	Name	CB Number/Location
	R FUEL QTY	CDC2-8-3
Make sure that the access doors are open. Refer to the access points table above for details. Make sure that the fuel tender and the aircraft are correctly grounded.		

Support equipment

Table 3 Support equipment

Name	Identification/Reference	Quantity	Remark
Non-static container	STD-0081	AR	

Consumables, materials, and expendables

Table 4 Consumables, materials, and expendables

Name	Identification/Reference	Quantity	Remark
None			

Spares

Table 5 Spares

Name	Identification/Reference	Quantity	Remark
None			

Safety conditions

None

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Procedure

WARNING

Remove the fuel system components carefully, when the aircraft is not defueled fully. This can cause unwanted fuel movement between the fuel tanks.

CAUTION

Do not operate the left (right) AC boost pump if the fuel quantity in the left (right) fuel tank is less than 900 pounds (408.24 kilograms). Turn off the AC boost pumps. If you do not do this, damage to the AC boost pumps can occur.

Note

It is structurally permitted to fully defuel a single fuel tank with the remaining available fuel in the other fuel tanks. Make sure that the aircraft conditions are as follow:

- There are no passengers, baggage, or payload on board
- Aircraft is not on jacks (when on jacks, follow aircraft jacking requirements)
- Aircraft is in a normal configuration.

You can use pressure defuel and suction defuel at the same time to defuel the wing tanks. Refer to BD500-A-J12-10-28-01AAA-221A-A for the suction defuel.

1 Do the pressure defuel as follows:

Refer to Fig. 1 and Fig. 2 .

1.1 On the REFUEL/DEFUEL PANEL, do the steps that follow:

1.1.1 Set the ON/OFF switch to ON.

1.1.2 Make sure that the MANUAL switches that follow are in the CLOSE position:

- LEFT
- CENTER
- RIGHT.

1.1.3 Set the AUTO/MANUAL switch to MANUAL.

1.1.4 Set the DEFUEL/REFUEL switch to DEFUEL.

CAUTION

Make sure that you keep the container below the work area at all times. Fuel can drain at random intervals when you do the maintenance.

1.1.5 Put the container (Commercially available, Pt. No. STD-0081) below the work area.

1.1.6 On the REFUEL/DEFUEL PANEL, do the step that follows:

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

1.1.6.1 Set the MANUAL switches that follow to the OPEN position:

- LEFT
- CENTER
- RIGHT.

1.2 On the REFUEL/DEFUEL PANEL display, make sure that the message DEFUEL is shown at the PRESEL portion.

WARNING

Make sure that the fuel tender and the fuel nozzle are electrically bonded to the aircraft before you refuel/defuel the aircraft. A static electric spark during the refueling/defueling can cause an explosion or fire.

1.3 Remove the cap and turn the refuel adapter knob (2) to DEFUEL position and connect the fuel tender nozzle to the right wing refuel adapter (1).

Applicability: 50010-50018, 55010-55015, 55020-55021, 55023, 55025, 55027, 55029-55030, 55032-55033, 55036, 55040, 55044-55046, 55056-55057, 55065-55067, 55072-55073, 55076, 55078-55079, 55082-55083, 55088, 55090, 55092-55093, 55097-55098, 55100, 55102-55103, 55105, 55109-55112, 55117-55119, 55122-55123, 55134, 55138-55141, 55146-55147, 55149, 55152, 55155, 55157, 55159, 55161, 55166, 55169, 55171, 55173-55174, 55179, 55185, 55187, 55190, 55193, 55196-55198, 55200, 55205, 55210, 55213, 55216, 55218, 55221, 55223, 55227, 55229-55230, 55232-55233, 55242-55243, 55253, 55269, 55275, 55278, 55281, 55283, 55288, 55291, 55298-55299, 55302, 55304-55306, 55311-55312, 55324, 55327

CAUTION

Do not operate the two refuel adapters at the same time when the left wing adapter is install. Damage to the fuel system can occur.

1.4 Make sure that the aircraft is not defuel from the left and right adapters at the same time.

Applicability: 50010-50018, 55010-55015, 55020-55021, 55023, 55025, 55027, 55029-55030, 55032-55033, 55036, 55040, 55044-55046, 55056-55057, 55065-55067, 55072-55073, 55076, 55078-55079, 55082-55083, 55088, 55090, 55092-55093, 55097-55098, 55100, 55102-55103, 55105, 55109-55112, 55117-55119, 55122-55123, 55134, 55138-55141, 55146-55147, 55149, 55152, 55155, 55157, 55159, 55161, 55166, 55169, 55171, 55173-55174, 55179, 55185, 55187, 55190, 55193, 55196-55198, 55200, 55205, 55210, 55213, 55216, 55218, 55221, 55223, 55227, 55229-55230, 55232-55233, 55242-55243, 55253, 55269, 55275, 55278, 55281, 55283, 55288, 55291, 55298-55299, 55302, 55304-55306, 55311-55312, 55324, 55327

1.5 If necessary, remove the cap and turn the refuel adapter knob (4) to DEFUEL position and connect the fuel tender nozzle to the left wing refuel adapter (3).
Refer to Fig. 3 .

1.6 On the fuel control panel, do as follows:

1.6.1 Make sure that the GRAV XFR Push Button Annunciator (PBA) is pushed in.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

1.6.2 Turn the L BOOST PUMP (R BOOST PUMP) switch to ON to defuel the applicable fuel tank.

Note

Defuel the wing tanks with the AC pumps operation with suction on the refuel adapter.

1.7 Drain the center tank to 400 lb (181.44 kg) as follows:

1.7.1 Drain the center tank by suction method as follows:

1.7.1.1 Open the center tank manual defuel valve.

CAUTION

Make sure that you keep the container below the work area at all times. Fuel can drain at random intervals when you do the maintenance.

1.7.1.2 Put the container (Commercially available, Pt. No. STD-0081) below the work area.

1.7.1.3 Activate the fuel truck pump in the suction mode.

Note

The maximum permitted suction pressure is −8.0 psi (−55.15 kPa) at the adapter.

1.7.1.4 On the REFUEL/DEFUEL PANEL, monitor the CENTER display window.

1.7.1.4.1 Stop the fuel truck pump when the quantity fuel is 400 lb (181.44 kg) or less.

Note

When the fuel level in a tank is almost empty, air goes into the refuel/defuel manifold by suction force. It prevents defuel operation in the center tank.

1.7.1.5 Close the center tank manual defuel valve.

1.7.2 Drain the center tank by pressure method as follows:

1.7.2.1 Transfer the fuel from the center tank to wing tanks.

1.7.2.1.1 Make sure that the wing tanks are not empty and not more than 5000 lb (2267.96 kg).

This publication has been superseded by the Aircraft Characteristics Publication (ACP)

1.7.2.1.2 On the FUEL control panel, do as follows:

- Set the L BOOST PUMP switch to ON
- Set the R BOOST PUMP switch to ON.

Note

When the fuel transfer from the center wing box to the wing tank, the Transfer Float Valve (TFV) will stay open.

1.7.2.1.3 Get access to the FUEL synoptic page.

1.7.2.1.4 Make sure that the fuel quantity in the left wing tank and the right wing tank increases equally.

1.7.2.1.5 Make sure that the fuel quantity in the center tank decreases.

1.7.2.1.6 On the FUEL control panel, do as follows:

- Set the L BOOST PUMP switch to AUTO
- Set the R BOOST PUMP switch to AUTO.

1.7.3 Open the water drain valves and collect the remaining fuel in the container (Commercially available, Pt. No. STD-0081) .

1.7.4 Close the water drain valves.

1.8 Get access to the FUEL synoptic page.

1.9 If there is a boost pump low pressure indication, do as follows:

Note

The booster pumps are shown in amber color out line and the distribution lines go out of view.

1.9.1 On the fuel control panel, turn the L BOOST PUMP (R BOOST PUMP) switch to OFF to defuel the applicable fuel tank.

1.10 On the REFUEL/DEFUEL PANEL, do the steps that follow:

1.10.1 Set the MANUAL switches that follow to the CLOSE position:

- LEFT
- CENTER
- RIGHT.

1.10.2 Set the ON/OFF switch to OFF.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

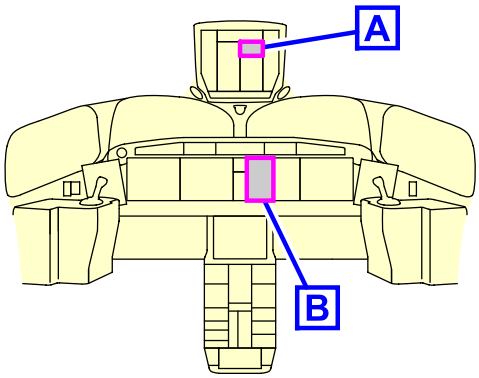
1.11 Disconnect the fuel tender nozzle from the refuel adapter (1) on the right wing and turn the refuel adapter knob (2) to FUEL position.

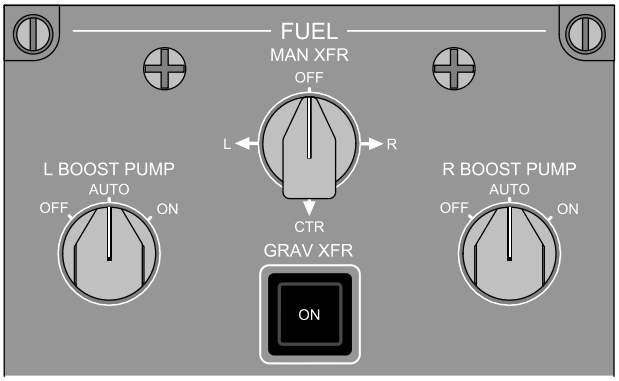
Applicability: 50010-50018, 55010-55015, 55020-55021, 55023, 55025, 55027, 55029-55030, 55032-55033, 55036, 55040, 55044-55046, 55056-55057, 55065-55067, 55072-55073, 55076, 55078-55079, 55082-55083, 55088, 55090, 55092-55093, 55097-55098, 55100, 55102-55103, 55105, 55109-55112, 55117-55119, 55122-55123, 55134, 55138-55141, 55146-55147, 55149, 55152, 55155, 55157, 55159, 55161, 55166, 55169, 55171, 55173-55174, 55179, 55185, 55187, 55190, 55193, 55196-55198, 55200, 55205, 55210, 55213, 55216, 55218, 55221, 55223, 55227, 55229-55230, 55232-55233, 55242-55243, 55253, 55269, 55275, 55278, 55281, 55283, 55288, 55291, 55298-55299, 55302, 55304-55306, 55311-55312, 55324, 55327

1.12 If necessary, disconnect the fuel tender nozzle from the refuel adapter (3) on the left wing and turn the refuel adapter knob (4) to FUEL position.

1.13 Install the cap on the refuel adapter.

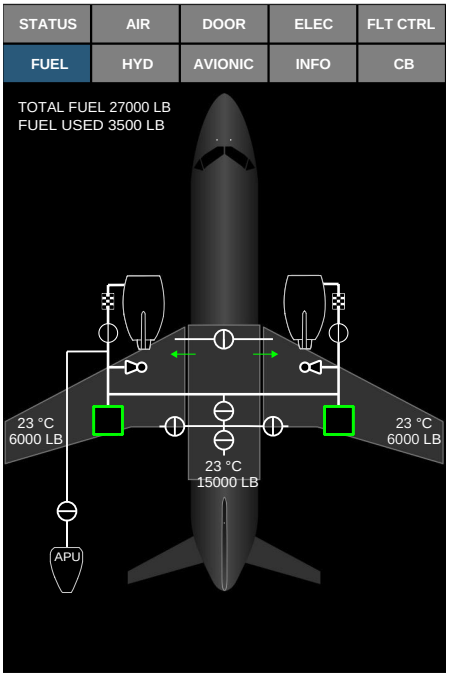
This publication has been superseded by the Aircraft Characteristics Publication (ACP).





FUEL CONTROL PANEL

A

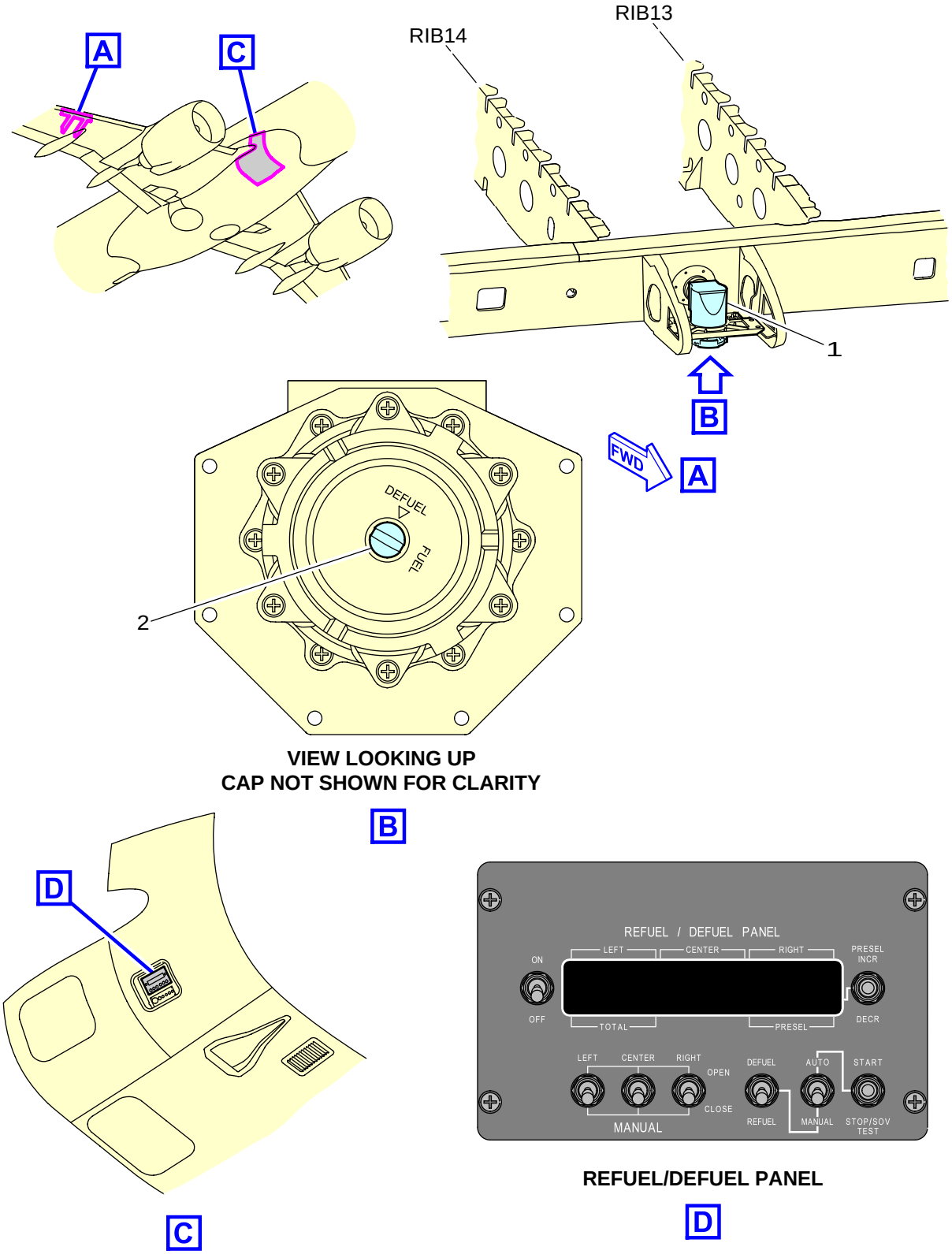


FUEL SYNOPTIC PAGE

B

ICN-BD500-A-J282200-C-3AB48-53951-A-001-01

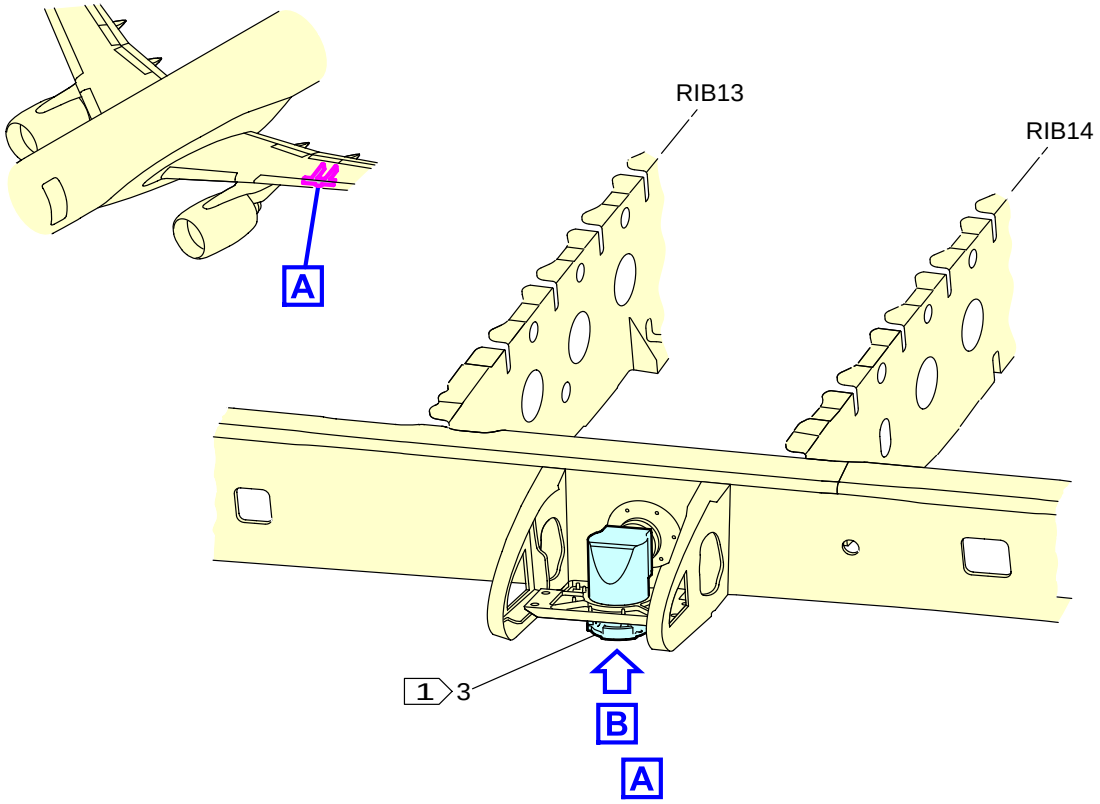
Figure 1 Pressure - Defuel and drain fuel

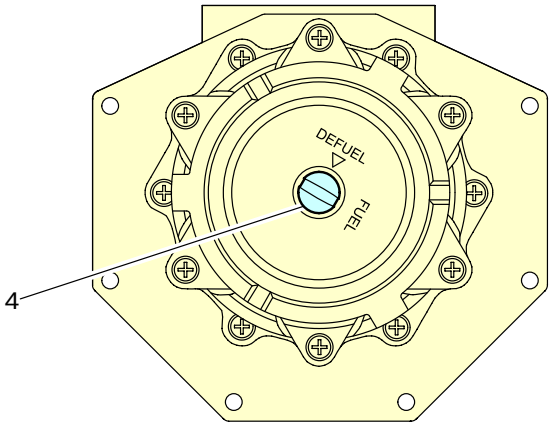


ICN-BD500-A-J121028-C-3AB48-47760-A-001-01

Figure 2 Pressure - Defuel and drain fuel

Applicability: 50010-50018, 55010-55015, 55020-55021, 55023, 55025, 55027, 55029-55030, 55032-55033, 55036, 55040, 55044-55046, 55056-55057, 55065-55067, 55072-55073, 55076, 55078-55079, 55082-55083, 55088, 55090, 55092-55093, 55097-55098, 55100, 55102-55103, 55105, 55109-55112, 55117-55119, 55122-55123, 55134, 55138-55141, 55146-55147, 55149, 55152, 55155, 55157, 55159, 55161, 55166, 55169, 55171, 55173-55174, 55179, 55185, 55187, 55190, 55193, 55196-55198, 55200, 55205, 55210, 55213, 55216, 55218, 55221, 55223, 55227, 55229-55230, 55232-55233, 55242-55243, 55253, 55269, 55275, 55278, 55281, 55283, 55288, 55291, 55298-55299, 55302, 55304-55306, 55311-55312, 55324, 55327





VIEW LOOKING UP
CAP NOT SHOWN FOR CLARITY

B

NOTE

1 Optional.

Figure 3 Pressure - Defuel and drain fuel

Requirements after job completion

Required conditions

Table 6 Required conditions

Action/Condition	Data Module/Technical publication
Remove all tools, equipment, and unwanted materials from the work area.	
Make sure that the fuel tender nozzle ground is disconnected from the aircraft grounding point.	
De-energize the electrical network and disconnect the external AC power source.	BD500-A-J24-41-00-01AAA-561A-A
Make sure that the access doors are closed. Refer to the access points table above for details.	

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Potable Water System (PWS) - Fill with water

Applicability: 50001-54999, 55001-59999

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
BD500-A-J24-00-00-01AAA-913C-A	Electrical/Electronic safety precautions - General maintenance safety procedure
BD500-A-J24-00-00-01AAA-761A-A	Electrical power - General - Energize electrical network
BD500-A-J12-10-38-01AAA-377A-B	Potable water system - Sampling
BD500-A-J24-00-00-01AAA-561A-A	Electrical power - General - De-Energize electrical network

Common information

This data module gives the procedure to fill the Potable Water System (PWS) with water. The PWS is installed at the forward and aft fuselage.

Preliminary requirements

Production maintenance data

Zones	146	Lower aft fuselage, surrounding aft cargo compartment, right side

	221		Passenger compartment forward servicing area, left side
	222		Passenger compartment forward servicing area, right side
	245		Passenger compartment aft servicing area, left side
	246		Passenger compartment aft servicing area, right side
Access points	146CR	Door	

Required conditions

Table 2 Required conditions

Action/Condition	Data Module/Technical publication
Make sure that the aircraft is safe for maintenance.	
Obey all the electrical/electronic safety precautions.	BD500-A-J24-00-00-01AAA-913G-A
Energize the electrical network.	BD500-A-J24-00-00-01AAA-761A-A
Make sure that the electronic circuit breakers that follow are IN on the circuit breaker synoptic page:	

Name	CB Number/Location
FWD WTR DRN VLV	CDC3-5-11
FWD DRN MAST HTR	CDC3-9-5
AFT WTR DRN VLV	CDC5-11-4
WTR PUMP 1	CDC5-17-4
WTR PUMP 2	CDC5-17-5
AFT DRN MAST HTR	CDC5-17-10

Make sure that the access door is open. Refer to the access points table above for details.	

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Support equipment

Table 3 Support equipment

Name	Identification/Reference	Quantity	Remark
Potable water cart	19-4301-0000	1	

Consumables, materials, and expendables

Table 4 Consumables, materials, and expendables

Name	Identification/Reference	Quantity	Remark
None			

Spares

Table 5 Spares

Name	Identification/Reference	Quantity	Remark
None			

Safety conditions

None

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Procedure

WARNINGS

- **Use only potable water in the water tanks. Passengers and crew members can drink the water. Contaminated water can cause injury to persons.**
- **Be careful when you touch the drain mast. It can be very hot and can cause injury to persons.**

1 Fill the PWS with water as follows:
Refer to Fig. 1 .

Note
It is possible to fill the potable water system if the Cabin Management System (CMS) is not available.

The water pre-selection value will be set to the default value of 100%.

1.1 If the potable water system is filled without the use of the CMS, continue to Step 1.3 .

1.2 On the Crew Terminal (CT), get access to the CMS.

1.2.1 Get access to the SYSTEM screen.

1.2.2 On the SYSTEM screen, select LAVATORY tab.

1.2.3 On the LAVATORY tab there is a pre-selection value but it is possible to change the water fill quantity on the LAVATORY tab as follows:

1.2.3.1 Set the potable water fill level to the necessary value.

Note

It is only possible to fill the potable water system in increments of 10%.

The pre-selection value will be back to default value each time the CMS is set.

1.3 On the water service panel, open the fill nipple cap.

1.4 From the potable water cart (59603, Pt. No. 19-4301-0000) , connect the fill hose to the fill nipple.

1.5 Set the FILL/DRAIN switch to the FILL position.

1.6 On the potable water cart (59603, Pt. No. 19-4301-0000) , do as follows:

1.6.1 Open the water supply valve.

1.6.2 Make sure that the fill pressure is at 25 to 60 psig (172.35 to 413.68 kPa).

1.7 When the water fill process is completed, make sure that the FULL light comes on the water level indicator.

Note

The water flow to the potable water tank stops automatically when the FULL light comes on.

1.8 Make sure that the CMS shows the correct water level value which is set.

1.9 On the potable water cart (59603, Pt. No. 19-4301-0000) , close the water supply valve.

1.10 On the water service panel, do as follows:

1.10.1 Disconnect the fill hose from the fill nipple and completely let water purge from the fill nipple (approximation time 3 min.).

1.10.2 Close the fill nipple cap.

1.11 Set the FILL/DRAIN switch to the FLIGHT position.

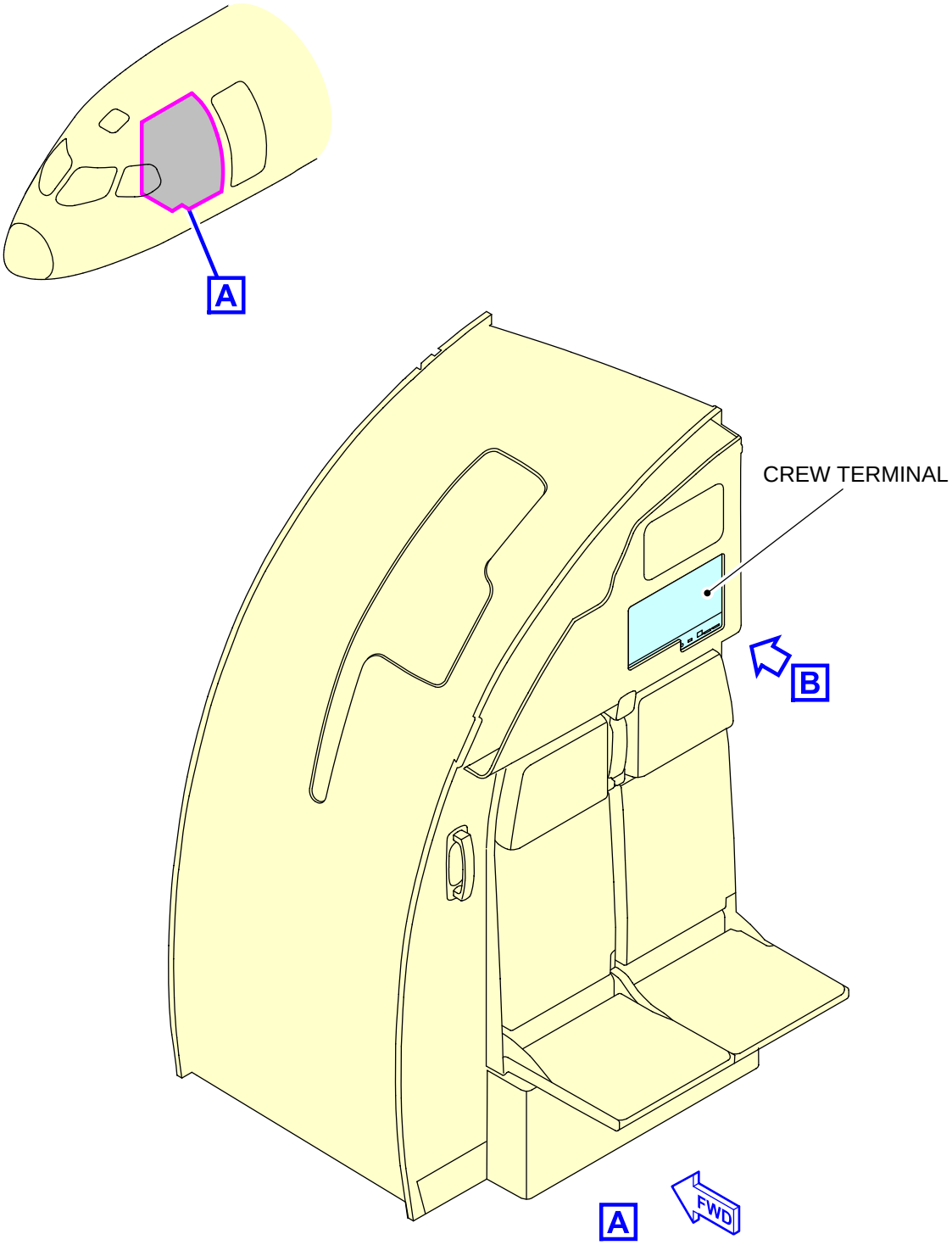
Note

When the FILL/DRAIN switch is set to FLIGHT position, the pumps get activated.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

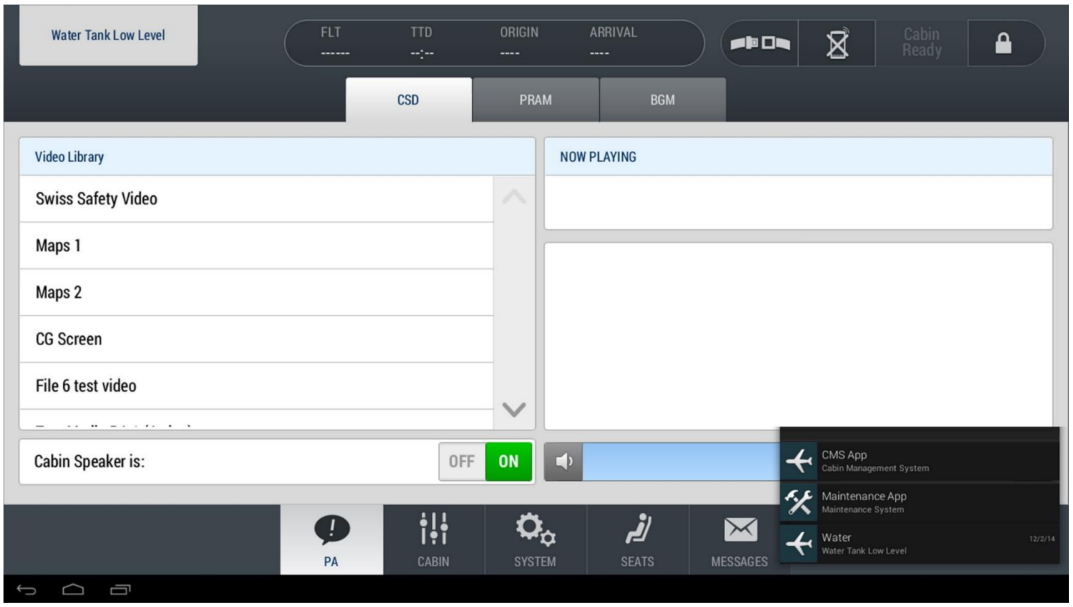
1.12 If necessary, Do the sampling of potable water system. Refer to BD500-A-J12-10-38-01AAA-377A-B.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

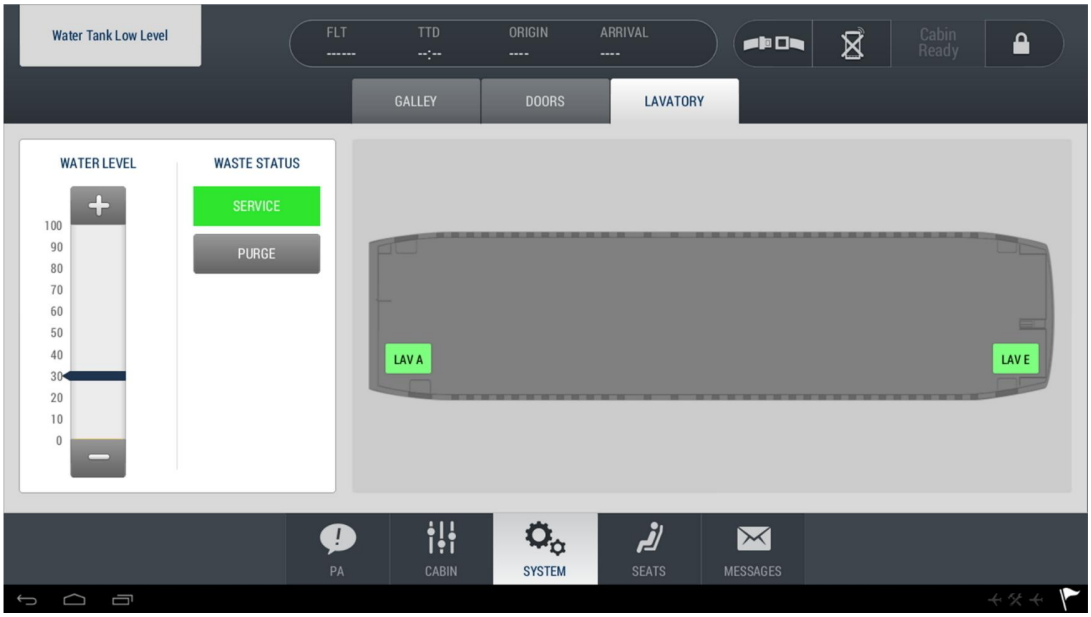


ICN-BD500-A-J121038-C-3AB48-25047-A-003-01

Figure 1 Potable water system - Fill with water - (Sheet 1 of 3)



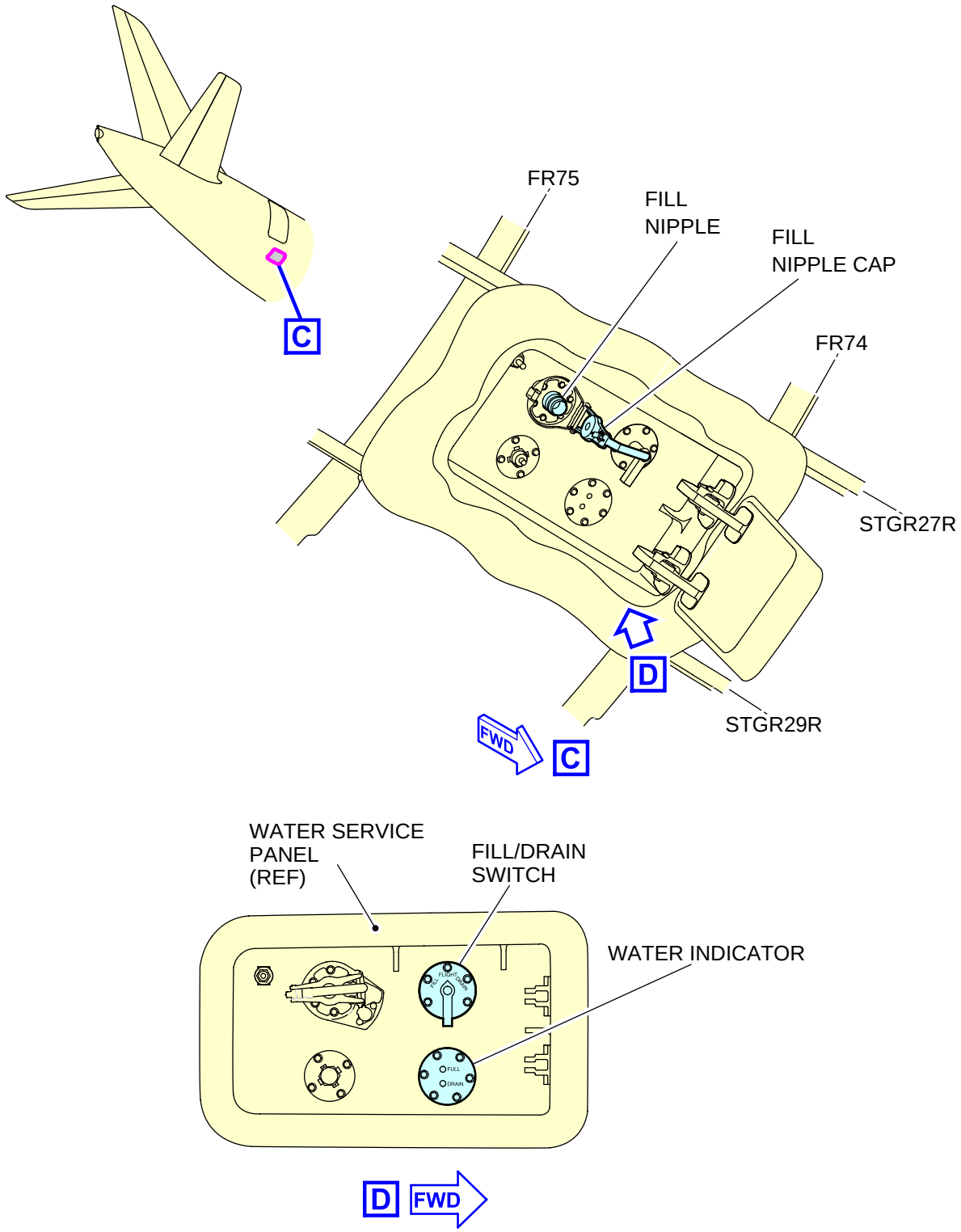
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B

ICN-BD500-A-J121038-C-3AB48-41085-A-001-01

Figure 1 Potable water system - Fill with water - (Sheet 2 of 3)



ICN-BD500-A-J121038-C-3AB48-41237-A-003-01

Figure 1 Potable water system - Fill with water - (Sheet 3 of 3)

Requirements after job completion

Required conditions

Table 6 Required conditions

Action/Condition	Data Module/Technical publication
Remove all tools, equipment and unwanted materials from the work area.	
Make sure that the water pressure is available in the forward and aft lavatories and galleys.	
De-energize the electrical network.	BD500-A-J24-00-00-01AAA-561A-A
Make sure that the access door is closed. Refer to the access points table above for details.	

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Potable water system - Drain water

Applicability: 50001-54999, 55001-59999

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
BD500-A-J12-10-38-01AAA-216A-A	Potable Water System (PWS) - Fill with water
BD500-A-J12-30-38-01AAA-251A-A	Potable water system - Clean with chemical agent

Common information

This data module gives the procedure to drain the Potable Water System (PWS). The PWS is installed through the forward and aft fuselage.

Preliminary requirements

Production maintenance data

Zones	125	Lower forward and forward-mid fuselage surrounding forward cargo compartment, left side
	126	Lower forward and forward-mid fuselage surrounding forward

			cargo compartment, right side
	145		Lower aft fuselage, surrounding aft cargo compartment, left side
	146		Lower aft fuselage, surrounding aft cargo compartment, right side
	221		Passenger compartment forward servicing area, left side
	222		Passenger compartment forward servicing area, right side
	245		Passenger compartment aft servicing area, left side
	246		Passenger compartment aft servicing area, right side
Access points	146CR	Door	

Required conditions

Table 2 Required conditions

Action/Condition	Data Module/Technical publication
Make sure that the aircraft is safe for maintenance. Make sure that the access door is open. Refer to the access points table above for details.	

Support equipment

Table 3 Support equipment

Name	Identification/Reference	Quantity	Remark
Potable water container	STD-0085	2	
Vacuum cleaner	STD-0266	1	

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Consumables, materials, and expendables

Table 4 Consumables, materials, and expendables

Name	Identification/Reference	Quantity	Remark
None			

Spares

Table 5 Spares

Name	Identification/Reference	Quantity	Remark
None			

Safety conditions

None

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Procedure

WARNING

Be careful when you touch the drain mast. It can be very hot and can cause injury to persons.

1 Drain the PWS as follows:

Refer to Fig. 1 .

1.1 Put the containers (Commercially available, Pt. No. STD-0085) below the forward and aft drain masts.

1.2 On the water service panel:

1.2.1 Open the water service panel door.

1.2.2 Set the FILL/FLIGHT/DRAIN switch to the DRAIN position.

1.2.3 Make sure that the DRAIN light comes on.

1.3 Water will start to drain from the forward and/or aft drain masts.

1.4 Drain the water for at least 5 minutes.

1.5 In the aircraft cabin:

1.5.1 Push each of the galley spigot(s) for up to 5 minutes to remove all the residual water in the galley spigot line(s).

Note

The residual water in the galley spigot line(s) will drain from the forward and/or aft drain masts.

1.5.2 Pull the handles of the galley and lavatory drain valves (minimum 10 seconds) to remove any residual water from the drain lines.

1.6 Monitor the aft and forward drain mast for water until the water flowing stops.

1.7 On the Cabin Management System (CMS), make sure that the potable water level in the tank is at 0%.

1.8 Make sure that the forward and aft drain masts are correctly drained before the water valve is set to FLIGHT position and the servicing access door is closed.

1.9 On the water service panel:

1.9.1 Set the FILL/FLIGHT/DRAIN switch to the FLIGHT position.

1.9.2 Make sure that the DRAIN light comes off.

Applicability: 50001-50009, 55001-55002 and 50010-50066, 55003-55180, 55182-55183 PRE BD500-381007

2 Remove the trapped water from the water fill line and filter as follows:

Refer to Fig. 1 .

2.1 Connect the vacuum (Commercially available, Pt. No. STD-0266) hose to the water fill port.

2.2 Set the FILL/FLIGHT/DRAIN switch to the FILL position.

2.3 Apply power to the vacuum (Commercially available, Pt. No. STD-0266) .

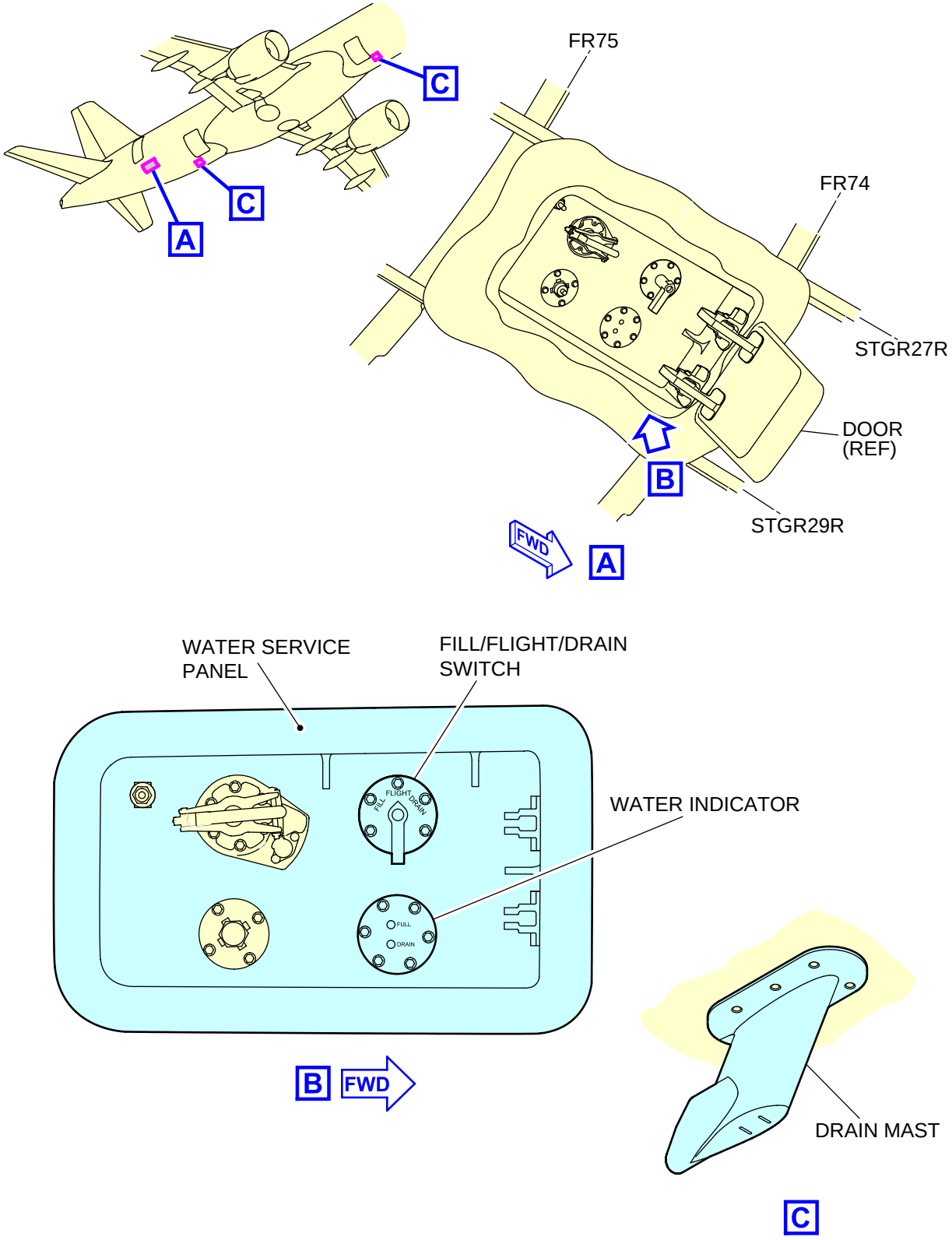
2.4 Wait three to five minutes to extract all the water from the water fill line.

2.5 Remove power from the vacuum (Commercially available, Pt. No. STD-0266) .

2.6 Disconnect the vacuum (Commercially available, Pt. No. STD-0266) hose from the water fill port.

2.7 Set the FILL/FLIGHT/DRAIN switch to the FLIGHT position.

This publication has been superseded by the Aircraft Characteristics Publication (ACP) .



ICN-BD500-A-J121038-C-3AB48-25048-A-002-01

Figure 1 Potable water system - Drain water

Requirements after job completion

Required conditions

Table 6 Required conditions

Action/Condition	Data Module/Technical publication
Remove all tools, equipment and unwanted materials from the work area.	
If necessary, clean the potable water system with chemical agent.	BD500-A-J12-30-38-01AAA-251A-A
If necessary, fill the potable water system with water.	BD500-A-J12-10-38-01AAA-216A-A
Make sure that the access door is closed. Refer to the access points table above for details.	

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

A220

Water Waste System (WWS) - Drain other liquid

Applicability: 50001-54999, 55001-59999

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
BD500-A-J12-10-38-02AAA-218A-A	Water Waste System (WWS) - Fill with other liquid

Common information

This data module gives the procedure to drain the Water Waste System (WWS). The WWS is drained from the aft fuselage.

Preliminary requirements

Production maintenance data

Zones	147		Lower aft fuselage equipment compartment, left side
Access points	146BR	Door	

Required conditions

Table 2 Required conditions

Action/Condition	Data Module/Technical publication
Make sure that the aircraft is safe for maintenance.	
Make sure that the access door is open. Refer to the access points table above for details.	

Support equipment

Table 3 Support equipment

Name	Identification/Reference	Quantity	Remark
Lavatory service unit	10-6401-0010	1	or equivalent. If vacuum system is used a maximum vacuum pressure of 10 psi is permitted.

Consumables, materials, and expendables

Table 4 Consumables, materials, and expendables

Name	Identification/Reference	Quantity	Remark
Cloths, cleaning, low-lint	05-001	AR	

Spares

Table 5 Spares

Name	Identification/Reference	Quantity	Remark
None			

Safety conditions

None

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Procedure

WARNINGS

- **When you do the servicing of the waste system, use rubber gloves. Waste can get on your hands and cause an infection.**

- **Every component removed from the waste system should be considered as a biohazard. Obey the local handling procedures for biohazard. Components exposed to waste can be poisonous and/or abrasive and can cause sickness to persons and damage to equipment and aircraft.**

- **Waste should be considered as a biohazard. Obey the local health and safety precautions when working in the waste system. Waste can be poisonous and/or abrasive and can cause sickness to persons and damage to equipment and aircraft**

1 Drain the waste as follows:

Refer to Fig. 1 .

1.1 From the service unit (59603, Pt. No. 10-6401-0010) or equivalent, connect the drain hose to the service panel drain ball valve.

1.2 Move the actuation lever to 90 degrees down to open the drain ball valve.

1.3 Drain the waste. Refer to the Ground Support Equipment (GSE) manufacturer manual for detailed instructions.

1.4 Release the rinse fitting handle to open the rinse fitting cap.

1.5 From the service unit (59603, Pt. No. 10-6401-0010) , connect the rinse hose to the service panel rinse fitting.

1.6 Rinse the waste tank as follows:

1.6.1 At least two of the following three criteria must be respected to make sure that the level sensors are properly rinsed:

- Rinse the waste tank for 2.5 minutes, and no less than 2 minutes
- Rinse the waste tank with 75 liters (20 US gallons) and no less than 50 liters (13 US gallons) of fluid
- Rinse with a pressure of 30 psi (207 kPa), and no less than 25 psi (172 kPa), and no more than 60 psi (414 kPa).

1.7 Make sure that there is no fluid flow in the drain hose.

1.8 Move the actuation lever to 90 degrees up to close the drain ball valve.

1.9 Disconnect the drain hose from the drain ball valve.

1.10 Add 7.5 liters (2 US gallons) of precharge fluid to the WWS tank.

1.11 Disconnect the rinse hose from the rinse fitting.

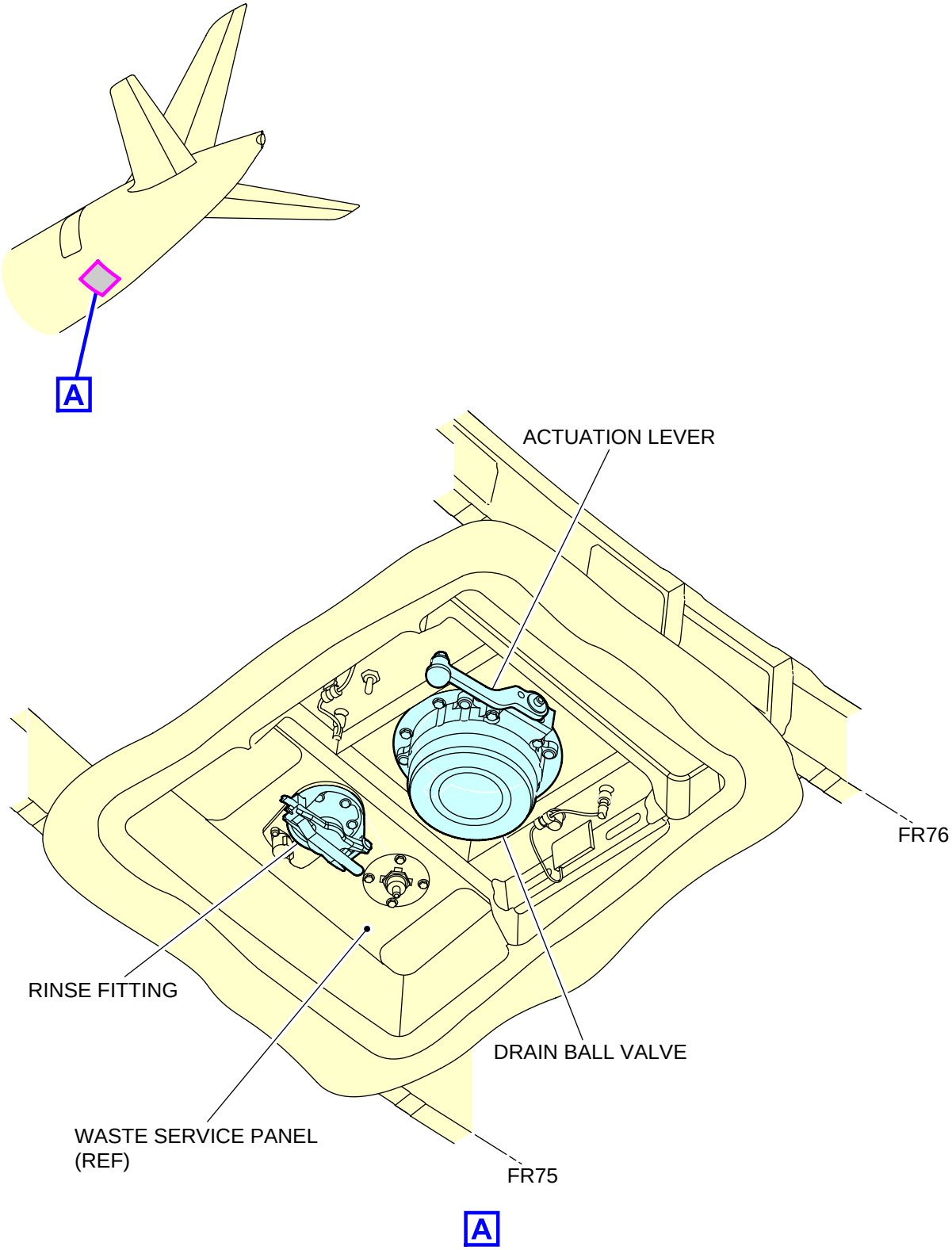
1.12 Let the precharge fluid drain fully from the rinse fitting (3 minutes approximately).

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

1.13 Close the rinse fitting cap.

1.14 Clean the inner and external surfaces of the waste servicing area with a dry cloth (05-001) .

This publication has been superseded by the Aircraft Characteristics Publication (ACP).



ICN-BD500-A-J121038-C-3AB48-22998-A-001-01

Figure 1 Water Waste System (WWS) - Drain other liquid

Requirements after job completion

Required conditions

Table 6 Required conditions

Action/Condition	Data Module/Technical publication
Fill the WWS with rinse liquid.	BD500-A-J12-10-38-02AAA-218A-A
Remove all tools, equipment, and unwanted materials from the work area.	
Make sure that the access door is closed. Refer to the access points table above for details.	

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Deicing/Anti-icing - Remove ice

Applicability: 50001-54999, 55001-59999

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
None	

Common information

GENERAL

This data module gives the procedure for the deicing of the aircraft before takeoff.

Deicing is the removal of snow, ice or frost from the airplane critical surfaces by mechanical means, hot water or a hot mixture of water and deicing/anti-icing fluid. Anti-icing is the procedure to apply deicing/anti-icing fluid with holdover time sufficient to prevent that snow, ice or frost stays on airplane surfaces after deicing, before the takeoff.

Note

Removal of contaminants on runway surfaces, taxiways, aprons, holding bays and other areas, is the responsibility of the administration of the airports concerned, based on flight safety and schedule considerations.

The pilot-in-command is ultimately responsible to make sure that the airplane is in a safe condition for flight. Use the Automatic Terminal Information Service (ATIS) or other means to acquire accurate ambient temperature and other pertinent meteorological conditions. Outside Air Temperature (OAT) or Total Air Temperature (TAT) does not read accurately on the ground due to probe heating.

The procedures described in this document ensures an aerodynamically clean airplane before takeoff.

When operating in such conditions, these procedures account for operational hazards associated with frozen contamination. In all cases, it is assumed that the decision to operate is based on the general rules of good airmanship applicable in cold weather operations and on the assurance that the operational and system limitations will not be exceeded. Under these provisions, the procedures given in this data module have been provided to supplement the normal operating procedures with the goal of enhancing flight safety and assisting in obtaining maximum performance from the airplane. In no circumstances, however, do they warrant operations in conditions imposing demands beyond the capabilities of the airplane or its flight crew.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

DEFINITIONS:

1 *Cold weather operations*
Cold weather operations refers to ground handling, takeoffs, and landings conducted on surface conditions where frozen moisture is present or conditions are conducive to moisture freezing. These conditions are commonly encountered when the surface temperature is at or below 0°C (32°F), although frozen moisture can be present and stay for a significant time at higher temperatures.

2 *Critical surfaces*
The critical surfaces of the airplane are defined as the wings, horizontal stabilizer, vertical stabilizer, control surfaces and engine inlets. If the upper surface of the fuselage is contaminated with ice, snow, or frost, and surface features and markings cannot be distinguished, the surface must be cleaned or deiced.
The fuselage is not considered a critical surface, but snow and ice on such a large surface could have considerable effect on drag and weight. Due diligence is required and consideration should be given to snow clearing and/or deicing the fuselage.

3 *Holdover time*
Holdover time is the published estimated time that an application of an approved deicing/anti-icing fluid is effective in preventing frost, ice, or snow from adhering to treated surfaces. Holdover time begins at the start of the final application of an approved deicing fluid, after

this time the fluid is no longer effective. After the holdover time is exceeded the aircraft must be re-inspected and another deice procedure may be required.
The tables presented in this document are extracted from: *Transport Canada Holdover Time (HOT) Guidelines*. These tables do not account for all factors that influence holdover time. Diverse and individually variable factors such as fluid temperature, relative humidity, wind direction and speed, can significantly shorten the holdover times shown in these tables.

4 *Contaminants*

4.1 Slush: is snow saturated with water which displaces with a splatter when stepped on firmly. It is encountered at temperatures up to 5°C (41°F).

4.2 Wet snow: it will easily stick together and tends to form a snowball if compacted by hand.

4.3 Dry snow: is loose and can easily be blown. If compacted by hand, it will readily fall apart again.

4.4 Frost: it forms from the slow deposition of ice crystals on cold surfaces, directly from water vapor in the air.
The frost forming surface must be below freezing temperatures for frost to form even though the ambient temperature may be above freezing. Frost appears as a white crystalline deposit that usually develops uniformly on exposed surfaces during below-freezing, calm and cloudless nights with a high ambient dewpoint. The deposit is thin enough for surface features underneath, such as paint lines, markings and lettering, to be distinguished.

4.5 Ice: two types of ice, rime ice and clear ice, commonly affect airplane operations:

- Rime ice
  Although rime ice is more commonly found in flight, it may occur on the ground when conditions are favorable. Rime ice may occur on the ground in low temperatures with a low concentration of small super-cooled water droplets and moderate winds. It appears as an opaque and rough ice surface that adheres to surfaces exposed to wind. It can easily be detected and is easily removed by application of deicing/anti-icing fluids.
- Clear ice
  Clear ice can occur in flight or on the ground. It forms at temperatures at or just below 0°C (32°F) with a high concentration of large super-cooled water droplets. Clear ice is hard, and appears as a smooth and glassy coating that can be very difficult to detect without a tactile inspection. Clear ice may not be seen during a walkaround, particularly if the wing is wet or during night time operations. Clear ice adheres firmly to surfaces and is difficult to remove, requiring special care during deicing/anti-icing.

4.6 Dehydrated deicing/anti-icing fluids: if deicing/anti-icing fluid is allowed to dry on airplane surfaces, this same fluid can become a contaminant.
Deicing, and especially anti-icing fluids are designed to adhere to airplane surfaces and shear off at speeds approaching takeoff speeds. If left on airplane surfaces for long periods of time (overnight), they may dehydrate and form a gel or dried deposit that will not shear off, even at high speeds. This contaminant will severely affect airplane performance and lift.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Note

Only approved personnel must do the deicing procedure to make sure that local regulations are followed.

These procedures are available for the deicing procedure:

- **Mechanical removal of loose contamination**
  If a significant amount of loose snow is on the airplane, the expenditure of a relatively large amount of deicing fluid can be avoided if the snow is removed mechanically. Using the wing broom to remove contamination does not always mean that the wing surface is clean and safe for flight. Every time a broom is used to remove contamination, a tactile inspection must be performed. Subject to the results of an inspection as outlined below (*Removal of loose contamination*), this may achieve complete deicing of the airplane.
- **One-step deicing/anti-icing**
  Fluid is applied in one step to remove frozen contamination and apply limited anti-ice protection. In this process, the residual fluid film, regardless of the type of fluid used, will provide only a very limited duration of anti-ice protection.
- **Two-step deicing/anti-icing**
  The two-step procedure is accomplished by first applying deicing fluid, consisting of heated pure water or a heated mixture of water and *Type I* fluid, and then applying undiluted *Type I* fluid. This method ensures extended anti-icing holdover time is available.

  1 The freezing point of a fluid used for the first step must not be more than 3°C above ambient temperature. The freezing point of an SAE *Type I* fluid used for a one-step process, or as the second step of a two-step.
  The freezing point of an SAE *Type I* fluid used for a one-step process, or as the second step of a two-step operation, must be at least 10°C (50 °F) below the ambient temperature. The second step is to be performed before the first step freezes, typically within 3 minutes. This time may be higher than 3 minutes in some conditions, but potentially lower in heavy precipitation, colder temperatures, or for critical surfaces constructed of composite materials. If necessary, the second step shall be applied area by area. When deicing fluid is used in one-step deicing/anti-icing, the application of the second step fluid will flush away the first step fluid and leave a film of anti-icing fluid, which is designed to be of adequate thickness. If freezing of the deicing fluid has occurred, one-step deicing/anti-icing must be repeated. This short period makes it necessary to deice/anti-ice relatively small areas of the airplane successively.
  2 Considering the nature of the precipitation present and the likely duration of the delay between the completion of the anti-icing step and takeoff, use the tables provided in this document.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

DEICING FLUIDS:

The application of deicing/anti-icing fluid is the most common means of ground deicing and anti-ice protection. Anti-icing fluids are similar in composition except that they also contain polymeric thickeners. They are formulated to prevent formation of unabsorbed frozen contamination for a longer period of time than deicing fluids; however, the protection is still for a limited period of time. Although *Type I* fluids may be used for anti- icing, *Type II, III* and *Type IV* fluids are typically used in the anti-icing role because they can last for a significantly longer period of time than the *Type I* fluids.

The acceptable fluids are water/glycol solutions, classified as *Type I, II, III* and *Type IV*. The operator is ultimately responsible for ensuring that only fluids tested to SAE AMS 1424 or SAE AMS 1428 are applied when the HOT Guidelines will be utilized operationally. The Transport Canada Holdover Time Guidelines document, published on an annual basis, contains lists of

fluids that have been tested with respect to anti-icing performance (SAE AMS 1424 or SAE AMS 1428) and aerodynamic acceptance (SAE AMS 1424 or SAE AMS 1428) only.

- **Type I fluid:**
  In concentrated form, these fluids contain glycols to a minimum concentration of 80%, but with no thickening agents. Their resulting low viscosity and very short holdover times provide very limited anti-icing protection.
  It is apparent, that except for the case of frost or freezing fog, the duration of anti-icing protection provided by *Type I* fluid is inadequate unless takeoff can be made almost immediately after deicing. Therefore, if conditions require effective ground anti-icing, it is imperative that *Type II, III* and *Type IV* fluids.
- **Type II, III, and IV fluids:**
  Anti-icing fluids are similar in composition except that they also contain polymeric thickeners. They are formulated to prevent formation of unabsorbed frozen contamination for a longer period of time than deicing fluids; however, the protection is still for a limited period of time. Although *Type I* fluids may be used for anti- icing, *Type II, III* and *Type IV* fluids are typically used in the anti-icing role because they can last for a significantly longer period of time than the *Type I* fluids.

AIRFRAME CONTAMINATION:

Clean airplane concept

The clean airplane concept (aerodynamically clean) prohibits takeoff when frost, ice, snow, or other contaminants are present on the airplanes critical surfaces. The performance data for this airplane are based on the clean airplane concept. This means that all performance values are based on the airplane being aerodynamically clean prior to takeoff. Failure to remove contaminants will result in adverse effects on airplane performance and flight characteristics. These adverse effects can include the following:

- Decreased thrust
- Decreased lift
- Increased drag
- Increased stall speeds
- Trim changes
- Altered stall characteristics
- Altered handling qualities.

The removal procedures for frost, ice and snow from the surfaces of the airplane prior to takeoff, as described herein, depend upon the deicing facilities, methods and types of fluid available at the airports involved. Deicing must be accomplished at the last possible time prior to takeoff to maximize the time that will be able to provide protection (holdover time).

The general rule for ground icing procedures is that the deicing and anti-icing processes must be done symmetrically. That is, whatever final treatment (i.e. same brand name fluid) is administered on one wing must be applied to the other wing for aerodynamic symmetry reasons.

1 General precautions to be observed in cold weather operations:

1.1 It must never be assumed that an apparently dry and loose form of frozen moisture, for example, dry snow, will be removed by the slipstream during the initial takeoff roll. For instance, on an airplane removed from a warm hangar, a dry snowfall that remains free and uncompacted on the ground may melt and later refreeze to form ice that sticks to the surface of the airplane.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

1.2 Before each flight, a thorough inspection of critical surfaces must be made to determine the extent of contamination on them. This inspection must be made by the pilot-in-command or by other trained and approved personnel qualified to report its results directly to the pilot-in-command. Deicing is part of flight operations and remains under the authority of the pilot-in-command.

1.3 After deicing, another inspection, subject to the same qualifications mentioned in paragraph above, must be made to confirm that all contamination is removed.

1.4 If during the period between the completion of deicing and takeoff there is the possibility that the airplane may again be contaminated, re-application of deicing *Type I* fluid must be provided. The period of effective anti-icing, known as holdover time, must be longer than the period between deicing and takeoff.
Holdover times start at the beginning of the deicing procedure.

1.5 If during the conditions described in paragraph above, takeoff cannot be started prior to the expiration of the holdover time; the airplane must again be inspected and deiced again if necessary, before attempting takeoff. If ice, snow or frost is found on the airplane, accomplishing a one-step deicing procedure will remove the contamination and provide limited anti-ice protection. When visible precipitation continues to fall, additional deicing application will be required. In such cases, the application of deicing fluid must be accomplished in two separate steps which will provide adequate protection in most environmental conditions.

2 Wet airplane and temperatures greater than 0°C (32°F) but less than 5°C (41°F)
Consideration of the following should be made as to whether a wet airplane should be deiced:

2.1 Conditions such as wind and forecast temperature. If temperatures are dropping or are forecast to drop, treatment with *Type I* fluid should be considered.

2.2 When an airplane is wet due to light rain or mist and the POP icing definition of visible moisture and less than 5°C (41°F) is satisfied. In such a situation, the airplane must be deiced before takeoff.

2.3 If the airplane is wet because it has been cleaned with hot water but there is no visible moisture in the air, then the wing is at the same risk of being contaminated as if the aircraft was taxiing in slush or pooled water on taxiways/runways. The use of wing deicing fluid is required for such conditions.

3 Clear ice due to cold fuel
Crew must be aware of the effect that cold fuel in the tanks may have on moisture present on the wing upper and lower surfaces. If fuel temperature is 0°C (32°F) or below, it is possible to have clear ice on the wing with the outside air temperature above freezing. If center tank fuel quantity exceeds 9525 kg (21000 lbs), or left or right wing fuel quantity exceeds 907 kg (2000 lbs), the fuel will be in contact with the upper wing skin.
If the fuel temperature is 0°C (32°F) or below and a high humidity condition exists or visible moisture in any form is present, pilots must ensure that the wing upper and lower surfaces are free of clear ice by means of a tactile check. Clear ice must be removed.

4 Frost due to cold soaked fuel
Wing frost caused by cold soaked fuel can form on the upper and lower surfaces of the wing even at outside air temperatures significantly above freezing. Frost on the upper and lower surfaces of the wing must be removed.

ENGINE CONTAMINATION:

Pre-flight considerations

This publication has been superseded by the Aircraft Characteristics Publication (ACP)

A thorough and vigilant pre-flight inspection of the engines is required during cold weather operations. Engine cowl covers and inlet plugs should be used to protect from ice, sleet and snow contamination. While the use of covers and plugs is recommended, this equipment does not totally eliminate contamination of the engine inlet. Seepage from ice or snow melting on a warm but otherwise protected engine can cause contamination to form inside the inlet or on the fan blades once the ambient temperature causes the water to freeze again. The procedures that follow are designed to complement both regulatory and operational procedures during cold weather operations.

A thorough pre-flight should also include examination of the ramp conditions and whether or not deicing procedures are in effect. The flight crew should determine if ramp conditions permit engine starting while parked (at the gate) or during push back.

Note

Free fan rotation must be confirmed before engine start (manual rotation of the fan or engine dry motoring). Water may freeze in the area of the lower intake, jamming the adjacent fan blades. Only heated air shall be used to remove ice from the spinner, fan, inlet or other engine components.

Under no circumstance is it permissible to use deicing fluid to remove frozen precipitation from the spinner, fan, inlet or other engine components.

Do not remove ice and snow by chipping and scraping. The only acceptable practice is the use of heated air on engine components or deicing fluid on the exterior engine cowling only.

Note

Deicing/anti-icing fluids that are ingested into the engine can have a corrosive and contaminating effect. This effect may degrade fan blade lubricants (causing increased Nf vibrations), resulting in increased maintenance costs. Other potential effects include impeding the correct operation of bleed valves by forming a sticky residue, clogging engine probes and creating noxious fumes. Care should be exercised when applying deicing fluid in the vicinity of the engine inlet. Consideration should be given to reducing engine water (compressor) wash intervals during cold weather operations.

Should deicing/anti-icing be inadvertently applied into the engine inlet area, it should be communicated to Pratt and Whitney prior to engine start. If the engine was running when the fluid was sprayed directly into the inlet, the engine should be shut down normally.

For ice removal on other engine surfaces, for personal safety, engines should not be operating. However, if necessary, this may be accomplished with the engines operating at IDLE speed using a low pressure stream of glycol-based deicing fluid exercising care to avoid spraying fluids directly into the engine inlet (use indirect method).

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Preliminary requirements

Required conditions

Table 2 Required conditions

Action/Condition	Data Module/Technical publication
Make sure that all protective covers are removed.	

Support equipment

Table 3 Support equipment

Name	Identification/Reference	Quantity	Remark
None			

Consumables, materials, and expendables

Table 4 Consumables, materials, and expendables

Name	Identification/Reference	Quantity	Remark
None			

Spares

Table 5 Spares

Name	Identification/Reference	Quantity	Remark
None			

Safety conditions

None

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Procedure

CAUTIONS

- **Deicing with the APU operating is not recommended. Ingestion of fluid can contaminate the air conditioning system and cause fumes and odors to go into the airplane. This can cause throat irritation to personnel and irregular operation and possible damage to the APU.**
- **On flight control surfaces, always apply fluid from the leading edge to the trailing edge and from the outer panels to the inner panels. The spray can push contamination not melted into hinge mechanisms and below the control shrouds. This contamination can refreeze in these areas.**
- **Fluids used during ground deicing/anti-icing do not supply in-flight icing protection.**

1 **Removal of loose contamination:**

If significant amounts of loose snow are on the airplane.

1.1 Keep the slats/flaps lever (Fig. 4) in the current position.

Note

If you move the slats/flaps it can contaminate the actuators.

Note

Remove the snow for a clear view of the areas to be examined.

Note

During snowfall, freezing rain and drifting snow, it is possible for snow and melting ice to penetrate into hinges, operating linkages, drainage openings and vents, and then refreeze. The mentioned areas should be checked with diligence.

1.2 Examine the areas that follow for adherence ice, frost or snow:

- Wings - leading edges, upper and lower surfaces, winglets
- Upper fuselage
- Vertical and horizontal stabilizers - leading edges, upper/lower surfaces, and side panels
- Flaps, flap tracks, and flap drives
- Slats, slat tracks, and slat drives
- Ailerons, elevators, rudder, spoilers
- Air data probes/sensors, Angle of Attack (AOA) vanes and surrounding areas within a distance of 61 cm (2 ft.)
- Antennas
- Fuel drains and National Advisory Committee for Aeronautics (NACA) vent scoops
- Engine and Auxiliary Power Unit (APU) intakes, APU exhaust
- Landing gear and landing gear bays
- Windshield, wipers, windows, door sills, and surrounds.

1.3 Touch the surfaces with bare hands to make sure that there is no ice formation (tactile check).

1.4 Do the one-step, or two-steps, deicing/anti-icing procedure if you find frozen contamination in critical surfaces.

2 **Preparation for deicing/anti-icing:**

2.1 Before fluid is applied:

2.1.1 Accomplish all items in the “After start procedure“, except **DO NOT** extend flaps or check flight controls.

2.1.2 Park the airplane with the nose into the wind, if possible.

2.1.3 Set the park brake (Fig. 1) to the ON position.

2.1.4 Put the thrust levers (Fig. 4) in idle position.

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Note

It is recommended that the application of deicing fluid be carried out with the engines and APU OFF. If not possible, the APU and engine bleed shutoff valves must be closed.

Make sure that the personnel that apply the deicing fluid know the location of the APU air intake to prevent contamination by the fluid.

2.1.5 Set the engine run switches (Fig. 6) to the OFF position (for engines off).

2.1.5.1 If engines are on, close the engines shutoff valves.

2.1.6 Set the APU switch to the OFF position, if required.

2.1.6.1 If the APU is on, close the APU shutoff valve.

2.1.7 Make sure that the APU door is closed (if APU is off).

2.1.8 On the air control panel, set the systems below to the OFF position:

- Left (side) (L) pack
- Right (side) (R) pack
- L bleed
- R bleed
- APU bleed.

2.1.9 On the anti-ice control panel, set the systems below to the OFF position:

- L cowl
- Wing
- R cowl.

2.1.10 Set the wipers (Fig. 2) to the OFF position.

2.1.11 Stab trim - set to 5 units.

2.1.12 Set the slats/flaps (Fig. 4) in released position.

3 **Deicing/anti-icing:**

CAUTION

If ice pellet precipitation occurs after the application of deicing fluid, the deicing fluid dilutes and cause wing contamination.

3.1 Do not apply the deicing fluid jet directly on these areas:

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Refer to Fig. 8 , Fig. 9 , and Fig. 10.

- Windshields, Flight Crew Emergency Escape (FCEE) hatch, side windows, and cabin windows
- Smart probes and TAT probes
- AOA vanes
- Engine air intake (to prevent ingestion), engine exhaust, engine thrust reverser, engine bleed ducts
- APU inlet and APU exhaust (Especially important with APU ON)
- Antennas
- Vents and drains
- Wheels and brakes.

3.2 Application of fluid should follow the sequence below:

1 Vertical stabilizer

2 Horizontal stabilizer

3 Top of fuselage

4 Wings.

4 **After deicing spraying:**

4.1 Inspect the areas listed below, to confirm complete deicing:

- Wings - upper and lower surfaces, pay particular attention to the leading edges
- Upper fuselage
- Vertical and horizontal stabilizers - leading edges, upper/lower surfaces, and side panels
- Flaps, flap tracks, and flap drives
- Slats, slat tracks, and slat drives
- Ailerons, elevators, rudder, spoilers
- Air data probes/sensors, AOA vanes and surrounding areas within a distance of 2 feet
- Antennas
- Fuel drains and NACA vent scoops
- Engine and APU intakes, APU exhaust
- Landing gear and landing gear bays
- Windshields, windows, door sills, and surrounds.

4.2 At least 1 minute following deicing:

4.2.1 On the air control panel, set the systems below to the AUTO position:

- L bleed
- R bleed
- APU bleed.

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4.2.2 Set wipers as required. Refer to Fig. 2 .

4.2.3 Check flight controls.

4.2.4 Set SLAT/FLAP lever (Fig. 4) for takeoff configuration.

4.2.5 Set STAB TRIM for takeoff configuration.

4.3 At least 3 minutes following deicing:

4.3.1 Start the APU (or confirm it is ON), as applicable. Refer to Fig. 3 .

4.3.2 On the air control panel, set the systems below to the AUTO position:

- L pac
- R pack.

4.3.3 On the anti-ice control panel, set the systems below as required:

- L cowl
- Wing
- R cowl.

4.3.4 Check for takeoff configuration.

4.3.5 Complete the “Before Takeoff Check“.

5 **Tables:**

Table 6 Active frost - Holdover guidelines for fluid Type I

Outside air temperature [1, 2] °C (°F)	**Approximate holdover times (hours:minutes)**
	Active frost
	Type I
-1 (30) and above	0:45 (0:35) [3]
below -1 (30) to -3 (27)	
below -3 (27) to -10 (14)	
below -10 (14) to -14 (7)	
below -14 (7) to -21 (-6)	
below -21 (-6) to LOUT	

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Outside air temperature [1, 2] °C (°F)	Approximate holdover times (hours:minutes)
	Active frost
	Type I

CAUTION

Fluids used during ground deicing/anti-icing do not supply in-flight icing protection.

Note

The holdover time can be lower in these conditions:

- Heavy weather conditions, heavy precipitation rates or high moisture contents.
- When the airplane skin temperature is lower than OAT.
- With high wind velocity or jet blast.

1 Type I fluid / water mixture must be selected so that the freezing point of the mixture is at least 10°C (18°F) below outside air temperature.

2 Ensure that the Lowest Operational Use Temperature (LOUT) is respected.

3 Value in parenthesis is for composite surfaces

Table 7 Active frost - Holdover guidelines for fluid Type II, Type III, and Type IV

Outside air temperature [1] °C (°F)	Concentration neat fluid/water (Volume % / %)	Approximate holdover times (hours:minutes)		
		Active frost		
		Type II	Type III	Type IV
-1 (30) and above	100/0	8:00	2:00	12:00
	75/25	5:00	1:00	5:00
	50/50	3:00	0:30	3:00
below -1 (30) and -3 (27)	100/0	8:00	2:00	12:00
	75/25	5:00	1:00	5:00
	50/50	1:30	0:30	3:00
below -3 (27) and -10 (14)	100/0	8:00	2:00	10:00
	75/25	5:00	1:00	5:00
below -10 (14) and -14 (7)	100/0	6:00	2:00	6:00
	75/25	1:00	1:00	1:00
below -14 (7) and -21 (-6)	100/0	6:00	2:00	6:00

This publication has been superseded by the Aircraft Characteristics Publication (ACP)

Outside air temperature [1] °C (°F)	Concentration neat fluid/water (Volume % / %)	Approximate holdover times (hours:minutes)		
		Active frost		
		Type II	Type III	Type IV
below -21 (-6) and -25 (-13)	100/0	2:00	2:00	4:00
below -25 (-13)	100/0	No holdover time guidelines exist		

CAUTION

Fluids used during ground deicing/anti-icing do not supply in-flight icing protection.

Note

The holdover time can be lower in these conditions:

- Heavy weather conditions, heavy precipitation rates or high moisture contents.
- When the airplane skin temperature is lower than OAT.
- With high wind velocity or jet blast.

1 Ensure that the LOUT is respected.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Table 8 SAE TYPE I - Fluid holdover guidelines on critical aircraft surfaces composed predominantly of aluminum [1]

This table applies to aircraft with critical surfaces constructed predominantly or entirely of aluminum materials that have demonstrated satisfactory use of these holdover times.

Outside air temperature [2] °C (°F)	Approximate holdover times under various weather conditions (minutes)							
	Freezing fog or ice crystals	Snow, snow grains or snow pellets [3]			Freezing drizzle [4]	Light freezing rain	Rain on cold soaked wing [5]	Other [6]
		Very light [7]	Light [8]	Moderate				
-3 (27) and above	11 - 17	18	11 - 18	6 - 11	9 - 13	4 - 6	2 - 5	
below -3 (27) to -6 (21)	8 - 13	14	8 - 14	5 - 8	5 - 9	4 - 6	**CAUTION:** No holdover time guidelines exist	
below -6 (21) to -10 (14)	6 - 10	11	6 - 11	4 - 6	4 - 7	2 - 5		
below -10 (14)	5 - 9	7	4 - 7	2 - 4				

This table applies to aircraft with critical surfaces constructed predominantly or entirely of aluminum materials that have demonstrated satisfactory use of these holdover times.								
Outside air temperature [2] °C (°F)	**Approximate holdover times under various weather conditions (minutes)**							
	Freezing fog or ice crystals	**Snow, snow grains or snow pellets [3]**			**Freezing drizzle [4]**	**Light freezing rain**	**Rain on cold soaked wing [5]**	**Other [6]**
		Very light [7]	**Light [8]**	**Moderate**				

CAUTION

Fluids used during ground deicing/anti-icing do not supply in-flight icing protection.

Note

The holdover time can be lower in these conditions:

- Heavy weather conditions, heavy precipitation rates or high moisture contents.
- When the airplane skin temperature is lower than OAT.
- With high wind velocity or jet blast.

Note

The only acceptable decision-making criterion, for takeoff without a pre-takeoff contamination inspection, is the shorter time within the applicable holdover time table cell.

1 Type I fluid / water mixture must be selected so that the freezing point of the mixture is at least 10°C (18°F) below outside air temperature.

2 Ensure that the LOUT is respected.

3 To determine snowfall intensity, the visibility in snow vs. snowfall intensity table (Table 12) is required.

4 Use light freezing rain holdover times if positive identification of freezing drizzle is not possible.

5 No holdover time guidelines exist for this condition for 0°C (32°F) and below.

6 Heavy snow, ice pellets, moderate and heavy freezing rain, small hail and hail.

7 Use light freezing rain holdover times in conditions of very light or light snow mixed with light rain.

8 Use light freezing rain holdover times in conditions of very light or light snow mixed with light rain.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Table 9 SAE TYPE I - Fluid holdover guidelines on composite wing surfaces [1]

These holdover times apply to newer aircraft with critical surfaces constructed predominantly or entirely of composite materials.

Outside air temperature [2] °C (°F)	Approximate holdover times under various weather conditions (minutes)							
	Freezing fog or ice crystals	Snow, snow grains or snow pellets [3]			Freezing drizzle [4]	Light freezing rain	Rain on cold soaked wing [5]	Other [6]
		Very light [7]	Light [7]	Moderate				
-3 (27) and above	9 - 16	12	6 - 12	3 - 6	8 - 13	4 - 6	1 - 5	
below -3 (27) to -6 (21)	6 - 8	11	5 - 11	2 - 5	5 - 9	4 - 6	**CAUTION:** No holdover time guidelines exist	
below -6 (21) to -10 (14)	4 - 8	9	5 - 9	2 - 5	4 - 7	2 - 5		
below -10 (14)	4 - 7	7	4 - 7	2 - 4				

CAUTION

Fluids used during ground deicing/anti-icing do not supply in-flight icing protection.

Note

The holdover time can be lower in these conditions:

- Heavy weather conditions, heavy precipitation rates or high moisture contents.
- When the airplane skin temperature is lower than OAT.
- With high wind velocity or jet blast.

Note

The only acceptable decision-making criterion, for takeoff without a pre-takeoff contamination inspection, is the shorter time within the applicable holdover time table cell.

1 Type I fluid / water mixture must be selected so that the freezing point of the mixture is at least 10°C (18°F) below outside air temperature.

2 Ensure that the LOUT is respected.

3 To determine snowfall intensity, the visibility in snow vs. snowfall intensity table (Table 12) is required.

4 Use light freezing rain holdover times if positive identification of freezing drizzle is not possible.

5 No holdover time guidelines exist for this condition for 0°C (32°F) and below.

6 Heavy snow, ice pellets, moderate and heavy freezing rain, small hail and hail.

7 Use light freezing rain holdover times in conditions of very light or light snow mixed with light rain.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Table 10 SAE TYPE I - Deicing / anti-icing fluid application procedures

Guidelines for the application of SAE Type I fluid mixtures at minimum concentrations for the prevailing outside air temperature (OAT)			
OAT [1] °C (°F)	**One-step procedure deicing/anti-icing**	**Two-step procedure**	
		First step: Deicing	**Second step: Anti-icing [2]**
-3 (27) and above	Heated mix of fluid and water with a freezing point of at least 10°C (18°F) below OAT	Heated water or heated mix of fluid and water	Heated mix of fluid and water with a freezing point of at least 10°C (18°F) below OAT
below -3 (27)		Freezing point of heated fluid mixture shall not be more than 3°C (5°F) above OAT	
Note Temperature of water or fluid/water mixtures shall be at least 60°C (140°F) at the nozzle. Upper temperature limit shall not exceed fluid and aircraft manufactures recommendations. **Note** To use Type I holdover time guidelines in all conditions including active frost, at least 1 litre/m² (2 gal / 100 sq.ft.) shall be applied to the deiced surface. **Note** This table is applicable for the use of Type I holdover time guidelines in all conditions including active frost. If holdover times are not required, a temperature of 60°C (140°F) at the nozzle is desirable. **Note** The LOUT for given Type II/III/IV fluid is higher of: a) The lowest temperature at which the fluid meets the aerodynamic acceptance test for a given aircraft type; or b) The actual freezing point of the fluid plus its freezing point buffer of 7°C (13°F). **Note** Wing skin temperatures may differ and, in some conditions, can be below the OAT. Use a stronger fluid mixture (more glycol) in this condition.			
1 Fluids must be used at temperatures below their LOUT 2 To be applied before first step fluid freezes, typically within 3 minutes. (this time may be higher than 3 minutes in some conditions, but potentially lower in heavy precipitation, colder temperatures, or critical surfaces constructed of composite materials. If necessary, the second step shall be applied area by area.)			

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Table 11 SAE TYPE II, TYPE III and TYPE IV - Deicing / anti-icing fluid application procedures

Guidelines for the application of SAE Type II, III and IV fluid mixtures at minimum concentrations for the prevailing outside air temperature (OAT)			
OAT [1] °C (°F)	**One-step procedure deicing/anti-icing**	**Two-step procedure**	
		First step: Deicing	**Second step: Anti-icing [2]**
-3 (27) and above	50/50 Heated[3] Type II/III/IV	Heated water or heated mix of Type I, II, III or IV with water	50/50 Type II/III/IV
-14 (7) and above	75/25 Heated[3] Type II/III/IV	Heated suitable mix of Type I, Type II/III/IV and water with FP not more than 3°C (5°F) above actual OAT.	75/25 Type II/III/IV
-25 (13) and above	100/0 Heated[3] Type II/III/IV	Heated suitable mix of Type I, Type II/III/IV and water with FP not more than 3°C (5°F) above actual OAT.	100/0 Type II/III/IV
below -25 (13)	Type II/III/IV fluid may be used below -25°C (-13°F) provided that the OAT is at or above the LOUT. Consider the use of Type I when Type II/III/IV fluid cannot be used.		

This publication has been superseded by the Aircraft Characteristics Publication (ACP)

Guidelines for the application of SAE Type II, III and IV fluid mixtures at minimum concentrations for the prevailing outside air temperature (OAT)			
OAT [1] °C (°F)	**One-step procedure deicing/anti-icing**	**Two-step procedure**	
		First step: Deicing	**Second step: Anti-icing [2]**
Note For heated fluids, a fluid temperature not less than 60°C (140°F) at the nozzle is desirable. When the first step is performed using a fluid/water mix with a freezing point above OAT, the temperature at the nozzle shall be at least 60°C and at least 1 litre/m² (2 gal / 100 sq.ft.) shall be applied to the surfaces to be deiced. For fluids which require a heated application to obtain holdover times (this is stated in the applicable holdover time table), the temperature at the nozzle shall be at least 60°C and at least 1 litre/m² (2 gal / 100 sq.ft.) shall be applied. **Note** Upper temperature limit shall not exceed fluid and aircraft manufactures' recommendations. **Note** The LOUT for given Type II/III/IV fluid is higher of: a) The lowest temperature at which the fluid meets the aerodynamic acceptance test for a given aircraft type; or b) The actual freezing point of the fluid plus its freezing point buffer of 7°C (13°F). **Note** Wing skin temperatures may differ and, in some conditions, can be below the OAT. Use a stronger fluid mixture (more glycol) in this condition. **Note** Whenever frost or ice occurs on the lower surface of the wing in the area of the fuel tank, indicating a cold soaked wing, the 50/50 dilution of Type II, III or IV shall not be used for the anti-icing step because fluid freezing may occur. **Note** An insufficient amount of anti-icing fluid, especially in the second step of a two-step procedure, may cause a substantial loss of holdover time. This is particularly true when using a Type I fluid for the first step.			
1 Fluids must be used at temperatures below their LOUT 2 To be applied before first step fluid freezes, typically within 3 minutes. (this time may be higher than 3 minutes in some conditions, but potentially lower in heavy precipitation, colder temperatures, or critical surfaces constructed of composite materials. If necessary, the second step shall be applied area by area.) 3 Clean aircraft may be anti-iced with unheated fluid, unless the related holdover time table requires a heated application to obtain holdover times.			

This publication has been superseded by the Aircraft Characteristics Publication (ACP)

Table 12 Visibility in snow vs. snowfall intensity chart

Lighting	Temperature range	Visibility in snow (statute miles)			
	°C (°F)	Heavy	Moderate	Light	Very light
Darkness	-1 (30) and above	= 1	> 1 to 2½	> 2½ to 4	> 4

	Below -1 (30)	= 3/4	> 3/4 to 1½	> 1½ to 3	> 3
Daylight	-1 (30) and above	= 1/2	>½ to 1½	> 1½ to 3	> 3
	Below -1 (30)	= 3/8	> 3/8 to 7/8	> 7/8 to 2	> 2
HOW TO READ THE TABLE: Assume that the daytime visibility in snowfall is 1 statute mile and the temperature is -7°C. Based on these conditions, the snowfall intensity is light. This snowfall intensity is used to determine which holdover time guideline value is appropriate for the fluid in use.					

Table 13 SAE TYPE II - Fluid holdover time guidelines

Outside air temperature [1] °C (°F)	**Type II fluid concentration neat Fluid/Water Volume %/ Volume %**	**Approximate holdover times under various weather conditions (hours:minutes)**					
		Freezing fog or ice crystals	**Snow, snow grains or snow pellets [2, 3]**	**Freezing drizzle [4]**	**Light freezing rain**	**Rain on cold soaked wing [5]**	**Other [6]**
-3 (27) and above	100/0	0:35 - 1:30	0:20 - 0:45	0:30 - 1:00	0:15 - 0:30	0:07 - 0:40	**CAUTION:** No holdover time guidelines exist
	75/25	0:25 - 1:00	0:15 - 0:30	0:20 - 0:45	0:10 - 0:25	0:05 - 0:25	
	50/50	0:15 - 0:30	0:05 - 0:15	0:10 - 0:20	0:05 - 0:10		
below -3 (27) to -14 (7)	100/0	0:20 - 1:05	0:15 - 0:30	0:20 - 0:45 [7]	0:10 - 0:20 [7]		
	75/25	0:25 - 0:50	0:08 - 0:20	0:15 - 0:30 [7]	0:08 - 0:15 [7]		
below -14 (7) to LOUT	100/0	0:15 - 0:35 [8]	0:15 - 0:30 [8]				

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Outside air temperature [1] °C (°F)	Type II fluid concentration neat Fluid/Water Volume %/ Volume %	Approximate holdover times under various weather conditions (hours:minutes)					
		Freezing fog or ice crystals	Snow, snow grains or snow pellets [2, 3]	Freezing drizzle [4]	Light freezing rain	Rain on cold soaked wing [5]	Other [6]

CAUTION

Fluids used during ground deicing/anti-icing do not supply in-flight icing protection.

Note

The holdover time can be lower in these conditions:

- Heavy weather conditions, heavy precipitation rates or high moisture contents.
- When the airplane skin temperature is lower than OAT.
- With high wind velocity or jet blast.

Note

The only acceptable decision-making criterion, for takeoff without a pre-takeoff contamination inspection, is the shorter time within the applicable holdover time table cell.

1	Ensure that the LOUT is respected.
2	To determine snowfall intensity, the visibility in snow vs. snowfall intensity table (Table 12) is required.
3	Use light freezing rain holdover times in condition of very light or light snow mixed with light rain.
4	Use light freezing rain holdover times if positive identification of freezing drizzle is not possible.
5	No holdover time guidelines exist for this condition for 0°C (32°F) and below.
6	Heavy snow, ice pellets, moderate and heavy freezing rain, small hail and hail.
7	No holdover time guidelines exist for this condition below -10°C (14°F).
8	If the LOUT is unknown, no holdover time guidelines exist below -25°C (-13°F).

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Table 14 SAE TYPE IV - Fluid holdover time guidelines

Outside air temperature [1] °C (°F)	Type II fluid concentration neat Fluid/Water Volume %/ Volume %	Approximate holdover times under various weather conditions (hours:minutes)					
		Freezing fog or ice crystals	Snow, snow grains or snow pellets [2, 3]	Freezing drizzle [4]	Light freezing rain	Rain on cold soaked wing [5]	Other [6]
-3 (27) and above	100/0	1:30 - 2:25	0:35 - 1:10	0:50 - 1:30	0:35 - 0:50	0:10 - 1:25	
	75/25	1:25 - 2:40	0:30 - 1:05	0:50 - 1:15	0:30 - 0:45	0:09 - 1:15	
	50/50	0:25 - 0:40	0:09 - 0:15	0:15 - 0:25	0:09 - 0:15		
below -3 (27) to -14 (7)	100/0	0:20 - 1:20	0:25 - 0:50	0:25 - 1:10 [7]	0:15 - 0:25 [7]		
	75/25	0:25 - 0:50 [8]	0:20 - 0:40 [8]	0:15 - 1:05 [, 8]	0:15 - 0:25 [, 8]		**CAUTION:** No holdover time guidelines exist
below -14 (7) to LOUT	100/0	0:15 - 0:40 [9]	0:15 - 0:30 [9]				

CAUTION

Fluids used during ground deicing/anti-icing do not supply in-flight icing protection.

Note

The holdover time can be lower in these conditions:

- Heavy weather conditions, heavy precipitation rates or high moisture contents.
- When the airplane skin temperature is lower than OAT.
- With high wind velocity or jet blast.

Note

The only acceptable decision-making criterion, for takeoff without a pre-takeoff contamination inspection, is the shorter time within the applicable holdover time table cell.

1 Ensure that the LOUT is respected.

2 To determine snowfall intensity, the visibility in snow vs. snowfall intensity table (Table 12) is required.

3 Use light freezing rain holdover times in condition of very light or light snow mixed with light rain.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

4	Use light freezing rain holdover times if positive identification of freezing drizzle is not possible.
5	No holdover time guidelines exist for this condition for 0°C (32°F) and below.
6	Heavy snow, ice pellets, moderate and heavy freezing rain, small hail and hail.
7	No holdover time guidelines exist for this condition below -10°C (14°F).
8	If the LOUT is unknown, no holdover time guidelines exist below -5.5°C (-22.1°F).
9	If the LOUT is unknown, no holdover time guidelines exist below -23.5°C (-10.3°F).

Table 15 SAE TYPE III - Fluid ice pellet and small hail allowance times

This table is for use with SAE Type III undiluted (100/0) fluids applied unheated only1

Precipitation type	**Outside Air Temperature**		
	-5°C and above	**Below -5 to -10°C**	**Below -10°C** 2
Light ice pellets	**10 minutes**	**10 minutes**	
Moderate ice pellets or small hail 3	5 minutes	5 minutes	
Light ice pellets mixed with light or moderate freezing drizzle	7 minutes	5 minutes	
Light ice pellets mixed with light rain	7 minutes 4	**CAUTION:** No allowance times currently exist	
Light ice pellets mixed with moderate rain			
Light ice pellets mixed with light snow	10 minutes	10 minutes	
Light ice pellets mixed with moderate snow	10 minutes	10 minutes	

CAUTION

Fluids used during ground deicing/anti-icing do not supply in-flight icing protection.

Note

The holdover time can be lower in these conditions:

- Heavy weather conditions, heavy precipitation rates or high moisture contents.
- When the airplane skin temperature is lower than OAT.
- With high wind velocity or jet blast.

Note

The only acceptable decision-making criterion, for takeoff without a pre-takeoff contamination inspection, is the shorter time within the applicable holdover time table cell.

1	No allowance times exist for AllClear AeroClear MAX.
2	Ensure that the lowest operational use temperature (LOUT) is respected.

This publication has been superseded by the Aircraft Characteristics Publication (ACP)

3	If no intensity is reported with small hail, moderate ice pellets allowance times apply. However, if an intensity is reported with small hail, the ice pellet condition with the equivalent intensity can be used, e.g. light small hail = light ice pellets, moderate small hail = moderate ice pellets.
4	No allowance times exist in this condition for temperatures below 0°C; consider use of light ice pellets mixed with light freezing rain.

Table 16 SAE TYPE IV - Fluid ice pellet and small hail allowance times

This table is for use with SAE Type IV undiluted (100/0) fluids only. All Type IV fluids are propylene glycol based with the exception of Dow EG106 and LNT Solutions E450 which are ethylene glycol based.

Precipitation type	Outside Air Temperature		
	-5°C and above	**Below -5 to -10°C**	**Below -10°C** 1
Light ice pellets	**50 minutes**	**30 minutes**	**30 minutes** 2
Moderate ice pellets or small hail 3	25 minutes 4	10 minutes	10 minutes 2, 5
Light ice pellets mixed with light or moderate freezing drizzle	25 minutes	10 minutes	
Light ice pellets mixed with light freezing rain	25 minutes	10 minutes	
Light ice pellets mixed with light rain	25 minutes 6	**CAUTION:** No allowance times currently exist	
Light ice pellets mixed with moderate rain	25 minutes 7		
Light ice pellets mixed with light snow	25 minutes	15 minutes	
Light ice pellets mixed with moderate snow	10 minutes	7 minutes	

CAUTION

Fluids used during ground deicing/anti-icing do not supply in-flight icing protection.

Note

Allowance time cannot be extended by an inspection of the aircraft critical surfaces.

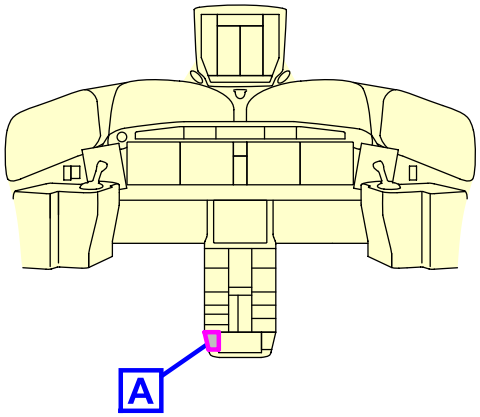
Note

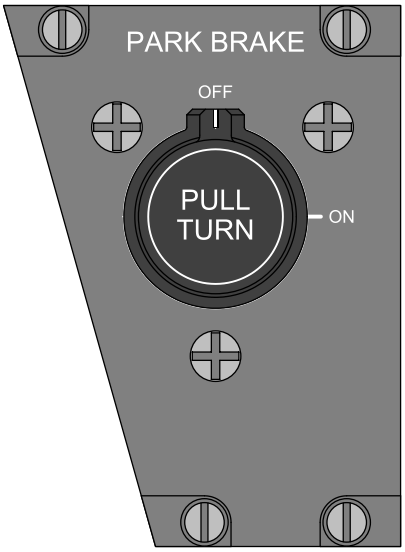
Takeoff is allowed up to 90 minutes after start of fluid application if the precipitation stops at or before the allowance time expires and does not restart. The OAT must not decrease during the 90 minutes to use this guidance in conditions of light ice pellets mixed with either: light or moderate freezing drizzle, light freezing rain, light rain, or moderate rain.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

1	Ensure that the lowest operational use temperature (LOUT) is respected.
2	No allowance times exist for propylene glycol (PG) fluids when used on aircraft with rotation speeds less than 115 knots. (For these aircraft, if the fluid type is not known, assume zero allowance time.)
3	If no intensity is reported with small hail, moderate ice pellets allowance times apply. However, if an intensity is reported with small hail, the ice pellet condition with the equivalent intensity can be used, e.g. light small hail = light ice pellets, moderate small hail = moderate ice pellets.
4	Allowance time is 15 minutes for propylene glycol (PG) fluids or when the fluid type is unknown.
5	No allowance times exist for propylene glycol (PG) fluids in this condition for temperatures below -16°C.
6	No allowance times exist in this condition for temperatures below 0°C; consider use of light ice pellets mixed with light freezing rain.
7	No allowance times exist in this condition for temperatures below 0°C.

This publication has been superseded by the Aircraft Characteristics Publication (ACP).



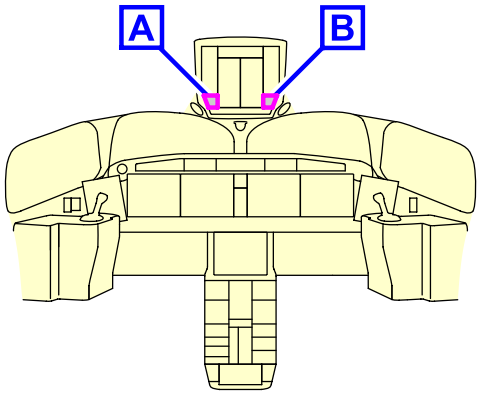


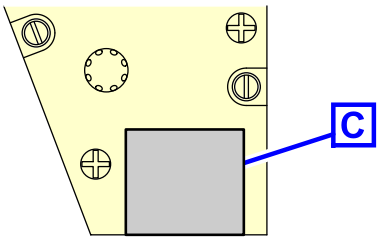
PARKING BRAKE PANEL

A

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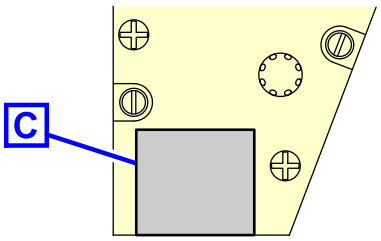
Figure 1 Park break panel





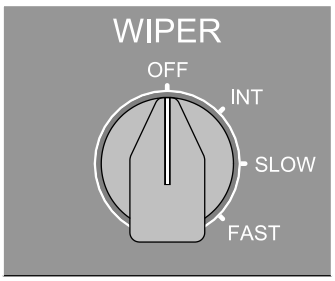
WIPER PANEL

A



WIPER PANEL

B

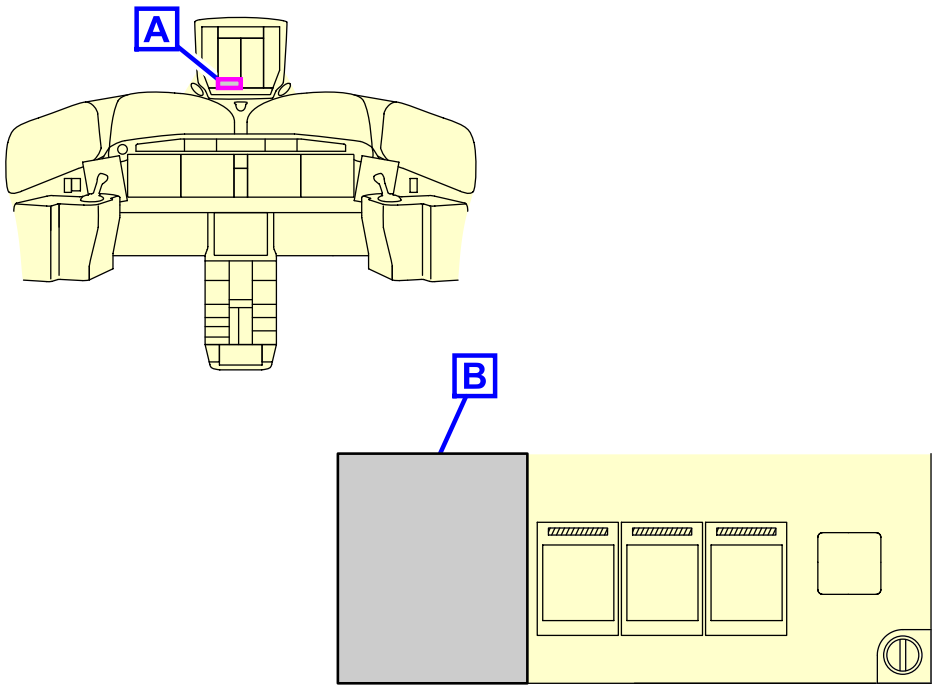


WIPER SWITCH

C

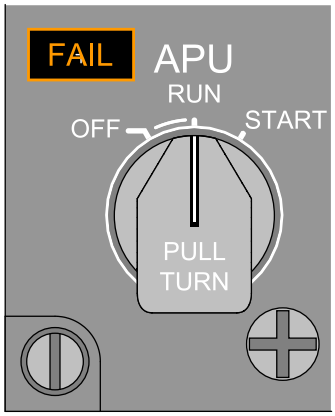
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Figure 2 Wiper control switch



APU AND TAWS CONTROL PANEL

A

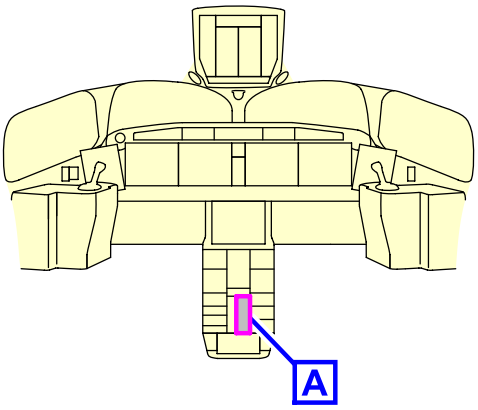


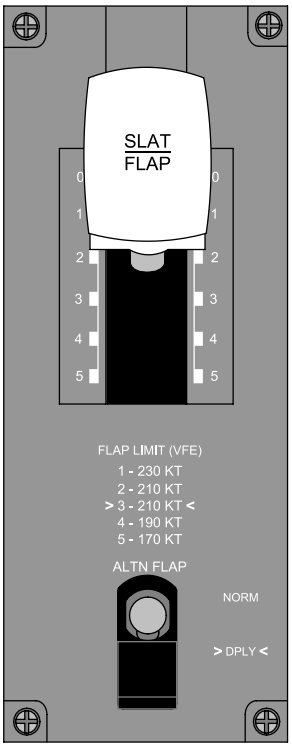
APU SWITCH

B

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Figure 3 APU control panel



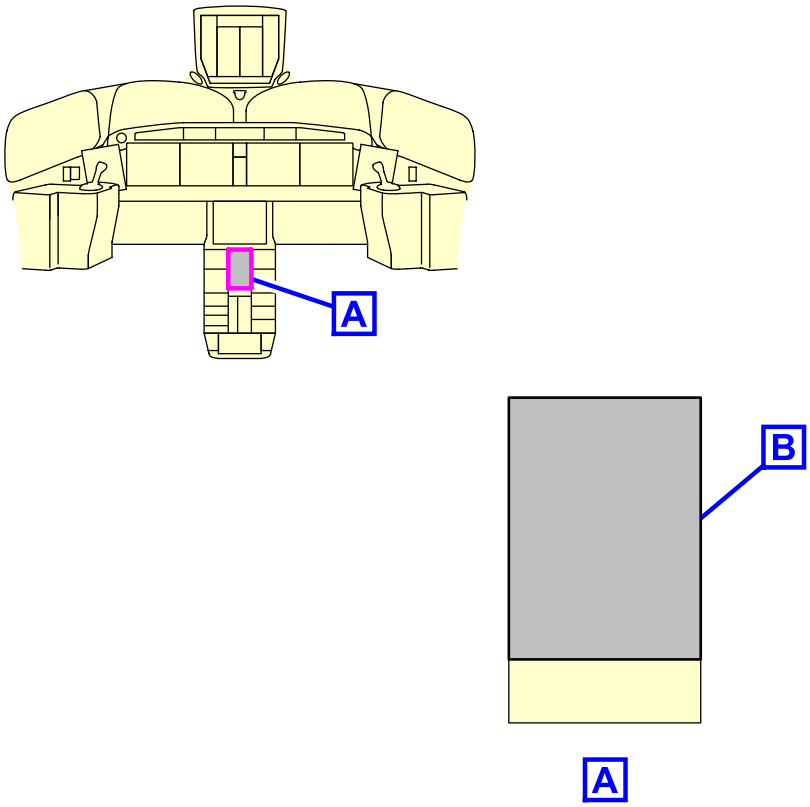


SLAT/FLAP CONTROL PANEL

A

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Figure 4 Slats/flaps panel

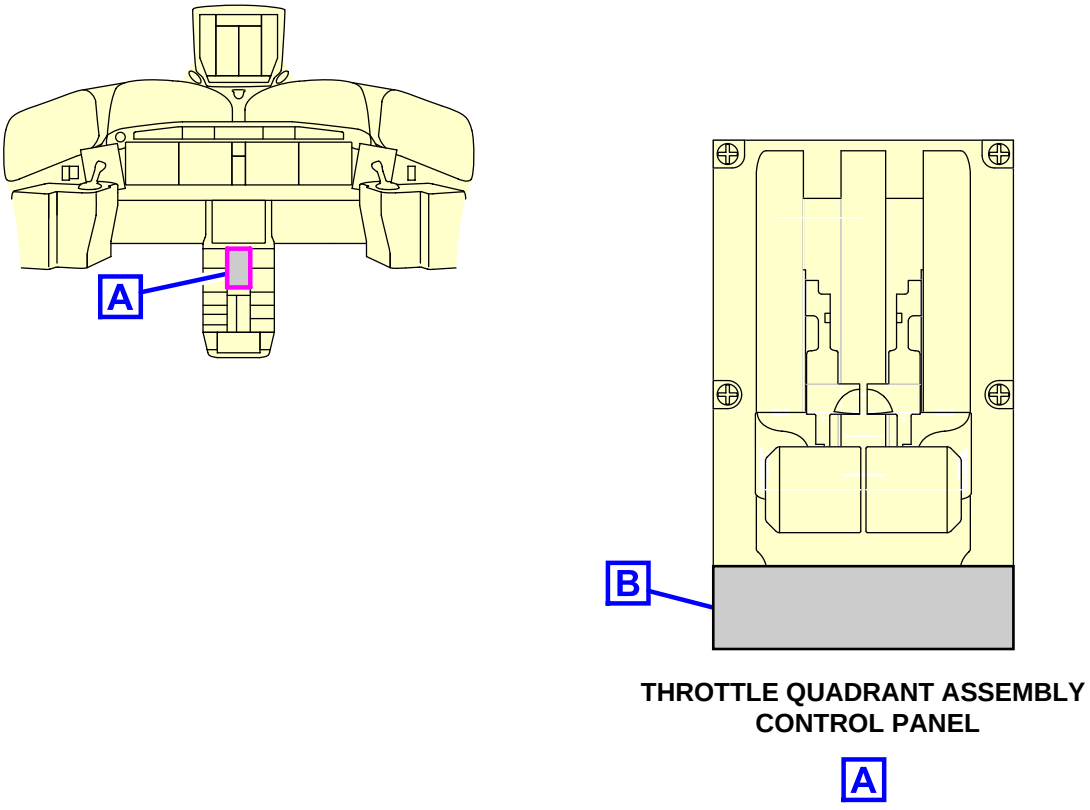


THROTTLE QUADRANT

B

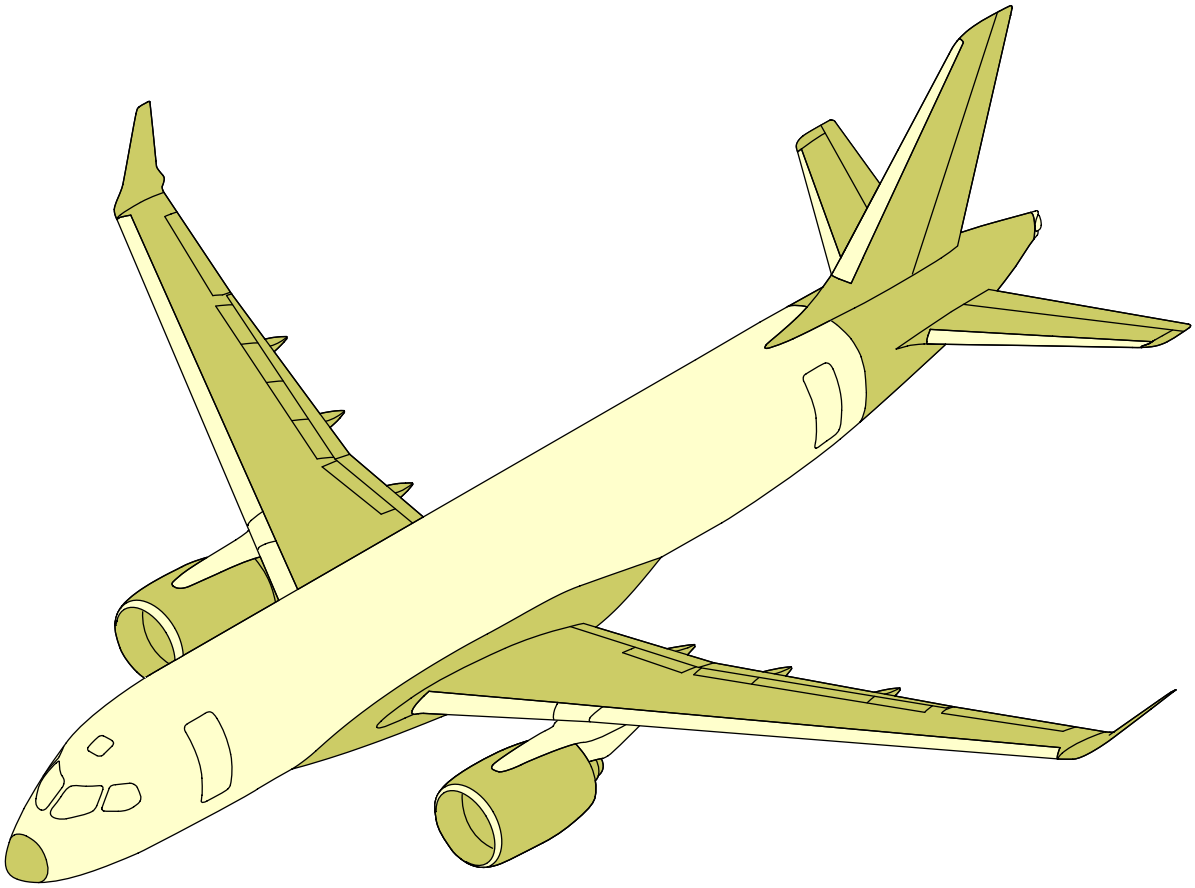
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Figure 5 Throttle control system



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Figure 6 Ignition system

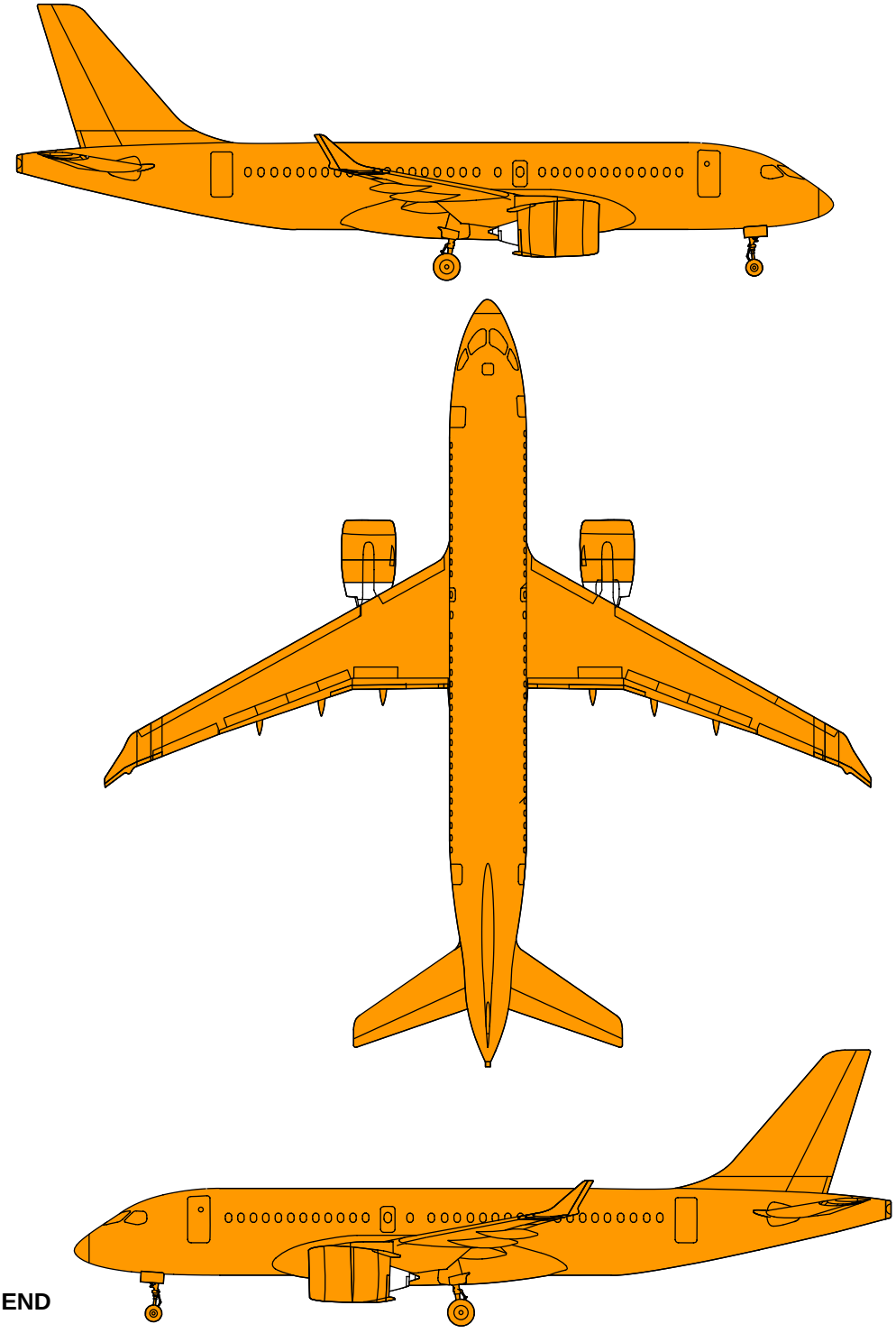


LEGEND

Composite.

ICN-BD500-A-J079500-C-3AB48-24022-A-001-01

Figure 7 Composite materials



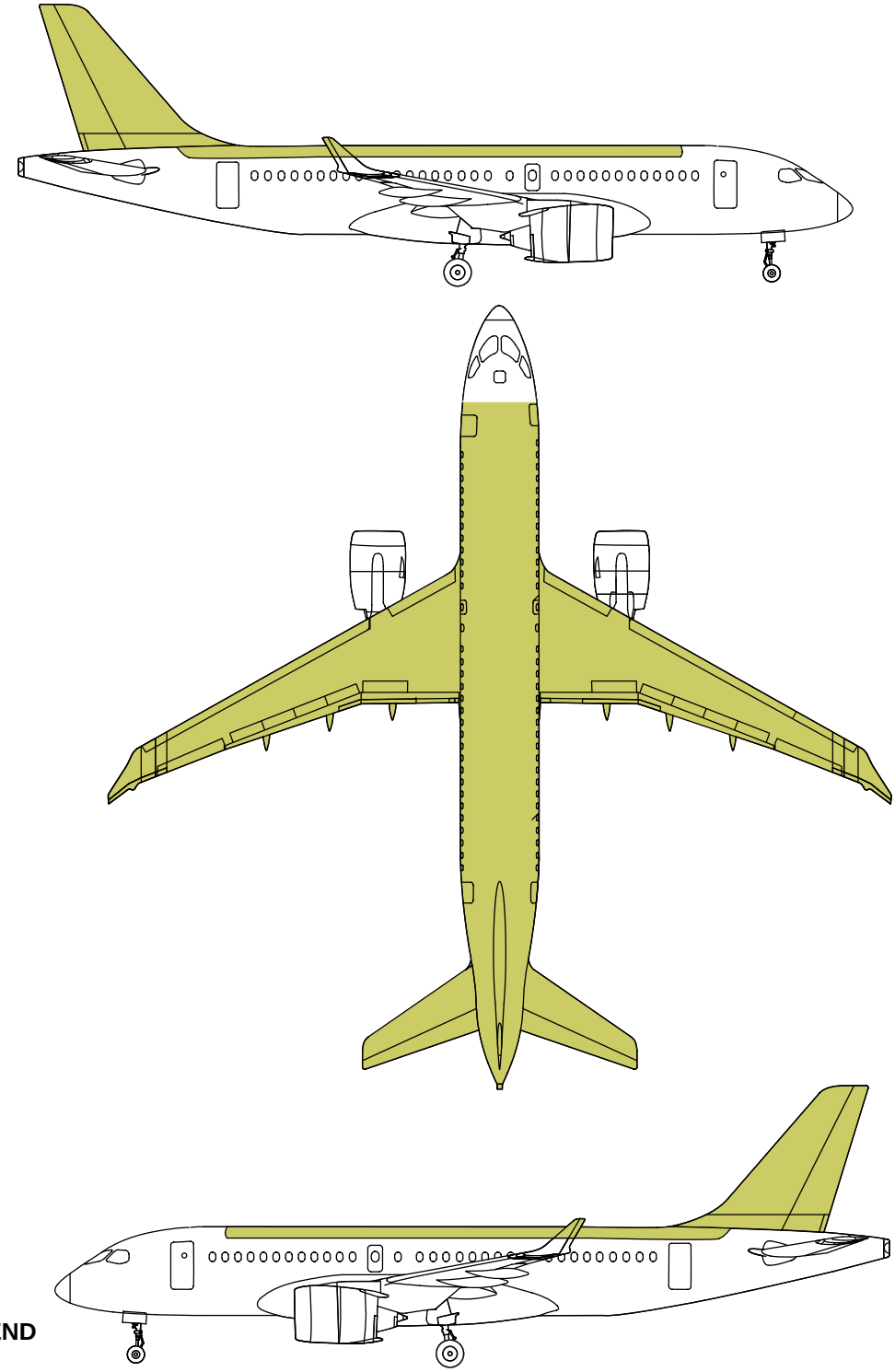
LEGEND

Deicing Fluid Application Areas.

Deicing Fluid Non-Application Areas.

ICN-BD500-A-J123100-C-3AB48-58710-A-001-01

Figure 8 Deicing/Anti- icing fluids application and non-application areas - (Sheet 1 of 2)



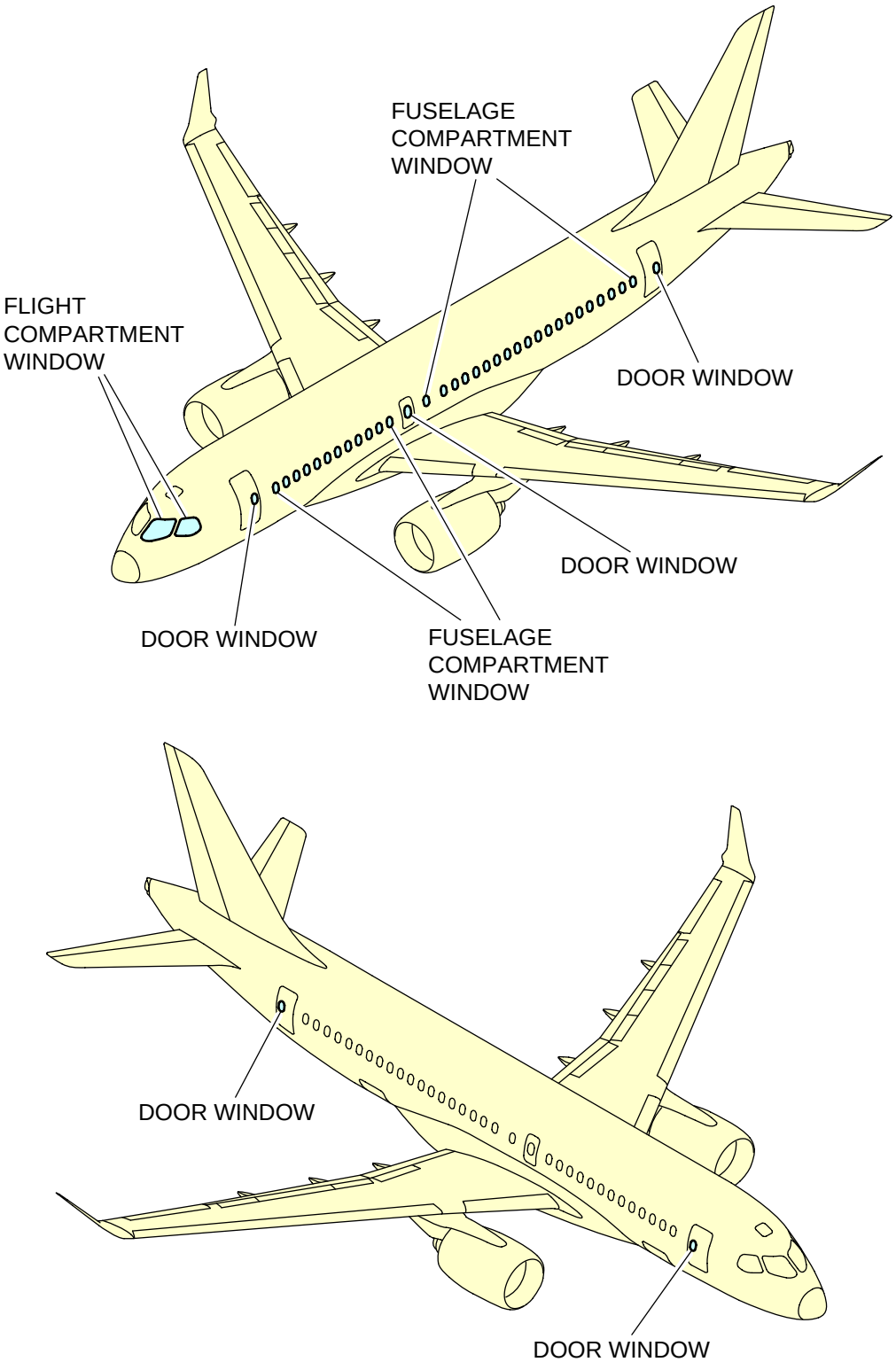
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Anti-icing Fluid Application Areas.

Anti-icing Fluid Non-Application Areas.

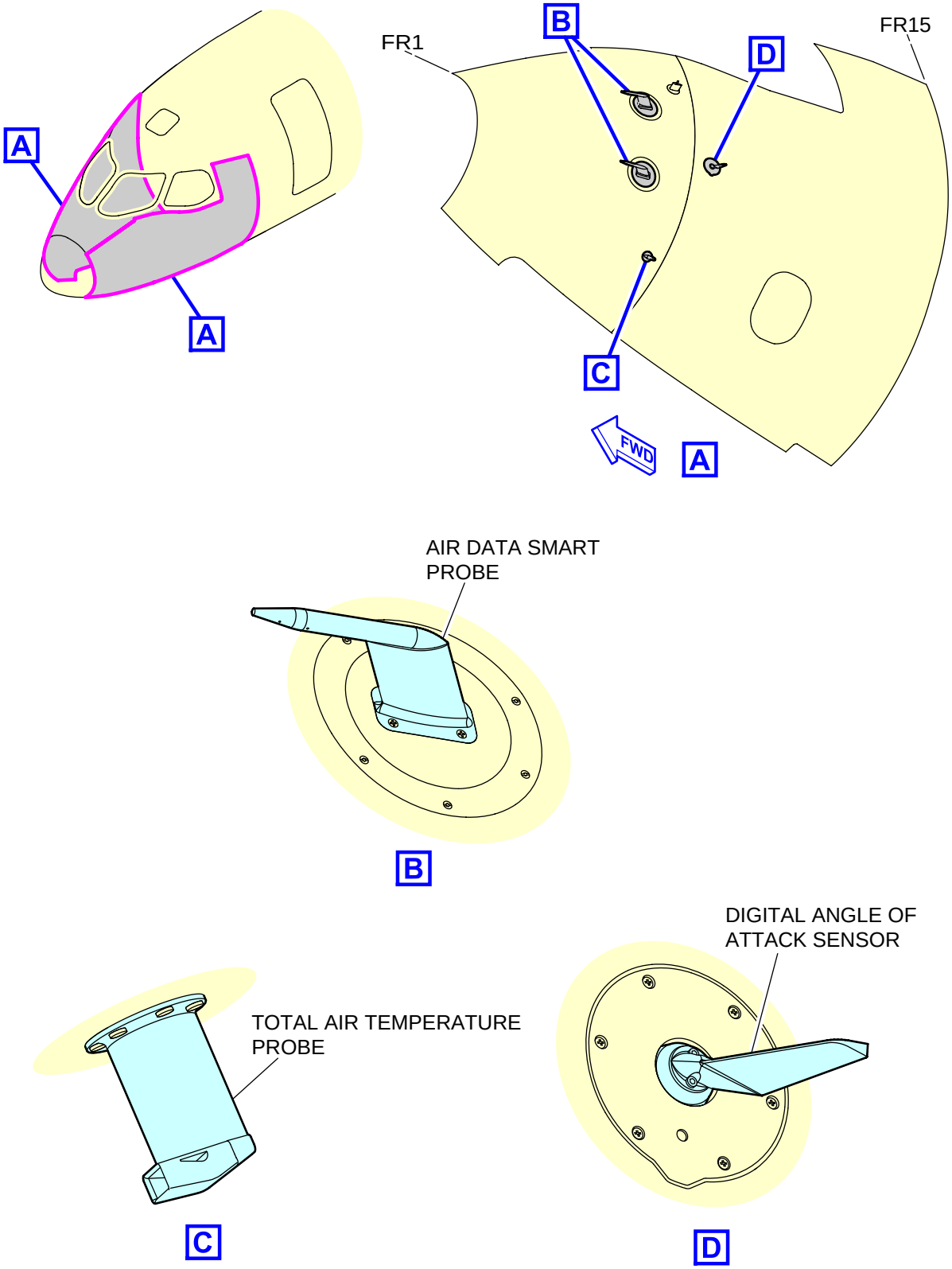
ICN-BD500-A-J123100-C-3AB48-58711-A-001-01

Figure 8 Deicing/Anti- icing fluids application and non-application areas - (Sheet 2 of 2)



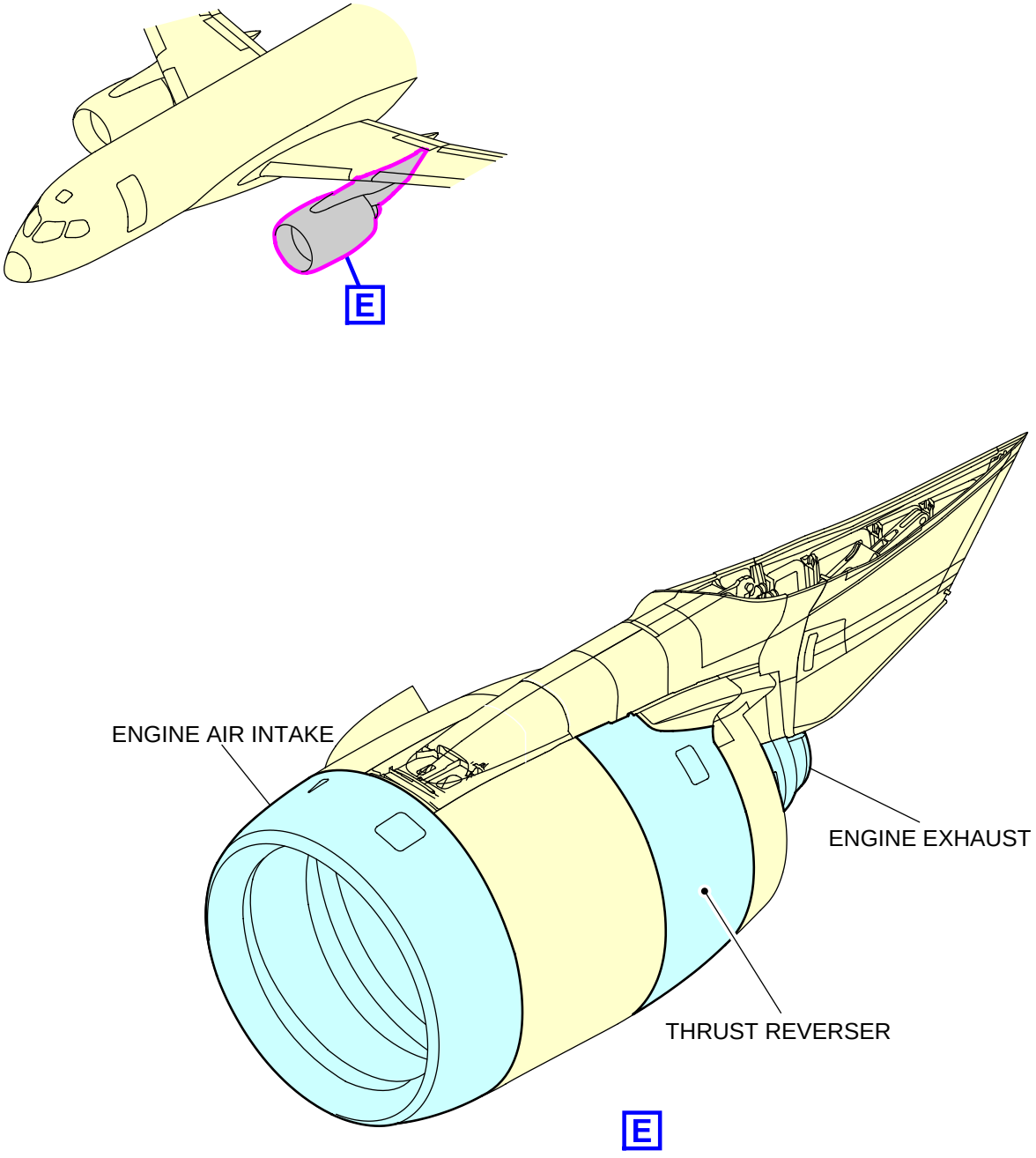
ICN-BD500-A-J560000-C-3AB48-18090-A-001-01

Figure 9 Deicing fluids non-application areas



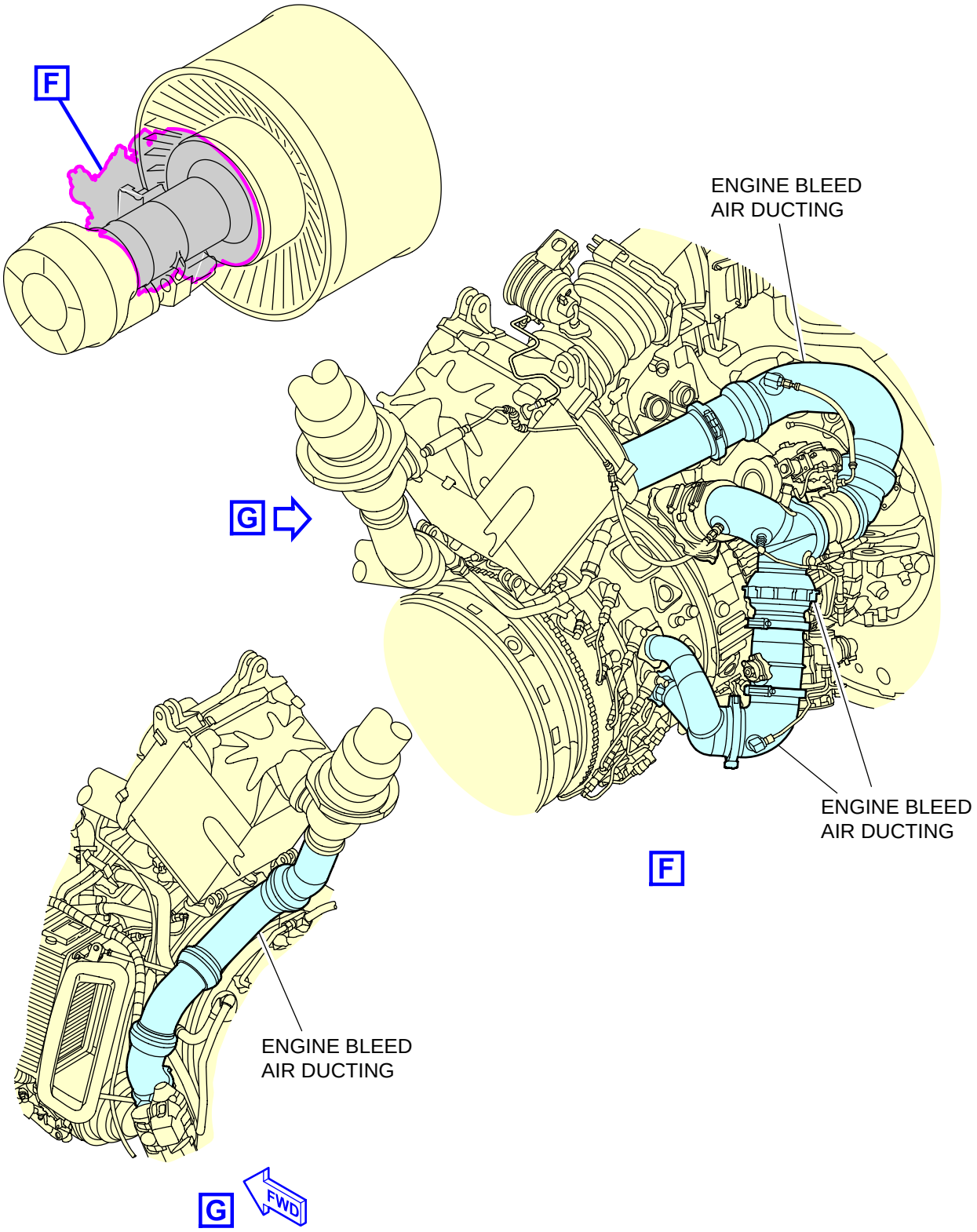
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Figure 10 Deicing fluids non-application areas - (Sheet 1 of 7)



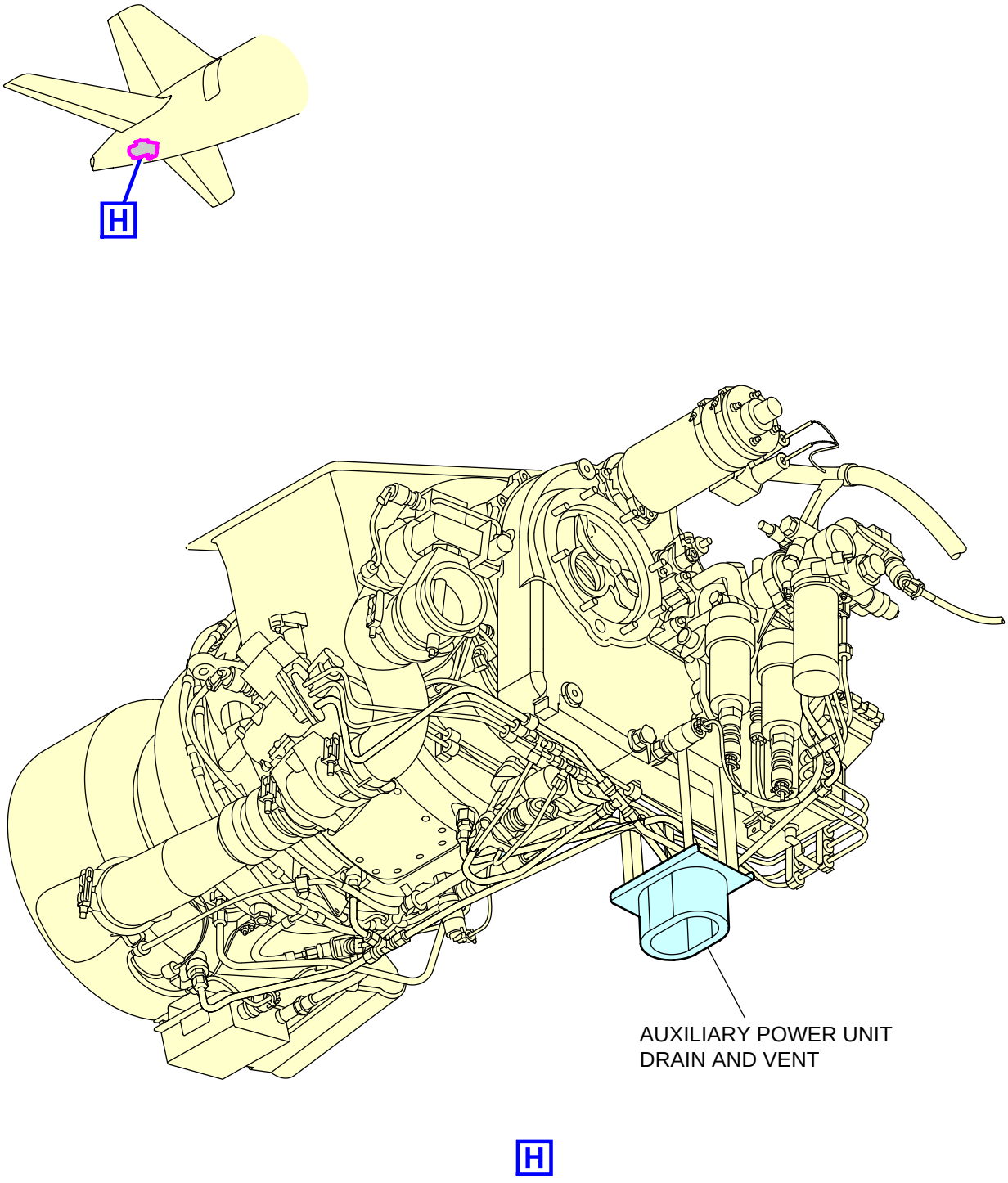
ICN-BD500-A-J123100-C-3AB48-58606-A-001-01

Figure 10 Deicing fluids non-application areas - (Sheet 2 of 7)



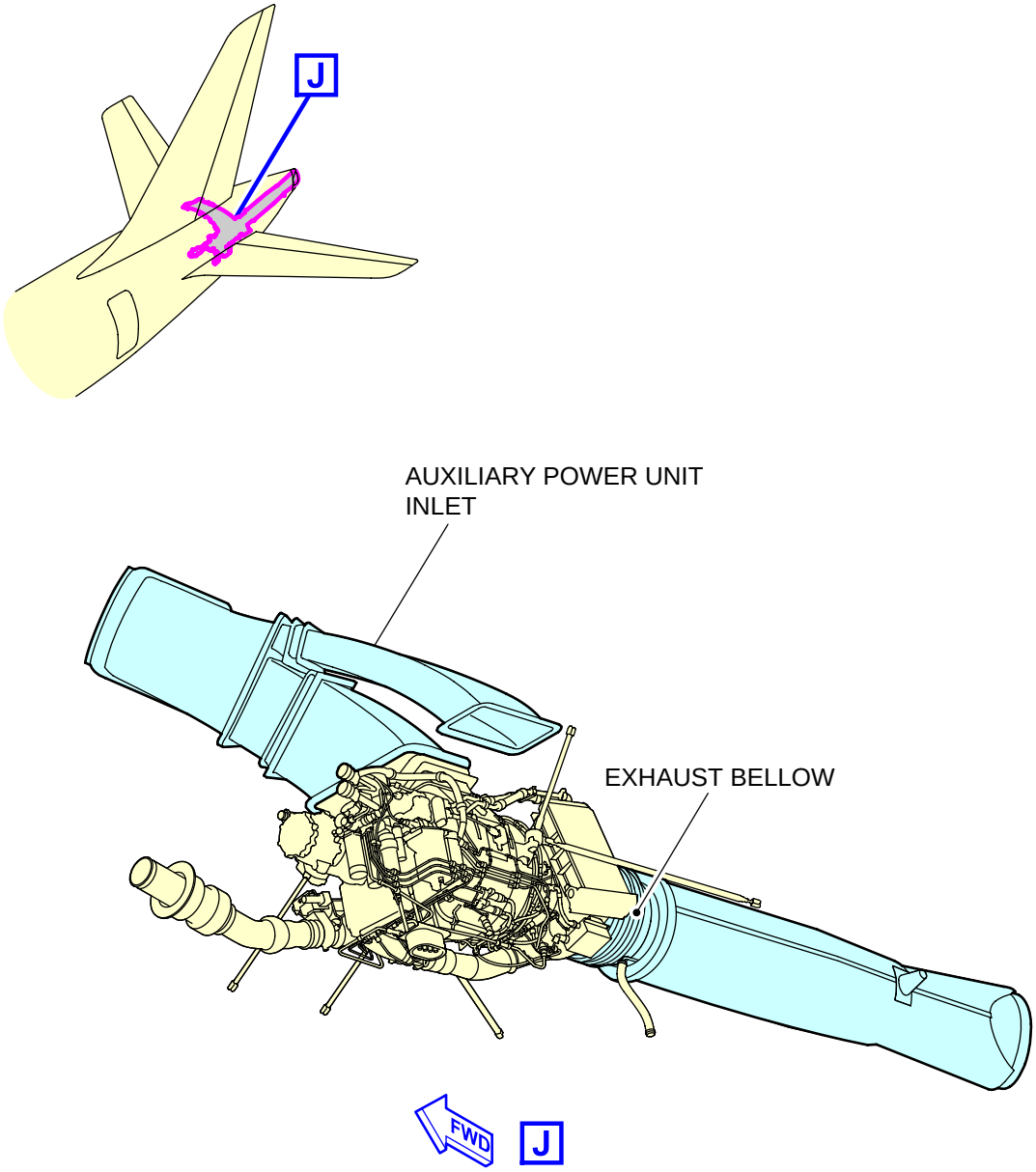
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Figure 10 Deicing fluids non-application areas - (Sheet 3 of 7)



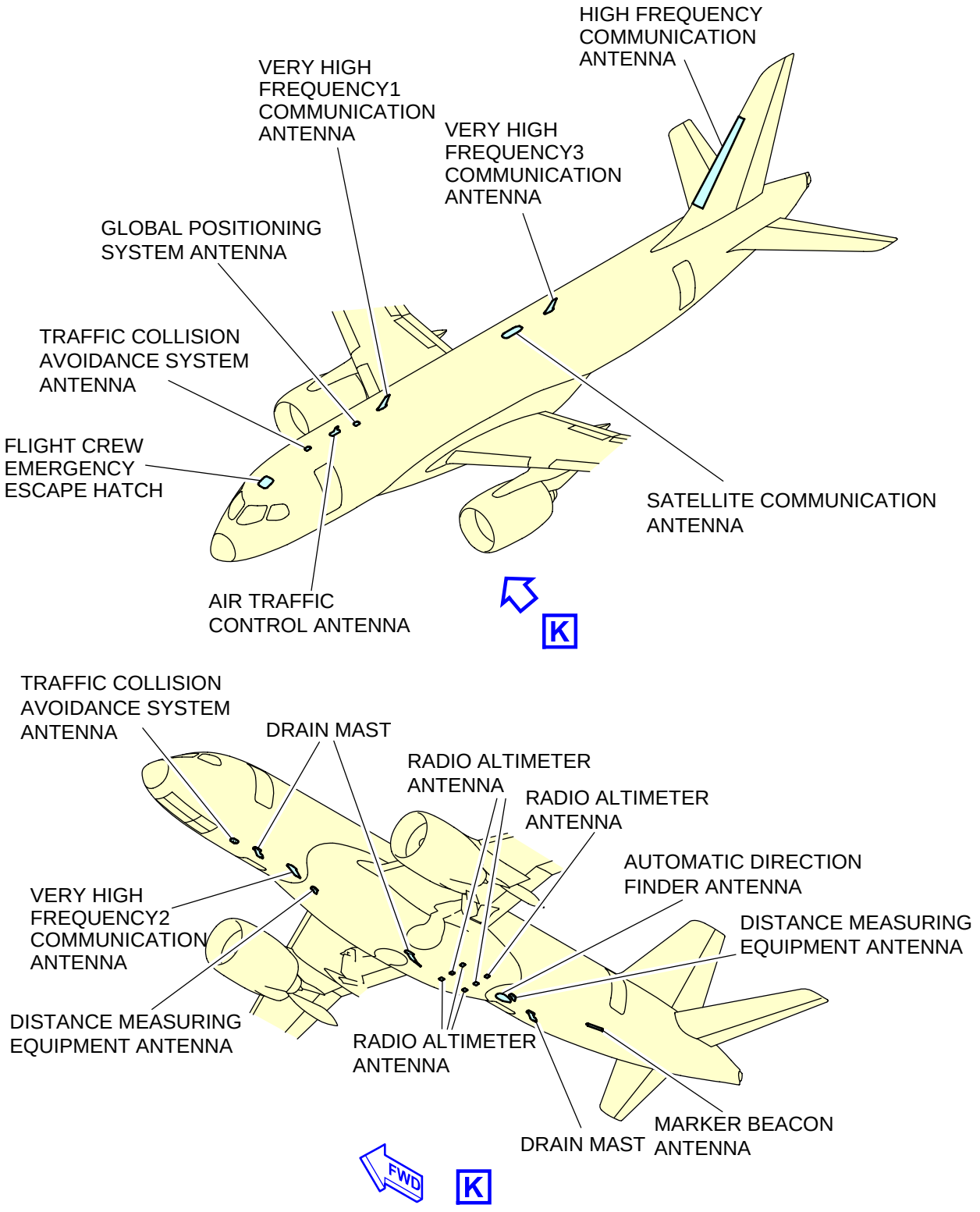
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Figure 10 Deicing fluids non-application areas - (Sheet 4 of 7)



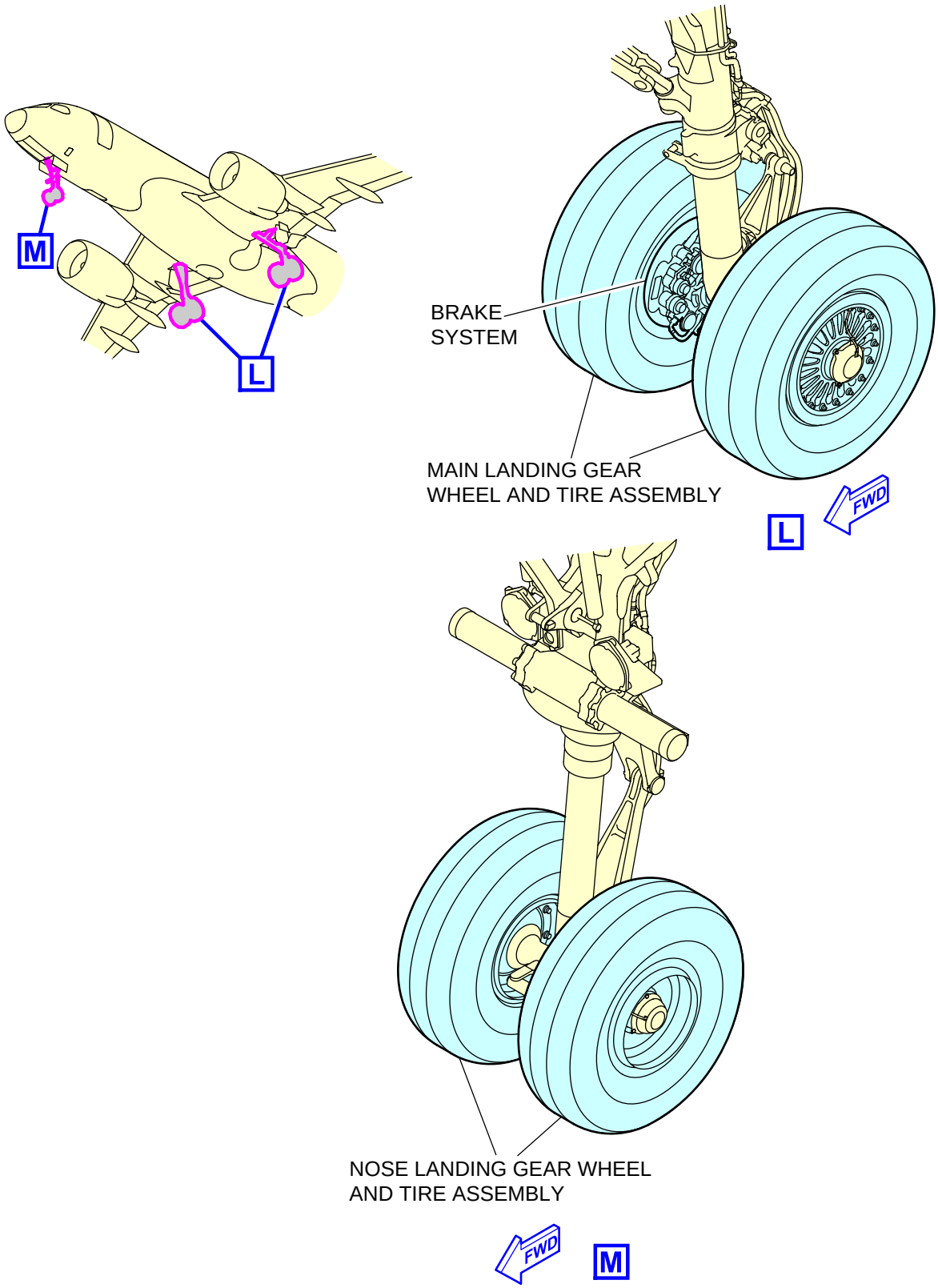
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Figure 10 Deicing fluids non-application areas - (Sheet 5 of 7)



ICN-BD500-A-J123100-C-3AB48-58610-A-002-01

Figure 10 Deicing fluids non-application areas - (Sheet 6 of 7)



ICN-BD500-A-J123100-C-3AB48-58611-A-001-01

Figure 10 Deicing fluids non-application areas - (Sheet 7 of 7)

Requirements after job completion

Required conditions

Table 17 Required conditions

Action/Condition	Data Module/Technical publication
None	

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

External AC power source - De-Energize electrical network

Applicability: 50001-54999, 55001-59999

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
BD500-A-J24-00-00-01AAA-913G-A	Electrical/Electronic safety precautions - General maintenance safety procedure

Common information

This data module gives the procedure to de-energize the Alternating Current (AC) electrical network and remove the external power supply from the aircraft.

Preliminary requirements

Production maintenance data

Zones	115	Lower nose fuselage above and outboard of nose wheel well, left side
	211	Flight compartment, left side
	212	Flight compartment, right side

Access points	115DL	Door

Required conditions

Table 2 Required conditions

Action/Condition	Data Module/Technical publication
Make sure that the aircraft is safe for maintenance.	
Obey all the electrical/electronic safety precautions.	BD500-A-J24-00-00-01AAA-913C-A
Make sure that the access door is open. Refer to the access points table above for details.	

Support equipment

Table 3 Support equipment

Name	Identification/Reference	Quantity	Remark
Ground power unit	STD-0507	1	

Consumables, materials, and expendables

Table 4 Consumables, materials, and expendables

Name	Identification/Reference	Quantity	Remark
None			

Spares

Table 5 Spares

Name	Identification/Reference	Quantity	Remark
None			

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Safety conditions

WARNING

Before you remove power from the electrical systems, tell all the persons on the aircraft. You can cause injury to persons and/or damage to equipment.

Procedure

1 De-energize the aircraft as follows:

Refer to Fig. 2 and Fig. 3 .

1.1 On the electrical control panel, push the EXT PWR Push Button Annunciator (PBA) switch.

1.2 Make sure that the intensity of the PBA switches changes as follows:

1.2.1 EXT PWR IN USE goes off.

1.2.2 EXT PWR AVAIL comes on.

1.3 On the main instrument panel, the Adaptive Flight Display (AFD) status change as follows:

1.3.1 AFD No. 1 and No. 2 stay on.

1.3.2 AFD No. 3, No. 4, and No. 5 go off.

1.4 On the electrical control panel, set the switches BATT 1 and BATT 2 to OFF position.

2 Stop the operation of the Ground Power Unit (GPU) (Commercially available, Pt. No. STD-0507).

Note

Refer to the manufacturer's instructions before you operate the GPU.

WARNING

De-energize the electrical power supply before you disconnect the connector of the ground power unit. If it is not de-energized, dangerous arcing can occur.

3 Disconnect the GPU (Commercially available, Pt. No. STD-0507) from the external power receptacle.

Refer to Fig. 4 .

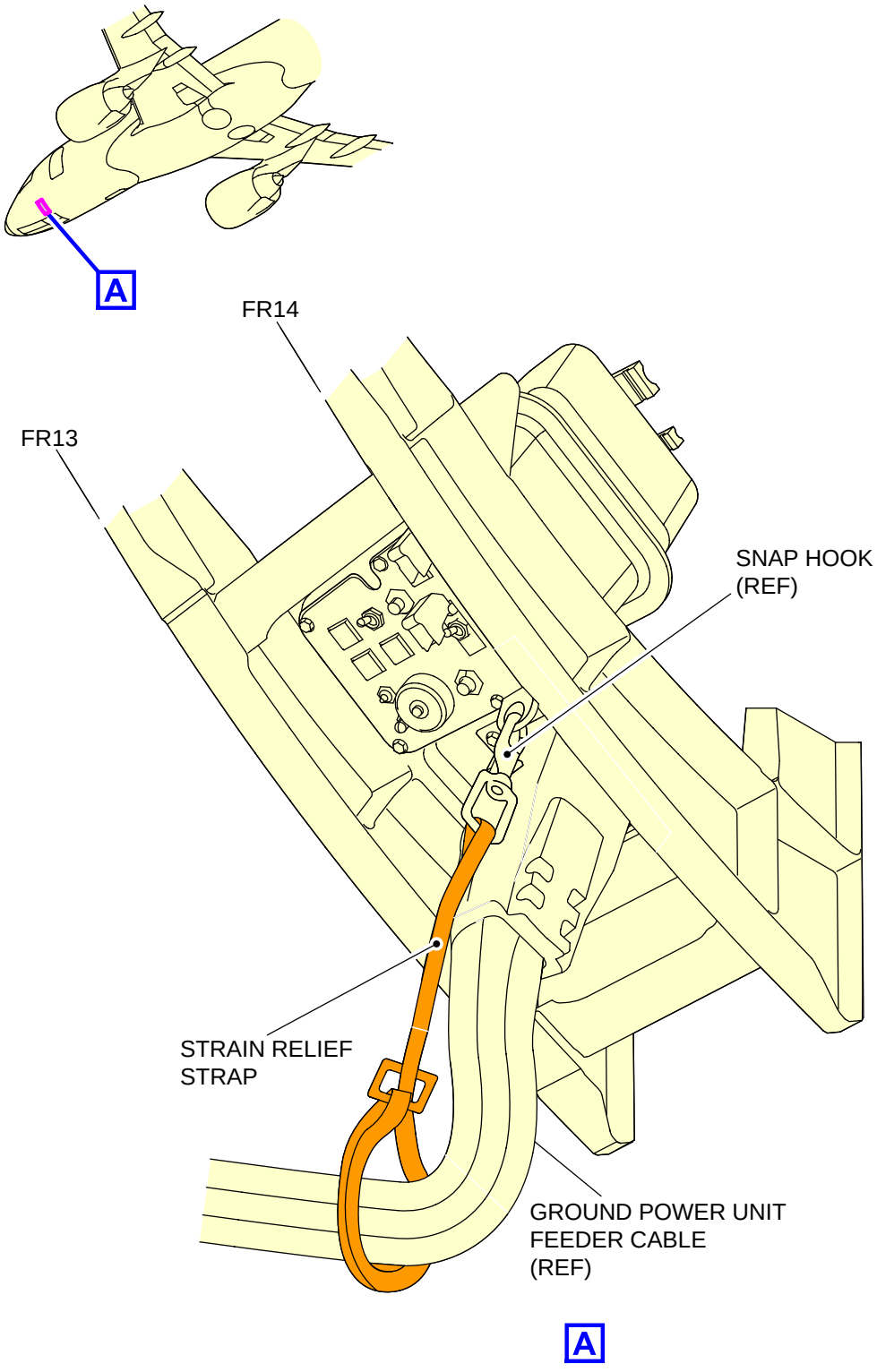
4 Remove the strain relief strap as follows:

Refer to Fig. 1 .

4.1 Disconnect the snap hook of the strain relief strap from the fitting on the aircraft structure.

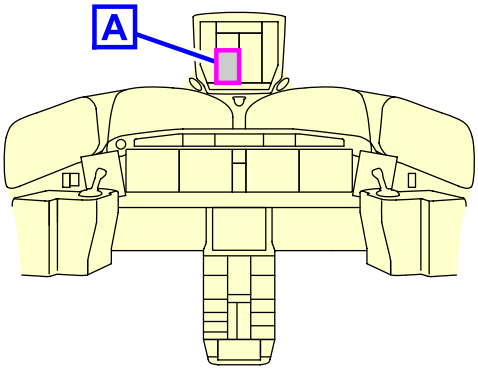
4.2 Remove the strain relief strap from the GPU feeder cable.

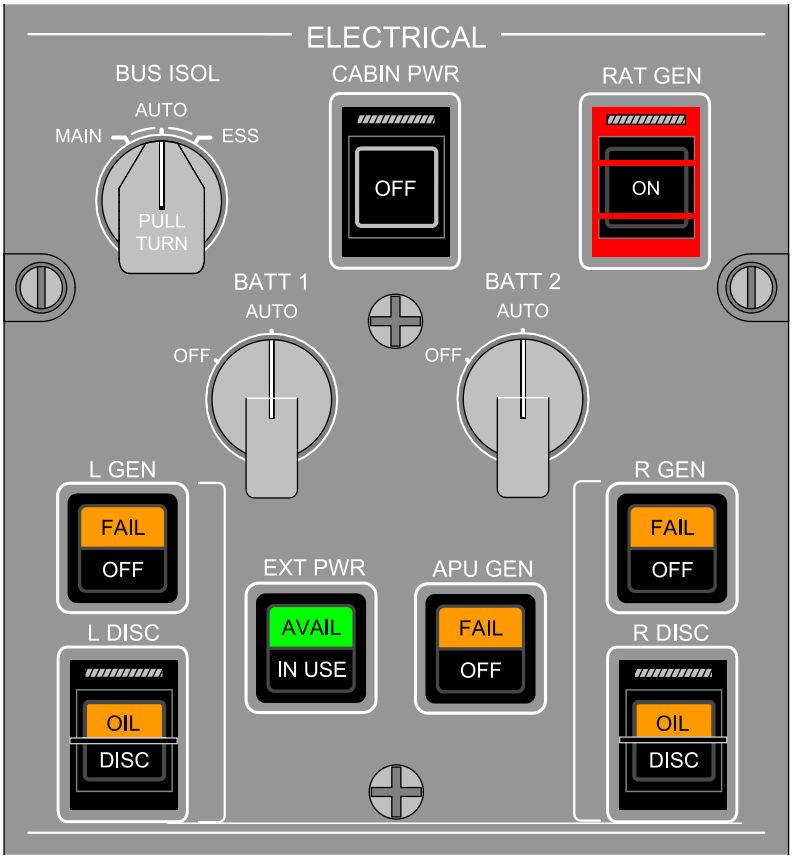
This publication has been superseded by the Aircraft Characteristics Publication (ACP).



ICN-BD500-A-J244100-C-3AB48-91340-A-001-01

Figure 1 External AC power source - De-Energize electrical network



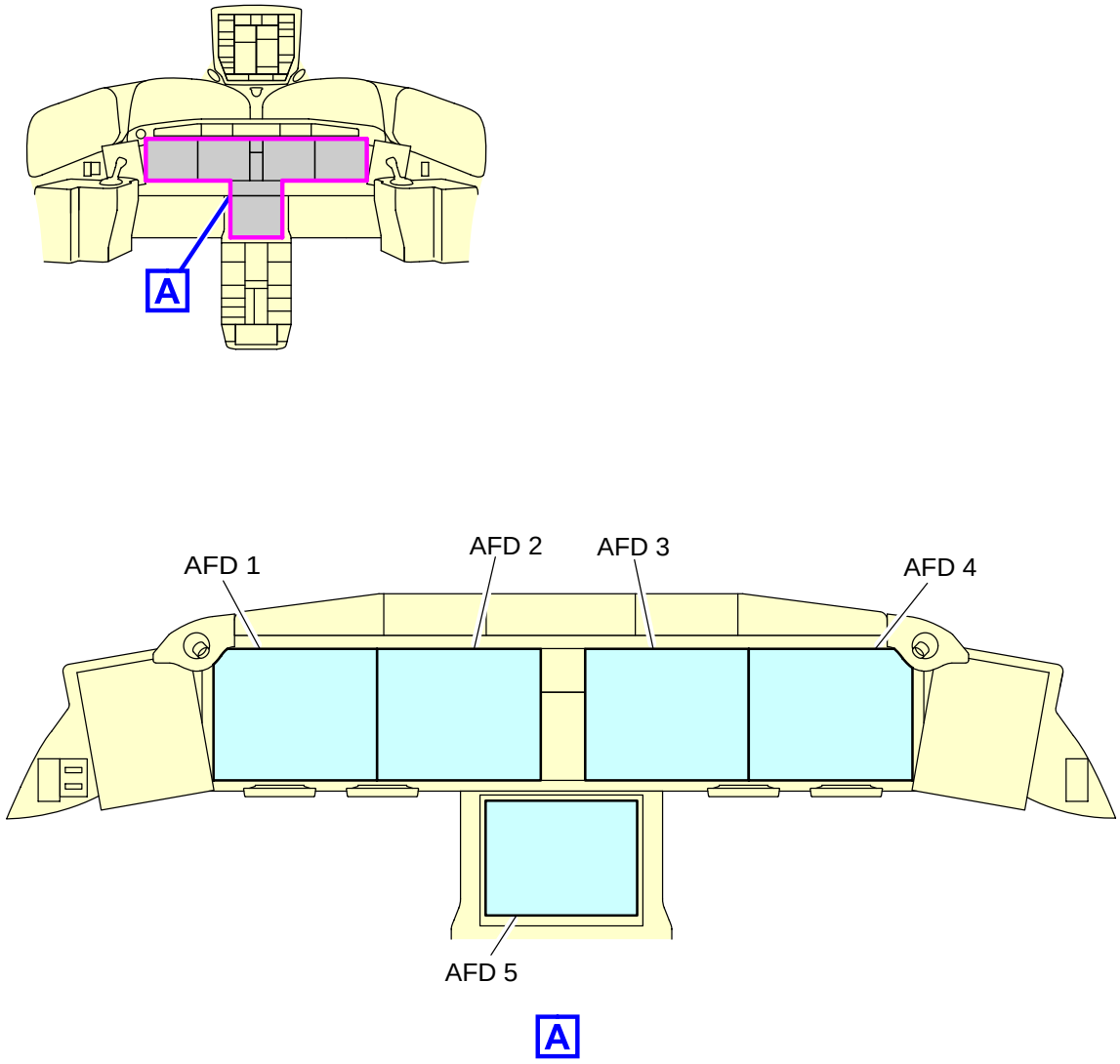


ELECTRICAL CONTROL PANEL

A

ICN-BD500-A-J240000-C-3AB48-29154-A-001-01

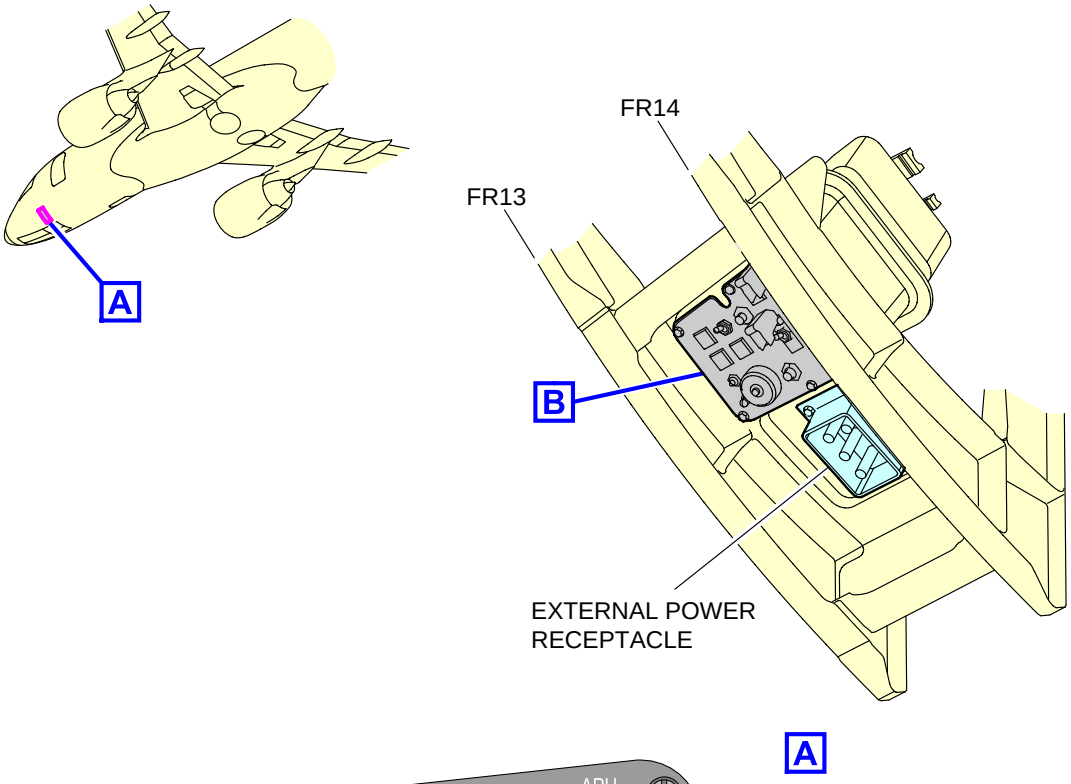
Figure 2 External AC power source - De-Energize electrical network



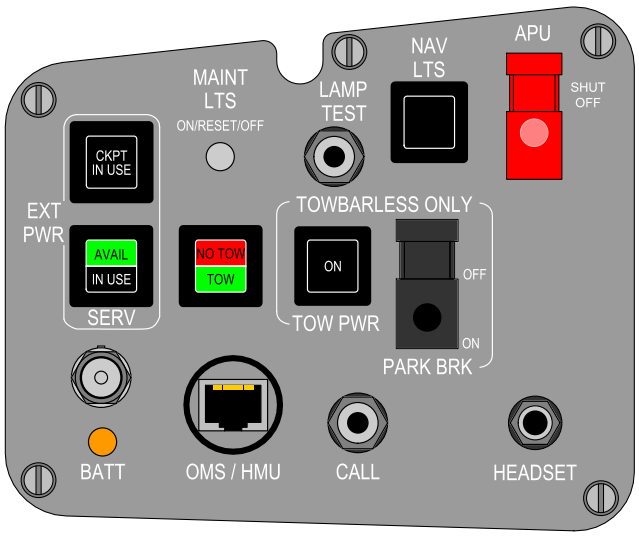
ICN-BD500-A-J244100-A-3AB48-25318-A-001-01

Figure 3 External AC power source - De-Energize electrical network

(Sheet) Applicability: not applicable



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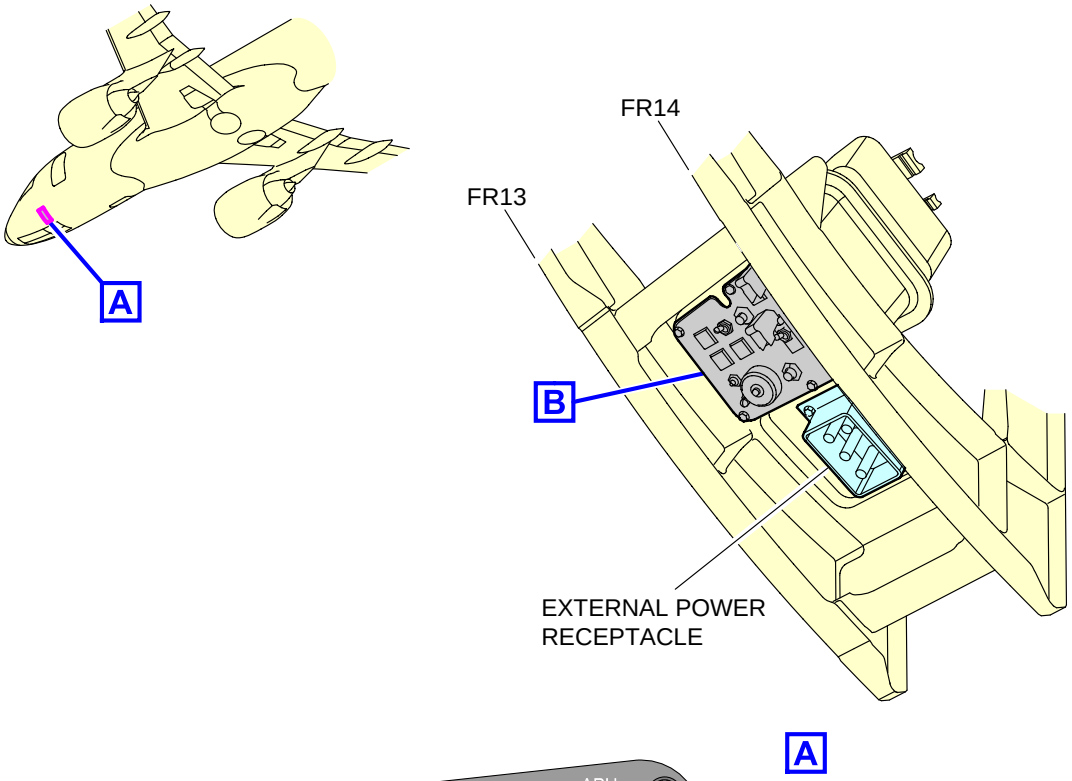
ELECTRICAL/TOWING SERVICE PANEL

B

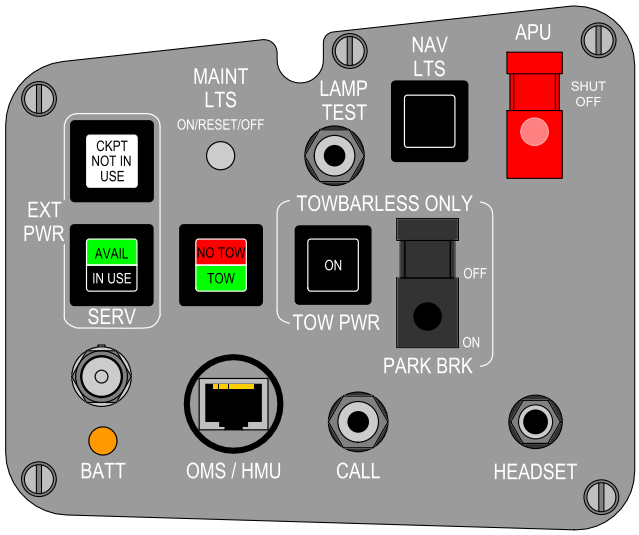
ICN-BD500-A-J244100-A-3AB48-25317-A-002-01

Figure 4 External AC power source - De-Energize electrical network - (Sheet 1 of 2)

(Sheet) Applicability: 50018-50019, 50030, 50032-54999, 55017, 55053-59999 and 50010-50017, 50020-50029, 50031, 55003-55016, 55018-55052 POST BD500-240006



A



ELECTRICAL/TOWING SERVICE PANEL

B

ICN-BD500-A-J244100-A-3AB48-58243-A-002-01

Figure 4 External AC power source - De-Energize electrical network - (Sheet 2 of 2)

Requirements after job completion

Required conditions

Table 6 Required conditions

Action/Condition	Data Module/Technical publication
Remove all the tools, equipment, and unwanted materials from the work area. Make sure that the access door is closed. Refer to the access points table above for detail.	

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

External AC power source - Energize electrical network

Applicability: 50001-54999, 55001-59999

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This publication has been superseded by the Aircraft Characteristics Publication (ACP).

References

Table 1 References

Data Module/Technical Publication	Title
BD500-A-J24-00-00-01AAA-913G-A	Electrical/Electronic safety precautions - General maintenance safety procedure

Common information

This data module gives the procedure to energize the aircraft with an external Alternating Current (AC) power supply.

Preliminary requirements

Production maintenance data

Zones	115	Lower nose fuselage above and outboard of nose wheel well, left side
	211	Flight compartment, left side
	212	Flight compartment, right side

Access points	115DL	Door
	841	Door

Required conditions

Table 2 Required conditions

Action/Condition	Data Module/Technical publication
Make sure that the aircraft is safe for maintenance.	
Obey all the electrical/electronic safety precautions.	BD500-A-J24-00-00-01AAA-913G-A
Make sure that the access door is open. Refer to the access points table above for details.	

Support equipment

Table 3 Support equipment

Name	Identification/Reference	Quantity	Remark
Ground power unit power cable strain relief strap	98A2440300000	1	
Ground power unit	STD-0507	1	

Consumables, materials, and expendables

Table 4 Consumables, materials, and expendables

Name	Identification/Reference	Quantity	Remark
None			

Spares

Table 5 Spares

Name	Identification/Reference	Quantity	Remark
None			

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Safety conditions

WARNINGS

- **Tell all persons on the aircraft before you energize the electrical systems. If you do not do this, you can cause injuries to persons and/or damage to equipment.**

- **Before you energize the aircraft, make sure that there are no persons or equipment near the Air Data System Probe (ADSP) No. 4. When you energize the aircraft, the Air Data System Probe (ADSP) No. 4 can become hot. This can cause injury to persons and damage to equipment.**

CAUTIONS

- **Make sure that the aircraft is de-energized for a minimum of 1 minute before you energize the electrical network. If you do not do this, fault messages will occur and it will be necessary to start the procedure again.**

- **When you energize the aircraft, during the first 100 seconds while the FLT CTRL IN TEST advisory message is shown, do not change the aircraft configuration. Do not change the electrical power supply, the hydraulic pressurization, the PFCC switches, and the flight control commands inputs. If you do not obey these instructions, fault messages will occur, and it will be necessary to start the procedure again or do maintenance to reset the faults.**

This publication has been superseded by the Aircraft Characteristics Publication (ACP).

Procedure

1 Install the strain relief strap (FAPE3, Pt. No. 98A24403000000) as follows:

Refer to Fig. 1 .

1.1 Attach the strain relief strap (FAPE3, Pt. No. 98A24403000000) to the Ground Power Unit (GPU) feeder cable.

1.2 Connect the snap hook of the strain relief strap (FAPE3, Pt. No. 98A24403000000) to the fitting on the aircraft structure.

WARNING

Before you connect the ground power unit to the external power receptacle of the aircraft, make sure that the external electrical power supply is not energized. If it is energized, dangerous arcing can occur.

CAUTIONS

- **Make sure that the strain relief strap holds all the weight of the ground power unit cable when the ground power unit connector is connected. This will prevent damage to the external power receptacle.**

- **Before you connect the ground power unit to the aircraft, make sure that there are no unwanted objects or fluid in the external power receptacle or the ground power unit connector. Unwanted objects and fluid can cause an overheat condition and damage to equipment.**

2 Connect the GPU (Commercially available, Pt. No. STD-0507) to the external power receptacle.

2.1 On the electrical towing service panel, make sure that the intensity of the Push Button Annunciator (PBA) switches changes as follows:

Applicability: not applicable

2.1.1 EXT PWR CKPT IN USE stays off.
Refer to Fig. 2 .

Applicability: 50018-50019, 50030, 50032-54999, 55017, 55053-59999 and 50010-50017, 50020-50029, 50031, 55003-55016, 55018-55052 POST BD500-240006

2.1.2 EXT PWR CKPT NOT IN USE comes on.
Refer to Fig. 2 .

2.1.3 EXT PWR SERV AVAIL comes on.

2.1.4 EXT PWR IN USE stays off.

2.2 On the electrical control panel, make sure that the intensity of the PBA switches changes as follows:
Refer to Fig. 3

2.2.1 EXT PWR IN USE stays off.

2.2.2 EXT PWR AVAIL comes on.

3 Energize the aircraft as follows:
Refer to Fig. 3 and Fig. 4 .

3.1 On the electrical control panel, make sure that the BUS ISOL switch is set to the AUTO position.

3.2 Set the BATT 1 and BATT 2 switches to the AUTO position.

3.2.1 On the main instrument panel, the Adaptive Flight Display (AFD) status changes as follows:

3.2.1.1 AFD No. 1 and No. 2 come on.

3.2.1.2 AFD No. 3, No. 4, and No. 5 stay off.

3.3 On the electrical control panel, push the EXT PWR PBA switch.

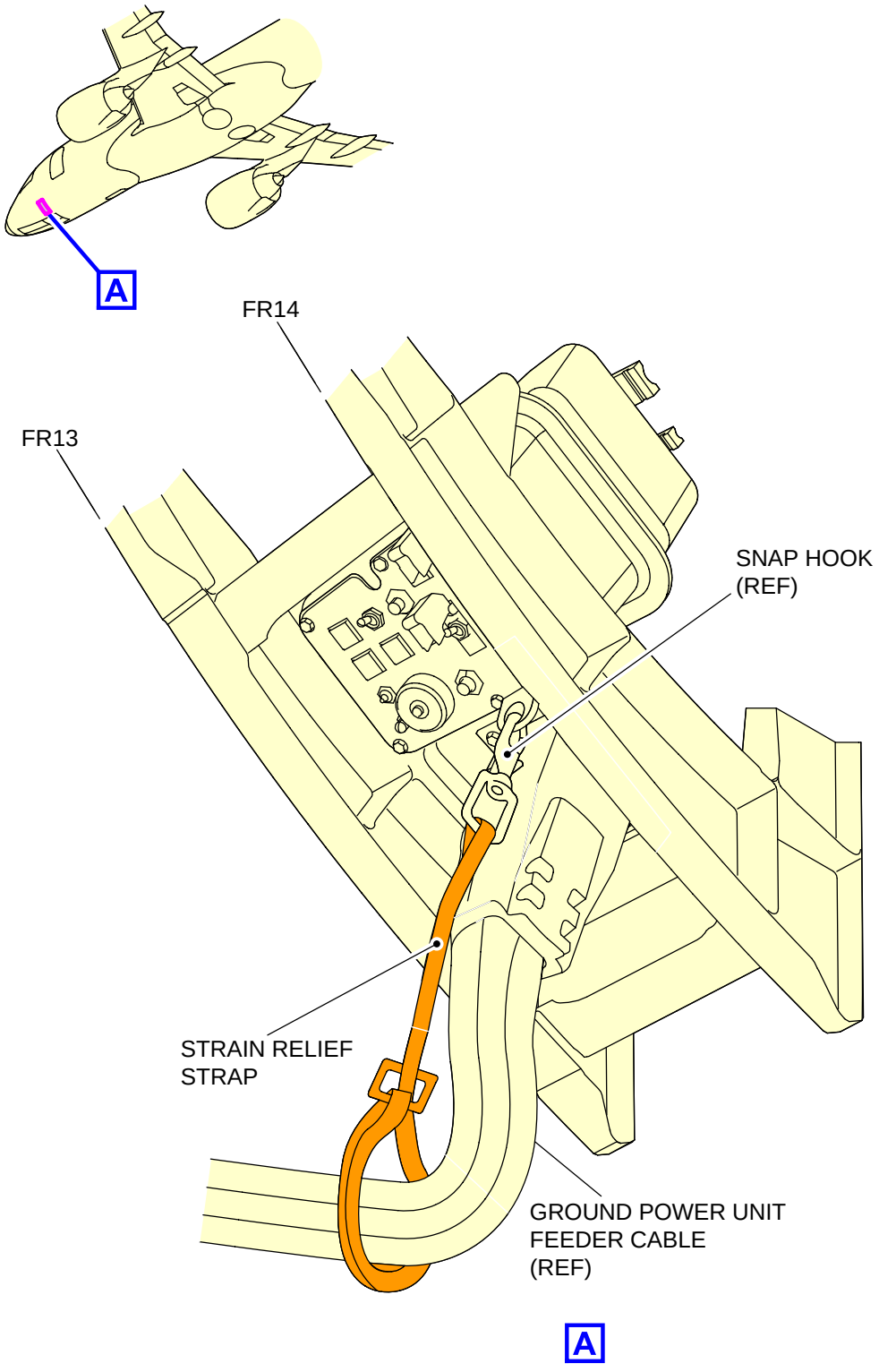
3.4 Make sure that the intensity of the PBA switches changes as follows:

3.4.1 EXT PWR IN USE comes on.

3.4.2 EXT PWR AVAIL goes off.

3.5 On the main instrument panel, AFD No. 3, No. 4, and No. 5 come on.

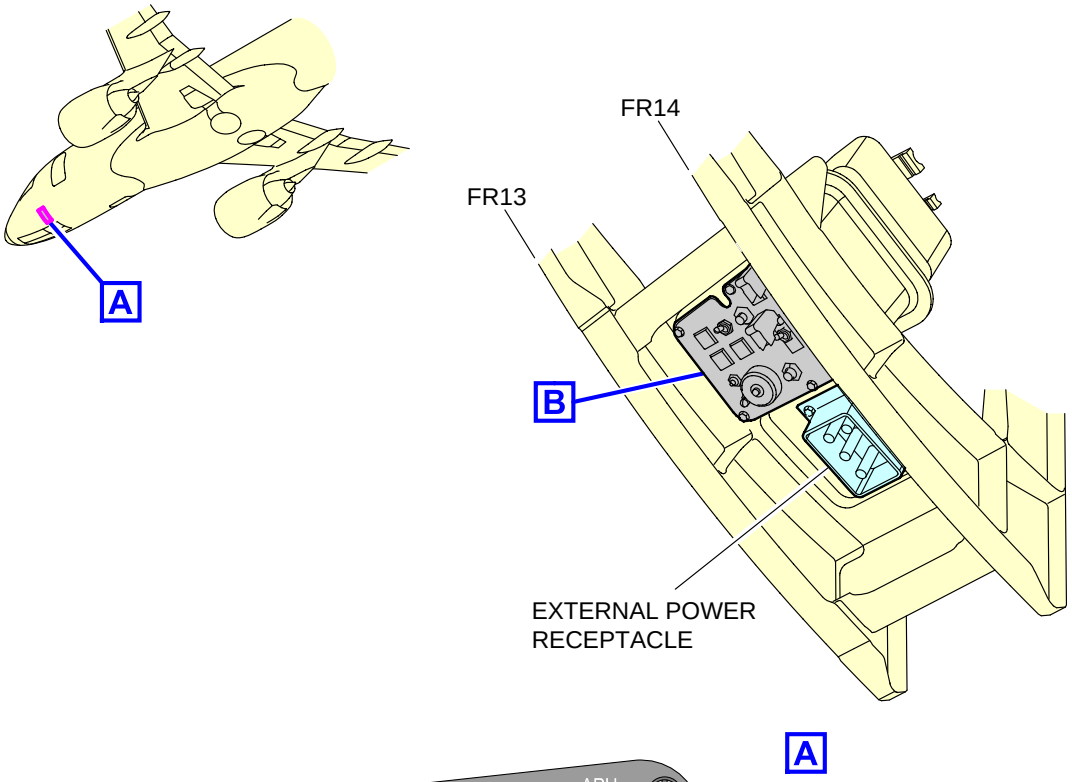
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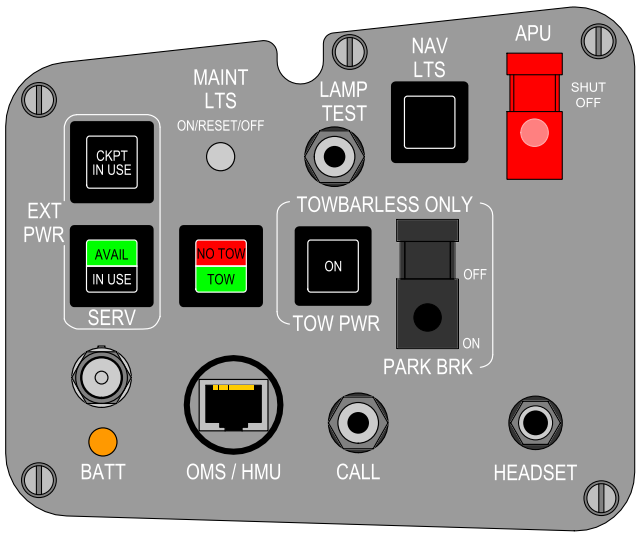


ICN-BD500-A-J244100-C-3AB48-91340-A-001-01

Figure 1 External AC power source - Energize electrical network

(Sheet) Applicability: not applicable





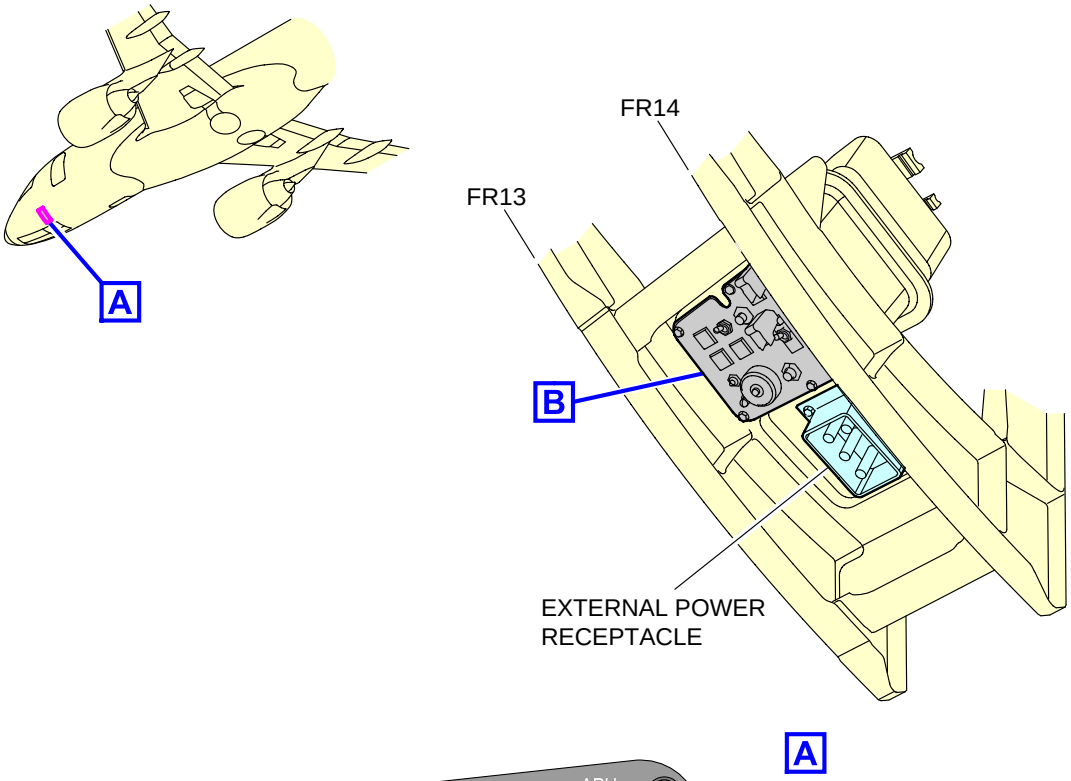
ELECTRICAL/TOWING SERVICE PANEL

B

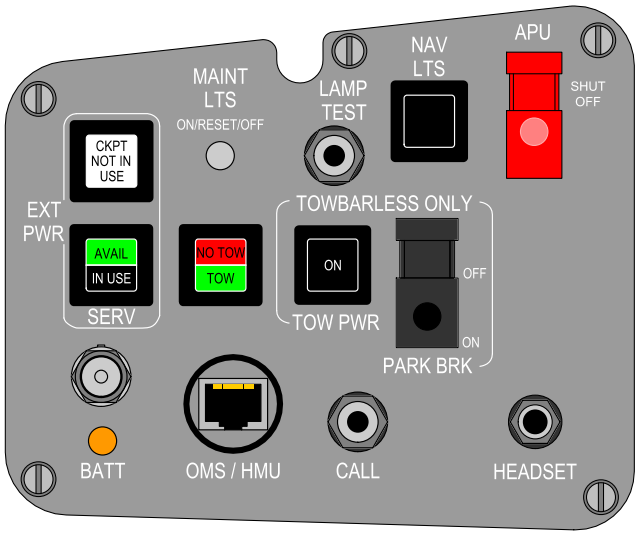
ICN-BD500-A-J244100-A-3AB48-25317-A-002-01

Figure 2 External AC power source - Energize electrical network - (Sheet 1 of 2)

(Sheet) Applicability: 50018-50019, 50030, 50032-54999, 55017, 55053-59999 and 50010-50017, 50020-50029, 50031, 55003-55016, 55018-55052 POST BD500-240006



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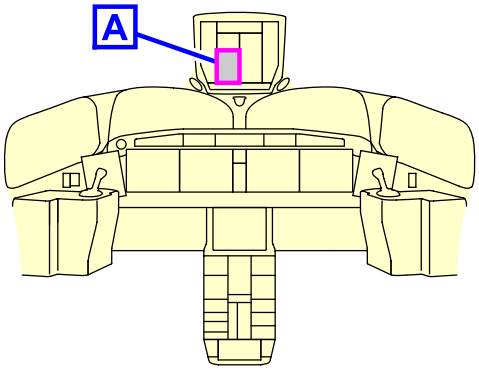


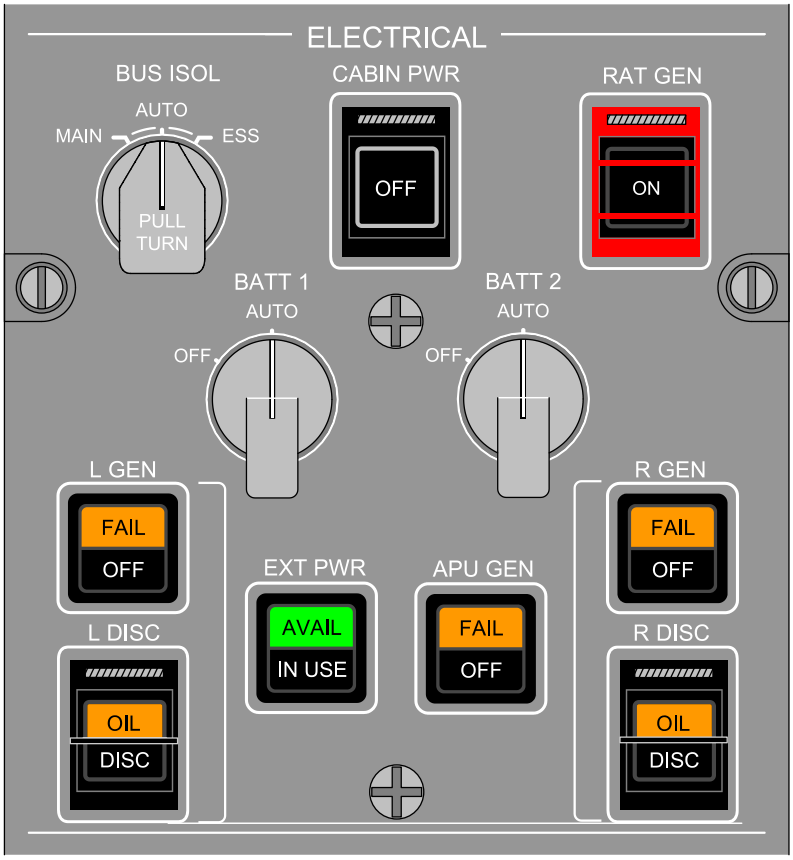
ELECTRICAL/TOWING SERVICE PANEL

B

ICN-BD500-A-J244100-A-3AB48-58243-A-002-01

Figure 2 External AC power source - Energize electrical network - (Sheet 2 of 2)



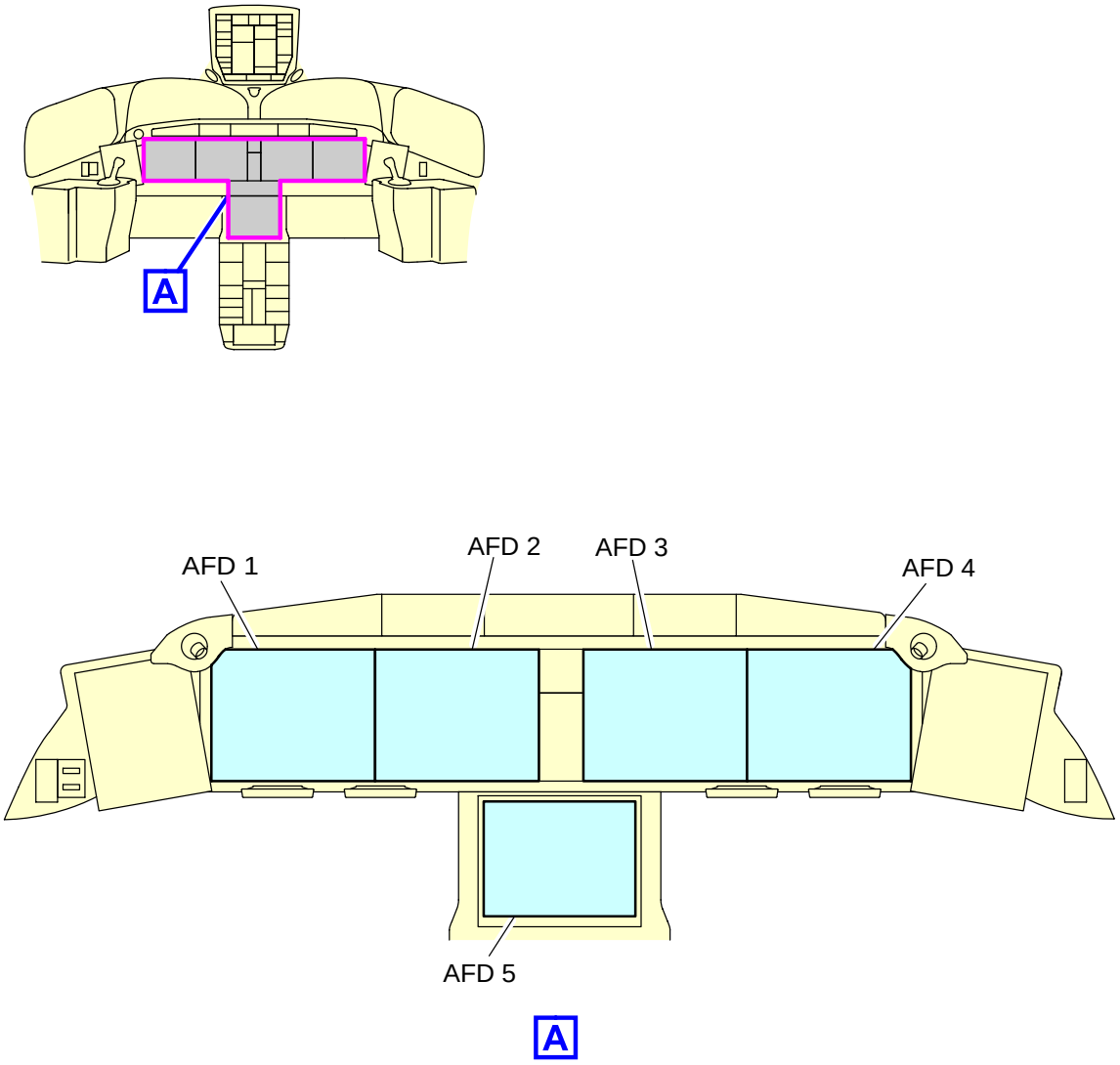


ELECTRICAL CONTROL PANEL

A

ICN-BD500-A-J240000-C-3AB48-29154-A-001-01

Figure 3 External AC power source - Energize electrical network



ICN-BD500-A-J244100-A-3AB48-25318-A-001-01

Figure 4 External AC power source - Energize electrical network

Requirements after job completion

Required conditions

Table 6 Required conditions

Action/Condition	Data Module/Technical publication
Remove all the tools, equipment, and unwanted materials from the work area. Make sure that the access door is closed. Refer to the access points table above for detail.	

This publication has been superseded by the Aircraft Characteristics Publication (ACP).