Aircraft Recovery Manual

Note: For the list of A/C effectivity supported by this manual, refer to the Aircraft Maintenance Manual (AMM).

BOMBARDIER
GLOBAL

Publication No. BD-700 ARM

GLOBAL SERIES
AIRCRAFT RECOVERY MANUAL

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INTRODUCTION

1. Scope of the Manual

A. The Aircraft Recovery Manual, prepared by Bombardier Aerospace to help Airport Authority, FBO, and/or aircraft recovery crews if an accident occurs with a Global Series aircraft. Because there are many Completion Centers that do different passenger compartment layout, it is not possible to give all different passenger compartment layouts, in this manual.

B. Global Series aircraft referred to in this manual, include:

- Global Express
- Global 5000
- Gobal 5000 featuring Global Vision Flight Deck (GVFD)
- Global Express XRS
- Global 6000

C. No aircraft recovery operation will be the same as other recovery operations because:

- The accident or the incident itself
- The location of the aircraft
- The amount of aid that is available locally
- The weather conditions when the accident/incident occurred. Also, the effects of the weather before and during the recovery operation
- The number of persons that are available to help with the recovery.

2. Manual Organization

A. There are six sections in this manual:

- Section 1 – INTRODUCTION
- Section 2 – AIRCRAFT RECOVERY
- Section 3 – AIRCRAFT – GENERAL
- Section 4 – EMERGENCY INFORMATION
- Section 5 – FIRE FIGHTING
- Section 6 – GROUND SAFETY

3. Correspondence

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Local and International: 514–855–2999
North America only: 1–866–JET–1247 (1–866–538–1247) Toll Free
Attention: Air Safety Investigation, Department 686–5

4. Statement of Liability

A. This manual is intended to be used by Aircraft Crash Recovery crews involved in the recovery of any Bombardier Global Series aircraft which becomes involved in an accident or incident. It is also intended to help those persons planning for the unlikely event that will require recovery actions. The actions described in this manual are intended as recommendations only, as to how aircraft recovery tasks should be carried out. Any omission of a task or an action, or any omission to a task or action, shall not be interpreted as an admission of liability by Bombardier Inc., or any of its sub–groups of affiliates or related entities.

5. Technical Glossary

Refer to Table 1. for a technical glossary of aircraft terminology and abbreviations.

Table 1 – TECHNICAL GLOSSARY

Abbreviation		Terminology
A/C	–	Aircraft
ac	–	Alternating Current
AFFF	–	Aqueous Fire Fighting Foam
APU	–	Auxiliary Power Unit
AUX	–	Auxiliary
CBR	–	California Bearing Ratio
dc	–	Direct Current
DISCH	–	Discharge
ELECT PWR	–	Electrical Power
ENG	–	Engine
EQP	–	Equipment Bay
FBO	–	Fixed Base Operator

Table 1 – TECHNICAL GLOSSARY

Abbreviation		Terminology
FS	–	Fuselage Station
FT/SEC	–	Feet per Second
GVFD	–	Global Vision Flight Deck
IATP	–	International Air Technical Pool
ICAO	–	International Civil Aviation Organization
IIC	–	Investigator–in–Charge
LWR FUS	–	Lower Fuselage
MPH	–	Miles Per Hour
RAT	–	Ram Air Turbine
T/E	–	Trailing Edge
TYP	–	Typical
VFG	–	Variable Frequency Generator

6. Dimensions

A. Linear dimensions given in this manual are in inches. The metric equivalents are given in parentheses ( ).

BD–700 AIRCRAFT RECOVERY MANUAL

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AIRCRAFT RECOVERY

1. Quick Reference Guide

A. The leader of the recovery operation can use the Quick Reference Guide that follows as a checklist for the recovery team to refer to.

(1) Do the weight and balance.

(a) Find the weight and balance of the aircraft to make an estimate of the limits to jack and tow it.

(b) Record the quantity and location of cargo and fuel to calculate the weight and balance.

NOTE: You may have to calculate the weight and balance more than one time during the recovery operations.

(2) Get initial data about the incident.

(a) Set up interface with the Investigator–in–Charge (IIC), local authorities, the aircraft manufacturer's (Bombardier) representative, and the owner's agent or representative.

(b) Tell the recovery crew surveyor to make a full estimate of the site as quickly as possible. The type of accident site can have an effect on the aircraft removal.

(c) Make a note of the slope of the terrain, the ground cover (e.g. trees, grass, rock), and the distance from the runways, taxiways, and aprons.

(d) Make an analysis of the ground condition to calculate the bearing area necessary to lift and move the aircraft.

(e) Choose suitable personnel (as well as the recovery crew members) and make an estimate of the necessary equipment, and related manuals.

(f) Get accommodations, transportation, work visas (when necessary), and money for the recovery team.

NOTE: The IIC must be at the site before this occurs.

(g) At the site, speak to local airport authorities, regulatory authorities, and national investigating authorities.

Get data on the items that follow:

– Local environment
– Climate
– Terrain structure

– Communications.

– Local regulations for the defueling of the aircraft.

(3) Set Up Interfaces

(a) Make a detailed aircraft recovery plan (use a general recovery plan).

(b) Get permission from local and national authorities to continue with the recovery operation. It is necessary for the different authorities to find the cause(s) of an aircraft accident. You must know and follow the regulatory authorities' regulations, and the laws of the country in which the accident occurs.

(c) Move personnel and equipment to the recovery site.

(d) Prepare hangar and/or parking space for the aircraft. Refer to ARM section 3 para 6 for aircraft dimensions.

(e) Make sure that cranes are locally available. Also, make sure that other heavy equipment, building materials and access roads are available. Some operators are member of an organization that share their technical facilities, services and recovery equipment (recovery kits). The International Air Technical Pool (IATP) is the organization that manages the recovery pool arrangement.

(f) If components are removed from the aircraft for recovery purpose, the center of gravity weight and ballance location must be re–calculated befor the aircraft is moved.

(g) If possible, remove all health risk payload (fuel, oils, dangerous materials, catering, oxygen, squibs, galley and lavatory disposal and water) from the aircraft.

NOTE: Follow the applicable local regulations concerning defueling.

(h) If possible, remove the baggage, cargo and flyaway kit.

(i) If required, remove primary components as necessary.

(j) Refer to ARM Section 6 – GROUND SAFETY for data on the installation of the ground lockpins. These lockpins are used, where possible, to safety the RAT and the landing gear for operations on the ground.

(k) Prepare to tether, lift, and move the aircraft.

(l) Complete the aircraft damage report when the aircraft recovery is completed. The damage report is made by the Bombardier investigating team, or a Technical Support/Engineering team that is specially assembled for the task.

2. Planning for Aircraft Recovery

A. General

CAUTION: THE SPECIAL PROBLEMS THAT ARE RELATED TO AN AIRCRAFT RECOVERY OPERATION MAKE IT NECESSARY FOR ONE APPROVED PERSON TO DIRECT ALL OF THE OPERATION.

(1) Refer to the International Civil Aviation Organization (ICAO) document No. 9137–AN/898, Airport Services Manual; Part 5, "Removal Of Disabled Aircraft" as an aid for aircraft recovery.

(2) The document gives the procedures to use for the recovery and/or removal of a disabled aircraft. Some advanced procedures that are necessary are as follows:

(a) When you have to move an aircraft that cannot taxi or be towed with an approved towbar or towing bridle, use other recovery procedures. The aircraft may be lifted with pneumatic bags or cranes and move on a trailer or dollies.

(b) Advance planning is important to make sure that the equipment and persons with the skills to do a recovery operation are available when necessary.

(c) Prepare a full "Aircraft Recovery Plan" which may be started as soon as an accident occurs and at the request of the IIC.

(d) Make sure to have the necessary emergency procedures. Give to the applicable personnel, the tasks they are responsible for.

(e) Tell all major users of the airport about the airport management's policies that apply to the removal of disabled aircraft. Include applicable parts of this document in the airport procedure.

NOTE: We recommend that a copy of this document be in the airport's "Aircraft Recovery Plan".

B. Aircraft Recovery Plan.

(1) The Aircraft Recovery Plan includes:

(a) Guidelines for the fast removal of a disabled aircraft from airport operational areas as well as the time necessary to prevent secondary damage to the aircraft.

(b) Detailed grid maps for use during aircraft recovery operations. The maps must show the topography of the airport site, approaches and adjacent areas. They must also show roads, ditches, gates, ground conditions and other factors that could have an effect on the aircraft recovery operations.

(c) Details about access roads to all parts of the airport that are near overhead power lines or bridges, specially those roads necessary for heavy equipment such as cranes.

(d) Bombardier's data on the types of its aircraft (Challenger, DeHavilland, Learjet and Global Series) that use the airport. For aircraft recovery, the important

data is in the weight and balance, lifting and moving, and weight reduction numbers.

(e) The type and location of heavy or special equipment and the time necessary for the equipment to get to the airport. Equipment to defuel aircraft must be available to move to all areas or locations. Because of the dimensions of the Global Series aircraft, cranes and slings can be used to lift the aircraft. Because of this, you can include the availability of cranes in the recovery plan.

NOTE: If not available, try to get aircraft recovery kits from other airports as quickly as possible.

The ICAO "Airport Services Manual," Part 5, gives a worldwide list of aircraft recovery kits.

(f) Sources of personnel with different skills, ranging from laborers to aircraft mechanics.

(g) The requirement for food, clothes, and shelter for the recovery crew.

(h) Flexible procedures for communications, security and safety for the recovery operations, that are correct for the site.

(i) An active inventory of locally salvage equipment that is available to the airport. The operator can get aircraft removal equipment and crews through contracts with airport owners, military airfields or aeronautical industries near the airport.

(j) Airport rules must make sure of the items that follow:

1 The airport owner’s right to close all or part of the airport as necessary.

2 The limits of liability and penalties for violations.

NOTE: Agreements from the IIC or the senior official of the investigation team, for the airport owner to move a disabled aircraft.

(k) Contracts/agreements between aircraft operators and fixed base operators must give each of them the capacity to move the types of aircraft they use or those on which they do servicing. The movement must include minimum risk of damage to the aircraft and to the airport. The contracts/agreements can be with a single operator, a cooperative procedure with the airport authorities or a joint procedure by more than one operator at the applicable airport. We recommend that operators put their removal equipment together because of:

1 The logistical and time saving advantages of recovery kits that they own together.

2 The economic advantages to single operators (they can buy fewer kits).

3 The improvements that come with more equipment because a larger number of operators are together.

(l) The contracts/agreements must record the fixed base operator's procedures and capacity to do non–routine aircraft repairs on runways.

(m) Procedures and agreements for airports used jointly by civil and military aviation.

(n) Analysis of data on recovery equipment, it shows that the type of recovery equipment used does not affect the actual removal time.

(o) In the procedures for recovery equipment, look carefully at the items that follow:

1 The full system to lift and to move the aircraft.

2 The mixture of recovery system components and the support equipment necessary to move dangerous materials. Also, other equipment such as cranes, dollies, and flatbed trucks.

NOTE: To move the Global Series aircraft, we recommend a tractor/trailer with a bed of equally low height. This will decrease the height the recovery team must lift a damaged aircraft.

3 If winch equipped heavy equipment (bulldozer etc) are available (because of the frequent use of this type of equipment).

3. Moving the Aircraft

A. General

(1) The primary reason to move the aircraft is its recovery as quickly as possible without further or secondary damage. An up–to–date recovery plan is the best procedure to decrease recovery time. Procedures for the recovery, as well as a group of trained personnel must be components of the procedure.

(2) A correct estimate of the damage to the aircraft is very important. This will help to find, in the shortest time, the procedure to do the recovery operation.

B. Steps and Recommendations for an Efficient Aircraft Recovery

(1) Before you start a recovery operation, make sure of the correct safety precautions:

(a) Remove the aircraft batteries as quickly as possible. If it is not possible to remove the batteries, disconnect and insulate the battery connectors. Refer to Figure 1 for batteries locations.

(b) Close oxygen bottle valve.

(c) If necessary, defuel the damaged aircraft to increase the speed of the recovery operation.

NOTE: Follow the applicable local regulations concerning defueling.

(2) Examine how the accident occurred. This will help to make an estimate of the damage that occurred to the aircraft.

(3) After a check of the obvious damage, examine the structural condition of the aircraft.

(4) Look for possible damage to other areas of the aircraft. The following are indications of damage:

(a) Bulges in the wing or fuselage skin panels, at structural joints, or heavy fittings, are indications of internal damage.

(b) Rivets, bolts, or fasteners of all types that tilt, are cut or loose, are also indications of damage.

(c) Torn, cracked or buckled fairings and other non–structural parts are causes for close inspection of the structure below them. Think that damage to the structure below these parts is possible until a close inspection shows differently.

NOTE: A close inspection may not be possible if the aircraft is wheels–up.

(5) Make a list of missing or unserviceable items as you make an estimate of the damage.

WARNING: FIND OUT IF THE STRUCTURE OF A DAMAGED AIRCRAFT CAN HOLD ITS WEIGHT BEFORE YOU LOWER IT ON THE LANDING GEAR FROM TRESTLES OR JACKS. YOU CAN CAUSE INJURY TO PERSONS OR MORE DAMAGE TO THE STRUCTURE.

(6) Do an inspection of the aircraft structure before it comes off the trestles or jacks to see if it is sufficiently strong to tow the aircraft on its landing gear. Lower the landing gear only if:

(a) The IIC agrees.

(b) It is safe.

(c) No more damage will occur.

CAUTION: DO NOT REMOVE FUEL, CARGO, OR THE ENGINES IF THEY KEEP THE AIRCRAFT'S CENTER OF GRAVITY. THIS WILL PREVENT AN OVERLOAD AT THE JACKING POINT.

(7) The maximum weight of the aircraft on jacks are as follows:

NOTE: These weights are for a undamaged aircraft. The damage caused by an accident may cause lower maximum permitted loads at the jacking points. Refer to Figure 2 for jacking point locations. It can be better to put the aircraft on trestles (assembled on–site) if there is structural damage.

(a) The maximum permitted weight of the aircraft on jacks is 70 000 lb

(31 751.5 kg).

(b) The maximum vertical jack loads for each location are as locations:

– 7 400 lb (3 356.58 kg) on the forward (nose) jacking point.

– 33 100 lb (15 013.9 kg) on each wing jacking point.

(8) If required remove the baggage and cargo from the aircraft. The baggage compartment door opens in and up.

On Global Express, Global Express XRS and Global 6000 A/C

(9) Examine the damage to the fuel system to find the best procedure to defuel the aircraft. The single–point refuel/defuel adaptor, fuel lines and tanks can have damage. Refer to Figure 3.

On Global 5000 and Global 5000 Featuring GVFD A/C

(10) Examine the damage to the fuel system to find the best procedure to defuel the aircraft. The single–point refuel/defuel adaptor, fuel lines and tanks can have damage. Refer to Figure 4.

(11) Alternative procedures to defuel the aircraft are as follows:

NOTE: Follow the applicable local regulations concerning defueling.

(a) Suction defueling procedure.

1. The suction will break when one of the inlet points becomes open. This procedure is slow and can mean that the fuel tank is not fully drained.

(b) Gravity defueling procedure.

WARNING: MAKE SURE THAT THE FUEL LEVEL IN THE TANK IS BELOW THE OPENING OF THE GRAVITY FUELING ADAPTER. IF IT IS NOT, FUEL WILL SPILL OUT OF THE TANK. THIS CAN CAUSE INJURY TO PERSONS.

1. Fuel will come out from the tank(s) if the level in the tank is higher than the gravity fuel adaptor. To prevent this, make sure the fuel level in the tank is below the gravity fueling adaptor opening.
2. If available, use a gravity defueling adaptor to drain fuel from the underwing fuel drains into approved containers. Defuel the aft fuel tank at the same time as the main fuel tanks. Use the suction procedure at the single point refuel/defuel position. Use a suction hose in the overwing and center tank gravity fueling adapter to remove the fuel if it is not possible to remove it through the pressure refuel/defuel adaptor.
3. The quantity of fuel in the tank and the attitude of the aircraft will control the amount of fuel you can remove.

WARNING: BEFORE YOU REMOVE THE ENGINE, MAKE SURE THAT THE AIRCRAFT IS STABLE. IF IT IS NOT STABLE, THE AIRCRAFT CAN FALL AND CAUSE INJURY TO PERSONS AND DAMAGE TO THE AIRCRAFT.

(12) If the engines have to be removed to keep the weight and balance, make sure the aircraft is level before the release of the load on the yokes. The aircraft must also be stable to prevent movement because of an imbalance when an engine is removed.

On Global Express A/C

(13) In recovery operations, there are two basic situations that will occur:

- You can tow the aircraft on its landing gear
- You must lift the aircraft on to a transport.

(a) If the landing gear stays serviceable after the aircraft has run off the runway or taxiway, it may be possible to tow it by the main landing gear. Refer to Figure 10.

(b) If the landing gear has flat tire(s), there are some tow limits. For towing restriction with flat tire. Refer to Figure 5.

(c) Make an estimate of the ground's load–bearing capacity and the slope of the terrain in the recovery area. Make the path to tow the aircraft as smooth as possible if it does not have concrete or asphalt. For landing gear measurements and tire pressures, Refer to Figure 6.

CAUTION: INFLATE THE FORWARD AND AFT LIFTING BAGS SUFFICIENTLY TO KEEP THE AIRCRAFT STABLE. PUT THE BAGS IN AREAS OF SUFFICIENT STRENGTH TO PREVENT MORE DAMAGE TO THE AIRCRAFT.

(d) If the landing gear is unserviceable, use pneumatic lifting bags or cranes and slings to lift the aircraft. Then put it on dollies or on a flatbed trailer.

On Global Express XRS and Global 6000 A/C

(14) In recovery operations, there are two basic situations that will occur:

- You can tow the aircraft on its landing gear
- You must lift the aircraft on to a transport.

(a) If the landing gear stays serviceable after the aircraft has run off the runway or taxiway, it may be possible to tow it by the main landing gear. Refer to Figure 10.

(b) If the landing gear has flat tire(s), there are some tow limits. For towing restriction with flat tire Refer to Figure 5.

(c) Make an estimate of the ground's load–bearing capacity and the slope of the terrain in the recovery area. Make the path to tow the aircraft as smooth as

possible if it does not have concrete or asphalt. For landing gear measurements and tire pressures, Refer to Figure 6.

CAUTION: INFLATE THE FORWARD AND AFT LIFTING BAGS SUFFICIENTLY TO KEEP THE AIRCRAFT STABLE. PUT THE BAGS IN AREAS OF SUFFICIENT STRENGTH TO PREVENT MORE DAMAGE TO THE AIRCRAFT.

(d) If the landing gear is unserviceable, use pneumatic lifting bags or cranes and slings to lift the aircraft. Then put it on dollies or on a flatbed trailer.

On Global 5000 and Global 5000 Featuring GVFD A/C

(15) In recovery operations, there are two basic situations that will occur:

– You can tow the aircraft on its landing gear

– You must lift the aircraft on to a transport.

(a) If the landing gear stays serviceable after the aircraft has run off the runway or taxiway, it may be possible to tow it by the main landing gear. Refer to Figure 10.

(b) If the landing gear has flat tire(s), there are some tow limits. Refer to Figure 5 for towing restriction with flat tire.

(c) Make an estimate of the ground's load–bearing capacity and the slope of the terrain in the recovery area. Make the path to tow the aircraft as smooth as possible if it does not have concrete or asphalt. For landing gear measurements and tire pressures Refer to Figure 7.

CAUTION: INFLATE THE FORWARD AND AFT LIFTING BAGS SUFFICIENTLY TO KEEP THE AIRCRAFT STABLE. PUT THE BAGS IN AREAS OF SUFFICIENT STRENGTH TO PREVENT MORE DAMAGE TO THE AIRCRAFT.

(d) If the landing gear is unserviceable, use pneumatic lifting bags or cranes and slings to lift the aircraft. Then put it on dollies or on a flatbed trailer.

(16) Lift an aircraft that is on its fuselage with lifting bags as follow:

(a) Put the pneumatic bags below each wing, the forward fuselage and the aft fuselage.

(b) Refer to Figure 8 for the restriction on lifting with the pneumatic bags and their recommended position.

(c) Keep the aircraft stable with cables while you lift it, or while the aircraft is on the pneumatic bags.

(d) Inflate the pneumatic bags sufficiently to allow the installation of trestles or jacks at the nose, wings and the rear fuselage support.

(e) Put the cables at the nose jack point and the rear mooring points.

(17) Use a nose jack and normal jacking procedures to lift a nose–down aircraft around the MLG axis.

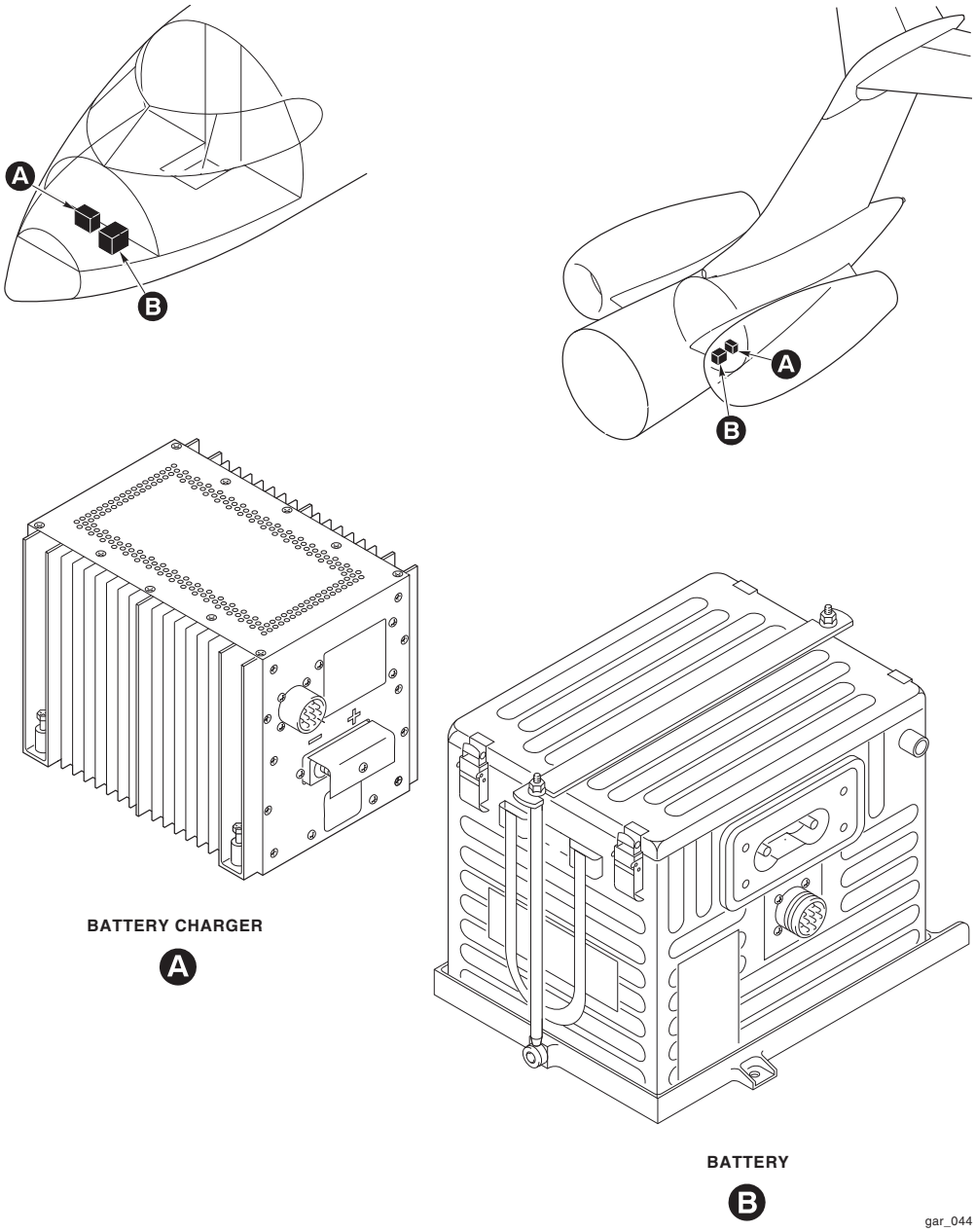
(18) When you use cranes and slings to lift the aircraft, you must make an estimate of the damage to the structure. This will help to find how much damage has occurred and the location of strong frames to transmit the sling loads. Because each aircraft recovery operation is different, Bombardier cannot recommend special sling locations. Generally, use the nose jacking point (FS278.00), the passenger door aft frame and the forward engine mounts to lift the aircraft. These are the strongest frames locations. Refer to Figure 9.

(19) Lift the aircraft only in periods of very light or no winds. Because of the large areas of wing, empennage and fuselage, small gusts of wind can cause large pendulum movements.

(20) Make the aircraft stable during the lift. To help control its movements during the lift, attach ropes to available strong points, such as the landing gear. If the engines are removed, attach ropes to the forward engine mounts. During the lift, first level the aircraft then lift it sufficiently high to put it on jacks or a flatbed trailer.

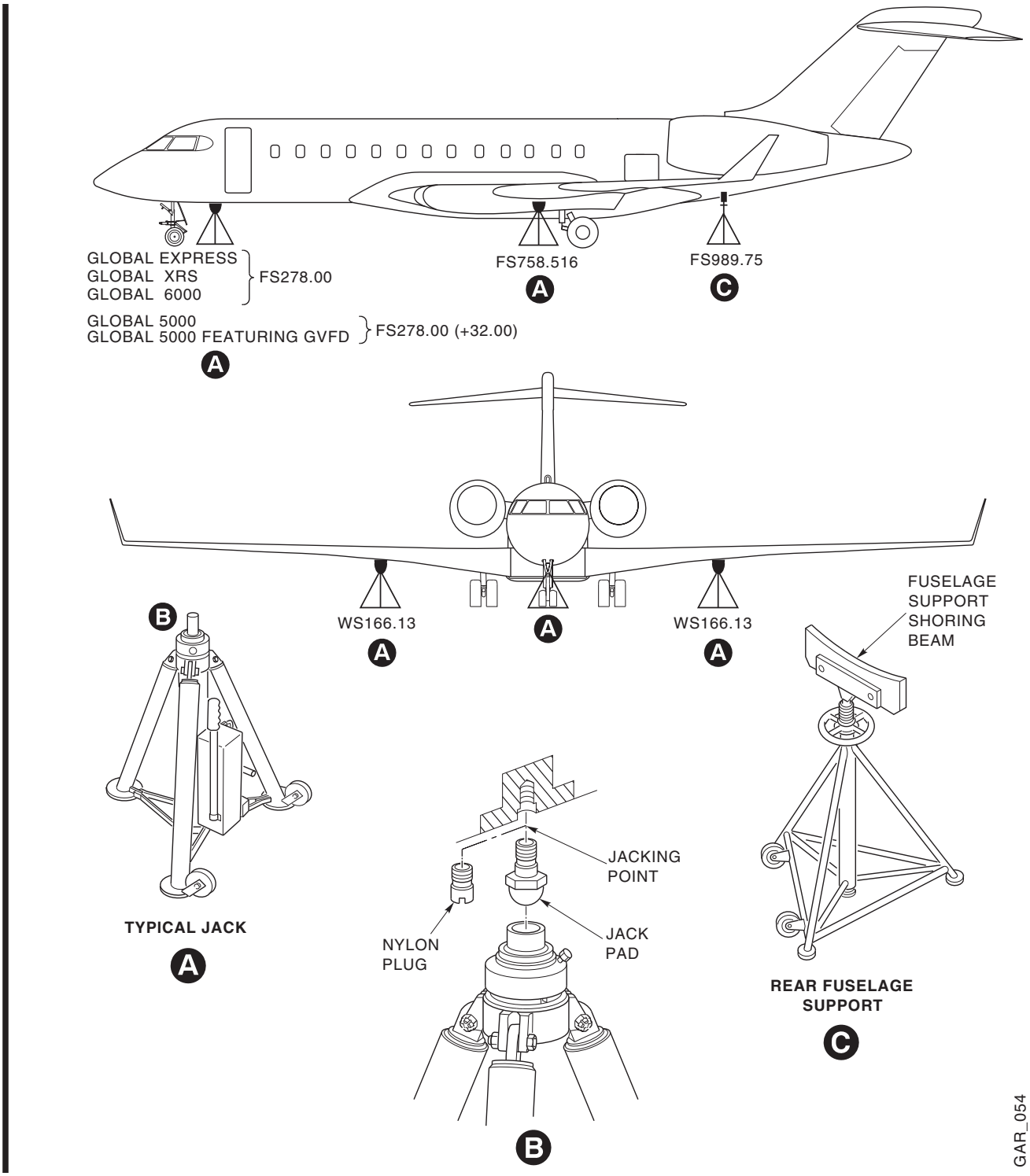
(21) If the aircraft cannot move on its landing gear, move it on a flatbed trailer. Refer to Figure 9.

(22) Cranes and slings can be faster and easier to use in the recovery of the Global Series aircraft.

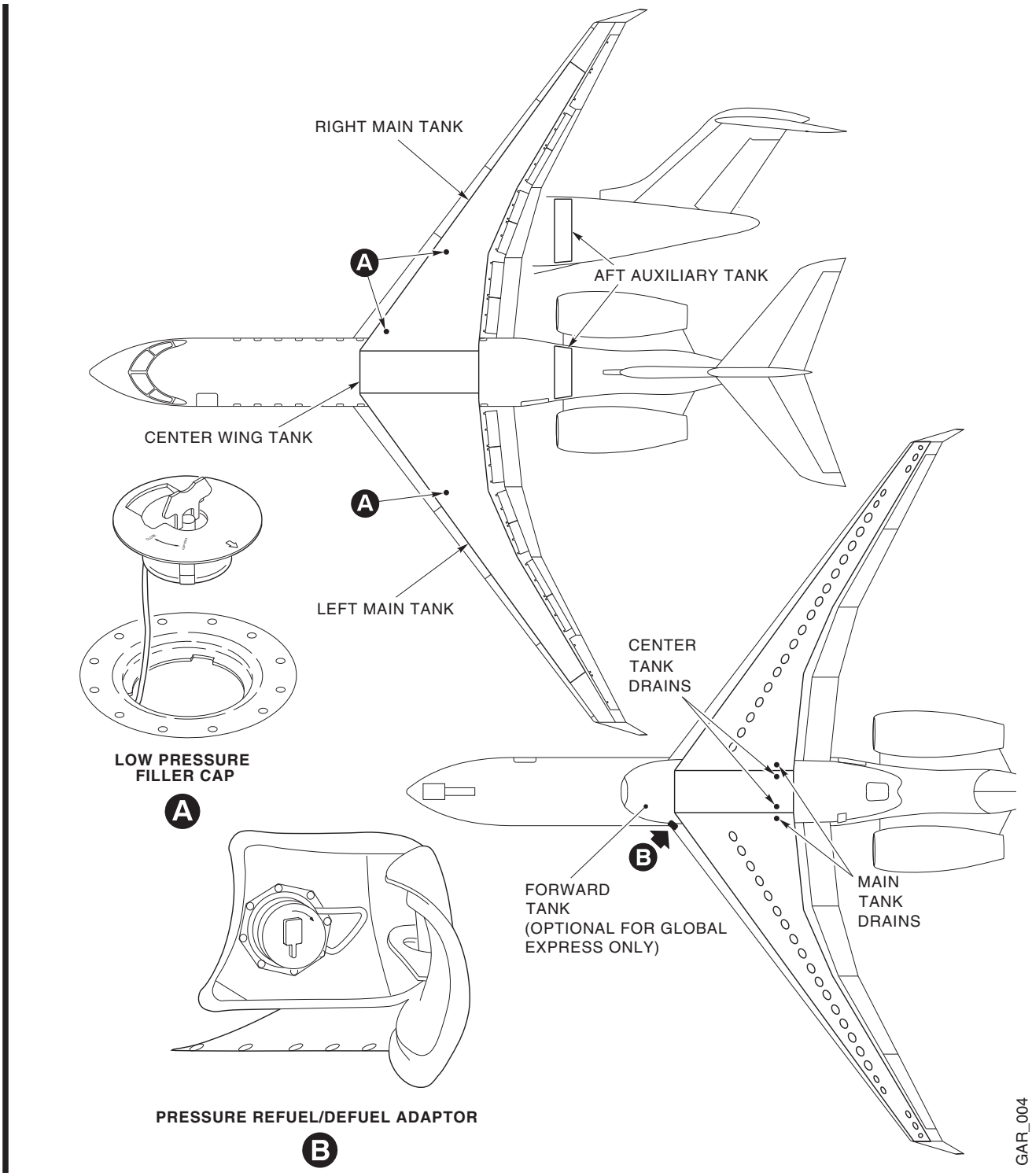


Aircraft Batteries and Static Ground Connections
Figure 1

EFFECTIVITY: ALL

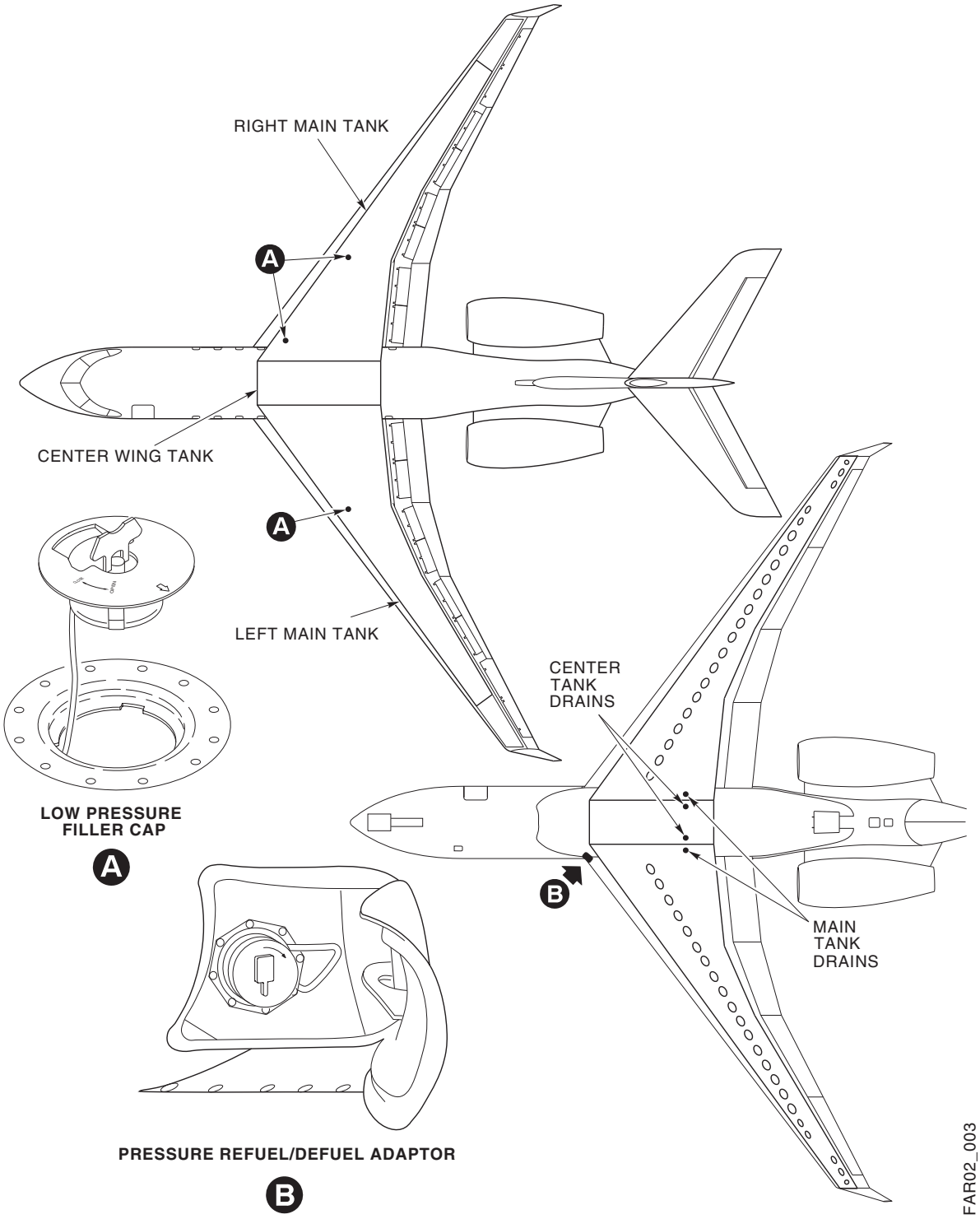


Structural Jack Points and Adapters
Figure 2



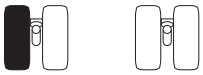
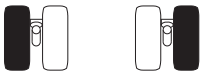
Global Express, Global XRS and Global 6000 – Aircraft Defueling
Figure 3

EFFECTIVITY: ALL



Global 5000 and Global 5000 Featuring GVFD – Aircraft Defueling
Figure 4

EFFECTIVITY: ALL

ITEM NO.	MAIN GEAR CONDITION	TIRE FOOTPRINT EXAMPLES	PERMITTED TO TAXI?	PERMITTED TO TOW?	DISTANCE PERMITTED TO TAXI AND TOW	NOSE WHEEL ANGLE OF TURN	REMARKS
1	ONLY ONE FLAT TIRE (ANY TIRE)		YES	YES	UNLIMITED	TBD	SEE NOTES 1, 2, 5
2	TWO FLAT TIRES (ONE ON EACH AXLE)		YES	YES	UNLIMITED	TBD	SEE NOTES 1, 3, 4, 5
3	TWO FLAT TIRES (ON ONE AXLE)		YES	YES BOTH MAIN GEAR ONLY (BRIDLE)	MINIMUM TO CLEAR RUN–WAY	TBD	SEE NOTES 1, 3, 4, 5, 6
4	THREE FLAT TIRES (ANY COMBINATION)		YES	YES BOTH MAIN GEAR ONLY (BRIDLE)	MINIMUM TO CLEAR RUN–WAY	TBD	SEE NOTES 1, 3, 4, 5, 6
5	FOUR FLAT TIRES		YES	YES BOTH MAIN GEAR ONLY (BRIDLE)	MINIMUM TO CLEAR RUN–WAY	TBD	SEE NOTES 1, 3, 4, 5, 6
NOSE GEAR CONDITION							
6	ONE FLAT TIRE		YES	YES	TBD	TBD	TBD
7	TWO FLAT TIRES		YES	YES BOTH MAIN GEAR ONLY (BRIDLE)	MINIMUM TO CLEAR RUN–WAY	TBD	SEE NOTES 1, 2, 5, 6

CAUTION: To taxi or to tow with two flat tires on same gear can result in wheel damage

NOTES

1 Avoid sharp turns, abrupt starts and stops.

2 Maximum speed pemitted to taxi or to tow aircraft = 5 mph (8kmh).

3 Maximum to taxi or to tow speed = 2 mph (3kmh).

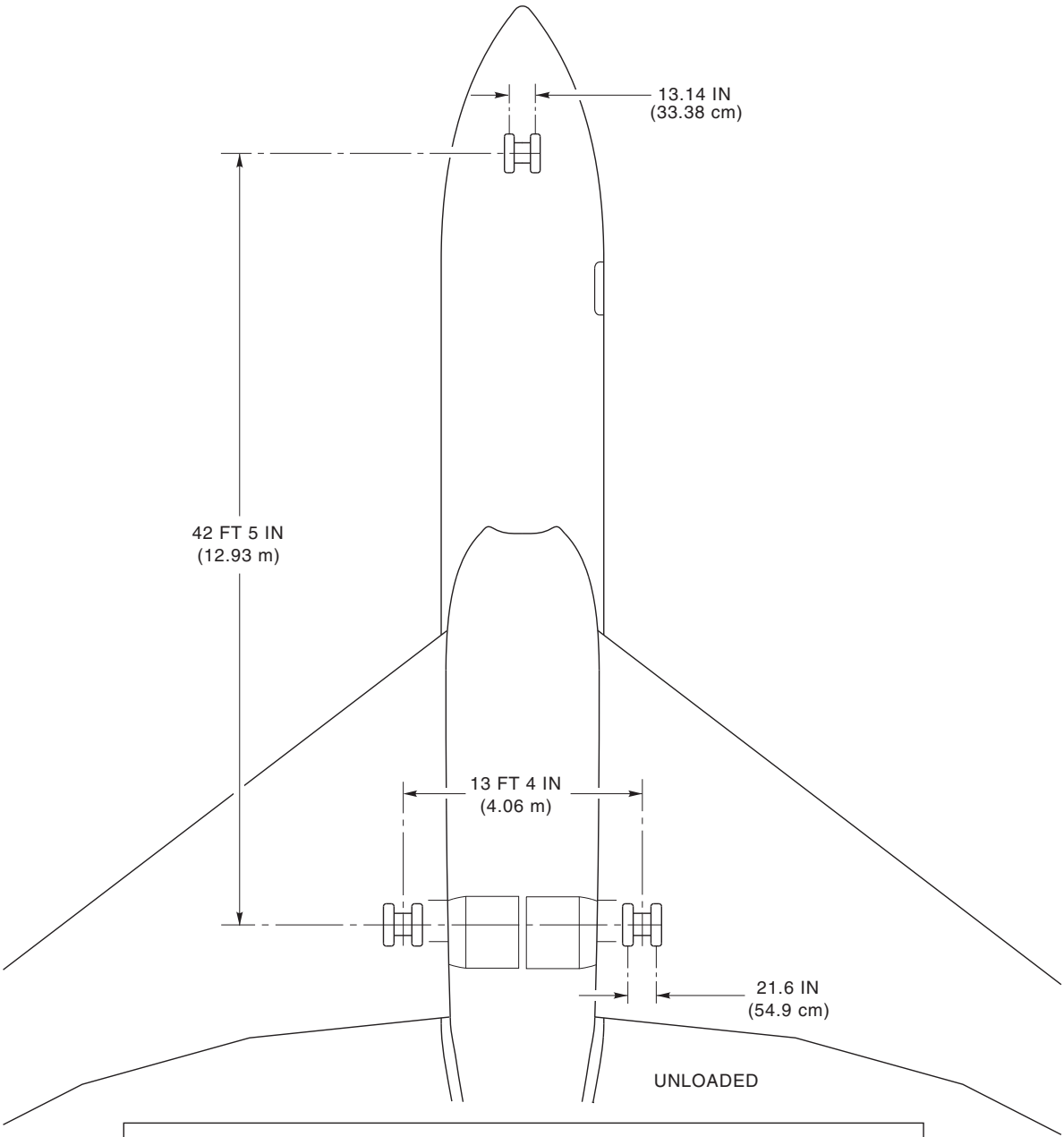
4 After you clear the runway, or if additional tire fails, the airplane should be stopped and serviceable wheel/tire assembly(ies) installed to obtain item number 2 or 6.

5 After any tire failure or excessive heat condition the affected wheel assembly must be inspected per applicable Goodyear Overhaul Manual prior to further use.

6 Under a multiple failed tire condition, the affected landing gear assemblies and linkages must be inspected for possible structural damage.

gar_005.dg

Towing/Taxiing with Flat Tires
Figure 5

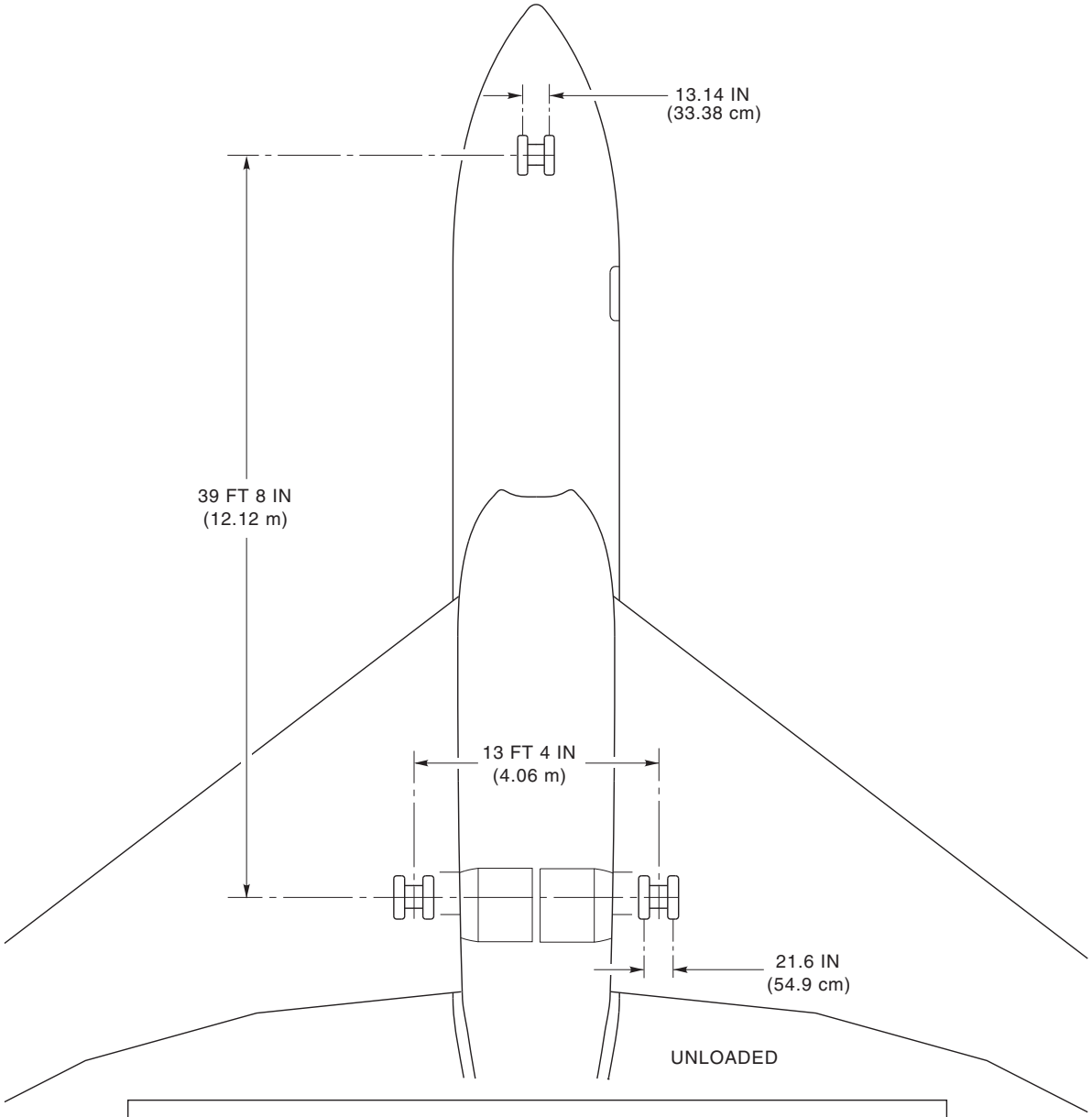


GLOBAL EXPRESS	
MAXIMUM RAMP WEIGHT	98 250 lbs (44 605 kg)
NOSE TIRE PRESSURE	150 – 155 PSI UNLOADED (1034 – 1069 kPa) 156 – 161 PSI LOADED (1076 – 1110 kPa)
MAIN GEAR TIRE PRESSURE	165 – 170 PSI UNLOADED (1138 – 1172 kPa) 172 – 177 PSI LOADED (1186 – 1220 kPa)

GAR_006

Global Express, Global XRS and Global 6000 – Landing Gear Measurements
Figure 6

EFFECTIVITY: ALL

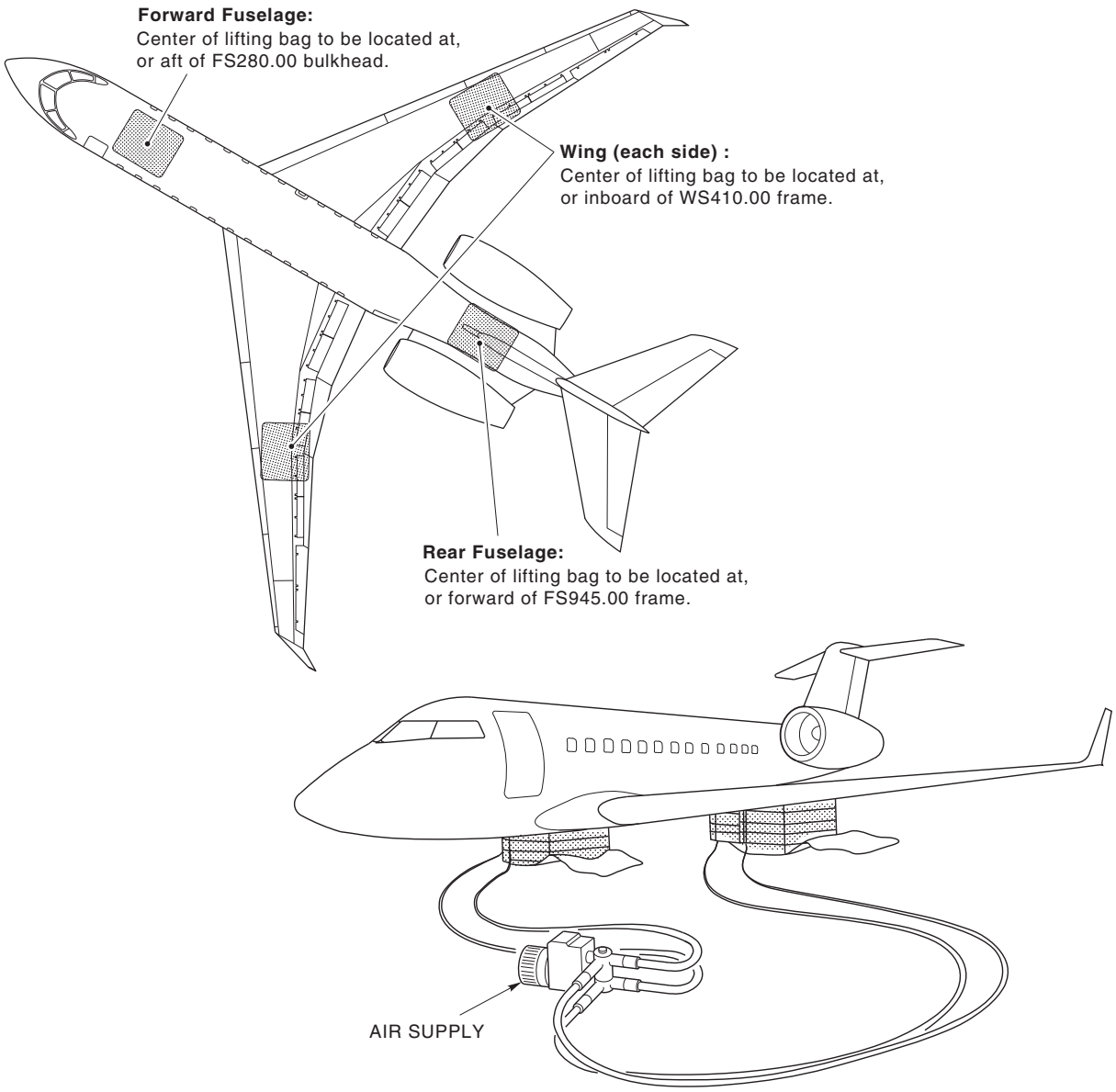


GLOBAL 5000	
MAXIMUM RAMP WEIGHT	87 950 lbs (39 894 kg)
NOSE TIRE PRESSURE	150 – 155 PSI UNLOADED (1034 – 1069 kPa) 156 – 161 PSI LOADED (1076 – 1110 kPa)
MAIN GEAR TIRE PRESSURE	165 – 170 PSI UNLOADED (1138 – 1172 kPa) 172 – 177 PSI LOADED (1186 – 1220 kPa)

FAR02_008

Global 5000 and Global 5000 Featuring GVFD – Landing Gear Measurements
Figure 7

EFFECTIVITY: ALL

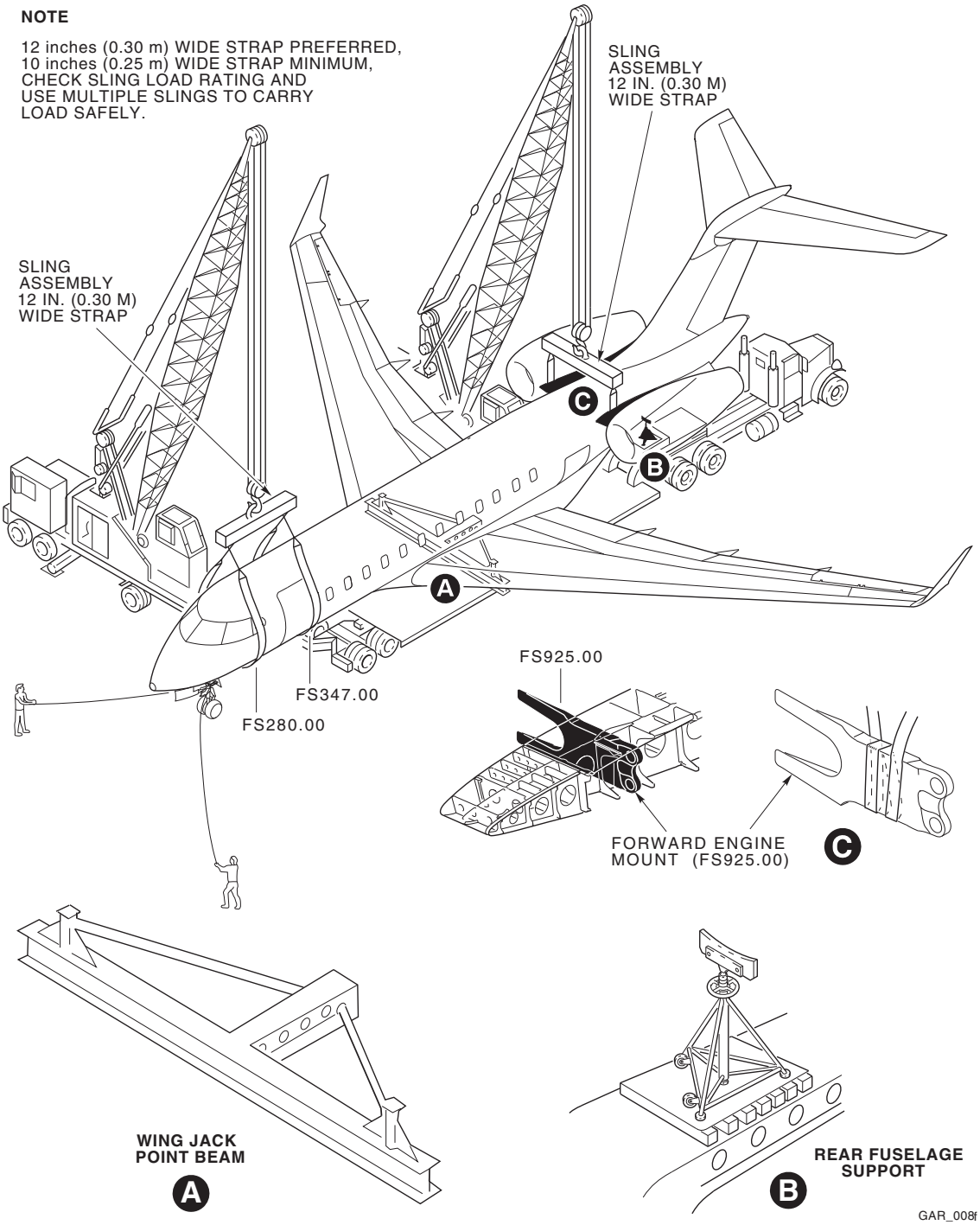


Restriction on lifting with Pneumatic Bags	
Allowable Lifting Pressure	Fuselage: 10.0 psi (69.0 kPa)
	Wing: 14.5 psi (100.0 kPa)
Allowable Lifting Loads	Forward Fuselage: 11 300 lb (5 126 kg)
	Rear Fuselage: 18 800 lb (8 528 kg)
	Wing (per side): 26 300 lb (11 929 kg)

GAR_007

Lifting with Pneumatic Bags
Figure 8

EFFECTIVITY: ALL



Aircraft Recovery with Cranes and Slings
Figure 9

EFFECTIVITY: ALL

4. Terrain Consideration

A. General

(1) Type of terrain, weather conditions and structural damage to the aircraft are factors to find the bearing area necessary to lift and move the aircraft. Get an experienced civil engineer or earthworks contractor to make an assessment of the terrain surface conditions, bearing loads and areas.

B. Factors to Find the Most Practical Recovery Plan

(1) Make an estimate of the general terrain to find the best routing to tow the aircraft. Structural damage to the aircraft can occur if it moves over terrain that is not smooth. If necessary, grade the proposed tow routing to give a smooth surface for the aircraft and tow vehicle(s).

(2) Make an estimate of how hard and smooth the surface is. Also, the possible effect of rainfall and drainage on the load–bearing capacity of the terrain. Find the safe bearing load and surface area of the terrain. The ground must have the same condition for a depth of 8 in (20.3 mm), because the force necessary to tow an aircraft changes as a function of the strength of the terrain.

(3) The type of terrain shows the applicable procedure to lift the aircraft:

(a) Use of jacks. Refer to Figure 2.

(b) Pneumatic bags. Refer to Figure 8.

(c) Mobile cranes and slings. Refer to Figure 9.

C. Ground Conditions

(1) Ground conditions are one of the primary factors in aircraft recovery operations. Ground conditions have an effect on decisions to tow the aircraft, put tethers in the ground, or set shoring (cribbing). From the results of ground tests, the recovery team makes decisions about reinforcement of the terrain and the shoring (cribbing) base.

(2) The California Bearing Ratio (CBR) is known as the standard for different ground conditions:

(a) For the ground conditions that are related to shoring the aircraft (Refer to Table 1).

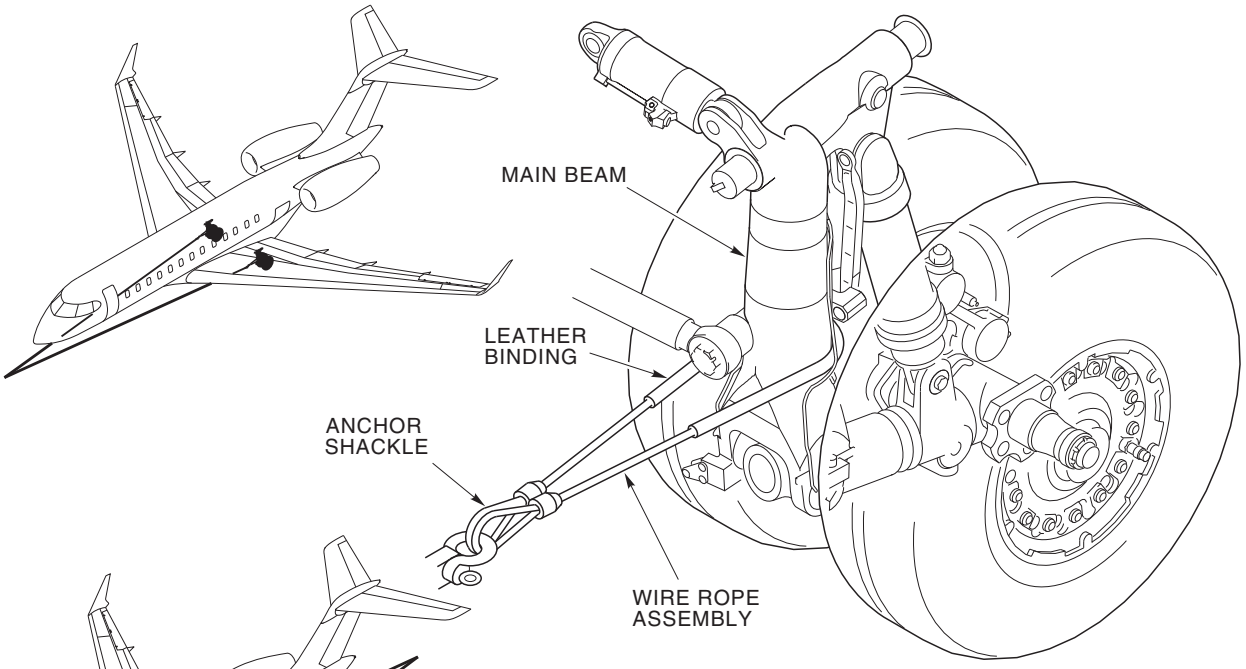
(b) For the related bearing strength of different ground conditions (Refer to Table 2).

(3) See Table 1 and Table 2.

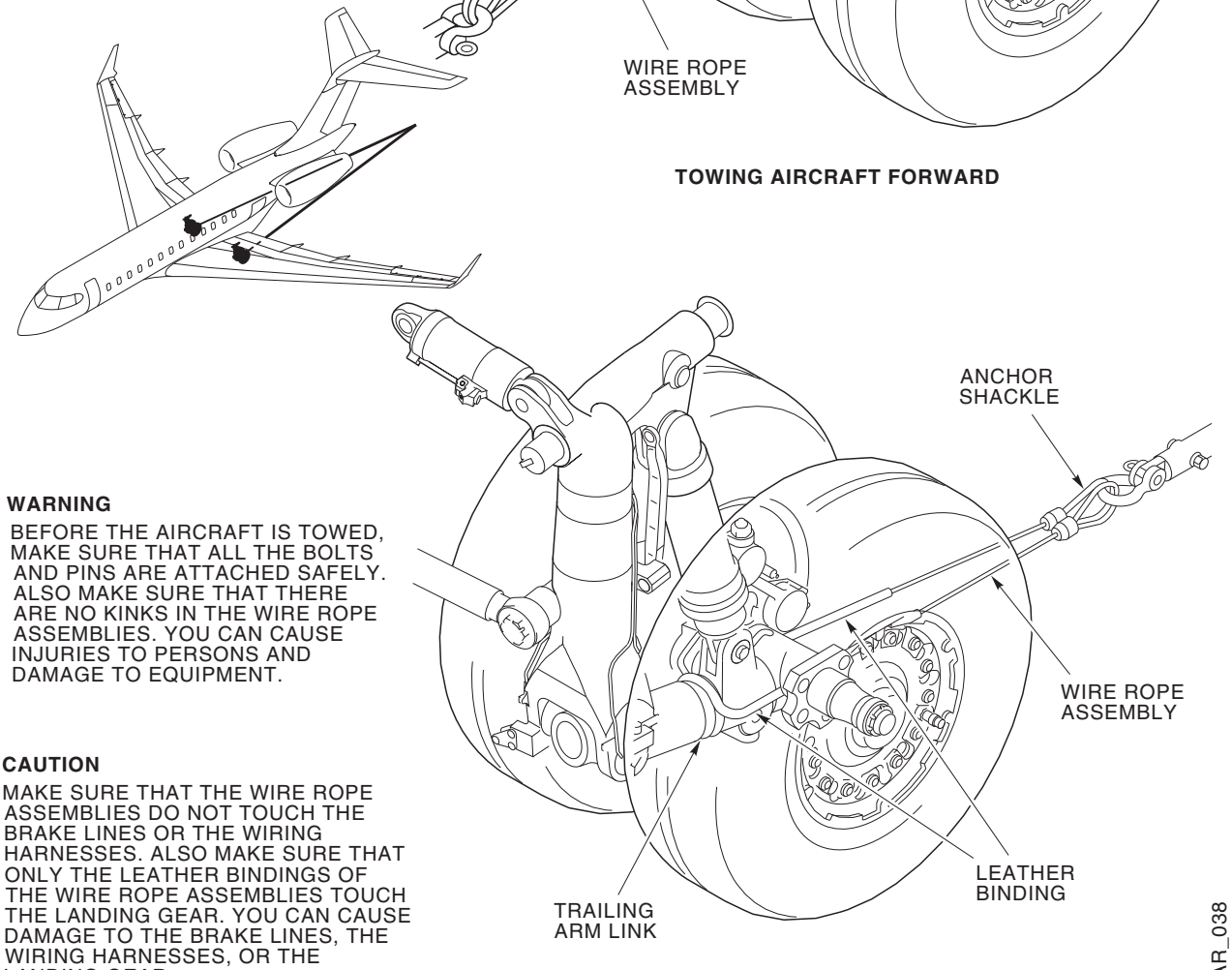
Table 1 – Ground Conditions To Shore the Aircraft

Surface Type	Shoring (Cribbing) Necessary For Loads That Roll				Shoring (Cribbing) Necessary For Loads To Jack			
	Max Allowable Contact Pressure		Minimum Contact Area Needed		Max Allowable Contact Pressure		Minimum Contact Area Needed	
	psi	kPa	Each 2000 lb/in²	Each 141. 61kg/ cm²	psi	kPa	Each 2000 lb/in²	Each 141. 61kg/ cm²
Soft Wet Clay or Wet Organic Terrain	18.0	124.0	111.0	7.8	8.0	55.0	2500.0	175. 77
Loose Sand or Sandy Terrain	65.0	448.0	31.0	2.18	35.0	241.0	571.0	4.15
Sand with Clay	100.0	690.0	20.0	1.41	50.0	345.0	400.0	28.12
Well Graded Sand and Medium Clay	180.0	1241.0	11.0	0.77	85.0	586.0	235.0	16.52
Sandy Gravel, Clay –Gravel or Dry Clay	300.0	2068.0	6.7	0.47	165.0	1138.0	121.0	8.51
Compacted Sandy Clay–Gravel	N/A	N/A	N/A	N/A	200.0	1379 .0	100.0	7.03

Table 2 – California Bearing Ratio (CBR) Soil Bearing Strength					
Surface Type	**Safe Bearing Load**		**Approximate Bearing Area Necessary**		
			10 000lb		**5 000kg**
	psi	**kPa**	**in²**	**ft²**	**m²**
Slate or Rock	230.0	1586.0	44.0	0.31	0.062
Concrete	156.0	1076.0	64.0	0.54	0.091
Hard Pan and Small Gravel or Sand	138.0	951.0	72.5	0.50	0.103
Small Gravel and Sand	100.0	689.0	100.0	0.69	0.142
Gravel, Course Sand or Medium Clay	62.0	427.0	161.0	1.12	0.229
Loose Sand and Gravel Mixture	42.0	290.0	238.0	1.65	0.34
Medium stiff Clay	35.0	241.0	286.0	1.98	0.407
Loose Sand	30.0	207.0	333.0	2.31	0.474
Soft Clay or Earth	15.5	107.0	645.0	4.48	0.917



TOWING AIRCRAFT FORWARD



TOWING AIRCRAFT REARWARD

WARNING

BEFORE THE AIRCRAFT IS TOWED, MAKE SURE THAT ALL THE BOLTS AND PINS ARE ATTACHED SAFELY. ALSO MAKE SURE THAT THERE ARE NO KINKS IN THE WIRE ROPE ASSEMBLIES. YOU CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION

MAKE SURE THAT THE WIRE ROPE ASSEMBLIES DO NOT TOUCH THE BRAKE LINES OR THE WIRING HARNESSES. ALSO MAKE SURE THAT ONLY THE LEATHER BINDINGS OF THE WIRE ROPE ASSEMBLIES TOUCH THE LANDING GEAR. YOU CAN CAUSE DAMAGE TO THE BRAKE LINES, THE WIRING HARNESSES, OR THE LANDING GEAR.

GAR_038

Towing by Main Landing Gear (MLG)
Figure 10

EFFECTIVITY: ALL

AIRCRAFT - GENERAL

1. Model Designation and Type

A. The Global Series aircraft is made by Bombardier Aerospace. The aircraft is an all–metal, pressurized low wing monoplane with a full cantilever, swept–back wing.

B. The aircraft has two BMW/Rolls Royce BR700–710A2–20 engines.

2. Aircraft Dimensions

On Global Express A/C

A. For the basic dimensions, including ground clearances. Refer to Figure 1.

On Global Express XRS and Global 6000 A/C

B. For the basic dimensions, including ground clearances. Refer to Figure 1.

On Global 5000 and Global 5000 Featuring GVFD A/C

C. For the basic dimensions, including ground clearances. Refer to Figure 2.

3. Danger Areas

A. Persons who do aircraft recovery operations must know of the danger areas around:

the engines Refer to Figure 3.

the APU Refer to Figure 4.

4. Doors

A. The aircraft has the doors that follow:

- Passenger/crew entrance door
- Baggage compartment door on the left side of the aircraft
- Aft equipment compartment door at the bottom of the rear fuselage
- Different small service and access doors
- Overwing emergency exit door located on the right side of the passenger compartment.

NOTE: The entrance stairs attach to the passenger/crew door.

5. Composite Materials

On Global Express A/C

A. Composite materials such as: Kevlar, Graphite, Fiberglass and hybrids are used in many components of the Global Express Aircraft. Refer to Figure 5 for the locations of the composite materials.

On Global Express XRS and Global 6000 A/C

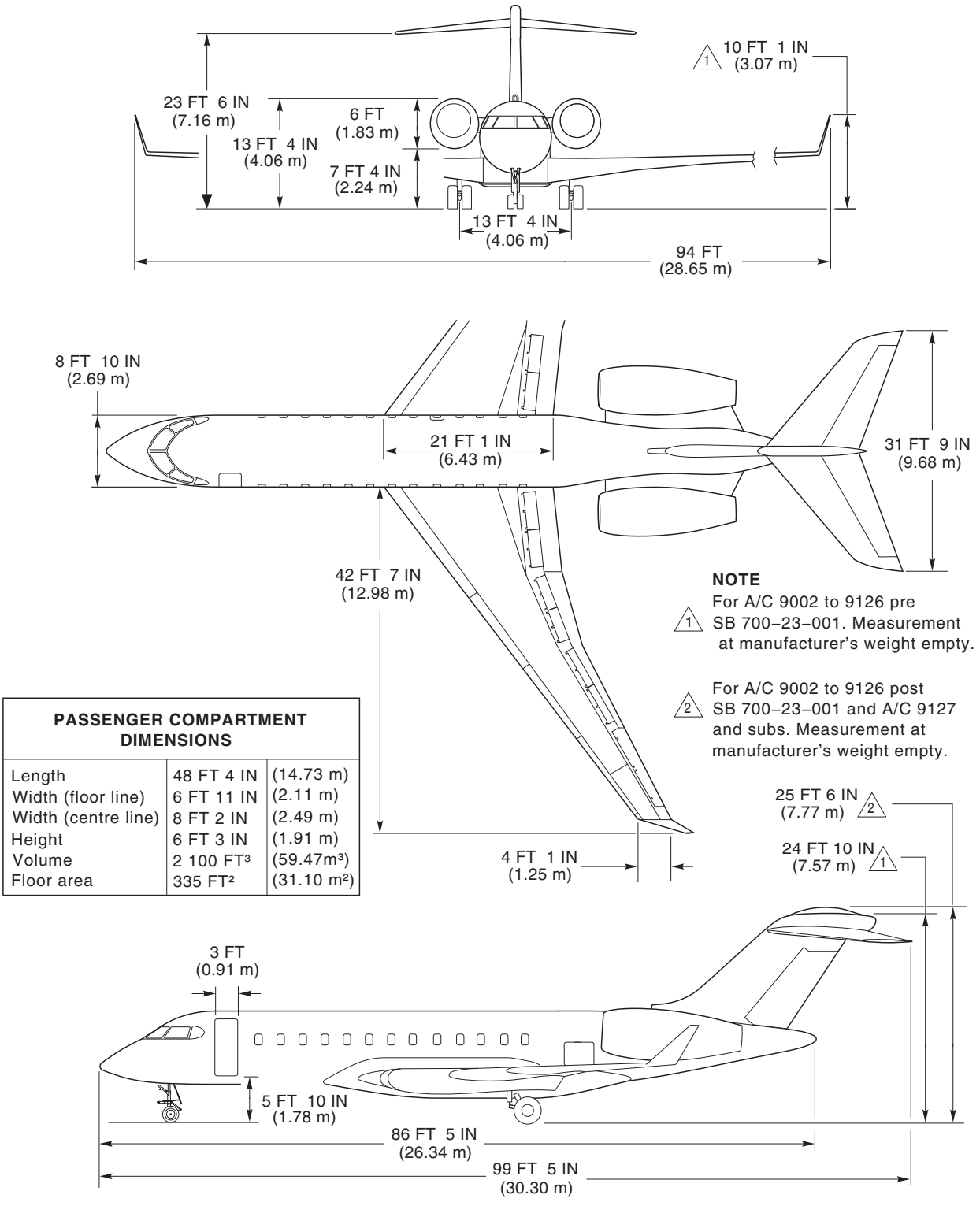
B. Composite materials such as: Kevlar, Graphite, Fiberglass and hybrids are used in many components of the Global Express XRS Aircraft. Refer to Figure 6 for the locations of the composite materials.

On Global 5000 and Global 5000 Featuring GVFD A/C

C. Composite materials such as: Kevlar, Graphite, Fiberglass and hybrids are used in many components of the Global 5000 and Global 5000 featuring GVFD Aircraft. Refer to Figure 7 for the locations of the composite materials.

6. Interior Configurations

A. Internal configurations will change according to customer options installed at the completion centers.



NOTE

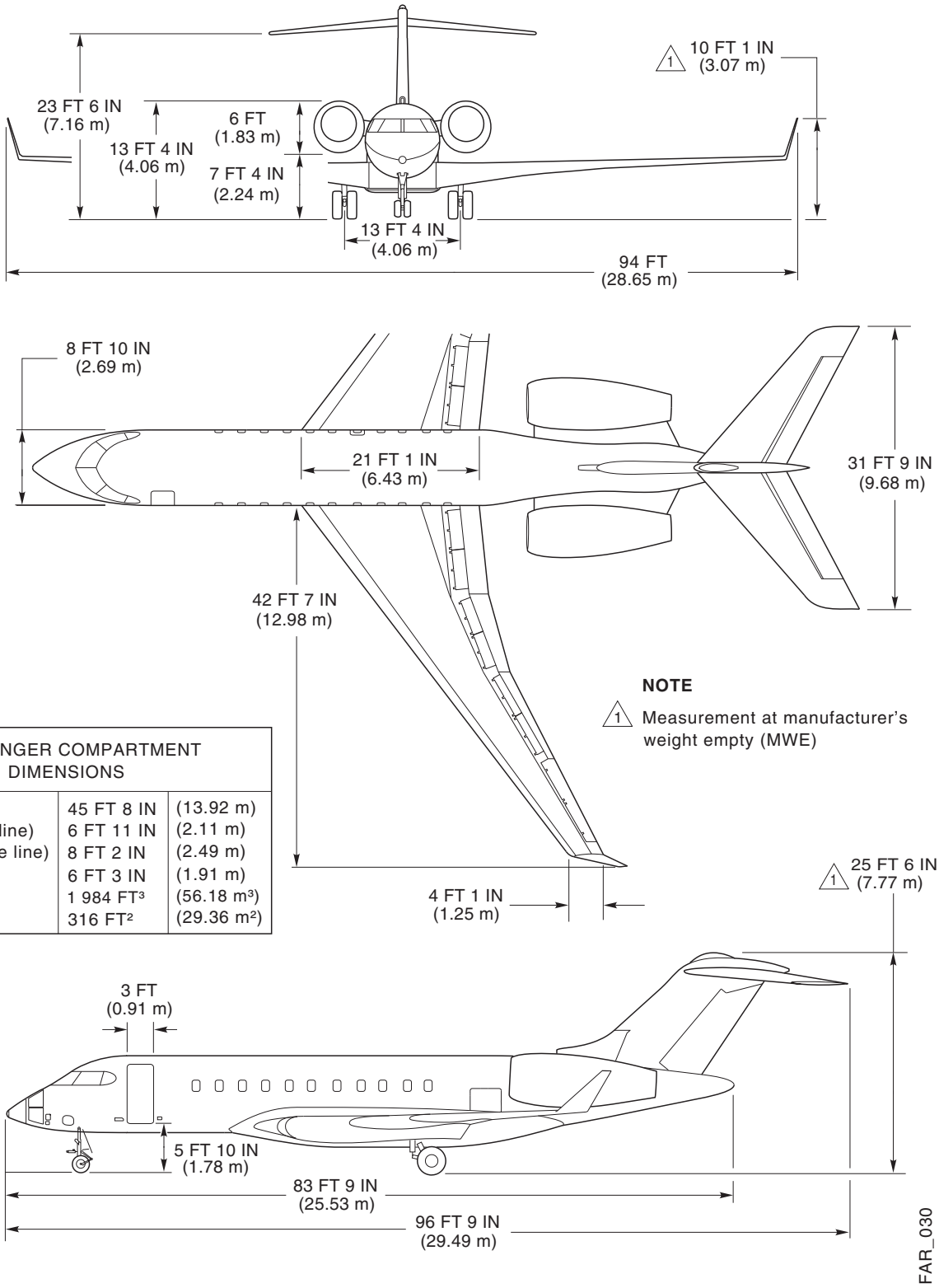
1 For A/C 9002 to 9126 pre SB 700–23–001. Measurement at manufacturer's weight empty.

2 For A/C 9002 to 9126 post SB 700–23–001 and A/C 9127 and subs. Measurement at manufacturer's weight empty.

PASSENGER COMPARTMENT DIMENSIONS		
Length	48 FT 4 IN	(14.73 m)
Width (floor line)	6 FT 11 IN	(2.11 m)
Width (centre line)	8 FT 2 IN	(2.49 m)
Height	6 FT 3 IN	(1.91 m)
Volume	2 100 FT^3	(59.47m^3)
Floor area	335 FT^2	(31.10 m^2)

Global Express, Global XRS and Global 6000 – Aircraft Basic Dimensions & Ground Clearances
Figure 1

EFFECTIVITY: ALL



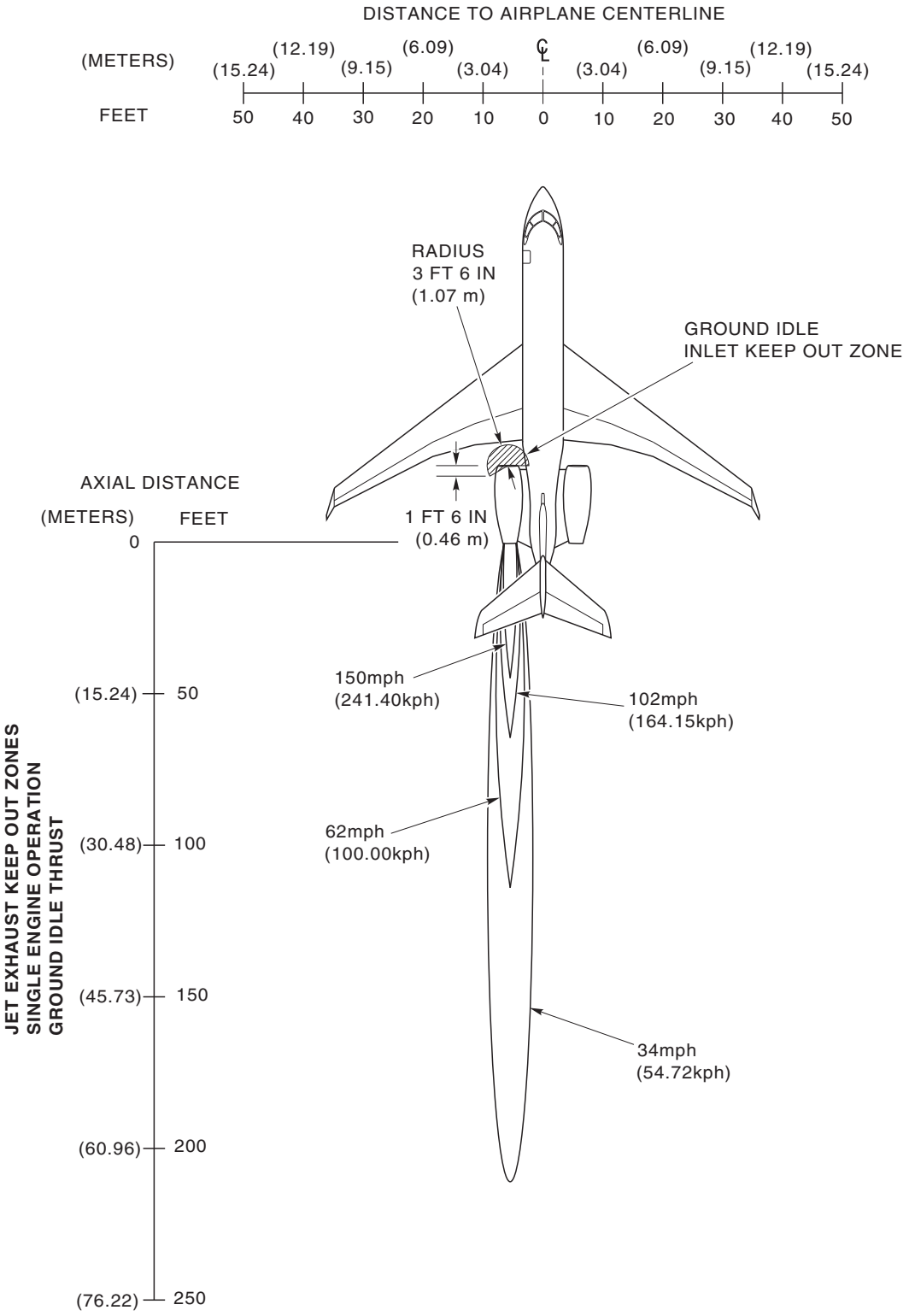
PASSENGER COMPARTMENT DIMENSIONS		
Length	45 FT 8 IN	(13.92 m)
Width (floor line)	6 FT 11 IN	(2.11 m)
Width (centre line)	8 FT 2 IN	(2.49 m)
Height	6 FT 3 IN	(1.91 m)
Volume	1 984 FT³	(56.18 m³)
Floor area	316 FT²	(29.36 m²)

NOTE

1 Measurement at manufacturer's weight empty (MWE)

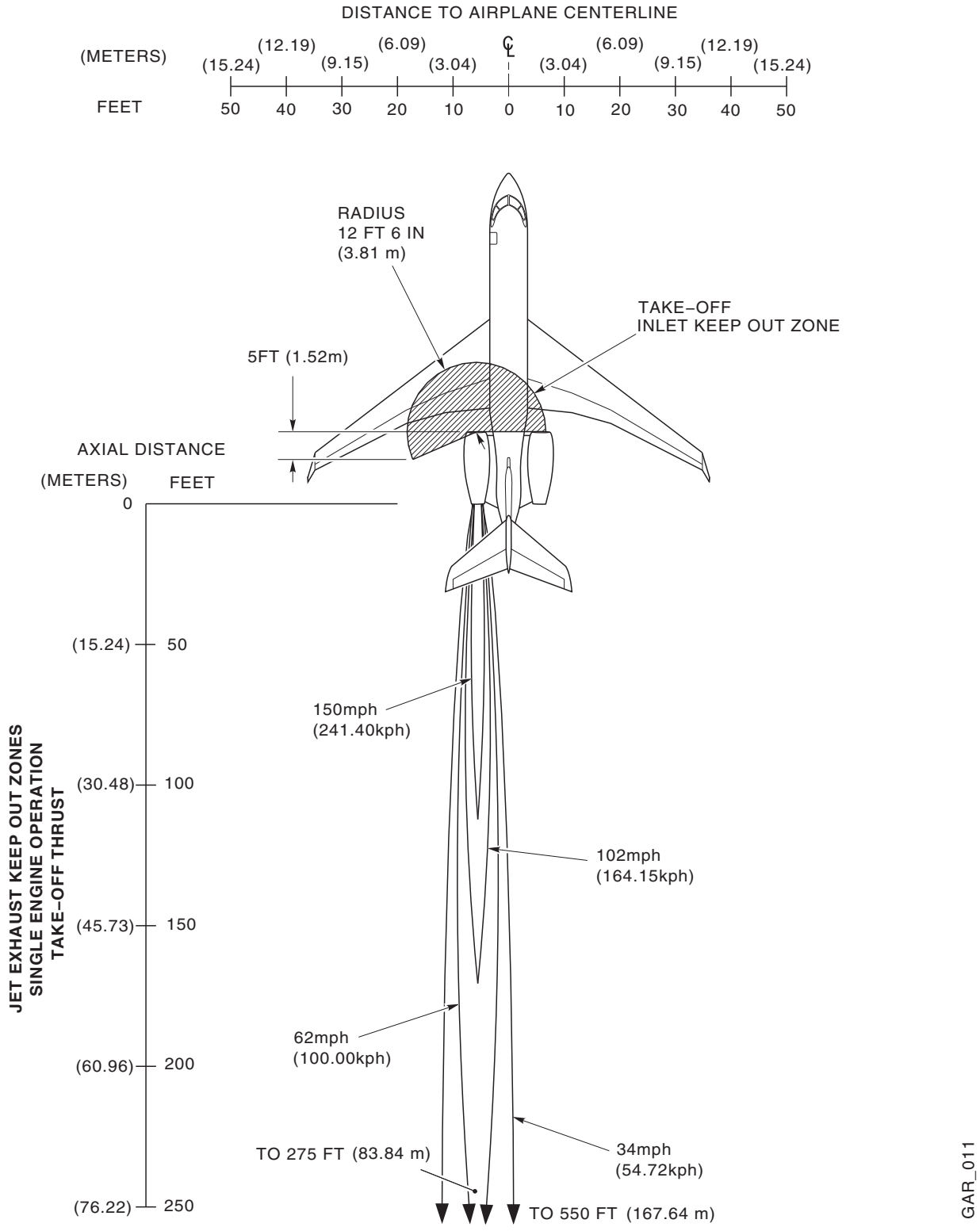
Global 5000 and Global 5000 Featuring GVFD – Aircraft Basic Dimensions & Ground Clearances
Figure 2

EFFECTIVITY: ALL



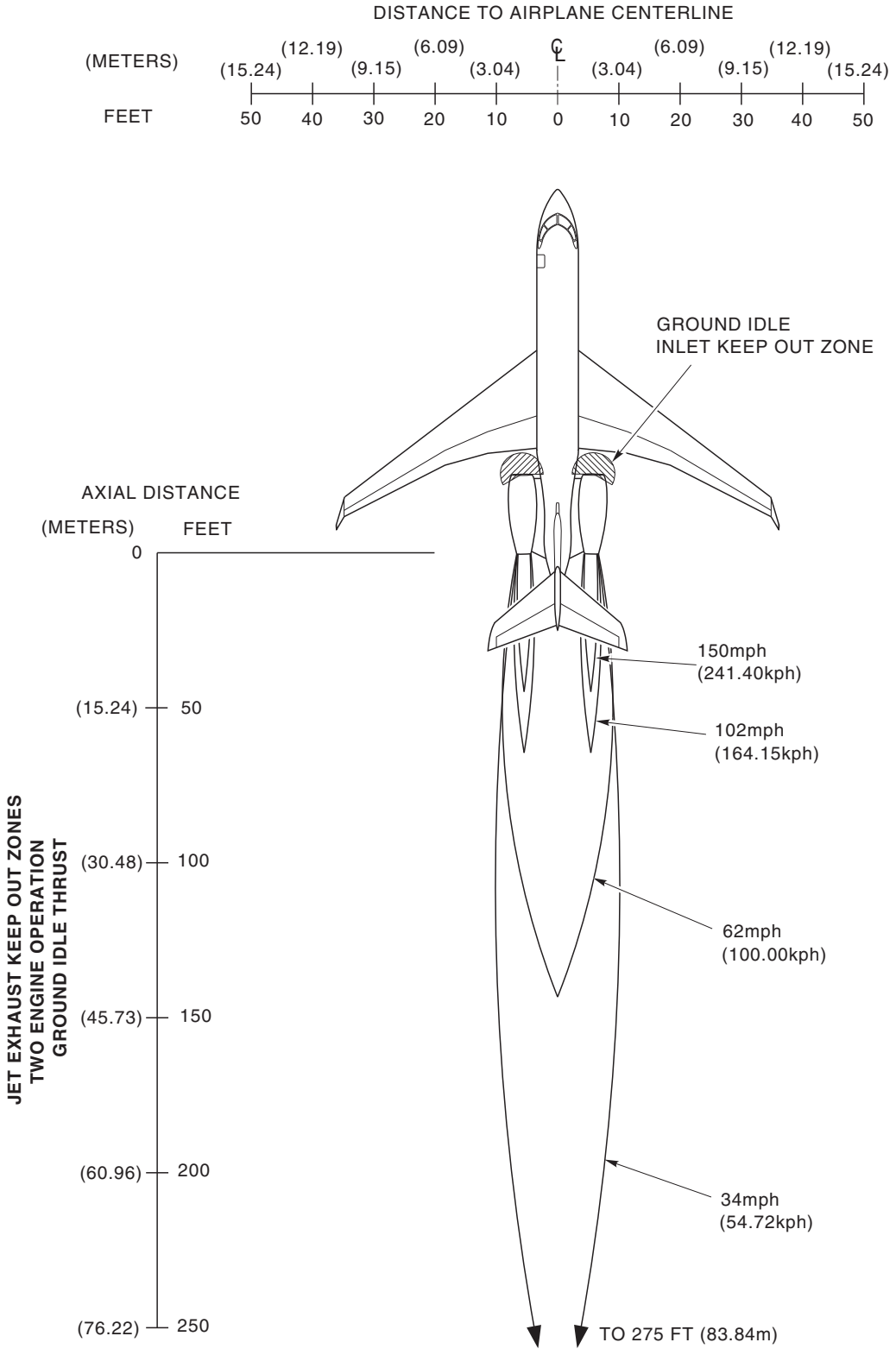
Danger Areas – Engine Intake and Exhaust
Figure 3 (Sheet 1 of 4)

EFFECTIVITY: ALL



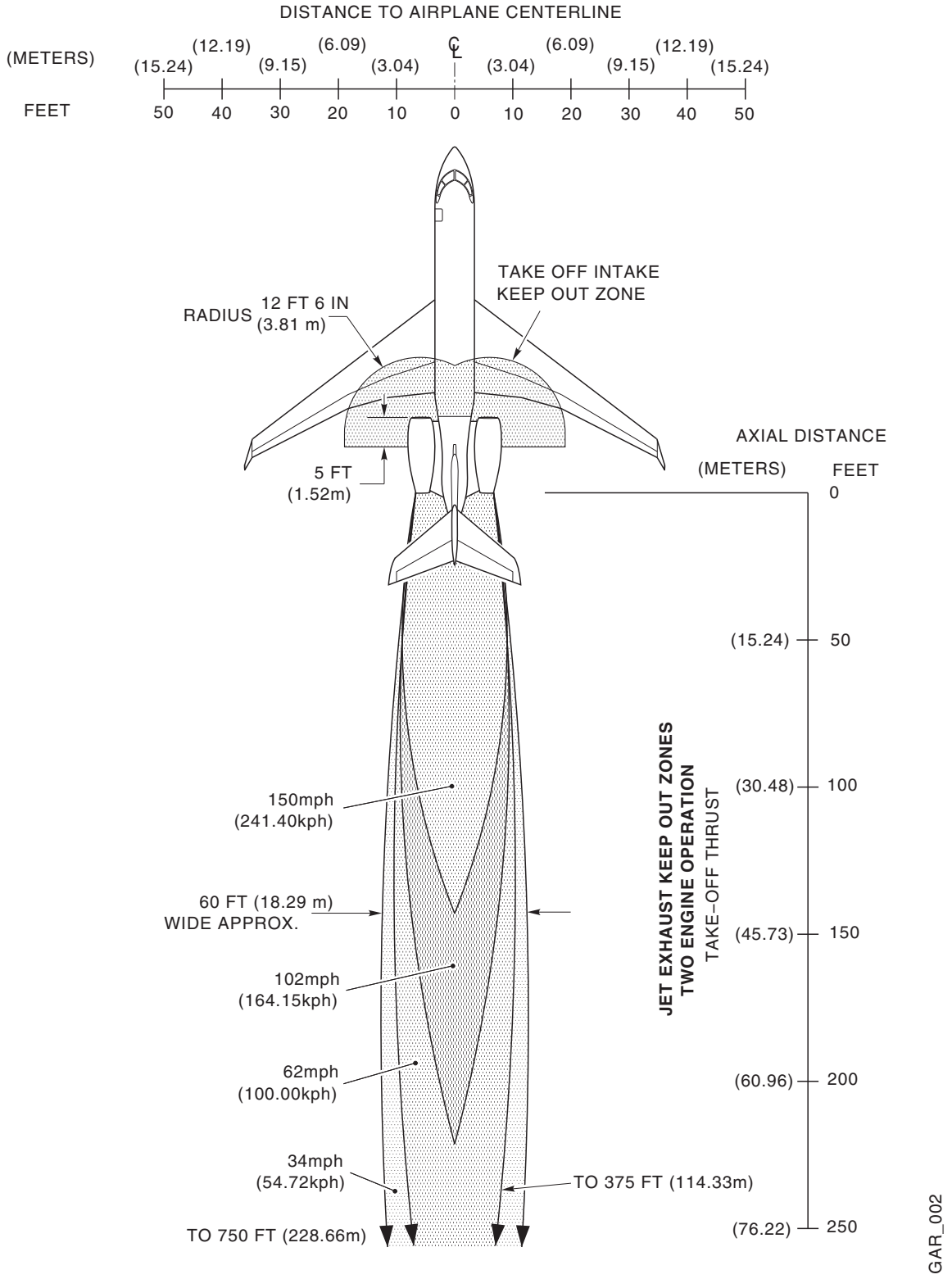
Danger Areas – Engine Intake and Exhaust
Figure 3 (Sheet 2 of 4)

EFFECTIVITY: ALL



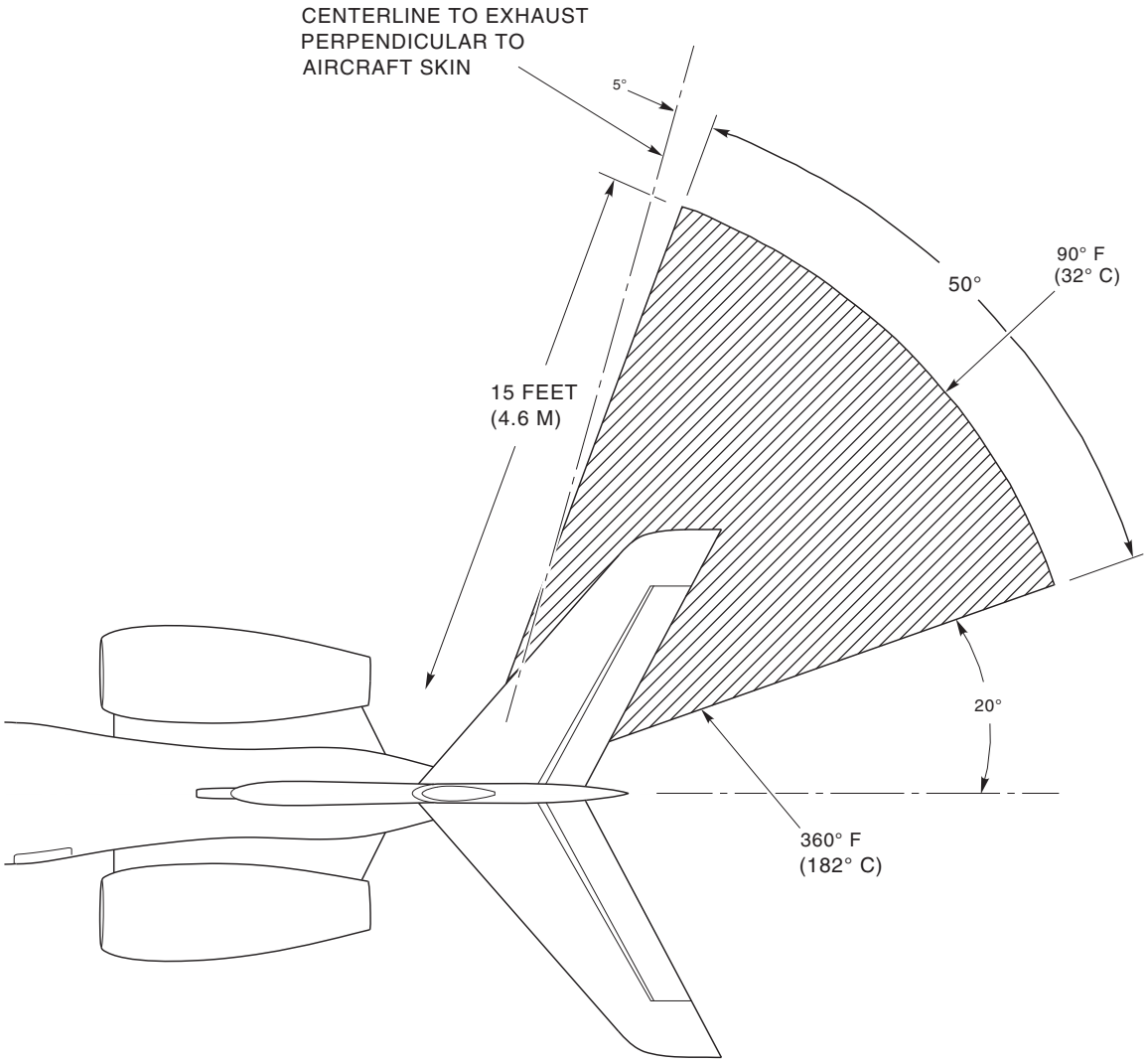
Danger Areas – Engine Intake and Exhaust
Figure 3 (Sheet 3 of 4)

EFFECTIVITY: ALL



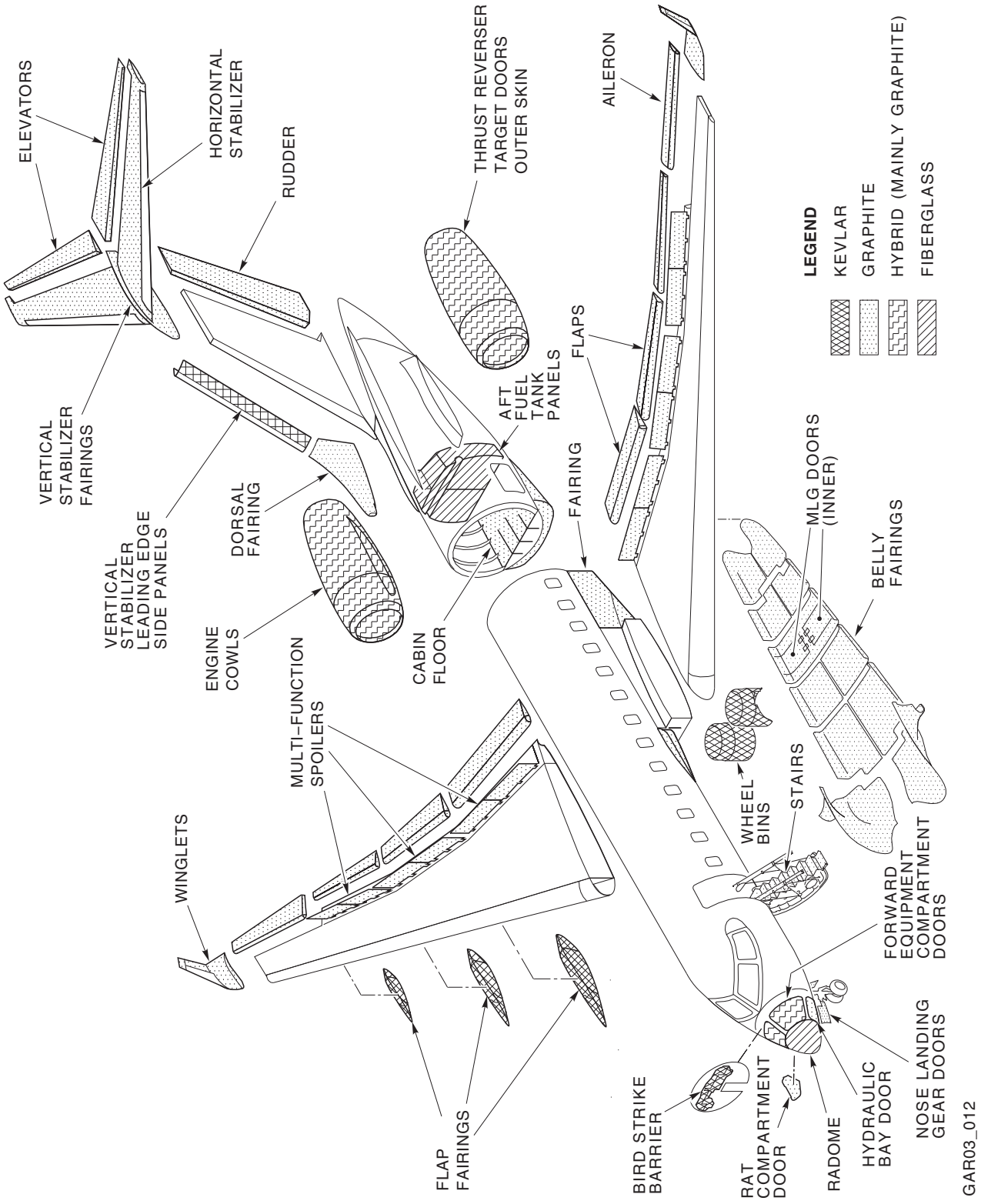
Danger Areas – Engine Intake and Exhaust
Figure 3 (Sheet 4 of 4)

EFFECTIVITY: ALL



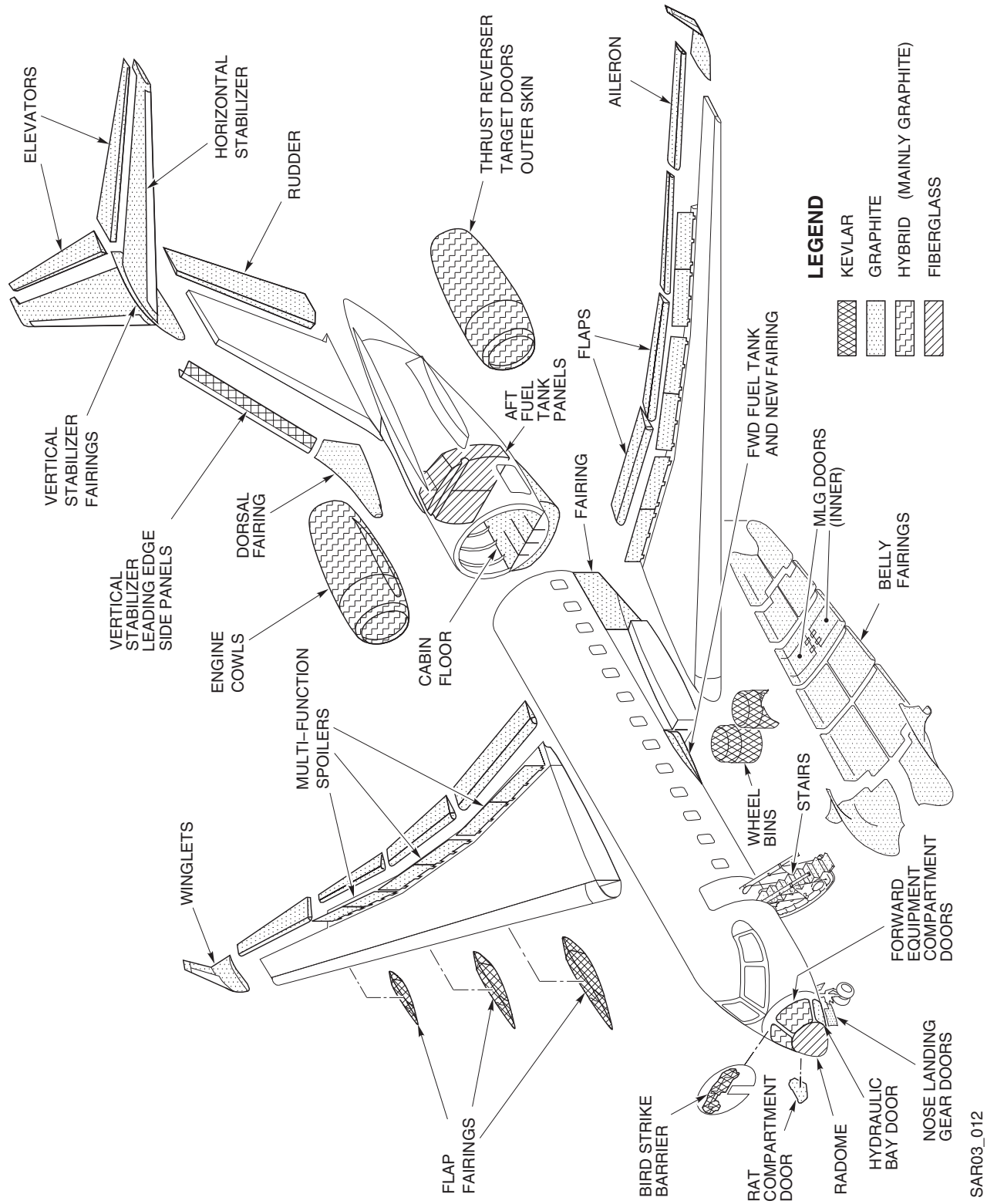
Danger Areas – APU Exhaust
Figure 4

EFFECTIVITY: ALL



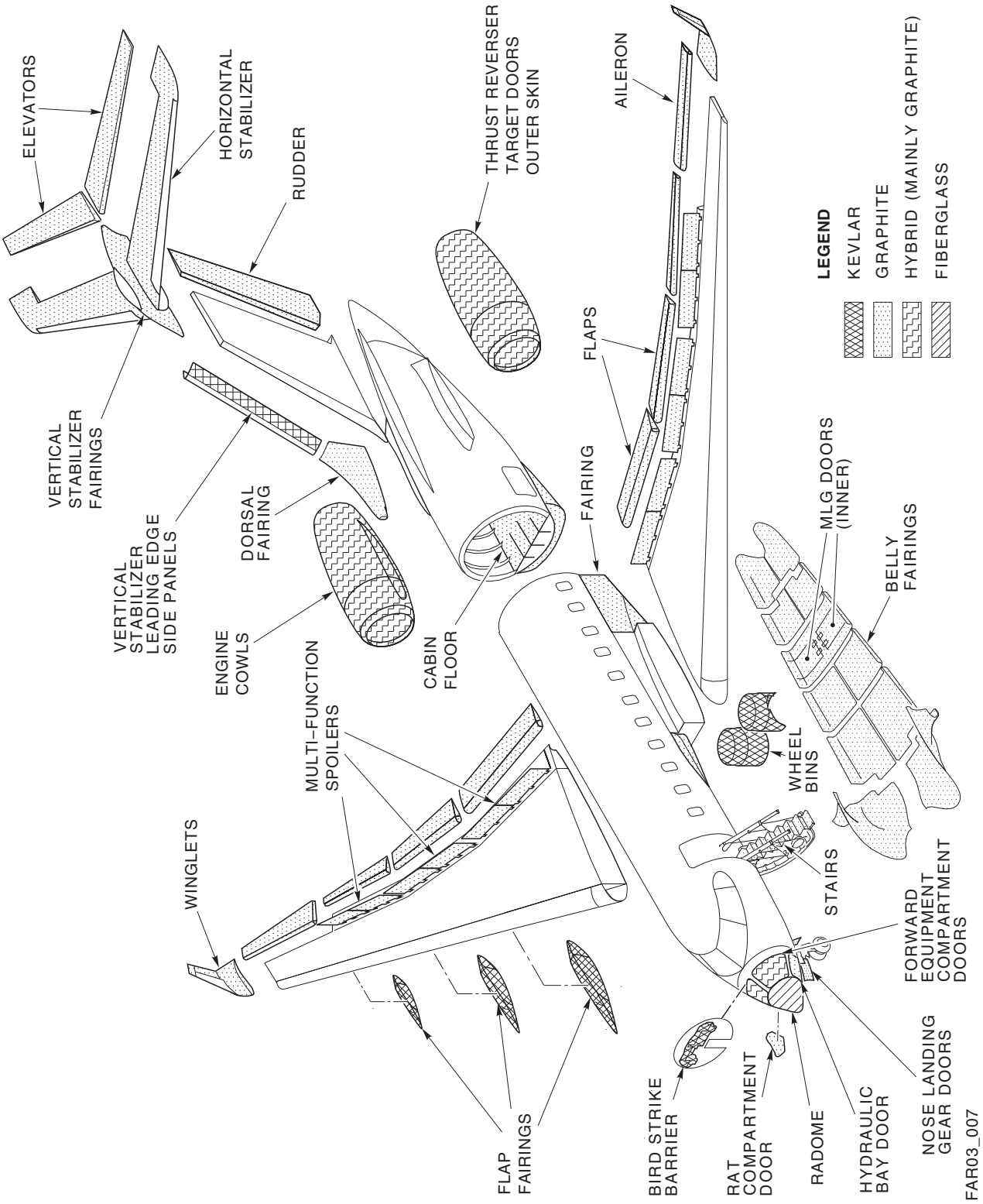
Global Express – Composite Materials
Figure 5

EFFECTIVITY: ALL



Global Express XRS and Global 6000 – Composite Materials
Figure 6

EFFECTIVITY: ALL



Global 5000 and Global 5000 Featuring GVFD – Composite Materials
Figure 7

EMERGENCY INFORMATION

1. Emergency Access

A. Passenger Door

(1) The Passenger Entrance Door is on the left side of the aircraft just after the flight compartment. The door serves as a Type I Emergency Exit. Refer to Figure 1.

(2) Dimensions:

- Height 6 ft (1.83 m)
- Width 3 ft (0.91 m)
- Height to the sill (one step below the floor line) 5 ft 11 in (1.80 m).

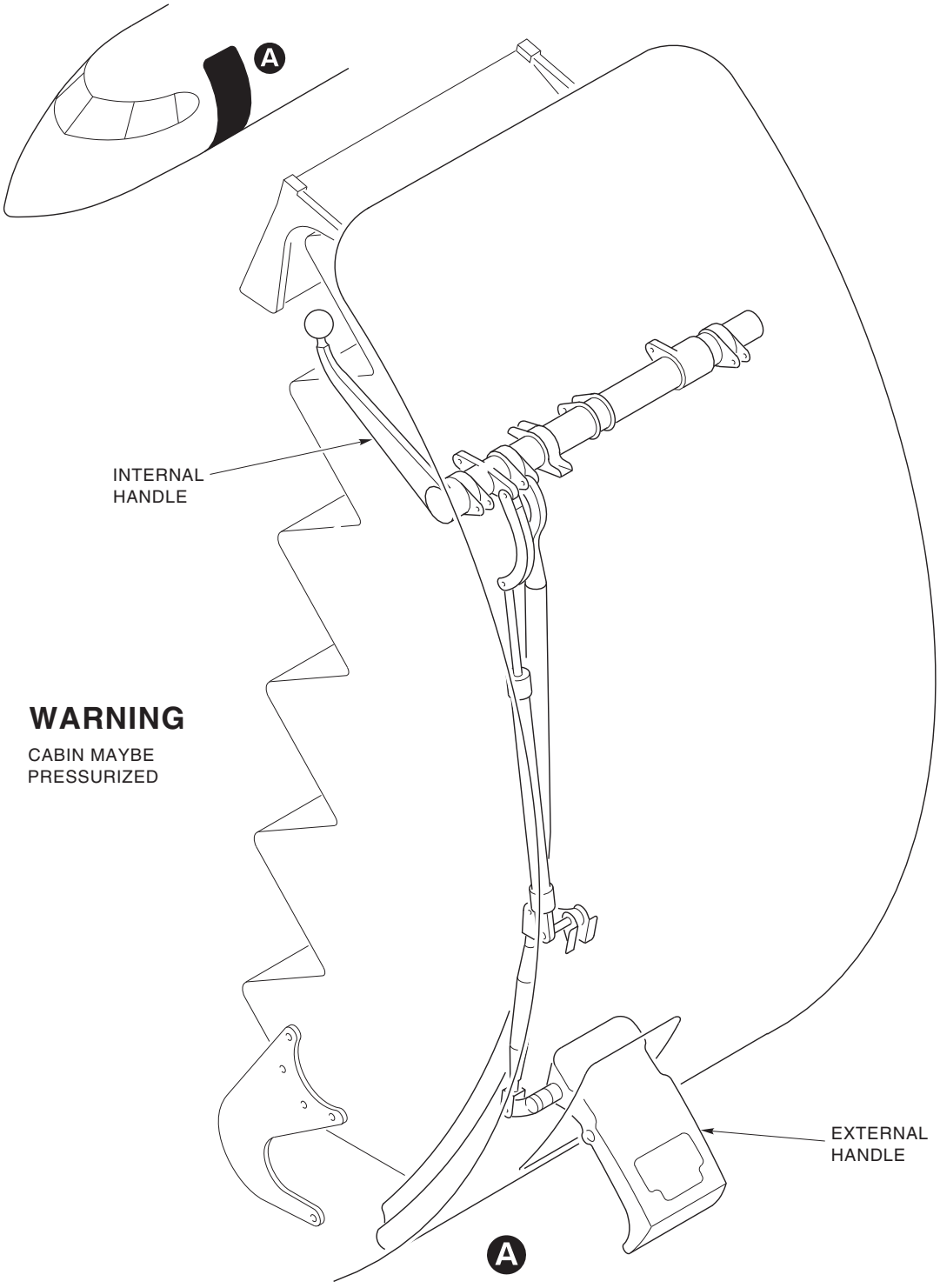
(3) To Open the Passenger Door from The external side do the following:

WARNING: FULLY RELEASE THE PRESSURE FROM THE AIRCRAFT BEFORE YOU TRY TO OPEN THE DOORS. IF YOU DO NOT DO THIS, THE PRESSURE CAN DECREASE SUDDENLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) Push the flap in to get your fingers around the handle.

(b) Pull the handle out and push it up.

(c) Pull out the handle and the door will lower automatically.



Passenger/Crew Door – Operation
Figure 1

EFFECTIVITY: ALL

B. Overwing Emergency–Exit Door

(1) The overwing emergency–exit door is on the right side of the passenger compartment. The door serves as a Type III Emergency Exit. Refer to Figure 2.

(2) Dimensions:

- Height 3 ft (0.91 m)
- Width 1 ft 8 in (0.51 m)

(3) To open the overwing emergency–exit door from the external side do the following:

(a) Apply hand pressure on the outside push plate and push the overwing–exit door into the aircraft.

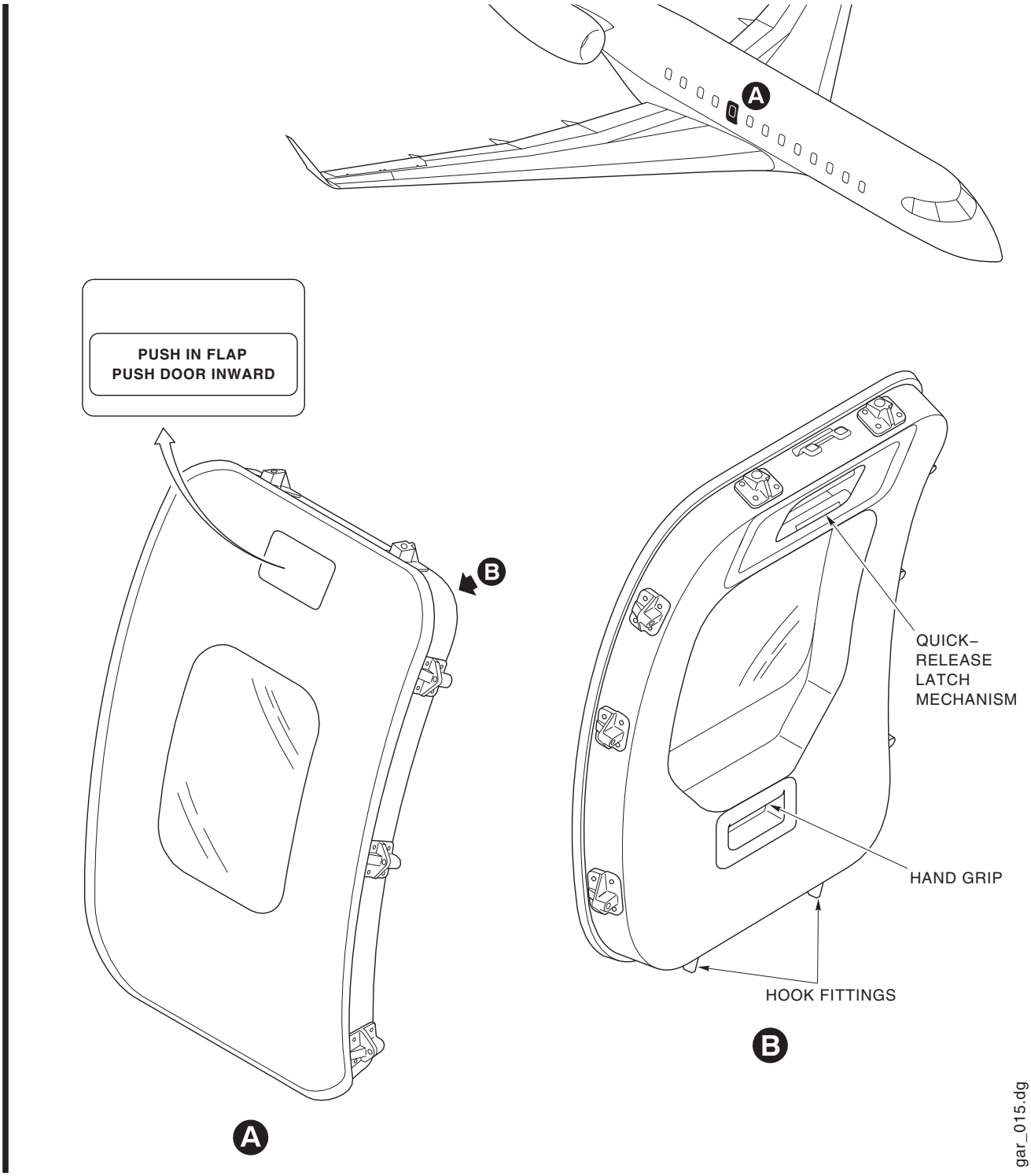
(4) To open the overwing emergency–exit door with the inside do the following:

(a) Hold the overwing emergency–exit door at the lower hand grip and the upper latch handle.

WARNING: BE CAREFUL WHEN YOU OPEN THE OVERWING EMERGENCY-EXIT DOOR. THE DOOR WEIGHS APPROXIMATELY 47 POUNDS (21.32 KG) AND IF YOU DO NOT HOLD IT, IT CAN FALL AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(b) Pull the upper latch handle marked EXIT PULL.

(c) Tilt the top of the overwing emergency–exit door inboard and lift the door out of the bottom hooks and the pin fittings.



Overwing Emergency–Exit Door
Figure 2

C. Baggage Door

(1) The baggage door is a plug–type access door on the left hand side of the aft fuselage section, forward of the aft pressure bulkhead. Refer to Figure 3.

(2) Dimensions:

- Height 2 ft 9 in (0.84 m)
- Width 3 ft 7 in (1.09 m)
- Height to sill floor line 6 ft 7 in (2.01 m)

(3) To open the Baggage Compartment Door with the external handle do as follows:

(a) Push the external handle trigger marked PUSH to let the handle move out.

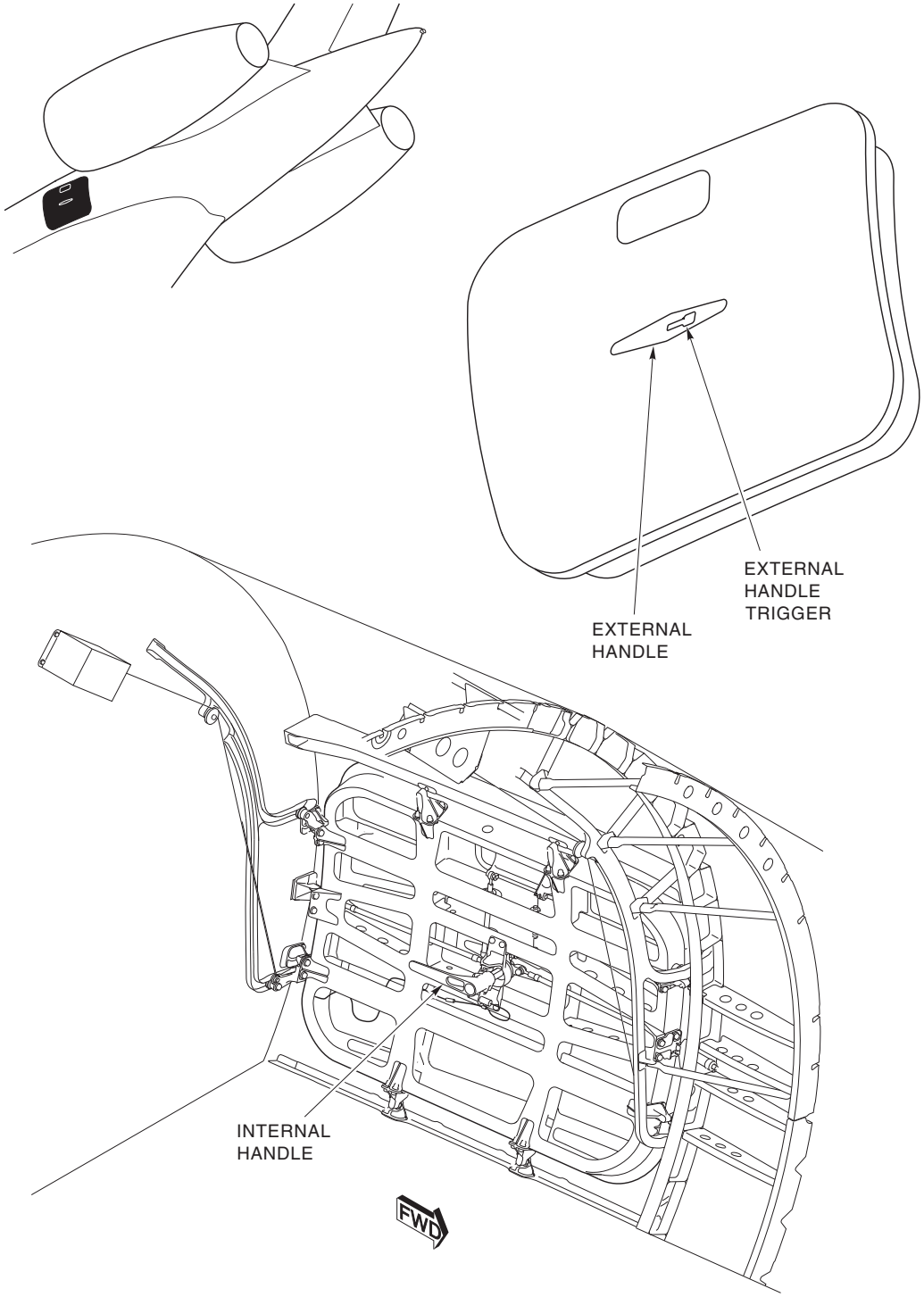
(b) Turn the external handle counterclockwise to the UNLOCKED position.

(c) Push the door in and up on its tracks until the rollers touch the track stops and the opening is clear.

(4) To open the Baggage Compartment Door with the internal handle do as follows:

(a) Pull the knob and turn the handle counterclockwise to release the latch.

(b) Pull the door in and up on the tracks until the rollers contact the track stops and the opening is clear.



Baggage Door
Figure 3

EFFECTIVITY: ALL

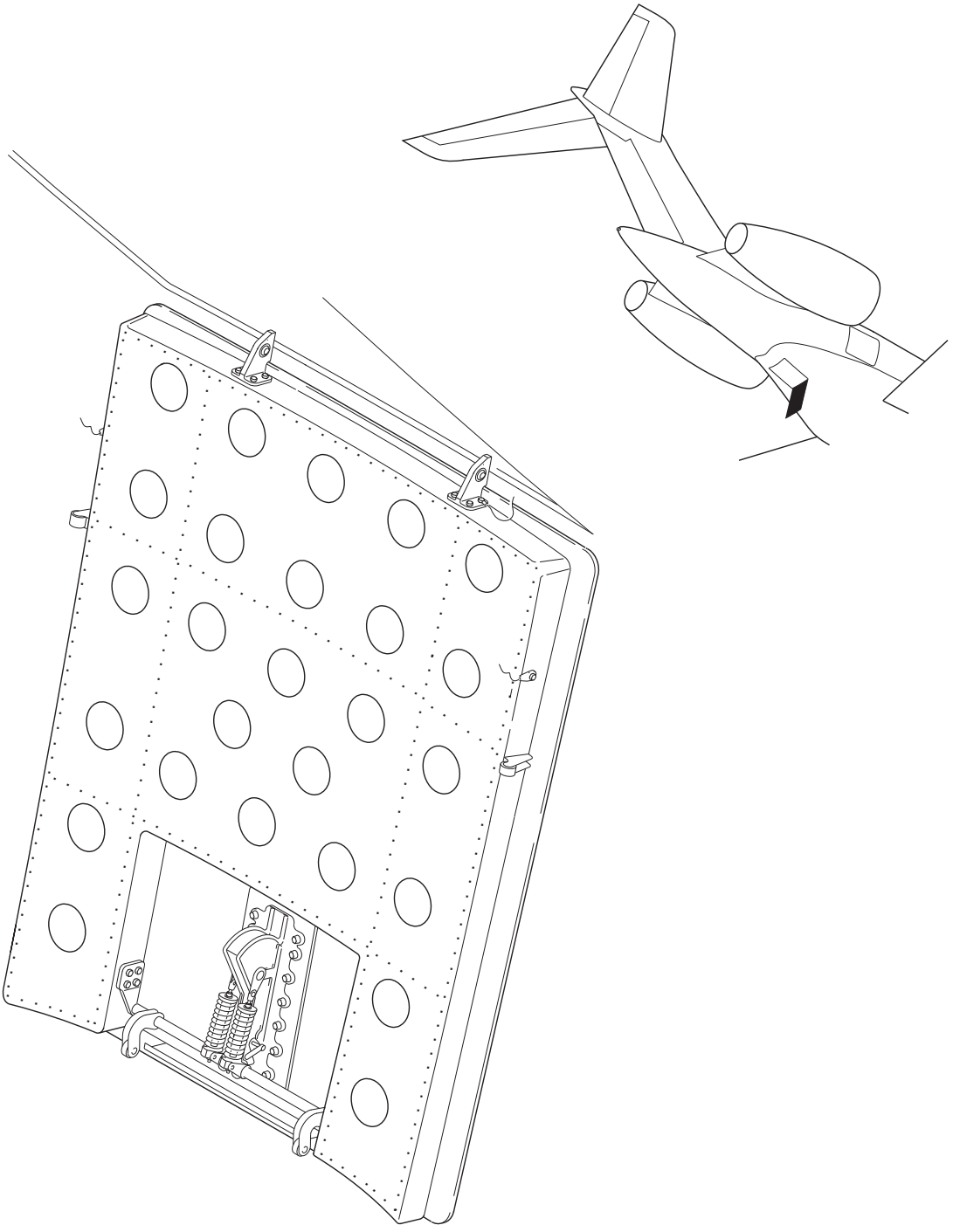
D. Aft Equipment–Compartment Door

(1) The Aft Equipment Compartment of the Global Series aircraft is a non–pressurized area. Access to the Aft Equipment Compartment is through a door in the aft fuselage fairing. The door has a hinge at the forward end. It opens down and forward. Refer to Figure 4.

(2) To open the Aft Equipment–Compartment Door do as follows:

(a) Push the external handle trigger marked PUSH to let the door handle move out.

(b) Hold the door, turn the handle counterclockwise through 90°, and open the door.



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Aft Equipment–Compartment Door
Figure 4

E. Service Doors and Panels

On Global Express A/C

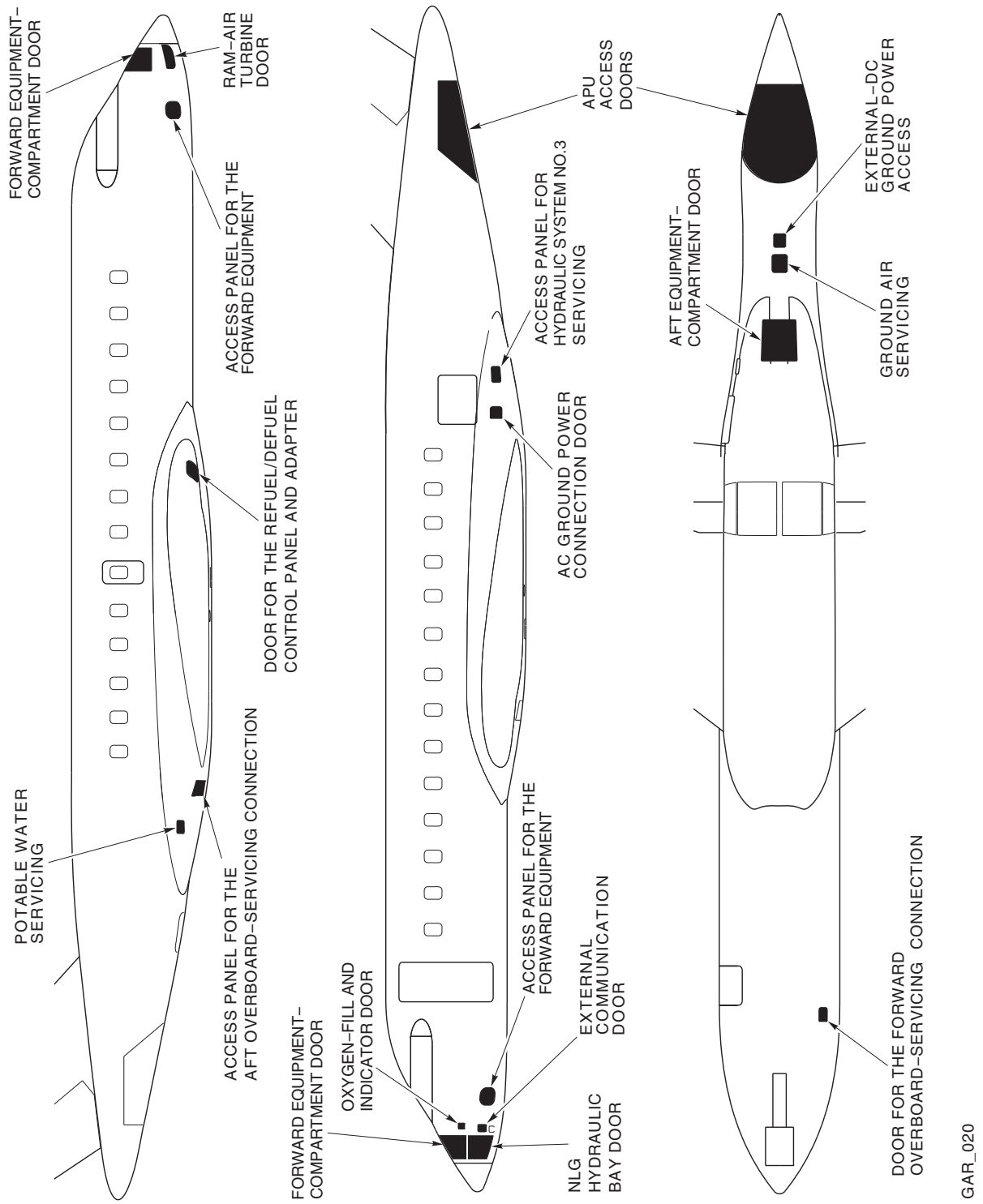
(1) The Service Doors and Panels give access to equipment and systems all through the fuselage. The Service Doors and Panels are made from Alclad, Carbondek, graphite, or Kevlar (aramide). Refer to Figure 5.

On Global Express XRS and Global 6000 A/C

(2) The Service Doors and Panels give access to equipment and systems all through the fuselage. The Service Doors and Panels are made from Alclad, Carbondek, graphite, or Kevlar (aramide). Refer to Figure 5.

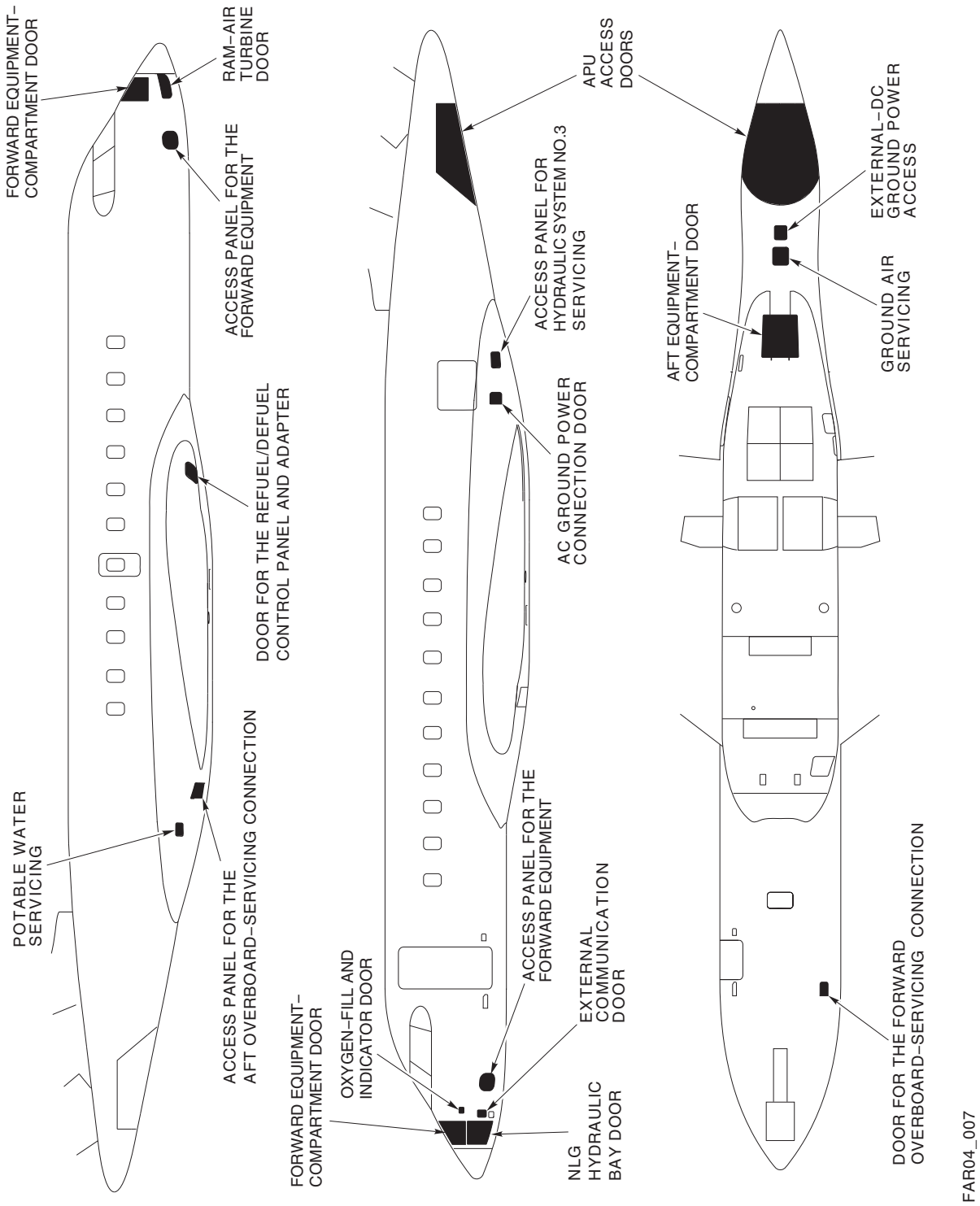
On Global 5000 and Global 5000 Featuring GVFD A/C

(3) The Service Doors and Panels give access to equipment and systems all through the fuselage. The Service Doors and Panels are made from Alclad, Carbondek, graphite, or Kevlar (aramide). Refer to Figure 6.



Global Express, Global XRS and Global 6000 – Service Doors and Panels
Figure 5

EFFECTIVITY: ALL



Global 5000 and Global 5000 Featuring GVFD – Service Doors and Panels
Figure 6

EFFECTIVITY: ALL

F. Windshields and Windows

On Global Express A/C

(1) The flight compartment has two windshields and two side windows. The passenger compartment has fourteen windows maximum on each side for the Global Express. On the right side of the fuselage, one of the windows is in the Overwing Emergency–Exit Door. All of the other passenger windows attach permanently to their surround structure. Refer to Figure 7.

The windshields are made with layers of acrylic, polyvinyl butyl (PVB) and glass.

The side windows are made with layers of acrylic and PVB.

WARNING: DO NOT TRY TO CHOP THROUGH THE WINDOWS. GO THROUGH THE EMERGENCY BREAK-IN ZONE. IF YOU DO NOT DO THIS, YOU CAN CAUSE INJURY TO PERSONS.

On Global Express XRS and Global 6000 A/C

(2) The flight compartment has two windshields and two side windows. The passenger compartment has fourteen windows maximum on each side for the Global Express. On the right side of the fuselage, one of the windows is in the Overwing Emergency–Exit Door. All of the other passenger windows attach permanently to their surround structure. Refer to Figure 7.

The windshields are made with layers of acrylic, polyvinyl butyl (PVB) and glass.

The side windows are made with layers of acrylic and PVB.

WARNING: DO NOT TRY TO CHOP THROUGH THE WINDOWS. GO THROUGH THE EMERGENCY BREAK-IN ZONE. IF YOU DO NOT DO THIS, YOU CAN CAUSE INJURY TO PERSONS.

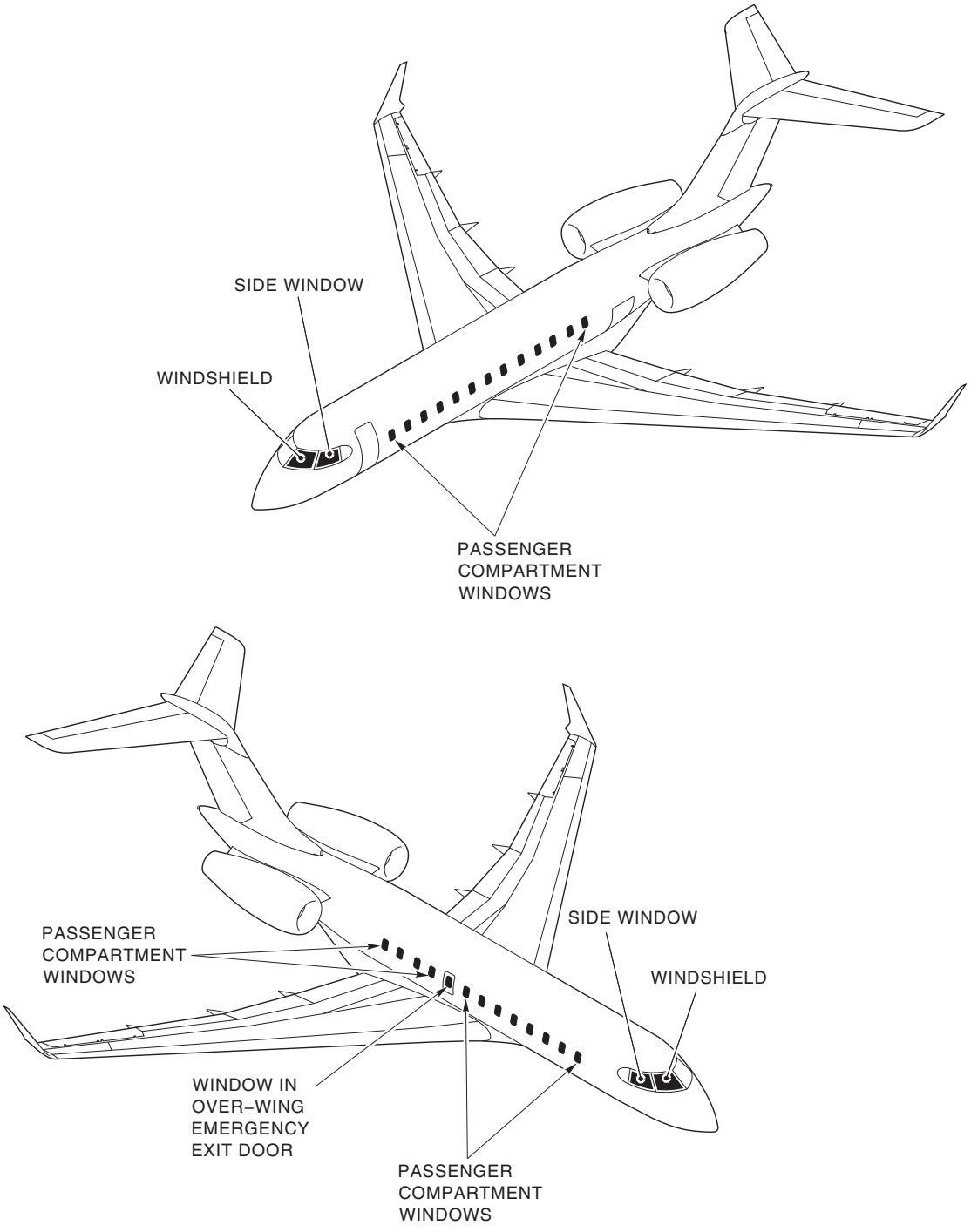
On Global 5000 and Global 5000 Featuring GVFD A/C

(3) The flight compartment has two windshields and two side windows. The passenger compartment has twelve windows maximum on each side for the Global 5000. On the right side of the fuselage, one of the windows is in the Overwing Emergency–Exit Door. All of the other passenger windows attach permanently to their surround structure. Refer to Figure 8.

The windshields are made with layers of acrylic, polyvinyl butyl (PVB) and glass.

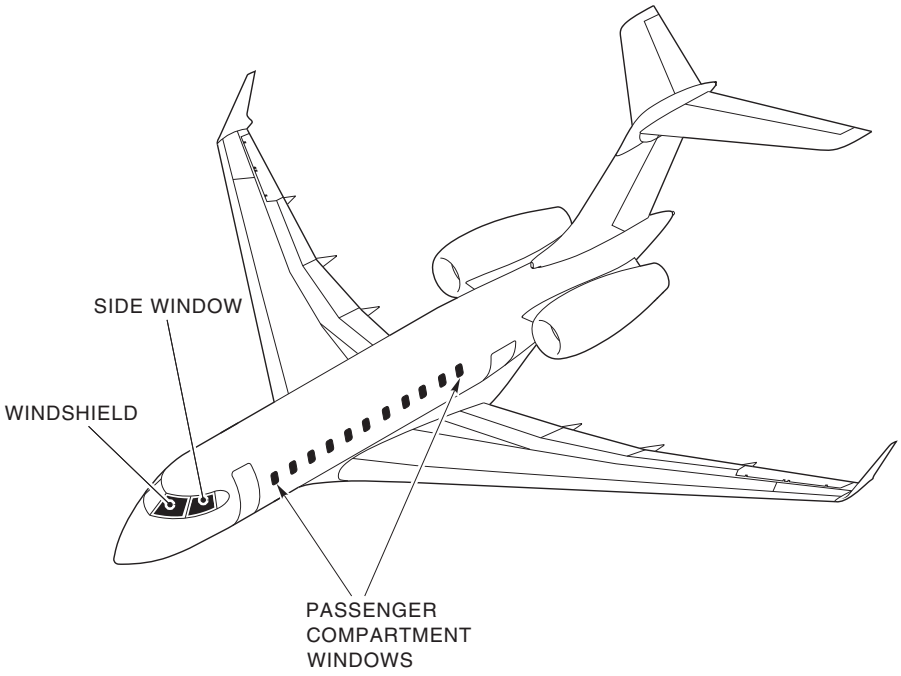
The side windows are made with layers of acrylic and PVB.

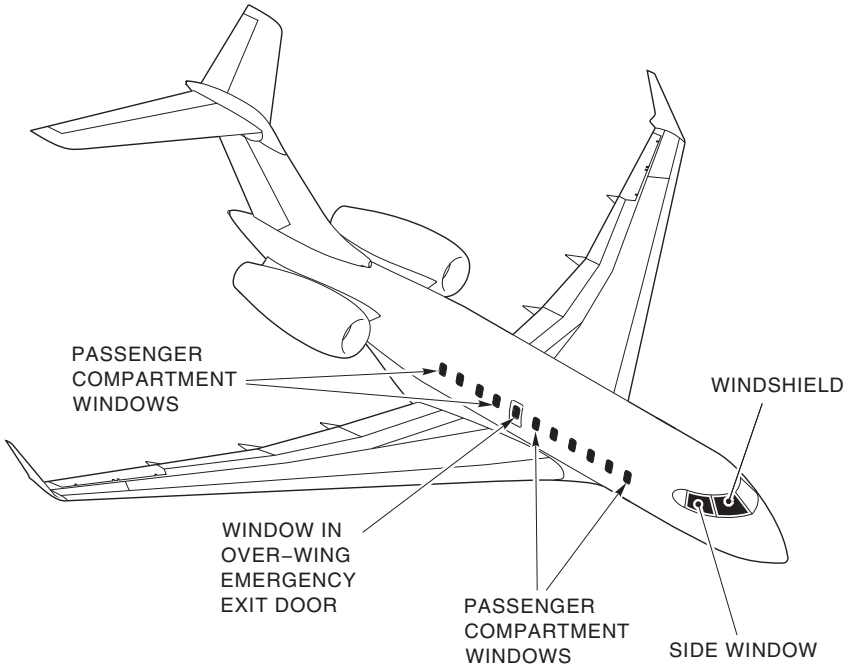
WARNING: DO NOT TRY TO CHOP THROUGH THE WINDOWS. GO THROUGH THE EMERGENCY BREAK-IN ZONE. IF YOU DO NOT DO THIS, YOU CAN CAUSE INJURY TO PERSONS.



Global Express, Global XRS and Global 6000 – Windshield and Windows
Figure 7

EFFECTIVITY: ALL





FAR04_001

Global 5000 and Global 5000 Featuring GVFD – Windshield and Windows
Figure 8

EFFECTIVITY: ALL

FIRE FIGHTING

1. General

WARNING: BE VERY CAREFUL NEAR THE FOUR OXYGEN BOTTLES BELOW THE FLIGHT COMPARTMENT. EACH OXYGEN BOTTLE HAS A CAPACITY OF 50 FT^3 (1.416M^3). IF THESE BOTTLES ARE DAMAGED AND RELEASE THE OXYGEN, THERE IS A POSSIBILITY OF AN EXPLOSION. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

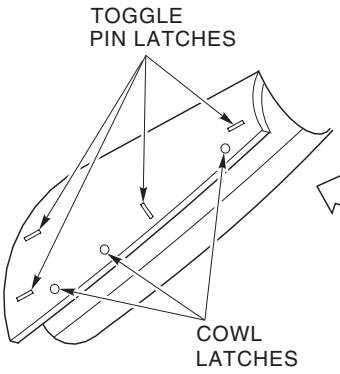
WARNING: MAKE SURE TO DISCONNECT THE ELECTRICAL POWER TO THE APU AND TO THE ENGINE FIRE EXTINGUISHER BOTTLES. THE EXTINGUISHER BOTTLES HAVE PYROTECHNIC SQUIBS. IF YOU DO NOT DISCONNECT THE ELECTRICAL POWER, THERE CAN BE AN EXPLOSION. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

A. The sentences below give the classes used for fire fighting.

- For brake and wheel fires use only dry powder or class D fire extinguishers.
- For all other parts of the aircraft use class B or C fire extinguishers.

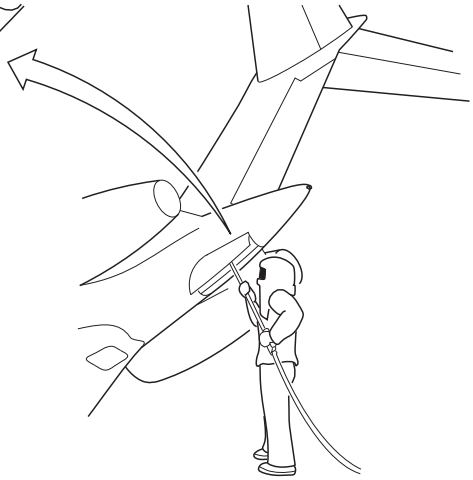
Aerodrome Category for Rescue and Fire Fighting		
	Category	Regulation
International Civil Aviation Organization (ICAO)	6	ICAO Annex 14 – Aerodromes
Federal Aviation Administration (FAA)	B	FAR 139.315
Transport Canada (TC)	6	CAR 303 Subpart 3

B. Refer to Figure 1 for typical fire–fighting with small equipment .



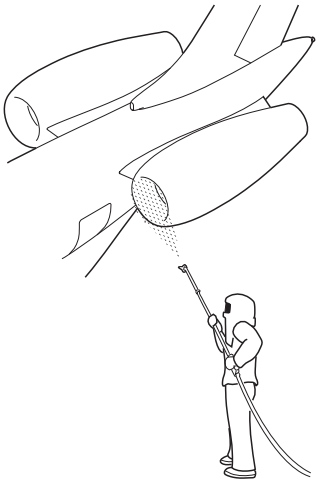
1. Press trigger plates on toggle pin latches.
2. Hold left APU access door and use a screwdriver to open the 3 cowl latches to release the doors.
3. Insert fire extinguishing nozzle into APU enclosure.

LEFT APU ACCESS DOOR



APU ENCLOSURE FIRE

A

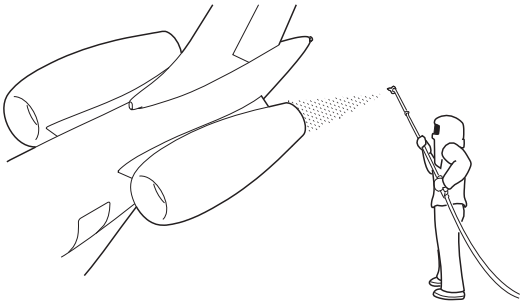


INTERNAL ENGINE FIRE

B

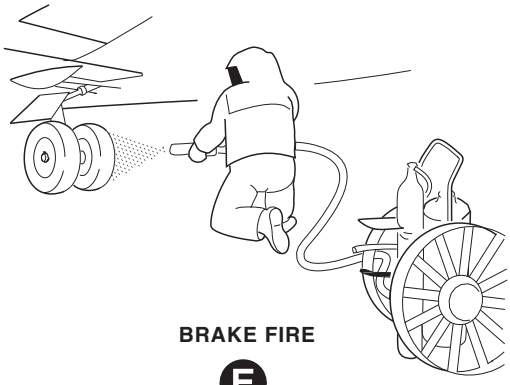
AFT EQUIPMENT COMPARTMENT FIRE

C



EXHAUST NOZZLE FIRE

D



BRAKE FIRE

E

GAR_046

Fire Fighting
Figure 1

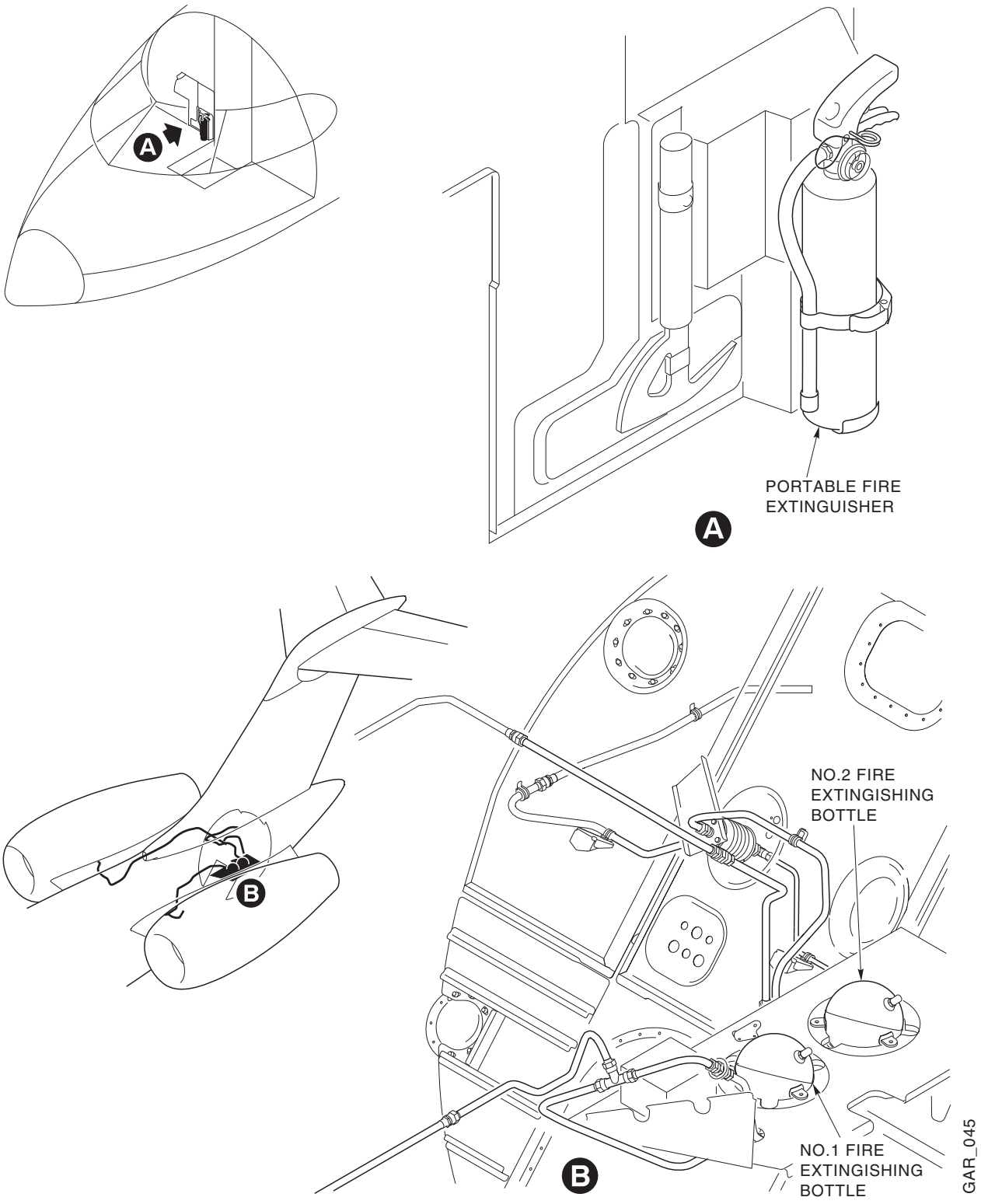
EFFECTIVITY: ALL

2. On–Board Fire–Fighting Equipment

A. The extinguishing system supplies fire extinguishant to the engine and auxiliary power unit (APU) through a distribution system controlled in the flight compartment. The extinguishing system also has a portable fire extinguisher for manual operation in the aircraft. Refer to Figure 2 and Figure 3.

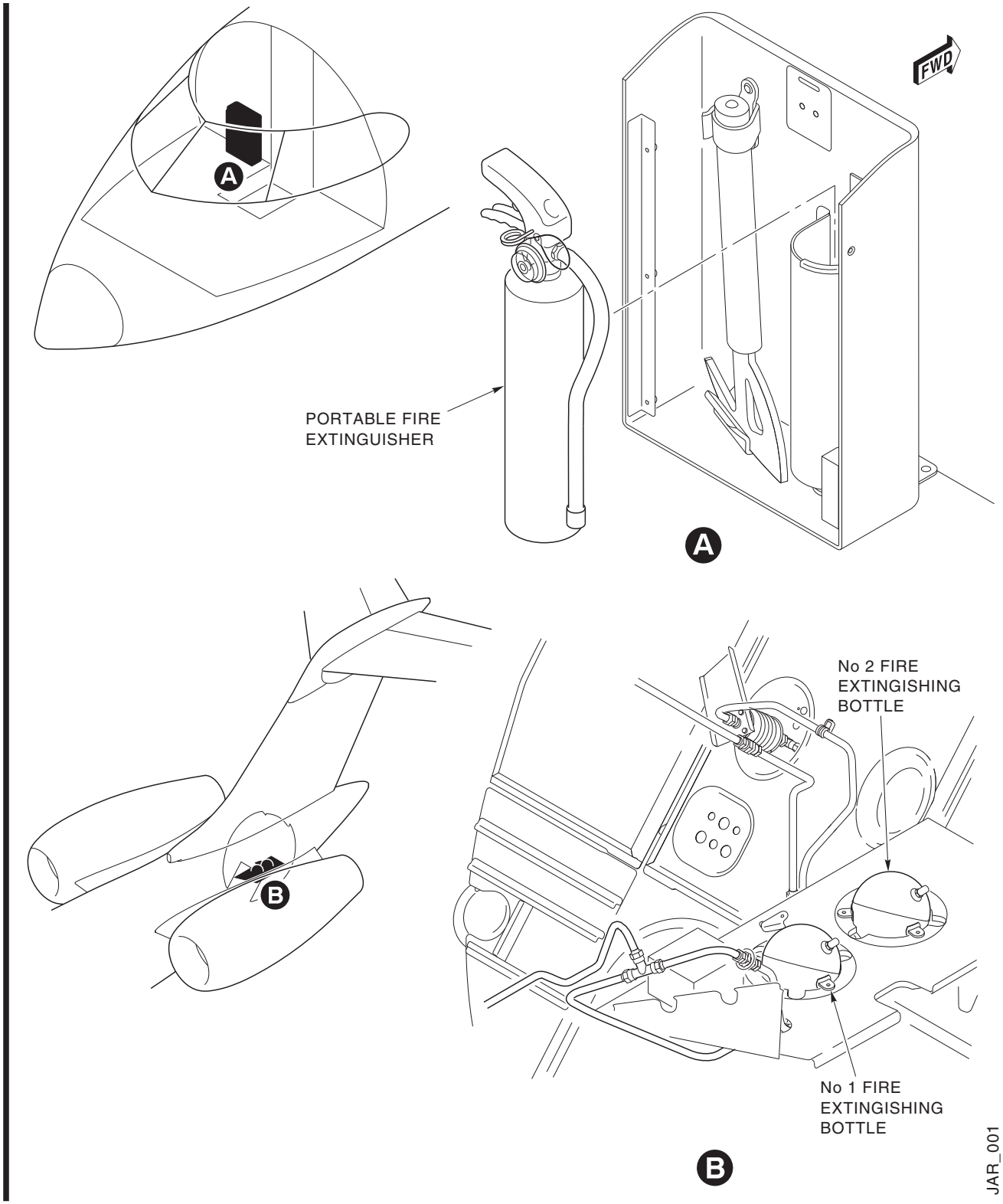
B. The Global Series aircraft has two identical, crew–operated in–flight fire–fighting systems. Each system has a spherical fire bottle of Halon 1301 located in the aircraft aft section. The bottles are pressurized with dry nitrogen at a pressure of 625 psi (4 309.37 kPa) to push the Halon. Also three pyrotechnic squibs to discharge and direct the Halon. One or both systems can be directed at No 1, No 2 engine or the APU. The control and monitor panels are in the flight compartment.

C. There is a portable fire extinguisher on the flight compartment bulkhead behind the co–pilot's seat. The fire extinguisher contains two pounds of Halon 1211 under pressure of 100 psi (689.48 kPa).



Global Express, Global XRS and Global 5000 – On–Board Fire–Fighting Equipment
Figure 2

EFFECTIVITY: ALL



Global 6000 and Global 5000 Featuring GVFD – On–Board Fire–Fighting Equipment
Figure 3

EFFECTIVITY: ALL

3. Engine/APU Fire Controls

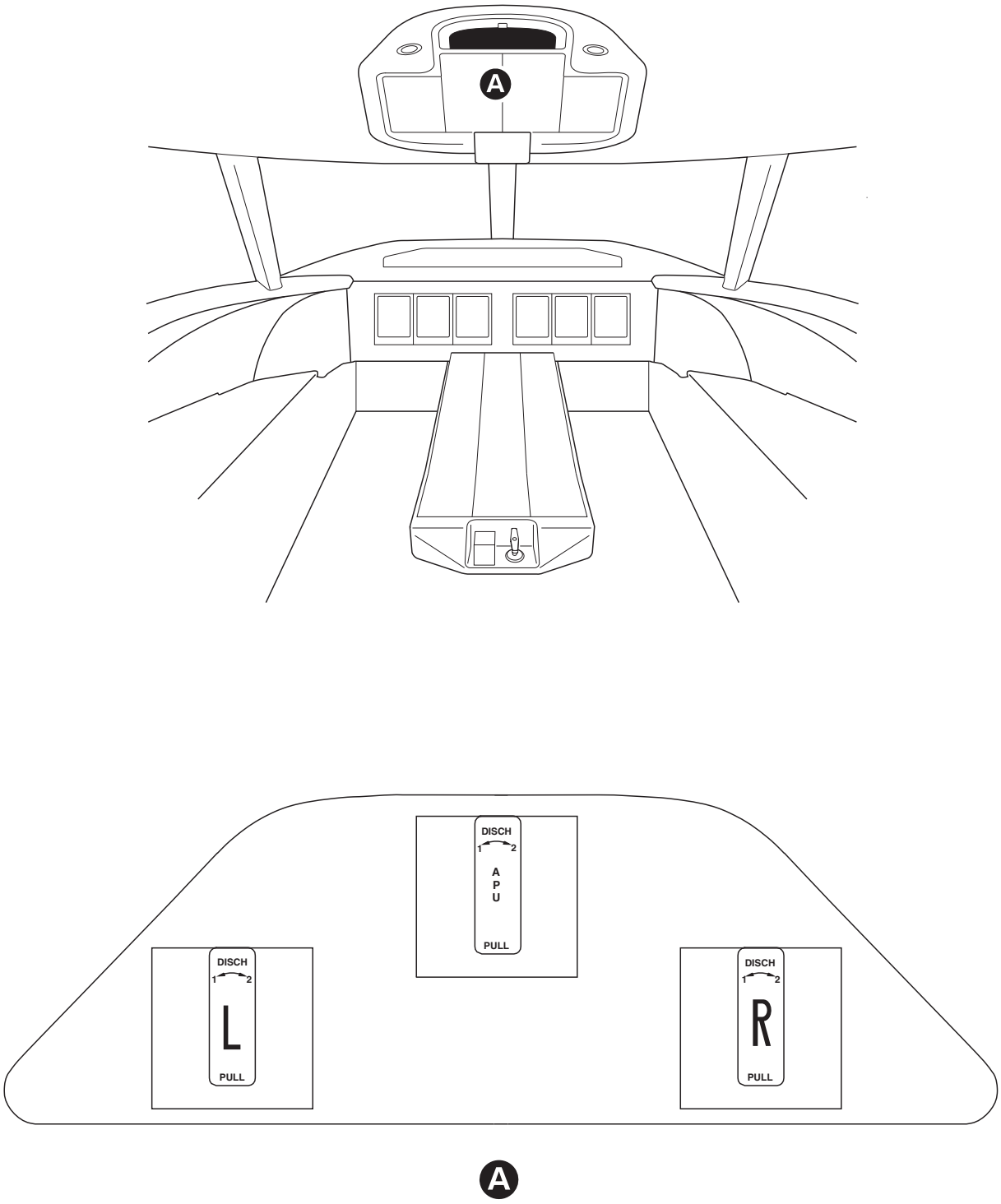
A. The control and monitor panels are in the flight compartment. Refer to Figure 4.

B. To stop the engines do the following:

- Pull the LEFT/RIGHT DISCH PULL FIRE handle(s) in the flight compartment panel.

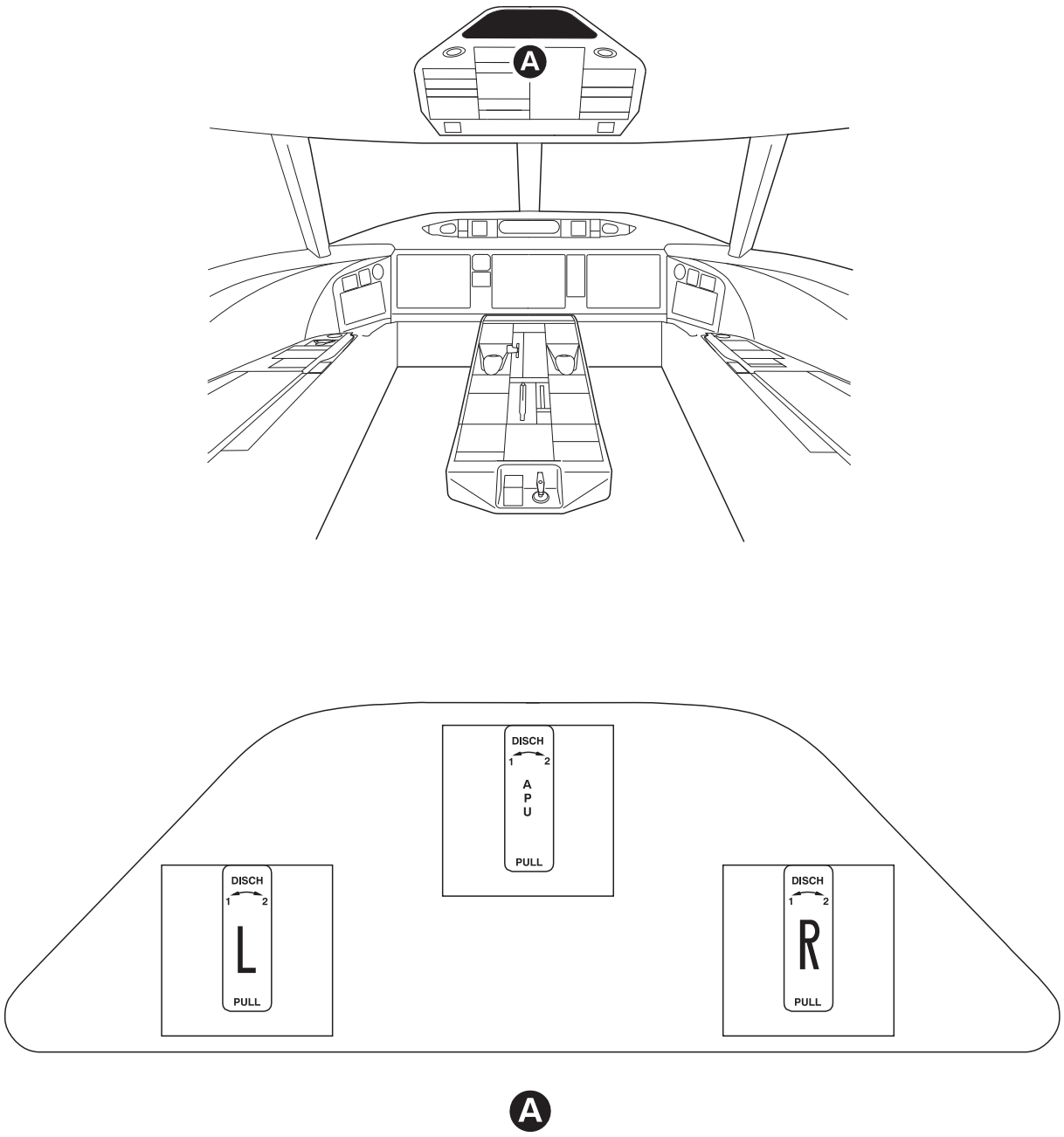
C. To stop the APU do the following:

- Pull the APU DISCH PULL FIRE handle.
- Then set the BATTERY MASTER SWITCH to OFF position.



Global Express, Global XRS and Global 5000 – Engine/APU Fire Controls
Engine/APU Fire Controls
Figure 4

EFFECTIVITY: ALL



Global 6000 and Global 5000 Featuring GVFD – Engine/APU Fire Controls
Engine/APU Fire Controls
Figure 5

EFFECTIVITY: ALL

4. Electrical Control Panels and Battery Locations

A. Refer to Figure 6 for aircraft and Avionics battery locations.

B. To isolate electrical power do the following:

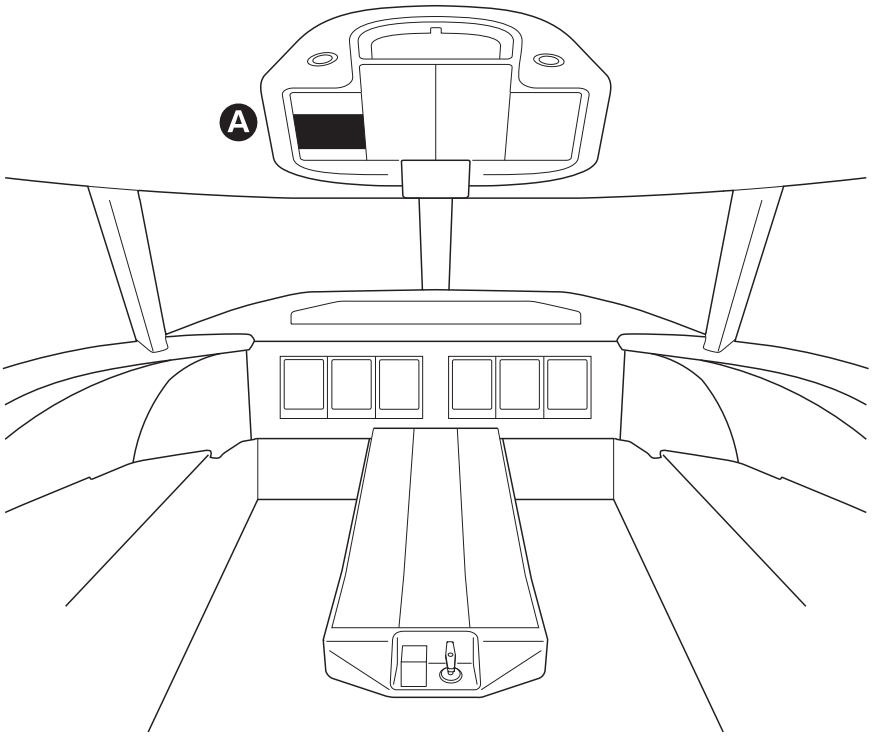
- If engines are running select all the generators including APU generator control Push Button Assembly switches to OFF.
- Switch the BATTERY MASTER switch to OFF.

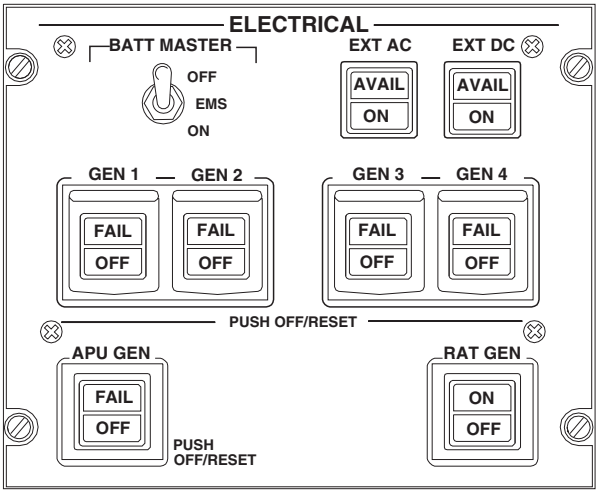
C. To disconnect main battery:

- Open the aft compartment access door.
- Turn the knob counterclockwise to disconnect the battery bayonet connector from the battery.

D. To disconnect avionics battery:

- Open the forward LH avionics equipment bay door.
- Turn the knob counterclockwise to disconnect the battery bayonet connector from the battery.



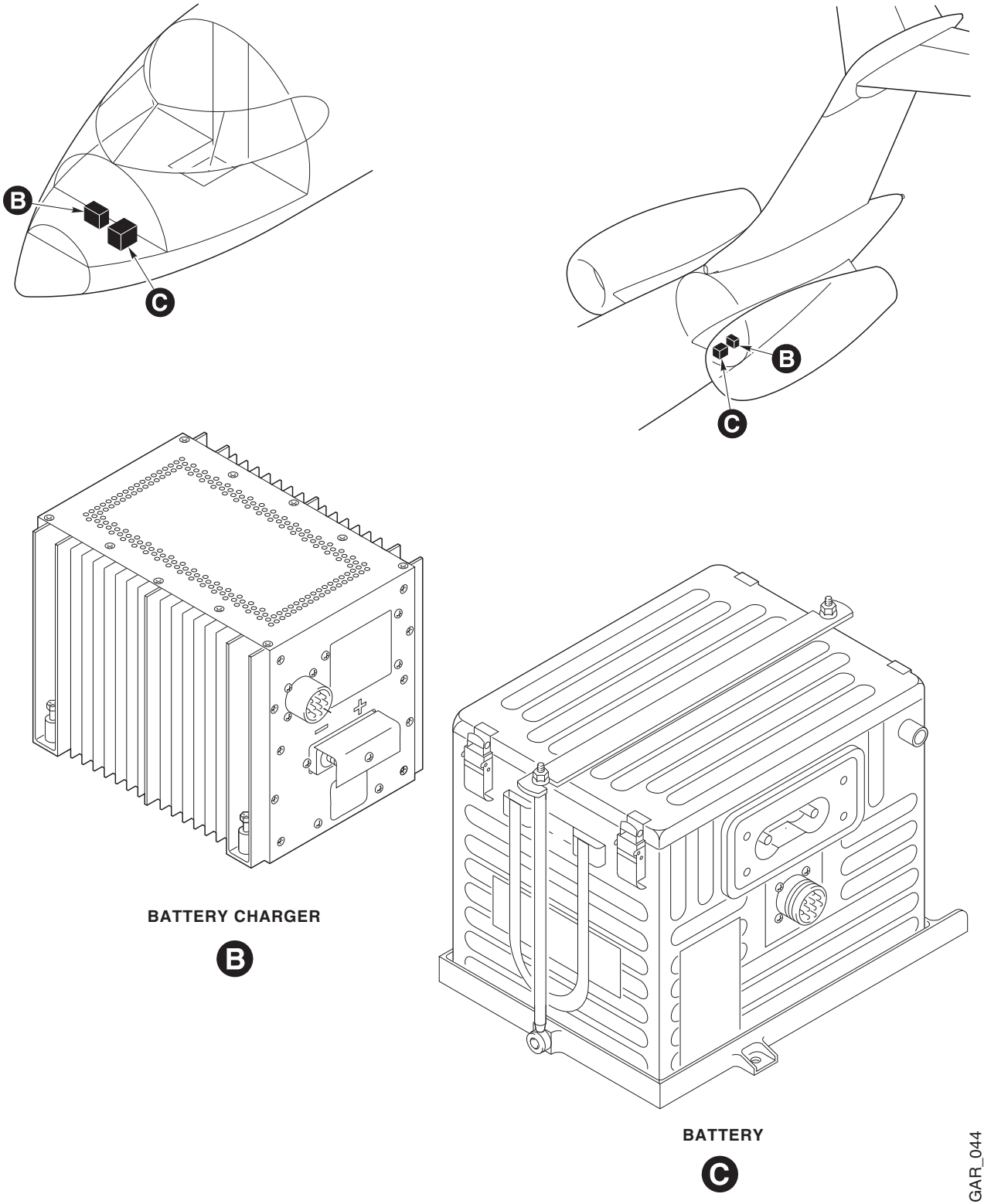


A

GAR_028

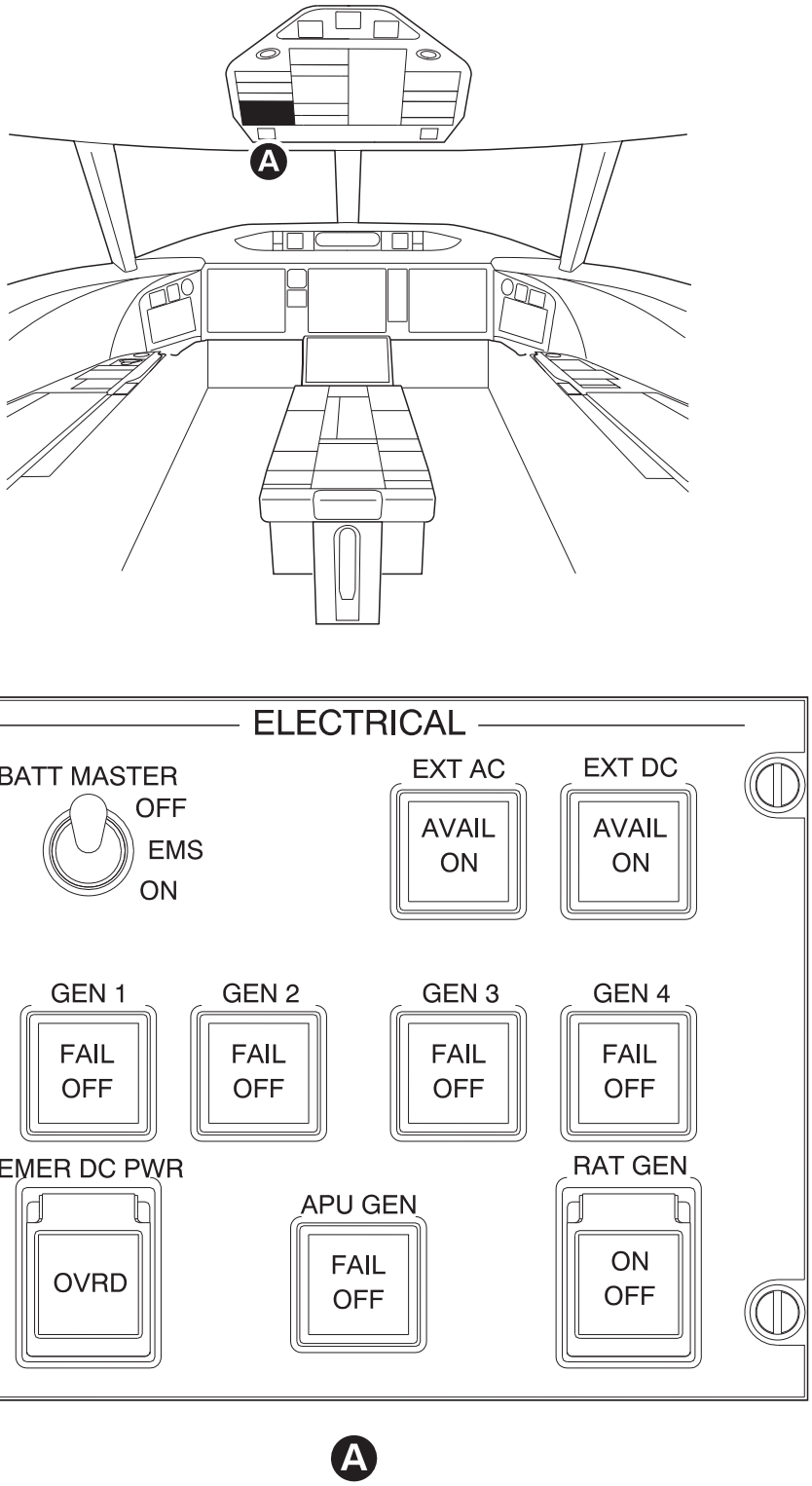
Global Express, Global XRS and Global 5000 – Electrical Control Panels and Battery Locations
Figure 6 (Sheet 1 of 2)

EFFECTIVITY: ALL



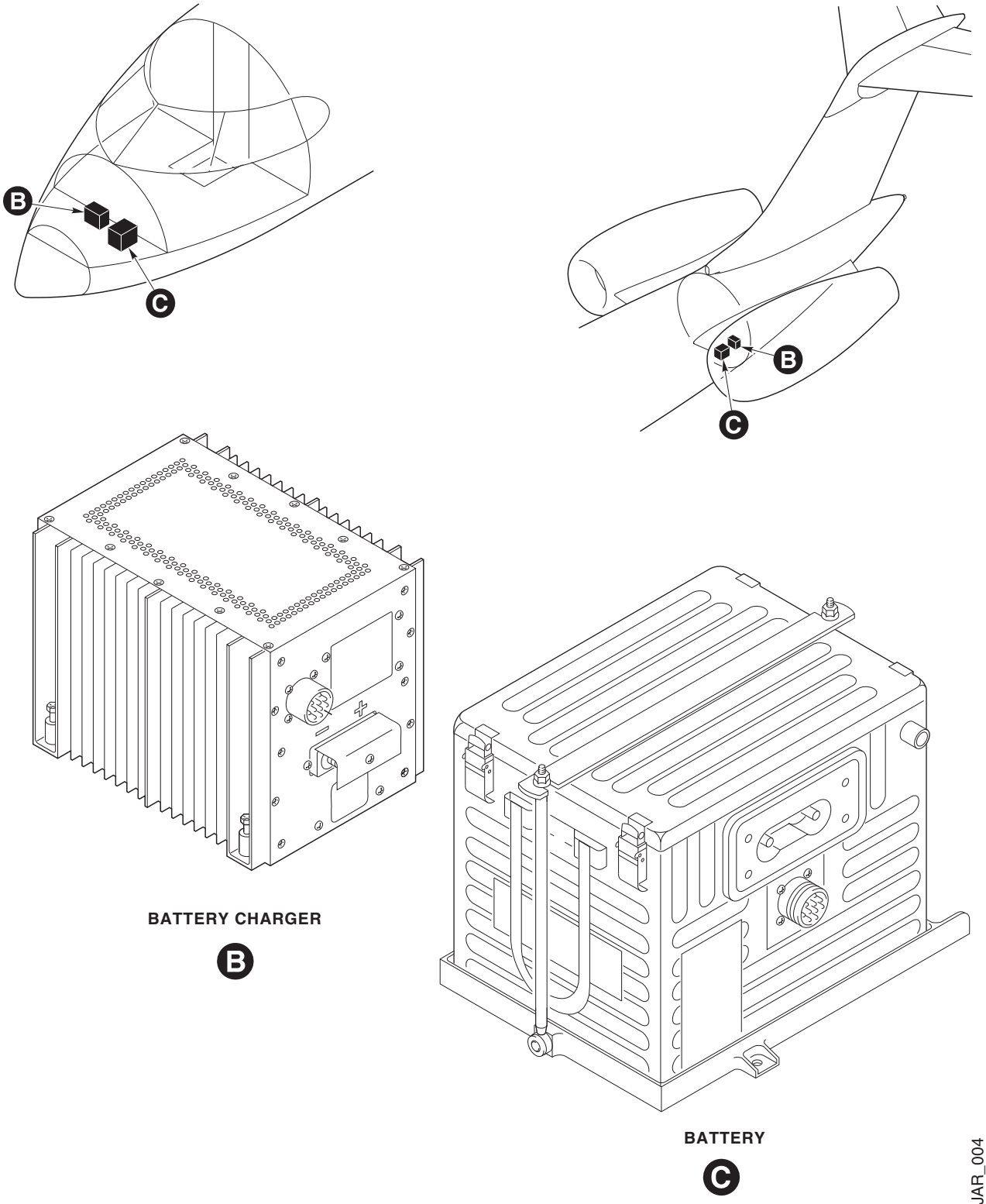
Global Express, Global XRS and Global 5000 – Electrical Control Panels and Battery Locations
Figure 6 (Sheet 2 of 2)

EFFECTIVITY: ALL



Global 6000 and Global 5000 Featuring GVFD – Electrical Control Panels and Battery Locations
Figure 7 (Sheet 1 of 2)

EFFECTIVITY: ALL



Global 6000 and Global 5000 Featuring GVFD – Electrical Control Panels and Battery Locations
Figure 7 (Sheet 2 of 2)

5. Flammable Fluids and Gases

Table 2 lists all flammable fluids and gases carried on the aircraft. The table also gives the specifications and the commercial grades and capacities.

Table 2 – Flammable Fluids and Gases

	CAPACITY					Specification or Commercial Grades
	Cubic Inches	U.S. Gallons	Imperial Gallons	Litres	Weight	
Global Express, Global Express XRS and Global 6000 Fuel System Total Capacity (Included Forward Fuel Tank)	—	6 523	5 432	24 689	44 572 lb, (20 217 kg)	ASTM D1655–Jet A or Jet A1 MIL–T–83133A JP–8 MIL–T–5624 JP–5
Global 5000 and Global 5000 featuring GVFD Fuel System Total Capacity	—	5 361	4 464	20 288	36 200 lb, (16 420 kg)	
Engine Oil Tank	N/A	2 X 3.21	2 X 2.67	2 X 12.15	2 X 39 lbs	MIL–L–7808 Type 1 or MIL–L–23699
Hydraulic Reservoir	#1: 375 #2: 525 #3: 930	#1: 1.6 #2: 2.24 #3: 4.03	#1: 1.4 #2: 1.8 #3: 3.34	#1: 6.145 #2: 8.603 #3: 15.240	See Note 1	Skydrol LD–4 Chevron HYJET IV
APU Oil Tanks	N/A	5.18qt	4.30 qt	4.9 L	See Note 1	MIL–L–7808 Type 1 or MIL–L–23699

Table 2 – Flammable Fluids and Gases						
	CAPACITY					Specification or Commercial Grades
	Cubic Inches	U.S. Gallons	Imperial Gallons	Litres	Weight	
Oxygen Bottle System Pressure 1800 PSI	4 X 50.0 FT^3	N/A	N/A	4 X 1416.6	—	Therapeutic Oxygen
Central Oil Filling Tank	N/A	1.5	1.25	5.7	See Note 1	MIL–L–7808 Type 1 or MIL–L–23699
Note 1: Includes the weight of the Engine, APU oil and Hydraulic fluid.						

On Global Express A/C

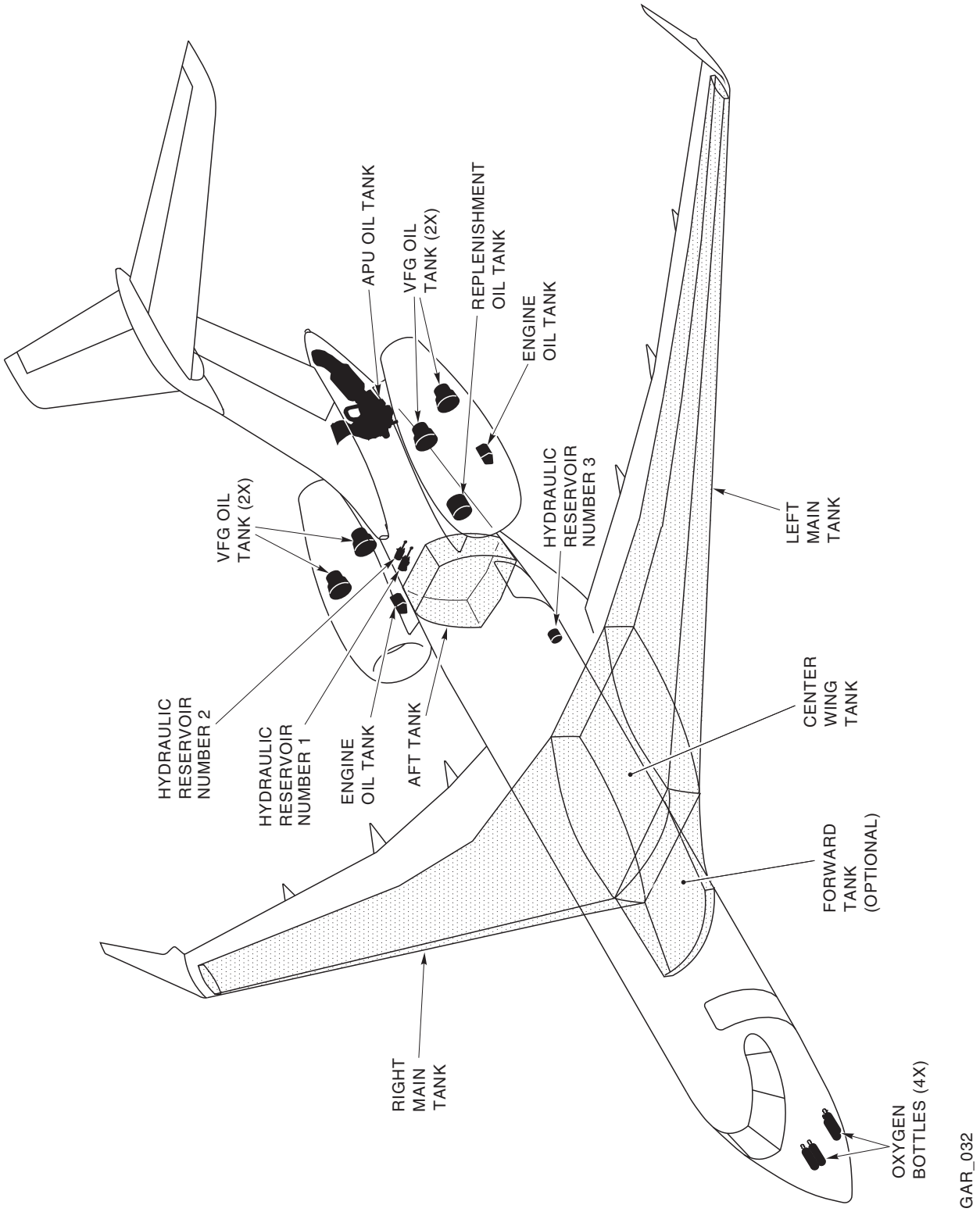
A. Refer to Figure 8 for locations of the reservoirs and tanks.

On Global Express XRS and Global 6000 A/C

B. Refer to Figure 8 for locations of the reservoirs and tanks.

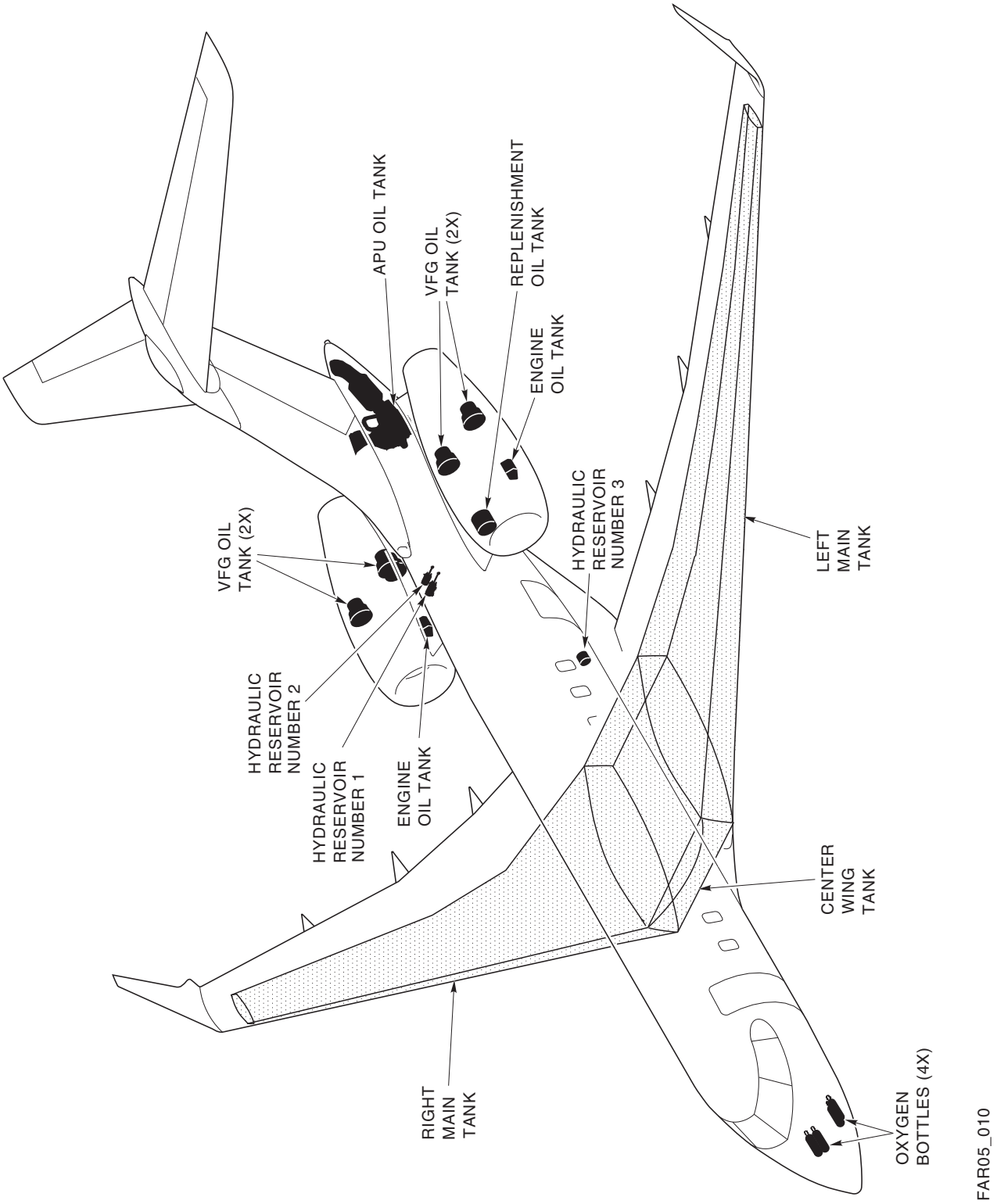
On Global 5000 and Global 5000 Featuring GVFD A/C

C. Refer to Figure 9 for locations of the reservoirs and tanks.



Global Express, Global XRS and Global 6000 – Flammable Fluids and Gasses
Figure 8

EFFECTIVITY: ALL



Global 5000 and Global 5000 Featuring GVFD – Flammable Fluids and Gasses
Figure 9

EFFECTIVITY: ALL

6. Fuel System General Layout

On Global Express A/C

A. The complete wing box is sealed to form three (Four Optional) fuel tanks, the left main, the right main and center tank (and the forward tank which is optional). There is an aft fuel tank which has two flexible elastomer bladders in a metal honeycomb structure mounted in the aft section of the aircraft. Refer to Figure 10.

On Global Express XRS and Global 6000 A/C

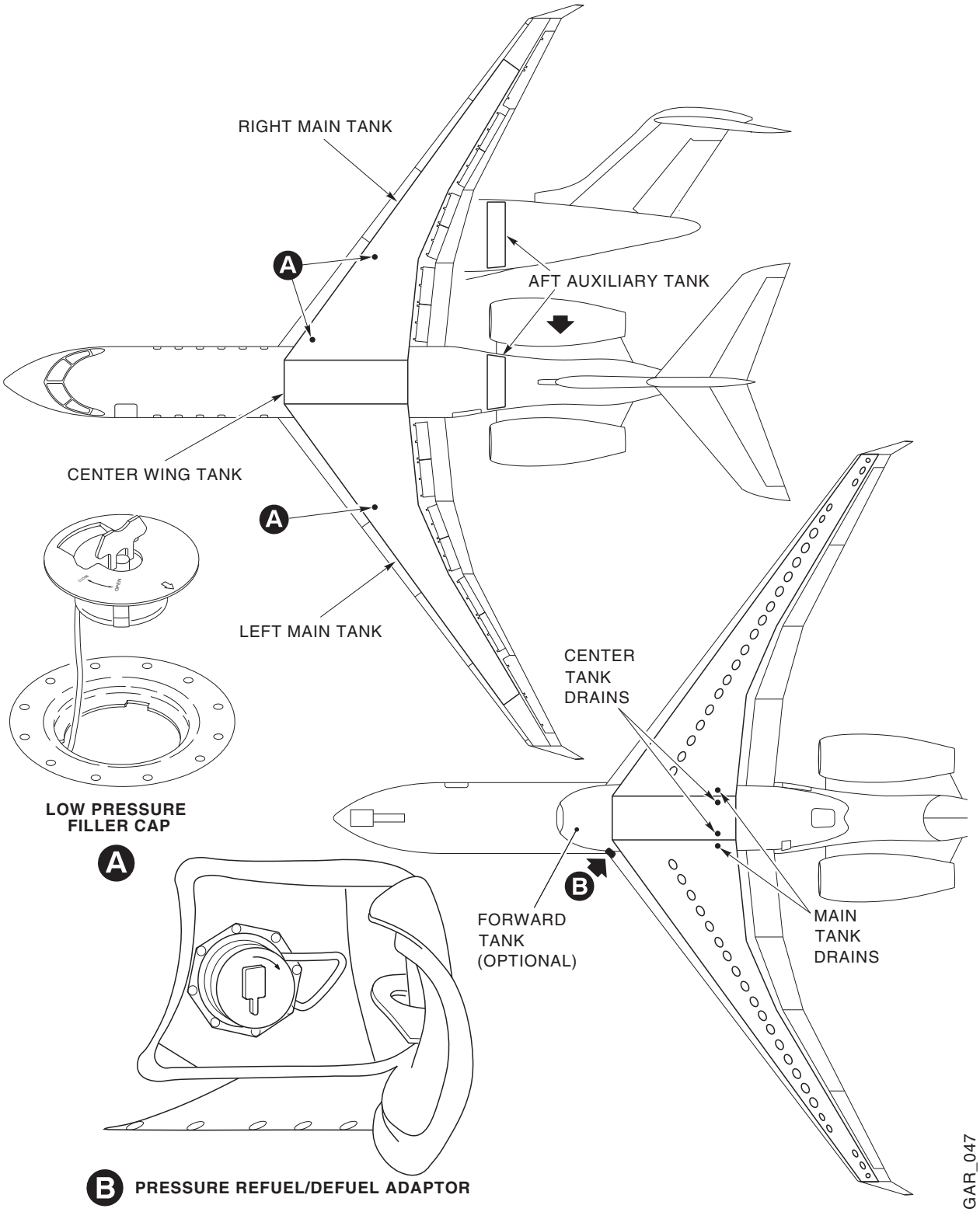
B. The complete wing box is sealed to form three (Four Optional) fuel tanks, the left main, the right main and center tank (and the forward tank which is optional). There is an aft fuel tank which has two flexible elastomer bladders in a metal honeycomb structure mounted in the aft section of the aircraft. Refer to Figure 10.

On Global 5000 and Global 5000 Featuring GVFD A/C

C. The complete wing box is sealed to form three fuel tanks, the left main, the right main and center tank. Refer to Figure 11.

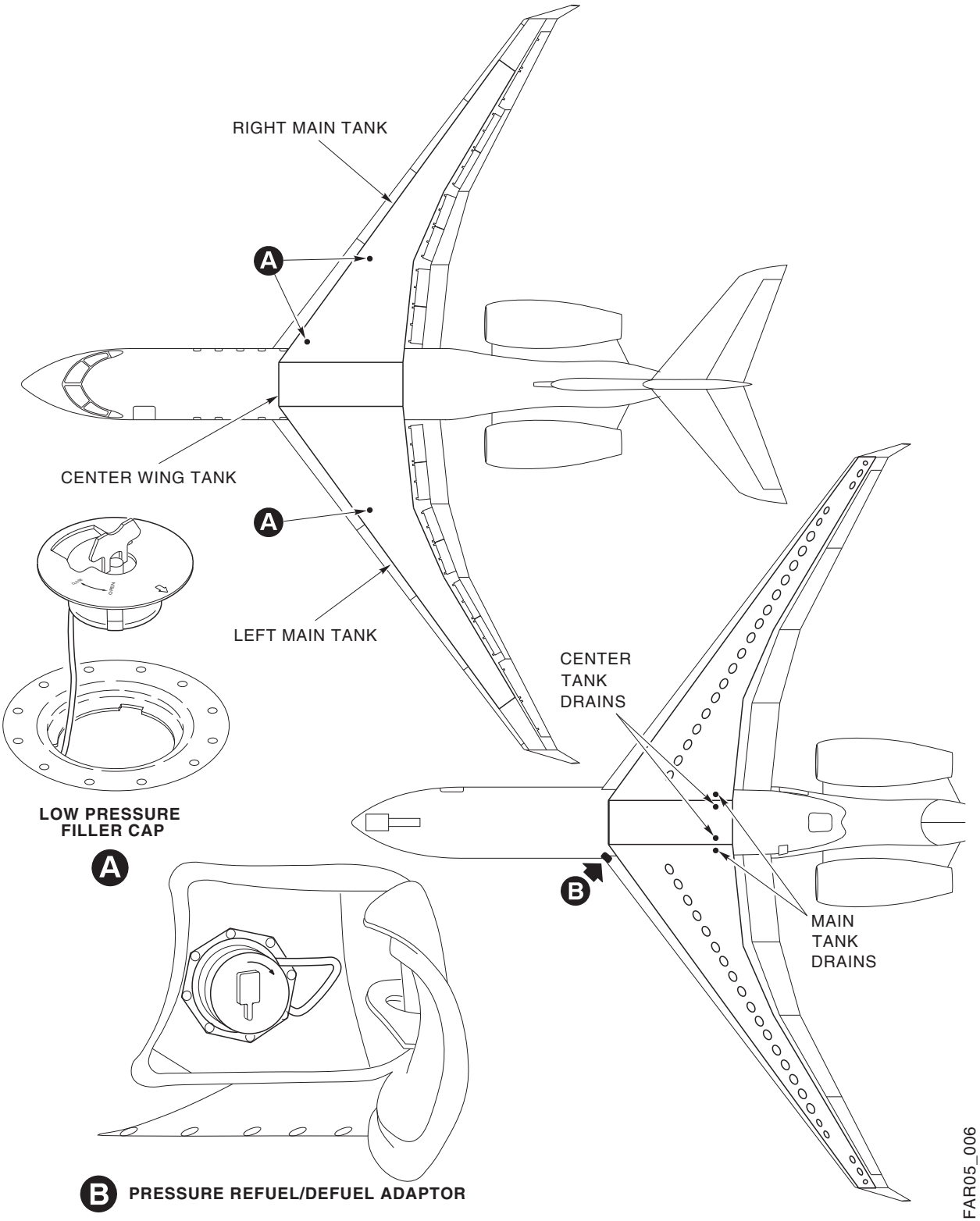
D. Baffles in the fuel tanks restrict unwanted fuel movement. In the main tanks, check valves that swing let fuel flow only in the inboard direction. There are water drain valves (self–closing, dual seal type), at all low points of the system.

E. Refer to Figure 12 for the fuel controls in the flight compartment.



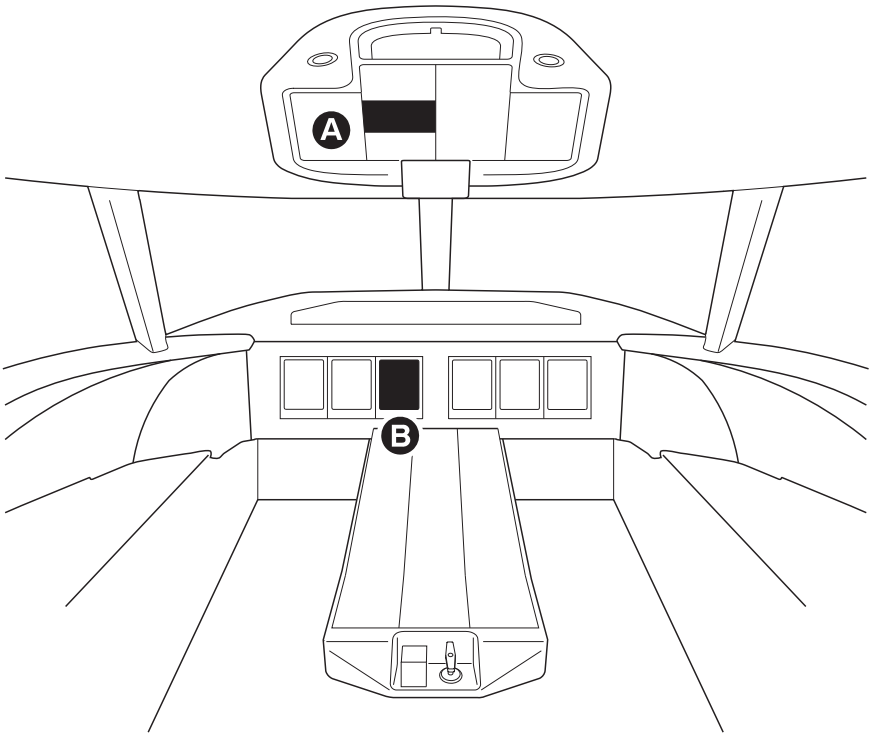
Global Express, Global XRS and Global 6000 – Fuel System Layout
Figure 10

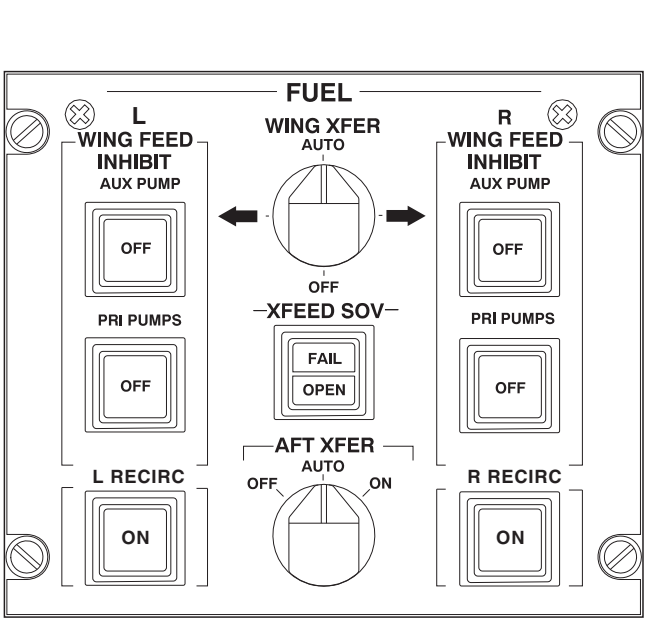
EFFECTIVITY: ALL

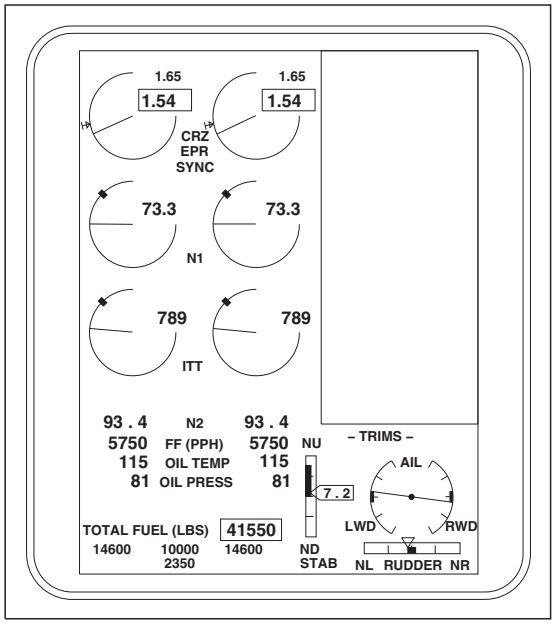


Global 5000 and Global 5000 Featuring GVFD – Fuel System Layout
Figure 11

EFFECTIVITY: ALL





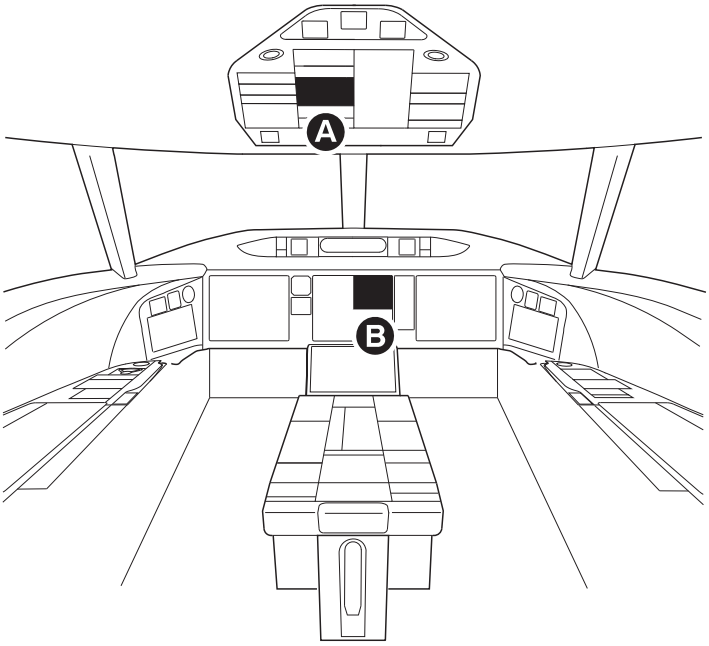


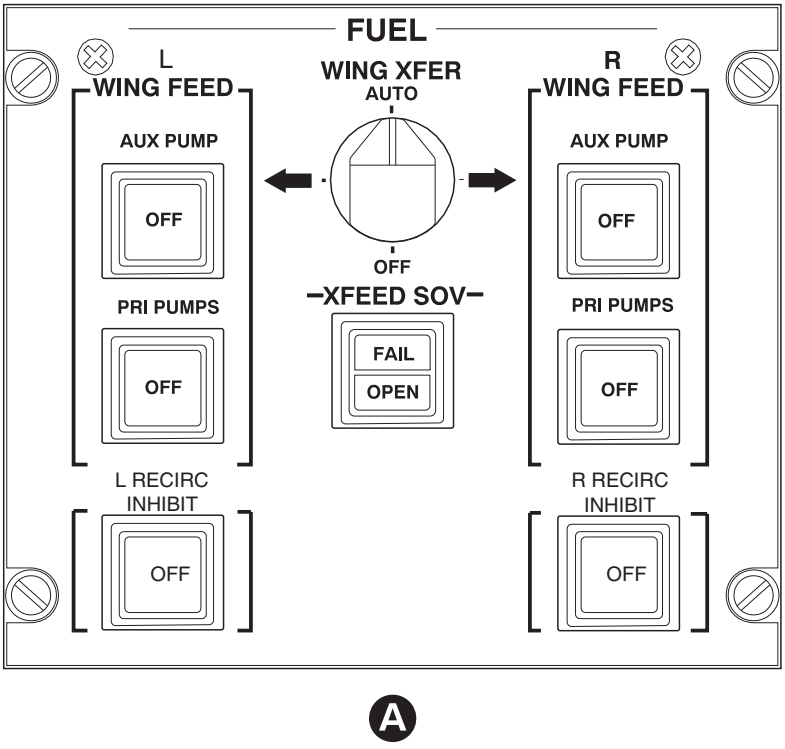
A B

GAR_034

Global Express, Global XRS and Global 5000 – Fuel Controls in the Flight Compartment
Figure 12

EFFECTIVITY: ALL

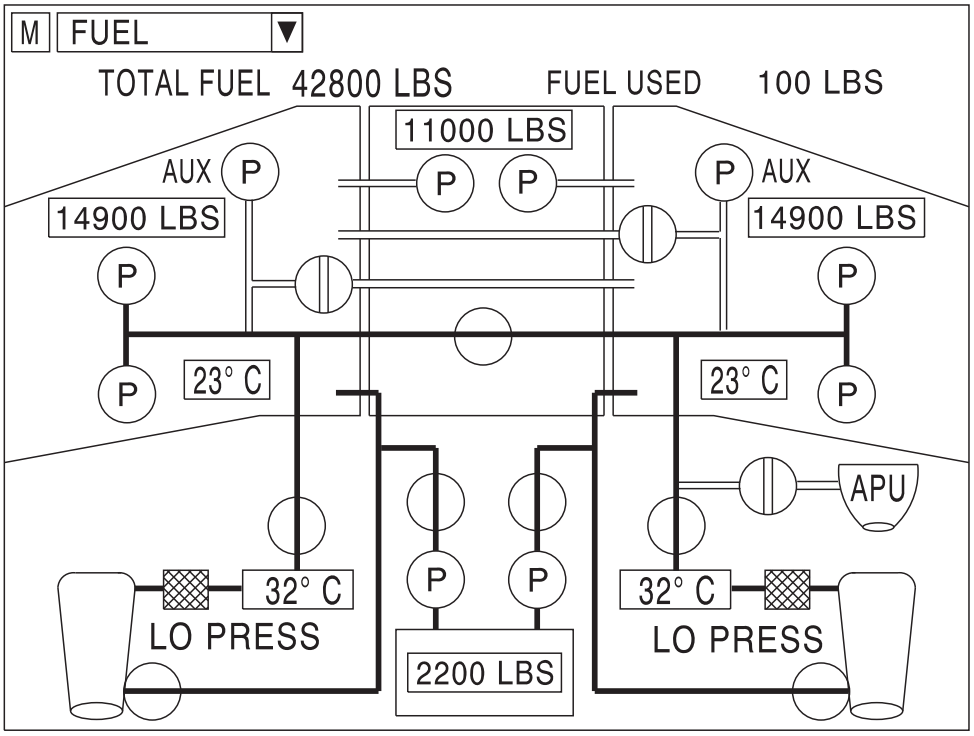




JAR_005

Global 6000 and Global 5000 Featuring GVFD – Fuel Controls in the Flight Compartment
Figure 13 (Sheet 1 of 2)

EFFECTIVITY: ALL



FUEL SYNOPTIC PAGE

B

JAR_006

Global 6000 and Global 5000 Featuring GVFD – Fuel Controls in the Flight Compartment
Figure 13 (Sheet 2 of 2)

7. Emergency Break–In Zone

On Global Express A/C

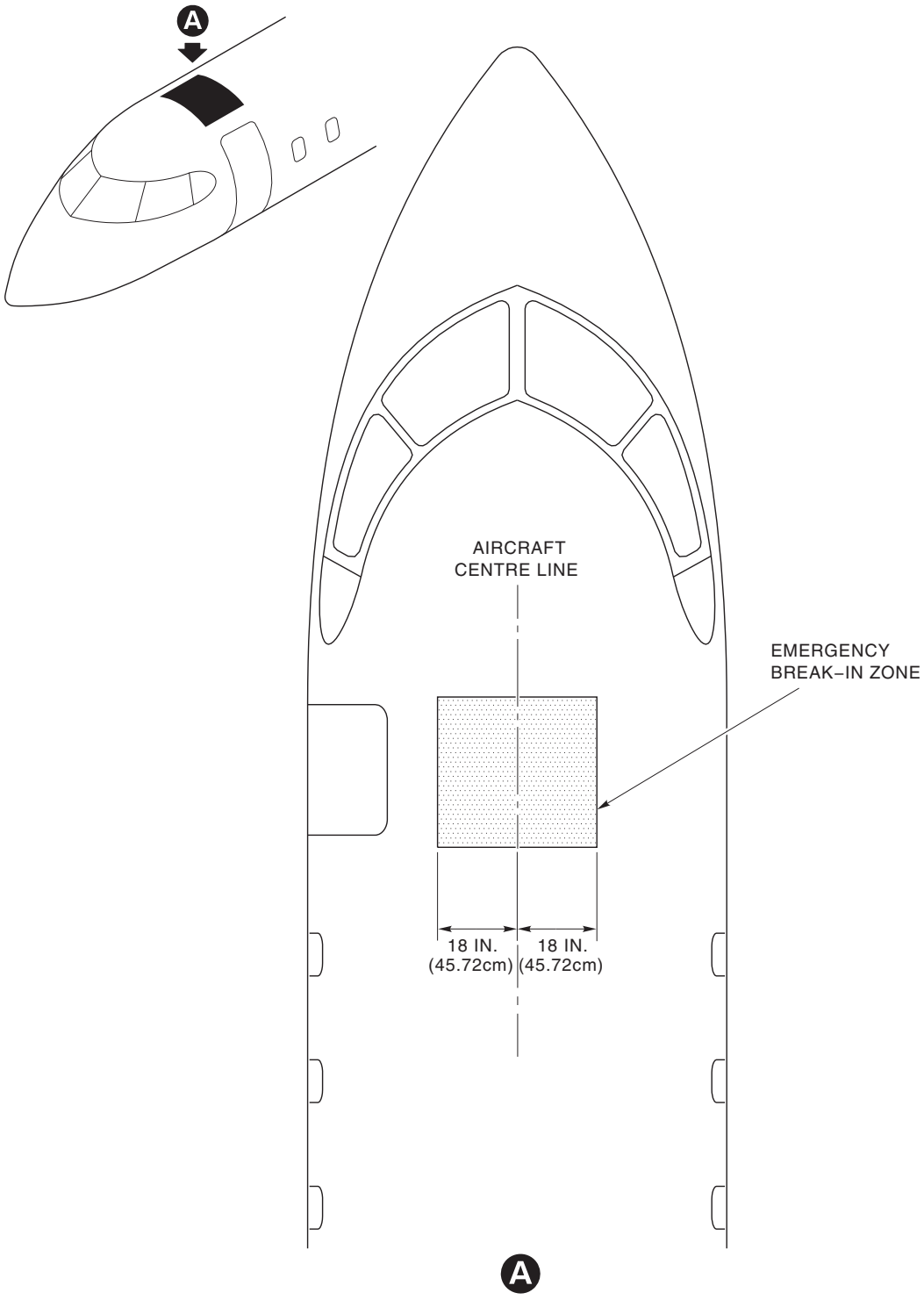
A. Aircraft may or may not be painted with breakin marks. The area shown will offer the least restriction to a forced entry into the aircraft. Refer to Figure 14.

On Global Express XRS and Global 6000 A/C

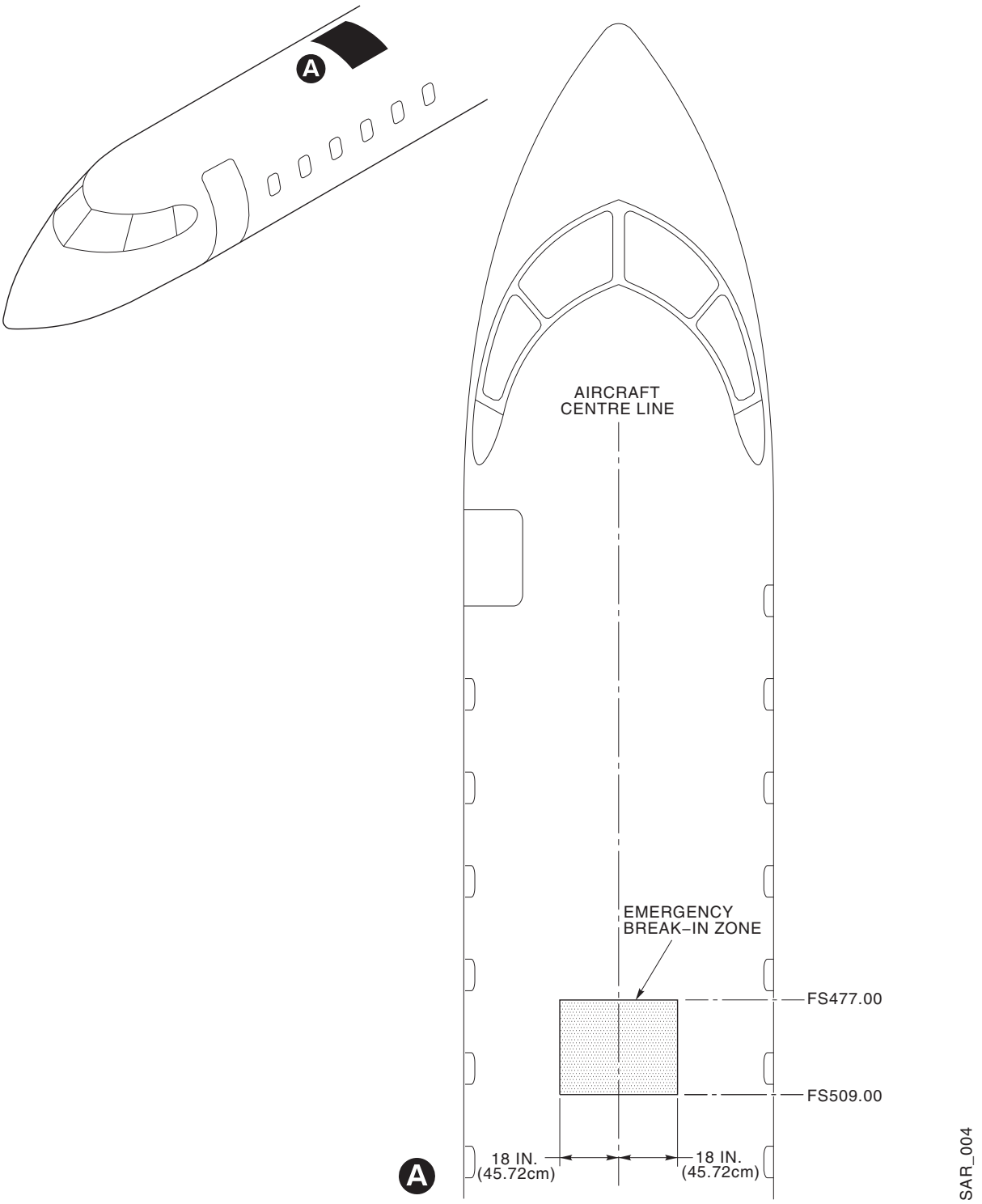
B. Aircraft may or may not be painted with breakin marks. The area shown will offer the least restriction to a forced entry into the aircraft. Refer to Figure 15.

On Global 5000 and Global 5000 Featuring GVFD A/C

C. Aircraft may or may not be painted with breakin marks. The area shown will offer the least restriction to a forced entry into the aircraft. Refer to Figure 16.

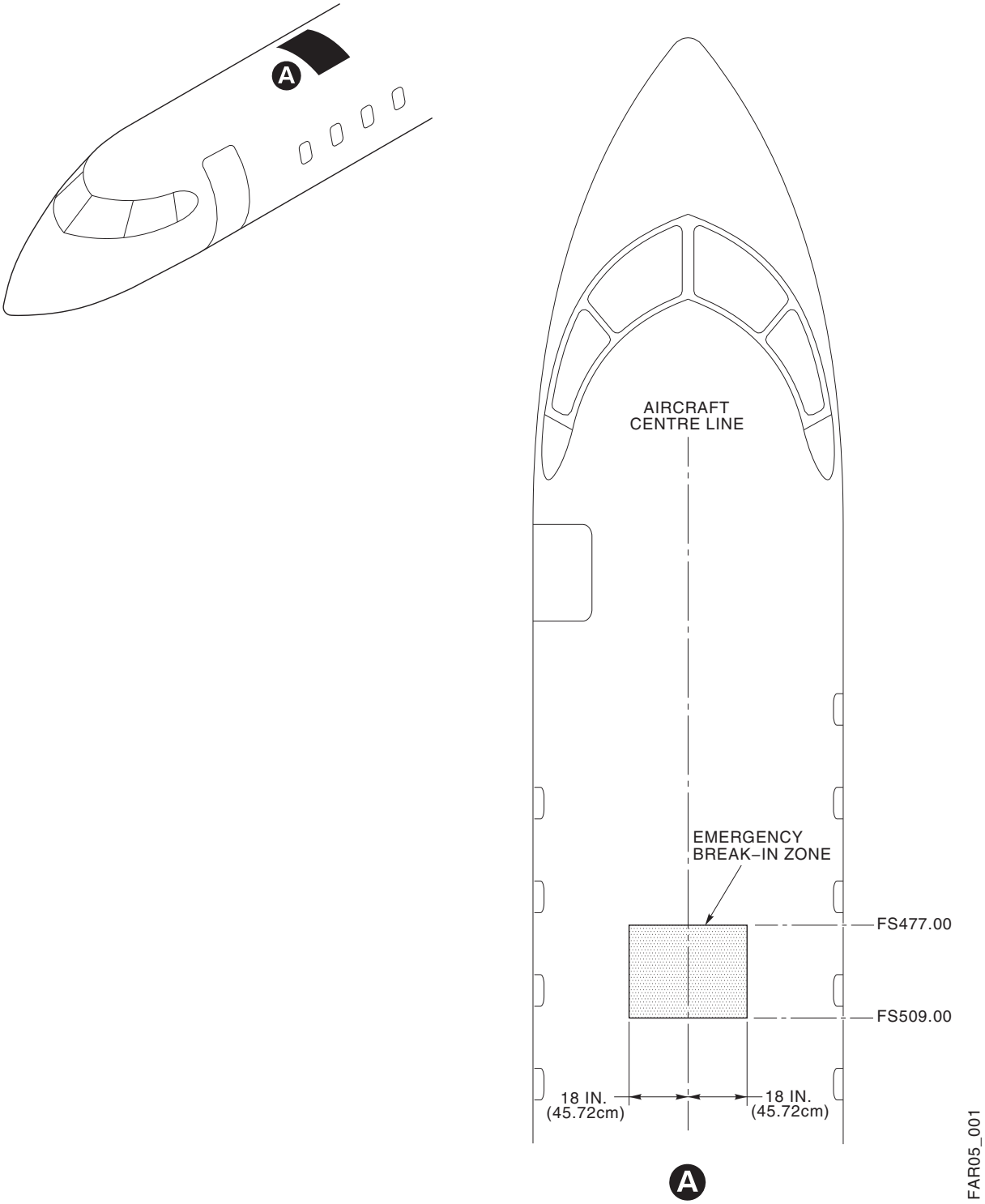


Global Express – Emergency Break–In Zone
Figure 14



Global Express XRS and Global 6000 – Emergency Break–In Zone
Figure 15

EFFECTIVITY: ALL



Global 5000 and Global 5000 Featuring GVFD – Emergency Break–In Zone
– Emergency Break–In Zone
Figure 16

EFFECTIVITY: ALL

8. Tires

A. If the wheels on the aircraft become hotter than usual (for example, because of hard braking or under–inflation), there is a possibility that the fusible plugs can melt. This will release tire pressure quickly. Thus, it is important for persons not to approach the wheels from the sides. Refer to Figure 1.

9. Composite Material Fire Precautions

A. General

(1) With the new generation aircraft, composite materials are widely used. These materials are made by bonding layers of fiber together in a "criss–cross" pattern with resins, epoxies and phenols.

On Global Express A/C

(2) Refer to Figure 17 for the locations of the composite structures.

On Global Express XRS and Global 6000 A/C

(3) Refer to Figure 18 for the locations of the composite structures.

On Global 5000 and Global 5000 Featuring GVFD A/C

(4) Refer to Figure 19 for the locations of the composite structures.

B. Dangerous Effects of Free Fibers

(1) In the case of an aircraft fire, the bonding agents (resins, epoxies and phenols) can become unstable and break down. This releases dangerous gases into the atmosphere. Fire fighters and other personnel should avoid the downwind area of the fire, specially when they do not use self–contained breathing equipment. As well as dangerous gases, the fire also releases small particles of free fibers.

(2) When the fire is extinguished and the structure becomes cool, the bonding agents stop the release of these free fibers. However, the hazards due to the release of free fibers continues and can become a long term problem. This is because:

- When The free fibers come in contact with fire, the fibers tend to break into shorter lengths and smaller diameters. This makes them light and easily airborne. The free fibers also absorb pyrolytic acid. This poisonous material is picked up from the burned materials. The smoke from the fire can carry the free fibers and can therefore send the contamination over a large area.
- Without correct protection, personnel can breathe in the free fibers and they can bond to a person’s respiratory system. They can also move to other internal organs and cause damage. The free fibers are very stable and there is no deterioration of the fibers in the body.

– They will burn the eyes.

– The ends of the fibers are very sharp. This will let them pass through clothing and skin. If you rub the affected area, you can cause dermatitis which will require medical treatment.

C. Control of Free Fibers

(1) As soon as the fire fighting and medical activities are completed, take steps to limit the spread of the free fibers. This is important when you move the damaged aircraft.

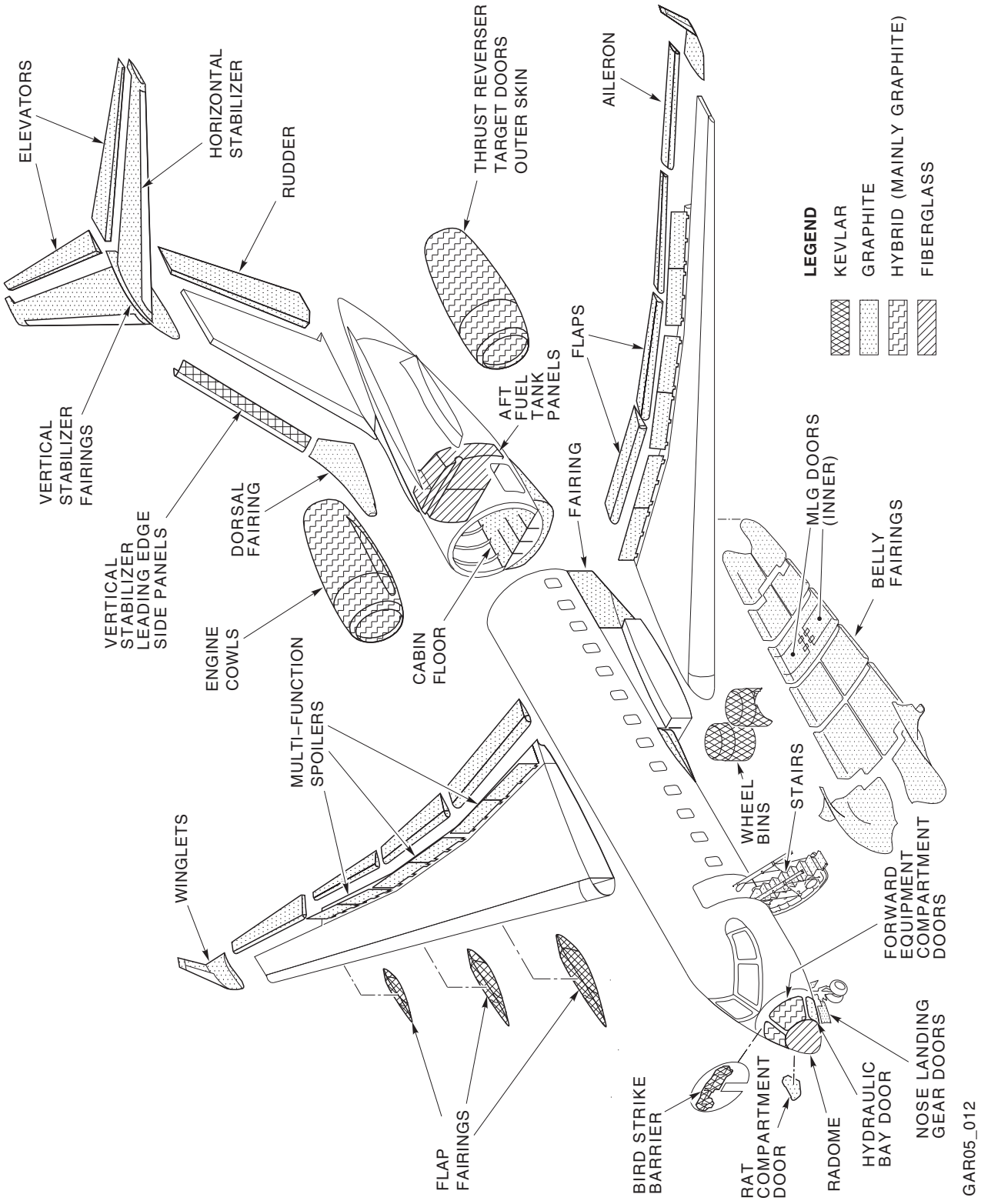
(2) Treat the components that can release free fibers as follows:

– Keep the materials wet with Aqueous Fire Fighting Foam (AFFF) or water. With the AFFF, wet the materials every six hours

NOTE: Light oil, clear liquid furniture wax, polyacrylic acid or strippable paint, are all good materials to contain free fibers. These liquids are not considered to be a problem to future investigations.

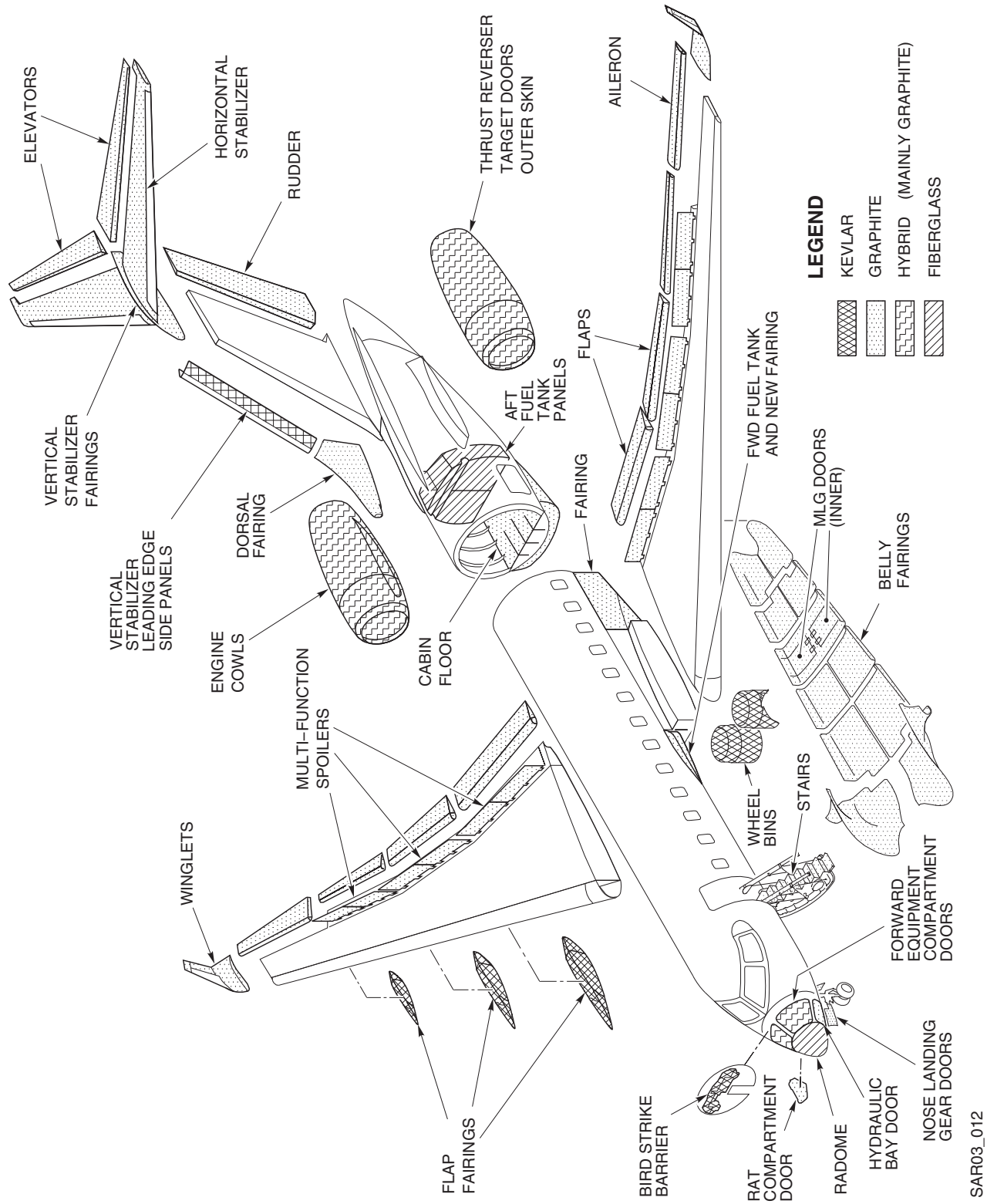
– Move the damaged aircraft the minimum distance possible and keep it on paved surfaces when possible. This will make the removal of the contamination more efficient.

(3) All personnel that work in the free fiber contaminated area must wear disposable paper coveralls, heavy boots, thick leather gloves, goggles, and a dust mask. They must discard the paper coveralls and dust mast when they leave the contaminated area.



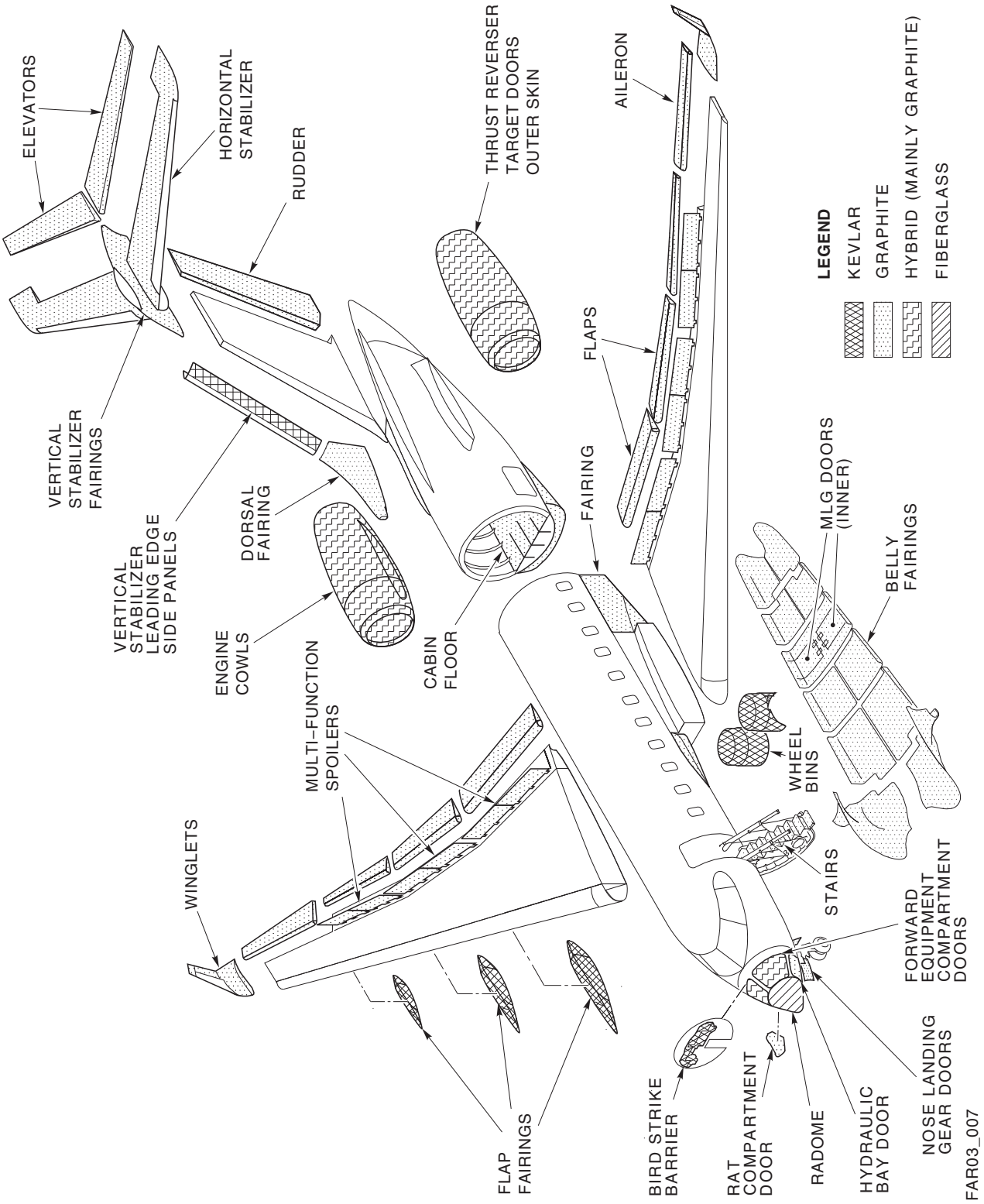
Global Express – Composite Materials
Figure 17

EFFECTIVITY: ALL



Global Express XRS and Global 6000 – Composite Materials
Figure 18

EFFECTIVITY: ALL



Global 5000 and Global 5000 Featuring GVFD – Composite Materials
Figure 19

GROUND SAFETY

1. Towing the Aircraft

A. General

(1) If the aircraft cannot be taxied, push or tow the aircraft to move it.

(2) To push or tow the aircraft, attach the towbar to the nose wheel axle with the lugs on the towbar. Let the tow vehicle control movement of the aircraft. If the aircraft is being pushed and you apply the aircraft brakes hard, this can cause the nose gear to come off the ground.

(3) Refer to Figure 1 for the tow bar installation.

On Global Express A/C

(4) Refer to Figure 2 for the turn radii.

On Global Express XRS and Global 6000 A/C

(5) Refer to Figure 2 for the turn radii.

On Global 5000 and Global 5000 Featuring GVFD A/C

(6) Refer to Figure 3 for the turn radii .

B. Towing Aircraft with Bridle

The following procedures is to tow the aircraft with Bridle.

Table 1 – Towing Equipment

REFERENCE	DESIGNATION
09X–10–04	TOWING BRIDLE
23X–51–01	HEADSET WITH MICROPHONE AND LEAD
23X–51–02	HEADSET EXTENSION CORD

(1) Installation of Towing Bridle

CAUTION: DO NOT INSTALL THE WIRE ROPE ASSEMBLIES ON TOP OF THE BRAKE LINES OR WIRING HARNESS. MAKE SURE THAT ONLY THE LEATHER BINDING OF THE WIRE ROPE ASSEMBLIES TOUCHES THE MAIN LANDING GEAR. YOU CAN CAUSE DAMAGE TO EQUIPMENT.

(a) Attach the rope assemblies around each main landing gear as follows:

1 To tow the aircraft forward, release the clamps that hold the brake lines to the main beam. Put the wire rope assemblies behind the brake lines on the main beam, then around the main beam. Refer to Figure 4.

2 To tow the aircraft rearward, put the wire rope assemblies over the trailing arm link and below the axle of each MLG. Refer to Figure 4.

NOTE: Loosen or remove the retaining clips to put the wire rope assembly between the MLG and the brake lines and the wire harness.

WARNING: MAKE SURE THAT THERE ARE NO KINKS IN THE WIRE ROPE ASSEMBLIES. KINKS CAN CAUSE THE WIRE ROPE ASSEMBLIES TO BREAK. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO THE EQUIPMENT.

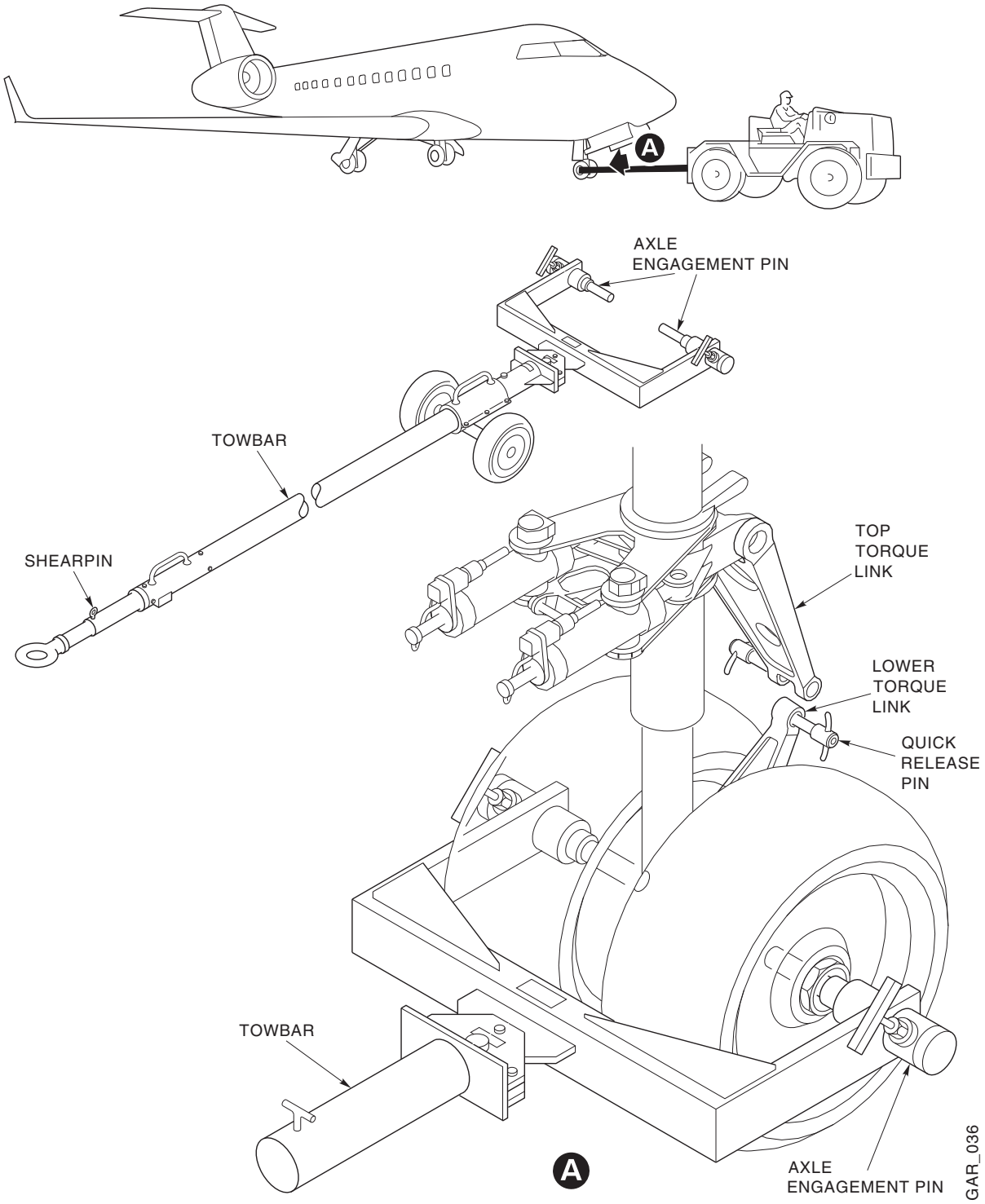
3 Tow the aircraft. Obey all the safety precautions (refer to Paragraph 1.D.).

(2) Removal of Towing Bridle

(a) Disconnect the wire rope assemblies from the anchor shackles.

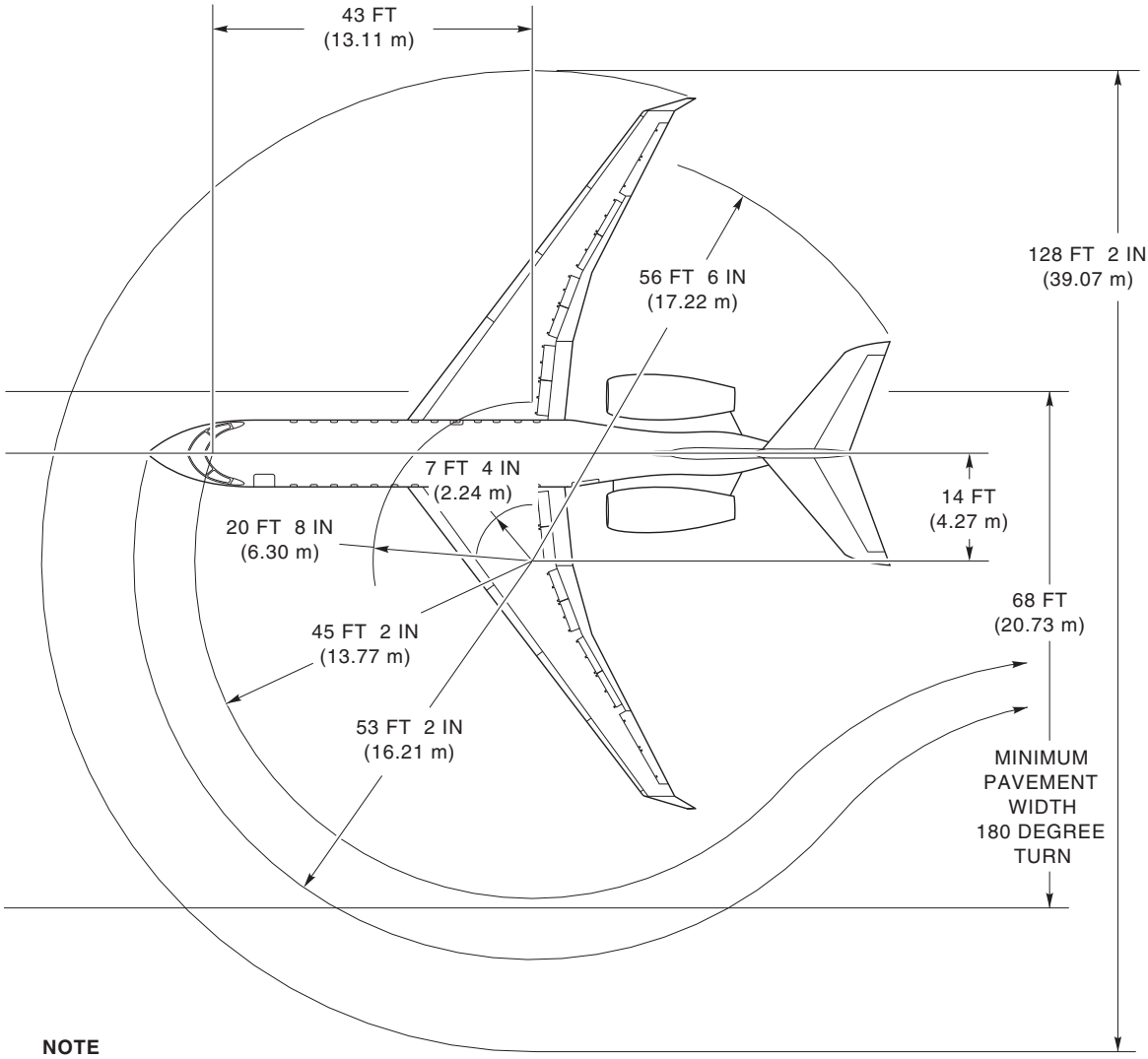
(b) Remove the wire rope assemblies from the MLG.

(c) Clean, lubricate, and put the towing bridle into storage.



Equipment to Tow the Aircraft
Figure 1

EFFECTIVITY: ALL



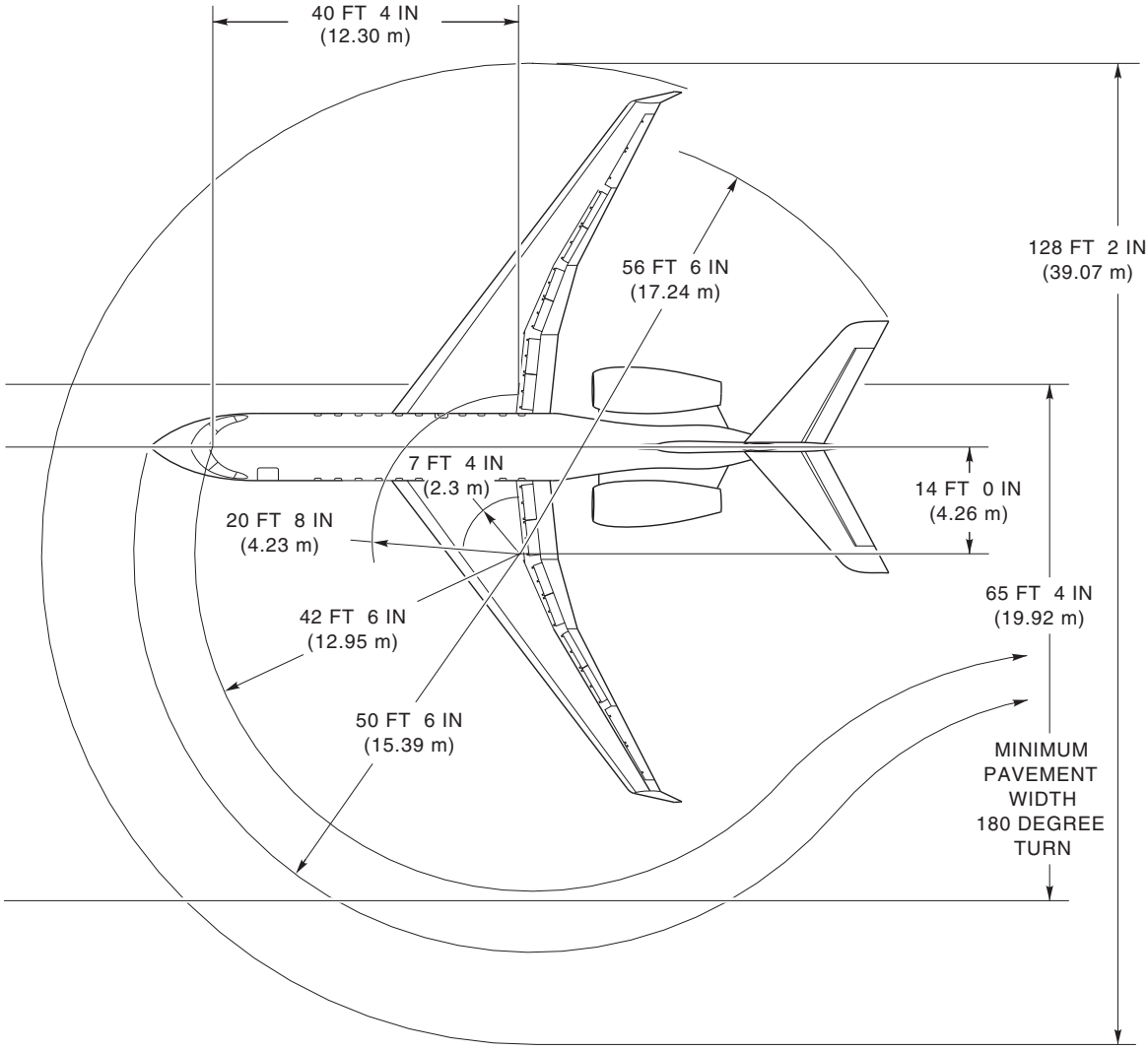
NOTE

MAXIMUM STEERING
- Symmetrical and idle thrust
- No differential braking
- 75 deg. steering angle
- 3 deg. slip
- Dry runway
- Slow continuous turn
- Max A/C weight
- AFT CG.

GMF_009

Global Express, Global XRS and Global 6000 – Turn Radii – Turn Radii
Figure 2

EFFECTIVITY: ALL



NOTE

MAXIMUM STEERING

1. Symmetrical and idle thrust
2. No differential braking
3. 75 deg. steering angle
4. 3 deg. slip
5. Dry runway
6. Slow continuous turn
7. Max A/C weight
8. AFT CG.

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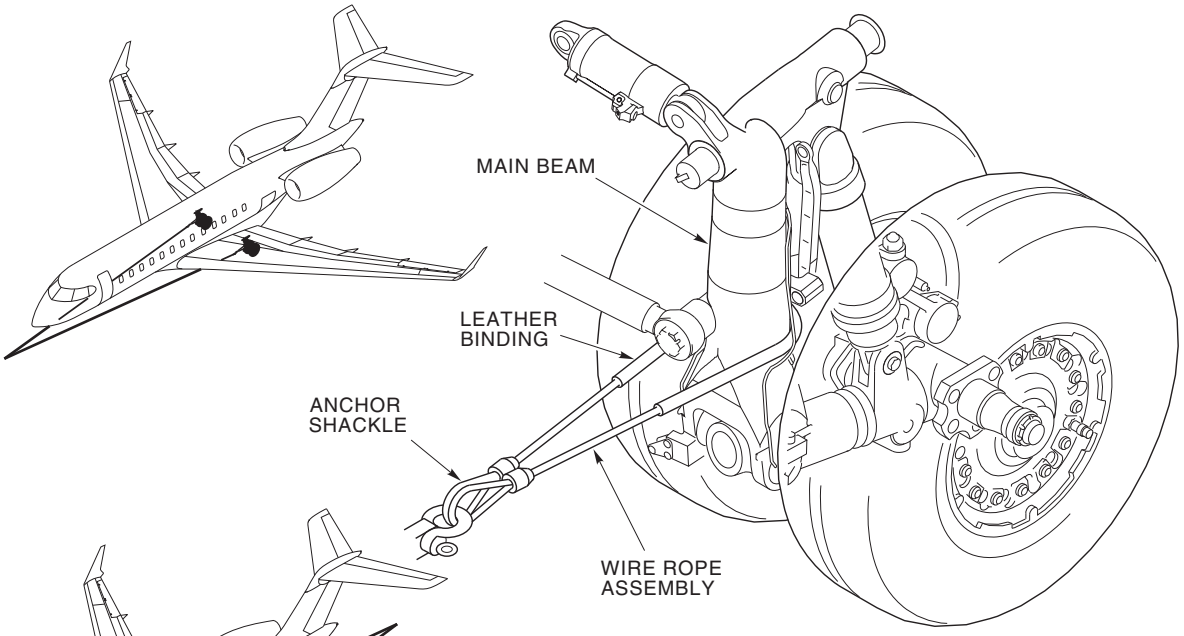
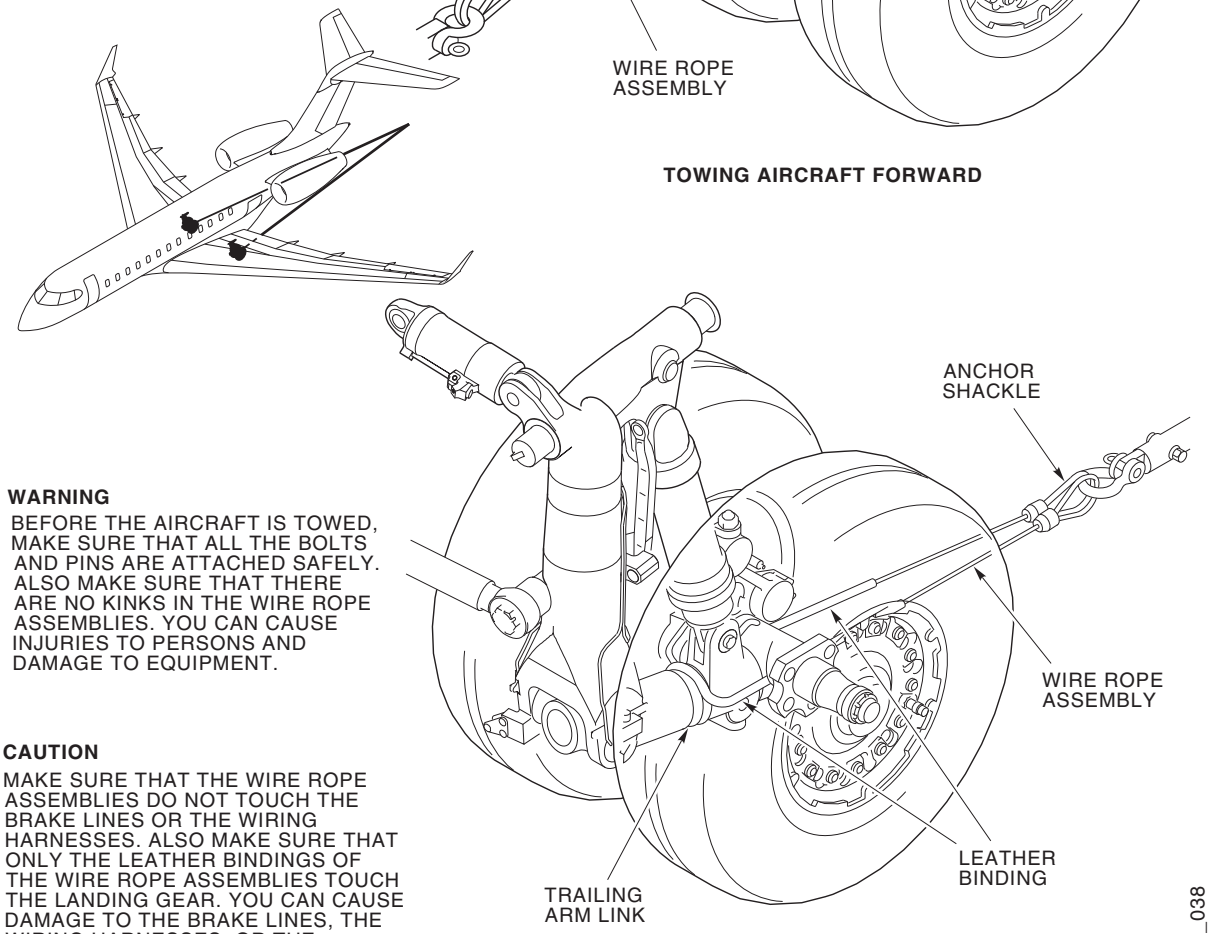
Global 5000 and Global 5000 Featuring GVFD – Turn Radii
Figure 3

EFFECTIVITY: ALL



TOWING AIRCRAFT FORWARD



WARNING

BEFORE THE AIRCRAFT IS TOWED, MAKE SURE THAT ALL THE BOLTS AND PINS ARE ATTACHED SAFELY. ALSO MAKE SURE THAT THERE ARE NO KINKS IN THE WIRE ROPE ASSEMBLIES. YOU CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION

MAKE SURE THAT THE WIRE ROPE ASSEMBLIES DO NOT TOUCH THE BRAKE LINES OR THE WIRING HARNESSES. ALSO MAKE SURE THAT ONLY THE LEATHER BINDINGS OF THE WIRE ROPE ASSEMBLIES TOUCH THE LANDING GEAR. YOU CAN CAUSE DAMAGE TO THE BRAKE LINES, THE WIRING HARNESSES, OR THE LANDING GEAR.

TOWING AIRCRAFT REARWARD

GAR_038

Towing by Main Landing Gear (MLG)
Figure 4

C. Ground Lockpin

(1) Refer to Figure 5 , Figure 6 and Figure 7 for data on the ground lockpins that are installed to safety the RAT and the landing gear for operations on the ground

D. Safety Precautions

CAUTION: WHEN YOU TOW THE AIRCRAFT WITH TORQUE LINKS DISCONNECTED, OBEY THE PRECAUTIONS THAT FOLLOW:

- DISCONNECT THE TOWBAR BEFORE YOU ARM THE NOSEWHEEL STEERING.
- DO NOT TOW AT MORE THAN 5 MPH (8 KM/H).
- DO NOT PUSH REARWARD AT MORE THAN 3 MPH (5 KM/H).
- DO NOT USE THE AIRCRAFT BRAKES TO STOP THE AIRCRAFT UNLESS THERE IS AN EMERGENCY.
- KEEP TURNS AS LARGE AS POSSIBLE.
- MAKE ONLY SLOW CHANGES TO SPEED OR DIRECTION.

IF YOU DO NOT OBEY THESE PRECAUTIONS, DAMAGE TO THE AIRCRAFT OR EQUIPMENT CAN OCCUR.

(1) Put the switch that controls the nose wheel doors to the SAFE position before you put the ground lockpin into the RAT.

(2) Make sure that the switch to arm the nose wheel steering stays in the OFF position while you tow or push the aircraft. Refer to Figure 8.

(3) Make sure to install ground lockpins in the NLG and the MLG. Refer to Figure 5 and and Figure 6.

(4) Make sure to inflate the tires to their correct pressures if possible.

(5) Install the towing bridle (refer to paragraph 1.B.(1)).

(6) Remove all items from around the aircraft, such as ground equipment, that can prevent the movement of the aircraft.

(7) Put a qualified technician in the flight compartment to monitor the brake system pressure and operate the aircraft brakes.

(8) Put the Battery Master switch to ON position.

NOTE: If the Battery Master switch is OFF, normal brakes operation will not function. Only emergency brakes can be operated.

(9) Where conditions permit, start the APU to have electrical power on the aircraft.

WARNING: DURING THE OPERATION TO TOW THE AIRCRAFT, APPLY THE BRAKES ONLY FOR AN EMERGENCY STOP. YOU CAN DRAIN THE ACCUMULATOR PRESSURE WHICH CAN CAUSE THE BRAKES TO NOT OPERATE. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(10) In the flight compartment, make sure that brake pressure is sufficient (1 100 psi (7 584.28 kPa)). If the pressure is not sufficient, operate the electric motor–driven pump for Number 3 hydraulic systems.

(11) Connect the intercom system between the driver of the tow vehicle and the technician in the flight compartment.

(12) In an area that has little space, have a person at each wingtip to make sure of sufficient clearance from objects and the aircraft.

(13) Before you move the aircraft rearward, have a person at the tail to make sure of sufficient clearance from objects and the aircraft.

(14) Remove the chocks and release the parking brake.

(15) Tow the aircraft not more than 15 MPH (24 KM/H) or push the aircraft 3 MPH (5 KM/H) maximum.

(16) After the tow operation, make sure the nose wheels are put to the center position. Do the operations that follow:

(a) Apply the parking brake.

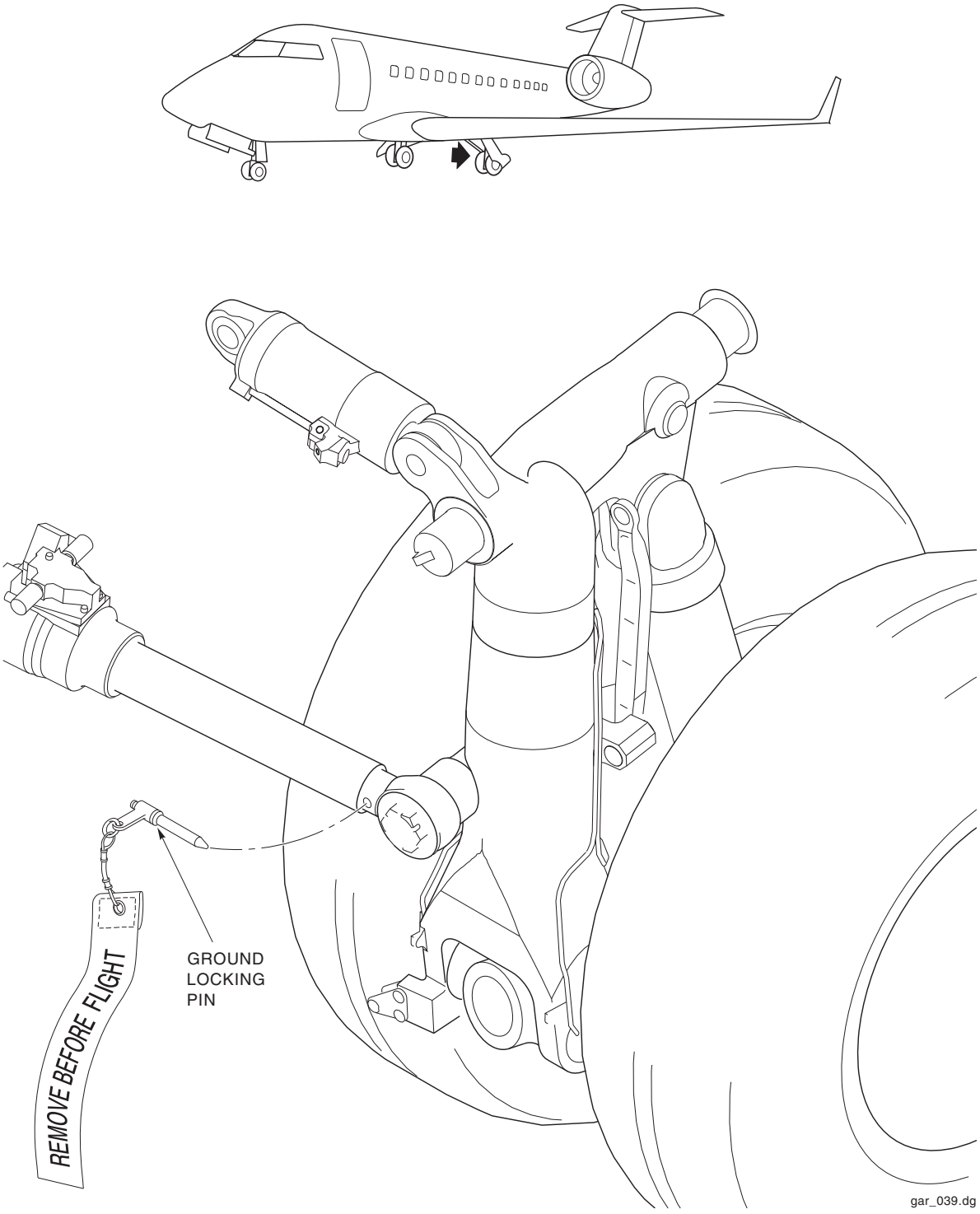
(b) Chock the wheels.

(c) Release the parking brake.

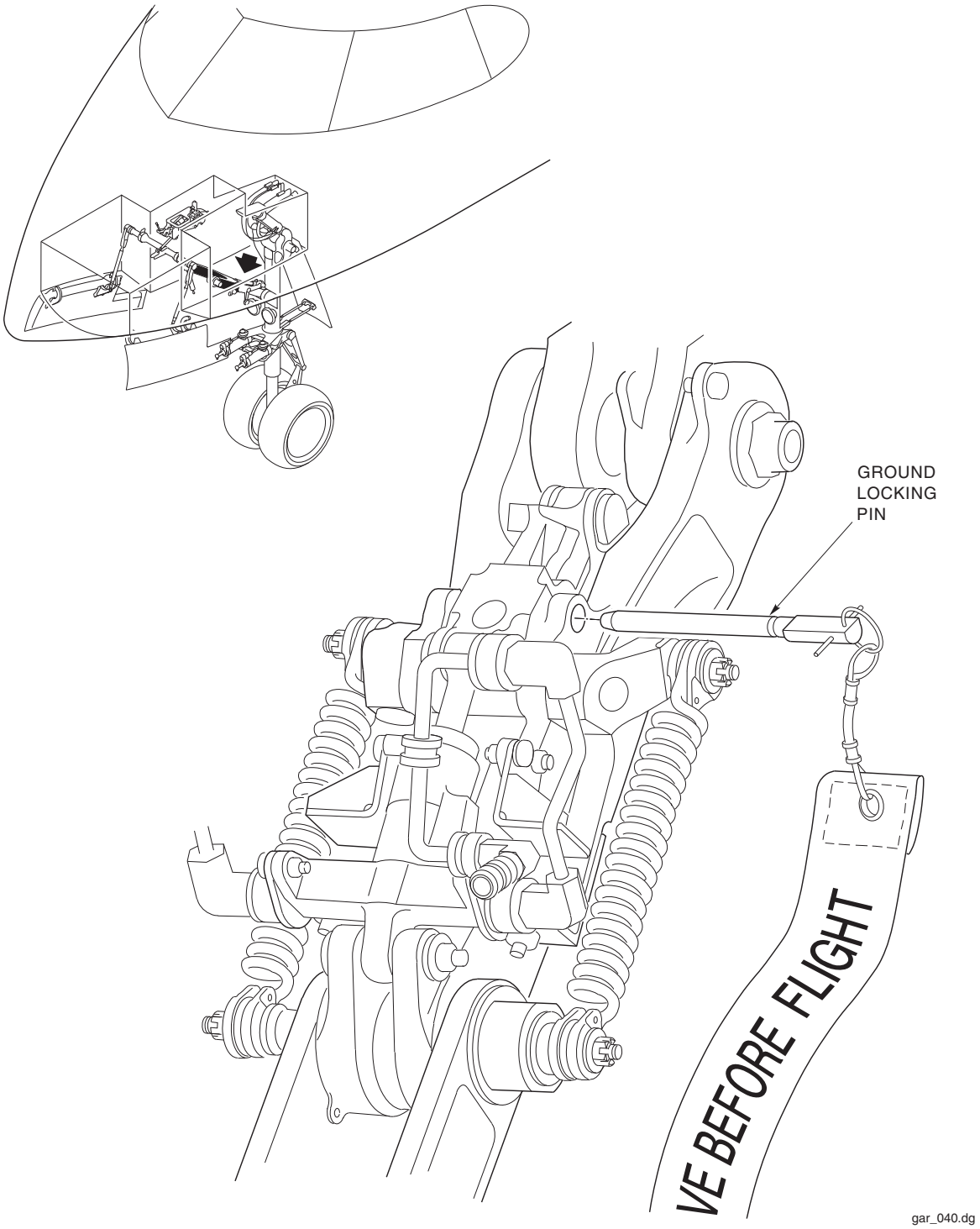
(d) Disconnect the tow vehicle.

(e) Remove the tow bar or the towing bridle and park the aircraft.

NOTE: In some cases, after a tow operation there is a difference between the MLG strut heights. A qualified technician can make sure the servicing of the struts is correct.

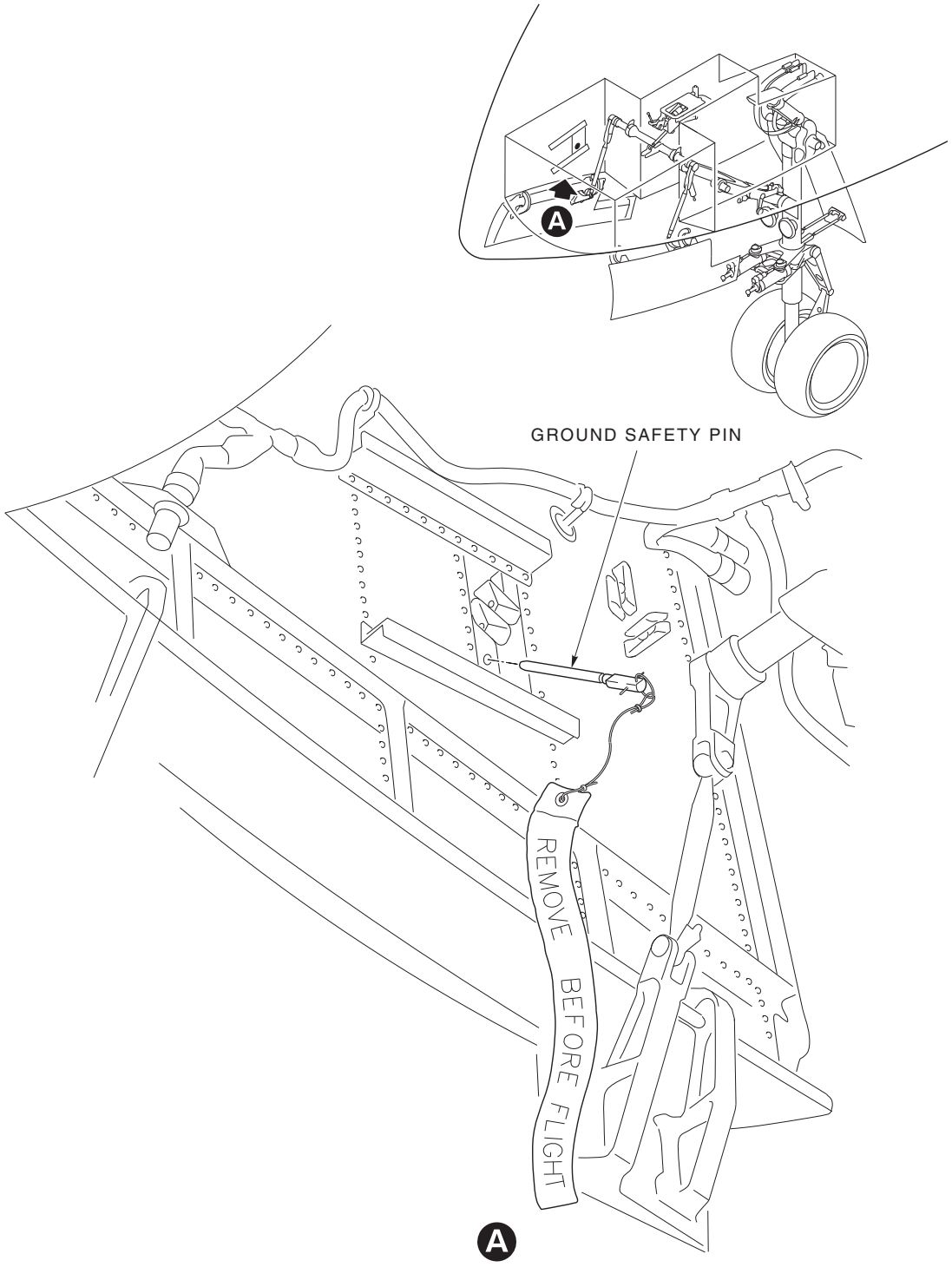


MLG Ground Lockpin
Figure 5

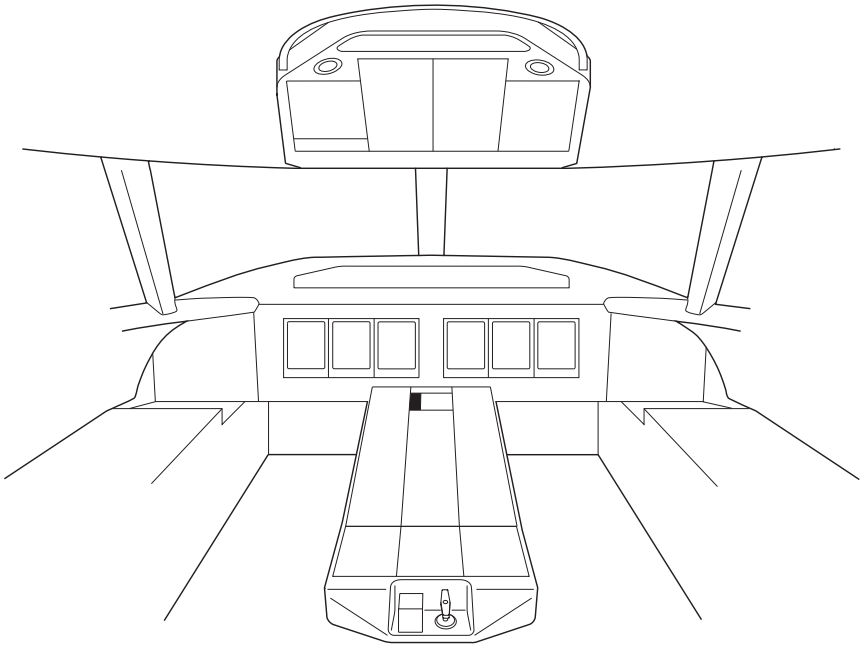


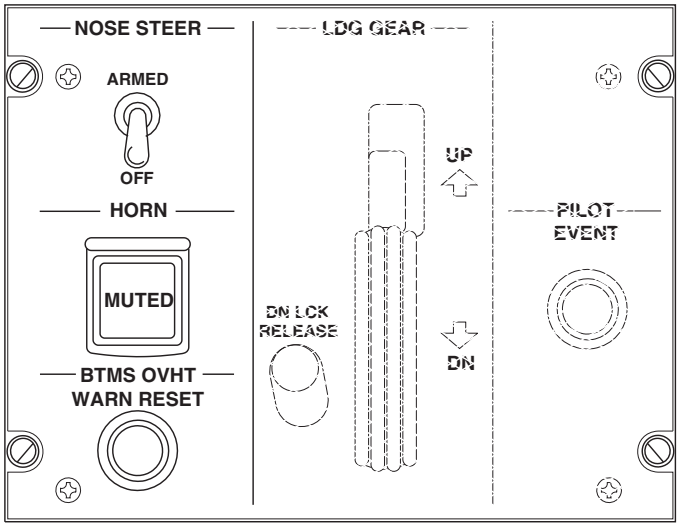
NLG Ground Lockpin
Figure 6

EFFECTIVITY: ALL



Ram–Air–Turbine (RAT) Ground–Lockpin
Figure 7





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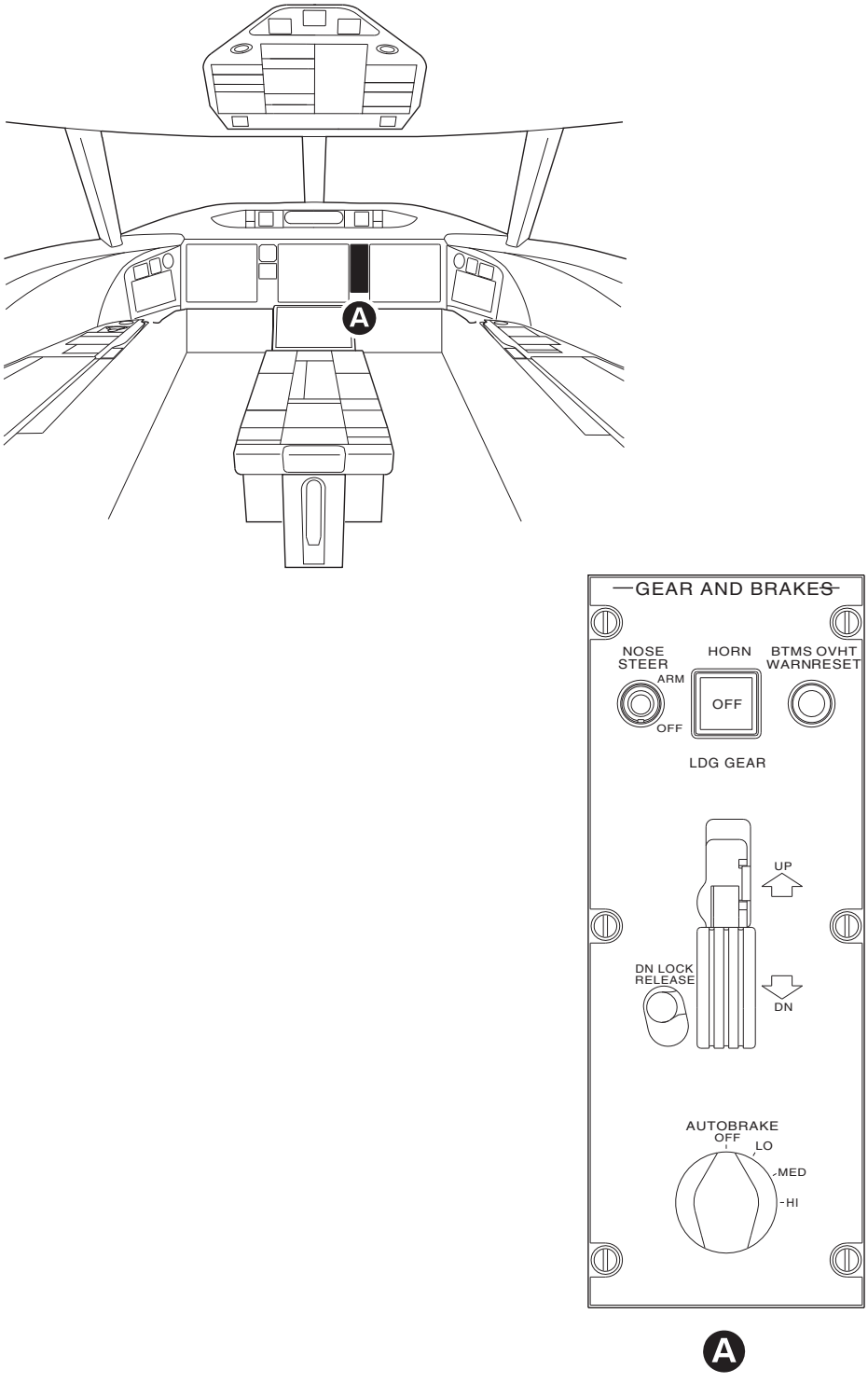
Global Express, Global XRS and Global 6000 – Nose–Wheel Steering Switch
Figure 8

EFFECTIVITY: ALL



Global 6000 and Global 5000 Featuring GVFD – Nose–Wheel Steering Switch
Figure 9