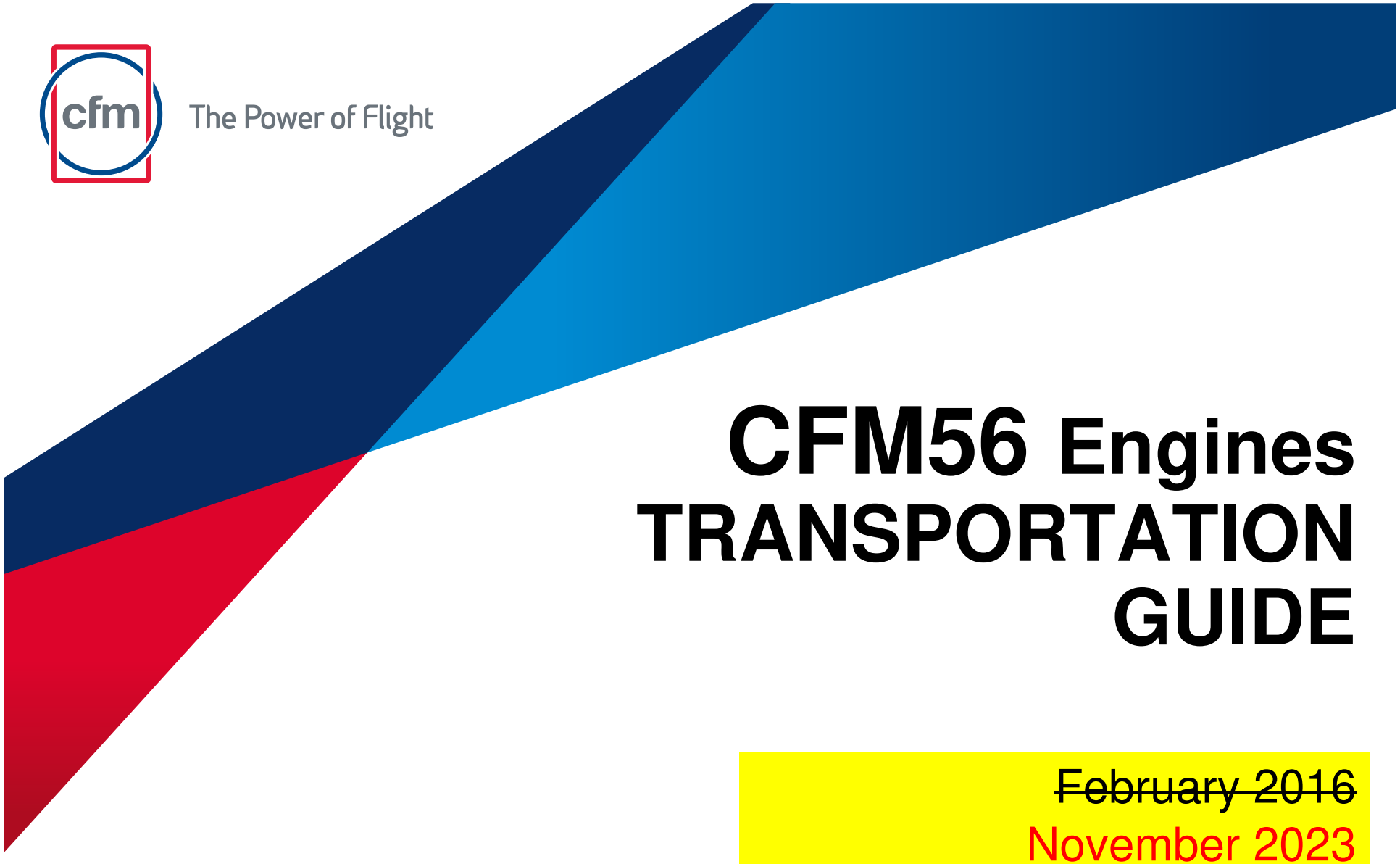


The Power of Flight

CFM56 Engines TRANSPORTATION GUIDE

~~February 2016~~

November 2023

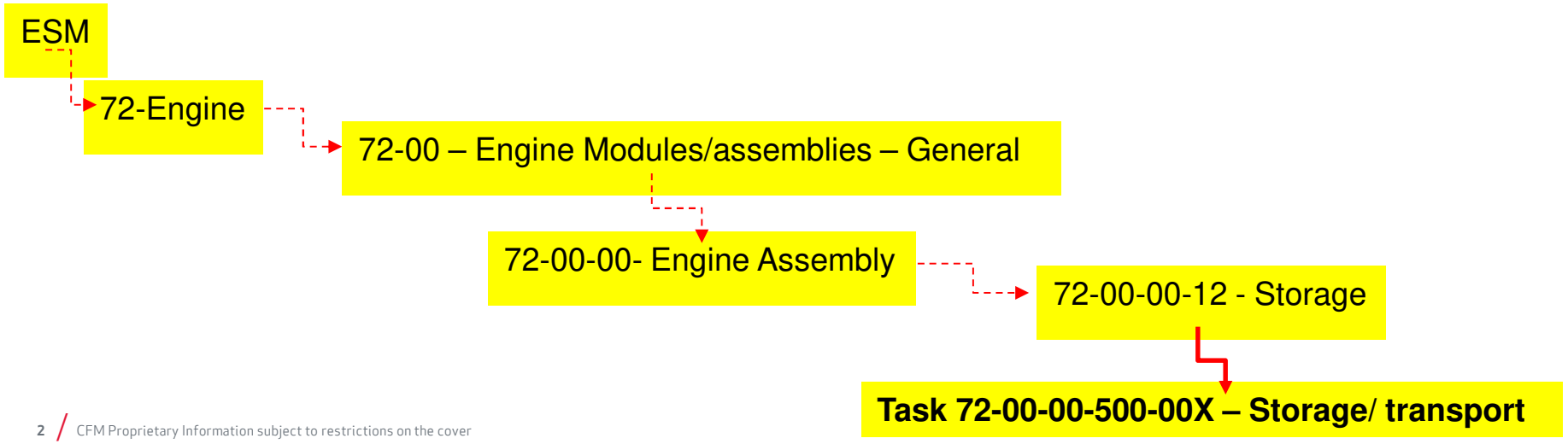
Product Support Engineering

Transportation guide applicability

This transportation guide is applicable on following engine types:

- CFM56-2A/B/C
- CFM56-3
- CFM56-5A/B/C
- CFM56-7B

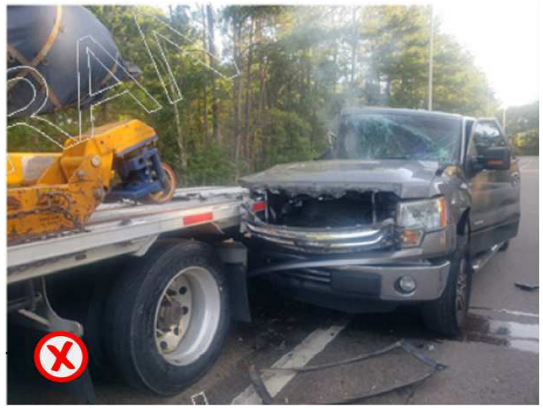
It provides complementary information to the following applicable ESM tasks :



Information to be provided when creating the CSC case

- Minimum information to provide to CFM:
  - CFM56 engine model and ESN
  - Description of the deviation with general and detailed pictures of the improper transportation issue and evidences
  - Shipping Stand model: Base P/N and Cradle P/N
  - Shipping Stand Shock Absorbers status
  - Truck and trailer suspension type: “Air ride” (Pneumatic) or not.
  - Shipping Stand attachment pictures (must be sufficient to determine attachment configuration, tie-down points used, straps or chains position)
  - Engine improperly transported going to airline for return to service or going to shop visit ?
  - If going to Shop Visit : workscope to be applied on the engine

- Minimum information to provide to CFM in case of an accident:
  - The height of the drop
  - Speed of impact
  - Relative speed of the vehicles
  - If available, graphs of accelerometers during transport
  - Angle of the axis of the engine and the truck



The more detailed the information is,
the more appropriate CFM recommendations will be.

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1- Introduction

1- Introduction

The purpose of CFM56 Engines Transportation Guide is:

- To help customers to properly transport their engines
- To gather CFM recommendations for engine shipment:
  - CFM Engine Shipment requirements
  - CFM Engine Shipment Best practices
  - CFM Approved Shipping stands references and dimensions
- To provide guidance to CFM customers:
  - To clarify transportation recommendations
  - To help understanding of shipping stand use
  - To protect engines during shipment
  - To choose the most suitable way to transport engines
  - To plan adequate tools acquisitions
  - To ~~aware~~ warn of potential improper transportation consequences

1- Introduction

Non-respect of CFM recommendations leads to Improper Transportation Issues, which:

- Involve Airlines, Shops, Engine Lessors, Carriers, Insurances, OEM,…
- May have an adverse impact:
  - On main engine bearings due to Brinelling effect
  - On fuel and oil external pipes, brackets, controls and accessories due to stress and deformation
- May lead to:
  - Engine unserviceability
  - Costly consequences on operations
  - Spare engine needs
  - Unscheduled maintenance activities
  - High cost corrective actions

Follow CFM recommendations to avoid high cost corrective actions

1- Introduction

CFM56 Engines Transportation Guide is based on:

- CFM transportation knowledge and experience:
  - All CFM56 ESM 72-00-00 – STORAGE Tasks
  - Optimizing Bearing Care – CESM 004 (-7B) / CESM 008 (-5B) / CESM 009 (-5C) / CESM 029 (-5A) / CESM 054 (-3/-2C) / CESM 028 (-2B) / CESM 055 (-2A)
  - October 2004 Fleet Highlites Article
- Aircraft Manufacturers and Shipping Stand Manufacturers manuals:
  - Boeing 737CL series/CFM56-3 **A**ircraft **M**aintenance **M**anual
  - Boeing 737NG series/CFM56-7B **A**ircraft **M**aintenance **M**anual
  - Airbus A320 series/CFM56-5A and CFM56-5B **A**ircraft **M**aintenance **M**anual
  - Airbus A340 series/CFM56-5C **A**ircraft **M**aintenance **M**anual
  - Applicable Shipping Stand Manufacturer Documentation

Use this booklet as a guide.
Always refer to the applicable CFM, Aircraft manufacturer and Shipping Stand manufacturer documentation.

1- Introduction

General Preservation recommendation

Preserve the engine prior to any transportation. The preservation period should be long enough to cover the transportation and any potential delays which may occur until the engine can be installed on wing or the preservation can be renewed.

OIL and Fuel draining:

CFM has no guidance linked to draining oil and fuel systems which may be required for transportation by air.

If the engine has been preserved according AMM/ESM instructions, the draining of the fluids does not impact the preservation (There is no damage to the engine during transport due to fluid drainage. Draining the engine fluids has no impact on the preservation. A protective film of preservation additive remains on the internal surfaces of the systems) provided that:

- All engines openings are sealed
- Desiccant bags are set in place and regularly changed based on their humidity indicators
- Preservation renewal is performed on time, or engine is returned to service before renewal date

If these conditions are met, the engine remains preserved and the initial preservation period is not impacted.

Engine preservation task

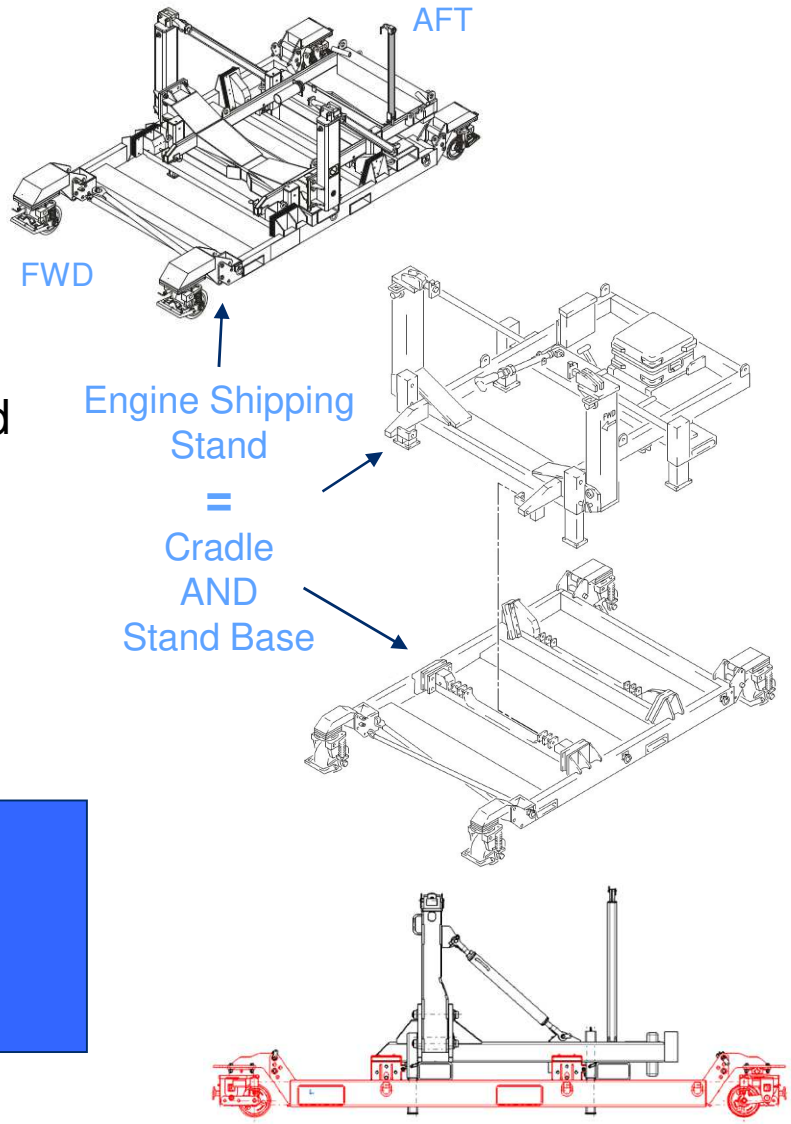
AMM AIRBUS -5A → Engine Preservation: AMM Task 72-00-00-600-029 / ESM Task 72-00-00-500-001
AMM AIRBUS -5B → Engine Preservation: AMM Task 72-00-00-600-026 / ESM Task 72-00-00-500-001
AMM AIRBUS -5C → Engine Preservation: AMM Task 72-00-00-600-808 / ESM Task 72-00-00-500-000
AMM BOEING -3 → Engine Preservation: AMM Task 71-00-03-622-046 / ESM Task 72-00-00-500-001
AMM BOEING -7B → Engine Preservation: AMM Task 71-00-03-600-802 / ESM Task 72-00-00-500-001

2 - Shipping Stand Main Features

2 - Shipping Stand Main Features

Engine shipping stands :

- Are designed for shipment of:
  - « Bare » engines
  - « Quick Engine Change » (QEC) engines
- Are an assembly of:
  - A Cradle on which the engine is installed
  - A Stand Base on which the cradle is installed
  - A “Shock Absorbers” interface between Cradle and Stand Base



Engine Shipping Stand
=
« Cradle AND Stand Base » assembly

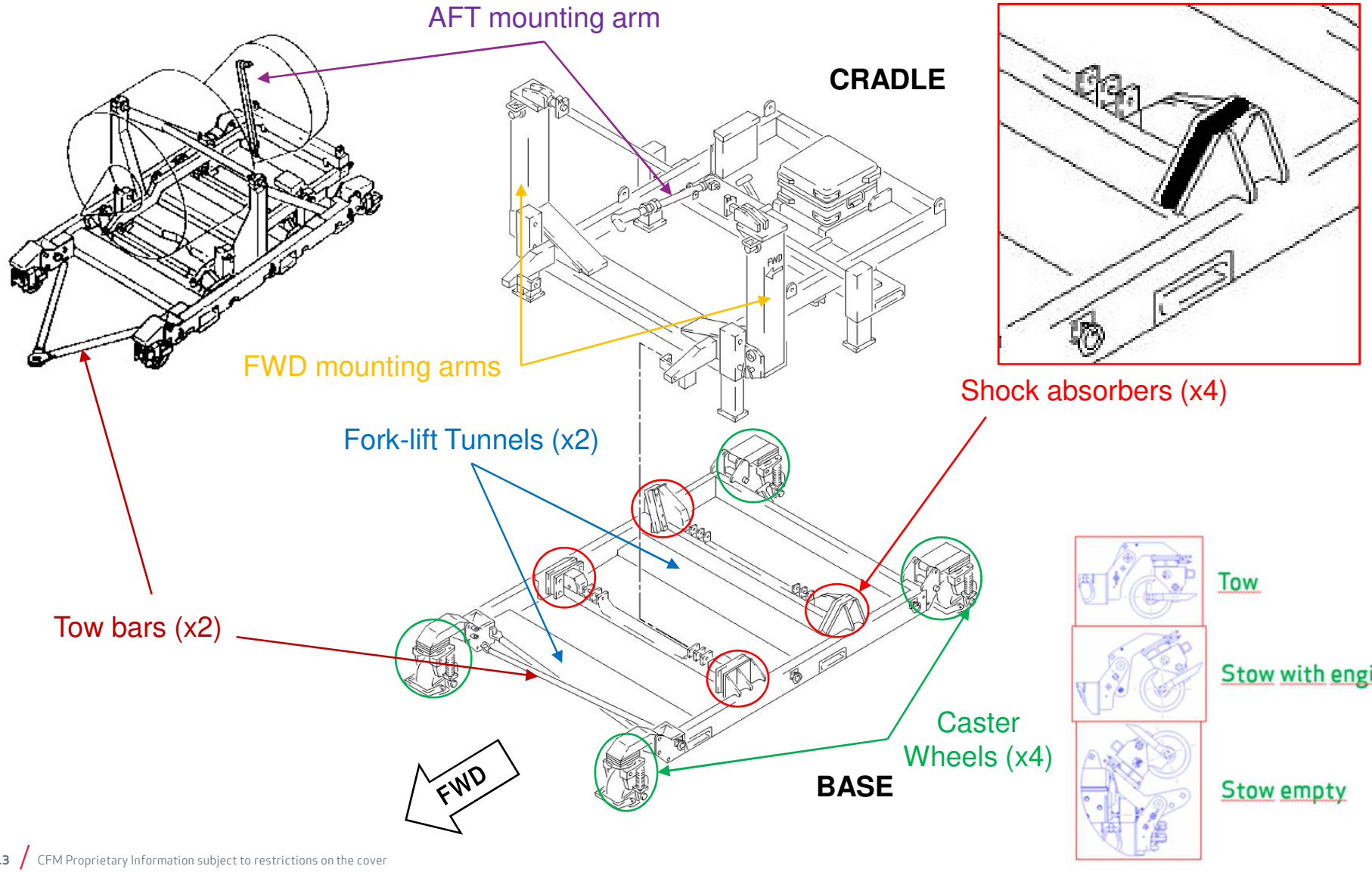
2 - Shipping Stand Main Features

All CFM qualified engine shipping stands are featured with the following main items:

- On the Stand Base:
  - Shock absorbers
  - « Air & Truck » tiedown rings
  - Fork-lift tunnels
  - Caster wheels
  - Tow Bars
- On the Engine Cradle:
  - « Air Only » tiedown rings
  - Forward Engine Mounting arms
  - AFT Engine mounting arm

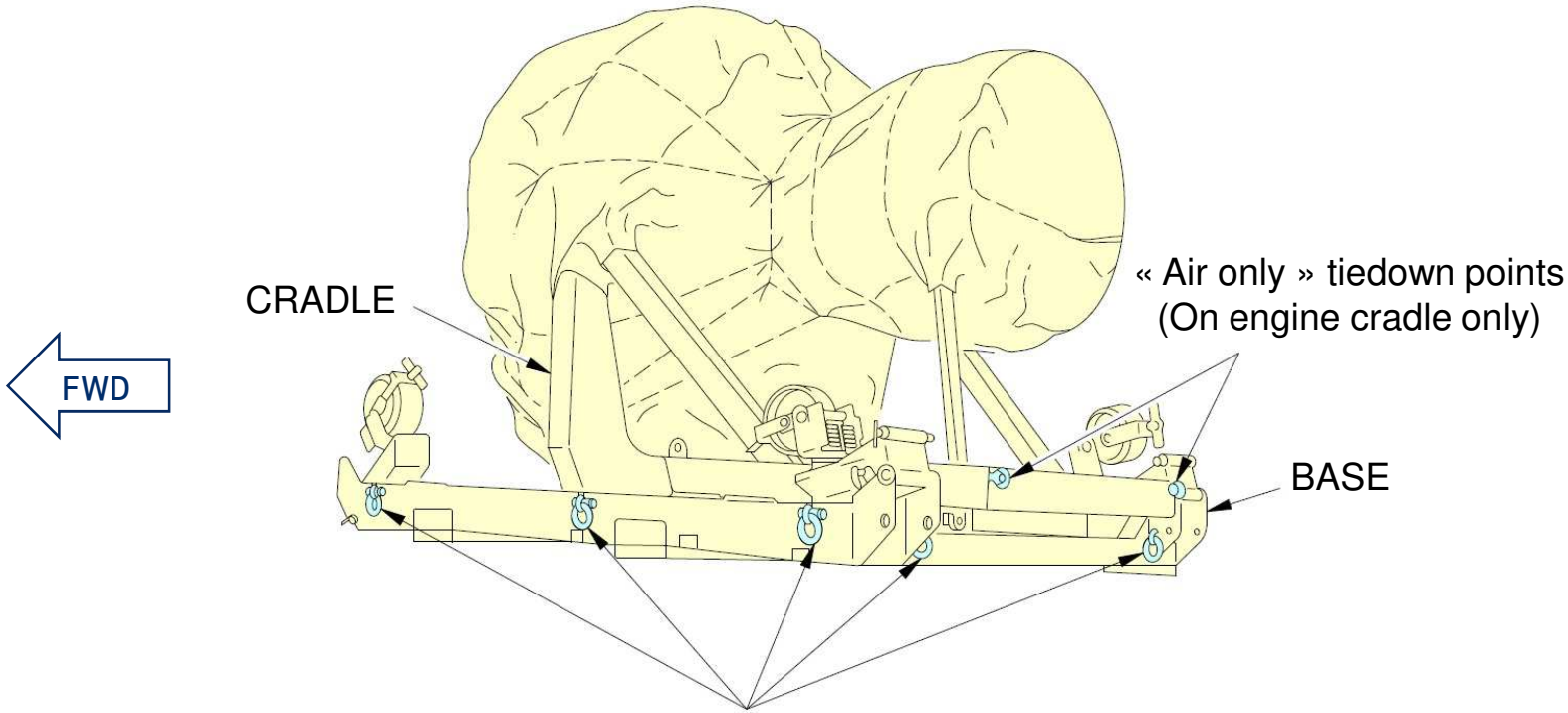
Location of main features may change from one shipping stand to another.
Refer to the Shipping Stand Manufacturer Documentation.

2 - Shipping Stand Main Features



2 - Shipping Stand Main Features

Shipping Stand Tiedown points:



Stand Base Tiedown rings = Air & Truck transportation
Engine Cradle Tiedown rings = Air transportation ONLY

2 - Shipping Stand Main Features

Engine shipping stands requirements :

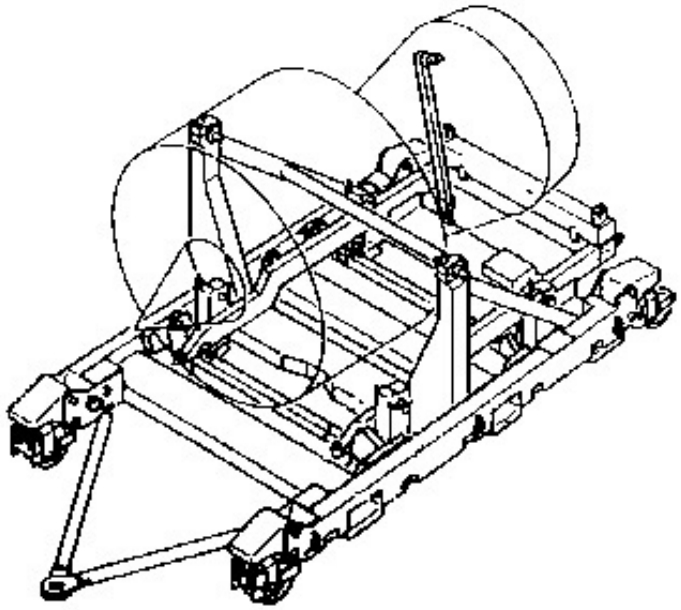
- CFM Qualification :
  - All shipping stands referenced in this document have successfully passed tests and are compliant with CFM requirements
- On-Wing installation Capability:
  - All Shipping stands referenced in this document are designed for On-Wing Bootstrap Installation procedure
  - The On-Wing installation procedure is the Aircraft manufacturer responsibility and is described in the applicable AMM
- Shipping Stands condition:
  - All Shipping stands referenced in this document may be used for CFM56 engines transportation provided that they are operated and maintained according to the applicable Shipping Stand Manufacturer Documentation

For Shipping stand operations and maintenance instructions, refer to Shipping Stand Manufacturer Documentation.

3 - In-Plant Transportation Specifications

3 - In-Plant Transportation Specifications

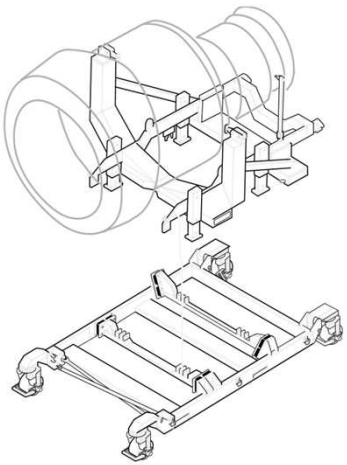
Engines installed on Shipping stands may be towed in facilities and inner access roads with the below conditions:



- Shipping stand conditions during towing:
  - Only stand base tow bars must be used
  - Spring-type casters or pneumatic tyres must be used
  - The 4 swivel locks of the casters must be released
  - Cradle must be free of attaching device, to keep the full efficiency of shock absorbers
- Engine towing operations conditions:
  - Maximum towing speed is 3 mph (5 km/h)
  - Towing must be performed on a smooth and horizontal surface
  - When necessary or after towing, caster braking system must be used to prevent movement of the assembly

For towing operations, refer to Shipping Stand Manufacturer Documentation.

4 – Reminder- Engine handling system - Maintenance and inspection



4 – Engine handling system -Maintenance and inspection

General

Life expectancy of this equipment can be extended indefinitely, if it is properly maintained. By design, there is only minimal periodic servicing required. Annual inspections for damage, weld cracks, or corrosion are recommended. Prior to each use, this equipment should be inspected for obvious signs of abuse or shipping damage. Observed damage should require complete inspection of the affected area to ensure structural integrity is not compromised.

Cleaning and Painting

This equipment should be cleaned periodically with a soap and water solution, and rinsed thoroughly. Damaged paint should be touched-up or with other Skydrol resistant high-grade enamel paint. Superficial scratches are expected during normal usage and will not affect function.

CAUTION

Re-lubricate wheel bearings after cleaning this equipment.

Scheduled Service

All bearings should be checked and lubricated as necessary

All non-painted machined surfaces should have a light grade oil spray as required. Spray with rust inhibitor LPS-3 (MIL-C-16173D, Gr. 2) or equivalent.

Check the documentation of the stand manufacturer

4 – Engine handling system -Maintenance and inspection

Scheduled inspection

Annual inspections of machined surfaces, pins, fasteners and structure are recommended. The machined surfaces (wheels, axles, pivots) are to be visually inspected for signs of wear or corrosion. Action is to be taken immediately if areas are determined to be potentially dangerous to operating personnel, or a detriment to the equipment. Pins and fasteners are to be visually inspected for cracks, damage, or corrosion. Loose fasteners should be tightened. The stand structure is to be visually inspected for damage, weld cracks, or corrosion. The shock mounts are to be visually inspected for date stamp, deterioration, dis-bond from the mounting plate, or permanent deformation. The shock mount should be replaced according to the manufacturer's recommendations.

CAUTION

Prior to each use, this equipment should be inspected for obvious signs of abuse or shipping damage. Observed damage should require complete inspection of the affected area to ensure structural integrity is not compromised.

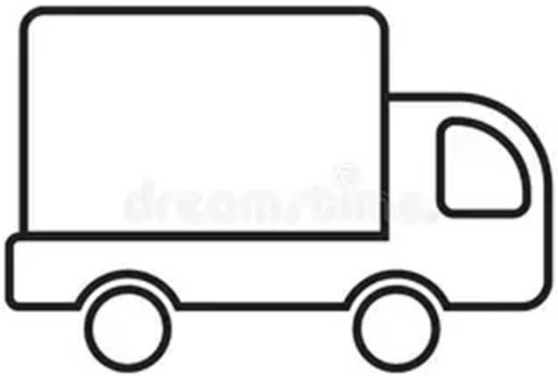
Shock mounts must be replaced when any of the following conditions exist:
Date stamp is older than the manufacturer's recommendations;
Rubber mount is deteriorated;
Rubber is dis-bonded from mounting plate;
Mount does not move when load is removed.

Storage:

In the event of the engine stand being stored for a long time, make sure it is correctly protected from dust, oil and bad weather and that caster brakes are on.

Check the documentation of the stand manufacturer

5 – Roads and Highways Transportation Specifications



5 - Roads and Highways Transportation Specifications

Roads and Highways transportation has to be compliant with the following:

- General requirements
- Vehicle suspension requirements
- Engine Cradle requirements
- Shipping stand base tiedown requirements

These requirements are detailed in the next pages.

All these requirements prevent damage to the engine due to shock and vibration loads during transportation.

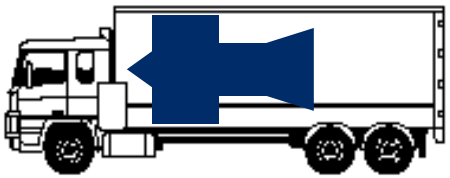
5 - Roads and Highways Transportation Specifications

General requirements:

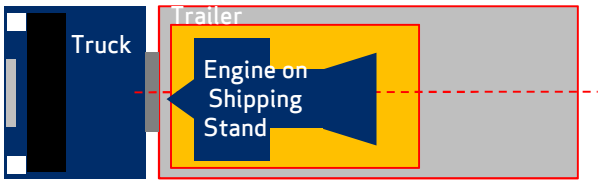
- Engine must be installed on a shipping stand (Cradle and Base)
- The « engine and shipping stand » assembly may be shipped in a Tractor and trailer truck, or a wagon-bed truck
- The « engine and shipping stand » assembly must be installed lengthwise and must not protrude from the vehicle bed
- Caster wheels and tow bars must be locked in storage position
- Engine must be protected against environment

CFM recommends that the engine be installed on the truck fan facing Fwd (flight direction), but if an engine is being transported Fan aft, no further action required.

Tractor and trailer truck



Wagon-bed truck



Shipping stand installed lengthwise and not protruding

5 - Roads and Highways Transportation Specifications

Vehicle Suspension requirements:

~~Must ensure a natural frequency range filtration from 7 to 10 Hz of the "engine and shipping stand" assembly –~~

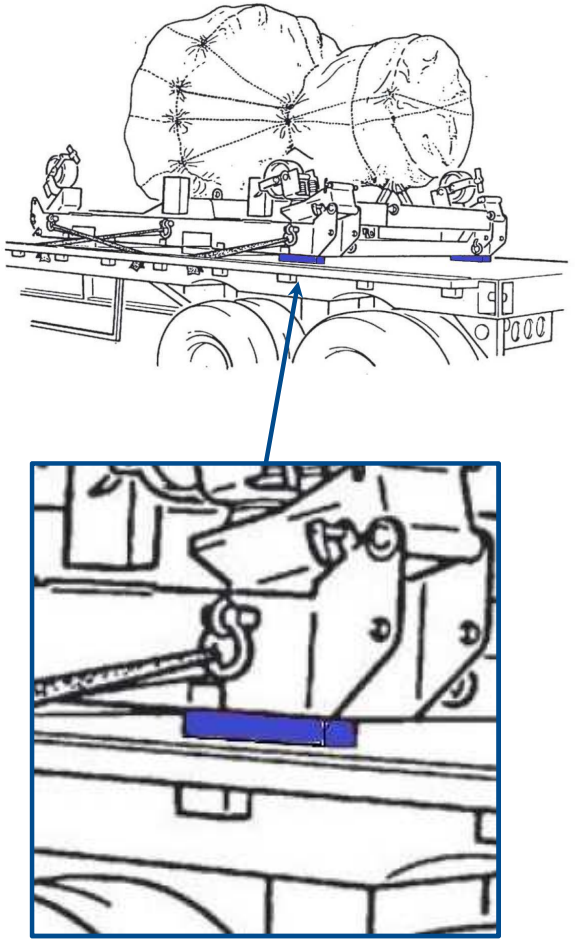
- Highly recommended suspensions type:
  - "Air ride" (Pneumatic)
  - "Hydraulic with Nitrogen Accumulators" (Hydropneumatic)
- Vehicle restrictions depending on suspensions type used:
  - Air ride" (Pneumatic)
  - Pneumatic: no restriction
  - Hydropneumatic: Maximum speed limit is 25mph (40km/h)
- Suspensions disposition on vehicle:
  - 1 engine shipped on a trailer: trailer axles must be pneumatically suspended
  - 2 or more engines shipped on a trailer: all axles must be pneumatically suspended
  - 1 or more engines shipped on a wagon-bed truck: all axles must be pneumatically suspended

Gas accumulator example of an « Air ride » (pneumatic) suspension

5 - Roads and Highways Transportation Specifications

Engine Cradle requirements:

- Engine must be installed and secured on the cradle
- The cradle must be installed on the stand base via shock absorbers
- The cradle must be free of any attaching device to keep full efficiency of shock absorbers:
  - “Air Only” tiedown points must not be used
  - No strap (or chain) installed over the cradle
  - Cover installed on the engine must not be tied down to the truck bed or the base of the Shipping Stand
  - Shock absorbers must be free to move
- Clearance between engine cradle and trailer bed:
  - Minimum clearance: 2 in. (51 mm) to avoid cradle to trailer bed contact during shock absorbers run
  - If necessary, Wooden shims may be put in place between Stand Base and trailer bed



Wooden shims between Stand Base and Trailer bed

5 - Roads and Highways Transportation Specifications

Shipping Stand Base tiedown requirements (1/5):

- Shipping Stand configuration:
  - Only the Base of the shipping stand must be attached to the trailer
  - Cradle and engine must not be attached neither to the trailer nor to the Base
- Shipping Stand Base features to be used for attachment to the trailer:
  - « Air & Truck » Tiedown points
  - Forklift tunnels (Alternative only)
- Shipping stand base must be attached to the trailer using 1 of the 2 following devices only:
  - Straps attached to « Air & Truck » Tiedown points.
    - Note: Use of chains within « Air & Truck » Tiedown points can cause damage to the shipping stand
  - Chains installed through Forklift tunnels (Alternative Only)

Engine and Cradle must stay free of attaching device.
Only the Stand Base must be attached to the trailer.

5 - Roads and Highways Transportation Specifications

Shipping Stand Base tiedown requirements (2/5):

- Recommended methods:

Straps attached to « Air & Truck » Tiedown points (See Methods 1 & 2):

  - Use 4 straps as a minimum. Whenever possible, the use of 6, 8 or 10 straps is recommended.
  - Attach straps to « Air & Truck » tiedown points on Stand Base
  - Pull them diagonally accross the trailer bed
  - Secure straps to the anchoring points on the trailer bed

- Alternative method:

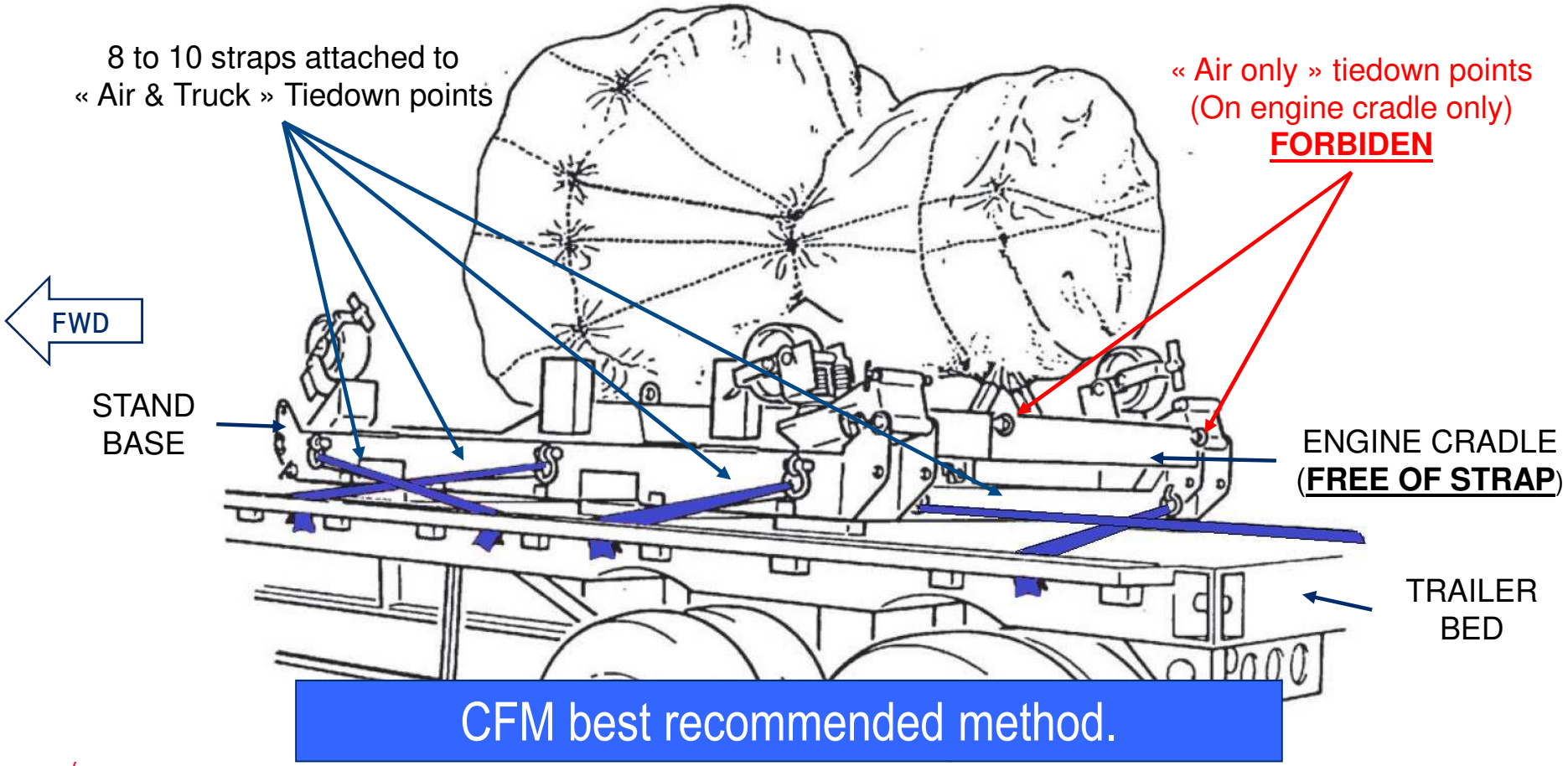
Chains installed through Forklift tunnels (See Method 3):

  - Only to be used if Recommended methods (Methods 1 & 2) are not applicable
  - Pull chains through forward and afterward Forklift tunnels of the Stand Base
  - Secure chains to the anchoring points on the trailer bed

5 - Roads and Highways Transportation Specifications

Shipping Stand Base tiedown requirements (3/5):

Method 1 (Recommended): 8 to 10 straps attached to « Air & Truck » tiedown points

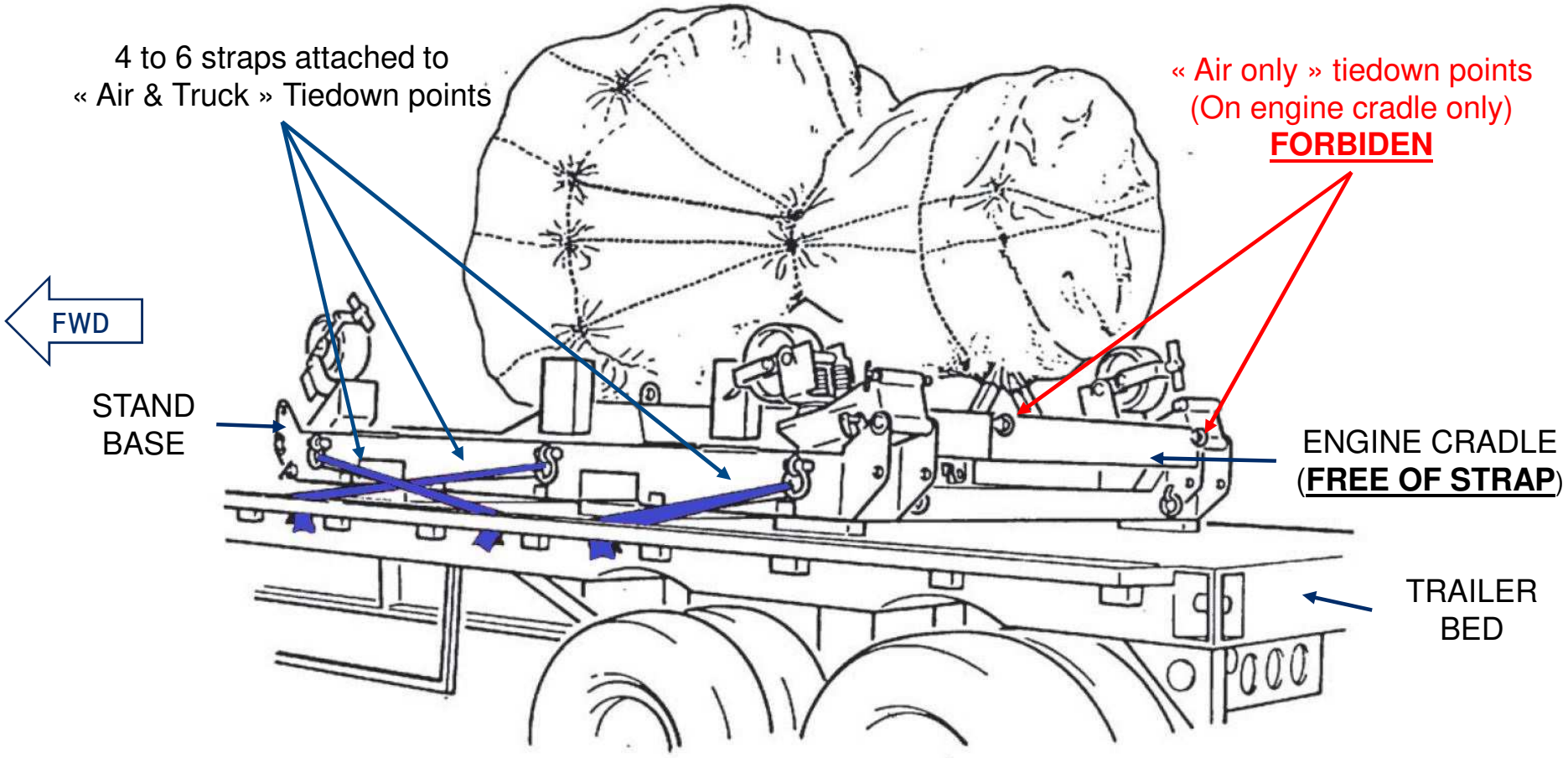


CFM best recommended method.

5 - Roads and Highways Transportation Specifications

Shipping Stand Base tiedown requirements (4/5):

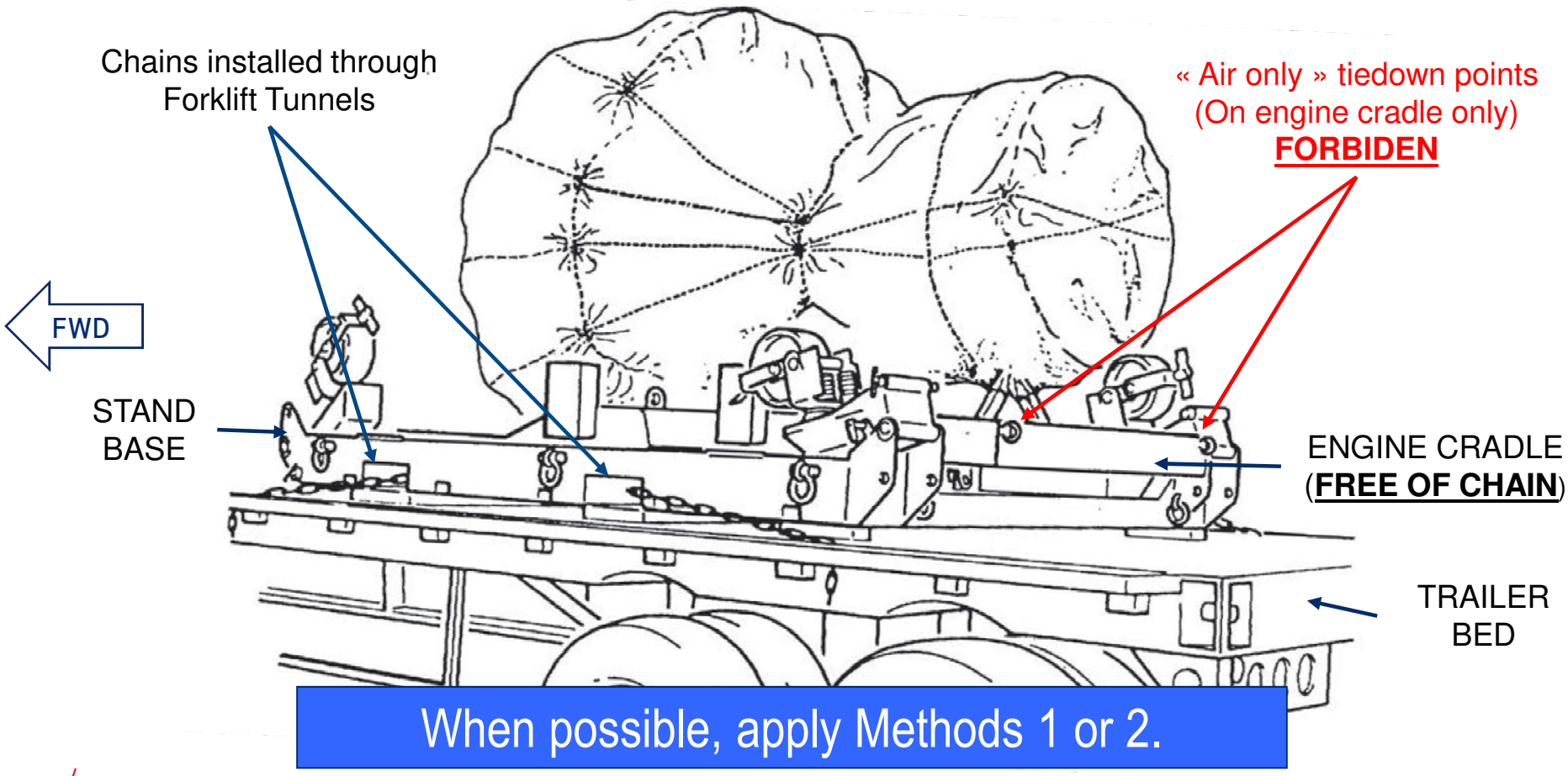
Method 2 (Recommended): 4 to 6 straps attached to « Air & Truck » tiedown points



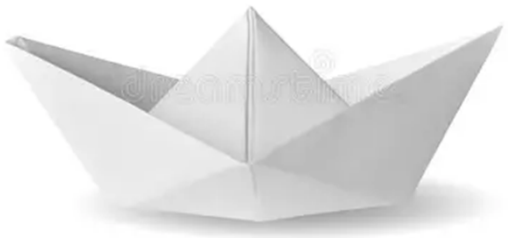
5 - Roads and Highways Transportation Specifications

Shipping Stand Base tiedown requirements (5/5):

Method 3 (Alternative, when Methods 1 and 2 are not possible):
Chains installed through Forklift Tunnels



6 - Water Transportation Specifications



6 - Water Transportation Specifications

- « Engine and shipping stand » assembly must be installed on a Tractor and trailer truck or a wagon-bed truck, parked on-board a Ferry Boat
- Road Transportation requirements must be followed
- Trailer and truck suspensions must be active during all the travel
- Engine must be protected against environment
- Engine exposure to salty air must not exceed 8 days, including loading and unloading sequences

Road Transportation Specifications are concurrent requirement with Water Transportation.

7 - Air Transportation Specifications

7 - Air Transportation Specifications

Air Shipment on Shipping Stand assembly (Recommended):

- Engine must be transported in a cargo aircraft on a Shipping Stand assembly as follows:
  - Engine installed and secured on engine Cradle
  - Engine Cradle installed on Stand Base, via Shock Absorbers
  - « Engine and Shipping Stand » assembly installed on a Standard Air Cargo Pallet : 125 x 88 x 2 in. (3175 x 2235.2 x 51 mm)
- Shipping Stand tiedown on Standard Air Cargo Pallet:
  - Use only « Air & Truck » tiedown points on Stand Base
  - Use 4, 6, 8 or 10 straps from « Air & Truck » tiedown points to pallet fitting points
- Shipping Stand configuration requirements for Air Shipment:
  - Ensure a 2 in. (51 mm) minimum clearance between Cradle and pallet, using wooden shims if necessary
  - Caster Wheels and Tow Bars must be locked in storage position

CFM recommends air shipment on Shipping Stand assembly

7 - Air Transportation Specifications

Air Shipment on Cradle Only (Alternative only):

- Engine may be transported in a Cargo aircraft on a Cradle without Stand Base, provided that:
  - Aircraft Accessibility is not possible to the Engine and Shipping Stand Assembly installed on a Standard Air Cargo Pallet
  - AND Aircraft Accessibility is possible to the Engine and Cradle Assembly installed on a Standard Air Cargo Pallet
  - AND Cradle has been designed for Engine Air Shipment on Cradle without Stand Base
- Cradle tiedown on Standard Air Cargo Pallet:
  - Use « Air Only » tiedown points on Cradle
  - Use 4, 6, 8 or 10 straps from « Air Only» tiedown points to pallet fitting points

When Aircraft cargo bay is accessible,
prefer to use the « Air Shipment on Shipping Stand » procedure.

7 - Air Transportation Specifications

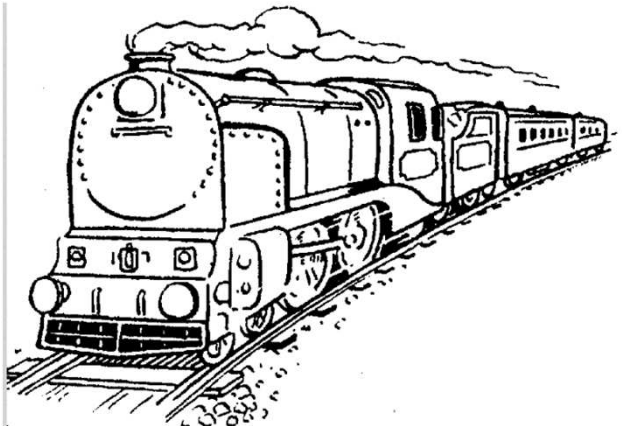
Aircraft Accessibility for Engine and Shipping Stand Assembly (For information only):

- Examples of accessible aircraft for Engine and Shipping Stand Assembly (but not limited to):
  - Airbus: A300F, A310F
  - Antonov AN-12, AN-124
  - Boeing: B707, B720, B727, B737, B747F, B767F, B777F
  - Douglas and McDonnell-Douglas: DC-9F, DC-10, MD-11F
  - Ilyushin: IL-76
  - Lockheed: L-100, C-130
  - Transall: C160
- Example of inaccessible aircraft for Engine and Shipping Stand Assembly (but not limited to):
  - A400M: A400M has a specific vibratory behavior that we need to work on additional studies.

  Currently, CFM is not able to give its agreement to transport an engine in an A400M.

For final aircraft accessibility aptitude,
Always refer to Cargo Aircraft Manufacturer or Cargo Aircraft Operator.

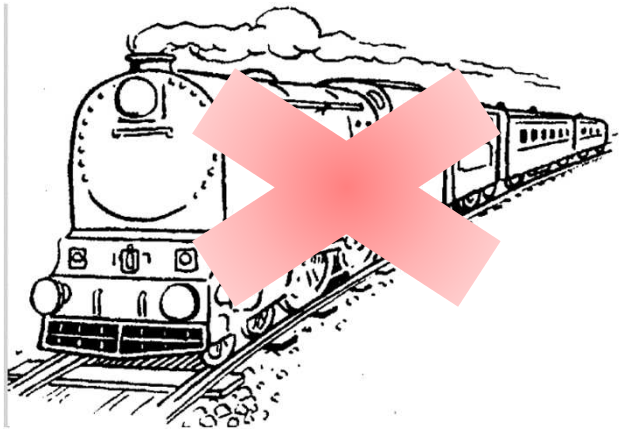
8 - Rail Transportation Specifications



8 - Rail Transportation Specifications

Engine Shipment by train is forbidden:

- Engine Shipping Stands are not qualified to protect engines during shipment by train
- « Engine on Shipping Stand » assembly installed on a trailer bed parked on a train is not qualified
- If an engine has been shipped by train, contact CFM Customer Support Center in order to get CFM recommendations



Do not transport a CFM56 engine by train

9 – Engine Shipping and Storage Environment Protections

9 – Engine Shipping and Storage Environment Protections

Engine must be protected against environment:

- Engine Shipping conditions expose the engine to the environment:
  - Moisture, water ingestion and weather conditions
  - Sand, dust and foreign objects ingestion
- Environment may have an adverse impact on the engine hardware:
  - Corrosion on engine Bearing parts which may lead to spalling/failure
  - Sand and dust ingestion, which may lead to engine damage
- CFM recommendations as described in the next pages:
  - To follow Preservation/Storage tasks requirements
  - To put an adequate Shipping Cover all over the engine

ESM/AMM Preservation/Storage tasks:
AMM BOEING ATA 71-00-03 / AMM AIRBUS ATA 72-00-00
ESM ATA 72-00-00 (Storage)

During engine transportation, comply with Preservation/Storage tasks and put adequate cover all over the engine.

9 – Engine Shipping and Storage Environment Protections

Engine Preservation/Storage requirements during shipment:

- Protection of engine hardware:
  - Oil wetted parts, including Bearings
  - Fuel wetted parts
  - Engine Gaspath hardware
- Several Preservation/Storage tasks adapted to each duration:
  - Short periods: up to 30 days
  - Long periods: up to 90 days (Boeing & Airbus AMM only), up to 365 days
- CFM mostly recommends to follow Preservation/Storage tasks for long period because:
  - It deals with Oil wetted parts protection (and Fuel wetted parts if 365 days preservation procedure applied)
  - It gives the best protection for Gaspath (Desiccant Bags, Vapor Barrier Film)
  - It prevents any delay that may occur during Transportation

Long period preservation tasks are recommended

9 – Engine Shipping and Storage Environment Protections

Engine Shipping Covers (1/2):

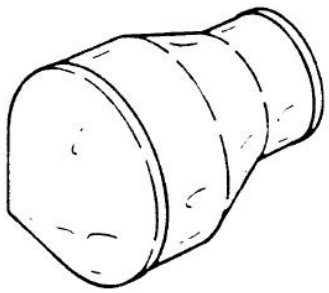
- Covers CFM requirements:
  - To be waterproof
  - To be installed over the whole engine
  - To be « tight-fitted » to the engine
  - Must not be attached in any manner to the trailer bed or to the base of the Shipping Stand
- CFM covers are specifically designed:
  - To adapt to Bare engines or QEC'd engines installed on Shipping Stands
  - To avoid water retention (for last versions)
  - To provide easy access to inlet and exhausts for desiccant bags and humidity indicator inspection
  - To be removable without need of sharp/cutting tools
  - To be fully re-usable

CFM56 engines must be covered during shipment

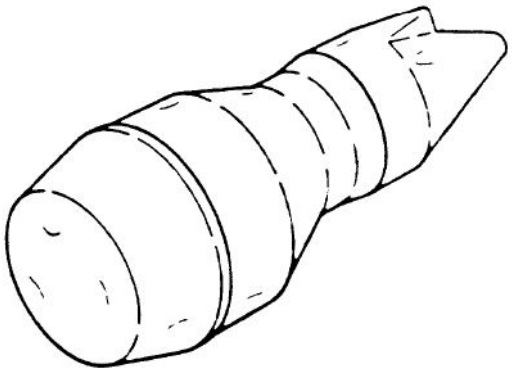
9 – Engine Shipping and Storage Environment Protections

Engine Shipping Covers (2/2):

CFM Shipping Covers		
Engine Model	**Engine Configuration**	
	Bare	**QEC'd**
CFM56-2C	856A1280P01	856A1192P01
CFM56-3	856A3595G02	856A3505G01
CFM56-5A	856A2782G01	856A2782G02
CFM56-5B	856A2930G01 (*) 856A2930G03 856A2930G04	856A2930G02
CFM56-5C	856A2330G01	856A2330G02
CFM56-7B	856A3700G01 (*) 856A3700G03 856A3700G04	856A3700G02
NOTE 1: PART NUMBERS FOLLOWED BY "(*)" ARE NOT PROCURABLE.		



CFM Shipping Cover for Bare engine



CFM Shipping Cover for QEC'd engine

10 - Improper Transportation Disposition

10 - Improper Transportation Disposition

- Improper Transportation is defined as non-compliance with AMM/ESM procedures

- It may have an adverse impact:
  - On main engine bearings
  - On fuel and oil external pipes, brackets, controls and accessories

In case of Improper Transportation, Contact CFM

11 - Improper Transportation example

11 - Improper Transportation example

In case of Improper Transportation, Contact CFM

12 – List of Fleet Highlites (FHL) released

12 – List of Fleet Highlites (FHL) released

List of FHL released on transportation:

Model	Title	Month	Year
CFM56-All	CFM56 Engine Transportation Guide 2016 release (16-14-7200-03)	April	2016
CFM56-7B	Fan case and frame transportation protection (14-09-7221-04)	September	2014
CFM56-All	Transportation Reference Guide available on CWC (14-01-7200-06)	January	2014
CFM56-All	Transporting Engines: Weights and Dimensions (11-04-7200-07)	April	2011
CFM56-3	Transportation Stand (09-10-7200-06)	October	2009
CFM56-3	Transportation Shipping Stand Reminder (09-09-7200-09)	September	2009
CFM56-All	Engine Transportation Recommendations (04-10-7200-02)	October	2004
CFM56-7B	Transportation Stand (00-08-7200-01)	August	2000
CFM56-7	Transportation Equipment (98-08-7200-02)	August	1998
CFM56-7	Transportation Equipment (97-11-7200-01)	November	1997
CFM56-All	Engine Module Transportation	July	1994
CFM56-5C	Engine Transportation Booklet	December	1993
CFM56-All	Engine Transportation Procedures	May	1992

13 – AMM & ESM Chapters References

13 – AMM & ESM Chapters References

Most of transportation recommendations detailed previously come from:

- AMM and ESM:
  - CFM56-3 – **E**ngine **S**hop **M**anual
  - CFM56-5A – **E**ngine **S**hop **M**anual
  - CFM56-5B – **E**ngine **S**hop **M**anual
  - CFM56-5C – **E**ngine **S**hop **M**anual
  - CFM56-7B – **E**ngine **S**hop **M**anual
  - Boeing 737CL series/CFM56-3 **A**ircraft **M**aintenance **M**anual
  - Boeing 737NG series/CFM56-7B **A**ircraft **M**aintenance **M**anual
  - Airbus A320 series/CFM56-5A and CFM56-5B **A**ircraft **M**aintenance **M**anual
  - Airbus A340 series/CFM56-5C **A**ircraft **M**aintenance **M**anual
- More specifically:
  - Engine Transportation Chapters
  - Engine Removal and Installation from/on Aircraft Chapters
  - Engine Preservation Chapters

13 – AMM & ESM Chapters References

ENGINE PRESERVATION CHAPTERS		
Engine Model	**AMM**	**ESM**
CFM56-3/-7B	71-00-03/201 POWERPLANT - MAINTENANCE PRACTICES (PRESERVATION AND DEPRESERVATION)	72-00-00 - ENGINE - GENERAL – STORAGE XXX
CFM56-5A/-5B/-5C	72-00-00 PB301 - ENGINE - GENERAL - SERVICING	

ENGINE REMOVAL AND INSTALLATION FROM/ON AIRCRAFT CHAPTERS		
Engine Model	**AMM**	**ESM**
CFM56-3/-7B	71-00-02/401 POWERPLANT - REMOVAL/INSTALLATION	N/A
CFM56-5A /-5B /-5C	71-00-00 PB401 - POWERPLANT - GENERAL - DEACTIVATION/REACTIVATION	

ENGINE TRANSPORTATION CHAPTERS		
Engine Model	**AMM**	**ESM**
CFM56-3/-7B	71-00-04/201 POWERPLANT - MAINTENANCE PRACTICES (ENGINE TRANSPORTATION)	72-00-00 - ENGINE - GENERAL – STORAGE XXX
CFM56-5A/-5B/-5C	N/A	

14 – List of CFM approved Shipping Stands

14 – List of CFM approved Shipping Stands

- Shipping Stands listed in the next pages:
  - Meet all the CFM Tool Design Office requirements
  - Have passed all the tests required by CFM Tool Design Office
  - Have been submitted to CFM Tool Design Office approval
  - Have been certified compliant with CFM requirements

- CFM Tool Design Office requirements for shipping stands have been specifically given in order to protect the engine during shipment

- In case of engine shipment with a shipping stand not approved, CFM is not able to provide technical support.

For CFM56 engine shipment,
Use CFM approved Shipping Stands

14 – List of CFM approved Shipping Stands

CFM APPROVED SHIPPING STANDS MANUFACTURERS OVERVIEW						
	CFM56-2C	CFM56-3	CFM56-5A	CFM56-5B	CFM56-5C	CFM56-7B
AGSE LLC		X	X	X	X	X
C&F Millier Ltd. (*)		X	X		X	
CFM	X					
Dedienne Aerospace			X	X	X	X
Frank Brown & Son Ltd.		X	X	X	X	X
Stanley Aviation		X	X	X	X	X

NOTE 1:
MANUFACTURERS FOLLOWED BY "(*)" ARE NOT IN THE SHIPPING STAND BUSINESS ANYMORE

14 – List of CFM approved Shipping Stands

Synthesis of shipping stand by rating engine

CFM56-2C			
	Shipping Stand	**Cradle**	**Base**
AGSE LLC	N/A	N/A	N/A
C&F MILLIER Ltd,	N/A	N/A	N/A
CFM	(Cradle + Base P/N)	856A1201G06	856A1202G04
DEDIENNE AEROSPACE	N/A	N/A	N/A
FRANK BROWN & SON Ltd	N/A	N/A	N/A
STANLEY AVIAITON	N/A	N/A	N/A

CFM56-3			
	Shipping Stand	**Cradle**	**Base**
AGSE LLC	(Cradle + Base P/N)	AM1802	AM2563
C&F MILLIER Ltd,	(Cradle + Base P/N)	CFD 1157 (*)	CFD 1237 (*)
CFM	N/A	N/A	N/A
DEDIENNE AEROSPACE	N/A	N/A	N/A
FRANK BROWN & SON Ltd	(Cradle + Base P/N)	FB70000-1	~~FB 70.0002~~ **FB70077-200**
STANLEY AVIAITON	(Cradle + Base P/N)	110702	110701

CFM56-5A			
	Shipping Stand	**Cradle**	**Base**
AGSE LLC	(Cradle + Base P/N)	AM2088	AM2563
		AM2718	
		E208-G01	
C&F MILLIER Ltd,	(Cradle + Base P/N)	CFD 1208 (*)	CFD 1237 (*)
CFM	N/A	N/A	N/A
DEDIENNE AEROSPACE	D71STA00004G03 (*)	D71CRA00004G03 (*)	D71TRO00005G01
	D71STA00004G08	D71CRA00004G09	
FRANK BROWN & SON Ltd	(Cradle + Base P/N)	FB 70010-1**B REVA**	~~FB 70010 2~~ **FB70077-200**
STANLEY AVIAITON	(Cradle + Base P/N)	111502-1	111515-1

14 – List of CFM approved Shipping Stands

Synthesis of shipping stand by rating engine

CFM56-5B			
	Shipping Stand	**Cradle**	**Base**
AGSE LLC	(Cradle + Base P/N)	AM2718	AM2563
	(Cradle + Base P/N)	E208-G01	
C&F MILLIER Ltd,	N/A	N/A	N/A
CFM	N/A	N/A	N/A
DEDIENNE AEROSPACE	D71STA00004G03 (*)	D71CRA00004G03 (*)	D71TRO00005G01
	D71STA00004G08	D71CRA00004G09	
FRANK BROWN & SON Ltd	(Cradle + Base P/N)	FB 70010-1B **REVA**	FB 70077-200
STANLEY AVIAITON	(Cradle + Base P/N)	111502-1	111515-1

CFM56-5C			
	Shipping Stand	**Cradle**	**Base**
AGSE LLC	(Cradle + Base P/N)	AM2387	AM2563
C&F MILLIER Ltd,	(Cradle + Base P/N)	CFD 1400-00 (*)	CFD 1400-02 (*)
CFM	N/A	N/A	N/A
DEDIENNE AEROSPACE	**D71STA00004G06**	**D71CRA00004G06**	**D71TRO00005G01**
FRANK BROWN & SON Ltd	(Cradle + Base P/N)	FB 70020-100	FB 70020-200
STANLEY AVIAITON	(Cradle + Base P/N)	111602	111515

CFM56-7B			
	Shipping Stand	**Cradle**	**Base**
AGSE LLC	(Cradle + Base P/N)	AM2811	AM2563
C&F MILLIER Ltd,	N/A	N/A	N/A
CFM	N/A	N/A	N/A
DEDIENNE AEROSPACE	D71STA00005G02	D71CRA00005G02	D71TRO00005G03 **D71TRO00005G05**
FRANK BROWN & SON Ltd	(Cradle + Base P/N)	FB70077-100**ISSB**	FB70077-200
STANLEY AVIAITON	(Cradle + Base P/N)	114702-1	114701-1

14 – List of CFM approved Shipping Stands

By manufacturer

AGSE LLC			
	Shipping Stand	**Cradle**	**Base**
CFM56-2C	N/A	N/A	N/A
CFM56-3	(Cradle + Base P/N)	**AM1802**	**AM2563**
CFM56-5A	(Cradle + Base P/N)	**AM2088**	**AM2563**
	(Cradle + Base P/N)	**AM2718**	
	(Cradle + Base P/N)	**E208-G01**	
CFM56-5B	(Cradle + Base P/N)	**AM2718**	**AM2563**
	(Cradle + Base P/N)	**E208-G01**	
CFM56-5C	(Cradle + Base P/N)	**AM2387**	**AM2563**
CFM56-7B	(Cradle + Base P/N)	**AM2811**	**AM2563**

C&F Millier Ltd.			
	Shipping Stand	**Cradle**	**Base**
CFM56-2C	N/A	N/A	N/A
CFM56-3	(Cradle + Base P/N)	**CFD 1157 (*)**	**CFD 1237 (*)**
CFM56-5A	(Cradle + Base P/N)	**CFD 1208 (*)**	**CFD 1237 (*)**
CFM56-5B	N/A	N/A	N/A
CFM56-5C	(Cradle + Base P/N)	**CFD 1400-00 (*)**	**CFD 1400-02 (*)**
CFM56-7B	N/A	N/A	N/A
NOTE 1:C&F MILLIER LTD. IS NOT IN THE SHIPPING STANDS BUSINESS ANYMORE. **NOTE 2:**PART NUMBER FOLLOWED BY "(*)" ARE NOT PROCURABLE ANYMORE.			

14 – List of CFM approved Shipping Stands

By manufacturer

CFM			
	Shipping Stand	**Cradle**	**Base**
CFM56-2C	(Cradle + Base P/N)	**856A1201G06**	**856A1202G04**
CFM56-3	N/A	N/A	N/A
CFM56-5A	N/A	N/A	N/A
CFM56-5B	N/A	N/A	N/A
CFM56-5C	N/A	N/A	N/A
CFM56-7B	N/A	N/A	N/A

Dedienne Aerospace			
	Shipping Stand	**Cradle**	**Base**
CFM56-2C	N/A	N/A	N/A
CFM56-3	N/A	N/A	N/A
CFM56-5A	**D71STA00004G03 (*)**	**D71CRA00004G03 (*)**	**D71TRO00005G01**
	D71STA00004G08	**D71CRA00004G09**	
CFM56-5B	**D71STA00004G03 (*)**	**D71CRA00004G03 (*)**	**D71TRO00005G01**
	D71STA00004G08	**D71CRA00004G09**	
CFM56-5C	**D71STA00004G06**	**D71CRA00004G06**	**D71TRO00005G01**
CFM56-7B	**D71STA00005G02**	**D71CRA00005G02**	**D71TRO00005G03(*)** **D71TRO00005G05**
NOTE 1: PART NUMBERS FOLLOWED BY "(*)" ARE NOT PROCURABLE ANYMORE.			

14 – List of CFM approved Shipping Stands

By manufacturer

Frank Brown & Son Ltd.			
	Shipping Stand	**Cradle**	**Base**
CFM56-2C	N/A	N/A	N/A
CFM56-3	(Cradle + Base P/N)	**FB 70000-1**	~~**FB 70.0002**~~ **FB70077-200**
CFM56-5A	(Cradle + Base P/N)	**FB 70010-1B REVA**	~~**FB 70010-2**~~ **FB70077-200**
CFM56-5B	(Cradle + Base P/N)	**FB 70010-1B REVA**	**FB 70077-200**
CFM56-5C	(Cradle + Base P/N)	**FB 70020-100**	**FB 70020-200**
CFM56-7B	(Cradle + Base P/N)	**FB70077-100ISSB**	**FB70077-200**

Stanley Aviation			
	Shipping Stand	**Cradle**	**Base**
CFM56-2C	N/A	N/A	N/A
CFM56-3	(Cradle + Base P/N)	**110702**	**110701**
CFM56-5A	(Cradle + Base P/N)	**111502-1**	**111515-1**
CFM56-5B	(Cradle + Base P/N)	**111502-1**	**111515-1**
CFM56-5C	(Cradle + Base P/N)	**111602**	**111515**
CFM56-7B	(Cradle + Base P/N)	**114702-1**	**114701-1**

15 - Shipping Stands Dimensions

15 - Shipping Stands Dimensions -2C

Shipping Stand (Base and Cradle) dimensions for CFM56-2C									
Engine Shipping Stand Model		Characteristics	HEIGHT with engine	WIDTH with engine	LENGTH with bare engine	LENGTH with QEC engine	WEIGHT Stand Only	WEIGHT with bare engine	WEIGHT with QEC engine
BASE AND CRADLE									
Manufacturer: *Shipping Stand*									
CFMI	*Cradle*	**856A1201G06**	**99**	**90**	**133**	**209**	**2 447**	**7 081**	**7 692**
	Base	**856A1202G04**	*(2515)*	*(2286)*	*(3378)*	*(5309)*	*(1110)*	*(3212)*	*(3489)*

Engine Cradle dimensions for CFM56-2C									
Engine Cradle Model		Characteristics	HEIGHT with engine	WIDTH with engine	LENGTH with bare engine	LENGTH with QEC engine	WEIGHT Cradle Only	WEIGHT with bare engine	WEIGHT with QEC engine
CRADLE ONLY									
Manufacturer:									
CFMI	*Cradle*	**856A1201G06**	**97**	**86**	**129**	**209**	**1 049**	**5 683**	**6 294**
			(2464)	*(2184)*	*(3277)*	*(5309)*	*(476)*	*(2578)*	*(2855)*

NOTE 1:
DIMENSIONS ARE GIVEN IN INCHES WITH MILLIMETERS IN PARENTHESES.
WEIGHTS ARE GIVEN IN POUNDS WITH KILOGRAMMES IN PARENTHESES.
NOTE 2:
HEIGHT INCLUDES STANDARD PALLET 2 INCHES THICK.

15 - Shipping Stands Dimensions -3

Shipping Stands (Base and Cradle) dimensions for CFM56-3									
Engine Shipping Stand Model	Characteristics		HEIGHT with engine	WIDTH with engine	LENGTH with bare engine	LENGTH with QEC engine	WEIGHT Stand Only	WEIGHT with bare engine	WEIGHT with QEC engine
BASE AND CRADLE									
Manufacturer: *Shipping Stand*									
AGSE	*Cradle*	**AM1802**	**96**	**99**	**172**	**201**	**4 409**	**8 685**	**10 109**
	Base	**AM2563**	*(2438)*	*(2515)*	*(4369)*	*(5105)*	*(2000)*	*(3939)*	*(4585)*
Manufacturer: *Shipping Stand*									
C&F Millier Ltd.	*Cradle*	**CFD 1157 (*)**	**88**	**97**	**172**	**192**	**4 813**	**9 089**	**10 513**
	Base	**CFD 1237 (*)**	*(2235)*	*(2464)*	*(4369)*	*(4877)*	*(2183)*	*(4123)*	*(4769)*
Manufacturer: *Shipping Stand*									
Frank Brown & Son	*Cradle*	**FB 70000-1**	**79**	**97**	**132**	**192**	**4 497**	**8 773**	**10 197**
	Base	~~**FB 70.0002**~~ **FB70077-200**	*(2007)*	*(2464)*	*(3353)*	*(4877)*	*(2040)*	*(3979)*	*(4625)*
Manufacturer: *Shipping Stand*									
Stanley	*Cradle*	**110702**	**93**	**98**	**125**	**192**	**3 550**	**7 826**	**9 250**
	Base	**110701**	*(2362)*	*(2489)*	*(3175)*	*(4877)*	*(1610)*	*(3550)*	*(4196)*

NOTE 1:
DIMENSIONS ARE GIVEN IN INCHES WITH MILLIMETERS IN PARENTHESES.
WEIGHTS ARE GIVEN IN POUNDS WITH KILOGRAMMES IN PARENTHESES.
NOTE 2:
HEIGHT INCLUDES STANDARD PALLET 2 INCHES THICK.
NOTE 3:
PART NUMBERS FOLLOWED BY "(*)" ARE NOT PROCURABLE ANYMORE.

15 - Shipping Stands Dimensions -3

Cradles dimensions for CFM56-3									
Engine Cradle Model		Characteristics	HEIGHT with engine	WIDTH with engine	LENGTH with bare engine	LENGTH with QEC engine	WEIGHT Cradle Only	WEIGHT with bare engine	WEIGHT with QEC engine
CRADLE ONLY									
Manufacturer: **AGSE**	*Cradle*	**AM1802**	**92** *(2337)*	**96** *(2438)*	**132** *(3353)*	**192** *(4877)*	**1 232** *(559)*	**5 508** *(2498)*	**6 932** *(3144)*
Manufacturer: **C&F Millier Ltd.**	*Cradle*	**CFD 1157 (*)**	**76** *(1930)*	**97** *(2464)*	**137** *(3480)*	**192** *(4877)*	**1 174** *(533)*	**5 450** *(2472)*	**6 874** *(3118)*
Manufacturer: **Frank Brown & Son**	*Cradle*	**FB 70000-1**	**76** *(1930)*	**97** *(2464)*	**113** *(2870)*	**192** *(4877)*	**1 697** *(770)*	**5 973** *(2709)*	**7 397** *(3355)*
Manufacturer: **Stanley**	*Cradle*	**110702**	**Shipment on Stanley's cradle is not possible without the base.**						

NOTE 1:
DIMENSIONS ARE GIVEN IN INCHES WITH MILLIMETERS IN PARENTHESES.
WEIGHTS ARE GIVEN IN POUNDS WITH KILOGRAMMES IN PARENTHESES.
NOTE 2:
HEIGHT INCLUDES STANDARD PALLET 2 INCHES THICK.
NOTE 3:
PART NUMBERS FOLLOWED BY "(*)" ARE NOT PROCURABLE ANYMORE.

15 - Shipping Stands Dimensions -5A

Shipping Stands (Base and Cradle) dimensions for CFM56-5A (1/2)									
Engine Shipping Stand Model	Characteristics		HEIGHT with engine	WIDTH with engine	LENGTH with bare engine	LENGTH with QEC engine	WEIGHT Stand Only	WEIGHT with bare engine	WEIGHT with QEC engine
BASE AND CRADLE									
Manufacturer: *Shipping Stand*									
AGSE	*Cradle*	**AM2088**	**96**	**96**	**155**	**201**	**4 231**	**9 088**	**9 847**
	Base	**AM2563**	*(2438)*	*(2438)*	*(3937)*	*(5105)*	*(1919)*	*(4122)*	*(4467)*
Manufacturer: *Shipping Stand*									
AGSE	*Cradle*	**AM2718**	**101**	**99**	**157**	**201**	**4 385**	**9 242**	**10 001**
	Base	**AM2563**	*(2563)*	*(2515)*	*(3988)*	*(5099)*	*(1989)*	*(4192)*	*(4536)*
Manufacturer: *Shipping Stand*									
AGSE	*Cradle*	**E208-G01**	**101**	**99**	**153**	**201**	**5 803**	**10 660**	**11 419**
	Base	**AM2563**	*(2566)*	*(2515)*	*(3874)*	*(5099)*	*(2632)*	*(4835)*	*(5180)*
Manufacturer: *Shipping Stand*									
C&F Millier Ltd.	*Cradle*	**CFD 1208 (*)**	**88**	**97**	**172**	**201**	**4 813**	**9 670**	**10 429**
	Base	**CFD 1237 (*)**	*(2235)*	*(2464)*	*(4369)*	*(5099)*	*(2183)*	*(4386)*	*(4731)*

NOTE 1:
DIMENSIONS ARE GIVEN IN INCHES WITH MILLIMETERS IN PARENTHESES.
WEIGHTS ARE GIVEN IN POUNDS WITH KILOGRAMMES IN PARENTHESES.
NOTE 2:
HEIGHT INCLUDES STANDARD PALLET 2 INCHES THICK.
NOTE 3:
PART NUMBERS FOLLOWED BY "(*)" ARE NOT PROCURABLE ANYMORE.

15 - Shipping Stands Dimensions -5A

Shipping Stands (Base and Cradle) dimensions for CFM56-5A (2/2)									
Engine Shipping Stand Model		Characteristics	HEIGHT with engine	WIDTH with engine	LENGTH with bare engine	LENGTH with QEC engine	WEIGHT Stand Only	WEIGHT with bare engine	WEIGHT with QEC engine
BASE AND CRADLE									
Manufacturer:	*Shipping Stand*	**D71STA00004G03 (*)**							
Dedienne	*Cradle*	**D71CRA00004G03 (*)**	**98**	**96**	**168**	**201**	**5 247**	**10 104**	**10 863**
Aerospace	*Base*	**D71TRO00005G01**	*(2489)*	*(2438)*	*(4267)*	*(5105)*	*(2380)*	*(4583)*	*(4927)*
Manufacturer:	*Shipping Stand*	**D71STA00004G08**							
Dedienne	*Cradle*	**D71CRA00004G09**	**98**	**96**	**168**	**201**	**5 247**	**10 104**	**10 863**
Aerospace	*Base*	**D71TRO00005G01**	*(2489)*	*(2438)*	*(4267)*	*(5105)*	*(2380)*	*(4583)*	*(4927)*
Manufacturer:	*Shipping Stand*								
Frank Brown	*Cradle*	**FB 70010-1B REVA**	**79**	**97**	**132**	**201**	**4 497**	**9 354**	**10 113**
& Son	*Base*	**~~FB 70010-2~~ FB70077-200**	*(2007)*	*(2464)*	*(3353)*	*(5099)*	*(2040)*	*(4243)*	*(4587)*
Manufacturer:	*Shipping Stand*								
Stanley	*Cradle*	**111502-1**	**93**	**98**	**125**	**201**	**3 550**	**8 407**	**9 166**
	Base	**111515-1**	*(2362)*	*(2489)*	*(3175)*	*(5099)*	*(1610)*	*(3813)*	*(4158)*

NOTE 1:
DIMENSIONS ARE GIVEN IN INCHES WITH MILLIMETERS IN PARENTHESES.
WEIGHTS ARE GIVEN IN POUNDS WITH KILOGRAMMES IN PARENTHESES.
NOTE 2:
HEIGHT INCLUDES STANDARD PALLET 2 INCHES THICK.
NOTE 3:
PART NUMBERS FOLLOWED BY "(*)" ARE NOT PROCURABLE ANYMORE.

15 - Shipping Stands Dimensions -5A

Cradles dimensions for CFM56-5A (1/2)									
Engine Cradle Model	Characteristics		HEIGHT with engine	WIDTH with engine	LENGTH with bare engine	LENGTH with QEC engine	WEIGHT Cradle Only	WEIGHT with bare engine	WEIGHT with QEC engine
CRADLE ONLY									
Manufacturer: **AGSE**	*Cradle*	**AM2088**	**92** *(2337)*	**96** *(2438)*	**132** *(3353)*	**201** *(5099)*	**1 631** *(740)*	**6 488** *(2943)*	**7 247** *(3287)*
Manufacturer: **AGSE**	*Cradle*	**AM2718**	**107** *(2712)*	**97** *(2451)*	**116** *(2943)*	**201** *(5099)*	**1 784** *(809)*	**6 641** *(3012)*	**7 400** *(3357)*
Manufacturer: **AGSE**	*Cradle*	**E208-G01**	**105** *(2674)*	**96** *(2438)*	**116** *(2943)*	**201** *(5099)*	**3 201** *(1452)*	**8 058** *(3655)*	**8 817** *(3999)*
Manufacturer: **C&F Millier Ltd.**	*Cradle*	**CFD 1208 (*)**	**76** *(1930)*	**96** *(2438)*	**115** *(2921)*	**201** *(5099)*	**2 176** *(987)*	**7 033** *(3190)*	**7 792** *(3534)*

NOTE 1:
DIMENSIONS ARE GIVEN IN INCHES WITH MILLIMETERS IN PARENTHESES.
WEIGHTS ARE GIVEN IN POUNDS WITH KILOGRAMMES IN PARENTHESES.
NOTE 2:
HEIGHT INCLUDES STANDARD PALLET 2 INCHES THICK.
NOTE 3:
PART NUMBERS FOLLOWED BY "(*)" ARE NOT PROCURABLE ANYMORE.

15 - Shipping Stands Dimensions -5A

Cradles dimensions for CFM56-5A (2/2)									
Engine Cradle Model		Characteristics	HEIGHT with engine	WIDTH with engine	LENGTH with bare engine	LENGTH with QEC engine	WEIGHT Cradle Only	WEIGHT with bare engine	WEIGHT with QEC engine
CRADLE ONLY									
Manufacturer: **Dedienne Aerospace**	*Cradle*	**D71CRA00004G03 (*)**	**96** *(2438)*	**96** *(2438)*	**116** *(2946)*	**201** *(5105)*	**2 866** *(1300)*	**7 723** *(3503)*	**8 482** *(3847)*
Manufacturer: **Dedienne Aerospace**	*Cradle*	**D71CRA00004G09**	**96** *(2438)*	**96** *(2438)*	**116** *(2946)*	**201** *(5105)*	**2 866** *(1300)*	**7 723** *(3503)*	**8 482** *(3847)*
Manufacturer: **Frank Brown & Son**	*Cradle*	**FB 70010-1B REVA**	**92** *(2337)*	**98** *(2489)*	**116** *(2946)*	**201** *(5099)*	**2 050** *(930)*	**6 907** *(3133)*	**7 666** *(3477)*
Manufacturer: **Stanley**	*Cradle*	**111502-1**	**Shipment on Stanley's cradle is not possible without the base.**						

NOTE 1:
DIMENSIONS ARE GIVEN IN INCHES WITH MILLIMETERS IN PARENTHESES.
WEIGHTS ARE GIVEN IN POUNDS WITH KILOGRAMMES IN PARENTHESES.
NOTE 2:
HEIGHT INCLUDES STANDARD PALLET 2 INCHES THICK.
NOTE 3:
PART NUMBERS FOLLOWED BY "(*)" ARE NOT PROCURABLE ANYMORE.

15 - Shipping Stands Dimensions -5B

Shipping Stands (Base and Cradle) dimensions for CFM56-5B (1/2)									
Engine Shipping Stand Model	Characteristics		HEIGHT with engine	WIDTH with engine	LENGTH with bare engine	LENGTH with QEC engine	WEIGHT Stand Only	WEIGHT with bare engine	WEIGHT with QEC engine
BASE AND CRADLE									
Manufacturer: *Shipping Stand*									
AGSE	*Cradle*	**AM2718**	**101**	**99**	**157**	**201**	**4 384**	**9 841**	**10 634**
	Base	**AM2563**	*(2563)*	*(2515)*	*(3988)*	*(5099)*	*(1989)*	*(4464)*	*(4824)*
Manufacturer: *Shipping Stand*									
AGSE	*Cradle*	**E208-G01**	**101**	**99**	**153**	**201**	**5 803**	**11 260**	**12 053**
	Base	**AM2563**	*(2566)*	*(2515)*	*(3874)*	*(5099)*	*(2632)*	*(5107)*	*(5467)*
Manufacturer: *Shipping Stand*		**D71STA00004G03 (*)**							
Dedienne	*Cradle*	**D71CRA00004G03 (*)**	**98**	**96**	**168**	**201**	**5 247**	**10 704**	**11 497**
Aerospace	*Base*	**D71TRO00005G01**	*(2489)*	*(2438)*	*(4267)*	*(5105)*	*(2380)*	*(4855)*	*(5215)*
Manufacturer: *Shipping Stand*		**D71STA00004G08**							
Dedienne	*Cradle*	**D71CRA00004G09**	**98**	**96**	**168**	**201**	**5 247**	**10 704**	**11 497**
Aerospace	*Base*	**D71TRO00005G01**	*(2489)*	*(2438)*	*(4267)*	*(5105)*	*(2380)*	*(4855)*	*(5215)*

NOTE 1:
DIMENSIONS ARE GIVEN IN INCHES WITH MILLIMETERS IN PARENTHESES.
WEIGHTS ARE GIVEN IN POUNDS WITH KILOGRAMMES IN PARENTHESES.
NOTE 2:
HEIGHT INCLUDES STANDARD PALLET 2 INCHES THICK.
NOTE 3:
PART NUMBERS FOLLOWED BY "(*)" ARE NOT PROCURABLE ANYMORE.

15 - Shipping Stands Dimensions -5B

Shipping Stands (Base and Cradle) dimensions for CFM56-5B (2/2)									
Engine Shipping Stand Model		Characteristics	HEIGHT with engine	WIDTH with engine	LENGTH with bare engine	LENGTH with QEC engine	WEIGHT Stand Only	WEIGHT with bare engine	WEIGHT with QEC engine
BASE AND CRADLE									
Manufacturer: *Shipping Stand*									
Frank Brown & Son	*Cradle*	**FB 70010-1B REVA**	**93** *(2362)*	**98** *(2489)*	**181** *(4597)*	**201** *(5099)*	**4 810** *(2182)*	**10 267** *(4657)*	**11 060** *(5017)*
	Base	**FB 70-077-200**							
Manufacturer: *Shipping Stand*									
Stanley	*Cradle*	**111502-1**	**95** *(2413)*	**98** *(2489)*	**142** *(3607)*	**201** *(5099)*	**5 520** *(2504)*	**10 977** *(4979)*	**11 770** *(5339)*
	Base	**111515-1**							

NOTE 1:
DIMENSIONS ARE GIVEN IN INCHES WITH MILLIMETERS IN PARENTHESES.
WEIGHTS ARE GIVEN IN POUNDS WITH KILOGRAMMES IN PARENTHESES.
NOTE 2:
HEIGHT INCLUDES STANDARD PALLET 2 INCHES THICK.

15 - Shipping Stands Dimensions -5B

Cradles dimensions for CFM56-5B (1/2)									
Engine Cradle Model		Characteristics	HEIGHT with engine	WIDTH with engine	LENGTH with bare engine	LENGTH with QEC engine	WEIGHT Cradle Only	WEIGHT with bare engine	WEIGHT with QEC engine
CRADLE ONLY									
Manufacturer: **AGSE**	*Cradle*	**AM2718**	**107** *(2712)*	**97** *(2451)*	**116** *(2943)*	**201** *(5099)*	**1 784** *(809)*	**7 241** *(3284)*	**8 034** *(3644)*
Manufacturer: **AGSE**	*Cradle*	**E208-G01**	**105** *(2674)*	**96** *(2438)*	**116** *(2943)*	**201** *(5099)*	**3 201** *(1452)*	**8 658** *(3927)*	**9 451** *(4287)*
Manufacturer: **Dedienne Aerospace**	*Cradle*	**D71CRA00004G03 (*)** **D71CRA00004G09**	**96** *(2438)*	**96** *(2438)*	**116** *(2946)*	**201** *(5105)*	**2 866** *(1300)*	**8 323** *(3775)*	**9 116** *(4135)*

NOTE 1:
DIMENSIONS ARE GIVEN IN INCHES WITH MILLIMETERS IN PARENTHESES.
WEIGHTS ARE GIVEN IN POUNDS WITH KILOGRAMMES IN PARENTHESES.
NOTE 2:
HEIGHT INCLUDES STANDARD PALLET 2 INCHES THICK.
NOTE 3:
PART NUMBERS FOLLOWED BY "(*)" ARE NOT PROCURABLE ANYMORE.

15 - Shipping Stands Dimensions -5B

Cradles dimensions for CFM56-5B (2/2)									
Engine Cradle Model		Characteristics	HEIGHT with engine	WIDTH with engine	LENGTH with bare engine	LENGTH with QEC engine	WEIGHT Cradle Only	WEIGHT with bare engine	WEIGHT with QEC engine
CRADLE ONLY									
Manufacturer: **Frank Brown & Son**	*Cradle*	**FB 70010-1B REVA**	**86** *(2184)*	**98** *(2489)*	**116** *(2946)*	**198** *(5029)*	**2 033** *(922)*	**7 490** *(3397)*	**8 283** *(3757)*
Manufacturer: **Stanley**	*Cradle*	**111502-1**	**Shipment on Stanley's cradle is not possible without the base.**						

NOTE 1:
DIMENSIONS ARE GIVEN IN INCHES WITH MILLIMETERS IN PARENTHESES.
WEIGHTS ARE GIVEN IN POUNDS WITH KILOGRAMMES IN PARENTHESES.
NOTE 2:
HEIGHT INCLUDES STANDARD PALLET 2 INCHES THICK.

15 - Shipping Stands Dimensions -5C

Shipping Stands (Base and Cradle) dimensions for CFM56-5C									
Engine Shipping Stand Model		Characteristics	HEIGHT with engine	WIDTH with engine	LENGTH with bare engine	LENGTH with QEC engine	WEIGHT Stand Only	WEIGHT with bare engine	WEIGHT with QEC engine
BASE AND CRADLE									
Manufacturer: *Shipping Stand*									
AGSE	*Cradle*	**AM2387**	**96**	**96**	**155**	**224**	**4 751**	**10 475**	**12 251**
	Base	**AM2563**	*(2438)*	*(2438)*	*(3937)*	*(5690)*	*(2155)*	*(4751)*	*(5557)*
Manufacturer: *Shipping Stand*									
Dedienne Aerospace	*Cradle*	**D71CRA00004G06**	**109**	**102**		**224**	**3087**	**8810**	**10582**
	Base	**D71TRO00005G01**	*(2780)*	*(2576)*		*(5688)*	*(1400)*	*(3996)*	*(4800)*
Manufacturer: *Shipping Stand*									
C&F Millier Ltd.	*Cradle*	**CFD 1400-00 (*)**	**118**	**96**	**133**	**224**	**6 498**	**12 223**	**13 998**
	Base	**CFD 1400-02 (*)**	*(2997)*	*(2438)*	*(3378)*	*(5690)*	*(2947)*	*(5544)*	*(6349)*
Manufacturer: *Shipping Stand*									
Frank Brown & Son	*Cradle*	**FB 70020-100**	**114**	**102**	**181**	**224**	**4 912**	**10 637**	**12 412**
	Base	**FB 70020-200**	*(2896)*	*(2591)*	*(4597)*	*(5690)*	*(2228)*	*(4825)*	*(5630)*
Manufacturer: *Shipping Stand*									
Stanley	*Cradle*	**111602**	**107**	**98**	**172**	**224**	**4 449**	**10 175**	**11 950**
	Base	**111515**	*(2718)*	*(2489)*	*(4369)*	*(5690)*	*(2018)*	*(4615)*	*(5420)*

NOTE 1:
DIMENSIONS ARE GIVEN IN INCHES WITH MILLIMETERS IN PARENTHESES.
WEIGHTS ARE GIVEN IN POUNDS WITH KILOGRAMMES IN PARENTHESES.
NOTE 2:
HEIGHT INCLUDES STANDARD PALLET 2 INCHES THICK.
NOTE 3:
PART NUMBERS FOLLOWED BY "(*)" ARE NOT PROCURABLE ANYMORE.

15 - Shipping Stands Dimensions -5C

Cradles dimensions for CFM56-5C

Engine Cradle Model	Characteristics		HEIGHT with engine	WIDTH with engine	LENGTH with bare engine	LENGTH with QEC engine	WEIGHT Cradle Only	WEIGHT with bare engine	WEIGHT with QEC engine
CRADLE ONLY									
Manufacturer: **AGSE**	*Cradle*	**AM2387**	**92** *(2337)*	**96** *(2438)*	**132** *(3353)*	**224** *(5690)*	**2 150** *(975)*	**7 875** *(3572)*	**9 650** *(4377)*
Manufacturer: **Dedienne Aerospace**	*Cradle*	**D71CRA00004G06**	**114** *(2882)*	**102** *(2576)*		**224** *(5688)*	**5512** *(2500)*	**11235** *(5096)*	**13007** *(5900)*
Manufacturer: **C&F Millier Ltd.**	*Cradle*	**CFD 1400-00 (*)**	**106** *(2692)*	**96** *(2438)*	**133** *(3378)*	**224** *(5690)*	**3 200** *(1451)*	**8 925** *(4048)*	**10 700** *(4853)*
Manufacturer: **Frank Brown & Son**	*Cradle*	**FB 70020-100**	**103** *(2616)*	**102** *(2591)*	**123** *(3124)*	**224** *(5690)*	**2 115** *(959)*	**7 840** *(3556)*	**9 615** *(4361)*
Manufacturer: **Stanley**	*Cradle*	**111602**	**Shipment on Stanley's cradle is not possible without the base.**						

NOTE 1:
DIMENSIONS ARE GIVEN IN INCHES WITH MILLIMETERS IN PARENTHESES.
WEIGHTS ARE GIVEN IN POUNDS WITH KILOGRAMMES IN PARENTHESES.
NOTE 2:
HEIGHT INCLUDES STANDARD PALLET 2 INCHES THICK.
NOTE 3:
PART NUMBERS FOLLOWED BY "(*)" ARE NOT PROCURABLE ANYMORE.

15 - Shipping Stands Dimensions -7B

Shipping Stands (Base and Cradle) dimensions for CFM56-7B									
Engine Shipping Stand Model		Characteristics	HEIGHT with engine	WIDTH with engine	LENGTH with bare engine	LENGTH with QEC engine	WEIGHT Stand Only	WEIGHT with bare engine	WEIGHT with QEC engine
BASE AND CRADLE									
Manufacturer: **AGSE**	*Shipping Stand*								
	Cradle	**AM2811**	**96**	**99**	**171**	**201**	**4 420**	**9 573**	**10 849**
	Base	**AM2563**	*(2438)*	*(2515)*	*(4343)*	*(5105)*	*(2005)*	*(4342)*	*(4921)*
Manufacturer: **Dedienne Aerospace**	*Shipping Stand*	**D71STA00005G02**							
	Cradle	**D71CRA00005G02**	**94**	**99**	**194**	**207**	**4 828**	**9 981**	**11 257**
	Base	**D71TRO00005G03**	*(2388)*	*(2515)*	*(4928)*	*(5258)*	*(2190)*	*(4527)*	*(5106)*
	Base	**D71TRO00005G05**							
Manufacturer: **Frank Brown & Son**	*Shipping Stand*								
	Cradle	**FB70077-100ISSB**	**89**	**96**	**143**	**236**	**4 799**	**9 952**	**11 226**
	Base	**FB70077-200**	*(2261)*	*(2438)*	*(3632)*	*(5994)*	*(2177)*	*(4514)*	*(5092)*
Manufacturer: **Stanley**	*Shipping Stand*								
	Cradle	**114702-1**	**87**	**98**	**128**	**207**	**3 918**	**9 072**	**10 346**
	Base	**114701-1**	*(2210)*	*(2489)*	*(3251)*	*(5258)*	*(1777)*	*(4115)*	*(4693)*

NOTE 1:
DIMENSIONS ARE GIVEN IN INCHES WITH MILLIMETERS IN PARENTHESES.
WEIGHTS ARE GIVEN IN POUNDS WITH KILOGRAMMES IN PARENTHESES.
NOTE 2:
HEIGHT INCLUDES STANDARD PALLET 2 INCHES THICK.

15 - Shipping Stands Dimensions -7B

Cradles dimensions for CFM56-7B									
Engine Cradle Model	Characteristics		HEIGHT with engine	WIDTH with engine	LENGTH with bare engine	LENGTH with QEC engine	WEIGHT Stand Only	WEIGHT with bare engine	WEIGHT with QEC engine
CRADLE ONLY									
Manufacturer: **AGSE**	*Cradle*	**AM2811**	**92** *(2337)*	**96** *(2438)*	**132** *(3353)*	**199** *(5055)*	**1 821** *(826)*	**6 974** *(3163)*	**8 250** *(3742)*
Manufacturer: **Dedienne Aerospace**	*Cradle*	**D71CRA00005G02**	**91** *(2311)*	**95** *(2413)*	**105** *(2667)*	**207** *(5258)*	**2 205** *(1000)*	**7 359** *(3338)*	**8 634** *(3916)*
Manufacturer: **Frank Brown & Son**	*Cradle*	**FB70077-100ISSB**	**85** *(2159)*	**96** *(2438)*	**118** *(2997)*	**207** *(5258)*	**2 000** *(907)*	**7 154** *(3245)*	**8 429** *(3823)*
Manufacturer: **Stanley**	*Cradle*	**114702-1**	**Shipment on Stanley's cradle is not possible without the base.**						

NOTE 1:
DIMENSIONS ARE GIVEN IN INCHES WITH MILLIMETERS IN PARENTHESES.
WEIGHTS ARE GIVEN IN POUNDS WITH KILOGRAMMES IN PARENTHESES.
NOTE 2:
HEIGHT INCLUDES STANDARD PALLET 2 INCHES THICK.

16 - Shipping Stands Manufacturers Contacts

16 - Shipping Stands Manufacturers Contacts

Name	**AGSE LLC**	**Stanley Aviation**
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Telephone	+1 562-906-9300	
Fax	+1 562-906-9308	
Website	www.agsecorp.com	www.stanley-aviation.com
Email	agse@agsecorp.com	sales@stanley-aviation.com

Name	**Dedienne Aerospace**
Address	ZAC de Saint Martin 5 rue Gaye Marie 31300 Toulouse France
Telephone	+33 (0) 5 61 06 77 79
Website	www.dedienne-aero.com
Email	contact@dedienne-aero.com

Name	**Frank Brown & Son Ltd.**
Address	87 - 105 Wingate Road Luton LU4 8QA United Kingdom
Telephone	+44 (0)1582 597246
Fax	+44 (0)1582 505959
Website	www.frankbrown.co.uk
Email	enquiries@frankbrown.co.uk

Name	**CFM S.A.**	**CFM Inc.**
Address	Snecma / SAFRAN 2, chemin de Viercy Aérodrome de Villaroche 77019 Montereau-sur-le-Jard France	1 Neumann Way Cincinnati OH 45215 U.S.A.
Telephone	+33 (0) 1 64 14 88 66	+1 513-552-3272
Fax	+33 (0) 1 64 79 85 55	+1 513-552-3329
Website	www.cfmaeroengines.com	
Email	~~snecma.csc@snecma.fr~~ cfm.csc@safrangroup.com	geae.aoc@ge.com geae.choc@ge.com

17 - CFM Customer Support Contacts

17 - CFM Customer Support Contacts

For any information regarding CFM56 engine transportation, please contact CFM Customer Support:

Name	**CFM S.A.**	**CFM Inc.**
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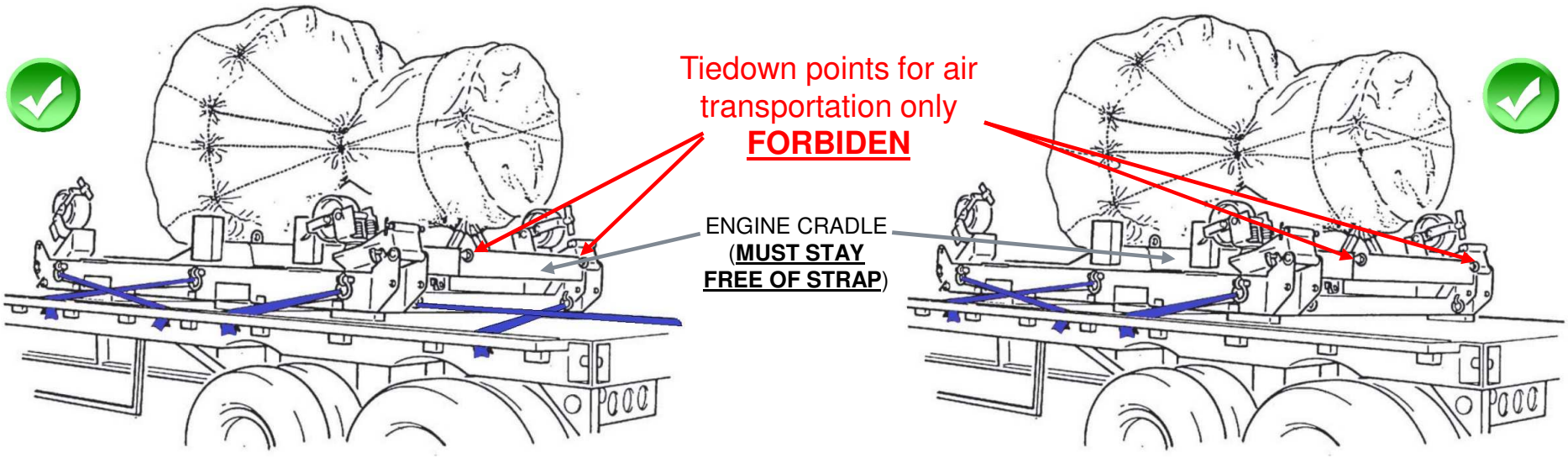
Telephone	+33 (0) 1 64 14 88 66	+1 513-552-3272
Fax	+33 (0) 1 64 79 85 55	+1 513-552-3329
Website	www.cfmaeroengines.com	
Email	~~snecma.csc@snecma.fr~~ cfm.csc@safrangroup.com	geae.aoc@ge.com geae.choc@ge.com

18 – Stickers to fix on covers or shipping stands

AIRCRAFT ENGINE TIE DOWN PROCEDURE

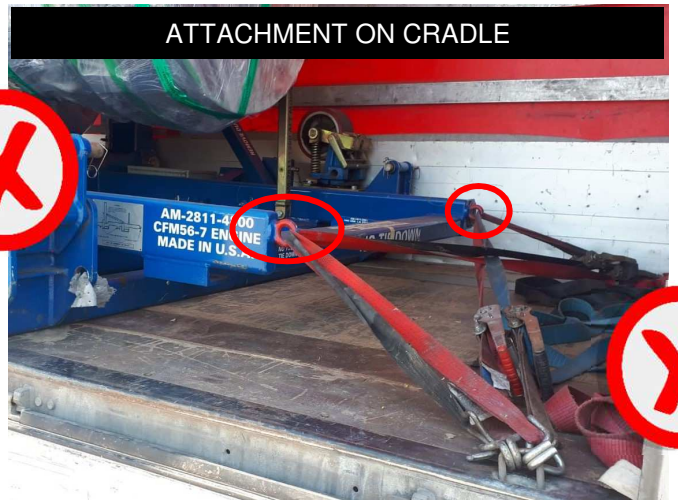
APPLICABLE TO TRUCK BEDS



Refer to CFM TRANSPORTATION GUIDE available on MyCFM portal

ATTACHMENT OVER THE ENGINE

ATTACHMENT ON CRADLE



ATTACHMENT OVER CRADLE