

AIRCRAFT AIR START COUPLER

SAFETY, OPERATION, INSPECTION & MAINTENANCE MANUAL

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DOCUMENT CONTROL

Revision	Date	Description
1.0	_____	Initial Release

SAFETY ALERT SYMBOLS

DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor injury, equipment damage, or aircraft damage.

NOTICE

Indicates information important to operation, maintenance, or product longevity.

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1. INTRODUCTION

This manual provides instructions for the safe operation, inspection, maintenance, storage, and servicing of Aircraft Air Start Couplers (ASC).

Failure to follow the requirements contained in this manual may result in:

- Serious personal injury
- Death
- Aircraft damage
- Equipment damage
- Foreign Object Debris (FOD) incidents
- Loss of pneumatic pressure

- Regulatory violations

All operators, maintenance personnel, and supervisors shall read and understand this manual before using the product.

2. INTENDED USE

The Aircraft Air Start Coupler is designed solely for connecting approved Ground Air Start Units (ASU) to compatible aircraft pneumatic starting receptacles.

The coupler shall NOT be:

- Modified
- Used as a lifting device
- Used as a towing attachment
- Used with incompatible aircraft interfaces
- Used outside published operating limits
- Repaired using non-approved replacement components

Unauthorized modifications may result in equipment failure and void all warranties.

3. APPLICABLE STANDARDS AND REFERENCES

This product is designed, manufactured, and maintained in accordance with applicable industry standards and aerospace best practices.

Primary Air Start Coupler Standards

- SAE AS1895 – Aircraft Air Start Receptacle and Coupling Interface
- SAE AS7510 – Ground Support Pneumatic Connections

Military Interface Standards

- MS17833
- MS17835
- MS18039
- MS33740

Pneumatic System Standards

- MIL-DTL-25531

- MIL-DTL-22706

Materials and Finishes

- MIL-A-8625 – Anodic Coatings for Aluminum and Aluminum Alloys
- ASTM B117 – Salt Spray Corrosion Testing
- ASTM D2000 – Rubber Material Classification System

Ground Support Equipment Standards

- EN 1915 Series – Ground Support Equipment Safety Requirements

Operational References

- IATA Airport Handling Manual (AHM)
- IATA Ground Operations Manual (IGOM)

Safety Standards

- OSHA 29 CFR 1910 Subpart I – Personal Protective Equipment
- OSHA 29 CFR 1910.95 – Occupational Noise Exposure
- OSHA 29 CFR 1910.147 – Control of Hazardous Energy (Lockout/Tagout)

FOD Prevention

- NAS 412 – Foreign Object Damage / Debris Prevention
-

4. SAFETY INFORMATION

DANGER – HIGH PRESSURE AIR

Compressed air contains stored energy capable of causing severe injury or death.

Never disconnect a coupler while the Air Start Unit is operating.

Always verify system pressure has been relieved prior to disconnecting.

Failure to follow this instruction may result in uncontrolled release of compressed air.

DANGER – HOSE WHIP HAZARD

A failed or improperly secured pneumatic connection may cause violent hose movement.

Always verify:

- Positive coupler engagement

- Proper locking
- Secure hose restraint
- Serviceable gaskets

Personnel shall remain clear of hose paths during operation.

WARNING – AIRCRAFT ENGINE START HAZARD

Air Start operations are performed in close proximity to operating aircraft engines.

Stay clear of:

- Engine intakes
- Engine exhaust areas
- Propellers
- Rotors

Follow all airport and airline operating procedures.

WARNING – NOISE HAZARD

Air Start Units may generate sound levels exceeding permissible exposure limits.

Hearing protection is required whenever operating near active Air Start equipment.

WARNING – PROJECTILE HAZARD

Loose hardware, damaged components, or failed couplers may become projectiles under pressure.

Do not use damaged equipment.

CAUTION – AIRCRAFT DAMAGE

Never force a coupler onto an aircraft receptacle.

If excessive force is required:

- Stop operation
- Verify compatibility

- Inspect gasket condition
 - Inspect alignment
-

CAUTION – FOREIGN OBJECT DEBRIS (FOD)

Before and after each operation verify:

- Dust caps installed
 - Tools accounted for
 - Hardware secured
 - Work area inspected
-

5. PERSONAL PROTECTIVE EQUIPMENT (PPE)

Minimum PPE requirements:

- Safety glasses with side shields
- Hearing protection
- Safety footwear
- High-visibility vest
- Work gloves

Additional PPE may be required by local operating procedures.

6. PRODUCT DESCRIPTION

The Aircraft Air Start Coupler provides a secure pneumatic interface between a Ground Air Start Unit and an aircraft pneumatic starting system.

Major components include:

- Front Handle Assembly
- Rear Handle Assembly
- Coupler Body
- Locking Ball Bearings
- Guiding Shoulder Bolts
- Butterfly Valve
- Return Springs

- Debris Filter
- Gasket Assembly
- Protective Dust Cap

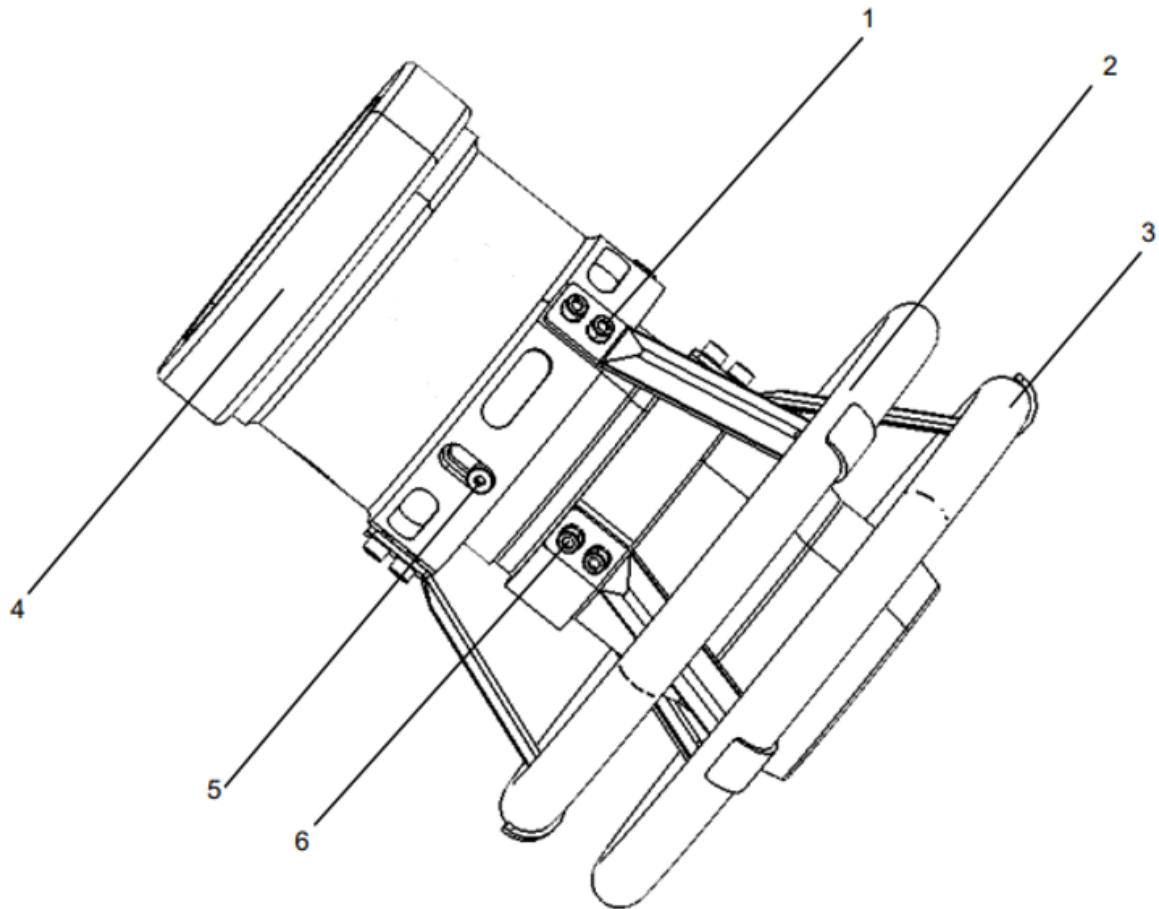


Figure 1

1	Front handle mounting bolts	4	Rubber bumper
2	Front handle	5	Guiding Shoulder bolts
3	Rear handle	6	Rear handle mounting bolts

7. TECHNICAL SPECIFICATIONS

Parameter	Specification
Service	Aircraft Pneumatic Starting
Connection Type	AS1895 Compatible
Construction	Aluminum Alloy / Stainless Steel
Finish	MIL-A-8625 Anodized
Operating Temperature	Per Manufacturer Specification
Weight	Refer to Product Specification Sheet
Part Number	Refer to Product Label

8. DAILY PRE-USE INSPECTION

Inspect prior to each use.

Gasket

Verify:

- No cracks
- No cuts
- No hardening
- No excessive wear

Coupler Body

Verify:

- No cracks
- No deformation
- No impact damage

Locking Mechanism

Verify:

- Positive engagement
- Smooth operation
- Proper retention

Connection Surfaces

Verify:

- Clean condition
- No contamination
- No FOD

Dust Cap

Verify:

- Present
- Functional

Remove from service if deficiencies are identified.

9. MONTHLY INSPECTION

Perform and document monthly inspections.

Handles

Inspect:

- Weld integrity
- Fasteners
- Mounting condition

Verify mounting bolts are torqued to manufacturer specifications.

Guiding Shoulder Bolts

Inspect for:

- Wear
- Looseness
- Damage

Replace damaged hardware immediately.

Locking Ball Bearings

Verify:

- Proper movement
- Proper engagement
- Proper release

Butterfly Valve

Verify:

- Smooth operation
- Full opening
- Full closing

Debris Filter

Inspect for:

- Damage
- Contamination
- Restriction

If contamination is found, inspect the entire hose assembly.

10. SAFE OPERATING PROCEDURES

Connection Procedure

1. Verify aircraft is approved for air start.
2. Inspect coupler.
3. Inspect aircraft receptacle.
4. Remove protective caps.
5. Align coupler.
6. Engage locking mechanism.
7. Verify positive lock.
8. Verify personnel are clear.
9. Initiate Air Start Unit operation.

Disconnection Procedure

1. Shut down Air Start Unit.
2. Verify pressure relief.
3. Disconnect carefully.
4. Inspect coupler.

5. Install protective caps.
 6. Store properly.
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11. STORAGE REQUIREMENTS

Store couplers:

- Clean
- Dry
- Protected from direct sunlight
- Protected from chemicals
- Protected from physical damage

Install dust caps during storage.

Following storage exceeding 30 days, perform a full pre-use inspection before return to service.

12. PREVENTIVE MAINTENANCE

Quarterly

Inspect:

- Handles
- Shoulder bolts
- Bearings
- Butterfly valve
- Debris filter

Annually

Perform:

- Complete disassembly inspection
- Replacement of worn seals
- Corrosion assessment
- Functional testing

Document all maintenance actions.

13. REMOVAL FROM SERVICE CRITERIA

Immediately remove from service if any of the following are identified:

- Cracked body
- Damaged gasket
- Failed locking mechanism
- Excessive corrosion
- Air leakage
- Loose welds
- Bent components
- Failed bearing operation
- Butterfly valve malfunction
- Impact damage

Do not return equipment to service until repaired and inspected.

14. TRAINING REQUIREMENTS

Personnel shall receive training in:

- Air Start Coupler operation
- Air Start Unit operation
- Pneumatic safety
- Hose whip hazards
- FOD prevention
- Hearing conservation
- Inspection procedures
- Emergency shutdown procedures

Training records shall be maintained.

15. RECORDKEEPING

Maintain records of:

- Daily inspections
- Monthly inspections
- Maintenance activities
- Repairs
- Training
- Incidents

Recommended retention period: Three years minimum.

16. WARRANTY AND LIABILITY DISCLAIMER

This product is warranted against defects in material and workmanship under normal operating conditions.

The warranty does not cover:

- Abuse
- Misuse
- Unauthorized modification
- Improper maintenance
- Failure to inspect
- Failure to follow this manual

The manufacturer shall not be liable for damages resulting from improper use of the product.

17. TECHNICAL SUPPORT

Manufacturer: _____

Address: _____

Phone: _____

Email: _____

Website: _____

APPENDIX A – DAILY INSPECTION CHECKLIST

- ☐ Gasket acceptable
- ☐ Coupler body acceptable
- ☐ Locking mechanism functional
- ☐ Dust cap installed
- ☐ No FOD present
- ☐ Coupler approved for use

Inspector: _____

Date: _____

APPENDIX B – MONTHLY INSPECTION CHECKLIST

- ☐ Handle welds inspected
- ☐ Fasteners inspected
- ☐ Shoulder bolts inspected
- ☐ Bearings inspected
- ☐ Butterfly valve tested
- ☐ Debris filter inspected
- ☐ Coupler approved for service

Inspector: _____

Date: _____

APPENDIX C – MAINTENANCE LOG

Date	Technician	Work Performed	Parts Replaced	Return to Service
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APPENDIX D – TRAINING RECORD

Employee Name: _____

Training Date: _____

Training Topic: _____

Instructor: _____

Employee Signature: _____

Supervisor Signature: _____

END OF DOCUMENT