



**TO: HOLDERS OF THE RESERVOIR ASSEMBLY DOOR EMERGENCY
POWER COMPONENT MAINTENANCE MANUAL 52-10-02, DATED
OCT 1/02.**

REVISION NO. 5 DATED SEP 15/03

HIGHLIGHTS

THIS PUBLICATION HAS BEEN REVISED. REMOVE AND REPLACE
AFFECTED PAGES OF THE COMPONENT MAINTENANCE MANUAL.

The highlights of the revision are outlined below. The pages have been revised and
maintain the format of ATA 100 and the AECMA Simplified English guidelines.

Chapter/Section and Page No.	Description of Change	Effectivity
Title Page	Added revision date.	All models
Page RR-!	Added revision date.	All models
Page SB-1	Added revision date and SIL 52-05	All models
Page LEP-1	Added revision date. Revised page dates.	All models
Page 301	Added safety relief cap P/N TL00500-1 to Table 301. Paragraph 1 added "Install anti recoil safety relief cap on reservoir weldment (130) and retain with captured swivel nut."	All models
Page 701	Added safety relief cap P/N TL00500-1 to Table 701.	All models
Page 901	Added safety relief cap P/N TL00500-1 to Table 901.	All models
Page 1005	Item 25 – added "GRAY ANODIZED BRACKETS (ITEM 55) – REPLACED BY ITEM –25A (PRE SIL 52- 05)" Item 40 - added "REPLACED BY ITEM –40A (PRE SIL 52-05)" Item 45 – added "REPLACED BY ITEM –45A (PRE SIL 52-05)" Item 55 – added "GRAY ANODIZED BRACKETS (ITEM -55A) – REPLACED BY ITEM –55A (PRE SIL 52-05)"	All models



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Chapter/Section and Page No.	Description of Change	Effectivity
	Added Item –25A “ACTUATOR ASSEMBLY, GOLD ANODIZED BRACKETS (ITEM 55) – REPLACES ITEM 25 (POST SIL 52-05)” Added Item –40A “SU00251-1 RIVET – REPLACES ITEM 40 (POST SIL 52-05)” Added Item –45A “SU00205-1 WASHER - REPLACES ITEM 45 (POST SIL 52-05)” Added Item –55A “BRACKET - REPLACES ITEM 55 (PRE SIL 52-05)”	



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RESERVOIR ASSEMBLY
DOOR EMERGENCY POWER
P/N 40400-2
BAC SPEC. NO.60B10003

COMPONENT MAINTENANCE MANUAL
WITH TECHNICAL PROPERTIES AND
ILLUSTRATED PARTS LIST

52-10-02 PAGE T-1
JUN 30/01
REVISED SEP 15/03



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COMPONENT MAINTENANCE MANUAL
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PMA PARTS NOTICE

MASS Systems recommends the component parts used in the repair and overhaul of reservoir assembly be MASS Systems manufactured component parts or FAA-PMA component parts that have formal after market authority by design compilation and test.



RECORD OF REVISIONS

REV. NO.	ISSUE DATE	DATE FILED	BY
1	Jul 15/02	Jul 15/02	
2	Aug 15/02	Aug 15/02	
3	Sep 1/02	Sep 1/02	
4	Oct 1/02	Oct 1/02	
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SERVICE BULLETIN LIST

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INTRODUCTION

SCOPE

This Component Maintenance Manual covers the maintenance and overhaul procedures for the door emergency power reservoir assembly. The door emergency power reservoir assembly is used to open the passenger doors in emergency conditions. The door emergency power reservoir assembly is actuated manually.

MANUFACTURING ENTITY & PRODUCT SUPPORT

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In addition to our factory Product Support, Overhaul and Recharge stations are available worldwide.

USE MANUAL FOR SPECIFIC FUNCTIONS

This manual covers the following topics: Description and Operation, Technical Properties, Testing and Fault Isolation, Disassembly, Cleaning, Check, Repair, Assembly and Storage, Special Tools, Fixtures, and Equipment, and Illustrated Parts List.

Recommended tools, equipment, and materials are listed in each section and in the Special Tools, Fixtures, and Equipment section. Equivalent items may be used.

REVISION SERVICE

Revised pages will be issued when necessary throughout the service life of the door emergency power reservoir assembly. The revised part of the page will be identified with a change bar or capital **R** in the left margin.

VERIFICATION

Testing and Fault Isolation

Disassembly

Assembly



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ABBREVIATIONS AND UNIT SYMBOLS

Abbreviations and unit symbols used in this manual are defined below.

Assy.	Assembly	kPag	Kilo Pascal-gauge (1 kPag = 0.15-psi)
ATA	Air Transport Association	Max	Maximum
CAA	Civil Aviation Authority	Min	Minimum
CAGE	Commercial and Government Entity	Mm	Millimeter (1 mm = 0.0394-inch)
Cfh	Cubic feet per hour	N·m	Newton-meter (1 N·m = 8.3 inch-pound)
CFR	Code of Federal Regulations	No.	Number
Cm	Centimeter (1 cm = 0.394-inch)	OD	Outside Diameter
DOT	Department of Transportation	Psig	Pounds per square inch-gauge
FAA	Federal Aviation Administration	Rev.	Revision
GN ₂	Nitrogen Gas	SB	Service Bulletin
ID	Inside Diameter	Scch/hour	Standard cubic centimeters per hour
IPL	Illustrated Parts List	Temp	Temperature
JAA	Joint Aviation Authorities	%	Percent
Kg	Kilogram (1 kg = 2.205-pounds)		



DESCRIPTION AND OPERATION

DESCRIPTION

The door emergency power reservoir assembly stores pressurized Nitrogen gas and consists of the following components. See Figure 1.

Actuator assembly, includes cam actuator	Pressure gauge
Cutter knife	Relief plug assembly
Fitting assembly, includes rupture disc	Reservoir weldment
Outlet valve assembly	

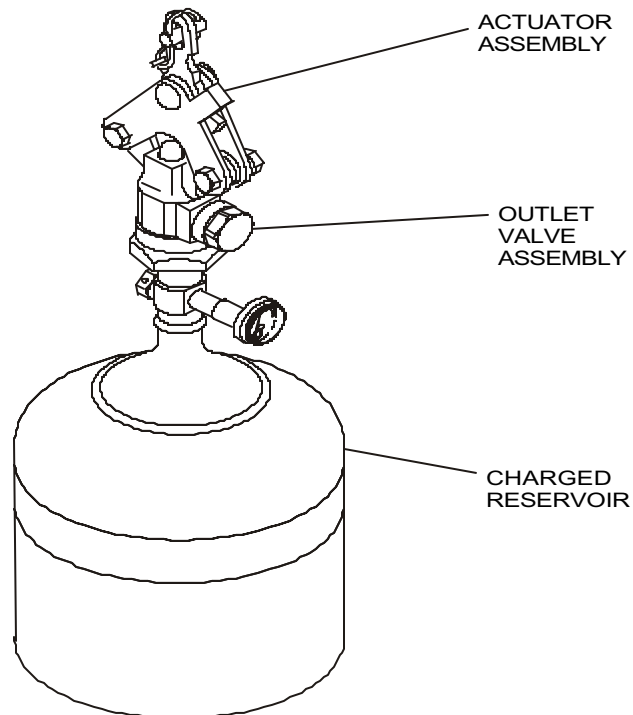
The following can be performed while the door emergency power reservoir assembly remains pressurized and without danger to personnel.

The pressure gauge can be oriented radially to any position by rotating the outlet valve assembly.

The outlet valve assembly can be removed from the door emergency power reservoir assembly.

OPERATION

In an emergency condition, the passenger cabin doors are opened by activating the lever-type cam actuator of the door emergency power reservoir assembly. The knife cutter penetrates the rupture disc in the fitting assembly and releases the Nitrogen gas through the outlet valve assembly into the emergency system to open the passenger cabin door.



Primary Components
Figure 1



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TECHNICAL PROPERTIES

The technical properties are provided in Table 1.

Technical Properties
Table 1

PROPERTY	SPECIFICATION
Description Part Number Nomenclature Complies with	40400-2 Reservoir Assembly, Door Emergency Power Boeing Specification 60B10003 and DOT-E 10440
Properties Internal Volume Weight – Empty Height Width Pressurizing Gas	30-cubic inches (0,5 liter) minimum 2.10-pounds (0,95 kg) maximum 9.75-inches (24,77 cm) maximum 3.62-inches (9,20 cm) maximum diameter Nitrogen gas per BB-N-411C
Pressure Data At 70°F (21°C) Charge Pressure Hydrostatic Test Pressure Burst Pressure Safety Relief Pressure	2950- to 3050-psig (20340 to 21030 kPag) 5000-psig (34475 kPag) 9000-psig (62055 kPag) 4600- to 5400-psig (31717 to 37233 kPag)
Ambient Temperature Range	-65°F to +160°F (-54°C to +71°C)
Actuating Force	15- to 35-pounds (6,80 to 15,88 kg)
Pressure Gauge Data Range Accuracy at 3000-psig (20685 kPag) Orientation	1000- to 4000-psig (6895 to 27580 kPag) ± 50-psig (344 kPag) Vertically (refer to outlet valve assembly data)
Outlet Valve Assembly Data Orientation	Can be turned to orient the pressure gauge
Outlet Port Data Thread Size	MS33649-4
Hydrostatic Test Interval Life Limit	5-years recommended - DOT, FAA, CAA, and JAA regulations may take precedence. Unlimited



TESTING AND FAULT ISOLATION

TEST EQUIPMENT AND MATERIALS

The recommended test equipment and materials are listed in Table 101. Equivalent items may be used.

Test Equipment and Materials
Table 101

Nomenclature	Part or Specification Number	Source (CAGE)*
Cradle	91033-30	MASS Systems (0FRR4)
Fitting, Test	---	Customer supply
Hydrostatic Test Setup	---	DOT approved hydrostatic test facility
Nitrogen Gas (GN ₂) or Dry Air	2000-psig (13790 kPag)	Commercially available
Oven or Heater, 250°F (121°C)	---	Commercially available
Plug, Gauge Boss	---	Customer supply
Plug, Relief Port	---	Customer supply
Pressure Gauge, Master	0- to 5000-psig (34475 kPag)	Commercially available
Spring Scale	0- to 50- pounds (0 to 28 kg)	Customer supply

* Refer to the IPL, paragraph 2, for the address.

GENERAL

1. Conduct the testing and fault isolation procedures in a clean, well-lighted area.
2. Testing shall be conducted at ambient room temperature of 70°F to 90°F (21°C to 32°C).
3. Unless otherwise specified, the maximum allowable test tolerances shall be as follows:

TEMPERATURE:	± 2.5°F
PRESSURE:	± 2.0 %
FORCE:	± 2.0 %
TIME:	± 2.0 %

4. The reservoir weldment (130) shall be checked for cleanliness, before and after testing.



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OPERATIONAL TEST

1. Perform the operational test with the door emergency power reservoir assembly pressurized with Nitrogen gas between 2950- to 3050-psig (20349 to 21039 kPag).
2. Secure the reservoir weldment (130) to prevent movement during the operation test.

**WARNING: DO NOT STAND IN FRONT OF THE OUTLET PORT BECAUSE
DURING DISCHARGE OF THE DOOR EMERGENCY POWER
RESERVOIR ASSEMBLY PERSONAL INJURY CAN OCCUR.**

3. Attach a spring scale to the actuator assembly (25) and apply force to the actuator assembly (25).
4. Record the force required to discharge the door emergency power reservoir assembly and the travel length of the actuator assembly (25).

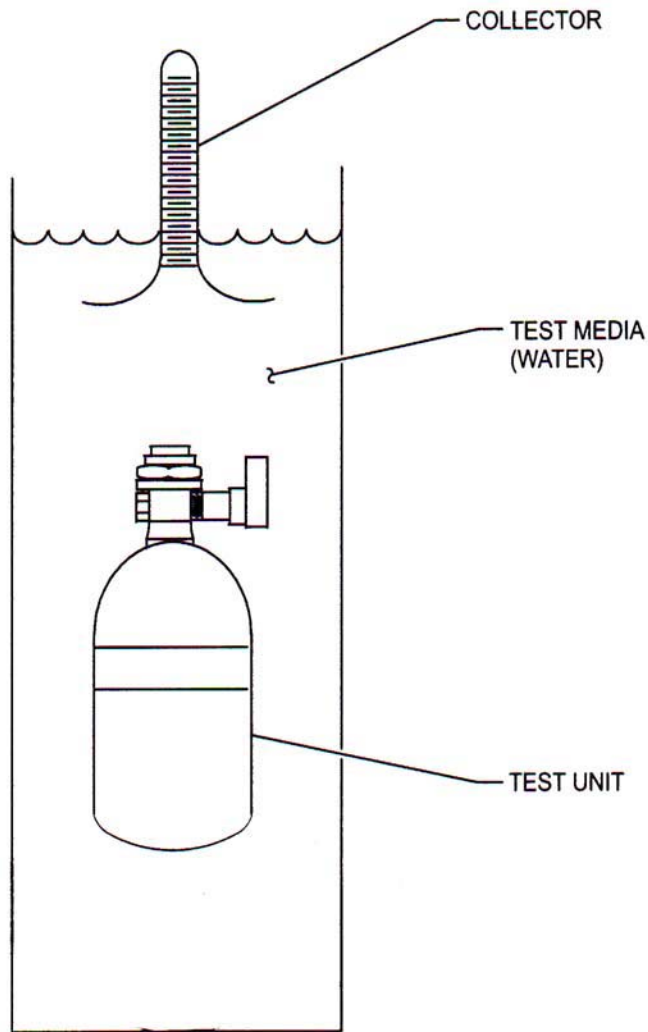
REQUIREMENT: Actuation Force is 15- to 35-pounds (6,8 to 15,9 kg) Travel Length is 1.0-inch (25.4 mm) minimum

LEAKAGE TEST

1. Perform the leakage test with the door emergency power reservoir assembly pressurized with Nitrogen gas between 2950- to 3050-psig (20349 to 21039 kPag).
2. Submerge the door emergency power reservoir assembly in water as shown in Figure 101.
3. Wait three-minutes to allow all bubbles to dissipate, then insert a graduated bubble collector for 15-minutes.

REQUIREMENT: Leakage shall not exceed 0.06-cubic inch/hour (1 scc/hour).

4. Examine the pressure gauge (120), there shall be no evidence of fog or water inside the pressure gauge (120).
5. Remove the door emergency power reservoir assembly from the water and thoroughly dry.



Leak Test Setup
Figure 101



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HYDROSTATIC PRESSURE TEST

Hydrostatic testing of the reservoir weldment (130) in an approved facility is required to comply with the Department of Transportation (DOT) regulations and specifications. The approved method of testing is by water jacket volumetric expansion, which uses an internal water pressure (proof pressure) to determine total volumetric expansion. The pressure is then removed and the permanent volumetric expansion of the reservoir weldment (130) is determined. The percent of total expansion that is permanent is then calculated to determine if the reservoir weldment (130) can be reused or must be replaced.

Five years is the recommended retest period for the MASS Systems reservoir weldment (design specification 4DS), complying with U.S. Department of Transportation requirement section 173.34, contained in the Code of Federal Regulations Title 49. DOT, FAA, CAA, and JAA regulations may take precedence. References: MASS Systems DOT-E 10440 and FAA, CAA, JAA regulations.

HYDROSTATIC TEST PROCEDURE

1. Use DOT approved hydrostatic test equipment or a DOT approved outside facility.
2. Verify the hydrostatic test water jacket calibration dates.
3. Prepare the reservoir weldment (130) for hydrostatic test, as follows:
4. Disassemble the door emergency power reservoir assembly to remove the actuator assembly (25), fitting assembly (105), outlet valve assembly (-5), pressure gauge (120), and relief plug assembly (115) from the reservoir weldment (130).
5. Place the reservoir weldment (130) in the cradle with the fill boss up. Install plugs in the gauge and relief ports. Completely fill the reservoir weldment (130) with water. Install a test fitting into the fill boss.
6. Place the filled reservoir weldment (130) into the water jacket of the hydrostatic test equipment and connect to the pressure source through the test fitting in the fill boss.
7. Close the lid to the water jacket and pressurize to seal the lid to the water jacket.
8. Adjust the burette to the reference level.
9. Pressurize the reservoir weldment (130) to 5000-psig (34475 kPag) and maintain at this pressure for a minimum of three-minutes.
10. After stabilization read the water level in the burette. This reading is the total expansion of the reservoir weldment (130).
11. Depressurize the reservoir weldment (130) and record water level in burette. This reading is the permanent expansion of the reservoir weldment (130).



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12. Calculate and record the permanent volumetric expansion as percentage of total expansion.

Permanent volumetric expansion in cubic centimeters
Percent (%) = X 100
Total volumetric expansion in cubic centimeters

REQUIREMENT: The permanent volumetric expansion must not exceed ten-percent of the total volumetric expansion.

13. Retest if the reservoir weldment (130) decreases in size. Repeat the test once if system error is suspected. Replace the reservoir weldment (130) if the reservoir weldment (130) fails.

14. Remove the reservoir weldment (130) from the water jacket.

15. Remove the test fitting, then drain the water from the reservoir weldment (130). Remove the plugs from the gauge and relief ports.

CAUTION: IT IS EXTREMELY IMPORTANT TO COMPLETELY DRY THE RESERVOIR WELDMENT (130), ANY WATER LEFT INSIDE DEGRADES PERFORMANCE OF THE RESERVOIR WELDMENT (130).

16. Insert a vacuum line in the reservoir weldment (130), place the reservoir weldment (130) in an oven or dryer heated at 225°F to 250°F (107°C to 121°C), while pulling a vacuum for one-hour or until completely dry and all traces of moisture are removed.

17. Inspect the reservoir weldment (130) for any signs of damage.

18. Impression stamp the test date and inspection stamp on the reservoir weldment (130) boss.

NOTE: Alternate marking method, electro-etch the test date and inspection stamp next to the reservoir weldment (130) boss.

PRESSURE GAUGE TEST

Check the pressure gauge (120) for accuracy with a Master Pressure Gauge.

PRESURE GAUGE psig (kPag)	MASTER GAUGE psig (kPag)
--------------------------------------	-------------------------------------

3000 (20694)

2950 to 3050 (20349 to 21039)



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FAULT ISOLATION

NOTE: Detailed fault isolation procedures are not required.

1. If the outlet valve assembly (5) fails the Operational Test, the outlet valve assembly (5) must be replaced.
2. If excessive leakage is detected during the Leakage Test, repair or replace the components, as required.
3. If the increase in permanent volumetric expansion exceeds ten-percent during the Hydrostatic Pressure Test, replace the reservoir weldment (130).
4. If the pressure gauge (120) does not reflect the charged or discharged condition of the door emergency power reservoir assembly, or perform within the accuracy requirement of the pressure gauge test, replace the pressure gauge (120).



DISASSEMBLY

GENERAL

Perform the Testing and Fault Isolation or the Check procedures, as applicable, to determine probable cause of malfunction. Then use the appropriate procedure listed below to remove the component part. Before proceeding with any removal or disassembly, personnel must familiarize themselves with the various components, their locations, and terminology.

DISASSEMBLY TOOLS

The recommended disassembly tools are listed in Table 301. Equivalent items may be used.

Disassembly Tools
Table 301

Nomenclature	Part or Specification Number	Source (CAGE)*
Cradle	91033-30	MASS Systems (0FRR4)
Fill Tool	91200-1	MASS Systems (0FRR4)
Safety Relief Cap, Anti Recoil	TL00500-1	MASS Systems (0FRR4)

* Refer to the IPL, paragraph 2, for the address.

OUTLET VALVE ASSEMBLY

1. Unthread the captured swivel nut on the outlet port of the reservoir weldment (130) from the outlet body (90). Remove the o-ring (95) from the reservoir weldment (130) and discard. Install anti recoil safety relief cap on reservoir weldment (130) and retain with captured swivel nut.
2. Unthread the hex nut (10), then remove the flat washer (15) and the bolt (20) from the actuator assembly (25).

NOTE: Repeat above step for second bolt (20).

3. Separate the actuator assembly (25) from the outlet body (90).
4. Remove the safety wire (30) and the safety dowel (35), if required.
5. Slide the cutter knife (70) from the outlet body (90). Remove the o-ring (75) and the backup ring (80) from the cutter knife (70) and discard.
1. Remove the spring (85) from the outlet body (90).



WARNING: DO NOT DISASSEMBLE THE DOOR EMERGENCY POWER RESERVOIR ASSEMBLY FURTHER UNTIL THE HIGH PRESSURE NITROGEN GAS HAS BEEN DISCHARGED OR SEVERE INJURY TO PERSONNEL CAN OCCUR.

DISCHARGE PROCEDURE

NOTE: Use this procedure to discharge the high pressure Nitrogen gas before removing the fitting assembly, seal, relief plug assembly, and pressure gauge.

WARNING: THE RESERVOIR WELDMENT (130) MUST BE SECURELY FASTENED TO THE CRADLE BEFORE DISCHARGING THE HIGH PRESSURE NITROGEN GAS. DIRECT THE HIGH PRESSURE NITROGEN GAS DISCHARGE AWAY FROM PERSONNEL OR SEVERE INJURY TO PERSONNEL CAN OCCUR.

1. Secure the cradle to a work surface.
2. Place the reservoir weldment (130) in the cradle with the fitting assembly (105) facing away from personnel and secure with tie-downs.
3. Position the fill tool on the fitting assembly (105), engage the actuator shaft of the fill tool in the slot of the fitting assembly (105). Thread the captured swivel nut on the outlet port of the reservoir weldment (130) onto the fill tool.
4. Rotate the fill tool counter-clockwise and back out the fitting assembly (105) from the outlet boss until the high pressure Nitrogen gas slowly discharges from the reservoir weldment (130).
5. Disconnect the fill tool from the reservoir weldment (130).
6. Unthread the fitting assembly (105), and remove the copper seal (110) from the reservoir weldment (130).
7. Unthread the relief plug assembly (115) and the pressure gauge (120) from the reservoir weldment (130).



CLEANING

CLEANING MATERIALS

The recommended cleaning materials and equipment are listed in Table 401. Equivalent items may be used.

Cleaning Materials and Equipment
Table 401

Nomenclature	Part or Specification Number	Source (CAGE)*
Alcohol, Isopropyl	Federal Specification TT-I-735	Commercially available
Cloth, Lint-Free	---	Commercially available
Cradle	91033-30	MASS Systems (0FRR4)
Detergent Solution	---	Commercially available
Light Probe	---	Commercially available
Oven or Heater, 250°F (121°C)	---	Commercially available

* Refer to the IPL, paragraph 2, for the address.

METAL PARTS

WARNING: IMPROPER HANDLING OF A CHARGED DOOR EMERGENCY POWER RESERVOIR ASSEMBLY CAN CAUSE INJURY.

WARNING: USE CLEANING SOLVENT IN A WELL-VENTILATED AREA. AVOID PROLONGED INHALATION OF FUMES. KEEP THE CLEANING SOLVENT AWAY FROM OPEN FLAMES.

1. Clean all metal parts, except the rupture disc in the fitting assembly ((105) and the safety disc in the relief plug assembly (115), by wiping parts with a lint-free cloth moistened with a detergent solution.
2. Dry the parts thoroughly using a clean, lint-free cloth.



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RESERVOIR WELDMENT (130)

1. Clean the interior of the reservoir weldment (130) after removal of the fitting assembly ((105), copper seal (110), relief plug assembly (115), and pressure gauge (120) as follows:
2. Pour a small amount of detergent solution (1/4-to 1/2-cup) into the reservoir weldment (130).
3. Shake the reservoir weldment (130) in a circular motion, and drain into a disposal container.
4. Repeat steps 2 and 3 using isopropyl alcohol until no further contamination is evident in the drained alcohol. Use a light probe; inspect the interior of the reservoir weldment (130).
5. Glass bead hone the exterior of the reservoir weldment (130), if necessary.
6. Plug and protect all boss threads. Cover the identification data and white film strip (125).
7. Glass bead hone the exterior of the reservoir weldment (130) (wet or dry glass bead), except the threads of the fill boss and captured swivel nut.
8. Remove the plugs and thoroughly clean the reservoir weldment (130).

CAUTION: IT IS EXTREMELY IMPORTANT TO COMPLETELY DRY THE RESERVOIR WELDMENT (130), ANY WATER LEFT INSIDE DEGRADES PERFORMANCE OF THE RESERVOIR WELDMENT (130).

9. Insert the reservoir weldment (130) in an oven or place on a dryer heated at 225°F to 250°F (107°C to 121°C), until completely dry and all traces of moisture are removed.



CHECK

CHECK TOOLS AND EQUIPMENT

The recommended check tools and equipment are listed in Table 501. Equivalent items may be used.

Check Tools and Equipment
Table 501

Nomenclature	Part or Specification Number	Source (CAGE)*
Cradle	91033-30	MASS Systems (0FRR4)
Light Probe	---	Commercially available

* Refer to the IPL, paragraph 2, for the address.

RESERVOIR WELDMENT (130)

1. Inspect the reservoir weldment (130) for scratches or dents that could reduce its strength as a pressure vessel. Dents deeper than 0.030-inch per inch (0,76 mm per mm) of average dent diameter, or scratches deeper than 0.005-inch (0,13 mm) or longer than 2-inches (50,8 mm) shall be cause for rejection.
2. Inspect all welded joints, external and internal, for fine cracks, or other irregularities, per CGA C-6.
3. Verify the hydrostatic test date is within the DOT regulation requirement and the reservoir weldment (130) is properly marked with the required DOT data. Refer to the Testing and Fault Isolation section.
4. Check the fill boss, the relief plug port, and the pressure gauge port for stripped or damaged threads.

FITTING ASSEMBLY ((105) AND RELIEF PLUG ASSEMBLY (115)

Check the fitting assembly ((105) and the relief plug assembly (115) for stripped or damaged threads.

PRESSURE GAUGE (120)

Check the pressure gauge (120) for stripped or damaged threads, broken or discolored crystal, damaged case, and bent or broken pressure indicator. Verify functional test has been performed, refer to the Testing and Fault Isolation section.



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OUTLET VALVE ASSEMBLY (5)

1. Check the actuator assembly (25) for freedom of movement. Verify there is not any binding.
2. Check the cutter knife (70) for freedom of movement. Verify the spring (85) returns the cutter knife (70) to its original position inside the outlet body (90). The spring action must be good without binding.
3. Check the outlet body (90) for cracks, corrosion, stripped or damaged threads. Verify the discharge port is clear without blockage.
4. Check all component parts for any distortion.



REPAIR

GENERAL

The repair instructions are limited. Refer to the Disassembly and Assembly sections to replace component parts.

REPAIR TOOLS AND MATERIALS

The recommended repair tools and materials are listed in Table 601. Equivalent items can be used.

Repair Tools and Materials
Table 601

Nomenclature	Part or Specification Number	Source (CAGE)*
Alcohol, Isopropyl	Federal Specification TT-I-735	Commercially available
Cloth, Crocus	P-C-458	Commercially available
Cloth, Lint-Free	---	Commercially available
Cradle	91033-30	MASS Systems (0FRR4)

* Refer to the IPL, paragraph 2, for the address.

WARNING: DO NOT ATTEMPT ANY REPAIRS TO THE RESERVOIR WELDMENT (130) UNTIL THE HIGH PRESSURE GAS HAS BEEN DISCHARGED.

REPAIRS

Replace all the component parts that fail to meet the Check or Test requirements or are damaged beyond minor repair.

Repair minor damage to threads, not exceeding one complete thread, by carefully tapping or chasing the thread. If more than one thread is affected, replace the component part.

Polish out minor nicks, scratches, and corrosion with a crocus cloth.



ASSEMBLY (INCLUDING STORAGE)

ASSEMBLY TOOLS AND MATERIALS

The recommended assembly tools and materials are listed in Table 701. Equivalent items may be used.

Assembly Tools and Materials
Table 701

Nomenclature	Part or Specification Number	Source (CAGE)*
Cradle	91033-30	MASS Systems (0FRR4)
Fill Tool	91200-1	MASS Systems (0FRR4)
Lubricant, Grease	DC55	Dow Corning Corp. (71984)
Safety Relief Cap, Anti Recoil	TL00500-1	MASS Systems (0FRR4)
Teflon Tape	---	Commercially available
Wrench, Torque	0 to 50 foot-pounds	Commercially available
Wrench, Torque	0 to 50 inch-pounds	Commercially available

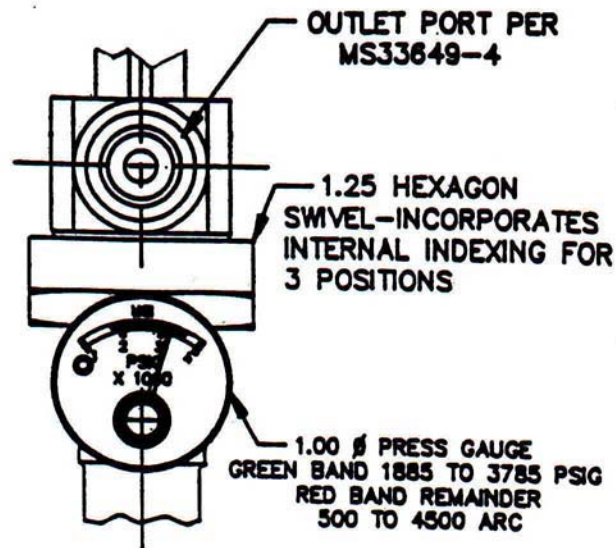
* Refer to the IPL, paragraph 2, for the address.

RESERVOIR WELDMENT

1. If removed, replace the white film strip (125) around the weldment reservoir (130).
2. Apply Teflon tape to the pipe threads of the pressure gauge (120) and the relief plug assembly (115).
3. Thread the pressure gauge (120) into the reservoir weldment (130), orient the dial face vertically as shown in Figure 701. Torque the pressure gauge (120) 110 to 130 inch-pounds (12,4 to 14,7 N·m).
4. Thread the relief plug assembly (115) into the reservoir weldment (130).
5. Insert a new copper seal (110) inside the outlet port of the reservoir weldment (130).
6. Thread the fitting assembly ((105), finger tight only, into the outlet port of the reservoir weldment (130).



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Pressure Gauge Orientation
Figure 701

OUTLET VALVE ASSEMBLY (5)

1. Install the spring (85) into the outlet body (90).
2. Refer to Table 701 for the lubricant and lubricate the o-ring (75) and the backup ring (80).
3. Install the o-ring (75) and the backup ring (80) on the cutter knife (70).
4. Insert the cutter knife (70) into the outlet body (90).

ACTUATOR ASSEMBLY (25)

1. Insert the safety dowel (35) into the actuator cam (65).
2. Move the actuator cam (65) to the charged position.
3. Insert the safety wire (30) through the actuator assembly (25) and the safety dowel (35), twist the ends of the safety wire (30) together.
4. Position the actuator cam (65) over the outlet valve assembly (5) and line up the attachment holes
5. Place a flat washer (15) on the bolt (20) and insert the bolt (20) into the actuator assembly (25).
6. Install a flat washer (15) and the hex nut (10) on the bolt (20). Torque the hex nut (10) 23 to 27 inch-pounds (3,1 to 3,7 N·m).



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6. Install a flat washer (15) and the hex nut (10) on the bolt (20). Torque the hex nut (10) 23 to 27 inch-pounds (3,1 to 3,7 N·m).

NOTE: Repeat above steps for second bolt (20)

CHARGING PROCEDURE

1. Position the fill tool on the fitting assembly ((105), engage the actuator shaft of the fill tool in the slot of the fitting assembly ((105). Thread the captured swivel nut on the outlet boss of the reservoir weldment (130) onto the fill tool.
2. Turn the fill tool counter-clockwise to back out the fitting assembly ((105) from the outlet boss one-half turn to permit charging the reservoir weldment (130) with Nitrogen gas.
3. Charge the reservoir weldment (130) 2950 to 3050 psig at 70°F (20340 to 21030 kPag at 21°C) with Nitrogen gas.
4. Turn the fill tool clockwise and torque the fitting assembly ((105) into the outlet boss 23 to 27 foot-pounds (31,2 to 36,6 N·m).
5. Disconnect the Nitrogen gas source and remove the fill tool from the outlet boss.
6. Perform the leakage test per the Testing and Fault Isolation section.

ACTUATOR VALVE ASSEMBLY (25)

Refer to Table 701 for the lubricant, lubricate the o-ring (95), and insert the o-ring (95) onto the outlet boss of the reservoir weldment (130).

Position the outlet valve assembly (25) on the outlet boss of the reservoir weldment (130).

Tighten the captured swivel nut on the reservoir weldment (130) to secure the outlet valve assembly (25).

NOTE: The captured swivel nut is torqued 23 to 27 foot-pounds (31,2 to 36,6 N·m) after the pressure gauge orientation is determined.



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STORAGE INSTRUCTIONS

The recommended storage materials are given in Table 702. Equivalent items may be used.

**Storage Materials
Table 702**

Nomenclature	Part or Specification Number	Source (CAGE)*
Cardboard Carton	14- x 14- x 14-inch (36 x 36 x 36 cm)	Commercially available
Packing Material	---	Commercially available
Plastic Bag	Suitably sized	Commercially available

1. Install the protective caps on all threaded ports.
2. Place the door emergency power reservoir assembly in a suitable sized storage container. Seal the storage container.
3. Mark the storage container.
 - a. Part number
 - b. Serial number
 - c. Last hydrostatic test date
 - d. Overhaul date
 - e. DOT-E 10440
 - f. UN1066
 - g. Class 2.2
 - h. Door Emergency Power Reservoir Assembly
4. The storage temperature is +40°F to +100°F (+4°C to +38°C).



FITS AND CLEARANCES

TORQUE LIMITS

The torque limits for the door emergency power reservoir assembly are listed in Table 801.

Torque Limits

Table 801

Nomenclature	Torque Range
Fitting Assembly ((105)	23 to 27 foot-pounds (31,2 to 36,6 N·m)
Hex Nut (10)	23 to 27 inch-pounds (3,1 to 3,7 N·m)
Swivel Nut, Captured – Reservoir	23 to 27 foot-pounds (31,2 to 36,6 N·m)



SPECIAL TOOLS, FIXTURES, AND EQUIPMENT

Special tools, fixtures, and test equipment required for maintenance of the reservoir assembly are listed in Table 901. Equivalent items may be used.

Special Tools, Fixtures, and Equipment
Table 901

Nomenclature	Part or Specification Number	Source (CAGE)*
Alcohol, Isopropyl	Federal Specification TT-I-735	Commercially available
Cloth, Crocus	P-C-458	Commercially available
Cloth, Lint-Free	---	Commercially available
Cradle	91033-30	MASS Systems (0FRR4)
Detergent Solution	---	Commercially available
Fill Tool	91200-1	MASS Systems (0FRR4)
Fitting, Test	---	Commercially available
Hydrostatic Test Setup	---	DOT approved hydrostatic test facility
Light Probe	---	Commercially available
Lubricant	DC 55	Dow Corning Co. (71984)
Nitrogen Gas (GN ₂)	2000-psig (13790 kPag)	Commercially available
Oven or Heater	250°F (121°C)	Commercially available
Plug, Gauge Port	---	Customer supply
Plug, Relief Port	---	Customer supply
Pressure Gauge, Master	0- to 5000-psig (34475 kPag)	Commercially available
Safety Relief Cap	TL00500-1	MASS Systems (0FRR4)
Spring Scale	0- to 50-pounds (28 kg)	Commercially available
Teflon Tape	---	Commercially available
Wrench, Torque	0 to 50 inch-pounds	Commercially available
Wrench, Torque	0 to 50 foot-pounds	Commercially available

* Refer to IPL, paragraph 2, for the address.



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ILLUSTRATED PARTS LIST

INTRODUCTION

1. Purpose

This IPL illustrates and lists the spare parts with attaching hardware.

2. Manufacturer Name and Address

<u>Cage Code</u>	<u>Name and Address</u>	<u>Telephone</u> <u>TeleFAX</u>
0FRR4	MASS Systems A Unit of Ameron Global, Inc. 4601 Littlejohn Street Baldwin Park, CA 91706-2285 U.S.A.	626-337-4640 FAX 626-337-1641 service@mass-systems.com
15653	Microdot, Inc. 800 South State College Boulevard Fullerton, California 96234, U.S.A.	714-871-1550
71984	Dow Corning Corporation 2200 West Salzburg Road P. O. Box 997 Midland, Michigan 48640 U.S.A.	800-248-2481 FAX 517-496-4586
05972	Loctite Corporation 1001 Trout Brook Crossing Rocky Hill, Connecticut 06067-3582 U.S.A.	203-571-5100 FAX 203-571-5465

EXPLANATION OF PARTS LIST COLUMN

The Detail Parts List is arranged in general sequence of disassembly. The parts are illustrated in an exploded-view illustration and listed in the related parts list.

FIG. ITEM Column

1. The first number at the top of each FIG. Item column is the figure number of the corresponding illustration. The number given opposite each part number is the item number assigned to the part in the illustration.
2. A dash (-) in front of an item means the part is not illustrated.
3. Alpha-variants A through Z (except I and O) are assigned to item numbers, when necessary to identify:
 - Added parts



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- Alternate parts
- Service bulletin modified parts

PART NUMBER Column

This column contains the manufacturer's part number for each part, as modified to meet the requirements of ATA 200/2000. These modifications can include.

1. Removal of blank spaces and special characters, with the possible exception of dashes. Dashes are permitted only between numeric characters.
2. Insertion of a reference part number compatible with ATA 200 if the manufacturer's part number exceeds 15 characters. In these cases, the manufacturer's part number is listed in the NOMENCLATURE column.

NOMENCLATURE Column

1. This column contains descriptive nomenclature for each part, the manufacturer's CAGE code (if the part is not manufactured or modified by MASS Systems), part number (if longer than 15 digits), service bulletins affecting the part, and obsolete part numbers.
2. The indenture system used in the NOMENCLATURE column indicates the relationship of one part to another, as follows:

```
1 2 3
End Item or Major Assembly
ATTACHING PARTS
Attaching Parts for End Item or Major Assembly
* * *
. Detail Parts for End Item or Major Assembly
. Subassemblies
ATTACHING PARTS
Attaching Parts of Subassemblies
* * *
. . Detail parts for Subassemblies
```

3. Assemblies, subassemblies, and detail parts subject to modification, deletion, addition, or replacement by an issued Service Bulletin are annotated to indicate both pre- and post-Service Bulletin configurations. The term (PRE SB XXXX) in designates the original configuration, and the term (POST SB XXXX) identifies assemblies and parts after the modification has been completed.



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4. The terms listed below are used when applicable to indicate the interchangeability of parts.

<u>Term</u>	<u>Abbreviation</u>	<u>Definition</u>
Optional	OPT	The listed part is optional to and interchangeable with other parts with the same item number variant group or other item numbers if designated.
Superseded By	SUSPD BY	The part is replaced by and is not interchangeable with the item number shown in the notation.
Supersedes	SUPSDS	The part replaces and is not interchangeable with the item number shown in the notation.
Replaced By	REPLD BY	The part is replaced by and interchangeable with the item number shown in the notation.
Replaces	REPLS	The part replaces and is interchangeable with the item number shown in the notation.

EFF CODE Column

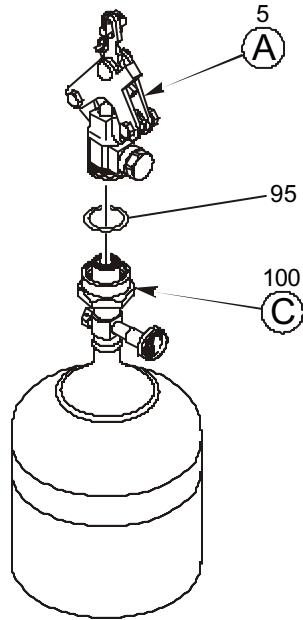
This column contains letter codes (A, B, etc.) to indicate the alternate models or configurations of the end item to which the listed parts apply. Where this column has been left blank, the listed parts apply to all models or configurations included in the parts list.

UNITS PER ASSY Column

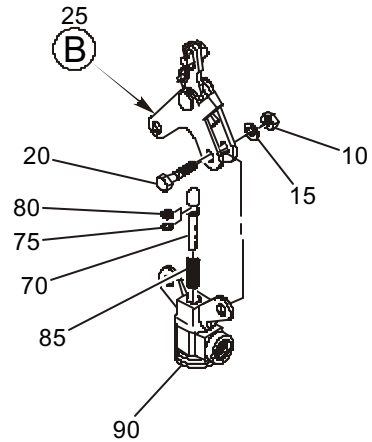
The quantity shown in this column represents the units required for one NHA or, when referring to attaching parts, the quantity to attach one such item. The abbreviation RF (reference) indicates that the end item or assembly is shown completely assembled on the illustration referenced in the NOMENCLATURE column.



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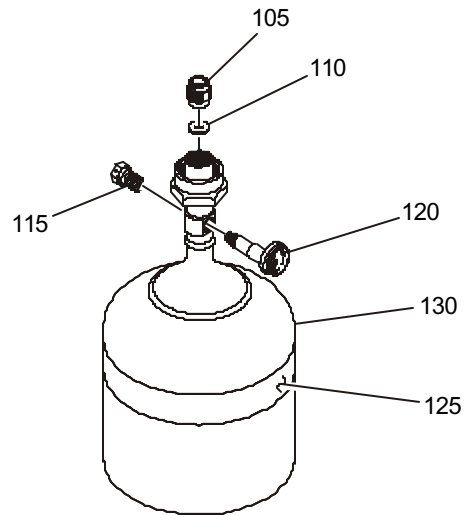
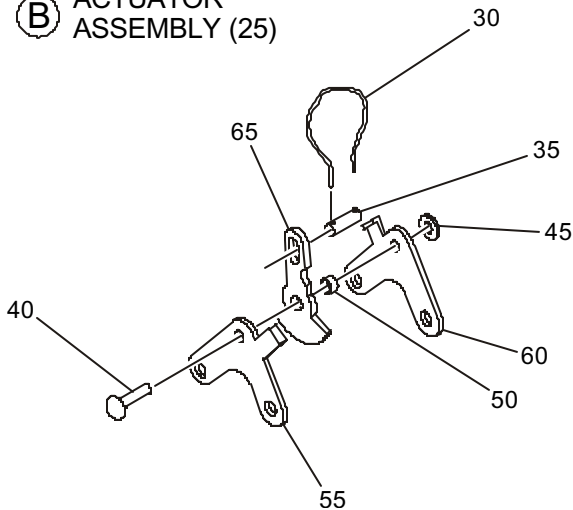


(A) OUTLET VALVE ASSEMBLY (5)



(C) CHARGED RESERVOIR (100)

(B) ACTUATOR ASSEMBLY (25)



IPL FIGURE 1. DOOR EMERGENCY POWER RESERVOIR ASSEMBLY EXPLODED VIEW



ILLUSTRATED PARTS LIST

FIG. ITEM NO.	PART NUMBER	AIRLINE PART NO.	NOMENCLATURE							EFF	UNITS PER ASSY
			1	2	3	4	5	6	7		
1-1	40400-2		RESERVOIR ASSEMBLY, DOOR EMERGENCY POWER								RF
5	40440-1		. VALVE ASSEMBLY, OUTLET								1
10	H01-3		. . NUT, HEX (15653)								2
15	AN960C10L		. . WASHER, FLAT								2
20	AN3C5A		. . BOLT								2
25	40420-1		. . ACTUATOR ASSEMBLY, GRAY ANODIZED BRACKETS (ITEM 55) – REPLACED BY ITEM –25A (PRE SIL 52-05)								1
-25A	40420-1		. . ACTUATOR ASSEMBLY, GOLD ANODIZED BRACKETS (ITEM - 55A) – REPLACES ITEM 25 (POST SIL 52-05)								1
30	40442-1		. . . WIRE, SAFETY 16 GAUGE SOFT BRASS 6-INCH (15.5 CM) LONG								1
35	40435-1		. . . DOWEL, SAFETY								1
40	AN430AD5-7		. . . RIVET - REPLACED BY ITEM –40A (PRE SIL 52-05)								1
-40A	SU00251-1		. . . RIVET – REPLACES ITEM 40 (POST SIL 52-05)								1
45	AN960C8L		. . . WASHER - REPLACED BY ITEM –45A (PRE SIL 52-05)								1
-45A	SU00205-1		. . . WASHER – REPLACES ITEM 45 (POST SIL 52-05)								1
50	40429-1		. . . SLEEVE								1
55	40425-1		. . . BRACKET, GRAY ANODIZED BRACKETS – REPLACED BY ITEM –55A (PRE SIL 52-05)								1



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FIG. ITEM NO.	PART NUMBER	AIRLINE PART NO.	NOMENCLATURE							EFF	UNITS PER ASSY
			1	2	3	4	5	6	7		
-55A	40425-1		.	.	.	BRACKET, GOLD ANODIZED BRACKETS – REPLACES ITEM 55 (POST SIL 52-05)					1
60	40425-2		.	.	.	BRACKET					1
65	40426-1		.	.	.	CAM, ACTUATOR					1
70	40437-1		.	.		KNIFE, CUTTER					1
75	NAS1611-007		.	.		O-RING					1
80	MS28774-007		.	.		RING, BACKUP					1
85	40422-1		.	.		SPRING					1
90	40421-1		.	.		BODY, OUTLET					1
95	NAS1611-018		.			O-RING					1
100	40450-1		.			RESERVOIR, CHARGED					1
105	40470-1		.	.		FITTING ASSEMBLY					1
110	40418-1		.	.		SEAL, COPPER					1
115	40460-1		.	.		PLUG ASSEMBLY, RELIEF					1
120	11600-1		.	.		GAUGE, PRESSURE					1
125	3650		.	.		FILM STRIP, WHITE 0.750-INH (19 MM) WIDTH					1
130	40410-2		.	.		WELDMENT, RESERVOIR					1
-135	40405-1		RECHARGE KIT								A/R

- Item not illustrated

Recharge Kit (Item –135) contains fitting assembly (Item 105) and copper seal (Item 110).