




## SERVICE LETTER SL2009-013

Rev.	Date	Description of Revision	Prepared By	Approved
I/R	Mar 17, 2010	Initial Release	T. Bliss	S.F.
A	Aug 4, 2010	Revised Revision Block on Page 1 of 11	C. Hathaway	

**Subject:** Dispersal Door Overhaul

**Applicability:** This service letter is applicable to Simplex Manufacturing Fire Attack Systems (FAS) as stated in Table 1.

**Table 1 Fire Attack Applicability**

Fire Attack System Model	Rotorcraft Series
304	Bell 205A-1, 205B,212,412,AB412, 412EP and UH-1
308	Bell 407
310	Eurocopter AS350 and AS355
311	Kawasaki BK-117
316	Eurocopter AS332L, EC225
323	Agusta A119 Koala
327	Kazan Ansat
328	Kamov Ka-32
348	Kamov Ka-32

**References:** Simplex Manufacturing Technical Manual package including but not limited to Maintenance Manual (MM) Instructions for Continued Airworthiness (ICA), Installation Manual and Specific Rotorcraft MM or ICA.

**NOTE:** *The information contained in this document is for reference only and does not supersede the service instructions contained in the respective Maintenance Manuals (MM) or Instructions for Continued Airworthiness (ICA).*

**Purpose:** This document recommends door overhaul intervals to ensure peak performance and reduce unscheduled maintenance.



**Compliance:** Compliance of this service letter is recommended prior to heavy seasonal use on systems that are more than 3 years since new or with more than 1500 hours time in service and every 3 years or 1500 hours thereafter, whichever comes first.

**Parts:** The parts required by system to comply with this Service Letter are listed in the following Tables. Replacement parts and equipment may be ordered through your local authorized Simplex Representative or directly from Simplex Manufacturing.

**Table 2: Parts Required per System**

Fire Attack System		300-106004-004 Door Pull Kit	300-106004-003 Control Arm Kit	300-604023-001 Control Arm Assembly	300-604021-001 Bracket, Control Arm
Model	Door Qty	Qty per System	Qty per System	Qty per System	Qty per System
304	2	10	4		
304	3	13	6		
308	2	10	4		
310	2	10	4		
311	2	10	4		
316	4	24		8	8
323	2	10		4	4
323	2	8		4	4
327	2	10		4	4
328	4	24		8	8
348	4	20		8	8

**Table 3: Door Skirt Part Numbers by Model**

Door Skirt Part Number	Door Assembly (Ref)	System Model
300-302014-001	300-601003-001	304(2 door),308,310,311
N/A	300-601004-001	304 Center Door
300-302022-001	300-601001-001	323, 327
N/A	316-601001-001	316
323-302022-001	323-601001-003	323 (R/H 4-pull)
323-302022-002	323-601001-002	323 (L/H 4-pull)
300-302018-001	316-601001-001	328
348-302049-001	300-601100-301	348



**Table 4: Common Parts**

Part Number	Description	Quantity	FAS Model
000-113080-000	Screw, door skirt installation	18	304,308,310,311,323,327
		22	328
		14	348
300-302020-001	Washer, special, door skirt installation	18	304,308,310,311,323,327
		14	348
000-111180-000	Nut, door skirt and control arm bracket installation	26	304,308,310,311,323,327
		38	328
		30	348
		30	304 (3-door)
		16	316
000-110040-000	Bolt, control arm bracket to door	8	304,308,310,323,327
		12	304 (3-door)
		16	316,328,348
000-112289-000	Washer, fender, control arm bracket to door	8	304,308,310,323,327
		12	304 (3-door)
		16	316,328,348
000-112040-000	Washer, control arm bracket to door	8	304,308,310,311
		22	328 (skirt install only)
		12	304 (3-door)
000-112060-000	Washer, control arm bracket to door	8	323,327
		16	316,328,348
301-602018-001	Door seal	A/R	All, one required per door
000-159100-000	732 Sealant	A/R	All
MS20995C032	Safety wire, 0.032" stainless	A/R	All

**Equipment:**

1. Typical mechanics tool kit
2. Suitable ground handling equipment for access to dispersal doors and internal door mechanisms
3. 300-106011-000, Door adjustment tool kit
4. Plastic spreader or smooth roller, wooden rollers are acceptable

**Consumables:**

1. 242 Loctite (Blue)
2. Barge Cement (contact cement)
3. Acetone

**Procedure:**

1. Review rotorcraft log books and determine date of initial installation, hours in service, and time in service of Fire Attack System (FAS).
2. Empty and flush tank with fresh water.
3. Remove tank from rotorcraft in accordance with system ICA or MM, whichever technical manual is appropriate for the specific system.
4. Thoroughly clean tank, inside and out. Flush system with fresh water.
5. Support tank in accordance with specific ICA or MM in order to gain access to the door mechanisms. It is permissible to turn tank bottom side up for this procedure provided the tank is cushioned and supported as required in the system ICA or MM.
6. Block open doors.
7. Cut door skirt (if installed) lengthwise for easier access to door attachment locations.
8. Make a note of control arm and bracket position on both doors and tank for future reference. Some systems have one or more control arm configurations.
9. Disconnect control arms from doors by removing two (2) bolts, washers and nuts securing control arm bracket to door (Figure 1). Allow control arms and brackets to pivot out of the way inside tank.
10. Remove and discard door seal.
11. Remove door skirt from tank (if installed) by removing screws, nuts and washers and pulling skirt free from tank surface. Discard skirt and hardware.



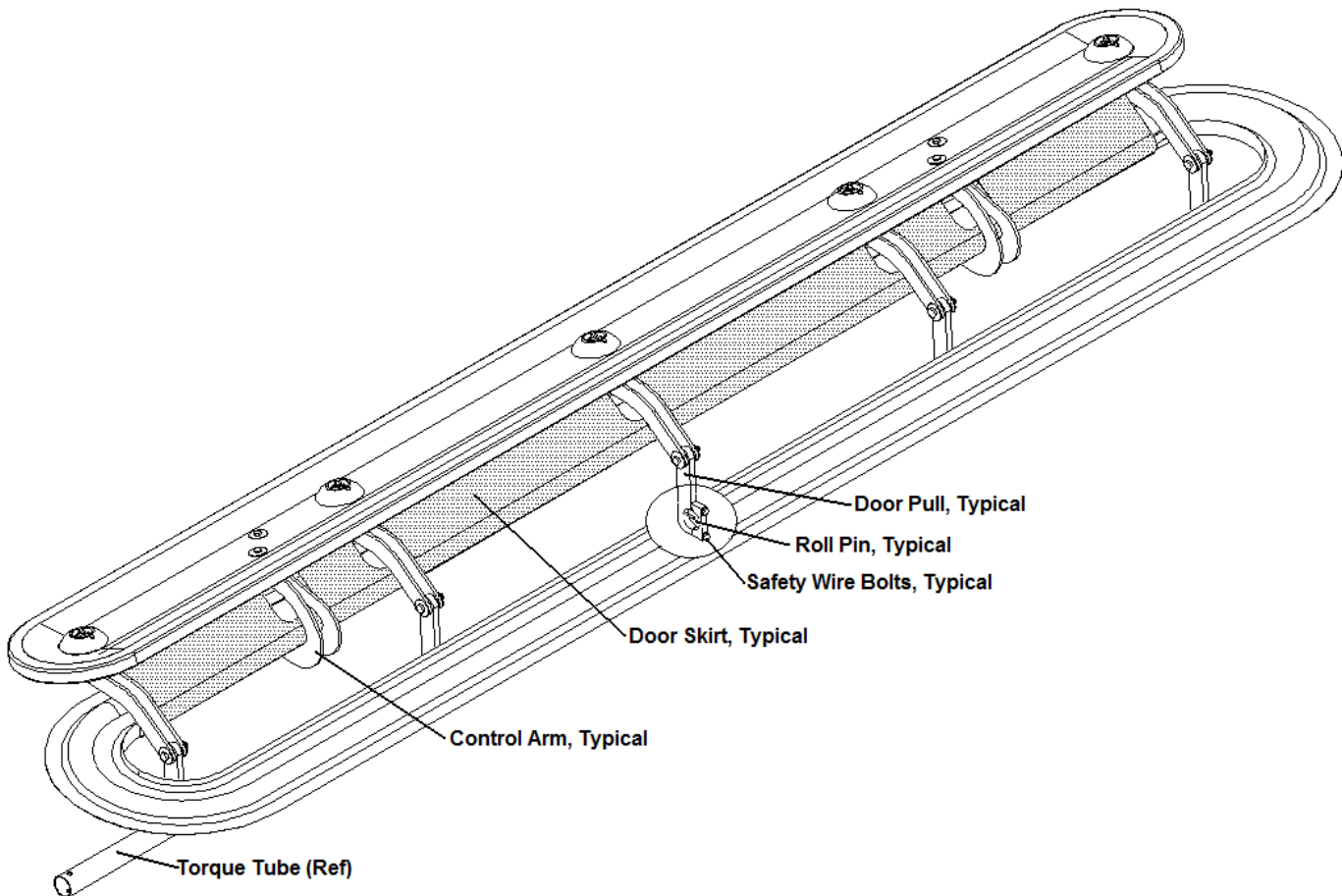


Figure 1: Typical Door Components

12. Cut safety wire, remove two (2) bolts and roll pin from each door pull at torque tubes (Figure 1) and discard.
13. Remove door from tank.
14. Remove control arm assemblies from inside tank as follows:
  - a. For the 300-106004-003 style control arms, remove the two (2) bolts, washers and nuts securing the control arm to the tank attachment bracket (Figure 2).
  - b. For the 300-604023-001 style control arms, remove the cotter pin, castellated nut, bolt and washers (Figure 3). Pull control arm off alignment pin in bracket. Remove and discard pin.
15. Discard control arm assemblies.



16. Inspect condition of tank attachment brackets. If control arm brackets are damaged, loose or the mounting holes are out of round, contact Simplex Manufacturing for replacement instructions.
17. Clean tank attachment locations of sealant and adhesive residue.
18. Wipe mating surfaces and pass throughs with acetone and let dry.

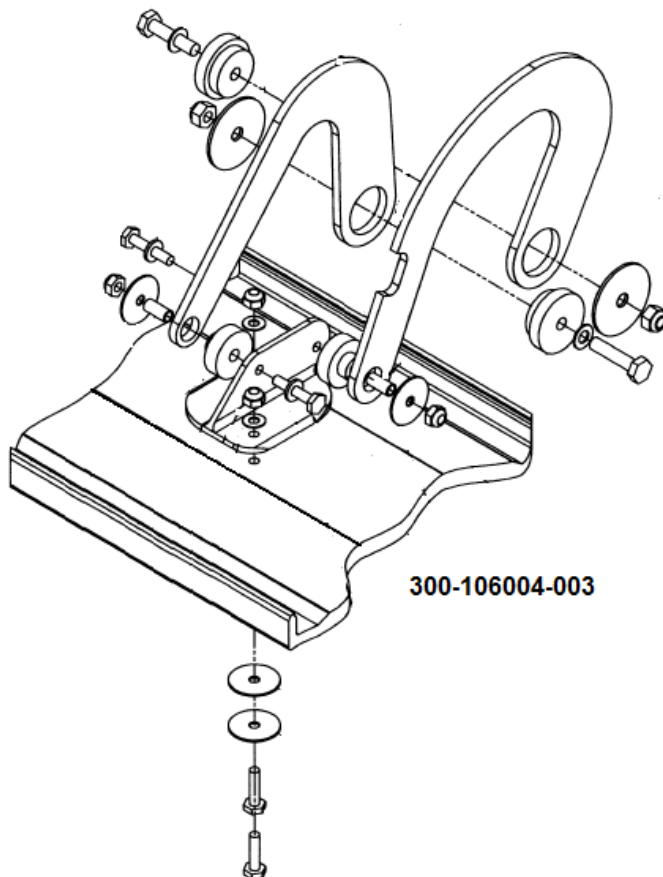


Figure 2: Control Arm Details – (300-106004-003)

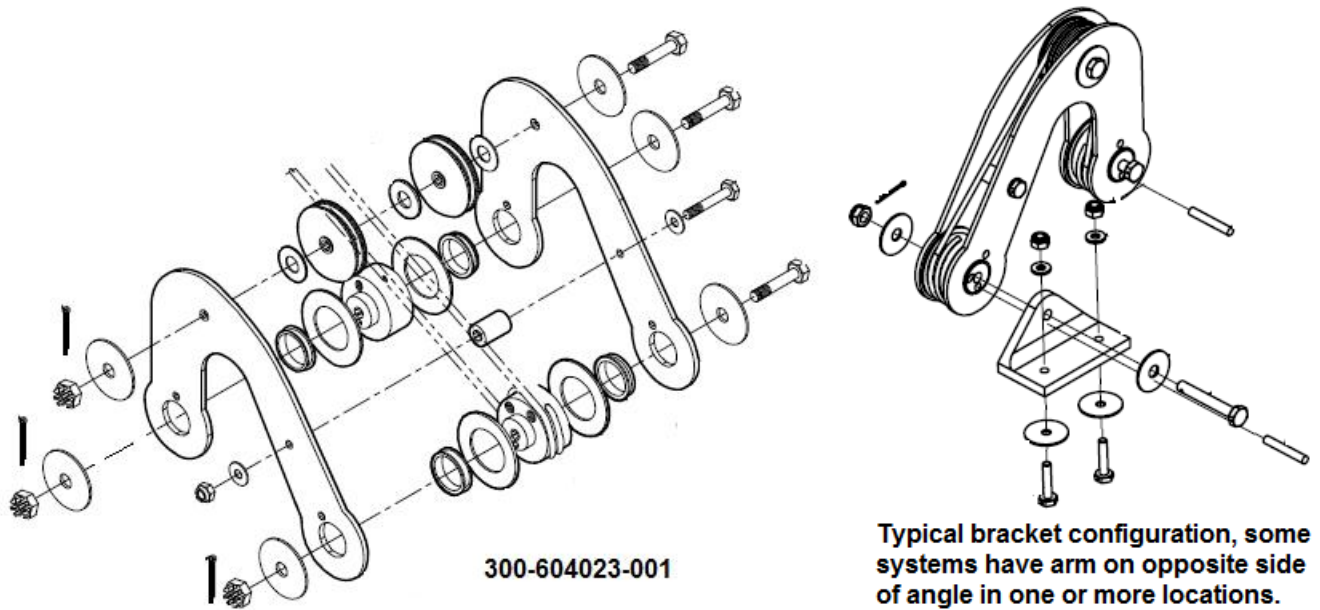
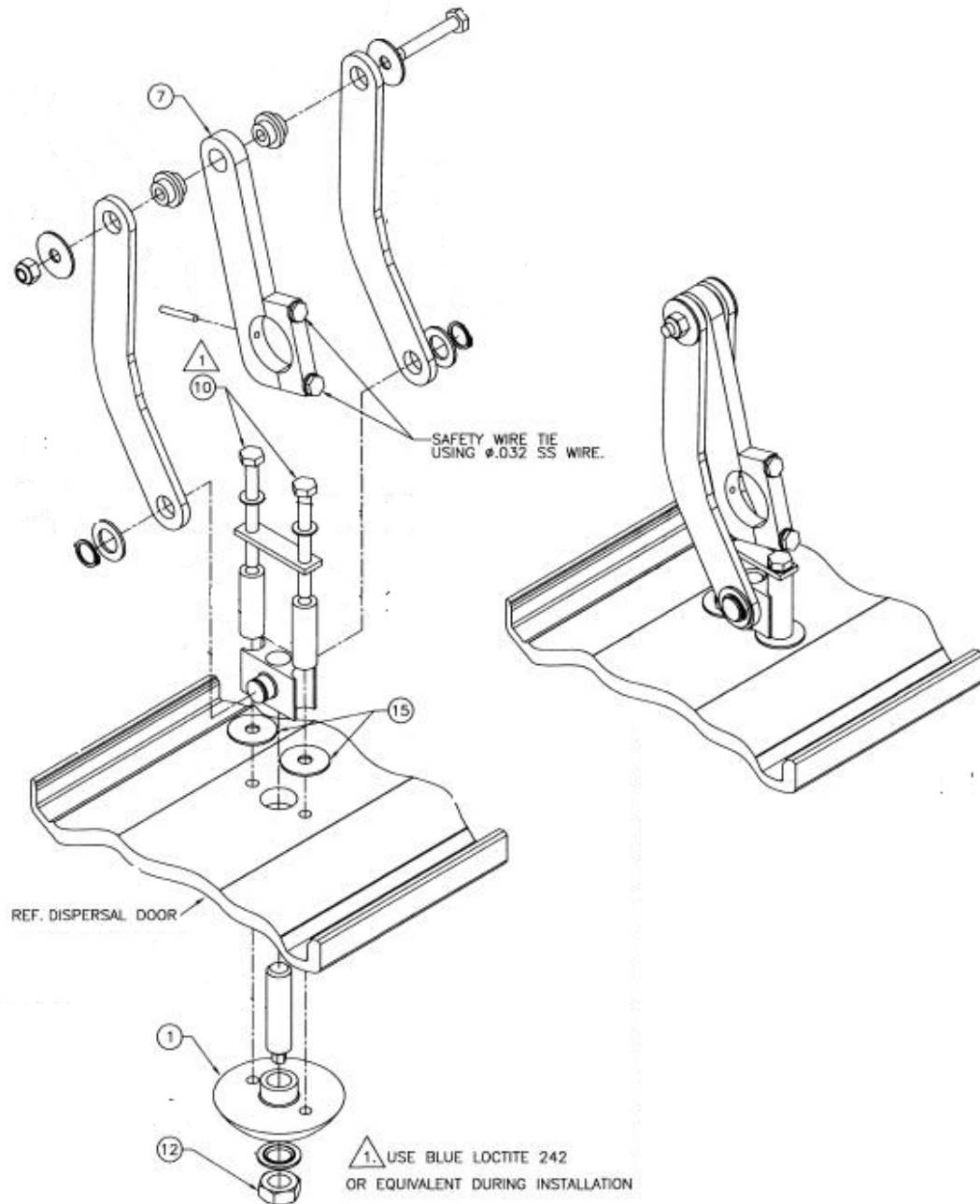


Figure 3: Control Arm Details – (300-604023-001)

19. Inspect tank internal components for condition. Replace any component that shows signs of corrosion or wear.
20. Inspect door shafts for operation and condition. Pay special attention to alignment holes where door pull roll pins are installed. Replacement door shafts are available from Simplex Manufacturing.
21. Remove door pulls from doors by removing nut, Item 12 and bolts, Items 10 (Figure 4).
22. Discard door pulls and hardware.



**Figure 4 Door Pull Detail**

23. Thoroughly clean and inspect dispersal door for damage. If any damage is found contact Simplex Manufacturing for door replacement. Dispersal door assembly part numbers are listed in Table 3 for reference.





**NOTE:** *Dispersal Doors are not customer repairable.*

24. Clean all surfaces of sealant and adhesive residue. Pay special attention to seal groove, any remaining sealant has the potential for door leaks.

**NOTE:** *Surfaces and pass-throughs must be free of all sealant and adhesive residue prior to installing components.*

**NOTE:** *Ensure all hardware that passes through the tank is sealed with 732 Sealant. DO NOT over tighten hardware that passes through the composite, damage to the structure may occur.*

25. For the 304, 308, 310, and 311 FAS only, fold the long edges of the door skirt over approximately 0.5 inch on the tank side and 0.63 inch on the door side is typical. Align the mounting holes to provide a doubled area where the mounting hardware passes through. Bond with Barge Cement.

26. Install door skirt (Table 3) on door as shown in Figure 1 and Figure 5 with Barge Cement, follow directions on container. Smooth out all bubbles and wrinkles in skirt with a spreader or roller. It is permissible to trim skirt a maximum of 0.13" to clear door adjustment screws at door pulls as necessary.

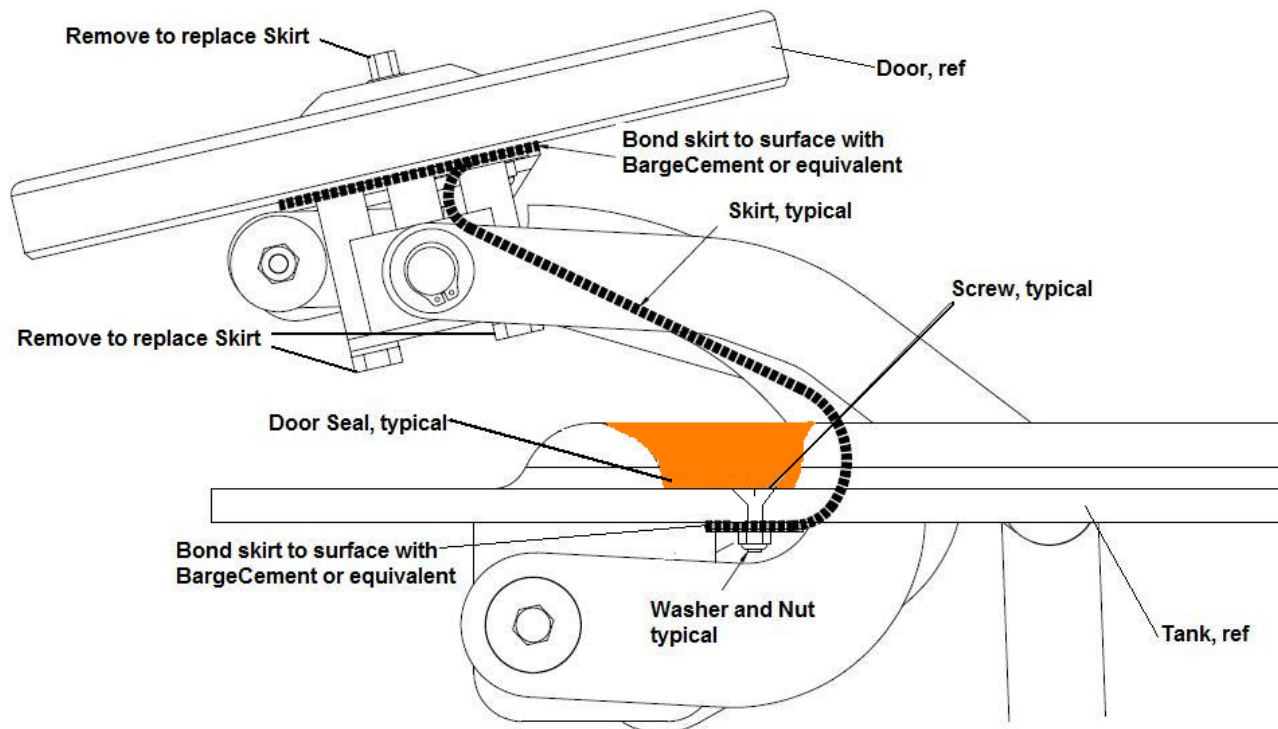


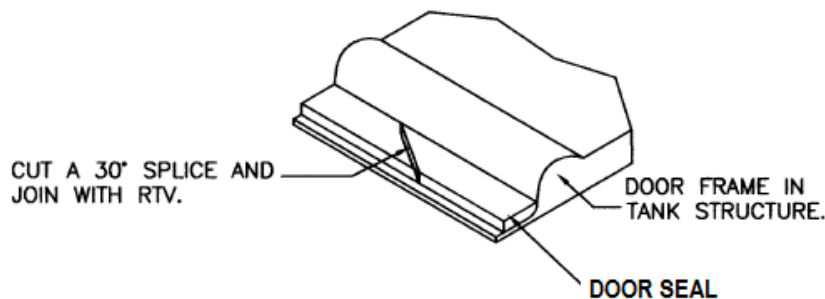
Figure 5: Door Cross Section



27. Allow door skirt adhesive time to bond completely before proceeding.
28. Open holes in skirt (2 places) for each control arm bracket attachment as required.
29. Assemble and install door pulls on door by applying 732 Sealant to the mating surface of Item 1 and Items 15 (Figure 4). Apply 242 Loctite to the threads of bolts, Items 10 and assemble as shown in Figure 4. Torque bolts in accordance with standard practices stated in ICA or MM.
30. Install control arm brackets to doors using hardware from Table 4 as shown in Figure 1 and Figure 3. Apply 732 Sealant to mating sides of washers and brackets prior to installation. Tighten bolts, DO NOT over tighten, damage to the composite may occur.
31. Install control arms to internal tank bracket using hardware included with new control arms as follows:
  - a. For the 300-604023-001 (Figure 3) style, install roll pin as shown with 242 Loctite and secure arm to bracket with bolt, washers and castellated nut.
  - b. For the 300-106004-003 (Figure 2) secure with bolts included in kit and secure with self locking nuts
  - c. Allow control arms to rotate out of the way inside tank
32. Tighten hardware. Ensure control arms rotate freely throughout range of motion and adjust bolt tightness to allow arms to allow rotation without binding.
33. Install cotter pin in mounting bolt of the 300-604023-001 style control arms.
34. Install door assembly by attaching Item 7 (Figure 4) to torque tube using roll pin (Figure 1) as an alignment device. Install clamping section of pull with supplied bolts and washers.
35. Torque two (2) door pull to torque tube clamping bolts in accordance with standard practices stated in ICA or MM and safety wire with 0.032 stainless steel safety wire.
36. Position skirt on tank flange and install with Barge Cement, follow directions on container. Smooth out all bubbles and wrinkles in skirt with a spreader or roller.
37. Apply 732 Sealant to washers on tank mating surface and install counter sunk screws, washers and nuts called out in Table 4 as shown in Figure 5.
38. Route control arms through holes in door skirt and attach to the door as follows:
  - a. For the 300-604023-001 (Figure 3) style, install roll pin as shown with 242 Loctite and secure arm to bracket with bolt, washers and castellated nut.



- b. For the 300-106004-003 (Figure 2) secure with bolts included in kit and secure with self locking nuts
- 39. Tighten hardware. Ensure control arms rotate freely throughout range of motion and adjust bolt tightness to allow arms to allow rotation without binding.
- 40. Install cotter pin in mounting bolt of the 300-604023-001 style control arms.
- 41. Install new seal in groove as shown in Figure 5 with 732 sealant. Cut seal mating ends to 30° as shown in Figure 6. Press seal uniformly in groove, Ensure that seal is free of wrinkles or bulges. Allow a minimum of 24 hours cure time prior to filling tank with water.



SAND SEAL AREA OF DOOR FRAME PRIOR TO BONDING DOOR SEAL AND PREPARE DOOR SEAL FOR BONDING WITH ACETONE. INSTALL USING DOW CORNING 732 RTV.

**Figure 6: Door Seal Installation**

- 42. Verify that doors open and close properly and that there is no binding or roughness during door motion.
- 43. Double check cotter pins (control arms) and safety wire (door pulls) for installation and security.
- 44. Adjust doors so that there are no visible gaps or deep seal depressions using 300-106011-001 adjustment tools and door adjustment procedures stated in specific rotorcraft ICA or MM.
- 45. Reinstall tank assembly in accordance with specific system ICA or MM.
- 46. Leak check tank in accordance with specific system ICA or MM and readjust doors as required.
- 47. Return rotorcraft to service and make the appropriate logbook entries.