BOMBARDIER
Toronto (de Havilland)
PROPRIETARY INFORMATION

PPS 12.09

PRODUCTION PROCESS STANDARD

Installation of Kahr Kaptor Bearings

Issue 4
- This standard supersedes PPS 12.09, Issue 3.
- Vertical lines in the left hand margin indicate changes over the previous issue
- Direct PPS related questions to PPS.Group@aero.bombardier.com or (416) 375-4365.
- This PPS is effective as of the distribution date.

Signed original on file. Validation of paper prints is the responsibility of the user.

Prepared By:	(Michael Wright)	June 14, 2012
	Production Process Standards (PPS)	
Approved By:	(L.K. John)	June 15, 2012
	Materials Technology	
	(B. DeVreede)	June 15, 2012
	Quality	

Table of Contents

Sections **Page**

Tables

Figures

1 Scope

1.1 This Production Process Standard (PPS) specifies the procedure and requirements for the installation of Kahr Kaptor spherical bearings.

1.1.1 This PPS complements the engineering drawings that specify its use as an authorized instruction. The procedure specified in this PPS must be followed to ensure compliance with all applicable specifications. In general, if this PPS conflicts with the engineering drawing, follow the engineering drawing. The requirements specified in this PPS are necessary to fulfil the engineering design and reliability objectives.

1.1.2 Refer to PPS 13.26 for the subcontractor provisions applicable to this PPS.

1.1.3 Procedure or requirements specified in a Bombardier BAPS, MPS, LES or P. Spec. **do not** supersede the procedure or requirements specified in this PPS. Similarly, the procedure and requirements specified in this PPS are not applicable when use of a BAPS, MPS, LES or P. Spec. is specified.

2 Hazardous Materials

2.1 Before receipt at Bombardier Toronto (de Havilland), all materials must be approved and assigned Material Safety Data Sheet (MSDS) numbers by the Bombardier Toronto (de Havilland) Environment, Health and Safety Department. Refer to the manufacturer's MSDS for specific safety data on any of the materials specified in this PPS. If the MSDS is not available, contact the Bombardier Toronto (de Havilland) Environment, Health and Safety Department.

3 References

3.1 PPS 13.26 - General Subcontractor Provisions.

3.2 PPS 14.01 - Torquing & Tightening.

3.3 PPS 21.16 - Aircraft Weather/Pressure Sealing.

3.4 PPS 31.17 - Solvent Usage.

4 Materials and Equipment

4.1 Materials

4.1.1 Spherical bearings as specified on the engineering drawing.

4.2 Equipment

4.2.1 Hydraulic press of sufficient capacity to install bearings.

5 Procedure

5.1 General

5.1.1 Installation of bearings according to this standard consists of pressing the bearing into the applicable housing and securing the bearing in place by means of a torqued locking ring.

5.2 Preparation of Parts

5.2.1 Before assembly, ensure that parts have been given the correct surface finish as specified on the engineering drawing (e.g. anodize, alodine, etc.).

5.2.2 Immediately before installing the bearings, solvent clean the housing bore according to PPS 31.17.

5.2.3 Keep bearings in their protective wrapping until immediately before installation.

5.3 Installation of Bearings

5.3.1 Install bearings as follows:

Step 1. Install bearing insertion tools into a suitable arbor press.

Step 2. Support the part housing around the edge of the housing bore on the lower housing support.

Step 3. Align the bearing square with the bore and carefully press the bearing into the housing. Take care to avoid damaging the bearing or bearing housing during installation by over-pressing or tool misalignment. Ensure the bearing is located against the back shoulder stop.

5.4 Locking Ring Installation

5.4.1 Install locking rings as follows:

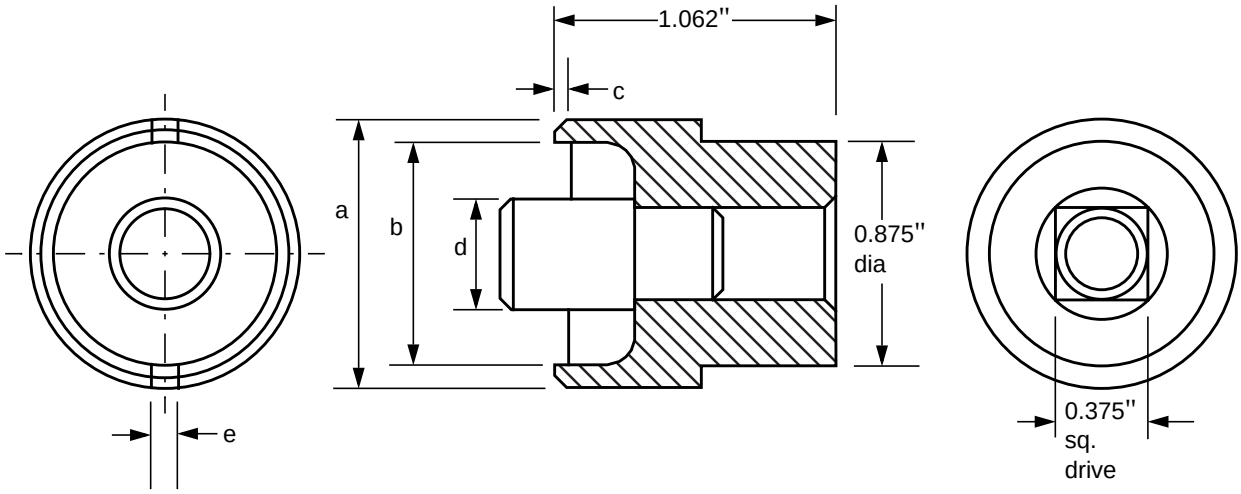
Step 1. Select the appropriate locking ring tools from Table 1.

Step 2. Visually check the locking ring tools for evidence of damage or foreign matter that may cause poor installation of the bearing.

Step 3. Place one locking key tool on the rear side of the bearing and insert a socket wrench.

Step 4. Holding the socket wrench and bearing assembly, insert the other locking key into the opposite side of the assembly and tighten the locking ring to the torque value specified in Table 2 using a torque wrench according to PPS 14.01. Take care when installing the locking ring that a minimum gap of 0.010", as shown in Table 2, is left between the outer race and the locking ring.

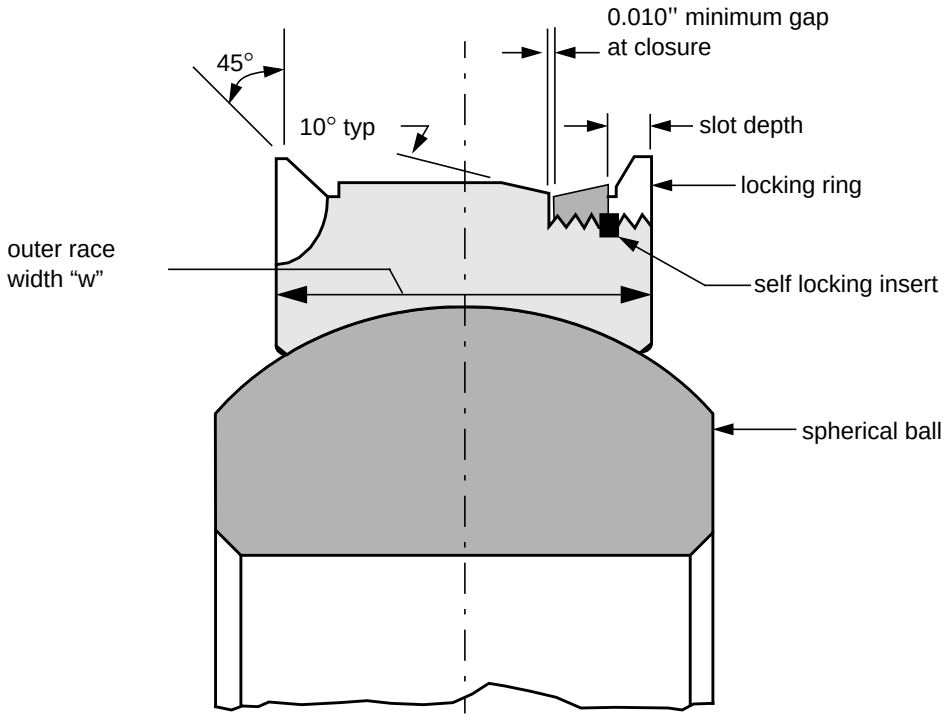
Table 1 - Bearing Locking Ring Tool



BEARING PART #	LOCKING RING TOOL #	LOCKING RING TOOL DIMENSIONS				
		A	B	C	D	E
KPW6	KMT 0134	0.872	0.760	0.060	0.374	0.088
KPW8	KMT 0136	1.060	0.947	0.060	0.499	0.088
KPW10	KMT 0138	1.247	1.135	0.060	0.624	0.088

Notes: 1. Installation purposes require that tools are furnished in sets of two.
2. All dimensions in inches.

Table 2 - Installation Torque Requirements



BEARING PART #	LOCKING RING INSTALLATION TORQUE (INCH-POUNDS)		BEARING RACE WIDTH "W" +0.010" -0.000"
	BASIC TORQUE	TORQUE WITH LOCKING INSERT	
KPW6	48	73	0.401
KPW8	60	92	0.500
KPW10	73	110	0.562

5.5 Edge Sealing

5.5.1 After assembly and dimensional checks, fillet seal around the perimeter of all assemblies according to PPS 21.16 using sealant to DHMS S 3.01 Type II, Class B1/2 or B2 (see Figure 1).

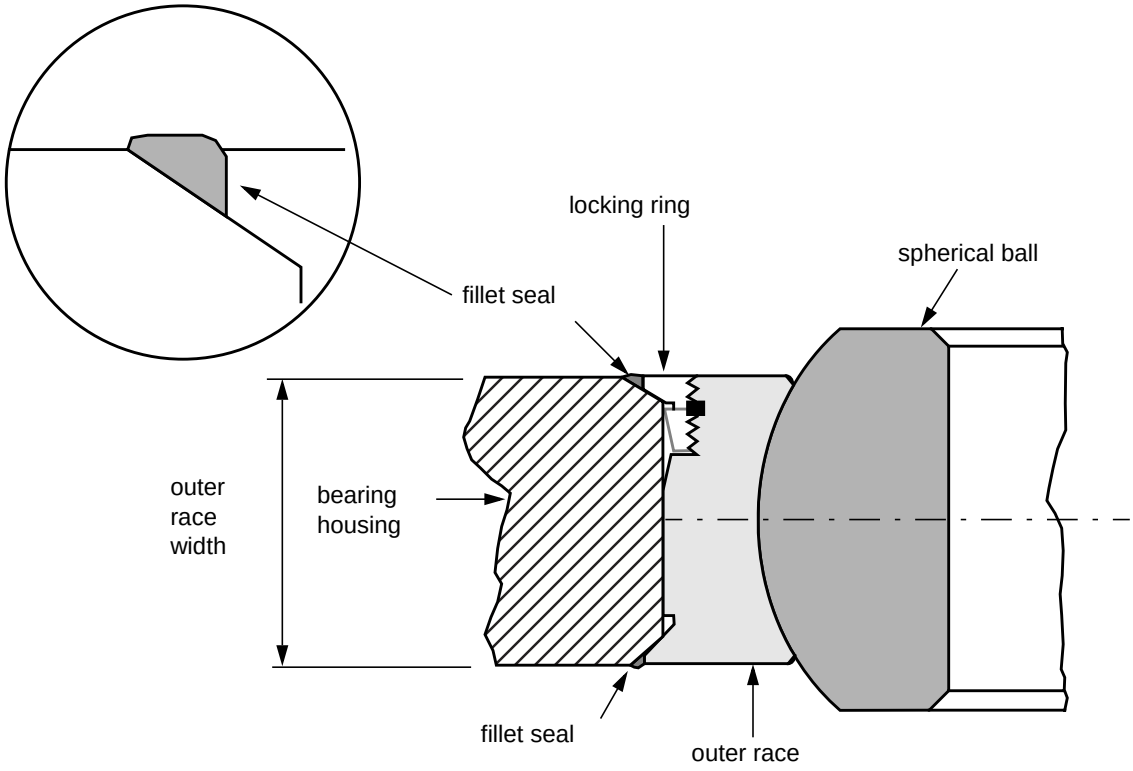


Figure 1 - Fillet Sealing of Bearing and Housing Assembly

6 Requirements

6.1 Examine all bearings for evidence of cracks or looseness of rotation of the bearing inner race. Evidence of any cracks in the bearing race or looseness of rotation of the bearing race in the housing is not acceptable. Evidence of binding of the bearing ball in movement through its full misalignment angle is not acceptable (check for binding before and after installation).

6.2 All assembled bearings shall have a minimum edge gap of 0.010" between the lip on the bearing outer race and the edge of the locking ring (see Table 2). The outer race width “W” shall be within +0.010"/-0.000" of the dimensions specified in Table 2.

7 Safety Precautions

7.1 Observe general shop safety precautions when performing the procedure specified herein.

8 Personnel Requirements

8.1 Personnel responsible for the installation of Kahr Kaptor spherical bearings must have a good working knowledge of the procedure and requirements as specified herein and shall have exhibited their competency to their supervisor.