BOEING

Commercial Airplane Group

747 Service Bulletin

ALERT

Revision Transmittal Sheet

Number: 747-32A2465
Date: December 2, 1999
Revision 1: July 20, 2000
ATA System: 3211

SUBJECT: LANDING GEAR - Wing Gear - Outer Cylinder Aft Trunnion - Inspection and Corrosion Preventative Compound (CPC) Application

This revision includes all pages of the service bulletin.

COMPLIANCE INFORMATION RELATED TO THIS REVISION

Federal Aviation Administration (FAA) Airworthiness Directive 90-06-18R1, Amendment 39-6706, is related to this service bulletin.

More work is necessary on airplanes changed as shown in the initial release of this service bulletin. More work is necessary to reinspect the aft trunnion and reapply Corrosion Preventative Compound (CPC) to the aft trunnion.

Airplanes were added to Group 3 of the service bulletin effectivity.

REASON FOR REVISION

This revision is sent to do the following:

1. Change the service bulletin to an "Alert" service bulletin. Additional fleet experience has shown a greater potential for undetected cracks or corrosion of the wing landing gear outer cylinder aft trunnion than was originally determined in the initial release of the service bulletin.
2. Add information that this inspection, application of CPC, and repetative inspections and CPC application is an Alternate Method of Compliance to the requirements of paragraph B of AD 90-06-18R1.
3. Add information to concurrent requirements that landing gear overhaul as given in OHM 32-11-41, 32-11-42, 32-11-43, 32-11-44, 32-11-45, 32-11-46, 32-11-48, or 32-11-49, revision dated May 1, 1990 or later is required to be accomplished prior to this service bulletin for Groups 1 and 2 airplanes.
4. Add Figure 1 - Logic Diagram, for compliance information.
5. Add information on inservice performance of MIL-C-11796, Class 1 and Class 3.
6. Add information that the detailed visual inspection is to be done using a boroscope.
7. Add airplanes scheduled for delivery through December 2000, to Group 3 effectivity.
8. Deleted use of NDT eddy current inspection 747 NDT Manual D6-7170, Part 6, Subject 32-10-01.

Paragraph 1.A., Effectivity, shows changes of airplane operators. Each operator should examine the Effectivity paragraph for changes.

Vertical lines are put on the left edge of each page, except in Paragraph 1.A., Effectivity, to show the location of important changes.

Pages with no vertical lines have no important changes.

REVISION HISTORY

Original Release:	December 2, 1999
Revision 1:	July 20, 2000

ALERT

Number: 747-32A2465
Date: December 2, 1999
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Summary

SUBJECT: LANDING GEAR - Wing Gear - Outer Cylinder Aft Trunnion - Inspection and Corrosion Preventative Compound (CPC) Application

CONCURRENT REQUIREMENTS

The terminating action specified in Boeing service bulletin 747-32-2190, Revision 4 or later, or landing gear overhaul as given in OHM 32-11-41, 32-11-42, 32-11-43, 32-11-44, 32-11-45, 32-11-46, 32-11-48 or 32-11-49, revision dated May 1, 1990 or later, is required to be accomplished prior to this service bulletin for Group 1 and 2 airplanes.

BACKGROUND

Accomplishment of this service bulletin will provide early detection of cracks and/or corrosion in the wing landing gear outer cylinder aft trunnion. The Corrosion Preventative Compound (CPC) application will also help to prevent corrosion in the aft trunnion. Corrosion in the wing landing gear outer cylinder aft trunnion can lead to cracks in the aft trunnion and possible collapse of the wing landing gear.

There have been reports of four cracked and one fractured aft trunnion outer cylinder on airplanes that had incorporated Service Bulletin 747-32-2190, Revision 4 or later. One crack was found on a landing gear that had accumulated 6,468 flight-cycles and 96 months since overhaul. The fracture was found on a landing gear that had accumulated 5,587 flight-cycles and 72 months since overhaul.

It has been determined that the cracks and subsequent fracture were caused by corrosion in the aft trunnion.

The repeat inspection and CPC application as specified in this service bulletin will help prevent corrosion and provide early detection of corrosion or cracks in the aft trunnion.

During laboratory testing it was determined that MIL-C-11796, Class 3 provided easier application with better adhesion to the aft trunnion and therefore improved protection against corrosion for inservice applications, The Class 3 compound is also easier to remove for repeat inspections. MIL-C-11796, Class 1 provides sufficient adhesion and corrosion protection with better handling durability during gear transportation and installation. Therefore MIL-C-11796, Class 1 is used in production and recommended during gear overhaul, and MIL-C-11796, Class 3 is recommended for inservice applications.

ACTION

For the left and right wing landing gear, inspect the wing gear outer cylinder aft trunnion for cracks and/or corrosion. Apply Corrosion Preventative Compound (CPC) to the aft trunnion.

EFFECTIVITY

All 747 airplanes line numbers (L/N) 1 and on in 3 Groups.

Group 1 - L/N 1 through 583
Group 2 - L/N 583 through 779
Group 3 - L/N 780 and on

COMPLIANCE

See Figure 1 for compliance information.

Federal Aviation Administration (FAA) Airworthiness Directive 90-06-18R1, Amendment 39-6706, is related to this service bulletin.

INDUSTRY SUPPORT INFORMATION

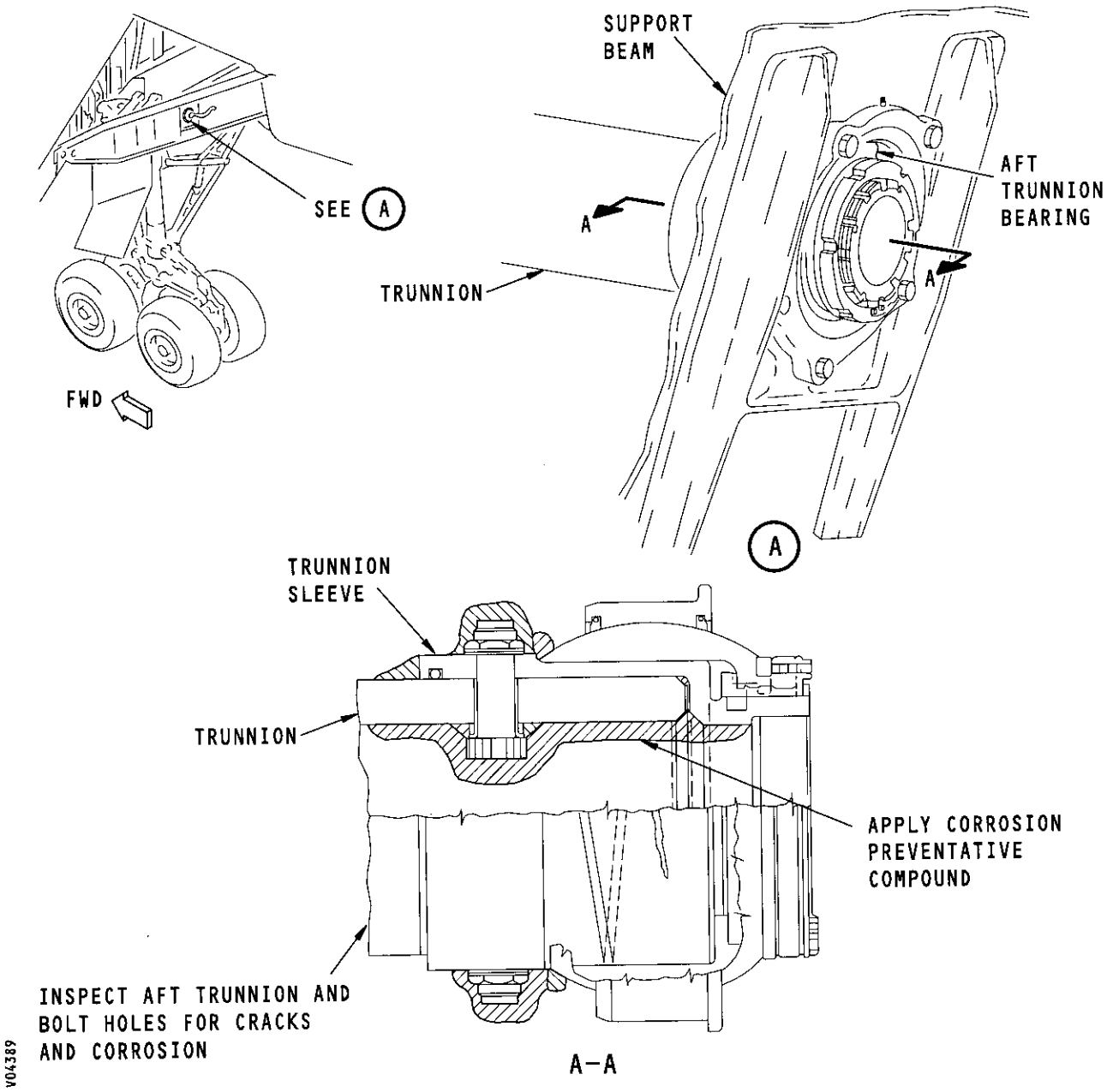
Boeing warranty remedies are not available for the inspection and CPC application given in this service bulletin.

MATERIAL INFORMATION

Operator Supplied Parts/Materials

MANPOWER

	Total Man-Hours	Elapsed Time (Hours)
Inspection / CPC Application	11.5	7.5


SUPPORT BEAM
AFT TRUNNION BEARING
SEE A
A
A
TRUNNION
FWD
A
TRUNNION SLEEVE
TRUNNION
APPLY CORROSION PREVENTATIVE COMPOUND
INSPECT AFT TRUNNION AND BOLT HOLES FOR CRACKS AND CORROSION
A-A
V04389

ALERT

Number: 747-32A2465
Date: December 2, 1999
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SUBJECT: LANDING GEAR - Wing Gear - Outer Cylinder Aft Trunnion - Inspection and Corrosion Preventative Compound (CPC) Application

THIS SERVICE BULLETIN IS SENT TO THE OPERATORS OF RECORD OF THE AIRPLANES SHOWN IN PARAGRAPH 1.A., EFFECTIVITY. IF AN AIRPLANE HAS BEEN LEASED OR SOLD, SEND THIS SERVICE BULLETIN TO THE NEW OPERATOR. IF APPLICABLE SPARES HAVE BEEN SOLD, SEND THIS SERVICE BULLETIN TO THE NEW OWNER.

1. PLANNING INFORMATION

A. Effectivity

1. Airplanes

Refer to Service Bulletin Index Document D6-30300, Part 3 for Airplane Variable Number, Line Number, and Serial Number data.

This service bulletin is for the airplanes shown below.

For operators with airplanes in Group 3, the list below may not be complete. The list below only includes those airplanes that are scheduled to be delivered through December 2000. The applicable airplanes that should be in Group 3 are as follows:

Group 3 - All 747 airplanes line positions 780 and on.

Airplane Models:

747-SP	747-SR	747-100	747-100B
747-100BSUD	747-200B	747-200C	747-200F
747-300	747-400	747-400D	747-400F

IDENTIFICATION BY CUSTOMER, CUSTOMER CODE, GROUP AND VARIABLE NUMBER

AAR AIRCRAFT SALES AND LEASING (AFD)

1	RA305	RA313	RA315-RA316	RB681-RB682

AEROLINEAS ARGENTINAS (ARG)

1	RA651	RB001	RD053	RD122-RD127

AGES AIRCRAFT SALES & LEASING (AGJ)

1	RB004	

AIR ATLANTA ICELANDIC (AID)
1 RA217 RA526 RA533 RA539 RA541-RA542 RA742
RA762 RD352-RD355
2 RS331-RS333

AIR CANADA (ACN)
1 RA749-RA750 RD531
3 RT101-RT103

AIR ATLANTA ICELANDIC (AID)
1 RA217 RA526 RA533 RA539 RA541-RA542 RA742
RA762 RD352-RD355
2 RS331-RS333

AIR CANADA (ACN)
1 RA749-RA750 RD531
3 RT101-RT103

AIR CHINA (BEJ)
1 RG211-RG213
2 RD781-RD783 RT031-RT032
3 RM341 RM811-RM813 RR451 RT033-RT035 RT876-RT880

AIR DABIA (DBI)
1 RA406

AIR FRANCE (AFA)
1 RA263 RD271-RD272 RD651-RD655 RD657-RD658 RD721-RD722 RR302-RR306
RR331-RR332
2 RD659 RD791-RD792 RR307-RR308 RS233 RS751-RS752 RT591
3 RR309 RT071-RT075 RT121 RT711-RT716

AIR GABON (GBN)
1 RD661

AIR GULF FALCON (GFG)
1 RA303 RA317 RA537 RG171-RG172

AIR HONG KONG (AHK)
1 RD581-RD583

AIR INDIA (AIN)
1 RA722-RA723 RA725 RA728-RA731
2 RS781-RS782
3 RU001-RU006

AIR MADAGASCAR (MAD)
1 RD561

AIR NAMIBIA (NAM)
3 RT137

AIR NEW ZEALAND (ANZ)
2 RT671
3 RM082 RM191-RM192 RT672-RT673 RT703 RT932

AIR PACIFIC (APC)
1 RD518

AIRFREIGHT EXPRESS LIMITED (AIF)
1 RR221-RR222

ALBARAKA (AAB)
1 RB102

ALITALIA (ALI)
1 RD181 RD451-RD455 RD751 RD753 RR561
2 RD456

ALL NIPPON AIRWAYS (ANA)
1 RB686-RB697
2 RD231-RD235 RR551-RR554
3 RM231-RM233 RR555-RR556 RT751-RT757 RT776-RT777 RU831-RU841

AMIRI FLIGHT (ABD)
2 RH102
3 RM084

ASIANA AIRLINES (AAR)
3 RM071 RM861 RR746-RR748 RT131-RT136 RU032

ATLAS AIR (TLS)
1 RB683-RB685 RD044 RD361-RD365 RD411-RD412 RD641-RD643 RD646
RD691-RD692 RD752 RJ332-RJ333 RR301
2 RD366 RD754-RD755 RS722
3 RM891-RM899 RM901-RM903

BAHRAIN AMIRI FLIGHT (BHR)
1 RG009

BOEING (TBC)
1 RA904 RR223-RR224 RR421

BRITISH AIRWAYS (BAB)
1 RD131-RD141 RD143
2 RB411-RB413 RD311 RT471-RT478
3 RM096-RM097 RM136-RM145 RM261-RM264 RT479-RT499 RU121-RU132

C.A.L. CARGO AIR LINES (CRG)
1 RJ331

CAMEROON AIRLINES (CAM)
1 RD761

CANADIAN AIRLINES (CDI)
3 RT701-RT702 RT704 RU059

CARGOLUX AIRLINES (CLX)
3 RM881-RM885 RR701 RR721-RR724

CARLIN AIRLINES (TIC)
1 RB722

CATHAY PACIFIC AIRWAYS (CAT)
1 RR531
2 RD358 RR441-RR442 RS301-RS306 RT451-RT453
3 RM856 RR951-RR952 RT454-RT469

CHINA AIRLINES (CHI)
1 RD081-RD083 RD551 RG174 RR521
2 RR522 RT631-RT632
3 RL411-RL413 RM021-RM024 RT633-RT634 RT636-RT640

CONTINENTAL AIRLINES (CAL)
1 RA561 RB005-RB006

CORSAIR (COR)
1 RA023 RA025 RA257 RA675 RA677 RG124
2 RS235 RS237

DUBAI AIR WING (DAW)
1 RG191 RG193

EGYPTAIR (EGP)
2 RS731-RS732

EL AL ISRAEL AIRLINES (ELA)
1 RA781-RA784 RB007 RJ151-RJ152 RR225-RR226
3 RM091 RU081-RU083

EVA AIR (EVA)
3 RL401 RM116-RM117 RT161-RT168 RT951-RT955

EVERGREEN INTERNATIONAL A/L (EVR)
1 RA004 RA028 RA113 RA253 RA631 RA633
RB604 RB607 RD041-RD042 RJ131 RJ133

FLIGHTPLAN INTERNATIONAL (FLP)
1 RA003

GARUDA INDONESIA (GIA)
1 RD421-RD424
3 RT931 RU061-RU062

GATX CAPITAL CORPORATION (GAX)
1 RA002 RA030

GE CAPITAL CORPORATION (GEF)
1 RA005

GENERAL ELECTRIC COMPANY (GEC)
1 RA016

GLOBAL AIR LEASING (GAO)
1 RG164

GOVERNMENT OF JAPAN (JAG)
3 RT681-RT682

H.M.S.F. AND AMEDEO CORP. (BWN)
3 RT440

IBERIA AIRLINES (IBE)
1 RA585 RD431-RD435
2 RB421

IRAN AIR (IRN)

1	RA101-RA103	RA112	RA161-RA163	RB711	RD681-RD682	RG101-RG104
	RR001-RR004					

IRAQI AIRWAYS (IRQ)

1	RG095	RJ301-RJ303

JAPAN AIRLINES (JAL)

1	RA527-RA528	RA532	RA534-RA535	RA538	RA540	RA543-RA548
	RB721	RD055	RD221-RD226	RR261-RR262	RR264-RR265	RR361-RR362
2	RB723	RD227	RR266-RR267	RS001-RS002	RS251-RS259	RS263
	RS265-RS268	RT641-RT644				
3	RM126-RM131	RM316-RM318	RT645-RT657	RT861-RT864	RT966-RT967	RU801-RU809

KABO AIR (KAB)

1	RA501-RA502	

KITTY HAWK INTERNATIONAL (CKF)

1	RA521	RA523-RA525	RA635	RB002	RD201	RD203
	RD621-RD623					

KLM - ROYAL DUTCH AIRLINES (KLM)

1	RD381-RD383	RD601-RD607		
2	RS711-RS713	RT001-RT004	RT531-RT532	
3	RM801-RM802	RT005-RT014	RT533-RT535	

KOREAN AIR (KAL)

1	RD071-RD072	RD091	RD441-RD442	RG221-RG222	RJ132	RR022-RR023
	RR201	RR336				
2	RR024-RR025	RS292	RS786	RT571-RT573		
3	RM011-RM012	RM871-RM873	RR861-RR862	RT061	RT574-RT588	RT590
	RT811-RT814					

KUWAIT AIRWAYS (KUW)

1	RD202	RD204
3	RT151	

LUFTHANSA GERMAN AIRLINES (DLH)

1	RD182-RD183	RD644-RD645	RD649	RR202-RR203	
2	RD291-RD292	RD772-RD775	RR204-RR206	RT041-RT043	RT431-RT433
3	RM001-RM004	RT044-RT047	RT434-RT439	RT441-RT447	

MALAYSIA AIRLINES (MAS)

1	RD142	RD144	
2	RS771	RT021-RT022	
3	RM036-RM039	RT743-RT750	RU016-RU017

MARTINAIR HOLLAND (MTH)

2	RJ321-RJ322
3	RR310

MK AIRLINES (MKA)

1	RD741	RR263

NASA (NAS)

1	RA908	RB601

NIPPON CARGO AIRLINES (NCA)
1 RD461

NORTHWEST AIRLINES (NWA)
1 RA351 RA370-RA373 RD056-RD057 RD241-RD243 RD251-RD257 RR005
RR341-RR345 RR503
2 RD258-RD262 RR431-RR432 RR566 RT401-RT406
3 RM241-RM244 RT407-RT410

OKADA AIR (OKD)
1 RA522

OLYMPIC AIRWAYS (OLY)
1 RD022 RD048-RD050

OMAN ROYAL FLIGHT (RFO)
1 RG161 RG163

PACIFICORP AIRFINANCE (PHC)
1 RD043

PAKISTAN INT'L AIRLINES (PIA)
1 RD003-RD004 RD101-RD104 RD701-RD702

PANAIR (PNR)
1 RG122

PEGASUS AVIATION GROUP (PSS)
1 RA674

PHILIPPINE AIRLINES (PAL)
1 RD171-RD172 RD413
3 RT152 RU051-RU052 RU060

POLAR AIR CARGO (PAO)
1 RA007 RA013 RA027 RA401-RA405 RA632 RA634
RA910 RA914 RB041 RD592 RR501 RR504
3 RL651-RL653

QANTAS (QAN)
1 RD517 RD519 RD532-RD533 RH111-RH112
2 RS271-RS276 RT551-RT555
3 RM331-RM333 RT556-RT568 RT741-RT742 RU031

QATAR AIRWAYS (QTA)
1 RG162

ROYAL AIR MAROC (RAM)
1 RD671
3 RT717

SABENA (SAB)
2 RS761
3 RS762

SAUDI ARABIAN AIRLINES (SVA)

1	RB741-RB746	RB748	RH121
2	RR526	RS311-RS320	
3	RM156-RM157	RU101-RU102	

SAUDI ROYAL FLIGHT (SRF)

1	RH101	RH122
2	RS699	

SINGAPORE AIRLINES (SIA)

1	RS231				
2	RS234	RS238-RS241	RS741	RS743	RT501-RT505
3	RM041	RM851-RM853	RR851-RR856	RT506-RT530	RT831-RT837

SOUTH AFRICAN AIRWAYS (SAA)

1	RB071-RB075	RG121	RG123	RG125	RS211-RS212	RS232
2	RS236					
3	RM081	RM083	RM146-RM147	RT781-RT784		

SOUTHERN AIR (SOF)

1	RD647-RD648	RD771

STAR AIR TOURS (SRT)

1	RG192

SWISSAIR (SWS)

1	RS701-RS702	
2	RS221-RS222	RS703

SYRIANAIR (SYR)

1	RG141-RG142

S583 (583)

2	RD166-RD167

TAAG (ANGOLA AIRLINES) (ANG)

2	RS742

TAG AVIATION (TAG)

1	RG173

THAI (TII)

2	RS341-RS342	RT691-RT692	
3	RM026-RM027	RT693-RT699	RT801-RT803

TOWER AIR (TOW)

1	RA015	RA024	RA106	RA201	RA311	RA726
	RB003	RB042	RD001-RD002	RD045-RD047	RD052	RD054
	RD414	RD571	RE001			

TRITON AVIATION SERVICES (TIA)

1	RD425-RD426

UNITED AIRLINES (UAL)

1	RA903	RA906-RA907	RB010-RB012	RD513-RD516	RG091
2	RD301-RD302	RT601-RT604			
3	RM166-RM177	RT411-RT412	RT605-RT630		

UNITED STATES AIR FORCE (UO1)
1 RB013-RB016

UPS (UPS)

1 RA006	RA026	RA029	RA033	RA901-RA902	RA911-RA913
RA915-RA916	RB605	RD051	RD058-RD059	RD593	

US AIR FORCE (USF)
3 RM911

VARIG AIRLINES (VAR)
2 RS721

VIRGIN ATLANTIC AIRWAYS (VAA)

1 RA560	RB008-RB009	RD121	RD356-RD357	RD471-RD475	
3 RM051	RT945-RT949				

WORLDWIDE AIRCRAFT HOLDING CO. (WAH)
1 RG008

IDENTIFICATION BY VARIABLE NUMBER

GROUP 1

RA001-RA034	RA101-RA115	RA161-RA164	RA201-RA203	RA216-RA217	RA245-RA246
RA251-RA266	RA301-RA318	RA351-RA360	RA369-RA373	RA401-RA418	RA501-RA502
RA521-RA528	RA532-RA548	RA551-RA552	RA559-RA561	RA581-RA582	RA585
RA601-RA602	RA631-RA635	RA651-RA652	RA671-RA677	RA701-RA702	RA721-RA731
RA741-RA745	RA749-RA750	RA761-RA762	RA781-RA784	RA901-RA916	RB001-RB016
RB041-RB044	RB071-RB075	RB101-RB102	RB601-RB607	RB681-RB697	RB711
RB721-RB722	RB741-RB748	RD001-RD004	RD021-RD022	RD041-RD059	RD071-RD072
RD081-RD083	RD091-RD092	RD101-RD104	RD121-RD127	RD131-RD144	RD171-RD172
RD181-RD183	RD201-RD204	RD221-RD226	RD241-RD243	RD251-RD257	RD271-RD272
RD351-RD357	RD361-RD365	RD381-RD383	RD411-RD414	RD421-RD426	RD431-RD435
RD441-RD442	RD451-RD455	RD461	RD471-RD475	RD513-RD519	RD531-RD533
RD551	RD561	RD571	RD581-RD583	RD591-RD593	RD601-RD607
RD621-RD623	RD641-RD649	RD651-RD658	RD661	RD671	RD681-RD682
RD691-RD692	RD701-RD702	RD721-RD722	RD741-RD742	RD751-RD753	RD761
RD771	RE001	RG001-RG009	RG091	RG095	RG101-RG104
RG121-RG126	RG141-RG142	RG161-RG164	RG171-RG174	RG191-RG193	RG211-RG213
RG221-RG222	RH101	RH111-RH112	RH121-RH122	RJ131-RJ133	RJ151-RJ152
RJ301-RJ303	RJ331-RJ333	RR001-RR005	RR021-RR023	RR031	RR201-RR203
RR221-RR226	RR261-RR265	RR301-RR306	RR331-RR332	RR336	RR341-RR345
RR361-RR362	RR421-RR422	RR501-RR504	RR521	RR531	RR561
RS201	RS211-RS212	RS231-RS232	RS701-RS702		

GROUP 2

RB411-RB413	RB421	RB723	RD166-RD167	RD227	RD231-RD235
RD258-RD262	RD291-RD292	RD301-RD302	RD311	RD358	RD366
RD456	RD659	RD754-RD755	RD772-RD775	RD781-RD783	RD791-RD792
RH102	RJ321-RJ322	RR024-RR025	RR204-RR206	RR266-RR267	RR307-RR308
RR431-RR432	RR441-RR442	RR522	RR526	RR551-RR554	RR566

2. Spares Affected

None

B. Concurrent Requirements

The terminating action specified in Boeing service bulletin 747-32-2190, Revision 4 or later, or landing gear overhaul as given in OHM 32-11-41, 32-11-42, 32-11-43, 32-11-44, 32-11-45, 32-11-46, 32-11-48 or 32-11-49, revision dated May 1, 1990 or later, is required to be accomplished prior to this service bulletin for Group 1 and 2 airplanes. The changes given in Boeing Service Bulletin 747-32-2190, Revision 4 or later, were made on Group 3 airplanes before delivery.

C. Reason

Accomplishment of this service bulletin will provide early detection of cracks and/or corrosion in the wing landing gear outer cylinder aft trunnion. The Corrosion Preventative Compound (CPC) application will also help to prevent corrosion in the aft trunnion. Corrosion in the wing landing gear outer cylinder aft trunnion can lead to cracks in the aft trunnion and possible collapse of the wing landing gear.

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Revision 1 is sent to do the following:

1. Change the service bulletin to an "Alert" service bulletin. Additional fleet experience has shown a greater potential for undetected cracks or corrosion of the wing landing gear outer cylinder aft trunnion than was originally determined in the initial release of the service bulletin.
2. Add information that this inspection, application of CPC, and repetative inspections and CPC application is an Alternate Method of Compliance to the requirements of paragraph B of AD 90-06-18R1.
3. Add information to concurrent requirements that landing gear overhaul as given in OHM 32-11-41, 32-11-42, 32-11-43, 32-11-44, 32-11-45, 32-1-46, 32-11-48, or 32-11-49, revision dated May 1, 1990 or later is required to be accomplished prior to this service bulletin for Groups 1 and 2 airplanes.
4. Add Figure 1 - Logic Diagram, for compliance information.
5. Add information on inservice performance of MIL-C-11796, Class 1 and Class 3.
6. Add information that the detailed visual inspection is to be done using a boroscope.
7. Add airplanes scheduled for delivery through December 2000, to Group 3 effectivity.

8. Deleted use of NDT eddy current inspection 747 NDT Manual D6-7170, Part 6, Subject 32-10-01.

D. Description

For the left and right wing landing gear, inspect the wing gear outer cylinder aft trunnion for cracks and/or corrosion. Apply Corrosion Preventative Compound (CPC) to the aft trunnion.

More work is necessary on airplanes inspected as shown in the initial release of this service bulletin. More work is necessary to reinspect the aft trunnion and reapply Corrosion Preventative Compound (CPC) to the aft trunnion.

The airplane effectivity is divided into 3 groups.

Group 1 airplanes are L/N 1 through 583 and are subject to Airworthiness Directive (AD) 90-06-18 R1, Amendment 39-6706.

Group 2 airplanes are L/N 584 through 779.

Group 3 airplanes are L/N 780 and on.

The changes in this service bulletin will not change the Central Maintenance Computer System (CMCS).

An evaluation form is attached to this service bulletin. Please use this form to tell us what you think of the quality of this service bulletin.

E. Compliance

See Figure 1 for compliance information.

Federal Aviation Administration (FAA) Airworthiness Directive 90-06-18R1, Amendment 39-6706, is related to this service bulletin.

F. Approval

This service bulletin was examined by the Federal Aviation Administration (FAA). The changes specified in this service bulletin comply with the applicable Federal Aviation Regulations (FAR) and are FAA approved. This service bulletin and the FAA approval were based on the airplane in its original Boeing delivery configuration or as modified by other FAA approved Boeing changes.

If an airplane has a non-Boeing modification or repair that affects a component or system also affected by this service bulletin, the operator is responsible for obtaining appropriate regulatory agency approval before incorporating this service bulletin.

This service bulletin has been approved by the FAA. In addition, the Manager of the FAA Seattle Aircraft Certification Office approves the accomplishment of the inspections, application of CPC, and compliance times for repetitive inspections and CPC application as an alternative method of compliance to the requirements of paragraph B of AD 90-06-18 R1.

Additionally, terminating action in accordance with Boeing service bulletin 747-32-2190, Revision 4, dated October 26, 1989; Revision 5, dated April 19, 1990; Revision 6, dated November 29, 1990; or Revision 7, dated May 13, 1993; must be accomplished prior to this AMOC. All provisions of AD 90-06-18 R1 that are not specifically referenced in the above statements remain fully applicable and must be complied with.

G. Manpower

The tables below show an estimate of the man-hours necessary to do the inspection and CPC application for each airplane. This estimate is for direct labor only, done by an experienced crew. Adjust the estimate with operator man-hour data if necessary. The estimate does not include lost time. These are some examples of lost time:

- Time to adjust to the workplace
- Time to schedule the work
- Time to examine the work
- Time to cure the materials
- Time to make the parts
- Time to find the tools.

Inspection / CPC Application			
Task	Number of Persons	Man-Hours	Elapsed Time (Hours)
Open Access	1	0.75	0.75
Examine	2	4.0	2
Change	1	0.25	0.25
Close Access	1	0.75	0.75
TOTAL FOR EACH WING GEAR		5.75	3.75
TOTAL FOR EACH AIRPLANE		11.5	7.5

H. Weight and Balance Changes

None

I. Electrical Load Data

Not applicable for 747-100/200/300s

Not changed for 747-400s

J. References

1. Existing Data:

   a. 747 Maintenance Manual (AMM) Subject 27-51-00, 32-00-30

   b. 747-400 Maintenance Manual (AMM) Subject 27-51-00, 32-00-30

   c. Overhaul Manual 32-11-41, 32-11-42, 32-11-43, 32-11-44, 32-11-45, 32-11-46, 32-11-48, 32-11-49

   d. Boeing Service Bulletin 747-32-2190, "WING LANDING GEAR TRUNNION SLEEVE AND BEARING MODIFICATION"

   e. FAA Airworthiness Directive (AD) 90-06-18 R1, Amendment 39-6706

2. Data supplied with this service bulletin:

   None

3. Installation Drawings Used in the Preparation of this Service Bulletin:

   None

K. Publications Changed

Publication	Chapter-Section
747 Maintenance Manual	12-21
747-400 Maintenance Manual	12-21

L. Interchangeability and Intermixability of Parts

None

2. MATERIAL INFORMATION

A. Material - Price and Availability

The operator can supply the parts and materials shown in Paragraph 2.C., Parts Necessary For Each Airplane. As an alternative, operators can purchase the parts from Boeing Spares. This service bulletin does not show the Boeing price and supply data.

B. Industry Support Information

Boeing warranty remedies are not available for the inspection and CPC application given in this service bulletin.

C. Parts Necessary For Each Airplane

1. Kits:

   None

2. Parts and Materials Supplied by the Operator:

QTY	Part Number / Specification	Name
5 lbs	MIL-C-11796 class 3	Corrosion Preventative Compound

D. Parts Necessary to Change Spares

None

E. Existing Parts Accountability

None

F. Special Tooling - Price and Availability

None

G. Special Tooling Necessary to do this Service Bulletin

No special tools or equipment are necessary to do the change in this service bulletin. But, maintenance and overhaul tools in the manuals given in Paragraph 1.J., References, can be necessary. Examine operator tool supply to make sure all necessary tools are available.

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3. ACCOMPLISHMENT INSTRUCTIONS

GENERAL NOTES

1. The paragraphs identified with a letter give the general work instructions. The instructions identified with numbers on the figures give the recommended sequence of steps.

2. Obey all of the warnings and cautions given in the specified manual sections.

3. As an alternative to the Boeing specified AMM manuals, operator's equivalent procedures can be used.

4. See Figure 1 for Compliance Recommendations and Maintenance Alternatives Logic Diagram.

5. A boroscope is required to perform detailed visual inspection of the fitting. Recommended boroscope equipment should include remote visual equipment with a flexible working length of three feet and at least a two way articulating tip, direct view with field of view (FOV) of 5-100 degrees, depth of field (DOF) of 0.5 to 4.0 inches, outer diameter of 5-0.5 inch, and a high intensity compatible light source.

WORK INSTRUCTIONS

PART 1 - INSPECTION / CPC APPLICATION

WARNING: MAKE SURE THE DOOR LOCKS ARE INSTALLED. THE DOORS OPEN AND CLOSE QUICKLY AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

A. Install the door locks. Refer to 747 or 747-400 AMM 32-00-30.

B. Extend aft flaps to get access to aft trunnion. Refer to 747 or 747-400 AMM 27-51-00.

C. Do a detailed visual inspection as specified in Figure 2.

D. If cracks or corrosion are found, contact Boeing for repair information before further flight.

E. If no cracks or corrosion are found, do the CPC application as shown in Figure 3

F. Repeat the Part 1 - Inspection/CPC Application at an interval not to exceed 6 months.

G. Retract the aft flaps. Refer to 747 or 747-400 AMM 27-51-00.

H. Remove the door locks. Refer to 747 or 747-400 AMM 32-00-30.

I. Put the airplane back to a serviceable condition.

FIGURE TABLE OF CONTENTS

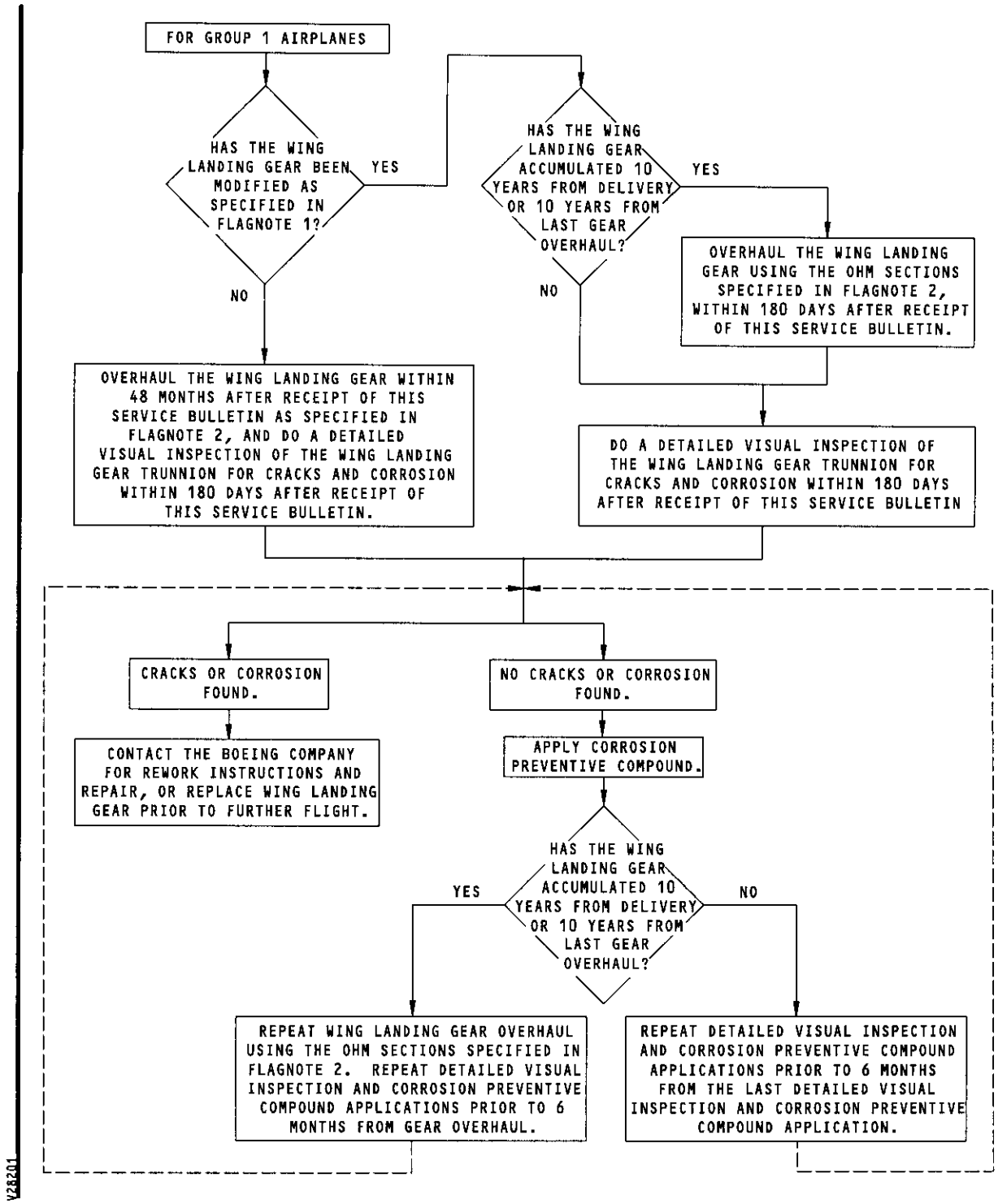

FIGURE 1. LOGIC DIAGRAM

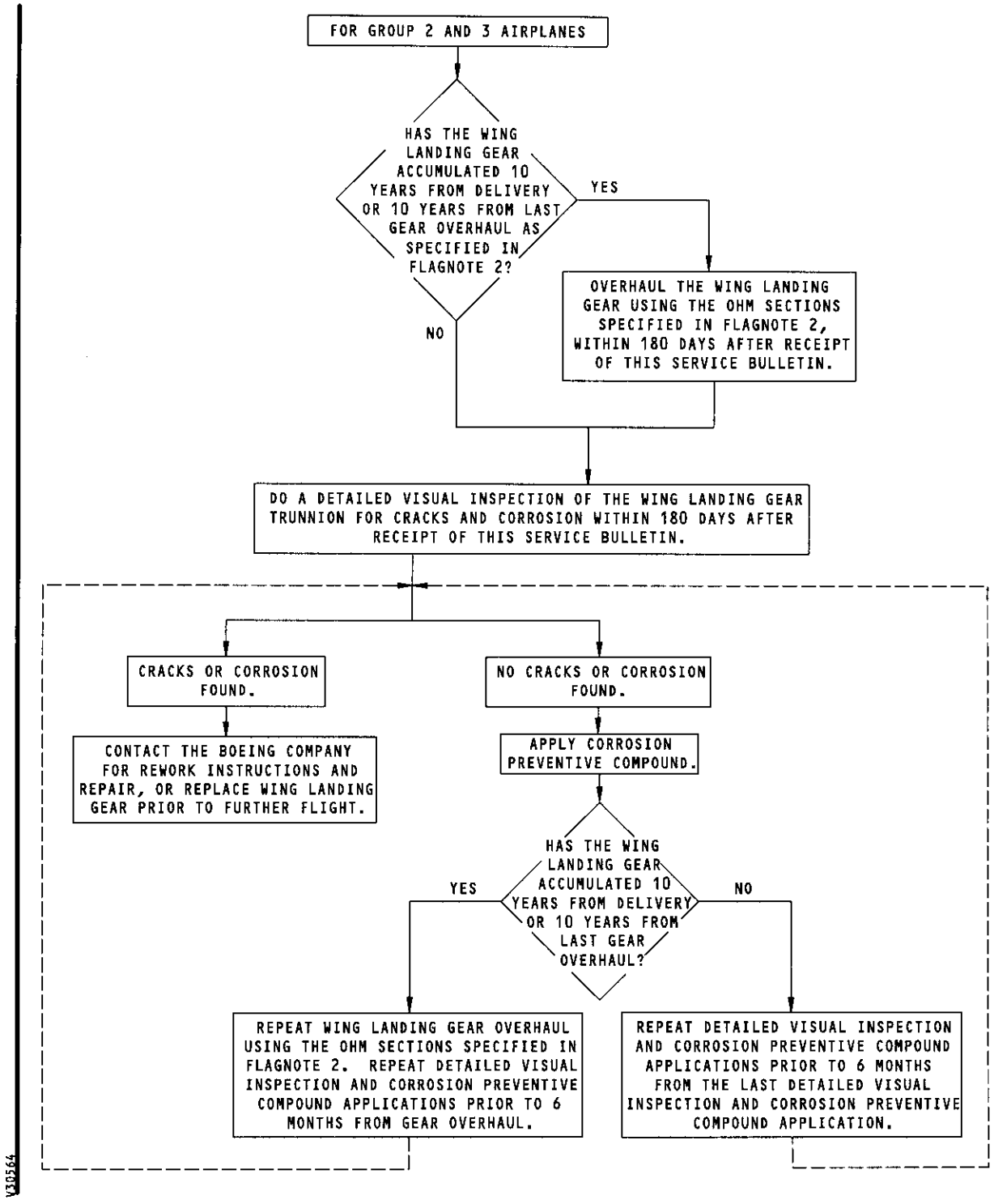

FIGURE 1. LOGIC DIAGRAM

FLAG NOTE	NOTES
1	Overhauled as specifed in OHM 32-11-41, 32-11-42, 32-11-43, 32-11-44, 32-11-45, 32-11-46, 32-11-48 or 32-11-49, revision dated May 1, 1990 or later, or has done terminating action as specifed in SB 747-32-2190, revision 4 or later.
2	OHM 32-11-41, 32-11-42, 32-11-43, 32-11-44, 32-11-45, 32-11-46, 32-11-48 or 32-11-49, revision dated May 1, 1990 or later.

FIGURE 1. LOGIC DIAGRAM

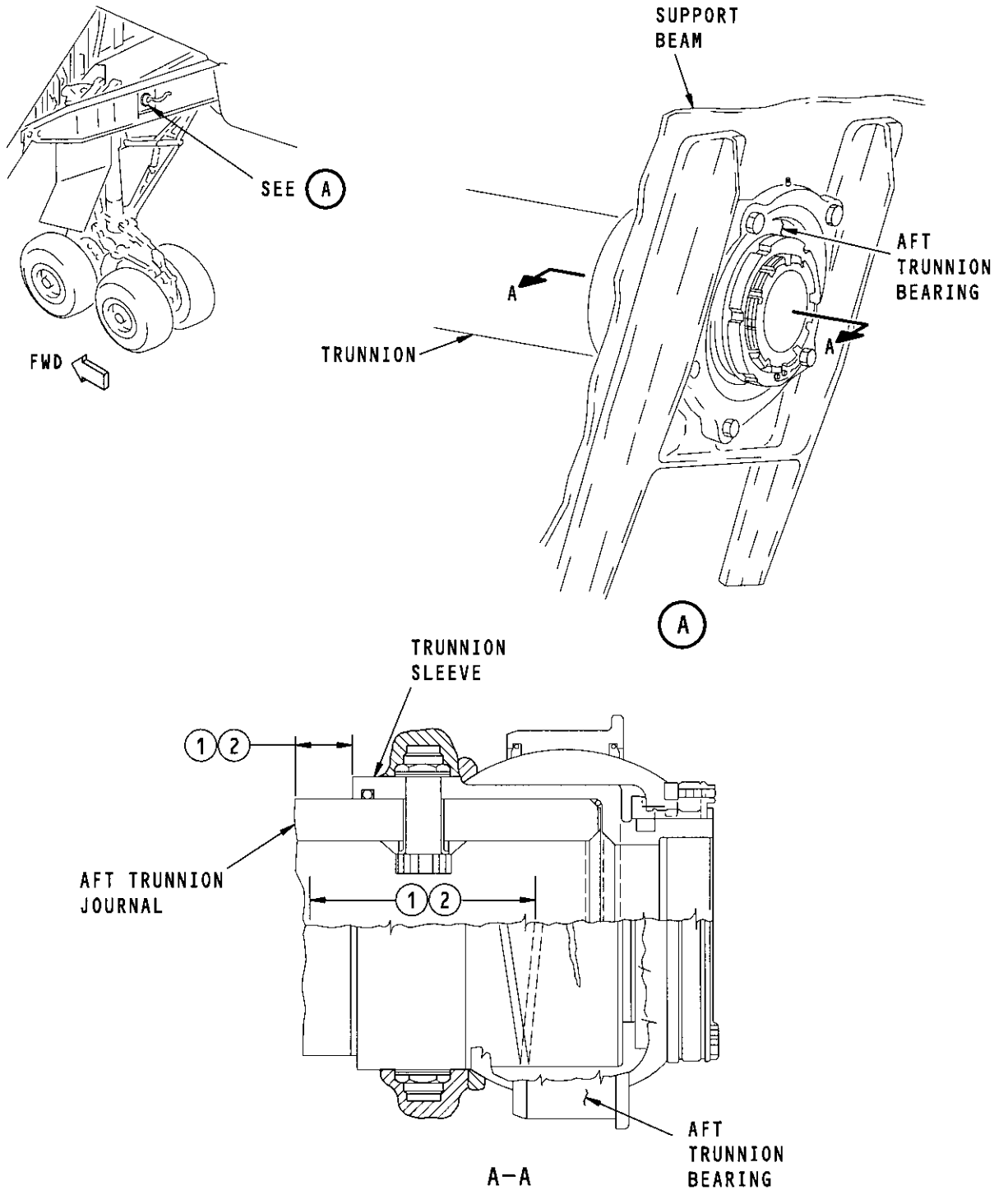

FIGURE 2. AFT TRUNNION DETAIL VISUAL INSPECTION

The step numbers shown below agree with the numbers shown in the circle symbols in the figure.

STEP	TASK	NAME	PROCEDURE	REFERENCES	NOTES
1	Clean	Aft trunnion			(a)
2	Inspect	Aft trunnion	Detail Visual using a Boroscope		for cracks and corrosion

(a) Outer diameter - 1" forward of trunnion sleeve; Inner diameter - 1" forward and aft of the bolt

FIGURE 2. AFT TRUNNION DETAIL VISUAL INSPECTION

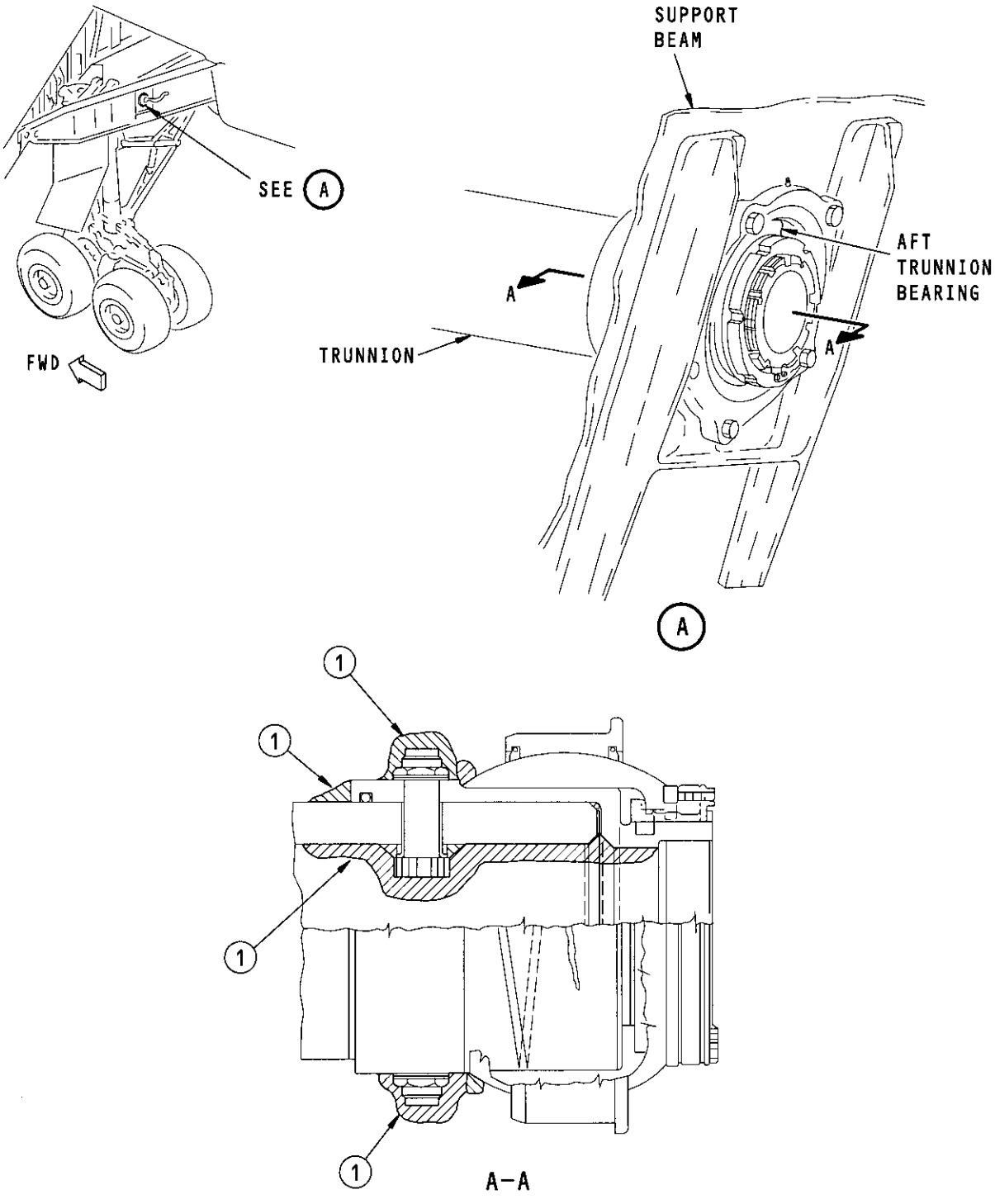

FIGURE 3. AFT TRUNNION CPC APPLICATION

The step numbers shown below agree with the numbers shown in the circle symbols in the figure.

STEP	TASK	NAME	PART NUMBER	QTY	NOTES
1	Apply	Corrosion Preventative Compound (CPC)	MIL-C-11796, class 3	-	Apply over existing CPC - 0.10 minimum thickness

FIGURE 3. AFT TRUNNION CPC APPLICATION

BOEING

Commercial
Airplane
Group

747
Service Bulletin

ALERT

Number: **747-32A2465**
Date: December 2, 1999
Revision 1: July 20, 2000
ATA System: 3211
Prepared By: Steve Decock

Evaluation Form

SUBJECT: LANDING GEAR - Wing Gear - Outer Cylinder Aft Trunnion - Inspection and Corrosion Preventative Compound (CPC) Application

Use this evaluation form to tell us what you think of the quality of this service bulletin. We will use the data that you give us to improve the quality of our service bulletins.

NOTE: Please do not use this evaluation form to tell us to make changes to your manuals. To make these changes, please use a Publication Change Request (PCR) form.

Please give us this data:
(If necessary, please use the other side. Thank you for the time you used to give us your comments.)

OPERATOR: _____ TODAY'S DATE: _____

PREPARED BY: _____ TITLE: _____

ORGANIZATION: _____ TELEX CODE: _____

TELEPHONE NUMBER: _____ BASE: _____

Please rate the quality of this service bulletin: (good) 4 3 2 1 (poor)

Please rate the quality of the illustrations: (good) 4 3 2 1 (poor)

Will you do the change given by this service bulletin? Yes____ No____ If not, please explain:

Is this service bulletin easy to understand? Yes____ No____ If not, please explain:

Is this service bulletin easy to use? Yes____ No____ If not, please explain:

Are the Planning Information, Material Information, and Accomplishment Instructions accurate? Yes____ No____ If not, please explain:

Is the Manpower estimate accurate? Yes____ No____ If not, please explain:

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