

# COMPONENT MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST

# NOSE LANDING GEAR INSTALLATION COMPONENTS

PART NUMBER 162A0301–1, –3, 162A0302–1, –3, 162A2118–1, –2, 162A2301–1, –3, 162A2302–1, –3

#### **BOEING PROPRIETARY, CONFIDENTIAL, AND/OR TRADE SECRET**

Copyright © 1995 The Boeing Company Unpublished Work - All Rights Reserved

Boeing claims copyright in each page of this document only to the extent that the page contains copyrightable subject matter. Boeing also claims copyright in this document as a compilation and/or collective work.

This document includes proprietary information owned by The Boeing Company and/or one or more third parties. Treatment of the document and the information it contains is governed by contract with Boeing. For more information, contact The Boeing Company, P.O. Box 3707, Seattle, Washington 98124.

Boeing, the Boeing signature, the Boeing symbol, 707, 717, 727, 737, 747, 757, 767, 777, 787, Dreamliner, BBJ, DC-8, DC-9, DC-10, KC-10, KDC-10, MD-10, MD-11, MD-80, MD-88, MD-90, P-8A, Poseidon and the Boeing livery are all trademarks owned by The Boeing Company; and no trademark license is granted in connection with this document unless provided in writing by Boeing.

PUBLISHED BY BOEING COMMERCIAL AIRPLANES GROUP, SEATTLE, WASHINGTON, USA A DIVISION OF THE BOEING COMPANY PAGE DATE: Jul 01/2009

32-21-07



Revision No. 12 Jul 01/2009

To: All holders of NOSE LANDING GEAR INSTALLATION COMPONENTS 32-21-07.

Attached is the current revision to this COMPONENT MAINTENANCE MANUAL

The COMPONENT MAINTENANCE MANUAL is furnished either as a printed manual, on microfilm, or digital products, or any combination of the three. This revision replaces all previous microfilm cartridges or digital products. All microfilm and digital products are reissued with all obsolete data deleted and all updated pages added.

For printed manuals, changes are indicated on the List of Effective Pages (LEP). The pages which are revised will be identified on the LEP by an R (Revised), A (Added), O (Overflow, i.e. changes to the document structure and/or page layout), or D (Deleted). Each page in the LEP is identified by Chapter-Section-Subject number, page number and page date.

Pages replaced or made obsolete by this revision should be removed and destroyed.

#### **ATTENTION**

IF YOU RECEIVE PRINTED REVISIONS, PLEASE VERIFY THAT YOU HAVE RECEIVED AND FILED THE PREVIOUS REVISION. BOEING MUST BE NOTIFIED WITHIN 30 DAYS IF YOU HAVE NOT RECEIVED THE PREVIOUS REVISION. REQUESTS FOR REVISIONS OTHER THAN THE PREVIOUS REVISION WILL REQUIRE A COMPLETE MANUAL REPRINT SUBJECT TO REPRINT CHARGES SHOWN IN THE DATA AND SERVICES CATALOG.

162A0301, 162A0302, 162A2118, 162A2301, 162A2302



#### **COMPONENT MAINTENANCE MANUAL**

Location of Change Description of Change

NO HIGHLIGHTS

**32-21-07**HIGHLIGHTS
Page 1
Jul 01/2009



Subject/Page	Date	Subject/Pag	ge Date		Subject/	Page	Date
TITLE PAGE		32-21-07 RE	PAIR - GENEI	RAL	32-21-07	REPAIR	5-1 (cont)
0 1	Jul 01/2009	601	Jul 01/2	800	604		Jul 01/2008
2	BLANK	602	Mar 01/	2006	605		Jul 01/2008
32-21-07 TRANS	MITTAL LETTER	32-21-07 RE	PAIR 1-1		606		BLANK
0 1	Jul 01/2009	601	Jul 01/2	800	32-21-07	REPAIR	6-1
2	BLANK	602	Jul 01/2	800	601		Jul 01/2008
32-21-07 HIGHLI	GHTS	32-21-07 RE	PAIR 1-2		602		Mar 01/2006
0 1	Jul 01/2009	601	Jul 01/2	800	32-21-07	ASSEMI	BLY
2	BLANK	602	Mar 01/	2008	701		Mar 01/2006
32-21-07 EFFECT	TIVE PAGES	603	Jul 01/2	800	702		BLANK
1	Jul 01/2009	604	Jul 01/2	800	32-21-07	FITS AN	ID CLEARANCES
2	BLANK	605	Mar 01/	2008	801		Mar 01/2006
32-21-07 CONTE	NTS	606	BLANK		802		BLANK
1	Mar 01/2006	32-21-07 RE	PAIR 2-1				L TOOLS, FIXTURES,
2	BLANK	601	Jul 01/2	800	AND EC	UIPMEN	Т
32-21-07 TR AND		602	Jul 01/2	800	901		Mar 01/2006
1	Jul 01/2008	32-21-07 RE	PAIR 2-2		902		BLANK
2	BLANK	601	Jul 01/2	800	32-21-07	ILLUSTF	RATED PARTS LIST
32-21-07 REVISION		602	Mar 01/	2008	1001		Nov 01/2008
1	Mar 01/2006	603	Jul 01/2	800	1002		Jul 01/2006
2	Mar 01/2006	604	Mar 01/	2008	1003		Jul 01/2008
	D OF TEMPORARY	32-21-07 RE	PAIR 3-1		1004		Jul 01/2008
REVISIONS	5 OF TEINI ON WITH	601	Jul 01/2	800	1005		Jul 01/2008
1	Mar 01/2006	602	Jul 01/2	800	1006		Jul 01/2008
2	Mar 01/2006	32-21-07 RE	PAIR 3-2		1007		Jul 01/2008
32-21-07 INTROE	DUCTION	601	Jul 01/2	008	1008		Jul 01/2008
1	Mar 01/2009	602	Mar 01/	2006	1009		Jul 01/2008
2	BLANK	603	Jul 01/2	008	1010		Jul 01/2008
32-21-07 TESTIN	G AND FAULT	604	Jul 01/2		1011		Jul 01/2008
ISOLATION		32-21-07 RE	PAIR 4-1		1012		Jul 01/2008
101	Mar 01/2006	601	Jul 01/2	008	1013		Jul 01/2008
102	BLANK	602	Jul 01/2		1014		Jul 01/2008
32-21-07 DISASS	SEMBLY	603	Jul 01/2		1015		Jul 01/2008
301	Mar 01/2006	604	Jul 01/2		1016		BLANK
302	BLANK	605	Jul 01/2				
32-21-07 CLEAN	NG	606	BLANK				
401	Mar 01/2006	32-21-07 RE					
402	BLANK	601	Jul 01/2	008			
32-21-07 CHECK		602	Jul 01/2				
501	Mar 01/2006	603	Jul 01/2 Jul 01/2				
502	BLANK	003	Jul 01/2	000			

A = Added, R = Revised, D = Deleted, O = Overflow

32-21-07

EFFECTIVE PAGES Page 1 Jul 01/2009



#### **TABLE OF CONTENTS**

Paragraph Title		<u>Page</u>
TESTING AND FAULT ISOLATION	(Not Applicable)	
DISASSEMBLY	(Not Applicable)	
CLEANING	(Not Applicable)	
CHECK	(Not Applicable)	
REPAIR		601
ASSEMBLY	(Not Applicable)	
FITS AND CLEARANCES	(Not Applicable)	
SPECIAL TOOLS, FIXTURES, AND EQUIPMENT	(Not Applicable)	
ILLUSTRATED PARTS LIST		1001



#### TEMPORARY REVISION AND SERVICE BULLETIN RECORD

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL
		PRR 3800A-3	JUL 01/08



All revisions to this manual will be accompanied by transmittal sheet bearing the revision number. Enter the revision number in numerical order, together with the revision date, the date filed and the initials of the person filing.

Rev	rision	Fi	led	Rev	/ision	Fi	led
Number	Date	Date	Initials	Number	Date	Date	Initials

32-21-07

REVISION RECORD Page 1 Mar 01/2006



Rev	vision	Fi	led	Rev	ision	Fi	led
Number	Date	Date	Initials	Number	Date	Date	Initials

32-21-07

REVISION RECORD Page 2 Mar 01/2006



All temporary revisions to this manual will be accompanied by a cover sheet bearing the temporary revision number. Enter the temporary revision number in numerical order, together with the temporary revision date, the date the temporary revision is inserted and the initials of the person filing.

When the temporary revision is incorporated or cancelled, and the pages are removed, enter the date the pages are removed and the initials of the person who removed the temporary revision.

Temporary	Revision	Ins	serted	Rei	moved	Tempora	ry Revision	Inser	ted	Rer	noved
Number	Date	Date	Initials	Date	Initials	Date	Initials	Number	Date	Date	Initials

32-21-07

RECORD OF TEMPORARY REVISION



Temporary	Revision	Ins	serted	Rer	moved	Temp	ora	orary Revision	orary Revision Inser	orary Revision Inserted	porary Revision Inserted Rer
Number	Date	Date	Initials	Date	Initials	Date		Initials			
										1	
								l			
								ŀ			
								-			
								-			

32-21-07

RECORD OF TEMPORARY REVISION



#### INTRODUCTION

#### 1. General

- A. The instructions in this manual supply the data necessary to do the maintenance functions together with the test, fault isolation, repair, and replacement of the defective parts.
- B. This manual is divided into different parts:
  - (1) Title Page
  - (2) Transmittal Letter
  - (3) Highlights
  - (4) List of Effective Pages
  - (5) Table of Contents
  - (6) Temporary Revision & Service Bulletin Record
  - (7) Record of Revisions
  - (8) Record of Temporary Revisions
  - (9) Introduction
  - (10) Procedures & IPL Sections
- C. Components that can be repaired have a different repair number for each specified repair. To find the repair number location of a component, look in the Repair-General procedure at the beginning of the REPAIR section. The Repair-General procedure also has an explanation of the True Position Dimension symbols used.
- D. All dimensions, measures, quantities and weights included are in English units. When metric equivalents are given they will be in the parentheses that follow the English units.
- E. The introduction to the Illustrated Parts List (IPL) shows how the IPL data is used.
- F. Design changes, optional parts, configuration differences and Service Bulletin modifications may cause different part numbers. These part numbers are identified in the IPL with an alphabetical letter which is added to the end of the basic item number. This new item number is referred to as an alphavariant. Throughout the manual, IPL basic item number references also apply to alpha-variants unless shown differently.
- G. The tool reference numbers found in the individual procedures and in the Special Tools, Fixtures, and Equipment section are used to identify if a tool is a standard tool (STD-XXXX), a commercial tool (COM-XXXX), or a Special Tool (SPL-XXXX). This reference number is also used to distinguish between tools with similar names in the same procedure. These reference numbers are for use in the documentation only. They are not to be used for ordering tools.



#### **TESTING AND FAULT ISOLATION**

(NOT APPLICABLE)

32-21-07

TESTING AND FAULT ISOLATION
Page 101
Mar 01/2006



#### **DISASSEMBLY**

# (NOT APPLICABLE)



#### **CLEANING**

# (NOT APPLICABLE)

32-21-07 CLEANING

Page 401 Mar 01/2006



**CHECK** 

(NOT APPLICABLE)

32-21-07

CHECK Page 501 Mar 01/2006



#### **REPAIR**

#### 1. General

A. Instructions for repair, refinish, and replacement of the specified subassembly parts are included in each REPAIR when applicable:

#### Table 601:

PART NUMBER	NAME	REPAIR	
162A0301	LEFT TRUNNION PIN ASSY	1-1	
162A0302	RIGHT TRUNNION PIN ASSY	2-1	
162A2301	TRUNNION PIN ASSY, DRAG STRUT	3-1	
162A2302	DRAG STRUT ASSY PIN	4-1	
162A2118	LOCK LINK SHAFT	5-1	
	REFINISH OF OTHER PARTS	6-1	

#### 2. General

A. Standard True Position Dimensioning Symbols used in the applicable repair procedures are shown in REPAIR-GENERAL, Figure 601.



☐ FLATNESS ☐ PERPENDICULARITY (OR SQUARENESS)  ## PARALLELISM  ## RADIUS  ##	— STRAIGHTNESS	Ø	DIAMETER
## PARALLELISM SR SPHERICAL RADIUS  O ROUNDNESS () REFERENCE  Ø CYLINDRICITY BASIC A THEORETICALLY EXACT DIMENSION USED  PROFILE OF A LINE (BSC) TO DESCRIBE SIZE, SHAPE OR LOCATION OF  PROFILE OF A SURFACE OR A FEATURE. FROM THIS FEATURE PERMIS—  OCONCENTRICITY SIBLE VARIATIONS ARE ESTABLISHED BY TOLERANCES ON OTHER DIMENSIONS OR NOTES.  ANGULARITY —A— DATUM  ## MAXIMUM MATERIAL CONDITION (MMC)  ## TOTAL RUNOUT  COUNTERBORE OR SPOTFACE SIZE (RFS)  COUNTERSINK  PROJECTED TOLERANCE ZONE  ## THEORETICAL EXACT POSITION  FIM FULL INDICATOR MOVEMENT	☐ FLATNESS	s Ø	SPHERICAL DIAMETER
O ROUNDNESS O CYLINDRICITY BASIC A THEORETICALLY EXACT DIMENSION USED O PROFILE OF A LINE O PROFILE OF A SURFACE O CONCENTRICITY SYMMETRY ANGULARITY  ✓ ANGULARITY ✓ TOTAL RUNOUT U COUNTERBORE OR SPOTFACE O COUNTERSINK THEORETICAL EXACT POSITION  (BSC) TO DESCRIBE SIZE, SHAPE OR LOCATION OF A FEATURE. FROM THIS FEATURE PERMIS- SIBLE VARIATIONS ARE ESTABLISHED BY TOLERANCES ON OTHER DIMENSIONS OR NOTES.  MAXIMUM MATERIAL CONDITION (MMC)  LEAST MATERIAL CONDITION (LMC)  REGARDLESS OF FEATURE SIZE (RFS) PROJECTED TOLERANCE ZONE FIM FULL INDICATOR MOVEMENT		R	RADIUS
CYLINDRICITY  PROFILE OF A LINE  PROFILE OF A SURFACE  CONCENTRICITY  SYMMETRY  ANGULARITY  RUNOUT  TOTAL RUNOUT  COUNTERBORE OR SPOTFACE  COUNTERSINK  THEORETICALLY EXACT DIMENSION USED  (BSC)  TO DESCRIBE SIZE, SHAPE OR LOCATION OF  A FEATURE. FROM THIS FEATURE PERMIS—  SIBLE VARIATIONS ARE ESTABLISHED BY  TOLERANCES ON OTHER DIMENSIONS OR  NOTES.  DATUM  MAXIMUM MATERIAL CONDITION (MMC)  LEAST MATERIAL CONDITION (LMC)  REGARDLESS OF FEATURE SIZE (RFS)  PROJECTED TOLERANCE ZONE  FIM FULL INDICATOR MOVEMENT	// PARALLELISM	SR	SPHERICAL RADIUS
O PROFILE OF A LINE  ○ PROFILE OF A SURFACE  ○ CONCENTRICITY  □ SYMMETRY  △ ANGULARITY  → RUNOUT  ─ TOTAL RUNOUT  □ COUNTERBORE OR SPOTFACE  ○ COUNTERSINK  ○ TO DESCRIBE SIZE, SHAPE OR LOCATION OF  OR A FEATURE. FROM THIS FEATURE PERMIS—  SIBLE VARIATIONS ARE ESTABLISHED BY  TOLERANCES ON OTHER DIMENSIONS OR  NOTES.  ─ A PATUM  MAXIMUM MATERIAL CONDITION (MMC)  LEAST MATERIAL CONDITION (LMC)  □ REGARDLESS OF FEATURE SIZE (RFS)  PROJECTED TOLERANCE ZONE  FIM FULL INDICATOR MOVEMENT	○ ROUNDNESS	()	REFERENCE
OR A FEATURE. FROM THIS FEATURE PERMIS—  © CONCENTRICITY  ≡ SYMMETRY  ANGULARITY  RUNOUT  TOTAL RUNOUT  COUNTERBORE OR SPOTFACE  V COUNTERSINK  THEORETICAL EXACT POSITION  OR A FEATURE. FROM THIS FEATURE PERMIS—  SIBLE VARIATIONS ARE ESTABLISHED BY TOLERANCES ON OTHER DIMENSIONS OR NOTES.  A FEATURE PERMIS—  SIBLE VARIATIONS ARE ESTABLISHED BY TOLERANCES ON OTHER DIMENSIONS OR NOTES.  MAXIMUM MATERIAL CONDITION (MMC)  LEAST MATERIAL CONDITION (LMC)  REGARDLESS OF FEATURE SIZE (RFS)  PROJECTED TOLERANCE ZONE  FIM FULL INDICATOR MOVEMENT	CYLINDRICITY	BASIC	A THEORETICALLY EXACT DIMENSION USED
© CONCENTRICITY  SIBLE VARIATIONS ARE ESTABLISHED BY TOLERANCES ON OTHER DIMENSIONS OR NOTES.  ✓ ANGULARITY  RUNOUT  TOTAL RUNOUT  COUNTERBORE OR SPOTFACE  V COUNTERSINK  THEORETICAL EXACT POSITION  SIBLE VARIATIONS ARE ESTABLISHED BY TOLERANCES ON OTHER DIMENSIONS OR NOTES.  MAXIMUM MATERIAL CONDITION (MMC)  LEAST MATERIAL CONDITION (LMC)  REGARDLESS OF FEATURE SIZE (RFS)  PROJECTED TOLERANCE ZONE  FIM FULL INDICATOR MOVEMENT	PROFILE OF A LINE		
© CONCENTRICITY  ≡ SYMMETRY  ANGULARITY  RUNOUT  TOTAL RUNOUT  COUNTERBORE OR SPOTFACE  V COUNTERSINK  THEORETICAL EXACT POSITION  TOLERANCES ON OTHER DIMENSIONS OR NOTES.  DATUM  MAXIMUM MATERIAL CONDITION (MMC)  LEAST MATERIAL CONDITION (LMC)  REGARDLESS OF FEATURE SIZE (RFS)  PROJECTED TOLERANCE ZONE  FIM FULL INDICATOR MOVEMENT	☐ PROFILE OF A SURFACE		
■ SYMMETRY  ANGULARITY  RUNOUT  TOTAL RUNOUT  COUNTERBORE OR SPOTFACE  V COUNTERSINK  THEORETICAL EXACT POSITION  NOTES.  M MAXIMUM MATERIAL CONDITION (MMC)  LEAST MATERIAL CONDITION (LMC)  REGARDLESS OF FEATURE SIZE (RFS)  PROJECTED TOLERANCE ZONE  FIM FULL INDICATOR MOVEMENT	○ CONCENTRICITY	DIM	
RUNOUT  TOTAL RUNOUT  COUNTERBORE OR SPOTFACE  COUNTERSINK  THEORETICAL EXACT POSITION  MAXIMUM MATERIAL CONDITION (MMC)  LEAST MATERIAL CONDITION (LMC)  REGARDLESS OF FEATURE SIZE (RFS)  PROJECTED TOLERANCE ZONE  FIM FULL INDICATOR MOVEMENT			
TOTAL RUNOUT  COUNTERBORE OR SPOTFACE  COUNTERSINK  THEORETICAL EXACT POSITION  MAXIMUM MATERIAL CONDITION (MMC)  LEAST MATERIAL CONDITION (LMC)  REGARDLESS OF FEATURE SIZE (RFS)  PROJECTED TOLERANCE ZONE  FIM FULL INDICATOR MOVEMENT	∠ ANGULARITY	_A_	DATUM
TOTAL RUNOUT  COUNTERBORE OR SPOTFACE  COUNTERSINK  THEORETICAL EXACT POSITION  LEAST MATERIAL CONDITION (LMC)  REGARDLESS OF FEATURE SIZE (RFS)  PROJECTED TOLERANCE ZONE  FIM FULL INDICATOR MOVEMENT	✓ RUNOUT		MAXIMUM MATERIAL CONDITION (MMC)
□ COUNTERBORE OR SPOTFACE	Total runout	$\simeq$	
THEORETICAL EXACT POSITION  FIM FULL INDICATOR MOVEMENT	√ COUNTERSINK	$\simeq$	
TIM TOLL INDICATOR MOVEMENT	THEORETICAL EXACT POSITION	_	
OF A FEATURE (TRUE POSITION)	OF A FEATURE (TRUE POSITION)	1 111	TOLL INDICATOR HOVEHEN

#### **EXAMPLES**

	LX	MIII LLU	
<u> </u>	STRAIGHT WITHIN 0.002	⊚ Ø 0.0005 C	CONCENTRIC TO DATUM C
	PERPENDICULAR TO DATUM B WITHIN 0.002	= 0.010 A	SYMMETRICAL WITH DATUM A
1"	PARALLEL TO DATUM A WITHIN 0.002	∠ 0.005 A	WITHIN 0.010 ANGULAR TOLERANCE 0.005
0.002	ROUND WITHIN 0.002		WITH DATUM A
[ <u>O</u> ] [	CYLINDRICAL SURFACE MUST LIE BETWEEN TWO CONCENTRIC CYLINDERS, ONE OF WHICH HAS A RADIUS 0.010 INCH GREATER THAN THE OTHER	⊕Ø0.002 ③ B	LOCATED AT TRUE POSITION WITHIN 0.002 DIA RELATIVE TO DATUM B, REGARDLESS OF FEATURE SIZE
O.006 A	EACH LINE ELEMENT OF THE SURFACE AT ANY CROSS SECTION MUST LIE BETWEEN TWO PROFILE BOUNDARIES D.006 INCH APART RELATIVE	⊥ Ø 0.010 M A 0.510 P	AXIS IS TOTALLY WITHIN A CYLINDER OF 0.010 INCH DIAMETER, PERPENDICULAR TO DATUM A, AND EXTENDING 0.510 INCH ABOVE DATUM A, MAXIMUM MATERIAL CONDITION
	SURFACES MUST LIE WITHIN PARALLEL BOUNDARIES 0.020 INCH APART AND EQUALLY DISPOSED ABOUT TRUE PROFILE	2.000 OR 2.000 BSC	THEORETICALLY EXACT DIMENSION IS 2.000

True Position Dimensioning Symbols Figure 601

**32-21-07** REPAIR - GENERAL

REPAIR - GENERAL Page 602 Mar 01/2006



#### **LEFT TRUNNION PIN ASSEMBLY - REPAIR 1-1**

#### 162A0301-1, -3

#### 1. General

- A. This repair tells how to replace the bushings (5A) of the left trunnion pin assembly.
- B. Refer to the Standard Overhaul Practices Manual (SOPM) for standard practices shown in the repair.
- C. Refer to the REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair figures.
- D. Refer to IPL Figure 2 for item numbers.

#### 2. Bushing Replacement

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
A00028	Adhesive - Modified Epoxy For Rigid PVC, Foam Cored Sandwiches	BAC5010, Type 70 (BMS5-92, Type 1)

#### B. References

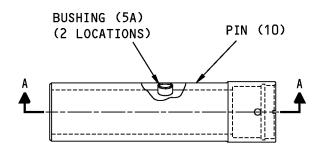
Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-30-03	GENERAL CLEANING PROCEDURES
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-50-12	APPLICATION OF ADHESIVES
SOPM 20-60-04	MISCELLANEOUS MATERIALS

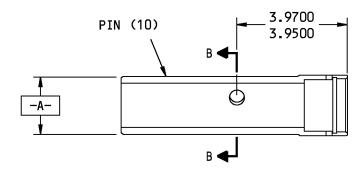
#### C. Procedure (REPAIR 1-1, Figure 601)

**NOTE**: For stripping of protective finishes, refer to SOPM 20-30-02. For general cleaning procedures, refer to SOPM 20-30-03. For miscellaneous materials, refer to SOPM 20-60-04.

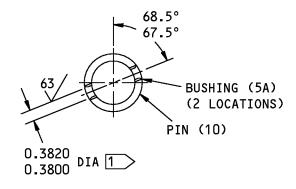
- (1) Remove the old bushings (5A) from the pin (10).
- (2) If you find defects on pin surfaces, refer to REPAIR 2-1 for repair instructions.
- (3) Install replacement bushings (5A) by the shrink fit method (SOPM 20-50-03) with adhesive, A00028 as the installation finish as specified in SOPM 20-50-12. Install the bushings below the outer diameter surface of the pin at each location.
- (4) Machine the bushings to design dimensions and finish.







A-A
(BUSHING OMITTED FOR CLARITY)



B-B

1 INSTALLED DIMENSION. ADJUST TO THIS SIZE IF NECESSARY

ITEM NUMBERS REFER TO IPL FIG. 2 ALL DIMENSIONS ARE IN INCHES

F45012 S0004997747\_V3

162A0301-1, -3 Left Trunnion Pin Assembly Repair Figure 601

32-21-07

REPAIR 1-1 Page 602 Jul 01/2008



#### **LEFT TRUNNION PIN - REPAIR 1-2**

#### 162A0301-2, -4

#### 1. General

- A. This repair tells how to repair and refinish the left trunnion pin (10).
- B. Refer to the Standard Overhaul Practices Manual (SOPM) for the standard practices shown in the repair.
- C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair figures.
- D. Refer to IPL Figure 2 for item numbers.
- E. General repair details:
  - (1) Material: 4340M steel, 275-300 ksi
  - (2) Shot peen: Hard shot Rc 55-65
    - (a) Shot Size 0.016-0.033
    - (b) Intensity 0.014-0.018A2
    - (c) Coverage 2.0

#### 2. Check

B.

#### A. References

Reference	Title
SOPM 20-20-01	MAGNETIC PARTICLE INSPECTION

#### B. Procedure

- (1) Examine the pin for defects by standard industry practices.
- (2) Magnetic particle examine the pin (SOPM 20-20-01).

#### 3. Repair and Refinish

#### A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00175	Primer - Urethane Compatible, Corrosion Resistant (Less Than 1% Aromatic Amines)	BMS10-79, Type III
C50001	Compound - Corrosion Preventive, Petroleum Hot Application (Hard Film)	MIL-C-11796, Class I
References		
Reference	Title	
32-00-05	Repair of High Strength Steel Landing Gear Parts	
SOPM 20-10-01	REPAIR AND REFINISH OF HIGH STRENGTH STEEL	L PARTS
SOPM 20-10-03	SHOT PEENING	
SOPM 20-10-04	GRINDING OF CHROME PLATED PARTS	

32-21-07



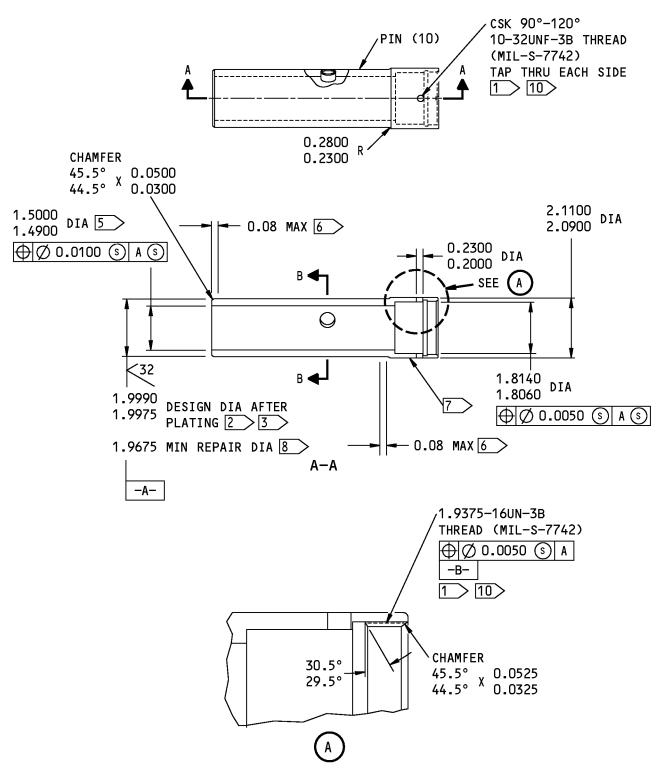
Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-30-03	GENERAL CLEANING PROCEDURES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-41-03	APPLICATION OF CORROSION PREVENTIVES TO INTERIOR OF CLOSED END TUBES
SOPM 20-60-02	FINISHING MATERIALS
SOPM 20-60-04	MISCELLANEOUS MATERIALS

C. Procedure (REPAIR 1-2, Figure 601 and REPAIR 1-2, Figure 602)

NOTE: For repair and refinish of high strength steel parts, refer to SOPM 20-10-01. For stripping of protective finishes, refer to SOPM 20-30-02. For general cleaning procedures, refer to SOPM 20-30-03. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02. For miscellaneous materials, refer to SOPM 20-60-04.

- (1) Shank Outer Diameter
  - (a) Machine as necessary, within repair limits, to remove defects as specified in 32-00-05.
  - (b) Shot peen as indicated (SOPM 20-10-03).
  - (c) Build up with chrome plate and grind (SOPM 20-10-04) to design dimensions and finish.
  - (d) Refinish other surfaces as indicated.
- (2) Crossbolt Hole
  - (a) Machine as necessary, within repair limits, to remove defects.
  - (b) Refinish as necessary.
  - (c) Make an oversize bushing to adjust for the material removed (REPAIR 1-2, Figure 602).
  - (d) Install the bushing (REPAIR 1-1).
- (3) Refinish
  - (a) Plate and apply primer, C00175 (F-19.451) and compound, C50001 (F-19.03) (SOPM 20-41-03) as indicated.
  - (b) On other surfaces, cadmium-titanium plate (F-15.32) and apply primer, C00175 (F-19.66).





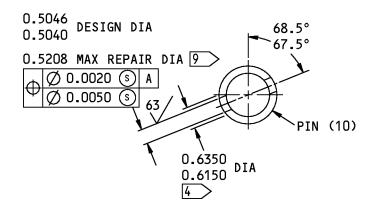
F45025 S0004997749\_V3

162A0301-2, -4 Left Trunnion Pin Repair Figure 601 (Sheet 1 of 2)

### 32-21-07

REPAIR 1-2 Page 603 Jul 01/2008





B-B

- 1 > DO NOT SHOT PEEN
- 2 CHROME PLATE (F-15.34), 0.003-0.005 THICK
- 3 WIPE WITH BMS 10-79, TYPE 3 PRIMER (F-19.451)
- 4 > DO NOT CHROME PLATE
- 5 APPLY MIL-C-11796, CLASS 1 CORROSION PREVENTIVE COMPOUND (F-19.03)
- 6 > CHROME PLATE RUNOUT AREA
- 7 PART NUMBER AND SERIAL NUMBER
- 8 > LIMIT FOR CHROME PLATE BUILDUP
- 9 LIMIT FOR THE INSTALLATION OF REPAIR BUSHING
- 10 CADMIUM-TITANIUM PLATE (F-15.32) AND WIPE WITH BMS 10-79, TYPE 3 PRIMER (F-19.451)

BREAK SHARP EDGES 0.02-0.03 R ITEM NUMBERS REFER TO IPL FIG. 2 ALL DIMENSIONS ARE IN INCHES

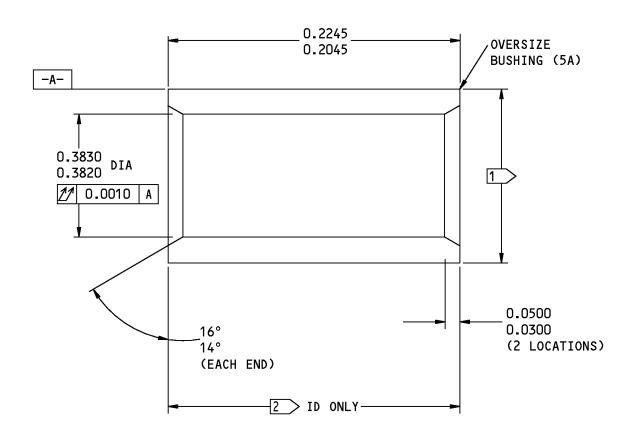
F45026 S0004997750\_V4

162A0301-2, -4 Left Trunnion Pin Repair Figure 601 (Sheet 2 of 2)

32-21-07

REPAIR 1-2 Page 604 Jul 01/2008





THE OUTSIDE DIAMETER OF THE BUSHING IS EQUAL TO THE INSIDE DIAMETER OF THE HOLE PLUS THE INTERFERENCE OF 0.0004-0.0015

2 > NO FINISH

63/ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.01-0.02 R

MATERIAL: AL-NI-BRONZE (AMS 4640)

FINISH: CADMIUM PLATE (F-15.36)

ITEM NUMBERS REFER TO IPL FIG. 2

ALL DIMENSIONS ARE IN INCHES

1504563 S0000272908\_V1

Oversize Bushing Details Figure 602

32-21-07

REPAIR 1-2 Page 605 Mar 01/2008



#### **RIGHT TRUNNION PIN ASSEMBLY - REPAIR 2-1**

#### 162A0302-1, -3

#### 1. General

- A. This repair tells how to replace the bushings (5) of the right trunnion pin assembly.
- B. Refer to the Standard Overhaul Practices Manual (SOPM) for standard practices shown in the repair.
- C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.
- D. Refer to IPL Figure 3 for item numbers.

#### 2. Bushing Replacement

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
A00028	Adhesive - Modified Epoxy For Rigid PVC, Foam Cored Sandwiches	BAC5010, Type 70 (BMS5-92, Type 1)

#### B. References

Reference	Title
SOPM 20-10-01	REPAIR AND REFINISH OF HIGH STRENGTH STEEL PARTS
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-30-03	GENERAL CLEANING PROCEDURES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-50-12	APPLICATION OF ADHESIVES
SOPM 20-60-02	FINISHING MATERIALS

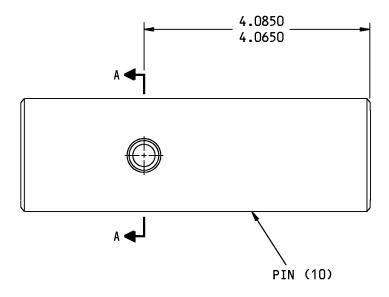
#### C. Procedure (REPAIR 2-1, Figure 601)

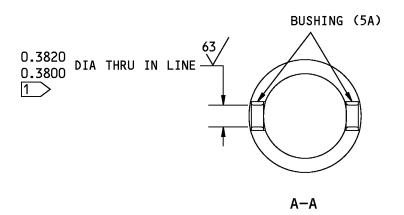
**NOTE**: For repair and refinish of high strength steel parts, refer to SOPM 20-10-01. For stripping of protective finishes, refer to SOPM 20-30-02. For general cleaning procedures, refer to SOPM 20-30-03. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

- (1) Remove the old bushings (5) from the pin (10).
- (2) If you find defects on pin surfaces, refer to REPAIR 2-2 for repair instructions.
- (3) Install the replacement bushings (5) by the shrink fit method (SOPM 20-50-03), with adhesive, A00028 (SOPM 20-50-12) as the installation finish. Install the bushings below the outer diameter surface of the pin at each location.
- (4) Machine the bushings to design dimensions and finish.

32-21-07







1 INSTALLED DIMENSION. ADJUST TO THIS SIZE IF NECESSARY

ITEM NUMBERS REFER TO IPL FIG. 3
ALL DIMENSIONS ARE IN INCHES

F47606 S0004997752\_V2

162A0302-1, -3 Trunnion Pin Assembly Repair Figure 601

32-21-07

REPAIR 2-1 Page 602 Jul 01/2008



#### **RIGHT TRUNNION PIN - REPAIR 2-2**

#### 162A0302-2, -4

#### 1. General

- A. This repair tells how to repair and refinish the right trunnion pin (10).
- B. Refer to the Standard Overhaul Practices Manual (SOPM) for the standard practices shown in the repair.
- C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair figures.
- D. Refer to the IPL Figure 3 for item numbers.
- E. General repair details:
  - (1) Material: 4340M steel, 275-300 ksi
  - (2) Shot peen: Hard shot Rc 55-65
    - (a) Shot Size 0.016-0.033
    - (b) Intensity 0.014-0.018A2
    - (c) Coverage 2.0

#### 2. Check

B.

#### A. References

Reference	Title
SOPM 20-20-01	MAGNETIC PARTICLE INSPECTION

#### B. Procedure

- (1) Examine the pin for defects by standard industry practices.
- (2) Magnetic particle examine the pin (SOPM 20-20-01).

#### 3. Repair and Refinish

#### A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00175	Primer - Urethane Compatible, Corrosion Resistant (Less Than 1% Aromatic Amines)	BMS10-79, Type III
C50001	Compound - Corrosion Preventive, Petroleum Hot Application (Hard Film)	MIL-C-11796, Class I
References		
Reference	Title	
32-00-05	Repair of High Strength Steel Landing Gear Parts	
SOPM 20-10-01	REPAIR AND REFINISH OF HIGH STRENGTH STEEL	L PARTS
SOPM 20-10-03	SHOT PEENING	
SOPM 20-10-04	GRINDING OF CHROME PLATED PARTS	

32-21-07



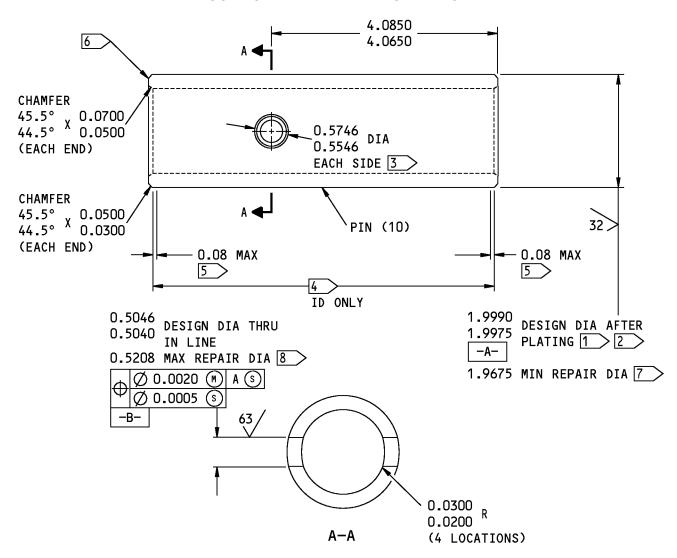
Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-30-03	GENERAL CLEANING PROCEDURES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-41-03	APPLICATION OF CORROSION PREVENTIVES TO INTERIOR OF CLOSED END TUBES
SOPM 20-60-02	FINISHING MATERIALS
SOPM 20-60-04	MISCELLANEOUS MATERIALS

C. Procedure (REPAIR 2-2, Figure 601 and REPAIR 2-2, Figure 602)

NOTE: For repair and refinish of high strength steel parts, refer to SOPM 20-10-01. For stripping of protective finishes, refer to SOPM 20-30-02. For general cleaning procedures, refer to SOPM 20-30-03. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02. For miscellaneous materials, refer to SOPM 20-60-04.

- (1) Shank Outer Diameter
  - (a) Machine as necessary, within repair limits, to remove defects as specified in 32-00-05.
  - (b) Build up with chrome plate and grind (SOPM 20-10-04) to design dimensions and finish.
  - (c) Shot peen as indicated (SOPM 20-10-03).
  - (d) Refinish other surfaces as indicated.
- (2) Crossbolt Hole
  - (a) Machine as necessary, within repair limits, to remove defects.
  - (b) Refinish as necessary.
  - (c) Make an oversize bushing to adjust for the material removed (REPAIR 2-2, Figure 602).
  - (d) Install the bushing (REPAIR 2-1).
- (3) Refinish
  - (a) Plate and apply primer, C00175 (F-19.451) and compound, C50001 (F-19.03) (SOPM 20-41-03) as indicated.
  - (b) On other surfaces, cadmium-titanium plate (F-15.32) and apply primer, C00175 (F-19.66).





- 1 CHROME PLATE (F-15.34), 0.003-0.005 THICK
- 2 WIPE WITH BMS 10-79, TYPE 3 PRIMER (F-19.451)
- 3 > DO NOT CHROME PLATE
- 4 APPLY MIL-C-11796, CLASS 1 CORROSION PREVENTIVE COMPOUND (F-19.03)
- 5 CHROME PLATE RUNOUT AREA

- 6 > PART NUMBER AND SERIAL NUMBER
- 7 LIMIT FOR CHROME PLATE BUILDUP AND GRIND TO DESIGN DIMENSIONS AND FINISH
- 8 LIMIT FOR THE INSTALLATION OF REPAIR BUSHING

BREAK SHARP EDGES 0.02-0.03 R

ITEM NUMBERS REFER TO IPL FIG. 2

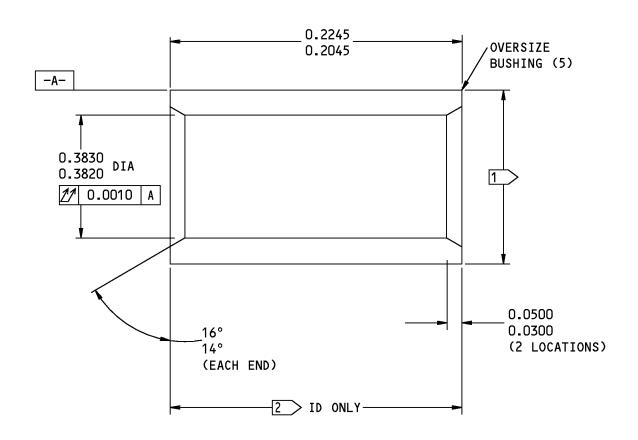
ALL DIMENSIONS ARE IN INCHES
F47722 S0004997754\_V3

162A0302-2, -4 Nose Landing Gear Right Trunnion Pin Repair Figure 601

32-21-07

REPAIR 2-2 Page 603 Jul 01/2008





THE OUTSIDE DIAMETER OF THE BUSHING IS EQUAL TO THE INSIDE DIAMETER OF THE HOLE PLUS THE INTERFERENCE OF 0.0004-0.0015

2 > NO FINISH

63/ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.01-0.02 R

MATERIAL: AL-NI-BRONZE (AMS 4640)

FINISH: CADMIUM PLATE (F-15.36)

ITEM NUMBERS REFER TO IPL FIG. 3

ALL DIMENSIONS ARE IN INCHES

1504572 S0000272915\_V1

Oversize Bushing Details Figure 602

32-21-07

REPAIR 2-2 Page 604 Mar 01/2008



#### **DRAG STRUT TRUNNION PIN ASSEMBLY - REPAIR 3-1**

#### 162A2301-1, -3

#### 1. General

- A. This repair tells how to replace the bushing (5) of the drag strut trunnion pin assembly.
- B. Refer to the Standard Overhaul Practices Manual (SOPM) for standard practices shown in the repair.
- C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.
- D. Refer to IPL Figure 4 for item numbers.

#### 2. Bushing Replacement

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
Defenses		

#### B. References

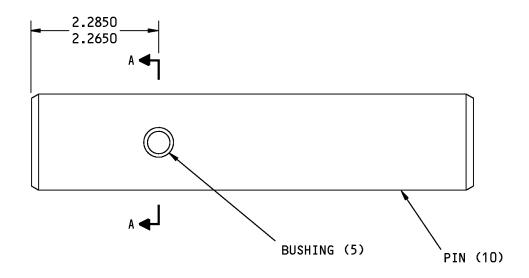
Reference	Title
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-60-04	MISCELLANEOUS MATERIALS

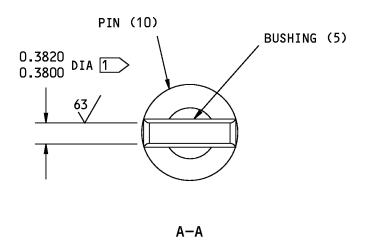
#### C. Procedure (REPAIR 3-1, Figure 601)

NOTE: For miscellaneous materials, refer to SOPM 20-60-04.

- (1) Remove the old bushing (5) from the pin (10).
- (2) If you find defects on pin surfaces, refer to REPAIR 3-2 for repair instructions.
- (3) Install a replacement bushing (5) by the shrink fit method (SOPM 20-50-03), with sealant, A00247 as the installation finish. Install the bushing below the outer diameter surface of the pin at each end of the bushing.
- (4) Machine the bushing to design dimensions and finish.







1 INSTALLED DIMENSION. ADJUST TO THIS SIZE IF NECESSARY

ITEM NUMBERS REFER TO IPL FIG. 4
ALL DIMENSIONS ARE IN INCHES

F44777 S0004997756\_V2

162A2301-1, -3 Drag Strut Trunnion Pin Assembly Repair Figure 601

32-21-07

REPAIR 3-1 Page 602 Jul 01/2008



#### **DRAG STRUT TRUNNION PIN - REPAIR 3-2**

#### 162A2301-2, -4

#### 1. General

- A. This repair tells how to refinish the drag strut trunnion pin (10).
- B. Refer to the Standard Overhaul Practices Manual (SOPM) for the standard practices shown in the repair.
- C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair figures.
- D. Refer to IPL Figure 4 for item numbers.
- E. General repair details:
  - (1) Material: 4340M Steel, 275-300 ksi
  - (2) Shot peen: Hard shot Rc 55-65
    - (a) Shot Size 0.016-0.033
    - (b) Intensity 0.014-0.018A2
    - (c) Coverage 2.0

#### 2. Check

#### A. References

Reference	Title
SOPM 20-20-01	MAGNETIC PARTICLE INSPECTION

#### B. Procedure

(1) Examine the pin for defects by standard industry practices.

Description

(2) Magnetic particle examine the pin (SOPM 20-20-01).

#### 3. Repair and Refinish

Reference

#### A. Consumable Materials

NOTE: Equivalent substitutes may be used.

	C00175	Primer - Urethane Compatible, Corrosion Resistant (Less Than 1% Aromatic Amines)	BMS10-79, Type III
	C50001	Compound - Corrosion Preventive, Petroleum Hot Application (Hard Film)	MIL-C-11796, Class I
B.	References		
	Reference	Title	
	32-00-05	Repair of High Strength Steel Landing Gear Parts	
	SOPM 20-10-01	REPAIR AND REFINISH OF HIGH STRENGTH STEEL PARTS	
	SOPM 20-10-03	SHOT PEENING	
	SOPM 20-10-04	GRINDING OF CHROME PLATED PARTS	

32-21-07

Specification



Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-30-03	GENERAL CLEANING PROCEDURES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-41-03	APPLICATION OF CORROSION PREVENTIVES TO INTERIOR OF CLOSED END TUBES
SOPM 20-60-02	FINISHING MATERIALS
SOPM 20-60-04	MISCELLANEOUS MATERIALS

#### C. Procedure (REPAIR 3-2, Figure 601

NOTE: For repair and refinish of high strength steel parts, refer to SOPM 20-10-01. For stripping of protective finishes, refer to SOPM 20-30-02. For general cleaning procedures, refer to SOPM 20-30-03. For decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02. For miscellaneous materials, refer to SOPM 20-60-04.

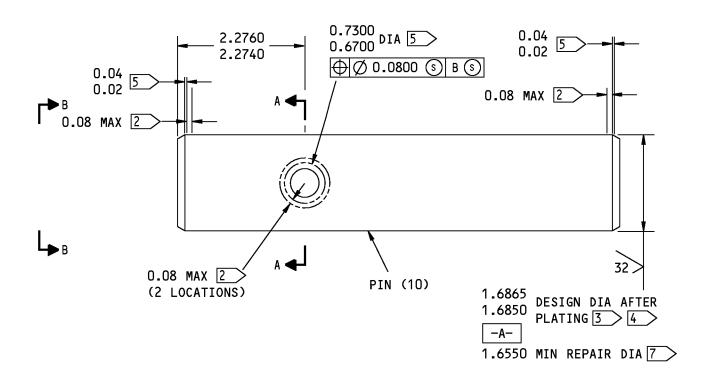
#### (1) Repair

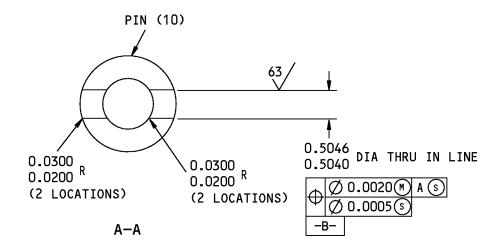
- (a) Machine as required, within repair limits, to remove defects per 32-00-05.
- (b) Shot peen as indicated (SOPM 20-10-03).
- (c) Build up with chrome plate and grind (SOPM 20-10-04) to design dimensions and finish.
- (d) Refinish other surfaces as indicated.

#### (2) Refinish

- (a) Plate and apply primer, C00175 (F-19.451), and compound, C50001 (F-19.03) (SOPM 20-41-03) as indicated.
- (b) On other surfaces, cadmium-titanium plate (F-15.32) and apply primer, C00175 (F-19.47).







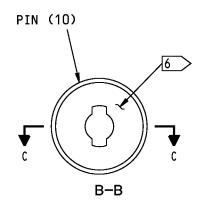
F44831 S0004997758\_V2

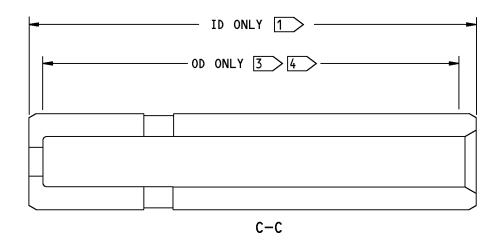
162A2301-2, -4 Drag Strut Trunnion Pin Repair Figure 601 (Sheet 1 of 2)

32-21-07

REPAIR 3-2 Page 603 Jul 01/2008







- 1 CADMIUM-TITANIUM PLATE (F-15.32)
  (0.0005-0.0007 INCH THICK) INSIDE
  SURFACE INCLUDING THE BORE OF
  CROSS BOLT HOLE. APPLY BMS 10-79,
  TYPE 3 PRIMER (F-19.66) AND
  MIL-C-11796, CLASS 1 CORROSION
  PREVENTIVE COMPOUND (F-19.05),
  BUT NOT IN THE CROSS BOLT HOLE
- 2 > CHROME PLATE RUNOUT AREA
- 3 WIPE WITH BMS 10-79, TYPE 3 PRIMER (F-19.451)
- 4 CHROME PLATE (F-15.34), 0.003-0.005 THICK
- 5 > DO NOT CHROME PLATE

- 6 > PART NUMBER AND SERIAL NUMBER
- 7 LIMIT FOR CHROME PLATE BUILDUP AND GRIND TO DESIGN DIMENSIONS AND FINISH
- 63 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

ITEM NUMBERS REFER TO IPL FIG. 4
ALL DIMENSIONS ARE IN INCHES

F44905 S0004997759\_V2

162A2301-2, -4 Drag Strut Trunnion Pin Repair Figure 601 (Sheet 2 of 2)

32-21-07

REPAIR 3-2 Page 604 Jul 01/2008



#### **DRAG STRUT ASSEMBLY PIN - REPAIR 4-1**

162A2302-1, -3

#### 1. General

- A. This repair tells how to refinish the drag strut assembly pin (15).
- B. Refer to the Standard Overhaul Practices Manual (SOPM) for the standard practices shown in the repair.
- C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair figures.
- D. Refer to IPL Figure 1 for item numbers.
- E. General repair details:
  - (1) Material: 4340M Steel, 275-300 ksi
  - (2) Shot peen: Hard shot Rc 55-65
    - (a) Shot Size 0.016-0.033
    - (b) Intensity 0.014-0.018A2
    - (c) Coverage 2.0

#### 2. Check

B.

A. References

Reference	Title
SOPM 20-20-01	MAGNETIC PARTICLE INSPECTION

- B. Procedure
  - (1) Examine the pin for defects by standard industry practices.
  - (2) Magnetic particle examine the pin (SOPM 20-20-01).

### 3. Repair and Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

	Reference	eference Description			
	C00033	Coating - Exterior Protective Enamel, Flexibility Use BMS10-60, Type II			
	C00175	Primer - Urethane Compatible, Corrosion Resistant BM (Less Than 1% Aromatic Amines)			
	C50001	Compound - Corrosion Preventive, Petroleum Hot Application (Hard Film)	MIL-C-11796, Class I		
	References				
Reference Title					
	32-00-05 Repair of High Strength Steel Landing Gear Parts				
	SOPM 20-10-01	-10-01 REPAIR AND REFINISH OF HIGH STRENGTH STEEL PARTS			

32-21-07



Reference	Title
SOPM 20-10-03	SHOT PEENING
SOPM 20-10-04	GRINDING OF CHROME PLATED PARTS
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-30-03	GENERAL CLEANING PROCEDURES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-41-03	APPLICATION OF CORROSION PREVENTIVES TO INTERIOR OF CLOSED END TUBES
SOPM 20-42-03	HARD CHROME PLATING
SOPM 20-60-02	FINISHING MATERIALS

### C. Procedure (REPAIR 4-1, Figure 601)

**NOTE**: For repair and refinish of high strength steel parts, refer to SOPM 20-10-01. For stripping of protective finishes, refer to SOPM 20-30-02. For general cleaning procedures, refer to SOPM 20-30-03. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

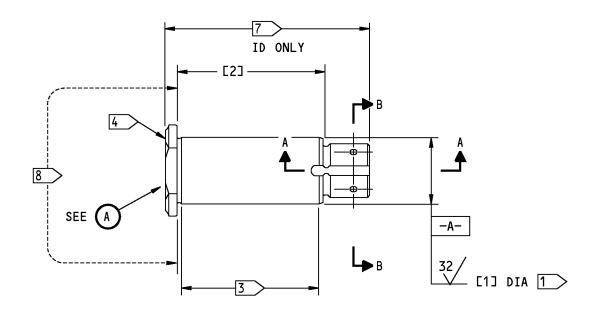
#### (1) Repair

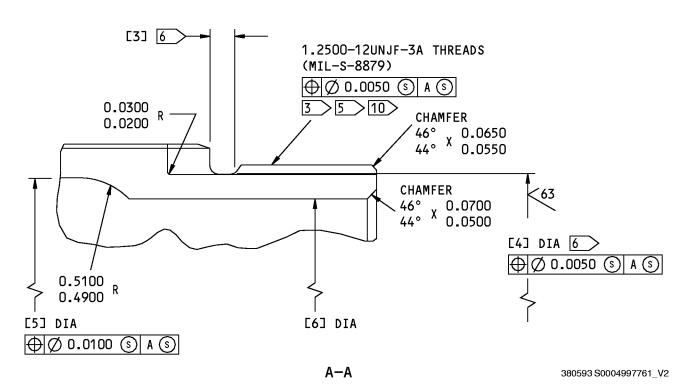
- (a) Machine as required, within repair limits, to remove defects as specified in 32-00-05.
- (b) Shot peen as indicated (SOPM 20-10-03).
- (c) Build up with chrome plate (SOPM 20-42-03) and grind (SOPM 20-10-04) to design dimensions and finish.
- (d) Refinish other surfaces as indicated.

#### (2) Refinish

- (a) Plate and apply primer, C00175 (F-19.66), enamel coating, C00033 (F-19.39-707), and compound, C50001 (F-19.03) (SOPM 20-41-03) as indicated.
- (b) On other surfaces, cadmium-titanium plate (F-15.01) and apply primer, C00175 (F-19.47) as indicated.





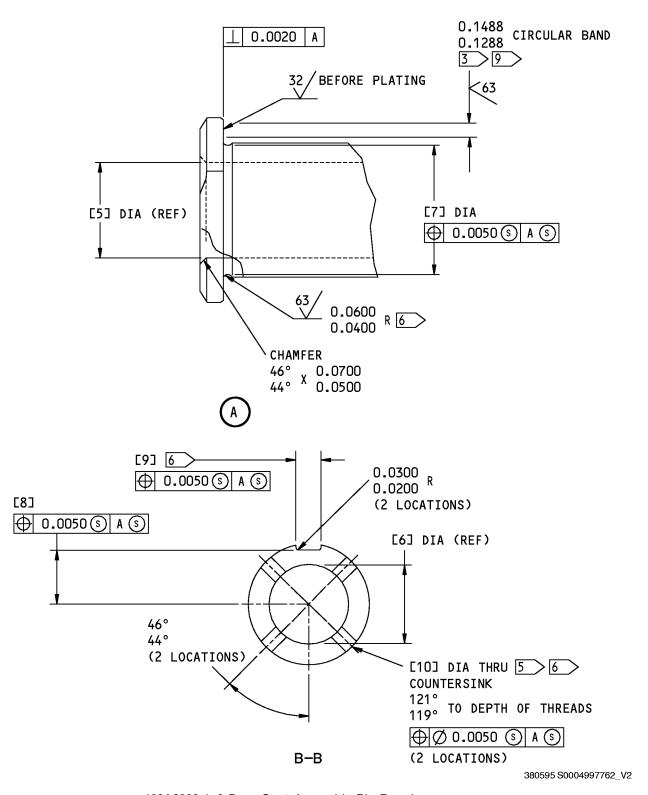


162A2302-1,-3 Drag Strut Assembly Pin Repair Figure 601 (Sheet 1 of 3)

## 32-21-07

REPAIR 4-1 Page 603 Jul 01/2008





162A2302-1,-3 Drag Strut Assembly Pin Repair Figure 601 (Sheet 2 of 3)

## 32-21-07

REPAIR 4-1 Page 604 Jul 01/2008



REFERENCE NUMBER	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
DESIGN DIMENSION	1.4990 1.4980 11	3.4075 3.3875			1.0900 1.0700			0.5700 0.5500
REPAIR LIMIT	1.4680 12>							

REFERENCE NUMBER	[9]	[10]
DESIGN DIMENSION	0.2550 0.2500	0.2120 0.2010
REPAIR LIMIT		

1	CHROME	PLATE	(F-15	5.34),	0.003
	THICKNE	ESS MI	NIMUM	<b>AFTER</b>	GRINDING

- 2 CHROME PLATE RUNOUT AREA
- 3 WIPE WITH BMS 10-79 PRIMER (F-19.451)
- 4 PART NUMBER AND SERIAL NUMBER LOCATION
- 5 > DO NOT SHOT PEEN THIS SURFACE
- 6 CADMIUM-TITANIUM PLATE (F-15.01) THEN APPLY BMS 10-79 PRIMER (F-19.47)
- 7 CADMIUM-TITANIUM PLATE (F-15.01) THEN APPLY PRIMER (F-19.66) AND CORROSION PREVENTIVE COMPOUND (F-19.03)
- 8 CADMIUM-TITANIUM PLATE (F-15.01), THEN APPLY BMS 10-79 PRIMER (F-19.47) AND BMS 10-60, TYPE 2 GLOSS ENAMEL (F-19.39-707)

- 9 CHROME PLATE (F-15.34), 0.0003-0.0005 THICK. DO NOT GRIND
- 10 > CADMIUM-TITANIUM PLATE (F-15.32)
- 11 > AFTER PLATING
- 12 LIMIT FOR CHROME PLATE BUILDUP (SOPM 20-42-03) AND GRIND TO DESIGN DIMENSIONS AND FINISH (SOPM 20-10-04)

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

DIMENSIONS APPLY BEFORE PLATING UNLESS NOTED

SURFACE FINISHES AND DIMENSIONS APPLY BEFORE SHOT PEENING UNLESS NOTED

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES 380597 S0004997763 V3

162A2302-1,-3 Drag Strut Assembly Pin Repair Figure 601 (Sheet 3 of 3)

32-21-07

REPAIR 4-1 Page 605 Jul 01/2008



## LOCK LINK SHAFT - REPAIR 5-1

#### 162A2118-1, -2

### 1. General

- A. This repair tells how to repair and refinish the lock link shaft (25A).
- B. Refer to the Standard Overhaul Practices Manual (SOPM) for the standard practices shown in the repair.
- C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair figures.
- D. Refer to IPL Figure 1 for item numbers.
- E. General repair details:
  - (1) Material: 4340M steel, 275-300 ksi
  - (2) Shot peen: All surfaces, but not in holes
    - (a) Hard Shot Rc 55-65
    - (b) Shot Size 0.016-0.033
    - (c) Intensity 0.014-0.018A2
    - (d) Coverage 2.0
    - (e) Overspray is permitted

### 2. Shaft Repair and Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00033	Coating - Exterior Protective Enamel, Flexibility Use	BMS10-60, Type II
C00175	Primer - Urethane Compatible, Corrosion Resistant (Less Than 1% Aromatic Amines)	BMS10-79, Type III

#### B. References

Reference	Title
32-00-05	Repair of High Strength Steel Landing Gear Parts
SOPM 20-10-01	REPAIR AND REFINISH OF HIGH STRENGTH STEEL PARTS
SOPM 20-10-03	SHOT PEENING
SOPM 20-10-04	GRINDING OF CHROME PLATED PARTS
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-30-03	GENERAL CLEANING PROCEDURES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-42-03	HARD CHROME PLATING
SOPM 20-60-02	FINISHING MATERIALS

32-21-07



C. Repair (REPAIR 5-1, Figure 601)

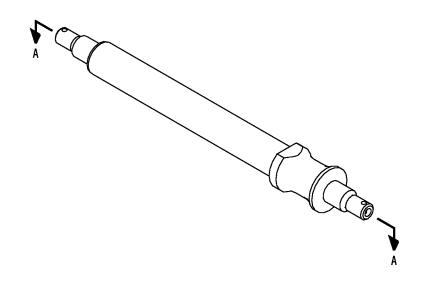
**NOTE**: For repair and refinish of high strength steel parts, refer to SOPM 20-10-01. For stripping of protective finishes, refer to SOPM 20-30-02. For general cleaning procedures, refer to SOPM 20-30-03. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

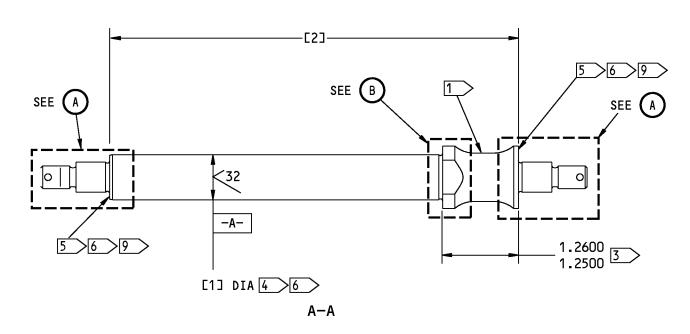
- (1) Machine as required, within repair limits, to remove defects per 32-00-05.
- (2) Shot peen as indicated (SOPM 20-10-03).
- (3) Build up with chrome plate (SOPM 20-42-03) and grind (SOPM 20-10-04) to the after-plating dimensions shown.
- (4) Refinish other surfaces as indicated.
- D. Refinish (REPAIR 5-1, Figure 601)

**NOTE**: For repair and refinish of high strength steel parts, refer to SOPM 20-10-01. For stripping of protective finishes, refer to SOPM 20-30-02. For general cleaning procedures, refer to SOPM 20-30-03. For decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

- (1) Plate and apply primer, C00175 and enamel coating, C00033 as shown.
- (2) On other surfaces, cadmium-titanium plate (F-15.01).







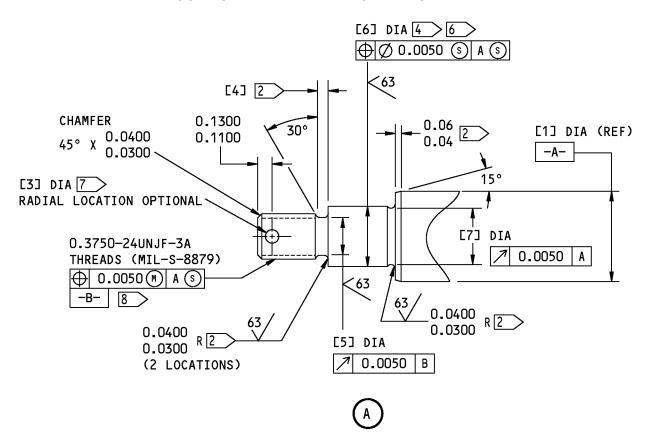
380741 S0004997765\_V2

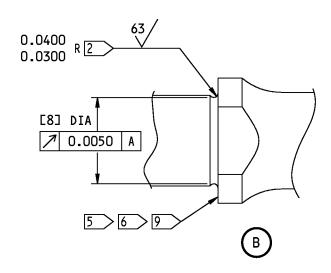
162A2118-1, -2 Lock Link Shaft Repair and Refinish Figure 601 (Sheet 1 of 3)

32-21-07

REPAIR 5-1 Page 603 Jul 01/2008







380758 S0004997766\_V2

162A2118-1, -2 Lock Link Shaft Repair and Refinish Figure 601 (Sheet 2 of 3)

32-21-07

REPAIR 5-1 Page 604 Jul 01/2008



REFERENCE NUMBER	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
DESIGN DIMENSION	0.7490 0.7475 10>	6.7770 6.7670	0.1160 0.1060	0.9100 0.8900	0.3140 0.3090	0.4995 0.4985	0.4705 0.4605	0.7195 0.7095
REPAIR LIMIT	0.7175 11>					0.4695 11>		

- 1 PART NUMBER AND SERIAL NUMBER
- 2 CADMIUM-TITANIUM PLATE (F-15.01).
  APPLY BMS 10-79 TYPE 3 PRIMER
  (F-19.47)
- CADMIUM-TITANIUM PLATE (F-15.01).

  APPLY BMS 10-79 TYPE 3 PRIMER

  (F-19.66) AND BMS 10-60. TYPE 2

  ENAMEL (F-19.39-707)
- CHROME PLATE (F-15.34), 0.003 MIN THICK AFTER GRINDING
- 5 CHROME PLATE (F-15.34), 0.0003-0.0005 THICK. DO NOT GRIND
- 6 WIPE WITH BMS 10-79, TYPE 3 PRIMER (F-19.451)
- 7 CADMIUM-TITANIUM PLATE THROW-IN PERMITTED
- 8 > DO NOT SHOT PEEN
- 9 > 32 MICROINCHES BEFORE PLATING
- 10 > AFTER PLATING
- 11 LIMIT FOR CHROME PLATE BUILDUP AND GRIND TO DESIGN DIMENSIONS AND FINISH

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES 0.02-0.03 R
DIMENSIONS APPLY BEFORE PLATING
UNLESS SHOWN DIFFERENTLY

ALL DIMENSIONS ARE IN INCHES

380792 S0004997767\_V2

162A2118-1, -2 Lock Link Shaft Repair and Refinish Figure 601 (Sheet 3 of 3)

32-21-07

REPAIR 5-1 Page 605 Jul 01/2008



#### **REFINISH OF OTHER PARTS - REPAIR 6-1**

#### 1. General

- A. This procedure tells how to refinish the parts which are not in the other repairs.
- B. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM subjects identified in this procedure.
- C. Refer to IPL Figure 1 for item numbers.

### 2. Refinish of Other Parts

A. Consumable Materials

**NOTE**: Equivalent substitutes may be used.

Reference	Description Specification
C00033	Coating - Exterior Protective Enamel, Flexibility Use BMS10-60, Type II
C00175	Primer - Urethane Compatible, Corrosion Resistant BMS10-79, (Less Than 1% Aromatic Amines) Type III
D00113	Lubricant - Liquid Dispersed Solid Film Lubricant BMS3-8, BAC 5811, TYPE VIII

#### B. References

Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-30-03	GENERAL CLEANING PROCEDURES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-60-02	FINISHING MATERIALS

#### C. Procedure

**NOTE**: For stripping of protective finishes, refer to SOPM 20-30-02. For general cleaning procedures, refer to SOPM 20-30-03. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

(1) Instructions for the repair of the parts in REPAIR 6-1, Table 601 are for replacement of the original finish.

Table 601: Refinish Details

IPL FIG. & ITEM	MATERIAL	FINISH
IPL Fig. 1		
Spacers (200)	15-5PH CRES, 180-200 ksi	Passivate (F-17.25).
Nut (210)	4330M Steel, 220-240 ksi	External surfaces: Cadmium-titanium plate (F-15.01). Apply primer, C00175 (F-19.47) and enamel coating, C00033 (F-19.39-707).
		Threads: Cadmium-titanium plate (F-15.32). Apply lubricant, D00113 (F-19.10).

32-21-07



Table 601: Refinish Details (Continued)

IPL FIG. & ITEM	MATERIAL	FINISH
Cable guard (215)	Delrin plastic	No finish (F-25.01)



## **ASSEMBLY**

# (NOT APPLICABLE)

32-21-07

ASSEMBLY Page 701 Mar 01/2006



## **FITS AND CLEARANCES**

# (NOT APPLICABLE)



## SPECIAL TOOLS, FIXTURES, AND EQUIPMENT

# (NOT APPLICABLE)

32-21-07



#### **ILLUSTRATED PARTS LIST**

#### 1. Introduction

- A. The Illustrated Parts List (IPL) contains an illustration and a list of component parts you can repair or replace. The Illustrated Parts Catalog (IPC) shows how to use the Boeing part number system.
- B. This shows how parts are related: The relation of each item to its next higher assembly (NHA) is shown in the NOMENCLATURE column. Use the indenture system that follows:

1	2	3	4	5	6	7

- . Assembly
- . Attaching parts for assembly
- . Detail parts for assembly
- . Subassembly
- . Attaching parts for subassembly
- . Detail parts for subassembly
- . . . Sub-subassembly
- . . . Attaching parts for subassembly
- . . . Details parts for sub-subassembly

Detail Installation Parts (Included only if installation parts may be sent to the shop as part of assembly)

- C. Each top assembly is given one use code letter (A, B, C, etc.) in the USAGE CODE column. All subsequent component parts in the list can have one or more of the use code letters to show effectivity to top assemblies. A component part without a use code applies to all top assemblies.
- D. An alphabetical letter is added after the item number for optional parts, parts changed by a Service Bulletin, configuration differences (except left-handed and right-handed parts), last engineering releases, and parts added between item numbers in a sequence. The alphabetical letter will not be shown on the illustration for equivalent parts of the same part number.
- E. Color-coded parts are identified with a single digit alpha following the dash number or with "SP" suffix. If the "SP" suffix is used, it represents consolidation of all color codes applicable for a given usage which are not separately listed. Orders for color-coded parts should include the registry number of the airplane for which the parts are ordered.
- F. If a part number is 15 characters long but will not fit in the part number column, the part number will be displayed with a "~" at the end of the line and will be continued on the next line. The "~" denotes that the part number continues on the next line.
- G. Parts changed by a Service Bulletin are shown by PRE SB XXXX and POST SB XXXX added to the NOMENCLATURE column.
  - (1) When a new top assembly is added by a Service Bulletin, PRE SB XXXX and POST SB XXXX will be added at the top assembly level only. The configuration differences at the detail part level are shown by use code letters.
  - (2) When the top assembly part number is not changed by the Service Bulletin, PRE SB XXXX and POST SB XXXX will be added at the detail level.
- H. Interchangeable Parts

**32-21-07**ILLUSTRATED PARTS LIST
Page 1001
Nov 01/2008



Optional (OPT)

The part is optional to and interchangeable with other parts that have the same item number.

Replaces, Replaced by and not interchangeable with (REPLACES, REPLACED BY AND NOT INTCHG/W)

The part replaces and is not interchangeable with the initial

Replaces, Replaced by (REPLACES, REPLACED BY)

The part replaces and is interchangeable with, or is an alternative to, the initial part.



## **NUMERICAL INDEX**

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
		1		1
162A0301-1		1	1A	RF
		2	1A	RF
162A0301-2		2	10	1
162A0301-3		1	1B	RF
		2	1B	RF
162A0301-4		2	10A	1
162A0302-1		1	5	RF
		3	1A	RF
162A0302-2		3	10	1
162A0302-3		1	5A	RF
		3	1B	RF
162A0302-4		3	10A	1
162A0303-1		1	200	RF
162A0303-2		1	200A	RF
162A0303-3		1	200B	RF
162A0303-4		1	200C	RF
162A0303-5		1	200D	RF
162A0303-6		1	200E	RF
162A0303-7		1	200F	RF
162A0303-8		1	200G	RF
162A0303-9		1	200H	RF
162A2118-1		1	25A	RF
162A2118-2		1	25B	RF
162A2301-1		1	10	RF
		4	1A	RF
162A2301-2		4	10	1
162A2301-3		1	10A	RF
		4	1B	RF
162A2301-4		4	10A	1
162A2302-1		1	15	RF
162A2302-3		1	15A	RF
162A2303-1		4	5	1
162A2303-2		2	5A	2

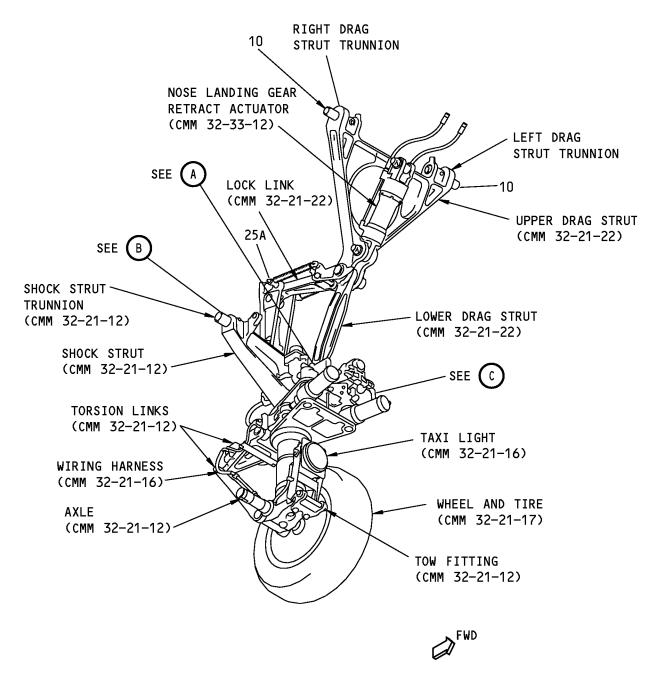
32-21-07

ILLUSTRATED PARTS LIST Page 1003 Jul 01/2008



PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
		3	5	2
162A2304-1		1	205	RF
162A2305-1		1	210	RF
275A5306-1		1	215	RF



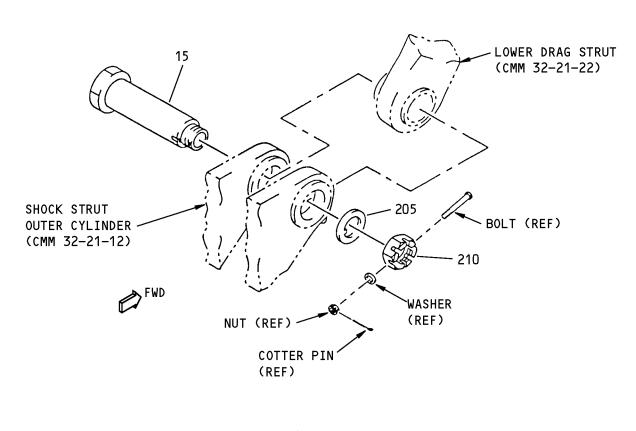


380728 S0004997772\_V2

Nose Landing Gear Installation Components IPL Figure 1 (Sheet 1 of 3)

**32-21-07**ILLUSTRATED PARTS LIST
Page 1005
Jul 01/2008



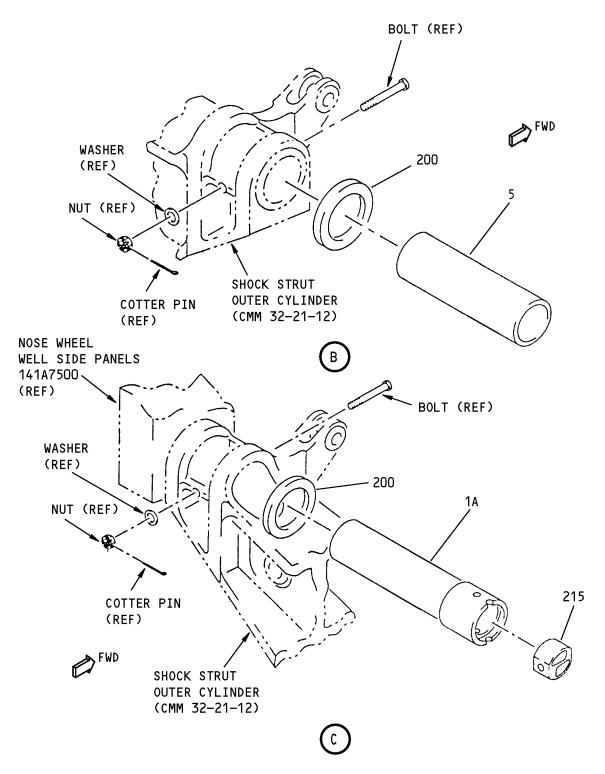




Nose Landing Gear Installation Components IPL Figure 1 (Sheet 2 of 3)

32-21-07
ILLUSTRATED PARTS LIST
Page 1006
Jul 01/2008





Nose Landing Gear Installation Components IPL Figure 1 (Sheet 3 of 3)

32-21-07
ILLUSTRATED PARTS LIST
Page 1007
Jul 01/2008



FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
			NLG INSTL COMPONENTS		
1A	162A0301-1		PIN ASSY-TRUN LH (FOR DETAILS SEE FIG. 2)	А	RF
-1B	162A0301-3		PIN ASSY-TRUN LH (FOR DETAILS SEE FIG. 2)	Н	RF
5	162A0302-1		PIN ASSY-TRUN RH (FOR DETAILS SEE FIG. 3)	В	RF
-5A	162A0302-3		PIN ASSY-TRUN RH (FOR DETAILS SEE FIG. 3)	J	RF
10	162A2301-1		PIN ASSY-DRAG STRUT TRUN (FOR DETAILS SEE FIG. 4)	С	RF
-10A	162A2301-3		PIN ASSY-DRAG STRUT TRUN (FOR DETAILS SEE FIG. 4)	F	RF
15	162A2302-1		PIN-DRAG STRUT ASSY (LIFE LIMITED PART)		RF
-15A	162A2302-3		PIN-DRAG STRUT ASSY (LIFE LIMITED PART)		RF
-20	162A2302-2		DELETED		
-25	162A2302-3		DELETED		
25A	162A2118-1		SHAFT		RF
–25B	162A2118-2		SHAFT		RF
-30	162A2302-4		DELETED		
200	162A0303-1		SPACER		RF
–200A	162A0303-2		SPACER		RF
–200B	162A0303-3		SPACER		RF
-200C	162A0303-4		SPACER		RF
–200D	162A0303-5		SPACER		RF
-200E	162A0303-6		SPACER		RF
-200F	162A0303-7		SPACER		RF
–200G	162A0303-8		SPACER		RF
–200H	162A0303-9		SPACER		RF
205	162A2304-1		WASHER		RF
210	162A2305-1		NUT		RF

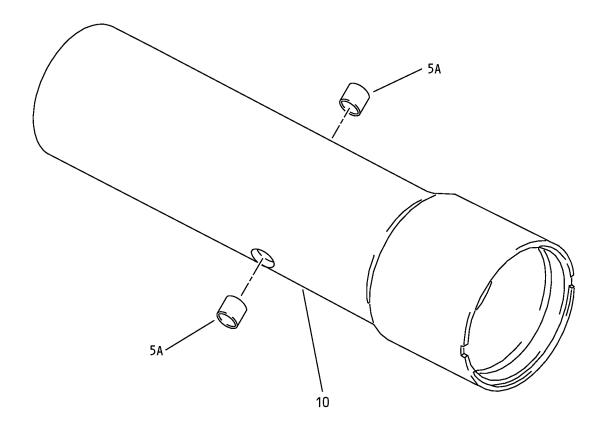
-Item not Illustrated

32-21-07
ILLUSTRATED PARTS LIST
Page 1008
Jul 01/2008



FIG/	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
215	275A5306-1		GUARD-CABLE		RF





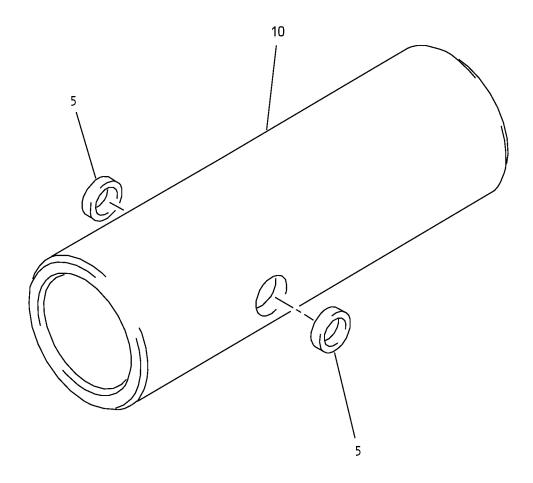
Left Trunnion Pin Assembly IPL Figure 2

32-21-07
ILLUSTRATED PARTS LIST
Page 1010
Jul 01/2008



FIG/	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
-1A	162A0301-1		PIN ASSY-TRUN LH	Α	RF
-1B	162A0301-3		PIN ASSY-TRUN LH	Н	RF
5	162A2303-3		DELETED		
5A	162A2303-2		. BUSHING	A, H	2
10	162A0301-2		. PIN (LIFE LIMITED PART)	Α	1
-10A	162A0301-4		. PIN (LIFE LIMITED PART)	Н	1





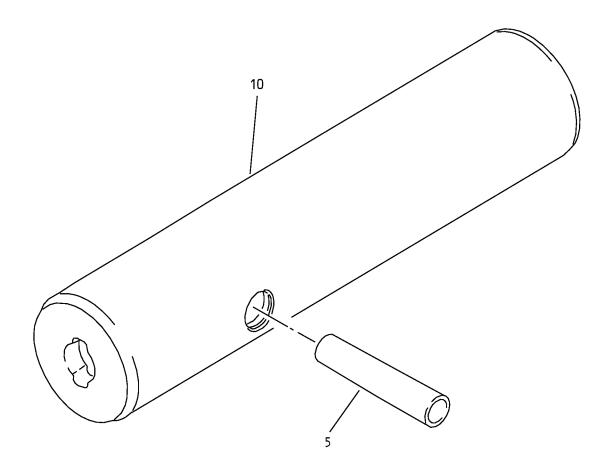
RH Trunnion Pin Assembly IPL Figure 3

**32-21-07**ILLUSTRATED PARTS LIST
Page 1012
Jul 01/2008



FIG/	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1234567	USAGE CODE	UNITS PER ASSY
3–					
-1A	162A0302-1		PIN ASSY-TRUN RH	В	RF
–1B	162A0302-3		PIN ASSY-TRUN RH	J	RF
5	162A2303-2		. BUSHING	B, J	2
10	162A0302-2		. PIN (LIFE LIMITED PART)	В	1
-10A	162A0302-4		. PIN (LIFE LIMITED PART)	J	1





Drag Strut Trunnion Pin Assembly IPL Figure 4

32-21-07
ILLUSTRATED PARTS LIST
Page 1014
Jul 01/2008



FIG/	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
4–					
-1A	162A2301-1		PIN ASSY-DRAG STRUT TRUN	С	RF
–1B	162A2301-3		PIN ASSY-DRAG STRUT TRUN	F	RF
5	162A2303-1		. BUSHING	C, F	1
10	162A2301-2		. PIN (LIFE LIMITED PART)	С	1
-10A	162A2301-4		. PIN (LIFE LIMITED PART)	F	1