DOUGLAS AIRCRAFT COMPANY
MCDONNELL DOUGLAS CORPORATION

DC-10 SERVICE BULLETIN

REVISION TRANSMITTAL SHEET

BULLETIN 54-48

NACELLES/PYLONS - Attach Fittings - Replace Engines 1 And 3 Wing Pylon Aft Attach Spherical Bearings.

This page transmits Revision 1 for DC-10 Service Bulletin 54-48 to incorporate the following changes:

NOTE: This revision constitutes a complete reissue.

Reason for Revision:

1. To inform affected operators of the availability of four additional oversize bearings.
2. To provide two additional standard size bearings.
3. To revise coordination note relative to DC-10 Service Bulletin 54-45.
4. To delete five aircraft from Service Bulletin Effectivity which had this modification incorporated prior to delivery.

No additional work is required by this revision for aircraft modified per prior issue of this Service Bulletin.

Service Bulletin Change Notifications dated December 15/75, April 6/76, October 28/76, and September 21/79, which were distributed to all affected operators, are incorporated by this revision.

Pages 1 thru 4:

Revised NOTE under title.

Deleted paragraph 1.A.(1)(a) heading.

Deleted operators MH and VG.

Added operator VA.

Changed operator code to GK, was LT.

Deleted paragraph 1.A.(1)(b).

Revised Service Bulletin Effectivity as follows:

Operator	Added	Deleted
JL		46913 (No. 206)

Operator	Added	Deleted
KE	47887 (No. 125)	
KL		46555 thru 46557 (No. 91, 146, and 197)
MH		46955 (No. 228)
TE		46954 (No. 227)
VA	46555 thru 46557 (No. 91, 146, and 197)	
VG		47887 (No. 125)
WA	46946 (No. 222)	

Other Aircraft	Added	Deleted
		46921 (No. 214) 46946 (No. 222) 46949 (No. 179)

Changed production effectivity statement.

Page 4: Changed Compliance to recommended, was optional.

Page 6: Added new paragraph 1.J.(1); revised subsequent paragraphs and renumbered accordingly.

Page 8: Revised Step 2 to add additional oversize bearing and tooling information.

Pages 9 thru 11: Revised paragraph 3.A. to add oversize bearing information and procurement sources for oversize bearings.

Changed wing pylon aft bearing oversize hole tool set tool number to DZZ7244-1 "C", was DZZ7244-1 and added detail parts to kit.

NOTE: The affected operators should make the appropriate corrections to the Service Bulletin Summary, as required to incorporate the intent of this revision.

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DOUGLAS AIRCRAFT COMPANY
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3855 Lakewood Boulevard
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BULLETIN 54-48

DC-10 SERVICE BULLETIN

NACELLES/PYLONS - Attach Fittings - Replace Engines 1 And 3 Wing Pylon Aft Attach Spherical Bearings.

NOTE

The repetitive inspection requirements outlined in DC-10 Service Bulletin 54-45 are superseded after accomplishment of this Service Bulletin. Refer to DC-10 On Aircraft Maintenance Planning Report TR761-73-41 for subsequent requirements.

1. Planning Information:

A. Effectivity:

(1) Aircraft Affected:

Model DC-10, Series 10, 30, and 40

Operator	Factory Serial No.	Mfr's Fuselage No.
AA	46500 46502 thru 46525	1 3, 5, 7, 9, 12, 13 20 thru 24, 30, 31, 37, 48, 49, 51, 52, 54 thru 56, 58, 65, and 72
AM	46936 and 46937	147 and 152
AY	47956 and 47957	181 and 201
AZ	47861 thru 47868	75, 88, 94, 121, 135, 149, 178, and 200
CO	46900 thru 46904 47800 thru 47810	34, 40, 41, 43, and 44 92, 98, 101, 139, 142, 145, 148, 173, 177, 191, and 194
GA	46918 and 46919	223 and 226

Operator	Factory Serial No.	Mfr's Fuselage No.
GK	46727	83
	46905 and 46906	47 and 50
IB	46922	221
	46926 and 46927	99 and 100
	46953	225
	47980 and 47981	150 and 186
JL	46660 and 46661	220 and 224
	46920	212
	46923	216
KE	46912	188
	46915	199
	46934	160
	47887	125
KL	46550 thru 46554	46, 60, 71, 82, and 84
	46914	195
	46933	159
	46952	185
LH	46917	211
	47921 thru 47929	117, 122, 123, 129, 166, 170, 190, 192, and 196
MP	46891	127
	46924	218
NA	46700 thru 46703	14, 16, 18, and 19
	46706 thru 46714	38, 61, 62, 68, 70, 105, 106, 165, and 167
	46942 and 46943	162 and 163
NW	46750 thru 46771	28, 36, 53, 66, 79, 97, 102, 108, 111, 113, 120, 124, 126, 128, 130, 143, 151, 161, 164, 168, 175, and 180
OV	46825 and 46826	81 and 109
PK	46931	137
	46935	172
	46940	141

Operator	Factory Serial No.	Mfr's Fuselage No.
QC	46932	158
	47886	90
RG	46916	202
	46941	176
	46944 and 46945	133 and 156
RK	46890	77
	46892	204
SK	46868 thru 46871	171, 174, 217, and 219
SN	47906 thru 47908	115, 157, and 215
SR	46575 thru 46582	57, 73, 114, 131, 132, 183, 184, and 187
TE	46910 and 46911	182 and 189
	47846 thru 47849	69, 116, 136, and 213
TK	46705	33
	46907	78
TV	46800 thru 46802	96, 103, and 110
UA	46600 thru 46631	4, 6, 8, 10, 11, 15, 17, 25 thru 27, 32, 35, 39, 42, 45, 76, 86, 89, 118, 119, 138, 140, 144, 154, 155, 169, 198, 205, and 207 thru 210
	47965 thru 47969	59, 64, 67, 74, and 80
UT	46850 thru 46854	63, 85, 93, 134, and 193
VA	46555 thru 46557	91, 146, and 197
WA	46908	95
	46928 thru 46930	104, 107, and 112
	46938 and 46939	153 and 203
	46946	222

This modification will be incorporated prior to delivery on DC-10, Series 10, 30, and 40 aircraft, manufacturer's fuselage numbers 2, 179, 206, 214, 227, and subsequent as applicable.

Manufacturer's fuselage numbers are applicable to affected aircraft at time of Service Bulletin issue.

(2) Spares Affected:

Spare Part No.	Key Word
LHSS22-77	Bearing

B. Reason:

Seven operators have reported eleven instances of cracks in the left and right wing pylon aft bulkhead spherical bearings. Cracks were found in bearings on aircraft having logged from 1500 to 8000 flight-hours. Continued operation with a cracked spherical bearing could result in additional damage to the wing/pylon aft attach structure. Replacing the spherical bearing with a redesigned bearing having a thicker ball hub and a ball made from a more ductile material will minimize the possibility of bearing cracks.

C. Description:

This modification replaces the left and right wing pylon aft bulkhead spherical bearings. Size of replacement bearings is to be determined by inspection as follows:

(1) If no damage to bulkhead is observed, aft spherical bearing is replaced with new spherical bearing.

or

(2) If damage to bulkhead is observed, hole in bulkhead is enlarged and new oversize bearing is installed.

NOTE: It is recommended this modification be accomplished during engine removal.

D. Compliance:

Recommended. To be accomplished at operator's convenience.

E. Approval:

This Service Bulletin is FAA approved.

F. Manpower:

For scheduling maintenance purposes, left and right wing pylons may be modified independently at different time periods.

Man-hours do not include time for engine removal/installation.

This modification may be accomplished in the following approximate man-hours or elapsed hours per aircraft:

Work Phases	Man-Hours
Gain Access	56.0
Modify (Aircraft)	2.0
Close Up	72.0
Total Man-Hours	130.0
Total Elapsed Hours	17.0

NOTE: This Service Bulletin assumes that the aircraft/unit has been placed in a maintenance status. The man-hour/elapsed time estimates do not include:

1. Preparation for the modification: Examples; defueling, purging, placing work stands, opening standard access doors, obtaining tools, and jacking when jacking is not essential to the modification.

2. Nonproductive elapsed time: Examples; sealant or adhesive cure time, cleaning, paint drying time, lunch and/or rest periods, and quality assurance inspections.

3. Administrative functions: Examples; planning, engineering liaison, parts requisition, shift change coordination, and report writing.

Operators should take the above into consideration when scheduling this modification.

G. Material - Cost and Availability:

(1) Aircraft:

Parts required to accomplish this modification are to be procured from operator's stock or sources indicated in paragraph 3.A.

(2) Spares:

Procurement of replacement parts is to be negotiated between the operator and supplier. Costs are the responsibility of the operator.

H. Tooling - Price and Availability:

Tools required to accomplish this modification are listed in paragraph 3.C and are to be procured from operator's stock or supplier. Price and availability to be negotiated between operator and supplier.

I. Weight and Balance:

None.

J. References:

(1) Airworthiness Directive 79-15-03; Amendment 39-3513, dated September 7, 1979.

(2) The repetitive inspection requirements outlined in DC-10 Service Bulletin 54-45 are superseded after accomplishment of this Service Bulletin. Refer to DC-10 On Aircraft Maintenance Planning Report TR 761-73-41 for subsequent requirements.

(3) Data used in preparation of this Service Bulletin:

Data Identification	Change	Type of Data
AUB7025	S	Bulkhead Installation Drawing
MM Chapter 54		Maintenance Manual
TR 761-73-41		Temporary Revision DC-10 On Aircraft Maintenance Planning Report
54-45		DC-10 Service Bulletin
761-9		DC-10 Support Equipment Summary Report, Chapter 54, Pylon

K. Publications Affected:

The modification outlined in this Service Bulletin affects the following DAC DC-10 aircraft publications:

Publication	Chapter and/or Section
Illustrated Parts Catalog	54-11
Maintenance Manual	54-00
Support Equipment Summary Report No. 761-9	54
Tool and Equipment Lists	54-00

2. Accomplishment Instructions:

WARNING: TO AVOID INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT, MAKE CERTAIN ADEQUATE PRECAUTIONS ARE TAKEN WHILE PERFORMING ANY WORK IF ELECTRICAL POWER IS APPLIED TO THE AIRCRAFT.

CAUTION: ELECTRICALLY GROUND THE AIRCRAFT.

GENERAL NOTES:

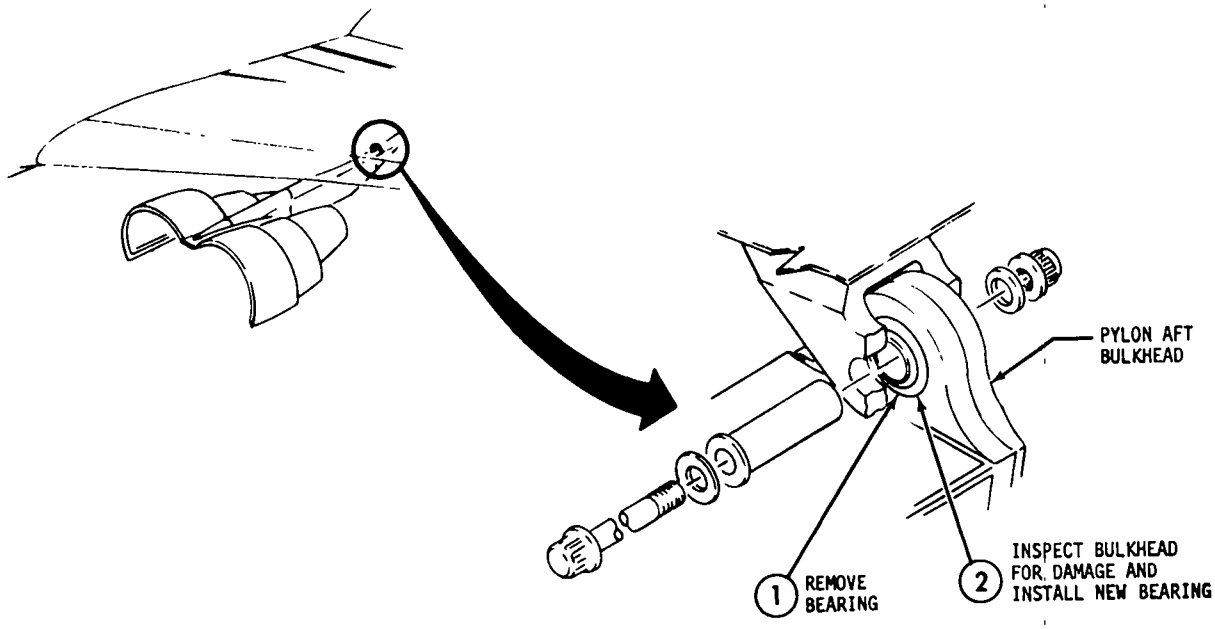
1. It is recommended that operators perform this modification during engine removal. The following instructions assume that engines 1 and 3 are removed.

2. The following instructions are typical for engines 1 and 3 wing pylons.

A. Gain access to modification area by removing and retaining engines 1 and 3 wing pylons. (See Maintenance Manual Chapter 54-00-00, paragraph entitled "Remove Pylon".)

B. Replace pylon aft attach spherical bearing as shown on Figure 1.

C. Reinstall engines 1 and 3 wing pylons and attaching parts. (See Maintenance Manual Chapter 54-00-00, paragraph entitled "Install Pylon".)



(1) REMOVE KSBY22N1, ATBY22V4, BLFR22-034, YTA301, 76689, LHSS22-77, LHSSR22-77, OR KSBY22-2 BEARING USING DZZ7237-1 WING PYLON AFT BEARING REMOVAL SET TOOLS AND HP-60G ENERPAC PUMP AND CYLINDER SET. (SEE MAINTENANCE MANUAL CHAPTER 54-00-00, PARAGRAPH ENTITLED "REMOVE PYLON", STEP 43b.)

(2) VISUALLY INSPECT BULKHEAD FOR EVIDENCE OF DAMAGE DUE TO GOUGING OF BEARING INTO BULKHEAD AND ACCOMPLISH THE FOLLOWING:

a. IF DAMAGE IS NOT EVIDENT, MEASURE HOLE IN BULKHEAD. IF HOLE SIZE IS 2.9985/2.9990(76.1619/76.1746)-INCH DIAMETER INSTALL NEW KSBY22-5, BSSR-22220, NSS22D, OR 79583 BEARING USING DZZ7237-1 WING PYLON AFT BEARING TOOLS AND HP-60G ENERPAC PUMP AND CYLINDER SET. (SEE MAINTENANCE MANUAL CHAPTER 54-00-00, PARAGRAPH ENTITLED "REMOVE PYLON", STEP 43c.)

NOTE: IF HOLE SIZE IS GREATER THAN 2.9990(76.1746)-INCH DIAMETER, OVERSIZE BEARING MUST BE INSTALLED PER STEP 2b.

b. IF DAMAGE IS EVIDENT OR HOLE SIZE EXCEEDS 2.9990(76.1746)-INCH DIAMETER, ENLARGE HOLE IN BULKHEAD IN INCREMENTS NOTED AS REQUIRED TO CLEANUP DAMAGE, CHAMFER BOTH HOLE EDGES .045+.010(1.143+.254) X 45° USING APPLICABLE REAMER AND CUTTER FROM DZZ7244-1 "C" TOOL SET. SEE TABLE 1. (SEE MAINTENANCE MANUAL CHAPTER 54-00-00, PARAGRAPH ENTITLED "REMOVE PYLON.")

TABLE 1

FINAL HOLE SIZE	REAMER	CUTTER	APPLICABLE BEARING
3.0005/3.0010 (76.2127/76.2254)	DZZ7244-29	DZZ7244-35	KMS1005 (.002(.0508)-INCH OVERSIZE)
3.0085/3.0090 (76.4159/76.4286)	DZZ7244-31	DZZ7244-37	KMS1006 (.010(.2540)-INCH OVERSIZE)
3.0185/3.0190 (76.6699/76.6826)	DZZ7244-33	DZZ7244-39	KMS1007 (.020(.5080)-INCH OVERSIZE)
3.0285/3.0290 (76.9239/76.9366)	DZZ7244-3	DZZ7244-5	KMS705 (.030(.7626)-INCH OVERSIZE) OR LH22F OR 79828

NOTE: OVERSIZE BEARING TO BE USED ONLY WHEN DAMAGE IS EVIDENT OR HOLE IN BULKHEAD EXCEEDS 2.9990(76.1746)-INCH DIAMETER.

DIMENSIONS WITHIN PARENTHESES ARE IN MILLIMETERS.

ENGINES 1 AND 3 WING PYLON AFT ATTACH BEARINGS - REPLACEMENT

FIGURE 1

3. Material Information:

A. The basis for the following material data is per aircraft.

Parts to be procured from operator's stock or sources indicated.

NOTE: Maximum quantity of 2 bearings required per aircraft. Part number, quantity, and size of bearings to be determined upon inspection. Oversize bearing to be used only when damage is evident.

FSCM indicates Federal Supply Code for Manufacturers.

New Part No.	Qty	Key Word	Old Part No.	Instructions-Disposition
KMS1005 or KMS1006 or KMS1007 or KMS705 or LH22F or 79828 or KSBY22-5 or BSSR-22220 or NSS22D or 79583	As Reqd	Bearing (.002(.0508)-inch oversize) Bearing (.010(.2540)-inch oversize) Bearing (.020(.5080)-inch oversize) Bearing (.030(.7620)-inch oversize) Bearing (Standard)	KSBY22N1, ATBY22V4, BLFR22-034, YTA301, 76689, LHSSR22-77, LHSS22-77, or KSBY22-2	1/ 2/ 3/ Discard

1/ The KMS705 (.030-inch oversize) bearings may be purchased from the Douglas Aircraft Company. Cost and availability of oversize bearings will be furnished upon request. Direct inquiries to:

Douglas Aircraft Company
P.O. Box 1771
Long Beach, California 90801
Attn: Parts Sales - Commercial 7-21
(DC-10 Service Bulletin 54-48)

2/ The LH22F or 79828 bearings (.030(.7620)-inch oversize) are listed as authorized substitutions for the KMS705 oversize bearing. The BSSR-22220, NSS22D, or 79583 bearings are listed as authorized substitutions for the KSBY22-5 bearing. Bearings may be purchased from the following suppliers:

New Part No.	FSCM	Supplier
BSSR-22220 Bearing	81376	Southwest Products Company P.O. Box 1026 Monrovia, California 91016
KSBY22-5 Bearing	97613	Sargent Industries Kahr Bearing Division 3010 North San Fernando Boulevard Burbank, California 91506
LH22F Bearing (.030(.7620)-inch oversize) NSS22D Bearing	73134	Heim Universal Corporation Incom International Incorporated 60 Round Hill Road Fairfield, Connecticut 06430
79583 Bearing 79828 Bearing	09455	Lear Siegler Incorporated Transport Dynamics Division 3131 Segerstrom Avenue Santa Ana, California 92702

3/ The KMS1005 (.002(.508)-inch oversize), KMS1006 (.010(.2540)-inch oversize), and KMS1007 (.020(.5080)-inch oversize) bearings may be purchased from the following suppliers:

New Part No.	FSCM	Supplier
KMS1005 or KMS1006 or KMS1007	04795	Airsupply Company Division of Garrett Corporation 18700 Crenshaw Boulevard Torrance, California 90504
		or
	Not Available	Allied Bearing Supply Company 416 South Utica Avenue Tulsa, Oklahoma 74101
		or
	06260	Bobker Bearings, Incorporated 29-02 39th Avenue Long Island City, New York 11101
		or
	Not Available	Florida Bearings 3164 North Miami Avenue Miami, Florida 33127

B. The basis for the following material data is per spares:

Discard spare LHSS22-77 bearing and order KSBY22-5 or NSS22D bearing as replacement.

C. The basis for the following tooling data is per operator.

The following tools are required to accomplish this modification and are to be procured from operator's stock or suppliers. Refer to DC-10 Tool and Equipment list, Chapter 54-00-00 and Support Equipment Summary Report No. 761-9, Vendor Code AAA-88277.

Tool No.	Qty	Key Word	Instructions-Disposition
DZZ7237-1	1	Wing Pylon Aft Bearing Removal/Installation Set	
DZZ7244-1 "C"	1	Wing Pylon Aft Bearing Oversize Hole Tool Set	4/
HP-60G	1	Enerpac Pump And Cylinder Set	

4/ Operator may obtain quote for fabrication of DZZ7244-1 "C" Tool Set from the following suppliers:

Advanced Ground Systems
Engineering Corporation
P.O. Box 4238
Torrance, California 90501

Phone: (213) 538-2350
Mr. Bobby Jackson

P/F Industries, Incorporated
1303 South 96 Street
Seattle, Washington 98108

Phone: (206) 767-3700
Telex: 32-8867
Mr. Art Brown

Spec Tool Company
9626 East Beverly Road
Pico Rivera, California 90660

Phone: (213) 723-9533
Mr. Albert G. Fink, Jr.

Stang Manufacturing Company
767 North Main Street
Orange, California 92668

Phone: (213) 624-9726
Mr. Victor S. Thomasen

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