V2500 International Aero Engines

V2500 Propulsion System — Nacelle

SERVICE BULLETIN

NACELLE - EXHAUST - TRACK LINERS AND DEPLOY TUBE AND FLEXSHAFT, THRUST REVERSER ACTUATION - REPLACEMENT OF

MODEL APPLICATION

V2500-D5

BULLETIN INDEX LOCATOR

78-30-00

Compliance Category Code

4

Internal Reference No.

BC/LL/JR/AC 95VN325

October 28, 1995

V2500-NAC-78-0107

1. Planning Information

A. Effectivity

(1) Aircraft: MD90

(2) Nacelle: V2500-D5 Thrust Reverser serial numbers 0021001 through 0068001.

B. Reason

(1) Condition

Thrust reverser may be slow to deploy.

(2) Background

Too much friction between thrust reverser track assemblies and translating sleeve sliders.

(3) Objective

Reduce track assembly and slider friction and prevent possible translating sleeve misalignment.

(4) Substantiation

Trial fit check and operation of new configuration was proven successful.

(5) Impact of Bulletin on Workshop Procedures:

Removal/Installation	Not Affected
Disassembly/Assembly	Not Affected
Cleaning	Not Affected
Inspection/Repair	Not Affected
Repair	Not Affected
Testing	Not Affected

(6) Supplemental Information

None.

C. Description

The change introduced by this Bulletin is to replace the upper and lower thrust reverser deploy tubes and flexshafts with new larger tubes and flexshafts, the engine (fan cowl No. 4 hinge beam) mounted tee piece with a new tee piece compatible with the new deploy tubes and flexshafts, and the track liners.

D. Approval

Incorporation of this Service Bulletin must be accomplished only in conjunction with Douglas Aircraft Company Service Bulletin MD90 78-007 which has received exclusive FAA approval for MD-90 Series aircraft.

E. Compliance

Category 4

Accomplish at the first visit of the nacelle component to a maintenance base capable of compliance with the accomplishment instructions regardless of the planned maintenance action for the nacelle or nacelle component.

F. Manpower

Estimated Manhours to incorporate the full intent of this Bulletin on one V2500-D5 thrust reverser:

VENUE		ESTIMATED MAN HOURS
(1)	In Service	
(a)	To get access	7.00 M/Hrs
(b)	To rework	34.00 M/Hrs
(c)	To put nacelle to service	9.00 M/Hrs
		Total 50.00 M/Hrs

G. Material Cost and Availability

The parts to accomplish this Service Bulletin are available from the supplier as kits V2578107-551 and V2578107-553 at no cost to the operator.

Operators with units listed in Paragraph 1.A should submit a no-charge purchase order for the applicable quantity of kits. The purchase order must specify this service bulletin number and only the parts listed herein. Operators will have one year from the issue date of the Service Bulletin to place an order. After one year, kits will no longer be available and Operators will have to order parts individually at catalog prices, if they desire to incorporate the change.

Direct Purchase order to:
Rohr Inc.
P.O. Box 878
Chula Vista, CA 91912
U.S.A.
Attn: Airline Support Manager -Bldg. 107A
(Ref. Service Bulletin No. V2500-NAC-78-0107)

H. Tooling Cost and Availability

Not applicable.

I. Weight and Balance

(1) Weight change .....+3.0 lb/Nacelle

(2) Moment arm .....No effect

(3) Datum .....Front Engine Mount Centerline

.....(Power Plant Station (PPS) 95.1)

J. Electrical Load Data

Not affected.

K. Reference

	Chapter/Section
MD90 Aircraft Maintenance Manual	78-31-16 78-31-17 78-32-00

L. Other Publications Affected

MD90 Engine Illustrated Parts Catalog	78-31-16 78-31-17 78-32-05 78-32-06 78-32-07 78-32-08 78-32-23
MD90/V2500-D5 Thrust Reverser Component Maintenance Manual	78-31-16 78-31-17 78-32-05 78-32-06 78-32-07 78-32-08 78-32-23

2. Accomplishment Instructions

A. Prerequisite Instructions

(1) Remove the upper and lower translating sleeves. Refer to MD90 Aircraft Maintenance Manual, Chapter 78-32-16.

B. Rework or Modification Instructions

(1) Remove and Install Upper and Lower Thrust Reverser Outboard Primary Track Liners.

(a) Remove three NAS8703A1 bolts from 11797-00 track liner on thrust reverser track assembly. Refer to Figure 1. Discard track liner. Keep bolts.

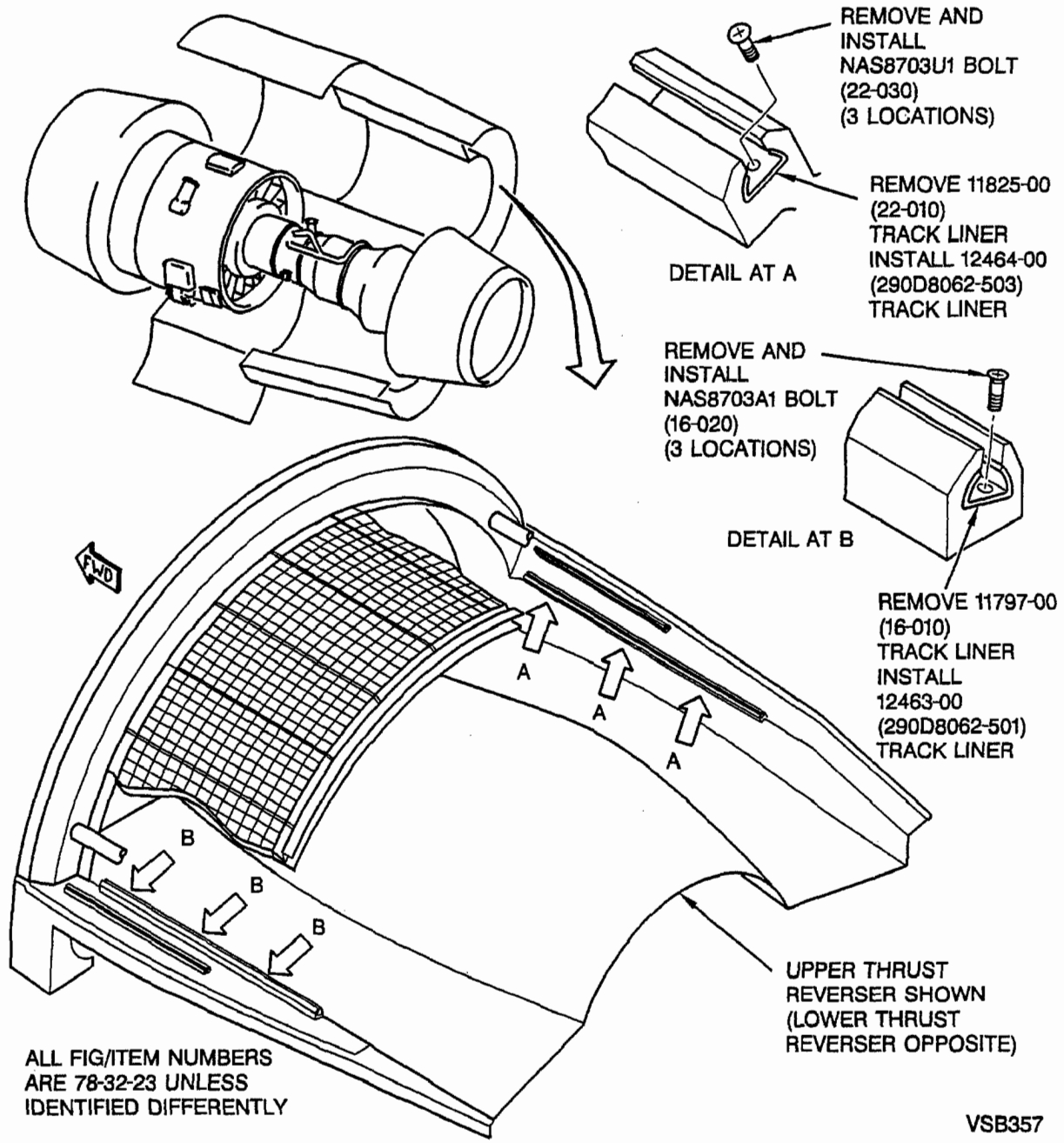
(b) Put 12463-00 (Rohr P/N 290D8062-501) track liner on thrust reverser track assembly and install with three NAS8703A1 bolts. Tighten bolts to a torque of 20-25 lb-in (2,3-2,8 Nm).

(2) Remove and Install Upper and Lower Thrust Reverser Inboard Primary Track Liners.

(a) Remove three NAS8703U1 bolts from 11825-00 track liner on thrust reverser track assembly. Discard track liner. Keep bolts.

(b) Put 12464-00 (Rohr P/N 290D8062-503) track liner on thrust reverser track assembly and install with three NAS8703U1 bolts. Tighten bolts to a torque of 20-25 lb-in (2,3-2,5 Nm).

(3) Remove and Install Upper Thrust Reverser Flexshaft and Deploy Tube Assembly.



TRACK LINER REMOVAL AND INSTALLATION
FIGURE 1

WARNING: HYDRAULIC FLUID MAY CAUSE EYE, NOSE AND SKIN IRRITATION. AVOID PROLONGED BREATH- ING OF MIST OR VAPOR AND PROLONGED OR REPEATED CONTACT WITH SKIN. IF THERE IS A POSSIBILITY OF SPLASH, WEAR CHEMICAL GOGGLES. PROTECTIVE GLOVES SHOULD BE WORN DURING USE TO PREVENT DRYING THE SKIN DUE TO CONTACT WITH HYDRAULIC FLUID. PRIOR TO USE OF THIS PRODUCT, CAREFULLY READ THE APPLICABLE 'MATERIAL SAFETY DATA SHEET' AND FOLLOW ALL LISTED SAFETY AND HEALTH PRECAUTIONS.

(a) Remove TY1808-01 (Rohr P/N 290D8009-6) tube assembly and TY1847-02 (Rohr P/N 290D8009-29) flexshaft from the inboard and outboard actuators. Refer to Figures 2 and 3. Refer to MD90 Aircraft Maintenance Manual, Chapter 78-31-16. Discard flexshaft, tube assembly, clamps, and clamp block assemblies. Keep bolts and washers.

CAUTION: DO NOT FORCE OR BEND THE 290D8009 TUBE ASSEMBLY INTO PLACE TO INSTALL THE TAO27028PH10 CLAMPS OR 11876 CLAMP BLOCKS. BENDING AND/OR DAMAGE TO THE TUBE ASSEMBLY MAY SLOW THE THRUST REVERSER DEPLOYMENT. IF THE CLAMP/CLAMP BLOCKS CANNOT BE INSTALLED WITHOUT BENDING OR FORCING THE TUBE ASSEMBLY INTO PLACE, RELOCATE THE CLAMP/CLAMP BLOCK BRACKETS, WHICH ARE ATTACHED TO THE INTERCOSTALS, AS DESCRIBED IN STEP (4) BELOW.

(b) Put TY2084-01 (Rohr P/N 290D8009-35) flexshaft in TY2082-01 (Rohr P/N 290D8009-39) tube assembly. Install tube assembly and flexshaft on inboard and outboard actuators with eight MS9556-06 bolts, eight AN960C10 washers, two TA027028PH10 clamps, and two 11876 clamp block assemblies. Refer to MD90 Aircraft Maintenance Manual, Chapter 78-31-16. Refer to Figures 2 and 3.

(4) Relocate the clamp/clamp block brackets.

NOTE: One or all of the clamp/clamp block brackets may be relocated as necessary.

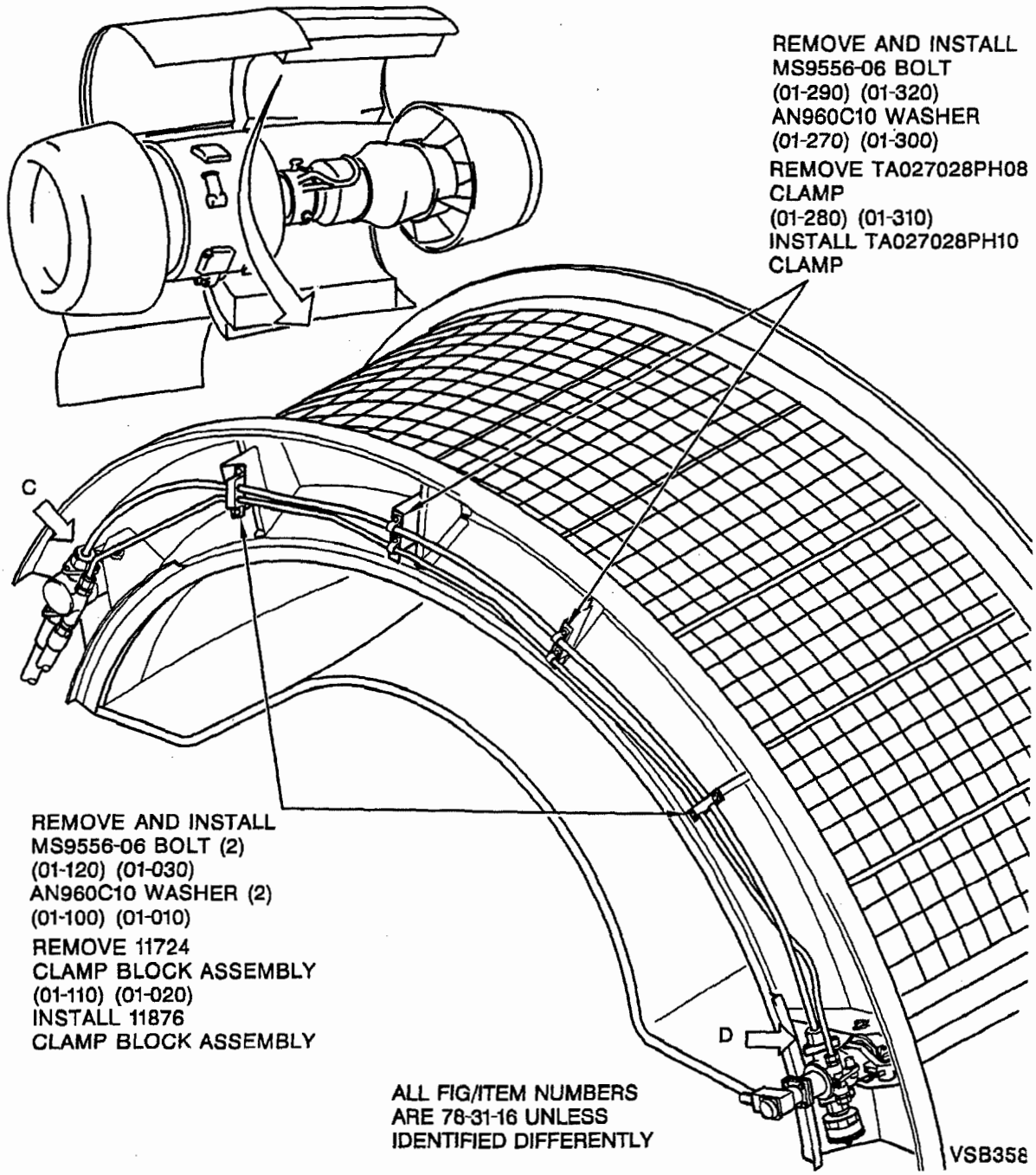
(a) Drill out the existing rivets that attach the bracket(s) to the intercostal(s) with a 0.161-0.165 inch (4.089-4.191 mm) drill. Remove the bracket.

(b) Countersink both sides of the rivet holes at the intercostal to a diameter of 0.267-0.277 inch (6.782-7.036 mm) X 100 deg.

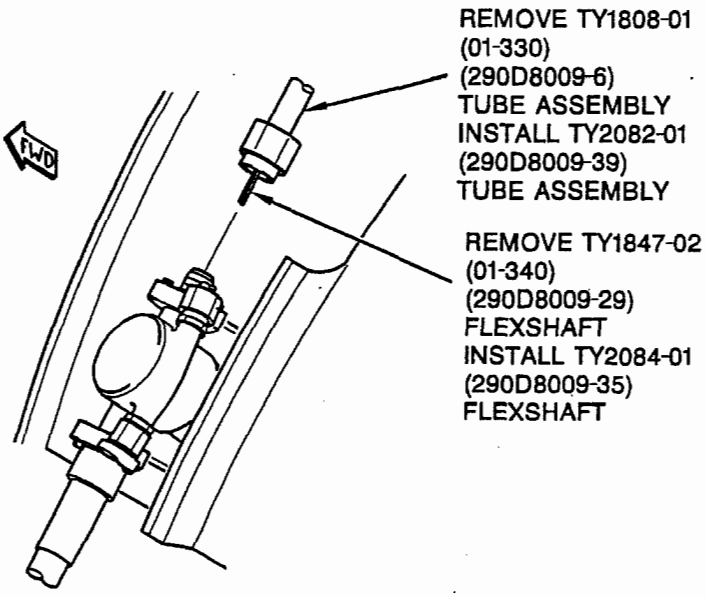
(c) Install the NAS1097AD5 rivets in the drilled/ countersunk holes. Make sure the rivets are flush on both sides.

WARNING: 1.1.1 TRICHLOROETHANE VAPORS ARE HARMFUL. USE IN A WELL-VENTILATED AREA. AVOID PROLONGED BREATHING OF VAPOR AND PROLONGED OR REPEATED CONTACT WITH SKIN. OVEREXPOSURE MAY CAUSE HEADACHE, DIZZINESS OR DROWSINESS. VAPOR IS HEAVIER THAN AIR AND MAY REPLACE OXYGEN IN A CONFINED AREA. SMOKING AND ARC WELDING SHOULD BE AVOIDED WHEN USING THIS SOLVENT; VAPORS OF DECOMPOSITION MAY CAUSE SERIOUS BODILY HARM. PROTECTIVE GLOVES SHOULD BE WORN DURING USE. MAY CAUSE DERMATITIS BY REMOVING SKIN OILS. PRIOR TO USE OF PRODUCT, CAREFULLY READ THE APPLICABLE 'MATERIAL SAFETY DATA SHEET' AND FOLLOW ALL LISTED SAFETY AND HEALTH PRECAUTIONS.

(d) Clean both sides of the rivets and surrounding area with a clean cloth (CoMat 02-099) made moist with trichloroethane (CoMat 01-001). Wipe the surface dry before solvent becomes dry.



UPPER THRUST REVESER CLAMP AND CLAMP BLOCK BLOCK REMOVAL AND INSTALLATION
FIGURE 2



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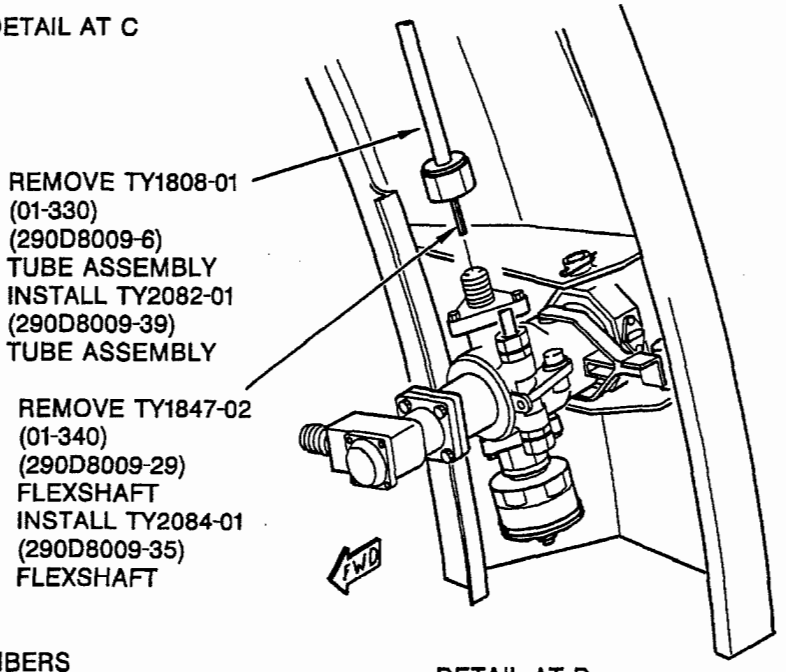


DETAIL AT D

ALL FIG/ITEMS NUMBERS
ARE 78-31-16 UNLESS
IDENTIFIED DIFFERENTLY

VSB359

UPPER THRUST REVESER TUBE AND FLEXSHAFT REMOVAL AND INSTALLATION
FIGURE 3

WARNING: DO NOT GET THE CONVERSION COATING ON YOUR SKIN OR IN YOUR EYES. PUT ON PROTECTIVE CLOTHING, GOGGLES AND A FACE MASK. USE IN A WELL VENTILATED AREA. DO NOT BREATHE THE GAS. IF YOU GET THE CONVERSION COATING ON YOUR SKIN YOU MUST FLUSH IT AWAY WITH WATER IMMEDIATELY. IF YOU GET THE CONVERSION COATING IN YOUR EYES, FLUSH IT AWAY WITH WATER FOR AT LEAST 15 MINUTES, THEN GET MEDICAL AID IMMEDIATELY. DO NOT LET THE MATERIALS USED TO APPLY OR REMOVE THE CONVERSION COATING BECOME DRY BECAUSE THEY CAN CAUSE A FIRE. ALL SUCH MATERIALS MUST BE FULLY FLUSHED IN COLD WATER AND THEN DISCARDED.

(e) Mix the chemical conversion coating (CoMat 07-028) in ratio of 3 oz. (88.72 ml) coating to 1.0 gallon (3.79 litre) of demineralized water.

(f) Apply the chemical conversion coating to both sides of the rivets and the surrounding area. Keep the surfaces wet with coating for 2 to 5 minutes.

(g) Rinse the chemical conversion coating off with clean water and dry with a clean dry cloth. Allow the surfaces to air dry for at least 30 minutes.

WARNING: 463-7-26 PRIMER BASE, X337 CONVERTER, AND TL52-66 REDUCER EPOXY PRIMER IS FLAMMABLE AND VAPOR IS HARMFUL. INHALATION OF SPRAY MIST MAY CAUSE SERIOUS BODILY HARM. AVOID SOURCES OF IGNITION. USE ONLY IN AREAS WITH ADEQUATE VENTILATION. WORK PERFORMED IN CONFINED AREAS REQUIRES THE USE OF ADDITIONAL FORCED MECHANICAL VENTILATION. AVOID BREATHING OF VAPOR AND CONTACT WITH SKIN AND EYES. MAY CAUSE IRRITATION TO SKIN AND EYES. SEVERE OVEREXPOSURE MAY CAUSE FATIGUE, WEAKNESS, CONFUSION, HEADACHE, DIZZINESS, DROWSINESS, AND IMPAIRED JUDGEMENT. USE REGULATORY AGENCY APPROVED RESPIRATORY PROTECTION FOR SPRAY APPLICATIONS. THIS PRODUCT CONTAINS LEAD, A CUMULATIVE POISON. WASH HANDS WELL BEFORE EATING, DRINKING, OR SMOKING. PROTECTIVE GLOVES SHOULD BE WORN DURING MIXING AND APPLICATION. PROLONGED OR REPEATED CONTACT WITH THIS EPOXY PRIMER MAY RESULT IN A PERMANENT SKIN ALLERGY TO 463-7-26 BASE AND X337 CONVERTER. PRIOR TO USE OF THIS PRODUCT, CAREFULLY READ THE APPLICABLE ""MATERIAL SAFETY DATA SHEET"" AND FOLLOW ALL LISTED SAFETY AND HEALTH PRECAUTIONS.

(h) Use the manufacturer's instructions to mix the 463-7-26 base (CoMat 07-071), X337 converter (CoMat 07-067), and the TL52-66 thinner (CoMat 07-066).

(i) Apply the primer to the rivets and the surrounding area with a brush.

(j) Allow the primer to cure for a minimum of four hours at room temperature.

(k) Put the bracket on the intercostal so that the clamp/clamp blocks can be installed on the bracket without bending or damaging the tube assembly. Clamp the bracket in place.

(l) Use a 0.161-0.165 inch (4.089-4.191 mm) drill to drill through the existing holes in the bracket and through the intercostal.

(m) Remove the clamping and bracket from the intercostal. Deburr the drilled holes.

(n) Put the bracket on the intercostal, align the holes, and clamp the bracket into place.

(o) Attach the bracket to the intercostal with CR3523-5-2 rivets. Remove the clamp.

(5) Remove and Install Lower Thrust Reverser Flexshaft and Deploy Tube Assembly.

WARNING: HYDRAULIC FLUID MAY CAUSE EYE, NOSE AND SKIN IRRITATION. AVOID PROLONGED BREATH- ING OF MIST OR VAPOR AND PROLONGED OR REPEATED CONTACT WITH SKIN. IF THERE IS A POSSIBILITY OF SPLASH, WEAR CHEMICAL GOGGLES. PROTECTIVE GLOVES SHOULD BE WORN DURING USE TO PREVENT DRYING THE SKIN DUE TO CONTACT WITH HYDRAULIC FLUID. PRIOR TO USE OF THIS PRODUCT, CAREFULLY READ THE APPLICABLE 'MATERIAL SAFETY DATA SHEET' AND FOLLOW ALL LISTED SAFETY AND HEALTH PRECAUTIONS.

(a) Remove TY1809-01 (Rohr P/N 290D8009-8) tube assembly and TY1848-02 (Rohr P/N 290D8009-31) flexshaft from the inboard and outboard actuators. Refer to Figures 4 and 5. Refer to MD90 Aircraft Maintenance Manual, Chapter 78-31-16. Discard the flexshaft, tube assembly, clamps and clamp block assemblies. Keep bolts and washers.

CAUTION: DO NOT FORCE OR BEND THE 290D8009 TUBE ASSEMBLY INTO PLACE TO INSTALL THE TAO27028PH10 CLAMPS OR 11876 CLAMP BLOCKS. BENDING AND/OR DAMAGE TO THE TUBE ASSEMBLY MAY SLOW THE THRUST REVERSER DEPLOYMENT. IF THE CLAMP/CLAMP BLOCKS CANNOT BE INSTALLED WITHOUT BENDING OR FORCING THE TUBE ASSEMBLY INTO PLACE, RELOCATE THE CLAMP/CLAMP BLOCK BRACKETS, WHICH ARE ATTACHED TO THE INTERCOSTALS, AS DESCRIBED IN STEP (6) BELOW.

(b) Put TY2085-01 (Rohr P/N 290D8009-37) flexshaft in TY2083-01 (Rohr P/N 290D8009-41) tube assembly. Install tube assembly and flexshaft on inboard and outboard actuators with eight MS9556-06 bolts, eight AN960C10 washers, two TA027028PH10 clamps, and two 11876 clamp block assemblies. Refer to MD90 Aircraft Maintenance Manual, Chapter 78-31-16.

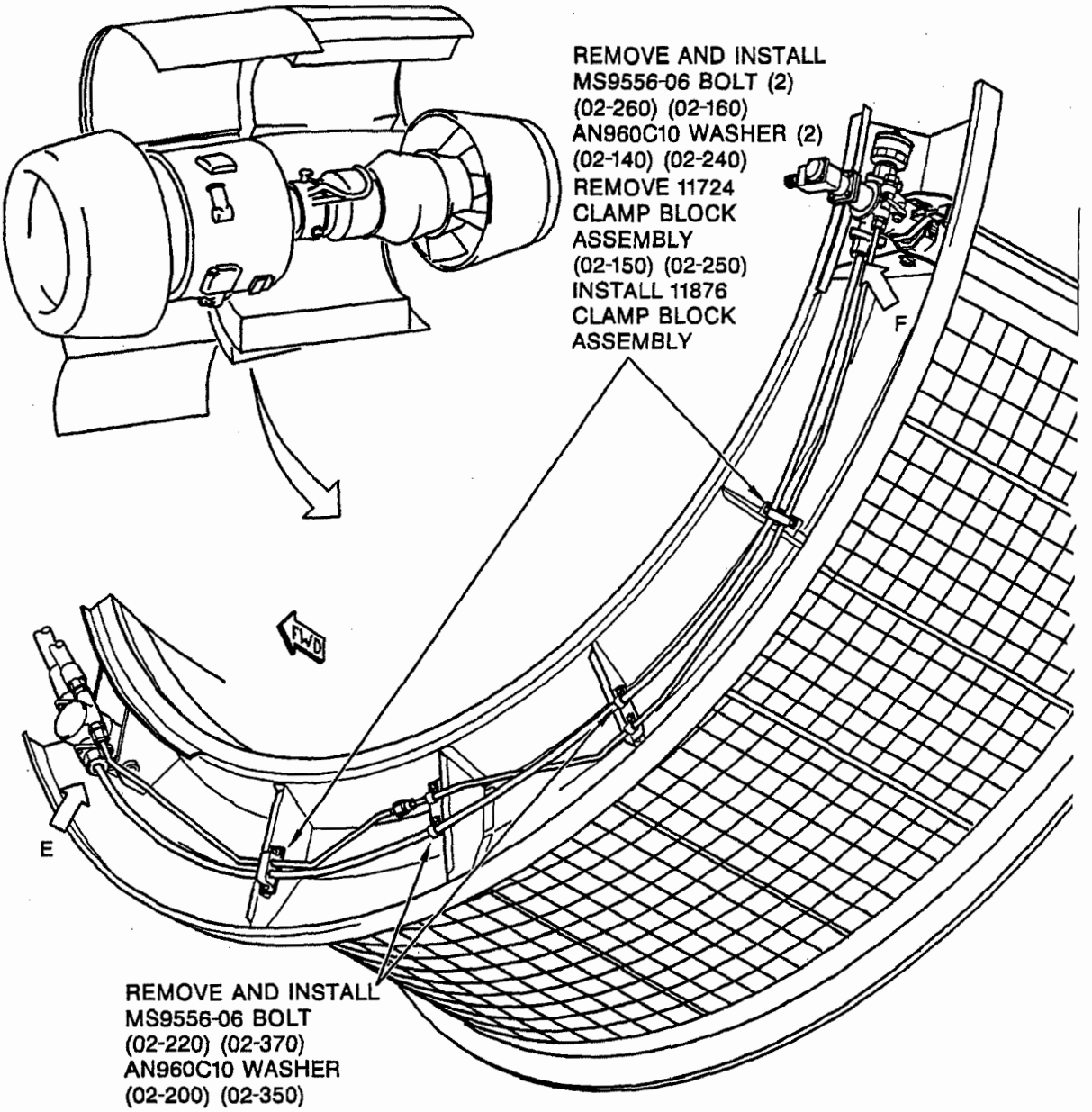
(6) Relocate the clamp/clamp block brackets.

NOTE: One or all of the clamp/clamp block brackets may be relocated as necessary.

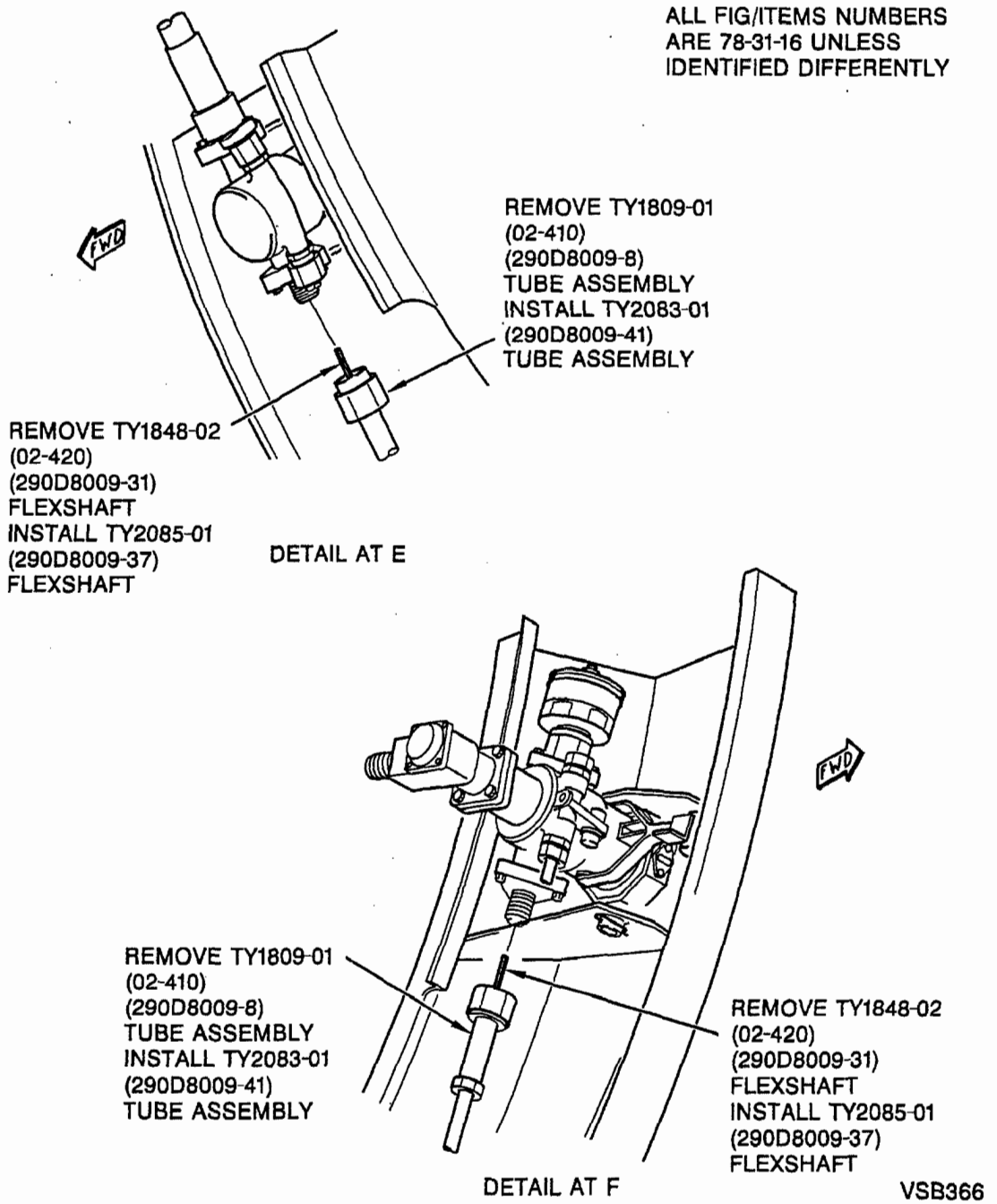
(a) Drill out the existing rivets that attach the bracket(s) to the intercostal(s) with a 0.161-0.165 inch (4.089-4.191 mm) drill. Remove the bracket.

(b) Countersink both sides of the rivet holes in the intercostal to a diameter of 0.267-0.277 inch (6.782-7.036 mm) X 100 deg.

(c) Install the NAS1097AD5 rivets in the drilled/ countersunk holes. Make sure the rivets are flush on both sides.



LOWER THRUST REVERSER CLAMP AND CLAMP BLOCK REMOVAL AND INSTALLATION
FIGURE 4



LOWER THRUST REVERSER TUBE AND FLEXSHAFT REMOVAL AND INSTALLATION
FIGURE 5

WARNING: 1.1.1 TRICHLOROETHANE VAPORS ARE HARMFUL. USE IN A WELL-VENTILATED AREA. AVOID PROLONGED BREATHING OF VAPOR AND PROLONGED OR REPEATED CONTACT WITH SKIN. OVEREXPOSURE MAY CAUSE HEADACHE, DIZZINESS OR DROWSINESS. VAPOR IS HEAVIER THAN AIR AND MAY REPLACE OXYGEN IN A CONFINED AREA. SMOKING AND ARC WELDING SHOULD BE AVOIDED WHEN USING THIS SOLVENT; VAPORS OF DECOMPOSITION MAY CAUSE SERIOUS BODILY HARM. PROTECTIVE GLOVES SHOULD BE WORN DURING USE. MAY CAUSE DERMATITIS BY REMOVING SKIN OILS. PRIOR TO USE OF PRODUCT, CAREFULLY READ THE APPLICABLE 'MATERIAL SAFETY DATA SHEET' AND FOLLOW ALL LISTED SAFETY AND HEALTH PRECAUTIONS.

(d) Clean both sides of the rivets and surrounding area with a clean cloth (CoMat 02-099) made moist with trichloroethane (CoMat 01-001). Wipe the surface dry before solvent becomes dry.

WARNING: DO NOT GET THE CONVERSION COATING ON YOUR SKIN OR IN YOUR EYES. PUT ON PROTECTIVE CLOTHING, GOGGLES AND A FACE MASK. USE IN A WELL VENTILATED AREA. DO NOT BREATHE THE GAS. IF YOU GET THE CONVERSION COATING ON YOUR SKIN YOU MUST FLUSH IT AWAY WITH WATER IMMEDIATELY. IF YOU GET THE CONVERSION COATING IN YOUR EYES, FLUSH IT AWAY WITH WATER FOR AT LEAST 15 MINUTES, THEN GET MEDICAL AID IMMEDIATELY. DO NOT LET THE MATERIALS USED TO APPLY OR REMOVE THE CONVERSION COATING BECOME DRY BECAUSE THEY CAN CAUSE A FIRE. ALL SUCH MATERIALS MUST BE FULLY FLUSHED IN COLD WATER AND THEN DISCARDED.

(e) Mix the chemical conversion coating (CoMat 07-028) in ratio of 3 oz. (88.72 ml) coating to 1.0 gallon (3.79 litre) of demineralized water.

(f) Apply the chemical conversion coating to both sides of the rivets and the surrounding area. Keep the surfaces wet with coating for 2 to 5 minutes.

(g) Rinse the chemical conversion coating off with clean water and dry with a clean dry cloth. Allow the surfaces to air dry for at least 30 minutes.

WARNING: 463-7-26 PRIMER BASE, X337 CONVERTER, AND TL52-66 REDUCER EPOXY PRIMER IS FLAMMABLE AND VAPOR IS HARMFUL. INHALATION OF SPRAY MIST MAY CAUSE SERIOUS BODILY HARM. AVOID SOURCES OF IGNITION. USE ONLY IN AREAS WITH ADEQUATE VENTILATION. WORK PERFORMED IN CONFINED AREAS REQUIRES THE USE OF ADDITIONAL FORCED MECHANICAL VENTILATION. AVOID BREATHING OF VAPOR AND CONTACT WITH SKIN AND EYES. MAY CAUSE IRRITATION TO SKIN AND EYES. SEVERE OVEREXPOSURE MAY CAUSE FATIGUE, WEAKNESS, CONFUSION, HEADACHE, DIZZINESS, DROWSINESS, AND IMPAIRED JUDGEMENT. USE REGULATORY AGENCY APPROVED RESPIRATORY PROTECTION FOR SPRAY APPLICATIONS. THIS PRODUCT CONTAINS LEAD, A CUMULATIVE POISON. WASH HANDS WELL BEFORE EATING, DRINKING, OR SMOKING. PROTECTIVE GLOVES SHOULD BE WORN DURING MIXING AND APPLICATION. PROLONGED OR REPEATED CONTACT WITH THIS EPOXY PRIMER MAY RESULT IN A PERMANENT SKIN ALLERGY TO 463-7-26 BASE AND X337 CONVERTER. PRIOR TO USE OF THIS PRODUCT, CAREFULLY READ THE APPLICABLE ""MATERIAL SAFETY DATA SHEET"" AND FOLLOW ALL LISTED SAFETY AND HEALTH PRECAUTIONS.

(h) Use the manufacturer's instructions to mix the 463-7-26 base (CoMat 07-071), X337 converter (CoMat 07-067), and the TL52-66 thinner (CoMat 07-066).

(i) Apply the primer to the rivets and the surrounding area with a brush.

(j) Allow the primer to cure for a minimum of four hours at room temperature.

(k) Put the bracket on the intercostal so that the clamp/clamp blocks can be installed on the bracket without bending or damaging the tube assembly. Clamp the bracket in place.

(l) Use a 0.161-0.165 inch (4.089-4.191 mm) drill to drill through the existing holes in the bracket and through the intercostal.

(m) Remove the clamping and bracket from the intercostal. Deburr the drilled holes.

(n) Put the bracket on the intercostal, align the holes, and clamp the bracket into place.

(o) Attach the bracket to the intercostal with CR3523-5-2 rivets. Remove the clamp.

(7) Remove and Install Engine Fan Cowl No. 4 Hinge Beam Mounted Tee Piece, Hose Assemblies, and Flexshaft.

(a) Remove upper mid section apron assembly. Retain all parts

(b) Disconnect the CH1806T02 (Rohr P/N 290D8009-9) hose assemblies at the actuators. Remove the TY1846-02 (Rohr P/N 290D8009-27) flexshaft. Refer to Figures 6 and 7.

(c) Disconnect the 290D8044-509 hose assemblies at the actuators.

(d) Disconnect the 290D8044-505(LH)/290D8044-506(RH) hose assembly at the tee piece. Disconnect the 290D8044-503(LH)/290D8044-504(RH) assembly at the tee piece.

(e) Remove the four MS9557-23 bolts, the eight AN960C416 washers and the four NAS1805-4 nuts at the hinge beam tee piece mount. Keep the attach fasteners.

(f) Remove the four MS9556-06 bolts and the four AN960C10 washers at the 290-5192-503 hose mounting brackets. Keep the two TA027028PH12 clamps, the two TA027028PH16 clamps, and the bolts and washers.

(g) Remove the pylon interface starter duct, part number 290D8029-501 (LH)/290D8029-503 (RH).

(h) Remove the TY1913-01 (Rohr P/N 290D8009-13) tee piece and hose assemblies by raising them.

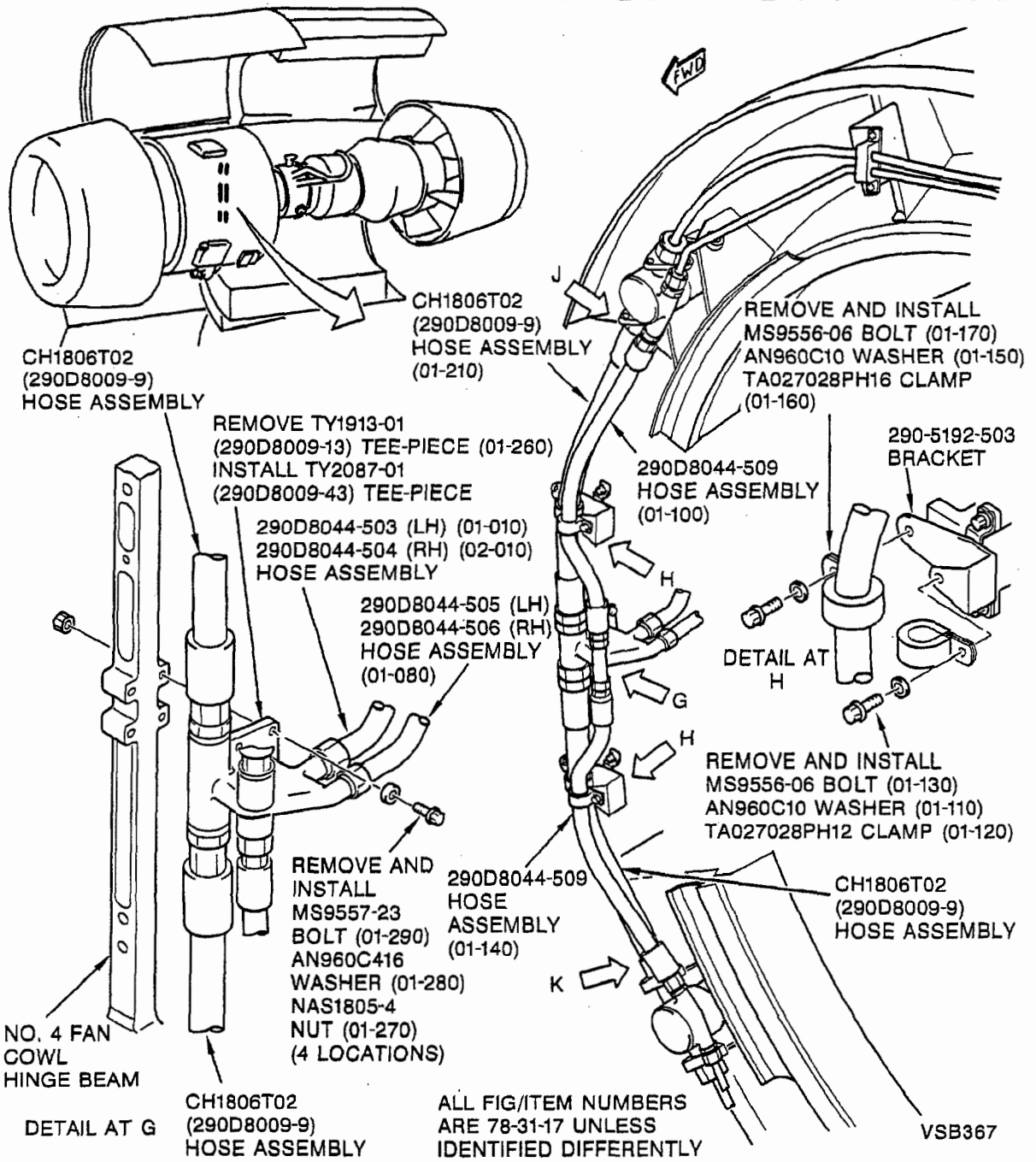
(i) Disconnect the CH1806T02 (Rohr P/N 290D8009-9) and 290D8044-509 hoses from the TY1913-01 (Rohr P/N 290D8009-13) tee piece. Discard the TY1913-01 tee piece.

(j) Connect the CH1806T02 (Rohr P/N 290D8009-9) hoses to the TY2087-01 (Rohr P/N 290D8009-43) tee piece. Tighten the connectors to a torque of 440-480 lb-in (49,71-54,23 Nm).

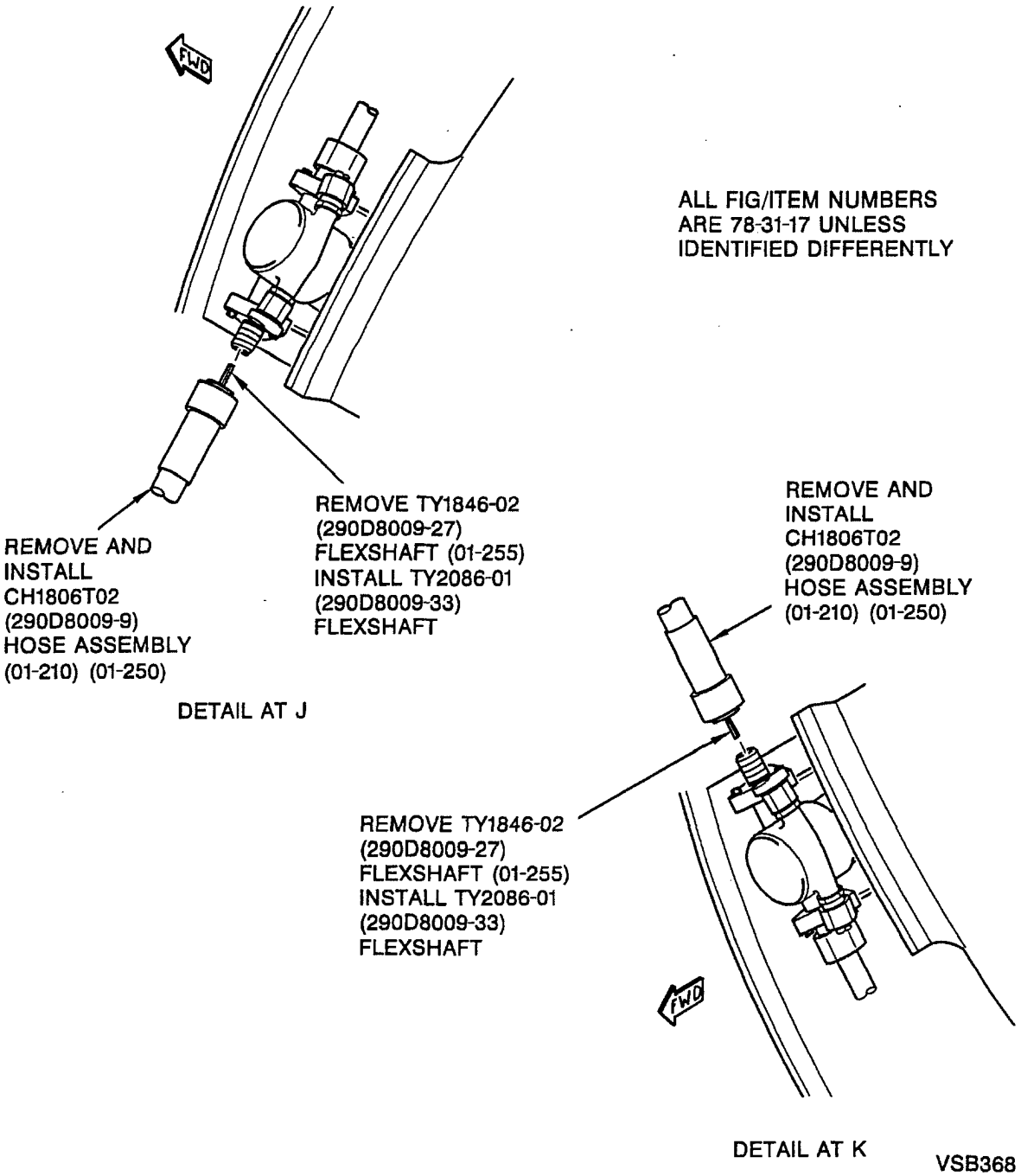
(k) Connect the 290D8044-509 hoses to the TY2087-01 (Rohr P/N 290D8009-43) tee piece. Tighten the connectors to a torque of 210-250 lb-in (23,72-28,25 Nm).

(l) Attach the TY2087-01 (Rohr P/N 290D8009-43) tee piece and hose assemblies to the No. 4 fan cowl hinge beam with four MS9557-23 bolts, eight AN960C416 washers, and four NAS1805-4 nuts. Tighten the nuts to a torque of 50-70 lb-in (5,65-7,91 Nm).

(m) Connect the 290D8044-503(LH)/290D8044-504(RH) hose assembly to the TY2087-01 (Rohr P/N 290D8009-43) tee piece. Tighten the connector to a torque of 620-680 lb-in (70,05-76,83 Nm).



TEE PIECE REMOVAL AND INSTALLATION
FIGURE 6



CROSSOVER FLEXSHAFT REMOVAL AND INSTALLATION
FIGURE 7

(n) Connect the 290D8044-505(LH)/290D8044-506(RH) hose assembly to the TY2087-01 (Rohr P/N 290D8009-43) tee piece. Tighten the connector to a torque of 430-470 lb-in (48,58-53,10 Nm).

(o) Connect the 290D8044-509 hoses to the actuators. Tighten the connectors to a torque of 210-250 lb-in (23,73-28,256 Nm).

(p) Attach the two TA027028PH12 clamps and the two TA027028PH16 clamps to the 290-5192-503 hose mounting brackets with the four MS9556-06 bolts, and the four AN960C10 washers. Tighten the bolts to a torque of 20-25 lb-in (2,26-2,82 Nm).

(q) Connect the (lower) CH1806T02 (Rohr P/N 290D8009-9) hose assembly to the lower actuator, hand tight.

(r) Install the TY2086-01 (Rohr P/N 290D8009-33) flexshaft through the (top) CH1806T02 (Rohr P/N 290D8009-9) hose assembly, the TY2087-01 (Rohr P/N 290D8009-43) tee piece, and the (lower) CH1806T02 (Rohr P/N 290D8009-9) hose assembly into the lower actuator.

(s) Install the TY2086-01 (Rohr P/N 290D8009-33) flexshaft into the upper actuator and connect the CH1806T02 (Rohr P/N 290D8009-9) hose assembly to the actuator.

(t) Tighten the CH1806T02 (Rohr P/N 290D8009-9) connectors at the actuators to a torque of 725-850 lb-in (81,91-96,03 Nm).

(8) Re-identify the thrust reversers as follows:

290-0003-509 as 290-0003-517
290-0003-511 as 290-0003-519
290-0003-513 as 290-0003-521
290-0003-515 as 290-0003-523

Metal stamp, electroetch, or vibroetch on thrust reverser data plate. Refer to IAE V2500 Standard Practices/Processes Manual, Chapter 70-09-00.

C. Post-requisite Instructions

(1) Install the upper and lower translating sleeves. Refer to MD90 Aircraft Maintenance Manual, Chapter 78-32-16.

(2) Adjust the shims at the translating cowl double latch if required. Refer to MD90 Aircraft Maintenance Manual, Chapter 78-32-00, page block 501.

WARNING: REMOVE ALL PERSONS FROM THE AREA AROUND THE THRUST REVERSER BEFORE YOU DO A POWER EXTENSION OR RETRACTION OF THE TRANSLATING SLEEVES. THE TRANSLATING SLEEVES EXTEND AND RETRACT IN 4.5 SECONDS OR LESS AND CAN CAUSE INJURY AND DAMAGE.

CAUTION: MAKE SURE THAT ALL CAUGHT AIR IS BLED FROM THE SYSTEM. IF YOU DO NOT DO THIS, CAUGHT AIR CAN CAUSE UNSATISFACTORY OPERATION OF THE TRANSLATING SLEEVES. TEN CYCLES OF TRANSLATING SLEEVE POWER EXTENSION AND RETRACTION WILL REMOVE ALL CAUGHT AIR FROM THE SYSTEM.

CAUTION: YOU MUST MOVE THE LOCK LEVERS OF BOTH LOCKING ACTUATORS AFT TO THE UNLOCKED POSITION BEFORE YOU BLEED THE SYSTEM. IF YOU DO NOT DO THIS, UNEVEN OPERATION OF THE TRANSLATING SLEEVES CAN CAUSE DAMAGE TO THE SYSTEM.

CAUTION: THE LOCKING ACTUATOR LOCK LEVERS MUST BE RETURNED TO THE FORWARD LOCKED POSITION FOR FLIGHT OPERATION.

(3) Operate the system through ten cycles of translating sleeve power extension and retraction to bleed all caught air from the thrust reverser hydraulic actuation system (Refer to Aircraft Maintenance Manual Chapter 78-32-00, page block 201).

D. Recording Instructions

A record of accomplishment is necessary. Write in aircraft log and metal stamp, electroetch, or vibroetch on thrust reverser data plate that Service Bulletin V2500-NAC-78-0107 has been done. Refer to IAE V2500 Standard Practices/Processes Manual, Chapter 70-09-00.

3. Material Information

Applicability: For each V2500-D5 Nacelle Thrust Reverser and Pylon to incorporate this Bulletin.

A. Kits associated with this Bulletin:

NEW PART NO (ATA NO)	QTY	EST'D UNIT PRICE	KEYWORD	OLD PART NO (IPC NO)	INSTR/ DISPOS
V2578107-551	1		Kit		(A)
Consisting of:					
TA027028PH10	4		Clamp		
11876	4		Clamp		
TY2084-01 (290D8009-35)	1		Flexshaft		
TY2085-01 (290D8009-37)	1		Flexshaft		
TY2082-01 (290D8009-39)	1		Tube		
TY2083-01 (290D8009-41)	1		Tube		
12463 (290D8062-501)	2		Liner		
12464 (290D8062-503)	2		Liner		
V2578107-553	1		Kit		(A)
Consisting of:					
TY2086-01 (290D8009-33)	1		Flexshaft		
TY2087-01 (290D8009-43)	1		Tee		

B. Parts affected by this Bulletin:

NEW PART NO (ATA NO)	QTY	EST'D UNIT PRICE	KEYWORD	OLD PART NO (IPC NO)	INSTR/ DISPOS
11876 (78-31-16)	1		Clamp	11724 (01-020) (01-110) (02-150) (02-250)	(1D)(3D) (S1)
TA027028PH10 (78-31-16)	1		Clamp	TA027028PH08 (01-280 (01-310) (02-360) (02-390)	(1D)(3D) (S1)
TY2082-01 (78-31-16)	1		Tube	TY1808-01 (01-330)	(1D)(S1)
TY2084-01 (78-31-16)	1		Flexshaft	TY1847-02 (01-340)	(1D)(S1)
TY2083-01 (78-31-16)	1		Tube	TY1809-01 (02-410)	(1D)(S1)
TY2085-01 (78-31-16)	1		Flexshaft	TY1848-02 (02-420)	(1D)(S1)
TY2086-01 (78-31-17)	1		Flexshaft	TY1846-02 (01-255) (02-255)	(1D)(S1)
TY2087-01 (78-31-17)	1		Tee	TY1913-01 (01-260) (02-260)	(1D)(S1) (R)
290-0003-521 (78-32-05)	1		Reverser	290-0003-513 (01-005)	(2D)(S1)
290-0003-523 (78-32-06)	1		Reverser	290-0003-515 (01-005)	(2D)(S1)
290-0003-517 (78-32-07)	1		Reverser	290-0003-509 (01-005)	(2D)(S1)

NEW PART NO (ATA NO)	QTY	EST'D UNIT PRICE	KEYWORD	OLD PART NO (IPC NO)	INSTR/ DISPOS
290-0003-519 (78-32-08)	1		Reverser	290-0003-511 (01-005)	(2D)(S1)
12463-00 (78-32-23)	2		Liner	11797-00 (16-010) (18-010)	(1D)(S1)
12464-00 (78-32-23)	2		Liner	11825-00 (20-010) (22-010)	(1D)(S1)

C. Instructions/Disposition Code Statements:

(A) Kit will be available October 1995.

(1D) Discard old part.

(2D) Rework old part to new part.

(3D) Old part may be used in other aircraft installations.

(S1) New parts must be fitted as a set. It is not permitted to mix old and new parts.

(R) Return old part to supplier:

Lucas Flight Controls
Fordhouses
Wolverhampton WV10-7EH, England

Attn: Tony Cooper - Customer Support

NOTE: The estimated 1995 unit prices shown are provided for planning purposes only and do not constitute a firm quotation. Consult the Rohr Price Catalog or contact Rohr's Customer Support Department for information concerning firm prices.

D. The following material is to be procured by the operator or obtained from their stock.

Part Number	Keyword	Qty	Source	Code
Trichloroethane (CoMat 01-001)	Solvent	AR	Commercially Available	---
Lint Free Cloth (CoMat 02-099)	Cloth	AR	Commercially Available	---
463-7-26 (CoMat 07-071)	Base	AR	Rohr Industries Inc. Foot of H St.	51563
X337 (CoMat 07-067)	Converter	AR	P.O. Box 878 Chula Vista, CA	
TL52-66 (CoMat 07-066)	Thinner	AR	92012-0878 USA	
Demineralized Water (CoMat XX-XXX)	Water	AR	Commercially Available	---