

TO 1300i-2-27JG-20-1

TECHNICAL MANUAL

JOB GUIDE

ORGANIZATIONAL MAINTENANCE

FLIGHT CONTROLS RUDDER

(27-20-00 THROUGH 27-21-03)

USAF SERIES

300i

AIRCRAFT

MCDONNELL DOUGLAS CORPORATION

MILITARY TRANSPORT AIRCRAFT

F33657-81-C-2108

FA8526-21-D-0001

THIS MANUAL SUPERSEDES TO 1300i-2-27JG-20-1 DATED 1 FEBRUARY 2024.

DISCLOSURE NOTICE - This information is furnished upon the condition that it will not be released to another nation without the specific authority of the Department of the Air Force of the United States; that it will be used for military purposes only; that individual or corporate rights originating in the information, whether patented or not, will be respected; that the recipient will report promptly to the United States, any known or suspected compromise; and that the information will be provided substantially the same degree of security afforded it by the Department of Defense of the United States. Also, regardless of any other markings on the document, it will not be downgraded or declassified without written approval of the originating United States agency.

DISTRIBUTION STATEMENT D - Distribution authorized to the Department of Defense and U.S. DoD contractors only; (CTI); (12 September 2024). Other requests for this documentation must be referred to AFLCMC/WLM, Robins AFB, GA 31098-2428.

WARNING - This document contains technical data whose export is restricted by the Arms Export Control Act (Section 2751 of Title 22, United States Code) or the Export Control Reform Act of 2018 (Chapter 58 Sections 4801-4852 of Title 50, United States Code). Violations of these export laws are subject to severe criminal penalties. Disseminate in accordance with provisions of DoD Directive 5230.25 and DoD Instruction 2040.02.

Basic and all changes have been merged to make this a complete publication.

Published under authority of the Secretary of the Air Force

1 FEBRUARY 2025

TO 1300i-2-27JG-20-1

HANDLING AND DESTRUCTION NOTICE - Comply with distribution statement and destroy by any method that will prevent disclosure of the contents or reconstruction of the document.

Published under authority of the Secretary of the Air Force

T-2

1 FEBRUARY 2025

INSERT LATEST CHANGED PAGES. DESTROY SUPERSEDED PAGES.

LIST OF EFFECTIVE PAGES

NOTE: The portion of the text affected by the changes is indicated by a vertical line in the outer margins of the page. Changes to illustrations are indicated by miniature pointing hands.

Dates of issue for original and changed pages are:

Original 0 1 Feb 25

TOTAL NUMBER OF PAGES IN THIS PUBLICATION IS 176 CONSISTING OF THE FOLLOWING:

Page No.	* Change No.	Page No.	* Change No.
Title thru T-2	0		
A.	0		
B blank	0		
i	0		
ii blank	0		
iii thru iv	0		
1-1 thru 1-4	0		
2-1 thru 2-2	0		
2-3 blank	0		
2-4 thru 2-17.	0		
2-18 blank	0		
2-19 thru 2-49	0		
2-50 blank	0		
2-51 thru 2-54	0		
2-55 blank	0		
2-56 thru 2-131	0		
2-132 blank	0		
2-133 thru 2-138.	0		
2-139 blank	0		
2-140 thru 2-164.	0		

*Zero in this column indicates an original page.

TABLE OF CONTENTS

<u>SECTION</u>	<u>TO NO.</u>	<u>S/S/SN or PAGE</u>
INTRODUCTION		
Scope		iii
Model(s) covered		iii
Abbreviations		iii
Change request		iii
300i TO information		iii
List of Time Compliance Technical Orders (TCTO) . .		iv
1. GENERAL INFORMATION (27-20-00)		
General information		1-1
Rudder rig load vs. temperature chart		1-1
General warnings, cautions, and notes		1-4
2. MAINTENANCE INSTRUCTIONS		
Rudder system operational checkout	27-20-01	
Rudder mechanical controls and surfaces system operational checkout	27-21-01	
Mechanical controls and surfaces system adjustment	27-21-02	
Rudder mechanical controls and surfaces system repair	27-21-03	

INTRODUCTION

SCOPE.

This job guide provides maintenance procedures for the operational checkout, repair, and adjustment of rudder mechanical controls and surfaces system.

MODEL(S) COVERED.

All

ABBREVIATIONS.

The following is a list of non-standard abbreviations used throughout this manual:

APCI	Automatic Pilot Control Indicator
EPC	Electrical Power Center
MFD	Multifunction Display
PLCS	Places

CHANGE REQUEST.

Recommended changes to this manual shall be submitted in accordance with TO 00-5-1.300i **TO INFORMATION.**

General 300i TO/eTO, TO Manager, Supplement and finalized Recommended Change (RC) information can be found in the Enhanced Technical Information Management System (ETIMS), System of Record.

➤ LIST OF TIME COMPLIANCE TECHNICAL ORDERS (TCTO).

This list of TCTO's contains all current TCTO's that affect the technical content of text or illustrations found in this manual.

TCTO NUMBER	TITLE	TCTO DATE	APPLICABILITY

SECTION 1

GENERAL INFORMATION (27-20-00)

1-1. GENERAL INFORMATION.

1-2. This section provides general information that is essential for ensuring complete and safe maintenance procedures contained throughout this manual.

1-3. When operating an auxiliary motor pump below 15 degrees Fahrenheit, a 30 seconds on/30 seconds off duty cycle for a maximum 10 cycles may be required to reach full hydraulic pressure of 3800 to 4200 psi. Allow ten minutes for cooling and repeat cycles.

1-4. Hydraulic system No. 2 may require 45 seconds before reaching full hydraulic pressure of 3800 to 4200 psi.

1-5. Flight control surfaces are to be cleared prior to turning off hydraulic auxiliary pumps from the loadmaster control panels. Flight control surface movement may occur.

1-6. To avoid erroneous cable tension readings, perform all cable rig load checks at aircraft stable temperature throughout condition.

1-7. To achieve aircraft stable temperature throughout, it is necessary to locate aircraft in hangar. Rig load checks are to be performed after a time period of at least three hours from initial placement of the aircraft in the hangar (this will allow fuselage external and internal temperatures to equalize as heat or cold soak condition dissipates). For rig load limits, refer to Para 1-9.

1-8. An alternate method is to perform rig load checks between the time period of three hours after sunset and one hour after sunrise (this will allow fuselage external and internal temperatures to equalize as heat or cold soak condition dissipates). For rig load limits, refer to Para 1-9.

1-9. RUDDER RIG LOAD VS. TEMPERATURE CHART.

NOTE

- This chart is only valid for aircraft that have reached a uniform temperature throughout.

NOTE - Continued

- Loads at 135 °F represent limit rig load for design.
- The cable tension requirement per Rudder Rig Load vs Temperature Chart, 1/8"-75 lb Rig @ 70 °F shall apply for rudder cable runs 1 and 2.
- Minimum Allow Service load is the minimum cable load acceptable before any tensioning of the cable is required. When tensioning is required, adjust cable tension until the final rig load is between the maximum and minimum initial rig load.

Rudder Rig Load versus Temperature Chart 1/8"-75 lb Rig @ 70 °F.			
TEMP (°F)	MIN INITIAL (lbf)	MAX INITIAL (lbf)	MIN ALLOW SERVICE (lbf)
135	105	116	95
130	102	113	92
125	100	110	90
120	98	107	88
115	95	105	86
110	93	102	83
105	90	99	81
100	88	97	79
95	86	94	77
90	84	92	75
85	81	90	73
80	79	87	71
75	77	85	69
70	75	82	67
65	73	80	66
60	71	78	64
55	69	76	62
50	67	74	60
45	65	71	58
40	63	69	57

**Rudder Rig Load versus Temperature Chart 1/8"-75 lb Rig @
70 °F.**

TEMP (°F)	MIN INITIAL (lbf)	MAX INITIAL (lbf)	MIN ALLOW SERVICE (lbf)
35	61	67	55
30	59	65	53
25	57	63	52
20	56	61	50
15	54	59	48
10	52	57	47
5	50	55	45
0	49	53	44
-5	47	52	42
-10	45	50	41
-15	44	48	39
-20	42	46	38
-25	40	44	36
-30	39	43	35
-35	37	41	33
-40	36	39	32
-45	34	38	31
-50	33	36	29
-55	31	34	28
-60	30	33	27

1-10. Rig pins are used extensively during flight control rigging procedures. To ensure accurate alignment of control system and repeatability of the rigging checks, whenever rig pins are used, differentially adjust the applicable turnbuckle so that the rig pin can be freely removed and inserted. Under no circumstances, should the rig pin holes be forced into alignment by stretching the cables. Rig pin hole shall not spring out of alignment when pin is removed. When a rig pin cannot be freely removed or inserted, the applicable turnbuckle shall be adjusted within tolerances to eliminate any required force.

1-11. To complete the rigging procedures, the system shall be cycled 10-20 times, and cable tensions rechecked and adjusted when necessary.

1-12. For all nonregulated cable systems, certified tensiometers shall be used for measuring cable tensions. For initial cable rigging, the rig load tolerances for all temperatures are as follows:

70 °F RIG LOAD (lbs)	TOLERANCES (lbs)
0 to 19	+4, -0
20 to 49	+5, -0
50 and over	+10 percent, -10 percent

1-13. The following tolerances shall be used for all cable tension inspections that are made after the above specified inspection:

70 °F RIG LOAD (lbs)	TOLERANCES (lbs)
0 to 19	+4, -3
20 to 49	+5, -4
50 and over	+10 percent, -10 percent

1-14. GENERAL WARNINGS, CAUTIONS, AND NOTES.

WARNING

All flight control surfaces and engine thrust reverser areas must be cleared of personnel and equipment prior to application of hydraulic power. Failure to comply may cause injury to personnel and damage to equipment.

CAUTION

Air in a hydraulic system can cause numerous malfunctions, from a total system failure to a minor indication problem. When you suspect air has been inducted into a system by removing a hydraulic component or a line, refer to the hydraulic system bleed procedure (12-29-08). Failure to comply may cause damage to aircraft.

SECTION 2

RUDDER SYSTEM OPERATIONAL
CHECKOUT
(27-20-01)

GENERAL MAINTENANCE INPUT CONDITIONS:

Applicability:	Task
All	All

Additional information:

This procedure consists of the following task:

- 01-1. Rudder system operational checkout.

Additional data:	Task
TO 1300i-2-22FI-00-1	All
TO 1300i-2-29JG-20-1	All
TO 1300i-2-31JG-60-1	All

Personnel recommended:	Task
One	All

Safety conditions:	Task
--------------------	------

WARNING

To avoid injury, death, or damage to equipment,
personnel and equipment must be clear of flight
control surfaces.

All

Support equipment:

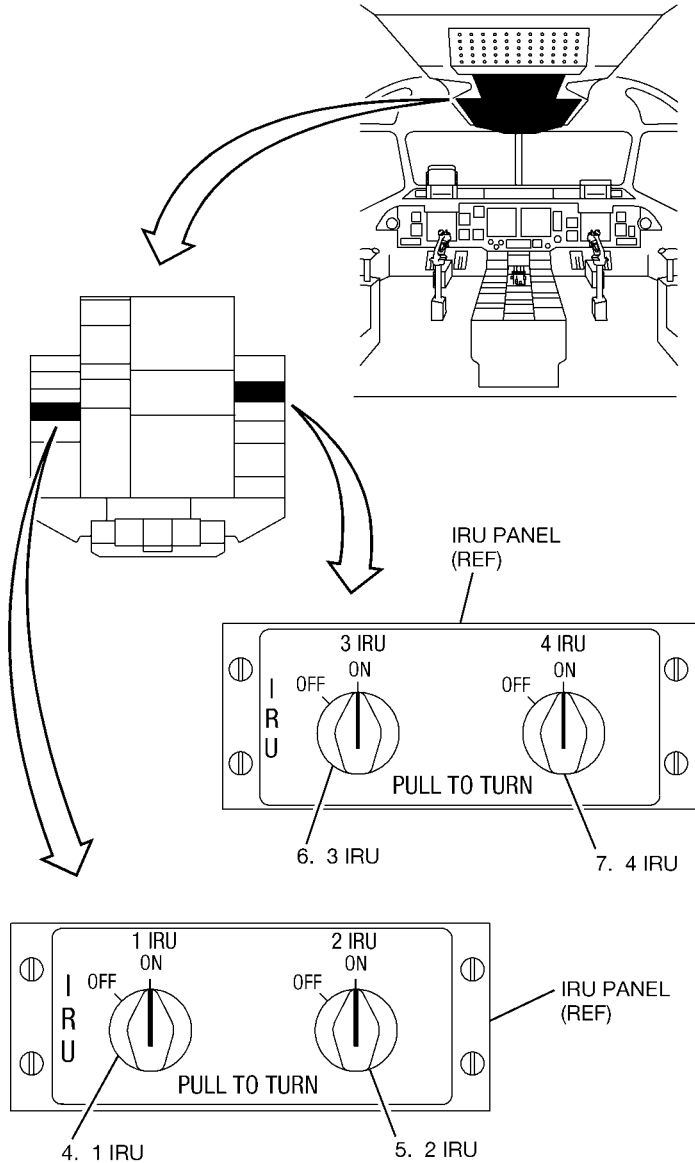
<u>Nomenclature</u>	<u>PN</u>	<u>Specification</u>	<u>Qty</u>	<u>Task</u>
NA	--	--	--	--

Supplies:

<u>Nomenclature</u>	<u>PN</u>	<u>Specification</u>	<u>Qty</u>	<u>Task</u>
NA	--	--	--	--

01-1. RUDDER SYSTEM OPERATIONAL CHECKOUT.

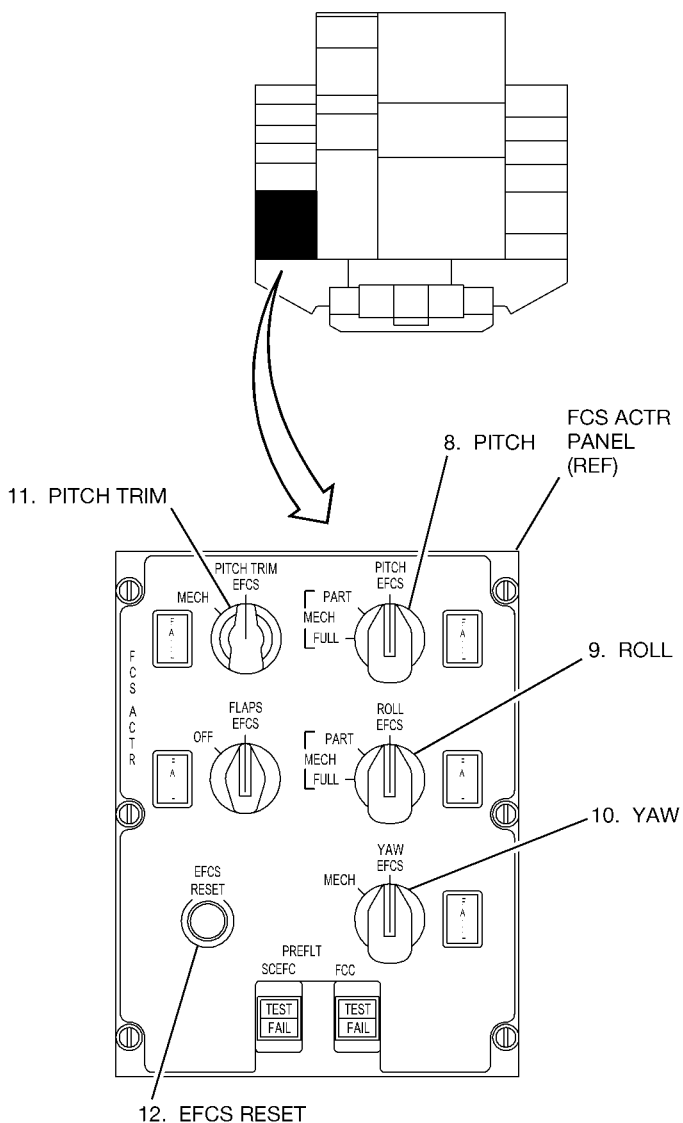
1. Review "Section 1 (General Information)" of this TO for system general warnings, cautions, and notes.
2. Review task "General Maintenance Input Conditions" page for task specific safety conditions.
3. Perform multifunction displays system operation and select **CFG** format (31-61-02, task 02-1 or 02-2).
4. Set **1 IRU** switch on **IRU** panel to **ON**.
5. Set **2 IRU** switch to **ON**.
6. Set **3 IRU** switch on **IRU** panel to **ON**.
7. Set **4 IRU** switch to **ON**.



ICN-88277-G2720017-005-01

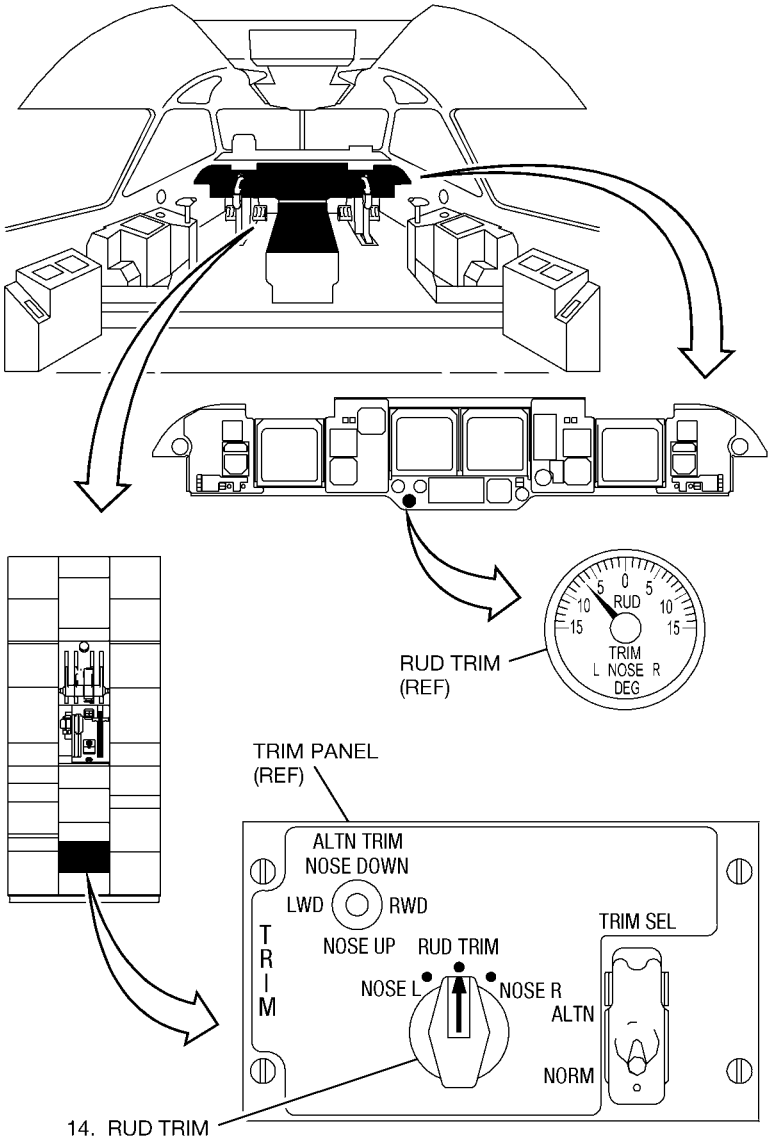
TO 1300i-2-27JG-20-1

8. Set **PITCH** switch on **FCS ACTR** panel to **EFCS**.
9. Set **ROLL** switch to **EFCS**.
10. Set **YAW** switch to **EFCS**.
11. Set **PITCH TRIM** switch to **EFCS**.
12. Press **EFCS RESET** button.
13. Perform auxiliary system operation (29-20-01, task 01-1).



ICN-88277-G2720016-002-01

14. Rotate and hold **RUD TRIM** switch on **TRIM** panel until **RUD TRIM** indicator reads **0**.



ICN-88277-G2720020-002-01

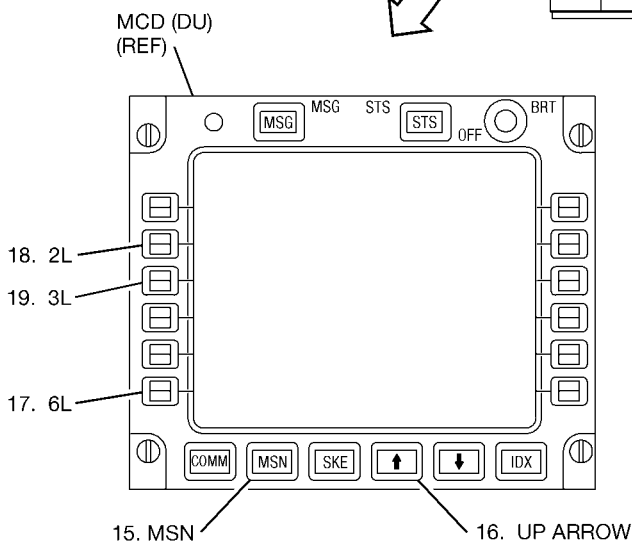
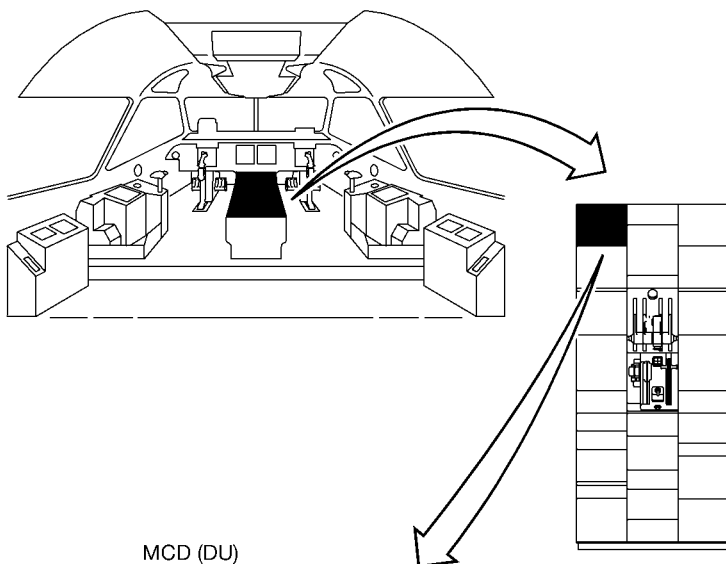
TO 1300i-2-27JG-20-1

15. Press **MSN** key on **MCD (DU)**.
 - **MSN INDEX 1** is displayed.
16. Press up arrow key.
 - **MSN INDEX 2** is displayed.
17. Press 6L Line Select (LS) key.
 - **MAINTENANCE MENU** is displayed.
18. Press 2L LS key.
 - **EFCS MAINT MENU** is displayed.

NOTE

A fault list and history of each line replaceable unit can be accessed from **EFCS MAINT MENU** page by pressing 1L or 2L LS key.

19. Press 3L LS key.
 - **EFCS MAINTENANCE BIT** is displayed.



(TYPICAL)

ICN-88277-G2720021-003-01

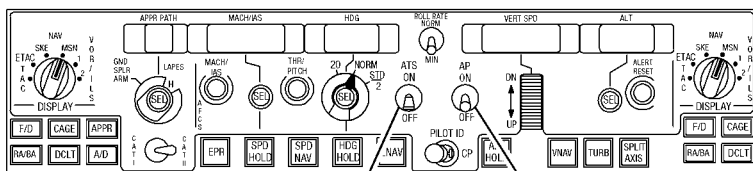
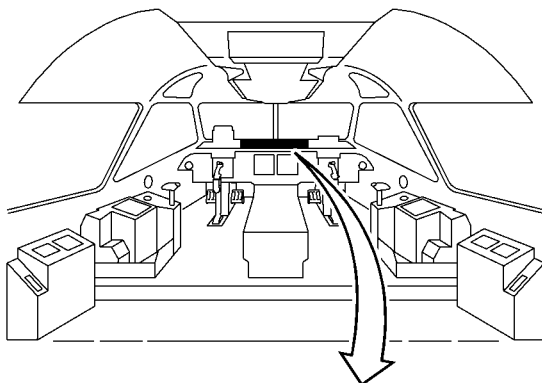
NOTE

ATS and **AP** switches on Automatic Pilot Control Indicator (APCI) must be set simultaneously to access **EFCS MAINTENANCE BIT** menu.

20. Set **ATS** switch on APCI panel to **ON**.
21. Set **AP** switch to **ON**.
 - **EFCS MAINTENANCE BIT ENTRY IN PROGRESS** is displayed on **MCD (DU)**.
 - **EFCS MAINTENANCE BIT** page **1/5** is displayed.
22. Press up arrow key on **MCD (DU)** three times.
 - **EFCS MAINTENANCE BIT** page **4/5** is displayed.

NOTE

- Test may be aborted at any time by pressing 6L Line Select (LS) key.
 - Refer to TO 1300i-2-22FI-00-1 to correct any failure condition.
 - Do not move rudder pedals while **IN PROGRESS** is displayed.
23. Press 1R LS key.
 - **EFCS MAINTENANCE BIT Y_MECH IN PROGRESS** is displayed.
 24. Follow instructions on **MCD (DU)**.
 - **TEST PASSED** is displayed.

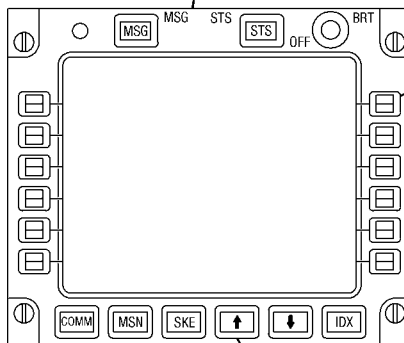


APCI PANEL
(REF)

20. ATS

21. AP

24. MCD (DU)



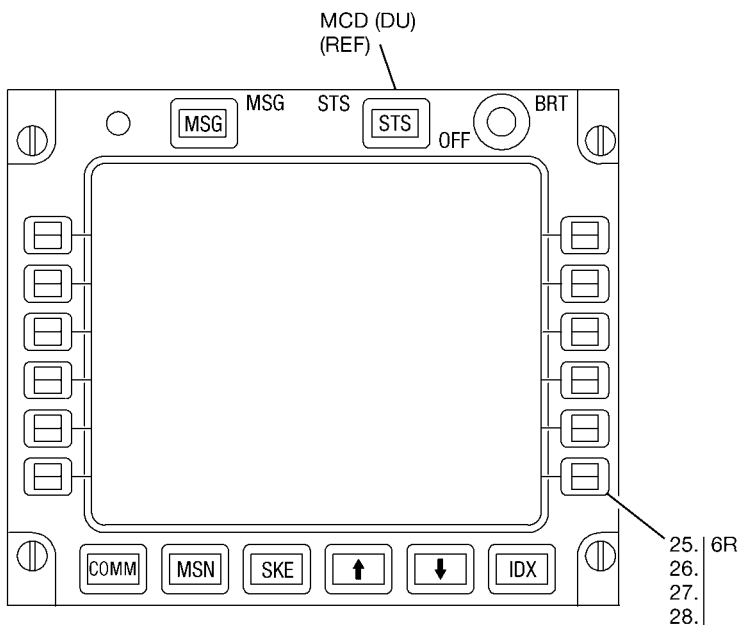
23. 1R

22. UP ARROW

ICN-88277-G2720022-003-01

TO 1300i-2-27JG-20-1

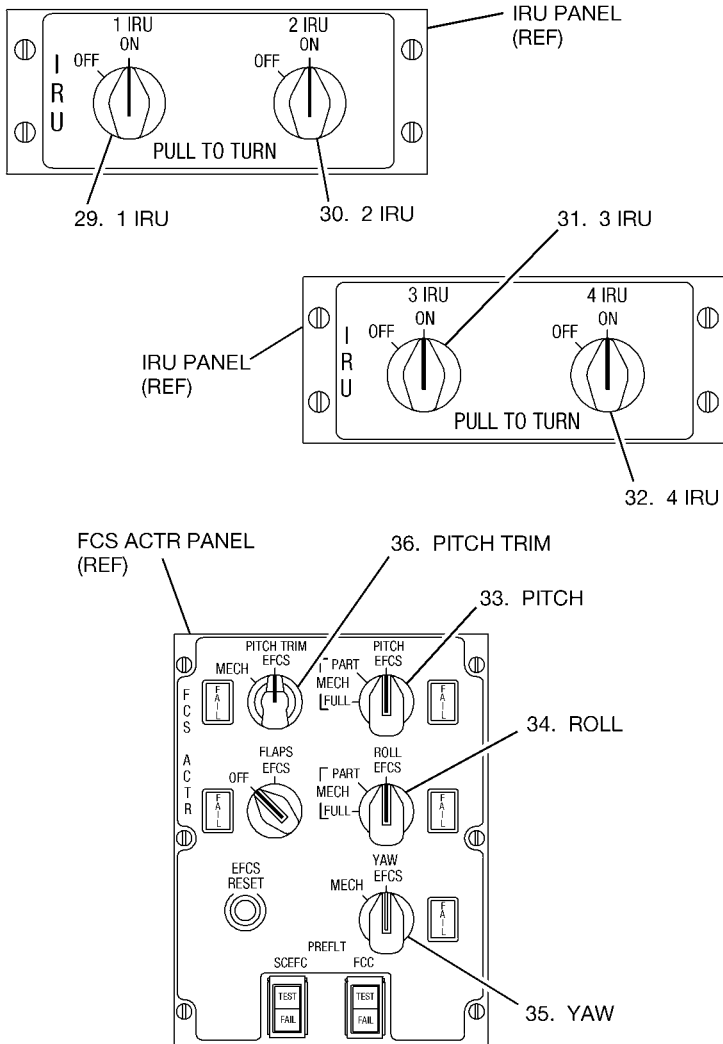
25. Press 6R LS key.
 - **EFCS MAINTENANCE BIT PAGE 4/5** is displayed.
26. Press 6R LS key.
 - **EFCS MAINT MENU** is displayed.
27. Press 6R LS key.
 - **MAINTENANCE MENU** is displayed.
28. Press 6R LS key.
 - **MSN INDEX 2** is displayed.



ICN-88277-G2720023-003-01

TO 1300i-2-27JG-20-1

29. Set **1 IRU** switch on **IRU** panel to **OFF**.
30. Set **2 IRU** switch to **OFF**.
31. Set **3 IRU** switch on **IRU** panel to **OFF**.
32. Set **4 IRU** switch to **OFF**.
33. Set **PITCH** switch on **FCS ACTR** panel to **FULL MECH**.
34. Set **ROLL** switch to **FULL MECH**.
35. Set **YAW** switch **MECH**.
36. Set **PITCH TRIM** switch to **MECH**.
37. Perform auxiliary system operation (29-20-01, task 01-2).
38. Perform multifunction displays system operation (31-61-02, task 02-3 or 02-4).



ICN-88277-G2720024-004-01

**RUDDER MECHANICAL CONTROLS AND
SURFACES SYSTEM OPERATIONAL
CHECKOUT
(27-21-01)**

GENERAL MAINTENANCE INPUT CONDITIONS:

Applicability:	Task
All	All

Additional information:

This procedure consists of the following tasks:

- 01-1. Rudder mechanical controls and surfaces system operational checkout.
- 01-2. Mechanical controls and surfaces system breakout force operational checkout.

Additional data:	Task
TO 1300i-2-10JG-60-1	01-2
TO 1300i-2-12JG-29-1	01-2
TO 1300i-2-23JG-40-1	All
TO 1300i-2-27FI-00-1	All
TO 1300i-2-29JG-20-1	01-1
TO 1300i-2-31JG-60-1	01-1

Personnel recommended:	Task
Two	01-2
Three	01-1
Person (A) performs task.	
Person (B) assists person (A).	

Task

Person (C) ground observer.

Safety conditions:

Task

NA

--

Support equipment:

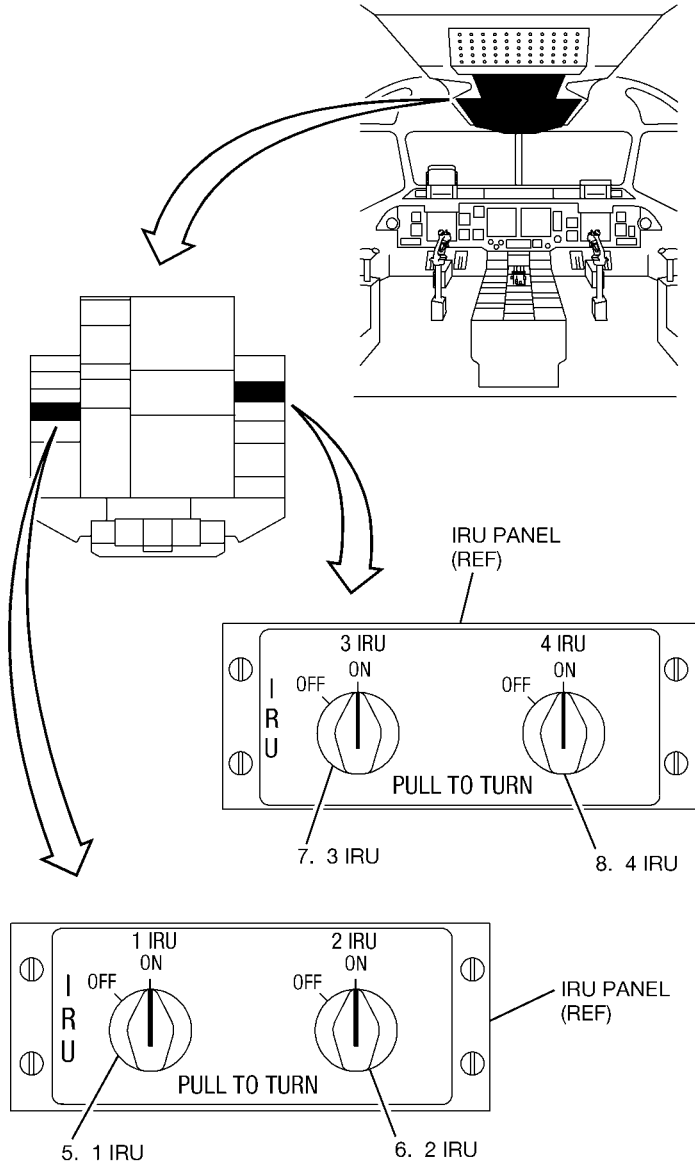
<u>Nomenclature</u>	<u>PN</u>	<u>Specification</u>	<u>Qty</u>	<u>Task</u>
Tensiometer, Dial	L20	--	1	01-2

Supplies:

<u>Nomenclature</u>	<u>PN</u>	<u>Specification</u>	<u>Qty</u>	<u>Task</u>
NA	--	--	--	--

01-1. RUDDER MECHANICAL CONTROLS AND SURFACES SYSTEM OPERATIONAL CHECKOUT.

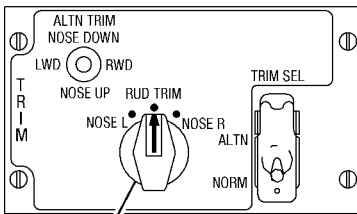
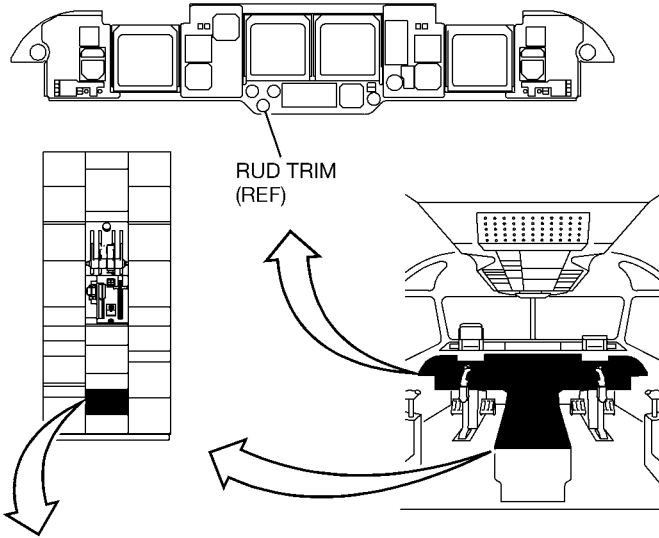
1. Review "Section 1 (General Information)" of this TO for system general warnings, cautions, and notes.
2. Review task "General Maintenance Input Conditions" page for task specific safety conditions.
3. Perform multifunction displays system operation and select **CFG** format (31-61-02, task 02-1 or 02-2).
4. Perform interphone system operation (23-41-02, task 02-3).
5. (A) Set **1 IRU** switch on **IRU** panel to **ON**.
6. (A) Set **2 IRU** switch to **ON**.
7. (A) Set **3 IRU** switch on **IRU** panel to **ON**.
8. (A) Set **4 IRU** switch to **ON**.



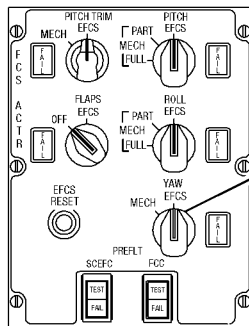
ICN-88277-G2721448-002-01

TO 1300i-2-27JG-20-1

9. (A) Set **YAW** switch on **FCS ACTR** panel to **EFCS**.
10. (A) Rotate and hold **RUD TRIM** switch on **TRIM** panel.
 - **RUD TRIM** indicator reads 0 (27-21-AU-00).
11. Perform auxiliary system operation (29-20-01, task 01-1).



10. RUD TRIM



9. YAW

ICN-88277-G2720001-003-01

WARNING

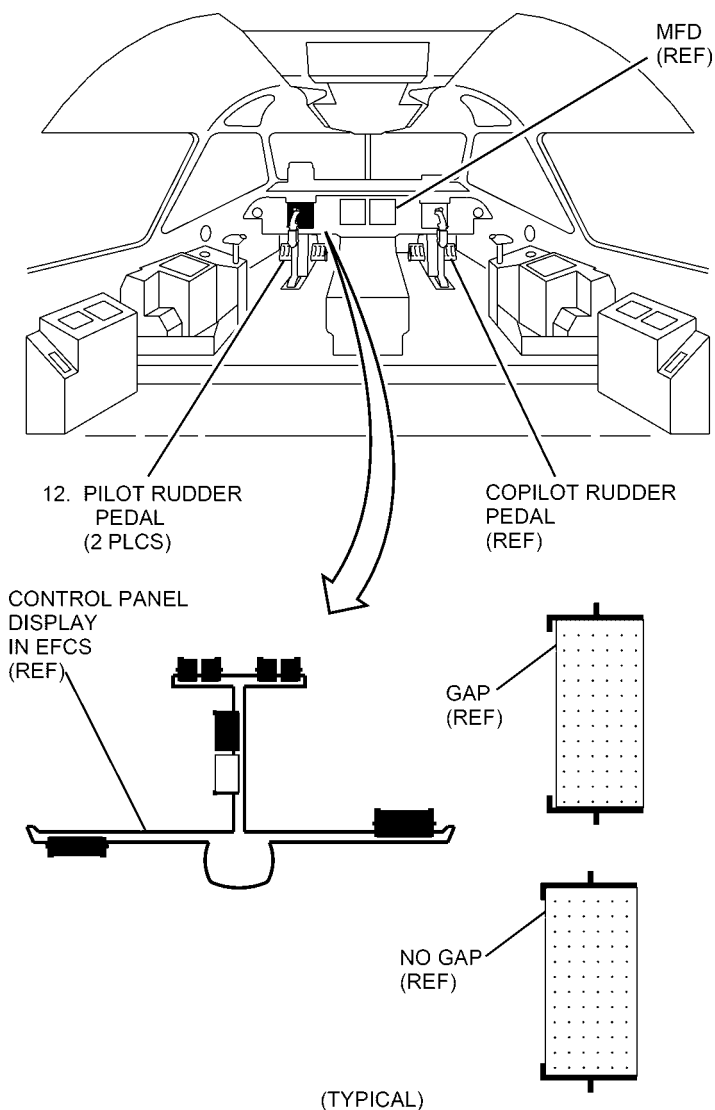
All flight control surfaces shall be clear of personnel and equipment prior to movement. Failure to comply may cause injury to personnel or damage to aircraft.

NOTE

- One full rudder cycle is defined as rudder left, rudder right, and neutral.
- The minimum acceptable full surface deflection for the upper and lower rudders in **EFCS** is displayed as full scale on the Multifunction Display (MFD) CFG page. Full scale is defined as when no gap between the surface deflection and the full scale brackets.

12. (A) Operate pilot rudder pedals through one full cycle in **EFCS**; observe MFD for rudder position.

- MFD indicates proper rudder position (27-23-AB-__).
- Rudder position displays no gap on MFD when pedals are at full deflection (27-23-AB-__).
- Copilot rudder pedals follow pilot rudder pedals movement (27-21-AR-00).

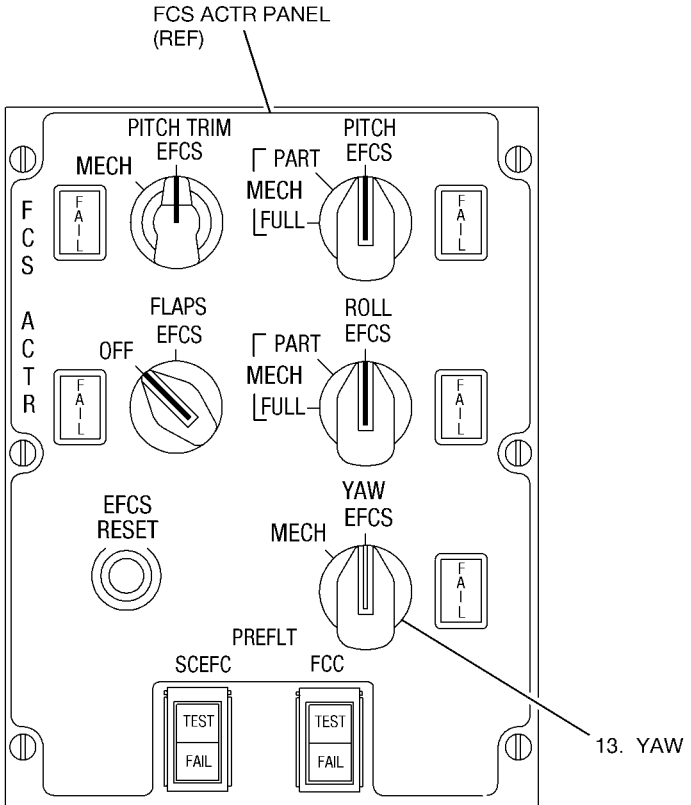


ICN-88277-G2720002-005-01

NOTE

When **YAW** switch on **FCS ACTR** panel is switched from **EFCS** to **MECH** a momentary lower rudder shudder may be felt or observed. A rudder shudder lasting no more than 10 seconds is considered acceptable.

13. (A) Set **YAW** switch on **FCS ACTR** panel to **MECH**.



ICN-88277-G2721005-001-01

WARNING

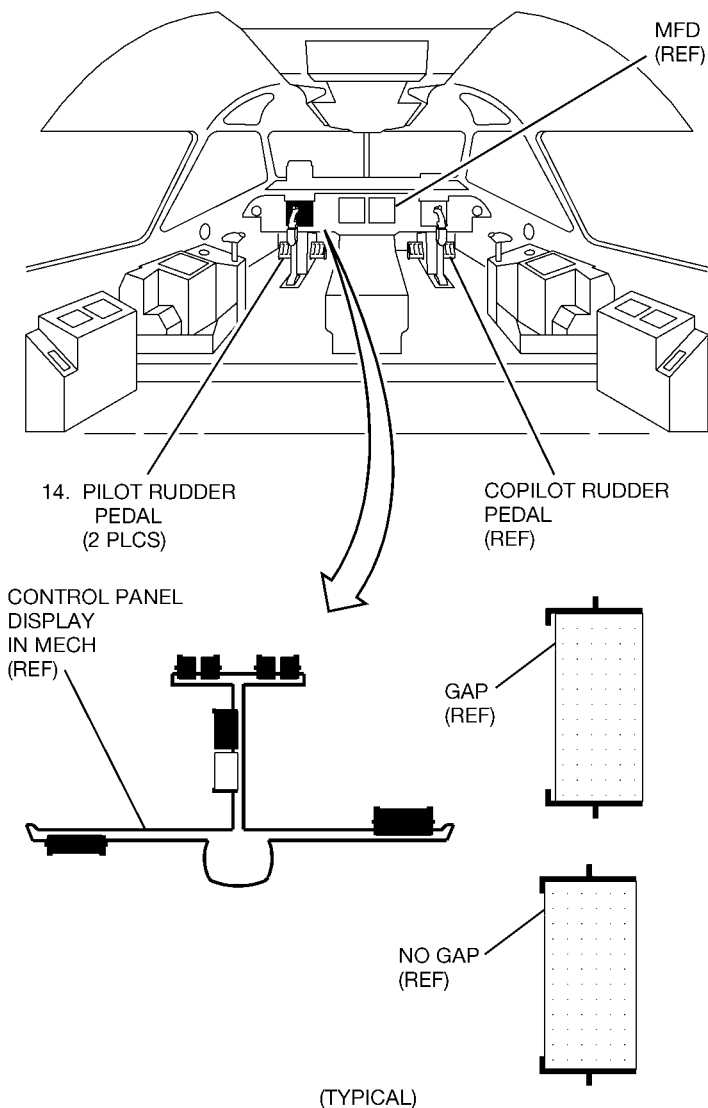
All flight control surfaces shall be clear of personnel and equipment prior to movement. Failure to comply may cause injury to personnel or damage to aircraft.

NOTE

- One full rudder cycle is defined as rudder left, rudder right, and neutral.
- The minimum acceptable full surface deflection for the lower rudder in **MECH** is displayed as close to full scale on the MFD CFG page. Close to full is defined as when the gap displayed between the surface deflection and the full scale bracket is no wider than the width of the full scale bracket display line.

14. (A) Operate pilot rudder pedals through one full cycle in **MECH**; observe rudder position on MFD.

- MFD indicates proper rudder position (27-21-00-00).
- Lower rudder position displays at least minimum full surface deflection on MFD when pedals are at full deflection (27-21-AX-00).
- Copilot rudder pedals follow pilot rudder pedals movement (27-21-AR-00).



ICN-88277-G2721006-001-01

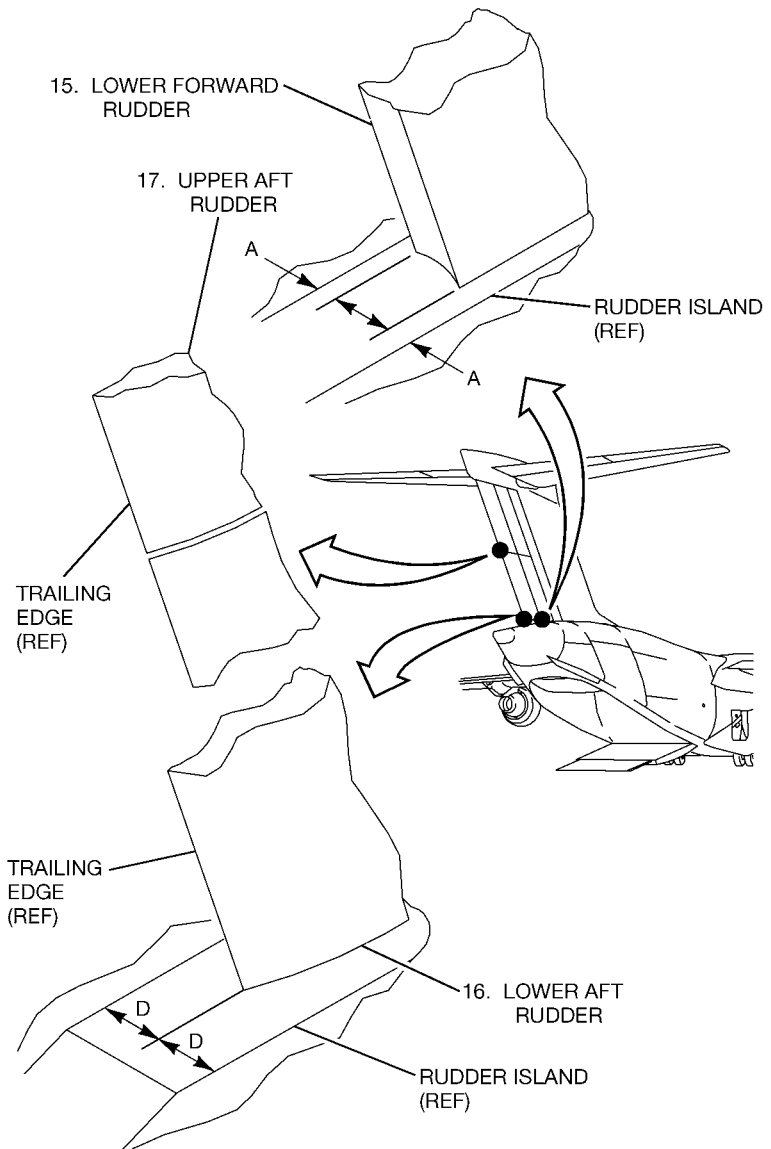
TO 1300i-2-27JG-20-1

15. (B,C) Measure right and left trailing edge of lower forward rudder to edge of rudder island.
 - Dimension A is equal within ± 0.50 inch (27-21-02, tasks 02-1, 02-4 and 02-6).
16. (B,C) Measure right and left trailing edge of lower aft rudder to edge of rudder island.
 - Dimension D is equal within 1.00 inch (27-21-02, tasks 02-1, 02-4 and 02-6).

NOTE

Dimensions are taken from either side of rudders.

17. (B,C) Measure lower trailing edge of upper aft rudder and upper trailing edge of lower aft rudder.
 - The upper rudder trailing edge lines up with lower rudder trailing edge within ± 1.00 inch (27-21-02, tasks 02-1, 02-4 and 02-6).

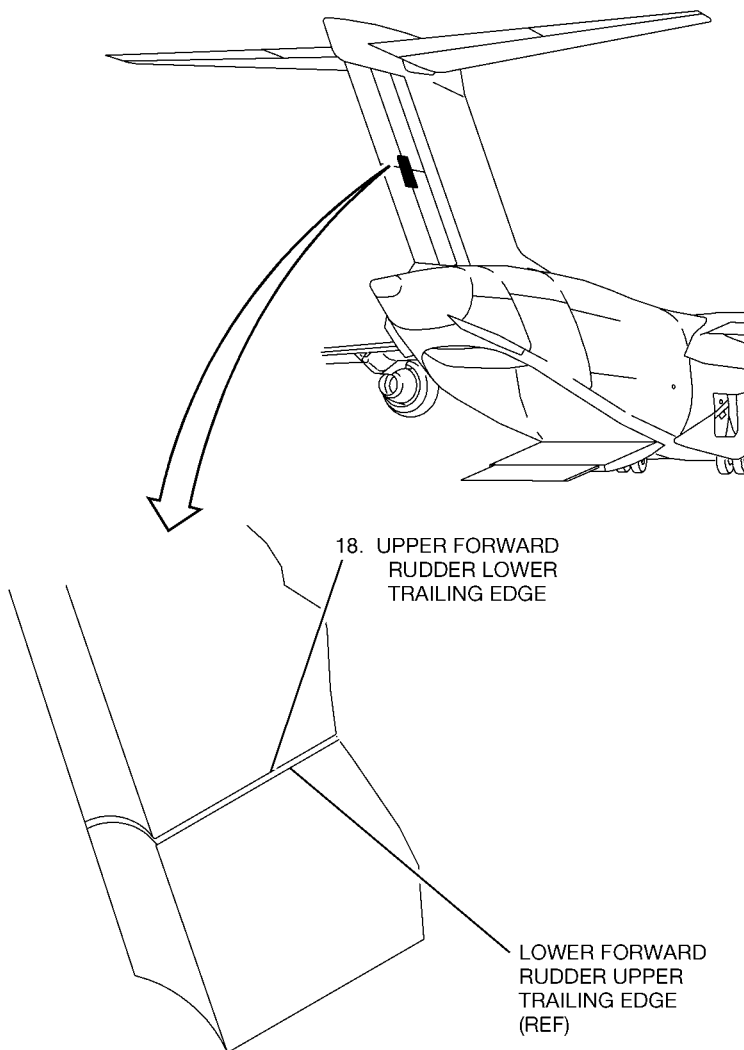


ICN-88277-G2721007-001-01

NOTE

Dimensions are taken from either side of rudders.

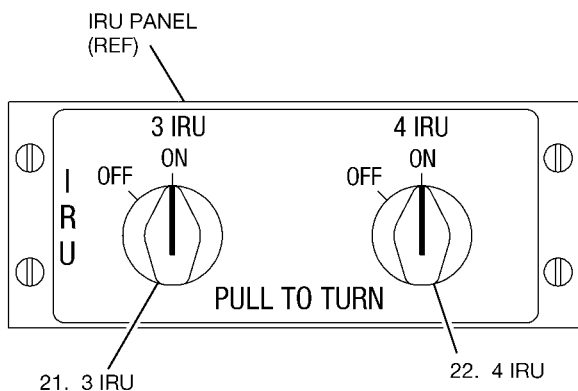
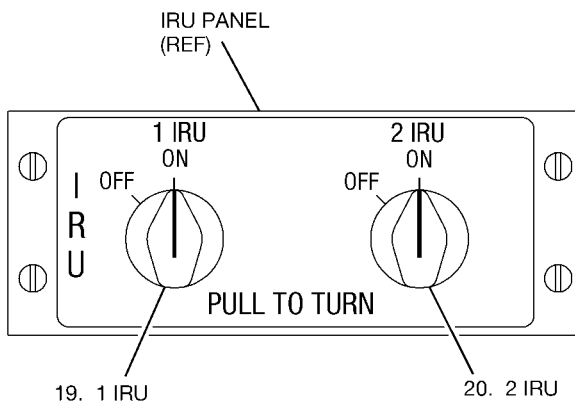
18. (B,C) Measure lower trailing edge of upper forward rudder and upper trailing edge of lower forward rudder.
 - The upper rudder trailing edge lines up with lower rudder trailing edge within ± 0.50 inch (27-21-02, tasks 02-1, 02-4 and 02-6).



ICN-88277-G2721008-001-01

TO 1300i-2-27JG-20-1

19. (A) Set **1 IRU** switch on **IRU** panel to **OFF**.
20. (A) Set **2 IRU** switch to **OFF**.
21. (A) Set **3 IRU** switch on **IRU** panel to **OFF**.
22. (A) Set **4 IRU** switch to **OFF**.
23. Perform auxiliary system operation (29-20-01, task 01-2).
24. Perform interphone system operation (23-41-02, task 02-4).
25. Perform multifunction displays system operation (31-61-02, task 02-3 or 02-4).



01-2. MECHANICAL CONTROLS AND SURFACES SYSTEM BREAKOUT FORCE OPERATIONAL CHECKOUT.

NOTE

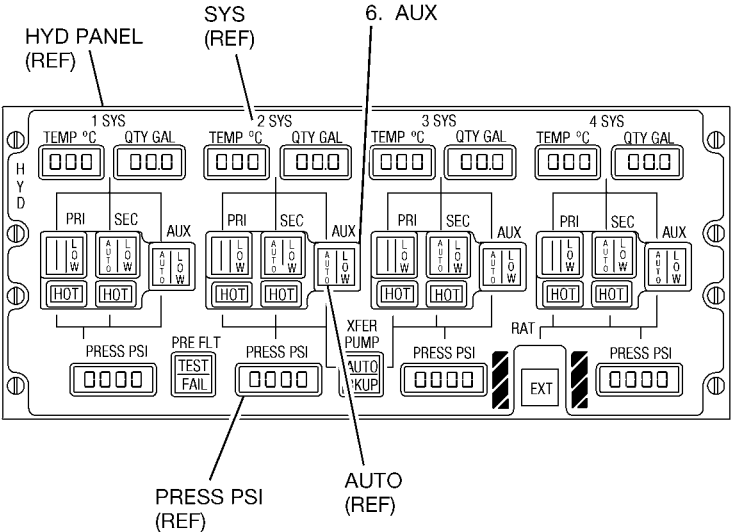
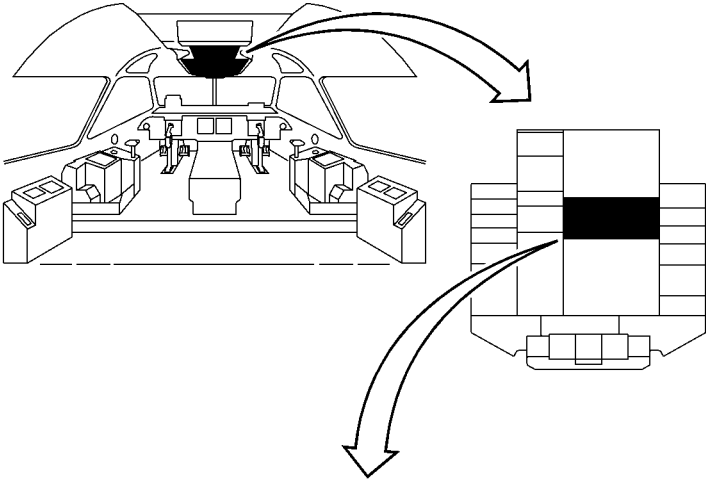
This is a typical rudder mechanical controls and surfaces system breakout force operational checkout for all rudder pedal assemblies.

1. Review "Section 1 (General Information)" of this TO for system general warnings, cautions, and notes.
2. Review task "General Maintenance Input Conditions" page for task specific safety conditions.
3. Perform external electrical power (10-61-01, task 01-1).
4. Perform interphone system operation (23-41-02, task 02-3).
5. (A) Perform hydraulic system reservoir servicing check (TO 1300i-2-12JG-29-1, 12-29-00, para 1-9).

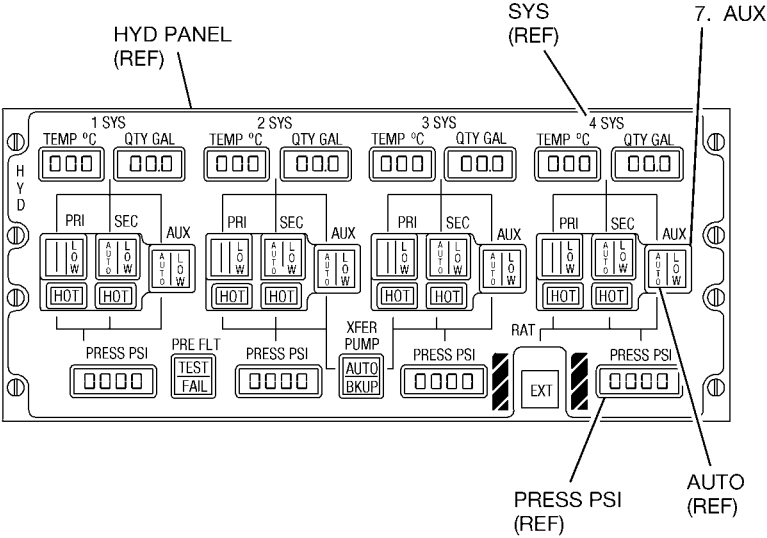
WARNING

All flight control surfaces and thrust reversers shall be clear of personnel and equipment prior to applying or removing hydraulic power. Failure to comply may cause injury to personnel or damage to aircraft.

6. (A) Press **2 SYS, AUX** switchlight on **HYD** panel.
 - **AUTO** light comes on.
 - **PRESS PSI** indicator reads 3800-4200.

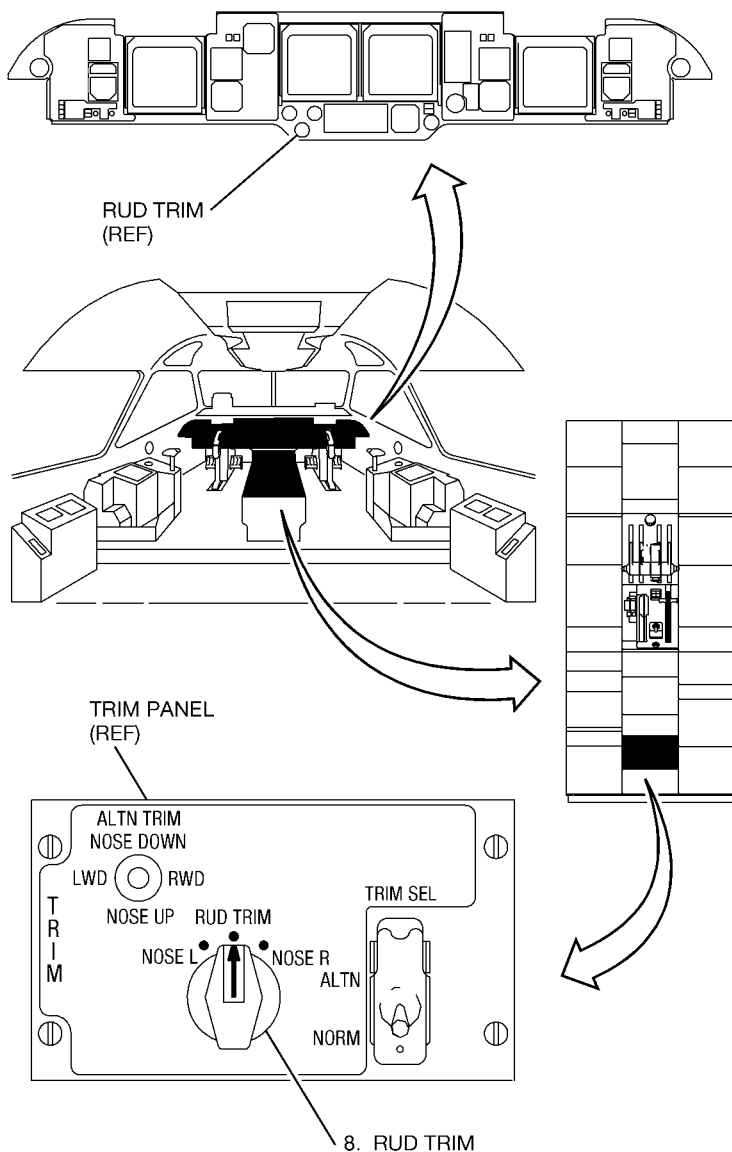


7. (A) Press **4 SYS, AUX** switchlight.
- **AUTO** light comes on.
 - **PRESS PSI** indicator reads 3800-4200.



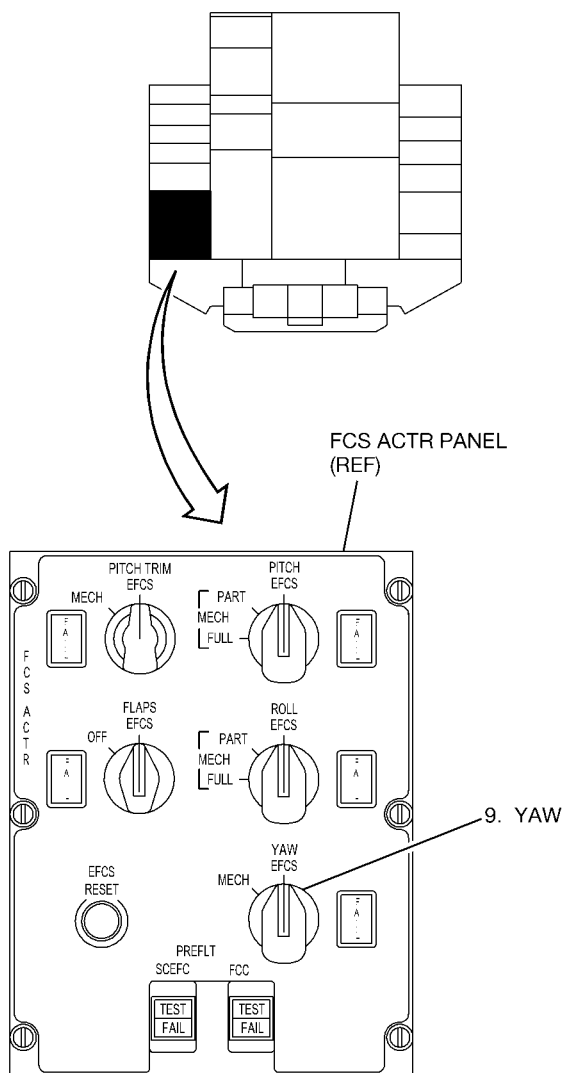
ICN-88277-G2721450-002-01

8. (A) Rotate and hold **RUD TRIM** switch on **TRIM** panel.
 - **RUD TRIM** indicator reads 0 (27-21-AU-00).



ICN-88277-G2720011-003-01

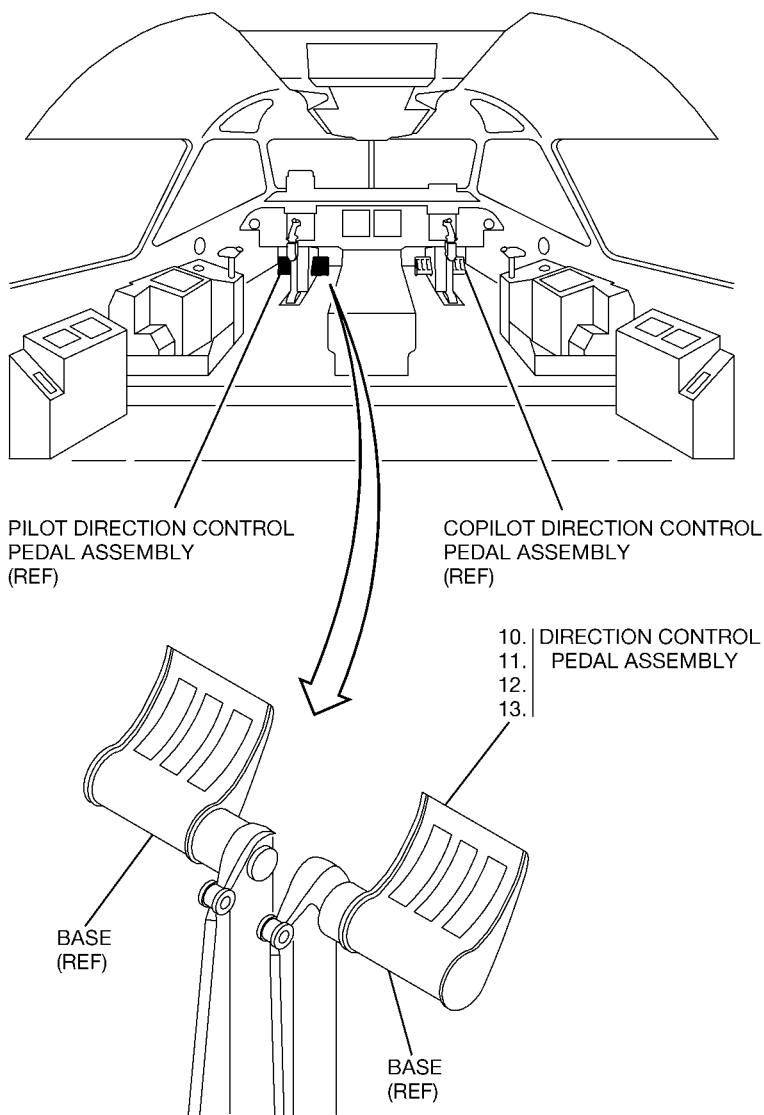
9. (A) Rotate **YAW** switch on **FCS ACTR** panel to **MECH**.



ICN-88277-G2720012-002-01

TO 1300i-2-27JG-20-1

10. (A) Set dial tensiometer to read 0 lb and position probe in center of base of right direction control pedal assembly.
11. (A,B) Maintain slow and steady push on direction control pedal assembly until lower rudder initially moves.
 - Breakout force is 14 lbs maximum (27-21-AW-00).
12. (A) Set dial tensiometer to read 0 lb and position probe in center of base of left direction control pedal assembly.
13. (A,B) Maintain slow and steady push on direction control pedal assembly until lower rudder initially moves.
 - Breakout force is 14 lbs maximum (27-21-AW-00).

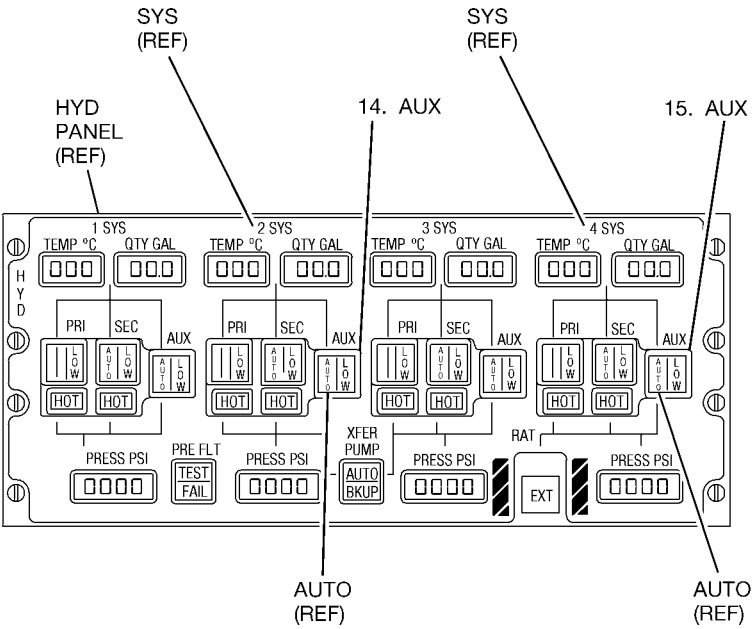


(TYPICAL)

ICN-88277-G2720013-003-01

TO 1300i-2-27JG-20-1

14. (A) Press **2 SYS, AUX** switchlight on **HYD** panel.
 - **AUTO** light goes off.
15. (A) Press **4 SYS, AUX** switchlight.
 - **AUTO** light goes off.
16. Perform interphone system operation (23-41-02, task 02-4).



MECHANICAL CONTROLS AND SURFACES SYSTEM ADJUSTMENT (27-21-02)

GENERAL MAINTENANCE INPUT CONDITIONS:

Applicability:

All

Task

All

Additional information:

This procedure consists of the following tasks:

- 02-1. Preparation.
- 02-2. Rudder load feel and trim fail centering mechanism to rudder trim and simulated load feel assembly adjustment.
- 02-3. Forward rudder mechanism assembly to lower rudder vertical stabilizer control assembly cable adjustment.
- 02-4. Lower and upper rudder integrated flight control module feedback connecting link adjustment.
- 02-5. Cable tension check and verification for cable runs 1 and 2.
- 02-6. Follow-on maintenance.

Additional data:

TO 1300i-2-00JG-00-1

Task

02-3,
02-4,
02-5,
02-6

TO 1300i-2-10JG-60-1

02-1,
02-6

TO 1300i-2-23JG-40-1

02-3,
02-4

TO 1300i-2-29JG-20-1

02-4

TO 1300i-2-53JG-10-1

02-1,
02-6

Personnel recommended:

	Task
One	02-1, 02-2, 02-3, 02-5, 02-6
■ Three	02-4
Person (A) performs task.	
Person (B) assists person (A).	
Person (C) ground observer.	

Safety conditions:

	Task
<div>WARNING</div>	
The horizontal pressure panel access cover(s) are removed in these tasks to gain access to the cavity above. When rudder, aileron, and elevator aircraft ground safety locks are not installed, care shall be taken working around rudder, aileron, and elevator cables, pulleys, and linkage due to possible moving parts. Failure to comply may cause injury to personnel.	All

Support equipment:

<u>Nomenclature</u>	<u>PN</u>	<u>Specification</u>	<u>Qty</u>	<u>Task</u>
Kit, Rig Pin	17G140015-1	--	--	--
Pin, 5-5, Rig	17G140015-13	--	1	02-3, 02-4, 02-5
Kit, Rig Pin	17G140185-1	--	--	--
Pin, 5-12, Rig	17G140185-5	--	2	02-2, 02-3, 02-5
Platform, Maintenance	60001	--	1	02-4
Tensiometer (Primary)	T5-2004-113-00	(0-100 lb)	1	02-3
Tensiometer (Alternate)	ACX-100	(5-100 lb)	1	02-3
Tensiometer (Alternate)	ACX-250	(20-250 lb)	1	02-3
Tensiometer (Alternate)	CT12A	--	1	02-3

TO 1300i-2-27JG-20-1

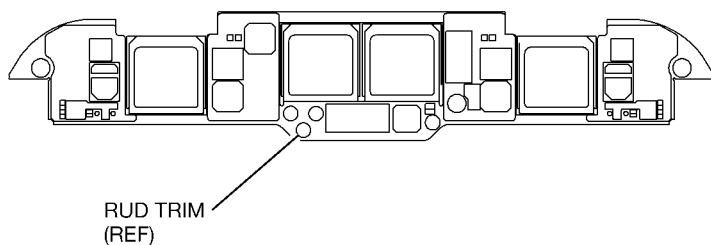
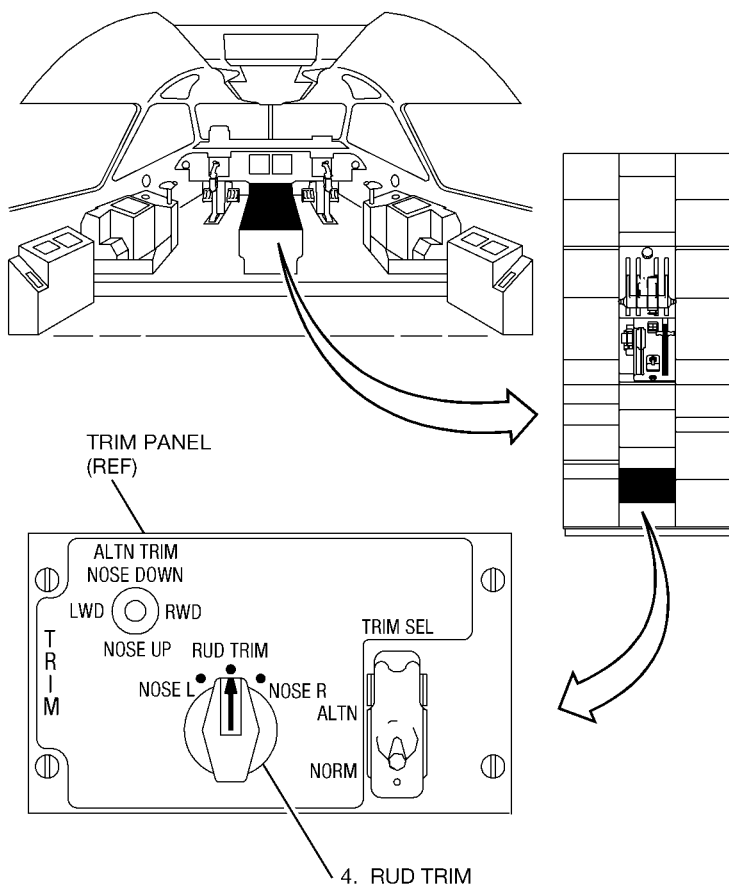
<u>Nomenclature</u>	<u>PN</u>	<u>Specification</u>	<u>Qty</u>	<u>Task</u>
Tool, Turnbuckle Adjustment	17G140019-1	--	1	02-3

Supplies:

<u>Nomenclature</u>	<u>PN</u>	<u>Specification</u>	<u>Qty</u>	<u>Task</u>
Clip, Safety	MS21256-2	--	AR	02-3, 02-6
Grease, Aircraft	--	MIL-G-81322	AR	02-4
Pin, Cotter	MS24665-151	--	4	02-2
Pin, Cotter	MS24665-302	--	4	02-4
Tag, Warning	--	--	7	02-1
Wire, Safety	900010-32C	--	AR	02-2, 02-4

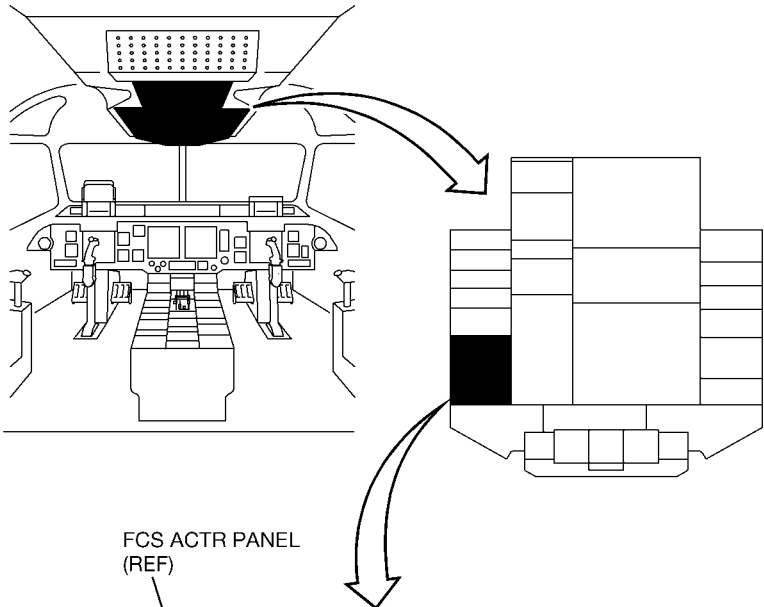
02-1. PREPARATION.

1. Review "Section 1 (General Information)" of this TO for system general warnings, cautions, and notes.
2. Review task "General Maintenance Input Conditions" page for task specific safety conditions.
3. Perform external electrical power (10-61-01, task 01-1).
4. Rotate **RUD TRIM** switch on **TRIM** panel until **RUD TRIM** indicator reads 0.

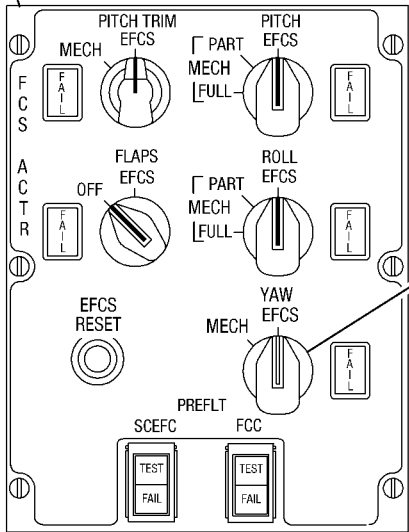


ICN-88277-G2721321-003-01

5. Rotate **YAW** switch on **FCS ACTR** panel to **MECH** and attach warning tag.

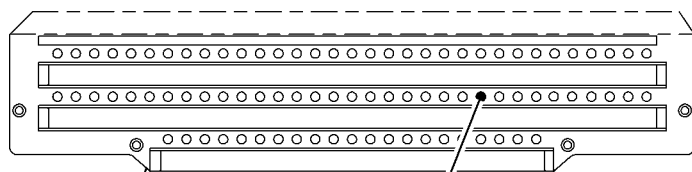
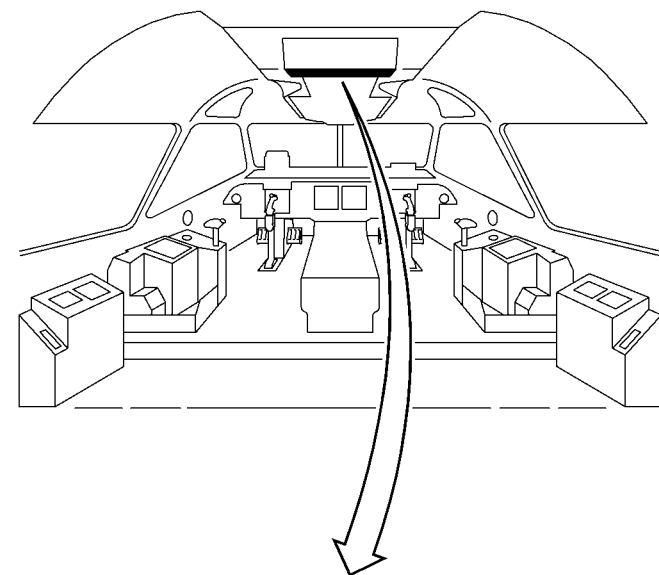


FCS ACTR PANEL
(REF)



ICN-88277-G2721322-002-01

6. Open **RUDDER TRIM ALTN** circuit breaker on overhead circuit breaker panel, row **H**, column **24**, and attach warning tag.



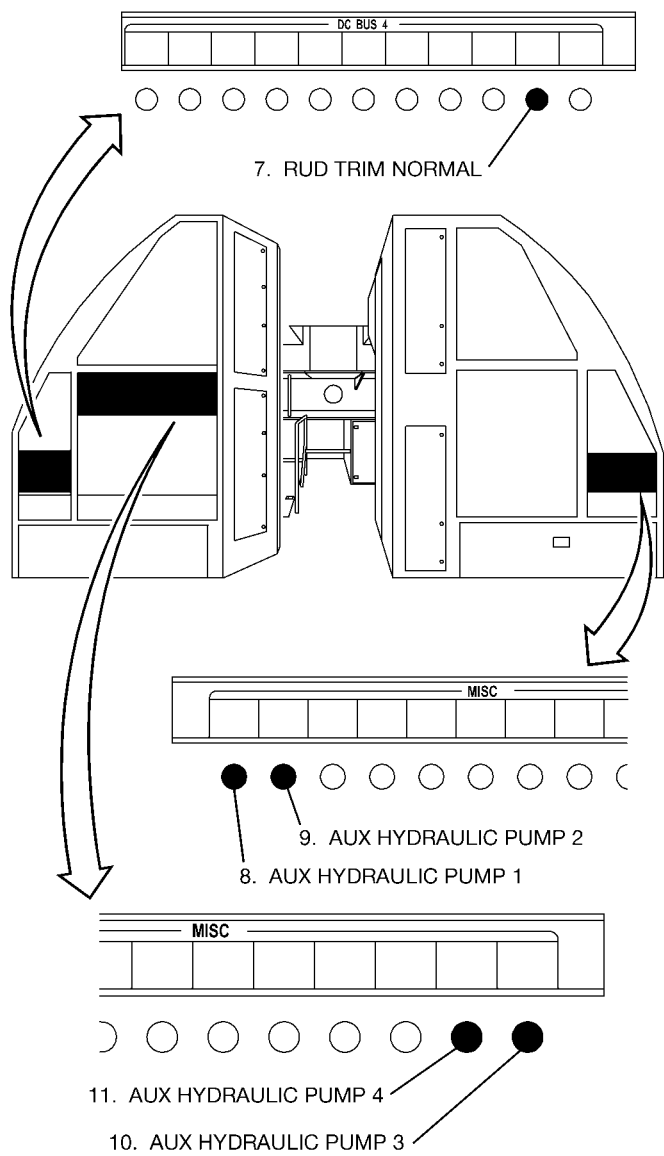
OVERHEAD CIRCUIT
BREAKER PANEL
(REF)

6. RUDDER TRIM ALTN

ICN-88277-G2721323-003-01

TO 1300i-2-27JG-20-1

7. Open **RUD TRIM NORMAL** circuit breaker on Electrical Power Center (EPC), row **R**, column **22**, and attach warning tag.
8. Open **AUX HYDRAULIC PUMP 1** circuit breaker on EPC, row **LL**, column **68**, and attach warning tag.
9. Open **AUX HYDRAULIC PUMP 2** circuit breaker on EPC, row **LL**, column **69**, and attach warning tag.
10. Open **AUX HYDRAULIC PUMP 3** circuit breaker on EPC, row **LL**, column **11**, and attach warning tag.
11. Open **AUX HYDRAULIC PUMP 4** circuit breaker on EPC, row **LL**, column **10**, and attach warning tag.



ICN-88277-G2721324-002-01

WARNING

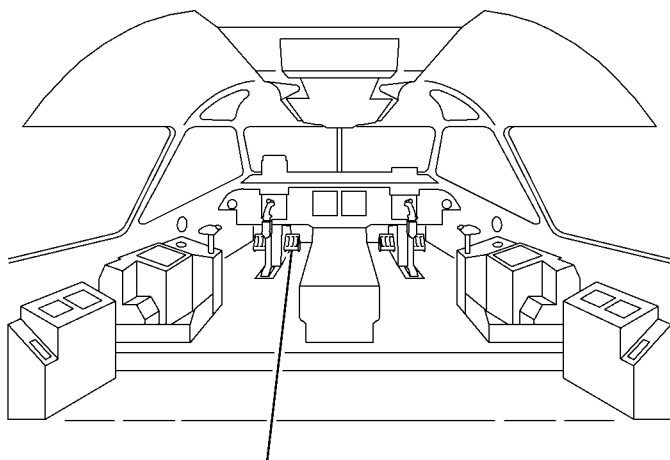
All flight control surfaces shall be clear of personnel and equipment prior to movement. Failure to comply may cause injury to personnel or damage to aircraft.

NOTE

One full rudder cycle is defined as rudder left, rudder right, and neutral.

- 12. Operate pilot rudder pedals through three full cycles.
- 13. Perform horizontal pressure panel access cover assemblies removal (53-12-10).

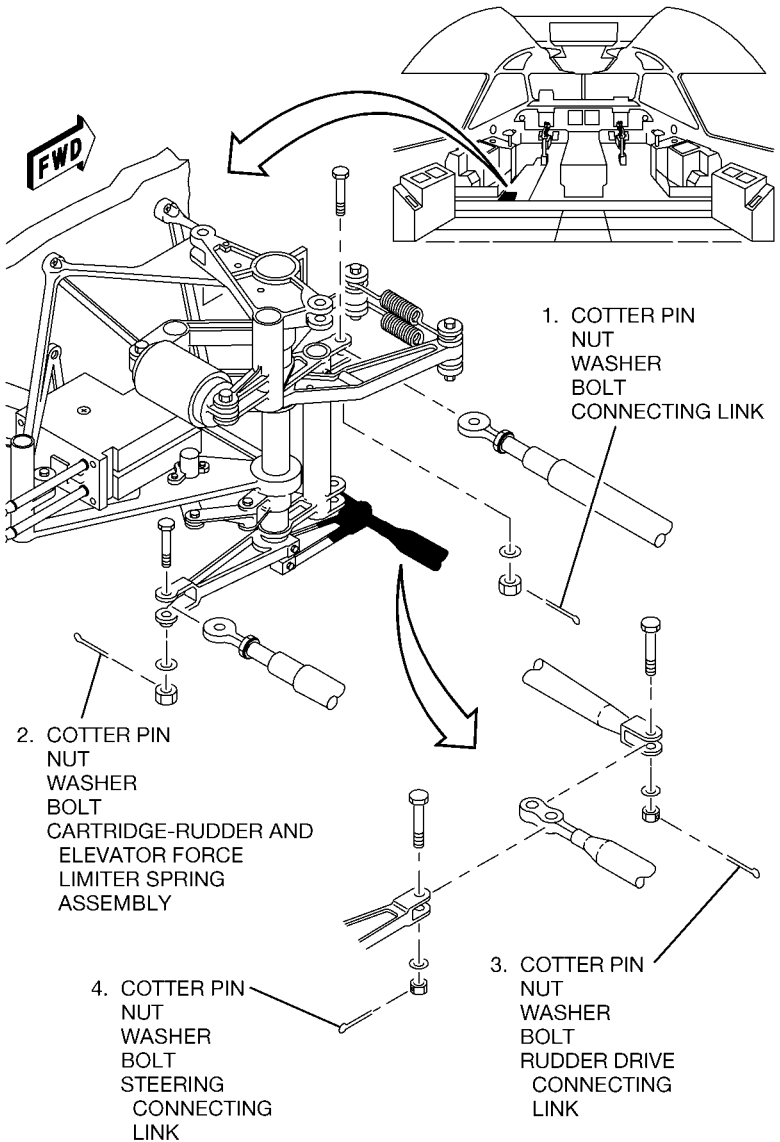
PANEL NO.	PANEL REF DES
112AZP	5312CA001
112BZP	5312CA002



12. PILOT RUDDER PEDAL

02-2. RUDDER LOAD FEEL AND TRIM FAIL CENTERING MECHANISM TO RUDDER TRIM AND SIMULATED LOAD FEEL ASSEMBLY ADJUSTMENT.

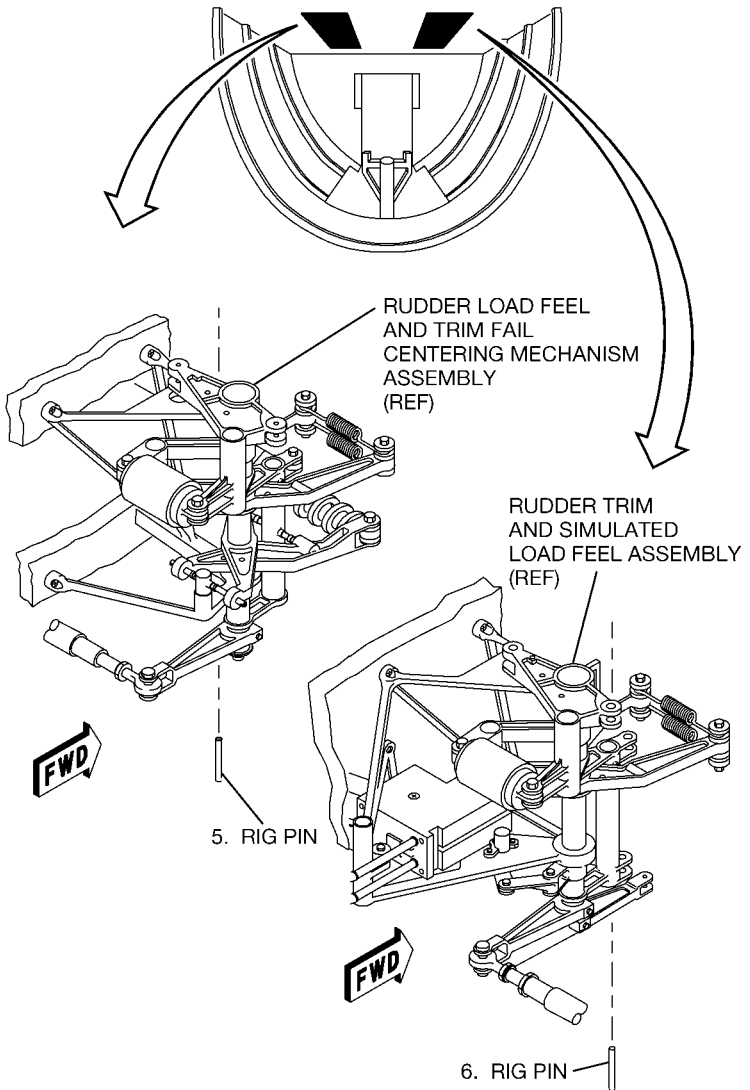
1. Remove cotter pin, nut, washer, and bolt; disconnect connecting link.
2. Remove cotter pin, nut, washer, and bolt; disconnect cartridge-rudder and elevator force limiter spring assembly.
3. Remove cotter pin, nut, washer, and bolt; disconnect rudder drive connecting link.
4. Remove cotter pin, nut, washer, and bolt; disconnect steering connecting link.



ICN-88277-G2721327-005-01

TO 1300i-2-27JG-20-1

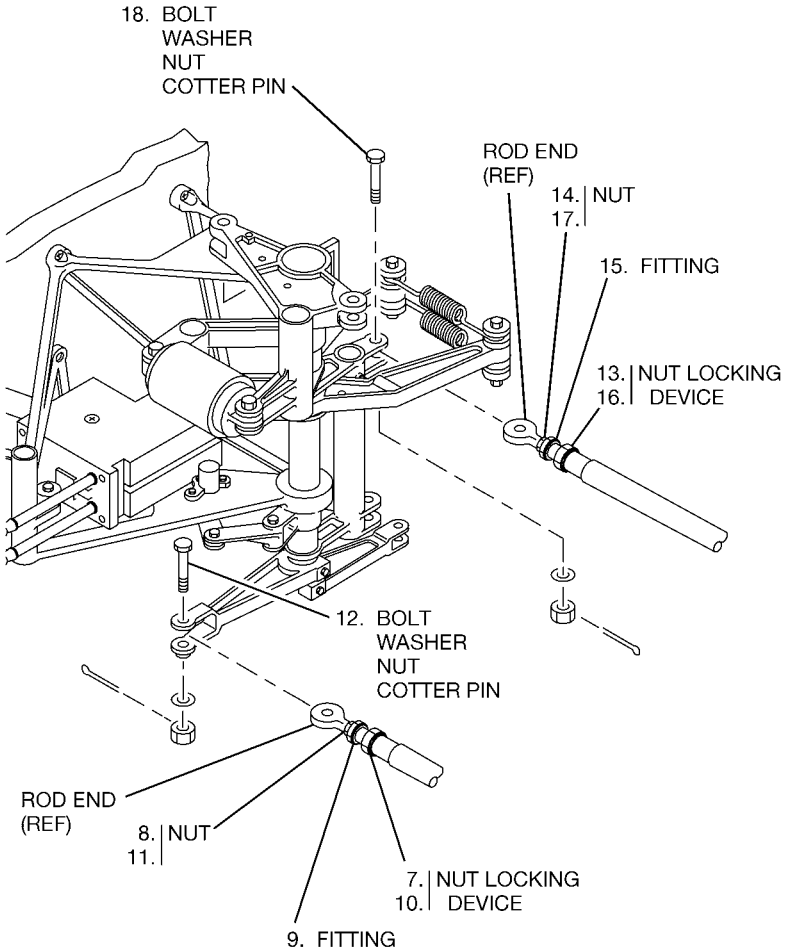
5. Install rig pin 5-12 in rudder load feel and trim fail centering mechanism assembly.
6. Install rig pin 5-12 in rudder trim and simulated load feel assembly.



ICN-88277-G2721328-004-01

TO 1300i-2-27JG-20-1

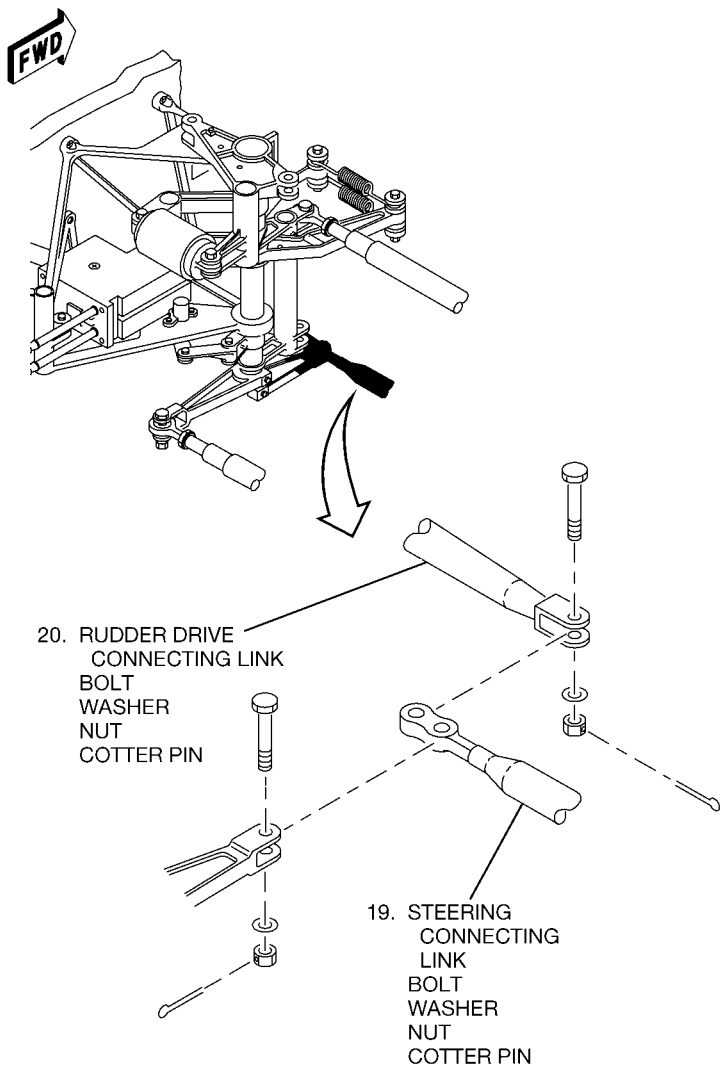
7. Remove safety wire; loosen nut locking device.
8. Loosen nut on rod end.
9. Adjust fitting for installation.
10. Position nut locking device and tighten; secure with safety wire.
11. Tighten nut.
12. Install bolt, washer, nut, and cotter pin.
13. Remove safety wire; loosen nut locking device.
14. Loosen nut on rod end.
15. Adjust fitting for installation.
16. Position nut locking device and tighten; secure with safety wire.
17. Tighten nut.
18. Install bolt, washer, nut, and cotter pin.



ICN-88277-G2721329-005-01

TO 1300i-2-27JG-20-1

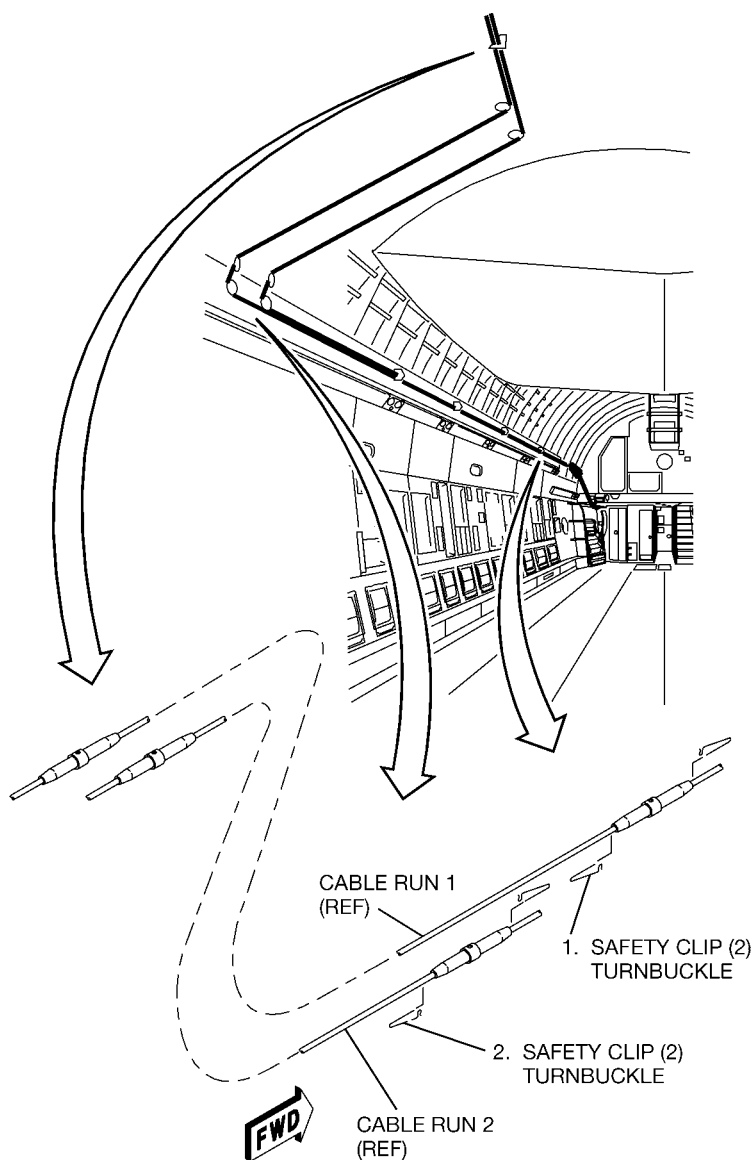
19. Position steering connecting link; install bolt, washer, nut, and cotter pin.
20. Position rudder drive connecting link; install bolt, washer, nut, and cotter pin.



ICN-88277-G2721330-003-01

**02-3. FORWARD RUDDER MECHANISM
ASSEMBLY TO LOWER RUDDER VERTICAL
STABILIZER CONTROL ASSEMBLY CABLE
ADJUSTMENT.**

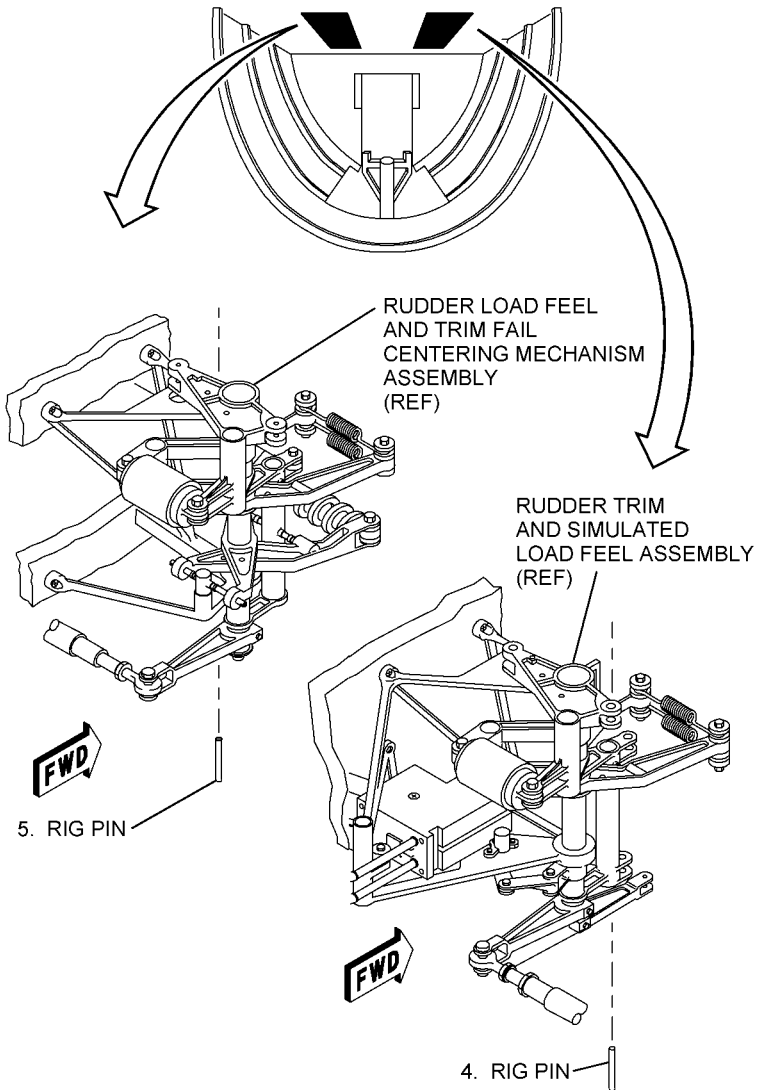
1. Remove and discard safety clips; loosen turnbuckle on cable run 1.
2. Remove and discard safety clips; loosen turnbuckle on cable run 2.



ICN-88277-G2721331-003-01

TO 1300i-2-27JG-20-1

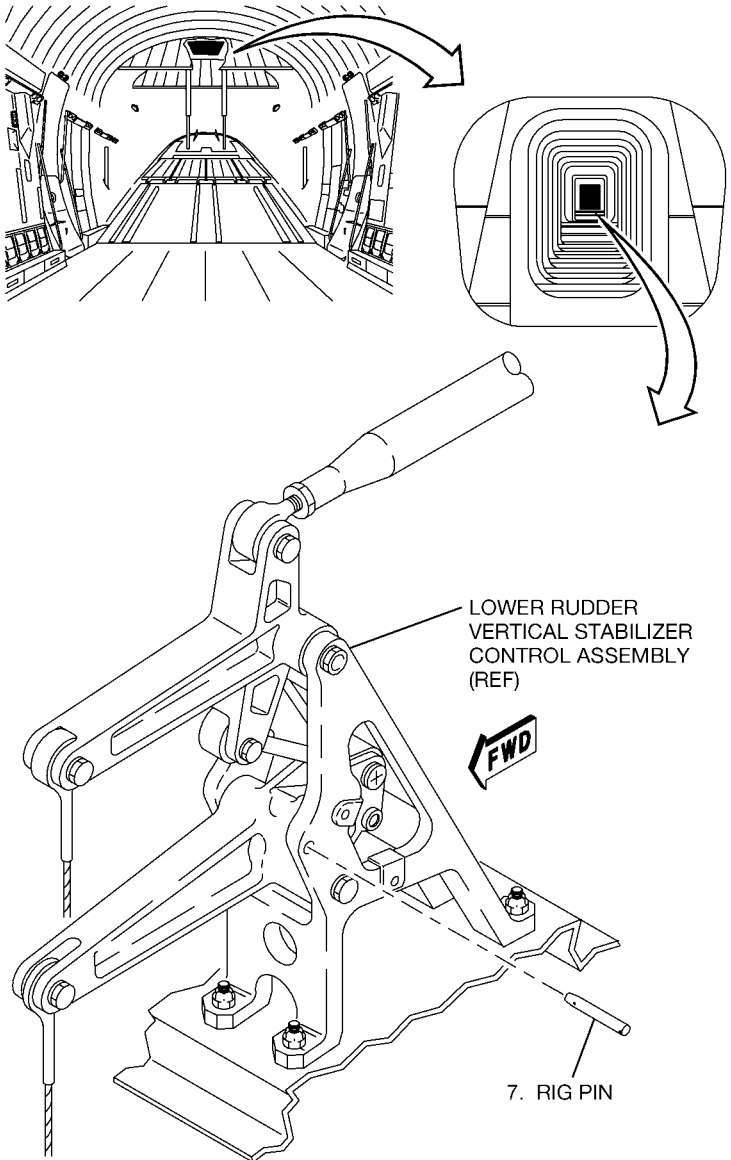
3. Perform interphone system operation (23-41-02, task 02-3).
4. Install rig pin 5-12 in rudder trim and simulated load feel assembly.
5. Install rig pin 5-12 in rudder load feel and trim fail centering mechanism assembly.



ICN-88277-G2721426-004-01

TO 1300i-2-27JG-20-1

6. Perform vertical and horizontal stabilizer access (00-00-02, task 02-1).
7. Install rig pin 5-5 in lower rudder vertical stabilizer control assembly.

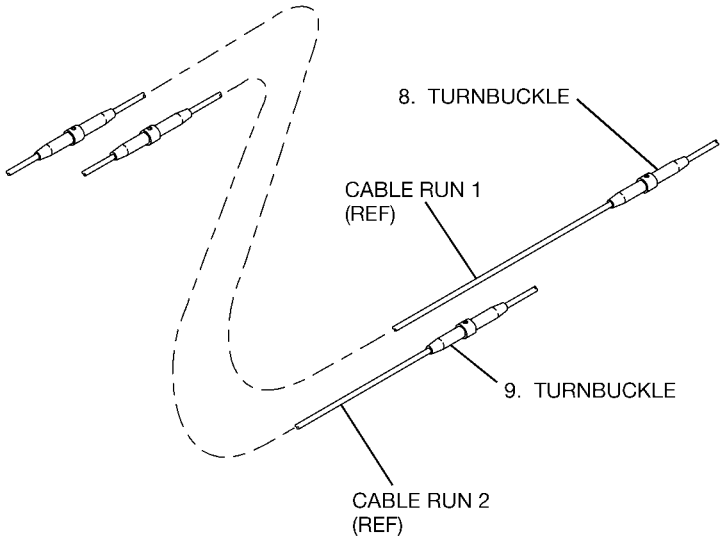


ICN-88277-G2721332-004-01



A maximum of three cable terminal threads are allowed to be exposed at each end of turnbuckle barrel after adjusting cable tension. Failure to comply may cause damage to aircraft or equipment.

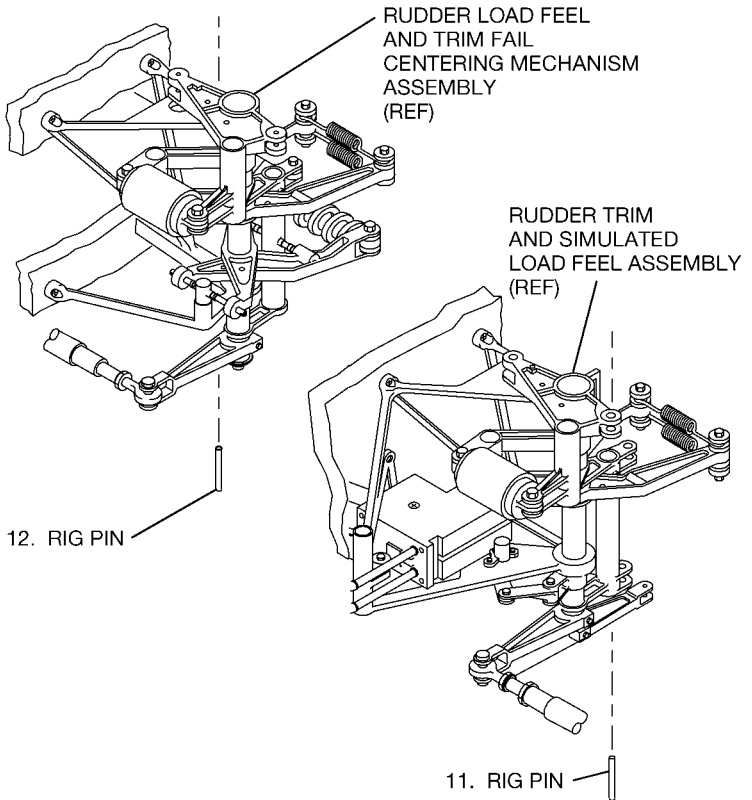
8. Adjust turnbuckles on cable run 1.
 9. Adjust turnbuckles on cable run 2.
 10. Perform cable tension adjustment (para 1-9).
- 1/8" cable-75 lb rig at 70 °F.



ICN-88277-G2721427-002-01

TO 1300i-2-27JG-20-1

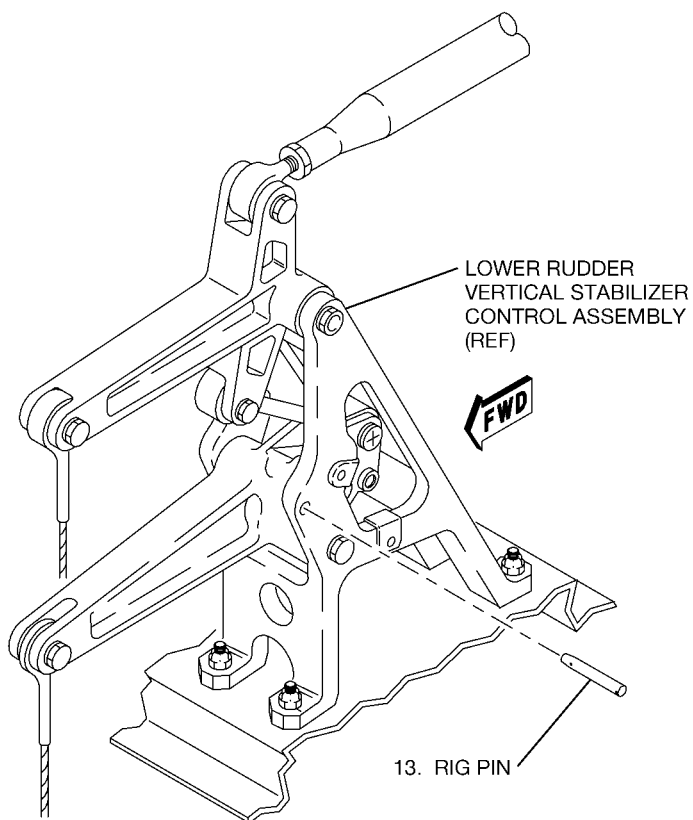
11. Remove and install rig pin 5-12 in the rudder trim and simulated load feel assembly.
 - Pin moves freely.
12. Remove and install rig pin 5-12 in the rudder load feel and trim fail centering mechanism assembly.
 - Pin moves freely.



ICN-88277-G2721428-002-01

TO 1300i-2-27JG-20-1

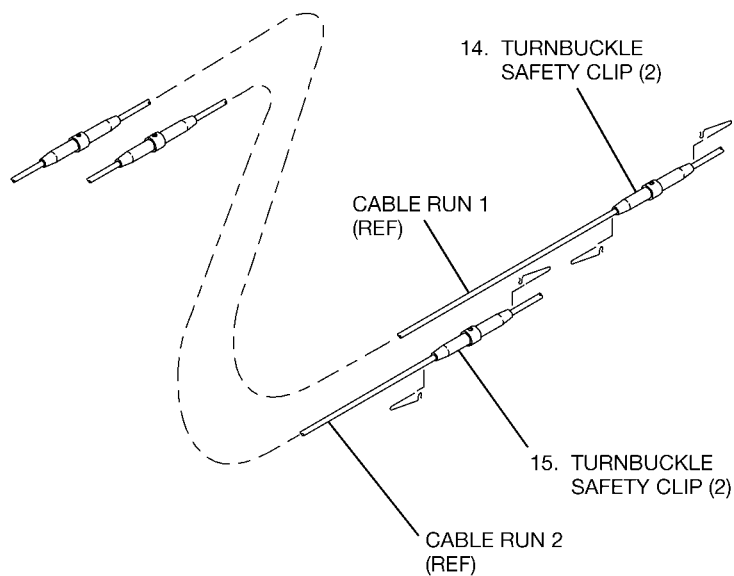
13. Remove and install rig pin 5-5 in the lower rudder vertical stabilizer control assembly.
 - Pin moves freely.



ICN-88277-G2721429-002-01

TO 1300i-2-27JG-20-1

14. Align turnbuckle and install safety clips on cable run 1.
15. Align turnbuckle and install safety clips on cable run 2.
16. Perform interphone system operation (23-41-02, task 02-4).



ICN-88277-G2721333-005-01

**02-4. LOWER AND UPPER RUDDER INTEGRATED
FLIGHT CONTROL MODULE FEEDBACK
CONNECTING LINK ADJUSTMENT.**

1. (A,B,C) Loosen fasteners and open access door (354JRD).
2. (A,B,C) Loosen fasteners and open access door (354HRD).
3. (A,B,C) Loosen fasteners and open access door (354GRD).
4. (A,B,C) Loosen fasteners and open access door (354FRD).
5. (A,B,C) Loosen fasteners and open access door (354ERD).
6. (A,B,C) Loosen fasteners and open access door (354DRD).