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Job Performance Tests for CH-53E Helicopter Mechanics

Volume II: Administrative Duties and Job Knowledge Tests

Paul W. Mayberry
Neil B. Carey

50 Years CNA 1992

CENTER FOR NAVAL ANALYSES
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Hands-on performance tests and job knowledge tests were developed for MOS 6115 (CH-53E helicopter mechanic) as part of the Marine Corps Job Performance Measurement Project. The purpose of this information memorandum is to disseminate these performance measures to Marine Corps personnel managers, training instructors, and interested researchers who may find them useful.

This work comprises two parts: volume I contains the hands-on performance test, and this volume presents the administrative duties and job knowledge test

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Lewis R. Cabe
Director
Manpower and Training Program

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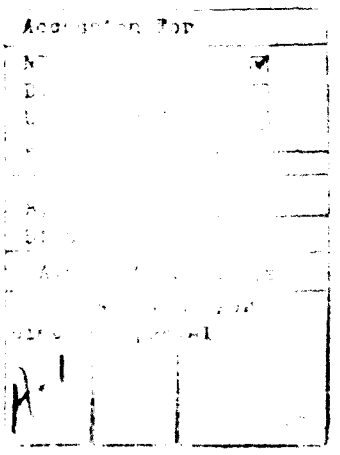

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Volume II: Administrative Duties and Job Knowledge Tests

Paul W. Mayberry
Neil B. Carey

Operations and Support Division

50 Years CNA 1992
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ABSTRACT

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CONTENTS

INTRODUCTION

The Marine Corps Job Performance Measurement (JPM) Project is a major effort to measure on-the-job performance of enlisted Marines. The performance measures are used to validate the enlistment test that selects and classifies military recruits. The performance tests also have value in providing unit commanders and training instructors with detailed information concerning the relative strengths and weaknesses of their personnel.

Representative military occupational specialties (MOSs) within the mechanical occupational field were selected for performance measurement. Hands-on performance tests and written job knowledge tests were developed. This document contains the performance tests for the CH-53E helicopter mechanics that were tested (MOS 6115). A forthcoming CNA research memorandum will detail the test development process. The purpose of this document is to disseminate these performance measures to Marine Corps personnel managers, the training community, and interested researchers who may find them useful.

The performance measures are organized into the following sections:

- Hands-on performance tests with equipment/materials required for testing and procedures to set up each testing station
- Tests of administrative duties
- Job knowledge test with correct alternatives noted.

The test development and administration was conducted by the American Institutes for Research under subcontract to the Center for Naval Analyses.

TRAINING MATERIALS FOR HANDS-ON TEST ADMINISTRATORS

Retired and former Marine Corps staff noncommissioned officers were hired as test administrators. These individuals did not have a vested interest in the outcomes of the tests but were experienced in the helicopter maintenance occupational field and were accustomed to working with young Marines. Each task involved the performance of discrete and observable steps that could be scored objectively in a pass/fail format. To minimize any ambiguity or subjectivity associated with scoring the hands-on test, definitive scoring criteria were established and test administrators completed an extensive training course. This training focused on performing all tasks as well as learning the procedures involved in standardized test administration.

The following materials provide general guidelines for test administrators to observe in the conduct of hands-on testing. The guidelines focus on standardized test administration procedures and codes for professional conduct. Besides these requirements, test administrators were thoroughly instructed in the proper performance of each hands-on task.

A Guide for Test Administrators of USMC Mechanical Hands-on Tests

Prepared by the American Institutes for Research

Overview

Training of Hands-on Test Administrators (TAs) will be done essentially the same way at all test sites -- Camp Lejeune, MCAS New River, MCAS Tustin, and Camp Pendleton. The training cadre will be the same at all test sites to the greatest extent feasible.

The HO Test Stations are shown at the end of this Guide. CAUTION: The assignment of tests to stations is tentative. Assignments were made on the basis of time estimates and are subject to change pending tryout.

Each HO Test Site is comprised of eight fixed test stations, each manned by a TA. Each station covers one to several tasks. Each station will test for one hour. Examinees rotate to their next stations at the end of the hour. Eight Marines will complete HO testing daily.

The specific points that will be emphasized and practiced during TA training are included on the following pages.

1. Your Role as Scorers of Hands-On Tests

We will be training you to give the hands-on tests. Your role in this part of the project is critical. You've been hand picked because we think you know the tasks and can do a good job. Here are some general rules you must remember.

A. You job is to make it possible for each Marine to do the best job he can or wants to do on each test you give.

B. Give clear instructions and be certain the Marine understands them.

(1) Look at the Marine. Practice the directions until you can read/speak them in a natural manner.

(2) Remember that while you may be giving the directions for the 15th time, it is the first time that the examinee has heard them.

C. Follow the instructions on the scoresheet exactly as written -- do not shorten or add to them.

D. Keep a professional demeanor. Show that you take the test seriously, and that the Marine being tested is doing something important and worthwhile.

E. Be sure to complete all of the information asked for on the scoresheet.

F. Score every performance measure every time. When you finish a test, scan the scoresheet to be sure there are no steps left blank.

G. Practice good test security at all times.

1) We will promise the Marines that no one on the base will see their score or scoresheets.
2) If anyone other than the project staff asks to see any of your scoresheets, politely refuse and refer them to the Hands-on Test Manager or Test Site Manager.

H. Do not speak to the Marine being tested except when indicated on the scoresheet, or when allowed under the general rules laid out in the set-up sheet.

I. Do not reveal, by the way you look or move what you think of the Marine's performance.

1) Sighs, frowns, raised eyebrows can affect the examinee's performance on your test subsequent tests.
2) If a Marine asks how he did, just tell him you are not allowed to say.

J. DO NOT coach, teach, help, train, in any way except when specified in the test materials.

1) If you are allowed to correct an error, do so without comment to the Marine.
2) Be certain the Marine cannot correct his own error before stepping in.
3) Some tests allow the Marine only one chance to perform the task or step correctly.
4) Do not stop a test until the rules for stopping the test have been met.
5) You may repeat instructions but in only the words printed on the scoresheet.

6) If the Marine asks during testing "What should I do next," or "Is this right," reply something like "Do the best you can," or "Do what you think is correct."

2. Giving the Hands-on Tests

A. At the beginning of every test day, you will be responsible for setting up an assigned test station.

1) You are responsible for ensuring that you have the equipment and materials you need to conduct the test.
2) The test station must be ready to begin testing immediately after the Marines arrive.

B. Each Marine being tested will have been briefed about the project and given a hands-on schedule sheet.

1) Copy his last name and ID onto his scoresheet and administer the tests at your station.
2) Retain the schedule until he has completed the station.
3) The Marine may not leave until he has taken all the tests at the station.
4) When he completes the testing, return the schedule and direct him to the next station at the assigned time.

C. You are responsible for maintaining good test conditions at your station.

1) You should not allow Marines not being tested to observe the test.

2) If a Marine does not cooperate, contact the Hands-on Test Manager or the senior Marine NCO.

D. At the end of the session, review your scoresheets to be sure they are complete, put them in numerical order by ID, and give them to the Hands-on Test Manager in a folder.

TEST OF ADMINISTRATIVE DUTIES

In addition to the mechanical duties, a variety of administrative responsibilities are also assigned to CH-53E helicopter mechanics. These duties include the documentation of maintenance action performed, the use of technical manuals, and the ordering of parts from the supply system. These skills were also tested. Following are the tests administered to assess the administrative skills of CH-53E helicopter mechanics. Two forms of the test were produced.

Name: _____

SSN: _____

ID: _____

Instructions

This is a test of your ability to work with manuals and to complete forms that helicopter mechanics use on the job. You can complete this test by using the materials available to you.

Follow these instructions:

1. Write your name (last, first, MI), Social Security Number, and the identification number assigned to you on the first morning of testing in the upper right corner.

2. When you turn this page you will find some scenarios that require the use of CH-53E Technical Manuals. Answer the questions using whatever manuals are necessary.

3. You will also find a partially completed Maintenance Action Form (MAF). Complete this MAF using the appropriate publications.

4. When you have finished both sections, please turn your packet in to your test administrator.

5. Please turn the page and begin.

Form A

Helicopter CH-53E

53E Manual Written Test (A)

A. You are filling out a MAF. You cannot find a work unit code manual. What other manual could you use to find malfunction description codes? On what page do the malfunction codes begin?

1. Tech Manual: _____

2. Page: _____

B. Your line supervisor gives you a MAF for an acceptance inspection that has just been completed on aircraft 351. You are unsure how to complete the MAF. In what manual would you find information for completing this type of MAF?

3. Tech Manual: _____

4. Page: _____

C. What would be the type equipment code for a YCH-53E aircraft?

5. Answer: _____

6. Tech Manual: _____

7. Page: _____

D. For overspeeds of 120% to 129% NR, what components require forced removal?

8. Answer: _____

_____

9. Tech Manual: _____
10. WP: _____

11. Page: _____

E. What type of fluid is used to service the tail driveshaft viscous clampers?

12. Answer: _____

13. Tech Manual: _____

14. WP: _____

15. Page: _____

No. EHS1981 COPY 5

WORK CENTER MDR VERIFICATION COPY

VIDS/MAF OPNAV 4790/60 (REV. 5-88) S/N 0107-LF-002-5900

5 PART FORM
USE BALL-POINT PEN PRESS HARD

ENTRIES REQUIRED SIGNATURE: NONE LOGS REC

LOCAL USE

REFERENCE

ACCUMULATED WORK HOURS

NAME/SHIFT	TOOL BOX	DATE	MAN HOURS	ELAPSED M/T
	F14-1			

ACCUMULATED AWM HOURS

DATE	TIME	REASON	HOURS

(H-Z) FAILED/REQUIRED MATERIAL

79 INDEX	08 F/P	09 AWP	10 A/T	11 MAL	14 MFGR	19 PART NUMBER	34 REF SYMBOL	41 QTY	PROJ	43 PRI	46 DATE ORD	49 REQ NO	53 DATE REC
	☐	☐			TNRA-1	666211 E3209		00					
	☐	☐			78026		PAODD		AKO	03	9089	E2XX	9089
	☐	☐											
	☐	☐											
	☐	☐											
	☐	☐											
	☐	☐											

FOLD

TECHNICAL DIRECTIVE IDENTIFICATION

WORK UNIT CODE	ACTION ORG	TRANS	MAINT/L	ACT TAKEN	MAL CODE	ITEMS/P	MAN HOURS	ELAPSED M/T	TECHNICAL DIRECTIVE IDENTIFICATION
	MZ2								☐

TYPE EQUIP	BUREAU NUMBER	SERIAL	T/M	POSIT	FID	SAFETY/EI SER	METER	ENG MFGR	ATA	INVENTORY	F28
AHXD	123456	A	B								

REPAIR CYCLE

	DATE	TIME	EOC
RECEIVED	9089	1400	Z
IN WORK	9089	1400	
COMPLETED	9089	1600	

REMOVED/OLD ITEM

E08 MFGR	E13 SERIAL NUMBER
78026	A-0000

E23 PART NUMBER | E38 DATE REMOVED

E42 TIME/CYCLES	E47 TIME/CYCLES	E52 TIME/CYCLES
E4101		

INSTALLED/NEW ITEM

G08 MFGR	G13 SERIAL NUMBER
78026	A-0001

G23 PART NUMBER

G38 TIME/CYCLES	G43 TIME/CYCLES	G48 TIME/CYCLES
E4101		

AWAITING MAINTENANCE

B38	B39 HOURS	B43	B44 HOURS	B48	B49 HOURS

DISCREPANCY: Remove And Replace No. 1 Engine Fuel Pump (Internally Failed)

PILOT/INITIATOR: CAPT. ROCK

MAINTENANCE/SUPPLY RECORD

JOB STATUS	DATE	TIME	EOC
S	9089	1445	
M	9089	1500	

CORRECTIVE ACTION

CF INS ☐ QA INS ☒

CORRECTED BY	INSPECTED BY	SUPERVISOR	MAINT CONTROL
	Sgt. Leather	Sgt. Wrench	

JOB CONTROL NUMBER

ORG	DAY	SER	SUF	WORK CENTER
MZ2	089	123		310

	MODEX	PRI	TURN-IN DOCUMENT	SYSTEM/REASON	MCN
↑ ⓘ	00			No. 1 Fuel Pump	

Name: _____

SSN: _____

ID: _____

Instructions

This is a test of your ability to work with manuals and to complete forms that helicopter mechanics use on the job. You can complete this test by using the materials available to you.

Follow these instructions:

1. Write your name (last, first, MI), Social Security Number, and the identification number assigned to you on the first morning of testing in the upper right corner.

2. When you turn this page you will find some scenarios that require the use of CH-53E Technical Manuals. Answer the questions using whatever manuals are necessary.

3. You will also find a partially completed Maintenance Action Form (MAF). Complete this MAF using the appropriate publications.

4. When you have finished both sections, please turn your packet in to your test administrator.

5. Please turn the page and begin.

Form B

Helicopter CH-53E

53E Manual Written Test (B)

A. What type of fluid is used to service the tail driveshaft viscous clampers?

1 Answer: _____

2. Tech Manual: _____

3. WP: _____

4. Page: _____

B. For overspeeds of 120% to 129% NR, what components require forced removal?

5. Answer: _____

6. Tech Manual: _____
7. WP: _____

8. Page: _____

C. What would be the type equipment code for a YCH-53E aircraft?

9. Answer: _____

10. Tech Manual: _____

11. Page: _____

D. Your line supervisor gives you a MAF for an acceptance inspection that has just been completed on aircraft 351. You are unsure how to complete the MAF. In what manual would you find information for completing this type of MAF?

12. Tech Manual: _____
13. Page: _____

E. You are filling out a MAF. You cannot find a work unit code manual. What other manual could you use to find malfunction description codes? On what page do the malfunction codes begin?

14. Tech Manual: _____

15. Page: _____

No. FHS1981

COPY 5

WORK CENTER MDR VERIFICATION COPY

VIDS/MAF OPNAV 4790/60 (REV 5-88) S/N 0107-LF-002-5900

5 PART FORM
USE BALL-POINT PEN PRESS HARD

ENTRIES REQUIRED SIGNATURE
NONE LOGS REC ☐ ☐ ☐

LOCAL USE

ACCUMULATED WORK HOURS

NAME/SHIFT	TOOL BOX	DATE	MAN HOURS	ELAPSED M/T
	FLY-1			

ACCUMULATED AWM HOURS

DATE	TIME	REASON	HOURS

REFERENCE

(H-Z) FAILED/REQUIRED MATERIAL

79 INDEX	08 F/P	09 AWP	10 A/T	11 MAL	14 MFGR	19 PART NUMBER	34 REF SYMBOL	41 QTY	PROJ	43 PRI	46 DATE ORD	49 REQ NO	53 DATE REC
	☐	☐			TNRA-1	666211 E3209		00					
	☐	☐			78026		PRODD		AKO	03	9089	E2XX	9089
	☐	☐											
	☐	☐											
	☐	☐											
	☐	☐											
	☐	☐											

FOLD

A29	A32	A34	A55	A56	A59	A61	A66	P05	TECHNICAL DIRECTIVE IDENTIFICATION
MZ2								☐	P06 CODE / P11 BASIC NO / P15 DN / P16 AD / P17 PART / P19 CLT

A50 TYPE EQUIP	A53 SHELF NUMBER	A58 DISCD	A59 T/D	A60 PERT	A62 FID	A65 SAFETY/OB SUP	A66 METER	SE MFGR	A74	F21 INVENTORY	F22 PERM UNIT CODE	F20
AHXD	123456	A	B									

REPAIR CYCLE

	DATE	TIME	EOC
RECEIVED	9089	1400	Z
IN WORK	9089	1400	
COMPLETED	9089	1600	

AWAITING MAINTENANCE

838	839 HOURS	842	846 HOURS	848	848 HOURS

MAINTENANCE/SUPPLY RECORD

JOB STATUS	DATE	TIME	EOC
S	9089	1445	
M	9089	1500	
C08	C09	C13	C17
C20	C21	C25	C29
C32	C33	C37	C41
C44	C45	C49	C53
C56	C57	C61	C65
D08	D09	D13	D17

JOB CONTROL NUMBER

A08 DATE	A11 SER	A14 SER	A17 SER	A19 WORK CENTER
MZ2	089	123		310

REMOVED/OLD ITEM

E08 MFGR	E13 SERIAL NUMBER
78026	A-0000

E23 PART NUMBER	E38 DATE REMOVED

E42 TIME/CYCLES	E47 TIME/CYCLES	E52 TIME/CYCLES
E4101		

INSTALLED/NEW ITEM

G08 MFGR	G13 SERIAL NUMBER
78026	A-0001

G23 PART NUMBER		

G38 TIME/CYCLES	G43 TIME/CYCLES	G48 TIME/CYCLES
E4101		

DISCREPANC: REMOVE AND REPLACE NO. 1 ENGINE FUEL PUMP (INTERNALLY FAILED)

PILOT/INITIATOR: CAPT. ROCK

CORRECTIVE ACTION

CF ☐ QA ☒

CORRECTED BY	INSPECTED BY	SUPERVISOR	MAINT CONTROL
	Sgt. Leather	Sgt. Wrench	

MODEX	PRI	TURN-IN DOCUMENT	SYSTEM/REASON	MCN
00			NO. 1 FUEL PUMP	

JOB KNOWLEDGE TEST

The job knowledge test (JKT) was developed to be parallel in test content to the hands-on test. That is, for each task tested in the hands-on format, the same task was tested in a paper-and-pencil format. The JKT items were based on performance and used extracts from manuals and other pictures to illustrate the task situation. The test was composed of 165 multiple-choice questions that required about an hour and a half to complete.

Although the JKT was pretested to identify poor items, a few items remained in the final version that had inadequate measurement properties. These items were deleted from further analysis. Table 1 notes the affected items and reports the correct response alternative for each item.

Table 1. Answer key for the CH-53E Job Knowledge Test

Item	Correct response	Item	Correct response	Item	Correct response	Item	Correct response	Item	Correct response
1	B	35	D	69	B	103	B	137	B
2	A	36	C	70	B	104	B	138	C
3	C	37	C	71	A	105	B	139	B
4	D	38	D	72	D	106	C	140	C
5	B	39	B	73	B	107	A	141	A
6	B	40	A	74	B	108	B	142	B
7	B	41	B	75	D	109	B	143	C
8	C	42	C	76	A	110	C	144	A
9	B	43	A	77	C	111	C	145	C
10	B	44	C	78	B	112	D	146	A
11	C	45	D	79	D	113	B	147	A
12	C	46	C	80	C	114	C	148	B
13	D	47	B	81	D	115	A	149	A
14	A	48	D	82	C	116	B	150	D
15	B	49	B	83	B	117	B	151	A
16	A	50	dropped	84	D	118	B	152	B
17	C	51	B	85	B	119	C	153	D
18	A	52	A	86	D	120	B	154	B
19	A	53	C	87	C	121	C	155	B
20	B	54	B	88	C	122	A	156	B
21	A	55	B	89	A	123	C	157	B
22	D	56	C	90	B	124	B	158	dropped
23	C	57	D	91	D	125	A	159	D
24	A	58	C	92	C	126	D	160	C
25	D	59	A	93	A	127	C	161	B
26	B	60	C	94	C	128	D	162	A
27	D	61	B	95	A	129	C	163	B
28	C	62	C	96	C	130	C	164	A
29	D	63	B	97	B	131	A	165	A
30	C	64	B	98	A	132	A		
31	C	65	A	99	A	133	B		
32	D	66	D	100	A	134	dropped		
33	A	67	C	101	A	135	A		
34	B	68	A	102	B	136	A		

Form A

U.S. Marine Corps

CH-53E

Job Knowledge Test

April 16, 1990

KNOWLEDGE TEST: CH53E (6115)

Directions

Each item in this booklet consists of a question or statement followed by four answer choices. Only one of the choices correctly answers the question or completes the statement. Read each item. Decide which of the choices you think is correct and blacken the letter on your answer sheet that matches that letter and item number. Here is an example:

1. What game is played in the Superbowl?

   A. Baseball
   B. Basketball
   C. Football
   D. Volleyball

SAMPLE ANSWER SHEET

1. Ⓐ Ⓑ ● Ⓓ

Since football is played in the Superbowl, the answer is C. On the SAMPLE ANSWER SHEET shown above, C has been filled in. Be sure to fill in only one letter for each item on your answer sheet.

Do not spend too much time on any one item. Try to answer every item. Even if you are not sure of your answer, make the best guess you can. Mark only one choice for each item, and be sure the item you mark on your answer sheet matches the item number in the booklet.

AIRCRAFT: CH53E (6115)

For this portion of the test you may use the extract titled TS Power Train Chip Detectors.

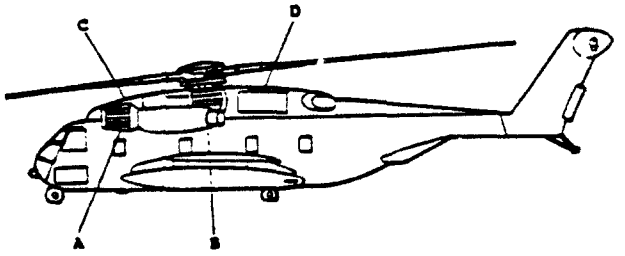
1. If you were to work on the Sump Oil Chip Detector, you would find it nearest to

A. A

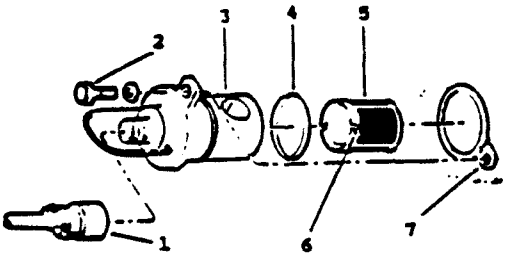
B. B

C. C

D. D



Refer to the figure below in answering the following 2 questions.



2. Your supervisor asks you to identify the Chip Detector. You show him that it is located at point(s)

   A. 3

   B. 1

   C. 5,6

   D. 4

3. You are also asked to identify the Sleeve. It is located at point

   A. 4

   B. 5

   C. 7

   D. 3

4. When you remove the Chip Detector, you must

   A. turn both the detector and the strainer 90 degrees before removing them from the sump.

   B. turn only the detector 90 degrees before removing it from the sump.

   C. pull the detector straight out of the sump.

   D. turn both the detector and the sleeve 90 degrees before removing the detector from the sump.

5. When you are cleaning the strainer from the Sump Chip Detector, the best method is to

   A. use only compressed air.

   B. use a dry-cleaning solvent and a small bristle brush.

   C. use clean oil and rags.

   D. shake over a white rag.

6. When you are troubleshooting the Sump Oil Chip Detector, what must you do to the Electrical Connector attached to the detector?

   A. Cut its power by pulling the circuit breaker but leave it attached.

   B. Disconnect it from the detector.

   C. Leave it attached to the detector assembly.

   D. Have it removed by the avionics section.

7. After you have inserted the Chip Detector into the sump, the bolts must be

   A. torqued to 125 to 145 pound-inches.

   B. torqued to 105 to 115 pound-inches.

   C. torqued to 35 to 45 pound-inches.

   D. lightly wrench tightened only.

8. As you are inserting the Chip Detector into the Strainer, you must

   A. push the detector straight in until an audible click is heard.

   B. be sure to latch both clips on opposite ends of the detector over the lip of the strainer.

   C. ensure the pin in the detector locks into the bayonet slot on the strainer.

   D. align the bolt holes, insert a bolt, hand tightening only.

9. After you have installed and torqued the Chip Detector,

   A. close and secure the work platform.

   B. connect the electrical connector.

   C. safety wire the nuts.

   D. check to see if the Chip Light Warning is off.

10. There is/are _____Chip Detector(s) located in the Accessory Gear Box.

A. one

B. two

C. three

D. four

11. Before you re-insert the Packing on the Chip Detector, you

A. lubricate it with Petrolatum.

B. clean it with Dry Solvent.

C. lubricate it with Oil.

D. wipe it with a clean dry, lint-free rag.

AIRCRAFT: CH53E (6115)

For this portion of the test you may use the extract titled TS PP Fuel System.

12. Where would you find the fuel selector valve for the #3 engine on the CH53E?

    A. On the #3 engine fuel control panel.

    B. At station 313 on the upper left side of the airframe.

    C. At station 292 on the upper right side of the cabin wall.

    D. At station 410 on the lower middle of the airframe.

13. With the lever of the fuel selector quadrant in the OFF position, you should check that the key of the control box on the fuel selector is

    A. pointing up at the 12 o'clock position.

    B. pointing to the OFF position.

    C. pointing to the right at the 3 o'clock position.

    D. pointing down at the 6 o'clock position.

14. When adjusting the adjustable end of the control cable, you should turn the adjustable end until the hole in the adjustable end lines up with the

    A. hole in the lever arm.

    B. key.

    C. selector valve.

    D. cable.

15. What would be the correct torque for the jam nuts on the fuel selector valve control cables?

A. 1/8 turn past the point where a sharp rise in torque is felt

B. 1/6 to 1/3 turn past the point where a sharp rise in torque is felt

C. 30 - 50 inch-pounds

D. 1/2 turn past the point where a sharp rise in torque is felt

16. You have made your control cable adjustments and moved the fuel selection quadrant lever through all four positions. If the lever does not hesitate at all four positions, you should

A. replace the fuel selector control cable.

B. readjust the control cable.

C. add shims to the jam nut.

D. replace the fuel system control box.

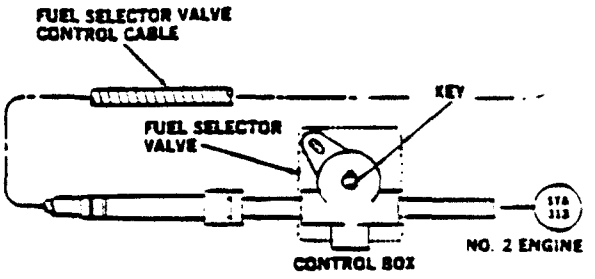
17. In what position is the Key pointing to in the figure?

A. ON position

B. 3 o'clock position

C. OFF position

D. Idle position



AIRCRAFT: CH53E (6115)

For this portion of the test you may use the extract titled R/R Fuel Boost Pump.

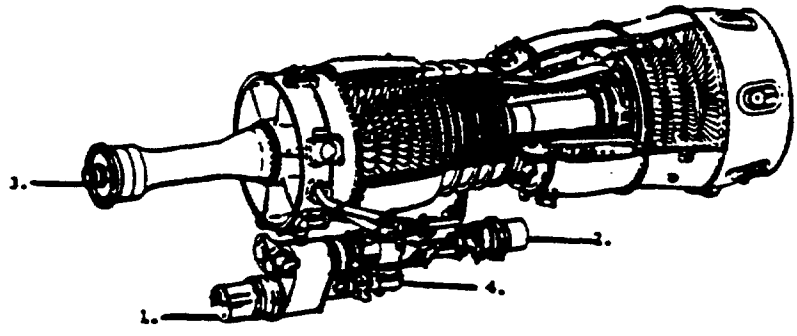
18. You are given a (MAF) by your supervisor to remove the fuel boost pump. Which item would you remove in the figure?

A. 1

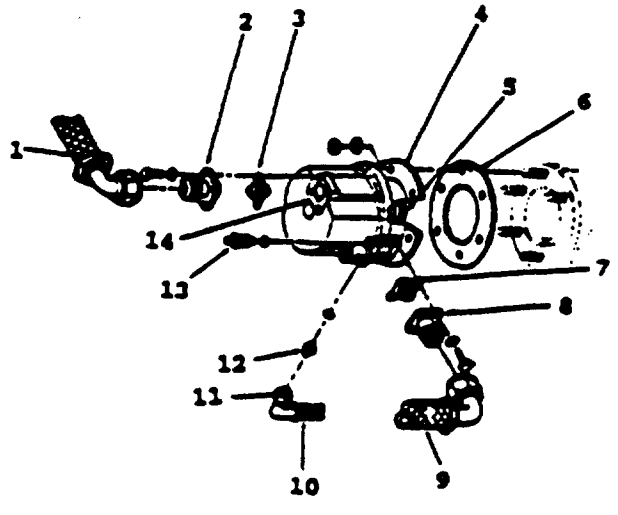
B. 2

C. 3

D. 4



Refer to the figure below in answering the following 3 questions.



19. You are removing the fuel boost pump and find that the pressure switch is bad. Which item represents the pressure switch in the figure?

A. 13

B. 12

C. 11

D. 8

20. As you are removing the Fuel Boost Pump, your supervisor asks you to identify the Splined Drive. You show him that it is located at point

A. 6

B. 5

C. 3

D. 7

21. You are still removing the Fuel Boost Pump. Your supervisor asks you this time to identify the Seal Drain Hose Assembly. You show him that it is located at point

A. 10

B. 9

C. 1

D. 13

22. On the No. 1 and No. 3 engines, you disconnected the fuel hose from the adapter fitting on the outlet port. Only on the No. 2 engine should you

A. disconnect the fuel hose from the adapter fitting on the inlet port.

B. remove the pressure switch and packings.

C. coat the male thread with anti-seize compound (MIL-A-907).

D. unbolt and remove the fuel hose from the outlet port.

23. You are preparing to install the new pump. You should visually inspect the pumps inlet and outlet pads for

A. metal shavings.

B. exfoliation corrosion.

C. distortion, scoring, and seams for leakage.

D. paint blistering.

24. You have placed the gasket on the studs of the engine accessory gearbox and installed the pump. The seal drain port should be in the _____ position.

A. 6 o'clock

B. 3 o'clock

C. 12 o'clock

D. 9 o'clock

25. What would you use to prime the fuel system after installation of the fuel boost pump?

A. The fuel system prime switch

B. A mobile priming unit

C. The #1 engine fuel prime pump

D. The fuselage hand pump

26. After you connect the seal drain hose to the union, you should torque the B-nut to _____.

A. 75 inch-pounds

B. 50 - 65 inch-pounds

C. 30 - 45 inch pounds

D. 50 - 75 inch pounds

27. You are preparing to install the new fuel boost pump. You should lubricate the splined shaft with _____.

A. Grease (MIL-P-236)

B. Grease (MIL-G-85043)

C. Grease (MIL-H-81827)

D. Grease (MIL-G-81827)

28. What tool must you use to install packings on the boost pump unions?

A. Packing installation tool (WE301K)

B. Seal Puller (WE301K)

C. Orfit tool (WE301K)

D. Packing tool (WE301K)

29. You are performing a leak check on the fuel boost pump and find that you have a leak. Your first step must be to

A. continue your leak check.

B. call the crash crew.

C. use a wrench to tighten the fitting.

D. stop the leak check and investigate the source of the leak.

AIRCRAFT: CH53E (6115)

For this portion of the test you may use the extract titled R/R Power Train Oil Filter.

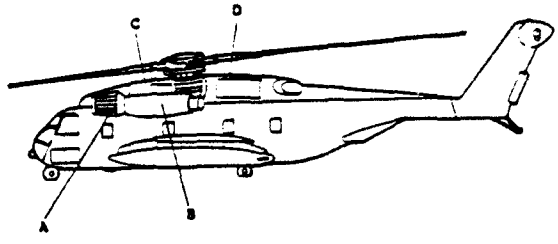
30. Where on this aircraft would you look to find the Accessory Gearbox Oil Filter?

A. A

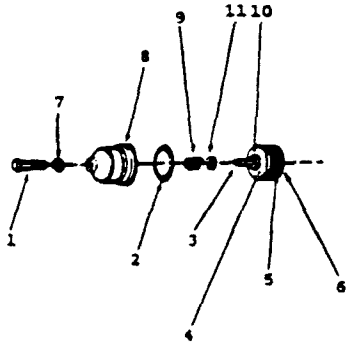
B. B

C. C

D. D



Refer to the figure below in answering the following 3 questions.



31. As you disassemble the Accessory Gearbox Oil Filter, your supervisor asks you to identify the packing used in the filter. You show him that it is located at point

A. 4

B. 11

C. 2

D. 8

32. You are asked by you supervisor to identify the Retainer. You point to

A. 7

B. 2

C. 11

D. 4

33. As you clean the Oil Filter components, one component that you do not clean is

A. 2

B. 5

C. 9

D. 10

34. As you reassemble the Accessory Gearbox Oil Filter, you must

A. be sure that discs and spacers are alternated, with a spacer at each end of the stack.

B. be sure that discs and spacers are alternated, with a disc at each end of the stack.

C. be sure that discs and spacers are alternated, the order does not matter.

D. be sure that discs and spacers are alternated, with a disc at one end of the stack and a spacer at the other end.

35. As you reassemble the Oil Filter, the Oil Filter retaining nut must be

A. torqued to 20 inch-pounds.

B. torqued to 15 inch-pounds

C. torqued to 45 inch-pounds

D. lightly tightened only.

36. The final torque that you place on the Oil Filter Housing bolt must be between _____and _____.

A. 95 105 pound-feet

B. 115 120 pound-feet

C. 95 105 pound-inches

D. 115 120 pound-inches

37. When you clean the components of the Oil Filter, you must

A. use only a clean lint free rag.

B. use nothing. Oil Filter components do not require cleaning.

C. use cleaning solvent and a small bristle brush.

D. lightly wipe all components using a lint free cloth and grease (A1-H53BE-GAI-000).

38. You have properly tightened the Retaining Nut on the Tube. You must next

A. install the Washer and Spring into the Tube.

B. call for a QA

C. insert the assembly into the Filter Housing.

D. safety wire the Retaining Nut to the hole in the Tube threads.

39. As you inspect the Oil Filter, you notice a number of metal chips wedged in the Perforated Tube. You must next

A. clean all filter components.

B. refer to Work Package 003 00.

C. take an oil sample.

D. change the oil.

AIRCRAFT: CH53E (6115)

For this portion of the test you may use the extract titled R/R Power Train Drive Shaft.

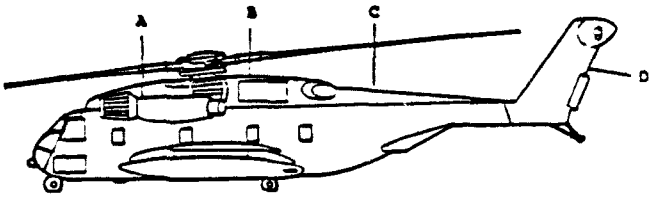
40. Where on this aircraft would you look to find the Accessory Gear Box Drive Shaft?

A. A

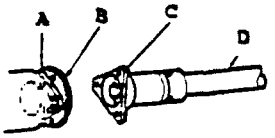
B. B

C. C

D. D



Refer to the figure below in answering the following 2 questions.



41. As you disassemble the Drive Shaft, your supervisor asks you to identify the Disc Assembly. You show him that it is located at point

A. A

B. B

C. C

D. D

42. You are asked to identify the splined flange. You point to

A. A

B. B

C. C

D. D

43. As you break torque on the nuts connecting the Disc Assembly to the drive shaft, one tool that you never use is a

A. torque wrench.

B. rachet.

C. wrench.

D. rachet with an extension.

44. When you install the Disc Assembly, the order that you place the washers

A. does not matter.

B. does not matter, if both solid and hollow bolts are used at each Disc Assembly.

C. requires conical washers to be placed on either side of the Disc Assembly.

D. requires washers to be placed against the outside of the Disc Assembly.

45. The final torque that you place on the drive shaft nuts must be between _____and _____.

A. 109 121 inch-pounds

B. 20 31 foot-pounds

C. 219 242 inch-pounds

D. 328 362 inch-pounds

46. You have removed all 3 bolts, nuts, and washers at each end of the Accessory Gear Box Drive Shaft. As you attempt to lift it away from the aircraft you find that the shaft will not move. The next best action you should take is to

A. insert a pry bar between the Disc Assembly and the Drive Shaft compressing it so that there will be sufficient clearance to lift the shaft out.

B. disconnect the Flange from the Accessory Gear Box.

C. remove one or both Disc Assemblies from either end of the Drive Shaft.

D. remove both Flanges at the ends of the Drive Shaft.

47. When you paint torque strips, they must be painted

A. across the bolt head, washer, and adjacent surface.

B. from the base of the nut and adjacent surface, across to the end of the bolt.

C. on every other opposing nut.

D. on the edge of the Disc Assembly.

48. When you install a Drive Shaft and Disc Assembly, all conical washers

A. should be new. Replace all the old conical washers.

B. should be exchanged for double beveled washers.

C. should be replaced in the same order they were removed.

D. should be coated with oil before being reassembled and torqued.

49. The Fireshield Plate

A. is installed at the aft end of each drive shaft segment.

B. is not a component in the drive shaft assembly.

C. is installed at the aft end of drive shaft No. 4.

D. is installed at the aft end of drive shaft No. 1.

50. You have removed the Accessory Gearbox Drive Shaft and are inspecting it. You notice a large scratch on the surface of the shaft. The best device for you to use to measure this scratch is an

A. Optical Micrometer.

B. Feeler Gage.

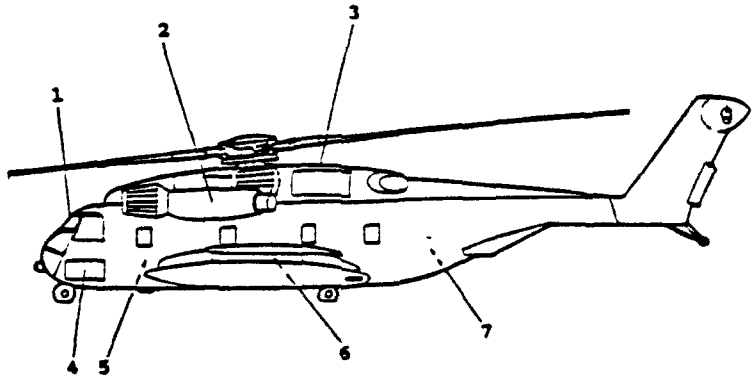
C. Steel Pin Measure.

D. Dial Indicator.

AIRCRAFT: CH53E (6115)

For this portion of the test you may use the extract titled TS Power Plant Oil System #1.

Refer to the figure below in answering the following 2 questions.



51. If you had to transfer oil from the Auxiliary Oil Tank to one of the engines, you would find the Auxiliary Oil Tank nearest to point

A. 4

B. 5

C. 6

D. 7

52. You are also asked to identify the Caution/Advisory Panel. It is located at point

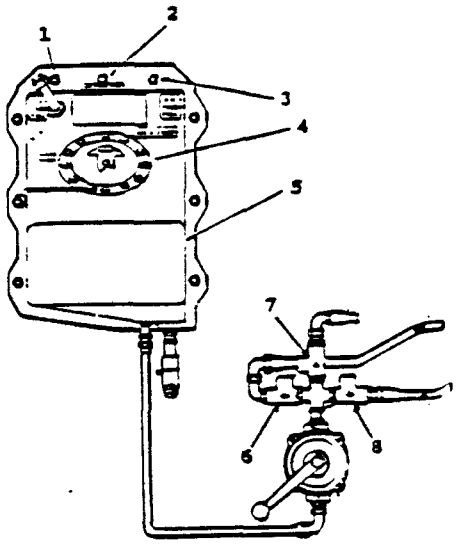
A. 1

B. 4

C. 6

D. 7

Refer to the figure below in answering the following 2 questions.



53. Your supervisor asks you to identify the No.3 Engine Oil Tank Full Light. You show him that it is located at point

A. 2

B. 1

C. 3

D. 4

54. You want to add oil to the No. 1 Engine. To do this you must

A. move the selector at point 4 to the correct setting for the No. 1 Engine.

B. turn the valve at position 6.

C. turn the valve at position 7.

D. turn the valve at position 8.

55. What event(s) must take place to indicate to you that the No.1 engine requires additional oil?

A. The Caution/Advisory Panel light for the No.1 ENG OIL QTY LOW goes out and the No.1 Engine Oil Tank Full Light comes on.

B. The Caution/Advisory Panel light for the No.1 ENG OIL QTY LOW comes on and the No.1 Engine Oil Tank Full Light goes out.

C. The Caution/Advisory Panel light for the No.1 ENG OIL QTY LOW comes on.

D. The No.1 Engine Oil Tank Full Light goes out.

56. You want to add additional oil to the No.2 engine. You work the handpump for several minutes, but the No.2 Engine Oil Tank Full Light does not come on. Which item(s) could not be the cause?

(1) The No.2 Engine Oil Tank Full Light is burned out.
(2) The Control valve to the No.2 Engine Oil Tank was not selected.
(3) The Pressure Relief Valve on the Auxiliary Oil Tank is blocked creating a vacuum in the oil line.
(4) There may be a oil leak in the oil lines or in the No. 2 Engine.

A. 1,2,4

B. 2,4

C. 3

D. 1

57. What happens to the oil system if you continue pumping after the Engine Oil Tank Full light comes on?

A. You will rupture a fuel line from overpressure.

B. The Engine Oil High Pressure light will come on the Caution/Advisory Panel.

C. Nothing. The pump has a two way valve that cuts off the oil supply if you over pump.

D. The excess oil will dump overboard.

58. You have been told by your crew chief that the No. 3 engine requires oil service. The first step in servicing the No. 3 Engine is to

A. open the No. 3 Engine cowling.

B. remove the No. 3 Engine Filler Cap.

C. power up the aircraft.

D. check the Caution/Advisory Panel.

General

59. You are inspecting an aircraft when you notice a white or gray powder deposit, similar to dust, in blotches on the surface. What type of corrosion do you suspect?

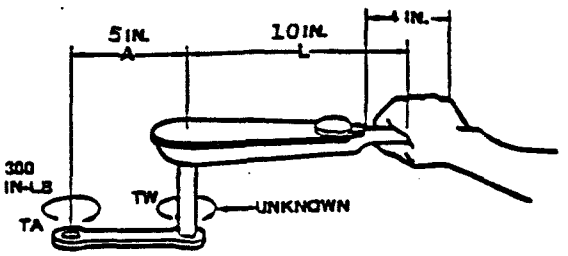
A. pitting corrosion

B. intergranular corrosion

C. exfoliation corrosion

D. filiform corrosion

60. Using the formula and diagram below, the indicated torque should be



FORMULA TO OBTAIN CORRECT INDICATED TORQUE VALUE WHEN USING NONCONCENTRIC ATTACHMENT.

$$TW = \frac{(TA) \times (L)}{(L) + (A)}$$

TW = INDICATED TORQUE VALUE ON TORQUE WRENCH
TA = ACTUAL TORQUE VALUE APPLIED TO FASTENER
L = LEVER LENGTH
A = ATTACHMENT LENGTH

A. 26.7 inch-pounds.

B. 30 inch-pounds.

C. 200 inch-pounds.

D. 300 inch-pounds.

61. You have to torque a nut that has a torque value of 800 - 1000 pound-inches. What torque range would you use if you used a 150 pound-feet torque wrench?

A. 400 - 500 pound-foot

B. 67 - 83 pound-foot

C. 100 - 150 pound-foot

D. 3 - 45 pound-foot

62. Who is authorized to witness torques on maintenance done on aircrafts?

A. You can witness your own torque.

B. The mechanic working with you.

C. A CDI/QAR.

D. A torque specialist.

63. You drop a torque wrench while replacing the rotating scissors. You should

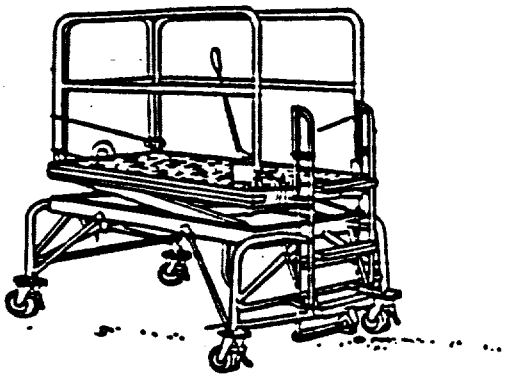
A. reset it and torque nut to correct specification.

B. fill out a broken tool report and turn it in to be re-calibrated.

C. pick it up and continue.

D. inspect for damage and replace if necessary.

64. The piece of equipment in the figure is a



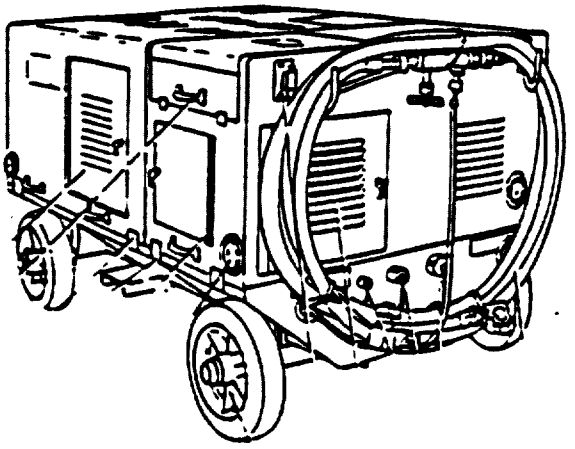
A. elephant stand.

B. B-4 work stand.

C. C-3 work stand.

D. blade stand.

65. The piece of equipment in the figure is a



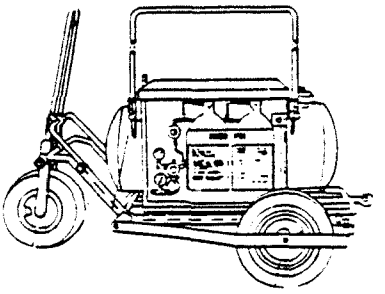
A. hydraulic test stand.

B. mobile electric power plant.

C. jet engine corrosion control cart.

D. mobile air conditioner unit.

66. You would use the piece of equipment in the figure to



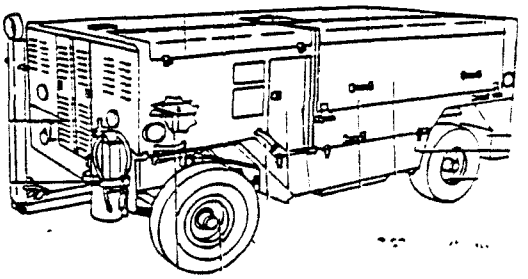
A. inflate aircraft tires.

B. start aircraft engines.

C. pressurize pneumatic accumulators.

D. wash aircraft engines.

67. You would use the piece of equipment in the figure for



A. supplying hydraulic power to the aircraft.

B. supplying heat for pre-heating the engines.

C. supplying electrical power to the aircraft.

D. water washing the aircraft engines.

68. You are towing an aircraft into the hanger when you hear a whistle blow. You should immediately

A. stop towing the aircraft.

B. figure out who blew the whistle and why.

C. wait for another whistle to blow.

D. slow down.

69. When driving a tow tractor or towing an aircraft on the flight line, you should never exceed

A. 10 mph.

B. 5 mph.

C. 25 mph.

D. 3 mph.

70. The purpose of wing walkers during the movement of aircraft is to

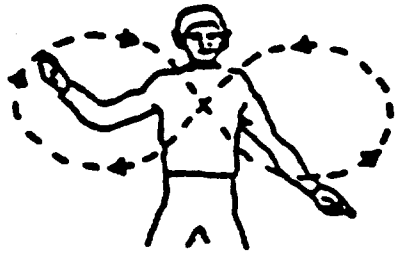
A. hold the wings in place during movement.

B. ensure sufficient clearing of the aircraft and rotor blade during movement.

C. give taxi directions during aircraft movement.

D. ensure no one walks under the rotor blades.

71. The Marine in the figure is giving the hand and arm signal for



A. fire.

B. start rotors.

C. turn aircraft around.

D. remove chocks.

72. When ground taxi directing at night, one of your most important items would be a

A. flashlight.

B. strobe light.

C. flare.

D. taxi wand.

73. You are preparing to fuel an aircraft. Your first step should be to

A. open the fuel filler cap on the aircraft.

B. ground the aircraft.

C. open the fuel vent valve.

D. turn the battery power on so you can read the gages.

74. You are taking fuel samples on an aircraft and find water in the sample. You should

A. continue to take samples until there is only small traces of water in the sample.

B. continue to take samples until there is no water in the sample.

C. continue, because water is allowed to be in the sample.

D. add a fuel additive to absorb the water in the fuel.

75. Safety is the responsibility of

A. the safety officer.

B. the Marine doing the job.

C. maintenance control.

D. the entire maintenance department.

76. Your aircraft has just been brought into the hanger for maintenance. You should ensure that the

A. battery is disconnected and the aircraft is grounded.

B. aircraft has a drip pan, and fuel samples are taken.

C. battery switch is off and doors are closed.

D. battery is connected and wheels are chocked.

77. You are replacing an engine in an aircraft when you discover a missing tool. You should

A. continue with the job and find it after the job is finished.

B. not worry about it, the tool room has replacement tools.

C. stop work, notify the shop supervisor, maintenance control, and QA.

D. write up a missing tool report and continue.

78. You have just completed morning FOD walk down. What form would you use to account for the time you spend on FOD walk?

A. NIDS/MAF form

B. SAF card

C. FOD prevention form

D. SRC card

79. Who is authorized to issue Job Control Numbers for VIDS/MAFS?

A. The person who writes up the gripe

B. Your work center supervisor

C. Quality Assurance

D. Maintenance Control

80. What type of manual would you use to find malfunction description codes?

A. Malfunction description code manual

B. Illustrated parts breakdown manual

C. Work unit code manual

D. Job information manual

81. All of the following are types of maintenance requirement card decks (MRC's) except

A. Daily/servicing/special cards.

B. Turnaround cards.

C. Phased cards.

D. SRC cards.

82. When a VIDS/MAF is completed, what part shall be placed in a temporary file for later verification of the daily audit reports?

A. 1

B. 3

C. 5

D. 4

83. If you could not find a work unit code manual and needed a listing of transaction codes, you could also find them in the

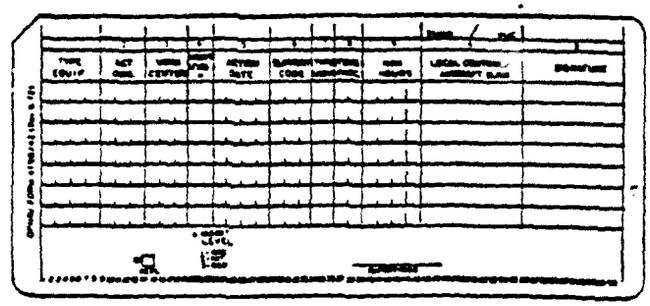
A. OPNAVINST 4790.2F.

B. OPNAVINST 4790.2E.

C. OPNAVINST 4790.2C.

D. OPNAVINST 4790.2D.

84. The form in the figure is a



A. work request form.

B. equipment history record form.

C. (MAF) Maintenance Action Form.

D. (SAF) Support Action Form.

85. If you could not find a work unit code manual and needed a listing of transaction codes, you could also find them in the

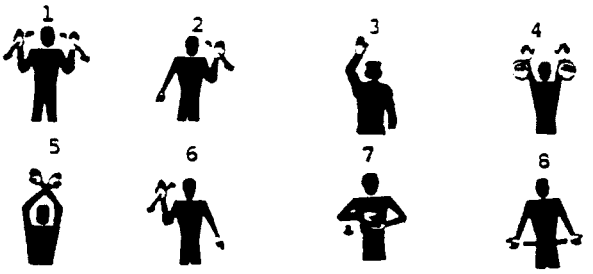
A. OPNAVINST 4790.2F

B. OPNAVINST 4790.2E

C. OPNAVINST 4790.2C

D. OPNAVINST 4790.2D

Refer to the figure below in answering the following 4 questions.



86. You are ready to taxi your aircraft. What hand and arm signal should you give to remove the chocks?

A. 3

B. 6

C. 4

D. 8

87. You are directing an aircraft into a parking spot. What signal should you give to make the aircraft stop?

A. 1

B. 3

C. 5

D. 7

88. You are towing an aircraft. The taxi director wants you to turn to the right. He should signal

A. 2

B. 4

C. 6

D. 8

89. You are the taxi director. You want the aircraft to move straight ahead. You should signal

A. 1

B. 2

C. 3

D. 4

AIRCRAFT: CH53E (6115)

For this portion of the test you may use the extract titled TR Flight Controls.

90. You should check the torque shaft for

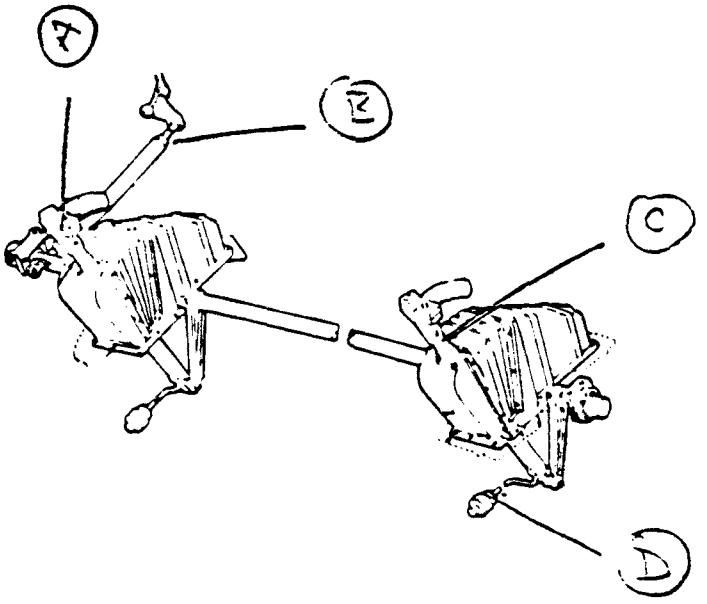
A. ratcheting.

B. interference with with other components.

C. missing rivets.

D. stiff bearings.

Refer to the figure below in answering the following 2 questions.



91. You suspect the electrical wiring may be chafing. You should inspect

A. A

B. B

C. C

D. D

92. The two collective sticks are connected by the

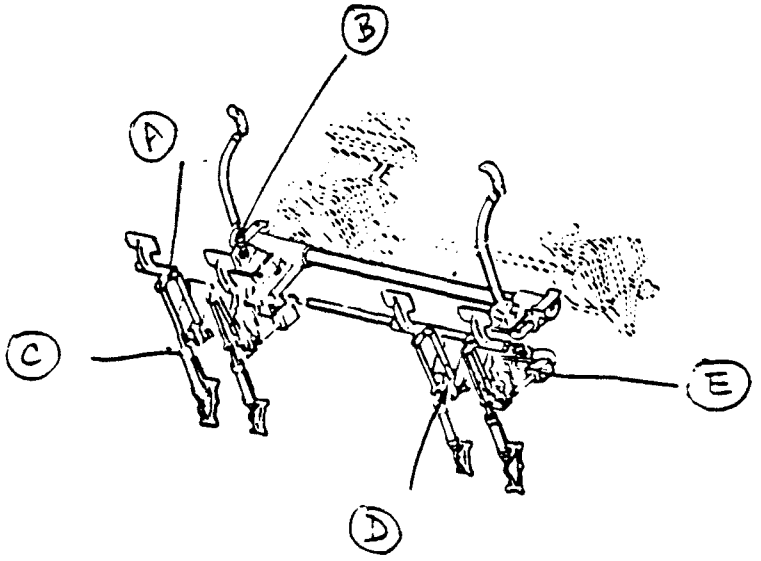
A. control tube.

B. collective bellcrank.

C. torque shaft.

D. support arm.

Refer to the figure below in answering the following 2 questions.



93. You have been told to check the pedal switch lever for security. You should check

A. A

B. B

C. C

D. E

94. You must inspect the brake cylinder for corrosion. You should check

A. E

B. B

C. C

D. A

95. You are troubleshooting the rear main servo horizontal bellcranks for wear. Where should you apply manual pressure?

A. At the rod attachment points

B. At the point where the bellcranks attach to the support

C. At the torque shaft

D. Midway between the bellcranks

96. You must troubleshoot the rear main servo hosizontal bellcranks for wear. What tool is necessary?

A. feeler gage

B. shim stock

C. dial indicator

D. micrometer

97. Which of the following is not a directional control pedal actuator troubleshooting inspection?

A. Check pedal actuator for cracks and security

B. Check torque shaft supports for security

C. Check flex cable for chafing

D. Check flex cable for kinking, cable breaks, and binding

AIRCRAFT: CH53E (6115)

For this portion of the test you may use the extract titled R/R Mechanical Screwjack.

98. You are to adjust a mechanical screwjack. What tool should you use to turn the drive slot?

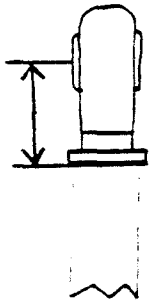
A. Screwdriver (Standard)

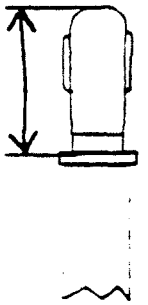
B. Screwdriver (Philips)

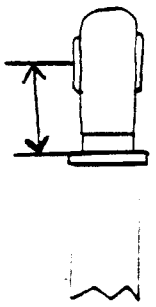
C. Allen wrench set

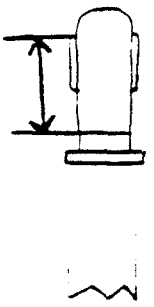
D. Scribe

99. After you have made a mechanical screwjack adjustment, the maximum dimension should not exceed 1.093 inch. Where do you take this measurement?

A. 

B. 

C. 

D. 

A. A

B. B

C. C

D. D

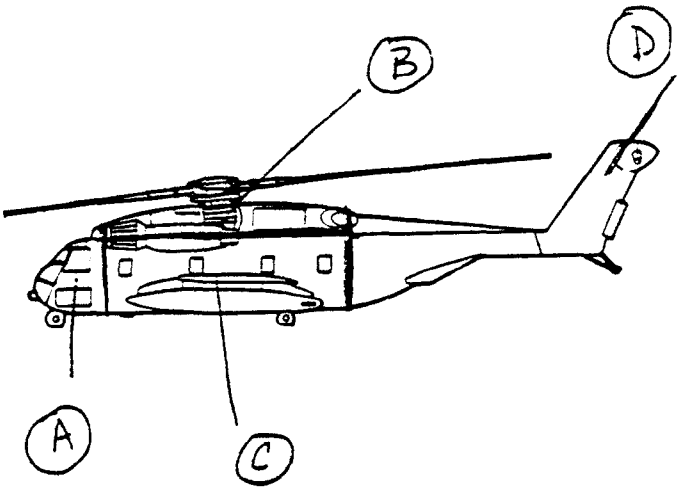
100. You must remove the mechanical screwjack. Where will you find it on the helicopter?

A. A

B. B

C. C

D. D



101. You are to remove and replace the mechanical screwjack. Using the pedal adjustor actuator switch you should move the actuator to the

A. full retract position.

B. full extended position.

C. mid-travel position.

D. neutral position.

102. What direction should you turn the drive slot to bottom (fully retract) the screwjack?

A. You cannot bottom the screwjack

B. Clockwise

C. Counter-clockwise

D. Push down until switch catches.

103. You have adjusted a replacement mechanical screwjack. How should you tighten the jamnut?

A. 1/3 to 3/4 turn past point where sharp rise in torque is felt

B. 1/6 to 1/3 turn past point where sharp rise in torque is felt

C. 1/2 turn past point where sharp rise in torque is felt

D. fingertight

104. You must replace the bolts securing both sets of pedals. The boltheads must

A. face away from each other.

B. face each other.

C. line up on the left side of helicopter.

D. line up on the right side of helicopter.

105. The drive slot must be fully engaged in the screwjack before

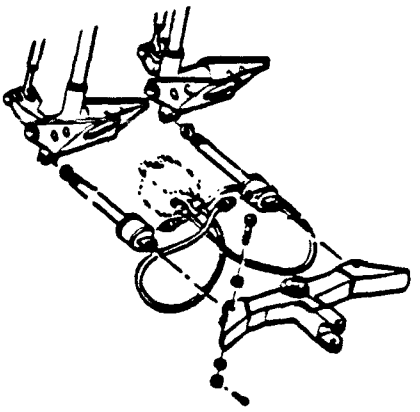
A. connecting the fixed end of the screwjack to the bellcrank.

B. tightening the flex cable nut.

C. making the mechanical screwjack adjustment.

D. performing an operational check of the pedal adjustment system.

106. You must remove both mechanical screwjacks. How many connections must you disconnect?



A. 2

B. 4

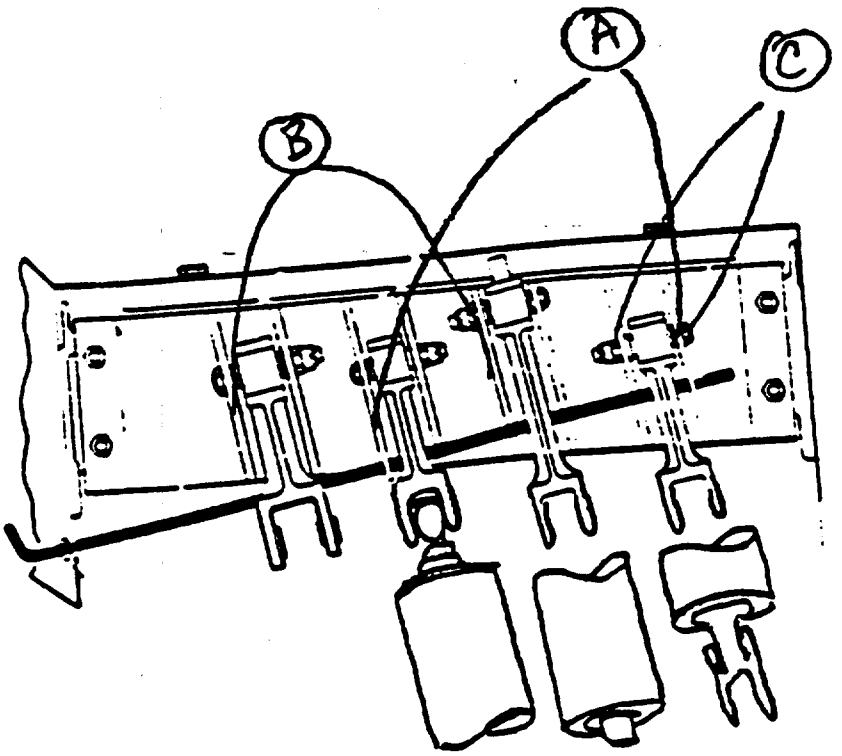
C. 6

D. 8

AIRCRAFT: CH53E (6115)

R/R Collective Pitch Bellcrank

107. You have installed this rigging pin. Which supports, if any, have locking holes?



A. A

B. B

C. D

D. There are no locking holes in these supports

108. When rigging pins are installed you should not

A. install the main rotor servo blocks.

B. apply hydraulic power to helicopter.

C. disconnect roll and yaw control rods from input bellcrank.

D. disconnect balance spring extender from collective input bellcrank.

109. You have disconnected the AFCS collective servo input control rod from the collective input bellcrank and removed the rigging pin. To neutralize the balance spring force you should move the collective stick to

A. low collective .

B. high collective.

C. mid-level collective.

D. neutral.

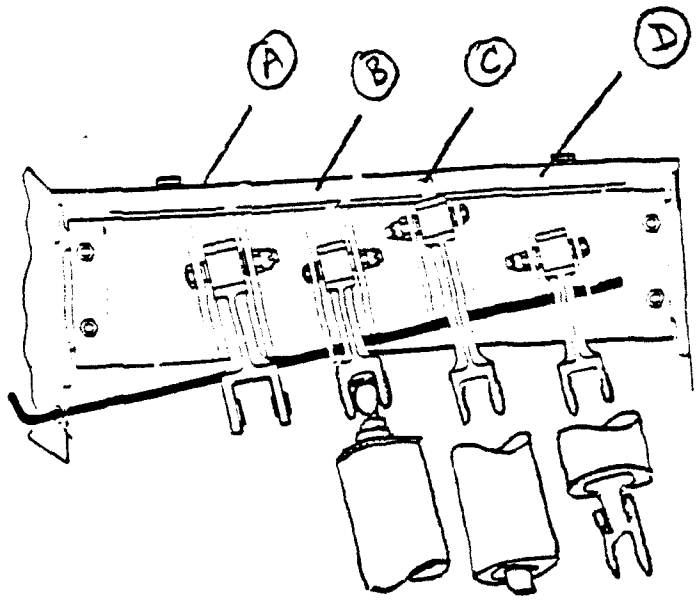
110. You must remove and replace the collective bellcrank. Which one is this?

A. A

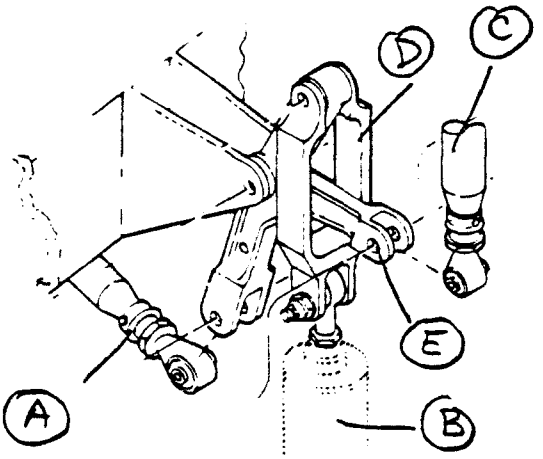
B. B

C. C

D. D



Refer to the figure below in answering the following 2 questions.



111. You must remove and replace the AFCS collective servo input control rod. You should remove

A. A

B. B

C. C

D. D

112. You must remove and replace the balance spring extender. You should remove

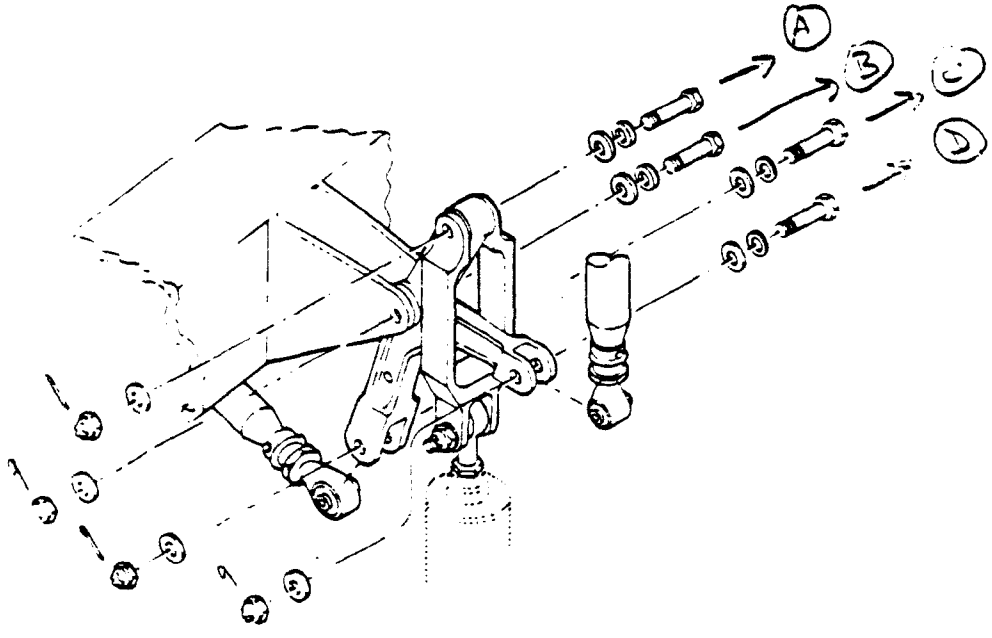
A. A

B. B

C. C

D. D

Refer to the figure below in answering the following 3 questions.



113. How many washers are required to attach the collective bellcrank to the support?

A. 2

B. 3

C. 8

D. 12

114. How many cotter pins will be necessary to completely install the bellcrank and attachments?

A. 2

B. 3

C. 4

D. 5

115. Which bolt attaches the balance spring extender to the bellcrank?

A. A

B. B

C. C

D. D

AIRCRAFT: CH53E (6115)

APP

116. You are preparing to start the auxiliary power plant. The fireguard should stand

A. near the APP air intake.

B. 11 o'clock position in front of the left hand sponson.

C. 1 o'clock position in front of the right hand sponson.

D. just forward of the No. 2 engine intake.

117. You are performing the APP start procedures. The APP has started and you have 100% engagement. The accumulator should have

A. 2000 psi

B. 3000 psi

C. 5000 psi

D. 6000 psi

118. You are performing the APP start procedures. The APP has started and you have 100% engagement. What should you do next?

A. Move the APP control lever to START.

B. Switch the No. 1 and No. 3 generators to ON.

C. Move APP emergency T-handle to FWD position.

D. Turn fuel selector levers to SHUTOFF.

119. An APP start shall be aborted when

(1) there is no RPM indication.
(2) the ramp control power switch is set to ON and HOLD.
(3) the exhaust temperature reaches 600° C.
(4) the APP clutch fails to engage.

A. 1 and 2

B. 2 and 3

C. 1 and 4

D. 2 and 4

120. An APP start shall be aborted whenever acceleration hangs up for more than

A. 2 seconds

B. 4 seconds

C. 5 seconds

D. 8 seconds

121. You have completed the pre-start procedures. What should the APP control lever be set to?

A. ON

B. OFF

C. START

D. NORM

122. You have completed the pre-start procedure. What position should the circuit breaker control switch be in?

A. ON

B. OFF

C. NORM

D. FORWARD

123. You are performing prestart procedures to start the APP. What position should the pitch lock switch be in?

A. ON

B. OFF

C. as required

D. NORM

124. You are performing prestart procedures to start the APP. What position should the FM antenna be in?

A. OFF and HOLD

B. RETRACT

C. OFF and covered

D. NORM

125. What is the most important precaution you must take when firing up the APP?

A. Wear hearing protection

B. Wear flight shoes with steel toes

C. Wear fire retardant suit

D. Ensure aircraft has been grounded

AIRCRAFT: CH53E (6115)

TR Main Rotor

126. You are probing the rotating scissors spherical bearings using 0.010 inch thick plastic shim stock. What is the maximum acceptable allowable tolerance?

CARD 55.1		A1-H53BE-MRC-300 DATE 1 January 1988			CHANGE NO.		ELEC PWR NA
WORK ZONE	C A S N	TIME	RTG AD NO. 1	MOS 6115 NO. 1	SWASHPLATE ASSEMBLY		HYD PWR OFF COND AIR NA

CAUTION: To prevent damage to rotating scissors by applying excessive force, use care when using metal feeler gage.

c. rotating scissors upper and lower link bearings for too much play by probing entire 360° of linkage joints with 0.015 in. metal feeler gage. If gage can be inserted 0.200 in. or more, remove inner sleeve bearing and check following:
(1) upper or lower outer sleeve bearing flange for minimum 0.086 in. thickness.
(2) install bearing (Refer to A1-H53BE-150-000, WP 012 00).

d. rotating scissors spherical bearing for too much play by probing 360° on both sides using 0.010 in. thick plastic shim stock (Maximum depth to be inserted 0.300 in.).

CAUTION: After a spherical bearing is removed from the helicopter because its wear exceeds the allowable limits, it must be checked for excessive Teflon wear as indicated by metal-to-metal contact. If such contact exists, the swashplate and related bearings must be sent to depot level maintenance. If no such Teflon wear exists, the swashplate can be kept in service after a new bearing is installed.

e. spherical bearing from step d. (if removed) for metal-to-metal contact by rotating spherical bearing in outer race. If a scraping condition exists, return bearing and swashplate to depot level maintenance.

C f. Teflon-lined bearings for corrosion by doing this:

Continued

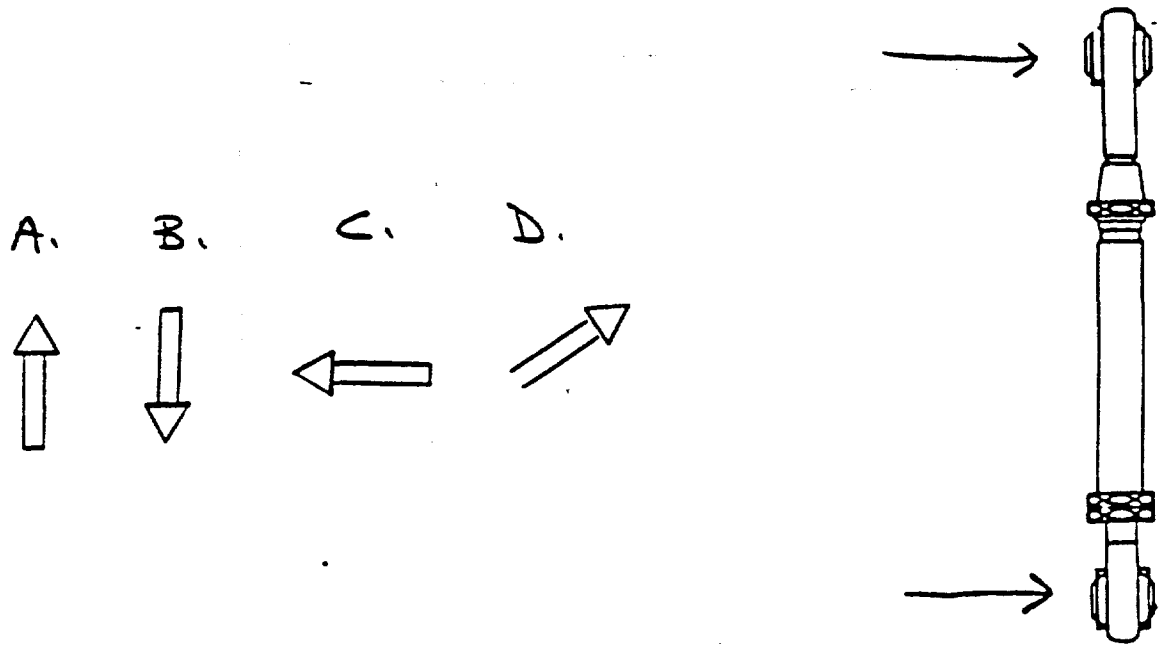
A. 0.086 inch

B. 0.200 inch

C. 0.015 inch

D. 0.300 inch

127. You are inspecting the pitch control bearings at the location of the two arrows. In what direction should hand force be applied?



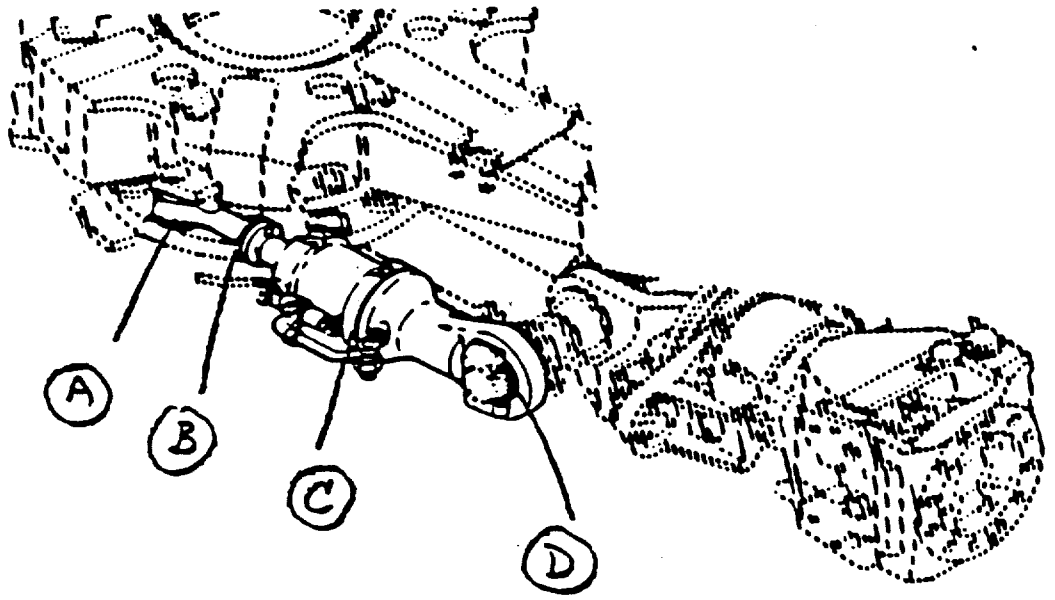
A. A

B. B

C. C

D. D

128. At what location should you inspect the outboard damper bearing?



A. A

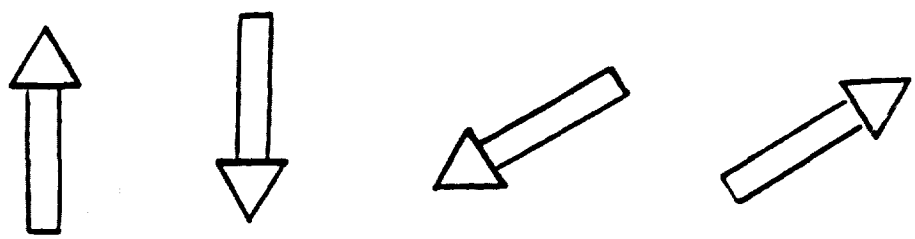
B. B

C. C

D. D

129. You are troubleshooting the outboard damper bearing using shim stock. In what direction should force be applied?

A B. C. D.



A. A

B. B

C. C

D. D

130. You are preparing to inspect the outboard damper bearing (SB5073-103) using shim stock and this MRC Card. What size gage should you use?

CARD 46.1		A1-H53BE-MRC-300 DATE 1 January 1988			CHANGE NO.		ELEC PWR NA
WORK ZONE	C R S M	TIME	RTG AD NO. 1	MOS 6115 NO. 1	DAMPER BEARINGS		HYD PWR NA
							COND AIR NA

NOTE: The SB5073-103 bearing is color coded brown on the outboard snapring and face. If the bearing cannot be identified as SB5073-103, perform this inspection using a 0.005-in. plastic shim feeler gage.

c. using 0.005-in. gage for the SB5073-102 bearing or a 0.010-in. gage for the SB5073-103 bearing, probe entire 360 degree circumference of outboard side of outboard bearings. Outboard half of outboard bearing, visually, for metal-to-metal contact on the inboard (flange) side.

CAUTION: After a damper bearing is removed from the helicopter because its wear exceeds the allowable limits, it must be checked for too much Teflon wear as indicated by metal-to-metal contact. If this contact exists, the damper housing or rod and related bearings must be sent to depot level maintenance. If this Teflon wear does not exist, the damper can be kept in service after a new bearing is installed.

d. replace bearing if shim can be inserted 0.300 in. or more. Removed bearing for metal-to-metal contact by rotating spherical bearing in outer race. If a scraping condition exists, return damper and bearing to depot level maintenance.

Continued

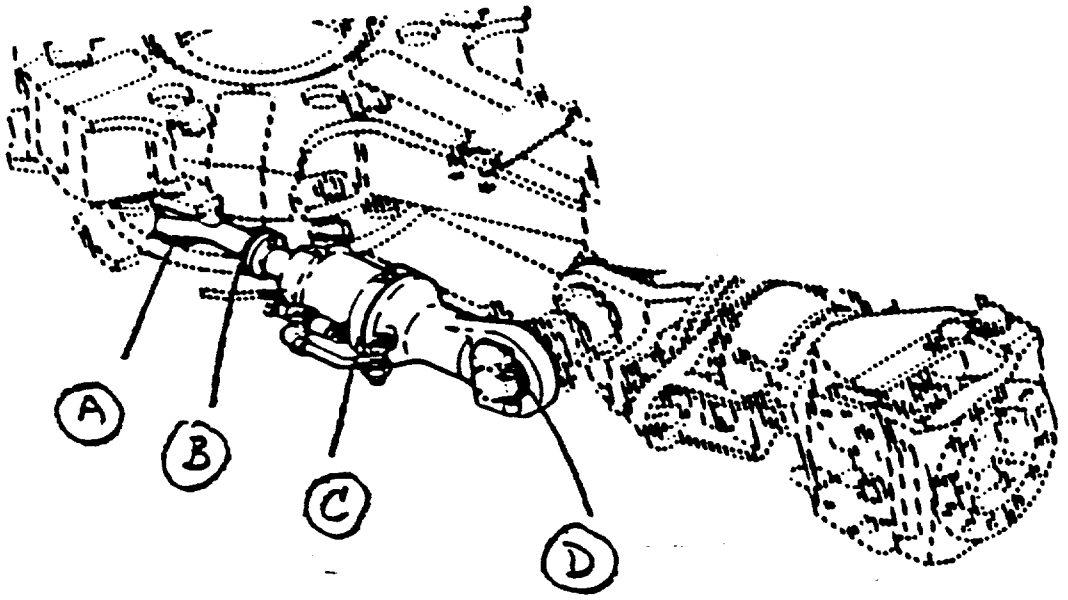
A. 0.005 inch

B. 0.015 inch

C. 0.010 inch

D. 0.020 inch

131. At what location should you inspect the inboard damper bearing?



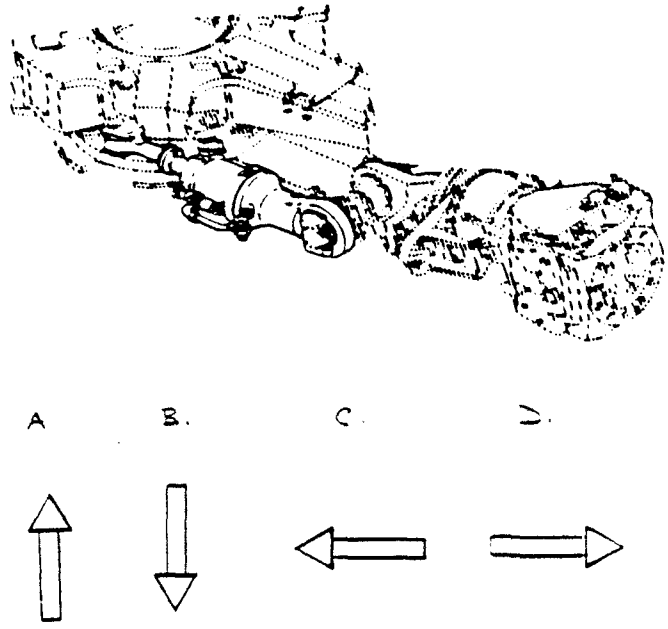
A. A

B. B

C. C

D. D

132. You are troubleshooting the inboard damper bearing using shim stock. In what direction should force be applied?



A. A

B. B

C. C

D. D

133. What should you use to clean teflon-lined bearings?

A. Dry cleaning solvent

B. Cleaning pad

C. Soap and water

D. Freon

134. You must probe the outside position of the inboard bearing 0.005-inch plastic shim. You do this by

A. pulling in the direction of the side where the measurement is to be taken.

B. not pulling in the direction of the side where the measurement is to be taken.

C. rotating the damper upward.

D. rotating the damper downward.

135. You must measure the inboard damper bearing for worn nylon bumpers. You should apply hand force at blade tip to unload bearing by positioning bearing at its

A. innermost lag position.

B. outermost lag position.

C. neutral position.

D. mid-travel position.

136. When troubleshooting the damper bearings all measurements should be made with the related main rotor blade positioned over the

A. nose or tail cone.

B. No. 1 engine.

C. over the port or starboard side.

D. 1 o'clock position.

AIRCRAFT: CH53E (6115)

R/R Main Head

137. You are removing the main rotor head. What inch-pound increment should torque be broken on each bolt?

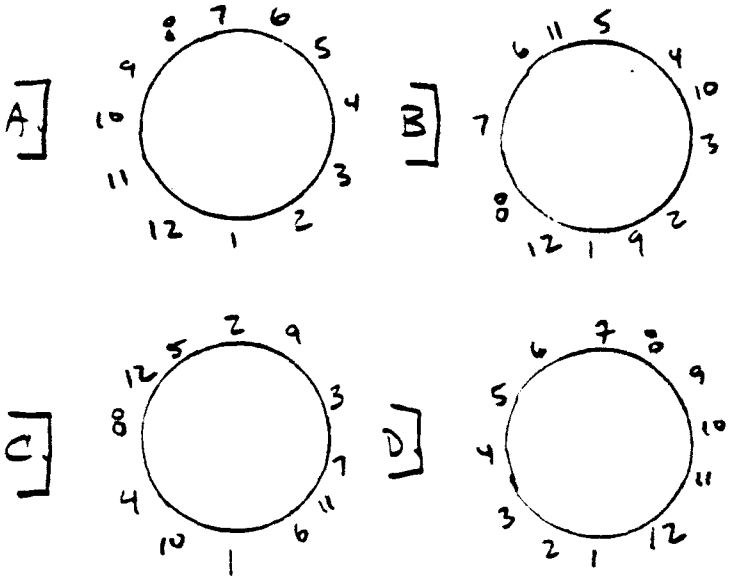
A. 100

B. 200

C. 500

D. 50

138. Identify the correct sequence for torquing the 12 bolt assemblies.



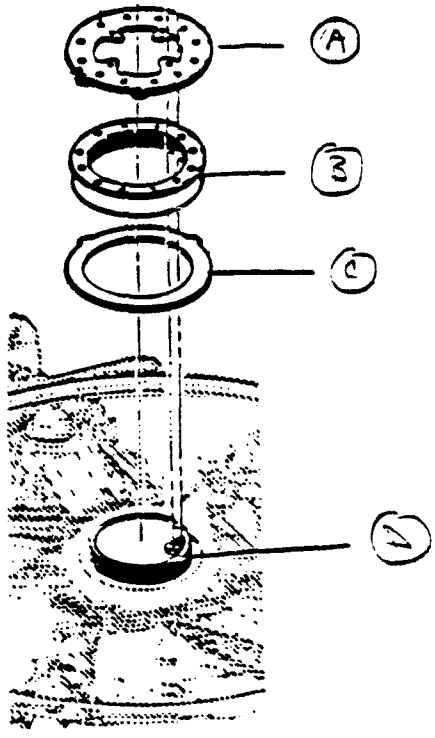
A. A

B. B

C. C

D. D

139. You are to break torque on the main rotor head. Where will you find the sequence of numbers identifying the order?



A. A

B. B

C. C

D. D

140. You are installing the main rotor head. You have installed the main head thrust washer and retaining nut on the shaft. After the retaining nut is handtightened you should

A. turn the nut 1/3 past the torque specification.

B. back off the retaining nut three full turns.

C. back off the retaining nut one full turn.

D. install the bolt assemblies.

141. When installing the damper accumulator plate you should ensure

A. the two ears of the damper accumulator plate line up with the two holes in the top of the hub.

B. the bolts are replaced in 1, 2, 3...12 sequence.

C. that every other bolt is replaced first.

D. that the bolt assemblies have been stabilized.

142. The largest allowable thread exposure between the top of the rotor shaft and the retaining nut is

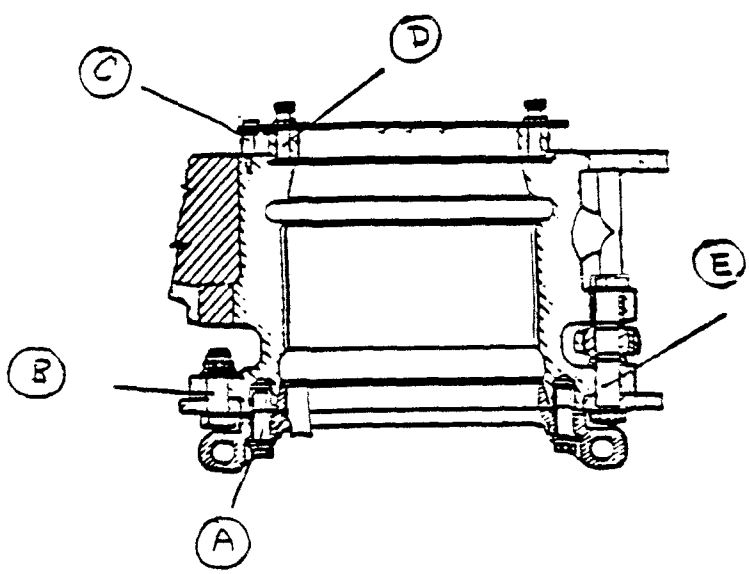
A. 0.300 inch

B. 0.600 inch

C. 1 inch

D. 1.6 inch

Refer to the figure below in answering the following 2 questions.



143. You must check the damper accumulator plate spacers for security. You should check

A. A

B. B

C. C

D. D

144. You are to break torque on the pressure plate bolts. Which bolts are these?

A. A

B. B

C. C

D. D

145. Which list of HUB arms below are color-coded correctly?

(1)	red blue orange yellow white black green	(2)	black green white orange yellow blue red
(3)	red blue yellow orange green white black	(4)	yellow blue red green orange black white

A. 1

B. 2

C. 3

D. 4

AIRCRAFT: CH53E (6115)

R/R Rotating Scissors

146. Before torque is applied, you should peel shim as required to allow 0.000 - 0.008 inch total clearance between shim and

A. inner bearing.

B. outer bearing.

C. counter sunk washer.

D. bolt head.

147. You are installing the rotating scissors. You have loosely installed the bolt through the upper link and pressure plate lug. Your next step is to

A. take a gap reading on each side of lug.

B. remove bolt and peel laminated shims.

C. install countersunk washer on stud of lower link.

D. torque nut to 83 - 166 foot-pounds.

148. When replacing inner and out bearings on the rotating scissors you should

A. keep the inner bearings together and the outer bearings together.

B. keep the bearings together. They are a matched set.

C. only replace the inner bearings.

D. only replace the outboard link bearings.

149. What should you use to coat the diameter of the bolt when replacing the rotating scissors?

A. corrosion protection compound (MIL-C-16173)

B. grease

C. anti-seize compound

D. freon

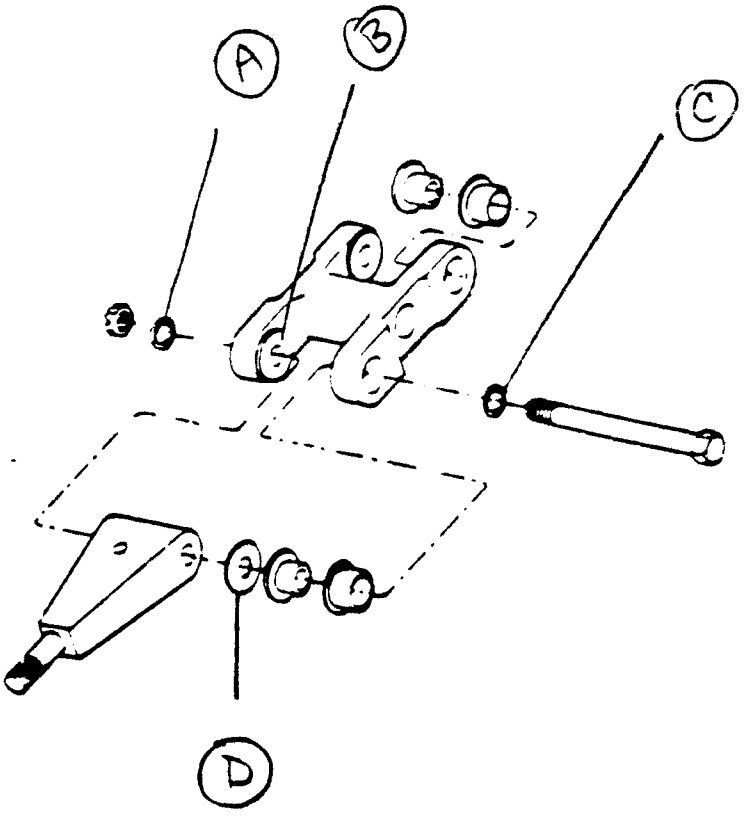
150. You must replace the laminated shims. You should replace

A. A and C

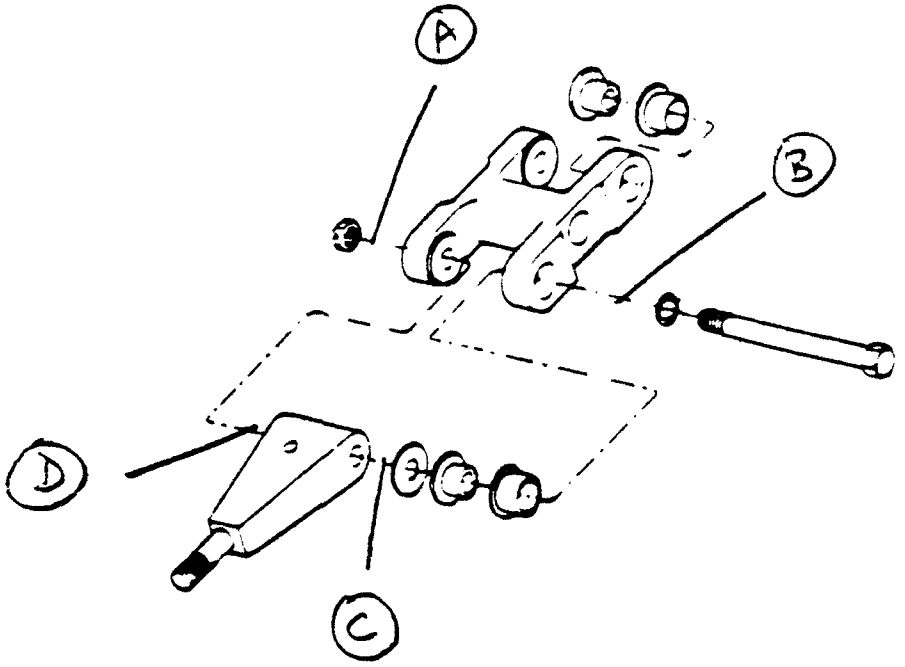
B. B and D

C. A and D

D. D only



151. You have replaced the upper link and realize a washer is missing. Where should the washer be installed?



A. A

B. B

C. C

D. D

152. You are installing the lower link to the upper link using a bolt and countersunk washer. The bolt head should face

A. in the opposite direction of rotation.

B. in the direction of rotation.

C. forward.

D. aft.

153. You have replaced the rotating scissors and shims. After torquing, the cotter pin hole does not line up with slot in nut. You should

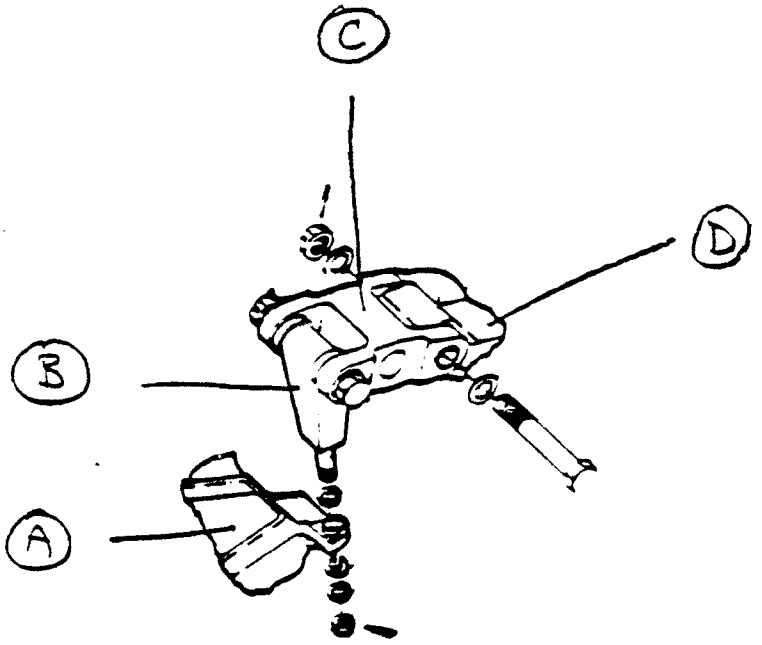
A. add shims under nut as necessary.

B. replace the nut.

C. torque to lower than indicated value.

D. add washers.

154. The crew chief has asked you to inspect the lower link for security. You should check



A. A

B. B

C. C

D. D

AIRCRAFT: CH53E (6115)

Adjust Pitch Control Rod

155. You are preparing to make an autorotation adjustment. You should first

A. shorten the rod three full turns and return the blade track to its original setting.

B. record the pretrack measurement on the blade track (radial) decal.

C. install the upper decal on each rod.

D. remove the upper decal and clean off the adhesive residue.

156. You are making an autorotation adjustment. One full turn changes the rpm

A. 2%

B. 3%

C. 6%

D. 8%

157. You lengthen the pitch control rod by turning it

A. clockwise.

B. counter clockwise.

C. full up position.

D. full down position.

158. You must replace a pitch control rod bearing. You should press only on the

A. inner race.

B. outer race.

C. inner and outer race simultaneously.

D. terminal.

159. You must move the pitch control rod one full turn. Approximately how many divisions on the barrel is this?

A. 6

B. 12

C. 18

D. 20

160. When tightening the nuts on a pitch control rod, the nuts should be

A. both right-hand thread.

B. both left-hand thread.

C. one left- and one right-hand thread.

D. both threads should turn in the direction of the rotary-wing head.

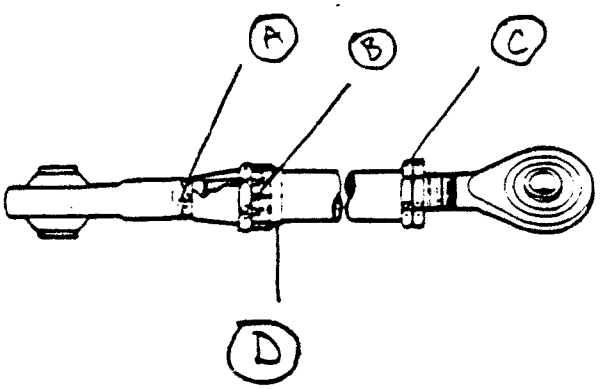
161. You wish to check the safety tang for serviceability. You should check

A. A

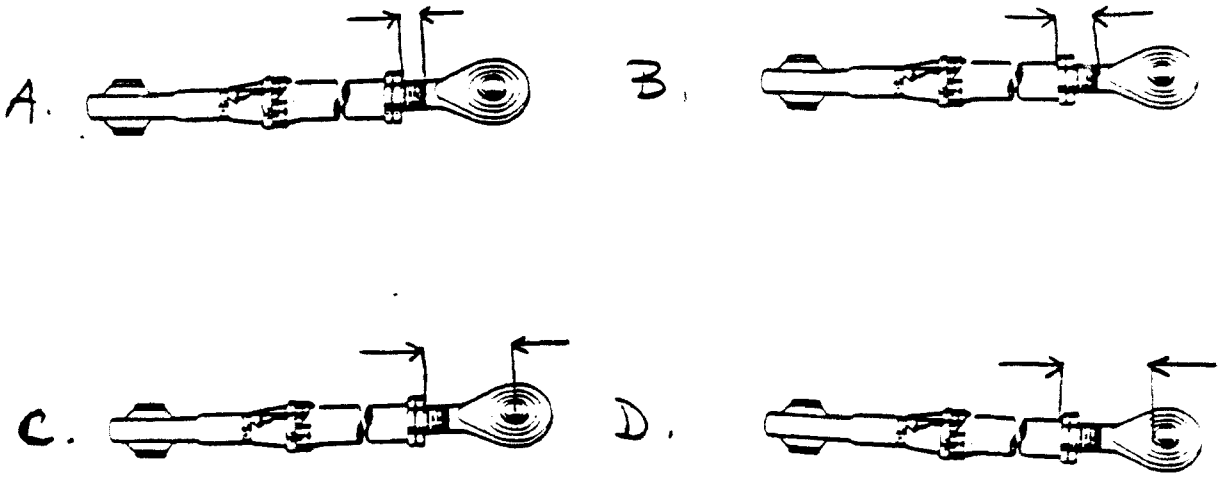
B. B

C. C

D. D



162. You have made a pitch control rod adjustment. You want to check for the maximum thread exposure. Where should you check?



A. A

B. B

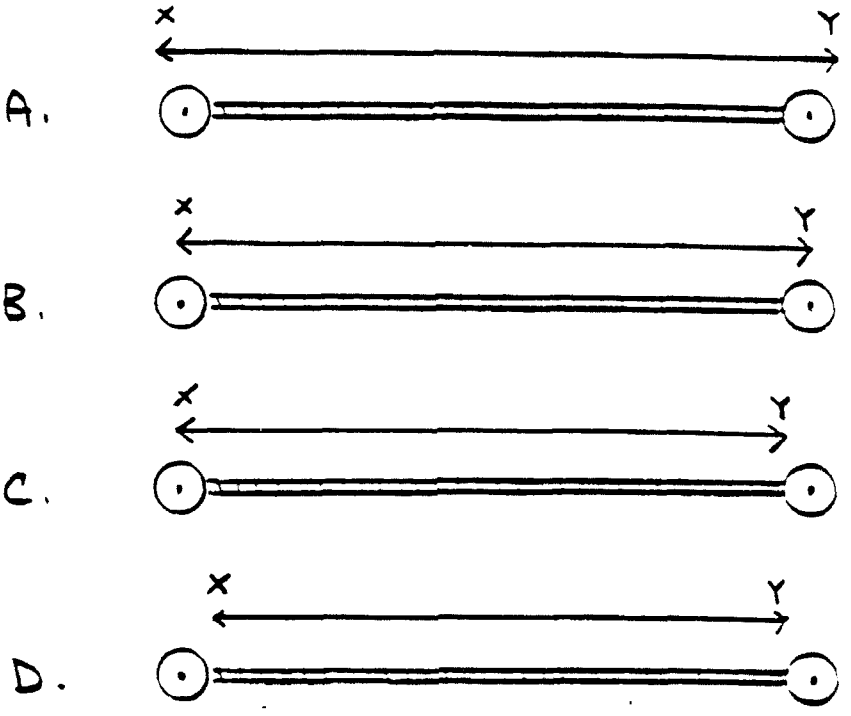
C. C

D. D

AIRCRAFT: CH53E (6115)

Adjust Flight Control Rod

163. Which distance, represented by X to Y, illustrates the proper measurement of a flight control rod?



A. A

B. B

C. C

D. D

164. You have made an adjustment on a flight control rod. Prior to installation you should

A. try to pass the lockwire throu the inspection hole.

B. lockwire the jamnut to the flight control rod.

C. install the new cotter pins.

D. coat the jamnut with grease (MIL-G-81322).

165. After you have adjusted the flight control rod you should

A. tighten jamnuts handtight, torque, and lockwire.

B. tighten jamnuts handtight.

C. secure the retainers and bracket.

D. coat the rod with dye (SKD-NF).