DEPARTMENT OF THE ARMY TECHNICAL MANUAL

ORGANIZATIONAL, DS, GS, AND DEPOT MAINTENANCE MANUAL

TESTER KIT INSTRUMENT MODEL 1256

HEADQUARTERS, DEPARTMENT OF THE ARMY

TAGO 5O97-A-November OCTOBER 1965

SAFETY PRECAUTIONS

Never connect the tester kit instrument to a source of instrument power without adequate overload protection (maximum instrument rating or 10 amperes, whichever is smaller). Failure to provide adequate protection will result in possible damage to tester kit instrument.

Connect tester kit instrument base to an adequate ground to protect operating personnel from the possibility of electrical shock due to insulation breakdown in drive motor, electrical power transfer components, or instrument under test.

Do not immerse bearings or assemblies containing sealed bearings in any petroleum distillate such as kerosene, gasoline, dry cleaning solvent, etc. Any such fluids entering sealed bearings will displace or dissolve lubricant, resulting in premature failure of bearing.

Do not use dry cleaning solvent on electrical components or any insulation. Dry cleaning solvent has a gradual deteriorating effect on insulation of many electrical components.

Stop operation of tester kit instrument immediately if a condition is noted that could result in damage to the equipment.

CHANGE
No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., *2 February 1972*

Organizational, DS, GS, and Depot Maintenance Manual

TESTER KIT

INSTRUMENT MODEL 1256

TM 55-4920-233-15, 19 October 1965, is changed as follows:

Page 1, Table of Contents. So much of Chapter 6, Section III, as reads "paragraph 94,95" is rescinded.

Page 34. Paragraphs 94 and 95 are superseded as follows:

(Refer to TM 750-244-1-4 for demolition instructions.)

By Order of the Secretary of the Army:

W. C. WESTMORELAND,
General, United States Army,
Chief of Staff.

Official:
VERNE L. BOWERS,
Major General, United States Army,
The Adjutant General.

DISTRIBUTION:
To be distributed in accordance with DA Form 12-31 (qty rqr block no. 94) requirements for Organizational Maintenance Instructions for all Fixed and Rotor Wing Aircraft.

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DEPARTMENT OF THE ARMY
WASHINGTON, DC, *19 October 1965*

ORGANIZATIONAL, DS, GS, AND DEPOT MAINTENANCE MANUAL
TESTER KIT INSTRUMENT MODEL 1256
PART NO. 211744
FSN 4920-348-2445

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CHAPTER 1
INTRODUCTION

Section I. GENERAL

1. Scope

a. General. These instructions are published for the use of operators and personnel responsible for organizational, direct support, general support, and depot maintenance of the tester kit instrument, part No. 211744, model 1256. Included are instructions for operation, preventive maintenance services, repairs, troubleshooting, and maintenance as pre- scribed by the maintenance allocation chart.

b. Appendix I. Appendix I contains a standard list of all publications applicable to this manual and available to operating and maintenance personnel.

c. Appendix II. Appendix II contains the main- tenance allocation chart. This chart assigns the maintenance functions and repair operations to be performed by the lowest appropriate echelon.

d. Appendix III. Appendix III contains the repair parts and special tools list. It is comprised of maintenance accessories, tools, supplies, spare assemblies, repair parts, and the quantities authorized maintenance personnel.

e. Recommendations. The direct reporting by the individual user, of errors, omissions, and recommendations for improving this maintenance manual is authorized and encouraged. DA Form 2028 (Recommended Changes to DA Publications) will be used for reporting these improvements. This form will be completed using pencil, pen, or typewriter, and forwarded direct to Commanding General, U.S. Army Aviation Materiel Command, P.O. Box 209, Main Office, St. Louis, Mo., 63166.

2. Record and Report Forms

The record and report forms listed in the following subdivisions will be used by operating and maintenance personnel for recording and reporting operations and maintenance. For instructions as to the use of listed forms, refer to TM 38-750.

a. DA Form 2402 (Exchange Tag).

b. DA Form 2404 (Equipment Inspection and , Maintenance Worksheet).

c. DA Form 2405 (Maintenance Request Register).

d. DA Form 2406 (Material Readiness Report).

e. DA Form 2407 (Maintenance Request).

f. DA Form 2409 (Equipment Maintenance Log (Consolidated)).

g. DD Form 314 (Preventive Maintenance Schedule and Record).

Section II. DESCRIPTION AND DATA

3. Description

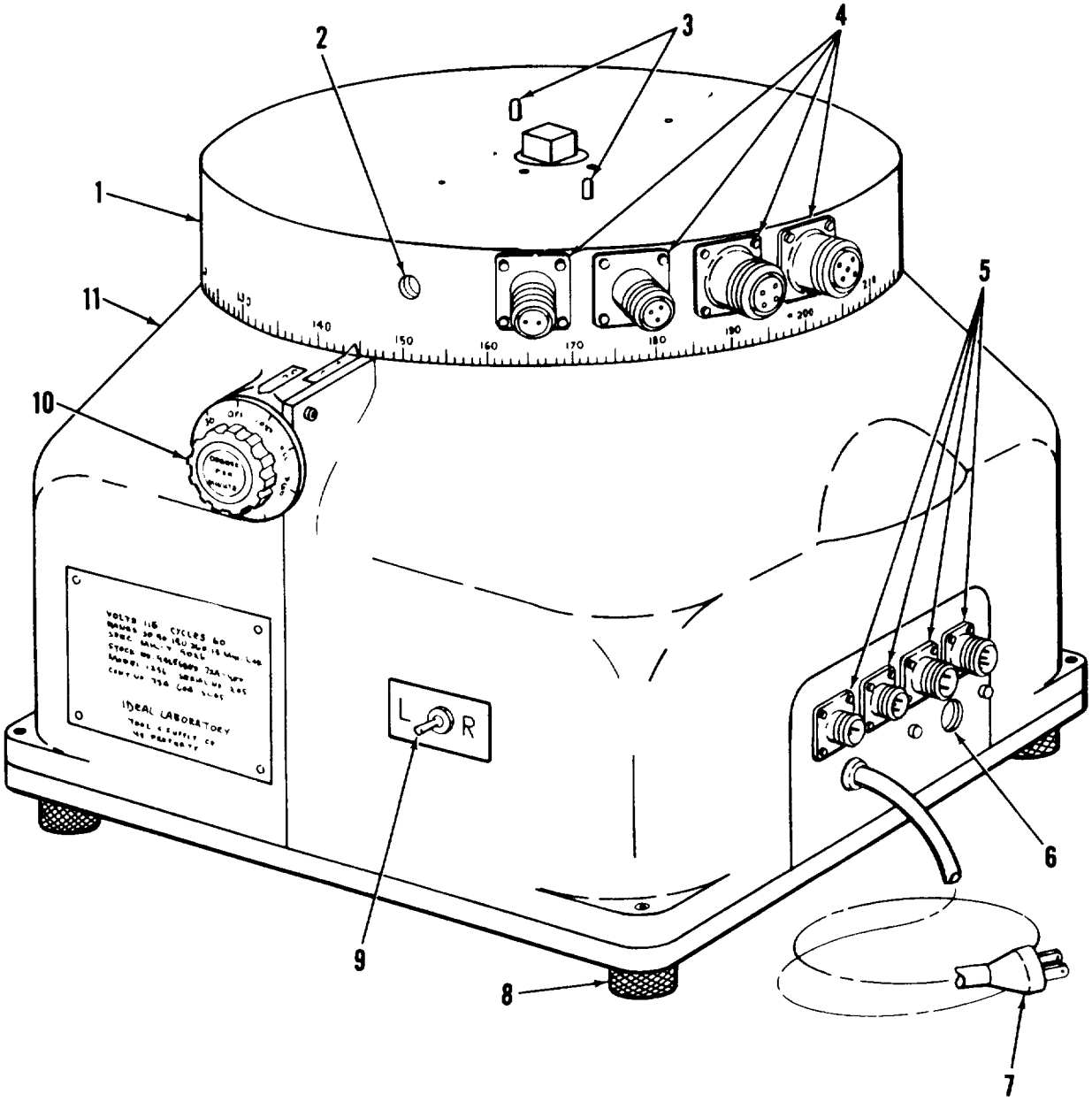
The tester kit instrument (figs. 1 and 2) provides a suitable base for instrument mounting jigs and furnishes rate of turn in azimuth, to the left or right of 36, 90, 180, 360, and 1080 degrees per minute. The rotating plate assembly (1, fig. 1) is equipped with standard instrument receptacles connected to corresponding receptacles on the base assembly to provide necessary electrical and pneumatic power transfer from an external instrument power source. Fixture locating studs (3) are provided to mount necessary instrument mounting fixtures.

4. Identification

Figure 3 illustrates the unit nameplate, located on the front lower left of the instrument case and motor nameplate, mounted on the drive motor.

5. Differences in Models

This manual covers only the Tester Kit Instrument, part No. 211744, model 1256. No known unlit differences exist for the design covered by this manual.



1. ROTATING PLATE ASSEMBLY
2. ROTATING PNEUMATIC CONNECTOR
3. FIXTURE LOCATING STUDS
4. ROTATING RECEPTACLES
5. STATIONARY RECEPTACLES
6. STATIONARY PNEUMATIC CONNECTOR
7. POWER CABLE
8. LEVELING SCREW
9. L- R SWITCH
10. SPEED SELECTOR KNOB
11. CASE ASSEMBLY

Figure 1. Tester kit instrument-exterior.

1. ADJUSTING NUT
2. ACTUATOR
3. CAM ASSEMBLY
4. BRUSHES
5. SLIP RINGS
6. CAPACITOR
7. MOTOR-REDUCER
8. CLUTCH AND GEAR ASSEMBLIES

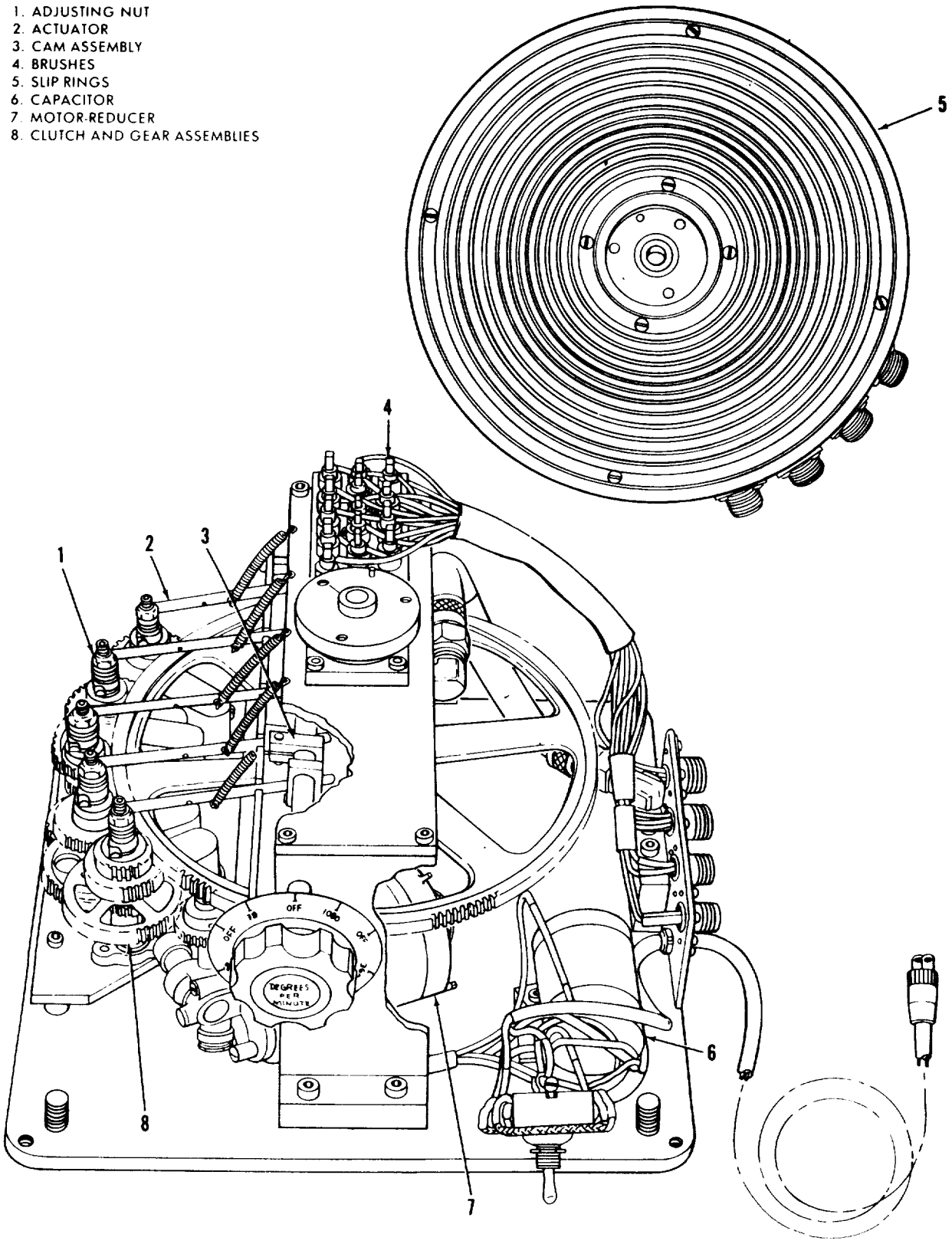


Figure 2. Tester kit instrument-interior.

6. Tabulated Data

a. General:
Manufacturer ..... Ideal Aerosmith, Inc.
Part No. 411744
Model 1256
Power requirements ..... 115 vac, 60 cps

b. Performance:
Constant rpm (5-speed) ..... 36,90, 180, 360, 1080 degrees per minute.

c. Clearance Dimensions:
Width ..... 15 in.
Depth ..... 16 in.
Height (leveling screws retracted) ..... 12 in.

d. Drive Motor Assembly:
(1) Motor
Volts ..... 115 ac
Amperes 0.2
Frequency ..... 60 cps
Phase 1
Horsepower 1/150
Temperature rise ..... 55°C. (131°F.)
RPM 1800
Duty cycle ..... Continuous
Type NYC-12R
(2) Reducer
Ratio 30:1
RPM 60
(3) Capacitor ..... 2.5 mfd 330 v ac

e. Gear and Clutch Assemblies:
Gear clearance ..... 0.005 in.).
Bearing clearances ..... See figure 14

f. Center Gear:
Position ..... See figure 15

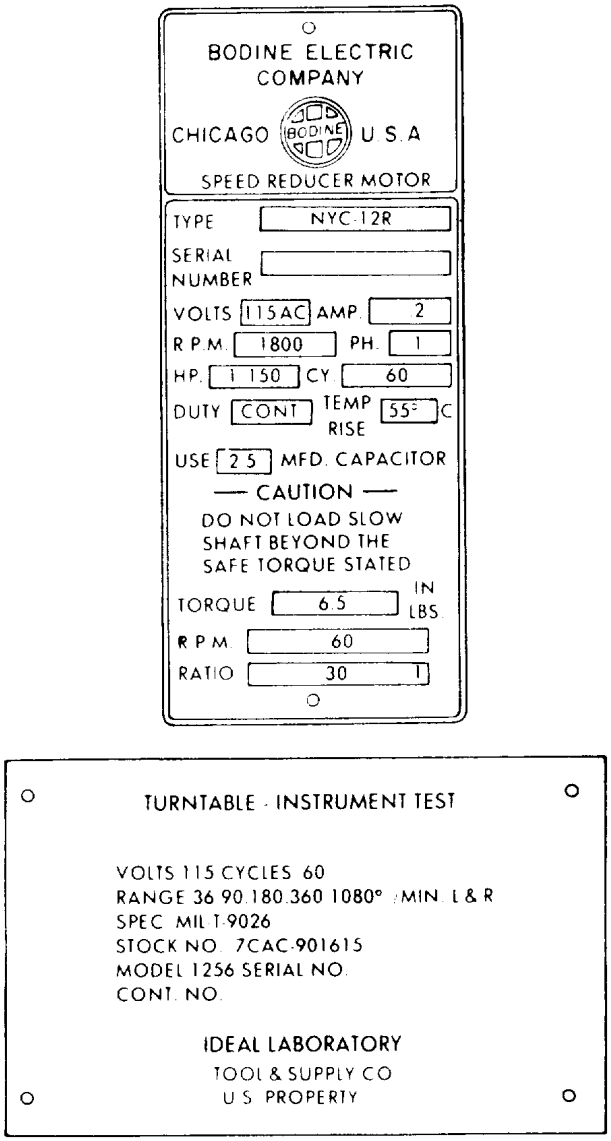


Figure 3. Identification plates.

CHAPTER 2
OPERATING INSTRUCTIONS

Section I. SERVICE UPON RECEIPT OF EQUIPMENT

7. General

This section provides a detailed description of the unpacking, inspection, and servicing procedures to be performed before the tester kit instrument is put into operation.

8. Unpacking

a. Unpack tester kit instrument by opening packing box or crate and remove tester kit instrument.

b. Remove tape and barrier material from tester kit instrument. Remove desiccant bags. Inspect and remove humidity indicator.

Note. If humidity indicator shows excessive humidity, notify organizational maintenance so that a complete inspection of tester kit instrument can be made for rust, corrosion, and other deterioration.

9. Inspection

a. Inspect case assembly (11, fig. 1) for damage and general condition.

b. Inspect rotating and stationary receptacles (4 and 5) for damage. Inspect power cable (7) for damage and general condition.

c. Inspect rate of turn selector knob (10) and L-R switch (9) for damage and proper operation. Place knob and switch in OFF position. Rotating plate assembly (1) should turn freely without binding or contacting case assembly. Check for missing or damaged fixture locating studs (3).

10. Servicing

a. Remove preservation compounds from all treated surfaces with dry cleaning solvent, item 3, table 1.

b. Lubricate tester kit instrument in accordance with paragraph 21.

c. Perform tester kit instrument performance test in accordance with paragraph 29.

Section II. CONTROLS

11. General

This section describes, locates, illustrates, and furnishes the operator or crew sufficient information pertaining to the various controls provided for the proper operation of the tester kit instrument. Careless operation or improper setting of the controls can cause erroneous test results and possible damage to the equipment. For this reason, it is important to know the function of every control.

12. Operator's Controls

a. L-R Switch. The L--R switch (9, fig. 1) provides a means of reversing the direction of tester kit instrument travel and also acts as a power switch to turn the motor-reducer (7, fig. 2) off. Placing the L-R switch in the R position causes the tester kit instrument to turn in a clockwise direction when engaged. Placing the switch in the L position reverses the motor-reducer causing a counter- clockwise rotation. Placing the switch in the center position turns the motor-reducer off.

b. Speed Selector Knob. The speed selector knob (10, fig. 1) provides a ready indication of the rate of turn in degrees per minute to which the tester kit instrument is set. The knob further provides a means of engaging portions of the clutch and gear assemblies (8, fig. 2) necessary to operate the tester kit instrument at a given rate of turn. The knob has alternate OFF positions between the rate of turn positions to disengage the motor-reducer from the tester kit instrument.

Section III. OPERATION UNDER USUAL CONDITIONS

13. General

a. This section gives instructions on starting and stopping the tester kit instrument and the basic capabilities of the equipment, as well as coordinating these capabilities to perform the specific tasks for which the equipment is designed.

b. It is essential that the operator know how to perform every operation of which the tester kit instrument is capable. Since nearly every job presents a different problem, it may be necessary that the operator vary the given procedures to fit the assignment.

14. Preparation Before Starting the Tester Kit Instrument

a. Electrically Operated Instruments.

(1) Perform preventive maintenance services (para 23).

(2) Locate tester kit instrument on a flat, reasonably level work table and level rotating plate assembly (1, fig. 1) by means of leveling screws (8).

Note. Choose a permanent location for tester kit instrument, if possible. It is necessary to level tester kit instrument each time relocation is necessary. A location where instrument face can be observed at any point in its rotation is preferable.

(3) Place L-R switch (9, fig. 1) in center (off) position.

(4) Connect suitable source of instrument power to stationary receptacle (5, fig. 1) corresponding to requirements of instrument under test. Consult applicable instrument publication for power requirements of instrument under test. Warning: Provide a suitable external ground securely connected to tester kit instrument. Failure to do so can result in serious or fatal shocks to operating personnel due to short circuits or insulation breakdown in tester kit instrument. Caution: Electrical power source must be equipped with suitable overload protection (fuses, circuit breakers, etc.) not exceeding rated value of instrument under test. Failure to do so can result in damage to tester kit instrument, instrument under test, or instrument power supply.

(5) Mount instrument in suitable mounting accessories (fig. 4) and mount on rotating plate assembly (1, fig. 1). Turn instrument power source off.

Note. Instrument mounting accessories are not provided with the tester kit instrument and must be requisitioned or fabricated as needed.

(6) Using a suitable jumper cable, connect instrument under test to proper rotating receptacle (4).

(7) Place speed selector knob (10) in OFF position adjacent to desired rate of turn.

(8) Connect power cable (7) to a source of 115-volt, 60-cycle ac power.

(9) Turn rotating plate assembly (1) to zero index mark.

Note. Several sources of instrument power may be simultaneously connected to tester kit instrument as required for various instruments to be tested. Stationary receptacles (5) are connected only to corresponding rotating receptacles (4) and are not interconnected in any way.

b. Vacuum Operated Instruments.

(1) Perform steps (1) through (3) in paragraph 14a above.

(2) Connect vacuum source to stationary pneumatic connector (6, fig. 1). .Vote. Vacuum source must be regulated not to exceed limits of instrument under test. Failure to do so may result in erroneous test results.

(3) Mount instrument in suitable mounting accessories (fig. 4) and mount on rotating plate assembly (1, fig. 1).

(4) Mount and connect suitable suction gage and vacuum filter in accordance with requirements of instrument under test. Connect to rotating pneumatic connector (2).

Note. Instrument mounting accessories are not provided with the tester kit instrument and must be requisitioned or fabricated as needed.

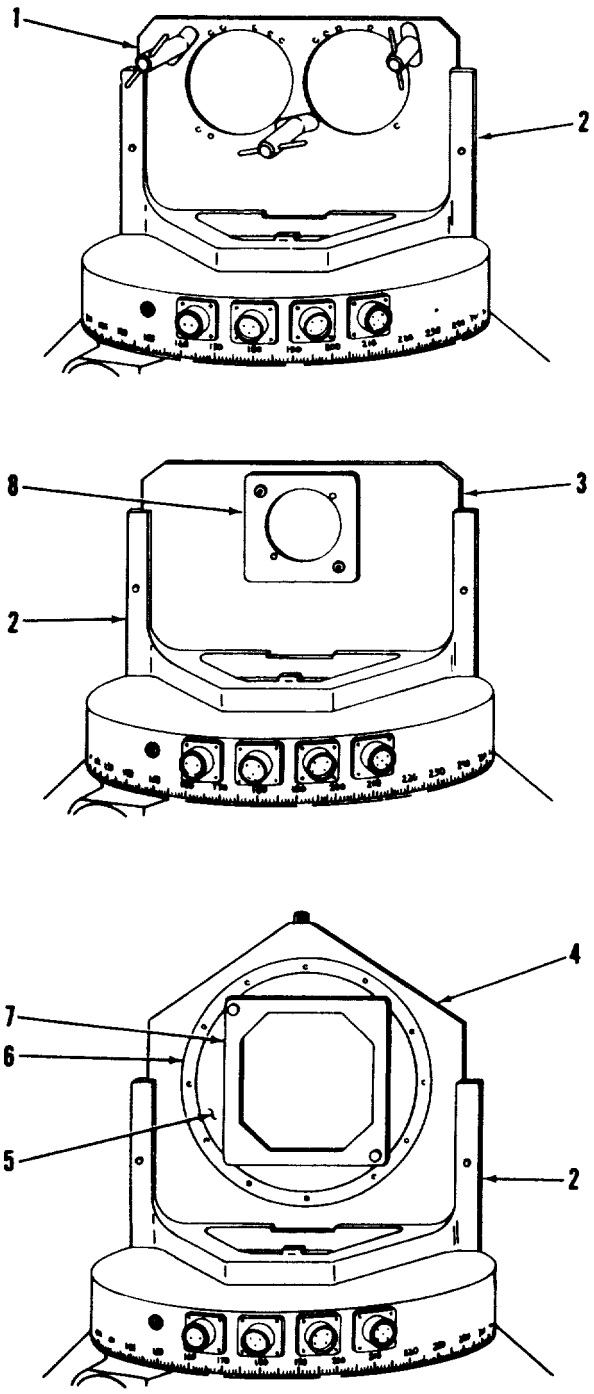
(5) Perform steps (7) through (9) in paragraph 14a above.

15. Starting Operation

Note. Follow applicable instrument manual test instructions in testing specific instruments. The following procedure is typical and is intended to familiarize the operator with the tester kit instrument:

a. Turn on instrument power or vacuum source and allow sufficient time for instrument to attain proper operation.

b. With speed selector knob (10, fig. 1) in OFF position adjacent to desired rate of turn, place L-R switch (9) in position corresponding to desired directions of travel.



1. 50C8043 PANEL
2. 50D8037 BRACKET
3. 50B8040 PANEL
4. 50C8027 ADAPTER
5. 50C8028 ADAPTER
6. 50C8029 AZIMUTH MOUNT
7. 50B8030 ADAPTER
8. 50B8041 ADAPTER

Figure 4. Typical instrument mounting accessories.

c. Place speed selector knob (10) in position corresponding to desired rate of turn.

Note. Operate L-R switch (9) before rate of turn selector knob (10) to minimize inertial error in starting.

16. Stopping Operation

a. Allow instrument to complete required interval of revolution and stop by placing speed selector knob (10, fig. 1) in OFF position.

b. When operation is complete, place LR switch (9) in center (off) position.

c. Turn off all instrument power.

CHAPTER 3
ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Section I. SPECIAL TOOLS AND EQUIPMENT

17. Special Tools and Equipment

No special tools or equipment are needed by the operator or organizational maintenance personnel for maintaining the tester kit instrument.

18. Organizational Maintenance Repair Parts

Organizational maintenance repair parts are listed ill Appendix III.

19. Consumable Materials

Consumable materials required are listed in table 1.

Table 1. Consumable Materials Required

Item No.	Material	Type or grade	Government specification
1	Aircraft and instrument grease...	.....	MIL-G-3278
2	Dessicants.....	.....	MIL-D-3464
3	Dry cleaning solvent	.....	P-D-680
4	Humidity Indicator	.....	MIL-I-8835
5	Material, greaseproof barrier.....	.....	MIL-B-121
6	Pressure sensitive tape	.....	PPP-T:60
7	Sandpaper.....	.....	P-P-101

Section II. LUBRICATION INFORMATION

20. General Lubrication Information

This section contains lubrication instructions for the proper care of the tester kit instrument. Due to the open-type construction of the mechanism and low rpm of most of the components, little lubrication is required. The motor-reducer is equippedwith sealed bearings which require no lubrication. The reducer unit, a part of the motor-reducer, is completely sealed in lubricant, except for the drive shaft, and the working parts require no lubrication.

21. Detailed Lubrication Information

a. Exposed Gear Parts. Apply a light coating of grease (item 1, table 1) to working areas of gear (3, fig. 5), gear and clutch assemblies (5), and motor drive gear (4).

b. Cam Parts. Apply a light coating of grease (item 1, table 1) to working areas of cam followers (1, fig. 5) and cam fingers (2).

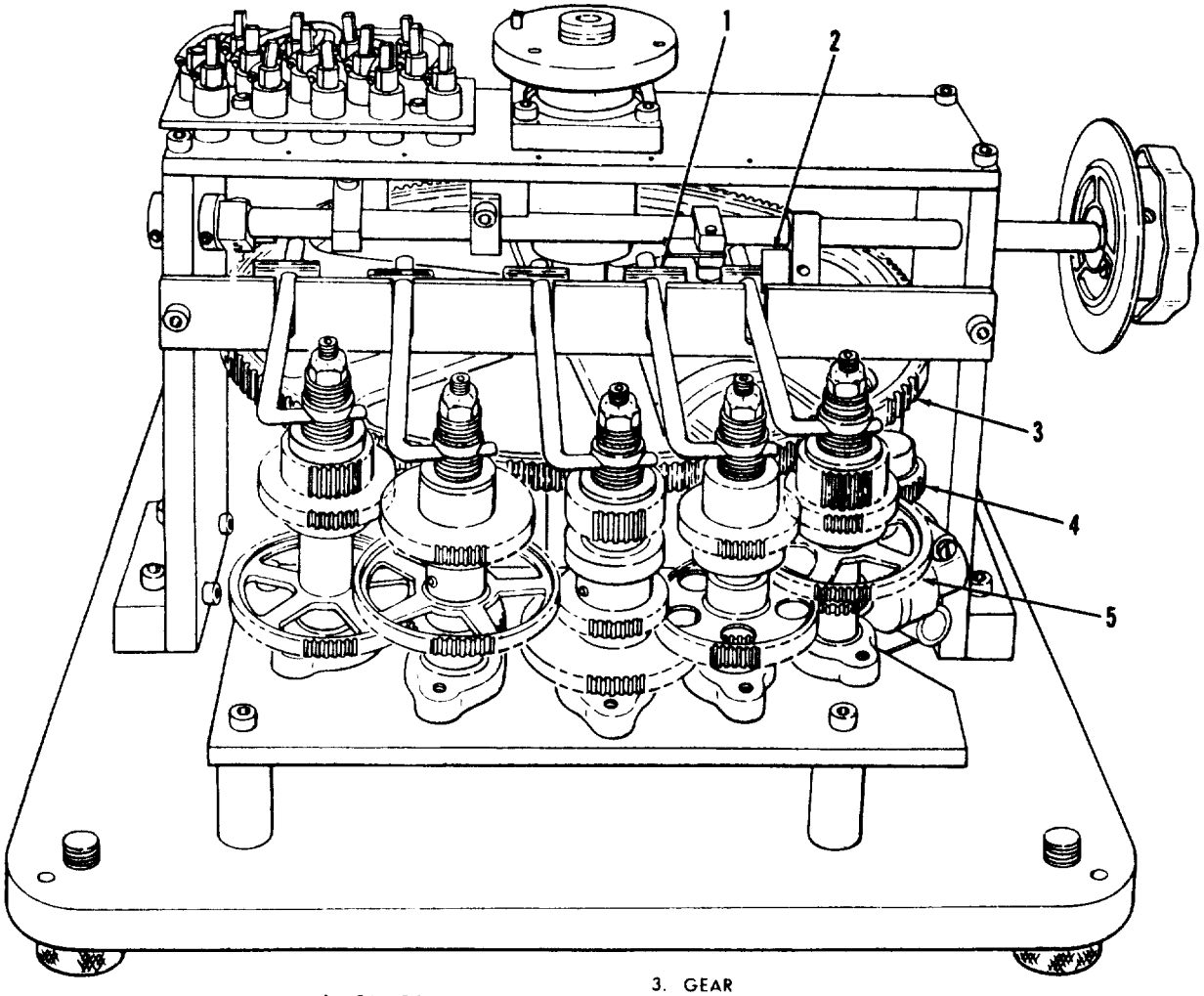


Figure 5. Lubrication points.

Section III. PREVENTIVE MAINTENANCE SERVICES

22. General

To insure that the tester kit instrument is in operational readiness at all times, it must be systematically inspected so defects may be discovered and corrected before resulting in serious damage to, or failure of, the equipment. Systematic preventive maintenance services are based on scheduled inspections and services to be accomplished by operators and organizational maintenance personnel. The maintenance inspections will be recorded in accordance with procedures outlined in the equipment inspection and maintenance worksheets listed in paragraphs 23 and 24. Each form covers a specific inspection period, providing a system of progressive maintenance. These forms are available through normal supply channels.

23. Operational Preventive Maintenance Services

The operational preventive maintenance services are performed before operation, during operation, and after operation. These maintenance services and inspections are listed in the operator's daily preventive maintenance chart.

Caution: Stop operation immediately if a defect is noted that could cause damage to the equipment if operation were continued.

Operator's Daily Preventive Maintenance Chart

Procedures	*Applicable Reference to each item*
BEFORE OPERATION	
Make sure fixture locating studs are secure and in good condition.	para 31
Inspect speed selector knob for security and proper operation. Be sure mechanism locks smoothly in each operating position.	para 34
Place speed selector knob in OFF position and make sure rotating plate assembly will turn freely.	para 34
DURING OPERATION	
Make sure tester kit instrument operates properly at all speeds and in both directions.	para 29
Be on the alert for any unusual conditions or sounds which might indicate malfunction.	
When testing electrically operated instruments, observe instrument face for intermittent appearance of OFF flag, indicating a defect in power transfer system.	part 31,33
AFTER OPERATION	
slake sure all instrument power is turned off -	para 16
Make sure L-R switch is in center (off) position	para 16
Clean all exterior surfaces of the tester kit instrument as required.	para 30, 31

24. Organizational Preventive Maintenance Services

Preventive maintenance procedures are performed by organizational maintenance personnel periodically. The weekly interval will be equivalent to a maximum of 50 hours of operation. The monthly interval will be equivalent to 4 weeks or a maximum of 250 hours of operation, whichever occurs first. These maintenance services and inspections are listed in the organizational preventive maintenance chart.

Organizational Preventive Maintenance Chart

Procedures	*Applicable Reference to each item*
WEEKLY	
Inspect gears for condition and light coating of lubricant,.	para 21
Inspect motor-reducer for signs of lubricant leakage and overheating.	para 32
Visually inspect brushes for excessive wear, damage, and contamination.	para 33
Inspect slip rings for excessive wear and signs of arcing or overheating.	para 33
Test tester kit instrument ----------	para 29
MONTHLY	
Inspect power cable for damage and deterioration.	para 32
Inspect all interior wiring for damage and security of connections. Inspect insulation for deterioration.	para 32, 33
Inspect all connectors for bent pins, stripped threads, signs of corrosion, and arcing.	para 33
Inspect all painted areas for scratches, wear, and deterioration.	para 30
Inspect all bare metal surfaces for corrosion or other damage.	para 32, 36
Inspect vacuum transfer system for signs of leakage.	para 33

Section IV. TROUBLESHOOTING

25. General

This section provides information useful in diagnosing and correcting unsatisfactory operation or failure of the tester kit instrument and its components. Each trouble symptom stated is followed by a list of probable causes of trouble. The possible remedy recommended is described opposite the probable cause. Any operational trouble that is beyond the scope of organizational maintenance must be reported to the next higher echelon as applicable.

26. Noisy Operation

Probable cause	*Possible remedy*
Improper lubrication	Lubricate (para 21). Notify direct support maintenance unit if noise persists.
Loose motor or clutch and gear mounting.	Tighten screws and adjust for proper clearance (para 81).

27. Tester Kit Instrument Will Not Operate at Any Rate of Turn

Probable cause	*Possible remedy*
Improper primary power	Make sure tester kit instrument power cable is properly connected to a source of 115-volt, 60-cycle ac power.
Foreign matter in gear	Remove foreign matter. assembly lower teeth.

28. Noise in Rate of Turn Selector Assembly

Probable cause	*Possible remedy*
Improper lubrication	Lubricate (para 21b).

Section V. ORGANIZATIONAL MAINTENANCE REPAIR INSTRUCTIONS

29. Tester Kit Instrument Performance Test

a. Connect power cable (7, fig. 1) to a source of 115-volt, 60-cycle ac power.

b. Place L-R switch (9) in center (off) position and place speed selector knob (10) in OFF position adjacent to 36-degree position.

c. Turn rotating plate assembly (1) so that 36-degree index is at pointer and turn speed selector knob (10) to 36-degree position.

d. Place L-R switch (9) in L position and allow rotating plate assembly (1) to turn until 0-degree index passes pointer, using a stopwatch or other suitable means to measure elapsed time. Elapsed time must be 1 minute, plus or minus 3 seconds.

e. Repeat b through d above, placing 0-degree index at pointer, L-R switch (9) in lt position, and measure elapsed time for 36-degree index to pass pointer.

f. Repeat d through e above checking 90-, 180-, 360-, and 1080-degrees per minute positions of speed selector knob (10) against actual elapsed time for rotating plate assembly (1) to turn a corresponding number of degrees.

g. Place L-R switch (9) in center (off) position.

30. Case Assembly

The case assembly provides protection for the interior parts. The two case halves are provided with moulded handles for ease in handling the tester kit instrument. The case assembly provides a mounting surface for the L-R switch and identification placard.

a. Inspection.

(1) Inspect attaching hardware and components for security and damage.

(2) Inspect painted surface for chipping, wear deterioration, and signs of corrosion beneath painted surfaces.

b. Servicing.

(1) Remove case assembly (para 45a).

(2) Clean case assembly with a clean, lint-free cloth dampened in dry cleaning solvent (item 3, table 1).

(3) Use a bristle or nylon brush to remove dirt accumulations.

(4) Install case assembly (para 45b).

31. Rotating Plate Assembly

The rotating plate assembly (1, fig. 1) provides a rotating base for instrument testing. The rotating plate assembly is equipped with instrument fixture locating studs and standard instrument electrical and pneumatic connectors to deliver continuous power to the instrument under test. The lower edge of the rotating plate assembly is engraved with compass index markings at each degree, a long index mark at 5-degree intervals and numerals at each l0-degree interval.

a. Inspection.

(1) Inspect fixture locating studs (3, fig. 1) for security, damage, and general condition.

(2) Inspect rotating plate assembly (1) for damage, legibility of index markings and numerals, and general appearance.

(3) Inspect rotating pneumatic connector (2) for scoring, foreign matter, and thread damage.

(4) Inspect rotating receptacles (4) for foreign matter, thread damage, signs of internal arcing, corrosion, and other conditions which might result in poor electrical con- tact.

(5) Inspect all attaching hardware for security and damage.

b. Servicing.

(1) Clean rotating plate assembly (1, fig. 1), including slip rings (5, fig. 2), with a clean, lint-free cloth dampened ill dry cleaning solvent (item 3, table 1), and wipe dry.

(2) Use a bristle or nylon brush to remove dirt encrustation's.

(3) Clean rotating receptacles (4, fig. 1) and rotating pneumatic connector (2) in same manner as outlined ill paragraph 33b(1) for stationary receptacles and stationary pneumatic connector.

32. Drive Motor Assembly

The drive motor assembly consists of the power cable, motor-reducer, and capacitor. The power cable is equipped with a standard two-prong plug for connection to 115-volt, 60-cycle ac power. The motor-reducer consists of an 1800 rpm drive motor connected to an integral worm gear reducer with a 30:1 reduction ratio. The capacitor provides the necessary phase difference for proper motor operation.

a. Inspection.

(1) Inspect power cable (7, fig. 1) for fraying, wear, cracked or peeling insulation, and security of attachment.

(2) Inspect capacitor (6, fig. 2) for signs of corrosion, leakage, and swelling. Inspect capacitor leads for damage, wear, fraying, and deterioration of insulation.

(3) Inspect motor-reducer (7) for signs of lubricant leakage, over-heating, and improper operation. Inspect drive motor leads for damage, wear, fraying, and deterioration of insulation.

(4) Inspect all attaching hardware for security and condition.

Note. Notify direct support maintenance unit if screws securing motor-reducer (7) are loose as gear clearance may be affected.

b. Servicing.

(1) Use a soft brush to remove dust and dirt from motor-reducer (7, fig. 2) and capacitor (6). Use a clean, lint-free cloth slightly dampened with dry cleaning solvent (item 3, table 1) to remove any remaining foreign matter.

Caution: **Do not use excessive amounts of dry cleaning solvent or allow it to run down leads or motor shaft. Dry cleaning solvent has a gradual deteriorating effect on some insulating materials and will also displace or dissolve lubricants, resulting in premature failure of sealed bearings or reducer.**

(2) Use a dry cloth or one slightly dampened in a mild soap solution to clean power cable (7, fig. 1). Use dry cloth to remove soap solution.

33. Electrical and Pneumatic Power Transfer Systems

The electrical and pneumatic power transfer systems provide a means whereby instrument power is transmitted to the rotating plate assembly and supplied to the instrument under test from a stationary external power or vacuum source. Electrical power is transmitted from stationary receptacles on the right-hand side of the tester kit instrument through wiring to carbon brushes beneath the rotating plate assembly. Concentric slip rings on the underside of the rotation plate assembly apply this power to corresponding rotating receptacles on the rim for jumper connection to the instrument under test. Vacuum power applied to the stationary pneumatic connector is transmitted by means of a hose and manifold through passages in the drive assembly shaft and rotating plate assembly to the rotating pneumatic connector on0 the rim.

a. Inspection.

(1) Inspect stationary pneumatic connector (6, fig. 1) for scoring, foreign matter, and thread damage.

(2) Inspect stationary receptacles (5) for security, foreign matter, thread damage, insulation damage, internal arcing, corrosion, and other conditions which might result in poor electrical contact.

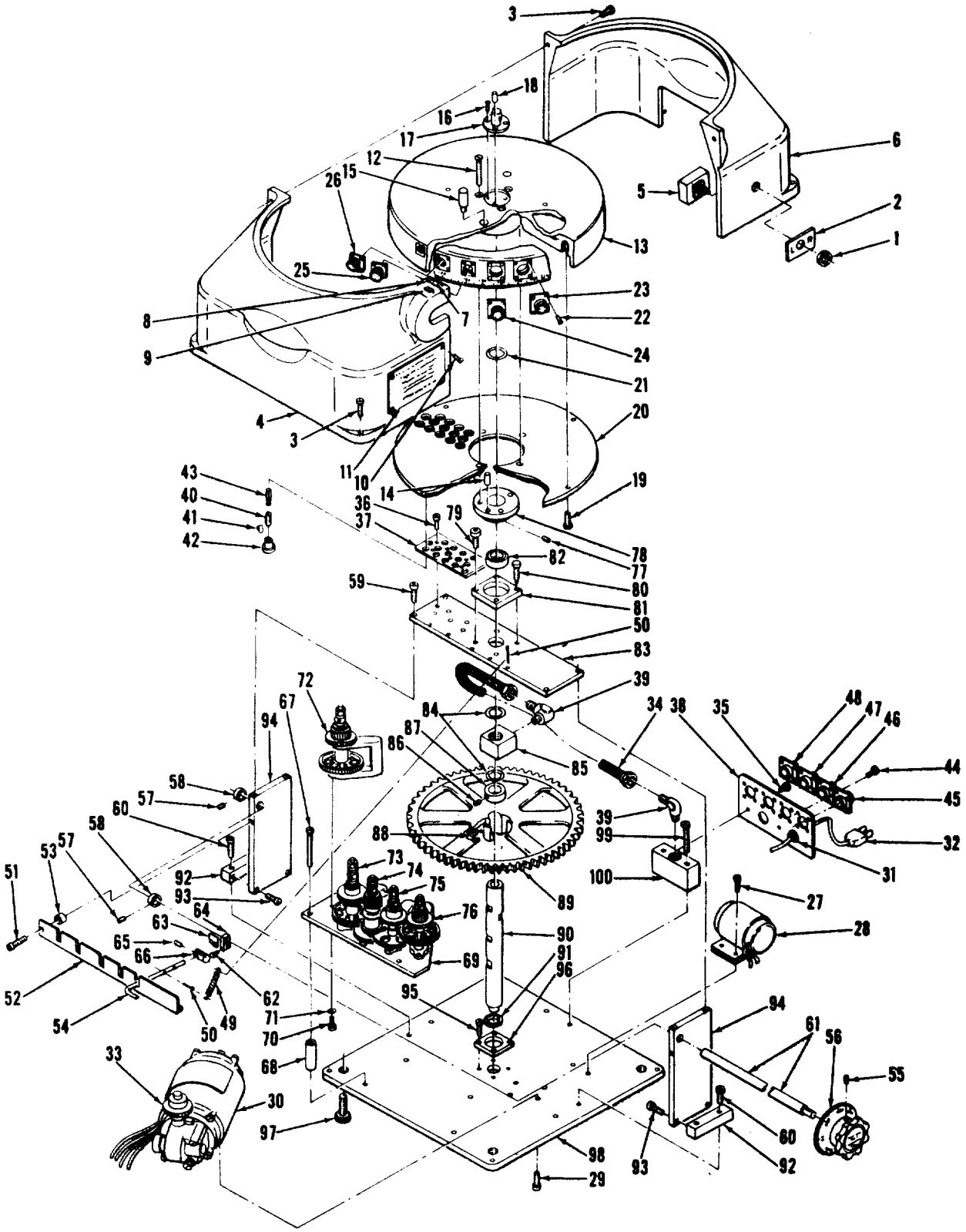


Figure 6. Tester kit instrument disassembly.

1. NUT
2. PLACARD
3. SCREW
4. CASE
5. L-R SWITCH
6. CASE
7. SCREW
8. POINTER
9. POINTER
10. SCREW
11. PLACARD
12. SCREW
13. ROTATING PLATE ASSEMBLY
14. DOWEL
15. DOWEL SCREW
16. SCREW
17. FIXTURE
18. DOWEL
19. SCREW
20. COMMUTATOR PLATE
21. GASKET
22. SCREW
23. RECEPTACLE
24. RECEPTACLE
25. RECEPTACLE
26. RECEPTACLE
27. SCREW
28. CAPACITOR
29. SCREW
30. MOTOR-REDUCER
31. STRAIN RELIEF
32. POWER CABLE
33. GEAR
34. HOSE
35. SCREW
36. SCREW
37. BRUSH HOLDER PLATE
38. PLATE
39. ELBOW
40. BRUSH HOLDER
41. CLIP
42. CAP
43. BRUSH
44. SCREW
45. RECEPTACLE
46. RECEPTACLE
47. RECEPTACLE
48. RECEPTACLE
49. SPRING
50 COTTER PIN
51. SCREW
52. GUIDE
53. SPACER
54. ARM
55. SETSCREW
56. SPEED SELECTOR KNOB
57. SETSCREW
58. COLLAR
59. SCREW
60. SCREW
61. CAMSHAFT
62. SCREW
63. CAM FINGER
64. CAM
65. SETSCREW
66. CAM FOLLOWER
67. SCREW
68. SPACER
69. MOUNTING PLATE
70. SCREW
71. WASHER
72. 36 DEG GEAR AND CLUTCH ASSEMBLY
73. 90 DEG GEAR AND CLUTCH ASSEMBLY
74 180 DEG GEAR AND CLUTCH ASSEMBLY
75. 360 DEG GEAR AND CLUTCH ASSEMBLY
76. 1080 DEG GEAR AND CLUTCH ASSEMBLY
77. SETSCREW
78. TABLE MOUNTING HUB
79. SCREW
80. SCREW
81. UPPER BEARING MOUNT
82. UPPER BEARING
83. UPPER BEARING SUPPORT
84. GASKET
85. MANIFOLD
86. SETSCREW
87. COLLAR
88. SETSCREW
89. GEAR
90. SHAFT
91. LOWER BEARING
92. BEARING SUPPORT BASE
93. SCREW
94. BEARING SIDE SUPPORT
95. SCREW
96. LOWER BEARING MOUNT
97. LEVELING SCREW
98. BASE
99. SCREW
100. PIPE ADAPTER

Figure 6.-Continued.

(3) Inspect electrical wiring from stationary receptacles (5) to brushes (4, fig. 2) for fraying, damage, security of attachment, and deterioration of insulation.

(4) Inspect brushes (4) for proper contact with slip rings (5). Inspect brushes for proper length, cracking, and other damage.

(5) Inspect slip rings (5) for roughness, discoloration, and signs of arcing or over-heating.

(6) Inspect hose (34, fig. 6) and other vacuum transfer components for damage and deterioration.

b. Servicing.

(1) Use a bristle or nylon brush to remove foreign matter from stationary pneumatic connector (6, fig. 1), stationary receptacles (5), and area surrounding brushes (4, fig. 2).

(2) Dress electrical wiring so that it is well away from contact with moving parts.

(3) Use a dry cloth to remove any accumulation of foreign matter from slip rings (5) or surrounding area.

34. Rate of Turn Selector Assembly

The rate of turn selector assembly consists of the speed selector knob and a shaft with cams positioned to actuate cam followers. As a rate of turn is selected, the proper cam follower is depressed, actuating necessary components of the related gear and clutch assembly (para 35).

a. Inspection.

(1) Inspect speed selector knob (10, fig. 1) for general condition, legibility of markings, and security of attaching setscrew.

(2) Inspect cam assembly (3, fig. 2) for wear, damage, proper lubrication, and security.

Note. Notify direct support maintenance unit if any cam parts are loose or missing.

(3) Turn speed selector knob (10, fig. 1) through at least one revolution and observe for smooth depression of each actuator (2, fig. 2).

(4) With speed selector knob (10, fig. 1) in any OFF position, rotating plate assembly (1) should turn freely.

b. Servicing.

(1) Clean rate of turn selector assembly with a clean, lint-free cloth dampened in dry cleaning solvent, (item 3, table 1).

(2) Lubricate rate of turn selector assembly (para 21).

35. Gear and Clutch Assemblies

The gear and clutch assemblies are driven in sequence by the motor-reducer and provide necessary reduction in motor-reducer rpm to drive the rotating plate assembly at the required speeds. The lower gears on each assembly are fixed to respective shafts and are driven continuously by the motor-reducer. The upper gears are free to turn on the respective shafts and engage only when the respective arm is actuated by the rate of turn selector assembly (para 34). Actuation of the arm causes engagement of clutch parts to drive the upper gears of the respective gear and clutch assembly and gear of drive assembly (para 36). Service gear and clutch assembly as follows:

a. Remove any accumulations of foreign matter and contaminated lubricant with a cloth dampened with dry cleaning solvent (item 3, table 1). Use a bristle or nylon brush to clean recesses of gear teeth as necessary.

***Caution*: Do not use excessive amounts of dry cleaning solvent or allow it to accumulate on sealed bearings. Dry cleaning solvent will displace or dissolve lubricants, resulting in premature failure of sealed bearings.**

b. Lubricate gear and clutch assemblies in accordance with paragraph 21a.

36. Drive Assembly

The drive assembly provides rotating support for the rotating plate assembly and transmits power from the gear and clutch assemblies to the rotating plate assembly. The drive assembly consists mainly of a gear attached to a shaft. The shaft is mounted with sealed bearings to reduce friction. A table mounting hub at the top of the shaft provides rigid support for the rotating plate assembly.

a. Inspection.

(1) Inspect all attaching hardware for security and damage.

(2) Inspect all components (items 78 through 96, fig. 6) for corrosion, damage, and general condition.

(3) Inspect teeth of gear (89) for proper lubrication and excessive wear.

b. Servicing.

(1) Use a nylon or bristle brush to remove dust and foreign matter from drive assembly.

(2) Use a clean, lint-free cloth dampened in dry cleaning solvent (item 3, table 1) to remove accumulations of dirt and foreign matter.

***Caution*: Do not use excessive amounts of dry cleaning solvent or allow it to accumulate on sealed bearings. Dry cleaning solvent will displace or dissolve lubricants, resulting in premature failure of sealed bearings.**

(3) Lubricate gear (89, fig. 6) (para 21).

37. Base Assembly

The base assembly provides support and rigid mounting for tester kit instrument components. The base assembly is equipped with four leveling screws and bearing support members.

a. Inspection.

(1) Inspect base assembly (items 60 and 92 through 100, fig. 6) for general condition and security of attaching hardware.

(2) Inspect all components for corrosion and damage.

b. Servicing.

(1) Use a nylon or bristle brush to remove dust and foreign matter from base assembly components.

(2) Use a clean, lint-free cloth dampened in dry cleaning solvent (item 3, table 1) to remove accumulations of dirt and foreign matter.

CHAPTER 4

DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE INSTRUCTIONS

Section I. SPECIAL TOOLS AND EQUIPMENT

38. Special Tools and Equipment

No special tools or equipment are needed by direct support, general support, and depot maintenance personnel for maintaining the tester kit instrument.

39. Direct Support, General Support, and Depot Maintenance Repair Parts

Direct support, general support, and depot maintenance repair parts are listed in appendix III.

Section II. TROUBLESHOOTING

40. General

This section provides information useful in diagnosing and correcting unsatisfactory operation or failure of the tester kit instrument or any of its components. Each trouble symptom is followed by a list of probable causes of trouble. The possible remedy recommended is described opposite the probable cause.

41. Tester Kit Instrument Will Not Operate At Any Rate of Turn or in Either Direction

Probable cause	*Possible remedy*
Defective, power cable	Replace power cable (para 47) if a test light or voltmeter indicates no voltage at switch end of power cable.
Defective L-R switch	Use a voltmeter or test light to test for line voltage at output terminals of switch (fig. 7). Replace switch (para 45) if no voltage is indicated.
Defective capacitor	Test capacitor on a suitable capacitor checker. Replace if defective (para 47).
Defective motor-reducer	If motor-reducer does not run, remove (para 47) from base assembly and reconnect electrically. Replace motor-reducer if it will not run. Refer to following causes if motor-reducer runs properly.
Defective gear and clutch assembly.	Test setscrews on front (10O80-degree) gear and clutch assembly for security and tighten if necessary. Remove gear and clutch assemblies (para 78) and test individually for freedom of rotation. Replace defective gear and clutch assembly (para 78 through 81).

42. Tester Kit instrument Does Not Operate Properly at One Rate of Turn; Operates Normally at Others

Probable cause	*Possible remedy*
Rate of turn selector assembly or gear and clutch assembly defective or out of adjustments.	Place speed selector knob at subject rate of turn and observe rate of turn selector assembly for proper cam engagement (para 76). Replace any defective parts and adjust rate of turn selector assembly (para 73 through 76) as necessary. Adjust or replace gear and clutch assembly (para 77 through 80) if rate of turn selector assembly is operating properly.

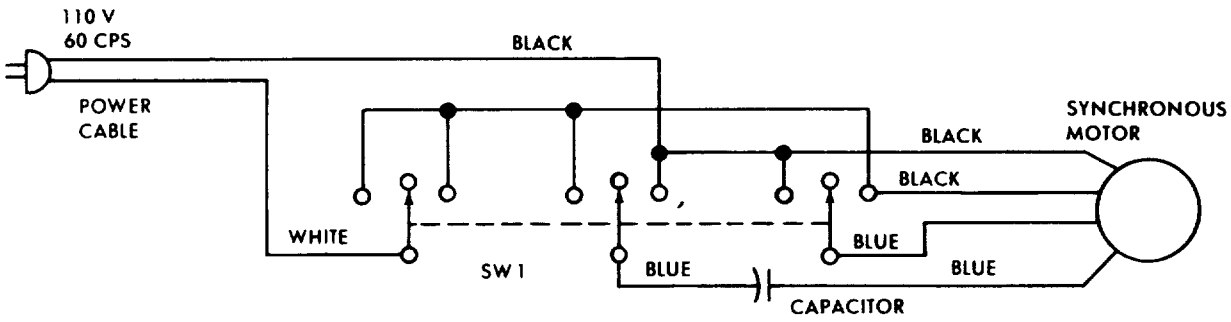


Figure 7. Motor-reducer wiring diagram.

43. Tester Kit Instrument Operates Properly at Higher Rate of Turn; Improperly at Lower Rates

Probable cause	*Possible remedy*
Loose or defective setscrew on gear assembly.	Operate tester kit instrument at one of affected speeds and observe lower gears of gear and clutch assembly for proper operation. Tighten setscrews of first gear and clutch assembly not operating properly or replace assembly if defective (para 78 through 81).

44. Instruments Operate Intermittently on Tester Kit Instrument

Probable cause	*Possible remedy*
Defect in power transfer system.	Test and repair as necessary (pars 68 through 71).

Section III. REMOVAL AND INSTALLATION OF MAJOR COMPONENTS

45. Case Assembly

a. Removal.

(1) Disconnect ac plug from electrical receptacle and remove nut (1, fig. 6) and placard (2) from L-R switch (5).
(2) Remove screws (3) securing cases (4 and 6).
(3) Remove case (4). Remove L-R switch (5) from case (6) and remove case.

b. Installation.

(1) Install case (6, fig. 6). Install L-R switch (5) through hole in case (6) and install placard (2).
(2) Secure L-R switch (5) and placard (2) with nut (1). Install screws (3) securing case (6). Do not tighten screws at this time.
(3) Install case (4) and install remaining screws (3).Tighten all screws'(3) securely.

46. Rotating Plate Assembly

a. Removal.

(1) Remove case assembly (para 45a).
(2) Remove screws (12, fig. 6) and remove rotating plate assembly (13). Remove dowel (14) from table mounting hub (78).

b. Installation.

(1) Install dowel (14, fig. 6) in table mounting hub (78) and install rotating plate assembly (13); secure rotating plate assembly with screws (12).

***Caution*: Install rotating plate assembly (13) carefully to avoid damage to brushes (43).**

(2) Install case assembly (para 45b).

47. Drive Motor Assembly

a. Removal.

(1) Remove case assembly (para 45a).
(2) Tag all power cable, capacitor, and motor leads at rear of L-R switch (5, fig. 6) and remove leads from switch.
(3) Remove screws (27) and capacitor (28).
(4) Remove screws (29) from bottom of base (98) and remove motor-reducer (30).
(5) Remove strain relief (31) and power cable (32).

b. Installation

(1) Install power cable (32) and new strain relief (31).

(2) Position motor-reducer (30) on base (98), making sure teeth of gear (33) mesh properly (0.005-inch clearance). Install screws (29).
(3) Install capacitor (28) and secure with screws (27).
(4) Install power cable, capacitor, and motor leads to rear of L,-R switch (5), using tags installed during removal and figure 7 for reference.
(5) Install case assembly (para 45b).

48. Electrical and Pneumatic Power Transfer Systems

a. Removal.

Note. Refer to paragraphs 83 through 85 for removal and installation of upper elbow (:39, fig. 6) and manifold (85).
(1) Remove case assembly (para 45a).
(2) Remove rotating plate assembly (para 46a).
(3) Disconnect hose (34, fig. 6) from elbows (39).
(4) Disconnect power cable (32) from L-R switch (5). Remove screws (35).
(5) Tag wiring connected to brush holder assemblies (items 40 through 43) with numbers stamped in brush holder plate (37) and disconnect wiring from brush holder assemblies by removing clip (41) front brush holder (40).
(6) Remove plate (38) with attached wiring and components.
(7) Remove screws (36), brush holder plate (37), and brush holder assemblies (items 40, 42, and 43).

Caution: Handle brush holder assem- blies (items 40 through 43) carefully to avoid damage.

(8) Remove lower elbow (39) from adapter (100).

b. Installation.

(1) Install lower elbow (39, fig. 6) in adapter (100).
(2) Position brush holder plate (37) with brush holder assemblies (items 43, 42, and 40) in proper position. Secure with screws (36).
(3) Install plate (38) to adapter (100) and secure with screws (35).
(4) Using tags installed in a(5) above, install clips (41) in brush holders (40).
(5) Connect power cable (:32) to L-R switch (5) using figure 7 as reference.
(6) Connect hose (34, fig. 6) to elbows (:39).
(7) Install rotating plate assembly (para 46b).
(8) Install case assembly (para 45b).

49. Rate of Turn Selector Assembly

a. Removal.

(1) Remove case assembly (para 45a), rotating plate assembly (para 45a), and electrical and pneumatic power transfer systems (para 48a).
(2) Remove springs (49, fig. 6) and cotter pills (50). Set speed selector knob (56) in all OFF position. Remove guide (52) and spacers (53) by removing screws (51).

Note. Turn guide down to facilitate remove

(3) Loosen nuts (1, fig. 8) and remove arms (2 from gear and clutch assemblies (items. 72 through 76, fig. 6).

Note. Tag or otherwise identify arms (54) so they can lie reinstalled in the same positions.

(4) Remove setscrew (55) and remove speed selector knob (56). Remove collar (58) from opposite end of camshaft (61) by re- moving setscrews (57).
(5) At front of tester kit instrument, remove screw (59) from left-hand side of upper bearing support (83) and loosen corresponding screw (59) on right-hand side. Re- move screw (60) from left-hand side of bearing support base (92), located at front of tester kit instrument. Loosen corresponding screw (60) on right.
(6) Slide camshaft (61) toward front of tester kit instrument until rear of camshaft clears hole. Pivot camshaft and bearing side support (94) at front of tester kit instru- ment on loosened screws (59 and 60) until camshaft clears bearing side support (94) at rear of tester kit instrument. Remove camshaft (61) and attached cam parts (items 62 through 64).

b. Installation.

(1) Install knob end of camshaft (61, fig. 6) front rear to front through hole in bearing side support (94) at front of tester kit instrument. Pivot bearing side support into its proper position and insert end of camshaft through hole in bearing side support at rear of tester kit instrument.
(2) Install screw (60) in left-hand hole of bearing support base (92) at front of tester kit instrument and tighten securely. Tighten corresponding right-hand screw securely. Install screw (59) in left-hand hole of upper

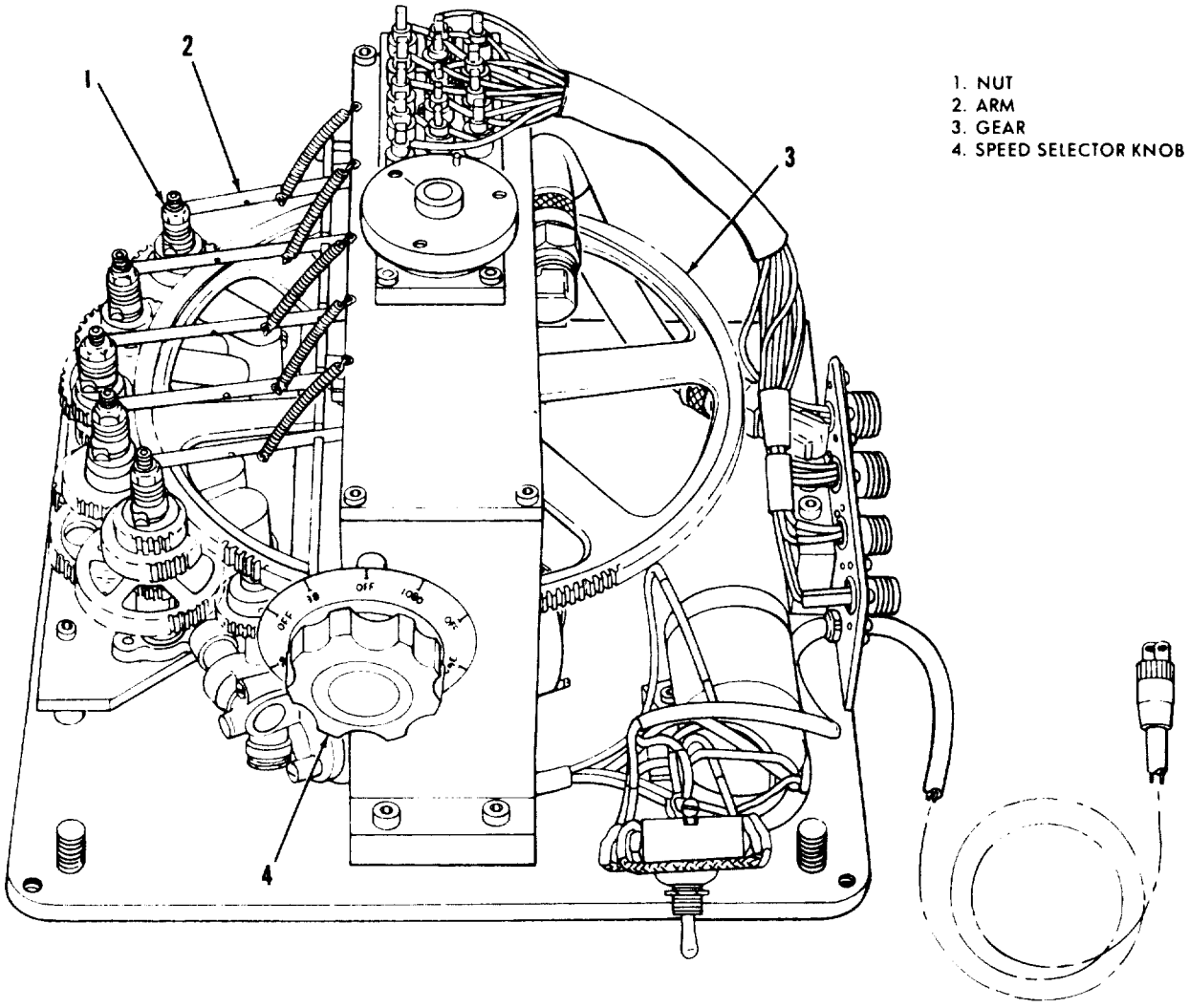


Figure 8. Clutch adjustment.

bearing support (83) at front of tester kit instrument and tighten securely. Tighten corresponding right-hand screw securely. make sure camshaft (61) turns freely.

(3) Install collar (58) on rear of camshaft (61) and secure with setscrew (57). Install speed selector knob (56) on front end of camshaft and secure with setscrew (55).

(4) Install arms (2, fig. 8) and tighten nuts (1) sufficiently to retain arms. sure cam followers (66, fig. 6) align With corresponding cam fingers (63).

(5) Install spacers (53) and guide (52) and secure with screws (51) sure arms (54) do not chafe on guide (52) and that cam followers (66) and cam fingers (63) engage properly. Install cotter pins (50) and springs (49).

(6) Install electrical and pneumatic power transfer systems (para 48b).

(7) Adjust clutches in accordance with paragraph 81.

(8) Install rotating plate assembly (para 46b) and case assembly (para 45b).

50. Gear and Clutch Assemblies

a. Removal.

(1) Remove case assembly (para 45a).

(2) Remove cotter pins (50, fig. 6) and springs (49). Loosen clutch adjusting nuts (1, fig. 9). Disconnect arms (2).

(3) Remove screws (67, fig. 6), spacers (68), and mounting plate (69).

b. Installation.

(1) Install spacers (68, fig. 6) and mounting plate (69). Secure with screws (67).

(2) Install arms (54). Tighten clutch adjusting nuts (1, fig. 8) sufficiently to retain arms (54, fig. 6). Make sure cam followers (66) align with corresponding cam fingers (63). Install cotter pins (50) and springs (49).

(3) Adjust clutches in accordance with paragraph 81.

(4) Install case assembly (para 45b).

51. Drive Assembly

a. Removal.

(1) Remove case assembly (para 45a), rotating plate assembly (para 46a), electrical and pneumatic power transfer systems (para 48a), and gear and clutch assemblies (para 50a).

(2) Remove setscrew (77, fig. 6) and remove table mounting hub (78). Remove screws (79 and 80) and upper bearing mount (81). Remove upper bearing (82).

(3) Refer to paragraph 49a and perform steps (2) through (6).

(4) Remove remaining screws (59) and upper bearing support (83). Remove drive assembly (items 84 through 90) and lower bearing (91).

b. Installation.

(1) Install lower bearing (91, fig. 6) and drive assembly (items 90 through 84). Install upper bearing support (83). Secure with screws at rear and right-hand front only.

(2) Refer to paragraph 49b and perform steps (1) through (5).

(3) Install upper bearing (82) and upper bear- ing mount (81). Secure with screws (80 and 79).

(4) Note position of flat on side of shaft (90) and install table mounting hub (78) with setscrew (77) installed and aligned properly. Simultaneously press upward on gear (89) and downward on table mounting hub (78) to take up any clearance. Maintain upward pressure on gear (89) and tighten setscrew (77). Rotate gear (89) to make sure assembly turns freely.

(5) Adjust clutches in accordance with paragraph 81. Install electrical and pneumatic power transfer systems (para 48b), rotating plate assembly (para 46b), and case assembly (para 45b).

52. Base Assembly

a. Removal.

(1) Remove drive assembly (para 51a).

(2) Remove screws (60, fig. 6) and bearing support bases (92) with bearing side sup- ports (94) and screws (93) attached.

(3) Remove drive motor assembly (para 47a).

(4) Remove screws (95) and lower bearing mount (96).

b. Installation.

(1) Install lower bearing mount (96, fig. 6) and secure with screws (95).

(2) Install drive motor assembly (para 47b).

(3) Install bearing support base (92) and attached bearing side support (94) and screws (93). Install screws (60) at both sides in rear, and in front at right-hand side only. Do not tighten.

(4) Install drive assembly (para 51b).

CHAPTER 5
DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE REPAIR INSTRUCTIONS

Section I. CASE ASSEMBLY

53. Case Assembly Description

The case assembly (11, fig. 1) mainly consists of two case halves, placards, and mounting hardware. The case halves are of molded magnesium construction and provide protection for the motor and other interior parts. The case assembly is provided with hand holds on either side for carrying the tester kit instrument, and serves as a mounting base for the L-R switch, the tester kit instrument index pointer, and the rate of turn pointer. An identification placard is mounted at the lower front corner of left-hand case half.

54. Case Assembly Removal and Disassembly

a. Removal. Remove case assembly in accordance paragraph 45a.

b. Disassembly.

(1) Remove pointers (8 and 1, fig. 6) by removing screws (7).

(2) Remove placard (11) by removing screws (10).

55. Case Assembly Cleaning, Inspection, and Repair

a. Cleaning.

(1) Clean interior and exterior surfaces with a cloth dampened ill dry cleaning solvent (item 3, table 1) and dry thoroughly with a lint-free cloth or a stream of clean, dry compressed air not exceeding 15 psi.

b. Inspection and Repair.

(1) Inspect case assembly for cracks, elongation of mounting holes, and stripped threads. Stop-drill minor cracks. Chase minor thread damage with a proper size tap. Elongation of mounting holes is permissible providing case will mount properly. Re- place case assembly if major damage exists.

(2) Inspect painted surfaces for scratches, chipping, peeling, and deterioration. Use fine sandpaper to remove deteriorated paint and to restore chipped or scratched surfaces; repaint in accordance with TM 9-213.

(3) Replace pointers if damaged. Chase minor thread damage on attaching hardware. Replace hardware if other damage is noted.

56. Case Assembly Reassembly and Installation

a. Reassembly.

(1) Install placard (11, fig. 6) and secure with screws (10).

(2) Install pointers (9 and 8) and secure with screws (7).

b. Installation. Install case assembly in accordance with paragraph 45b.

Section II. ROTATING PLATE ASSEMBLY

57. Rotating Plate Assembly Description

The rotating plate assembly (1, fig. 1) consists of a tester kit instrument, commutator plate, instrument mounting parts, and attaching hardware. The rotating plate assembly provides a rotating base for instrument jigs and necessary rotating vacuum and electrical connections for operating the instrument under test from an external power source.

58. Rotating Plate Assembly Removal and Disassembly

a. Removal. Remove rotating plate assembly in accordance with paragraph 46a.

b. Disassembly.

(1) Remove dowel screws (15, figure 6) and remove fixture (17) by removing screws (16) and dowel (18).

(2) Turn rotating plate assembly (13) on its top and remove commutator plate (20) by removing screws (19). Remove gasket (21).

***Caution*: Handle commutator plate (20) carefully to avoid damage to attached wiring.**

Note. Perform following procedure as necessary to make repairs. Complete disassembly of rotating plate assembly (13) should not be accomplished unless proven necessary. Replace wiring and connectors on an individual basis.

(3) Trace wiring from rear of receptacle (23) and unsolder at commutator plate (20). Remove receptacle (23) by removing screws (22). Unsolder wiring from receptacle.

(4) Remove receptacles (24 through 26) as outlined in step (3) above.

59. Rotating Plate Assembly Cleaning, Inspection and Repair

a. Cleaning.

(1) Wipe metal parts with a lint-free cloth dampened in dry cleaning solvent, (item 3, table 1).

Caution: Do not allow cleaning solvents to come in contact with wiring as it may cause deterioration of insulation.

(2) Use a suitable brush dampened in dry cleaning solvent (item 3, table 1) to loosen foreign matter on interior of receptacle and remove with a stream of clean, dry compressed air. Direct compressed air' into interior of socket until all traces of solvent have evaporated.

(3) Use a suitable bore cleaning brush and compressed air to remove any foreign matter from vacuum passage.

b. Inspection and Repair.

(1) Inspect azimuth markings on tester kit instrument rim for legibility. If paint is faded from index lines of numerals, use a sharp pointed instrument to remove any loose paint from indention. Apply suitable black enamel paint to indention and use a cloth wrapped around a block of wood or other flat surface to remove paint from around indention. Allow paint to dry thoroughly before reassembly.

(2) Inspect commutator plate for scratches or other damage on working surface of commutator rings. Use fine grit abrasive paper (item 7, table 1) or equivalent, to remove small scratches and burrs. Re- place commutator plate if scratches are deep or other damage exists.

(3) Inspect all attaching hardware for damage and stripped threads. Chase minor thread damage with a proper size die. Replace hardware if other damage exists.

(4) Inspect tester kit instrument for damage. Chase minor thread damage with a proper size tap or drill out and thread to next larger size if damage is extensive. Minor damage to tester kit instrument is permissible provided proper operation is not affected.

(5) Replace dowels or locating fixture if damaged.

(6) Inspect gasket and replace if damaged or worn.

60. Rotating Plate Assembly Reassembly

Note. Perform applicable portions of steps a and b below to reassemble parts removed during disassembly.

a. Install wiring to rear of receptacle (26, fig. 6). Insert wiring through mounting hole and install receptacle with screws (22). Solder wiring to commutator plate (20), using figure 9 as a reference.

b. Install receptacles (23 through 25, fig. 6) as outlined in step a above. Install gasket (21).

c. Install commutator plate (20) and secure with screws (19).

***Caution*: Do not pinch wiring between commutator plate and mounting surfaces.**

d. Turn rotating plate assembly (13) over and install dowel screws (15). Install fixture (17) and se- cure with screws (16). Install dowel (18).

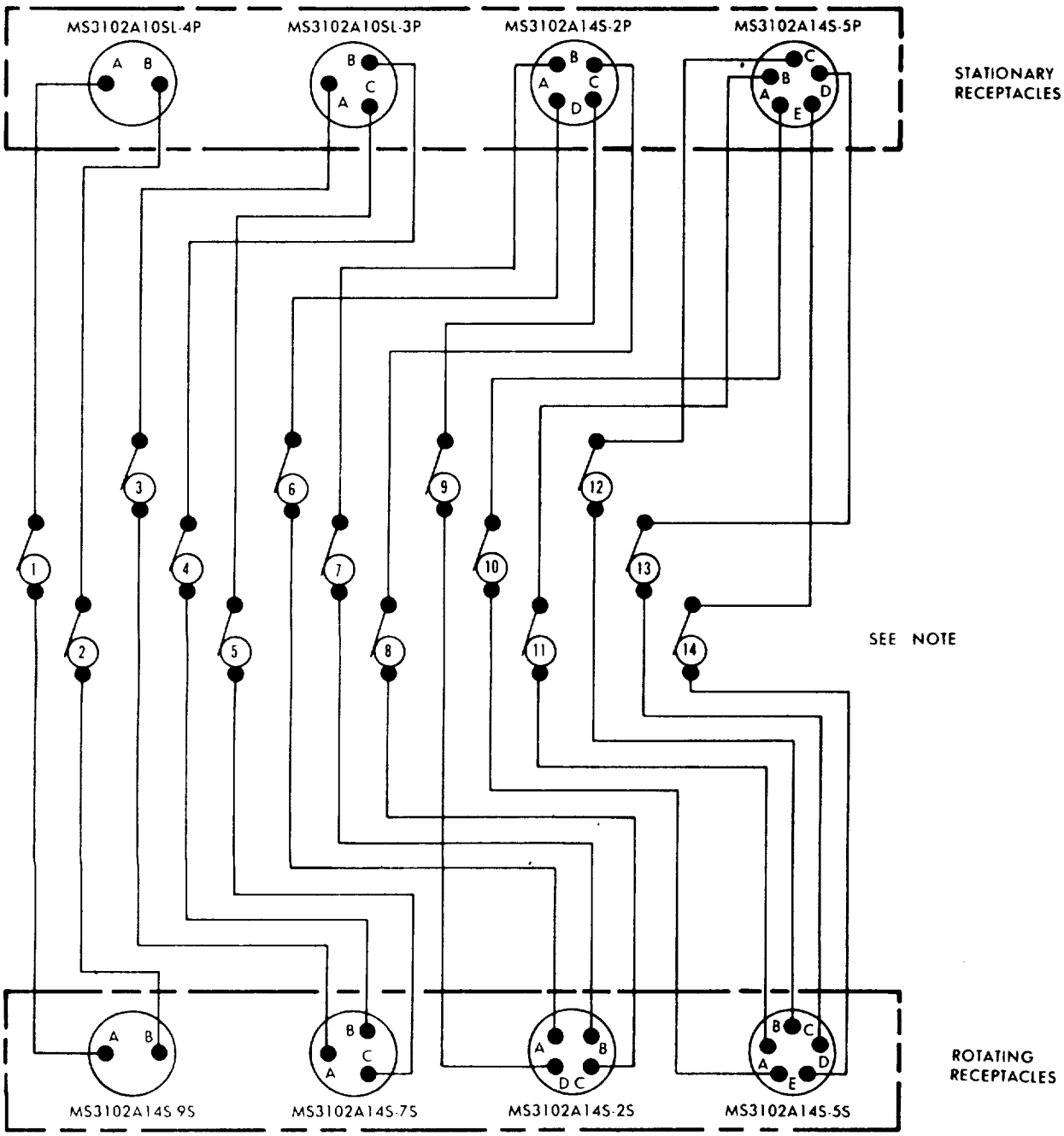
61. Rotating Plate Assembly Testing

a. Use an ohmmeter or other suitable continuity checker and check for continuity between outside slip ring (5, fig. 2) and pin A of MIS3102A14S-9S connector (fig. 9) on rotating plate assembly (13, fig. 6).

b. Using figure 9 as a guide, check for continuity between remaining slip rings and connector contacts and for open circuit between slip rings and rotating plate assembly. Slip rings are numbered consecutively from outside to hub.

62. Rotating Plate Assembly Installation

Install rotating plate assembly in accordance with paragraph 46b.



NOTE

VIEWED FROM ABOVE BRUSHES OR FROM WIRED SIDE OF COMMUTATOR PLATE NUMBERS CORRESPOND TO THOSE ADJACENT TO BRUSH HOLDERS AND COMMUTATOR CONNECTORS

Figure 9. Electrical power transfer schematic diagram.

Section III. DRIVE MOTOR ASSEMBLY

63. Drive Motor Assembly Description

The drive motor assembly consists of the motor-reducer (7, fig. 2), capacitor (6), power cable (7, fig. 1), and necessary attaching hardware. The motor-reducer consists of an 1800 rpm synchronous motor and a 30:1 ratio reduction unit. The motor requires single-phase, 115-volt, 60-cycle ac power and requires a 2.5 mfd, 300 vac capacitor. The motor is equipped with scaled bearings and the reduction unit is sealed in lubricant. Other than periodic cleaning, no maintenance is required. Due to the cost of maintaining repair parts stocks and man-hours required for overhaul, normal repair procedures consist of replacing the defective unit.

64. Drive Motor Assembly Removal and Disassembly

a. Removal. Remove drive motor assembly in accordance with paragraph 47a.

b. Disassembly. Remove gear (33, fig. 6) from reducer shaft.

65. Drive Motor Assembly Cleaning, Inspection, and Repair

a. Cleaning. Clean drive motor assembly components in accordance with servicing instructions contained in paragraph 32b.

b. Inspection and Repair.

(1) Inspect motor-reducer for signs of damage, wear, overheating, and excessive motor shaft end play.

(2) Using figure 7 as a guide, temporarily reconnect motor, capacitor, and power cable leads to switch and allow motor to run in each direction, observing for proper operation.

(3) Replace motor-reducer if motor shaft does not turn, binds, or if any of the above conditions in steps (1) and (2) above exist.

(4) Check capacitor with a suitable capacitor checker. Replace capacitor if proved defective or if inspection shows signs of lead damage, swelling, or electrolyte leakage.

(5) Inspect power cable for damage and deterioration. Replace power cable if defective.

66. Drive Motor Assembly Reassembly and Installation

a. Reassembly. Install gear (33, fig. 6) on reducer shaft.

b. Installation. Install drive motor assembly in accordance with paragraph 47b.

Section IV. ELECTRICAL AND PNEUMATIC POWER TRANSFER SYSTEMS

67. Electrical and Pneumatic Power Transfer Systems Description

Necessary power for the operation of instruments under test is supplied by the electrical and pneu- matic power transfer systems to receptacles mounted in the rotating plate assembly. The power transfer systems supply continuous power for instrument consumption as the rotating plate assembly rotates. Electrical power is transferred by brushes mounted on the upper bearing support aid commutator rings mounted beneath the tester kit instrument. Vacuum power is transferred through the hollows center shaft by means of a manifold surrounding the shaft.

68. Electrical and Pneumatic Power Transfer Systems Removal and Disassembly

a. Removal. Remove electrical and pneumatic power transfer systems in accordance with paragraph 48a.

b. Disassembly.

Note. Perform only portions of following procedures necessary to replace a defective item or make necessary repairs. Complete disassembly of power transfer systems should not be accomplished unless proven necessary.

(1) Disconnect wiring and remove brush holders (40, fig. 6), clips (41), caps (42), and brushes (41).

(2) Remove receptacle (45) by removing four screws (44,).

(3) Remove receptacles (46 through 48) by removing remaining screws (44). Remove wiring from rear of receptacles (45 through 48)

ITEM NO	PART NO	SPECIFICATION	STOCK	DESCRIPTION	NO. REQD
1			#8 X 3/4	BLACK NATVAR TUBING	14
2			3/8 X 1	BLACK NATVAR TUBING	1
3			7/16 X 1	BLACK NATVAR TUBING	1
4	JAN C-76	WL 2-1/2 (19)	16 AWG	WIRE	15 FT
5			5/8 X 6	BLACK NATVAR TUBING	1
6	258	PHOENIX		CLIP	14
7	6P	HEYCO		STRAIN RELIEF	1
8	MS3102A14S-5P			RECEPTACLE	1
9	MS3102A14S-2P			RECEPTACLE	1
10	MS3102A10SL-3P			RECEPTACLE	1
11	MS3102A10SL-4P			RECEPTACLE	1

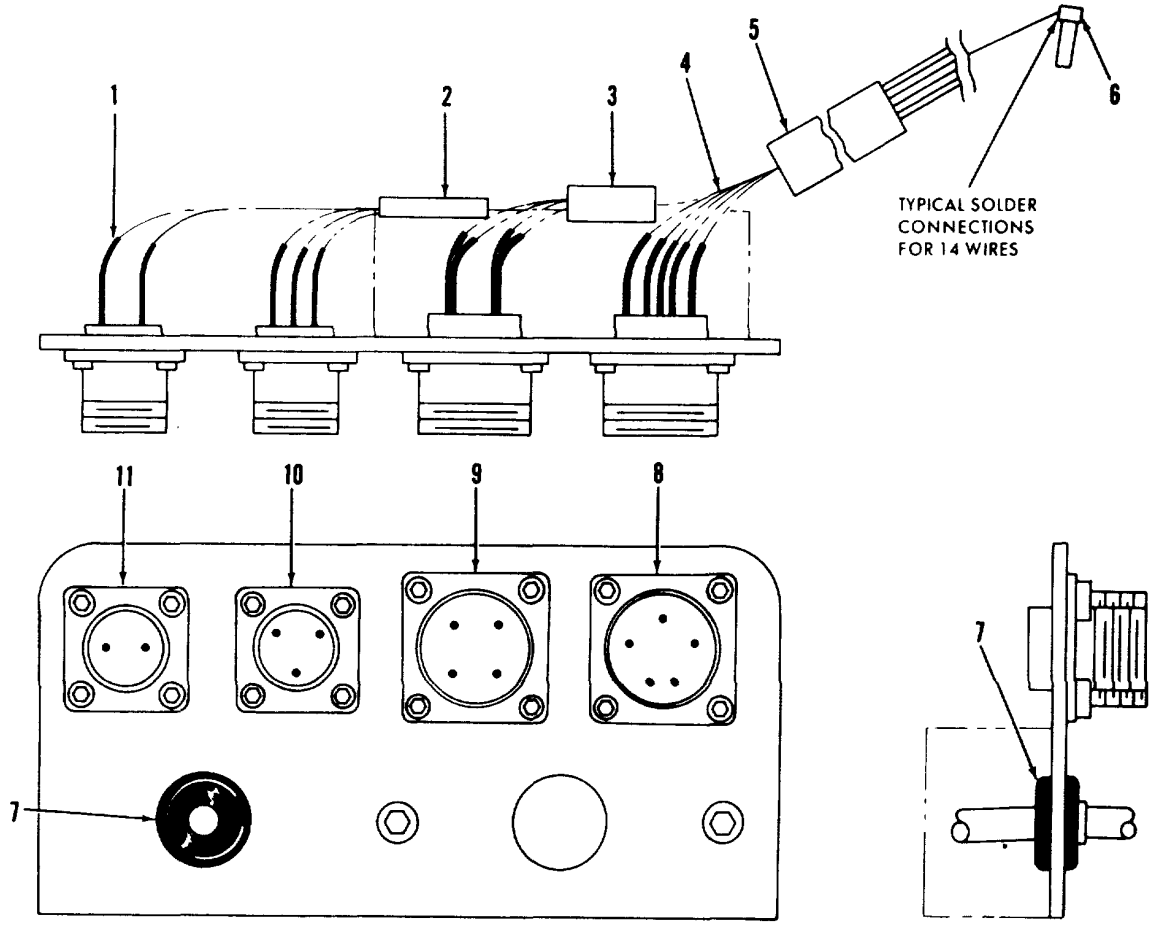


Figure 10. Lead dress and insulation.

69. Electrical and Pneumatic Power Transfer Systems Cleaning, Inspection, and Repair

a. Cleaning.

(1) Clean elbows, adapters, mounting plates, and attaching hardware with dry cleaning solvent (item 3, table 1).

Caution: **Do not allow dry cleaning solvent to soak into wiring, hoses, brushes, or any phenolic or other insulating materials. Dry cleaning solvent is flammable and toxic. Use in a well-ventilated area and observe all fire precautions.**

(2) Use a suitable bristle brush to clean connectors, brushes, brush holders, and other insulating materials.

(3) Clean vacuum hose in dry cleaning solvent (item 3, table 1). Use compressed air to dry interior and exterior of hose.

b. Inspection and Repair.

(1) Inspect all threaded surfaces for evidence of cross threading, overtightening, and other damage. Repair minor thread damage by chasing threads with a proper size tap or die. Replace component if damage is extensive.

(2) Inspect metal components for cracks, distortion, elongated mounting holes, and other damage. Replace damaged components.

(3) Inspect brushes for wear, cracks, and contamination by lubricant or other foreign material. Replace brushes if cracked or contaminated or if wear is into or beyond limit indicated by notch filed into brush.

(4) Inspect brush holders, caps, and clips for condition and proper fit. Replace components if defective.

(5) Inspect hose for condition. Replace hose if it shows signs of cracking or splitting. Provide an airtight seal for one end of hose and connect other end of hose to a source of low air pressure; coat exterior surface of hose with soap solution and observe for air bubbles indicating leakage. Replace hose if leakage is indicated.

(6) Inspect wiring for damaged or deteriorated insulation. Replace wiring if defective.

70. Electric and Pneumatic Power Transfer Systems Reassembly and Installation

a. Reassembly.

(1) Install wiring to rear of receptacle (48, fig. 6). Feed wiring through proper hole in plate (38), install receptacle (48), and secure with screws (44).

(2) Control wiring and install receptacles (45 through 47) as outlined in step (1) above.

(3) Dress, insulate, and install wiring as shown in figure 10. Solder a clip (41, fig. 6) to free end of each wire.

(4) Assemble brushes (43), caps (42), clips (41) and brush holders (40).

b. Installation. Install electrical and pneumatic power transfer systems in accordance with para- graph 48b.

71. Electrical and Pneumatic Power Transfer Systems Testing

a. Electrical System. Test electrical components as follows:

(1) Using an ohmmeter or suitable continuity checker, check for continuity from each pin of each stationary receptacle (5, fig. 1) to same lettered socket on corresponding rotating receptacle (4).

(2) If an open circuit is found, remove case assembly (para 45a). Using figure 9 as a guide, check for continuity between pin of stationary receptacle (5, fig. 1) and corresponding slip ring (;5, fig. 2).

(3) If continuity is not found at slip ring, check for continuity at brush (43, fig. 6), brush holder (40), clip (41), and to wiring and rear of stationary receptacle (5, fig. 1) as necessary until defective component is located.

(4) If continuity is found at slip ring (5, fig. 2) test rotating plate assembly (para 61).

b. Pneumatic System. Tolerable leakage in the pneumatic system will vary depending upon external conditions such as capacity and condition of external v source. Test pneumatic system as follows:

(1) Connect a vacuum operated instrument of known quality to tester (para 14).

(2) Operate tester through at least 360 degrees of turn (para 15), simultaneously observing vacuum gage. Vacuum gage should show vacuum to which vacuum source is set without fluctuation throughout our test.

Section V. RATE OF TURN SELECTOR ASSEMBLY

72. Rate of Turn Selector Assembly Description

The rate of turn selector assembly provides a means to engage the gear and clutch assembly by means of a knob located at the front of the case. A system of cams, fingers, and cam followers depress the proper clutch actuator and engage the proper clutch to drive the rotating plate assembly at the desired speed.

73. Rate of Turn Selector Assembly Removal and Disassembly

a. Removal. Remove rate of turn selector assembly in accordance with paragraph 49a.

b. Disassembly.

(1) Using a scribe or other suitable tool, lightly scribe a mark on camshaft (4, fig. 11) at collar (8) and at aft end of each cam (7) to facilitate reassembly. Scribe a line on each arm- (3, fig. 12) at cam follower (2).

(2) Remove setscrew (57, fig. 6) and collar (58).

(3) Remove screws (62) and cam fingers (63). Slide cams (64) off camshaft (61).

(4) Remove screws (65) and cam followers (66).

74. Rate of Turn Selector Assembly Cleaning, Inspection, and Repair ,

a. Cleaning. Clean all parts of rate of turn selector assembly in dry cleaning solvent (item 3, table 1) and allow to dry.

b. Inspection and Repair.

(1) Inspect all threaded surfaces for evidence of cross threading, overtightening (stripping), and other damage. Chase minor thread damage with a tap or die of proper size. Replace component if damage is extensive.

(2) Inspect all metal parts for cracks, distortion, and excessive wear. Replace damaged components. Replace cam fingers and cam followers if badly worn.

(3) Inspect lettering and index marking on speed selector knob for legibility. If repairs are necessary, remove any loose paint in indention with a sharp-pointed instrument. Fill indention with white enamel paint. Use a cloth wrapped around a wooden block or other flat surface to remove excess paint from around indention and allow paint to dry. Replace knob if unserviceable.

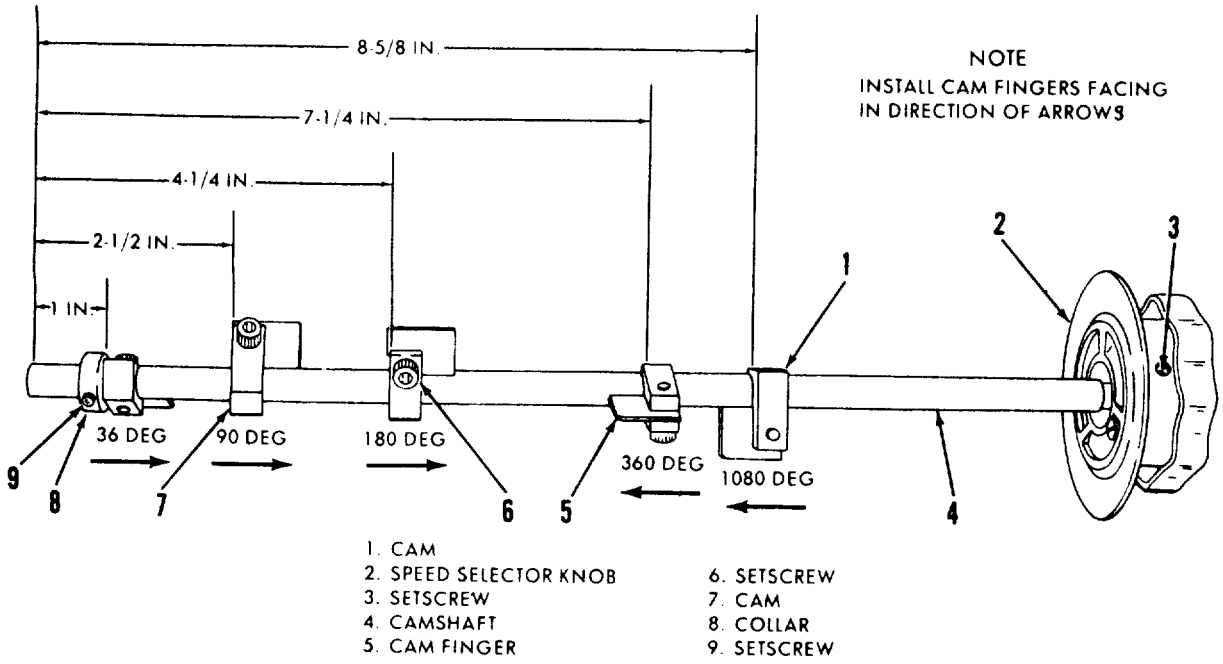


Figure 11. Cam identification.

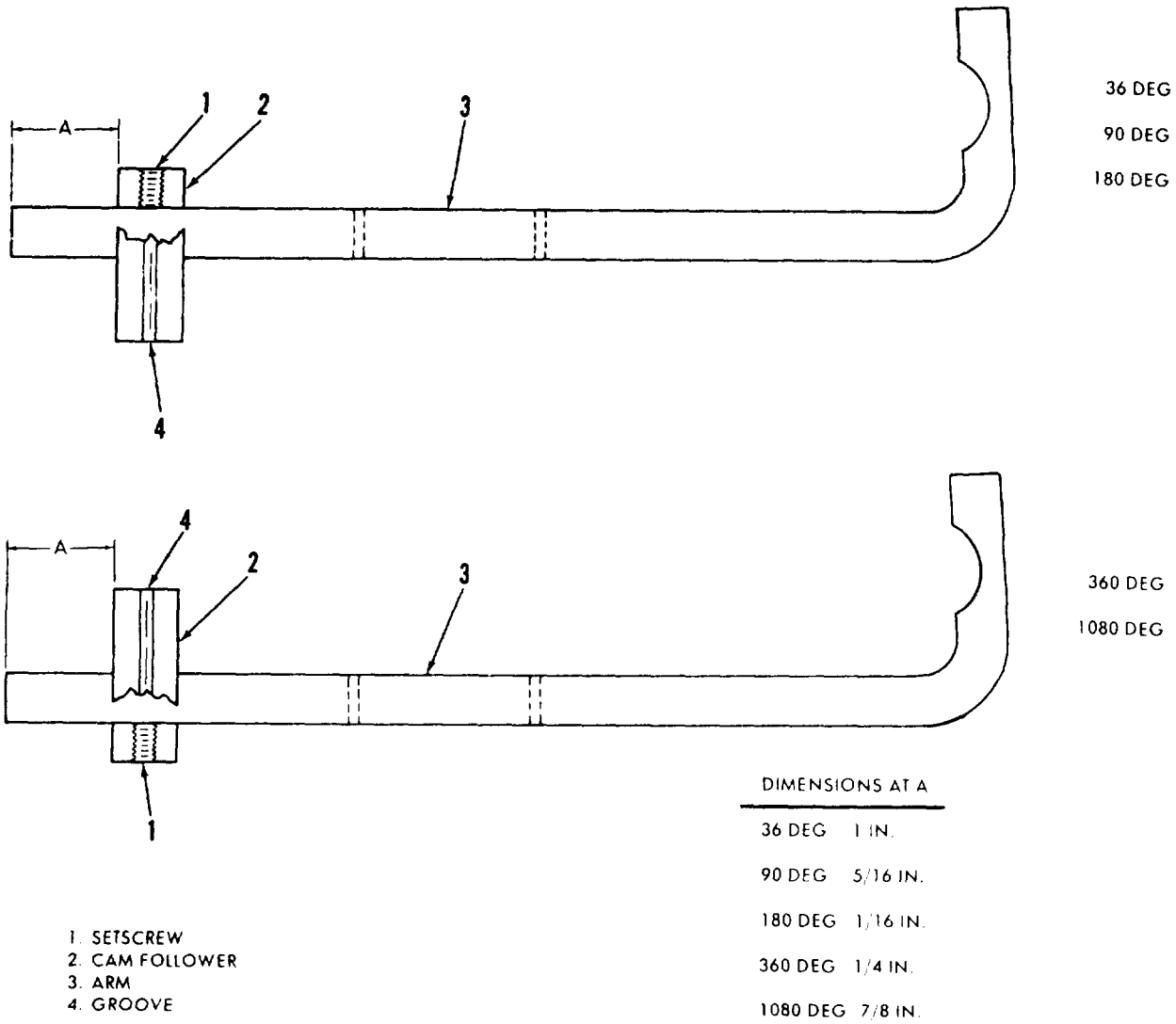


Figure 12. Cam follower installation.

75. Rate of Turn Selector Assembly Reassembly and Installation

a. Reassembly.

Note. Use lines scribed on arms (3, fig. 12) and camshaft (4, fig. 11) during disassembly (para 73b(1)) as a positioning guide for parts during reassembv. Failure to do so will result in unnecessary time spent in adjustment of assembly. Following procedure assumes no guide marks and gives approximate positions only.

(1) Assemble cams (64, fig. 6) and cam fingers (63) on camshaft (61) ill positions shown in figure 11 and install screws (62, fig. 6). Temporarily install speed selector knob (56) and secure with setscrew (55). Orient each cam (2, fig. 13) so cam finger (3) will fall on a line extended from its indicated speed on speed selector knob (1) through center of camshaft (8) as shown. check measurements shown in figure 11 and tighten screws (62, fig. 6).

(2) Install cam followers (66, fig. 6) as shown in figure 12 and secure with screws (1). Note relation of screw (1) to foot of arm (3).

(3) Install collar (58, fig. 6) firmly against 36-degree cam (fig. 11). Install screw (9) and tighten securely. Loosen setscrew (3, fig. 11) and remove speed selector knob (2).

b. Installation. Install rate of turn selector assembly in accordance with paragraph 49b.

76. Rate of Turn Selector Assembly Testing and Adjustment

a. Remove case assembly in accordance with paragraph 45a.

b. Observing rate of turn selector assembly from right-hand side, turn rate of turn assembly through several revolutions, observing the following conditions:

(1) Cams (2, fig. 13) should not contact cam followers (7). Cam followers should be contacted only by cam fingers (3).

(2) Arms (5) should ride freely in guide (52, fig. 6) without binding.

(3) Detent action should be positive as each cam finger (3, fig. 13) (engages its corresponding groove in cam follower (7).

(4) When engaged in each position, a line drawn from groove in cam follower (7) through center of camshaft (8) should be at right angles to upper bearing support (83, fig. 6). Pointer (9) should align with corresponding speed number on speed selector knob (1, fig. 13).

(5) Cam followers (7) should be held against under side of camshaft (8), when not in contact with cant finger (3), by springs (49, fig. 6).

c. Correct any deficiencies noted in b above as follows:

Note. Corrective steps below correspond to same step number in b above. Make sure trouble is diagnosed properly before attempting :adjustments below. Much time can be lost needlessly adjusting properly positioned components. See figure 11 to be sure cam parts related to subject speed are being adjusted..

(1) Turn speed selector knob (1, fig. 13) until cam finger (3) of subject ca (2) actuates its cam follower (7). Loosen setscrew (4) and slide cam (2) along shaft as necessary to correct condition, maintaining proper adjustment. Perform step (4) below.

(2) Loosen nut (1, fig. 8) and center arm (2). Refer to paragraph 81 and adjust clutch on corresponding gear and clutch assembly, maintaining arm in centered position.

(3) Inspect cam finger (3, fig. 13) and cam follower (7) for damage, wear, and proper alignment. Replace defective components as necessary as outlined in paragraphs 7:3 through 75. Loosen setscrew (6) and turn cam follower (7) as necessary so that cam finger (3) bottoms properly in cam follower groove. Perform step (4) below.

(4) Turn speed selector knob (1) to each speed in turn. If knob index is off pointer (9, fig. 6) at each position approximately an equal amount, knob may have slipped on camshaft (8, fig. 13), or case (4, fig. 6) may be improperly aligned. Loosen screws (3) and setscrews (55). Align knob index and pointer (9) and retighten screws to correct overall alignment. Correct individual misalignment by loosening set- screws (4 and 6, fig. 13) and aligning cam finger (3) and cam follower (7) as shown in figure 13 while maintaining proper alignment of index on speed selector knob (1). Tighten setscrews (4 and 6).

(5) Replace springs (49, fig. 6) if tension is too weak to hold cam followers (7, fig. 13) against camshaft (8) when not engaged by cam fingers (3).

d. Install case assembly in accordance with paragraph 45b.

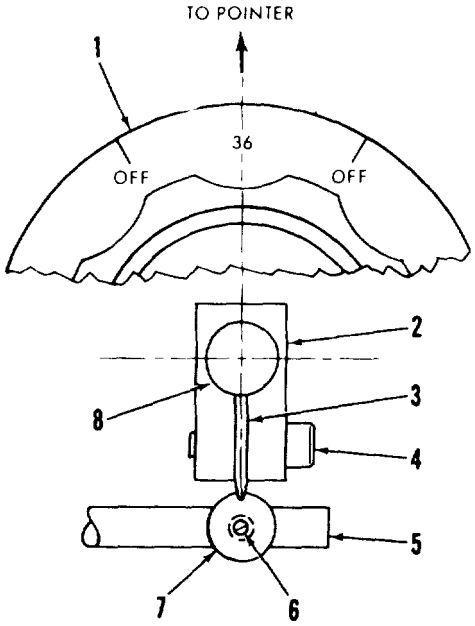


Figure 13. Cam orientation-typical.

Section VI. GEAR AND CLUTCH ASSEMBLIES

77. Gear and Clutch Assemblies Description

The gear and clutch assemblies provide a means of converting high motor rpm into the very low rpm of the rotating plate assembly. The gears of the gear and clutch assemblies are driven by the output gear ,of the motor and various sections engaged by clutches on each spindle to drive the shaft assembly. The clutch assembly will slip and allow the drive motor to turn if the rotating plate is inadvertently stalled.

78. Gear and Clutch Assemblies Removal and Disassembly

a. Removal. Remove gear and clutch assemblies in accordance with paragraph 50a.

b. Disassembly. Remove screws (70, fig. 6) and washers (71), and remove gear and clutch assemblies (72 through 76). Tag gear and clutch assemblies as removed for ease in reassembly.

Note. Replace entire gear and clutch assembly if any component is defective. Do not disassemble further.

79. Gear and Clutch Assemblies Cleaning, Inspection, and Repair

a. Cleaning.

Note. Loosen nut (1, fig. 8) to be sure clutch parts are cleaned properly.

(1) Clean gear and clutch assemblies with dry cleaning solvent (item 3, table 1). Use a bristle brush to remove accumulations that may be present.

Caution: **Do not immerse gear and clutch assemblies in dry cleaning solvent. Dry cleaning solvent will dissolve or displace lubricants, causing premature failure of sealed bearings.**

(2) Dry components with a clean, lint-free cloth or clean, dry compressed air not exceeding 15 psi.

b. Inspection and Repair.

(1) Inspect all threaded surfaces for evidence of cross threading, overtighteninig (stripping), and other damage. Chase minor thread damage with a tap or die of proper size. Replace component if damage is extensive.

(2) Inspect individual gears for chipped or missing teeth and other damage. Replace individual gear and clutch assembly if any individual gear shows damage, and also replace adjoining gear and clutch assembly containing mating gear if mating gear has been scored or abnormally worn by defective gear.

(3) Inspect clutch parts for damage or excessive wear. Replace individual gear and clutch assembly if defects are noted.

(4) Check for proper bearing clearances as shown in figure 14. Replace gear and clutch assembly if proper clearances can- not be obtained.

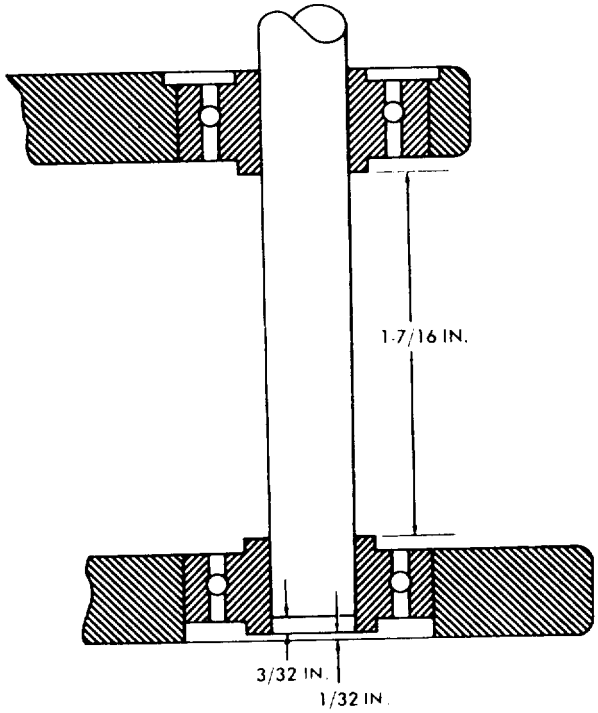


Figure 14. Gear and clutch assembly bearing clearances.

80. Gear and Clutch Assemblies Reassembly and Installation

a. Reassembly. Position gear and clutch assemblies (72 through 76, fig. 6) in proper positions on mounting plate (69) and secure with washers (71) and screws (70).

b. Installation. Install gear and clutch assemblies in accordance with paragraph 50b.

81. Gear and Clutch Assemblies Adjustment

Note. Gear and clutch assemblies and motor are mounted by screws through oversize holes to allow correct adjustment of gear spacing. Position gear and clutch assemblies so that a 0.005-inch feeler gage will pass freely on slack side of en- meshed gear teeth.

a. Remove case assembly in accordance with paragraph 45a.

b. Place speed selector knob (4, fig. 8) in position of speed to be adjusted.

c. Loosen nut (1) above depressed arm (2) until gear (3) can be easily turned.

d. Tighten nut (1) until gear (3) can barely be moved with thumb and index finger on outer rim of gear as shown in figure 8.

e. Turn knob (4) to OFF position. Gear (3) should turn as freely as in step c above.

f. Install case assembly in accordance with paragraph 45b.

Section VII. DRIVE ASSEMBLY

82. Drive Assembly Description

The drive assembly provides rotating support for the rotating plate assembly (para 57). A large gear (89, fig. 6), drive by the motor through the various gear assemblies, drives a shaft (90) and the rotating plate assembly (13). Upper and lower bearings (82 and 91) are provided to reduce friction and wear.

83. Drive Assembly Removal and Disassembly

a. Removal. Remove drive assembly in accordance with paragraph 51a.

b. Disassernbly.

(1) Unscrew and remove elbow (39, fig. 6) from manifold (85). Remove gaskets (84) and manifold (85).

(2) Remove setscrew (86) and collar (87). Remove setscrew (88) and gear (89) from shaft (90). Remove lower bearing (91).

84. Drive Assembly Cleaning, Inspection, and Repair

a. Cleaning.

(1) Wipe gaskets and bearings with a clean, lint-free cloth to remove lubricants and foreign matter.

Caution: **Do not immerse sealed bearings in dry cleaning solvent. Dry cleaning solvent will dissolve or displace lubricant, resulting in premature bearing failure.**

(2) Clean remaining parts in dry cleaning solvent (item 3, table 1) and dry with clean, dry compressed air not exceeding 15 psi or a clean, lint-free cloth.

b. Inspection and Repair..

(1) Inspect gaskets for damage and excessive wear. Replace gaskets if defective.

(2) Inspect bearings for damage, brinelling, and excessive wear. Replace bearing if defective.

(3) Inspect manifold for cracks, damage, and stripped threads and excessive wear. Make sure gasket seats are clean and smooth. Chase minor thread damage with a proper size tap. Burnish minor pitting or corrosion from gasket seats. Replace manifold if defective.

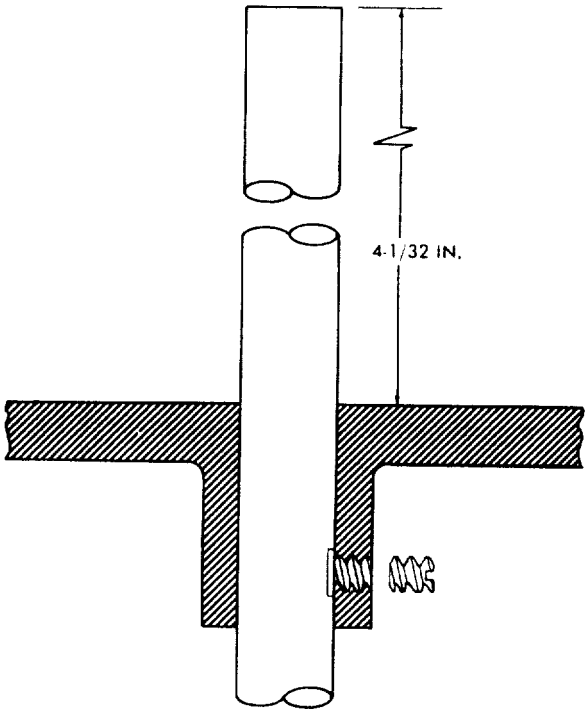


Figure 15. Center gear position.

(4) Inspect elbow for cracks, distortion, and other damage. Replace elbow if these conditions exist.

(5) Inspect all threaded parts for thread dam- age. Chase minor thread damage with a proper size tap or die. Replace component if thread damage is extensive or if other defects are present.

(6) Inspect gear for damaged, scored, missing, or excessively worn teeth. Replace gear if defective.

(7) Inspect collar for general condition. Replace collar if defective.

(8) Inspect shaft for alignment and general condition; make sure vacuum passage is clear and that mating surface to gasket is smooth and clean. Minor pits or uneven wear may be burnished off on a lathe. Replace shaft if damaged or excessively worn.

85. Drive Assembly Reassembly and Installation

a. Reassembly.

(1) Install gear (89, fig. 6) on shaft (90) and align screw hole in gear with bottom flat on shaft. Install setscrew (88), do not tighten. Position gear as shown in figure 15 and tighten screw. Install collar (87, fig. 6), align screw hole in collar with center flat on shaft (90), and install setscrew (86).

(2) Install gaskets (84) and manifold (85). Install elbow (39).

b. Installation. Install drive assembly in accordance with paragraph 51b.

Section VIII. BASE ASSEMBLY

86. Base Assembly Description

The base assembly provides a rigid support for mounting components of the tester kit instrument. The base assembly includes the base plate, the gear and clutch assemblies mounting plate, and end plates which support the upper bearing and rate of turn selector assemblies.

87. Base Assembly Removal and Disassembly

a. Removal. Remove base assembly ill accordance with paragraph 52a.

b. Disassembly.

(1) Remove screws (93, fig. 6) and bearing side supports (94).

(2) Remove leveling screws (97) from base (98).

(3) Remove screws (99) and pipe adapter (100).

88. Base Assembly Cleaning, Inspection, and Repair

a. Cleaning. Clean all base assembly components with dry cleaning solvent (item 3, table 1). Dry with a clean, lint-free cloth or clean, dry compressed air not exceeding 15 psi.

b. Inspection and Repair.

(1) Inspect all threaded surfaces for evidence cross threading, overtightening (stripping), and other damage. Chase minor thread damage with a tap or die of proper size. Repair major thread damage in base plate assembly by drilling out and tapping to next larger size. Replace other components that have major thread damage.

(2) Inspect all metal parts for cracks, distortion, and excessive wear. Replace component if damage will affect proper operation of tester kit instrument.

89. Base Assembly Reassembly and Installation

a. Reassembly.

(1) Install pipe adapter (100, fig. 6) and secure with screws (99).

(2) Install leveling screws (97) in base (98).

(3) Assemble bearing support bases (92) and hearing side supports (94) and secure with screws (93).

b. Installation. Install base assembly in accordance with paragraph 52b.

CHAPTER 6
SHIPMENT, LIMITED STORAGE, AND DEMOLITION TO PREVENT ENEMY USE

Section I. DOMESTIC SHIPMENT

90. Preparation of Equipment for Shipment

a. Inspection. Inspect tester kit instrument and component assemblies for condition and evidence of corrosion. Correct all deficiencies discovered prior to packaging the tester kit instrument.

b. Preservation.

(1) Lubricate tester kit instrument (para 21).

(2) Clean tester kit instrument with a clean, lint-free cloth dampened in dry cleaning ill dry cleaning solvent (item 3, table 1).

(3) After tester kit instrument is clean, repaint as necessary in accordance with TM 9-213.

c. Packaging.

(1) Place four fresh bags of desiccant (item 2, table 1) and a humidity indicator (item 4, table 1) on tester kit instrument rotating plate assembly.

(2) Wrap tester kit instrument with grease proof barrier. material (item 5, table 1) and seal with pressure sensitive tape (item 6, table 1).

(3) Place wrapped and sealed tester kit instrument in suitable fiberboard or wooden box with a minimum of 6 inches of packing material on bottom, top, and sides.

91. Loading Equipment for Shipment

The tester kit instrument is loaded for shipment in the same manner as all packaged equipment. Observe shipping procedures and precautions applicable to precision test equipment. Insure that the packaged tester kit instrument is properly secured to prevent bouncing or shifting during shipment.

Section II. LIMITED STORAGE

92. Preparation of Equipment for Limited Storage

a. Prepare tester kit instrument as for shipment para 90).

b. Store tester kit instrument in a dry protected area and place oil suitable blocks.

93. Inspection and Maintenance of Equipment in Storage

a. Open fiberboard or wooden box monthly and inspect for condition and moisture level (reading humidity indicator).

b. Replace desiccant bags and humidity indicator.

c. Repackage tester kit instrument (para 90c).

Section III. DEMOLITION OF MATERIAL TO PREVENT ENEMY USE

94. General

When capture or abandonment of the tester kit instrument to the enemy is imminent, the responsible unit commander must make the decision either to destroy or render the tester kit instrument in operative. Based oil this decision, orders are issued which cover the desired extent of destruction. Whatever method of demolition is employed, it is essential to destroy the same vital parts of all the tester kit instruments and all corresponding repair parts.

95. Demolition to Render the Equipment Inoperative

a. Demolition by Mechanical Means. Use sledge hammers, crowbars, picks, axes, or any other heavy tools or equipment which may be available to destroy tester kit instrument.

b. Submersion. Totally submerge tester kit instrument in a body of water to provide damage and concealment. Salt water will cause more damage and faster corrosive action than will fresh water.

APPENDIX I
REFERENCES

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1. Dictionaries of Terms and Abbreviations

AR 320-5	Dictionary of United States Army Terms.
AR 320-50	Authorized Abbreviations and Brevity Codes.

2. Fire Protection

AR 420-90	Fire Prevention and Protection.

3. Preventive Maintenance

AR 750-5	Organization, Policies, and Responsibilities for Maintenance Operations.
MIL-STD-171	Preparation, Painting and Finishing for Metal and Wood Surfaces.
TM 9-213	Painting Instruction for Field Use.
TM 9-237	Welding; Theory and Application.

4. Support Publications

DA Pam 310-1	Index of Administrative Publications.
DA Pam 310-2	Index of Blank Forms.
DA Pam 310-4	Index of Technical Manuals, Technical Bulletins, Lubrication Orders, and .Modification Work Orders.
TM 38-750	Army Equipment Record Procedures.

APPENDIX II
MAINTENANCE ALLOCATION CHART

1. Purpose

The purpose of the maintenance allocation chart is to assign maintenance functions and repair operations to be performed by the lowest appropriate maintenance echelon.

2. Explanation of Columns

a. Column 1, Group Number. This column lists the group numbers assigned to the various functional groups. The sequence of entries normally coincides with the sequence followed in Appendix III (Repair Parts and Special Tool Lists).

b. Column 2, Components and Related Operations. This column lists components applicable to the tester kit instrument which are susceptible to maintenance. Components comprising the tester kit instrument are arranged into divisions, and applicable operations to be performed to each division are designated. Operations designated include service, adjust, inspect, test, replace and repair

c. Columns 3 through 7. These columns list the five echelons of maintenance which reflect the capacity of performing the operations listed in column 2. The symbol X, placed in the appropriate column, indicates the echelon responsible for performing that particular maintenance operation, but does not necessarily indicate that repair parts will be stocked at that level. Echelons higher than echelon marked X are authorized to perform the indicated operation.

3. Definitions of Terms

a. Maintenance. Maintenance is any action taken to keep material in serviceable condition or to restore it to serviceability when it is unserviceable. Maintenance of material includes the following operations which are defined as follows:

b. Service. To clean, to preserve, to check, and replenish fuel, lubricants, and water.

c. C.O.T.S. To clean, oil, and stencil requires disassembly and performance of functions periodically to insure suitability for safe and effective operation.

d. Clean. To clean and oil requires partial or complete disassembly.

e. Adjust. To regulate as necessary to obtain maximum operating efficiency and to prevent malfunction.

f. Inspect. To verify serviceability and to detect incipient failure by scrutiny of external parts or assemblies arid internal parts, where only minor disassembly is necessary.

g. Test. To verify serviceability and to detect incipient electrical or mechanical failure by use of special equipment and or gages and meters.

h. Replace. To substitute serviceable assemblies, subassemblies, and parts for unserviceable assemblies, subassemblies, and parts.

i. Repair. To restore an item to serviceable conditions through correction of a specific failure or unserviceable condition. This function includes, but is not limited to, inspecting, cleaning, preserving, adjusting, replacing, welding, riveting, and straightening.

j. Rebuild. To restore an item to a standard as near as possible to original or new condition in appearance, performance, and life expectancy. This is accomplished through the maintenance technique of complete disassembly of the item, inspection of all parts or components, repair or replacement of sworn or unserviceable elements using original manufacturing tolerances and/or specifications, and subsequent reassembly of the item.

k. Overhaul. To restore an item to completely serviceable condition as prescribed by serviceability standards. This is accomplished through employment of the technique of "Inspect and Repair Only as Necessary" (IROAN). utilization of diagnostic and test equipment is combined with minimum disassembly of the item during the overhaul process.

(1) Group No.	(2) Component and related operations	(3) OC	(4) O	(5) DS	(6) GS	(7) D	(8) Tools req'd	(9) Remarks
1.0	Tester Kit Instrument							
	Service	.....	X	.....				
	Adjust	.....	X	.....				
	Inspect	.....	X	.....				
	Test	.....	X					
	Replace	.....	.....	X				
	Repair	.....	.....	X				
2.0	Case Assembly, RH, LH	.....	.....	.....				
	Service	.....	X	.....				
	Adjust	.....	X	.....				
	Inspect	.....	X	.....				
	Replace	.....	.....	X				
	Repair	.....	.....	X				
3.0	Rotating Plate Assembly	.....	.....	.....				
	Service	.....	X	.....				
	Adjust	.....	X	.....				
	Inspect	.....	X	.....				
	Test	.....	.....	X				
	Replace	.....	.....	X				
	Repair	.....	.....	X				
4.0	Drive Motor Assembly	.....	.....	.....				
	Service	.....	X	.....				
	Adjust	.....	X	.....				
	Inspect	.....	X	.....				
	Replace	.....	.....	X				
5.0	Electrical and Pneumatic Power Transfer Systems	.....	.....	.....				
	Service	.....	X	.....				
	Adjust	.....	X	.....				
	Inspect	.....	X	.....				
	Test	.....	.....	X				
	Replace	.....	.....	X				
	Repair	.....	.....	X				
6.0	Rate of Turn Selector Assembly	.....	.....	.....				
	Service	.....	X	.....				
	Adjust	.....	.....	X				
	Inspect	.....	X	.....				
	Test	.....	.....	X				
	Replace	.....	.....	X				
	Repair	.....	.....	X				
7.0	Gear and Clutch Assembly	.....	.....	.....				
	Service	.....	X	.....				
	Adjust	.....	.....	X				
	Inspect	.....	.....	X				
	Replace	.....	.....	.....	X			
8.0	Drive Assembly	.....	.....	.....				
	Service	.....	X	.....				
	Adjust	.....	.....	X				
	Inspect	.....	X	.....				
	Replace	.....	.....	X				
	Repair	.....	.....	X				
9.0	Base Assembly	.....	.....	.....				
	Service	.....	X	.....				
	Adjust	.....	.....	X				
	Inspect	.....	X	.....				
	Test	.....	.....	X				
	Replace	.....	.....	X				
	Repair	.....	.....	X				

APPENDIX III
REPAIR PARTS AND SPECIAL TOOLS

Section I. INTRODUCTION

1. General

This appendix lists repair parts and maintenance supplies authorized and required for organizational through depot maintenance of Tester Kit Instrument Model 1256, part number 211744, FSN 4920- 348-24-45. It is the authority to requisition and is to be used for identification, issue, and as an aid to procure, repair parts as required. This appendix supplements tables of equipment and allowances and other applicable authorization documents.

2. Arrangement

This appendix consists of three sections, as follows:

Section I- Introduction.

Section II- Illustrated Parts List. All repair parts are listed alphabetically by item name and indented to indicate relationship to major assemblies.

Section III- Cross-Reference Indexes. This section is divided into two paragraphs as follows:

a. Paragraph 1, the Alpha-Numerical Part Number Index, contains a listing of all part numbers appearing in the text pages of this appendix. Cross- reference is made to figure and index number, Federal stock number, and Federal supply code for manufacturer.

b. Paragraph 2, Federal stock number cross-reference, is arranged in numerical order by stock number. Cross-reference is made to figure and index number, part number, and Federal supply code for manufacturer.

3. Explanation of Columns

a. AMC Material Code. Material Basic number. Items which are the logistic responsibility of a commodity command, other than U.S. Army Aviation Material Command, are indicated by the basic number assigned to the commodity command.

The basic numbers used are:

9-Ordnance Materiel

11-Signal Materiel

b. Source Codes. Source codes are shown in this column as assigned to items by U,S. Army Aviation Materiel Command. The code symbols indicate the selection status and source of supply for each repair part as defined hereafter.

(1) Code P1 applies to repair parts which are low mortality parts; procured by commodity command, stocked only in and supplied from commodity command key depots and authorized for installation at indicated maintenance categories.

(2) Code M applies to repair parts which are not procured or stocked but are to be manufactured by using units at indicated maintenance categories. MO, MF, MH, and MID combinations indicate the category responsible for manufacturing the item.

c. Maintenance Level Codes. The code symbol in the maintenance level column indicates the lowest the maintenance level column indicates the lowest maintenance category authorized to install the repair parts. Capabilities of higher maintenance categories are considered equal or better.

(1) Code O-Organizational Maintenance Category.

(2) Code F-Direct Support Maintenance Category.

(3) Code H-General Support Maintenance Category.

(4) Code D-Depot Maintenance Category.

d. Recoverability Codes. Recoverability codes reflect the recoverability or reparability characteristics of repair parts upon removal from equipment's at time of maintenance, repair or overhaul.

(1) Code R applies to repair parts and assemblies which are economically reparable a;.

direct and general support maintenance activities and are normally furnished by supply on an exchange basis.

(2) Repair parts and assemblies not assigned a recoverability code shall be considered "throwaway" items.

e. Federal Stock Number. The Federal stock number consists of the applicable 4-digit FSC code number plus the 7-digit Federal item identification number and is to be utilized for requisitioning, storage and accountability purposes. Items without source codes will not be assigned a Federal stock number.

f. Description. This column furnishes the item name a brief description when necessary and authorized abbreviations or dimensions when required to provide further identification. A comma will be used to separate the basic noun or noun phrase from its modifiers. As an additional reference the manufacturer's part number is indicated following the description.

g. Unit of Issue. This column lists the standard or the minimum basic quantity in which the item is issued (each, pound, set, etc).

h. Expendability Code. When any item is non-expendable it will be indicated by an N. This column will be left blank for all other items which are expendable.

i. Quantity per Assembly. Quantities in this column are those required for one assembly only.

j. Quantity Authorized. As asterisk (*) code contained within the quantity authorized column indicates that the item is authorized for use at that level, but is not authorized to be stocked, assembled, or manufactured. When such an item is required, it must be requisitioned for immediate use only from the higher maintenance category.

k. Figure and Index Numbers. When applicable, the numbers which appear in the last right-hand column of each text page, key items contained in the text to the proper part in the appropriate illustration. This enables ready reference from illustration to text and from text to illustration. Figure and index numbers are also shown in the indices for every part which appears in the appendix with a part number, This provides a reference to the proper illustration and item on the text listing.

4. Abbreviations

The following abbreviations are used:

AC .....Alternating Current
ASSY.....Assembly(ies)
CRES.....Corrosion Resistant Steel
DEG.....Degree(s)
DIA .....Diameter(s)
EA.....Each
FT.....Foot (feet)
HP .....Horsepower
ID.....Inside Diameter(s)
IN.....Inch(es)
LG.....Long (length)
LH.....Left Hand
MTG .....Mounting(s)
NC .....American National Coarse Thread
NF.....American National Fine Thread
NO .....Number(s)
NPT .....American Standard Taper Pipe Threads
NS .....American National Special Thread
OD.....Outside Diameter(s)
P/N .....Part Number
RH .....Right Hand
THK .....Thick(ness)
UF.....Microfarad(s)
V.....Volt(s)

5. Federal Supply Code For Manufacturers

Code	*.Manufacturer and location*
28118	Helwig Co. Milwaukee Wis..
30120	Ideal-Aerosmith Inc Cheyenne Wyo.
46992	Phoenix Electric Mfg Co Chicago Ill .
70510	Anaconda Metal Hose Division of Anaconda Brass Co Waterbury Conn.
72653	G C Electronics Mfg Co Rockford Ill.
80205	National Aerospace Standards Committee Aero nautical Industries Association of America Washington DC
88044	Aeronautical Standards Group Dept. of Navy and Air Force.
96906	Military Standard Promulgated by Standardization Div Directorate of Logistic Services DSA.

Mat source maint and recov code				Federal stock No.	Description	Unit of issue	Ex-pend-ability	Quan-tity per assem-bly	Quan-tity au-thor-ized	Illus-trations	
Mate-riel	Source	Maint level	Re-cover-ability							Fig. No.	Item No.
	P1	F	R	4920-348-2445	Tester Kit Instrument, 5-Speed, Model 1256 (P/N 211744).	EA	N	----------	---------	1	

Section II. ILLUSTRATED PARTS LIST

MAT SOURCE MAINT AND RECOV CODE				FEDERAL STOCK NUMBER	DESCRIPTION	UNIT OF ISSUE	EXPEN-DA-BILITY	QUAN TITY PER ASSEM-BLY	QUAN TITY AUTH ORIZED	ILLUS-TRATIONS	
MATE-RIEL	SOURCE	MAINT LEVEL	RECO-VERA-BILITY							FIG NO	ITEM NO
					.BASE PLATE ASSEMBLY	EA		1			
					. ADAPTER, PIPE, VACUUM LINE, 3/8 IN.-18 NPT (P/N 211618)	EA		1		6	100
					. BASE PLATE (P/N 211616)	EA		1		6	98
11	P1	F		5910-071-0927	. CAPACITOR, MOTOR STARTING, 2-1/2 UF, 330, V,AC (P/N N1896)	EA		1	*	6	28
					. GEAR, MOTOR REDUCER (P/N 211868)	EA		1		6	33
	P1	F		4920-070-7888	. MOTOR, REDUCER, 115 V,AC, 1/150 HP(P/N B2270EX30	EA		1	*	6	30
					. MOUNT, LOWER BEARING (P/N 211622)	EA		1		6	96
					. PLATE, GEAR & CLUTCH ASSY MTG (P/N 211632)	EA		1		6	69
					.SCREW, CAP, SOCKET HEAD, CAPACITOR MTG, CADMIUM PLATED, NO. 8-32 NC, 1/2 IN. LG	EA		4		6	95
					. SCREW, CAP, SOCKET HEAD, LOWER BEARING SUPPORT MTG, CADMIUM PLATED, NO. 10-32 NF, 5/8 IN. LG	EA		4		6	95
					. SCREW, CAP, SOCKET HEAD, MOTOR MTG, CADMIUM PLATED, NO. 10-32 NF, 3/4 IN. LG	EA		4		6	29
					. SCREW, CAP, SOCKET HEAD, PIPE ADAPTER MTG, CADMIUM PLATED, 1/4 IN.-28 NF, 1-3/4 IN. LG	EA		2		6	99
					. SCREW, CAP, SOCKET HEAD, SIDE BEARING SUPPORT MTG, CADMIUM PLATED, NO. 10-32 NF, 3/4 IN. LG	EA		4		6	93
					. SCREW, CAP, SOCKET HEAD, SPACER MTG, CADMIUM PLATED, NO. 10-32 NP, 2-1/4 IN. LG	EA		4		6	67
					. SCREW, CAP, SOCKET HEAD, SUPPORT BASE MTG, CADMIUM						
					. PLATED, 1/4 IN.-28 NF, 1 IN. LG	EA		4		6	60
					. SCREW, LEVELING, BASE PLATE (P/N 211634)	EA		4		6	97
					. SPACER, GEAR PLATE (P/N 211631	EA		4		6	68
					. SUPPORT, BEARING SIDE (P/N 211620)	EA		2		6	94
					. SUPPORT BASE, BEARING (P/N 211619)	EA		2		6	92
					CAMSHAFT ASSEMBLY	EA		1			
					. CAM (P/N 211629)	EA		5		6	64
					. CAMSHAFT (P/N 211626)	EA		1		6	61
					. COLLAR (P/N 211627)	EA		2		6	58
					.FINGER, CAM (P,/N 211636)	EA		5		6	63
					.FOLLOWER, CAM (P/N 211633)	EA		5		6	66
					. KNOB, SPEED SELECTOR (P/N 211737)	EA		1		6	56

MAT SOURCE MAINT AND RECOV CODE				FEDERAL STOCK NUMBER	DESCRIPTION	UNIT OF ISSUE	EXPEN-DA-BILITY	QUAN TITY PER ASSEM-BLY	QUAN TITY AUTH ORIZED	ILLUS-TRATIONS	
MATE-RIEL	SOURCE	MAINT LEVEL	RECO-VERA-BILITY							FIG NO	ITEM NO
					. SCREW, CAP, SOCKET HEAD, CAM MTG, CADMIUM PLATED, NO. 10-32 NF, 1/2 IN. LG	EA		5		6	62
					. SETSCREW, CAM FOLLOWER, CADMIUM PLATED, NO. 10-32 NF, 3/16 IN. LG	EA		5		6	65
					. SETSCREW, COLLAR, CADMIUM PLATED, NO. 10-32 NF, 3/16 IN. LG	EA		2		6	57
					. SETSCREW, SELECTOR KNOB, CADMIUM PLATED, NO. 10-32 NF, 1/4 IN. LG	EA		1		6	55
					CASE ASSEMBLY .	EA		1			
					. CASE, LH (P/N 211649-1)	EA		1		6	4
					. CASE, RH (P/N 211649-2)	EA		1		6	6
					. PLACARD, DIRECTION (P/N 211736Y	EA		1		6	2
					. PLACARD, IDENTIFICATION (P/N 211735) . EA	EA		1		6	11
					. POINTER, SELECTOR KNOB (P/N 211745) EA	EA		1		6	8
					. POINTER, TURNTABLE (P/N 211743)	EA		1		6	9
					. SCREW, CAP, SOCKET HEAD, CASE MTG, CADMIUM PLATED, 1/4 IN.-28 NF, 5/8 IN. LG	EA		6		6	3
					. SCREW, DRIVE, PLACARD MTG, CADMIUM PLATED, NO. 0, 1/4 IN. LG (P/N AN535-04	EA		4		6	10
					. SCREW, TAPPING, THREAD FORMING, POINTER MTG, NO. 2,3 3/16 IN. LG EA	EA		4		6	7
11	P1	F		5930-071-0925	. SWITCH (P/N 7612K2)	EA		1		6	5
					. . NUT, SWITCH MTG	EA		1		6	1
					GEAR AND CLUTCH ASSEMBLY (P/N 21161 5-1)	EA		1		6	76
					. ARM, CLUTCH ACTUATING (P/N 211613)	EA		1		6	54
					. SCREW, CAP, SOCKET HEAD, ASSY MTG, CADMIUM PLATED, NO. 10-32 NF, 1/2 IN. LG	EA		2		6	70
					. WASHER, FLAT, ASSY MTG, CADMIUM PLATED, 0.203 IN. ID, 0.438 IN. THK (P/N AN960-10 L)	EA		2		6	71
					GEAR AND CLUTCH ASSEMBLY (P/N 211615-2)	EA		1		6	75
					. ARM, CLUTCH ACTUATING (P/N 211613)	EA		1		6	54

MAT SOURCE MAINT AND RECOV CODE				FEDERAL STOCK NUMBER	DESCRIPTION	UNIT OF ISSUE	EXPEN-DA-BILITY	QUAN TITY PER ASSEM BLY	QUAN TITY AUTH ORIZE	ILLUS-TRATIONS	
MAT RIEL	SOURCE	MAINT LEVEL	RECO VERA-BILITY							FIG NO	ITEM NO
					. SCREW, CAP, SOCKET HEAD, ASSY MTG, CADMIUM PLATED, NO. 10-32 NF, 1/2 IN. LG	EA		2		6	70
					. WASHER, FLAT, ASSY MTG, CADMIUM PLATED, 0.203 IN. ID, 0.438 IN. OD, 0.032 IN. THK (P/N AN960-IOL)	EA		2		6	71
					GEAR AND CLUTCH ASSEMBLY (P/N 211615-3)	EA		1		6	74
					. ARM, CLUTCH ACTUATING (P/N 211613)	EA		1		6	54
					. SCREW, CAP, SOCKET HEAD, ASSY MTG, CADMIUM PLATED, NO. 10-32 NF, 1/2 IN. LG	EA		2		6	70
					. WASHER, FLAT, ASSY MTG, CADMIUM PLATED, 0.203 IN. ID, 0.438 IN. OD, 0.032 IN. THK (P/N AN960-10OL)	EA		2		6	71
					GEAR AND CLUTCH ASSEMBLY (P/N 211615-4)	EA		1		6	73
					. ARM, CLUTCH ACTUATING (P/N 211613)	EA		1		6	54
					. SCREW, CAP, SOCKET HEAD, ASSY MTG, CADMIUM PLATED, NO. 10-3w NF, 1/2 N. LG	EA		2		6	70
					. WASHER, FLAT, ASSY MTG, CADMIUM PLATED, 0.203 IN. ID, 0.438 N. OD, 0.032 IN. THK (P/N AN960-1OL)	EA		2		6	71
					GEAR AND CLUTCH ASSEMBLY (P/N 211615-5)	EA		1		6	72
					. ARM, CLUTCH ACTUATING (P/N 211613)	EA		1		6	54
					. SCREW, CAP, SOCKET HEAD, ASSY MTG, CADMIUM PLATED, NO. 10-32 NP, 1/2 IN. LG	EA		2		6	70
					. WASHER, FLAT, ASSY MTG, CADMIUM PLATED, 0.203 IN. ID, 0.438 IN. OD, 0.032 IN. THK (P/N AN960-10OL)	EA		2		6	71
					GUIDE ASSEMBLY	EA		1			
					.· GUIDE, CLUTCH ARM (P/N 211630)	EA		1		6	52
					. SCREW, CAP, SOCKET HEAD, GUIDE MTG, CADMIUM PLATED, NO. 10-32 NF, 3/4 IN. LG	EA		2		6	51
					. SPACER, GUIDE (P/N 211375)	EA		2		6	53
					HOSE ASSEMBLY	EA		1			
					. ELBOW, PIPE TO TUBE, 3/8 IN.-18 NPT, 3/4 IN.-16 NF, 90 DEG (P/N AN822-8D)	EA		2		6	39

MAT SOURCE MAINT AND RECOV CODE				FEDERAL STOCK NUMBER	DESCRIPTION	UNIT OF ISSUE	EXPEN-DA-BILITY	QUAN TITY PER ASSEM-BLY	QUAN TITY AUTH ORIZED	ILLUS-TRATIONS	
MATE-RIEL	SOURCE	MAINT LEVEL	RECO-VERA-BILITY							FIG NO	ITEM NO
	MF	F		4720-780-2781	HOSE ASSEMBLY, TETRAFLURORETHYLENE, VACUUM LINE.....						
					(P/N T1000-8-0170)	EA		1	*	6	34
					(FABRICATE FROM THE FOLLOWING 5 ITEMS).....						
	P1	F		4730-952-5528	. . ADAPTER, STRAIGHT, TUBE TO HOSE, CRES (P/N MS27061-8C)	EA		2	*		
	P1	F		4730-965-1121	. . FERRULE, BRAZING, TUBE FITTING, CRES (P/N MS27070-8C)	EA		2	*		
	P1	F		4720-815-6354	. . HOSE, NONMETALLIC, 6 FT PRECUT LG, MIL-H-27267-8.....	FT		AR	*		
	P1	F		4730-967-9516	. . NUT, HOSE COUPLING, CRES, 3/4 IN.-24 NS (P/N MS27069-8C).....	EA		2	*		
	P1	F		5340-433-3269	. . PLUG, PROTECTIVE, DUST AND MOISTURE SEAL (P/N NAS8]5-8A)	EA		2	*		
					RECEPTACLE MOUNTING PLATE ASSEMBLY.....	EA					
11	P1	F		6145-073-3445	. CABLE, POWER, 8 FT LG (P/N 1W180)	EA		1		6	32
					. CONNECTOR, RECEPTACLE, ELECTRICAL (P/N MS3102AIOSL3P)	EA		1		6	46
					. CONNECTOR, RECEPTACLE, ELECTRICAL (P/N MS3102A10OSL4P) ...	EA		1		6	45
					. CONNECTOR, RECEPTACLE, ELECTRICAL (P/N MS3102A14S2P)	EA		1		6	47
					. CONNECTOR, RECEPTACLE, ELECTRICAL (P/N MS3102A14S55P)	EA		1		6	48
					. PLATE, RECEPTACLE MOUNTING (P/N 211617)	EA		1		6	38
					. RELIEF, CABLE STRAIN (P/N 6P)	EA		1		6	31
					. SCREW, CAP, SOCKET HEAD, RECEPTACLE MTG, CADMIUM.....						
					PLATED, NO. 4-40 NC, 1/4 IN. LG	EA		16		6	44
					SCREW, CAP, SOCKET HEAD, RECEPTACLE PLATE MTG, CADMIUM						
					PLATED, NO. 10-32 NF, 1/2 IN. LG	EA		2		6	35
					SHAFT ASSEMBLY	EA		1			
9	P1	F		3110-142-4472	. BEARING, BALL, AIRFRAME, LOWER (P/N AN201KP8A)	EA		1	*	6	91
9	P1	F		3110-142-4493	. BEARING, BALL, AIRFRAME, UPPER (P/N AN201KP12A)	EA		1	*	6	82
					. BRUSH, ELECTRICAL CONTACT (P/N GRADE698)	EA		14		6	43
					. CAP, BRUSH HOLDER (P/N AE51)	EA		14		6	42
					. CLIP, BRUSH HOLDER (P/N 25B)	EA		14		6	41
					. COLLAR, DRIVE GEAR (P/N 211734)	EA		1		6	87
					. CONNECTOR, RECEPTACLE, ELECTRICAL (P/N MS3102A14S2S)	EA		1		6	24
					. CONNECTOR, RECEPTACLE, ELECTRICAL (P/N MS3102A14S5S)	EA		1		6	23
					. CONNECTOR, RECEPTACLE, ELECTRICAL (P/N MS3102A14S7S)	EA		1		6	25
					. CONNECTOR, RECEPTACLE, ELECTRICAL (P/N MS3102A14S9S)	EA		1		6	26

MAT SOURCE MAINT AND RECOV CODE				FEDERAL STOCK NUMBER	DESCRIPTION	UNIT OF ISSUE	EXPEN-DA-BILITY	QUAN TITY PER ASSEM-BLY	QUAN TITY AUTH ORIZED	ILLUS-TRATIONS	
MATE-RIEL	SOURCE	MAINT LEVEL	RECO-VERA-BILITY							FIG NO	ITEM NO
					. DOWEL, COMMUTATOR PLATE (P/N 211635-8	EA		1		6	14
					. DOWEL, TURNTABLE (P/N 211635-6)	EA		1		6	18
					. FIXTURE, LOCATING- (P/N 211638)	EA		1		6	17
					. GEAR, DRIVE (P/N 211608-14)	EA		1		6	89
					. HOLDER, ELECTRICAL CONTACT BRUSH (P/N 1020)	EA		14		6	40
					. HUB, TABLE MTG (P/N 211628)	EA		1		6	78
					. MANIFOLD, VACUUM (P/N 211623)	EA		1		6	85
					. MOUNT, UPPER BEARING (P/N 211624)	EA		1		6	81
9	P1	F		5330-198-6163	. PACKING, PERFORMED, MANIFOLD (P/N AN6227-14)	EA		2	*	6	84
9	P1	F		5330-198-6163	. PACKING, PERFORMED, UPPER BEARING (P/N AN6227-14)	EA		1	*	6	21
					. PIN, COTTER, SPRING, ACTUATING ARM, 1/16 IN. DIA, 1/2 IN. LG (P/N AN380-2-2)	EA		10		6	50
					. PLATE, BRUSH HOLDER (P/N 211637)	EA		1		6	37
					. PLATE, COMMUTATOR (P/N 211508)	EA		1		6	20
					. SCREW, CAP, SOCKET HEAD, BRUSH HOLDER PLATE MTG, PLATED, NO. 6-32 NC, 5/8 IN. LG	EA		6		6	36
					. SCREW, CAP, SOCKET HEAD, RECEPTACLE MTG, CADMIUM NO. 4-40 NC, 1/4 IN. LG	EA		16		6	22
					. SCREW, CAP, SOCKET HEAD, UPPER BEARING MOUNT MTG, CADMIUM PLATED, NO. 1032 NF, 5/8 IN. LG	EA		2		6	79
					. SCREW, CAP, SOCKET HEAD, UPPER BEARING SUPPORT MTG, CADMIUM PLATED, NO. 10-32 NF, 5/8 IN. LG	EA		4		6	59
					. SCREW, DOWEL, TURNTABLE (P/N 211639)	EA		2		6	15
					. SCREW, MACHINE, COMMUTATOR PLATE MTG, CADMIUM PLATED, NO. 8-32 NC, 1/2 IN. LG (P/N AN515-B-8)	EA		8		6	19
					. SCREW, MACHINE, LOCATING FIXTURE MTG, CADMIUM PLATED, 82 DEG COUNTERSUNK HEAD, NO. 6-32 NC, 3/8 IN. LG (P/N AN506-5RC)	EA		2		6	16
					. SCREW, MACHINE, TURNTABLE MTG, CADMIUM PLATED, 82 DEG COUNTERSUNK HEAD, NO. 10-32 NF, 1-1/2 IN. LG (P/N AN510-10-24)	EA		3		6	112

MAT SOURCE MAINT AND RECOV CODE				FEDERAL STOCK NUMBER	DESCRIPTION	UNIT OF ISSUE	EXPEN-DA-BILITY	QUAN TITY PER ASSEM-BLY	QUAN TITY AUTH ORIZED	ILLUS-TRATIONS	
MATE-RIEL	SOURCE	MAINT LEVEL	RECO-VERA-BILITY							FIG NO	ITEM NO
					. SCREW, MANIFOLD, UPPER BEARING PLATE MTG (P/N 211739)	EA		2		6	80
					. SETSCREW, DRIVE GEAR, CADMIUM PLATED, 1/4 IN.-28 NF, 3/8	EA		1		6	88
					.· SETSCREW, DRIVE GEAR COLLAR, CADMIUM PLATED, 1/4 IN.-28 NF, 1/4 IN. LG	EA		1		6	86
					. SETSCREW, TABLE MTG HUB, CADMIUM PLATED, 1/4 IN.-28 NF, 1/4 IN. LG	EA		1		6	77
					.· SHAFT, DRIVE GEAR (P/N 211625) .	EA		1		6	90
					. SPRING, CLUTCH ACTUATING ARM (P/N 6452)	EA		5		6	49
					. SUPPORT, UPPER BEARING (P/N 211621)	EA		1		6	83
					. TURNTABLE (P/N 211510)	EA		1		6	13

Section III. CROSS-REFERENCE INDEXES

1. Alpha-Numerical Part Number Index

Part No.	Figure and index No.	Stock No.	Reference designation	Federal mfr code
AE51	6-42	.....	.....	46992
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AN201KP8A	6-91	3110-142-4472	.....	88044
AN380-2-2	6-50	.....	.....	88044
AN5065RC	6-16	.....	.....	88044
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AN5354	6-10	.....	.....	88044
AN6227-14	6-21	5330-198-6163	.....	88044
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AN822-8D	6-39	.....	.....	88044
AN960-10L	6-71	.....	.....	88044
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MS27061-8C	.....	4730-952-5528	.....	96906
MS27069-8C	.....	4730-967-9516	.....	96906
MS27070-8C	.....	4730-965-1121	.....	96906
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MS3102A10SL4P	6-45	.....	.....	96906
MS3102A14S2P	6-47	.....	.....	96906
MS3102A1482S	6-24	.....	.....	96906
MS3102A14S5P	6-48	.....	.....	96906
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MS3102A14S7S	6-25	.....	.....	96906
MS3102A14S9S	626	.....	.....	96906
NA5815-8A	.....	5340-433-3269	.....	80205
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T1000-8-0170	6-34	4720-780-2781	.....	70510
1W180	6-32	6145-073-3445	.....	30120
1020	6-40	.....	.....	46992
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211508	6-20	.....	.....	30120
211510	6-13	.....	.....	30120
211608-14	6-89	.....	.....	30120
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