TECHNICAL MANUAL

OPERATOR'S, AVIATION UNIT, AND INTERMEDIATE MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS)

TABLE, TILTING, GYRO, INSTRUMENT TESTING (MODEL 1406RA-CT-1) P/N 223580-1 NSN 4920-01-022-7323

HEADQUARTERS, DEPARTMENT OF THE ARMY

18 JUNE 1979

REPORTING OF ERRORS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to Commander, US Army Troop Support and Aviation Materiel Readiness Command, ATTN: DRSTS-MTPS, 4300 Goodfellow Boulevard, St. Louis, MO 63120. A reply will be furnished to you.

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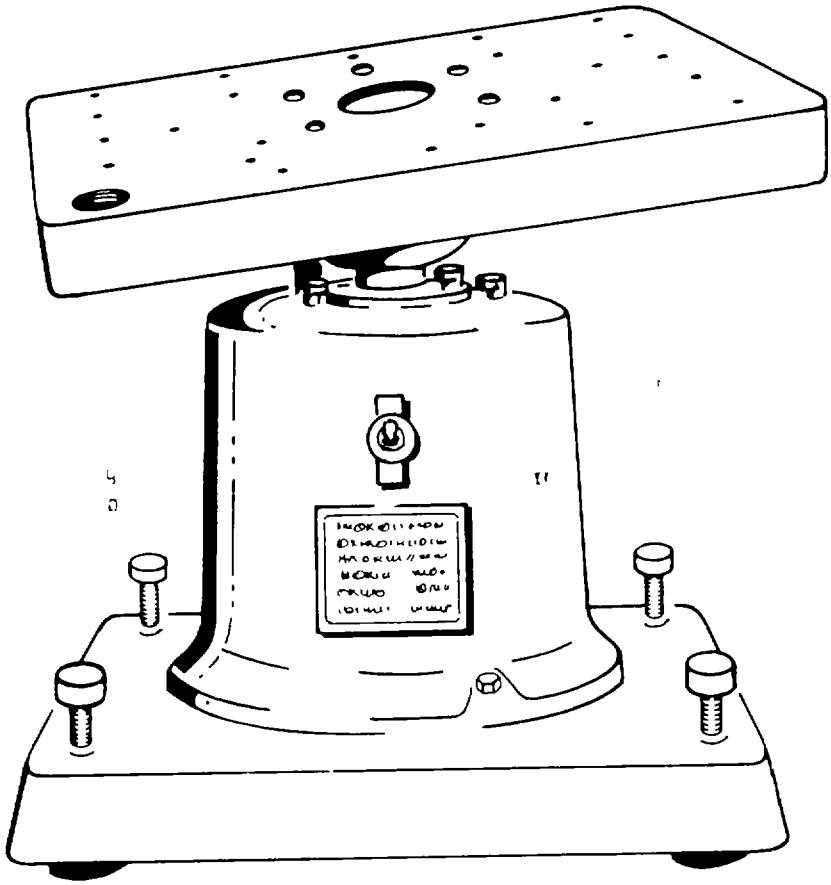


Figure 1-1. Table, Tilting, Gyro, Instrument Testing.

SECTION I

INTRODUCTION AND DESCRIPTION

1-1. INTRODUCTION

1-2. GENERAL. The Gyro Tilting Table Model 1406RA-CT-1, is manufactured by Ideal-Aerosmith, Inc, Cheyenne, Wyoming

1-3. PURPOSE.

1-4. The Portable Tester is an electrically driven table which assimilates the combatination of roll, pitch, and yaw motions of an aircraft in flight. The unit is designed primarily for the shop testing of aircraft gyroscopic instruments to determine their reliability prior to installation in the aircraft The device may also be used for "limbering up" the instruments once overhaul has been completed.

1-5. The tester has a rated load capacity of 25 pounds The unit may be used to test all gyroscopic instruments within the weight capacity which measure motions of roll, pitch, and yaw Some of the instruments which may be tested on this unit are listed below:

Flight Instruments
- Artificial Horizon
- Directional Gyro

Automatic Pilot Control Units:
- Directional Gyro Control Units
- Bank-Climb Control Units

1-6. GENERAL CHARACTERISTICS.

1-7. The motion of the table is a combination of pitch, roll, and yaw. All of the indications normally displayed on the instruments being tested will duplicate those encountered in an aircraft in flight.

The table oscillates at a rate of six complete revolutions per minute on 60 cycle current and five revolutions per minute on 50 cycle current The range of oscillation of the table is controlled by the tilting head on which the table is mounted. The tilting head is adjustable to any angle or tilt up to fifteen degrees from horizontal (300 included angle).

1-8. Reversal of the direction of rotation of the table is accomplished either automatically or manually When the device is operated using the automatic reversing mechanism, a star wheel switch drive mechanism is engaged The star wheel switch drive mechanism causes the rotation direction of the table to reverse at the end of each six cycles.

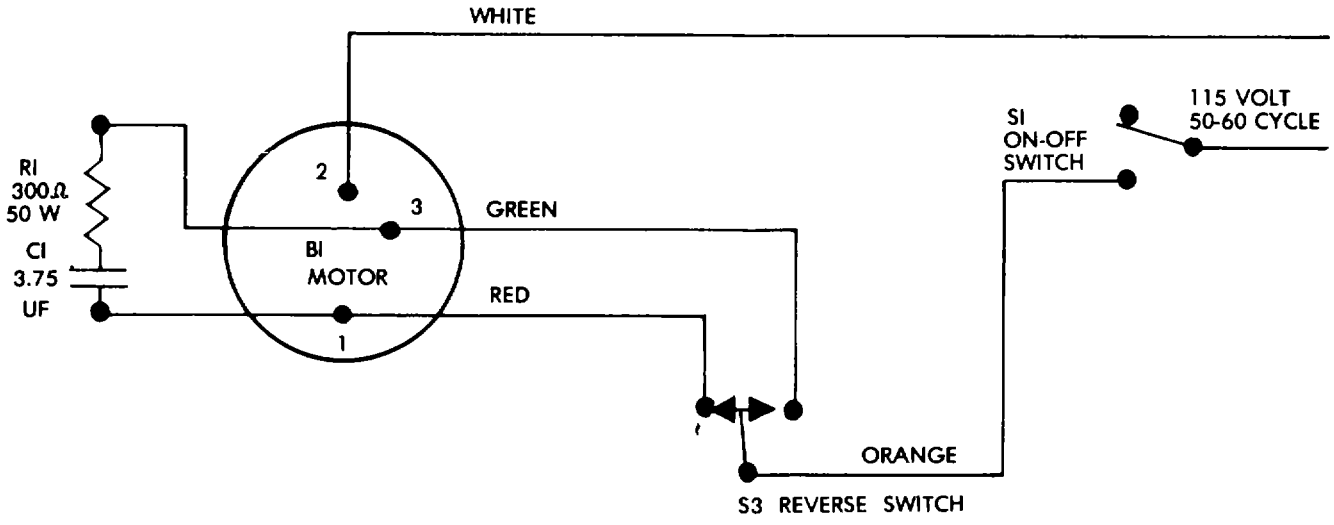


Figure 1-2. Wiring Diagram, Gyro Tilting Table, Model 1406RA-CT-1

When the rotation control switch is set for manual operation, the table will rotate continuously in one direction until the operator readjusts the mechanism to reverse the direction of rotation

1-9. The instrument mounting adapter (shown mounted on the table in figure 1-1) is furnished with each unit. The instrument mounting adapter is designed to support the instruments being tested A series of holes are located in the adapter to allow the mounting of the instruments m their normal operating orientation.

1-10. A table level is provided in the left front corner of the table. Adjustable leveling screws are provided on all four feet to level the unit.

1-11. The electric motor operates on 115 Volt, 50-60 cycle, AC current. See figure 1-2 for wiring diagram.

1-12. An additional electrical power source is required whenever electrically driven gyro instruments are being tested. A regulated vacuum supply and a gage or manometer are required when testing vacuum operated gyro equipment.

SECTION II

SPECIAL SERVICE TOOLS

2-1. GENERAL.

2-2. No special tools are required for the service of the Portable Tester. The following Standard tools and their specific applications are necessary for normal service and lubrication:

Nomenclature	Application
Wrench, Allen, 3/32" hex	Table stud set screw; Motor gear set screw
Wrench, Allen, 5/32" hex	Motor Mounting screws
Wrench, Allen, 3/16" hex	Case Screw
Wrench, Allen, 7/32" hex	Head to shaft screw
Screwdriver, 1/4" blade	Table retaining stud
Screwdriver, 5/16" blade	Miscellaneous screws
Screwdriver, 3/8", blade	Miscellaneous screws
Needle nose pliers	Rethreading wires through aperture to motor connection
Wrench, thin open end, 1/2" to 9/16"	Reversing switch nut
Oil can, small	All oil cups

Figure 2-1. Table of Special Service Tools.

SECTION III

PREPARATION FOR USE

3-1. GENERAL.

3-2. Connect electric cord to any 115 Volt, 50-60 cycle, AC power source. The motor current rating is .30 amperes. Wattage consumption: 32 watts at 115 Volts, 50-60 cycles. The permissible power variation is plus or minus 10% of rated voltage.

3-3. The instrument mounting bracket should be mounted on the table with the two screws that are provided for this purpose. The bracket mounts on the front of the table of the unit.

3-4. Fix the table firmly in the horizontal position (0° on the head tilt scale). Turn the leveling adjustment screws until the level on the table has the bubble centered in the ring on the glass.

SECTION IV
OPERATION INSTRUCTIONS

4-1. GENERAL.

4-2. These instructions pertain only to the use and operation of the Portable Tester. No information is included about the performance specifications of the gyroscopic instruments which may be tested upon this unit. For these instrument specifications, refer to the applicable manuals.

4-3. PRINCIPLE OF OPERATION.

4-4. The fundamental principle involved in testing all gyro stabilized instruments is to assimilate the combined motions of roll, pitch, and yaw while causing every bearing pivot of the instrument to be in motion. This practice permits easy detection of any trouble caused by rough, stick, or improperly adjusted bearings.

4-5. The tester may also be used for pre-test runs or "limbering up" runs on all overhauled gyro stabilized instruments.

4-6. MOUNTING AND WARM-UP.

4-7. The instrument mounting bracket is designed to support most gyro control instruments. The instruments are mounted on the mounting bracket by selecting the holes that line up with the mounting holes in the instrument. When the holes which allow proper orientation of the instrument on the mounting bracket have been aligned, the instrument is fastened firmly in place with the knurled-head screws and nuts for this function.

4-8. Be certain that the tester is located upon a firm work surface. Ascertain that the table of the tester is firmly established in its horizontal position (0° on the tilt scale side plate of the head assembly) Level the tester by adjusting the four adjusting screws until the bubble of the table level is centered in the circle marked on the glass of the level.

4-9. Connect the electric cord to any 115 Volt, 50-60 cycle, AC power source and turn the ON-OFF switch (Figure 4-1) to the ON position. Start the instrument operating at normal power, or normal vacuum when testing vacuum operated gyro equipment, and let the instrument run five to ten minutes before making any tests. The table may be operated during this period as a "limbering up" operation, if desired.

4-10. TILT TABLE.

4-11. To set the table to a tilted position, operate the motor until the graduated end of the head is toward the front. The clamp screw (Figure 4-1) is on the right when the tilting head is in this position, and should be just tight enough so that the table will be firmly held in the established position When the clamp screw is adjusted in this manner, the tilting head operates upon a friction clutch principle, allowing the table to be tilted when a pressure of six to eight pounds is applied at the edge of the table but preventing the distributed weight of the instruments from changing the tilt of the table. The maximum angle of the tilt is 15° from the horizontal and is indicated by the graduated scale on one end of the tilting head (the tilt scale side plate). To tilt the table, press down on the back of the table and raise up on the front A stop screw may be adjusted to limit the tilt on the head to any desired angle between 0° and 15°. With this set screw set to the desired tilt angle, it is not necessary to check the angle of its tilted position at each operation; merely push the table into its tilted position for making a test run, and push it back to its horizontal position for taking an instrument reading. This can be done without stopping the motor.

4-12. AUTOMATIC REVERSING.

4-13. To put the automatic reversing switch into operation, the upper knob (Figure 4-1) must be raised to its upper position. A ball and spring friction device will hold the knob in either up or down position. If the knob does not raise readily, rotate the lower knurled collar, just below the switch knob, a finger on the switch knob drive must engage a slot in the star wheel of the switch drive before automatic reversing will take place The star wheel is rigidly attached to the knurled collar just below the switch knob.

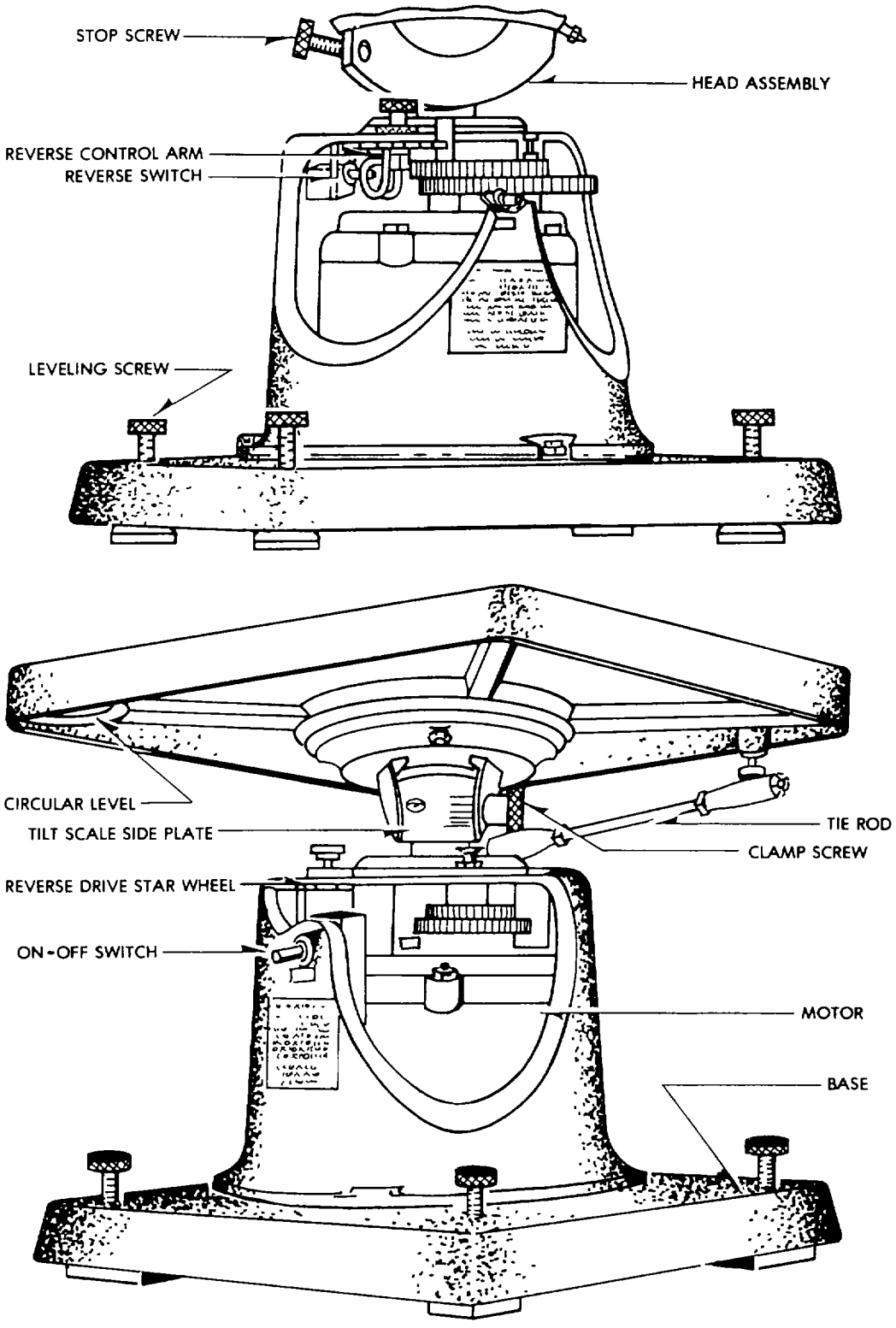


Figure 4-1. Gyro Tilting Table, Front and Side Views.

4-14. To disconnect the automatic reversing mechanism, press down on the switch knob so that it snaps down to its lower position. The tester will now run continuously in one direction, and the direction of rotation can be set by the operator by manually rotating the reversing switch knob in either direction.

4-15. MANUAL REVERSING.

4-16. The tester runs continuously in one direction or reverses at the will of the operator Press down on the reverse knob (Figure 4-1); this movement disengages the finger on the switch knob shaft from a slot in the star wheel of the switch device Manual rotation of the reversing switch will reverse the direction of table rotation The unit will run continuously in one direction until reversed by the operator.

SECTION V
PERIODIC INSPECTION, MAINTENANCE, AND LUBRICATION

5-1. PERIODIC INSPECTION.

5-2. The Portable Tester should be inspected monthly. The inspection outline includes tilting the table, operation of the automatic reversing, and operation of the level and the level adjusting screws in the base.

5-3. The motor should be operated to determine that the motor runs smoothly without chatter. If an excessive loading or binding of the gears occurs, the motor will chatter or stall This should be corrected (Figure 6-1) The motor operates at a constant power requirement of 32 watts, regardless of the load on the motor, therefore, it will not burn out from stalling or overloading

5-4. MAINTENANCE.

5-5. No special maintenance is required other than lubrication as described in paragraphs 5-7 through 5-22 below.

5-6. LUBRICATION.

5-7. The tester should be lubricated at one-month intervals Every two years, the unit should be disassembled and lubricated

5-8. LUBRICATION AT ONE-MONTH INTERVALS.

5-9. Lubrication at one-month intervals can be accomplished without disassembling the unit.

5-10. Fill the two oil cups around the head of the machine with a very light, acid-free mineral oil that will not gum Aircraft instrument oil (MIL-L6580A), as used in the ball bearings and other parts of gyroscopic instruments, is satisfactory for this use Each of these oil cups has a wick to absorb and hold the oil, from four to ten drops may be required to saturate these wicks

5-11. A drop of oil (MIL-L-6580A) should be put around the knob shaft of the reversing switch A drop of oil should also be placed on the grooves at each end of the trunnion block which slides when the table is tilted, and on the ball of each ball joint of the table tie-rod.

5-12. The half-inch hole closing cap on the right top of the housing should be lifted out with a knife blade A small quantity of light-bodied grease should be placed on the teeth of both gears which can be seen through this hole. A flashlight will be needed to see down inside of the case. (Total quantity of grease to be applied should equal approximately a 1/4" ball). The two gears to which grease can be applied through this hole mesh with the only other two gears in the tester, enabling the grease to spread to all gear teeth. A high-quality, light-bodied motor bearing grease (MIL-L-16719A), or other light-bodied grease commonly used for ball bearing motors, is recommended for this use When the greasing operation is completed, close the hole by pressing the cap back into place.

5-13. The mounting plate is lubricated by forcing grease (MIL-L-15719A) from a grease gun into a zerk fitting in the mounting plate, located approximately 45° to the right of the front of the unit.

5-14. LUBRICATION AT TWO-YEAR INTERVALS

5-15. At the end of each two-year period of operation, it is necessary to lubricate the motor ball bearings and the reversing switch mechanism. To accomplish this lubrication, it will be necessary to disassemble the unit.

CAUTION

When removing the table, (P/N 223573), the chrome plug located in the center of the table must first be removed. Located under the plug is a large hex head table retaining screw (P/N 210142-2). Thru the center of the retaining screw passes a lock screw (P/N 222060) and it, in turn, is secured

in place with a 10-32 Hex Nut.

Before turning the table retaining screw, the 10-32 Hex Nut must be removed or loosened sufficiently to allow the lock screw to be pushed down and out of the table retaining screw.

If lock screw is not loosened, the removal of the table retaining screw will cut oversize threads (as a tap) in its mating part as it is being removed.

Should this occur, it would be impossible to "lock" the retaining screw sufficiently when the table is reassembled.

On reassembly, the table retaining screw is tightened first and then the lock screw is drawn up into its slot by tightening the 10-32 Hex Nut. Replace chrome plug.

5-16. Remove the dust cap over the table retaining stud in the center of the table, using a sharp scribe point Loosen the wedge screw in the center of the stud, then unscrew the hex stud with a 7/8" socket wrench With the tie-rod disconnected, the table can now be lifted off the tilting head.

CAUTION

The head should not be disassembled. If any replacement or adjustment is required in the head, it should be returned to the factory.

5-17. Remove the three screws holding the housing to the base and lift off the base Set the housing on the bench in upright position with the weight resting on the bottom of the motor. Remove the three screws which hold the motor, using a 5/32" Allen wrench. The heads of these motor screws are counter-bored into the top of the housing near the edge of the head bearing plate. Hold the motor in its position in the housing and turn the entire assembly upside down on the bench (use a cloth to protect the table bearing surface). Lift out the motor, being careful not to damage the wiring.

5-18. With the machine this far disassembled, remove the motor drive gear from the shaft and pull the case from the motor to repack the bearings with grease (MIL-L-15719A).

CAUTION

The motor and the case should be marked before the case is pulled so that the motor can be put back into the case in its original position. If the motor is not replaced in the case in its original position, it will not fit properly in the housing assembly.

5-19. While the motor is out of the housing, a coating of grease should be applied to the reversing switch fork and star wheel Also coat the gear teeth of all gears with grease. For both of these applications, use the same grease as for the motor bearings (MIL-L-15719A).

5-20. Reassemble the motor into the housing and place the wiring around the motor so that it will not interfere with the base. Turn housing back right side up on the base and insert the three screws.

5-21. Coat the table bearing surface of the head with a small quantity of grease (MIL-L-15719A), and replace the table Also grease the head of the table retaining stud and screw it down until the play is out of the table. The table must be perfectly free to rotate on the head. Tighten the wedge screw in the center of the stud. Replace the dust cap and connect the tie-rod.

5-22. The tilting head should be lubricated at this time. When the table is in its horizontal position, a part of the tongue of the head block will be exposed; a light grease (MIL-L-15719A) should be spread on this portion of the tongue. The head should then be tilted to 15° and the remaining portion of the tongue greased

SECTION VI
TROUBLESHOOTING

6-1. GENERAL. The major malfunctions of the tester and their causes are shown below.

Trouble	Probable Cause	Remedy
Fails to run	Break in wiring	Repair break
Chatters	Binding of head	Remove dust cap and loosen lock screws and table retaining screw
		Lubricate if required
	Another possible cause: Overloading	Remove instrument load in excess of 25 pounds
Fails to reverse	Switch knob down Reverse mechanism out of adjustment	Pull up Try switch manually. If switch okay, -- disassemble machine and adjust spring finger to star wheel
Continued reversing	Short in wiring	Disassemble and check wiring between reversing switch and motor, repair wires

Figure 6-1. Trouble Shooting Table

SECTION VII
CHECKOUT PROCEDURES

7-1. GENERAL.

7-2. A check of the reliability of the unit, in-so-far as readings and indications, is made in accordance with the procedure detailed below.

7-3. Using a watch with a second hand, check the revolutions per minute, plus or minus one-half revolution. If the revolutions per minute do not fall within these specifications, the unit should be disassembled, and any worn parts should be replaced.

7-4. Operate the unit, using the automatic reversing mechanism. The Head Assembly should complete six revolutions, plus or minus one-half revolution, the Head Assembly should then reverse direction, and repeat the sequence. If these specifications are not met, the unit should be disassembled, and any worn or malfunctioning parts replaced.

7-5. Using an accurate level, check the table level for accuracy after adjusting the level adjusting screws to bring the bubble to the center of the circle. If the table level is faulty, replace.

7-6. Check the tilt of the table with a protractor; the degree of tilt indication of the head tilt scale should coincide with the readings taken from the protractor. If the readings do not coincide, the head assembly is faulty. Return to depot for replacement of parts and adjustment.

SECTION VIII
PARTS/DATA LIST

Fig/ Item Seq. No	MFRS Part/Doc. No.	Nomenclature	Manufacturer FMC	Size	Qty. Per Unit	Total Qty.
8-1-1	223580-1	Gyro Tilting Table	NOTE 1		-	One
2	211235	Wiring Diagram (See Figure 8-2)			-	-
3	210159-1	Base Assembly 8-2)			One	One
4	210100	Base - Note 7			1	1
5	210102-1	Screw, Leveling 7			4	4
6	210104-1	Nut, Foot Bearing			4	4
7	210103-1	Foot			4	4
8	210120	Plate, Resistor Mtg			1	1
9	211278-2	Insulator, Resistor			1	1
10	49F440	Capacitor (See Figure 8-2) 8-2)	General Electric 01002	3 75UF, 330 VAC + 6%	1	1
11	R-SS150	Resistor, WW, w/clamps (See Figure 8-2 8-2)	Superior Elec 58474	250 Ohm, 25W, + 5%	1	1
12	212414	Bracket			1	1
13	AN960-10	Washer, Flat Steel (Cad Pl) No 10			1	2
14	AN520-10-4	Screw, Rnd Hd		10-32 x 1/4	2	2
15	AN515-6-4	Screw, Rnd Hd		6-32 x 1/4	2	4
16	AN515-8-6	Screw, Rnd Hd		8-32 x 3/8	2	2
17	AN340-6	Nut, Hex		6-32	2	2
18	AN345-416	Nut, Hex Jam (Light)		1/4-28	4	4
19	210161-1	Housing Assembly			One	One
20	210101-1	Housing, OSC, Table Frame - Note 7			1	1
21	210146	Bushing, Rev, Control 7			1	1
22	210138	Wheel, Rev, Drive, Star			1	1
23	219887-47	Spring, Comp			1	1
24	MS 19059-42	Ball, Steel		3/32 Dia	1	1

PARTS/DATA LIST (Continued)

Fig/ Item Seq. No.	MFRS Part/Doc No	Nomenclature	Manufacturer FMC	Size	Qty. Per Unit	Total Qty.
8-1-25	210141	Arm, Rev, Control			1	1
26	219924-4	Knob, Rev, Control			1	1
27	210160	Bracket, Rev, Switch			1	1
28	210162-1	Power Circuit Assembly			One	One
29	210163	Switch, DPDT			1	1
30	8381-K8	Switch, SPST - Lug Type Cutler Hammer	27191		1	1
31		Tubing, NATVAR No 4		3/4 Long	1	1
32		Wire, Red, MIL-W-76, No 18 Strand		13" Long	1	1
33		Wire, White, MIL-W-76, No 18 Strand		13" Long	1	1
34		Wire, Orange, MIL-W-76, No 18 Strand		7 1/2" Long	1	1
35		Wire, Green, MIL-W-76, No 18 Strand		14" Long	1	1
36	210155	Washer, Shim			AR	AR
37	210156-1	Gear, Head Drive Assembly			One	One
38	210124	Shaft, Head Bearing			1	1
39	210129	Gear, Head Drive			1	1
40	210158-1	Spring Assembly, Rev Drive			One	One
41	210136	Rivet, Button			1	1
42	210134	Button, Rev Spring			1	1
43	210157	Spring, Rev Drive			1	1
44	AN510-10-8	Screw, Flat Hd		10-32 x 1/2	3	3
45	AN515-6-4	Screw, Rnd Hd		6 32 x 1/4	2	REF
46	210150	Shaft, Comp Gear			1	1
47	210151	Washer, Shim			AR	AR

PARTS/DATA LIST (Continued)

Fig/ Item Seq. No.	MFRS Part/Doc No.	Nomenclature	Manufacturer FMC	Size	Qty. Per Unit	Total Qty.
8-1-48	210119-1	Gear Assembly, Compound			One	One
49	210117	Gear, 12T, 24P			1	1
50	S2448	Gear, 48T, 24P	Boston 71041		1	1
51	202	Oiler	Gits 24981	10-32 Thd	2	2
52	1329	Plate, Tog, SW, On-Off	Gen'l Cement 72653		1	1
53	1712	Plug, Hole	Gen'l Cement 72653		1	1
54	AN960-516	Washer, Flat		5/16 x 9/16 x 062	1	1
55	AN960-10	Washer, Flat No 10			1	REF
56	214921	Washer			1	1
57		Nut, Light Jam		5/16-24	1	1
58		Nut, Elastic Stop		10-32	1	1
59	AN565A6H2	Setscrew, Hex, Soc		6-32 x 1/8	1	1
60	AN520-10-5	Setscrew, Rnd Hd		10-32 x 5/16	2	2
61	NAS608-3-20P	Screw, Hex Sch Cap		10-32 x 1-1/4	1	1
62	216519	Plate, Head Bearing			1	1
63	210035	Spacer			1	1
64	223575-2	Head Assembly - NOTE **5**			One	One
65	210112-2*	Head Sub-Assembly			One	One
66	210110*	Plate, Stop Post Side			1	1
67	223572*	Block, Center			1	1
68	210109*	Plate, Tilt Scale Side			1	1
69	NAS608-4-6P*	Screw, Hex Sch Cap		1/4-28 x 3/8	1	2
70	210135*	Plate, Top			1	1
71	210121*	Screw, Modified Rnd Hd		1/4-28 x 3/8	4	4
72	210114	Post, Stop			1	1

PARTS/DATA LIST (Continued)

Fig/ Item Seq. No.	MFRS Part/Doc No.	Nomenclature	Manufacturer FMC	Size	Qty. Per Unit	Total Qty.
8-1-73	NAS608-4-16P	Screw, Hex Sch Cap		1/4-28 x 1	1	1
74	213043	Screw, Head Tilt Lock			1	1
75		Pad, Leather Round Belting		7/32 dia x 5/16 long	1	1
76	1641B	Fitting, Grease	Alemite 95879		1	1
77		Groove Pin Type 2		1/8 x 1/2	4	4
78	NAS608-4-6P	Screw, Hex Sch Cap		1/4-28 x 3/8	1	1
79	NAS608-5-12P	Screw, Hex Sch Cap		5/16-24 x 3/4	1	1
80	223573	Table			1	1
81	NAS608-3-8P	Screw, Hex Sch Cap		10-32 x 1/2	4	4
82	217852	Plate, Mounting			1	1
83	210149	Washer, Table Centering			1	1
84	211614	Disk, Friction			1	1
85	222060	Screw, Lock		10-32	1	1
86	AN345-10	Nut, Hex		10-32	1	1
87	210142-2	Screw, Table Retaining			1	1
88	1715G	Plug, Chrome	Gen'l Cement 72653		1	1
89	220380-27	Spacer, Hex			1	1
90		Stud, Full Thread		10-32 x 3/8	1	1
91	210143	Rod, Tie			1	1
92	316	Joint, Ball	Tourek Mfg Co 78643		2	2
93	No 2-10026	Level, Circular	Geier & Bluhm 82084		1	1
94	210152	Gear, 18T, 24P			1	1

PARTS/DATA LIST (Continued)

Fig/ Item Seq. No	MFRS Part/Doc. No.	Nomenclature	Manufacturer FMC	Size	Qty Per Unit	Total Qty.
8-1-95	210090-3	Motor, Synchronous (See Figure 8-2)	Superior Elec P/N SS150 Modified	72 RPM at 60 Cy	1	1
96	210122	Washer, Shim			AR	AR
97	221885-3-18-8G	Line Cord, 3 Conductor, AWG, No 18			1	1
98	AN345-10	Nut, Hex		10-32	2	2
99	AN565A1032H3	Setscrew, Hex Soc		10-32 x 3/16	1	1
100	AN500-2-3	Screw, Fil Hd		2-56 x 3/8	3	3
101	NAS608-3-6P	Screw, Hex Sch Cap		10-32 x 3/8	4	7
102	AN936A10	Washer, Internal Tooth Lock, No 10			4	4
103	NAS608-3-24P	Screw, Hex Sch Cap		10-32 x 1-1/2	3	3
104	NAS609-4-10P	Screw, Hex Sch Cap		1/4-20 x 5/8	3	3
105	210083-1	Adapter Assembly, Inst Mtg (Std)			One	One
106	210561	Adapter			1	1
107	210118	Panel			1	1
108	210133	Screw, Inst Mtg			3	3
109		Allenut	Allen Mfg Co 70276	10-32	3	3
110	NAS608-3-6P	Screw, Hex Sch Cap		10-32 x 3/8	3	REF
111	AN520-10-6	Screw, Rnd Hd		10-32 x 3/8	2	2
112	223574	Plate, Identification			1	1
113		Screw, Pan Hd Self Tapping		2-56 x 3/16	4	4

NOTES

1. Item numbers shown in left hand column correspond with item or "find" numbers on Figure 8-1
2. Military, NATO, and/or National Stock Numbers supplied to date are shown, as applicable, directly under part numbers
3. Where an item has an Ideal Aerosmith Part/Drawing Number, and no Federal Manufacturer's Code is shown, F M Code 30120 is applicable
4. For items having an "AN", "MS", or "NAS" type part number, and/or items of "commercial" hardware that may be used in lieu of such parts, no F M code number or stock number is shown
5. Due to special tooling, and subassembly/machine, assembly/machining/engraving techniques being required to produce head assembly, Item No 64, Items marked * will not be sold separately as spares
6. Unless otherwise specified, all screws, studs, nuts, and washers are steel, cadmium plated
7. For this type table, exterior finish on base, Item No 4 and housing, Item No 20, is to be light gray gloss enamel, Color No 16473 per FED-STD-595

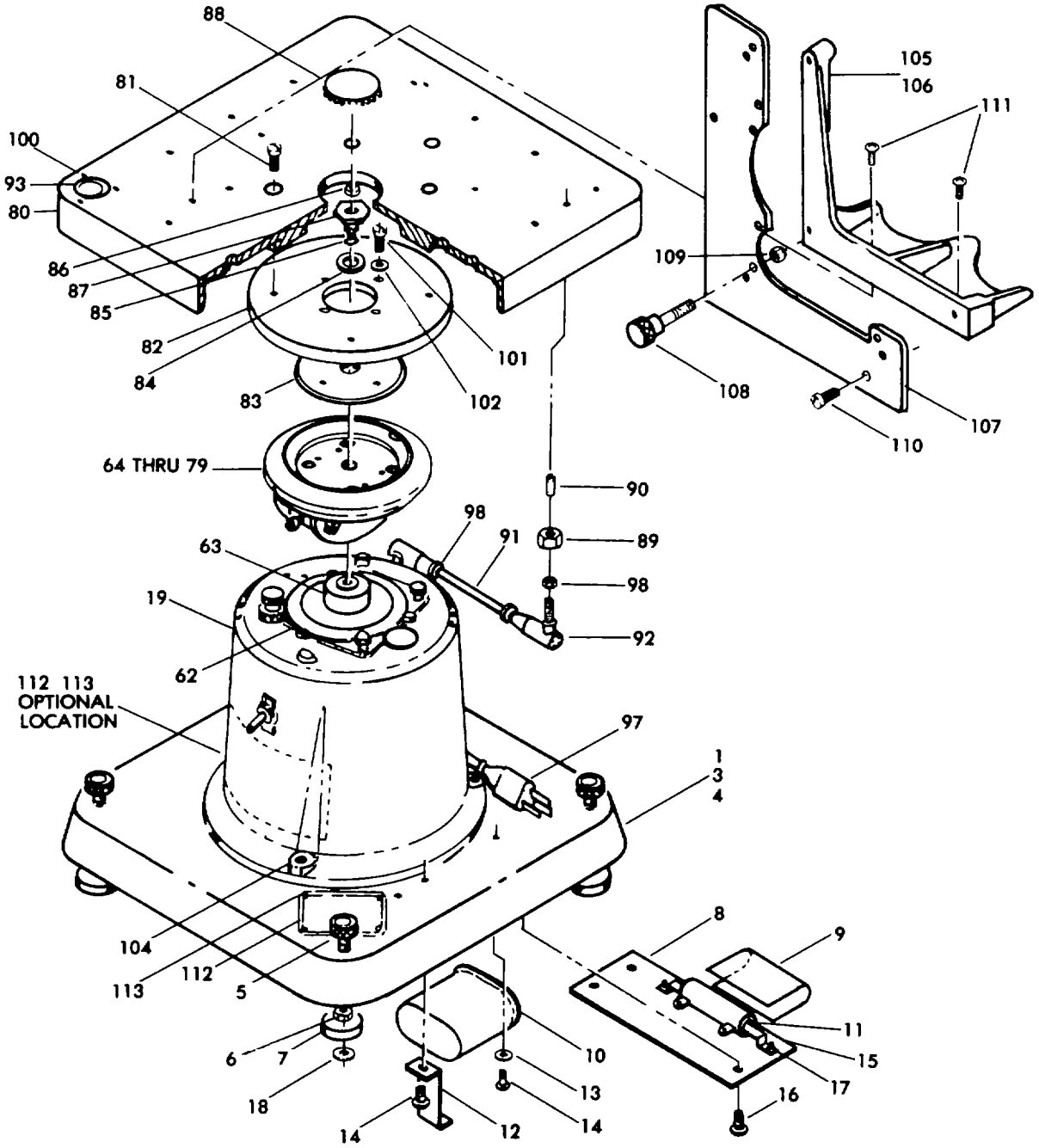


Figure 8.1. Gyro Tilting Table, Exploded View (Sheet 1 of 2).

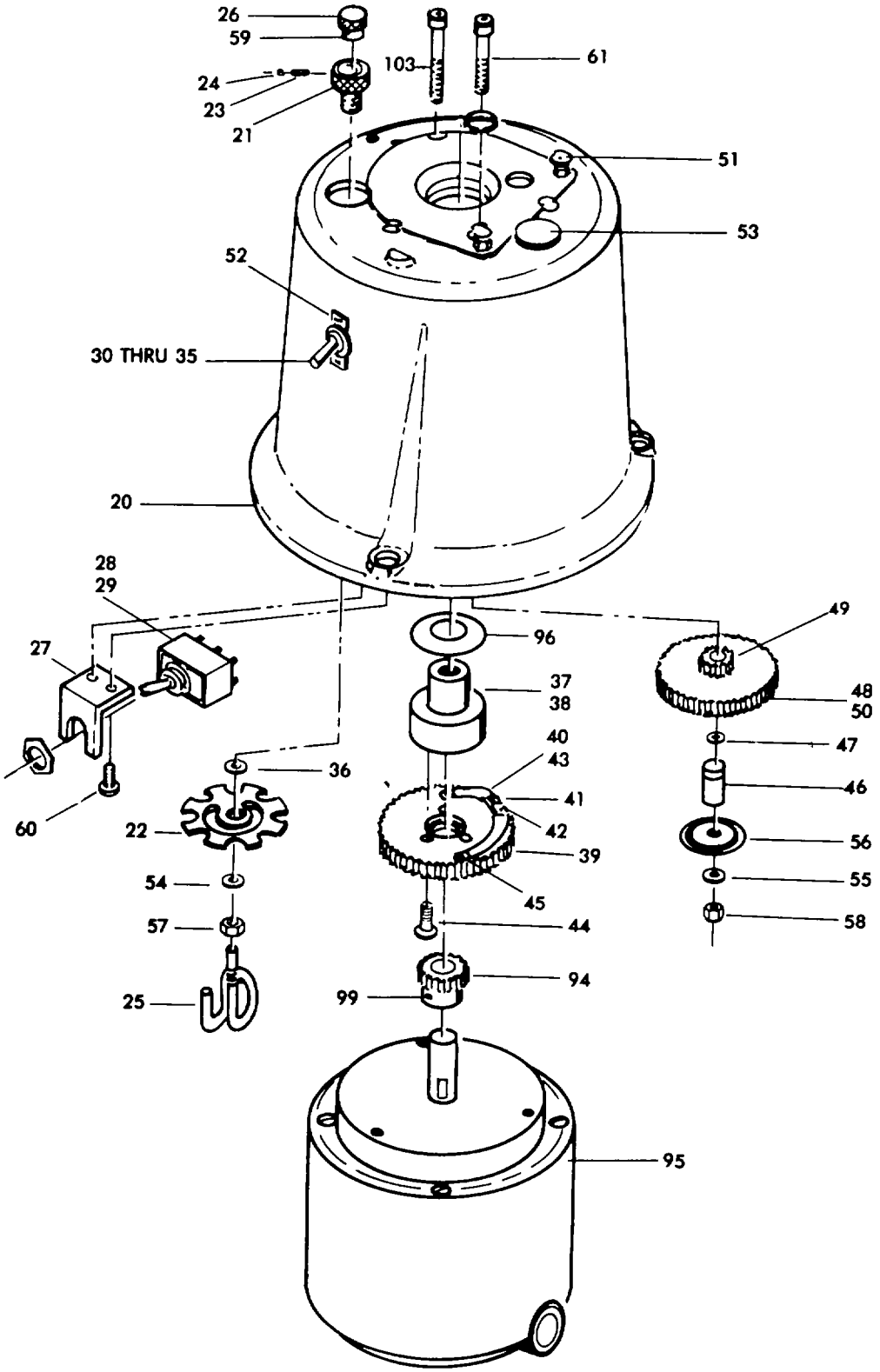


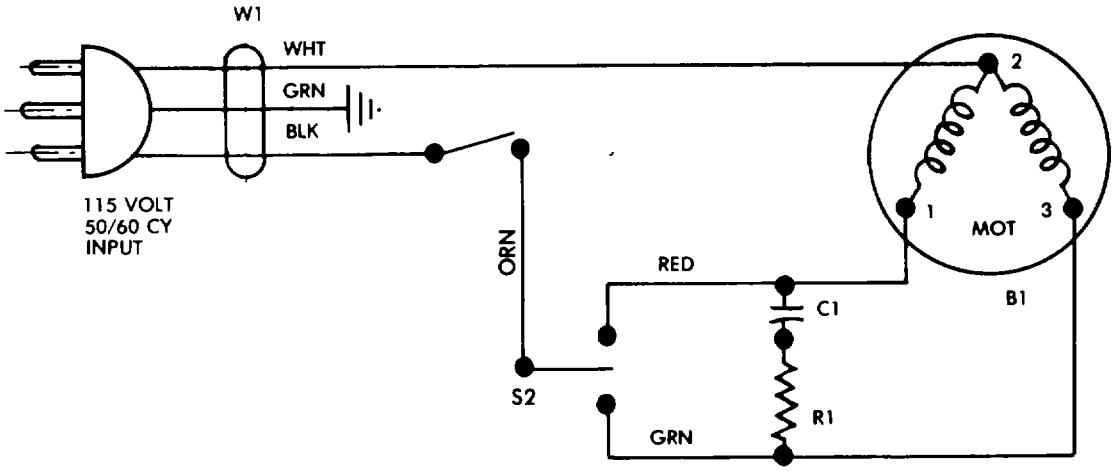
Figure 8-1. Gyro Tilting Table, Exploded View (Sheet 2 of 2).

WIRING DIAGRAM/REFERENCE DESIGNATION INDEX

S1	SWITCH, SPST	CUTLER HAMMER #8381-K8
S2	SWITCH, DPDT	IDEAL-AEROSMITH #210163
W1	LINE CORD 3 COND AWG #18	BELDEN #17408

RESISTOR & CAPACITOR VALUES SHOWN BELOW MUST BE USED WITH MOTOR SHOWN

MOTOR - B1	CAPACITOR - C1	RESISTOR -R1
G E. #5SMY54HB1 (60 CY)	3 75 UF 330 VAC	300 OHM, 50W, WW
G E #5SMY54HB3 (50 CY)	5 00 UF 330 VAC	300 OHM, 50W, WW
G E #5SMY50HB13 (60 CY)	4.00 UF 330 VAC	175 OHM, 50W, WW
SLO-SYN #SS-150 (50/60 CY)	3 75 UF 330 VAC, +6%	250 OHM, 25W, WW, +5%



NOTES

1. SWITCHES S1 AND S2 MAY BE PURCHASED IN A WIRED HARENESS #210162
2. SHOULD A MOTOR REQUIRE REPLACEMENT, ASCERTAIN THAT CAPACITOR AND RESISTOR VALUES ARE CORRECT FOR NEW MOTOR IF NOT, REPLACE WITH CORRECT VALUES.

Figure 8-2. Electrical Components of Gyro Tilting Table

APPENDIX A

REFERENCES

A-1. Dictionaries of Terms and Abbreviations

AR 310-25	Dictionary of United States Army Terms
AR 310-50	Authorized Abbreviations and Brevity Codes

A-2. Publication Index

DA PAM 310-4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (types 7, 8, and 9), Supply Bulletins, and Lubrication Orders

A-3. Logistics and Storage

TM 740-90-1	Administrative Storage of Equipment
TM 743-200-1	Storage and Materials Handling

A-4. Maintenance of Supplies and Equipment

AR 750-1	Army Material Maintenance Concepts and Policies
TM 38-750	The Army Maintenance Management System (TAMMS)
TM 9-213	Painting Instructions for Field Use

A-5. Other Publications

TM 750-244-1-4	Procedures for the Destruction of Aviation Ground Support Equipment (FSC 4920) to Prevent Enemy Use
AR 420-90	Fire Prevention and Protection

APPENDIX B
MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

B-1. Maintenance Allocation Chart.

a. This Maintenance Allocation Chart (MAC) assigns maintenance functions in accordance with the Three Levels of Maintenance concept for army aircraft These maintenance levels: Aviation Unit Maintenance (AVUM), Aviation Intermediate Maintenance (AVIM) and Depot Maintenance are depicted on the MAC as:

AVUM which corresponds to the 0 code in the Repair Parts and Special Tools List (RPSTL).

AVIM which corresponds to the F code in the Repair Parts and Special Tools List (RPSTL).

DEPOT which corresponds to the D code in the Repair Parts and Special Tools List (RPSTL)

b. The maintenance to be performed below depot and in the field is described as follows

(1) Aviation Unit Maintenance (AVUM). AVUM activities will be staffed and equipped to perform high frequency "On-Equipment" maintenance tasks required to retain or return equipment to a serviceable condition. The maintenance capability of the AVUM will be governed by the MAC and limited by the amount and complexity of support equipment, facilities required, and number of spaces and critical skills available The range and quantity of authorized spare modules/components will be consistent with the mobility requirements dictated by the air mobility concept (Assignment of maintenance tasks to divisional company size aviation units will consider the overall maintenance capability of the division, the requirement to conserve personnel and equipment resources and air mobility requirements).

(a) Company Size Aviation Units. Perform those tasks which consist primarily of preventive maintenance and maintenance repair and replacement functions associated with sustaining a high level of equipment operational readiness Perform maintenance inspections and servicing to include daily, intermediate, periodic and special inspections as authorized by the MAC or higher headquarters Identify the cause of equipment/system malfunctions using applicable technical manual troubleshooting instructions, Built-In-Test Equipment (BITE), installed instruments, or easy to use Test Measurement and Diagnostic Equipment (TMDE). Replace worn or damaged modules/ components which do not require complex adjustments or system alignment and which can be removed/installed with available skills, tools and equipment Perform operational and continuity checks and make minor repairs. Perform servicing, functional adjustments, and minor repair/replacement Evacuate unserviceable modules/components and end items beyond the repair capability of AVUM to the supporting AVIM.

(b) Less than Company Size Aviation Units. Aviation elements organic to brigade, group, battalion headquarters and detachment size units are normally small and have less than ten aircraft assigned Maintenance tasks performed by the aircraft crew chief or assigned aircraft repairman will normally be limited to preventive maintenance, inspections, servicing, spot painting, stop drilling, minor adjustments, module/component fault diagnosis and replacement of selected modules/components Repair functions will normally be accomplished by the supporting AVIM unit.

(2) Aviation Intermediate Maintenance (AVIM). AVIM provides mobile, responsive "One Stop" maintenance support (Maintenance functions which are not conducive to sustaining air mobility will be assigned to depot maintenance). Performs all maintenance functions authorized to be done at AVUM Repair of equipment for return to user will emphasize support or operational readiness requirements Authorized maintenance includes replacement and repair of modules/components and end items which can be accomplished efficiently with available skills, tools, and equipment. Establishes the Direct Exchange (DX) program for AVUM units be repairing selected items for return to stock when such repairs cannot be accomplished at the AVUM level Inspects, troubleshoots, tests, diagnoses, repairs, adjusts, calibrates, and aligns system modules/components.

Module/component disassembly and repair will support the DX program and will normally be limited to tasks requiring cleaning and the replacement of seals, fittings and items of common hardware.

Unserviceable reparable modules/components and end items which are beyond the capability of AVIM to repair will be evacuated to Depot Maintenance This level will perform special inspections which exceed AVUM capability. Provides quick response maintenance support, on-the-job training, and technical assistance through the use of mobile maintenance contact teams Maintains authorized operational readiness float. Provides collections and classification services for serviceable/unserviceable material. Operates a cannibalization activity in accordance with AR 750-50 (The aircraft maintenance company within the maintenance battalion of a division will perform AVIM functions consistent with air mobility requirements and conservation of personnel and equipment resources. Additional intermediate maintenance support will be provided by the supporting non-divisional AVIM unit).

B-2. Use of the Maintenance Allocation Chart.

a. The MAC assigns maintenance functions to the lowest level of maintenance based on past experience and the following consideration:

(1) Skills available

(2) Time required.

(3) Tools and test equipment required and/or available.

b. Only the lowest level of maintenance authorized to perform a maintenance function is indicated.

If the lowest level of maintenance cannot perform all tasks of any single maintenance function (e.g., test, repair), then the higher maintenance level(s) that can accomplish additional tasks will also be indicated.

c. A maintenance function assigned to a maintenance level will automatically be authorized to be performed at any higher maintenance level.

d. A maintenance function that cannot be performed at the assigned level of maintenance for any reason may be evacuated to the next higher maintenance organization. Higher maintenance levels will perform the maintenance functions of lower maintenance levels when required or directed by the appropriate commander.

e. The assignment of a maintenance function will not be construed as authorization to carry the associated repair parts in stock Authority to requisition, stock, or otherwise secure necessary repair parts will be as specified in the repair parts and special tools list appendix.

f. Normally there will be no deviation from the assigned level of maintenance. In cases of operational necessity, maintenance functions assigned to a maintenance level may, on a one-time basis and at the request of the lower maintenance level, be specifically authorized by the maintenance officer J of the level of maintenance to which the function is assigned. The special tools, equipment, etc. required by the lower level of maintenance to perform this function will be furnished by the maintenance level to which the function is assigned. This transfer of a maintenance function to a lower maintenance level does not relieve the higher maintenance level of the responsibility of the function. The higher level of maintenance will provide technical supervision and inspection of the function being performed at the lower level.

g. Organizational through depot maintenance of the US Army Electronics Command equipment will be performed by designated US Army Electronics Command personnel.

h. Changes to the MAC will be based on continuing evaluation and analysis by responsible technical personnel and on reports received from field activities.

B-3. Definitions.

a. Inspect. To determine serviceability of an item by comparing its physical, mechanical and electrical characteristics with established standards.

b. Test. To verify serviceability and detect incipient failure by measuring the mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. Service. To clean, to preserve, to charge, and to add fuel, lubricants, cooling agents and air.

d. Adjust. To rectify to the extent necessary to bring into proper operating range.

e. Aline. To adjust specified variable elements of an item to bring to optimum performance

f. Calibrate. To determine the corrections to be made in the readings of instruments or test equipment used in precise measurement. Consists of the comparison of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument or test equipment being compared with the certified standard.

g. Install. To set up for use in an operational environment such as an emplacement, site or vehicle

h. Replace. To replace unserviceable items with serviceable assemblies, subassemblies or parts.

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

j. Overhaul. To restore an item to a completely serviceable condition as prescribed by maintenance serviceability standards prepared and published for the specific item to be overhauled.

k. Rebuild. To restore an item to a standard as nearly as possible to the 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 worn or unserviceable elements (items) using original manufacturing tolerances and specifications, and subsequent reassembly of the item.

B-4. Functional Groups.

Standard functional groupings are not considered feasible for aviation ground support equipment due to variation and complexity. Therefore, variations to functional groupings may occur.

B-5. Maintenance Categories and Work Times.

The maintenance categories (levels) AVUM, AVIM, and DEPOT are listed on the Maintenance Allocation Chart with individual columns that indicate the work times for maintenance functions at each maintenance level. Work time presentations such as 0 1 indicate the average time it requires a maintenance level to perform a specified maintenance function. If a work time has not been established, the columnar presentation shall indicate "-" Maintenance levels higher than the level of maintenance indicated are authorized to perform the indicated function.

B-6. Tools and Test Equipment (Section III).

Common tool sets (not individual tools), special tools, test and support equipment required to perform maintenance functions are listed alphabetically with a reference number to permit cross-referencing to column 5 in the MAC. In addition, the maintenance category authorized to use the device is listed along with the item National Stock Number (NSN) and, if applicable, the tool number to aid in identifying the tool/device.

Section II. MAINTENANCE ALLOCATION CHART
FOR
MODEL 1406RA-CT-1
Gyro Table, Instrument Testing
P/N 223580-1, NSN 4920-01-022-7323

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY			(5) TOOLS AND EQUIPMENT	(6) REMARKS
			AVUM	AVIM	DEPOT		
00	Gyro Table						
01	Base Assembly	Inspect	0 2		0 2		
		Service	0 2		0 4		
		Repair			0 5	1	
02	Housing Assembly	Inspect			0 2		
		Service	0 2		0 4		
		Repair			0 5	1	
03	Power Circuit Assembly	Inspect			0.2		
		Service			0.4		
		Repair			0 5	1	
04	Gear Assemblies	Inspect			0 2		
		Service			0 4		
		Replace			1 0	1	
		Repair			0.5	1	
05	Motor	Inspect	0 2				
		Service		0 6			
		Replace					
		Repair					

MODEL 1406RA-CT-1
GYRO TABLE, INSTRUMENT TESTING
P/N 223580-1, NSN 4920-01-022-7323

Tool and Test Equipment Requirements

TOOL OR TEST EQUIPMENT REFERENCE CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO *STOCK NUMBER*	TOOL *NO.*
1	D	Tool Kit, Instrument Repairman's	5180-00-323-4913	

APPENDIX C
REPAIR PARTS AND SPECIAL TOOLS LIST
(INCLUDING DEPOT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS)
(CURRENT AS OF 26 APRIL 1979)

Section I. INTRODUCTION

C-1. Scope.

This appendix lists spares and repair parts required for performance of Aviation Intermediate Maintenance (AVIM) and depot maintenance of the Table, Tilting, Gyro Testing, P/N 223580-1. It authorizes the requisitioning and Issue of spares and repair parts as indicated by the source and maintenance codes.

C-2. General.

This Repair Parts and Special Tools List is divided into the following sections.

a. Section II, Repair Parts List. A list of spares and repair parts authorized for use in the performance of maintenance. Parts are listed in figure and Item number sequence. Items are indented when required to indicate the relationship to the next higher assembly. The illustrations in this section will appear immediately preceding each figure of text.

b. Section III, Special Tools List. Not applicable.

c. Section IV, National Stock Number and Part Number Index. A list, in ascending National Item Identification Number (NIIN) sequence of all National stock numbers appearing in the listings, followed by a list, in alphameric sequence, of all part numbers appearing in the listings. National stock number and part numbers are cross-referenced to each illustration figure and item number appearance.

C-3. Explanation of Columns.

a. Illustration. This column is divided as follows:

(1) Figure Number. Indicates the figure number of the illustration in which the item is shown.

(2) Item Number. The number used to identify each item called out in the illustration.

b. Source, Maintenance, and Recoverability Codes (SMR).

(1) Source Code. Source codes are assigned to support items to indicate the manner of acquiring support items for maintenance, repair, or overhaul of end items. Source codes are entered in the first and second positions of the Uniform SMR Code format as follows:

Code		Definition
PA	---	Item procured and stocked for anticipated or known usage.
PB	---	Item procured and stocked for insurance purpose because essentially indicates that a minimum quantity be available in the supply systems
PC	---	Item procured and stocked and which otherwise would be coded PA except that it is deteriorative in nature.
XD	---	A support item that is not stocked. When required, item will be procured through normal supply channels.

NOTE

Cannibalization or salvage may be used as a source of supply for any items source coded above except those coded XD and aircraft support items as restricted by AR 700-42.

(2) Maintenance Code. Maintenance codes are assigned to indicate the levels of maintenance authorized to USE and REPAIR support items The maintenance codes are entered in the third and fourth positions of the Uniform SMR Code format as follows:

(a) The maintenance code entered in the third position will indicate the lowest maintenance level authorized to remove, replace, and use the support item. The maintenance code entered in the third position will indicate one of the following levels of maintenance:

Code		*Application/Explanation*
F	---	Support item is removed, replaced, used at the Aviation Intermediate Maintenance (AVIM) level.
D	---	Support items that are removed, replaced, used at depot, mobile depot, specialized repair activity only.

(b) The maintenance code entered m the fourth position indicates whether the item is to be repaired and identifies the lowest maintenance level with the capability to perform complete repair (i.e., all authorized maintenance functions) This position will contain one of the following maintenance codes:

Code		*Application/Explanation*
F	---	The lowest maintenance level capable of complete repair of the support item is the Aviation Intermediate Maintenance (AVIM) level.
D	---	The lowest maintenance level capable of complete repair of the support. item is the depot level, performed by depot, mobile depot or specialized repair activity.
Z	---	Nonreparable. No repair is authorized.

(3) Recoverability Code. Recoverability codes are assigned to support items to indicate the disposition action on unserviceable items. The recoverability code is entered in the fifth position of the Uniform SMR Code format as follows:

Code		*Application/Explanation*
Z	---	Nonreparable item When unserviceable, condemn and dispose at the level indicated in position 3.
D	---	Reparable item When beyond lower level repair capability, return to depot. Condemnation and disposal not authorized below depot level.

c. National Stock Number. Indicates the National stock number assigned to the item and will be used for requisitioning purposes.

d. Part Number. Indicates the primary number. used by the manufacturer (individual, company, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements, to identify an item or range of items.

NOTE

When a stock numbered item is requisitioned, the repair part received may have a different part number than the part being replaced.

e. Federal Supply Code for Manufacturer (FSCM). The FSCM is a 5-digit numeric code listed in SB 708-42 which is used to identify the manufacturer, distributor, or Government agency, etc.

f. Description. Indicates the Federal item name and any additional description required to identify the item.

g. Unit of Measure (U/M). Indicates the standard of the basic quantity of the listed item as used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr, etc.). When the unit of measure differs from the unit of issue, the lowest unit of issue that will satisfy the required units of measure will be requisitioned h. Quantity Incorporated in Unit. Indicates the quantity of the item used in the breakout shown on the illustration figure A "V" appearing in this column in lieu of a quantity indicates that no specific quantity is applicable, (e g., shims, spacers, etc.). When parts are shown as attaching two or more items, the quantity of these parts are those necessary to attach only one of the items.

C-4. Special Information. Not applicable.

C-5. How to Locate Repair Parts.

a. When National Stock Number or Part Number is Unknown:

(1) First. Find the Illustration covering the assembly group to which the repair part belongs.

(2) Second. Identify the repair part on the illustration and note the illustration figure and item number of the repair part.

(3) Third. Using the Repair Parts Listing, find the figure and item number noted on the illustration b. When National Stock Number or Part Number is Known: (1) First. Using the index of National Stock

Numbers and Part Numbers, find the pertinent National Stock Number or part number. This index is in ascending National Item Identification Number (NIIN) sequence followed by a list of part numbers in ascending alphameric sequence, cross-referenced to the illustration figure number and item number.

(2) Second. After finding the figure and item number, locate the figure and item number in the repair parts list

C-6. Abbreviations. Not applicable.

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GROUP 01. BASE ASSEMBLY		
8-1	3	XDDDD		210159-1	30120	BASE ASSEMBLY, TEST T ABLE	EA	1
8-1	4	XDDZZ		210100	30120	.BASE, TEST TABLE.	EA	1
8-1	5	XDDZZ		210102-1	30120	.SCREW, , LEVELING, BASE-	EA	4
8-1	6	XDDZZ		210104 1	30120	.NUT, FOOT REARING	EA	4
8-1	7	XDDZZ		210103-1	30120	.FLOOR, TABLE BASE	EA	4
8-1	8	XDDZZ		210140	30120 .	.MOUNTING	EA	1
8-1	9	XDDZZ		211278-2	30120 .	.INSULATOR, RESISTOR	EA	1
8-1	10	XDDZZ		49F440	30120.	.CAPACITOR	EA	1
8-1	11	XDDZZ		RSS150	58474	.RESISTOR, WIRE WOUND	EA	1
8-1	12	XDDZZ		212414	30120	.BRACKET.	EA	1
8-1	13	PBDZZ	5310-00-167-0818	AN60-10	88044	.WASHER, FLAT	EA	1
8-1	14	PBDZZ	5305-00-993-1849	MS35207-259	96906	.SCREW, ROUND HEAD.	EA	2
8-1	15	PBDZZ	5305-00-984-4983	MS35206-226	96906	.SCREW, ROUND HEAD	EA	2
8-1	16	PBDZZ	5305-00-984-6191	MS35206-243	96906	.SCREW, ROUND HEAD	EA	2
8-1	17	PBDZZ	5310-00-934-9747	MS35649-262	96906	.NUT, HEXAGON	EA	2
8-1	18	PBDZZ	5310-00-043-0520	MS35650-3252	96906	.NUT, HEXAGON	EA	4
						GROUP 02, HOUSING ASSEMBLY		
8-1	19	XDDDD		21016-1	30120	HOUSING ASSEMBLY	EA	1
8-1	20	XDDDD		210101-1	30120	.HOUSING	EA	1
8-1	21	XDDZZ		210146	30120	.HOUSING	EA	1
8-1	22	XDDZZ		210138	30120	.WHEEL, DRIVE	EA	1
8-1	23	XDDZZ		2199887-A4	30120	.SPRING	EA	1
8-1	24	PBDZZ	3110-00-100-6112	MS519059-42	96906	.BALL, STEEL	EA	1
8-1	25	XDDZZ		210141	30120	.ARM, CONTROL	EA	1
8-1	26	XDDZZ		219924-4	30120	.KNOB, CONTROL	EA	1
8-1	27	XDDZZ		210160	301201	.BRACKET, SWITCH	EA	1
8-1	36	XDDZZ		210155	30120	.SHIM	EA	V
8-1	51	XDDZZ		202	24981	.OILER	EA	2
8-1	52	XDDZZ		1329	72653 .	.PLATE, SWITCH	EA	1
8-1	53	XDDZZ		1712	72653	.PLUG	EA	1
8-1	54	PBDZZ	5310-00-167-0820	AN960-516	88044	.WASHER, FLAT.	EA	1
8-1	55	PBDZZ	5310-00-167-0818	AN960-10	88044	.WASHER, FLAT.	EA	1
8-1	56	XDDZZ		214921	30120	WASHER	EA	1
8-1	59	XDDZZ		AN565A6H2	88044	.SETSCREW	EA	1
8-1	60	PBDZZ	5305-00-989-7435	MS35207-264	96906:	.SCREW, MACHINE	EA	2
8-1	61	XDDZZ		NAS608-3-20P	80205	SCREW	EA	1
8-1	62	XDDZZ		216519	30120	PLATE, HEAD BEARING	EA	1
8-1	63	XDDZZ		210035	30120	SPACER	EA	1

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
8-1	64	XDDDD		223575-2	30120	HEAD ASSEMBLY	EA	1
8-1	72	XDDZZ		210114	30120	.POST, STOP	EA	1
8-1	73	XDDZZ		NAS608-4-16P	80205	.SCREW	EA	1
8-1	74	XDDZZ		2130A3	30120	.SCREW	EA	1
8-1	76	XDDZZ		1641B	95879	.FITTING	EA	1
8-1	78	XDDZZ		NAS608-4-6P	80205	.SCREW	EA	1
8-1	79	XDDZZ		NAS606-5-12P	80205	.SCREW	EA	1
8-1	80	XDDZZ		223573	30120	TABLE	EA	1
8-1	81	XDDZZ		NAS608-3-8P	80205	SCREW	EA	1
8-1	82	XDDZZ		217852	30120	PLATE, MOUNTING	EA	1
8-1	83	XDDZZ		210149	30120	WASHER, TABLE CENTERING	EA	1
8-1	84	XDDZZ		211614	30120	DISK, FRICTION	EA	1
8-1	85	XDDZZ		222060	30120	SCREW, LOCK	EA	1
8-1	86	PBDZZ	5310-00-934-9751	M535650-302	96906	NUT, HEXAGON	EA	1
8-1	87	XDDZZ		210142-2	30120	SCREW, TABLE RETAINING	EA	1
8-1	88	XDDZZ		1715G	72653	PLUG	EA	1
8-1	89	XD0ZZ		220380-27	30120	SPACER	EA	1
8-1	91	XDDZZ		210143	30120	ROD, TIE	EA	1
8-1	92	XDDZZ		316	78643	JOINT, BALL.	EA	2
8-1	93	XDDZZ		2-10026	82084	LEVEL, CIRCULAR	EA	1
8-1	96	XDDZZ		210122	30120	SHIM	EA	V
8-1	98	PBDZZ	5310-00-934-9751	MS35650-302	96906	HUT, HEXAGON	EA	2
8-1	100	XDDZZ		AN500-2-3	88044	SCREW	EA	3
8-1	101	XDDZZ		NAS608-3-6P	80205	SCREW	EA	4
8-1	102	XDDZZ		A936A10	88044	WASHER, LOCK	EA	4
8-1	103	XDDZZ		AS608-3-24P	80205	SCREW	EA	3
8-1	104	XDDZZ		NAS609-4-10P	80205	SCREW	EA.	3
8-1	105	XDFZZ		210083-1	30120	ADAPTER ASSEMBLY	EA	1
8-1	106	XDFZZ		210561	30120	.ADAPTER	EA	1
8-1	107	XDFZZ		210118	30120	.PANEL	EA	1
8-1	108	XDFZZ		210133	30120	.SCREW, INSTRUMENT MOUNTING	EA	1
8-1	110	XDFZZ		NAS608-3-6P	80205	.SCREW	EA	3
8-1	111	PBFZZ	5305-00-990-6444	MS535207-261	96906	.SCREW	EA	2
8-1	112	XDDZZ		223574	30120	PLATE, IDENTIFICATION	EA	1
						GROUP 03 POWER CIRCUIT ASSEMBLY		
8-1	28	XDDDD		210162-1	30120	POWER CIRCUIT ASSEMBLY	EA	1
8-1	29	XDDZZ		210163	30120	.SWITCH-DPDT. REVERSING	EA	1
8-1	30	XDDZZ		8381KB	27191 .	.SWITCH-SPST, ON-OFF	EA	1
8-1	97	XDDZZ		21885-3-18-8G	130120	LINE CORD	EA	1

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GROUP 04. GEAR ASSEMBLIES		
8-1	37	XDDDD		210156-1	30120	GEAR ASSEMBLY, HEAD DRIVE.	EA.	1
8-1	38	XDDZZ		210124	30120 .	SHAFT, HEAD BEARING	EA	1
8-1	39	XDDZZ		210129	30120	GEAR, DRIVE	EA	1
8-1	40	XDDZZ		210158-1	30120 .	SPRING ASSEMBLY	EA	1
8-1	44	PBDZZ	5305-00-984-7363	MS35191-272	96906 .	SCREW, FLAT HEAD	EA	3
8-1	45	PBDZZ	5305-00-984-4983	MS35206-226	96906 .	SCREW, ROUND HEAD	EA	2
8-1	46	XDDZZ		210150	30120	SHAFT, GEAR	EA	1
8-1	47	XDDZZ		210151	30120	SHIM	EA	V
8-1	48	XDDDD		210119-1	30120	GEAR ASSEMBLY, COMPOUND	EA	1
8-1	49	XDDZZ		210117	30120 .	GEAR, SPUR	EA	1
8-1	50	XDDZZ		S2448	71041	GEAR	EA	1
8-1	94	XDDZZ		210152	30120	GEAR	EA	1
8-1	99	PBDZZ	5305-00-728-6308	AN565A1032H3	88044	SETSCREW	EA	1
						GROUP 05 MOTOR		
8-1	95	XDDZZ		210090-3	30120	MOTOR, SYNCHRONOUS	EA	1

SECTION IV
NATIONAL STOCK NUMBER AND PART NUMBER INDEX

NATIONAL STOCK NUMBER AND PART NUMBER INDEX

STOCK NUMBER	FIGURE NO.	ITEM NO.	STOCK NUMBER	FIGURE NO.	ITEM NO.
5310-00-043-0520	8-1	18	5310-00-934-9751	8-1	98
3110-00-100-6161	8-1	24	5305-00-984-4983	8-1	15
5310-00-167-0818	8-1	13	5305-00-984-4983	8-1	45
5310-00-167-0818	8-1	55	5305-00-984-6191	8-1	16
5310-00-167-0820	8-1	54	5305-00-984-7363	8-1	44
5305-00-778-6308	8-1	99	5305-00-989-7435	8-1	60
5310-00-934-9747	8-1	17	5305-00-990-6144	8-1	111
5310-00-934-9751	8-1	86	5305-00-99q3-189	8-1	14

NATIONAL STOCK NUMBER AND PART NUMBER INDEX

PART NUMBER	FSCM	FIG. NO.	ITEM. NO.	PART NUMBER	FSCM	FIG. NO.	ITEM. NO.
ANS00-2-3	88044	8-1	100	210117	30120	8-1	49
AN565A1032H3	88044	8-1	99	210118	30120	8-1	107
AN565A6H2	88044	8-1	59	210119-1	30120	8-1	48
AN936A10	88044	8-1	102	210120	30120	8-1	8
AN960-10	88044	8-1	13	210122	30120	8-1	96
AN960-10	88044	8-1	55	210124	30120	8-1	38
AN960-516	88044	8-1	54	210129	30120	8-1	39
MS19059-42	96906	8-1	24	210133	30120	8-1	108
MS35191-272	96906	8-1	44	210138	30120	8-1	22
MS35206-226	96906	8-1	15	210141	30120	8-1	25
MS35206-226	96906	8-1	45	210142-2	30120	8-1	87
MS35706-243	96906	8-1	16	21013	ln0120	8-1	91
KS35207-259	96906	8-1	14	210146	30120	8-1	21
MS35207-261	96906	8-1	111	210149	30120	8-1	83
MS35207-264	96906	8-1	60	210150	30120	8-1	46
MS35649-262	96906	8-1	17	210151	30120	8-1	47
MS35650-302	96906	8-1	86	210152	30120	8-1	94
MS35650-302	96906	8-1	98	210155	30120	8-1	36
MS35650-3252	96906	8-1	18	210156-1	30120	8-1	37
NAS608-3-20P	80205	8-1	61	210158-1	30120	8-1	40
NAS608-3-24P	80205	8-1	103	210159-1	30120	8-1	3
NAS608-3-6P	80205	8-1	101	210160	30120	8-1	27
NAS608-3-6P	80205	8-1	110	210161-1	30120	8-1	19
NAS608-3-8P	80205	8-1	81	210162-1	30120	8-1	28
NAS608-4-16P	80205	8-1	73	210163	30120	8-1	29
NAS608-4-6P	80205	8-1	78	210561	30120	8-1	106
NAS608-5-12P	e0205	8-1	79	211278-2	30120	8-1	9
NAS609-4-10P	80205	8-1	104	211614	30120	8-1	84
RSS150	58474	8-1	11	212414	30120	8-1	12
S2448	71041	8-1	50	213043	30120	8-1	74
1329	72653	8-1	52	214921	30120	8-1	56
1641B	95879	8-1	76	216519	30120	8-1	62
1712	72653	8-1	53	217852	30120	8-1	82
1715G	72653	8-1	88	219887-47	30120	8-1	23
2-10026	82086	8-1	93	219924-4	30120	8-1	76
202	24981	8-1	51	720380-27	30120	8-1	89
210035	30120	8-1	63	221885-3-18-8G	30120	8-1	97
210083-1	30120	8-1	105	222060	30120	8-1	85
210090-3	30120	8-1	95	223573	10120	8-1	80
210100	30120	8-1	4	223574	30120	8-1	112
210101-1	30120	8-1	20	223575-2	30120	8-1	64
210102-1	30120	8-1	5	316	78643	8-1	92
210103-1	30120	8-1	7	49F440	01002	8-1	10
210104-1	30120	8-1	6	8381E8	27191	8-1	30
210114	30120	8-1	72				

By Order of the Secretary of the Army:

BERNARD W. ROGERS
General, United States Army
Chief of Staff

Official:

J. C. PENNINGTON
Major General, United States Army
The Adjutant General

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P.S.--IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigram = .035 ounce
1 decagram = 10 grams = .35 ounce
1 hectogram = 10 decagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	Newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29,573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	Newton-meters	1.356	metric tons	short tons	1.102
pound-inches	Newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

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