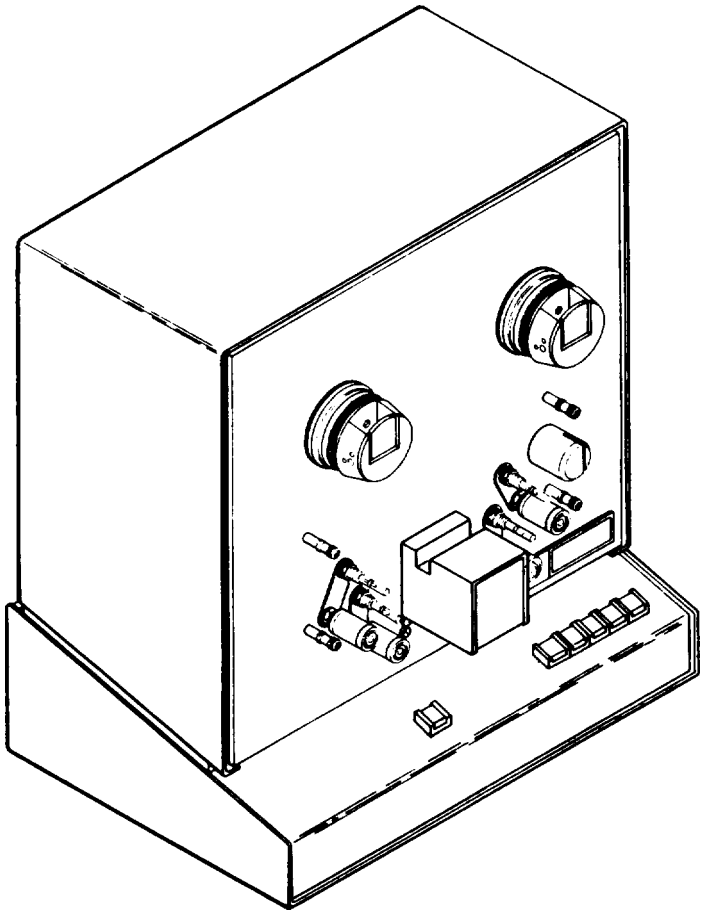
TM 11-7035-203-23

ORGANIZATIONAL AND DIRECT SUPPORT MAINTENANCE MANUAL

MAGNETIC TAPE CLEANER MX-1O1721MYQ-4



(NSN 7045-01-016-4147)

HEADQUARTERS DEPARTMENT OF THE ARMY

MARCH 1984

WARNING

HIGH VOLTAGE

is used in the operation of this equipment

ELECTROCUTION

may result if personnel fail to observe safety precautions.

Never work on electronic equipment unless there is another person nearby. He/she should be familiar with the operation and hazards of the equipment. He/she should also be competent in giving first aid. When you are helped by operators, you must warn them about dangerous areas.

Whenever possible, the power supply to the equipment must be shut off before beginning work on the equipment. Take special care to ground every capacitor likely to hold a dangerous potential. When working inside the equipment, after the power has been turned off, always ground every part before touching it.

Be careful not to contact high-voltage connections when installing or operating this equipment.

Whenever possible, keep one hand away from the equipment to reduce the hazard of current flowing through vital organs of the body.

WARNING

Do not be misled by the term "low voltage". Voltages as low as 50 volts may cause death.

For artificial respiration, refer to fm 21-11.

WARNING

Remove rings, bracelets, wristwatches, and neck chains before working around electronic equipment. Jewelry can catch on equipment and cause injury, or may short across an electrical circuit and cause severe burns or electrical shock.

5 SAFETY STEPS TO FOLLOW IF SOMEONE IS THE VICTIM OF ELECTRICAL SHOCK

1 DO NOT TRY TO PULL OR GRAB THE INDIVIDUAL

2 IF POSSIBLE , TURN OFF THE ELECTRICAL POWER

3 IF YOU CANNOT TURN OFF THE ELECTRICAL POWER, PULL, PUSH, OR LIFT THE PERSON TO SAFETY USING A WOODEN POLE OR A ROPE OR SOME OTHER INSULATING MATERIAL

4 SEND FOR HELP AS SOON AS POSSIBLE

5 AFTER THE INJURED PERSON IS FREE OF CONTACT WITH THE SOURCE OF ELECTRICAL SHOCK, MOVE THE PERSON A SHORT DISTANCE AWAY AND IMMEDIATELY START ARTIFICIAL RESUSCITATION

TECHNICAL MANUAL
No. 11-7035-203-23

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 12 March 1984

ORGANIZATIONAL AND DIRECT SUPPORT MAINTENANCE MANUAL MAGNETIC TAPE CLEANER MX-10172IMYQ-4

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

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 back of this manual, direct to: Commander, US Army Communications and Electronics Command and Fort Monmouth, ATTN: DRSEL-ME-MP, Fort Monmouth, New Jersey 07703. A reply will be furnished to you.

HOW TO USE THIS MANUAL

This manual tells you how to troubleshoot and maintain the Magnetic Tape Cleaner MX-10172/MYQ-4.

LOCATION OF SUBJECTS IN MANUAL

In this manual, paragraphs are numbered in order by chapter. For example, paragraph 2-3 is the-third paragraph in chapter 2. Pages are also numbered this way. Using this numbering system, there are three easy ways to locate the information you need in this manual.

- o Front cover locators
- ● Alphabetical index
- ● Index of maintenance procedures

Use the front cover locators and marked pages to quickly find the parts of the manual shown on the cover. These locators mark portions of the manual which are used often. If the information you need is not listed on the front cover, use the alphabetical index at the back of this manual. It lists all subjects covered in the manual and directs you to the subject by paragraph number. When you need a specific maintenance procedure, use the index at the start of chapter 3 or 4. This index lists all the maintenance procedures in the chapter and directs you to each procedure by page number.

MAINTENANCE PROCEDURES

Maintenance procedures in this manual have two features which help you perform them more easily:

- ● Initial setup boxes
- ● First-time performance aids

An initial setup box is used at the start of any procedure which requires setup items before you perform it. This box lists items needed to perform the procedure. If the box does not appear at the start of a procedure, no setup items are needed.

If you are using this manual to perform a procedure for the first time, always read through the entire procedure before you start. Always perform the task steps in the order given. This will help assure correct performance. Use the illustrations beside the tasks steps to find the parts of the equipment called out in the steps. Some steps include a reference to another paragraph. Go to that paragraph if you are not sure how the step is done.

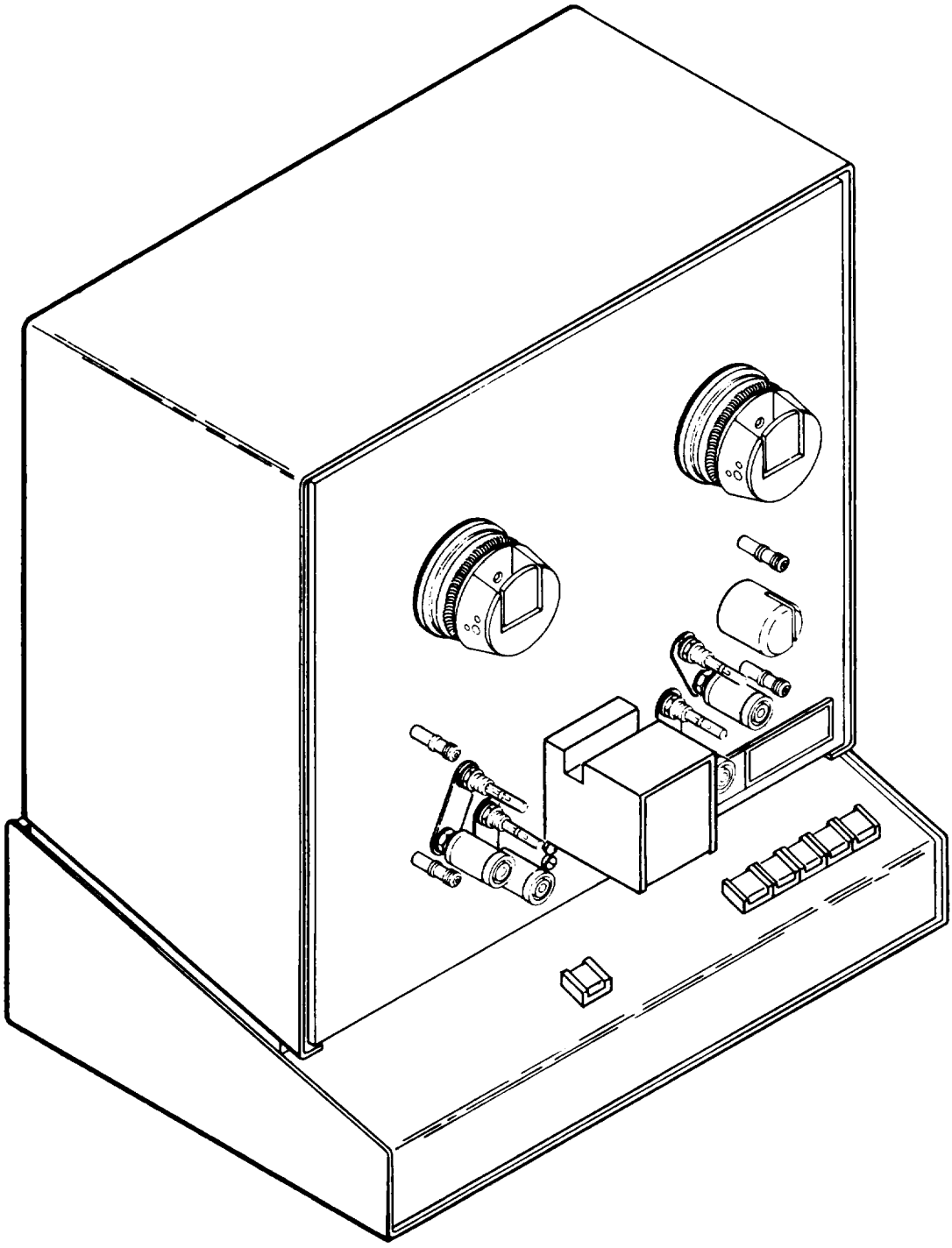


Figure 1-0. Magnetic Tape Cleaner MX-10172/MYQ-4

CHAPTER 1
INTRODUCTION

Section 1. GENERAL INFORMATION

1-1. SCOPE

Magnetic Tape Cleaner MX-10172/MYQ-4 (fig. l-O) removes embedded particles from the oxide side of magnetic tape and wipes dust and dirt from both sides of the tape. In the rest of this manual it will be called the tape cleaner. Use this manual for organizational and/or direct support maintenance of the tape cleaner.

1-2. INDEX OF PUBLICATIONS

Refer to the latest issue of DA Form 310-1 to determine whether there are new editions, changes or additional publications pertaining to the tape cleaner.

1-3. MAINTENANCE FORMS, RECORDS, AND REPORTS

Department of the Army forms and procedures used for tape cleaner maintenance will be those prescribed by TM 38-750, The Army Maintenance Management System (TAMMS).

1-4. DESTRUCTION OF ARMY ELECTRONICS MATERIEL

Destruction of Army electronics materiel to prevent enemy use shall be in accordance with TM 750-244-2.

1-5. ADMINISTRATIVE STORAGE

Administrative storage of equipment issued to and used by Army activities will have Preventive Maintenance Checks and Services (PMCS) performed before storing. When removing the equipment from administrative storage, the PMCS checks should be performed to assure operational readiness. Disassembly and repacking of equipment for limited storage are covered in TM 740-90-1.

1-6. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your tape cleaner needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don’t like about your equipment. Let us know why you don’t like the design or performance. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at Commander, U. S. Army Communications and Electronics Command and Fort Monmouth, Attn: DRSEL-ME-MP, Fort Monmouth, NJ 07703. We’ll send you a reply.

1-7. REFERENCE INFORMATION

This listing includes the nomenclature cross reference list, the list of abbreviations and an explanation of terms (glossary) used in this manual.

1-8. NOMENCLATURE CROSS REFERENCE LIST

Common names are used throughout this manual, but you must use the official nomenclature when filling out report forms, sending an EIR, or finding referenced technical manuals.

Common Name	Official Nomenclature
Tape Cleaner	Magnetic Tape Cleaner MX-10172/MYQ-4

1-9. LIST OF ABBREVIATIONS

BOT	Beginning of tape
EOT	End of tape
IPS	Inches per second
TMDE	Test, Measurement, and Diagnostic Equipment

1-10. GLOSSARY

A complete glossary of unusual terms is given in the back of this manual. (Glossary-1)

Section II. EQUIPMENT DESCRIPTION AND DATA

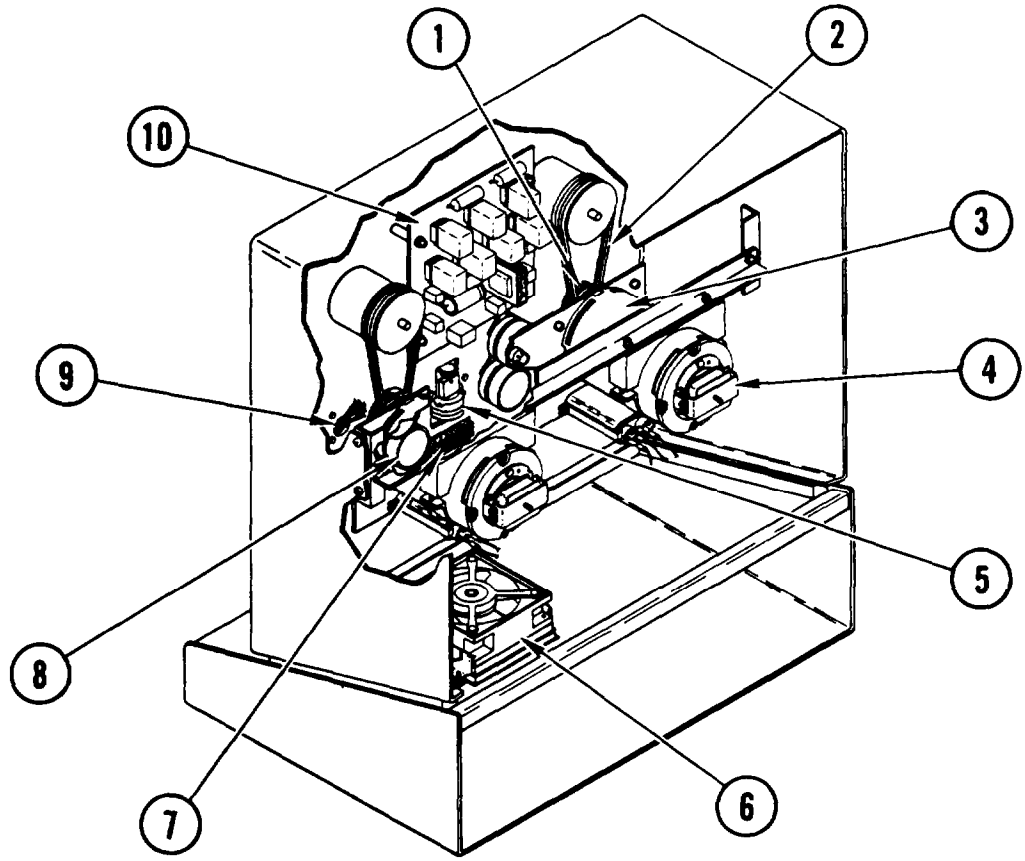
1-11. EQUIPMENT PURPOSE, CAPABILITIES AND FEATURES

The tape cleaner removes dirt and oxide lumps from magnetic tape. It can:

- Clean any 1/2 inch wide magnetic tape stored on reels of up to 10-1/2 inch diameter
- Clean both sides of the tape at the same time
- Tension and stack cleaned tape during rewind operation

1-12. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

Figure 1-1 locates and describes the major components of the tape cleaner.



1	Reel Assembly Motor Clutch(s)	Engage motor shaft to turn reel hubs.
2	Reel Assembly Motor Belts	Provide linkage from motors to reel hubs.
3	Reel Assembly Motor(s)	Provide driving power for reel hubs.
4	Reel Assembly Motor Brake(s)	During LOAD operation, provide for free wheeling of reel hubs. During cleaning operation, provide positive stop of reel hubs in the event of power failure.
5	Band Blade Assembly Motor	Turns band blade to provide continuous new blade surface.
6	Fan Assembly	Cools electronic and mechanical components inside tape cleaner
7	Terminal Board AITBI	Power termination for tissue cleaner and band blade motors.
8	Tissue Cleaner Motor(s)	Turn tissue spools to provide continuous clean surface.
9	Photocell Assembly	Senses EOT and BOT markers on tape being cleaned.
10	Circuit Board	Houses relays K1 thru K7 and associated circuitry.

Figure 1-1. Location of Tape Cleaner Major Components

1-13. EQUIPMENT IDENTIFICATION PLATE

An equipment identification plate (fig. 1-2) is located on the right side of the tape cleaner.

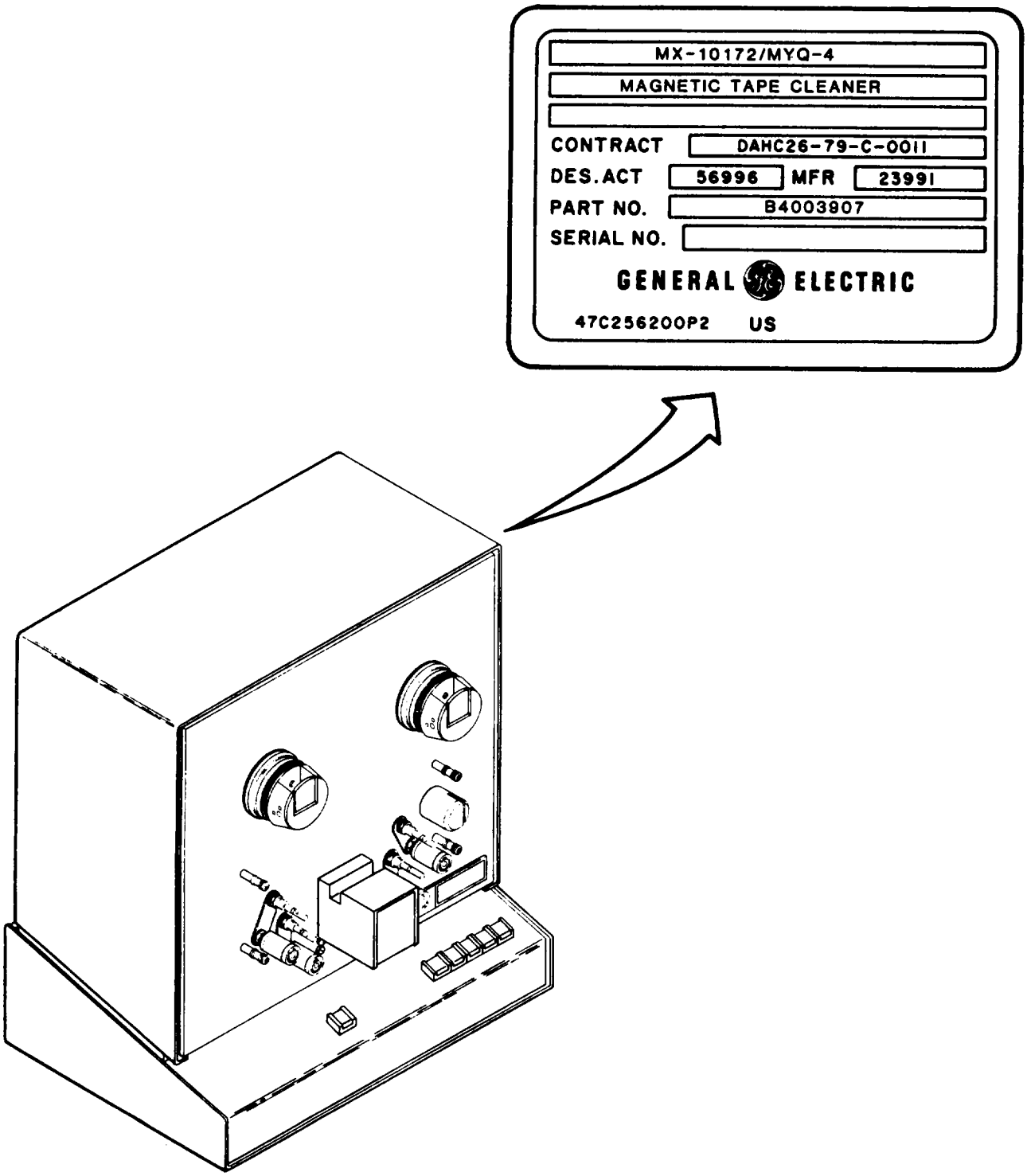


Figure 1-22. Equipment Identification Plate

1-14. EQUIPMENT DATA

Weight and dimensions:
Weight 85.0 lb (34.1 kg)
Height 27.3 in. (69.3 cm)
Width 24.0 in. (61.0 cm)
Depth 16.2 in. (41.1 cm)

Operating environment:
Temperature 65°F to 85°F (18°c to 29°C)
Relative humidity 20% to 90% (noncondensing)

Electrical requirements:
Voltage 110 V ac to 125 V ac
Frequency 60 Hz

Tape capacity:
1/2 in. wide tape on 10-1/2 in. diameter reel.

Cycle time:
Approximately 5-3/4 minutes for full cycle cleaning (average speed 150 ips).

Reel positioning and retaining:
Snap lock hubs.

Tape transport control:
Photocell for BOT and EOT detection for automatic stop and reversal of tape.

Tape guiding:
Precision roller guides and all tape paths precisely alined.

CHAPTER 2
TECHNICAL PRINCIPLES OF OPERATION

This chapter tells you how the tape cleaner works. This information will help you during troubleshooting and maintenance.

2-2. FUNCTIONAL DESCRIPTION

The tape cleaner will clean any l/2-inch wide magnetic tape stored on reels up to 10 l/2-inch diameter. Both sides of the tape are wiped clean at the same time. Particles imbedded in the oxide side of the tape are scraped off by a band blade Figure 2-1 is a functional block diagram of the tape cleaner.

2-3. AC INPUT UNIT

The ac input unit contains a fuse and an autotransformer. The autotransformer provides the proper drag (counter drive) for tension control. Depending on the direction of travel, one reel will be driven by the ac primary power and the other reel by the counter drive voltage.

2-4. SWITCH ASSEMBLY

The switch assembly contains the six switches which control tape cleaner operation. The POWER switch applies primary power to the tape cleaner and energizes a cooling fan. The LOAD switch energizes the reel brake solenoids to provide free wheeling of the reels for ease of loading. The FORWARD switch starts the actual cleaning operation. The tape is drawn by the takeup reel through the tissue cleaning assemblies and the band blade assembly. The takeup reel is driven by ac primary power and the autotransformer provides counter drive voltage to the supply reel to maintain proper tension. The tape cleaner may be stopped at any time by the STOP switch.

The HALF CYCLE/FULL CYCLE switch selects either a one pass cleaning operation or a pass and reverse operation. During HALF CYCLE operation, end of tape (EOT) photocell senses the EOT marker and stops the takeup reel. In FULL CYCLE operation, the tape cleaner direction reverses when the EOT marker is sensed. In this instance the supply reel is driven and the counter drive voltage is supplied to the takeup reel. The REVERSE switch provides this feature in the event the HALF CYCLE mode was selected.

2-5. BAND BLADE ASSEMBLY AND CLEANING STATION

The band blade assembly is driven by a slow speed motor during the tape cleaning operation to provide a continuous new blade surface to the tape. The tissue cleaning rollers rotate in the same manner to provide a continuous clean tissue surface.

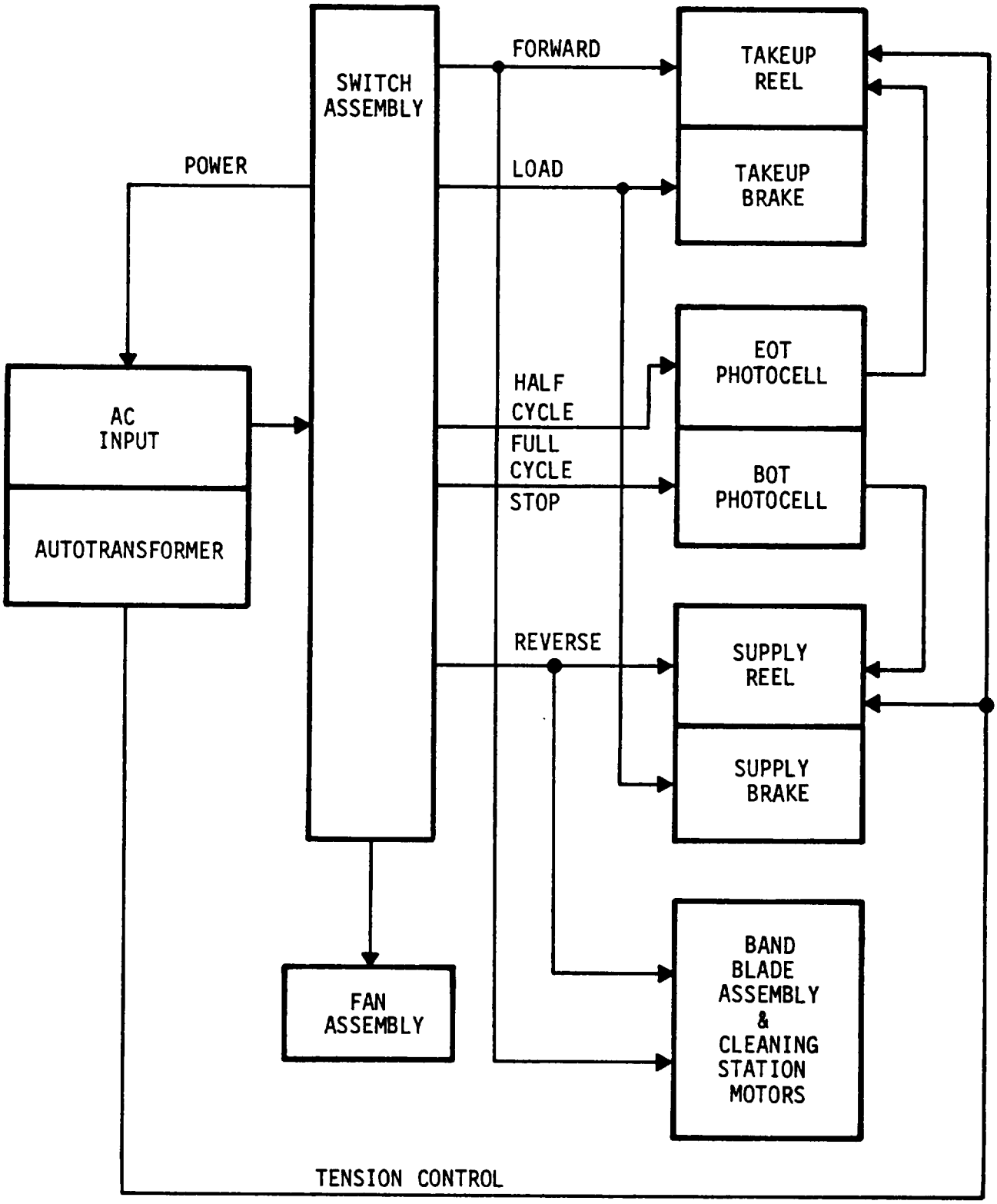


Figure 2-1. Tape Cleaner Functional Block Diagram

CHAPTER 3
ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Section I. REPAIR PARTS, SPECIAL TOOLS, TMDE AND SUPPORT EQUIPMENT

3-1. COMMON TOOLS AND EQUIPMENT

For authorized common tools and equipment refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

3-2. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

Refer to TM 11-701O-2O3-23P for a complete listing and description of special tools, TMDE and support equipment required by organizantional maintenance. Also refer to appendix B for a list of tools pertaining to the tape cleaner assembly.

3-3. SPARES AND REPAIR PARTS

Refer to TM 11-701O-2O3-23P for a complete listing and description of spares and repair parts required for maintenance of this equipment.

Section II. SERVICE UPON RECEIPT

3-4. UNPACKING

Upon receipt of new equipment, check packing list and instructions for any precautions or specific unpacking procedures.

3-5. CHECKING UNPACKED EQUIPMENT

Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damage on SF 364, Discrepancy in Shipment Report.

Check the equipment against the packing slip to see if the shipment is complete. Report all discrepancies in accordance with the instructions of TM 38-750.

Check the equipment to ensure that required Modification Work Orders have been applied in accordance with DA PAM 310-1.

Section III. PREVENTIVE MAINTENANCE CHECKS AND SERVICES

3-6. GENERAL

Organizational maintenance PMCS is the required inspection and care of the equipment necessary to keep it in good operating condition. Routine checks like equipment inventory, cleaning, dusting, washing, checking for frayed cables, storing items not in use, covering unused receptacles and checking for loose nuts and bolts are not listed in your PMCS. They are things you should do anytime you see they must be done. If you find a routine check like one of these listed in your PMCS, it was listed because operators reported problems with this item.

13-7. PMCS PROCEDURES

PMCS procedures are done at fixed intervals for the following purposes:

- Make sure that the equipment is operable
- Prevent equipment problems in future operation
- Identify and resolve minor problems in the equipment before they become major problems
- Scheduled cleaning of the equipment

3-8. ITEM NUMBER COLUMN

The checks/services in the PMCS table are numbered in order of performance. Use this ITEM number when filling out DA Form 2404 (Equipment Inspection and Maintenance Worksheet).

3-9. ITEM TO BE INSPECTED COLUMN

The items listed in this column are based on the major components of the equipment and use common names of these components.

3-10. PROCEDURE COLUMN

This column gives you the check or service procedure which you must perform on the item.

3-11. EQUIPMENT WILL BE REPORTED NOT READY/AVAILABLE IF COLUMN

This column tells you under what conditions the equipment will be unable to perform its primary mission. When you notice this condition during PMCS you must report it on the proper form and tell your supervisor.

Table 3-1. Organizational Preventive Maintenance Checks and Services Semiannual Schedule

Item No.	Item To Be Inspected	Procedures	Equipment Will Be Reported Not Ready/ Available If:
1	Tape Cleaner	Clean tape cleaner interior as follows: 1. Power off tape cleaner and pull power cord plug from outlet. 2. Remove rear cover. CAUTION Work carefully while cleaning. Clean thoroughly but do not damage components, wiring or brackets. 3. Vacuum metal surfaces, wiring and components using soft-bristled, brush-type nozzle. 4. Loosen dust and dirt in corners, crevices and between components using a small, soft-bristled brush. Vacuum up loosened dust and dirt. WARNING Isopropyl alcohol is flammable. Keep away from heat and open flame. CAUTION Use isopropyl alcohol Sparingly. Alcohol can damage some components and cause corrosion on connector contracts.	

Table 3-1. Organizational Preventive Maintenance Checks and Services Semiannual Schedule -- Continued

Item No.	Item To Be Inspected	Procedures	Equipment Will Be Reported Not Ready/ Available If:
		NOTE If oily film is found on chassis surface, take action to correct cause. Inspect for damaged (leaking) component. 5. Remove oily film with a soft, lint-free cloth dampened with isopropyl alcohol. If a run or drip occurs, wipe up immediately.	
2	Fan Blades	Clean fan blades as follows: 1. Lay tape cleaner carefully on its side. 2. Pull off air filter from bottom of tape cleaner. 3. Vacuum air filter using soft-bristled, brush type nozzle. 4. Vacuum both sides of fan blades using soft-bristled, brush-type nozzle. 5. Wipe residue from fan blades with a clean, lint-free cloth dampened with isopropyl If run or drip occur, wipe up immediately.	Fan blade bent, broken or missing.
3	Tape Cleaner	Power on and check operation of tape cleaner.	

CHAPTER4
DIRECT SUPPORT MAINTENANCE INSTRUCTIONS

Index of Maintenance Procedures

section 1. REPAIR PARTS, SPECIAL TOOLS, TMDE AND SUPPORT EQUIPMENT

4-1. COMMON TOOLS AND EQUIPMENT

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

4-2. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

Refer to TM 11-7010-203-23P for a complete listing and description of special tools, TMDE and support equipment required by direct support maintenance. Also refer to appendix B for a list of tools pertaining to the tape cleaner.

4-3. SPARES AND REPAIR PARTS

Refer to TM 11-701O-2O3-23P for a complete listing and description of spares and repair parts required for direct support maintenance of this equipment.

Section II. TROUBLESHOOTING

4-4. GENERAL

The most effective way to troubleshoot a fault in this equipment is to follow a routine which guides you through the five phases of troubleshooting (fig. 4-l). By following this routine you assure accurate use of fault isolation and fix procedures. You also improve your troubleshooting skills.

4-5. TROUBLESHOOTING PHASES

Each of the five phases in this routine is designed to accomplish a specific goal.

a. Fault Discovery. Usually, the operators or supervisor will notice faulty performance first. They must report the fault on the proper form so you will have the facts you need for the next phase.

b. Failure Confirmation. Based on the facts provided, you must confirm the failure and define the symptom. The symptom is the first clue you will use in the troubleshooting process.

c* Troubleshooting Entry. Using the symptom defined during phase two, find the troubleshooting flow chart which will help you isolate the fault in the equipment. The checkout and symptom index chart (chart-00) will help you do this.

d. Trouble Isolation. Follow the step-by-step procedures in the flow chart to isolate and correct the cause of the equipment failure.

e. After Maintenance. When you have made the fix recommended in the trouble-shooting procedure, you must check your work. Use the chart titled After Maintenance Check. It tells you how to test your repair and make sure the equipment now works as it should.

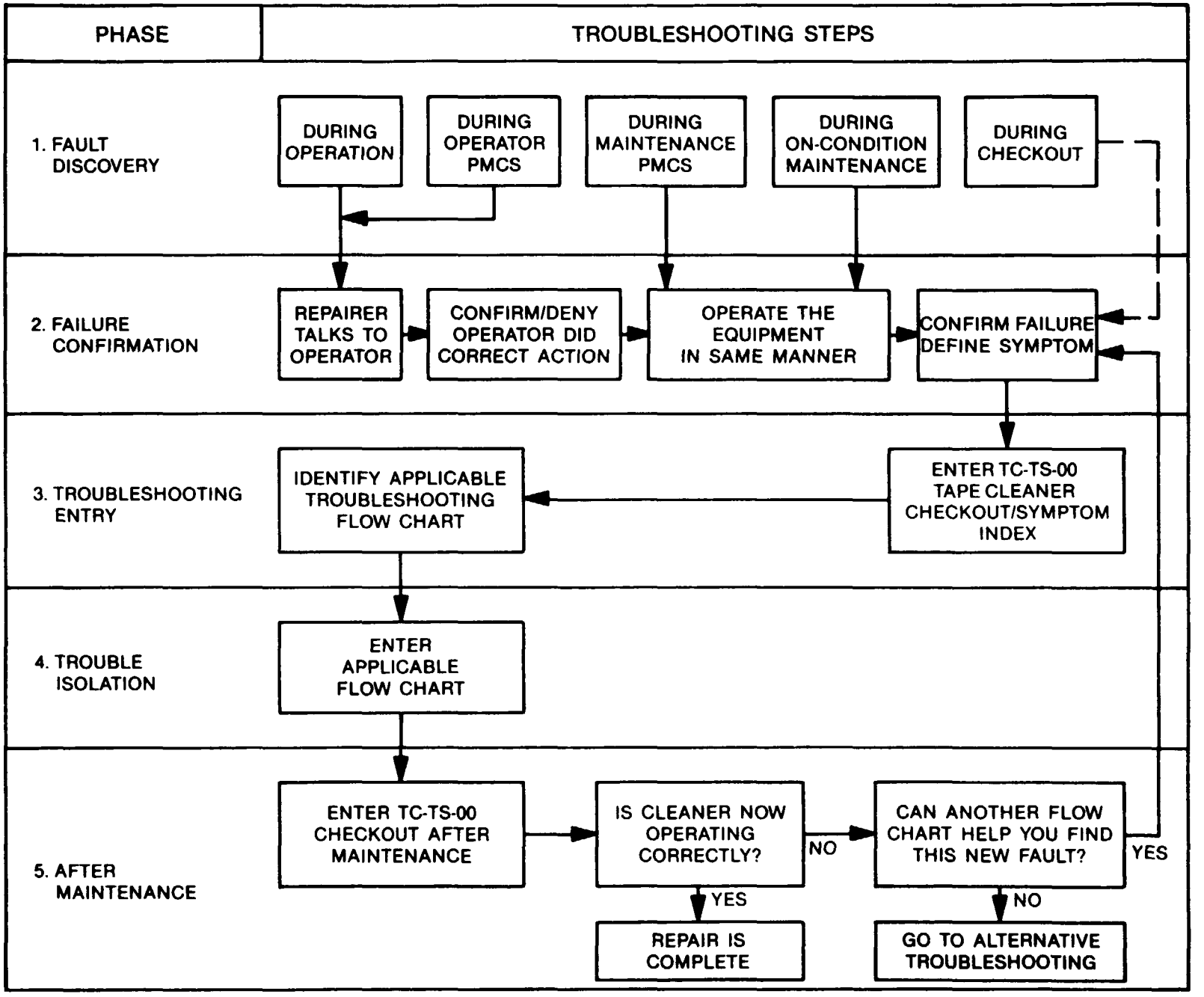


Figure 4-1. Troubleshooting Phases

4-6. ALTERNATIVE TROUBLESHOOTING TECHNIQUES

When a failure causes a symptom which is not covered in the symptom index or not corrected by the troubleshooting procedure in the flow chart, you must try alternative techniques.

a. Understand Principles of Operation. Sometimes the symptom may have no specific procedure given to troubleshoot it. When this happens, remember that the equipment always operates the same way. By comparing the faulty operation with expected or normal operation you may find the cause of the failure and be able to fix it.

b. Check the Circuits. All electronic equipment uses circuits to route power through the components. Any break in continuity will cause some type of failure. By running continuity checks on suspect circuits you may find the cause of the failure. Use the schematic diagrams in appendix D to check the circuits in this equipment.

c. Check Past Maintenance Records. If the unusual failure occurred before, it should appear in the maintenance records for the equipment. The records should also tell you how the failure was corrected. Use the same fix this time.

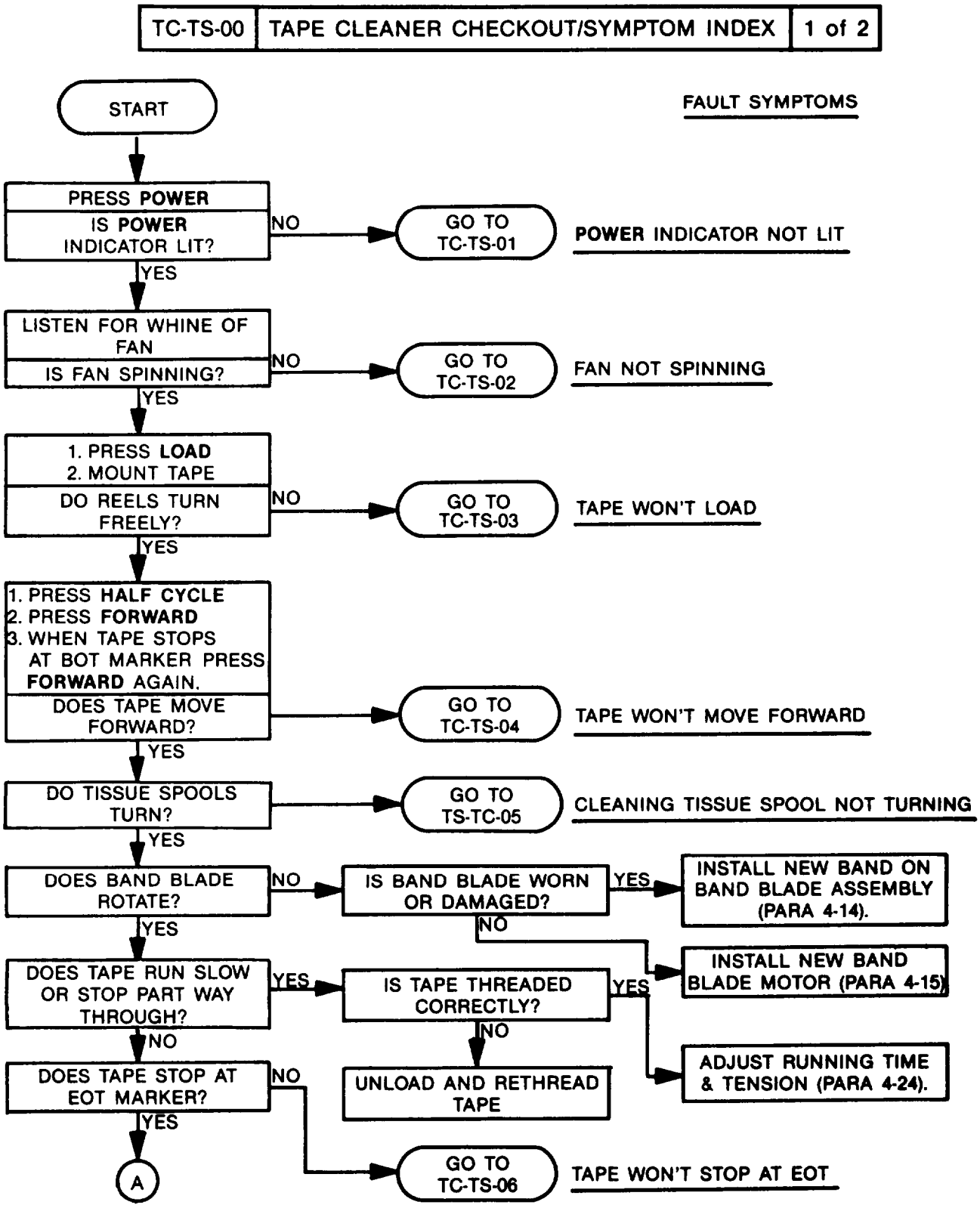
d. Trial and Error Repair. Usually trial and error repairs should be avoided. They are costly and can induce additional symptoms. However, when your experience with the equipment leads you to suspect a definite cause, you should try the repair as a last resort before shipping the equipment to depot for maintenance.

4-7. TROUBLESHOOTING PROCEDURES

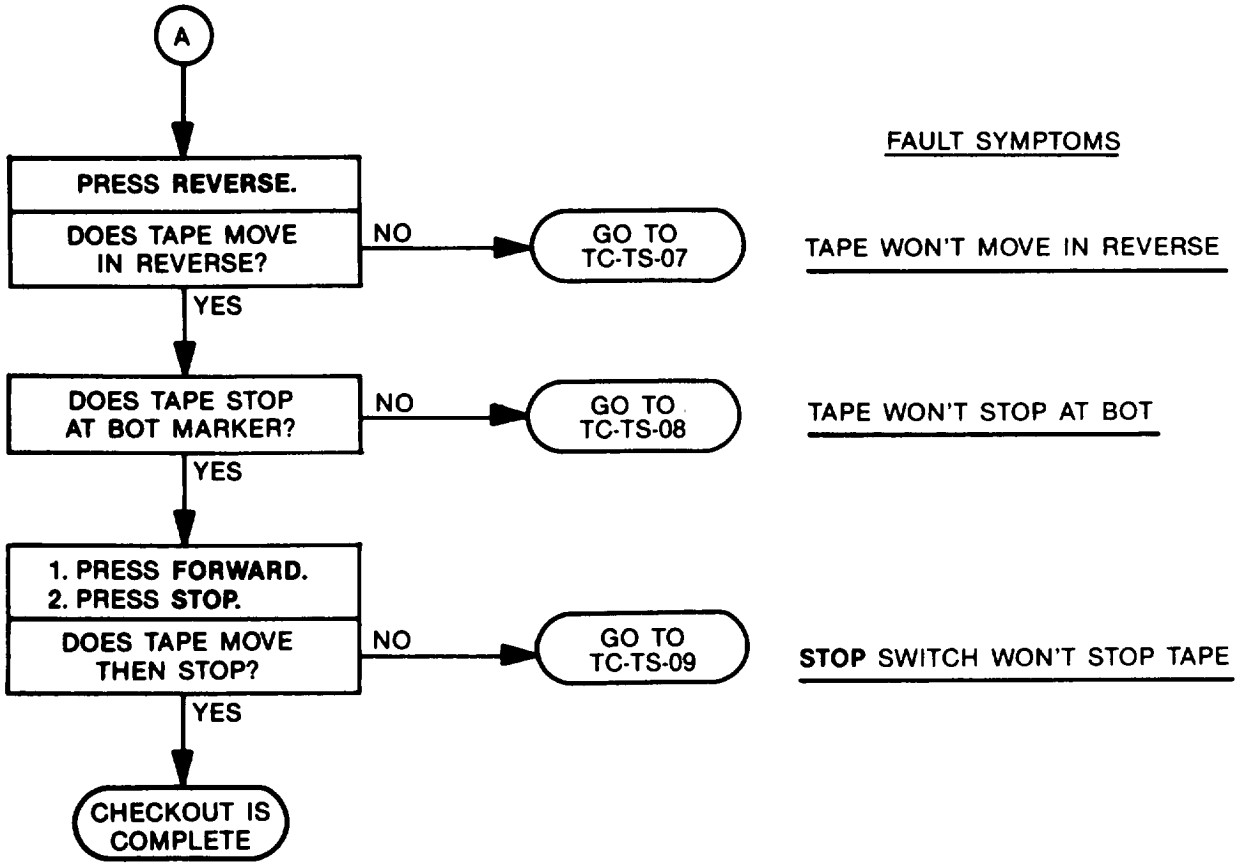
The troubleshooting procedures are arranged as flow charts. The charts consist of background information, specific instructions and decision points. Symbols (table 4-1) are used to organize the charts and guide you through a step-by-step trouble isolation procedure for each known failure symptom.

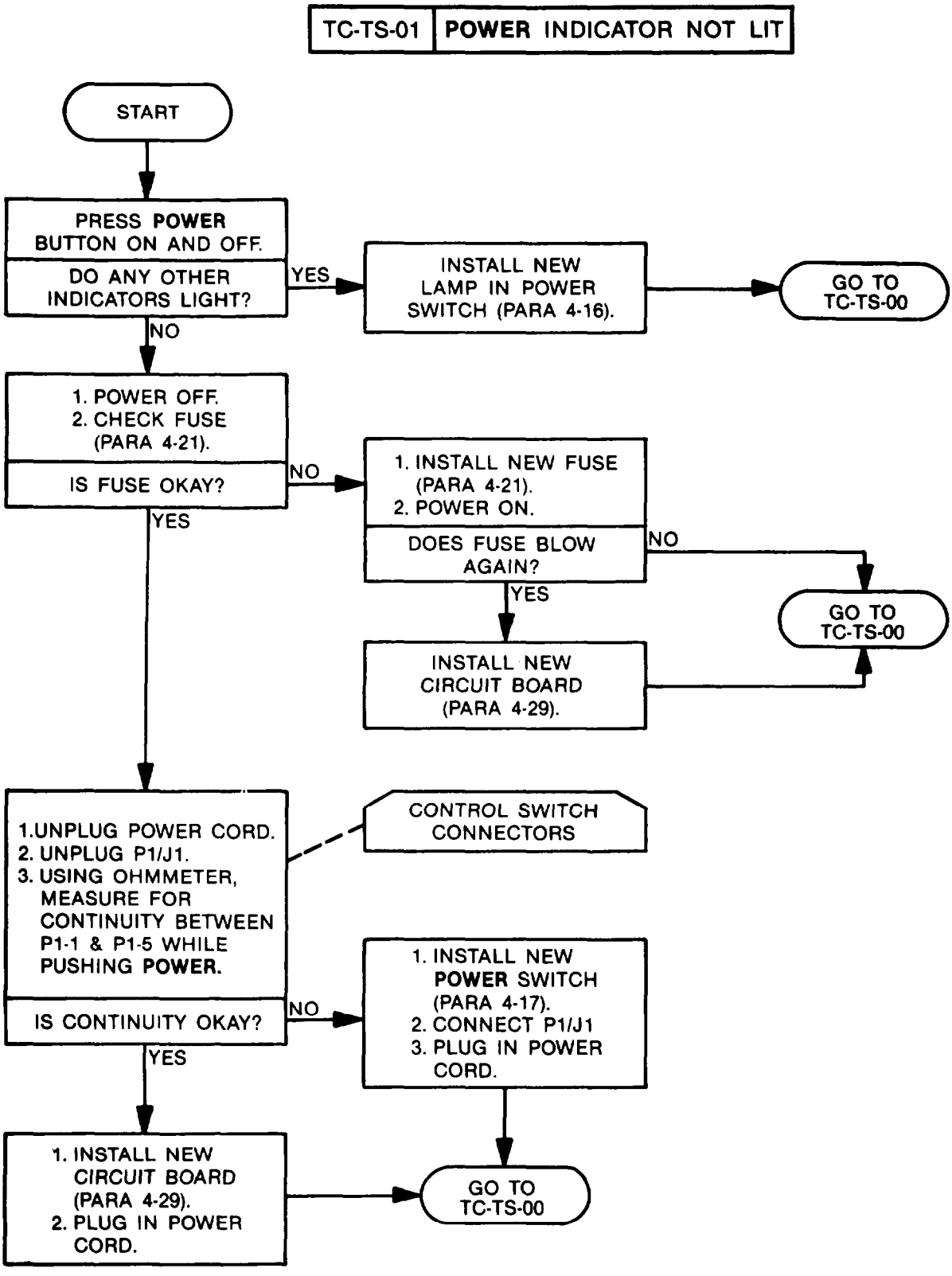
Table 4-1. Flow Chart Symbols

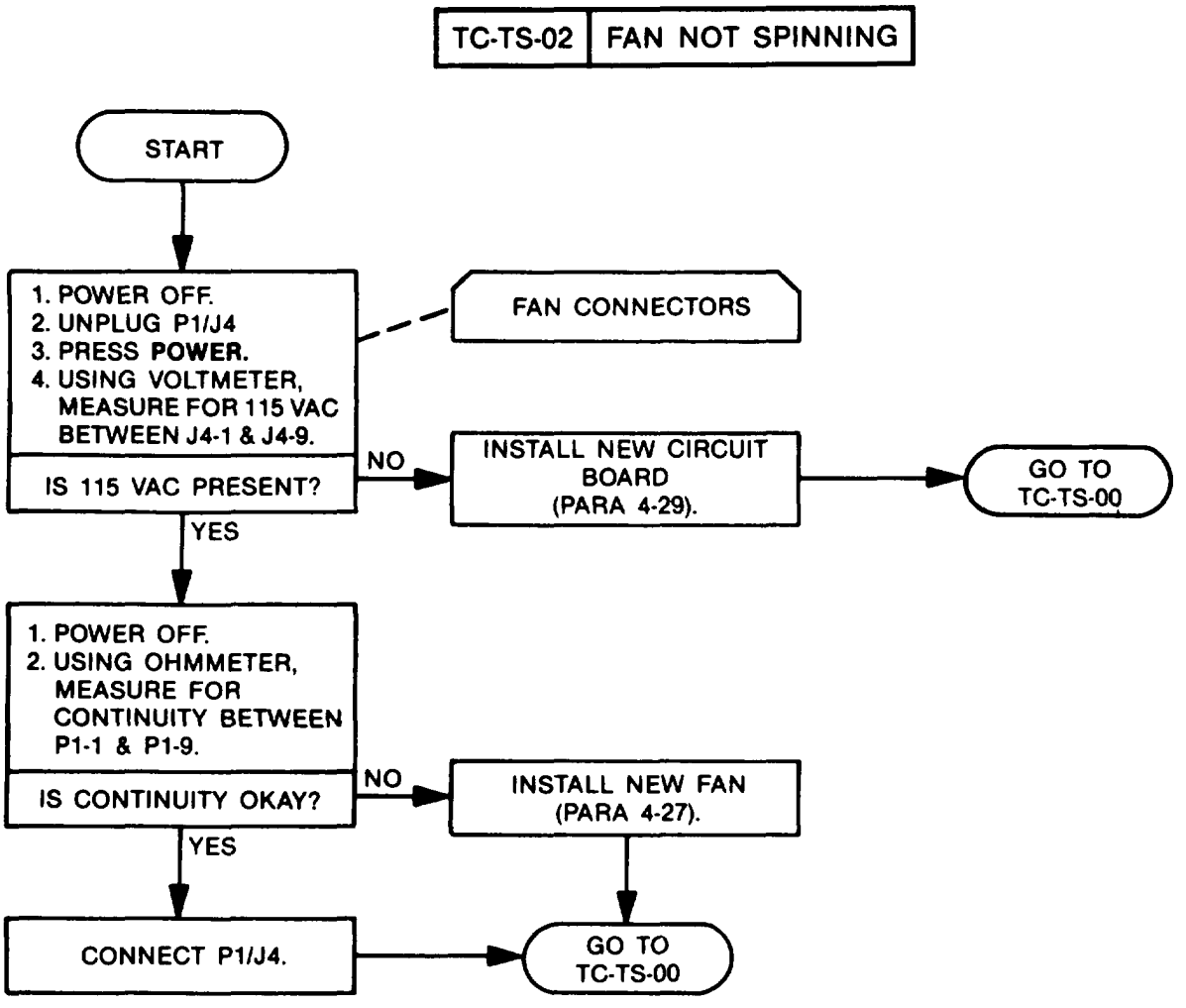
SYMBOL	MEANING
START	This is a STARTING POINT symbol. This is where you enter a troubleshooting flow chart.
NOTE	This is a NOTE symbol. It contains information you need to do your work, but which is not a procedural step.
CAUTION	This is a CAUTION symbol. It alerts you to the possible danger of breaking equipment in the steps that follow.
WARNING	This is a WARNING symbol. It alerts you to possible danger in the steps that follow.
INFORMATION	This is an INFORMATION symbol. It contains information that helps you make a test or understand the troubleshooting process.
TEST QUESTION NO	This is a TEST/DECISION SYMBOL. It contains a test you must do and a question you must answer. If the results of a test tell you the answer is YES, you will follow the YES arrow to the next symbol. If your answer is NO, you will follow the NO arrow.
YES A / A	These are CONNECTING POINT symbols. They are used in pairs. If the arrow points to the circle, it is the point where you leave a branch of the flow chart. If the arrow points away from the circle, it is the point where you go back into the flow chart. For example, you would go from → (A) on one page to (A) → on the next page.
INSTALL NEW ITEM (PARA 3-X)	This is a CORRECTIVE ACTION symbol. It tells you what to do to correct the problem. It will also refer you to the paragraph that contains the needed repair or adjustment procedure.
GO TO XX-XX-XX	This is a GO TO symbol. It tells you to go to another flow chart. The X's in the symbol at the left stand for a chart code.
GO TO TM FOR SYSTEM	Other forms for GO TO symbol: This symbol tells you to go to the system Technical Manual for further troubleshooting, such as running a T&V program.
GO TO START	This symbol tells you to go back to the START point of the same flow chart.


TC-TS-00
TAPE CLEANER CHECKOUT/SYMPTOM INDEX
1 of 2
START
FAULT SYMPTOMS
PRESS POWER
IS POWER INDICATOR LIT?
NO
GO TO TC-TS-01
POWER INDICATOR NOT LIT
YES
LISTEN FOR WHINE OF FAN
IS FAN SPINNING?
NO
GO TO TC-TS-02
FAN NOT SPINNING
YES
1. PRESS LOAD
2. MOUNT TAPE
DO REELS TURN FREELY?
NO
GO TO TC-TS-03
TAPE WON'T LOAD
YES
1. PRESS HALF CYCLE
2. PRESS FORWARD
3. WHEN TAPE STOPS AT BOT MARKER PRESS FORWARD AGAIN.
DOES TAPE MOVE FORWARD?
GO TO TC-TS-04
TAPE WON'T MOVE FORWARD
YES
DO TISSUE SPOOLS TURN?
GO TO TS-TC-05
CLEANING TISSUE SPOOL NOT TURNING
YES
DOES BAND BLADE ROTATE?
NO
IS BAND BLADE WORN OR DAMAGED?
YES
INSTALL NEW BAND ON BAND BLADE ASSEMBLY (PARA 4-14).
NO
YES
DOES TAPE RUN SLOW OR STOP PART WAY THROUGH?
YES
IS TAPE THREADED CORRECTLY?
YES
INSTALL NEW BAND BLADE MOTOR (PARA 4-15).
NO
NO
ADJUST RUNNING TIME & TENSION (PARA 4-24).
DOES TAPE STOP AT EOT MARKER?
NO
UNLOAD AND RETHREAD TAPE
YES
A
GO TO TC-TS-06
TAPE WON'T STOP AT EOT

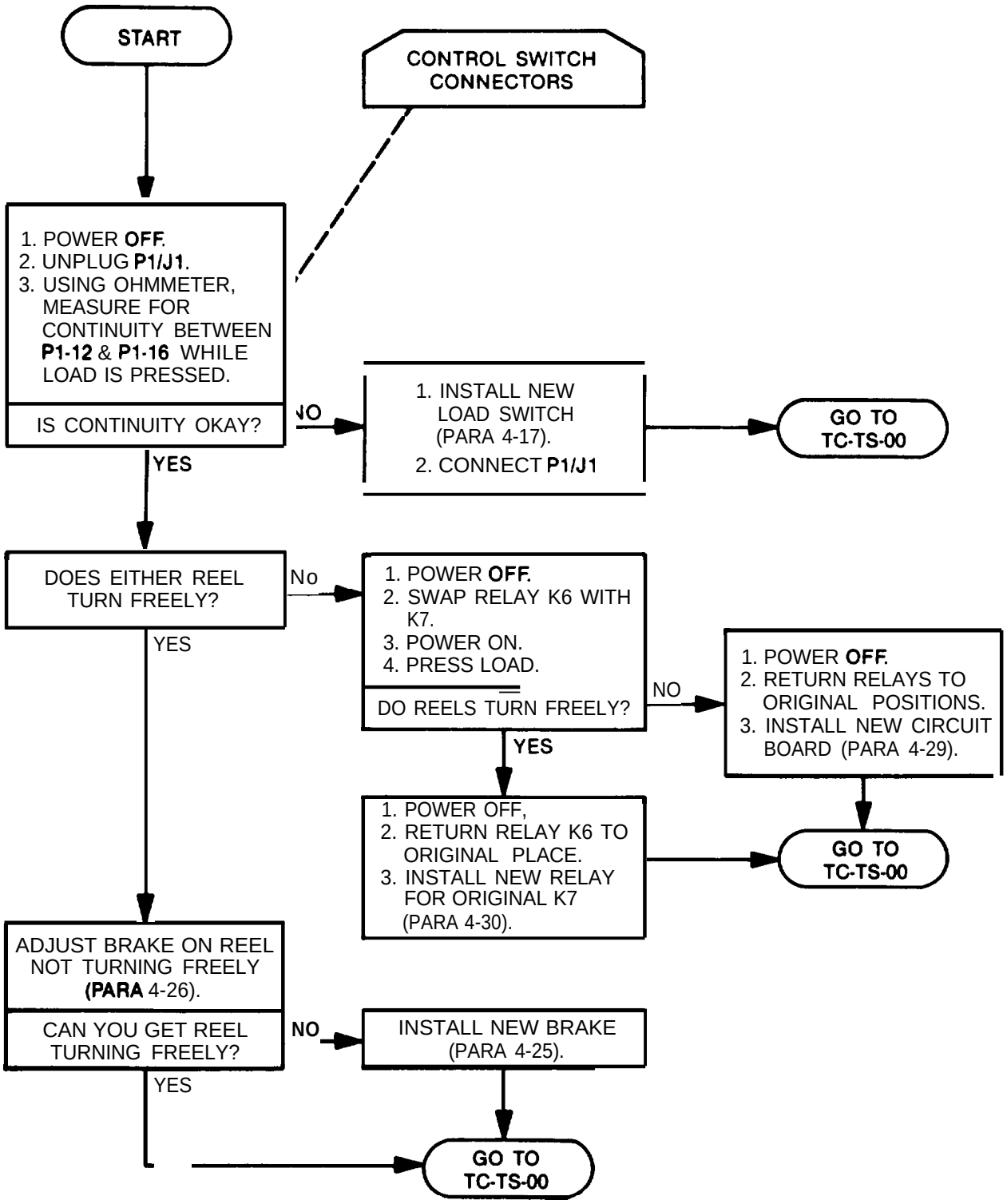
TC-TS-00	TAPE CLEANER CHECKOUT/SYMPTOM INDEX	2 OF 2



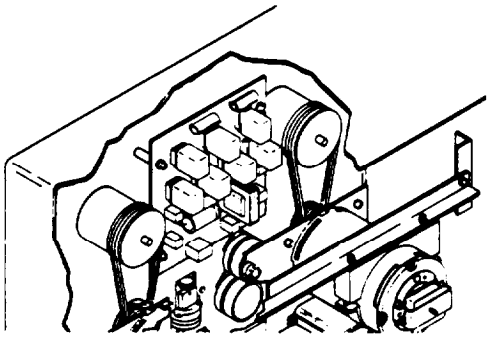

TC-TS-01
POWER INDICATOR NOT LIT
START
PRESS POWER BUTTON ON AND OFF.
DO ANY OTHER INDICATORS LIGHT?
YES
INSTALL NEW LAMP IN POWER SWITCH (PARA 4-16).
GO TO TC-TS-00
NO
1. POWER OFF.
2. CHECK FUSE (PARA 4-21).
IS FUSE OKAY?
NO
1. INSTALL NEW FUSE (PARA 4-21).
2. POWER ON.
DOES FUSE BLOW AGAIN?
NO
GO TO TC-TS-00
YES
INSTALL NEW CIRCUIT BOARD (PARA 4-29).
YES
1.UNPLUG POWER CORD.
2. UNPLUG P1/J1.
3. USING OHMMETER, MEASURE FOR CONTINUITY BETWEEN P1-1 & P1-5 WHILE PUSHING POWER.
CONTROL SWITCH CONNECTORS
IS CONTINUITY OKAY?
NO
1. INSTALL NEW POWER SWITCH (PARA 4-17).
2. CONNECT P1/J1
3. PLUG IN POWER CORD.
YES
1. INSTALL NEW CIRCUIT BOARD (PARA 4-29).
2. PLUG IN POWER CORD.
GO TO TC-TS-00


TC-TS-02
FAN NOT SPINNING
START
1. POWER OFF.
2. UNPLUG P1/J4
3. PRESS POWER.
4. USING VOLTMETER, MEASURE FOR 115 VAC BETWEEN J4-1 & J4-9.
IS 115 VAC PRESENT?
NO
FAN CONNECTORS
INSTALL NEW CIRCUIT BOARD (PARA 4-29).
GO TO TC-TS-00
YES
1. POWER OFF.
2. USING OHMMETER, MEASURE FOR CONTINUITY BETWEEN P1-1 & P1-9.
IS CONTINUITY OKAY?
NO
INSTALL NEW FAN (PARA 4-27).
YES
CONNECT P1/J4.
GO TO TC-TS-00

TC-TS-03 | TAPE WON'T LOAD



TC-TS-04 TAPE WON'T MOVE FORWARD



START

1. POWER OFF.
2. UNPLUG P1/J1
3. USING OHMMETER, MEASURE FOR CONTINUITY BETWEEN P1-16 & P1-24 WHILE **FORWARD** IS PRESSED.

CONTROL SWITCH CONNECTORS

IS CONTINUITY OKAY?

NO → 1. INSTALL NEW **FORWARD** SWITCH (PARA 4-17). 2. CONNECT P1/J1 → GO TO TC-TS-00

YES

IS TAKEUP REEL TURNING?

NO → 1. POWER OFF. 2. SWAP RELAY K4 WITH K6. 3. CONNECT P1/J1 4. PRESS **POWER.** 5. PRESS **FORWARD.**

DOES REEL MOTOR TURN?

NO → INSTALL NEW REEL MOTOR CAPACITOR (PARA 4-22).

DOES REEL MOTOR TURN NOW?

YES → (to RETURN RELAYS TO ORIGINAL LOCATIONS)

NO → 1. POWER OFF. 2. INSTALL NEW REEL MOTOR (PARA 4-23). 3. RETURN RELAYS TO ORIGINAL POSITIONS.

GO TO TC-TS-00

YES → 1. POWER OFF. 2. RETURN RELAY K6 TO ORIGINAL PLACE. 3. INSTALL NEW RELAY FOR ORIGINAL K4 (PARA 4-30).

GO TO TC-TS-00

YES

IS CLUTCH ENGAGED?

NO → INSTALL NEW CLUTCH (PARA 4-19).

YES → INSTALL NEW REEL BELTS (PARA 4-20).

CONNECT P1/J1

GO TO TC-TS-00

RETURN RELAYS TO ORIGINAL LOCATIONS

TC-TS-05 TISSUE SPOOLS NOT TURNING

START

DOES ANY TISSUE ROLLER TURN?

YES

1. POWER OFF.
2. INSTALL NEW MOTOR FOR TISSUE ROLLER NOT TURNING (PARA 4-18)

GO TO TC-TS-00

NO

1. POWER OFF.
2. SWAP RELAY K4 WITH K6.
3. PRESS **POWER.**

DO TISSUE ROLLERS TURN?

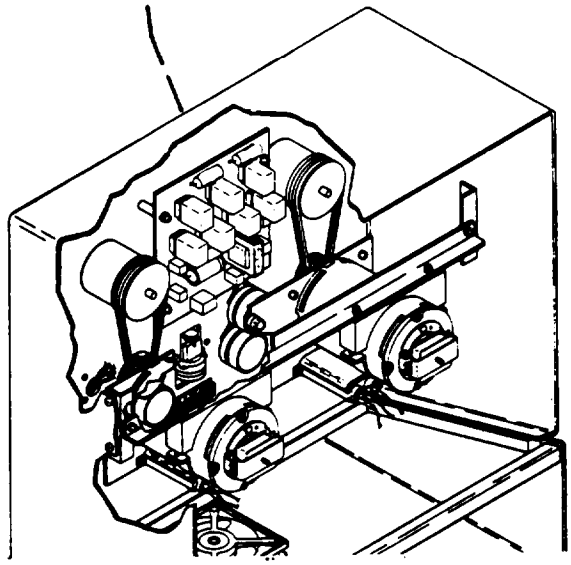
NO

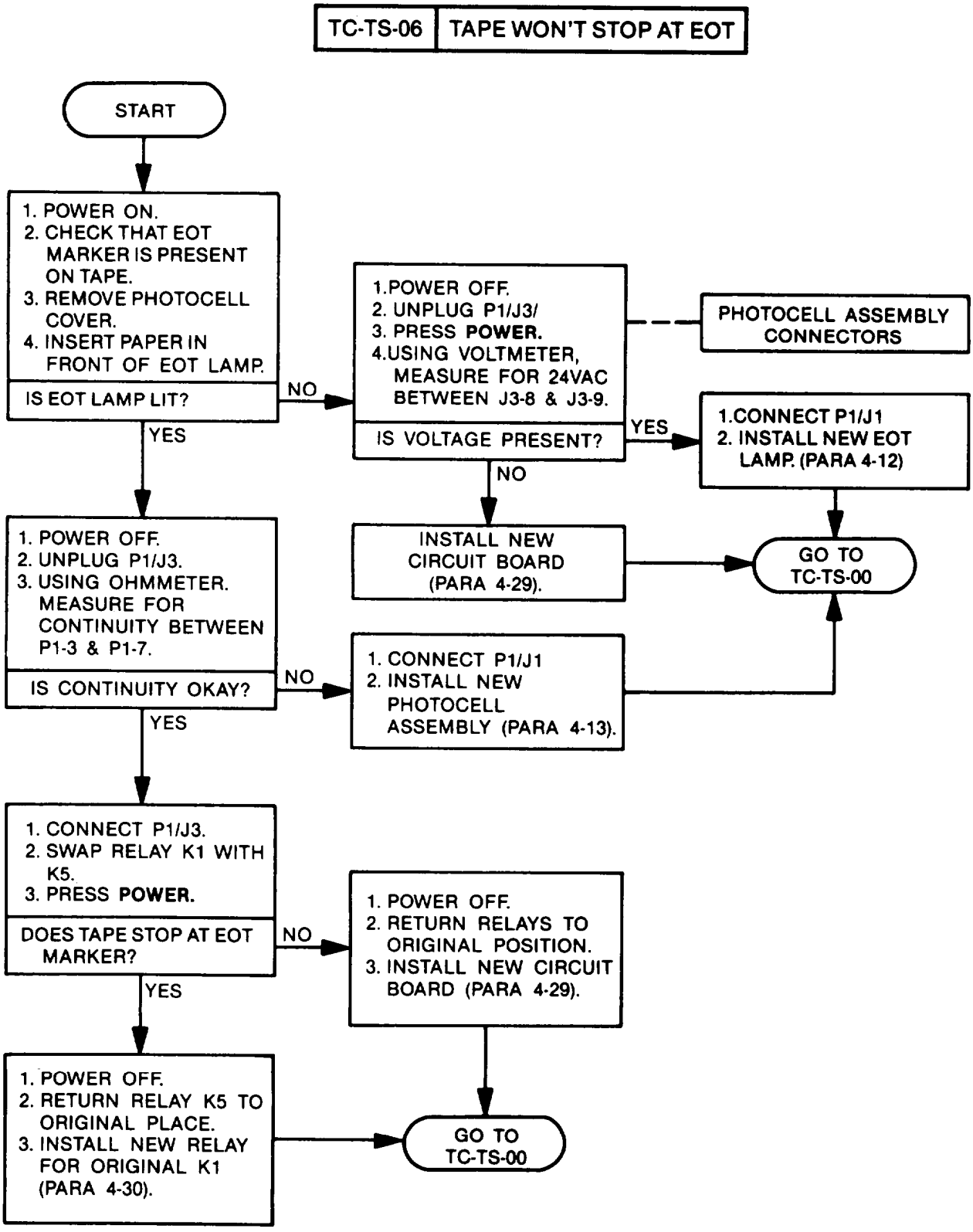
1. POWER OFF.
2. RETURN RELAYS TO ORIGINAL POSITIONS.
3. INSTALL NEW CIRCUIT BOARD (PARA 4-29).

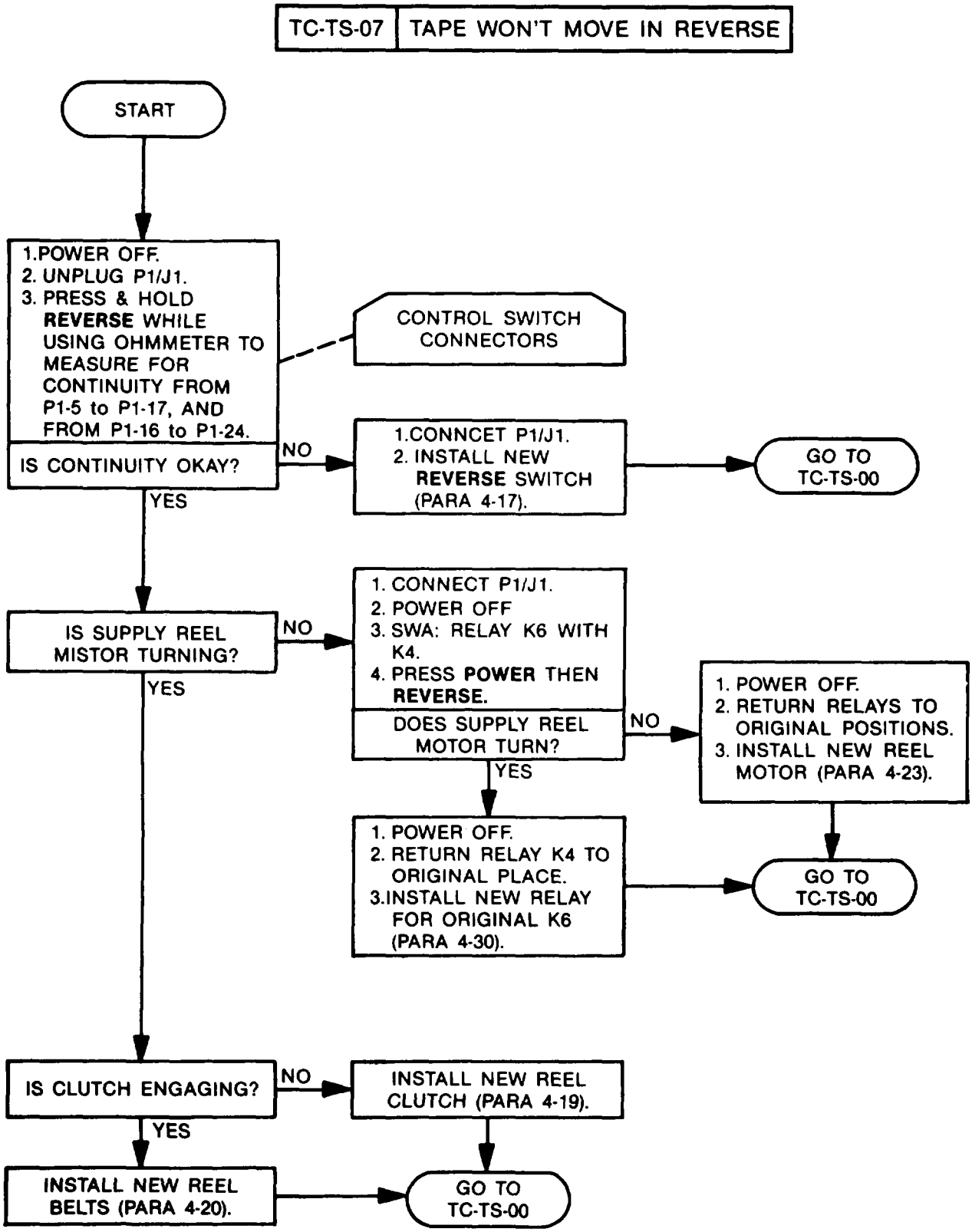
YES

1. POWER OFF.
2. RETURN RELAY K6 TO ORIGINAL PLACE.
3. INSTALL NEW RELAY FOR ORIGINAL K4 (PARA 4-30).

GO TO TC-TS-00



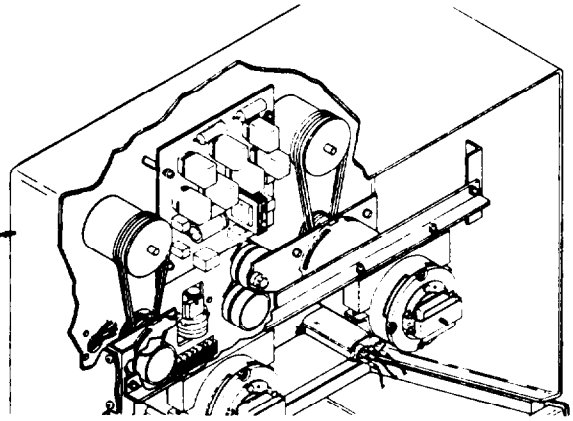

TC-TS-06
TAPE WON'T STOP AT EOT
START
1. POWER ON.
2. CHECK THAT EOT MARKER IS PRESENT ON TAPE.
3. REMOVE PHOTOCELL COVER.
4. INSERT PAPER IN FRONT OF EOT LAMP.
IS EOT LAMP LIT?
NO
YES
1.POWER OFF.
2. UNPLUG P1/J3/
3. PRESS POWER.
4.USING VOLTMETER, MEASURE FOR 24VAC BETWEEN J3-8 & J3-9.
IS VOLTAGE PRESENT?
YES
NO
PHOTOCELL ASSEMBLY CONNECTORS
1.CONNECT P1/J1
2. INSTALL NEW EOT LAMP. (PARA 4-12)
INSTALL NEW CIRCUIT BOARD (PARA 4-29).
GO TO TC-TS-00
1. POWER OFF.
2. UNPLUG P1/J3.
3. USING OHMMETER. MEASURE FOR CONTINUITY BETWEEN P1-3 & P1-7.
IS CONTINUITY OKAY?
NO
YES
1. CONNECT P1/J1
2. INSTALL NEW PHOTOCELL ASSEMBLY (PARA 4-13).
1. CONNECT P1/J3.
2. SWAP RELAY K1 WITH K5.
3. PRESS POWER.
DOES TAPE STOP AT EOT MARKER?
NO
YES
1. POWER OFF.
2. RETURN RELAYS TO ORIGINAL POSITION.
3. INSTALL NEW CIRCUIT BOARD (PARA 4-29).
1. POWER OFF.
2. RETURN RELAY K5 TO ORIGINAL PLACE.
3. INSTALL NEW RELAY FOR ORIGINAL K1 (PARA 4-30).
GO TO TC-TS-00


TC-TS-07
TAPE WON'T MOVE IN REVERSE
START
1.POWER OFF.
2. UNPLUG P1/J1.
3. PRESS & HOLD REVERSE WHILE USING OHMMETER TO MEASURE FOR CONTINUITY FROM P1-5 to P1-17, AND FROM P1-16 to P1-24.
CONTROL SWITCH CONNECTORS
IS CONTINUITY OKAY?
NO
1.CONNCET P1/J1.
2. INSTALL NEW REVERSE SWITCH (PARA 4-17).
GO TO TC-TS-00
YES
IS SUPPLY REEL MISTOR TURNING?
NO
1. CONNECT P1/J1.
2. POWER OFF
3. SWA: RELAY K6 WITH K4.
4. PRESS POWER THEN REVERSE.
DOES SUPPLY REEL MOTOR TURN?
NO
1. POWER OFF.
2. RETURN RELAYS TO ORIGINAL POSITIONS.
3. INSTALL NEW REEL MOTOR (PARA 4-23).
YES
1. POWER OFF.
2. RETURN RELAY K4 TO ORIGINAL PLACE.
3.INSTALL NEW RELAY FOR ORIGINAL K6 (PARA 4-30).
GO TO TC-TS-00
YES
IS CLUTCH ENGAGING?
NO
INSTALL NEW REEL CLUTCH (PARA 4-19).
YES
INSTALL NEW REEL BELTS (PARA 4-20).
GO TO TC-TS-00

TC-TS-08 TAPE WON'T STOP AT BOT

START

1. SWAP RELAY K5 WITH K1.
2. PRESS **POWER.**
3. CHECK THAT BOT MARKER IS ON TAPE.
4. PULL OFF PHOTO CELL COVER.
5. HOLD PAPER IN FRONT OF BOT LAMP.



IS BOT LAMP LIT?

NO

1. REPLACE LAMP (PARA 4-12).
2. PRESS **FORWARD**

DOES TAPE STOP AT BOT MARKER?

NO

1. POWER OFF.
2. RETURN RELAYS TO ORIGINAL POSITIONS.
3. INSTALL NEW CIRCUIT BOARD (PARA 4-29).

YES

YES

1. POWER OFF.
2. UNPLUG P1/J3.
3. USING OHMMETER, MEASURE FOR CONTINUITY FROM P1-1 TO P1-3.

PHOTOCELL CONNECTORS

IS CONTINUITY OKAY?

NO

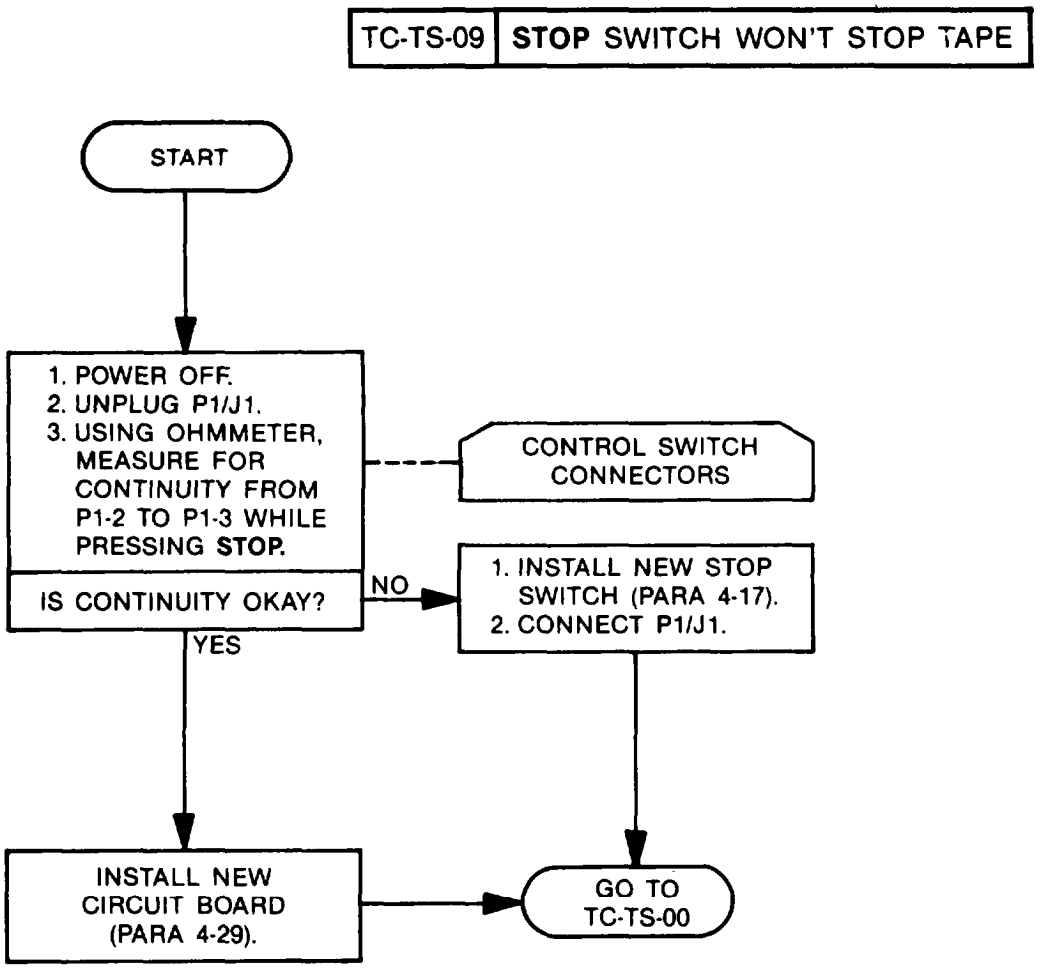
INSTALL NEW PHOTOCELL ASSEMBLY (PARA 4-13).

CONNECT P1/J3

YES

1. POWER OFF.
2. RETURN K5 AND K1 TO ORIGINAL POSITIONS

GO TO TC-TS-00


TC-TS-09
STOP SWITCH WON'T STOP TAPE
START
1. POWER OFF.
2. UNPLUG P1/J1.
3. USING OHMMETER, MEASURE FOR CONTINUITY FROM P1-2 TO P1-3 WHILE PRESSING STOP.
CONTROL SWITCH CONNECTORS
IS CONTINUITY OKAY?
NO
1. INSTALL NEW STOP SWITCH (PARA 4-17).
2. CONNECT P1/J1.
YES
INSTALL NEW CIRCUIT BOARD (PARA 4-29).
GO TO TC-TS-00

Section Ill. MAINTENANCE PROCEDURES

4-8. GENERAL

The individual maintenance procedures in this section contain the corrective actions required to fix a failure which was isolated during troubleshooting.

4-9. EQUIPMENT HANDLING PRECAUTIONS

As with most data processing equipment, the tape cleaner is very sensitive to dirt, dust, and even smoke. Follow the rules below to avoid damage to the equipment.

a. Make sure hands, hair, clothing, and shoes are clean before working on the tape cleaner.

b. Do not touch board connector terminals with any tool, bare hands, or a dirty cloth. Tools will damage the fragile connector. Dirt or body sweat will cause corrosion.

c. If a board is to be transported, place it in its original shipping container. If unavailable, pack it carefully with clean packing material that will prevent physical damage and will not cause corrosion.

d. Ground your body to discharge static electricity by touching a metal chassis or cabinet before touching a board. A static discharge from you to a board can destroy integrated circuits on the board.

e. Do not use masking tape labels.

f. Hold boards by their edges whenever you handle them.

g. Store and ship boards in static free bags.

h. Store boards in a humidity controlled environment.

i. Do not smoke in the area where boards are used or stored.

j. not put beverages on or near boards. An accidental spill can cause corrosion and chemical damage.

k. Never leave boards lying around unprotected.

4-10. MAINTENANCE PROCEDURES

Before you start a corrective maintenance procedure, you should gather all the items or help listed in the initial setup box for that procedure. Read the procedure carefully and do only what each step tells you to do. Some steps are followed by a reference. Use the reference any time you are not sure what you must do for that step. Always do the steps in the order they are given unless the procedure requires decision steps. When decision steps are involved, go in the order indicated by the decision.

4-11. ACCESS TAPE CLEANER FOR MAINTENANCE

INITIAL SETUP

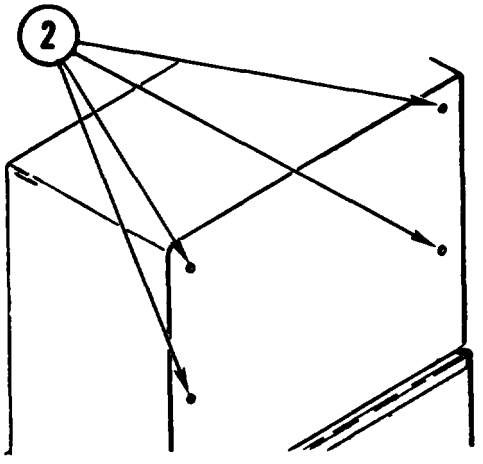
Common Tools
- Tool kit

Open

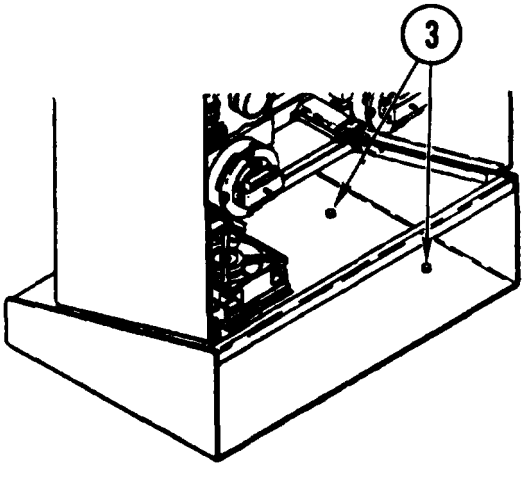
1. POWER off. Pull power plug from outlet.

NOTE

In some installations, tape cleaner is bolted to floor. See your system manual for removal instructions if you cannot access rear cover.



2. Remove cover screws. Pull off back cover.

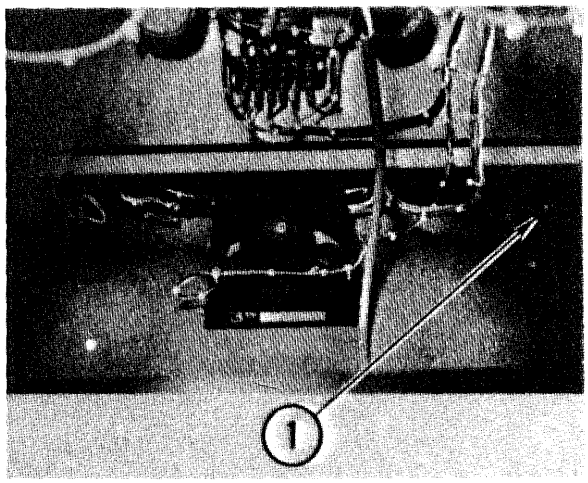


3. If necessary, reach inside tape cleaner and remove four bolts securing tape cleaner to floor.

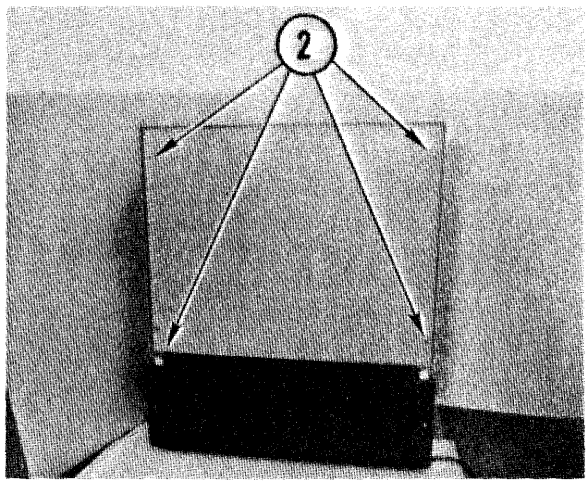
4. Move tape cleaner to gain access to interior.

4-11. ACCESS TAPE CLEANER FOR MAINTENANCE (CONT)

Close



1. Move tape cleaner back into operating position and bolt to floor.



2. Hold back cover in place and replace cover screws.

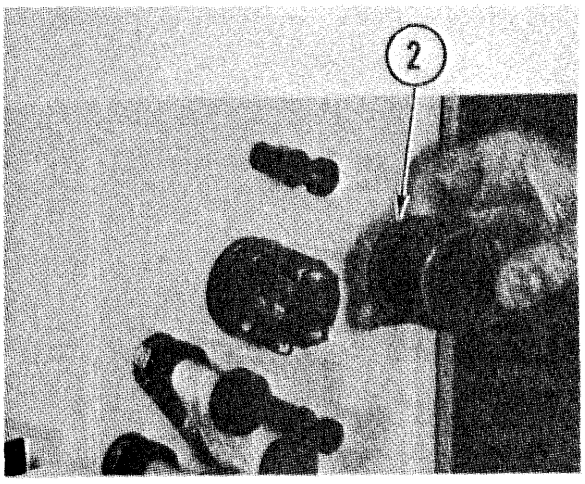
3. Push power plug into power outlet.

4-12. REMOVE/REPLACE EOT/BOT LAMP(S)

INITIAL SETUP

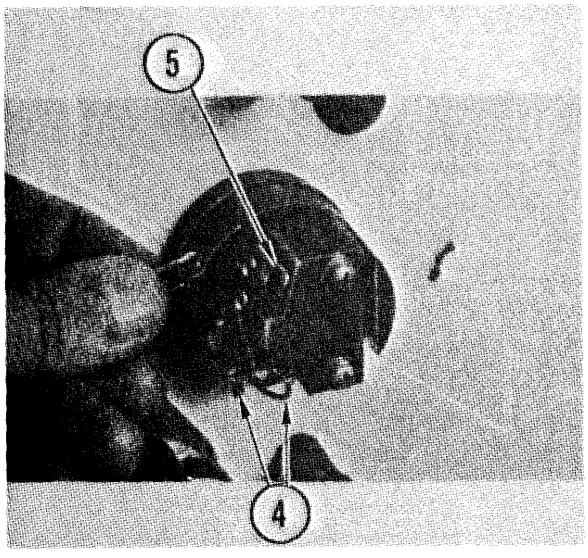
Common Tools
- Tool kit

Materials/Spare Parts
- EOT/BOT Lamp(s)



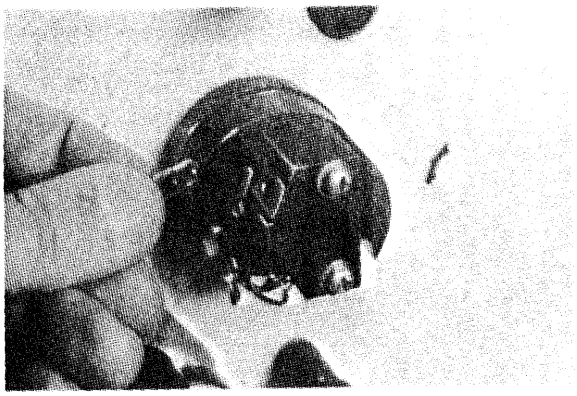
Remove

1. POWER off.
2. Pull off photocell assembly cover.
3. Note position of contact strips against center of lamp base. Remove screws.



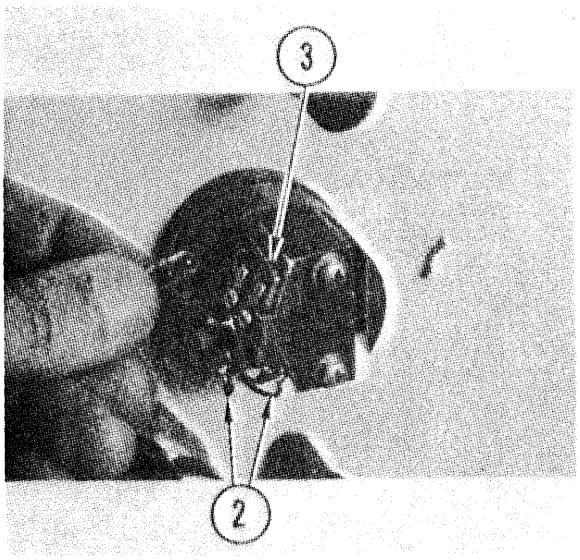
4. Remove wires.
5. Pull out lamp bracket.

4-12. REMOVE/REPLACE EOT/BOT LAMP(S) (CONT)

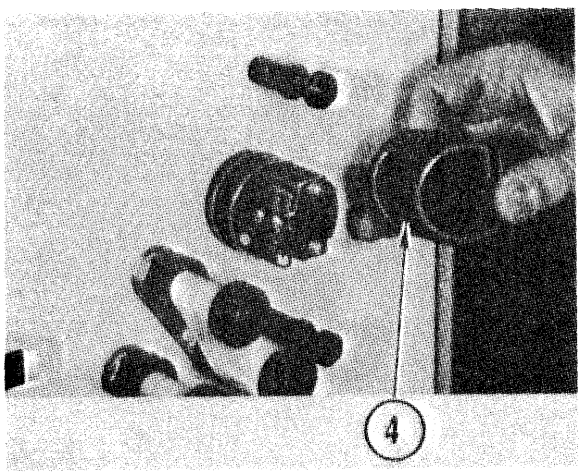


6. Remove lamp(s).

Replace



1. Position lamp(s) in bracket.
2. Replace wires.
3. Replace and tighten screws. Make sure contact strips are against center of lamp base.

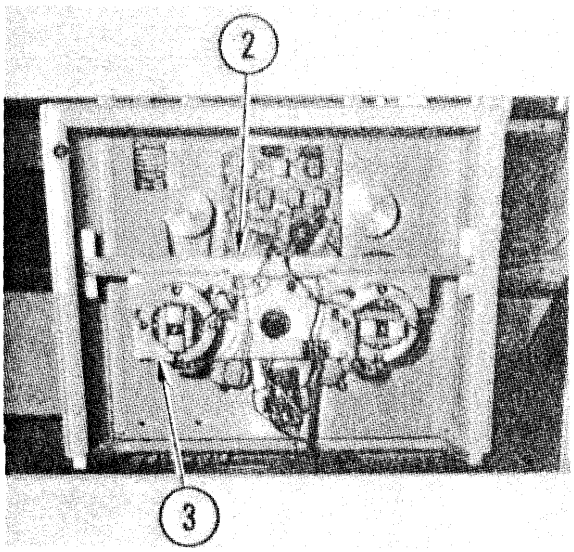


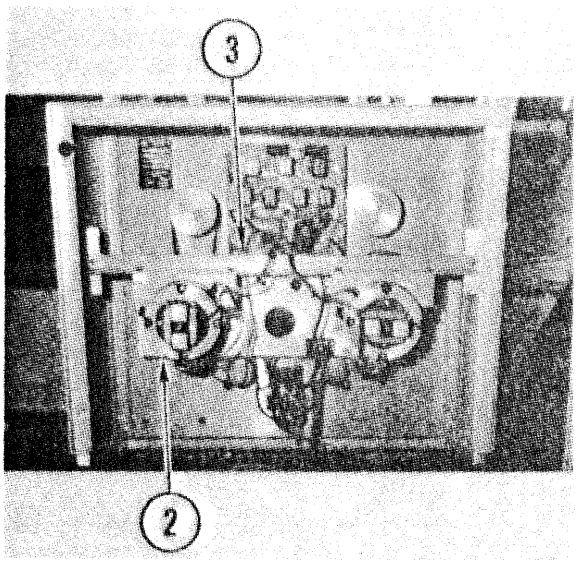
4. Push on photocell assembly cover.
5. POWER on.

4-13. REMOVE/REPLACE EOT/BOT PHOTOCELL ASSEMBLY

INITIAL SETUP

Common Tools
- Tool kit





Remove

1. Open tape cleaner (para 4-11).

NOTE

Observe routing of photocell assembly cable for ease of replacement.

2. Pull off photocell assembly cable connector P1 at J3.
3. Reach into rear and remove two mounting bolts holding photocell assembly to front panel.
4. Pull photocell assembly and cable through front panel.

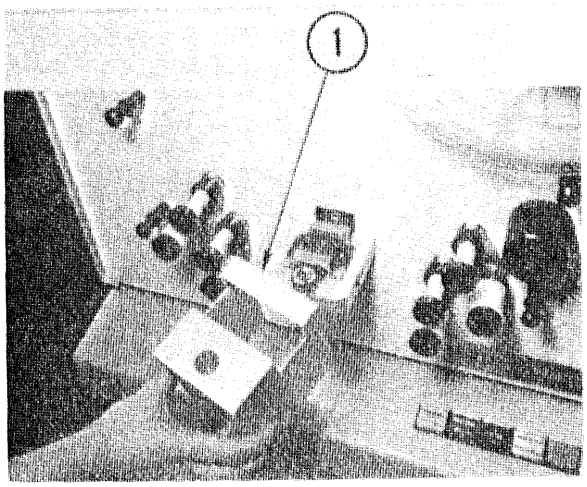
Replace

1. Insert cable through front panel and hold photocell assembly in place.
2. Reach into rear and replace and tighten mounting bolts.
3. Route cable up and push on P1 at J3.
4. Close tape cleaner (para 4-11).

4-14. REMOVE/REPLACE BAND ON BAND BLADE ASSEMBLY

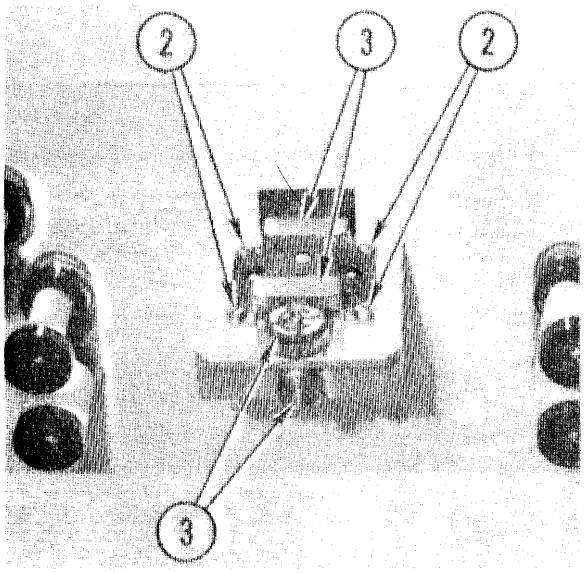
INITIAL SETUP

Common Tools
- Tool kit



Remove

1. POWER off. Pull off cover.



2. Loosen screws.

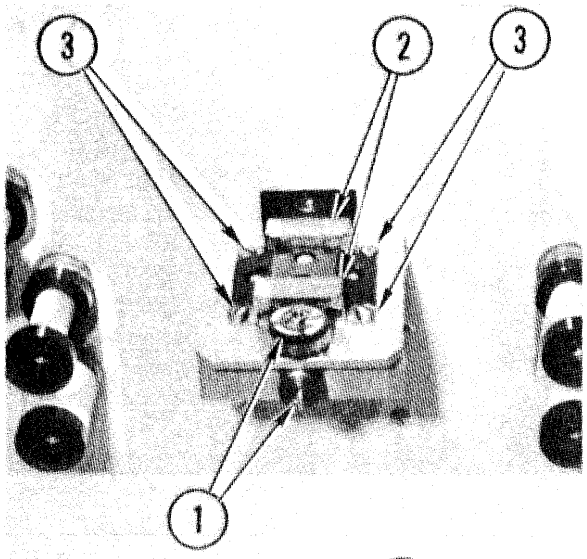
3. Pull off band covers.

WARNING

Band blade is very sharp. Use care in handling.

4. With one hand, push in plunger. With other hand, lift out bad band. Release plunger.

4-14. REMOVE/REPLACE BAND ON BAND BLADE ASSEMBLY (CONT)

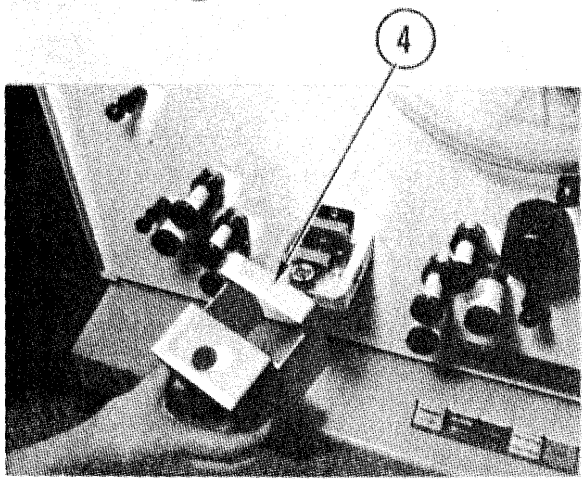


Replace

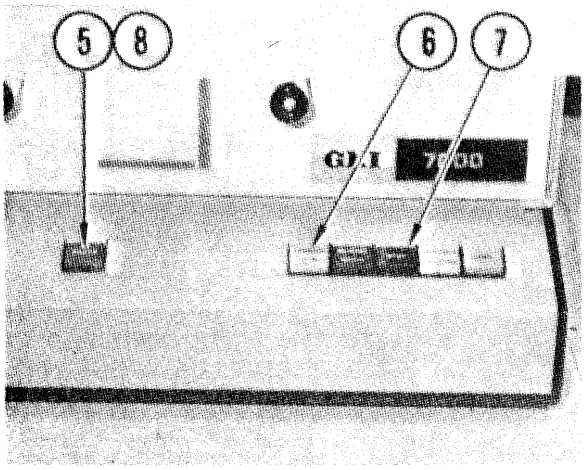
WARNING

Band blade is very sharp. Use care in handling.

1. With one hand, push in plunger. With the other hand, push new band onto assembly. Release plunger.
2. Push on band covers.
3. Tighten screws.



4. Push on cover.

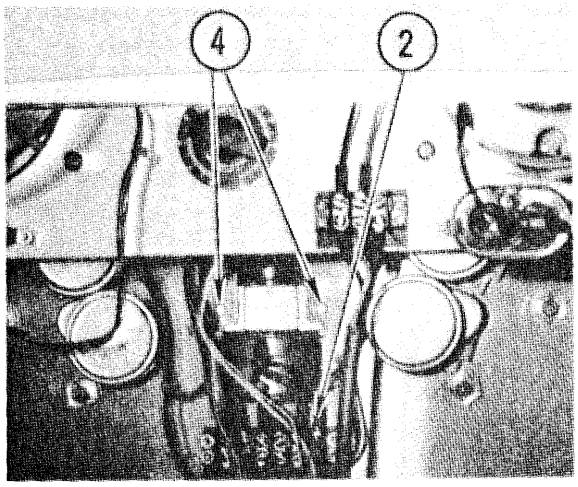


5. Press POWER on.
6. Press FORWARD.
7. Wait about 30 seconds for new band to seat, then press STOP.
8. Press POWER off.

4-15. REMOVE/REPLACE BAND BLADE ASSEMBLY MOTOR

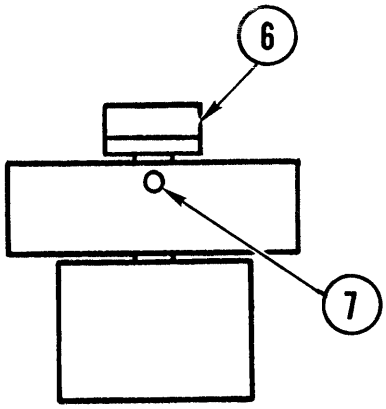
INITIAL SETUP

Common Tools
- Tool kit



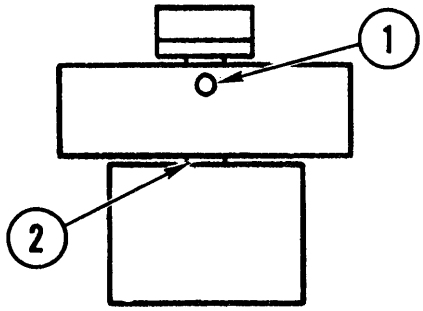
Remove

1. Open tape cleaner (para 4-ll).
2. Remove motor wires from terminal board AITB1.
3. Remove band blade assembly cover. Hold band blade assembly in place against front panel.
4. Reach into rear and remove mounting bolts holding band blade assembly to front panel.
5. Lift band blade assembly clear of tape cleaner and place on work surface.



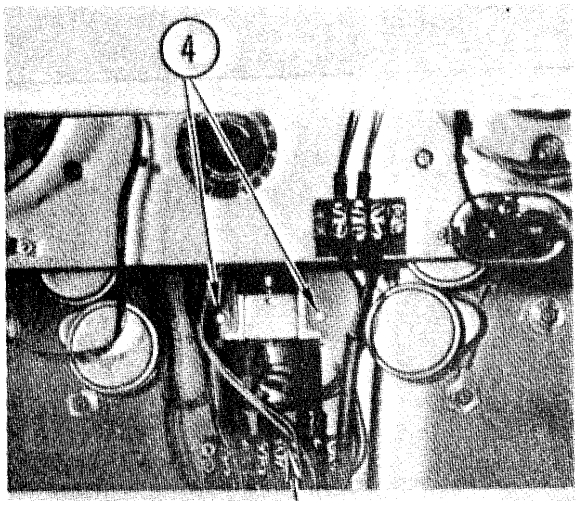
6. Turn band blade assembly driven roller until setscrew is visible through hole in casting.
7. Loosen setscrew and remove motor.

4-15. REMOVE/REPLACE BAND BLADE ASSEMBLY MOTOR (CONT)



Replace

1. Push motor shaft fully Into band blade assembly.
2. Tighten setscrew.
3. Hold band blade assembly in place against front panel.



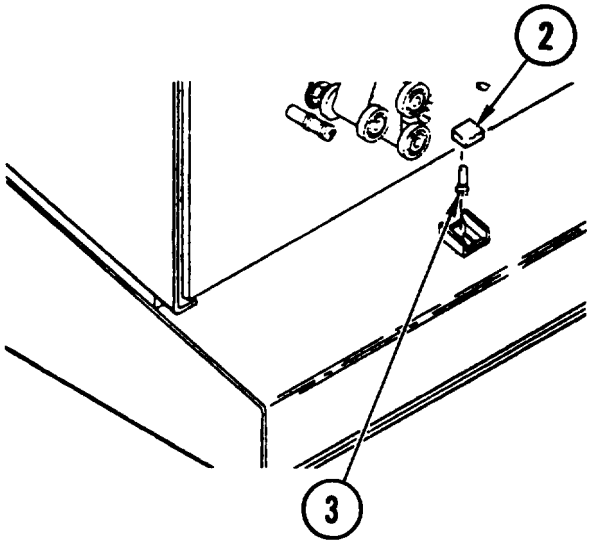
4. Reach into rear and replace and tighten mounting bolts.
5. Replace motor wires on terminal board A1TB1.
6. Replace band blade assembly cover. Close tape cleaner (para 4-11).

4-16. REMOVE/REPLACE CONTROL PANEL INDICATOR LAMP

INITIAL SETUP

Common Tools
- Tool kit

Materials/Spare Parts
- Control panel lamp(s)

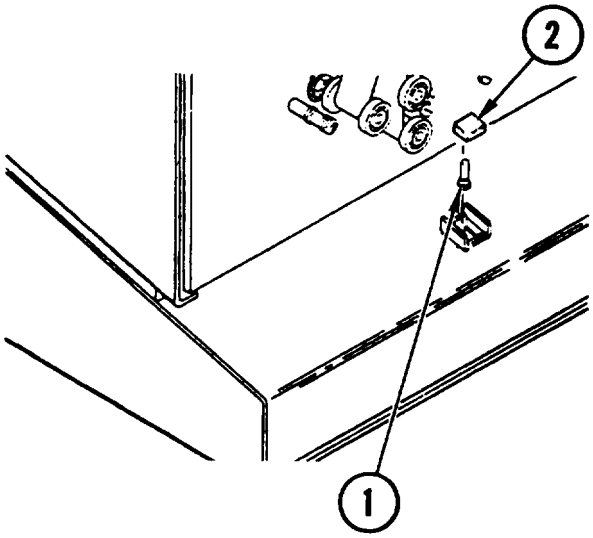


Remove

NOTE

Follow these procedures to remove/replace any of the indicator bulbs. There are two bulbs in the HALF CYCLE/FULL CYCLE indicator.

1. POWER off.
2. Pull off indicator cap. If necessary, pry up using small, flat-blade screwdriver.
3. Pull out lamp.



Replace

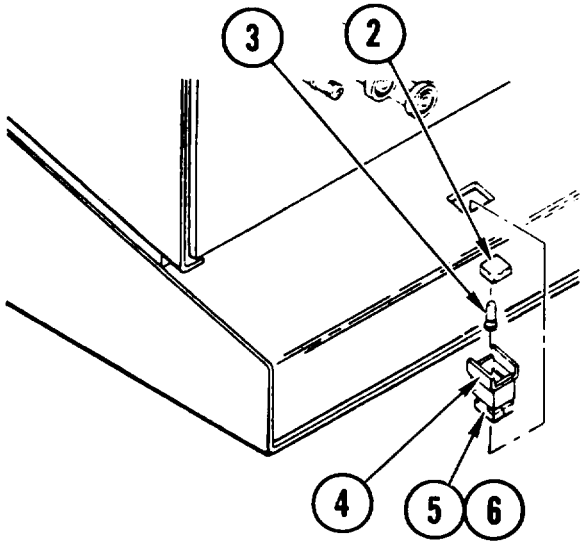
1. Push new lamp into socket.
2. Push on indicator cap.
3. POWER on.
4. Test lamp by pressing indicator cap of replaced lamp.

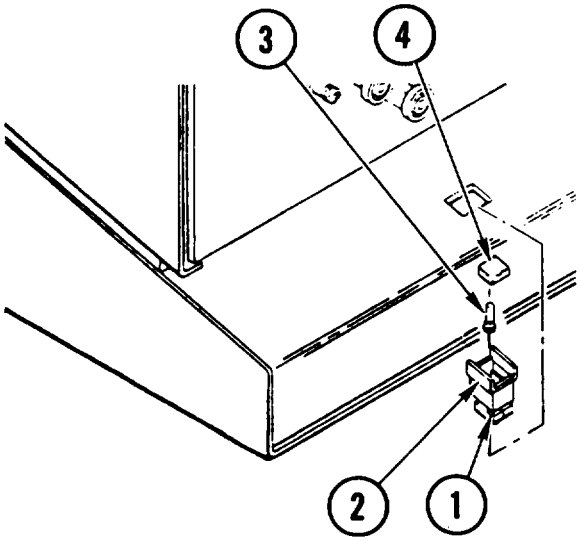
4-17. REMOVE/REPLACE CONTROL PANEL SWITCH

INITIAL SETUP

Common Tools
- Tool kit

Materials/Spare Parts
- Paper
- Pen or pencil





Remove

NOTE

Follow these procedures to remove/replace any of the control panel switches.

1. POWER off.
2. Pull off indicator cap. If necessary, pry up using small, flat-blade screwdriver.
3. Pull out lamp and set aside to install in new switch.
4. Pull or pry switch out of control panel.
5. On paper, note position of wires on switch.
6. Unsolder and remove wires from switch.

Replace

1. Using wire position note, solder wires on new switch.
2. Push switch into control panel.
3. Push lamp into switch.
4. Push on indicator cap.
5. POWER on.
6. Operate tape cleaner to check replacement switch.

4-18. REMOVE/REPLACE TISSUE SPOOL MOTOR

INITIAL SETUP

Common Tools
- Tool kit

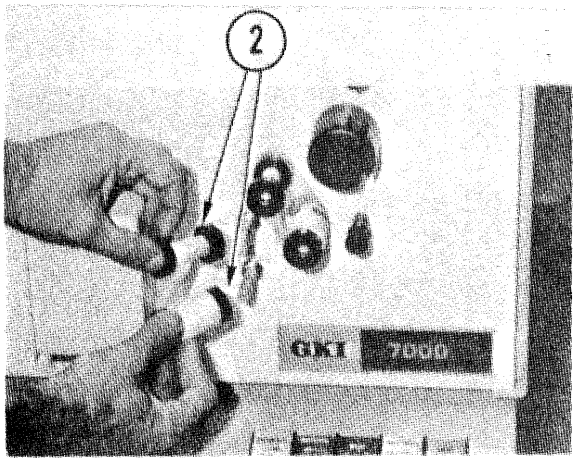
Materials/Spare Parts
- Tie wraps
- Silicone compound 71985 DC340

Remove

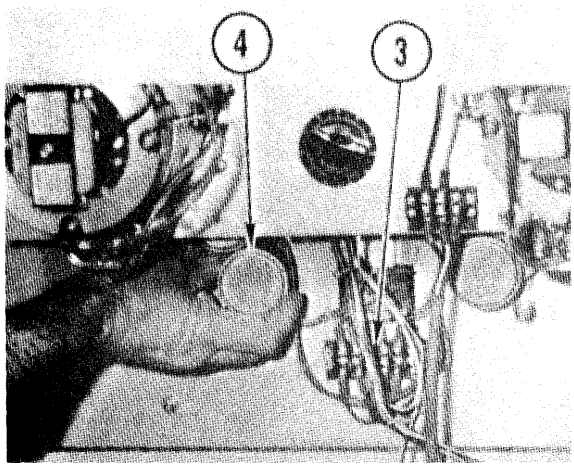
1. Open tape cleaner (para 4-11)

NOTE

If one of the upper motors must be replaced, the adjacent lower motor must be removed to provide clearance for the upper motor.



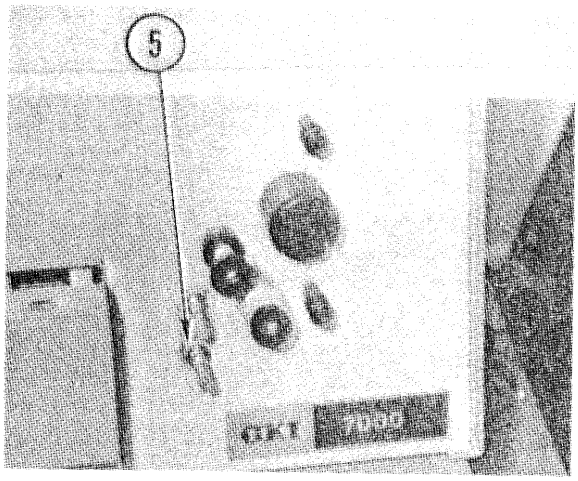
2. Pull off tissue spools from shaft of motor being replaced.



3. Remove wires of motor being replaced from terminal board A1TB1 and cut tie wraps securing motor wires to wire bundle.

4. Reach inside tape cleaner and hold tissue spool motor in place against rear of front panel.

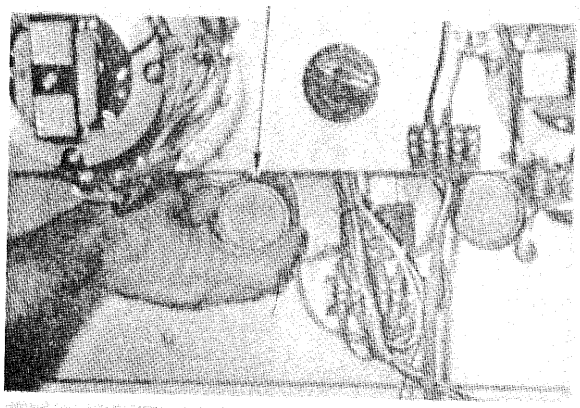
4-18. REMOVE/REPLACE TISSUE SPOOL MOTOR (CONT)

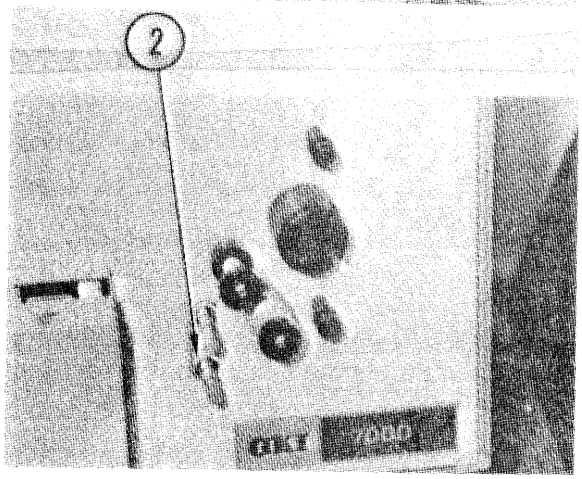


5. Remove nut and washer securing tissue spool motor to front panel

6. Remove tissue spool motor from tape drive.

Replace



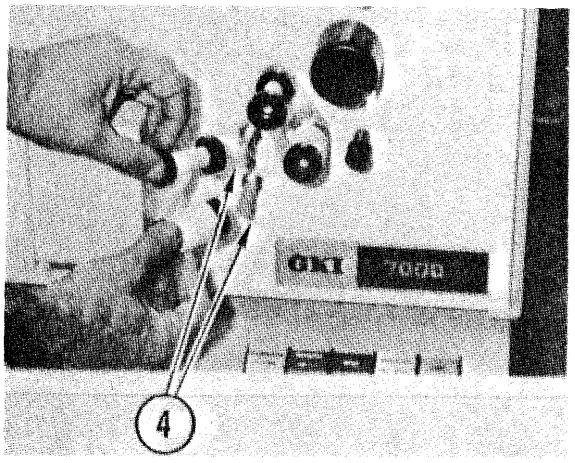


1. Insert shaft of tissue spool motor through rear of front panel and hold firmly in place.

2. Replace and tighten washer and nut on tissue spool motor shaft.

3. Attach tissue spool motor wires to terminal board AITB1. Dress wires to wire bundle and secure with tie wraps.

4-18. REMOVE/REPLACE TISSUE SPOOL MOTORS (CONT)



4. Apply a small amount of silicone compound to the outside of the tissue spool shaft. Replace tissue Spools.

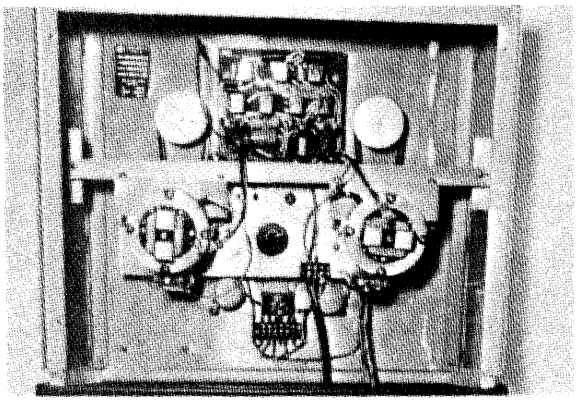
5. Close tape cleaner (para 4-ll).

4-19. REMOVE/REPLACE REEL MOTOR CLUTCH

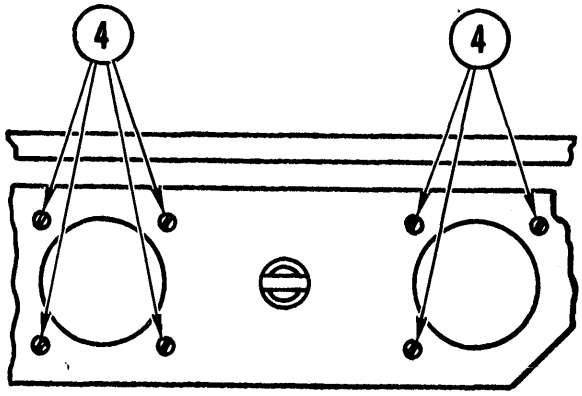
INITIAL SETUP

Common Tools	Materals/Spare Parts	Personnel Required
● Tool kit	● Pen or pencil ● Tags	● Two

Remove

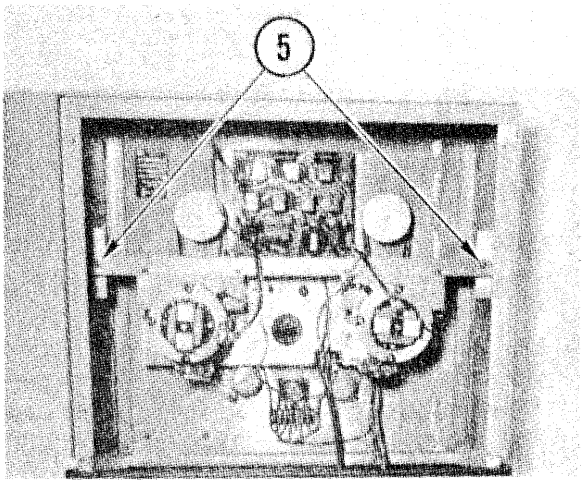


1. Remove reel assembly motor belts from both motors (para 4-20).
2. Tag and remove wires from ac power terminal strip.
3. Tag and remove connectors at J1 thru J6 from printed circuit board.

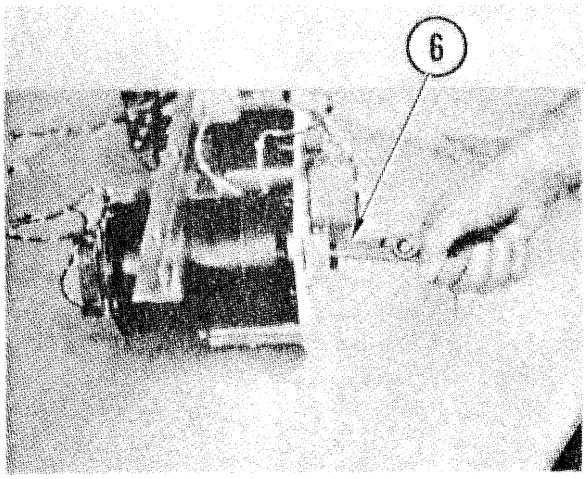


4. Remove screws from mounting plate.

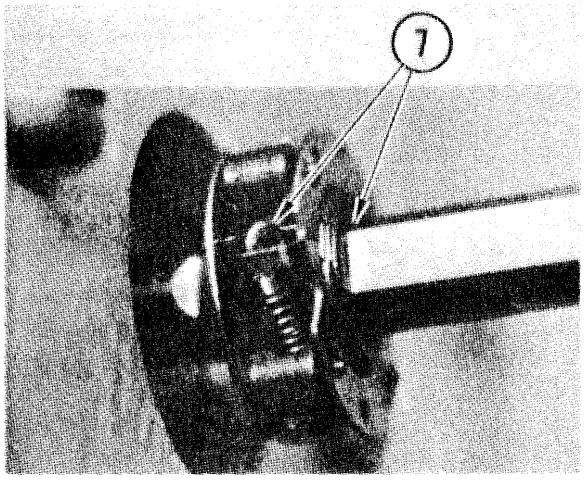
4-190 REMOVE/REPLACE REEL MOTOR CLUTCH (CONT)



5. While your partner supports bracket firmly, remove bolts, nuts, and washers from support bracket. Place reel motor assembly on a flat work surface.

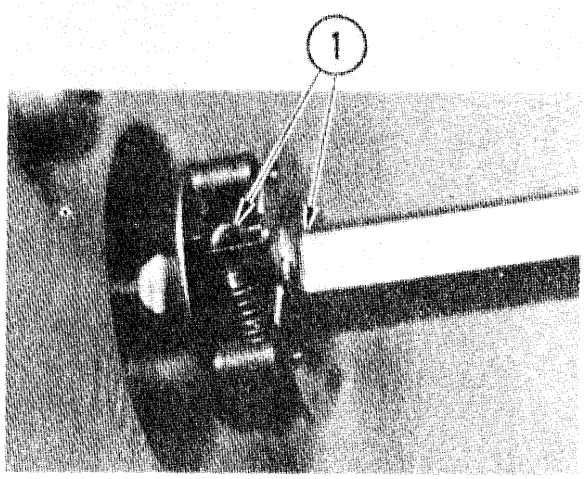


6. Using retaining ring tool, remove retaining ring from in front of the pulley. Remove washer. Remove pulley.



7. Mark front of clutch. Remove set screw. Pull off clutch from the motor shaft.

4-19. REMOVE/REPLACE REEL MOTOR CLUTCH (CONT)

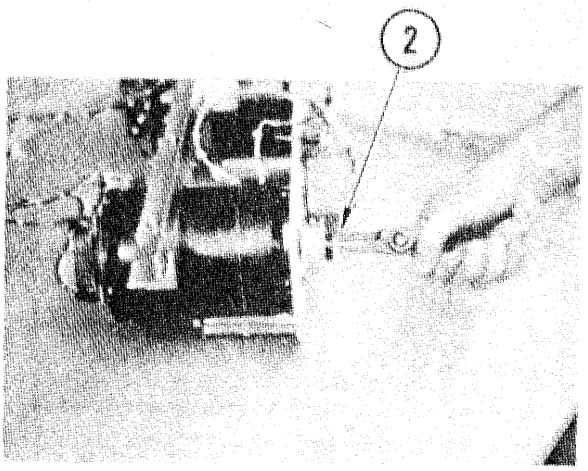


Replace

CAUTION

Before you slide the clutch on the motor shaft, make sure that front slots and pins on replacement clutch are in the same position as the marked front of the old one.

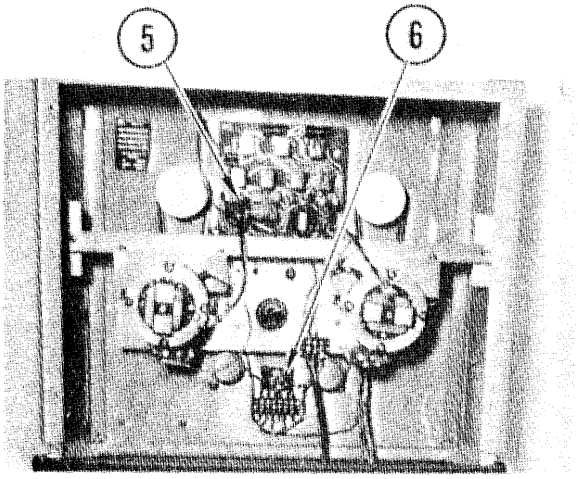
1. Slide new clutch on the motor shaft until set screw lines up with mark on the shaft made by old set screw. Tighten set screw.



2. Slide pulley onto motor shaft and over clutch. install retaining ring with retaining ring tool.

3. While your partner holds the support bracket, install and tighten bolts, washers, and nuts in support bracket.

4. Replace and tighten screws in mounting plate.



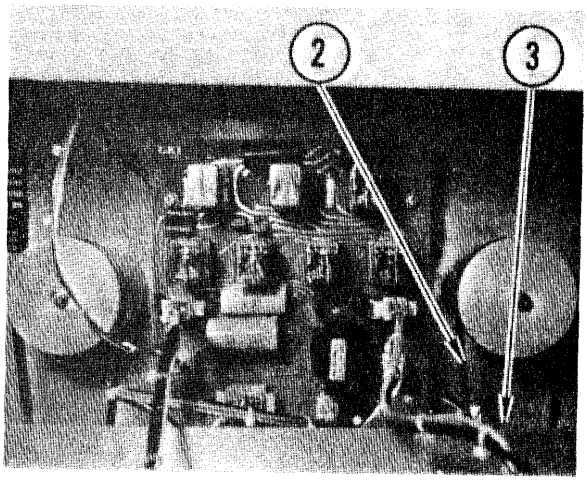
5. Replace connectors at J1 thru J6 on board.

6. Replace wires on ac power terminal strip.

7. Replace reel assembly motor belts (para 4-20).

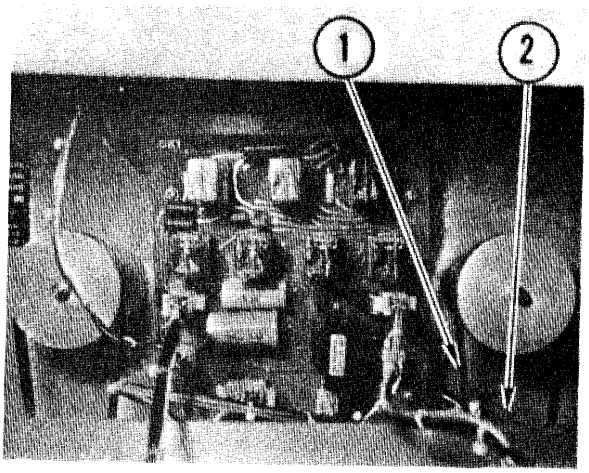
4-20. REMOVE/REPLACE REEL MOTOR BELTS

Common Tools	Materials/Spare Parts
● Tool kit	● Reel assembly motor belts



Remove

1. Open tape cleaner (para 4-11).
2. Reach behind reel assembly motor and remove belts from around clutch.
3. Lift belts clear of hub drive.



Replace

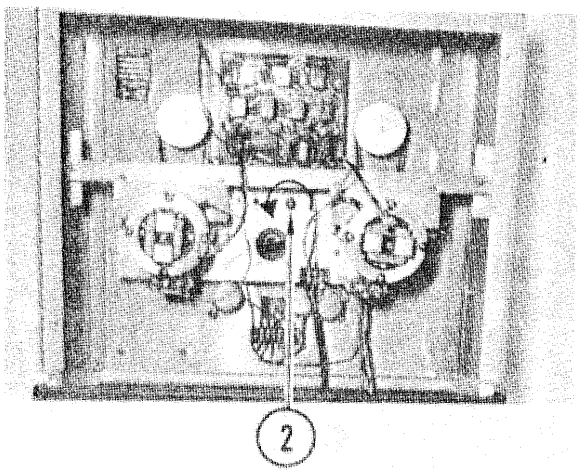
1. Place belts on hub drive.
2. Pull belts down and around clutch.
3. Close tape cleaner (para 4-11).

4-21. REMOVE/REPLACE FUSE

INITIAL SETUP

Common Tools
- Tool kit

Materials/Spare Parts
- Fuse



Remove

1. Open tape cleaner (para 4-ll).
2. Turn fuse cap as shown. Pull out fuse cap and remove fuse.

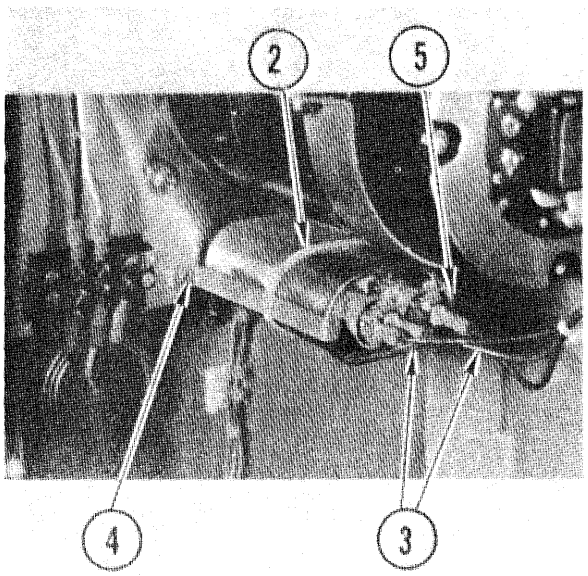
Replace

1. Set new fuse in cap. Push in cap and turn as shown.
2. Close tape cleaner (para 4-11).

4-22. REMOVE/REPLACE REEL MOTOR CAPACITOR

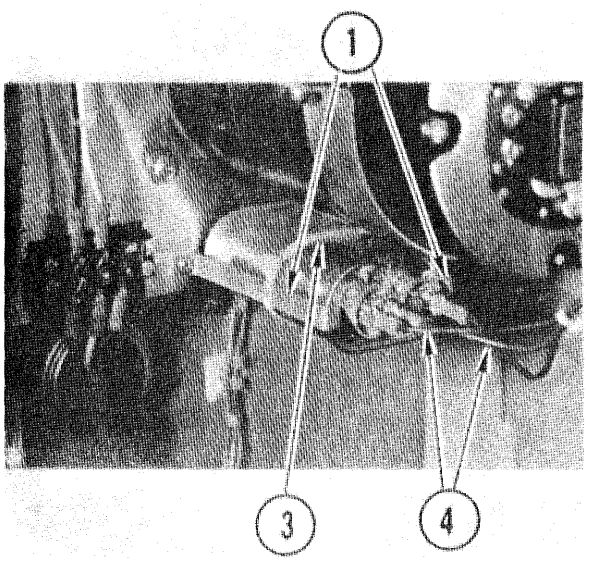
INITIAL SETUP

Common Tools	Materials/Spare Parts
● Tool kit	● Wire tags
	● Pen or pencil



Remove

1. Open tape cleaner (para 4-11).
2. Cut tie wrap from around capacitor.
3. Tag, then disconnect leads.
4. Remove screw from both mounting brackets.
5. Take off mounting brackets.
6. Lift out capacitor.



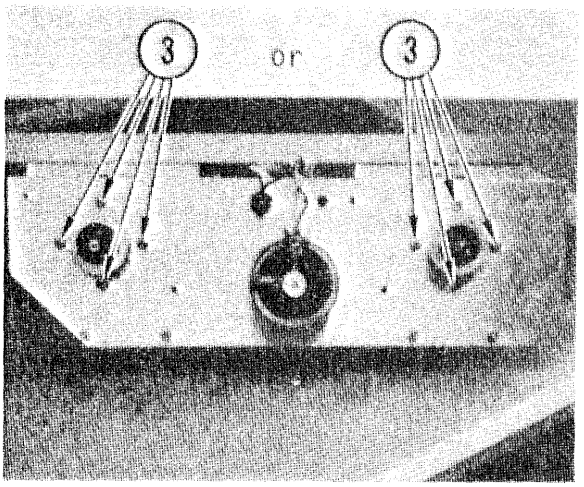
Replace

1. Place capacitor in position. Position mounting brackets on capacitor.
2. Replace and tighten screw in both brackets.
3. Replace tie wrap.
4. Replace leads.
5. Close tape cleaner (para 4-11).

4-23. REMOVE/REPLACE REEL MOTOR

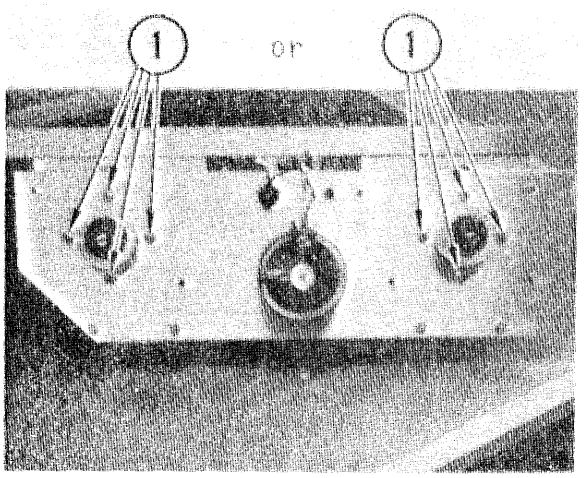
INITIAL SETUP

Common Tools	Materials/Spare Parts
● Tool kit	● Pen or pencil ● Tags



Remove

1. Remove reel motor clutch (para 4-19).
2. Remove reel motor brakes (para 4-25, Remove steps 2-4).
3. Remove screws holding motor to mounting plate. Tag and remove wires from capacitor.
4. Remove reel motor.



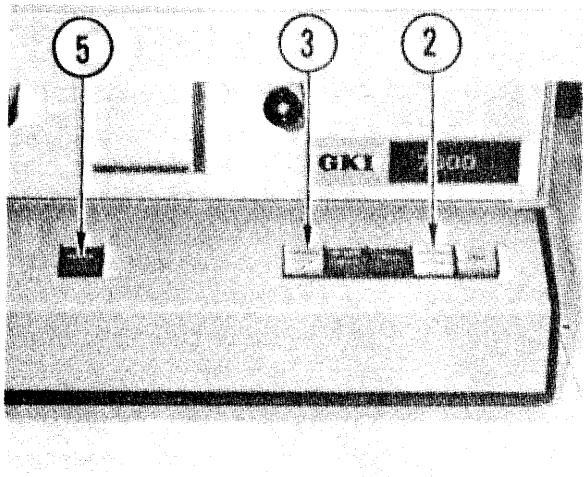
Replace

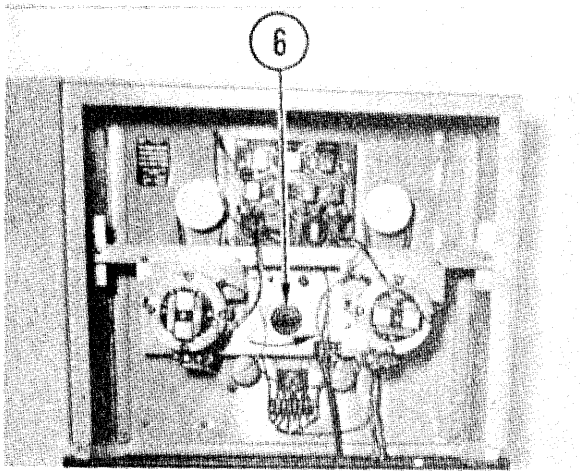
1. Hold new reel motor on mounting plate. Insert and tighten screws.
2. Replace reel motor clutch (para 4-19, Replace steps 1-7.
3. Replace reel motor brake (para 4-25)
4. Connect wires to capacitor.
5. Close tape cleaner (para 4-11)

4-24. ADJUST RUNNING TIME AND TENSION

INITIAL SETUP

Common Tools	Special Tools	Materials/Spare Parts	Supplies
● TK-100/G	● Stop watch	● Paper ● Pen or pencil ● Takeup reel	● Scratch tape



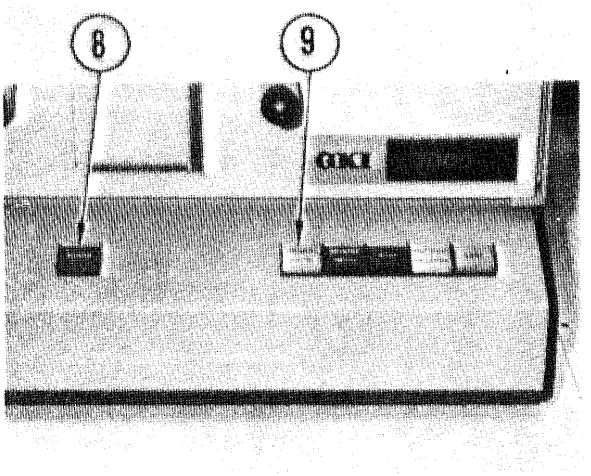


NOTE

Ensure that scratch tape has EOT/BOT markers with 2400 ft. of tape between markers.

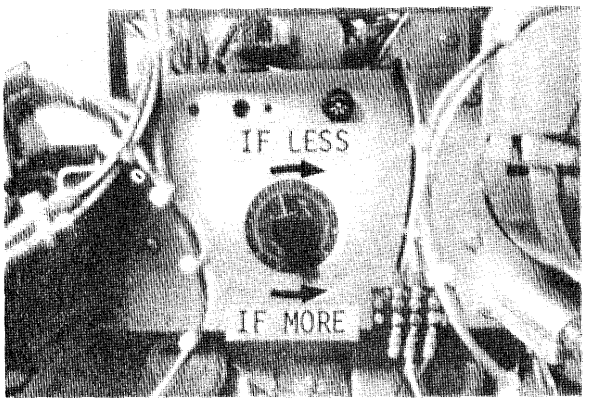
1. Load scratch tape.
2. Press FULL CYCLE.
3. Press FORWARD, and start timing.
4. When tape stops, stop timing.
   - If running time is 5 minutes 45 seconds ± 10 seconds, go to step 13
   - If running time is not 5 minutes 45 seconds ± 10 seconds, note running time on scratch paper. Then go to step 5
5. Press POWER off.
6. Open tape cleaner (para 4-11).
7. Turn knob as shown until it stops. Turn knob back to 20.

4-24. ADJUST RUNNING TIME AND TENSION (CONT)



8. Press POWER on.

9. Press FORWARD and start timing.



10. When tape stops, stop timing.

- If running time is 5 minutes 45 seconds ± 10 seconds, go to step 12
- If running time is less than 5 minutes 45 seconds ± 10 seconds, note running time on scratch paper. Then turn knob several degrees in direction shown. Go to step 11
- If running time is more than 5 minutes 45 seconds ± 10 seconds, note running time on scratch paper. Then turn knob several degrees in direction shown. Go to step 11

11. Repeat steps 9 and 10 until running time is 5 minutes 45 seconds ± 10 seconds.

12. Close tape cleaner (para 4-11).

13. Unload tape.

14. Remove takeup reel.

4-25. REMOVE/REPLACE REEL MOTOR BRAKE

INITIAL SETUP

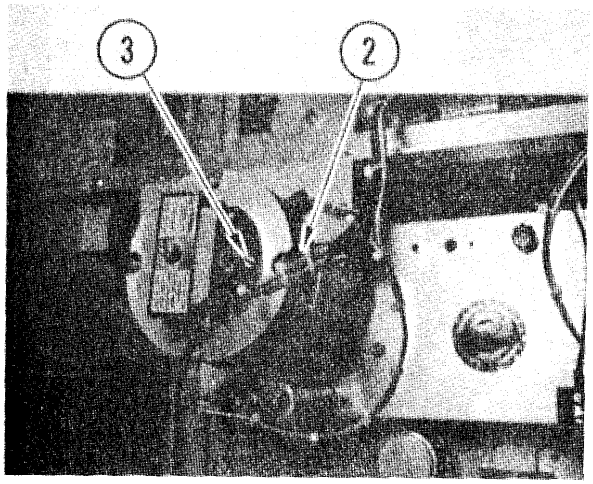
Common Tools
- Tool kit

Remove

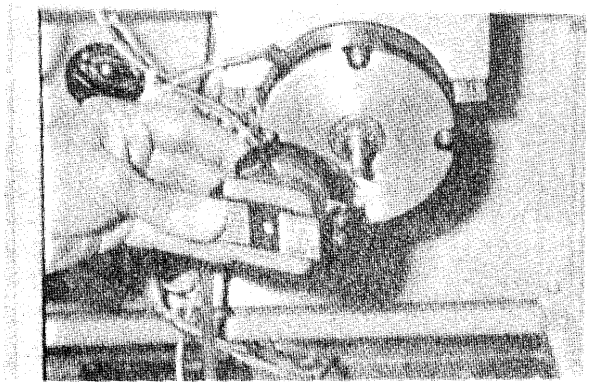
1. Open tape cleaner (para 4-11).

NOTE

When cutting wires at solderless connectors make sure enough wire length remains to reattach wires to brake.

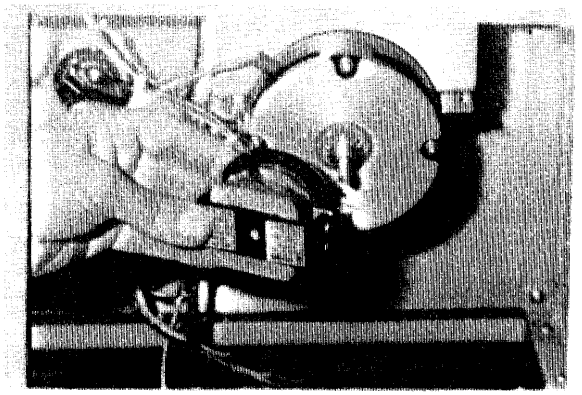


2. Cut wires to brake at solderless connectors.
3. Remove mounting bolts.



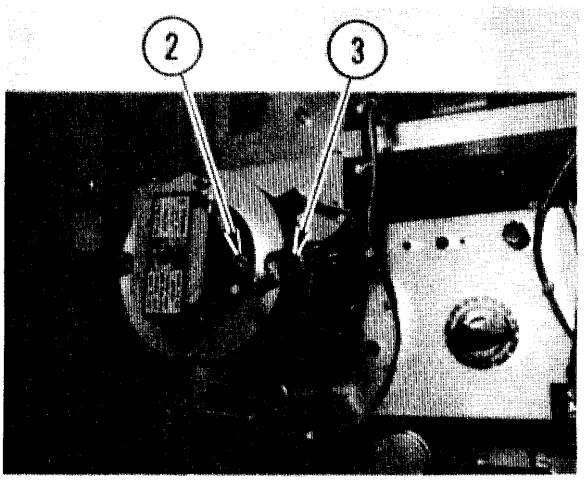
4. Pull brake off motor shaft.

4-25. REMOVE/REPLACE REEL MOTOR BRAKE (CONT)



Replace

1. Push brake on motor shaft.



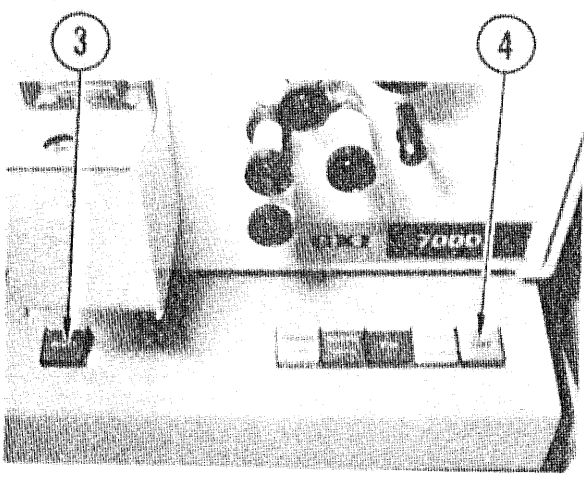
2. Replace and tighten mounting bolts.
3. Using crimping tool and solderless connectors, attach wires to brake.
4. Perform brake adjustment (para 4-26).
5. Close tape cleaner (para 4-11).

4-26. ADJUST REEL MOTOR BRAKE

INITIAL SETUP

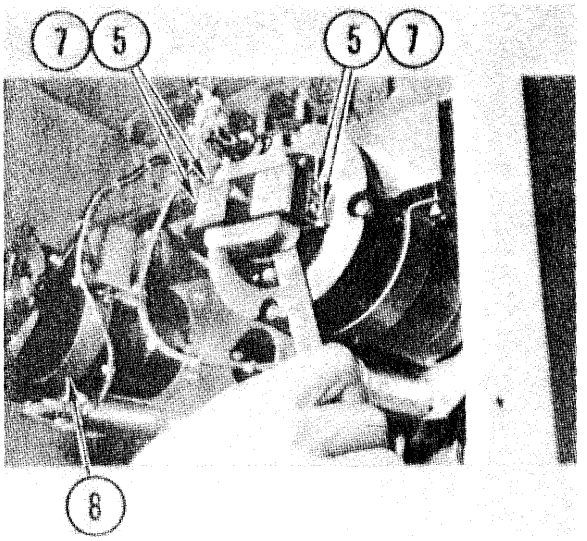
Common Tools
- Tool kit

1. Open tape cleaner (para 4-11).
2. Push power plug into power outlet.



3. Press POWER on.
4. Press LOAD.

4-26. ADJUST REEL MOTOR BRAKE (CONT)



WARNING

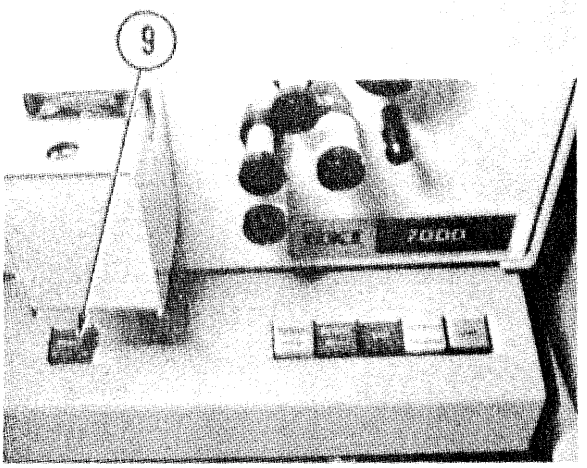
Keep screwdriver and feeler gauge away from capacitors under reel brake assembly. Shock hazard maybe present.

5. Loosen screws.

6. Use feeler gauge to set 0.015 inch gap.

7. Tighten screws, and remove feeler gauge.

8. Repeat steps 5-7 for other reel assembly.



9. Press POWER off.

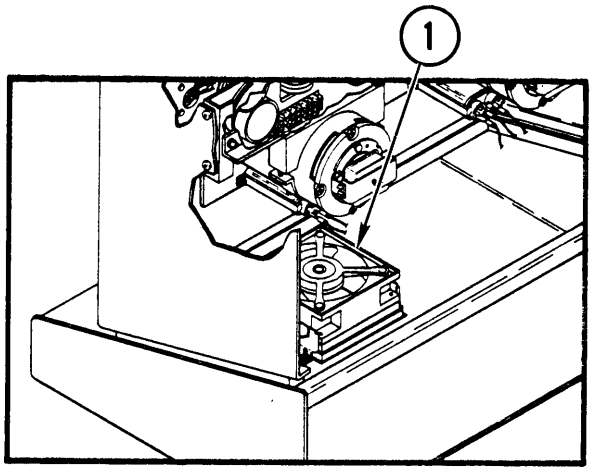
10. Pull power plug from outlet.

11. Close tape cleaner (para 4-11).

4-27. REMOVE/REPLACE FAN

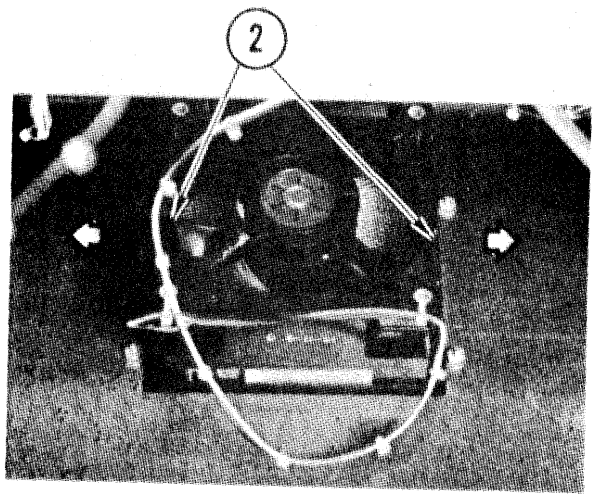
INITIAL SETUP

Common Tools
- Tool kit



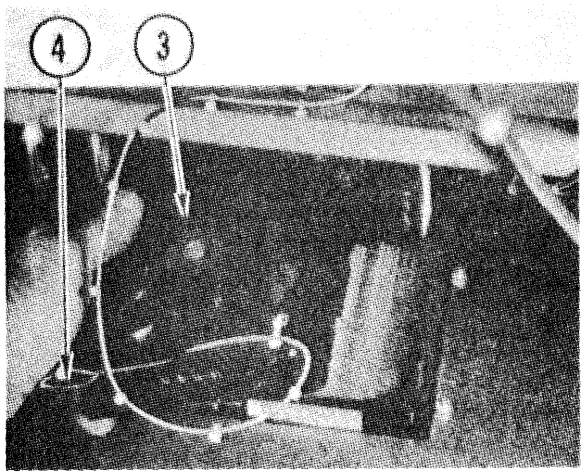
Remove

1. Open tape cleaner (para 4-1). Fan is located in center of cabinet floor.



2. Press either one of the mounting brackets at the sides of the fan in the direction shown.

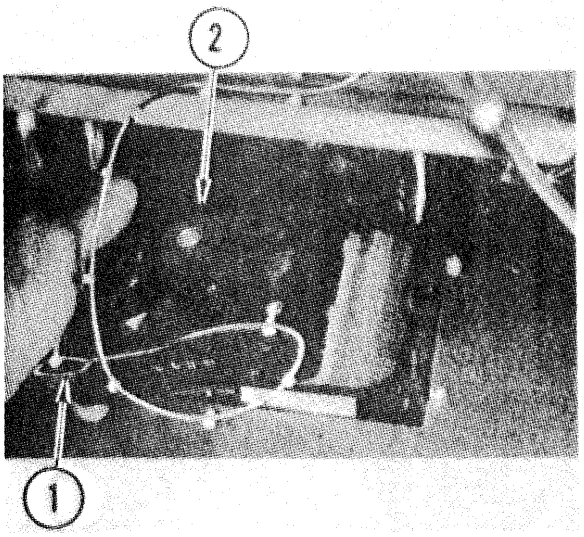
4-27. REMOVE/REPLACE FAN (CONT)



3. Lift out fan.

4. Unsolder wires from terminal on the fan.

5. Check condition of air filter element. If it is damaged or clogged with dust, replace it now (para 4-28).



Replace

1. Solder wires to terminals on the fan.

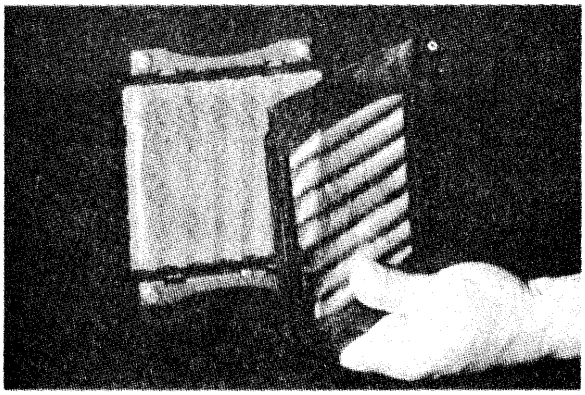
2. Place fan on the mounting brackets. Push either one of the mounting brackets in the direction shown and press the fan until it snaps into place.

3. Close tape cleaner (para 4-ll).

4-28. REMOVE/REPLACE AIR FILTER ELEMENT

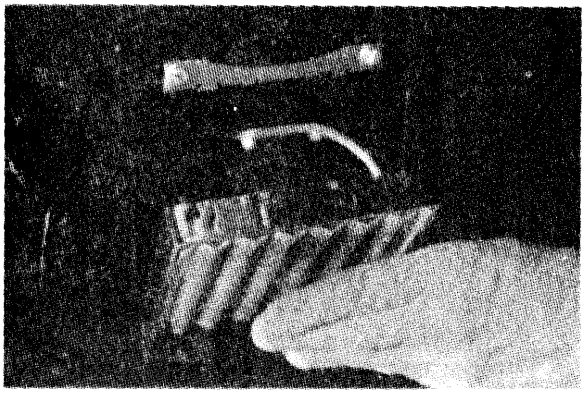
INITIAL SETUP

Common Tools
- Tool kit



Remove

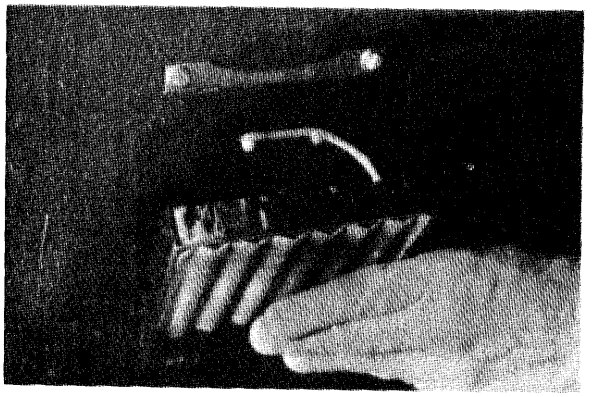
1. Open tape cleaner (para 4-11).
2. Place tape cleaner on side.
3. On underside of tape cleaner pull off filter element cover.



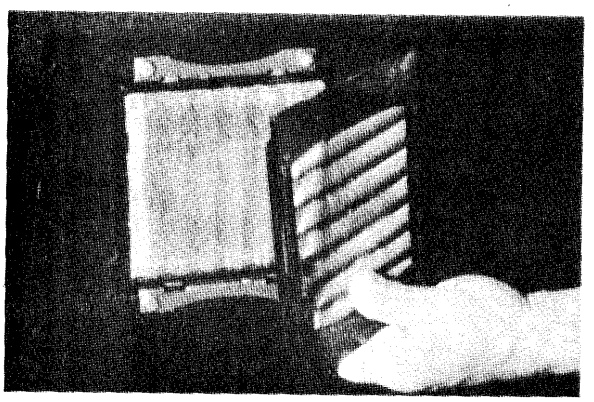
4. Pu1l out filter element.

4-28. REMOVE/REPLACE AIR FILTER ELEMENT (CONT)

Replace



1. Push in filter element.



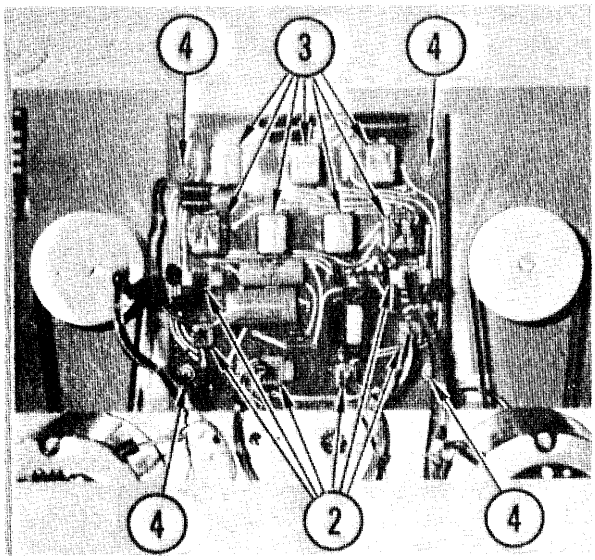
2. Push in filter element cover.
3. Place tape cleaner upright.
4. Close tape cleaner (para 4-ll).

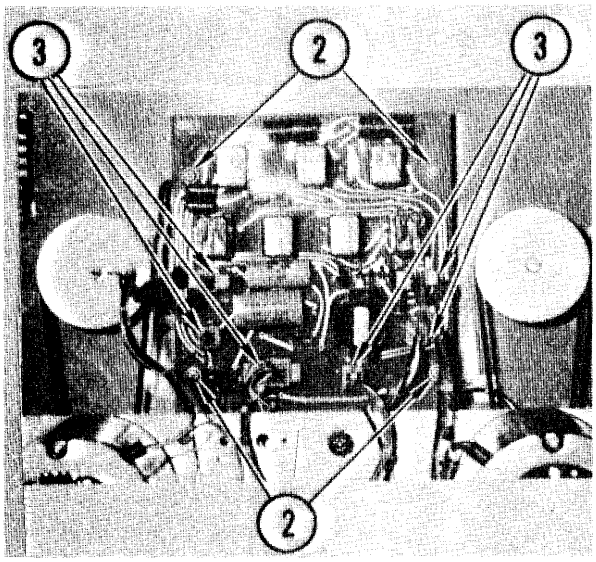
4-29. REMOVE/REPLACE CIRCUIT BOARD

INITIAL SETUP

Common Tools
- Tool kit

Materials/Spare Parts
- Tags
- Pen or pencil





Remove

1. Open tape cleaner (para 4-11).

NOTE

There are four P1 connectors, one P2 connector, and one P3 connector. Note positions of connectors at J1-J6 on board.

2. Tag and remove connectors.
3. Check if new board has relays K1 through K7.
   - If yes, go to step 4
   - If no, move relays K1 thru K7 from bad board to same positions on new board (para 4-30)
4. Remove screws.
5. Pull out bad board.

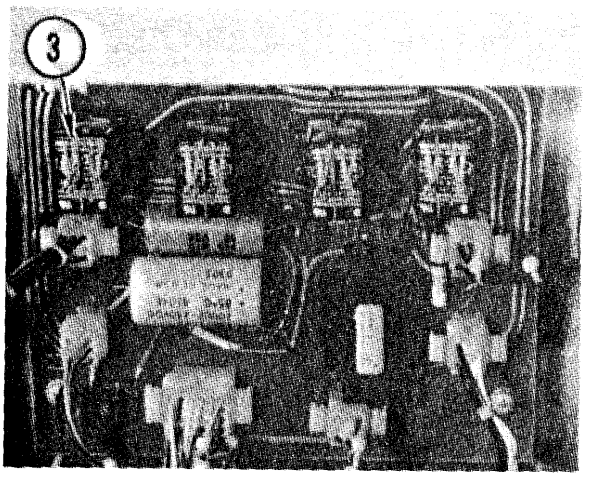
REPLACE

1. Push new board in tape cleaner.
2. Replace screws.
3. Push connectors P1 through P6 on
   l
4. Close,tape cleaner (para 4-11).

4-300 REMOVE/REPLACE RELAY

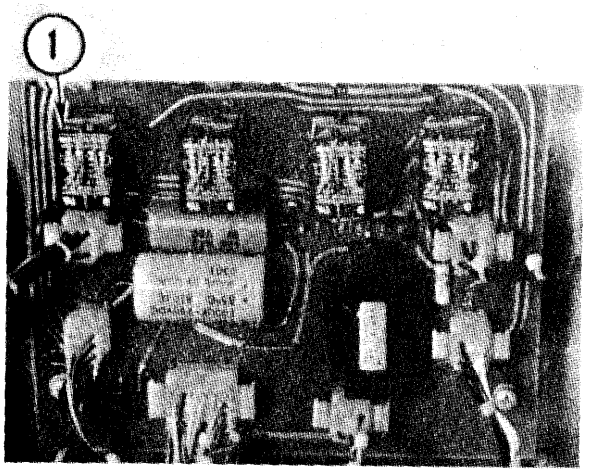
INITIAL SETUP

Common Tools
- Tool kit



Remove

1. Open tape cleaner (para 4-11).
2. Push retaining spring to side.
3. Pull out relay.



Replace

L Push in relay.

2. Move retaining spring back into place.
3. Close tape cleaner (para 4-11).

APPENDIX A
REFERENCES

A-1. INTRODUCTION

This appendix lists all forms, field manuals and technical manuals referenced in, or required for use with, this technical manual.

A-2. FORMS

Equipment Inspection and Maintenance Worksheet . . . . . DA Form 2404
Quality Deficiency Report . . . . . Form SF368
Discrepancy in Shipment Report . . . . . Form SF 364
Recommended Changes to Equipment Technical Manuals . . . . . DA Form 2028-2
Recommended Changes to Publications and Blank Forms . . . . . DA Form 2028
Maintenance Request . . . . . DA Form 2407

A-3. TECHNICAL MANUALS

Operator's Manual: Magnetic Tape Cleaner MX-10172/MYQ-4 . . . . . TM 11-7035-203-10
Procedures for Destruction of Electronic Materiel to Prevent Enemy Use (Electronics Command) . . . . . TM 750-244-2
The Army Maintenance Management System (TAMMS) . . . . . TM 38-750
Administrative Storage of Equipment . . . . . TM 740-90-1

A-4. MISCELLANEOUS PUBLICATIONS

Consolidated Index of Army Publications and Blank Forms . . . . . DA PAM 310-1

APPENDIX B
MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

B-1. GENERAL

This Maintenance Allocation Chart (MAC) provides a summary of maintenance operations for the tape cleaner. This document assigns categories of maintenance for specific maintenance functions on repairable items and identifies tools and equipment required to perform each function. Each maintenance function is assigned to the lowest level of maintenance prepared to perform that function for the tape cleaner. It should be understood that each maintenance function can also be performed at all higher levels of maintenance. The higher levels of maintenance will have tools and test equipment to perform the maintenance functions assigned to and normally performed by lower levels of maintenance.

The following paragraphs of Section I present maintenance function definitions, explanation of MAC column entries, and explanation of column entries of the tool and test equipment requirements section. Section II presents the MAC for the tape cleaner and Section 111 presents the tool and test equipment requirements for the tape cleaner.

B-2. MAINTENANCE FUNCTION DEFINITIONS.

Maintenance Functions are limited to and defined as follows:

a. Inspect Determination of the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination.

b. Test. Verification of serviceability and detection of beginning failure by measuring mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. Service. Performance of operations required periodically to keep an item in proper-rig condition. Such operations would include cleaning, preservation, draining, painting, or replenishment of fuel/lubricants/hydraulic fluids or compressed air supplies.

d. Adjust. Maintenance within prescribed limits by bringing into proper or exact position, or by setting the operating characteristics to the specified parameters.

e. Aline. Adjustment of specified variable elements of an item to the maximum or desired performance.

f. Calibrate. Determination and cause corrections to or adjustments to instruments or test measuring and diagnostic equipment used in precision measurement. Consists of comparing two instruments, one a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. Install. Emplacement , seating, or fixing into position an item, part, or module (component or assembly) in a manner to allow proper functioning of the equipment/system.

h. Replace. Substitution of a serviceable like-type part, subassembly, or module (component or assembly) for an unserviceable counterpart.

i. Repair. Application of maintenance services (inspect, test, service, adjust, aline, calibrate, replace) or other maintenance actions (welding, grinding, riveting, straightening, facing, remaching, or resurfacing) to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module/component/assembly, and item or system. This function does not include trial and error replacement of consumable spare type items such as fuses, lamps, or electronic tubes.

j. Overhaul. Periodic maintenance effort (service/action) necessary to restore an item to a completely serviceable/operational condition as prescribed by maintenance standards (e.g., DMWR) in appropriate technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like-new condition.

k. Rebuild. Restoration of unserviceable equipment to a like-new condition in accordance with original manufacturing standards. Rebuild is the highest degree of material maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hour, miles etc.) considered in classifying Army equipment/components.

B-3. EXPLANATION OF MAC COLUMN ENTRIES.

a. Group Number. This column lists group numbers, the purpose of which is to identify components, assemblies, subassemblies and modules with the next highest assembly.

b. Component/Assembly. This column contains the noun names of components, assembles, subassemblies, and modules for which maintenance is authorized.

c. Maintenance Function. This column lists the functions to be performed on the item listed in the Component/Assembly column.

d. Maintenance Category. This column specifies, by the listing of a “worktime” figure in the appropriate subcolumn(s), the lowest level of maintenance authorized to perform the function listed in the Maintenance Function column. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity of the tasks within the listed maintenance function varies at different maintenance categories, appropriate “worktime” figures will be shown for each category. The number of man-hours specified by the “worktime” figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time, troubleshooting time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the MAC.

Subcolumns of the Maintenance category Column are:

C -- Operation/Crew
O -- Organizational
F -- Direct Support
H -- General Support
D -- Depot

e. Tools and Equipment. This column specifies by code those common tool sets (not individual tools) and special tools, test, and supporting equipment required to perform the designated function.

Explanation of Column Entries of Tool and Test Equipment Requirements Table.

a. Tool or Test Equipment Reference Code. The numbers in this column coincide with the numbers used in the tools and equipment column of the MAC. The numbers indicate the applicable tool or test equipment for the maintenance functions.

b. Maintenance Category. The codes in this column indicate the maintenance category allocated the tool or test equipment.

c. Nomenclature. This column lists the noun name and nomenclature of tools and test equipment required to perform the maintenance functions.

d. National/NATO Stock Number. This column presents the National/NATO Stock number of the specific tool or test equipment when these numbers are assigned.

e. Tool Number. This column lists the manufacturer’s part number of the tool, followed by the Federal supply code for the manufacturer (5 digit) in parentheses, when these numbers are fully identified.

SECTION II MAINTENANCE ALLOCATION CHART
FOR MAGNETIC TAPE CLEANER MX-10172/MYQ-4

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY C	O	F	H	D	(5) TOOLS AND EQUIP.	(6) REMARKS
09	Magnetic Tape Cleaner (MX-10172/MYQ-4)	Test			0.5			3,4	F
		Service		0.6				1	
		Replace			0.3			1,2	
		Repair			1.0			1,2,4,5,6	
		Overhaul					8.0		A
0901	Circuit Card Assy.	Test		0.5				1,4	
		Replace			0.7			1	
		Repair			0.3			1	
		Repair					1.0		A

DRSEL-MA Form 6031-1, (1 Mar 77) HISA-FM 526-77

SECTION III TOOL AND TEST EQUIPMENT REQUIREMENTS
FOR MAGNETIC TAPE CLEANER MX-10172/MYQ-4

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
1	O,F	Tool Kit Electronic Equipment TK17	5180-01-023-4982	
2	F	Decimal Socket Set	5120-00-247-0748	
3	F	Oscilloscope, OS-261/C	6625-00-127-0079	
4	F	Multimeter, Digital AN/USM-451	6625-01-060-6804	
5	F	Hex Key Allen Set - Metric	5120-00-529-1475	
6	F	Screwdriver, Stubby, Phillips	TBD	HIS97017133-001 (33322)

DRSEL-MA Form 6013-1, (1 Mar 77)

HISA-FM 411-77

SECTION IV MAINTENANCE ALLOCATION CHART
FOR MAGNETIC TAPE CLEANER MX-10172/MYQ-4

Reference Code	Remarks

A. Repair by contractor.

B. DS repair of 0107 Power Supply limited to replacement of fan and/or fuses.

c. DS repair of 0125 Power Distribution Unit limited to replacement of fuses.

D. OS repair of 070501 XPS/4 Board limited to replacement of fuses.

E. DS repair of 0706 Universal Wire Harness limited to replacement of connectors and limit switch.

F. See Technical System Manual for Complete Group Coding.

APPENDIX C
EXPENDABLE SUPPLIES AND MATERIALS LIST

Section. 1. INTRODUCTION

C-1 . SCOPE

This appendix lists expendable supplies and materials you are authorized for the support of Magnetic Tape cleaner MX-10172/MyQ-4.

C-2 . GENERAL

This list identifies items that do not have to accompany Magnetic Tape Cleaner MX-10172/MYQ-4 and that do not have to be turned in with it.

C-3. EXPLANATION OF LISTING

National stock numbers, descriptions, and quantities are provided to help you identify and request the additional items you require to support this equipment.

Section II. EXPENDABLE SUPPLIES AND MATERIALS

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
		8135-00-292-2543	Tag, Blank	MX
		4975-00-451-5001	Strap, Tiedown, 12-inch 96906 MS 3367-3-9	FT
		7510-00-266-6709	Tape, Masking	RO

APPENDIX D
SCHEMATIC DIAGRAMS

D-1 . GENERAL

Appendix D provides information to be used if troubleshooting procedures in this manual fail to help you isolate a fault. You can use common procedures to check wire connections and circuits.

D-2. DIAGRAMS

Foldout FO-1 illustrates the pin numbers and circuitry of the tape cleaner including:

- Control switch connectors (P1/J1)
- Ac input connectors (P1/J2)
- Photocell connectors (P1/J3)
- Fan connectors (P1/J4)
- Reel motor supply brake connectors (P2/J6)
- Reel motor tape-up brake connectors (P3/J5)

GLOSSARY

BOT. Beginning Tape. A reflective marker attached to a reel of magnetic tape so that a photosensor can recognize the beginning of the tape.

EOT. End of Tape. A reflective marker attached to a reel of magnetic tape so that a photosensor can recognize the end of the tape.

IPS. Inches per Second. Rate of speed at which a magnetic tape passes over a read/write head.

OXIDE. Iron oxide coating on magnetic tape with is polarized during recording to produce digital characters on the tape.

TAPE LEADER. Short length of magnetic tape at beginning and end of reel (usually before BOT marker and after EOT marker). Used for threading only. Should not contain recorded data.

TAPE TRANSPORT. The system of reel hubs and tape guides used to route the tape through the tape cleaner.

TMDE. Test, measurement and diagnostic equipment. Electronic equipment used for troubleshooting and maintenance.

INDEX

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

SOMETHING WRONG WITH THIS PUBLICATION?

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)
Commander
Stateside Army Depot
ATTN: AMSTA-US
Stateside, N.J. 07703

DATE SENT: 10 July 1975

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 11-5840-340-12	23 Jan 74	Radar Set AN/PRC-76

BE EXACT. PIN-POINT WHERE IT IS

PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO	IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:
2-25	2-28			Recommend that the installation antenna alignment procedure be changed throughout to specify a 2° IFF antenna lag rather than 1°. REASON: Experience has shown that with only a 1° lag, the antenna servo system is too sensitive to wind gusting in excess of 25 knots, and has a tendency to rapidly accelerate and decelerate as it hunts, causing strain to the drive train. Hunting is minimized by adjusting the lag to 2° without degradation of operation.
3-10	3-3		3-1	Item 5, Function column. Change "2 db" to "3db." REASON: The adjustment procedure for the TRANS POWER FAULT indicator calls for a 3 db (500 watts) adjustment to light the TRANS POWER FAULT indicator.
5-6	5-8			Add new step f.1 to read, "Replace cover plate removed in step e.1, above." REASON: To replace the cover plate.
		F03		Zone C 3. On J1-2, change "+24 VDC to "+5 VDC." REASON: This is the output line of the 5 VDC power supply. +24 VDC is the input voltage.

SAMPLE

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER: SSG I. M. DeSpiritof 999-1776

SIGN HERE: I. M. DeSpiritof

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PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 11-7035-203-23	12 Mar 84	MAGNETIC TAPE CLEANER MX-10172/MYQ-4

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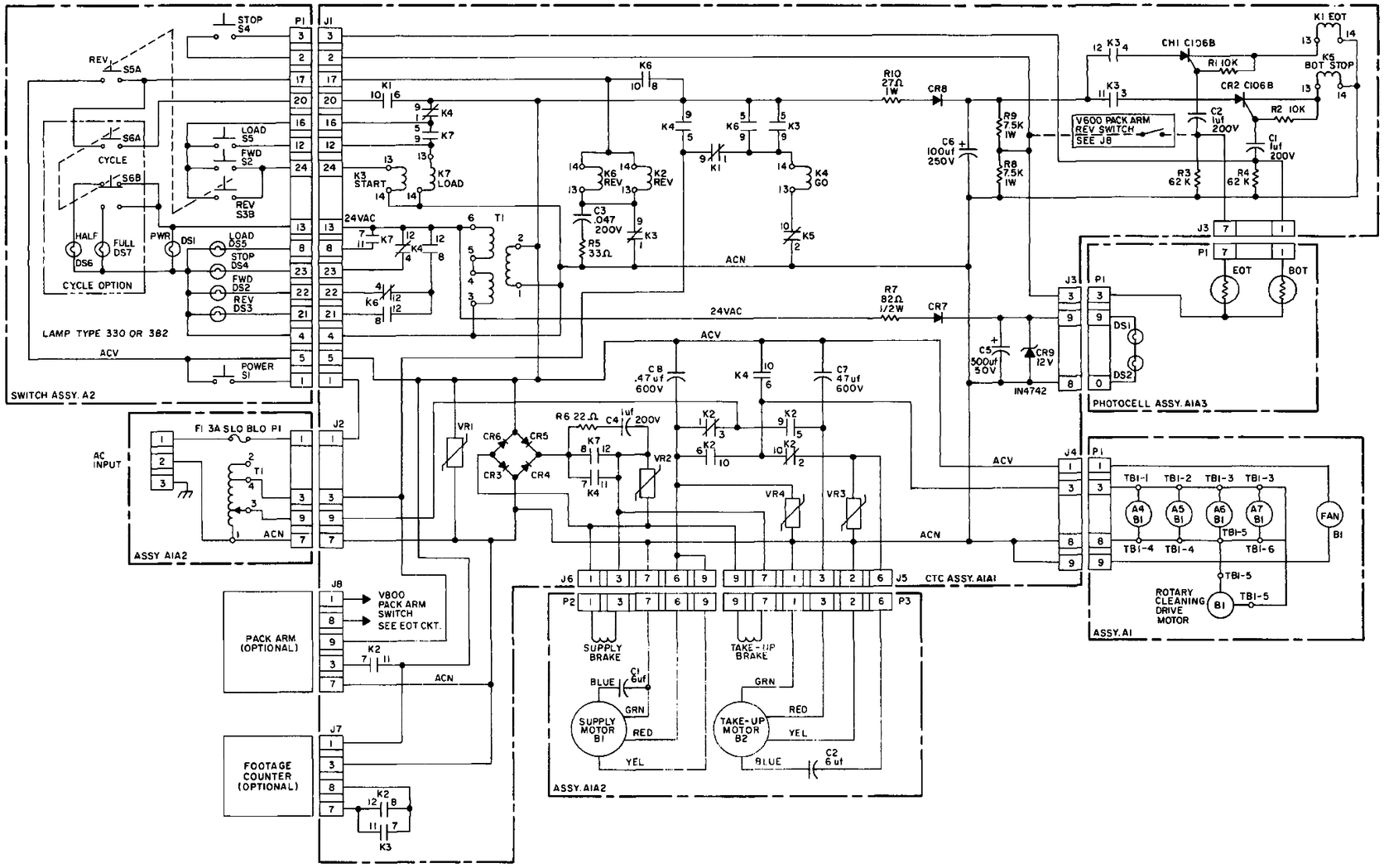

FO-1: Tape Cleaner Schematic Diagram