DEPARTMENT OF THE ARMY TECHNICAL MANUAL

ORGANIZATIONAL, AND

MAINTENANCE MANUAL

TEXTILE REPAIR SHOP, TRAILER-MOUNTED, YORK

ASTRO MODEL D8700477, ARMY MODEL SPV 35

(FSN 3530-819-2008), AND

CLOTHING REPAIR SHOP, TRAILER-MOUNTED

YORK ASTRO MODEL D8700337, ARMY MODEL SPV 34

(FSN 3530-819-2007)

This reprint includes all changes in effect at the time of publication; changes 2 and 3.

HEADQUARTERS, DEPARTMENT OF THE ARMY
JUNE 1966

TM 10-3530-203-24
C 3

CHANGE
No. 3

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 21 August 1981

ORGANIZATIONAL, DS, AND GS MAINTENANCE MANUAL
CLOTHING REPAIR SHOP, TRAILER-MOUNTED
YORK ASTRO MODEL D8700337, ARMY MODEL SPV 34
(NSN 3530-00-819-2007)
AND
YORK ASTRO MODEL D8700680
(NSN 3530-00-999-8577)
AND
NATICK MODEL NA-79
(NSN 3530-01-075-3503)

TM 10-3530-203-24, 1 June 1966, is changed as follows:

Pages 10 thru 24 are deleted.

Page 165.

Section II is superseded as follows:

Section II.
PREVENTIVE MAINTENANCE
CHECKS AND SERVICES

7-3. General.

To insure that the Clothing Repair Shop is ready for operation at all times, it must be inspected systematically so that the defects may be discovered and corrected before they result in serious damage or failure. Defects discovered during operation of the unit shall be noted for future corrections, to be made as soon as an operation has ceased. Stop operation which would damage the equipment if operation were to continue. All deficiencies and shortcomings shall be recorded together with the corrective action taken on DA Form 2404, Equipment Inspection and Maintenance Worksheet at the earliest opportunity. When performing your quarterly PMCS, always keep in mind the CAUTIONS and WARNINGS. If your equipment fails to operate, troubleshoot with proper equipment. Report any deficiencies using the proper forms, see TM 38-750.

7-4. Preventive Maintenance Checks and Services.

Refer to Table 7-1 for Preventive Maintenance Checks and Services.

a. Item Number Column. Checks and services are numbered in chronological order regardless of interval. This column will be used as a source of item numbers for the TM Item Number column on DA Form 2404 in recording results of PMCS.

b. Interval Columns. The column headed Q will contain a dot (•) opposite the appropriate check indicating it is to be performed Q-Quarterly (250 hours).

c. Item to be Inspected Column. The items listed in this column are divided into groups and identifies the items to be inspected.

d. Procedures Column. This column contains a brief description of the procedure by which the check is to be performed.

e. Equipment will be Reported Not Ready/Available Column. This column will contain the criteria which will cause the equipment to be classified as not Ready/Available because of inability to perform its primary mission.

NOTE

If the equipment must be kept in continuous operation, check and service only those items that can be checked and serviced without disturbing operation. Make the complete checks and services when the equipment can be shutdown.

NOTE

Refer to the daily preventive maintenance checks and services for the generator set in TM 5-6115-271-12, and cargo trailer in TM 9-2330-213-14.

Pages 166 and 167 are superseded as follows:

Table 7-1. ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES

INTERVAL Q-QUARTERLY (250 HOURS)

ITEM NO.	Q	ITEM TO BE INSPECTED	PROCEDURE CHECK FOR AND HAVE REPAIRED OR ADJUSTED AS NECESSARY	EQUIPMENT IS NOT READY/ AVAILABLE IF:
		CLOTHING SEWING MACHINE		
1	•	Faceplate Assembly	a. Inspect presser bar and spring for loose mounting and damage.	
	•		b. Inspect needle bar for improper alinement (para 3-52).	
	•		c. Check takeup lever for excessive play.	
	•		d. Make certain the presser bar lifter has a 1-inch play before meeting resistance.	
2	•	Balance Wheel, Pulleys, and Drive Belt	a. Inspect balance wheel for loose mounting or binding when being turned.	
	•		b. Inspect pulleys for cracked, burred, and chipped edges.	
	•		c. Inspect drive belt for fraying or excessive wear.	
	•		d. Check belt for proper adjustment, 1-inch deflection of the belt, midway between the pulleys.	
3	•	Bobbin Winder	a. Inspect for bent, broken, loose, and missing components.	
	•		b. Inspect for excessively worn leather brake.	
	•		c. Check for improper alinement of pulley with drive belt.	

Table 7-1. ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES--continued

ITEM NO.	Q	ITEM TO BE INSPECTED	PROCEDURE CHECK FOR AND HAVE REPAIRED OR ADJUSTED AS NECESSARY	EQUIPMENT IS NOT READY/ AVAILABLE IF:
4	•	Motor, Clutch, Rod, and Treadle	a. Inspect for bent, broken, and loose components.	
	•		b. Observe motor during operation for unusual noise or excessive vibration.	
.	•		c. Operate treadle and see that the pulley brake lever engages the motor drive pulley with the drive motor when the treadle is released.	
5	•	Thread Tension, Stud, Thumbnut, and Thread Control spring	a. Inspect thread control spring for broken, bent, and corroded coils.	
	•		b. Inspect thread tension, stud, and thumbnut for stripped threads and make certain thumbnut turns with tension on stud.	
6	•	Throat Plate and Feed Dog	a. Inspect for broken, bent, nicked, corroded, and improperly installed plate.	
	•		b. Inspect feed dog for excessively worn or broken teeth. Make certain teeth show their full length above the throat plate.	
7	•	Shuttle Race and Bobbin Case	a. Inspect for improperly installed shuttle.	
	•		b. Check for nicked or burred shuttle race, back and body, and for chipped and broken body point.	
	•		c. Check bobbin case for loose, damaged, or missing parts.	

Table 7-1. ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES--continued

ITEM NO.	Q	ITEM TO BE INSPECTED	PROCEDURE CHECK FOR AND HAVE REPAIRED OR ADJUSTED AS NECESSARY	EQUIPMENT IS NOT READY/ AVAILABLE IF:
		DARNING MACHINE		
8	•	Thread Retainer	Inspect for bent, broken, and improperly installed thread retainer. Make certain the setscrew holds the retainer securely.	
9	•	Balance Wheel, Pulleys, and Drive Belt	a. Inspect balance wheel for loose mounting or binding when being turned.	
	•		b. Inspect pulleys for cracked, burred, and chipped edges.	
	•		c. Inspect drive belt for fraying or excessive wear.	
	•		d. Check belt for proper adjustment, 3/4-inch deflection of the belt midway between the pulleys.	
10	•	Bobbin Winder	a. Inspect for bent, broken, loose, and missing components.	
	•		b. Inspect for excessively worn leather brake.	
	•		c. Check for improper alinement of pulley with drive belt.	
11	•	Motor, Clutch, Rod, and Treadle	a. Inspect for bent, broken, and loose components.	
	•		b. Observe motor during operation for unusual noise or excessive vibration.	
	•		c. Press treadle and see that the motor engages, and that it disengages when the treadle is released.	

Table 7-1. ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES--continued

ITEM NO.	Q	ITEM TO BE INSPECTED	PROCEDURE CHECK FOR AND HAVE REPAIRED OR ADJUSTED AS NECESSARY	EQUIPMENT IS NOT READY/ AVAILABLE IF:
12	•	Knee Lifter	a. Inspect for bent, broken, loose, and missing components.	
	•		b. Operate knee lifter to see that it raises and lowers the presser foot.	
13	•	Thread Tension Stud, Thumbnut, and Thread Control Spring	a. Inspect thread control spring for broken, bent, and corroded coils.	
	•		b. Inspect thread tension stud and thumbnut for stripped threads. Make certain thumbnut turns with a small amount of resistance.	
14	•	Cylinder End Cover, Throat Plate, and Slide Stop	a. Inspect cylinder end cover for cracked, bent, and broken surface.	
	•		b. Inspect for bent, broken, or improperly installed throat plate and slide stop.	
		BUTTON SEWING MACHINE		
15	•	Motor	a. Inspect for bent, broken, and loose components.	
	•		b. Observe motor during operation for unusual noise or excessive vibration.	

Table 7-1. ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES--continued

ITEM NO.	Q	ITEM TO BE INSPECTED	PROCEDURE CHECK FOR AND HAVE REPAIRED OR ADJUSTED AS NECESSARY	EQUIPMENT IS NOT READY/ AVAILABLE IF:
16	•	Drive Belt and Pulleys	a. Inspect pulleys for cracked, burred, and chipped edges.	
	•		b. Inspect drive belt for fraying or excessive wear.	
	•		c. Check belt for proper adjustment, 1-inch deflection of the belt, midway between the pulleys.	
17	•	Looper	a. Tilt machine on side and inspect for broken looper point.	
	•		b. Inspect looper, needle guide, and thread finger for improper adjustment.	
18	•	Starting Treadle and Chain	a. Inspect for bent or broken links and loose mounting to the pulley shifter and to the starting treadle.	
	•		b. Press treadle and make certain pulley shifter engages with the machine drive pulley.	
19	•	Button Clamp Lifter Treadle	a. Inspect for bent or broken links and loose mounting to button clamp lifting rod and to button clamp lifter treadle.	
	•		b. Press the treadle and make certain the lifting rod raises and lowers the button clamp.	

By Order of the Secretary of the Army:

E. C. MEYER
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Brigadier General, United States Army
The Adjutant General

DISTRIBUTION:
To be distributed in accordance with DA Form 12-25A, Organizational Maintenance Requirements for Clothing and Textile Repair.

TM 10-3530-203-24
***C2**

CHANGE

No. 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., *16 January 1981*

ORGANIZATIONAL, DS, AND GS MAINTENANCE MANUAL
CLOTHING REPAIR SHOP, TRAILER-MOUNTED
YORK ASTRO MODEL D8700337, ARMY MODEL SPV 34
(NSN 3530-00-819-2007)
AND
YORK ASTRO MODEL D8700680
(NSN 3530-00-999-8577)
AND
NATICK MIODEL NA-79
(NSN 3530-01-075-3503)

TM 10-3530-203-24, 1 June 1966, is changed as follows: The cover title is changed as shown above.
Inside the cover add the following:

SAFETY PRECAUTIONS

BEFORE OPERATION

Provide metal-to-metal contact between the container and tank when handling fuel. This will prevent a spark from being generated when fuel flows over the metallic surfaces.

Do not operate the generator set in an enclosed area unless the exhaust gases are piped to the outside. Exhaust gases contain deadly carbon monoxide, which is colorless, odorless, and poisonous.

Do not operate the generator set until the ground terminal has been connected to a suitable ground. Electrical faults in the generator set, load lines, or equipment can cause death by electrocution when a system has not been grounded properly.

Make connections with all switches in the OFF position, and make sure the generator set is not operating or connected to another set that is operating when making connections. A sewing machine could accidentally start and result in injury to the finger or damage to the machine.

Keep hands away from the needle when turning cycle and immediately start stitching.

WARNING

Operation of this equipment presents a noise hazard to personnel in the area. The noise level exceeds the allowable limits for unprotected personnel. Wear ear muffs or ear plugs which were fitted by a trained professional.

DURING OPERATION

Do not refuel the generator set while it is in operation as an explosion and fire from fuel vapors could result in personal injury and loss of equipment.

Do not hold face near the needle of the sewing machine while sewing as needle could break and injure eyes.

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*This change supersedes C1, 10 August 1972.

Inside the cover add the following-
-continued.

Always keep fingers and hands clear of needles while sewing. The needles can cause painful injury to the fingers.

Set the button in the clamp of the button machine so that the buttonholes are centered correctly over the needle plate and straight across the button clamp. This will prevent the needle from striking the button and throwing bits of steel or button in the operator's face.

Do not operate sewing machine with scissors or tools on the table because they could get caught in the belt and be thrown into the air injuring someone or damaging the machine.

Turn off the power source when replacing bobbins and needles in sewing machine because the machines could accidentally start and result in injury to fingers or hands.

Turn off power switch and remove sewing machine belt before performing maintenance and adjustments on any sewing machine as the machine could accidentally be started and result in injury to fingers and hands.

GENERAL

Keep the cabinet doors closed at all times except when loading or unloading the cabinet to prevent anyone from accidentally walking into the doors and thus injuring himself.

Page Safety Precautions. Delete page.

Page 1.

Title is changed to the following:

CLOTHING REPAIR SHOP,
TRAILER-MOUNTED
YORK ASTRO MODEL D8700337, ARMY MODEL SPV 34
(NSN 3530-00-819-2007)
AND
YORK ASTRO MODEL D8700680
(NSN 3530-00-999-8577)
AND
NATICK MODEL NA-79
(NSN 3530-01-075-3503)

Below title add the following: Reporting Errors and Recommending Improvements. You can help to improve this manual by calling attention to errors and by recommending improvements. Your letter or DA form 2028 (Recommended Changes to Publications and Blank Forms) should be mailed direct to: Commander, US Army Troop Support and Aviation Materiel Readiness Command, ATTN: DRSTS-MTT, 4300 Goodfellow Boulevard, St. Louis, MO 63120. A reply will be furnished direct to you.

Table of contents, part one, delete chapter 1 and chapter 2.

Page 2.

Chapter 3 delete sections I, IX, X, and XI.
Chapter 4 delete sections VII, VIII, and IX.

Page 3. Delete pages 3 thru 9.

Page 13, following SINGER MODEL 31-15 add ",331K1 and 331K4".

Page 18. Delete pages 18 thru 24.

Page 25, paragraph 3-5, line 3 change "textile" to "clothing".

Page 26, paragraph 3-7e delete paragraph.

Page 27, paragraph 3-9 delete paragraph.

Page 28, Delete page.

Page 29,

Paragraphs 3-11 and 3-12 delete paragraphs.

Page 29--continued.

Paragraph 3-14a following pull add "and for missing or damaged decals".

Page 30, figure 3-7 is superseded by new figure 3-7 (TS 3530-203-24/3-7.1).

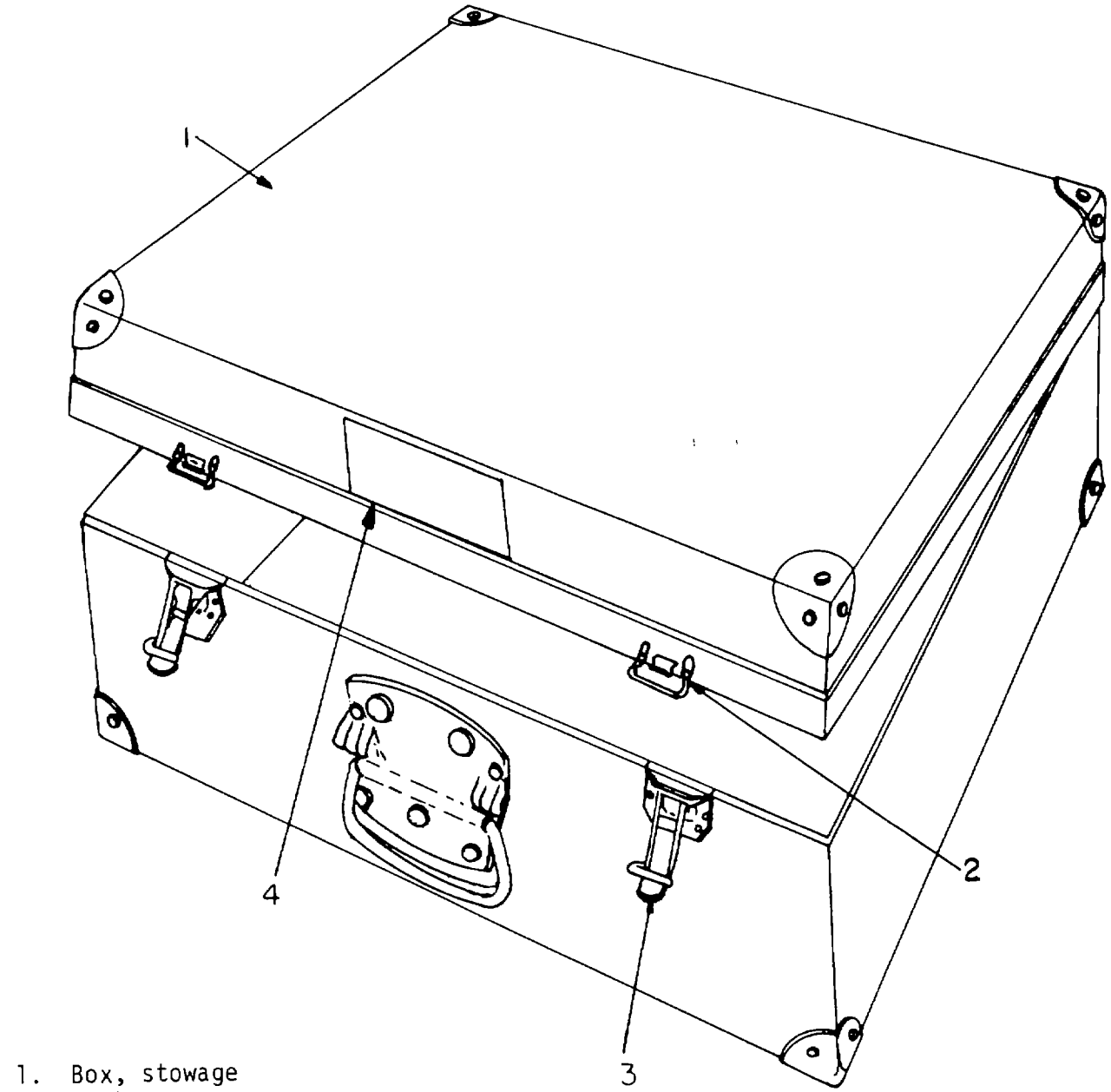


Figure 3-7. Stowage box assembly.

Page 35, paragraph 3-20 delete paragraph.

Page 36, paragraph 3-29, second line delete "heavy-duty, overedge, and textile".

Page 38, following section VII heading add" "SINGER MODELS 31-15, 331K1, and 331K4".

Page 39, following paragraph 3-39 add "Minor differences exist between singer models 31-15, 331K1, and 331K4; however, maintenance of these machines is the same".

Page 40, following figure title add "Singer Model 31-15".

Page 42, figure 3-14, following figure title add "Singer Model 31-15".

Page 44, figure 3-15, following figure title add "Singer Model 31-15".

Page 46, figure 3-16, following figure title add "Singer Model 31-15".

Page 48, figures 3-17, 3-18, and 319, following figure titles add "Singer Model 31-15".

Page 49, figure 3-20, following figure title add "Singer Model 31-15".

Page 52, figure 3-22, following figure title add "Singer Model 31-15".

Page 53, following paragraph 3-57 add the following:
"3-57.1. Reverse feed on Machine 331K4.

a. Check reverse feed for proper operation.

(1) Depress the feed reversing lever as far as it will go. Feeding in reverse continues only as long as lever is depressed.

(2) Forward feeding is resumed upon release of lever.

(3) Direction of feed can be reversed at any point in a seam while machine is in operation without disturbing the work.

b. Replace any defective parts."

Page 57, paragraph 3-63c(2)(e), fourth line delete "rise".

Page 65, paragraphs 3-71, 3-72, and 3-73, delete paragraphs.

Page 66. Delete pages 66 thru 119.

Page 120.

Paragraphs 3-133, 3-134, and 3-135 delete paragraphs.

Paragraph 3-136, third line delete "and textile".

Page 122, paragraph 3-141, second line delete "and the textile".

Page 125, paragraph 4-1, fourth line change "textile" to "clothing".

Page 126, paragraphs 4-5, 4-6, and 4-7 delete paragraphs.

Page 127, following paragraph 4-9b add "Replace damaged or missing identification decals".

Page 129, paragraph 4-17, fourth and fifth line delete "the heavy-duty sewing, the overedge, and the textile".

Page 130, following paragraph 4-19f add the following:

"4-19.1. Clutch Motor (NA-79) Disassembly and Assembly (figure 4-2.1)

a. Disassembly

(1) Remove the motor assembly from sewing machine (para 3-27a).

(2) Remove pulley guard-(1).

(3) Remove nut (2), washer (3), pulley and pulley key (4).

Page 131, following figure 4-2 add new figure 4-2.1 (TS 3530-203-24/4 2.1).

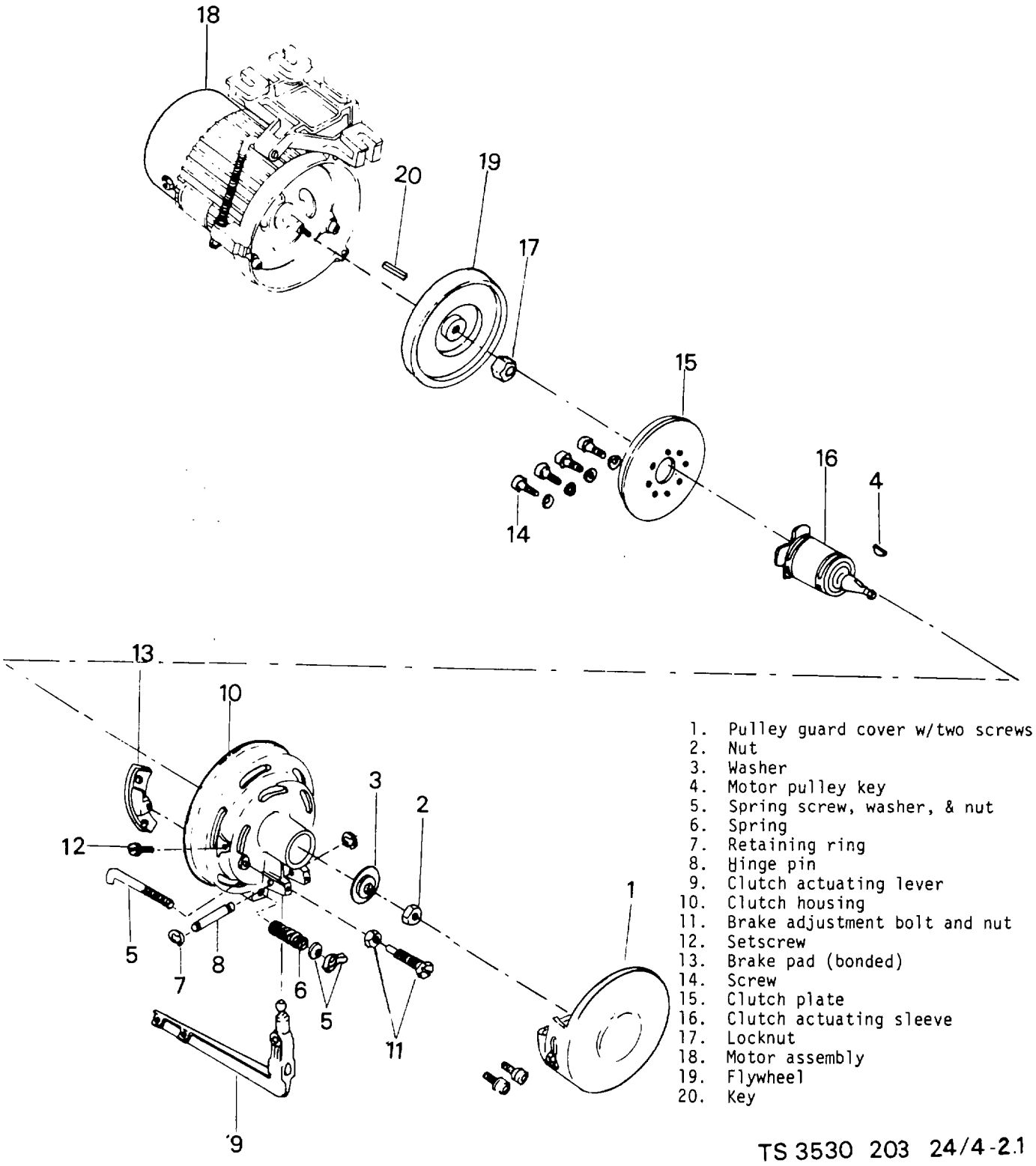


Figure 4-2.1. Clutch Motor.

Page 130--continued.

(4) Remove spring screw, washer, and nut assembly (5), and spring (6).

(5) Remove retaining rings (7) from hinge pin (8) and remove hinge pin and clutch actuating lever (9).

NOTE

Some models have bolts retaining the clutch actuating lever (9) to the clutch actuating sleeve assembly (16). Remove bolts to remove clutch actuating lever.

(6) Remove clutch housing (10).

(7) Loosen brake adjustment bolt and nut assembly (11). Remove setscrew (12) and brake pad (13).

(8) Remove screws (14) from clutch plate assembly (15) and remove clutch actuating sleeve assembly (16).

(9) Remove locknut (17) from motor assembly (18) and remove flywheel (19) and key (20).

(10) Repair or replace any damaged or worn parts.

b. Assembly

(1) Install flywheel (19) and key (20) into motor assembly (18) and secure with locknut (17).

(2) Secure clutch plate assembly (15) to clutch actuating sleeve assembly (16) with screw (14).

(3) Install brake pad (13) into clutch housing (10) and secure with setscrew (12). Install brake adjustment bolt and nut assembly (11) but do not tighten down at this time.

(4) Install clutch housing (10) onto clutch actuating sleeve assembly (16).

(5) Install clutch actuating lever (9) and secure with hinge pin (8) and retaining rings (7).

(6) Install the spring screw, washer, and nut assembly (5), and spring (6).

(7) Install pulley and key (4) and secure with washer (3) and nut (2).

(8) Install pulley guard (1).

(9) Adjust brake pad (13) so that clutch will stop when actuator lever is released."

Page 132.

Following section V heading add "Singer Model 31-15, 331K1, and 331K4".

Following paragraph 4-22 add "Minor differences exist between singer models 31-15, 331K1, and 331K4; however, maintenance of these machines is the same".

Page 136, following paragraph 4-32c (2) add the following:

"4-32.1. Reverse feed on machine 331K4.

a. Check reverse feed for proper operation.

(1) Depress the feed reversing lever as far as it will go. Feeding in reverse continues only as long as lever is depressed.

(2) Forward feeding is resumed upon release of lever.

(3) Direction of feed can be reversed at any point in a seam while machine is in operation without disturbing the work.

b. Replace any defective parts".

Page 140. Delete pages 140 thru 160.

Page 170, following figure 7-2 add new figure 7-2.1 (TS 3530-203-24/72.1).

Page 170, following figure 7-2 add new figure 7-2.1 (TS 3530-203-24/72.1).

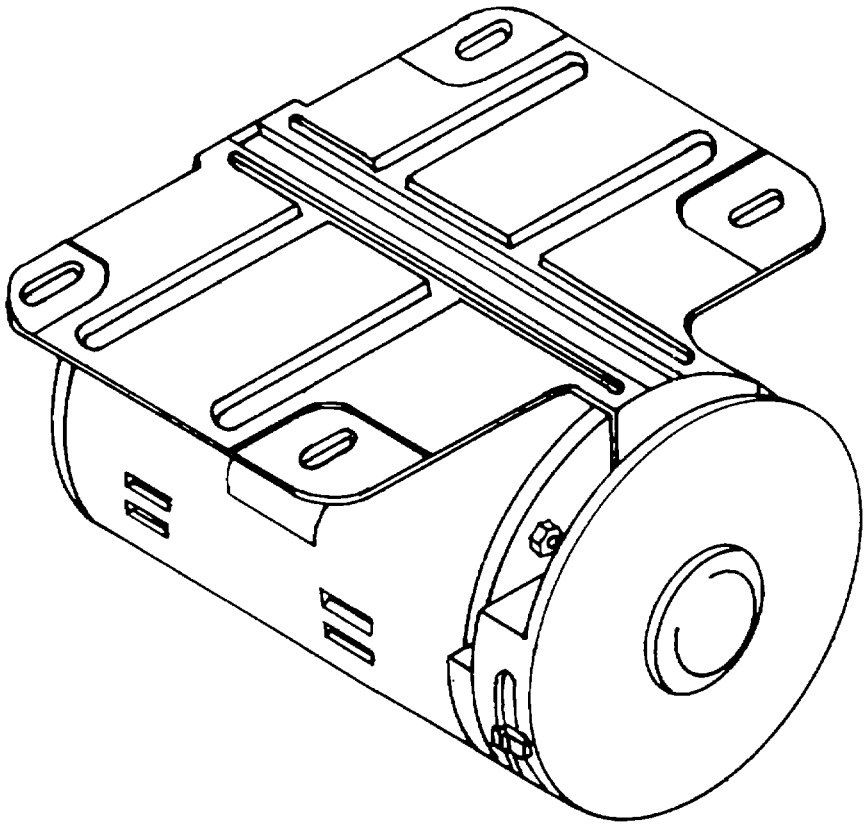


Figure 7-2.1. Button Sewing Machine AC Motor.

Page 201, following paragraph 8-40 add the following: "8-41. 48 Series continuous running motor.

a. The new 48 series motor has sealed bearings and has no brushes; therefore, it requires no lubrication or replacement of brushes.

b. Check bearings for smooth continuous spinning. Replace defective bearings".

Page 202.

Paragraph A1-4, across from TM 10-3530-203-10 change "Textile" to "Clothing".

Paragraph A1-5 across from TM 10-3530-203-10 the title is changed to the following:

"Operator's Manual: Clothing Repair Shop, Trailer Mounted, York Astro Model D8700337, Army Model SPV 34 (NSN 3530-00-819-2007); York Astro Model D8700680 (NSN 3530-00-9998577); Natick Model NA-79 (NSN 3530-01-075-3503).

Page 207.

Line 20 change "Textile" to "Clothing".

Line 30 delete lines 30 thru 45.

Page 208.

Delete the following lines: Lines 1 thru 16 and 26 thru 33.

Section III, statement, delete "the textile and".

Page 209, line 1 delete.

Page 210. Delete the following lines:
Lines 23 and 33.

Page 211. Delete the following lines:
Lines 14 thru 18, 47, and 48.

Page 212. Delete the following lines:
Lines 8 and 10 thru 48.

Page 213. Delete the following lines:
Lines 1 thru 39 and 41 thru 52.

By Order of the Secretary of the Army:

E. C. MEYER
General, United States Army
Chief of Staff

Official:

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

DISTRIBUTION: To be distributed in accordance with DA Form 12-25A, Organizational Maintenance Requirements for Clothing and Textile Repair.

SAFETY PRECAUTIONS

Disconnect power cords before performing any maintenance on the sewing machines and the generator set.

Following safety precautions in TM 10-4510-201-10 as necessary and applicable for performing the maintenance instructions in this manual.

***TM 10-3530-203-24**

HEADQUARTERS

TECHNICAL MANUAL

DEPARTMENT OF THE ARMY

NO. 10-3530-203-24

WASHINGTON, D.C., 1 June 1966

Organizational, DS, and GS Maintenance Manual

TEXTILE REPAIR SHOP, TRAILER-MOUNTED, YORK ASTRO MODEL D8700477, ARMY MODEL SPV 35 (FSN 3530-819-2008), AND CLOTHING REPAIR SHOP, TRAILER-MOUNTED YORK ASTRO MODEL D8700337, ARMY MODEL SPV 34 (FSN 3530-819-2007)

*This manual, together with TM 10-3530-203-10, 18 April 1966, supersedes TM 10-263, 18 June 1947, including C 2, 22 September 1955, C 3, I June 1959, C 4, 29 December 1960, and C 5, 8 August 1962, and TM 10-264, 17 October 1949, including C 2, 14 May 1956.

PART ONE

TEXTILE REPAIR SHOP, TRAILER-MOUNTED

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope
The instructions in part one of this manual are published for the use of the personnel responsible for the organizational, direct support, and general support maintenance of the trailer-mounted textile repair shop. These instructions provide information on the lubrication, the inspection and maintenance of the equipment, and on the procedures for the replacement of repair parts.

1-2. Appendixes
a. Appendix I contains a list of publications applicable to the textile repair shop and available to the organizational, direct support, and general support personnel.

b. Appendix II contains the maintenance allocation chart.

c. The maintenance repair parts for the textile repair shop are listed and illustrated in TM 10-3530-203-24P. The maintenance repair parts for the generator set and the cargo trailer are listed and illustrated in the applicable technical manuals listed in appendix I.

1-3. Maintenance Forms and Records
The maintenance forms, records, and reports which are to be used by the organizational, ,direct support, and general support maintenance personnel in the maintenance of the textile repair shop are listed and described in TM 38-750.

1-4. Reporting of Equipment Manual Improvements
The direct reporting of errors, omissions, and recommendations for improving this manual by the individual user is authorized and encouraged. DA Form 2028 (Recommended Changes to DA Publications) will be used for reporting these improvements. This form will be completed using pencil, pen, or typewriter and forwarded direct to Commanding General, U. S. Army Mobility Equipment Center, ATTN: SMOME-MPD, 4300 Goodfellow Boulevard, St. Louis, Mo., 63120.

1-5. Orientation
Throughout this manual, the drawbar end of the cargo trailer will be considered the front of the textile repair shop. The terms *right, left, front,* and *rear* indicate the directions from the viewpoint of the operator when he is standing at and facing the drawbar end of the cargo trailer (or the textile repair shop). These terms also indicate the directions from the viewpoint of the operator when he is in the operating position (front) of the sewing machines; the grommet press; and the tack-button attaching machine.

Section II. DESCRIPTION AND DATA

1-6. Description

A general description of the textile repair shop (fig. 1-1) and its components is found in TM 10-3530-203-10. Any additional descriptive information applicable to a particular component or assembly of the textile repair shop will be found in the appropriate sections of this manual. The description of the generator set is found in TM 5-6115-271-15 and of the cargo trailer in TM 9-2330-213-14.

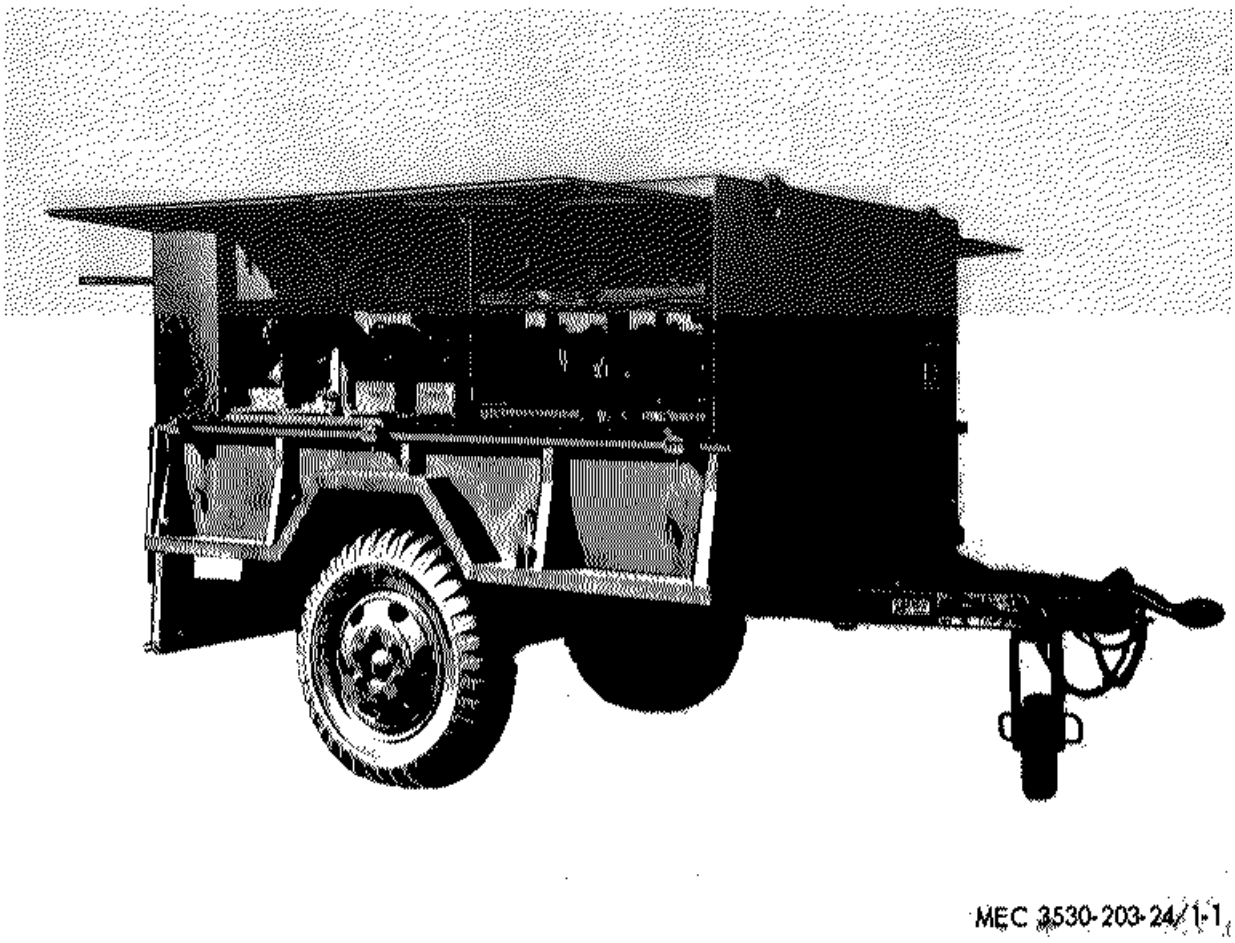


Figure 1-1. Trailer-mounted textile repair shop, three-quarter front view.

1-7. Tabulated Data

a. General. The tabulated data applicable to the textile repair shop and the major components is provided in TM 10-3530-203-10. The tabulated data for the generator set is provided in TM 5-6115-271-15 and for the cargo trailer in TM 9-2330-213-14.

b. Time Standards. Table 1 lists the number of man-hours required under normal conditions to perform the indicated maintenance and repair for the textile repair shop. Components are listed under the appropriate functional index. The times listed are not intended to be rigid standards. Under adverse conditions, the operations will take longer; but under ideal conditions, with highly skilled mechanics, most of the operations can be accomplished in considerably less time.

Table 1. Time Standards

Work to be performed	Man-hours
Lubrication and Service:	
46 REPAIR EQUIPMENT	
4602 Repair Equipment (Textile)	
Clothing Sewing Machine (including lubricating sewing machine head, bobbin winder, and motor).	0.6
Darning machine (includes lubricating darning machine head, bobbin winder, and motor).	0.6
Heavy-duty sewing machine (includes lubricating sewing machine head, bobbin winder, and motor).	0.6
Overedge sewing machine (includes lubricating sewing machine head and motor).	0.6
Textile sewing machine (includes lubricating sewing machine head, bobbin winder, and motor).	0.6
Remove and Replace:	
18 BODY	
1808 Stowage Boxes	
Stowage box assembly (includes removal and installation of latches and hooks).	1.0
1812 Cabinet Assembly	
Cabinet assembly (includes removal of cabinet assembly from and installation of cabinet assembly into trailer bed).	2.0
Lifting loop assembly (includes removal and installation of retainer clip and spring).	0.5
Door or panel locking latch (includes removal and installation of rivets).	1.0
Holddown clamp assembly (includes removal and installation of capscrew).	0.5
Generator holddown assembly (includes removal and installation of heavy duty sewing machine head tray assemblies).	0.5
Side door stay or rear door stay assembly (includes removal and installation of rivets).	2.0
Sewing tray assembly (includes removal and installation of strap assembly and sewing machine head).	0.5
40 ELECTRIC MOTORS	
4000 Motor	
Clothing, darning, heavy duty, overedge, and textile sewing machine motor (includes removal and installation of flywheel, friction pad, drive pulley and brake lever, brake lever pad and spring, and ball bearings).	4.0
42 ELECTRICAL EQUIPMENT	
4216 Miscellaneous Wiring and Fittings	
Sewing machine motor-to-switch wiring harness.	1.0
46 REPAIR EQUIPMENT	
4603 Repair Equipment (Textile)	
Clothing Sewing Machine, Thread tension regulator (includes removal and installation of disks, guides, springs, stud and retainer and adjustment time).	1.0
Shuttle race body (includes removal and installation of bobbin case and shuttle race).	0.5
Shuttle race slide	0.5
Feed dog (includes removal and installation of throat plate and adjustment time of feed dog).	0.5
Needle bar (includes removal and installation of needle, needle clamp, and needle bar thread guard and adjustment time).	1.0
Presser foot	0.2
Presser bar and spring	0.5
Thread tension release lever (includes removal and installation of needle bar).	1.0
Needle bar connecting link (includes removal and installation of needle bar, presser bar, lifting lever bracket, presser bar guide bracket, thread takeup lever, and thread takeup crank).	2.0
Needle bar crank (includes removal and installation of thread takeup crank).	1.5
Feed lifting rockshaft connecting rod	1.0
Feed fork (includes removal and installation of feed lifting rockshaft connecting rod, feed regulator, and connecting link).	1.5
Crank connecting rod (includes removal and installation of oscillating rockshaft and crank).	2.0

Work to be performed	Man-hours
Aim shaft (includes removal and installation of thread takeup crank, needle bar crank, feed lifting rockshaft connecting rod, feed fork, and crank connecting rod).	2.0
Oscillating shaft or shuttle driver (includes removal and installation of bobbin case and shuttle body).	1.5
Feed lifting rockshaft (includes removal and installation of rockshaft crank).	1.5
Feed rockshaft (includes removal and installation of feed bar and crank).	1.5
Darning Sewing Machine, Shuttle bobbin (includes removal and installation of bobbin case and adjustment time for bobbin case lever).	0.5
Front and rear work plate slides (includes removal and installation of clamp and throat plates, slide stop, and cover slide).	0.5
Needle bar (includes adjustment time).	0.5
Presser foot	0.2
Presser bar (includes removal and installation of presser' foot and adjustment time).	0.5
Thread takeup]ever (includes removal and installation of presser bar and lifting fork, needle bar, and block).	1.0
Arm shaft (includes removal and installation of pulley with balance wheel, thread takeup lever, thread unwinder base, and arm shaft pulley).	2.0
Thread hook drive shaft pulley	1.5
Thread hook drive shaft (includes removal and installation of thread hook drive shaft pulley, pinion, and collar).	2.0
Thread hook (includes removal and installation of bobbin case).	1.0
Thread hook saddle (includes removal and installation of thread hook and bobbin case lever).	1.5
Heavy-Duty Sewing Machine, Oilcup assembly (includes removal, disassembly, assembly, and installation of oilcup).	0.5
Shuttle race assembly	0.5
Feed Dog (includes removal and installation of cloth plate and throat plate body and strip and adjustment time of feed dog).	0.5

Work to be performed	Man-hours
Needle bar connecting link (includes removal and installation of needle bar and clamp and adjustment time of needle bar).	2.0
Lifting presser bar rockshaft (includes removal and installation of rockshaft crank, adjusting arm, and bracket).	2.0
Lifting presser bar crank	1.5
Lifting presser bar and vibrating presser bar (includes removal, disassembly, assembly, and installation of presser foot and vibrating presser bar, bracket, spring, and staple).	2.0
Thread takeup lever assembly	1.0
Bobbin winder (includes removal, disassembly, assembly, and installation of bobbin winder).	1.5
Thread unwinder (includes removal, disassembly, assembly, installation of thread unwinder).	0.5
Arm shaft, bushing, and feed cam	2.0
Feed regulation (includes removal and installation of feed fork connection).	1.5
Crank connecting rod	1.5
Thread takeup cam and lifting bar rockshaft eccentric strap (includes removal of vibrating presser bar; lifting presser bar bracket, and crank; and thread takeup lever).	2.5
Feed fork connection and link	1.5
Feed rockshaft and feed bar	1.5
Feed lifting rockshaft and crank with roller.	1.5
Oscillating shaft and crank and shuttle driver.	1.5
Oscillating rockshaft	1.5
Overedge Sewing Machine:	
Feed dogs	0.5
Left looper (includes removal and installation of throat plate, chip guard, and feed dogs and adjustment time).	2.0
Right looper (includes removal and installation of throat plate and chip guard and adjustment time).	1.5
Left thread looper thread takeup (includes removal and installation of right stripper and takeup and adjustment time).	1.5
Movable knife and holder (includes adjustment time).	0.5
Right and left thread levers	0.5
Movable knife lever and stationary knife holder.	0.5

Work to be performed	Man-hours
Feed and lifting eccentrics (includes removal of cloth plate, drive shaft, feed shaft, and feed connections).	1.5
Lifting lever and bracket	1.0
Textile Sewing Machine, Feed dog (includes removal of front and rear slides and throat plate and adjustment of feed dog).	0.5
Shuttle bobbin and case and thread hook (includes removal, disassembly, assembly, and installation of bobbin and thread hook and adjustment of thread hook with needle).	1.5
Thread tension disks and bracket assembly.	1.0
Needle bar (includes removal of rack frame and adjustment of needle bar).	2.0
Lifting presser bar	1.5
Thread takeup lever (includes removal of needle bar and rock frame).	1.0
Presser bar lifter	0.5
Vibrating presser bar lifting rockshaft	0.5
Vibrating presser foot lifting rockshaft	0.5
Arm shaft (including adjustment of arm shaft and adjustment of thread hook with needle).	2.0
Bed thread hook shaft drive belt (includes adjustment procedures).	0.5
Hook driving shaft (includes adjustment procedures).	0.5
Feed driving rockshaft and crank (includes adjustment of feed dog).	1.5
Hook saddle (includes removal and installation of thread hook and bushings and adjustment of thread hook with needle).	2.0

CHAPTER 2

OPERATING INSTRUCTIONS

Section I. SERVICE UPON RECEIPT OF TEXTILE REPAIR SHOP

2-1. General

When either a new or a used textile repair shop is received by an organization, the organizational personnel must inspect and service each component to prepare it for operation. The operator will assist the organizational personnel when he is directed to do so.

2-2. Unpacking and Unloading Equipment From Cabinet Assembly

The equipment of the textile repair shop is packed or loaded in a cabinet assembly, which is mounted on the bed of a cargo trailer.

a. Use extreme care when unpacking and installing or setting up packed components or items of equipment of the textile repair shop.

b. Remove the equipment from the cabinet assembly and set it up according to the instructions set forth in TM 10-3530-203-10.

c. Remove all protective tape and materials used in packing the textile repair shop equipment.

d. Check the components of the textile repair shop with the basic issue item list in TM 10-3530-203-10 to assure that the textile repair shop is complete.

e. Remove the SD (solvent, dry-cleaning), the preservative compound which has been sprayed on all metal surfaces.

2-3. Inspecting and Servicing Textile Repair Shop

a. Carry out a complete visual inspection of the equipment of the textile repair shop, taking special notice of any damaged or missing parts which might have been sustained in transit. Read any warning on the shipping tag to determine the condition in which the textile repair shop was shipped. Observe all precautions noted on the shipping tag.

b. Perform the quarterly preventive maintenance services described in paragraph 3-4 for the textile repair shop. Perform the quarterly preventive maintenance services and the lubrication services for the generator set as described in TM 5-6115-271-15 and for the cargo trailer in TM 9-2330-213-14. The services performed at this time will begin the cycle of regularly scheduled quarterly preventive maintenance services.

Section II. CONTROLS AND INSTRUMENTS

2-4. Controls

a. There are no controls on the cabinet assembly, the grommet press, and the tack-button attaching machine.

b. Refer to TM 10-3530-203-10 for information on the controls on the sewing machines.

c. Refer to TM 5-6115-271-15 for information on the controls on the generator set.

d. Refer to TM 9-2330-213-14 for information on the controls on the cargo trailer.

2-5. Instruments

The only instruments on the textile repair shop are those instruments on the generator set. Refer to TM 5-6115-271-15 for the information covering the instruments on the generator set.

CHAPTER 3

ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Section I. SPECIAL ORGANIZATIONAL TOOLS AND EQUIPMENT

3-1. Special Tools

No special tools are authorized for the maintenance of the textile repair shop. The common tools that are used in the maintenance of the textile repair shop are authorized and listed in the appropriate table of organization and equipment or table of allowances.

3-2. Equipment

No special equipment is authorized for the maintenance of the textile repair shop.

Section II. PREVENTIVE MAINTENANCE SERVICES

3-3. General

To insure that the textile repair shop is ready for operation at all times, its components must be inspected systematically so that defects can be discovered and corrected before they result in serious damage or failure. The necessary preventive maintenance services to be performed quarterly on the components of the textile repair shop are listed and described in paragraph 3-4. The item numbers indicate the sequence of minimum inspection requirements. Defects discovered must be noted and corrected as soon as possible. All deficiencies and shortcomings, together with the corrective action taken, will be recorded on DA Form 2404.

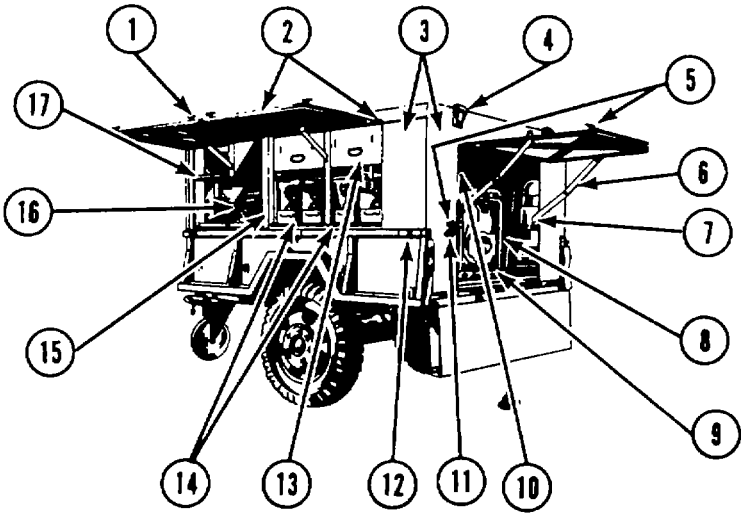
3-4. Quarterly Preventive Maintenance Services

This paragraph contains an illustrated tabulated listing of preventive maintenance services which must be performed by organizational maintenance personnel at quarterly intervals. A quarterly interval is equal to 3 calendar months, or 250 hours of operation, whichever occurs first. The item numbers are listed consecutively and indicate the sequence of minimum inspection requirements. Refer to quarterly preventive maintenance services in figure 3-1 for the cabinet assembly, in figure 3-2 for the clothing sewing machine, in figure 3-3 for the darning machine, in figure 3-4 for the heavy-duty sewing machine, in figure 3-5 for the overedge sewing machine, and in figure 3-6 for the textile sewing machine. Refer to the quarterly preventive maintenance services to be performed by the organizational maintenance personnel on the generator in TM 5-6115-271-15 and on the cargo trailer in TM 9-2330-213-14.

PREVENTIVE MAINTENANCE SERVICES

QUARTERLY

TM 10-3530-203-24 CABINET ASSEMBLY



LUBRICATE IN ACCORDANCE WITH CURRENT LUBRICATION ORDER

ITEM		PAR REF
1	FOLDING HANDLE LOCKS. Inspect the folding handle locks for bent, broken, or loose handles; for loose or missing nuts and screws; and for loose mounting. Check the operation of the handles to see that they unlock and lock the doors. Make certain the handles will fold into the lock wells. Slam the doors closed and make certain the doors will lock in position.	3-16
2	DOORS AND HINGES. Inspect the rear and side doors for dirty, cut, broken, or dented surfaces; for broken welds; for a rubber gasket that is deteriorated, cut, or loose on the door; and for loose mounting. Inspect for bent, broken, or loose door hinges. Inspect the hinges for loose or missing rivets and for mechanical binding. Make certain the doors are not jammed and will open and close without mechanical binding.	4-13
3	PANELS. Inspect the panels for dirty, cut, broken, or dented surfaces; for broken welds; for loose or missing rivets; and for loose mounting.	4-14
4	LIFTING LOOP ASSEMBLIES. Inspect the lifting loop assemblies for a bent, cracked, or broken lifting loop, lifting loop plate, and spring clip; for loose or missing nuts and screws; for broken welds; and for loose mounting.	3-15 4-11

MEC 3530-203-24/3-1 ①

Figure 3-1. Quarterly preventive maintenance services for cabinet assembly.

ITEM		PAR REF
5	DOOR AND PANEL LOCKING LATCHES. Inspect For a bent or broken door or panel latch. Inspect the latches for broken welds, improper alignment of door latches with panel latches, and loose mounting.	4-13
6	DOOR STAYS. Inspect for bent or broken rear and side door stays. Inspect the stays for loose or missing rivets, mechanical binding, and loose mounting. Make certain the stays will lock in position and hold the door in the open position.	4-13
7	CHAIR HOLDDOWN STRAP ASSEMBLIES. Inspect the chair holddown strap assemblies for cracked, broken, loose, or missing footman loops; for loose or missing screws; for cut, torn, or frayed webbing straps; for broken or loose buckles; and for loose mounting.	3-18 252 253
8	FIRE EXTINGUISHER AND BRACKET. Inspect the fire extinguisher for a broken seal; for a bent or broken nozzle; and for loose mounting. Inspect the bracket for a bent or broken frame and locking latch, and loose mounting.	
9	GENERATOR HOLDDOWN ASSEMBLIES. Inspect the generator holddown assemblies For cracked, bent, or broken tracks, stops, and holddowns; for broken welds; for bent, broken, loose or missing wing screws; for stripped threads on the wing screws and, in the holddown clips; and for loose mounting.	3-17 254
10	FOLDING TABLE SLIDES. Inspect the folding table slides for broken welds and for torn, excessively worn, loose, or missing felt.	3-24
11	PADLOCKS. Inspect for a bent, broken, or missing brass padlock. Make certain the padlocks keys are not missing, bent, or broken. See that the padlocks open and close without mechanical binding.	
12	HOLDDOWN CLAMP ASSEMBLIES. Inspect the holddown clamp assemblies for cracked, broken, loose, or missing clamp plates and arms, and loose mounting. Inspect the capscrews for stripped threads and a loose or missing retaining pin. Make certain the holddown clamp assemblies lock the cabinet assembly securely to the trailer.	4-12

MEC 3530-203-24/3-1 (2)

Figure 3-1 - Continued

ITEM		PAR REF
13	STORAGE BOXES. Inspect the storage boxes for dirty, cut, dented and broken surfaces; for loose or missing rivets; and for bent, broken, or loose handles, hooks, latches, and hinges. Inspect for improperly installed boxes. Make certain the hooks and latches will open and lock, and the hinges operate without mechanical binding.	3-14 4-9 4-10
14	SEWING MACHINE TRAYS. Inspect the sewing machine trays for chipped, cracked or broken wood; for bent or broken steel straps and tray pulls; to for broken, loose or missing tray stops and strikes; for loose or missing screws; for stripped threads in thumbscrews; and for mechanical binding of strap hinges. Inspect for improperly installed trays. Inspect for excessively worn, torn, loose, or missing felt on the shock absorbers and the slides, and excessively worn or deteriorated rubber on the recess bumpers.	3-19 to 3-23
15	FRAMEWORK. Inspect for cracked, broken, or bent framework. Inspect the framework for broken welds and loose mounting.	4-14
16	FOLDING STAND HOLDDOWN STRAP ASSEMBLIES. Inspect the sewing machine folding stand holddown strap assemblies for cracked, broken, loose or missing footman loops; for loose or missing screws; for cut, form, or frayed webbing straps; for broken or loose strap buckles; and for loose mounting.	3-18
17	TABLE ASSEMBLY SLIDES. Inspect the sewing machine table assembly slides for broken welds, and excessively worn, torn, loose, or missing felt.	3-24

MEC 3530-203-24/3-1 (3)

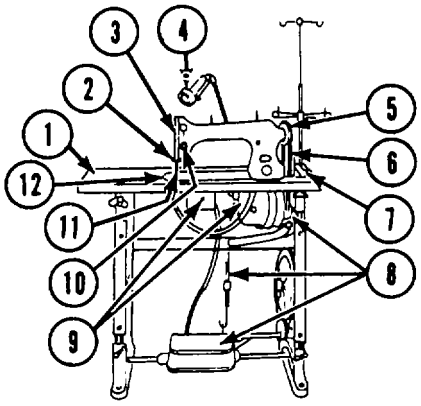
Figure 3-1 - Continued

PREVENTIVE MAINTENANCE SERVICES

QUARTERLY

MACHINE, SEWING, CLOTHING

SINGER MODEL 31-15



LUBRICATE IN ACCORDANCE WITH CURRENT LUBRICATION ORDER

ITEM		PAR REF
I	TABLE ASSEMBLY. Inspect table assembly for cut, cracked, broken, warped and dirty tabletop; for loose or missing bolts and nuts; and for loose mounting to the folding stand.	3-25
2	NEEDLE, THREAD GUIDE, AND CLAMP. Inspect needle for broken or excessively worn point and for bent or broken shaft. Make certain needle is installed with the long groove to the operator's left. Inspect for broken, bent, or improperly installed thread guide and clamp. (TM10-3530-203-10)	
3	FACEPLATE ASSEMBLY. Inspect presser bar for improper alinement and loose mounting. Inspect spring for broken coil and incorrect tension, and inspect needle bar for improper alinement. Check takeup lever for excessive play. Make certain the presser bar lifter has a l-inch play before meeting resistance.	3-53
4	LAMP ASSEMBLY. Inspect lamp assembly and bracket for loose or missing bolts, nuts, and screws. Inspect electrical cord for frayed insulation and broken wiring. Inspect for broken lamp switch and for broken or burned - out lamp (bulb).	3-33 to 3-36

MEC 3530-203-24/3-2 (1)

Figure 3-2. Quarterly preventive maintenance services for clothing sewing machine.

ITEM		PAR REF
5	BALANCE WHEEL. Inspect balance wheel for loose mounting to the arm shaft. Turn the balance wheel toward front of machine and check the wheel for mechanical binding.	3-42
6	DRIVE BELT AND PULLEYS. Inspect for broken, frayed, and excessively worn drive belt. Inspect belt for loose mounting on the pulleys. Inspect pulleys for cracked, chipped, or broken edges. Check for a 1-inch finger-pressure reflection of the belt midway between the pulleys.	3-42
7	BOBBIN WINDER. Inspect bobbin winder for bent, broken, loose, or missing components. Inspect for excessively worn leather brake; for incorrect tension of thread tension spring; and for improper adjustment of the pulley with the drive belt.	3-136 to 3-140
8	MOTOR CLUTCH, ROD, AND TREADLE. Inspect motor clutch, rod, and treadle for bent, broken, or loose components. Operate treadle and see that the pulley brake lever engages the motor drive pulley with the drive motor when the treadle is depressed. Make certain the pulley brake lever disengages the drive pulley from the motor and stops the pulley when the treadle is released.	3-27
9	ELECTRICAL MOTOR AND SWITCH. Inspect electrical motor for dirty surfaces and grease deposits; for bent, cracked, or broken housing; for loose or missing bolts and nuts; for loose electrical connections; for frayed insulation and broken wiring; for improper capacity; and for loose mounting. Inspect for broken or bent motor switch. Inspect it for loose mounting in the switchbox. During operation observe the motor for unusual noise and excessive vibration.	3-27 3-31
10	THREAD TENSION STUD, THUMBNUT, AND THREAD CONTROL SPRING. Inspect thread control spring for broken, bent or corroded coils and incorrect tension. Inspect thread tension and stud and thumb nut for stripped threads, and make certain thumb nut turns with tension on the stud.	3-43
11	THROAT PLATE AND FEED DOG. Inspect for broken, bent, and improperly installed throat plate. Inspect plate for nicked or corroded surface. Inspect feed dog for excessively worn or broken teeth. Make certain teeth show their full length above the throat plate.	3-49

MEC 3530-203-24/3-2 (2)

Figure 3-2 - Continued

ITEM		PAR REF
12	SHUTTLE RACE. Inspect for improperly installed shuttle race; for nicked or burred shuttle race back and body; and for chipped or broken body point.	3-46

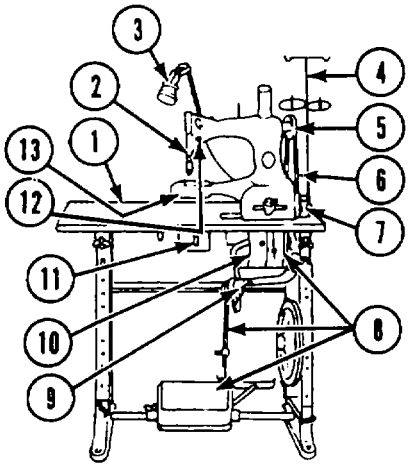
MEC 3530-203-24/3-2 (3)

Figure 5-2 - Continued

PREVENTIVE MAINTENANCE SERVICES
QUARTERLY

MACHINE, SEWING, DARNING

SINGER MODEL 47W70



LUBRICATE IN ACCORDANCE WITH CURRENT LUBRICATION ORDER

ITEM		PAR REF
1	TABLE ASSEMBLY. Inspect table assembly for cut, cracked, broken, warped, and dirty tabletop; for loose or missing bolts and nuts; and for loose mounting to the folding stand.	3-25
2	THREAD RETAINER. Inspect for bent, broken, and improperly installed thread retainer. Inspect for loose retainer setscrew. Make certain the set-screw holds the retainer securely in position.	3-61
3	LAMP ASSEMBLY. Inspect lamp assembly and bracket for loose or missing bolts, nuts, and screws. Inspect electrical cord for frayed insulation and broken wiring. inspect for broken lamp switch and for broken or burned-out lamp (bulb).	3-33 to 3-36
4	THREAD UNWINDER. Inspect thread unwinder for loose or missing bolts, nuts, and screws; for bent or broken components; and loose mounting.	3-142 to 3-144
5	BALANCE WHEEL. Inspect balance wheel for loose mounting. Turn balance wheel toward front of machine and check the wheel for mech-anical binding.	3-42

MEC 3530-203-24/3-3 (1)

Figure 3-3. Quarterly preventive maintenance services for darning machine.

ITEM		PAR REF
6	DRIVE BELT AND PULLEYS. Inspect for broken, frayed, and excessively worn drive belt. Inspect belt for loose mounting on the pulleys. Inspect pulleys for cracked, chipped, or broken edges. Check for a 3/4-inch finger-pressure deflection of the belt midway between the pulleys.	3-42
7	BOBBIN WINDER. Inspect bobbin winder for bent, broken, loose, or missing components. Inspect for excessively worn leather brake; for incorrect tension of thread tension spring; and for improper adjustment of the pulley with the drive belt.	3-137 to 3-140
8	MOTOR CLUTCH, ROD, AND TREADLE. Inspect motor clutch, rod, and treadle for bent, broken, or loose components. Operate treadle and see that the pulley brake lever engages the motor drive pulley with the drive motor when the treadle is depressed. Make certain the pulley brake lever disengages the drive pulley from the motor and stops the pulley when the treadle is released.	3-27
9	KNEE LIFTER. Inspect knee lifter for bent, broken, loose, or missing components. Operate knee lifter to see that it raises and lowers the presser foot.	3-128 to 3-133
10	ELECTRIC MOTOR. Inspect electric motor for dirty surfaces and grease deposits; for bent, cracked, or broken housing, for loose or missing bolts and nuts; for loose electrical connections; for frayed insulation and broken wiring; for improper capacity; and for loose mounting. During operation observe the motor for unusual noise and excessive vibration.	3-27
11	MOTOR SWITCH. Inspect for a broken or bent motor switch. Inspect it for loose mounting in the switchbox. Check for loose electrical connections or broken wiring at the switchbox. Check the switch for improper operation.	3-31
12	THREAD TENSION STUD, THUMB NUT, AND THREAD CONTROL SPRING. Inspect thread control spring for broken or bent coils and for incorrect tension. Inspect thread tension stud and thumb nut for stripped threads and make certain the thumb nut turns with tension on the stud.	3-62
13	CYLINDER END COVER, THROAT PLATE, AND SLIDE STOP. Inspect cylinder end cover for cracked, bent, or broken surface. Inspect for bent, broken, and improperly installed throat plate and slide stop.	3-65

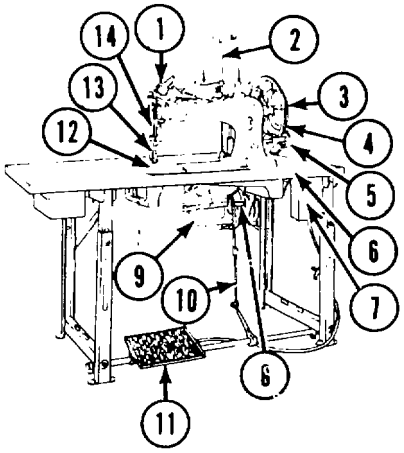
MEC 3530-203-24/3-3 (2)

Figure 3-3 - Continued

PREVENTIVE MAINTENANCE SERVICES
QUARTERLY

MACHINE, SEWING, HEAVY-DUTY

SINGER MDL 7-33



LUBRICATE IN ACCORDANCE WITH CURRENT LUBRICATION ORDER

ITEM		PAR REF
I	LAMP ASSEMBLY. Inspect lamp assembly and bracket for missing or loose bolts, nuts, and screws and loose mounting. Inspect for dirty, cracked, or lens. Inspect electrical cord for frayed insulation and broken wiring. Inspect for broken lamp switch. Check switch for incorrect operation, and make certain lamp (bulb) is not burned out.	3-33 to 3-36
2	THREAD UNWINDER. Inspect thread unwinder for loose or missing bolts, nuts, and screws, for bent or broken components, and for loose mounting to table top.	3-86 3-142 to 3-144
3	BALANCE WHEEL. Inspect balance wheel for loose mounting to arm shaft. Turn wheel toward the front of machine and check wheel for mechanical binding.	3-72
4	DRIVE BELT AND PULLEYS. Inspect for broken, frayed, and excessively worn drive belt. Inspect belt for loose mounting on the pulleys. Inspect pulleys for cracked, chipped, or broken edges, and for loose base mounting. Check for 1/4-inch finger-pressure deflection of the belt midway between pulleys.	3-72

MEC 3530-203-24/3-4 (1)

Figure 3-4. Quarterly preventive maintenance services for heavy-duty sewing machine.

ITEM		PAR REF
5	BOBBIN WINDER. Inspect bobbin winder for bent, broken, loose, or missing components, and for loose mounting. Inspect for a worn leather brake, for incorrect tension of thread tension spring, and for incorrect adjustment of pulley with drive belt.	3-85 3-137 to 3-140
6	TABLE ASSEMBLY. Inspect table assembly for cut, cracked, broken, warped, and dirty tabletop; for loose or missing bolts and nuts; and for loose mounting to folding stand. Make certain the table assembly is level.	3-25
7	MOTOR SWITCH. Inspect for bent or broken switch and for loose mounting in switchbox. Check switch for incorrect operation; make certain it turns the motor on and off.	3-31
8	MOTOR CLUTCH. Inspect clutch for bent, broken or loose components, and loose mounting.	3-27
9	ELECTRIC MOTOR. Inspect motor for dirty surfaces and grease deposits; for bent, cracked, or broken housing; for loose or missing bolts and nuts; for loose electrical connections; for frayed insulation and broken wiring; for incorrect capacity; and for loose mounting.	3-27 4-18 4-19
	ROD. Inspect for bent, broken, or loose rod.	
II	TREADLE. Inspect for bent or broken treadle and for loose mounting. Operate treadle and see that the pulley brake lever engages the motor drive pulley with drive motor when treadle is released.	
12	SHUTTLE RACE. Inspect for an incorrectly installed shuttle race, for a nicked or burred shuttle race back and body; and for a chipped or broken print.	3-75
13	NEEDLE, THREAD GUIDE, AND CLAMP. Inspect needle for broken or worn point, for bent or broken shaft, and for loose mounting. Inspect for broken, bent, or incorrectly installed thread guide and clamp.	3-77
14	THREAD TENSION STUD, THUMB NUT, AND THREAD CONTROL SPRING. Inspect stud and thumb nut for stripped threads and make certain thumb nut turns with tension on the stud. Inspect spring for broken, bent, or corroded coils and for incorrect tension.	3-84

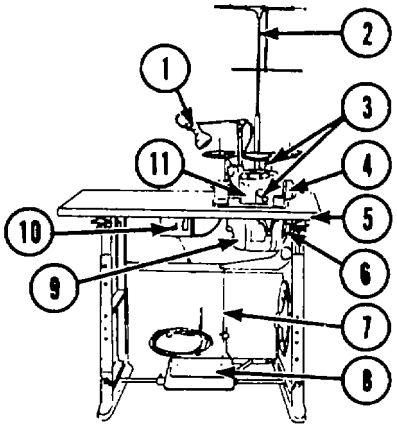
MEC 3530-203-24/3-4 (2)

Figure 3-4 - Continued

PREVENTIVE MAINTENANCE SERVICES
QUARTERLY

MACHINE, SEWING, OVEREDGE

SINGER MODEL 246-15



LUBRICATE IN ACCORDANCE WITH CURRENT LUBRICATION ORDER

ITEM		PAR REF
1	LAMP ASSEMBLY. Inspect lamp assembly and bracket for loose or missing bolts, nuts, and screws, and loose mounting. Inspect for dirty, cracked, or broken housing and lens. Inspect electrical cord for frayed insulation and broken wiring. Inspect for broken wiring. Inspect for broken lamp switch. Check switch for incorrect operation, and make certain the lamp (bulb) is not burned out.	3-33 to 3-36
2	THREAD UNWINDER. Inspect thread unwinder for loose or missing bolts, nuts, and screws; for bent or broken components; and for loose mounting.	3-114 3-142 to 3-144
3	THREAD TENSION STUD, THUMB NUT, AND THREAD CONTROL SPRING. Inspect stud and thumb nut for stripped threads and make certain thumb nut turns with tension on stud. Inspect spring for broken, bent, or corroded coils and for incorrect tension.	3-101 to 3-103

MEC 3530-203-24/3-5 (1)

Figure 5-5. Quarterly preventive maintenance services for overedge sewing machine.

ITEM		PAR REF
4	DRIVE BELT AND PULLEYS. Inspect for broken, frayed, and excessively worn drive belt. Inspect belt for loose mounting on pulleys. Inspect pulleys for cracked, chipped, or broken edges, and for loose mounting. Check for a 1/4-inch finger-pressure deflection midway between pulleys	3-98
5	TABLE ASSEMBLY. Inspect table assembly for cut, cracked, broken warped, and dirty tabletop; for loose or missing bolts and nuts; and for loose mounting to folding stand	. 3-25
6	MOTOR CLUTCH. Inspect clutch for bent, broken, or loose components, and for loose mounting.	3-27
7	ROD. Inspect for bent, broken, or loose rod.	
8	TREADLE. Inspect for bent or broken treadle and for loose mounting. Operate treadle and see that the pulley brake lever engages the motor drive pulley with drive motor when treadle is depressed. Make certain pulley brake lever disengages the drive pulley from motor and stops the pulley when treadle is released.	
9	ELECTRIC MOTOR. Inspect motor for dirty surfaces and grease deposits for bent , cracked, or broken housing; for loose or missing bolts and nuts; for loose electrical connections; for frayed insulation and broken wiring ;for incorrect capacity; and for loose mounting.	3-27
10	MOTOR SWITCH. Inspect for bent or broken switch and for loose mounting in switchbox. Check switch for incorrect operation; make certain it turns the motor on and off.	3-31
11	NEEDLE, THREAD GUIDE, AND CLAMP. Inspect needle for bend or broken shaft, and for loose mounting. Inspect for broken or bent or incorrectly installed thread guide and clamp.	3-103

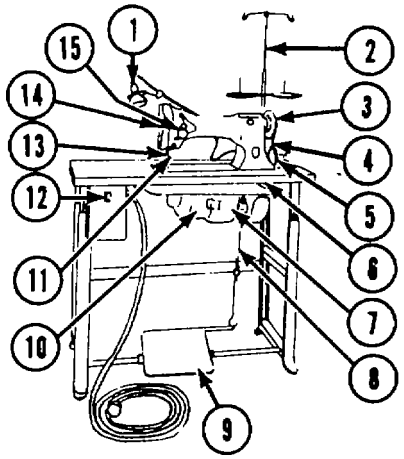
MEC 3530-203-24/3-5 (2)

Figure 3-5-Continued

PREVENTIVE MAINTENANCE SERVICES QUARTERLY

TM 10-3530-203-24 MACHINE, SEWING, TEXTILE

SINGER MDL IIIW-155



LUBRICATE IN ACCORDANCE WITH CURRENT LUBRICATION ORDER

ITEM		PAR REF
1	LAMP ASSEMBLY. Inspect the lamp assembly and bracket for loose or missing bolts, nuts, and screws, and loose mounting. Inspect for a dirty, cracked or broken housing and lens. Inspect the electrical cord for frayed insulation and broken wiring. Inspect for a broken lamp switch. Check the switch for incorrect operation, and make certain the lamp (bulb) is not burned out.	3-33 to 3-36
2	THREAD UNWINDER. Inspect thread unwinder for loose or missing bolts, nuts, and screws; for bent or broken components; and for loose mounting.	3-142 to 3-144
3	BALANCE WHEEL. Inspect balance wheel for loose mounting to arm shaft. Turn wheel toward front of machine and check wheel for mechanical binding	3-42
4	DRIVE BELT AND PULLEYS. Inspect for broken, frayed, and excessively worn drive belt. Inspect belt for loose mounting on pulleys. Inspect pulleys for cracked, chipped, or broken edges, and for loose mounting. Check for a 1/4-inch finger-pressure deflection of the belt midway between the pulleys.	3-42 3-122

MEC 3530-203-24/3-6 (1)

Figure 3-6. Quarterly preventive maintenance services for textile sewing machine.

ITEM		PAR REF
5	BOBBIN WINDER. Inspect bobbin winder for bent, broken, loose, or missing components, and for loose mounting. Inspect for worn leather to broke, for incorrect tension of thread tension spring, and for incorrect adjustment of the pulley with drive belt.	3-137 to 3-140
6	TABLE ASSEMBLY. Inspect table assembly for cut, cracked, broken warped, and dirty tabletop; for loose or missing bolts and nuts; and for loose mounting to folding stand.	3-25
7	MOTOR CLUTCH. Inspect clutch for bent, broken or, loose components and loose mounting.	3-27
8	ROD. Inspect for bent, broken, or loose rod	
9	TREADLE. Inspect for bent or broken treadle and for loose mounting Operate treadle and see that pulley brake lever engages the motor drive pulley with the drive motor when treadle is depressed. Make certain pulley brake lever disengages drive pulley from motor and stops the pulley when treadle is released.	
10	ELECTRIC MOTOR. Inspect the motor for dirty surfaces and grease deposits; for a bent, cracked for broken housing; for loose or missing bolts, and nuts; for loose electrical connections; for frayed insulation and broken wiring; for incorrect capacity; and for loose mounting. During operation observe the motor for unusual noise and excessive vibration	3-27
11	SHUTTLE RACE. Inspect for an incorrectly installed shuttle race, for a nicked or burred shuttle race back and body; and for a chipped or broken body point.	3-126
12	MOTOR SWITCH. Inspect for a bent or broken switch and for loose mounting in the switch box. Check the switch for incorrect operation; make certain it turns the motor on and off	3-31
13	NEEDLE, THREAD GUIDE, AND CLAMP. Inspect the needle for a broken or worn point; for a bent or broken shaft, and for loose mounting. Inspect to for a broken, bent, or incorrectly installed thread guide and clamp.	3-119 to 3-121

MEC 3530-203-24/3-6(2)

Figure 3-6-Continued

ITEM		PAR REF
14	FACE PLATE ASSEMBLY. Inspect the presser bar for incorrect alinement and loose mounting. Inspect the spring for a broken coil and incorrect tension and the needle bar for incorrect alinement. Inspect for a cracked and in correctly installed takeup lever. Check the lever for excessive play. Inspect for an incorrectly installed presserbar lifter.	3-128
15	THREAD TENSION STUD, THUMBNUT, AND THREAD CONTROL SPRING. Inspect the stud and thumbnut for stripped threads and make certain the thumbnut turns with tension on the stud. Inspect the spring for broken, bent, or corroded coils and for incorrect tension.	3-127

MEC 3530-203-24/3-6 (3)

Figure 3-6-Continued

Section III. TROUBLESHOOTING

3-5. General

This section provides information useful in diagnosing and correcting unsatisfactory operation of the textile repair shop and its components. Each trouble symptom stated is followed by the probable causes of the trouble. The possible remedies recommended are described opposite the probable causes. Any trouble that is beyond the ability of the organizational maintenance personnel to remedy must be reported according to instructions given in TM 38-750. Refer to the troubleshooting information in TM 5-6115-271-15 set and in TM 9-2330-213-14 on the cargo trailer.

3-6. Cabinet Assembly

a. Holddown Clamp Assembly is Loosely Mounted.

Probable cause	*Possible remedy*
Capscrew or arm has stripped threads.	Report this condition as stipulated in TM 38-750.
Machine screws or nuts have stripped threads.	Report this condition as stipulated in TM 38-750.

b. *Rear Door or a Side Door Cannot be Opened*.

Probable cause	Possible remedy
Folding handle lock is defective	Install serviceable lock(para. 3-16)

c. Rear Door or a Side Door Does Not Close Securely.

Probable cause	*Possible remedy*
Folding handle lock is defective -	Install serviceable lock. (para. 3-16).
Hinge is bent or broken-	Report this condition as stipulated in TM 38750.
Gasket is defective	Report this condition as stipulated in TM 38-750.
Shuttle tension regulating is loose	Tighten screw.
Bobbin case is sticky with oil and lint	Clean bobbin case and shuttle race, and then lubricate them (LO 10-3530-203-10-series).
Bobbin case is bent or broken	Install a serviceable bobbin case (para. 3-45).

d. Stitches Skip.

Probable cause	*Possible remedy*
Needle bar is out of adjustment	Adjust needle bar and time needle with shuttle point (para. 3-52).
Shuttle race is loose	Tighten shuttle race
Shuttle race is rough or has damaged	Smooth the rough point. with emery cloth. If shuttle point cannot be smoothed, install serviceable shuttle race (para. 3-46)

e. Seams Draw.

Probable cause	*Possible remedy*
Too much tension on presser foot	Adjust regulator screw. for correct tension on presser foot.

f. Stitches Are Uneven or Pile Up.

Probable cause	*Possible remedy*
Feed dog is out of adjustment.	Adjust feed dog (para. 3-49).

3-7. Clothing Sewing Machine

a. Needle Breaks.

Probable cause	*Possible remedy*
Needle is rubbing against presser foot	Make proper adjustment.
Feed dog is loose	Tighten feed dog.
Shuttle race is loose	Tighten shuttle race screws.
Needle bar is bent or screw bushings are excessively.	Install serviceable needle bar or. screw bushings worn (para. 3-52).
Presser foot is loose	Tighten presser foot screw.

b. *Needle Thread Breaks*.

Probable cause	*Possible remedy*
Sharp edge on shuttle, bobbin case, or tension controller	Smooth the sharp edge with emery cloth.
Needle is rubbing against presser foot	Make proper adjustment..
Thread takeup spring is out of adjustment.	Adjust spring (para.3-43).

c. Bobbin Thread Breaks.

Probable cause	*Possible remedy*
Sharp edge on shuttle, bobbin case, bobbin, or needlepoint.	Smooth the sharp edge with emery cloth.

d. Sewing Machine Head is Loosely Mounted in Wooden Tray.

Probable cause	*Possible remedy*
Thumbscrew or tray strap assembly has stripped threads	Install serviceable thumb screw or tray strap assembly (para. 3-19).

e. Heavy-Duty Sewing Machine Head is Loosely Mounted in Tray.

Probable cause	*Possible remedy*
Screw has stripped threads.	Install serviceable screw (para. 3-20).

f. Stowage Box Does Not Close.

Probable cause	*Possible remedy*
Hinge is bent or broken	Install serviceable stowage box assembly (para.3-14).
Latch is defective.	Report this condition as stipulated in TM 38750

g. Generator is Loosely Mounted on Slides.

Probable cause	*Possible remedy*
Probable cause	*Possible*
Shuttle race screws are loose.	Tighten shuttle race screws.

j. Feed Dog Strikes Throat Plate.

Probable cause	*Possible remedy*
Feed dog is out of adjustment -	Adjust feed dog (para. 3.49).

k. Machine Vibrates.

Probable cause	*Possible remedy*
Belt is too tight	Adjust belt so there is a 1-inch finger-pressure deflection midway between pulleys.

l. Lamp Does Not Light When Switch is in ON Position.

Probable cause	*Possible remedy*
Incandescent lamp is burned out.	Install serviceable lamp (bulb) (para. 3-35).
Light cord is broken	Install serviceable lamp assembly (para. 3-33).
Lamp switch is defective	Install serviceable lamp assembly (para. 3-33).
Power receptacle is defective.	Install serviceable box with receptacle (para.3-32).
Lamp assembly is defective	Install serviceable lamp assembly (para 3-33).

m. Motor Fails to Start When Switch is in ON Position.

Power cable is broken	Install serviceable cable (para. 3-31).
Motor switch is defective	Install serviceable switch (para. 3-31).
Motor is defective	Install serviceable motor (para. 3-27).

n. Unusual Noise in Motor.

Probable cause	*Possible remedy*
Motor is defective	Install serviceable motor (para. 3-27).

o. Motor Does Not Pull Load.

Probable cause	*Possible remedy*
Drive belt is slipping-	Adjust belt so there is a 1-inch finger-pressure deflection midway between pulleys.
Improper voltage or motor is faulty	Check generator for correct voltage output. If generator voltage output is correct, check voltage at motor terminals. If voltage output is low, install serviceable cable; if voltage output is incorrect, install serviceable motor (para. 3-27).

3-8. Darning Machine

a. Needle Breaks.

Probable cause	*Possible remedy*
Presser foot is loose or out of line	Adjust and tighten presser foot (para. 3-70).
Hook point is striking needle	Report this condition as. stipulated in TM38 750.
Needle bar is out of adjustment	Adjust needle bar (para.3-67).
Needle bar is bent	Install serviceable needle bar (para. 3-67).

b. Needle Thread Breaks.

Probable cause	*Possible remedy*
Thread control spring is control out of adjustment.	Adjust thread spring (para. 3-62).
Bobbin case is defective	Install serviceable bobbin case (para. 3-63).
Tension adjusting screw is loose.	Tighten screw.
Tension spring is defective	Install serviceable spring (para. 3-63).

c. Stitches Skip.

Probable cause	*Possible remedy*
Needle fails to catch bobbin thread	Time needle with hook. (para. 3-63).
Sewing hook is out of time.	Time sewing hook (para. 3-63).
Needle bar is out of adjustment.	Adjust needle bar (para.3-65).

d. Needle Strikes Hook.

Probable cause	*Probable cause*
Hook saddle is out of adjustment.	Adjust hook saddle (para.3-63).

e. Lamp Does Not Light When Switch is in ON Position.

Probable cause	*Possible remedy*
Incandescent lamp is burned out.	Install serviceable lamp (bulb) (para. 3-35).
Light cord is broken	Install serviceable lamp assembly (para. 3-33).
Lamp switch is defective	Install serviceable lamp assembly (para. 3-33).
Power receptacle is defective	Install service able box. With receptacle(para.3-32).
Lamp assembly is defective	Install serviceable lamp assembly (para. 3-33).

f. Motor Fails to Start When Switch is in ON Position.

Probable cause	*Possible remedy*
Electrical power cable is broken.	Install serviceable power cable (para. 3-31).
Motor switch is defective	Install serviceable switch (para. 3-31).
Motor is defective	Install serviceable motor (3-27).

g. Unusual Noise in Motor.

Probable cause	*Possible remedy*
Motor is defective	Install serviceable motor (para. 3-27).

h. Motor Does Not Pull Load.

Probable cause	*Possible remedy*
Drive belt is slipping	Adjust drive belt for a 3/inch finger-pressure deflection midway between pulleys.
Improper voltage or motor is faulty	Check generator for correct voltage output. If generator voltage output is correct, check voltage at motor terminals. If voltage output is low, install serviceable cable (para. 3-31); if voltage output is incorrect, install serviceable motor para. 3-27).

3-9. Heavy-Duty Sewing Machine

a. Needle Breaks.

Probable cause	*Possible remedy*
Presser foot is loose	Tighten presser foot screw or straighten presser foot.
Sewing hook is too close to needle	Adjust needle bar (para. 3-77).
Needle bar screw bushing is worn excessively	Install serviceable bushing (para. 3-77).

b. Stitches Skip or Fail to Lock.

Probable cause	*Possible remedy*
Needle bar is out of adjustment	Adjust needle bar and time needle with sewing hook point.
Shuttle race is loose	Tighten shuttle race assembly (para. 3-77).
Point on shuttle race assembly is rough	Smooth the rough point. With emery cloth. If shuttle point cannot be smoothed, install a serviceable shuttle race assembly (para. 3-75).
Needle bar screw bushing is worn excessively	Install serviceable bushing (para. 3-77).

c. Stitches are Uneven or Pile Up.

Probable cause	*Possible remedy*
Feed dog is too low	Adjust height of feed dog (para. 3-76).

d. Feed Dogs Strike Throat Plate.

Probable cause	*Possible remedy*
Feed dog out of adjustment	Adjust feed dog (para. 3. 76).

e. Lamp Does not Light When Switch is in ON Position.

Probable cause	*Possible remedy*
Incandescent lamp (bulb) is burned out	Install serviceable lamp. (bulb) (para. 3-35).
Lamp assembly is defective	Install serviceable lamp assembly (para. 3-33).
Switch is defective	Install serviceable lamp assembly (para. 3-33).

f. Motor Does Not Start When Switch is in ON Position.

Probable cause	*Possible remedy*
Power cable is broken	Install serviceable cable (para. 3-31).
Switch is defective	Install serviceable switch (para. 3-31).
Motor is defective	Install serviceable motor (para. 3-27).

g. Unusual Noise in Motor.

Probable cause	*Possible remedy*
Motor is defective	Install serviceable motor (para. 3-27).

h. Motor Does Not Pull Load.

Probable cause	*Possible remedy*
Drive belt is slipping	Adjust belt for a 1/4-inch finger-pressure deflection midway between pulleys.
Improper voltage	Check generator and make necessary adjustment.
Motor is defective	Install serviceable motor (para. 3-27).

3-10. Overedge Sewing Machine

a. Needle Breaks.

Probable cause	*Possible remedy*
Needle deflecting loopers	Adjust loopers (paras. 3-91 and 3-92).
Feed dogs are loose	Tighten feed dog screws (para. 3-90).

b. Stitches Skip.

Probable cause	*Possible remedy*
Needle thread control is broken.	Install serviceable needle thread control (para. 3-107).

c. Imperfect Trimming.

Probable cause	*Possible remedy*
Knives out of adjustment.	Adjust knives (paras. 3-96 and 3-100).

d. Machine Runs Hard.

Probable cause	*Possible remedy*
Knife contact too great	Adjust knives (paras. 3-96 and 3-109).

e. Cloth Does Not Feed.

Probable cause	*Possible remedy*
Feed dogs too low	Adjust feed dogs (para.3-90).

f. Feed Dogs Strike Throat Plate.

Probable cause	*Possible remedy*
Feed dogs out of adjustment.	Adjust feed dogs (para.3-90).

g.Lamp Does Not Light When Switch is in ON Position.

Probable cause	*Possible remedy*
Incandescent lamp bulb is burned out	Install serviceable lamp.(bulb) (para. 3-35).
Lamp assembly is defective.	Install serviceable lamp assembly (para. 3-33).
Switch is defective	Install serviceable lamp assembly (para. 3-33).
Power receptacle is defective	Install serviceable box. with receptacle (para. 3-32).

h.Motor Does Not Start When Switch is in ON Position.

Probable cause	*Possible remedy*
Power cable is broken	Install serviceable cable (para. 3-31).
Switch is defective-	Install serviceable switch (para. 3-31).
Motor is defective	Install serviceable motor (para. 3-27).
Sharp edge on hook, bobbin case, or tension controller.	Smooth the edge with emery cloth.
Sewing hook is out of time	Report this condition as stipulated in TM 38750.
Needle bar is out of adjustment.	Adjust needle bar (para. 3-67).
Bobbin case lever is out of adjustment	Adjust bobbin case lever. (para. 3-63).
Throat plate is excessively worn.	Install serviceable throat plate (para. 3-65).
Tension springs are defective -	Install serviceable tension. spring (para. 3-62).
Needle is rubbing against presser foot	Adjust and tighten presser foot (para. 3-70).

i. Bobbin Thread Breaks.

Probable cause	*Possible remedy*
Sharp edge on hook, bobbin and case, or needle.	Smooth edge with emery cloth.
Bobbin case is sticky with oil and lint	Clean bobbin case and. hook, and then lubricate them (LO 10-3530-230-10-series).

j. Unusual Noise in Motor.

Probable cause	*Possible remedy*
Motor is defective	Install serviceable motor (para. 3-27).

k. Motor Does Not Pull Load.

Probable cause	*Possible remedy*
Drive belt is slipping	Adjust drive belt with a %-inch finger-pressure deflection midway between pulleys.
Improper voltage	Check generator and make necessary adjustment.
Motor is defective	Install serviceable motor (para. 3-27)..

I. Machine Pulley Turns Toward Operator.

Probable cause	*Possible remedy*
Improper rotation of motor.	Install serviceable motor (para. 3-27).

m. Machine Does Not Turn.

Probable cause	Possible remedy
Loose or broken drive belt	Adjust drive belt for a Y4-inch finger-pressure deflection.
Motor is defective	Install serviceable motor (para. 3-27).

3-11. Textile Sewing Machine

a. Needle Breaks.

Probable cause	*Possible remedy*
Presser foot is loose	Tighten screw (para. 3-135).

b. Stitches Skip.

Probable cause	*Possible remedy*
Needle bar is out of adjustment.	Adjust needle bar (para.3-128).

c. Stitches Are Uneven or Pile Up.

Probable cause	Possible remedy
Feed dogs too low	Adjusted dogs (para.3-125).

d. Feed Dogs Strike Throat Plate.

Probable cause	*Possible remedy*
Feed dogs out of adjustment.	Adjust feed dogs (para.3-125).

e. Lamp Does Not Light When Switch is in ON Position.

Probable cause	Possible remedy
Light cold is broken	Install serviceable lamp assembly (para. 3-33).
Incandescent lamp (bulb) is burned out.	Install serviceable lamp (bulb) (para. 3-35).
Lamp assembly is defective -	Install serviceable lamp. assembly (para. 3-33).
Power receptacle is defective	Install serviceable box. With receptacle (para 3-32).

f. Motor Does Not Start When Switch is in ON Position.

Probable cause	*Possible remedy*
Power cable is broken	Install serviceable cable (para. 3-31).
Switch is defective	Install serviceable switch (para. 3-31).
Motor is defective	Install serviceable motor (para. 3-27).

g. Unusual Noise in Motor.

Probable cause	*Possible remedy*
Motor is defective	Install serviceable motor (para. 3-27).

h. Motor Does Not Pull Load.

Probable cause	*Possible remedy*
Drive belt is slipping	Adjust drive belt for a 1/4-inch finger-pressure deflection midway between pulleys.
Improper voltage	Check generator and make necessary adjustment.
Motor is defective	Install serviceable motor (para. 3-27).

3-12. Field Expedient Repairs

The following trouble may occur to the sewing machines while the textile repair shop is operating in the field. Supplies and repair parts may not be available; therefore, normal remedial action cannot be taken. When this trouble develops, the following field repair procedure may be used for the sewing machine. Field expedients will be used only during emergency.

Trouble	*Expedient remedy*
Broken drive belt	Connect ends with a short piece of wile or strong thread.

Section IV. CABINET ASSEMBLY

3-13. General

This section describes maintenance instructions which the organizational maintenance personnel must perform on the cabinet assembly. Any deficiencies which the organizational maintenance personnel are not authorized to correct must be reported as stipulated in TM 38-750.

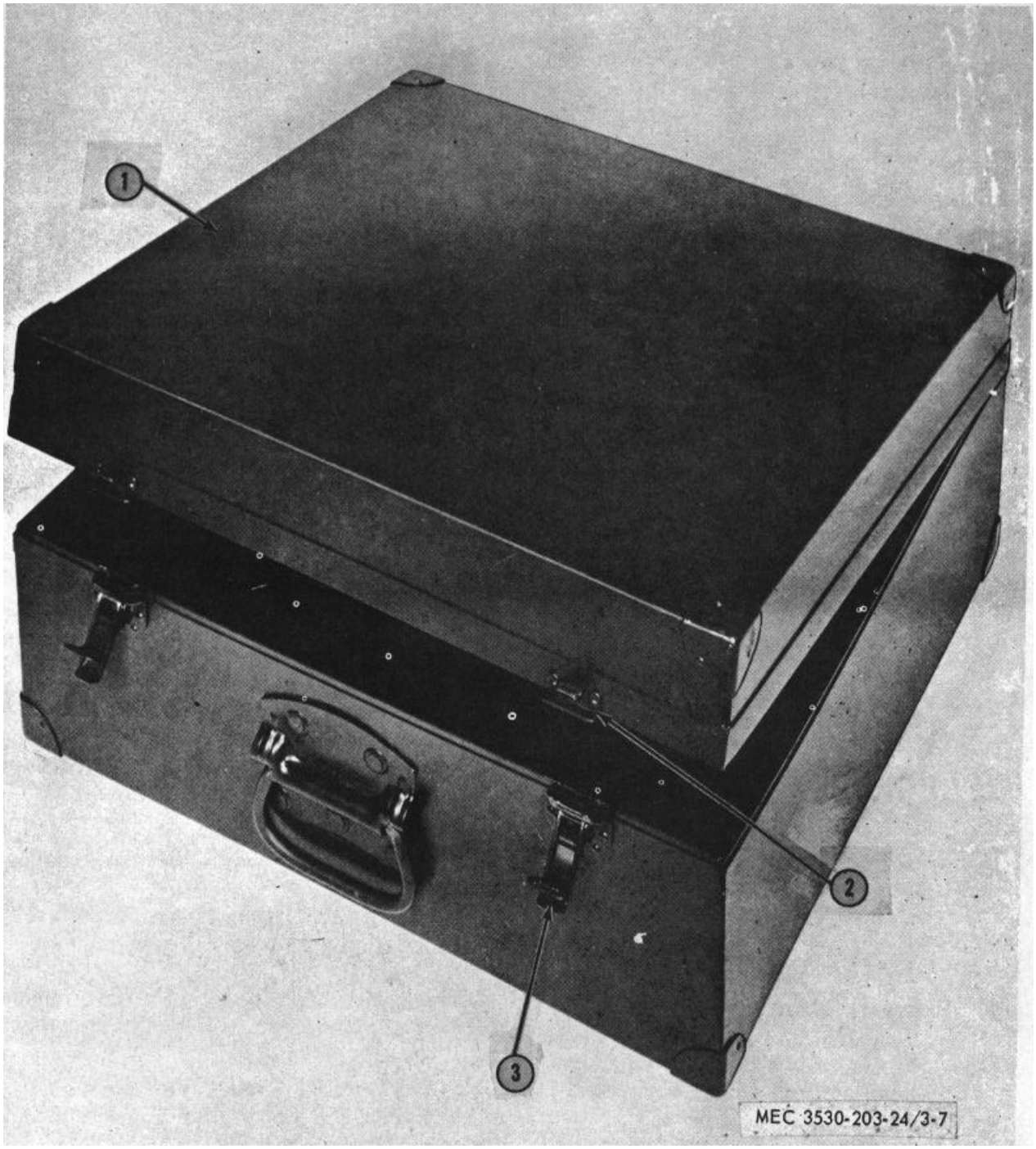
3-14. Stowage Box Assembly

The four stowage box assemblies, located in the upper side compartments of the cabinet assembly, are used for stowing the grommet press, tack-button attaching machine, repair parts, and accessories.

a. Inspection. Inspect the stowage box assembly (1, fig. 3-7) for holes and bends and for broken latches, hinges, and handle or pull.

b. Removal. Pull the stowage box out of the cabinet and remove the items from the box.

c. Installation. Replace defective box with a serviceable one and install it by reversing the procedure in b above.



1 Box, stowage 2 Hook 3 Latch assembly

Figure 3-7. Stowage box assembly.

3-15. Lifting Loop Assembly

The four lifting loops are used to lift the cabinet assembly out of the cargo trailer or to put the cabinet assembly in the cargo trailer. A spring clip retainer is used to hold each lifting loop in place.

a. Inspection. Inspect the lifting loop assembly (1, fig. 3-8) for bends, broken welds, and loose mounting, and inspect the spring clip retainer for bends and breaks.

b. *Removal*.

(1) Remove the nuts, lockwashers, and bolts (2) that hold the lifting loop assembly (1) to the cabinet.

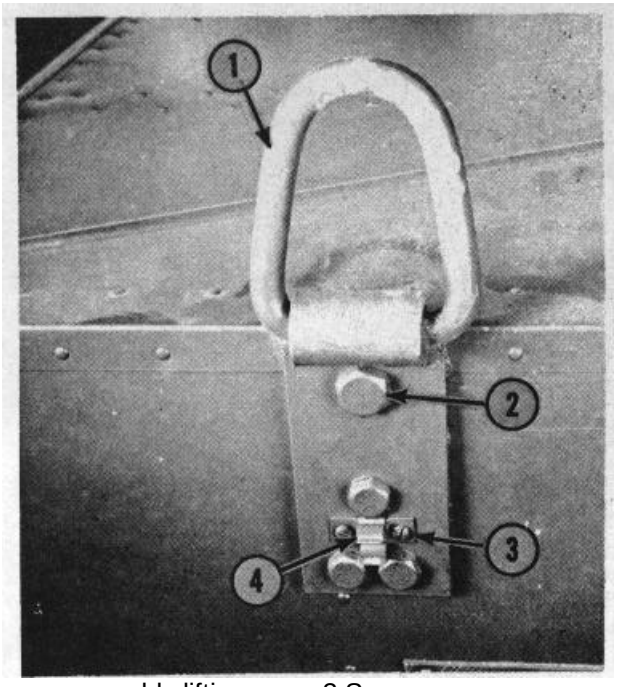
(2) Remove the lifting loop assembly from the cabinet.

(3) Remove the two screws (3) and the lockwashers that hold the spring clip retainer

(4) to the lifting loop assembly, and remove the retainer from the assembly.

Note. The spring clip retainer may be removed without removing the lifting assembly from the cabinet.

c. *Installation*. Replace defective parts with serviceable ones and install them by reversing the procedure in b above.



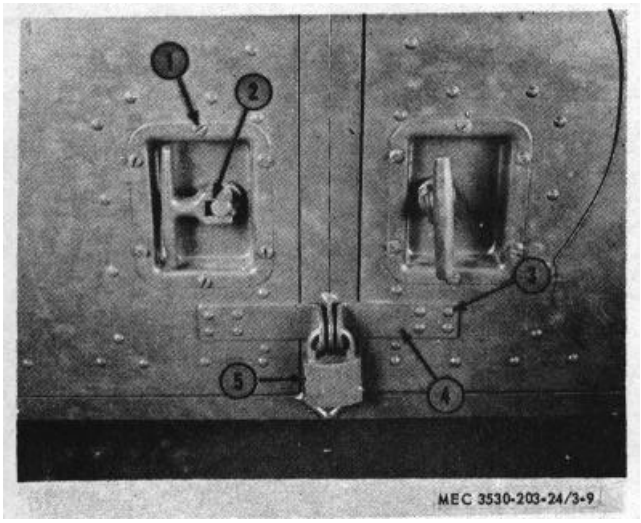
1 Loop assembly lifting
2 Bolt
3 Screw
4 Retainer, spring clip

Figure 3-8. Lifting loop assembly.

3-16. Slam-Type Folding Handle Lock

a. *Removal*. Remove the nuts, lockwashers, and bolts (1, fig. 3-9) that secure the lock (2) to the door, and remove the lock from the door.

b. *Installation*. Replace defective lock with a serviceable one and install it by reversing the procedure in a above.



1 Bolt
2 Lock, folding handle
3 Rivets
4 Latch, side door locking
5 Padlock

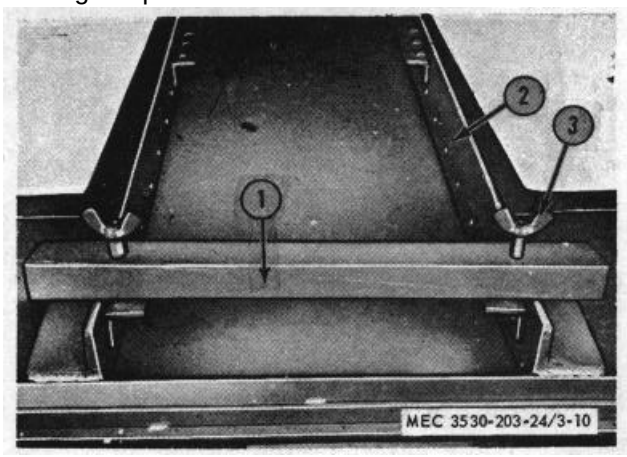
Figure 3-9. Folding handle locks and latches.

3-17. Generator Holddown Assembly

Two generator Holddown assemblies are used to fasten the generator set securely in the cabinet.

a. Removal. Unscrew and remove the wing screws (3, fig. 3-10) from the generator hold-down (1), and remove the generator Holddown from the tracks (2) and from the cabinet.

b. Installation. Replace defective generator Holddown with a serviceable one and install it by reversing the procedure in a above.



1 Holddown assembly, generator
2 Track
3 Screw, wing

Figure 3-10. Generator Holddown assembly.

3-18. Folding Stand and Chair Holddown Strap Assemblies

There are two folding stand Holddown strap assemblies (3, fig. 3-11) to hold the folding stands and two chair Holddown strap assemblies to hold the chairs in the cabinet.

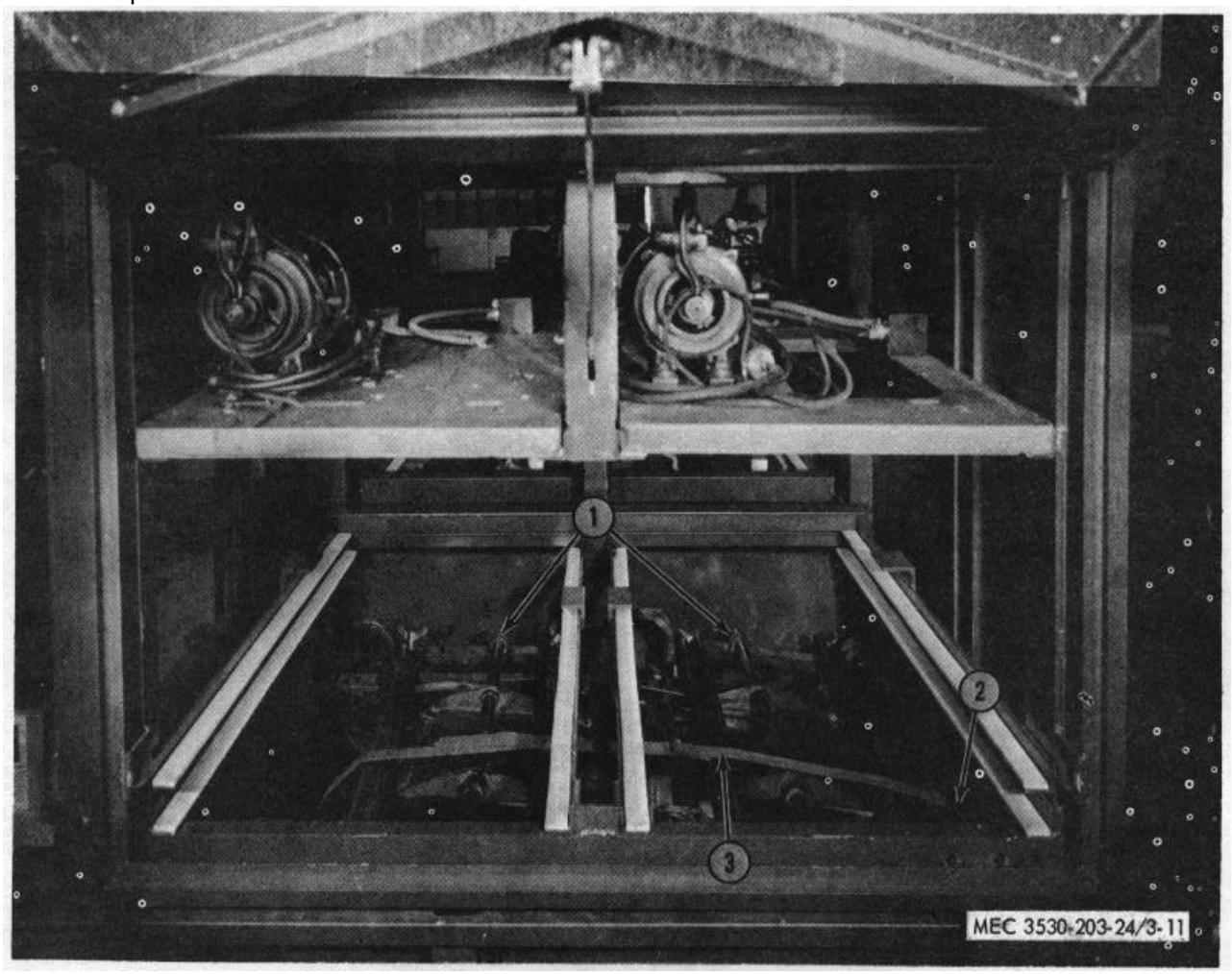
a. Inspection. Inspect for frayed or torn straps and for broken or missing buckles, clips, and loops.

b. Removal.

(1) Remove the nuts, lockwashers, and bolts that secure the loops (2) that hold the strap assemblies to the cabinet.

(2) Remove the strap assemblies from the cabinet.

c. Installation. Fabricate a new strap from the bulk cotton webbing by cutting the new strap the length of the defective one. Replace defective buckles, clips, and loops with serviceable ones as necessary. Sew the straps in the loops, sew the buckle on the short end of the strap, and install a clip on the loose or long end of the strap. After the strap assembly has been fabricated, install it in the cabinet by reversing the procedure in b above.



1 Stand, folding 2 Loop, strap 3 Strap assembly

Figure 3-11. Interior of cabinet assembly.

3-19. Machine Tray and Strap Assemblies

Each sewing machine wooden tray assembly has a strap to hold the sewing machine head in the tray.

a. Inspection. Inspect the strap for bends, broken or bent hinges, broken welds, and torn felt. Check the tray for missing and damaged parts and for deterioration.

b. Removal.

(1) Pull the tray (4, fig. 3-12) out of the cabinet until it hits the stop (3) mounted on the tray.

(2) Unscrew and remove the thumbscrew (1) which holds the two straps together.

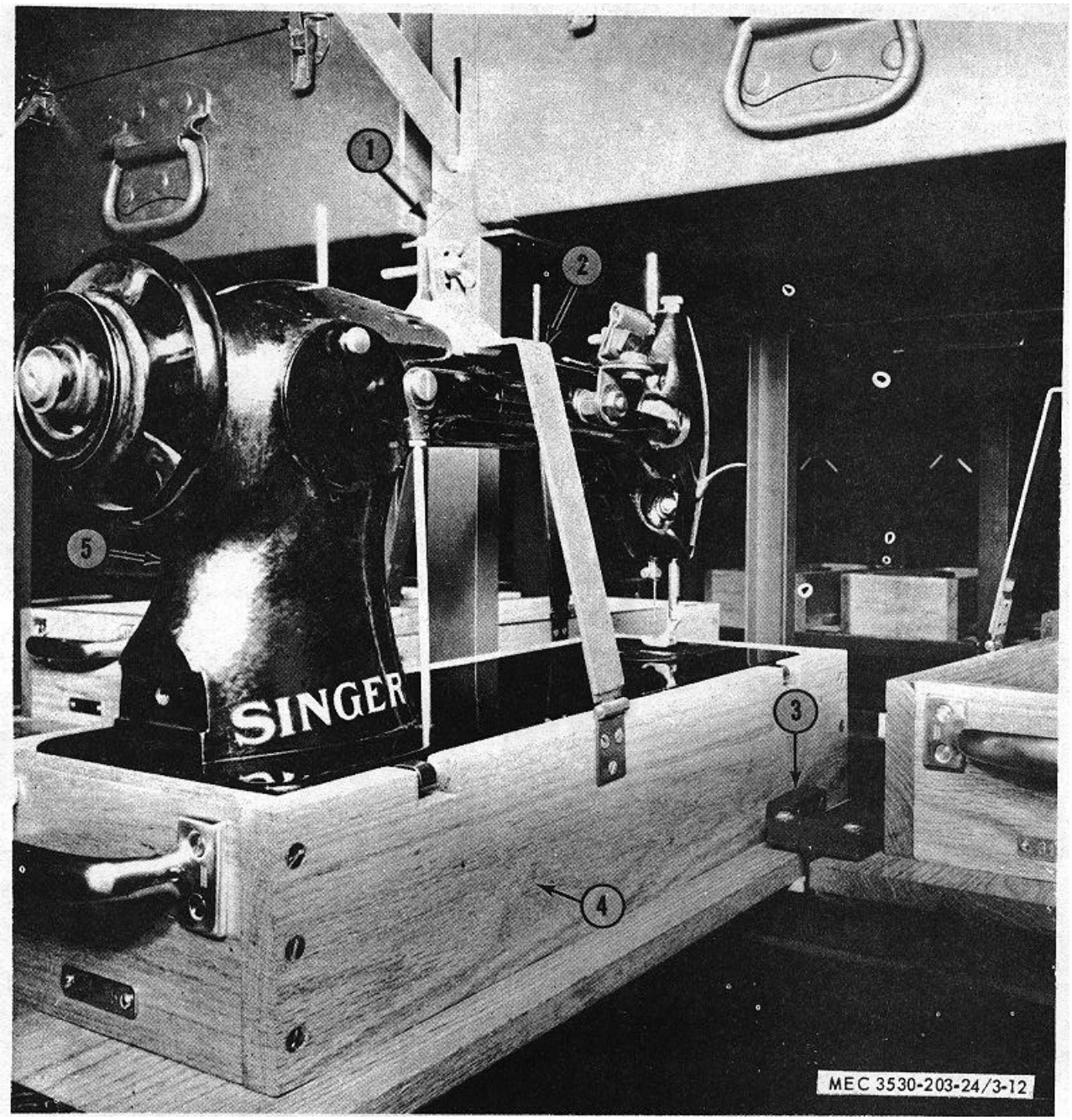
(3) Remove the screws that secure the strap (s) (2) to the tray (4) and remove the strap (s) (2) from the tray (4).

(4) Lift the sewing machine head (5) from the tray (4).

(5) Remove the screws that hold the stops (3) to the tray (4) and remove the stops (3).

(6) Pull the tray from the slides and from the cabinet.

c. Installation. Replace defective straps and trays with serviceable ones and install them by reversing the procedure in b above.



1 Thumbscrew
2 Strap assembly
3 Stop, tray assembly
4 Tray
5 Head, sewing machine

Figure 3-12. Clothing sewing machine tray assembly.

3-20. Heavy-Duty Machine Tray Assembly and Tray Holddown Strap

Each of the heavy-duty sewing machine tray assemblies has a Holddown strap to hold the machine head in the tray.

a. Removal.

(1) Remove the screw that holds the Holddown strap to the tray.

(2) Remove the Holddown strap from the tray.

(3) Lift the machine head from the tray and remove the tray from the cabinet.

b. Installation. Replace defective Holddown strap and tray assembly with serviceable ones and install them by reversing the procedure in a above.

3-21. Machine Tray Stop

Each wooden tray assembly has stops mounted to the tray. It prevents the tray from being pulled too far out of the cabinet.

a. Removal.

(1) Pull the tray assembly (4, fig. 3-12) out far enough to gain access to the stops (3) and remove the screws that hold the stops (3) to the tray (4).

(2) Remove the stops (3) from the tray (4).

b. Installation. Replace defective stop (s) with a serviceable one and install it by reversing the procedure in b above.

3-22. Machine Tray Pull

a. Removal. Unscrew and remove the screws securing the pull to the tray and remove the pull from the tray.

b. Installation. Replace defective pull with a serviceable one, and install it by reversing the procedure in a above.

3-23. Tray Bumper

There are four rubber bumpers in each clothing sewing machine tray.

a. Removal.

(1) Pull the tray out until it hits the stops.

(2) Remove the thumbscrew that hold the two straps together.

(3) Lift the clothing sewing machine head from the tray.

(4) Remove the screw that holds the bumper to the tray and remove the bumper.

b. Installation. Replace defective bumper with a serviceable one and install it by reversing the procedure in a above.

3-24. Shock Absorber Felt

Shock absorber felt is used on the tray strap assemblies and on the folding table assembly slides.

a. Removal. Cut or scrape the defective felt from the item.

b. Installation. Replace defective felt with a piece of serviceable felt. Measure and cut a piece of felt from the bulk felt the same size as the defective piece. Glue or cement the piece of felt to the item with an adhesive of neoprene-base solvent cement.

3-25. Table Assembly With Folding Legs

There are two table assemblies with folding legs. One is used as a worktable and the other is used to install the press grommet at one end of it and the tack-button attaching machine at the other end of it.

a. Removal.

(1) Remove the nuts, lockwashers, and machine screw, and the wood screws that hold the leg assembly to the tabletop.

(2) Remove the leg assembly from the tabletop.

b. Installation. Replace defective table assembly with a serviceable one. If only the leg assembly is defective, replace it with a serviceable one and install it to the tabletop by reversing the procedure in a above.

Section V. ELECTRIC MOTORS

3-26. General

This section describes the maintenance instructions which the organizational maintenance personnel are authorized to perform on the motors used to power the sewing machines. Any deficiencies which the organizational maintenance personnel are not authorized to correct must be reported as stipulated in **TM 38-750**.

3-27. Alternating Current Motor

a. Removal.

(1) Disconnect the power cord.

(2) Remove the drive belt from the drive pulley. Uncouple the belt hook and remove the drive belt from the machine.

(3) Loosen the thumbscrew on the adjustable clamp of the connecting rod and separate the two ends of the rod.

(4) Remove the upper end of the rod from the brake lever.

(5) Remove the two screws from the terminal box cover on the motor, and separate the 6over from the motor.

(6) Disconnect the wires from the switch to the motor.

(7) Remove the nuts and lockwashers that secure the motor to the tabletop and remove the motor.

(8) Remove the motor mounting bolts from the tabletop.

b. Inspection. Inspect the motor for broken housing, any evidence of excessive heating, and obstructions to ventilation. Check the wiring for cuts, frays, and any evidence of a short circuit.

c. Installation. Replace defective motor with a serviceable one and install it by reversing the procedure in a above**.**

3-28. Drive Pulley Brake Lever, Spring, and Lever Pad

The brake lever, spring, and pad are parts of the motor used to operate the clothing, darning, heavy-duty, overedge, or textile sewing machines.

a. Removal.

(1) Unhook and remove the drive pulley brake lever spring (16) from the brake lever and from the spring hook on the motor.

(2) Remove the lever screw nut and the shoulder screw from the brake lever.

(3) Remove the drive pulley brake lever from the motor.

(4) Pull out the cotter pin, and remove the lever thermoid pad from the lever.

b. Installation. Replace the entire lever if it is defective or replace the spring and pad with serviceable ones, and install them by reversing the procedure in *a* above.

3-29. Drive Pulley

The pulleys used on the clothing, darning, heavy-duty, overedge, and textile machines are removed as follows:

a. Removal.

(1) Remove the drive belt from the drive pulley.

(2) Remove the drive pulley brake lever from the motor (para. 3-30a).

(3) Loosen the setscrew in the drive pulley, and slide the drive pulley from the motor.

b. Installation. Replace defective drive pulley with a serviceable one, and install it by reversing the procedure in *a* above.

Section VI. MISCELLANEOUS WIRING AND FITTINGS

3-30. General

This section describes maintenance instructions which organizational maintenance personnel are authorized to perform on the miscellaneous wiring and fittings consisting of motor switch and power cables; box with receptacle; lamp assembly; lamp bracket; lamp (bulb), lens, reflector, and ring; and power cables and light cords with associated parts.

Any deficiencies which organizational maintenance personnel are not authorized to correct must be reported as stipulated in TM 38750.

3-31. Motor Switch and Power Cable

Each sewing machine motor is equipped with a motor switch and a power cable.

a. Inspection. Inspect for broken or binding switch, for frayed insulation on the cable, and for broken or bent prongs on the cable plug.

b. Removal.

(1) Remove the two screws that secure the switch cover to the bracket, and remove the switch cover from the bracket.

(2) Loosen the terminal screws on the switchbox, and remove and tag the power cable wires and the motor wires from the switch.

(3) Remove the power cable and wiring harness from the switch bracket, and separate the switch from the cable and the wiring harness.

c. Installation. Replace defective switch and power cable with serviceable ones and install them by reversing the procedure in b above.

3-32. Sewing Machine Table Box With Receptacle

The box with receptacle mounted under the tabletop is used to plug in the lamp assembly for each sewing machine.

a. Removal.

(1) Remove the two screws that hold the receptacle cover to the box.

(2) Loosen the two screws that hold the wires to the receptacle and remove the wires.

(3) Loosen the cord connector clamp screws and slide the cable from the box.

(4) Remove the two screws that secure the box to the tabletop and remove the box from the tabletop.

b. Installation. Replace defective box with a serviceable one, and install it by reversing the procedure in a above.

3-33. Sewing Machine Lamp Assembly a. Removal.

(1) Unplug the light cord from the receptacle.

(2) Remove the bracket clamp screws that secure the lamp assembly to the bracket.

(3) Remove the lamp assembly from the bracket.

(4) Loosen the universal arm clamp screw, and remove the arm from the universal clamp.

(5) Loosen the bracket clamp thumbscrew and remove the lamp assembly, including the arm and the cord, from the machine.

b. Installation. Replace defective lamp assembly with a serviceable one and install it by reversing the procedure in a above.

3-34. Lamp Bracket

a. Removal.

(1) Loosen the bracket clamp thumbscrew, and remove the lamp arm from the bracket.

(2) Remove the nut from the bracket stud that secures the bracket to the machine.

(3) Remove the bracket with stud, flat washer, and friction washer from the machine.

b. Installation. Replace defective bracket with a serviceable one and install it by reversing the procedure in a above.

3-35. Sewing Machine Lamp (Bulb), Lens, Reflector, and Ring a. Removal.

(1) Remove the retaining ring from the lamp.

(2) Remove the lens, lamp (bulb), and reflector from the lamp.

b. Inspection. Inspect for broken lens, burned-out or broken lamp (bulb), and excessively worn reflector and ring.

c. Installation. Replace defective parts with serviceable ones, and install them by reversing the procedure in a above.

3-36. Power Cable, Condulet, Cover, Connector, and Receptacles

The power cable, with three single outlets in a condulet is used to connect the generator set with the three 2-duplex power cables (para.
3-37).

a. Inspection. Inspect for frayed or worn cable insulation; for broken or burned-out receptacles; and for bent cover, connector, and condulet.

b. Removal.

(1) Turn off the generator set, and disconnect the power cable at the generator set.

(2) Unplug the sewing machine power cables from the generator power cable.

(3) Loosen the screws that hold the cover to the condulet, and remove the covers with screws from the condulet.

(4) Loosen the screws that secure the receptacles to the cundulet.

(5) Lift the receptacles from the condulet, and tag the wires for identification for proper installation.

(6) Remove the screws that secure the receptacles to the wires, and remove the receptacles from the wires.

(7) Remove the compression nut from the condulet connector (3).

(8) Pull the power cable from the condulet connector.

(9) Remove the condulet connector from the condulet.

c. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in *b* above.

3-37. Power Cable, Condulet, Cover, Connector, Outlets, and Plug Cap

Each of the power cables with the 2-duplex outlets have a condulet at one end and a plug cap at the other end. These cables are used to connect the sewing machines and the lamps to the power cable connected to the generator set.

a. Inspection. Inspect for frayed or worn cable insulation; broken or burned-out outlets; and bent or broken condulet, cover, connector, and plug cap.

b. Removal.

(1) Turn off the generator set, unplug the power cables from the sewing machines and the lamps, and unplug the power cables from the power cable connected to the generator set.

(2) Loosen the screws that hold the cover to the condulet and remove the cover with screws from the condulet.

(3) Remove the screws that hold the outlets to the condulet.

(4) Lift the outlets from the condulet, and tag the wires for identification.

(5) Remove the screws that secure the outlets to the wires, and remove the outlets from the wires.

(6) Remove the compression nut from the condulet connector.

(7) Pull the power cable from the condulet connector.

(8) Remove the condulet connector from the condulet.

(9) Remove the insulating shield from the plug cap.

(10) Remove the screws that hold the plug cap to the power cable, and pull the plug cap from the power cable.

c. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in b above.

3-38. Light Cord, Plug Cap, Socket Handle and Lamp

The light cords connect to the three 2-duplexoutlet power cables.

a. Inspection. Inspect for frayed or excessively worn insulation; for bent or damaged shield; and for broken or damaged outlet, handle, lamp (bulb), and plug cap.

b. Removal.

(1) Unplug the light cord from the power source.

(2) Loosen the two screws that hold the shield to the handle and remove the shield from the handle.

(3) Unscrew and remove the lamp from the socket in the light cord.

(4) Pry the side outlet from the handle.

(5) Unscrew the nuts that hold the wires to the side outlet, tag and remove the wires from the side outlet.

(6) Pull the light cord from the handle.

(7) Remove the insulating shield from the plug cap.

(8) Remove the screws that secure the wires to the plug cap.

(9) Pull the plug cap from the light cord.

c. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in b above.

Section VII. CLOTHING SEWING MACHINE

3-39. General

This section describes additional maintenance instructions which organizational maintenance personnel are authorized to perform on the clothing sewing machine. The clothing sewing machine consists of a machine head, a motor, a table assembly, and a stand. The motor is bolted to the underside of the top of the table assembly, the machine head is mounted on the top of the table assembly, and the table assembly is mounted on the stand.

The machine head includes the bed and the

arm. The bed supports the arm and it contains the driving or oscillating shaft, the shuttle race, and the feeding mechanism. The arm is a housing which contains the upper driving mechanism and it supports the needle bar, presser bar, and the thread takeup mechanism. Any deficiencies which the organizational maintenance personnel are not authorized to correct must be reported as stipulated in TM 38-750.

3-40. Side Cap

a. Removal. Loosen the screw (7, fig. 3-13) that holds the side cap (6) to the machine, and remove the cap from the machine.

b. Inspection. Inspect the side cap for bends and for irregularities such as sharp edges, cuts, or nicks.

c. Installation. Replace defective side cap with a serviceable one, and install it by reversing the procedure in *a* above.

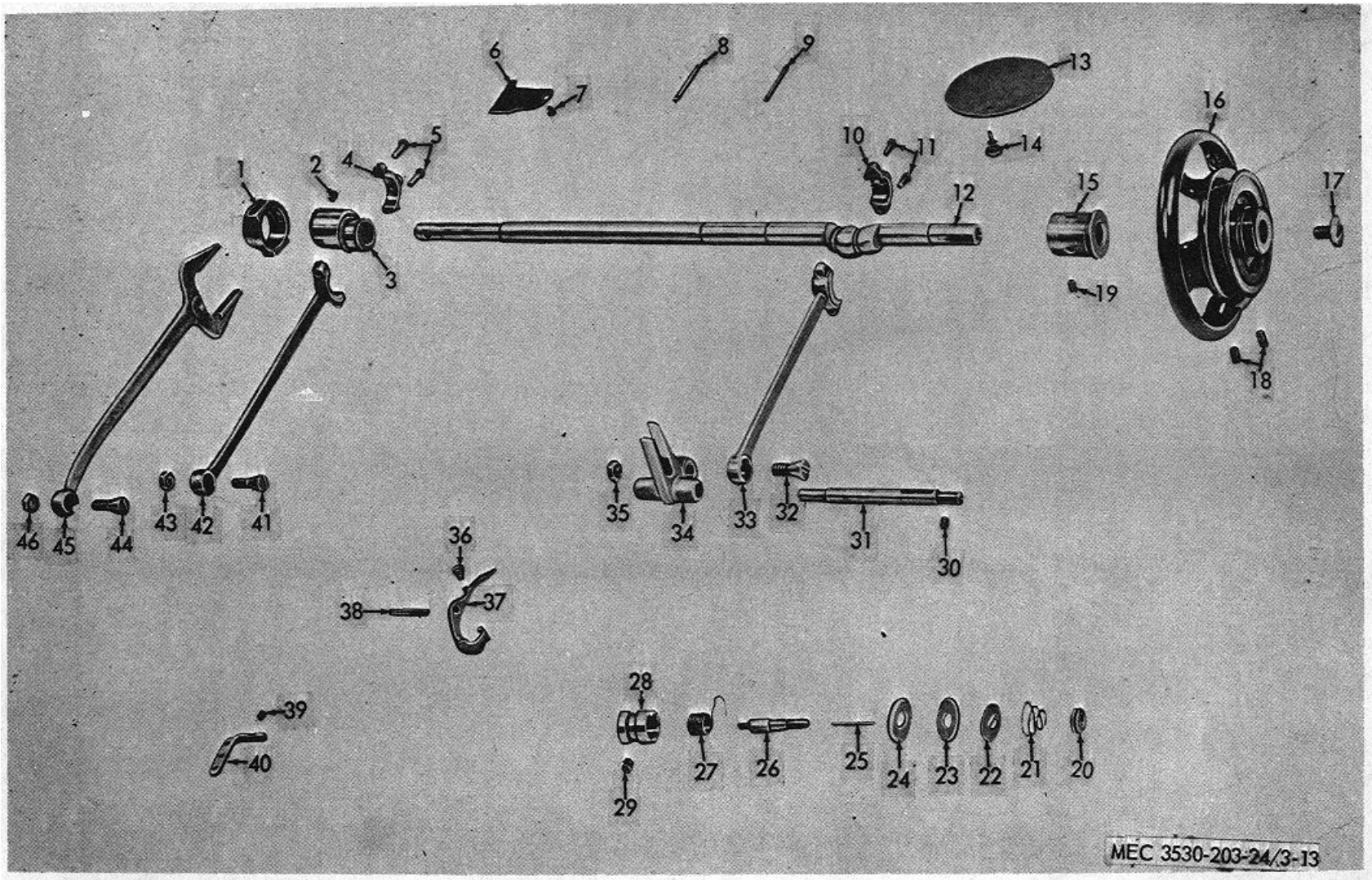


Figure 3-13. Clothing sewing machine oscillating rockshaft and crank, feed fork, and crank rods.

1 Sleeve
2 Setscrew, eccentric
3 Eccentric, feed and feed lifting
4 Cap, rod
5 Screws, rod cap
6 Cap, arm side
7 Screw, side cap
8 Guide, arm spool pin thread
9 Guide, arm spool pin thread
10 Cap, rod
11 Screws, rod cap
12 Shaft, arm
13 Cover, side
14 Thumbscrew, side cover
15 Bushing, rear shaft
16 Pulley with balance wheel, drive
17 Screw, arm shaft
18 Setscrews, drive pulley
19 Setscrew, bushing
20 Nut, thread tension stud thumb
21 Spring, thread tension
22 Disk, thread tension release
23 Disk, thread tension
24 Disk, thread tension
25 Pin, thread tension release
26 Stud, thread tension
27 Spring, thread takeup
28 Regulator, thread takeup spring
29 Setscrew, spring regulator
30 Setscrew
31 Rockshaft, oscillating
32 Screw, hinge rod
33 Rod, crank connecting
34 Crank, oscillating
35 Nut, hinge screw
36 Spring, thread tension release
37 Lever, thread tension release
38 Pin, release lever hinge
39 Setscrew, thread retainer
40 Retainer, thread
41 Screw, hinge
42 Rod, feed lifting rockshaft crank connecting
43 Nut, hinge screw
44 Screw, hinge
45 Fork, feed
46 Nut, hinge screw

3-41. Side Cover

a. Removal. Unscrew the side cover thumbscrew (14, fig. 3-13) that holds the side cover (13) to the machine, and remove the side cover from the machine.

b. Inspection. Inspect the side cover for warping, bent edges, nicks, bends, and breaks. Check thumbscrew for stripped threads.

c. Installation. Replace defective side cover with a serviceable one and install it by reversing the procedure in a above.

3-42. Drive Pulley With Balance Wheel and Setscrew

a. Removal. Remove the belt, arm shaft screw (17, fig. 3-13) and setscrews (18) that hold the drive pulley to the machine arm (12), and remove the drive pulley with balance wheel (16) from the machine.

b. Inspection. Inspect the pulley and balance wheel for binding, breaks, cracks, chips and be sure the pulley edges are smooth.

c. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in a above.

3-43. Thread Tension Disks, Guides, Springs, Regulator, Pin, Stud, and Retainer

a. Removal.

(1) Remove the thread tension stud thumb nut (20, fig. 3-13) from the stud (26).

(2) Remove the arm thread tension spring (21), the thread tension release disk (22), the thread tension disks (23 and 24), and the thread tension release pin (25) from the stud (26).

(3) Remove the thread tension stud (26) and the thread takeup spring (27) from the thread takeup spring regulator (28).

(4) Take out setscrew (29) and remove the thread takeup spring regulator from the thread retainer.

(5) Remove the thread retainer setscrew (39) from the thread retainer (40), and remove the thread retainer from the machine.

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in a above.

c. Adjustment. Do not confuse the adjustments on the thread controller with tightening the tension on the thread. Move the needle downward and as it begins downward, pull on the thread so the thread takeup lever (2, fig.3-14) will pull the thread takeup spring (1) downward about even with the bottom of the thread regulator (7). As the needle approaches the material (cloth), the thread takeup lever (2) starts downward. The thread takeup spring (1) moves upward and pulls the slack out of the thread and keeps it from getting under the needle.

(1) Setting spring in its correct position.

The normal position of the thread takeup spring (1) is 1/4 inch above the thread regulator (7). The thread takeup spring should be set so that when the eye of the needle reaches the material; on its downward stroke the spring will be through moving upward and will be resting upon the top of the slot in the thread takeup regulator. The position of the thread takeup spring (1) is changed by loosening the setscrew at the right of

the tension spring (4) and rotating the whole tension controller assembly to the right or to the left. To adjust the position of the spring, proceed as follows:

(a) Loosen the setscrew at the right of the tension spring (4) in the arm of the machine.

(b) Insert a screwdriver in the slot of the tension screw stud (5) and turn the whole tension controller assembly to the left to make the spring come to rest farther from the thread takeup regulator (7). To make the, spring come to rest closer to the thread takeup regulator, turn the tension controller assembly to the right.

(c) Tighten the setscrew at the right of the tension spring (4) securely when the spring (1) is in the correct position.

(2) Changing tension of spring. The tension of the thread takeup spring (1) should be just sufficient to take up the slack of the needle thread until the eye of the needle on its downward stroke reaches the material. To change or to adjust the tension on the thread takeup spring (1), proceed as follows:

(a) Loosen the tension regulating thumb nut (6) and force the takeup spring (1) from the recess in the regulator (7).

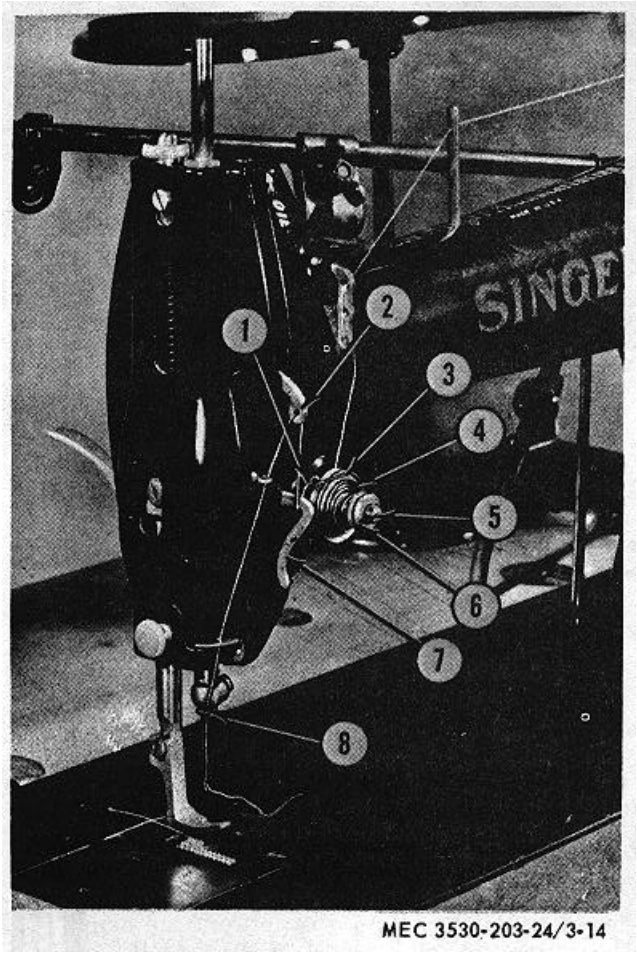
(b) Turn the spring to the right to increase the tension and to the left to decrease the tension on the spring.

(c) Force the spring back into the recess in the regulator and tighten the tension regulating thumb nut (6) when the spring is wound or unwound enough to put the correct tension on it.

3-44. Spool Pin Guides

a. Removal. Pull the spool pin thread guides (9, fig. 3-13) out of the machine arm.

b. Installation. Replace defective guides with serviceable ones. Insert the guides in the holes in the machine arm and tap them slightly to insure a secure fit.



1 Spring, thread takeup
2 Lever, thread takeup
3 Disks, tension
4 Spring, tension
5 Slot in tension screw stud
6 Tension regulating thumb
7 Regulator, thread takeup
8 Guard, needle bar thread

Figure 3-14. Thread takeup regulator and tension spring.

3-45. Shuttle Bobbin and Case

a. Removal.

(1) Turn the switch to the OFF position.

(2) Turn the balance wheel toward the operator until the needle moves up to its highest position.

(3) Remove the needle from the machine by loosening the setscrew in the needle clamp.

(4) Pull out the slide in the bed of the machine and open the bobbin case latch (17, fig. 3-15), and lift the bobbin case

(19) from the shuttle race body (4).

(5) Release the latch; then, turn the open-end of the bobbin case downward and the bobbin (11) will drop out.

(6) Remove the spring screw (14) from the bobbin case.

(7) Remove the spring (15) from the bobbin case.

b. Inspection. Inspect the bobbin and bobbin case for sharp edges, nicks, projections, or any defects that might make operation inefficient. Inspect the latch (17) and the latch lever (16) for proper operation, and inspect the spring for fatigue and excessive wear.

c. Installation. Replace defective bobbin and case with serviceable ones. Wind the bobbin and thread the bobbin case (TM 10-3530-201-10). Take the bobbin case by the latch and place it on the center stud of the shuttle body, with the position finger opposite the notch at the top of the shuttle race. Release the latch, and press the bobbin case back until the latch catches in the groove near the end of the stud.

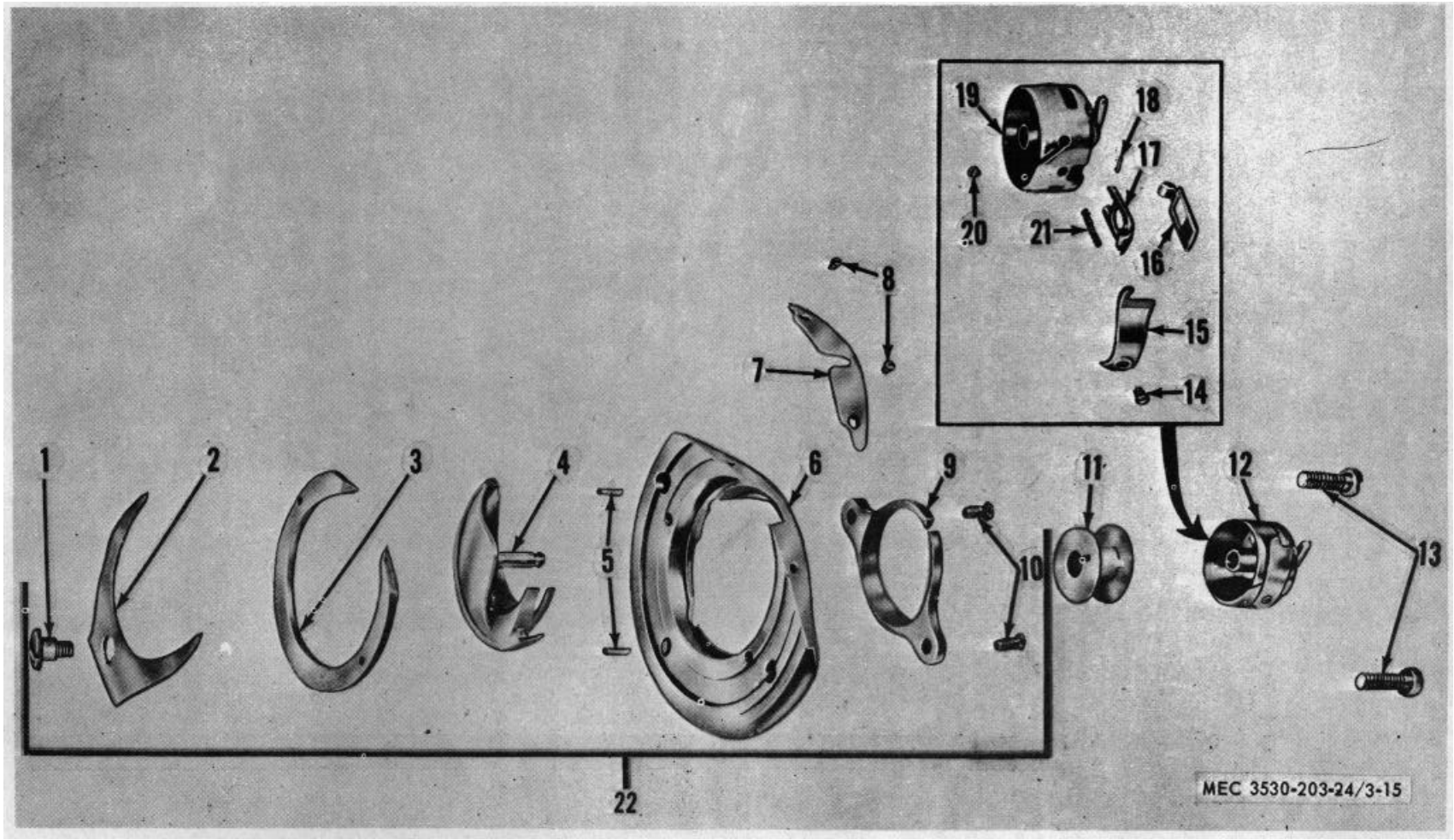


Figure 3-15. Clothing sewing machine shuttle race and bobbin case

1 Screw, shuttle race back spring
2 Spring, shuttle race back
3 Back, shuttle race
4 Body, shuttle race
5 Pins
6 Race, shuttle
7 Cap, shuttle race
8 Capscrews, shuttle race
9 Plat, shuttle bobbin case position
10 Screws, bobbin case position plate
11 Bobbin, shuttle
12 Case, shuttle bobbin
13 Screws, shuttle race
14 Screw, shuttle race back spring
15 Spring, shuttle race back
16 Lever, latch
17 Latch, bobbin case
18 Pin
19 Case, shuttle bobbin
20 Screw
21 Spring, latch
22 Race, shuttle

3-46. Shuttle Race

The shuttle race holds the shuttle body in position. As the shuttle body is oscillated inside the shuttle race, the point of the shuttle body catches the needle thread above the eye of the needle and forms the loop, which is tightened into a lockstitch by the thread takeup lever on its upward stroke.

a. Removal.

(1) Turn the switch to the OFF position, and remove the belt and the needle from the machine.

(2) Turn the machine over on its side to gain access to the shuttle race.

(3) Remove the bobbin case from the shuttle race body (para 3-45*a*).

Note. Be sure the needle bar is at its highest point before removing the shuttle race.

(4) Remove the screws (13, fig. 3-15) that holds the shuttle race (6) in position in the machine bed.

(5) Remove the shuttle race (22) as an assembly from the machine bed. Do not bend the shuttle race cap (7) against the shuttle driver point while disengaging the shuttle race from the machine bed.

b. Cleaning. Wash the shuttle race in SD (solvent, drycleaning) and dry it thoroughly.

c. Installation. Replace defective shuttle race with a serviceable one and install it by reversing the procedures in a above.

Note. Turn the shuttle body so the thread hook is even with the slot on the shuttle race cap before installing the shuttle race in the machine.

3-47. Shuttle Race Body

a. Removal.

(1) Remove the shuttle race from the machine bed (para. 3-46*a*).

(2) Remove the screw (1, fig. 3-15) that secures the shuttle race back spring (2) to the shuttle race (6).

(3) Remove the spring (2), the shuttle race back (3), and the body (4) from the shuttle race (6).

b. Cleaning. Wash the shuttle body in SD (solvent, drycleaning) and dry it thoroughly.

c. Inspection. Inspect the shuttle body for excessive wear, chips, burs, and bent prong.

d. Installation. Replace defective shuttle body with a serviceable one and install it by reversing the procedure in a above.

3-48. Shuttle Race Slide and Spring

a. Removal.

(1) Turn the switch to the OFF position.

(2) Remove the belt and the needle from the machine.

(3) Remove the slide (35, fig. 3-16) from the machine bed.

(4) Remove the screws (34) that hold the spring (33) to the machine, and remove the spring from the machine.

b. Inspection. Inspect the spring and the slide for rough edges, cracks, and excessive wear.

c. Installation. Replace defective items with serviceable ones and install them by reversing the procedure in *a* above.

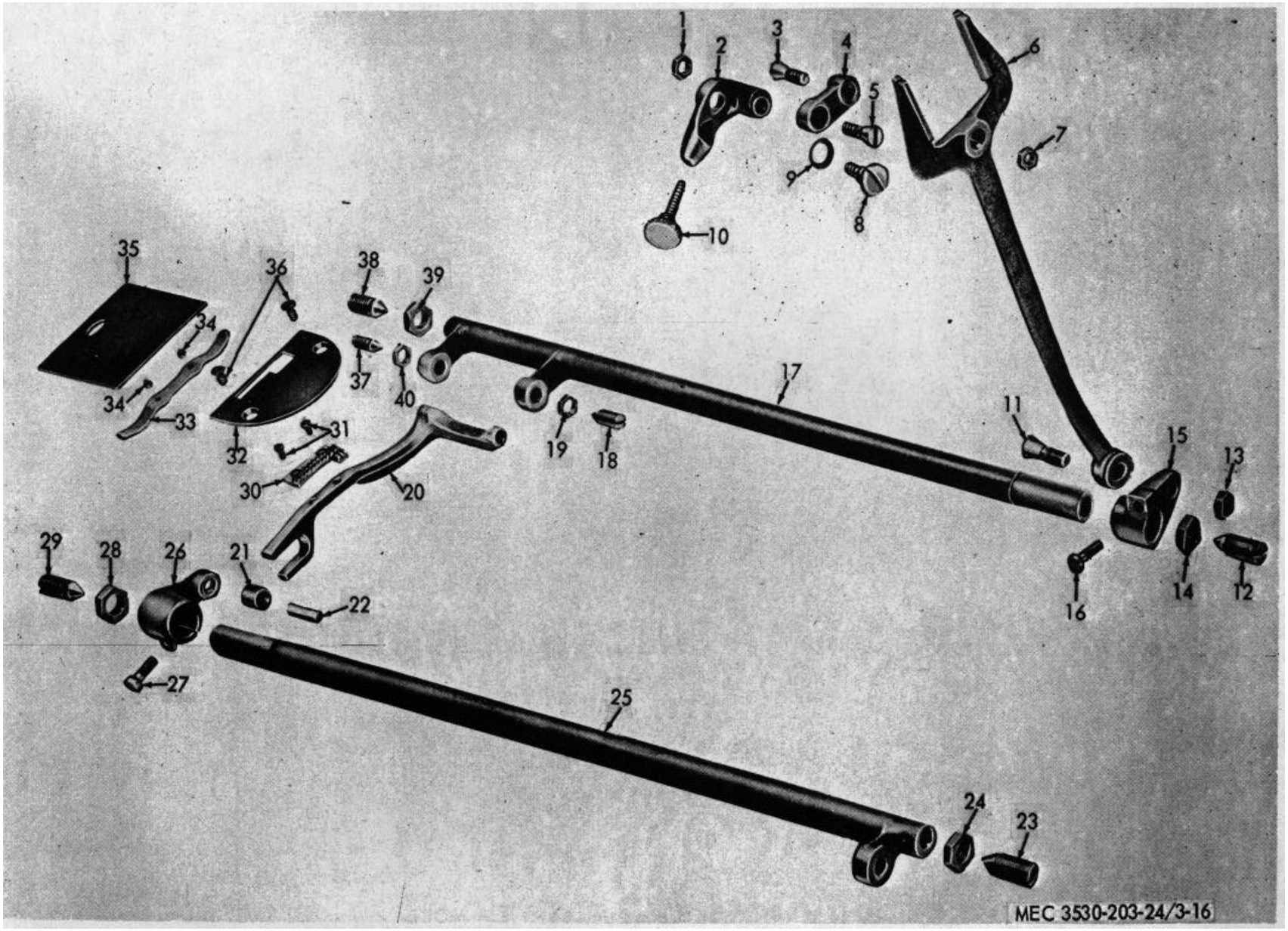


Figure 3-16. Clothing sewing machine shuttle race slide, throat plate, and feed dog.

1 Nut, hinge screw
2 Regulator, feed
3 Screw, link hinge
4 Link, feed connecting
5 Screw, link hinge
6 Fork, feed
7 Nut, hinge screw
8 Screw, regulator connecting
9 Washer, spring
10 Thumbscrew, feed regulator
11 Screw, hinge
12 Screw, rockshaft
13 Nut, hinge screw
14 Nut, rockshaft
15 Crank, feed rockshaft
16 Screw, rockshaft
17 Rockshaft, feed
18 Screw, bar centering
19 Nut, centering screw
20 Bar, feed
21 Stud
22 Roller
23 Screw, rockshaft
24 Nut, rockshaft
25 Rockshaft, feed lifting
26 Crank, feed lifting rockshaft
27 Screw, crank
28 Nut, rockshaft
29 Screw, rockshaft
30 Dog, feed
31 Screws, feed dog
32 Plate, throat
33 Spring, slide
34 Screws, spring
35 Slide, shuttle race
36 Screws, throat plate
37 Screw, bar centering
38 Screw, rockshaft
39 Nut, rockshaft
40 Nut, centering screw

3-49. Throat Plate and Feed Dog

a. Removal.

(1) Be sure the switch is in the OFF position.

(2) Remove the needle and the belt from the machine.

(3) Remove the screws (36, fig. 3-16) that hold the throat plate (32) to the machine and remove the throat plate from the machine.

(4) Remove the screws (31) that hold the feed dog (30) to the machine and remove the feed dog from the machine.

b. Inspection. Inspect the plate for bends, sharp edges, and rough surfaces, and the feed dog for cracks, breaks, and defective teeth.

c. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in a above.

d. Adjustment. Check to see that the needle is correctly timed with the shuttle. The feed dog (30) should be on its downward stroke and level with the throat plate when the point of the needle reaches the material. If the balance wheel is turned forward, the needle should enter the material and come back up. After the needle, on its upward stroke, has cleared the material, the feed dog should then come above the throat plate and push the material forward the distance of one stitch. Time the feed dog with the needle as follows: (1) See that the needle is timed.

(2) Loosen and press the feed regulator thumbscrew to its lowest point. The machine will then make its longest stitch.

(3) Remove the round cover plate as shown in figure 3-17.

(4) Hand-turn the balance wheel toward the operator until the feed dog (30, fig. 3-16) is even with the throat plate on its downward stroke(.

(5) Loosen the feed eccentric screw (2, fig. 3-17).

(6) Hold the eccentric stationary and turn the balance wheel (1) toward the operator until the needle point, on its downward stroke, is even with the top of the throat plate.

(7) Tighten the feed eccentric screw (2).

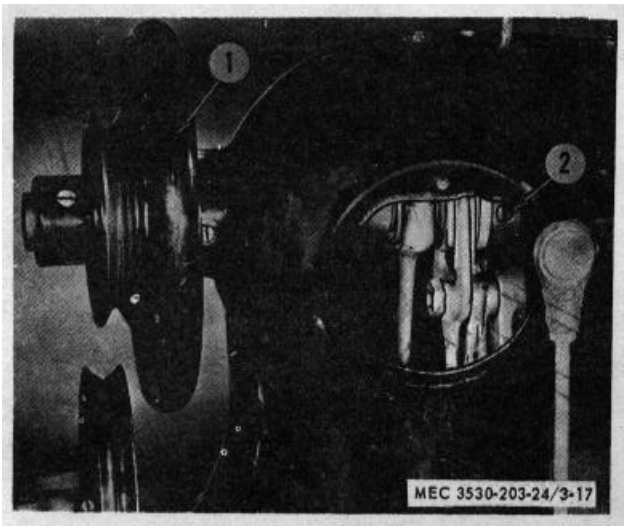
(8) Check the feed dog timing. If the feed dog on its backward stroke reaches under and strikes the throat plate when it starts on its forward stroke, it must be adjusted forward as follows: (a) Set the feed regulator thumbscrew to its lowest point.

(b) Loosen the feed rockshaft clamping screw (2, fig. 3-18) in the bottom of the bed (1).

(c) Adjust the crank to aline the feed dog with the throat plate and to prevent it from reaching under the throat plate when it completes its return motion.

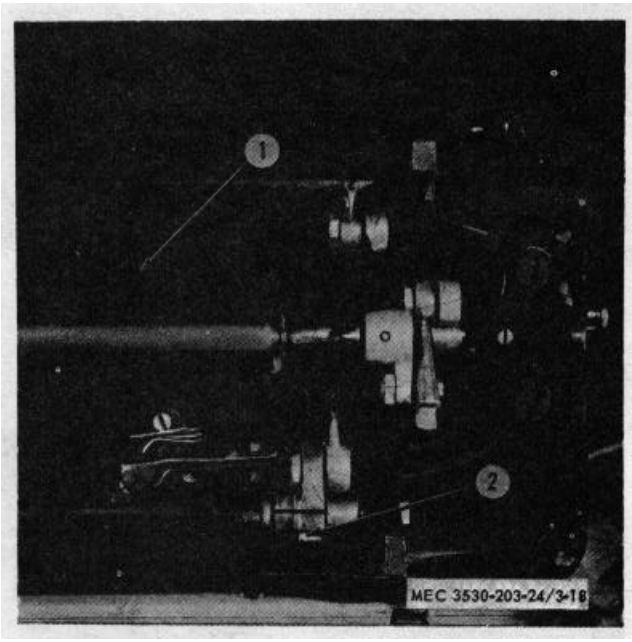
(d) Tighten the clamping screw (2) firmly to prevent the crank from slipping out of adjustment.

(9) Check the feed dog timing. If the feed dog is too far either to the right or to the left to fit into the slots in the throat plate, adjust the feed bar (2, fig. 3-19) by using the centering screws (3) and nuts to set the feed dog to the right or to the left and to line it up with the throat plate.



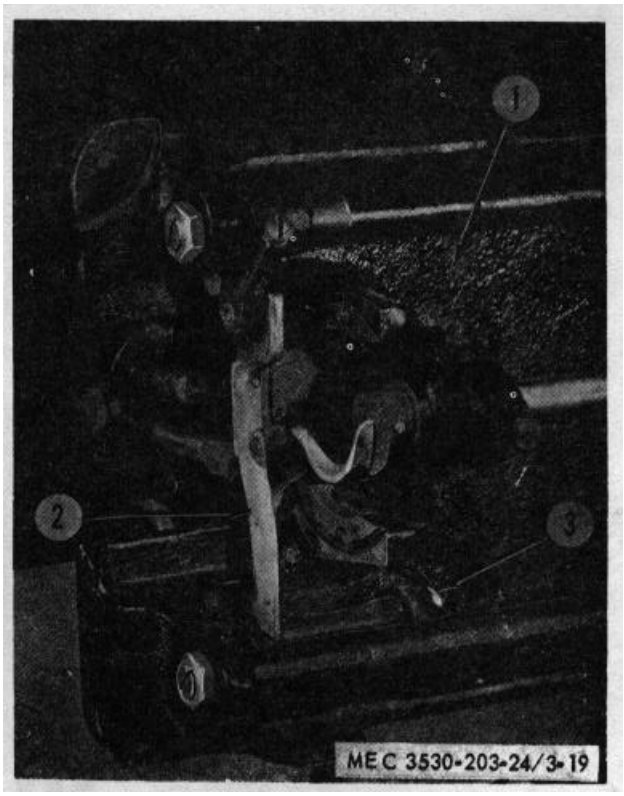
1 Wheel, balance 2 Screw, feed eccentric

Figure 3-17. Connecting rods and feed eccentric.



1 Bottom of bed
2 Screw, feed rockshaft clamping

Figure 3-18. Clothing sewing machine bed, right-end bottom view.



1 Bottom of bed 3 Screw, centering
2 Bar, feed

Figure 3-19. Clothing sewing machine bed, left-end bottom view.

3-50. Feed Regulator Thumbscrew

a. Removal. Unscrew the thumbscrew (10, fig. 3-16) from the feed regulator (2).

b. Installation. Replace defective thumbscrew with a serviceable one and install it by reversing the procedure in a above.

3-51. Needle Bar Thread Guard

a. Removal.

(1) Loosen the setscrew in the needle clamp (29, fig. 3-20) and remove the needle from the machine.

(2) Remove the needle clamp screw (28) from the needle clamp (29).

(3) Remove the screw (35) from the thread guard (30) and remove the thread guard and the needle clamp from the needle bar (26).

(4) Pull the thread guard from the needle clamp.

b. Installation. Replace defective thread guard with serviceable ones and install it by reversing the procedure in a above.

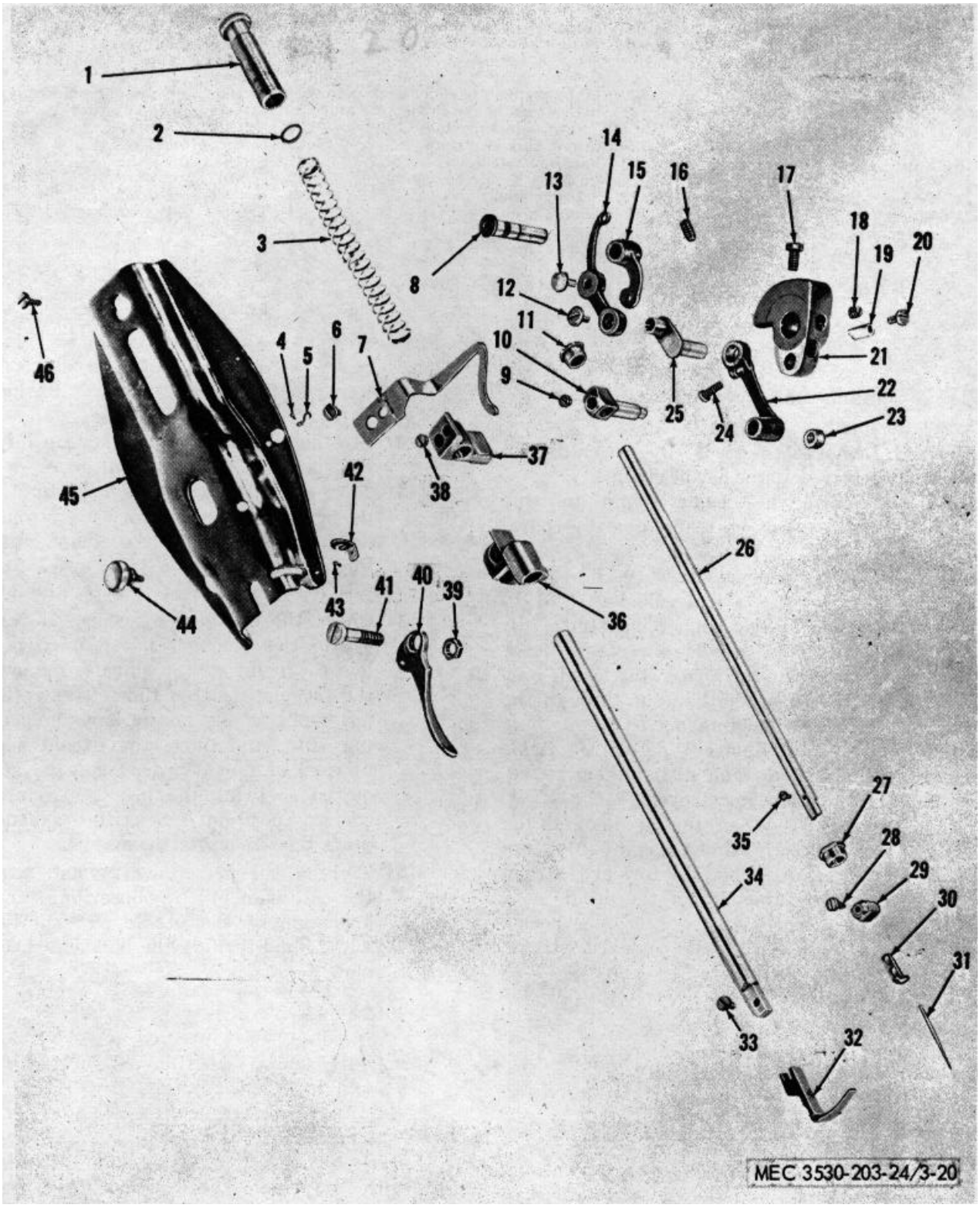


Figure 3-20. Clothing sewing machine face plate and needle and presser bars.

1 Thumbscrew, presser bar pressure regulator
2 Washer, presser bar spring
3 Spring, presser bar
4 Rivet, upper thread guard
5 Guard, upper thread
6 Screw, regulator adjusting
7 Regulator, slack thread
8 Pin, link hinge
9 Setscrew, stud
10 Stud, needle bar connecting
11 Bushing, needle bar screw
12 Screw, lever
13 Pin, lever hinge
14 Lever, thread takeup
15 Link, thread takeup lever
16 Setscrew, link hinge pin
17 Screw, crank positioning
18 Setscrew, crank
19 Wedge, thread takeup crank
20 Screw, wedge
21 Crank, needle bar
22 Link, needle bar connecting
23 Roller, needle bar connecting stud
24 Screw, adjusting link
25 Crank, thread takeup
26 Bar, how needle
27 Bushing, needle bar screw
28 Screw, clamp
29 Clamp, needle
30 Guard, needle bar thread
31 Needle, machine
32 Foot hinge presser
33 Screw, presser foot
34 Bar, hollow presser
35 Screw, thread guard
36 Bracket, presser bar lifting lever
37 Bracket, presser bar guide
38 Setscrew, guide bracket
39 Nut, lifter screw
40 Lifter, presser bar
41 Screw, lifter
42 Guard, lower thread
43 Rivet, lower thread guard
44 Thumbscrew, faceplate
45 Faceplate
46 Screw, faceplate

Figure 3-20-Continued

3-52. Needle Bar and Bushings

a. Removal.

(1) Remove the needle by loosening the setscrew in the needle clamp.

(2) Remove the needle clamp and the needle bar thread guard (para.3-51a).

(3) Remove the setscrew (9, fig. 3-20) that secures the needle bar (26) to the needle bar connecting stud (10).

(4) Remove the needle bar screw bushings (11 and 27) from the needle bar.

(5) Slide the needle bar out through the top of the machine face.

b. Installation. Replace defective items with serviceable ones and install them by reversing the procedure in a above.

c. Adjustment. When the needle and the shuttle are correctly timed (fig. 3-21), the point of the shuttle on its forward stroke passes across the diameter of the needle at a point Ms6 inch above the eye of the needle when the needle is on its upward stroke. Adjust the needle as follows:

(1) Remove the throat plate (32, fig. 3-16) from the machine base.

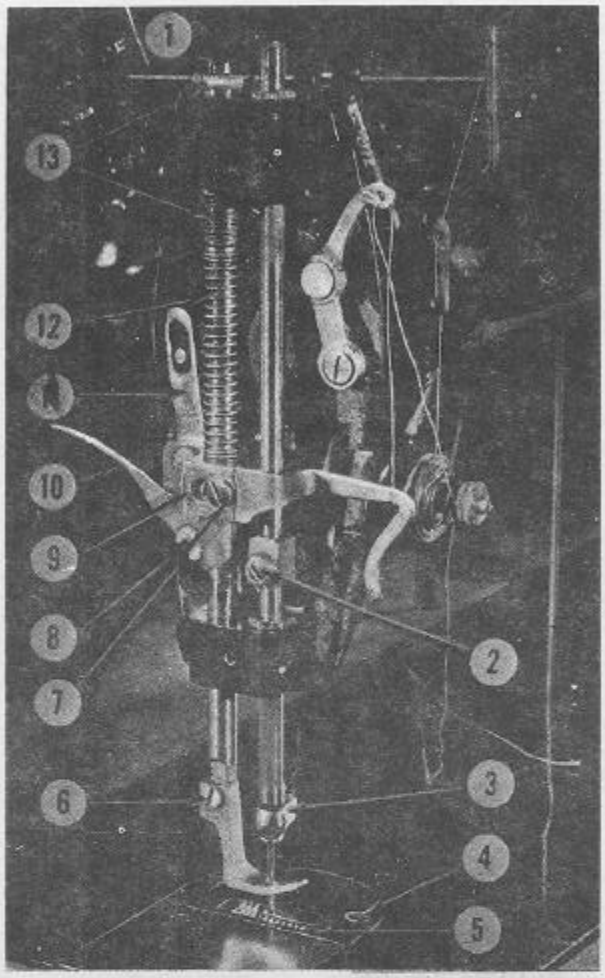
(2) See that the needle is pushed up into the clamp as far as it will go.

(3) Turn the balance wheel forward until the shuttle is on its forward stroke and is passing across the diameter of the needle, as shown in figure 3-21. Leave the shuttle in this position.

(4) Check the eye of the needle. If the eye of the needle is not 1%,(; inch below the point of the shuttle, remove the faceplate, loosen the setscrew (2, fig. 3-22) in the needle bar connecting stud, and move the needle bar upward or downward as may be required to bring the needle eye into correct position when the shuttle point passes across the needle.

(5) Tighten the setscrew (2) and test the adjustment by observing the operation of the needle and shuttle while hand-turning the balance wheel slowly.

Figure 3-21. Correctly timed needle on clothing sewing machine.



MEC 3530-203-24/3-22

1 Bar, presser
2 Setscrew, needle bar connecting stud
3 Clamp w/screw, needle
4 Screw, throat plate
5 Dog, fee
6 Screw, presser foot
7 Screw, thread regulator adjusting
8 Screw, presser bar lifter
9 Setscrew, presser bar guide bracket
10 Lifter, presser bar
11 Regulator, thread takeup
12 Spring, presser bar
13 Thumbscrew, pressure regulating

Figure 3–22. Clothing sewing machine with faceplate removed.

3–53. Faceplate and Thread Guards

a. Removal.

(1) Remove the faceplate thumbscrew (44, fig. 3–20) from the faceplate (45).

(2) Remove the faceplate screw (46) and remove the faceplate with thread guards (5 and 42) from the machine.

(3) Drive the rivets out of the thread guards, and remove the thread guards from the faceplate.

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in *a* above.

3–54. Presser Foot

a. Removal. Remove the screw (33, fig. 3–20) that holds the presser foot to the presser bar (34), and remove the presser foot from the presser bar and from the machine.

b. Installation. Replace defective presser foot with a serviceable one and install it by reversing the procedure in *a* above.

3-55. Thread Takeup Regulator

a. Removal.

(1) Remove the faceplate from the machine (para. 3-53a).

(2) Remove the regulator adjusting screw (6, fig. 3-20) from the thread takeup regulator (7).

(3) Remove the thread takeup regulator from the machine.

b. Installation. Replace defective regulator with a serviceable one and install it by reversing the procedure in a above.

3-56. Presser Bar Pressure Regulator Thumbscrew

a. Removal. Remove the presser bar pressure regulator thumbscrew (1, fig. 3-20) from the presser bar (34) and from the machine.

b. Installation. Replace defective thumbscrew with a serviceable one and install it by reversing the procedure in a above.

c. Adjustment. Refer to TM 10-3530203-10.

3-57. Presser Bar and Presser Bar Spring

a. Removal.

(1) Remove the faceplate from the machine (para. 3-53a).

(2) Remove the l thumbscrew (1, fig presser bar (34) and from machine.

(3) Remove the presser bar spring (3) and the washer (2) from the presser bar.

(4) Remove the screw (41) that secures the presser bar lifter (40) to the presser bar lifting bracket (36), and remove the lifter from the bracket.

(5) Remove the setscrew (38) that secures the presser bar guide bracket (37) to the presser bar.

(6) Remove the screw that secures the thread takeup regulator (7) to the presser bar guide bracket, and remove the regulator from the bracket.

(7) Slide the presser bar out through the top of machine face; then, remove the presser bar lifting lever bracket (36) and the presser bar guide bracket (37) from the machine.

b. Installation. Replace defective parts with serviceable ones and install them by reversing procedure in *a* above.

Section VIII. DARNING MACHINE

3-58. General

This section describes the organizational maintenance instructions for the darning machine. Any deficiencies which the organizational maintenance personnel are not authorized to correct must be reported as stipulated in TM 38-750.

3-59. Cap With Spool Holder and Base With Hinge Screw and Wire

a. Removal.

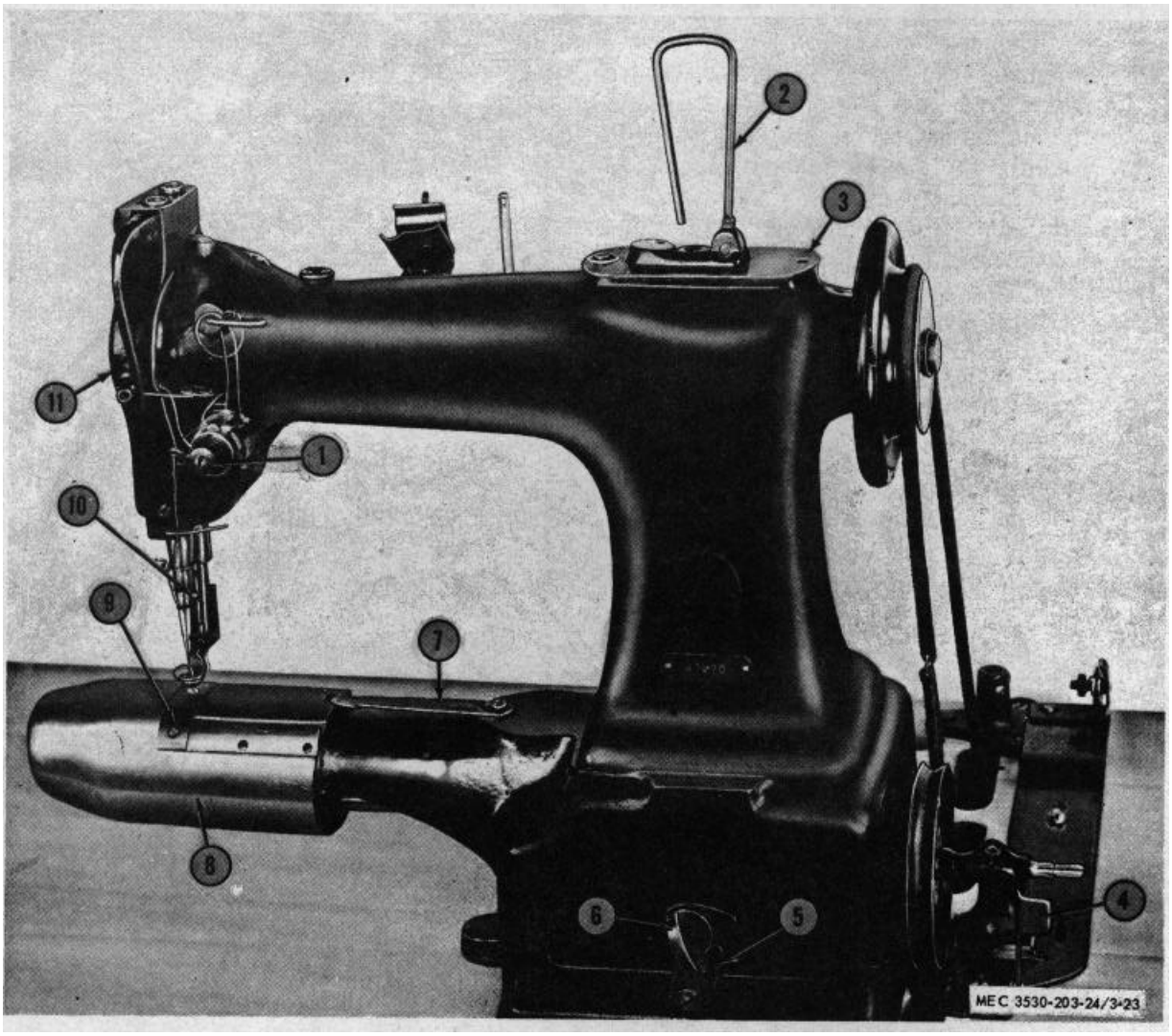
(1) Remove the capscrew and the washer that holds the cap (3, fig. 3-23) to the machine arm.

(2) Lift the cap with spool holder and base with hinge screw and wire from the machine arm.

(3) Remove the cap from the base with hinge screw and wire (2).

b. Inspection. Inspect the cap and the base for breaks, bends, or cracks, and inspect the spool holder wire for rough places, nicks, and sharp projections.

c. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in a above.



1	Nut, tension thumb	4	Lever, bobbin winder stop latch	6	Thumbscrew, bed clamp	9	Plate, throat
2	Wire, spool holder	5	Clamp, bed	7	Stop, bed slide	10	Setscrew, needle
3	Cap			8	Cover, bed end	11	Faceplate

Figure 3-23. Darning machine arm.

3-60. Needle Bar Guides and Thread Tension Guides

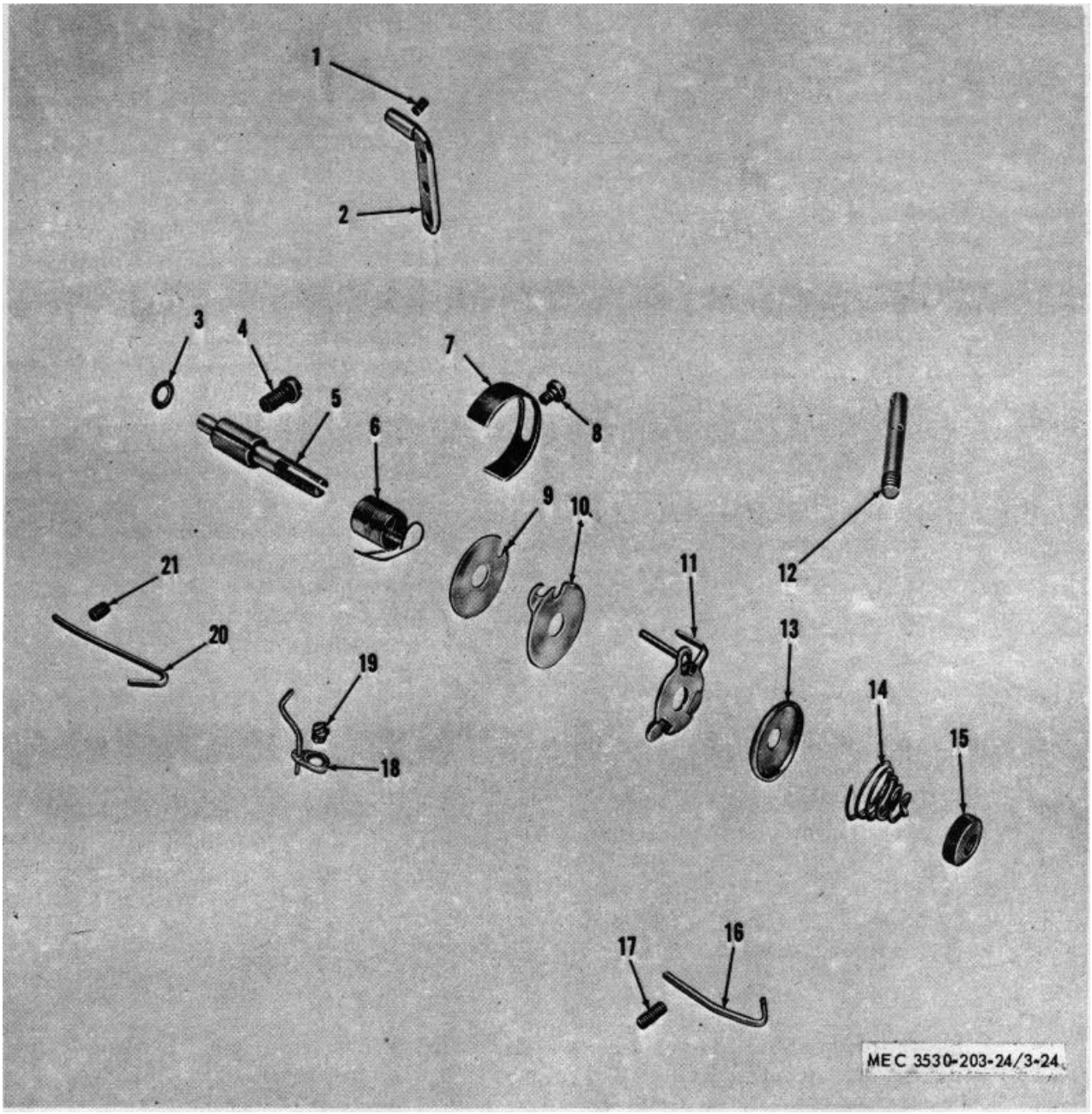
a. Removal.

(1) Remove the setscrews (17 and 21, fig. 3-24) and the screw (19) that hold the thread guides (16, 18, 20) to the machine arm, and remove the guides from the machine arm.

(2) Unscrew the guide (12) from the machine arm.

b. Inspection. Inspect each guide for sharp projections, cuts, nicks, and rough places.

c. Installation. Replace defective guides with serviceable ones and install them by reversing the procedure in a above.



1 Setscrew, third retainer
2 Retainer, thread
3 Washer, thread tension stud
4 Setscrew, thread tension stud
5 Stud, thread tension
6 Spring, thread control
7 Stop, thread control spring
8 Screw
9 Disk, thread tension rear
10 Disk, thread tension front
11 Washer, thread tension release plunger
12 Guide, two-hole thread
13 Washer, thread tension spring
14 Spring, thread tension
15 Nut, thread tension thumb
16 Guide, needle bar thread
17 Setscrew, needle bar thread guide
18 Guide, lower thread
19 Screw, thread tension lower thread guide
20 Guide, upper thread
21 Setscrew, thread tension upper thread guide

Figure 3-24. Darning machine feed mechanism.

3-61. Thread Retainer and Setscrew

a. Removal. Remove the setscrew (1, fig. 3-25) that secures the thread retainer (2) to the machine arm, and remove the retainer from the machine arm.

b. Installation. Replace defective retainer and setscrew with serviceable ones and install them by reversing the procedure in a above.

3-62. Thread Tension Thumb Nut, Springs, Washers, and Stop

a. Removal.

(1) Remove the tension thumb nut (15, fig. 3-24) from the thread tension stud (5) by turning it counterclockwise.

(2) Remove the thread tension spring (14), the washers (11 and 13) and the disks (9 and 10) from the tension stud (5).

(3) Remove the thread control spring (6) from the tension stud.

(4) Remove the thread tension stud setscrew (4) and the washer (3) from the stud, and take the stud from the machine.

(5) Remove the screw (8) that holds the stop to the machine arm, and remove the stop (7) from the machine arm.

b. Installation. Replace defective items with serviceable ones and install them by reversing the procedure in a above.

c. Adjustment.

(1) Adjust the tension on the thread while the takeup lever is moving up with the thread control spring (6) as follows: loosen the tension stud setscrew (4), insert a screwdriver in the slot in front of the tension stud (5), and turn it to the right or left as necessary to make the spring act upon the thread.

(2) Adjust the thread control spring stop (7), until it will pull any slack from the thread while the needle is descending as follows: loosen the screw (8) and rotate the stop so the spring can act upon the thread until the needle strikes the material (or cloth).

3-63. Shuttle Bobbin, Case, Plunger, Spring, Gib, and End Cover

a. Removal.

(1) Remove the setscrew (1, fig. 3-25) that holds the needle in the needle bar, and take the needle from the needle bar.

(2) Remove the screw (2) that holds the presser foot to the presser bar, and remove the presser foot from the presser bar.

(3) Remove the throat plate screws (3), the throat plate (4), and the end cover (29, fig. 3-26).

(4) Remove the two hook gib screws (5, fig. 3-25) that hold the gib (6) to the hook, and lift the gib from the hook.

(5) Lift the shuttle bobbin case (14, fig. 3-26) out of the machine, and remove the bobbin (13) from the bobbin case.

(6) Take off the bobbin case tension flat spring (30) by removing the tension spring screws (31) from the spring.

(7) Remove the bobbin case latch plunger (32) from the bobbin case.

b. Installation. Replace defective items with serviceable ones and install them by reversing the procedure in a above. Be sure the triangular projection on the bobbin case fits in its notch or slot on the underside of the throat plate.

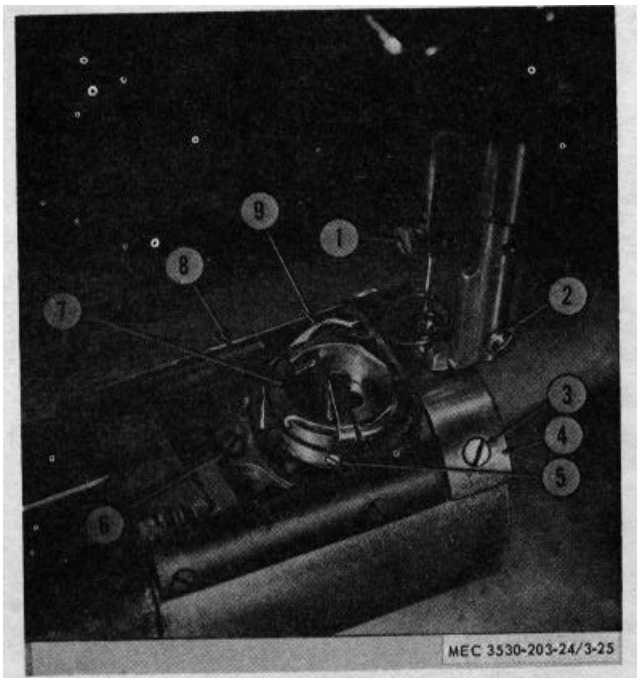
c. Adjustment (Timing.)

(1) Adjust the bobbin case lever as follows:

(a) Loosen the bobbin case lever fulcrum screw (7, fig. 3-25).

(b) Move the fulcrum (21, fig. 3-26) forward or backward as necessary to allow the needle thread to pass between the throat plate and the projection on the bobbin case. The opening between the lever and the triangular projection on the bobbin case should be just perceptible when the bobbin case lever (9, fig. 3-25) has opened the bobbin case all the way. If the bobbin case lever is set too close to the triangular

projection on the bobbin case, it will pull the bobbin case so far back that the bobbin case bearing and the hook will bind. When the proper adjustment is made, tighten the fulcrum screw (7) securely.



1 Setscrew, needle
2 Screw, presser foot
3 Screw, throat plate
4 Plate, throat
5 Screw, hook gib
6 Gib
7 Screw, fulcrum
8 Case, bobbin
9 Lever, bobbin case

Figure 3-25. Bobbin case installed, rear view.

(2) Adjust or time the hook with the needle as follows:

(a) Slip the end cover (29, fig. 3-26) off to the left.

(b) Push aside the slide stop (6), and remove the bed slide stop (6), and remove the bed slide and the throat plate (1).

(c) Loosen the pinion setscrews (28) so the pinion (27) can be rotated without moving the hook drive shaft (26).

(d) See that the needle is set up into the needle bar as far as it will go.

(e) Turn the needle bar toward the operator until it reaches its lowest position and rises Y.!2 inch. If the needle bar is marked, it should rise to the point where the lower mark on the needle bar is just visible below the needle bar bushing.

(f) Hold the needle in that position, and turn the hook (16) until the point of the hook is crossing the center of the needle 1/16; inch above the eye.

(g) Tighten the setscrews (28) firmly to keep the pinion from slipping around on the hook drive shaft.

(3) Adjust the hook to or from the needle so that the point of the hook will just pass the needle without touching it, as follows:

(a) Loosen the saddle screws (24) and tap and hook saddle (22) to the right or left as necessary to bring the hook (16) the proper distance from the needle.

(b) Check the timing of the hook with the needle as explained in (2) above.

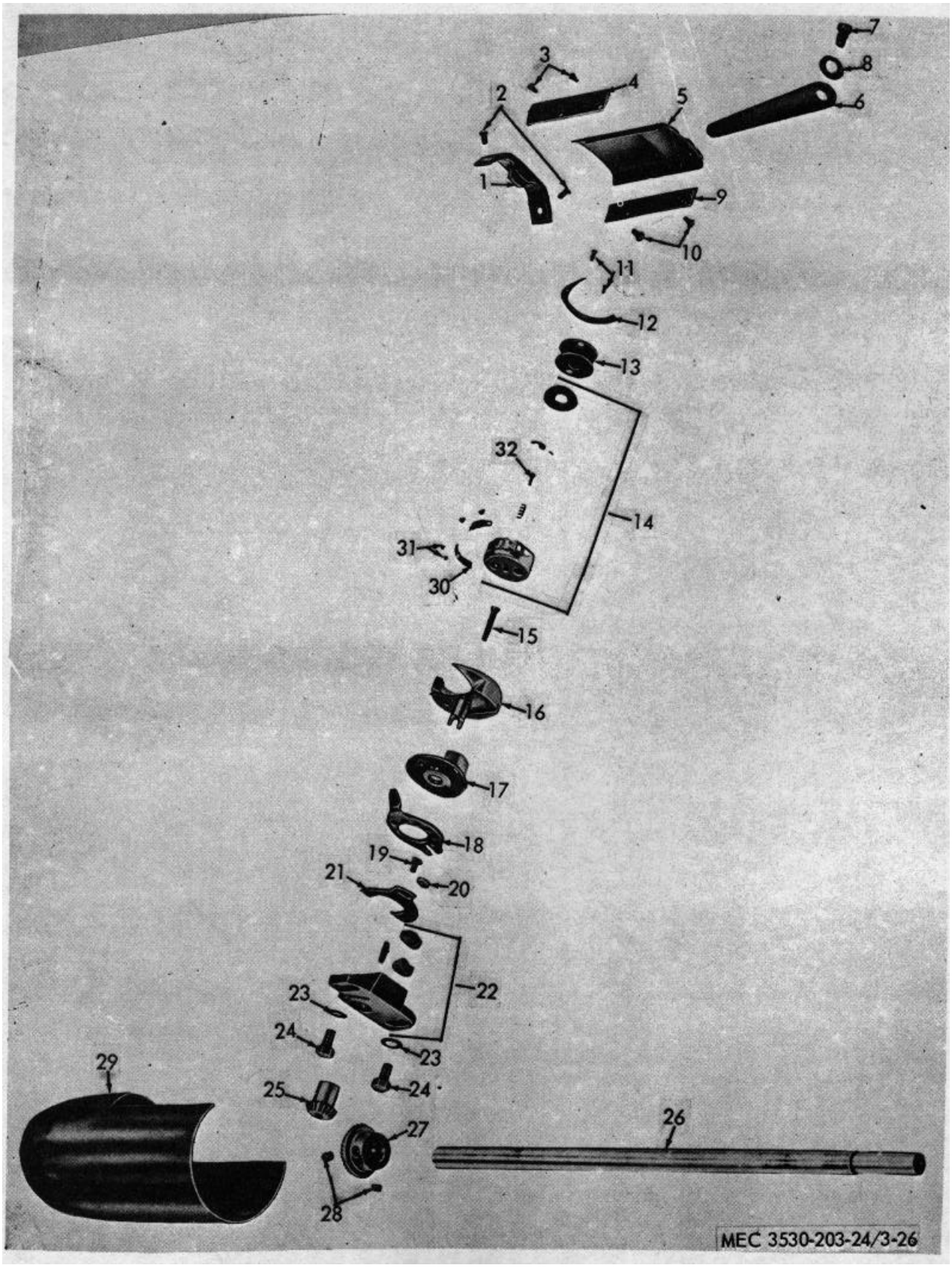


Figure 3-26. Darning machine thread hook, drive shaft, saddle, and bobbin case.

1 Plate, needle throat
2 Screws, throat plate
3 Screws, front and rear plate
4 Plate, front slide clamp
5 Slide, cylinder cover
6 Stop, slide
7 Screw, stop hinge
8 Washer, stop hinge screw
9 Plate, rear slide clamp
10 Screws, front and rear plate
11 Screws, gib
12 Gib, thread hook
13 Bobbin, shuttle
14 Case, shuttle bobbin
15 Screw
16 Hook, thread
17 Washer with eccentric and pins, thread hook
18 Lever, bobbin case
19 Screw, fulcrum
20 Slide, bobbin case lever
21 Fulcrum, bobbin case
22 Saddle with oiling felt and wick, thread hook
23 Washers, saddle screw
24 Screws, saddle
25 Gear, thread hook saddle
26 Shaft, thread hook drive
27 Pinion, thread hook drive shaft
28 Setscrews, pinion
29 Cover, cylinder end
30 Spring, flat
31 Screws, tension spring
32 Plunger, latch

3-64. Bed-To-Base Clamp

a. Removal.

(1) Remove the thumbscrew (6, fig. 3-27) from the machine bed base (10).

(2) Remove the screw (5) and the washer (9) which hold the clamp (8) to the machine bed, and remove the clamp from the machine bed.

b. Installation. Replace defective clamp with a serviceable one and install it by reversing the procedure in a above.

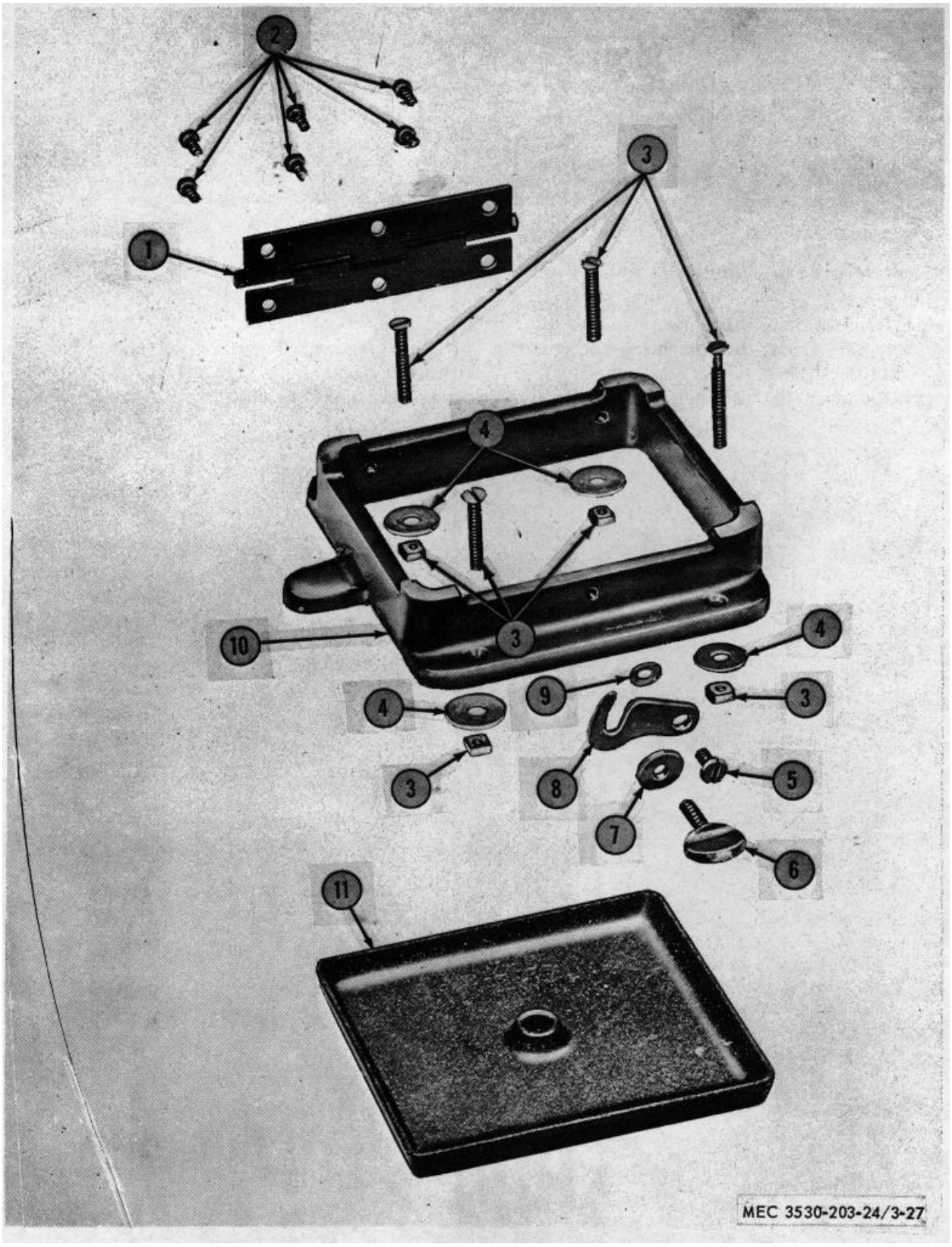


Figure 3-27. Darning machine base and drip pan.

1 Hinge, darning machine bed
2 Screws, bed hinge
3 Screws with nuts
4 Washers
5 Screw, hinge bed clamp
6 Thumbscrews, bed clamp
7 Washer, bed clamp thumbscrew
8 Clamp, bed to base
9 Washer
10 Base, bed
11 Pan, drip

3-65. Clamp and Throat Plates, Slide Stop, Cover Slide, and Work Plate Slides

a. Removal.

(1) Turn the starting switch to OFF position.

(2) Remove the screws (2, fig. 3-26) that secure the throat plate (1) to the machine bed.

(3) Lift the throat plate (1) from the machine bed.

(4) Turn the slide stop (6) and remove the cylinder cover slide (5) from the machine bed.

(5) Remove the four plate screws (3 and 10) that hold the clamp plates (4 and 9) to the slide (5), and remove the clamp plates from the slide.

(6) Remove the stop hinge screw (7), the hinge screw washer (8), and the slide stop (6) from the machine bed.

(7) Remove the front and rear work plate slides from the work plate.

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in a above.

3-66. Cylinder End Cover

a. Removal. Slide the end cover (29, fig. 3-26) from the machine bed.

b. Installation. Replace defective end cover with a serviceable one and install it by reversing the procedure in *a* above.

3-67. Needle Bar and Thread Guides

a. Removal.

(1) Remove the needle setscrew (31, fig. 3-28) that holds the needle (34) to the needle bar (30), and remove the needle from the bar.

(2) Remove the screw (32) that secures the needle bar thread guide (33) to the needle bar, and remove the thread guide and bushing (28) from the needle bar.

(3) Pull the needle bar bushing thread guide (29) from the bushing.

(4) Remove the thumbscrew (48) that secures the faceplate (45) to the machine arm, and remove the faceplate from the machine arm.

(5) Loosen the connecting stud screw (4, fig. 3-29).

(6) Slide the needle bar (5) out through the bottom of the face of the machine.

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in a above.

c. Adjustment. Adjust the needle bar by raising or lowering it as follows:

(1) Loosen the screw (4).

(2) Move the needle bar up or down as necessary to bring the eye of the needle 1/16 inch below the point of the hook after the needle has been raised 3/32 inch from its lowest point.

(3) A factory-installed needle bar has two lines 3/32 inch apart about .2 inches from the bottom of the needle bar. To adjust the needle bar, proceed as in (1) and (2) above except that when the needle bar is at its lowest point, the upper mark should be just visible at the bottom of the needle bar bushing.

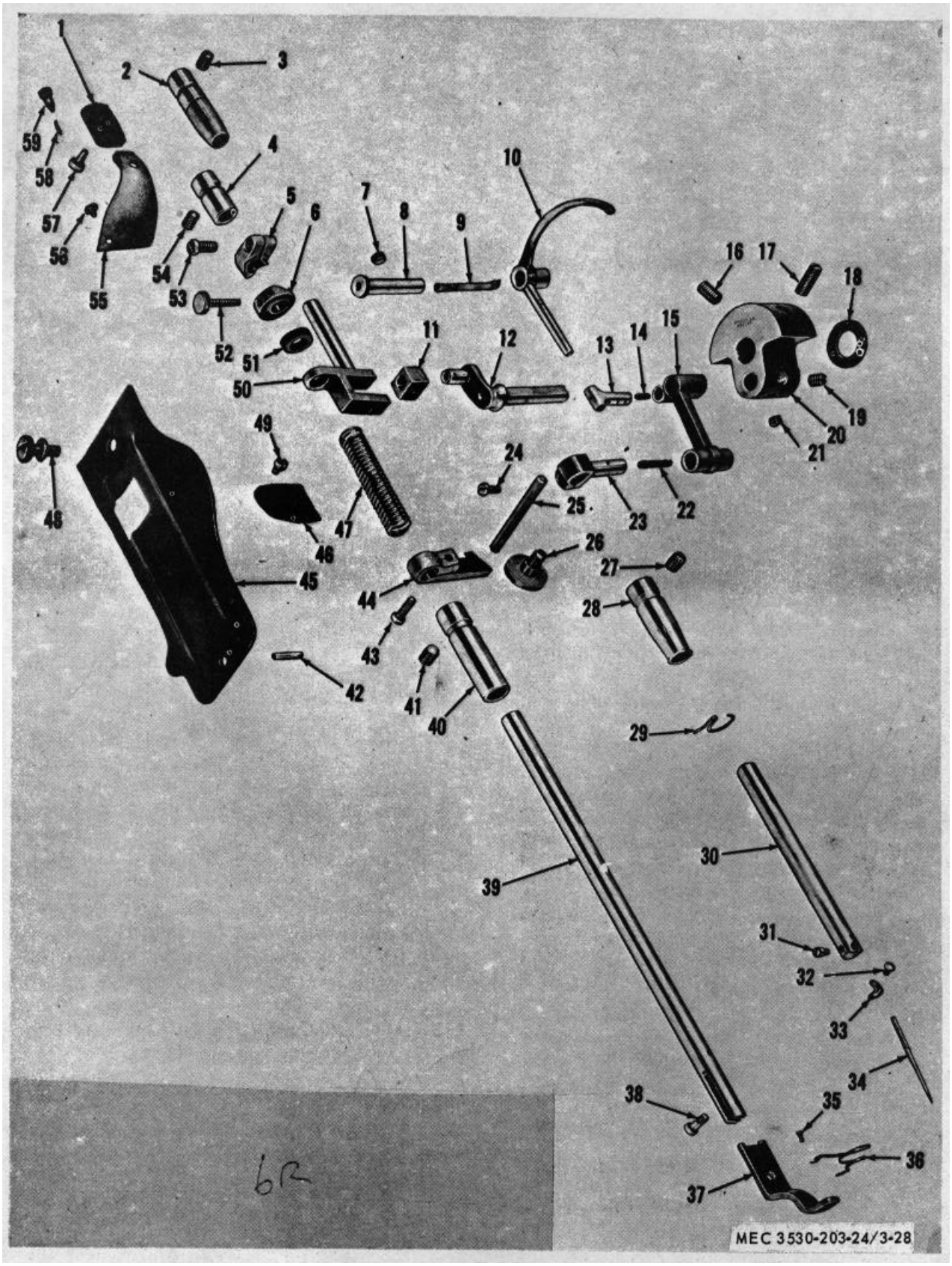
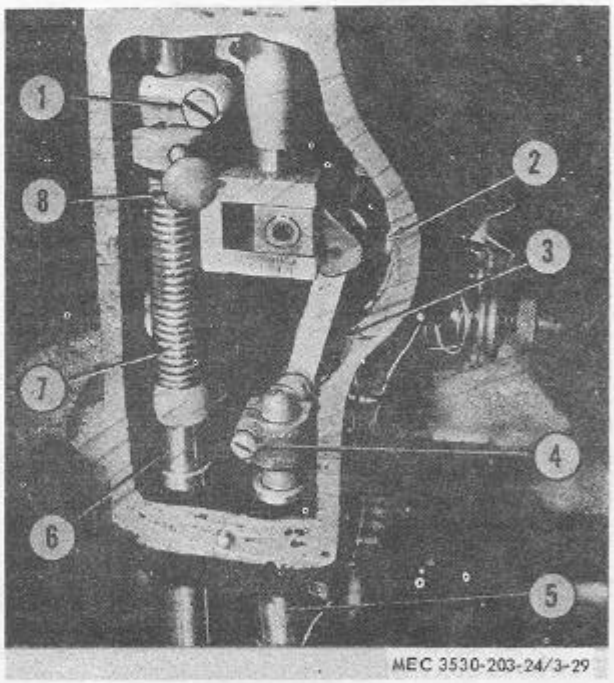


Figure 3-28. Darning machine presser bar and needle bar, disassembled.

1 Felt, oil guard
2 Bushing, pressed bar lifting fork
3 Setscrew, bushing
4 Bushing, upper
5 Collar, presser bar
6 Collar, presser bar adjusting
7 Setscrew, lever hinge stud
8 Stud, lever hinge
9 Wick, lever hinge stud oil
10 Lever, thread takeup
11 Block, presser bar lifting fork slide
12 Crank, lifting presser bar
13 Stud, thread takeup lever drive
14 Wick, thread takeup lever drive stud
15 Link, needle bar connecting
16 Setscrew, crank
17 Screw, crank positioning
18 Washer, needle bar crank friction
19 Screw, crank positioning
20 Crank, needle bar
21 Setscrew, crank
22 Wick, needle bar connecting stud
23 Stud, needle bar connecting
24 Screw, connecting stud
25 Plunger, thread tension release
26 Screw, bracket guide
27 Setscrew, bushing
28 Bushing, needle bar
29 Guide, needle bar bushing thread
30 Bar, needle
31 Setscrew, needle
32 Screw, thread guide
33 Guide, needle bar thread
34 Needle
35 Screw, presser foot
36 Guard, presser foot
37 Foot, presser
38 Screw, presser foot
39 Bar, presser
40 Bushing, lower
41 Setscrew, bushing
42 Pin, positioning
43 Screw, lifting bracket
44 Bracket, presser bar lifting
45 Faceplate
46 Felt, oil guard
47 Spring, presser bar
48 Thumbscrew, faceplate
49 Screw
50 Fork, presser bar lifting
51 Washer, head presser bar
52 Thumbscrew, adjusting collar
53 Screw, collar
54 Setscrew, bushing
55 Guard, thread takeup lever oil
56 Screw, oil guard
57 Screw
58 Rivet, takeup lever guard
59 Oiler, thread takeup lever



1 Screw, collar
2 Screw, oil guard
3 Guard with felt and rivet, thread takeup lever oil
4 Screw, connecting stud
5 Bar, needle
6 Bar, presser
7 Spring, presser bar
8 Thumbscrew, presser ba bar adjusting collar

Figure 3–29. Darning machine face, inside view.

3–68. Thread Takeup Lever Oil Guard With Felt and Rivet

a. Removal. Remove the screw (2, fig. 3–29) that secures the oil guard to the faceplate, and remove the oil guard with felt and rivet (3) from the faceplate.

b. Installation. Replace defective guard with a serviceable one and install it by reversing the procedure in *a* above.

3–69. Faceplate

The faceplate is used to cover the face of the machine to protect the parts underneath it from dust and dirt.

a. Removal.

(1) Remove the two thumbscrews (48, fig. 3–28) that hold the faceplate (45) to the machine, and remove the faceplate from the machine.

(2) Remove the screw (2, fig. 3–29) that secures the oil guard to the faceplate, and remove the oil guard with felt and rivet (3) from the faceplate.

b. Installation. Replace defective faceplate with a serviceable one and install it by reversing the procedure in *b* above.

3–70. Presser Bar, Presser Foot, Spring, and Thumbscrew

a. Removal.

(1) Remove the needle setscrew (31, fig. 3–28) that holds the needle to the needle bar (30), and remove the needle from the needle bar.

(2) Remove the screw that secures the presser foot guard (10, fig. 3–30) to the presser foot (9), and remove the guard from the presser foot.

(3) Remove the screw (11) that secures the presser, foot to the presser bar (7), and remove the presser foot from the bar and from the machine.

(4) Remove the faceplate (14) by removing the faceplate thumbscrew (1) that secures the faceplate to the machine.

(5) Remove the setscrew (1, fig. 3-31) that secures the presser bar lifting bracket (3) to the presser bar.

(6) Remove the adjusting collar thumbscrew (5, fig. 3-30) from the adjusting collar (6).

(7) Remove the collar screw (8) that secures the collar (4) to the presser bar.

(8) Slide the presser bar out through the top of the machine and remove the presser bar washer (3) and the presser bar spring (2) from the machine.

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in a above.

c. Adjustment.

(1) Turn the balance wheel over toward the operator until the takeup lever falls to its lowest position.

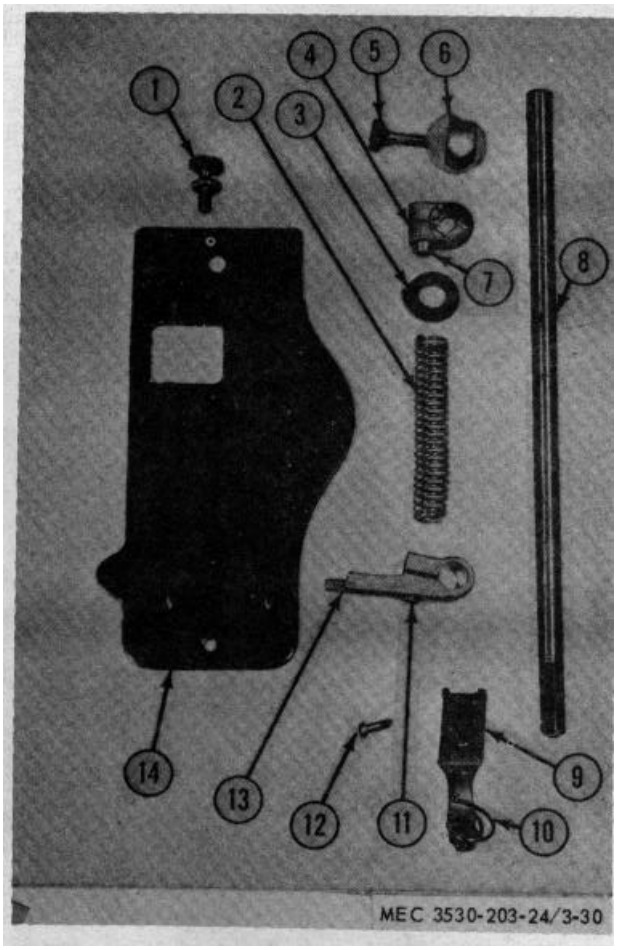
(2) Set the presser foot upon the throat plate.

(3) Drop the presser bar lifting bracket (13, fig. 3-30) down to about 1/4 inch above the presser bar bushing.

(4) Tighten the lifting bracket screw (11).

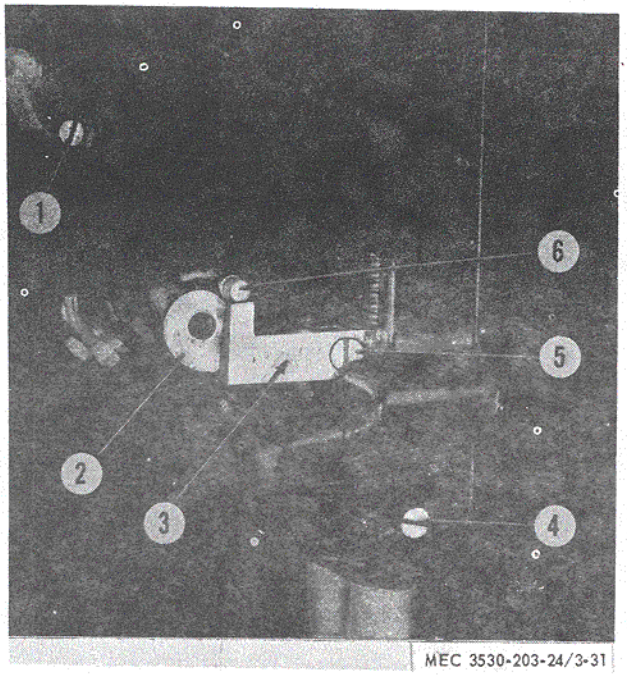
(5) Turn the presser bar adjusting collar (6) and the thumbscrew (5) until the thumbscrew points straight out to the left of the machine.

(6) Drop the presser bar collar (4) upon the presser bar adjusting collar (6) and press it down to put tension on the spring (2), and tighten the collar screw (8) securely.



1 Thumbscrew, faceplate
2 Spring, presser bar
3 Washer, presser bar
4 Collar, presser bar
5 Thumbscrew, adjusting collar
6 Collar, adjusting
7 Bar, presser
8 Screw collar
9 Foot presser
10 Guard, presser foot
11 Screw, presser bar lifting bracket
12 Screw, lifting bracket
13 Bracket with screw presser bar lifting
14 Faceplate

Figure -30. Darning machine presser bar and related parts.



1 Setscrew, presser bar bushing
2 Guide, screw
3 Bracket, presser bar lifting
4 Setscrew, presser bar
5 Screw, lifting bracket
6 Plunger

Figure 3–31. Darning machine face, rear view.

Section IX. HEAVY-DUTY SEWING MACHINE

3–71. General

This section covers the organizational maintenance instructions for the heavy-duty sewing machine, including its bobbin winder and thread unwinder. Any deficiencies which the organizational maintenance personnel are not authorized to correct must be reported as stipulated in TM 38–750.

3–72. Drive Pulley With Balance Wheel

a. Removal.

(1) Slide V-belt from the balance wheel and from the clutch pulley, and remove V-belt from machine.

(2) Remove setscrews that attach the pulley with balance wheel to the arm shaft, and remove the pulley with balance wheel from the machine.

b. Installation. Replace defective parts with serviceable ones and install them by reversing procedure in *a* above.

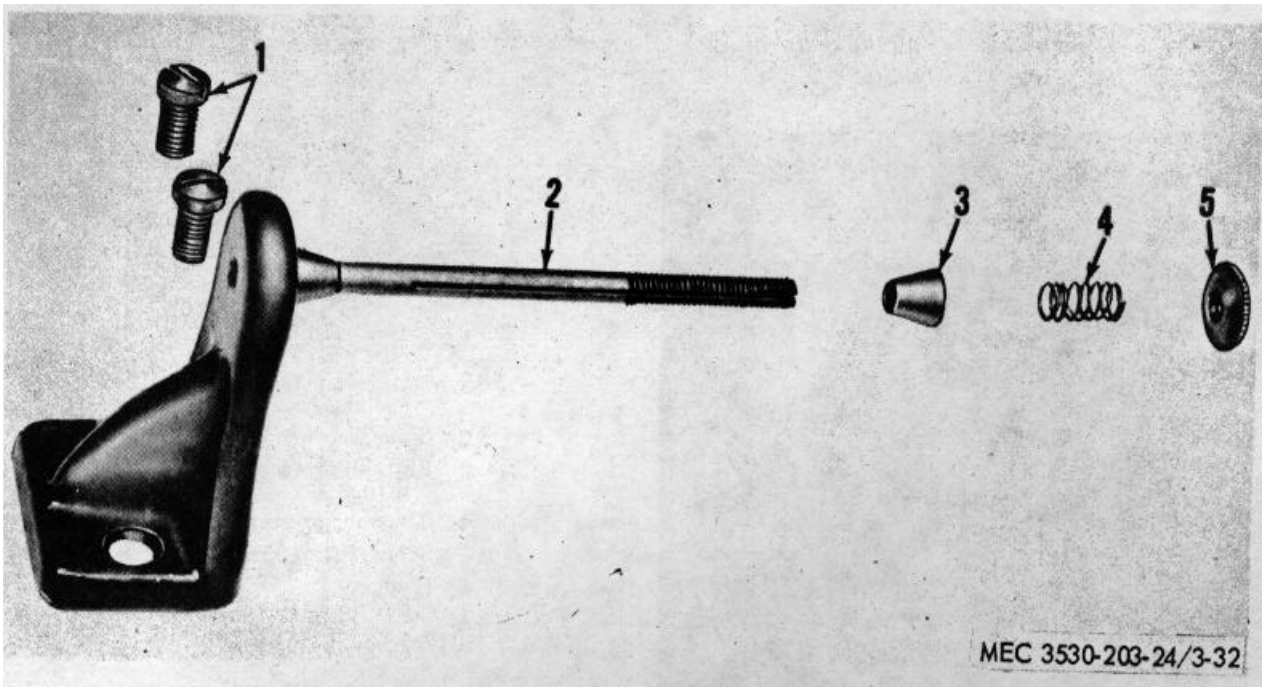
3–73. Spool Holder Bracket Assembly

a. Removal.

(1) Remove nut (5, fig. 3–32) from bracket assembly (2), and remove spring (4) and cone (3).

(2) Remove screws (1) that attach bracket assembly to machine arm, and remove bracket assembly.

b. Installation. Replace defective parts with serviceable parts and install them by reversing procedure in *a* above.



1 Screws, spool holder bracket
2 Bracket assembly, spool holder
3 Cone, spool holder tension spool pin
4 Spring, spool holder tension spool pin
5 Nut, spool holder tension spool pin

Figure 3-32. Spool holder bracket assembly, disassembled.

3-74. Oilcup Assembly

a. Removal and Disassembly.

(1) Remove screw (10, fig. 3-33) and washer (6) that attach oilcup to machine arm, and remove oilcup. Remove oil from oilcup.

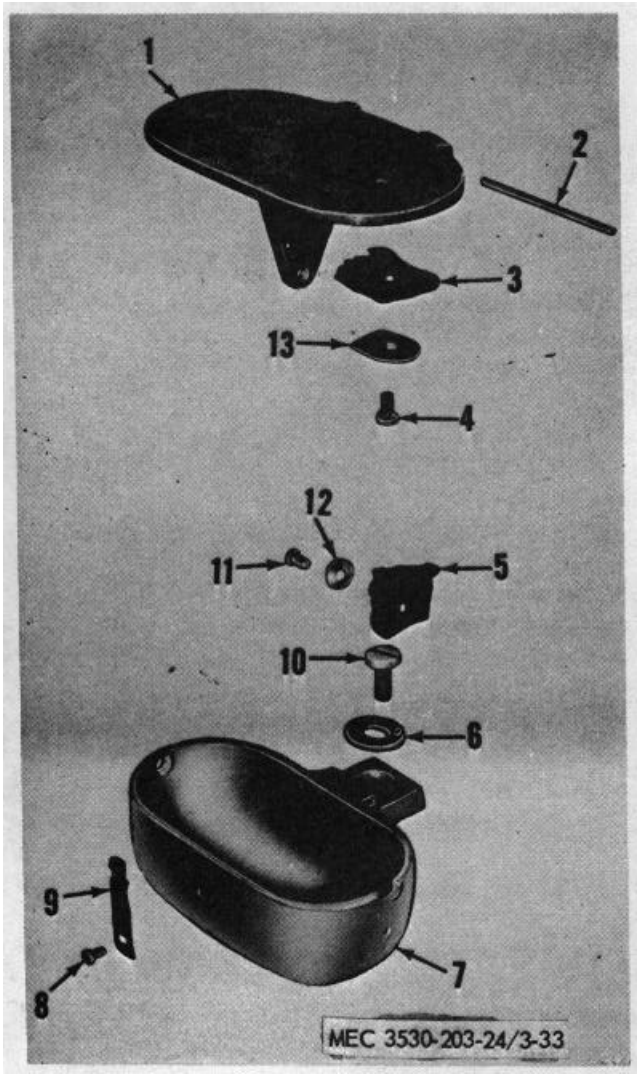
(2) Drive out pin (2) that attaches cover (1) to oilcup (7), and remove cover.

(3) Remove screw (4) that attaches washer (13) and felt (3) to cover, and remove washer and felt.

(4) Remove screw (11) that attaches washer (12) and felt (5) to oilcup, and remove washer and felt.

(5) Remove screw (8) that attaches spring (9) to oilcup, and remove spring.

b. Assembly and Installation. Replace defective parts with serviceable parts and assemble and install them by reversing procedure in a above.



1 Cover, oilcup
2 Pin, cover hinge
3 Felt, oilcup
4 Screw, felt
5 Felt, oilcup
6 Washer, screw
7 Oilcup
8 Screw, cover latch spring
9 Spring, cover latch
10 Screw, oilcup
11 Screw, felt
12 Washer, felt
13 Washer, felt

Figure 8-33. Oilcup, disassembled.

3-75. Shuttle Race Assembly and Cylinder

a. Removal.

(1) Slide V-belt off balance wheel.

(2) Lift machine head off table and lay it front up.

(3) Remove screw (5, fig. 3-34), that attaches spring (4) to race assembly (2), and remove spring.

(4) Remove screws (1) that attach shuttle race assembly (2) to shuttle race frame, and remove race assembly, shuttle cylinder (7) and race back (3) from machine.

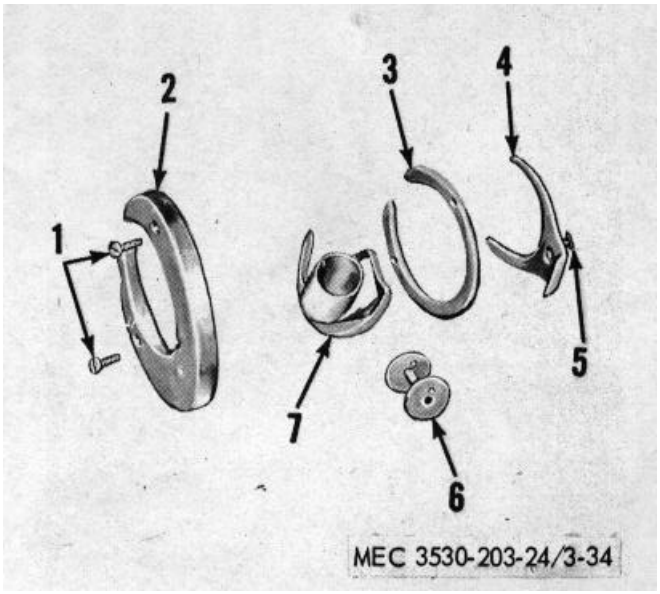
(5) Remove bobbin (6) from shuttle cylinder (7).

b. Installation.

(1) Replace defective parts with serviceable parts.

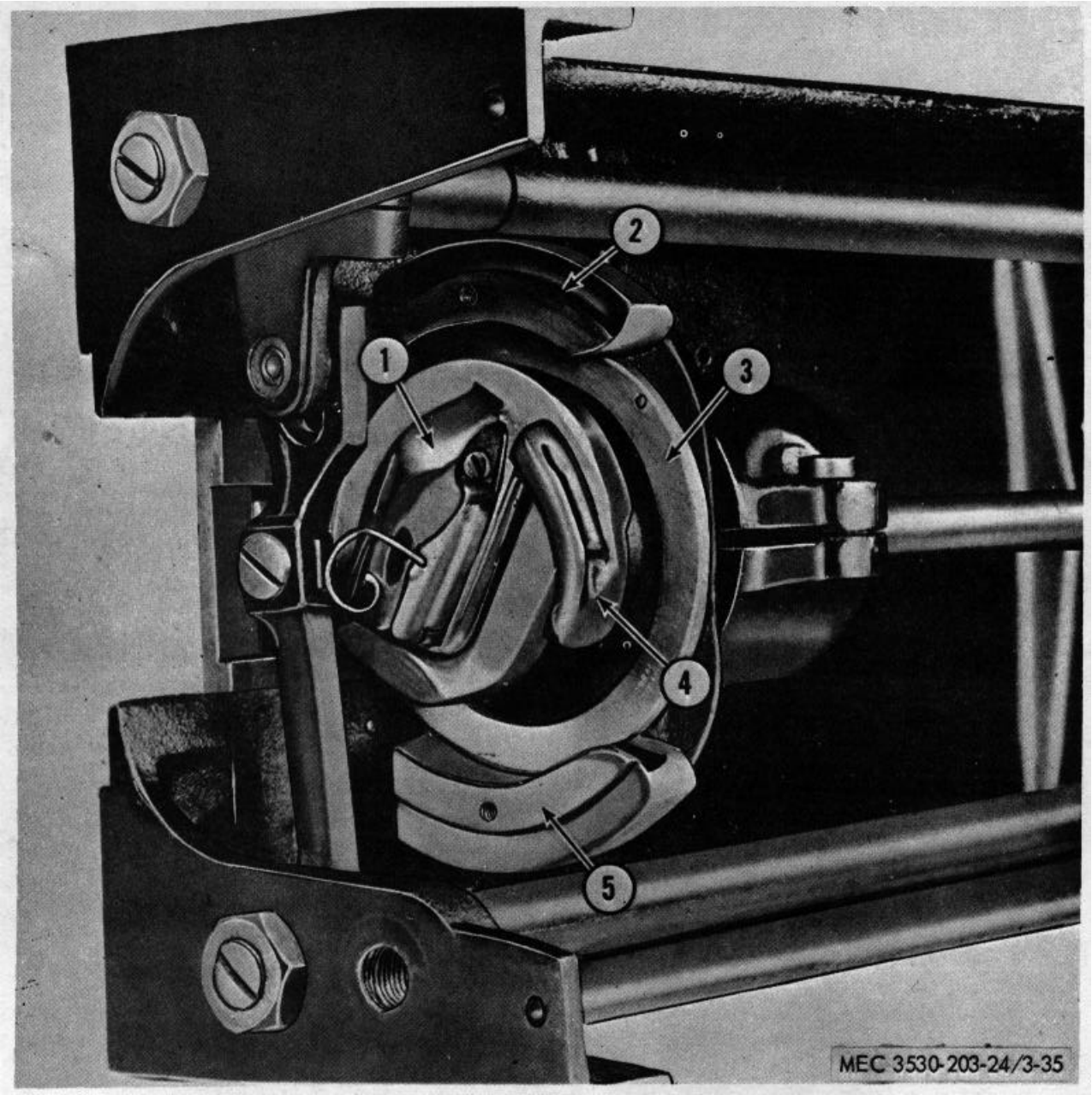
(2) Turn shuttle driver (4, fig. 3-35) to the same position as illustrated in figure 3-35.

(3) Reverse procedure in a above.



1 Screws, shuttle race
2 Race assembly, shuttle
3 Back, shuttle race
4 Spring, shuttle race back
5 Screw, shuttle race back screw
6 Bobbin
7 Cylinder, shuttle

Figure 3-34. Shuttle race and cylinder, disassembled.



1 Cylinder assembly, shuttle
2 Frame, shuttle race
3 Back, shuttle race
4 Drive, shuttle
5 Race assembly, shuttle

Figure 3-35. Shuttle cylinder, installed.

3-76. Cloth Plate, Throat Plate Body and Strip, and Feed Dog

a. Removal.

(1) Remove screws (4, fig. 3-36) that attach cloth plate (5) to machine bed, and remove cloth plate.

(2) Remove screws (7) that attach body (3) to machine bed, and remove body with strip (2).

(3) Remove screws (1) that attach strip to body, and remove strip.

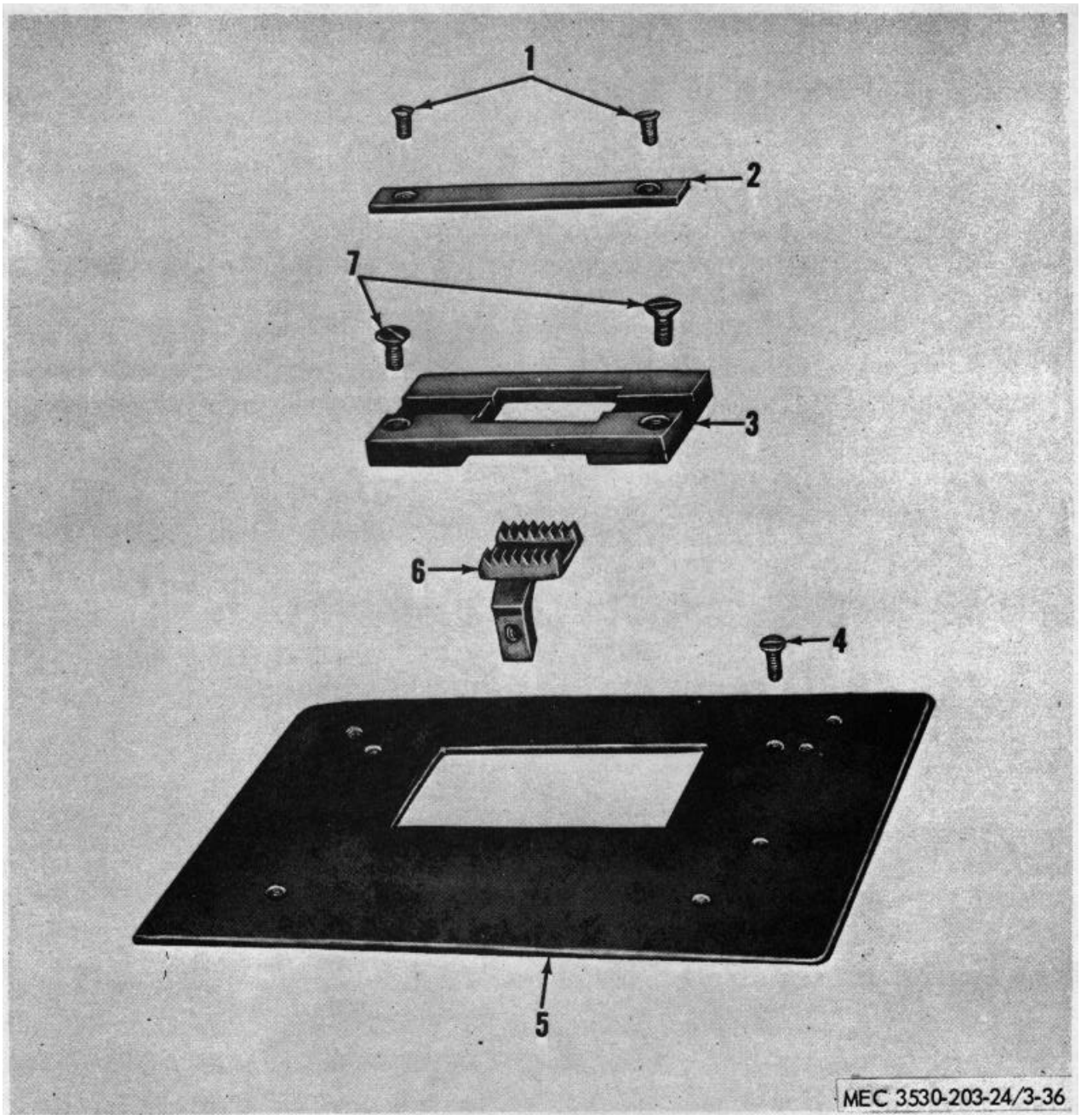
(4) Remove screw that attaches feed dog (6) to feed bar, and remove feed dog.

b. Installation. Replace defective parts with serviceable parts and install them by reversing procedure in a above.

c. Adjustment. Adjust feed dog as follows:

(1) Raise needle bar to its highest position.

(2) Adjust feed dog so that full length of feed dog teeth are above the throat plate body.



1 Screws, needle hole strip, throat plate
2 Strip, needle hole, throat plate
3 Body, throat plate
4 Screw, cloth plate
5 Plate, cloth
6 Dog, double feed
7 Screws, throat plate

Figure 5-36. Cloth plate, feed dog, and related parts.

3-77. Needle Bar, Clamp, and Link

a. Removal.

(1) Remove thumbscrew (7, fig. 3-37) that attaches needle (8) to clamp (6), and remove needle and clamp.

(2) Remove setscrews that attach stud (4) to needle bar (5), and slide needle bar out top of machine head.

(3) Remove stud from link (3).

(4) Remove upper and lower needle bar screw bushings from machine face.

(5) Remove nut (2) and screw (i) that attach link to thread takeup cam, and remove link.

b. Installation. Replace defective parts with serviceable parts and install them by reversing procedure in a above.

c. Adjustment. Adjust the needle bar as follows:

(1) Remove throat plate body (para. 3-76) from machine.

(2) Turn balance wheel until the point of sewing hook is in line with the needle.

(3) Loosen setscrews in needle bar connecting stud.

(4) Adjust needle bar so that needle eye is 'A2 inch below the point of the hook.

1 Screw, needle bar connecting link hinge
2 Nut, needle bar connecting link hinge screw
3 Link, needle bar connecting
4 Stud, connecting, needle bar
5 Bar, needle
6 Clamp, needle
7 Thumbscrew, needle clamp
8 Needle

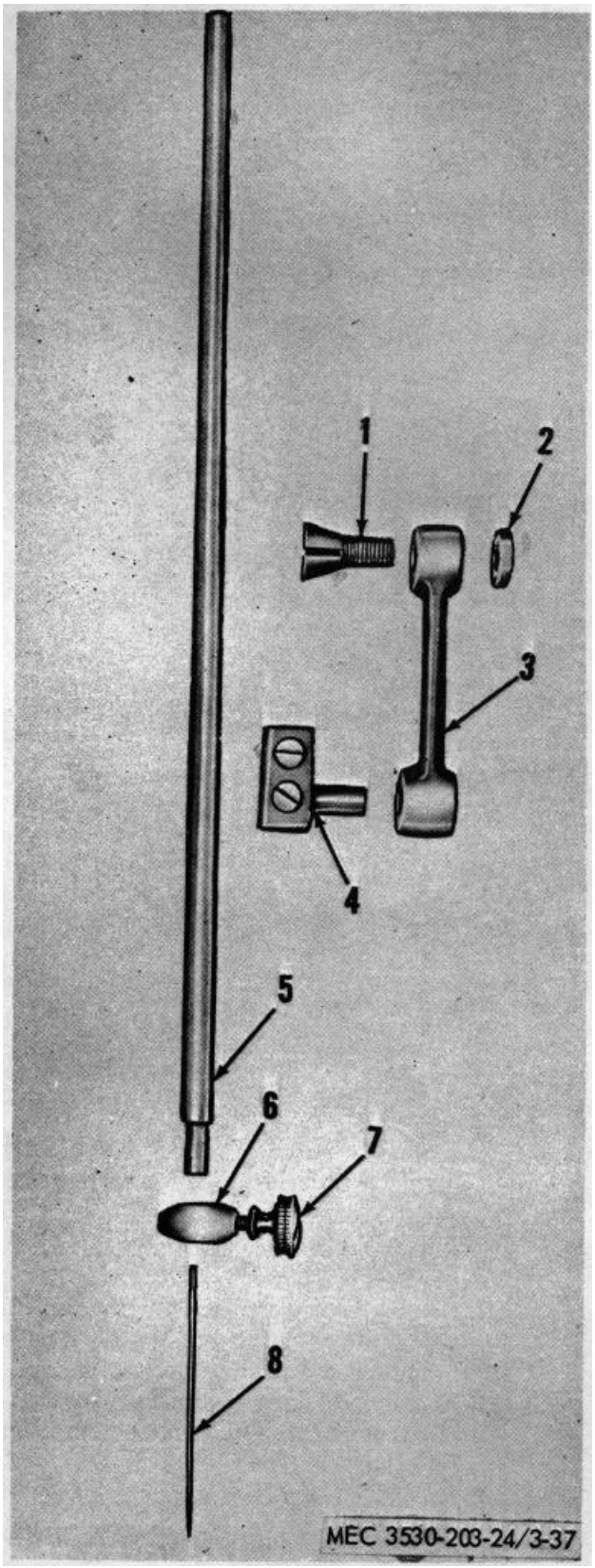


Figure 3-37. Needle bar, disassembled.

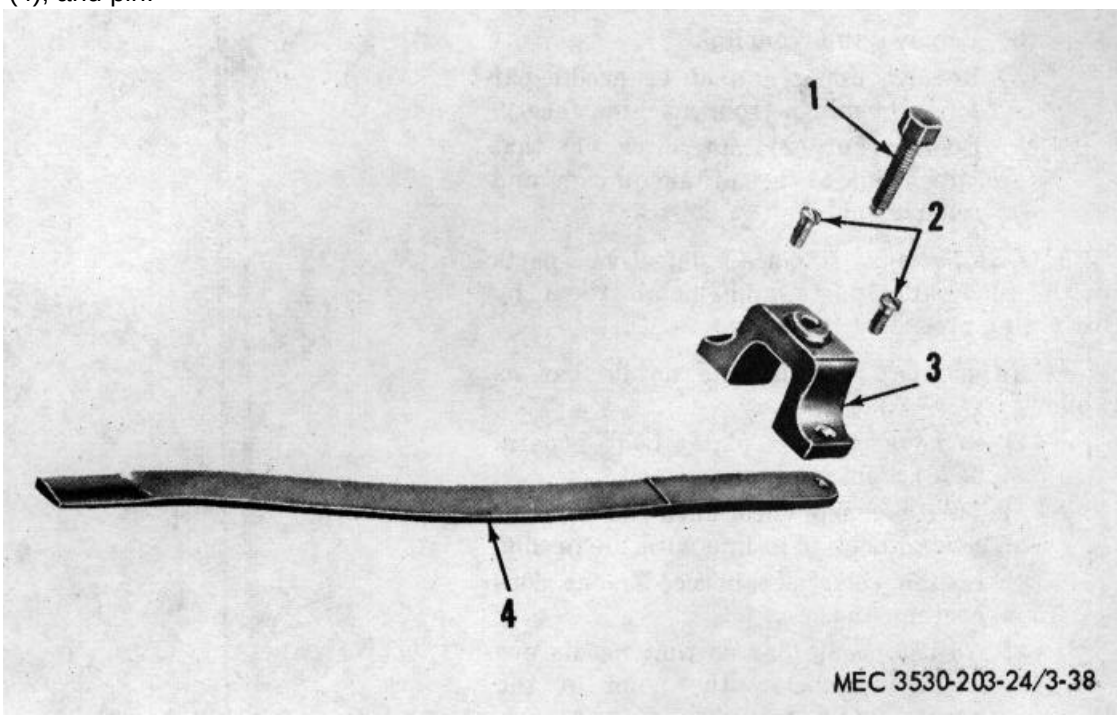
3-78. Lifting Presser Bar Spring and Bracket

a. Removal.

(1) Remove thumbscrew (1, fig. 3-38) from bracket (3).

(2) Remove screws (2) that attach bracket to machine arm, and remove bracket, spring (4), and pin.

b. Installation. Replace defective parts with serviceable parts and install them by reversing procedures in *a* above.



1 Thumbscrew, lifting presser bar spring regulating

2 Screws, lifting presser bar spring bracket

3 Bracket, lifting presser bar spring

4 Spring, lifting presser bar flat

Figure 3-38. Lifting presser bar spring, disassembled.

3-79. Lifting Presser Bar Rockshaft, Crank, Adjusting Arm, and Bracket

a. Removal.

(1) Remove nut and washer on adjusting screw (part of 4, fig. 3-39).

(2) Remove screw on lifting presser bar rockshaft eccentric strap, and remove hinge screw and slide block.

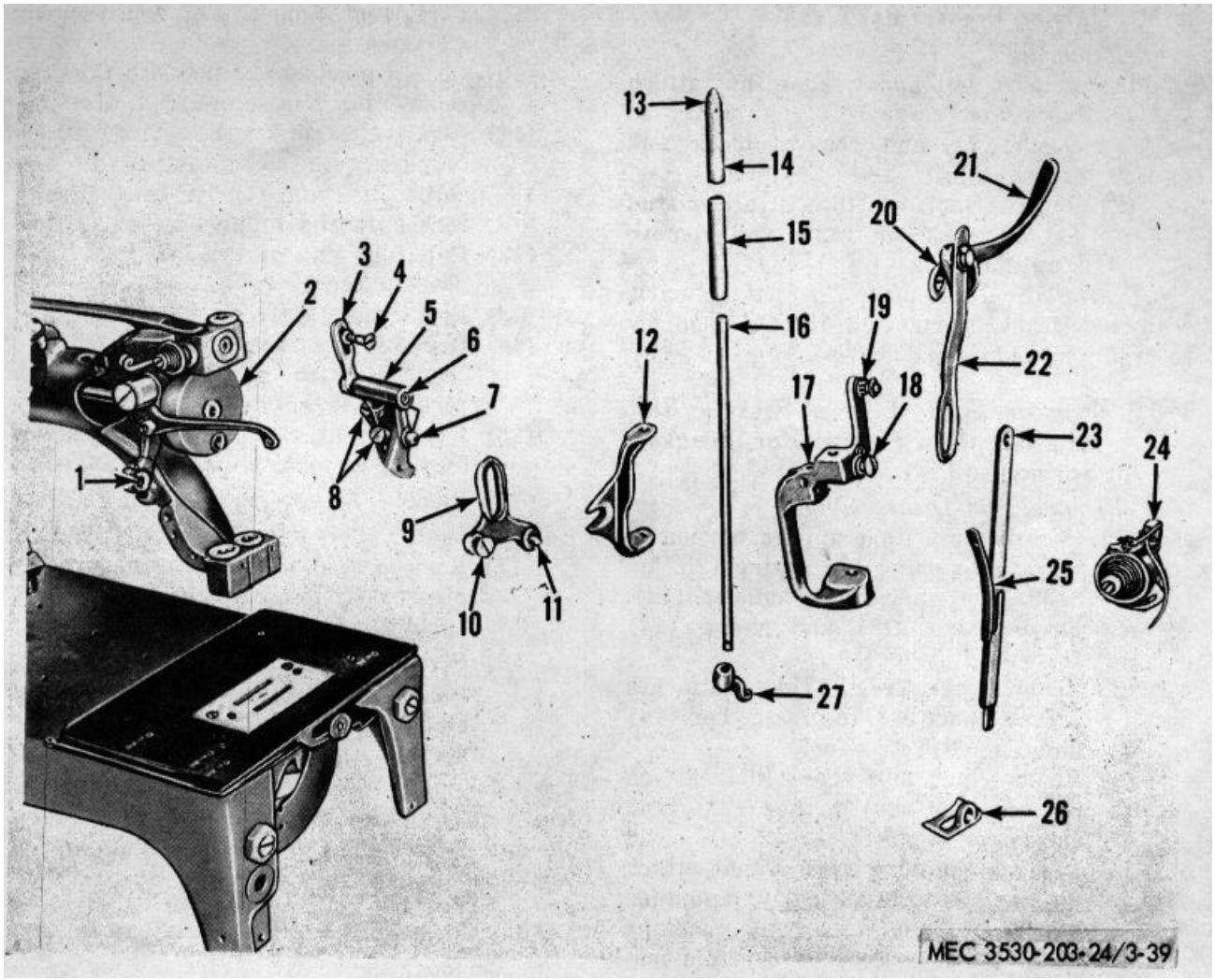
(3) Remove setscrew on arm (3), drive pin from arm, and remove arm from rockshaft.

(4) Remove setscrew on crank (6), drive pin from crank, and remove crank from rockshaft.

(5) Remove rockshaft from bracket (part of 5).

(6) Remove screws that attach bracket to machine arm, and remove bracket. Remove dowel pin from bracket.

b. Installation. Replace defective parts with serviceable parts and install them by reversing procedure in *a* above.



1 Strap, lifting presser bar rockshaft eccentric
2 Cam, thread takeup
3 Arm, lifting presser bar rockshaft adjusting
4 Screw and slide, lifting presser bar rockshaft eccentric strap adjusting
5 Bracket with rockshaft, lifting presser bar rockshaft
6 Crank, lifting presser bar rockshaft
7 Screws, lifting presser bar rockshaft bracket
8 Screws, lifting presser bar rockshaft bracket
9 Crank, lifting presser bar
10 Block and screw, lifting presser bar bellcrank slide
11 Stud, lifting presser bar bellcrank hinge
12 Bracket, lifting presser bar
13 Cap, upper lifting presser bar sleeve
14 Sleeve, upper lifting presser bar
15 Sleeve, lower lifting presser bar
16 Bar, lifting presser
17 Bracket, vibrating presser bar hinge
18 Capscrew, presser bar lifting link
19 Capscrew, vibrating presser bar hinge
20 Washer, lifting presser bar lifter friction
21 Lifter, presser bar
22 Link, presser bar lifting
23 Bar, vibrating presser
24 Tension assembly, thread
25 Spring, vibrating presser bar
26 Foot, double feed vibrating presser
27 Foot, double feed lifting presser

Figure 3-39. Lifting presser bar and vibrating presser bar, disassembled.

3-80. Lifting Presser Bar Crank

a. Removal.

(1) Remove nut and washer that attach block and screw (10, fig. 3-39) to crank (9), and remove block and screw.

(2) Remove setscrew that attaches stud (11) to bracket (12), and remove stud and crank.

b. Installation. Replace defective parts with serviceable parts and install them by reversing procedure in a above.

3-81. Presser Foot, Lifting Presser Bar, and Vibrating Presser Bar, Bracket, Spring, and Staple

a. Removal and Disassembly.

(1) Loosen screw that applies tension to vibrating presser bar spring (25, fig. 3-39), and slide spring off cap (13).

(2) Remove cap (13) and sleeve (14) from machine face.

(3) Remove setscrew that attaches presser foot (27), to presser bar (16) and remove presser foot.

(4) Remove nut and screw that attach presser foot (26) to bar (23), and remove presser foot.

(5) Remove clamping screws that attach presser bar to bracket (12) and slide bar out of the top of the machine head. Remove sleeve (15) from machine face.

(6) Remove capscrew (18) that attaches link (22) to bracket (17).

(7) Drive out pin that attaches link to lifter (21), and remove link and washer.

(8) Remove screws that attach tension assembly (24) to machine face, and remove tension assembly.

(9) Remove capscrew (19) that attaches vibrating presser bar (23) to bracket

(17) and remove bar with spring (25).

(10) Loosen pinch screw in strap (1), and remove nut and screw from arm (3).

(11) Remove screws (8) that attach bracket with rockshaft (5) to machine face, and remove bracket with rockshaft and hinge bracket (17).

(12) Pull fork end of bracket (12) from block and screw (10).

(13) Pull crank (9) from roller with stud.

(14) Remove pins that hold arm (3) and crank (6) to rockshaft, and push rockshaft from bracket (5).

(15) Unscrew lifting presser bar screw bushing from machine face.

(16) Remove screw that attaches spring (25) to bar, and remove spring.

(17) Remove screws that attach vibrating presser bar to the spring, and remove spring.

(18) Remove screw that attaches vibrating presser bar spring adjusting staple to bracket (17), and remove staple.

b. Assembly and Installation. Replace defective parts with serviceable parts and assemble and install them by reversing procedure in *a* above.

3-82. Thread Takeup Lever Assembly

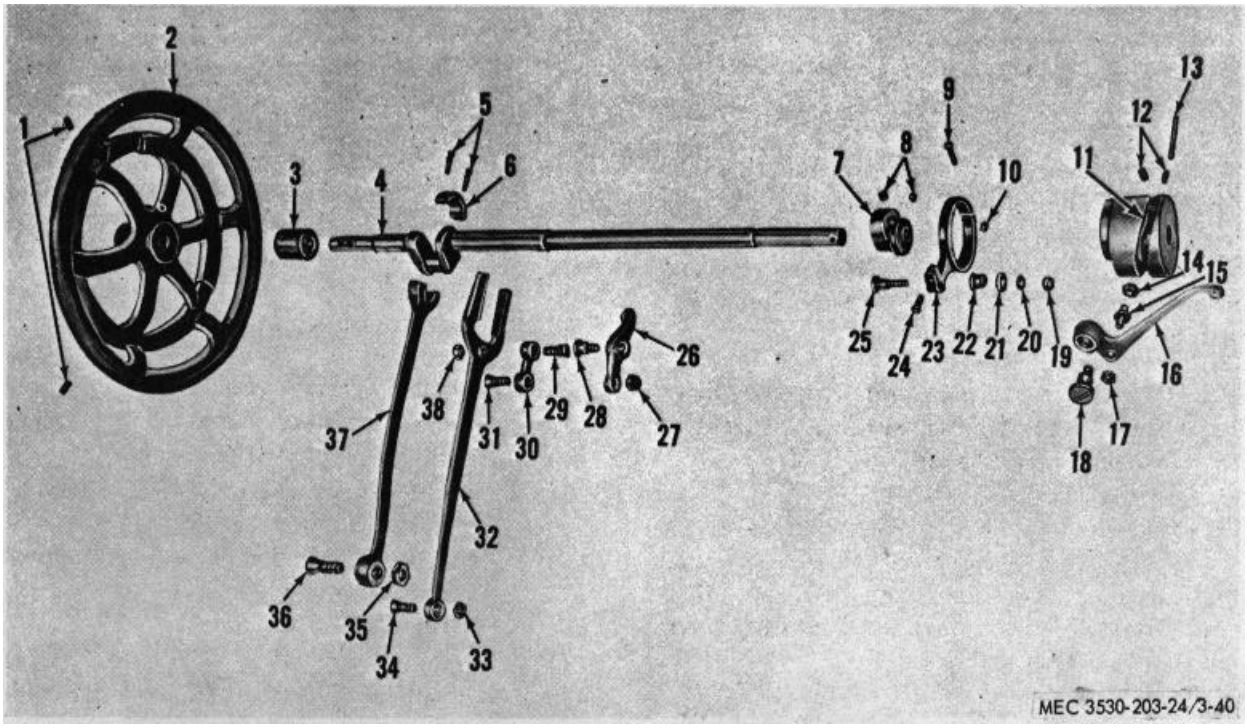
a. Removal.

(1) Remove hinge screw that attaches thread takeup lever assembly (16, fig. 3-40) to machine arm, and remove lever assembly.

(2) Slide roller (14) off stud (15).

(3) Remove nut (17) from stud, and remove stud from lever assembly (16).

b. Installation. Replace defective parts with serviceable parts and install them by reversing in *a* above.



1 Setscrews, balance wheel
2 Wheel, balance
3 Bushing, arm shaft
4 Shaft, arm
5 Screws, crank connecting rod
6 Cap, crank connecting rod
7 Cam, feed
8 Setscrews, feed cam
9 Screw, lifting presser bar rockshaft eccentric strap adjusting
10 Nut, lifting presser bar rockshaft eccentric strap adjusting screw
11 Cam thread takeup
12 Screws, thread takeup cam
13 Pin, thread takeup cam
14 Roller, thread takeup lever
15 Stud, thread takeup lever roller and screw
16 Lever assembly, thread takeup
17 Nut, thread takeup lever roller and screw stud
18 Screw, thread takeup lever hinge
19 Nut, lifting presser bar rockshaft eccentric strap hinge screw
20 Lockwasher, lifting presser bar rockshaft eccentric strap hinge screw
21 Washer, lifting presser bar rockshaft eccentric strap hinge screw slide
22 Slide, lifting presser bar rockshaft eccentric strap hinge screw
23 Strap, lifting presser bar rockshaft eccentric
24 Screw, adjusting, lifting presser bar rockshaft eccentric strap hinge
25 Screw, lifting presser bar rockshaft eccentric strap hinge
26 Regulator, feed
27 Nut, feed connecting link hinge screw
28 Screw, feed regulator hinge
29 Screw, feed connecting link hinge
30 Link, feed connecting
31 Screw, feed connecting link hinge
32 Connection, feed fork
33 Nut, feed fork connection hinge screw
34 Screw, feed fork connection hinge
35 Nut, crank connecting rod hinge screw
36 Screw, crank connecting rod hinge
37 Rod, crank connecting
38 Nut, feed connecting link hinge screw

Figure 3-40. Arm shaft assembly, disassembled.

3-83. Thread Retaining Disks, Eyelets, and Stud

a. Removal.

(1) Remove thumb nut (8, fig. 3-4) from stud (4), and remove washer (7), spring (6), and disks (5) from stud.

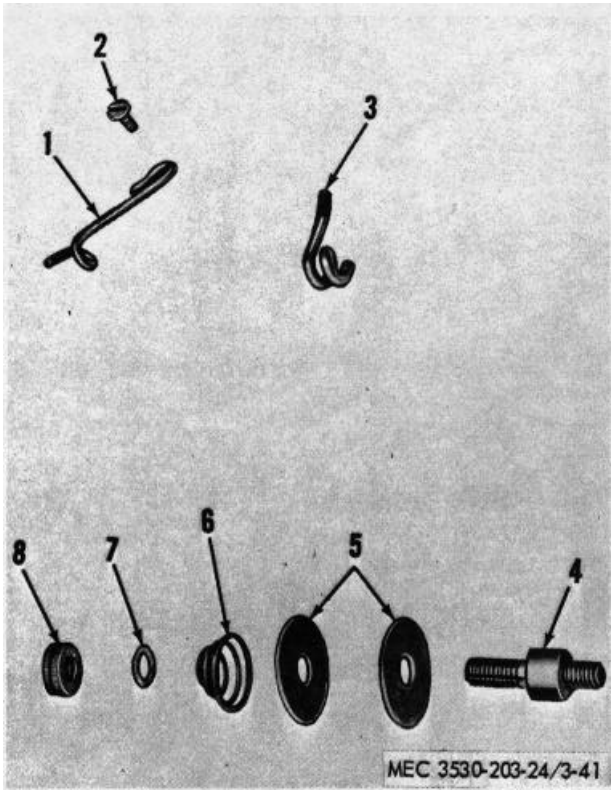
(2) Unscrew stud from machine arm.

(3) Remove screw (2) that attaches eyelet (1) to machine arm and remove eyelet.

(4) Unscrew eyelet (3) from machine arm.

b. Installation. Replace defective parts

with serviceable parts and install them by reversing procedure in *a* above.



1 Eyelet, thread
2 Screw, thread eyelet
3 Eyelet, thread, for thread retainer
4 Stud, thread retaining screw
5 Disks, thread retaining tension
6 Spring, thread retaining
7 Washer, thread retaining regulating thumbnut
8 Nut, thread retaining regulating thumb

Figure 3-41. Thread retaining disks and eyelets, disassembled.

3-84. Thread Tension Spring, Staple, Stud, and Wheel

a. Removal.

(1) Unscrew thumb nut (1, fig. 3-42) from stud (8), and remove washer (2), spring (3), washers (4 and 5), wheel (6), and washer (7) from stud.

(2) Remove screw (15) and washer (14) that attach staple (13) to cap (12), and remove staple.

(3) Remove screw that attaches stud to cap, and remove stud and spring (9). Slide spring from stud.

(4) Remove screw (10) that attaches plate (11) to cap, and remove plate.

b. Installation. Replace defective parts with serviceable parts and install them by reversing procedure in *a* above.

3-85. Bobbin Winder

a. Removal. Remove screw (9, fig. 3-43) and washer (8) that attach bobbin winder assembly to machine arm, and remove bobbin winder assembly.

b. Disassembly.

(1) Remove setscrew (1) that attaches spindle (2) to shaft (17), and remove spindle.

(2) Remove setscrews (13) that attach pulley assembly (14) to shaft, and remove pulley assembly and shaft from frame (15).

(3) Remove setscrew (5) that attaches pin (4) to base (10), and remove pin, frame, and spring (16).

(4) Remove screw (11) that attaches arm (12) to latch (3), and remove arm and latch from base.

(5) Remove screws (7) that attach base to bracket (6), and remove base.

c. Assembly and Installation. Replace defective parts with serviceable parts and assemble and install them by reversing procedures in *a* and *b* above.

3-86. Thread Unwinder

a. Removal and Disassembly.

(1) Remove setscrew (10, fig. 3-44) that attaches thread unwinder to stand (11), and remove thread unwinder.

(2) Remove setscrew (13) that attaches rest (9) to rod (8), and remove rest.

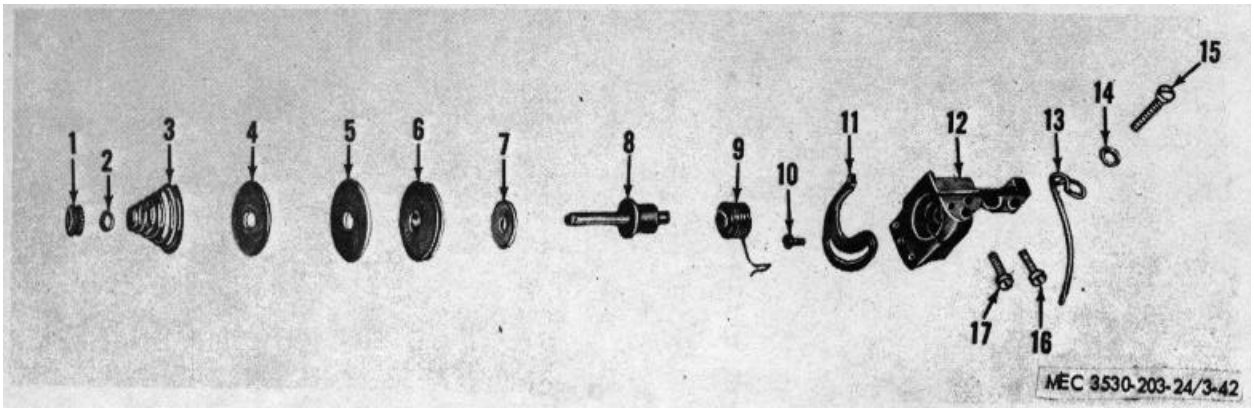
(3) Remove screw (1) that attaches bracket (2) to rod, and remove bracket with thread tension assembly.

(4) Remove thumb nut (7) from stud, and remove spring (6) and disks (5).

(5) Unscrew stud from bracket, and remove guard (4).

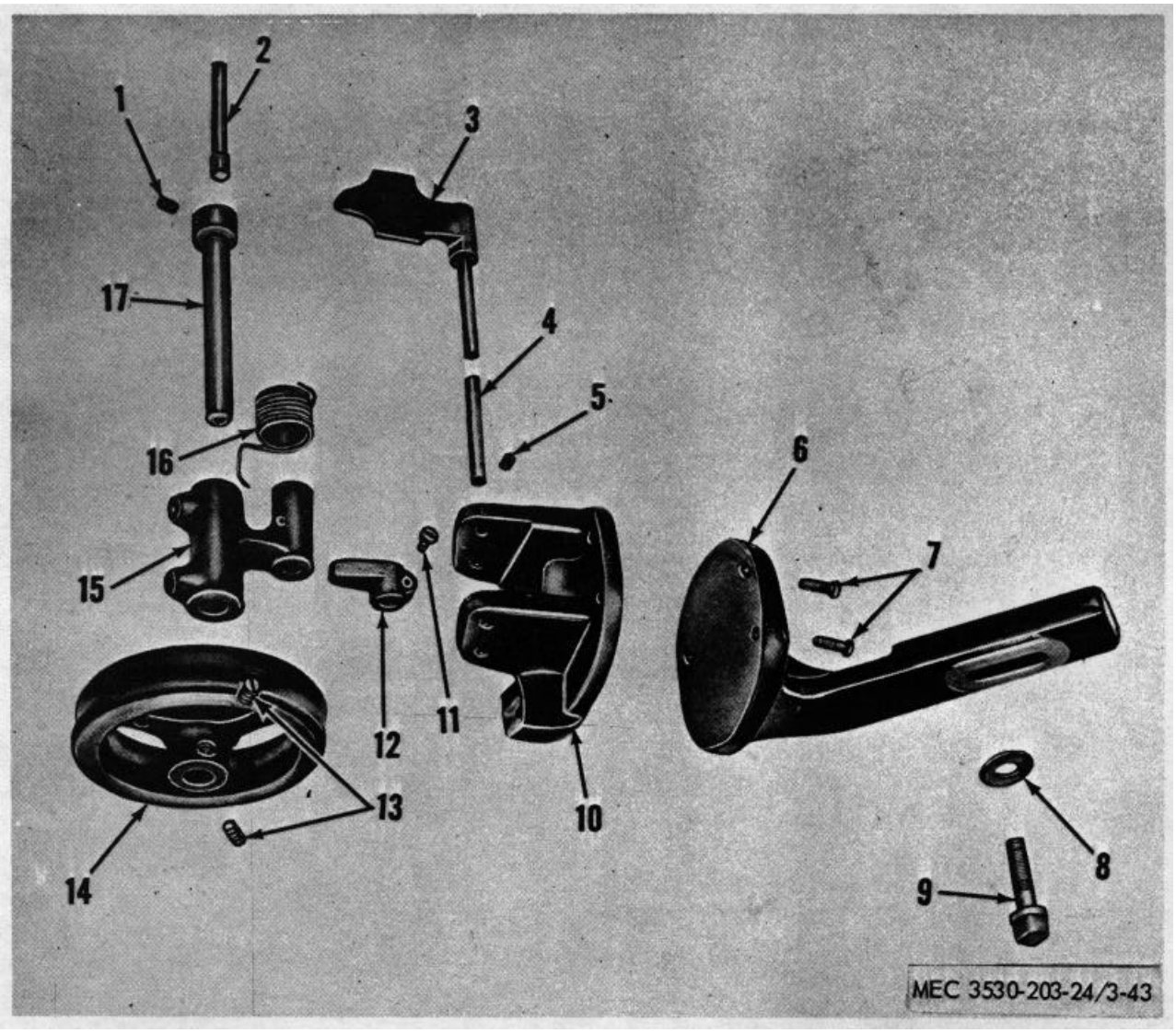
(6) Remove screws (12) that attach stand to tabletop, and remove stand.

b. Assembly and Installation. Replace defective parts with serviceable parts and assemble and install them by reversing procedure in *a* above.



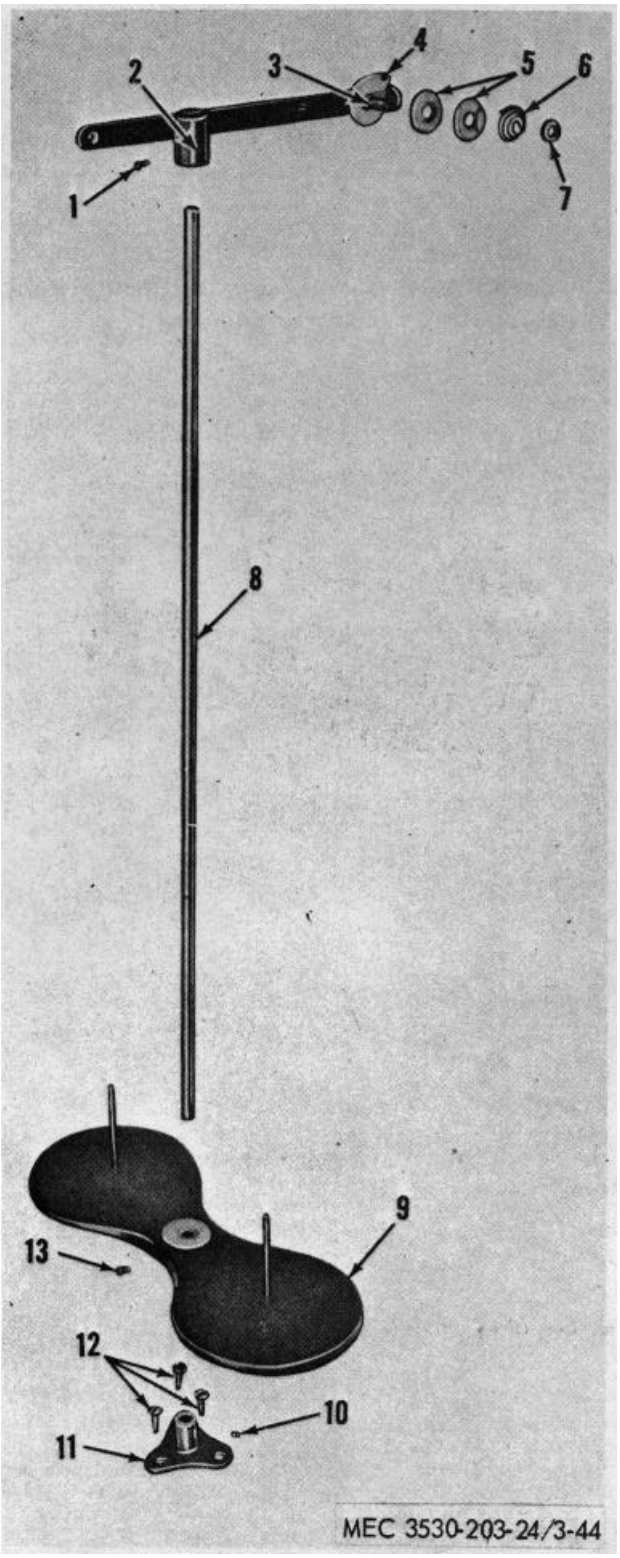
1 Nut, tension regulating thumb
2 Washer, tension regulating thumb nut
3 Spring, tension
4 Washer, steel, tension friction
5 Washer, felt
6 Wheel, tension
7 Washer, tension friction
8 Stud, tension screw
9 Spring, thread takeup
10 Screw, thread takeup spring regulator adjusting plate
11 Plate, thread takeup spring regulator
12 Cap, tension bracket and vibrating presser bar
13 Staple, thread takeup spring right
14 Washer, thread takeup spring staple
15 Screw, thread takeup spring staple
16 Screw, tension bracket and vibrating presser bar left
17 Screw, tension bracket and vibrating presser bar

Figure 3-42. Thread takeup assembly, disassembled.



1 Setscrew, spindle shaft
2 Spindle
3 Latch with pins, stop
4 Pin, frame hinge
5 Setscrew, frame hinge pin
6 Bracket
7 Screws, base
8 Washer, bracket screw
9 Screw, bracket
10 Base, bobbin winder
11 Screw, tripping arm clamping
12 Arm, tripping
13 Setscrews, friction pulley
14 Pulley assembly, friction
15 Frame, bobbin winder
16 Spring, frame
17 Shaft, spindle

Figure 3-43. Bobbin winder, disassembled.



1 Screw, spool holder bracket
2 Bracket, spool holder
3 Stud, tension screw
4 Guard, tension thread
5 Disks, tension
6 Spring, helical, compression, tension
7 Nut, thumb tension regulating
8 Rod, thread guard
9 Rest, spool
10 Setscrew, spool stand
11 Stand, spool
12 Screws, wood, spool stand
13 Setscrew, spool rest

Figure 3-44. Thread cinder, disassembled.

Section X. OVEREDGE SEWING MACHINE

3-87. General

This section covers the organizational maintenance instructions for the overedge sewing machine and its three-cone thread unwinder. Any deficiencies which the organizational maintenance personnel are not authorized to correct must be reported as stipulated in TM 38-750.

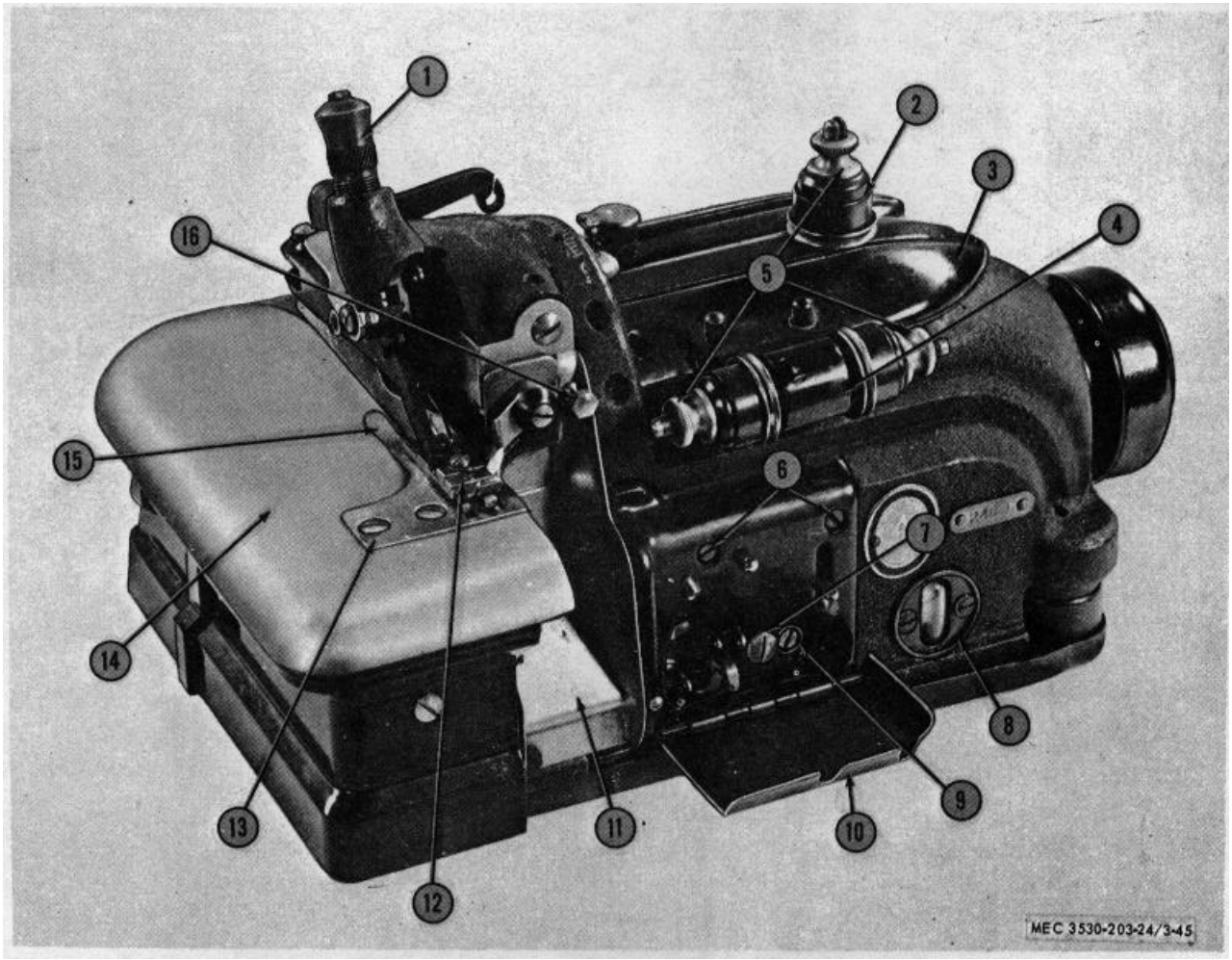
3-88. Throat Plate

a. Removal.

(1) Disengage the swingout presser bar (15, fig. 3-45), and push the presser bar and the cloth plate (4) out to the left.

(2) Remove the screws that secure the throat plate (13) to the machine, and remove the throat plate from the machine.

b. Installation. Replace defective throat plate with a serviceable one and install it by reversing the procedure in *a* above.



1 Thumbscrew, pressure regulating
2 Tension, needle thread
3 Cover w/eyelets, oil lead and screw top
4 Tension, looper thread
5 Nuts, tension stud thumb
6 Screws, looper thread plate
7 Screw, right looper thread takeup adjustable eyelet
8 Screws, oil gage
9 Plate, looper thread
10 Cover, looper thread plate
11 Guard, chip
12 Foot, presser
13 Plate, throat
14 Plate, cloth
15 Bar, swingout presser
16 Screw, chip guard

Figure 3-45. Unmounted overedge sewing machine, three-quarter front view.

3-89. Chip Guard

a. Removal. Remove screws (16, fig. 3-45) that secure the chip guard (11) to the machine, and remove the chip guard from the machine.

b. Installation. Replace the chip guard with a serviceable one and install it by reversing the procedure in a above.

3-90. Feed Dogs

a. Removal.

(1) Disengage the swingout presser bar (15, fig. 3-45) and push the presser bar and the cloth plate out to the left.

(2) Remove the front feed dog screw under the feed dog (1, fig. 3-46) and remove the front feed dog from the machine.

(3) Remove the rear feed dog screw and the rear feed dog from the machine.

b. Installation. Replace defective feed dogs with serviceable ones and install them by reversing the procedure in *a* above.

c. Adjustment.

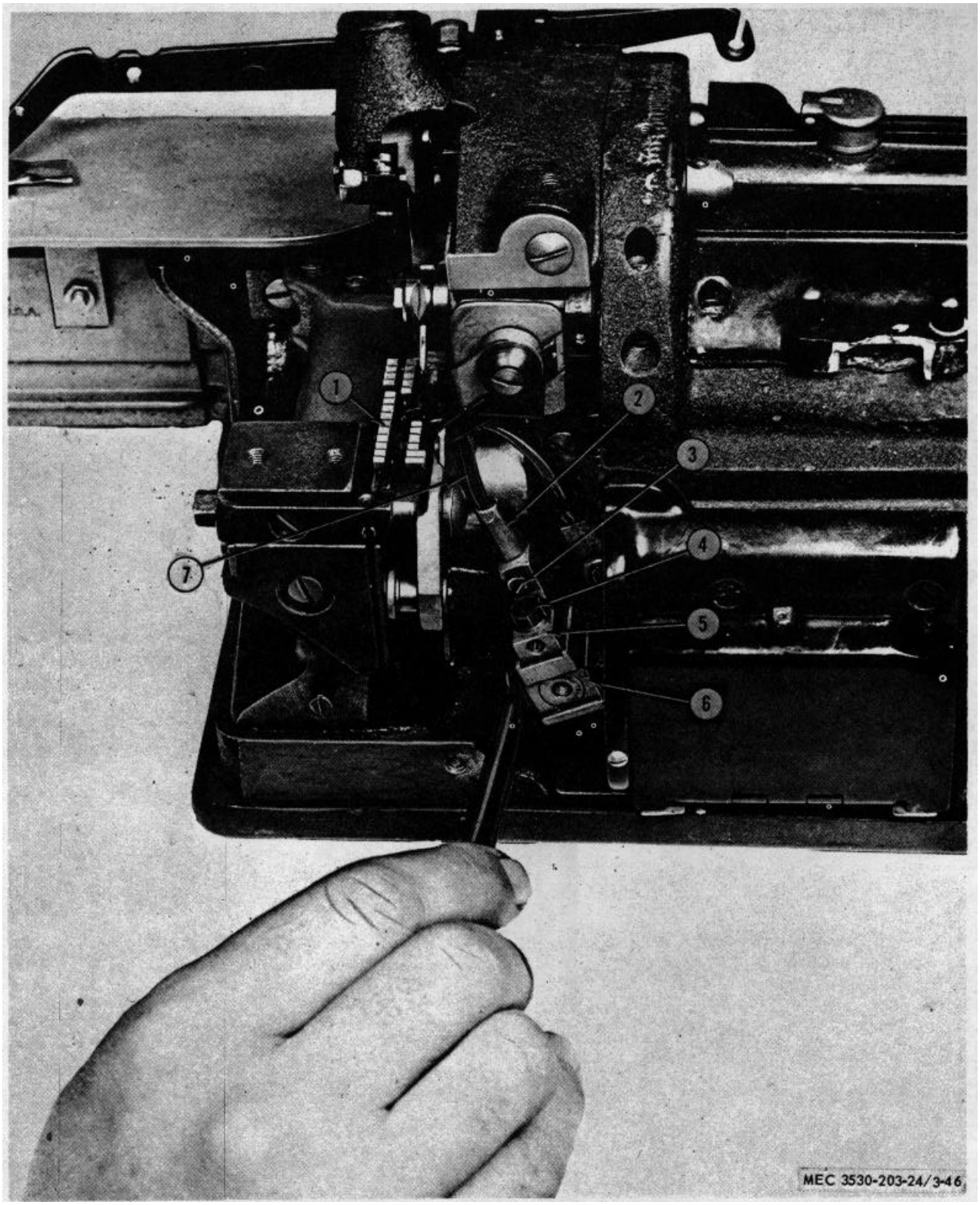
(1) Swing cloth plate to the side and remove the needle.

(2) Loosen the feed dog screw.

(3) Adjust or set the feed dog so that when it is raised to its highest point the full depth of the teeth will project above the throat plate.

(4) Tighten the feed dog screw securely.

(5) Install needle and swing the cloth plate back into position.



1 Dog, feed
2 Carrier, left thread looper
3 Setscrew, left thread looper
4 Screw, left looper
5 Holder, left looper carrier
6 Setscrew, left thread looper carrier
7 Looper, left thread

Figure 3-46. Adjusting left looper, left and right positions.

3-91. Left Looper

a. Removal. The left looper is removed as follows:

(1) Remove the throat plate (para. 3-88).

(2) Remove the chip guard (para. 3-89).

(3) Remove the feed dogs (para. 3-90).

(4) Loosen the left thread looper setscrew (3, fig. 3-46).

(5) Lift the left thread looper (7) from the left thread looper carrier (2) and take it from the machine.

b. Installation. Replace defective looper with a serviceable one and install it by reversing the procedure in a above.

c. Adjustment.

(1) Remove the throat plate (13, fig. 3-45) and the chip guard (11) from the machine (paras. 3-88*a* and 3-89*a*).

(2) Turn the machine drive shaft pulley away from the operator until the needle, after reaching its lowest point, is raised YJ4 inch. At this setting, the tip of the looper should just reach the middle of the needle.

(3) Make certain the tip of the looper reaches the middle of the needle. If it does not, loosen the setscrew (6, fig. 3-46) on the right of the left looper carrier holder (5) and tighten the setscrew on the left of the carrier holder until the tip of the looper reaches the middle of the needle.

(4) Tighten the setscrew (6) on the right of the left looper carrier holder (5) securely and recheck the position of the looper in relation to the needle.

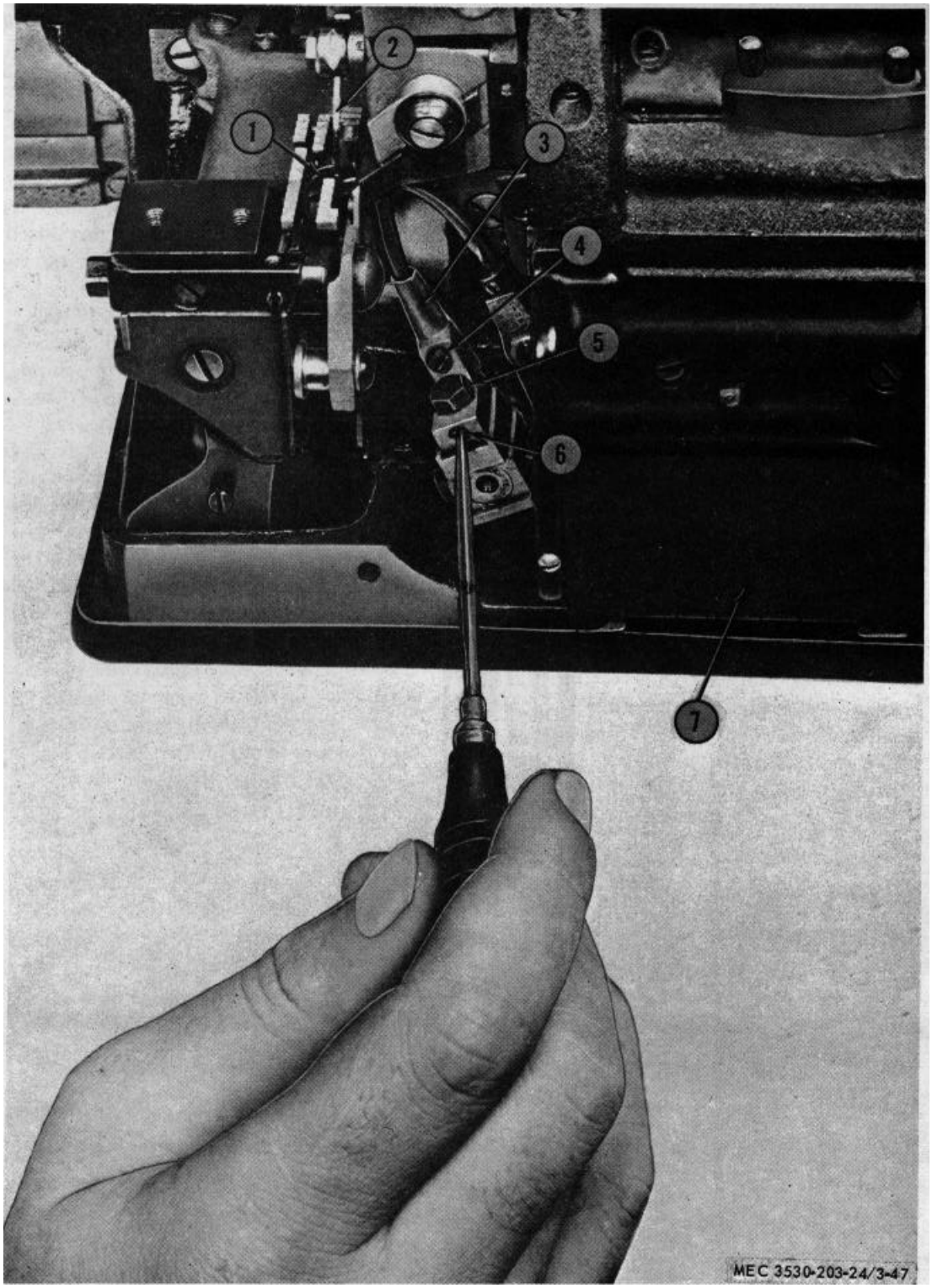
(5) Loosen the setscrew on the left of the looper carrier holder (5) and tighten the setscrew (6) on the right of the holder until the tip of the looper reaches the proper position: (6) Tighten the setscrew on the left of the looper holder, and recheck the position of the needle.

(7) Turn the machine drive shaft pulley away from the operator until the point of the left looper just passes the needle.

(8) Loosen the left looper carrier setscrew (6) and the left looper carrier screw (4), and move the looper carrier (2) until the left looper almost touches the needle from the rear.

(9) Tighten the carrier screw (5, fig. 3-47) and slowly tighten the carrier setscrew (6) until the left looper just clears the needle.

(10) Install the throat plate and the chip guard on the machine.



1 Looper, left thread
2 Needle
3 Carrier, left thread looper
4 Setscrew, left thread looper
5 Screw, left thread looper carrier
6 Setscrew, left thread looper carrier screw
7 Cover, looper thread plate

Figure 3-47. Adjusting left looper, back and front positions.

3-92. Right Looper

a. Removal.

(1) Swing out the cloth plate (14, fig. 3-45) and swing the presser bar and the cloth plate out to the left.

(2) Remove the throat plate (para. 3-88a).

(3) Remove the chip guard (para. 3-89a).

(4) Loosen the locking stud nut (9, fig. 3-48).

(5) Remove the looper (1) from the looper carrier (4) with positioning collar (11) attached.

(6) Remove the setscrew and the collar from the looper.

b. Installation. Replace defective looper with a serviceable one and install it by reversing the procedure in a above.

c. Adjustment.

(1) Disengage the swingout presser bar (15, fig. 52) and swing the presser bar and the cloth plate out to the left.

(2) Remove the throat plate (para. 3-88) and the chip guard (para. 3-89) from the machine.

(3) Loosen setscrews (2, fig. 3-48) that secure the carrier connector guide bar bracket (3) to the machine, and move the bracket to its extreme left position on the casting. Then tighten the set screws (2).

(4) Place the gage No. 164460 on the throat plate base as shown in figure 3-49.

(5) Turn the machine drive shaft pulley away from the operator until the right looper reaches its extreme left position. At this point, the looper should touch the undersurface of the gage sufficiently to just barely rock the gage.

(6) Loosen the positioning collar setscrew (10, fig. 3-48) and the locking screw stud nut (9), if the looper is not in position as described in (5) above. Making sure that the slot in the locking screw stud is in line with the looper carrier (4), set looper (1) up or down in the carrier as required, and tighten the locking screw stud nut. Press the looper positioning collar (11) firmly down against the looper carrier, and tighten the positioning collar setscrew.

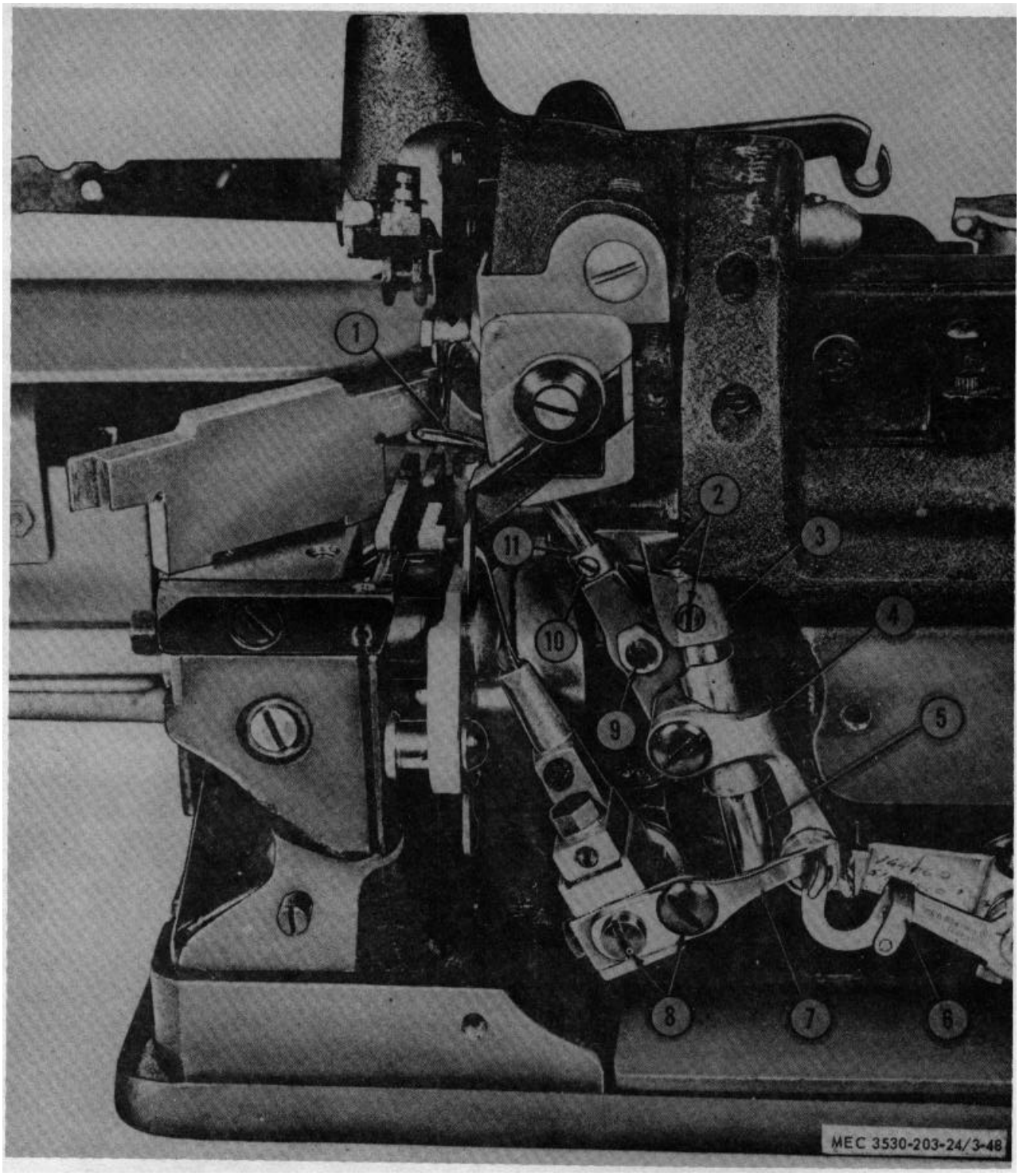
(7) When the right looper passes the left looper, it should pass behind the left looper head and just to the left of the left looper eye. Loosen the two carrier connector guide bars (5), bracket (3), setscrews (2), and move the bracket to right or left as necessary; then securely tighten the bracket screws.

(8) Recheck and adjust the height of the looper as described in (4) and (5) above.

(9) The right looper should brush lightly on the front of the needle. Loosen the locking screw stud nut (9), move the looper in the looper carrier as required, and tighten the stud nut.

(10) Recheck each setting and make sure all setscrews and nuts are securely tightened.

(11) Install the looper thread plate (9, fig. 3-45), chip guard (11), and throat plate (13) on the machine.



1 Looper, right thread
2 Setscrews, right thread looper carrier
3 Bracket w/oil pad and setscrews, right thread looper carrier connector guide bar
4 Carrier w/setscrew, right thread looper
5 Bar w/screw and oil wick, right thread looper carrier connector guide
6 Stripper and takeup, right thread looper
7 Screws, oil splash guard
8 Nut
9 Nut, right thread looper positioning collar
10 Setscrew, right thread looper positioning collar
11 Collar, right thread looper positioning

Figure 3-48. Adjusting right looper.

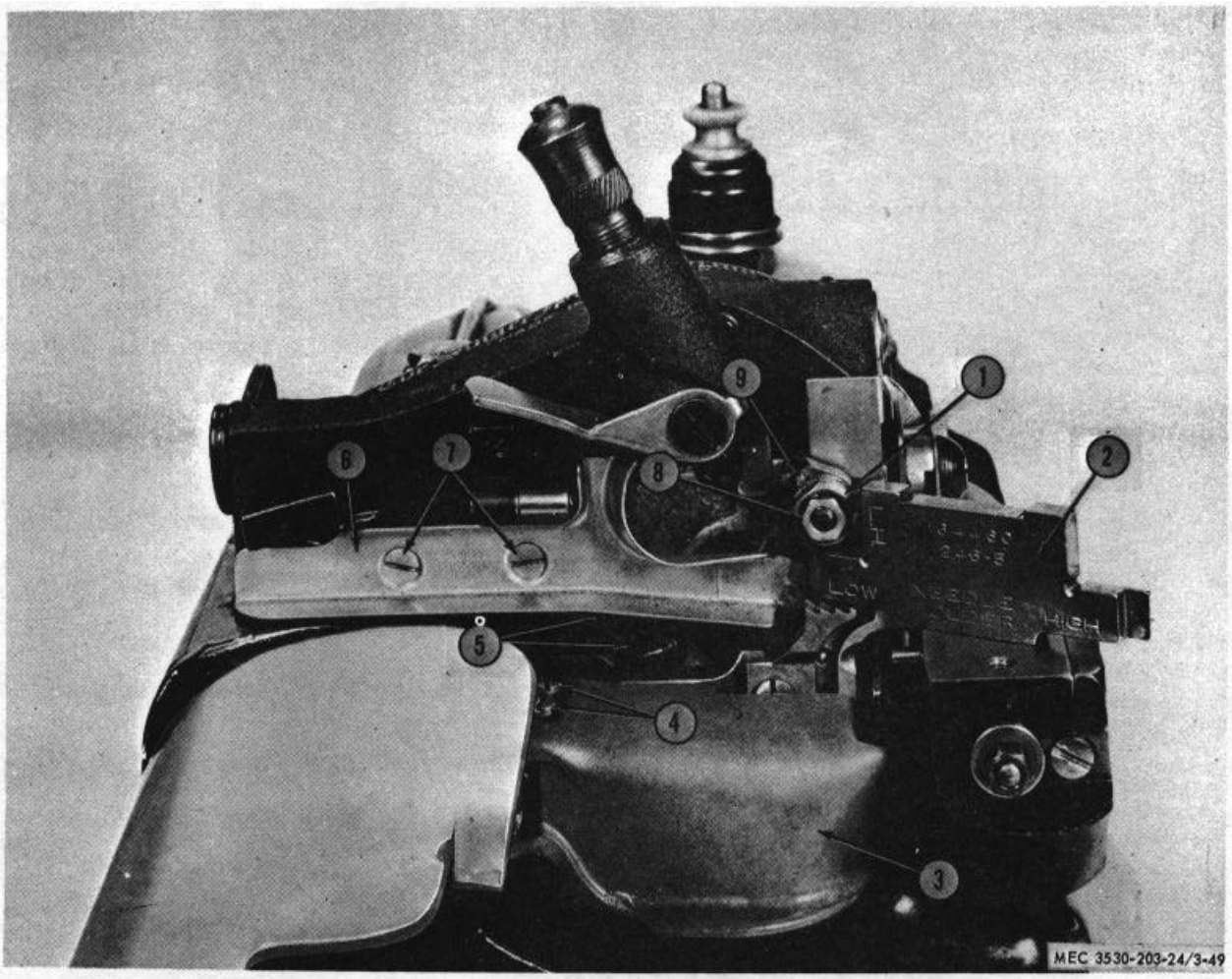
3-93. Right Thread Looper Positioning Collar Removal.

a. Removal.

(1) Remove the right looper (para. 3-92*a* (1) through (5).

(2) Remove the positioning collar (11, fig. 3-48) from the looper (1) by loosening the setscrew that holds it to the looper.

b. Installation. Replace defective collar with a serviceable one, and install it by reversing the procedure in *a* above.



1 Clamp, needle
2 Gage
3 Guard, oil splash
4 Screws, oil splash guard
5 Screw, needle thread control
6 Guard, oil splash
7 Screws, oil splash guard
8 Nut
9 Pin, stop shaft

Figure 3-49. Setting needle drive shaft at correct height.

3-94. Right Thread Looper Stripper and Takeup and Left Thread Looper Takeup

a. Removal.

(1) Swing out cloth plate (14, fig. 3-45).

(2) Remove the chip guard by removing two screws (16).

(3) Remove two screws (6) that secure the rear cover to the machine frame and remove the rear cover from the machine.

(4) Remove the right thread looper stripper and takeup (3, fig. 3-50) from the right thread looper drive shaft by removing the screw (2) securing the stripper and the takeup to the shaft.

(5) Remove the screw (5) that secure the left thread looper takeup (1) to the left looper drive shaft.

(6) Remove the left thread looper takeup with takeup arm plate.

(7) Remove the screw (4) that secure the takeup arm plate to the left thread looper takeup and remove the plate.

b. Installation. Replace defective items with serviceable ones and install them by reversing the procedure in *a* (4) through (7) above.

c. Adjustment of Right Looper Thread Stripper and Takeup. When the left looper is at its extreme right position, the eye of the right takeup should be in line with the left looper thread bushing and the eye of the left takeup. Set the right takeup as follows:

(1) Loosen the right looper thread takeup arm screw (2), (fig. 3-50).

(2) Raise or lower the right takeup as required.

(3) Tighten the takeup arm screw securely and close the plate cover.

d. Adjustment off Left Looper Thread Takeup. When the left looper is moved to its extreme right position, the eye of the left looper thread takeup should be in line with the center of the left looper thread bushing. Set the left looper thread takeup as follows:

(1) Remove the chip guard and open the looper thread plate cover.

(2) Loosen the two thread takeup screws (2 and 5) and raise or lower the right end of the thread takeup as required.

e. Adjusting Takeup for Both Looper Threads.

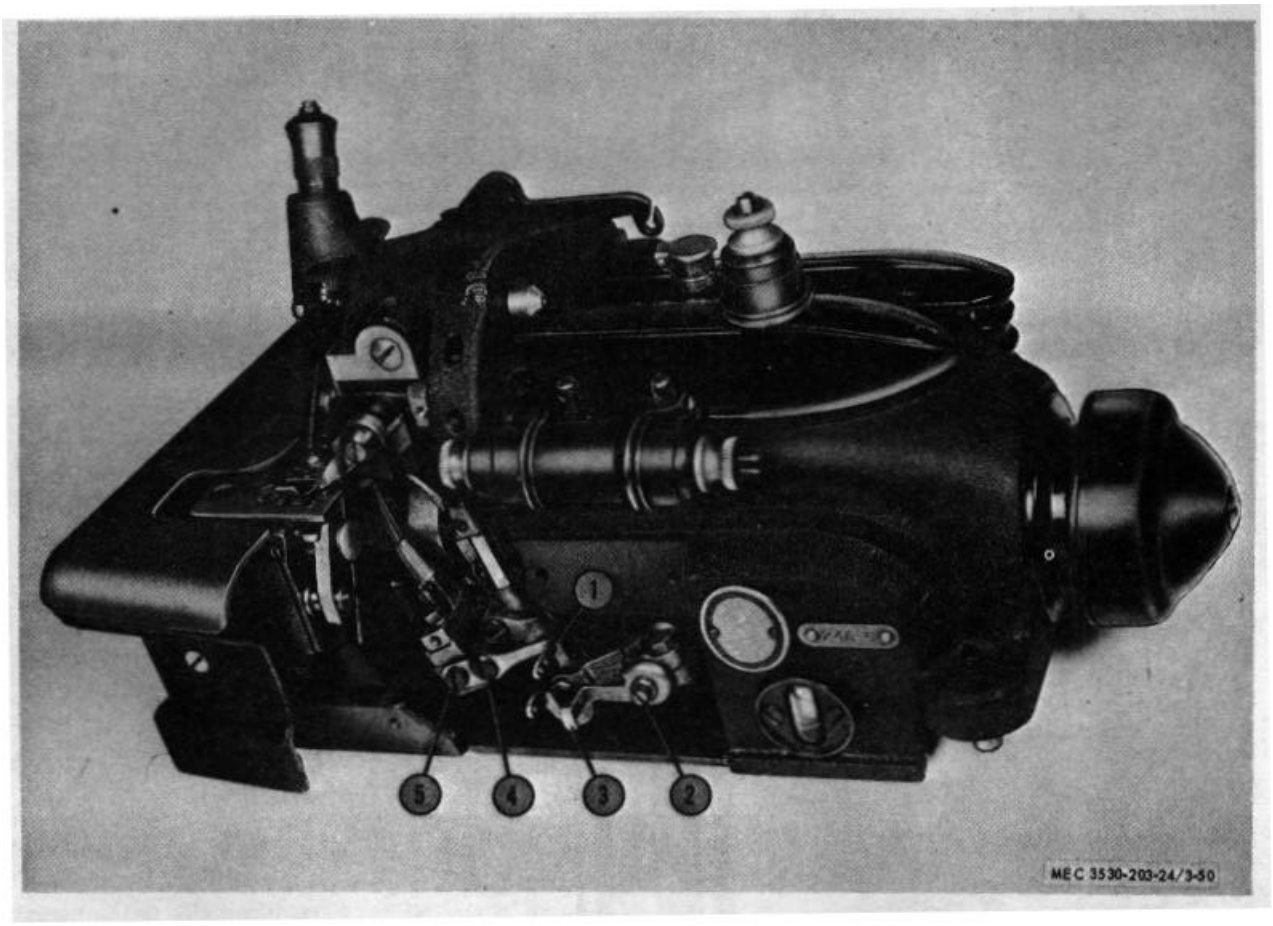
(1) Lower the right takeup or raise the left takeup to get more thread through both loopers.

(2) Raise the right takeup or lower the left takeup to get less thread through both loopers.

f. Adjusting Slack on Right Looper Thread. When the right looper is at its extreme left position, the right looper thread between the eyelet in the right takeup and the tension disks should have a slight slack.

(1) Lower the right looper thread movable eyelet screw to decrease the slack on the right looper thread.

(2) Raise the eyelet screw to increase the slack on the right looper thread.



1 Takeup, left thread looper
2 Screw
3 Stripper and takeup, thread looper right
4 Screw, upper arm
5 Screw, lower, arm

Figure 3-50. Left thread looper takeup and right thread looper stripper and takeup.

3-95. Oil Sight Gage, Retainer, and Gaskets

a. Removal.

(1) Tilt the overedge machine and drain the oil out through the screen.

(2) Remove two screws (8, fig. 3-45) that secure the oil gage retainer to the machine.

(3) Remove the retainer from the machine.

(4) Take out three gaskets and take the oil gage off of the front of the machine.

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in a above, and replace oil according to instructions in TM 10-3530-201-10.

3-96. Stationary Knife

a. Removal.

(1) Swing out cloth plate (14, fig. 3-45).

(2) Disengage the swingout presser bar (15).

(3) Loosen the nut (12, fig. 3-51) on the stud (6), and slide out the stationary knife (9).

b. Installation

(1) Push the knife downward into the knife holder until the cutting edge of the knife is flush with the throat plate (13).

(2) Tighten clamping stud nut (12) securely.

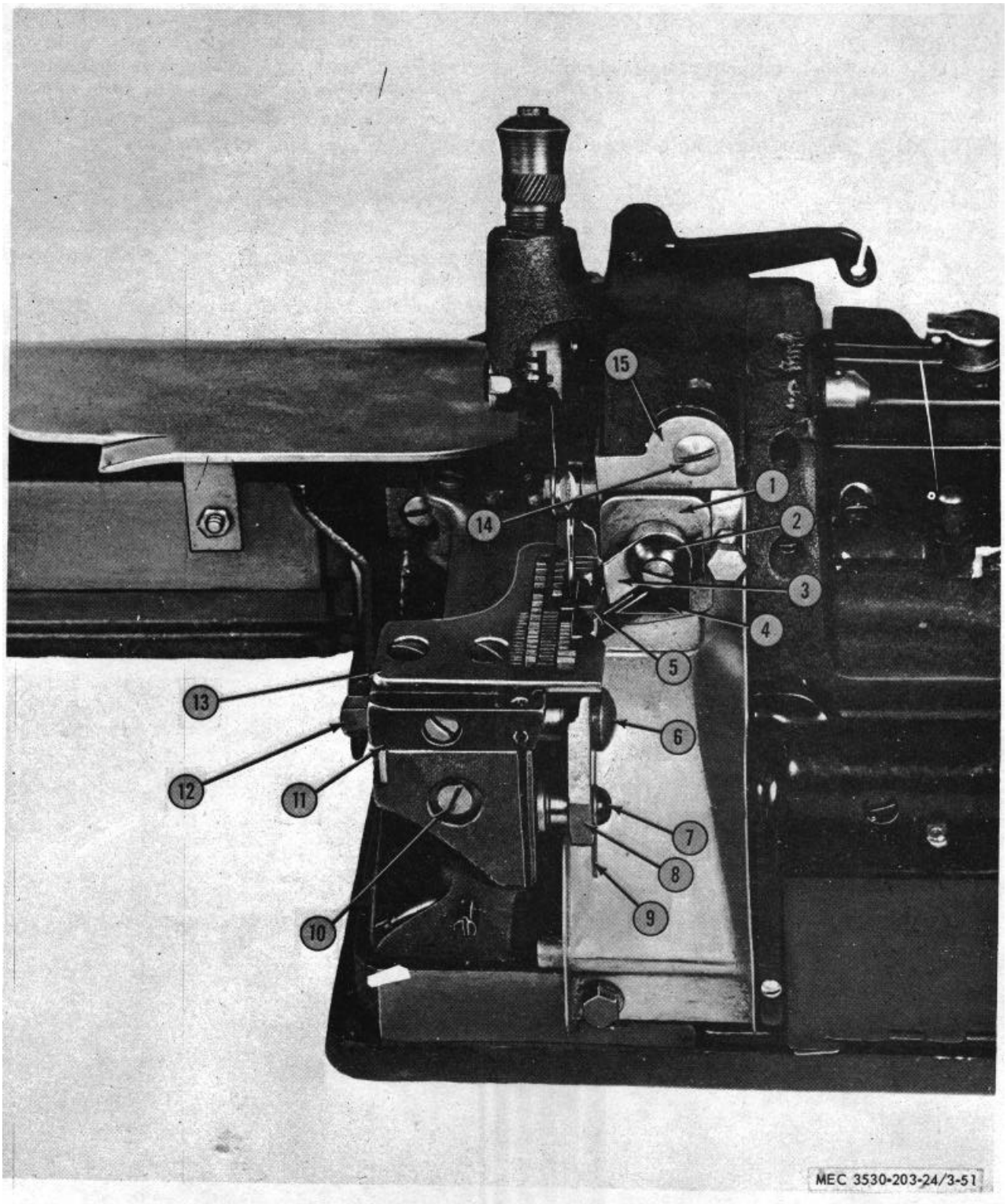
(3) Reverse the procedures in a (1) and (2) above.

c. Adjustment.

(1) Loosen the stationary knife holder adjusting stud screw (10) and the sleeve screw (7).

(2) Move the stationary knife holder so that the right edge of the knife is flush with the right edge of the chaining-off finger on the throat plate (13).

(3) Tighten the adjusting stud screw (10) and the sleeve screw (7).



1 Clamp, movable knife
2 Screw, movable knife clamp
3 Guard, movable knife upper
4 Guard, movable knife lower
5 Knife, movable
6 Stud, stationary knife
7 Screw, stationary knife
8 Holder, knife
9 Knife, stationary
10 Screw, knife holder
11 Guide, throat
12 Nut, knife stud
13 Plate, throat upper clamping
14 Screw adjusting stud
15 Guard, finger

Figure 3-51. Adjusting knives.

3-97. Stationary Knife Holder Stud, Spring, Sleeve, and Adjusting Stud

a. Removal.

(1) Remove two screws (16, fig. 3-45) securing the chip guard to the machine frame, and remove the chip guard.

(2) Open the thread plate cover (10).

(3) Remove two screws (6) that secure the thread plate (9) to the machine frame and remove the thread plate.

(4) Open the cloth plate.

(5) Remove the knife stud nut (13, fig.3-52) and the knife holder cap (11) from the knife holder stud (2).

(6) Remove the stationary knife (1) and stud (2) from the knife holder (14).

(7) Remove the screw (12) and spring retainer (10) from the machine frame and remove the spring (9) from the knife holder.

(8) Remove the screw (3) and washer (4) that secure the knife holder (14) and the sleeve (5) to the machine frame, and remove the sleeve (5).

(9) Loosen the capscrew (8) and washer (7) from the adjusting stud (6).

(10) Separate the capscrew (8) and washer (7) from the adjusting stud (6).

b. Cleaning. Clean all parts with SD and wipe them dry.

c. Installation. Replace defective items with serviceable ones and install them by reversing the procedure in *a* above.

d. Adjustment. Adjust the stationary knife according to the instructions in paragraph 3-96*c*.

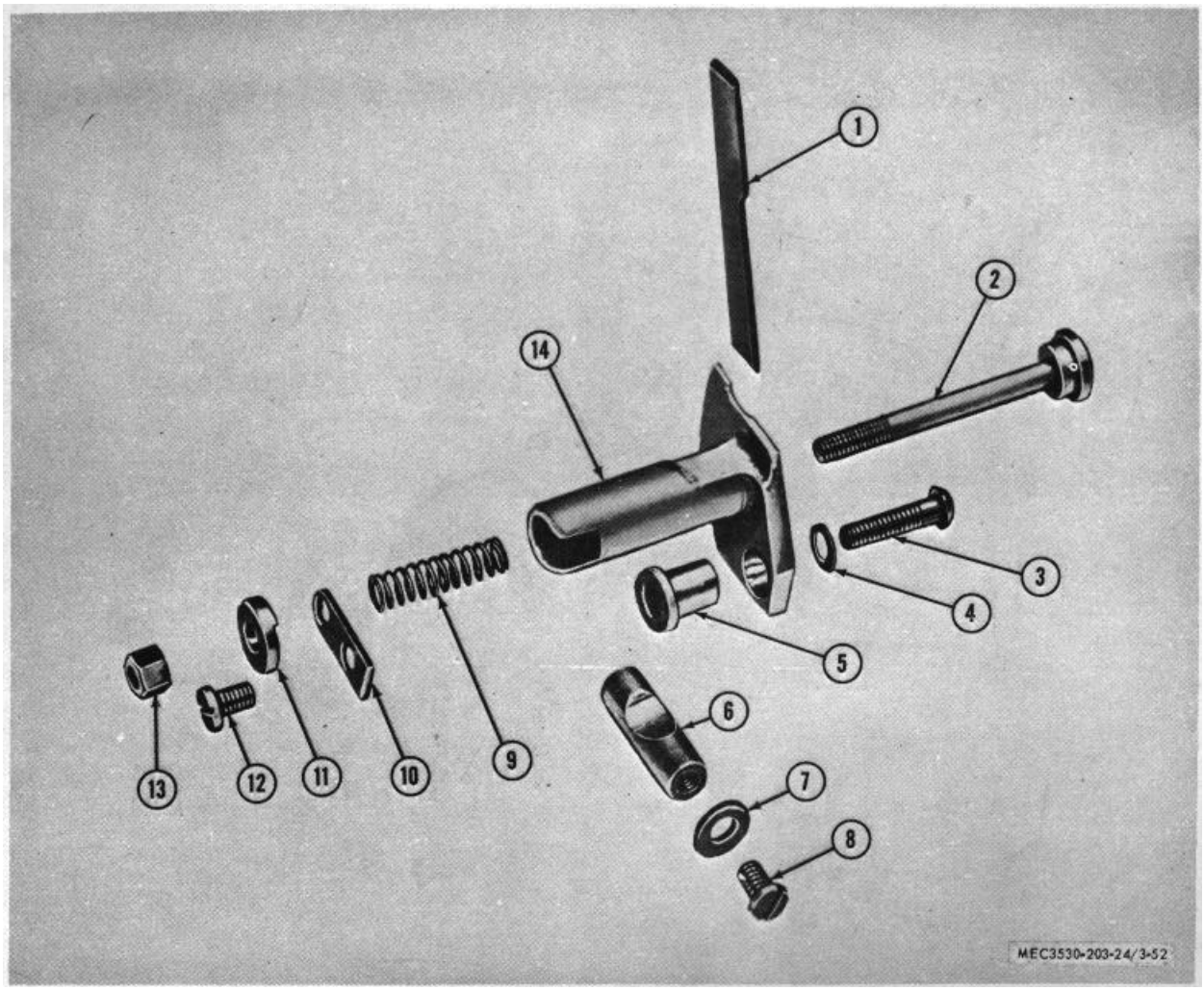


Figure 3-52. Stationary knife, disassembled.

1 Knife, stationary
2 Stud, knife holder
3 Screw, knife holder holder adjusting
4 Washer, knife holder
5 Sleeve, knife holder
6 Stud, stationary knife holder spring
7 Washer, stud capscrew holder
8 Capscrew, adjusting stud
9 Spring, stationary knife
10 Retainer, stationary knife
11 Cap, stationary knife sleeve
12 Screw, spring retainer sleeve screw
13 Nut, knife stud holder
14 Holder, stationary knife

Figure 3-52-Continued

3-98. Drive Shaft Pulley, Cap, and Stud

a. Removal.

(1) Remove the pulley capscrew (23, fig.3-53) that secures the drive shaft pulley cap (22) to the drive shaft stud (21) and remove the cap.

(2) Remove the stud (21) from the drive shaft (1).

(3) Remove two setscrews (24) that secure the drive shaft pulley (20) to the drive shaft (1) and remove the pulley (20).

b. Installation. Replace defective items with serviceable ones and install them by reversing the procedure in *a* above.

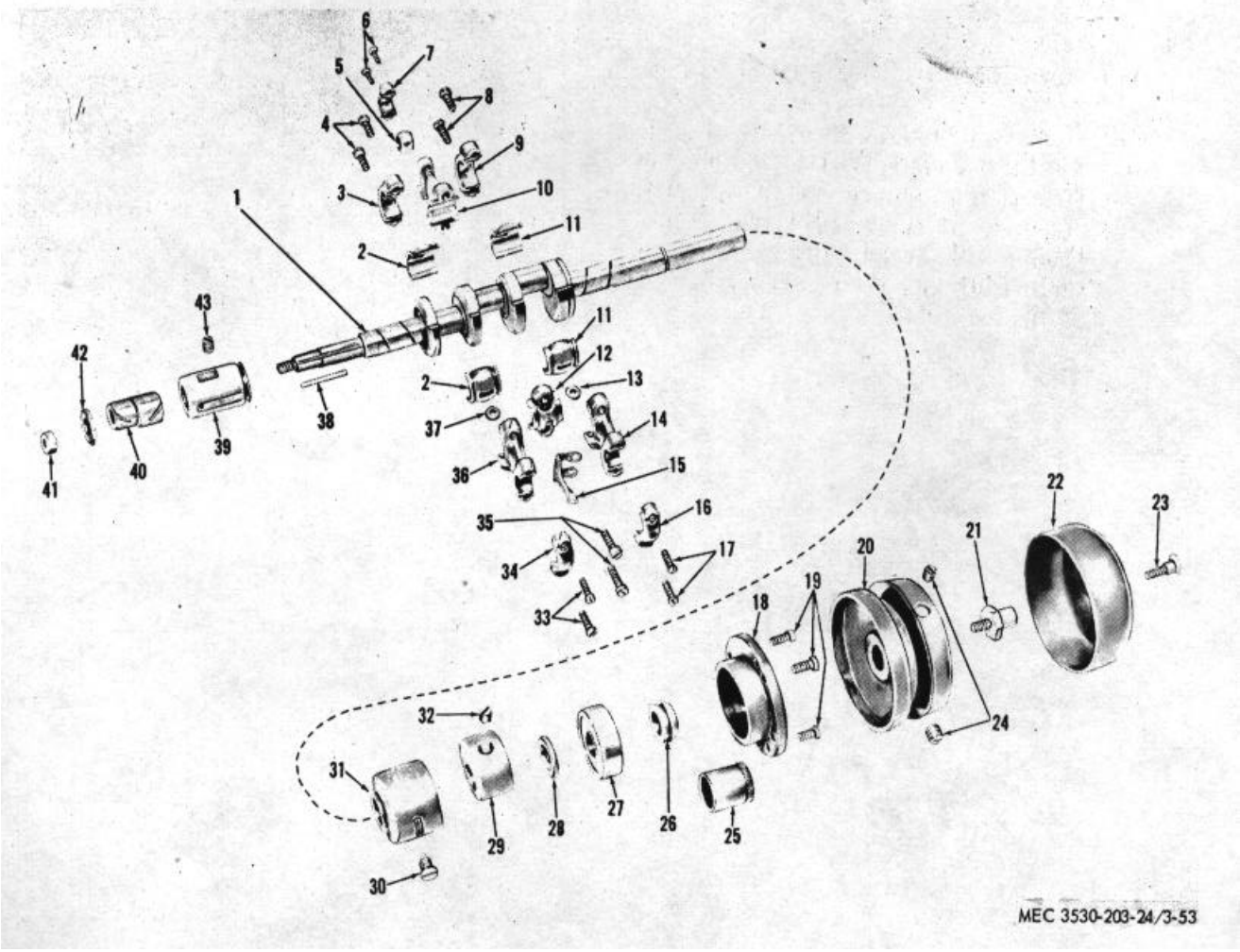


Figure 3-53. Drive shaft pulley, cap, and stud.

1 Shaft, drive
2 Sleeve pair, drive shaft
3 Connector, looper drive shaft crank
4 Screws, connector
5 Ball, needle drive shaft crank connector
6 Screws, crank connector
7 Connector, needle drive shaft crank
8 Screws, connector
9 Connector, looper drive shaft
10 Connector, crank
11 Sleeve pair, drive shaft
12 Connector, crank
13 Guide, drive shaft ball sleeve
14 Connector, crank
15 Agitator, oil
16 Connector, crank
17 Capscrew, connector lower
18 Housing, drive shaft ball bearing
19 Screws, ball bearing housing
20 Pulley w/setscrews, drive shaft
21 Stud, drive shaft
22 Cap, drive shaft pulley
23 Capscrew, pulley
24 Setscrews, pulley
25 Plug, frame
26 Retainer, ball bearing housing oil
27 Bearing, drive shaft ball
28 Washer, drive shaft thrust
29 Counterbalance, drive shaft
30 Setscrew, bushing
31 Bushing, drive shaft
32 Setscrew, counter-balance
33 Screws
34 Connector, crank
35 Screws, crank connector
36 Connector, crank
37 Guide, drive shaft ball sleeve
38 Key, lever eccentric
39 Bushing, front drive shaft
40 Eccentric, feed lifting and movable knife level
41 Nut, lever eccentric
42 Washer, lever eccentric
43 Setscrew, front bushing

Figure 3-53-Continued

3-99. Movable, Adjustable, and Stationary Eyelets

a. Removal.

(1) Open the thread plate cover (27, fig. 3-54).

(2) Remove two screws (23) that secure the thread plate (20) to the machine frame, and remove the thread plate.

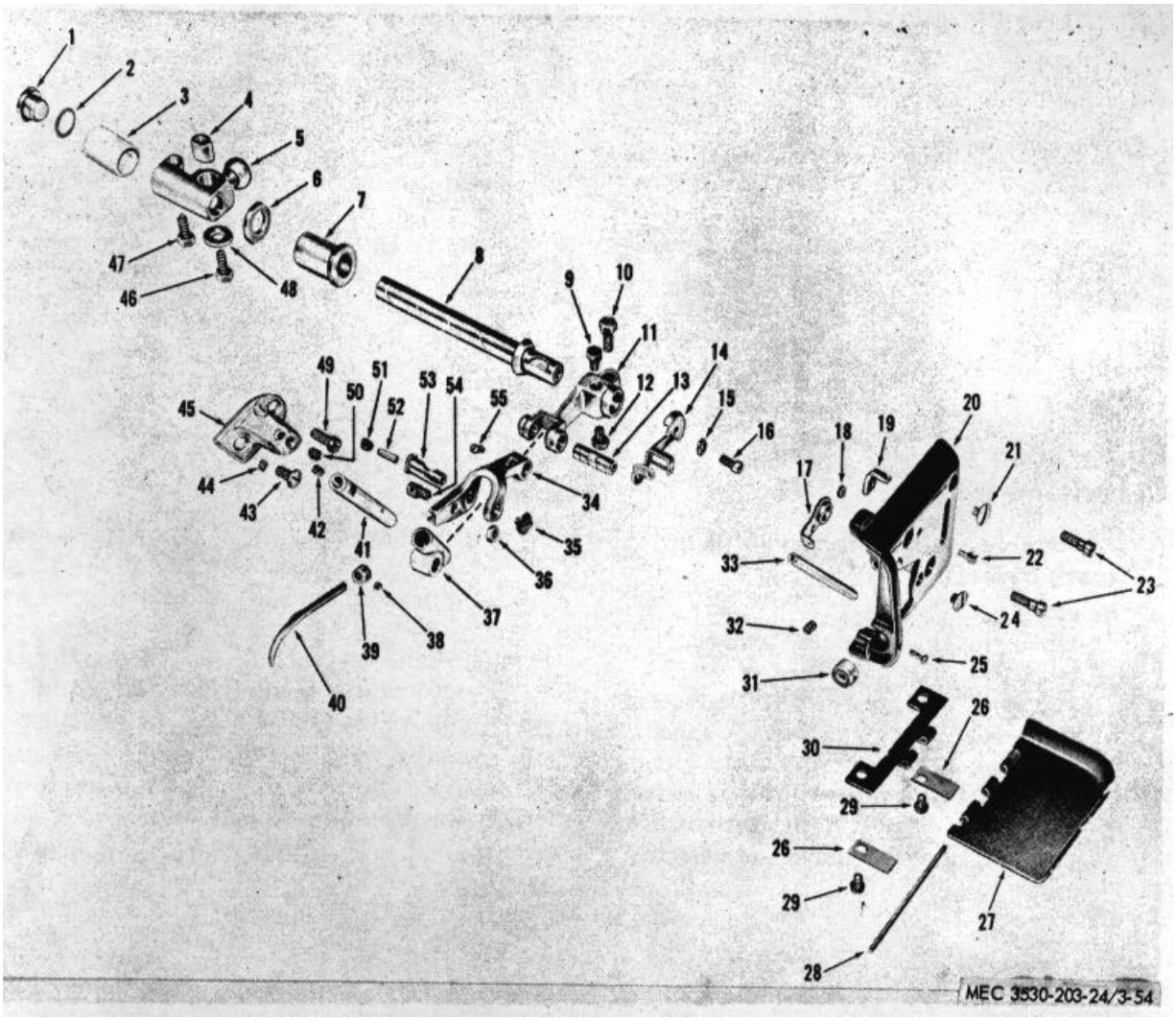
(3) Remove the screw (21) that secures the movable eyelet (19) to the thread plate (20) and remove the eyelet.

(4) Remove the screw (24) that secures the adjustable eyelet (17) to the thread plate (20) and remove the eyelet.

(5) Remove the nut (18) from the stationary thread eyelet (22), and remove the eyelet.

b. Installation. Replace defective eyelets with serviceable ones and install them by reversing the procedure in *a* above.

c. Adjustment. Refer to paragraph 3-94*e*.



1 Screw, rear bushing
2 Washer, rear bushing screw
3 Bushing, right thread looper drive shaft rear
4 Key, crank
5 Crank, looper drive shaft
6 Washer, crank key screw
7 Bushing, right thread looper drive shaft front
8 Shaft, right thread looper drive
9 Screw, lever
10 Screw, lever
11 Lever, right thread looper
12 Screw, lever
13 Pin, carrier hinge
14 Stripper and takeup, right thread looper
15 Washer, stripper and takeup screw
16 Screw, stripper and takeup
17 Eyelet, right thread looper thread takeup adjustable
18 Nut, stationary thread eyelet
19 Eyelet, movable right thread looper
20 Plate, thread
21 Screw, movable thread eyelet
22 Eyelet, right thread looper stationary thread
24 Screw, adjustable eyelet
25 Screw, thread bushing
26 Springs, thread looper thread plate cover
27 Cover, plate
28 Pin, hinge
29 Screws, cover spring
30 Hinge, cover
31 Bushing, left looper plate thread
32 Setscrew, thread tube
33 Tube, right thread looper thread
34 Carrier, right thread looper
35 Screw, connector hinge stud
36 Nut, looper locking stud
37 Connector, right thread looper carrier
38 Setscrew, positioning
39 Collar, right thread looper positioning
40 Looper, right thread
41 Bar, right thread looper carrier connector guide
42 Setscrew, guide bar plugging
43 Screw, left bracket
44 Setscrew, guide bar
45 Bracket, right thread looper carrier connector guide bar
46 Screw
47 Screw
48 Washer
49 Screw, right bracket
50 Setscrew
51 Setscrew, connector hinge screw
52 Pin, connector hinge stud adjusting
53 Stud, connector hinge
54 Stud, looper locking
55 Setscrew, carrier hinge pin

Figure .9-54. Right looper, crank, lever, and related parts.

3-100. Thread Plate Cover Springs

a. Removal.

(1) Remove the thread plate (para. 3-99*a*(1) and (2)).

(2) Remove two screws (29, fig. 3-54) that secure the thread plate cover springs (26) to the thread plate (20) and remove the springs.

b. Installation. Replace defective items with serviceable ones and install them by reversing the procedure in *a* above.

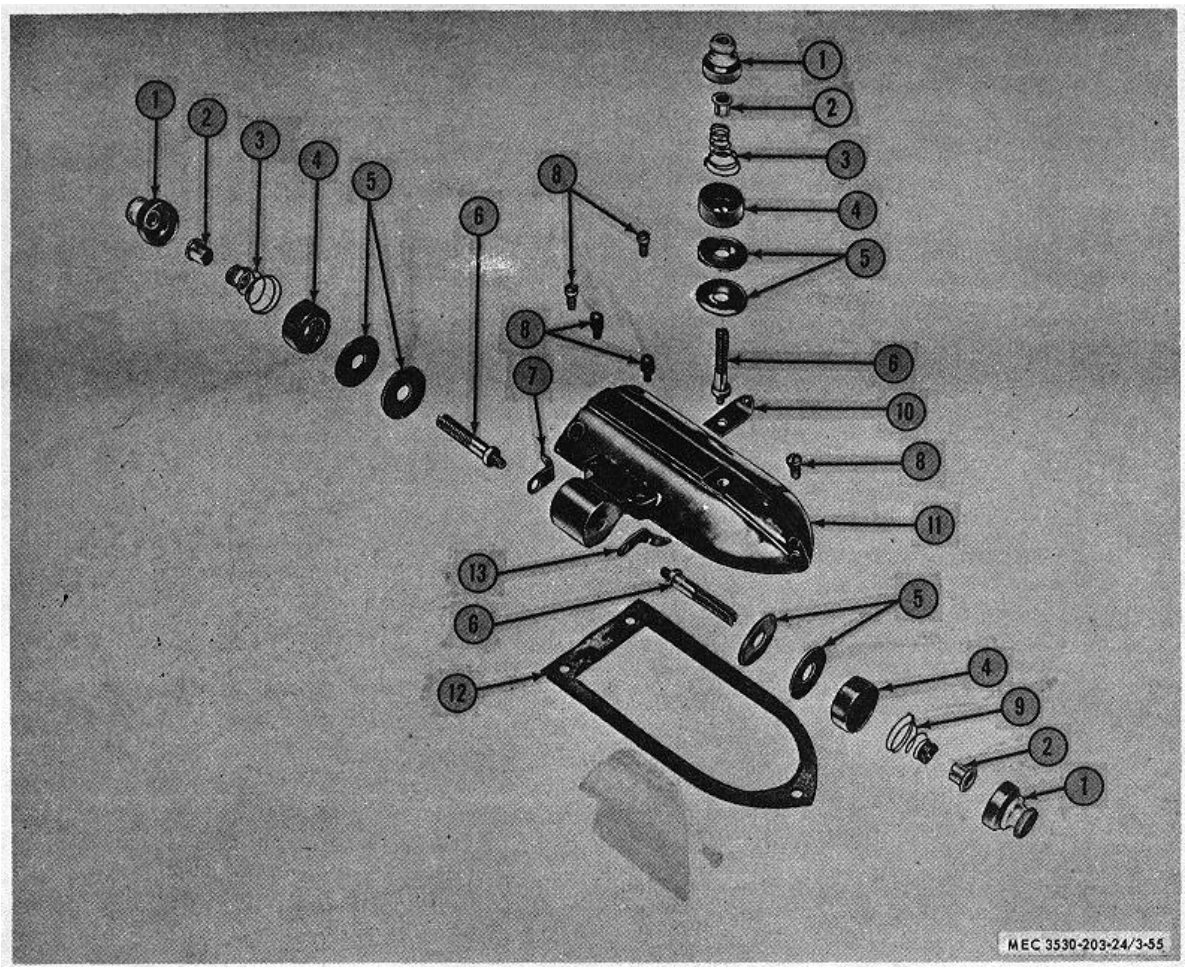
3-101. Thread Tension Stud, Thumb Nut; and Bushings

a. Removal.

(1) Unscrew and remove the thumb nuts (1, fig. 3-55) from the stud (6).

(2) Lift the bushings (2) from the springs (3 and 9).

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in *a* above.



1 Nuts, stud thumb
2 Bushings, thread tension spring
3 Springs, lift thread tension
4 Covers, thread tension spring
5 Disks, thread tension
6 Studs, thread
7 Guide, thread left looper thread tension
8 Screws, top cover
9 Springs, heavy thread tension
10 Guide, needle thread tension thread
11 Cover w/eyelets, oil lead and screw top
12 Gasket, top cover
13 Guide, thread right looper thread

Figure 3-55. Thread tension springs, disks, covers, and guide disassembled.

3-102. Thread Tension Springs

a. Removal. Remove the thumb nuts (1, fig. 3-55) and bushings (2) and lift springs (3 and 9) from their covers and remove them from the machine.

b. Installation. Replace defective items with serviceable ones and install them by reversing the procedure in *a* above.

3-103. Thread Tension Spring Covers, Disks, Studs, and Guides

a. Removal.

(1) Remove the spring covers (4, fig. 3-55) from the tension assembly and lift them and the disks (5) off the studs (6)

(2) Unscrew the studs (6) and separate them from the guides (7, 10, and 13).

b. Installation. Replace defective items with serviceable ones and install them by reversing the procedure in *a* above.

3-104. Oil Lead Cover

a. Removal. Remove the screws (8, fig. 3-55) that secure the oil lead cover (11) to the machine and lift the cover off, separating it from the gasket (12).

b. Installation. Replace defective items with serviceable ones and install them by reversing the procedure in *a* above.

3-105. Oil Cooler Cover and Gasket

a. Removal.

(1) Remove the screws (5, and 6, fig. 3-56) that hold the cover (3) to the oil cooler (8) and lift the cover (3) with gasket (7) and filler cup (4) from the machine.

(2) Unscrew and remove the filler cup (4) from the cover (3).

(3) Separate the gasket (7) from the cover (3).

b. Installation. Replace defective cover with serviceable one and install it by reversing the procedure in *a* above.

1 Screws, oil cooler long
2 Gasket, plug screw
3 Cover, oil cooler
4 Cup, filler
5 Screw, oil cooler cover
6 Screw, oil cooler short
7 Gasket, oil cooler cover
8 Cooler, oil
9 Gasket, oil cooler
10 Trough
11 Stud
12 Pipes, oil cooler
13 Screw
14 Tube
15 Wick
16 Bracket
17 Screen, frame oil
18 Gasket
19 Setscrew
20 Washer
21 Screws
22 Screws, oil screen
23 Bracket
24 Wick, oil cooler
25 Nut, oil tube
26 Screw
27 Tube, oil cooler
28 Setscrew

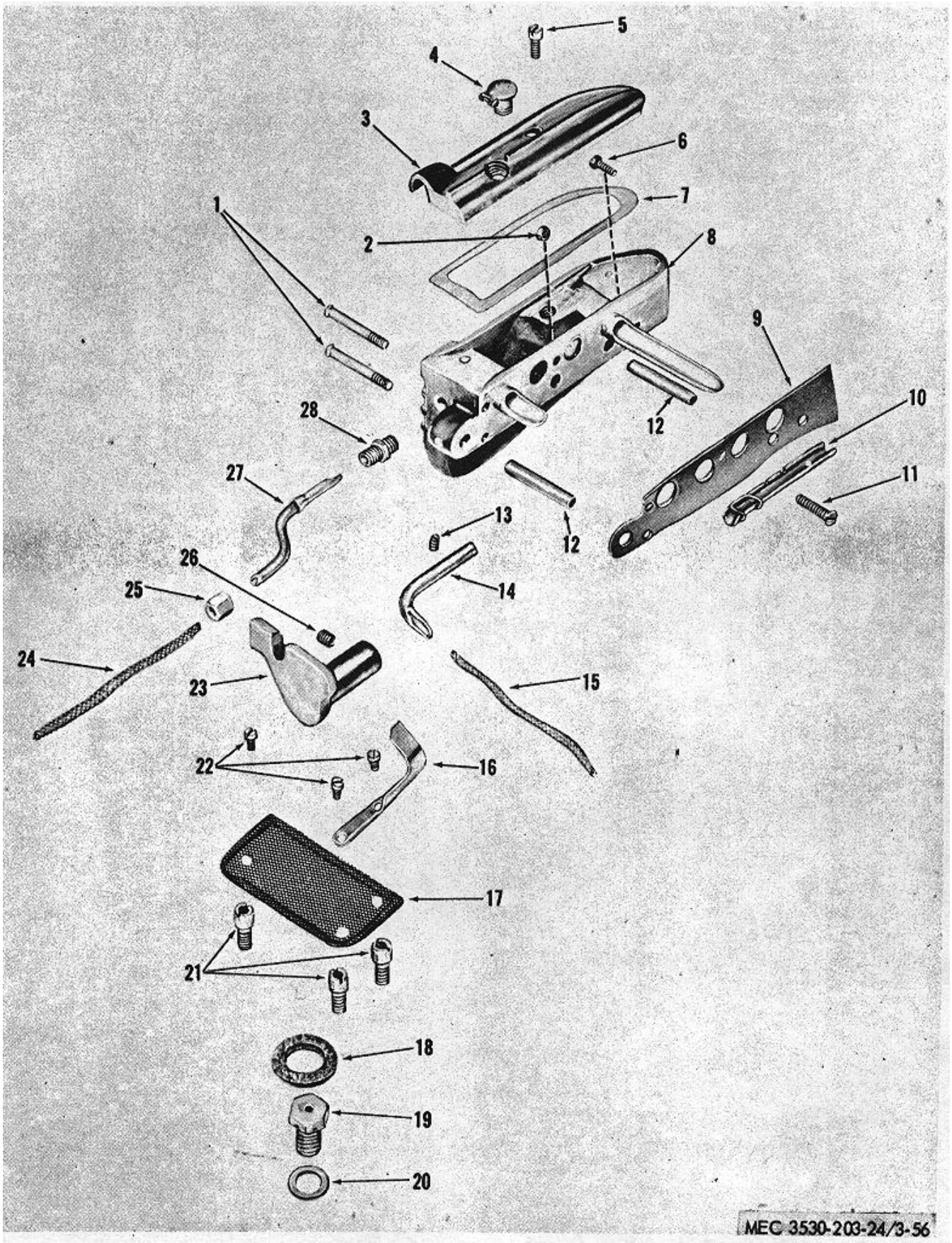


Figure 3-56. Overedge sewing machine frame oil cooler, disassembled.

3-106. Oil Screen

a. Removal.

(1) Swing out cloth plate (1, fig. 3-57).

(2) Swing out oil splash guard (3, fig. 3-49).

(3) Remove three screws (3, fig. 3-57) that secure the frame oil screen (17, fig. 3-56) to the machine bed, and remove the screen from the machine.

b. Installation. Replace defective screen with a serviceable one and install it by reversing the procedure in *a* above.

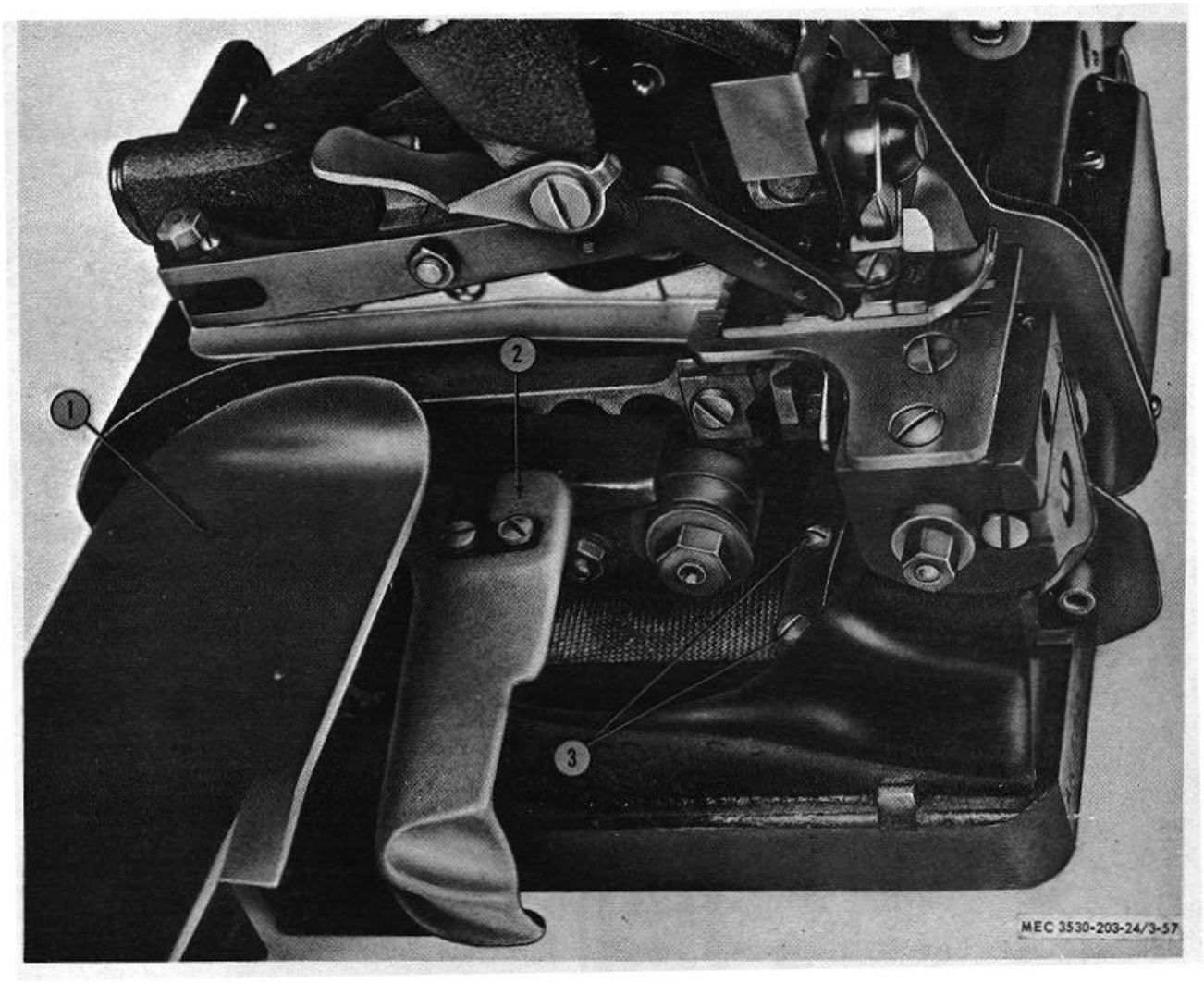


Figure 3-57. Oil screen.

3-107. Needle Thread Control

a. Removal.

(1) Swing out the cloth plate (1, fig. 3-57).

(2) Disengage presser bar and move it out and to the left.

(3) Remove two screws (7, fig. 3-49) that secure the oil splash guard (6) to the machine frame, and remove the oil splash guard.

(4) Remove two screws (5) that secure the needle thread control to the mov

able knife lever, and remove the thread control.

b. Installation. Replace defective thread control with a serviceable one and install it by reversing the procedure in *a* above.

3-108. Movable Knife and Holder

a. Removal.

(1) Remove the screw (7, fig. 3-58) the lower guard (6), the upper guard (5), and the clamp (4) that secure the knife (3) to the knife bearing, and lift out the movable knife.

(2) Remove the screw (2) that secures the knife holder (1) to the knife bearing and remove the holder.

b. Installation. Replace defective items with serviceable ones, and install them as follows:

(1) Slip knife into knife holder.

(2) Replace knife clamp, upper and lower guards, and knife clamp screw.

(3) Press movable knife downward against stationary knife, and securely tighten clamp screw.

(4) Turn drive shaft pulley over from operator until lowest point of movable knife just reaches cutting edges of stationary knife.

(5) Loosen stationary knife adjusting stud crew sufficiently to release knife holder spring, permitting stationary knife to make tight spring contact with movable knife.

(6) Tighten adjusting stud screws.

c. Adjustment. Adjust movable knife as follows:

(1) Remove movable knife clamp screw.

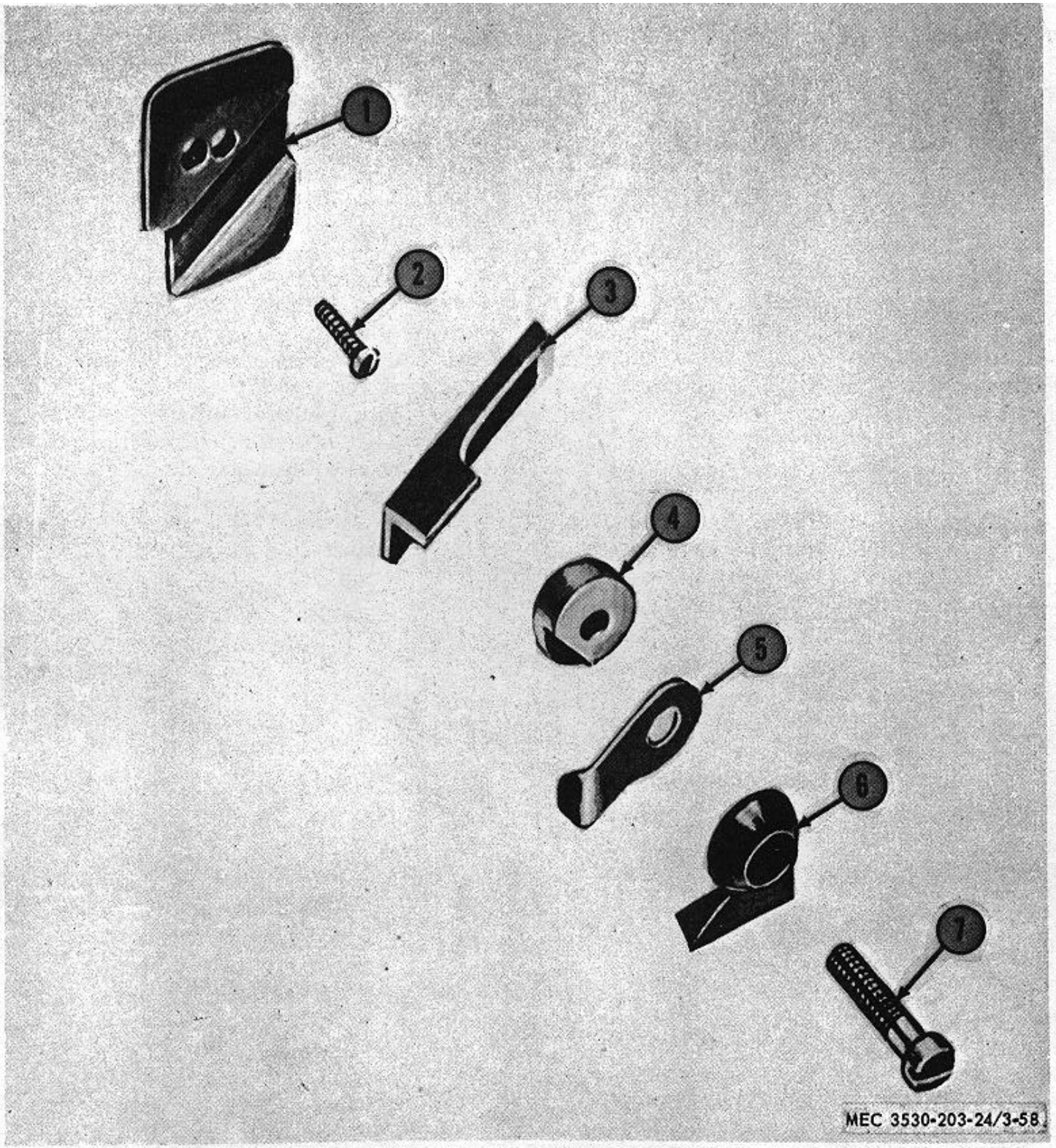
(2) Remove knife guards and knife clamp.

(3) Loosen knife holder screw.

(4) Move knife holder to right or left until cutting edge of movable knife, at its lowest point, is slightly below cutting edge of stationary knife.

(5) Tighten knife holder screw, and replace knife clamp, knife guards, and clamp screw.

(6) Press movable knife downward against stationary knife, and tighten clamp screw.



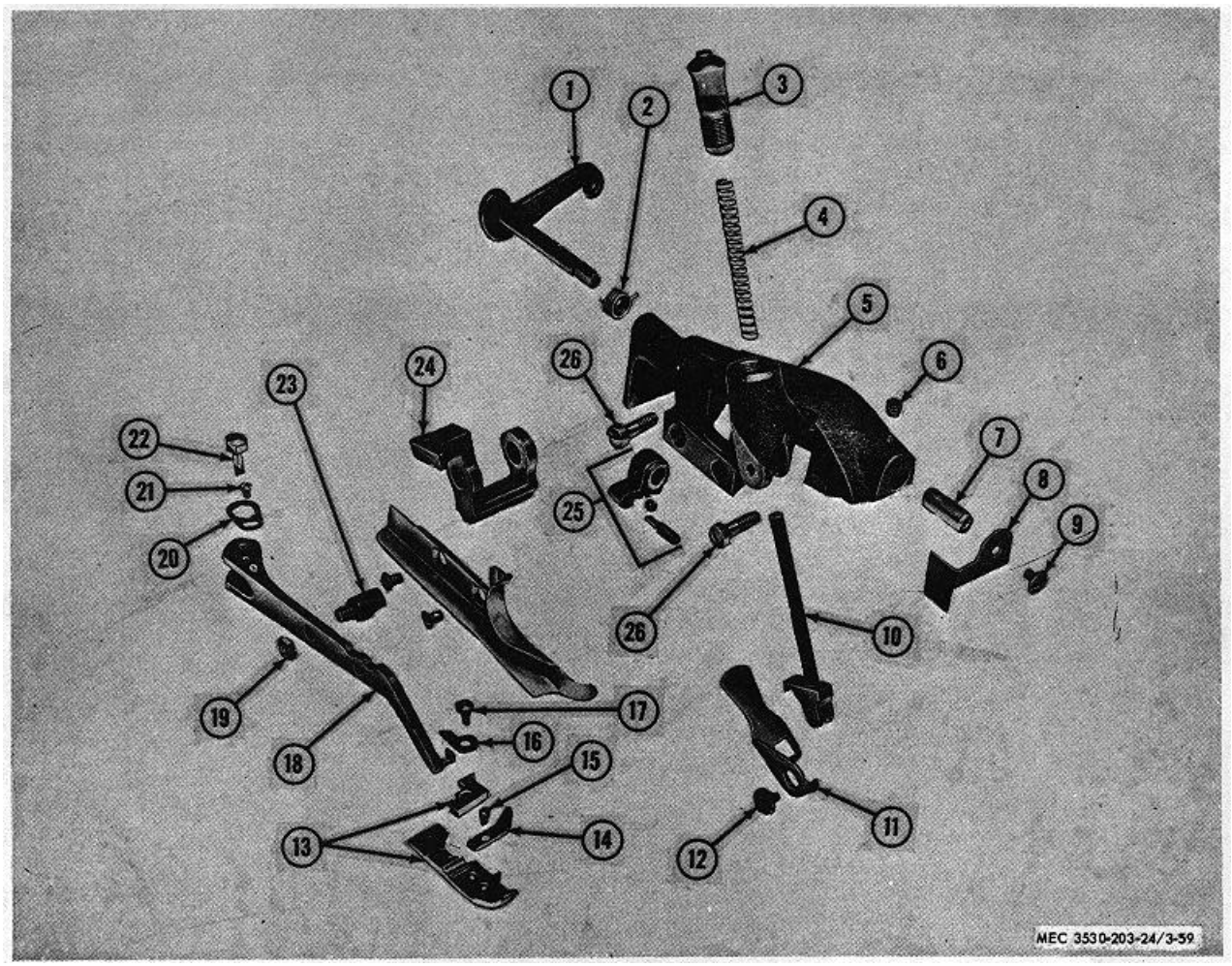
1 Holder, movable knife
2 Screw, knife holder
3 Knife, movable
4 Clamp, movable knife
5 Guard, movable knife upper
6 Guard, movable knife lower
7 Screw, knife clamp

Figure 3-58. Movable knife, disassembled.

3-109. Upright Presser Bar Thumbscrew and Spring

a. Removal. Remove the thumbscrew (3, fig. 3-59) from the presser bar housing (5) and lift out the presser bar lifting lever spring (4).

b. Installation. Replace the defective item with serviceable ones and install them by reversing the procedure in *a* above.



1 Lever, presser bar lifting
2 Spring, presser bar lifting lever
3 Thumbscrew, presser bar
4 Spring, upright presser bar
5 Housing, movable knife lever and presser bar
6 Setscrew, finger guard adapter
7 Adapter, finger guard
8 Guard, finger
9 Screw, guard
10 Bar, upright presser
11 Lever, presser bar swingout opening
12 Screw, opening lever hinge
13 Foot, presser
14 Guide, presser
15 Screw, guide
16 Plate, presser foot clamping
17 Screw, clamping plate
18 Presser bar, swingout
19 Nut, lifting stud
20 Lock, pivot screw
21 Screw, pivot screw lock
22 Screw, presser bar pivot
23 Stud, presser swingout lifting
24 Bracket, head presser bar
25 Bracket w/screws and stud, presser bar lifting
26 Screws, housing

Figure 3-59. Overedge sewing machine head, presser bar, and housing.

3-110. Finger Guard

a. Removal. Remove the screw (9, fig. 3-59) and take the finger guard (8) off the machine.

b. Installation. Replace defective finger guard with a serviceable one and install it by reversing the procedure in *a* above.

3-111. Swingout Presser Bar Opening Lever.

a. Removal. Remove the screw (12, fig. 359) that secures the opening lever (11) to the presser bar (10) and remove the lever.

b. Installation. Replace defective lever with a serviceable one and install it by reversing the procedure in *a* above.

3-112. Presser Foot, Clamping Plate, and Guide

a. Removal.

(1) Raise up on the opening lever and swing out the presser bar.

(2) Remove the screw (17, fig. 3-59) that secures the clamping plate (16) and the presser foot (13) to the swingout presser bar (18), and remove the presser foot and clamping plate from the presser bar.

(3) Remove the screw (15) and the guide (14) from the presser foot (13).

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in *a* above.

3-113. Needle Clamp, Nut, and Stop Pin

a. Removal.

(1) Remove the needle clamp (11, fig. 3-60) that secures the needle clamp (12) to the needle drive shaft (1) and remove the needle and the clamp

(2) Pull out the shaft stop pin (13).

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in *a* above.

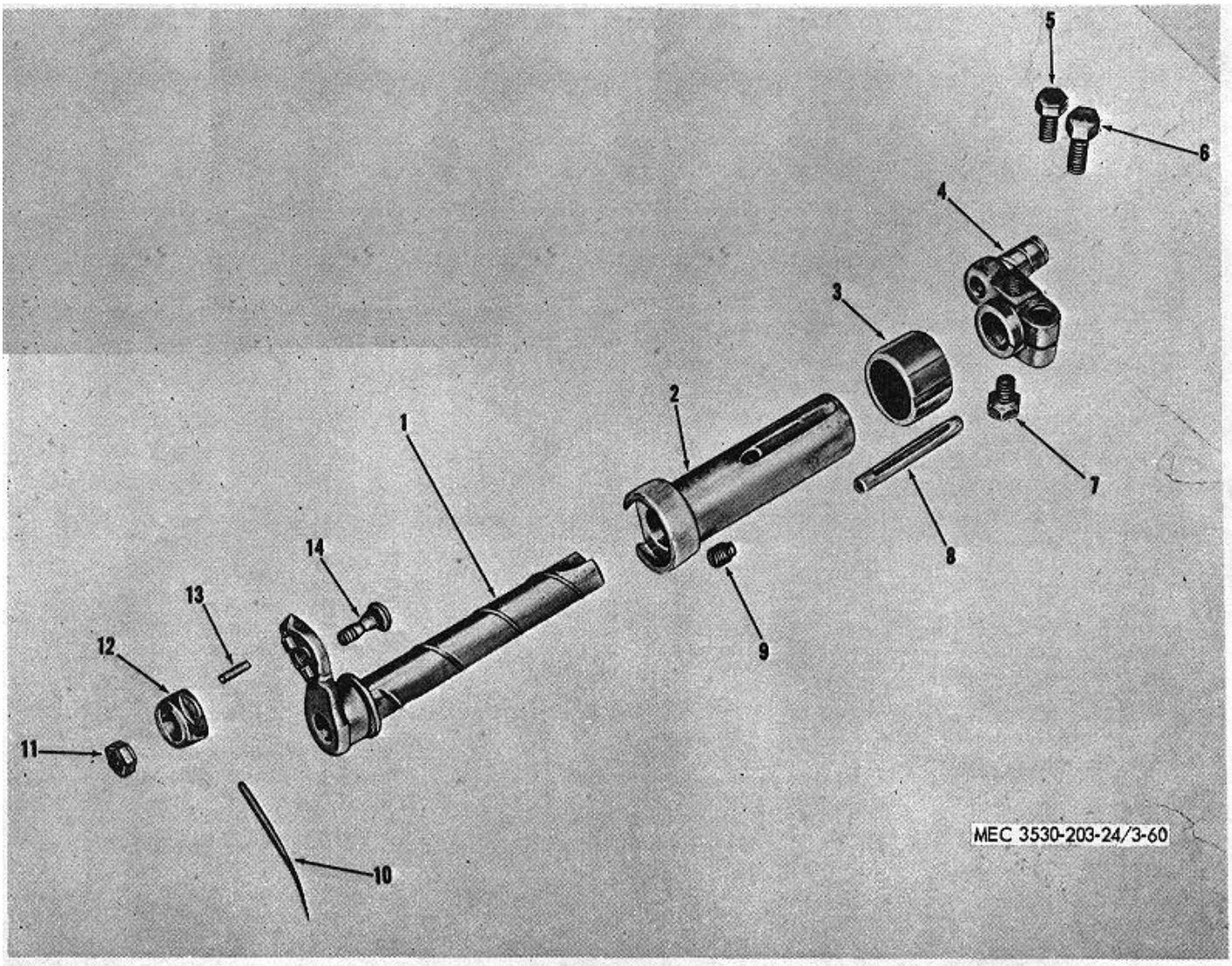


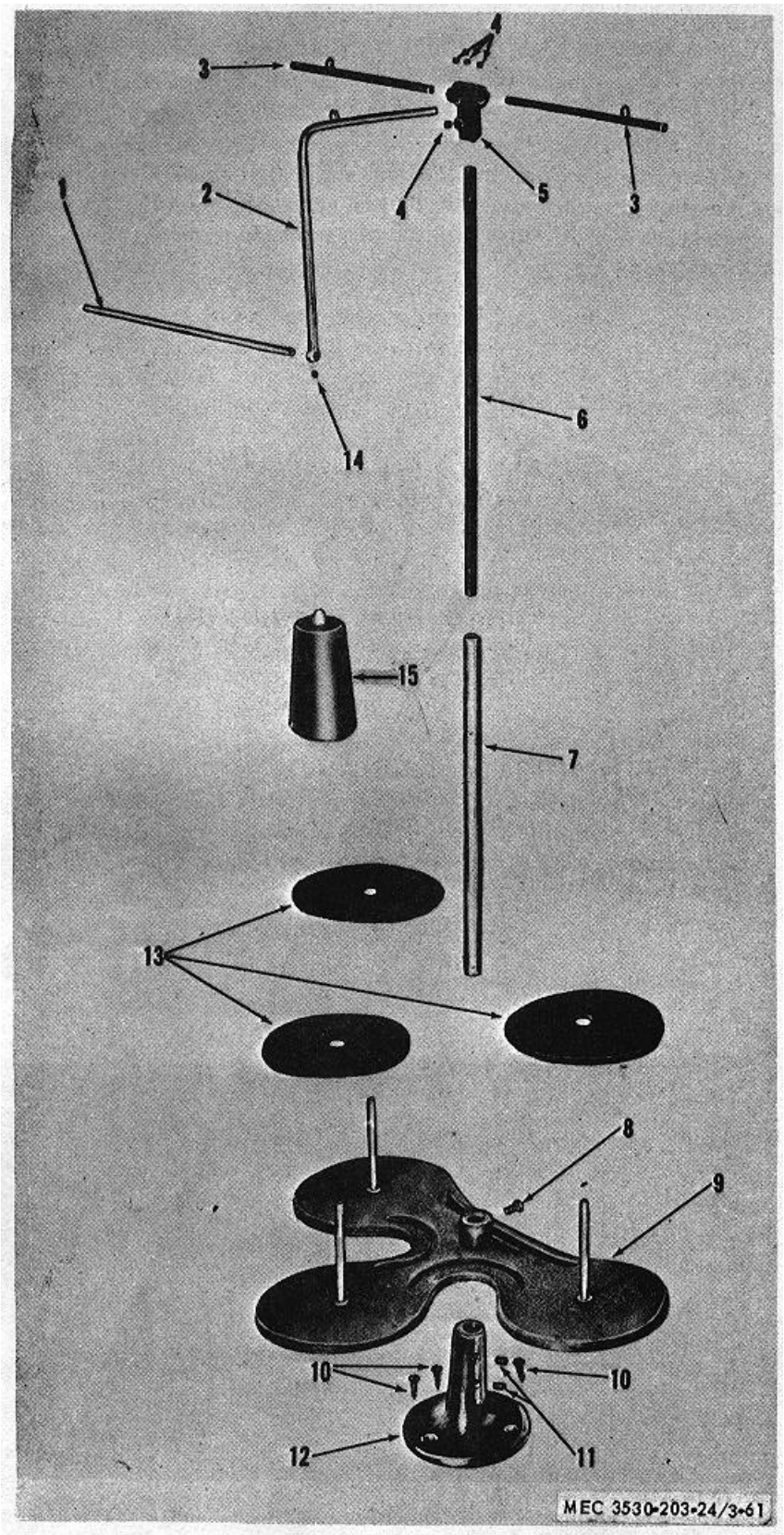
Figure 3-60. Overedge sewing machine needle drive shaft.

1 Shaft, needle drive
2 Bushing, needle drive shaft
3 Cap, needle drive shaft bushing
4 Crank, needle drive shaft
5 Setscrew, shaft crank
6 Screw, shaft crank
7 Setscrew, shaft crank
8 Lead, needle drive shaft bushing oil
9 Plug, needle drive shaft oil lead screw
10 Needle
11 Nut, needle clamp
12 Clamp, needle
13 Pin, shaft stop
14 Holder, needle

3-114. Three-Cone Thread Unwinder

a. Removal. Remove the three-cone thread unwinder by taking out the three wood screws (10, fig. 3-61) that secure it to the tabletop.

b. Installation. Replace defective thread unwinder with a serviceable one and install it by reversing the procedure in *a* above.



1 Guide, lower thread
2 Support, lower thread guide
3 Guides, upper thread
4 Setscrews, upper thread guide
5 Holder, upper thread guide
6 Rod, thread guide
7 Rod, thread cone rest
8 Setscrew, thread cone rest
9 Rest, thread cone
10 Screws, spool rest stand wood
11 Setscrews, thread cone rest rod
12 Stand, spool rest
13 Cushions, thread cone rest felt
14 Setscrew, lower thread guide
15 Cone, wood

Figure 3-61. Three-cone thread unwinder, disassembled.

3-115. Guides, Support, and Holder

a. Removal.

(1) Take out three setscrews (4, fig. 361) that secure the upper thread guides (3) and the lower thread guide support (2) to the upper thread guide holder (5).

(2) Remove the lower thread guide (1) from the support (2) by loosening the setscrew (14).

(3) Remove the setscrews (4) and the holder (5) from rod (6).

b. Installation. Replace defective items with serviceable ones and install them by reversing the procedure in a above.

3-116. Rods, Rest, Cushions, and Stand

a. Removal.

(1) Remove the guides, support, and holder from the thread unwinder (para. 3-115).

(2) Remove the setscrews (8 and 11, fig. 3-61) and remove the thread cone rest rod (7) and the rest (9) from the stand (12).

(3) Separate the rods (6 and 7) from the rest (9) and take the rod (6) out of the rod (7).

(4) Remove three thread cone rest cushions (13) from the thread cone rest (9).

(5) Lift the rest off the stand (12) and remove the stand from table top by taking out three wood screws (10).

b. Installation. Replace defective items with serviceable ones and install them by reversing the procedure in a above.

3-117. Thread Unwinder Wood Cone

a. Removal. One wood cone is provided for each of the uprights on the rest (9, fig. 3-61). They are removed by lifting them up and off the upright.

b. Installation. Replace defective cone with a serviceable one and install it by reversing the procedure in a above.

Section XI. TEXTILE SEWING MACHINE

3-118. General

This section covers the organizational maintenance instructions for the textile sewing machine. Any deficiencies which the organizational maintenance personnel are not authorized to correct must be reported as stipulated in TM 38-750.

3-119. Arm Cap

a. Removal. Unscrew and remove the arm capscrew that secures the arm cap to the arm, and remove the washer and lift it off the cap.

b. Installation. Reverse the procedure in a above.

3-120. Thread Guides

a. Removal.

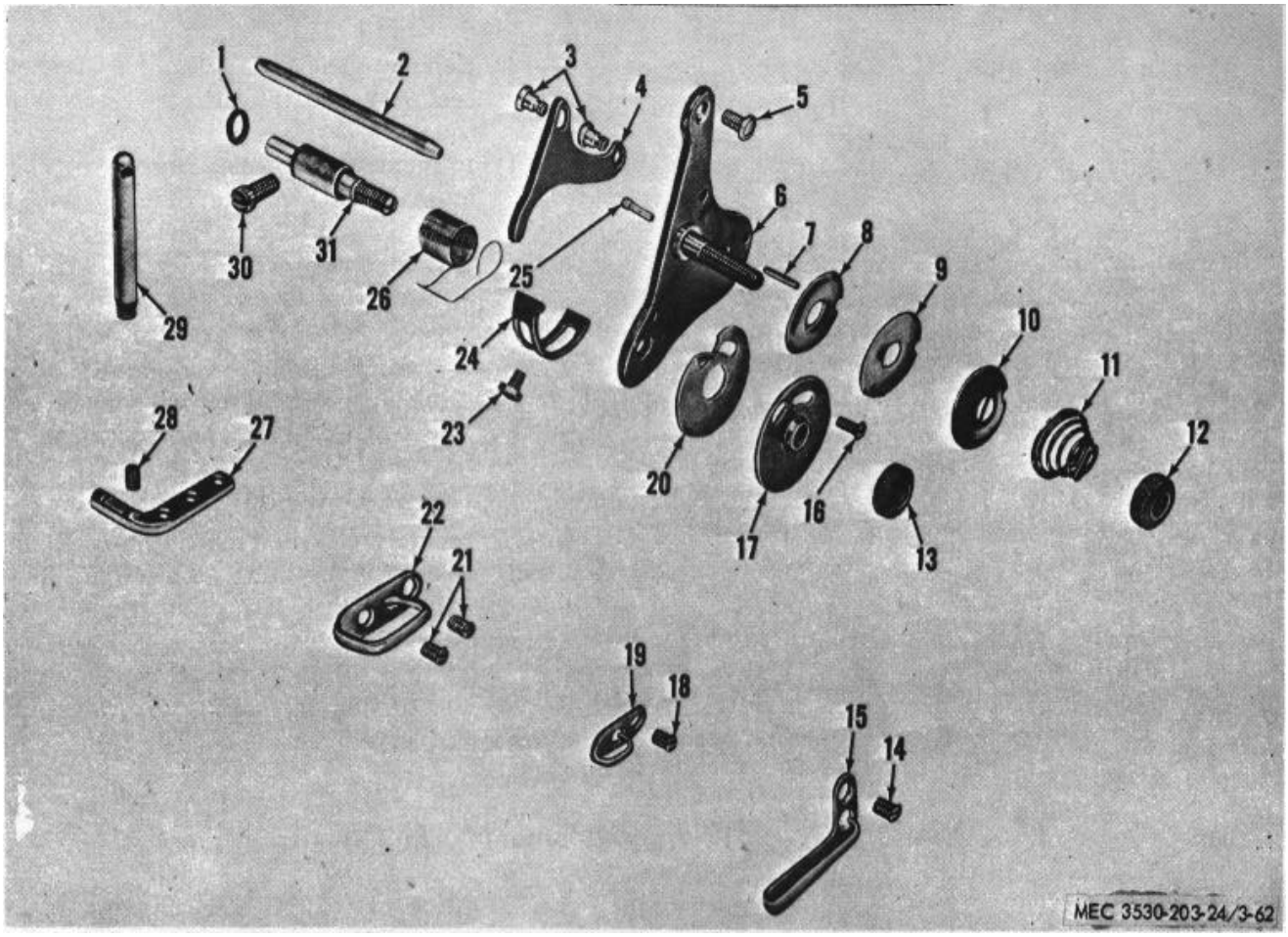
(1) Remove the intermediate side thread guide (19, fig. 3-62) by removing the screw (18) and take the guide off the machine arm.

(2) Remove the lower side thread guide (15) by removing the screw (14) and take the guide off the machine arm.

(3) Remove the upper side thread guide (22) by removing the two screws (21) and take the guide off the machine arm.

(4) Unscrew the top thread guide (29) and remove it from the top of the arm.

b. Installation. Replace defective guides with serviceable ones by reversing the procedure in a above.



1 Washer, thread controller stud
2 Rod, tension release lever
3 Screws, tension release lever
4 Lever, tension release
5 Screw, tension bracket
6 Bracket, tension
7 Pin, position, tension disk
8 Disk, thread tension
9 Disk, thread tension
10 Washer, thread tension release
11 Spring, thread control
12 Nut, thread tension adjusting thumb
13 Nut, control disk adjusting
14 Screw, thread guide
15 Guide, lower side thread
16 Screw, thread control disk
17 Disk, thread control
18 Screw, thread guide
19 Guide, intermediate side thread
20 Disk, thread control
21 Screws, thread guide
22 Guide, upper side thread
23 Screw, thread controller spring stop
24 Stop, thread controller spring
25 Plunger, tension release
26 Spring, thread control
27 Retainer, thread
28 Setscrew, thread retainer
29 Guide, arm top thread
30 Setscrew, thread controller stud
31 Stud, thread control disk

Figure 3-62. Tension assembly and thread guides, disassembled.

3-121. Thread Retainer

a. Removal. Remove the retainer setscrew (28, fig. 3-62) and take the retainer off the machine arm.

b. Installation. Replace defective retainer with a serviceable one by reversing the procedure in a above.

3-122. Drive Pulley With Balance Wheel

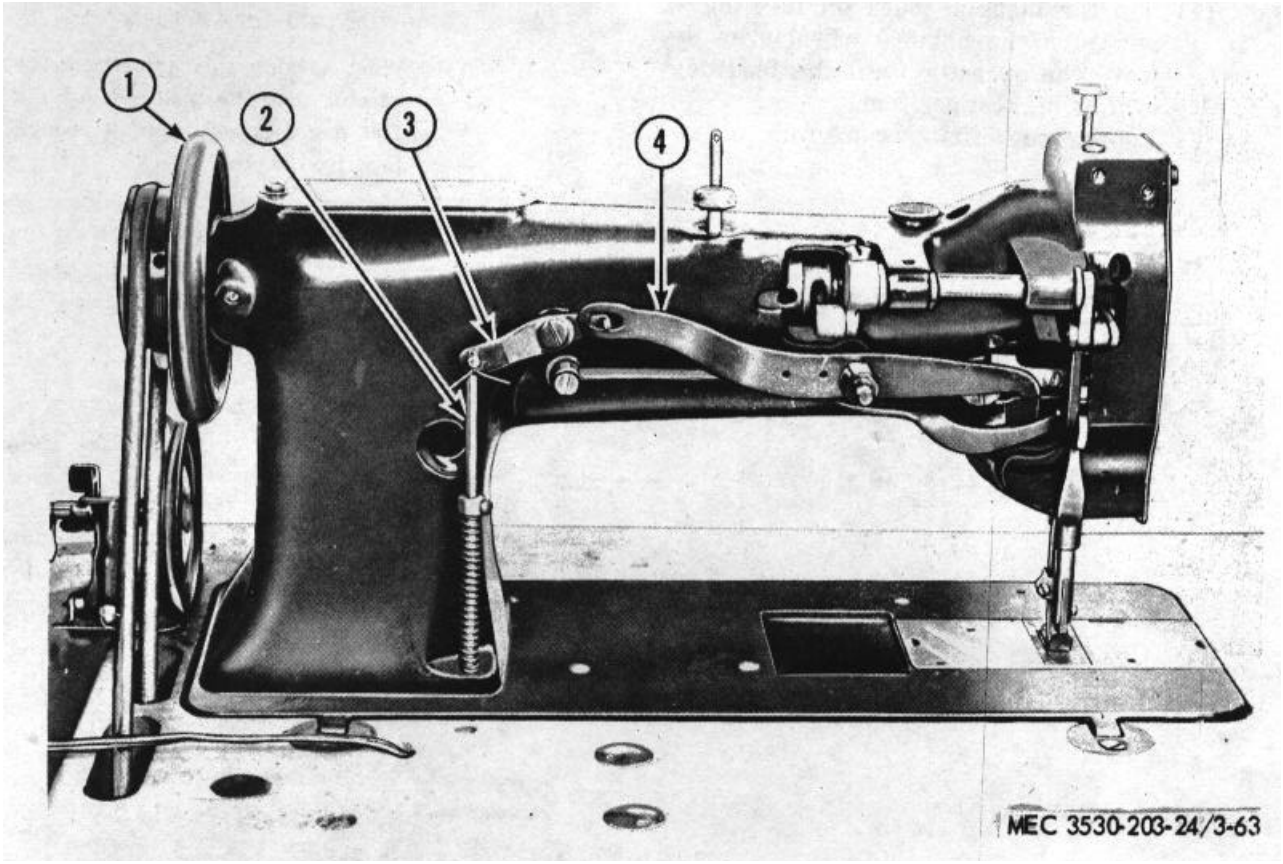
a. Removal.

(1) Slide round belt off drive pulley with balance wheel (1, fig. 3-63).

(2) Remove adjusting screw from end of arm shaft.

(3) Remove setscrews that attach drive pulley with balance wheel to arm shaft, and remove drive pulley with balance wheel.

b. Installation. Replace defective parts with serviceable ones by reversing procedure in a above.



1 Pulley with balance wheel, arm shaft drive
2 Rod, lifting
3 Lever, lifting
4 Lever, connection

Figure 3-63. Textile sewing machine head, rear view.

3-123. Drive Shaft Oil Wick

a. Removal.

(1) Remove the faceplate by removing the thumbscrew which secures it to the machine.

(2) Remove oil wick screw from end of the drive shaft.

(3) Pull the wick from the drive shaft.

b. Installation. Reverse the procedure in a above.

3-124. Front Bushing Drive Shaft Oil Wick

a. Removal. Unscrew the thumbscrew that holds the wick to arm, and remove the wick.

b. Installation. Replace defective parts with serviceable ones by reversing the procedure in*a* above.

3-125. Front and Rear Slides, Throat Plate, and Feed Dog

a. Removal.

(1) Remove front and rear slides (1 and 4, fig. 3-64) from machine bed.

(2) Remove screws (2) that attach throat plate (15) to machine bed, and remove throat plate.

(3) Remove screws (3) that attach feed dog (14) to feed bar (13), and remove feed dog.

b. Installation. Replace defective parts with serviceable ones by reversing the procedure in a above.

c. Adjustment. Adjust the feed dog as follows:

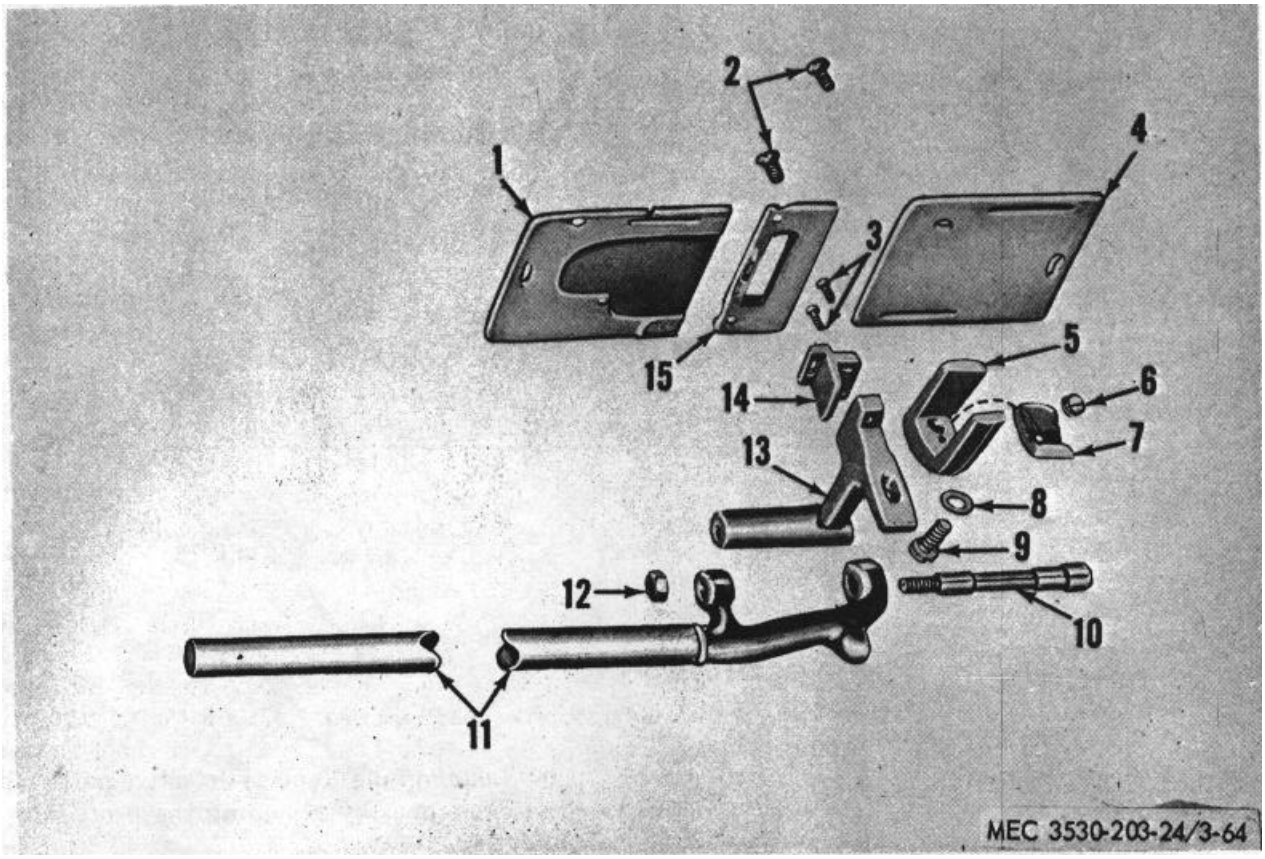
(1) Tip the machine back on its hinges, and turn the balance wheel over toward the operator until the feed dog is at its highest position.

(2) Loosen the lifting cam fork screw (9).

(3) Raise or lower the feed bar (13) as necessary to make the feed dog stand the distance of a tooth above the throat plate when the dog is at its highest position.

(4) Tighten the cam fork screw.

Note. When making this adjustment, be careful that the underside of the feed dog does not drop low enough to strike the hook.



1 Slide, front
2 Screws, throat plate
3 Screws, feed dog
4 Slide, rear
5 Fork, feed lifting cam
6 Screw, feed lifting cam oiling felt
7 Pad, feed lifting cam oiling
8 Washer, feed lifting cam fork screw
9 Screw, feed lifting cam fork
10 Screw, feed driving connection hinge
11 Rockshaft feed driving
12 Nut, feed driving connection hinge screw
13 Bar, feed
14 Dog, feed
15 Plate, throat

Figure 3-64. Feed bar, fork, and rockshaft.

3-126. Shuttle Bobbin and Case and Thread Hook

a. Removal and Disassembly.

(1) Remove feed dog (para. 3-125a).

(2) Remove bobbin (3, fig. 3-65) from the machine.

(3) Remove screws (1) that attach thread hook gib (2) to thread hook

(39), and remove thread hook gib.

(4) Remove bobbin case (7).

(5) Remove bobbin case latch (4), plunger (5), and latch spring (6) from the bobbin case.

(6) Unscrew tension spring screw (40) and tension spring regulating screw (41) that attach fiat tension spring (42) to bobbin case, and remove flat tension spring.

(7) Unscrew retainer screws (43) that attach oiling retainer (44) to bobbin case, and remove felt retainer (44) to bobbin case, and remove felt retainer.

(8) Remove screw stud (8) that attaches bobbin case opener (34) to bobbin case opener lever (33), and remove bobbin case opener.

(9) Tilt the machine head back and loosen positioning screw (28) and setscrew (29) that attach hook driving pinion to thread hook shaft, and remove thread hook (39) from hook saddle (11).

(10) Remove bobbin case opener lever link (36).

(11) Remove setscrew that attaches bobbin case opener lever hinge stud (9) to hook saddle (11), and remove the opener lever (33) and lever hinge stud from hook saddle. Remove the lever hinge stud from the lever.

(12) Remove nut (10) that attaches opener lever driving screw (12) stud to opener lever, and remove opener lever driving screw stud.

b. Assembly and Installation. Replace defective parts with serviceable one an(. assemble and install them reversing the procedure in a above.

c. Adjustment. Adjust the hook with the needle as follows:

(1) Remove the slide plates and throat plate.

(2) Check the needle for correct size and for proper installation. See that it is up in the needle bar as far as it will go.

(3) Turn the balance wheel toward the operator until the needle is raised 3/32 inch. At this point, the hook should be directly in line with the needle.

(4) If the hook point does not line up with the needle, loosen the setscrew (5, fig. 3-66) and positioning screw (4) in the hook drive pinion (1). Move the gear slightly to the right or left to aline the hook point with the needle. Tighten the setscrew and positioning screws.

(5) If the hook is too far out of time, the following steps will have to be performed. The drive gear (14) must be disengaged from the hook drive pinion and the pinion must be moved either forward or backward until there are enough teeth to get the proper timing. This adjustment is made in the following manner:

(a) Loosen setscrew (7) and positioning screw (8) that hold drive gear to hook driving shaft.

(b) Loosen hook saddle screws (10 and 13) that attach hook saddle to machine bed.

(c) Slide drive gear to the left and hook saddle (11) to the right until the drive gear and hook drive pinion (1) become disengaged.

(d) Move the hook backward or forward to obtain proper timing. Slide the hook driving gear and saddle back in position, check the timing, and make final adjustments.

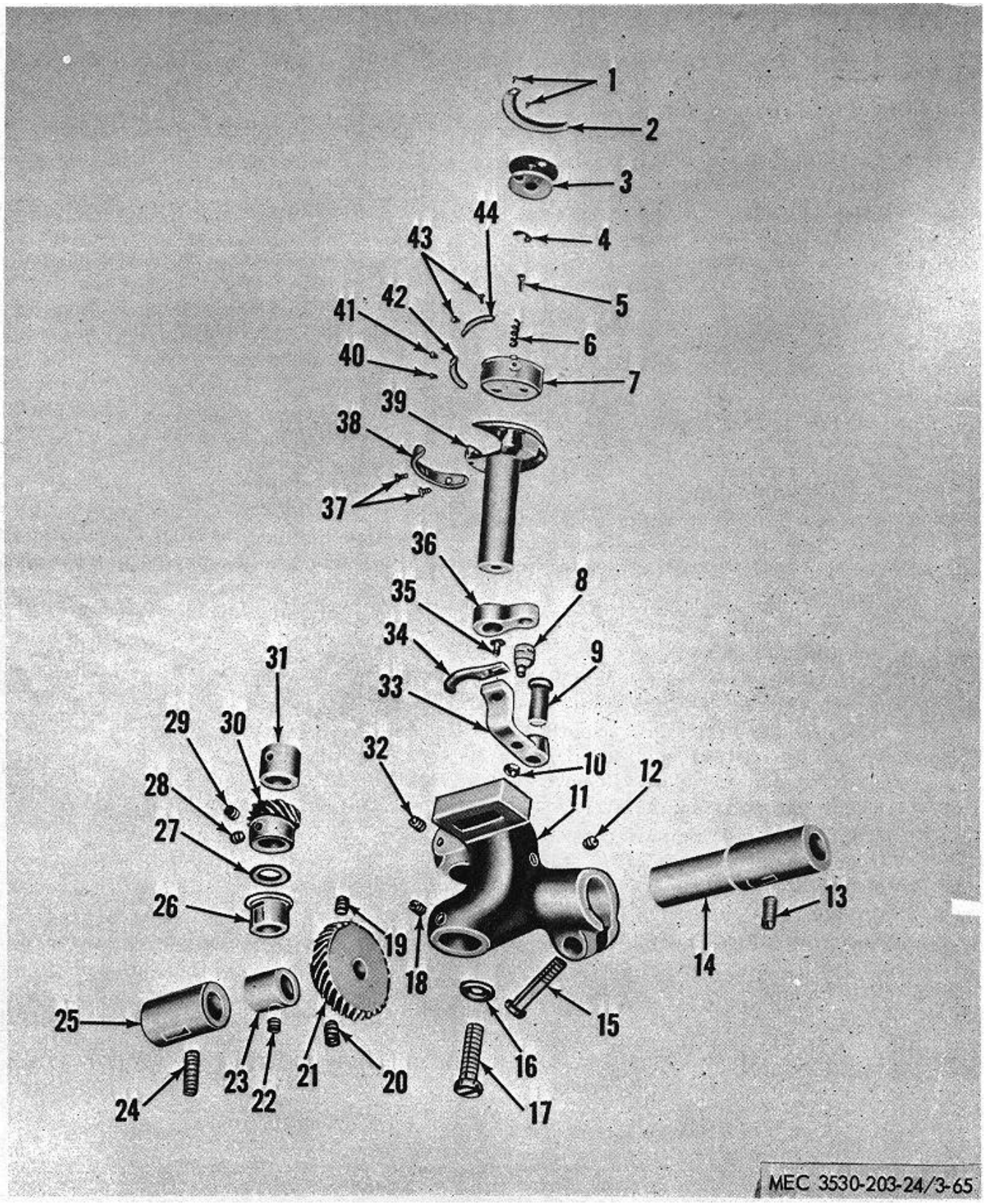
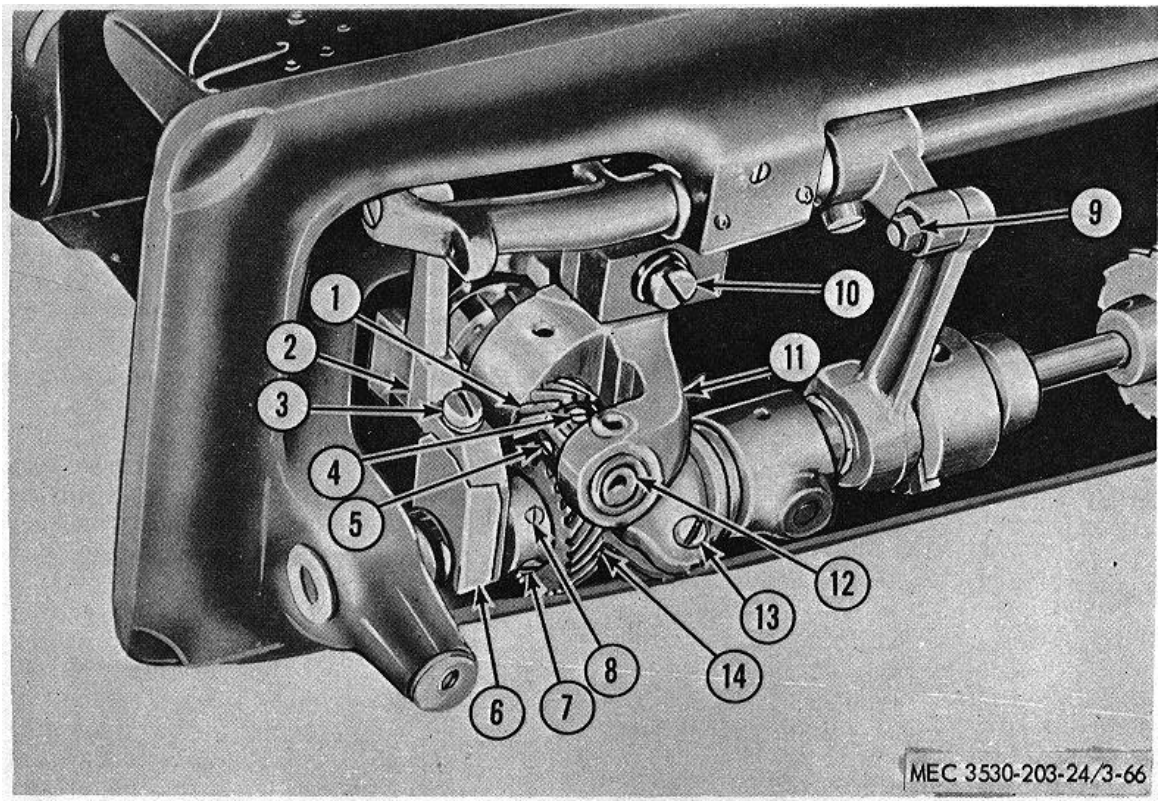


Figure 3-65. Thread hook and bobbin, disassembled.

1 Screws, thread hook gib
2 Gib, thread hook
3 Bobbin
4 Latch, bobbin case
5 Plunger, bobbin case latch
6 Spring, bobbin case latch
7 Case, bobbin
8 Stud, bobbin case opener lever driving screw
9 Stud, bobbin case opener lever hinge
10 Nut, screw stud
11 Saddle, thread hook
12 Screw, hook bushing position
13 Setscrew, thread hook saddle bearing
14 Bearing, tread hook saddle
15 Screw, thread hook saddle
16 Washer, hook saddle screw
17 Screw, hook saddle
18 Setscrew, thread hook saddle lower bushing
19 Setscrew, thread hook spiral drive gear
20 Screw, thread hook spiral drive gear positioning
21 Gear, drive
22 Setscrew, feed lifting cam
23 Cam, feed lifting arm
24 Setscrew, thread hook drive shaft bushing
25 Bushing, thread hook drive shaft
26 Bushing, hook saddle, lower
27 Washer, hook driving pinion
28 Screw, hook driving pinion positioning
29 Setscrew, thread hook drive pinion
30 Pinion, thread hook drive
31 Bushing, upper hook saddle
32 Screw, thread hook saddle, upper bushing positioning
33 Lever, bobbin case opener
34 Opener, bobbin case
35 Screw, bobbin case opener
36 Link, bobbin case opener lever oiler felt
37 Screw, thread hook needle guard
38 Guard, thread hook needle
39 Hook, thread
40 Screw, bobbin case tension spring
41 Screw, bobbin case tension spring regulating
42 Spring, bobbin case tension
43 Screw, bobbin case oiling retainer
44 Retainer, bobbin case

Figure 3-65 Continued



1 Pinion, thread hook drive
2 Bar, feed
3 Screw, feed lifting cam fork
4 Screw, hook driving pinion positioning
5 Setscrew, thread hook drive pinion
6 Fork, feed lifting cam
7 Setscrew, thread hook drive gear
8 Screw, thread hook spiral drive gear positioning
9 Nut
10 Screw, hook saddle
11 Saddle, thread hook
12 Shaft, thread hook
13 Screw, pinch thread hook saddle
14 Gear, drive

Figure 3-66. Thread hook and saddle installed.

3-127. Thread Tension Disks and Bracket Assembly

a. Removal and Disassembly.

(1) Remove bracket screw (1, fig. 3-67) and adjusting thumb nut (4), and remove tension bracket assembly (9) from machine arm.

(2) Remove level screws s (3, fig. 3-62) from tension bracket (6). Remove release lever' (4) and tension release plunger (25) from tension bracket.

(3) Remove screw (16) that attaches thread control disks (17 and 20) to tension bracket, and remove thread control disks an(d control spring (26).

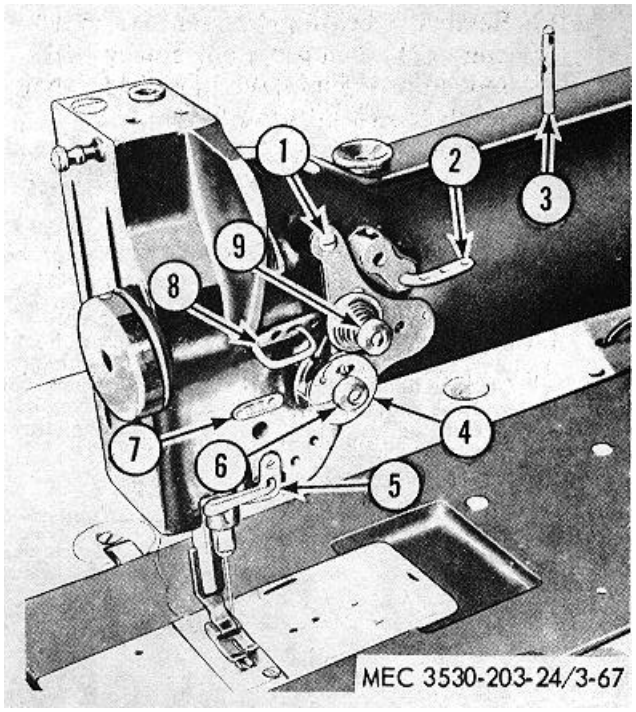
(4) Unscrew adjusting thumb nut (12) from thread tension adjusting stud.

Remove thread control spring (11), tension release washer (10), and thread tension disks (8 and 9) from adjusting stud.

(5) Remove thread controller stud setscrew (30) and remove thread control stud (31). Remove stud washer (1) from stud.

(6) Remove stop screw (23) and spring stop (24) from machine arm.

b. Assembly and Installation. Replace defective parts with serviceable parts and assemble and install them by reversing procedure in a above.



1	Screw, tension bracket	6	Stud, thread control disk
2	Retainer, thread	7	Guide, intermediate side thread
3	Guide, arm top thread	8	Guide, upper side thread
4	Nut, control disk adjusting thumb	9	Bracket assembly, tension
5	Guide, lower side thread		

Figure 3-67. Thread guide and bracket assembly, installed.

3-128. Needle Bar and Rock Frame

a. Removal and Disassembly.

(1) Remove faceplate thumbscrew (55, fig. 3-68) and remove faceplate (53) from machine face.

(2) Remove screw (42) that attaches lifting presser foot (41) to lifting presser bar (413), and remove presser foot.

(3) Remove needle setscrew (37) and pull needle from the needle bar (34).

(4) Remove vibrating presser foot screw (.10) that attaches vibrating presser foot (38) to vibrating presser bar (11).

(5) Unscrew needle bar thread guide screw (36) and remove needle bar thread guide (35) from needle bar.

(6) Remove positioning bracket screw (45) that attaches positioning bracket (44) to machine face, and remove positioning bracket.

(7) Remove stud setscrew (48) and pull hinge stud (47) from machine head.

(8) Remove lifting bellcrank screw (62) from presser bar lifting bracket (67) and slide bellcrank (63) off vibrating presser bar connecting links (64 and 68).

(9) Pull vibrating presser bar connecting links off vibrating presser bar and from stud on end of vibrating presser bar shaft.

(10) Remove regulating thumbscrew (5) from machine head.

(11) Slide vibrating presser bar clown to its lowest position.

(12) Remove needle bar rock frame (46) and needle bar rock frame slide block (33) from the machine face.

(13) Remove vibrating presser bar extension (7), compression spring (8), and vibrating presser bar (11) from needle bar rock frame (46).

(14) Remove screw (17) in needle bar connecting stud (18) and slide needle bar from needle bar rock frame.

b. Assembly and Installation. Replace defective parts with serviceable ones and assemble and install them by reversing procedure in a above.

c. Adjustment. Raise or lower needle bar by following procedure below:

(1) Check the needle for proper size.

(2) Loosen the needle setscrew (37) and push the needle up into the needle bar as far as it will go.

(3) Turn the balance wheel toward the operator until the sewing hook is directly in line with needle. If properly adjusted, the needle eye is A16 inch below the hook.

(4) If adjustment is needed, remove the faceplate (53) and loosen the screw (17) in the needle bar connecting stud (18). Raise or lower the needle bar (34) as required. Tighten the screw.

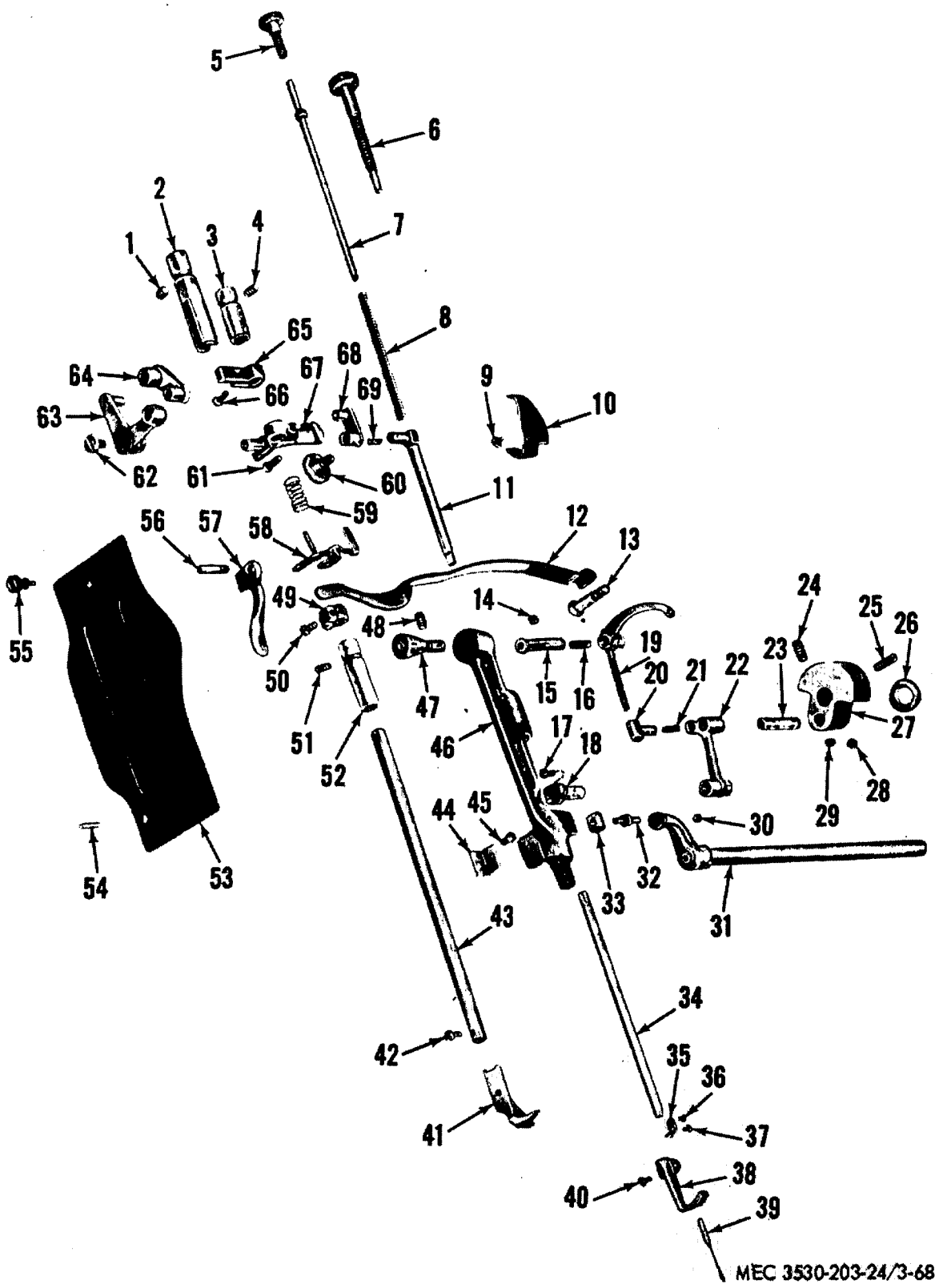


Figure 3-68. Faceplate, needle bar, lifting presser bar, and related parts.

1 Setscrew, presser bar position guide
2 Guide, presser bar positioning
3 Bushing, upper presser bar
4 Setscrew, presser bar bushing
5 Thumbscrew, vibrating presser bar pressure regulating
6 Screw, presser bar flat spring regulating
7 Extension w/collar and pin vibrating presser bar
8 Spring, vibrating presser bar
9 Screw, needle bar connecting link oil guard
10 Guard, connecting link oil
11 Bar, vibrating presser
12 Spring, lifting presser bar
13 Screw, presser bar flat spring
14 Setscrew, thread takeup lever hinge
15 Stud, thread takeup lever hinge
16 Wick, thread takeup lever hinge stud oil
17 Screw, needle bar connecting stud
18 Stud, needle bar connecting
19 Lever, thread takeup
20 Stud, thread takeup lever drive
21 Wick, thread takeup lever drive stud oil
22 Link, needle bar connecting
23 Stud, needle bar connecting link
24 Setscrew, needle bar drive crank
25 Setscrew, needle bar drive crank
26 Washer, needle bar drive crank
27 Crank, needle bar drive
28 Setscrew, side needle bar connecting link stud
29 Setscrew, bottom needle bar connecting link stud
30 Setscrew, needle bar rock frame slide block stud
31 Rockshaft, needle bar rock frame
32 Stud, needle bar rock frame slide block
33 Block, slide needle bar rock frame
34 Bar, needle
35 Guide, needle bar thread
36 Screw, needle bar thread guide
37 Setscrew, needle
38 Foot, vibrating presser
39 Needle
40 Screw, vibrating presser foot
41 Foot, lifting presser
42 Screw, lifting presser foot
43 Bar, lifting presser
44 Bracket, needle bar rock frame positioning
45 Screw, needle bar rock frame positioning bracket
46 Frame, needle bar rock
47 Stud, needle bar rock frame hinge
48 Setscrew, needle bar rock frame hinge stud
49 Bracket, presser bar spring
50 Screw, presser bar spring bracket
51 Setscrew, lower presser bar
52 Bushing, lower presser bar
53 Faceplate
54 Pin, faceplate positioning
55 Thumbscrew, faceplate
56 Screw, presser bar lifter
57 Lifter, presser bar
58 Slide, thread tension release
59 Spring, thread tension release
60 Screw, presser bar lifting bracket guide
61 Screw, presser bar lifting bracket
62 Screw, lifting bellcrank
63 Bellcrank, vibrating presser bar lifting
64 Link, vibrating presser bar connecting
65 Lever, vibrating presser bar guide
66 Screw, vibrating presser bar
67 Bracket, presser bar lifting
68 Link, vibrating presser bar connecting
69 Wick, vibrating presser bar connecting link oil

3-129. Lifting Presser Bar

a. Removal and Disassembly.

(1) Release the presser bar lifter (57, fig. 3-68) from the machine.

(2) Remove faceplate thumbscrew (55) and slide faceplate (53) from machine face.

(3) Remove screw (42) that attaches lifting pre, -r foot (41) to lifting presser bar (43) and remove lifting presser foot.

(4) Remove lifting bellcrank screw (62) from presser bar lifting bracket (67) off vibrating presser bar connecting links (64 and 68).

(5) Use the access hole in the back of machine face and loosen the presser spring bracket screw (50) in the presser bar spring bracket (49).

Loosen presser bar lifting bracket screw (61) in the presser bar lifting bracket (67). Loosen screw (66) in the lifting presser bar guide lever (65).

(6) Remove lifting presser bar (43) out through the top of the machine face.

(7) Remove vibrating presser bar guide lever (65), presser bar lifting bracket (67), thread tension release slide (58), thread tension release spring (59), and presser bar spring bracket (49).

(8) Remove setscrews (4 and 51) that attach upper and lower presser bar bushings (3 and 52) to machine face and remove bushings.

(9) Remove setscrew (1) that attaches presser bar positioning guide to machine face and remove guide.

(10) Remove spring screw (6), bracket guide screw (60), and support screw (13) from machine arm, and remove flat spring (12).

b. Assembly and Installation. Replace defective parts with serviceable ones and assemble and install them by reversing procedure in a above.

3-130. Thread Takeup Lever

a. Removal.

(1) Remove faceplate thumbscrew (55,

fig. 3-68) that holds the faceplate to the machine and remove faceplate.

(2) Remove needle bar and rock frame (para. 3-128).

(3) Unscrew the connecting link oil guard screw (9) that attached oil guard (10) to machine arm, and remove oil guard.

(4) Turn needle bar drive crank (27) to its lowest position.

(5) Remove setscrew (14) that attaches thread takeup lever hinge stud (15) to hinge, and remove hinge stud (47).

(6) Grasp thread takeup lever (19) and needle bar connecting link off needle bar connecting link stud (23).

(7) Remove thread takeup lever from thread takeup lever drive stud (20) and remove drive stud from connecting link.

b. Installation. Replace defective lever with a serviceable one by reversing procedure in a above.

3-131. Presser Bar Lifter

a. Removal.

(1) Remove faceplate thumbscrew (55, fig. 3-68) that attaches faceplate to machine face, and remove faceplate off faceplate positioning pin (54).

(2) Remove presser bar lifter screw (56) that attaches lifter (57) to machine head, and remove lifter.

b. Installation. Replace defective lifter with serviceable one by reversing procedure in a above.

3-132. Vibrating Presser Bar Lifting Rockshaft

a. Removal and Disassembly.

(1) Remove faceplate thumbscrew (55, fig. 3-68) and remove faceplate (53) from machine face.

(2) Remove lifting bellcrank screw (62) from presser bar lifting bracket (67) and slide bellcrank (63) off vibrating presser bar links (64 and 68). Pull vibrating presser bar links from vibrating presser bar and from the stud on end of vibrating presser bar shaft.

(3) Remove rockshaft crank screw (2, fig. 3-69) that attaches rockshaft crank (1) to lifting rockshaft (4).

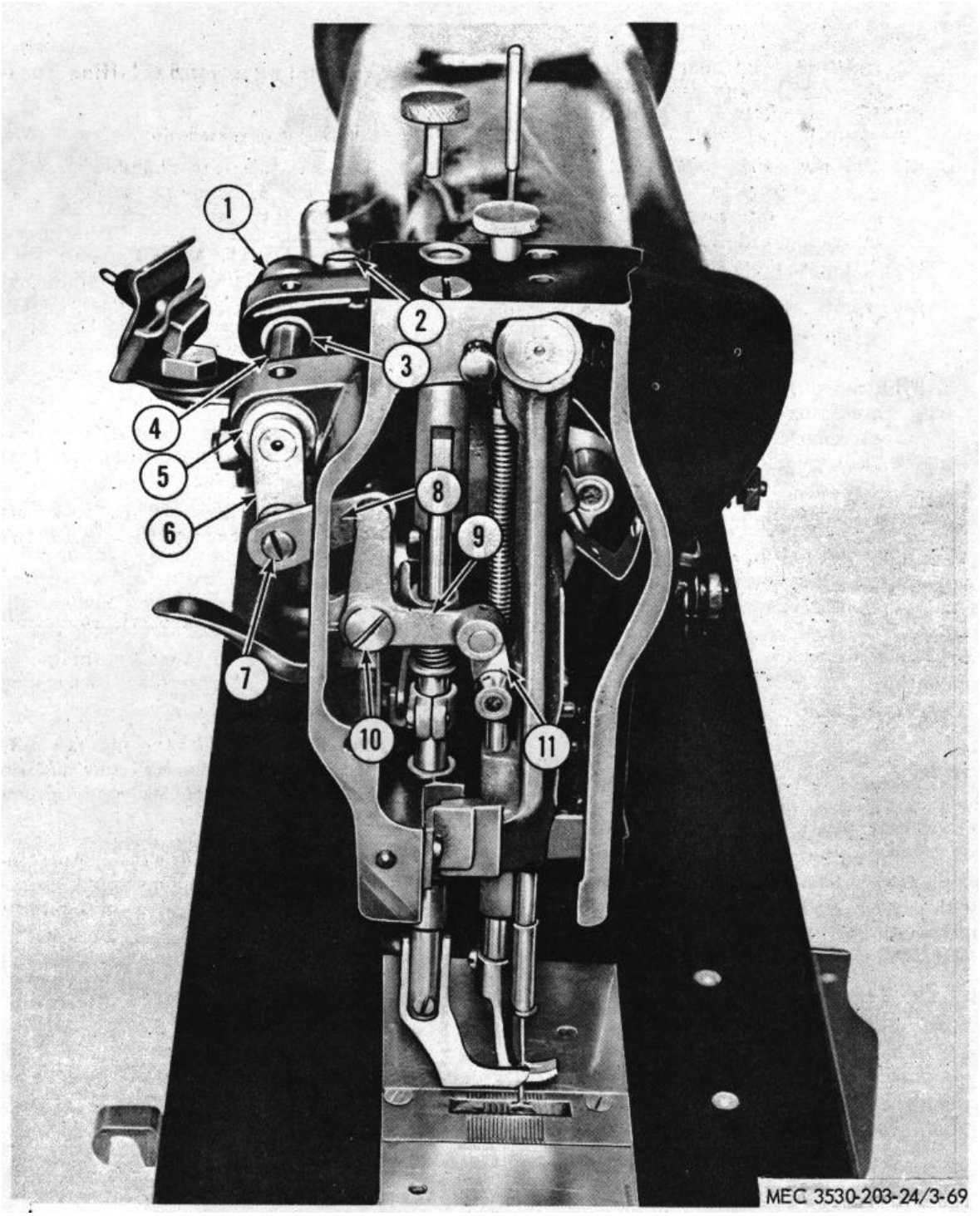
(4) Grasp left end of lifting rockshaft (4) and pull it out of rockshaft crank (1).

(5) Remove lifting rockshaft crank from lifting rockshaft eccentric connector.

(6) Push lifting rockshaft bushings (3 and 5) out of mounting brackets on back of machine arm.

(7) Unscrew bellcrank stud nut (6) that attaches the bellcrank stud (7) to lifting rockshaft crank, and remove bellcrank stud.

b. Assembly and Installation. Replace defective parts with serviceable ones and assembly and install them by reversing procedure in a above.



1 Crank, needle bar rock frame rockshaft
2 Screw, needle bar rock frame rockshaft crank
3 Bushing, rockshaft crank stud
4 Rockshaft, vibrating presser bar lifting
5 Bushing, lifting rockshaft crank
6 Nut, lifting bellcrank
7 Stud, lifting bellcrank link
8 Link, lifting bellcrank
9 Bellcrank, lifting
10 Screw, lifting bellcrank
11 Link, lifting bellcrank

Figure S-69. Vibrating presser bar lifting rockshaft, installed.

3-133. Knee Lifter Connection Lever, Knee Lifter Lifting Lever, and Lifting Rod

a. Removal and Disassembly.

(1) Remove cotter pin that attaches rod (2, fig. 3-63) to lifting lever (3), and remove rod from lever and from machine bed.

(2) Remove setscrew that attaches collar to rod, and remove collar and spring from rod.

(3) Remove hinge screw that attaches connection lever (4) to machine arm, and remove lever.

(4) Remove hinge screw that attaches lifting lever (3) to machine arm, and remove lifting lever.

b. Assembly and Installation. Replace defective parts with serviceable ones and assemble and install them by reversing procedure in a above.

3-134. Vibrating Presser Foot

a. Removal.

(1) Remove faceplate thumbscrew (55, fig. 3-68) and remove faceplate (53) from machine face.

(2) Remove screw (42) that attaches lifting presser foot (41) to lifting presser bar (43), and remove presser foot.

b. Installation. Replace defective vibrating presser foot with a serviceable one and install it by reversing the procedure in a above.

3-135. Lifting Presser Foot

a. Removal.

(1) Remove faceplate thumbscrew (55, fig. 3-68) and remove faceplate (53) from machine face.

(2) Remove screw (42) that attaches lifting presser foot (41) to lifting presser bar (43), and remove presser foot.

b. Installation. Replace defective lifting presser foot with a serviceable one and install it by reversing the procedure in a above.

Section XII. BOBBIN WINDER

3-136. General

This section covers the organizational maintenance instructions for the bobbin winder, which is used on the clothing, darning, and textile sewing machine to wind the thread on the bobbins. Any deficiencies which the organizational maintenance personnel are not authorized to correct must be reported as stipulated in TM 38-750.

3-137. Thread Tension Spring, Disks, and Bracket

a. Removal.

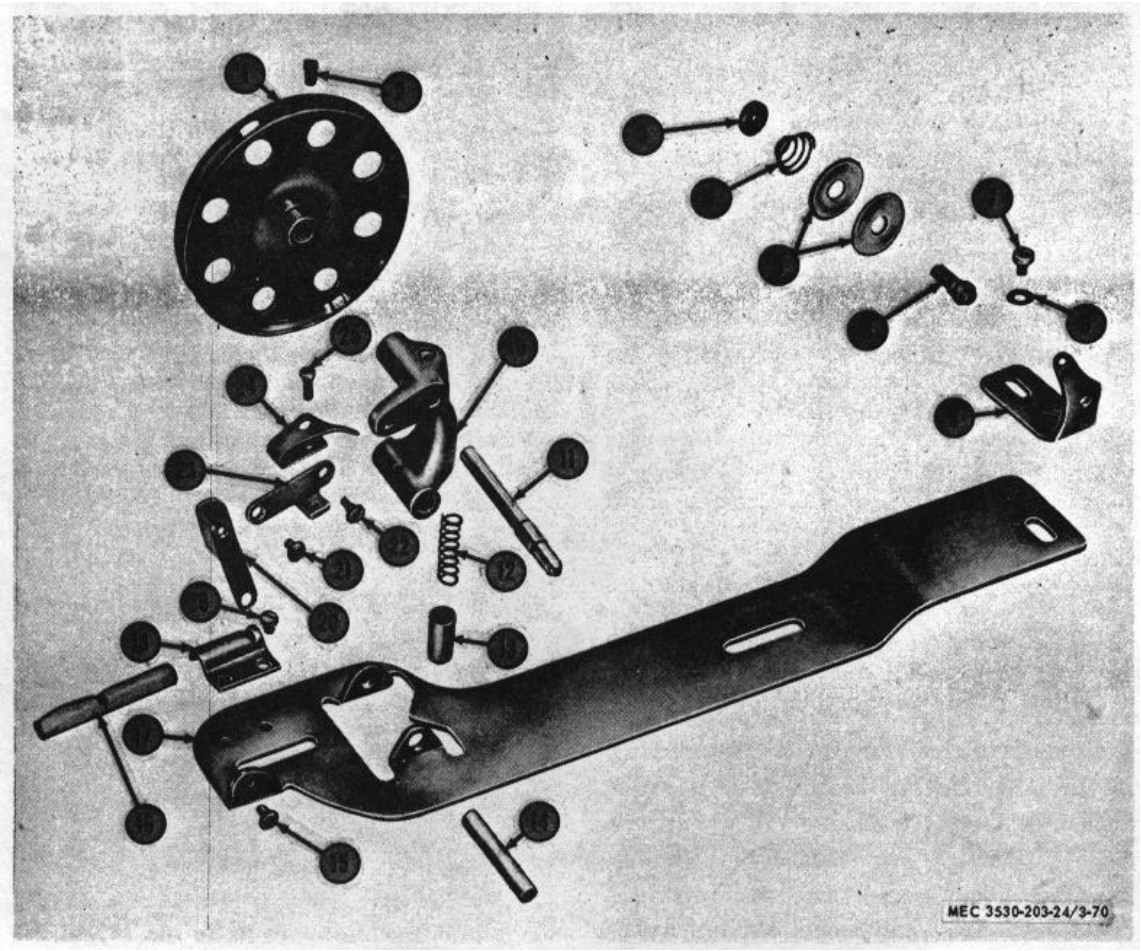
(1) Remove the thumb nut (3, fig. 3-70) that holds the thread tension compression spring (4) and the two thread tension disks (5) onto the thread tension stud (6), and remove the spring and the two disks from the stud.

(2) Remove the tension bracket screw (7) and the bracket screw washer (8) that hold the thread tension bracket (9) to the base (17).

(3) Remove the thread tension bracket with stud (6) from the base.

(4) Drive the thread tension stud from the thread tension bracket.

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in a above. Peen the thread tension stud to secure it to the bracket.



1 Pulley
2 Setscrew, pulley
3 Nut, stud thumb
4 Spring, thread tension compression
5 Disks, thread tension
6 Stud, thread tension
7 Screw, tension bracket
8 Washer, bracket screw
9 Bracket, thread tension
10 Frame
11 Spindle
12 Spring, frame
13 Plunger, frame spring
14 Pin, frame hinge
15 Stud, stop latch lever joint
16 Brake, leather
17 Base
18 Clamp, brake
19 Screw, brake clamp
20 Lever, stop latch thumb
21 Stud, stop latch lever hinge
22 Screw, trip lever hinge
23 Lever, stop latch trip
24 Latch, stop
25 Screw, stop latch

Figure 3-70. Bobbin winder, disassembled.

3-138. Pulley and Spindle

a. Removal.

(1) Remove the setscrew (2, fig. 3-70) that holds the pulley (1) on the spindle (11), and remove the pulley from the spindle.

(2) Pull the spindle from the frame (10).

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in a above.

3-139. Stop Latch, Levers, Plunger, and Spring

a. Removal.

(1) Remove the Atop latch screw (25, fig.

3-70) and the stop latch (24) from the stop latch trip lever (23).

(2) Remove the trip lever hinge screw (22) from the frame (10) to release the stop latch trip lever (20) from the frame.

(3) Drive the frame hinge pin (14) from the base and from the frame.

(4) Remove the frame (10), the frame spring (12), and the frame spring plunger (13) from the base.

(5) Remove the plunger (13) and the spring (12) from the frame.

(6) Drive the stop latch lever joint stud (15) from the base; then, remove the stop latch thumb lever (20) with the stop latch trip lever (23).

(7) Drive the stop latch lever hinge stud (21) from the stop latch thumb lever (20) and from the stop latch trip lever (23), separating the trip lever from the thumb lever.

b. Assembly. Replace defective parts with serviceable ones install them by reversing the procedure in a above.

3-140. Brake and Clamp

a. Removal.

(1) Remove the brake clamp screws (19, fig. 3-70) that secure the brake clamp (18) to the base (17).

(2) Remove the brake clamp with the leather brake (16) from the base; then, separate the leather brake from the brake clamp.

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in a above.

Section XIII. THREAD UNWINDER

3-141. General

The two-cone thread unwinder (fig. 3-71) is used with the clothing, the darning, and the textile sewing machines. It is used to unwind the thread from the spools as the machine sews or stitches the thread. The two-cone thread unwinder is the same as the one-cone thread unwinder except the one-cone thread unwinder has a cone rest for one spool of thread and the two-cone thread unwinder has a two-cone rest for two spools of thread. The instructions in the following paragraphs in this section are applicable to the parts on the one-cone thread unwinder or to the parts on the two-cone thread unwinder.

3-142. Thread Guides, Cup, and Thread Guide Rod

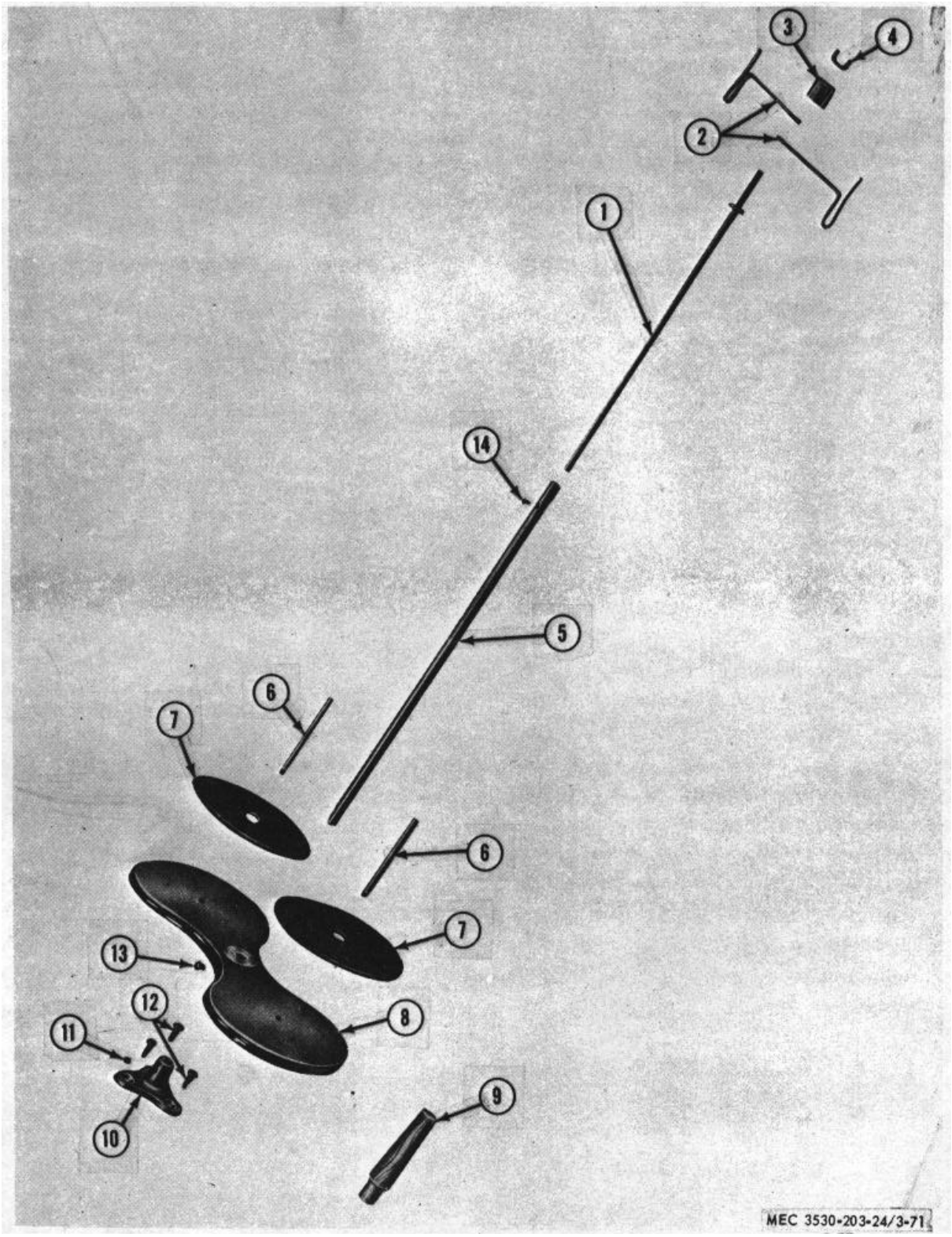
a. Removal.

(1) Remove the thread guide locknut (4, fig. 3-71) that holds the cup (3) and the thread guides (2) to the end of the rod (1) and remove the cup (3) from the rod (1).

(2) Lift the thread guides (2) from the rod (1).

(3) Remove the setscrew (14) that secures the thread guide rod (1) to the thread rest rod (5) and remove the thread guide rod (1) from the thread rest rod (5).

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in a above.



1	Rod, thread guide	6	Pins, spool	11	Setscrew, rest rod
2	Guides, thread	7	Cushions, felt	12	Screws, wood
3	Cup, thread guide positioning	8	Rest, two-cone	13	Setscrew, cone rest
4	Locknut, thread guide	9	Rest, machine	14	Setscrew, rod
5	Rod, thread rest	10	Stand, spool rest		

Figure 3-71. Two-cone thread unwinder, disassembled.

3-143. Thread Rest Rod, Rest, and Cushions

a. Removal.

(1) Remove the setscrew (14, fig. 3-71) that secures the thread guide rod (1) to the thread rest rod (5), and remove the thread guide rod (1) with thread guides (2) and cup (3) from the thread rest rod (5).

(2) Remove the setscrew (13) that holds the two-cone rest (8) to the rod (5), and remove the rest with felt cushions (7) and pins (6) from the rod (5).

(3) Take the felt cushions from the rest and the pins.

(4) Remove the setscrew (11) that holds the rod (5) in the stand (10), and remove the rod from the stand.

b. Installation. Replace defective items with serviceable ones, and install them by reversing the procedure in a above.

3-144. Spool Rest Stand

a. Removal.

(1) Remove the setscrew (11, fig. 3-71) that holds the rod (5) in the stand (10), and remove the rod (5) with assembled parts from the stand.

(2) Remove the three screws (12) that hold the stand (10) to the tabletop, and remove the stand from the tabletop.

b. Installation. Replace defective stand with a serviceable one, and install it by reversing the procedure in a above.

CHAPTER 4

DIRECT AND GENERAL SUPPORT MAINTENANCE INSTRUCTIONS

Section I. TROUBLESHOOTING

4-1. General

This section provides information useful to the direct and general support maintenance personnel in correcting unsatisfactory operation of the textile repair shop and its components. Each trouble symptom stated is followed by the probable cause of the trouble. The possible remedy recommended is described opposite the probable cause. Any trouble that is beyond the ability of the direct and general support maintenance personnel must be reported according to the instructions given in TM 38-750. Refer to the troubleshooting information for the generator set and the cargo trailer in the appropriate technical manuals listed in appendix I.

4-2. Cabinet Assembly

a. Holddown Clamp Assembly is Loosely Mounted.

Probable cause	*Possible remedy*
Capscrew has stripped threads.	Install serviceable capscrew.
Arm of clamp has stripped threads.	Install serviceable clamp assembly (para. 4-12).
Screws and nuts have stripped threads.	Install serviceable screws and nuts (para. 4-12).

b. Rear Door or a Side Door Does Not Close Securely.

Probable cause	*Possible remedy*
Hinge is bent or broken	Install serviceable hinge (para. 4-13).
Gasket is defective	Install serviceable gasket (para. 4-13).

c. Rear Door or a Side Door Will Not Remain In Open Position.

Probable cause	*Possible remedy*
Door stay is	Install serviceable door stay (para. 4-13) or install serviceable stay assembly (para. 4-13). Repair door stay (para. 4-13).

d. Stowage Box Does Not Close Securely.

Probable cause	*Possible remedy*
Hinge is bent or broken	Repair hinge.
Latch is defective	Install serviceable latch (para. 4-10).

e. Generator is Loosely Mounted on Slides.

Probable cause	*Possible remedy*
Holddown assembly is bent	Repair holddown assembly (para. 4-14c).

4-3. Clothing Sewing Machine

a. Needle Breaks.

Probable cause	*Possible remedy*
Shuttle drive setscrews are loose.	Tighten setscrews.
Shuttle drive pin is sheared.	Install serviceable pin (para. 4-30).
Shuttle drive is bent	Install serviceable shuttle driver (para. 4-30).
Feed and feed lifting eccentric is broken.	Install serviceable feed and feed lifting eccentric (para. 4-29).

b. Needle Thread Breaks.

Probable cause	*Possible remedy*
Feed and feed lifting eccentric is broken.	Install serviceable feed and feed lifting eccentric (para. 4-29).
Shuttle driver is out of adjustment.	Adjust shuttle driver (para. 4-30).

c. Stitches Skip.

Probable cause	*Possible remedy*
Shuttle driver is worn excessively.	Install serviceable shuttle driver (para. 4-30).

d. Stitches Uneven or Pile Up.

Probable cause	*Possible remedy*
Feed lifting rockshaft and crank out of adjustment.	Adjust feed lifting rockshaft and crank (para. 4-31).
Feed bar is worn excessively.	Install serviceable feed bar (para. 4-31).
Feed rockshaft is out of adjustment.	Adjust feed rockshaft (para. 4-31).
Feed lifting rockshaft is out of adjustment.	Adjust feed lifting rockshaft (para. 4-31).
Feed fork connecting link is broken.	Install serviceable feed fork connecting link (para. 4-27).
Oscillating shaft slide block is worn excessively.	crank Install serviceable oscillating shaft crank slide block (para. 4-30).

e. Motor Fails to Start When Switch is in ON Position.

Probable cause	*Possible remedy*
Flywheel is defective	Install serviceable flywheel (para. 4-18).

f. Unusual Noise in Motor.

Probable cause	*Possible remedy*
Motor bearings are worn	Install serviceable bearings (para. 4-19).

4-4. Darning Sewing Machine

a. Needle Breaks.

Probable cause	*Possible remedy*
Needle bar bushing is worn excessively.	Install serviceable bushing (para. 4-41).

b. Needle Thread Breaks.

Probable cause	*Possible remedy*
Thread hook is bured, broken, or excessively worn.	Install serviceable hook (para. 4-45).
Bobbin case lever is broken.	Install serviceable lever (para. 4-45).

c. Stitches Skip.

Probable cause	*Possible remedy*
Thread hook is defective (para. 4-45).	Install serviceable hook

d. Motor Fails to Start When Switch is in ON Position.

Probable cause	*Possible remedy*
Flywheel is defective (para. 4-18).	Install serviceable flywheel

e. Unusual Noise in Motor.

Probable cause	*Possible remedy*
Motor bearings are worn ings (para. 4-19),	Install serviceable bear-

4-5. Heavy-Duty Sewing Machine

a. Needle Breaks.

Probable cause	*Possible remedy*
Feed bar is worn excessively.	Install serviceable feed bar (para. 4-54).

b. Needle Thread Breaks.

Probable cause	*Possible remedy*
Shuttle driver is broken or bent beyond repair.	Install serviceable shuttle driver (para. 4-56).

c. Stitches Skip.

Probable cause	*Possible remedy*
Shuttle driver is defective	Install serviceable shuttle driver (para. 4-56).

d. Motor Does Not Start When Switch is in ON Position.

Probable cause	*Possible remedy*
Flywheel is defective	Install serviceable flywheel (para. 4-18).

e. Unusual Noise in Motor.

Probable cause	*Possible remedy*
Motor bearings are worn	Install serviceable bearings (para. 4-19).

f. Motor Does Not Pull Load.

Probable cause	*Possible remedy*
Motor is defective	Install serviceable flywheel and pad (para. 4-18).

4-6. Overedge Sewing Machine

a. Motor Does Not Start When Switch is in ON Position.

Probable cause	*Possible remedy*
Flywheel is defective	Install serviceable flywheel (para. 4-18).

b. Unusual Noise in Motor.

Probable cause	*Possible remedy*
Motor bearings are worn	Install serviceable bearings (para. 4-19).

c. Motor Does Not Pull Load.

Probable cause	*Possible remedy*
Motor is defective	Install serviceable flywheel and pad (para. 4-18).

4-7. Textile Sewing Machine

a. Needle Breaks.

Probable cause	*Possible remedy*
Hook saddle is worn excessively.	Install serviceable hook saddle (para. 4-70).

b. Needle Thread Breaks.

Probable cause	*Possible remedy*
Hook saddle is broken saddle (para. 4-70).	Install serviceable hook

c. Stitches Skip.

Probable cause	*Possible remedy*
Hook saddle is broken	Install serviceable hook saddle (para. 4-7(0).

d. Motor Does Not Start When Switch is in ON Position.

Probable cause	*Possible remedy*
Flywheel is defective (para. 4-18).	Install serviceable flywheel

e. Unusual Noise in Motor.

Probable cause	*Possible remedy*
Motor bearings are worn	Install serviceable bearings (para. 4-19).

f. Motor Does Not Pull Load.

Probable cause	*Possible remedy*
Motor is defective	Install serviceable flywheel and pad (para. 4-18).

Section II. CABINET ASSEMBLY

4-8. General

This section covers the direct and general support maintenance instructions for the cabinet assembly and components. Any deficiencies which the direct and general support maintenance personnel are not authorized to correct or repair must be reported as stipulated in TM 38-750.

4-9. Stowage Box Assembly

a. Inspection, Removal, and Installation. Refer to the procedures in paragraph 3-14.

b. Repair. Straighten bends and dents and install serviceable latch and hook.

4-10. Stowage Box Latch and Hook

Each stowage box has two latches and two hooks mounted on it. The information in the following paragraph applies to any of the latches and hooks.

a. Removal.

(1) Pull the stowage box assembly out of the cabinet, and remove the items from the box.

(2) Cut and drive out the rivets that hold the hook and the latch (2 and 3, fig. 3-7) to the stowage box.

b. Installation. Replace defective hook and latch with serviceable ones. Use 1/s-X 3.8-inch universal-head aluminum rivets to rivet the hook and the latch on the stowage box assembly.

4-11. Lifting Loop Assembly

a. Inspection. Removal, and Installation. Refer to the procedures in paragraph 3-15.

b. Repair. Straighten bends and weld breaks or cracks, being certain the loop assembly is welded securely and properly to the cabinet assembly.

4-12. Holddown Clamp Assembly

The holddown clamp assemblies are used for fastening and holding the cabinet assembly securely in the bed of the cargo trailer. The following instructions apply to the holddown clamp assemblies.

a. Removal.

(1) Loosen the capscrew (1, fig. 4-1) and turn the clamp assembly away from the trailer as shown in figure 4-1.

(2) Lift the cabinet assembly enough for the capscrew to clear the trailer bed.

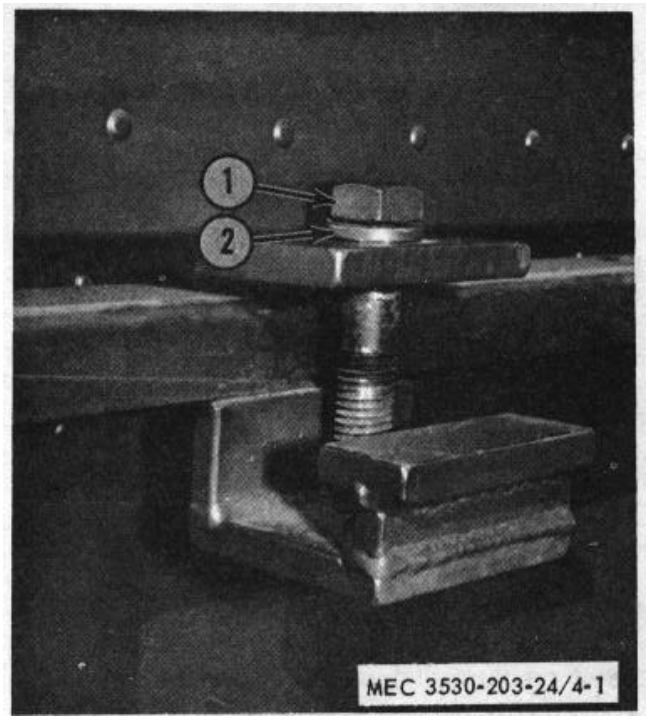
(3) Remove the nuts, lockwashers, and screws that secure the holddown clamp assembly to the cabinet, and remove the holddown clamp assembly from the cabinet.

(4) Drive the roll pin from the end of the capscrew.

(5) Remove the capscrew and lockwasher (2) from the holddown clamp assembly.

b. Repair. Straighten all bends and weld breaks.

c. Installation. Replace defective holddown clamp assembly and capscrew with serviceable ones and install them by reversing the procedure in *a* above.



1 Capscrew 2 Lockwasher

Figure 4-1. Holddown clamp assembly (turned away from trailer).

4-13. Rear and Side Door Assemblies

a. Removal.

(1) Cut and drive out the rivets and remove the flat washers that secure the stay assembly to the door. On the side door the stays are then removed from the slots in the cabinet frame.

(2) Cut and drive out the rivets and remove the flat washers that secure rear door the stay assembly to the cabinet, and remove the stay assembly from the cabinet.

(3) Cut and drive out the rivets that secure the latch to the door (or panel), and remove the latch from the door (or panel).

(4) Cut and drive out the rivets that hold the hinge to the door, and remove the door from the cabinet.

(5) Drill out the rivets that hold the hinge to the cabinet, and remove the hinge from the cabinet.

(6) Cut and drive out the rivets that hold the gasket on the inside of the door.

b. Repair. Weld breaks and straighten bends.

c. Installation.

(1) Replace defective stay assembly with a serviceable one. Use flat washers and 3/8-x 1-inch universal-head rivets and rivet the stay assembly to the door and to the cabinet.

(2) Replace defective latch with a serviceable one. Use 1/8-x 7/16-inch universal-head and rivet the latch to the door (or panel).

(3) Replace defective gasket with a serviceable one, and install it on the inside of the door. Use 1/8-x 1/2-inch universal-head rivets.

(4) Replace defective hinge. Measure and cut from bulk hinge stock the proper length. Use 1/8-x 1/4-inch counter sink-head rivets to rivet the bottom of the hinge to the door. Use 1/8-x 3/8-inch universal-head rivets to rivet the top of the hinge to the cabinet.

(5) Replace defective door assembly with a serviceable one (and use new rivets to install it) by reversing the procedure in *a* above.

4-14. Cabinet Assembly

To perform some of the maintenance instructions in this paragraph, it may be necessary to remove the cabinet assembly from the trailer.

a. Inspection. Inspect the cabinet assembly for holes, tears, or cuts; cracks or breaks; bends or dents; missing or loose rivets; broken welds; and broken or bent framework.

b. Removal. Be sure the rear support leg is lowered and the handbrakes are set sufficiently.

(1) Remove the necessary equipment from the cabinet assembly (TM 10-3530-203-10).

(2) Close the side doors and the rear door of the cabinet assembly.

(3) Pull the four lifting loops from the spring clips and raise the loops up.

(4) Attach a chain to each lifting loop.

(5) Check to see that the trailer tailgate is down.

(6) Loosen the capscrew on each of the six holddown clamp assemblies.

(7) Rotate the clamp arm pads of the six clamp assemblies away from the trailer ledge.

(8) Lift the cabinet assembly slowly up and swing it away from the cargo trailer; then lower it carefully to the place provided for it.

Warning: **To avoid injury to personnel and damage to equipment, do not permit any individuals in the area except those engaged in the removal and installation operation. Be sure all personnel are a safe distance from both the lifting device and the cabinet assembly. Only one individual, the crew supervisor, should give instruction relative to the removal and installation operation.**

c. Repair. Push out or straighten bends and dents; weld all cracks, breaks, and cuts in the panels, doors and top; and weld broken door latches and straps to the cabinet. Replace defective and missing rivets with serviceable ones; and patch any holes or tears (that do not exceed 4 inches) in the doors, panels and top with sealing compound, aluminum patches, and rivets. Also, repair the cabinet assembly by replacing defective door assemblies, hinges, latches, and gaskets with serviceable ones (para. 4-13).

d. Installation. Install the cabinet assembly in the bed of the cargo trailer by reversing the procedure in *b* above. Tighten the holddown capscrews to approximately 30 footpounds.

4-15. Sewing Machine Tray Assembly

a. Removal and Installation. Refer to the procedures in paragraphs 3-19 and 3-20.

b. Repair. Straighten bent straps and pulls, weld the hinges to the straps, and weld breaks in the metal tray assemblies.

4-16. Table Assembly

a. Removal.

(1) Remove the leg assembly from the tabletop.

(2) Invert the tabletop, remove the screws that hold the support angles to the tabletop, and remove the angles from the tabletop.

(3) Remove the screws, nuts. and lockwashers that hold the leg assembly holddown bracket to the tabletop, and remove the bracket from the tabletop.

(4) Remove the screws that hold the edging to the tabletop, and then remove the edging from the tabletop.

b. Repair. Straighten bends and weld breaks in the legs. Sand the tabletop to remove scratches or rough places.

c. Fabrication. Fabricate a tabletop the same size as the defective one from exterior plywood (/4-inch thick, 4 feet by 8 feet, 3-ply). Scribe, drill, and countersink all holes in the tabletop identical to the ones in the defective tabletop.

d. Installation. Replace defective tabletop with a serviceable one and install it by reversing the procedure in *a* above.

Section III. ELECTRIC MOTORS

4-17. General

This section covers the direct and general support maintenance instructions for the repair of electric motors used with the clothing, the darning, the heavy-duty sewing, the overedge, and the textile machines.

4-18. Flywheel and Friction Pad

a. Removal.

(1) Remove the motor from the sewing machine (para. 3-27 a (1) through (8)).

(2) Unhook the drive brake lever spring (21, fig. 4-2) from the brake lever (19).

(3) Remove the nut (26) from the lever screw (18).

(4) Remove the screw (18) that secures the brake lever (19) to the motor, and remove the brake lever from the motor.

(5) Slide the drive pulley (13) from the shaft ball bearings (6 and 8).

(6) Straighten the tabs on the lockwasher (11), and remove the nut (12) and the lockwasher (11) from the motor shaft.

(7) Remove the bearing (8), spacer (7), and bearing (6) from the motor shaft.

(8) Remove the flywheel (2) with pad (3) from the motor shaft.

(9) Drive out the rivets (4 and 5) that secure the pad to the flywheel, and separate the pad from the flywheel.

b. Installation. Replace defective flywheel and friction pad with serviceable ones. Use new rivets to rivet the pad to the flywheel, and reverse the procedure in a (1) through (8) above to install flywheel and pad.

4-19. Bearings

a. Removal.

(1) Remove the motor from the sewing machine tabletop (para. 3-27 *a* (1) through (8)).

(2) Remove the brake assembly and the flywheel (para. 4-18 *a* (2) through (8)).

(3) Disassemble the motor to remove the two ball bearings from the motor shaft.

b. Disassembly.

(1) Remove the nuts, lockwashers, and rods that hold the front and rear endbells to the motor.

(2) Remove the front endbell and the rotor from the motor.

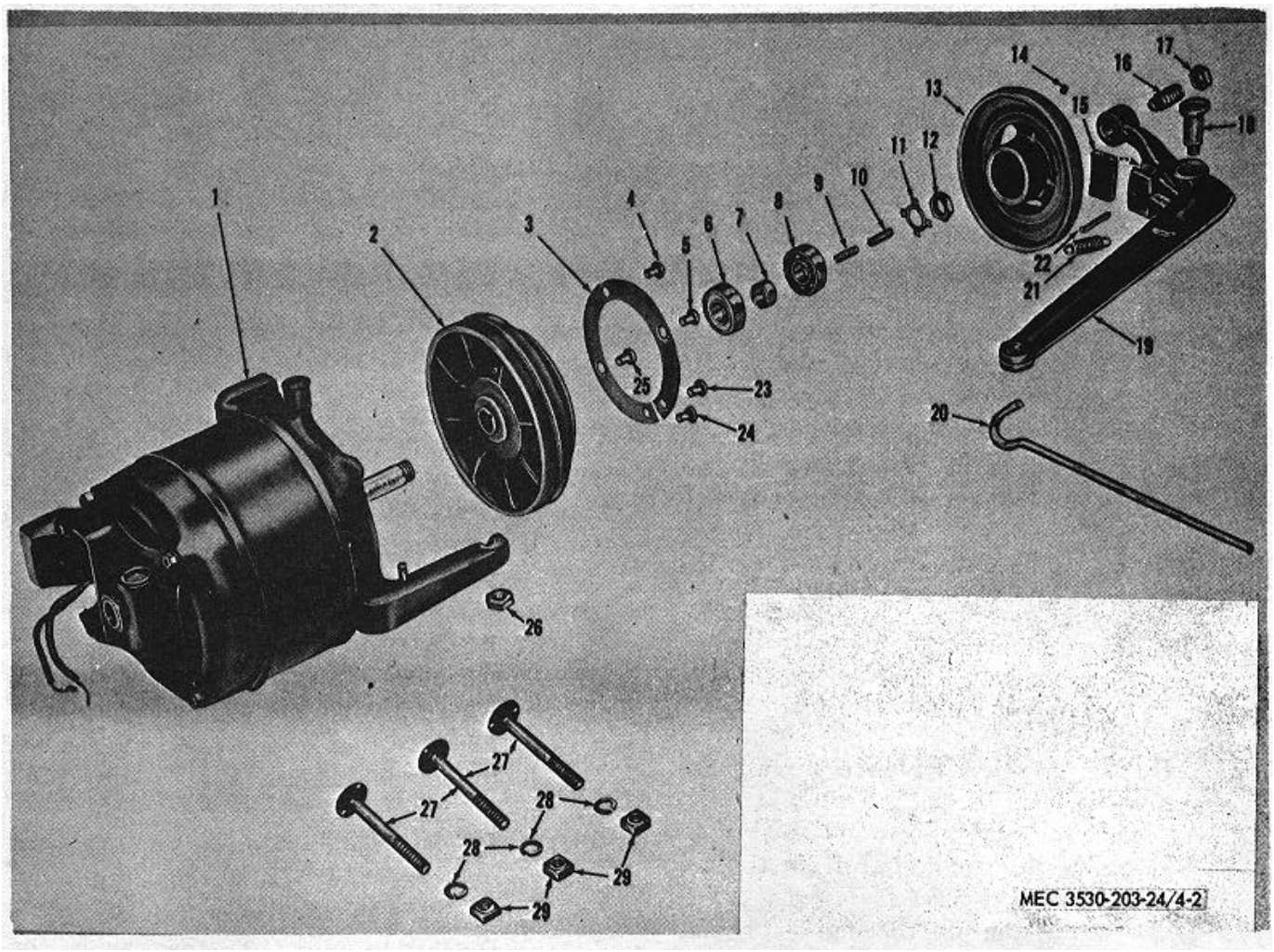
(3) Remove the front endbell from the shaft ball bearing, and remove the bearings from the motor shaft.

c. Cleaning. Wipe all parts thoroughly with a lint free cloth moistened with SD (solvent, drycleaning) to remove any accumulated oil or grease.

d. Inspection. Inspect the motor for burns, bent fins and shaft, and rough or excessively worn bearings.

e. Repair. Repair the motor by replacing defective bearings with serviceable ones.

f. Assembly and Installation. Replace defective parts with serviceable ones and assemble and install them by reversing the procedures in a and b above.



1	Motor	12	Nut, motor flywheel	21	Spring, drive pulley brake lever
2	Flywheel	13	Pulley, drive	22	Pin, pad cotter
3	Pad, flywheel friction	14	Setscrew	23	Rivet
4	Rivet, friction pad	15	Pad, motor brake lever thermoid	24	Rivet
5	Rivet, friction pad	16	Screw	25	Rivet
6	Bearing, shaftball	17	Nut	26	Nut
7	Spacer	18	Screw, lever shoulder	27	Bolt
8	Bearing, shaft ball	19	Lever, drive pulley brake	28	Lockwasher
9	Spring	20	Rod, connecting	29	Nut
10	Wick				
11	Lockwasher, flywheel nut				

Figure 4-2. Alternating current motor (partly disassembled).

Section IV. MISCELLANEOUS WIRING AND FITTINGS

4-20. General

This section covers the direct and general support maintenance instructions for the sewing machine motor-to-switch wiring harness.

4-21. Motor-to-Switch Wiring Harness

A wiring harness connects each electric motor to each sewing machine switchbox. The following instructions pertain to the wiring harness used for either sewing machine.

a. Removal. Disconnect the sewing machine power cord from the power source and proceed as follows to remove the harness:

(1) Remove the two screws that secure the machine toggle switch cover to the switchbox, and pull the cover from the switchbox.

(2) Remove the screws that secure the wires to the switch, and remove the wires from the switch.
(3) Loosen the screws that secure the wiring harness to the switchbox, and remove the wiring harness from the switchbox.
(4) Remove the screws that hold the wiring harness clamps to the tabletop, and remove the clamps and the wiring harness from the tabletop.
(5) Remove the two screws that secure the motor junction box cover to the electric motor.
(6) Remove the nuts that secure the wires to the motor, and remove the wires from the motor.
(7) Loosen the screws that secure the wiring harness to the junction box connector, and remove the wiring harness from the connector.

b. Installation. Replace defective wiring harness with a serviceable one and install it by reversing the procedure in a above.

Section V. CLOTHING SEWING MACHINE

4-22. General

This section describes the direct and general support maintenance instructions for the clothing sewing machine. Any deficiencies which the direct support maintenance personnel are not authorized to correct must be reported as stipulated in TM 38-750.

4-23. Thread Tension Release Lever, Pin, and Spring

a. Removal.
(1) Remove the needle bar from the machine (para. 3-52a).
(2) Drive out the pin (38, fig. 3-13) that secures the thread tension release lever (37) to the face of the machine, and lift the tension release lever and the spring (36) from the machine.

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in a above.

4-24. Thread Takeup Lever, Link, and Crank; Brackets; and Needle Bar Connecting Link

a. Removal.
(1) Remove the needle bar from the machine (para. 3-52).
(2) Remove the presser bar from the machine (para. 3-57).
(3) Remove the needle bar connecting stud (10, fig. 3-20), with the roller (23) from the connecting link (22); remove the setscrew (9) from the stud.
(4) Lift the presser bar guide bracket (37) and the lifting lever bracket (36) from the machine.
(5) Remove the guide bracket setscrew (38) from the presser bar guide bracket. .
(6) Remove the setscrew (16) that holds the hinge pin (8) to the machine, and pull the hinge pin from the machine.
(7) Remove the screw (12) that holds the takeup lever (14) to the crank (25).
(8) Remove the takeup lever (14) with the link (15) from the crank and from the machine.
(9) Drive the pin (13) that holds the lever to the link, thus separating the lever from the link.
(10) Remove the screw, that secures the side cap to the machine, and remove the side cap from the machine.
(11) Turn the machine until the wedge screw (20) is at the opening in the back of the machine face.
(12) Remove the wedge screw from the wedge (19).
(13) Drive out the wedge (19) that secures the crank (25) to the needle bar crank (21).
(14) Pull the crank (25) with the connecting link (22) from the machine.
(15) Separate the connecting link from the crank (25).
(16) Remove the adjusting link screw (24) from the connecting link.

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in a above.

4-25. Needle Bar Crank

a. Removal.

(1) Remove the thread takeup crank from the machine (para. 4-24a(1) through (4), (6), (8), and (10) through (14)).

(2) Remove the positioning screw (17, fig. 3-20) and the crank setscrew (18) that secure the needle bar crank (21) to the arm shaft (12, fig. 3-13).

(3) Remove the needle bar crank from the arm shaft.

b. Installation. Replace defective crank with a serviceable one and install it by reversing the procedure in a above.

4-26. Feed Lifting Rockshaft Crank Connecting Rod and Cap

This connecting rod is used to move back and forth or to rock the rockshaft.

a. Removal.

(1) Remove the thumbscrew (14, fig. 3-13) that holds the side cover (13) to the machine, and remove the side cover from the machine.

(2) Rotate drive pulley with balance wheel (16) until each of the two screws (5), located on the rod cap (4), line up with the opening on top of the machine arm, and loosen the two screws from the connection rod (42).

(3) Rotate drive pulley with balance wheel until the connecting rod is in its lowest position, and then lift the rod cap (4) with screws (5) from the side cover hole.

(4) Place the machine on its side to gain access to its bottom.

(5) Remove the nut (43) and the screw (41) that hold the connecting rod to the rockshaft.

(6) Pull the connecting rod from the machine.

b. Installation. Replace defective connecting rod with a serviceable one and install it by reversing the procedure in a above.

4-27. Feed Fork, Regulator, and Connecting Link

a. Removal.

(1) Remove the thumbscrew that holds the side cover to the machine, and remove the side cover from the machine.

(2) Remove the feed lifting rockshaft connecting rod from the machine (para. 4-26).

(3) Remove the nut (13, fig. 3-16) and the screw (11) that hold the feed fork (6) to the feed rockshaft crank (15).

(4) Remove the thumbscrew (10) from the feed regulator (2).

(5) Turn the feed regulator downward and slide the feed fork (6) downward enough to expose the regulator connecting screw (8): (6) Remove the regular connecting screw (8) and the spring washer (9) that hold the feed regulator to the machine.

(7) Remove the feed fork with the feed regulator and with the connecting link (4) from the bottom of the machine.

(8) Remove the nut (1) and the screw (5) that secure the feed regulator to the connecting link (4), and remove the feed regulator from the connecting link.

(9) Remove the nut (7) and the screw (3) that secure the connecting link (4) to the feed fork, and remove the connecting link from the feed fork.

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in a above.

4-28. Crank Connecting Rod and Cap, Oscillating Rockshaft and Crank

a. Removal.

(1) Remove the thumbscrew (14, fig. 3-13) that holds the side cover (13) to the back of the machine, and remove the side cover from the machine.

(2) Rotate the drive pulley with balance wheel (16) until each of the two screws (11), located on the rod cap (10), lines up with the opening on top of the machine arm and is opposite the balance wheel then loosen the two crews (11) from the crank connecting rod (33).

(3) Rotate drive pulley with balance wheel until the crank connecting rod is in its lowest position, and then lift the rod cap (10) with screws (11) from the side cover hole.

(4) Place the machine on its side to gain access to its bottom.

(5) Rotate drive pulley with balance wheel until the crank connecting rod is in its lowest position.

(6) Remove the setscrew (30) that holds the oscillating rockshaft in the machine, and remove the oscillating rockshaft from the machine.

(7) Remove the crank connecting rod (33) with the oscillating crank (34) from the machine.

(8) Remove the nut (35) and the screw (32) that hold the crank (34) to the connecting rod (33), thus separating the crank from the rod.

b. Installation. Replace defective items with serviceable ones and install them by reversing the procedure in *a* above.

4-29. Arm Shaft, Rear Shaft Bushing, Eccentric, and Sleeve

a. Removal.

(1) Remove the thread takeup crank from the machine (para. 4-24a(1) through (4), (6), (8), and (10) through (14)).

(2) Remove the needle bar crank from the machine (para. 4-25a(2) and (3)).

(3) Remove the feed lifting rockshaft connecting rod (para. 4-26).

(4) Remove the feed fork from the machine (para. 4-27a(3) through (7)).

(5) Remove the crank connecting rod from the machine (para. 4-28a(2) through (7)).

(6) Remove the drive pulley with balance wheel (16, fig. 3-13) from the arm shaft (12).

(7) Remove the setscrew (19) that secures the bushing (15) to the machine, and remove the bushing from the machine.

(8) Remove the setscrew (3) that secures the feed and feed lifting eccentric (2) to the arm shaft (12).

(9) Slide the arm shaft out of the back of the machine, and remove the eccentric with the sleeve (1) from the machine.

(10) Separate the sleeve from the eccentric.

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in *a* above.

4-30. Oscillating Shaft, Crank, Block, and Shuttle Driver

a. Removal.

(1) Place the machine on the side to gain access to its bottom.

(2) Remove the bobbin case from the machine.

(3) Remove the two screws that secure the shuttle body to the machine, and remove the shuttle body with shuttle and ring from the machine.

(4) Remove the setscrew (10, fig. 4-3) and drive out the pin (4) that secures the crank (5) to the oscillating shaft (2).

(5) Slide the oscillating shaft with shuttle driver (1) from the machine and separate them.

(6) Lift out the crank with stud and with slide block (7).

(7) Remove the capscrew (9) and the washer (8) that secure the slide block (7) to the stud (6).

(8) Remove the nut (3) and the stud (6) from the crank.

b. Installation. Replace defective items with serviceable ones and install them by reversing the procedure in a above.

c. Adjustment. Adjust or time the shuttle driver as follows:

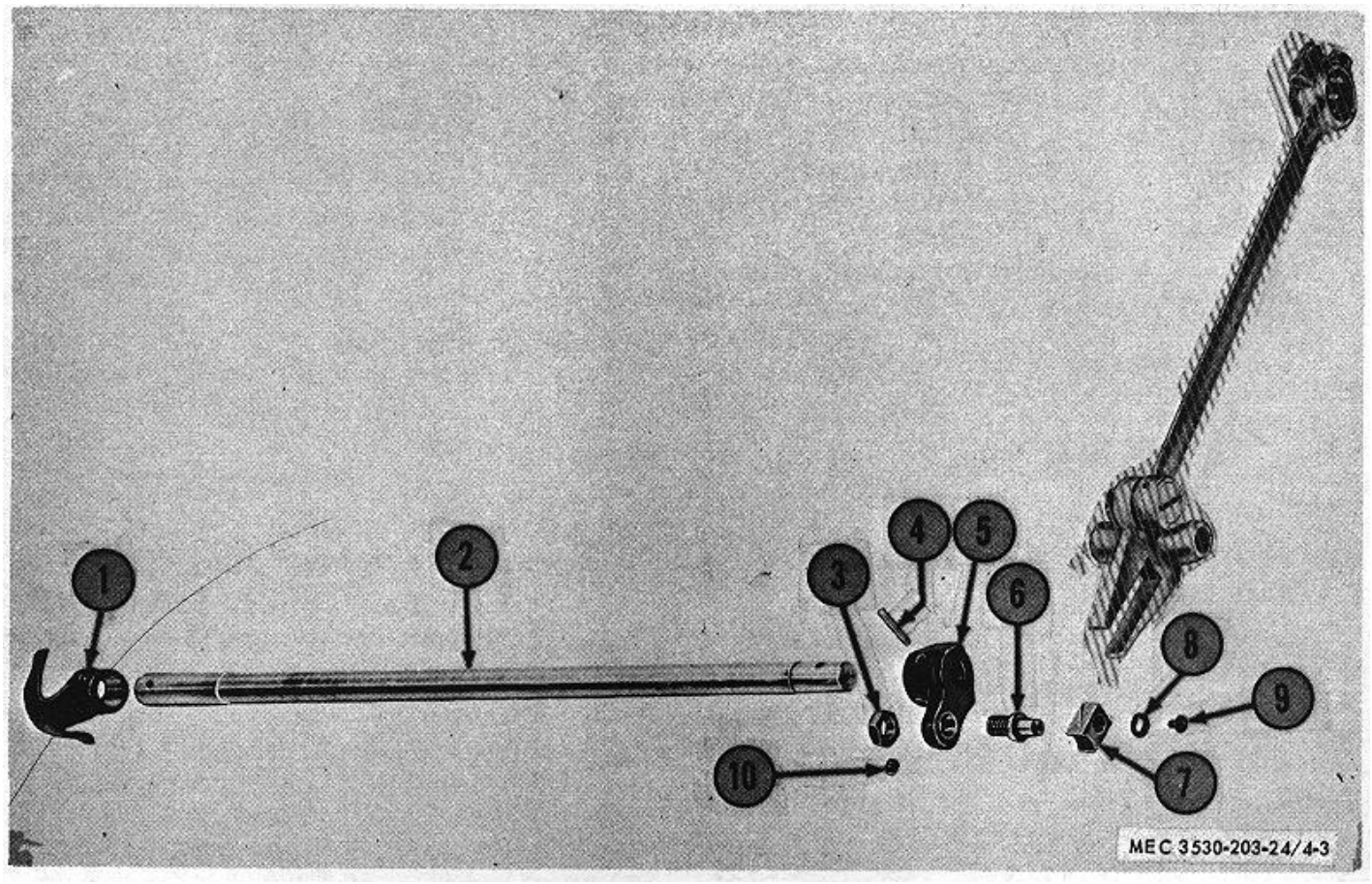
(1) Set the setscrews lightly, install the shuttle race and shuttle body (para. 3-46 and 3-47) and time the needle with the shuttle (para. 3-52), tighten the setscrews down to hold the driver in its correct position.

(2) Drill a hole through the shuttle driver collar and the oscillating shaft for the tapered pin.

(3) Taper out the hole in the pin.

(4) Drive in the tapered pin to hold the shuttle driver in its correct position.

(5) Adjust thread tension controller as necessary (para. 3-43c).



1 Driver, shuttle
2 Shaft, oscillating
3 Nut, stud
4 Pin, shuttle drive
5 Crank, oscillating shaft
6 Stud, slide block screw
7 Block, crank slide
8 Washer, crank slide block capscrew
9 Capscrew, crank slide block
10 Setscrew

Figure 4-31. Clothing sewing machine oscillating shaft.

4-31. Feed Lifting Rockshaft and Crank

a. Removal.

(1) Remove the thumbscrew (14, fig. 3-13) that holds the side cover (13) to the back of the machine, and remove the side cover from the machine.

(2) Place the machine on its side to gain access to its bottom.

(3) Remove the nuts (24 and 28, fig. 3-16) and the screws (23 and 29) that hold the feed lifting rockshaft (25) to the crank (26).

(4) Lift the rockshaft (25) with crank (26) from the machine.

(5) Remove the screw (27) that secures the crank (26) to the rockshaft, and separate the crank from the rockshaft.

b. Installation. Replace defective rockshaft and crank with serviceable ones and install them by reversing the procedure in a above.

c. Adjustment. Adjust the feed lifting rockshaft after the bar is installed by using the center screws and nuts to set the feed dog to the right or left and to line the feed dog up with the throat plate.

4-32. Feed Rockshaft, Crank, and Feed Bar

a. Removal.

(1) Remove the feed dog from the machine (para. 3-49).

(2) Place the machine on its side to gain access to its bottom.

(3) Remove the nut (13, fig. 3-16) and the screw (11) that secure the feed fork (6) to the feed rockshaft crank (15).

(4) Remove the nut (14) and the screw (12) from the machine.
(5) Remove the nut (39) and the screw (38) from the rockshaft.
(6) Lift the feed rockshaft (17)with feed bar (20) from the machine.
(7) Remove the nut (19) and the screw (18) from the rockshaft.
(8) Remove the nut (40) and the screw (37) from the rockshaft, and remove the feed bar (20) from the rockshaft.
(9) Remove the screw (16) from the crank (15) and remove the crank from the rockshaft.

b. Installation. Replace defective rockshaft, crank, and feed bar with serviceable ones and install them by reversing the procedure in a above.

c. Adjustment.

(1) Tighten the center screw enough to give the feed rockshaft enough free play without side motion.
(2) Use the crank attached to the right end of the feed rockshaft to adjust the feeding motion of the feed dog (para. 3-49c).

Section VI. DARNING MACHINE

4-33. General

This section describes the direct and general support maintenance instructions for the darning sewing machine. Any deficiencies which the direct support maintenance personnel are not authorized to correct must be reported as stipulated in TM 38-750.

4-34. Drive Shaft Pulley With Balance Wheel

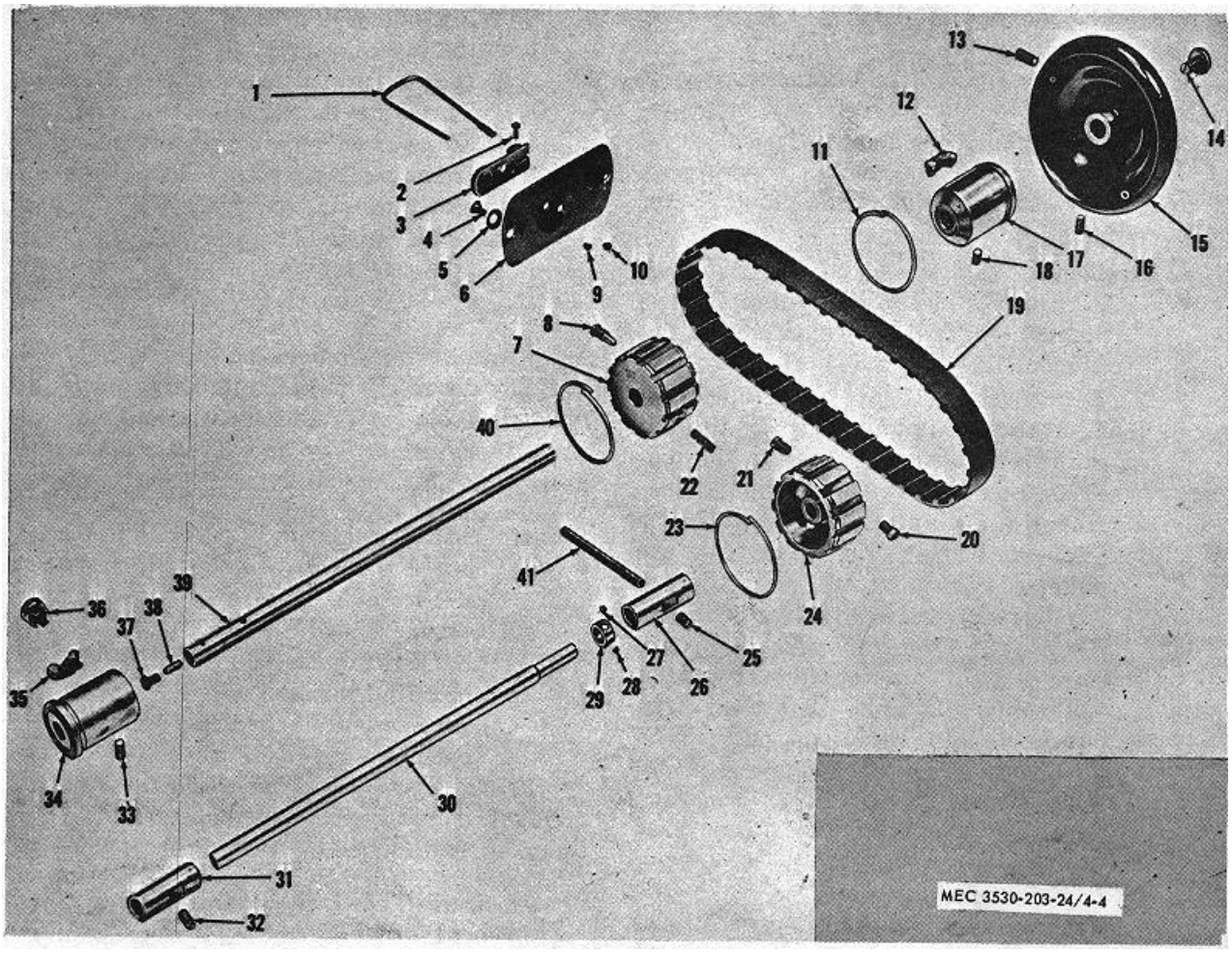
a. Removal. Remove the adjusting screw (14, fig. 4-4), the bushing screw (16) and the pulley setscrew (13) that hold the pulley to the arm shaft (39), and remove the pulley with balance wheel (15) from the arm shaft.

b. Installation. Replace defective drive shaft pulley with balance wheel with serviceable one and install it by reversing the procedure in a above.

4-35. Presser Bar Lifting Fork, Block, Studs, and Takeup Lever

a. Removal.

(1) Remove the thumbscrew that holds the faceplate to the machine, and remove the faceplate from the machine.
(2) Remove the presser bar from the machine (para. 3-70a).
(3) Remove the needle bar from the machine (para. 3-67a).
(4) Remove the setscrew (3, fig. 3-28) and the bushing (2) from the machine.
(5) Slide the fork (50) from the block (11), and remove the fork from the machine.
(6) Remove the block (11) from the crank (12) and from the machine.
(7) Remove the setscrew (7) that holds the stud (8) to the machine, and remove the stud from the machine.
(8) Slide the takeup lever (10) from the



1 Wire, spool holder
2 Screw, spool holder
3 Base, spool holder
4 Screw, cap
6 Washer
6 Cap, spool holder
7 Pulley
8 Screw, pulley positioning
9 Screw
10 Screw
11 Flange, pulley spring
12 Wick, bushing
13 Setscrew, pulley
14 Screw, pulley adjusting
15 Pulley w/balance wheel, shaft drive
16 Screw, pulley positioning
17 Bushing, rear arm shaft
18 Setscrew, rear bushing
19 Belt, hook shaft pulley
20 Setscrew, pulley
21 Setscrew, pulley
22 Setscrew, pulley
23 Flange, pulley spring
24 Pulley, thread hook drive shaft
25 Setscrew, rear bushing
26 Bushing, rear thread hook drive shaft
27 Setscrew
28 Setscrew
29 Collar, thread hook drive
30 Shaft, thread hook drive
31 Bushing, front thread hook drive shaft
32 Screw, front bushing positioning
33 Setscrew, front bushing
34 Bushing, arm shaft front
35 Wick, front bushing
36 Oiler, shaft, front bushing
37 Screw, wick stop
38 Wick, arm shaft oil
39 Shaft, arm
40 Flange, pulley
41 Tube, thread hook drive shaft oil

Figure 4-4. Darning machine arm shaft and thread hook drive shaft.

stud (13), and remove the takeup lever from the machine.

(9) Remove the studs (13 and 23) from the link (15).

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in a above.

4-36. Arm Shaft, Pulley, Cranks, and Bushings

a. Removal.

(1) Remove the pulley with balance wheel from the arm shaft (para. 4-34a).

(2) Remove the takeup lever from the machine (para. 4-35a(1) through (8)).

(3) Remove the thumbscrew that holds the thread unwinder base to the machine, and remove the unwinder base from the machine.

(4) Slide the belt (19, fig. 4-4) from the pulley (7).

(5) Remove the screw (8) from the set- screw (22) from the pulley (7).

(6) Turn the pulley end of the arm shaft (39) until the arm shaft clears the pulley (7) and remove the pulley with flange (40) from the machine.

(7) Remove the flange (40) from the pulley.

(8) Pull the shaft (39) with the crank from the machine.

(9) Remove setscrew (16, fig. 35) and screw (17) from the crank (20), and remove the crank from the shaft.

(10) Remove the screw (19) and setscrew

(21) from the crank (20).

(11) Remove crank (12) with link (15) from the crank (20); separate the link from the crank.

(12) Loosen the setscrew (18) that holds the bushing (7) to the machine, and remove the bushing with wick from the machine. Separate bushing from wick.

(13) Remove setscrew (33) that holds the bushing (34) to the machine, and remove the bushing with wick (35) from the machine. Separate bushing from wick.

b. Installation. Replace defective items with serviceable ones and install them by reversing the procedure in a above.

4-37. Pulley Drive Belt

a. Removal.

(1) Remove the arm shaft pulley from the machine (para. 4-36a(1) through (6)).

(2) Turn the machine to the side, and remove the pulley belt (19, fig. 44) from the pulley (7) and from the machine.

b. Installation. Replace defective belt with a serviceable one and install it by reversing the procedure in a above.

4-38. Shaft Front Bushing Oiler

a. Removal. Remove the bushing oiler (36, fig. 4-4) from the arm of the machine.

b. Installation. Replace defective belt with a serviceable one and install it by reversing the procedure in a above.

4-39. Thread Tension Release Plunger and Screw

a. Removal.

(1) Remove the screw (26, fig. 3-28) from the machine.

(2) Pull the plunger (25) from the machine.

b. Installation. Replace defective plunger and screw with serviceable ones and install them by reversing the procedure in a. above.

4-40. Presser Bar Fork and Upper Bushings

a. Removal.

(1) Loosen setscrew (3, fig. 3-28) and slide the bushing (2) from the machine.

(2) Loosen setscrew (54), and slide the bushing (4) from the machine.

b. Installation. Replace defective bushings with serviceable ones and install them by reversing the procedure in a above.

4-41. Needle Bar Bushing

a. Removal.

(1) Remove the needle bar from the machine.

(2) Loosen setscrew (27, fig. 3-28), and remove the bushing (28) from the machine.

b. Installation. Replace defective bushing with a serviceable one and install it by reversing the procedure in a above.

4-42. Lower Presser Bar Bushing

a. Removal.

(1) Remove the presser bar from the machine (para. 4-40a).

(2) Loosen setscrew ((41) fig. 3-28), and remove the bushing (40) from the machine.

b. Installation. Replace defective bushing with a serviceable one and install it by reversing the procedure in *a* above.

4-43. Thread Hook Drive Shaft Pulley and Spring Flange

a. Removal.

(1) Slide the belt (19, fig. 4-4) from the drive shaft pulley (7).

(2) Remove setscrews (20 and 21) from the drive shaft pulley.

(3) Slide the drive shaft pulley with spring flange (23) from the shaft (30).

(4) Separate the spring flange from the pulley.

b. Installation. Replace defective pulley and spring flange with serviceable ones and install them by reversing the procedure in *a* above.

4-44. Thread Hook Drive Shaft, Pinion, Collar, and Bushings

a. Removal.

(1) Remove the thread hook drive shaft pulley from the machine (para. 4-43a(1) through (3)).

(2) Remove the setscrews (27 and 28, fig. 4-4) from the thread hook drive collar (29).

(3) Loosen the setscrews (28, fig. 3-26) that secure the pinion (27) to the thread hook drive shaft (26).

(4) Slide the shaft toward the drive end of the machine until the pinion (27) is cleared, and remove the pinion; then remove the collar (29, fig. 4-4) and slide the shaft from the machine.

(5) Remove the screw (32) that secures the bushing (31) to the machine, and remove the bushing from the machine.

(6) Remove the setscrew (25) that secures the bushing (26) to the machine, and remove the bushing from the machine.

b. Installation. Replace defective items with serviceable ones and install them by reversing the procedure in a above.

4-45. Thread Hook, Saddle, Gear, Bobbin Case Lever, and Fulcrum

a. Removal.

(1) Move the cylinder cover slide back from the bobbin.

(2) Remove the throat plate screw (2, fig. 3-26) from the throat plate (1), and remove the throat plate from the machine.

(3) Remove the screws (11) that hold the gib (12) to the thread hook (16).

(4) Remove the shuttle bobbin case (14) as an assembly from the thread hook.

(5) Remove the gear screw (15) that secures the thread hook to the saddle (22).

(6) Remove the thread hook (16), the washer with eccentric and pins (17) and the bobbin case lever (18) from the saddle.

(7) Remove the screw (19) that holds the fulcrum (21) with slide (20) to the saddle, and remove the fulcrum with slide from the saddle.

(8) Remove the screws (24) and washers (23) that secure the saddle to the machine, and remove the saddle with gear from the machine.

(9) Remove the gear (25) from the saddle.

b. Installation. Replace defective items with serviceable ones and install them by reversing the procedure in *a* above.

4-46. Thread Hook Drive Shaft Oil Tube

a. Removal. Place the machine on its side, and remove the oil tube (41, fig. 4-4) from the machine.

b. Installation. Replace defective oil tube with a serviceable one and install it by reversing the procedure in *a* above.

4-47. Bed Hinge

a. Removal. Remove the six screws (2, fig. 3-27) that hold the bed hinge (1) to the machine, and remove the bed hinge from the machine.

b. Installation. Replace defective hinge and screws with serviceable ones and install them by reversing the procedure in a above.

Section VII. HEAVY-DUTY SEWING MACHINE

4-48. General

This section covers the direct and general support maintenance instructions for the heavy-duty sewing machine. Any deficiencies which the direct support maintenance personnel are not authorized to correct must be reported as stipulated in TM 38-750.

4-49. Arm Shaft, Bushing, and Feed Cam

a. Removal.

(1) Remove thumbscrew that attaches arm side cover to machine arm, and remove cover.

(2) Remove thread takeup cam (para. 4-52 (1) through (6)) from the machine.

(3) Turn balance wheel so that connecting rod capscrews aline with opening in top of machine arm.

(4) Remove balance wheel from the machine.

(5) Remove screws (5, fig. 3-40) that attach cap (6) to rod (37), and remove cap.

(6) Through opening in arm side, remove setscrews (8) that attach cam (7) to shaft (4).

(7) Loosen setscrew that attaches bushing (3) to machine head, and remove bushing.

(8) Turn the arm shaft so that it alines with opening in back of machine arm, and slide out shaft with cam.

(9) Slide the feed cam from the arm shaft.

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in *a* above.

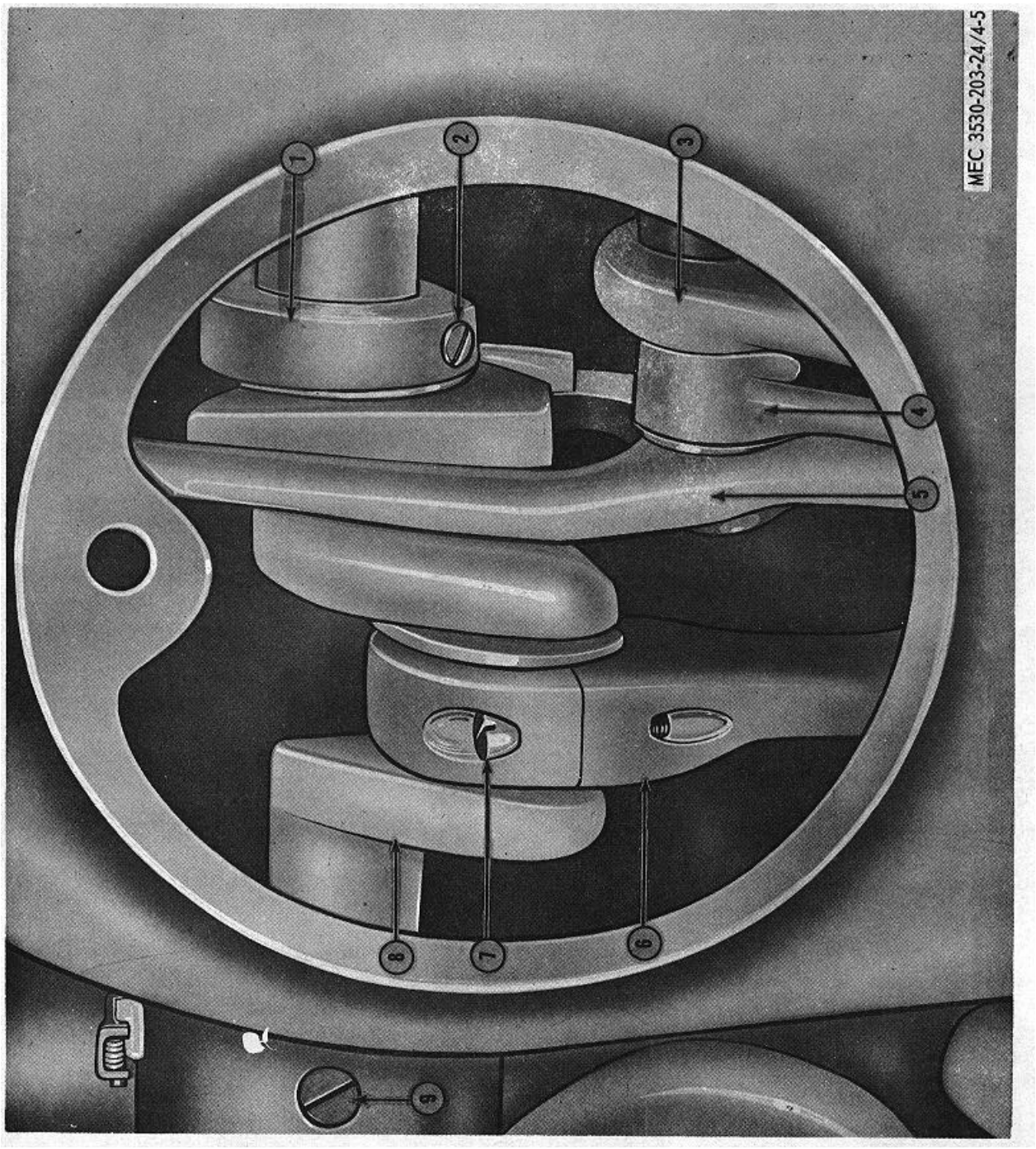
4-50. Feed Regulator

a. Removal.

(1) Remove the feed fork connection (para. 4-53).

(2) Through the opening in the rear of machine arm, remove feed regulator hinge screw that attaches regulator (3, fig. 4-5) to machine arm, and remove regulator through opening.

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in a above.



1	Cam feed	4	Link, feed connecting	7	Screw, crank connecting rod
2	Setscrew, feed cam	5	Connection, feed fork	8	Shaft, arm
3	Regulator, feed	6	Rod, crank connecting	9	Setscrew arm shaft bushing

Figure 4-5. Arm shaft assemblies through arm slide cover opening.

4-51. Crank Connecting Rod

a. Removal.

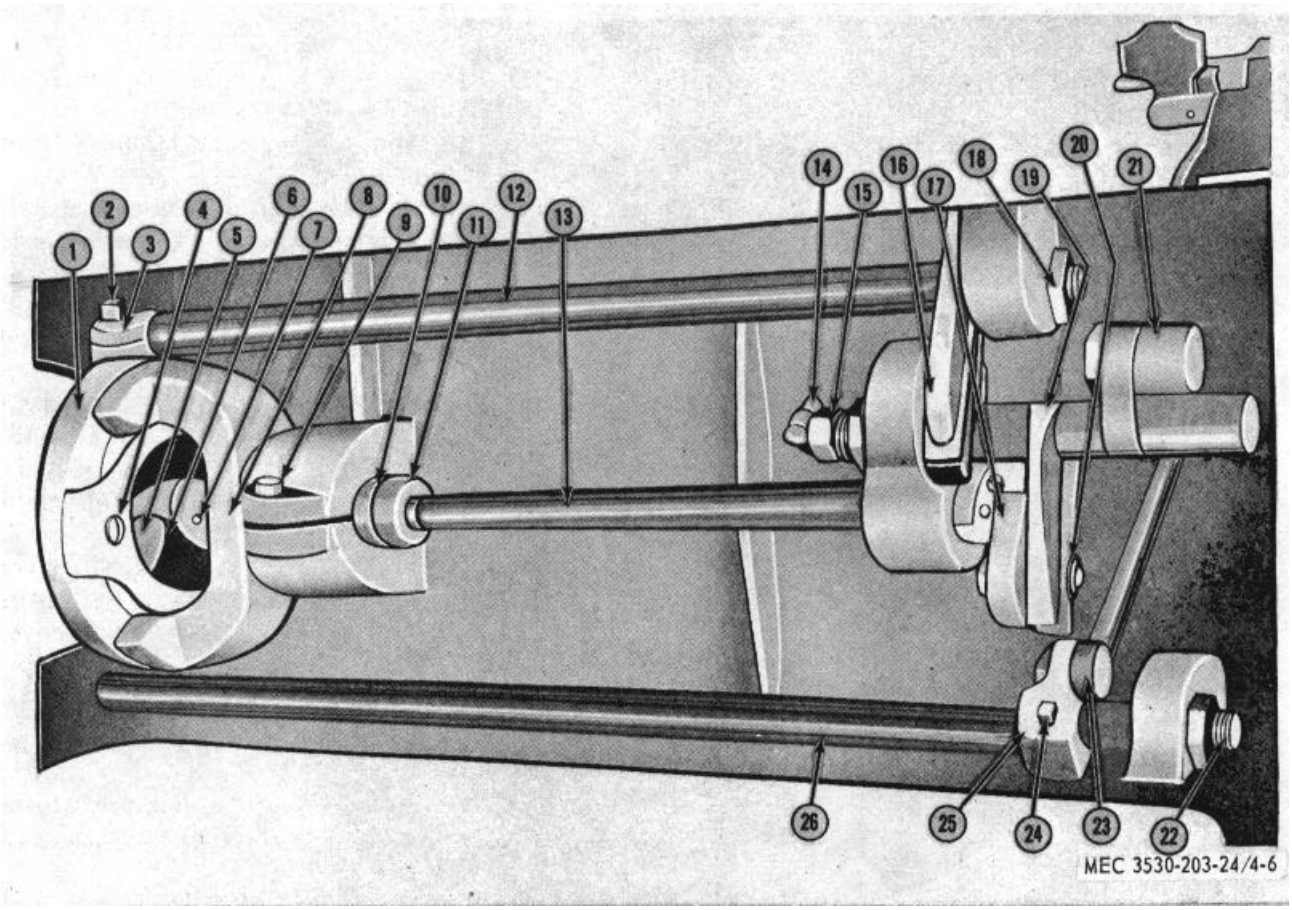
(1) Through the opening in the top of machine arm, remove screws (5, fig. 3-40) that attach cap (6) to connecting rod (37) and remove cap.

(2) Slide the **V**-belt off the balance wheel.

(3) Lift the machine head from the table and place it on its back.

(4) Remove nut (35) and screw (36) that attach rod to rockshaft (19, fig. 4-6) and remove rod out of machine bed.

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in a above.



1 Race assembly, shuttle
2 Screw, feed, rockshaft clamp clamping
3 Crank with roller, feed lifting
4 Spring, shuttle race back
5 Bobbin
6 Cylinder assembly, shuttle
7 Driver, shuttle
8 Frame, shuttle race
9 Screw, shuttle race frame clamping
10 Frame, shuttle race
11 Collar, oscillating shaft
12 Rockshaft, feed lifting
13 Shaft, oscillating
14 Tube, oil oscillating rockshaft
15 Joint assembly, oil oscillating rockshaft
16 Rockshaft, lifting feed (wearing block end)
17 Crank, oscillating shaft
18 Nut, right lifting feed rockshaft screw center
19 Rockshaft, oscillating
20 Block, oscillating shaft. crank slide
21 Rod, crank connecting
22 Screw, right lifting feed rockshaft screw center
23 Connection, feed fork
24 Screw, feed rockshaft clamp clamping
25 Crank, feed rockshaft
26 Rockshaft, feed

Figure 4-6. Heavy-duty sewing machine bed.

4-52. Thread Takeup Cam and Lifting Presser Bar Rockshaft Eccentric Strap

a. Removal.

(1) Remove vibrating presser bar and lifting presser bar and bracket (para. 3-81a).

(2) Remove needle bar (para. 3-77a (1) and (2)).

(3) Remove lifting presser bar crank (para. 3-80a).

(4) Remove thread takeup lever (para. 3-8a).

(5) Remove screws (12, fig. 3-40) that attach cam (11) to shaft (4).

(6) Drive pin (13) from cam, and remove cam from arm shaft.

(7) Remove screw (24) from straps.

(8) Remove nut (19), lockwasher (20), and washer (21) from screw (25).

(9) Remove screw and slide (22) from strap (23). Remove strap from machine face.

(10) Remove nut (10) and screw (9) from straps.

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in a above.

4-53. Feed Fork Connection and Link

a. Removal.

(1) Remove screw that attaches arm slide cover to machine arm, and remove cover.

(2) Remove feed regulating thumbscrew from feed regulator.

(3) Raise regulator (3, fig. 4-5) and link (4) so that feed connecting link hinge screw can be removed through arm side opening.

(4) Remove nut (27, fig. 3-40) and screw (31) that attach link (30) to regulator (26).

(5) Slip the V-belt off the balance wheel.

(6) Lift machine head from table and lay it on its side.

(7) Remove nut (33) and screw (34) that attach the connection to feed rockshaft crank, and remove connection with link.

(8) Remove nut (38) and screw (29) that attach link to connection, and remove link.

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in *a* above.

4-54. Feed Rockshaft and Feed Bar

a. Removal.

(1) Slip the **V**-belt off the balance wheel.

(2) Lift the machine head from the table and lay it on its back.

(3) Remove feed dog from the machine.

(4) Remove nut (33, fig. 3-40) and screw (34) that attach connection (32) to crank (11, fig. 4-7).

(5) Remove nuts (8) on screws (9 and 15) and remove screws from machine bed.

(6) Remove rockshaft (12) with crank (11) and feed bar (17) from machine bed.

(7) Remove screw (10) that attaches crank to rockshaft and remove crank.

(8) Remove nuts (13) and screws (14) that attach feed bar to rockshaft, and remove feed bar.

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in *a* above.

4-55. Feed Lifting Rockshaft and Crank With Roller

a. Removal.

(1) Slide V-belt off of the balance wheel.

(2) Lift machine head from table and lay it on its back.

(3) Remove left and right nuts (31 and 37, fig. 4-7) from screws (32 and 36), and remove screws from machine bed.

(4) Remove rockshaft (33) and crank with roller (34) from machine bed.

(5) Remove screw (35) that attaches crank to shaft, and remove crank with roller.

(6) Remove screw that holds feed lifting rockshaft wearing block to the rockshaft and remove block and pin.

b. Installation. Replace defective parts with serviceable ones and install by reversing the procedure in *a* above.

4-56. Oscillating Shaft, Crank, and Shuttle Driver

a. Removal and Disassembly.

(1) Slide the V-belt from the balance wheel and from the motor clutch pulley.

(2) Lift the machine head off the table and place it on its back.

(3) Remove shuttle cylinder (para. 3-75a).

(4) Loosen setscrew (25, fig. 4-7) on crank (5), and drive out pin (27) that attaches crank to oscillating shaft (21).

(5) Remove setscrews (7) that attach collar (22) to shaft.

(6) Drive shaft with driver out of the shuttle cylinder end of machine bed, and remove collar.

(7) Remove setscrew (20) from driver, drive out pin (19) that attaches drive to shaft, and remove driver.

(8) Remove screw (1) and washer (2) that attach block (3) to stud (4), and remove block.

(9) Remove nut (6) that attaches stud to crank, and remove stud.

b. Assembly and Installation. Replace defective parts with serviceable ones and assemble, and install them by reversing the procedure in a above.

4-57. Oscillating Rockshaft, Bearing, and Oil Tube and Joint Assembly

a. Removal.

(1) Remove feed lifting rockshaft (para. 4-55).

(2) Remove hinge screw and nut that attach crank connecting rod to rockshaft (28, fig. 4-7).

(3) Remove nut (30) on pin (29) and remove pin from machine bed.

(4) Unscrew tube and joint assembly (23) from bearing (26), and remove tube and joint assembly from machine bed.

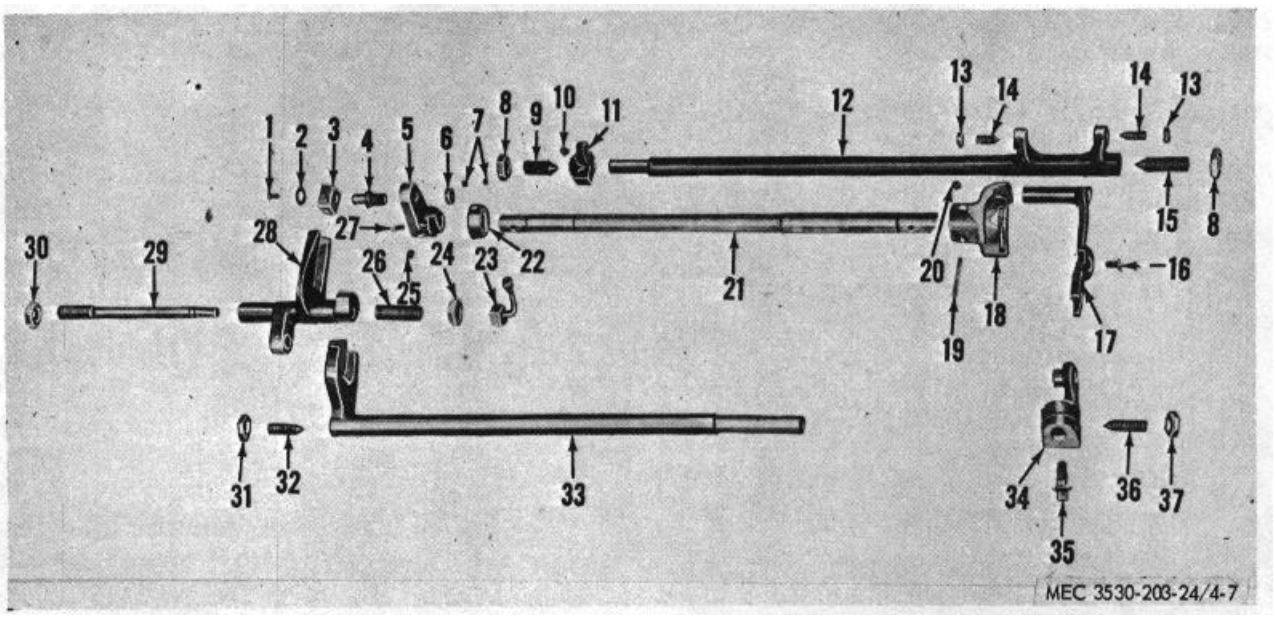


Figure 4-7. Heavy-duty sewing machine bed, disassembled.

1 Screw, oscillating shaft crank slide block
2 Washer, oscillating shaft crank slide block cap-
3 Block, oscillating shaft crank slide
4 Stud, oscillating shaft crank slide block, capscrew
5 Crank, oscillating shaft
6 Nut, oscillating shaft crank slide block capscrew stud screw

7 Setscrew, oscillating shaft collar
8 Nuts, feed rockshaft, screw, right and left
9 Screw, left feed rockshaft center
10 Screw, feed rockshaft clamp clamping
11 Crank, feed rockshaft
12 Rockshaft, feed
13 Nuts, feed bar center screw
14 Screws, feed bar center
15 Screw, right feed rockshaft
16 Screw, feed dog
17 Bar, feed
18 Driver, shuttle screw center
19 Pin, shuttle driver
20 Setscrew, shuttle driver
21 Shaft, oscillating
22 Collar, oscillating shaft
23 Tube and joint assembly, oscillating rockshaft oil
24 Nut, oscillating rockshaft hinge pin bearing
25 Setscrew, oscillating shaft crank
26 Bearing, oscillating rockshaft hinge pin screw
27 Pin, oscillating shaft crank
28 Rockshaft, oscillating
29 Pin, oscillating rockshaft hinge
30 Nut, oscillating rockshaft hinge pin
31 Nut, feed lifting rockshaft screw center
32 Screw, left center feed lifting rockshaft
33 Rockshaft, feed lifting
34 Crank with roller, feed lifting rockshaft
35 Screw, feed lifting rockshaft crank clamping
36 Screw, right feed lifting rockshaft screw center
37 Nut feed lifting rockshaft

(5) Remove setscrews (7) that attach collar (22) to shaft.

(6) Drive shaft with driver out of the shuttle cylinder end of machine bed, and remove collar.

(7) Remove setscrew (20) from driver, drive out pin (19) that attaches driver to shaft, and remove driver.

(8) Remove screw (1) and washer (2) that attach block (3) to stud (4), and remove block.

(9) Remove nut (6) that attaches stud to crank, and remove stud.

b. Assembly and Installation. Replace defective parts with serviceable ones and assemble and install them by reversing the procedure in a above.

Section VIII. OVEREDGE SEWING MACHINE

4-58. General

This section covers the direct and general support maintenance instructions for the overedge sewing machine. Any deficiencies which the direct support maintenance personnel are not authorized to correct must be reported as stipulated in TM 38-750.

4-59. Covers Right and Left and Thread Looper Levers

a. Removal.

(1) Remove the thumbscrew that holds the machine head to the base, and remove the machine head from the base.

(2) Swing the cloth plate to the side.

(3) Remove throat plate (para. 3-88a) from the machine.

(4) Remove three screws (16, fig. 3-45) that hold the chip guard (11) in place, and lift chip guard and hinged right frame side cover off the machine.

(5) Remove remaining screw that holds left frame side cover to left looper hinge stud and remove left frame side cover.

(6) Remove frame top cover extension holder and extension.

(7) Remove two screws that hold feed eccentric cover to frame top cover, and remove feed eccentric cover.

(8) Remove frame top cover from the machine.

(9) Remove left looper (para. 3-91a).

(10) Remove right looper (para. 3-92a).

(11) Remove drive shaft crank ball sleeve bushing nuts and drive shaft crank ball sleeve bushing nut washer.

(12) Remove right thread looper drive shaft crank connector (3, fig. 3-53) from the sleeve by removing screw (8). Remove crank connector from looper drive shaft crank (5, fig. 3-54).

(13) Loosen right thread looper connector hinge stud setscrew (50) and remove stud (53).

(14) Loosen hinge pin setscrew. Loosen hinge pin bushing setscrew at other end of right looper lever hinge pin.

Drive out right looper lever hinge pin and hinge pin bushing.

(15) Remove two setscrews holding left looper lever hinge stud to frame.

(16) Drive out left looper lever hinge stud toward front of machine. Remove left thread looper lever together with

right thread looper lever (11) from machine in one piece.

(17) Remove thread eyelet from right thread looper lever (11) by unscrewing retaining screw.

(18) Remove looper thread takeup from left thread looper lever by removing retaining screw.

(19) Remove left thread looper lever crank connector nuts and screws. Remove two crank connectors (3 and 9, fig. 3-53) and connect hinge pins.

(20) Remove right thread looper lever (11, fig. 3-54) from left thread looper lever.

b. Installation.

(1) Link the right and left looper levers together by installing the two connector hinge pins and two crank connectors. Fasten in place with connector screws and nuts.

(2) Install thread takeup on left thread looper lever with retaining screw.

(3) Install thread eyelet on right thread looper lever with retaining screw.

(4) Place left looper lever in position over hole in fame. Right looper lever away from the handwheel and install it on the left looper lever. Insert left looper lever hinge stud from front of machine. The flat of stud should face the setscrews.

(5) Install and tighten two left looper lever hinge stud setscrews in frame.

(6) Insert right looper lever hinge pin and hinge pin bushing. Tighten two setscrews securely.

(7) Install stud with setscrew in right looper lever and tighten stud setscrew.

(8) Install right thread looper drive shaft crank connector, keyhole slot uppermost, over sleeve on looper drive shaft crank, and stud in right looper lever. Tighten screws on connector.

(9) Place looper drive shaft crank ball sleeve washer over stud on shaft crank. Install and tighten ball sleeve bushing nut.

(10) Install left looper (para. 3-91b).

(11) Install right looper (para. 3-92b).

(12) Install frame top cover on machie frame.

(13) Screw feed eccentric cover to frame top cover.

(14) Install frame top cover extension holder and extension.

(15) Install left frame side cover on machine keyhole pointed toward the handwheel and install screw holding cover to left looper hinge stud. Install lower screw but do not tighten.

(16) Install right frame side cover and give the two holding screws several turns.

(17) Slide chip guard over three screws (one holding left frame side cover and two holding right frame side cover) and tighten screws securely.

(18) Install throat plate (para. 3-88b).

(19) Swing cloth plate into position.

(20) Install machine head in machine base and install thumbscrew under the tabletop.

4-60. Movable Knife Lever and Stationary Knife Holder

a. Removal.

(1) Remove throat plate, chip guard, frame side and top covers, top cover extension holder and extension and feed eccentric cover (para. 4-59a (1) through (8)).

(2) Remove movable (upper) knife and holder (para. 3-109a).

(3) Remove stationary(lower) knife (para. 3-96a).

(4) Remove holder guide, extension pin, and holder spring from machine.

(5) Loosen setscrew on top of movable knife lever. Slip out lever connector hinge stud.

(6) Loosen setscrew holding movable looper lever hinge stud to rear of machine. Drive out hinge stud.

(7) Lift movable knife lever from machine.

(8) Remove two lever connector capscrews and lift connector from drive shaft.

(9) Remove stationary knife clamping stud (6, fig. 3-51) by unscrewing thumb nut.

(10) Remove stationary knife holder screw.
(11) Remove regulating thumbscrew.
(12) Remove stationary knife holder (14, fig. 3-52) from frame.
(13) Remove needle guard, stop screw, and nut from stationary knife holder.

b. Installation.

(1) Install stop screw, nut, and needle guard on stationary knife holder.
(2) Install stationary knife holder in machine frame.
(3) Install regulating thumbscrew and stationary knife holder screw.
(4) Insert stationary knife clamping stud and fasten it to holder with thumb nut.
(5) Install stationary knife (para. 3-96b).
(6) Install movable knife lever connector on drive shaft and fasten in place with two capscrews.
(7) Place movable knife lever in position on machine, insert lever hinge stud in rear of machine, flat portion toward setscrew, and tighten setscrew.
(8) Fit movable knife lever into the fork of the connector. Insert lever connector hinge stud and tighten setscrew.
(9) Place holder guide and holder spring on extension pin and insert into the fork of the lever.
(10) Install movable knife holder, gib, screw, guide plate, and tighten two holding screws securely.
(11) Adjust stationary knife and movable knife (paras. 3-96 and 3-108).
(12) Install frame side and top cover, feed eccentric cover, top cover extension holder and extension, and chip guard, and throat plate by reversing procedures in (para. 4-59a (1) through (8)).

4-61. Crank, Connector, Bracket, and Bushings

a. Removal.

(1) Remove left frame side cover, throat plate, and needle from the machine (para. 3-88a).
(2) Remove frame top cover and extension holder and extension, and feed eccentric cover (para. 4-59a).
(3) Remove screw that holds upper bushing oil pad cover to the machine head, and remove cover and oil pad.
(4) Loosen setscrew holding upper bushing and remove the bushing.
(5) Loosen setscrew holding lower bushing and remove the bushing.
(6) Loosen front crank position screw.
(7) Loosen front crank setscrew.
(8) Remove two upper capscrews from connector. These screws are accessible from behind the machine. Remove two thread pulloffs and connector.
(9) Loosen two setscrews in back guide bar crank. These screws are accessible from the rear of the machine.
(10) Remove ball stud.
(11) Pull back the crank from rear of machine grasping front crank assembly at the same time.
(12) Remove guide bar connecting bracket from connector by loosening bracket setscrew and removing hinge pin.
(13) Remove other end of connector from front needle bar crank by loosening setscrew on the crank and removing the other connecting hinge pin.
(14) Remove two screws holding needle thread takeup to crank and remove takeup.
(15) Loosen setscrew on the arm and withdraw the back crank bushing.
(16) Remove two connector lower capscrews and left thread controller, rod, and 2-piece ball sleeve from the drive shaft.

b. Installation.

(1) Install 2-piece ball sleeve and connector on drive shaft and tighten rear lower capscrew. Install thread controller on front lower capscrew and tighten screw securely.
(2) Install bushing on the back crank and tighten setscrew.
(3) Install thread takeup on front crank with the two screws.
(4) Install connector on the front crank. Place smallest opening in the front crank in the fork of the connector. Insert hinge pin through connector

and crank. Tighten setscrew in crank.

(5) Install other end of connector over the largest hole in connector bracket.

Insert hinge pin through connector and bracket. Tighten bracket setscrew.

(6) Place front crank in position on front of arm. Insert back crank through hole in rear of arm. The crank when inserted will support the front crank.

(7) Insert ball stud into back crank and tighten two setscrews.

(8) Place upper cap of connector over ball stud. Place two thread pulloffs on cap. Fasten cap and pulloffs in place by inserting two upper capscrews.

(9) Tighten front crank setscrew and front crank position screw.

(10) Insert lower and upper bushings and fasten in place by tightening setscrews.

(11) Install oil pad under upper bushing oil pad cover and fasten on machine with screw.

(12) Place bracket in position on the arm, and install needle.

(13) Install frame top cover, feed eccentric cover, and frame top cover extension holder and extension (para. 4-59).

4-62. Cloth Plate, Drive Shaft, Feed and Lifting Eccentrics, Feed Shaft, and Feed Bar Connectors

a. Removal.

(1) Remove the thumbscrew that holds the machine head to the machine base, and lift machine head from the base.

(2) Remove feed dog (para. 3-90a).

(3) Swing cloth plate (14, fig. 3-45) to the side. Loosen hinge stud setscrew Which is accessible under the cloth plate when it is swung aside. Lift out the stud and remove the plate in one piece. To disassemble cloth plate once it has been removed from machine, unscrew holding screws beneath surface of plate and remove lower extension, upper extension, and lock spring.

(4) Remove chip guard, frame side covers, and top frame top cover extension holder and extension, and feed eccentric cover (para. 4-59a (3) through (8)).

(5) Loosen feed bar setscrew, accessible at back of machine and slip out the hinge pin upon which the feed bar (11, fig. 4-5) rotates.

(6) Remove feed bar connector (32) from feed shaft crank by first loosening connector clamping screw and nut and then unscrewing feed bar connector hinge screw from feed shaft crank and nut.

(7) Loosen clamping screw and setscrew on crank, and remove crank from bushing on feed shaft hinge pin.

(8) Loosen setscrews that hold feed shaft hinge pin and bushing, and slip out pin and bushing.

(9) Remove feed shaft from frame.

(10) Remove feed connector capscrews, and remove connector from feed eccentric on drive shaft.

(11) Loosen two setscrew s on feed eccentric.

(12) Remove two capscrews from upper knife lever connector and lift connector from feed lifting eccentric on drive shaft.

(13) Remove drive shaft from the machine.

(14) Remove feed lifting eccentric connector from feed bar and from drive shaft.

(15) Loosen two screws that hold feed lifting eccentric to drive shaft, and slip off feed lifting eccentric.

(16) Remove feed eccentric oiler from drive shaft.

(17) Remove feed eccentric from drive shaft.

b. Installation.

(1) Install drive shaft partly into the frame.

(2) Slip feed eccentric oiler on the drive shaft.

(3) Slip feed lifting eccentric on drive shaft until ball-shaped portion is up against the oiler. Tighten two screws that secure feed lifting eccentric to drive shaft.

(4) Install feed lifting eccentric connector over the feed bar and over the drive shaft with the stud pointing toward balance wheel.

(5) Install drive shaft all the way into the frame.

(6) Install upper knife, lever connector over the ball of the feed lifting eccentric on the drive shaft and install and tighten two capscrew securely.

(7) Install feed connector over the feed eccentric on drive shaft and tighten two capscrews.

(8) Place feed shaft in position on frame.

Insert lower hinge pin into the feed shaft and in the frame.

(9) Place bushing over hinge pin.

(10) Install feed shaft crank over bushing. Tighten setscrews holding hinge pin and bushing. Tighten crank clamping screws.

(11) Insert feed connector hinge screw in upper hole of connector and screw the threaded portion into feed shaft crank. Tighten feed connector hinge screw nut on feed shaft crank.

Tighten connector clamping screw and nut.

(12) Hold feed bar in position and insert holding hinge pin through the upper portion of shaft. Insert stud of feed lifting eccentric connector into the hole in feed bar. Tighten feed bar holding screw.

(13) Install feed dog (para. 3-90b).

(14) Install feed eccentric cover, frame side and top covers, frame top cover extension and extension holder and chip guard (para. 4-59b)

(15) Assemble cloth plate and install lower extension, upper extension, and lock spring with holding screws, into the underneath surface of the cloth plate. Swing cloth plate back into position. Insert stud and tighten hinge stud screw. Install cloth plate on frame.

(16) Install machine head upon machine base with thumbscrew.

4-63. Presser Bar, Lifting Lever, and Bracket

a. Removal.

(1) Remove the thumbscrew that holds the machine head to the machine base, and remove the machine head from the base.

(2) Remove presser foot machine (para. 3-112a).

(3) Remove regulating thumbscrew and presser lever spring from the arm.

(4) Remove chip guard from side and top covers, top cover extension holder and extension, and feed eccentric cover (para. 4-59a (3) through (8)).

(5) Remove hinge screw that secures the lifting .lever to frame and remove lever.

(6) Remove two lifting lever stop screws and nuts from lever.

(7) Remove two screws that hold the lifting lever bracket to frame. Remove bracket and lifting lever spring from frame.

(8) Loosen setscrew that holds the presser lever hinge stud accessible at the rear of the machine. Remove stud and presser bar from the frame.

(9) Unscrew presser lever eccentric screw stud and nut from presser lever.

(10) Remove presser lever lifter from frame by removing hinge screw.

b. Installation.

(1) Install presser lever lifter on frame. Tighten hinge screw.

(2) Install presser lever eccentric screw stud on presser lever so that eccentric will fit over lifter. Tighten nut.

(3) Place presser lever in position on frame. Insert hinge stud and tighten setscrew.

(4) Install the spring under the lifting lever bracket and fasten bracket and spring to frame with two holding screws.

(5) Install two lifting lever stop screws and nuts on lifting lever.

(6) Install lifting lever on frame, fastening it in position with hinge screw.

(7) Install feed eccentric cover, frame top cover, frame top cover extension

and extension holder, right and left frame side covers, and chip guard (para. 4-59b (13) through (17)).

(8) Insert presser lever spring in arm and install regulating thumbscrew.

(9) Install presser foot.

(10) Install machine head on base.

4-64. Connector and Drive Shaft, Ball Sleeve, Crank and Bushings

a. Removal.

(1) Remove the right and left looper levers from the machine (para. 4-59a (1) through (16)).

(2) Remove upper and lower thread nipper springs from the frame by removing the screw.

(3) Remove pin from ball sleeve on drive shaft crank. Remove ball sleeve and guide.

(4) Slip ball sleeve bushing off of the crank.

(5) Loosen setscrew and position screw in crank, and remove the crank and the oil sling cover from the drive shaft.

(6) Remove movable or upper knife lever and lever connector from feed lifting eccentric on drive shaft.

(7) Loosen two screws on feed lifting eccentric.

(8) Remove feed connector from machine (para. 4-62a (6) through (10)).

(9) Loosen the two setscrews on the feed eccentric.

(10) Remove connector 2-piece ball sleeve, and guide from drive shaft.

(11) Loosen setscrew that holds the flanged back bushing for the drive shaft.

(12) Grasp the balance wheel and pull the drive shaft (and back bushing) to the right and out of the machine, slipping it off of the feed lifting eccentric connector, feed lifting eccentric, feed eccentric oiler, and feed eccentric as the drive shaft is being withdrawn.

(13) Remove setscrew that holds the front bushing for the drive shaft to the frame and drive out the bushing.

(14) Loosen setscrews, balance wheel from drive shaft and slip the back bushing from the shaft.

b. Installation.

(1) Install back bushing in the drive shaft with flange pointing toward the right.

(2) Install balance wheel on drive shaft and tighten setscrews.

(3) Install front bushing for the drive shaft in the frame and tighten the holding screw.

(4) Slide drive shaft all the way into the frame, inserting these attachments on the drive shaft in the following order: feed eccentric, feed eccentric oiler, feed lifting eccentric with ball toward balance wheel, and feed lifting eccentric connector with stud facing balance wheel. Insert stud into the hole of the feed bar.

(5) Tighten two feed eccentric setscrews securely.

(6) Tighten two screws on feed lifting eccentric.

(7) Install back bushing for drive shaft in place with setscrew.

(8) Install oil sling cover for drive shaft crank. Slide crank on shaft and tighten set and position screws.

(9) Install ball sleeve bushing on crank.

(10) Install ball sleeve guide and ball sleeve over crank. Install pin in ball sleeve.

(11) Install lower thread nipper spring and upper thread nipper spring on frame, securing in place with single retaining screw.

(12) Install the right and left looper levers in the machine (para. 4-59b).

Section IX. TEXTILE SEWING MACHINE

4-65. General

This section covers the direct and general support maintenance instructions for the textile sewing machine. Any deficiencies which the direct support maintenance personnel are not authorized to correct must be reported as stipulated in TM 38-750.

4-66. Arm Shaft, Bushing, and Bearing

a. Removal.

(1) Remove needle bar rock frame (para. 3-128a (1) through (12)).

(2) Through opening in top of machine arm, remove crank setscrews (24 and 25, fig. 3-68) that attach needle bar crank (27) to arm shaft, and remove needle bar crank.

(3) Remove bed thread hook shaft drive belt (para. 4-67a).

(4) Tilt machine head forward.

(5) Remove setscrews (5, fig. 4-8) and positioning screw (6) that attach arm shaft belt pulley to arm shaft.

(6) Remove setscrew (2) that attaches feed indicating disk to arm shaft.

(7) Through slot in rear of machine arm, remove setscrews (23 and 44) that attach lifting eccentric to shaft (40).

(8) Grasp the arm shaft on the right end and pull it from the machine head.

(9) Remove eccentric connector (41), lifting eccentric (24), feed indicating disk (1), arm shaft belt pulley (4), and rear arm shaft bushing (11) with collar (13), bearing (14), and washer (15).

(10) Remove setscrew (37) that attaches front arm shaft bushing (36) to machine arm, and remove bushing.

b. Installation. Replace defective parts with serviceable ones and install them by reversing procedure in *a* above.

c. Adjustment (Timing).

(1) Turn the balance wheel toward the operator until the thread takeup lever is at its highest position.

(2) Tilt machine head back.

(3) Check arrows on collar (2, fig. 4-9) and plate (3) to see if they are alined. If the arrows are not alined, remove connection belt from pulley on the hook driving shaft.

(4) Move the thread takeup lever to its highest position, and turn the hook driving shaft until the arrows are alined. Install drive belt on pulley.

(5) Adjust thread hook with needle (para. 4-55c).

(6) Adjust the stitch indicator disk if it does not indicate accurately as follows:

(a) Use a pencil or tailor's crayon to make two parallel lines 1 inch apart on a scrap piece of fabric.

(b) Sew a line of stitches across both ruled lines and at right angles to them. Count the number of stitches between the lines.

(c) Adjust the machine until it sews five stitches to an inch.

(d) Open the cover plate on top of the machine arm, and turn the balance wheel until the setscrew hole in the edge of the indicator disk comes into view. Insert a screwdriver into this hole, and loosen the screw so that the indicator disk does not turn with the balance wheel (fig. 4-10).

(e) Hold down the right hand plunger (fig. 4-11) in the machine bed, and turn the balance wheel until it drops into the notch in the feed driving adjusting disk.

(f) Hold the balance wheel and with the plunger still in the notch, turn the indicator dial until the figure 5 appears through the indicator hole.

4-67. Bed Thread Hook Shaft Drive Belt

a. Removal.

(1) Remove drive pulley with balance wheel (para. 3-122).

(2) Remove screw (8, fig. 4-8) that attaches arm cap (7) to machine arm, and remove arm cap.

(3) Remove setscrew that attaches real' arm shaft bushing (11) to machine arm.

(4) Remove setscrew (12) that attaches arm shaft ball bearing collar (13) to arm shaft.

(5) Remove rear arm shaft bushing.

(6) Tilt the machine head back.

(7) Slide hook shaft drive belt (1, fig. 4-9) from the safety clutch (4).

(8) Grasp the belt at the top and pull it up as far as it will go. Remove the belt through the hole normally occupied by the arm shaft bushing.

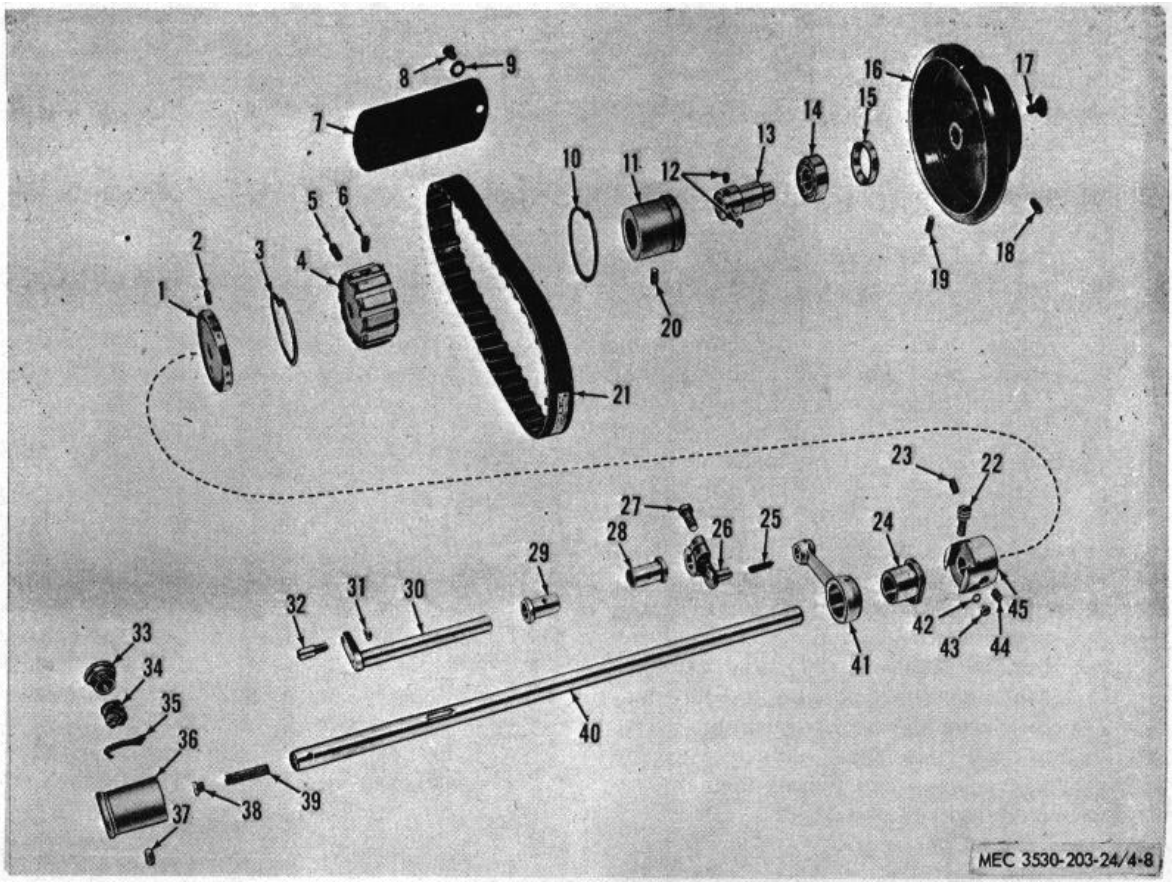
b. Installation. Replace defective parts with serviceable ones and install them by reversing procedure in a above.

c. Adjustment (Timing). Following the instructions in paragraph 4-66.

4-68. Thread Hook Driving Shaft

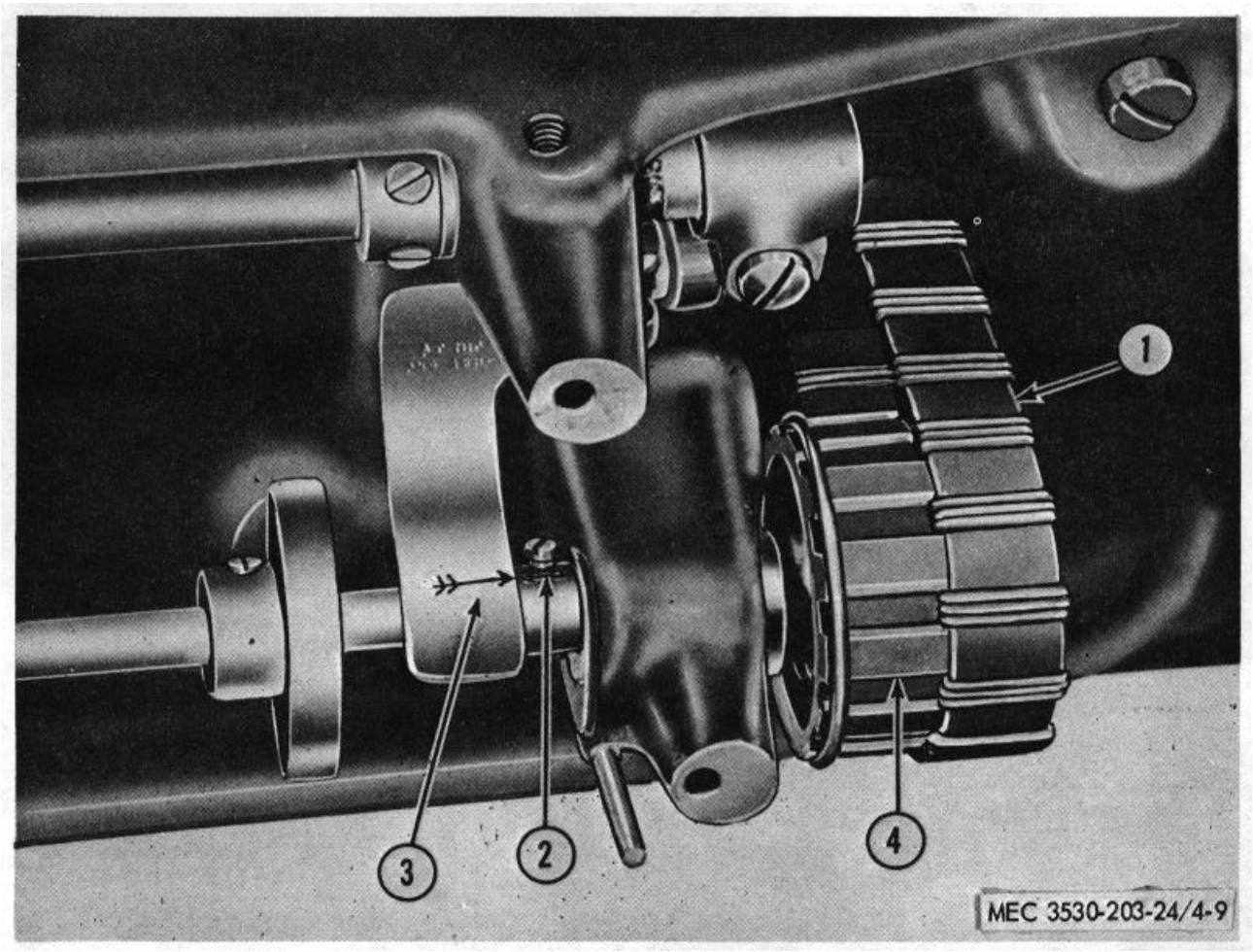
a. Removal.

(1) Slide round belt from drive pulley with balance wheel, and tilt machine head back.



1 Disk, arm feed indicating
2 Setscrew, feed indicating disk
3 Flange, shaft pulley spring
4 Pulley, arm shaft belt
5 Setscrew, shaft flanged pulley
6 Screw, shaft flanged pulley positioning
7 Cap, arm
8 Screw, arm cap
9 Washer, arm cap screw
10 Flange, shaft pulley spring
11 Bushing, arm shaft rear
12 Setscrew, shaft rear ball bearing collar
13 Collar, arm shaft ball bearing
14 Bearing, arm shaft ball
15 Washer, arm shaft ball bearing
16 Pulley with balance wheel, drive
17 Screw, shaft drive pulley adjusting
18 Setscrew, drive pulley
19 Setscrew, drive pulley
20 Setscrew, shaft rear bushing
21 Belt, bed thread hook shaft drive
22 Screw, lifting eccentric regulating
23 Setscrew, lifting eccentric body
24 Eccentric, lifting
25 Packing, lifting eccentric crank oil
26 Crank, needle bar rock frame rockshaft
27 Screw, needle bar rock frame rockshaft crank pinch
28 Bushing, vibrating presser bar lifting rockshaft
29 Bushing, vibrating presser bar lifting rockshaft
30 Rockshaft vibrating presser bar lifting
31 Nut, vibrating presser bar lifting bellcrank stud
32 Stud, vibrating presser bar lifting bellcrank link
33 Thumbscrew, shaft front bushing
34 Wick, arm shaft front bushing
35 Wick, front armshaft oil
36 Bushing, arm shaft front
37 Setscrew, shaft front bushing
38 Wick, drive shaft oil
39 Screw, drive shaft oil wick
40 Shaft, drive arm
41 Eccentric connector, vibrating presser bar lifting rockshaft
42 Washer, lifting eccentric setscrew
43 Screw, lifting eccentric
44 Setscrew, lifting eccentric body
45 Body, lifting eccentric

Figure 4-8. Textile sewing machine arm shaft and related parts, disassembled.



1 Belt, bed thread hook shaft drive
2 Collar, timing
3 Plate, arm shaft flanged timing pulley
4 Clutch, hook drive shaft safety

Figure 4-9. Textile serving machine bed, showing timing marks.

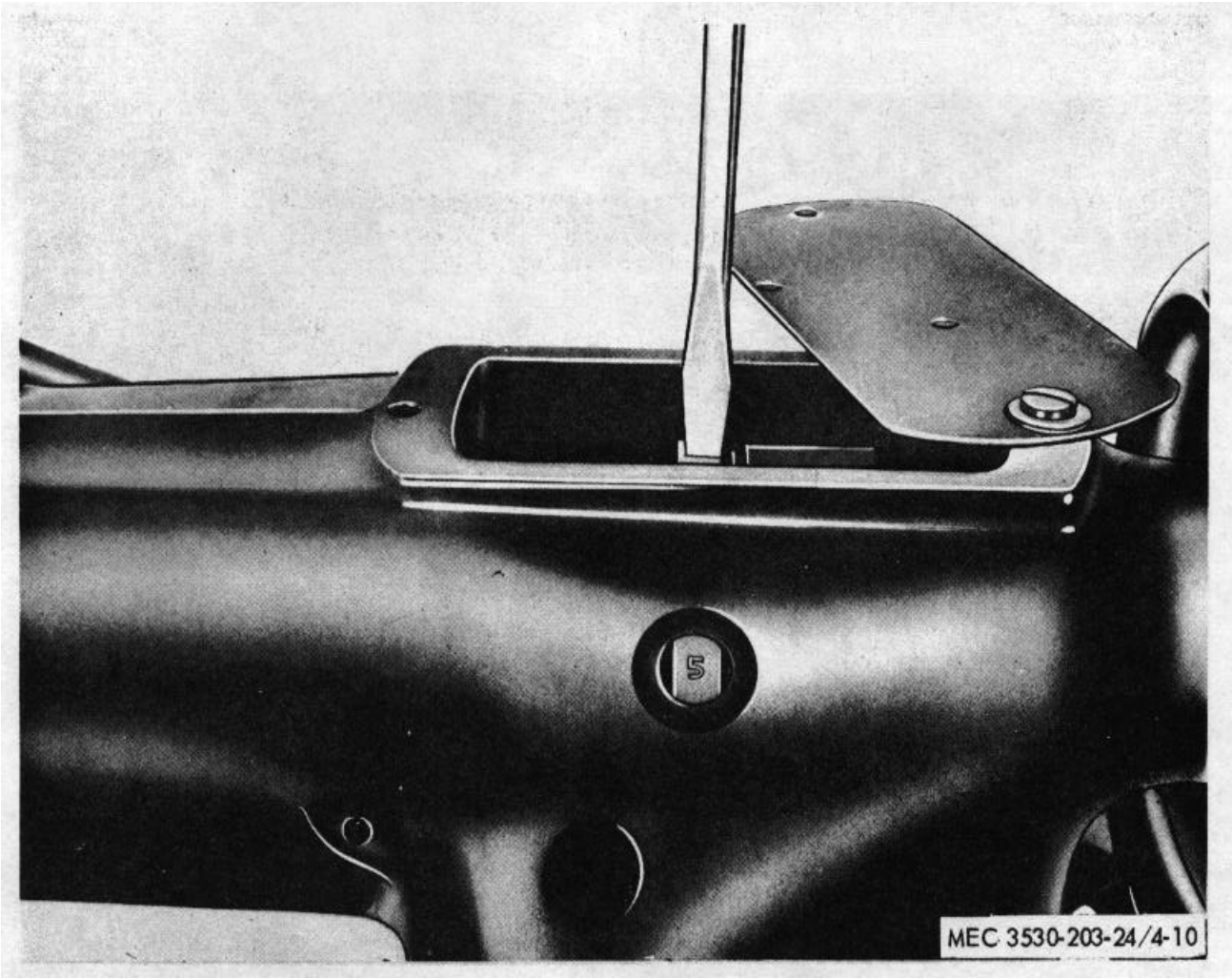
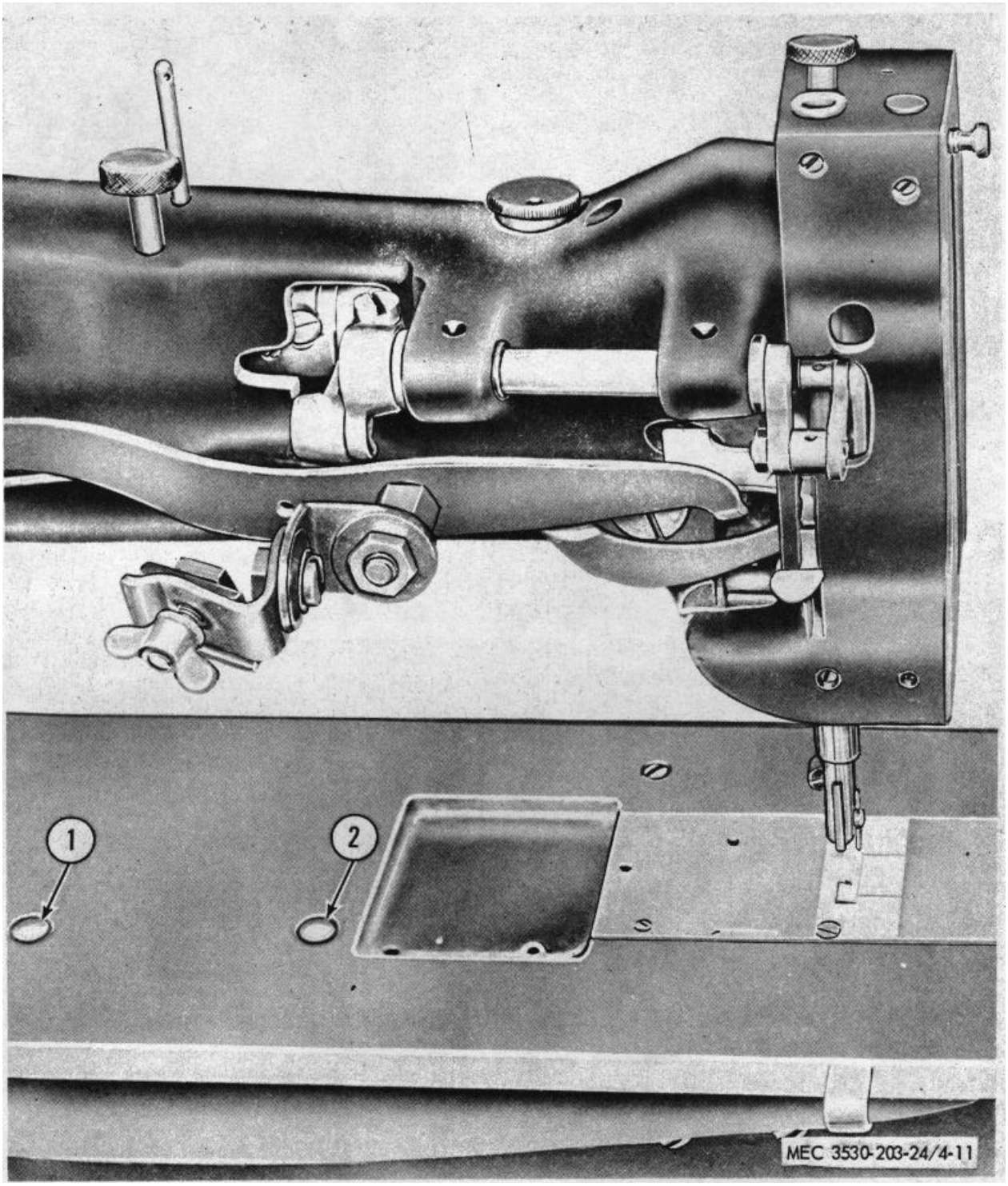


Figure 4-10. Adjusting stitch indicator disk on textile sewing machine.



1 Stud, thread hook drive shaft lock

2 Stud, regulating feed

Figure 4-11. Textile sewing machine bed, showing plungers.

(2) Slide drive belt (1, fig. 4-9) off safety clutch (4).

(3) Remove setscrews (87, fig. 4-12) that attach safety clutch to hook driving shaft, (89) and remove spring flange (79), safety clutch (81), link (82), lever (83), stud (84), spring (85), latch (86), collar (88), stud (90), and lever (91) as an assembly from shaft.

(4) Insert screwdriver into machine bed opening, remove setscrew (94) that attaches bushing (72) to hook drive shaft.

(5) Remove position screw (74) and setscrew (75) that attach collar (76) to hook drive shaft.

(6) Remove bushing (72), screws (73), setscrew (75), collar (76), bearing (77), washer (78), screws (93), and setscrew (94) as an assembly from hook drive shaft.

(7) Remove screws (47) that attach timing plate (46) to machine bed, and remove timing plate.

(8) Remove setscrew (42) and positioning screw (49) that attach lock ratchet (48) to hook drive shaft.

(9) Remove setscrews (40) that attach stop collar (41) to hook drive shaft.

(10) Remove setscrews (50) and positioning screw (51) that attach flange (52) to hook drive shaft.

(11) Remove setscrew (60) and positioning screw (61) that attach gear (62) to hook drive shaft.

(12) Slide hook drive shaft to the right so that setscrew (63) can be removed. Remove setscrew from cam (64).

(13) Slide hook drive shaft from machine bed and remove ratchet, collar, spring, disk, flange, gib (53), setscrew (33), screw (34), eccentric (32), gear, and cam from machine bed.

(14) Remove nut (27) and hinge screws (29) that attach feed drive connector (28) to feed driving shaft crank, and remove crank.

(15) Remove setscrew (54) that attaches bearing (55) to machine bed.

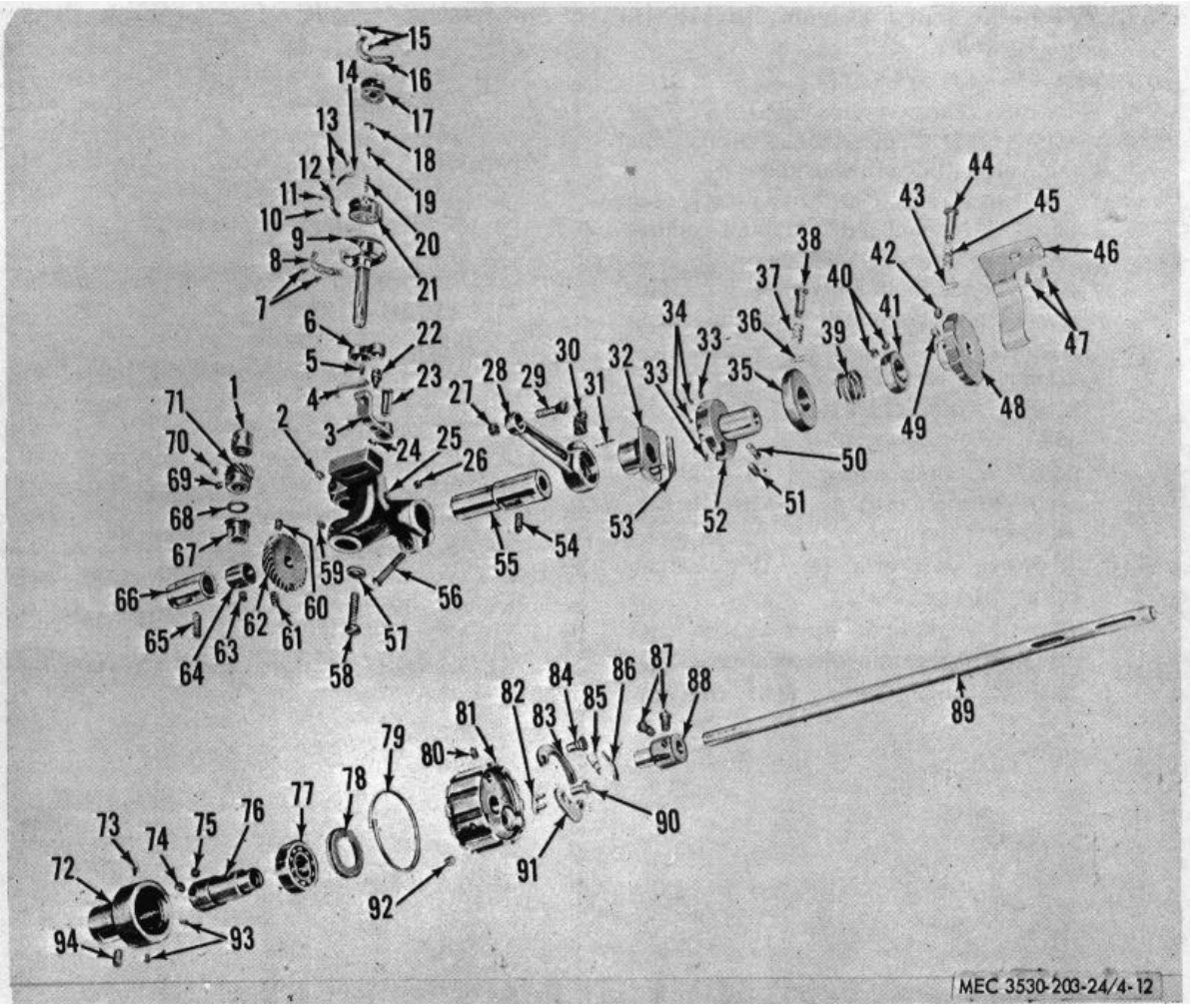
(16) Loosen pinch screw (56) that attaches hook saddle to bearing, and remove bearing.

(17) Insert screwdriver into opening in machine bed, remove setscrew (65) that attaches front bushing (66) to machine bed, and remove bushing.

b. Installation. Replace defective parts with serviceable ones and install them by reversing procedure in a above.

c. Adjustment (Timing). Adjust hook drive shaft with arm shaft (para. 4-66).

1 Bushing, upper saddle hook
2 Screw, positioning thread hook saddle upper bushing
3 Lever, bobbin case opener
4 Opener, bobbin case
5 Screw, bobbin case opener
6 Link, bobbin case opener lever
7 Screw, thread hook needle guard
8 Guard, thread hook needle
9 Hook, thread
10 Screw, bobbin case tension spring
11 Screw, bobbin case tension spring regulating
12 Spring, bobbin case tension
13 Screw, bobbin case oiling retainer
14 Retainer, bobbin case oiling felt
15 Screw, thread hook gib
16 Gib, thread hook
17 Bobbin
18 Latch, bobbin case
19 Plunger, bobbin case latch
20 Spring, bobbin case latch
21 Case, bobbin
22 Stud, bobbin case opener lever driving screw
23 Stud, bobbin case opener lever hinge
24 Nut, screw stud
25 Saddle, thread hook
26 screw, hook bushing position
27 Nut, feed drive connector hinge screw
28 Drive connector, feed
29 Screw, feed drive connector hinge
30 Felt, feed drive connector oiling
31 Wire, feed drive connector oiling felt retaining
32 Eccentric, feed drive
33 Setscrew, feed drive eccentric friction gib adjusting screw
34 Screw, feed drive eccentric friction gib adjusting
35 Disk, feed drive eccentric adjusting
36 Retainer, feed regulating and thread hook drive shaft lock stud spring
37 Spring, feed regulating stud
38 Stud, feed regulating
39 Spring, feed drive eccentric adjusting
40 Setscrew, feed driving rockshaft stop collar
41 Collar, feed drive eccentric adjusting disk spring stop
42 Setscrew, thread hook drive lock ratchet
43 Retainer, thread hook drive lock ratchet stud spring
44 Stud, thread hook drive shaft lock
45 Spring, thread hook drive shaft lock stud
46 Plate, arm shaft flanged pulley timing
47 Screws, shaft flanged pulley timing plate
48 Ratchet, thread lock drive shaft lock
49 Screw, thread hook drive shaft lock ratchet positioning
50 Setscrew, feed drive flange
51 Screw, feed drive flange position
52 Flange, feed drive
53 Gib, feed drive eccentric :friction



54 Setscrew, thread hook saddle bearing
55 Bearing, thread hook saddle
56 Screw, thread hook saddle pinch
57 Washer, hook saddle screw
58 Screw, hook saddle
59 Setscrew, thread hook saddle lower bushing
60 Setscrew, thread hooks spiral drive gear
61 Screw, thread hook spiral drive gear positioning
62 Gear, drive spiral
63 Setscrew, feed lifting cam
64 Cam, feed lifting
65 Setscrew, thread hook drive shaft bushing
66 Bushing, front thread hook drive shaft
67 Bushing, hook saddle lower
68 Washer, hook driving pinion
69 Screw, hook driving pinion positioning
70 Setscrew, thread hook drive pinion
71 Pinion, drive thread hook spiral
72 Bushing, hook driving shaft
73 Screw, hook driving shaft ball bearing retaining washer
74 Screw, hook driving shaft ball bearing collar
75 Setscrew, hook driving shaft ball bearing collar
76 Collar, hook driving shaft ball bearing
77 Bearing, hook driving shaft ball
78 Washer, hook driving shaft ball bearing
79 Flange, safety pulley spring
80 Setscrew, safety clutch locking lever spring stud
81 Clutch, hook drive shaft safety
82 Link, safety clutch locking lever connecting
83 Lever, safety clutch
84 Stud, safety clutch locking lever spring
85 Spring, safety clutch throwing latch
86 Latch, safety clutch throwing
87 Setscrew, safety clutch hook driving shaft
88 Collar, safety clutch hook driving shaft
89 Shaft, hook driving
90 Stud, safety clutch locking lever hinge
91 Lever, safety clutch locking
92 Setscrew, safety clutch locking lever spring stud
93 Screw, hook driving ball bearing retaining washer
94 Setscrew, hook driving bushing

Figure 4-12. Textile sewing machine thread hook and drive shaft, disassembled.

4-69. Feed Bar, Feed Driving Rockshaft, and Crank

a. Removal and Disassembly.

(1) Remove screws (8, fig. 4-13) that attach throat plate (6) to machine bed, and remove throat plate.

(2) Remove screws (30) that attach feed dog (5) to feed bar (4), and remove feed bar.

(3) Slide round belt off pulley with balance wheel, and tilt machine head back.

(4) Remove nut (17) and screw (14) that attach crank connector (18) to crank (16).

(5) Remove pinch screw (15) that attaches crank (16) to rockshaft (2), and remove crank.

(6) Remove setscrews (9) that attach collar (10) to shaft.

(7) Remove nut and hinge screw that attach drive connector to crank (23).

(8) Remove pinch screw (15) that attaches crank (16) to hook drive shaft.

(9) Remove screw (38) and washer (35) that attach fork (32) to feed bar (4), and remove fork.

(10) Work the shaft with feed bar out of the left end of the machine bed, and remove collars (10 and 25) and feed driving crank.

(11) Remove nut (3) and hinge screw (1) that attach feed bar to shaft, and remove feed bar.

(12) Remove setscrews (11 and 12) that attach bushing (13) to machine bed, and remove bushing.

(13) Remove setscrews (27 and 28) that attach bushing (26) to machine bed, and remove bushing.

b. Assembly and Installation. Replace defective parts with serviceable ones and assemble and install them by reversing procedure in a above.

c. Adjustment. Adjust feed dog (para. 3125c).

1 Screw, feed driving connection hinge
2 Rockshaft, feed driving
3 Nut, feed driving connection hinge screw
4 Bar, feed
5 Dog, feed
6 Plate, throat
7 Plate, right slide
8 Screws, throat plate
9 Setscrews, feed driving
10 Collar, feed driving rockshaft stop
11 Setscrew, right feed driving rockshaft bushing
12 Setscrew, right feed driving rockshaft bushing
13 Bushing, right feed driving rockshaft split
14 Screw, hinge
15 Screw, feed driving rockshaft crank pinch
16 Crank, feed driving rockshaft
17 Nut, hinge screw
18 Connector, needle bar frame rockshaft crank
19 Screw, hinge
20 Crank, needle bar rock frame rockshaft
21 Screw, needle bar rock frame rockshaft crank
22 Nut, hinge screw
23 Crank, feed driving
24 Screw, feed driving crank pinch
25 Collar, feed driving rockshaft
26 Bushing, left feed driving rockshaft
27 Setscrew, left feed driving rockshaft
28 Setscrew, left feed driving rockshaft
29 Setscrew, feed driving rockshaft stop
30 Screws, feed dog
31 Plate, right slide
32 Fork, feed lifting cam
33 Screw, feed lifting cam oiling felt
34 Pad, feed lifting cam oiling
35 Washer, feed lifting cam fork screw
36 Screw, feed lifting cam fork

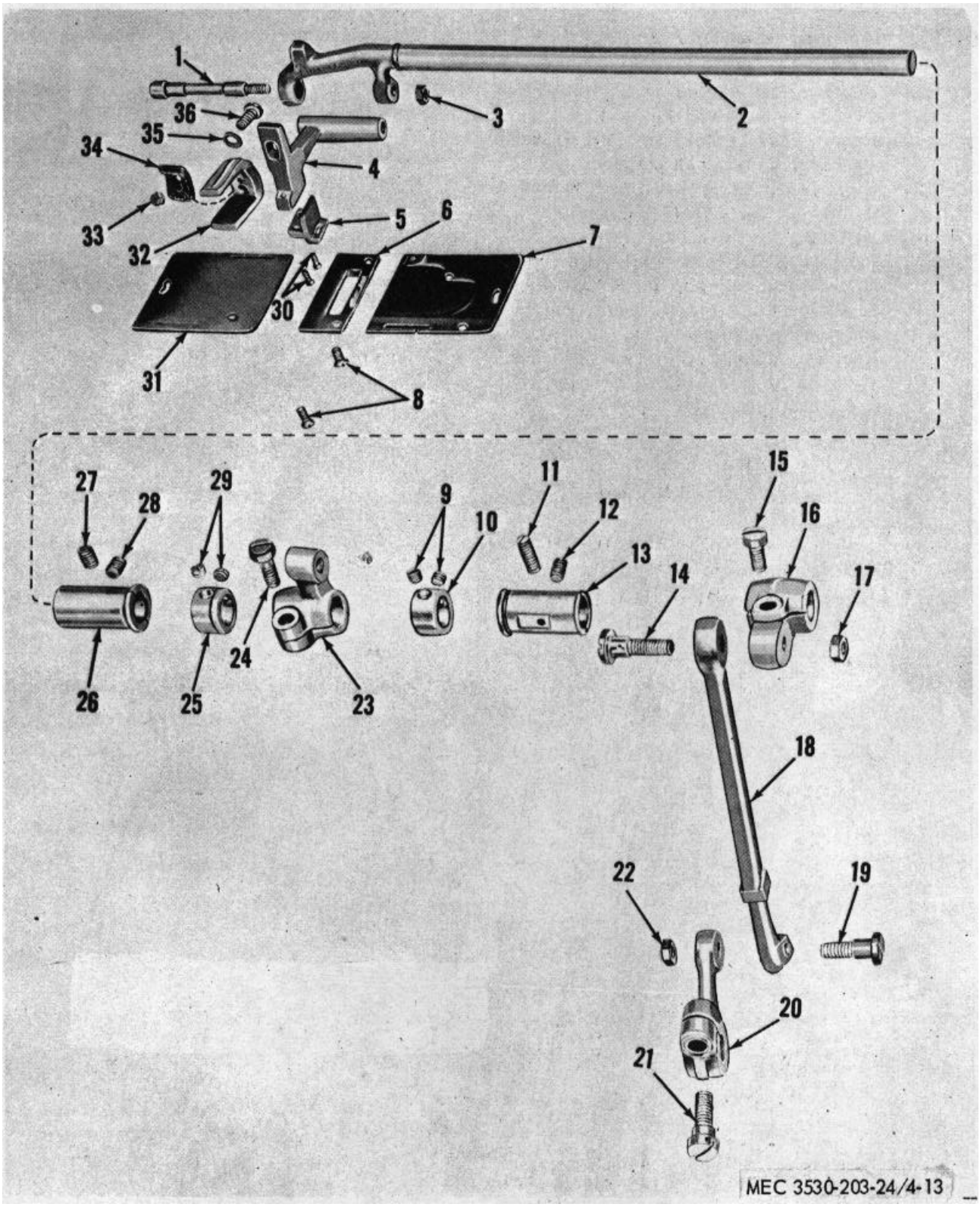


Figure 4-13. Textile sewing machine feed bar, feed dog, and related parts, disassembled.

4-70. Hook Saddle and Bushings

a. Removal.

(1) Remove hook driving shaft (para. 468a (1) through (13)).

(2) Remove screw (58, fig. 4-12) and washer (57) that attach hook saddle (25) to machine bed, and remove saddle.

(3) Remove thread hook (para 3-126((1) through (9)).

(4) Remove screw (2) that attaches upper bushing (1) to hook saddle, and remove bushing.

(5) Remove setscrew (59) that attaches lower bushing to hook saddle, and remove bushing.

b. Installation. Replace defective parts with serviceable ones and install them by reversing procedures in *a* above.

c. Adjustment (Timing). Follow the instructions in paragraph 4-66.

4-71. Feed Regulating Stud and Spring

a. Removal.

(1) Slide round belt off pulley with balance wheel, and tilt machine head back.

(2) Remove retainer (36, fig. 4-1.2) that attaches stud (38) and spring (37) to machine bed, and remove stud and spring out top of machine bed.

b. Installation. Replace defective parts with serviceable ones and install them by reversing procedure in *a* above.

4-72. Thread Hook Drive Shaft Lock Stud

a. Removal.

(1) Slide round belt off pulley with balance wheel, and tilt machine head back.

(2) Remove retainer (43, fig. 4-12) that attaches stud (44) and spring (45) to machine bed, and remove stud and spring through the top of machine bed.

b. Installation. Replace defective parts with serviceable ones, and install them by reversing procedure in *a* above.

PART TWO

ORGANIZATIONAL, DIRECT AND GENERAL SUPPORT MAINTENANCE

FOR CLOTHING REPAIR SHOP TRAILER-MOUNTED

CHAPTER 5

INTRODUCTION

Section I. GENERAL

5-1. Scope

a. The instructions in part two of this manual are published for the use of personnel responsible for the organizational, direct support, and general support maintenance of the trailer-mounted clothing repair shop. These instructions provide information on the inspection and maintenance of the equipment and on the procedures for the replacement of repair parts.

b. Organizational maintenance instructions for the cabinet assembly; miscellaneous wiring and fittings; clothing sewing machine; darning machine; bobbin winder; and thread unwinder, are contained in the following paragraphs:

(1) Cabinet assembly, paragraphs 3-13 through 3-25.
(2) Miscellaneous wiring and fittings, paragraphs 3-30 through 3-38.
(3) Clothing sewing machine, paragraphs 3-39 through 3-57.
(4) Darning machine, paragraphs 3-58 through 3-70.
(5) Bobbin winder, paragraphs 3-136 through 3-140.
(6) Thread unwinder, paragraphs 3-141 through 3-144.

5-2. Appendixes

Appendix I contains a list of publications applicable to the clothing repair shop and available to the organizational, direct support and general support personnel. Appendix 11 contains the maintenance allocation chart applicable to the clothing repair shop. The maintenance repair parts for the clothing repair shop are listed and illustrated in TM 10-3530203-24P. The maintenance repair parts for the generator set and the cargo trailer are listed and illustrated in the applicable manuals listed in appendix I.

5-3. Maintenance Forms and Records

The maintenance forms, records, and reports which are to be used by the organizational, direct support, and general support maintenance personnel in the maintenance of the clothing repair shop are listed and described in TM 38-750.

5-4. Reporting of Equipment Manual Improvements

Refer to paragraph 4 for the instructions for reporting improvements for this manual.

5-5. Orientation

Refer to paragraph 5 for the orientation instructions necessary for this manual.

Section II. DESCRIPTION AND DATA

5-6. Description

A general description of the clothing repair shop and its components is found in TM 10-3530-203-10. Any additional descriptive information applicable to a particular component or assembly of the clothing repair shop will be found in the appropriate sections of this manual. The description of the generator is found in TM 5-6115-271-15 and of the cargo trailer in TM 9-2330-213-14.

5-7. Tabulated Data

a. General. The tabulated data applicable to the clothing repair shop and the major components is provided in TM 10-3530-20310. The tabulated data for the generator set is provided in TM 5-6115-271-15 and the cargo trailer in TM 9-2330-213-14.

b. Time Standards. The time standards for various services for the components of the clothing repair shop are given in table 2. Table 2 lists the number of man-hours required under normal conditions to perform the indicated maintenance and repair services for] the components of the clothing repair shop.

Components are listed under the appropriate functional index. The times listed are not intended to be rigid standards. Under adverse conditions, the operations will take longer; but under ideal conditions with highly skilled mechanics, most of the operations can be accomplished in considerably less time.

Table 2. Time Standards

			Man-hours
Lubrication and Service			
46		REPAIR EQUIPMENT	
	4603	Repair Equipment (Clothing)	
		Button Sewing Machine (includes lubricating sewing machine head, bobbin winder, and motor).	0.6
		Clothing sewing machine (includes lubricating sewing machine head, bobbin winder, and motor).	0.6
		Darning machine (includes lubricating sewing machine head, bobbin winder, and motor).	0.6
Remove and Replace			
18		BODY, CAB, HOOD, AND HULL,	
	1808	Stowage Boxes	
		Stowage box assembly (includes removal and installation of latches and hooks).	1.0
	1812	Cabinet Assembly	
		Cabinet assembly (Includes removal of cabinet assembly from and installation of cabinet assembly into trailer bed).	2.0
		Lifting loop assembly (includes removal and installation of retainer clip and spring).	0.5
		Door or panel locking latch (includes removal and installation of rivets).	1.0
		Holddown clamp assembly includes removal and installation of capscrew).	0.5
		Generator holddown assembly-	0.5
		Side door stay or rear' door stay assembly (includes removal and installation of rivets).	2.0
		Sewing tray assembly (includes removal and installation of strap assembly and sewing machine head).	0.5
40		ELECTRIC MOTORS	
	4000	Motor	
		Button machine motor (includes removal and installation of drive pulley, ball bearings, and brushes).	4.0
		Clothing or darning machine motor (includes removal and installation of flywheel, friction pad, drive pulley and brake lever, brake lever' pad and spring, and ball bearings).	4.0
42		ELECTRICAL EQUIPMENT	
	4216	Miscellaneous Wiring and Fittings	
		Sewing machine motor-to-switch wiring harness.	1.0
46		REPAIR EQUIPMENT	
	4603	Repair Equipment (Clothing)	
		Button Sewing Machine, Automatic	1.0
		Thread Tension Disks (includes removal and installation of thread tension disks, release disk, springs, and studs).	
		Thread nipper head and plate (includes removal and installation of thread nipper plate and the adjustment time for the thread nipper head).	1.5

	Man-hours
Front or rear thread pulloff (includes adjustment time).	1.5
Stop dog holder with cushion spring (includes removal and installation of drive pulley and shifter and adjustment time for stop dog holder).	1.5
Thread looper (includes adjustment time).	1.0
Face plate assembly (includes disassembly and assembly of collar, guide, plate, roller, and pin).	1.5
Needle bar connecting link (includes removal and installation of needle bar and stud).	1.0
Presser bar	1.0
Needle bar vibrating lever (includes removal and installation of needle bar, presser bar, vibrating lever arm, and slides).	1.0
Needle bar vibrating lever bracket	1.0
Lifting arm	1.0
Lifting rod arm (includes removal and installation of collars, springs, pulloff holders, and shaft).	1.0
Feed plate holder (includes adjustment time of feed plate holder).	1.5
Feed plate carrier regulator (includes removal and installation of feed plate carrier and drive arm and adjustment time).	2.0
Needle guide with shaft and bushing (includes adjustment time for needle guide).	1.5
Thread looper shaft (includes removal and installation of looper, link, cam, and crank and adjustment time for looper).	2.5
Thread looper (includes removal and installation of collars, spring, and starting crank and adjustment time).	2.5
Stop motion trip block (includes removal and installation of stop motion trip plate and adjustment time).	1.5
Arm rockshaft (includes removal and installation of rockshaft front and rear cranks).	1.5
Feed cam worm wheel shaft (includes removal and installation of feed cam and worm wheel and stop motion point and adjustment time).	1.5
Thread tension release cam (includes removal and installation of drive pulley, drive shaft, stop dog, gears, and eccentric and adjustment time).	2.5
Thread tension release rod-	0.5
Thread nipper release lever -	1.0
Thread nipper release rod (includes adjustment time).	1.5
Clothing Sewing Machine: Refer to the time standards for the clothing sewing machine in table 1 of this manual.	
Darning Sewing Machine: Refer to the time standards for the darning sewing machine in table 1 of this manual.	

CHAPTER 6

OPERATING INSTRUCTIONS

Section I. SERVICE UPON RECEIPT OF CLOTHING REPAIR SHOP

6-1. General

When either a new or used clothing repair shop is received by an organization, the organizational personnel must inspect and service each component to prepare it for operation.

The operator will assist the organizational personnel when he is directed to do so.

6-2. Unpacking and Unloading Equipment From Cabinet Assembly

The equipment of the clothing repair shop is packed or loaded in a cabinet assembly which is mounted in the bed of a cargo trailer.

a. Use extreme care when unpacking and installing or setting up separately packed components or items of equipment of the clothing repair shop.

b. Remove the equipment from the cabinet assembly and set it up according to the instructions set forth in TM 10-3530-203-10.

c. Remove all protective tape and materials used in packing the clothing repair shop equipment.

d. Check the components of the clothing repair shop with the basic issue item list in TM 10-3530-203-10 to assure that the clothing repair shop is complete.

e. Remove the SD (solvent, drycleaning) the preservative compound which has been sprayed on all metal surfaces. Because this compound is not a lubricant, take special care to remove it completely from all wearing surfaces.

6-3. Inspecting and Servicing Clothing Repair Shop

a. Carry out a complete visual inspection of the equipment of the clothing repair shop, taking special notice of any damaged or missing parts which might have been sustained in transit. Read any warning on the shipping tag to determine the condition in which the clothing repair shop was shipped. Observe all precautions noted on the shipping tag.

b. Perform the quarterly preventive maintenance services described in paragraph 7-4 for the clothing repair shop. Perform also the quarterly preventive maintenance services and the lubrication services for the generator set as described in TM 5-6115-271-15 and for the cargo trailer in TM 9-2330-213-14. The services performed at this time will begin the cycle of regularly scheduled quarterly preventive maintenance services.

Section II. CONTROLS AND INSTRUMENTS

6-4. Controls

a. There are no controls on the cabinet assembly, the grommet press, and the tack-button attaching machine.

b. Refer to TM 5-6115-271-15 for information on the controls on the generator' set.

c. Refer to TM 9-2330-203-10 for information on the controls on the cargo trailer.

d. Refer to TM 10-3530-203-10 for information on the controls on the sewing machines.

6-5. Instruments

The only instruments on the clothing repair shop are those instruments on the genelato1r set. Refer to TM 5-6115-271-15 for the information covering the instruments on the generator set.

CHAPTER 7

ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Section I. SPECIAL TOOLS AND EQUIPMENT

7-1. Special Tools

No special tools are required for the maintenance of the clothing repair shop. The common tools that are used in the maintenance of the clothing repair shop are authorized and listed in the appropriate table of organization and equipment or table of allowances.

7-2. Equipment

No special equipment is authorized for the maintenance of the clothing repair shop.

Section II. PREVENTIVE MAINTENANCE SERVICES

7-3. General

To insure that the clothing repair shop is ready for operation at all times, its components must be inspected systematically so that defects may be discovered and corrected before they result in serious damage or failure. The necessary preventive maintenance services to be performed quarterly on the components of the clothing repair shop are listed and described in paragraph 7-4. The item numbers indicate the sequence of minimum inspection requirements. Defects discovered must be noted and corrected as soon as possible. All deficiencies and shortcomings, together with the corrective action taken, will be recorded on DA Form 2404.

7-4. Quarterly Preventive Maintenance Services

This paragraph contains an illustrated tabulated listing of preventive maintenance services which must be performed by organization maintenance personnel at quarterly intervals. A quarterly interval is equal to 3 calendar months, or 250 hours of operation, whichever occurs first. The item numbers are listed consecutively and indicate the sequence of minimum inspection requirements. Refer to the' quarterly preventive maintenance services in' figure 3-1 for the cabinet assembly, in figure 7-1 for the button sewing machine, in figure 3-2 for the clothing sewing machine, in figure 3-3 for the darning machine. Refer to the quarterly preventive maintenance services to be performed by the organizational maintenance personnel on the generator set in TM 5-6115-271-15 and on the cargo trailer in TM 9-2330-213-14.

Section III. TROUBLESHOOTING

7-5. General

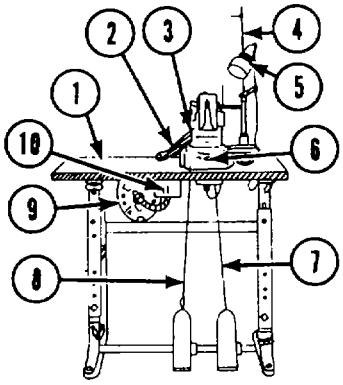
This section provides information useful in diagnosing and correcting unsatisfactory operation of the clothing repair shop and its components. Each trouble symptom stated is followed by the probable causes of the trouble. The possible remedy recommended is described opposite the probable cause. Any trouble that is beyond the ability of the organizational maintenance personnel to remedy must be

PREVENTIVE MAINTENANCE SERVICES

QUARTERLY

TM 10-3530-203-24 **MACHINE, SEWING, BUTTON**

SINGLER MOL 175-62



LUBRICATE IN ACCORDANCE WITH CURRENT LUBRICATION ORDER

ITEM		**PAR REF**
1	TABLE ASSEMBLY. Inspect table assembly for cut, cracked, broken warped, and dirty tabletop; for loose or missing bolts and nuts; and for loose mounting to the folding stand.	6-3
2	BUTTON MACHINE HEAD. Inspect button machine head for dirty surface and grease deposits; for bent, broken, loose or missing components; and for loose mounting. Inspect needle for broken or excessively worn point and for bent or broken shaft.	7-26
3	DRIVE BELT AND PULLEYS. Inspect for broken, frayed, and excessively worn drive belt. Inspect belt for loose mounting on the pulleys. Inspect pulleys for cracked, chipped, or broken edges, and loose mounting. Check for a 1-inch finger-pressure deflection of the belt midway between the pulleys.	8-4 8-5 8-19
4	THREAD UNWINDER. Inspect thread unwinder for loose or missing bolts, nuts, and screws and for bent or broken components.	3-141 To 3-143

MEC 3530-203-24/7-1 (1)

Figure 7-1. Quarterly preventive maintenance services for button sewing machine.

ITEM		PAR REF
5	LAMP ASSEMBLY. Inspect lamp assembly, bracket, and stank for loose or missing bolts, nuts, and screws. Inspect for dirty, cracked, or broken housing and lens. Inspect cord for frayed insulation and broken wiring. Inspect for broken lamp switch and for burned-out lamp (bulb).	3-33 to 3-38
6	LOOPER. Tilt machine head on one side and inspect for broken looper point. Inspect looper, needle guide, and thread finger for improper adjustment.	7-29
7	STARTING TREADLE CHAIN. Inspect starting treadle chain for bent or broken links and loose mounting to the pulley shifter and to the starting treadle. Press treadle and make certain pulley shifter engages with the machine drive pulley.	8-20
8	BUTTON CLAMP LIFTER TREADLE CHAIN. Inspect button clamp lifter treadle chain for bent or broken links and loose mounting to button clamp lifting rod and to button clamp lifter treadle. Press the treadle and make certain lifting rod raises and lowers the button clamp.	7-34
9	ELECTRIC MOTOR. Inspect motor for dirty surfaces and grease deposits; for bent, cracked, or broken housing; for loose or missing bolts and nuts; for loose electrical connections; for frayed insulation and broken wiring; for improper capacity; and for loose mounting. During operation observe motor for unusual noise and excessive vibration.	8-40
10	MOTOR SWITCH. Inspect for broken or bent switch. Inspect it for loose mounting in the switchbox and make certain it turns the motor on and off. Check for loose electrical connections or broken wiring at the switchbox.	3-31 3-32

MEC 3530-203-24/7-1 (2)

Figure 7-1. Continued

ported according to instructions given in TM 38-750. Refer to the troubleshooting information in TM 5-6115-271-15 on the generator set and in TM 9-2330-213-14 on the cargo trailer. Refer to the troubleshooting information in part one of this manual for the clothing and darning sewing machines.

7-6. Cabinet Assembly

a. Holddown Clamp Assembly is Loosely Mounted.

Probable cause	Possible remedy
Capscrew or aim has stripped threads.	Report this condition as stipulated in TM 38-750.
Machine screws or nuts have stripped threads.	Report this condition as stipulated in TM 38750.

b Rear Door or a Slide Door Cannot Be Opened.

Probable cause	Possible remedy
Folding handle lock is defective.	Install serviceable lock (para. 3-16b).

c. Rear Door or a Side Door Does Not Close Securely.

Probable cause	Possible remedy
Folding handle lock is defective.	Install serviceable lock (para. 3-16b).
Hinge is bent or broken	Report this condition as stipulated in TM 38-750.
Gasket is defective	Report this condition as stipulated in TM 38750.

d. Sewing Machine Head is Loosely Mounted in Tray Assembly.

Probable cause	Possible remedy
Thumbscrew or tray strap has stripped threads	Install serviceable assembly thumb screw or tray. strap assembly (para. 19c).

e. Stowage Box Does Not Close Securely.

Probable cause	Possible remedy
Hinge is bent or broken	Install serviceable stowage box (para. 3-14c).
Latch is defective.	Report this condition as stipulated in TM 38-750.

f. Generator is Loosely Mounted on Slides.

Probable cause	Possible remedy
Wing screws have stripped threads.	Install serviceable wing screws (para. 3-17b).

g. Folding Table, Sewing Machine Tray, and Table Assemblies Slide Unevenly.

Probable cause	Possible remedy
Felt is excessively worn or missing from slides.	Install serviceable felt (para. 3-24b).

7-7. Button Sewing Machine

a. Needle Breaks.

Probable cause	Possible remedy
Needle strikes the button	Adjust button clamps (para. 7-30c).
Needle guide and thread finger are out of adjustment.	Report this condition as stipulated in TM 38-. 750.
Needle guide is broken	Report this condition as stipulated in TM 38-750.
Thread finger is broken	Report this condition as stipulated in 38-750.
Looper is out of adjustment or time.	Adjust or time looper properly (para. 7-29c).
Needle bar is out of adjustment.	Set needle bar to correct height (para. 7-30).
Button clamp is out of adjustment.	Adjust button clamp (para. 7-30c).
Thread nipper head is out of adjustment.	Adjust thread nipper head (para. 7-17c).

b. Thread Breaks.

Probable cause	Possible remedy
Looper has burred edges or looper bent point.	Install serviceable (para. 7-29b).
Looper is out of adjustment.	Adjust looper (para. 7-29c.
Automatic tension is out tension of adjustment.	Adjust automatic (para. 7-16c).
Needle guide and thread finger are out of adjustment.	Report this condition as stipulated in TM 38-750.
Needle guide or thread finger is bent, burred, or broken.	Report this condition as stipulated in TM 38-750.
Needle guide oscillating crank spring is broken.	Report this condition as stipulated in TM 38-750.
Thread nipper head is out of adjustment.	Adjust thread nipper head (para. 7-17c).

c. Lamp Does Not Light When Switch is in ON Position.

Probable cause	Possible remedy
Incandescent lamp is burned out.	Install serviceable lamp (bulb) (para. 3-35c).
Light cord is broken	Install serviceable lamp assembly (para. 3-33b).
Lamp switch is defective	Install serviceable lamp switch (para. 3-33b).
Power receptacle is defective.	Install serviceable box with receptacle (para. 3-32b).
Lamp assembly is defective	Install serviceable lamp assembly (para. 3-33b).

d. Motor Fails to Start When Switch is in ON Position.

Probable cause	Possible remedy
Power cable is broken----	Install serviceable power cable (para. 3-31c).
Motor switch is defective-	Install serviceable motor switch (para 331c).
Motor is defective-------	Install serviceable motor(para. 3-61c).

e. Unusual Noise in Motor.

Probable cause	Possible remedy
Motor is defective -------	Install serviceable motor (para. 7-10c).
Drive pulley is-defective	Install serviceable pulley(para. 7-11c).

f. Motor Does Not Pull Load.

Probable cause	Possible remedy
Drive belt is slipping.--	Adjust for a 1-inch finger-pressure deflection of the belt midway between pulleys.
Improper voltage or motor is faulty.	Check generator for correct voltage output. If generator voltage output is correct, check voltage at motor terminals. If voltage output is low, replace cable, if voltage output is incorrect, replace motor with a serviceable one (para. 7-10c).

7-8. Field Expedient Repairs

The following trouble may occur to the sewing machines while the clothing repair shop is operating in the field. Supplies and repair parts may not be available; therefore, normal remedial action cannot be taken. When this trouble develops, the following field repair procedure may be used for the sewing machines. Field expedients will be used only during emergency.

Trouble	Expedient remedy
Broken drive belt --------	Connect end of belt with a short piece of wire or strong thread.

Section IV. ELECTRIC MOTORS

7-9. General

This section describes the maintenance instructions which the organizational maintenance personnel must perform on the motors used to furnish power for the sewing machines. Any deficiencies which the organizational maintenance personnel are not authorized to correct must be reported as stipulated in TM 38-750.

7-10. Button Sewing Machine Alternating Current Motor

This motor is used to furnish the power to operate the button sewing machine.

a. Removal. Remove the motor from the table assembly (para. 3-27 (1) and (2) and (5) through (9)).

b. Inspection. Inspect the motor for broken housing, evidence of excessive heating, and obstructions to ventilation. Check the wiring for cuts, frays, and any evidence of a short circuit and inspect the bolts for stripped or damaged threads.

c. Installation. Replace defective motor and bolts with serviceable ones and install them by reversing the procedure in a above.

7-11. Button Sewing Machine Motor Drive Pulley

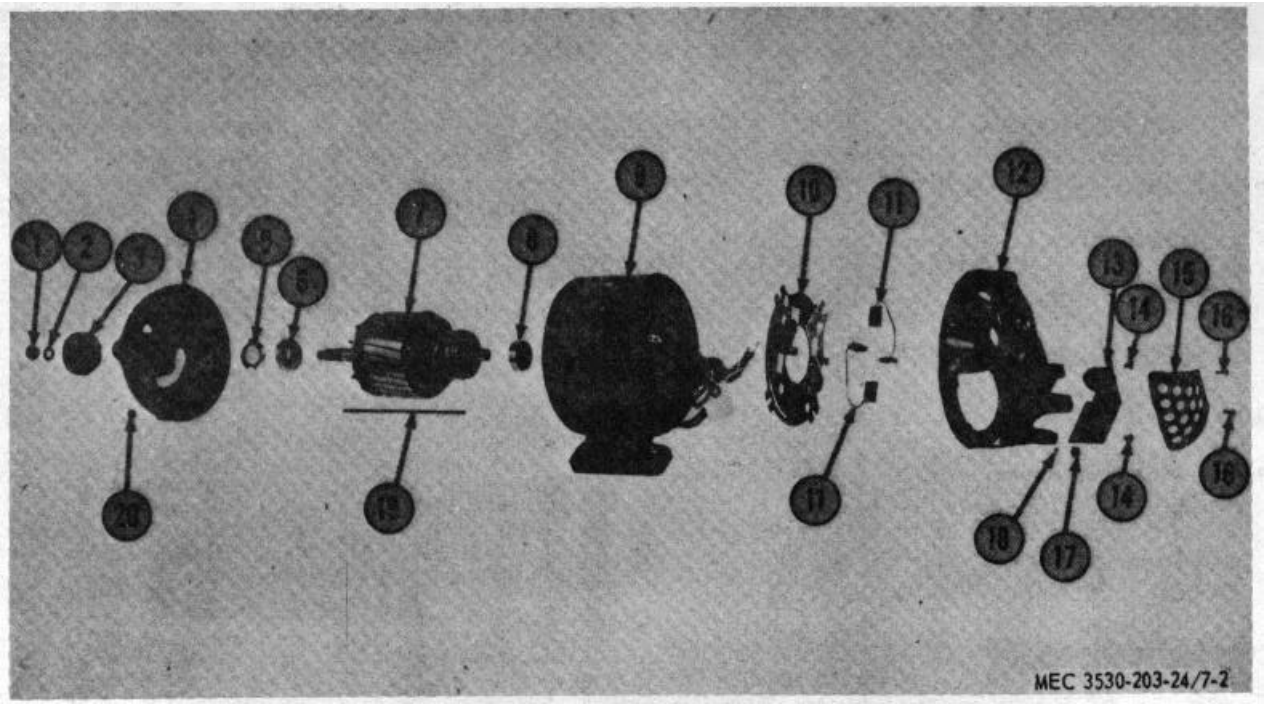
a. Removal.

(1) Remove the nut (1, fig. 7-2) and the lockwasher (2) that secure the drive pulley (3) to the shaft of the armature (7).

(2) Slide the drive pulley from the shaft.

b. Inspection. Inspect the drive pulley for cracks, breaks, or chips.

c. Installation. Replace defective drive, pulley with a serviceable one and install it by reversing the procedure in a above.



1	Nut, pulley	8	Bearing, ball	15	Ventilator, end cover
2	Lockwasher	9	Housing, stator	16	Screws
3	Pulley, drive	10	Ring, brush	17	Nut
4	Housing, drive-end	11	Brushes, with leads	18	Lockwasher
5	Spacer	12	Housing, commutator end	19	Rod
6	Bearing, ball	13	Cover, junction box	20	Nut
7	Armature	14	Screws, cover		

Figure 7-2. Button serving machine alternating current motor disassembled.

7-12. Clothing or Darning Sewing Machine Alternating Current Motor

Refer to paragraphs 3-27 through 3-29 for the organizational maintenance instructions for the clothing or the darning machine motor.

Section V. BUTTON SEWING MACHINE

7-13. General

This section describes the additional maintenance instructions which organizational maintenance personnel must perform on the items of the button sewing machine. The button sewing machine consists of a machine head, a motor, a table assembly, and a stand. The motor is bolted to the underside of the table assembly and the machine head is mounted on the top of the table assembly, and the table assembly is mounted on the stand. The machine head includes the base, the bed, and the arm. The bed is an iron casting which fits on the base and supports the arm. The bed contains the looper, the needle bar guide, the feed cam, and other associated parts. The arm contains the needle driving and vibrating mechanism. Any deficiencies which the organizational maintenance personnel are not authorized to correct must be reported as stipulated in TM 38-750.

7-14. Left and Right Side Covers

a. Removal.

(1) Remove thumb nuts (18 and 48, fig. 7-3), and take the right side cover

(2) from the button machine aim (1).

(2) Take out the left side cover screws (12 and 14), and remove the left side cover (13) from the machine arm.

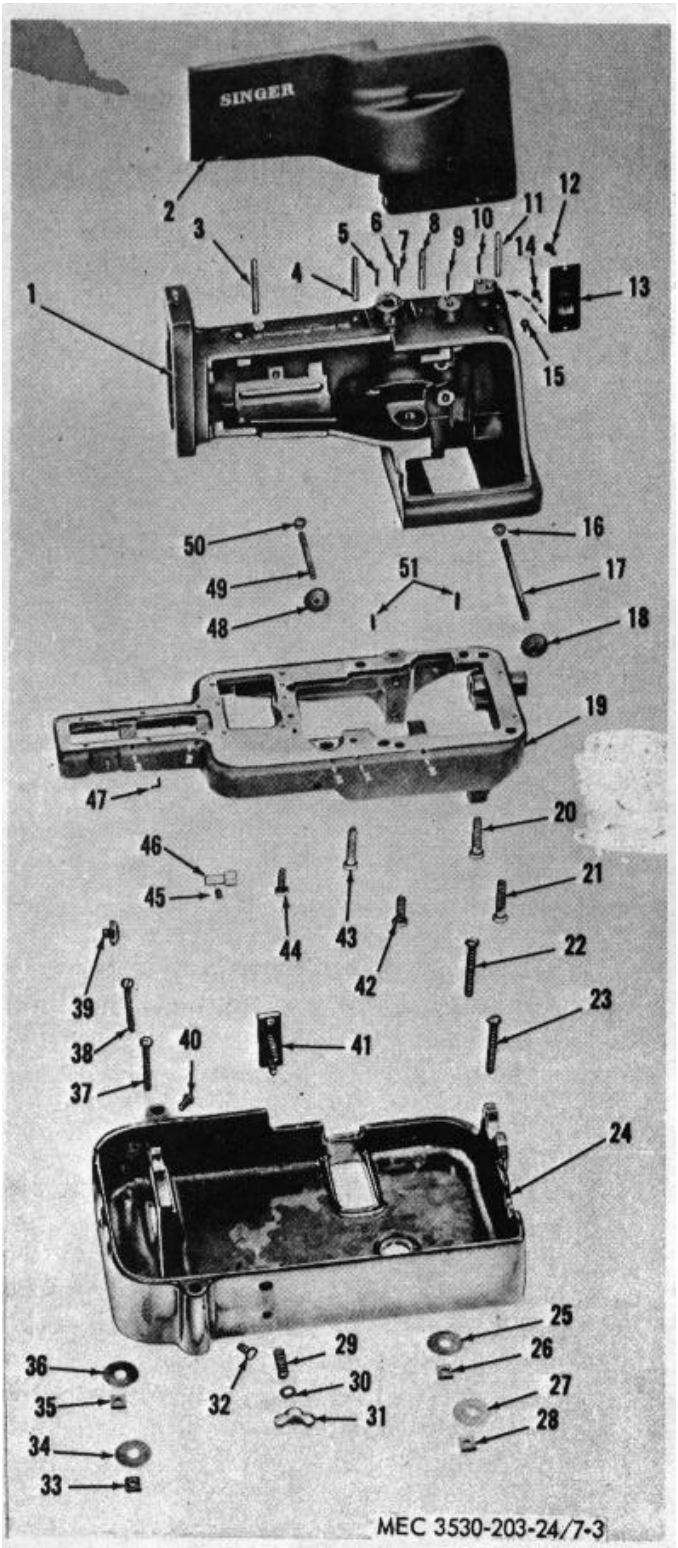


Figure 7-3. Button sewing machine arm, cover, bed, and base.

b. Installation. Replace defective covers with serviceable ones and install them by reversing the procedure in a above.

1	Arm	26	Nut
2	Cover, right side	27	Washer
3	Guide, front thread	28	Nut
4	Guide, thread tension and pull off	29	Spring
		30	Washer
5	Pin	31	Wingnut
6	Pin	32	Screw
7	Pin	33	Nut
8	Guide thread tension and pull off	34	Washer
		35	Nut
9	Pin	36	Washer
10	Pin	37	Screw
11	Guide, thread tension and pull off	38	Screw
		39	Nut
12	Screw, left side cover	40	Screw
13	Cover, left side	41	Lock
14	Screw, left side cover	42	Screw, short arm
15	Guide, rear thread	43	Screw, long arm
16	Locknut, cover stud	44	Screw, bushing
17	Stud, long cover plain stud	45	Setscrew, rest
18	Nut, cover stud thumb	46	Stud, rest
19	Bed	47	Pin, end cover hook spring
20	Screw, long arm	48	Nut, cover stud thumb
21	Screw, long arm		
22	Screw, long arm	49	Stud, short cover plain
23	Screw	50	Locknut, cover stud
24	Base	51	Pins
25	Washer		

7-15. Thread Guides and Pins

a. Removal.

(1) Pull the front thread guide (3, fig. 7-3) and the automatic thread tension and thread pulloff guides (4, 8, and 11) from the arm (1).

(2) Pull the thread nipper thread guide tension disk pins (5, 6, and 7) from the arm.

(3) Remove the rear thread guide (15) from the arm.

b. *Installation*. Replace defective guides and pins with serviceable ones and install them by reversing the procedure in a above.

7-16. Automatic Thread Tension Disks and Release Disk, Spring, and Studs

a. Removal.

(1) Remove tension stud thumb nuts (17 and 27, fig. 7-4).

(2) Lift the spring (28), the release disk (29), and the two thread tension disks (30 and 31) from the stud (32).

(3) Lift the spring (18) and the two tension disks (19 and 20) from the stud (21).

(4) Turn the studs (21 and 32) counterclockwise and remove them from the machine arm.

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in*a* above.

c. Adjustment. Refer to TM 10-3530-203-10 for the procedure for adjusting the thread tension. The automatic thread tension is adjusted as follows:

(1) Automatic tension. Loosen the nuts (15, fig. 7-5) and turn the rod (14) up or down until there is a 1/64-inch clearance between the upper end of the rod and the automatic thread tension disk (29, fig. 7-4) when the tension is closed. Tighten the nuts (15, fig. 100) securely.

(2) Automatic tension assembly. Loosen the wingnut on the front of machine and lay the machine on its side. Loosen the two releasing cam setscrews (6, fig. 7-6). Turn the handwheel of the machine until the needle bar lacks 5/8 inch of reading its highest point when adjusting the 175-60 model or 3/8 inch of reaching its highest point when adjusting the 175-61 and 175-62 models. Turn the cam (7) until the automatic tension releases the thread and then tighten the setscrews (6).

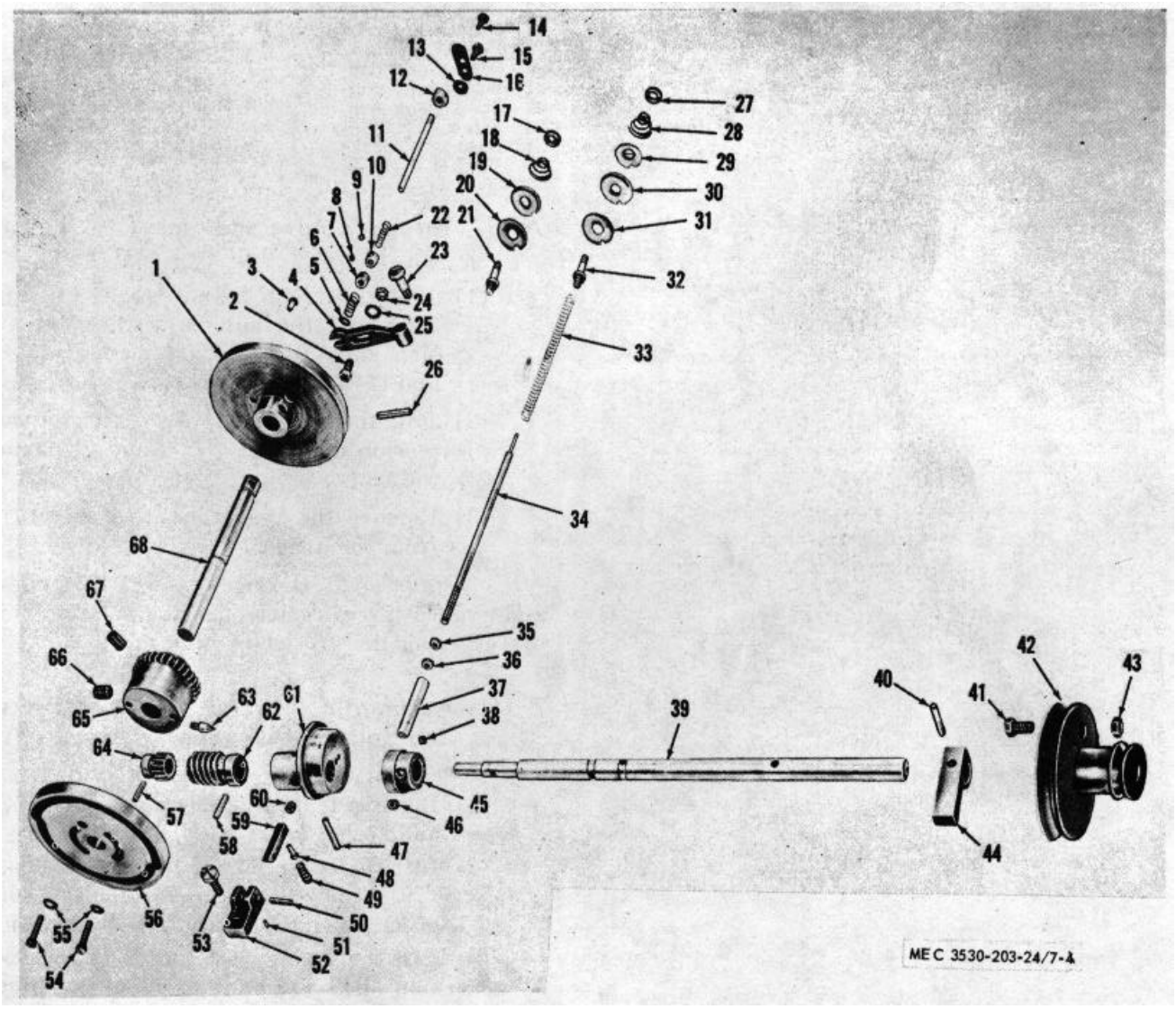
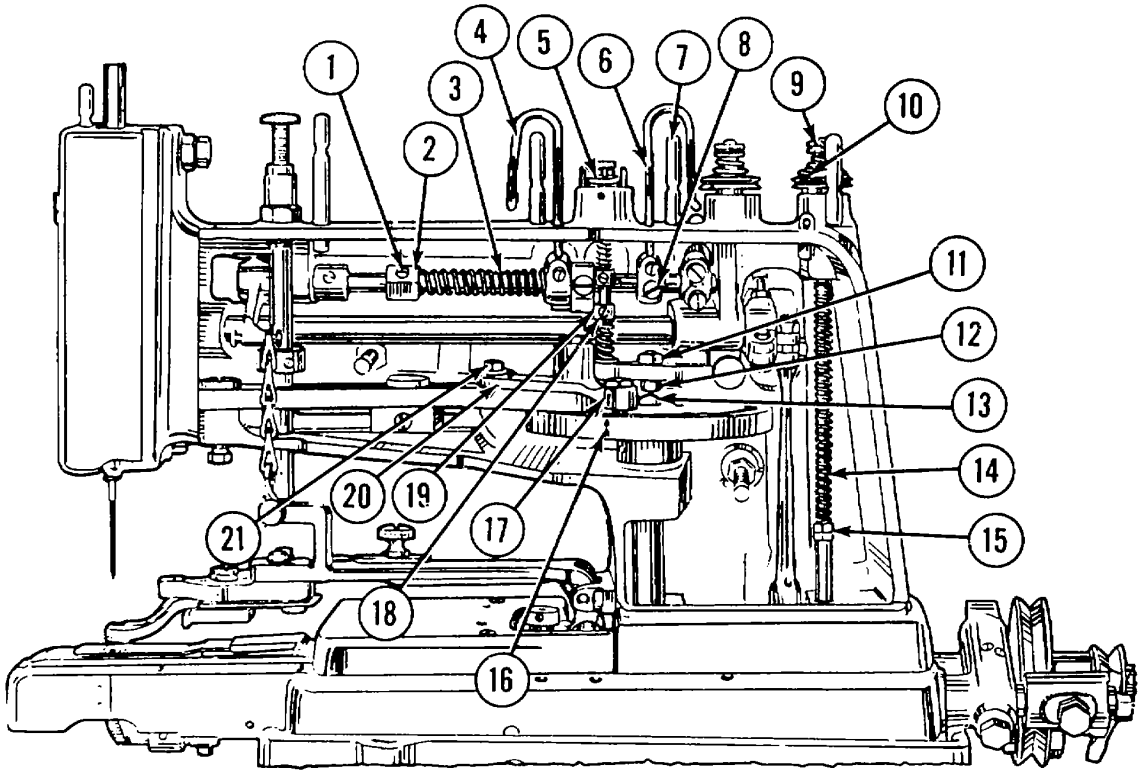


Figure 7-4. Button sewing machine thread tension mechanism.

1 Cam, needle bar
2 Stud, thread nipper release
3 Rivet, thread nipper release
4 Lever, thread nipper release
5 Washer, lower spring
6 Spring, lower thread nipper release rod
7 Collar, thread nipper releasing rod spring
8 Setscrew, collar
9 Setscrew, collar
10 Collar, thread nipper releasing rod spring
11 Rod, thread nipper release
12 Head, thread nipper release
13 Washer, plate screw
14 Screw, thread nipper head releasing
15 Screw, plate
16 Plate, thread nipper
17 Nut, tension stud thumb
18 Spring, stationary thread tension
19 Disk, thread tension
20 Disk, thread tension
21 Stud, stationary thread tension
22 Spring, upper thread nipper release rod
23 Screw, hinge lever
24 Nut, stud
25 Washer, stud
26 Pin, cam
27 Nut, tension stud thumb
28 Spring, automatic thread tension
29 Disk, automatic thread tension release
30 Disk, thread tension
31 Disk, thread tension
32 Stud, automatic thread tension
33 Spring, automatic thread tension release rod
34 Rod, automatic thread tension release
35 Nut, rod adjusting
3i Nut, rod adjusting
37 Sleeve, automatic thread tension release rod
38 Setscrew
39 Shaft, drive
40 Pin, dog
41 Screw-, pulley engaging
42 Pulley, drive
43 Nut, engaging screw
44 Dog, drive shaft stop
45 Cam, automatic thread tension release
46 Setscrew, eccentric
47 Pin, eccentric
48 Stud, eccentric pawl spring
49 Spring, needle bar eccentric pawl
50 Pin, pawl hinge
51 Pin, eccentric paw] bracket steady
52 Bracket, pawl
53 Screw, pawl bracket
54 Screws, feed cam
55 Washer, feed cam screw
56 Cam, feed
57 Pin, gear
58 Pin, worm gear
59 Pawl, needle bar eccentric
60 Setscrew, eccentric
61 Eccentric, needle bar
62 Gear, drive worm
63 Point, wheel trip stop motion
64 Gear, pulley shaft
65 Wheel, feed cam drive worm
66 Setscrew, worm wheel
67 Setscrew, worm wheel
68 Shaft, feed cam worm wheel

Figure 7-4-Continued

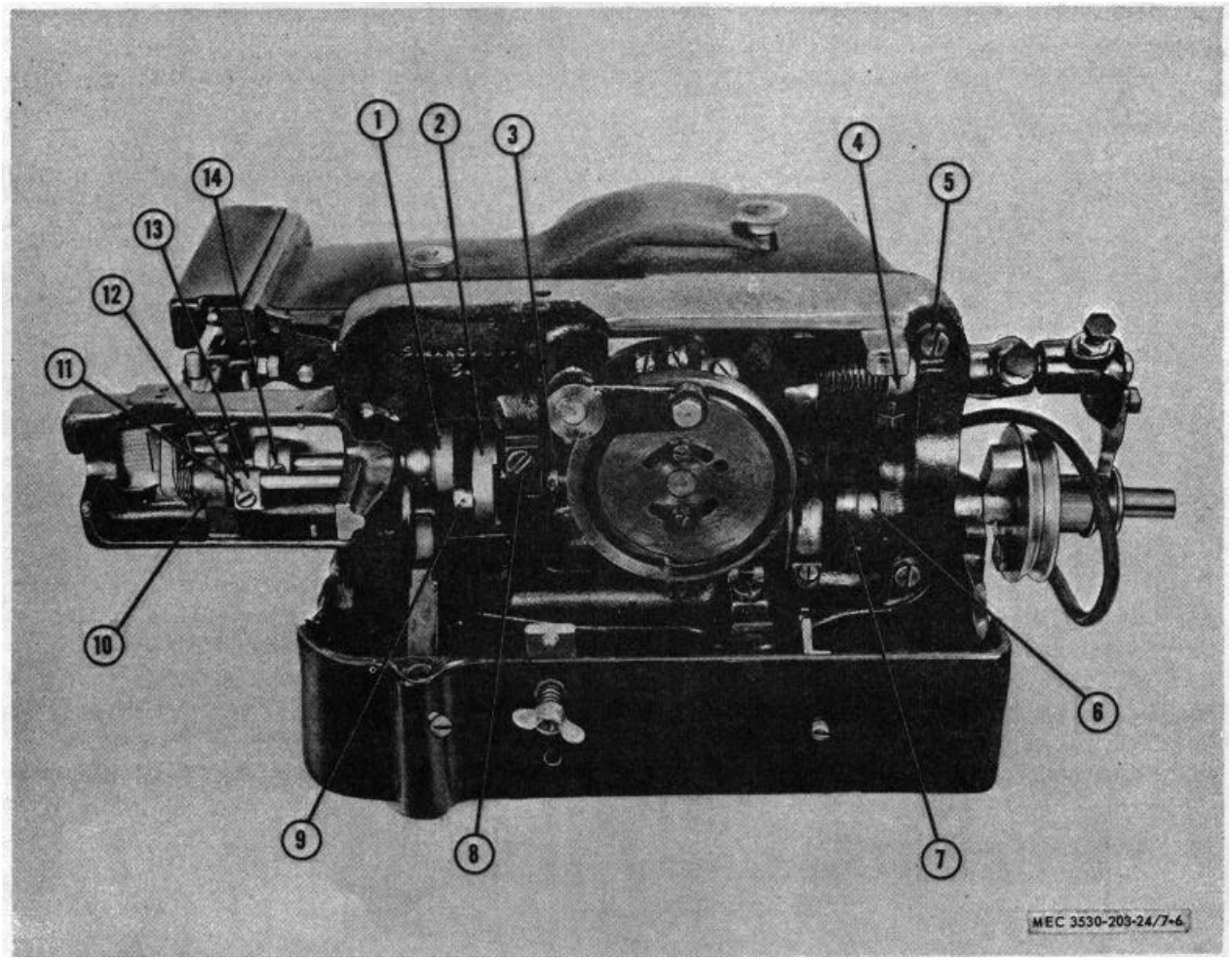


MEC 3530-203-24/7-5

Figure 7-5. Button sewing machine, right side tie.

1 Setscrew, button clamp lifting and thread pulloff holder shaft spring collar
2 Collar, button clamp lifting and thread pulloff holder shaft spring
3 Spring, button clamp lifting and thread pulloff holder shaft
4 Pulloff, front thread
5 Head, thread nipper
6 Pulloff, rear thread
7 Eyelet, tension pulloff (back)
8 Setscrew, thread pulloff (back) holder
9 Disk, tension (automatic) thumb
10 Disk, tension (automatic) release
11 Nut, thread nipperreleasing screw stud
12 Stud, thread nipper releasing screw
13 Stud, thread nipper releasing (on needle bar vibrating cam)
14 Rod, tension (automatic) tension releasing
15 Nuts, tension (automatic) releasing rod adjusting
16 Arrow on the needle bar vibrating cam
17 Arrow on the needle bar vibrating lever arm
18 Setscrew, thread nipper releasing rod spring collar
19 Collar, thread nipper releasing rod spring
20 Arm, needle bar vibrating lever
21 Screw, needle bar vibrating lever arm

Figure 7-5-Continued



1 Crank, looper shaft
2 Crank, looper driving shaft
3 Bushing, looper driving shaft
4 Collar, stop motion shaft spring
5 Setscrew, stop motion shaft spring collar
6 Setscrew, cam releasing
7 Cam, tension releasing
8 Screw, clamping
9 Link, connecting looper driving shaft crank
10 Setscrew
11 Bushing, needle guide shaft
12 Screw, needle guide oscillating crank clamping
13 Crank, needle guide oscillating
14 Setscrew, needle guide cam

Figure 7-6. Button sewing machine, bottom view.

7-17. Thread Nipper Head and Plate

a. Removal.

(1) Remove the thread nipper head releasing screw (14, fig. 7-4) and the thread nipper plate screw (15) from the thread nipper plate (16).

(2) Take the thread nipper plate, washer (13), and nipper head (12) from the thread nipper release rod (11).

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in a above.

c. Adjustment. Adjust the tension and the timing of the thread nipper head according to the following:

(1) *Adjusting tension of thread nipper head.* The thread nipper head (5, fig. 7-5) should hold the thread tightly while the machine is in its stopped position. Loosen the thread nipper releasing rod spring collar setscrew (18) in the collar (19). Move the collar downward to tighten the thread grip and upward to loosen the thread grip. Tighten the setscrew securely.

(2) *Adjusting timing of thread nipper head.* When the machine is in its stopped or locked position, the thread nipper releasing screw stud (12) at the under side of the thread nipper releasing lever should rest upon the center of the stud at the top surface of the feed cam. Loosen the thread nipper releasing screw stud nut (11) at the upper side of the thread nipper releasing lever; then, move the stud (12) toward or away from the needle. Tighten the nut (11) securely.

7-18. Front and Rear Thread Pulloffs

a. Removal.

(1) Loosen setscrew (2, fig. 7-7) and toe screw (4) that hold the pulloffs to the holders.

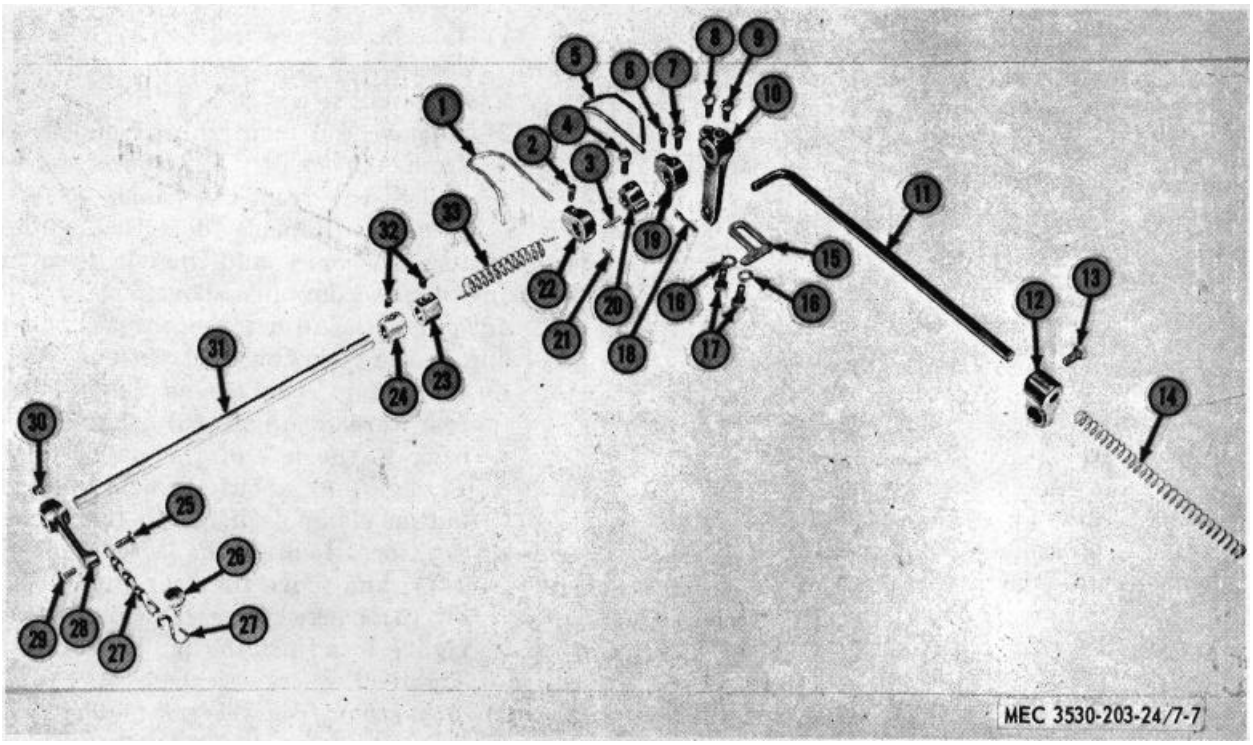
(2) Remove the front thread pulloff (1) from the holder (22), and remove pulloff (5) from the holder (19).

b. *Installation*. Replace defective pulloffs with serviceable ones and install them by reversing the procedure in a above.

c. Adjustment. Adjust the thread pulloffs according to the following instructions:

(1) *Adjusting rear thread pulloff*. The rear thread pulloff (5), should move back to the left of the pulloff eyelet (7, fig. 7-5) about 1/2 inch when the button clamp is lifted to the highest position. Loosen the screw (4, fig. 7-7), and move the rear thread pulloff (5) backward or forward (left or right) to adjust the pulloff correctly. Tighten the screw securely.

(2) *Adjusting front thread pulloff*. The front thread pulloff (1) should draw enough thread through the thread nipper to leave about 2 inches of thread through the eye of the needle after a button has been removed from the clamp. Loosen the button clamp lifting the thread pulloff holder setscrew (2). Turn the collar (2, fig. 7-5) to the right to tighten the spring (3) and to increase the tension of the front thread pulloff; turn it to the left to loosen the spiral spring and to decrease the tension on the front thread pulloff. Tighten setscrew securely.



1 Pulloff, front thread
2 Setscrew
3 Pin, stop collar
4 Screw
5 Pulloff, rear thread
6 Setscrew
7 Screw
8 Screw, rod arm
9 Screw, rod arm positioning
10 Arm, lifting rod
11 Rod, lifting
12 Collar, lifting rod spring
13 Screw, spring collar
14 Spring, lifting rod
15 Plate, lifting rod arm stop
16 Washer, stop plate screw
17 Screws, stop plate
18 Pin, lifting rod cotter
19 Holder, rear thread pulloff
20 Collar, thread pulloff
21 Pin, holder stop
22 Holder, front thread pulloff
23 Collar, thread pulloff holder shaft spring
24 Collar, thread pulloff holder shaft spring
25 Screw, lifting chain
26 Thumbscrew, lifting chain
27 Chain with hook, lifting
28 Arm, lifting
29 Screw, lifting chain
30 Setscrew, lifting arm
31 Shaft, clamp lifting and thread pulloff holder
32 Setscrews, shaft and spring collar
33 Spring, thread pulloff holder shaft

Figure 7-7. Button clamp lifting arm and thread pulloffs.

7-19. End Cover and Spring

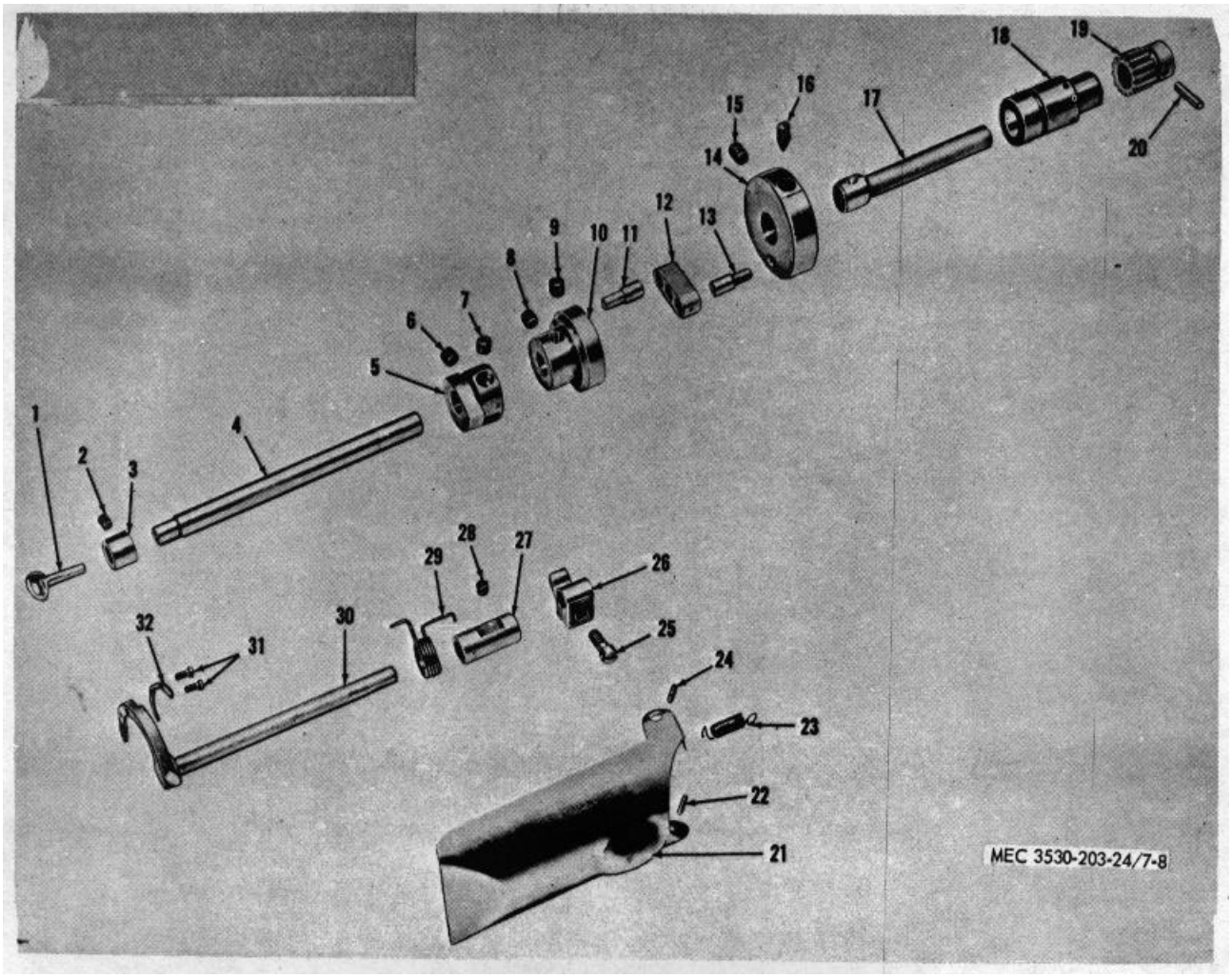
a. Removal.

(1) Unhook and remove the end cover spring (23, fig. 7-8) from the end cover (21).

(2) Pull both the left and the right hinge pins (22 and 24) from the end cover and remove the end cover from the machine.

b. Cleaning and Inspection. Wash the end cover and spring in SD (solvent, drycleaning) and dry them thoroughly. Inspect the end cover for dents and breaks, the pins for breaks and cracks, and the spring for broken coils and excessive wear.

c. Installation. Replace defective end cover and spring with serviceable ones and install them by reversing the procedure in a above.



1	Looper, thread	12	Link, thread looper drive shaft connecting	21	Cover, end
2	Setscrew, looper	13	Stud	22	Pin, left hinge
3	Bushing	14	Crank, drive shaft	23	Spring, end cover
4	Shaft, looper driven	15	Setscrew, connecting link	24	Pin, right hinge
5	Cam, needle guide	16	Screw, crank positioning	25	Screw, crank
6	Setscrew, cam	17	Shaft, thread looper drive	26	Crank, oscillating
7	Setscrew, cam	18	Bushing, thread looper drive	27	Bushing, needle guide shaft
8	Setscrew, crank	19	Gear, thread looper drive shaft	28	Setscrew, bushing
9	Setscrew, crank	32	Finger, needle guide thread	29	Spring
10	Crank, thread looper shaft			30	Guide, w/shaft, needle
11	Stud			31	Screws, thread finger
20	Pin thread looper drive				

Figure 7-8. Button sewing machine thread looper drive shaft, cam, and crank.

7-20. Front Top Cover

a. Removal. Remove the screws (27 and 28, fig. 7-9) that secure the front top cover (24) to the machine, and remove the cover from the machine.

b. Installation. Replace defective cover with a serviceable one and install it by reversing the procedure in a above.

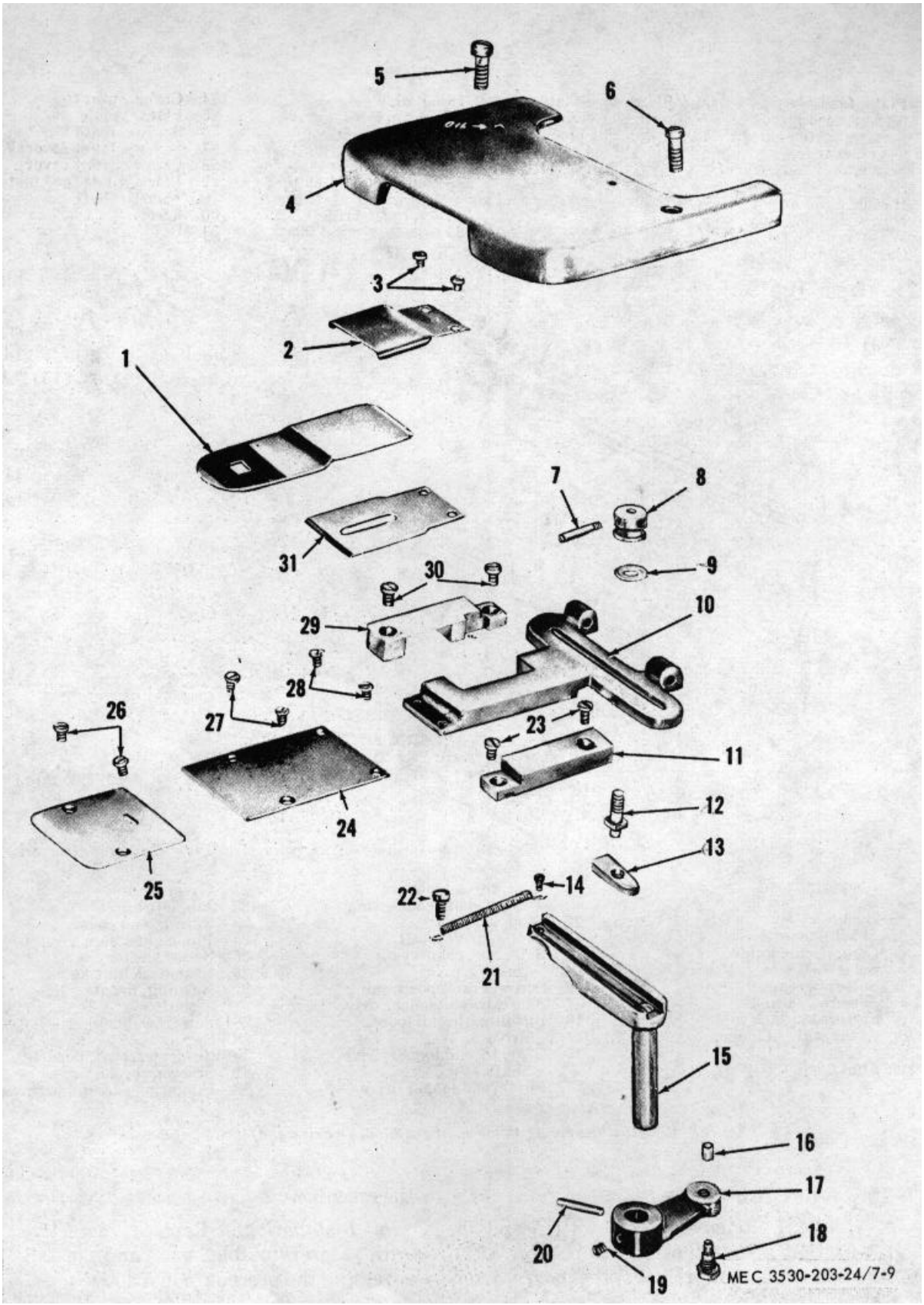


Figure 7-9. Button sewing machine feed and needle plates.

1 Plate, feed
2 Spring, feed plate
3 Screws, plate holder
4 Cover, rear top
5 Screw, rear top cover
6 Screw, rear top cover
7 Handle, stud nut
8 Nut, slide block stud
9 Washer, block stud
10 Carrier, feed plate
11 Block, feed plate carrier right guide
12 Stud, slide block
13 Block, feed plate carrier regulating slide
14 Screw, regulator end spring
15 Regulator, feed plate carrier
16 Roller
17 Arm, carrier drive
18 Stud, drive arm
19 Setscrew, drive arm
20 Pin, drive arm
21 Spring, feed plate carrier regulating
22 Screw, spring
23 Screws, right block
24 Cover, front top
25 Plate, needle
26 Screws, plate
27 Screws, front cover
28 Screws, front cover
29 Block, guide feed plate carrier left
30 Screws
31 Holder, feed plate

7-2 1. Rear Top Cover

a. Removal. Remove the screws (5 and 6, fig. 7-9) that secure the rear top cover (4) to the machine, and remove the cover from the machine.

b. Installation. Replace defective cover with a serviceable one and install it by reversing the procedure in a above.

7-22. Needle Plate

a. Removal. Remove the screws (26, fig. 7-9) that secure the needle plate (25) to the machine, and remove the needle plate from the machine.

b. Installation. Replace defective needle plate with a serviceable one and install it by reversing the procedure in a above.

7-23. Feed Plate and Spring

a. Removal.

(1) Loosen the needle setscrew and remove the needle from the machine.

(2) Remove the button clamp arm with clamps from the machine (para. 3-81a).

(3) Lift the feed plate (1, fig. 7-9) and slide it from the machine.

(4) Remove the feed plate spring from the machine.

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in a above.

7-24. Feed Plate Carrier Regulator Spring

a. Removal.

(1) Remove the button clamp arm with clamps from the machine (para. 3-81a).

(2) Remove the screws (5 and 6, fig. 7-9) that secure the rear top cover (4) to the machine, and remove the cover from the machine.

(3) Remove the two screws (23) that secure the right guide block (11) to the machine, and remove the block from the machine.

(4) Slide the feed plate carrier regulating slide block (13) to the right to gain access to the screw (14), and remove the screw from the spring (21) and from the regulator (15).

(5) Remove the screw (22) that secures the spring (21) to the regulator (15), and remove the spring from the regulator.

b. Installation. Replace defective spring with a serviceable one and install it by reversing the procedure in a above.

7-25. Starting Lever Spring and Screws

a. Removal.

(1) Loosen the wingnut on the machine base, and lay the machine on its side.

(2) Insert the screwdriver in the opening in the rear of the base, and remove the starting lever hinge screw (3, fig. 7-10) from the starting lever (1) and from the machine base (2).

(3) Remove the starting lever and the spring (5) from the machine, and separate the spring from the starting lever.

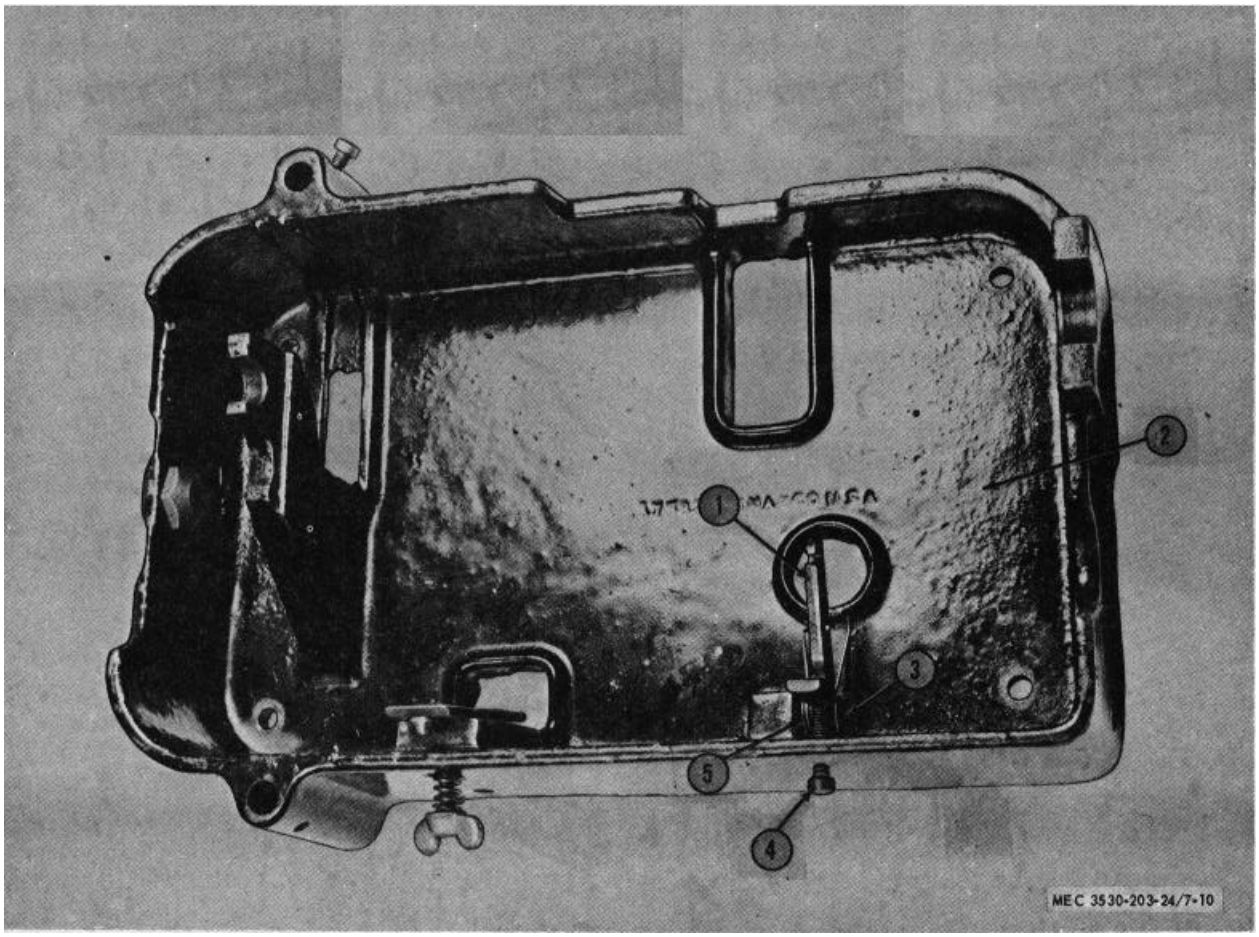
(4) Loosen the stop screw nut, and remove the stop screw (4) from the nut and from the machine base.

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in a above.

c. Adjustment. Adjust the stop screw as follows:

(1) Place the machine in its operating position, having the stop motion shaft in the stopped position as shown in figure 7-6.

(2) Loosen the stop screw nut and turn the stop screw (4, fig. 7-5) clockwise until a slight bind is felt. Back off the stop screw counterclockwise two complete turns; then, tighten the stop screw nut securely.



1 Lever, starting
2 Base, button machine
3 Screw, hinge
4 Screw, stop
5 Spring, starting lever

Figure 7-10. Starting lever spring and screws.

7-26. Drive Pulley

a. Removal.

(1) Disconnect the power cord from the power source.

(2) Remove the screw (6, fig. 7-11) that secures the drive pulley shifter (5) to the drive pulley shifter holder (10), and remove the shifter from the holder.

(3) Slide the pulley (1) from the drive shaft (4).

(4) Remove the nut (3) from the screw (2), and remove the screw from the pulley.

b. Installation. Replace defective pulley with a serviceable one and install it by reversing the procedure in a above.

1 Pulley, drive
2 Screw, engaging
3 Nut
4 Shaft, drive
5 Shifter, drive pulley
6 Screw, shifter
7 Shaft, stop motion
8 Locknut, holder setscrew
9 Setscrew, holder
10 Holder, drive pulley shifter
11 Setscrew, stop dog
12 Holder w/cushion spring and setscrew, stop dog
13 Dog, stop

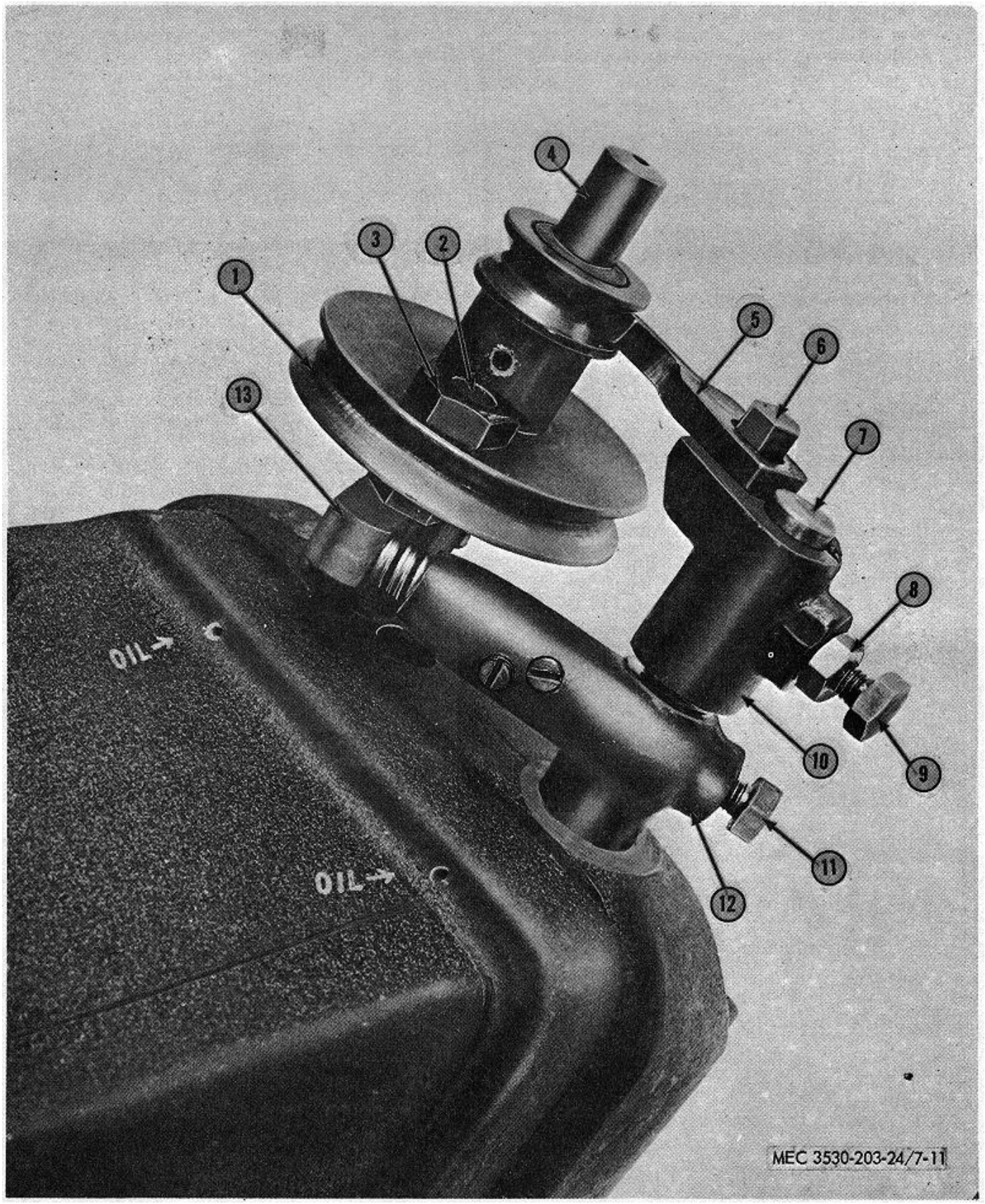


Figure 7-11. Pulley stop motion shaft and shifter in stopped position.

7-27. Drive Pulley Shifter and Holder

a. Removal.

(1) Disconnect the power cord from the power source.

(2) Remove the shifter screw (6, fig. 7-11) that secures the shifter (5) to the holder (10), and remove the shifter from the holder.

(3) Loosen the locknut (8), remove the setscrew (9) that secures the holder (10) to the stop motion shaft (7) and remove the holder from the stop motion shaft.

b. Installation. Replace defective items with serviceable ones and install them by reversing the procedure in a above.

c. Adjustment. Adjust the pulley shifter as follows: (1) Turn the machine until the pulley shifter comes to the stopped position as shown in figure 7-11.

(2) Loosen the locknut (8) and the setscrew (9).

(3) Pivot the stop motion drive pulley shifter (5) and the holder (10) on the stop motion shaft (7) until the center of the shifter is in line with the center of the pulley.

(4) Loosen the screw (6) and slide the shifter (5) forward until it is tight in the groove of the pulley; then, back off on the shifter l/32 inch and tighten the screw (6) securely.

(5) Press the starting treadle and make sure the machine is in the starting position.

(6) Pivot the pulley shifter and the holder on the stop motion shaft (7) until the bottom end of the pulley shifter is about 1/l inch below the center of the groove in the pulley.

(7) Slide the holder and the pulley (1) on the drive shaft (4) until there is about ¼h,; inch clearance between the pulley and the stop dog (13).

(8) Tighten the setscrew (9) and the locknut (8).

7-28. Stop Dog Holder With Cushion Spring and Setscrew

a. Removal.

(1) Disconnect the power source.

(2) Remove the drive pulley shifter and the holder (para. 7-27a).

(3) Remove the setscrew (11, fig. 7-11) that secures the stop dog holder (12) to the stop motion shaft (7), and remove the holder with cushion spring and setscrew from the shaft.

b. Installation. Replace defective items with serviceable ones and install them by reversing the procedure in a above.

c. Adjustment. Adjust the stop dog holder as follows:

(1) Turn the balance wheel until the machine is in the stopped position.

(2) Loosen the setscrew (11) that secures the stop dog holder (12) to the stop motion shaft (7).

(3) Slide the stop dog holder until it rests against the machine bed.

(4) Pivot the stop dog holder on the stop motion shaft until the cushion spring lines up with the flat surface at the end of the stop dog as shown in figure 7-11.

(5) Tighten setscrew (11) securely.

7-29. Thread Looper

a. Removal.

(1) Loosen the wingnut on the front of the machine base and lay the machine on its side.

(2) Loosen setscrew (2, fig. 7-8) that holds the looper (1) to the shaft (4), and remove the looper.

b. *Installation*. Replace damaged looper with a serviceable one and install it; by reversing the procedure in a above.

c. Adjustment or Timing. Adjust the looper as follows:

(1) *Adjusting looper to or from needle*. Adjust the looper to or from the needle so the point of the looper hook (2, fig. 7-12) passes behind the needle and sets toward or away from the needle, as necessary, and that the point of the looper hook just clears the needle above the eye when the needle moves up on its left-hand vibrations. The adjusting procedure is as follows:

(a) Hand-turn the machine until the needle starts up on its left-hand stroke.

(b) Loosen the looper setscrew (4).

(c) Move the looper forward or backward until the looper point just clears the needle above the eye.

(d) Make certain that the setscrew (4) engages the flat surface of the looper shank; then tighten the setscrew securely.

(2) Adjusting for right-hand upstroke of needle. When the needle bar moves down to its lowest position on its right-hand vibration, the distance from the point of the looper hook (2) to the center of the needle (5) should be 1/32 inch. If the machine is further rotated in its normal direction until the needle rises /32 inch, the point of the looper hook (2) should cross the center of the needle (5) at a point 1/8 inch above the top of the needle eye. The adjusting procedure is as follows:

(a) Set the needle bar at its correct height.

(b) Hand-turn the balance wheel until the needle reaches its lowest position on its right-hand vibration.

(c) Loosen the screws in the crank (1, fig. 7-13), using a special splined wrench.

(d) Turn the looper shaft (4, fig. 7-8) until the point of the looper hook (2, fig. 7-12) is 1/32 inch from the center of the needle.

(e) Tighten the setscrews securely in the crank.

(f) Hand-turn the balance wheel in its normal operating direction to make the following tests and determinations:

1. That, when the needle moves down to its lowest position on the right-hand vibration, the point of the looper hook is 1/32 inch from the center of the needle.
2. That, when the needle is moved up a distance of 1/32 inch, the point of the looper hook is crossing the center of the needle at a point 1/8 inch above the top of the needle center as shown in figure 7-12.

(3) Adjusting for left-hand upstroke needle. When the needle moves to its lowest position on its left-hand vibration, the point of the looper hook (2) should be about 5/32 inch from the center of the needle (instead of 1/32 inch when the needle is on its right-hand vibration). When the needle bar is raised a distance of 5/32 inch, the point of the looper hook (2) should cross the center of the needle at a point 1/64 inch above the top of the needle eye (instead of 1/8inch when the needle is on its right-hand vibration). The adjusting procedure is as follows:

(a) Set the needle bar at its correct height.

(b) Hand-turn the balance wheel until the needle reaches its lowest position on its left-hand vibration.

(c) Loosen the screws in the crank (1, fig. 7-13).

(d) Turn the looper shaft (4, fig. 7-8) until the point of the looper (5, fig. 7-12) is 5/32 inch from the center of the needle.

(e) Tighten the screws securely in the crank.

(f) Hand-turn the balance wheel in its normal operating direction to make the following tests and determination:

1. That, when the needle moves down to its lowest point on its left-hand vibration, the point of the looper hook (2) is about %2 inch from the center of the needle.
2. That, when the needle is raised 5/32 inch, the point of the looper hook (2) is crossing the center of the needle at a point 1/64 inch above the top of the needle eye.

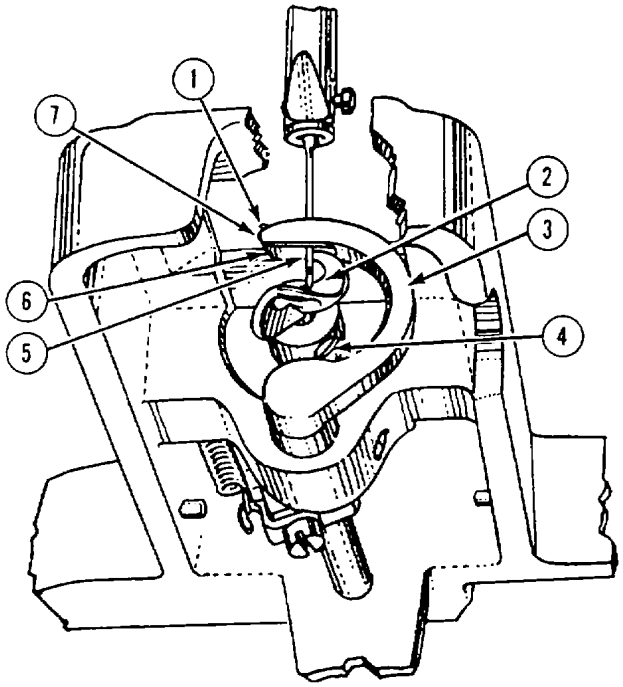
7-30. Button Clamp Arm, Pin, and Clamps

a. Removal.

(1) Turn the power switch to the OFF position.

(2) Loosen the needle setscrew and remove the needle from the machine.

(3) Remove the thumb nuts that secure the right side cover to the machine arm; and remove the cover from the machine arm.



1 Tip of needle guide thread finger
2 Hook, looper
3 Guide, needle
4 Setscrew, looper
5 Point of looper hook at center of needle
6 Inside surface of needle bar guide
7 Front prong of the needle bar guide

Figure 7-12. Adjusting (timing) looper for right-hand vibration of needle bar.

(4) Remove the thumbscrew that secures the button clamp lifting chain to the button clamp arm (9, fig. 7-141).

(5) Remove the button clamp arm hinge pin (13) that holds the button clamp arm to the machine frame.

(6) Raise the presser bar to relieve the pressure on the button clamp arm, and remove the button clamp arm with the right and left button clamps (21 and 25) from the machine.

(7) Spread open the closing spring (16), and remove the spring from the clamps.

(8) Remove the screws (14 and 20) that secure the button clamps to the spreader base (28), and remove the button clamps from the base.

(9) Remove the screws (32) that secure the button clamp arm (9) to the base.

(10) Remove the arm from the base.

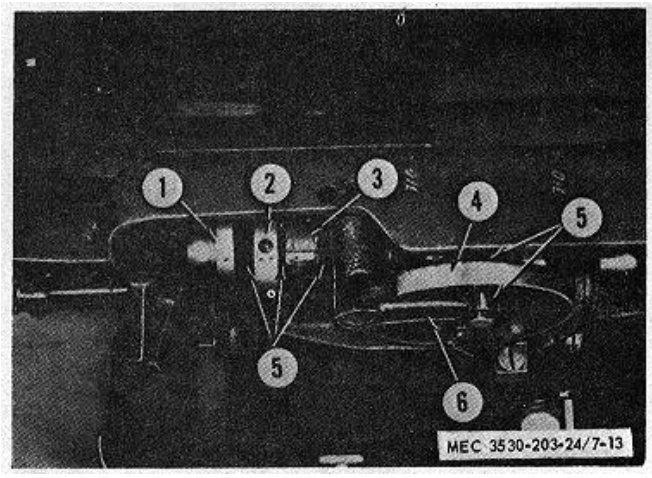
b. Installation. Replace defective items with serviceable ones and install them by reversing the procedure in a above.

c. Adjustment. Adjust the button clamps in order to center the needle in the holes of fiat buttons as follows:

(1) Loosen the two screws (1, fig. 7-15).

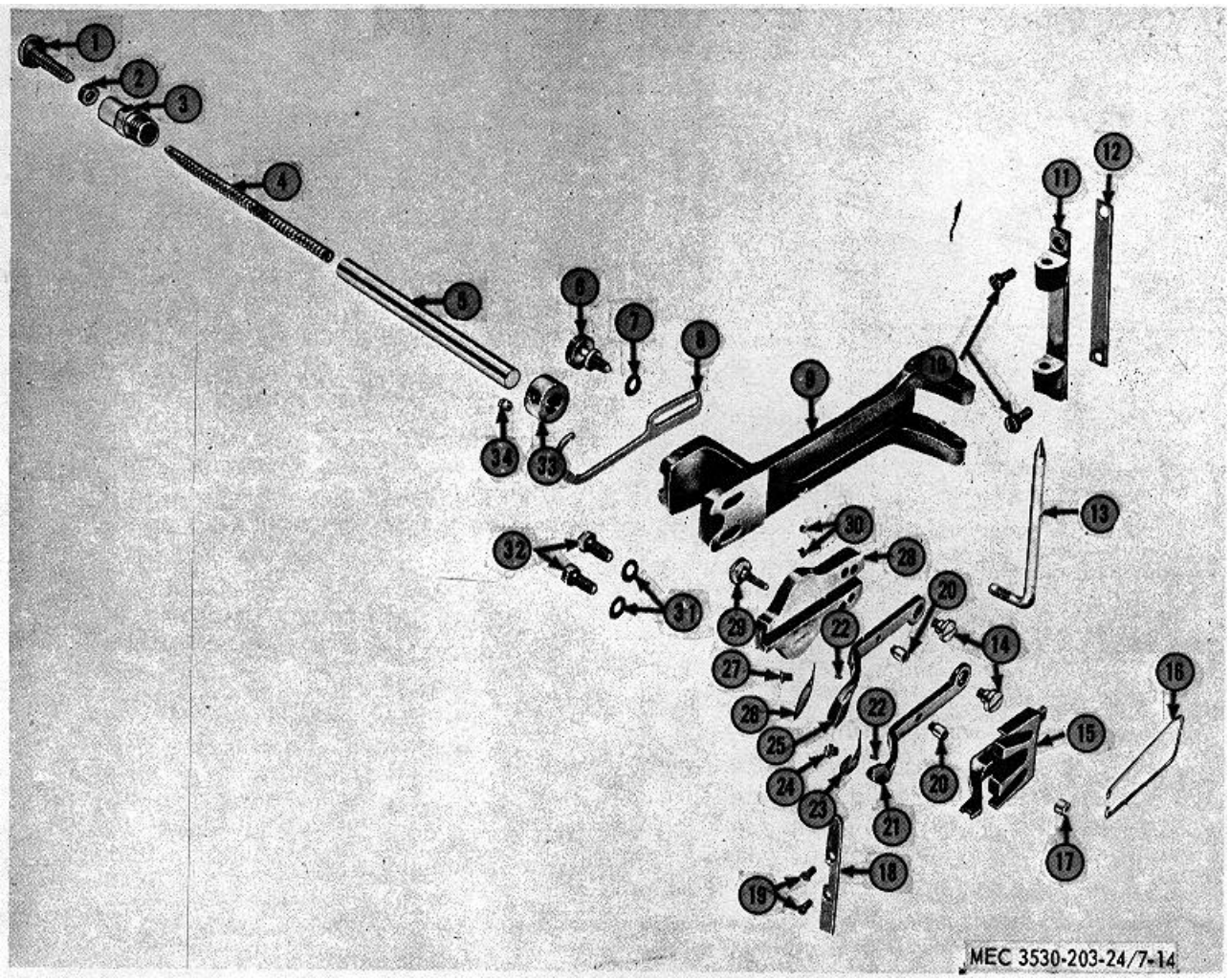
(2) Adjust the button clamp forward, backward, to the left, or to the right, as may be required, to center the needle in the holes of the button.

(3) Tighten the screws securely.



1 Crank, thread looper shaft
2 Crank, thread looper driving shaft
3 Casting
4 Cam, feed
5 Timing marks
6 Arm, feed plate carrier driving

Figure 7-13. Thread looper drive .shaft link with



1	Thumbscrew, pressure regulating	11	Shim, bracket arm hinge pin	23	Spring, left button clamp
2	Locknut, thumbscrew	12	Bracket, hinge pin	24	Screw, spring
3	Screw, presser bar bearing	13	Pin, arm hinge	25	Clamp, right button
4	Spring, presser bar	14	Screws, clamp hinge	26	Spring, right button clamp
5	Bar, presser	15	Spreader, button clamp	27	Screw, spring
6	Thumbscrew, adjusting lever	16	Spring, closing	28	Base, spreader
7	Washer, thumbscrew	17	Nut, spreader screw	29	Screw, spreader
8	Lever, clamp adjusting	18	Handle, spreader	30	Nuts
9	Arm, button clamp	19	Screws, spreader handle	31	Washers, base screw
10	Screws, hinge pin bracket	20	Screws, clamp	32	Screws, spreader base
		21	Clamp, left button	33	Collar, presser bar
		22	Pins, spring steady	34	Setscrew, presser bar collar

Figure 7-14. Button clamp and presser bar.

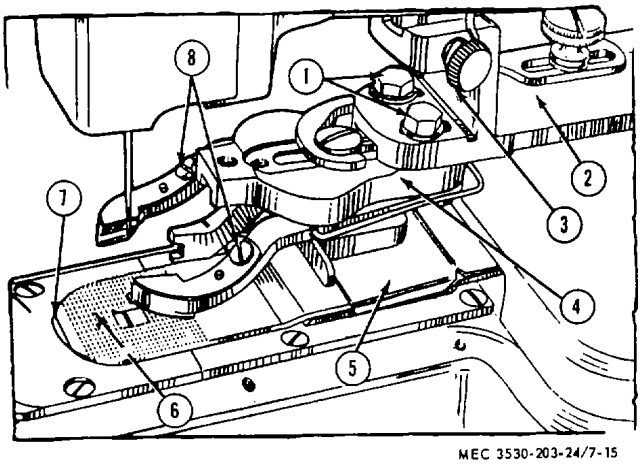
7-31. Left and Right Button Clamp Springs

a. Removal.

(1) Remove the screws (24 and 27, fig. 7-14) that secure the springs (23 and 26) to the left and right button clamps (21 and 25).

(2) Remove the springs from the clamps.

b. Installation. Replace defective springs with serviceable ones and install them by reversing the procedure in a above.



1	Screws, button clamp spreader and button stop base	4	Base, button clamp spreader and button stop
2	Arm, button clamp	5	Spring, feed plate
3	Thumbscrew, button clamp shanking foot	6	Plate, feed
		7	End of feed plate
		8	Screws, spring

Figure 7-15. Adjustments on feed plate and button clamp.

7-32. Button Clamp Closing Spring

a. Removal. Raise the left and the right button clamps (21 and 25, fig. 7-9) and spread the closing spring (16) open, and remove the closing spring from the button clamp.

b. Installation. Replace defective closing spring with a serviceable one and install it by reversing the procedure in a above.

7-33. Button Clamp Spreader Handle

a. Removal. Remove the two screws (19, fig. 7-14) that secure the spreader handle (18) to the button clamp spreader (15), and remove the handle from the spreader.

b. Installation. Replace defective handle with a serviceable one and install it by reversing the procedure in a above.

7-34. Lifting Chain

a. Removal.

(1) Remove the two thumb nuts that secure the right side cover (2, fig. 7-3) to the machine, and remove the cover from the machine.

(2) Remove the screws that secure the faceplate to the machine, and remove the faceplate from the machine. (3) Remove the lifting chain screws (25 and 29, fig. 7-7) that hold the lifting chain (27) to the lifting arm (10).

(4) Remove the thumbscrew (26) that holds the lifting chain to the machine.

(5) Remove the lifting chain with hook from the machine.

b. Installation. Replace defective lifting chain with a serviceable one and install it by reversing the procedure in a above.

7-35. Lifting Rod Arm Stop Plate

a. Removal. Remove the two screws (17, fig. 7-7) and washers (16) that secure the lifting rod arm stop plate (15) to the machine frame, and remove the stop plate from the machine frame.

b. Installation. Replace defective stop plate with a serviceable one and install it by reversing the procedure in a above.

7-36. Presser Bar Collar and Pressure Regulating Thumbscrew

a. Removal.

(1) Remove the two thumb nuts that secure the right side cover (2, fig. 7-3) to the machine, and remove the cover from the machine.

(2) Loosen the locknut (2, fig. 7-14), and unscrew the pressure regulating thumbscrew (1) from the presser bar bearing screw (3).

(3) Remove the locknut (2) from the thumbscrew.

(4) Remove the bearing screw from the machine frame.

(5) Raise the presser bar (5) and loosen the collar setscrew (34) that holds the presser bar collar (33) to the presser bar.

(6) Remove the presser bar collar with setscrew (34) from the presser bar.

(7) Remove the setscrew from the presser bar collar.

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in a above.

7-37. Lifting Rod Spring Collar Screw

a. Removal. Remove the screw (13, fig. 7-7) that holds the lifting rod spring collar(12) to the lifting rod (11).

b. Installation. Replace defective screw with a serviceable one and install it by reversing the procedure in a above.

7-38. Faceplate Assembly

a. Removal. Remove the screws (47, fig. 7-16) that secure the faceplate assembly to the machine, and remove the faceplate assembly from the machine.

b. Disassembly.

(1) Unscrew the upper faceplate thread guide (48) from the faceplate (49).

(2) Remove the screw (46) that secures the lower thread guide plate (45) to the faceplate.

(3) Remove the thread guide plate roller (43) and the thread retainer collar (42) from the faceplate.

(4) Drive the pin (44) from the faceplate.

(5) Remove the setscrew (41) that secures the thread retainer stud (38) to the faceplate.

c. Assembly and Installation. Replace defective faceplate as a complete assembly or a defective part of the faceplate assembly as necessary and assemble and install them by reversing the procedures in a and b above.

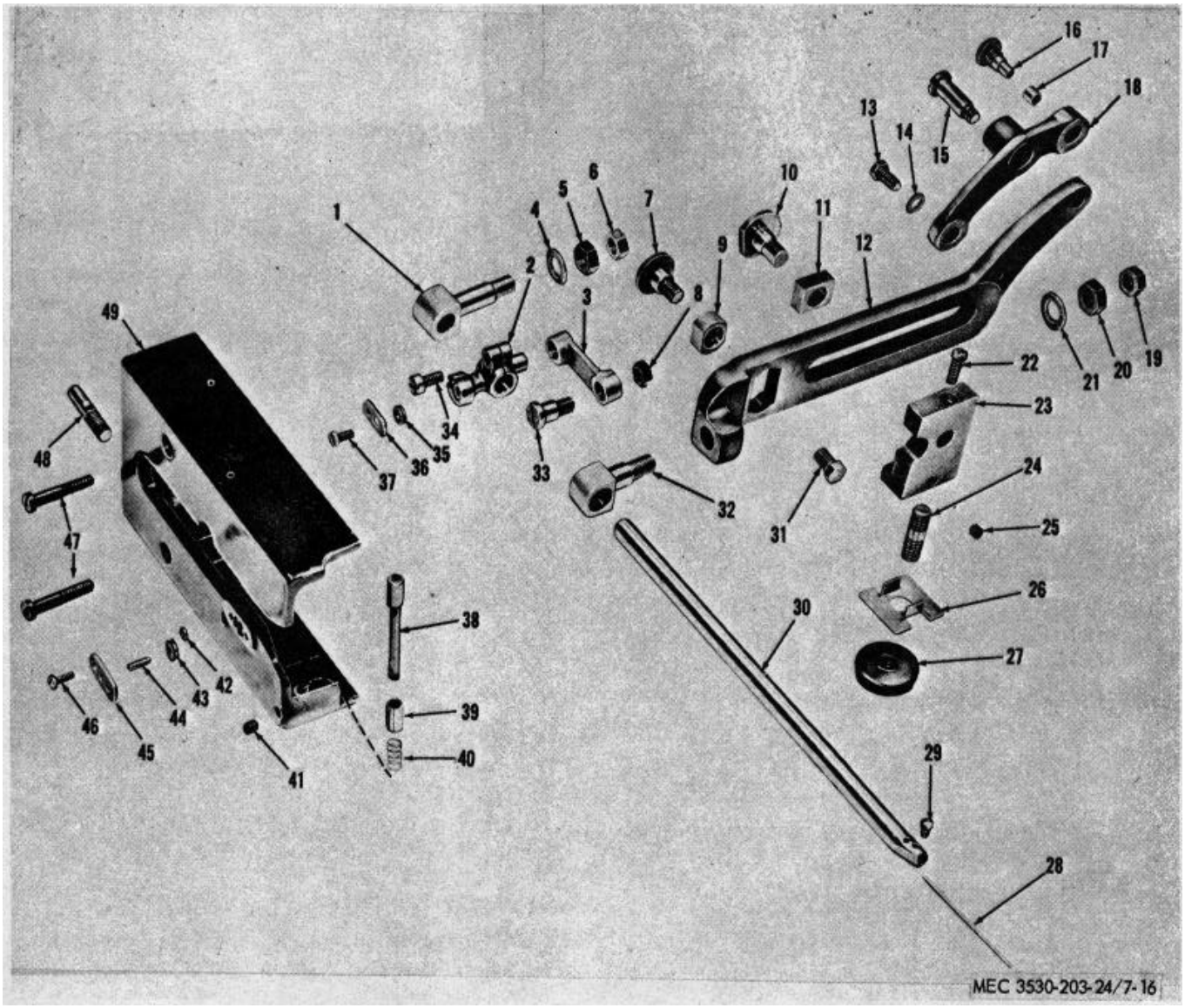


Figure 7-16. Button sewing machine faceplate and needle bar vibrating lever, disassembled.

1 Stud, upper needle bar connecting
2 Stud, needle bar connecting link
3 Link, needle bar connecting
4 Washer, connecting stud
5 Nut, connecting stud
6 Locknut, connecting stud nut
7 Screw, lever hinge
8 Nut, hinge screw
9 Slide, needle bar vibrating lever hinge screw
10 Stud, bracket hinge
11 Slide, hinge stud
12 Lever, needle bar vibrating
13 Screw, lever arm
14 Washer, lever arm stud
15 Screw, lever hinge
16 Stud, lever arm
17 Roller
18 Arm, vibrating lever
19 Locknut, connecting stud nut
20 Nut
21 Washer, connecting
22 Setscrew, bracket hinge stud
23 Bracket, needle bar vibrating lever
24 Stud, bracket
25 Setscrew, bracket stud locknut
26 Washer, locknut bracket
27 Locknut, bracket stud
28 Needle
29 Setscrew, needle
30 Bar, needle
31 Screw, lever lock
32 Stud, lower needle bar connecting
33 Screw, link hinge
34 Screw, hinge stud
35 Roller, guide plate thread
36 Plate, stud thread guide
37 Screw, thread guide plate
38 Stud, thread retainer
39 Sleeve, thread retainer
40 Spring, thread retainer
41 Setscrew, thread retainer stud
42 Collar, lower thread retainer spacing
43 Roller, lower guide plate
44 Pin, plate thread guide
45 Plate, lower thread guide
46 Screw, lower guide plate
47 Screws, faceplate
48 Guide, upper faceplate thread
49 Faceplate

Figure 7-16-Continued

CHAPTER 8
DIRECT AND GENERAL SUPPORT MAINTENANCE INSTRUCTIONS

Section I. TROUBLESHOOTING

8-1. General

a. This section provides information useful to the direct and general support maintenance personnel in correcting unsatisfactory operation of the clothing repair shop and its components. Each trouble symptom stated is followed by the probable cause of the trouble. The possible remedy recommended is described opposite the probable cause. Any trouble that is beyond the ability of the direct and general support maintenance personnel must be reported according to the instructions given in TM 38-750.

b. Troubleshooting information for the cabinet assembly; clothing sewing machine; and the darning machine, is contained in the following paragraphs:

(1) Cabinet assembly, paragraph 4-2.
(2) Clothing sewing machine, paragraph 4-3.
(3) Darning machine, paragraph 4-4.

8-2. Button Sewing Machine

a. Needle Breaks.

Possible remedy	Probable cause
Thread finger or needle guide is broken.	Install serviceable thread finger or needle guide (para. 8-19).
Needle guide and thread finger are out of adjustment.	Adjust needle guide and thread finger (para. 8-19).
Needle guide shaft bushing is worn excessively.	Install serviceable bushing and adjust needle guide (para. 8-19).
Needle bar out of adjustment.	Adjust needle bar (para. 8-4).

b. Thread Breaks.

Possible remedy	Probable cause
Thread finger or needle guide is broken.	Install serviceablethread finger or needle guide (para. 8-19).
Needle guide and thread finger are out of adjustment.	Adjust needle guide and thread finger (para. 8-19).
Needle guide shaft bushing is worn excessively.	Install serviceable bushing and adjust the needle guide (para. 8-19).
Needle guide oscillating crank spring is broken.	Install serviceable spring (para. 8-19).

c. Motor Fails to Start When Switch is in ON Position.

Possible remedy	Probable cause
Motor is defective---	Install a serviceable motor (para. 7-10).

d. Unusual Noise in Motor.

Probable cause	Possible remedy
Motor bearings and brushes are worn.	Install serviceable bearing and brushes (para. 8-40).

Section II. BUTTON SEWING MACHINE

8-3. General

This section describes the direct and general support maintenance instructions for the button sewing machine. Any deficiencies which the direct and general support maintenance personnel are not authorized to correct must be reported as stipulated in TM 38-750.

8-4. Needle Bar

a. Removal.

(1) Remove the two screws (47, fig.

7-16) that holds the faceplate to the machine, and remove the faceplate from the machine.

(2) Remove the setscrew (29) and the needle (28) from the needle bar (30).

(3) Remove the hinge stud screw (34) that secures the needle bar to the connecting link stud (2).

(4) Slide the needle bar from the connecting link stud and from the top of the machine.

b. Installation. Replace defective needle bar with serviceable one and install it by reversing the procedure in a above.

c. Adjustment. Adjust the needle bar as follows:

(1) Take out the two screws (47) that hold the faceplate to the machine, and remove the faceplate from the machine.

(2) Make sure the needle is as far up as it will go into the needle bar.

(3) Hand-turn the drive pulley to bring the needle bar to its highest position.

(4) Loosen the hinge stud screw (34) that holds the needle bar connecting link stud (2) to the needle bar.

(5) Hold the needle bar connecting link stud at its highest point of its stroke, and move the needle bar (30) for the model 175-60 up or down to bring the top of the needle eye 15/16i inch above the top surface of the needle plate. For the model 175-61, move the needle bar up or down to bring the top of the needle eye 1 1/16 inch above the top surface of the needle plate.

(6) Check this adjustment to see that the needle point does not protrude through the needle hole in the looper when the needle bar is at the bottom of its stroke. This check cannot be made until the looper is adjusted or timed correctly (para. 7-29).

8-5. Needle Bar Connecting Link and Stud

a. Removal.

(1) Remove the needle bar from the machine (para. 8-4).

(2) Pull the connecting link stud (2, fig. 7-16) from the connecting link (3).

(3) Remove the nut (8) and the link hinge screw (33) that hold the needle bar connecting link (3) to the rockshaft crank.

(4) Remove the connecting link from the rockshaft crank.

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in a above.

c. Adjustment. Adjust the needle bar (para. 8-4).

8-6. Upper and Lower Needle Bar Connecting Studs

a. Removal.

(1) Remove the needle bar from the machine (para. 8-4).

(2) Remove the locknut (6, fig. 7-16), the nut (5), and the washer (4), that hold the upper connecting stud (1) to the machine and remove the stud from the machine.

(3) Remove the locknut (19), the nut (20), and the washer (21) that holds the lower connecting stud (32) to the vibrating lever (12), and remove the stud from the vibrating lever.

b. Installation. Replace defective studs with serviceable ones and install them by reversing the procedure in a above.

c. Adjustment. Adjust the needle bar (para. 8-4).

8-7. Presser Bar

a. Removal.

(1) Remove the two thumb nuts that secure the right side cover to the machine, and remove the side cover from the machine.

(2) Remove the bearing screw (3, fig. 7-14) with the locknut (2) and the thumbscrew (1).

(3) Remove the spring (4) from the presser bar (5).

(4) Remove the setscrew (34) that holds the collar (33) to the presser bar.

(5) Slide the presser bar from the collar and from the machine.

b. Installation. Replace defective presser bar with a serviceable one and install it by reversing the procedure in a above.

8-8. Needle Bar Vibrating Lever, Arm, and Slides

a. Removal.

(1) Remove the needle bar from the machine (para. 8-4).
(2) Remove the locknut (19, fig. 7-16), the nut (20), and the washer (21) that hold the lower connecting stud (32) to the vibrating lever (12), and remove the stud from the vibrating lever.
(3) Remove the presser bar from the machine (para. 8-7).
(4) Remove the screw (13), the washer (14), and the hinge screw (15) that hold the vibrating lever arm (18) to the vibrating lever (12), and remove the arm with the stud and roller from the vibrating lever.
(5) Separate the stud and the roller from the arm.
(6) Remove the setscrew (22) that holds the bracket hinge, stud (10) to the vibrating lever bracket (23).
(7) Remove the bracket hinge stud and the hinge stud slide (11) from the vibrating lever bracket.
(8) Remove the screw (31) that locks the hinge screw (7) to the machine.
(9) Remove the hinge screw (7) and the hinge screw slide (9) from the vibrating lever and from the machine.
(10) Remove the vibrating lever from the machine.

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in a above.

c. Adjustment. Adjust the needle bar (para. 8-4) and the needle bar vibration TM 10-3530-203-10).

8-9. Thread Retainer Stud, Sleeve, and Spring

a. Removal.

(1) Loosen the thread retainer stud setscrew (41, fig. 7-16) that holds the thread retainer stud (38) to the faceplate (49).
(2) Remove the thread retainer stud with the spring (40) and the sleeve (39) from the faceplate.
(3) Separate the spring and the sleeve from the thread retainer stud.

b. Installation. Replace defective parts with serviceable ones, and install them by reversing the procedure in a above.

8-10. Needle Bar Vibrating Lever Bracket

a. Removal.

(1) Remove the two thumb nuts that secure the right side cover (2, fig. 7-3) to the machine, and remove the side cover from the machine.
(2) Remove the setscrew (22, fig. 7-16) that holds the hinge stud (10) to the vibrating lever bracket (23), and remove the hinge stud from the bracket.
(3) Remove the locknut (27) and the washer (26) from the bracket stud (24).
(4) Remove the lock screw (31) that locksthe lever hinge screw (7) to the machine.
(5) Loosen the lever hinge screw (7) and raise the vibrating lever (12) high enough to remove the vibrating lever bracket from the machine.
(6) Remove the setscrew (25) that locks the bracket stud (24) to the vibrating lever bracket.
(7) Unscrew the bracket stud from the bracket.

b. Installation. Replace defective bracket with a serviceable one and install it by reversing the procedure in a above.

c. Adjustment. Adjust the needle bar vibration (TM 10-3530-203-10).

8-11. Spreader and Base

a. Removal.

(1) Remove the button clamp arm with the right and left clamps from the base (para. 7-30).
(2) Remove the spreader handle (para. 7-33).
(3) Remove the spreader screw nut (17, fig. 7-14) from the spreader screw (29).
(4) Remove the spreader screw that holds the spreader (15) to the base (28).
(5) Separate the spreader from the base.

b. Installation. Replace defective spreader and base with serviceable ones and install them by reversing the procedure in a above.

8-12. Hinge Pin Bracket and Shim

a. Removal.

(1) Remove the hinge pin (13, fig. 7-14) from the bracket (12).

(2) Remove the two screws (10) that secure the bracket to the machine, and remove the bracket and the shim (11) from the machine.

b. Installation. Replace defective bracket and shim with serviceable ones and install them by reversing the procedure in a above.

8-13. Lifting Arm

a. Removal.

(1) Remove the two thumb nuts that secure the right side cover (2, fig. 7-3) to the machine, and remove the right side cover from the machine.

(2) Remove the screws that secure the faceplate to the machine, and remove the faceplate from the machine.

(3) Remove the lifting chain screws (25 and 29, fig. 7-7) that hold the lifting chain (27) to the lifting arm (28).

(4) Remove the setscrew (30) that secures the lifting arm to the shaft (31).

(5) the lifting arm off the shaft.

b. Installation. Replace defective lifting arm with a serviceable one and install it by reversing the procedure in a above.

8-14. Collars, Springs, Lifting Rod Arm, and Pulloff Holders and Shaft, Collar, and Spring

a. Removal.

(1) Remove the two thumb nuts that hold the right side cover (2, fig. 73) to the machine, and remove the right side cover from the machine.

(2) Remove the screws that hold the faceplate to the machine, and remove the faceplate from the machine.

(3) Remove the screws (2 and 6, fig. 77) that secure front and rear thread pulloffs (1 and 5) to the holder, and remove the pulloffs from the holder.

(4) Remove the lifting arm from the machine (para. 8-13a (3) through (5)).

(5) Remove the cotter pin (18) from the lifting rod (11), and remove the lifting rod from the lifting rod arm (10).

(6) Remove the screw (8) and the positioning screw (9) that hold the lifting rod arm to the shaft (31).

(7) Remove the screw (4) that secures the rear pulloff holder (19) to the shaft.

(8) Remove the screw (7) that secures the thread pulloff collar (20) to the shaft.

(9) Remove the setscrews (32) that secure the thread pulloff spring collar (23) and the shaft collar (24) to the shaft.

(10) Slide the shaft out through the face of the machine. Lift the lifting rod arm (10), the rear pulloff holder (19), the pulloff collar (20), the front pulloff holder. (22), the spring (33), and the collars (23), and (24) from the machine.

b. Installation. Replace defective items with serviceable ones and install them by reversing the procedure in a above.

c. Adjustment. Refer to paragraph 7-18.

8-15. Lifting Rod, Collar, and Spring

a. Removal.

(1) Disconnect the foot treadle chain from the lifting rod collar (12, fig. 7-7).

(2) Remove the cotter pin (18) from the lifting rod (11), and remove the lifting rod with spring and collar from the lifting rod arm (10).

(3) Remove the screw (13) that holds the collar (12) to the rod, and remove the spring (14) and the collar from the rod.

b. Installation. Replace defective items with serviceable ones and install them by reversing the procedure in a above.

8-16. Feed Plate Holder

a. Removal.

(1) Remove the two screws (5 and 6, fig. 7-9) that secure the top rear cover (4) to the machine, and remove the top rear cover from the machine.

(2) Remove the button clamp arm with clamps from the machine (para. 730).

(3) Lift the end of the feed plate spring

(2) and pull the feed plate (1) from between the spring and the holder (31).

(4) Remove the two screws (3) that secure the spring to the holder, and remove the spring and the holder from the machine.

b. Installation. Replace defective holder with a serviceable one and install it by reversing the procedure in a above.

c. Adjustment. Refer to paragraph 7-30.

8-17. Feed Plate Carrier and Blocks

a. Removal.

(1) Remove the button clamp arm with clamps from the machine (para. 7-30).
(2) Remove the two screws (5 and 6, fig. 7-9) that secure the top rear cover (4) to the machine, and remove the top rear cover from the machine.
(3) Remove the screws (30) that secure the left block (29) to the machine, and remove the block from the machine.
(4) Remove the screws (23) that secure the right block (11) to the machine and remove the block from the machine.
(5) Lift the feed plate carrier (10) with nut (8), handle (7), stud (12), and block (13) from the machine.
(6) Remove the block (13) from the stud (12).
(7) Remove the stud nut (8), the handle (7), and the washer (9) from the stud, and remove the stud from the feed plate carrier (10).

b. Installation. Replace defective carrier and blocks with serviceable ones and install them by reversing the procedure in a above.

c. Adjustment. Refer to TM 10-3530-20310 and to paragraph 7-30, to make the adjustment on the button clamps and on the feed plate carrier.

8-18. Feed Plate Carrier Regulator and Drive Arm

a. Removal.

(1) Remove the feed plate carrier from the machine (para. 8-17a(1) through (5)).
(2) Drive the pin (20, fig. 7-9) from the carrier drive arm (17).
(3) Remove the setscrew (19) from the carrier drive arm (17).
(4) Remove the carrier drive arm from the regulator (15).
(5) Remove the roller (16) and the drive arm stud (18) from the carrier drive arm.
(6) Remove the screw (14) that secures the spring (21) to the regulator, and remove the regulator from the machine.

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in a above.

c. Adjustment. Refer to paragraph 7-30, and to TM 10-3530-203-10.

8-19. Crank and Needle Guide With Shaft and Bushing

a. Removal. Place the machine on its side to gain access to its bottom.

(1) Remove the screw (25, fig. 7-8) from the crank (26).
(2) Slide the needle guide with shaft (30), the spring (29), and the finger (32) from the bushing (27) and from the crank (26).
(3) Remove the crank from the machine.
(4) Remove the spring (29) from the needle guide (30).
(5) Remove the two screws (31) that secure the finger (32) to the needle guide, and remove the finger from the needle guide.
(6) Remove the setscrew (28) that secures the bushing (27) to the machine, and remove the bushing from the machine.

b. Installation. Replace defective items with serviceable ones and install them by reversing the procedure in a above.

c. Adjustment. Adjust the needle guide (30) and the finger (32) separately and also adjust or time them together as a unit.

(1) Adjust the needle guide so that its inside surface just clears the needle. Loosen the setscrew that holds the needle guide shaft bushing, move the bushing, end wise enough to make the inside of the guide just clear the needle, and then tighten the setscrew.

(2) Adjust the needle guide thread finger so that the point of the needle on its left-hand down stroke clears the inside of the finger by about 1/32 inch. Hand-turn the drive pulley until the eye of the needle on its left-hand down stroke passes the finger. Loosen the screw (25), turn the needle guide until the needle clears the guide by about 1/32 inch, and tighten the screw securely.

(3) Adjust the needle guide and finger together as a unit hand-turn the drive pulley until the needle bar as reached its lowest position and has risen about 1'%c inch. Loosen the screw in the cam on the looper shaft and then turn the cam until the needle guide starts to move back to the right. Tighten the screw.

Note. **The nature of the material to which buttons are to be sewed may make it necessary to vary slightly from the needle guide and finger adjustment described above.**

8-20. Thread Looper Shaft, Link, Cam, and Crank

a. Removal.

(1) Remove the setscrew (2, fig. 7-8) from the bushing (3), and remove the looper (1) and the bushing from the shaft (4).

(2) Remove the two setscrews (6 and 7) from the needle guide cam (5).

(3) Remove the two setscrews (8 and 9) from the crank (10).

(4) Remove the shaft (4) out through the front of the machine.

(5) Remove the crank (10) with stud (11), cam (5), and the link (12) from the machine.

(6) Remove the stud from the crank.

b. Installation. Replace defective items with serviceable ones and install them by reversing the procedure in a above.

c. Adjustment. Refer to paragraph 7-29, and in addition, make the following adjustments.

(1) Loosen the screw that holds the shaft bushing in the machine bed.

(2) Turn the eccentric bushing until its high throw is toward the bed of the machine. This setting of the bushing will unmesh the gears and permit the cranks to be turned to the required position.

(3) Turn the cranks to the required position and then turn the bushing down to mesh the gears again.

(4) Tighten the screw securely.

(5) See that the looper shaft link is attached so that the large crank pulls the link.

8-21. Looper Bushing, Gear, Pin, and Drive Shaft and Crank

a. Removal.

(1) Place the button machine on its side.

(2) Loosen the two setscrews (8 and 9, fig. 7-8) that secure the crank (10) to the looper drive shaft (4).

(3) Slide the looper drive shaft to the front of the machine, and remove the crank (10) with the stud (11) from the machine.

(4) Remove the stud (11) from the crank (10).

(5) Remove the link (12) and the stud (13) from the crank (14).

(6) Remove the setscrew (15) and the screw (16) from the crank (14).

(7) Remove the crank (14) from the drive shaft (17).

(8) Remove the bushing screw that secures the bushing (18) to the machine, and slide the bushing from the machine.

(9) Remove the drive shaft (17) with gear (19) from the machine.

(10) Drive the pin (20) from the gear, and remove the gear (19) from the shaft.

b. Installation. Replace defective items with serviceable ones and install them by reversing the procedure in a above.

c. Adjustment. Refer to paragraphs 7-29, 8-19, and 8-20.

8-22. Left and Right Hinge Pins

a. Removal.

(1) Unhook the spring (23, fig. 7-8) from the end cover.

(2) Push on the spring and remove it

from the left and right hinge pins (22 and 24).

(3) Drive the hinge pins from the machine.

b. Installation. Replace defective hinge pins with serviceable ones and install them by reversing the procedure in a above.

8-23. Stop Dog Cushion Spring

a. Removal. Remove the setscrews (10, fig. 8-1) that hold the spring (11) to the holder (12), and remove the spring from the holder.

b. Installation. Replace defective spring with a serviceable one and install it by reversing the procedure in a above.

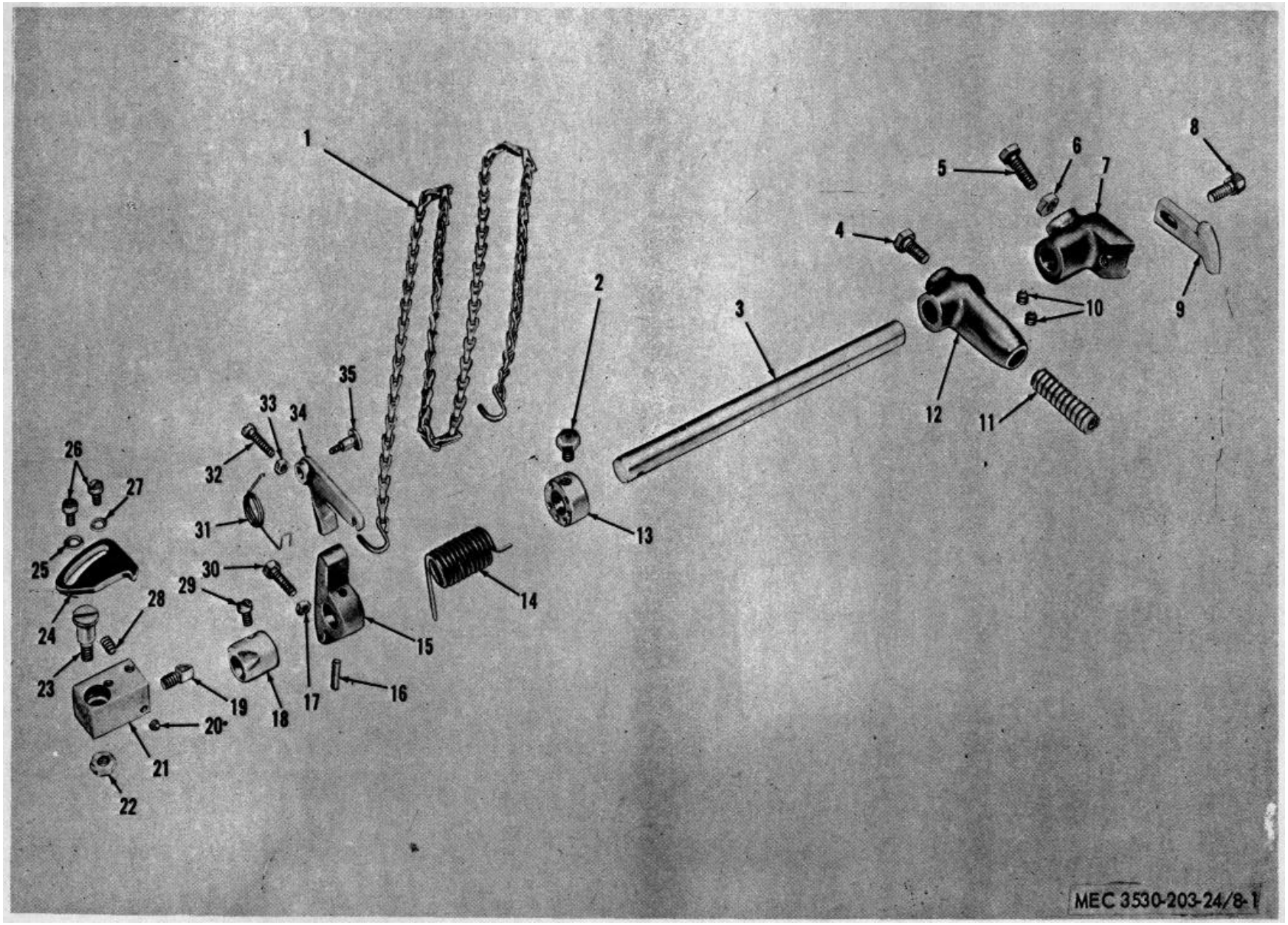


Figure 8-1. Pulley shifter, stop motion shaft, and trip block

1 Chain
2 Setscrew, spring collar
3 Shaft, stop motion
4 Setscrew, dog holder
5 Setscrew, holder
6 Locknut, holder setscrew
7 Holder
8 Screw, shifter
9 Shifter, drive pulley
10 Setscrews, cushion spring
11 Spring, stop dog cushion
12 Holder, stop dog
13 Collar, stop motion shaft spring
14 Spring, stop motion shaft
15 Crank, starting
16 Pin, crank
17 Nut, adjusting screw
18 Collar, stop motion retaining
19 Stud, collar
20 Setscrew, collar stud
21 Block, stop motion trip
22 Nut, block hinge screw
23 Screw, block hinge
24 Plate, stop motion trip
25 Washer, plate screw
26 Screw, trip plate
27 Washer, plate screw
28 Spring, bed stop motion trip block
29 Screw, collar
30 Screw, crank adjusting
31 Spring, starting lever
32 Screw, stop starting lever
33 Nut, lever stop screw
34 Lever, starting
35 Screw, hinge

8-24. Stop Motion Shaft, Collars, Spring, and Starting Crank

a. Removal.

(1) Loosen the locknut (6, fig. 8-1) and the setscrew (5) that secure the holder (7) to the stop motion shaft (3).

(2) Remove the holder from the shaft.

(3) Remove the setscrew (4) that secures the stop dog cushion spring holder (12) to the shaft, and remove the holder from the shaft.

(4) Place the machine on its side.

(5) Remove the setscrew (2) that holds the collar (13) to the shaft.

(6) Remove the screw nut (17) that locks the screw (30) to the crank (15) and remove the screw from the crank.

(7) Drive out the pin (16) that secures the crank to the shaft.

(8) Remove the screw (29) that secures the collar (18) to the shaft.

(9) Remove the shaft (3) from the back of the machine, and lift the collar (18), the crank (15), the spring (14), and the collar (13) from the machine.

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in a above.

c. Adjustment. Adjust the tension on the collar enough to throw the stop motion shaft (3) to the left and to engage the stop motion cushion spring (14) with the stop dog. Loosen the screw and turn the collar down for greater tension and up for less tension on the spring.

8-25. Stop Motion Trip Block and Plate

a. Removal.

(1) Remove the two thumb nuts that secure the right side cover (2, fig. 7-3) to the machine, and remove the cover from the machine.

(2) Turn the button machine on its side.

(3) Remove the two screws (26, fig. 8-1) and the washers (25 and 27) that secure the plate (24) to the block (21), and remove the plate from the block.

(4) Remove the nut (22) from the hinge screw (23).

(5) Remove the hinge screw (23) that secures the block to the machine.

(6) Remove the block with the collar stud (19) and the spring (28) from the machine.

(7) Lift the spring (28) from the block and remove the setscrew (20) that secures the collar stud (19) to the block, and remove the collar stud from the block.

b. Installation. Replace defective block and plate with serviceable ones and install them by reversing the procedure in a above.

c. Adjustment. Adjust the stop motion trip block.

8-26. Needle Bar Eccentric Connecting Rod

a. Removal.

(1) Remove the two thumb nuts that secure the right side cover (2, fig. 7-3) to the machine, and remove the cover from the machine by loosening the two screws and moving the block to the left for an earlier stop or to the right for a later stop. Tighten the two screws securely.

(2) Remove the two screws that hold the faceplate to the machine, and remove the faceplate from the machine.

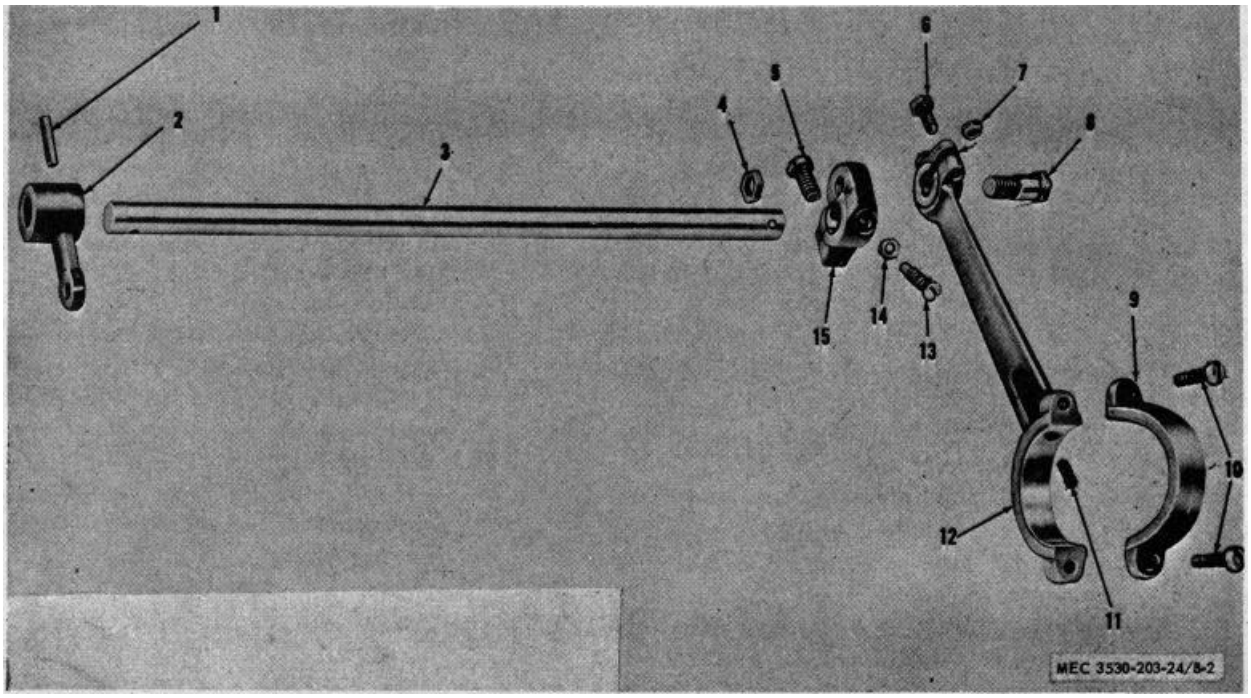
(3) Remove the nut (4, fig. 8-2) from the screw (8), and remove the screw from the connecting rod (12) and from the crank (15).

(4) Place the button machine on its side to gain access to its bottom.

(5) Remove the screws (10) that secure the cap (9) to the connecting rod (12), and remove the cap and the connecting rod from the machine.

(6) Remove the screw (6) and the nut (7) from the connecting rod.

b. Installation. Replace defective rod with a serviceable one and install it by reversing the procedure in a above.



1	Pin, cotter	6	Screw, hinge	12	Rod, needle bar eccentric connecting
2	Crank, rockshaft front	7	Nut, rod screw	13	Screw, crank positioning
3	Rockshaft	8	Screw, rod	14	Nut, crank positioning screw adjusting
4	Nut, hinge screw	9	Cap, rod	15	Crank, rockshaft rear
5	Screw, crank	10	Screw, cap rod		
		11	Wick		

Figure 8-2. Button sewing machine arm rockshaft.

8-27. Rockshaft and Front and Rear Cranks

a. Removal.

(1) Remove the two thumb nuts that secure the right side cover (2, fig. 7-3) to the machine, and remove the cover from the machine.

(2) Remove the two screws that hold the faceplate to the machine, and remove the faceplate from the machine.

(3) Remove the nut (4, fig. 82) from the screw (8), and remove the screw from the connecting rod (12) and from the crank (15).

(4) Remove the nut (14) and the screw (13) from the rear crank (15).

(5) Remove the screw (5) from the rear crank.

(6) Remove the hinge screw nut (8, fig. 7-16) from the hinge screw (33), and remove the hinge screw from the needle bar connecting link (3) and from the front crank (2, fig. 8-2).

(7) Slide the rockshaft with the front crank from the machine.

(8) Lift the rear crank from the machine.

(9) Drive out the pin (1) that secures the front crank to the rockshaft to separate the crank and the rockshaft.

b. Installation. Replace defective rockshaft and cranks with serviceable ones and install them by reversing the procedure in a above.

8-28. Feed Cam

a. Removal.

(1) Place the machine on its side.

(2) Remove the setscrew (19, fig. 7-9) and drive out the pin (20) that secures the carrier drive arm (17) to the regulator (15), and remove the arm from the regulator.

(3) Remove the screws (54, fig. 7-4) and washers (55) that secure the feed cam (56) to the wheel (65), and remove the feed cam from the wheel.

b. Installation. Replace defective cam with a serviceable one and install it by reversing the procedure in a above.

8-29. Feed Cam Drive Worm Wheel and Wheel Trip Stop Motion Point

a. Removal.

(1) Remove the feed cam from the button machine (para. 8-28).

(2) Remove the setscrews (66 and 67, fig. 7-4) that secure the wheel (65) to the shaft (68), and remove the wheel from the shaft.

(3) Remove the stop motion point (63) from the wheel.

b. Installation. Replace defective wheel and stop motion point with serviceable ones and install them by reversing the procedure in *a* above.

8-30. Feed Cam Worm Wheel Shaft and Needle Bar Vibrating Cam

a. Removal.

(1) Remove the feed cam from the machine (para. 8-28a).

(2) Remove the feed cam drive worm wheel from the machine (para. 8-29a (2)).

(3) Remove the needle bar vibrating lever arm from the machine (para. 8-8a (1) through (4)).

(4) Drive out the pin (26, fig. 7-4) that secures the needle bar vibrating cam (1) to the feed cam worm wheel shaft (68).

(5) Remove the shaft from the machine and lift the cam from the machine.

(6) Remove the rivet from the cam.

b. Installation. Replace defective shaft and cam with serviceable ones and install them by reversing the procedure in a above.

8-31. Drive Shaft, Stop Dog Thread Tension Release Cam, Gears, and Eccentric

a. Removal.

(1) Remove the drive pulley from the machine (para. 7-26a).

(2) Drive out the tapered pin (27, fig. 7-4) that secures the stop dog (40) to the drive shaft (39) and remove the stop dog from the drive shaft.

(3) Remove the feed cam from the machine (para. 8-28a).

(4) Drive out the gear pin (57) that secures the gear (64) to the drive shaft (39).

(5) Drive out the pin (58) that secures the worm gear (62) to the drive shaft.

(6) Remove the setscrew (60) and drive out the pin (47) that secures the eccentric (61) to the drive shaft.

(7) Remove the setscrews (38 and 46) that secure the cam (45) to the drive shaft.

(8) Remove the screws (10, fig. 8-2) that secure the cap (9) to the connecting rod (12), and remove the cap from the connecting rod.

(9) Remove the shaft from the rear of the machine, and then lift the shaft gear (64, fig. 7-4), the worm gear (62), the eccentric (61), and the thread tension release cam (45) from the machine.

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in a above.

c. Adjustment. Refer to paragraphs 7-16c and 8-21c.

8-32. Needle Bar Eccentric Pawl, Spring, and Stud

a. Removal.

(1) Place the machine on its side.

(2) Remove the screw (53, fig. 7-4) that holds the bracket (52) to the machine.

(3) Remove the bracket with pawl (59), spring (49), and stud (48) from the machine.

(4) Separate spring and stud from the pawl.

(5) Drive out the pin (50) that secures the pawl to the bracket, and remove the pawl from the bracket.

b. Installation. Replace defective parts with serviceable ones and install them by reversing the procedure in a above.

8-33. Thread Tension Release Rod, Spring, and Sleeve

a. Removal.

(1) Remove the thumb nuts (17, fig. 7-4), the spring (18), the release disk (29), and the tension disks (19 and 20) from the stud (21), and remove the stud from the machine.

(2) Remove the two nuts (35 and 36) from the bottom of the release rod (34), and pull the release rod from the top of the machine.

(3) Lift the spring (33), and the sleeve (37) from the machine.

b. Installation. Replace defective items with serviceable ones and install them by reversing the procedure in a above.

c. Adjustment. Refer to paragraph 7-16.

8-34. Thread Nipper Release Lever

a. Removal.

(1) Remove the two thumb nuts that hold the right side cover (2, fig. 7-3) to the machine, and remove the cover from the machine.

(2) Remove the hinge lever screw (23, fig. 7-4) that holds the release lever (4) to the machine, and remove the release lever from the machine.

(3) Remove stud nut (24), washer (25), and stud (2) from the release lever.

b. Installation. Replace defective release lever with serviceable one and install it by reversing the procedure in a above.

8-35. Thread Nipper Release Rod, Springs, and Collars

a. Removal.

(1) Remove the two thumb nuts that hold the right side cover (2, fig. 7-3) to the machine, and remove the right side cover from the machine.

(2) Remove the screw (14, fig. 7-4) and the plate screw (15) that hold the plate (16) to the machine, and remove the plate and the washer (13) from the machine.

(3) Remove setscrews (8 and 9) that secure the collars (7 and 10) to the release rod (11).

(4) Slide the release rod from the top of the machine, and lift the washer (5), the spring (6), the collars (7), and the spring (22) from the machine.

(5) Remove the thread nipper head from the rod (11).

b. Installation. Replace defective items with serviceable ones and install them by reversing the procedure in a above.

c. Adjustment. Refer to paragraph 7-17c.

8-36. Long and Short Right Side Cover Studs

a. Removal.

(1) Remove the two thumb nuts that hold the right side cover (2, fig. 7-3) to the machine, and remove the right side cover from the machine.

(2) Remove the locknuts (16 and 50) from the studs (17 and 49) and remove the studs from the machine.

b. Installation. Replace defective studs with serviceable ones and install them by reversing the procedure in a above.

8-37. Rest Stud and Setscrew

a. Removal. Remove the setscrew (.45, fig. 7-3) that secures the rest stud (46) to the base, and remove the stud from the base of the machine.

b. Installation. Replace defective stud and setscrew with serviceable ones and install them by reversing the procedure in a above.

8-38. Long and Short Arm Screws

The long and the short arm screws are used to hold the arm onto the base of the button machine.

a. Removal.

(1) Place the machine on its side.

(2) Remove the three long arm screws (20, 21, and 43, fig. 7-3) and the

one short arm screw (42) that secure the arm to the base (24) of the button machine.

b. Installation. Replace defective screws with serviceable ones and install them by reversing the procedure in a above.

Section III. ELECTRIC MOTORS

8-39. General

This section describes the direct and general support maintenance instructions for the repair of electric motors.

8-40. Motor Bearings and Brushes

a. Removal. Remove the motor from the machine table assembly (para. 3-27a(1) and (2), and (5) through (8)).

b. Disassembly.

(1) Remove the drive pulley from the motor shaft (para. 7-11).

(2) Remove the nuts (17, fig. 7-2) and the lockwashers (18) from the rod (19).

(3) Remove the commutator-end housing (12) from the stator housing (9).

Note.

Mark the position of the brush ring before removing it from the stator housing so it can be correctly installed in the stator housing. If the brush ring is not installed correctly, the rotation of the motor will be reversed.

(4) Remove the brush ring (10) from the stator housing (9).

(5) Remove the two brushes with leads (11) from the brush ring.

(6) Remove the rods (19) from the drive-end housing (4) and from the stator housing (9).

(7) Remove the drive-end housing from the stator housing, and remove the spacer (5) from the drive-end housing.

(8) Remove the armature (7) from the stator housing.

(9) Remove the ball bearings (6) and (8) from the armature.

c. Cleaning. Use compressed air to blow dirt, carbon, and foreign matter from the end-bell, the armature, and the stator. Wipe all parts thoroughly with a lint free cloth moistened with SD (solvent, drycleaning) to remove any accumulated oil and grease.

d. Inspection.

(1) Inspect the armature for shorts, grounds, worn and uneven commutator, burned commutator bars, and high mica between the bars; the armature shaft for wear at the ball bearing contact surfaces; and the commutator riser connections for thrown solder.

(2) Inspect the brushes for cracks, breaks, excessive wear, and improper seating.

(3) Inspect the bearings for breaks, dirt, and excessive wear.

(4) Check the stator fields for short, open, and grounded circuits.

(5) Check the rods for bends, twists, and damaged threads.

e. Repair. Solder loose connections, machine a faulty commutator, and undercut a high mica between commutator bars. Repair damaged wiring.

f. *Assembly and Installation.* Replace defective bearings and brushes with serviceable ones and assemble and install them by reversing the procedures in a and b above. After the bushings are installed, put a light film of oil on them before assembling the other components.

APPENDIX I
REFERENCES

AI-I. Dictionaries of Terms and Abbreviations

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

AI-2. Fire Protection

TB 5-4200-200-10	Hand Portable Fire Extinguishers Approved for Army Use

A I-3. Painting

TM 9-213	Painting Instructions for Field Use

A I-4. Lubrication

TM 5-6115-271-15	Operator, Organization, Direct and General Support, and Depot Maintenance Manual; Generator Set, Gasoline Engine, 3KW, AC, 60 Cycle, (Military Model SF 3.0 MD)
TM 9-2330-213-14	Operator, Organizational, and Field Maintenance Instructions, Including Repair Parts and Special Tools List for Trailer, Cargo: ll/2 Ton, 2-Wheel M105A2
TM 10-3530-203-10	Operator's Manual, Textile Repair Shop, Trailer-Mounted, Army Model SPV 34 (FSN 3530-819-2007)

AI-5. Preventive Maintenance

AR 385-40	Accident Reporting and Records
AR 700-58	Report of Damaged or Improper Shipment
AR 750-5	Organization, Policies, and Responsibilities for Maintenance Operation
AR 750-10	Material Readiness (Serviceability of Unit Equipment)
TM 5-6115-271-15	Operator, Organizational, Direct and General Support, and Depot Maintenance Manual; Generator Set, Gasoline Engine, 3KW, ac, 60 cycle, (Military Model SF 3.0 MD) (FSN 6115-075-1640)
TM 9-2330-213-14	Operator, Organizational, and Field Maintenance Instructions, Including Repair Parts and Special Tool Lists; For Trailer, Cargo, 11/2 ton, 2-Wheel M105A2
TM 10-3530-203-10	Operator's Manual: Textile Repair Shop, Trailer Mounted, York Astro Model D8700477, Army Model SPV35, (FSN 3530-819-2008); Clothing Repair Shop, Trailer Mounted, York Astro Model D8700337, Army Model SPV34 (FSN 3530-819-2007)
TM 38-750	Army Equipment Record Procedures

AI-6. Publication Indexes

DA Pam 310-2	Index of Blank Forms
DA Pam 310-4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (types 7, 8, and 9), Supply Bulletins, Lubrication Orders, and Modification Work Orders

AI-7. Supply Publications

AR 735-35	Supply Procedures for TOE units, Organizations, Non-TOE Activities

AI-8. Training Aids

FM 5-20	Camouflage, Basic Principles and Field Camouflage
FM 5-25	Explosives and Demolition's
FM 21-5	Military Training Management
FM 21-6	Techniques of Military Instruction
FM 21-30	Military Symbols
TM 3-220	Chemical, Biological, and Radiological (CBR) Decontamination
TM 10-267	General Repair for Clothing and Textiles

APPENDIX II
MAINTENANCE ALLOCATION

Section I. INTRODUCTION

A2-I. General

a. Section I (Introduction). Section I provides a general explanation of all the maintenance and repair functions authorized the various maintenance levels.

b. Section II (Maintenance Allocation Chart). Section II designates overall responsibility for the performance of maintenance operations on the identified end item or component. The implementation of maintenance tasks upon the end item or0 component will be consistent with the assigned maintenance operations.

c. Section III (Special Tool and Test Equipment Requirements). Section III lists the special tools and test equipment required for each maintenance operation as referenced from Section I.

d. Section IV (Remarks). Section IV contains supplemental instructions, explanatory notes and/or illustrations required for a particular maintenance function.

A2-2. Maintenance Operations Definitions

a. Service. Operations required periodically to keep the item in proper operating condition, i.e., to clean, preserve, drain, paint, and replenish fuel, lubricants, hydraulic, and deicing fluids, or compressed air supplies.

b. Adjust. Regulate periodically to prevent malfunction. Adjustments will be made commensurate with adjustment procedures and associated equipment specifications.

c. Align. Adjust two or more components of and electrical or mechanical system so that their functions are properly synchronized or adjusted.

d. Calibrate. Determine, check, or rectify the graduation of an instrument, weapon, or weapons system or0 components of a weapons system.

e. Inspect. Verify serviceability and detect incipient electrical or mechanical failure by close visual examination.

f. Test. Verify serviceability and detect incipient electrical failure by measuring the mechanical or electrical characteristics of the item and comparing those characteristics with authorized standards. Tests will be made commensurate With test procedures and calibrated tools and or test equipment referenced on the MAC.

g. Replace. Substitute serviceable components, assemblies, and subassemblies for unserviceable counterparts or remove and install the same item when required for the performance of other maintenance operations.

h. Repair. Restore to a serviceable condition by replacing unserviceable parts or by any other action required using available tools, equipment, and skills-to include welding, grinding, riveting, straightening, adjusting, and facing.

i. Overhaul. Restore an item to completely serviceable condition (as prescribed by serviceability standards developed and published by the commodity commands) by employing techniques of "Inspect and Repair Only As Necessary" (IROAN). Maximum use of diagnostic and test equipment is combined with minimum disassembly during overhaul. "Overhaul" may be assigned to any level of maintenance except organizational, provided the time, tools, equipment, repair parts authorization, and technical skills are available at that

level. Normally, overhaul as applies to end items, is limited to depot maintenance level.

j. Rebuild. Restore to a condition comparable to new by disassembling to determine the condition of each component part and reassembling using serviceable, rebuilt, or new assemblies, subassemblies, and parts.

k. Symbols O/C, O, DS, GS, D, and E. The symbols O/C (operator and/or crew), 0 (organizational), DS (direct support), GS (general support), and D (depot) placed in the appropriate column indicates the lowest maintenance level responsible for performing that particular maintenance operation but do not necessarily indicate that repair parts will be stocked at that level. Maintenance levels higher than the indicated level are also authorized to perform the indicated operation. Symbol E is assigned to indicate combat essential items on an end item that is combat essential.

l. Essentially. The essentially column will reflect whether or not an assembly is combat essential to the tactical use of the end item. This column will only be used for end items that are established as combat essential. Refer to k above for appropriate symbol.

m. Reference Note Column. The reference note columns are provided for referencing the special tool and test equipment requirements and the remarks that may be associated with each item's maintenance operations. These columns are used to relate the tools and test equipment and the remarks sections with the maintenance operation assignment indicated on the MAC.

A2-3. Special Tool and Test Equipment (Column Definition)

a. The special tool and test equipment (sec. II) is used to cross-reference a particular maintenance operation on the MAC, to the special tools and test equipment required to perform the task. This section is prepared at the same time the maintenance operations are identified and assigned.

b. When the maintenance operation for each assembly is identified, special tools and/or test equipment necessary to the performance of that task must be identified.

c. As each special tool and/or test equipment item is identified, its nomenclature (name assigned to individual tool) is recorded on the tool and test equipment page in their respective columns. The lowest level of maintenance authorized to use the item will also be recorded in its proper column across from the tool name.

d. A reference number is used to correlate the item with the associated maintenance operation. The reference coding scheme is as follows:

(1) The reference code will consist of a number and a letter separated by a dash.

(2) The number references a specific assembly or component on the MAC. When one or more items are required for the maintenance operations associated with the assembly or component, an individual number will be recorded in T&TE requirements column.

(3) The letter in the code represents the specific maintenance operation the item is to be used with. The letter will be representative of columns "A" through "J" on the MAC.

e. With the preceding coding scheme, the special tools and test equipment required to perform a specific maintenance operation are coded using the number assigned in T&TE requirements column of the MAC and letter representing the maintenance operation.

f. Reference code-The code scheme recorded on the MAC correlates the special tool or test equipment with an assembly and its maintenance operation.

g. Maintenance level-The lowest level of maintenance authorized to use the special tool or test equipment.

h. Nomenclature-Name or identification of the tool or test equipment.

i. Tool number-Manufacturer's part number will be used on MAC's unit FSN's are assigned.

A2-4. Remarks (Column Definitions (Sec. IV)

Note.

The reference coding scheme used to correlate the remarks with associated maintenance operations is similar to that used in the tool and test equipment section. This coding scheme is shown below.

a. The remarks reference code consists of two letters separated by a dash.

b. The first letter represents the remark code reference to a specific assembly. When one or more remarks are associated with a component or assembly, an individual letter will be recorded in Remarks column to reference the remarks page.

c. The second letter in the code represents the maintenance operation referenced by the remark. The letter will represent columns "A" through "J".

Section. II. MAINTENANCE ALLOCATION CHART

Functional group number	Component assembly nomenclature	Essentiality	Maintenance operations: A Service	B Adjust	C Aline	D Calibrate	E Inspect	F Test	Maintenance levels: G Replace	H Repair	I Overhaul	J Rebuild	Note ref: K T&TE rqmt	L REMARKS
18	BODY ASSEMBLY													
1808	Box Assembly, Stowage								O	DS				
1812	Cabinet Assembly, Complete									GS				A–H
	Loop Assembly, Lifting								O	DS				B–H
	Clamp Assembly, Holddown								DS	DS				C–H
	Latch, Locking, Door and Panel								GS	GS				D–H
	Stay and Assembly, Door								DS	GS				E–H
	Holddown Assembly, Generator								O	DS				F–H
	Tray Assembly, Sewing Machine								O	DS				G–H
40	ELECTRIC MOTORS													
4000	Motor, Sewing Machine						GS		O	GS				
42	ELECTRICAL EQUIPMENT													
4216	Miscellaneous Wiring and Fittings:													
	Cable, Power Sewing Machine								O	O				
	Harness, Wiring, Sewing Machine Motor-To-Switch								DS					
45	EQUIPMENT													
4502	Table Assembly with Folding Legs								O	GS				H–H
46	REPAIR EQUIPMENT													
4602	Repair Equipment (Textile):													
	Clothing Sewing Machine, Less Stand						O		O	DS				
	Clothing Machine Bed Screw, Regulating, Shuttle Tension			O					O					
	Clothing Machine Head Link, Thread Takeup Lever and Connecting Needle Bar			DS			DS		DS					
	Darning Machine, Less Stand						O		O	DS				
	Darning Machine Arm Screw, Adjusting Shaft Balance Wheel Pulley			DS					DS					
	Darning Machine Bed Thumbscrew, Clamp								O					
	Heavy Duty Sewing Machine, Less Stand								O	DS				
	Heavy Duty Machine Arm Bushing, Arm Shaft									DS				
	Regulator, Feed									DS				
	Thumbscrew, Feed Regulator								O					
	Heavy Duty Machine Bed Cylinder, Shuttle								O					
	Connection, Feed Fork								DS					
	Heavy Duty Machine Head Sleeve, Lifting, Pressure Bar, Lower and Upper								O					
	Spring, Lifting Pressure Bar, Flat								O					
	Thumbscrew, Lifting Regulating Pressure Bar Spring								O					
	Cam, Thread Takeup								DS					
	Thumbnut, Tension Regulating								O					
	Overedge Sewing Machine, Less Stand								O	DS				
	Textile Machine Arm Thumbnut, Adjusting, Thread Tension and Control Disk								O					

Functional group number	Component assembly nomenclature	Essentiality	Maintenance operations: A Service	B Adjust	C Aline	D Calibrate	E Inspect	F Test	G Replace	H Repair	I Overhaul	J Rebuild	Note ref: K T&TE rqmt	L REMARKS
	Textile Machine Bed Bearing, Ball w/Bushing and Collar, Thread Hook Driving Shaft Rear								DS					
	Collar, w/Setscrews, Feed Drive Eccentric Adjusting Disk Spring			O					DS					
	Disk and Spring, Adjusting, Feed Drive Eccentric			O					DS					
	Gib, Friction, Feed Drive Eccentric			O					DS					
	Hook, Thread w/Gib, and Guard			O					O					
	Spring and Stud, Thread Hook Drive Shaft Lock			O					DS					
	Stud and Spring, Regulating Feed			O					DS					
	Textile Machine Head Spring, Flat, Lifting, Presser Bar								O					
	Thumbscrew, Regulating, Vibrating Presser Bar								O					
46	REPAIR EQUIPMENT													
4603	Repair Equipment (Clothing):													
	Button Sewing Machine, Less Stand						O		O	DS				
	Button Machine Arm Head, Thread Nipper			O					O					
	Button Machine Bed Block, Guide or Slide, Right and Left			DS			DS		DS					
	Guide, w/Shaft			DS					DS					
	Holder, w/Cushion or Pulley Shifter			O					O					
	Plate, Trip, Stop Motion			O					DS					
	Overedge Machine Bed Knife, Retainer, Spring and Sleeve, Stationary Holder			O					O					
	Overedge Machine Frame Oil Cooler and Gaskets, w/Oil Pipes								DS					
	Thumbnut, Thread Tension Stud								O					
	Overedge Machine Head Thumbscrew, Regulating, Upright Presser Bar Pressure								O					
	Textile Sewing Machine, Less Stand								O	DS				

Section III. SPECIAL TOOL AND SPECIAL TEST EQUIPMENT REQUIREMENTS

Reference code	Maintenance level	Nomenclature	Tool number

There are no special tool and special test equipment requirements necessary for the maintenane instructions for the textile and the clothing repair shops.

Section IV. REMARKS

Reference code	Remarks
A-H	Patch, aluminum weld, and rivet.
B-H	Weld and straighten.
C-H	Weld and straighten.
D-H	Weld, straighten and rivet,
E-H	Aluminum weld and straighten.
F-H	Weld and straighten.
G-H	Weld and straighten.
H-H	Aluminum weld and straighten.

By Order of the Secretary of the Army:

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General, United States Army,
Chief of Staff.

Official:

J. C. LAMBERT,
Major General, United States Army,
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For explanation of abbreviations used, see AR 320-60.

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