SERVICE INSTRUCTIONS

USMC EYELETTING MACHINE-MODEL G
(Symbol EMG)

PUBLISHED BY
UNITED SHOE MACHINERY CORPORATION
Eyelet Department
140 FEDERAL STREET
BOSTON, MASSACHUSETTS, U. S. A.

DECEMBER 1954

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ILLUSTRATIONS

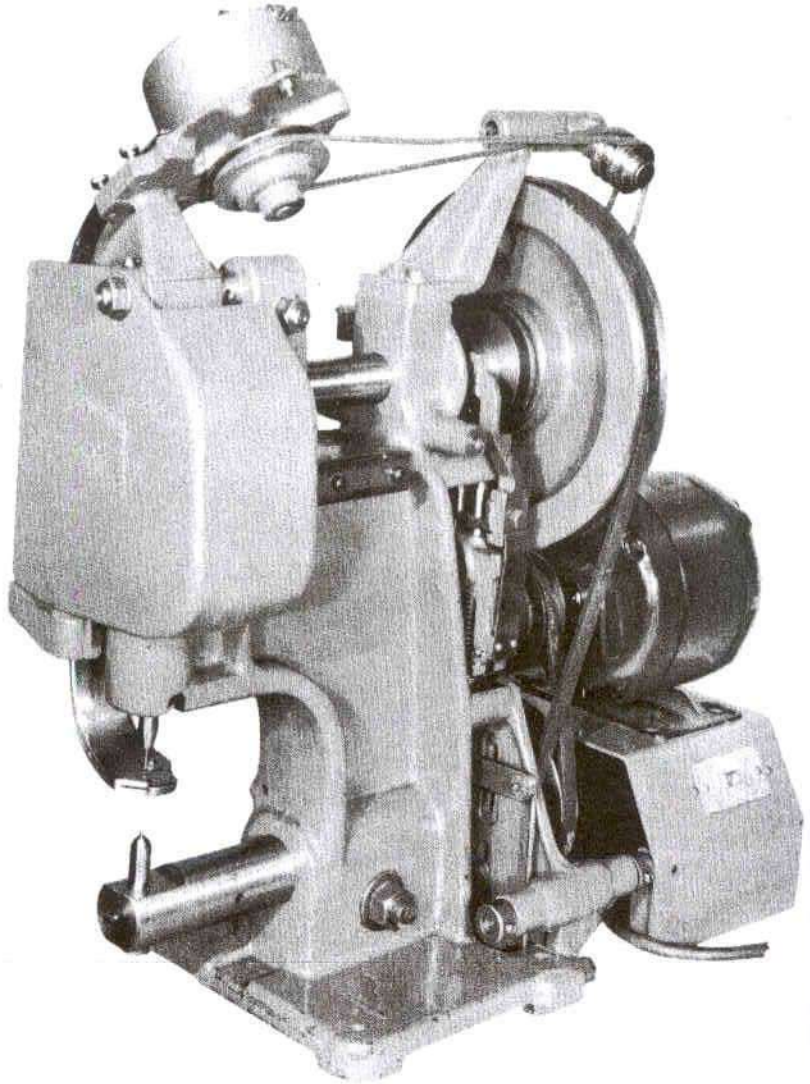


Figure 1 - USMC Eyeletting Machine-Model G. Front-right View

Figure 2 - View of Machine With Operator - Horn Extending Over Edge Of Bench

SECTION I

GENERAL INFORMATION

A. General

Your USMC Eyeletting Machine - Model G has been designed to give you long and efficient service in the eyeletting of small part and assemblies. It is an outstanding machine for automatically feeding and setting small as well as medium size eyelets. By changing the raceway and setting tools, eyelets from the smalles up to those with an outside diameter of flange of 5/8" can be handled.

B. Data

Overall Dimensions and Weight

Length (left to right)	11-1/2"
Depth without motor	18"
Depth with motor	24"
Height	26-1/2"
Net weight including motor	171 lb
Motor	24 lb

Machine

Reach of horn	4-3/8"

Motor Drive

Speed of driving pulley	200 rpm
Motor belt (motor above bench)	1/2" V-belt, 24" lo
Motor belt (motor beneath bench)	1/2" V-belt, 34" lo
Driving belt	1/2" V-belt, 46" lo

Factory Power

Driving pulley ---------- 9-9/16" dia., 200 rpm

Countershaft belt ----------1/2" V-belt recommended

Figure 3 - View of Machine With Operator - Machine Set Back From Edge of Bench

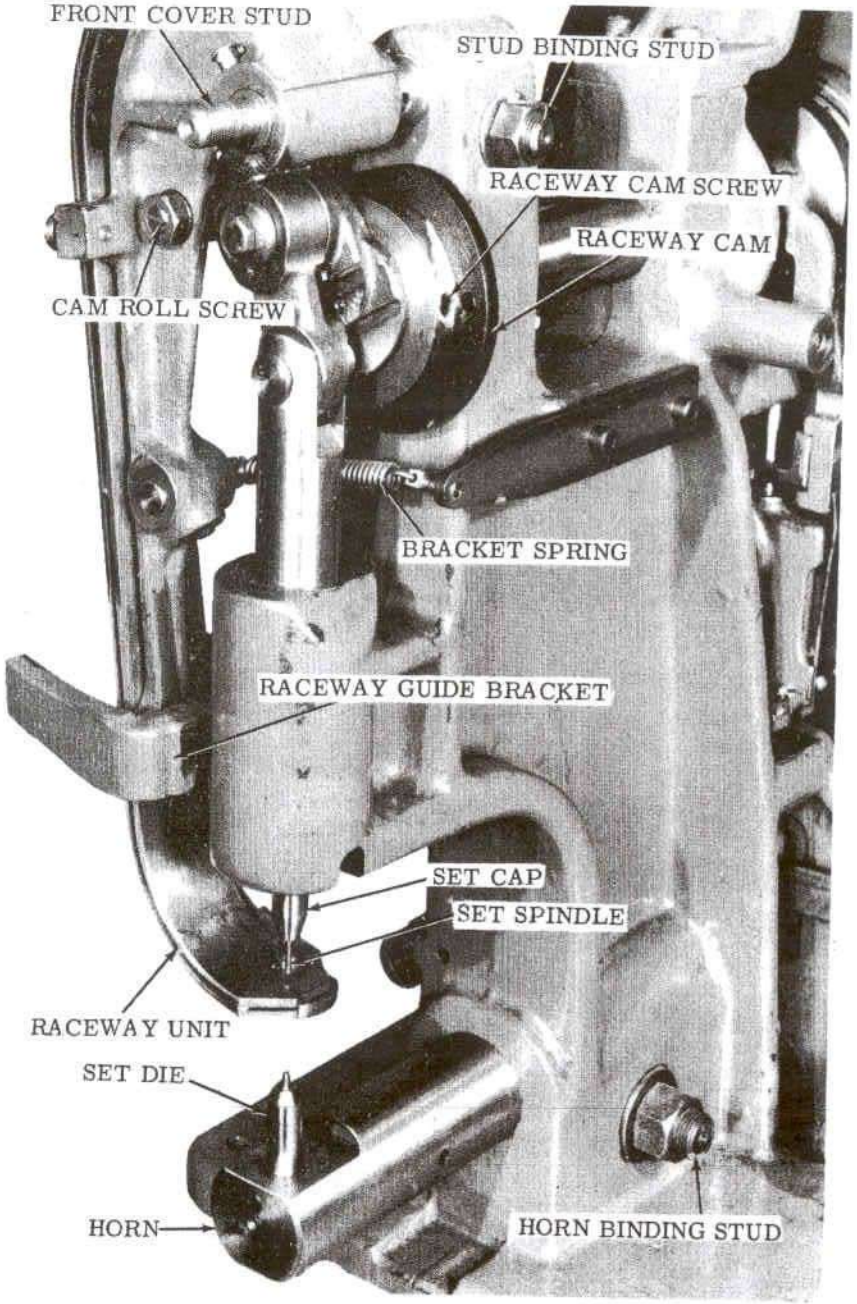


Figure 4 - Horn and Raceway - Front-right View

SECTION II

INSTALLATION, ADJUSTMENTS, AND OPERATION

A. Installation (See Figures 2 and 3)

1. A sturdy bench is a necessity. Consider the weight of the machine (approximately 200 pounds), also the weight of the materials to be placed on the bench alongside the machine prior to and after the eyeleting operation is completed, plus a reasonable safety factor. We recommend that you consider the USMC Neverax Table #651.

2. Before cutting your bench top, consider your work and the way you will handle it. Will the work be easier to handle if the horn of the machine is out in front of the bench as shown in Figure 2 or should the machine be set back from the edge of the bench as shown in Figure 3? The horn extends 3-1/2" beyond the front edge of the base of the machine. The center of the set die is 3" beyond the base.

3. For an installation in which the motor is to be mounted above the bench use bench layout FF-5476, supplied with the machine outfit, as a template for locating the bolt holes and treadle rod slot to be cut in the bench. When the bench has been cut, place the machine in position. Bolt it in place, locating the washers and nuts beneath the bench.

4. When the motor is to be mounted beneath the bench use bench layout FF-5203, for locating the bolt holes, treadle rod slot, and belt slot to be cut in the bench. After the bench has been cut, place the machine in position and bolt the front of the machine to the bench. Hold the motor bracket in position against the underside of the table with the forward holes of the sub-base EMG-163 in line with the holes for the rear of the machine. Bolt the bracket in position. Make sure that the washers and nuts are located beneath the bench.

5. Note that the oil cups in the end bells of the motor must be above the shaft so that the motor can be lubricated in its mounted position. Change the position of the end bells, if necessary, by removing the four clamping bolts, carefully loosening the end bells, rotating them to the desired position, and securing them by replacing the bolts.

6. Fasten the motor to the motor bracket EMG-162 but do not tighten the nuts. Place the motor belt over the motor pulley and the larger portion of the idler pulley EMG-89+. Position the motor so as to align the motor pulley with the idler pulley. Tighten the motor bolt nuts. Adjust the motor brack et so that the V-type belt will be just tight enough for operation of the machine through the countershaft. The life of the belt will be prolonged if the belt tension is just enough to prevent slippage. If the thickness of the bench is such that the standard motor belt (34") is too short, try a 1/2" V-type belt 36" long. Install the belt guard EMG-165A.

7. Connect the upper treadle rod UEC-168 to the treadle rod lever EMG-45, and the lower treadle rod to the treadle RF-686. Select a position for the treadle that is comfortable for the operator. Whether the operator is tall or short, or the machine is to be operated from a standing or sitting position will determine the best location for the treadle. To prevent undue operator fatigue the treadle must be easily reached. Attach the treadle stand RF-46D to the floor. Clamp the treadle rod connector to the upper treadle rod with the treadle raised to the desired position and treadle rod slackness removed.

B. Adjustments (See Figures 4 and 5)

All machines are run in before being shipped from the factory but you will have a requirement regarding setting pressure with which we may not have been familiar. We may or may not have had samples of your work. Sometimes, during transportation, a machine gets out of line because of rough handling. The adjustments as well as the setting pressure should be checked before turning on the power.

1. Alignment of Set Die

   a. Move the lower end of the raceway to the left about 1", depress the treadle, and turn the driving pulley counterclockwise slowly.

   b. The pilot of the set die should enter the center of the hole in the set cap. This is particularly important with small eyelets and self-punching sets (set die EL-46). If the pilot of the set die does not enter the set cap properly, adjust the set die as follows:

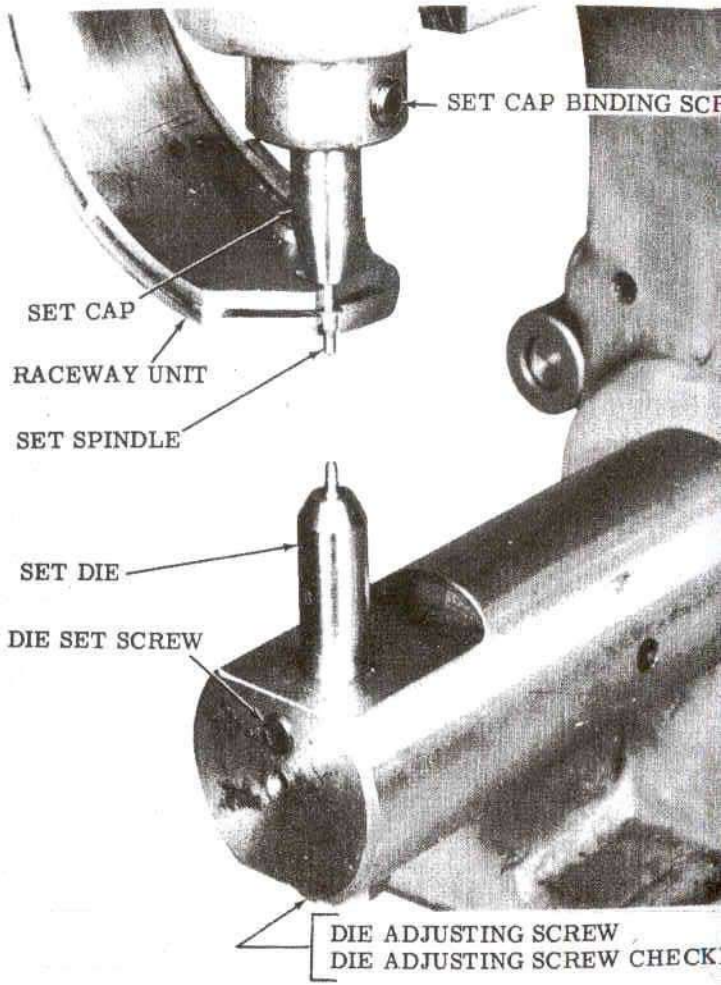


Figure 5 - Set Spindle Picking Off Eyelet From Raceway

(1) Loosen the horn binding stud nut NL-30M3 and the horn binding stud SDL-1321Y (figure 4). You can now move the horn EMG-102 back and forth and turn it to the right or left to line up the die correctly Tighten the stud nut.

2. Setting Pressure (See Figure 5)

a. Put your assembly or work in place on the set die.

b. Place an eyelet in position on your work. Swing the raceway to the left, treadle the machine, and turn the pulley counterclockwise as you did previously. If you cannot turn the machine through the complete cycle there is too much pressure on the set die. If your setting is not tight enough the set die should be raised. Vary the height of the set die as follows:

(1) Loosen the die set screw SL-14S10, and the die adjusting screw checknut NL-22U2. Turn the die adjusting screw SL-18S24 to change the height of the die.

(2) Make as many trials as necessary, tightening the checknut and set screw after you have made the correct adjustment.

3. Alignment of Raceway (See Figure 5)

a. Fill the eyelet box and rotate the brush manually to partially fill the raceway.

b. Depress the treadle and rotate the driving pulley counterclockwise until the point of the set spindle is just above the first eyelet. Continue to turn the pulley slowly until the point of the set spindle just passes through the eyelet. The set spindle should enter directly into the center of the first eyelet. Note particularly whether or not there is clearance between the spindle and the eyelet at the front and back of the spindle. If not, adjust the forward position of the raceway as follows:

(1) Loosen the front cover stud nut NL-24U2 (Figure 7), stud binding stud nut NL-24M2, and stud binding stud SDL-1320Y (Figure 4). Loosen the raceway

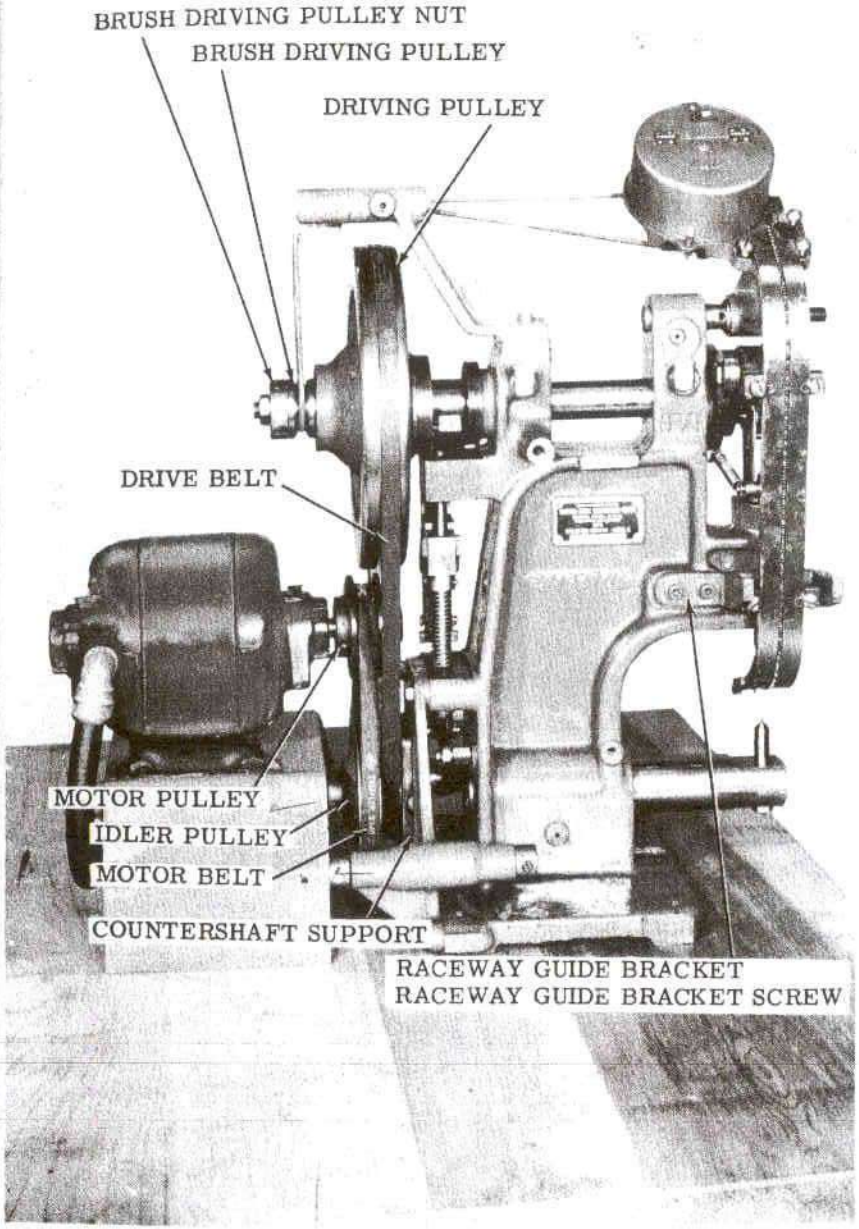


Figure 6 - Left-side View of Machine

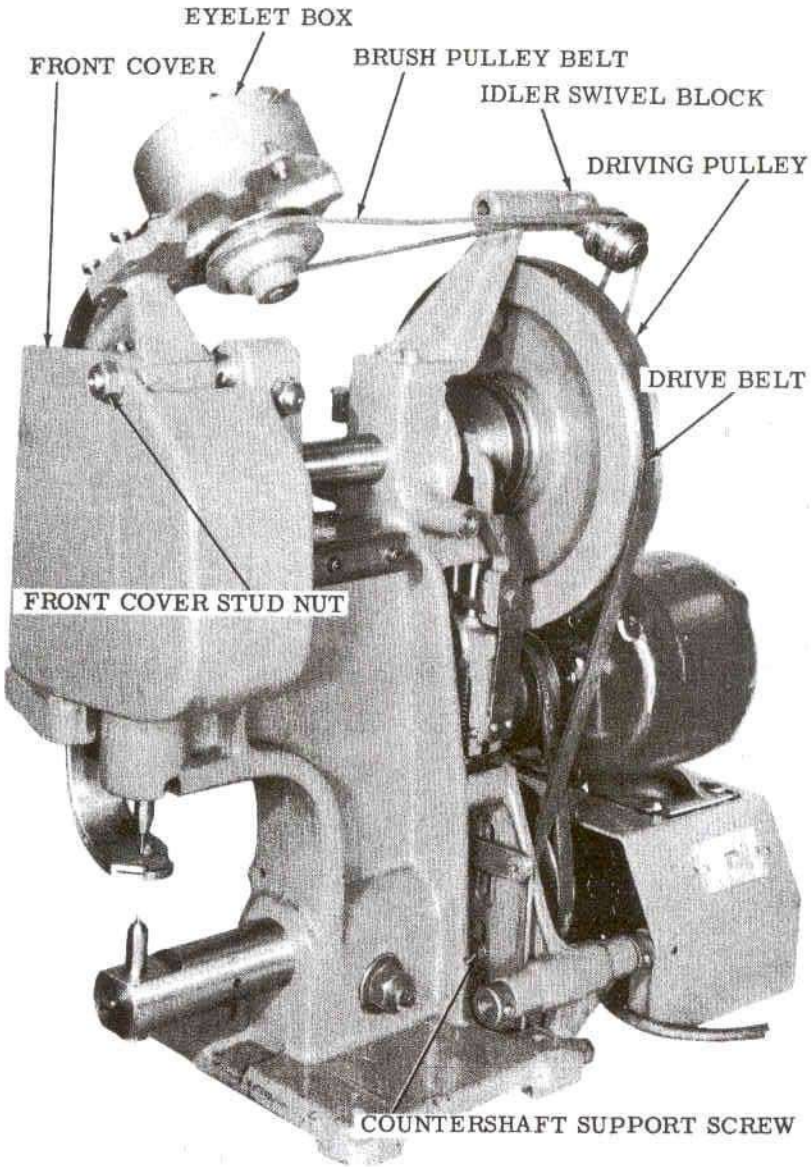


Figure 7 - Front-right View of Machine

guide bracket screws SL-14H14 to free the raceway guide bracket EMG-191A (Figure 9).

(2) Move the front cover stud EMG-189 and the raceway guide bracket forward or back to align the raceway with the set spindle. Keep the raceway in contact with the shoulder of the stud.

c. Turn the front cover stud to move the lower end of the raceway to the right or left so that there will be clearance between the spindle and eyelet at the right and left sides of the spindle. If the set cap clears the raceway but rotating the stud does not provide sufficient movement of the raceway, loosen the roll screw nut NL-64M and turn the cam roll screw EMG-206 (Figure 4), an eccentric, to obtain the desired setting. Tighten the nut.

d. Tighten the stud binding stud nut and the front cover stud nut. Tighten the raceway guide bracket screws, making sure that the guide bracket does not bind the raceway.

e. Check the adjustment, making sure that the spindle clears the eyelet on all sides.

4. Timing of Raceway (See Figure 5)

a. The raceway should begin to swing to the left just after the point of the set spindle passes through the eyelet.

b. Depress the treadle and turn the driving pulley counterclockwise slowly, noting whether or not the spindle passes through the eyelet before the raceway moves and if the set cap clears the raceway.

c. If the set spindle has not passed through the eyelet by the time the raceway starts to move, the raceway cam EMG-204 (Figures 4 and 12) should be rotated clockwise to retard the timing of the raceway; or if the set cap contacts the raceway, the cam should be turned counterclockwise to advance the timing of the raceway.

d. Adjust the raceway cam, first loosening the two raceway cam screws SL-14S8. Tighten the screws.

5. Drive Belt (See Figure 6)

   a. Adjust the tension of the drive belt EMG-90 by changing the height of the countershaft support EMG-87+ so as to obtain just enough tension to prevent slippage of the belt in operation.

6. Motor Belt (Motor Mounted Above Bench)

   a. Alignment of motor pulley with idler pulley.

      (1) Loosen the two motor pulley shaft set screws that secure the pulley EMG-265 to the motor shaft (Figure 6).

      (2) Turn on the power. The pulley will become aligned with the idler pulley EMG-89+. Shut off the power. Tighten the set screws.

   b. Belt tension.

      (1) Loosen the pulley flange screw. Turn the loose flange to obtain just enough belt tension for operation of the machine. Tighten the screw with its point contacting one of the two grooves in the hub.

7. Motor Belt (Motor Mounted Beneath Bench)

   a. Loosen the bracket adjusting screw. Adjust the belt tension by changing the position of the motor bracket. The belt tension should be just enough to prevent slippage in operation. Tighten the screw.

8. Eyelet Box Brush (See Figures 6 and 8)

   a. The eyelet box brush PE-600A+ may be driven either continuously or intermittently. When the pulley pins PL-6477P in the brush driving pulley EMG-107A+ engage the driving pulley EMG-77A+, the brush turns continuously. When the pins engage the brush driving pulley nut EMG-108, the brush turns with the crankshaft EMG-235.

   b. To change from one drive to the other; remove the

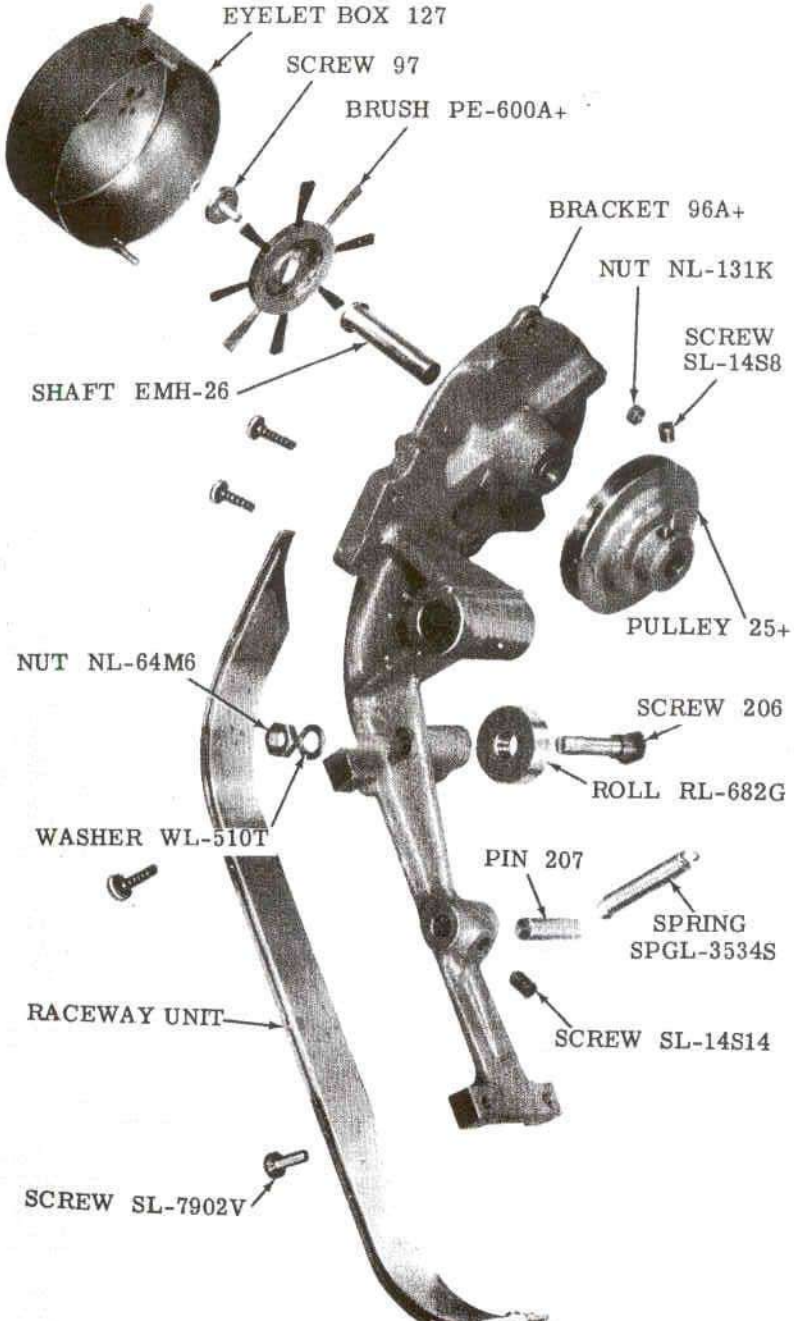
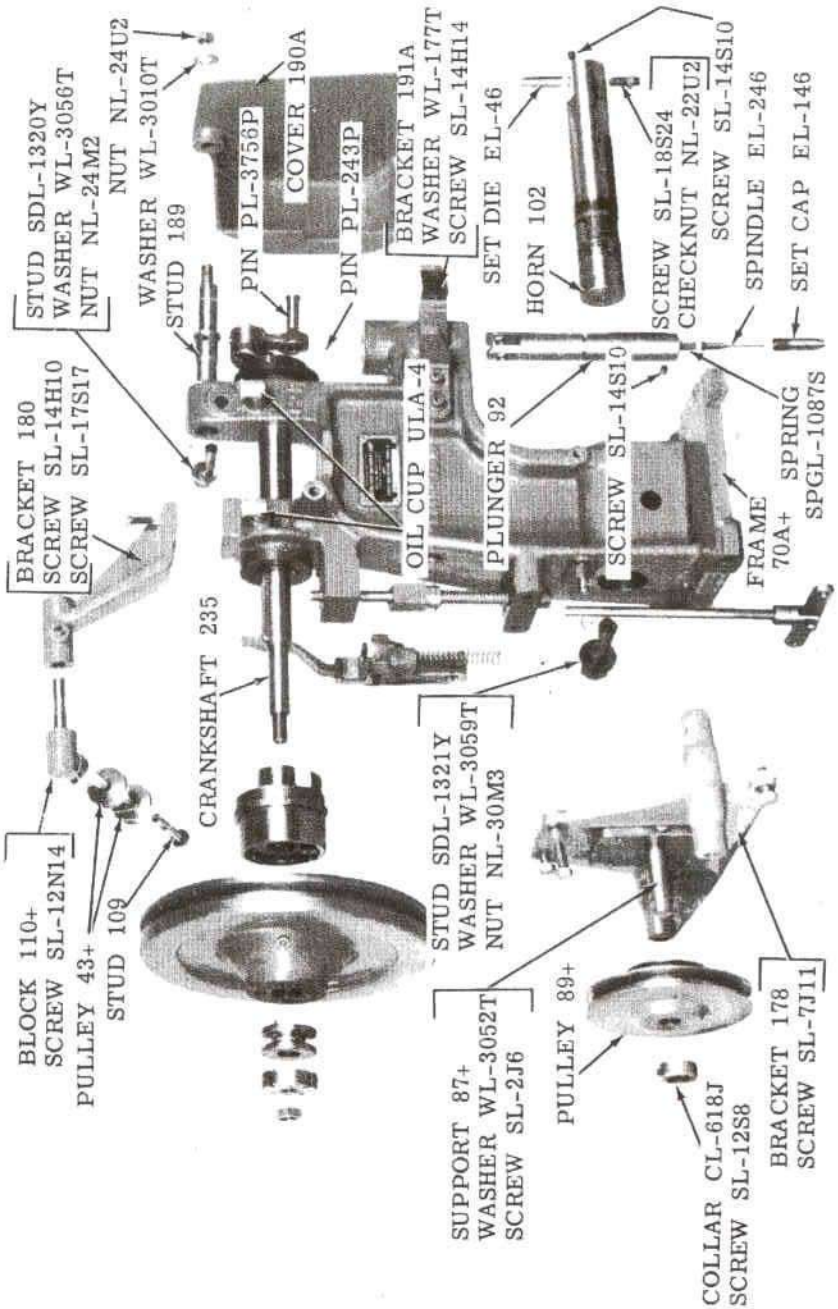


Figure 8 - Eyelet Raceway Parts - Exploded View



brush driving pulley checknut NL-26U2 and nut EMG-10 and reverse the brush driving pulley. Replace the nut and checknut.

9. Brush Pulley Belt (See Figure 7)

   a. Tighten or shorten the brush pulley belt UEC-152 when it has lengthened sufficiently to affect the operation of the eyelet box brush PE-600A+.

      (1) The idler swivel block EMG-110+ may be adjusted within limits without moving the idler pulleys too far out of line with the belt.

      (2) If the slack in the belt cannot be wholly taken up by the above method, shorten the belt and readjust the swivel block.

C. Operation

1. Hold the work level and in such a way that it rests on the set die but without cramping the pilot of the die. Depress the treadle when the work is positioned. The machine will go through a one-revolution cycle only.

2. An adjustable work gage EMG-103 may be employed to assist the operator in gaging the work. When the work is such that this gage is inadequate, a specially constructed gage may be employed to fulfill the operator's requirements.

3. A small table built around the set die to assist the operator in holding the work or assembling pieces may be advantageous.

SECTION III

CARE OF MACHINE

A. To Change Setting Tools (See Figures 5 and 9)

1. Loosen the die set screw SL-14S10 and remove the set die EL-46.

2. Install a new die and tighten the screw lightly.

3. Loosen the set cap binding screw SL-14S10 and remove the set cap EL-146 and set spindle EL-246.

4. Install the new set cap and set spindle, making sure that the eyelet set spindle spring SPGL-1087S is not lost. Tighten the binding screw lightly, first making sure that the set cap is properly seated in the set cap plunger EMG-9?

5. Check the setting pressure (sec. II, B; par. 2).

B. Replacement of Raceway and Raceway Bracket (See Figures 4 and 7)

1. Remove the front cover EMG-190A.

2. Disconnect the bracket spring SPGL-3534S.

3. Remove the brush pulley belt from the brush pulley EMG-25

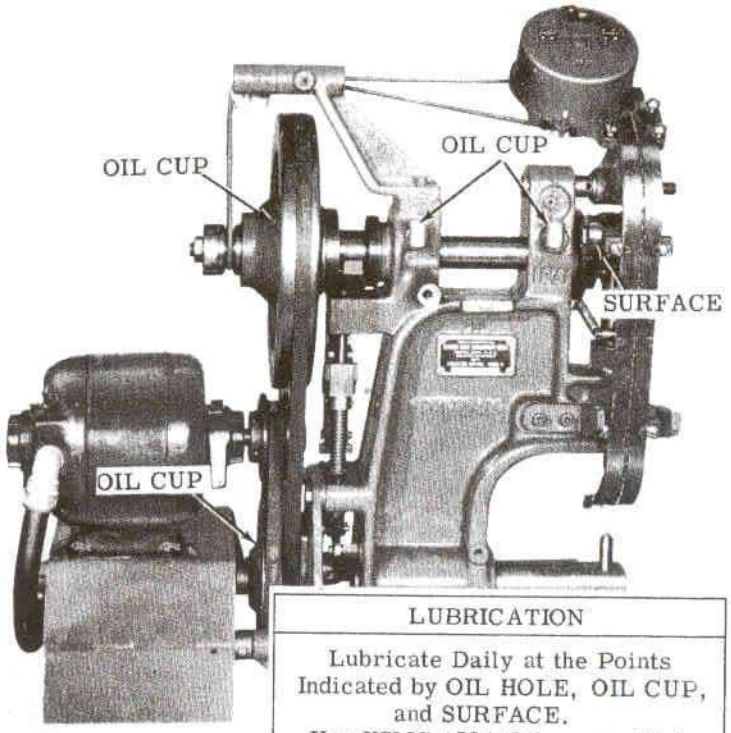
4. Swing the raceway to the left until it clears the raceway guide bracket EMG-191A. Remove the raceway assembly from the front cover stud EMG-189.

5. Install the new raceway assembly by reversing the above procedure.

6. Check the alignment of the raceway (sec. II, B; par. 3) and the timing of the raceway (sec. II, B; par. 4).

7. If the parts to be replaced include only the raceway and eyelet box, proceed as follows:

a. Remove the seven raceway binding screws SL-7902V



LUBRICATION
Lubricate Daily at the Points Indicated by OIL HOLE, OIL CUP, and SURFACE. Use USMC 150A Oil or any High Grade Mineral Machine Oil.

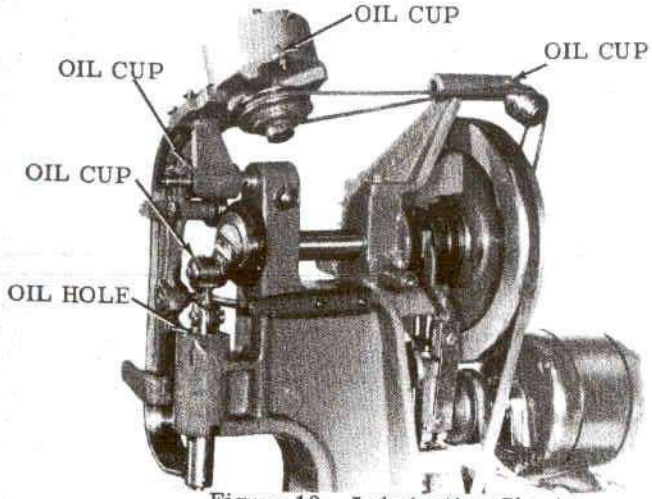


Figure 10 - Lubrication Chart

and the raceway unit (Figure 8). Remove the two eyelet box binding nuts NL-131K and the eyelet box.

b. Attach the new eyelet box to the raceway bracket EMG-96A+.

c. Place the new raceway in position and secure it to the bracket by means of the seven raceway binding screws. Make sure that the top of the raceway contacts the shoulder of the bracket and the eyelet chute is aligned with the opening in the box.

d. Check both the alignment and timing of the raceway (sec. II, B; pars. 3 and 4).

C. Cleaning and Lubrication (See Figure 10)

1. Clean the machine daily with a clean cloth. Note that an accumulation of dust or dirt in the raceway will retard or stop the feeding of eyelets.

2. At the end of each day's work fill the oil cups and oil the sliding surfaces at the points indicated in Figure 10. Use USMC 150A oil or any high grade mineral machine oil.

3. Cover the machine at the end of the working day. Keep the machine covered when not in use for an extended period

4. Wipe off surplus oil with a clean cloth before starting work.

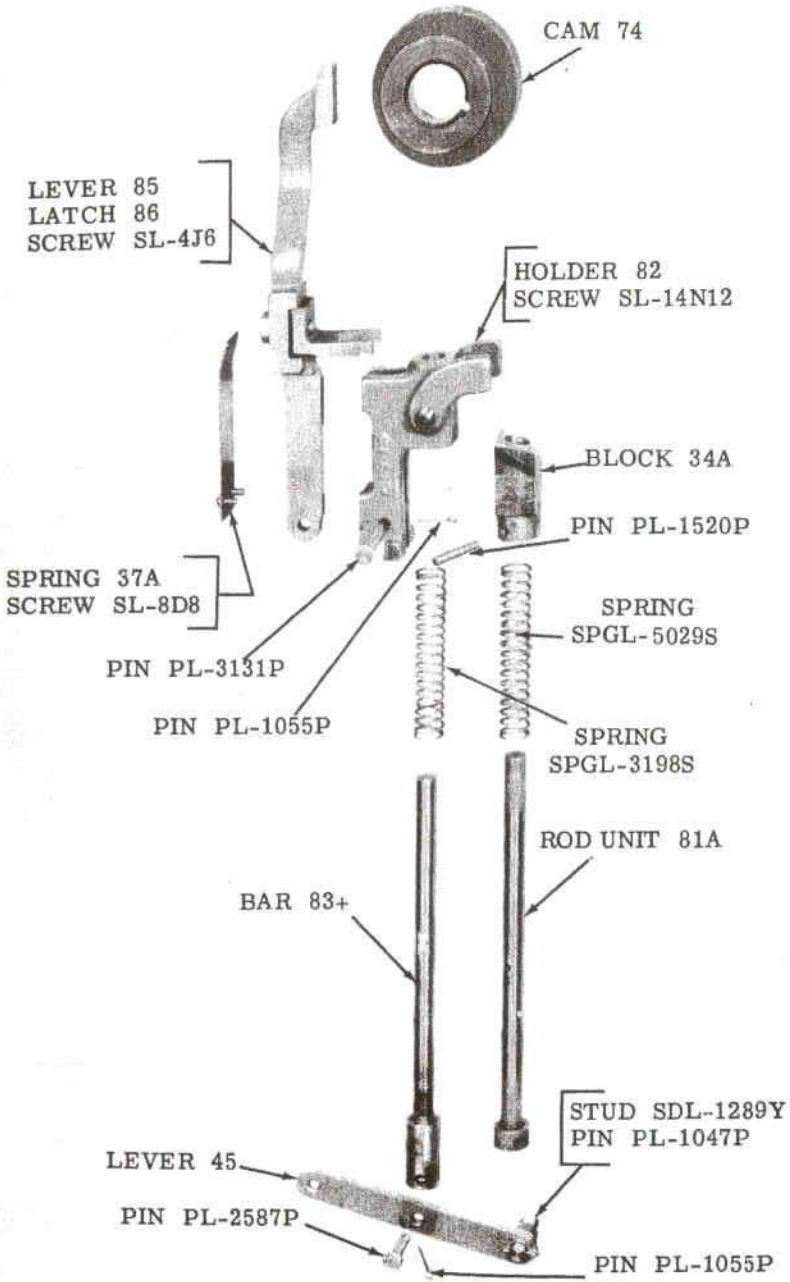


Figure 11 - Clutch Operating Parts - Exploded View

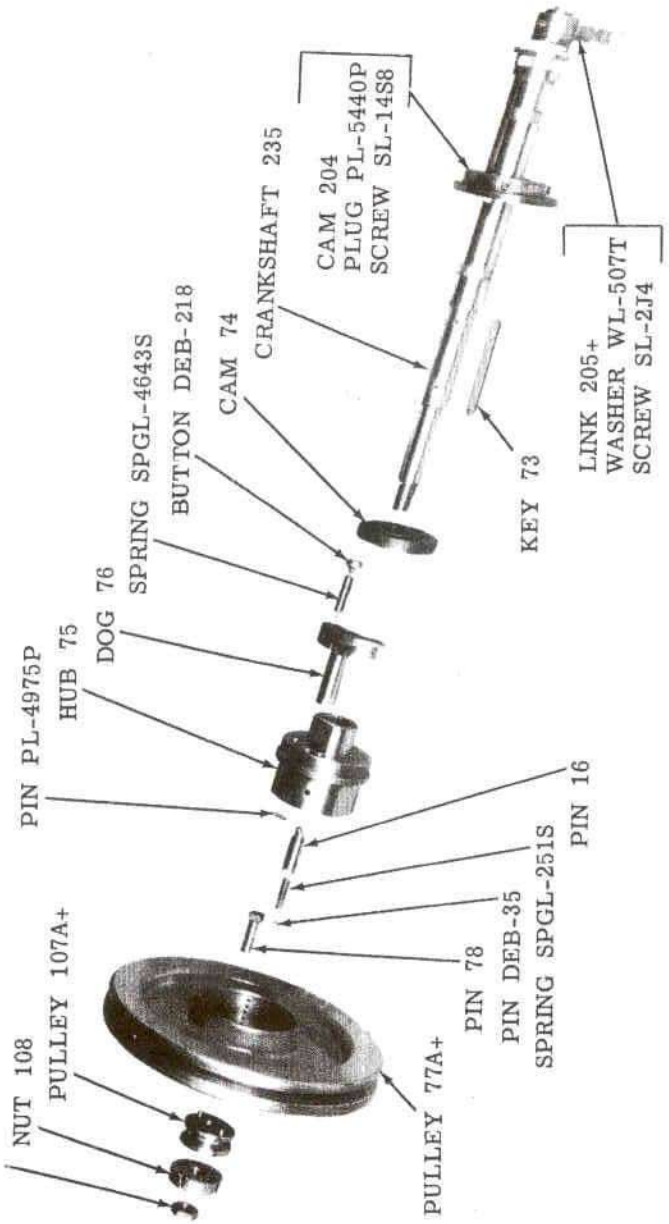


Figure 12 - Crankshaft Parts - Exploded View

SECTION IV

SERVICE INFORMATION

A. Replacement of Clutch Parts (See Figures 6 and 12)

1. Remove the brush pulley belt from the brush driving pulley EMG-107A+.
2. Remove the drive belt EMG-90.
3. Remove the brush driving pulley checknut NL-26U2, brush driving pulley nut EMG-108, brush driving pulley EMG-107A+, and driving pulley EMG-77A+.
4. Remove the clutch assembly which is shown exploded in Figure 6. Examine the clutch parts for wear or damage and make the necessary replacements.
5. Reinstall the parts in reverse of the order in which they were removed.

B. Replacement of Clutch Operating Parts (See Figures 9 and 11)

1. Remove the latch release lever EMG-85 and latch EMG-86.
2. Remove the countershaft support bracket EMG-178 and parts.
3. Remove the treadle rod lever EMG-45.
4. Remove the tripping block taper pin PL-1520P from the tripping block EMG-34A and loosen the holder binding screw SL-14N12 in the latch release lever holder EMG-82.
5. Tip the machine onto its side and remove the remaining clutch operating parts.
6. Examine the parts for wear or damage and make the necessary replacements.
7. Reinstall the parts in reverse of the order in which they were removed.

C. Crankshaft (See Figures 7, 9, and 12)

1. Remove the front cover EMG-190A.
2. Remove the brush pulley belt UEC-152.
3. Unhook the bracket spring SPGL-3534S and remove the raceway (Figure 4).
4. Disconnect the plunger link EMG-205+ from the set cap plunger EMG-92.
5. Remove the drive belt EMG-90 from the driving pulley EMG-77A+.
6. Remove the brush driving pulley checknut NL-26U2, nut EMG-108, brush driving pulley EMG-107A+, and driving pulley EMG-77A+.
7. Remove the clutch parts, cam EMG-74, and key EMG-73.
8. Withdraw the crankshaft EMG-235 from the front of the machine.
9. Examine the parts for wear or damage and make the necessary replacements.
10. Reinstall the parts in reverse of the order in which they were removed.