P R E V E N T A T I V E M A I N T E N A N C E

The AMF Automatic Pinspotter requires a minumum of preventative maintenance to provide economical trouble-free operation. To provide the Proprietor's maintenance man with a form to be used to record this operation, the AMF Weekly Preventative Maintenance Chart has been formulated. This form also provides for a tabulation of parts replaced during the preventative maintenance operation so that the spare parts inventory can readily be maintained.

AMF WEEKLY PREVENTATIVE MAINTENANCE CHART

The weekly preventative maintenance is performed by the proprietor's maintenance man using the form shown on Page 6.003 and 6.004. Each machine is given this check once a week. For example; the maintenance of a 16 Lane House would do 4 machines per day for 4 days a week. See chart below.

Using the front of the form, the maintenance man will check the various assemblies listed and perform the details for each assembly as listed on the reverse side. The legend provides an easy simplified method of recording the type of action completed if necessary. If parts are replaced, part number should be entered into the "Parts Replaced" column. This information will supply the establishment with a perpetual inventory and facilitate the ordering of spare parts.

Overall cleaning and lubrication will be performed per specifications as stated in the AMF Service Manual.

TYPICAL MACHINE INSPECTION SCHEDULE

DAY	Number of Machines													
	6	8	10	12	14	16	18	20	22	24	26	28	30	32
MON.	2	2	2	4	4	4	4	4	5	5	6	6	6	8
TUES.	2	2	2	4	4	4	4	4	5	5	5	6	6	6
WED.	2	2	2	4	4	4	4	4	4	5	5	6	6	6
THUR.		2	2		2	4	4	4	4	5	5	5	6	6
FRI.			2				2	4	4	4	5	5	6	6

AMF Pinspotters Preventative Maintenance Check

LEGEND

√ - SATISFACTORY — A - REQUIRES ADJUSTMENT

C - REQUIRES CLEANING — R - PARTS REPLACED

L - REQUIRES LUBRICATION — X - REPAIR OR REPLACE

Date _____ AMF

EST. NAME _____

EST. ADDRESS _____

LANE NO.	SWEEP	DISTRIBUTOR	CARPET & PIT AREA	BALL EXIT - BALL LIFT	PIN ELEVATOR	CUSHION	TABLE ASSY.	MOTORS	PIT SIGNAL-PINDICATOR	COUNTERS - FRAMETERS	PARTS REPLACED	SUMMARY

MAINTENANCE MAN SIGNATURE

PROPRIETOR'S SIGNATURE

Form #9228 A REV. 1-74

THE FOLLOWING MAJOR MACHINE ASSEMBLIES SHOULD BE CHECKED FOR PERFORMANCE AND CONDITION OF COMPONENTS.

1. SWEEP

- A. SWEEP DRIVE LINKAGE
- B. SWEEP STOPPING POSITIONS
- C. CONDITION AND OPERATION OF SWEEP BARS

2. DISTRIBUTOR

- A. DRIVING GEARS
- B. PIN DELIVERY POSITIONS
- C. SHAFTS AND BEARINGS
- D. DRIVE SHAFT AND UNIVERSAL
- E. CONVEYOR BELTS

3. CARPET AND PIT AREA

- A. FRONT ROLLER ACTUATING LINKAGE
- B. REAR ROLLER AND DRIVE BELT
- C. ROLLERS, BEARINGS AND SUPPORTS
- D. PLOWS AND BOUNCE PLATE
- E. CONDITION OF CARPET BELT

4. BALL EXIT

- A. BALL EXIT CASTING ASSY.
- B. DRIVE BELTS
- C. LIFT TUBE ASSEMBLY

5. BALL LIFT

- A. BELT
- B. PULLEY ASSEMBLIES AND BEARINGS
- C. ELEVATOR TRACK
- D. DRIVE BELTS - CLUTCHES

6. PIN ELEVATOR

- A. PIN CLAMP ASSEMBLY
- B. RING TUBE AND BEARINGS
- C. POCKET INSERTS
- D. DRIVE BELT

7. CUSHION

- A. BALL IMPACT PAD
- B. SCREWS AND FASTENERS
- C. SHOCK ABSORBER
- D. CUSHION CURTAIN - FACING
- E. HANGERS - SUPPORTS

8. TABLE

- A. SPOTTING PATTERN
- B. PIN CUPS
- C. RESPOT CELLS & MECHANISMS
- D. DRIVE - SUPPORTS - LINKAGE
- E. ELECTRICAL WIRING

9. MOTORS - DRIVE

- A. LUBRICATION LEVEL

10. PIT SIGNAL - PINDICATOR

- A. PIN LIGHTS
- B. 1ST. & 2ND. BALL
- C. STRIKE AND FOUL
- D. SIGNAL LIGHT - BELL - RESET

11. COUNTERS - FRAMETER

- A. MECHANICAL COUNTER AND SEALS
- B. REMOTE COUNTERS AT MANAGERS DESK

M A C H I N E A N D L A N E C L E A N I N G

LANE CLEANING

For the daily lane cleaning, the machine should be shut off either at the masking unit switch or at the manager's control panel. The pins are then knocked into the pit with mop or broom. The lane is then ready for cleaning. After all the lanes have been cleaned, machines should be turned on, and cycle buttons or 10th frame switches pressed to cycle the machine into position for "1st ball".

If buffer or rotary brush is used, the hinged masking unit can be raised and propped in the UP position.

MACHINE CLEAING

The AMF Automatic Pinspotter must be kept clean at all times to give satisfactory service to the bowler. It is of utmost importance to start off with cleanlines and to maintain the cleaning schedule given below.

Every Two Weeks

1. Dust the complete machine.

Twice a Week

1. Wipe the following with a cloth dampened with cleaner:

   (a) Inside of pin elevator wheel.
   (b) Inside of spotting cups.
   (c) Distributor belt and orienting pan.
   (d) Pit carpet.
   (e) Pin curtain face.
   (f) Ball lift belt.
   (g) Sheaves and V-Belt drives.

2. Check motor drip pans and clean as required.
3. Reverse or change ball wipe cloths.
4. Vacuum between kickback plates and bottom section of ball lifts.
5. Vacuum under pin elevator wheel and carpet.

MACHINE PROTECTION

DURING LANE REFINISHING

During resurfacing or refinishing, dust particles and fumes from refinishing agent settle on operating parts of the machine and cause serious trouble after operation is resumed unless the following precautionary measures are observed.

REFINISHING

The purpose of this protection is to prevent the fumes from the refinishing agent from settling on exposed electrical contacts as the fumes will act as an insulator making the unit inoperative. Using masking tape or plastic wrap, seal all motor ventilating openings and cover and seal the chassis.

RESURFACING

In addition to the protection required for refinishing, it will be necessary to cover, with rag, common newspaper, or plastic, all open gearing, delicate assemblies, greased tracks, and operating surfaces to prevent the dust particles from clinging to these mechanisms ultimately causing mechanical binds. These points to be covered are back solenoid and cam, right and left sweep drive gears and tracks, table spotting gear train, distributor head, and any other exposed parts that may have and oily or greasy surface.

After resurfacing has been completed, all protection except on the motors and chassis, can be removed; and the entire machine must be wiped down with a damp cloth. After the refinishing process is completed AND THE BUILDING IS FREE FROM ALL FUMES FROM THE REFINISHING AGENT, the motor and chassis protection may be removed.

In order to permit the resurfacing machinery to extend further back into the pit area, the sweep assembly may be removed.

L U B R I C A T I O N

L U B R I C A T I O N

Lubrication is one of the most important items in proper operation and maintenance of the Automatic Pinspotter.

Care must be taken to insure correct lubrication. Avoid excessive use of lubricants to prevent the possibility of transmitting it to the bowler

The following pages indicate the points of lubrication, the correct lubricant, and the frequency of lubrication for each part of the machine.

Before lubricating it is important that the old lubricant first be removed.

L U B R I C A N T S Y M B O L S

Items marked with the above designation pertains to oiling. The lubricant should be an SAE #10 oil. The location, amount, and frequency of oiling is noted on each individual page.

Items marked with the above designation pertains to greasing. The lubricant should be general purpose grease. The location and frequency of greasing is noted on each individual page.

Items marked with the above designation pertain to the lubrication of the Gear Head Motors. The following page provides the recommended lubricants. The individual pages will provide the location and frequency to use.

RECOMMENDED LUBRICANTS

OVERALL MACHINE LUBRICATION

AMF recommends the use of an SAE #10 motor oil and a general purpose grease for overall machine lubrication. Both are obtainable locally at service station or automobile supply stores.

ELEVATOR WHEEL LUBRICANT

A special oil known commercially as Way Oil SAE #80 is recommended for lubricating the ring tube supporting the pin elevator wheel. If this oil is not obtainable locally, it may be ordered from AMF under part #715 021 006.

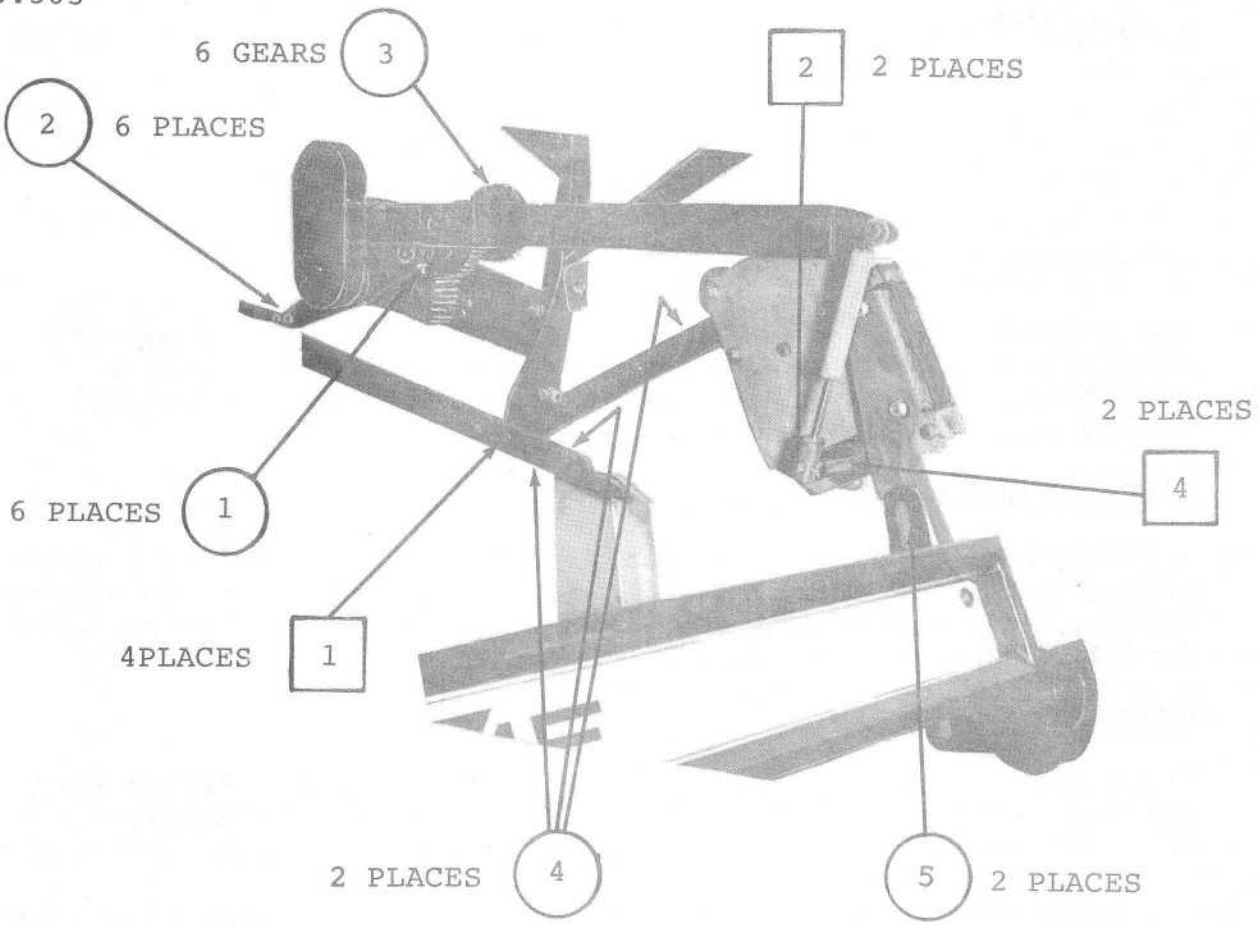
GEAR MOTOR LUBRICANTS

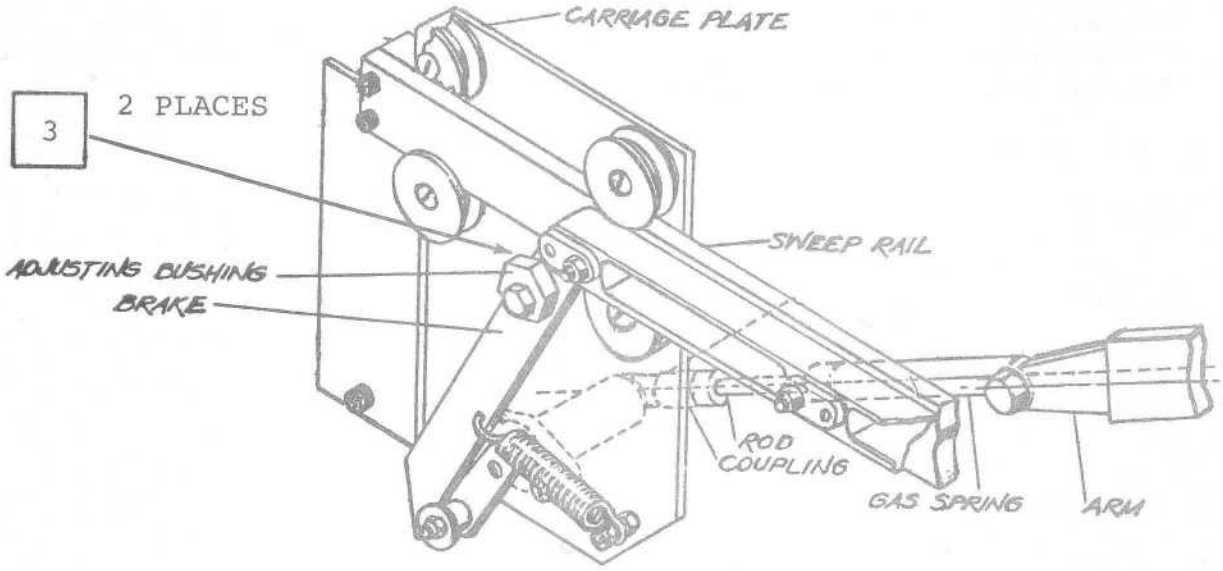
The table, sweep, and back end motors are factory filled with Sohivis J-156 oil, a product of the Standard Oil Company of Ohio. This oil is also available from AMF under part number 715 020 906.

CAUTION: Do NOT use or add any other oil. Oils of different grades or different manufacturers are not compatible to one another and will not provide the desired 5 year service life of Sohivis J156 oil.

Check oil level of table, sweep, and back end motors once every 6 months by removing oil level plug. Fill as required with Sohivis J156.

Drain and refill once every five years. If oil has sludge or contamination, drain, flush with kerosene, rinse with Sohivis J-156, and refill to level plug with Sohivis J-156.


6 GEARS
3
2
6 PLACES
2
2 PLACES
2 PLACES
4
6 PLACES
1
4PLACES
1
2 PLACES
4
5
2 PLACES


CARRIAGE PLATE
3
2 PLACES
SWEEP RAIL
ADJUSTING BUSHING
BRAKE
ROD COUPLING
GAS SPRING
ARM

G U A R D & S W E E P

APPLY SAE #10 OIL TO THE FOLLOWING:

1. Oilites in front sweep track pivot. (4 places, one drop, every 6 months).
2. Pivot of sweep links. (2 places, one drop every 6 months).
3. Pivot of brake at the adjusting bushing. (2 places, one drop every 6 months).
4. Oilites in hub assembly supporting brake linkage. (2 places, one drop every 6 months).

APPLY GREASE TO THE FOLLOWING:

1. In three alemite fittings in each sweep lever assembly. (6 places, once every 3 months).
2. In Fitting on each rod end on all connecting rods. (6 places every 6 months).
3. A light film on sweep gear train. (6 gears, weekly as required).
4. A light film on the roller contact surface of the sweep tracks, upper and lower surface on rear section and upper surface on forward section. (Weekly as required).
5. A light film on sweep leg. (2 places, once a month).

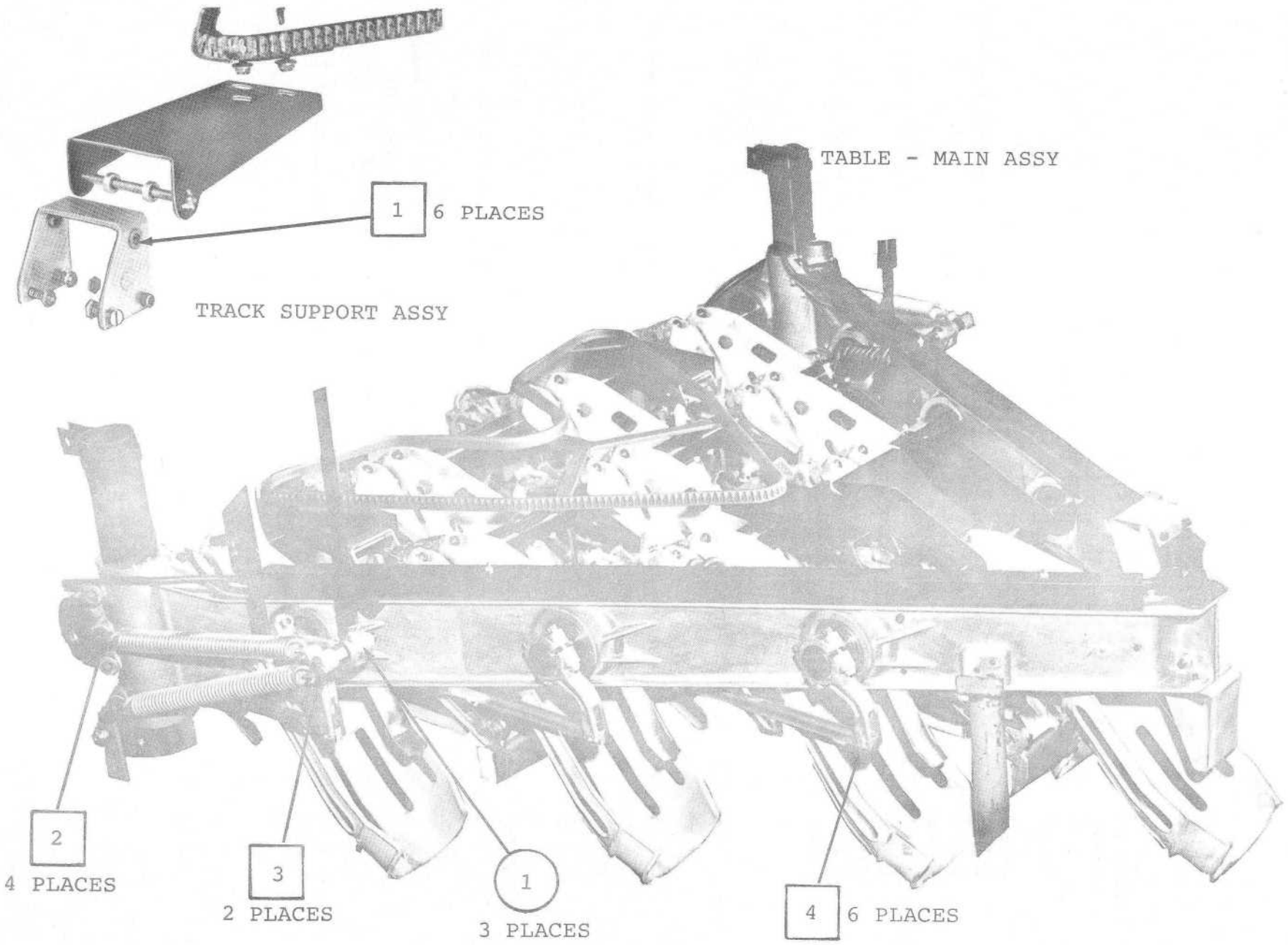


TABLE - MAIN ASSY
1
6 PLACES
TRACK SUPPORT ASSY
2
4 PLACES
3
2 PLACES
1
3 PLACES
4
6 PLACES

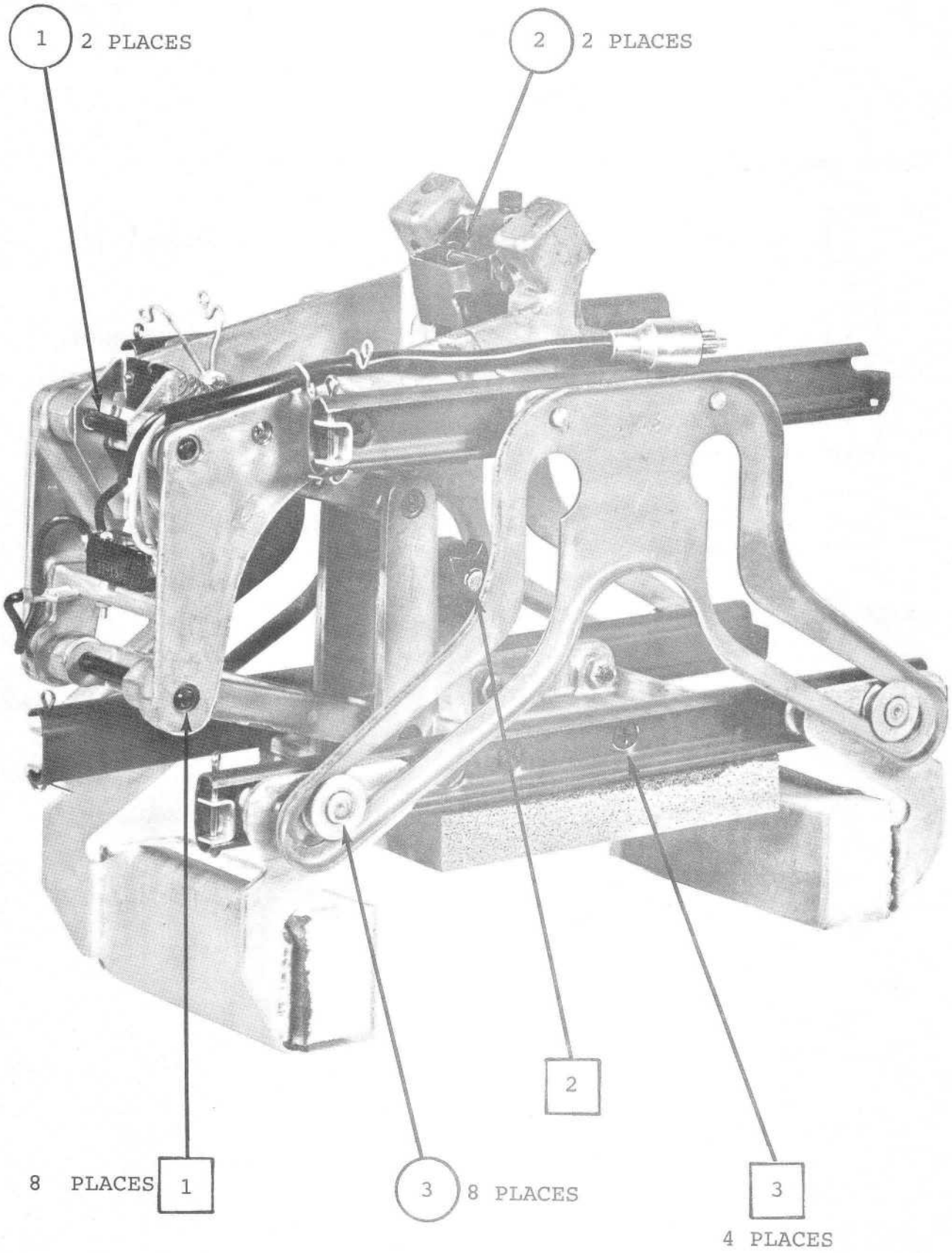
T A B L E

APPLY SAE #10 TO THE FOLLOWING:

1. Oilites in distributor track mounting brackets. (6 places, one drop every 6 months).
2. Between spot balance spring pivot and table channel. (4 places, one drop every 6 months).
3. Oilites in spot balance spring clips. (2 places, one drop every 6 months).
4. Oilites in spotting links. (6 places, one drop every 6 months).

APPLY GREASE TO THE FOLLOWING:

1. Lower rod end fittings on table rods. (3 places, every 6 months).


1
2 PLACES
2
2 PLACES
2
8 PLACES
1
3
8 PLACES
3
4 PLACES

R E S P O T C E L L

APPLY SAE #10 OIL TO THE FOLLOWING:

1. Oilites in respot cell casting. (8 places in each of 10 cells, one drop every 6 months).
2. Star latch bolt. (One drop, every 6 months).
3. Inside of tracks. (4 places, brush lightly every 6 months).

APPLY GREASE TO THE FOLLOWING:

1. At rotating point of switchette actuator. (2 places, every 6 months).
2. At rotating point of star latch actuator. (2 places, every 6 months).
3. Inside of guide rollers. (8 places, every 6 months).

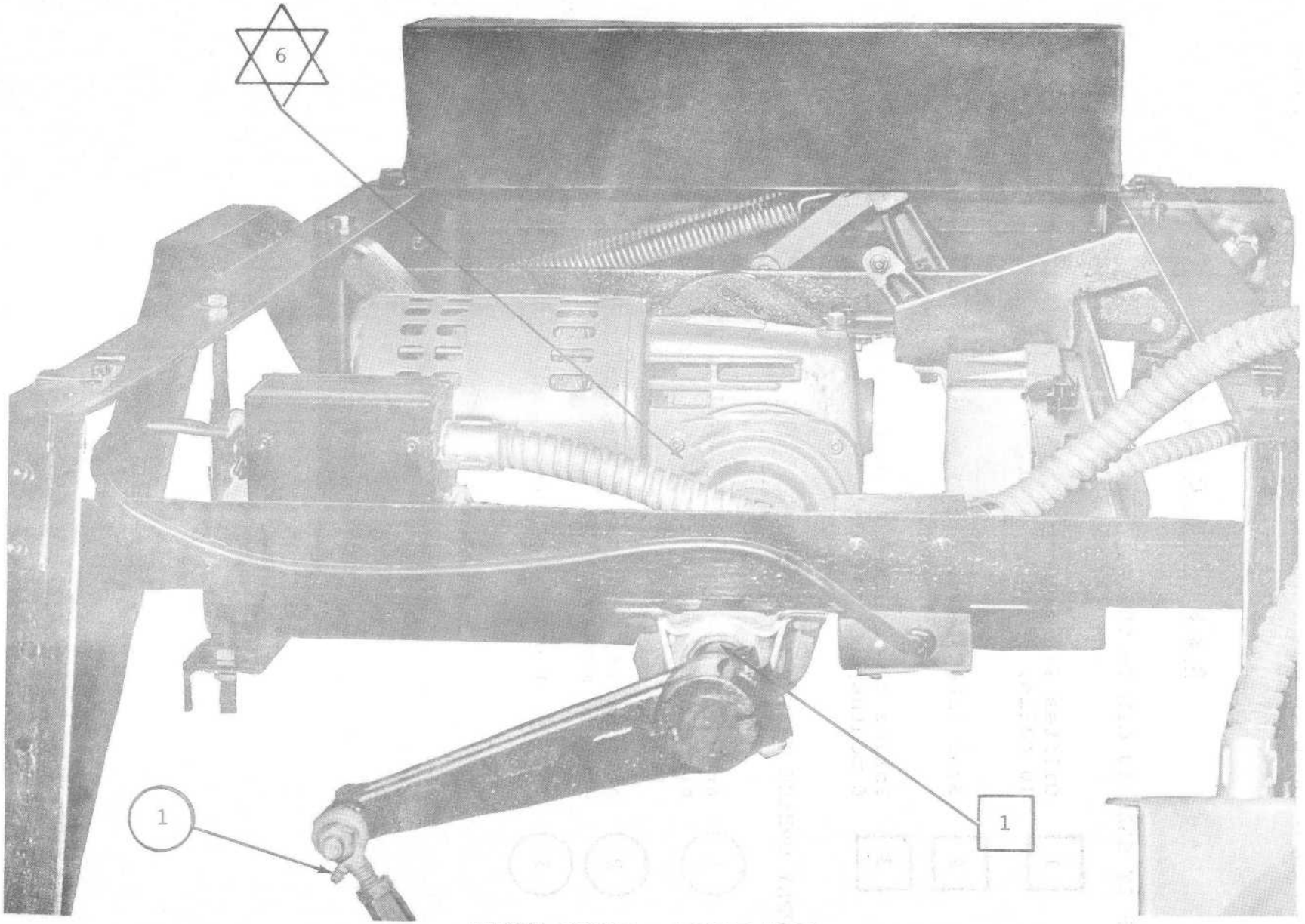


TABLE DRIVE - RIGHT SIDE

CUSHION REMOVAL

1. Unhook pin curtain.

2. Remove "X" washer 963 600 002 from pin 000 022 821 and remove pin 000 022 821 to release shock absorber from cushion assembly.

3. Remove three screws (Part #809 865 165) from Box 000 022 788 holding mounting block. Remove from one side of machine only.

4. Wrap curtain around cushion and slide box and cushion assembly until cushion is free from mounting block on opposite side. Remove from machine.

5. To replace, reverse the above procudure.

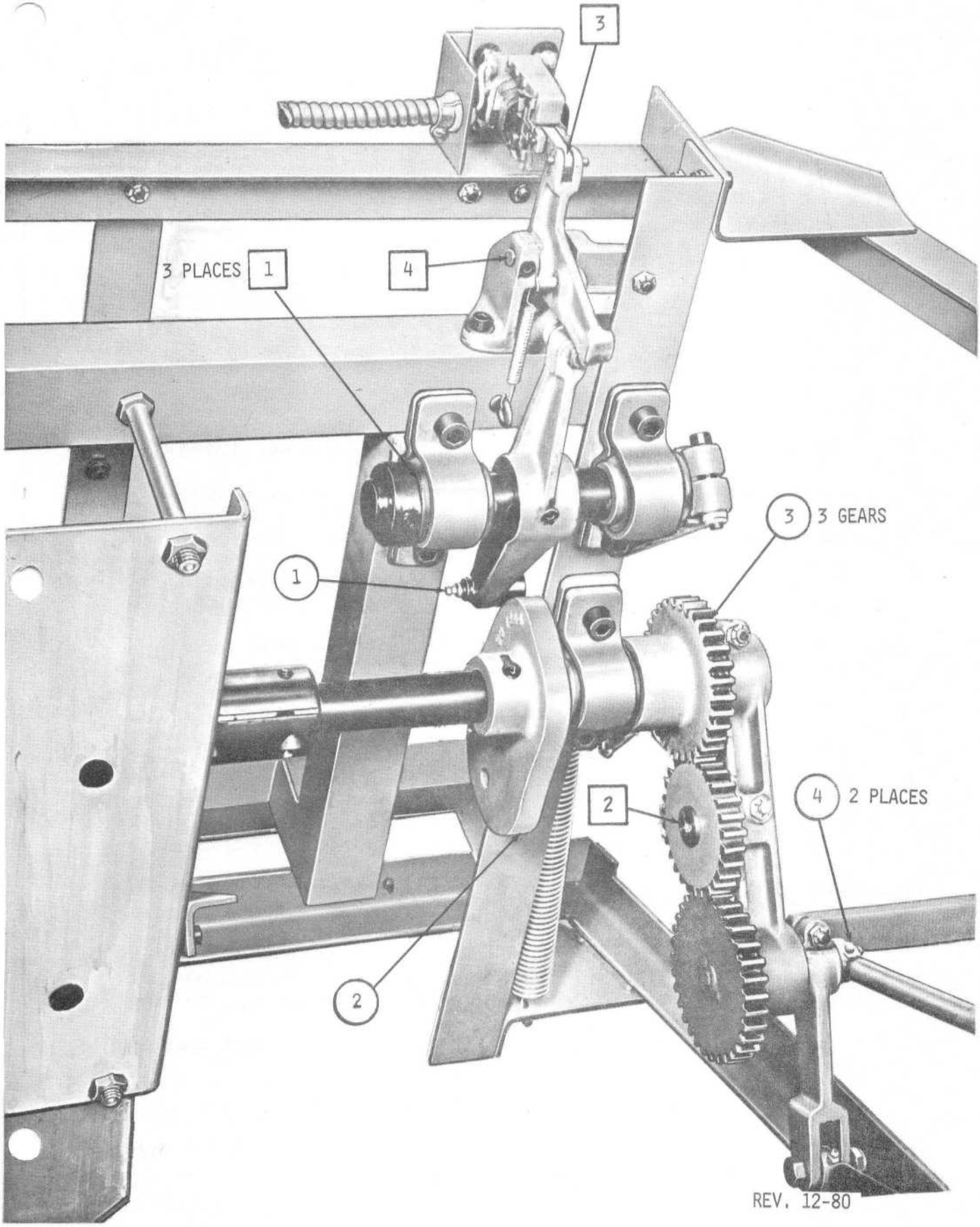
   NOTE: In order to replace a rubber rivet:

   a) Lubricate the raised portion on the stem of the rivet with liquid soap.

   b) Push rivet through cushion assembly until about 1" protrudes through the wooden plank.

   c) Use Carpet Installing Tool 784 003 000 and place the hole which is drilled in the tool over the end of the rubber rivet protruding through the wooden plank.

   d) Use a cranking motion to pull rivet through cushion.



REV. 12-80

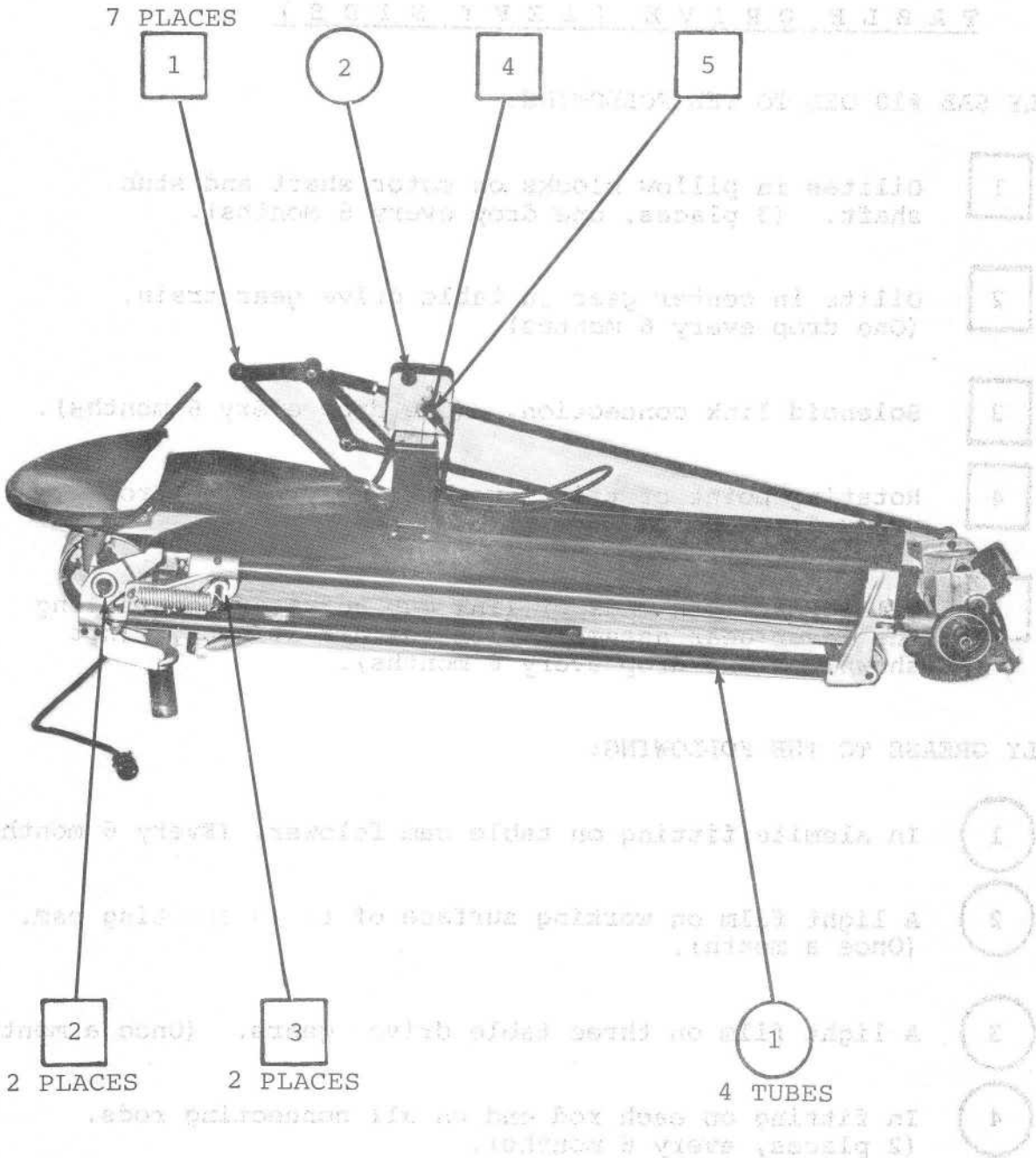
TABLE DRIVE (LEFT SIDE)

APPLY SAE #10 OIL TO THE FOLLOWING:

1. Oilites in pillow blocks on motor shaft and stub shaft. (3 places, one drop every 6 months).
2. Oilite in center gear in table drive gear train. (One drop every 6 months).
3. Solenoid link connection. (One drop every 6 months).
4. Rotating point of trip lever assembly. (One drop every 6 months).
5. Oilites at both ends of link cup actuator, connecting the lever gear assembly with the arm assembly, (not shown). (One drop every 6 months).

APPLY GREASE TO THE FOLLOWING:

1. In alemite fitting on table cam folower. (Every 6 months).
2. A light film on working surface of table spotting cam. (Once a month).
3. A light film on three table drive gears. (Once a month).
4. In fitting on each rod end on all connecting rods. (2 places, every 6 months).



DISTRIBUTOR

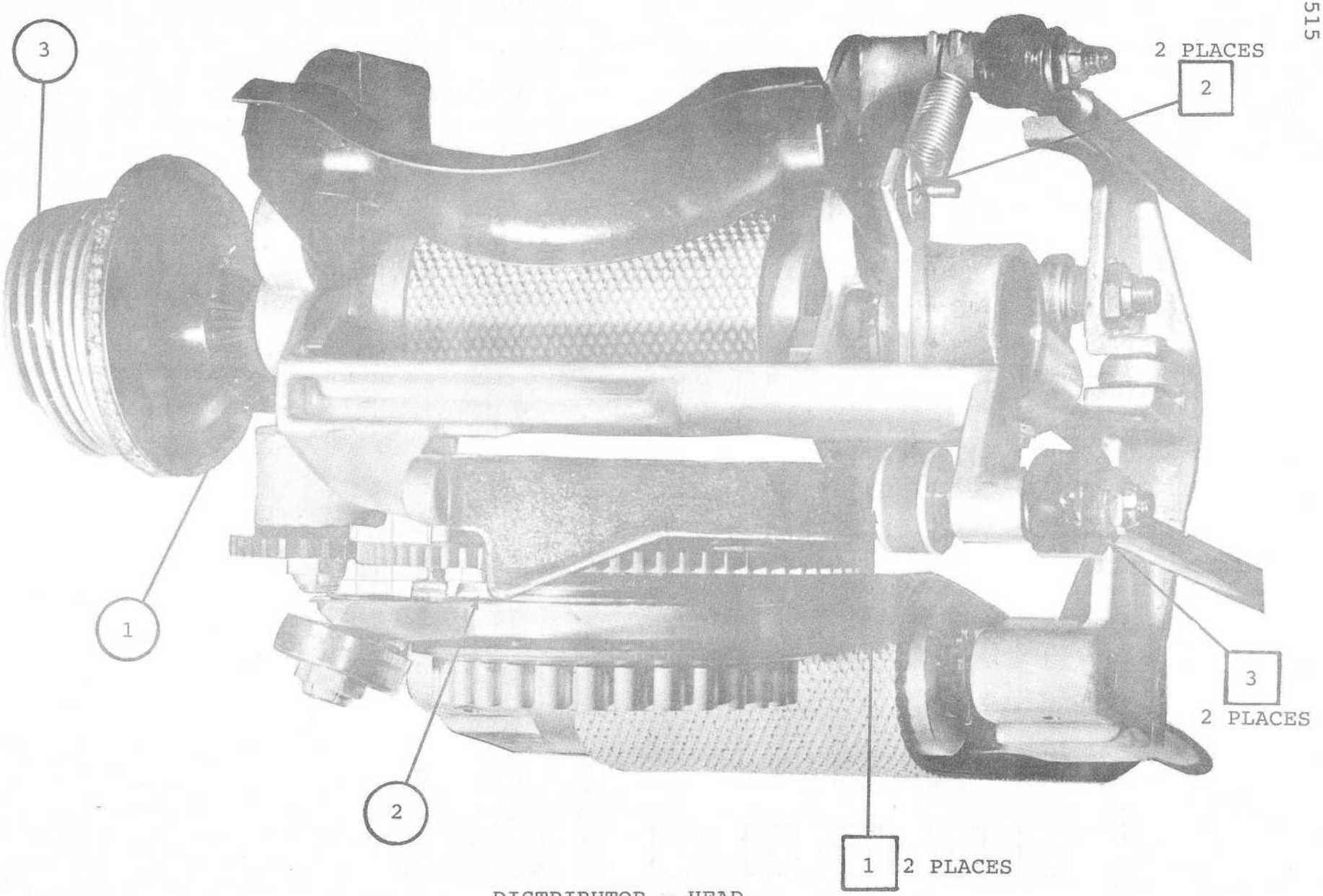
D I S T R I B U T O R

APPLY SAE #10 OIL TO THE FOLLOWING:

1. Oilites in pantograph pivots. (7 places, one drop every 3 months).
2. Oilites in rear yoke. (2 places, one drop every 3 months).
3. Oilites in belt roller pivots. (2 places, one drop every 3 months).
4. At pivot of distributor link arm. (One drop every 3 months).
5. At pivot point of counter trip lever. (One drop, every 3 months).

APPLY GREASE TO THE FOLLOWING:

1. Along the bearing contact surface of the distributor tubes. (4 places, once every 3 months).
2. On counter ratchet wheel. (Every 6 months).



DISTRIBUTOR - HEAD

D I S T R I B U T O R H E A D

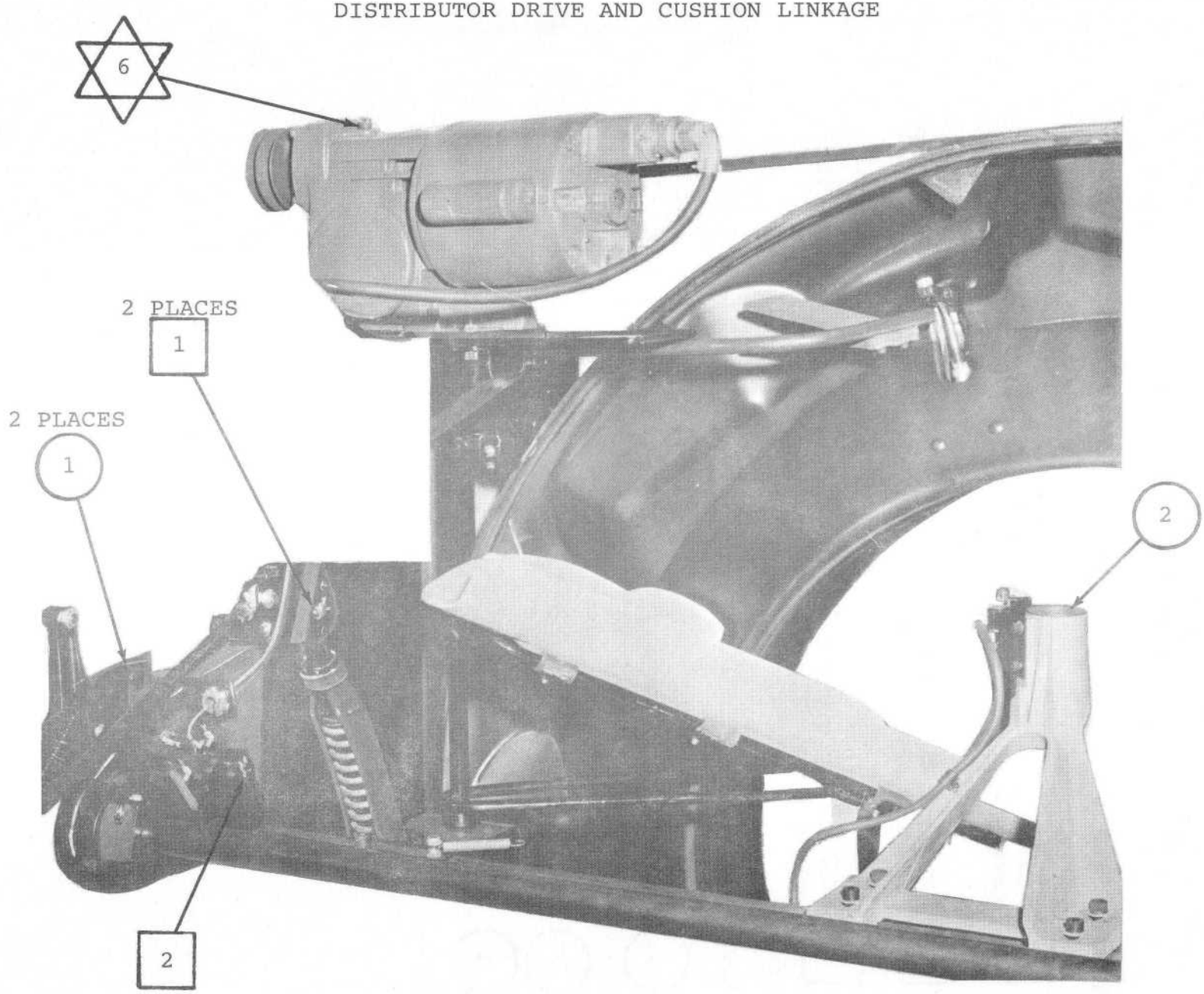
APPLY SAE #10 OIL TO THE FOLLOWING:

1. Oilites in trip lever weldment. (2 places, one drop every 6 months).
2. Upper and lower pivot of trip lever link. (One drop every 6 months).
3. Oilites in pantograph rod ends. (2 places, one drop every 6 months).

APPLY GREASE TO THE FOLLOWING:

1. Bevel gears driving the clutch. (Lightly every 3 months).
2. Index lever stop. (Lightly every 3 months).
3. Worm gear driving the clutch. (Dismantle, clean, and lubricate once every month).

DISTRIBUTOR DRIVE AND CUSHION LINKAGE



DISTRIBUTOR, PIN CHUTE, & CUSHION LINKAGE

APPLY SAE #10 OIL TO THE FOLLOWING:

Rotating points of shock absorber start switch actuators. (2 places, one drop every 6 months).

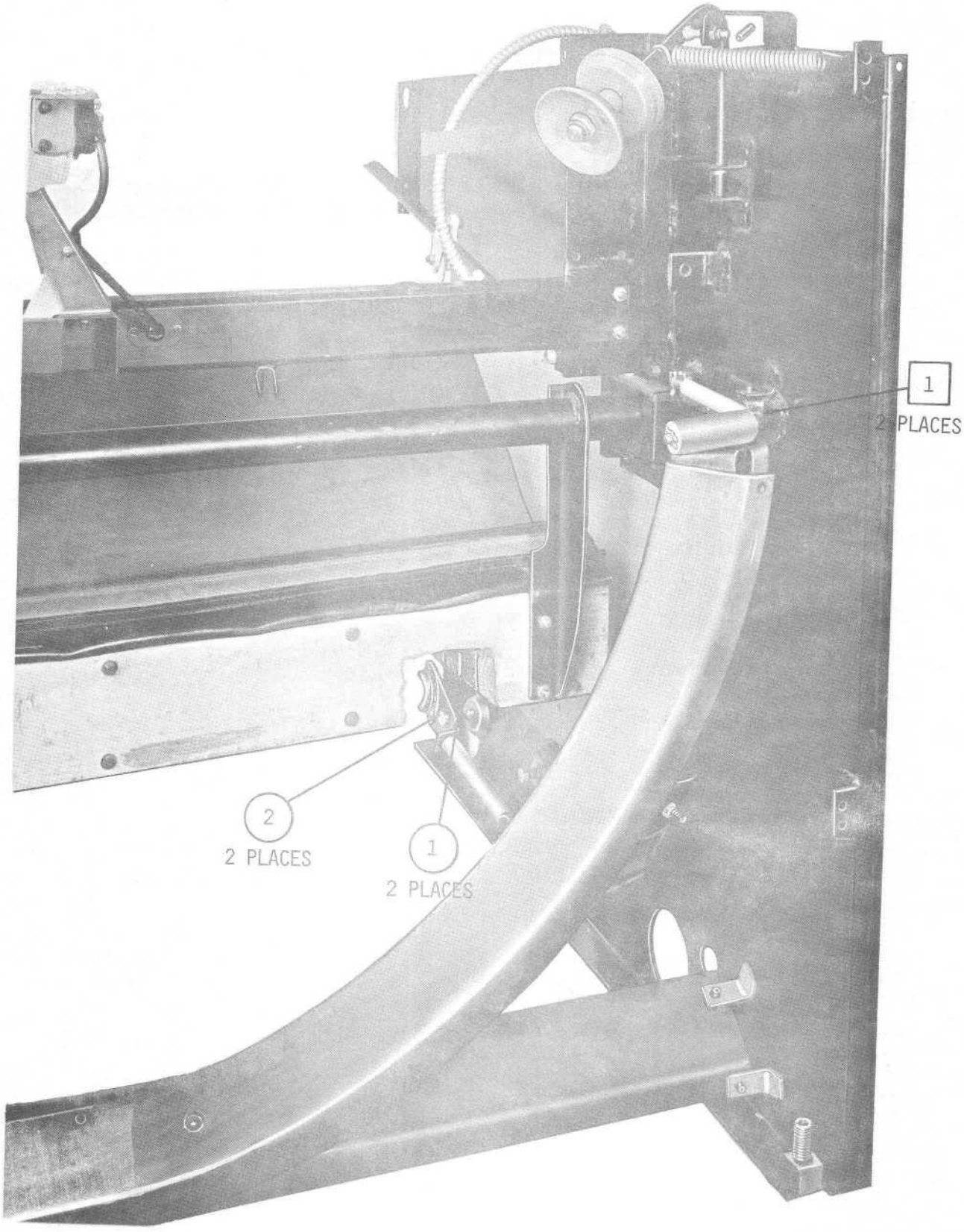
At pivot of switch actuator. (one drop every 6 months).

APPLY GREASE TO THE FOLLOWING:

Counter balance spring pivot bracket. (2 places, every 6 months).

A light film on upper surface of distributor bracket. (Every 3 months).

Maintain oil level to level plug with recommended lubricant. (Every 6 months).


1
2 PLACES
2
2 PLACES
1
2 PLACES

PIN EJECTOR AND FRONT ROLLER

APPLY SAE #10 OIL TO THE FOLLOWING:

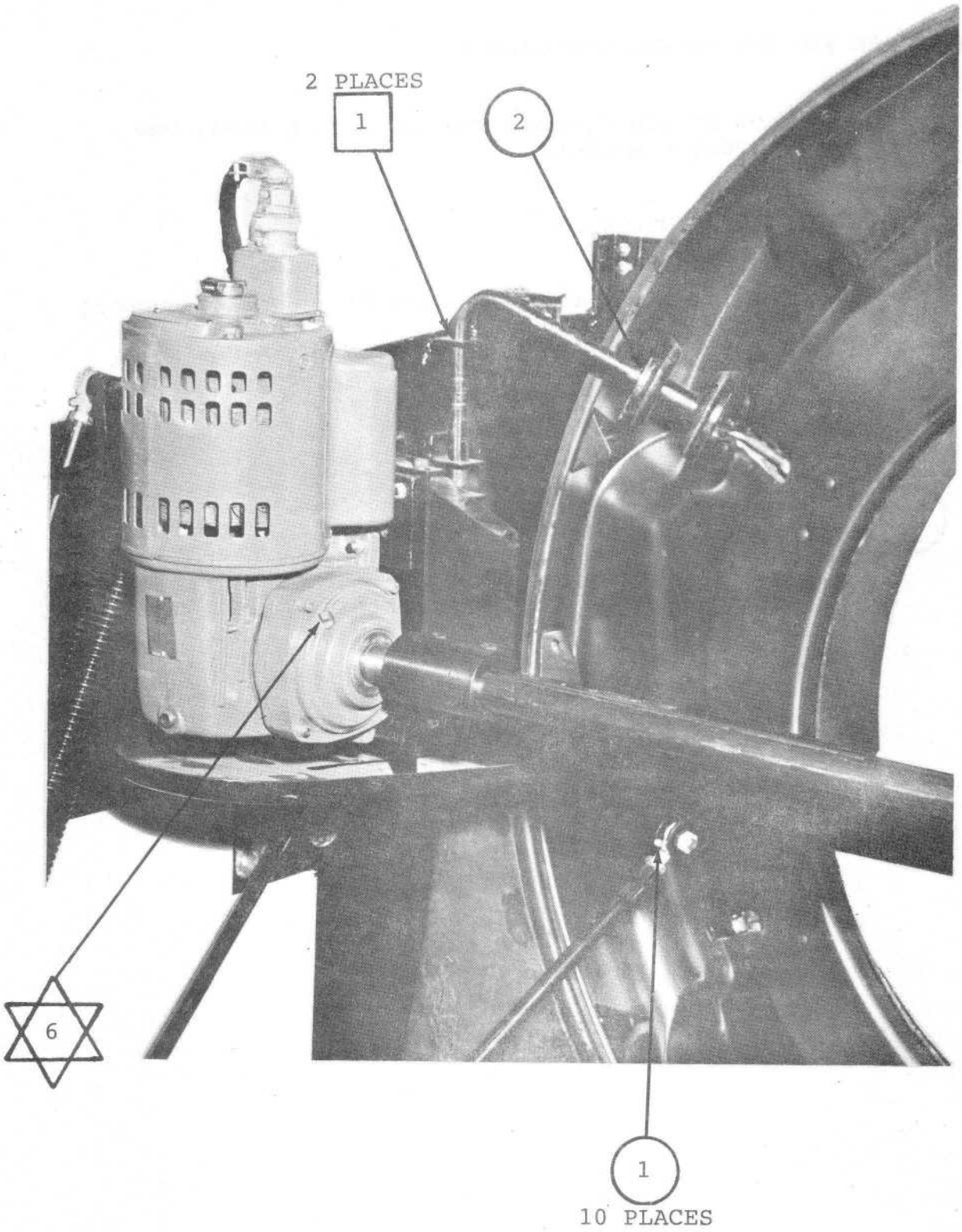
[1] Oilites in pin ejector bracket. (2 places, one drop every 6 months).

APPLY GREASE TO THE FOLLOWING:

(1) Between the kickback plate and front roller support assembly. (Every 6 months).

(2) Grease fitting in front roller support brackets (2 places) left and right sides. Apply general purpose grease every 3 months.

(3) Carpet front roller link (Part #000 024 597) (not shown). 2 places left and right sides. Apply general purpose grease every 3 months. (Lift away carpet and actuate roller to obtain maximum opening between rollers.)



SWEEP MOTOR DRIVE AND TABLE CONNECTING RODS

SWEEP MOTOR DRIVE AND TABLE CONNECTING RODS

APPLY SAE #10 OIL TO THE FOLLOWING:

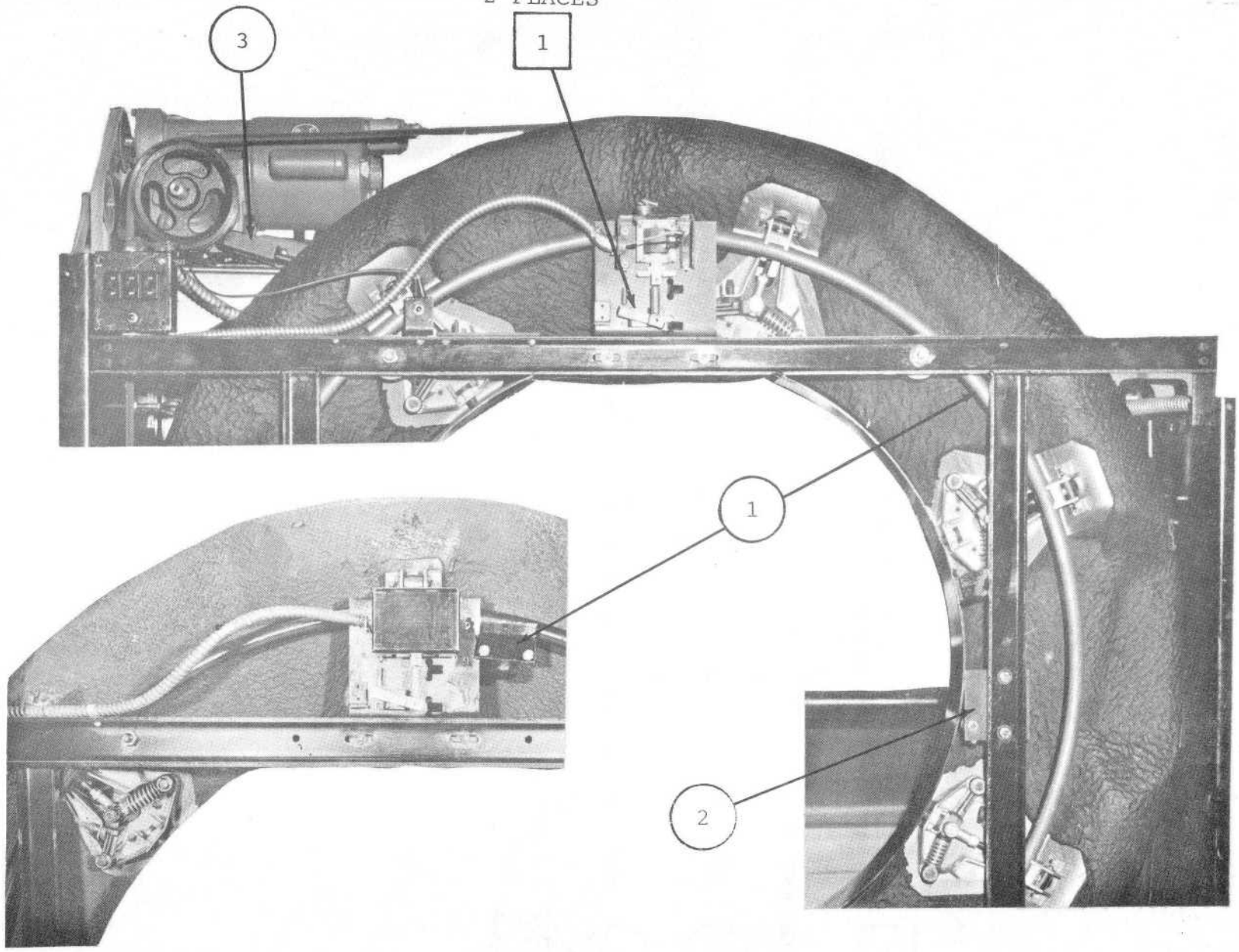
Pivot point of pinseating roller arm. (2 places, one drop every 6 months).

APPLY GREASE TO THE FOLLOWING:

Rod end fittings on table connecting rods. (10 places, every 6 months).

Shaft of pinseating roller. (Every 6 months).

Maintain oil to plug level with recommended lubricant. (Every 6 months).


2 PLACES
3
1
1
2

P I N E L E V A T O R

APPLY SAE #10 OIL TO THE FOLLOWING:

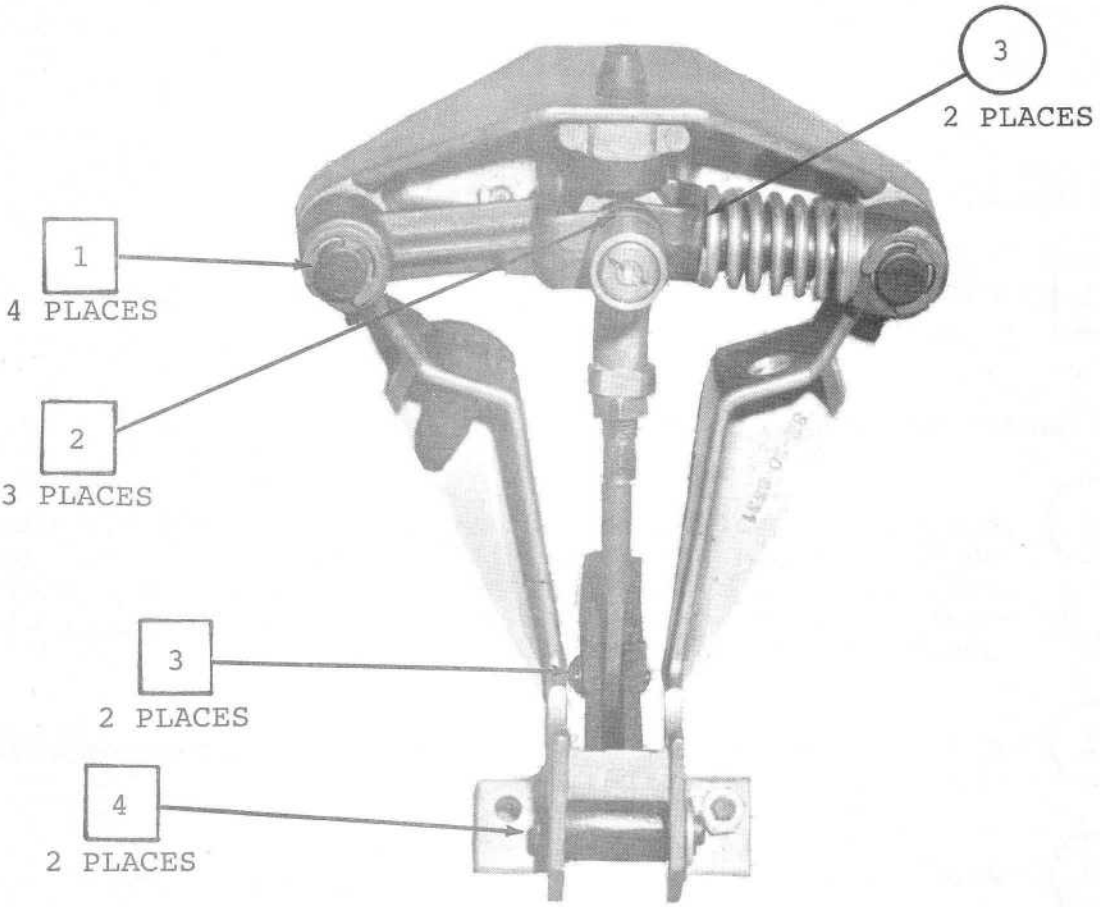
[1] Oilites in pivot arm. (2 places, one drop every 6 months).

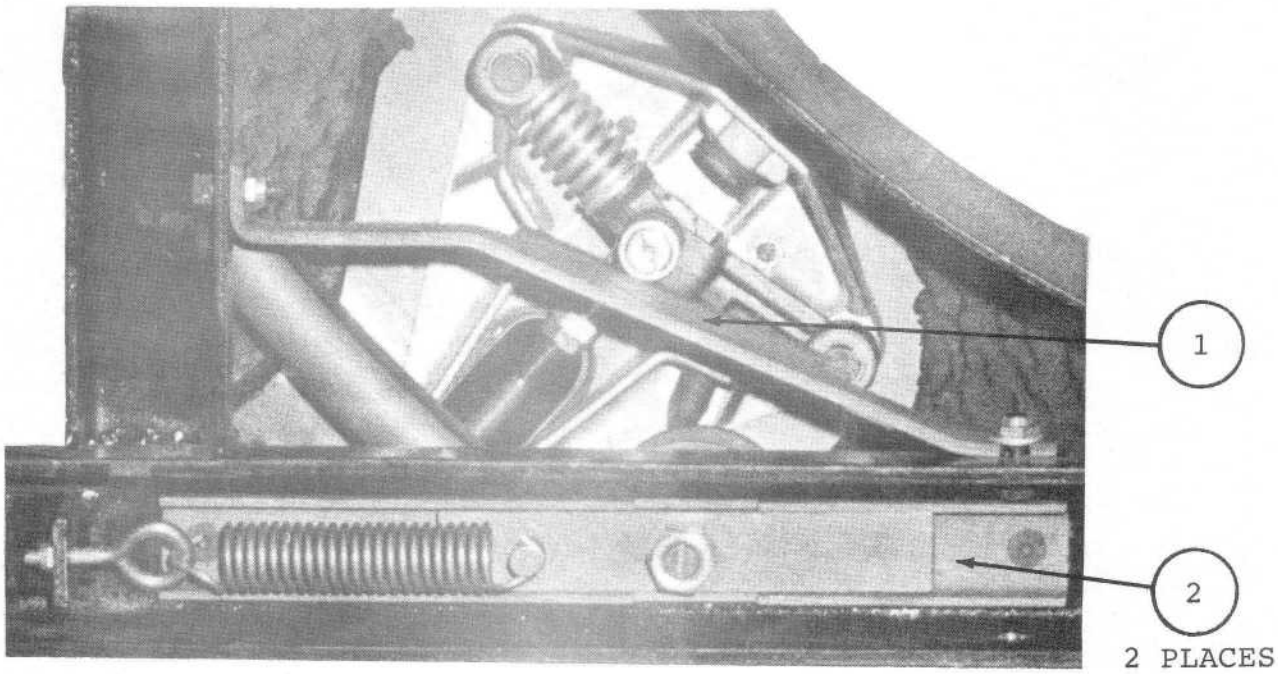
APPLY GREASE TO THE FOLLOWING:

(1) A light film of Sunoco 80 Way Oil (Part #715 021 006) on the bearing surface of the pin elevator ring. (Apply with bursh every week, or as required). On machines equipped with automatic oilers, fill cup 2/3 full with Sunoco 80 Way Oil.

(2) A light film on the bearing surface of the de-celeration cam. (Every 6 months).

(3) Pack grease in distributor drive housing. (Every month).


3
2 PLACES
1
4 PLACES
2
3 PLACES
3
2 PLACES
4
2 PLACES


1
2
2 PLACES

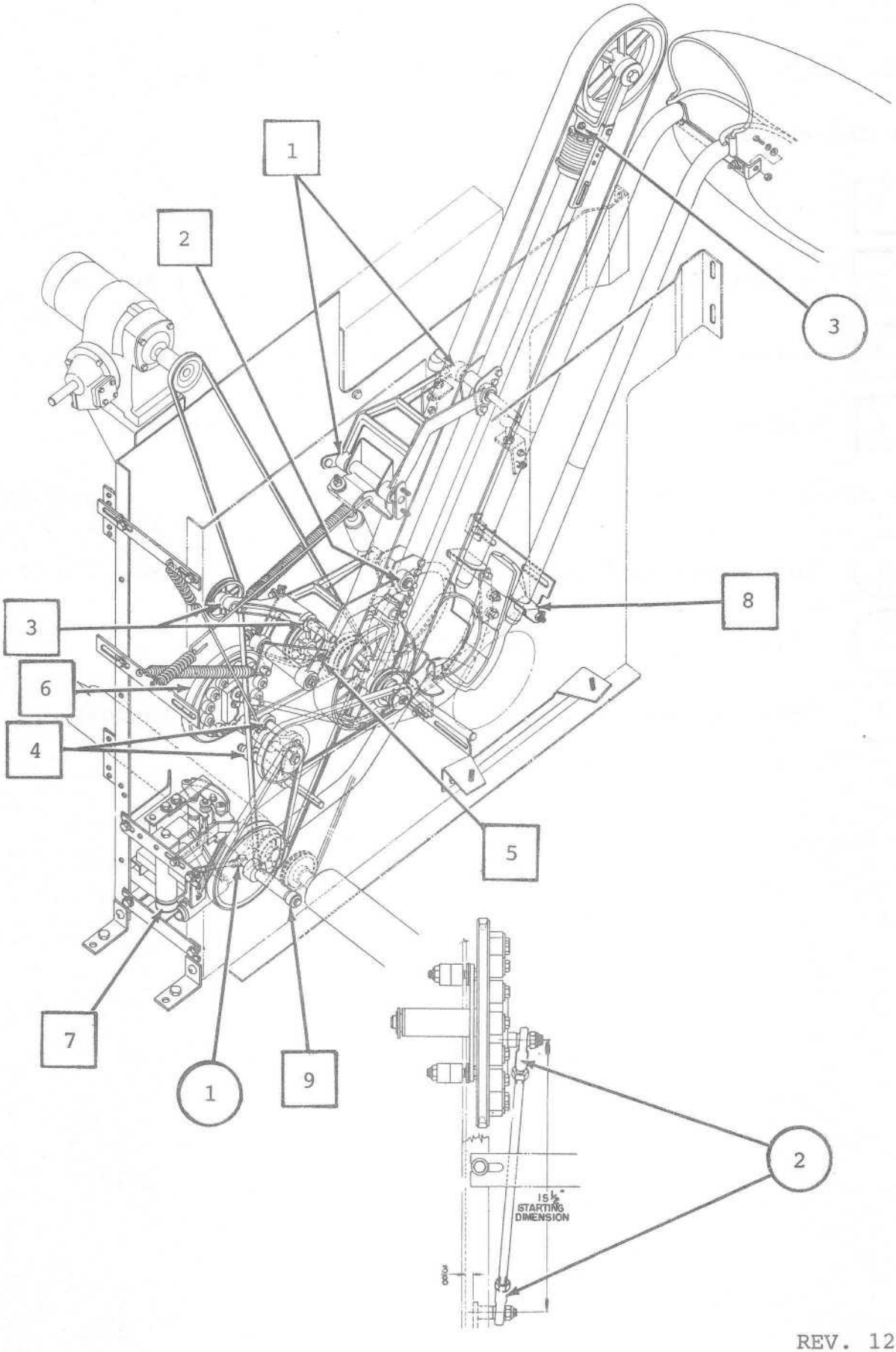
P I N E L E V A T O R T O G G L E A S S E M B L Y

APPLY SAE #10 OIL TO THE FOLLOWING:

1. Oilites in pivot arms. (4 places, every 6 months).
2. Oilites on bearing shaft. (3 places, every 6 months).
3. Oilites in pivot pin. (2 places, every 6 months).
4. Oilites in pivot pin. (2 places, every 6 months).

APPLY GREASE TO THE FOLLOWING:

1. To bearing surface of kickout cam. (Lightly every 6 months)
2. In bearing slide. (Lightly every 6 months).
3. Between spring and yoke. (2 places, every 6 months).


1
2
3
3
6
4
8
5
7
1
9
2
15½"
STARTING
DIMENSION

BALL LIFT LUBRICATION

APPLY SAE #10 OIL TO THE FOLLOWING:

1. Oilites in upper link (Lift Arm) (4 places 2 drops every 3 months).
2. Oilites in lower link (Lift Arm) (4 places 2 drops every 3 months).
3. Oilites in belt tightener idler pulleys (carpet drive belt) and idler arms assys. (6 places 2 drops every 3 months).
4. Oilites in belt tensioner assemblies (Rudder drive) (8 places 2 drops every 3 months).
5. Oilites in belt tightener arm (Ratchet Drive Belt) and pulley (2 places 2 drops every 3 months).
6. Oilites in housing ass'y., ratchet drive (2 places 2 drops every 3 months).
7. Oilites in rudder arm support (2 places 2 drops every 3 months).
8. Oilites in lift arm ass'y. (2 places 2 drops every 3 months).
9. Oilites in rudder drive crank adjusting tube. (2 places 2 drops every 3 months).

APPLY SPECIAL GREASE (Moly-lube #2) AMF #715 010 307 IN ROD END FITTINGS AS FOLLOWS:

1. In rod end fittings on connecting rod, crank to rudder drive (2 places every 3 months).
2. In rod end fittings on connecting rod, lift arm to ratchet drive.
3. In fitting on ball lift upper yoke.