Contents

Section 7: Preventive Maintenance

General Information

Preventive maintenance is the most important responsibility of the pinsetter mechanic. Properly performed preventive maintenance will increase reliability, prevent major breakdowns and lengthen the life of the pinsetter.

Preventative maintenance should begin when the pinsetters are installed. Waiting until the pinsetters are dirty and operating poorly will create a situation that can quickly become unmanageable.

Finally, it is a very poor practice to rely on memory in servicing any machinery.

An example of a typical work schedule is included that will allow you to track the maintenance as it is being done. The following pages of this section list step by step guidelines on what should be done and how often. Careful study of the contents of this section and proper use of the work schedule will result in clean, well operating machines and in addition, will greatly lengthen the useful life of your pinsetters.

Tip: Combining the following activities during preventative maintenance can save time, and effort.

In general preventative maintenance requires the following:

1. Inspection (and correcting any problem found)

The pinsetter should be inspected periodically for the following condition:

- Loose hardware
- Damaged or worn parts
- Cracked/fatigued metal or welds
- Proper adjustments

For optimum machine operation, a mechanic should correct any pinsetter problems such as loose hardware or adjustments immediately. If corrective action cannot be done immediately it should be logged on the “pending work item “ form for the machine.

In addition all pinsetter malfunctions should be recorded on the pinsetter “Stop Sheet” that should be attached to the elevator of every machine. This form is invaluable in determining the reliability and performance of your pinsetters.

Finally, if a problem is observed on a pinsetter, check the other pinsetters for the same problem.

2. Cleaning

The frequency for cleaning the pinsetter depends on the type and quantity of lane conditioner (oil) used and the amount of bowling activity for the pinsetter.

In general the pinsetter should be kept as clean as possible using a vacuum, general purpose cleaner, warm water (with detergent as needed), and invincible cleaner.

3. Lubricating

Proper application of lubricants is essential for the operation and long life of the pinsetter.

Oiling

Always use a metered oil can. This will prevent over oiling where extra oil will drip off into the wrong area and cause problems, part failures or interfere with bowling activity.

Greasing

It is always a good practice to wipe off the old grease and dirt it has collected with it BEFORE applying a new coat of grease. Do not over grease the part as the grease can get into areas that can cause problems or interfere with the machine operation.

Proper Lubricants

Always use the proper lubricants such as those specified in the front of this manual. Penetrating oils do not last long and leave parts exposed to premature failure. Some lithium greases have a tendency to dry and harden quickly. This can lead to sticky parts or premature failure.

Materials Required for Preventive Maintenance

- Metric tool set

- Vacuum cleaner - tank style

- Small paint brush

- Cleaning cloths

- Bucket and scrubbing brush (and/or a scrubbing mop)

- Oil can with long rigid or flexible spout

- Lubricating oil (light machine oil - 30 weight non-detergent) - such as:
  Brunswick Part No. 11-676353-000 (1 gallon container)

- Lubricating grease - medium duty non-lithium - such as:
  Brunswick Part No. 12-700120-002 (3 each 3 1/2 oz. cartridges)
  Brunswick Part No. 11-676305-000 (1 each 14 oz. cartridge)
  Mobil "M-437-SL"

- Hydraulic Fluid - such as:
  Brunswick Part No. 34-205052-000 (1 each 3 1/2 oz. can)
  Mobil "DTE II"

- General purpose cleaner - a non-residue detergent type such as:
  Brunswick GPC Part No. 62-860085-005 (5 gallon container)

- Brunswick Pinsetter Cleaner - Part No. 62-860083-005 (5 gallon container)

- Chain Lubricant - such as:
  Lubriplate "Chain & Cable Fluid" (Part No. 634-205116-000)

Sub-Assembly Preventive Maintenance

Elevator Assembly

1. Inspect condition of the frame and frame welds. Check for loose or missing hardware.

2. Inspect all shafts, bearings, sprockets, chains and pulleys for condition and adjustment. Check all pin shovels and shovel hardware. Inspect all shovel pivot levers.

3. Inspect condition and mounting of guards and verify guard identification labels are in place.

4. Inspect the mounting and adjustment of the elevator control, (EC) switch, as well as the mounting and function of Mechanic's rear control box, and trouble light. Verify that all elevator cables are intact and routed correctly.

5. Inspect the mounting hardware, condition and adjustment of the shark assembly and pin guide wedges. Check the shovel cam for adjustment and condition. Check the alignment and mesh of the drive gears. Inspect the condition and operation of the shark fin. Inspect the tensioning and condition of the transfer belts. Inspect the mounting hardware and condition of the deflector shoe.

6. Inspect the condition, alignment, adjustment and operation of the pin count switch.

7. Check the smart shark solenoid and solenoid linkage. Check for proper operation of the smart shark. Check all mounting hardware and fasteners.

Transport Band Assembly

1. Inspect the condition of the welds and mounting hardware on the pit side frames.

2. Inspect the mounting hardware and condition of the transport band boards. Check the condition and tracking of the transport band carpet. Inspect the front and rear rollers for bearing and shaft condition, correct tensioning and alignment in mounting slots. Inspect the condition and operation of the centering guide rollers.

3. Inspect the condition and tensioning of the transport band drive belts. Inspect the mounting hardware on the idler and tensioner assemblies. Check the condition of the idler pulleys.

4. Inspect the condition and mounting hardware on the pin feed deflectors and mounting brackets. Check the adjustment on the pin feed deflectors.

Ball Cushion and Pit Curtain

1. Inspect the condition and mounting hardware on the ball cushion board and the impact strips. Check the attachment of the rubber cushion to the board and the facing to the rubber cushion. Inspect the cushion frame welds, and check the mounting hardware. Inspect the nylon cushion bearings for wear and check the location and hardware on the stop collars. Inspect the cushion assembly for proper adjustment.

2. Inspect the mounting, and adjustment of ball cushion shock absorber. Inspect the mounting and location of the shock absorber adjustment plate.

3. Inspect the condition and mounting of the overflow chutes. Inspect the condition and adjustment of the overflow socks.

4. Inspect the condition of the pit curtain and check the mounting hardware.

Ball Accelerator Assembly

1. Inspect the condition of the frame welds. Check that foot guards are in place. Inspect the condition and location of the ladder.

2. Inspect the condition and mounting hardware on the ball door protector plate.

3. Inspect the accelerator motor. Check for excessive vibration.

4. Inspect the condition of the flat belt.

5. Inspect the ball door and ball door locking mechanism for proper adjustment. Check the condition of the ball door, ball door button and door locking bolt. Inspect the ball door solenoid for correct operation. Check the routing of the solenoid cable. Verify that ball door shafts rotate freely.

Sweep Wagon Assembly

1. Inspect the condition of the sweep wagon frame and frame welds. Check the roller mounting and adjustment. Check the conditions of the pusher rods and pusher rod bushings. Inspect the conditions of the protector blocks and block mounting hardware. Check all sweep wagon hardware.

2. Inspect the condition of the sweep board and adapters. Check the adjustment of the sweep board and adapters.

3. Inspect the condition of all sweep release mechanism components. Check all sweep release mounting hardware. Inspect for missing springs or worn linkage and pivot bushings. Check the condition of the chain and pivot bearing. Check the operation of the solenoid. Inspect the solenoid cable routing.

4. Inspect the sweep attenuator and sweep shock absorber for loose or missing hardware. Check the attentuator and "G" switch for proper adjustment. Inspect all pivot points for wear. Inspect the "G" switch cable routing.

Setting Table Assembly

1. Inspect the setting table frame for wear or broken welds. Check for loose or missing hardware. Check the vertical swing shaft stop bolt for proper adjustment. Inspect the condition of the vertical helper springs.

2. Check for loose or missing spotting tong and geared rack hardware. Inspect the "ST" switch mounting and check the adjustment. Inspect the condition of the tongs, gears and toothed racks. Check the operation of the tongs and inspect the tong dampers for wear.

3. Inspect all cable channels and conduits for wear. Check that all channels and conduits are secured to the frame. Inspect the condition of the table harness plug and its mounting bracket.

4. Check the adjustment on the stop collars. Inspect the swing shaft bearings for wear. Inspect the condition of the table spring. Inspect the condition and mounting of the table jam roller. Check the adjustment of the horizontal stop bolt.

5. Inspect the TS-1 jam switch mounting and adjustment. Check for loose or missing hardware and springs.

6. Inspect all pin holders and pin holder solenoids for correct mounting. Inspect all pin holder switches for tight mounting. Check all pin holder connectors and wiring for routing and connection. Inspect the adjustment on the pin detector plates.

7. Inspect the mounting of the table racks to the table. Check the adjustment and condition of the small roller support assembly. Check the condition of the T-stop. Check the mounting of the OOR actuator cam. Inspect the condition of the chain and pivot bearing.

Drive Frame Assembly

1. Inspect the welds and condition of the sweep shaft. Check the sweep shaft supports for secure mounting. Inspect the sweep shaft bearings for signs of wear. Inspect the connecting rods and verify all hardware is in place and secure.

2. Inspect the condition and welds on the left-hand and right-hand drive frame assemblies. Check for loose or missing hardware. Inspect all cable channels and cables for condition and routing. Check for any worn shaft bearings. Check the chain tensioners for condition and adjustment. Inspect the frame counter for correct operation.

3. Inspect the spotting tong drive for loose or missing hardware. Check for loose or worn gears. Check the spotting tong solenoid for proper operation. Check the spotting tong clutch for correct operation, and check the condition of the clutch shaft. Inspect the mesh between the square shaft drive gear and the spur gear. Check the condition of the square shaft drive gear.

4. Inspect the motors for correct mounting and alignment. Check the condition of all V-belts. Inspect the motor cables for correct routing. Check the condition of the motor tensioning springs. Check all motor mounting plate bushings. Check for excessive vibration in motor and belt operation.

5. Inspect the stroke limiter for a bent or cracked plate and loose or missing hardware. Check the mounting of the stroke limiter shock absorber. Check the condition of the rubber bumper. Check the solenoid for proper operation. Inspect the square shaft, the linkage and the square shaft latch for correct adjustment.

6. Inspect the condition of the double V-belts. Check for loose or missing tensioner mounting hardware. Check the tensioner shaft and bearings for loose or noisy operation.

7. Inspect the condition of the setting table and sweep motor drive assemblies. Check for worn or damaged chains. Check for loose or missing bearing plate hardware. Inspect the condition of bearing plate bearings and drive sprocket shafts.

8. Inspect the condition of the guide tower assembly. Check the mounting and adjustment on the TS-2 and OOR switch. Check for correct switch cable mounting. Check for loose or missing guide tower hardware. Inspect the condition of the lift chain sprocket. Check the condition of the jam lever and spring.

9. Inspect the sweep and table drive shaft assemblies. Check for shaft wear. Check for chain wear and proper tensioning. Inspect the crank arms and verify they are secure on the shafts. Check the sprockets for wear.

10. Inspect the switch cluster. Check the switch cluster housing to make sure it is secure. Check the adjustment on the "A," "B," "C," and "D" switches. Check the adjustment on the switch cam.

Electrical

1. Inspect the electrical box and box mounting hardware. Check the ground strap and verify that it is in place and secure. Verify that all cables are routed correctly. Inspect the box cover to verify it is in place and secure. Are all box switch guards in place? Check all cable and box connectors for correct seating.

2. Inspect the ball detect and reflector. Check and verify all mounting hardware is secure. Check the ball detector assembly for proper adjustment.

3. Inspect the ball rack reset button. Check for correct operation and check the cable routing and connection.

Power Ball Lift

1. Check the condition and mounting of the ball lift tires. Check the condition of the lift tire shafts and bearings. Check the condition and operation of the ball lift clutch.

2. Check the ball lift motor for correct mounting. Check the motor pulley for proper alignment. Check the drive belt condition and alignment.

3. Check the ball lift tracks for correct mounting. Check the condition of the rubber and leather tracks and verify they are secure.

Administration and Organization

1. Is a spare parts and inventory control system in place? Are adequate spare parts on hand and are those parts organized and accessible? Check for inventory control.

2. Verify that the correct hand tools are in place. Are the hand tools organized for ready access?

3. Verify that the correct cleaning and lubrication supplies are on hand. Check and verify the supplies are adequate and that the correct approved materials are in use.

4. Is a preventive maintenance program in use? Is a lubrication program in use? Is a cleaning program in use?

5. Verify that current operations manuals, service parts manuals and service bulletins are in the center.

6. Verify that stop sheets, recap forms and frames per stop data is being used in the center.

Main Frame Assembly

1. Inspect the main frame. Check for wear points or broken welds. Check for loose or missing hardware. Check the main support braces and verify they are secure.

2. Inspect the pinlight fixture. Check and verify that the fixture is secure. Check the lamp and lamp sockets. Check the power cord routing.

3. Inspect the guards. Check for wear points. Check for loose or missing hardware. Check for any missing guards. Check the work platform and the work platform braces and hardware.

Distributor Assembly

1. Inspect the distributor frame assembly. Check for worn or damaged frame components and welds. Check for loose or missing hardware. Check and verify that the dust pan is secure. Check the distributor rails and extensions for wear or cracks. Check the distributor stations for wear or cracks. Inspect the lower pin guides for bent or missing parts. Check the corner turn rails and corner pin turn devices for loose or missing hardware and for correct adjustment.

2. Inspect the distributor shafts, pulleys and belting. Check for worn or damaged shafts or bearings. Check for worn or cracked pulleys. Inspect the condition of the distributor belting. Check the condition of distributor gears and verify proper gear mesh. Check the alignment of all shafts, pulleys and belting. Check for any missing shaft, bearing or pulley hardware.

3. Inspect the distributor pin stations. Verify all pin stops are in place. Check the pin sliders for free operation. Check the pin sliders for cracks or breaks. Check for loose or missing pin station hardware. Check the ejector flaps for wear or cracking. Check the retaining bows for wear or cracking. Check for worn, cracked or misadjusted pin release levers. Verify that all pin station springs are in place. Inspect the top and bottom housings for cracks or wear.

GS-Series Pinsetter Preventive Maintenance Inspection

Center Name _____ **Lane #** _____

Mechanic Name _____ **Date** _____

Inspection Period	1	2	3	4	Inspection Period	1	2	3	4
TRANSPORT BAND ASSEMBLY					**SWEEP WAGON ASSEMBLY**				
1. Hardware / Side Frames / Boards					1. Sweep Wagon Frame / Guide Rollers				
2. T-Band Board / Carpet / Rollers					2. Sweep Board / Adapters / Board Felt				
3. T-Band Drive Belts / Pulleys					3. Sweep Release / Attenuator / Hydraulic				
4. T-Band Track Tension					4. Sweep Position / Switch SM + G				
BALL CUSHION / PIT CURTAIN					**DRIVE FRAME ASSEMBLY**				
1. Cushion Board / Frame / Hardware					1. Distribution Drive Assembly				
2. Shock Absorbers / Rubber Bumper					2. Sweep Drive Assembly				
3. Overflow / Chutes / Socks					3. Table Drive Assembly				
4. Pit Curtain					4. Motors / Belts / Motor Mountings				
BALL ACCELERATOR ASSEMBLY					5. Stroke Limiter Assembly / Hydraulic				
1. Frame / Welded Assemblies / Hardware					6. Out Of Range Function (OOR Switch)				
2. Door Protector Wedges					**ELECTRICAL COMPONENTS**				
3. Motor / Flat Belt / Drum					1. Boxes / Mounting Hardware				
ELEVATOR ASSEMBLY					2. Ball Detector / Reflectors				
1. Frame/Welded Assemblies					3. Ball Rack Reset Button				
2. Chains / Shovels					**POWER BALL LIFT**				
3. Feed / Centering Deflectors					1. Ball Lift Tires				
4. Damper Plate / Rubber Bumpers					2. Motor / Drive Belt				
5. Elevator (EC) Switch					3. Ball Lift Tracks				
6. Shark / Pin Guide Wedges					**ADMINISTRATION AND ORGANIZATION**				
7. Pin Count Switch (SSW)					1. Spare Parts / Inventory Control				
8. Round Belt / V-Belt					2. Tools / Maintenance Equipment				
DISTRIBUTOR FRAME					3. Cleaning / Lubrication Supplies				
1. Frame / Welded Assemblies					4. Preventive Maintenance Program				
2. Shafts / Pulleys / Belting					5. Manuals and Service Bulletins				
3. Pin Separators / Centering Devices					6. Stop Sheets / Recap Forms				
SETTING TABLE ASSEMBLY					**MAIN FRAME ASSEMBLY**				
1. Frame / Welded Assemblies					1. Frame / Welded Assemblies				
2. Spotting Tongs / Geared Racks / Switch ST					2. Pin light Fixture				
3. Table Harness / Cable Channels					3. Guards / Work Platform				
4. Swing Shafts / Connecting Rods									
5. Table Jam Switches TS-1 / TS-2									
6. Pin Holders / Pin Switches / Detect Plates									
7. Setting Table Guide Bearings / Rollers									
8. Table Positions / Top / Detect / Down									
9. Table Gear / Lift and Drive Trains									
10. Parallel Drive									
11. Spotting Tong Cam Cluster									

Detailed Maintenance Schedule

The following detailed instructions explain each item on the work schedule. These items are discussed in the identical order in which they appear on the maintenance schedule.

Daily Maintenance

1. **Check Stop Sheets for Each Pinsetter and Make necessary corrections**

2. **Troubleshoot, Repair or Adjust all Reported Failures**

3. **Completely Clean One Pinsetter**
   Developing a procedure in which you remove the dirt and loose particles from a machine has two benefits. First it keeps the pinsetter free of dirt and second, it also causes the person doing the cleaning to look over the entire machine. This allows this person to notice loose or worn parts, welds that are cracking or any other problem that can be fixed before it causes a machine down situation.

4. **Clean Pins For One Lane Pair**
   Cleaning the pins with pin cleaner regularly will extend the useful life of the pins.

Weekly Maintenance

5. **Clean Shark Switch Pin Guide Assemblies**
   The shark switch pin guide wedges must be cleaned with a general purpose cleaner. To prevent lane oil and dirt from causing pin jams.

6. **Pin Wipes and Overflow Chutes**
   Wash in warm water or diluted Invincible cleaner.

7. **Check the Position of Each Transport Band; Adjust as Needed**
   Make sure the bands are centered on the rollers.

8. **Clean the Entire Transport Band with a General Purpose Cleaner**

9. **Check for Worn "V" Belts That Are Cracked, Split or Causing Motors to Bounce**
   Wipe the belts with a dry cloth while inspecting them. Especially note the condition of the table motor drive belt. Failure of this belt will cause a sudden dropping of the table which can result in severe machine damage and possible personal injury.

10. **Check All Green Belts for Proper Tension**
    Check for squealing, slipping or sagging belts. Replace or resize as necessary.

11. **Check All Hydraulic Shock Absorbers for Leakage; Verify Proper Operation**
    Check fluid levels of shocks if applicable

12. **Check the Ball Door Shaft Collar**
    Verify that the collar is tight and holding the ball door in the correct position.

13. **Check the Overflow Socks for Wear and Proper Alignment**

Monthly Maintenance

14. **Clean the Front of the Ball Cushion Pit Curtain, and Pinfeed Deflectors with a General Purpose Cleaner**

15. **Check and Tighten All Fastening Screws on the Transport Band Boards**

17. **Examine the Setting Table Cable Conduits for Damage**

18. **Check the Ball Door Locking Mechanism for Proper Operation**

19. **Check the Pin Feed Deflectors for Proper Clearance Above the Transport Band**

20. **Lubricate All Items Listed in the Monthly Section of the Lubrication Schedule**

21. **Clean Distributor Belts with General Purpose Cleaner**

22. **Vacuum the Distributor's Dust Pan**

23. **Clean the Overflow Socks with Basic laundry Detergent**

24. **Adjust the Pin Count Switch and Shark Assembly**

Quarterly Maintenance

25. **Clean the Ball Detect Lens and Reflectors**
    Clean only with a glass cleaner that will not harm plastics.

26. **Check the Drive Gears, Pinions and Pulleys for the Sweep and Table for Wear**

27. **Clean the Sweep Tracks and Check Sweep Wagon Guide Rollers for Proper Operation**

28. **Check Table Rack Guide Rollers for Proper Tightness and Operation**

29. **Examine the Accelerator Rails for Signs of Wear**

33. **Check the Overflow Chutes for Signs of Wear or Loose Hardware**

30. **Check the Adjustment and Hardware Connections for All Function Switches**

31. **Check and Tighten All Pin Holder Mounting Hardware**

32. **Check and Adjust the Tension of the Table and Elevator Motor Drive Chains**

33. **Check the Distributor's Bearings, Shafts and Drive Pulleys for Signs of Wear**

34. **Tighten the Mounting Bolt and Check the Key and Pivot Bearing for the Table Shaft's Crank Arm Lubricate the Pivot Bearing**

35. **Check Angles "1" and "2" of the Table Shaft's Crank Arm and Chain**

36. **Check and Lubricate the Sweep Release Chain Clevis for Wear**

37. **Check All Distributor Hardware for Tightness**

38. **Lubricate All Items Listed in the Quarterly Section of the Lubrication Schedule**

Semi-Annual Maintenance

39. **Check the Ball Impact Protection Strips on the Ball Cushion Board**

40. **Inspect the Ball Cushion Frame, Stop Collars and Bearings**

41. **Check and Tighten All Hardware on the Kickback and Accelerator Protector Plates**

42. **Inspect and Clean the Accelerator Belt, with General Purpose Cleaner**.

43. **Check the Sweep Release Mechanism for Wear, Cracks and Proper Operation**

44. **Check and Tighten the Fastening Hardware on the Sweep Shaft Bearing Retainers**
    Failure to tighten can cause the sweep shaft to shift and the arms to hit the table.

45. **Check and Tighten the Sweep Arm Connecting Rods**

46. **Check and Adjust the Clearance Between the Sweep Track and Guide Rollers**

47. **Check the Stroke Limiter Assembly for Proper Operation and Adjustment**

48. **Check the Pin Holder Swing Shaft Bushings**

49. **Check the Spotting Tong Toothed Racks and Gears**

50. **Check All Drive Frame Hardware for Tightness**

51. **Check All Elevator Hardware for Tightness**

52. **Lubricate All Items Listed in the Semi-Annual section of the Lubrication Schedule**

Annual Maintenance

62. **Tighten All Pit Curtain Support Bracket Bolts and Curtain Mounting Bolts**

64. **Check the Electronic Box Mounting Hardware**

65. **Check All Cabling for Signs of Stress and Wear**

66. **Check All Welded Assemblies for Signs of Breakage**

67. **Check All Pivot and Wear Points**

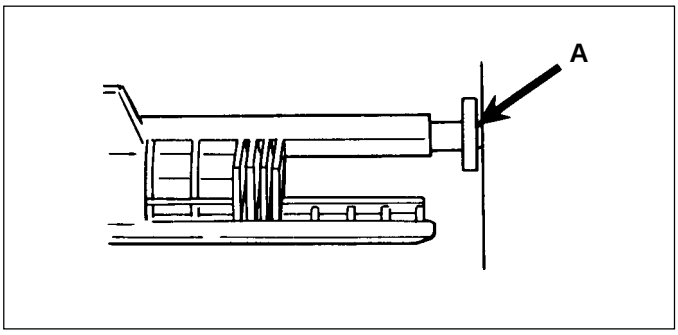
68. **Lubricate All Items Listed in the Annual Section of the Lubrication Schedule**

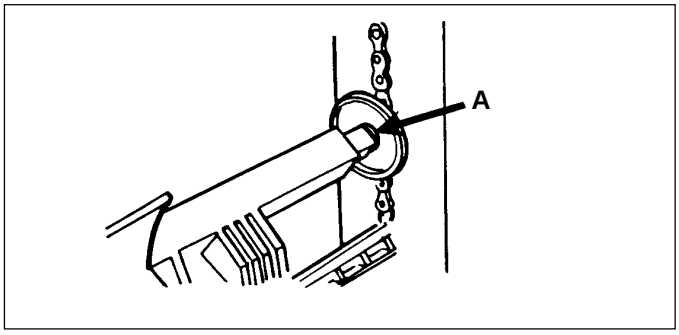
69. **Review the Safety Guidelines Listed in this Manual with All Personnel Working on or Around the GS-Series Pinsetters**

Lubrication

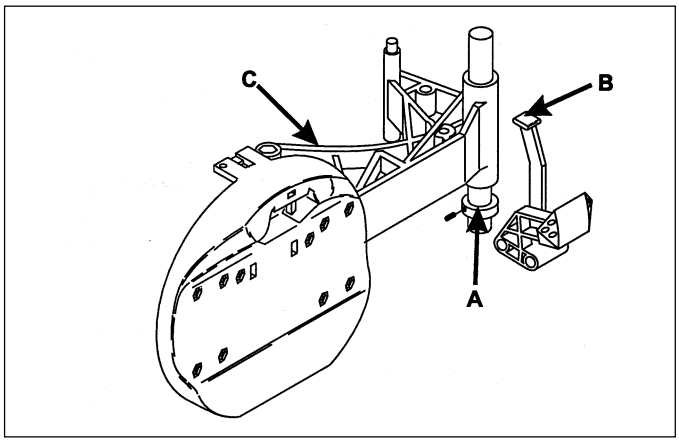
Monthly

1. Pin Shovel Shafts, and Rollers
   A. One drop of oil on each pivot point.



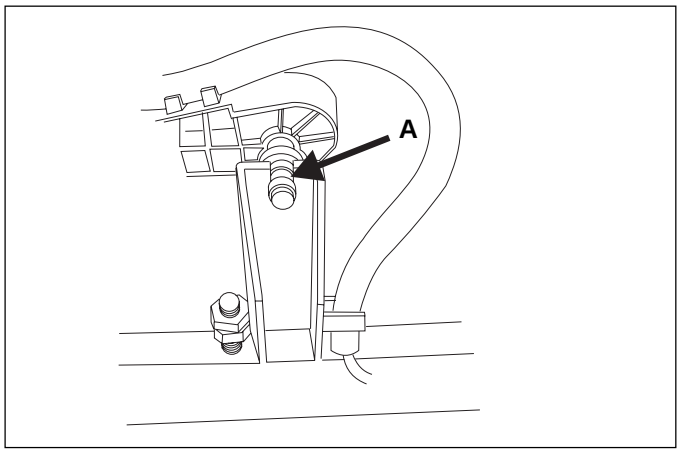


LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										



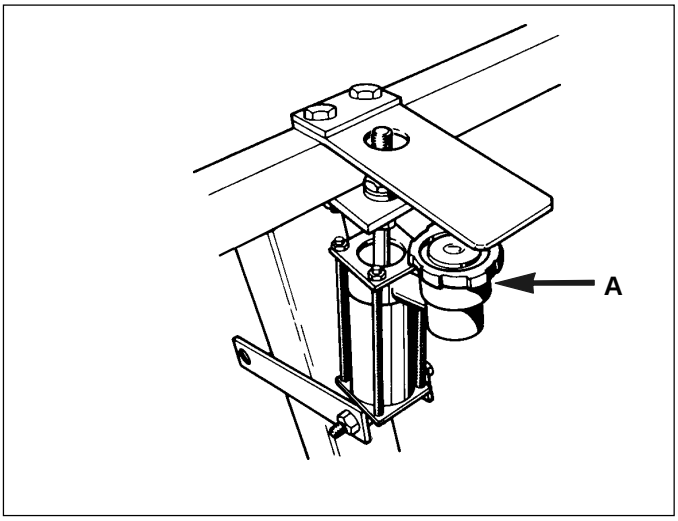
2. Ball Door
   A. Shaft - one drop of oil on the shaft collar.
   B. Latch - cover with a light film of grease.
   C. Arms - cover with a light film of oil.

LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										



3. Pin Holder Swing Shafts
   A. Swing Shaft - one drop of oil on the bushing at end of each of the four swing shafts.

LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										

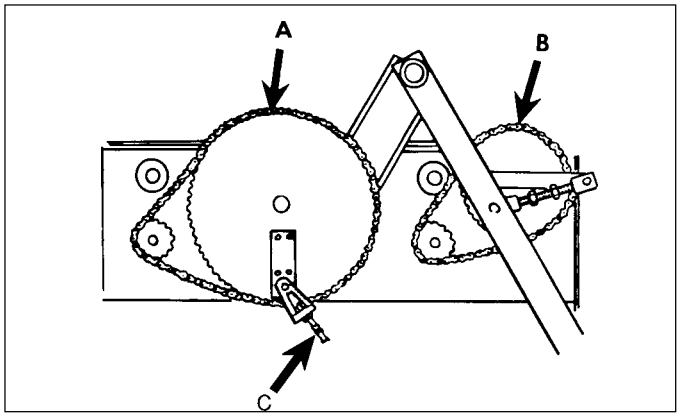


4. Check the Fluid Levels of the Hydraulic Shock Absorbers where applicable

   A. Levels of all three shock absorbers must be filled to the rim as indicated in *Figure 9-1*. The shaft should be out in the relaxed position when checking the fill level.

LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										

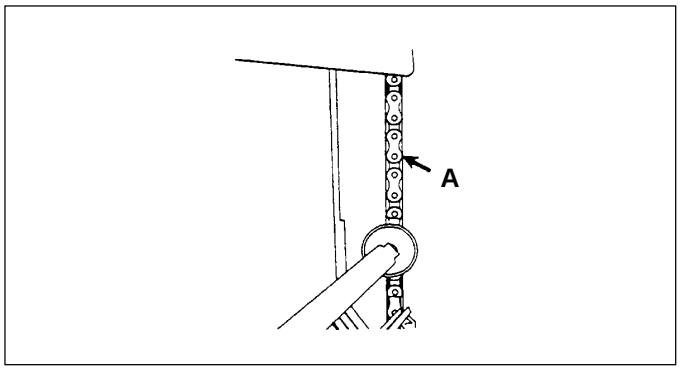
Quarterly



1. Drive Chains
   A. Table Shaft - a light coating of chain lubricant.
   B. Sweep Shaft - a light coating of chain lubricant.

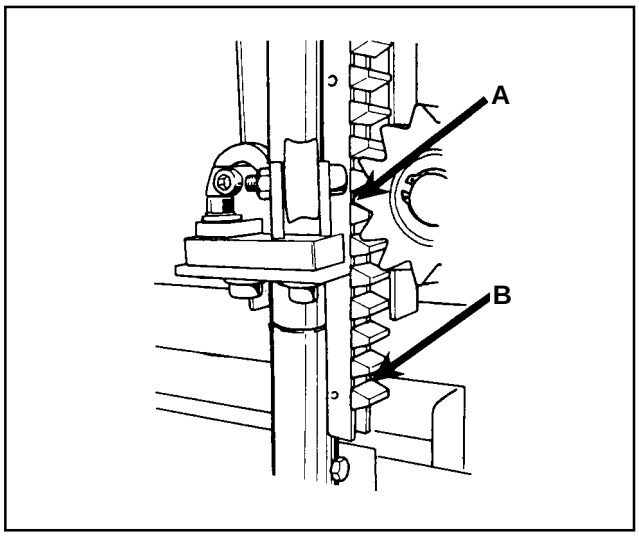
2. Sweep Release Chain
   A. A light coating of chain lubricant.

LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										



3. Elevator Chains
   A. Put a light coating of chain lubricant on both chains.

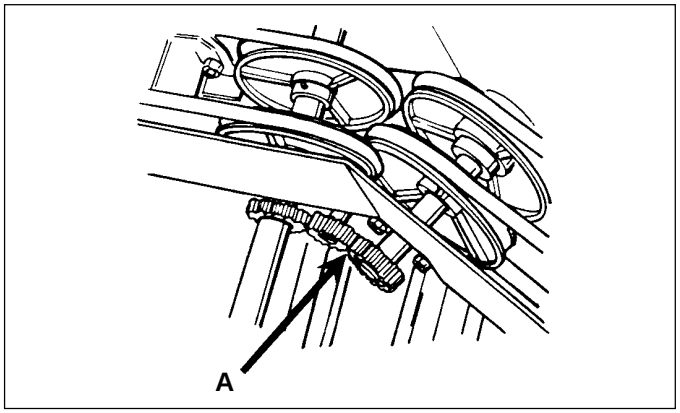
LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										



4. Setting Table Pinion Gears
   A. Put a light film of grease on the pinion gear.

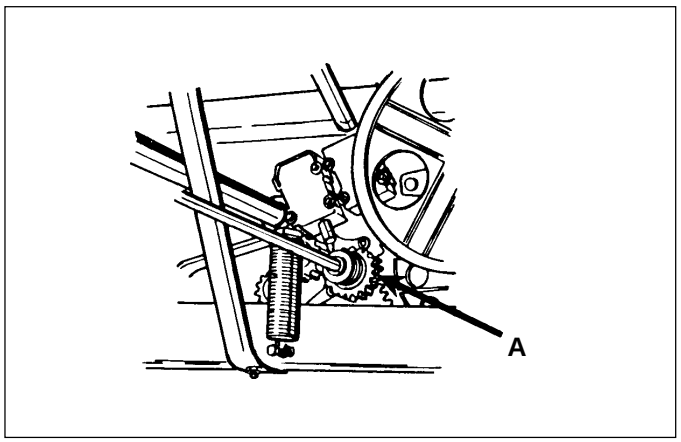
   B. Put a light film of grease on the table rack.

LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										



5. Distributor Spur Gears
   A. Grease both sets with a light film.

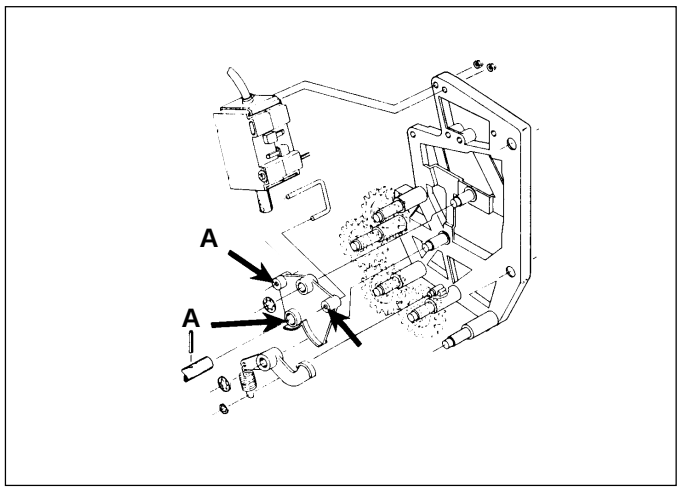
LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										



6. Spotting Tong Clutch Gear Cluster
   A. Grease the gears lightly.

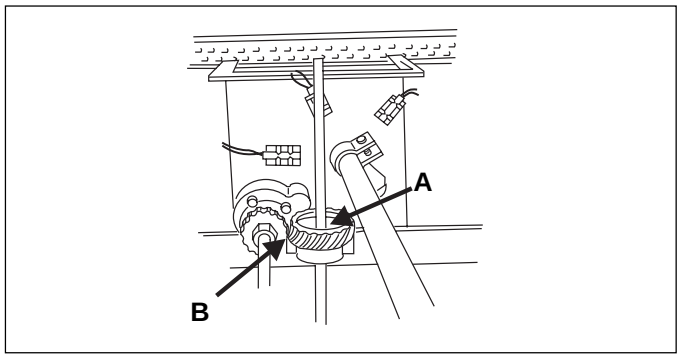
NOTE: *Do not allow grease to get into the clutch mechanism.*

LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										



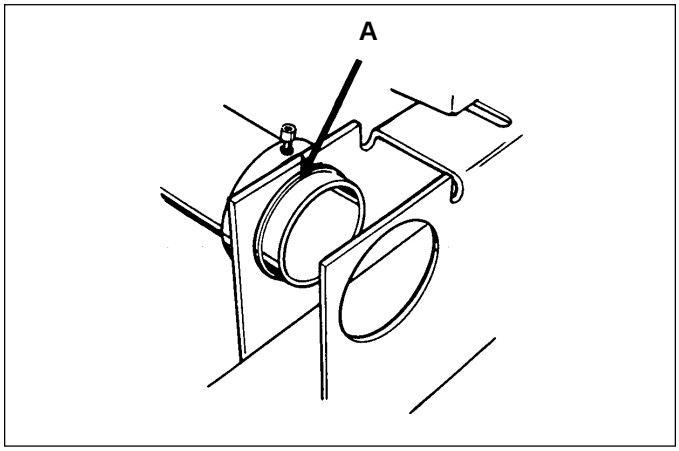
7. Gear Cluster Pivot Lever Plate
   A. Apply one drop of oil to each pivot point.

LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										



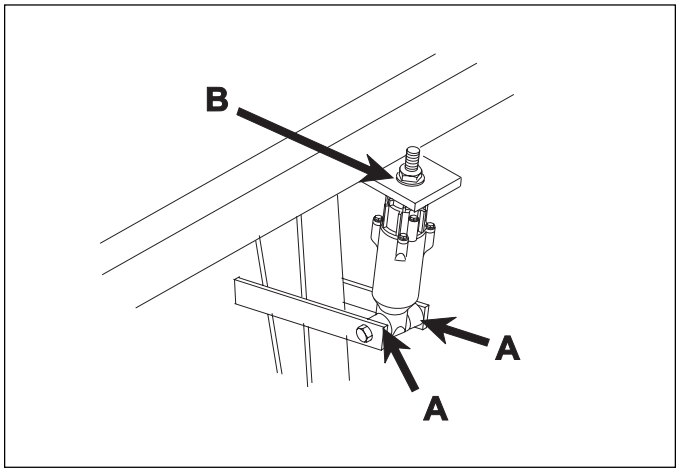
8. Spotting Tong Square Shaft and Bevel Gears
   A. Apply a light film of grease on the entire travel area of the square shaft.
   B. Apply a light film of grease on both bevel gears.

LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										



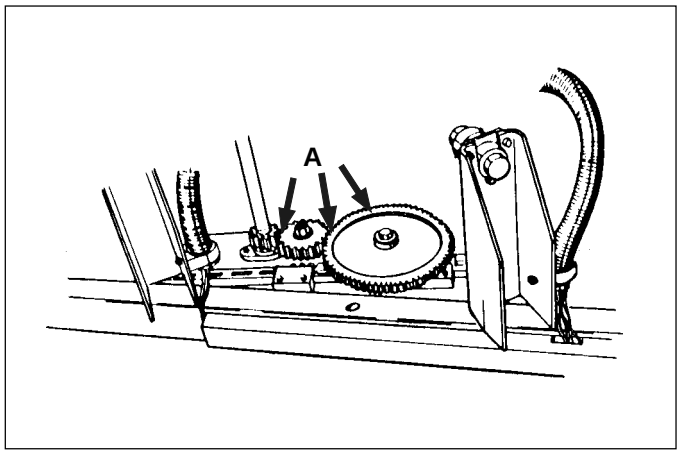
9. Ball Cushion Bushings
   A. Grease both sides as required.

LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										



10. Hydraulic Shock Absorber Bushing
    A. One drop of oil each side of the bushing.
    B. One drop of oil on spacer, if applicable.

LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										

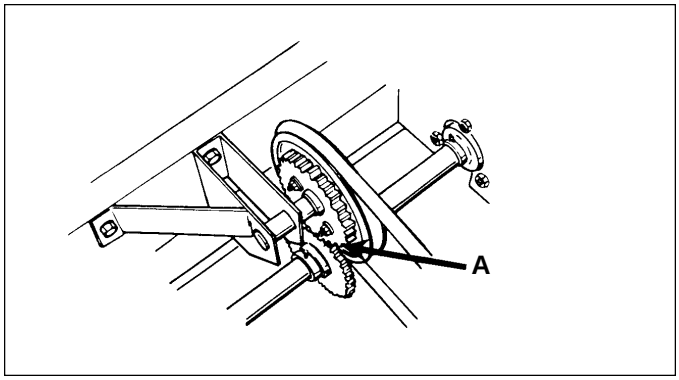


11. Spotting Tong Drive Gears
    A. Apply a light film of grease on all four gears

NOTE: *There is a small gear located under the largest gear.*

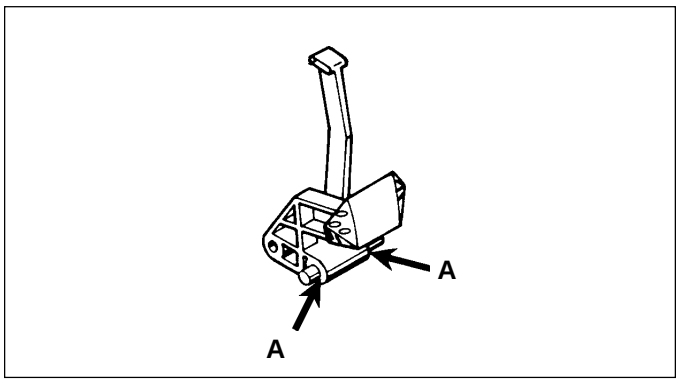
NOTE: *You should always remove the old grease and dirt before applying new grease.*

LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										



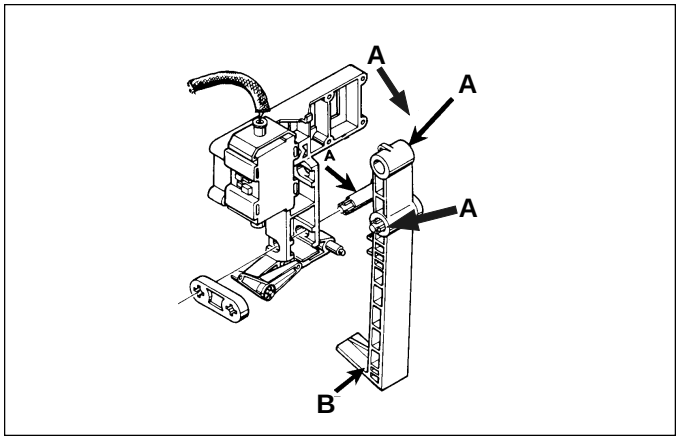
12. Front Distributor Shaft and Idler Gears
    A. Apply a light film of grease on both gears.

LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										



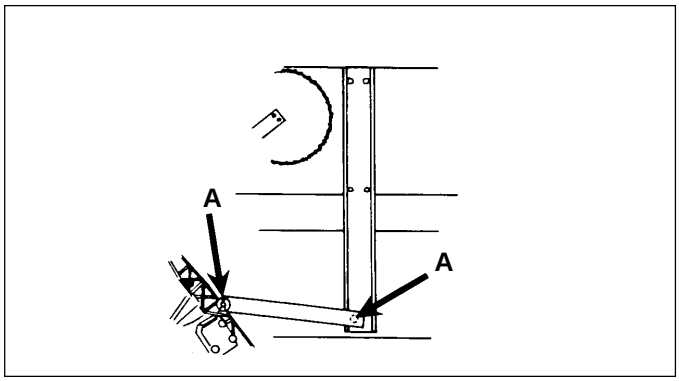
13. Ball Door Button Shaft
    A. One drop of oil on each side of the shaft.

LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										



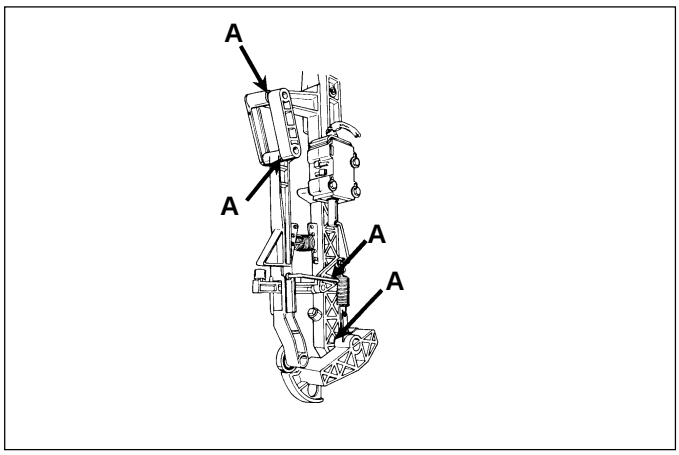
14. Ball Door Locking Mechanism
    A. Connecting links need 1 drop at each pivot point.
    B. Bottom of locking bolt needs a light film of grease.

LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										



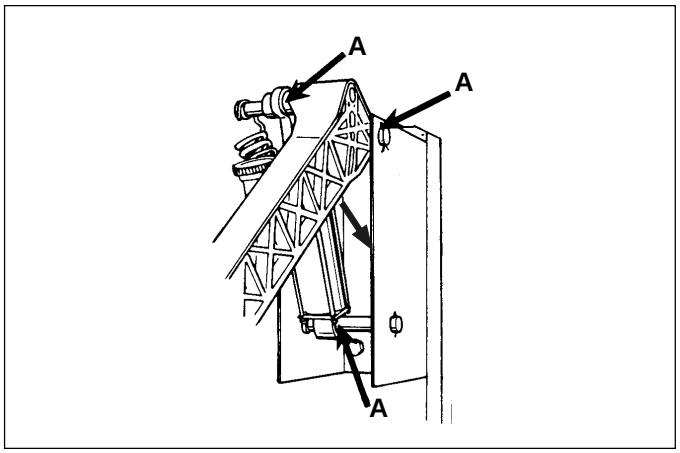
15. Sweep Release Pivot Link
    A. One drop of oil to both ends of the link.

LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										



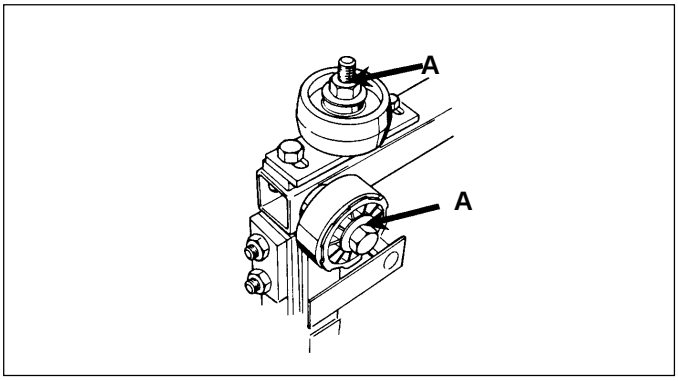
16. Sweep Release Mechanism
    A. One drop of oil on each pivot point.

LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										



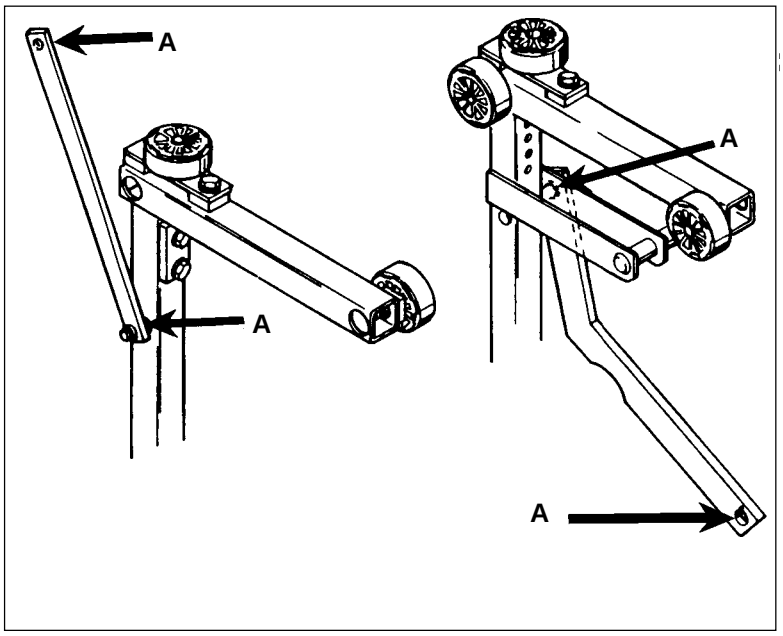
17. Sweep Attenuator
    A. Apply one drop of oil to each pivot point.
    .

LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										



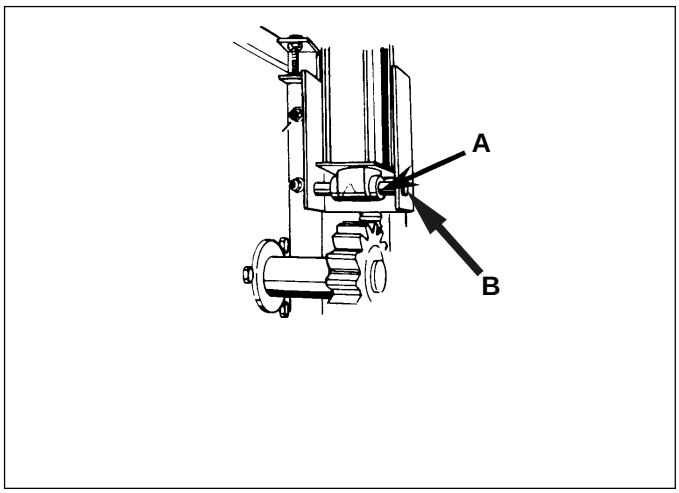
18. Sweep Wagon Roller Shafts
    A. Apply one drop of oil to each of the six shafts.

LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										

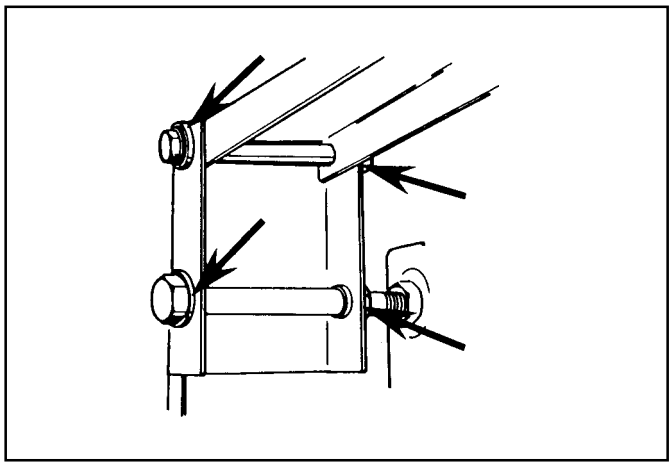


19. Sweep Wagon Link Bearings
    A. Apply one drop of oil to each pivot point.

LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										

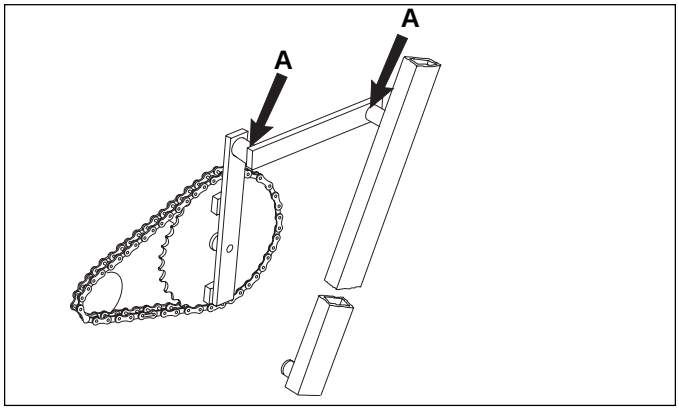


20. Stroke Limiter Shock Absorber
    A. Apply one drop of oil to each stop collar on the lower mounting shaft.
    B. Apply one drop of oil to each bushing on the stroke limiter block.



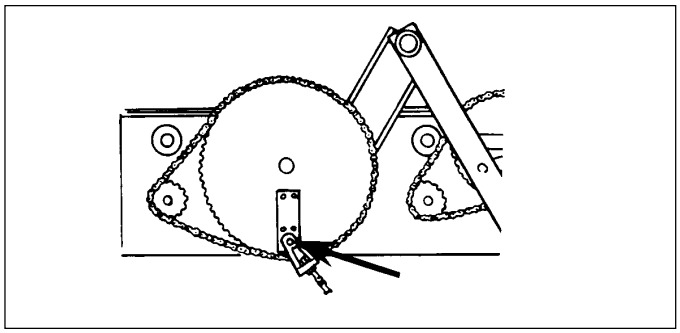
C. Apply one drop of oil to each of the four stroke limiter plate's bushings

LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										

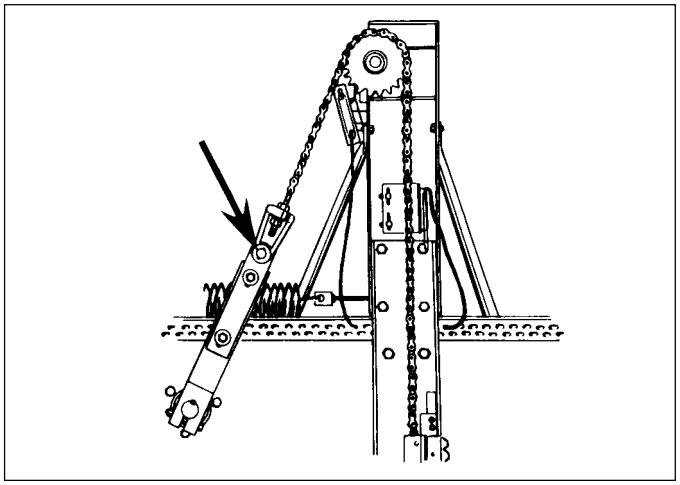


21. Sweep Drive's Bushings
    A. Apply one drop of oil to each bushing.

LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										

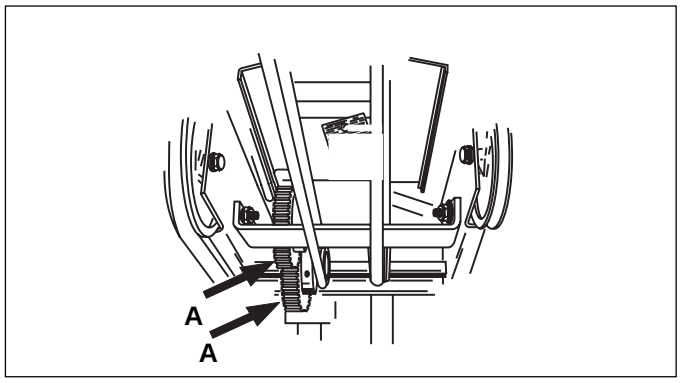


22. Sweep Release Chain Clevis
    A. Apply one drop of oil to the clevis's pivot point.



23. Table Lift Chain Clevice
    A. Lower the setting table onto a jackstand or other suitable support to release tension on the chain. Remove the clevice from the table shaft crank arm and grease the crank arm's shaft. Reinstall the clevice.

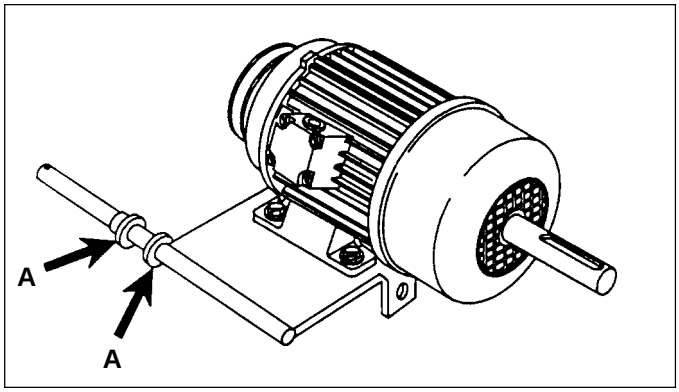
LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										



24. Shark Switch Gears
    A. Apply a light film of grease to both gears.
    B. One drop of oil on the Shark Fin slide and pivot.

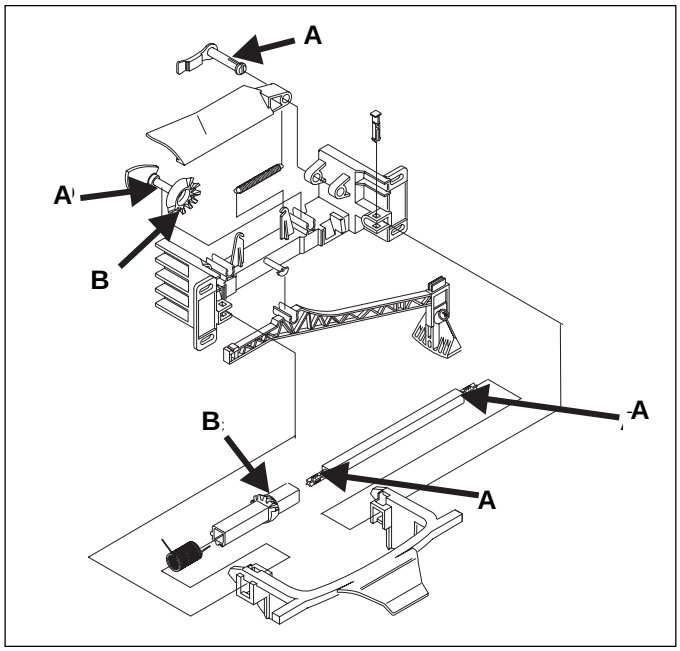
LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										

Semi-Annual



1. Motor Mounting Brackets Shafts
   A. Apply two drops of oil to each bushing on the shafts.

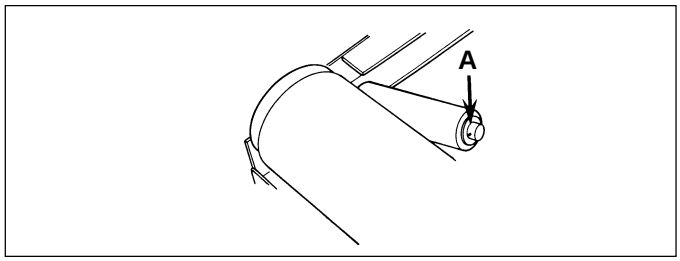
LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										



2. Pin Station Assembly

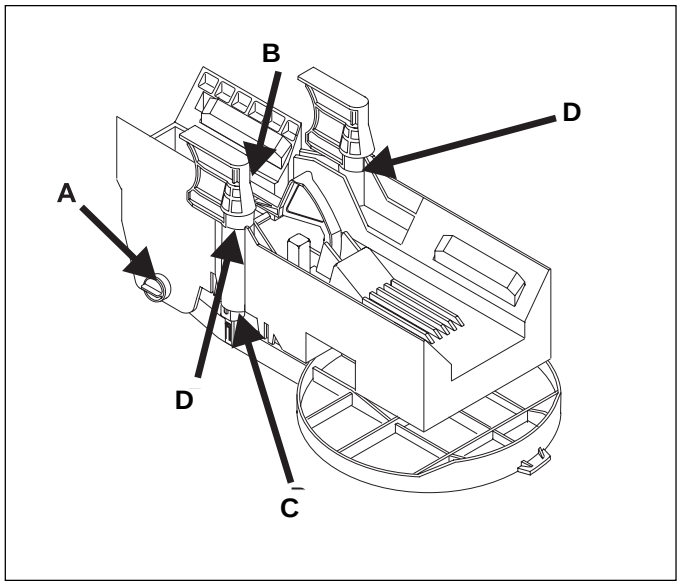
   A. Apply one drop of oil to pivot point.
   B. Apply a light film of grease to the bevel gears.

LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										



3. Transport Band Frame Rollers
   A. Remove the rollers from their shafts and grease the entire shaft.

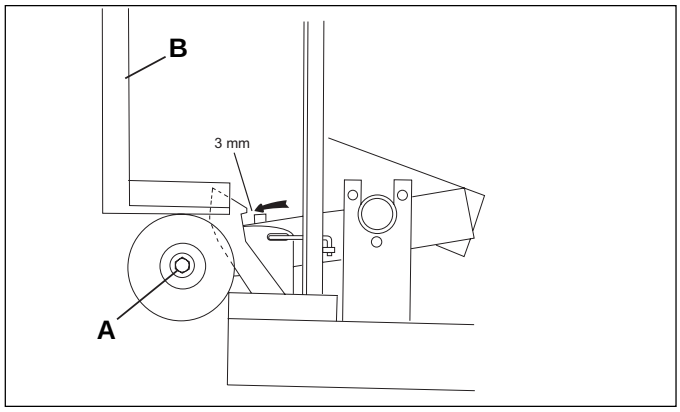
LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										



4. Pin Holders
   A. Apply one drop of oil to each end of the pin detector plate's pivot.
   B. Apply one drop of oil to the switch finger.
   C. Apply light film of grease on both gripper drive teeth.
   D. Apply one drop of oil to pin gripper pivot point.

NOTE: *Never apply any type of lubricant to the solenoid or its plunger. When a plunger becomes dirty or sticky, it must be cleaned with electrical contact cleaner and them dried to leave no residue.*

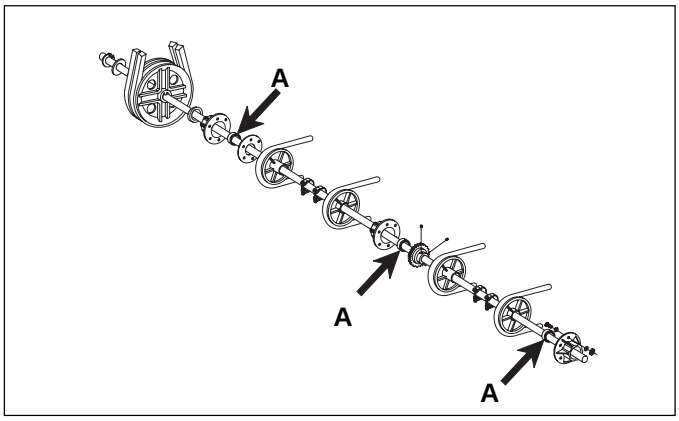
LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										



5. Setting Table Swing Shaft Roller
   A. Apply one drop of oil to the shaft on each side of the roller.
   B. Apply a light film of grease along the actuator arm.

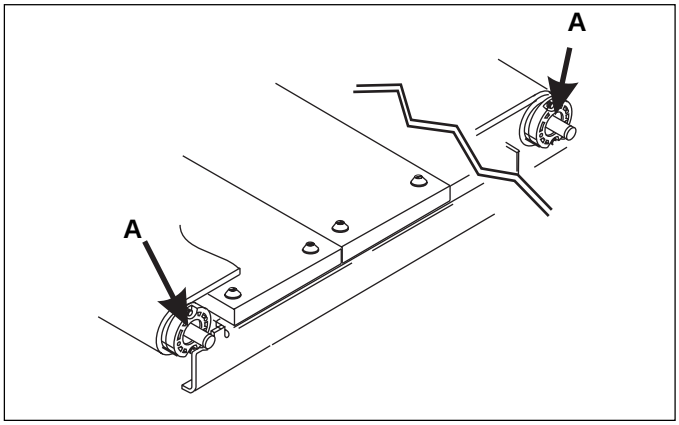
LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										

Annual



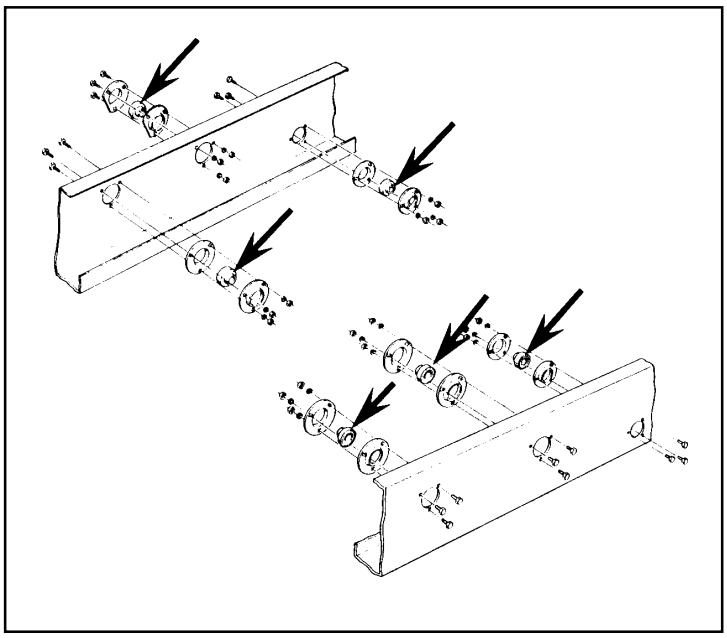
1. Distributor Shaft Bearings
   A. Apply one drop of oil to the shaft to allow the bearing to be removed when needed.

LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										

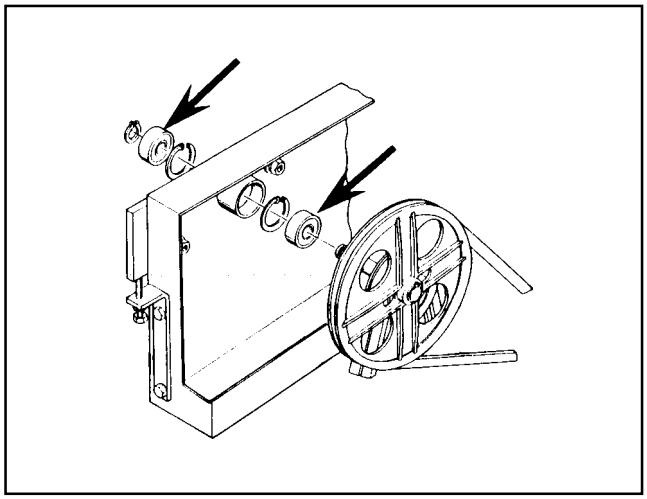


2. Transport Band Rollers
   A. Apply one drop of oil to each bearing on the front and rear rollers to allow for easier bearing removal when needed.

LANE#	1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20
INITIALS										
DATE										
LANE#	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
INITIALS										
DATE										
LANE#	41/42	43/44	45/46	47/48	49/50	51/52	53/54	55/56	57/58	59/60
INITIALS										
DATE										



3. Drive Train Shaft Bearings
   A. Grease with Vita Needle.



4. Distributor Drive V-Belt Tensioner Bearings
   A. Remove and grease bearings with a Vita needle.

Maintenance Forms

The following pages contain forms to be used in conjunction with maintenance on the Brunswick GS-Series Pinsetters.

GS-Series Stop Sheet			Machine No. _____	
Date	Frame Count	Error Code	Corrective Action	Mech. Initials

Error Codes

Std. Code	Extended Code	
P0	Pin OOR	Out-of-Range
01	Pin1 Ld	Pin Loading Time Out Pin 1
02	Pin2 Ld	Pin Loading Time Out Pin 2
03	Pin3 Ld	Pin Loading Time Out Pin 3
04	Pin4 Ld	Pin Loading Time Out Pin 4
05	Pin5 Ld	Pin Loading Time Out Pin 5
06	Pin6 Ld	Pin Loading Time Out Pin 6
07	Pin7 Ld	Pin Loading Time Out Pin 7
08	Pin8 Ld	Pin Loading Time Out Pin 8
09	Pin9 Ld	Pin Loading Time Out Pin 9
10	Pin10 Ld	Pin Loading Time Out Pin 10
50	Detect10	#10 Pin Not Detected in Diagnostics
51	Detect1	#1 Pin Not Detected in Diagnostics
52	Detect2	#2 Pin Not Detected in Diagnostics
53	Detect3	#3 Pin Not Detected in Diagnostics
54	Detect4	#4 Pin Not Detected in Diagnostics
55	Detect5	#5 Pin Not Detected in Diagnostics
56	Detect6	#6 Pin Not Detected In Diagnostics
57	Detect7	#7 Pin Not Detected in Diagnostics
58	Detect8	#8 Pin Not Detected in Diagnostics
59	Detect9	#9 Pin Not Detected in Diagnostics
60	A Found	Switch A is Not Expected But Found
61	B Found	Switch B is Not Expected But Found

Std. Code	Extended Code	
62	C Found	Switch C is Not Expected But Found
63	D Found	Switch D is Not Expected But Found
64	SMFound	Switch SM is Not Expected But Found
65	G Found	Switch G is Not Expected But Found
66	STFound	Switch ST Is Not Expected But Found
67	OORFound	SW. OOR is Not Expected But Found
70	A Ntfnd	Switch A Expected But Not Found
71	B Ntfnd	Switch B Expected But Not Found
72	C Ntfnd	Switch C Expected But Not Found
73	D Ntfnd	Switch D Expected But Not Found
74	SM Ntfnd	Switch SM Expected But Not Found
75	G Ntfnd	Switch G Expected But Not Found
76	STNtfnd	Switch ST Expected But Not Found
90	Invld 0	Invalid Machine State 0
91	Invld 1	Invalid Machine State 1
92	Invld 2	Invalid Machine State 2
93	Invld 3	Invalid Machine State 3
94	Invld 4	Invalid Machine State 4
95	Invld 5	Invalid Machine State 5
EJ	ElevJam	Elevator Jam
EL	Pin Cnt	Pin Count Switch Shorted for 5 Seconds
J1	TS1 Jam	Jam Switch TS1
J2	TS2 Jam	Jam Switch TS2 (Tower)
	BA	Accelerator Motor (overload)

GS-Series Pinsetter Weekly Report

Center Name _____						Week Ending _____			
	Daily Frame Totals								
	Daily Stop Totals								
Error Code	Description	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Total
01	Pin 1 - Time Out or Jam								
02	Pin 2 - Time Out or Jam								
	Pin 3 - Time Out or Jam								
04	Pin 4 - Time Out or Jam								
05	Pin 5 - Time Out or Jam								
06	Pin 6 - Time Out or Jam								
07	Pin 7 - Time Out or Jam								
08	Pin 8 - Time Out or Jam								
09	Pin 9 - Time Out or Jam								
10	Pin 10 - Time Out or Jam								
*11	Pin Jam - Left-Hand Corner								
*12	Pin Jam - Right-Hand Corner								
*13	Pin Jam - Left Distributor Lane 1								
*14	Pin Jam - Left Center Distributor Lane 2								
*15	Pin Jam - Right Center Distributor Lane 3								
*16	Pin Jam - Right Distributor Lane 4								
*17	Pin Jam - Shark Switch								
*18	Pin Jam - Pin Guide Wedges								
*19	Pin Jam - Pin Head First								
*20	Pin Stuck in Elevator								
*21	Pin Under Pin Feed Deflector								
*22	Pin in Ball Accelerator								
*23	Ball Stuck in Pit								
*24	Ball Stuck in Ball Lift								
*25	Pin Blocking Ball Door								
*26	Pin Jammed in Setting Table								
*27	Spotting Tongs Jammed								
*28	Sweep Roller Not in Slot								
*29	Belt Broken								
*30	Belt Loose								
*31	Overflow Chute / Sock Jam #7 Pin Side								
*32	Overflow Chute / Sock Jam #10 Pin Side								
*50	Pin Holder Switch Malfunction								
60	Switch A Not Expected but Found								
61	Switch B Not Expected but Found								
62	Switch C Not Expected but Found								
63	Switch D Not Expected but Found								
64	Switch SM Not Expected but Found								
65	Switch G Not Expected but Found								
66	Switch ST Not Expected but Found								
67	Switch OOR Not Expected but Found								
70	Switch A Expected but Not Found								
71	Switch B Expected but Not Found								
72	Switch C Expected but Not Found								
73	Switch D Expected but Not Found								
74	Switch SM Expected but Not Found								
75	Switch G Expected but Not Found								
76	Switch ST Expected but Not Found								
90	Invalid Machine State 0								
91	Invalid Machine State 1								
92	Invalid Machine State 2								
93	Invalid Machine State 3								
94	Invalid Machine State 4								
95	Invalid Machine State 5								
98	Electronic Box Failure								
99	Part Broken / Other (Explain on Back)								
EJ	Elevator Jam								
EL	Pin Count Switch Failure								
J1	Jam Switch TSI								
J2	Jam Switch TS2 (Tower)								
PO	Out-of-Range								

**These code numbers are not displayed by the Pinsetter CPU LED display.*
Explain problems or irregularities on the back of this report.

GS-Series Pinsetter Monthly Report

Center Name _____ Month_____ Date_____					
	Daily Frame Totals				
	Daily Stop Totals				
Error Code	Description	Week 1	Week 2	Week 3	Week 4
01	Pin 1 - Time Out or Jam				
02	Pin 2 - Time Out or Jam				
03	Pin 3 - Time Out or Jam				
04	Pin 4 - Time Out or Jam				
05	Pin 5 - Time Out or Jam				
06	Pin 6 - Time Out or Jam				
07	Pin 7 - Time Out or Jam				
08	Pin 8 - Time Out or Jam				
09	Pin 9 - Time Out or Jam				
10	Pin 10 - Time Out or Jam				
*11	Pin Jam - Left-Hand Corner				
*12	Pin Jam - Right-Hand Corner				
*13	Pin Jam - Left Distributor Lane 1				
*14	Pin Jam - Left Center Distributor Lane 2				
*15	Pin Jam - Right Center Distributor Lane 3				
*16	Pin Jam - Right Distributor Lane 4				
*17	Pin Jam - Shark Switch				
*18	Pin Jam - Pin Guide Wedges				
*19	Pin Jam - Pin Head First				
*20	Pin Stuck in Elevator				
*21	Pin Under Pin Feed Deflector				
*22	Pin in Ball Accelerator				
*23	Ball Stuck in Pit				
*24	Ball Stuck in Ball Lift				
*25	Pin Blocking Ball Door				
*26	Pin Jammed in Setting Table				
*27	Spotting Tongs Jammed				
*28	Sweep Roller Not in Slot				
*29	Belt Broken				
*30	Belt Loose				
*31	Overflow Chute / Sock Jam #7 Pin Side				
*32	Overflow Chute / Sock Jam #10 Pin Side				
*50	Pin Holder Switch Malfunction				
60	Switch A Not Expected but Found				
61	Switch B Not Expected but Found				
62	Switch C Not Expected but Found				
63	Switch D Not Expected but Found				
64	Switch SM Not Expected but Found				
65	Switch G Not Expected but Found				
66	Switch ST Not Expected but Found				
67	Switch OOR Not Expected but Found				
70	Switch A Expected but Not Found				
71	Switch B Expected but Not Found				
72	Switch C Expected but Not Found				
73	Switch D Expected but Not Found				
74	Switch SM Expected but Not Found				
75	Switch G Expected but Not Found				
76	Switch ST Expected but Not Found				
90	Invalid Machine State 0				
91	Invalid Machine State 1				
92	Invalid Machine State 2				
93	Invalid Machine State 3				
94	Invalid Machine State 4				
95	Invalid Machine State 5				
98	Electronic Box Failure				
99	Part Broken / Other (Explain on Back)				
EJ	Elevator Jam				
EL	Pin Count Switch Failure				
J1	Jam Switch TS1				
J2	Jam Switch TS2 (Tower)				
PO	Out-of-Range				

**These code numbers are not displayed by the Pinsetter CPU LED display.*
Explain problems or irregularities on the back of this report.

GS-Series Pinsetter Pending Items Work List

Center Name _____ Lane # _____

Mechanic Name _____ Date _____

Pending Work Item	Date Complete	Mechanic