

# AMF

## INSTRUCTION AND SERVICE MANUAL

610-002-081

### SURE PIK UNDERLANE BALL RETURN

MASTER COPY

# AMF

'SURE PIK'

UNDERLANE BALL RETURN



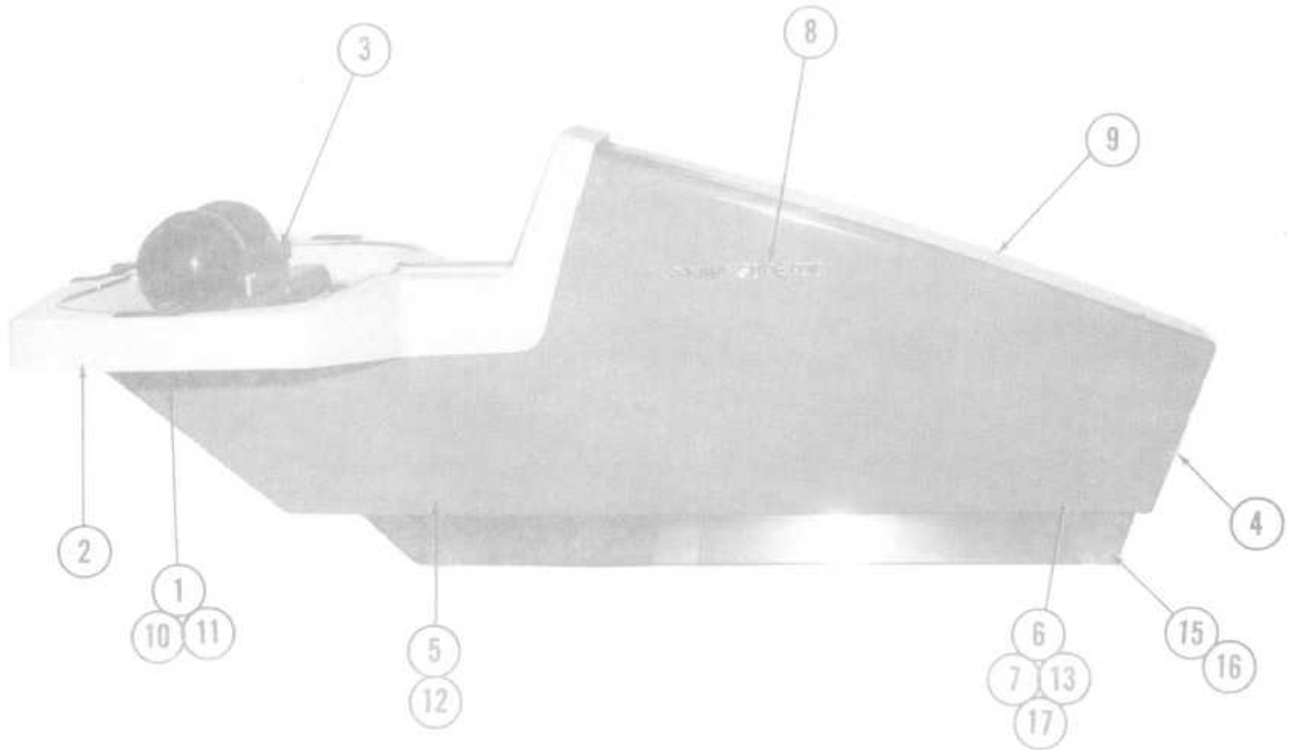
MODELS 208 110 000 - 11 BALL

AND 208 111 200 - 12 BALL

**AMF INCORPORATED**

BOWLING PRODUCTS GROUP

Westbury, L.I., N. Y. 11590

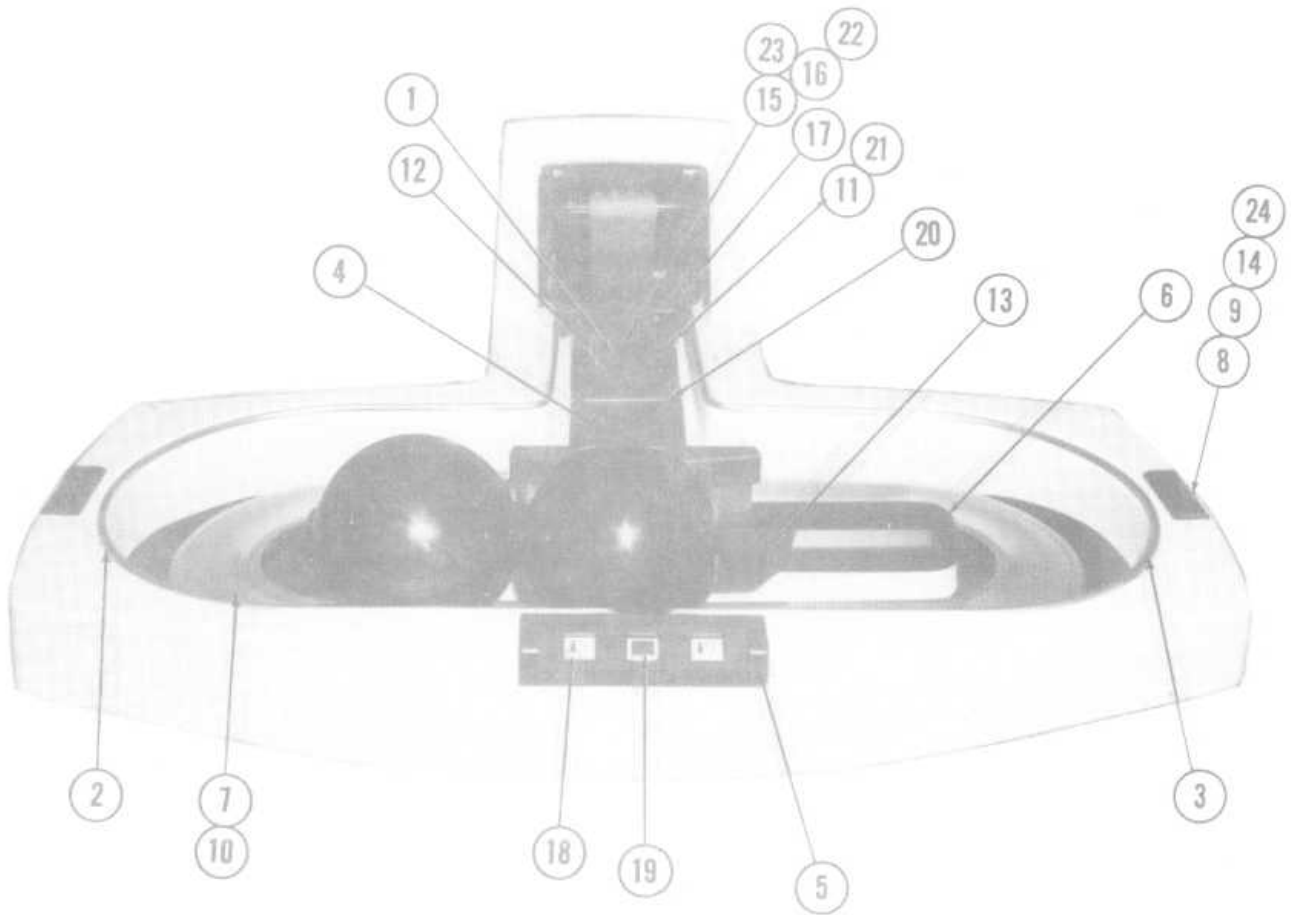


ITEM	PART NUMBER	DESCRIPTION	ITEM	PART NUMBER	DESCRIPTION
1	000 021 442	Washer-Hood Fastener	9A	612 081 071	Hood Assy. Blue(12 Ball Model)
2	208 111 001	Tray (11 Ball Model)		612 081 072	Hood Assy Red (12 Ball Model)
2A	208 111 190	Tray (12 Ball Model)		612 081 074	Hood Assy Green(12 Ball Model)
3	208 111 008	Bumper Assembly		612 081 079	Hood Assy Specify Color (12 Ball Model)
4	208 111 053	Insert-Hood	10	709 002 022	Receptacle-Hood Fastener
5	208 111 057	Stop Mount Weldment	11	709 002 033	Fastener (Stud Turn)Hood
6	208 111 058	Wheel Stud (Hood 11 Ball Model)	12	808 540 080	Screw Button Soc. Head 10-32 x 1/2
6A	208 111 203	Wheel Stud (Hood 12 Ball Model)	13	810 340 201	Screw Button Soc. Head 10-32 x 1 1/4
7	208 111 059	Roller (Hood)	14	919 007 000	Retaining Ring-Push On(Hood)
8	611 906 189	Escutcheon Specify Color	15	938 523 030	Pop Rivet 1/8 x 3/16 (Grip)
9	612 081 021	Hood Assy Blue (11 Ball Model)	15	938 523 050	Pop Rivet 1/8 x 5/16 (Grip)
	612 081 022	Hood Assy Red (11 Ball Model)	17	945 045 084	Washer-Flat 7/32 I.D. x 1/2 O.D. x 3/64 Thick
	612 081 024	Hood Assy Green(11 Ball Model)			
	612 081 029	Hood Assy Specify Color (11 Ball Model)			

CONVERSION KITS

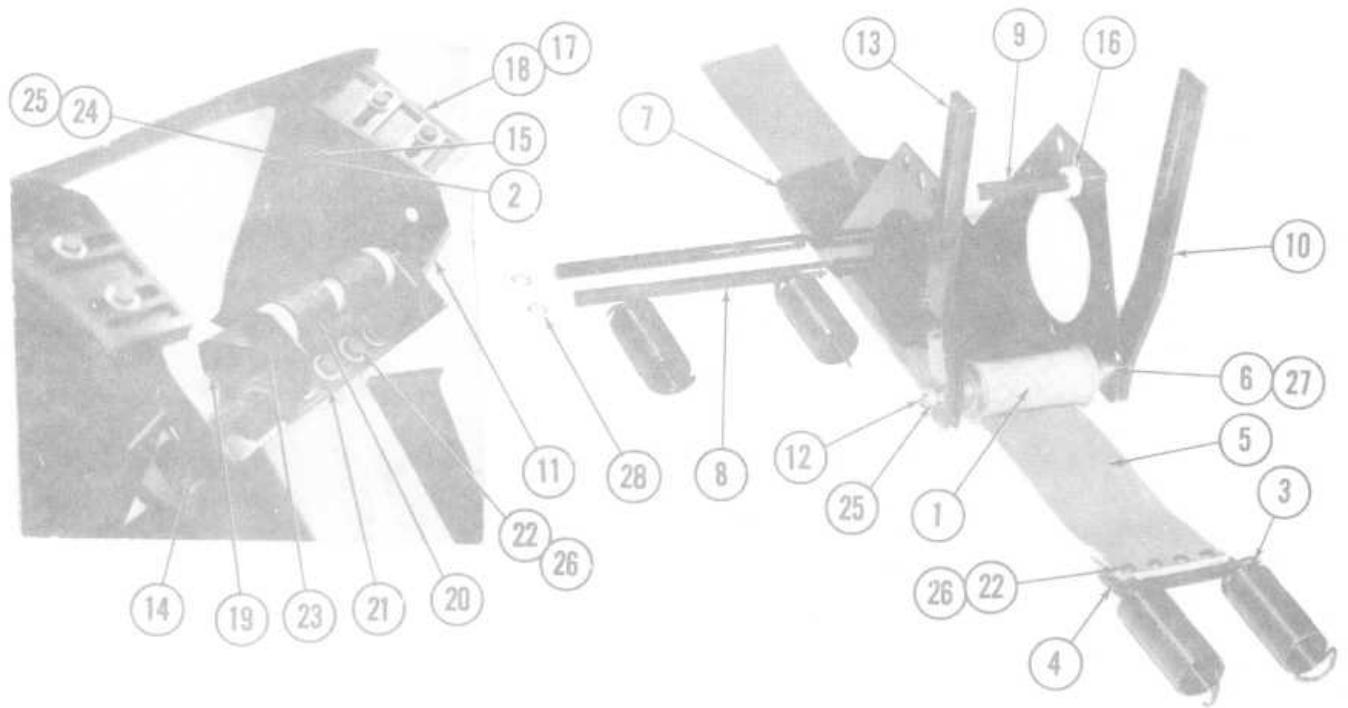
- 612 081 017 Spring Mounting Installation (Ball Idling)
- 612 081 018 Latch Conversion (Magnetic)
- 612 081 019 Hood Guide
- 612 081 020 Control Box Support

Refer To Price List For Minimum Order  
Quantity And Price.



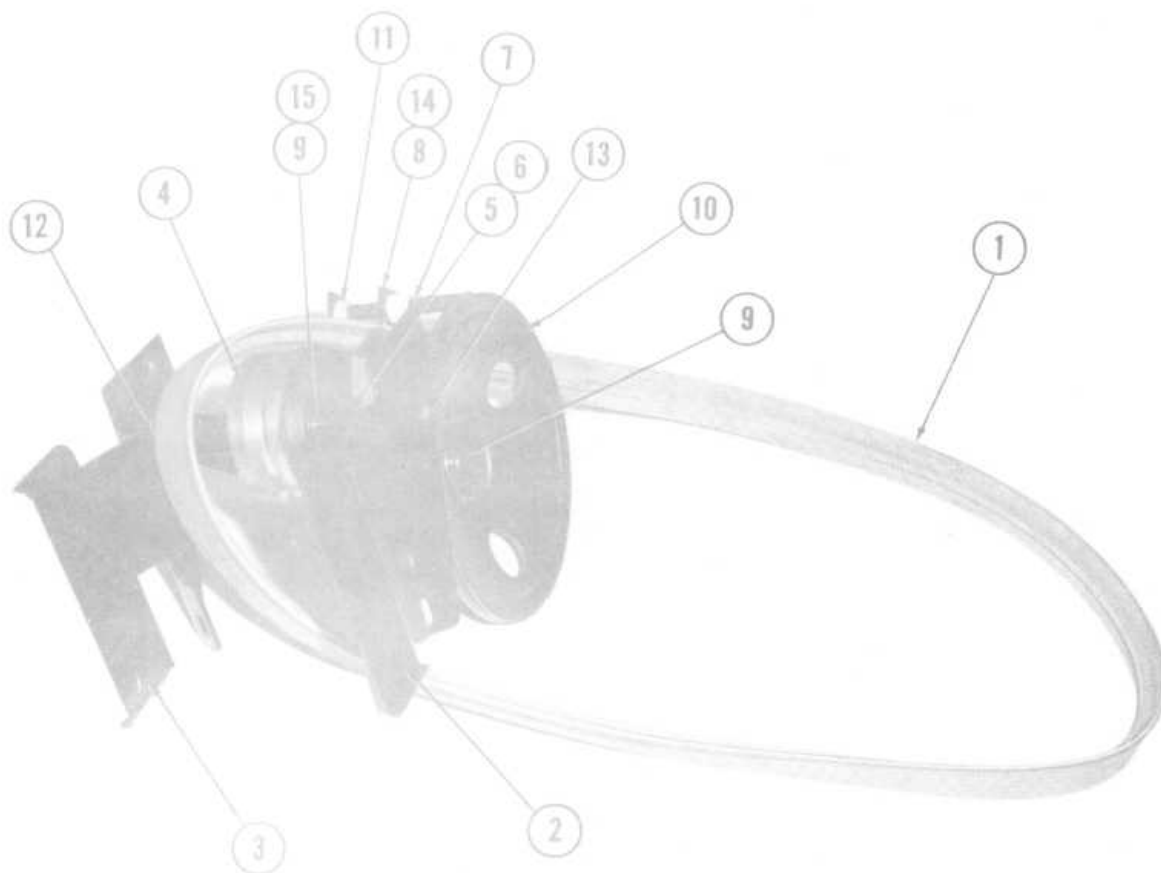
<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
1	190 001 547	Caution Label	13	208 111 148	Ball Stop
2	208 111 002	Outer Guide Rod L.H. (11 Ball Model)	14	208 111 180	Hook Grill Retainer
2A	208 111 206	Outer Guide Rod L.H. (12 Ball Model)	15	208 111 236	Magnet
3	208 111 003	Outer Guide Rod R.H. (11 Ball Model)	16	208 111 237	Spring-Magnet
3A	208 111 205	Outer Guide Rod R.H. (12 Ball Model)	17	208 111 238	Rod Retainer
4	208 111 005	Frog Weldment (11 Ball Model)	18	000 023 593	Tenth Frame Switch
4A	208 111 188	Frog Weldment (12 Ball Model)	19	000 023 594	Pit Signal Switch
5	208 111 009	Switch Mount	20	722 947 322	Spring (Cover Assembly)
6	208 111 025	Island	21	759 510 029	Switch - Safety
7	208 111 125	Ball Trough Weldment	22	812 140 240	Screw Flat Head Brass 10-32 x 1 1/2
8	208 111 131	Grill Hand Dryer	23	835 540 002	Nut-Hex Jam 10-32
9	208 111 132	Adapter, Dryer Hose	24	839 521 002	Nut-Flex Loc 4-40
10	208 111 133	Ball Trough Retainer			
11	208 111 135	Safety Switch Assembly			
12	208 111 140	Cover Assembly			

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Quantity And Price.



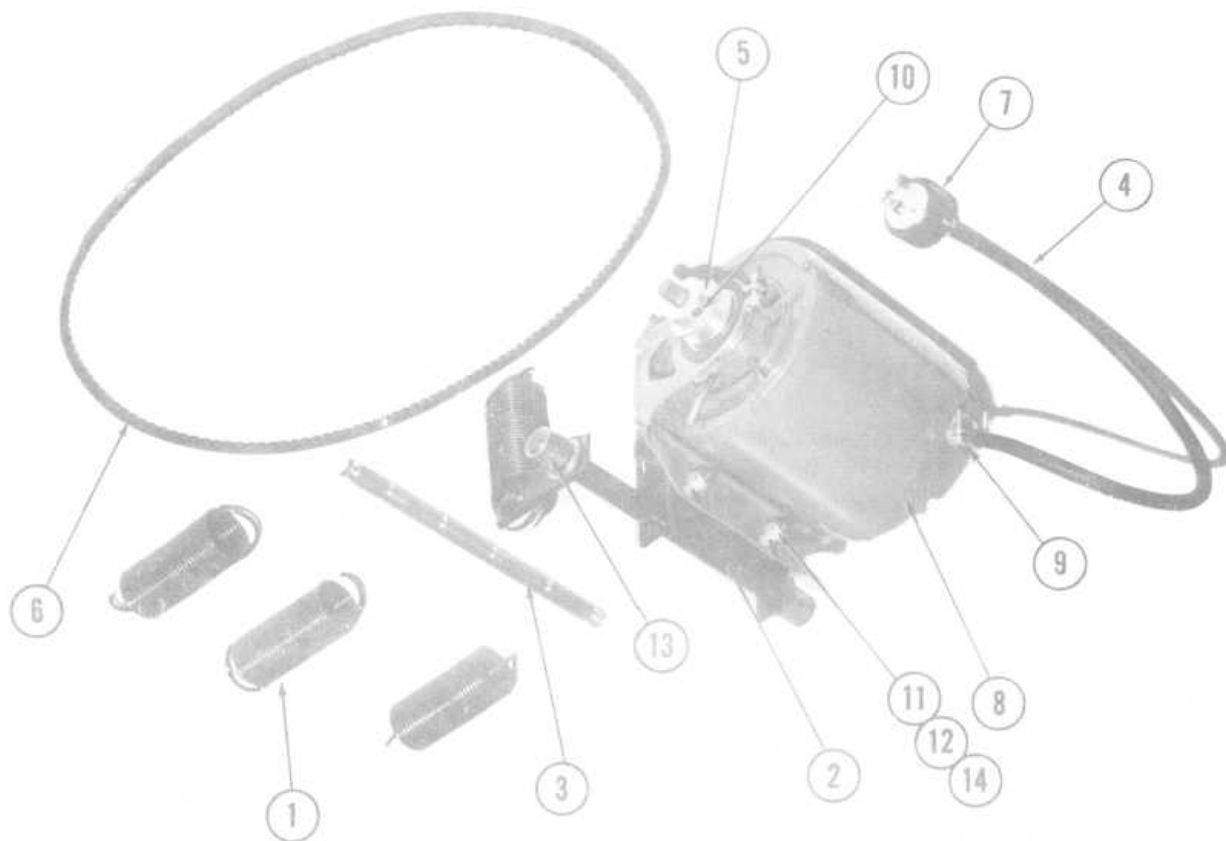
<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
1	057 001 184	Roller
2	070 002 691	Bushing
3	070 006 447	Spring
4	190 001 343	Coupler
5	190 001 355	Belt
6	190 001 365	Shaft
7	190 001 370	Pressure Plate
8	190 001 373	Shaft
9	190 001 376	Shaft
10	190 001 377	Adjusting Arm L.H.
11	190 001 428	Bracket (11 Ball Model)
11A	208 111 186	Bracket (12 Ball Model)
12	190 001 485	Screw Hex Head
13	190 001 489	Adjusting Arm R.H.
14	190 001 550	Strap & Channel Assy.
15	190 001 551	Sleeve
16	208 110 003	Pulley-Nylon
17	208 111 123	Hood Guide
18	208 111 170	Hood Guide Spacer (Not Shown)
19	208 111 229	Back Stop
20	208 111 255	Spring
21	208 111 262	Clamp-Back Stop
22	809 857 125	Screw Hex Hd. 5/16-18 x 3/4
23	809 857 760	Screw Hex Head 5/16-18 x 4 3/4
24	809 865 285	Screw Hex Head 3/8-16 x 1 3/4
25	839 665 002	Lock Nut 3/8-16
26	844 057 002	Lock Nut-Stover 5/16-18
27	900 212 161	Flange Bearing
28	919 005 600	Retainer Ring

Refer To Price List For Minimum Order  
Quantity And Price.



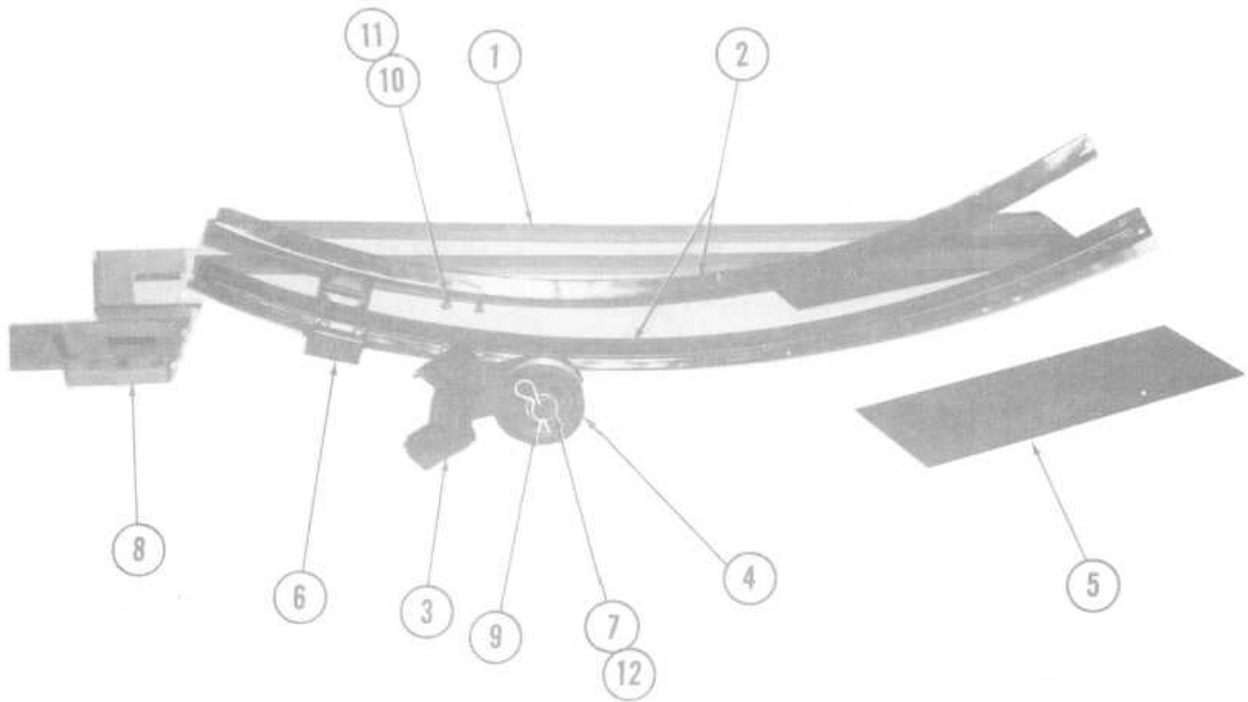
<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
1	190 001 305	V Guide Flat Belt
2	190 001 338	Bracket, R.H.
3	190 001 339	Bracket, L.H.
4	190 001 345	Idler Assembly
5	190 001 356	Spacer
6	190 001 357	Shaft
7	190 001 358	Pin
8	190 001 364	Link Assembly
9	190 001 490	Bearing
10	190 001 572	Pulley Assembly
11	208 110 003	Pulley, Nylon
12	809 865 205	Screw, Hex Hd. 3/8-16 x 1 1/4
13	809 865 325	Screw, Hex Hd. 3/8-16 x2
14	900 214 161	Flange Bearing (Link Assembly)
15	919 005 900	Retainer Ring

Refer To Price List For Minimum Order Quantity  
And Price.



<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
1	070 006 447	Spring
2	190 001 325	Motor Mount
3	190 001 359	Shaft
4	190 001 469	Plug and Cord Assembly (3 Pole Ground)
4A	190 001 569	Plug and Cord Assembly (Twistlock Plug)
5	190 001 571	Fulley
6	208 111 174	Round Belt, 42 5/8" Lg. (Not Illustrated)
7	000 021 276	Plug (3 Pole Ground)
7A	754 020 312	Plug (Twistlock)
8	000 022 068	Motor 1/4 HP. 115 V-60 Cycle
9	746 001 016	Connector #3302
10	807 357 060	SCR. Soc. B&G KN. CP PT 5/16-18 x 3/8
11	809 857 165	Screw, Hex Hd. 5/16-18 x 1
12	844 057 002	Lock Nut Stover 5/16-18
13	900 210 161	Flange Bearing
14	948 761 112	Washer 11/32 I.D.

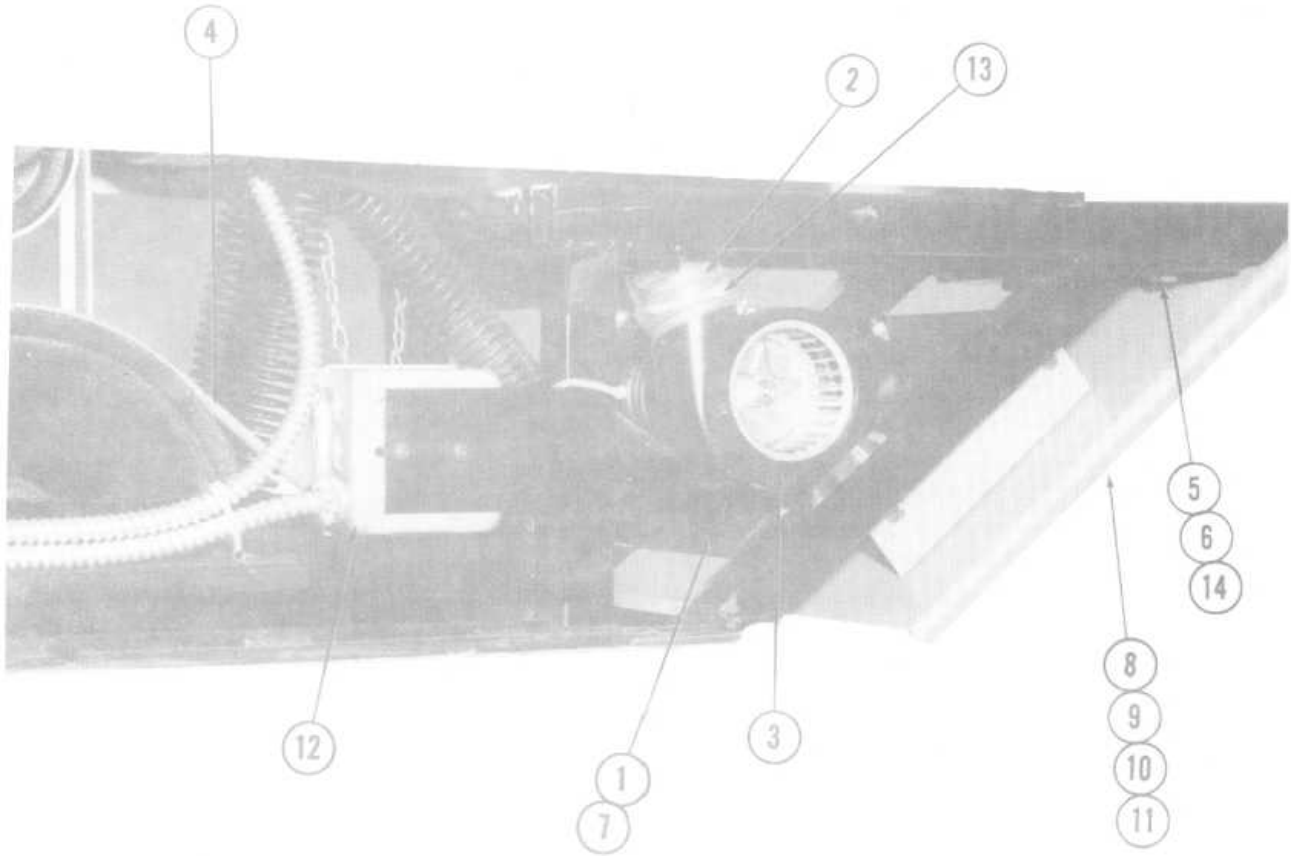
Refer To Price List For Minimum Order Quantity  
And Price.



<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
1	190 001 314	Cushion, Track
2	190 001 318	Track
3	190 001 335	Bracket Mount
4	190 001 345	Idler Assembly
5	190 001 430	Ball Guide
6	190 001 432	Bracket Mount
7	190 001 490	Bearing
8	208 111 172	Track Plate Weldment
9	718 001 010	Hair Pin
10	809 865 165	Screw, Hex Hd. 3/8-16 x 1
11	839 665 002	Lock Nut 3/8-16
12	919 005 900	Retainer Ring

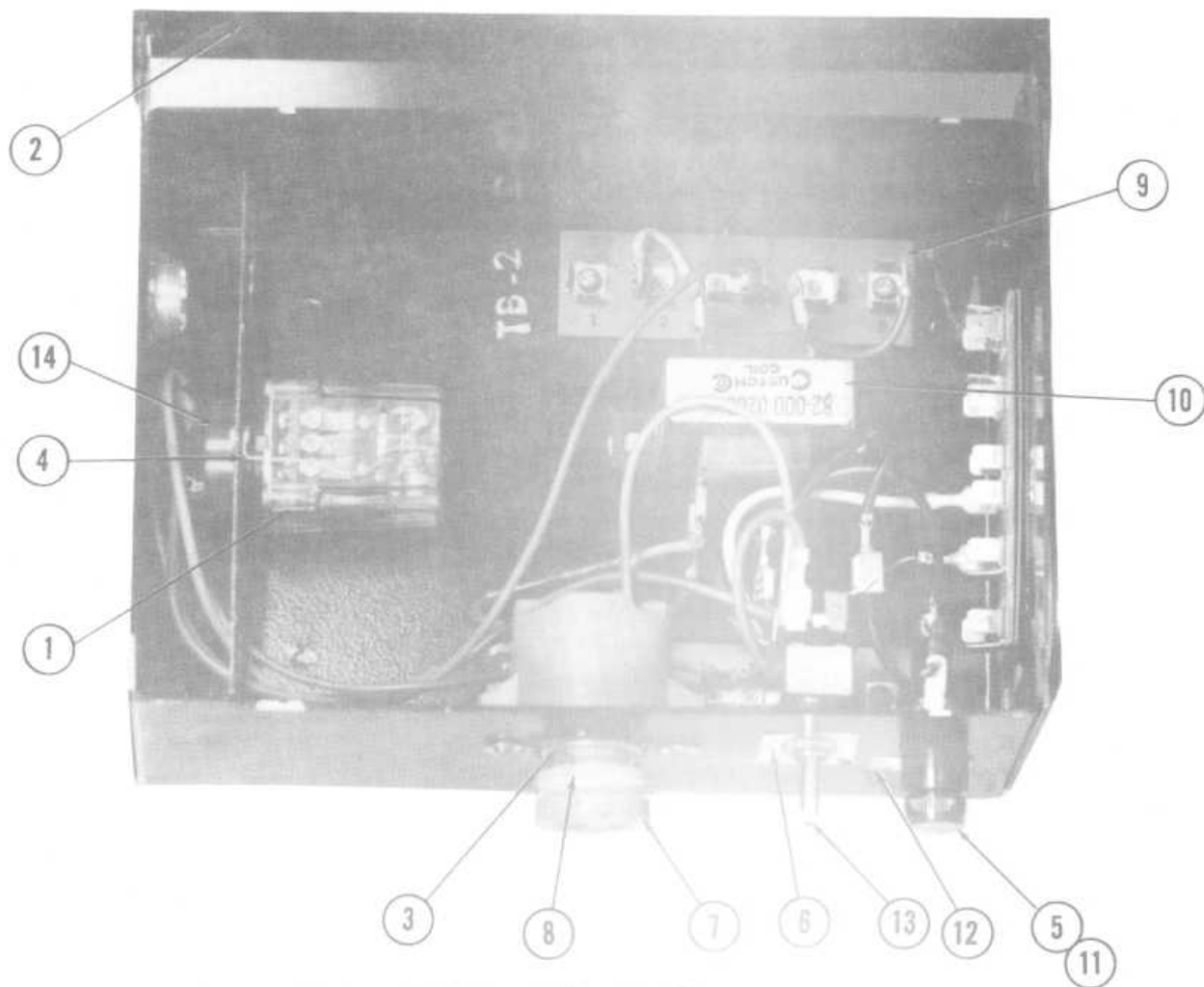
Refer To Price List For Minimum Order  
Quantity And Price.





<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
1	146 004 706	Bracket Blower
2	208 111 031	Blower Hose
3	208 111 170	Blower Motor Assembly
4	208 111 174	Round Belt (42 5/8" Long)
5	000 021 784	1/16 Thick Slotted Tray Adjusting Washers (Not Shown)
6	000 021 787	1/4 Thick Tray Adjusting Washers (Not Shown)
7	000 029 892	Clamp
8	612 081 051	End Cap, Blue
9	612 081 052	End Cap, Red
10	612 081 053	End Cap, Charcoal
11	612 081 054	End Cap, Green
12	755 010 304	Receptacle (Not Shown)
13	770 011 010	Ty Clamp
14	809 873 280	1/2-13x1 3/4 Screw Hex Hd.

Refer To Price List For Minimum Order Quantity  
And Price.

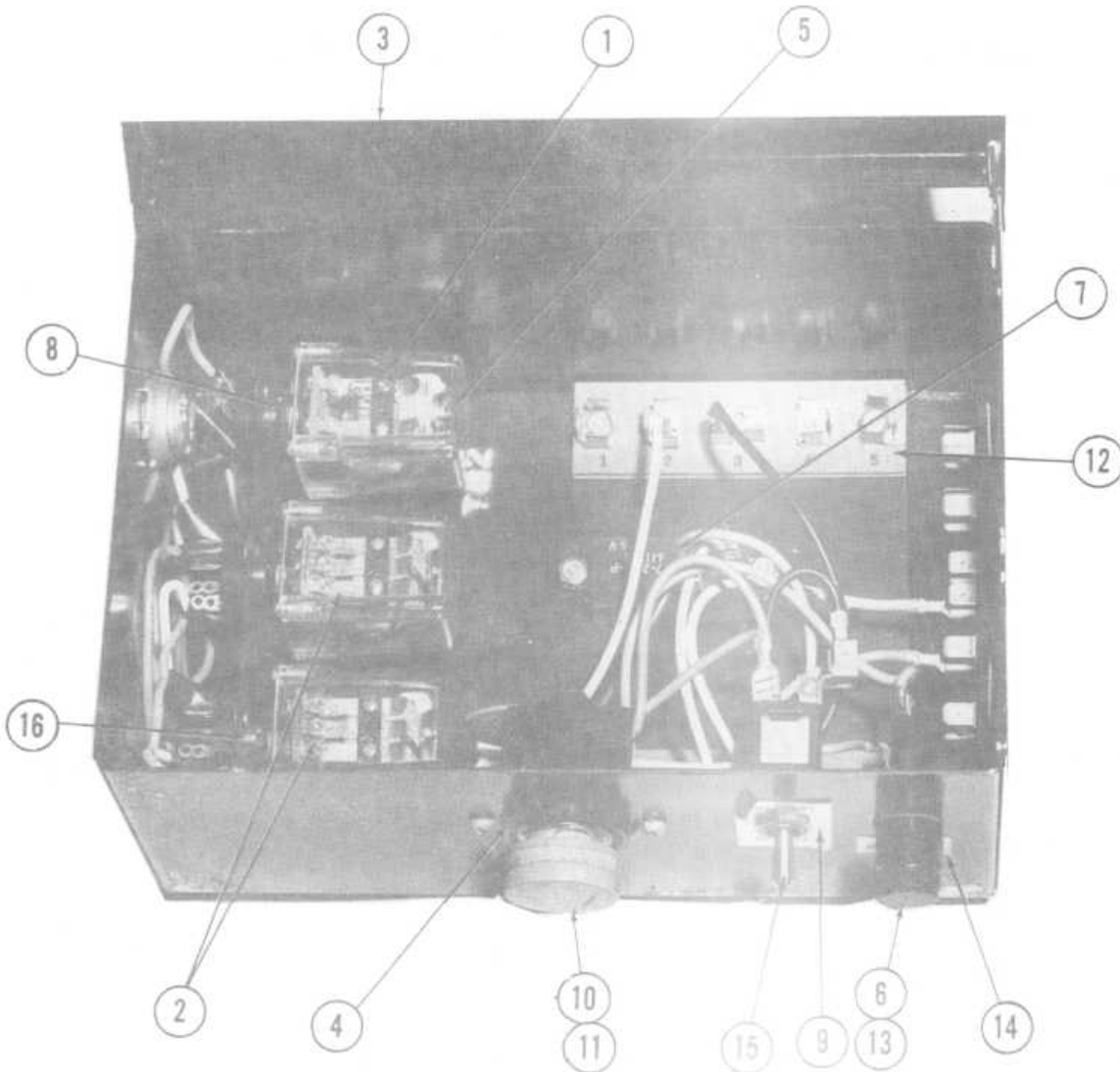


CONTROL BOX ASSY. 208 111 164

FOR USE WITH 82-70 MACHINES

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
1	057 001 229	Relay 24 V.
2	190 001 555	Warning Decal (See Lid, Not Shown)
3	190 001 557	Receptacle
4	190 001 558	Spring, Relay Retainer
5	000 021 048	Fuse 2 1/2 Amp.
6	000 021 648	Decal (Auxiliary Terminal)
7	000 022 093	Fuseholder 1/2 Amp.
8	000 022 121	Fuse Adapter
9	000 025 871	Terminal Board
10	000 026 836	Transformer
11	000 029 010	Fuse Post
12	000 029 127	Decal Fuse 1 1/2 Amp.
13	000 029 857	Auxiliary Switch
14	757 005 003	Socket, 11 Pin

Refer To Price List For Minimum Order Quantity  
And Price.



CONTROL BOX ASSY. 208 111 165

FOR USE WITH 82-30 MACHINES

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
1	057 001 228	Relay K3 110 V.
2	057 001 229	Relay K1-K2 24 V.
3	190 001 555	Warning Decal (On Lid-Not Shown)
4	190 001 557	Receptacle
5	190 001 558	Spring, Relay Retainer (Not Shown)
6	000 021 048	Fuse 2- $\frac{1}{2}$ Amp.
7	000 021 222	Thermal Relay
8	000 021 344	Socket 8 Pin
9	000 021 648	Decal (Auxiliary- Normal)
10	000 022 093	Fustat 10 Amp.
11	000 022 121	Fuse Adapter
12	000 025 871	Terminal Board
13	000 029 010	Post, Fuse Extractor
14	000 029 127	Decal Fuse 2 $\frac{1}{2}$ Amp.
15	000 029 857	Auxiliary Switch
16	757 005 003	Socket 11 Pin

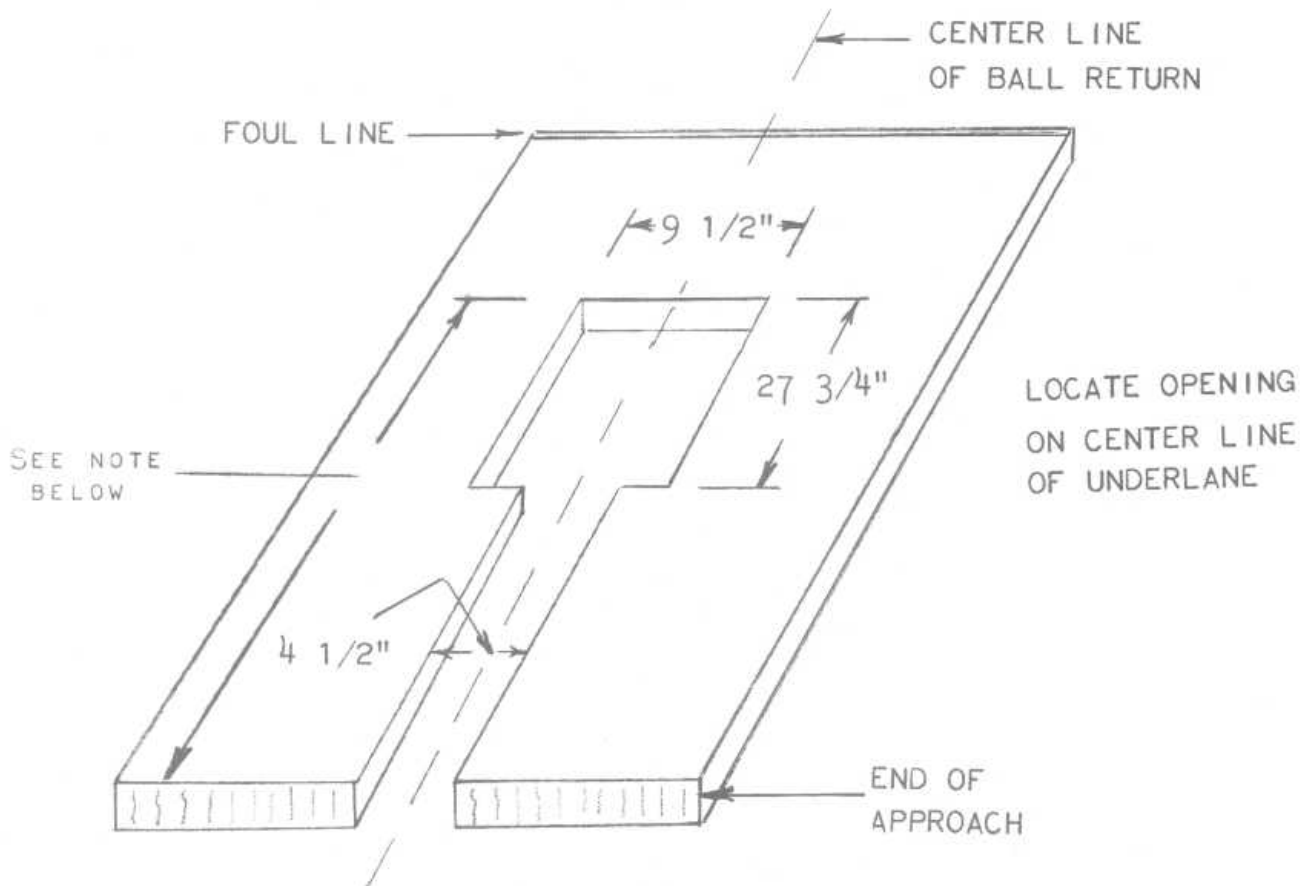
Refer To Price List For Minimum Order Quantity  
And Price.

# Installation Instructions

APPROACH LAYOUT FOR 208 110 000 "SURE PIK"

AND

208 111 200 "SURE PIK"



NOTE: Use 50" DIMENSION FOR 11 BALL MODEL 208 110 000  
Use 59" DIMENSION FOR 12 BALL MODEL 208 111 200

## INSTALLATION

FOLLOW PROCEDURE OUTLINED ON DRAWING 612 080 002 FOR INSTALLATION OF UNDERLANE TRACK. (REFERENCE NOTE: SEE AMF ARCHITECTURAL DRAWING 82-049 004 200, SHEET 6, FOR ELECTRICAL OUTLET LOCATION.) REFERENCE IS ALSO TO BE MADE TO PRINT 612 080 002 FOR LOCATING, SECURING AND SHIMMING THE SURE PIK.

## LUBRICATION

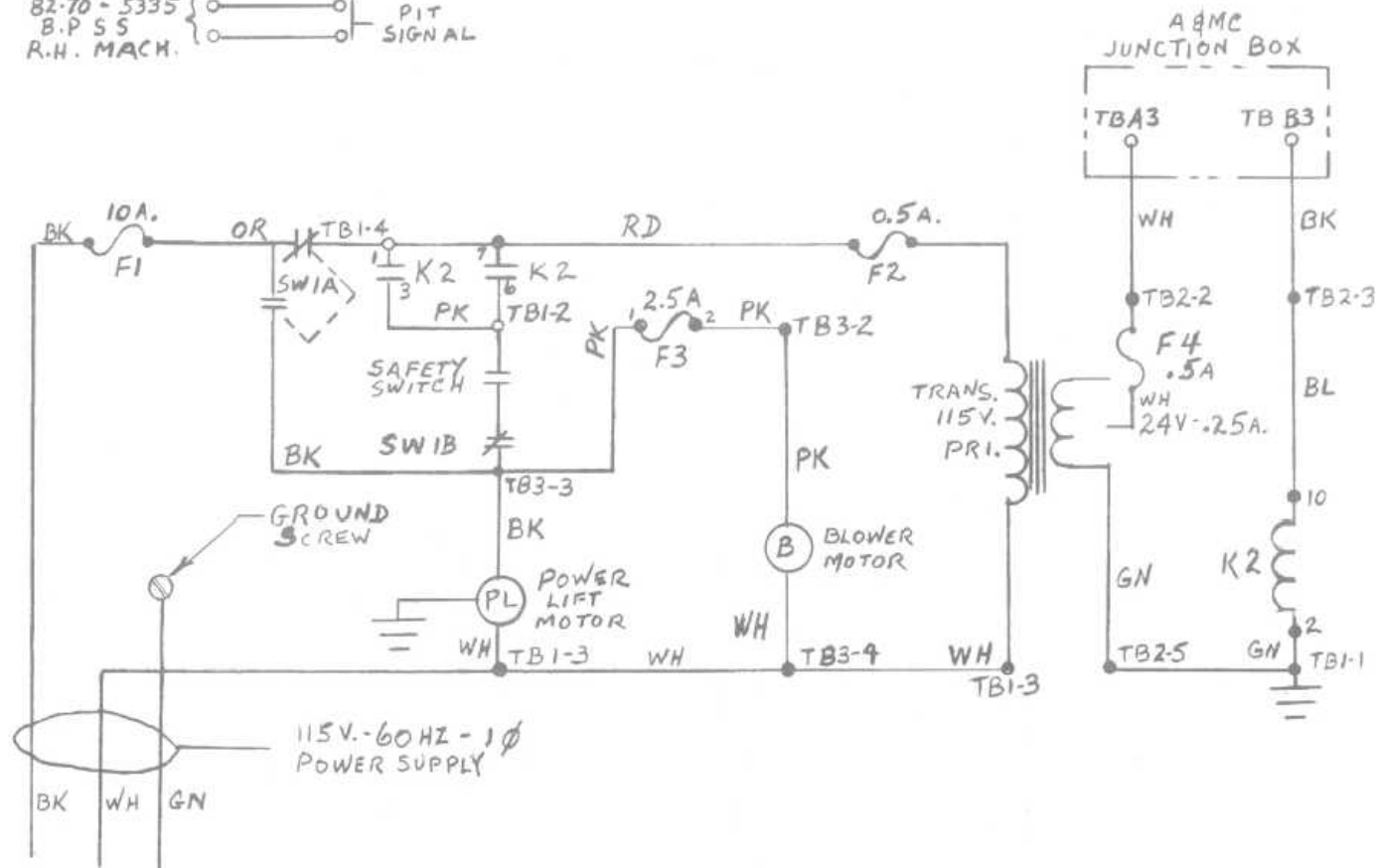
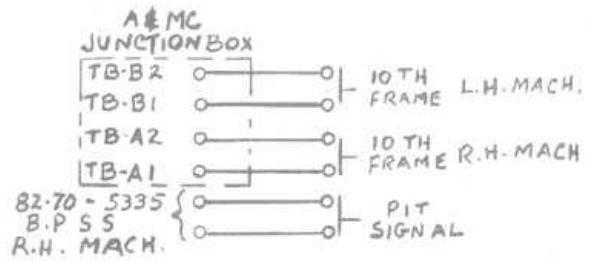
THE BEARINGS OF THE POWER LIFT MOTOR AND HAND DRYER MOTOR SHOULD BE LUBRICATED ONCE EVERY 6 MONTHS, USING SAE #10 MOTOR OIL.

## GENERAL

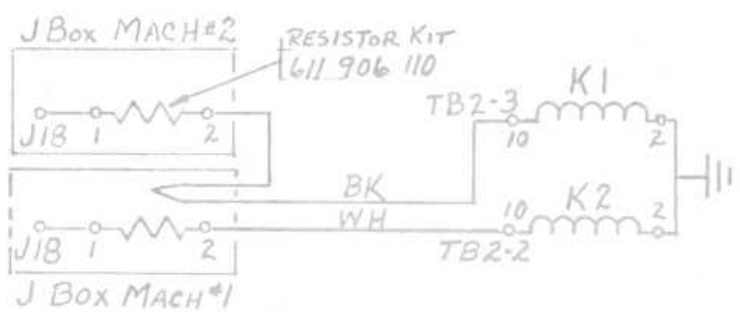
THE HOOD IS SECURED TO THE BODY OF THE BALL RETURN BY FOUR SLOTTED HEAD, 1/4 TURN FASTENERS, TWO ARE LOCATED AT EACH SIDE OF THE RETURN BELOW THE TRAY OR BALL STORAGE AREA. THE HOOD CAN EASILY BE REMOVED BY LOOSENING THE FASTENERS AND ROLLING THE HOOD ASSEMBLY TOWARD THE FOUL LINE. THIS WILL PROVIDE ACCESS TO THE CONTROL BOX, DRIVE MOTOR AND HAND DRYER MOTOR.

A SAFETY SWITCH IS PROVIDED FOR PROTECTION AGAINST INJURY. IT IS LOCATED BENEATH THE METAL HINGED DOOR OF THE COVER ASSEMBLY AT THE FORWARD PART OF THE TRAY, WHERE THE BALL EXITS FROM THE CHECK. BY OPENING THE DOOR, IT WILL ACTU-  
ATE THE SWITCH AND CUT OFF THE POWER TO THE DRIVE MOTOR. THE DOOR MUST BE IN THE CLOSED POSITION FOR THE UNIT TO OPERATE.

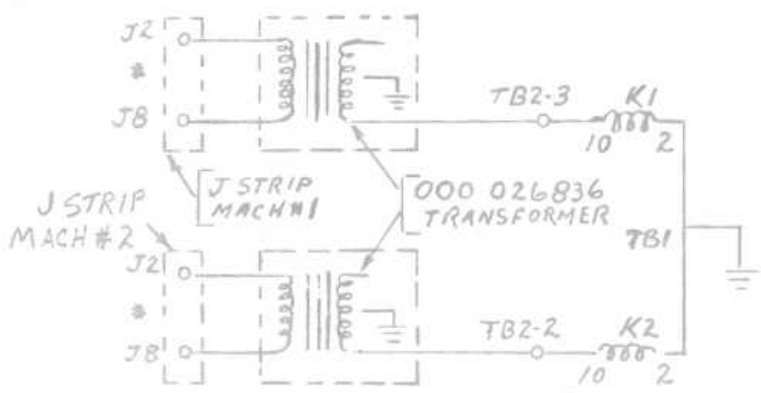
AN AUXILIARY SWITCH IS ALSO PROVIDED AT THE CONTROL BOX, WHICH PERMITS OPERATING THE UNIT IN AN EMERGENCY, IF THE ELECTRICAL COMPONENTS OF THE CONTROL BOX MALFUNCTION DURING LEAGUE PLAY.



SCHEMATIC WIRING DIAGRAM  
FOR 82-70 MACHINES  
REF. 208 100 002

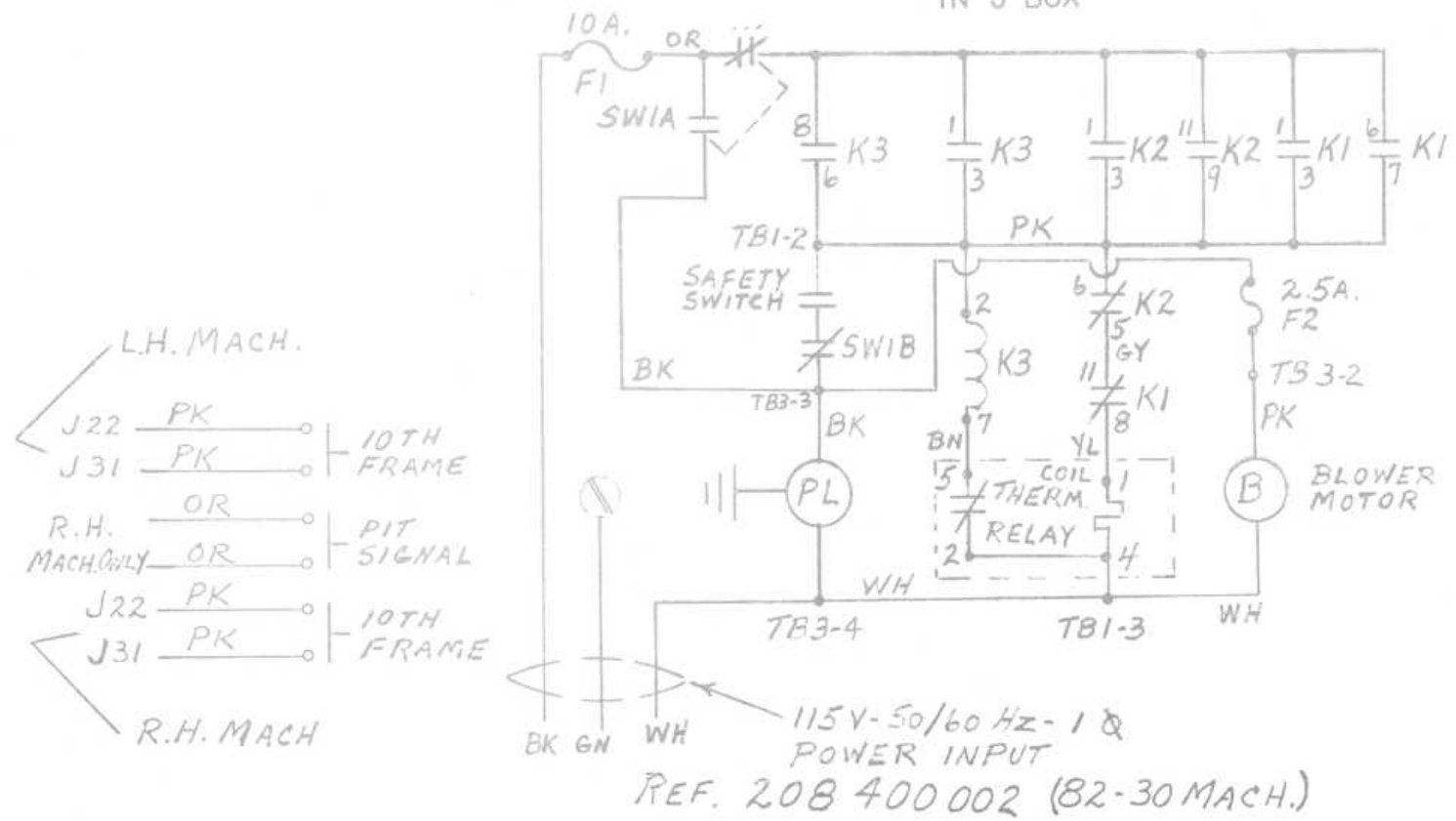


FOR MACHINES AFTER  
SERIAL NUMBER 42,000



\* USE J30 & J39 FOR 4400 MACHINES ONLY

USE J2 & J8 FOR MACHINES PRIOR TO  
SERIAL NUMBER 42,000 WITHOUT 32 V.A.C.  
IN J BOX

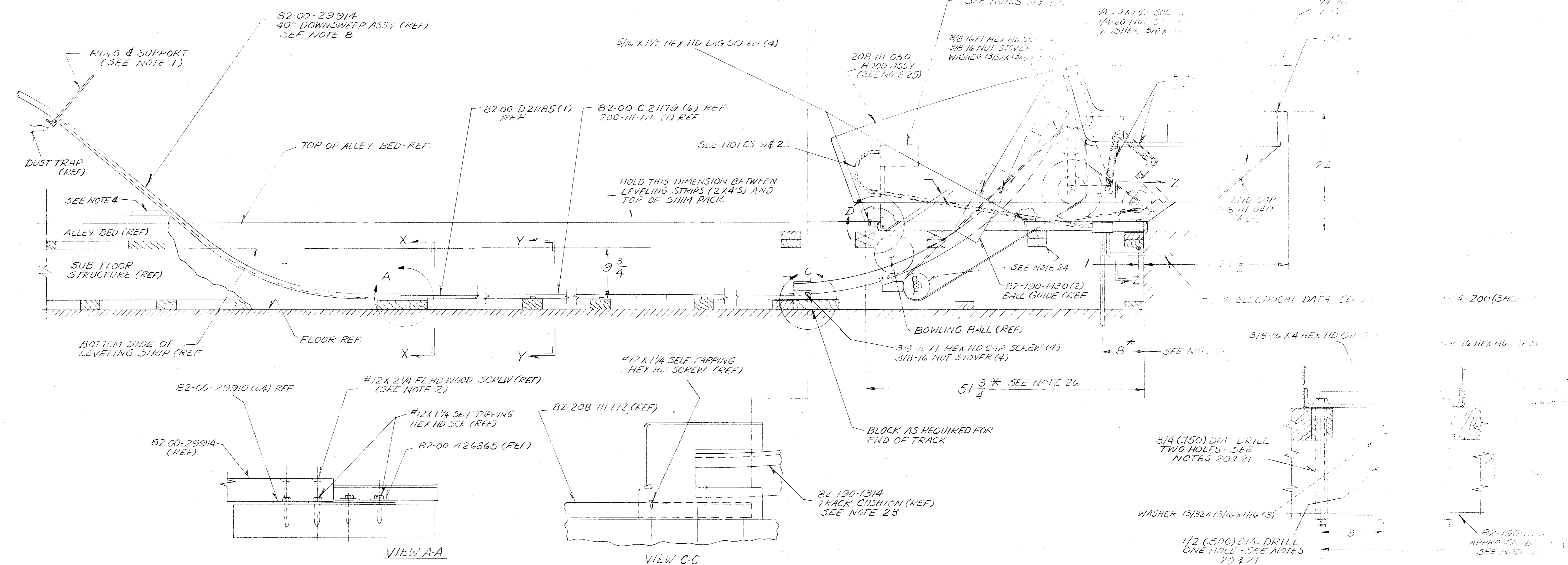
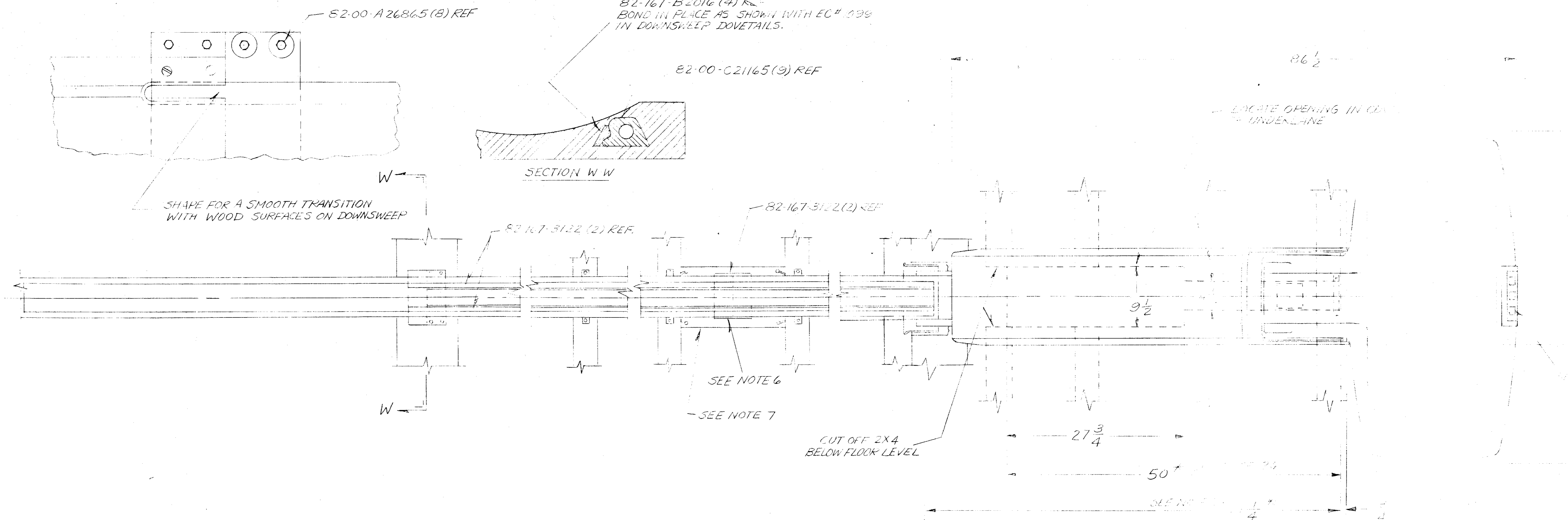


#### WARRANTY

"THE SELLER WARRANTS THAT THIS PRODUCT WILL BE FREE FROM DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF THREE MONTHS AFTER DATE OF PURCHASE. SHOULD ANY DEFECT IN MATERIAL OR WORKMANSHIP APPEAR DURING SUBJECT THREE MONTH PERIOD, THE DEFECT WILL BE REPAIRED OR REPLACED AT SELLER'S OPTION WITHOUT CHARGE TO THE PURCHASER.

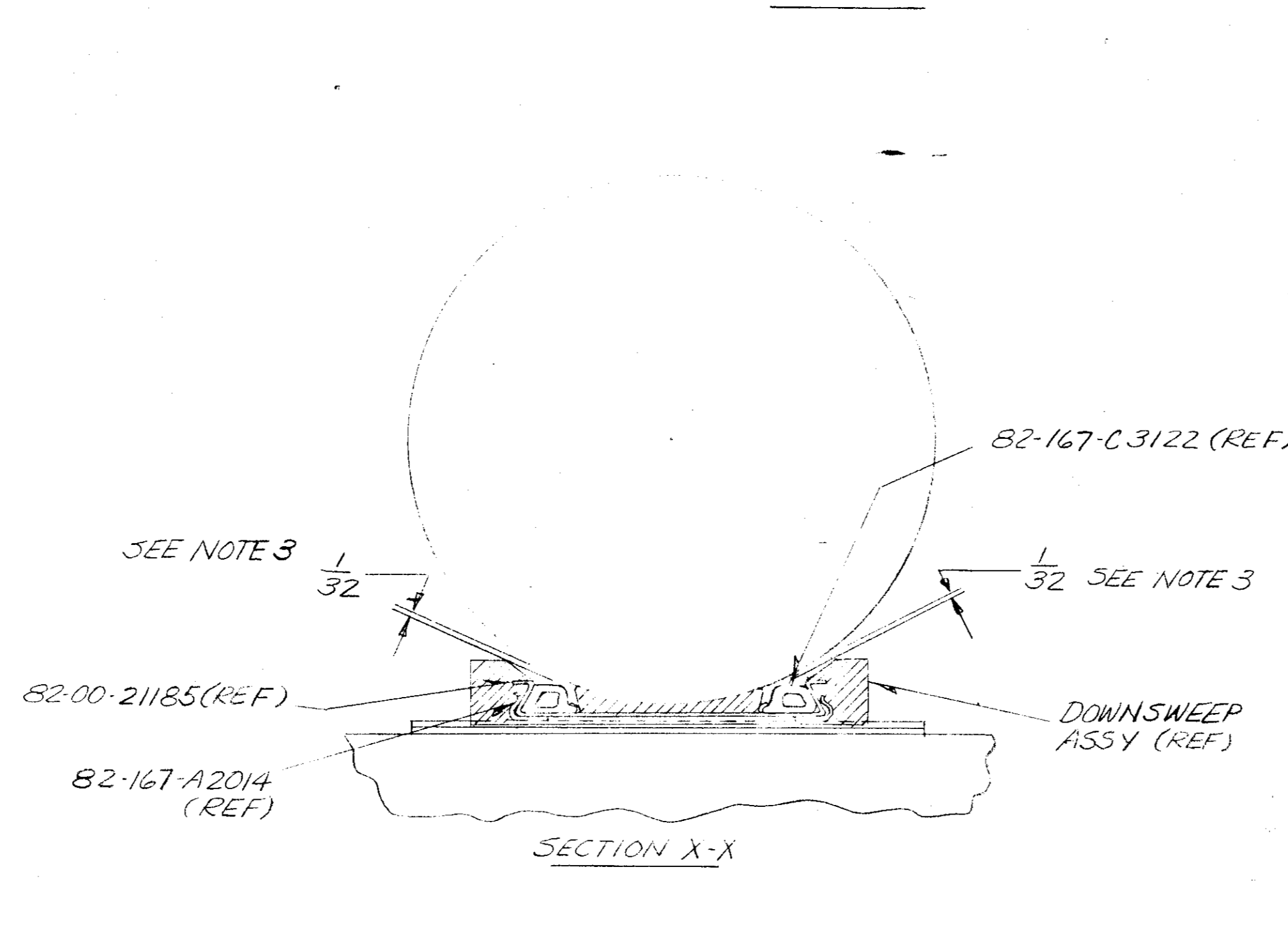
SELLER FURTHER WARRANTS THAT ALL PARTS WILL BE FREE FROM DEFECTS FOR NINE MONTHS FOLLOWING THE INITIAL THREE MONTH WARRANTY PERIOD. PARTS WHICH BECOME DEFECTIVE DURING SUBJECT NINE MONTH PERIOD WILL BE REPAIRED OR REPLACED AT SELLER'S OPTION WITHOUT CHARGE TO THE PURCHASER FOR THE PARTS, PROVIDED THE PURCHASER PAYS FOR ALL OTHER COSTS INVOLVED FOR MAKING SUBJECT REPAIR OR REPLACEMENT."





- 9. FOR POWER SUPPLY OF BALL RETURN, SEE FLOOR OUTLET DWG. 82-49-E4200 (SHEETS 5 & 6)
- 8. CHECK CURVATURE OF DOWNSWEEP WITH TOOL 82-30-ST3580
- 7. ADD ADDITIONAL SUPPORTS, TOENailed TO EXISTING 2X4'S, WHEN A TRACK JOINT FALLS BETWEEN 2X4'S.
- 6. REMOVE A PORTION OF THE TRACK AT A JOINT TO SUIT INSTALLATION ON TOTAL TRACK LENGTH.
- 5. LAY 2X4'S CENTERED BETWEEN SLEEPERS. SECURELY ANCHOR TRACK TO EACH SLEEPER # 2X4 WITH 82-00-21186 AND #12X1 1/4 SELF-TAPPING HEX HD SCREWS. IT IS EXTREMELY IMPORTANT THAT ENTIRE TRACK IS LEVEL AND FREE FROM JOGS OR UNEVEN JOINTS. SHIM AS REQUIRED TO OBTAIN 9 3/4 IN. DIM.
- 4. SECURELY FASTEN DOWNSWEEP TO ELIMINATE ANY SIDE MOTION OR BOUNCE. ADD ADDITIONAL BRACE AS SHOWN.
- 3. SHIM THE DOWNSWEEP SO IT IS 1/2 IN. HIGHER THAN VINYL TRACK.
- 2. REMOVE SHIPPING HARDWARE FROM DOWNSWEEP. INSTALL 2X4 AS BASE AND SECURE DOWNSWEEP TO BASE WITH #12 X 2 1/4 FL. HD. WOOD SCREWS.
- 1. SEE 82-30-R4100 FOR INSTALLATION OF RING, SUPPORT & DUST TRAP.

- 26. THE BALL RETURN MAY BE MOVED A MAX. OF 12 IN. FORWARD ON THE APPROACH, PROVIDING THE APPROACH IS 16 FEET LONG. WHEN MOVING THE BALL RETURN, ALL DIMENSIONS DESIGNATED BY ASTERISK MUST BE CHANGED ACCORDINGLY.
- 25. DO NOT UNPACK COLOR ITEMS (HOOD ASSY AND END CAP) UNTIL READY TO ASSEMBLE, TO AVOID SCRATCHING.
- 24. SURE PIK BELT MUST HAVE CLEARANCE IN KEYWAY OPENING OF APPROACH AND CLEARANCE AT BOTTOM SHEAVE.
- 23. 82-190-1314 TRACK CUSHION LENGTH SHOULD BE COMPRESSED 3/8 IN. AFTER INSTALLATION. WITH LOWER END OF 82-190-1314 IN POSITION, CUT UPPER END LONGER THAN UPSWEEP TRACK.
- 22. FOR CONNECTING SWITCHES AND CONTROL BOX TO POWER SUPPLY, SEE WIRING DIAGRAM 82-208-100-001 FOR 82-70 MCH AND 82-208-440-001 FOR 82-50 MCH.
- 21. LOCATE MOD IV 208 BALL RETURN ASSY. ON CENTER OF UNDERLATE AND SECURE WITH 3/8-16 X 6 (2) HEX HD. SCREW, WASHER 13/32 X 13/16 X 1/16 (2) AND 5/16 X 1 1/2 (4) HEX HD. LAG SCREW.
- 20. DRILL ONE 1/2 (.500) DIA. HOLE AND TWO 3/4 (.750) DIA. HOLES THRU APPROACH SURFACE AND SUPPORTING 2X4'S, AS SHOWN IN SEC. 2-2. INSTALL APPROACH BRACKET WITH 3/8-16 X 4 HEX HD SCREW (1), AND WASHER 13/32 X 13/16 X 1/16 (1).



**RECORD DRAWING**  
 LAST EFFECTIVE ON J. O. NO. \_\_\_\_\_  
 LAST EFFECTIVE ON SERIAL NO. \_\_\_\_\_  
 FOR NEW DRAWING SEE NO. **REV-A**

DRS-1555 88 7-24-73

ITEM	SIZE	PART NO.	REQD.	DESCRIPTION
DO NOT SCALE DWG.	SCALE	DATE	DRAWN	CHECKED
DIMENSION UNITS UNLESS OTHERWISE SPECIFIED ARE EQUALS PLUS OR MINUS .05 XXX EQUALS PLUS OR MINUS .05 XXX EQUALS PLUS OR MINUS .05 ANGULAR °	MATERIAL SPEC.	MAT. SIZE OR PART NO.	CLASS	DIV.
APPROVED	PART NAME	DATE	CLASS	DIV.
APPROVED	DATE	CLASS	DIV.	DWG. NO.
APPROVED	DATE	CLASS	DIV.	DWG. NO.